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APR - JUN 1913

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XCIX.

APRIL 1 TO JUNE ²⁴, INCLUSIVE,

1902.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1902.

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ERRATA.

666,702, page 127, in heading, assignment, for "assignor to himself, and Franklin K. Young and Michael P. Curran, Trustees," read *assignor to himself, Franklin K. Young, and Michael P. Curran, Trustees.*

667,589, page 509, in heading, title of invention, for "Electric Fan" read *Electric Motors.*

668,402, page 843, in heading, assignment, name of assignee, for "Steam Carriage Boiler Company" read *Steam Carriage Boiler Company.*

666,541, page 913, in heading, title of invention, for "Index-Card for Duplicate Whist" read *Index-Cards for Duplicate Whist.*

668,761, page 1015, in heading, date of filing application, for "Aug. 6, 1901," read *Aug. 6, 1900.*

669,818, page 1402, in heading, patent number, for "669,818" read *699,818.*

701,450, page 2109, in heading, residence of patentee, for "North Manchester, England," read *Eccles, near Manchester, England.*

701,948, page 2373, second claim, line 2, for the article "an" read *in.*

702,208, page 2496, in heading, title of invention, for "Playing-Card" read *Playing-Cards.*

702,399, page 2608, first claim, line 1, for the word "sort" read *source.*

702,371, page 2524, in heading, after residence of patentee, insert *assignor to The Wolf Electrical Promoting Company of Cincinnati, Ohio, a Corporation of Ohio.*

702,378, page 2528, in heading, assignment, name of assignee, for "Bertha E. Ranzel" read *Bertha E. Ranzel.*

702,473, page 2589, in heading, for the words "(No model.)" read *(Model.)*

702,617, page 2646, first claim, line 9, for the word "levers" read *leaves.*

702,125, page 2606, in heading, title of invention, for "Insulating Electric Conductor" read *Insulating Electric Conductors.*

702,358, page 2961, eighteenth claim, line 4, for the word "mold" read *frame*; page 2952, fortieth claim, line 1, for the word "grooves" read *groove*, and page 2953, forty-seventh claim, line 5, for the word "can" read *dam.*

28,106, (trade-mark,) page 658, in heading, name of registrant, for "The Goldsmith, Joseph Fels Co." read *The Goldsmith, Joseph, Fels Co.*

28,257, (trade-mark,) page 2006, claim, last line, date of use, for "January 1902" read *January 1901.*

Commissioner's Decisions, page 448, second column, line 23 from bottom of the page, for "94 O. G., 147" read *84 O. G., 147.*

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OF THE

UNITED STATES PATENT OFFICE.

APRIL-JUNE, 1902.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

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Total issue	696

TO CITIZENS OF THE UNITED STATES.

State.	Patents and Designs.	Trade-Marks, Labels, and Prints.	State.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	1	Nebraska	5	1
Alaska Territory	1	1	Nevada	1	1
Arizona Territory	1	1	New Hampshire	1	1
Arkansas	1	1	New Jersey	22	1
California	17	1	New Mexico Territory	1	1
Colorado	4	1	New York	28	21
Connecticut	13	3	North Carolina	3	1
Delaware	1	1	North Dakota	1	1
District of Columbia	4	1	Ohio	21	3
Florida	1	1	Oklahoma Territory	1	1
Georgia	3	1	Oregon	1	1
Hawaii Territory	1	1	Pennsylvania	21	9
Idaho	1	1	Rhode Island	1	1
Illinois	45	6	South Carolina	1	1
Indian Territory	1	1	South Dakota	1	1
Indiana	11	1	Tennessee	5	1
Iowa	3	1	Texas	11	3
Kansas	3	1	Utah	1	1
Kentucky	4	1	Vermont	1	1
Louisiana	2	1	Virginia	4	1
Maine	2	1	Washington	5	1
Maryland	1	1	West Virginia	5	1
Massachusetts	25	1	Wisconsin	12	3
Michigan	15	1	Wyoming	1	1
Minnesota	9	1	U. S. Army	1	1
Mississippi	3	1	Total to citizens of the United States	475	70
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Montana	1	1			

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Austria-Hungary	1	1	Netherlands	1	1
Barbados	1	1	Newfoundland	1	1
Belgium	1	1	New South Wales	1	1
Bermuda	1	1	New Zealand	1	1
Brasil	1	1	Norway	1	1
Canada	13	2	Peru	1	1
Cape Colony	1	1	Queensland	1	1
Chile	1	1	Rumania	1	1
China	1	1	Scotland	1	1
Colombia	1	1	South Africa	1	1
Cuba	1	1	Spain	1	1
Denmark	1	1	South Australia	1	1
Egypt	1	1	Sweden	1	1
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Haiti	1	1	Total to citizens of foreign countries	71	8
India	1	1			
Ireland	1	1			
Italy	1	1			

Classification Bulletin.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 11, 1902.

Orders revising classification will be published as a CLASSIFICATION BULLETIN. The first issue of this BULLETIN forms No. 5 of a series of which the preceding numbers appeared in Vols. 91, 92, 93, and 97 of the OFFICIAL GAZETTE.

These BULLETINS are sold by the Office at ten cents per copy.
F. I. ALLEN,
Commissioner.

Prohibiting Changes in Office Papers.

(ORDER NO. 1,424.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 4, 1902.

It is hereby ordered that no erasures be made or any note, interlineation, or other mark in pencil or otherwise, except by formal amendment duly signed, in the body or written portions of the specification or of any other paper filed in an application for patent.

It is further directed that no change be made by any person in any record of this Office without the written approval of the Commissioner of Patents.

Attorneys, employees of the Patent Office, and all others will be held to strict accountability for any violation of this order.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 25, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
In arrears—Under one month.				
217	XXXIII. *DESIGNS, TRADE-MARKS, LABELS AND PRINTS, Optics, and Photography.	Mar. 7	Mar. 13	62
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213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Feb. 26	Mar. 11	208
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80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Feb. 26	Mar. 8	270
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126	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes and Toilets.	Feb. 20	Mar. 6	191
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Total number of applications awaiting action.....2,573

Under one month.

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‡ Labels and Prints	Mar. 15	Mar. 15	22

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

- Electrical World and Engineer*, a weekly digest of electrical articles.
- Engineering Digest*, a monthly title-index of engineering articles in the English language only.
- Journal of the United States Artillery*, a bimonthly title-index of current artillery literature.
- Railroad Digest*, a monthly synopsis of universal railroad literature.
- School of Mines Quarterly*, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.
- Science Abstracts*, physics and electrical engineering. Monthly abstracts of the principal articles on physics published in the American and foreign journals.

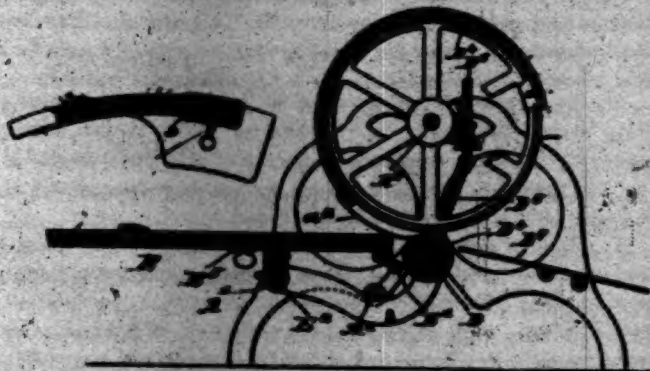
Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

PATENTS

GRANTED APRIL 1, 1902.

696,893. STENCIL-PRINTING MACHINE. JAMES A. ANGLER.
Hatch, Mass. Filed June 20, 1900. Serial No. 31,404. (No model.)



Claim.—1. In a stencil-printing machine, a carrier having a substantially imperforate supporting-surface, an ink-holding pad composed of a thick blanket adapted to be saturated to retain a comparatively large quantity of ink, and supported by said surface, a stencil-sheet superposed on said pad and formed of textile material, the pad when subjected to pressure delivering its ink through the stencil-sheet.

2. In a stencil-printing machine, a carrier, a connected pad-holder having a substantially imperforate surface to receive a pad adapted to be saturated with ink, said pad when subjected to pressure delivering ink to a stencil-sheet, said stencil-sheet being formed of textile material and superposed on said pad.

3. In a stencil-printing machine, a carrier, a pivoted pad-holder having a pad-holding chamber and mounted on said carrier, and locking means to confine said carrier in working position.

4. In a stencil-printing machine, a carrier, a pad adapted to be saturated with ink and a pivoted pad-holder having an imperforate supporting-surface to contain said pad and means for connecting said pad to said holder.

5. In a stencil-printing apparatus, a pad adapted to be saturated with ink, means to hold one end of said pad in fixed position, and a device located at the opposite end of said pad to enable the same to be stretched uniformly when the pad is being applied to the apparatus.

6. In a stencil-printing machine, a carrier having an imperforate supporting-surface, a saturated pad cooperatively connected therewith and a stencil-sheet formed of textile material, a frame having slotted bearings, and a roller having its journals entering said bearings, means connecting with said journals to support said roller and frame yieldingly, said roller rolling over the outer surface of the sheet being printed forcing it against the stencil-sheet on said pad depressed by said frame moving the roller away from the path of movement of said pad.

7. In a stencil-printing machine, a suitable rotative carrier, a connected pad-holder and stencil-sheet support, a suitable cam movable with said carrier, a sheet-delivery table, a roller depressed intermittently by the direct contact of the cam of the carrier therewith to enable the leading end of the sheet about to be printed to be fed between the roller and the leading end of the movable pad-holder, and means to move said roller and cause it to impinge the paper to be printed between itself and said pad-holder, said roller cooperating with said pad-holder to feed and effect the printing of the sheet and its delivery from the machine.

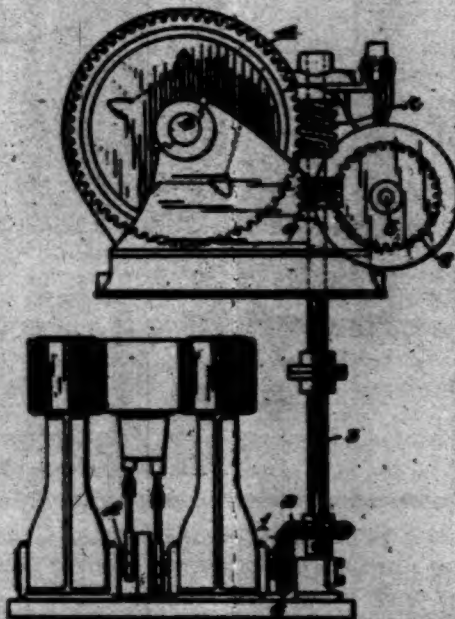
8. A stencil-sheet composed of woven material coated with a substance impervious to ink and capable of being stretched or distorted to enable ink to pass through the stencil-sheet and imprint the stencil characters upon paper, and an attached body layer upon which the sheet is mounted and a backing to said body layer to prevent stretching.

9. A stencil-sheet composed of a thin textile fabric coated with a substance impervious to ink, a body layer of soft absorbent material reinforcing said sheet to prevent stretching thereof, and an ink-holding pad on which said body layer of absorbent material and stencil-sheet are superposed.

10. In a stencil-printing machine, a carrier having an imperforate supporting-surface, an ink-holding pad movable therewith and composed of a thick blanket adapted to be saturated with a comparatively large quantity of ink, means to contain the pad on the supporting-surface of the carrier, the pad containing at its outer side a stencil-sheet, and means to contain the sheet to be printed upon, the pad when subjected to pressure during the action of printing delivering its contained ink through the stencil-sheet.

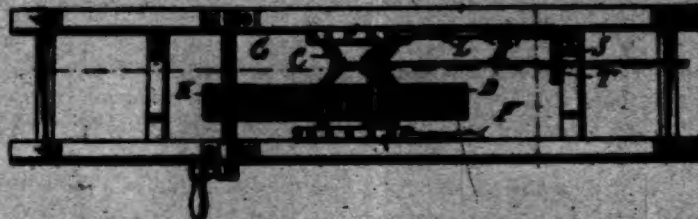
11. In a stencil-printing machine, a carrier having a substantially imperforate supporting-surface, an ink-holding pad movable therewith and composed of a thick blanket adapted to be saturated with a comparatively large quantity of ink, means to contain the pad at the exterior of the carrier, the pad containing at its outer side a stencil-sheet, a sheet of textile material interposed between the pad and the stencil-sheet, and means to contain the sheet to be printed upon, the pad when subjected to pressure during the action of printing delivering its contained ink through the stencil-sheet.

696,894. COMBINED WINDLASS AND WARPING-WINCH. JACOB R. ANDERSON, Bath, Me. Filed Jan. 20, 1902. Serial No. 31,369. (No model.)



Claim.—In combination with the windlass and the worm-gear upon its shaft, a shaft as 3 having a worm 10 in mesh with the gear upon the windlass-shaft, a second worm 9 on the same shaft, a shaft 6 carrying winch-heads and provided with a worm-gear 8 in mesh with the second worm on the main driving-shaft 3, all substantially as described.

696,895. WIRE STRETCHER AND CUTTER. JAMES A. ANDERSON.
Baldwin, Kans. Filed Dec. 10, 1901. Serial No. 30,140. (No model.)

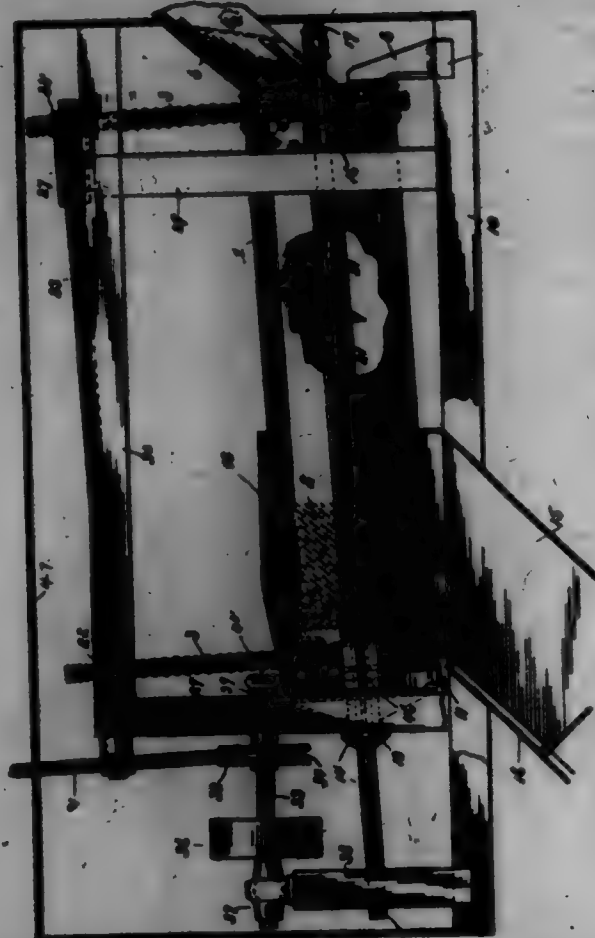


Claim.—1. A wire stretching and cutting apparatus, comprising in combination with a frame, a shaft journaled thereon, a reel on said shaft, a ratchet-wheel rotating with said reel, a stationary and a pivoted shearing-blade, an angle-lever for tilting said pivoted shearing-blade, a long-

radially-movable bar pivoted at one end to said angle-lever and a pawl hinged to said bar and adapted to engage said ratchet-wheel and means for rotating the reel on which a wire is designed to be wound the tension of which is adapted to estimate the pivoted shearing-blade, as set forth.

2. An apparatus for stretching and cutting wire, comprising in combination with the frame, a shaft journaled therein, a ratchet-wheel and pawl engaging the same, geared wheels and means for rotating the shaft, a fixed shearing-blade, fastened to the frame, a pivoted blade, mounted on the frame and adjacent to said fixed blade, an angle-lever pivoted to the frame and having one end positioned underneath said pivoted shearing-blade, a sliding link pivoted at one end to said angle-lever, a pawl hinged to the other end of said link, adapted to be thrown into engagement with the teeth of the ratchet-wheel on said shaft, and a spring secured at one end, to the frame, and its other end to said link, as shown and described.

696,896. MACHINE FOR PULVERIZING AND SEPARATING LIME. OLEY M. AVERY, Chicago, Ill., assignor to the Chisholm, Boyd & White Company, a Corporation of Illinois. Filed Nov. 1, 1900. Serial No. 26,108. (No model.)



Claim.—1. In a machine for pulverizing lime, an inclined revolving barrel, having a perforate portion near the lower end thereof constituting a screen, and means for supplying steam to said barrel, in combination with a hopper beneath said perforate portion, and a removable head at the lower end of said barrel for permitting the removal of material from said barrel.

2. In a machine for pulverizing lime, an inclined revolving barrel, having a perforate portion near the lower end thereof, constituting a screen, and means for supplying steam to said barrel, in combination with a stationary head for closing the receiving extremity of said barrel, a spout connected to said head for introducing lime into said barrel, a door in said spout hinged near its upper extremity and opening inwardly toward said barrel, and means for closing the opposite extremity of said barrel.

3. In a machine for pulverizing lime, the combination of an inclined revolving barrel the lower portion whereof constitutes a screen, a pipe for introducing steam into said barrel, a hopper beneath said screen, a housing over said screen, means for introducing lime into the upper extremity of said barrel, and a removable head at the lower extremity of said barrel.

4. In a machine for pulverizing lime, the combination of a revolving barrel, means for supplying steam thereto, other means for closing the receiving extremity of said barrel, and a front head for closing the discharging extremity of said barrel, said front head being movable away from said barrel thereby permitting the removal of material therefrom.

5. In a machine for pulverizing lime, the combination of a closed

revolving barrel, means for supplying steam thereto, and means for suspending and revolving said barrel.

6. In a machine for pulverizing lime, the combination of a closed revolving barrel means for supplying steam thereto, tracks or guides encircling said barrel, chains running upon said tracks or guides and suspending said barrel, and wheels located above said barrel for suspending said chains.

7. In a machine for pulverizing lime the combination of a revolving barrel, means for supplying a heated fluid thereto, a main driving shaft, means for suspending said barrel from said shaft and friction-gears for driving said shaft.

8. In a machine for pulverizing lime, the combination of a revolving barrel, means for supplying steam thereto, a main driving-shaft, means for suspending said barrel from said shaft, friction-gears for driving said shaft, and an eccentric bearing whereby the driving friction-gear may be moved into and out of engagement with the driven friction-gear.

9. In a combined pulverizing and separating machine for lime, the combination of a vessel for receiving the lime, said vessel having a perforated portion constituting a screen or screen for permitting the escape of pulverized material, means for agitating said vessel, and means for supplying a heated fluid thereto.

10. In a pulverizer and separator for lime, the combination of a revolving barrel suitably closed at the ends, and having its axis inclined to the horizontal, a screen constituting a portion of said barrel located at the lower end thereof, a housing enclosing the screen portion of said barrel and means for supplying steam to said barrel.

11. In a pulverizer and separator for lime, the combination of a closed revolving barrel, the axis whereof is inclined, said barrel being perforated near the lower extremity thereof for screening the contents of said barrel, a housing over said perforated portion of said barrel, a second housing enclosing said barrel and said inner housing, and means for supplying steam to said barrel.

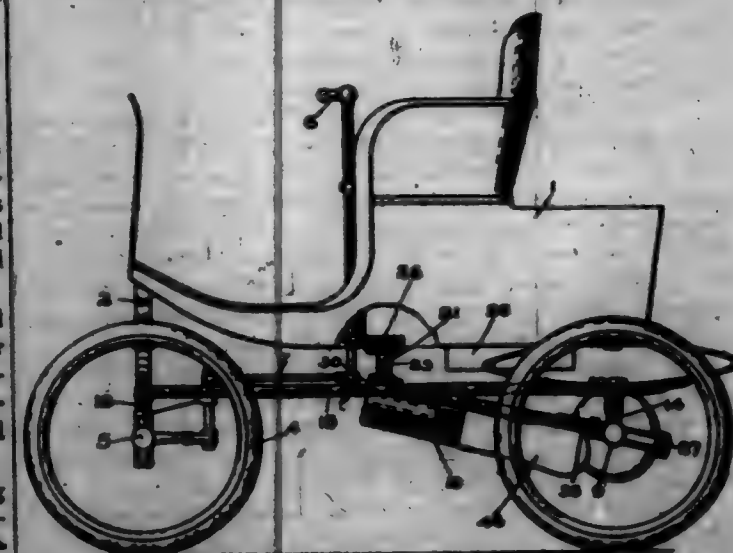
12. In a pulverizer for lime, the combination of a barrel, means for introducing steam thereto, chains for supporting said barrel, and traction or driving wheels for supporting and driving said chains, said wheels having beveled rims, and said chains having links fitting over said wheels and wedging upon the rims thereof substantially as described.

13. In a pulverizer for lime, the combination of a revolving barrel, means for introducing steam thereto, chains for suspending said barrel, means for supporting said chains, and guide-wheels for guiding said chains thereby determining the angle of inclination thereof.

14. In a lime-separator, the combination of a closed revolving barrel perforated at one portion to form a screen a housing over said screen, a removable head to said barrel, a hopper under said screen and connecting with said housing, an auxiliary screen beneath said removable head, said screen also connecting with said hopper, and means for supplying steam to said barrel.

15. In a machine for pulverizing lime, the combination of a revolving barrel, having a perforate portion constituting a screen, means for supplying steam to said barrel means for temporarily closing the extremities of said barrel, a hopper beneath the screen portion of said barrel, and a secondary screen beneath one extremity of said barrel, and above a portion of said hopper.

696,897. FRAME FOR SELF-PROPELLED VEHICLES. AUGUST A. BALL, JR., Lynn, Mass., assignor to Elton Thomson, Swampscott, Mass. Filed Dec. 11, 1901. Serial No. 95,462. (No model.)



Claim.—1. In a vehicle, the combination of a front and a rear axle, a body, a frame rigidly secured to one axle and pivotally secured to the

other, and a second frame rigidly secured to one axle and pivotally secured to the body.

2. In a vehicle, the combination of a front and a rear axle, a body, springs located between the vehicle-body and the axles, a frame rigidly secured to one axle and pivotally secured to the other, and a second frame rigidly secured to one axle and pivotally secured to the spring-supported body.

3. In a vehicle, the combination of a front and a rear axle, a body, a U-shaped frame rigidly secured to one axle and pivotally secured to the other, and a triangular frame pivotally secured at its apex to the vehicle-body, and rigidly secured at its ends to the other axle.

4. In a vehicle, the combination of a front and a rear axle, a body, springs between the body and the axles, a frame rigidly secured to one axle and pivotally secured to the other, a second frame rigidly secured to one axle, and a pivotal support for the second frame mounted on the vehicle-body at approximately its center of gravity.

5. In a vehicle, the combination of a driving and a driven axle, a body, springs located between the body and the axles, a frame rigidly secured to the driven axle and pivotally secured to the driving-axle, a second frame rigidly secured to the driving-axle and pivotally secured to the spring-supported body, and a bar which is connected to the driving-axle and to the pivotal connection on the body and forms a brace between them.

6. In a vehicle, the combination of a body, front and rear axles, springs between the body and the axles, a frame rigidly secured to the rear axle, a half-and-whisker connection for securing the frame to the body, and a bar which is secured to the rear axle at one end and to the half-and-whisker connection at the other.

7. In a vehicle, the combination of a body, front and rear axles, springs between the body and the axles, a frame rigidly secured to the rear axle, a half-and-whisker connection for securing the frame to the body, a yoke in the rear axle for including the differential gearing, and a bar which is secured to the half-and-whisker connection at one end and to the yoke at the other.

8. In a vehicle, the combination of a body, front and rear axles, springs between the body and the axles, a frame rigidly secured to the rear axle, an engine, a half-and-whisker joint for securing the frame to the body, one portion of said joint being secured to the vehicle-body, the other being secured to the engine, a yoke in the rear axle, a connection between the yoke and the engine, and a bar which is secured to the yoke and to that portion of the half-and-whisker joint which is carried by the engine.

9. In a vehicle, the combination of a body, front and rear axles, springs between the body and the axles, a frame rigidly secured to the rear axle, an engine, a universal connection between the engine and the body, one portion of said connection being carried by the body, the other by the engine, a bar which is secured to the rear axle at one end, and a clamp for the opposite end of the bar which is mounted on that portion of the connection carried by the engine.

10. In a vehicle, the combination of front and rear axles, a body, springs between the body and the axles, an engine, a universal connection between the engine and the body, one portion of which is mounted on the engine, the other on the body, an axle-yoke, a distance-bar secured thereto, a pair of frame-bars rigidly secured to the rear axle, and a clamp mounted on the engine portion of the connection to which the distance and frame bars are secured.

11. In a vehicle, the combination of front and rear axles each provided with a straight and an arched member, a body, a frame which is rigidly secured to the arched member of the front axle and pivotally secured to the arched member of the rear axle, a second frame which is rigidly secured to the rear axle, and pivotally secured to the vehicle-body, springs for the body, and clamps for securing certain of the springs to the arched member of the rear axle, the said clamps permitting a certain amount of independent movement.

12. In a vehicle, the combination of a spring, an axle, rollers mounted thereon, a support for the spring, a segmental cleave, and a U-shaped clamp for holding the support and cleave in place.

696,898. ARMATURE-COIL. ANA F. BARNHARTER, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Dec. 2, 1900. Serial No. 95,388. (No model.)

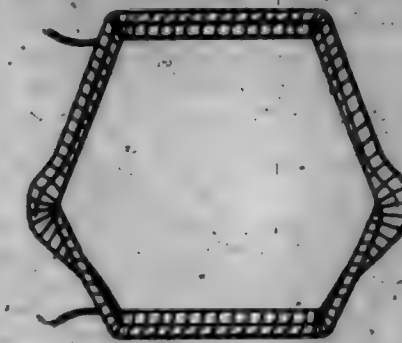
Claim.—1. A coil for the armature of a dynamo-electric machine, composed of turns each containing a plurality of wires side by side.

2. A coil for the armature of a dynamo-electric machine, composed of multiple wires lying straight and parallel.

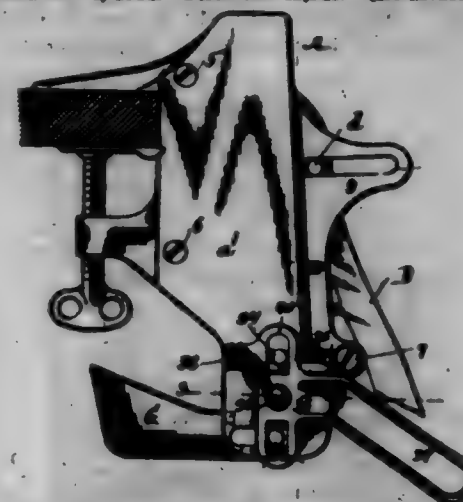
3. A coil for an armature, composed of superposed turns each composed of a plurality of insulated wires lashed together in longitudinal form.

4. An electric-machine coil having a plurality of turns, each of which is composed of a plurality of insulated wires laid side by side and a lashing of insulating material binding them together.

5. A coil for an electric machine, which is composed of turns consisting of a plurality of wires held rigidly together side by side to form a flat turn, said turns being laid flatwise one upon another to fill the winding-space.



696,899. CORK-EXTRACTOR. ALBERT BARNHARTER, Prospect, Ill. Filed Feb. 1, 1901. Serial No. 45,948. (No model.)



Claim.—1. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in said casing and for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of an ejector positioned to engage the cork after withdrawal of the cork from the bottle, said ejector having a positive movement imparted thereto by one of the parts of the operating mechanism.

2. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in said casing and for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of an ejector positioned to engage the cork after withdrawal of the cork from the bottle, said ejector having a positive movement imparted thereto by the operating-lever.

3. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in the casing, for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of an ejector carried by the operating-lever.

4. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in the casing, for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of a movable ejector-arm on the operating-lever.

5. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in the casing, for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of a movable ejector-arm integrally formed on the operating-lever.

6. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in the casing, for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of a movable ejector-arm on the operating-lever, said lever being pivotally maintained and having a shifting fulcrum and whereby a differential movement will be imparted to the ejector-arm and the carrier to cause said arm to be withdrawn from the path of travel of said movable part during the initial upward shift of the free end of the operating-lever.

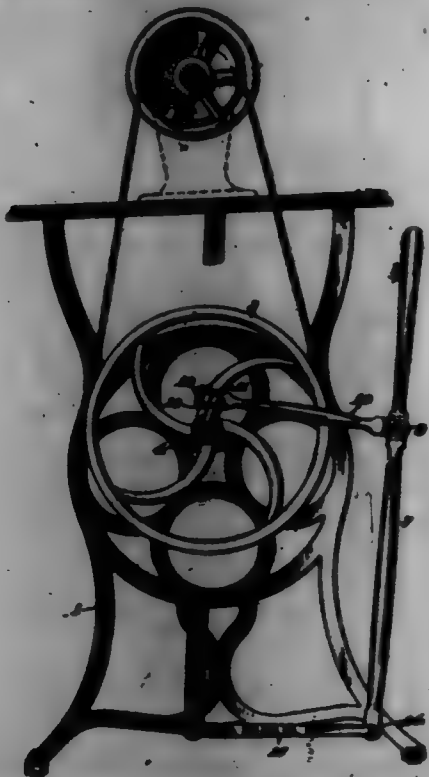
7. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable cork-screw therein, a part non-revolubly held in the casing, for causing the rotation of said cork-screw during a part of its longitudinal travel, and a lever for imparting movement to said cork-screw, of a movable ejector-arm on the operating-lever, elongated hori-

legs wherein said lever is pivotally contained, and whereby a differential movement will be imparted to the ejector-arm and the carrier to cause said arm to be withdrawn from the path of travel of said movable part during the initial upward shift of the free end of the operating-lever.

8. In a cork-extractor, the combination with a suitable frame or casing, a longitudinally-movable corkerow therein, a part non-revolubly held therein for causing the rotation of the corkerow, of a positively-shifted ejector, means whereby the ejector is positively shifted, a bottle-holding device comprising jaws, a pivot for said jaws, and a receptacle for receiving and retaining the corks, said receptacle being pivotally contained by said pivot.

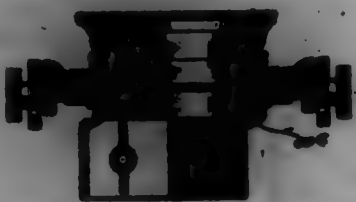
9. In a cork-extractor, the combination with a suitable frame or casing, of a longitudinally-movable carrier in said casing, a corkerow journaled in said carrier, a nut non-revolubly held in said casing, said nut having a limited longitudinal movement in said casing, a sliding connector, two latches carried by said connector, a cam integrally formed on each of the side walls of the casing for withdrawing said latches, respectively, and an operating-lever for imparting movement to said carrier.

696,400. SEWING-MACHINE. WILLIAM H. BENT, Griffin, Ga. Filed May 18, 1901. Serial No. 88,988. (No model.)



Claim.—As an improved article of manufacture, sewing-machine driving mechanism adapted to be applied directly to any ordinary sewing-machine, consisting of a lever adapted to be fulcrumed at its lower end to the reversed treadle of a sewing-machine, and a pitman movably secured midwise to the lever at one end, and adapted at its other end to be secured to the crank of the machine.

696,401. LATERAL ADJUSTOR FOR SURVEYING INSTRUMENTS. ORRISMAN L. BURDEN, Boston, Mass. Filed Sept. 26, 1901. Serial No. 78,516. (No model.)



Claim.—1. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted thereon, said two plates being mutually provided with cooperating ways for maintaining accurate direction of movement, a thumb-screw in engagement with said two plates for accurately moving the top plate on the bottom plate, and means for mounting above said top plate a surveying-instrument.

2. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted thereon, said two plates being mutually provided with cooperating ways for maintaining accurate direction of movement, a thumb-screw in engagement with said two plates for accurately

moving the top plate on the bottom plate, said top plate being provided on its upper side with guideways extending transversely to the direction of movement of said plate on the guide-plate below, a topmost guide-plate mounted on said guideways and shaped on its under surface to fit on said guideways, means for moving said topmost plate on said guideways, and means above said topmost plate for covering thereon the instrument proper.

3. In a surveying-instrument, means located between the instrument proper and the tripod for shifting the instrument bodily in one direction in a horizontal plane, and means for shifting said instrument bodily in a direction transversely thereto.

4. In a surveying-instrument, means located between the instrument proper and the tripod for shifting the instrument laterally in a horizontal plane, and means angularly shaped to indicate, by feeling, the extent of said lateral movement.

5. In a surveying-instrument, means located between the instrument proper and the tripod for shifting the instrument laterally in a horizontal plane, said means including a stationary part, a thumb-screw, and an indicator rotative therewith containing coarse spacing-points for enabling the operator to tell, by feeling, the extent of rotation of said screw by reference to a relatively stationary part.

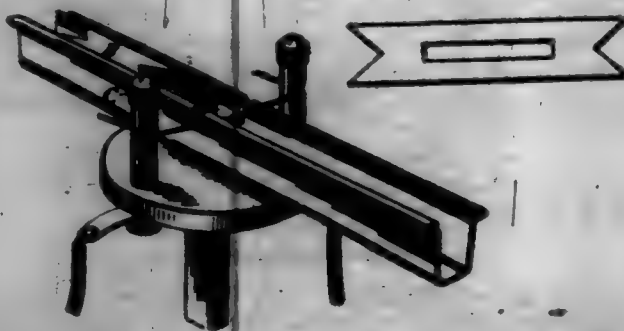
6. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted thereon, said two plates being mutually provided with cooperating ways for maintaining accurate direction of movement, a thumb-screw in engagement with said two plates for accurately moving the top plate on the bottom plate, an indicator, capable of readily indicating by feeling, carried by said thumb-screw for indicating the extent of rotation thereof, and means for mounting above said top plate a surveying-instrument.

7. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted thereon, said two plates being mutually provided with cooperating ways for maintaining accurate direction of movement, a thumb-screw at each end of and in engagement with said two plates for accurately moving the top plate on the bottom plate, and means for mounting above said top plate a surveying-instrument.

8. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted thereon, said guide-plate having its opposite side edges beveled, and said slide-plate having at its opposite edges depending portions beveled on their inner sides to rest on the beveled edges of the guide-plate, means retaining said two plates permanently together, independently-operable adjusting devices for adjusting the bearing-surfaces of the two plates with relation to each other, positive means for accurately sliding the top plate on the bottom plate, and means for mounting the instrument proper above the top plate.

9. A lateral adjustor for surveying-instruments, comprising a guide-plate provided centrally with means for rigidly securing the same on a usual tripod, a slide-plate mounted to slide on said guide-plate, guiding means for mutually guiding said plates in relative longitudinal movement, a transit proper mounted on said slide-plate and comprising usual telescope-leveling devices, &c., and means for positively moving the top plate on the bottom plate to any predetermined extent required.

696,402. PHOTOGRAPHIC FLASH-LIGHT MACHINE. LEONARD S. BIRLOW, St. Joseph, Mo. Filed July 26, 1901. Serial No. 68,981. (No model.)



Claim.—1. A flash-light pan provided with a cover retained in position over the powder during the explosion to spread and cause a flat flame.

2. A flash-pan and a cover therefor having notched ends as and for the purpose specified.

3. A flash-pan, and a cover therefor having notched ends and an intermediate slot, as shown and described.

4. A flash-pan and covers of different length and form fitted to said pan for use interchangeably to produce different styles of flame, as set forth.

5. A flash-pan and a rigid cover therefor slidable therein to cover the powder and remain rigid during the explosion to spread the flame, as set forth.

696,403. CAM-FASTENING FOR SHAFTS OF STAMP-MILLS. EDWARD A. BLANTON, JR., Wallingford, Pa., assignor to Blanton Patents Syndicate, Limited, London, England. Filed July 17, 1899. Serial No. 690,745. (No model.)



Claim.—1. The combination with a shaft, of a curved wedge secured against rotation thereon and having an outer face upon a curve the radii of which measured from the center of the shaft gradually increase, and a hub with an opening corresponding in part with and bearing on the face of the shaft and in part with and bearing on the entire outer face of the wedge, substantially as described.

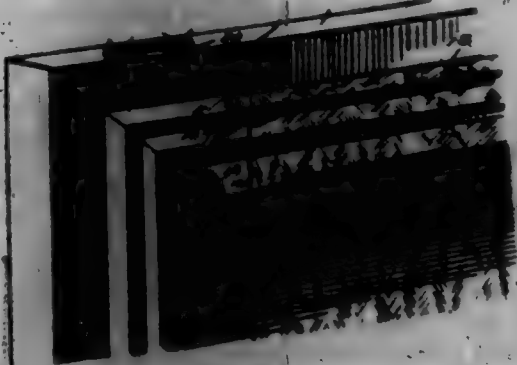
2. The combination with a shaft, of a curved wedge secured against rotation thereon and having an outer face upon a curve the radii of which measured from the center of the shaft gradually increase, and a hub with an opening, a portion of which, not exceeding a semicircle, corresponds with and bears upon the face of the shaft, and a portion of the opening being curved and bearing on the entire outer face of the wedge, substantially as described.

3. The combination with a shaft, of a curved wedge secured against rotation thereon and having a face concentric to said shaft, and a hub with an opening corresponding in part with and bearing on the face of the shaft and in part with and bearing on the entire outer concentric face of the wedge, substantially as described.

4. The combination with a shaft, of a curved wedge secured against rotation thereon and having a face concentric to said shaft, and a hub with an opening, a portion of which, not exceeding a semicircle, corresponds with and bears on the face of the shaft and a portion of the opening being concentrically curved and bearing on the entire outer face of the wedge, substantially as described.

5. The combination with a cam-shaft having a series of eccentric bosses or wedges thereon arranged in different relative positions, of cams having hubs with openings corresponding in part with and bearing on the face of the shaft and in part with and bearing on the entire outer face of the eccentric bosses or wedges, the width of the cams approximating the width of the hubs, substantially as described.

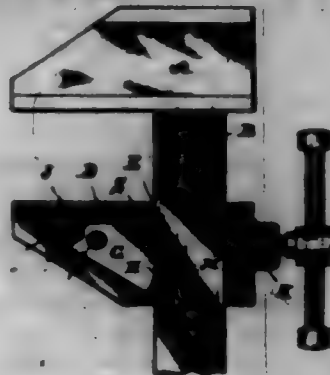
696,404. CURTAIN-FIXTURE. WILLIAM E. BURGESS, Chicago, Ill. Filed July 10, 1901. Serial No. 67,770. (No model.)



Claim.—1. The herein-described curtain fixture or bracket, comprising a horizontal portion terminating at one end in a laterally-projecting elongated loop or slotted extension adapted to receive fastening devices driven into the upper edge of a window frame or casing, an inwardly-inclined pendant arm terminating in a bearing for one end of a shade-roller, a vertically-extending portion connecting the horizontal and inclined portions of the bracket, and an L-shaped curtain-pole hook connected with said vertical portion and extending outwardly therefrom.

2. A curtain fixture or bracket consisting of a metal strip a portion of which extends in a right line and is bent laterally at one end and then recurved and bent back parallel to itself to form an angular elongated extension adapted to receive the upper edge of a window-frame and receive fastening devices, said strip being bent downward from the outer end of the horizontal arm to form a vertical portion and thence inward and downward to form a pendant inclined arm the extremity of which is recurved to form a bearing for a shade-roller, and an L-shaped extension projecting outward from the vertical portion of the bracket to form a curtain-pole hook, substantially as described.

696,405. CLAMPING-WRENCH. RICHARD A. BUSH, Bridgeport, Conn. Filed Sept. 20, 1899. Serial No. 51,355. (No model.)



Claim.—1. In a clamp and wrench of the class described, the combination with a handle-bar having a fixed jaw, of a loose jaw free to slide on said bar and containing a pawl arranged to impinge the handle-bar, and further, to lift and force the jaw forward against the object engaged thereby.

2. In a clamp of the class described, a fixed jaw, a bar, a movable jaw having means to be drawn thereby against the clamping-bar and a pawl with roughened end surface to engage the smooth front side of said bar and adapted to force the sliding jaw toward the fixed one.

3. In an adjustable clamp, a fixed jaw and bar, a movable jaw upon said bar, a spring-actuated pawl pivoted within said jaw having a serrated face to engage the smooth edge of the bar, an adjustable screw in the back of the jaw adapted to engage the bar in a manner to force the pivot end of the pawl forward together with the jaw, toward the fixed jaw.

4. In a combined clamp and wrench, the combination of a bar carrying a fixed and a slidable jaw, of a pivoted pawl secured within the latter having a swinging, impinging and segmentally-shaped surface for engagement with the front edge of the bar and a screw at the rear end of the jaw to draw the movable jaw against the bar and also toward the fixed jaw, and finally to secure the jaw to the bar.

5. In a combined clamping-wrench of the class described, the combination with the jaw having a handle-bar secured thereon, of a jaw movably mounted upon said bar, a pawl pivotally mounted within said movable jaw and provided with a segmental serrated face, a spring to hold the operative end of the pawl in engagement with the bar, a screw adjustably mounted in the back of the jaw and arranged to firmly secure the jaw to the bar and simultaneously acting in conjunction with the pawl to provide a forward thrust to the operative end of said jaw.

696,406. WRENCH. RICHARD A. BUSH, Bridgeport, Conn. Filed June 5, 1901. Serial No. 68,265. (No model.)



Claim.—1. A wrench composed of a bar and a jaw fixed thereto, a jaw adapted to freely slide on said bar, a transverse circular plug passing

ing through the lower front portion of said jaw, and having a flattened side, with a series of teeth in line with the shank-cavity, a downwardly and rearwardly inclined plug having a series of teeth on its engaging end situated in a seat of the back portion of said movable jaw, a spring-actuated headed pin located in the lower rear part of said movable jaw and a cap enclosing said pin and spring.

2. In a wrench, the combination of a sliding jaw having on its lower front portion a circular plug with a flattened roughened side surface in line with the shank-cavity therein, a hole in its lower rear portion containing a spring-actuated plug, a cap to retain said plug and spring, a second circular plug in the upper rear portion with a roughened end surface also in line with the shank-cavity.

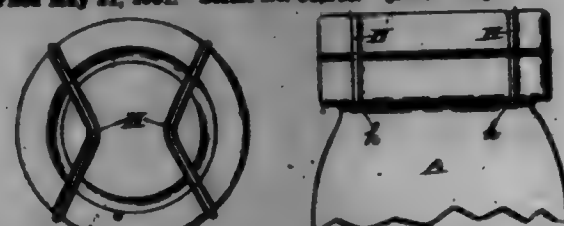
3. A wrench composed of a bar having a jaw secured therein, a jaw adapted to freely slide on said bar, said lower jaw having in line with the shank-cavity in its lower front portion a circular plug having a flattened side surface containing a series of teeth, and also provided in the upper rear portion of its shank-cavity with a series of teeth contained on the upper end face of a downward and rearward inclined circular plug.

4. In a wrench, the combination of a sliding jaw having on its lower front portion a plug with a flattened roughened surface in line with the shank-cavity therein, a flat spring secured to the side of the movable jaw, a movable pin mounted in a hole through the side of said jaw and forced against the wrench-bar by said spring, a circular plug in the upper rear portion of the movable jaw with a roughened end surface also in line with the shank-cavity.

5. In a wrench, the combination with a bar having a fixed jaw, of a sliding jaw thereon with a plug having a roughened flat surface in line with the shank-cavity therein, a friction-pin mounted in said jaw and bearing on the side of the bar, a flat spring secured to the jaw and bearing against the pin to hold it in engagement with the bar, substantially as described.

6. A wrench comprising a bar having a jaw fixed therein, a movable jaw slidably mounted on said bar, a plug secured in said jaw and having a serrated surface to engage the front of the wrench-bar, a circular plug with a serrated face for contact with the rear of the said bar in the upper rear portion of said movable jaw, a spring-actuated pin in the back of said jaw, and a spring-actuated pin in the side of the jaw, both of said pins being arranged to frictionally engage the bar upon which said jaw is mounted.

696,407. JAR-CLOSURE. OLIVER BRIM, Leesville, W. Va. Filed May 21, 1901. Serial No. 61,248. (No model.)



Claim.—1. In a jar-closure a circular cover provided with a multiplicity of angular grooves on its top each consisting of two converging straight depressions that cut said cover into corners of a circle, an annular projection on the lower side of the cover to fit in the neck of the jar, a projecting rim on the exterior of the neck of the jar, and angular metal clamps having their ends bent downward to form hooks, said clamps being adapted to seat in said grooves and engage the lower edge of the rim on the neck of the jar, substantially as shown and described.

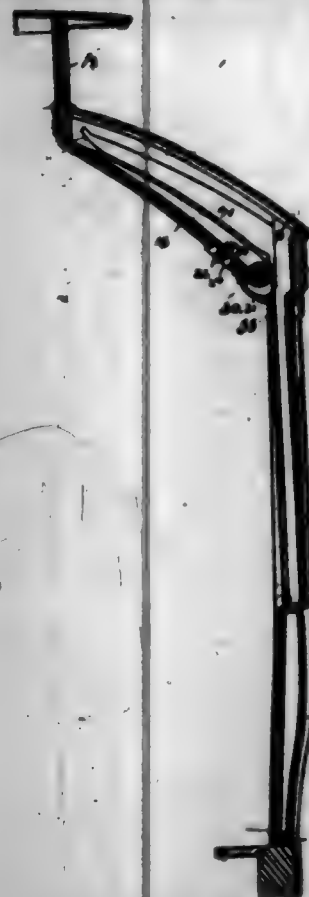
2. In a jar-closure, a jar with a projecting rim, an annular shelf on the interior of said rim, a cover having an annular projection on its lower side, a gasket between the upper edge of the rim and the cover, a gasket between said annular shelf and said annular projection, a multiplicity of angular grooves on the upper side of the cover, said grooves extending in converging straight lines from the periphery of the cover toward the center thereof, and clamps to fit in said grooves and engage the bottom of the rim, substantially as shown and described.

696,408. CONVERTIBLE RAILWAY-CAR. JOHN A. BELL, Philadelphia, Pa. Filed Jan. 3, 1901. Serial No. 42,488. (No model.)

Claim.—1. In a convertible car, the combination with panels for closing the sides thereof, the lower or base panel being adapted to receive the upper panel, of means whereby the said lower panel with the upper panel may be stored beneath the roof of the car.

2. In a convertible car having side openings defined by upright posts, means for closing each of said openings comprising an upper and a lower panel, the lower panel being constructed to receive the upper panel when it is desired to open said openings, a roof for said car provided with storage-space and means whereby the said base-panel carrying the upper panel can be bodily lifted into the said storage-space in the roof.

3. In a convertible car having one or more side openings, the combination with upright posts to define said openings, of means for closing said openings comprising panels, one of said panels being constructed to receive and hold another of the panels, a roof for the car having space therein in which to store the panels, and means to permit said respective panels to be lifted bodily into the said space in the roof of the car.



4. In a convertible car having side openings, upright posts to define said openings, a roof for the car provided with storage-space, panels fitting between said posts to close the openings for winter use, each comprising a lower or base panel, and an upper or sub-panel, the lower panel being constructed to receive and hold the upper panel when it is desired to store the same, and means whereby the said base-panel may be bodily lifted and guided into the roof storage-space.

5. In a convertible car having side openings, upright posts to define said openings, a roof for the car provided with storage-space therein, means for closing each of said openings comprising a hollow base-panel and an upper or sub-panel, the said sub-panel being adapted to be placed inside the hollow portion of the base-panel when it is desired to open the side of the car, and means whereby the said base-panel can be bodily lifted into the said roof-space.

6. In a convertible car having side openings therein, upright posts to define said openings, a roof for the car provided with storage-space, means to close said openings including a hollow base-panel forming a box or casing, an upper or sub-panel adapted to slide down inside the box or casing, and means to guide the said box or casing to the space within the roof for the purpose of storage.

7. A convertible car provided with openings therein, upright posts to define said openings, a roof for the car having storage-space formed therein, means to close said openings comprising a base-panel having an inner and an outer wall spaced apart, and an upper or sub-panel adapted to slide down into the space between the said walls when it is desired to open the side of the car, and guiding means connected with said posts whereby the said base-panel with the contained upper panel can be lifted into the roof storage-space.

8. A convertible car provided with side openings therein, upright posts to define said openings, and having grooves formed in the opposing faces or sides of said posts, a roof for the car provided with storage-space corresponding to the said openings in the car sides, means for closing said openings comprising a base-panel having an open space between its sides and transverse or legs guided in one of said grooves, an upper or sub-panel sliding bodily in another of said grooves, and means for guiding said sub-panel down into the receptacle of the base-panel, and further means whereby the said base-panel can be lifted into the said roof storage-space.

9. A convertible car provided with side openings therein, upright posts to define said openings, and having grooves formed in their opposing faces or sides, horns or braces in the top of the car, forming continuations of said posts, one of said grooves or each face being extended into said horn or brace, means for closing said openings consisting of a box or casing

panel guided by said extended groove; and another panel guided by another groove and adapted to be received by said box or casing panel whereby both may be bodily lifted and guided to the top of the car for storage purposes between the horns or braces.

10. A convertible car having side openings, upright posts to define said openings and having grooves in their opposing faces, a roof for the car, horns or braces forming continuations of said posts into the roof, one of said grooves being extended into the horns and notches such as 43 being formed near the outer end of said extended portion of the groove, a hollow base-panel having legs or transverse sliding in said groove, a sub-panel normally held in another of said grooves when the side of the car is closed and adapted to drop into said hollow base-panel, whereby, when the said base-panel with its contained sub-panel is raised, the said legs and grooves will guide the same into the space between the horns or braces in the roof, and one set of legs or transverse can be guided into the said notches 43 to hold the panel in its raised position.

11. In a convertible car having side openings, posts to define said openings, grooves in the opposing faces of said posts, arms or braces in the roof of the car forming continuations of said posts and into which one groove is extended, means to close the opening between said posts comprising a lower panel guided by the extended groove, a sub-panel guided by another of said grooves with its inner side on a line with the outside of the lower panel when the opening is closed, means whereby the sub-panel can be dropped inside the base-panel, and the latter being guided by its grooves can be lifted into the space between the arms or braces.

12. In a convertible car having side openings therein, upright posts to define said openings, and removable sections adapted to be placed in said openings comprising a base-panel and a sub-panel, the base-panel being constructed to receive the sub-panel when it is desired to remove the sections and the sub-panel being constructed to receive the base-panel for storage purposes.

13. In a convertible car having side openings, posts to define said openings and removable sections to close said openings comprising a base-panel and a sub-panel, the base-panel being constructed to receive the sub-panel when it is desired to remove the sections and the sub-panel being made in more than one section to more readily fit the receptacle of the base-panel.

14. In a convertible car having side openings, posts to define said openings, and removable sections to close said openings for winter use, comprising a box-like or hollow base-panel, and an upper sub-panel, the latter being made in hinged sections adapted to fold together and slide down into the box or base-panel for storage purposes.

15. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a hollow lower or base-panel having a lid or cover therefor, and an upper or sub-panel adapted to slide down into said base-panel, which when the lid is closed is ready for removal and storage.

16. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a lower or base-panel having an inner wall and an outer wall conforming to the desired contour of the outside of the car, said walls being spaced apart by rigid end pieces and a lid hinged to the inner wall to close the box, an upper sub-panel against the lower edge of which the said lid presses when down and the sub-panel is in place, the said lid then serving as the window-sill, and means whereby the said lid may be raised, the sub-panel dropped down inside the box, the lid again closed, and the whole removed for storage purposes.

17. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a lower or base-panel having an inner wall and an outer wall conforming to the desired contour of the outside of the car, said walls being spaced apart by rigid end pieces and a lid hinged to the inner wall to close the box, an upper sub-panel composed of sections against the lower edge of which the said lid presses when down, to hold the same in place and to form the window-sill, and means whereby the said lid may be raised, the sub-panel folded up and placed between the walls of the base-panel and the whole removed for storage purposes.

18. In a convertible car having side openings, upright posts to define said openings, the opposing faces of said posts being broken up into longitudinal parts in different places, a base-panel extending between the portions of said posts furthest apart, and a sub-panel between the parts a less distance apart, whereby the sub-panel is narrow enough to be received and held by the base-panel, a guiding means for the base-panel connected with the said posts, and means whereby the said base-panel with its sub-panel may be lifted and stored away.

19. In a convertible car having side openings, posts to define said openings, and having grooves formed in the opposing faces, the bottom of one of said grooves being higher than the faces or edges of another, means to close said openings comprising a base-panel having a receptacle therein and guided by said deeper groove, a sub-panel guided by the other groove, the inner edge of which is removed, for part of its length

to allow the bottom of said sub-panel to swing over the receptacle of the lower panel and to pass down therein, the latter being adapted to be lifted and stored in the roof of the car.

20. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-space, means to close said openings, comprising a hollow base-panel guided by said inner groove, a sub-panel guided by said outer groove, and located near the outer edge of the post and substantially on a line with the outside of the base-panel, the lower portion of the inner edge of said outer groove being removed so as to permit the lower edge of the sub-panel to swing forward over the hollow base-panel and drop therein, said base-panel being adapted to be lifted and guided by its grooves into the said space in the roof.

21. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-space, means to close said openings, comprising a hollow base-panel guided by said inner groove, a sub-panel composed of sections and guided by said outer groove, the inner edge of the grooves along the bottom section of the panel being removed to allow it to swing forward over the base-panel and to drop therein, and means whereby the said base-panel can be lifted to the storage-space in the roof.

22. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-space, means to close said openings, comprising a hollow base-panel guided by said inner groove, a sub-panel composed of sections guided by said outer groove, the inner edge of the groove along the bottom section of the panel being removed to allow it to swing forward over the base-panel and means whereby the said sub-panel may be drawn forward, folded up and dropped into the said hollow panel and roof storage-space.

23. In a convertible car having side openings, upright posts to define said openings, and having grooves formed in the opposing faces of said posts, a roof for the car provided with storage-space therein, means to close said openings comprising a box base-panel having a lid and an upper sectional sub-panel adapted to fold up and slide snugly into the base-panel, the latter being adapted to be guided in one set of said grooves to the roof storage-space.

24. In a convertible car having side openings therein, upright posts to define said openings, and having grooves in their opposing faces, means to close said openings comprising a base-panel slidable in one set of grooves, and a sub-panel slidable in another set of grooves, and a certain having a rod also slidable in one of said sets of grooves.

25. In a convertible car having side openings therein, upright posts to define said openings, and having grooves formed in the opposing faces, means to close said openings comprising a base-panel slidable in one of said grooves and a sub-panel slidable in another set of grooves, and a certain having a rod slidable in the base-panel grooves.

26. In a convertible car having side openings, upright posts to define said openings having grooves formed in their opposing faces, a roof for the car having space formed therein, means to close said openings comprising a base-panel adapted to slide in the inner groove, a sub-panel adapted to slide in the outer groove, the base-panel being constructed to be lifted into the storage-space in the roof, and a certain having a rod which is capable of sliding in the base-panel grooves whether the said panel is in position between the lower ends of the posts or stored in the top of the car.

27. In a convertible car having side openings, upright posts to define said openings, a roof having storage-space therein, means to close said openings, comprising a base-panel, adapted to be lifted and stored in said roof-space, and a sub-panel, a guiding means for the base-panel connected with said posts, a curtain adapted to be guided by the same means, and additional means for moving said curtain out of the way of the base-panel when it is lifted up or down.

28. In a car, the combination with the posts, a head-lining forming the inside of a roof-pocket above the posts, said lining comprising a panel hinged at the upper inner end of the pocket, and means for securing the lower free end of the panel to the lower end of the pocket, substantially as described.

29. In a car, upright side posts, a curtain-roll, a hinged head-lining adapted to open and expose the roll, and a guiding means for said curtain connected with said posts.

30. In a car, upright side posts having grooves in their opposing faces, a curtain guided by said grooves, and roll on which said curtain is wound, a hinged or pivoted support for said roll whereby the same may be entirely removed from the grooves or the path of anything moving therein.

31. In a car, upright side posts having grooves in their opposing faces, a curtain guided by said grooves, a roll for said curtain in the top

of the car, a support of said roll hinged at its inner end and allowing the said roll to be swung inward away from the upper ends of the grooves for purposes of inspection, and whereby the curtain is entirely removed from the grooves.

32. In a convertible car having side openings, posts to define said openings extending up into the roof of the car and having grooves in their opposing faces, means to close said openings comprising a base-panel and a mesh-panel, the said base-panel being constructed to receive the said mesh-panel and to be guided by said grooves into the top of the car, and a hinged head-lining adapted to be swung aside to permit a free passage for the said panel from the upright portions of said posts to the roof portions and vice versa.

33. In a convertible car having side openings, posts to define said openings, a roof provided with spaces therein, means to close said openings comprising a base-panel and a mesh-panel adapted to be stored in the roof-spaces, and a removable head-lining corresponding to said space to readily permit said storage operation.

34. In a convertible car having openings in its sides, posts to define said openings, braces or horns in the roof of the car forming continuations of the posts and having grooves in their opposing faces corresponding to similar grooves in the posts, means to close said openings comprising a base-panel and a mesh-panel, the base-panel being constructed to receive the mesh-panel and having legs near the top and bottom fitting in said grooves to guide the same into the space in the roof between the said horns for storage purposes, and a head-lining extending inward from the posts hinged near its inner end so that it may swing away from the posts to provide room for the panel to pass from the posts to the roof-spaces.

35. In a convertible car having openings in its sides, posts to define said openings, braces or horns in the roof of the car forming continuations of the posts and having grooves in their opposing faces corresponding to similar grooves in the posts, means to close said openings comprising a base-panel and a mesh-panel, the base-panel being constructed to receive the mesh-panel and having legs near the top and bottom fitting in said grooves to guide the same into the space in the roof between the said horns for storage purposes, and a head-lining panel adjacent the posts, hinged at its inner end, and a curtain-roll carried by said head-lining and journaled near its outer end, so that both the head-lining panel and the roll may be swung away from the posts.

36. In a car, the combination of a swinging roof-section, a curtain carried thereby, side posts for the car having grooves, the free end of the said curtain being guided by said grooves.

37. In a car, the combination of a swinging roof-section having a recess formed therein, a curtain carried on the section in said recess, side posts for the car having grooves for the free end of the curtain and aligning with the said recess, when the said swinging section is in normal position.

38. The combination in a convertible car, having side openings and a roof storage-space, of means for closing said openings comprising a base-panel and a mesh-panel, and means for dropping the mesh-panel into the base-panel, the said base-panel being adapted to be lifted into the roof storage-space.

39. In a car, the combination with posts to define side openings, removable panels to close said openings comprising a lower panel and an upper panel, the upper panel being adapted to be stored in the lower panel and readily raised therefrom, whereby the car may be used as an open or semi-open car.

40. In a street-car having side openings, the combination with posts to define said openings, removable panels to close said openings comprising a lower panel having a pocket, and an upper mesh-panel to be stored in said pocket, and to be readily raised therefrom when the car is being used as a semi-open car.

41. In a street-car having side openings, posts to define said openings, means to close the openings comprising a lower or base panel having a pocket and adapted to remain in position when the car is closed or semi-open, and an upper mesh-panel adapted to be stored in said pocket for either semi-open or open use of the car.

42. In a street-car having side openings, posts to define the same, removable panels to close the openings comprising a lower panel having a pocket and an upper panel adapted to be stored in said pocket either for bodily removing or for semi-open use of the car, and a curtain capable of use during the closed, semi-open, or open conditions of the car.

43. In a car, the combination with removable panels to close side openings comprising a lower panel and an upper panel, both panels being removed for open-car use, and only the upper panel for semi-open use, and a curtain capable of being drawn only to the top of the lower panel in the closed or semi-open conditions of the car, and to the floor in its open condition.

44. In a convertible car having side openings and roof storage-spaces, side posts to define said openings, panels to close said openings and adapted

to be stored in the roof, the lower end of the stored panel resting against an abutment in said space.

45. In a convertible car having side openings and roof storage-spaces, side posts to define said openings, means to close said openings comprising a base-panel and a mesh-panel, means for lifting and storing said panels in the said space, and an abutment in said space for the lower end of the stored panel.

46. In a car, having side openings, a top having a storage-space therein between the roof and the ceiling and the weather-board, removable panels for said side openings adapted to be stored in said space comprising an upper and a lower panel and an abutment for said lower panel formed in said weather-board.

47. In a car having side openings, a roof provided with a storage-space therein, means to close said openings comprising removable panels adapted to be stored in said roof-space, means to extend and contract the entrance and exit of said space.

48. In a car having side openings, a roof having a storage-space therein, panels to close said openings and adapted to be stored in said space, and a removable part of one wall of said space to allow said panels to pass therein.

49. In a car having side openings, posts to define the openings, a roof provided with a storage-space having an entrance and exit, panels to close said openings and adapted to be stored in the said space, and means to extend said entrance and exit to allow the passage of said panels therethrough.

50. In a car having side openings, a roof having storage-spaces with which said side openings connect, posts to define said openings, panels therethrough adapted to be stored in said spaces, a swinging door or section in the roof to enlarge the entrance to said space to allow the said panels to pass therethrough.

51. A car, provided with spaces in the top thereof and with side panels consisting of mesh-casings and cashes, said casings being adapted to receive said cashes and to be raised into the space in the top of the car, and devices for holding said casings in said spaces, substantially as shown and described.

52. A car which is adapted for use either as an open or a closed car, said car being provided with side panels composed of mesh-casings and cashes, said casings being adapted to receive said cashes, and said casings being adapted to be raised and stored in the top of the car, substantially as shown and described.

53. A car constructed as herein described and provided with spaces in the top thereof, side posts, side panels consisting of window-cashes and mesh-casings, the mesh-casings being adapted to receive the cashes, said side panels being held in place by grooves or by clamps or strips secured to said posts, substantially as shown and described.

54. A car provided with side posts and grooves in the sides thereof, forming spaces to receive side panels, and side panels mounted in said spaces, and consisting of mesh-casings and cashes, said casings being adapted to receive said cashes, substantially as shown and described.

55. A car which is adapted for use either as an open or closed car, and which is provided with vertical side posts which are provided with grooves forming panel-spaces, mesh-casings and cashes mounted in said spaces, said casings being provided with chambers open at the top, and adapted to receive said cashes, said casings being adapted to be raised into spaces in the top of the car and supported therein, substantially as shown and described.

56. A car provided with vertically-movable side panels consisting of mesh-casings and cashes, said casings being adapted to receive said cashes, and spaces in the top of the car into which said casings are adapted to be raised, said spaces being provided with means for holding the said casings in place, substantially as shown and described.

57. A car constructed as herein described and provided with spaces in the top thereof, side panels consisting of window-cashes and mesh-casings, the casings being adapted to receive the cashes, said side panels being held in place by grooves, substantially as shown and described.

58. A car constructed as herein described, and provided with side posts, having grooves in the sides of the said posts, mesh-casings and cashes mounted in the spaces formed by said grooves, said mesh-casings being adapted to receive said cashes, said car also being provided in the top thereof with spaces into which the mesh-casings are adapted to be raised and with devices for holding said mesh-casings in said spaces, substantially as shown and described.

59. In a convertible railway-car, the combination with a car-body having between the roof and ceiling a chamber with a stationary outer wall, and a bottom opening provided for said chamber, of side posts provided with separate mesh and panel grooves communicating with said opening, a mesh and panel guided into and out of said opening by said grooved side posts, and movable into and out of said chamber through said bottom opening, and a movable floor for said opening.

60. In a convertible car, the combination in a car-body having upright

posts, and between the roof and ceiling a chamber with a stationary outer side wall and a bottom opening aligning with the posts, of grooves formed in the posts aligning with the opening, cashes or panels movable in the grooves into and out of said chamber through said bottom opening, and a head-lining hinged at or near the car-ventilator rail, and extending between its hinge and groove in the posts, its lower free end being adapted to enlarge or contract the said chamber within a zone continuous with the height of said cashes or panels, substantially as described.

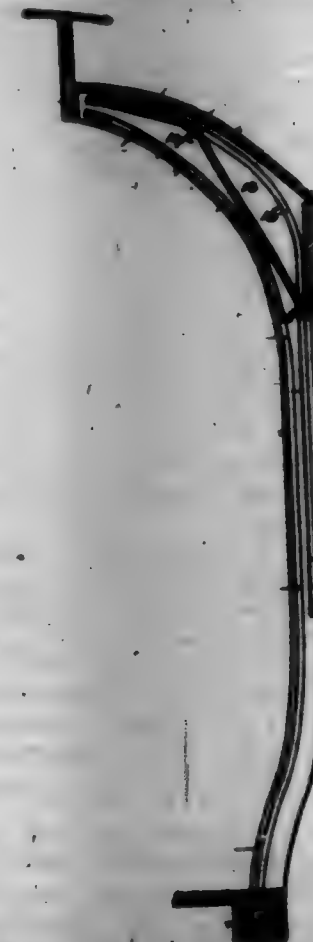
61. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening, of a mesh and panel movable into and out of said chamber through said opening, means for supporting the lower end of the lowered mesh, a movable door for said opening, and means to support the upper end of the lowered mesh, substantially as described.

62. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening of a mesh and panel movable into and out of said chamber through said opening, a movable door for said opening, means to support and guide the mesh and panel as the same are moved into and out of said chamber, substantially as described.

63. In a convertible car, the combination with the car-body, having between the roof and ceiling a chamber with the bottom opening, and posts, of cashes or panels movable along the posts into and out of said chamber through said opening, a movable door for said opening, a curtain, and supports for said curtain mounted on the lower inside end of said door, and grooves for the free end of the curtain formed in the post aligning with the said opening, and adapted to receive said free end.

64. In a convertible car, the combination with a roof, floor, and a ceiling constructed with a panel-receiving chamber having a fixed outer wall, a bottom opening for said chamber formed by an aperture in the ceiling adjacent to said outer wall, of stationary vertical side ribs or posts provided with grooves or panels slidably leading to said chamber-opening, a panel movable in said slideways into and out of said chamber, means for supporting the panel in said chamber, and a door constructed in length with the said panel attached to the ceiling and movable across said opening, substantially as described.

698,409. CONVERTIBLE RAILWAY-CAR. JOHN A. BELL, Philadelphia, Pa. Filed June 2, 1901. Serial No. 62,818. (No Model.)



Claim.—1. In a convertible car having roof-spaces, the combination with the parts having separate grooves each extending into said roof-spaces, of the sliding window cash and panel movable in said grooves, one of said parts being formed with an abutment to support the cash upon the panel, and for moving the cash upward in the grooves as they are raised, and means for separating and supporting the cash and panel in the roof-spaces.

2. In a convertible car, the combination with the parts having separate grooves, the grooved roof-spaces, the sliding window cash and panel, one of said parts being formed with an abutment for the other to bear against, and for sustaining one part from the other when they are raised, the grooves diverging into different horizontal planes in the roof-spaces, whereby means are provided for supporting the mesh and panel in the said space separate from each other.

3. In a convertible open and closed car, the combination of the sliding panel and window-cash, one of said parts being formed with a lateral abutment having a longitudinal recess to receive a portion of the other, so that one vertically supports the other and that the parts may be moved together and one be supported from the other during such movement.

4. In a convertible open and closed car, the combination of the sliding side-closing elements comprising a window-cash and panel with members formed with separate ways or grooves to separately guide said elements when sliding, projections extending from one of said elements into one of the grooves, the other element being guided by said grooves, and members provided with continuations of said grooves located between the ceiling and the roof of the car to receive said projections and elements for guiding them into and out of said space.

5. In a convertible car having side openings, posts to define said openings, separate grooves in each of the opposing faces of said posts, slidable upper and lower panels separately guided by said grooves, and an abutment carried upon the lower end of the upper panel for lifting one by the other when one is lifted.

6. In a convertible car having side openings, posts to define said openings, separate guiding-grooves in each of the opposing faces of said posts, panels to fill said openings and which are separately guided by said grooves, the upper panel having an abutment carried upon its lower edge and projecting over and adapted to rest on top of the other panel.

7. In a convertible car having side openings, upright posts to define said openings and having separate grooves in each of their opposing faces, a panel and a window-cash to close said openings, the window-cash having an abutment upon its lower edge provided with a means to fit over the top of the panel, and means for storing both panel and cash separate from each other in the roof of the car.

8. In a convertible car having openings in its sides, upright posts to define said openings and having separate grooves in each of their opposing faces, a flexible base-panel and a rigid window-cash separately slidable in said grooves, and means carried upon the lower end of said cash for lifting said cash by raising the base-panel and for storing them in the roof of the car.

9. In a convertible car having openings in its sides, roof-spaces, upright posts to define said openings and having continuations extending into said spaces, separate grooves formed on each of the opposing faces of said posts and continuations and thereon diverging into different horizontal planes, the outer of which is higher, a flexible panel movable in the inner of the grooves, a window-cash comprising rigid sections hinged together movable in the outer grooves, and an abutment carried upon the lower end of said cash, said abutment projecting across the path of said flexible panel.

10. In a convertible car having side openings, vertical posts to define said openings and having guides in grooves in their opposing faces, a flexible base-panel, and a sectional mesh-panel guided by said grooves, the upper section of the latter remaining in the grooves when stored, but the lower section being swung inward, until its lower end enters the storage-chamber and lies close to the inner end thereof, an abutment carried upon the lower end of said cash, and the flexible panel lying in its groove beneath the said lower section adapted to rest upon said abutment, whereby they mutually prevent tilting.

698,410. PROCESS OF HARDENING PLASTER-OF-PARIS. ARTHUR BROWNE, Montreal, Canada. Filed Oct. 11, 1900. Serial No. 58,005. (No specimens.)

Claim.—1. The process of hardening plaster-of-paris which consists in subjecting the same to boiling steam maintained in a seething state during treatment, as and for the purposes described.

2. The process of hardening plaster-of-paris which consists in immersing the same in a bath of boiling steam, and in adding to the latter, from time to time, a suitable liquid which maintains the steam-bath in a state of liquefaction and compensates for the loss of the water of evaporation which is driven off by boiling the steam, as set forth.

3. The process of hardening plaster-of-paris articles which consists, first, in preparing an indurating solution by mixing diluted acid with steam and reducing the latter to a liquid condition by the action of heat; then immersing the article in the boiling steam for a proper length of time to thoroughly impregnate the same, and adding acid diluted with a heated condition to the solution from time to time, as set forth.

4. As a new article of manufacture, a desiccated and indurated plaster.

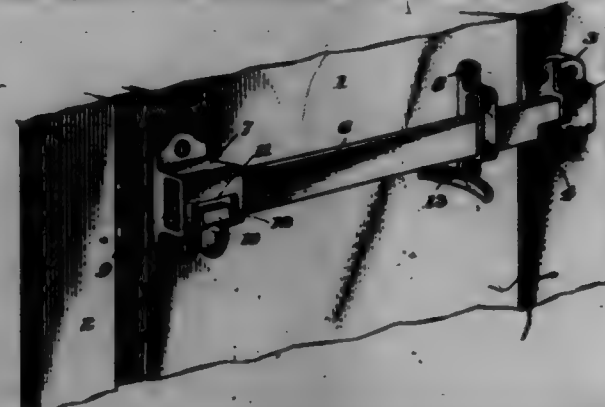
ter-of-pore article impregnated with alum during boiling thereof and having water-color lacquer applied thereto previous to impregnating said article with the alum, as set forth.

5. The process of hardening plaster-of-paris which consists in boiling the same in a soething alum-bath maintained in a state of ebullition by the external application of heat, whereby the plaster-of-paris is saturated through and through all portions thereof by the hardening agent, as set forth.

6. The process herein described of hardening plaster-of-paris which consists in driving off the water of crystallization present in the article by immersing the same in a bath of boiling alum maintained in a soething state during treatment for a sufficient length of time to obtain the desired end, and replacing each water of crystallization by melted alum which, as the hardening agent, impregnates the article through and through the same, as set forth.

7. The process herein described, of hardening articles of plaster which consists in impregnating the article with melted or liquid alum by immersing said article, for a proper length of time, in a bath of melted alum maintained throughout the operation in a boiling condition by the continuous application of heat, and adding to the boiling alum-bath, from time to time, a substance which compensates for the loss by evaporation and maintains each bath in a proper state of liquidation, as set forth.

696,411. COMBINED LATCH AND BOLT. HARRY CHESHER, Philadelphia, Pa. Filed Feb. 26, 1901. Serial No. 48,868. (No model.)



Claim.—1. In a combined latch and bolt, the combination of a latch-bar carried by the door, a keeper secured to the door-frame comprising a hook adapted to be engaged by the latch and a slot adjacent to said hook in line with the latch-bar adapted to receive the said latch-bar when the same is adjusted longitudinally, a bracket carried by the door adapted to support the rear end of the latch-bar, a detent secured to the end of the latch-bar, a longitudinal slot formed in the bracket through which the detent passes and means for engaging the detent at each end of the longitudinal slot, substantially as described.

2. In a combined latch and bolt the combination of a latch-bar to be carried by the door, a keeper adapted to the door-frame comprising a hook for engagement with the latch and a slot adjacent to said hook in said keeper in line with the latch-bar adapted to receive the said latch-bar when the same is adjusted longitudinally, a bracket carried by the door having a recess formed therein of slightly greater height than the width of that portion of the latch-bar adapted to be engaged therein to allow that end of the latch-bar to slide and to have a slight up-and-down movement therein, a longitudinal slot formed through the outer face of the said bracket, a pivoted detent secured to the end of the latch-bar passing through said longitudinal slot and transverse slots formed at each end of the said longitudinal slot, substantially as described.

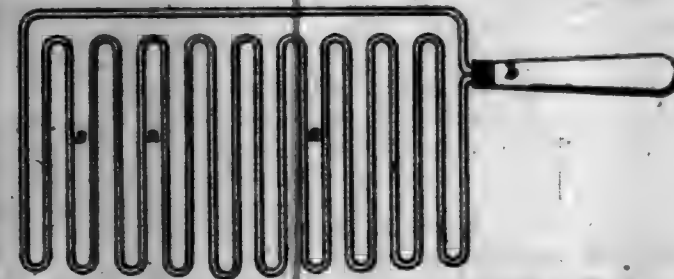
3. The combination of a combined latch and keeper carried by the door-frame, a longitudinally-adjustable latch-bar supported by the door, a keeper for supporting the rear end of the latch-bar having a horizontally-disposed slot, 11, provided therein, transversely-disposed slots, 12, formed at each of the horizontal slots, a small detent or lever, 10, pivoted loosely to the end of the latch-bar, said lever extending through the slot in the keeper, and a weighted end formed on said lever adapted to cause the same to drop by gravity into one of the transverse slots, and hold the latch-bar in its adjusted position, substantially as described.

696,412. HAIR-DRYING DEVICE. WILLIAM W. COWLEY, Cleveland, Ohio. Filed Jan. 28, 1901. Serial No. 44,978. (No model.)

Claim.—1. A hair-drying device comprising parallel fur-shaped metal lines having substantially-parallel sides and a supporting-handle in line therewith, as and for the purpose specified.

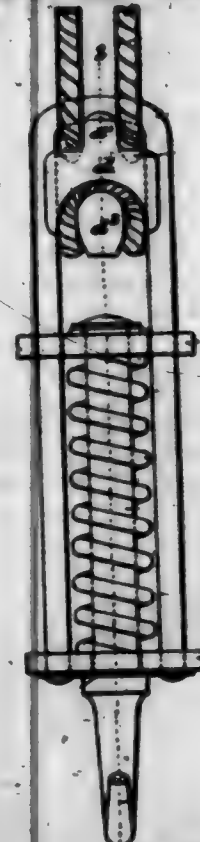
2. A hair-drying device comprising parallel lines formed of wire bent in parallel-sided bands and having both ends inserted in a handle longitudinally aligned therewith, substantially as described.

3. A hair-drying device comprising substantially parallel lines formed of wire bent in bands whose sides are substantially but substantially parallel in general direction and having a handle aligned with the lines, substantially as described.



4. A hair-drying device comprising substantially parallel round-ended lines formed of a single wire bent in substantially parallel-sided bands and having both ends inserted in a handle longitudinally aligned therewith, substantially as shown and described.

696,413. HAMMOCK-SLING. JOHN R. DALEY, New York, N. Y. Filed Mar. 8, 1901. Serial No. 48,890. (No model.)



Claim.—1. As a new article of manufacture a yielding hammock-sling, comprising attached sliding members, with an interposed spring, and a movable rope-hitch member carried by one of said sliding members and movable relative thereto.

2. As a new article of manufacture a yielding hammock-sling, comprising attached sliding members, with an interposed spring and a sliding rope-hitch member at one end.

3. As a new article of manufacture a yielding hammock-sling, comprising attached sliding members with an interposed spring, a sliding rope-hitch member at one end of said sling, and a stop therefor.

4. As a new article of manufacture a yielding hammock-sling, comprising a plurality of members arranged to slide one relatively to and in guides on another, yielding means normally separating said sliding members, a movable rope-hitch at one end of said sling, said rope-hitch being carried by one of said members and movable relative thereto and a hammock-support at the opposite end of said sling, and contained by the other of said members.

5. As a new article of manufacture a yielding hammock-sling, comprising a plurality of members, one supporting another through the medium of a spring, a stop-member carried by one member and adapted to engage another member, a movable rope-hitch member at one end of said sling, said rope-hitch being carried by one of said members and movable relative thereto and a hammock-support at the opposite end of said sling, and contained by the other of said members.

6. As a new article of manufacture a yielding hammock-sling comprising a yoke-like member, a hammock-supporting member sliding within the same, a spring separating said members, and a rope-hitch member arranged to slide in said yoke-like member.

7. As a new article of manufacture a yielding hammock-sling comprising a yoke-like member, a hammock-supporting member sliding within the same, a spring separating said members, and a rope-hitch member arranged to slide in said yoke-like member, said hitch member and yoke member cooperating to hold a rope.

8. As a new article of manufacture a yielding hammock-sling comprising a yoke-like member, a hammock-supporting member sliding within the same, a spring separating said members, a rope-hitch member arranged to slide in said yoke-like member, and a stop to limit the movement of said hitch and yoke members one toward the other.

9. A hammock-sling, provided with a movable rope-hitch member, and a stop to limit the clamping movement of said member, independently of the rope.

10. A hammock-sling having a yoke and a rope-hitch member arranged to slide therein, and provided with a stop to limit its movement, independently of the rope.

11. As a new article of manufacture a hammock-sling containing a carrying member, a hook supported thereby through the medium of a spring, and a rope-hitch member movably mounted on said carrying member, whereby a contained weight is transmitted through said spring to said rope-hitch member to cause the latter to move relative to said carrying member to cooperate with the latter in holding the rope.

12. As a new article of manufacture a hammock-supporting member provided with a head, a rope-supported member having a head, a yoke on one having sliding engagement with the other of said heads, an interposed spring and a sliding rope-hitch member in the end of said yoke.

696,414. PLANE. GEORGE P. DAVIDSON, Port Chester, N. Y. Filed Oct. 28, 1901. Serial No. 50,022. (No model.)



Claim.—1. A plane having, in combination with a plane-iron, a metal support therefor in direct contact with the iron adjacent to its cutting edge; a wooden support also in direct contact with the plane-iron above and on the same side of the iron as the said metal support; a metal reaction member on the opposite side of the plane-iron; and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said reaction member.

2. In a plane, the combination of a plane-iron having a sole comprised of wooden and of metal portions, the metal portion forming a rest for the lower end of the plane-iron; a wooden portion secured to the plane-iron and forming part thereof, and effective to form a support for the central portions of the plane-iron; legs on the metal portion; and a wooden wedge insertible between said legs and plane-iron to hold said iron in place.

3. A plane having, in combination with a plane-iron, a wooden support in direct contact with the plane-iron above the cutting edge thereof; a metal reaction member on the opposite side of the plane-iron; and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said reaction member.

4. In a plane, the combination with a plane-iron and a metal frame, of a metal support for said iron in direct contact therewith adjacent to its cutting edge; a wooden support also in direct contact with the plane-iron above and on the same side of the iron as the said metal support; a metal reaction member on the opposite side of the plane-iron; and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said reaction member.

5. In a plane, the combination with a metal frame; a wooden sole; and a plane-iron, of a metal support for said iron extending from the frame and in direct contact with the iron adjacent to its cutting edge; a wooden support also in direct contact with the plane-iron above and on the same side of the iron as the said metal support; a metal reaction member on the opposite side of the plane-iron; and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said reaction member.

6. In a plane, the combination with a metal frame; a composite sole; and a plane-iron, of a metal support for said iron extending from the frame and in direct contact with the iron adjacent to its cutting edge; a wooden support also in direct contact with the plane-iron above and on the same side of the iron as the said metal support; a metal reaction member on the opposite side of the plane-iron; and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said reaction member.

7. In a plane, the combination with a metal frame, and a wooden sole, of a wooden handle-supporting block to which said wooden sole is secured and between which the frame is clamped.

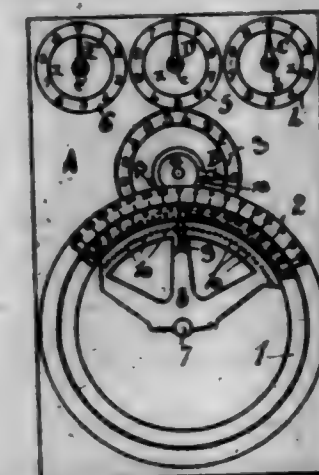
8. In a plane, the combination with a chambered metal frame, of a wooden sole comprising strips insertible in the chambers of the frame; and a wooden handle-supporting block to which said wooden sole is secured and between which the frame is clamped.

9. In a plane, the combination with a chambered metal frame, of a plane-iron, a wooden sole comprising strips insertible in the chambers of the frame in front of and at the rear of the said plane-iron, and wooden handle-supporting blocks also located in front of and at the rear of said plane-iron, and to which the wooden sole is secured and between which said sole and the frame is clamped.

10. In a plane, the combination with a wooden sole, of a metal frame in which said wooden sole is insertible and which is provided with a rubbing surface encircling the wooden sole at the side and at the ends of the plane and wooden handle-supporting blocks to which said wooden sole is secured and between which said sole and the frame is clamped.

11. In a plane, the combination with a metal frame and a plane-iron, of a wooden sole insertible in said frame; a metal support for the plane-iron in direct contact therewith adjacent to its cutting edge; a wooden support also in direct contact with the plane-iron above and on the same side of said iron as the said metal support; legs extending from opposite sides of the metal frame and constituting a reaction member located on the side of the plane-iron opposite to which said metal support and wooden support are situated, and a wooden clamping-wedge insertible between and contacting with the opposed surfaces of the said iron and the said legs.

696,415. ADDING AND SUBTRACTING MACHINE. WILLIAM A. DAY, Kearney, Neb. Filed Nov. 10, 1899. Serial No. 698,108. (No model.)



Claim.—1. The combination with a face-plate provided with a main duplex dial, an auxiliary dial, three additional dials adjacent to said auxiliary dial, all of said dials being suitably graduated, a shaft extending through said main dial, a wheel secured to said shaft provided with a plurality of small openings, a shaft-shaft centrally within each of said additional dials, an indicator secured to each of said shaft-shafts, said shaft-shafts being in gear connection, a supporting-pin secured to said main dial, a bar secured to said pin, a crank secured to said bar, said crank being secured to a suitably-supported shaft, said bar working in said wheel provided with said openings, as and for the purpose set forth.

2. The combination with a suitable supporting-housing provided with a main duplex dial, an auxiliary dial, and three additional dials, of the following instrumentalities, to wit: a pivoted indicator working within said main dial provided with a gear-caster, a pinion working in conjunction with said gear-caster, a star-shaped wheel secured to said pinion, the points of said wheel engaging said main indicator-wheel, a pinion extending from said crank, an indicator within each of said additional dials, a pin secured to each of said indicators, each of said pinions having two teeth and ten teeth, an arm extending from the first of said pinions and adapted to engage the pinion of said additional dial adjacent, an operating-arm extending from said intermediate pinion and adapted to actuate the pinion secured to the third dial-indicator, said first-mentioned pin being actuated by said pinion, as and for the purpose set forth.

696,416. SHOWER-BELL. WILLIAM F. DUNHAM, Philadelphia, Pa. Filed June 12, 1901. Serial No. 64,578. (No model.)

Claim.—1. A cushion for a spout-roll of the character depicted consisting of a heavy hub portion having its periphery formed of a multiplicity of longitudinal dovetailed ribs and recesses, and of an outer peripheral portion consisting of a thick ring of flexible or elastic material having

in interior formed of a multiplicity of longitudinal ribs and recesses complementary to those of the hub portion, said parts being pushed into longitudinal engagement one with the other with the dovetailed ribs of each portion engaging the dovetailed recesses of the other portion.



2. A section for a square-roll of the character described consisting of a heavy hub portion having its periphery formed of a multiplicity of longitudinal dovetailed ribs and recesses formed with curved or rounded edges, and of an outer peripheral portion consisting of a thick ring of flexible or elastic material having its interior formed of a multiplicity of longitudinal ribs and recesses complementary to those of the hub portion, said parts being pushed into longitudinal engagement one with the other with the dovetailed ribs of each portion engaging the dovetailed recesses of the other portion.

3. A square-roll of the character described composed of a series of sections arranged side by side and each consisting of a heavy hub portion having its periphery formed of a multiplicity of longitudinal dovetailed ribs and recesses, and of an outer peripheral portion consisting of a thick ring of flexible or elastic material having its interior formed of a multiplicity of longitudinal ribs and recesses complementary to those of the hub portion, said parts being pushed into longitudinal engagement one with the other with the dovetailed ribs of each portion engaging the dovetailed recesses of the other portion.

4. A square-roll composed of a series of sections arranged side by side and each consisting of an inner portion having its periphery provided with longitudinal ribs and recesses and of an outer peripheral portion having a flexible or elastic surface provided internally with complementary ribs and recesses engaging the ribs and recesses of the inner portion, the ribs of adjacent sections being arranged out of longitudinal alignment.

5. A section for a square-roll of the character described, consisting of a heavy hub portion having its periphery formed of a multiplicity of longitudinal dovetailed ribs and recesses of substantially T-rail shape in cross-section, and of an outer peripheral portion consisting of a thick ring of flexible or elastic material having its interior formed of a multiplicity of longitudinal ribs and recesses complementary to those of the hub portion, said parts being pushed into longitudinal engagement one with the other, with the dovetailed ribs of each portion engaging the dovetailed recesses of the other portion.

696,417. REMOVING AND CHANGING ATTACHMENT FOR NEW-
125 WASHINGTON, ALBERT H. DE VOS, Chicago, Ill. Filed July 11
1900. Serial No. 22,300. (No model.)



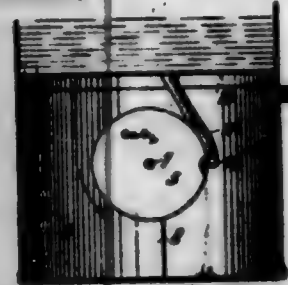
Claim.—1. In a sewing-machine attachment, the combination with a suitable supporting-frame, of a hammer carried by an arm pivoted to said frame to swing horizontally thereon and provided with a stop to limit said horizontal movement, a cooperating attachment adapted to direct material into the hammer, and an arm carrying said cooperating attachment, also pivoted to said frame to swing horizontally toward and away from the hammer and a stop to limit the horizontal movement of said latter arm; substantially as described.

2. In a sewing-machine attachment, the combination with a suitable supporting-frame, of an arm longitudinally adjustable with respect thereto and pivoted to swing horizontally thereon, a hammer supported on the end of said arm, a second arm also longitudinally adjustable with respect to said frame and pivoted to swing horizontally thereon, stops for limiting the horizontal oscillation of said arms and a suitable attachment upon the end of the second arm adapted to direct material into the hammer substantially as described.

3. In a sewing-machine attachment, the combination with a suitable frame, of a hammer carried by an arm pivoted to said frame to swing hori-

zontally thereon, an adjustable stop to limit said horizontal movement, a cooperating attachment adapted to direct material into the hammer, an arm carrying said cooperating attachment also pivoted to the frame to swing horizontally toward and away from the hammer and an adjustable stop to limit the horizontal movement of said latter arm; substantially as described.

696,418. APPARATUS FOR GENERATING ACETYLENE GAS
EDWARD H. DUCKENSON, New York, N. Y. Filed June 12, 1897. Serial
No. 640,674. (No model.)

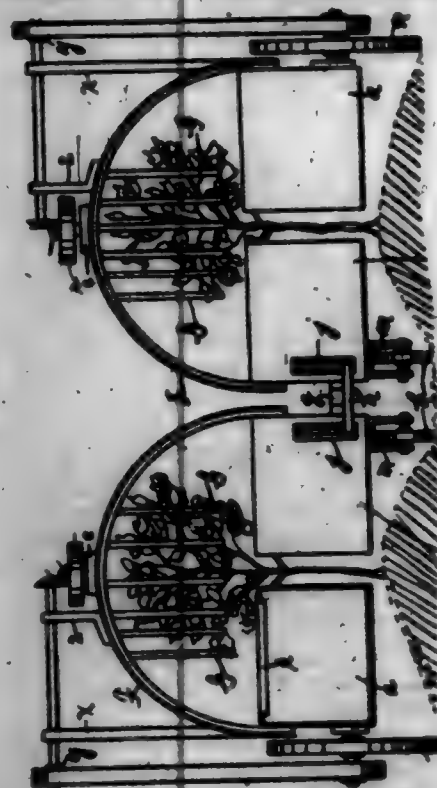


Claim.—1. In a gas-generating apparatus, the combination with a generating-receptacle, of a solid gas-generating reagent rotatably mounted within said receptacle, and means for applying a second reagent upon one side of said solid reagent, and thereby decompose the latter in such manner that it will rotate by gravity and present other parts of its surface to the action of said second reagent, substantially as described.

2. In a gas-generating apparatus, the combination with a receptacle, of a solid reagent rotatably mounted therein, a flexible conduit in communication with a fluid-supply, and a perforated tube supported by and in communication with said conduit and adapted to supply fluid to one side of said solid reagent, and thereby decompose the latter in such manner that it will rotate by gravity and present other parts of its surface to the action of the fluid, substantially as described.

3. In a gas-generating apparatus, the combination with a receptacle, of a solid reagent rotatably mounted therein, means whereby said reagent may be inserted and rotatably mounted in said receptacle, and means for applying a fluid to one side of said solid reagent, and thereby decompose the latter in such manner that it will rotate by gravity and present other parts of its surface to the action of said fluid, substantially as described.

696,419. BOLL-WHEEL OR OTHER INSECT DESTROYER
JOHN A. DRAKE, Fort Worth, and ALEXANDER C. FARRINGTON, Yonkers,
Tex. Filed Sept. 10, 1901. Serial No. 73,608. (No model.)



Claim.—1. An insect-destroyer for killing insects from growing plants comprising one or more pairs of troughs adapted to contain a liquid poison, means for passing the troughs under the plants, and means for agitating the plants as the troughs are passed thereunder consisting of rotary fans for creating constant breeze, means for mounting and operating said fans, and troughs in combination with said fans for striking the plants.

2. An insect-destroyer for killing insects from growing plants comprising one or more pairs of troughs adapted to contain liquid poison, said

ble bows for attaching said troughs in operative position, said bows being high enough to pass above the plants, a screen for each pair of troughs mounted on said bows and extending down even with the top of the walls of each trough for preventing the escape of insects, wheels provided with suitable spindles attached to said troughs for passing said troughs under the plants, a rotary fan for creating a blast mounted above each screen for agitating the plants, and suitable gearing for driving said fans from said wheels.

3. An insect-destroyer comprising one or more pairs of troughs adapted to contain liquid poison, suitable bows for attaching said troughs in operative position, said bows being high enough to pass above the plants, a screen for each pair of troughs mounted on said bows and extending down even with the top of said troughs, wheels provided with suitable spindles attached to said troughs, a rotary fan for creating a blast mounted above each screen and provided with a beveled pinion, a shaft provided with suitable bearings and a beveled cog mounted on said shaft for driving each beveled pinion, a pulley mounted on each shaft, a pulley mounted on one of the spindles of each pair of troughs, and a belt for driving said pulley.

696,420. MECHANICAL STIRRER OR POKER FOR GAS-PRODUCERS
JOHN W. DOUGHERTY, Staunton, Pa. Filed Dec. 1, 1900. Serial
No. 34,348. (No model.)



Claim.—1. In a gas-producer, the combination of a square chamber, a stirrer shaft or shafts extending parallel to walls of said chamber, stirrer-arms on said shaft or shafts, which arms extend substantially to said walls and stir substantially the whole of the horizontal cross-section of said chamber, and means for revolving said shaft or shafts, substantially as described.

2. In a gas-producer, the combination of a chamber having opposite straight walls, a stirrer shaft or shafts extending perpendicular to said walls, stirrer-arms on said shaft or shafts, which arms reach and stir substantially the whole of the horizontal cross-section of said chamber, and means for revolving said shaft or shafts, substantially as described.

3. In a gas-producer, the combination with a horizontal stirrer-shaft having arms thereon, of means for longitudinally reciprocating said shaft, substantially as and for the purpose described.

4. In a gas-producer, the combination with a horizontal stirrer-shaft, of arms on each shaft, means for longitudinally reciprocating said shaft, and means for giving each arm motion about the axis of said shaft, substantially as and for the purpose described.

5. In a gas-producer, the combination with a horizontal stirrer-shaft, of arms on each shaft, means for longitudinally reciprocating said shaft, and means for oscillating each shaft, substantially as and for the purpose described.

6. In a gas-producer, the combination with a stirrer-shaft, of arms thereon, a frame secured in and projecting through a wall of the producer, and a bearing-box for said shaft removably secured in said frame, where-

by said box can be removed to permit the withdrawal of the shaft from the producer, substantially as and for the purpose described.

7. In a gas-producer, the combination with a horizontal stirrer-shaft, of a longitudinal series of teeth on each shaft, and a pinion for engaging said teeth to reciprocate the shaft, substantially as and for the purpose described.

8. In a gas-producer, the combination with a horizontal stirrer-shaft, of a longitudinal series of circular teeth extending around each shaft, a pinion engaging said teeth to reciprocate the shaft, and means for rotating each shaft, substantially as and for the purpose described.

9. In a gas-producer, the combination with a horizontal stirrer-shaft, of a longitudinal series of circular teeth extending around each shaft, a pinion engaging said teeth to reciprocate the shaft, a shaft splined to the stirrer-shaft, a worm on each second shaft, and a worm-wheel engaging said worm, substantially as and for the purpose described.

10. In a gas-producer, the combination of a stirrer-shaft having stirrer-arms thereon, a bearing for said shaft, a box mounted in a wall of the producer, said bearing being removably attached to said box, said box having an opening in line with said bearing, which opening is large enough to permit the passage of said stirrer-arms, and a removable filling in said opening on the fire side of said bearing, substantially as described.

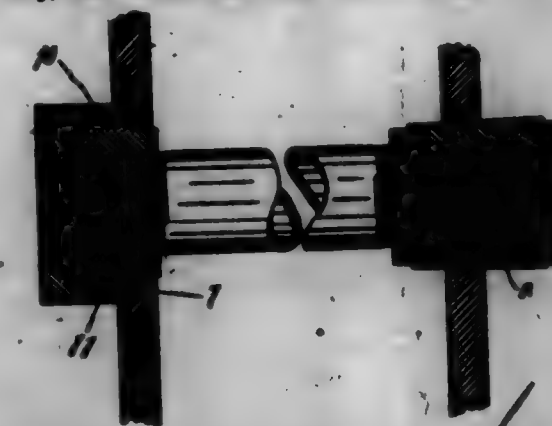
11. In a gas-producer, the combination of a stirrer-shaft having stirrer-arms thereon, a bearing for said shaft, a box mounted in a wall of the producer, said bearing being removably attached to said box, said box having an opening in line with said bearing, which opening is large enough to permit the passage of said stirrer-arms, a removable filling in said opening on the fire side of said bearing, said box having a water-chamber therein, means for conducting water to said chamber, and means for conducting steam therefrom to said producer, substantially as described.

12. The combination of a gas-producer, with one or more poker, and a rock-shaft carrying the same and mounted on the producer so as to be capable of both a rocking and a laterally-reciprocating movement thereon, substantially as specified.

13. The combination of a gas-producer, with one or more hollow poker, a hollow rock-shaft carrying the same and mounted on two producers so as to be capable of both rocking and laterally-reciprocating movement thereon, and means carried by said shaft for supplying water to and discharging it from said poker or pokers, substantially as specified.

14. The combination of a gas-producer, with a rock-shaft extending across the upper part of the same, and mounted in bearings thereon, so as to rock, and a series of pokers projecting downwardly from said rock-shaft, substantially as specified.

696,421. DETACHABLE BOILER-PLUG JULIAN F. DRAKE,
Holly, Minn. Filed Mar. 22, 1901. Serial No. 62,804. (No model.)



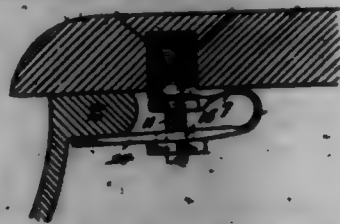
Claim.—In a boiler, the combination with a detachable flue, of a nut working with screw-threaded engagement on the outer end of said flue, and the clamping-ring 10 surrounding said flue between said nut and the flue-sheet, which clamping-ring is provided with the annular packing-ring 11 of relatively soft fireproof material, exposed for contact with the flue-sheet and with the part which it directly surrounds, substantially as described.

696,422. CLAMP FOR WASHBOWLS, &c. EDWARD A. DUFFY,
Chicago, Ill. Filed Dec. 20, 1899. Serial No. 741,594. (No model.)

Claim.—1. The combination, with a slab having a cylindrical recess, and a bowl, of a clamping device comprising a longitudinally-split thumb and a clamping-arm integrally connected therewith, a screw threaded to engage the thumb and having a conical or tapering portion to spread the same, and a nut mounted on said screw and bearing against the clamping-arm, substantially as described.

2. The combination, with a slab having a cylindrical recess, and a bowl, of a clamping device comprising a thumb of uniform external diameter adapted to fit the recess and split both longitudinally and trans-

versely, the lower portion being threaded, a screw adapted to fit said threaded portion and having a conical or tapering portion to spread the upper or vertically-split portion of the thimble, a clamping-arm to engage the bowl, and a nut mounted on the screw and bearing against the clamping-arm, substantially as described.



3. The combination, with a slab having a cylindrical recess, and a bowl, of a clamping device comprising a thimble adapted to fit the recess and split both vertically and horizontally, the lower portion being threaded, a clamping-arm adapted to engage the bowl and integrally connected with the thimble, a screw engaging the threaded portion of the thimble and having a tapering or conical portion to spread the thimble, and a nut mounted on said screw and bearing against the clamping-arm, said arm being apertured or dotted for the free passage of the screw, substantially as described.

696,428. PROCESS OF DEVULCANIZING INDIA-RUBBER. GEORGE F. J. DUNN, Brighton, England. Filed Sept. 16, 1901. Serial No. 78,881. (No specimens.)

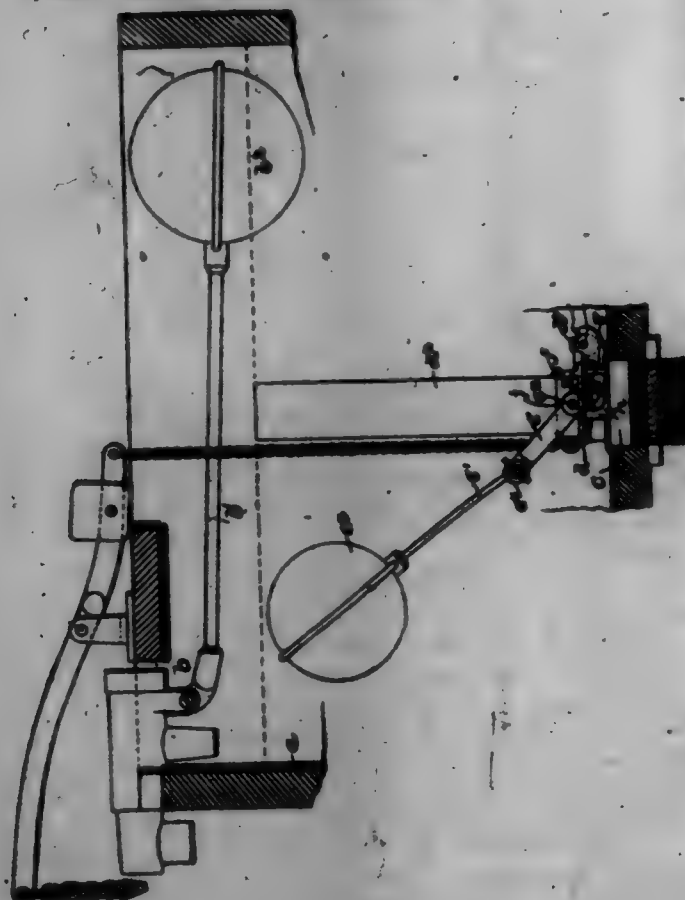
Claim.—1. In the process of devulcanizing india-rubber the improvement consisting in subjecting the india-rubber, in the presence of water, to the action of an agent containing lime having been heated to redness.

2. In the process of devulcanizing india-rubber the improvement consisting in subjecting the india-rubber, in the presence of water, and with interruption of heat to the action of an agent containing lime having been heated to redness substantially as described.

3. In the process of devulcanizing india-rubber the improvement consisting in subjecting the india-rubber in the presence of water and with intervention of heat to the action of lime having been heated to redness in combination with one or more of the usual adjuncts substantially as described.

4. In the process of devulcanizing india-rubber the improvement consisting in first preparing lime by intense calcination; then sifting the lime and introducing it into water, then kneading the india-rubber, placing it in the solution and boiling, finally removing the india-rubber and washing substantially as described.

696,424. WATER-SUPPLY APPARATUS FOR WATER-CLOSERS. VICTOR J. HENRY, Wollaston, Mass. Filed May 7, 1902. Renewed Jan. 8, 1901. Serial No. 42,948. (No model.)



Claim.—1. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, means for opening the valve, a lever fulcrumed to the valve and having a float on its longer arm, and a stop on the valve arranged to cooperate with the lever in causing the lever to close the valve while the water is subsiding in the tank, said stop being adjustable to vary the action of the lever in closing the valve.

2. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, means for opening the valve, a lever fulcrumed to the valve and having a float on its longer arm, and a stop on the valve arranged to cooperate with the lever in causing the lever to close the valve while the water is subsiding in the tank, said stop being adjustable to vary the action of the lever in closing the valve.

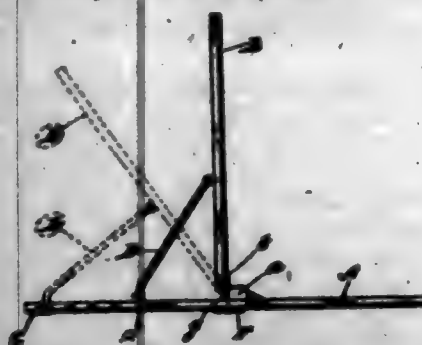
3. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, means for opening the valve, a lever fulcrumed to the valve and having a float on its longer arm, and a stop on the valve arranged to cooperate with the lever in causing the lever to close the valve while the water is subsiding in the tank, said stop being adjustable to vary the action of the lever in closing the valve.

4. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, a lever fulcrumed to the valve and having a float on its longer arm and a cam-shaped shorter arm, a stop on the valve arranged to cooperate with the lever in causing the lever to close the valve when the water subsides in the tank, and a fixed stop adjacent to the valve-seat, said cam-shaped arm and fixed stop being arranged relatively to each other and to the lever to arrest the closing movement of the valve before the latter reaches its seat, thereby causing a retarded flow through the outlet until the longer arm of the lever is raised by the rise of water in the tank during said retarded flow, and to then permit the closing of the valve.

5. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, a lever fulcrumed to the valve and having a float on its longer arm and a cam-shaped shorter arm, a stop on the valve arranged to cooperate with the lever in causing the lever to close the valve when the water subsides in the tank, and a fixed stop adjacent to the valve-seat, said cam-shaped arm and fixed stop being arranged relatively to each other and to the lever to cooperate as described in first arresting and then permitting the completion of the closing movement of the valve, the said fixed stop being adjustable to vary the period of said retarded flow.

6. A water-supply apparatus comprising a tank having an outlet surrounded by a valve-seat, a hinged valve controlling the outlet, means for opening the valve, a lever fulcrumed to the valve and having a float on its longer arm, a stop on the valve, arranged to limit the independent upward movement of the lever and cause the float thereof to hold the valve open while the float is supported by water in the tank, and a stop on the valve, arranged to limit the independent downward movement of the valve and cause the float to close the valve when the water subsides in the tank.

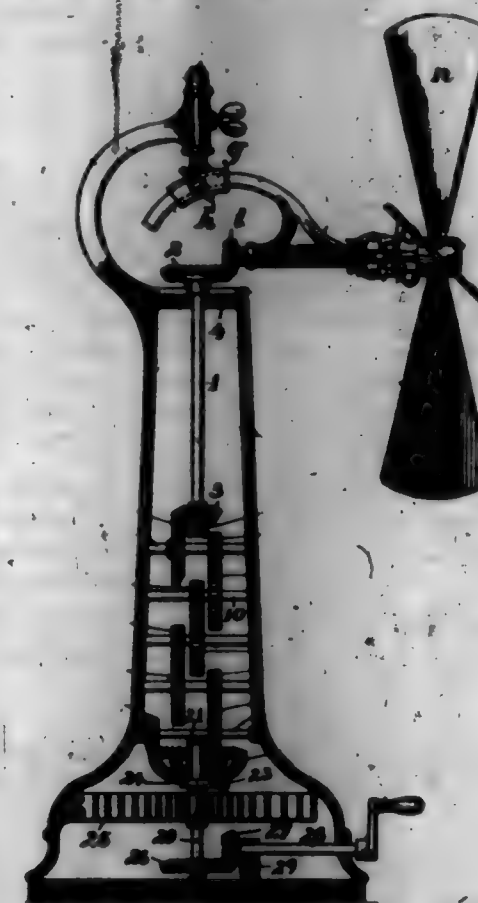
696,425. LAWNSCAT. MARK C. FARR, Chicago, Ill. Filed July 8, 1901. Serial No. 77,408. (No model.)



Claim.—A resilient lawnscat having a jointed or articulated base and adjustable back, a rack upon the upper side of the base and a pawl attached to the back and adapted to engage with the rack for adjustment, substantially as described.

696,426. FAN. GREEN & FRYMONT, Wash. D.C. Filed May 20, 1901. Serial No. 42,949. (No model.)

Claim.—1. In a fan of the character described, the combination with a base, a bevel-gear centrally mounted upon a vertical shaft within said base, mechanism for operating said shaft, and an arm upon said base, carrying a bracket; of an adjustable socket rotatably mounted in said bracket, a curved arm adjustably mounted in said socket, and a horizontally-disposed fan-shaft supported by said curved arm, carrying a gear adapted to mesh with the gear upon said vertical shaft, substantially as described.



2. In a fan of the character described, the combination with a base, a bevel-gear centrally mounted upon a vertical shaft within said base, mechanism for operating said shaft, and an arm upon said base, carrying a bracket; of an adjustable socket rotatably mounted in said bracket, a curved arm adjustably mounted in said socket, a horizontally-disposed fan-shaft supported by said curved arm, carrying a gear adapted to mesh with the gear upon said vertical shaft, and a centrifugal speed-governor mounted upon said fan-shaft, substantially as described.

3. In a fan, the combination with the base or standard, operating mechanism carried thereby, and an arm carried by said base; of a fan-shaft supported by said arm, mechanism for driving said fan-shaft, mechanism for adjustably securing said fan-shaft in any desired position, and a centrifugal speed-governor carried by said fan-shaft for maintaining a uniform speed of the fan, substantially as described.

4. In a fan, the combination with the base, fan-operating mechanism carried thereby, and a bevel-gear mounted upon a vertical shaft in said base and connected to said fan-operating mechanism; of a fan-shaft carrying a gear-wheel adapted to mesh with the gear-wheel upon said vertical shaft, and a curved arm for adjustably securing said fan-shaft in any desired position in both the horizontal and the vertical planes, without destroying the mesh of the said gears, substantially as described.

5. In a fan, the combination with a base, fan-operating mechanism carried thereby, and a bevel-gear mounted upon a vertical shaft in said base, and connected to said fan-operating mechanism; of a fan-shaft carrying a gear provided with curved teeth adapted to mesh with said bevel-gear upon the vertical shaft, a curved arm having an arc struck with its center in the pitch-line of the two gears, and provided with a bearing for supporting the said fan-shaft, and means for adjusting the inclination of said fan-shaft, substantially as described.

6. In a fan, the combination with a base, fan-operating mechanism carried thereby, and a bevel-gear mounted upon a vertical shaft in said base, and connected to said fan-operating mechanism; of a fan-shaft carrying a gear provided with curved teeth adapted to mesh with said bevel-gear upon the vertical shaft, a curved arm having an arc struck with its center in the pitch-line of the two gears, and provided with a bearing for supporting the said fan-shaft, means for adjusting the inclination of said fan-shaft, and means for adjusting said shaft in the horizontal plane, substantially as described.

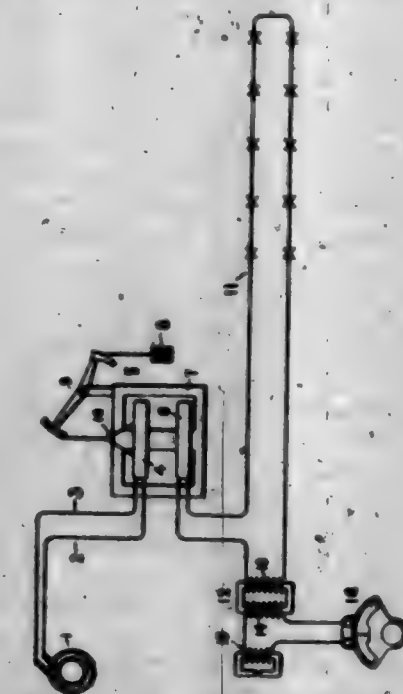
7. In a fan, the combination with a base, fan-operating mechanism carried thereby, and a bevel-gear mounted upon a vertical shaft in said base, and connected to said fan-operating mechanism; of a fan-shaft car-

rying a gear provided with curved teeth adapted to mesh with said bevel-gear upon the vertical shaft, a curved arm having an arc struck with its center in the pitch-line of the two gears, and provided with a bearing for supporting the said fan-shaft, means for adjusting the inclination of said fan-shaft, means for adjusting said shaft in the horizontal plane, and a governor upon said fan-shaft for controlling the speed of the fan, substantially as described.

8. In a fan, the combination with a base, a bevel-gear centrally mounted upon a vertical shaft within said base, and mechanism for operating said shaft; of a horizontally-disposed fan-shaft, a gear carried thereby, and an adjustable curved arm supporting said fan-shaft, the curvature of said arm being in an arc of a circle struck from the pitch-line of the two gears, substantially as described.

9. In a fan, the combination with a base, fan-operating mechanism carried thereby, and a bevel-gear mounted in said base; of a fan-shaft carrying a gear-wheel adapted to mesh with the gear-wheel upon said vertical shaft, and a curved arm, adapted to support said fan-shaft in any desired position in both the horizontal and vertical planes, the curve of said arm being in the arc of a circle struck from a pitch-line of the two gears, substantially as described.

696,427. ELECTRIC INDICATING INSTRUMENT. RICHARD FLEMING LYNN, Mass., assignor to General Electric Company, a Corporation of New York. Filed Nov. 21, 1901. Serial No. 42,160. (No model.)



Claim.—1. The combination with a current-indicating device, of means for causing the indications of said device to change with change of wave shape of current by which it is influenced.

2. The combination of an arc-light circuit, means for supplying thereto a substantially constant current, a current-indicating device for said circuit, and means for causing the indications of said device to change with change of wave shape of current in said circuit.

3. The combination of an electric circuit, a magnetic core magnetized to saturation by current flowing in said circuit, a current-indicating device, and means for impressing upon said device an electromotive force which varies in response to variation of magnetization of said core.

4. The combination of an electric circuit, a transformer having its primary in series with said circuit and so proportioned that its magnetic core is magnetized to saturation or near saturation, an indicating device, and connection between the secondary of said transformer and said indicating device.

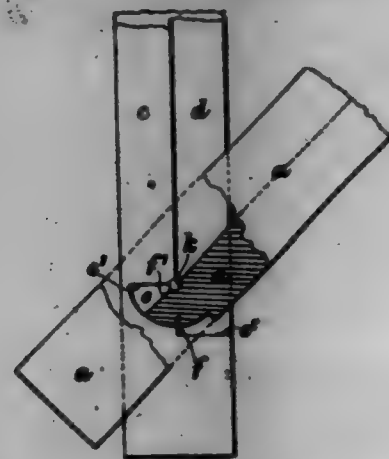
5. The combination of an electric circuit, a transformer having its primary in series with said circuit, an indicating device connected to the secondary of said transformer, and a device possessing reactance connected in circuit between the said secondary and said indicating device.

6. The combination of an electric circuit arranged to carry in normal operation a substantially constant current, a magnetic core, a winding supplied with current from said circuit and connected on the said core, said core being so proportioned that the difference of potential at the terminals of said winding varies with variation of wave shape of the current in said circuit, and an indicating device operatively related to said winding.

7. The combination with an electric circuit, of a current-indicating device therefor, and means for causing said indicating device to respond not only to changes in the amount of current flowing, but also to changes in the wave shape of the current.

8. The combination with an electric circuit, of a current-indicator therefor, and means for causing said current-indicator to respond not only to changes in the amount of current flowing in said circuit but also to changes of frequency of said current and to changes of wave shape of said current.

690,428. WINDOW. JAMES PRYDE, Briton, England. Filed July 12, 1899. Serial No. 62,000. (No model.)



Claim.—1. In reversible sliding window-sashes pivoted to sash-means for supporting the sash when projecting inwardly or outwardly, consisting of forming the adjacent rabbeted faces of the stile and sash, one with a segmental projection adapted to enter a correspondingly-formed recess in the other, when the sash is swung into a horizontal position and to abut against one wall thereof substantially as set forth.

2. In reversible sliding window-sashes, a sash, a sash pivoted thereto, a segmental projection on one of said parts adapted to enter a correspondingly-formed recess in the other part, a block on one face and a correspondingly-formed recess in the other face, said block together with the segmental projection serving to support the sash, the said block and its recess being independent of the projection and the recess adapted to receive the same, substantially as described.

3. In reversible sliding window-sashes, a sash, a sash pivoted thereto, a segmental projection on one of said parts adapted to enter a correspondingly-formed recess in the other part, a block on one face and a correspondingly-formed recess in the other face, said block together with the segmental projection serving to support the sash, the said block and recess being formed with their meeting edges concentric with the arc of the segmental projection, the said block and its recess being independent of the projection and the recess adapted to receive the same, substantially as described.

696,429. SOLDERING-IRON. HENRY GUNTERMAN and TYRON VAN ALLEN, Schenectady, N. Y., assignors to General Electric Company, a Corporation of New York. Filed Nov. 21, 1900. Serial No. 37,200. (No model.)



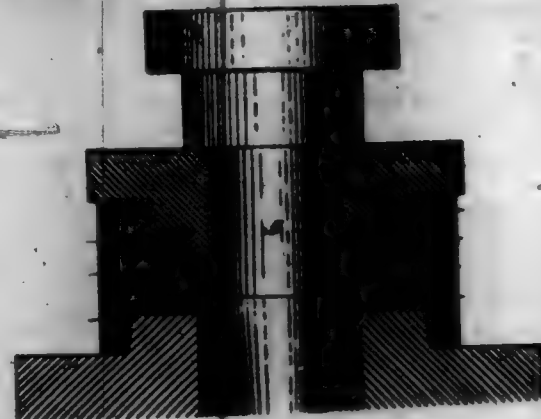
Claim.—1. An electric soldering-iron, having its point provided with a shank, and a resistance-coil wound on said shank having its layers separated by a cord of heat-retaining and insulating material.

2. An electric soldering-iron, having its point provided with a shank, said shank projecting radially from said shank near its end, a cord of heat-retaining insulating material wound in a zigzag form on said shank, and a helical coil of bare wire wound transversely to said cord, its layers separated by the strands of said cord.

3. An electric soldering-iron, having its point provided with a shank, radial studs on said shank, a resistance-coil wound helically on said shank, a cord of heat-retaining and insulating material wound lengthwise of the shank around the studs and lying between, and transverse to, adjacent layers of wire, and a jacket inclosing the coil and secured to said studs.

4. In an electric soldering-iron, the combination with a tubular handle, of a perforated tube extending therefrom, a hand secured to the tube, a jacket secured to the hand, a heat-retaining lining for the hand and jacket, a soldering-iron point having a shank, a resistance-coil wound on the shank inside the jacket, with open air-spaces between its turns and layers, and conducting-wires running through the handle and connected with the terminals of the coil.

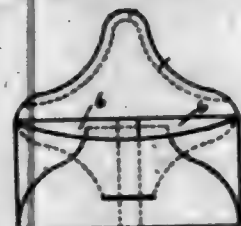
696,480. PRESS-MOLD FOR HOLLOW ARTICLES. WILLIAM J. GREENWOOD, Trenton, Pa., assignor to Charles L. Finsen, Philadelphia, Pa. Filed July 12, 1901. Serial No. 62,001. (No model.)



Claim.—1. A press-mold for bottles or other hollow articles having a mold-ring centered thereon, a top plate having insulating projections and recesses with the mold-ring, said plate forming a joint with the mold-ring at the top of the bottle, and having a projection entering the mouth of the bottle, and a central hole in said plate for the passage of the plunger for pressing the bottle; substantially as described.

2. A press-mold for bottles or jars, having a mold-ring centered thereon and provided with a globular recess arranged to form a projection at the upper end of the neck, a top plate having insulating projections and recesses with the mold-ring, said plate forming a vertical joint with the mold-ring at the top of the bottle and having a projection entering the mouth of the bottle, the plate also having a central hole for the passage of the plunger for pressing the bottle; substantially as described.

696,481. ENVELOP. WILLIAM A. HARRISON and JAMES C. KARL, Oil City, Pa. Filed July 10, 1901. Serial No. 67,200. (No model.)



Claim.—An envelop comprising a central or body portion, a lower flap, and an upper sealing-flap, wings at the opposite ends of the body portion, a slit cut in the lower flap, the said wings and lower flap being folded to bring the slit over the overlapping edges of the wings, security-flaps carried by the upper edges of the wings and lower flap respectively, the upper flap having a tongue adapted to be passed through the slit and into the space formed between the lower flap and the overlapping ends of the wings, substantially as set forth.

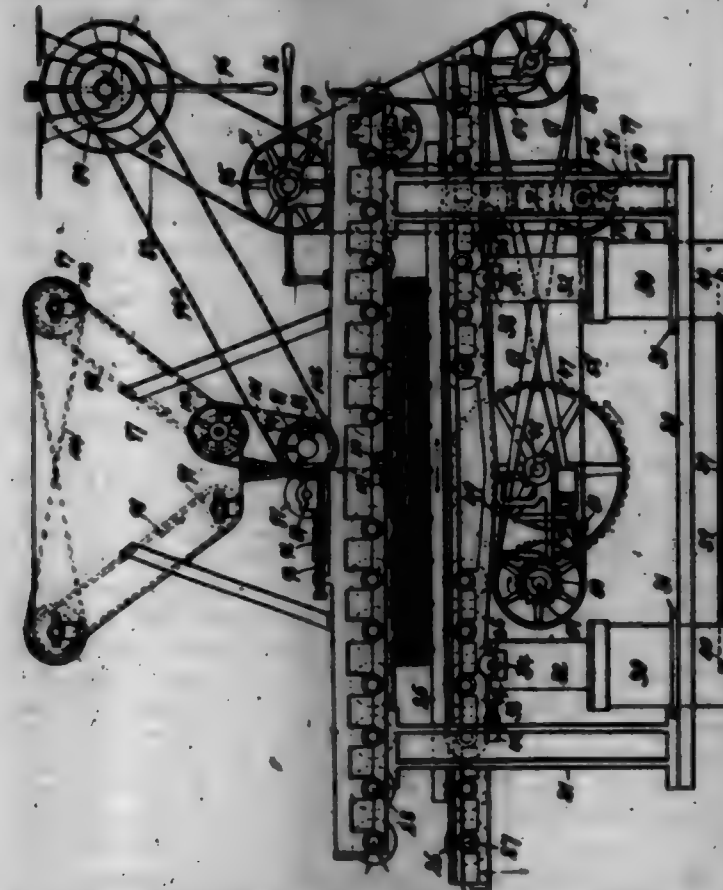
696,482. PRESS FOR BALKING COTTON OR ANALOGOUS MATERIALS. GEORGE E. HARVEY, Hamilton, Canada, and EDWARD A. WEBER, Birmingham, Ala. Filed Mar. 22, 1901. Serial No. 52,687. (No model.)

Claim.—1. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said reciprocal table between the pressure-surfaces of said fixed and movable members.

2. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, lifts for moving said vertically-movable member and having pivotal connections with the same to permit the tilting, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.

3. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, lifts for moving said vertically-movable member and having pivotal connections with the same to permit the tilting, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.

then, a vertically-movable member cooperating with said fixed member and adapted to being tilted, lifts for moving said vertically-movable member and having pivotal connections with the same to permit the tilting, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, a hopper for receiving the material to be compressed, converging endless aprons for conveying the material out of said hopper and forming it into a bat, compressing-rolls for receiving the bat as it leaves the hopper, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.



4. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, cylinders provided with longitudinal internal ribs, pistons pivotedly connected with said movable member and movable in said cylinders and bearing against said ribs, means for introducing fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.

5. In a press, a base-plate provided with guides, pistons mounted on said base-plate, a fixed member secured to said columns and having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, flanged cylinders coated in said guides, pistons movable in said cylinders and pivotedly connected with said vertically-movable member, means for introducing fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.

6. In a press, a base-plate provided with guides, columns mounted on said base-plate, a fixed member secured to said columns and having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, brackets pivoted to said movable member, friction-rolls journaled on said brackets and bearing against said columns, flanged cylinders coated in said guides and having longitudinal internal ribs, pistons connected with said movable member and bearing against said ribs and pivotedly connected with said movable member, means for introducing fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table, means for forming the material to be compressed into a bat, and a folding mechanism carried by said fixed member and means actuated by the movement of said table carried by the vertically-movable member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members.

7. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, pivoted brackets, folding-rolls carried by said brackets, and a hinged plate connected with said brackets and mounted in the path of travel of said table to be struck by the same and thereby oscillate said brackets.

8. In a press, a fixed member, a movable member cooperating with said fixed member, a reciprocal table carried by said movable member, pivoted brackets, folding-rolls carried by said brackets, and a hinged plate connected with said brackets and mounted in the path of travel of said table to be struck by the same and thereby oscillate said brackets.

9. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, pivoted brackets, folding-rolls carried by said brackets, a hinged plate mounted in the path of travel of said table to be struck by the same, and a rod connecting said plate with said brackets.

10. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, pivoted brackets, folding-rolls carried by said brackets, a hinged plate mounted in the path of travel of said table to be struck by the same, a rod connected with said plate and brackets, and a link connecting said rod with the free end of said plate.

11. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, a pivoted bracket provided with a slotted arm, folding-rolls journaled in said bracket, a rod carrying a pin engaging with the slotted arm of said bracket, a hinged plate mounted in the path of travel of said table to be struck by the same, and a link connecting said rod with the free end of said plate.

12. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, pivoted brackets, relatively adjustable folding-rolls carried by said brackets, a hinged plate mounted in the path of travel of said table to be struck by the same, and a rod connecting said plate with said brackets.

13. In a press, relatively movable compressing members, a reciprocal table carried by one of said members, a pivoted bracket provided with a slotted arm, relatively adjustable bearing-blocks pivoted in said bracket, folding-rolls having their shafts journaled in said bearing-blocks, a hinged plate adapted to be struck by said table, a rod having a pin engaging with the slotted arm of said bracket, and a link connecting said rod with the free end of said plate.

14. In a press, a fixed member, a movable member, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for moving said table back and forth on said movable member, an elongated hinged plate extending parallel with the line of movement of said movable member to and from said fixed member and mounted in the path of travel of said table to be struck by the same and thereby oscillate, and a folding mechanism operated by said plate.

15. In a press, a fixed member, a movable member, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for moving said table back and forth on said movable member, an elongated hinged plate extending parallel with the line of movement of said movable member to and from said fixed member and mounted in the path of travel of said table to be struck by the same and thereby oscillate, brackets pivoted to said fixed member, folding-rolls carried by said brackets, and means for connecting said plate to said brackets to convey motion from one to the other.

16. In a press, a fixed member, a movable member, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for moving said table back and forth on said movable member, an elongated hinged plate extending parallel with the line of movement of said movable member to and from said fixed member and mounted in the path of travel of said table to be struck by the same and thereby oscillate, brackets pivoted to said fixed member, relatively adjustable folding-rolls carried by said brackets, and a rod connecting said plate with said brackets to convey motion from one to the other.

17. In a press, a fixed member, a movable member, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for reciprocating said table, brackets pivoted to said fixed member, folding-rolls carried by said brackets, a rod connected with said brackets, and pivoted plates connected with said brackets and mounted in the path of travel of said table to be struck by the same at the end of a stroke and moved thereby to oscillate the brackets carrying the folding-rolls.

18. In a press, a fixed member, a movable member, means for moving the latter to and from said fixed member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, an elongated hinged plate extending parallel with the line of movement of said movable member to and from said fixed member and mounted in the path of travel of said table to be struck by the same and thereby oscillate, and a folding mechanism operated by said plate.

on said movable member, folding mechanism for depositing the material to be compressed in layers between said members, and operative mechanism connected with said folding mechanism and mounted parallel with the line of movement of said movable member to and from the fixed member and in the path of travel of said table to be put in motion by the same.

19. In a press, a fixed member having rolls forming its pressure-surface, a movable member, means for moving the latter to and from said fixed member, a reciprocal table carried by said movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers between the pressure-surfaces of the fixed and movable members, and operative mechanism connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

20. In a press, a fixed member having rolls forming its pressure-surface, a movable member, means for moving the latter to and from said fixed member, a reciprocal table carried by said movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, a hopper for receiving the material to be compressed, conveying rollers upon the material to be compressed, and forming it into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism carried by said fixed member for depositing the bat in layers between the pressure-surfaces of the fixed and movable members, and operative mechanism connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

21. In a press, a fixed member, a movable member adapted to be tilted, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers between said members, and operative mechanism connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

22. In a press, a fixed member, a movable member adapted to being tilted, cylinders provided with longitudinal internal ribs, pistons movable in said cylinders and bearing against said ribs and pivotally connected with said movable member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

23. In a press, a base-plate provided with sockets, columns mounted on said base-plate, a fixed member secured to said columns, a movable member adapted to being tilted, guides carried by said movable member and bearing against said columns, flanged cylinders seated in said sockets and provided with longitudinal internal ribs, pistons movable in said cylinders and bearing against said ribs and pivotally connected with said movable member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism for depositing the bat in layers between the pressure-surfaces of the fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

24. In a press, a fixed member having rolls forming its pressure-surface, a movable member, means for moving the latter to and from said fixed member, a reciprocal table carried by said movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, a hopper for receiving the material to be compressed, conveying rollers upon the material to be compressed, and forming it into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism for depositing the bat in layers between the pressure-surfaces of the fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be put in motion by the latter.

25. In a press, a fixed member, a movable member adapted to being tilted, means for moving said movable member to and from said fixed member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, folding mechanism for depositing the material to be compressed in layers between said members, and a hinged plate connected with said folding mechanism

mounted parallel with the line of movement of said movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

26. In a press, a fixed member, a movable member adapted to being tilted, cylinders provided with longitudinal internal ribs, pistons movable in said cylinders and bearing against said ribs and pivotally connected with said movable member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers between said members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

27. In a press, a base-plate provided with sockets, columns mounted on said base-plate, a fixed member secured to said columns, a movable member adapted to being tilted, guides carried by said movable member and bearing against said columns, flanged cylinders seated in said sockets and provided with longitudinal internal ribs, pistons movable in said cylinders and bearing against said ribs and pivotally connected with said movable member, a reciprocal table carried by said movable member, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism for depositing the bat in layers between the pressure-surfaces of the fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

28. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, a hopper for receiving the material to be compressed, conveying rollers upon the material to be compressed, and forming it into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

29. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, lifts for moving said vertically-movable member and having pivotal connections with the same to permit its tilting, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

30. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, lifts for moving said vertically-movable member and having pivotal connections with the same to permit its tilting, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, a hopper for receiving the material to be compressed, conveying rollers upon the material to be compressed, and forming it into a bat, compressing-rolls for receiving the bat as it leaves the hopper, a folding mechanism for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members, and a hinged plate connected with said folding mechanism and mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

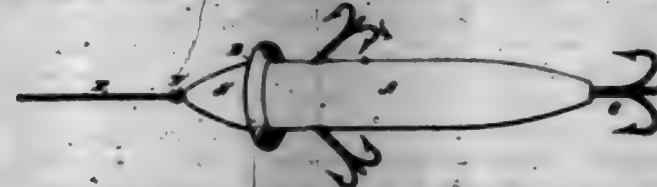
31. In a press, a fixed member having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, cylinders provided with longitudinal internal ribs, pistons pivotally connected with said movable member and movable in said cylinders and bearing against said ribs, means for introducing a fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and

movable members, and a hinged plate connected with said folding mechanism mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

32. In a press, a base-plate provided with sockets, columns mounted on said base-plate, a fixed member secured to said columns and having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, flanged cylinders seated in said sockets, pistons movable in said cylinders and pivotally connected with said vertically-movable member, means for introducing fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said fixed and movable members, and a hinged plate connected with said folding mechanism mounted parallel with the line of movement of said movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

33. In a press, a base-plate provided with sockets, columns mounted on said base-plate, a fixed member secured to said columns and having rolls forming its pressure-surface, a vertically-movable member cooperating with said fixed member and adapted to being tilted, brackets secured to said movable member, friction-rolls journaled on said brackets and bearing against said columns, flanged cylinders seated in said sockets and having longitudinal internal ribs, pistons movable in said cylinders and bearing against said ribs and pivotally connected with said movable member, means for introducing fluid under pressure into said cylinders, a reciprocal table carried by said vertically-movable member and forming the pressure-surface for the same, means for reciprocating said table back and forth on said movable member, means for forming the material to be compressed into a bat, a folding mechanism carried by said fixed member for depositing the bat in layers upon said table between the pressure-surfaces of said members, and a hinged plate connected with said folding mechanism mounted parallel with the line of movement of the movable member to and from the fixed member and in the path of travel of said table to be struck by the latter and thereby operate said folding mechanism.

696,483. FISH-BAIT. JAMES HENSON, Doughton, Mich. Filed Jan. 2, 1902. Serial No. 82,851. (No model.)



Claim.—1. In a fish-bait, the combination of a body; a head portion the point of which is above the center of the body portion; a collar between said head and body portion, the upper portion of which projects forwardly and the lower portion of which projects rearwardly, for the purpose specified.

2. In a fish-bait, the combination of a body; a head portion the point of which is above the upper of the body portion whereby spinning is prevented and the bait held right side up; a collar between said head and body portion, for the purpose specified.

3. In a fish-bait, the combination of a body portion; a collar thereon, the upper portion of which projects forwardly, and the lower portion of which projects backwardly, for the purpose specified.

4. In a fish-bait, the combination of a body; having sockets therein; hooks the eyes of which are secured at the bottom of said sockets, for the purpose specified, whereby the hooks are supported to project outwardly from said body.

5. In a fish-bait, the combination of the body portion; hooks detachably secured to said body portion by a screw-eye, the eye of which is open at the outer end of the shank, for the purpose specified.

696,484. SPRING COMPRESSION-COOK. EDWARD S. HEDDER, Newark, N. J. Filed Aug. 15, 1901. Serial No. 71,868. (No model.)

Claim.—1. A compression-cook having the casing *a* with guides *g* for a valve-out, the said movable therein and carrying the valve-washer *j* and having the stem *d* fitted in the guides *g*, the valve-stem *d* having a thread fitted to the valve-out, and having the collar *e* above each thread, the packing-plate *m* fitted to the top of the casing with packing *n* fitted to the under side of the collar, a spring-actuator *f* fitted around the collar, the cover *q* clamping the abutment upon the top of the casing, and the torsional spiral spring *o* wound about the spindle above the abutment, and having its ends secured respectively to the abutment and to the spindle

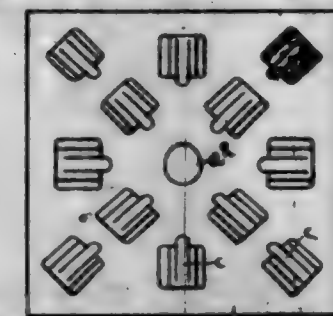
to normally force the valve-washer upon the seat by the tension of the spring.



2. A compression-cook having a casing with guides for a valve-out, a valve-out movable therein and carrying the valve-washer *j*, a valve-stem having a thread fitted to the valve-out and a collar above each thread, a shoulder in the casing below each collar with a packing-disk and a packing-plate thereon, a recess in the packing-plate with packing fitted to the under side of the collar, a spring-actuator fitted above the collar and provided with marginal flange *f*, the cover *q* screwed upon the top of the casing and adapted to clamp the abutment and packing device, and the spring attached to the abutment and having spring-holder attached to the spindle, whereby the abutment may be adjusted in relation to the spindle and clamped by the cover, substantially as herein set forth.

3. A compression-cook having a casing with guides for a valve-out, a valve-out movable therein and carrying the valve-washer *j*, a valve-stem having a thread fitted to the valve-out and a collar above each thread, a packing-plate fitted to the top of the casing with packing fitted to the collar, an adjustable circular abutment fitted to the top of the collar and a spring-holder secured upon the spindle above the same with a spiral spring having its ends each bent in the plane of the final coil and fixed respectively to sockets in the abutment and in the spring-holder, as and for the purpose set forth.

696,485. GAME APPARATUS. WILLIAM C. HENNINGER, Chicago, Ill. Filed Apr. 25, 1900. Serial No. 12,916. (No model.)

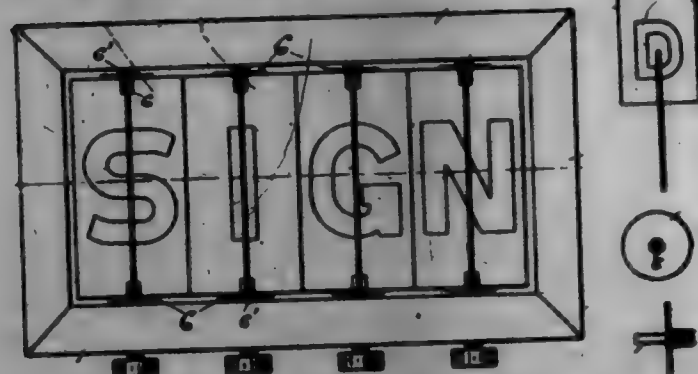


Claim.—1. In a game or puzzle apparatus, the combination with a rectangular box *A*, of a board *a* adapted to form a cover or top for said box and provided at two opposed edges with inwardly-extending flanges *a'* to telescope with the corresponding side portions of the box *A*, the said board having holes therein, thirteen in number, arranged one near each corner of the board and at the corner of a rectangle, one at the center of the rectangle, one between the center and each corner and one between adjacent corner-holes, and a plurality of movable objects, twelve in number, adapted to be stored within the box when not in use but to cooperate with said holes and be manipulated with reference thereto when in use substantially as described, each said object having a line of larger dimensions than said holes whereby the hole is entirely concealed from view when the object is placed thereover, and a shank carried upon the base of each said object to extend through said holes, said shank being tapered to facilitate the seating and removal of the object, substantially as herein described and for the purpose set forth.

2. In a game or puzzle apparatus, the combination with a rectangular box *A*, of a board *a* adapted to form a cover or top for said box and provided at two opposed edges with inwardly-extending flanges *a'* to telescope with the corresponding side portions of the box *A*, the said board having holes therein, thirteen in number, arranged one near each corner of the board and at the corner of a rectangle, one at the center of the rectangle, one between the center and each corner and one between adjacent

corner-holes, and a plurality of movable objects, twelve in number, adapted to be stored within the box when not in use but to cooperate with said holes and be manipulated with reference thereto when in use substantially as described, each said object having a body portion made to simulate a frog and having a base of larger dimensions than said holes where-by the same are completely covered when a frog is placed thereover, a Shank carried upon the base to extend through the holes and being tapered to facilitate seating and removing the object, the shanks and holes being constructed to permit forcing the frogs toward the center of the board, and one of the frogs being provided with a distinguishing-mark such as a different color, substantially as and for the purposes set forth.

696,436. CHANGEABLE SIGN. THEODORE F. HEIDEMANN, Osmersville, Ind., assignor of one-half to Francis T. Kovic, Osmersville, Ind. Filed July 20, 1900. Serial No. 24,494. (No model.)



Claim.—1. In a sign the combination of a frame, sign-sections consisting of plates radiating from a central point journaled side by side therein so that when the flat surface of one set of plates is presented to the eye, the edges of the others are presented, plates upon the upper and lower edges of the radiating plates of each section having studs to fit in between the plates and having a projecting pivot to journal the section in the frame, substantially as shown and described.

2. In a sign the combination of a frame, sign-sections journaled therein each consisting of two sign-bearing plates one having a slot cut into its lower edge upward and the other having a slot cut into its upper edge downward to fit them together, plates having studs to fit in between said sign-bearing plates when they are fitted together and having projecting pivots upon which the sections are journaled in the frame, substantially as shown and described.

696,437. CARDING-ENGINE. JOHN R. HINDLIFF and JAMES HALL, Maynard, Mass. Filed July 1, 1901. Serial No. 66,621. (No model.)

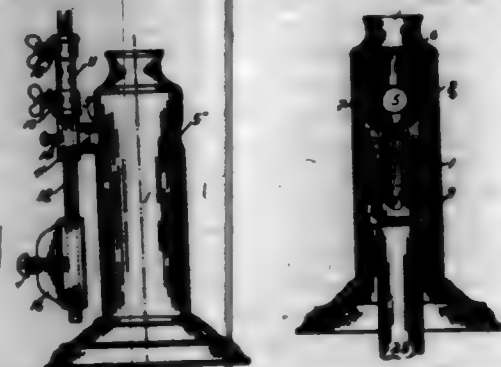


Claim.—1. The combination of a breaker and finisher, each provided with a series of work-rolls, and means arranged to carry back the end of one from the edges of any finishing-roller to the edges of any breaker-roller, substantially as described.

2. The combination of a breaker and a finisher, each provided with a series of work-rolls, and means arranged to carry back the end of one from the edges of the first roller of the finisher to the edges of the last roller of the breaker, substantially as described.

3. The combination of a breaker and a finisher, each provided with a series of work-rolls and means for carrying back the end of one from the edges of any finishing-roller to the edges of any breaker-roller, said means including belts arranged in pairs and running from pulleys located at a considerable height above the breaker and finisher to said breaker and finisher, respectively, substantially as described.

696,438. FIRE-KINDER FOR FIRE-ENGINE. HENRY W. RIVER, Scranton, Pa. Filed Dec. 4, 1901. Serial No. 24,626. (No model.)



Claim.—1. The herein-described fire-kindler for fire-engines comprising a standard, a gas-pipe, a turn-valve supported therein and having connection with said gas-pipe, a gas-supply, an arm extending upward from the turn-valve, a weight adapted to hold the said turn-valve normally closed, and the arm extended upward arranged to be turned over by the fire-box of an engine passing over it, whereby the said turn-valve is operated, substantially as and for the purpose specified.

2. A fire-kindler for fire-engines comprising a gas-pipe, said pipe leading to a valve secured by a standard, and a small passage-way connected with the pipe above and below the valve, a turn-cock arranged to support a flame above the valve, a turn-cock arranged therein, and counterbalanced so as to remain normally closed, and provided with an arm extended upward and arranged to come in contact with the fire-box of an engine when it passes thereover, substantially as and for the purpose specified.

3. In a fire-kindler of the kind described, the combination with a gas-pipe, of a gas-tube, a valve controlling the flow therethrough, and a small tube having communication with the main tube above and below the said valve, whereby a small quantity of gas may escape around the valve, and means for automatically opening the valve when the engine passes thereover, substantially as and for the purpose specified.

4. In a fire-kindler of the kind described, the combination with a main gas-supply pipe leading to a valve member, a standard arranged to support said valve member, a small tube arranged to conduct a flow of gas around the valve in the said valve member, and to be lighted in the vicinity of the mouth or opening of the main supply-pipe, and means for automatically operating the said valve for the purpose of controlling the flow of gas through the main supply-pipe, substantially as and for the purpose specified.

696,439. BURIAL-CASKET. CHARLES H. HINER, Springfield, Ohio, assignor to the Springfield Metallic Casket Company, Springfield, Ohio, a Corporation of Ohio. Filed Aug. 26, 1901. Serial No. 72,264. (No model.)



Claim.—1. A casket having fixed ends and vertically-straight sides, the ends having projections thereon to support the cover flush with the tops of said ends, a cover adapted to rest on said projections, consisting in part of a removable lid and in part of movable pieces hinged to each of the straight sides, in their normal position projecting upwardly and inwardly, sliding under the removable lid and forming additional supports therefor, one of said straight sides being rigid with the end pieces, the other with its movable top piece being hinged so as to turn down and thus expose the side of the casket and form, with the main body of the casket, a seat or couch, as described.

2. In a casket, a main casket-body, formed of the bottom, ends and vertically-straight sides, the bottom, ends, and one side being rigid, cover-supports on each end adapted to allow said ends to project upwardly and stand flush with the top of the cover, the cover proper consisting of a removable lid and two hinged pieces attached to the sides, one of said sides being hinged to the main body and adapted, when the lid is removed, to turn with its hinged top piece to form with the main body, a seat-front, while the other top piece is turned back in imitation of a head-rest, the ends of the casket forming the arms of a seat or couch, as set forth.

3. In a casket, the combination with the base and respective ends of said casket, said ends having projections thereon at the side of said casket, of a hinged side with handle-bars thereon, said side, when in its closed position, fitting between said base and said projections, substantially as specified.

4. In a casket, the combination with the ends, and a hinged side piece extending the full outside length of the casket and having legs thereon adjacent to the lower sides of said ends, of a top piece extending between said casket ends, said top piece having rounded ends for said legs, and shoulders to limit the movement of said top piece, substantially as specified.

696,440. SHOOL-LOCK. THOMAS G. HOLLAND, Philadelphia, Pa. Filed May 22, 1899. Serial No. 714,778. (No model.)

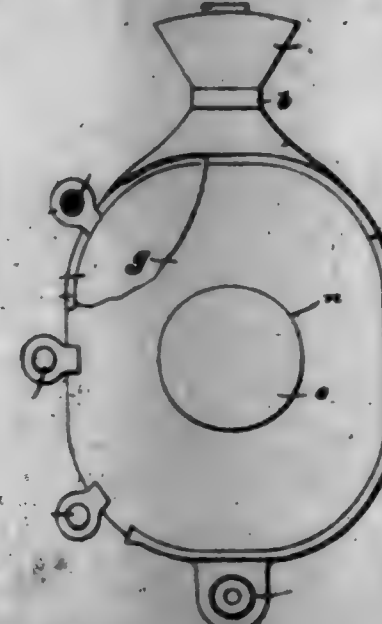


Claim.—1. A shoe-lace comprising a lace proper, and an outer sleeve or casing constituting a protector therefor, said sleeve or casing being shorter than the lace proper and arranged thereon in such manner as to leave the lace ends exposed to form the tie, substantially as described.

2. A shoe-lace comprising a lace proper, and an outer sleeve or casing constituting a protector therefor, said sleeve or casing being shorter than the lace proper and removably placed thereon in such manner as to leave the lace ends exposed to form the tie, substantially as described.

3. A shoe-lace, comprising a lace proper, and a sleeve detachably connected with the lace, the ends of the sleeve being reinforced against unraveling, substantially as described.

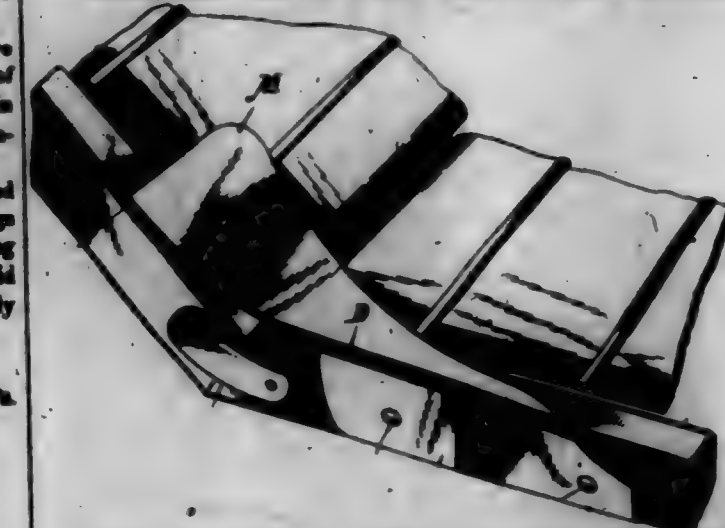
696,441. BAG FOR REMEDIAL APPLICATIONS. FRANKLIN C. HOLMAN, Chicago, Ill. Filed Oct. 2, 1901. Serial No. 71,411. (No model.)



Claim.—The combination with a bag, of a cover upon one side of the bag to form between this side and the cover a pocket adapted to hold a remedial application, the cover being provided with a restricted opening through which a portion of the contents of the pocket may protrude for application, while the imperforate portions of the cover serve by en-

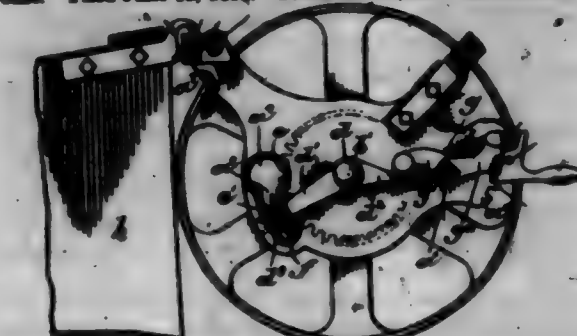
gaging the balance of the contents of the pocket to hold the same in place, the said cover being permanently fastened to the bag throughout the major portion of its edge and separably secured to the bag throughout the balance of its edge, substantially as described.

696,442. HARVESTER ATTACHMENT. KENNETH HOPPER, Fenton, Minn. Filed Nov. 7, 1901. Serial No. 21,212. (No model.)



Claim.—In combination with a harvester-platform, an attachment made of metal having a vertically-disposed portion of said attachment fastened to said platform, the top of the attachment being bent at right angles and having the end projecting toward the endless carrier of the harvester, said projecting portion being concave and widening toward its free end, adapted to prevent tangled or other grain catching in the edge of the endless carrier, as set forth.

696,443. ROTARY SWEEPER. JOHN J. HARRIS, Springfield, Ohio. Filed June 12, 1901. Serial No. 65,102. (No model.)



Claim.—1. The combination with the supporting-rolls and their spindles and tilting levers, of a rotary sweeper mounted in said levers, and operating-levers, having an adjusting-handle, to control said tilting levers and limit their movement in one direction only, to adjust the height of said sweeper and leave it free to rise over obstructions, substantially as specified.

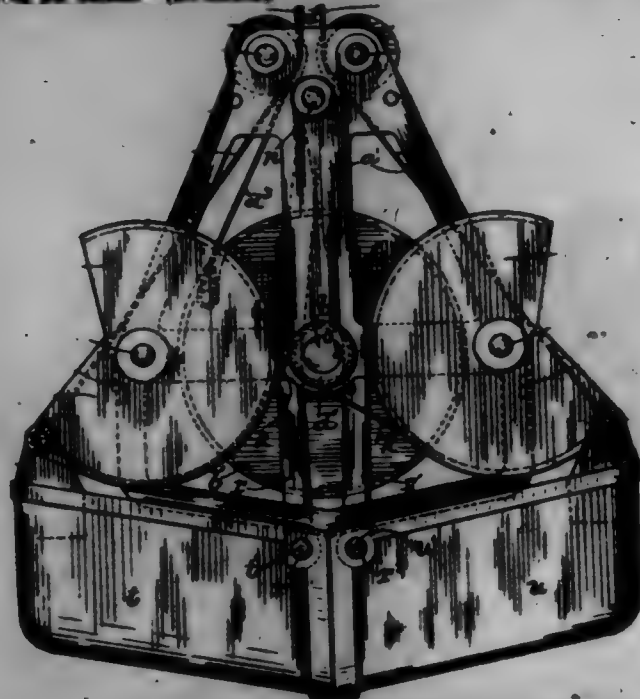
2. The combination with the supporting-rolls and their spindles and tilting levers, of a rotary sweeper mounted in one end of said levers, adjusting, operating-levers independent of but adapted to contact with the upper side of the end of said tilting levers opposite said sweeper, to limit the movement of said tilting levers in one direction only, and means to hold the operating-lever in different positions to adjust the height of said sweeper, while leaving it free to rise over obstructions, substantially as specified.

3. The combination with the supporting and driving wheels and their spindles, spur-gears and tilting levers mounted on said spindles, of a shaft journaled in one end of each of said levers, a rotary sweeper and pinions attached to said shaft, said pinions being adapted to mesh with said spur-gears, and an adjustable operating-lever independent of and adapted to engage the other ends of said tilting levers to limit their movement in one direction only, whereby the height of the sweeper is adjusted while leaving it free to rise over obstructions, substantially as specified.

4. The combination with the frame and a flat bar pivoted at its ends in front of said frame, of a receptacle having its back to engage said bar and a laterally-extending lever rigidly attached to said bar to turn said bar and thereby lift and dump said receptacle, substantially as specified.

5. The combination with the frame having a flat bar pivoted at its ends extending across the front of said frame, of a receptacle having its back to engage said bar and a laterally-extending lever rigidly attached to said bar to turn said bar and thereby lift and dump said receptacle, substantially as specified.

696,444. CLAM-SHELL BUCKET AND OPERATING MECHANISM. FRANK R. HOLEY, Cleveland, Ohio. Filed Mar. 22, 1901. Serial No. 22,525. (No model.)



Claim.—1. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-transmitting mechanism mounted in said frame, a scoop, a shaft mounted near the center line of said frame, a support rotatably suspended from said shaft and having its lower end secured to the front end of said scoop, a second shaft mounted below the first-mentioned shaft and at a greater distance from the center line of the frame than the first-mentioned shaft, a support rotatably suspended from said last-mentioned shaft and secured at its lower end to the rear end of said scoop, and means for operatively connecting the power-transmitting mechanism with said scoop.

2. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-transmitting mechanism mounted in said frame, two scoops located below said frame and adapted to form a single receptacle, a shaft mounted near the center line of said frame, supports suspended from said shaft and connected at their lower ends with the front ends of the respective scoops, shafts mounted near the sides of said frame below the first-mentioned shafts, supports suspended from said shafts and connected at their lower ends with the rear ends of the respective scoops, and means for connecting the respective scoops with the power-transmitting mechanism.

3. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-wheel mounted in said frame, means for operating the said wheel, a cam-wheel operatively connected to said power-wheel, and a scoop, one end of said scoop being secured to and rotatably supported at a point on the outer circumference of said cam-wheel, and the other end being movably supported from the said frame.

4. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-wheel mounted in said frame, means for operating the said wheel, cam-wheels mounted on each side of said power-wheel and operatively connected with the said power-wheel, and two scoops adapted to form a single receptacle, the rear end of each of said scoops being secured to and rotatably supported from one of the said cam-wheels, and the front end of each scoop being movably supported from the said frame.

5. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-wheel mounted in said frame, means for operating the said wheel, a cam-wheel operatively connected to said power-wheel, and a scoop having one end secured to and rotatably supported at a point on the outer circumference of the said cam-wheel, and having the other end supported by arms rotatably secured in the said frame at a point above the said cam-wheel, substantially as described, and for the purpose set forth.

6. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-transmitting mechanism mounted in said frame, two cam-wheels, one of said cam-wheels being mounted at each side of said frame and operatively connected with the said power-transmitting mechanism, a scoop located below each cam-wheel and having its rear end suspended from a point on the outer circumference of the adjacent cam-wheel, and its front end supported by arms rotatably secured in the said frame at a point above the said cam-wheel, substantially as described and for the purpose set forth.

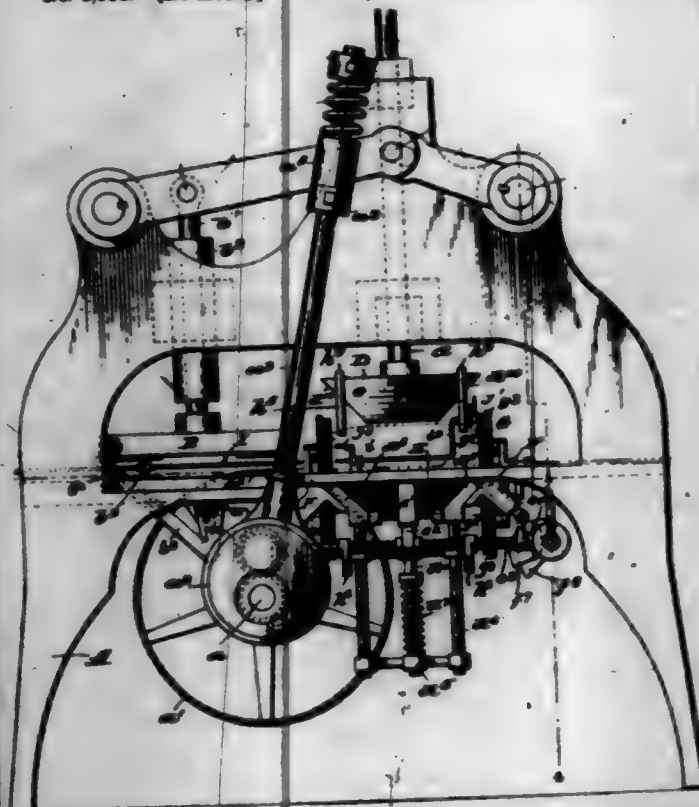
7. In a combined clam-shell bucket and operating mechanism therefor, a frame, two scoops supported below said frame and adapted to form

a single receptacle, the front end of each of the said scoops being supported by arms rotatably supported from a common shaft in said framework, the rear end of each scoop being supported from a shaft located in the said framework below the first-mentioned shaft, and not in the same vertical plane therewith, a power-wheel mounted in said framework, and means for operatively connecting the said scoops and the said power-wheel.

8. In a combined clam-shell bucket and operating mechanism therefor, a frame, a shaft rotatably mounted in said frame, a power-wheel rigidly mounted on said shaft, a hoisting-cable secured to said power-wheel, a cable-drum rigidly mounted on the outer end of said shaft, a cam-wheel rotatably mounted in said frame, a cable operatively connecting said cable-drum and said cam-wheel, a shaft mounted in said frame above the said power-wheel, a support rotatably suspended from said shaft, and a scoop secured at its rear end to said cam-wheel and at its front end to the said support, substantially as described, and for the purpose set forth.

9. In a combined clam-shell bucket and operating mechanism therefor, a frame, a power-wheel shaft rotatably mounted in said framework, a power-wheel rigidly mounted on said shaft, a hoisting-cable operatively secured to said power-wheel, a cable-drum rigidly mounted on said power-wheel shaft, cam-wheels rotatably mounted in said framework on each side of said power-wheel shaft, cables connecting the said cable-drum and said cam-wheels, supports rotatably secured in said framework above the said power-wheel shaft on each side thereof and extending down below the bottom of the said framework, and a scoop operatively secured to the respective cam-wheels and the respective supports on each side of the said power-wheel shaft.

696,445. MACHINE FOR MAKING WOODEN BUTTER-DISHES. EDWIN R. TRACE, Brooklyn, N. Y. Filed Jan. 12, 1900. Serial No. 1,901. (No model.)



Claim.—1. A machine for making wooden dishes and the like, comprising a main frame, pivoted levers mounted therein and having their adjacent ends pivotally connected to each other at their ends, means operated by said levers for automatically cutting the blanks and shaping the same, and means for working said levers, substantially as set forth.

2. A machine for making wooden dishes and the like, comprising a main frame, pivoted levers mounted therein and having their adjacent ends pivotally connected to each other at their ends, means operated by said levers for automatically cutting the blanks and shaping the same, a pitman pivotally connected to one of said levers, and a shaft to which said pitman is connected and means for operating the same, substantially as set forth.

3. A machine for making wooden dishes and the like, comprising a main frame, pivoted levers mounted therein and pivotally connected to each other at their ends, means operated by one set of said levers for automatically cutting the blanks, means operated by the other set of said levers for shaping the said blanks, a sleeve pivotally connected to one of said levers, a pitman passed therethrough, means for operating said pitman, and means for limiting the movement of said pitman, substantially as set forth.

4. A machine for making wooden dishes and the like comprising a

main frame, a pair of long levers pivoted to one end of said frame, a pair of shorter levers pivoted to the opposite end of said frame, said levers having their adjacent ends pivotally connected to each other, means operated by said levers for respectively cutting and shaping the blanks, and means for operating said levers, substantially as set forth.

5. A machine for making wooden dishes and the like, comprising a main frame, a pair of long levers pivoted to one end of said frame, means operated thereby for cutting the blanks, a pair of shorter levers pivoted to the opposite end of said frame, and having slots formed therein, pins carried by said former levers and working in said slots, means operated by said shorter levers for shaping the blanks, and means for rocking said levers, substantially as set forth.

6. A machine for making wooden dishes and the like comprising a main frame, a pair of levers pivotally mounted therein, a rod or bar connecting said levers, blank-forming mechanism pivotally supported by said rod or bar, a rock-shaft mounted in said frame, levers keyed thereto and pivotally connected at their ends to said former levers, an arm or member keyed to said rock-shaft, shaping mechanism connected thereto, and means for operating said levers, substantially as set forth.

7. A machine for making wooden dishes and the like, comprising a main frame or table, cutting and scoring knives arranged thereon, a reciprocating blank-forming die coacting with said knives, a pivoted operating-lever therefor, means for operating the latter, a shaper mounted adjacent said die, a pivoted operating-lever therefor said operating-levers having their adjacent ends pivotally connected, means for disengaging the blanks from the knives, and means for automatically transferring the same to said shaper, substantially as set forth.

8. A machine for making wooden dishes and the like, comprising a main frame or table having depending ears, a depending frame secured to said ears, shaping members carried by said depending frame, a reciprocating shaper-die coacting therewith, shaping mechanism also supported in said ears, and means for operating the same, as set forth.

9. A machine for making wooden dishes and the like, comprising a main frame or table having depending ears, a depending frame secured to the latter, shaping members carried by said depending frame, a spring-pressed table or platform carried by said depending frame, a reciprocating shaper-die coacting with said shaping members, shaping mechanism also supported in said ears, and means for operating the same, as set forth.

10. A machine for making wooden dishes and the like, comprising a main frame or table having depending ears, a depending frame secured to the latter, shaping members carried by said depending frame, a vertical rod mounted in said depending frame, a table or platform carried thereby, a coil-spring encircling said rod, a shaper-die coacting with said shaping members and said table, shaping mechanism also supported in said ears, and means for operating the same, as set forth.

11. A machine for making wooden dishes and the like, comprising a main frame or table, a depending frame secured thereto, and provided with diverging heads or enlargements, spring-plates secured to the opposite faces of said heads or enlargements, pivoted plates secured to opposite sides of said depending frame, a shaper-die, and means for operating the same, substantially as set forth.

12. A machine for making wooden dishes and the like, comprising a main frame or table, a depending frame secured thereto and provided with diverging heads or enlargements, diverging plates pivoted to opposite sides of said depending frame and at right angles thereto, means for periodically raising said plates, a shaper-die, and means for operating the same, substantially as set forth.

13. A machine for making wooden dishes and the like, comprising a main frame or table, a depending frame secured thereto and provided with diverging heads or enlargements, plates pivoted to opposite sides of said depending frame and having arms or members projecting therefrom, shafts mounted in said main frame, means for operating the same, cams carried by said shafts designed to engage said arms or members, a shaper-die, and means for operating the same, substantially as set forth.

14. A machine for making wooden dishes and the like, comprising a main frame or table, a depending frame secured thereto and provided with diverging portions, spring-plates secured to said diverging portions, plates pivoted to opposite sides of said depending frame, means for periodically engaging and raising each of said plates, a shaper-die having tapering sides and ends, and means for operating the same, substantially as set forth.

15. A machine for making wooden dishes and the like, comprising a main frame having depending ears, a depending frame secured to said ears and having shaping heads or enlargements, a shaper-die, means for operating the same, sleeves supported in said ears adjacent each of said heads or enlargements, members carried by said sleeves for forming staples, members carried by said sleeves for inserting staples, means for operating said members, and means carried by said shaper-die for clenching said staples, substantially as set forth.

16. A machine for making wooden dishes and the like, comprising a

main frame, a depending frame having shaping heads or enlargements, a shaper-die, means for operating the same, sleeves mounted in said main frame adjacent each of said heads or enlargements, each of said sleeves having a driving-plunger and two bending-plungers, means for alternately operating said bending and said driving plungers, means for feeding wire to said plungers, and means carried by said shaper-die for clenching said staples, substantially as set forth.

17. A machine for making wooden dishes and the like, comprising a main frame, a depending frame having shaping heads or enlargements, a shaper-die, means for operating the same, sleeves mounted in said main frame adjacent each of said heads or enlargements, each of said sleeves having two bending-plungers and a central or driving plunger located therebetween, said plungers having their ends grooved, means for holding a staple in said grooves, and means carried by said shaper-die for clenching the staples, substantially as set forth.

18. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, sleeves mounted in said main frame, each of said sleeves having two bending-plungers and a central driving-plunger located therebetween, said plungers being grooved, means for feeding wire to said grooves, a pivoted member bearing against the grooved end of said driving-plunger, means for operating said plungers, and means carried by said shaper-die for clenching the staples, substantially as set forth.

19. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, sleeves mounted in said main frame, each of said sleeves having two bending-plungers and an intermediate driving-plunger, a spring-pressed lever pivoted to each of said sleeves and having a curved end bearing against the end of said driving-plunger, means for feeding wire to said sleeves, means for operating said plungers, and means carried by said shaper-die for clenching the staples, substantially as set forth.

20. A machine for making wooden dishes and the like, comprising a main frame a depending frame secured thereto, shaping members carried by said depending frame, a shaper-die, means for operating the same, sleeves mounted in said main frame, each of said sleeves having two bending-plungers and an intermediate driving-plunger, means for feeding wire to said sleeves, shafts mounted adjacent said sleeves and having cams keyed thereto designed to engage said plungers, means for operating said shafts, and means carried by said shaper-die for clenching the staples, substantially as set forth.

21. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, sleeves mounted in said main frame, each of said sleeves having two bending-plungers and an intermediate driving-plunger, anti-friction-rollers mounted in the ends of said plungers, shafts mounted in said frame adjacent said sleeves, means for operating the same, cams secured to said shafts designed to periodically engage said bending-plungers, and cams secured to said shafts at a different angle from said former cams and designed to periodically engage said driving-plunger, and means carried by the shaper-die for clenching the staples, substantially as set forth.

22. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die having slots in its end walls, means for operating said shaper-die, means for forming and driving staples, sliding clenching members carried by said shaper-die and having angular portions projecting through said slots, guides for said clenching members, and means for operating the same, substantially as set forth.

23. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, means for forming and driving staples, sliding clenching members carried by said shaper-die, and provided with angular portions, guides for the latter, depending arms connected to said clenching members, and means for moving said arms, substantially as set forth.

24. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, means for forming and driving a staple, clenching members carried by said shaper-die, springs for holding the same normally separated, U-shaped arms or members connected to said clenching members, and means for moving said U-shaped arms or members, substantially as set forth.

25. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for operating the same, means for forming and driving a staple, clenching members carried by said shaper-die, depending arms connected thereto, shafts mounted in said main frame, means for operating the same, and cams secured to said shafts and designed to engage said depending arms, substantially as set forth.

26. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a shaper-die, means for

operating the same, means for forming and driving staples, sliding clenching members carried by said chaper-die and having angular portions, guides for said clenching members, springs for holding said angular portions normally separated, and means for moving said members as against the action of said springs, substantially as set forth.

27. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, clamps secured to said rods said clamps each having an angular extension and stationary cans carried by said frame and arranged to alternately engage the front and rear faces of said angular extensions, substantially as and for the purpose set forth.

28. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, clamps having downwardly-curved stationary jaws secured to said rods, movable jaws pivoted to said stationary jaws and having forward curved lips and rearward upturned vertical portions, and stationary cans arranged to alternately engage the front and rear faces of said upturned portions, substantially as and for the purpose set forth.

29. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, clamps having stationary jaws provided with chambers, spring-pressed rods working in said chambers, movable jaws pivoted to said stationary jaws and engaged by said spring-pressed rods, said movable jaws having angular portions, and stationary cans arranged to alternately engage the opposite faces of said angular portions, substantially as and for the purpose set forth.

30. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, clamps having stationary jaws secured to said rods and provided with rear chambers, movable jaws pivoted to said stationary jaws and having lower shoulders, spring-pressed rods working in said chambers and having beveled ends engaging said shoulders, and means for moving said jaws as against the action of said spring-pressed rods, substantially as set forth.

31. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, clamps having stationary jaws secured to said rods and provided with rear chambers, movable jaws pivoted to said stationary jaws and having lower shoulders and rearward angular portions, spring-pressed rods working in said chambers and having beveled ends engaging said shoulders, and spaced-apart cans arranged to alternately engage the opposite faces of said upturned portions, substantially as and for the purpose set forth.

32. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said main frame, means for reciprocating the same, stationary jaws secured to said rods, pivoted jaws carried by said stationary jaws, and having upturned angular portions formed integral therewith, cans designed to engage the front faces of said angular portions, and additional cans designed to engage the rear faces of said angular portions, substantially as set forth.

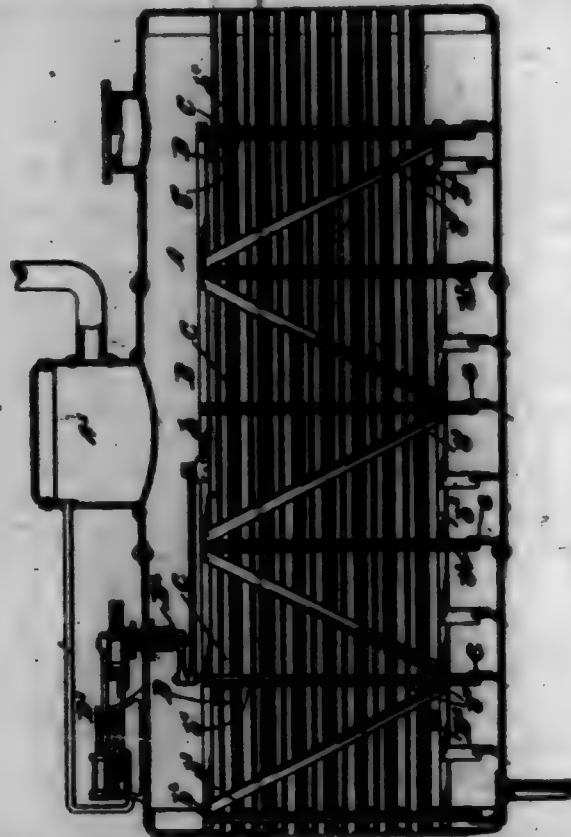
33. A machine for making wooden dishes and the like, comprising a main frame, blank forming and shaping mechanism supported thereby, horizontal rods mounted on said frame, clamps secured thereto, means for automatically operating said clamps, levers mounted in said frame and provided with toothed segments, a shaft mounted in said frame and carrying segments arranged to intermesh with said former segments, means for operating said shaft, and means for returning said levers to their normal position, substantially as set forth.

34. A machine for making wooden dishes and the like, comprising a main frame, shaping members carried thereby, a chaper-die, means for operating the same, stapling mechanism carried by said frame, a bracket secured to said frame, feeding-drums mounted in said bracket and provided with intermeshing pinions, a lever pivoted to said bracket, a depending weight secured to said lever, a spring-pressed pawl carried by said lever and engaging one of said pinions, a shaft mounted in said frame, means for operating the same, and a cam carried by said shaft designed to periodically engage one end of said lever, substantially as set forth.

696,446. STRAIN-Separator. WILLIAM L. JARVIS, Denver, Colo. Filed Nov. 15, 1902. Renewed Aug. 10, 1904. Serial No. 74,908. (No model.)

Claim.—1. The combination with a tubular boiler of a device for separating steam from the water being heated in the said boiler, said device

comprising a frame having means for reciprocating it, means carried by said frame which are arranged between adjacent tubes of the boiler but out of contact with the tubes, and other means also carried by the frame for circulating the water at the bottom of the boiler and for moving sediment from the bottom of the boiler to the blow-off pipe thereof.



2. The combination with a tubular boiler of a device for separating steam from the water being heated in said boiler, said device comprising a frame having means for reciprocating it longitudinally of the boiler, agitator-blades, carried by said frame and arranged between adjacent tubes but out of contact with said tubes, said agitator-blades being so arranged on said frame relatively to each other as to have their planes of movement overlap.

3. In a device for releasing steam from water, the combination of a frame comprising top, bottom and vertical members, agitator-blades, carried by said frame, and means for reciprocating said frame, substantially as described.

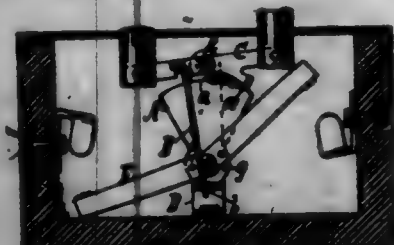
4. In a device for releasing steam from water, the combination of a frame comprising top, bottom and vertical members, agitator-blades, carried by said frame, and means for reciprocating said frame, substantially as described.

5. In combination with a tubular boiler, a frame arranged longitudinally thereof, cross-bars fastened to the tubes of said boiler for supporting said frame, means for reciprocating said frame, and agitator-blades carried by frame and disposed between the tubes of the boiler.

6. In combination with the tubular boiler, a frame arranged longitudinally of the boiler and having means connected therewith for reciprocating it, said frame comprising top, bottom and vertical members detachably secured together, and agitator-blades detachably carried by said frame and disposed between the tubes of the boiler.

7. In combination with a tubular boiler, a frame provided within said boiler and with means for reciprocating it therein, and device carried by said frame which are disposed among the tubes of the boiler and out of contact therewith for stirring and circulating the water in the said boiler.

696,447. ELECTRICAL SWITCH. EDWIN G. KATHMANN, Brooklyn, N. Y., assignor to General Electric Company, a Corporation of New York. Filed June 6, 1901. Serial No. 62,488. (No model.)



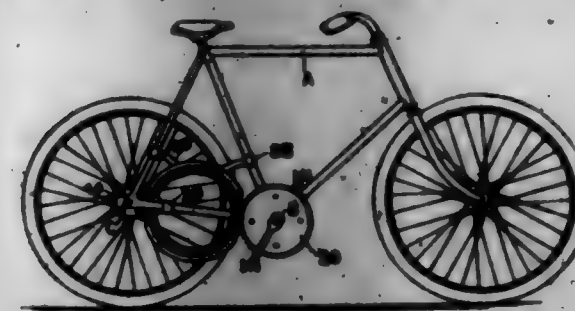
Claim.—1. A contact-piece made in the form of a two-armed lever, a finger-lever made to engage one arm of the contact-lever, and a spring

secured to the finger-lever and made to loosely engage the other arm of the contact-lever as to shift the latter as the spring and finger-lever are swung back and forth substantially as described.

2. In an electric switch, the combination with the contacts, of a rocking switch-piece arranged to close the circuit therethrough, a rocking operating-lever, a straight spring fixed to the rocking lever and loosely engaging the switch-piece, and lugs on the switch-piece and rocking lever, which lugs cooperate with each other and with the spring, to normally lock the parts and hold them locked until the movement of the rocking lever has put the spring under sufficient tension to snap the spring into or out of engagement with the switch-contacts.

3. In an electric switch, the combination with switch-contacts, of a rocking switch-piece, a rocking operating-lever, cooperating stops on the switch-piece and operating-lever, and a normally uncoiled straight spring fixed to the operating-lever and loosely engaging an eccentric portion of the switch-piece.

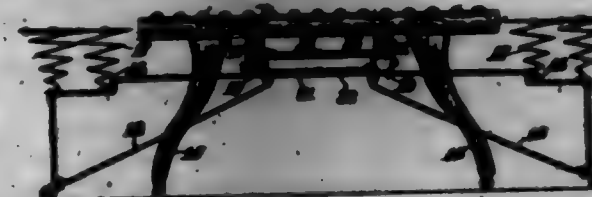
696,448. CHAIR FOR MOTORCYCLE. IRVING W. KENTHLEY, Worcester, Mass. Filed Apr. 4, 1902. Serial No. 678,808. (No model.)



Claim.—1. In a bicycle, the combination of a crank-shaft, a rear wheel, a train of gearing for transmitting power from the crank-shaft to the rear wheel, comprising a crank-shaft gear, a rear-wheel gear, and an intermediate open centered rim-gear having half-receiving flanges upon opposite sides of its working face, a supporting-ring forming an external bearing or box within which the rim-gear is mounted, two sets of bearing-balls for journaling the rim-gear in the supporting-ring, and a retaining-ring secured in place so that it can be adjusted to take up wear on both sets of bearing-balls, substantially as described.

2. In a bicycle, the combination of a crank-shaft, a rear wheel, a train of gearing for transmitting power from the crank-shaft to the rear wheel, comprising a crank-shaft gear 30, a rear-wheel gear 40, an intermediate open-centered rim-gear 55 having half-receiving flanges 56 upon opposite sides of its working face, a supporting-ring 37 forming an external bearing or box within which the rim-gear 55 is supported, two sets of bearing-balls 38, and a retaining-ring 39 having external curved-threads fitting into a threaded socket in the supporting-ring so that the same may be adjusted to take up wear on both sets of bearing-balls, substantially as described.

696,449. INTERCONVERTIBLE COUCH-BED. ALFRED R. KEMMEL, Somerville, Mass. Filed Apr. 1, 1901. Serial No. 68,514. (No model.)



Claim.—1. In an interconvertible couch-bed a suitable longitudinal frame and a horizontal supporting fabric stretched between the end rails of the frame and overhanging the side rails thereof, in combination with horizontally-movable lateral wings adapted to move inwardly beneath the overhanging sides of said fabric, to reinforce it, and outwardly, by a reverse horizontal movement, to form marginal extensions adjoining but disconnected from each side, substantially as set forth.

2. In an interconvertible couch-bed, a central structure having side rails, elevated end rails and a horizontal supporting fabric connected to the ends and overhanging the sides of the frame, in combination with lateral wings having connected longitudinal bars, a series of tapering upright coil-springs secured to each side rail and to said bars, and supporting-brackets connected to the frame and adapted to fluctuate and limit the lateral movement of said wings beneath and beyond said fabric, substantially as set forth.

3. In an interconvertible couch-bed, a suitable frame and its elevated horizontal fabric, and horizontally-movable wings formed with brackets and having a connection of upright coil-springs adapted to move under

the sides of said fabric and to extend their upper surfaces outwardly beyond the margins thereof, in combination with levers projecting from one end of the frame and with push-rods for actuating said wings, substantially as set forth.

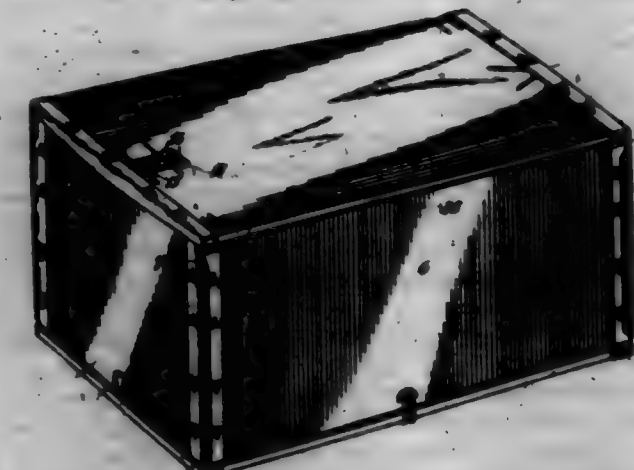
4. The described interconvertible couch-bed, comprising a metallic supporting-frame with a yielding horizontal fabric, and horizontally-movable lateral wings, each having parallel angle-iron bars and a double range of tapering coil-springs mounted thereon, in combination with supporting-brackets for each wing, guides and stops to control and limit the movement of said brackets, and suitable actuating-levers, substantially as set forth.

696,450. HORSESHOE. WILLIAM L. KING, Stamford, Iowa. Filed Aug. 12, 1901. Serial No. 71,678. (No model.)



Claim.—A shoe of the character described, provided with enlarged toe and heel portions provided with sockets, composite nails secured in said sockets, inclined seats formed in the upper surface of the respective ends of the shoe directly over the heel-sockets, said seats being deepest at their outer ends, and strips of padding in said seats, substantially as described.

696,451. COLLAPSIBLE BOX. HENRY E. KEMMEL, Stoughton, Mass., assignor of one-third to Melrose Trust, St. Paul, Minn. Filed June 11, 1901. Serial No. 64,102. (No model.)

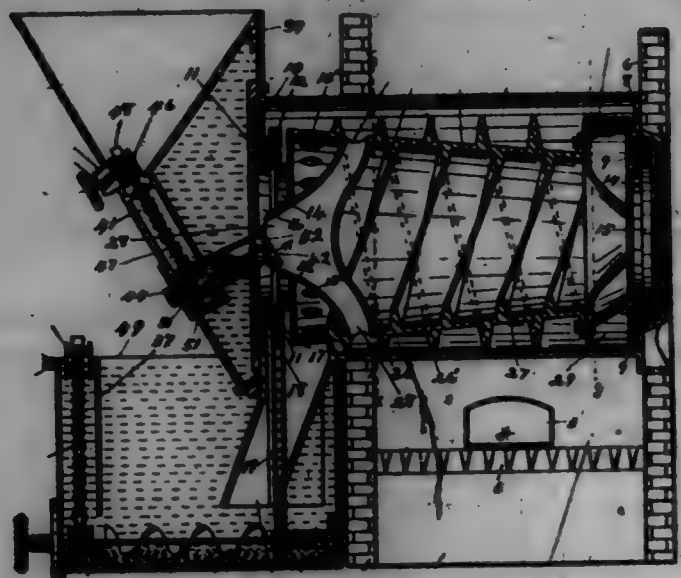


Claim.—1. A box, comprising a bottom, and pieces having hinge connection therewith, loops on the upper ends of said and pieces, side pieces adapted to engage at their ends in slidesways attached to the end pieces, a top, a hook at one end of said top to engage in one of the loops in an end piece, and a spring-bush at the other end of said top for engaging with the loop of the other end piece the said hook being located below the plane of the cover, substantially as specified.

2. A box, comprising a bottom, and pieces having hinge connection therewith, metal loops on the upper ends of said and pieces, side pieces, a top, a hook on one end of said top for engaging the loop of one of the end pieces, a spring-bush on the other end of said top for engaging with the loop of the other end piece the said hook being arranged below the plane of the top, and loops on the ends of the bottom for receiving said hook and bush, substantially as specified.

3. A box, comprising a bottom, and pieces having hinge connection therewith, side pieces, a top or cover having loops at its side edges to engage against the inner sides of the side pieces, and detaining devices for engaging the top or cover to place the said devices being below the top plane of the cover, substantially as specified.

696,452. AMALGAMATOR. BENNET J. KIM, Fort Wayne, Ind. Filed June 27, 1901. Serial No. 60,186. (No model.)



Claim.—1. An amalgamating apparatus consisting of a retort arranged over a suitable furnace; a rotatable agitator mounted in said retort; means for feeding the ore into the said retort; an inlet-chute adapted to contain a body of mercury to form a seal to prevent the escape of mercury-fumes from the retort and a water seal closing the outlet of said retort, and in which the mercury-fumes of the said retort are condensed and the amalgamated particles of precious metal are collected.

2. In an amalgamating apparatus a cylindrical agitator revolvably mounted in a closed containing-retort; means for heating said retort; a mercury seal arranged in the inlet to the retort; means for feeding the ore through said seal into the agitator; means for circulating the ore within the retort; and a water seal closing the outlet of said retort against the escape of mercury-fumes therefrom.

3. In an amalgamating apparatus a fixed retort; a cylindrical agitator rotatably mounted in said retort adapted to receive the ore and subject it to the mercury-fumes of the retort; a mercury seal closing the inlet of said retort; and a water seal closing the outlet of said retort.

4. In an amalgamating apparatus the combination of a retort; means for heating the same; and an inlet-chute adapted to contain a body of mercury to seal the same against the escape of mercury-fumes from the retort.

5. In an amalgamator, a retort; means for heating the said retort; an inlet-chute adapted to contain a body of mercury to seal the same against the escape of mercury-fumes from the retort; and an ore-conveyor arranged in said chute.

6. In an amalgamator a retort, a rotatable agitator arranged within the retort and consisting of a hollow cylinder having oppositely-directed inner and outer peripheral spiral feeding-flanges as described, a bifurcated inlet-chute within one end thereof adapted to direct the ore to the bottom of the said including retort, the other end of the said cylinder being provided with a means for receiving ore as it is fed forward on the bottom of the retort and for conducting it to the interior of said cylinder, all substantially as described.

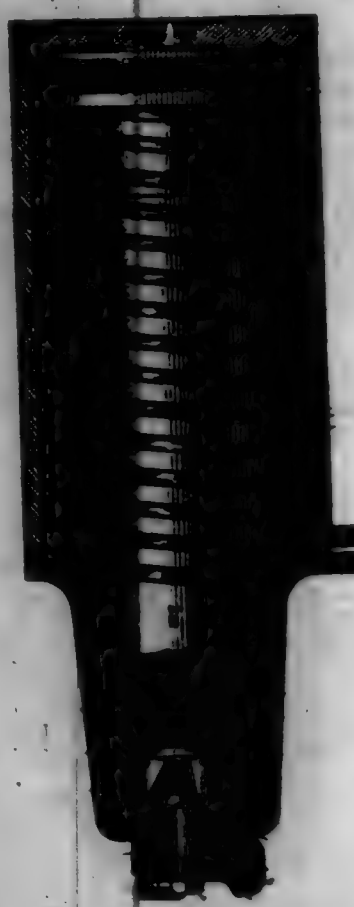
7. The combination in an amalgamator of a mercury seal through which the ore is fed; means for feeding the ore through said seal into a retort; an inclined retort discharging into a water seal; a rotatable agitator mounted in said retort adapted to feed the ore forward along the heated bottom of the retort, and to pick up the ore at its forward end and impart to the same a spiral circulation in the interior thereof before discharging it at the rear end thereof.

696,453. HOLDING-TOOL FOR AIR-BRAKE PISTONS. JAMES KOSHER, Chicago, Ill. Filed June 12, 1901. Serial No. 64,572. (No model.)

Claim.—1. In a holding-tool of the class described, the combination of a standard portion adapted to open the hollow piston-rod of an air-brake cylinder and contact with the head thereof, a cross-head provided with a plurality of movable dogs, a relatively non-rotatable inwardly-extending portion arranged between the outer standard portion and the cross-head, and means for moving the cross-head in one direction to extend the dogs into engagement with the hollow piston-rod and in the opposite direction to permit them to collapse from such engagement, substantially as described.

2. In a holding-tool of the class described, the combination of a standard portion adapted to open a hollow piston-rod and detect a cylinder-head thereon, a cross-head provided with a plurality of pivotal dogs, a relatively non-rotatable arm connected with the outer standard portion

and arranged between it and the cross-head, and an operating-belt in engagement with the standard for moving the cross-head in one direction to extend the pivotal dogs and in the opposite direction to permit them to collapse, substantially as described.



3. In a holding-tool of the class described, the combination of a standard portion provided with inwardly-extending legs which open a hollow piston-rod so as to contact a cylinder-head thereon, a cross-head arranged to be moved backward and forward and provided with a plurality of pivotal dogs having serrations or teeth at their free ends, a hollow relatively non-rotatable inwardly-projecting portion on the standard in contact with the free ends of the pivotal dogs, and an operating-belt for moving the cross-head in one direction to extend the pivotal dogs into contact with the tubular piston-rod and in the opposite direction to permit them to collapse, substantially as described.

4. In a holding-tool of the class described, the combination of a standard portion provided with inwardly-extending legs which open a hollow piston-rod so as to contact with a cylinder-head thereon, a cross-head arranged to be moved backwardly and forwardly and provided with a plurality of pivotal dogs having serrations or teeth at their free ends, a relatively non-rotatable inwardly-projecting portion on the standard in contact with the inner portion of the free ends of the pivotal dogs, an operating-belt for moving the cross-head in one direction to extend the pivotal dogs and in the opposite direction to permit them to collapse, and a tension-spring interposed between the relatively non-rotatable projection and the cross-head, substantially as described.

5. In a holding-tool of the class described, the combination of a standard portion adapted to open a tubular piston-rod and provided with inwardly-projecting legs to contact an air-brake cylinder-head thereon, outwardly-projecting leg mechanism forming a supporting-base to rest the mechanism on the ground and an inwardly-projecting tubular portion provided with an annular flange on its inner end, a cross-head provided with a plurality of pivotal dogs extending forward into contact with the annular flange, a tension-spring interposed between the cross-head and the annular flange, and an operating-belt in rotatable engagement with the standard and in threaded engagement with the cross-head to move the same forwardly and backwardly against and with the tension of the spring, substantially as described.

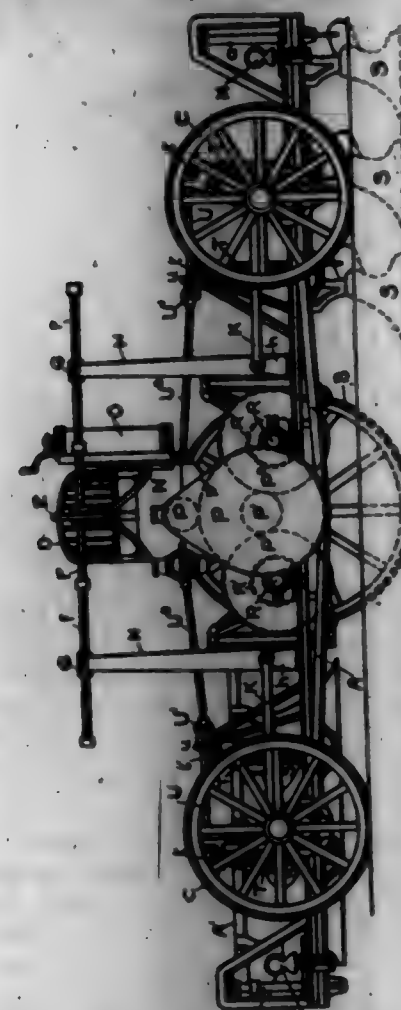
6. In a holding-tool of the class described, the combination of an outer standard portion, a hollow relatively non-rotatable arm, a cross-head provided with a plurality of pivotal dogs adapted to contact with the end of the hollow arm, and a belt connected with the cross-head and arranged to extend through the hollow arm and outer standard portion and moving the cross-head backward and forward, substantially as described.

7. In a holding-tool of the class described, the combination of an outer standard portion, a cross-head provided with movable arms, a relatively non-rotatable portion arranged between the outer standard portion and the cross-head in operative connection with the movable arms on each head, and means for moving the cross-head in one direction to expand the

movable arms thereon and in the opposite direction to permit them to collapse, substantially as described.

8. In a holding-tool of the class described, the combination of an outer standard portion, a movable head portion provided with a plurality of movable arms, a relatively non-rotatable rigid arm portion arranged between the outer standard portion and the head in operative connection with the movable arms on each head, and means for moving the head and movable arms toward the rigid arm to extend the movable arms on each head, and in the opposite direction to permit them to collapse, substantially as described.

696,454. ELECTRICALLY-OPERATED FLOW. MARTIN T. A. KUSCHKE, Berlin, Germany. Filed Oct. 17, 1901. Serial No. 70,951. (No model.)



Claim.—1. A plow having a propelling motor, two sets of shares and means for raising and lowering each set by means of the plow-motor.

2. A plow having an electric propelling motor, two sets of shares, separate mechanism for raising and lowering each set, and means for connecting either mechanism with said motor.

3. A plow having an electric propelling motor, two sets of shares, a vertically-movable carrier for each set, mechanism for operating said carrier, and means for connecting said mechanism with said motor.

4. A plow having an electric propelling motor, two sets of shares, a vertically-movable carrier for each set, upright screws for operating each carrier, gearing for rotating said screws, and means for connecting said gearing with said motor.

5. A plow having an electric propelling motor, two sets of shares, a vertically-movable carrier for each set, gearing for operating said carrier, a movable shaft having a friction-wheel and connected with said gearing, a friction-wheel driven by said motor, and a lever for throwing said friction-wheels together.

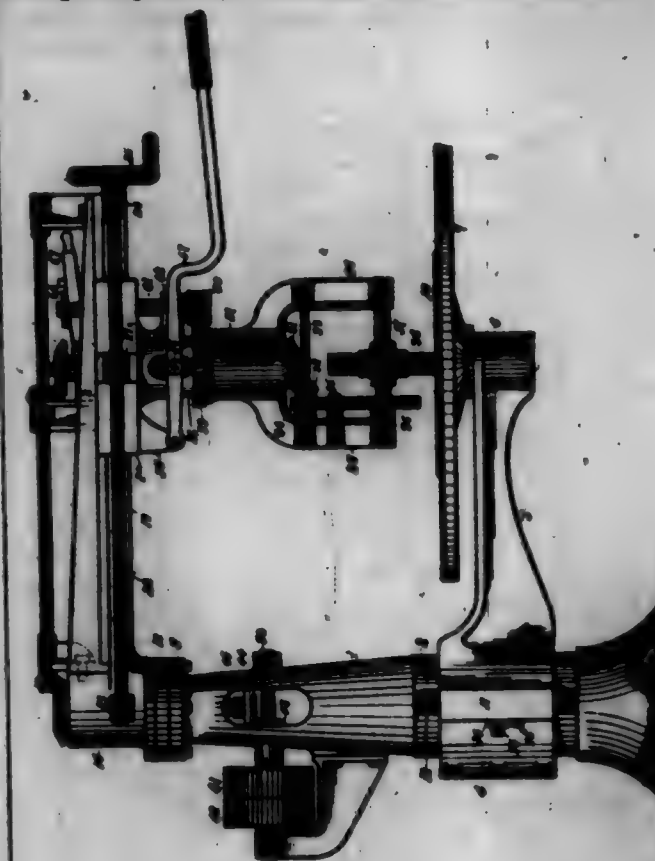
6. A plow having a propelling motor and a straight triangular frame, a wheel at each corner thereof, and two sets of shares arranged to work on lines falling inside of the triangular frame.

7. A power-driven plow having a steering-wheel at each end, a right shaft for each wheel, and a right and left hand screw connecting lever-arms on said shafts.

696,455. GLASS-POLISHING MACHINE. WILLIAM LAMBERT ALLEN, Ohio. Filed Nov. 14, 1901. Serial No. 62,368. (No model.)

Claim.—1. In a glass grinding and polishing machine the combination of a supporting vertical post, with a revolvable horizontal arm supported thereon, with means for moving and retaining said arm at different heights, and a revolvable table supported at the free end of said arm, and

a horizontal arm revolvably supported on the top of said post bearing a carriage longitudinally movable thereon, with grinding mechanism supported in said carriage arranged to engage a plate of glass on said table, with mechanism for driving said grinding mechanism, and for moving said carriage along said arm, substantially as shown and described.



2. In a glass-polishing machine having a supporting vertical post, with a revolvable horizontal arm supported thereon with means for moving and retaining it at different heights thereon, and a horizontal table revolvably mounted in the outer end of said arm, a horizontal arm revolvably mounted on the top of said post bearing a carriage adapted to be reciprocated lengthwise thereof, with grinding mechanism mounted on said carriage adapted to engage a plate of glass on said table, and revolvable on said carriage, with mechanism adapted to drive said grinding mechanism, and a clutch arranged to engage said driving mechanism to rotate said grinding mechanism and means for throwing said clutch into and out of engagement, substantially as shown and described.

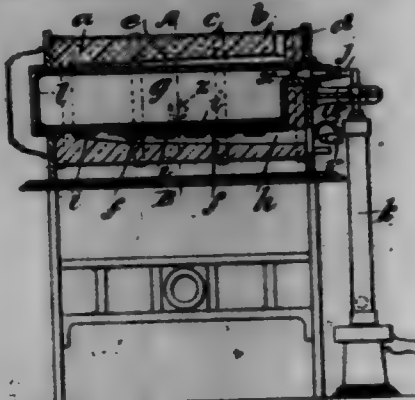
3. In a glass grinding and polishing machine the combination with a supporting-post of a horizontal arm revolvably mounted thereon and mechanism for raising, lowering and arresting said arm thereon, a horizontal table revolvably mounted in the free end of said arm having sliding ways with a horizontal arm mounted on the top of said post having sliding ways with a carriage mounted thereon, and means for moving said carriage lengthwise thereof, a frame horizontally revolvable on said carriage adapted to bear grinding and polishing machinery, and means for moving said frame vertically on said carriage, with driving mechanism to drive said grinding and polishing mechanism and means as a lever to regulate the pressure of said grinding and polishing mechanism with reference to a plate of glass on said table, substantially as shown and described.

4. In a glass grinding and polishing machine, the combination with a vertical post, a horizontal arm revolvable thereon provided with means for raising and lowering it, a table revolvably mounted on the free end of said arm, a horizontal arm revolvably attached to the top of said post, a carriage slidable on said arm, a screw for driving said carriage along said arm, a frame revolvably supported on and depending from said carriage to retain revolvable grinding and polishing mechanism above and adjacent to said table, driving mechanism mounted in said post connected by intermediate machinery with said grinding and polishing mechanism, means for raising and lowering said frame, and a clutch and intermediate mechanism to cause said driving mechanism to rotate said frame, and means for operating said clutch, substantially as shown and described.

5. An improved table for glass grinding and polishing machines consisting of a metallic plate with a raised rim having a band of wood within said rim and a bed of cement within said wood rim, said wood and cement having their tops in the same horizontal plane, substantially as shown and described.

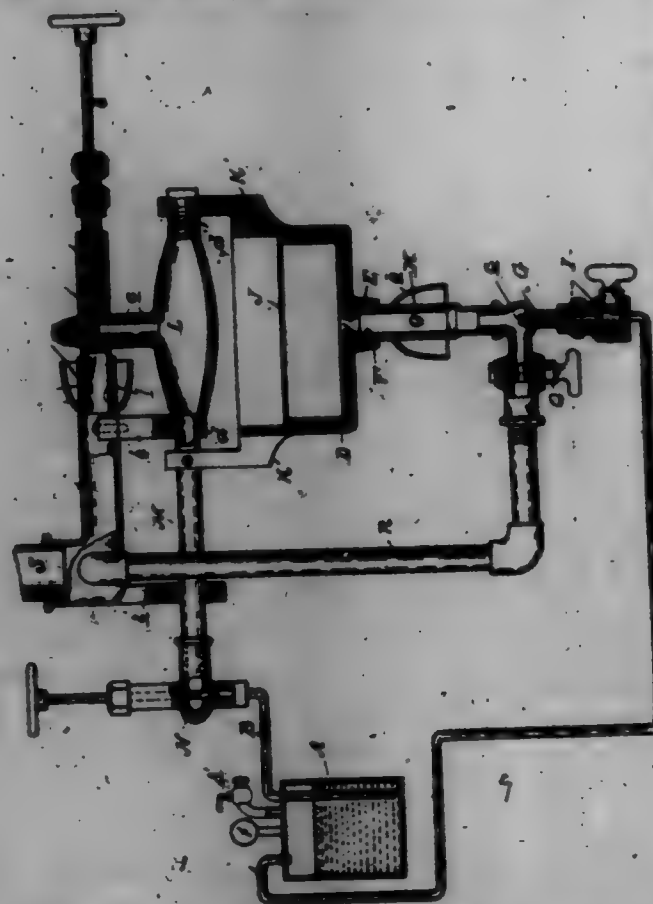
696,456. RETORT-FURNACE. DAVID LAIRD, Perth, Scotland. Filed Sept. 24, 1901. Serial No. 70,267. (No model.)

Claim.—1. In combination in a retort-furnace, a retort *g*, a dome *a* of fire-clay in which the retort is placed, said dome having below the retort an inclined flame-passage *A*, and around the sides and upper part of the retort a space *c* tapering toward the end of the retort, lateral passages *i* communicating between the flame-passage *A* and the space *c*, a fire-clay bed *f* below the retort upon which the same rests, said fire-clay bed being supported by the dome *a*, and a burner *v* for liquid hydrocarbon or gas, and air under pressure, substantially as described.



2. In combination in a retort-furnace, a retort *g*, a door *l* leading into retort, and a condenser *k*, a dome *a* of fire-clay in which the retort is placed, and plates *d* and door *m* providing access to the retort, an inclined flame-passage below retort, a space *c* around the sides and upper part of the retort, lateral passages *i* communicating between the flame-passage *A* and the space *c*, a fire-clay bed *f* below the retort upon which the same rests and a burner *v*, *u*, substantially as described.

696,457. CARBURIZER. OSCAR A. LASS and HUGHES A. DAVENPORT, Adrian, Mich., assignors to the Adrian Gas Machine Manufacturing Company, Adrian, Mich., a Corporation of Michigan. Filed Apr. 27, 1901. Serial No. 57,791. (No model.)



Claim.—1. In a carburizer, the combination with a tank adapted to contain oil and air thereabove and in contact therewith under pressure, of a retort, a vapor-burner for heating said retort, a valve-controlled pipe connecting the liquid-space of said oil-tank with said retort, and a second valve-controlled pipe connecting the air-space of said oil-tank with said burner, whereby the vapor-entrained air within said oil-tank may be burned to furnish the initial heat to said generator and also form the propelling force for feeding the oil.

2. In a carburizer, the combination with a tank adapted to contain oil and air thereabove and in contact therewith under pressure, of a retort, a vapor-burner for heating said retort, a mixing-tube into which the vapor is directed from said retort and which is connected with the serv-

ice-pipe, a valve-controlled pipe connecting the oil-space of said oil-tank with said retort, a second valve-controlled pipe connecting the air-space of said oil-tank with said vapor-burner and a pipe connecting said mixing-tube with said vapor-burner, for the purpose described.

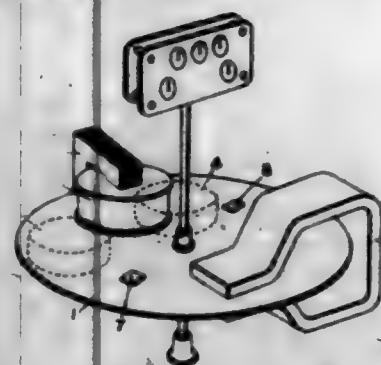
3. In a carburizer, the combination of a cylindrical burner-assembly open at its upper end and having ears projecting upwardly from opposite sides thereof, a retort in the form of a hollow disk arranged between said ears above said burner, an oil-inlet pipe to said retort passing through an aperture in one of said ears, a valve-controlled vapor-outlet stem projecting upward from said retort, a mixing-tube supported upon said retort in line with the vapor-outlet and a depending apertured leg on said mixing-tube engaging with said oil-inlet pipe and forming a brace.

696,458. COMBINED SPOKE-FASTENER AND TIRE-TIGHTENER. EMMER, ROGER LAVELLE, Grimsdale, Mo. Filed Aug. 24, 1901. Serial No. 79,120. (No model.)



Claim.—In a device of the kind described, the combination of a fully having an opening formed therein, a bolt having a threaded portion and a reduced cylindrical shank extending therefrom that is adapted to fit within the opening in the fully, ribs formed upon the said reduced portion, a ferrule having a wrough-surface formed upon the exterior thereof, the interior of said ferrule having a bore of even diameter throughout its entire length and having one end terminating in a threaded portion, of a spoke adapted to fit within the said ferrule, and an elastic cushion interposed within the said ferrule between the end of the spoke and bolt, substantially as shown and described.

696,459. MEANS FOR PREVENTING CREEPING OF METERS. ALEXANDER D. LOFF, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 23, 1901. Serial No. 79,879. (No model.)



Claim.—1. In an electric meter, the combination with the rotating member, of an antiscrooping device consisting of a piece of non-magnetic metal or other conductor superposed thereon.

2. In an induction-meter, the combination with the induced member, of an antiscrooping device consisting of a small piece of copper or other good conducting non-magnetic metal superposed thereon.

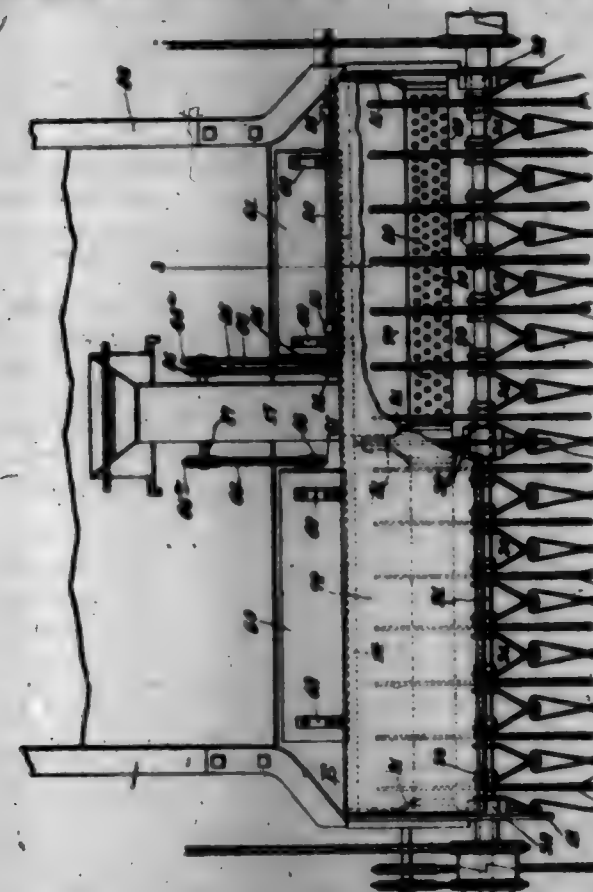
3. In an induction-meter, an induced member having a locally-thickened portion of non-magnetic material arranged to pass periodically through the field of the meter as the induced member rotates.

4. The combination with the rotating member of an alternating-current induction-meter, of a locally-superposed piece of non-magnetic metal.

5. In an electric meter, the combination with the rotating member, of a plurality of pieces of metal or other good conducting material attached thereto in such positions as to balance each other.

6. The combination with an electric meter, of a piece of metal attached to the rotating member of the meter and operating to prevent creeping of the meter, and means for balancing any turning moment due to the weight of said piece.

696,460. GRAIN-THRESHING MECHANISM. WILLIAM MALONEY, Sherbrooke, Canada, assignor of seven-tenths to Maxwell & Inglis and Isaac Pittblado, Winnipeg, Manitoba, Canada, and Louis T. Watson, Minneapolis, Minn. Filed Apr. 10, 1901. Serial No. 55,552. (No model.)



Claim.—1. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of upright threshing-bars having the working faces exposed to access directly by the heads of the standing grain, and a series of revolving elements operatively related to said working faces of the threshing-bars, the diameter of said revolving elements exceeding the width of the threshing-bars, whereby the revolving elements project well in front of the threshing-bars and are adapted to sweep or carry the heads of standing grain between the bars, substantially as described.

2. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of upright bars disposed in spaced relation and each having working faces in opposing relation to similar faces on other bars and said faces exposed to access directly by the heads of standing grain, and a series of revolving disks each having working faces in opposing relation to similar faces on the adjacent bars, the diameter of said disks exceeding the width of the bars, whereby the disks project beyond the bars and are adapted to sweep or carry the heads of grain between the cooperative working faces, substantially as described.

3. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of revolving disks provided with lateral working faces, and a series of upright bars having the working faces thereof exposed to access directly by the heads of standing grain and in cooperative relation to the similar faces on the revolving disks, said threshing-bars being adjustable laterally and in parallel relation to an adjacent disk, whereby the width of the grain throat or space between the bars and disks may be increased or diminished, substantially as described.

4. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of revolving disks provided with lateral working faces, and a series of upright bars having working faces in opposing relation to the similar faces of the disks, the diameter of each disk exceeding the width of the bar adjacent thereof, each upright bar having forwardly-converging guide-faces disposed in front of the working faces thereof and forming a narrow crest at the front edge of said bar, substantially as described.

5. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of revolving disks provided with working faces, and a series of threshing-bars alternating with the disks and provided with working faces in opposing relation to the disks and exposed to access directly to the heads of standing grain, each threshing-bar consisting of complementary members provided with rearwardly-

diverging grain-deflecting surfaces which extend from a narrow crest on the bar substantially to the working faces thereof, as set forth.

6. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in an exposed position and comprising a series of revolving disks provided with working surfaces, and a series of upright bars having working faces in opposing relation to the disks and adapted to direct access by the heads of standing grain, the diameter of the disks exceeding the width of the bars, each bar consisting of complementary members provided with forwardly-converging grain-deflecting surfaces and said members being adjustable laterally with respect one to the other and to the working faces of the disks, substantially as described.

7. A threshing mechanism comprising a series of revolving disks having the working faces, and a series of threshing-plates alternating with the disks, each threshing-plate consisting of members which are seated upon a suitable support and are connected adjustably thereto and stayed adjustably with relation to each other, said plate members having working surfaces at the rear portions thereof and in opposing relation to the working faces of the disk, substantially as described.

8. A threshing mechanism comprising a series of revolving disks, a series of stationary threshing elements, and dividers extending in front of said stationary elements and having lateral bulged portions in operative relation to said elements, substantially as described.

9. A threshing mechanism comprising a series of revolving elements, a series of upright elements in cooperative relation to the revolving elements, and a series of dividers mounted upon the upright elements and projecting in advance thereof, each divider consisting of curved members united at their front ends and attached at their rear ends to the element, substantially as described.

10. In a combined harvester and thrasher adapted to advance through standing grain, the combination of a shaking-riddle, a series of exposed upstanding threshing-plates disposed in advance of the riddle and having working faces exposed to access directly by the heads of standing grain, a series of exposed revolving disks having working faces in opposing relation to the similar faces of said bars and revolving in a direction to sweep grain between the bars and over the riddle, and a blast mechanism arranged to direct a blast rearwardly across the riddle, substantially as described.

11. In a combined harvester and thrasher adapted to advance through standing grain, the combination of a shaking-riddle, upstanding exposed threshing-bars in advance of the riddle, revolving disks between said threshing-bars and revolving in a direction to sweep the heads of standing grain between the bars and to carry the grain over the riddle, a forwardly and downwardly inclined blast-plate at the rear portion of the riddle, and a blast-fan having its wind-trunk arranged to discharge a blast upwardly and rearwardly through the riddle, substantially as described.

12. In a combined harvester and thrasher adapted to advance through standing grain, the combination of a casing having a curved bottom forming a conveyor-belt, a carrying-bar at the front edge of the casing, a shaking-riddle arranged within said casing, a series of exposed threshing-bars erected on said carrying-bar and disposed in advance of the riddle, revolving disks in cooperative relation to said threshing-bars and arranged to sweep grain between the bars and over the riddle, a blast mechanism delivering a wind-current across the riddle, and a conveyor operatively disposed in said housing below the riddle, substantially as described.

13. In a combined harvester and thrasher adapted to advance through standing grain, the combination of a casing provided at its rear side with a chaff-escape opening, a shaking-riddle supported in said casing contiguous to said opening therein, a series of exposed threshing-bars erected at the front edge of the casing and in advance of the riddle, a like series of exposed disks revolving in a direction to sweep grain between the bars and over the riddle, a blast-fan, and a wind-trunk arranged to discharge a current of air in fan upward and rearward direction through the riddle and toward the chaff-escape opening, substantially as described.

14. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in a position exposed to access directly by the heads of standing grain and comprising a series of threshing-bars provided with opposing working faces, each bar having at its base a deflected or curved portion arranged in cooperative relation to a similar portion on an adjacent bar and forming an enlarged clearance space or throat for the discharge of threshed grain, and exposed revolving disks arranged to sweep grain between the threshing-bars and to cooperate with the latter in threshing the grain, substantially as described.

15. In a combined harvester and thrasher adapted to advance through standing grain, a threshing mechanism mounted on the machine-frame in a position exposed to access directly by the heads of standing grain and comprising a series of threshing-bars and a series of revolving disks in cooperative relation to the threshing-bars, each threshing-bar comprising a pair of complementary members disposed back to back and having the forwardly-converging grain-deflecting surfaces, substantially as described.

16. In a combined harvester and thrasher adapted to advance through standing grain, an exposed threshing-bar comprising complementary members having the forwardly-converging grain-deflecting surfaces meeting in a central ridge or crest, working faces on the exposed surfaces of the members, and means for adjustably connecting the members, combined with revolvable disks disposed in cooperative relation to a series of such threshing-bars, substantially as described.

17. In a combined harvester and thrasher adapted to advance through standing grain, the combination of a carrying-bar, a series of upstanding threshing-bars each having complementary members disposed back to back and said members fastened adjustably to said carrying-bar, said members of each threshing-bar having the exposed working faces and the grain-deflecting faces, means for rigidly and adjustably connecting the members of each threshing-bar together, and revolvable disks in cooperative relation to the threshing-bars, substantially as described.

696,461. SPRING AIR-GUN. WILLIAM F. MARRAS, Plymouth, Mich. Filed July 2, 1900. Serial No. 22,206. (No model.)



Claim.—1. In a spring air-gun, the combination of the outer or false barrel, a sleeve secured in the forward end thereof and provided with a slot, and the true barrel and muzzle-cap secured together and provided with a projection cooperating with said slot to lock them in position, substantially as described.

2. In a spring air-gun, the combination of the outer or false barrel, a sleeve secured in the forward end thereof and provided with a cam-dot, and the true barrel and muzzle-cap permanently secured together and provided with a projection cooperating with said cam-dot to force said barrel and cap inward and outward by turning them in opposite directions, and to lock them in position, substantially as described.

3. In an air-gun, the combination of a false barrel, a removable true barrel fitting therein, and means carried by the respective barrels adapted to engage and cooperate to rotate the true barrel as it is inserted or withdrawn, substantially as described.

4. In a spring air-gun, the combination of the outer or false barrel, a tubular wooden plug inserted therein, a metal sleeve or bushing permanently secured therein between the wooden plug and the muzzle of the gun and operating to hold said wooden plug in position against the blows of the piston, the true barrel seated in the central bore of said plug, and the muzzle-cap fitting over the forward end of said sleeve and detachably connected thereto, substantially as described.

5. In a spring air-gun, the combination of the outer or false barrel, a tubular wooden plug inserted therein, a metal sleeve or bushing permanently secured therein between the wooden plug and the muzzle of the gun and operating to hold said wooden plug in position against the blows of the piston, the true barrel seated in the central bore of said plug, and the muzzle-cap permanently secured to the outer end of the true barrel and fitting over and detachably connected with the sleeve secured in the outer barrel, substantially as described.

6. In a spring air-gun, the combination of the outer or false barrel, a tubular wooden plug inserted therein, a metal sleeve or bushing permanently secured therein between the wooden plug and the muzzle of the gun and operating to hold said wooden plug in position against the blows of the piston, the true barrel seated in the central bore of said plug, the muzzle-cap secured to the forward end of said barrel and fitting over the extremity of the sleeve secured in the outer barrel, and a bayonet-lock for detachably connecting the true barrel and muzzle-cap to said sleeve and outer barrel, substantially as described.

7. In a spring air-gun, the combination of the barrel B, the tubular wooden plug I inserted therein, the metal sleeve J permanently secured in the barrel B and provided with the slot N adjacent the muzzle of the gun, the true barrel L seated in the bore of the plug I and provided with the projection O cooperating with the slot N, and the muzzle-cap M secured to the extremity of the barrel L and fitting over the forward end of the sleeve J, substantially as described.

8. In a gun, the combination of an outer or false barrel, a sleeve held therein and projecting outward slightly beyond the end of the same, a true barrel, and a muzzle-cap supporting the forward end of the true barrel and fitting over the projecting end of the sleeve in the false barrel, substantially as described.

9. In a spring air-gun, the combination of the outer or false barrel, a plurality of leather washers secured therein at the forward end of the compression-chamber and constituting both an abutment for the piston and a seat for the rear end of the true barrel, the true barrel seated at

its rear end in said washers and supported at its forward end in the muzzle-cap, and means for detachably securing said true barrel and muzzle-cap in position and producing a twisting movement of the barrel at the insertion and withdrawal of its rear end from its seat in the leather washers, substantially as described.

10. In a spring air-gun, the combination of the outer or false barrel, the tubular wooden plug therein, the plurality of leather washers secured to the rear end of said plug and constituting an abutment for the piston and a seat for the rear end of the true barrel, the true barrel seated at its rear end in said washers and supported at its forward end in the muzzle-cap, and means for detachably securing said true barrel and muzzle-cap in position and producing a twisting movement of the barrel at the insertion and withdrawal of its rear end from its seat in the leather washers, substantially as described.

11. In a spring air-gun, the combination of the outer or false barrel, the plurality of leather washers secured therein at the forward end of the compression-chamber, the metal washer interposed between said leather washers and having a central aperture smaller than the bore of the true barrel, the true barrel seated at its rear end in the leather washers and supported at its forward end in the muzzle-cap, and means for detachably securing said true barrel and muzzle-cap in position, substantially as described.

12. In a spring air-gun, the combination of the outer or false barrel, the tubular wooden plug therein, the plurality of leather washers and the interposed metal washer secured to its rear end, said metal washer having a central aperture smaller than the bore of the true barrel, the true barrel supported at its rear end in said wooden plug and seated at its extremity in the leather washers, the muzzle-cap secured to the forward end of the true barrel, and means for detachably securing said true barrel and muzzle-cap in position, substantially as described.

13. In a spring air-gun, the combination of the barrel B, the wooden plug I therein, the leather washers C D and interposed metal washer J secured to the rear end of the plug I, the sleeve J permanently secured in the front end of the barrel B and serving to hold the plug I in position, the true barrel L passed through the plug I and seated at its rear end in the washers C D, the muzzle-cap M secured to the front end of the barrel L and fitting over the extremity of the sleeve J, and means for detachably connecting the barrel L and the cap M to said sleeve, substantially as described.

14. In a spring air-gun, the combination of an outer or false barrel, a plurality of flexible washers secured therein at the forward end of the compression-chamber, a true barrel seated at its rear end in said washers and supported at its forward end in the muzzle-cap, and means for detachably securing the true barrel and muzzle-cap in position, substantially as described.

15. In an air-gun, the combination of a false barrel, a removable true barrel fitting therein, and means for causing the true barrel to rotate as it is inserted or withdrawn, substantially as described.

16. In a spring air-gun, the combination of the outer or false barrel, a tubular plug inserted therein, a metal sleeve or bushing held against longitudinal movement therein between the tubular plug and the muzzle of the gun and operating to hold said plug in position against the blows of the piston, a true barrel seated in the central bore of said plug, and a muzzle-cap at the forward end of said sleeve, substantially as described.

17. In a spring air-gun, the combination of the outer or false barrel, a sleeve held therein and provided with a cam-dot, a true barrel, and means carried by the true barrel cooperating with said cam-dot to force said barrel inward and outward by turning them in opposite directions, substantially as described.

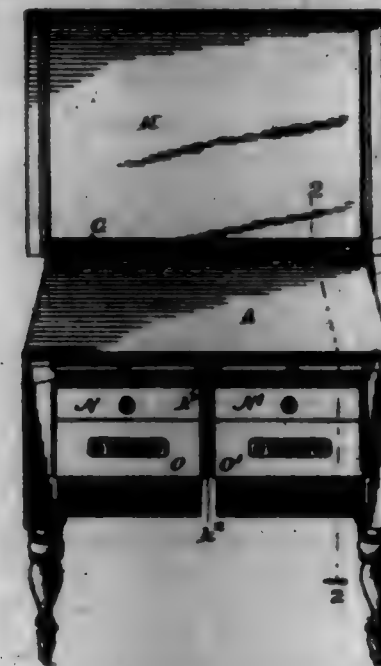
18. In a spring air-gun, the combination of an outer or false barrel, a flexible washer secured therein at the forward end of the compression-chamber, a removable true barrel seated at its rear end in said washer and supported at its forward end in the muzzle-cap, and means for twisting the true muzzle as the same is forced inward and outward, substantially as described.

696,462. KITCHEN-TABLE. CHARLES L. HARTSHORN, Chicago, Ill. Filed Dec. 29, 1900. Serial No. 41,437. (No model.)

Claim.—1. In a kitchen-table, the combination with a suitable top and supporting-legs, of the frame, K, comprising substantially the horizontal portion, A, adapted to be attached to the rear side of the table, and the upright portion, B, adapted to be secured to the top of the table, a dividing-strip secured in the horizontal portion of the frame and rollers journaled in the horizontal portion on each side of the dividing-strip, corresponding frames, M, secured at the ends of the table and the drawers, O, O', provided with suitable strips running upon said rollers, substantially as described.

2. In a kitchen-table, the combination with a suitable top and supporting-legs, of the supporting-frame, K, M, M, provided with supporting-rollers and the drawers, O, O', provided with suitable strips running

upon the rollers and with the blocks, Y, Y, adapted to engage the under sides of the frames to prevent the tilting of the forward portion of the drawers when drawn out beyond their center of gravity, substantially as described.



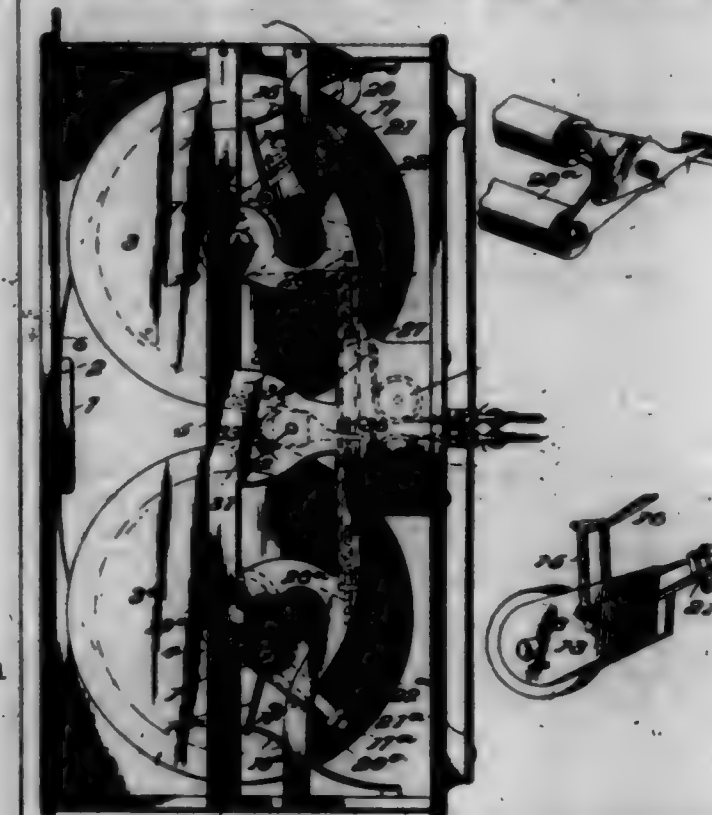
696,463. LIFT-RAFT. DANIEL G. MARTIN, London, England. Filed Apr. 27, 1901. Serial No. 57,600. (No model.)



Claim.—In a ship or vessel fitted with detachable flexible sections or rafts resting on the deck house or houses, means for launching the rafts, comprising raising-levers pivoted to the deck house or houses and adapted when turned to raise and support the raft above the roof of the deck house or houses, and swinging mechanisms pivoted to and turning on the taffrail or other fixed part of the vessel and carrying rollers on their extremities, said mechanisms being normally held upright by powerful springs and maintained in that position by a cord or the like detachable means, substantially as described.

696,464. STATION-INDICATOR. JOSEPH A. MEAD, Cleveland, Ohio. Filed July 27, 1901. Serial No. 69,962. (No model.)

Claim.—1. In a station-indicator, a name-strip, a drum for winding up the name-strip, intermittent actuating mechanism for the said drum embodying a clutch-lever, a stop for limiting the forward movement of the clutch-lever, and means for adjusting the position of the said stop and controlled by variation or change in the diameter of the drum incident to the winding of the name-strip thereon, substantially as set forth.



2. In a station-indicator, a name-strip, a drum, intermittently-actuated mechanism for winding the name-strip upon the drum and including a clutch-lever, a stop for holding the clutch-lever in a normal position and limiting its return throw, an adjustable stop for limiting the forward throw of the said clutch-lever, and means controlled by the change in diameter of the said drum to vary the position of the adjustable stop to admit of a like amount of the name-strip being wound upon the drum at each actuation thereof, substantially as set forth.

3. In a station-indicator, companion drums, a name-strip adapted to wind upon one of the drums and unwind from the other drum, intermittently-actuated means for one of the drums including a clutch-lever, a stop for limiting the forward movement of the said clutch-lever, and means for changing the position of the said stop proportionate to the variation in the diameters of the two drums, said means embodying cooperating elements in contact with the respective drums, substantially as set forth.

4. In a station-indicator, companion drums, a name-strip, intermittently-actuated means for winding the name-strip upon one of the drums and unwinding it from the other drum and including a clutch-lever, a stop for limiting the forward throw of the clutch-lever, adjustable plates operatively connected with the said stop to effect a change in position thereof, and elements supported by the said plates and in contact with the respective drums and controlled by the change in diameter thereof incident to the unwinding of the strip from one drum and the winding thereof upon the other drum to effect a shifting of the aforementioned stop, substantially as set forth.

5. In a station-indicator, cooperating drums, a name-strip, intermittently-actuated means for one of the drums including a clutch-lever, a slidably-mounted frame having a portion extended in the path of the clutch-lever to limit its forward movement, pivoted plates or levers provided with elements in contact with the respective drums, means for securing the said plates in an adjusted position, and a connection between one of the said plates and the slidable frame, the elements supported by the said plates being in line with the axis of the said drums and the distance between the pivotal support for the said plates and the elements carried thereby at the point of contact with the slidable frame being substantially equal, as and for the purpose set forth.

6. In a station-indicator, cooperating drums, intermittently-actuated means for the said drums comprising clutch-levers, a slidable frame having portions extended in the path of the said clutch-levers to limit their forward movement, and means controlled by the change in diameter of the drums to vary the position of the slidable frame and the consequent forward throw of the clutch-levers, substantially as set forth.

7. In a station-indicator, cooperating drums, a name-strip, intermittently-actuated means for the drums to effect a winding of the name-strip thereon, flanges rotatable with the drums, plates having the flanges be-

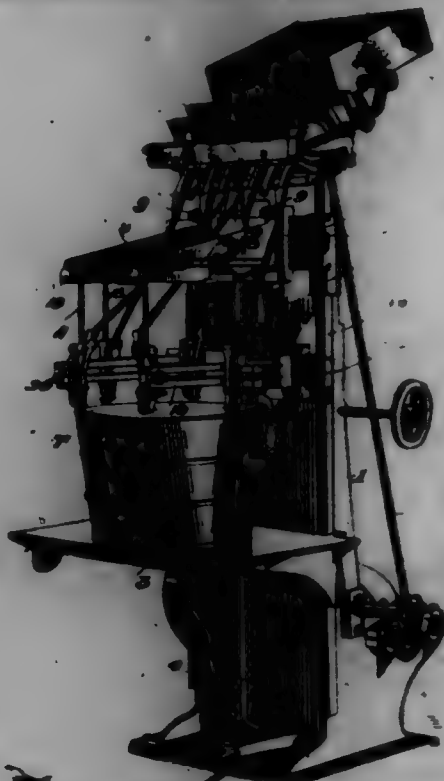
tween them, and means for adjusting the said plates to grip the flanges more or less tightly to prevent the too free movement of the drums, substantially as set forth.

696,465. CORSET. **PATENT J. MERRAN,** Brooklyn, N. Y. Filed Jan. 22, 1900. Serial No. 2,465. (No model.)



Claim.—In a corset, a system of stays composed of a stiffer and reinforce individually connected by their ends so as to be movable relatively to each other and provided with a layer of paper between them in addition to the cloth, so as to increase their freedom of motion, substantially as described.

696,466. SAILING-MACHINE. **HENRY W. MORRAN,** Rochester, N. Y. Filed Mar. 10, 1900. Serial No. 706,466. (No model.)



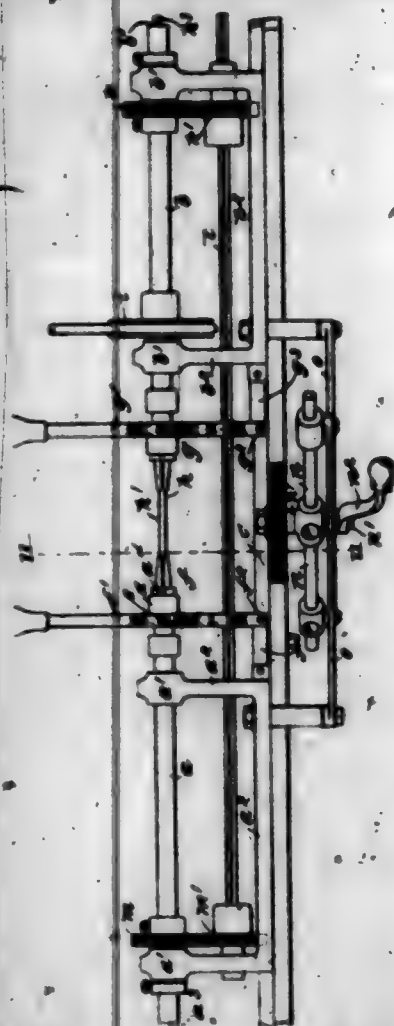
Claim.—1. In a sailing-machine, the combination with the main frame, the work-support and the vertically-movable cross-head, the laterally-adjustable arms 8 on the cross-head, the driver-brackets adjustable longitudinally of the arms, and the drivers, carried by the brackets and arms and adjustable thereon, the cross-bar 16 on the main frame, the brackets 17 adjustable thereon, the laterally-extending brackets 20, and nail-holding checks adjustable upon the brackets 17 and 20.

2. In a sailing-machine, the combination with the main frame and work-support, a cross-bar such as 16 on the frame, a pair of relatively adjustable check-supporting brackets on the bar, check-supporting brackets extending laterally from the last-mentioned brackets and adjustable thereon, and nail-holding checks adjustably secured to each of said brackets, of nail-drivers operating in the checks, and means for operating them.

3. In a sailing-machine, the combination with the main frame, the work-support, the vertically-movable cross-bar, the relatively adjustable driver-brackets mounted on the cross-bar having the clips in their lower sides, the driver-brackets extending laterally of the first-mentioned brackets and adjustable thereon toward and from the cross-bar on the frame and the drivers adjustable on their brackets, of the nail-checks supported below the driver-brackets and with which the drivers cooperate and adjustable on their supports.

4. In a sailing-machine, the combination with the main frame and the cross-bar 16 thereon, of a pair of forwardly-extending check-supports secured to and adjustable upon said bar, a pair of laterally-extending check-supports mounted upon the supports on the bar and adjustable longitudinally thereon, nail-holding checks mounted adjustably upon the supports, two of said checks having the downwardly-extending arms for centering the work, and nail-drivers operating in the checks and adjustable with the checks.

696,467. GLASS-WORKING MACHINE. **FRANK R. McLENNAN,** Evanston, Ill., assignor to the Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed July 15, 1900. Serial No. 696,467. (No model.)

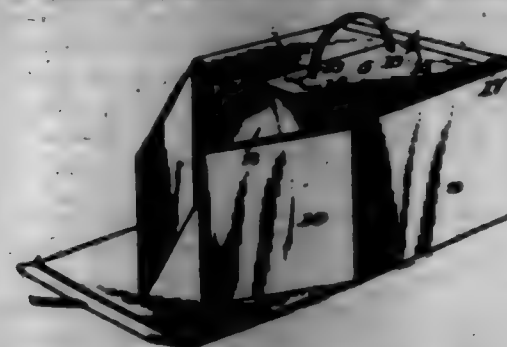


Claim.—1. The combination in a glass-working machine, of a hollow spindle and a chuck having jaws carried upon the end of said spindle, said spindle being adapted to receive an indefinite length of straight glass tubing through its open end, and permitting the tubing to be thrust through the bore of the spindle and protrude through the jaws of the chuck, the jaws of the chuck being adapted to engage and hold the tubing, a second chuck in alignment with the first, adapted to hold the end of the tubing which protrudes from the first-mentioned chuck, means for heating the checks at equal speeds in the same direction, a gas-jet for heating the glass tubing at a point between the two chucks, and means for causing relative longitudinal movement between the chucks, whereby the glass tubing is drawn out, as described.

2. In combination, in a glass-working machine, two hollow rotatable spindles in alignment with one another, adapted to receive straight glass tubing of indefinite length, fed through said spindles from end to end, a chuck carried by each spindle, each of said chucks having jaws adapted to grasp the tubing a gear on each spindle and a pinion for each gear longitudinally movable on a shaft having a spline engaging said pinions, means for driving said shaft, a gas-jet directed upon the glass tubing between the two spindles, and mechanism for causing a relative longitudinal movement of the chucks, whereby the tubing is drawn out, as described.

3. The combination with the longitudinally-movable stocks and the hollow spindles journaled therein, said spindles being in alignment and adapted to receive straight glass tubing of indefinite length, fed through said spindles from end to end, the gears on the spindles and the pinions meshing into said gears as a spindle shaft, and means for rotating said spindles, of the chucks carried by the hollow spindles, the gas-jet carried between said chucks, the lever 22 and the links 23 connecting said lever with the stocks carrying the chucks, as described.

696,468. FOLDING BOX. **BENJAMIN R. McFARLANE,** Washington, D. C. Filed Feb. 6, 1901. Serial No. 46,515. (No model.)



Claim.—1. The herein-described folding-box blank, embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be united intermediate of the box, and the ends having reinforced guard-flaps to fold over the ends of the two-part top, the flaps being provided with means to constitute one member of a fastening device to coast with a second member carried by the box-top.

2. The herein-described folding-box blank embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be united intermediate of the box, the sides having flaps integral therewith to be folded inward to form closures for the ends of the box, guard-flaps carried by the ends proper and adapted to fold over the ends of the two-part top, and a two-part metallic fastening device, one member of which is carried by the top and the other member by the guard-flap.

3. The herein-described folding-box blank embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the ends having guard-flaps integral therewith and reinforced by folding the outer edge over upon the body of the end section, and fastening means for securing the ends to the top, said means being connected with the guard-flaps and with the said top.

4. The herein-described folding box embodying the top, bottom, ends and sides in one piece and foldable into box-like form, the top being in two sections, to be secured permanently together prior to the assembling of the other parts of the blank and constituting no part of the ends of the box, and two-membered metallic fastening devices one member being secured to the top and carrying as holding means for the two sections thereof, and the other member being secured to the ends proper.

5. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections and adapted to be united intermediate of the box, the ends of the box having guard-flaps formed by folding the outer edge over the body of the end closure, and two-membered fasteners to hold the ends in folded position with relation to the top, one member being secured to the top and the other member being secured between the folds of the guard-flap.

6. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections and constituting no part of the ends of the box, fasteners adapted to unite the adjacent parts of the top sections independently of the other parts of the box, and means whereby the same fasteners are utilized to secure the ends of the box in operative position.

7. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be secured together independently of, and prior to the assembling of, the other parts of the box, said top constituting no part of the ends of the box, and fasteners adapted to secure the ends of the box to the top, the same fasteners serving as holding means for the sections of the top.

8. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two overlapping sections to be secured together prior to the assembling of the other parts of the box, said top constituting no part of the ends of the box, fasteners adapted to unite the adjacent parts of the overlapping top sections, and means coacting with the fasteners and carried by the ends proper to secure the ends of the box in position.

9. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be secured together independently of the other parts of the box, said top constituting no part of the ends of the box, one member of a fastener secured to said top, and a corresponding member of said fastener secured to the adjacent foldable end.

10. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections to be permanently secured together prior to the assembling of the other parts of the box, the ends having guard-flaps integral therewith and reinforced by folding the outer ends over upon the body of

the end sections, and fastening means for securing the folded ends to the top, said fastening means being connected with the guard-flaps and the box-top.

11. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the end parts having guard-flaps integral therewith and reinforced by folding the outer edge over upon the body of the end sections, the top section being in two parts and to be secured together prior to the assembling of the other parts of the box, and a two-membered metallic fastener device for securing the ends of the top, one member of the fastener being attached to the top of the box and serving as an additional means of holding the top sections assembled, and the other member of the fastener being secured between the members of the guard-flap.

696,469. ART OF TREATING ORES. **BENNETT McLENNAN,** Philadelphia, Pa. Filed Aug. 12, 1901. Serial No. 71,607. (No specimens.)

Claim.—1. The art of treating ores containing precious metal in a flux state and also in larger particles, which consists in heating with free access of air and agitation, a mixture of the ore, containing a refractory metalloid and a haloid salt of an alkaline or alkaline-earth metal, until a haloid salt of the precious metal is produced and volatilized and the corner particles of the precious metal have their surface coatings removed, and the alkaline or alkaline-earth metal unites with the oxygen of the air and with the refractory metalloid, to form a stable oxy-salt, reflecting the volatilized haloid or oxyhaloid of the precious metal, and treating the cleaned particles by amalgamation, substantially as described.

2. The art of treating ores which contain precious metal in a flux state and also in larger particles, coated with carbonates which consist in heating a mixture of the ore a refractory metalloid, and a haloid salt of an alkaline or alkaline-earth metal, with free access of air and agitation, until the carbonic-acid radical of the carbonate upon the surface of the larger particles is driven off, and the material temporarily in combination therewith is changed into a solid or soluble and containing the heating until these solids are changed into oxides, and the haloid salt of the alkaline or alkaline-earth metal is decomposed, and the resultant halogen combined with the finer particles of the precious metal, and the alkaline or alkaline-earth metal combined with oxygen and the refractory metalloid to form a stable oxy-salt of the refractory metalloid, and the alkaline or alkaline-earth metal, volatilizing and collecting the volatilized haloid salt or oxyhaloid salt of the precious metal and treating the cleaned particles by amalgamation, substantially as described.

696,470. BATH-BRUSH. **WILLIAM A. McLENNAN, R. CHRISTIAN,** Ohio. Filed Nov. 20, 1901. Serial No. 63,774. (No model.)



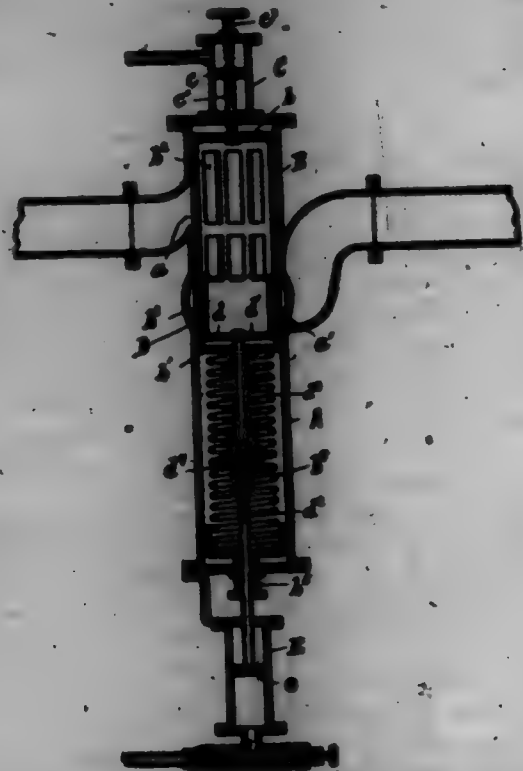
Claim.—An article of toilet, substantially as specified, the same consisting of a rotary brush, and handles having their inner end portions bent toward each other and loosely connected with the brush to admit of free rotation and independent play thereof, substantially as specified.

696,471. AUTOMATIC PRESSURE-GOVERNOR. **JOHN W. FREN,** Cincinnati, Ohio. Filed July 24, 1901. Serial No. 61,741. (No model.)

Claim.—1. In a pressure-governor for controlling fluids under pressure a valve-casing having its inlet-opening in a different horizontal plane from its outlet-opening, a valve within the casing having adjacent to the outlet-opening an imperforate and portion to be carried over the outlet-opening to restrict the same and an upper portion above the inlet-opening and connected to the imperforate and portion to balance a pressure thereon, a spring to hold the valve in its normal position, and a channel for communicating the pressure to be controlled to the valve to move it when said pressure varies from that of the spring, substantially as shown and described.

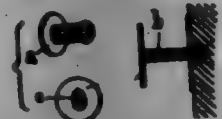
2. In an automatic pressure-governor for engines the combination

of a valve-rod having its inlet-opening upon a higher horizontal plane than its outlet-opening, a cylindrical valve within the casing consisting of a lower imperforate and portion adjacent to the outlet-opening an upper disk above the inlet-opening and connected to the lower portion, a spring bearing upward against the valve, a governing-chamber upon top of the case, a piston within the chamber, a rod connecting the upper end of the valve and the piston and channel for communicating the pressure against which the engine works to the piston, substantially as shown and described.



3. In a pressure-governor the combination of a casing having its inlet-opening upon a higher horizontal plane than its outlet-opening, within the casing a hollow cylindrical valve having closed ends and longitudinal slots in its sides leaving an imperforate portion at its lower end adjacent the outlet-opening, a spring bearing upward against the valve, a second balanced valve within the lower end of the casing, a governing-chamber upon the upper and upon the lower ends of the casing, a piston within the chamber, a rod connecting the upper piston with the first valve a second rod connecting the lower piston with the second valve, a valve controlling the entrance to the lower governing-chamber which is to be opened only by a pressure exceeding a certain limit, and means for communicating the pressure of discharge to the piston within the upper governing-chamber and to the valve controlling the entrance to the lower governing-chamber, substantially as shown and described.

696,472. STUD. FRANK NEWMAN, Bensenville, Germany. Filed May 26, 1901. Serial No. 62,234. (No model.)



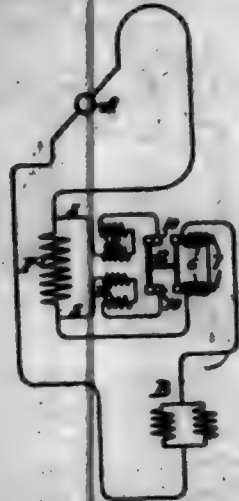
Claim.—The herein-described necktie-fastener, consisting of a stud having an expanded base, a flattened shank, and a head which is elliptical in cross-section, the longest diameter of said head extending parallel to the longest diameter of the shank, and a socket member adapted to be attached to a cravat and to be radially engaged with the head of the stud.

696,473. AUTOMATIC REGULATOR FOR ELECTRIC CIRCUITS. FRANK G. NEWMA, Westinghouse, Pa., assignor to the Westinghouse Air Brake Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Apr. 29, 1908. Serial No. 14,967. (No model.)

Claim.—1. An automatic regulator for electric circuits, comprising a normally open short-circuit, two contact-plugs for the short-circuit, a solenoid having a movable core, and a rod operated by said core and carrying two contact-plugs adapted to close the short-circuit when an excessive current passes through the solenoid.

2. An automatic regulator for electric circuits, comprising a normally open short-circuit, a resistance-coil in the short-circuit, a spring-block of insulating material, two contact-plugs for the short-circuit secured to the block, a solenoid, a movable core therefor provided with a rod carrying

two contact-plugs at its outer end adapted to close the short-circuit when an excessive current passes through the solenoid.



3. An automatic regulator for electric circuits, comprising a normally open short-circuit having a resistance-coil, a block of insulating material, two contact-plugs for the short-circuit spaced apart upon the insulating-block, a solenoid having a movable core provided with a head which is adapted to rest against the insulating-block when the switch is in its open position, and a switch connected to said head and having two contact-plugs for closing the short-circuit.

4. An automatic regulator for electric circuits, comprising a casing, a normally open short-circuit having a resistance-coil in the casing, a solenoid carried by the casing and having a movable core provided with a head, a block of insulating material secured to the casing, two contact-plugs for the short-circuit carried by the insulating-block and a switch connected to said head and having two contact-plugs for closing the short-circuit when an excessive current passes through the solenoid.

5. An automatic regulator for electric circuits, comprising a casing, a short-circuit having resistance coils in the casing, a solenoid mounted in a vertical position on the casing, a stop secured to the casing and adapted to support the movable core of the solenoid when the short-circuit is open and a switch in the short-circuit operated by the solenoid.

6. In an electric system, a generator, a generator-circuit, a short-circuit around the field of the generator, said short-circuit being normally open, a solenoid in the generator-circuit, two contact-plugs in the short-circuit, a rod connected to the movable core of the solenoid and carrying two contact-plugs adapted to close the short-circuit when the current in the generator-circuit is excessive.

7. In an electric system, a generator, a generator-circuit, a short-circuit around the field of the generator, a solenoid in the generator-circuit, a movable core for the solenoid, a stop for supporting the movable core in its outer position when the short-circuit is open and a switch in the short-circuit operated by the solenoid.

696,474. VIBRATO-CONTINUOUS ATTACHMENT FOR PIANOS. HENRY H. BOCHNER, Chicago, Ill. Filed Mar. 12, 1901. Serial No. 61,908. (No model.)



Claim.—1. A vibrato-continuous attachment for pianos, comprising a device for engaging and vibrating the hammers, a rotary momentum-wheel, a pedal mounted to act as a lever, suitable power-transmitting connection between said pedal and said momentum-wheel, power-transmitting connection including a clutch between said wheel and said device for engaging and vibrating the hammers, and suitable connection between the said clutch and said pedal, whereby the latter can be employed for

both raising the wheel and opening and closing said clutch, substantially as described.

2. A vibrato-continuous attachment for pianos, comprising a device for engaging and vibrating the hammers, a pedal mounted to act as a lever, a power-transmitting connection between the said pedal and said device for vibrating the hammers, said power-transmitting connection including a clutch, and suitable connection between said clutch and said pedal, whereby the said pedal can be employed for both operating the power-transmitting connection and opening and closing said clutch, substantially as described.

3. In a piano, the combination of the hammers, a cam arranged back of said hammers and in position to engage arms on the same, a pedal mounted to act as a lever, power-transmitting connection between said cam and said pedal, said power-transmitting connection including a clutch for continuing and discontinuing the transmission of power, and suitable connection between said clutch and said pedal, whereby the latter is adapted for both driving the power-transmitting connection and opening and closing said clutch, substantially as described.

4. In a piano, the combination of the hammers, arms on said hammers, a cam arranged back of the hammers and in position to engage said arms when the keys of the piano are maintained in a depressed position, a power-transmitting connection for driving said cam, said connection including a clutch, and means for opening said clutch as to either continue or discontinue the rotation of said cam, the latter when at rest allowing the said arms on the hammers to swing back and forth for the full stroke of the hammers, substantially as described.

5. In a piano, the combination of the hammers, rearwardly-projecting arms on said hammers, a cam having a single projection or node and arranged back of said hammers in position to engage the ends of said arms, a power-transmitting connection for driving said cam, said power-transmitting connection including a clutch for continuing and discontinuing the rotation of said cam, the clutch when open permitting the cam to remain at rest while the said power-transmitting connection is still running, and the projection or node of the cam when the latter is at rest pointing downwardly, as to permit the said arms on the hammers to swing back and forth for the full stroke of the hammers, substantially as described.

6. The combination in a piano with hammers, of a device for engaging and vibrating said hammers when the keys of the piano are maintained in a depressed position, a rotary motor for driving said device, and a pedal connected and arranged for both driving said motor and independently thereof controlling the operation of said device, said pedal having power-transmitting connection with said motor, said motor having a power-transmitting connection with said device for engaging and vibrating the hammers, and a device for controlling the transmission of power from said motor to said device for vibrating the piano-hammers, said controlling device having a separate and independent connection with the power-transmitting connection interposed between said pedal and said motor, whereby said pedal can be employed for both driving said motor and closing the power-transmitting connection between the motor and said device for vibrating the hammers, substantially as described.

7. In a piano, the combination of the hammers, arms on said hammers, a rotary cam arranged in position to engage said arms, means for driving said cam, a clutch arranged between said driving means and said cam and a pedal connected with said clutch and arranged for controlling the transmission of power from said driving means to said cam, the pedal when at rest rendering the power-transmitting connection inoperative, substantially as described.

8. In a piano, the combination of the hammers, a device for vibrating said hammers, a rotary momentum-wheel, suitable power-transmitting connection including a clutch between said wheel and said device, and a pedal connected with said clutch and arranged for controlling the transmission of power between said wheel and said device, the pedal when in its at-rest position rendering the said power-transmitting connection inoperative, substantially as described.

9. In a piano, the combination of the hammers, a device for vibrating the hammers, a rotary momentum-wheel, suitable power-transmitting connection between said wheel and said device, said power-transmitting connection including a clutch, a pedal adapted and arranged for both rotating said wheel and controlling said clutch, the pedal when at rest holding the clutch open and thereby rendering the said power-transmitting connection inoperative, substantially as described.

10. In a piano, the combination of the hammers, a cam for vibrating said hammers, a rotary momentum-wheel, suitable power-transmitting connection between said wheel and said cam, said power-transmitting connection including a clutch, a pedal mounted to act as a lever, suitable power-transmitting connection between said pedal and said wheel, said pedal being connected and arranged for controlling said clutch, the pedal when at rest holding said clutch open and thereby rendering the said power-transmitting connection inoperative, and the said pedal when depressed

and vibrated permitting the clutch to automatically close and opening to rotate the said wheel, substantially as described.

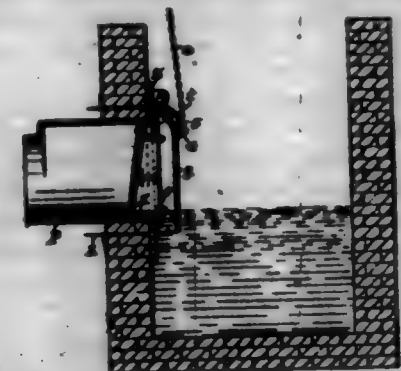
11. The combination in a piano, of the hammers, a cam for vibrating said hammers, a rotary momentum-wheel, suitable power-transmitting connection between said wheel and said cam, said connection including a clutch, a pedal for driving said wheel, suitable connection whereby the pedal when at rest will hold said clutch open and thereby render the said power-transmitting connection inoperative, a weight or weighted connection whereby, when the pedal is depressed, the said clutch will automatically close and thereby communicate power and motion from said wheel to said cam, substantially as described.

12. The combination in a piano, of the hammers, a device for vibrating said hammers, a rotary momentum-wheel, a hub provided with dogs arranged to engage said wheel, a pedal, power-transmitting connection between said pedal and said hub, whereby the vibration of said pedal will operate to oscillate the said hub and thereby drive the said wheel, power-transmitting connection between said wheel and said device for vibrating the hammers, said last-mentioned power-transmitting connection including a clutch, and suitable connection between said clutch and said pedal whereby the latter can be employed for both rotating the wheel or discontinuing the transmission of power from the wheel to said cam, substantially as described.

13. In a piano the combination of the strings, means for vibrating the said strings, a rotary momentum-wheel for driving or operating the said means for vibrating the strings, a hub provided with dogs adapted and arranged to engage said wheel, a vibratory lever, a cord having one end attached to said lever and wound upon said hub and having its other end secured to a spring, said spring being secured to the body or frame structure of said piano, and a pedal connected and arranged for vibrating said lever, the vibratory motion of said lever operating to oscillate the said hub, and thereby rotate the said wheel, substantially as described.

14. The combination of a piano and an attachment therefor adapted and arranged for operating upon the strings of said piano, a rotary wheel having a suitable power-transmitting connection with said attachment for operating the strings of said piano, a hub provided with dogs adapted to engage said wheel, a cord wound upon said hub, and a pedal suitably connected with one end of said cord, the other end of said cord being secured, substantially as and for the purpose set forth.

696,475. SEWER DRAIN AND TRAP. CHARLES F. O'HILL, Paterson, N. J. Filed Sept. 20, 1901. Serial No. 75,701. (No model.)



Claim.—1. The combination of a suitable plate-like support having an opening therein, a trap disposed with one of its ends against the face of said support and surrounding the opening, a flanged ring-like frame or valve-seat having its flange disposed against the other face of said support, said trap and said frame or valve-seat being secured to the support each independently of the other, and a valve mounted in said valve-seat, substantially as described.

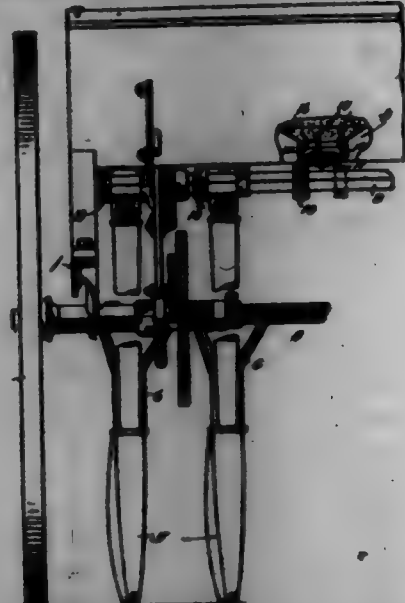
2. The combination of a suitable plate-like support having an opening therein, a trap disposed with one of its ends against the face of said support and surrounding the opening, a flanged ring-like frame or valve-seat penetrating said opening and having its flange disposed against the other face of said support, said trap and said frame or valve-seat being secured to the support each independently of the other, and a valve mounted in the end portion of said valve-seat which is indicated by the trap, substantially as described.

3. The combination of a suitable plate-like support having an opening therein formed with an extension, a trap disposed with one of its ends against the face of said support and around said opening, a flanged ring-like frame or valve-seat penetrating said opening and having its flange disposed against the other face of said support, said trap and said frame or valve-seat being secured in the support each independently of the other, legs projecting from said valve-seat through the extension of said opening, and a valve adapted to seat against said valve-seat and pivoted in said legs, substantially as described.

4. The combination of a suitable plate-like support having an open-

ing therein, a trap disposed with one of its ends against one face of said support and surrounding the opening, a flanged ring-like frame or valve-seat having its flange disposed against the other face of said support, said trap and said frame or valve-seat being secured to the support each independently of the other, a valve mounted in said valve-seat, and a guard or flange pivoted in said support above the ring and covering the latter, substantially as described.

696,476. FERTILIZER-DISTRIBUTER. CHARLES E. PALPUS, Springfield, Ohio. Filed Oct. 21, 1901. Serial No. 90,607. (No model.)

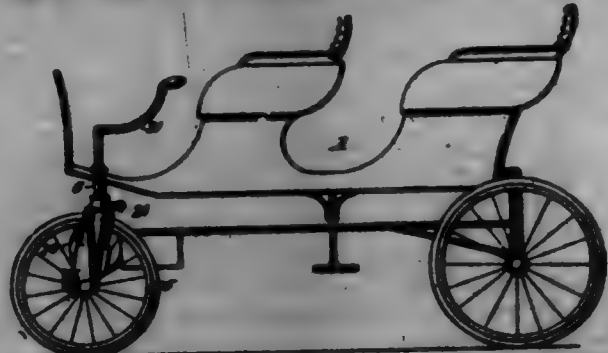


Claim.—1. In a fertilizer-distributor, the combination, with a box or hopper, of feeding device comprising a stationary hopper and feeding-shell, a rotary feed-plate, and stirring-arms secured to the wall of the feed-plate and extending upward therefrom into the box or hopper, said arms being bent or deflected so as to stand at an inclination to the wall to which they are attached, substantially as described.

2. In a fertilizer-distributor, the combination, with a box or hopper, of feeding device comprising a fixed bottom and feeding-shell, a rotary feed-plate, and stirring-arms secured to the wall of said feed-plate at an angle thereto, some of said arms extending inward over the feeding-shell, and others of said arms extending outward over the margin of the feed-plate, substantially as described.

3. In a fertilizer-distributor, the combination, with a box or hopper for containing the fertilizer, of feed-plates supported below the bottom of said box or hopper, hopper-shaped or inclined plates forming the bottom of said box or hopper and curving to conduct the fertilizer to said feed-plates, and stirring-arms attached to the wall of said feed-plates at an angle thereto, some of said arms extending inward over the hopper-shaped or inclined plates, substantially as described.

696,477. AUTOMOBILE. HOWARD J. PHILLIPS, London, England, assignor of one-half to J. W. Plank and George Edward Hill, Carlisle, Pa. Filed June 23, 1901. Serial No. 66,731. (No model.)



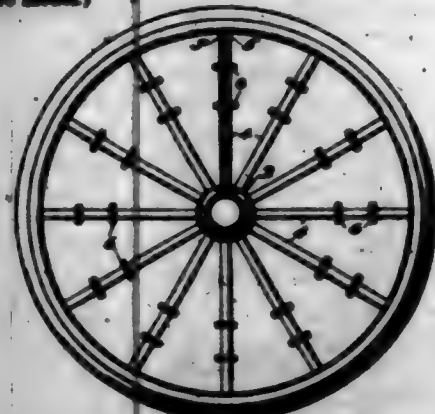
Claim.—1. In an automobile, the combination of driving-wheels, a swiveled fork-union for each driving-wheel, motor-cylinders forming parts of the fork and connected with said union, a crank-shaft having bearings in clearance of said cylinders, said shaft having cranks angularly arranged, a piston-rod and a cross-head for each cylinder, and connections between the cross-heads and the cranks, substantially as set forth.

2. In an automobile, the combination of driving-wheels, a swiveled fork-union for each driving-wheel, motor-cylinders forming parts of the fork and connected with said union, a crank-shaft having bearings in clearance of said cylinders, said shaft having cranks angularly arranged, a piston-rod and a cross-head for each cylinder, connections between the cross-heads and the cranks, and means for coupling up the several forks to a common steering-center, substantially as set forth.

ten-rod and a cross-head for each cylinder, connections between the cross-heads and the cranks, and steering device for said wheels, substantially as set forth.

3. In an automobile, the combination of driving-wheels, a swiveled fork-union for each driving-wheel, motor-cylinders forming parts of the fork and connected with said union, a crank-shaft having bearings in clearance of said cylinders, said shaft having cranks angularly arranged, a piston-rod and a cross-head for each cylinder, connections between the cross-heads and the cranks, and means for coupling up the several forks to a common steering-center, substantially as set forth.

696,478. CONDENSER FOR AUTOMOBILES. HOWARD J. PHILLIPS, London, England, assignor of one-half to J. W. Plank and George Edward Hill, Carlisle, Pa. Filed June 22, 1901. Serial No. 66,732. (No model.)

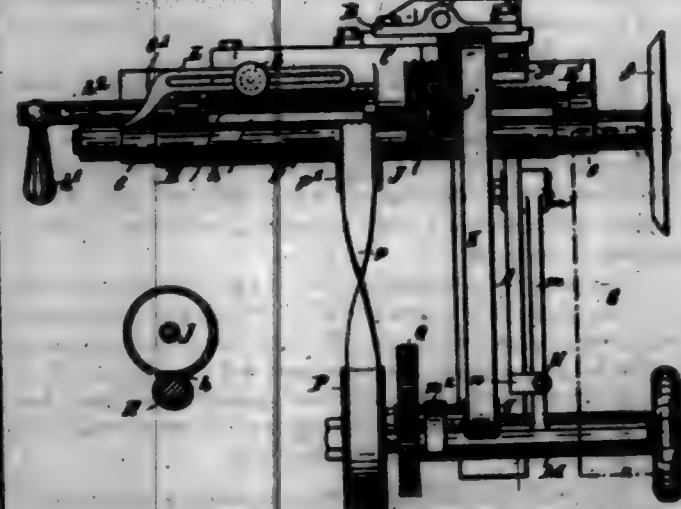


Claim.—1. In a device for effecting the condensation of exhaust-steam on steam road-vehicles, the combination with the steam-exhaust pipe, of a wheel, which is one of the running-wheels of the vehicle, said wheel having a chambered hub to receive the exhaust, and radially-arranged distributing-pipes leading from the chambered hub, said pipes being provided with discharge-openings near the rim, substantially as set forth.

2. In a device for effecting the condensation of exhaust-steam on steam road-vehicles, the combination with the steam-exhaust pipe, of a wheel which is one of the running-wheels of the vehicle, said wheel having a chambered hub to receive the exhaust, and radial hollow spokes extending from the chambered hub to the rim, said spokes being provided with discharge-openings near the rim, substantially as set forth.

3. In a device for effecting the condensation of exhaust-steam on road-vehicles, the combination with the steam-exhaust pipe of a chambered wheel, which is one of the running-wheels of the vehicle, a hollow axle upon which said wheel is mounted, there being communication between said chambered wheel and the interior of said axle, said wheel being provided with means for receiving, distributing and discharging the exhaust, substantially as set forth.

696,479. APPARATUS FOR TRIMMING COMMUTATORS. JOHN PHILLIPS, London, England. Filed Apr. 6, 1901. Serial No. 64,736. (No model.)



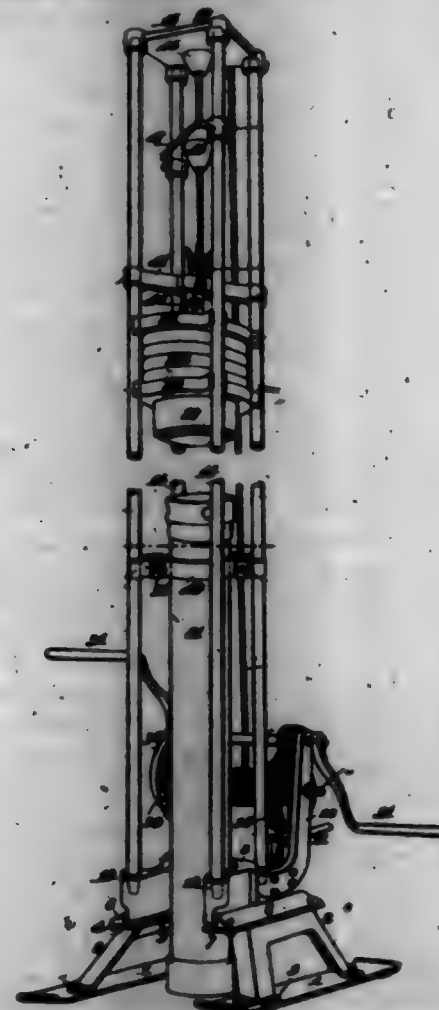
Claim.—1. In an apparatus for trimming commutators in position, a rotating trimming-wheel, a sliding carriage carrying the wheel, means for automatically traversing this sliding carriage and moving the wheel over the surface of the commutator, and driving mechanism actuated by the rotating commutator, having connections to the trimming-wheel and sliding carriage causing the wheel to revolve and the carriage to travel, substantially as herein described.

2. In an apparatus for trimming commutators in position, the combination with a rotating trimming-wheel, a sliding carriage supporting the trimming-wheel, adjustable slide in which the carriage can travel and means for effecting the traversing motion of the carriage and for stopping it at the required points, of driving apparatus actuated by the revolving commutator, connections between the driving apparatus and the trimming-wheel and connections with reducing-gearing between the driving mechanism and the sliding carriage, substantially as herein described.

3. In an apparatus of the kind described, a sliding carriage supporting the trimming-wheel and a rack upon the said carriage consisting of a screw having a portion of the thread removed throughout its length, adapted to engage with a revolving worm to give a traversing motion to the carriage and to be disengaged on turning, substantially as herein described.

4. In an apparatus of the kind described, the combination with a fixed support, a vertically-adjustable slide C, a sliding carriage E, trimming-wheel F upon the spindle F, screw-rack H, and worm-wheel J, of a driving-wheel O supported in the bearing M, pivoted arm N upon the fixed support and carrying the bearing M and connections from the driving-wheel to the trimming-wheel and to the worm-wheel, substantially as herein described and shown.

696,480. PORTABLE TUBULAR WELL AND TEST BORING MACHINE. CHARLES D. FISHER, Jersey City, N. J. Filed Oct. 17, 1901. Serial No. 74,968. (No model.)



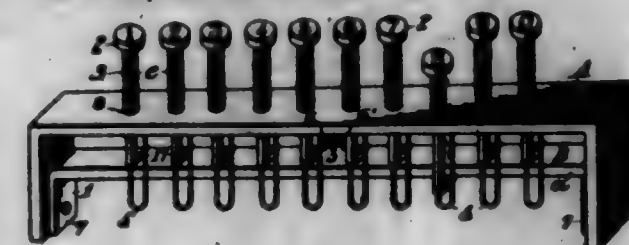
Claim.—1. In a boring or drilling machine, the combination of a base having grooved ways in its upper part, a bed mounted to slide horizontally in said ways, the bed and base being provided with coincident cut-away portions, means for adjusting the bed with respect to the base, a plurality of standards carried by the bed and forming a vertical framework, and a ram movable vertically in said standards and in vertical line with the cut-away portion of the bed, substantially as set forth.

2. In a boring or drilling machine, the combination of a base having a cut-away portion and formed with ways in its upper part, a bed mounted in said ways and movable horizontally therein, said bed being provided with a cut-away portion coincident with the corresponding portion of the base, means for adjusting the bed with respect to the base, a plurality of standards carried by the bed and forming a vertical framework, a ram vertically movable in said standards in line with the cut-away portion of the bed, and a winch carried by and movable with the bed for operating the ram, substantially as set forth.

3. In a boring or drilling machine, the combination of a base, a bed adjustable horizontally with respect to said base, means for adjusting the bed, a plurality of standards removably carried by the bed and forming a

removable upright framework, a top plate removably carried by said standards at their upper end, a ram movable vertically in said standards, a winch carried by and adjustable with the bed, detachable connections between the winch and said ram, and a cam for detaching said connections adjustably mounted on and with respect to said standards, substantially as set forth.

696,481. ADDING-MACHINE. OLIVER H. PLATT, Cleveland, Ohio. Filed Jan. 2, 1901. Serial No. 62,182. (No model.)



Claim.—In recording-machines, (for mental calculations) the combination of the herein-described improvement, comprising the body A provided with series or rows of holes, to receive the key-stems 3, the bars B attached to the body A permitting of an oscillating movement of the bars, by means of the angular key-stems 3 and returning-spring 5, the spring 5 attached to pins 6, staples 4 attached to the body A, the angular key-stem 3 provided with the barrel 17 and key-top 2, the spring 4 actuating the angular key-stem 3 and key-top 2; for the purpose of constructing a recording-machine, wherein, by mechanically holding down keys after depression, a visible total (of mental addition) is recorded and shown by the keys on the keyboard of the machine all substantially as set forth.

696,482. REVERSE-LEVER. JOHN PLATT, Dunbart, N. Y., assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed July 22, 1901. Serial No. 69,578. (No model.)



Claim.—1. In a reverse-lever, the combination of an integral body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, and a lever-arm fixed to the upper end of the body, on the side thereof opposite the reach-rod-pin socket.

2. In a reverse-lever, the combination of an integral body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, and a lever-arm fixed to the opposite side of its upper end, and a lever-arm fitting the lever-arm seat, and secured thereto to the body.

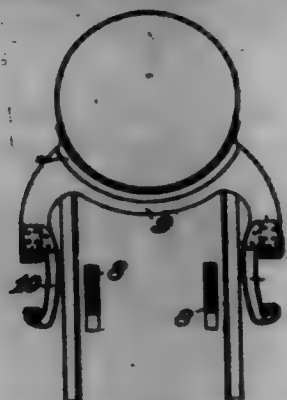
3. In a reverse-lever, the combination of an integral body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, and a lever-arm fixed to the opposite side of its upper end, and a lever-arm fitting the lever-arm seat, and secured detachably to the body.

4. In a reverse-lever, the combination of an integral body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, and a laterally-flanged lever-arm fixed to the opposite side of its upper end, and a lever-arm fitting on the lever-arm seat and abutting on the lateral flanges thereof and secured detachably to the body.

5. In a reverse-lever, the combination of an integral cast-metal body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, a lever-arm fixed to the opposite side of its upper end, and strengthening edge flanges connecting its seats one with the other and with the lever-arm seat, and a lever-arm fixed to the body at the lever-arm seat.

6. In a reverse-lever, the combination of an integral plate reverse-lever body, which is provided with a bearing-pin socket at its lower end, a reach-rod-pin socket located at one side of its upper end and projecting outwardly beyond the bearing-pin socket, a bearing-pin secured to a fixed support and fitting the bearing-pin socket, and a lever-arm fixed to the upper end of the body on the side thereof opposite the bearing-pin socket.

696,488. GUIDE-YOKE BRACKET. JOHN FLAYER, Chicago, Ill. assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed Nov. 7, 1901. Serial No. 51,478. (No model.)

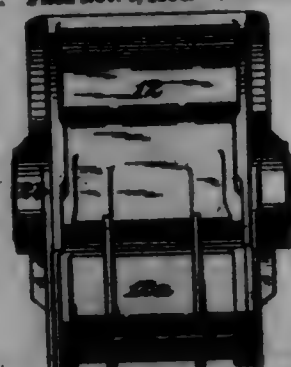


Claim.—1. An integral cast-metal guide-yoke bracket for locomotive guide-bars, having a substantially vertical body, an upper horizontal flange for attachment to an upper guide-bar, a lower horizontal flange for attachment to a lower guide-bar, and an upper vertical flange for attachment to a guide-yoke.

2. An integral cast-metal guide-yoke bracket for locomotive guide-bars, having a substantially vertical body, of channelled section, ribbed upper and lower horizontal flanges for attachment to an upper and a lower guide-bar, respectively, and a ribbed upper vertical flange for attachment to a guide-yoke.

3. In a locomotive engine, the combination of a guide-yoke secured to the boiler, upper and lower guide-bars, and guide-yoke brackets, each having an upper horizontal flange bolted to one of the upper guide-bars, a lower horizontal flange bolted to one of the lower guide-bars, and an upper vertical flange bolted to one side of the guide-yoke.

696,484. LOCOMOTIVE CYLINDER. JOHN FLAYER, Chicago, Ill. assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed Nov. 7, 1901. Serial No. 51,478. (No model.)



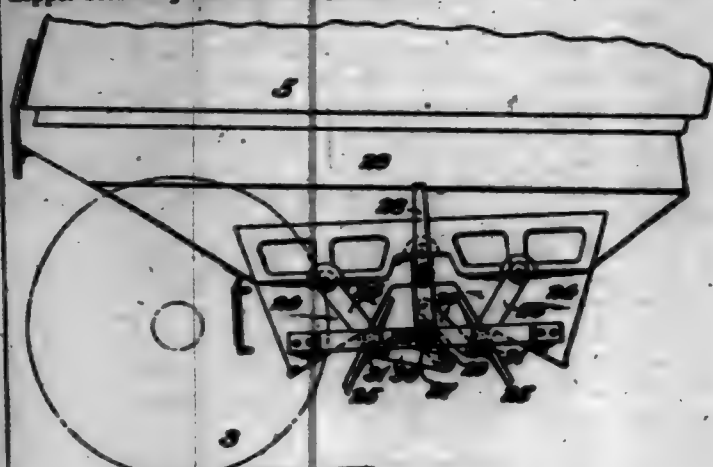
Claim.—1. A locomotive-cylinder middle-section in which are formed an upper bed-plate, a lower cylinder, a valve-chest communicating, by ports, with the ends of the cylinder, a steam-supply passage leading from the bed-plate to the central portion of the valve-chest, and exhaust-passages leading from the ends of the valve-chest to independent discharge-openings in the bed-plate.

2. A locomotive-cylinder middle-section in which are formed an upper bed-plate, a vertical inner web for connection to a counterpart middle-section, a cylinder located on the outer and lower portion of the section, a valve-chest communicating, by ports, with the ends of the cylinder, a steam-supply passage leading from the bed-plate to the central portion of the valve-chest, and exhaust-passages leading from the ends of the valve-chest to independent discharge-openings in the bed-plate located adjacent one to the other and to the inner web.

3. The combination of two locomotive-cylinder middle-sections, each having an upper bed-plate, a vertical inner web for connection to a counterpart middle-section, a cylinder located on the outer and lower portion of the section, a valve-chest communicating, by ports, with the ends of the cylinder, a steam-supply passage leading from the bed-plate to the central portion of the valve-chest, and exhaust-passages leading from the ends of the valve-chest to independent discharge-openings in the bed-plate, located adjacent one to the other and to the inner web, and an exhaust-pipe connected to the middle-section and having four lower openings, each communicating with one of the exhaust-passages discharge-openings.

696,485. LOCOMOTIVE ANTI-PAN. JOHN FLAYER, Chicago, Ill. assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed Nov. 7, 1901. Serial No. 51,477. (No model.)

Claim.—1. In a locomotive anti-pan, the combination of an upper section or body, a lower hopper or discharge-chute communicating therewith and having an inclined bottom provided with a discharge-opening, and a discharge-door suspended in position to be normally closed on the hopper-bottom by the action of gravity.



2. In a locomotive anti-pan, the combination of an upper section or body, a lower hopper or discharge-chute communicating therewith and having an inclined bottom provided with a discharge-opening, a discharge-door adapted to rest on the hopper-bottom and close the discharge-opening thereof, and swinging suspension-links supporting the discharge-door, and coupled thereto in position to permit it to be normally closed by gravity and to be opened by the application of an oppositely-acting force.

3. In a locomotive anti-pan, the combination of an upper section or body, a lower hopper or discharge-chute communicating therewith and having an inclined bottom provided with a discharge-opening, a discharge-door adapted to rest on the hopper-bottom and close the discharge-opening thereof, and swinging suspension-links pivoted at their upper ends to fixed supports and at their lower ends to the door, a vertical plate passing through the lower pivots intersecting the door, when closed, above the intersection therewith of a vertical plane passing through the upper pivots.

4. In a locomotive anti-pan, the combination of an upper section or body, a lower hopper or discharge-chute communicating therewith and having an inclined bottom provided with a discharge-opening, a discharge-door adapted to rest on the hopper-bottom and close the discharge-opening thereof, and swinging suspension-links pivoted at their upper ends to fixed supports and at their lower ends to the door, a vertical plate passing through the lower pivots intersecting the door, when closed, above the intersection therewith of a vertical plane passing through the upper pivots.

5. In a locomotive anti-pan, the combination of an upper section or body, a lower hopper or discharge-chute communicating therewith and having an inclined bottom provided with a discharge-opening, a discharge-door adapted to rest on the hopper-bottom and close the discharge-opening thereof, swinging suspension-links supporting the discharge-door and coupled thereto in position to permit it to be normally closed by gravity, an operating-shaft journaled transversely to the hopper, and a link connection coupling the discharge-door to an arm on the operating-shaft.

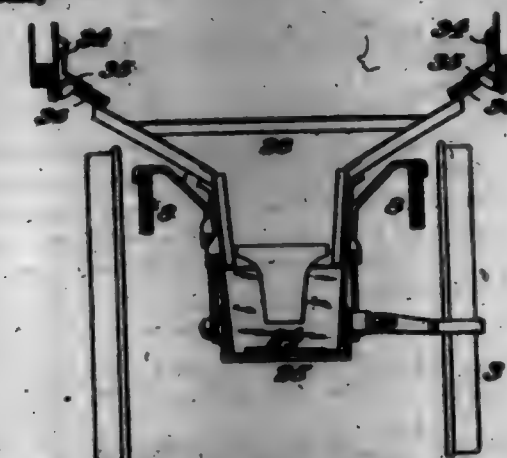
6. In a locomotive anti-pan, the combination of an upper section or body, two lower hoppers or discharge-chutes communicating therewith and having their bottoms provided with discharge-openings and inclined in relatively opposite directions, discharge-doors adapted to rest on the hopper-bottoms and close the discharge-openings thereof, pairs of swinging suspension-links, each of which supports one of the discharge-doors and is coupled thereto in position to permit it to be normally closed by gravity, and operating connections, having an interposed sliding or sliding bearing, through which opening movement is imparted to the discharge-doors.

7. In a locomotive anti-pan, the combination of an upper section or body, two lower hoppers or discharge-chutes communicating therewith and having their bottoms provided with discharge-openings and inclined in relatively opposite directions, discharge-doors adapted to rest on the hopper-bottoms and close the discharge-openings thereof, pairs of swinging suspension-links, each of which supports one of the discharge-doors and is coupled thereto in position to permit it to be normally closed by gravity, an operating-shaft journaled between and transversely to the hoppers, and connections coupling the discharge-doors to oppositely-projecting arms on the operating-shaft.

8. In a locomotive anti-pan, the combination of an upper section or body, two lower hoppers or discharge-chutes communicating therewith and having their bottoms provided with discharge-openings and inclined in relatively opposite directions, discharge-doors adapted to rest on the hopper-bottoms and close the discharge-openings thereof, pairs of swinging suspension-links, each of which supports one of the discharge-doors and is coupled thereto in position to permit it to be normally closed by gravity, an operating-shaft located between and transversely to the hoppers, an operating-shaft located between and transversely to the hoppers, and connections coupling the discharge-doors to oppositely-projecting arms on the operating-shaft.

pore, a fixed journal-bearing fitting one end of the operating-shaft, a movable journal-bearing fitting the opposite end of said shaft, and connections coupling the discharge-doors to oppositely-projecting arms on said shaft.

696,486. LOCOMOTIVE ANTI-PAN. JOHN FLAYER, Chicago, Ill. assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed Nov. 7, 1901. Serial No. 51,478. (No model.)



Claim.—1. In a locomotive anti-pan, the combination of a body which is open at its top and adapted to be connected thereto to a fire-box, a door or slide controlling a discharge-opening in the lower portion of the body, and a separator, forming a portion of the wall of the body adjacent to the top thereof, and provided with one or more air-admission passages having walls located in position to prevent the escape of solid matter.

2. In a locomotive anti-pan, the combination of a body which is open at its top and adapted to be connected thereto to a fire-box, a door or slide controlling a discharge-opening in the lower portion of the body, and a separator, forming a portion of the wall of the body adjacent to the top thereof, and provided with one or more inwardly and downwardly inclined air-admission passages.

3. In a locomotive anti-pan, the combination of a body which is open at its top and adapted to be connected thereto to a fire-box, a door or slide controlling a discharge-opening in the lower portion of the body, and a separator, forming a portion of the wall of the body adjacent to its top, said separator being inwardly and downwardly inclined and bent or corrugated transversely to form one or more air-admission passages.

696,487. BRUSH. ALBERT FULLER, Ash Grove, Mass. Filed Nov. 12, 1901. Serial No. 52,505. (No model.)

Claim.—1. A brush comprising a concave-convex body, provided around its front convex side with an integral marginal rim, having an inward edge, a plate within the body next to its convex face, a transparent flexible film over the plate, the plate and film being fixed over the said convex portion with their margins underlying and held down by the said inward edge of the rim; substantially as set forth.

2. The combination in a brush of the type described of a body convex upon the front and concave upon the back; a loop projecting from the back thereof and adapted to receive a pin; and a pin fixed rigidly upon said body by means of said loop so that said pin near its point bears firmly against the margin of said body upon the back thereof, substantially as described.

696,488. COMMUTATOR. EDWARD R. FRANK and GEORGE L. SCHREIBERMAN, Schenectady, N. Y., assignors to General Electric Company, a Corporation of New York. Filed Nov. 30, 1900. Serial No. 52,505. (No model.)

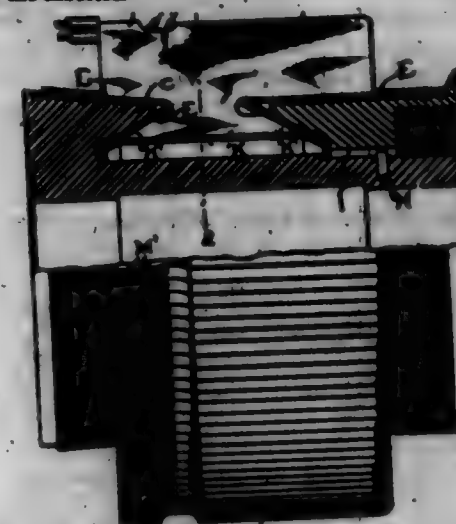
Claim.—1. A commutator built up of alternate strips of conducting and of heat-insulating material, the insulating material being of such a nature that it wears or tends to wear as fast as, or faster than, the conducting material.

2. A commutator for dynamo-electric machines, consisting of conducting-elements separated by soft insulating material which will wear or crumble away at least as fast as the segments.

3. A commutator for dynamo-electric machines, composed of alternate strips of copper, and of asbestos which will wear or crumble away at least as fast as the copper strips.

4. A commutator for dynamo-electric machines, consisting of conducting-elements separated by soft insulating material, and thin highly-insulating reinforcing-strips in connection with the insulating material.

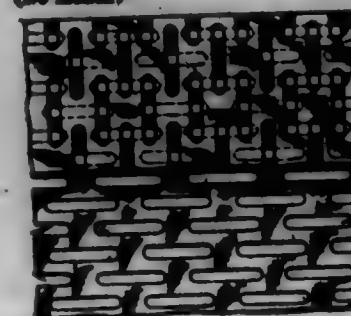
5. A commutator for dynamo-electric machines, composed of conducting-elements separated by asbestos, with one or more thin mica strips reinforcing the asbestos.



6. A commutator for dynamo-electric machines composed of conducting-elements separated by asbestos, with a thin strip of mica on each side of each strip of asbestos.

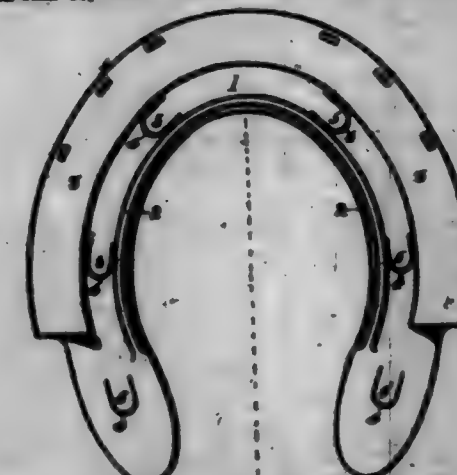
7. A commutator comprising alternate conducting and insulating strips, the latter being of such nature that they will wear away at least as fast as the conducting-strips, and being treated with a water-repelling substance.

696,489. SEPARATOR FOR BATTERY-PLATES. JAMES E. PURCELL, Chicago, Ill. assignor to Western Storage Battery Company, Indianapolis, Ind., a Corporation of Indiana. Filed Apr. 2, 1901. Serial No. 52,502. (No model.)



Claim.—A separator for electric accumulators comprising a layer of inert, viscous material, adapted to be applied to the face of one of the plates of a battery, and a support for said layer consisting of two sheets of insulating material each having a series of parallel oblique slots placed at right angles and overlapping each other.

696,490. METAL AND RUBBER HOSE-ENDER. ARTHUR HENL, Akron, Ohio, assignor of one-third to Walter Frohmeyer, Akron, Ohio. Filed Jan. 12, 1902. Serial No. 52,500. (No model.)



Claim.—1. An improved hose-ender consisting of a thin metallic portion conformed to fit the hoof having around the inner edge of its lower face a raised rim inclined toward the central line of the shoe, an oppositely-disposed outer rim around the outer line of the shoe, heavier than the inner rim, said rim extending nearly to the heel, with curved cuts in said inner portion with the cut portions bent upward, a covering of rubber-laminate said metal portion excepting the heavy outer rim, and having integral rubber heel and toe collars, and a rubber-encased fabric covering integral rubber heel and toe collars, and a rubber-encased fabric covering

oring the upper face of said shoe, said parts being retained by the vulcanization of said rubber, substantially as shown and described.

8. An improved metal foundation for rubber harnesses consisting of a plate of metal of suitable configuration to fit the hoof having an integral metallic rim around the toe and sides about its outer line, a rim about its inner line inclined toward its center line, with curved cuts in the thin portion with the tongue thus produced bent slightly from the line of said portion, substantially as shown and described.

696,491. ELEVATOR FOR GINGER-PITS, JR. WILLIAM ROBERTSON, Chicago, Ill. Filed Mar. 21, 1901. Serial No. 68,188. (No model.)



Claim.—1. A car provided with a downwardly-operating bottom hinged at one end thereof, a plurality of rollers journaled centrally on said bottom and adapted to normally engage a supporting-rail acting to hold said bottom in a closed position.

2. A car comprising a bottom hinged at one end thereof, a plurality of rollers journaled centrally on said bottom and adapted to normally engage an immovable support acting to hold said bottom in a closed position.

3. In a device of the class described, the combination with a car having rigid side and end walls of a downwardly-opening bottom hinged at the rear end thereof, a plurality of rollers disposed on said bottom centrally and longitudinally thereof, a track on which the car is supported, a relatively short rail intermediate of the track-rail upon which said rollers engage and which acts to support said bottom in a closed position, a downwardly-curved portion at the rear extremity of the said intermediate rail at which point the bottom of said car opens and permits the contents of said car to slide outwardly.

4. The combination in a pit-elevator of an inclined track leading from the pit, a truck beneath the outer end of said inclined track adapted to support a receiving-car, an elevator-car movable along said inclined track, rigid side and end walls on said car, a downwardly-open bottom hinged at its rear end to the rear end of the car, an intermediate rail terminating in a downward end above the receiving-car, rollers disposed longitudinally on the bottom of the elevator-car and adapted to engage said intermediate rail, said rollers being so disposed that one or more of the same remain at all times in engagement with the intermediate rail and means for moving the elevator-car along its track to dumping position.

5. In a device of the class described, the combination with a railway cinder-pit of a transverse passage opening thereto, inclined track-rails extending transversely upwardly and outwardly from the cinder-pit, an elevator-car thereon, a bottom hinged at one end thereof, a downwardly-opening bottom hinged at the rear end of the car, rollers disposed longitudinally thereon, a relatively short rail located between said transverse track-rails and adapted normally to be engaged by said rollers and to support

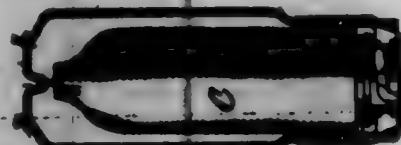
said bottom in its closed position thereby, the outer end of said intermediate rail being downwardly curved, means operated by pneumatic pressure for moving the car outwardly and upwardly from the cinder-pit to a dumping position at the end of said intermediate rail at which point the bottom of said car drops downwardly with one of the rollers thereof still engaging said rail.

696,492. MANTLE-SUPPORT. JAMES I. ROBERT, Mount Vernon, N. Y. Filed Aug. 12, 1901. Serial No. 72,580. (No model.)



Claim.—The combination of a burner-cap of an incandescent gas-lamp, and a support for the mantle thereof, said support comprising a U-shaped part having one end fixed to said cap, a spring secured at one of its ends to the other end of the fixed part, and a second part for supporting the mantle at one end thereof, and having its other end connected with the other end of the spring.

696,493. MANTLE-SUPPORT. JAMES I. ROBERT, Mount Vernon, N. Y. Filed Aug. 12, 1901. Serial No. 72,510. (No model.)



Claim.—A mantle-support consisting of a pair of vertical rods, a support for one end of each rod, a band provided in each rod just above its support to have an inclined part, bands at the upper end of each rod to form a rest and a cross rod or bar from which the mantle is supported, removably supported on the rods of the vertical rods.

696,494. MACHINE FOR CLEANING AND RENOVATING FEATHERS. MARTIN E. ROBERT, Philadelphia, Pa. Filed June 14, 1901. Serial No. 64,622. (No model.)



Claim.—1. In a machine of the character stated, a tank, a spraying-blower therein, and means for supplying said blower with a cleaning or renovating agent, a blower-conveyor leading to an inlet-opening of said tank, a connection at the outlet-opening of said tank with said conveyor at the inlet end of the latter, and a blast-supply pipe, the latter and said connection having a common inlet in said blast-conveyor.

2. A machine of the character stated having a tank, a blower therein, a blast-conveyor and a feather-discharge pipe connected with opposite ends thereof, said discharge-pipe leading from said tank to said conveyor, and a blast-supply pipe, the latter and said discharge-pipe having a common inlet in said blast-conveyor, whereby feathers or other articles placed in the tank are blown in a circulating stream through the machine for drying purposes.

3. In a machine of the character stated, a tank, a blast-pipe, a chute containing said pipe and leading to the opposite end of said tank, and a discharge-pipe leading from said tank to said blast-pipe and connected therewith as an injector, said chute forming a common inlet for said blast and discharge pipes.

4. In a machine of the character stated, a tank, an air-blast conveyor connected with one end of said tank, a feather-discharge pipe connected with the other end of said tank, a blast-supply pipe, the latter and said discharge-pipe having a common entrance into said conveyor, and a drawer at the base of said conveyor.

696,495. METHOD OF PRESERVING EGGS. JORAN A. RYLANDER, Norrbyggen, Sweden. Filed Sept. 22, 1901. Serial No. 72,798. (No specimens.)

Claim.—A process for preserving eggs, which consists in first heating air saturated with methyl alcohol dissolved in alcohol to 80° centigrade.

inspecting the eggs to such air, and in applying a solution of potassium chloride previously heated at or about 80° centigrade when in a cooled state.

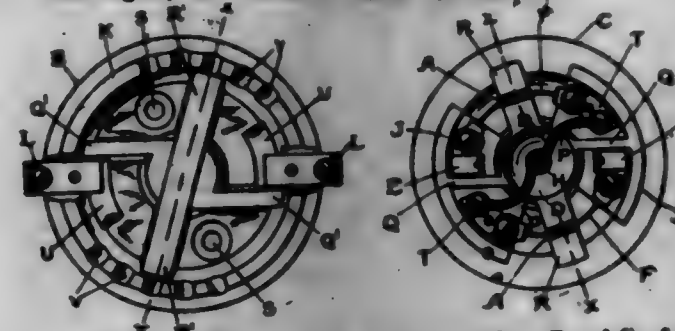
696,496. ACCUMULATOR. GEORGE DE ROBERT DE SALES and FRANKLIN GOSWAM, Lyons, France. Filed Mar. 12, 1901. Serial No. 61,012. (No model.)



Claim.—1. In an accumulator, a cathode consisting of a supporting-frame of aluminum covered with sheet-lead and lead covering the frame and extending therefrom in the form of a plate surrounded by the frame, an anode composed of an aluminum tank divided into compartments composed of the same metal, the interior of which tank is coated with lead so that each compartment forms the anode, two concentric or nested boxes having perforated walls separating the cathode from the anode and an absorbent material, substantially as described, arranged between adjacent walls of said boxes, said material adapted to absorb and to render the liquid electrolyte immovable, substantially as described.

2. In an accumulator, a cathode consisting of a supporting-frame of aluminum covered with sheet-lead and lead covering the frame and extending therefrom in the form of a plate surrounded by the frame and provided with metal wires forming a brush, an anode composed of an aluminum tank having a flange for its suspension divided into compartments composed of the same metal, the interior of which tank is coated with lead so that each compartment forms the anode, two concentric or nested boxes having perforated walls separating the cathode from the anode and an absorbent material, substantially as described, arranged between adjacent walls of said boxes, said material adapted to absorb and to render the liquid electrolyte immovable, substantially as described.

696,497. FUSE-BOX. HOWARD E. BARRETT, Schenectady, N. Y. Assignor to General Electric Company, a Corporation of New York. Filed Aug. 30, 1900. Serial No. 24,451. (No model.)



Claim.—1. The combination with the members B and C, of the ridges R, R', Q, Q', the terminals T and U and the faces F, F'.

2. The combination with two insulating-disks each formed with a depression and with a ridge in the depression, of means for holding the disks together so that the ridges register to form a partition having an opening, terminals on one disk on opposite sides of its ridge, a face connecting said terminals and passing through said opening, and terminals on the other disk which are connected with said terminals when the disks are held together.

3. The combination with two insulating-disks each formed with a depression and with a ridge, the ridge on one disk being formed with a groove, means for holding the disks together so that the ridges register to form a partition, terminals on one disk on opposite sides of its ridge, a face connecting said terminals and passing through the partition at the groove in said ridge, and terminals on the other disk which are connected with said terminals when the disks are held together.

4. The combination with two insulating members which together form a chamber, of two terminals mounted on one of said members, a face connecting said terminals, an integral insulating-partition formed by two ridges integral with the two insulating members, which divides said chamber into two parts, the face extending through the partition, and means for securing the two insulating members together.

5. The combination with two insulating members each formed with a depression, which together form a chamber, of two terminals mounted on one of said members, a face connecting said terminals, a ridge integral with each insulating member, so formed that when the members are

brought together to form a chamber, the ridges are located adjacent to each other to form a partition having an opening for the passage of the face, said partition dividing the chamber formed by the members into two parts, and terminals on the other disk which are connected with said terminals when the insulating members are held together.

6. The combination with two insulating members each formed with a depression which together form a chamber, of two terminals mounted on one of said members, a face connecting said terminals, a ridge integral with one of said members and formed with a groove for the reception of the face, a ridge integral with the other member, so located that when the members are assembled to form a chamber, the ridges will be adjacent to form a partition having an opening for the passage of the face, said partition dividing the chamber formed by the members into two parts, and terminals on the other disk which are connected with said terminals when the insulating members are held together.

7. In a contact device, the combination with an insulating-base and cover adapted to form a chamber, line-terminals in the base, terminals in the cover adapted to engage with those in the base, work-terminals in the cover, faces connecting the work-terminals with the other terminals in the cover, a ridge integral with the base, and a ridge integral with the cover, so located that when the base and cover are brought together to form a chamber located between the work-terminals and the other terminals of the cover, the ridges form a partition having an opening for the passage of the face, said partition dividing the chamber into two parts.

8. In a contact device, the combination with an insulating-base and cover adapted to form a chamber, line-terminals in the base, terminals in the cover adapted to engage with those in the base, work-terminals in the cover, faces connecting the work-terminals with the other terminals in the cover, a ridge integral with the base, and a ridge integral with the cover, so located that when the base and cover are brought together to form a chamber located between the work-terminals and the other terminals of the cover, the ridges form a partition having an opening for the passage of the face, said partition dividing the chamber into two parts.

9. In a contact device, the combination with an insulating-base and cover adapted to be brought together to form a chamber, of line-terminals on the base, terminals in the cover adapted to engage with those in the base, work-terminals in the cover, faces connecting the work-terminals with the other terminals in the cover, a ridge integral with the base, and a ridge integral with the cover, so located that when the base and cover are brought together to form a chamber located between the work-terminals and the other terminals in the cover, the ridges will form a partition having an opening through which the face extends, the chamber being divided into two parts by the partition.

10. In a contact device, the combination with an insulating-base and cover adapted to be brought together to form a chamber, of line-terminals on the base, contact-springs connected therewith, terminals in the cover adapted to engage said contact-springs to connect the cover-terminals with the line-terminals and secure the cover to the base, work-terminals in the cover, faces connecting the work-terminals with the other terminals connected to the spring-contacts, and an integral insulating-partition through which the face passes, the chamber formed by the base and cover being divided into two parts by the partition, and said partition being formed by two ridges integral with the base and cover.

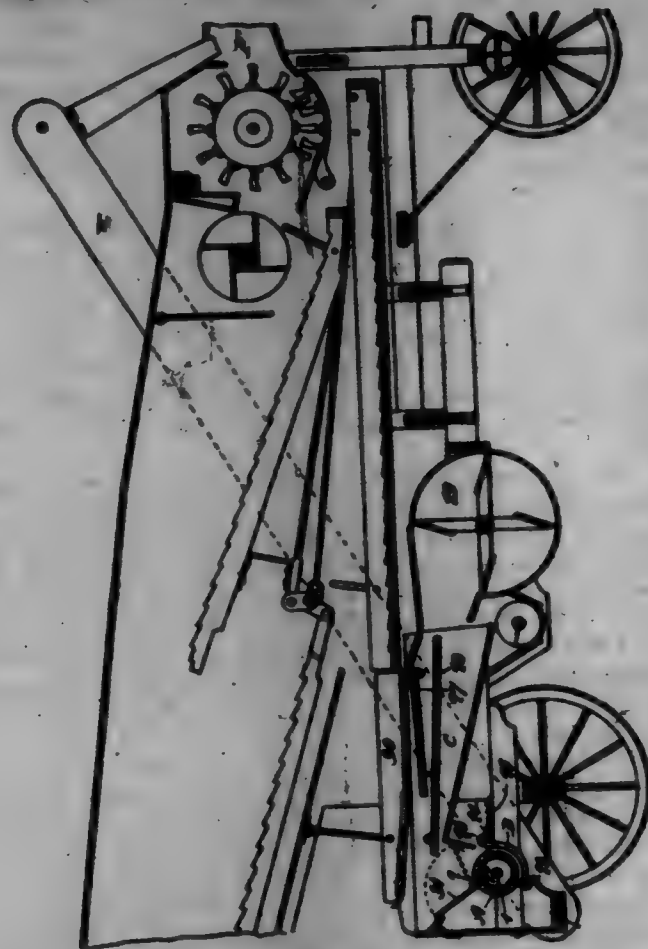
11. In a contact device, the combination with an insulating-base and cover, of line-terminals on the base, terminals in the cover adapted to be connected with the line-terminals, work-terminals in the cover, faces connecting the work-terminals with the other cover-terminals, an integral insulating-partition between each work-terminal and one of the other cover-terminals of opposite polarity, integral insulating-partitions between the terminals which are connected by faces, openings being formed in the latter partitions for the reception of the faces, a hole in the top of the cover for the entrance of the branch-circuit wires, and passages from the work-terminals between the partitions to said hole for the reception of said wires.

12. The combination with two insulating members, each formed with corresponding depressions and with corresponding ridges in the depressions, two terminals being mounted on one of the insulating members on opposite sides of the ridge, and a face connecting said terminals, whereby when the insulating members are assembled, the terminals will be separated from each other by a partition formed by the ridges, and the portions of the face on opposite sides of the partition will be in chambers formed by the depressions in the insulating members.

696,498. CLOVER-BULLING ATTACHMENT FOR GRAM THRENNERS AND SEPARATORS. CHARLES SAYLER, Olathe, Mo. Filed Jan. 22, 1901. Serial No. 64,623. (No model.)

Claim.—1. A bulling-attachment comprising the head, base and

thereon, having their opposing sides rabbeted to form dovetail grooves between them, said bars being further provided on their opposing sides at one end with parallel-sided rabbets communicating with said grooves, teeth having dovetail cheeks adapted to enter said grooves by way of said rabbets, and keys to secure said teeth against movement longitudinally of the said bars, said keys engaging openings in cap of the heads, substantially as described.



2. In combination with a thrashing-machine and grain-elevator, a hulling attachment for clover and alfalfa, said hulling attachment comprising a cylinder and concave disposed in rear of the grain-chute, and immediately in advance of the tailings-conveyor, and a hinged valve above said hulling-cylinder to cover and uncover said hulling attachment, said valve when opened from said hulling-cylinder being disposed in rear of and below the grain-chute, and discharging into said hulling-cylinder, for the purpose set forth, and curving when closed to cover said hulling-cylinder and deflect material from the grain-chute into said hulling-cylinder and into said tailings-conveyor, substantially as described.

3. A hulling-cylinder comprising the heads, bars secured thereon, having their opposing sides rabbeted to form dovetail grooves between them, said bars being further provided on their opposing sides at one end with parallel-sided rabbets communicating with said grooves, teeth having dovetail cheeks in said grooves, rims on said cylinder, over said bars, and keys to secure said teeth in said grooves between said bars, said keys engaging openings in one of the heads and bearing against the outer side of one of said rims, substantially as described.

4. In a clover-huller, the combination of a toothed hulling-cylinder and a toothed concave on one side thereof, the teeth of said cylinder and concave being intercurrent, the lower rows of teeth on the concave being disposed more closely together than the upper rows of teeth thereof, substantially as described.

696,499. WAREHOUSE-TRUCK CARTER. THOMAS R. J. CARTER, Brooklyn, N. Y. Filed July 22, 1901. Serial No. 99,497. (No model.)



Claim.—1. In a warehouse-truck having notches in its forked sides, a center-wheel having the ends of its axle fitted in the said notches, and

cap-plates secured to the forked sides and provided with bearing-lugs to close the open ends of the notches and prevent displacement of the center-wheel, substantially as set forth.

2. In a center, a forked frame having its sides notched in their edges, a center-wheel having its journals fitted in the said notches, cap-plates having offsetting lugs to enter and close the open ends of the said notches, and means for adjustably connecting the cap-plates to the center-frame, substantially as set forth.

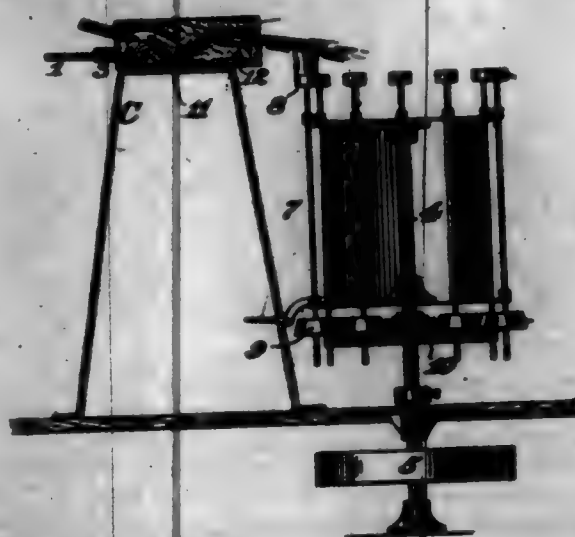
3. In combination, a forked center-frame, a center-wheel journaled in the fork members thereof, absorbent washers placed between the sides of the center-wheel and the adjacent sides of the fork members, cap-plates attached to the outer sides of the said fork members, and absorbent washers between the cap-plates and the fork sides, substantially as described.

4. In combination, a forked center-frame, a center-wheel journaled in the fork members thereof and having its journals extending through the outer faces of the said fork members, cap-plates attached to the fork members and recessed at their inner sides to form oil-chambers, the recesses being in communication with the bearings of the fork members for supplying lubricant thereto, and absorbent material in the said recesses and extending across the journal-bearings of the center-wheel, substantially as described.

5. In combination, a forked frame having its sides notched, a center-wheel having its journals fitted in the said notches, plates secured to the forked frame and having offsetting lugs to close the open ends of the notches and having recesses in their inner sides, and grooves in the ends of the said lugs in communication with the said recesses, substantially as set forth.

6. In combination, a forked frame having its sides notched, a center-wheel having its journals fitted in the said notches, absorbent material between the forked sides and center-wheel, cap-plates secured to the said forked sides and having bearing-lugs closing the open ends of the notches and grooved in their ends, said plates having their inner sides recessed, and absorbent material fitted in the recesses of the cap-plates, substantially as set forth.

696,500. APPARATUS FOR FIRE-FINISHING GLASSWARE. HENRY SHAW, Mount Pleasant, Pa. assignor to Bryco Brothers Company, Mount Pleasant, Pa., a Corporation of Pennsylvania. Filed Oct. 23, 1901. Serial No. 99,500. (No model.)



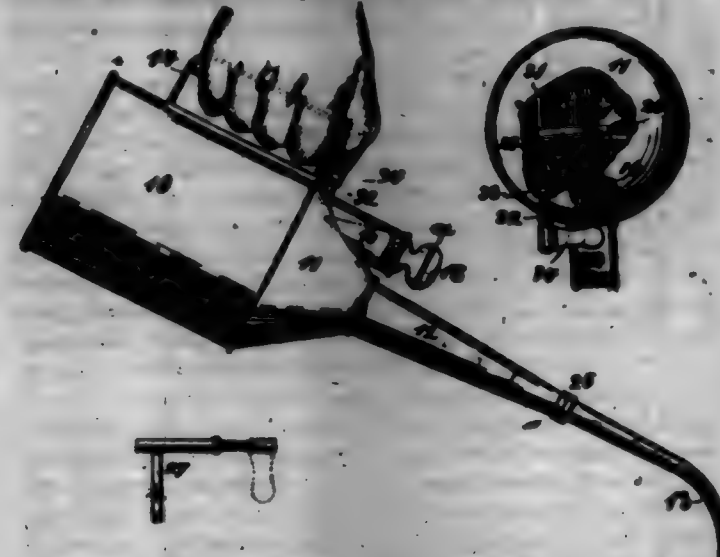
Claim.—1. In an apparatus for fire-finish glassware, the combination of a blowpipe-flame appliance, a traversing mechanism by which articles of glassware are successively presented to and withdrawn from the flame of said appliance, and a flame-paraffin interposed between said appliance and the wave-traversing mechanism.

2. In an apparatus for fire-finish glassware, the combination of a gas-supply pipe, an air-blast pipe, a flame-paraffin consisting of a body of refractory material having a tortuous channel or conduit with which the gas and air pipes are connected, a plurality of inclined deflecting-surfaces in said channel, and a wave-traversing mechanism located adjacent to the discharge end of said channel.

3. A flame-paraffin for fire-finish apparatus composed of an inclining cone or shell and a body of refractory material supported thereon and having formed within it a longitudinal channel or conduit provided with deflecting-surfaces which are presented by alternately oppositely inclined or curved portions of its walls.

696,501. LUBRICATING-CAR. JAMES SUMNER, Ladlow, Ky. Filed Dec. 17, 1901. Serial No. 99,501. (No model.)

Claim.—1. In a hand-tilt, the combination of an oil-reservoir, an outlet-spout with a discharge-valve, a valve to control such discharge, an inlet-opening, a fill-tube surrounding the same, a hollow screw-plug to close this latter having a hollow knob consisting of two sections on its upper side and a hollow central extension on its lower side which extends into the oil-reservoir, all these parts in open communication with each other, an air-inlet between the two sections of the hollow knob and an additional one in the lower pointed end of its central extension.



2. In a hand-tilt, the combination of an oil-reservoir, an outlet-spout with a discharge-valve, a valve to control such discharge, an inlet-opening, a fill-tube surrounding the same, a hollow screw-plug to close this latter and a hollow knob for its manipulation above the same and in open communication therewith, each knob being in two sections connected in a manner to permit access of air at the joint between them, thus providing the requisite air-vent.

3. In a hand-tilt, the combination of an oil-reservoir, a fill-tube for the same, a hinged outlet-spout, a valve-seat therein, a valve for it, a rocker-arm to which this valve is connected, a spring for keeping the valve normally seated, a rock-shaft for the rocker-arm, a shoulder 33 thereon, bearings to support this rock-shaft extending from opposite sides inwardly and with their inner ends in contact, one with the rocker-arm and the other with shoulder 33 whereby in conjunction with each rocker-arm and said shoulder the rock-shaft is longitudinally held in position between the opposite inner ends of its bearings and means to manipulate this rock-shaft.

4. In a hand-tilt, the combination of an oil-reservoir, a fill-tube for the same, a hinged outlet-spout, a valve-seat therein, a valve for it, a rocker-arm to which this valve is connected, a spring for keeping the valve normally seated, a rock-shaft for the rocker-arm, a bearing 31 to support the inner end of the rock-shaft, a tubular bearing 32 to support the outer end which projects beyond this bearing, a shoulder 33 on the rock-shaft and in contact with the inner end of bearing 32, there being a ground joint between these two parts and an operating-handle on the projecting part of the rock-shaft, the hub of which is in contact with the outer end of bearing 32, thereby holding the members forming the ground joint at the inner end of said bearing in contact with each other.

696,502. PICTURE-FRAME. EDWARD SHAW, New York, N. Y. Filed Aug. 7, 1900. Serial No. 99,502. (No model.)

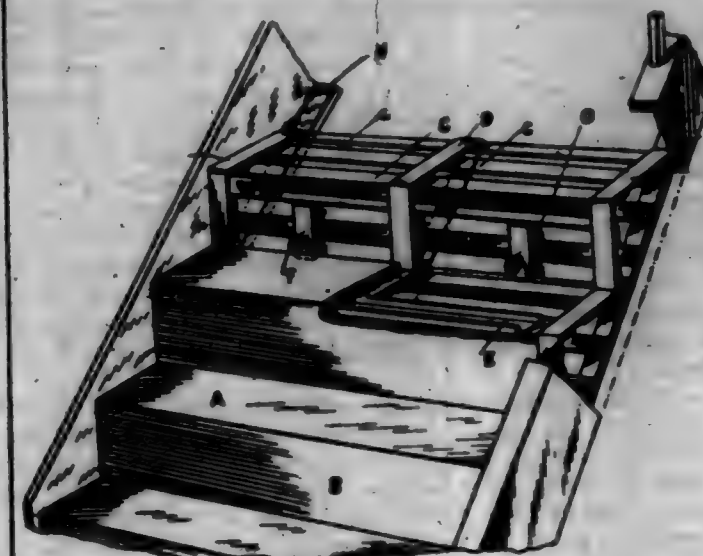


Claim.—In a picture-frame, the combination with a rim for holding a picture and having a grooved flange, of a detachable cover resilient back adapted to engage said flange and be held therein by its resiliency, and a spring attached to said back to hold a picture against said rim.

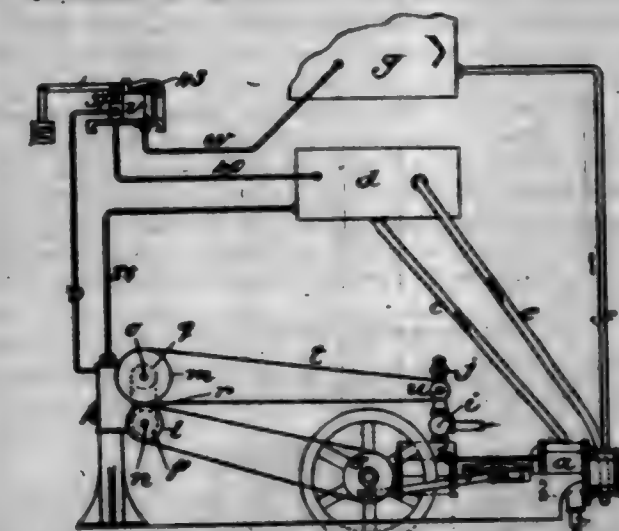
696,503. FIRE-FINISHING GLASSWARE. WILLIAM SHAW, London, England. Filed Dec. 14, 1900. Serial No. 99,503. (No model.)

Claim.—In the construction of fire-finish glassware, a hollow shakedown frame of the general shape of an individual step composed of strips of tubing arranged parallel to the length of the step, in combination with cross-bands holding them all firmly together at the ends and

center, and a covering of concrete, plaster or other suitable material, the whole substantially as described with reference to Figs. 1 and 2.



696,504. REGULATING DEVICE FOR AIR-COMPRESSORS. HENRY C. SHAW, Westfield, N. J., and WILLIAM FRAZER, Boston, Pa. assignors to the Ingersoll-Sergeant Drill Company, New York, N. Y., a Corporation of West Virginia. Filed Feb. 28, 1901. Serial No. 99,504. (No model.)



Claim.—1. The combination with an air-compressor and a motor therefor and a governor for the latter, of speed-varying mechanism between the motor and the governor and means for controlling said mechanism by the pressure of the air delivered by the compressor, substantially as herein described.

2. The combination with an air-compressor and a motor therefor, of a motor-controlling governor, means for driving said governor by said motor consisting in part of speed-varying mechanism interposed between said motor and the governor, and means under the control of the air delivered by the compressor for operating said speed-varying mechanism, substantially as herein described.

3. The combination with an air-compressor and a steam-engine for driving the same, of a throttle-valve and rotary governor for said engine, means for driving said governor by said engine composed in part of speed-varying mechanism interposed between said engine and the governor, and means under the control of the air delivered by the compressor for operating said speed-varying mechanism, substantially as herein described.

4. The combination with an air-compressor and a motor therefor, of a motor-controlling governor, a speed-varying mechanism consisting of two expanding and contracting pulleys and a belt between them, means for driving one of said pulleys from the motor-shaft, means for driving the governor from the other of said pulleys and means for simultaneously expanding one and contracting the other of said pulleys under the control of the pressure of the air delivered by the compressor, substantially as herein described.

5. The combination with an air-compressor and a motor therefor, of a motor-controlling governor, a speed-varying mechanism consisting of two expanding and contracting pulleys and a belt between them, means for driving one of said pulleys from the motor-shaft, means for driving the governor from the other of said pulleys, levers for expanding and contracting said pulleys, a screw-spindle having right and left hand threads and

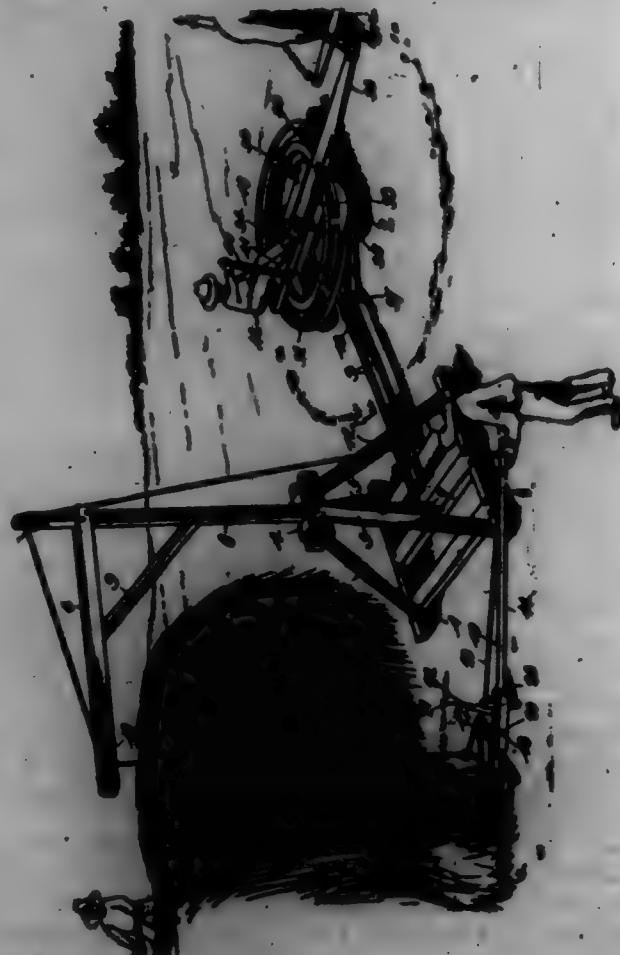
note thereon for actuating said levers, and means for turning said spindle in one direction or the other under the control of the air delivered by the compressor, substantially as herein described.

3. The combination with an air-compressor and a motor therefor and a governor for the latter, of speed-varying mechanism consisting of two expanding and contracting pulleys and a belt between them, means for driving one of said pulleys from the motor-shaft, means for driving the governor from the other of said pulleys, levers for expanding and contracting said pulleys, a screw-spindle having right and left hand threads and nuts thereon for operating said levers, a toothed wheel on said spindle, a lever fulcrumed on said spindle and two pawls carried by said lever for turning said wheel and spindle in opposite directions, means for operating said lever by the rotation of one of said pulleys, two pawl-disengaging levers fulcrumed on said spindle for disengaging said pawls, and means under the control of the pressure of the air delivered by the compressor for separately operating said disengaging-levers, substantially as herein described.

4. The combination with an air-compressor and a motor therefor and a governor for the latter, of speed-varying mechanism consisting of two expanding and contracting pulleys and a belt between them, means for driving one of said pulleys from the motor-shaft, means for driving the governor from the other of said pulleys, levers for expanding and contracting said pulleys, a screw-spindle having right and left hand threads and nuts thereon for operating said levers, a toothed wheel on said spindle, a lever fulcrumed on said spindle and two pawls carried by said lever for turning said wheel and spindle in opposite directions, means for operating said lever by the rotation of one of said pulleys, two pawl-disengaging levers fulcrumed on said spindle for disengaging said pawls, cylinders one for each of said disengaging-levers and pistons in said cylinders actuated by fluid-pressure from any source for operating said levers, pipes leading from said sources to each of said cylinders, and a valve for opening and closing one of said pipes under the control of the final pressure of the air delivered by the compressor, substantially as herein described.

5. The combination with a compound or multiple-stage compressor and a motor therefor and a governor for the latter, of speed-varying mechanism between the motor and the governor, means for operating the speed-varying mechanism by fluid-pressure from an intermediate receiver, and a valve under the control of the final-receiver pressure for admitting and shutting off the intermediate-receiver pressure from said means for operating the speed-varying mechanism, substantially as herein described.

696,505. HAY-DRESSER. HENRY C. SPARKS, Harris county, Pa. Filed Apr. 5, 1901. Serial No. 54,598. (No model.)

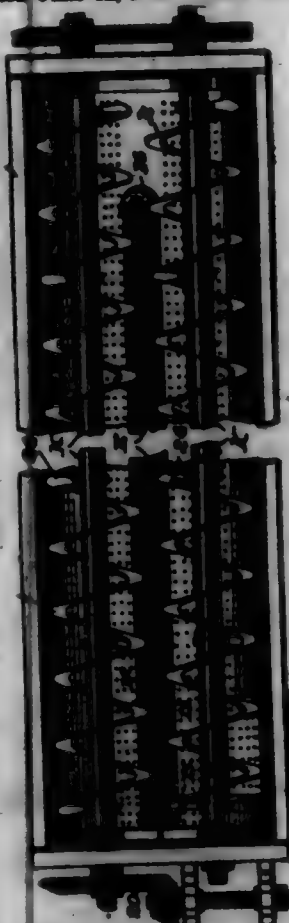


Claim.—1. A hay-dresser comprising a supporting-plate, a fixed base-ring thereon, a ring 20 on said base-ring, said ring 20 having a peripheral groove and a series of notches or grooves in said groove, a fixed ring 21, supported on said fixed base-ring, a wheel-ring 22 revolvable on said fixed ring 21, and having on said ring 22, said wheel-ring carrying a pulley 23, a sweep-lever pivotedly mounted on said supporting-plate, a detent pivoted to said sweep-lever and adapted to engage said wheel-ring and rotate the same with said sweep-lever and a bolt carried by said sweep-lever, to lock said detent to said ring-wheel, in combination with a holding-rope engaging the pulley 23 and having one end secured to a fixed point, substantially as described.

2. The combination of a support, a holding-rope, a revolvable element mounted on said support, adapted to draw on said rope, when said revolvable element is rotated, said revolvable element having radial members, a sweep-lever mounted on said support above and revolvable independently of said revolvable element, a gravity-detent pivoted at its upper end to and carried by said sweep-lever and adapted to drop and engage one of said radial members of said revolvable element to lock the latter to said sweep-lever, and a bolt also carried by said sweep-lever, to lock said detent when thus engaged, and to release said detent to permit retrograde rotation of said revolvable element, for the purpose set forth, substantially as described.

3. The combination of a support, a holding-rope, a revolvable element mounted on said support, adapted to draw on said rope, when said revolvable element is rotated, said revolvable element having radial members, a sweep-lever mounted on said support above and revolvable independently of said revolvable element, a gravity-detent pivoted at its upper end to and carried by said sweep-lever and adapted to drop and engage one of said radial members of said revolvable element to lock the latter to said sweep-lever, a bolt also carried by said sweep-lever, to lock said detent when thus engaged, and to release said detent to permit retrograde rotation of said revolvable element, for the purpose set forth, and a lever connected to said bolt, to release the latter from said detent, and a spring to normally maintain said bolt in engaged position with relation to said detent, substantially as described.

696,506. REWINDING APPARATUS. JOHN G. W. BRADLEY, London, England. Filed June 12, 1901. Serial No. 54,514. (No model.)



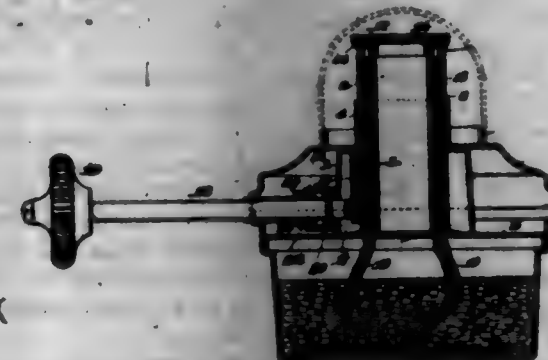
Claim.—1. In an apparatus for extracting oleaginous matter from fish, meat, &c., the combination of a closed vessel, a perforated plate extending transversely thereof above the bottom, a vertical partition extending upwardly from the perforated plate to form two compartments above the said plate communicating at one end of the partition, a perforated steam-pipe on each side of the partition to discharge free steam into the respective compartments, means to feed the material to be treated to the end of one compartment, means to move it through the compartments and maintain it in a broken-up condition, and means to drain off the oleaginous matter from the space between the perforated plate and the bottom of the vessel, substantially as set forth.

2. In an apparatus for extracting oleaginous matter from fish, meat, &c., the combination of a closed vessel, a perforated plate extending transversely thereof above the bottom, a vertical partition extending upwardly from the perforated plate to form two compartments above the said plate communicating at one end of the partition, a perforated steam-pipe on each side of the partition to discharge free steam into the respective compartments, means to feed the material to be treated to the end of one compartment, means to move it through the compartments and maintain it in a broken-up condition, and means to drain off the oleaginous matter from the space between the perforated plate and the bottom of the vessel, substantially as set forth.

3. In an apparatus for extracting oleaginous matter from fish, meat, &c., the combination of a closed vessel, a perforated plate extending transversely thereof above the bottom, a vertical partition extending upwardly from the perforated plate to form two compartments above the said plate communicating at one end of the partition, a perforated steam-pipe on each side of the partition to discharge free steam into the respective compartments, means to feed the material to be treated to the end of one compartment, means to move it through the compartments, means to discharge the cooked material, an exhaust-pipe leading from the closed vessel, and means to drain off the oleaginous matter from the space between the perforated plate and the bottom of the vessel, substantially as set forth.

4. In an apparatus for extracting oleaginous matter from fish, meat, &c., the combination of a closed vessel, a perforated plate extending transversely thereof above the bottom, a vertical partition extending upwardly from the said plate to form two compartments above the plate communicating at one end, means to admit free steam to each compartment, means to feed the material to be treated to the end of one compartment, and means to move it through the compartments and maintain it in a broken-up condition, substantially as set forth.

696,507. ALCOHOL-LAMP. GEORGE STERNES and LOREN BRUNSWICK, New York, N. Y., assignors to S. Sternes & Co., New York, N. Y., a Corporation. Filed Oct. 20, 1901. Serial No. 50,494. (No model.)



Claim.—1. In an alcohol-lamp, the combination of a fuel, a regulating-tube rigidly carried by the fuel, a burner movable toward and away from the fuel and movable toward and away from the regulating-tube, and means for moving said burner, substantially as set forth.

2. In an alcohol-lamp, the combination of a fuel, a regulating-tube rigidly carried by the fuel, a burner movable toward and away from the regulating-tube, a series of gas-vents at the top of the burner arranged to be covered by the downward movement of the burner in the regulating-tube, and means for moving said burner, substantially as set forth.

3. In an alcohol-lamp, the combination of a fuel, a regulating-tube rigidly carried by the fuel, a wick and burner tube movable within the regulating-tube, said wick and burner tube carrying an asbestos packing in its upper portion and a wick-like material in its lower portion which dips in the alcohol in the fuel, and means for moving said wick and burner tube, substantially as set forth.

4. In an alcohol-lamp, the combination of a fuel, a regulating-tube rigidly carried by the fuel, a wick and burner tube movable within the regulating-tube, said wick and burner tube carrying an asbestos packing in its upper portion and a wick-like material in its lower portion which dips in the alcohol in the fuel, means for moving said wick and burner tube, and a filling-tube mounted concentrically within the wick and burner tube, substantially as set forth.

5. In an alcohol-lamp, the combination of a fuel, a regulating-tube rigidly carried by the fuel, a wick and burner tube movable within the regulating-tube and communicating with the fuel, said wick and burner tube having burner-openings near its upper end arranged to be covered by the regulating-tube, a rack on the wick and burner tube within the regulating-tube, a pinion engaging said rack, and a shaft for rotating said pinion, substantially as set forth.

696,508. FIRE-ESCAPE. WILLIAM STEVENS, Albany, New South Wales, Australia. Filed Jan. 31, 1900. Serial No. 51,598. (No model.)



Claim.—1. In a fire-escape, a tube A open at its bottom and closed at its upper end, an air-regulating valve at said upper end, a weighted piston in said tube, an expansion-washer carried by said weight, and a rope or cable connected to said weight, substantially as described.

2. In a fire-escape, a tube A having an open lower end and a closed upper end, an air-regulating valve at said upper end, a weight in said tube connected at said upper end, a cup-shaped expansion washer seated in said conical end of the weight, and a rope or cable connected to said weight, substantially as described.

3. In a fire-escape, a tube A closed at its upper end and open at its lower end, a tapering weight within said tube having a conical upper end, a cup-shaped expansion-washer seated in said conicality, a clamping-disk within said washer, a bolt passing through said disk, washer and weight, for clamping them together, and a rope connected to said rod, substantially as described.

696,509. JOURNAL-BEARING. JAMES STICKEL, Williamsport, Pa., assignor of five-sixths to Henry C. McCornick and C. F. Overhiser, Williamsport, Pa., and Joseph L. Atkins, Washington, D. C. Filed Apr. 28, 1901. Serial No. 57,488. (No model.)



Claim.—1. In a journal-bearing, the combination with a box provided with cup-plates and a plurality of rolling bearing members contained within the box between the cup-plates thereof, of two series of rolling spacing members at opposite ends, respectively, of the bearing members, and a pair of loose clamping members for each series of spacing members carried by the spacing members within the box.

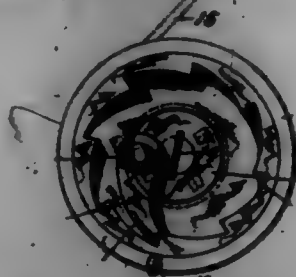
2. In a journal-bearing, the combination with a box provided with

cap-plates and a plurality of rolling bearing members contained within the box between the cap-plates thereof, there being reduced ends upon each of the bearing members, of a series of rolling spacing members for each end of the bearing members, and a pair of sliding members for each series of spacing members carried by the spacing members loose within the box.

3. In a journal-bearing, the combination with a box provided with cap-plates and a plurality of rolling bearing members contained within the box between the cap-plates thereof, said bearing members being shorter than the box, there being reduced ends upon each of the bearing members, of a series of rolling spacing members for each end of the bearing members making contact with the bearing members and with the cap-plates of the box, and a pair of loose sliding members for each series of spacing members carried by the spacing members within the box.

4. In a journal-bearing, the combination with a box provided with cap-plates and a plurality of rolling bearing members contained within the box between the cap-plates, said bearing members being shorter than the box, there being reduced ends defined, respectively, by shoulders upon each of the bearing members, of a series of rolling spacing members for each end of the bearing members, said spacing members making contact with the reduced ends and shoulders of the bearing members, and a pair of loose-sliding members for each series of spacing members carried by the spacing members within the box.

696,510. PICTURE-HANGER. CHARLES I. STELL, New York, N. Y. Filed Mar. 27, 1901. Serial No. 68,671. (No model.)



Claim.—1. In a picture-hanger, the combination with a central core or journal and means for attaching the core to the frame, of a spiral revolvably mounted on said core and having a ratchet on its face, a pawl pivoted to the journal or core and adapted to engage the ratchet to lock the spiral against movement in one direction, and also to lock the spiral upon the core, substantially as described.

2. In a picture-hanger, the combination with a central core provided with a roughened portion adapted to be pressed into the wood of the frame, means for securing the core to the frame, a spiral revolvably mounted on the core, a ratchet on the outer face of the spiral, a pawl pivoted to the core and adapted to engage the ratchet, whereby the spiral is locked against movement in one direction, and also locked upon the core, substantially as described.

3. In a picture-hanger, the combination with a core provided with a flange on its lower peripheral edge and having a screw integral therewith to attach it to the frame, of means for preventing the core from turning on the frame, a spiral revolvably mounted on the core and seated against the flange, a ratchet in the outer face of the spiral, and a pawl pivoted to the core and engaging the ratchet to lock the spiral against rotation in one direction and also to lock said spiral upon the core, substantially as described.

696,511. TRUCK-BOLSTER FOR RAILWAY-CARS. CHARLES H. STELL, New York, N. Y. Filed Dec. 1, 1902. Renewed Dec. 21, 1901. Serial No. 68,684. (No model.)

Claim.—1. The truck-bolster for railway-cars comprising in combination a center block or casting A, an upper compression member or bar B, a lower tension member or bar C having a head or flange e at each end, and a connecting or abutment block D having an upper web d' with a recess d therein and shoulder d' for the end of said bar B to seat against, and rivets passing through said web d' and bar B, and said block D being furnished with lower web d'' having a recess d'' and shoulder d'' for the head and/or flange e of the lower tension member or bar C to bear against, and a base block or casting F, between which and the connecting-block D said lower bar C is clamped, and connecting bolts or rivets, substantially as specified.

2. The truck-bolster for railway-cars comprising in combination a center block or casting A, an upper compression member or bar B, a lower tension member or bar C having a head or flange e at each end, and a connecting or abutment block D having a recess d and shoulder d' for the end of said bar B to seat against, and furnished with a recess d'' and shoulder d'' for the head and/or flange e of the lower tension member or bar C to bear against, and a base block or casting F between which and the connecting-block D said lower bar C is clamped, and connecting bolts or rivets, substantially as specified.

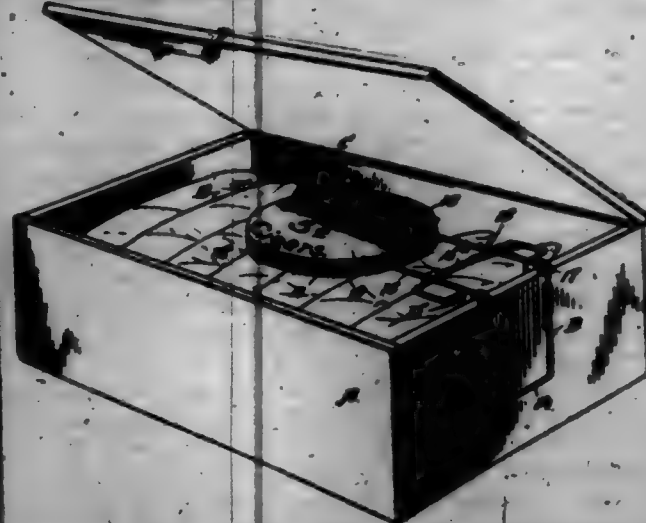
the connecting-block D said lower bar C is clamped, and connecting bolts or rivets, said block D having a recess d' to permit rivets to be inserted horizontally through the head or flange e of the bar C, substantially as specified.



3. The truck-bolster for railway-cars comprising in combination a center block or casting A, an upper compression member or bar B, a lower tension member or bar C having a head or flange e at each end, and a connecting or abutment block D having an upper web d' with recess d therein and shoulder d' for the end of said bar B to seat against, and rivets passing through said web d' and bar B, and said block D being furnished with lower web d'' having a recess d'' and shoulder d'' for the head and/or flange e of the lower tension member or bar C to bear against, substantially as specified.

4. The truck-bolster for railway-cars comprising in combination a center block or casting A, an upper compression member or bar B, a lower tension member or bar C having a head or flange e at each end, and a connecting or abutment block D having recess d and shoulder d' for the end of said bar B to seat against, and furnished with a recess d'' and shoulder d'' for the head and/or flange e of the lower tension member or bar C to bear against, said block D having an upper web d' through which the rivets pass to secure the bar B thereto, and a lower web d'' through which rivets pass to secure the bar C thereto, substantially as specified.

696,512. CIGAR-MONSTER AND PRESS AND BRAND TICKET. STEPHEN STRAUB, New York, N. Y. Filed Apr. 13, 1901. Serial No. 68,681. (No model.)



Claim.—1. The combination, with a cigar-monster, of a clamp-support adapted for attachment to a cigar-box and support the monster in the box, the clamp-support consisting of opposing clamping members adapted for engagement with opposite faces of a member of a box, a horizontal yoke located at the upper portion of one of the members of the clamp and adapted to extend within the box to which the clamp-support is applied, and arms arranged for engagement with the monster, which

arms are pivotally connected with the clamping-support and in their normal position are adapted to rest upon the said yoke, as set forth.

2. The combination, with a cigar-monster having a plain upper section and a recessed or perforated lower section connected with said upper section and an absorbent material between the two sections, of a clamp-support comprising an outer yoke, inner fingers parallel with the side portions of the outer yoke, the outer yoke and fingers having a downward direction, an inwardly-projecting horizontal yoke extending from the upper portion of the fingers, and arms pivotally attached to the upper portion of the clamp-support, which arms enter the monster through apertures in its edge, as set forth for the purpose specified.

3. In a cigar-monster, a monster proper, a clamp adapted to be secured to a cigar box and provided with an inwardly-projecting horizontal member, and arms pivotally connected with the clamp and to the free ends of which the monster is secured, said arms in their normal position being adapted to rest on the inwardly-projecting horizontal member of the clamp, as set forth.

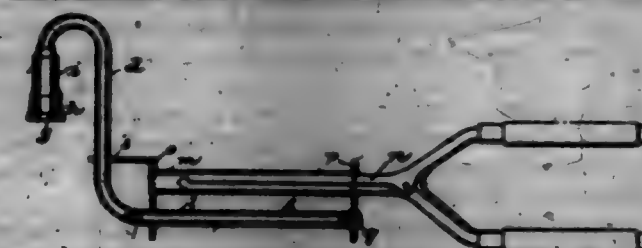
4. In a cigar-monster, a monster proper, a clamp comprising an outer yoke, inner fingers parallel with the side portions of said yoke, and an inwardly-projecting horizontal yoke extending from the upper portion of the fingers, and arms pivotally connected with the upper portion of the clamp and adapted to rest upon the horizontal yoke when in their normal position, the free ends of the arms being adapted to be secured to the monster, as set forth.

696,513. DETACHABLE COUPLER. RICHARD M. GROSS, Kansas City, Mo., assignor to Stange Manufacturing Company, a Corporation of Missouri. Filed Apr. 1, 1901. Serial No. 68,682. (No model.)



Claim.—In a coupling for gas-jets, the combination with an exterior casing A, of an interior tubing B projecting within the said casing, a flexible tube C secured at one end to the interior of the casing A and the exterior of the tubing B, whereby this end of the flexible tube is prevented from direct engagement with the gas-jet that is to be coupled to permit of the ready removal and replacement of the tube, the other end of the said flexible tube projecting beyond the tubing and having space intervening between the same and the exterior casing, whereby it may readily grasp the gas-jet, the casing B being of larger diameter than the flexible tube to permit of the application of gas-pressure to the exterior of the tube to reinforce the engagement between the same and the gas-jet, and a connector D having communication with the interior of the casing A whereby gas passed through the jet and connection may have access to the space surrounding the tube to press the tube against the gas-jet, substantially as described.

696,514. HEATING APPARATUS. RICHARD M. GROSS, Kansas City, Mo., assignor to Stange Manufacturing Company, a Corporation of Missouri. Filed June 24, 1901. Serial No. 68,683. (No model.)



Claim.—1. In a heater, the combination with a gas-burner provided at one end with an unthreaded union adapted to be slipped over a gas-jet, the said burner being provided with an offset portion a, a vertical or upright stretch and a stretch irregularly disposed with respect to the vertical or upright stretch, the angular stretch being provided with a plurality of jet-openings arranged longitudinally thereof, of a heating-tube support adapted to secure the heating-tube in a longitudinal position with respect to the angular stretch of the gas-burner, and means for heating the upright and angular stretches of the gas-burner to prevent their displacement by the supported heating-tube, substantially as described.

2. In a heater, the combination with a gas-burner provided at one end with an unthreaded union adapted to be slipped over a gas-jet, the said burner being provided with an offset portion a, a vertical or upright stretch and a stretch irregularly disposed with respect to the vertical or upright stretch, the angular stretch being provided with a plurality of jet-openings arranged longitudinally thereof, of a heating-tube support adapted to secure the heating-tube in a longitudinal position with respect to the angular stretch of the gas-burner, and means for heating the upright and angular stretches of the gas-burner to prevent their displacement by the supported heating-tube, substantially as described.

heating-tube, the said end plates being separable, whereby the tongue of the heating-tube may engage an end plate and through the means of the said heating-tube and the angular stretch of the gas-burner to prevent the heating-tube from rotating or becoming disengaged from the engaging end plate, and means for preventing relative displacement between the vertical and horizontal stretches of the gas-burner, substantially as described.

3. The combination with a gas-burner provided with upright and angular stretches, the angular stretch being provided with longitudinally-arranged jet-openings, of a heating-tube support adapted to secure the heating-tube in a longitudinal position with respect to the angular stretch of the gas-burner, the said plates having free opening between them, whereby the heating-tube may be inserted between the end and tube to grasp an end plate and to secure the tube in an angular position, substantially as described.

4. The combination with a tube for receiving the tongue of a heating-tube, of a gas-burner spaced apart from said tube for directing a gas-flow against the said tube, and a plate P uniting the tube and gas-burner the space between the end and tube being free, whereby the heating-tube may be inserted between the end and tube to grasp the plate and secure the tube in an angular position, substantially as described.

696,515. PROCESS OF RETTING VEGETABLE FIBERS. BENJAMIN S. BROWN, Chicago, Ill. Filed Nov. 15, 1902. Serial No. 68,684. (No statement.)

Claim.—1. The herein-described process of retting vegetable fibers, which consists in subjecting the same to the action of an agent having an appetite or avidity for the ingredients sought to be removed, and having its solvent appetite or avidity for the ingredients, the presence of which lends quality and nature to the completed fiber, retted wholly or in part, whereby one class of ingredients is removed while the other remains intact, substantially as described.

2. The herein-described process of retting vegetable fibers, which consists in subjecting the same to an agent capable of removing the gummy constituent materials, and having its solvent avidity for the oily and waxy ingredients, which lend quality and nature to the completed fiber, retted wholly or in part, substantially as described.

3. The herein-described process of retting vegetable fibers which consists in subjecting the same to the action of a liquid having an avidity for the gummy constituent materials and having its solvent avidity for the ingredients of an oily or waxy nature which it is desired to retain in the completed fiber retted wholly or in part, substantially as described.

4. The herein-described process of retting vegetable fibers, which consists in subjecting the same to the action of water having its solvent avidity for the ingredients which it is desired to retain in the completed fiber retted wholly or in part, substantially as described.

5. The herein-described process of retting vegetable fibers, which consists in subjecting the same to the action of water having its solvent avidity for the ingredients of an oily and waxy nature which it is desired to retain in the completed fiber retted wholly or in part, substantially as described.

6. The herein-described process of retting vegetable fibers, which consists in subjecting an initial mass of the particular vegetable fiber to be retted to the action of the liquid which is to form the retting solution to saturate or impregnate the same with the oily and waxy ingredients and then subjecting the vegetable fibers to be retted to the action of said solution, substantially as described.

7. The herein-described process of retting vegetable fibers, which consists in subjecting an initial mass of the particular vegetable fiber to be retted to the action of the liquid which is to form the retting solution to remove the gummy material therefrom and to saturate or impregnate the same with the oily and waxy ingredients, subsequently extracting the gummy material from said liquid and leaving the same saturated or impregnated with the oily and waxy materials, and then subjecting the vegetable fibers to be retted to the action of this said solution, substantially as described.

8. The herein-described process of retting vegetable fibers, which consists in subjecting an initial mass of the particular vegetable fiber to be retted to the action of the liquid which is to form the retting solution to remove the gummy material therefrom and to saturate or impregnate the same with the oily and waxy materials, subsequently extracting the gummy material from said liquid and leaving the same saturated or impregnated with the oily and waxy materials, subjecting the vegetable fibers to be retted to the action of said solution, and, finally, removing the gummy material from said retting solution to render the same again active and permit the employment of the same in the further retting of vegetable fibers, substantially as described.

9. The herein-described process of retting an untreated retting solution containing gummy, oily and waxy ingredients active, which consists in subjecting the same to the action of an agent to precipitate the

gummy material while not affecting the city and waxy ingredients in the retting solution, substantially as described.

10. The herein-described process, which consists in subjecting a retting solution containing gummy material and city and waxy ingredients to the action of an agent capable of precipitating the gummy material without materially affecting the city and waxy ingredients, and then removing said agent and said precipitated gummy material from the solution, substantially as described.

11. The herein-described process, which consists in subjecting a retting solution containing gummy material and city and waxy ingredients to the action of an insoluble agent capable of precipitating the gummy material while not materially affecting the city and waxy ingredients and then removing said insoluble agent and said precipitated gummy material from the solution, substantially as described.

12. The herein-described process, which consists in subjecting a retting solution containing gummy material and city and waxy ingredients to the action of lead acid to precipitate the gummy material and then removing said lead acid and said precipitated gummy material from the solution, substantially as described.

13. The herein-described process, which consists in subjecting a retting solution containing gummy material and city and waxy ingredients, to the action of a practically insoluble agent capable of precipitating the gummy material while not materially affecting the city and waxy ingredients, removing the insoluble agent from the solution by mechanical operation and then removing the precipitated gummy material by filtration, substantially as described.

14. The herein-described method which consists in subjecting fibers of the kind to be retted to water to form the retting liquid, removing the gums from said liquid and then subjecting the fiber to be treated to the liquid thus formed to ret the same, substantially as described.

15. The herein-described method which consists in subjecting fibers of the kind to be retted to the action of water under heat and pressure as set forth to form the retting liquid, removing the gum therefrom, and then subjecting the fibers to be treated to the retting liquid thus formed under heat and pressure as set forth to ret the said fibers, substantially as described.

696,516. IMPROVED WINDOW FRAME. GASTON D. TARR, Newark, N. J., assignor to Tarr Window Company, Newark, N. J. Filed July 13, 1901. Serial No. 67,946. (No model.)



Claim.—1. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a coupling having a pivotal connection with the sash and a fulcrum on said guide-bar, said

pivotal connection and fulcrum being arranged out of line with each other, substantially as set forth.

2. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a coupling having a pivotal connection with the sash and having a fulcrum on said bar which is concentric to said pivotal connection, and means for rigidly connecting the sash and coupling or disconnecting the same, substantially as set forth.

3. The combination with the window-frame, the sash and a guide-bar arranged within the frame, of a guide-bar arranged between the sash and said guide, a pin pivotally connected with the sash, a head arranged on said pin and having a flat side which bears against a shoulder on the bar, and means for rigidly connecting the sash and pin or disconnecting the same, substantially as set forth.

4. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin connected with the sash and passing through a curved slot in the bar, said pin being fulcrumed on one side on said bar concentric with the axis of said curved slot, substantially as set forth.

5. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin arranged in a bearing on the sash and in a curved slot in said bar, a head arranged on said pin and fulcrumed on one side on a shoulder on the bar, said head being curved concentric with the fulcrum of said head, and a locking device for rigidly connecting the pin and sash or disconnecting the same, substantially as set forth.

6. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin connected with the sash and arranged in a curved slot in said bar, a head arranged on the pin and adapted to fulcrum on the bar concentric with said slot, and a guide arranged on the bar for guiding said head out of said slot, substantially as set forth.

7. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame and having a longitudinal rib engaging with a corresponding groove in the sash, of a pin connected with the sash, a head arranged on the pin and fulcrumed on a shoulder on the bar, said pin being arranged in a slot which is formed partly in the guide-bar and partly in a plate on said bar and concentric with said fulcrum and having its lower end arranged adjacent to said shoulder and its outer end arranged in the rib of the bar, and a guide-bore arranged on said plate adjacent to the outer end of said slot for guiding said head out of said slot, substantially as set forth.

8. The combination with the window-frame, the sash and the guide-bar arranged between the frame and sash, of a pin pivotally connected with the sash and having a flat-sided stem at one end and a head at its opposite end which is fulcrumed on the guide-bar, and a locking-bolt guided on the sash and adapted to engage with the flat side of said stem, substantially as set forth.

9. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin pivotally connected with the sash and having a flat-sided stem at one end and a head at its opposite end which is fulcrumed on the guide-bar, and a forked locking-bolt guided on the bar and adapted to engage with said stem for preventing turning of the sash on said pin, substantially as set forth.

10. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin pivotally connected with the sash and having a head at one end which is fulcrumed on the guide-bar, a cylindrical stem arranged at the opposite end of the pin and having a circumferential groove and a flat side, and a forked locking-bolt guided on the sash and adapted to engage its arms with the groove and the flat side of said stem, substantially as set forth.

11. The combination with the window-frame, the sash and the guide-bar arranged between the sash and frame, of a pin pivotally connected with the sash and having a head at one end which is fulcrumed on the guide-bar and a flat-sided stem at its opposite end, and a forked locking-bolt guided on the sash and having a wide space between its arms in which said stem is capable of turning in the locking-bolt and a narrow space in which the stem is held against turning in the locking-bolt, substantially as set forth.

12. The combination with the window-frame, the sash and the supporting-bar pivotally connected with the sash, of a pressing device which is actuated by the weight of the sash and bar for pressing these parts together, substantially as set forth.

13. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like, and a pressing device which is actuated by the weight of the sash and guide-bar for yieldingly pressing these parts together, substantially as set forth.

14. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, and a pressing-lever which is interposed be-

tween the guide-bar and the frame and to which said chain is connected in a deflected condition, substantially as set forth.

15. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, and a pressing-lever bearing against the frame and bar and having a laterally-opening notch in which the chain is placed in a deflected condition, substantially as set forth.

16. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever which bears against said frame and bar and to which said chain is attached in a deflected condition, and means for adjusting the amount of deflection in said chain, substantially as set forth.

17. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever which bears against said frame and bar and which has an attaching-section to which a deflected portion of the chain is attached and an adjustable section for varying the amount of deflection in said chain, substantially as set forth.

18. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever bearing against the frame and bar and consisting of an attaching-section which has a laterally-opening notch for receiving a deflected portion of the chain and an adjusting-section constructed to close said notch and to bear against said chain, substantially as set forth.

19. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever bearing against the frame and guide-bar and consisting of an attaching-section which receives a deflected portion of said chain and an adjusting-section pivoted on the attaching-section and bearing against said chain, and an adjusting-curve arranged on the adjusting-section and bearing against an inclined stop on the attaching-section, substantially as set forth.

20. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever bearing against the frame and guide-bar and consisting of an attaching-section and an adjusting-section, said attaching-section having upper and lower jaws forming a laterally-opening notch which received a deflected portion of said chain and said adjusting-section having a finger bearing against the chain, a curve bearing against an inclined stop in the upper side of said upper jaw and a retaining-leg bearing against the under side of said upper jaw, substantially as set forth.

21. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a balancing-chain or the like connected with the guide-bar, a pressing-lever bearing against the frame and guide-bar and consisting of an attaching-section and an adjusting-section, said attaching-section having upper and lower jaws forming a laterally-opening notch in which a deflected portion of the chain is seated and an inclined stop on the upper side of the upper jaw, and said adjusting-section having a finger which bears against said chain, an adjusting-curve which bears against said inclined stop and a retaining-leg which bears against the under side of said upper jaw, and an anti-friction-roller arranged on said pin, substantially as set forth.

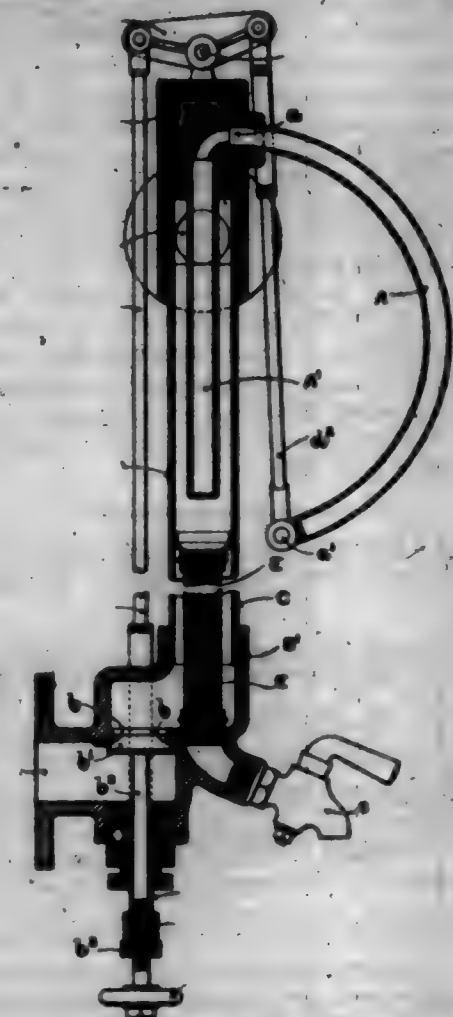
22. The combination with the window-frame, the sash and the guide-bar pivotally connected with the sash, of a catch arranged in the lower part of the guide-bar and consisting of a shank provided at its lower end with an upwardly-projecting hook and at its upper end with a cross-bar, a pair of guide-loops arranged on the guide-bar and receiving said cross-bar, and a shoulder arranged on the frame and adapted to be engaged by the hook of the catch, substantially as set forth.

23. The combination with a window-frame having a guideway, a shoulder in the back of said guideway, and an incline below said shoulder, of a guide-bar arranged in said guideway, a sash pivotally connected with said bar, and a catch mounted on the guide-bar and having a hook adapted to engage with the shoulder and the incline on the frame, substantially as set forth.

696,517. STRAIN-TRAP. WILLIAM E. THOMPSON and ROBERT THOMPSON, London, England. Filed June 14, 1901. Serial No. 64,000. (No model.)

Claim.—1. A steam-trap comprising essentially an expansion and contraction tube formed with a straight and a curved part, the curved part being capable of assuming a greater or less curve under varying temperatures due to the contraction and expansion of a spirit contained or sealed within the said tube, a casing carrying the one end of the curved part of the tube and enveloping the straight part thereof, an inlet and outlet provided on the said casing, a screen or strainer secured within said casing and through which the steam and water must pass before reaching the outlet, and a valve operated by the curved tube and controlling the said outlet, as set forth.

2. A steam-trap comprising essentially an expansion and contraction tube formed with a straight and a curved part, the curved part being capable of assuming a greater or less curve under varying temperatures due to the contraction and expansion of a spirit contained or sealed within the said tube, a casing carrying the one end of the curved part of the tube and enveloping the straight part thereof, an inlet and outlet provided on the said casing and a valve operated by the curved tube and the longitudinally expandible and contractible tube, controlling the outlet of the trap.



3. A steam-trap comprising a tube formed with a straight and a curved part, the curved part being capable of assuming a greater or less curve under varying temperatures due to the contraction and expansion of a spirit contained or sealed within the said tube, a casing carrying the one end of the curved part of the tube and enveloping the straight part thereof, an inlet and outlet provided on the said casing and a valve operated by the curved tube and controlling the said outlet, as set forth.

4. A steam-trap comprising a spirit-filled curved or spring tube carried on the outside of a casing and rigidly held by its one end and therein, a straight spirit-filled tube in communication with the curved or spring tube and carried and enveloped by the casing as to be in contact with the steam and water passing therethrough and a valve operated through mechanism attached to the free end of said curved tube to control the outlet of the trap, as set forth.

5. A steam-trap comprising a tube formed with a straight and a curved part, the curved part being capable of assuming a greater or less curve under varying temperatures due to the contraction and expansion of a spirit contained or sealed within the said tube, a casing carrying the one end of the curved part of the tube and enveloping the straight part thereof, an inlet and outlet provided on the said casing, a screen or strainer secured within said casing and through which the steam and water must pass before reaching the outlet, and a valve operated by the curved tube and controlling the said outlet, as set forth.

6. A steam-trap comprising a spirit-filled curved or spring tube carried on the outside of a casing and rigidly held by one end and therein, a straight spirit-filled tube in communication with the curved or spring tube and carried and enveloped by the casing as to be in contact with the steam and water passing therethrough and a valve operated through mechanism attached to the free end of said curved tube to control the outlet, as set forth.

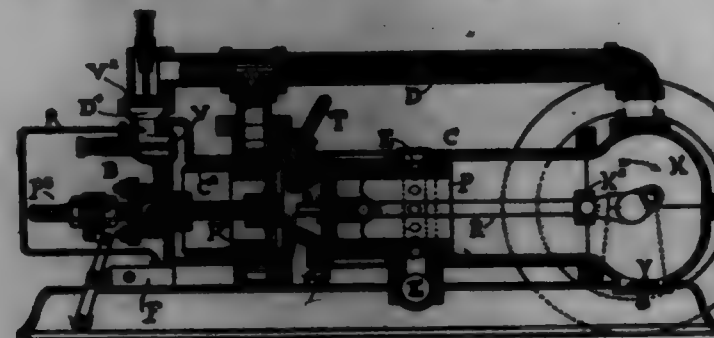
7. A steam-trap comprising a spirit-filled curved or spring tube carried on the outside of a casing and rigidly held by one end and therein, a straight spirit-filled tube in communication with the curved or spring tube and carried within said casing, a longitudinally expandible and contractible

his tube carried by the said casing and carrying a valve-casing, and a valve operated through mechanism attached to the free end of said curved tube and connecting with said valve-casing to control the outlet of the trap, as set forth.

3. A steam-trap comprising a spirit-filled curved or spring tube carried on the outside of a casing and rigidly held by one end thereof, a straight spirit-filled tube in communication with the curved or spring tube and carried within said casing, a screen or strainer secured within the casing and through which the steam and water must pass before reaching the outlet, a longitudinally expandible and contractible tube carried by the said casing and carrying a valve-casing, and a valve operated through mechanism attached to the free end of said curved tube and connecting with said valve-casing to control the outlet of the trap, as set forth.

4. A steam-trap comprising a curved spirit-filled tube carried on the outside of a casing and rigidly held by its one end thereof, a straight spirit-filled tube in communication with the curved or spring tube and carried within the said casing, an inlet and an outlet provided on the said casing, a longitudinally expandible and contractible tube carried by the said casing, a screen or strainer secured within the casing and through which the water must pass before reaching the outlet, a blow-off cock communicating with the compartment formed by the screen or strainer, a valve-casing carried by the longitudinally expandible and contractible tube, a valve operated through mechanism attached to the free end of the curved tube and connecting with the said valve-casing to control the outlet, and means for bringing the valve into proper working relation with respect to its casing, as set forth.

696,518. GAS OR OIL ENGINE. RAYMOND TOWNSEND, Southampton, Mass. Filed June 14, 1906. Serial No. 720,910. (No model.)



Claim.—1. In a gas or oil engine, the combination of two cylinders, spaces connected by a narrowed passage and traversed each by a piston connected to the main crank by suitable crank-arms and connecting mechanism; exhaust-ports opening from one of the cylinders, which may be called the main cylinder, and said ports uncovered or opened for expulsion of exhaust at or about the completion of the outward stroke of the piston within said cylinder; two ports or sets of openings in the second cylinder, one of which is for the passage of air under slight compression for conveying or washing out the exhaust charge, and the other of which when opened after the exhaust-ports are closed introduces a fuel charge under compression, substantially as described.

2. In a fuel or gas engine, the combination of two cylinders, a piston for each cylinder, which pistons are operatively connected to furnish power, means for exhausting one cylinder on the completion of the power-stroke, and means for introducing a body of air into the second cylinder on the completion of the power-stroke; means for cutting off the exhaust from the first cylinder, and means for introducing into the second cylinder a new charge of fuel and air, and a connection or port between the two cylinders, substantially as described.

3. In an oil or gas engine, the combination of two cylinders in communication through a narrowed part, pistons moving within said cylinders, cranks and connecting-rods for moving the pistons, one crank being set so as to have a lead over the other; exhaust-ports in the forward end of one cylinder uncovered by the piston on the completion of its stroke, and two ports or sets of ports in the other cylinder, and means for injecting air through the first open port or set of ports, with means for injecting the fuel charge through the second port or set of ports after the exhaust-ports of the engine are closed.

4. In an oil or gas engine, a crank-case including the main crank, a space in which air is compressed during the motion of the main piston, ducts or delivery-ports extending from said crank-case for delivering air to the working cylinder-spaces, a piston moving within the main cylinder arranged to uncover the exhaust-ports on the completion of its outward stroke, an oppositely-moving piston arranged to uncover successively a port or set of ports for introducing air, and another set of ports for introducing the fuel charge into the explosion-chamber; means for moving the two pistons respectively; means for taking in and compressing the fuel

charge, and means such as an oil-supply pipe and an air-dust for supplying fuel and air for their admission before they pass the fuel-ports leading to the explosion-chamber, substantially as described.

5. In an oil or gas engine, the combination of a piston, which is moved within the crank-case, compresses a charge of air, an exhaust-port which is uncovered at the end of the piston-stroke, a second piston moving oppositely to the first and lagging with respect thereto, a port communicating with the crank-case which is uncovered by the lagging piston during the interval that the exhaust-port is open, so that the burned gases are expelled, a fuel-port, also controlled by the lagging piston, for admitting fuel after the exhaust-port is closed, and means for introducing and mixing the fuel charge and transferring it from one side to the other of the lagging piston.

6. In a two-cycle engine, the combination of a cylinder-space, a pair of pistons working therein and connected to the same crank, one of said pistons acting on its outward stroke to compress a charge of air, the other to compress a charge of gas or fuel, ports controlled by the gas-compressing piston for admitting a charge of air composed by the first piston to the space between the pistons for discharging the burned gases and supplying air to a new charge, and other ports also controlled by the same piston for admitting the fuel charge to the cylinder-space.

7. In a two-cycle gas or fuel engine, the combination of two cylinder-spaces in communication through a port or restricted neck, each cylinder having a piston, means for exhausting the burned gases at one side of the restricted neck and from one end of the combined cylinder-space near its greatest volume, owing to the motion of the pistons, means for inserting a new charge of air close to the cylinder-spaces on the other side of the restricted neck, and means for subsequently inserting the fuel-charge.

8. In a gas or oil engine, the combination of a pair of pistons, a cylinder for each piston, a body of metal uniting the cylinders which is provided with a restricted neck or port, a firing means mounted adjacent to said body, an exhaust-ports controlled by one of the pistons, a port admitting air to the cylinder at or near the restricted neck, and a fuel-admitting port located beyond the air-admitting port, the last two ports being controlled by the second piston.

9. In a gas or oil engine, the combination of a cylinder, a piston therefor which compresses a charge of air on its outward stroke, a second piston which compresses a charge of fuel on its outward stroke, means for admitting fuel and compressed air to the compression-chamber, ports for admitting a charge of air to the chamber, ports for admitting a charge of air to the cylinder-space between the incoming fuel charge and the exhaust, and means for transferring the fuel from one side of the second piston to the other.

10. In an oil or gas engine, the combination of separate pistons which are operatively connected to the same power-shaft, a crank-case in which air is compressed by one piston, a case in which fuel is compressed by the end of a second piston, a port for admitting the compressed air into a space between the pistons, and means for transferring the compressed fuel charge from the end of one piston to a point between the pistons.

11. In a gas or oil engine, the combination of a pair of oppositely-moving pistons which are connected to the same driving-shaft, one of said pistons being arranged to lag slightly with respect to the other, a crank-case in which the air is slightly compressed by the leading piston, an exhaust-ports which is uncovered by the leading piston, a chamber in which the fuel is slightly compressed by the lagging piston, a port which is uncovered by the lagging piston for admitting the air compressed by the leading piston to the space between the pistons, a second port, also uncovered by the lagging piston, for permitting the fuel charge to be transferred to a point between the pistons after the leading piston has closed the exhaust-ports, and means for firing the fuel charge.

12. In a gas or oil engine, the combination of a moving piston, a crank-case in which the piston compresses a charge of air, a screen of fuel-supply, a port for admitting the compressed air into the cylinder for the purpose of washing out the products of combustion, which port is controlled by the movement of a piston, and a second port or valve for controlling the admission of the fuel charge, and a valve for regulating the air which is received from the crank-case and mixes with the fuel charge.

696,519. TABLE-JOINT. BENJAMIN T. TOWN, Hastings, Mass. Original application filed Feb. 13, 1901, Serial No. 47,740. Revised and this application filed May 10, 1901. Serial No. 60,515. (No model.)

Claim.—1. In a table, a leg having a shank at its upper end, and an element made rigid with the table having a lateral seat to receive the leg-shank; said element and leg-shank having, one, a base transverse to the axis of the leg-shank, and the other, a recess adapted to receive the base, the base being tapered in section radial to the shank—widening from its base to its outer end—means for clamping the shank into its seat and thereby forcing the tapering base into the recess.

2. In a table, a leg having a shank at its upper end, and an element made rigid with the table having a lateral seat to receive the leg-shank; said element and leg-shank having, one, a base transverse to the axis of the leg-shank, and the other, a recess adapted to receive the base, the base being tapered in section radial to the shank—widening from its base to its outer end—means for clamping the shank into its seat and thereby forcing the tapering base into the recess.



3. In a table, a leg having a shank at its upper end, and an element made rigid with the table having a lateral seat to receive the leg-shank; said element and leg-shank having, one, a base transverse to the axis of the shank, and the other a recess adapted to be engaged by the base; one of said engaged pieces being tapered in width to cause a wedging action in such engagement, and means for clamping the shank into its seat and thereby wedging the base into the recess.

4. In combination with a table-top and its legs, a block which is made rigid with the top, having in one edge a main recess, a leg having a shank adapted to be seated laterally in the recess; the shank having a base or head projecting transversely to the axis of the shank, and tapering in radial section, widening from base to crest, and the block having a secondary recess in the wall of the main recess, adapted to receive the base, and means for clamping the shank into the main recess and thereby forcing the base into the secondary recess.

5. In combination with a table-top and its legs, a block which is made rigid with the top, having in one edge a main recess; a leg having a shank adapted to be seated laterally in the recess; the shank having a base or head projecting transversely to the axis of the shank, and the block having a corresponding secondary recess in the wall of the main recess; and means for clamping the shank into the main recess, thereby forcing the base or head into the secondary recess.

6. In combination with a table-top and its legs, a block which is made rigid with the table-top independently of the leg, each block having in one edge a main recess; the leg having a shank adapted to be seated laterally in the recess, the shank having a base or head projecting transversely to its axis, and the block having a corresponding secondary recess in the wall of the main recess, and means for clamping the shank into the recess and thereby forcing the base or head into the secondary recess.

7. In combination with a table-top and its legs, a block which is made rigid with the table-top, having in one edge a main recess; a leg having a shank adapted to be seated laterally in the recess; the shank having a base or head projecting transversely to its axis, and the block having a corresponding secondary recess in the wall of the main recess, the face of the head toward the shoulder being beveled to draw the shoulder toward the face of the block when the shank is forced into the recess, and suitable means for thus forcing and holding the shank into the recess.

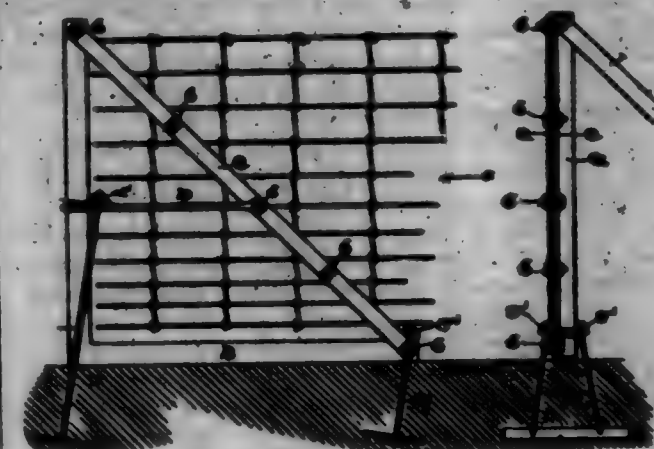
8. In combination with a table-top and its legs, a block which is made rigid with the table-top, having in one edge a main recess; a leg having a shank adapted to be seated laterally in the recess; the shank having a base or head projecting transversely to its axis, and the block having a corresponding secondary recess in the wall of the main recess, adapted to receive the base, one face of the base being beveled and the other being flat, and the width of the base at the base being such with respect to the width of the secondary recess as to cause the base to be wedged in the secondary recess when the shank is forced back into the main recess, whereby the flat face of the base is caused to be seated firmly against the corresponding wall of the recess; and suitable means for clamping the shank into the main recess.

696,520. FINGER-POPE. EDWARD T. VAN VALKENBURG, Ipswich, Ind., assignor of one-half to William E. Crutcher, Laporte, Ind. Filed May 13, 1906. Serial No. 62,401. (No model.)

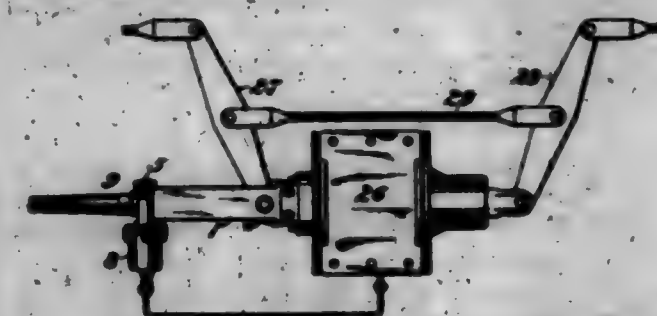
Claim.—1. In an actuating device for wire frames, comprising an upright post, the horizontal base portion of right angles to the upright portion, inclined wire-braces connecting the corner-ports and the base portion, said inclined braces having contiguous clamping-ends for the wire frame, and anchoring device, substantially as described.

2. In an anchoring device for wire frames the combination with an upright post and the horizontal base portion formed of a single piece of metal, inclined brace-braces connecting the post and the base portions, a longitudinal slot formed on the face of one of said inclined braces, and an

anchoring longitudinal groove formed on the contiguous face of the other to clamp the wire frame between the two inclined braces, and anchoring device, substantially as described.



696,521. BRACK-ADJUSTER FOR BRAKES. EMERY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 1, 1901. Serial No. 70,708. (No model.)



Claim.—1. In a brake shank-adjuster, the combination with a shank-adjuster driven screw and a movable fulcrum-block, of a closed casing including said screw and means for operating the shank.

2. In a brake shank-adjuster, the combination with a shank-adjuster driven screw and a movable fulcrum-block, of a closed casing forming a guide for said fulcrum-block, and means for operating the shank.

3. In a brake shank-adjuster, the combination with a screw and a movable fulcrum-block, of a closed casing therefor, a shank-adjuster having a hollow extension for said screw, and means for operating the shank.

4. In a brake shank-adjuster, the combination with a shank-adjuster driven screw, of a cover or casing for enclosing the shank and a take-up motor supported on the shank casing or cover.

5. In a brake shank-adjuster, the combination with a movable fulcrum-block and shank-adjuster driven screw, of a casing forming a guide for the fulcrum-block, a shank-adjuster secured to the casing, and a take-up motor supported on the shank-adjuster.

6. In a brake shank-adjuster, the combination with a screw and a movable fulcrum-block, of a casing therefor having an elongated opening for a lever, and means for sliding the opening.

7. In a brake shank-adjuster, the combination of a movable fulcrum-block, a screw, a casing for the fulcrum-block having an elongated opening in one side for a lever, and a slide for sliding the opening.

8. A shank-adjuster comprising a movable fulcrum-block and screw, a casing therefor having a slot in one side for a lever, and a dust-plate secured to the movable fulcrum-block for closing said slot.

9. In a brake shank-adjuster, the combination with a take-up mechanism and a casing therefor, of a take-up motor supported thereon and adapted to be adjusted to any one of a plurality of positions.

10. In a brake shank-adjuster, the combination with a casing including a movable fulcrum-block and a shank-adjuster driven screw, of a cover for the shank-adjuster carrying a take-up motor, said cover being adjustable to any one of a plurality of positions with respect to the casing.

11. In a brake shank-adjuster, the combination with a casing including a movable fulcrum-block and screw and having an opening in one side for a lever, a dust-plate for said opening, and a shank-adjuster having a plurality of narrow slots and adapted to be adjusted to different positions whereby the dust-plate may extend through any one of said slots.

12. In a brake shank-adjuster, the combination with a shank-adjuster driven screw, of a take-up motor having a piston and piston-rod, and a pawl pivoted to the piston-rod and adapted to engage said shank.

13. In a brake shank-adjuster, the combination with a pawl and shank-adjuster mechanism, of a take-up motor having a piston and piston-rod, the pawl being pivoted to the piston-rod, and means for sliding the pawl

out of engagement with the ratchet when the piston is at one end of its traverse.

14. In a brake slack-adjuster, the combination with a pawl-and-ratchet mechanism, of a take-up motor having a piston and stem connected to the pawl, means for raising the pawl out of engagement with the ratchet when the piston is at one end of its traverse, and a spring for throwing the pawl into engagement with the ratchet when the piston is moved toward the opposite end of its traverse.

15. In a brake slack-adjuster, the combination with a movable filarum-block and ratchet-driven screw, of a guide for said movable filarum-block and a fixed filarum carried by said guide.

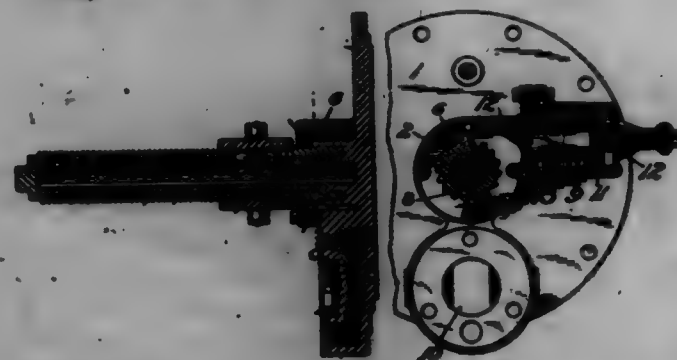
16. In a brake slack-adjuster, the combination with a movable filarum-block and ratchet-driven screw, of a casing therefor, a fixed filarum-block secured to said casing and means for securing the casing to a support.

17. In a brake slack-adjuster, the combination of a movable filarum-block, an adjusting-lever pivoted thereto, a ratchet-driven screw for moving said movable filarum, a stationary filarum, another adjusting-lever pivoted thereto, and a link connecting said levers together, the levers also being connected to sections of a pull-rod of the brake-rigging.

18. In a brake slack-adjuster, a brake-cylinder having a supporting-flange, an opening formed in the flange tangentially to the cylinder, a small port connecting the said opening with the interior of the brake-cylinder, and a pressure-pipe connected in said opening for conducting air under pressure to the take-up motor.

19. In a brake slack-adjuster, a brake-cylinder having a projecting flange or lug, an opening formed in said flange tangentially to the cylinder for a pipe connection, and a port connecting said opening with the interior of the brake-cylinder.

696,522. BRAKE SLACK-ADJUSTER. HENRY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 3, 1901. Serial No. 70,784. (No model.)



Claim.—1. In a brake slack-adjuster, the combination with a brake-cylinder head having a support secured thereto, of a tubular adjusting-screw rotatably mounted upon said support, said screw having a ratchet-wheel and a threaded filarum-block.

2. In a brake slack-adjuster, the combination with a tubular adjusting-screw and a support on which said screw is rotatably mounted adapted to be secured to the head of the brake-cylinder, of a threaded filarum-block, a ratchet-wheel secured to said screw and means for operating said ratchet-wheel.

3. In a brake slack-adjuster, the combination with a cylindrical support adapted to be secured to the head of a brake-cylinder, of a tubular adjusting-screw secured upon said support and having a ratchet-wheel and a threaded filarum-block.

4. In a brake slack-adjuster, the combination with an externally-threaded hollow screw, a movable filarum-block and a ratchet device for operating said screw, of a support extending into the hollow screw, and means for operating the ratchet.

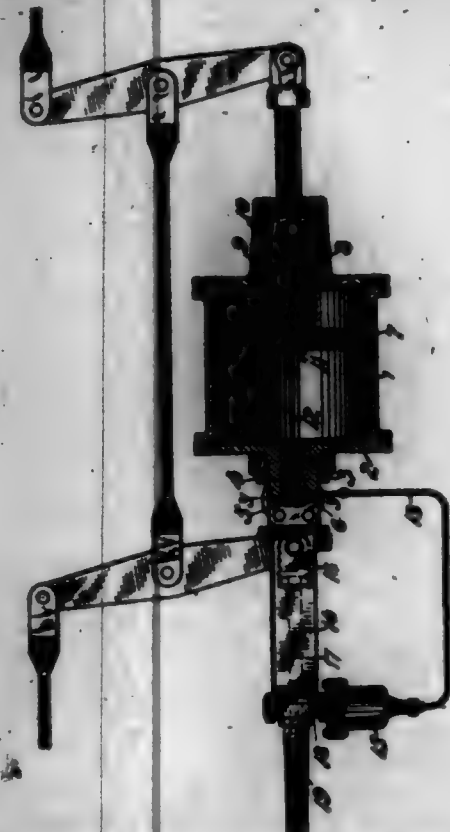
5. In a brake slack-adjuster, the combination with a hollow adjusting-screw and a ratchet for operating the same, of a relatively movable filarum-block, and a support on which said screw is rotatably mounted.

6. In a brake slack-adjuster, the combination with a brake-cylinder head having a support extending therefrom, of a hollow adjusting-screw secured upon said support and having a movable filarum-block and a ratchet device for operating said screw.

696,528. BRAKE SLACK-ADJUSTER. HENRY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 3, 1901. Serial No. 70,786. (No model.)

Claim.—1. The combination of a brake-cylinder, a port therein adapted to be connected with a take-up motor of a slack-adjusting mechanism, a valve for normally closing said port and means operated by the

brake-cylinder piston for opening said valve when the piston traverses beyond a certain point.



2. The combination with a brake-cylinder head having a port therein adapted to be connected with a take-up motor of a slack-adjusting mechanism, of a valve for normally closing said port and means operated by the brake-piston for opening said valve.

3. In a brake-cylinder, the combination with the cylinder-head having a hollow extension and a port therein, communicating with the take-up motor of a slack-adjusting mechanism, of a slide-valve for normally closing said port and means operated by the brake-piston when it passes a certain point of its traverse for opening said valve.

4. In a brake-cylinder, the combination with the cylinder-head having a port communicating with the take-up motor of a slack-adjusting mechanism, of a valve for normally closing said port, and a valve-stem connected to the piston for opening said valve at a certain point in the traverse of the piston.

5. In a brake-cylinder, the combination with the cylinder-head having a port communicating with the take-up motor of a slack-adjusting mechanism, of a valve for normally closing said port, a valve-stem for the valve, a piston having a hollow rod into which the valve-stem extends, and a plate secured at the end of the hollow rod for moving the valve when the piston passes a certain point of its traverse.

6. The combination of a brake-cylinder, a take-up motor of a slack-adjusting device, a passage from the brake-cylinder to the take-up motor, a valve for normally closing said passage and means operated by the movement of the brake-piston for controlling said passage.

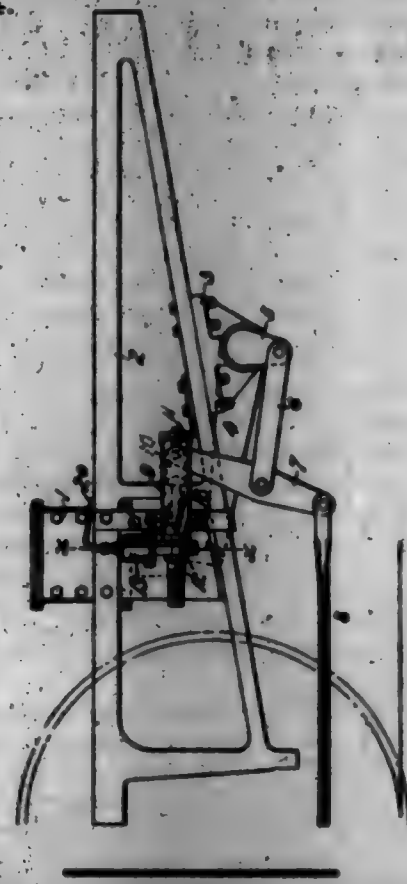
696,524. SLACK-ADJUSTER FOR RAILWAY-BRAKES. HENRY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 3, 1901. Serial No. 70,788. (No model.)

Claim.—1. In a brake-rigging, the combination with a main brake-operating lever having a fixed filarum, of an adjusting-lever having a movable filarum-block, a take-up mechanism for adjusting the position of the filarum-block, a pull-rod connected to the adjusting-lever, and a link connecting the main operating-lever with the adjusting-lever.

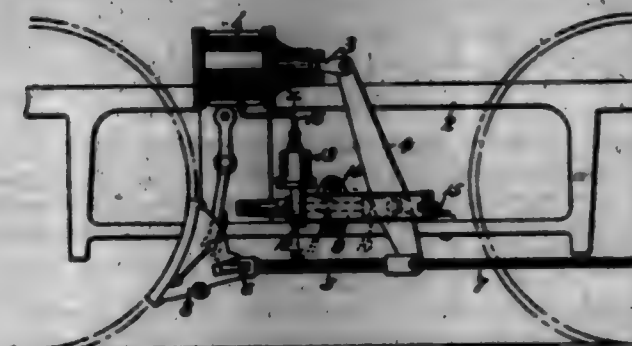
2. In a brake-rigging, the combination with an adjusting-lever pivoted to a movable filarum and a take-up mechanism for adjusting the position of said filarum, of a pull-rod connected to the adjusting-lever at one point, another member of the brake-rigging connected to the adjusting-lever at a different distance from its filarum, and a main brake-lever having a fixed filarum for operating one of said members.

3. In a brake-rigging, the combination of a brake-cylinder, a main brake-lever, an adjusting-lever having a fixed filarum, a movable filarum-block for the adjusting-lever, a pull-rod connected to one end of the adjusting-lever, a link connecting the main brake-lever with an intermediate point of the adjusting-lever, and a take-up mechanism for adjusting the position of the movable filarum-block.

696,524.



696,526. LOCOMOTIVE-BRAKE. HENRY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 3, 1901. Serial No. 70,792. (No model.)



Claim.—1. In a locomotive brake-rigging, the combination with the main brake-lever pivoted at its upper end with the piston-rod of the brake-cylinder, and the push-rod connected to the lower end of said lever, of a movable filarum-block, to which the main lever is pivoted at an intermediate point, a guide for said filarum-block secured to the locomotive-frame, a ratchet-wheel and screw for adjusting the position of the filarum-block, and a take-up motor connected to the brake-cylinder for operating the ratchet-wheel.

2. In a locomotive brake-rigging, the combination of the main brake-lever pivoted at its upper end to the piston-rod of the brake-cylinder and at its lower end to the push-rod of the brake-rigging, a movable filarum-block pivoted to said lever at an intermediate point, a guide for said filarum-block secured to the locomotive-frame, and a take-up mechanism for automatically adjusting the position of the filarum-block when the brake-piston passes a certain point of its traverse.

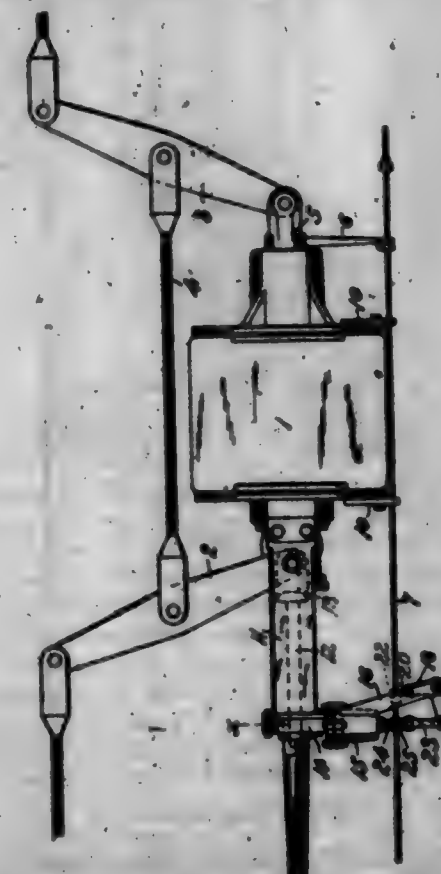
696,528. BRAKE SLACK-ADJUSTER. HENRY A. WALKER, St. Louis, Mo., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 3, 1901. Serial No. 70,786. (No model.)

Claim.—1. In a brake slack-adjuster, the combination with a tappet-rod and an arm movable with the brake piston-rod adapted to engage with the tappet, of a pawl-and-ratchet mechanism and a mechanical connection between the tappet-rod and pawl for actuating the same.

2. In a brake slack-adjuster, the combination with a tappet-rod having tappets, and an arm movable with the brake piston-rod adapted to engage said tappets, of a pawl-and-ratchet-driven screw and a bell-crank lever connected to the pawl and actuated by the tappet-rod.

3. In a brake slack-adjuster, the combination of a tappet-rod having tappets thereon, an arm secured to the brake piston-rod for engaging said tappets, a pawl-and-ratchet mechanism, a bell-crank lever for oper-

ating the pawl and another tappet on the rod for actuating the bell-crank lever.



4. In a brake slack-adjuster, the combination with a movable filarum-block and ratchet-driven screw, of a casing forming a guide for said filarum-block secured to the head of the brake-cylinder, a pawl and actuating means therefor supported from the casing, and a tappet-rod operated by the movement of the brake-piston.

5. In a brake slack-adjuster, the combination with a tappet-rod supported on the brake-cylinder and adapted to be operated by the movement of the brake-piston, of a pawl-and-ratchet mechanism and means for operating the pawl by the movement of the tappet-rod.

6. In a brake slack-adjuster, the combination with a tappet-rod operated by the movement of the brake-piston, of a pawl-and-ratchet mechanism, a lever for operating the pawl and a dog pivoted to one arm of the lever and adapted to engage with one of the tappets.

7. In a brake slack-adjuster, the combination of a movable filarum-block and ratchet-driven screw, a casing forming a guide for said filarum-block secured to the head of the brake-cylinder, a pawl and actuating means therefor supported from the casing, a tappet-rod operated by the movement of the brake-piston and a guide for said rod also supported from said casing.

696,527. HOLDBACK. RAYMOND W. WALKER, Oshkosh, Wis., assignor to the American Brake Company, St. Louis, Mo., a Corporation of Missouri. Filed Dec. 9, 1901. Serial No. 66,190. (No model.)



Claim.—A holdback comprising a suitable base-plate having outwardly-projecting lips or ears and a suitable hook, a locking-lever, a stationary pivot-pin connecting the locking-lever to and between the ears, grooved guides upon the plate and locking-lever respectively, a suitable spring having its projecting ends engaging the grooved guides whereby said ends are guided in their play in said grooves when the spring contracts and expands and retained against lateral motion, said spring engaging the pivot-pin, substantially as and for the purpose set forth.

696,528. SUPPORTING OR CONNECTING MEANS. EDWIN H. WALKER, Bridgeport, Conn., assignor to the Walker Brothers Company, Bridgeport, Conn., a Corporation. Filed Oct. 26, 1901. Serial No. 70,848. (No model.)

Claim.—1. In supporting or connecting means, the combination of a hook, a stud adjacent thereto and a socket adapted to disengage with said stud and close the mouth of the hook.

2. In supporting or connecting means, the combination of a hook

bearing a stud on its cheek, with a socket adapted to snap over said stud and close the mouth of the hook.

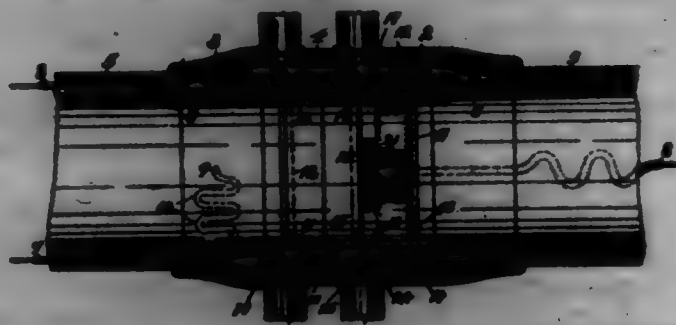


2. In supporting or connecting means, the combination of a hook bearing a stud on its cheek, with a flexibly-mounted socket adapted to snap over said stud and close the mouth of the hook.

3. In supporting or connecting means, the combination of a hook bearing a stud on its cheek, with means adapted to be connected with said hook and provided with a socket adapted to snap over said stud and close the mouth of the hook.

4. In supporting or connecting means, the combination of a hook bearing a stud on its cheek, with means adapted to be connected with said hook, said means having a hinged flap provided with a socket adapted to snap over said stud and close the mouth of the hook.

696,529. ELECTRIC HOSE-SIGNALING APPARATUS. Geo. S. Wertz, Hartford, Conn., assignor to the National Electric Hose Signaling Company, Boston, Mass., a Corporation of Delaware. Filed Dec. 5, 1899. Serial No. 26,770. (No model.)



Claim.—1. In a device of the character described, the combination of a half-coupling and a conducting-wire electrically connected thereto and leading therefrom along a length of attached hose, said wire having a portion of its length between its attached end and the length of hose looped sufficiently to provide for the separation of the hose and coupling without breaking the connection between the latter and said wire, for the purpose set forth.

2. In a device of the character described, the combination of a half-coupling provided with a contact-terminal, and a conducting-wire secured to said terminal and leading therefrom along a length of hose attached to said half-coupling, said wire having a circumferential coil located between its terminal and the length of hose, for the purpose set forth.

3. In a device of the character described, the combination of a half-coupling provided with a contact-terminal, and conducting-wires electrically connected to said half-coupling and contact-terminal respectively and leading therefrom along an attached length of hose, each of said wires having a portion of its length between its attached end and the length of hose looped or coiled sufficiently to provide for the separation of the hose and coupling without breaking the connection between said wires and the parts to which they are respectively connected, for the purpose set forth.

4. In a device of the character described, the combination of a half-coupling provided with a contact-terminal and with a circumferential groove, a conducting-wire secured to said terminal and having a coil lying in said groove, a length of hose secured to said half-coupling, and a packing-ring located between said coil of wire and the end of said hose.

5. In a device of the character described, the combination of a half-coupling provided with an annular abutment, a conducting-wire carried through said abutment and insulated therefrom and terminating in a metallic strip, and a yielding ring of insulating material interposed between said abutment and the free end of said strip and forming a support for the latter.

6. In a device of the character described, the combination of a half-coupling provided with an annular abutment, a conducting-wire carried through said abutment and insulated therefrom and terminating in a metallic strip, and a yielding ring of insulating material interposed between said abutment and the free end of said strip and forming a support for the latter, and means for preventing circumferential movement of said ring.

7. In a device of the character described, the combination of a half-coupling one of which is provided with an abutment, a conducting-wire carried through said abutment and insulated therefrom and terminating in a flexible, metallic strip, a yielding cushion of insulating material interposed between said abutment and said strip and forming a support for the latter, and a contact-terminal carried by the other half-coupling and insulated therefrom, and adapted to make contact with said strip.

8. In a device of the character described, the combination of a half-coupling one of which has an annular abutment provided with an annular groove, a rubber ring supported on said abutment over said groove and provided with an annular rib adapted to be expanded by the end of the opposing half-coupling, and cooperating contact-terminals carried by said half-couplings respectively, substantially as set forth.

9. In a device of the character described, a contact-terminal comprising a substantially rigid ring of insulating material, a metal ring embedded therein and flanged at its outer edge to provide a contact-surface, and a conducting-wire leading therefrom through said insulating-ring, for the purpose set forth.

10. In a device of the character described, a half-coupling provided with an internal, annular abutment, an insulating-ring supported thereon, a metal ring embedded in said insulating-ring and having a flange at its outer end, and a conducting-wire passed through the insulating-ring and its supporting-abutment and secured at its end to said flange, substantially as described.

11. In a device of the character described, in combination, two cooperating half-couplings one of which is provided with an insulating-ring having an annular conducting-ring secured to its edge and connected to a conducting-wire, the other half-coupling being provided with an annular abutment, an insulating-hub secured thereon, a conducting-wire passing through said hub and terminating in a metallic strip, and a yielding ring of insulating material located between said strip and abutment and forming a support for said strip, substantially as described.

696,530. BRAKE MECHANISM FOR VEHICLES. William Winkler, Syracuse, N. Y., assignor, by direct and mesne assignments, to George D. Galpin and Frank H. Brown, Syracuse, N. Y., and Elmer D. Goodrich, New York, N. Y. Filed Nov. 22, 1891. Serial No. 64,200. (No model.)



Claim.—1. A brake-operating mechanism comprising a series of three rotatable elements successively increasing in diameter, the one serving as a prime winding and unwinding medium, another as an intermediate tension-controller and the third largest one as the medium for directly and forcibly applying the braking power, a pull device engaging the said elements, and means in connection with all the elements for synchronously operating the same in proper-timed relation.

2. A brake-operating mechanism comprising an initially-rotating drum, a larger intermediate drum, and a power-applying drum greater in diameter than the other drums, the said drums being disposed in alignment, means for causing a synchronous operation of the drums in timed relation and proper direction of rotation, and a pull device engaging the said drums.

3. A brake mechanism comprising a brake-beam with cheeks, means for directly moving the said brake-beam, a series of successively-arranged rotatable elements gradually increasing in diameter and having means for synchronously and properly rotating the same, and a pull device connected to the means for directly moving the brake-beam and engaging the said elements, said pull device being held normally taut.

4. A brake-operating mechanism comprising a series of rotatable elements successively increasing in diameter, means for operatively connecting the said elements whereby the rotation of one will synchronously rotate the others and impart to the latter a proper direction of movement, and a pull device engaging all of the said elements.

5. A brake-operating mechanism comprising a series of rotatable elements successively increasing in diameter, means for operatively connecting the said elements whereby the rotation of one will synchronously rotate the others and impart to the latter a proper direction of movement, and a pull device engaging all of the said elements.

rotating the said elements whereby the rotation of one will synchronously rotate the others and impart to the latter a proper direction of movement, and a pull device engaging all of said elements and adapted to be wound on and unwound from the initially-rotated element and to be normally coiled around the remaining elements.

6. A brake-operating mechanism comprising a series of rotatable elements successively increasing in diameter, means for operatively connecting the said elements whereby the rotation of one will synchronously rotate the others and impart to the latter a proper direction of movement, the said elements having a reverse direction of rotation in alternation, and a pull device engaging all of the said elements.

7. A brake-operating mechanism comprising a series of rotatable elements successively increasing in diameter, means for operatively connecting the said elements whereby the rotation of one will synchronously rotate the others and impart to the latter a proper direction of movement, the said elements having a reverse direction of rotation in alternation, and a pull device engaging all of said elements and adapted to be wound on and unwound from the initially-rotated element and to be normally coiled around the remaining elements and to move on and off from diametrically opposite portions of said remaining elements.

696,531. PNEUMATIC CONVEYER. James H. Adams, Cayce, N. C. Filed June 1, 1891. Serial No. 26,749. (No model.)



Claim.—1. In a device of the character described, a fan, a discharge-chute leading from said fan, a feed-hopper, a chute leading from said hopper into the eye or inlet of said fan, a chute leading from said hopper into the discharge from said fan, and means whereby the material fed into said hopper may be conducted into either of said chutes, substantially as described.

2. In a device of the character described, a fan, a discharge-chute leading from said fan, a feed-hopper, a chute leading from said hopper into the eye or inlet of said fan, a chute leading from said hopper into the discharge from said fan, and a valve within said hopper and adapted to alternately close the inlets to said chutes, whereby the material may be conducted into either of said chutes, substantially as described.

3. In a pneumatic grain-conveyer, a fan-casing, a reversible fan therein, a chute leading to the interior of said casing through the air-intake thereof, a chute leading from said fan-casing to the blast-discharge of said casing, and means to cut off the passage of material through either of said chutes, substantially as described.

4. In a pneumatic grain-conveyer, a closed chute, means for inducing artificial air-currents through said chute, laterally, and downwardly-diverging opening branches at the outer end of said chute whereby the grain is uniformly distributed laterally and downwardly from the discharge end of said chute, substantially as described.

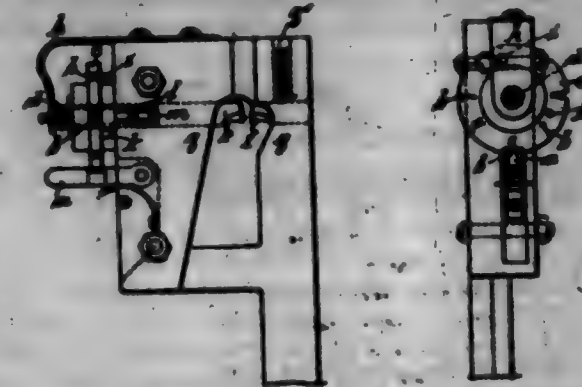
5. In a pneumatic grain-conveyer, a fan-casing, a reversible fan therein, a chute leading to the interior of said casing, and a chute leading from said fan-casing to the blast-discharge of said casing, one of said chutes having check-valves for the purpose set forth, substantially as described.

6. In a pneumatic grain-conveyer, a fan-casing having a discharge-chute and an air-intake, a reversible fan in said casing, a chute 8 leading to said casing, a chute 10 leading from chute 8 to said discharge-chute, and means to cut off the passage of material through either of said chutes 8, 10, substantially as described.

7. In a pneumatic grain-conveyer, an inclined chute through which induced air-currents are caused to pass, an extension-chute slidably disposed with relation to said first-mentioned chute, and with lateral branches at its discharge end and downwardly-opening branches near said lateral branches, substantially as described.

8. In a pneumatic grain-conveyer, an inclined conveyor-chute through which induced air-currents are caused to pass, laterally-curved branches at the outlet end of said conveyor-chute, a centrally-disposed downwardly-projecting chute at the discharge end of said conveyor-chute and downwardly and laterally and reversely projecting chutes at the discharge end of said conveyor-chute, whereby means are provided for the lateral discharge of the air-currents, and the lateral and downward discharge of the material carried through the said conveyor-chute, substantially as described.

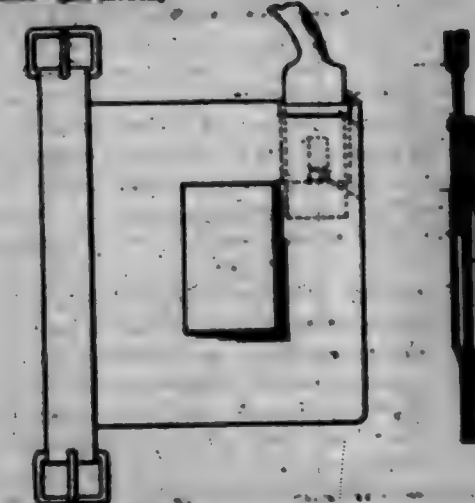
696,532. TOOL FOR CUTTING CAST TYPE-LINES IN LINO-TYPE-MACHINES. Charles A. Albrecht, Berlin, Germany. Filed Oct. 12, 1891. Serial No. 71,690. (No model.)



Claim.—1. In a mechanism for trimming the cast type-lines in linotype-machines, the combination with a slide *g*, of a knife *f* rigidly fixed in the slide, a knife *e* threaded on the end *d* opposite to the cutting edge, a nut *c* in form of a disk situated upon the spindle of the knife *e* and provided with grooves *b* on its circumference, a lever *a* pressed against the circumference of the disk *c* and a spring *h* fixed to the slide *g* and directed so as to press the knife *e* toward the knife *f* substantially as described and for the purpose set forth.

2. In a mechanism for trimming the cast type-lines in linotype-machines, the combination with a slide *g*, of a knife *f* rigidly fixed in the slide, a knife *e* threaded on the end *d* opposite to the cutting edge, a nut *c* in form of a disk situated upon a spindle of the knife *e* and provided with grooves *b* on its circumference, a lever *a* pressed against the circumference of the disk *c* and a spring *h* fixed to the slide *g* and directed so as to press the knife *e* toward the knife *f*, a pin *i* fixed to the slide *g* and a pin *k* fixed to the disk *c*, both pins being situated in the same distance from the center line of the spindle *d* substantially as described and for the purpose set forth.

696,533. WINDER-STAY FASTENER AND HOLDER. Arthur L. Ammann, Seattle, Wash., Cal. Filed Sept. 28, 1891. Serial No. 71,691. (No model.)



Claim.—1. In a winder-stay fastener, and in combination with a winder-stay having a slit formed therein, a plate formed with an integral tongue adapted to be passed through said slit and clamped to hold said stay in place, and bent at its upper end to form an integral hook adapted for the passage of the stay, substantially as described.

2. In a winder-stay fastener, the combination with a bridle-blind comprising leather piles and a reinforcing-plate inserted between said piles, of a winder-stay having its connected and passed downwardly between one of the piles and said reinforcing-plate and fitted, and a fastener consisting of a metallic plate bearing against one of the piles and provided with an integral tongue projecting through said ply, the connecting-plate and the slit in the stay and clamped to hold said stay in position and further provided at its upper end with an integral hook having a guide-slot through which the stay projects, said hook being bent over the upper edges of the piles and reinforcing-plate and down against the surface of the ply opposite that against which it bears for clamping the parts together, substantially as and for the purpose set forth.

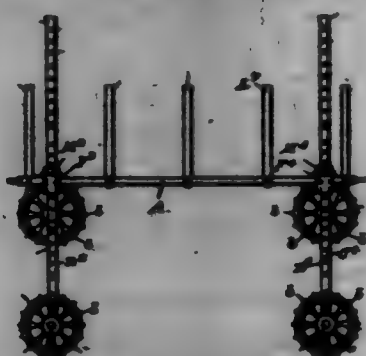
696,534. CURTAIN-POLE. James Adams, Waterville, Conn., assignor to Durbacher & Burdick Manufacturing Company, Waterville, Conn., a Corporation of Connecticut. Filed Jan. 6, 1893. Serial No. 26,697. (No model.)

Claim.—1. A ball or knob for attachment to curtain-poles or rods, said knob consisting of two sections having their adjacent edges locked together, and a disk having its edge locked between the adjacent edges of said sections and provided with spring-fingers adapted to bear upon said rod and removably hold the knob thereon, substantially as described.



2. A hollow knob or ball consisting of two sections having their adjacent edges flanged and locked together, one of said sections being provided with an opening, and a disk formed of spring metal having its edge clamped between the flanged edges of said sections and provided with radial fingers bent and shaped as described, in combination with a curtain-pole, the end of which is adapted to pass through the opening in said section and between said radial fingers whereby the knob may be attached to and detached from said pole, substantially as described.

696,535. ADJUSTABLE TRUCK. HENRY R. BAILEY, New Fountain City, Ind. Filed Sept. 3, 1901. Serial No. 74,300. (No model.)



Claim.—1. In an adjustable truck, the combination of a deck with holes along the edges of its longer sides, headlights secured at either end of the deck, castings secured near each of the corners of the deck, perpendicular slots near the outer edges of the castings, arms adapted to move up and down in said slots, means for holding the arms in said slots at any point by means of pins to be inserted in holes extending through the arms and through the upper part of the castings, axes provided on the lower ends of each of the arms and at right angles thereto, and wheels provided with epicycloids on their peripheries, adapted to revolve on said axes, all substantially as shown and described and for the purposes set forth.

2. In an adjustable truck, a deck provided with standards loosely inserted in holes in the edges thereof, in combination with castings secured to the corners of the deck, perpendicular slots provided in the outer edges of the castings, arms adapted to slide up and down in said slots and adapted to be secured at any point desired, axes which extend out at right angles from the lower ends of said arms, wheels mounted on said axes, a multiple of epicycloids extending outward from the periphery of each wheel, all substantially as shown and described and for the purposes specified.

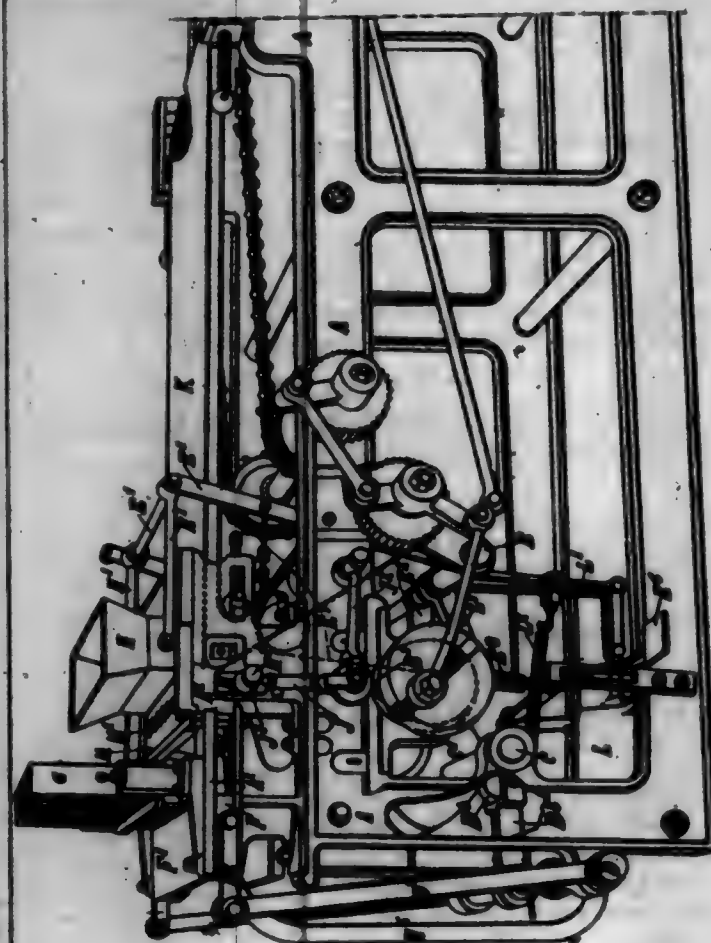
696,536. APPARATUS FOR AUTOMATICALLY COATING MECHANICAL PARTS. THOMAS E. BAKER, London, and WILLIAM T. BAKER, Charlton, England. Filed Nov. 13, 1900. Serial No. 34,344. (No model.)

Claim.—1. In a coating-machine, the combination with a stencil-plate and a feed-column to contain the articles intended for treatment, of a reciprocating plate which receives the articles from the feed-column, a lifter to raise the articles from the reciprocating plate to the stencil-plate and an operative connection between the lifter and the reciprocating plate whereby the latter places the articles over the lifter and after they have been treated ejects the same from the lifter, substantially as set forth.

2. In a coating-machine, the combination with a stencil-plate, of a hollow lifter serving also as a discharger, tubular extensions each communicating with the interior of the lifter, an elastic tube within each extension, a shoulder in the lifter to support the bottom of each elastic tube, means to raise the lifter toward the stencil-plate, and means to produce a partial vacuum within the lifter, substantially as and for the purposes set forth.

3. In a coating-machine, the combination with a stencil-plate, of a hollow lifter serving also as a discharger, tubular extensions each communicating with the interior of the lifter, an elastic tube within each extension, a shoulder in the lifter to support the bottom of each elastic tube, means to raise the lifter toward the stencil-plate, and means to produce a vacuum within the lifter when thus raised, substantially as set forth.

4. In a coating-machine, the combination with a stencil-plate, of a hollow lifter serving also as a discharger, tubular extensions each communicating with the interior of the lifter by a relatively restricted passage, an elastic tube within each extension, a shoulder in the lifter to support the bottom of each elastic tube, means to raise the lifter toward the stencil-plate and means to produce a vacuum within the lifter when thus raised, substantially as set forth.



5. In a coating-machine, the combination with a stencil-plate and a hopper movable relatively thereto, of a lever operatively connected with the lifter, a driving-shaft, a cam on that shaft to cooperate with that lever, a pedal, an elastic connection between that pedal and the above-mentioned lever comprising a spring, a feed-column to contain the articles intended for treatment, a feeder-plate, a hollow lifter serving also as a discharger, tubular extensions each communicating with the interior of the lifter by a relatively restricted passage, an elastic tube within each extension, a shoulder in the lifter to support the bottom of each elastic tube, a vacuum vessel, a conduit connecting the interior of the vacuum vessel with that of the lifter, a vacuum-regulator in that conduit and an operative connection between the feeder-plate the lifter and the regulator, substantially as set forth.

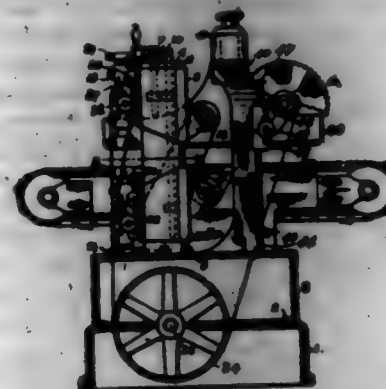
6. In a coating-machine, the combination with a stencil-plate and a hopper movable relatively thereto, of a lever operatively connected with the lifter, a driving-shaft, a cam on that shaft to cooperate with that lever, a pedal and an elastic connection between that pedal and the above-mentioned lever comprising a spring, substantially as set forth.

7. In a coating-machine, the combination with a stencil-plate and a hopper movable relatively thereto, of an operative connection between them, a feed-column to contain the articles intended for treatment, a feeder-plate, a lifter to elevate the articles from the feeder-plate to the stencil-plate, an operative connection between the feeder-plate and the lifter, a conveyor, a table upon the conveyor, a second feeder-plate and a second feed-column upon that table, and an operative connection between the conveyor, the second feeder-plate and the hopper and stencil-plate above, substantially as set forth.

696,537. TENSIONING-MACHINE. JAMES A. BARNES, Oshkosh, Wis. Filed Dec. 28, 1901. Serial No. 64,573. (No model.)

Claim.—1. In a tensioning-machine the combination with a standard having vertical slides or ways on one side a vertically-movable carriage for the tensioning outer-rod mounted on said slides or ways and extending around the standard having vertical slides or ways opposite those on the standard, a second vertically-movable carriage mounted on the slides of the said first carriage and having horizontal slides or ways thereon, a caper-rod support fixed to the said horizontal slides and means for moving

the respective carriage and roller-support in their paths for the purpose set forth.



2. The combination in a tensioning-machine of a standard having vertical ways or slides on one side, of a carriage mounted thereon having a tensioning outer-rod journaled thereon and having its slides extending around the standard, vertical slides or ways on the rear extending sides of said carriage, another carriage mounted on said slides or ways and having horizontal slides thereon, a frame having vertical and horizontal journals fitted to the horizontal slides, a horizontal shaft journaled in the said frame having a pulley mounted thereon and a bevel-gear secured to one end thereof, a vertical shaft mounted in the vertical journals having a bevel-gear secured thereto adapted to mesh with the other said bevel-gear and means for rotating the horizontal shaft for the purpose set forth.

3. In a tensioning-machine the combination with standards, vertically-movable carriages mounted thereon and means for sliding said carriages in their paths, vertically-movable frames mounted on the said carriages having horizontal slides thereon, brackets or journal-supports mounted in said horizontal slides, journaled horizontally in the said brackets and having pulleys mounted thereon each shaft having a bevel-gear secured to one of the ends thereof, caper-rod journaled vertically in the brackets and having a bevel-gear secured to each roller adapted to mesh with the other or horizontally-mounted bevel-gears and means for rotating the horizontal shaft for the purpose set forth.

4. In a tensioning-machine the combination with a standard, a vertically-movable carriage mounted thereon, having a screw for moving same, a second carriage mounted on the first carriage and adjustable vertically thereon, by means of a screw, a horizontally-movable frame mounted on the second carriage and a screw for adjusting the same, horizontal and vertical shafts journaled in said frame at right angles to each other, bevel-gears adapted to connect the two said shafts, a caper-rod head secured to one end of the vertical shaft and means for rotating the horizontal shaft for the purpose set forth.

5. In a tensioning-machine the combination with the bed or main support having a driving-shaft journaled therein, a driving-pulley mounted on said shaft, the base 3 mounted on said bed, a vertical standard secured to said base, a vertically-movable carriage mounted on the standard, a horizontal tensioning outer-rod journaled thereon, a pulley on said outer-rod, a horizontal shaft mounted adjustably in the said carriage, a vertical caper-rod mounted adjustably on said carriage but movable with the said horizontal shaft, bevel-gears for connecting the said horizontal shaft and vertical outer-rod, another standard secured to the base, a vertical adjustable pulley-frame mounted on said independent standard and means for adjusting same, a horizontal caper-rod mounted thereon and adjustable vertically, and having a pulley secured thereto and means for adjusting the same, a single belt passing over and around the several mentioned pulleys and around the pulley on said driving-shaft and means for tightening said belt and rotating the driving-shaft substantially as shown and described.

6. In a tensioning-machine a standard 4 a vertically-movable carriage 5 for the main tensioning outer-rod, a second carriage 15 vertically movable thereon, a frame 37 mounted on the second carriage and movable horizontally, a horizontal shaft and vertical outer-rod 30 bevel-gears 39 to connect the said shafts a pulley-frame 38 secured standard 40 for same mounted on the base 3 a caper-rod mounted on the said standard 40 and adjustable vertically thereon.

7. In a tensioning-machine the combination with a base, a vertical standard mounted thereon, a carriage mounted on said standard and adjustable vertically, another carriage mounted on the above-said carriage and capable of being adjusted vertically, a frame 37 mounted on the latter carriage and capable of horizontal movement, a shaft journaled in said frame and having a pulley secured to the middle thereof and a bevel-gear secured to the end thereof, a vertical caper-rod journaled in the said frame and having a bevel-gear secured thereto, said gear adapted to mesh with the other said gear, a caper-rod head secured to one end of said outer-rod, and a balance-wheel secured to the other end and means for rotating said pulley for the purpose specified.

8. In a machine of the class described the combination with a base 3, of a standard 4, a carriage mounted thereon and capable of vertical movement thereon and having tensioning outer-rod journaled thereon, vertical caper-rod mounted on said carriage and capable of independent horizontal and vertical adjustment thereon, another standard secured to the base in advance of the said standard 4, and having the extending portion 41, a pulley-frame attached to the said extension and capable of vertical adjustment thereon, slides or ways on the front side of the standard 40, a carriage mounted on said slides, and capable of vertical adjustment thereon, a bracket 46 mounted on the last-said carriage and capable of horizontal adjustment, a caper-rod journaled in the said bracket and having a saw attached to the end thereof, and means for universally adjusting the several outer-rod rollers and saw for the purpose specified.

9. In a tensioning-machine the combination with a base 3, of a standard 4 having a vertically-movable carriage mounted thereon, the tensioning-rod 15 carrying the outer-rod, 15' journaled in said carriage and adjustable vertically thereon, caper-rod 30 journaled in the said carriage 15 and having the outer-heads 17 secured thereto, the pulley-frame support 40, the pulley-frame 38, means for moving the standard 4 axially with the main outer-rod rollers 13, and means for moving the said standard to the base in one position, whereby when the said standard is moved away from the pulley-frame 38 the tensioning outer-rod rollers may be removed for the purpose specified.

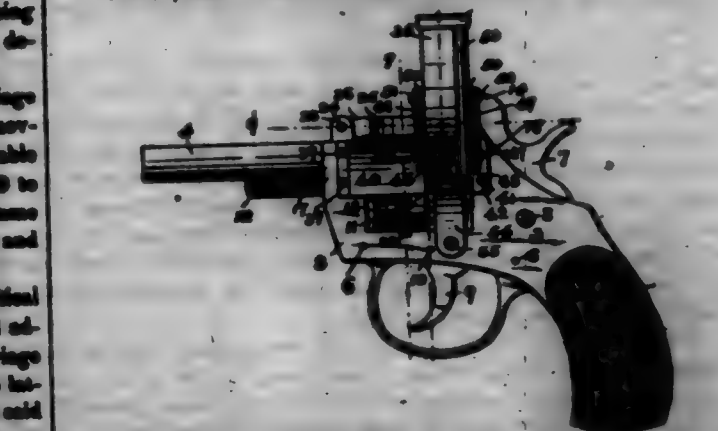
696,538. CATANEMIAL BANDAGE. HENRY R. BAILEY, New York, N. Y. Filed Aug. 1, 1901. Serial No. 74,467. (No model.)



Claim.—1. A catanemial bandage composed of a flexible body, a flat strip of sponge permanently secured to said body along its sides, but disconnected therefrom at its ends, to form a flat, flexible, open-ended tube, substantially as specified.

2. A catanemial bandage composed of a strip of sponge, a flexible body that overlaps the sides of the sponge and projects beyond its ends, and a gathering-string drawn through the exposed ends of the body, the sponge being connected to the body along its sides but disconnected therefrom along its ends, substantially as specified.

696,539. MAGAZINE-PISTOL. THOMAS J. BARNETT, Orange, N. J., assignor to himself, and Henry Berg, Orange Valley, N. J. Filed Dec. 11, 1901. Serial No. 64,699. (No model.)



Claim.—1. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder in said frame, of a hammer hung upon a pivot in said frame, a locking-lever connected with said frame and arranged directly above the said revolving cylinder, and means on said hammer adapted to engage with said locking-lever to hold said

lever in its fixed position during the firing of a cartridge, substantially as and for the purposes set forth.

2. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder in said frame, of a hammer hung upon a pivot in said frame, a locking-lever connected with said frame and arranged directly above the said revolving cylinder, and a forwardly-projecting holding-dog on said hammer adapted to engage with said locking-lever to hold said lever in its fixed position during the firing of a cartridge, substantially as and for the purposes set forth.

3. In a revolver or similar firearm, the combination, with the revolver-frame, and a revolving cylinder in said frame, of a hammer hung on a pivot in said frame, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder, and means on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position during the firing of a cartridge, substantially as and for the purposes set forth.

4. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, of a hammer hung on a pivot in said frame, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder, and a forwardly-projecting holding-dog on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position during the firing of a cartridge, substantially as and for the purposes set forth.

5. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, and lifting protuberances or projections upon the outer cylindrical surface of said cylinder, and a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the said protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, substantially as and for the purposes set forth.

6. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, and lifting protuberances or projections upon the outer cylindrical surface of said cylinder, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the said protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, a hammer hung on a pivot in said frame, and means on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position during the firing of a cartridge, substantially as and for the purposes set forth.

7. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, and lifting protuberances or projections upon the outer cylindrical surface of said cylinder, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the said protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, a hammer hung on a pivot in said frame, and a forwardly-projecting holding-dog on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position during the firing of the cartridge, substantially as and for the purposes set forth.

8. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, the said cylinder being made with a series of cartridge-receiving channels 19 and chambers 21 in alignment with said channels, and a locking-lever arranged directly above the said cylinder, said lever being provided in its under surface with a channel adapted to be fitted directly above the uppermost channel 19 in said cylinder to form a complete chamber, a hammer hung upon a pivot in said frame, and means on said hammer adapted to engage with said locking-lever while firing a cartridge, substantially as and for the purposes set forth.

9. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, the said cylinder being made with a series of cartridge-receiving channels 19 and chambers 21 in alignment with said channels, and a locking-lever arranged directly above the said cylinder, said lever being provided in its under surface with a channel adapted to be fitted directly above the uppermost channel 19 in said cylinder to form a complete chamber, a hammer hung upon a pivot in said frame, and a forwardly-projecting holding-dog on said hammer adapted to engage with said locking-lever while firing a cartridge, substantially as and for the purposes set forth.

10. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, the said cylinder being made with a series of cartridge-receiving channels 19 and intermediate-placed ribs 20, and also with chambers 21 in alignment with said channels 19, lifting protuberances or projections upon said cylinder in alignment with said ribs 20, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, substantially as and for the purposes set forth.

engagement for lifting the said locking-lever, substantially as and for the purposes set forth.

11. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, the said cylinder being provided with a series of cartridge-receiving channels 19 and intermediate-placed ribs 20, and also with chambers 21 in alignment with said channels 19, lifting protuberances or projections upon said cylinder in alignment with said ribs 20, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, a hammer hung on a pivot in said frame, and means on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position while firing a cartridge, substantially as and for the purposes set forth.

12. In a revolver or similar firearm, the combination, with the revolver-frame, of a revolving cylinder in said frame, the said cylinder being provided with a series of cartridge-receiving channels 19 and intermediate-placed ribs 20, and also with chambers 21 in alignment with said channels 19, lifting protuberances or projections upon said cylinder in alignment with said ribs 20, a locking-lever pivotally connected with said frame and arranged directly above the said revolving cylinder with which the protuberances or projections on said cylinder are brought in engagement for lifting the said locking-lever, a hammer hung on a pivot in said frame, and a forwardly-projecting holding-dog on said hammer adapted to engage with the rear end of said pivoted locking-lever to hold said lever in its fixed position while firing a cartridge, substantially as and for the purposes set forth.

13. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, and means connected with said magazine and said frame for pivotally securing the said magazine at the one side of said frame, substantially as and for the purposes set forth.

14. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, means connected with said magazine and said frame for pivotally securing said magazine at the one side of said frame, and a spring secured to said frame having a curved upper end portion with which the lower end portion of said magazine is in sliding and holding engagement, substantially as and for the purposes set forth.

15. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, means connected with said magazine for pivotally arranging said magazine at the side of the revolver-frame, consisting of a shield and a bracket, both provided with pivotal ears with which a portion of said magazine is pivotally connected, substantially as and for the purposes set forth.

16. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, means connected with said magazine for pivotally arranging said magazine at the side of the revolver-frame, consisting of a shield and a bracket, both provided with pivotal ears with which a portion of said magazine is pivotally connected, and a spring secured to said frame having a curved upper end portion with which the lower end portion of said magazine is in sliding and holding engagement, substantially as and for the purposes set forth.

17. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, means connected with said magazine for pivotally arranging said magazine at the side of the revolver-frame, consisting of a shield and a bracket, both provided with pivotal ears, and a pair of links pivotally attached at their lower ends to the ears of said shield and said bracket, and also pivotally attached at their upper ends to the body of said magazine, substantially as and for the purposes set forth.

18. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, having open cartridge-receiving channels and chambers in alignment with said channels, of a cartridge-magazine, means connected with said magazine for pivotally arranging said magazine at the side of the revolver-frame, consisting of a shield and a bracket, both provided with pivotal ears, a pair of links pivotally attached at their lower ends to the ears of said shield and said bracket, and also pivotally attached at their upper ends to the body of said magazine, and a spring secured to said frame having a curved upper end portion with which the lower end portion of said magazine is in sliding and holding engagement, substantially as and for the purposes set forth.

19. In a revolver or similar firearm, the combination, with the re-

volver-frame, and a revolving cylinder, of a locking-lever 25 pivotally connected with the said frame and arranged directly above the said cylinder, and means at the free end of said lever adapted to engage with a portion of the revolver-frame to limit the upward movement of said lever, substantially as and for the purposes set forth.

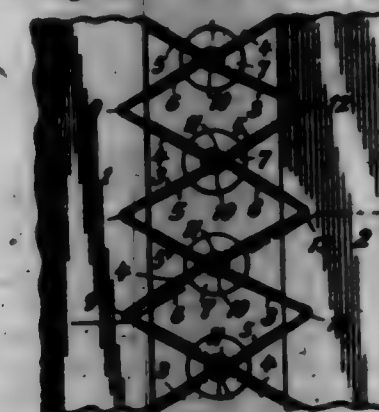
20. In a revolver or similar firearm, the combination, with the revolver-frame, and a revolving cylinder, of a locking-lever 25 pivotally connected with the said frame and arranged directly above the said cylinder, and means at the free end of said lever adapted to engage with a portion of the revolver-frame to limit the upward movement of said lever, consisting, essentially, of a recessed member on said frame, and a projection on the rear end of said lever extending into said recessed member and capable of a limit movement in the recess of said member, substantially as and for the purposes set forth.

21. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, of a fire-shield on one side of said frame arranged to cover a portion of said cylinder, said shield being formed with an opening, and a cartridge-magazine or shell-holder pivotally secured to the said shield and having a portion extending into and through the opening in said shield, substantially as and for the purposes set forth.

22. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, of a fire-shield on one side of said frame arranged to cover a portion of said cylinder, said shield being formed with an opening, a cartridge-magazine or shell-holder pivotally secured to said shield, and having a portion extending into and through said opening in the shield, and a spring secured to the side of the revolver-frame having its upper end normally in holding engagement with a portion of said cartridge-magazine or shell-holder, substantially as and for the purposes set forth.

23. In a revolver or similar firearm, the combination, with the revolver-frame and a revolving cylinder, of a fire-shield on one side of said frame arranged to cover a portion of said cylinder, a cartridge-magazine or shell-holder, a means of pivotal connection on said shield, a means of pivotal connection on the body of said magazine or shell-holder, and a connecting means between said means of pivotal connection on said shield and said means of pivotal connection on said magazine or shell-holder, substantially as and for the purposes set forth.

696,540. EMBROIDERY-SEAM. CHARLES E. BENTLEY, New York. Filed Aug. 7, 1901. Serial No. 71,195. (No model.)



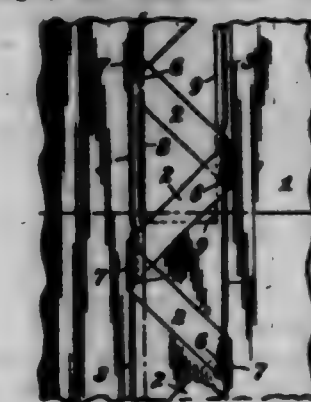
Claim.—1. An embroidery-seam comprising fabric, two crossing upper threads and two aligned crossing under threads fastened to the fabric at opposite edges of the seam, and spangles or analogous ornaments sustained between the upper and under threads and intermediately of the width of the seam, the thread portions lying at one face of each spangle being looped through the openings of the spangles and interlocked therewith by passage through said loops of the other thread portions lying at the opposite face of the spangles or ornaments, substantially as described.

2. An embroidery-seam comprising fabric, two crossing needle-threads and two aligned crossing shuttle-threads ranging in zigzag course along the seam, and spangles or analogous ornaments sustained between the upper and under threads and intermediately of the width of the seam, the thread portions lying at one face of each spangle being looped through the openings of the spangles and interlocked therewith by the shuttle-threads, said needle-threads being then looped through the shuttle-threads, said needle-threads then being looped through the fabric at the other edge of the seam and thence interlocked by the shuttle-threads; said threads thence passing diagonally again to the spangle-openings and interlocking therewith and passing thence to and interlocking at the fabric, and so on along the seam, substantially as described.

3. An ornamental open-work embroidery-seam comprising two opposed and substantially parallel pieces of fabric, two crossing needle-

threads and two aligned crossing shuttle-threads ranging in zigzag course along the seam, and spangles or analogous ornaments sustained between the upper and under threads and intermediately of the width of the seam, and between two crossing portions of needle-threads and two crossing portions of shuttle-threads; the needle-threads being first looped through one piece of fabric near its edge and thence interlocked by the shuttle-threads, said needle-threads being then looped through the spangle-openings and thence interlocked by the shuttle-threads, said needle-threads then being looped through the other piece of fabric near its edge and thence interlocked by the shuttle-threads; said threads thence passing diagonally again to the spangle-openings and interlocking therewith and passing thence to and interlocking at the first piece of fabric, and so on along the seam, substantially as described.

696,541. EMBROIDERY-SEAM. CHARLES E. BENTLEY, New York. Filed Aug. 7, 1901. Serial No. 71,196. (No model.)



Claim.—1. An embroidery-seam comprising fabric, two rows of stitches in the fabric one row at each edge of the seam, and a braid or ribbon folded back and forth diagonally between the edges of the seam and secured to the fabric by the rows of fastening-stitches within the folds of the braid or ribbon, substantially as described.

2. An embroidery-seam comprising fabric, a braid or ribbon ranging in zigzag course along the seam and diagonally folded upon itself at opposite edges of the seam, and two rows of fastening-stitches holding the braid or ribbon to the fabric, the threads of said fastening-stitches passing in a loop around the braid or ribbon under each of its folds and above the fabric and then passing in series of stitches through the braid and fabric and interlocking with the shuttle-threads along opposite edges of the seam, said upper threads being connected at the folds of the braid or ribbon, substantially as described.

3. An embroidery-seam comprising fabric, a braid or ribbon ranging in zigzag course along the seam and diagonally folded upon itself at opposite edges of the seam, and two rows of fastening-stitches holding the braid or ribbon to the fabric, each row of stitches comprising a needle-thread and a shuttle-thread interlocking therewith, said needle-threads passing in loops around the braid or ribbon at its folds and above the fabric and then passing in series of stitches through the braid and fabric and interlocking with the shuttle-threads along opposite edges of the seam, said upper threads being connected at the folds of the braid or ribbon, substantially as described.

696,542. BROOK-BOLDER. RICHARD BLOOM, Oakland, Cal. Filed May 15, 1901. Serial No. 69,349. (No model.)



Claim.—The combination with a base-plate, of a spring-actuated hinge-plate provided with laterally-projecting studs and reversibly-projecting fingers, arms pivoted to the base-plate and provided with distal extensions into which the studs of the hinge-plate project and by means of which when the hinge-plate is depressed said arms will be swung downwardly, substantially as set forth.

696,543. CORN-PLANTER. WILLIAM L. BOWEN, Columbus, Miss. Filed Nov. 7, 1901. Serial No. 51,402. (No model.)



Claim.—1. In a seedling-machine, the combination with a seed-receptacle having an opening in its bottom and a supporting-plate beneath said bottom and having a discharge-hole therein, of an oscillatory seed-plate disposed between the bottom of the receptacle and the supporting-plate and having an opening therein, a spring secured above the seed-plate, a cut-off secured to the free end of said spring and means for oscillating the seed-plate back and forth under said cut-off to control the discharge of seed through the supporting-plate.

2. In a seedling-machine, the combination with a seed-receptacle having an opening in its bottom and a supporting-plate beneath said bottom and having holes therein through which the seed is dropped, of a seed-plate disposed between the supporting-plate and seed-receptacle and having openings therein to receive the seed, a spring, cut-off secured to the ends of said spring and engaging the seed-plate to prevent the escape of any but the contents of the openings in the seed-plate, and means for oscillating the seed-plate back and forth under said cut-off.

3. In a seedling-machine, the combination with a supporting-plate having discharge-dents at respective sides of its center, a receptacle mounted upon said supporting-plate and provided in its bottom with openings at respective sides of its center for the escape of seed, of a seed-plate located between said receptacle and supporting-plate and having holes therein to receive grain from the openings in the bottom of the receptacle, a spring secured between its ends, cut-off secured to the respective ends of said spring and resting upon the seed-plate, and means for oscillating said seed-plate to move the holes therein back and forth under the respective cut-off.

4. In a seedling-machine, the combination with a divided seed-receptacle having openings in its bottom and a supporting-plate to which the receptacle is hinged and made with openings at opposite sides of its center, of a coupling having dents or passages therein communicating with said openings, a discharge hose or spout common to both dents or passages, a seed-plate between the supporting-plate and receptacle and adapted to convey the seed to said dents or passages, means for oscillating said plate and cut-off carried by the receptacle to limit the amount of seed carried by the seed-plate.

5. In a seedling-machine, the combination with a seed-receptacle and a partition therein dividing the receptacle into two compartments, of a seed-plate having a hole under each compartment of the receptacle and adapted to drop the grain from both, spring-pressed cut-off at respective sides of the partition and means for oscillating said seed-plate.

6. In a seedling-machine, the combination with a seed-receptacle having an opening in its bottom and divided by a central partition, of a circular seed-plate mounted to oscillate beneath the opening in the receptacle and adapted to convey the seed beneath the partition where it drops the seed, a spring secured beneath the partition, cut-off carried by the ends of the spring and bearing on the seed-plate, and means for oscillating the seed-plate.

7. In a seedling-machine, the combination with a seed-receptacle, of a seed-plate mounted to oscillate beneath the receptacle and drop the seed, a lever having arms at one end and to fit in grooves or recesses in the seed-plate, legs on the arms to enter openings in the plate, and means for oscillating the plate.

696,544. PACKING. FRANKLIN BROWN, Philadelphia, Pa., assignor to Clement Bantala, Philadelphia, Pa. Filed Sept. 26, 1901. Serial No. 73,254. (No model.)

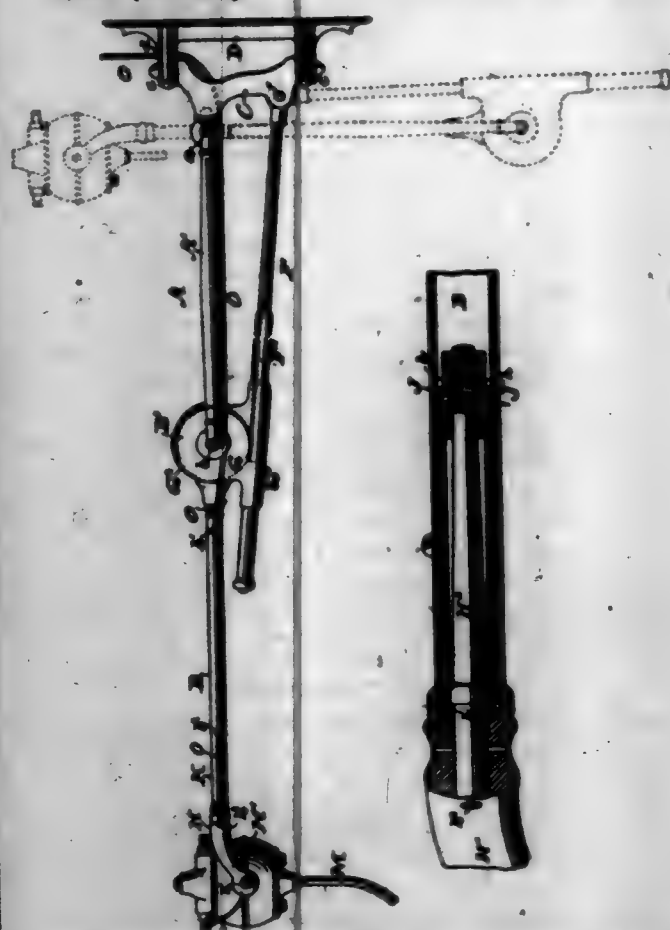


Claim.—1. A packing comprising the packing proper consisting of yielding cushion, a covered absorbent cushion disposed back of one of said sections and having its parts arranged to slide one upon the other,

and a member back of the other section designed to retain the lubricant, the whole inclosed in a textile casing, substantially as described.

2. A packing comprising the packing proper consisting of yielding sections, a covered absorbent cushion disposed back of one of said sections and having its parts arranged to slide one upon the other, a yielding core interposed between the separate parts of said cushion, and an india-rubber cushion disposed back of the other section and acting to retain the lubricant, the whole inclosed in a textile casing, substantially as described.

696,545. DENTAL-ENGINE WALL-BRACKET. ARTHUR W. BROWNE, Princeton, N. Y., assignor to The S. & W. White Dental Manufacturing Company, Philadelphia, Pa. Filed July 1, 1901. Serial No. 64,645. (No model.)



Claim.—1. In a folding dental-engine wall-bracket, the combination of a main arm pivoted to swing vertically, a forearm pivoted to the outer end of said main arm, a gear on the inner end of said forearm and a pivoted rod provided with a rack meshing with the gear of said forearm, substantially as and for the purpose described.

2. In a folding dental-engine wall-bracket, the combination of a main arm pivoted to swing vertically, a forearm pivoted to the outer end of said main arm, and adapted to support a motor at its outer extremity, a gear on the inner end of said forearm concentric with the pivot connecting said arm, and a pivoted rod provided with a rack meshing with the gear of said forearm, substantially as and for the purpose described.

3. In a folding dental-engine wall-bracket, the combination of a stationary wall-plate, a bracket-plate having horizontal turning connection with said wall-plate, a main arm pivoted to said bracket-plate to swing in a vertical plane, a forearm pivoted to the outer end of said main arm and capable of swinging in the same plane with the main arm, a gear on the inner end of said forearm concentric with the pivot connecting said arm, and a rod pivoted to said bracket-plate below the pivotal connection of said main arm with said bracket-plate, said rod having a rack which meshes with said gear, substantially as and for the purpose described.

4. In a folding dental-engine wall-bracket, the combination of a main arm pivoted to swing vertically, a forearm pivoted to the outer end of said main arm, a gear on the inner end of said forearm, a rod pivoted at its inner end and provided with a rack meshing with said gear, and a hanger depending from the pivot connecting the main and fore arm, said hanger having a bearing for maintaining the rack of said rod in engagement with said gear, substantially as and for the purpose described.

5. In a folding dental-engine wall-bracket, the combination of a bracket-arm provided with a tubular or socketed outer extremity, a forked carrier having swiveling connection with said bracket-arm by means of its spindle fitted to turn in the socket of said arm, and a motor suspended between the forks of said carrier by horizontal transverse, substantially as and for the purpose described.

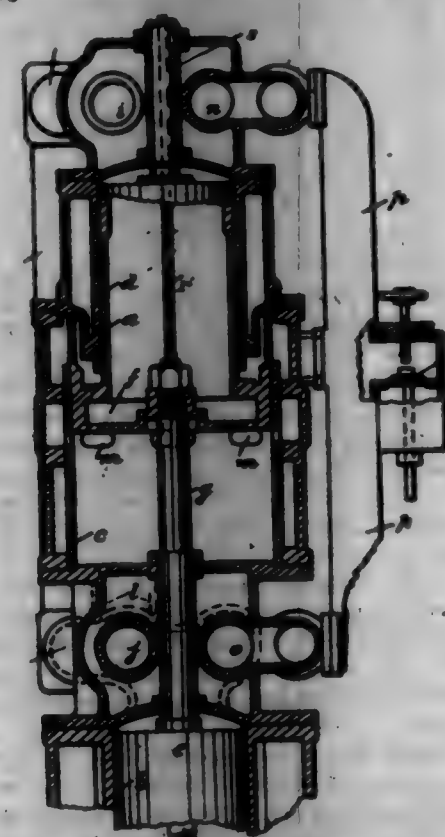
6. In a folding dental-engine wall-bracket, the combination of a bracket-arm, a forked carrier at its outer extremity, a motor suspended between the forks of said carrier, horizontal transverse between said forks and said motor, and coiled springs interposed between said transverse and said motor for the purpose of absorbing the vibration of the motor, substantially as described.

696,546. TELESCOPING WICKET FOR COUNTER GUARD. WALLA RICHARD R. BROWNE, Brooklyn, N. Y. Filed May 8, 1901. Serial No. 60,225. (No model.)



Claim.—In a counter-wicket, the combination of a grated window having a series of tubes and a cross-bar, a sliding wicket comprising a lower cross-bar and a series of rods secured thereto adapted to slide within the window-tubes, a counter, and a bed-rail upon the counter projecting into the window-opening at each side sufficiently to support above the counter the ends of the sliding wicket.

696,547. INTERNAL-COMBUSTION ENGINE. PERCY BURN, Hellybank, Bethwell, Scotland. Filed Aug. 12, 1901. Serial No. 72,525. (No model.)

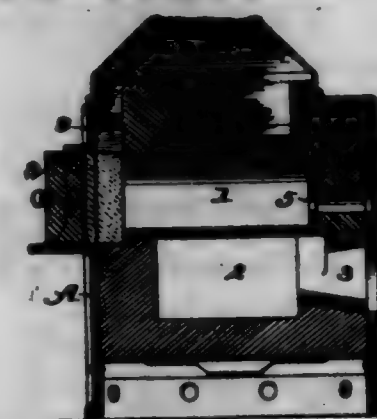


Claim.—1. In an internal-combustion engine, the combination, with a low-pressure cylinder, of two high-pressure cylinders of smaller diameter than the low-pressure cylinder and arranged axially in line with it and at opposite ends thereof, an exhaust-pipe connecting the working ends of the high-pressure cylinders, and a passage connecting the said exhaust-

pipe with the working end of the said low-pressure cylinder, substantially as set forth.

2. In an internal-combustion engine, the combination, with a low-pressure cylinder, of two high-pressure cylinders of smaller diameter than the low-pressure cylinder and arranged axially in line with it and at opposite ends thereof, an exhaust-pipe connecting the working ends of the high-pressure cylinders, a passage connecting the said exhaust-pipe with the working end of the said low-pressure cylinder, an air-pipe connected with the working ends of the said high-pressure cylinders, and a passage connecting the said air-pipe with the opposite end of the said low-pressure cylinder, substantially as set forth.

696,548. ASSAYING-FURNACE. ALBERT C. CALKINS, Los Angeles, Cal., assignor to Frederick W. Brown, Los Angeles, Cal. Filed Feb. 4, 1901. Serial No. 64,940. (No model.)



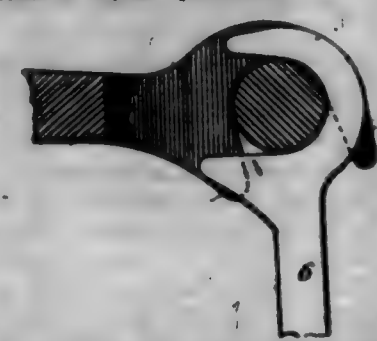
Claim.—1. The improved assaying-furnace comprising a combustion-chamber having a main top flue, a muffle arranged horizontally in said chamber and having its front end open, and its rear end provided with an air-inlet and a device for regulating admission of air thereto, means for temporarily closing the front end of the muffle, and a supplemental flue or passage leading up from each end of the muffle, substantially as shown and described.

2. The improved assaying-furnace comprising a combustion-chamber having a main top flue, a muffle having its front end open, a supplemental flue or passage leading up from each end of the muffle, and a removable plug adapted for closing both the muffle and said passage, substantially as shown and described.

3. The improved assaying-furnace, comprising a combustion-chamber having a main escape-flue and a bonnet therefor, a muffle which traverses the said chamber and is open at each end, passages in the side walls of the furnace which communicate with the muffle, a passage leading upward from one end of the muffle and connecting with the main flue, a plug for closing the passage and the adjacent end of the muffle, and a valve for closing the opposite end of the muffle, substantially as shown and described.

4. The improved assaying-furnace comprising a central combustion-chamber, having a fire-opening, a muffle which traverses the chamber above each opening, double-chambers located on each side of the main chamber, and lateral passages connecting the three chambers, the latter being provided with removable covers, substantially as shown and described.

696,549. CONNECTING DEVICE. JOHN R. CARTER, Augusta, Ky., assignor to Ernst H. Hummel, Cincinnati, Ohio. Filed Aug. 7, 1901. Serial No. 71,907. (No model.)



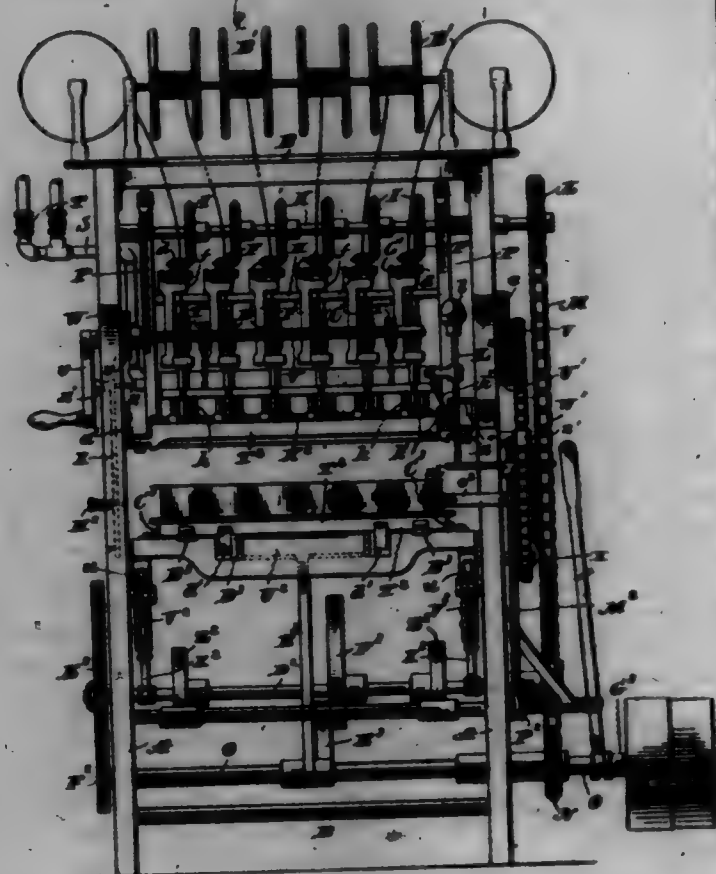
Claim.—1. In a pinion connection, the combination of two pinions and a shaft, double hooks on one pinion spaced apart and adapted to receive the shaft, a single hook on the other pinion adapted to be disposed on the shaft between the double hooks, and a locking-pin on one of the double hooks to engage the single hook and lock all of the hooks on the shaft when either of said hooks is moved out of the position which permits the placing of said hooks on the shaft.

2. In a pitman connection the combination of two pitmen and a shaft, double hooks on one pitman spaced apart and adapted to receive the shaft, a single hook on the other pitman adapted to be disposed on the shaft between the double hooks, a locking-pin at the free end of the double hooks to engage the single hook and lock all of the hooks on the shaft when either of said hooks is moved out of the position which permits the placing of said hooks on the shaft.

3. In a pitman connection, the combination of two pitmen and a shaft, double hooks on one pitman spaced apart and adapted to receive the shaft, a single hook on the other pitman adapted to be disposed on the shaft between the double hooks, and a locking-pin connecting the free ends of the double hooks to extend over the outer face of the single hook and lock all of the hooks on the shaft when either of said hooks is moved out of the position which permits the placing of said hooks on the shaft.

4. In a pitman connection the combination of two pitmen and a shaft, double hooks on one pitman spaced apart and adapted to receive the shaft, a single hook on the other pitman adapted to be disposed on the shaft between the double hooks, and means on one of the double hooks to extend over the outer face of the single hook and lock all of the hooks on the shaft when either of said hooks is moved out of the position which permits the placing of said hooks on the shaft.

696,550. CAR-SOLDERING MACHINE. JAMES D. COX and FRANK A. COX, Bridgeport, N. J.; said Cox assignors to Cox Brothers & Company, Bridgeport, N. J. Filed Jan. 14, 1901. Serial No. 48,794. (No model.)



Claim.—1. In a soldering-machine, the combination of soldering-tool, solder-delivering device, and a shield movable to and from a position between the tools and said device, substantially as and for the purpose described.

2. In a soldering-machine, the combination of soldering-tool, solder-delivering device, a shield and means for moving the latter to and from a position between the tools and said device, substantially as and for the purpose described.

3. In a soldering-machine, the combination of soldering-tool, solder-delivering device, a shield, and automatically-operated means to move the latter to and from position between the tools and said device, substantially as and for the purpose described.

4. In a soldering-machine, the combination of soldering-tool, solder-delivering device, movable to and from the tools, and a rising and falling work-support that operates said device, substantially as and for the purpose described.

5. In a soldering-machine, the combination of soldering-tool, solder-delivering device, and guiding mechanism, means for moving the guiding mechanism to and from the tools, and a rising and falling work-support that operates said means, substantially as and for the purpose described.

6. In a soldering-machine, the combination of solder-delivering mechanism, means for operating the same, comprising a travelling band, a bar, adapted to actuate the band, means for moving the bar into and out of position for actuating the band, and means for moving the bar to cause it to move said band, substantially as and for the purpose described.

7. In a soldering-machine, the combination of solder-delivering mechanism, means for operating the same, comprising a travelling band, a band-gripping device, a bar, means for moving said bar into and out of engagement with said device, and means for moving the bar in a direction to move the band through said gripping device, substantially as and for the purpose described.

8. In a soldering-machine, the combination of solder-delivering mechanism, means for operating the same comprising a chain, a chain-engaging device, a bar, means for moving said bar into and out of engagement with the chain-engaging device, and means for moving said bar whereby it may move the chain, substantially as and for the purpose described.

9. In a soldering-machine, the combination of solder-delivering mechanism, means for operating the same comprising a chain, a chain-engaging device, a bar, means controlled by the presence of the tray for engaging said bar and chain-engaging device, and bar-operating mechanism, substantially as and for the purpose described.

10. In a soldering-machine, the combination of a frame having side pieces, a work-support, soldering-tool, and a frame carrying said tools above the work-support, pivoted between the frame sides on a horizontal axis, substantially as and for the purpose described.

11. In a soldering-machine, the combination of a frame having side pieces, a work-support, soldering-tool, and a frame carrying said tools above the work-support, pivoted between the frame sides on a horizontal axis, a shaft and connection between the same and the tool-carrying frame for swinging said tool-carrying frame, substantially as and for the purpose described.

12. In a soldering-machine, the combination of a holder or receptacle for material to be used for soldering, means for moving the same horizontally, device for delivering said material to the same, actuating means for said device, and an operating device for said actuating means movable into and out of position to engage the same having a part in the horizontal path of the same, for engagement by the same to move said device into position to engage said actuating means, substantially as and for the purpose described.

13. In a soldering-machine, the combination of an acid or flux receptacle, dipper, and means for actuating the latter, controlled by the horizontal travel of the same, substantially as and for the purpose described.

14. In a soldering-machine, the combination of an acid or flux receptacle, dipper, a movable work-support, means independent of the work to operate the dipper, and means actuated by the work to control the latter, substantially as and for the purpose described.

15. In a soldering-machine, the combination of an acid or flux receptacle, dipper, means independent of the work for operating the dipper, and means whereby the horizontal travel of the work controls said dipper-operating means, substantially as and for the purpose described.

16. In a soldering-machine, the combination of a device to be operated, a rotary and longitudinally-movable shaft, an arm carried by the latter adapted to be placed into and out of operative relation to said device, means to move the shaft longitudinally, and work-engaged means for turning it, substantially as and for the purpose described.

17. In a soldering-machine, the combination of an acid or flux receptacle, dipper, a rotary and longitudinally-movable shaft, an arm carried by the latter adapted to be placed into and out of operative relation to the dipper, means to move the shaft longitudinally, and work-engaged means for turning it, substantially as and for the purpose described.

18. In a soldering-machine, the combination of an acid or flux receptacle, dipper, a longitudinally-movable rod connected to the dipper, a rotary and longitudinally-movable shaft, an arm on the latter movable into and out of position in line with said rod, means to move the shaft longitudinally, and an arm by which it may be turned, substantially as and for the purpose described.

19. In a soldering-machine, the combination of an acid or flux receptacle, dipper, a longitudinally-movable rod connected to the dipper, a rotary and longitudinally-movable shaft, an arm on the latter, to operate with said rod, a cam-actuated lever to move said shaft longitudinally, and a cam-actuated means for turning it, substantially as and for the purpose described.

20. In a soldering-machine, the combination of a frame, soldering mechanism, a bed, arms pivoted to the frame and to the bed, and means for raising and lowering the bed, substantially as and for the purpose described.

21. In a soldering-machine, the combination of soldering mechanism, a movable solder-guide, a rising and falling work-support, and a lever connected with the solder-guide and in the path of a part carried by the work-support, substantially as described.

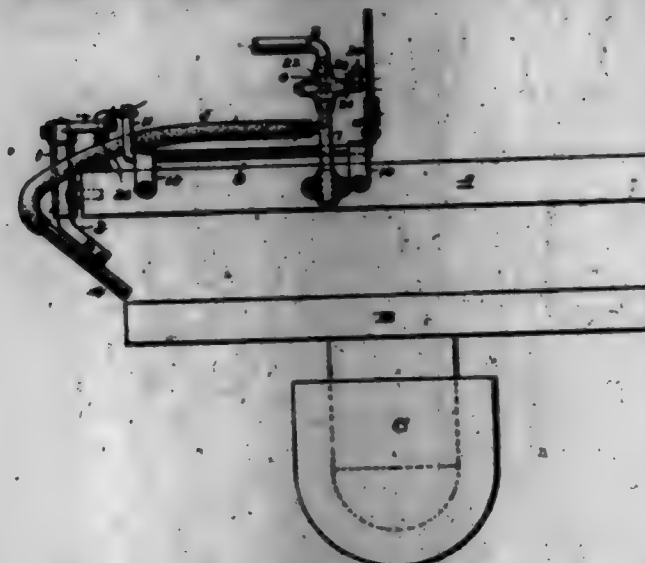
22. In a soldering-machine, the combination of soldering mechanism, a movable solder-guide, a rising and falling work-support, and a lever connected with the solder-guide and in the path of a part carried by the work-support, substantially as described.

23. In a soldering-machine, the combination of soldering mechanism, a movable solder-guide, a rising and falling work-support, and a lever connected with the solder-guide and in the path of a part carried by the work-support, substantially as described.

24. In a soldering-machine, the combination of soldering mechanism, a movable solder-guide, a rising and falling work-support, and a lever connected with the solder-guide and in the path of a part carried by the work-support, substantially as described.

25. In a soldering-machine, the combination of soldering mechanism, a movable solder-guide, a rising and falling work-support, and a lever connected with the solder-guide and in the path of a part carried by the work-support, substantially as described.

696,551. HOLDING APPARATUS. CALVIN E. DAVIS, South Bend, Ind., assignor to South Bend Iron Works, South Bend, Ind. Filed Sept. 24, 1901. Serial No. 76,266. (No model.)



Claim.—1. The combination with a molding apparatus, of a nozzle mounted on the apparatus to oscillate, means for conveying air to said nozzle and means also mounted on the apparatus and connected with said nozzle for imparting an oscillatory motion to the latter.

2. The combination with the top plate of a mold and a pressure-plate, of a nozzle mounted on said top plate and adapted to discharge upon the pressure-plate, a valve for said nozzle, and device mounted on the top plate and connected with said nozzle for oscillating it.

3. The combination in a molding-machine, of a nozzle, means for conveying air to the nozzle, a valve for controlling the supply of air, a lever and device co-operating with said lever to operate the valve and oscillate the nozzle.

4. The combination in a molding apparatus, of an oscillatory nozzle, means for conveying air thereto, a controlling-valve and means for operating said valve and oscillating the nozzle.

5. The combination in a molding apparatus, of an oscillatory nozzle, means for supplying air thereto, a valve, means for opening said valve and oscillating the nozzle and means for returning the nozzle and closing the valve.

6. In a molding apparatus the combination with a nozzle, means for moving it and means for conveying air to it, of a valve for controlling the air-supply, a spring holding the valve normally closed and means for releasing said spring to open the valve when the means for moving the nozzle are operated.

7. In a molding-machine, the combination of a shaft, a diagonal arm on said shaft, a nozzle connected to said arm, means for oscillating said shaft and means for conveying air to said nozzle.

8. In a molding apparatus, the combination with a shaft and a diagonal arm projecting therefrom, of a nozzle secured to said arm, means for conveying air to said nozzle, a rock-shaft connected with the first-mentioned shaft for operating it, and means for operating the rock-shaft.

9. In a molding apparatus, the combination of an upright shaft, a nozzle carried thereby, a crank-arm on said shaft, a rock-shaft, a crank-arm on the rock-shaft, a pitman connecting said crank-arms, and means for operating the rock-shaft.

10. In a molding apparatus, the combination of an oscillatory shaft, a nozzle carried thereby, means for conveying air to the nozzle, an air-controlling valve, a lever, means co-operating with said lever to operate the valve, and device intermediate of the lever and oscillatory shaft for operating the latter.

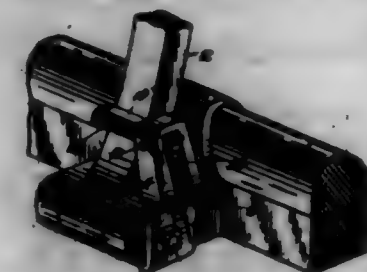
11. In a molding apparatus, the combination with an oscillatory nozzle and means for conveying air thereto, of a valve for controlling the air-supply, a lever, device intermediate of said lever and the nozzle and device intermediate of the lever and valve for opening the latter and shutting the nozzle when the lever is thrown forwardly, and a spring for returning the nozzle and lever and closing the valve.

12. In a molding apparatus, the combination with an oscillatory nozzle, an air-supply pipe and a valve in said pipe, of a bar on the stem of said valve, having an arm at one end, a spring attached to said bar below the axis of the valve, and a lever adapted to engage the arm on the bar and raise the connection of the spring to the latter above the axis of the valve to permit the spring to open the valve.

13. In a molding apparatus, the combination with an oscillatory nozzle, and means for supplying air thereto, of a rock-shaft for oscillating the nozzle, a guide-arm secured to said rock-shaft, a shoulder on said arm and a lever pivoted to said lever below said shoulder.

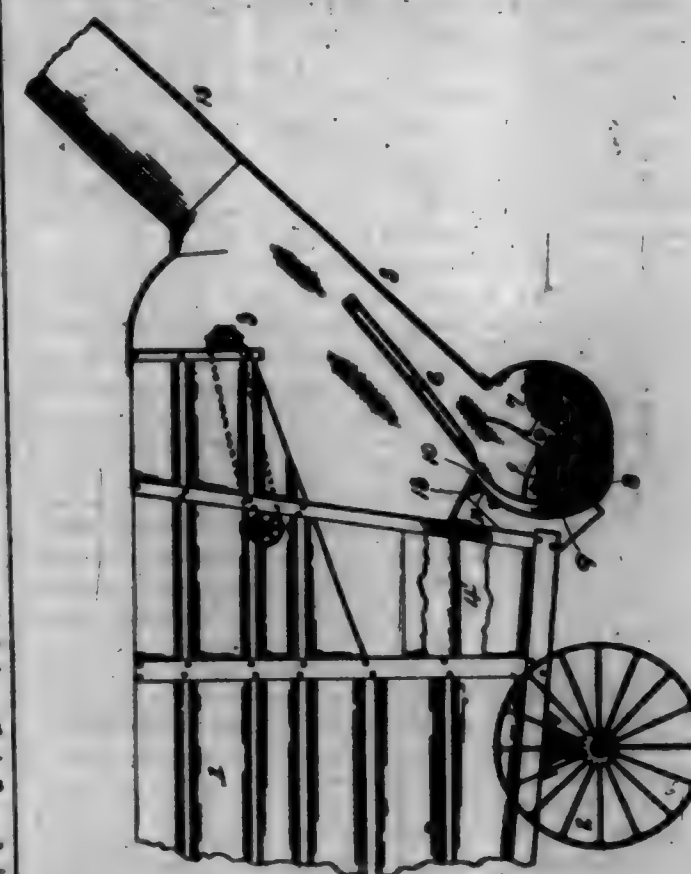
14. In a molding apparatus, the combination of an oscillatory nozzle, a pipe for conveying air thereto, and a valve in said pipe, of a rock-shaft, device intermediate of the rock-shaft and nozzle for operating the latter, an arm secured to the rock-shaft, a shoulder on said arm, a lever pivoted to the arm and adapted to engage the shoulder thereon, a bar on the stem of the valve, and a pin on the lever to engage said bar.

696,552. DRAFT OR FOLD SUPPORT. BENJAMIN S. DRENNAN, Chicago, Ill. Filed Dec. 4, 1901. Serial No. 94,721. (No model.)



Claim.—A draft-support consisting of a vertical plate, the lower end of which is adapted to be secured to the fixed end of the coupling, the upper portion formed with a vertical chamber, and an arm having a longitudinal slot engaging a pivot-pin in said chamber and adapted to rest in said chamber when not in use and a spring secured in said chamber and adapted to hold said arm in its rest or chamber, substantially as set forth.

696,553. PNEUMATIC STACKER. DANIEL DOW, Grand Port, N. D. Filed Oct. 24, 1901. Serial No. 79,941. (No model.)



Claim.—1. In a pneumatic stacker, the combination of a main wind-tube, a fan, a shaft-floor disposed above the fan, a main air-dust, a shaft air-dust having an inlet near the lower part of the fan and a throat located at the bottom of the shaft-floor, substantially as described.

2. In a pneumatic stacker, the combination of a main wind-tube, a fan located at the lower portion thereof, a shaft-floor disposed above the fan, a main air-dust, and a shaft air-dust having an inlet near the lower part of the fan and provided with an adjustable throat.

3. In a pneumatic stacker, the combination of a main wind-tube, a shaft-floor located therein, a fan located at the lower portion thereof, a main air-dust and a shaft air-dust connected with the fan near the lower portion thereof, the throat or outlet of the shaft-dust having one of its walls flexible and provided with means for adjustably setting the same.

4. In a pneumatic stacker, the combination of a main wind-tube, a shaft-floor heated therein, a fan located at the lower portion thereof, a main air-dust on the under side of the shaft-floor, a shaft-dust above the shaft-floor and a shaft-deflector diagonally over the shaft-floor.

5. In a pneumatic stacker, the combination of a main wind-tube, a shaft-floor disposed intermediate thereof, a diagonally-disposed shaft-

deflector disposed upon the chaff-floor and a fan located near the lower end of the chaff-floor and adapted to deliver air to both sides thereof.

6. In a pneumatic stacker, the combination of a main wind-tube, a chaff-floor disposed intermediately thereof, a diagonally-disposed conveyer chaff-deflector upon the chaff-floor and a fan located near the bottom of the chaff-floor.

696,554. SUPPORTING-TOOL. ALPH A T. DUNLEY, Brooklyn, Mass. Filed Jan. 20, 1901. Serial No. 46,315. (No model.)



Claim.—1. The combination in a supporting-tool of jaws for engaging the beam, levers for compressing the jaws, a locking device for holding the jaws in engagement with the beam, a cable or chain extending from arm to arm with a bearing or chair mounted upon the cable and means for adjusting the work substantially as shown and described.

2. The combination in a supporting-tool of jaws and arms operating in transverse planes, a locking-dog, or pawl and ratchet for locking the bits on the beam, a pulley mounted upon one of the arms and an adjustable hook mounted upon the other arm for connecting a cable or chain to the tool substantially as and for the purpose set forth.

3. In a supporting-tool, substantially as shown, a locking dog or pawl pivoted to the arm of the tool, a slotted pivot-bolt rigidly fixed in the seat of pawl and passing through the arm of the tool, a spring inserted in the slot of the bolt and adapted to engage the under part of the arm and to hold the teeth of the pawl in engagement with the ratchet on the jaw of the tool substantially as shown and described.

4. In a supporting-tool as arm substantially as shown, provided with a boss upon the end of the same, a cup-shaped cavity in the upper surface of the boss, a triangular slot in the bottom of the cup, or cavity, a hook, having a threaded staff with threaded nut and hemispherical washer, mounted in said cavity, substantially as and for the purpose described.

5. In a supporting-tool substantially as shown in combination with the arm thereof, having a boss or enlargement at the end of the arm and a vertical slot in the boss or enlargement, a pulley provided with an annular groove adapted to carry a cable or chain, mounted in the slot, substantially as shown and described.

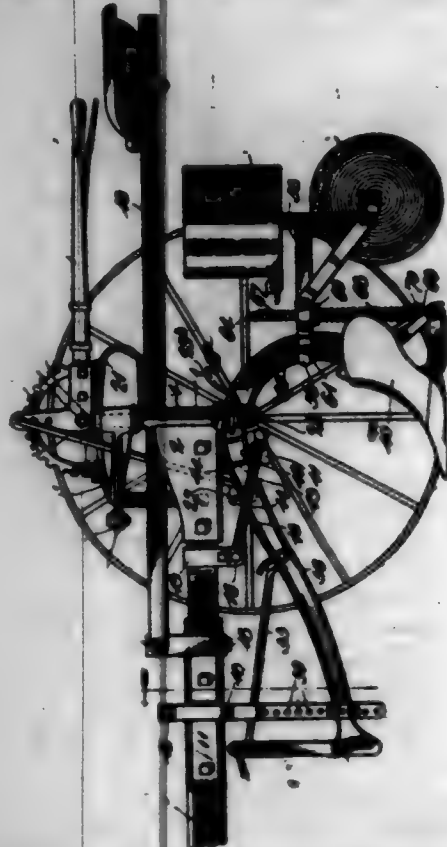
6. A supporting-tool comprising a pair of hooks pivoted together near their angle of curvature with self-adjusting jaws mounted upon the upper part of the hooks, a pawl mounted upon an arm of the tool, a ratchet upon the external face of one of the hooks, a spring mounted in the pivot-bolt of the pawl and adapted to hold the pawl in engagement with the ratchet and lock the jaws of the tool in engagement with the beam, a hook provided with a threaded staff and nut mounted upon one arm, and a pulley mounted upon the other arm of the tool, a cable or chain connecting the hook and pulley together and a chain mounted upon the cable and adapted to support the work substantially as shown and described.

696,555. SULKY-LISTER. GWAY E. HUGHMAN, Dallas, Tex. Filed Oct. 24, 1901. Serial No. 73,444. (No model.)

Claim.—1. The combination of a sulky-frame, a plow connected thereto, to open a furrow, means, carried by said frame, to raise and lower the plow, a seed-dropping mechanism, in rear of the plow, pivotally connected thereto, and having supporting-disk to cover the seeds in the furrow, and a connection including a spring, between the plow and the seed-dropping mechanism, to depress the latter, the said spring also supporting the said seed-dropping mechanism when the latter is raised, substantially as described.

2. In a sulky-lister, the combination with a lister-plow, of a seed-dropping mechanism having supporting revolvable disks, and disposed in rear of the plow, said seed-dropping mechanism having a frame pivot-

ally connected to said lister-plow, and a spring connection between the latter and said frame, to depress said seed-dropping mechanism, for the purpose set forth, substantially as described.

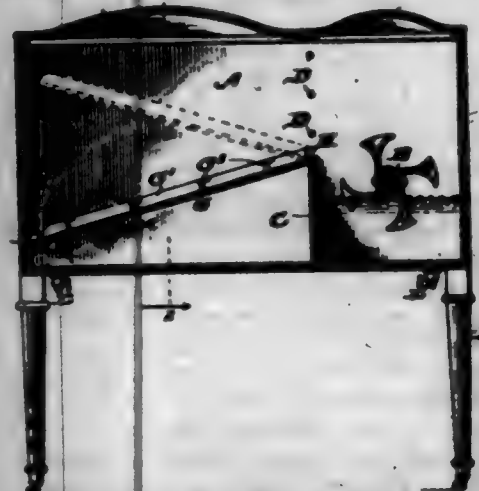


3. The combination with a plow, of a seed-dropping mechanism having supporting revolvable elements and a forwardly-extending frame, the latter being pivotally connected to said plow, and a spring connection between said frame and said plow to depress said seed-dropping mechanism, substantially as described.

4. The combination with a plow, of a seed-dropping mechanism having supporting revolvable elements and a forwardly-extending frame, the latter being pivotally connected to said plow, a pair of overlapping link-bars respectively connected to said frame and to said plow, and a spring connection between the said link-bars, substantially as described.

5. The combination with a plow, of a seed-dropping mechanism having supporting revolvable elements and a forwardly-extending frame, the latter being pivotally connected to said plow, a link-bar connected to the latter, a link-bar adjustably connected to said frame, said link-bars overlapping each other, and a spring connecting said link-bars, the tension of the said spring being varied by adjusting said adjustably-connected link-bar, substantially as described.

696,556. DISE-WASHER. IDA REYER, Bismarck, Tex. Filed July 20, 1901. Serial No. 68,125. (No model.)

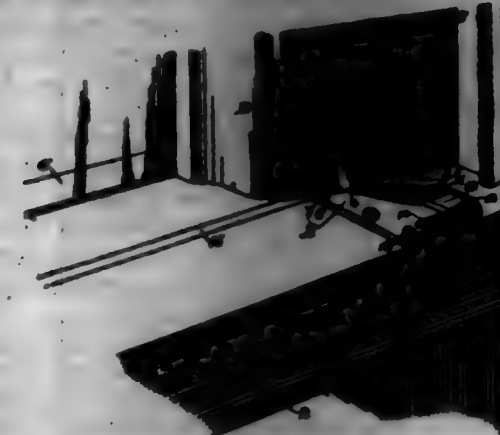


Claim.—1. A device of the kind described comprising a tank divided into two compartments, one of said compartments being adapted to receive water and having a rotary beater or agitator journaled therein, the other compartment having an adjustable drain or rest upon which the dishes are placed, substantially as shown and described.

2. A device of the kind described consisting of a tank divided transversely into two compartments, one of the compartments being intended to receive water and having a rotary beater or agitator journaled therein.

and a rest or drain arranged in the other compartment, said rest or drain being hinged at one end and provided with flaps at the opposite end to engage beads arranged at the end of the tank, substantially as shown and described.

696,557. AUTOMATIC SHUT-LOCK. FRANK CHASE, Valparaiso, Cal. Filed Sept. 20, 1901. Serial No. 73,175. (No model.)



Claim.—1. In a shut-locking device, the combination of a plate adapted to be secured to the lower end of a window, of a bell-crank lever fulcrumed on said plate, a fulcrum-pin integral with said lever, a groove on said plate in which said pin rests and in which it is maintained, caps for said fulcrum-pin, notches in said caps and bosses on the plate fitting said notches whereby the caps are held in place, one arm of said lever weighted and adapted to have a tilting movement, and a stop upon the upper end of the window with which said weighted arm engages when the window is closed.

2. In a shut-locking device, the combination with the upper and lower sashes of a window, of a plate secured on the top of the lower sash, and adapted to extend beyond the outer edge of said sash, said plate having a transverse groove in its upper surface, and having a projection or wedge on the under side of said extension, a bell-crank lever fulcrumed on said plate and having a weighted tilting arm, said lever having on its under side a transversely-extending projection to fit the groove of the plate and form a pivotal connection therewith, and a slotted angle-plate upon the upper sash, secured in relation to said first-named plate and lever, with which the said weighted arm and wedge are adapted to engage when the window is closed to respectively lock and to draw the sashes together.

696,558. LIFTING-JACK. LAMON E. GOSWORTHY, Arlington, N. J., assignor of one-half to Joseph B. Ray, Newark, N. J. Filed June 3, 1901. Serial No. 68,792. (No model.)



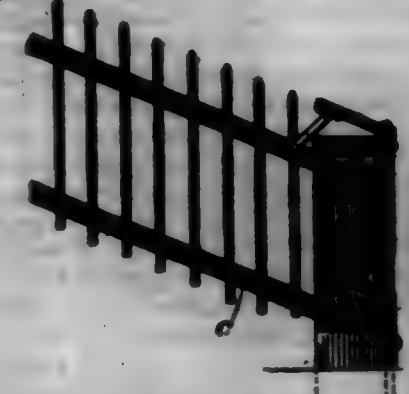
Claim.—1. In a lifting-jack, the combination with the hollow base provided with a retaining-part, of a vertical bar adapted to slide vertically in said base and provided with teeth to engage said part, a verti-

cally-sliding head mounted on said bar, and provided with laterally-projecting friction-rolls, and a lever pivoted to said bar, and adapted to hang normally below its point of pivoting, said lever being provided with bifurcated cam portions for engaging said friction-rolls, substantially as described.

2. In a lifting-jack, the combination with the vertical bar, of a sliding head engaging the upper part of the same, a lever provided with curved or cam bifurcated arms pivoted at their extremities to said bar, whereby said lever normally hangs below its point of pivoting and friction-rolls projecting laterally from said head and engaging said curved or cam arms, whereby the upward movement of said lever will raise said head, substantially as described.

3. In a lifting-jack, the combination with the vertical bar, of a sliding head mounted on the upper end of said bar, said head being provided at its upper end with laterally-extending centering-arms, provided on their upper faces with grooves or depressions, said head being provided at its lower end with laterally-extending friction-rollers, a lever provided with bifurcated curved or cam portions, pivoted at their extremities to said vertical bar, and engaging said friction-rollers, said lever normally hanging downward from its pivotal connection with said bar, whereby the upward movement of said lever will raise said head, substantially as described.

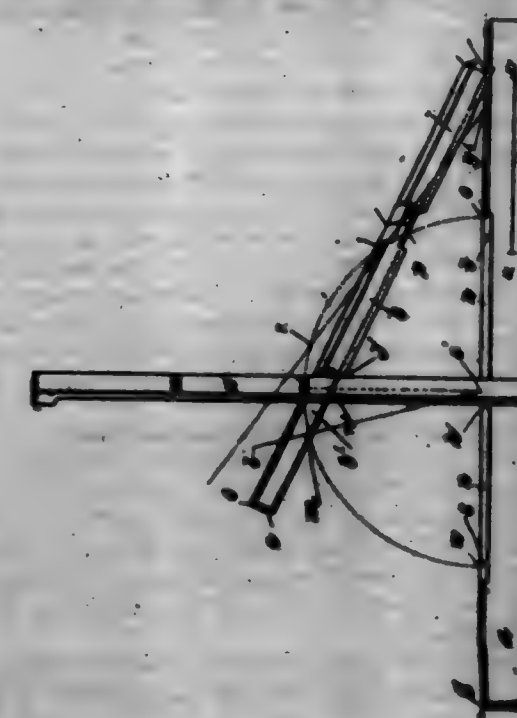
696,559. GATE. BRAD CHAMBERLAIN, Quincy, Ill., assignor of one-half to C. C. Payne, Quincy, Ill. Filed Dec. 2, 1901. Serial No. 68,907. (No model.)



Claim.—1. A tilting and folding gate, comprising a hollow housing open on one side, pivotal pins mounted in the opposite faces of said housing, strips mounted on said pins, a curved segment secured to one of said strips, a spring fulcrumed at its lower end, to the lower one of said strips, a strap fastened to the upper end of said segment and having connection with the upper end of the spring, and means connected to the gate, for automatically opening and closing the top of said housing, as set forth.

2. A tilting gate, comprising a housing open on one side, strips pivotally mounted within said housing, spring connections between the pivotal ends of said strips, a hinged top to said housing, and pivotal link connection between said top and one of said strips, as set forth.

696,560. DIVING APPARATUS. JAMES GULMARTIN, Boston, Mass. Filed June 2, 1902. Serial No. 719,392. (No model.)



Claim.—1. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of three parts two of the parts being so joined that their inner edges are perpendicular to each other and being so attached to a plane surface of the third part that the vertex of a right angle formed by the junction of the said two parts is vertically over the center of a circular arc upon the said surface, the second of which members, being not attached to the first member, has two end edges adapted to engage and slide upon the perpendicular edges of the said second two parts of the first member and is of a length between the said end edges not greater than the distance between the outer ends of the said second two parts, all substantially as described.

2. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts joined together in such manner that their inner edges are perpendicular to each other, the lower surface of one of the parts being in a different plane from the lower surface of the other part whereby when one part is placed in contact with a plane surface there is a free space under the other part sufficient for the necessary movements of the second member, the second member of which has two end edges adapted to engage and slide upon the perpendicular edges of the first member, a projection beyond one of these edges adapted to operate in said free space, an indicating-mark midway of the end edge and in a plane passing through the same, and is beveled at and for a short distance on either side of the indicating-mark.

3. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts rigidly fastened together in such manner that their inner edges are perpendicular to each other, the second of which consists of a member having two end edges adapted to engage and slide upon the perpendicular edges of the first member and having an indicating-mark midway of the end edge and in a plane passing through the same and being beveled at and for a short distance on either side of the indicating-mark.

4. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of three parts two of the parts being so joined that their inner edges are perpendicular to each other and being so attached to a plane surface of the third part that the vertex of a right angle formed by the junction of the said two parts is vertically over the center of a circular arc upon the said surface, the second of which members, being not attached to the first member, has two end edges adapted to engage and slide upon the perpendicular edges of the said second two parts of the first member and has an indicating-mark midway between the said end edges and in the same plane therewith and is of such a length between these edges that it may be kept in contact with both of the said second two parts at these edges while it is retained upon the said plane surface.

5. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts joined together in such manner that their inner edges are perpendicular to each other, the lower surface of one of the parts being in a different plane from the lower surface of the other part whereby when one part is placed in contact with a plane surface there is a free space under the other part sufficient for the necessary movements of the second member, the second of which members has two end edges adapted to engage and slide upon the perpendicular edges of the first member and has a projection beyond one of these edges adapted to operate in said free space and said second member is beveled for a short distance midway between said end edges.

6. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts joined together in such manner that their inner edges are perpendicular to each other, the second of which consists of a member having two end edges adapted to engage and slide upon the perpendicular edges of the first member and being beveled for a short distance midway between said end edges.

7. In an instrument for the purpose specified, a combination of two cooperating members, the first of which is a square so constructed that it may be properly positioned in relation to a circular arc upon a plane surface, the second of which is a rule having two end edges outside of the plane of its end face perpendicular to and in the same plane with a longitudinal edge of this face, and being beveled from the said longitudinal edge for a short distance midway between the said end edges at an angle to the under face less than the angle of the last-mentioned plane thereto, all substantially as described.

8. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts rigidly fastened to a plane surface of a third part the said two parts being so placed that their inner edges are perpendicular to each other, the second of which consists of a member having two end edges adapted to engage and slide upon the perpendicular edges of the said second two parts of the first member and having an indicating-mark midway of the end edge and in a plane passing through the same.

9. The combination of a square and a member having a plane surface provided with a circular arc, the said square being attached to the

said plane surface so that the vertex of an inner right angle formed by the junction of the square's arms is directly over the center of the said arc, with a detached rule adapted for its combined use with the square and of a length between two end edges thereof equal to twice the radius of the arc, all substantially as described.

10. A rule, having two end edges outside of the plane of its under face perpendicular to and in the same plane with a longitudinal edge of this face, and having a midway mark between the said end edges upon the said longitudinal edge, and having a projection beyond one of the said end edges continuing the line of the said longitudinal edge its uppermost face being lower than the top of the said end edge, all substantially as described and for the purpose specified.

11. A detached rule having the form of two rectangular parallelepipeds of different lengths united laterally at longitudinal faces of the same width so that an end face of one is level with and in the same plane with an end face of the other, and having an indicating-mark on a longitudinal edge of the longer parallelepiped at a distance from the said end face equal to half the length of the shorter parallelepiped, all substantially as described and for the purpose specified.

12. In an instrument for the purpose specified, a combination of two cooperating members, the first of which consists of two parts immovably attached to a plane surface and so placed that their inner edges are perpendicular to each other, the second of which consists of a member having two end edges adapted to engage and slide upon the perpendicular edges of the first member and having an indicating-mark midway of the end edge and in a plane passing through the same and being beveled at and for a short distance on either side of the indicating-mark.

13. The combination, with a rule suitably constructed, of a square and another suitable object, the two being immovably attached at a plane surface of the latter so that the vertex of an inner right angle formed by the junction of the square's arms is directly over the center of a circular arc upon the said surface, and the square being so constructed that there is a free space under one of its arms, all substantially as described.

14. A square attached to a plane surface of another suitable object in such manner that the vertex of a right angle formed by the junction of its arms is directly over the center of a circular arc upon said surface, and so constructed that there is a free space between the under surface of one of its arms and the said plane surface, all substantially as described and for the purpose specified.

15. In an instrument for the purpose specified, a portion thereof consisting of three parts, two of these parts being joined together so that their inner edges are perpendicular to each other, and the said two parts being attached to a plane surface of the third part so that the vertex of an inner right angle formed by their junction is directly over the center of a circular arc upon the said surface and so that a point in the same line with one of the said inner edges and in an edge of one of the said second two parts beyond the said vertex is directly over the center of another circular arc upon the said surface, all substantially as described.

16. A rule, having two end edges outside of the plane of its under face perpendicular to and in the same plane with a longitudinal edge of this face, and being beveled from the said longitudinal edge for a short distance midway between the said end edges at an angle to the under face less than the angle of the last-mentioned plane thereto, and having a mark on the said longitudinal edge indicating the middle-distance point between these end edges, all substantially as described and for the purpose specified.

17. A detached rule having two end edges perpendicular to and in the same plane with a longitudinal edge thereof, and having an indicating-mark midway between the said end edges and in the same plane therewith, and being beveled from the said longitudinal edge for a short distance midway between the said end edges at an acute angle to the rule's face in the said plane, and having a projection beyond one of the said end edges less in thickness than the rule, all substantially as described and for the purpose specified.

18. A rule, having two end edges outside of the plane of its under face perpendicular to and in the same plane with a longitudinal edge of this face, and being beveled from the said longitudinal edge for a short distance midway between the said end edges at an angle to the under face less than the angle of the last-mentioned plane thereto, all substantially as described and for the purpose specified.

19. A detached rule having two end edges perpendicular to and in the same plane with a longitudinal edge thereof, and being beveled from the said longitudinal edge for a short distance midway between said end edges, and having a projection beyond one of these edges less in thickness than the rule, all substantially as described and for the purpose specified.

20. For the purpose specified, a detached rule having a shoulder between its ends, the said shoulder and one of the ends being each provided with an edge perpendicular to and in the same plane with a longitudinal edge of the rule, and the said rule being beveled from the said longitudinal edge for a short distance midway between the line of the said shoulder edge and the said end edge, all substantially as described.

21. For the purpose specified, a detached rule having a shoulder at a distance from one end of the rule not less than one-third of the rule's length, the said shoulder and one end of the rule being each provided with an edge perpendicular to and in the same plane with a longitudinal edge of the rule, and the said rule having an indicating-mark midway between the line of said shoulder edge and the said end edge and in the same plane therewith and being beveled at an acute angle to the rule's face in the said plane for a short distance midway between the line of the said shoulder edge and the said end edge.

22. In an instrument for the purpose specified, a portion thereof consisting of three parts, two of the parts being so joined together that their inner edges are perpendicular to each other, and the said two parts being so attached to a plane surface of the third part that the vertex of an inner right angle formed by their junction is directly over the center of a circular arc upon the said surface and that there is a free space under one of the said two parts, all substantially as described.

23. In an instrument for the purpose specified, a portion thereof consisting of three parts, two of the parts being so joined together that their inner edges are perpendicular to each other, and being so attached to a plane surface of the third part that the vertex of an inner right angle formed by their junction is directly over the center of a circular arc upon the said surface, all substantially as described.

24. The combination of a suitable rule with a cooperating member, this member consisting of two parts joined together in such manner that their inner edges are perpendicular to each other, and one of these parts being so graduated as to indicate at its point of contact with the rule three times the angle of the rule's inclination to the other part when the rule is placed obliquely between the said parts so as to be in contact with both, all substantially as described.

25. A rule, having two end edges perpendicular to its under face and in the same plane with a longitudinal edge of this face, and being beveled from the said longitudinal edge for a short distance midway between the said end edges, all substantially as described and for the purpose specified.

696,561. DRESS-SKIRT LIFTER. JOHN HANSEN and KATHERINE M. HANSEN, Tacoma, Wash. Filed Dec. 12, 1901. Serial No. 95,547. (No model.)



Claim.—A skirt-lifter of the character described, comprising a series of tapes united at their upper ends and spread apart at their lower ends and adapted to be attached to the skirt at their lower ends and at their upper ends, and a buckle consisting of two disks arranged above the cords, one of which is adapted to be supported by the belt or waistband of the skirt and is provided with a loop, and the other of which is adapted to be secured to the skirt below the other part and provided with a hook to engage the loop, substantially as set forth.

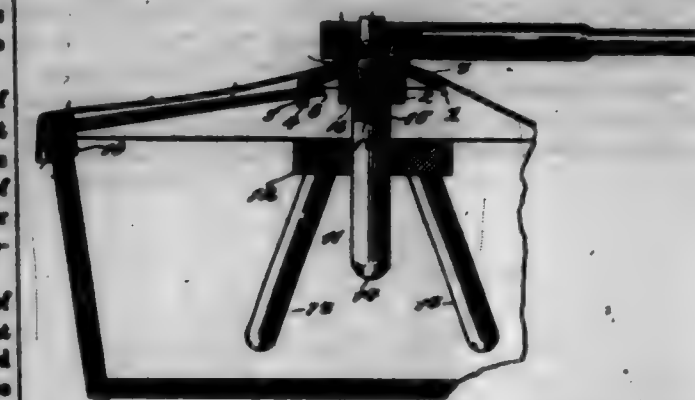
696,562. WARNING-MACHINE. JOHN R. HARTMAN, Danversport, Iowa. Filed Apr. 17, 1901. Serial No. 95,551. (No model.)

Claim.—1. A device of the class described comprising a central bearing, warning mechanism mounted thereon, and the rods extending radially therefrom and adjustably connected with the central bearing and provided at their outer ends with right clamps arranged to engage the upper edges of a washbasin, substantially as described.

2. A device of the class described comprising a central bearing having threaded apertures, warning mechanism mounted on the central bearing, and the rods provided at their outer ends with clamps having fixed inner and outer jaws, said rods being threaded at their inner ends to engage the apertures of the central bearing, substantially as described.

3. A device of the class described comprising a tub, a central bearing, rods connected with the central bearing and with the tub, an ap-

per having a stem extending through the bearing, a handle arranged at the upper end of the stem and located above the central bearing, and a flexible cover having a central opening to receive the stem, said cover being supported by the rods and being located between the same and the handle, substantially as described.



4. A device of the class described comprising a central bearing, rods extending from the central bearing and provided with means for engaging the upper edges of a washbasin, a sleeve arranged within the bearing and supported by the same and provided at its top with a recess or seat, an agitator having a stem secured to the sleeve and extending upward therefrom, and a handle detachably fitted on the stem and arranged in the seat of the sleeve, substantially as described.

5. A device of the class described comprising a central bearing, means for supporting the same, a sleeve arranged in the bearing and provided with a head resting on the bearing and having upwardly-extending flanges to form a seat, said sleeve being also provided with inwardly-extending legs, an agitator having a stem secured to the sleeve and provided with recesses to receive the legs thereof and extending upward from the top of the sleeve, and a handle arranged between the flanges of the sleeve and having an opening to receive the extension of the stem, substantially as described.

696,563. CALF-WEANER. JOHN J. HENRI, Waco, Tex. Filed Dec. 11, 1901. Serial No. 95,511. (No model.)



Claim.—1. A device of the character specified, comprising attaching means, fixed side prickers, and hinged front prickers.

2. A device of the character specified, comprising attaching means, side and center pricks, fixed prickers disposed adjacent to the side pricks, and hinged prickers arranged on each side of the center pricks.

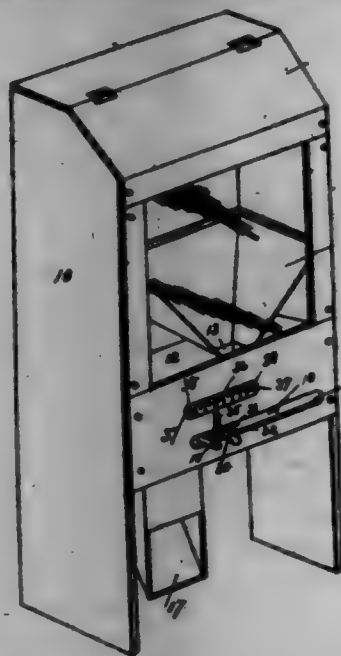
3. A device of the character specified, comprising a nose-strap, side and center pricks secured thereto, rods secured to the said pricks, fixed prickers secured to the rods adjacent to the side pricks, and hinged prickers mounted on the rods on each side of the center pricks.

4. A device of the character specified, comprising a nose-strap, side and center pricks secured thereto, curved rods associated with the pricks, fixed prickers arranged adjacent to the side pricks, and having one terminal end and their intermediate portions secured to the rods, and movable prickers disposed on each side of the center pricks, and having their intermediate portions secured about one of the rods and their terminals diverged and overlapping the other rod.

696,564. COMPUTING MEASURING-CARKET. EDWIN HERRMANN, OMAHA, IOWA, assignor of two-fifths to George W. Herrmann, Omaha, Iowa. Filed Apr. 26, 1901. Serial No. 97,000. (No model.)

Claim.—1. An improved measuring-carket, comprising a hopper having an opening in its bottom, a horizontal partition some distance beneath the hopper and having an opening cut of vertical alignment with the opening in the hopper, a measuring-chamber open at its top and bottom and slidingly mounted between the hopper and partition, a sliding vertical partition in the measuring-chamber, means for adjustably securing said sliding partition in position relative to the measuring-chamber, an indicating-finger fixed to the adjustable partition, and a scale-plate fixed to the machine-frame adjacent to the said finger for the purpose stated.

2. An improved measuring-cabinet, comprising a hopper having an opening in its bottom, a horizontal partition some distance beneath the hopper and having an opening out of vertical alignment with the opening in the hopper, a measuring-chamber open at its top and bottom and slidingly mounted between the hopper and partition and having a longitudinal slot in one side a sliding vertical partition in the measuring-chamber having an end, top, and side piece, said side piece being designed to cover the slot in the measuring-chamber, an indicating-finger fixed to the sliding partition and projecting through said slot in the measuring-chamber, means for adjusting the vertical partition relative to the measuring-chamber, and a scale-plate fixed to the machine-frame to assume a position adjacent to the indicating-finger for the purpose stated.



3. An improved measuring-cabinet, comprising a hopper having an opening in its bottom, a horizontal partition some distance beneath the hopper and having an opening out of vertical alignment with the opening in the hopper, a measuring-chamber open at its top and bottom and slidingly mounted between the hopper and partition and having a longitudinal slot in one side, a handle fixed to the same side, a strip 21 in the measuring-chamber, an adjustable partition in the measuring-chamber comprising a top, end, and side, said top being designed to pass under the strip 21, an indicating-finger fixed to the side of the adjustable partition and passed through the slot in the measuring-chamber, a clamping device connected with the vertical partition and passed through the slot in the measuring-chamber and capable of providing a handle by which the vertical partition may be moved and also providing means for clamping the vertical partition to the measuring-chamber, and a scale-plate having slots in its ends and screws passed through said slots into the body of the cabinet whereby the scale-plate may be detachably and adjustably connected with the said body portion, substantially as and for the purpose stated.

4. An improved measuring-cabinet, comprising a hopper, a horizontal partition beneath the hopper, having an opening therein communicating with the hopper, a second horizontal partition some distance beneath the first, and having an opening out of alignment with the opening in the first partition, a measuring-chamber open at its top and bottom and slidingly mounted between said partitions, said measuring-chamber having a horizontal slot in one side, a strip 21 mounted between the sides of the measuring-chamber near its outer end, a handle 19 secured to the measuring-chamber, a partition comprising the sides 22, top 24, and end 25, said end having a flexible strip, 26 thereon, an indicator fixed to the sliding partition and passed through the slot in the measuring-chamber, means for securely clamping the partition to the measuring-chamber, and a detachable scale-plate on the machine-frame adjacent to the said indicator, arranged and combined substantially in the manner set forth and for the purpose stated.

696,565. TYPE-WRITER CABINET. WILLIAM HERRMANN, Hartman, N. Y., assignor to Herrmann Desk Company, Hartman, N. Y. Filed May 2, 1901. Serial No. 58,694. (No model.)

Claim.—1. The combination of a desk, horizontal guides arranged therein in a backward and forward direction, a base-plate which is slidable in said guides in and out of the desk, rock-arms which are pivoted at their lower ends to said slidable base-plate to swing forward and backward and which take part in the sliding movement of said base-plate, a type-writer platform which is pivotally attached to the upper ends of said

rock-arms and is supported by the latter, a stop on each slidable base-plate which arrests the forward movement of the rock-arms when the latter have passed the desk-center and which holds the rock-arms in their forward position, and means for holding the base-plate from backward movement while the arms are being swung backward, substantially as set forth.



2. The combination of a desk, horizontal guides arranged therein in a backward and forward direction, a base-plate which is slidable in said guides in and out of the desk, rock-arms which are pivoted at their lower ends to the upper face or surface of said slidable base-plate to swing forward and backward and which take part in the sliding movement of said base-plate, and a type-writer platform provided with rearward extensions between which the upper ends of said rock-arms are arranged and to which the rock-arms are pivoted, substantially as set forth.

3. The combination of a desk, horizontal guides arranged therein in a backward and forward direction, a base-plate which is slidable in said guides in and out of the desk, rock-arms which are pivoted at their lower ends to said slidable base-plate to swing forward and backward and which take part in the sliding movement of said base-plate, said rock-arms being arranged one behind the other and consisting each of side bars and connecting transverse braces, and a type-writer platform pivoted to the upper end of the side bars of said rock-arms, said arms occupying a position above the base-plate when the platform is in its retracted position, substantially as set forth.

4. The combination of a desk, a base-plate guided therein and slidable in and out of the desk, a slidable type-writer platform, and means for moving and supporting the same arranged wholly above the top face of said base-plate and supported thereon, said means including front and rear pivoted supporting-arms, substantially as set forth.

5. The combination of a base-plate, a support on which said plate can be moved forward or backward, a type-writer platform arranged above said plate, rock-arms connecting the latter with said platform, a catch by which said base-plate is held in its forward position against backward movement, and a releasing device which is attached to said platform and adapted to release said catch upon lowering the platform, substantially as set forth.

6. The combination of a base-plate, a support on which said plate can be moved forward or backward, a type-writer platform arranged above said plate, rock-arms connecting the latter with said platform, a spring-catch attached to said plate and adapted to hold the latter in its forward position against backward movement, and a releasing-finger which projects downwardly from the platform and releases the catch upon lowering the platform, substantially as set forth.

7. The combination of a base-plate, a support on which said plate can be moved forward or backward, a type-writer platform arranged above said plate, rock-arms connecting the latter with said platform, a holding-down ledge arranged on said platform, and a stop under which said ledge engages when the platform is in its lowered and backward position, substantially as set forth.

696,566. ROTARY WATER-TUBE. ARTHUR S. ENGIN, Kansas City, Mo. Filed May 11, 1901. Serial No. 59,748. (No model.)

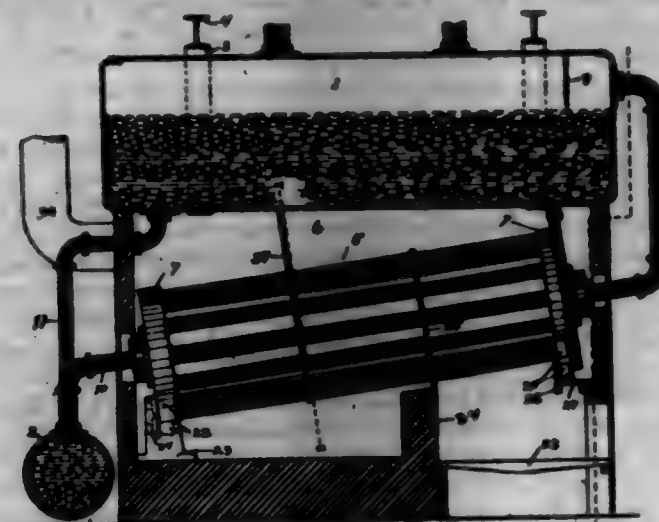
Claim.—1. In a water-tube boiler, the combination of a cluster of water-tubes and manifolds to which the same are connected, supports on which the manifolds are rotatably mounted, and means for rotating the same.

2. In a water-tube boiler, the combination with a stationary steam and water drum and a stationary mud-drum, of a cluster of water-tubes and manifolds to which the same are connected, supports on which the same are rotatably mounted, means for rotating the same, and connection between the manifolds and steam and water drum and mud-drum respectively.

3. In a water-tube boiler, the combination of a cluster of water-tubes and manifolds to which the same are connected, of supports for the manifolds, rollers on said supports on which the manifolds rest, and means for rotating the manifolds and water-tubes.

4. In a water-tube boiler, the combination of a cluster of inclined water-tubes and manifolds to which the same are connected, of supports

for the manifolds, rollers on said supports on which the manifolds rest, the rollers on the lower support being provided with flanges for engaging the ends of the manifolds, and means for rotating the manifolds and water-tubes.

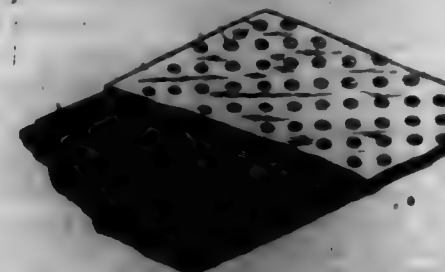


5. In a water-tube boiler, the combination of a cluster of water-tubes and manifolds to which the same are connected, supports on which manifolds are rotatably mounted, a gear connected to one of the manifolds, and a worm engaging said gear for rotating the same.

6. In a water-tube boiler, the combination with a furnace, of a cluster of water-tubes and manifolds to which the same are connected, supports on which the same are rotatably mounted, means for rotating the same, a baffle-wall projecting into the furnace-chamber and a division-plate in line with the baffle-wall and through which the tubes pass.

7. In a water-tube boiler, the combination of a cluster of water-tubes and manifolds to which the same are connected, supports on which the same are rotatably mounted, means for rotating the same, and steam and water connections to said manifolds the same comprising a pipe having annular grooves, and a device having annular projections fitting into said grooves.

696,567. CORRUGATED OR LAMINATED MATERIAL. JAMES T. JOHNSON, Knoxville, Tenn. Filed Oct. 20, 1899. Serial No. 735,507. (No specimen.)



Claim.—1. An improved article of manufacture, a laminated body consisting of two or more layers of woven fabric permanently secured together, the warp-threads or lines of strain of each layer being disposed at an angle to the warp-threads or lines of strain of each adjacent layer, whereby each layer is made to check the elasticity of the other, and a top finish or layer of yielding material of a character different from that of the body, substantially as and for the purpose specified.

2. As an improved article of manufacture a combination material in flexible sheet form and consisting of a laminated body composed exclusively of two or more layers of textile fabric of a continuous or subcontinuous weave and similar in dimension, the said layers having both the warp and weft threads constantly remaining in close-woven arrangement and the warp-threads of each layer at an angle to those of the adjacent layer or layers, whereby each layer checks the elasticity of each adjacent layer and the entire laminated structure prevented from drawing in any direction, and a thin layer of yielding material secured to one side only of the body, the entire combination material being apertured at regular intervals.

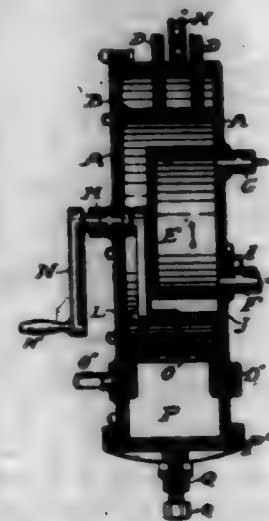
696,568. SHADE-ROLLER MACHINERY. BENJ. F. KAMM, France. Filed Apr. 12, 1901. Serial No. 58,694. (No model.)



Claim.—In a shade-roller bracket, the combination with the supporting-plate having an offset end and formed with a longitudinal slot

and with a vertical slot or opening at the outer end of the longitudinal slot and at the junction of the offset end, one wall of said slot being provided with a row of rack-teeth, of an angular bracket, the apex of which is formed with notches and one arm of which is provided with a rack and with a T-shaped head, said rack being of less width than the width of the longitudinal slot whereby the bracket-arm is permitted to tilt axially and engage the rack-teeth aforesaid to lock the bracket-arm in longitudinal adjustment, substantially as set forth.

696,569. DEVICE FOR GENERATING GAS FOR USE IN EX-PLORATION-ENGINE. JONAS S. KILLIAN, Klamath, Cal. Filed Nov. 28, 1900. Serial No. 24,006. (No model.)



Claim.—1. In a vaporizer for use in explosion-engines, the combination of the drum A forming the casing and gas-generating chamber; the shield B above the generating-chamber and between the same and the casing A; the exhaust-chamber E in the generating-chamber; ports F to admit the products of explosion into said chamber; port G to discharge said products from said chamber to the open air; a scraper J, adapted to scrape the exterior of the exhaust-chamber, and having means for its rotation, as shown; oil-supply pipe leading into the generating-chamber; and gas-supply pipe leading to the explosion-chamber of the engine; the reflux-chamber F, below the generating-chamber, having removable bottom, as shown; drip-pipe H leading from the reflux-chamber; and the swinging valve stopper U, mounted intermediate the generating and the reflux chambers.

2. In a hydrocarbon-vaporizer for explosion-engines, a gas-generating chamber having connection with a hydrocarbon-supply and also with the explosion-chamber of the engine; an exhaust-chamber in the gas-generating chamber, connected with the discharge-port of the engine, and having a port leading therefrom to the outer air; the casing of said chamber being cylindrical on its exterior; oil-supply pipes arranged to discharge the oil into the generating-chamber and onto the top of the exhaust-chamber; a swinging scraper, with a crank affixed thereto to operate the same; the said scraper arranged to scrape the exterior of the exhaust-chamber as the crank is rotated.

3. A cylindrical casing A, forming a gas-generating chamber; a cylindrical casing in said chamber, forming an exhaust-chamber E arranged concentrically therein; oil-supply pipes leading into the gas-generating chamber and located to discharge the oil above and onto the casing of the exhaust-chamber and a gas-pipe H leading from the generating-chamber to the cylinder of engine; and means to scrape said casing, as shown.

4. In a carburetor provided with a gas-generating chamber, and an exhaust-chamber; the generating-chamber; a reflux-chamber below the generating-chamber, and having valvular connection therewith; a valve-stopper U, adapted to open and close the connection between the chambers; and means to operate said stopper, substantially as shown.

696,570. PIN. HARRMAN A. KIRKALL, New York, N. Y. Filed June 26, 1901. Serial No. 58,129. (No model.)



Claim.—The herein-described pin having a hardened or tempered head and point, and a relatively soft and pliable body or shank portion between the head and point.

696,571. STOPPER FOR BOTTLES. GEORGE KORN, New York, N. Y., assignor to Harry G. Korn, New York, N. Y. Filed July 9, 1900. Serial No. 608,618. (No model.)

Claim.—1. The bottle or receptacle having the thickened section C of unyielding material surrounding its throat-passage and being exterior to said passage so as to leave the latter substantially unobstructed, said section having the vertically-disposed annular groove opening upwardly in its upper edge and disposed outwardly beyond the side walls of said throat-passage, combined with the stopper or cap initially having the two-part annular depending flange adapted to enter and firmly bind against the walls of said groove, the initial diameter of said flange being greater than the diameter of said groove, whereby said flange upon being driven into said groove and between the unyielding walls thereof becomes contracted and conformed to said walls and enters into sealing contact therewith; substantially as set forth.

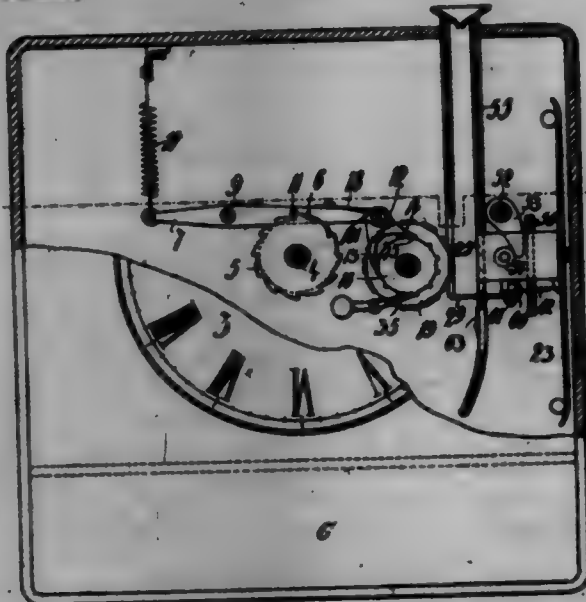


2. In combination with the receptacle having the annular vertical upwardly-opened groove enclosing its mouth, the stopper or cap having the annular depending flange to enter and tightly fit said groove and also having the depending plug portion to enter and tightly fit the walls of said groove; substantially as set forth.

3. In combination with the receptacle having the annular vertical upwardly-opened groove enclosing its mouth, the stopper or cap having the annular depending flange to enter and tightly fit said groove and also having the depending plug portion whose lower end is dished and capable of being flattened, to enter and tightly fit said mouth, said stopper or cap being of ductile material; substantially as set forth.

4. The bottle or receptacle having the thickened section D of unyielding material surrounding its throat-passage and being exterior to said passage so as to leave the latter substantially unobstructed, said section having the vertically-disposed annular groove opening upwardly in its upper edge and disposed outwardly beyond the side walls of said throat-passage, combined with the stopper or cap initially having the upwardly-opened trough-like two-part annular depending flange adapted to enter and firmly bind against the walls of said groove, the initial diameter of said flange being greater than the diameter of said groove, whereby said flange upon being driven into said groove and between the unyielding walls thereof becomes contracted and conformed to said walls and enters into sealing contact therewith; substantially as set forth.

696,572. TIME-RECORDER. CAROL J. C. KROHN and CHRISTIAN A. KROHN, Christiansburg, Norway. Filed Aug. 26, 1900. Serial No. 38,851. (No model.)



Claim.—1. The combination with a chute for the reception of a record-clip and means automatically positioning type adjacent to an opening in said chute; of a platen, hand-actuated appliance moving said platen from a normal position to the type across the chute, means automatically moving said platen back to normal position, a gate normally closing the delivery end of the chute and adapted to hold a record-clip in the path of the platen, a locking device for said gate, means on the platen acting on the locking device to release the gate and thereby open the chute, when a record-clip is being printed on, and means, operated by the platen when moving back to normal position, and operating to move the gate and lock it into its normal position, substantially as and for the purpose set forth.

2. The combination with a chute for the reception of a record-clip, and means automatically positioning type adjacent to an opening in said chute; of a platen, hand-actuated appliance moving said platen from a normal position to the type, means automatically moving the platen back to normal position, a gate normally closing the delivery end of the chute and adapted to hold a record-clip in the path of the platen, a resilient support for said gate, means on the platen moving said support out of engagement with the platen when a record-clip is being printed on and thereby opening the delivery end of the chute, and means, operated by said platen when moving back to normal position, to move the gate back into engagement with its support and thereby again close the delivery end of the chute, substantially as and for the purpose set forth.

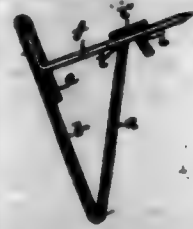
3. The combination with a chute for the reception of a record-clip, and means automatically positioning type adjacent to an opening in said chute; of a platen, hand-actuated appliance moving said platen from a normal position to the type, means automatically moving the platen back to normal position, a gravity-gate normally closing the delivery end of the chute and adapted to hold a record-clip in the path of the platen, a locking device for said gate, means on the platen acting on the locking device to release the gate and thereby cause it to swing out of the chute, when a record-clip is being printed on, and a spring connection between the gate and platen operating to move said gate back into the chute and into engagement with the locking device when said platen is moving back to normal position, substantially as and for the purpose set forth.

4. The combination with a chute for the reception of a record-clip and means automatically positioning type adjacent to an opening in said chute; of a polygonal or block-like platen slidable in ways, hand-actuated appliance moving said platen from a normal position to the type, means automatically moving the platen back to normal position, a gravity-gate normally closing the delivery end of the chute and adapted to hold a record-clip in the path of the platen, a locking device for said gate, means on the platen acting on the locking device to release the gate and thereby cause it to swing out of the chute, when a record-clip is being printed on, and a spring connection between the gate and platen operating to move said gate back into the chute and into engagement with the locking device when said platen is moving back to normal position, substantially as and for the purpose set forth.

5. The combination with the type-wheels 19 and 20, the toothed wheels 16 and 17 respectively secured to wheels 19 and 20, the toothed wheels 5 and 6 and the spring-controlled levers 7 and 8, each carrying a spring-actuated pawl 12 engaging wheels 16 and 17 respectively; of an open-ended chute into a slot of which the above-described type-wheel project, a platen having motion to and from said type-wheel across the chute, and a gate for the latter under the control of the platen and operating to close and open the passage through the chute below the type-wheel, for the purpose set forth.

6. The combination with the type-wheels 19 and 20, the chute 55 into an aperture of which said wheels project, said chute having its opposite apartured wall extended below said type-wheels and the spring 63 having offset 64 and lateral projection 65 secured to said extended wall and projecting into the aperture thereof, the platen 23 having block 66 on its under side provided with lateral projections x, y, and means for moving said platen to and from the type-wheels; of the swinging gate 29 connected by spring with the rear end of the platen and having on its hub a radial arm 67 provided with a lateral projection 68, said parts constructed and operating substantially as and for the purpose set forth.

696,578. PIN-TICKET. JOHN P. KROHN, Dayton, Ohio, assignor to the National Tag Co., Dayton, Ohio, a Corporation of Ohio. Filed Oct. 19, 1901. Serial No. 78,228. (No model.)



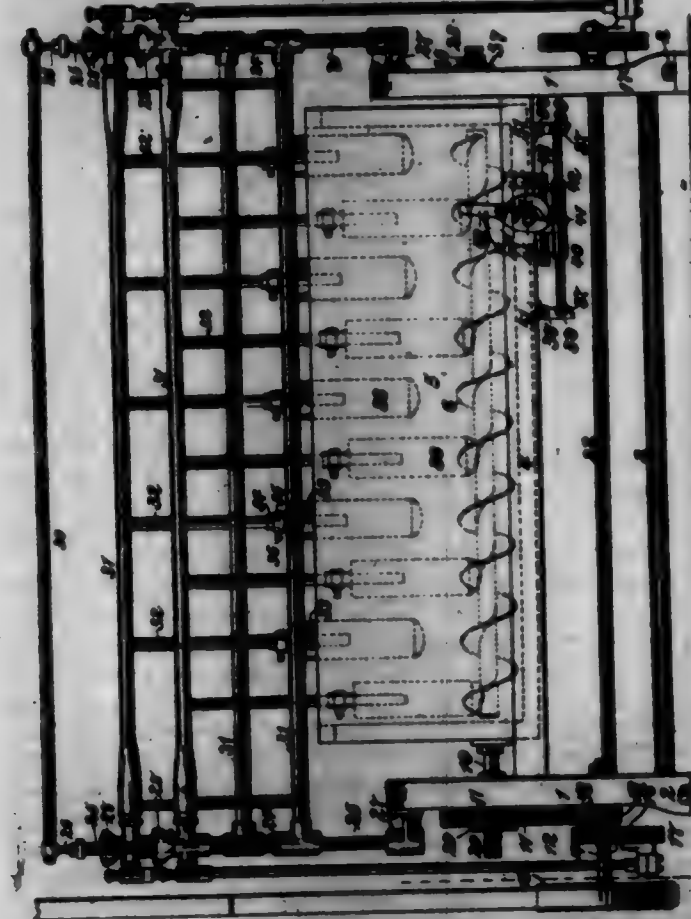
Claim.—The herein-described pin-ticket, comprising a blank having two folds, one of which provides two leaves, and the other of which provides an including leaf for the head of the pin, a pin united to said ticket by means of said including leaf, and the opposite end of said ticket having two circular slots which provide openings for the penetration of the pin in making the leaves of the ticket, the said circular slots being concentrically disposed and the adjacent ends thereof terminating a suitable distance from each other to provide an intervening portion between the ends of said slots and through which portion the ticket is bent to increase the openings therein provided by said slots, substantially as and for the purpose specified.

696,574. STORM-APRON FASTENER. CHARLES C. LARSEN, Grinnell, Iowa. Filed July 29, 1901. Serial No. 66,908. (No model.)



Claim.—In a fastener of the character described, a U-shaped member, a loop-shaped member having eyes intermediate the ends of its side bars, a cross-bar loosely supported in the said eyes so as not to interfere with the lateral movement of the side bars, and cooperating eyes and journals at the extremities of the side bars of the said members for positively pivotaly connecting them, the said side bars being laterally movable to admit of the coupling and the uncoupling of the aforesaid members, substantially as specified.

696,575. MACHINE FOR MIXING AND KNEADING DOUGH OR ANALOGOUS MATERIALS. JAMES LEE, Boston, Mass., assignor, by mesne assignments, to National Bread Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 4, 1901. Serial No. 74,827. (No model.)



Claim.—1. A mixing and kneading machine provided with one or more sets of reciprocating pistons operatively connected with a driving-shaft; in combination with two spiral conveyors operatively connected with the same shaft; together with means for changing the direction of rotation of one of the conveyors.

2. A mixing and kneading machine provided with one or more sets of reciprocating pistons operatively connected with a driving-shaft; in combination with two spiral conveyors operatively connected with the same shaft; together with means for changing the direction of rotation of one of the conveyors, and a door located at one end of the machine, whereby the conveyors are adapted to act in the first instance as mixing devices and in the second instance as means for conveying the completed product away from the machine.

3. A mixing and kneading machine provided with one or more sets of reciprocating pistons; together with a pair of rotary mixing devices or conveyors and interconnecting mechanism for both, operatively connected with a source of power; in combination with disconnecting mechanism for the reciprocating pistons and change-gear mechanism for one of the rotary mixing devices or conveyors, the arrangement being such that the pistons may be disconnected from the source of power and the direction of rotation of one of the mixing devices be reversed so as to cause the material to be moved toward one end of the machine.

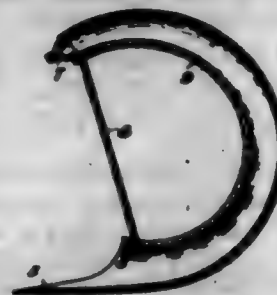
4. A mixing and kneading machine provided with a removable door located in the bottom of the mixing and kneading trough; together with operating means so arranged that the door may be first lowered and then moved laterally beneath the bottom of the mixing and kneading trough.

5. A mixing and kneading machine provided with a removable door located in the bottom of the mixing and kneading trough and having mechanism for locking it in its upper or closed position; together with means for first lowering it and then moving it laterally to its complete open position.

6. A mixing and kneading machine consisting of a series of reciprocating pistons, a pair of rotary mixing devices or conveyors all operatively connected to a source of power and located within a mixing and kneading trough; together with a removable door located in the bottom of the trough and provided with means for first lowering it and then moving it laterally to its complete open position.

7. A mixing and kneading machine consisting of a series of reciprocating pistons and a pair of rotary spiral mixing devices or conveyors, all operatively connected to a source of power, and provided with means for disconnecting the reciprocating pistons from the source of power; and additional means for reversing the direction of movement of one of the conveyors; together with a removable door located beneath the bottom and at one end of the mixing and kneading trough and between the conveyors, said door being provided with means for lowering it and then moving it laterally to its complete open position, all of said parts acting substantially as and for the purpose described.

696,576. GOLD-DREDGE. THOMAS E. LEE, Farmington, N. Mex. Filed Aug. 19, 1901. Serial No. 73,509. (No model.)



Claim.—1. A dredge consisting of a tapering tubular body part-circular in length and provided with an air-hole in one end and with a bit or blade at its opposite end; in combination with cables to move it forwardly, rearwardly and vertically to rotate it on its axis, substantially in the manner specified.

2. A dredge, consisting of a tapering tubular body, part-circular in length and provided with an air-hole in one end, and with a bit or blade at its opposite end, substantially as set forth.

696,577. GRAIN-SCOURER. WHEATLEY LEE, Washell, N. H. Filed Sept. 11, 1901. Serial No. 75,020. (No model.)

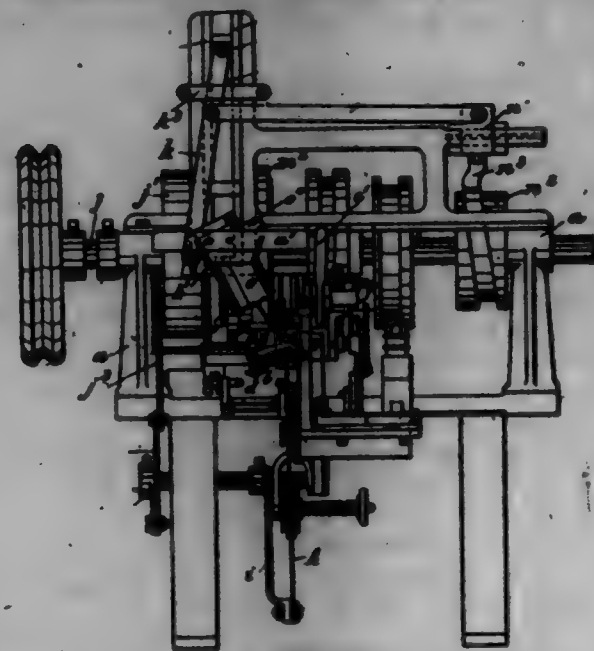


Claim.—1. The combination of a horizontal scouring-case, a stationary partition arranged therein and having a concave face and a central discharge-opening, and a rotary scouring and propelling device which projects into the concave face of the partition and which is composed of an annular series of radial, inclined wings which face with their rear edges the concave face of the partition and which are separated by deep passages extending between the wings from the front edges to the rear edges thereof, substantially as set forth.

2. The combination of a scouring-case, of a stationary partition arranged therein and having a central discharge-opening and a concave face, a rotary scouring and propelling device projecting into the concave face of said partition and provided with an annular series of radial inclined wings having the edges facing the partition of substantially the same curvature as the concave face of the case, substantially as set forth.

3. The combination with a scouring-case, of successive pairs of stationary partitions and rotating rotary scouring and propelling devices, said stationary partitions having concave faces and central discharge-openings, and said rotary scouring and propelling devices having inclined wings, and a propeller arranged between each partition and the next-following rotary scouring and propelling device, substantially as described.

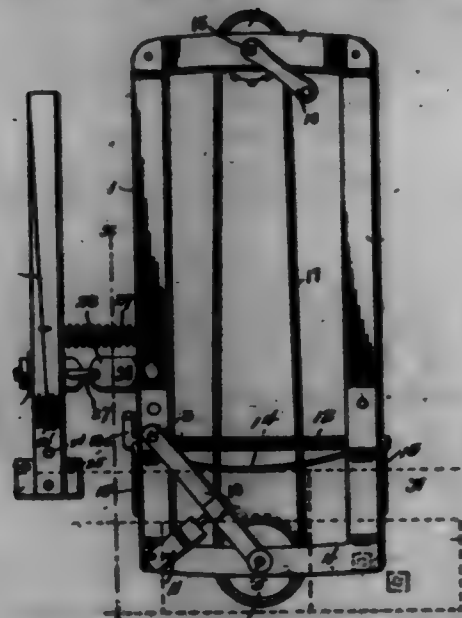
696,578. LOCK-STITCH SEWING-MACHINE. MICHAEL MARK, New York, N. Y., and ARTHUR GUERRA, Philadelphia, Pa. Filed Oct. 15, 1901. Serial No. 73,794. (No model.)



Claim.—1. In an outside lock-stitch machine, the combination of a speed-holder with a hooked needle, a thread-thrower, a thread-carrier, a take-up lever, and with a pair of slides, to both of which the thread-carrier is connected, substantially as specified.

2. In an outside lock-stitch machine, the combination of a speed-holder with a wax-pot, means for conducting the speed-thread from the speed-holder first into and then out of the wax-pot, means for looping a needle-thread, and means for passing the looped needle-thread around the speed-holder and wax-pot, substantially as specified.

696,579. TRACK-WRENCH. JOHN W. HOSKINS, Salt Lake City, Utah. Filed Apr. 17, 1901. Serial No. 64,314. (No model.)



Claim.—1. In a track-wrench, a frame, a yieldable socket carried by the frame, means for clamping the frame to the rail, sprocket-gearing for operating the socket, and a cushioning-spring to permit the vertical adjustment of the wrench toward and from the track-rail, substantially as described.

2. In a track-wrench, a frame, a yieldable, rotatable socket carried by said frame, a rock-shaft provided with clamping-arms mounted in the frame, a cushioning-spring adapted to engage the top of the rail, and provided with a slot, a driving-sprocket connected with the driven sprocket on the socket-shaft, combined with means for moving the machine longitudinally upon the rail.

3. In a track-wrench, a frame, a yielding socket-shaft journaled in the frame, an arm rigidly connected to the frame, a spring on the arm, a lever fulcrumed on the frame, one end of said lever engaging the spring on the right arm and the other end adjustably secured to the socket-shaft whereby the said socket-shaft is held in constant engagement with the nut to be turned.

4. In a track-wrench, a frame, a rotatable socket yieldably mounted

upon the frame, a spring-pressed lever pivoted to the frame and connected with the socket to hold the same in constant engagement with the nut to be turned, means for clamping the frame to the rail combined with means independent of the clamping means for moving the frame along the rail.

5. In a track-wrench, the combination with a frame, of gripping-jaws secured thereto by a link connection and adapted to be swung lengthwise of the rail, plates on the jaws to engage the sides of the rail, rods connecting the plates and extending across the rails to limit the downward throw of the jaws, means to normally hold the gripping-jaws expanded and a spring to maintain the jaws in a vertical position.

6. In a device of the class described, a frame adapted to rest upon the rail, a yieldable socket carried by said frame, a cushioning-spring secured to the frame and provided with a longitudinal slot, clamping-arms adapted to engage the sides of the rail, sprocket-gearing for operating the socket, combined with means for moving the machine along the rail, said means consisting of gripping-jaws having the plates to engage the sides of the rail, said jaws adapted to be attached to the frame by a universal joint, and a spring to maintain the jaws in a vertical position, substantially as described.

7. In a track-wrench, the combination with the frame of a cushioning device to permit the vertical adjustment of the wrench toward and from the track-rail.

696,580. SAND-DRIVER. JAMES A. HOSKINS, Salt Lake City, Utah. Filed Apr. 18, 1901. Serial No. 64,128. (No model.)



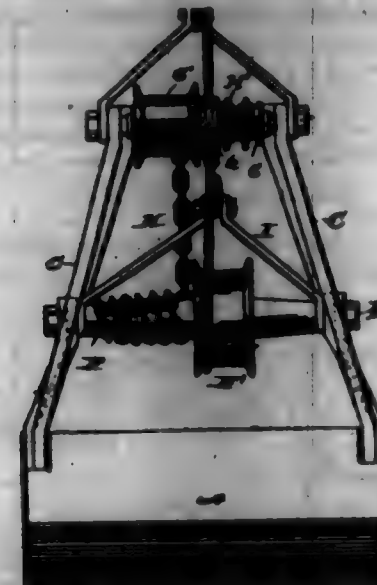
Claim.—1. A sand-driver embodying the following construction, to wit, a vertical stack, a furnace located near the base of the stack and having a fine leading into the stack near the upper end, a discharge-flue leading from the stack near the bottom, whereby the products of combustion pass to the top of the stack and thence down through the stack to the exit-opening, a shoveling mechanism for feeding sand into the stack above the furnace-flue, and baffle-plates located above the discharge-flue and a sufficient distance below the furnace-flue opening to permit the sand to travel in the direction of said with the downwardly-moving gases before striking the baffle-plates, whereby the sand is dried sufficiently to prevent stoppage of the spaces between the plates, substantially as described.

2. A sand-driver embodying the following characteristics, to wit, a mechanism for shoveling sand, a vertical stack having a straight passage down through which said sand is shovelled in a free state, a furnace opening into the upper part of said passage, an exit-opening from the lower part of the stack whereby the heated products are caused to travel in the same direction and with the sand while descending freely in the stack and baffle-plates for arresting the direct fall of the sand; substantially as described.

696,581. SELF-LOADING BUCKET FOR DREDGING. JAMES A. HOSKINS, Salt Lake City, Utah. Filed Aug. 27, 1901. Serial No. 78,408. (No model.)

Claim.—1. In an apparatus such as described, the combination with the bucket-sections pivotally connected together at proximate sides and links pivotally connected together and to the outer sides of the sections, of a winch journaled in proximity to the pivot of the bucket-sections, a second winch journaled in proximity to the link-pivot, each of said winches having a drum of large and a drum of small diameter, a flexible connection winding from the smaller drum of the lower winch to the larger drum of the upper winch, a flexible connection extending from the smaller drum of the upper winch to the proximate side of the

bucket-section, and an operating flexible connection extending from the large drum of the lower winch; substantially as described.

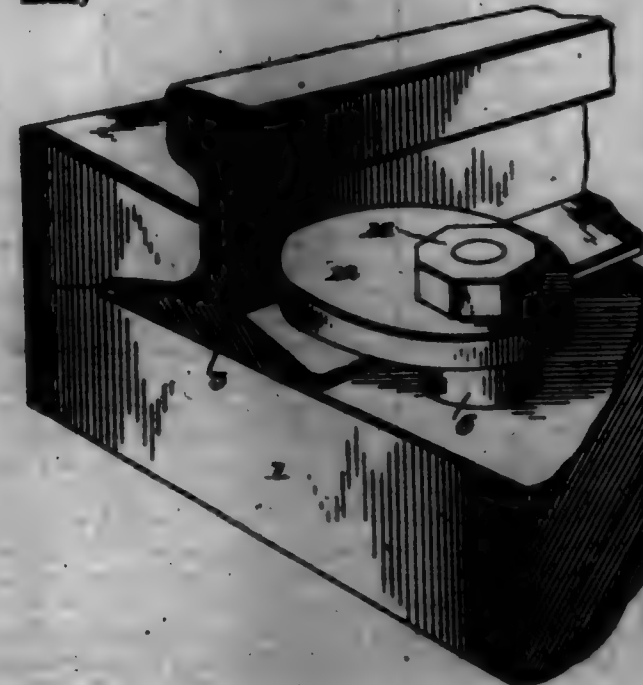


2. In a self-loading bucket, the combination with the bucket-sections pivotally connected together, and the links pivoted to the outer sides of the sections and pivotally connected together, of means for drawing the pivot between the sections and the pivot between the links toward each other to close the sections, embodying two winches one moving with each pivot and each having a large and small drum, an operating connection with the larger drum of one winch for rotating it, a connection between the smaller drum of that winch and the larger drum of the other winch and a flexible connection winding on the smaller drum of the latter winch for drawing said pivotal points toward each other; substantially as described.

3. The combination with a clam-shell bucket, of means for closing the sections of the bucket embodying two winches each having drums of relatively large and small diameter, a flexible connection with the smaller drum of one winch for closing said sections, a flexible connection between the larger drum of that winch and the smaller drum of the other winch and a flexible operating connection with the larger drum of the latter winch; substantially as described.

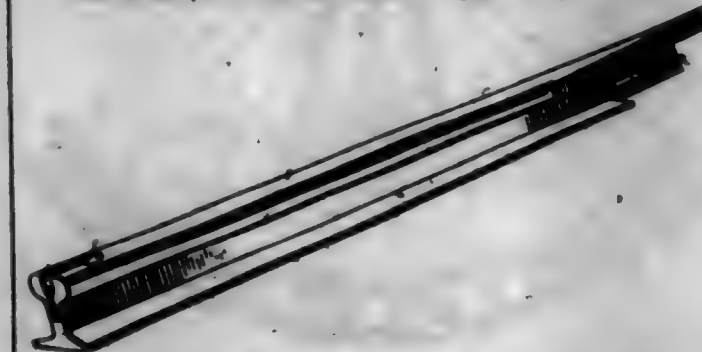
4. The combination with the bucket-sections pivotally connected together, links pivotally connected together and to the respective bucket-sections, and a suspension-cable connected with said links, of winches journaled on the pivot-pins of the bucket-sections and pivot-pins connecting the links respectively, each of said winches having drums of relatively large and small diameter, a flexible connection extending from the smaller drum of the upper winch to the pivot-pin of the bucket-sections, a flexible connection extending from the larger drum of said winch to the smaller drum of the lower winch, a flexible operating connection connected with the larger drum of the latter winch and a guide-pulley for said flexible connection; substantially as described.

696,582. METALLIC TIN AND RAIL-FASTENER. EMMA E. MYERS, Pittsburgh, Pa. Filed Nov. 30, 1901. Serial No. 64,161. (No model.)



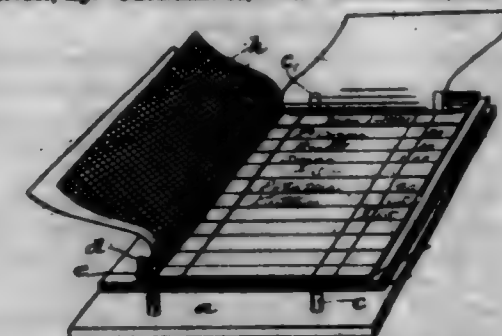
Claim.—In a railway-chair, the combination with the rail seated therein, an eccentric, a bolt secured on said chair, a screw-threaded bolt, and a nut rigidly secured to the upper end of said bolt and a nut removably secured to the lower end of said bolt, all parts being arranged and operating substantially as described.

696,583. RAILROAD-RAIL. EMMA E. MYERS, Pittsburgh, Pa. Filed Nov. 30, 1901. Serial No. 64,162. (No model.)



Claim.—A rail having an opening, slot and recess formed therein on its one end and beveled on its other end and having an opening formed therein, a hook member, a second rail carrying a head, neck and flange on one end and beveled on the opposite end, said rail having formed therein an opening and carrying a hook member, all parts being arranged substantially as described, and for the purpose set forth.

696,584. MANIPULATING ACCOUNT DEVICE. ORIAS GRUBBS, Louisville, Ky. Filed Mar. 13, 1901. Serial No. 61,891. (No model.)



Claim.—1. The combination in an accounting device, of a rigid file-base having two sets of posts set in lines at right angles to each other, a merchant's file-book detachably retained on one of said sets of posts, a removable customer's book with perforations fitting over the other of the sets of posts so as to interlock with the other book, and a card carrying a sheet of carbon-paper attached at one side and held to loosely slide on the latter posts, the carbon-paper interlocking with the books so that the writing on the merchant's file-book may be copied in facsimile in the removable customer's book.

2. The combination of a set of customer's post-books perforated at one end, with a set of files carrying each a merchant's book removably fastened on a set of posts, said file having a set of posts in a line at right angles to the first set to support the customer's book and loosely carrying a card having a carbon-sheet attached at one side thereof, for the purpose set forth.

3. The combination of a post-book perforated at one end, a file carrying a book removably held on posts at one side thereof, and having at each end a pair of slotted posts either pair of which may hold the post-book loosely in place and a card loosely fastened to slide on one pair of said end posts, held thereon by a pin and having a carbon-sheet interlocking with the leaves of the said books.

4. An account-tablet comprising a base having at each end a pair of slotted posts and at one side a pair of posts split and notched inside, a book perforated at the side to register with said posts, means for holding said book in place, and a card carrying a sheet of carbon-paper and having holes registering with either of the two sets of end posts and held loosely thereon by a pin playing freely in the slots thereof.

5. In an accounting device a file comprising a base having a set of end posts split to allow free play of a pin therein, a second set placed in line at right angles to the first set and slotted and notched on the inside to hold a card therein at different elevations, in combination with a card carrying a sheet of carbon-paper and perforated and fitting on the said end posts of the file-base and held loosely thereon by a pin, as described.

696,585. VEHICLE-TIRE. WILLIAM H. GUERREAU, Poughkeepsie, N. Y., assignor of one-third to WILLIAM TYLER SMITH, Poughkeepsie, N. Y. Filed Oct. 7, 1901. Serial No. 77,807. (No model.)

Claim.—1. A vehicle-tire comprising an elastic tube having a plu-

rality of pockets, and an insulating body in each pocket, each of said bodies having a diameter sufficiently less than that of its pocket to permit of partial collapse of the pocket and subsequent compression of the body between the opposite walls thereof.



2. A vehicle-tire comprising an elastic tube having a plurality of pockets, and an insulating body disposed loosely in each pocket, each of said bodies having a diameter sufficiently less than that of its pocket to permit of partial collapse of the pocket and subsequent compression of the body between the walls of the pocket.

3. A vehicle-tire comprising an elastic tube having spherical pockets therein, and an insulating body disposed loosely within each pocket, each of said bodies having a diameter sufficiently less than that of its pocket to permit of partial collapse of the pocket and subsequent compression of the body between the walls of the pocket.

4. A vehicle-tire comprising an elastic tube having a plurality of insulating bodies therein, each body having a diameter sufficiently less than that portion of the tire in which it is disposed, to permit of partial collapse of the tire and subsequent compression of the body between the walls of the tire.

5. A vehicle-tire comprising a body portion of elastic material having spherical pockets therein and intercommunicating passages, and an insulating ball in each pocket, said balls having each a diameter sufficiently less than that of its pocket, to permit of partial collapse of the pocket and subsequent compression of the ball between the walls of the pocket.

6. A vehicle-tire comprising a body portion of elastic material having spherical pockets therein and intercommunicating passages, the area of the passages and the centers of the pockets lying in the same circle, and an insulating ball disposed loosely within each pocket, the diameter of each ball being sufficiently less than that of its pocket to permit of partial collapse of the pocket and subsequent compression of the ball between the walls of the pocket.

696,588. BOLT-ANCHOR. FRANKLIN E. PALMER, Brooklyn, N. Y. Filed July 9, 1901. Serial No. 67,619. (No model.)



Claim.—1. A bolt-anchor having a tapering bore placed at an angle to the longitudinal axis of the anchor.

2. A bolt-anchor having a tapering threaded bore placed at an angle to the longitudinal axis of the anchor.

3. A bolt-anchor having a tapering threaded bore placed at an angle to the longitudinal axis of the anchor, but having the center of the smaller end of said bore coincident with said axis.

4. A bolt-anchor formed of a plurality of pieces and provided with a tapering threaded bore placed at an angle to the longitudinal axis of the anchor.

5. A bolt-anchor formed of a plurality of pieces and provided with a tapering threaded bore placed at an angle to the longitudinal axis of the anchor but having the center of the smaller end of said bore coincident with said axis.

6. A bolt-anchor having a smooth external surface and provided with a tapering threaded bore placed at an angle to the longitudinal axis of the anchor.

7. A bolt-anchor having a smooth external surface and provided with a tapering threaded bore placed at an angle to the longitudinal axis of the anchor but having the center of the smaller end of said bore coincident with said axis.

8. A bolt-anchor having a tapering threaded bore placed at an an-

gle to the longitudinal axis of the anchor and provided with an external retaining-ring.

9. A bolt-anchor having a tapering threaded bore placed at an angle to the longitudinal axis of the anchor and provided with an external retaining-ring fitting into a groove provided therefor.

10. A bolt-anchor formed of a plurality of pieces and provided with a tapering threaded bore placed at an angle to the longitudinal axis of the anchor and provided with means for registering the pieces.

698,587. BOLT-ANCHOR. FRANKLIN E. PALMER, Brooklyn, N. Y. Filed Jan. 21, 1902. Renewed Jan. 22, 1902. Serial No. 99,992. (No model.)



Claim.—1. A bolt-anchor consisting of a sleeve of soft metal provided with inner longitudinal ribs, substantially as described.

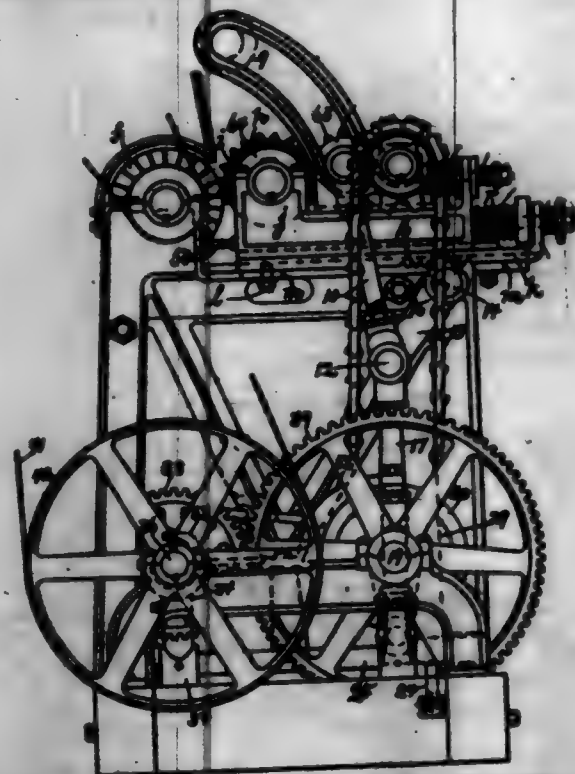
2. A bolt-anchor consisting of a soft-metal sleeve provided with a bore tapering from end to end and with inner longitudinal ribs, substantially as described.

3. A bolt-anchor consisting of a soft-metal sleeve and provided with outer and inner longitudinal ribs, substantially as described.

4. A bolt-anchor consisting of a soft-metal sleeve having a tapering bore and provided with inner and outer longitudinal ribs, substantially as described.

5. A bolt-anchor consisting of a soft-metal sleeve slotted longitudinally from one end throughout nearly its whole length and provided with inner longitudinal ribs, substantially as described.

698,589. MACHINE FOR TREATING HIDES OR SKINS. FRANKLIN E. PALMER, Woburn, Mass., assignor to Vaughan Machine Company, Boston, Mass., a Corporation of West Virginia. Filed Oct. 2, 1901. Serial No. 77,992. (No model.)



Claim.—1. In a machine for treating hides and skins, the combination with a bed-roll, a feed-roll and a movable support therefor, of a roll cooperating with both the said bed-roll and feed-roll and bodily movable with relation thereto, means to effect movement of said support in one direction, and means to effect movement of the bodily-movable roll toward and away from said bed-roll and feed-roll, substantially as described.

2. In a machine for treating hides and skins, the combination with a bed-roll, a feed-roll and a sliding support therefor, of a plash-roll co-operating with both the said feed-roll and said bed-roll, a shaft, and mechanism operated by said shaft to move said sliding support in one direction and to move said plash-roll bodily with relation to the said roll and feed-roll, in another direction, substantially as described.

3. In a machine for treating hides and skins, a rotatable half-cylinder, a carriage movable toward and from the same, a bed-roll carried

by said carriage and co-operating with said half-cylinder, a roll co-operating with said bed-roll and bodily movable toward and from the same, means for said bodily-movable roll attached to said carriage, means to reciprocate said carriage, and means to move said bodily-movable roll, substantially as described.

4. In a machine for treating hides and skins, a rotatable cylindrical tool, a carriage movable toward and from said tool and composed of two parts, one of which is movable on the other, a bed-roll, a feed-roll, and a plash-roll carried by said carriage, a yielding medium to normally hold the two parts of the carriage so as to move as one body and which permits the part carrying the said rolls to move independent of the other part of said carriage, means to reciprocate said carriage, and means to move the plash-roll bodily with relation to said bed-roll and feed-roll, substantially as described.

5. In a machine for treating hides and skins, the combination with a rotatable roll, a reciprocating support therefor, a cam-shaft, mechanism connecting said support with said cam-shaft to effect the reciprocation of the said support, a main or driving shaft, mechanism for connecting said roll with said main shaft, a cam on said cam-shaft controlling the rotation of the said roll, means for driving the cam-shaft from the said main shaft, and mechanism under control of the operator for controlling said means, substantially as described.

6. In a machine for treating hides and skins, a cam-shaft, a driving-shaft, mechanism under the control of the operator for connecting said cam-shaft with said driving-shaft, a cam on said cam-shaft, a roll to engage the hide or skin, and mechanism connected with said roll and controlled by said cam to alternately engage the said roll with and disengage it from said hide or skin, substantially as described.

7. In a machine for treating hides and skins, the combination with a support for the hide or skin, of a roll to engage the hide or skin bodily movable toward and from said support a rotatable shaft, mechanism connecting said roll with said shaft for producing bodily movement of said roll by the rotation of said shaft, and means independent of said mechanism to guide said roll in its bodily movement, substantially as described.

8. In a machine for treating hides and skins, the combination with a tool to operate on the hide or skin, of a bed-roll co-operating therewith, a reciprocating carriage for said bed-roll, a rotatable shaft, and mechanism connecting said carriage with said shaft to produce reciprocation of said carriage by the rotation of said shaft, substantially as described.

9. In a machine for treating hides and skins, a roll to engage the hide or skin, a cam-shaft, a driving-shaft, mechanism connecting said cam-shaft with said driving-shaft, a cam on said cam-shaft, and independent mechanism for rotating said roll under the control of said cam, substantially as described.

10. In a machine for treating hides and skins, a bodily-movable roll to engage the hide or skin, a shaft, mechanism connecting said roll with said shaft whereby rotation of said shaft produces bodily movement of said roll, a power-shaft, mechanism connecting said power-shaft with the shaft to which said roll is connected, and means for automatically effecting intermittent rotation of the said roll-operating shaft and bodily movement of said roll, substantially as described.

11. In a machine for treating hides and skins, a rotatable roll to engage the hide or skin, a clutch mechanism governing the rotation of said roll, a cam-shaft, a cam thereon governing the action of said clutch mechanism, a second clutch mechanism governing the rotation of said cam-shaft, and means to control the action of said second clutch mechanism, substantially as described.

12. In a machine for treating hides and skins, a rotatable roll to engage the hide or skin, a power-shaft, a clutch mechanism on said power-shaft governing the rotation of said roll, a cam-shaft, a cam thereon governing the action of said clutch mechanism, a second clutch mechanism governing the rotation of said cam-shaft, and means to control the action of said second clutch mechanism, and means to lock the cam-shaft from rotating and maintain the first-mentioned clutch mechanism under the control of the cam, substantially as described.

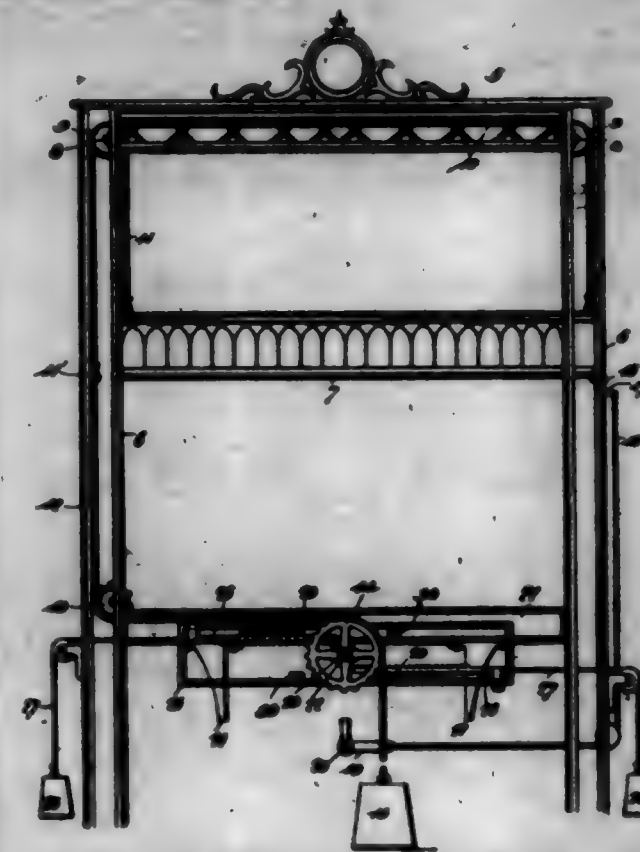
13. In a machine for treating hides and skins, the combination with a reciprocating carriage, a support for the hide or skin movable therewith, a roll to engage the hide or skin movable with said carriage and toward and from the same, mechanism to reciprocate said carriage, and means to move the said roll toward and from said carriage, substantially as described.

14. In a machine for treating hides and skins, the combination with a movable support, a roll to engage the hide or skin movable with said support and toward and from the same, mechanism to move said support, and means to move the said roll toward and from said support, substantially as described.

698,589. BRIDGE-GATE. FRANK I. PALMER, Sturgeon Bay, Wis. Filed Sept. 28, 1901. Serial No. 77,116. (No model.)

Claim.—1. The combination with a partly-counterbalanced gate, of a catch for normally holding the same in an elevated position, and

mechanism adapted to be operated by the opening of the draw to move said catch to releasing position.



2. The combination with a gate and means for elevating the same, of a catch for holding said gate normally in elevated position, operating-fingers carried by the draw and mechanism for connecting said fingers to the holding-catch to effect the release of the gate upon the movement of the draw in either direction and permit the gate to descend by gravity to the surface of the bridge.

3. The combination with a gate and means for holding the same in an elevated position, of a bell-crank lever having one arm oppositely connected to said holding means, and operating-fingers carried by the draw and adapted to engage the opposite arm of said bell-crank lever.

4. The combination with a gate, of a shaft, a sprocket-wheel thereon, a link belt connected to said sprocket-wheel and having its upper end connected to the gate, counterbalance-weight arranged at the lower end of said link belt, a pinion, ratchet mechanism connecting the same to the shaft, and means adapted to be operated by the draw for engagement with said pinion.

5. The combination with the gate, of a shaft, a sprocket-gear thereon, a link belt passing over said sprocket-wheel and connected at one end to the gate, a pinion, ratchet mechanism connecting the same to the shaft, oppositely-disposed loose rack-bars for engagement with said pinion, mechanism carried by the draw for engaging with and moving said rack-bars, and means for effecting the disengagement of such mechanism, substantially as specified.

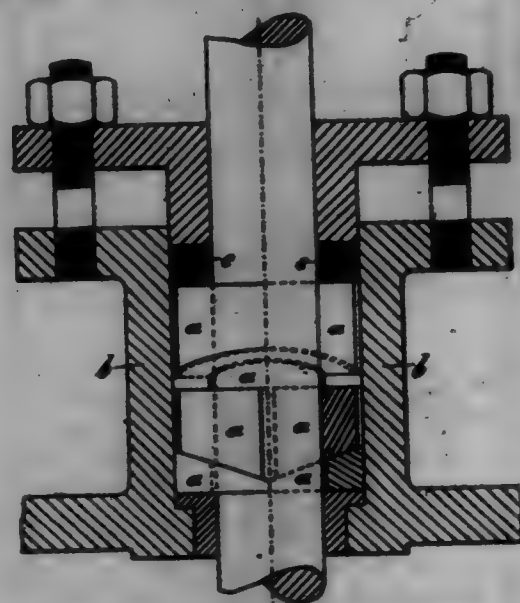
6. The combination with the gate, of a shaft, a sprocket-gear thereon, a link belt passing over said sprocket-wheel and connected at one end to the gate, a pinion, ratchet mechanism connecting the same to the shaft, loose rack-bars for engagement with said pinion, pivoted levers carried by said rack-bars and pins carried by the draw for engagement with said levers, substantially as specified.

7. The combination of the gate, a shaft, a sprocket gear thereon, a link belt passing over said sprocket-wheel, cords or chains connecting the upper end of the link belt to the opposite ends of the gate, a counterbalance-weight connected to the lower end of said link belt, a pinion, ratchet mechanism connecting the same to the shaft, loose racks arranged on each side of and adapted to engage said pinion, means for supporting and guiding said racks a counterbalance-weight connected to each rack for returning the same to initial position, a hook carried by each rack, pins projecting from the draw for engagement with said hooks, and means for effecting the disengagement of said pins and hooks, substantially as specified.

8. The combination of the gate 7, means for guiding the same, a link belt 12, cords or chains 10 connecting said link belt to the opposite ends of the gate, a sprocket-wheel 14 for driving said link belt, a counterbalance-weight 15 carried at the lower end of the link belt, a shaft 22 on which said sprocket-wheel is mounted, a pinion 23, a ratchet mechanism 24 connecting the same to said shaft, a fixed frame 25, loose racks 26 guided in said frame and adapted to engage the pinion, counterbalance-weights 28 for said racks, levers 29 carried by said racks, pins 30 carried by the draw for engagement with said hooks, antifriction-rollers 32 for

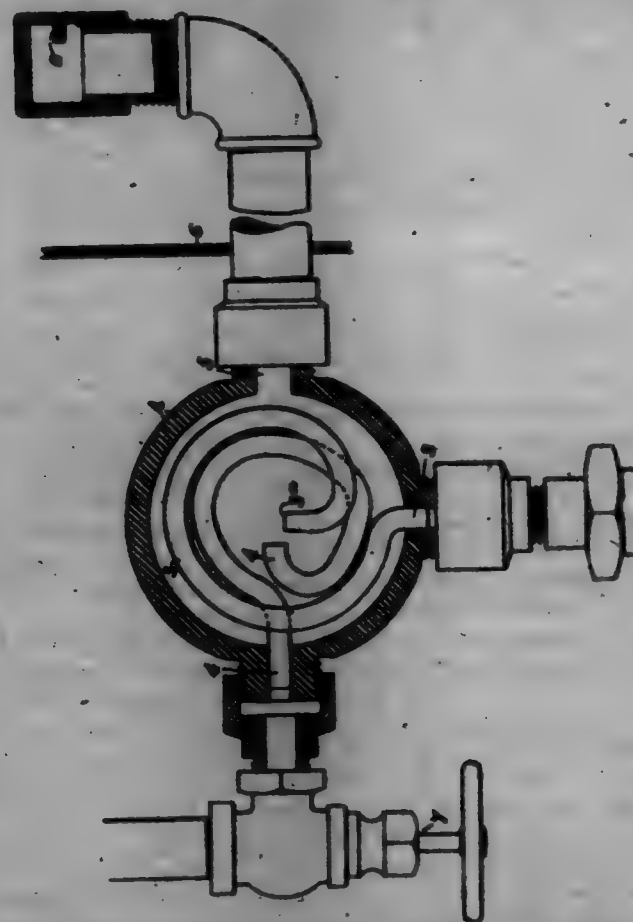
effecting the disengaging of the hook from the pin, a spring-catch 18 normally acting to maintain the gate in an elevated position, a bell-crank lever 19 having one arm connecting to said catch, the finger 21 carried by the draw and adapted to engage with the opposite arm of said bell-crank lever, substantially as specified.

696,590. PACKING FOR STUFFING-BOXES. JOHANN C. A. FLINT, Hamburg, Germany. Filed June 20, 1901. Serial No. 65,268. (No model.)



Claim.—A packing composed of a series of superposed semi-circular wedge-shaped rings arranged in pairs, both faces of each ring being formed by straight planes of which one extends at right angle to the plane-axis, while the other is inclined to said axis, substantially as specified.

696,591. HYDROCARBON-BURNER. CHARLES W. FOWLE, San Jose, Cal. Filed June 18, 1901. Serial No. 64,967. (No model.)



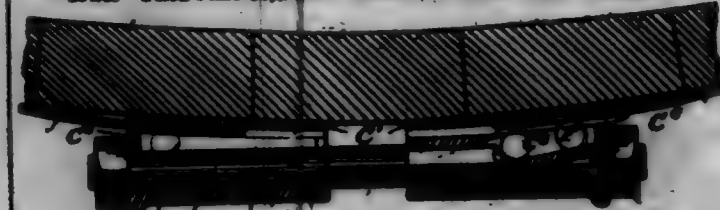
Claim.—1. A hydrocarbon-burner, including a spherical casing having a discharge, an oil-feed pipe entering the casing and coiled therein, and a coiled steam-pipe within the casing having its ends substantially following the coils of the oil-feed pipe whereby said pipes lie contiguous to each other and the heat of the steam will be imparted to the oil to raise the temperature of the oil approximately to that of the steam, said oil-pipe having its mouth adjacent to the discharge end of the steam.

2. In a hydrocarbon-burner the oil and steam pipes, both coiled and

with the coils of one substantially following and adjacent to the coils of the other, one of said pipes having its discharge end adjacent to the discharge end of the other pipe, and a closed spherical casing having a chamber which incloses both of said pipes and forms a receiver for heated vapor whereby the vapor in the chamber assists in heating the oil-pipe and forms a cushion substantially as and for the purpose described.

3. In a hydrocarbon-burner a spherical casing having radially-disposed steam-inlet, oil-inlet and discharge, said casing having an opening in one side, and a removable closure for said opening; steam and oil pipes coiled substantially concentrically within the chamber, one of said pipes having its discharge end proximate to and in line with the discharge of the other pipe, said pipes discharging into the chamber and said chamber serving as a superheater for the oil delivered to the same.

696,592. HAND-FASTENER. GEORGE F. RAKE, Des Moines, Iowa. Filed June 18, 1901. Serial No. 65,957. (No model.)



Claim.—1. In a hand-fastener, a lug having a slot for the reception of the end of the band, an opening for the reception of a bolt, runways one on either side of said opening, and a roller mounted in each runway, substantially as described.

2. In a hand-fastener, a lug having a slot for the reception of the end of the band, a centrally-arranged opening for the reception of a bolt, runways one on each side of said opening, a toe controlling each runway, and a roller mounted in each runway, substantially as described.

3. In a hand-fastener, a lug having a slot for the reception of the end of the band, a longitudinal central opening for the reception of a bolt, inclined runways one on each side of said opening, and a roller mounted in each runway, substantially as described.

4. In a hand-fastener, a lug having a longitudinal slot for the reception of the end of the band, a wall above the slot having an inclined face, an inclined top portion, the wall and top portion forming runways one on each side of the central opening for the bolt, a roller mounted in each runway, and means for retaining the roller in position, substantially as described.

696,593. STUMP-EXTRACTOR. CHARLES E. REIDMAN, Abertysia, Tex. Filed Oct. 16, 1901. Serial No. 73,576. (No model.)



Claim.—In a machine of the class described, the portable truck, a horizontally-slotted casing carried by the truck and provided with a cable-opening at one end, said casing also having in the upper and lower sides thereof separate parallel rows of pin-receiving holes, the holes of the opposite rows being transversely inclined, main and auxiliary cables being slidably associated with the opposite rows of the holes, a horizontally-arranged power-lever having its head and working in the slot of the casing and provided with spaced notches corresponding, respectively, with the separate pins, a clevis fitted to the lever between its notches, a main-cable extending through the end opening of the casing and connected with the said clevis, and an anchor connection at the end of the casing opposite the said cable-opening.

696,594. LUBRICATING-PULLY. WILLIAM RAY, London, England. Filed Nov. 4, 1901. Serial No. 61,591. (No model.)



Claim.—1. A lubricating pulley or wheel, provided within and around its bore with a series of cam-ridges and a series of short channels in its intermediate solid portions connecting said cam-ridges, and a bushing fitting the solid portion of the bore and forming one wall of the reservoir formed by the said cam-ridges and short channels, the said bush having in its inner wall a helical groove and a channel connecting said groove with one of the said short channels; substantially as described.

2. A lubricating pulley or wheel provided within and around its bore with an eccentrically-arranged series of cam-ridges, a series of short channels *j* in its intermediate solid portions *i*, and a filling-opening, and a bushing *e* fitting the bore and forming one wall of the reservoir *c* formed by said cam-ridges; the said bushing having a series of helical grooves *f* in its inner wall and channels *k* leading from the said grooves to the channels *j*, and an absorbent material in the grooves *f*; substantially as described.

696,595. PAPER-MAKING MACHINE. JAMES H. RYDBLUM, Minneapolis, Minn., assignor to George J. O'Donerty and Walter Van derburg, Boston, Mass. Filed Jan. 17, 1901. Serial No. 62,602. (No model.)



Claim.—1. In a paper-making machine, the combination of a suitable frame, a single couch-roll, a Fourdriner wire passing over said roll, and means located immediately adjacent to said roll and beneath the lower reach of the wire, to maintain said wire under requisite tension and cause it to travel with the desired uniformity without the application of pressure upon it at a point where pulp or paper is carried.

2. The combination, in a paper-making machine, of a suitable frame, a Fourdriner wire, and means to maintain said wire taut and cause it to travel without its being engaged by a roll arranged as so to subject the pulp or paper to pressure, said means consisting of a single couch-roll and a tension-roll immediately adjacent thereto and beneath the lower reach of the wire.

3. The combination, in a paper-making machine, of a suitable frame, a single couch-roll, a tension or driving roll immediately adjacent to said couch-roll, and a Fourdriner wire passing between said rolls on its return travel after going over the couch-roll, and means to adjust said tension or driving roll against said wire and toward said couch-roll.

4. The combination, in a paper-making machine, of a suitable frame, a Fourdriner wire, a couch-roll *h*, and a roll adjustably mounted on inclined members to bear against the roll *h* and support the Fourdriner wire therebetween after the paper has been discharged from the Fourdriner wire, substantially as shown.

5. The combination, in a paper-making machine, of a suitable frame, a Fourdriner wire, a couch-roll, and an automatically-adjustable roll *i* arranged on inclined members to support the Fourdriner wire and maintain it taut, said wire being pressed between said rolls after the paper has been discharged from the wire, substantially as shown.

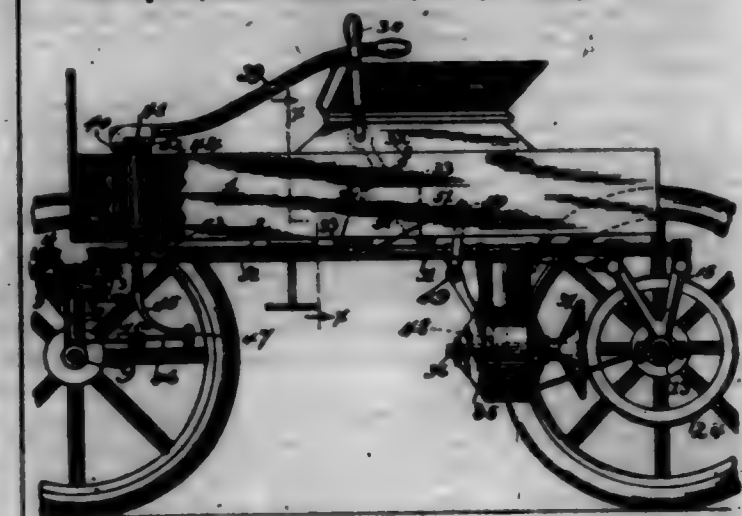
6. The combination, in a paper-making machine, of a suitable frame, a Fourdriner wire, a couch-roll *h*, and a roll *d* in frame on inclined supports *A*, whereby said roll *d* constantly gravitates against said roll *h* with the wire between, below the couching-point, substantially as shown.

7. The combination, in a paper-making machine, of a suitable frame, a single couch-roll, a tension-roll immediately adjacent to said couch-roll, a Fourdriner wire passing over the couch-roll and between the couch and tension rolls, whereby said wire is maintained taut and tensioned against the couch-roll below the couching-point, a felt belt, a supporting-roll *g* for said belt, and press-rolls *e* and *f* back of the couching-point, substantially as shown.

8. The combination, in a paper-making machine, of a Fourdriner wire, an endless felt belt arranged to receive the pulp or paper after it leaves the wire, a press-roll *f* under said belt, a felt-covered press-roll *e* above said roll *f*, a roll *k* bearing against said roll *e*, and a doctor for said roll *k*, substantially as shown.

9. The combination, in a paper-making machine, of a Fourdriner wire, press-rolls one of which is covered with felt, a roll *k* revolving against the surface of the felt-covered roll, and a doctor bearing against the surface of said roll *k*, substantially as shown.

696,596. MOTOR-VEHICLE. WALTER W. BARNETT, Chicago, Ill. Filed Apr. 25, 1900. Serial No. 714,332. (No model.)



Claim.—1. The combination, with a shaft 13, of a tube 17 surrounding the same, hangers or supports 15, 16, for said tube, caps 18, 20, provided upon said tube, the former having a screw adjustment thereon with respect to the latter, which is fixedly mounted upon the tube, and roller or ball bearings interposed between said caps and the shaft, adapted to be adjusted by rotating the cap 18, substantially as described.

2. The combination, with a shaft 13, of a tube 17 surrounding the same, hangers or supports 15, 16, for said tube, caps 18, 20, provided upon said tube, said cap 18 being split and having a screw adjustment upon the tube, and cap 20 being fixedly mounted thereon, roller or ball bearings interposed between the said caps and the shaft, adapted to be adjusted by the rotation of cap 18 upon its screw-thread, and means for clamping said cap 18 in its position of adjustment upon the shaft, substantially as described.

3. In a frame for vehicles, the combination, with a shaft 13, of a tube or sleeve 17 surrounding the same, brackets or supports for said sleeve, caps 18, 20, provided upon the said sleeve, the former having a screw adjustment thereon and having a split portion extending within one of the brackets or supports, and the latter being fixedly mounted with respect to the sleeve, roller or ball bearings interposed between said caps and the shaft, adapted to be adjusted by the rotation of cap 18 on its screw-thread, and means provided upon one of said supports for clamping the cap 18 in its position of adjustment, substantially as described.

4. In a vehicle-truck, the combination, with longitudinal tubular members extending the entire length of the frame and suitably united at one end of the frame, of two transverse tubular members extending the entire width of the frame uniting the said longitudinal members at the other end of the frame, V-shaped hangers extending downwardly from said transverse member and serving to support a vehicle-shaft at their lower ends, sleeves 17 secured in position by said hangers, a vehicle-shaft passing through said sleeves, and bearings interposed between the sleeves and the shaft, substantially as described.

5. In a vehicle-truck, the combination, with longitudinal tubular members extending the entire length of the frame and suitably united at one end of the frame, of two transverse tubular members extending the entire width of the frame uniting the said longitudinal members at the other end of the frame, V-shaped hangers disposed upon either side of each of said longitudinal members and extending downwardly from the transverse members, said hangers serving to support a vehicle-shaft at their lower ends, sleeves 17 secured in position by said hangers, a vehicle-shaft passing through said sleeves, and bearings interposed between the sleeves and the shaft, substantially as described.

6. In a vehicle of the class described, the combination, with longitudinal shafts 7, 7', for supporting the wheels of the vehicle, of a mounting for each of said shafts, permitting them to rotate substantially in horizontal planes, link mechanism uniting said shafts, whereby they are caused to rotate in unison, a steering-rod 42, a bracket or extension 41 carried by said steering-rod, a controlling-lever 43 pivoted to said bracket and adapted to be swung or rotated in two different planes, a link 45 connecting the

steering-rod with the guide-wheels, whereby upon the movement of the lever in one plane the guiding-wheels of the vehicle are controlled as to their lines of travel, braking mechanism, and a flexible cord or member extending over idlers connecting said braking mechanism and lever, whereby upon the movement of the lever in the longitudinal plane said braking mechanism is actuated through the medium of the cord, substantially as described.

7. The combination with a driving friction-disk 37, of a longitudinally-movable friction wheel 24 whose periphery engages or is adapted to engage the friction-disk, means for shifting the latter wheel longitudinally, a segmental rocker-arm 22, and cords united at their ends with the periphery of the rocker-arm and with the said means, the rocker-arm thereby being adapted by its movement in alternative directions to move the wheel 24 longitudinally in alternative directions, whereby the speed of the said wheel may be varied and reversed as desired, substantially as described.

8. The combination with a driving friction-disk 37, of a longitudinally-movable friction wheel 24 whose periphery engages or is adapted to engage the friction-disk, means for shifting the latter wheel longitudinally, a segmental rocker-arm 22, cords united at their ends with the periphery of the rocker-arm and with the said means, the rocker-arm thereby being adapted by its movement in alternative directions to move the wheel 24 longitudinally in alternative directions, whereby the speed of the said wheel may be varied and reversed as desired, a sectional shaft surrounded by the friction-wheel 24, and a differential coupling uniting the sections of said shaft and interposed between the same and the said wheel 24, substantially as described.

9. The combination with a shaft, of a sleeve surrounding the same, a cap 18, an extended portion thereof is provided with slots, said extended portion having threaded engagement with said sleeve, a clamp engaging the extended portion and adapted to secure the same in its threaded engagement with the sleeve, and a bearing interposed between the cap and the shaft, substantially as described.

10. The combination with a shaft, of a sleeve surrounding the same, a cap 18, an extended portion thereof is provided with slots, said extended portion having threaded engagement with said sleeve, a flange for the shaft having clamping engagement with said extended portion of the cap and adapted to secure the same in its threaded engagement with the sleeve, and a bearing interposed between the cap and the shaft, substantially as described.

11. In a vehicle-truck, the combination with transverse members 8 8, of downwardly-extending members 10 10 converging at their outer ends and located beneath the transverse members, a king-bolt disposed longitudinally of the vehicle and pivoted to the latter members with the first-mentioned members, vertical bearings 6 6 united by said members 10 10, a member 9 disposed below the members 10 10 and also uniting the bearings 6 6, individual shafts 7 7 provided with vertical extensions located within the bearings 6 6, and steering mechanism for rotating the said individual shafts in their bearings, substantially as described.

12. In a vehicle, the combination with a driving-shaft formed in sections, of a differential coupling uniting said sections, an elongated portion rotatable with the differential coupling, a wheel 24 including the shaft and engaging and movable longitudinally of the elongated portion, a motor for rotating said wheel, the speed of which wheel is controlled by its longitudinal position with relation to the said portion, and means for shifting the said wheel longitudinally of the said portion, substantially as described.

13. In a vehicle, the combination with a driving-shaft formed in sections, of a differential coupling uniting said sections, an elongated portion rotatable with the differential coupling, a wheel 24 including the shaft and engaging and movable longitudinally of the elongated portion, a driving-disk 37 engaging or adapted to engage the periphery of the wheel 24, the speed of which latter wheel is controlled by its position relative to the center of the disk 37, and means for moving the wheel 24 longitudinally of said elongated portion, substantially as described.

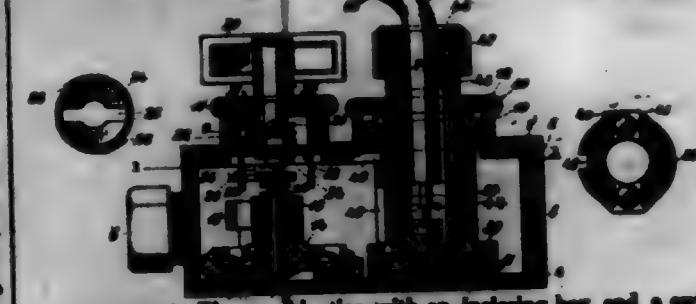
14. In a vehicle, the combination with a driving-shaft formed in sections, of a differential coupling uniting said sections, an elongated portion rotatable with the differential coupling, a wheel 24 including the said portion and shaft and engaging and movable longitudinally of the elongated portion, a driving-disk 37 engaging or adapted to engage the periphery of the wheel 24, the speed of which latter wheel is controlled by its position relative to the center of the disk 37, and means for driving the wheel 24 longitudinally of said elongated portion, substantially as described.

15. In a vehicle, the combination with a driving-shaft formed in sections, of a differential coupling uniting said sections, an elongated housing rotatable with the differential coupling, a wheel 24 including the said housing and shaft and engaging and movable longitudinally of the elongated housing, a driving-disk 37 engaging or adapted to engage the periphery of the wheel 24, the speed of which latter wheel is controlled by its position relative to the center of the disk 37, and means for driving the

wheel 24 longitudinally of said elongated housing, substantially as described.

16. In a friction-wheel, the combination with an annularly-grooved rim of the wheel provided with a central annular slot through the rim, of a series of clamps located about the rim of the wheel, and an annular strip or strips of friction material located in the groove of the rim and secured in place by the said clamps, substantially as described.

696,597. DOMESTIC SWITCH AND FLOW RECEPTACLE BOX. PAUL J. KIMBLE, New York, N. Y. Filed May 1, 1901. Serial No. 54,390. (No model.)



Claim.—1. The combination with an insulating box and a switch therein having an actuating-arm 20, of the cap 23 having arm 27 and provided on its periphery with a pawl 22, a nipple 9 adapted to receive said cap and formed internally with a shoulder for the engagement of said pawl, and means for rotating said cap in said nipple.

2. The combination with an insulating box and switch therein having an actuating-arm 20, of the cap 23 having arm 27 and provided on its periphery with the pawl 22, and having the slot 26 in its bottom, a nipple 9 adapted to receive said cap formed internally with a shoulder for the engagement of said pawl, a washer 33 having pawl projection 37 disposed within said cap, nut 11 on said nipple and actuating-rod 29 having its bearing in said nut and engaging with said washer 33.

3. The combination with a box having insides within it an insulating-base and contacts and provided with a threaded nipple, of a shouldered plug of insulating material adapted to enter said nipple and to be seated upon said base, contact-plugs on said plug adapted to make electrical connection with said contacts when said plug is seated as aforesaid and a flanged nut adapted to engage with said nipple and to have a bearing on the shoulder of said plug.

4. The combination with the box 4 having the threaded nipple 10, of the base 20, spring-clip 43 thereon, plug 36 having contact-plugs 41, and nut 12 adapted to engage with said nipple 10 and with a shoulder on said plug.

5. The combination with a box 4 having the cover 7 and threaded nipple 10, of the base 20, spring-clip 43 on said base, plug 36 having contact-plugs 41 and provided with the screw 45, nut 12 adapted to engage with said nipple 10 and with a shoulder on said plug, and projection 49 on cover 7 adapted to enter the screw 45.

6. The combination with a box, a rotary switch therein, an actuating-rod for rotating said switch and a handle on said rod exterior to said box, of two ratchet-and-pawl mechanism interposed between said rod and said switch; the said mechanism being constructed and arranged so that when one of said ratchets is free to rotate the other is held from rotation by its pawl.

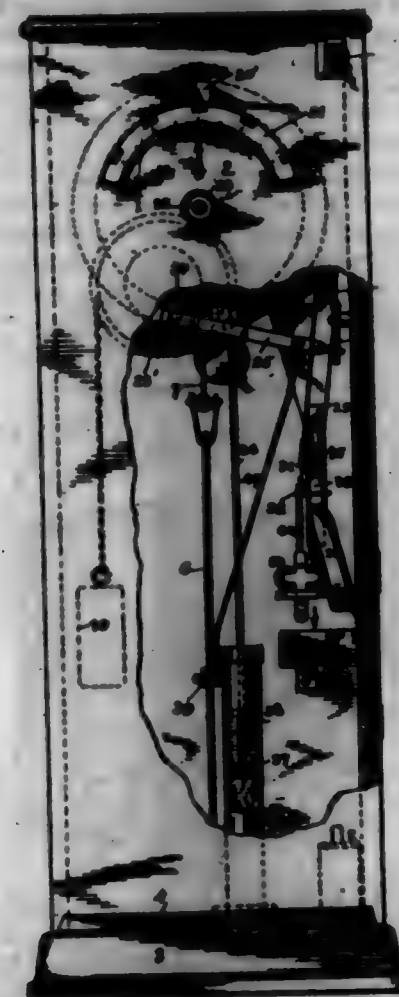
696,598. COIN-CONTROLLED WEIGHING-MACHINE. GURAV F. W. HUGHES, Berkeley, Cal. Filed Oct. 21, 1901. Serial No. 78,549. (No model.)

Claim.—1. In a weighing-machine, the combination with the weighing mechanism thereof, of means whereby the user of the machine may register a guess as to weight, and coin-estimated mechanism by means of which the coin deposited within the machine is returned to the user thereof in case the registered guess as to weight corresponds with that indicated by the weighing mechanism.

2. In a weighing-machine, the combination with the weighing mechanism thereof, of means whereby the user of the machine may register a guess as to weight, coin-estimated mechanism whereby the coin deposited within the machine is returned to the user thereof provided the registered guess as to weight corresponds with that indicated by the weighing mechanism and device whereby the registering means are automatically locked against movement after a coin is deposited and released by the machine being relieved of the user's weight.

3. In a weighing-machine, the combination of a normally concealed weight-indicator, a separate indicator under the control of the user adapted to be set to his estimate or guess of his weight, mechanism for exposing the normally concealed weight-indicator, and mechanism controlled by the deposit of a coin for retaining the coin within the machine, or delivering it exteriorly according to diversity or coincidence between the weight and estimate.

ing it exteriorly according to diversity or coincidence between the weight and estimate.



4. In a weighing-machine, the combination of a weight-indicator, a separate indicator under the control of the user adapted to be set to his estimate or guess of his weight, and mechanism controlled by the deposit of a coin for retaining the coin within the machine, or delivering it exteriorly according to diversity or coincidence between the weight and estimate.

5. In a weighing-machine, the combination of a normally concealed weight-indicator, a separate indicator under the control of the user, adapted to be set to his estimate or guess of his weight, and mechanism controlled by the deposit of a coin for exposing the normally concealed weight-indicator and retaining the coin within the machine or delivering it exteriorly, according to diversity or coincidence between the weight and estimate.

6. In a coin-estimated weighing-machine, means whereby the user of the machine may register a guess as to weight, and mechanism whereby the coin deposited within the machine is returned to the user thereof provided the registered guess as to weight corresponds with that indicated by the machine.

7. In a coin-estimated weighing-machine, means whereby the user of the machine may register a guess as to weight, and mechanism whereby the coin deposited within the machine is automatically returned to the user thereof provided the registered guess as to weight corresponds with that indicated by the machine.

8. A weighing-machine comprising a scale-dial, means whereby the user of the machine may register a guess as to weight, and coin-estimated mechanism connected with the registering means whereby the coin deposited within the machine is returned to the user thereof provided the registered guess as to weight corresponds with the weight as indicated by the scale-dial.

9. A weighing-machine comprising a scale-dial connected with and actuated by the movement of the scale-platform, means whereby the user of the machine may register a guess as to weight, coin-estimated mechanism whereby the coin deposited within the machine is returned to the user thereof provided the registered guess as to weight corresponds with the weight as indicated by the scale-dial, and device for automatically locking the registering means after a coin has been deposited within the machine.

10. In a weighing-machine, the combination of a scale-dial, means for operating it by the imposition of the user's weight, a set dial under the control of the user adapted to indicate his estimate or guess of his weight, a connection between the two dials adapted to be made or broken by their relative positions dependent upon the coincidence or diversity between the weights indicated, and coin-controlled mechanism adapted, according to said coincidence or diversity, to deliver the coin exteriorly, or to retain it within the machine.

11. In a weighing-machine, the combination of a normally concealed scale-dial, means for operating it by the imposition of the user's weight, a set dial under the control of the user adapted to indicate his estimate or guess of his weight, a connection between the two dials adapted to be made or broken by their relative positions dependent upon the coincidence or diversity between the weights indicated, and mechanism actuated by a deposited coin for exposing the normally concealed dial, and to deliver said coin exteriorly or retain it within the machine, according to the coincidence or diversity in the positions of the two dials.

12. In a weighing-machine, the combination of a scale-dial adapted to be operated by the imposition of the user's weight, a set dial under control of the user and adapted to indicate his estimate or guess of his weight, an electric circuit including contacts on the dial which make or break connection according to whether the dials coincide or differ in relative position, and mechanism operated by the deposited coin for completing said electric circuit.

13. In a weighing-machine, the combination of a scale-dial adapted to be operated by the imposition of the user's weight, a set dial under control of the user and adapted to indicate his estimate or guess of his weight, an electric circuit including contacts on the dial which make or break connection according to whether the dials coincide or differ in relative position, and mechanism operated by the deposited coin for completing said electric circuit and delivering the coin exteriorly or retaining it within the machine according to the coincidence or diversity of the dials.

14. In a weighing-machine, the combination of a normally concealed scale-dial adapted to be operated by the imposition of the user's weight, a set dial under control of the user and adapted to indicate his estimate or guess of his weight, an electric circuit including contacts on the dial which make or break connection according to whether the dials coincide or differ in relative position, and mechanism operated by the deposited coin for exposing the normally concealed scale-dial, completing said electric circuit and delivering the coin exteriorly or retaining it within the machine according to the coincidence or diversity of the dials.

15. In a weighing-machine, the combination with a scale-dial, of a set dial arranged in advance thereof and adapted to be turned by the user of the machine to register a guess as to weight, a coin-runway for the reception of a coin in payment for the use of the machine, a coin-tube, means for receiving the coin from the runway and delivering same into the coin-tube, a deflecting-gate working within the coin-tube, and electrical means whereby said gate is thrown to open the coin-tube when the set dial indicates the same number as the scale-dial or as to permit of the coin returning to the user of the machine.

16. The combination with the scale weighing mechanism, of means operated by the user of the machine whereby a guess as to weight may be registered, of coin-estimated mechanism by means of which the coin deposited within the machine is returned to the user thereof in case the registered guess as to weight corresponds with that indicated by the weighing mechanism, and electrical connection between the registering means, the coin-estimated mechanism whereby the circuit is completed and the coin released for return to the user of the machine when the registered guess corresponds with the weight indicated by the weighing mechanism.

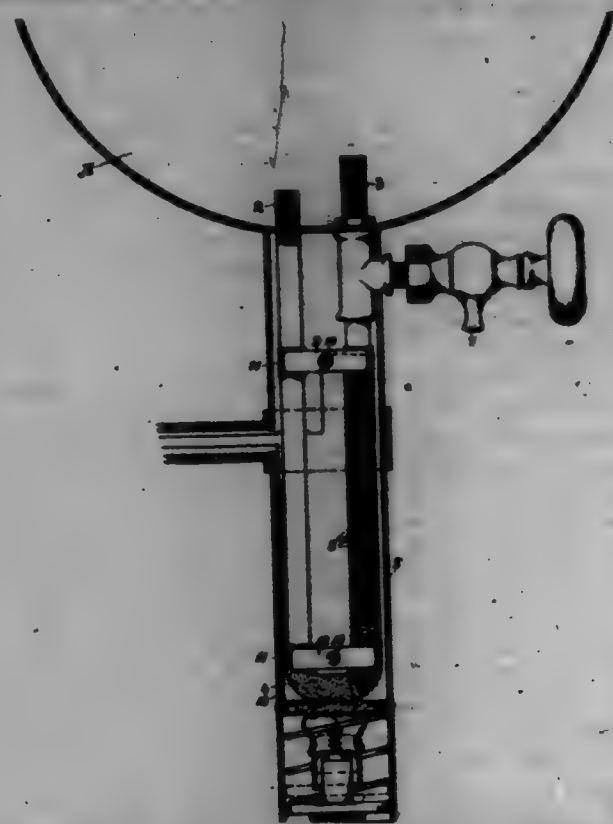
17. The combination with the scale weighing mechanism, of a shutter by means of which the number indicative of the person's weight is hidden from view, device whereby the shutter is automatically released as to its lift and expose the weight-number by a coin deposited within the machine, means operated by the user of the machine to register a guess as to weight, and mechanism whereby the deposited coin is returned to the user of the machine provided the registered guess corresponds with the weight indicated by the scale mechanism.

696,599. ELECTRIC WATER-HEATER. MILTON H. SAUNDERS and ERNEST LEVI, San Francisco, Cal. Filed Apr. 10, 1901. Serial No. 54,116. (No model.)

Claim.—1. The combination in an electrical heater of a pipe having legs of unequal length one of said legs serving as a water-inlet and the other as a water-outlet and outlet having a controlling-cock; an electric insulator for said pipe; a coil of wire having high resistance, wound in contact with the insulating-surface; clamps extending between the legs of the pipe, having one end to secure the ends of the coil against the insulating-surface and the other end extending to and clamped against and insulated from the opposite leg of the coil; and electrical connections with the coil.

2. An electrical water-heater, consisting of a pipe, an insulating enclosing material, a electric coil of high-resistance wire, wound in contact with the insulating-covered pipe, a supply through which water is delivered into one end of said pipe, and a controlled discharge from the opposite end, clamps, one end of which secure the ends of the coil against

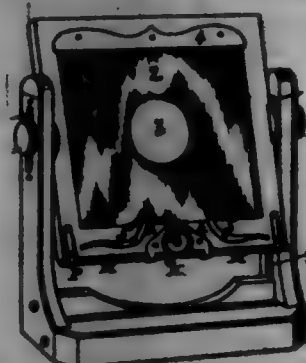
the insulating-surface, the opposite ends clamping the supply-pipe and having an insulating material between them and the supply-pipe screws by which said clamps are fixed or loosened, an electrical connection with the coil whereby an electrical current of high tension is passed through the coil, and the latter protected by the water-conducting pipe which it incloses.



3. The combination is an electrical heater of a reservoir, a U-shaped pipe having legs of unequal length, the open ends of which connect with the interior of the reservoir, one above the other, an insulating-covering for the longer arm, a coil of high resistance wound in contact with said covering and inclosing the pipe, plates extending between the legs of the pipe and having opposite ends insulated therefrom one of said ends securing the ends of the coil, and screws engaging the plates between their ends, and electrical connections through which an electrical circuit is established through the coil whereby a circulation of water is produced within the coil and reservoir, and a discharge-pipe connecting with the heating pipe.

4. A water-heater consisting of a U-shaped pipe, the upper ends of which extend into a reservoir, one of said ends projecting above the other, an inlet-pipe connecting with the shorter branch, and a discharge-cock with the longer branch, the thin mica casing surrounding the pipe, a single coil of high-resistance wire wound upon said insulating-covering with the turns out of contact with each other, clamps extending between the tops of the pipe, having one end to secure the ends of the coil against the mica and the other end extending to and clamped against, and insulated from, the opposite leg of the coil, and connections by which an electrical circuit through the wire is completed.

696,600. CAMERA. HERMAN L. SILVER, Los Angeles, Cal. Filed Oct. 28, 1901. Serial No. 89,399. (No model.)



Claim.—1. In a camera, the combination of a pair of standards, a camera-front covered in said standards, means for linearly adjusting the lens and camera-front upon the standards, means for maintaining the linear direction during said adjustment and means for swinging the camera-front.

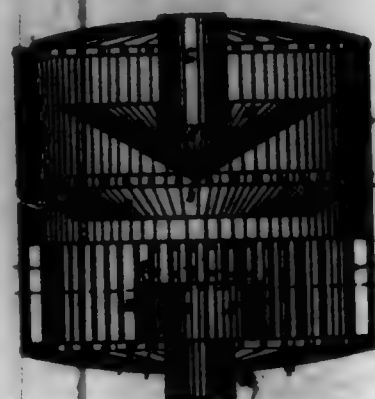
2. In a camera, the combination of standards, means for adjustably cutting the lens and camera-front upon the standards in a linear-vertical plane, means for maintaining the linear direction during said adjustment and means for swinging the front in a vertical plane.

3. In a camera, the combination of a pair of standards, a camera-front carried thereby, a plurality of pin-and-dot connections upon each side of the camera-front, means for linearly adjusting the lens and camera-front upon the standards, means for maintaining the linear direction during said adjustment and means for swinging the camera-front.

4. In a camera, the combination of a pair of standards, a camera-front carried thereby, a plurality of pin-and-dot connections upon each side of the camera-front for linearly adjusting the lens and camera-front upon the standards, means for maintaining the linear direction during the linear adjustment, means for swinging the camera-front, and latches carried by the camera-front adapted to engage and disengage the standards.

5. In a camera, the combination of a pair of standards, a camera-front carried thereby, a plurality of pin-and-dot connections upon each side of the camera-front for linearly and radially adjusting the same, latches engaging the standards and a cam device for operating the latches.

696,601. EXHAUST-HEAD. HENRY SHAW, JR., Pitt. Filed July 28, 1901. Serial No. 89,373. (No model.)



Claim.—1. The combination is an exhaust-head, of an inclosed shell, an outlet-pipe in the upper end thereof, an inlet-pipe in the central portion of the lower head thereof closed at its upper end and having lateral openings therein, spiral-shaped wings extending from said openings as to form spiral passages therefrom, and vertical ribs or wings on the inside surface of said shell opposite said spiral passages, substantially as and for the purpose set forth.

2. The combination is an exhaust-head of an inclosed shell, an exhaust-pipe extending into the lower part of said shell, wings on said exhaust-pipe forming spiral passage-openings therefrom, vertical ribs or wings on the inside of said shell opposite said spiral discharge-openings, an annular deflector having a central opening therein above said vertical ribs, an outlet-pipe on the top of said shell, and an inverted conical deflector on the lower end thereof, substantially as and for the purpose set forth.

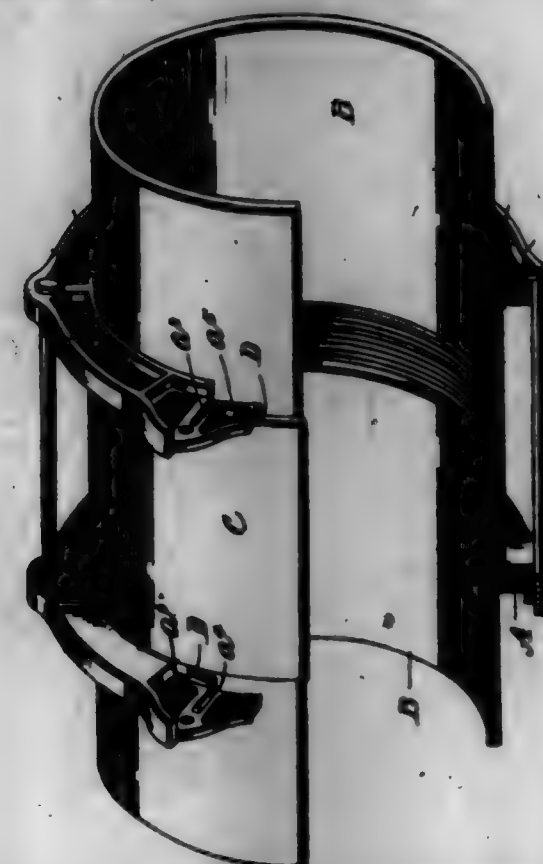
696,602. GAME. JOHN R. SHAW, New York, N. Y., assignor to Henry M. Shaw, New York, N. Y. Filed Dec. 24, 1901. Serial No. 87,394. (No model.)



Claim.—1. A game consisting of the combination of a board, a magnet under the surface of the same, smooth magnetic and non-magnetic disks substantially as described.

2. A game consisting of the combination of a board with a smooth even surface, a starting-point and ending-point designated on said board, a magnet interposed between the starting-point and ending-point, and underneath the surface of the board, and magnetic disks and non-magnetic disks, adapted to slide between the starting-point and ending-point, over the magnet, substantially as described.

696,603. CLAMPING-RING FOR PIPE-COUPPLING. FRANK H. SMITH, Bradford, Pa., assignor to Solomon B. Druser, Bradford, Pa. Filed Dec. 11, 1901. Serial No. 81,906. (No model.)



Claim.—1. A sectional clamping-ring having its sections provided with overlapping portions, the adjacent faces of which are provided with interlocking alining devices having cam-faces, adapted to draw the sections into proper relative positions when forced together, substantially as described.

2. A sectional clamping-ring having its sections provided with overlapping portions, the inner faces of which are provided the one with an alining-recess and the other with an alining projection, said recess and projection having mating faces inclined to the plane of the ring, and adapted to draw the sections of the ring into proper relative positions when forced together, substantially as described.

3. A sectional clamping-ring having its sections provided with overlapping portions, the inner faces of which are provided with a projecting rib and recess respectively, formed V-shaped in cross-section, and adapted to draw the sections into proper relative positions when forced together, substantially as described.

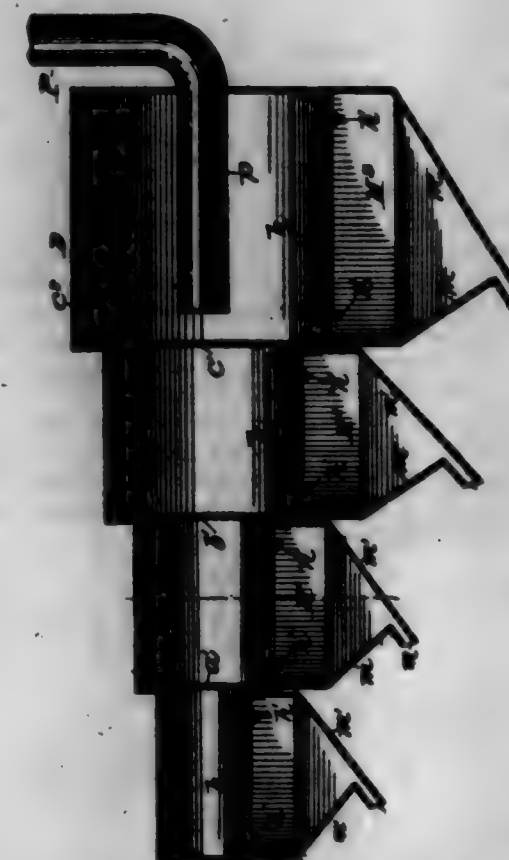
4. A sectional clamping-ring having its sections provided with overlapping portions, the inner faces of which are provided with a radially-disposed rib, and a radially-disposed recess respectively, having faces inclined to the plane of the ring and adapted to draw the sections of the ring into proper relative positions when forced together, substantially as described.

5. A sectional clamping-ring having its sections provided with overlapping portions, the inner faces of which are provided the one with an alining-rib and the other with an alining-recess, said rib and recess have faces inclined to the plane of the ring and adapted to draw the sections into proper relative position when forced together, said overlapping portions being also provided the one with a retaining-rod and the other with a recess for loosely engaging the same to retain the sections of the ring together temporarily, substantially as described.

696,604. ORB-CONCENTRATOR. ALBERT H. BRUNSON, Little Rock, Ark. Filed June 28, 1900. Serial No. 81,612. (No model.)

Claim.—1. In an orb-concentrator, the combination of a plurality of stationary drums arranged in series and connected end to end, an inlet for introducing ore or the like into the first drum of said series of drums, and means tangential to the drums for introducing a separate or independent blast of air or other fluid into each of said drums to thereby cause the

material contained in the drums to travel in circular paths within the same.



2. In an orb-concentrator, the combination of a plurality of drums arranged in series and connected end to end, an inlet for introducing ore or the like into the first of the series of drums and means for introducing a separate or independent blast of air or other fluid tangentially into each of said drums to cause the material therein to travel in circular paths within the drums.

3. In an orb-concentrator, the combination of a plurality of drums arranged in series and connected end to end, an inlet for introducing ore or the like into the first of the series of drums, means for introducing a separate or independent blast of air or other fluid tangentially into each of said drums throughout the length thereof and provisions for varying the force of the blast in the different drums of the series.

4. In an orb-concentrator, the combination of a plurality of drums of different sizes arranged in series, the end of one drum being connected to the end of the next larger drum of the series, an inlet for introducing ore or the like to the said series of drums, and means tangential to the drums for introducing separately into each drum an independent blast of air or other fluid to cause the material to circulate in curved paths within each of said drums at desired velocities.

5. In an orb-concentrator, the combination of a plurality of drums of varying size arranged in series and connected end to end, each of said drums being provided with a concentrate-box and an outlet for the concentrate leading to said box, an inlet for introducing ore or the like to the first drum of said series of drums, and means for producing gyratory currents of air or other fluid in said drums.

6. In an orb-concentrator, the combination of a plurality of drums arranged in series and connected end to end, a flange partially closing the opening leading from one drum to the next adjacent drum, means for introducing ore or the like into the end drum of the series and means for separately introducing a blast of air or other fluid into the different drums of the series.

7. In an orb-concentrator, the combination of a plurality of drums arranged in series and connected end to end, said drums varying in size from end to end of the series, means for feeding ore into the first of the series of drums, means tangential to the drums for introducing a blast of air or other fluid into each of said drums and devices for regulating the force of the blast in each drum.

8. In an orb-concentrator, the combination of a plurality of drums arranged in series and connected end to end, said drums progressively varying in size from end to end of the series, means for feeding ore at the like into the end drum of the series, an air or fluid inlet to each of said drums, said inlet varying in size inversely as the size of the drum and a discharge-outlet for said drums.

9. In an orb-concentrator, the combination of a plurality of drums arranged in series and having open end connections, a separate air or fluid inlet for each of said drums extending substantially the length thereof and

tangential thereto, means for feeding ore to the first of said drums, and a discharge-opening for the concentrates in each of said drums.

10. In an ore-concentrator, the combination of a plurality of drums arranged in series and having open end connections, a flange partially closing the opening leading from one drum to the next adjacent drum, a discharge-opening for the concentrates in each of said drums, and means substantially tangential to the drums for introducing a blast of air or other fluid into each of said drums across the said discharge-opening thereto.

11. In an ore-concentrator, the combination of a plurality of drums arranged in series and having open end connections, said drums varying progressively in size from end to end of the series, means for introducing ore or like material to the first drum of the series, a discharge-opening for the concentrates in each drum, an axial exit for the light impurities separated from the valuable particles, and means for introducing tangential air or fluid currents into each of said drums.

12. In an ore-concentrator, the combination of a drum, a discharge-opening formed in the wall of said drum, a normally closed door for covering said opening and on which the valves or concentrates may rest, said door being counterbalanced to automatically discharge the concentrates that collect thereon, an air or fluid inlet extending lengthwise of the drum and arranged tangential thereto to direct a blast directly upon and over said door to thereby subject the concentrates or valves to a strong fluid current prior to their being discharged.

696,605. ORE-CONCENTRATOR. ALBERT H. STEINER, ILLINOIS.
Recd. Art. Filed July 14, 1900. Serial No. 28,021. (No model.)



Claim.—1. In an ore-concentrator, the combination of a plurality of independent compartments similarly arranged in series, an inlet and central outlet for each of said compartments, a discharge-opening for the concentrates near the bottom of each compartment and a concentrate-box in communication with said discharge-opening, means for introducing a blast of air or other fluid through the inlet of the first compartment of the series and tangential thereto, the inlet of each of the remaining compartments being tangentially arranged and in communication with the central outlet of the next preceding compartment.

2. In an ore-concentrator, the combination of a plurality of drums similarly arranged in series, means for introducing a blast of air or other fluid into the first drum of the series, a tangential inlet and a central outlet for each of said drums to cause the particles to travel in circular paths and the heavier particles to be separated or thrown from the lighter particles, which latter pass into the central outlet, the central outlet of each of said drums being connected to the tangential inlet of the next succeeding drum of the series.

3. In an ore-concentrator, the combination of a plurality of drums similarly arranged in series, means for introducing a blast of air or other fluid into the first drum of the series, a central outlet for each of said drums, a tangential inlet extending substantially the length of and for each

of said drums to cause the particles to travel in circular paths and the heavier particles to be separated or thrown from the lighter particles which latter pass through the central outlet, the central outlet of said drums being in communication with the tangential inlet of the next succeeding drum of the series.

4. In an ore-concentrator, the combination of a plurality of drums similarly arranged in series and progressively varying in size from one end of the series to the other, an outlet and an air or fluid tangential inlet for each of said drums, means for introducing a blast of air or fluid into the first drum of the series to cause the particles to travel in circular paths and the heavier to be separated or thrown from the lighter particles which latter pass to the central outlet, and connections between the drums to successively carry the said blast of air or fluid from the first drum tangentially into the succeeding larger drums and a discharge-opening for the concentrates in the bottom of said drums.

5. In an ore-concentrator, a plurality of independent drums similarly arranged in series, said drums gradually increasing in size from the beginning to the end of the series, a feed-hopper connected to the first drum of the series, means for introducing a blast of air or other fluid into said first drum of the series to cause the particles to travel in circular paths, and connections between the drums for discharging the air or fluid currents and the particles carried thereby directly from each drum tangentially into the next succeeding larger drum.

6. In an ore-concentrator, a series of drums, an air-iplut for directing a blast into the first drum of the series, a feed-hopper for said series of drums connected to said blast-inlet, said hopper comprising an open-mouth upper portion, and downwardly-divergent walls to prevent choking of the hopper, a regulating device to which said walls are connected, and wings projecting from the walls of said device toward each other to partially close the opening between the lower ends of the said divergent walls.

7. In an ore-concentrator, the combination of a plurality of drums of different sizes arranged in series, an inlet for directing a blast of air tangentially into the first drum of the series, a feed-hopper for said series of drums connected to said blast-inlet, the same comprising an open-mouth portion and downwardly-divergent walls, a regulating device into which said walls project, wings projecting from the sides of said device toward each other to partially close the opening between the divergent walls, and slides fitted to the upper and lower ends of said divergent walls to regulate the material passing.

8. In an ore-concentrator, a plurality of drums arranged in series, a tangential inlet, a central outlet, and discharge-opening for each of said drums, the central outlet of each drum being connected to the tangential inlet of the next succeeding drum of the series to direct a current of air or other fluid over the discharge-opening in the wall of said drums to thereby carry material seeking to settle on said wall above and over the discharge-opening, and means to introduce a blast of air or other fluid into the first drum of the series.

696,606. ORE-CONCENTRATOR. ALBERT H. STEINER, ILLINOIS.
Recd. Art. Filed Oct. 22, 1900. Serial No. 24,768. (No model.)



Claim.—1. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other, said increment being closed at its smaller end, a feed-hopper leading into the funnel-shaped increment at its smaller end, a fluid-distributing chute tangentially arranged with reference to said increment and leading into the same, an outlet for the concentrates, located in the wall of the increment above the lowest portion thereof, and a series of concentrate-bins in communication with said outlet, whereby as material fed into the increment at its smaller end is given a spiral or gyratory motion within the increment and moved toward the larger end thereof, the concentrates or heavier particles are subjected to decreased fluid-currents and pass through the outlet into the concentrate-bins according to their specific gravity.

2. In an ore-concentrator, the combination of an increment of gradually-increasing cross-sectional area from one end to the other, said increment being closed at its smaller end, an air-distributing chute tangentially arranged with reference to said increment extending substantially the length of said increment and leading into the same, an outlet for the concentrates, and a series of concentrate-bins in communication with said outlet.

3. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other, said increment being closed at its smaller end, means to feed material into said increment, a distributing-pipe, a fluid-distributing chute connected to said pipe and extending substantially the length of said increment and being tangentially connected thereto to produce within said increment circular fluid-currents, and an outlet for the concentrates.

4. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other, said increment being closed at its smaller end, means to feed material into said increment, a distributing-pipe and a fluid-distributing chute extending substantially the length of said increment and the chute being arranged tangential thereto, a discharge-outlet for the concentrates extending substantially the length of the increment and a series of concentrate-bins in communication with said outlet.

5. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other, said increment being closed at its smaller end, means to feed material into said increment, a distributing-pipe and a fluid-distributing chute extending substantially the length of said increment, and the chute being arranged tangential thereto, a discharge-outlet for the concentrates arranged in the wall of the increment above the bottom thereof and opposite the distributing-chute.

6. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, means for feeding material into said increment near the smaller end thereof, a distributing-pipe, a distributing-chute connected thereto and arranged tangentially to the increment to direct a blast of air directly onto and over the supporting-incline thereof, a discharge-outlet arranged in the wall of the increment above the supporting-incline and on the side thereof opposite the distributing-chute.

7. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, a distributing-pipe and a distributing-chute extending substantially the length of said increment, the said chute being connected tangentially thereto to direct a blast of air onto the said supporting-incline, a discharge-outlet in the wall of the increment opposite the distributing-chute and a series of concentrate-bins in communication with the said outlet.

8. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, a distributing-pipe and a distributing-chute extending substantially the length of said increment, the said chute being connected tangentially thereto to direct a blast of air onto the said supporting-incline, a discharge-outlet in the wall of the increment opposite the distributing-chute, and a series of concentrate-bins, said outlet having flanges projecting into the concentrate-bins.

9. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, a distributing-pipe and a distributing-chute extending substantially the length of said increment, the said chute being connected tangentially thereto to direct a blast of air onto the said supporting-incline, a discharge-outlet in the wall of the increment opposite the distributing-chute, and a series of concentrate-bins having self-closing and normally closed doors, said outlet having flanges projecting into the concentrate-bins.

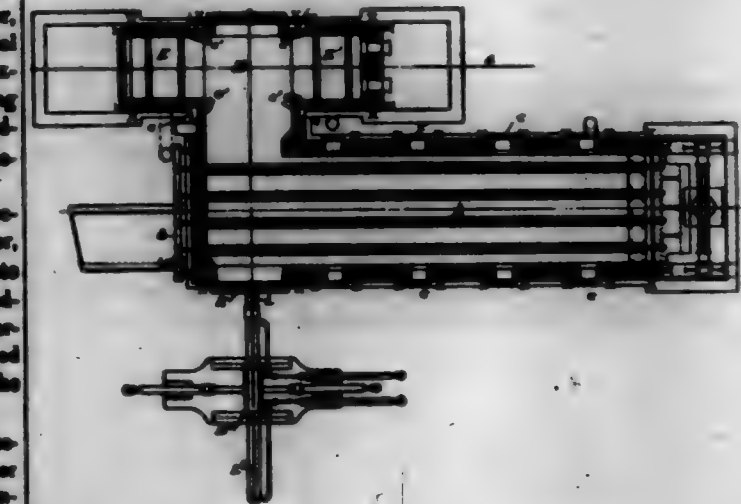
10. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, a distributing-pipe and a distributing-chute extending substantially the length of the increment, the said chute having partitions therein and connected tangentially to the in-

crement to direct a blast of air onto the said supporting-incline, a discharge-outlet in the side wall of the increment opposite the distributing-chute and a series of concentrate-bins in communication with said outlet.

11. In an ore-concentrator, the combination of a funnel-shaped increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, a distributing-pipe and a distributing-chute extending substantially the length of the increment, the said chute having partitions therein and connected tangentially to the increment to direct a blast of air onto the said supporting-incline, a discharge-outlet in the side wall of the increment opposite the distributing-chute, a series of flanges projecting inward from the wall of the funnel and a series of concentrate-bins in communication with said outlet.

12. In an ore-concentrator, the combination of an increment of gradually-increasing cross-sectional area from one end to the other and having a supporting-incline, means for feeding material into the same near the smaller end thereof, a fluid-distributing chute connected thereto and arranged tangentially to the increment to direct a fluid-blast directly onto and over the supporting-incline, and a discharge-opening in the wall of the increment opposite the tangential inlet and above the supporting-incline so that material falling down the wall of the increment after being projected above the discharge-opening by the incoming blast will pass through said discharge-opening.

696,607. HEATING-FURNACE. MATTHEW H. SMITH and RALPH GOSWELL, JR., ILLINOIS. Filed Apr. 4, 1901. Serial No. 24,804. (No model.)



Claim.—1. In a furnace for heating blooms or other pieces of metal, the combination with a preheating chamber or hearth, and means whereby the blooms or other pieces may be moved along said hearth, of a finishing chamber or hearth situated laterally of the preheating chamber or hearth, and a connection between said chambers or hearths through which the blooms or other pieces may be transferred from the preheating to the finishing chamber or hearth by lateral movement.

2. The combination with a preheating furnace or chamber for blooms and other pieces of metal, and means for advancing the blooms or other pieces in contiguous succession through said furnace or chamber, of a finishing-hearth situated to one side of the delivery end of said furnace or chamber, and means for transferring the blooms or pieces to said hearth by endwise movement.

3. In a furnace for heating blooms or other pieces of metal, the combination with a preheating bed or hearth, and means for moving the blooms or other pieces along said bed or hearth, of a finishing-hearth located to one side of the preheating chamber or hearth and communicating therewith, and means for transferring the blooms or other pieces from the preheating bed or hearth to the finishing-hearth by a movement thereof in a direction substantially at right angles to their movement along the said bed.

4. In a heating-furnace of the class described, the combination with a furnace or chamber having an inclined bed of water-cooled pipes extending the full length thereof, and means whereby the pieces to be heated may be pushed along said bed, of a finishing-hearth located to one side of the lower end portion of said bed and communicating therewith.

5. In a heating-furnace for blooms and the like, a preheating-chamber adapted to receive the blooms or other pieces transversely thereof, and a finishing-hearth extending at right angles thereto and communicating therewith.

6. In a heating-furnace of the class described, a preheating-chamber and means for advancing the pieces to be heated in contiguous succession through said chamber, a finishing-hearth communicating therewith and extending at right angles thereto, and a pushing device for transferring the blooms from the chamber to the hearth by endwise movement.

7. In a heating-furnace of the class described, the combination of a preheating-chamber having therein a water-cooled bed and means for advancing the pieces to be heated in contiguous succession along said bed, a side door in said furnace opposite the lower portion of said bed, a finishing-hearth on the opposite side of the bed from the said door and communicating with said chamber, and a pushing device operative through said door and transversely across the said bed.

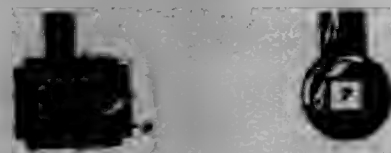
8. In a heating-furnace of the class described, the combination of a preheating-chamber, having an inclined bed and means whereby the pieces to be heated may be moved along said bed, a side door in the furnace opposite the said bed, a finishing-hearth on the opposite side of said bed and in line with said door, a pushing device operative through the said door and transversely across the said bed, and means for effecting a longitudinal movement of said pushing device to position it opposite any desired portion of the hearth.

9. In a heating-furnace of the class described, the combination of a preheating-chamber, having an inclined bed and means for advancing the pieces to be heated in contiguous succession along said bed, a finishing-hearth to one side of the lower end of said bed, and fire-chambers upon opposite sides of said hearth and communicating therewith and also with the preheating-chamber.

10. In a heating-furnace of the class described, the combination of a preheating-chamber, means for advancing the pieces to be heated through said chamber in contiguous succession, a finishing-hearth situated laterally of the delivery end of said chamber, a passage connecting the two, a side door in the furnace opposite the said passage, and a pushing device operative through the said door.

11. In a furnace for heating blooms and other pieces of metal, a preheating furnace or chamber having a transverse width greater than the length of the pieces to be heated, means for advancing the pieces through said furnace or chamber, a finishing-hearth located to one side of one end portion of said furnace or chamber and having the length greater than the length of said pieces, and a passage connecting said hearth with the said furnace or chamber.

696,606. LOCK-HUB. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Apr. 4, 1902. Serial No. 676,426. (No model.)



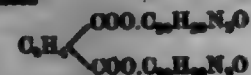
Claim.—1. The combination of a hub formed with a reduced neck, an angular spindle opening, and a lock-operating arm having a ring fitting around the reduced neck, so that the transverse projection beyond it; the hub being divided in the plane of the ring so that the latter is gripped between the parts of the hub when said parts are held together by the lock-acting, when the hub is in use.

2. The combination of a hub, having transverse, and a reduced neck formed thereon, and an angular spindle opening formed therein, the hub being divided through the reduced neck to form a neck portion on each part of the hub; and a lock-operating arm having a ring fitting around both portions of the reduced neck, and having a central portion 5 introduced between the hub parts and formed with a spindle opening.

696,609. SODIUM-ACID ETHER OF CINCHONA ALKALOIDS. HERMANN THIER, Frankfurt-on-the-Main, Germany, assignor to Farbwerke Hoechst AG, Frankfurt-on-the-Main, Germany. Original application filed Apr. 24, 1901, Serial No. 57,283. Divided and this application filed Jan. 8, 1902. Serial No. 66,988. (No specimens.)

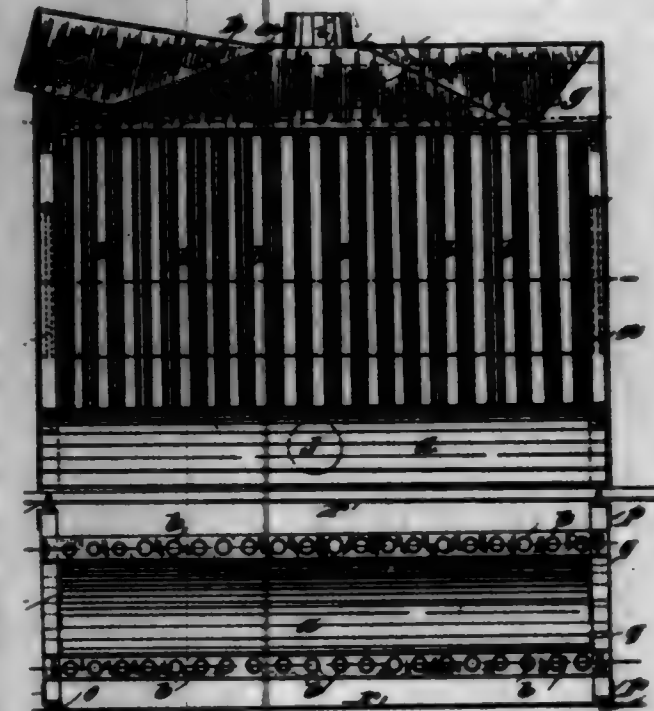
Claim.—1. The herein-described new sodium-acid ether of the cinchona alkaloids being very difficultly soluble in water, readily soluble in alcohol, benzene, ether and chloroform, still possessing basic properties forming with organic and inorganic acids well-characterized salts, substantially as hereinbefore described.

2. The herein-described new sodium-acid ether of quinine having most probably the formula



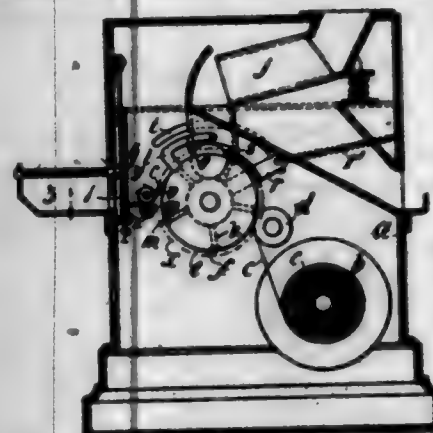
forming nearly tasteless needles, melting at 97° centrifugally very difficultly soluble in water, readily soluble in alcohol, benzene, ether and chloroform; forming well-characterized salts with organic and inorganic acids, substantially as described herein.

696,610. STOVE FOR THE VENTILATION OF ROOMS OR OTHER PLACES. HANS TUCK, Brussels, Belgium. Filed Oct. 22, 1901. Serial No. 73,611. (No model.)



Claim.—In a heating apparatus, the combination, with a grate, of tubes forming with said grate a fuel-container and open at one end to the atmosphere, a chamber arranged above and communicating with said fuel-container, another chamber communicating with said tubes at their other ends and having a discharge, said first-named chamber having an opening communicating with the atmosphere and a smoke-discharge, and a movable hollow device constituting a closure for said opening and having an opening to the atmosphere and also an opening adapted to register with the discharge-opening of said other chamber, substantially as described.

696,611. COPY-FREED APPARATUS FOR SALE OF STAMPS, TICKETS, OR THE LIKE. KARL UHRENBACH, Christiansburg, Norway. Filed Mar. 20, 1901. Serial No. 58,081. (No model.)



Claim.—1. In an apparatus for the sale of tickets and the like, the combination with a suitable case, a stationary and a movable knife, of means for delivering a continuous strip between said knives, a receptacle for the delivered portion of said strip, a lid for said receptacle, and means thereon to operate the movable knife to cut off the strip, substantially as set forth.

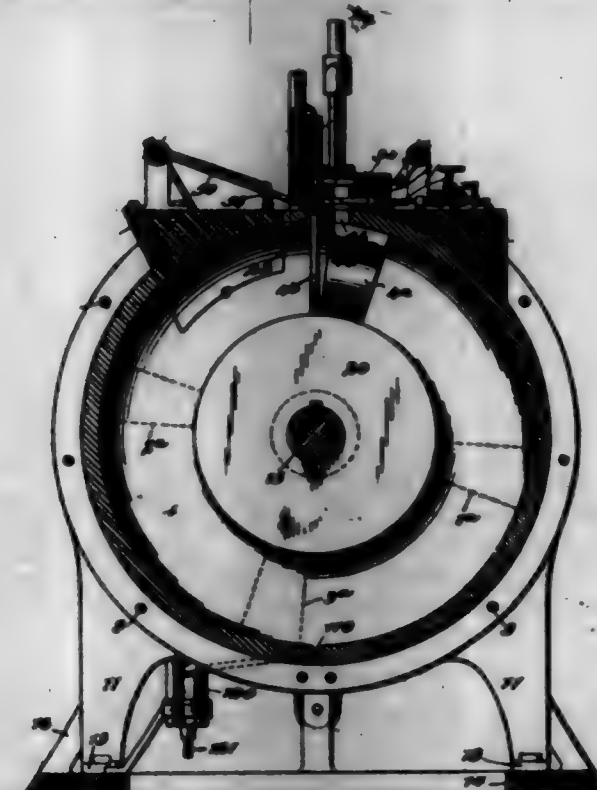
2. In an apparatus for the sale of tickets and the like, the combination with a suitable case, a supply-roller and a ticket-strip thereon, of a roller, a grooved roll cooperating therewith and pins in the roller arranged to enter the grooves in the grooved roll operating to feed the strip forward after leaving the supply-roller, a pair of printing and delivery rolls to receive the strip from the aforementioned case, a stationary and a movable cutter, a receptacle for the tickets, a lid therefor, and means on said lid to operate the movable cutter to cut off the end of the strip, substantially as set forth.

3. In an apparatus for the sale of tickets and the like, the combination with a suitable case, a supply-roller and a strip thereon, of a pair of rollers organized to feed the strip forward, a pair of delivery-rolls to receive the strip from the aforementioned case, a stationary and a spring-actuated cutter, a receptacle for the tickets, a pivoted lid therefor and a crank on one of the pivots to operate the spring-actuated cutter toward

the stationary cutter when said lid is opened, thereby severing the ticket from the strip, substantially as set forth.

4. In an apparatus for the sale of tickets and the like, the combination with a suitable case, a supply-roller and a strip thereon, of a pair of rollers to feed the strip forward, a pair of delivery and printing rolls geared to one of the feed-rollers, a receptacle for the tickets, said delivery and printing rolls arranged to deliver the end of the strip into the case, cooperating stationary and reciprocable knives, the latter provided with a slot, a lid, transverse for mounting said lid, a crank on one of them, the pin of said crank entering the slot in the reciprocable knife, whereby the knife is operated to sever the end of the strip when the lid is opened, substantially as set forth.

696,612. MOTOR. JAMES G. WALKER, Waco, Tex. Filed Feb. 14, 1901. Serial No. 47,222. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder, an engine-shaft, and a piston movable within the cylinder to operate the shaft, of a sliding abutment, induction and exhaust ports disposed at opposite sides of the abutment, a controlling-valve for the induction-ports, rock-shafts having operative relation with the abutment and controlling-valve, respectively, abutment-operating arms and valve-operating arms extending from said shafts, a trip-block movable with the shaft and disposed to contact directly with said arms for the purpose of operating the abutment and controlling-valve in succession, valve-closing arms connected to the valve-operating arms, and means movable with the engine-shaft for operating the valve-closing arms.

2. In a rotary engine, the combination with a cylinder, an engine-shaft, and a piston movable within the cylinder to operate said shaft, of a sliding abutment, induction and exhaust ports at opposite sides thereof, a controlling-valve for the induction-ports, rock-shafts operatively related to the abutment and controlling-valve respectively, operating-arms extending from said rock-shafts, a controlling-disk movable with the engine-shaft, a trip-block fixed to said disk and disposed to contact directly with said arms to operate the abutment and to open the controlling-valve, and a device for effecting the return of the controlling-valve, said device being positioned by centrifugal force.

3. In a rotary engine, the combination with a cylinder, engine-shaft, and piston, of a sliding abutment, induction and exhaust ports, a controlling-valve for the induction-ports, an abutment-operating arm and a valve-operating arm operatively connected respectively with the abutment and controlling-valve, a valve-closing arm disposed beyond the valve-operating arm, and means, movable with the engine-shaft, for operating the several arms in succession.

4. In a rotary engine, the combination with a cylinder, piston, engine-shaft, and the sliding abutment, of a removable front platform formed of a section of the cylinder, a rear platform disposed above and supported by the cylinder, induction and exhaust ports opening into the cylinder, an abutment-acting mechanism mounted on the cylinder between the platforms, and a valve-chest mounted upon the rear platform, abutment-operating mechanism supported on the front platform, and valve-operating mechanism mounted upon the rear platform, a controlling-disk movable with the en-

gine-shaft, and a trip-block carried by said disk and disposed to effect the successive actuation of the abutment and valve operating mechanism.

5. In a rotary engine, the combination with a cylinder, piston, shaft, and sliding abutment, of platforms carried by and disposed above the cylinder, an abutment-acting and a valve-acting mechanism mounted upon the cylinder, abutment-operating mechanism mounted on the cylinder, and valve-operating mechanism supported above the platforms, valve-closing mechanism disposed beyond the valve-operating mechanism and operatively connected therewith, a controlling-disk movable with the shaft and provided with a trip-block disposed to effect the actuation of the abutment-operating mechanism and the valve-operating mechanism in succession, and a centrifugally-operated governor-arm disposed to effect the subsequent actuation of the valve-closing mechanism to effect the automatic cut-off of the motive agent.

6. In a rotary engine, the combination with a cylinder, piston, shaft, and sliding abutment, of a controlling-valve, a valve-operating arm operatively connected therewith, a separately-mounted valve-closing arm having operative connection with the valve-operating arm, and means for operating said arm in succession, said means including a device positioned by centrifugal force and disposed to operate the valve-closing arm.

7. In a rotary engine, the combination with a piston, cylinder, shaft, and sliding abutment, of a rock-shaft having a pair of laterally-extending arms, one of which is operatively related to the abutment, a spring extending laterally from the rock-shaft, and a link having pivotal connection to the fixed part of the engine and to the free end of the spring.

8. In a rotary engine, the combination with a cylinder, piston, shaft, and sliding abutment, of a controlling-valve, a pair of rock-shafts in laterally-opposed relation and provided respectively with a valve-operating arm and a valve-closing arm, means connecting said arms to effect their movement in reverse directions, and means for operatively connecting one of the rock-shafts with the controlling-valve, and means operated by the engine-shaft for operating said arms in succession, said means including a device positioned by centrifugal force and disposed to actuate the valve-closing arm.

9. In a rotary engine, the combination with a plurality of cylinders, pistons, sliding abutments, and a common shaft, of a controlling-disk carried by said shaft, controlling-valves for said cylinders, interlocking rock-shafts operatively connected with the abutments and provided upon their contiguous ends with operating-arms disposed adjacent to the opposite side faces of the controlling-disk, a pair of interlocking rock-shafts having operative relation to the controlling-valves and provided upon their adjacent ends with valve-operating arms, disposed adjacent to the opposite faces of the controlling-disk, and trip-blocks disposed at opposite sides of the disk and designed respectively to effect the successive actuation of the abutment-operating arms and the valve-operating arms.

10. In a rotary engine, the combination with a plurality of cylinders and valve-chests, of a superimposed platform removably carried by the cylinders, abutment-actings also carried by the cylinders, valves located in the valve-chests, sliding abutments disposed to be withdrawn into the abutment-actings, valve-operating mechanism for the several valves and abutment-operating mechanism for the several abutments, said abutment-operating mechanism being mounted on the removable platform, and means for operating said mechanism.

11. In a rotary engine, the combination with pistons, abutments, controlling-valves and a plurality of sectional equivalent cylinders, connected in a rigid organization, of a platform surrounding the cylinders and of sectional form, two of said sections serving to close a series of openings formed in the cylinders, whereby the removability of said platform will permit access to the interior of the cylinders to be gained for purposes of repair.

12. In a rotary engine, the combination with a plurality of cylinders, pistons, sliding abutments, and a common shaft, of a controlling-valve, valve-operating mechanism, abutment-operating mechanism, a controlling-disk, blocks carried by the disk for operating the abutment-operating mechanism, and for moving the valve-operating mechanism in one direction, and a pair of rigidly-connected centrifugally-operated governor-arms loosely mounted on the shaft and operatively related to and movable with the disk and disposed to shift the valve-operating mechanism in the opposite direction.

13. In a controlling device for rotary engines, the combination with the shaft and disk, of spring-retained governor members carried by the disk, bell-crank governor-levers fulcrumed upon the disk and having sliding connection with said members, and a plurality of governor-arms connected with said governor-levers and provided with laterally-disposed terminal fingers.

14. In a controlling device for rotary engines, the combination with a shaft, and a disk having oppositely-disposed annular slots, of spring-retained governor members movable within said slots, bell-crank levers fulcrumed upon the disk and having sliding connection at one end with said members, a pair of diametrically-disposed rigidly-connected governor-arms

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having operative connection with the ends of the governor-levers opposite the members, said governor-arms being provided with oppositely-disposed terminal fingers, and a guiding device mounted upon the disk to guide the movements of the governor-arms.

15. In a rotary engine, the combination with the cylinder, piston, shaft, valve and lifting abutment, of abutment-operating mechanism mounted on the cylinder, valve-opening mechanism supported above the cylinder, valve-closing mechanism disposed beyond the valve-opening mechanism and operatively connected therewith, a controlling-disk movable with the shaft and provided with a trip-block disposed to effect the actuation of the abutment-operating mechanism and the valve-opening mechanism in succession, and a centrifugally-operated governor-arm disposed to effect the subsequent actuation of the valve-closing mechanism in effect the automatic cut-off of the motive agent.

16. In a rotary engine, the combination with the cylinder, piston, engine-shaft and movable abutment, of a controlling-valve, a valve-opening arm connected thereto, a valve-closing arm, means connecting said arms to effect their movement in reverse directions, a disk movable with the engine-shaft, and relatively adjustable devices movable with the disk and disposed to operate the valve-opening arm and the valve-closing arm, in succession.

17. In a rotary engine, the combination with a plurality of cylinders, pistons, sliding abutments and an engine-shaft common to the several pistons, of a controlling-disk carried by said shaft, controlling-valves for said cylinders, abutment-operating arms disposed adjacent to the opposite side faces of the controlling-disk, valve-opening arms disposed adjacent to the opposite sides of the disk each of said blocks being disposed to effect the successive actuation of an abutment-operating arm and a valve-opening arm.

18. In a rotary engine, the combination with a plurality of cylinders, pistons, sliding abutments, and an engine-shaft common to the several pistons, of a controlling-disk carried by said shaft, controlling-valves for said cylinders, abutment-operating arms disposed adjacent to the opposite side faces of the controlling-disk, valve-opening arms disposed adjacent to the opposite sides of the disk, a pair of valve-closing arms operatively connected to the valve-opening arms, trip-blocks disposed at opposite sides of the disk and each disposed to effect the successive actuation of an abutment-operating arm and a valve-opening arm, and a centrifugally-operated governor-arm disposed at one side of the disk and arranged to operate the valve-closing arm.

19. In a rotary engine, the combination with the cylinder, piston, controlling-valves, valve-opening arms, an engine-shaft common to the several pistons, and a disk movable with the shaft, of governor members carried by the disk, governor-levers fulcrumed upon the disk and having connection with said members, and a plurality of governor-arms connected to said governor-levers and provided with laterally-disposed terminal fingers for engagement with the valve-opening arms.

20. In a rotary engine, the combination with the engine-cylinder, piston, controlling-valve, valve-opening arm, and the engine-shaft, of a disk movable with said shaft, a longitudinally-removable trip-block mounted on the disk to actuate the valve-opening arm, and a spring-bulb disposed at one end of said removable trip-block to maintain the shock incident to the contact of the block with the arm.

21. In a rotary engine, the combination with a plurality of cylinders and pistons, of a steam-chest, a plurality of controlling-valves located in the chest and each controlling the passage of the motive agent to a cylinder, means for automatically operating said valves in relation, a plurality of throttle-valves located in the steam-chest between the controlling-valves and cylinders, and operating mechanism connected to all of the throttle-valves for moving them in unison.

22. In a rotary engine, the combination with a cylinder, piston, shaft, valve and lifting abutment, of abutment-operating mechanism, valve-opening mechanism, valve-closing mechanism disposed beyond the valve-opening mechanism and operatively connected therewith, a controlling-disk operated by the engine and provided with a trip-block disposed to effect the actuation of the abutment operating mechanism and the valve-opening mechanism in succession, and governor mechanism disposed to effect the subsequent actuation of the valve-closing mechanism.

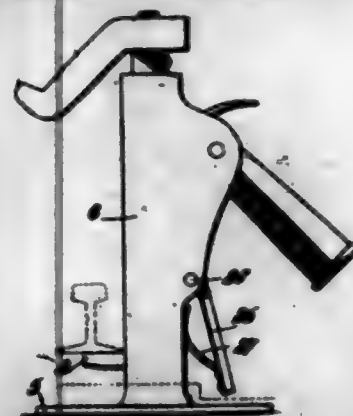
23. In a rotary engine, the combination with a plurality of cylinders, pistons, abutments, and a shaft, of a controlling-valve, a valve-opening arm connected therewith, a separate valve-closing arm, a block carried by the disk and disposed to operate the valve-opening arm, a governor-arm swung from the shaft and provided with a terminal finger disposed to operate the valve-closing arm, and a centrifugally-operated mechanism for positioning the governor-arm.

24. In a rotary engine, the combination with a plurality of cylinders, pistons, abutments, and a common shaft, of controlling-valves for the cylinders, valve-opening arms connected to the valves, valve-closing arms connected to the valve-opening arms, a controlling-disk operated by the

engine and provided at diametrically opposite points with blocks disposed to operate the valve-opening arms, rigidly-connected governor-arms loosely mounted on the shaft and extended therefrom in opposite directions, oppositely-extended fingers located at the outer extremities of the governor-arms and arranged to operate the valve-closing arms, and centrifugally-operated mechanism carried by the disk for positioning the governor-arms.

25. An engine-casing comprising two separate groups of cylinders, means disposed beyond the peripheries of the cylinders for effecting their rigid connection, securing-guns having their opposite ends extended into the opposed faces of the adjacent cylinders, and a covering-band arranged concentric with the cylinders and likewise extended into the opposed faces thereof.

696,618. COMBINED LIFTING AND TRACK-ALIGNING JACK.
PATENT J. M. WATSON, Savannah, Canada, assignor of one-half to John Duncan MacKenzie, Savannah, County and District of Algoma, Ontario, Canada. Filed July 26, 1901. Serial No. 70,016. (No model.)



Claim.—A jack of the class described comprising a dotted standard, a slidable bar provided with a claw and with a lifting-rod, a lever-socket fulcrumed on the standard and provided with a plate having a stud or boss, and a stud-pawl loosely mounted on the stud or boss and having an off-stand finger which is exposed at all times outside of the limits of the lever-socket, substantially as described.

696,614. MAILING-TUBE. THOMAS WHITLEY, SYRACUSE, N. Y.
Filed Apr. 24, 1901. Serial No. 57,204. (No model.)



Claim.—1. A mailing-tube partially divided or split lengthwise from one end for permitting said end to be expanded irrespective of the other end to facilitate removing of the contents of said tube, substantially as and for the purpose described.

2. A mailing-tube having one of its including walls split from one end through only a portion of its length to facilitate removing of the contents of said tube, substantially as and for the purpose set forth.

3. A mailing-tube split from one end through only part of its length and having a transverse slit leading from the lengthwise slit to facilitate removing of the contents of said tube, substantially as and for the purpose described.

4. A mailing-tube having one of its including walls split from one end through only a portion of its length and a flap covering the slit.

5. A mailing-tube slit lengthwise from one end through only part of its length, said slit terminating in a transverse slit of less length than the perimeter of the tube to facilitate removing of the contents of said tube, substantially as and for the purpose specified.

6. A mailing-tube having a lengthwise slit through only a portion of the length of one of its walls, and a fastening member adapted to be extended into the tube for holding the inclosed matter from outward displacement.

7. A mailing-tube having a lengthwise slit through only a portion of the length of one of its walls, a flap secured to the tube and covering the slit and a flexible member between the tube and flap for sliding said flap.

8. A mailing-tube having a lengthwise slit through only a portion of the length of one of its walls, a flap secured to the tube and covering the slit and a flexible member between the tube and flap for sliding said flap, said member being returned into the tube for holding the inclosed matter in position.

9. A mailing-tube slit lengthwise from one end, said slit terminating in a transverse slit of less length than the perimeter of the tube and a flap secured to the tube and covering the lengthwise slit.

10. A mailing-tube slit lengthwise from one end, said slit terminating

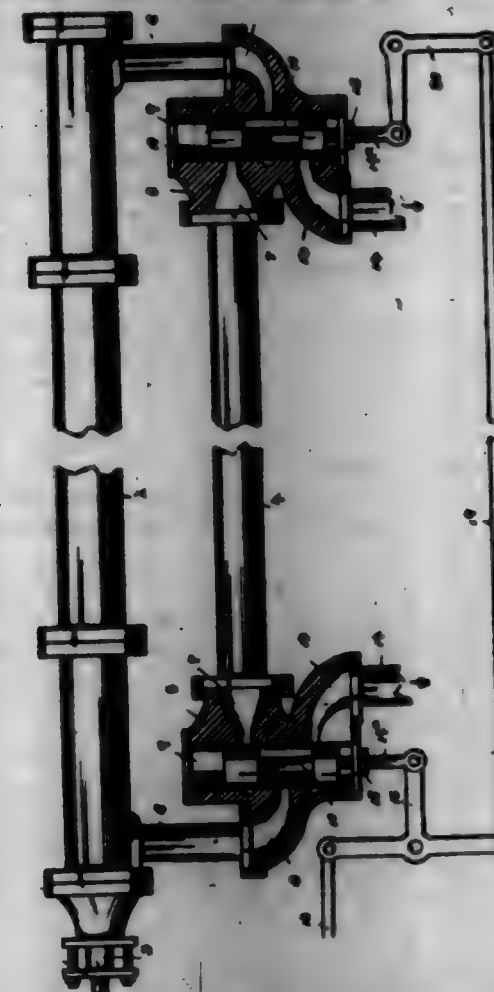
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ing in a transverse slit of less length than the perimeter of the tube, a flap secured to the tube and covering the lengthwise slit and a flexible member between the tube and flap for the purpose described.

696,615. VALVE. SYLVESTER WILSON, Clapnet, Mass. Filed May 21, 1901. Serial No. 61,285. (No model.)



Claim.—The combination with the steam-cylinder of a sawmill-engine; of twin valves comprising valve-casings respectively in communication with the opposite ends of the cylinder and each having an exhaust, a steam-supply pipe leading to both valve-casings, vertically-movable valves adapted to alternately open and close the steam ports and exhausts, and reversibly-disposed elbow-levers coupled together and connected with said valves to simultaneously admit steam to one end of the cylinder and exhaust from the opposite end, both valves being adapted to automatically and simultaneously shut off the supply of steam to the cylinder in case of breakage of the valve-operating connections.

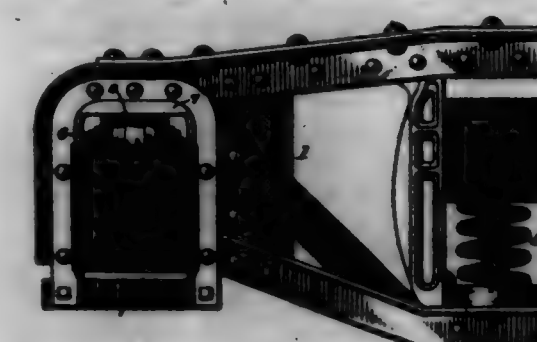
696,616. PUMPING APPARATUS FOR WELLS. BENJAMIN WHEELER, HERRING, Ohio, assignor of one-half to Archibald C. Adams and James F. Herring, Herring, Ohio. Filed Apr. 11, 1901. Serial No. 55,282. (No model.)



Claim.—In a pumping apparatus for wells, the combination with the valve-piston having at its upper end a tubular coupling, a valve-cage

with parts connected to the coupling above the piston, a flanged tube clamped between the coupling and cage, a tubular collar rigidly connected to the lower end of the piston, a tube rigidly connected at its upper end to the collar, a cage connected to the lower end of the tube, a shoulder formed at the intersection of the tube and collar at the upper extremities thereof and a standing valve, of a rod connected at its lower end to the standing valve, its upper end having a cone-shaped head of a larger diameter than the opening in the collar connected to the upper end of the piston, said head coating with said opening of the collar, when an upward-and-downward stroke of the piston is made, said head also adapted to coast with said shoulder for the purpose of removing the standing valve from the well, substantially as specified.

696,617. CAR-TRUCK. EDWIN S. WOOD, Chicago, Ill. Filed July 27, 1901. Serial No. 60,576. (No model.)



Claim.—1. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and rollers directly interposed between said crown-pieces and the top of the axle-boxes and adapted to afford independent lateral movement to such axle-boxes, substantially as set forth.

2. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and rollers directly interposed between said crown-pieces and the top of the axle-boxes, the opposed bearing-surfaces for each roller having a curved or dish-like form adapted to afford lateral and self-centering movements to the axle-boxes, substantially as set forth.

3. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and rollers directly interposed between said crown-pieces and the top of the axle-boxes, the opposed bearing-surfaces for each roller having a curved or dish-like form adapted to afford lateral and self-centering movements to the axle-boxes, and end flanges constituting stops, substantially as set forth.

4. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and a series of rollers directly interposed between each crown-piece and axle-box and adapted to afford independent lateral movement to the axle-boxes, substantially as set forth.

5. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and a series of rollers directly interposed between each crown-piece and axle-box, the opposed bearing-surfaces for each roller having a dish-like or curved form adapted to afford lateral and self-centering movements to the axle-boxes, substantially as set forth.

6. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, and a series of rollers directly interposed between each crown-piece and axle-box, the opposed bearing-surfaces for each roller having a dish-like or curved form adapted to afford lateral and self-centering movements to the axle-boxes, and end flanges constituting stops, substantially as set forth.

7. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, truck-plates secured to the tops of the axle-boxes, and rollers directly interposed between said crown-pieces and the truck-plates and adapted to afford independent lateral movement to the axle-boxes, substantially as set forth.

8. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above the axle-boxes, truck-plates secured to the tops of the axle-boxes, and rollers directly interposed between said crown-pieces and the truck-plates, the opposed bearing-surfaces for each roller having a curved or dish-like form adapted to afford lateral and self-centering movements to the axle-boxes, substantially as set forth.

9. The combination with a pedestal car-truck and its axle-boxes, of crown-pieces attached to the side frame in a direct vertical plane above

the axle-boxes, track-plates secured to the tops of the axle-boxes and rollers directly interposed between said crown-pieces and the track-plates, the opposed bearing-surfaces for each roller having a curved or dished form adapted to afford lateral and self-centering movements to the axle-boxes, and end flanges constituting stops, substantially as set forth.

10. The combination with a car-track and its axle-boxes of rollers interposed directly between the outer ends of the track-frame and the top of the axle-boxes, said rollers being subjected only to a crushing strain between the track-frame and axle-boxes, substantially as set forth.

696,618. COMBINED REIN-HOLDER AND STORM-APRON SUPPORTER. WILLIAM H. WOOLDRIDGE, Memphis, Tenn., assignor of one-half to Robert G. Butwick, Memphis, Tenn. Filed Oct. 18, 1901. Serial No. 79,394. (No model.)



Claim.—1. A device of the character specified, comprising a rigid member provided with suitable attaching means, a resilient rein-engaging member, and a combined stop and storm-apron supporter carried by the device.

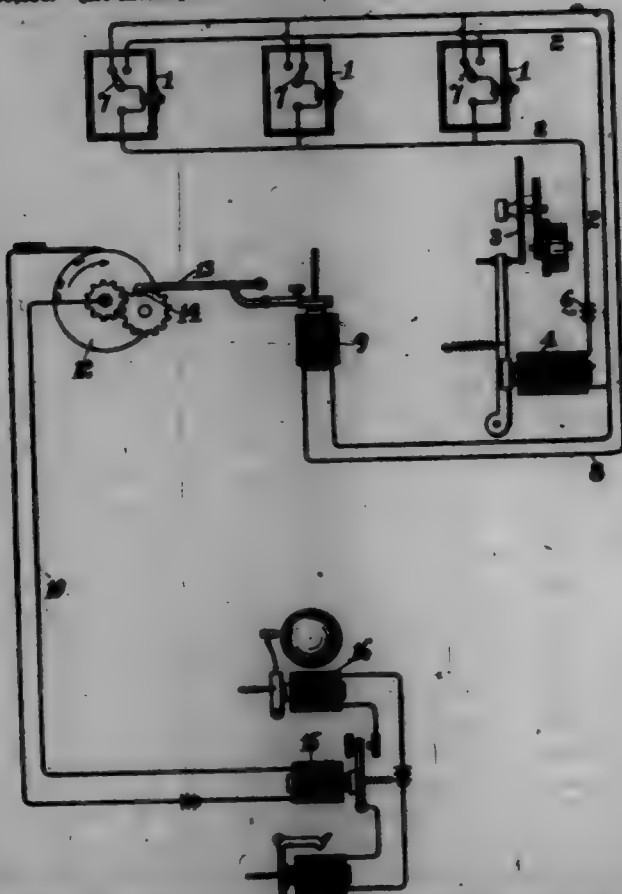
2. A device of the character specified comprising resilient rein-engaging means, attaching means carried by the device, and storm-apron engaging means associated with the device and having a part to limit the insertion of the reins within the device.

3. A device of the character specified comprising a rigid member carrying a clip, a resilient rein-engaging member, and a combined stop and storm-apron supporter carried by the device.

4. A device of the character specified comprising a rigid member carrying a clip, a resilient rein-engaging member of a contour to clamp the reins against the rigid member, and a combined stop and storm-apron supporter carried by the lower portion of the device.

5. A device of the character specified, comprising a piece of metal bent upon itself to form a loop, one of the arms whereof constitutes a resilient rein-engaging member, and the other arm a means of attachment to a suitable support, and a combined stop and storm-apron supporter secured to the inner side of the bend, substantially as described.

696,619. WATCHMAN'S TIME-RECORDER AND SIGNAL. JAMES E. YEAZLE, Baltimore, Md. Filed Dec. 10, 1900. Serial No. 30,308. (No model.)



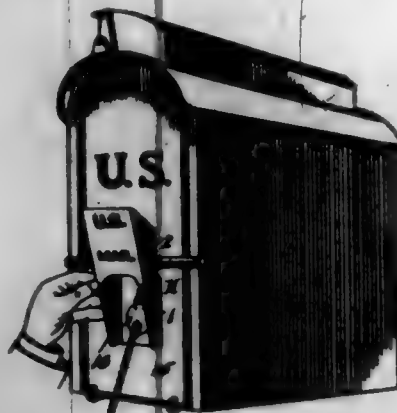
Claim.—1. The combination with a watchman's time-recording system having a series of signal-stations each provided with circuit-closing devices to be operated by the watchman on his rounds, and recording ap-

paratus having an operating or controlling magnet connected to the circuit of said devices, of a supervisory circuit containing signal-receiving apparatus, a signal-transmitter for said circuit, an electromagnet controlling the operation of the same, a circuit connecting said electromagnet with the watchman's signal-stations, and suitable switches at said stations adapted to connect the circuit-closing devices at said stations with the circuit of said electromagnet.

2. The combination in an electrical watchman's time-recorder system, of signal-stations connected with a suitable time-recorder over an electric circuit embracing the premises to be guarded, an electric switch at each station controlling the connection of the apparatus to be operated by the watchman on his rounds and arranged to be inaccessible to the watchman, an independent signal-circuit, supervisory signal-receiving apparatus connected therewith, a transmitter on said circuit, a controlling-circuit leading from said signal-transmitter to the signal-stations, and a switch at each station inaccessible to the watchman and operated to connect the apparatus operated by the watchman at said station with said controlling-circuit.

3. In a watchman's time-recorder and district or burglar alarm telegraph system, the combination of a series of signal-stations, a recording mechanism, an electrical circuit connecting each of said stations with said recording mechanism, an independent signal-recording mechanism, a signal-transmitter therefor, a controlling-circuit connecting the latter with each of the signal-stations, a circuit-closer at each station operated by the watchman, and a switch at each station inaccessible to the watchman and operated to connect said circuit-closer with the controlling-circuit of said signal-transmitter.

696,620. STORM-HOOD ATTACHMENT FOR LOCK. THOMAS H. YOUNG, Lincoln, Ill. Filed June 27, 1901. Serial No. 66,314. (No model.)



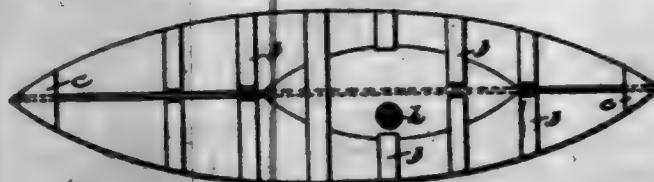
Claim.—1. A storm-hood for locks comprising a base-section, and a complementary cover-section having a slidable interlocking connection with the base-section and movable independently thereof.

2. A storm-hood for locks comprising a box-like base-section, and a complementary cover-section slidably supported upon the base-section and arranged to resume a closed position by gravitation.

3. In a storm-hood for locks, the combination with the lock-hoop, of a base-section having reversely-disposed holding-tongues engaging within the eye of the hoop at opposite points, and a slidable cover-section mounted upon the base-section.

4. In a storm-hood for locks, the same comprising a base-section having a staple-receiving eye and inclosing side walls provided with guiding-flanges, and a cover-section arranged over the open side of the base-section and having a top flange and side flanges overlapping the corresponding parts of the base-section, said cover-section also having interior grooved slide-lugs engaging the guiding-flanges of the base-section.

696,621. LIFE-BOAT. DR. CARL E. BAARDER, Bergen, Norway. Filed Mar. 18, 1901. Serial No. 61,314. (No model.)



Claim.—In combination, the curved hull, air-chambers beneath the thwart as well as in the upper part of the stem and stern, and a ballast-tank midship provided with stop-cock, rod and handle, said ballast-tank being in the bottom of the boat and controlled by said stop-cock, substantially as described.

696,622. WINDMILL. WILLIAM BAKER, Loyal, Wis. Filed June 17, 1901. Serial No. 64,224. (No model.)



Claim.—1. In a windmill, a wind-wheel having shiftable sails, crank-arms for the sails, a rotatable non-shiftable shaft for the wheel, an end-wise-shiftable trip-rod, and a detachable head carried by the rod and provided with recesses for the reception of the respective crank-arms, each recess having a transverse entrance-opening.

2. In a windmill, a non-shiftable rotatable hollow shaft, having a chambered hub, shiftable sails provided with journals rotatably mounted upon the hub and projected into the interior thereof, crank-arms carried by the outer ends of the journals, an end-wise-shiftable trip-rod mounted within the hollow shaft, a head carried by one end of the rod and provided with a marginal projected band which is located within the chambered hub, and also provided with bayonet-slots corresponding to and for the reception of the respective crank-arms, and means for imparting end-wise movement to the trip-rod and for shifting the sails.

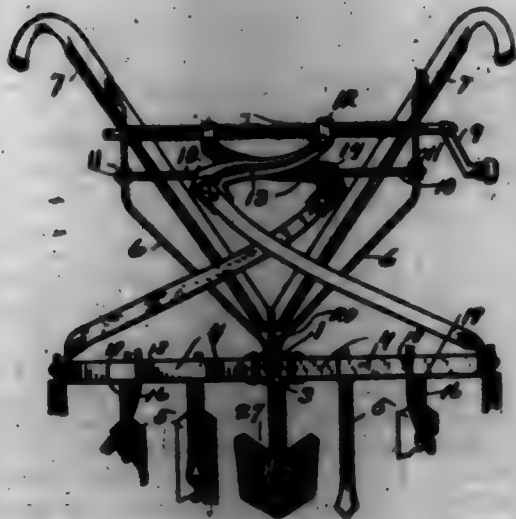
3. In a windmill, a wind-wheel comprising a rim, a shaft having at one end a hub, the face of which is provided with bearings, sails having spokes journaled in the rim and in the bearings of the hub, and means for holding the wheel-spokes in the said bearings.

4. In a windmill, a wind-wheel comprising a rim, a shaft having at one end a hub, the face of which is provided with bearings, sails having spokes journaled in the rim and in the said bearings, and a sectional clamping-ring secured to the face of the hub and holding the wheel-spokes in the said bearings.

5. In a windmill, a wind-wheel comprising a rim, a shaft having at one end a hub the face of which is provided with bearings, sails having spokes journaled in the rim and in the bearings, a sectional clamping-ring secured to the face of the hub and holding the wheel-spokes in the said bearings, and stays secured to the rim and having their ends attached to the hub and to the shaft.

6. In a windmill, a wheel-supporting hollow shaft having a chambered hub, an end-wise-shiftable trip-rod, mounted therein and carrying at one end a hub, a rim supported from the head and the shaft, sails carrying spokes journaled in the rim and in bearings formed in the hub, crank-arms carried by the spokes and projecting into the chamber of the hub, a head carried by the head and having recesses to be engaged by the crank-arms, the inner end of the head being adapted to engage with the vertical wall of the hub, and means connected with the trip-rod to keep the head in engagement with the said wall, whereby to hold the sails out of gear.

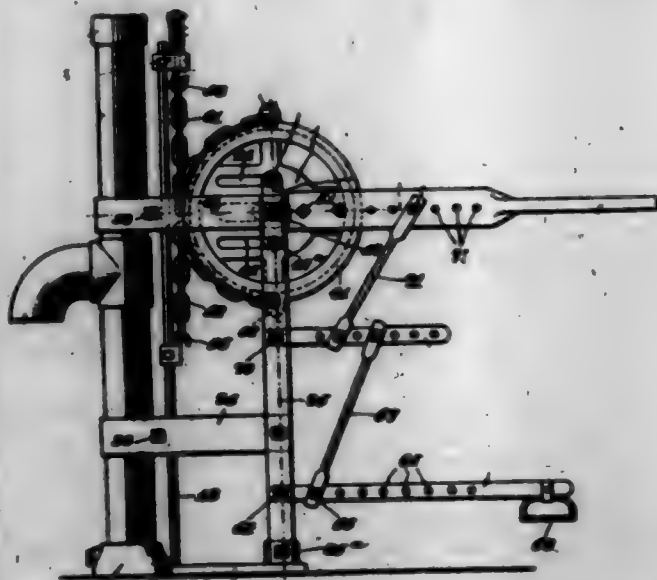
696,623. CULTIVATOR. JOHN T. BROWN, Canton, Ohio. Filed Sept. 4, 1900. Serial No. 24,940. (No model.)



Claim.—1. In a cultivator the combination of a center bar, a head connected thereto, hinged bars connected to the head located upon the center bar, handle-supports fixed to the hinged bars, a right and left screw-threaded shaft journaled to the handle-supporting bars, right and left hand screw-threaded eyes located upon the screw-threaded shaft, and arms connected to the eyes and to the hinged bars and handles carried by the handle-supports, substantially as and for the purpose specified.

2. The combination of a cultivator-frame consisting of two hinged bars and a center bar, a left and right handed screw-threaded shaft located between the cultivator-handles, handle-supports having connected thereto, a rod, arms provided with right and left hand screw-threaded eyes, said arms provided with staples to engage the rod connected to the handle-supports, substantially as and for the purpose specified.

696,624. ECCENTRIC-CHAIN LIFT-PUMP. WILLIAM C. BONE, Peterborough, Canada. Filed June 7, 1901. Serial No. 65,502. (No model.)



Claim.—1. In a pump, the combination with a plunger-rod and a suitable framework, of a power-wheel provided with a slotted web, plates fastened adjustably to the slotted web, a fulcrum-bolt extending through the slotted web and the plates and supported in the framework, and a chain attached to the power-wheel and connected to the plunger, substantially as described.

2. In a pump, the combination with a plunger-rod and a suitable framework, of a power-wheel having a slotted web, plates applied to opposite sides of the web and connected by bolts which pass through certain slots in the web, a fulcrum-bolt passing through the plates and another slot in the web of the power-wheel and attached to the framework, and a chain attached to the power-wheel and connected to the plunger-rod, substantially as described.

3. In a pump, the combination with a plunger-rod and a suitable framework, of a power-wheel having a diametrical web provided with the central and side slots, plates applied to opposite sides of the web to open the slots therein, the bolts passing through the side slots in the web and fastening the plates adjustably to the power-wheel, a fulcrum-bolt passing through the plates and the central slot in the web of the power-wheel and attached to the framework, and a chain attached to the power-wheel and connected to the plunger-rod, substantially as described.

4. In a pump, the combination with a plunger-rod, of a power-wheel, a chain attached to the power-wheel and to the plunger-rod, a yieldable link adjustably supported on the plunger-rod above the point of attachment of said chain thereto, a cushion-spring operatively connected to the yieldable link, and a second chain attached to the yieldable link and to the power-wheel, substantially as described.

5. In a pump, the combination with a power-wheel, a plunger, of a chain connected to the power wheel and the plunger, a spring-actuated link supported by the plunger-rod, and another chain connected to the link and the power-wheel, substantially as described.

696,625. IRONING-TABLE. EDWARD E. CROWLEY, Columbia, Ohio. Filed Sept. 12, 1901. Serial No. 75,128. (No model.)

Claim.—In an ironing-table, the combination with a table top or board 1 and a forward support therefor, of a rear support comprising a transverse bar hinged directly to said table-top and legs projecting from said bar, a guide-frame on the under side of the board in rear of said bar 2, a sliding iron-supporting block 14 having arms 13 movably supported

in said guide-flange, said arm adapted to extend beneath the bar 2, and lock said bar against swinging on its hinges, substantially as specified.



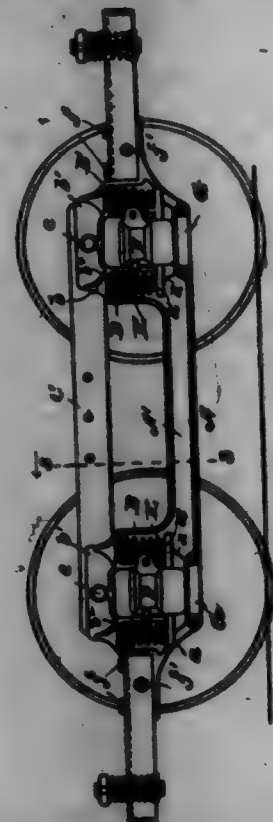
696,626. GARMENT-CLASP. JAMES COHEN, Brooklyn, N. Y., assignor to The City Button Works, New York, N. Y., a Corporation of New York. Filed Jan. 14, 1902. Serial No. 59,703. (No model.)



Claim.—1. A garment-clasp comprising a rubber disk thickest at its periphery and gradually tapering toward the center and cross-cut at the central portion whereby resilient lips are provided, a metal holder secured to the periphery of said disk, and a button rising from any suitable base, said metal holder and base being attached to suitable webbing, substantially as set forth.

2. In a garment-clasp, the combination of the open-faced metal holder having a slotted extension, the rubber disk secured at its periphery within the face of said holder, said disk being thickest at its periphery and gradually tapering toward the center and cross-cut at its center whereby resilient lips are afforded, and a slotted base having a button rising therefrom, said holder and base being attached to suitable webbing through their respective slots, substantially as set forth.

696,627. CAR-TRUCK. HARVEY A. CURTIS, Chicago, Ill. Filed June 5, 1901. Serial No. 53,343. (No model.)



Claim.—1. An equalizer-bar for car-trucks made of cast-steel, and comprising the following elements: a straight horizontal intermediate body portion, a pair of pedestals at the opposite ends thereof, respectively, a pair of parallel longitudinal bearing-plates on top of each pedestal, and a series of cone-shaped hollow tops or caps curving to unite said bearing-plates laterally with the tops of the pedestals, all of said parts being cast integral and of uniform thickness throughout, substantially as described.

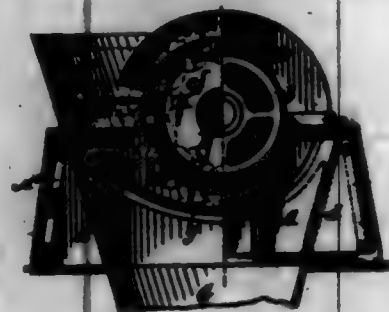
2. An equalizer-bar for car-trucks made of cast-steel, and comprising the following elements: a straight horizontal intermediate body portion of I-beam section throughout, a pair of pedestals at the opposite ends thereof, respectively, a pair of parallel longitudinal bearing-plates on top of each pedestal, and a series of cone-shaped hollow tops or caps curving to unite said bearing-plates laterally with the tops of the pedestals, said tops or caps having depending annular flanges adapted to rest in the upper ends of the springs, all of said parts being cast integral and of uniform thickness throughout, substantially as described.

3. In a car-truck, the combination with a journal-box having laterally-extending lugs on either side of the base portion thereof and forming seats for springs, of a pedestal straddling the same and having corresponding seats for the springs in its upper portion, and springs vertically seated between and engaging the seats of the journal-box and of the pedestal, respectively, substantially as described.

4. The combination with the equalizer-bar having pedestals cast integral therewith, each pedestal having seats for the equalizer-springs on each side of the top portion thereof, of journal-boxes lying within the pedestals, each journal-box having horizontally-extending integral lugs on either side of the base portion thereof and forming seats for the springs, and vertically-arranged springs disposed between and at their opposite ends engaging the aforesaid seats of the pedestal and journal-box respectively, substantially as described.

5. In a car-truck, the combination with an equalizer-bar having a horizontal intermediate portion, and a pedestal rising integrally therefrom at each end thereof, each pedestal having a pair of seats for the upper ends of the equalizer-springs on each side of the central vertical longitudinal plane thereof, the seats of each pair being disposed on opposite sides of the central vertical transverse plane of the pedestal, of a journal-box slidably engaging each pedestal, said journal-box having a pair of laterally-extending lugs on each side thereof, said lugs forming seats for the lower ends of the equalizer-springs, and the lugs of each pair being disposed in vertical alignment with the corresponding seats of the equalizer-bar themselves; and permitting the vertical play of the side members of the pedestal therebetween, springs interposed between the seats of the pedestal and of the journal respectively, and a soft-wood wheel-piece rigidly connecting the tops of the pedestals, substantially as described.

696,628. REGENERATING-MACHINE. ARTHUR A. BROWN, Toronto, Canada. Filed May 4, 1902. Serial No. 718,046. (No model.)



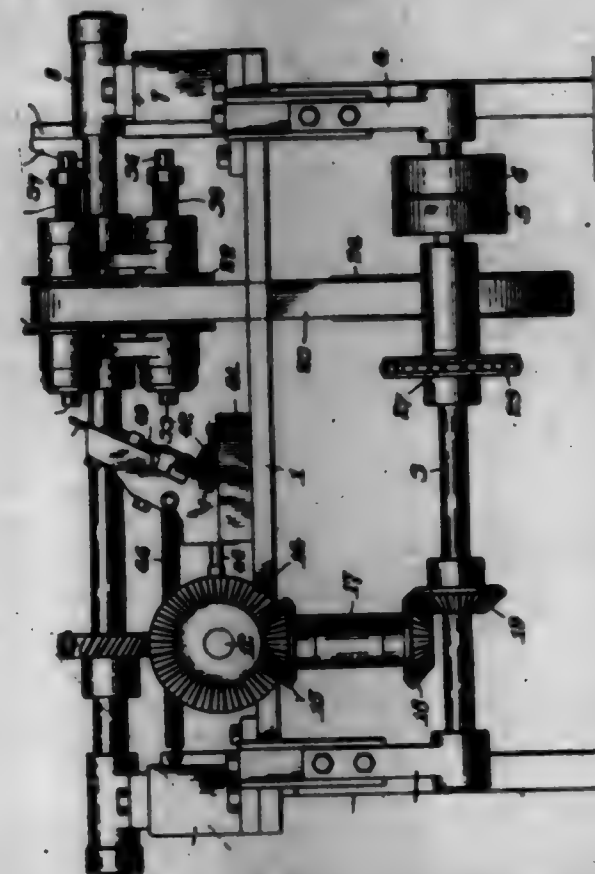
Claim.—The combination, in a distorting-machine, of a rotating cylinder, having a series of beater or breaker pivoted thereto, a hopper, a curved concave grate or screen cut concentrically to the cylinder to form a throat contracting in the direction of the progress and elimination of the material as it is reduced, and a hood or casing extending over the beater to a point on the same side as the feed.

696,629. MACHINE FOR MAKING BUTTONS. MAX GARDNER, Philadelphia, Pa., assignor to Abraham Garbel and Max Garbel, Philadelphia, Pa., copartners trading as Garbel Bros. Co. Filed Nov. 18, 1901. Serial No. 55,055. (No model.)

Claim.—1. In a button-making machine, the combination with a tool and support therefor, of a chuck-bearing frame, a series of chucks therein, means for intermittently rotating said frame to advance the chucks successively in proximity to the tool, pulleys on said chucks, a driven pulley below the same, a band passing about the latter pulley and the chuck-pulleys, a movable support for said driven pulley, said support being automatically maintained in the band tension about the pulleys, and means for actuating said driven pulley.

2. In a button-making machine, the combination with a tool and support therefor, of a chuck-bearing frame, a series of chucks therein, and means for intermittently rotating said frame to advance the chucks successively in proximity to the tool, pulleys on said chucks, a driven pulley below the same, a belt passing about the latter pulley and the chuck-pulleys, a main shaft, a web-frame chock thereon for the support of the

shaft of the driven pulley, and gearing between the main shaft and the pulley-shaft.



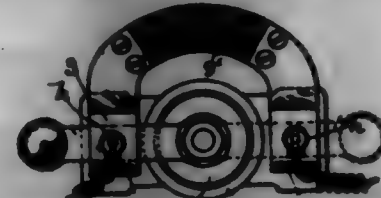
3. In a button-making machine, the combination with a tool and support therefor, of a shaft, a chuck-bearing frame thereon, a series of rotatable chucks in said frame, normally closed chucks in said chucks, means for intermittently rotating said frame, and means for successively opening the chucks during the movement of said frame, the last-named means including longitudinally-movable spindles arranged within said chucks and connected with the chucks, and a stationary cam mounted in the path of said spindles and adapted to be engaged thereby during the rotation of the chuck-bearing frame.

4. In a button-making machine, a chuck comprising a sleeve or casing, a series of clamping-jaws therein having beveled surfaces, a beveled annulus coaxial with each surface, an axial spindle extending between said jaws and connected with the annulus, and a spring tending to retract said annulus and maintain the jaws in closed or clamping position.

5. In a button-making machine, a chuck-bearing frame, means for intermittently rotating the same, and a series of externally-beveled clamping-jaws in said sleeve or casing, a beveled annulus coaxial with the beveled portions of the jaws, an axial spindle extending through said sleeve or casing and between the jaws, a connection between said spindle and the annulus, and a spring tending to retract said spindle and annulus and thereby to maintain the jaws in closed or clamping position, in combination with a cam mounted in the path of the respective spindles and adapted to be engaged thereby during the rotation of the chuck-bearing frame.

6. In a button-making machine, the combination with a tool and tool-support, of a shaft, a chuck-bearing frame thereon, a series of chucks in said frame, a spiral gear on said shaft provided with intervals with transverse interstitial spaces, a coaxial gear provided with a series of teeth and a peripheral rim, as described, and means for rotating the latter gear.

696,680. COMBINED VALVE AND SWITCH APPARATUS. ROBERT C. GARLAND, Chelsea, Mass., assignor of one-half to W. A. Stevens, East Boston, Mass. Filed Nov. 22, 1901. Serial No. 59,305. (No model.)



Claim.—1. The combination with a motor and an electric generator operated thereby, of a battery, a combined valve and switch apparatus comprising a valve, a switch-arm movable with the valve, and two contact-pieces located in the path of the switch-arm, and connected respec-

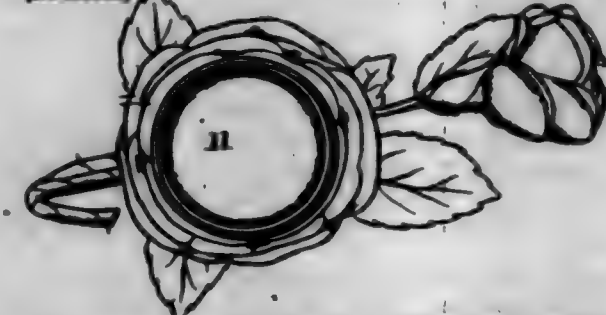
tively with the two sources of electricity specified, whereby the switch-arm may complete either circuit.

2. The combination with a motor and an electric generator operated thereby, of a battery, a combined valve and switch apparatus comprising a valve, a switch-arm movable with the valve, a battery contact-piece arranged in the path of the switch-arm to make contact therewith when the valve is in one position, and a dynamic contact-piece arranged in the path of the switch-arm to make contact therewith when the valve is in another position, the switch-arm being out of contact with the contact-pieces when the valve is in a third position.

3. The combination with a motor and an electric generator operated thereby, of a battery, a valve-casing, two contacts supported by and insulated from the casing and also insulated from each other, a valve movable in said casing and a switch-arm affixed to the valve, the said contacts being located in the path of the switch-arm and connected respectively with the two sources of electricity specified, whereby the switch-arm may complete either circuit.

4. The combination with a motor and an electric generator operated thereby, of a battery, a valve-casing having two standards, insulating-blocks affixed to said standards, contact-pieces affixed to said blocks and insulated thereby from the standards and from each other, a rotary valve in said casing adapted to occupy one of two positions when open, and a switch-arm affixed to said valve and adapted to make contact with one contact-piece or the other when the valve is in an open position, the said contact-pieces being arranged so that the arm is out of contact with both of them when the valve is closed.

696,681. REFRIGERANT-RECEPTACLE AND BOUTONNIERE. JOHN A. SMITH, Brooklyn, N. Y. Filed July 23, 1901. Serial No. 60,205. (No model.)



Claim.—1. In combination with an artificial flower carrying a piece of tubing and a boutonniere the stem of which is detachably inserted in said tubing, a cup or receptacle, a stem composed of a plurality of wires, the said cup or receptacle being grasped by the said wires, substantially as described.

2. In a device of the character described, a cup or receptacle, a stem composed of a plurality of wires, the ends of said wires adapted to grasp said cup or receptacle, a piece of tubing carried by said stem, and a boutonniere detachably secured in said tubing and extending beyond the said cup or receptacle, substantially as described.

3. In combination with an artificial flower, a cup or receptacle, a stem composed of a plurality of strands or lengths of wire, the ends of said strands being bent to form fingers adapted to grasp said cup or receptacle, substantially as described.

696,682. PHOTOGRAPHIC FABRIC AND PROCESS OF PREPARING SAME. FREDERICK H. C. GARDNER, New York, N. Y., assignor to Greater Art Company, a Corporation of West Virginia. Filed Apr. 29, 1901. Serial No. 54,086. (No specimens.)

Claim.—1. The process of preparing fabric for photographic use, by applying to the fabric a solution containing the aqueous extract of the white algae and subsequently sensitizing, and drying the fabric.

2. The process of preparing fabric for photographic use, by mixing extract of white algae, citric acid, and ammonium chloride, then wetting the fabric with the solution, then drying it, then applying a sensitizing solution, and finally again drying it.

3. A prepared sensitized fabric for photographic processes, characterized by its being impregnated with white-algae extract and by the presence of a sensitizing substance.

4. A prepared fabric for photographic processes, characterized by the presence of the dried product separated from a mixture of extract of white algae *Chlorella crispus*, citric acid, and ammonium chloride.

696,683. INVERSE-IMPRESSION PRINTING. EDWARD W. HALL, Rutherford, N. J., assignor to himself, and E. Charles Fisher and John L. Gentry, New York, N. Y. Filed Feb. 12, 1902. Serial No. 54,792. (No model.)

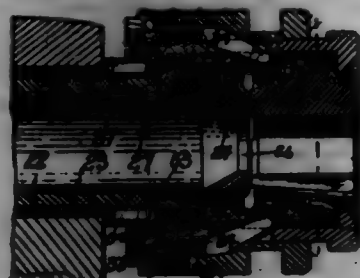
Claim.—1. An improvement in the art of printing or developing pictures or other representations, the herein-described method consisting in producing upon an impression-receiving surface a visible pictorial or other representation constituting in itself an entity or individual whole and also a substantially invisible pictorial or other representation constituting in itself an entity or individual whole, said visible and invisible representations being arbitrarily distinctive with respect to each other and respectively associated or correlated so that they are adapted to conjointly produce a complete pictorial or representative entity or whole in which the visible association of the visible and invisible parts completes the full motive or theme of the pictorial or other representation, and then developing the invisible representation to render the same visible in association with the visible representation to produce said composite complete entity or whole.



2. An impression-receiving sheet having upon its surface a visible pictorial or other representation constituting in itself an entity or individual whole and also having a substantially invisible pictorial or other representation constituting in itself an entity or individual whole, said visible and invisible representations being arbitrarily distinctive with respect to each other and respectively associated or correlated so that they are adapted to conjointly produce a complete pictorial or representative entity or whole in which the visible association of the visible and invisible parts complete the full motive or theme of the pictorial or other representation, said invisible impression being capable of development to produce visibility.

3. An impression-receiving sheet having visibly printed or produced upon its surface a pictorial or other representation constituting in itself an entity or individual whole and also having a pictorial or other representation constituting in itself an entity or individual whole and printed or produced upon its surface in a substantially invisible or sympathetic ink capable of development to visibility by treatment of the surface having said invisible representation with a pencil, crayon, or other material or substance which will be "taken up" by said ink, said visible and invisible representations being arbitrarily distinctive with respect to each other and respectively associated or correlated so that they are adapted to conjointly produce a complete pictorial or representative entity or whole in which the visible association of the visible and invisible parts complete the full motive or theme of the pictorial or other representation.

696,684. CHUCK. JAMES HARRISON, Springfield, Vt. Filed Mar. 20, 1901. Serial No. 25,081. (No model.)



Claim.—1. A chuck having jaws, means for closing said jaws and supports co-operating with said jaws for holding said jaws open when the chuck is open, said supports frictionally engaging said jaws at their sides, whereby said jaws are movable relatively thereto.

2. A chuck having radial jaws and wedge-shaped radially-movable spacers interposed between said jaws.

3. A chuck having radial jaws and spring-tensioned spacers having provisions for holding said jaws open.

4. A chuck having radial jaws, wedge-shaped spacers between said jaws, and means whereby when the jaws are moved toward their common center, the spacers move away from said center, and vice versa.

5. A chuck having wedge-shaped jaws, and radially-movable wedge-shaped spacers interposed therewith.

6. A chuck having wedge-shaped jaws and spring-tensioned wedge-shaped spacers.

7. A chuck having radial jaws, radial spacers between said jaws, said jaws and spacers being grooved, and a sleeve having an internal flange extending into said grooves, and thereby holding the spacers against movement longitudinally of the chuck relatively to the jaws.

8. A chuck having an annular abutment, jaws located within said abutment, and independent radially-movable spacers located between said jaws for holding them against said abutment, when said jaws are open.

9. A chuck having jaws radially disposed and tapering from their outer to their inner ends, and spacers interposed between the sides of the jaws and movable relatively to said jaws for the purpose described.

10. A chuck having jaws, means for opening and closing said jaws, and supplemental means for closing said jaws with a spring-pressure against the work.

11. A chuck having jaw-operating means, and also having provisions for closing said jaws upon the work prior to the actuation of said jaws by said operating means.

12. A chuck having jaws, means for opening and closing said jaws, and provisions whereby said jaws are closed yieldingly against the work, prior to the operation of the jaw-closing means.

13. A chuck having jaws, a sliding sleeve for positively closing said jaws, adapted to be operated manually or automatically, and a spring for closing said jaws prior to the actuation of said jaws by said sleeve.

14. A chuck having jaws, a spring for bringing the jaws against the work, and means additional thereto for tightly wedging the jaws against the work after the operation of the spring.

15. A chuck having jaws, a sleeve for actuating the jaws, means for actuating said sleeve, and mechanism between said means and said sleeve for automatically moving said sleeve to the other when said means is actuated.

16. A chuck having jaws, a jaw-closing sleeve, an outer collar for moving said sleeve, and means between said collar and sleeve for automatically moving one relatively to the other.

17. A chuck having jaws, a jaw-actuating sleeve, a collar thereon to move said sleeve, a nut threaded on said sleeve, means for automatically rotating said nut in one direction or the other, when the collar is moved.

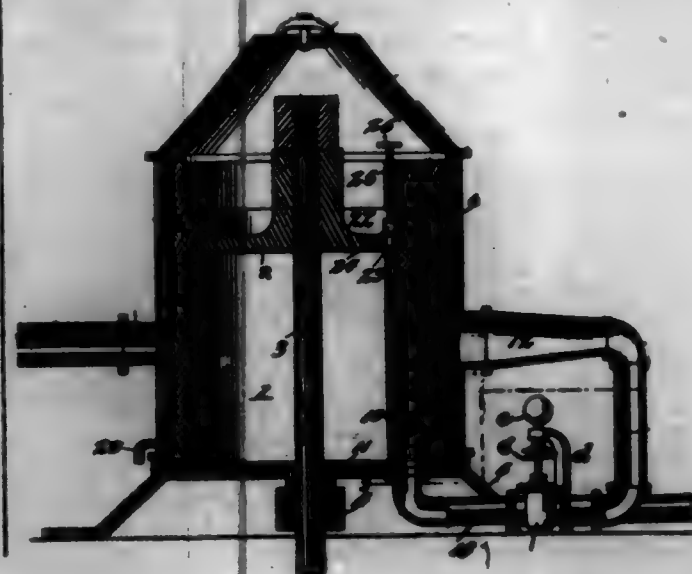
18. A chuck having jaws, means for positively locking said jaws against the work, and supplemental provisions for engaging said jaws with the work prior to the locking of said jaws.

19. A chuck comprising a rotary spindle, a stationary friction member, jaws, a sleeve for operating said jaws and having a friction member complementary to the first-mentioned friction member whereby when said members are engaged the said sleeve is moved to actuate the jaws, and means for causing the engagement or disengagement of said friction member.

20. A chuck for bar-working machines, comprising a hollow spindle by which it may be rotated, and through which the bar may be passed from the rear of the jaws for engaging the jaws, means for operating the jaws, and means independent of and in the rear of the jaws for centering the work relatively to the jaws.

21. A chuck having a hollow spindle for the reception of work passed longitudinally therethrough, jaws on said spindle, means for operating said jaws, and a beveled centering-bushing independent of said jaws located within said spindle in the rear of said jaws.

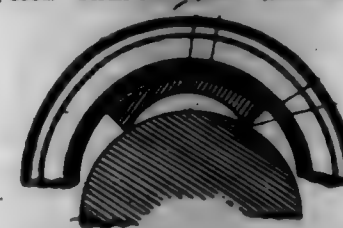
696,685. MEANS FOR REDUCING CONDENSATION OF STEAM IN CYLINDERS. GEORGE E. HARVEY, Pittsburgh, Pa. Filed June 22, 1901. Serial No. 25,082. (No model.)



Claim.—1. In a device of the character described, a steam-cylinder, a piston in the cylinder, a cylindrical jacket inclosing the cylinder and provided with a conical top extending above and over the cylinder, a live-steam pipe opening into the bottom of the cylinder, an exhaust-steam pipe leading from the steam-pipe to take steam from the cylinder below the piston and opening into the space between the jacket and the cylinder, a valve operatively interposed in the exhaust-steam pipe, and an outlet-pipe opening from the jacket opposite to the inlet end of the exhaust-steam pipe.

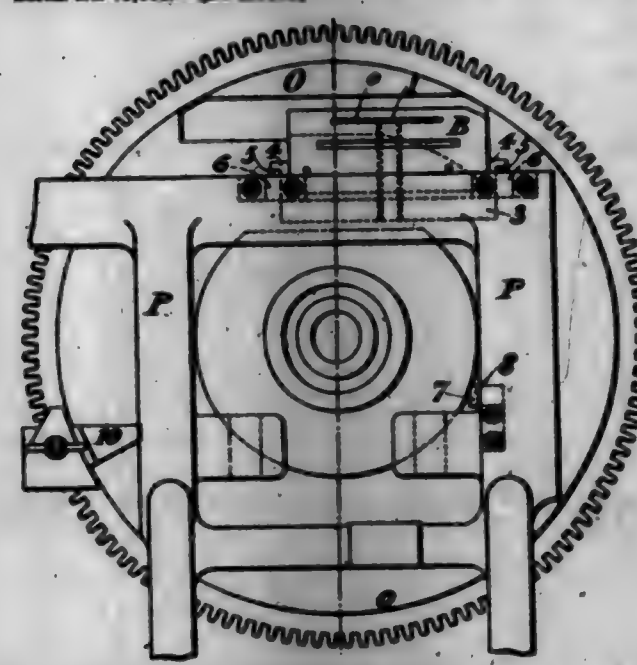
2. In a device of the character described, a steam-cylinder, a piston in the cylinder, a cylindrical casing surrounding the cylinder and provided with a conical top extending above and over the cylinder, a steam-pipe opening into the bottom of the cylinder to conduct live steam therein, an exhaust-steam pipe leading from the live-steam pipe adjacent to its entrance into the cylinder to take steam from the cylinder from below the piston and conduct it into the space between the jacket and the cylinder, a valve in the exhaust-steam pipe to control the passage of steam there-through, and a branch pipe 10 extending from the live-steam pipe to a feed-water heater, substantially as described.

696,686. SPLIT-PULLEY ATTACHMENT. ALBERT W. KIMM, Ballard, Wash., assignor of one-half to Eben E. Kimm, Seattle, Wash. Filed June 4, 1901. Serial No. 25,083. (No model.)



Claim.—In a split pulley, the combination with the pulley-section, the shaft, and U-bolts holding the sections on the shaft, of a segmental bar fitted to each U-bolt and the shaft to secure the U-bolts and shaft together, said segmental bar having at each end oppositely-disposed sharp edges engaging respectively with the shaft and U-bolts, the intermediate portions of the bar being respectively free from engagement with the U-bolts and shaft, for the purpose specified.

696,687. AUTOMATICALLY-CLOSED LINETYPE MOLD-BLOCK. CHARLES HALLIWELL, Broadmonth, England, assignor to the Hargreaves Linotype Company, New York, N. Y. Filed Sept. 20, 1901. Serial No. 25,084. (No model.)



Claim.—1. In a linetype-casting machine the combination with the fixed frame and mold-wheel, and means in operative connection with the mold-wheel imparting to it intermittent partial rotation and reciprocal axial movement, of a mold-block secured to the mold-wheel, a mold-die and guide in the mold-block, a core in the guide movable into and out of the mold-die, projections on the core and co-operating cams on the core projections, and on the fixed frame in the rectilinear path of said projections, for projecting the core into, and retracting it from, the mold-die substantially as set forth.

2. In a linetype-casting machine the combination with the mold-wheel and a mold-block thereon slotted to form respectively part of the casting-mold and a guide, of a core in the guide movable into and out of

the mold-die transversely and co-operating cams on the core and fixed frame for projecting the core into, and retracting it from the mold-die substantially as set forth.

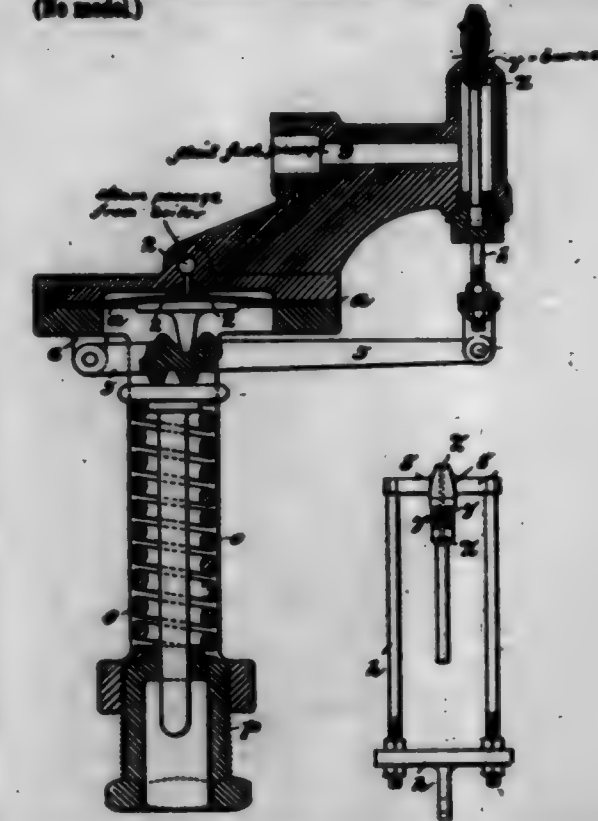
3. In a linetype-casting machine the combination with the mold-wheel and means operatively connected therewith alternately moving it rotatively and axially, and a mold-block, on said wheel slotted to form respectively part of the casting-mold and a guide, of a core in the guide, movable into and out of the mold-die transversely, a bar on the core and fixed device adapted to engage the bar when the mold-wheel is moved axially for projecting the core into, and retracting it from, the mold-die substantially as set forth.

4. In a linetype-casting machine the combination with the mold-wheel and means operatively connected therewith alternately imparting partial rotation in the same direction and reciprocal axial motion, and a mold-block on said wheel slotted to form respectively part of the casting-mold and a guide, of a core in the guide, movable into and out of the mold-die transversely, a bar on the core, cam projections on the bar and cam projections on the fixed machine-frame adapted to engage respectively the bar and the cam projections on the bar when the mold-wheel is moved axially forward substantially as set forth.

5. A mold for a linetype-machine, consisting of a rigid body having parallel front and rear faces, a slot therethrough in which to cast the linetype, and a transverse dovetail groove in the rear face, in combination with a sliding core mounted in said slot and having its rear face flush with that of the mold, whereby the mold is adapted to support and carry the core, and the core adapted to form a recess in the base of the slug to release the slug, this it may be quoted.

6. In a linetype-machine, a rigid mold having parallel front and rear faces, a slot in which the linetype is formed, and a transverse groove in its rear face, in combination with a sliding core mounted in said groove and sustained by the mold flush with its surface and with automatic mechanism for advancing the core across the mold-die and retracting it therefrom.

696,688. AUTOMATIC FUEL-REGULATOR. HENRY A. ROUSE, Jr., Hampstead, England. Filed May 22, 1901. Serial No. 25,085. (No model.)

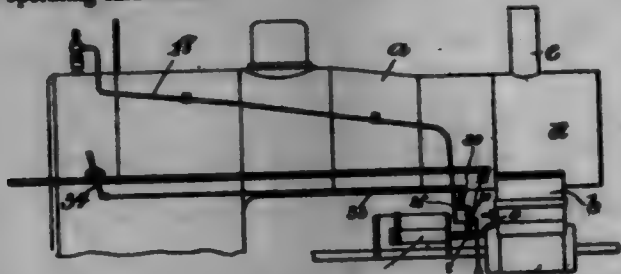


Claim.—In an automatic regulator the combination of a valve-casing provided with an inlet and an outlet, a valve adapted to close said outlet when moved in either direction and to permit a maximum flow in an intermediate position, one of said parts being provided with a constantly open aperture, a diaphragm adapted to be actuated by pressure and connection between said diaphragm and said valve.

696,689. AUTOMATIC VARIABLE-EXHAUST APPARATUS. HENRY E. HUFF, Boston, Mass., assignor of two-thirds to Arthur D. Curtis and Smith P. Burton, Jr., Boston, Mass. Filed June 22, 1901. Serial No. 25,086. (No model.)

Claim.—1. The combination with the cylinder, exhaust-passage, and connections between said cylinder and the exhaust-passage of a valve adapted to automatically open and close the communication

tion between the exhaust-passages and the reservoir, and means for manually operating said valve.

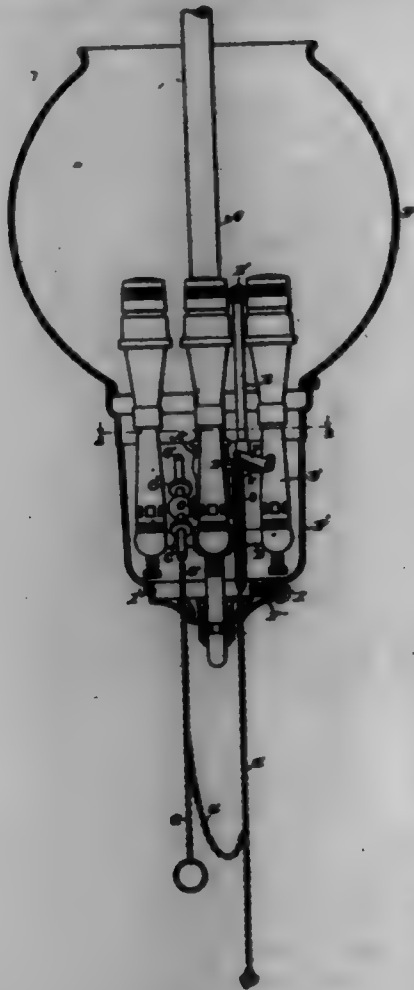


2. The combination with the cylinder, exhaust-passages, and the pipes connecting the exhaust-passages with the reservoir, of a valve-casing having a cylindrical extension adapted to contain a piston, a valve in said valve-casing, and connections between said valve and piston whereby the valve may be opened.

3. The combination with the boiler and reservoir, the pipes connecting the reservoir with the exhaust-passages and exhaust-conduit, a valve-casing having a cylindrical extension, a piston in said extension, a valve adapted to control communication between the reservoir and exhaust-passages and connected with said piston, and means for the admission of steam from the boiler to the cylindrical extension of the valve-casing whereby the valve may be opened, as set forth.

4. The combination with the boiler, the valve-casing, the valve, the piston, the stem, connecting the valve and piston of a valve, adapted to open and admit steam from the boiler to the piston at a predetermined pressure of the steam in the boiler and to close when said pressure is reduced, connections, as the pipe, between the valve and the cylindrical extension, means for permitting the escape of steam from the cylinder after the piston has been raised, and means for regulating the pressure of steam upon the piston, as set forth.

696,640. GAS-LAMP. ALFRED E. HURFERT, Kalamazoo, Mich. Filed Jan. 6, 1902. Serial No. 22,604. (No model.)



Claim.—1. In a lamp, the combination of a central supply-pipe; lateral arms thereon carrying burners; a main gas-valve in the central supply pipe or passage to control the flow of gas to the said burners; a cross-arm on said valve with suitable disk stops positioned to strike one of said lateral arms; chains *a, a'* connected to each end of said cross-arm; a pilot-valve connected above said main gas-valve; a tube extending upwardly therefrom containing small jet-perforations; a valve with stop there-

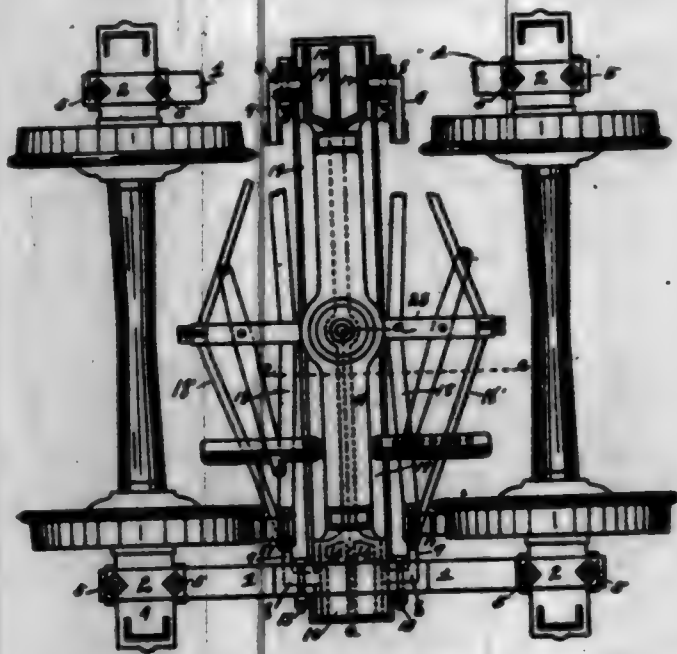
on to hold the same a little off from its seat to permit a small flow of gas; a spring *s'* to hold the said valve normally toward its closed position; a lever with connection adapted to act against said spring consisting of chain *a'* and spring *B* being of greater strength than the valve-spring; and the chain *a'* being connected by a loop to the chain *a'*, all coacting substantially as described and for the purpose specified.

2. In a lamp, the combination of a central supply-pipe; lateral arms thereon, carrying burners; a main gas-valve in the central supply pipe or passage to control the flow of gas to the said burners; a cross-arm on said valve with suitable stops; chains *a, a'*, connected to each end of said cross-arm; a pilot-valve connected above said main gas-valve; a tube extending upwardly therefrom containing small jet-perforations; a valve with a stop thereon to hold the same a little off from its seat to permit a small flow of gas; a spring *s'* to hold the said valve normally toward its closed position; a lever with connection adapted to act against said spring, consisting of chain *a'* and spring *B* connected to the said lever, the said spring *B* being of greater strength than the valve-spring; and the chain *a'* being connected by a loop to the chain *a'*; all coacting substantially as described and for the purpose specified.

3. In a lamp, the combination of a main supply-pipe; burners connected thereto with a valve for controlling the supply of gas; stops for said valve for both its open and closed positions; and a pair of chains connected to control said valve; a pilot-light with an independent connection to the gas-supply; a pilot-light valve in such connection with a stop to hold it a little open to permit a small flow of gas; a spring, or other means, for holding the same automatically in this position; a connection to said pilot-valve containing a spring of sufficient strength to overcome the resistance of the valve and open the same, the main burner-chain or opening connection being connected thereto, whereby in operation, a pull on the pilot-light connection will first open the pilot-light valve wide and then open the main gas-valve, and when released, will permit the pilot-light to close automatically, for the purpose specified.

4. In a gas-lamp, the combination of a burner with a gas-valve in the main supply; a pilot-light independently connected; a valve for the pilot-light with a stop to hold it slightly open; a spring to throw the valve against the stop; a connection containing a spring of greater strength than the pilot-light-valve spring, the same being coupled with the connection to the main gas-valve, whereby the pilot-light will be open to the full extent and the burner-valve then opened and the pilot-light will close when the tension is released, for the purpose specified.

696,641. CAR-TRUCK. WILLIAM M. JOHN, Dayton, Ohio. Filed Jan. 4, 1902. Serial No. 22,554. (No model.)



Claim.—1. In a truck, the combination with a bolster, of a truck side frame consisting of one integral piece, the vertical members of which have openings therein, and bolster-guides projected through said openings and engaging with the ends of said bolster to secure the same to said frames.

2. In a truck, the combination with a bolster, of a truck side frame consisting of one integral piece, bolster-guides entering openings in the vertical portions of said truck side frame and serving to engage the ends of the bolster, and means for covering said bolster-guides to said frame.

3. In a truck, the combination with a bolster, of truck side frames each of which consists of one integral piece, the vertical members of which have openings therein, combined bolster-guide and brake-beam hangers

attachable in said openings and by means of which the ends of the bolster and the ends of the brake-beam are supported in said side frames.

4. In a truck, the combination with a bolster having vertical grooves in the ends thereof, of integral truck side frames, bolster-guides projecting into openings in the vertical portions of said truck-frames and entering the grooves in the ends of the bolster, substantially as specified.

5. In a truck, the combination with a bolster, of integral truck side frames, the same consisting of upper and lower portions which are joined by vertical portions and which terminate in end portions which are co-actable to the journal-bones, combined bolster-guides and brake-beam hangers secured to the vertical portions of said frames and serving to hold the ends of the bolster in engagement with the frames and to support the brake-beam, substantially as specified.

6. In a truck, the combination with a bolster, of integral side frames, the upper and lower members of which are joined by integral vertical members, bolster-guides attachable to said vertical members and by means of which connections are made between the side frames and the ends of the bolster, a combined spring-rod and truck-frame brace connecting the lower portions of said side frames and providing a seat for the spring.

7. In a truck, the combination with a bolster and truck-springs, of integral truck side frames, combined bolster-guides and brake-beam hangers attachable to the vertical members of said side frames, and by means of which the ends of the bolster are secured to the upper portions of said side frames, a combined spring-rod and truck-frame brace connecting the lower portions of the side frames and providing seats for the springs.

8. In a truck, the combination with a bolster and brake-beam, of integral side frames, combined bolster-guides and brake-beam hangers attachable to the vertical members of said side frames and by means of which the ends of the bolster are secured to said side frames, and the brake-beam is suspended from said side frames.

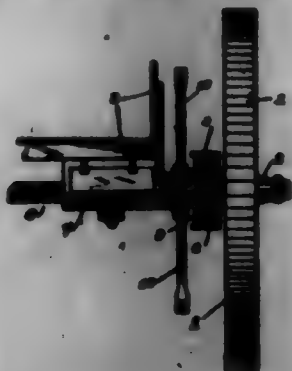
9. In a truck, the combination with a bolster having vertical channels or grooves in the sides of the ends thereof, of integral truck side frames, the said frames having vertical portions connecting the upper and lower parts of said frames, the ends of the bolster being projected into the space between said vertical portions, bolster-guides secured to said vertical portions of the truck side frames, and the inner ends of said bolster-guides being projected into the channels or grooves in the ends of the bolster, whereby a connection is made between the bolster and said truck side frames.

10. In a truck, the combination of a bolster having channels or grooves in the sides of the ends thereof, helical springs, integral truck side frames, bolster-guides secured to said truck-frames with their ends projected into the channels or grooves in the ends of the bolster, and a combined spring-rod and truck-frame brace connecting the lower portions of said frames and providing seats for the springs.

11. In a truck, the combination of a bolster, a combined spring-rod and truck-frame brace, springs inclined between the ends of said bolster and said spring-rod and truck-frame brace, integral truck side frames, bolster-guides attachable to the vertical members of said side frames and by means of which the bolster is secured to the upper portions of said side frames, and means for securing the ends of the combined spring-rod and truck-frame brace to the lower portions of the side frames.

12. In a truck, the combination with a bolster, of integral truck side frames, the said truck side frames having vertical portions which join the upper and lower parts of said frames and between which the ends of the bolster project, the said vertical parts of the truck side frames having openings or slots therein, combined bolster-guides and brake-beam hangers, said bolster-guides having portions which are projected through the openings or slots in the vertical parts of the truck side frames and engage with the opposite sides of the ends of the bolster, and links connecting the brake-beam with said combined bolster-guides and brake-beam hangers.

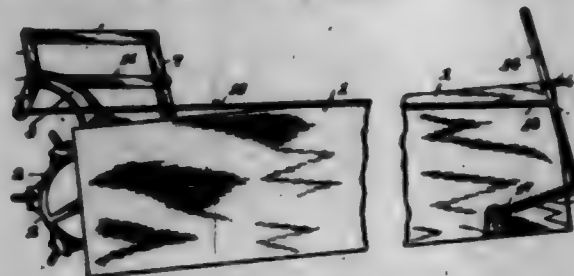
696,642. MECHANISM FOR TRANSMITTING POWER FROM VEHICLE GROUND-WHEELS. CLARENCE L. V. KIRBY, Newark, Ohio, assignor to the Newark Machine Company, Newark, Ohio, a Corporation of Ohio. Filed Dec. 7, 1901. Serial No. 84,968. (No model.)



Claim.—1. In a mechanism for transmitting power from vehicle wheels, the combination with a journaled axle 6, a ground-wheel rotatably mounted thereon, said ground-wheel having a cup-like inward projection and spring-actuated pawls pivoted within said cup projection, of a ratchet-wheel keyed on said axle and adapted to be received by said cup projection and to be engaged by said pawls and a power-wheel 12, carried by said axle, substantially as specified.

2. In a mechanism for transmitting power from vehicle ground-wheels, the combination with the journaled axle 6, a ground-wheel rotatably mounted thereon, said ground-wheel having a cup-like inward projection 3 and spring-actuated pawls within said cup projection, of a ratchet-wheel carried on said axle 6, said ratchet-wheel adapted to be received by said cup projection and having formed on its face and on opposite sides of its central opening curved guide-lugs 12 each leading to a tooth-notch of said wheel, and a power-wheel 13 carried on said axle 6, substantially as specified.

696,643. END-GATE FOR MANURE SPREADER OR SIMILAR BEDS. CLARENCE L. V. KIRBY, Newark, Ohio, assignor to the Newark Machine Company, Newark, Ohio, a Corporation of Ohio. Filed Dec. 7, 1901. Serial No. 84,969. (No model.)

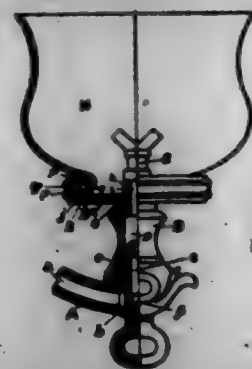


Claim.—1. In an end-gate for manure-spreader or similar beds, the combination with the bed-body 1, of bracket-arms rising from the rear end thereof and a semirotatable shaft extending between said bracket-arms, of an end-gate body and its supporting-frame, said body adapted to fit between the sides of said bed, bars 6 jointly connecting said brackets and said end-gate frame and means connected with said shaft for imparting a semirotary motion thereto, substantially as specified.

2. In an end-gate for manure-spreader or similar beds, the combination with the bed-body 1, of angular bracket-arms rising from said bed sides and a semirotatable shaft extending between said brackets, of an end-gate body adapted to fit between the sides of said bed, bars 6 jointly connecting said brackets and end-gate frame and bars 11 having their forward ends pivotally connected with said end-gate frame and their rear ends rigidly connected with said shaft and means for imparting a semirotary motion to the shaft, substantially as specified.

3. In an end-gate for manure-spreader or similar beds, the combination with a bed, brackets 3 rising from the rear end thereof, an end-gate body adapted to enter said bed as described, and swinging frame-bars connecting said end-gate frame within said shaft and brackets, of a telescoped lever at the forward end portion of the bed, a spring connecting the lower end of said lever with a fixed point in front of the latter and a rod 15 having its ends pivotally connected with an operating-arm of said shaft and with said lever, substantially as specified.

696,644. GLOBE-HOLDER ATTACHMENT FOR GAS-FITTINGS. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, Dayton, Ohio. Filed Jan. 15, 1902. Serial No. 85,798. (No model.)



Claim.—1. The combination with a gas arm or bracket, of a globe-holder consisting of an anteriorly-screw-threaded inner ring the inner wall of which is of greater diameter at the top than at the bottom thereof thus forming a circumferential incline, a circular-shouldered spiral spring resting on said incline, an outer ring having an inwardly-turned flange which engages the top side of the said spring and an interior screw-thread which

engages the exterior screw-thread of the said inner ring whereby elevating and lowering the said outer ring will increase the diameter of said spring to correspond with its position on the said incline, and means for supporting the said holder at the free end of said gas arm or bracket, substantially as and for the purpose set forth.

2. A gas arm or bracket, in combination with a globe and holder therefor supported at the free end of said arm or bracket and consisting of an exteriorly-screw-threaded inner ring the inner wall of which is of greater diameter at the top than at the bottom thereof thus forming a circumferential incline, a circular-formed spiral spring resting on said incline, an outer ring having an inwardly-turned flange which engages the top side of the said spring and an interior-screw-thread which engages the exterior screw-thread of the said inner ring whereby elevating and lowering the said outer ring will increase and decrease the diameter of said spring to correspond with its position on the said incline and whereby the said lowering operation will hold the globe rigidly within the holder, substantially as and for the purpose set forth.

696,645. REFRIGERATOR ATTACHMENT. ALEXANDER B. KOKERDORF, New Orleans, La. Filed July 11, 1901. Serial No. 57,574 (No model.)



Claim.—1. In a machine for holding refrigerator-tubes, the combination with a support having an open seat in one end in which the end of the tube engages, of tube-engaging devices movably mounted upon the support and arranged to engage the tube to hold it against movement upon the support, and operating mechanism for the tube-engaging devices also carried by the support.

2. In a machine for holding refrigerator-tubes, the combination with a support having a seat at one end against which a portion of the tube bears, of arms each pivoted at one end upon the support and having a finger at its other end, which fingers are located adjacent to the seat and are arranged to engage the tube to hold it against turning, and operating means for moving the arms, also carried by the support.

3. In a machine for holding refrigerator-tubes, the combination with a support, of movable arms carried by the support and having holding devices arranged to be brought into engagement with the tubes and support, and mechanism for moving said arms and the holding devices carried thereby into and out of engagement with said tubes and support.

4. In a machine for holding refrigerator-tubes, the combination with a support, of movable arms pivoted upon the support and having holding-fingers arranged to engage with the tubes and with the support, and means for operating the arms to move the fingers carried thereby into and out of engagement with said tubes and support.

5. In a machine for holding refrigerator-tubes, the combination with a hollow support, of movable arms pivoted at their lower ends within the support and having holding-fingers on the outer sides of their upper ends, said fingers being arranged to be brought into engagement with the tubes, and means for operating the holding-arms to move the fingers into and out of engagement with said tubes.

6. In a machine for holding refrigerator-tubes, the combination with a hollow support having openings in its walls contiguous to the upper end, of movable holding-arms pivoted at their lower ends within the support, and having fingers at their upper ends arranged to fit in the openings of said support, said fingers being also adapted to engage the tubes,

and means for swinging the arms and moving the fingers into and out of the openings of the support.

7. In a machine for holding refrigerator-tubes, the combination with a stationary support against which the tube bears, of arms pivoted to the support and movable toward and from each other, means for moving the arms, and tube-engaging fingers carried by and projecting from the outer faces of the arms, said fingers being arranged to engage a tube placed upon the support to prevent the movement of said tube away from the support.

8. In a machine for holding refrigerator-tubes, the combination with a support against which one end of the tube to be held bears, of holding means mounted upon the support and arranged to engage the tube to hold it against movement, positioning devices for the tube located upon the end of the support and arranged to engage the tube to hold the same against turning and in coaxial relation with the holding means.

9. In a machine for holding refrigerator-tubes, the combination with a support, of holding-arms pivoted upon the support and having fingers arranged to engage the ends of the tube, a rock-shaft journaled upon the support, an operating-lever secured to the shaft, a crank-arm also connected to the shaft, a stem connected at one end to the crank-arm, and links pivotally connected with the free ends of the holding-arms and with the stem.

10. In a machine for holding refrigerator-tubes, the combination with a hollow supporting-standard, of arms pivoted at their lower ends within the standards and having fingers at their upper ends arranged to engage the end of the tube, a rock-shaft journaled upon the standard and having an exposed end, an operating-lever mounted upon the exposed end, a crank-arm connected to the shaft within the standard, a stem having a pivotal connection with the crank-arm, and links pivotally connecting the stem and holding-arms.

11. In apparatus for holding refrigerator-tubes, the combination with a standard, of tube-engaging means mounted thereon and including movable fingers arranged to engage in openings of the tube to be held, and a centering-ring located at the upper end of the standard and provided with positioning-lugs that engage in sockets in the tube to hold the openings of said tube in coaxial relation with the movable fingers.

12. In apparatus for holding refrigerator-tubes, the combination with a hollow standard having a centering-ring at its upper end, said ring being provided with upstanding positioning-lugs, of tube-engaging means mounted within the hollow standard and including movable fingers arranged to engage the end of a tube inserted therein.

696,646. REFRIGERATOR. ALEXANDER B. KOKERDORF, New Orleans, La. Filed Oct. 7, 1901. Serial No. 77,964. (No model.)



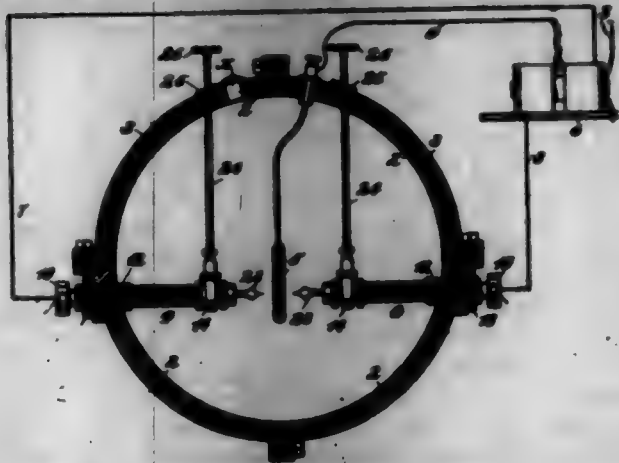
Claim.—1. In a refrigerator of the class described, the combination with a receptacle, of a tube passing through the receptacle, said tube being provided with an outstanding annular flange that bears against one of the outer faces of the receptacle, the other end of said tube being internally threaded, a holding-collar screwed into the threaded end of the tube and provided upon its exterior face with an annular flange that bears against the adjacent face of the receptacle, and end walls closing the ends of the tube.

2. In a refrigerator of the class described, the combination with a receptacle, of a tube passing through the receptacle, said tube being provided at one end with an outstanding annular flange that bears against the adjacent outer face of the receptacle, the other end of the tube being internally threaded, a holding-collar screwed into the threaded end of the tube and provided upon its exterior face with an annular flange that bears against the adjacent outer face of the receptacle, said collar being provided with a wall that closes the end of the tube, and a cap detachably fitted over the opposite end of the tube.

3. In a refrigerator of the class described, the combination with a

receptacle having oppositely-disposed openings, of bushings located in the openings, a tube passing through the receptacle and fitting in the bushings, one end of said tube being provided on its exterior face with an annular flange, the opposite end having internal screw-threads, packing interposed between the flange and bushing, a cap located over the end of the tube and detachably secured to said flange, a head screwed into the threaded end of the tube and provided with an exterior annular flange, packing interposed between this latter flange and the adjacent bushing, and a valved vent located in said head.

696,647. DEVICE FOR PURIFYING WATER. JEAN M. A. LACOMBE, Brooklyn, N. Y., assignor, by direct and mesne assignments, of two-thirds to Walter Lander, Brooklyn, N. Y., and James L. Heshett, Louisville, Ky. Filed Oct. 24, 1901. Serial No. 73,797. (No model.)



Claim.—1. The combination with two outer electrodes of the same polarity, of a third or intermediate electrode of opposite polarity, a double sparking-coil, two like poles of the secondary coils of which are electrically connected to said intermediate electrode, and the other poles to the two outer electrodes, the primary coil being connected with a suitable source of electricity, substantially as described.

2. In a device for the purification of water, the combination with a pipe or main having openings therein, of electrodes fitting in said openings and connected with a suitable source of electricity, and means for closing the openings in said main during the insertion or withdrawal of said electrodes, substantially as described.

3. In a device for the purification of water, the combination with a pipe or main, of tubes fitted in openings in said main and extending inwardly into the latter, electrodes removably held in said tubes and connected with a suitable source of electricity, and valves connected with said tubes for closing the same during the insertion or withdrawal of said electrodes, substantially as described.

4. In a device for the purification of water, the combination with a pipe or main, of tubes fitted in openings in said main and extending inwardly into the latter, electrodes adjustably contained within said tubes and having removable discharging points or ends, said electrodes being connected with a suitable source of electricity, and valves connected with said tubes whereby the latter may be closed during the insertion or withdrawal of said electrodes, substantially as described.

5. In a device for the purification of water, the combination with a pipe or main, of tubes fitted in openings in said main and extending inwardly into the latter, electrodes threaded into said tubes, and provided with removable discharging points or ends, said electrodes being connected with any suitable source of electricity, gate-valves located in said tubes and having valve-rods extending outwardly through said main whereby said tubes may be closed against the escape of water from said main during the insertion or withdrawal of said electrodes, substantially as described.

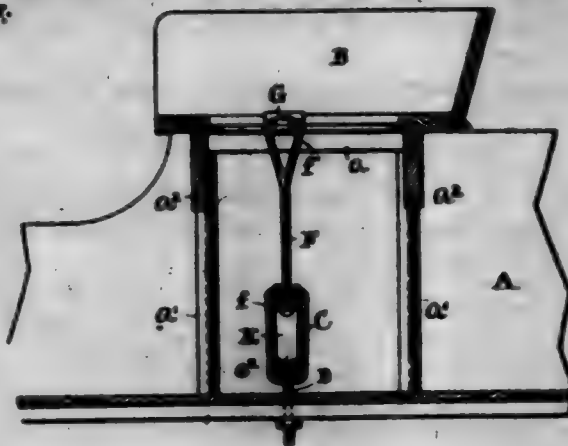
696,648. VEHICLE SEAT-LOCK. CHRISTIAN E. LAMBERT, Evansville, Ind. Filed Dec. 28, 1901. Serial No. 87,000. (No model.)

Claim.—1. A seat-lock for vehicles, comprising a yoke pivoted to the sill of the vehicle-body, a toggle-lever having a bifurcated upper end pivoted to said yoke, a link pivotally attached between the arms of said toggle-lever, and a hook on the seat with which said link is adapted to be detachably engaged.

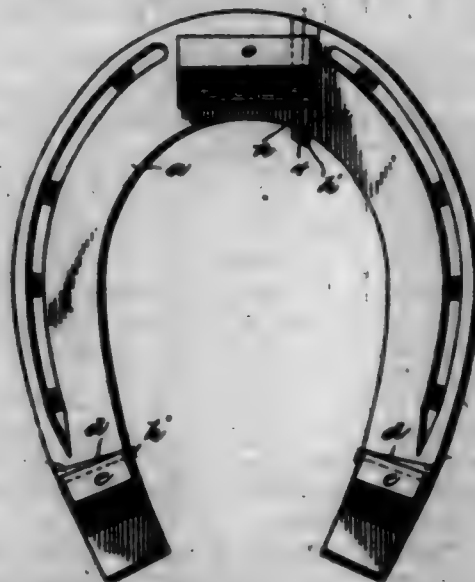
2. A seat-lock for vehicles, comprising a U-shaped yoke pivoted to the vehicle-body and having inwardly-turned upper ends, a toggle-lever having a bifurcated upper end pivoted on said ends of the yoke, a link pivoted between the arms of the lever and having a loop at its upper end, and a hook on the seat with which said loop can engage detachably.

3. A seat-lock for vehicles, comprising an eyebolt adjustably fastened to the sill of the vehicle-body, a U-shaped yoke pivoted to said eyebolt, a toggle-lever having a bifurcated end provided with notches and

pivotally attached to and between the arms of said yoke, a link having laterally-projecting transverse pivotally engaging notches in the toggle-lever, and a hook on the seat with which said link can be detachably engaged, said link and its pivots being adapted to swing between the arms of said yoke in the operation of locking the seat, so as to pass the dead-center.



696,649. HORSESHOE. GEORGE A. LOW, Amesbury, Mass. Filed Jan. 4, 1902. Serial No. 33,488. (No model.)



Claim.—A horseshoe having flat top and bottom surfaces, a mortise extending through the thickness of the shoe from one of said surfaces to the other, said mortise having an inwardly-projecting tongue at one end, a dovetailed wedge-shaped keyway formed in the under side of the shoe and extending across said mortise at the end opposite said tongue, a nail having a tenon with an outwardly-projecting tongue at one end adapted to engage the tongue in the mortise, and a wedge-shaped key fitted in said keyway and arranged to bear on the tenon to hold the same in engagement with the mortise-tongue, the length of said key exceeding the width of the shoe, so that the smaller end of the key is adapted to be bent upwardly against one edge of the shoe to prevent endwise movement of the key in one direction, the wedge shape of the keyway and key preventing endwise movement of the key in the opposite direction, and causing the key to force the tenon endwise against the shouldered end of the mortise.

696,650. SKIRT-SUPPORTER. JAMES MAYHEW, Boston, Mass. Filed July 13, 1901. Serial No. 68,257. (No model.)



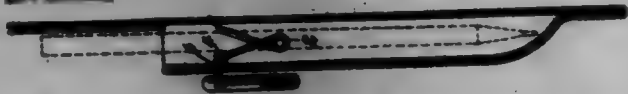
Claim.—1. An appliance of the character specified comprising a single piece of wire having a horizontal central portion and double-acting hooks at the ends of the central portion, said hooks being connected with the said central portion by outwardly and oppositely bent loops adapted to support the appliance from a piece of fabric and having upwardly-projecting penetrating points or spurs.

2. An appliance of the character specified comprising a single piece of wire having a central portion, two upper loops formed at the ends of the central portion and bent outwardly in opposite directions, and two lower hooks forming continuations of and depending from the upper loops and provided with penetrating points or spurs.

3. A skirt-supporter comprising a wire member having a central portion with an integral loop at each end and a downwardly and upwardly

extending back integral with each loop, and a plate secured to said member and forming a shield in the rear of the hooks, the said hooks bearing against the face of the plate.

696,651. COMBINED BADGE AND PENCIL-HOLDER. JOHN A. MARSHALL, Mountville, W. Va. Filed July 6, 1901. Serial No. 67,385. (No model.)



Claim.—1. A device of the character specified comprising a pencil-holder and garment-engaging means, and a button or badge detachably connected with the said means.

2. A device of the character specified comprising two oppositely-flexed members constituting a pencil-clamp, garment-engaging means carried by one of the members, and a button or badge detachably engaging said means.

3. A device of the character described, comprising a pair of spring-jaws, a garment-piercing member carried by one of the jaws, and a badge or button detachably applied to the garment-piercing member to prevent accidental displacement thereof.

4. A device of the character described, comprising a pair of spring-jaws, a two-tined garment-piercing member carried by one of the jaws, and a button or badge detachably embracing the tines of the garment-piercing member.

5. A device of the character specified comprising a three-membered structure, whereof two members constitute a pencil-clamp, and the third member a garment-piercing and engaging means, and a badge or button detachably engaging the third member.

6. A device of the character described, comprising a pair of looped jaw members having their corresponding ends provided with spring connections, a garment-piercing member carried by one of the jaw members, and a button or badge detachably carried by the garment-piercing member.

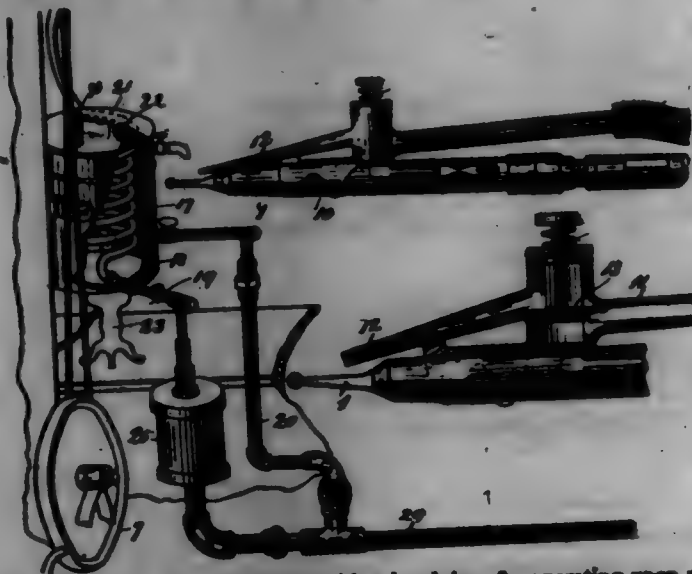
7. A device of the character specified, constructed of a piece of wire bent to form two resilient loops constituting a pencil-clamp, the terminals of the wire constituting pins to pass through a garment, and a button having a hollow back detachably engaging the pins.

8. A device of the character described, comprising two loops having a spring connection and arranged within the garment, garment-engaging means connected to the crest of one loop and exposed on the outside of the garment, and a button adapted to be secured to the exposed portion of the garment-engaging means.

9. A device of the character described, comprising the two loops having a spring connection at one end, garment-engaging pins extended from one of the loops, and a sleeve arranged at the junction of the pins with the loop.

10. A device of the character described, comprising a pair of inverted substantially U-shaped jaw members, which have their corresponding ends connected by spring-calls, the members being divergent from their spring connections, a pair of garment-piercing lines carried by the outer end of one of the jaws and a hollow button or badge detachably snapped upon the lines.

696,652. DENTAL OUTLINDER. ALVIN F. KIRKMAN, Jr., Oakland, Cal. Filed Feb. 27, 1900. Serial No. 4,754. (No model.)

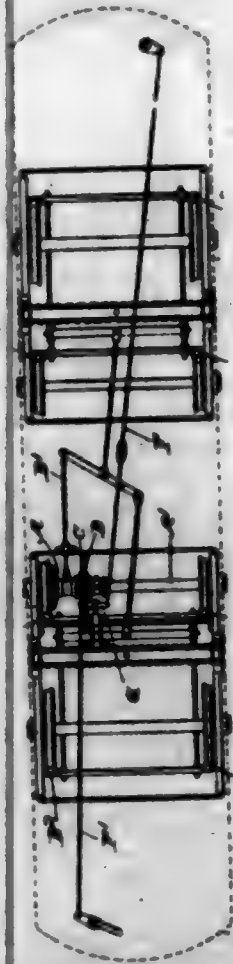


Claim.—1. In combination with a handpiece for operating upon a patient, means for relieving the pain of the operation, comprising a tube attached thereto having a nozzle directed to the point operated upon, a

supply of water under constant pressure, a reservoir, means for heating water in said reservoir, a coil of pipe in said reservoir connected at one end with the water-supply, and a flexible connection from the other end of the coil to the tube, substantially as described.

2. In combination with a handpiece for operating upon a patient, means for relieving the pain of the operation, comprising a tube attached thereto having a nozzle directed to the point operated upon, a reservoir, a coil of pipe in said reservoir, means for heating water in said reservoir, a flexible connection from the coil of pipe to the tube, two water-supply pipes, one connected to the reservoir and the other connected to the coil of pipe therein, and a filter in said last-mentioned water-supply pipe, substantially as described.

696,658. BRAKE FOR VEHICLES. WILLIAM G. FROST, Kingston, N. Y., assignor to Columbia Brake & Supply Company, Chicago, Ill., a Corporation of Illinois. Filed July 12, 1899. Serial No. 723,067. (No model.)



Claim.—1. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two parts interposed between said frictional device and said stop device, one of the parts engaging one device at two separated pivotal bearing-points and engaging the other part at two separated pivotal bearing-points, the several points disposed about the axle, so that said parts are free to rock about each other without varying the position of the friction device, substantially as described.

2. A brake mechanism, comprising a part fixed to the axle, an opposed frictional element, brake-applying devices operatively connected with said frictional element, a stop in proximity to said frictional element, an actuating device between the stop and the frictional element for moving said frictional element toward the fixed part, a compensating or adjusting device so part of the actuating device but interposed between the stop and said frictional part, which permits an automatic rocking upon axes approximately at right angles to each other, whereby automatic adjustment for inequalities in the construction is obtained.

3. A brake mechanism, comprising a part fixed to the axle, an opposed frictional part, brake-applying devices operatively connected with said frictional part, a stop in proximity to said frictional part, an actuating device between the stop and the frictional part for moving said frictional part toward the fixed part, a gimbal between the stop and the working face of the frictional part, and an armature part on the car for operating said actuating device, said gimbal having no effective function in moving said frictional part toward the fixed part, but effectively brought into action after the said frictional and fixed parts are in engagement.

4. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two parts interposed between said frictional device and said stop device, one of said parts hav-

ing a rocking connection at two points with one device and at two differently-located points with the other part, so that said parts are free to rock about each other to adjust themselves to varying conditions and without varying the position of said frictional device, and means for moving said parts with relation to each other so as to move the frictional element.

5. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two parts interposed between said frictional device and said stop device, one of said parts having a rocking connection at two points with one device and at two differently-located points with the other part, thus forming four points of pressure, one of said latter connections comprising a movable piece working in one of said parts and engaging the other, and a controlling device connected with said movable piece so as to actuate it and separate the two parts.

6. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two relatively movable parts interposed between said frictional device and said stop device, one of said parts having a rocking connection at two points with one device and at two differently-located points with the other part, one of said latter connections comprising a movable piece working in one of said parts, a rotatable part engaging said movable piece, said rotatable part operatively connected with a controlling device by means of which the mechanism is operated.

7. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two parts interposed between said frictional device and said stop device, one of said parts having a rocking connection at two points with one device and at two differently-located points with the other part, one of said latter connections comprising a piece movably mounted on one of said parts, an opposed adjustable piece on the other part engaging said movable piece, and a controlling device to which said movable piece is connected.

8. A brake mechanism, comprising a part on the axle, an opposed frictional device, a stop device in proximity thereto, two parts interposed between said frictional device and said stop device, one of said parts having a rocking connection at two points with one device and at two differently-located points with the other part, said four points of connection being disposed about the axle substantially ninety degrees apart and adapted to permit a rocking motion of the movable parts when there are irregularities in the devices between which they are interposed without varying the position of said frictional device, and means for moving said two parts with relation to each other so as to move the frictional element to an operative position.

9. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, two parts associated with said frictional element and interposed between it and a stop, a device for moving said parts relatively so as to force the frictional element against the fixed element on the axle, a controlling device on the vehicle-body and an automatic adjustable connection between said controlling device and the device for moving said parts.

10. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, two parts associated with said frictional element and interposed between it and a stop, a device for moving said parts relatively so as to force the frictional element against the fixed element on the axle, a controlling device on the vehicle-body, a connection between said controlling device and the device for moving said parts, and a compensating device in said connection for compensating for the relative movement of the vehicle-body and the axle.

11. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, two parts associated with said frictional element and interposed between it and a stop, a device for moving said parts relatively so as to force the frictional element against the fixed element on the axle, a controlling device on the vehicle-body, a connection between said controlling device and the device for moving said parts, two reciprocating parts interposed in said connection and adapted to reciprocate with relation to each other, said parts connected so as to rotate together.

12. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, two parts on the axle and interposed between the frictional element and a stop, a device for moving one of said parts so as to force the frictional element against the fixed element on the axle, a controlling device on the vehicle-body, a connection between said controlling device and the device for moving said parts, two reciprocating parts interposed in said connection and adapted to reciprocate with relation to each other, said parts connected so as to rotate together, one of said parts having a universal connection with the controlling device and the other part having a universal connection with the device for moving the part on the axle so as to move the frictional element.

13. A brake mechanism, comprising an actuating device on the vehicle-axle, a controlling device on the vehicle-body, a connection between the actuating device and the controlling device, two parts interposed in

said connection and free to reciprocate with relation to each other, but connected so as to move together when rocked about their axes.

14. A brake mechanism, comprising an actuating device on the vehicle-axle, a controlling device on the vehicle-body, a connection between the actuating device and the controlling device, two parts interposed in said connection and free to reciprocate with relation to each other, but connected so as to move together when rocked about their axes, one of said parts connected with the vehicle-body by a universal connection and a universal connection between the other part and said actuating device.

15. A brake mechanism, comprising two parts interposed between a stationary and a movable piece, a plunger associated with one part and bearing against the other part, a cam engaging said plunger and adapted to move it so as to separate the parts.

16. A brake mechanism, comprising two parts interposed between a stationary and a movable piece, a plunger associated with one part, an adjustable device on the other part which said plunger engages, a cam engaging said plunger and adapted to move it so as to separate the parts.

17. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, two parts interposed between said frictional element and a stop on the axle, said parts provided on one side of the axle with means for separating them, a piece on the other side of the axle connected with one of said parts and bearing against the other, and one or more washers interposed between said piece and one of said parts, so as to hold the parts in their adjusted relative position.

18. A brake mechanism, comprising a fixed element on the axle, an opposed frictional element, two parts on said axle interposed between said frictional element and a stop associated with the axle, means for separating said parts located on one side of the axle and a connection or fulcrum between the parts on the other side of the axle.

19. A brake mechanism, comprising a fixed element on the axle, a frictional device opposed thereto, two parts interposed between said frictional device and a stop device on the axle, one part engaging the stop device and the other part, said other part engaging the frictional device, the several engagements forming pivotal connections, means for separating said two parts so as to move the frictional device against the fixed element on the axle, the engagement between said two parts and the stop and frictional element being such as to permit a rocking movement of said parts without moving the frictional device or varying the pressure with which the frictional element is forced against the fixed element on the axle.

20. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, a stop on the axle, two parts interposed between said frictional element and said stop, said parts provided on one side of the axle with means for separating them, a bolt on the other side of the axle adjustably connected with one of said parts and bearing against the other, the position of said bolt adapted to be adjusted by means of one or more washers placed between the head of the bolt and the part with which it is connected, substantially as described.

21. A brake mechanism, comprising a fixed part on the axle, an opposed frictional element, a stop associated therewith, two parts on said axle interposed between said stop and said frictional element, one of said parts provided with a projecting arm which passes through an opening in a stationary part of the car, the other part provided with projecting lugs which engage the first-mentioned part, the construction arranged so as to prevent the two parts from rotating with the axle but permit relative movement between them.

22. A brake mechanism, comprising a fixed part on the axle, an opposed frictional device, a stop device on said axle, two parts mounted upon said axle and interposed between said stop device and frictional device, one of said parts connected at two points by a rocking connection with one device, the two parts connected together at two points substantially ninety degrees from said first-mentioned points, one or both of said parts provided with a projecting end which engages a part of the car so as to prevent the rotation of the parts with the axle.

23. A brake mechanism, comprising a fixed part on the axle, an opposed frictional device, a stop device associated therewith, two parts interposed between said frictional device and stop device, two pieces, one on each side of the axle, adapted to engage one of said devices, said pieces provided with projections received into openings in one of said parts, so as to carry the pressure when the parts are separated, a connection between said parts on each side of the axle, and means for separating said parts so as to move the frictional element in contact with the fixed part on the axle.

24. A brake mechanism, comprising a fixed part on the axle, an opposed frictional element, two parts mounted on said axle between said frictional element and a stop and adjustably connected together, one of said parts provided with an enlarged or elliptical opening at the point where it engages the axle, so as to permit movement with relation to said axle.

25. A brake mechanism, comprising a fixed part on the axle, an opposed frictional element, a stop associated with said axle, two parts interposed between said frictional element and said stop, said parts con-

locked together, a spring device between the parts at this connection, and means for separating the parts so as to move the frictional element.

26. A brake mechanism, comprising a fixed element on the axle, a frictional element opposed thereto, a stop on said axle, two parts interposed between said frictional element and said stop, one of said parts connected at two points either with the frictional element or stop, or some part associated therewith, and at two differently-located points with said other part, said four points of connection being substantially ninety degrees apart and adapted to permit a rocking motion of the movable parts to compensate for irregularities in the devices between which they are interposed, an actuating device for separating said two parts, a plunger associated with one part and bearing against the other, a cam engaging said plunger and adapted to move it to separate the parts, a telescopic connecting-link between said cam and a controlling device on the vehicle-body, said link connected to said parts at each end by a universal connection.

27. A brake for cars, comprising a friction device on the axle, an operating device on the car-body, a rotatable rod adjustable longitudinally, interposed between the operating device and the friction device, the rotation of said rod actuating the friction device.

28. A brake for cars, comprising a friction device on the axle, an operating device on the car-body, a rotatable telescopic two-part rod interposed between the operating device and the friction device, one part being connected with the friction device and the other part with the operating device on the car, the rotation of said rod actuating the friction device.

29. The combination with a car and its brake, of independent trucks pivotally supporting the ends of the car, a brake-operating friction-clutch upon one axle, clutch-operating devices supported by the truck, a pivoted lever supported from the car near said axle, means whereby a brakeman at the end of the car may swing said lever, at will, and connections of automatically-adjustable length transmitting the rotary motion of the lever to said devices, whereby said devices are operated regardless of relative swinging of the truck.

30. The combination of a car and its truck, of a brake-operating friction-clutch upon one truck-axle, devices supported by the truck alone, for throwing the clutch into engagement, a sleeve mounted in a bearing supported from the car and adapted to both swing and rotate, a bar sliding but not rotating in said sleeve, means whereby the rotation of the bar actuates said devices, and means whereby said sleeve may be rotated from either end of the car.

31. The combination with a car and its truck, of a brake-operating friction-clutch upon one of the axles, a brake-staff at the end of the car, a sleeve adapted to swing and to rotate and mounted in a bearing supported by the car alone, a bar sliding but not rotating in said sleeve, means whereby said sleeve and bar may be rotated by the movement of the brake-staff, and means whereby the rotation of the bar throws said clutch into engagement.

698,654. BRAKE FOR VEHICLES. WILLIAM C. FRANK, Kingston, N. Y., assignor to Columbia Brake & Supply Company, Chicago, Ill., a Corporation of Illinois. Filed July 26, 1901. Serial No. 99,709. (No model.)

Claim.—1. In a brake for vehicles, the combination of a friction device on the axle, with setting devices carried on the axle and adapted to be operated by a liquid under pressure, a liquid-supply device carried on the vehicle-body, a liquid-compressing device associated therewith, a liquid-transmitting device from the liquid-supply device to the friction device to operate the same responsive to the motion of the liquid-compressing device, and a separate connection from the liquid-storage to the friction device for the transmission of the liquid for lubricating the parts.

2. In a brake for vehicles, the combination of a friction device on the axle, with setting devices carried on the axle and adapted to be operated by a liquid under pressure, a lubricating-liquid-supply device carried on the vehicle-body, a liquid-compressing device associated therewith, a liquid-transmitting device from the liquid-supply device to the friction device to operate the same responsive to the motion of the liquid-compressing device, and a separate connection from the lubricating-liquid-supply device to the friction device to transmit a portion of the liquid for lubricating purposes.

3. In a brake for vehicles, the combination of a friction device on the axle, with setting devices carried on the axle and adapted to be operated by a liquid under pressure, a liquid-supply device carried on the vehicle-body, a liquid-compressing device associated therewith, a liquid-transmitting device from the liquid-supply device to the friction device to operate the same responsive to the motion of the liquid-compressing device, and a separate connection from the liquid-storage to the friction device for the transmission of the liquid for lubricating the parts, the fluid-transmitting device leading from the liquid-supply on the vehicle-body to the friction device on the axle being flexible.

4. In a brake for vehicles, the combination of a friction device on the axle, with setting devices carried on the axle and adapted to be operated by a liquid under pressure, a lubricating-liquid-supply device carried on the vehicle-body, a liquid-compressing device associated therewith, a liquid-transmitting device from the liquid-supply device to the friction device to operate the same responsive to the motion of the liquid-compressing device, and a separate connection from the lubricating-liquid-supply device to the friction device to transmit a portion of the liquid for lubricating purposes, the fluid-transmitting device leading from the liquid-supply on the vehicle-body to the friction device on the axle being flexible.



5. In a brake for vehicles, a friction device on an axle, or other rotating part, which is operated by a hydraulic device; the hydraulic device being operated by a pump which is carried by the vehicle-body and a capillary lubricating device, the hydraulic pump and capillary lubricating devices being placed in tanks carried by the vehicle-body.

6. In a brake for vehicles, a friction device on an axle or other rotating part, a hydraulic device carried by the rotating part, a pump in a tank containing a liquid which operates the hydraulic device through a flexible pipe connection.

7. In a brake for vehicles, a friction device on a rotating part, a hydraulic device which is carried by the rotating part, a pump in a tank of liquid which operates the hydraulic device, a lever which operates the pump and connections from the pump-lever to hand-levers at each end of the car.

8. In a brake for vehicles, the combination of a brake-setting device with a power-supplying device, a connection between the same, whereby power is transmitted from the power-supplying device to the brake-setting device to set the brakes, and a lubricant-transmitter connected with the brake-setting device at one end and with the power-supplying device at the other, and a lubricant-supply associated with the power-supply.

9. In a brake, the combination of a friction-clutch device with a power-supplying device, a connection from one to the other, said power-supplying device adapted to supply power to the friction-clutch by means of lubricating fluid, and a separate lubricating connection from the power-supplying device to the friction-clutch.

10. In a brake for vehicles, a friction device carried by an axle which has a fixed part and a loose part, the axle-bearing of the loose part being taper-bored.

11. In a brake for vehicles, a friction device carried by an axle which has a fixed part and a loose part, the loose part having a bearing at each end of its hub, one bearing being larger than the other so that the loose part is free to wobble on its bearings.

12. In a brake for vehicles, a friction device on an axle which is

operated by a hydraulic device, the hydraulic device being operated by a pump which is carried by the vehicle-body, and a capillary lubricating device, the capillary lubricating device being placed in a tank carried by the vehicle-body.

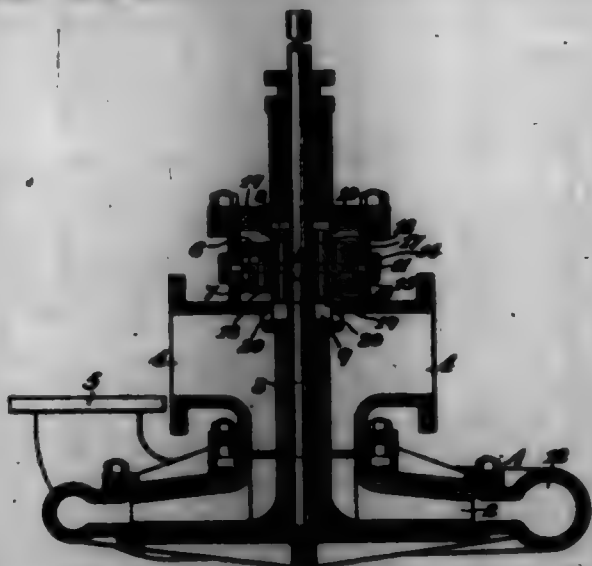
13. In a brake for vehicles, a friction device carried by an axle having a fixed and loose disk, the bearing of the loose disk being taper-bored.

14. In a brake for vehicles, a friction device on an axle, which has a fixed part and a loose part, the loose part having a bearing at each end of its hub, one bearing being larger than the other, so the loose part is free to wobble on its bearings, the loose part carrying a chain which is operatively connected to the brake-chain.

15. In a brake for vehicles, a fixed friction-disk and a loose friction-disk on an axle, the loose friction-disk carrying a chain which is operatively connected to the brake-chain, the loose friction-disk having a bearing at each end of its hub, one bearing being larger than the other, so the loose friction-disk can wobble on its bearings.

16. In a brake for vehicles, a friction device on an axle, which is operated by a liquid-pressure, a pump device which is used to produce the liquid-pressure, a reservoir containing liquid which supplies the pump, the pump and reservoir being so associated that the liquid which leaks past the pump-piston returns by gravity to the reservoir.

696,655. BALANCE ATTACHMENT FOR CENTRIFUGAL PUMPS. FRANKSON RAY, San Francisco, Cal., assignor of one-half to James Spiers, Jr., San Francisco, Cal. Filed Aug. 2, 1901. Serial No. 70,730. (No model.)



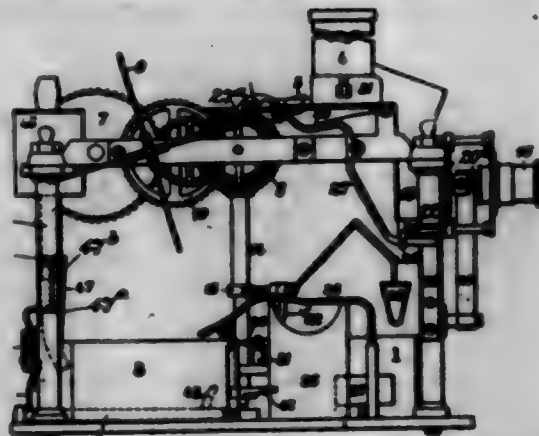
Claim.—1. An automatic balancing device for centrifugal pumps, consisting of a piston fixed upon the revolving shaft, and having annular grooves or channels around its periphery connected respectively with the upper and lower ends of the piston, a chamber within which the piston is revolvable, said chamber having an annular groove or channel connecting with the discharge of the pump, and so located that the rise or fall of the shaft and parts carried thereby will open communication through the grooves to either end of the cylinder.

2. A balancing device for centrifugal pumps consisting of a cylinder having an annular groove around the interior and connections between said groove and the discharge of the pump, a piston or disk revolvable within the cylinder having annular parallel grooves located respectively above and below the groove in the cylinder, connections between one of said piston-grooves, and the upper end of the cylinder, and between the other groove and the lower end whereby movement of the piston in either direction opens communication between the corresponding end of the cylinder and the pressure-groove.

3. A balancing device for centrifugal pumps consisting of a cylinder concentric with the revolvable runner-shaft, a disk or piston carried by said shaft revolvable within the cylinder, chambers surrounding the shaft at opposite ends of the cylinder, corresponding extensions of the piston slidable within said chambers, an open connection between the chambers and with the suction of the pump, an annular groove around the interior of the cylinder connected with the discharge of the pump, parallel grooves made around the piston above and below the groove of the cylinder, one of said grooves having connection with the upper end of the cylinder, and the other with the lower end whereby either of said grooves may be caused to overlap the pressure-groove of the cylinder and communicate pressure to the end of the cylinder with which it is connected.

696,656. AUTOMATIC AND INSTANTANEOUS APPARATUS FOR PRODUCING PHOTOGRAPHS. FRANKSON RAY, San Francisco, Cal., assignor of one-half to James Spiers, Jr., San Francisco, Cal. Filed Feb. 2, 1902. Serial No. 4,912. (No model.)

Claim.—1. A system of automatic and instantaneous apparatus for producing completely-finished photographs having in combination a clock-work-movement with a fly-regulator for actuating the apparatus and apparatus comprising a wheel having a stop-notch on the rim, an elbow-lever 27 adapted to drop with its point in said notch at the end of each revolution of the said wheel and carrying a finger which thereupon engages a wing of the fly and thus arrests the movement, a rod 23 adapted to be operated from the exterior and having an inclined piece adapted to bear on the bottom of an elbow-lever and lift it in order to release the wing of the fly to restart the movement, a vertical shaft operated by the clock-work-movement, and having at the top a crank with a link for pushing a sensitive plate in a dark chamber, and a hinged basket for receiving the exposed plate, substantially as hereinbefore set forth.

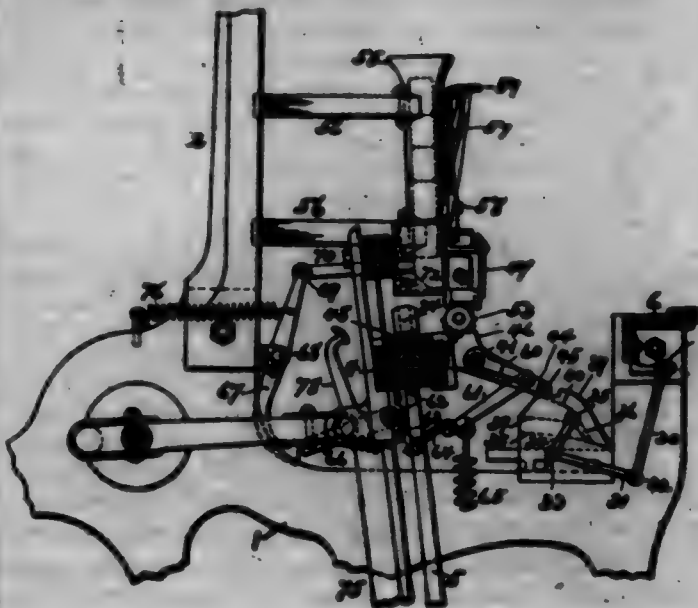


2. In an automatic apparatus for producing finished photographs, the combination of a rectangular tube 4 adapted to contain a large number of thin-metal frames bent over at the edges for retaining the sensitive plates, a recessed casing to receive said tube and provided with a support in which slides a pusher, a rod connected with a crank carried by the operating-spindle and rod adapted to move said pusher beneath the tube and cause a frame to fall in the dark chamber 19 toward the objective, and a spring placed between the tube and the frame at its exit to prevent any sliding of the latter, substantially as described.

3. In an automatic apparatus for producing finished photographs the combination of a basket 25, a dark chamber 19, a slide adapted to support plates in said chamber, an elbow-rod 23 adapted to encounter the slide and discharge a plate into the basket, a series of balls separated by partitions, means for raising the basket over the partitions, said means comprising a cam-arm carrying the basket, a spindle on which it is mounted, an elbow-lever having its upper arm bearing on the cam-arm, rolls adapted to be encountered by the lower arm of the lever, and a stud on said cam-arm for arresting the basket in its lower position.

4. In an automatic apparatus for producing photographs the combination with a pivoted basket, of means for moving it in a predetermined path, a fixed guide-track 25 extending outward of the path of the basket adapted to be encountered by the basket and serving to tilt the same on its axis and discharge its contents.

696,657. WIFT-REFILLING MECHANISM FOR LOOMS. JEREMIAH H. SHAY, Fall River, Mass., assignor of one-half to A. B. Fitch Machinery Company, Providence, R. I., a Corporation of Rhode Island. Filed Aug. 12, 1902. Serial No. 27,048. (No model.)



Claim.—1. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-reservoir independent of the lay and located in a position vertically above the end of the lay when the lay reaches the limit of its backward movement, a shuttle-transferer operative upon the failure of the filling-thread in the shed to move forward toward the breast-beam the lowest shuttle in the reservoir and place the same in said shuttle-box, and connections between the filling-detector and shuttle-box adapted to move said shuttle-box into position for the reception of said shuttle as the lay completes its backward motion, substantially as specified.

2. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-reservoir independent of the lay and located in a position vertically above the end of the lay when the lay reaches the limit of its backward movement, a shuttle-transferer operative upon the failure of the filling-thread to move a shuttle from said reservoir directly into the shuttle-box, and means adapted to move the shuttle-box into position for the reception of said shuttle and to return said shuttle-box to its normal position upon the lay, substantially as described.

3. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-reservoir independent of the lay and located in a position vertically above the end of the lay when the lay reaches the limit of its backward movement, a shuttle-transferer operative upon the failure of the filling-thread to move a shuttle from said reservoir into the shuttle-box as the lay completes its backward motion, and means adapted to move the shuttle-box so as to place the shuttle therein contained in operative position upon the lay during the next forward beat of the lay, substantially as shown.

4. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-reservoir independent of the lay and located in a position vertically above the end of the lay when the lay reaches the limit of its backward movement, a shuttle-transferer operative upon the failure of the filling-thread to move a shuttle forward through the front of the shuttle-reservoir through the bottom of the shuttle-box, and means adapted to move the shuttle-box so as to place the shuttle therein contained in operative position upon the lay, substantially as specified.

5. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, stationary means independent of the lay to support one or more shuttles, a shuttle-transferer located at the rear of the shuttle-supporting means and adapted to engage and transfer a shuttle from the shuttle-supporting means to the shuttle-box, together with means adapted to move the shuttle-box so as to place the shuttle therein contained in operative position, during the next forward movement of the lay, substantially as set forth.

6. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-reservoir mounted above the plane of the lay and independent of the lay, a shuttle-transferer mounted movably upon a rearward projection of the shuttle-reservoir, and means operative upon the failure of the filling-thread to actuate the transferer and move a shuttle forward from the shuttle-reservoir into the shuttle-box, substantially as shown.

7. The combination of a shuttle-transferer and a shuttle-reservoir for looms, the latter comprising an upright box, open at its top, lower front, lower rear and middle front and a projection at its lower rear end, which is adapted to support said shuttle-transferer, substantially as specified.

8. In a loom, the combination of a lay having a movable shuttle-box, a stationary shuttle-reservoir independent of the lay and open at its top, lower front, lower rear and middle front, yielding detents at its lower front ends arranged to prevent the lowest shuttle from displacement in the shuttle-reservoir by the vibrations of the loom, a rocker-arm for fastening the ends of the wale which extend from the shuttles in the shuttle-reservoir, and a shuttle-transferer at the lower rear end of the shuttle-reservoir and adapted to engage the lowest shuttle in the shuttle-reservoir and to force the same therefrom into the shuttle-box upon failure of the filling-thread, substantially as described.

9. The combination of a shuttle-reservoir, a shuttle-box and a shuttle-transferer movably mounted in the rear of the shuttle-reservoir and adapted to engage the lowest shuttle in said reservoir and move said shuttle forward through the front of the reservoir and through the bottom of the shuttle-box as the lay completes its backward motion, substantially as described.

10. The combination of a shuttle-box having a binder, a shuttle-transferer, and means to operate the same upon failure of the filling-thread so as to place one end of a shuttle in the shuttle-box to displace the free end of the binder and while holding said end of the shuttle in the shuttle-box to press the other end of the shuttle therein, substantially as shown.

11. In combination with a shuttle-box, a shuttle-transferer, means adapted to operate the transferer so that when transferring a shuttle to

the shuttle-box said shuttle enters the shuttle-box at an angle with the opening in the shuttle-box and means adapted to move said shuttle after it has so entered the shuttle-box into operative position therein, substantially as set forth.

12. In a loom, adapted to renew its supply of filling-thread when necessary, the combination of a lay having a movable receiving shuttle-box at one end and a movable rejecting shuttle-box at the other end, a stationary shuttle reservoir independent of the lay and adjacent to the receiving shuttle-box when the lay is at the end of its rearward motion and containing a supply of shuttles each provided with filling-thread, a stationary shuttle-receiving pan independent of the lay and adjacent to the rejecting shuttle-box when the lay is at the end of its rearward motion, a filling-detector, and means adapted to effect the ejection of the spent shuttle from the last-named shuttle-box into said receiving-pan and the transfer of a fresh shuttle from the shuttle-reservoir to the receiving shuttle-box, which means derive motion from the filling-detector and operate simultaneously, substantially as specified.

13. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary shuttle-receiving pan independent of the lay located in a plane above that of the shuttle-box, projecting over the shuttle-box and adjacent thereto, and connections between the filling-detector and the shuttle-box adapted to move said shuttle-box into the plane of said pan and to eject the shuttle from the shuttle-box into said pan as the lay completes its backward movement, substantially as specified.

14. In a loom, the combination of a lay having a movable shuttle-box with a binder, a filling-detector, a stationary shuttle-receiving pan independent of the lay and adjacent to the shuttle-box, connections between the filling-detector and shuttle-box adapted to move said shuttle-box in the arc of a circle, and means adapted to release the pressure of the binder on the shuttle in the shuttle-box as the lay completes its backward movement, substantially as described.

15. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary receiving-pan independent of the lay, located above the plane of the shuttle-box and adjacent to the shuttle-box, a shuttle-transferer, and connections between the filling-detector and the shuttle-box adapted to move the shuttle-box into position for the transferer to remove the shuttle from the shuttle-box as the lay completes its backward motion, substantially as shown.

16. In a loom, the combination of a lay having a movable shuttle-box provided with a binder, a filling-detector, a stationary shuttle-receiving pan independent of the lay and adjacent to said shuttle-box, a shuttle-transferer mounted movably on the receiving-pan, and connections between the filling-detector and the shuttle-box adapted to move said shuttle-box in the arc of a circle, to move the binder out of position and to move the transferer into the shuttle-box and eject the shuttle therefrom and also to return said shuttle-box to its normal position upon the lay during the forward motion of the lay, substantially as specified.

17. In a loom, the combination of a lay having a movable shuttle-box, a filling-detector, a stationary receiving-pan independent of the lay, a shuttle-transferer, and means operative upon the failure of the filling-thread to move said transferer so as to transfer a shuttle from the shuttle-box into the receiving-pan, substantially as described.

18. In a loom provided with means to renew its supply of filling-thread when necessary, the combination of a lay, a movable shuttle-box thereon, open at its bottom, shuttle-exPELLING mechanism adapted to compel the exit of a shuttle through the bottom of the shuttle-box in a plane above the normal plane of the shuttle-box, a filling-detector, and means intermediate between it and the shuttle-box to operate said shuttle-box and said shuttle expelling mechanism, upon failure of the filling, substantially as shown.

19. In a loom provided with means to renew its supply of filling-thread when necessary, the combination of a lay, a picker and picker-stick, a movable shuttle-box thereon open at its top and bottom, a filling-detector and means between said detector and shuttle-box operative upon failure of the filling-thread to move the shuttle-box so as to place the shuttle therein contained above and to one side of the picker and to remove said shuttle from the shuttle-box, substantially as described.

20. In a loom provided with means to renew its supply of filling-thread when necessary, the combination of a lay, a picker and picker-stick, a movable shuttle-box upon the lay and having a binder, a filling-detector, and means between the filling-detector and shuttle-box operative upon failure of the filling-thread to move the shuttle-box so as to place the shuttle contained therein above and to one side of the picker and release the pressure of the binder upon the shuttle so as to eject the shuttle from the shuttle-box, as the lay completes its backward motion, substantially as specified.

21. In a loom, the combination of a lay, a vertically-movable shuttle-box comprising two longitudinal sides and an end and provided with a binder, a flat spring secured to the shuttle-box and bearing against the

binder, an inward projection from the top edge of the shuttle-box, and a movable inward projection from the bottom edge of the shuttle-box slightly below said bottom edge and extending beneath the path of motion of the shuttle for the purpose of supporting the shuttle in the shuttle-box while said shuttle-box is rising from the lay, substantially as described.

22. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination of a lay, a picker and picker-stick, a filling-detector, a vertically-movable shuttle-box, having a flat spring fastened to its side and projecting within the shuttle-box and located in a line slightly below the bottom of the shuttle-box, and a cam fastened on the lay and adapted to hold the projecting end of the spring below the path of motion of the shuttle and retain the shuttle in the shuttle-box against the pressure of the picker on the point of the shuttle while the shuttle-box is rising from the lay and to allow said spring to withdraw from beneath the shuttle after the shuttle is raised above the picker, substantially as specified.

23. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination thereof of a shuttle-receiving pan or reservoir fastened to the side frame or arch of the loom above the normal path of motion of the ejection shuttle-box projecting over said shuttle-box and adjacent thereto and adapted to receive a spent shuttle when ejected from the shuttle-box, substantially as specified.

24. In a loom provided with means to renew its supply of filling-thread when necessary, the combination of a receiving pan or reservoir fastened to the frame of the loom above the normal path of motion of the shuttle-box and adjacent thereto, and a movable ejector supported on said pan or reservoir, and operative upon failure of the filling-thread to remove the spent filling-carrier from the shuttle-box into the receiving pan or reservoir, substantially as described.

25. In a loom, the combination of filling-supplying mechanism and mechanism operative upon failure of the filling to effect the delivery of a fresh supply of filling at one end of the lay and to eject the spent filling-carrier at the other end as the lay completes its backward motion, substantially as set forth.

26. In a loom, the combination of filling-supplying mechanism, and mechanism operative upon failure of the filling to effect the delivery of a fresh supply of filling through the bottom of the shuttle-box into said shuttle-box at one end of the lay and to eject the spent filling-carrier through the bottom of the shuttle-box at the opposite end of the lay as the lay completes its backward motion, substantially as described.

27. In a loom provided with means to furnish a fresh supply of filling-thread when necessary, the combination of a lay, a push-plate and means to operate the same, a movable shuttle-box on the lay, a filling-detector and means actuated thereby and operative upon failure of the filling-thread to rotate the shuttle-box one-fourth of a revolution for the purpose of enabling said push-plate to enter said shuttle-box and positively eject the filling-carrier through the bottom of the shuttle-box as the lay completes its backward motion, substantially as shown.

28. In a loom provided with means to furnish a fresh supply of filling-thread when necessary, the combination of a lay, a push-plate and means to operate the same, a movable shuttle-box on the lay, a filling-detector and means to rotate the shuttle-box one-fourth of a revolution for the purpose of enabling said push-plate to enter said shuttle-box and positively eject the spent filling-carrier therefrom through the bottom of the shuttle-box as the lay completes its backward motion, and means adapted to return said shuttle-box to its normal position as the lay comes forward, substantially as specified.

29. In a loom, the combination of a lay, a movable shuttle-box on each end of the lay, a reservoir properly supported in the rear of one of said shuttle-boxes but independent of the lay, a receiving-pan properly supported in the rear of the other shuttle-box but independent of the lay, and filling-supplying mechanism operative upon failure of the filling to effect the delivery of a fresh supply of filling from said reservoir into the shuttle-box adjacent thereto and to eject the spent filling-carrier from the opposite shuttle-box into the receiving-pan as the lay completes its backward motion and to return both said shuttle-boxes to their normal position as the lay comes forward, substantially as shown.

30. In a loom, the combination of a lay, a filling-detector, a movable shuttle-box on each end of the lay, pivoted in suitable bearings attached to the lay, and mechanism operative upon failure of the filling to move said shuttle-boxes slowly degrees upon their bearings while the lay is moving in one direction and to return them to their normal position while the lay is moving in the opposite direction, substantially as described.

31. In a loom, the combination of a lay, a filling-detector, a movable shuttle-box at each end of the lay mounted upon suitable bearings attached to the front of the lay, and means in connection with the filling-detector to simultaneously move both said shuttle-boxes one-fourth of a revolution during the backward motion of the lay and to return said shuttle-boxes to their normal position during the forward movement of the lay, substantially as specified.

32. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination thereof of a lay, a push-plate and means to operate the same, a movable ejection shuttle-box pivotally mounted at or near its two front lower corners in suitable bearings attached to the lay, and means operative on each failure of the filling to change the position of said shuttle-box while retaining the spent shuttle therein for the purpose of enabling the push-plate to enter said shuttle-box and positively to eject the said shuttle from the said shuttle-box when the latter has reached the proper position therefor, as the lay completes its backward motion, substantially as specified.

33. In a loom, the combination of a lay, a movable shuttle-box pivotally mounted on suitable bearings upon the lay and having a spring-pressed binder pivoted to its rear side and normally pressing inwardly, an inward projection at the top of the shuttle-box adapted to guide the shuttle when moving into the shuttle-box, a stationary shuttle-reservoir properly mounted on the loom-frame and independent of the moving parts of the loom, means operative upon the failure of the filling-thread to move the shuttle-box to the shuttle-reservoir, and means to transfer a shuttle from said reservoir to the shuttle-box as the lay completes its backward motion, substantially as specified.

34. In a loom adapted to renew its supply of filling when necessary, the combination of a shuttle-reservoir and a rocking arm pivoted thereto, a shuttle in said reservoir, and a web-thread from said shuttle to the end of said rocking arm, substantially as shown.

35. In a loom adapted to renew its supply of filling when necessary, the combination of a filling catch or arm pivoted to a stationary part of the loom, a web-carrier, and a web-thread therefrom extending and fastened to said catch or arm and adapted to rock said catch or arm on its axis by the tension of said web-thread, substantially as set forth.

36. In a loom adapted to renew its supply of filling when necessary, a shuttle-reservoir, a filling catch or arm pivotally mounted adjacent to the shuttle-reservoir, means tending to keep the upper end of said arm in a raised position, a shuttle, and a web-thread from the shuttle to the upper end of said catch or arm, substantially as described.

37. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination of a lay, a read on said lay, a shuttle having a web-thread whose end is attached to a proper support, a pair of shears pivotally mounted in suitable bearings upon the lay behind the read out of the path of motion of the shuttle and adapted to be operated upon failure of the filling-thread, a web-fork and means intermediate between the web-fork and shears adapted to move the shears blades through the read for the purpose of cutting the said web-thread from the selvage of the cloth as the lay completes its forward motion, substantially as specified.

38. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination of a lay, a shuttle movable thereon, a web-fork, a pair of shears mounted in suitable bearings upon the lay out of the path of motion of the shuttle and means intermediate between said web-fork and shears adapted to operate the latter for the purpose of cutting the web-thread projecting from the selvage of the cloth as the lay completes its forward motion, substantially as specified.

39. In a loom provided with means to supply a fresh shuttle upon failure of the filling-thread, the combination of a lay, a pair of shears pivotally mounted thereon in suitable bearings in the rear of the read out of the path of motion of the shuttle, a web-fork, a movable thread-lever mounted on a fixed support, means which tend to elevate the end of said lever, a shuttle having a web-thread whose end is fastened to the upper end of said thread-lever, and means intermediate between the web-fork and the shears adapted to operate said shears upon the failure of the filling for the purpose of cutting the said web extending from the selvage of the cloth as the lay completes its forward motion, substantially as described.

40. In a loom, the combination of a lay and a shuttle-box movable thereon, having a front side, a rear side and one closed outer end, but open at top and bottom and so placed on the lay that when the shuttle-box is in proper operative position the lay itself constitutes the bottom of the shuttle-box, but when the shuttle-box is in proper position for the reception of a fresh shuttle said front side and rear side thereof extend in planes parallel with the top of the lay, substantially as shown.

41. In a loom, the combination of a lay, a shuttle-box having an open bottom, a front side, a rear side and one closed end and provided with carriages on its front side at or below the central longitudinal line thereof, by which carriages it is pivotally connected with the lay, said shuttle-box normally resting with its open bottom upon the lay but rotatable to a position in which its front side and rear side are in planes parallel with the top of the lay, substantially as specified.

42. In a loom, the combination of a lay, a shuttle-reservoir mounted on a fixed support in the rear of the lay independent of the lay, and having an opening in front at the bottom thereof, a vertically-movable shuttle-box mounted pivotally on the lay and having an open bottom, the

edges of which normally rest upon the lay but which open bottom is contiguous to the opening in the reservoir, when the shuttle-box has been rotated a quarter-revolution, means adapted to move a shuttle from said reservoir through the opening in the reservoir and through the open bottom of the shuttle-box, into said shuttle-box and a spring-pressed binder in the shuttle-box to hold said shuttle in position when moved therein, substantially as specified.

43. In a loom, the combination of a lay, a shuttle-receiving pan having an open front and mounted upon a fixed support in the rear of the lay and independent thereof, a vertically-rotatable shuttle-box mounted pivotally on the lay and having an open top and an open bottom, the edges of which bottom normally rest upon the lay, but which open bottom is contiguous to the open front of said pan when the shuttle-box has been rotated a quarter-revolution, and means adapted to positively move a shuttle from said shuttle-box into said receiving-pan when said shuttle-box is raised to the elevated position last aforesaid, substantially as shown.

44. In a loom, the combination of a lay, a shuttle-receiver mounted on a fixed support in the rear of the lay, independent of the lay and having an opening in front at the bottom thereof, a shuttle-receiving pan having an open front and mounted on a fixed support in the rear of the lay and independent thereof, two vertically-rotatable shuttle-boxes mounted pivotally on the lay adjacent, respectively, to said receiver and pan, each of which shuttle-boxes has an open top and an open bottom with the bottom edge normally resting upon the lay but which open bottoms are directed rearwardly when the shuttle-boxes have been rotated a quarter-revolution, means adapted to rotate said shuttle-boxes in unison, mechanism adapted to move a shuttle from said receiver into the contiguous shuttle-box, and mechanism adapted to move a shuttle from the opposite shuttle-box into the contiguous receiving-pan, substantially as specified.

45. In a loom, the combination of a lay, a shuttle-receiver mounted on a fixed support in the rear of the lay, independent of the lay and having an opening in both front and rear at the bottom thereof, a vertically-rotatable shuttle-box pivotally mounted on the lay and having an open top and an open bottom with the bottom edge normally resting upon the lay but which open bottom is directed rearwardly when the shuttle-box has been rotated a quarter-revolution, and a reciprocally-movable pusher adapted and arranged to move a shuttle from said receiver into the shuttle-box, when the shuttle-box is raised to the elevated position last aforesaid, substantially as described.

46. In a loom, the combination of a lay, a shuttle-receiving pan having an open front and mounted upon a fixed support in the rear of the lay and independent of the lay, a vertically-rotatable shuttle-box mounted pivotally on the lay and having an open top and an open bottom with the bottom edge normally resting upon the lay but which open bottom is directed rearwardly when the shuttle-box has been rotated a quarter-revolution and a reciprocally-movable pusher adapted and arranged to move a shuttle from said shuttle-box into said receiving-pan when the shuttle-box is raised to the elevated position last aforesaid, substantially as specified.

47. In a loom, the combination of a lay, a shuttle-receiver mounted on a fixed support in the rear of the lay, independent of the lay and having an opening in front and in the bottom thereof, a shuttle-receiving pan having an open front and mounted on a fixed support in the rear of the lay and independent thereof, two vertically-rotatable shuttle-boxes mounted pivotally on the lay adjacent, respectively, to said receiver and pan, each of which shuttle-boxes has an open top and an open bottom with the bottom edge normally resting upon the lay but which open bottoms are directed rearwardly when the shuttle-boxes have been rotated a quarter-revolution, means adapted to rotate said shuttle-boxes in unison, a reciprocally-movable pusher adapted to move a shuttle from said receiver into a contiguous shuttle-box and a reciprocally-movable pusher adapted to move a shuttle from the opposite shuttle-box, into the contiguous receiving-pan, all operating substantially as shown and for the purpose specified.

48. In a loom having a receptacle for shuttles independent of the lay, the combination therewith of a lay, a shuttle-box pivotally mounted upon the lay upon suitable bearings so as to vertically rotate a quarter-revolution, a gear fastened to the shuttle-box and concentric with the pivotal mounting of said shuttle-box, a gear mounted on a support upon the lay and engaging the first-named gear, and means adapted to rotate the last-named gear, substantially as and for the purpose specified.

49. In a loom, the combination of a lay, a shuttle-receiver having an opening in front at the bottom thereof and mounted on the frame of the loom behind the lay, a shuttle-receiving pan having an open front and mounted on the frame of the loom behind the lay, a rod properly mounted at its ends on the lay and extending longitudinally in front of the lay and parallel thereto, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiver, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiving pan, each shuttle-box having an open

top and an open bottom, a gear fastened in each of said shuttle-boxes and mounted upon said rod, a rock-shaft properly mounted on the lay parallel with said rod, means adapted to rock said shaft, two gears fastened on said rock-shaft and engaging, respectively, with said shuttle-box-gears, a reciprocally-movable pusher adapted and arranged to move a shuttle from said receiver into the contiguous shuttle-box, and a reciprocally-movable pusher adapted and arranged to move a shuttle from the opposite shuttle-box into the contiguous receiving-pan, substantially as specified.

50. In a loom, the combination of a lay, a shuttle-receiver having an opening in front at the bottom thereof and mounted on the loom-frame behind the lay, a shuttle-receiving pan having an open front and mounted on the loom-frame behind the lay, a rod properly mounted at its ends on the lay and extending longitudinally in front of the lay and parallel thereto, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiver, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiving pan, each shuttle-box having an open top and an open bottom, a gear fastened to each of said shuttle-boxes and mounted upon said rod, a rock-shaft properly mounted on the lay parallel with said rod, two gears fastened on said rock-shaft and engaging, respectively, with said shuttle-box gears, a reciprocating pusher arranged and adapted to move a shuttle from the shuttle-receiver into the contiguous shuttle-box, a reciprocating pusher arranged and adapted to move a shuttle from the opposite shuttle-box into the receiving-pan, an oscillating web-fork, and means intermediate between said web-fork and shaft adapted to rock said shaft, substantially as shown.

51. In a loom, the combination of a lay, a shuttle-receiver having an opening in front at the bottom thereof and mounted on the loom-frame behind the lay, a shuttle-receiving pan having an open front and mounted on the loom-frame behind the lay, a rod properly mounted at its ends on the lay and extending longitudinally in front of the lay and parallel thereto, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiver, a shuttle-box mounted on said rod through carriages on the lower front edge thereof adjacent to the shuttle-receiving pan, each shuttle-box having an open top and an open bottom, a gear fastened to each of said shuttle-boxes and mounted upon said rod, a rock-shaft properly mounted upon the lay parallel with said rod, two gears fastened on said rock-shaft and engaging, respectively, with said shuttle-box gears, a reciprocating pusher adapted to move a shuttle from the shuttle-receiver into the contiguous shuttle-box, a reciprocating pusher adapted to move a shuttle from the opposite shuttle-box into the receiving-pan, an oscillating web-fork adapted to take a horizontal position upon the faller of the filling-thread, a sliding plate to which the web-fork is pivoted, a shaft driven by power and provided with a cam, a bent lever pivotally mounted on the loom-frame and having its lower end in contact with said cam and its upper end engageable with said web-fork when the latter is horizontal upon the faller of the filling-thread, a rock-shaft properly mounted and having a lever-arm movable by the sliding plate, a switch-block with a lower groove which is substantially horizontal and with a slot which is angularly inclined upward, a switch pivotally mounted and adapted to close either said groove or slot, a lever-arm on the last-named rock-shaft, a link connection between the last-named lever-arm and said switch, and an arm extending from one of the gears last mentioned and having at its end a friction-roller movable in said groove or slot according to the position of said switch, all combined and operating substantially as shown and for the purpose specified.

52. In a loom, the combination of a lay, a shuttle-receiving pan supported on the loom-frame behind and independent of the lay, a shuttle-box rotatably mounted on said lay and having an open top and an open bottom, means adapted to rotate the shuttle-box a quarter-revolution, a shutter hinged to the shuttle-box in a plane in extension of the top edge of the shuttle-box and extending in the same direction, which shutter in its normal extended position is parallel with the top of the lay but is movable on its hinge to a position at a right angle with its normal plane, means adapted to move said shutter from its normal position to its angular position, a spring adapted to return said shutter to its normal position when free, and means adapted to move a shuttle from the shuttle-box to the receiving-pan, substantially as specified.

53. In a loom, the combination of a lay, a shuttle-receiver supported on the loom-frame behind the lay and independent of it and having a rear opening and a front opening at its bottom and also a rearwardly-extending plate, a shuttle-box rotatably mounted on the lay and having an open top and an open bottom, means adapted to rotate said shuttle-box a quarter-revolution, a pusher supported by said rearwardly-extending plate and adapted to move a shuttle from the shuttle-receiver into the shuttle-box when the shuttle-box is in its elevated position, a lever pivotally mounted on the loom-frame, a link-rod connecting the top of said lever with said pusher, a binder-shaft mounted on and movable with the lay, means adapted to rock said binder-shaft upon the faller of the filling-thread, and a lever-arm from the binder-shaft arranged to come

into contact and to move the first-named lever, when said binder-shaft is rocked as aforesaid, substantially as described.

54. In a loom, the combination of a lay, a shuttle-receiving pan supported on the loom-frame behind the lay and independent of it and having an open front, a shuttle-box rotatably mounted on the lay and having an open top and an open bottom, means adapted to rotate said shuttle-box a quarter-revolution, a pusher in front of said shuttle-box and adapted to move a shuttle from the shuttle-box into the receiving-pan, a binder-shaft mounted on and movable with the lay, means adapted to rock the binder-shaft, a binder-finger fastened on the binder-shaft and extending upwardly, a vertical rock-shaft with suitable supports on the loom-frame, a bent lever fastened to the vertical rock-shaft at the bottom thereof and at a right angle thereto, one of whose ends is in line with the top of the binder-finger and movable thereby when the shuttle-box has been rotated to its elevated position and the other of whose ends has a spring-bearing against the loom-frame, a bent lever-arm fastened at one end to the vertical rock-shaft at the upper end thereof and having its other end slotted, and a sliding rod mounted in suitable ways and connected to the pusher at its front end and at its other end to the slotted end of the last-named lever-arm by means of a headed screw extending from the sliding rod through the slot of said lever-arm, substantially as shown.

55. In a loom, the combination of a lay, a shuttle-receiving pan supported on the loom-frame behind the lay and independent of it and having an open front, a shuttle-box rotatably mounted on the lay and having an open top and an open bottom, means adapted to rotate said shuttle-box a quarter-revolution, a pusher in front of said shuttle-box and adapted to move a shuttle from the shuttle-box into the receiving-pan, a vertical rock-shaft having an angular extension therefrom and a spring, a lever-arm fastened to the top of said vertical rock-shaft and provided with a slotted end, and a sliding rod mounted in suitable ways and connected at its forward end with the pusher and at its rear end to the slotted end of said first-named lever-arm by means of a screw passing therefrom through the slot of said lever, a binder-shaft properly mounted, means adapted to rock said binder-shaft, and an extension from the binder-arm adapted to move the lower angular extension of the vertical rock-shaft when the shuttle-box is in its elevated position, substantially as specified.

56. In a loom, the combination of a lay, a shuttle-receiving pan supported on the loom-frame behind the lay and independent of it and having an open front and an upwardly-extending arm, a shuttle-box rotatably mounted upon the lay and having an open top and an open bottom, means adapted to rotate said shuttle-box a quarter-revolution, a pusher in front of said shuttle-box and adapted to move a shuttle from the shuttle-box into the receiving-pan, a binder-shaft mounted on and movable with the lay, means adapted to rock the binder-shaft, a spring-pressed binder upon the shuttle-box, a binder-finger fastened at its bottom to the binder-shaft and having its upper end in contact with said binder, a lever pivotally mounted on the shuttle-box and having its shorter end located beneath said binder and its longer end extending in the line of the projecting arm of said shuttle-receiving pan when the shuttle-box is in its elevated position, a vertical rock-shaft with suitable supports on the loom-frame, a bent lever fastened to the vertical rock-shaft at the bottom thereof at a right angle thereto, one of whose ends is in line with the top of said binder-finger when the shuttle-box is in its elevated position and the other of whose ends has a spring-bearing against the loom-frame, a bent lever-arm fastened at one end to the top of the vertical rock-shaft and having a slot in its other end, a sliding rod suitably mounted in ways and connected with said pusher at its front end and to the last-named lever-arm at its other end by means of a screw extending therefrom through said slot, substantially as set forth.

57. In a loom, the combination of a lay, a shuttle-receiving pan supported on the loom-frame behind the lay and independent of it, and having an open front, a guide-plate upon the top of said pan, partially covering the same, a rotatably-mounted shuttle-box upon the lay having an open top and an open bottom, means adapted to rotate said shuttle-box a quarter-revolution, mechanism arranged and operative to move a shuttle from the shuttle-box into the receiving-pan when the shuttle-box is in its elevated position, and springs or bars loosely mounted at their upper ends upon said guide-plate and capable of moving freely toward the interior of the receiving-pan but incapable of moving outwardly therefrom, substantially as shown and for the purpose specified.

58. In a loom, the combination of a lay, a breast-beam, a rotatable shaft having a cam thereon, a bent lever mounted on the loom-frame having its lower end in operative contact with said cam, an oscillating web-fork having a hooked end with which the upper end of said bent lever is engageable upon failure of the filling-thread, a sliding plate to which the web-fork is pivoted and which is movable in proper guides, a rock-shaft mounted on said breast-beam, a lever-arm fastened on the rock-shaft and movable by the pressure upon its upper end caused by the sliding of the said plate, a holding-pawl pivoted on the loom-frame, a pressure-arm fast-

ened on said rock-shaft and bearing against the upper end of said holding-pawl, a ratchet-gear with which said holding-pawl is engageable, a feeding-pawl having a counterpoise and pivotally mounted on said bent lever near the fulcrum thereof and having its lower end engageable with said ratchet-gear, a pinion in the same shaft as the ratchet-gear and rotating therewith, a sand-roller having a gear meshing with said pinion, a cloth-roller receiving cloth from the sand-roller, and shuttle-transferring mechanism for removing a spent shuttle and supplying a fresh filled shuttle, the said parts being so arranged and timed in their movements that during the shuttle-transferring operation, the said holding-pawl is disengaged from said ratchet-gear thereby temporarily preventing the winding of the cloth upon the cloth-roller, substantially as specified.

59. In a loom having shuttle-changing mechanism whereby a spent shuttle is removed and a fresh filled shuttle is supplied, the combination therewith of a lay, a pair of shears, one of whose handles is pivoted to a fixed support on the lay, a rocking shaft and means adapted to rock it operative upon failure of the filling-thread, a collar-cam fixed on said shaft and having two diametrically-located deep notches and two diametrically-located shallow notches midway between the first-named notches, a ratchet-cam loosely mounted on said shaft and having two diametrically-arranged radial arms, four ratchet-teeth ninety degrees apart and two diametrically-arranged cam projections engageable with said notches of the collar-cam, a bracket on the lay, a pawl pivotally mounted on the lay and having a downward extension, a ratchet-arm loosely mounted on said shaft beside the ratchet-cam, a spiral spring surrounding said shaft and having one end thereof bearing on the ratchet-arm and the other end bearing against a fixed collar on said shaft, a spring-pressed pawl mounted on the ratchet-arm and engageable with the teeth of the ratchet-cam, a lever-arm mounted on said bracket, a spiral spring from this lever-arm extending to the downward extension of the first-named pawl, a link-bar pivotally connected with said last-named lever-arm at one end and at the other with one of the handles of said shears, a spiral spring fastened to the last-named lever and extending to a fixed support on the loom-frame, a bracket adapted to support the ratchet-arm when the latter is not in operation, and a bumper extending from the breast-beam, all arranged and operating substantially as and for the purpose specified.

60. In a loom having shuttle-changing mechanism whereby a spent shuttle is removed and a fresh filled shuttle is supplied, the combination therewith of a lay, a pair of shears pivotally mounted on the lay, a shuttle-reservoir with shuttles therein, a thread-lever pivoted on a fixed support and having a weighted lower end and an upper end adapted to receive and hold the ends of the web-threads of said shuttles, a shuttle-box adapted to receive a shuttle from said reservoir, a filling-detector, and means intermediate between the filling-detector and shears, operative upon failure of the filling-thread and adapted to close said shears so as to cut the web-thread between the blades thereof which extends from the newly-supplied weaving-shuttle to said thread-lever, substantially as described.

61. In a loom, the combination of a lay, a movable shuttle-box on the lay, a shutter or guide pivotally mounted in suitable bearings at the top near the open end of said shuttle-box above the path of motion of the shuttle and normally extending in a plane therewith, means operative upon failure of the filling to move said shuttle-box and partially rotate the shutter toward the interior of the shuttle-box during the backward movement of the lay and return the same to their normal position during the forward movement of the lay, substantially as described.

696,658. RAILWAY-RAIL JOINT. AXEL A. STROM, Austin, Ill., assignor to Strom Manufacturing Company, Chicago, Ill. Filed Aug. 21, 1901. Serial No. 72,742. (No model.)

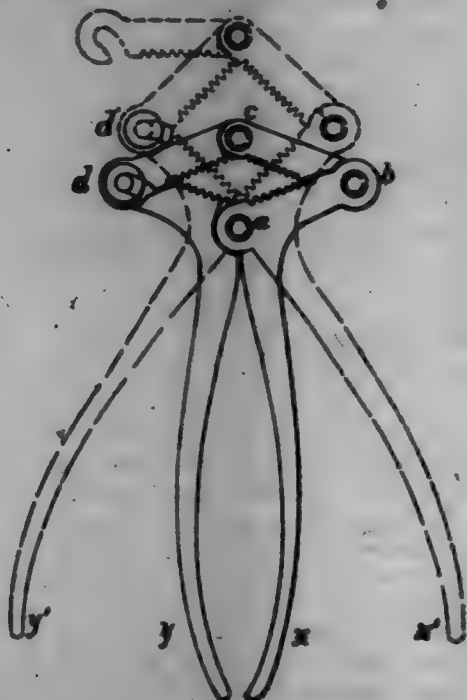


Claim.—A rail-joint comprising a bent rail end having at its inner side a recess terminating in a shoulder and having its tread portion beyond this outer side line of the rail cut away, a beveled rail end fitting the recess and having a shouldered end engaging the shoulder of the other rail end, and devices for securing the rail ends together.

696,659. ADJUSTABLE NUT AND PIPE WRENCH. HENRY S. THOMAS, Rahon, N. Y. Filed July 26, 1901. Serial No. 69,512. (No model.)

Claim.—1. A pipe and nut wrench composed of two long compound levers, *a b c* and *y d e*, with notched jaws joined together at *a* and

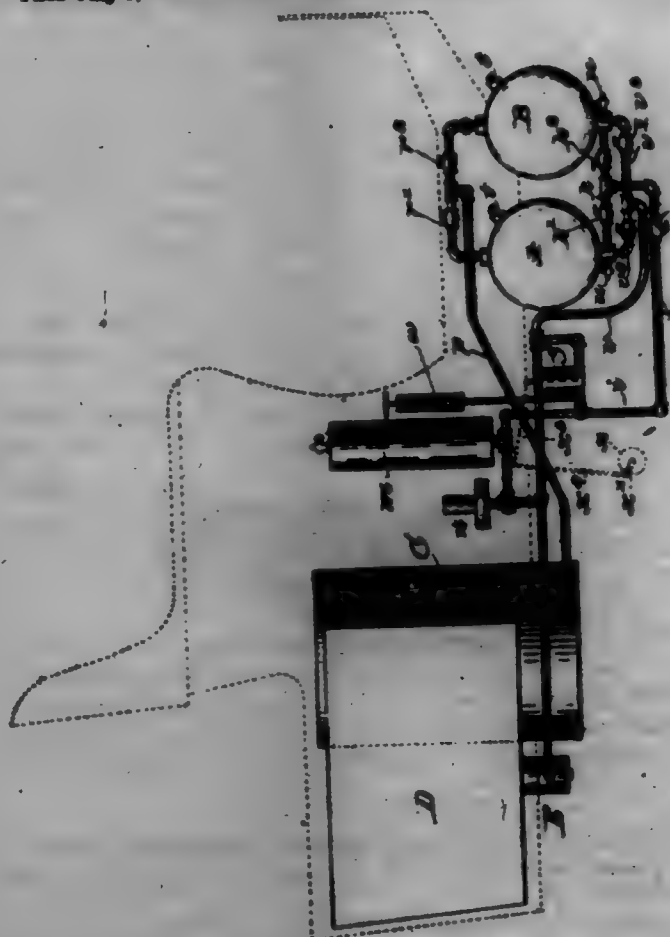
c, with shoulder-bolts, in combination with two short compound levers, b c and d e, with notched jaws, joined together with shoulder-bolts, the end of one, d e, being formed into a countersunk hook with shoulder-bolt, in combination with lock-out, to engage the same, substantially as shown in Fig. 1, and described.



2. The pipe and nut wrench described, composed of a combination of the four compound levers a b, b c, y d, and d e, having inner notched jaws, one of which, d e, is formed into a countersunk hook to engage a shoulder-bolt having a thumb-out at d, to lock the same, all in combination, and joined together with shoulder-bolts at a b c and d, substantially as shown.

3. A combination in a pipe and nut wrench having four compound jointed levers with roughened inner edges, two long and two short, one of the latter provided with a detachable hook, together with a shoulder-bolt having a shoulder formed to engage a countersunk hook, in combination with a thumb-out threaded thereon, to adjust the same, all in combination, and joined together with shoulder-bolts at the points, a, b, c, and d, substantially as shown and described.

696,660. AUTOMOBILE. WALTER E. TRIVANT, Whitman, Mass.
Filed July 5, 1901. Serial No. 67,096. (No model.)



Claim.—1. In an apparatus of the kind described, a source of gasolene-supply for heating a boiler, a source of water-supply, a pipe connecting the two, means for forcing said water to said gasolene under pressure, an air-dome connected to said water-pipe on the pressure side of said pressure means, and a pressure-regulator for preventing the pressure exceeding a given maximum.

2. In an apparatus of the kind described, a gasolene-tank, a pipe adapted to connect said tank to a boiler, a water-tank, a pipe connecting said water-tank to the gasolene-tank, a pressure-pump for forcing the water under pressure to said gasolene-tank, a pressure-regulator connected with said water-pipe on the pressure side of said pump, and a blow-off connection from said pressure-regulator to the intake side of said pump.

3. In an apparatus of the kind described, a water-tank, a plurality of gasolene-tanks for supplying gasolene for heating a boiler, pipe connections between said several tanks, means for forcing water under pressure to one of said gasolene-tanks either from said water-tank, or from the other gasolene-tank as may be desired.

4. In an apparatus of the kind described, a water-tank, a plurality of gasolene-tanks for supplying gasolene for heating a boiler, pipe connections between said several tanks, and means for forcing water under pressure to either of said gasolene-tanks from said water-tank, or to one of said gasolene-tanks from the other as desired.

5. In an apparatus of the kind described, a water-tank, a plurality of gasolene-tanks for supplying gasolene for heating a boiler, pipe connections between said several tanks, means for forcing water to one of said gasolene-tanks from said water-tank, means for cutting off said water-supply and thereafter withdrawing the water previously forced to said gasolene-tank and forcing the same under pressure to another gasolene-tank.

6. In an apparatus of the kind described, a water-tank, a plurality of gasolene-tanks for supplying gasolene for heating a boiler, pipe connections between said several tanks, a pump for forcing water to one of said gasolene-tanks from said water-tank, means for cutting off said water-supply and thereafter withdrawing the water previously forced to said gasolene-tank and forcing the same under pressure to another gasolene-tank, and a pressure-regulator having a blow-off connection for discharging into either source of water-supply as the case may be.

7. In an apparatus of the kind described, a plurality of tanks adapted to contain either gasolene for heating a boiler or water for communicating pressure to the gasolene, water-pipes connecting said tanks, and a pump for drawing water from one tank and delivering it under pressure to the other tank.

8. In an apparatus of the kind described, a plurality of tanks, adapted to contain either gasolene for heating a boiler or water for communicating pressure to the gasolene, water-pipes connecting said tanks, and a pump for drawing water from either of said tanks and delivering it under pressure to the other tank.

9. In an apparatus of the kind described, a plurality of tanks, one for containing pressure-transmitting fluid and the other for containing gasolene, a gasolene-pipe for delivering gasolene to a boiler, two sets of connecting-pipes between said tanks, said two sets of pipes being connected together and having a pressure-pump interposed therein for transmitting pressure through said pipes, and valves on each side of said two connections for governing the communication of said pressure-pump with one or another of said tanks.

696,661. VEHICLE TIE-REST. LOUIS B. TAYLOR, Thompson, N. Y.
Filed Feb. 26, 1902. Serial No. 66,022. (No model.)

Claim.—1. An auxiliary tie-rest for vehicles, comprising supporting members each member consisting of adjustable sections slidable one upon the other, a tie-rest bar carried by one of said sections, means for securing the said sections in adjusted position and means for detachably securing the auxiliary tie-rest to the permanent tie-rest.

2. An auxiliary tie-rest for vehicles, comprising supporting members, each member consisting of adjustable sections slidable one upon the other, one of said sections being provided with a supporting-foot adapted to rest upon the floor of the vehicle, a tie-rest bar carried by one of said sections, means for securing the said sections in adjusted position, provision for detachably connecting the auxiliary tie-rest to the permanent tie-rest of a vehicle.

3. An auxiliary tie-rest for vehicles comprising supporting members and a tie-rest bar carried by said supporting members, said supporting members being provided at one end with supporting-foot to rest upon the floor of the vehicle and means carried by the opposite ends of said supporting members for ready and detachable engagement with the permanent tie-rest.

4. An auxiliary tie-rest for vehicles comprising supporting members, a tie-rest bar carried by said supporting members, and means for detachably securing the auxiliary tie-rest to the permanent tie-rest, said means

comprising socketed ends carried by the supporting members, the walls of said socketed ends being provided with an opening to permit the passage of the permanent toe-rest into the socketed ends when the free end of said toe-rest is elevated, and to prevent the disengagement of the socketed ends from the permanent toe-rest when the auxiliary toe-rest is in position for use.



3. An auxiliary toe-rest for vehicles comprising supporting members each provided at one end with a foot adapted to rest upon the floor of the vehicle, a toe-rest bar carried by said supporting members, and means for detachably securing the auxiliary toe-rest to the permanent toe-rest, said means comprising socketed ends carried by the supporting members, the walls of said socketed ends being provided with an opening to permit the passage of the permanent toe-rest into the socketed ends when the free end of said toe-rest is elevated and to prevent disengagement of the socketed ends from the permanent toe-rest when the auxiliary toe-rest is in position for use.

6. A toe-rest comprising supporting members, each of said members being formed of sections slidable one upon the other, one of said sections being provided with an elongated slot, a pin carried by the other of said sections and engaging said slot, a set nut engaging said pin, a toe-rest bar carried by one of said sections, and means carried by the other of said sections for detachable connection of the auxiliary toe-rest to the usual permanent toe-rest.

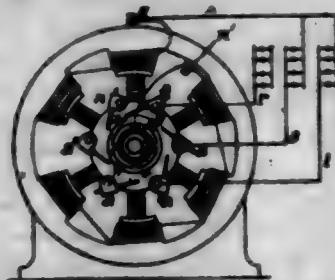
7. A toe-rest comprising supporting members each of said members being formed of sections adjustable with relation to each other, a slot-and-pin connection between said sections, supporting-foot carried by one of said sections, the other of said sections being provided with a socketed end for detachable connection with the permanent toe-rest of a vehicle, said socketed end having a passage-way leading therethrough whereby the auxiliary toe-rest may be engaged with and disengaged from the permanent toe-rest when raised from position of use, and locked to said permanent toe-rest when in position of use.

696,662. SYSTEM OF ELECTRIC LIGHTING AND APPARATUS THEREFOR. FREDERICK LAFITTE, GEORGE VILLARD, and LAURENT PIERRE, Lyons, France. Filed Oct. 6, 1900. Serial No. 28,206. (No Model.)

(Claim.—1. In a system of electric lighting such as described, the combination with an alternating-current generator of high self-induction, of means for passing the current from said generator from one series of lamps to another successively during the intervals existing between the end and the commencement of the half-periods of emission, thereby avoiding sparking, substantially as described.

2. In a system of electric lighting, the combination with a lamp-circuit, of a generator of high self-induction adapted to continuously supply an electric current in the lamp-circuit, and means for adding at predeter-

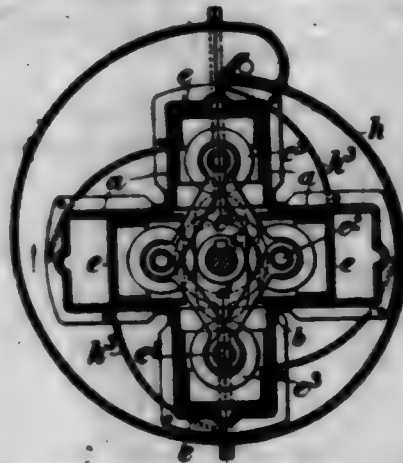
mined times to the current supplied to the lamp-circuit, the currents of self-induction of the generator.



3. In a system of electric lighting the combination of means for supplying a current to several series of lamps successively during the half-period of the current and means for adding to the current thus supplied the self-induced currents of the coils of the generator; whereby a momentary increase in the potential of the currents reaching the series of lamps in succession will be produced.

4. In a system of electric lighting such as described, the combination with a source of electric current, and a series of lamp-circuits, of a lifting-translator comprising a drum, an electrically conducting-segment thereon, means for rotating said drum and segment, a series of brushes mounted about said drum, and adapted to be engaged successively by said segment and electric connections from said brushes and segment to the lamp-circuits, the whole adapted to shift the current from series to series of the lamp-circuits, successively, and produce a momentary increase in potential of the currents feeding the lamps by utilizing the resulting currents of self-induction, substantially as described.

696,663. ENGINE OR MOTOR. WALTER H. BARKIN, Leytonstone, England. Filed Aug. 2, 1901. Serial No. 70,701. (No Model.)



(Claim.—1. In an engine, the combination with a shaft, of a casing surrounding the same, said casing and shaft being the one revolvable with respect to the other, said casing being provided with plurality of cylinders, pistons in said cylinders provided each with a cam-engaging roller, a cam secured to said shaft and adapted to be engaged by said roller, and means for moving the unactuated pistons, substantially as described.

2. In an engine, the combination with a shaft of a casing surrounding the same, said casing and shaft being the one revolvable with respect to the other, said casing being provided with a plurality of cylinders, pistons in said cylinders provided each with a cam-engaging roller, a cam secured to said shaft and adapted to be engaged by said rollers, and means whereby the actuation of a part of the pistons will give the unactuated pistons the necessary movement to continue the operation of the engine, substantially as described.

3. In an engine, the combination with a shaft, of a casing surrounding the same, said casing and shaft being the one revolvable with respect to the other, a plurality of cylinders secured to said casing, pistons in said cylinders, provided with cam-engaging rollers, a cam secured to said shaft and adapted to be engaged by said rollers and connections between said pistons, substantially as described.

4. In an engine, the combination with a shaft, of a casing surrounding the same, said casing and shaft being the one revolvable with respect to the other, a plurality of cylinders secured to said casing, pistons in said cylinders, provided with cam-engaging rollers, a cam secured to said shaft and adapted to be engaged by said rollers and adjustable connections between said pistons, substantially as described.

5. In an engine or motor the combination of one or more pairs of cylinders, the pistons of which are connected by toggle-links, of a frame to which the cylinders are secured, of a shaft upon which the frame is mounted and of a cam keyed upon the shaft and against which rollers carried by the toggle-links bear, substantially as described.

6. In an engine or motor the combination of one or more pairs of cylinders, the pistons of which are connected by toggle-links carrying rollers, of a frame to which the cylinders are secured, of a fixed shaft upon which the frame is rotatably mounted and of a cam against which the aforementioned rollers bear, substantially as hereinbefore described.

7. In an engine or motor the combination of one or more pairs of cylinders, the pistons of which are connected by toggle-links, of a frame to which the cylinders are secured, of a shaft upon which the frame is mounted, of a cam keyed upon the shaft and against which rollers carried by the toggle-links bear, and of a distributing valve in connection with the shaft for the steam or explosive charge, substantially as described.

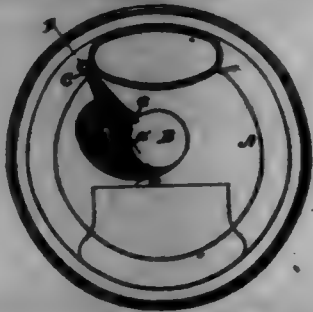
8. In an engine or motor the combination of one or more pairs of cylinders, the pistons of which are connected by toggle-links, of a frame to which the cylinders are secured, of a shaft upon which the frame is mounted, of a cam keyed upon the shaft and against which rollers carried by the toggle-links bear, of a casing enclosing the cylinders and having an inlet and outlet for cooling fluid and of vanes in connection with the rotating shaft or cylinders for circulating the cooling fluid, substantially as described.

9. In an engine or motor the combination of one or more pairs of cylinders, the pistons of which are connected by toggle-links carrying rollers, of a frame to which the cylinders are secured, of a shaft upon which the frame is rotatably mounted and of a cam against which the aforementioned rollers bear and of means for adjusting the length of the toggle-links, substantially as described.

10. In an engine, the combination with a casing provided with a pair of oppositely-disposed cylinders, pistons in said cylinders each provided with a cam-engaging roller, a cam adapted to be engaged by said rollers, connections between said pistons, and cam-engaging rollers carried by said connections, substantially as described.

11. In an engine, the combination with a shaft and a casing surrounding said shaft, a pair of cylinders secured to said casing, pistons in said cylinders each provided with a cam-engaging roller, a cam secured to said shaft and adapted to be engaged by said rollers, toggle-levers connecting said pistons and cam-engaging rollers carried by said toggle-levers, substantially as described.

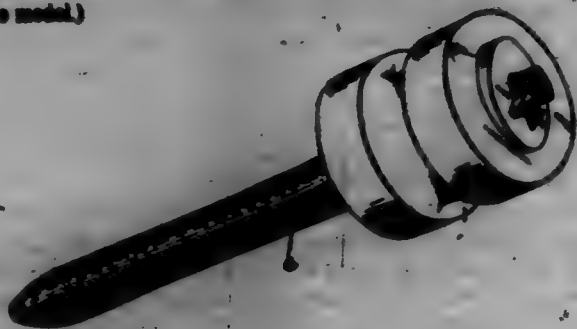
696,664. STOVE. ARTHUR K. BUCKWIRE, Dowagiac, Mich. Filed Nov. 2, 1901. Serial No. 89,968. (No model.)



Claim.—1. The combination with a stove of a downwardly depending socket A' in the top thereof with internal screw-threads formed therein; a downdraft-tube with screw-threads engaging the same whereby it is readily adjusted up and down; and a notch for the engagement of the poker or other suitable device in the top of said downdraft-tube whereby it is readily adjusted up and down; and a damper B above the said socket with connections C therefrom with the outside of the stove whereby the downdraft can be readily controlled.

2. The combination with a stove of a downwardly depending socket A' in the top thereof with internal screw-threads formed therein; a downdraft-tube with screw-threads engaging the same whereby it is readily adjusted up and down; and a damper B above the said socket whereby the downdraft can be readily controlled.

696,665. WIRE-INSULATOR. WILLIAM C. BUNOW, Columbus, Ohio, assignor to the Bunow Company, Columbus, Ohio, a Corporation of Ohio. Filed Jan. 4, 1901. Renewed Sept. 9, 1901. Serial No. 74,788. (No model.)



Claim.—In a wire-insulator, the combination with a pin 6 having a reduced extension 7, said extension being provided with a projecting locking-leg 7, of an insulator-body 1 having a central opening therethrough adapted to receive said pin extension 7 and an internal keyway 4 communicating with said central opening and an inclined bore or extension 5 on the outer end of said insulator, substantially as specified.

696,666. HORIZONTAL PADDLE-WHEEL FOR PROPELLING SHIPS. VICTOR BUNA, Als, Russia. Filed Nov. 20, 1901. Serial No. 89,961. (No model.)



Claim.—1. A horizontal paddle-wheel propelling device for ships and boats, comprising a horizontal paddle-wheel having a plurality of paddle-arms each provided with a paddle-blade, a casing approximately enclosing one-half of said paddle-wheel, and passages at the forward and rearward ends of said casing adapted to direct the flow of the water sucked in at the forward end and expelled at the rearward end of said casing by said paddle-wheel, whereby the rotation of the portion of the paddle-wheel within said casing is utilized in the propulsion of the ship, substantially as set forth.

2. In a horizontal paddle-wheel propelling device for ships and boats, the combination of horizontal paddle-wheels arranged in pairs beneath the bottom of the ship, a shaft projecting through the bottom of the ship from the center of each paddle-wheel and adapted to be driven around by suitable means, a casing beneath the bottom of the ship approximately enclosing the half nearest the center line of the ship of each of said paddle-wheels, an opening into said casing near the forward end of the ship, passages from said opening communicating with the forward end of the casing surrounding each paddle-wheel in such manner that the rotation of the paddle-wheels within said casings may draw in water, through said passages from the forward end of the ship, and passages near the rear end of each paddle-wheel casing adapted to direct the water driven by said paddle-wheels within said casings toward the stern of the ship, whereby the rotation of the portions of the paddle-wheels within said casings is utilized in the propulsion of the ship, substantially as set forth.

3. A horizontal paddle-wheel propelling device for ships and boats, comprising horizontal paddle-wheels arranged in pairs at each side of the center line of the ship, shafts projecting from the center of said paddle-wheels through the bottom of the ship and adapted to be driven around by suitable means, a casing approximately enclosing the half nearest the center line of the ship of each of said paddle-wheels, and passages in said casing whereby the rotation of the paddle-wheels within their casings is utilized to suck in water from the forward end of said casing and to expel water at the rear end of said casing, substantially as set forth.

696,667. TILTING-CHAIR. JOHN HALLINGER, Port Washington, Wis. Filed June 20, 1901. Serial No. 89,986. (No model.)



Claim.—1. In a tilting-chair, a support having upwardly-projecting expanding radial arms provided with terminal fingers and an intermediate space, a chair-seat spider pivoted on the support tiltable backwardly, steps fixed on the spider projecting into the space between said fingers and adapted to engage said fingers toward front and rear and limit the tilting movement of the spider and springs connected to the spider and to the support adapted to hold the spider yieldingly against the front fingers and permit it to tilt to and against the rear fingers on said arms.

2. In a tilting-chair, a support having upwardly-projecting radial arms, a horizontally-disposed chair-seat spider provided with medial downwardly-projecting ears pivoted near their lower extremities on the arms of the support, springs at the rear of the vertical plane of the axis of the pivot, a plate on the spider at the rear of the vertical plane of the pivot against which the front ends of the springs bear, a plate against the rear ends of the springs, a coil secured to the rear spring-plate and passing movably through the front spring-plate, a yoke transverse on the arms

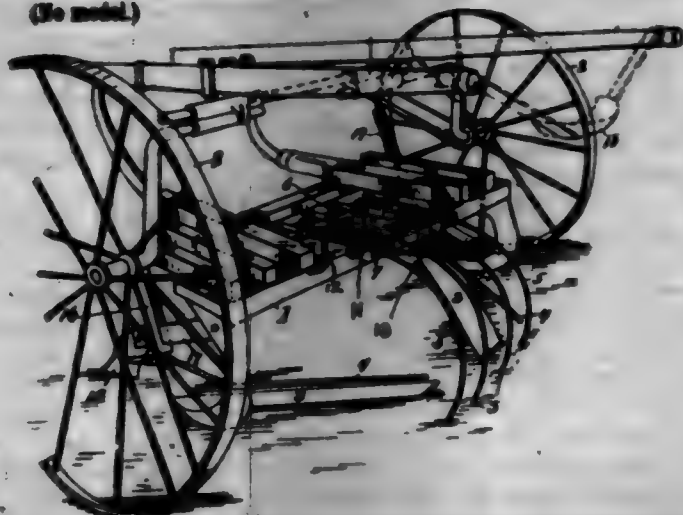
of the support, and a nut turning by screw-thread on said rod and bearing on the yoke at the rear of the axis of the transverse.

3. In a tilting-chair, a support having upwardly-projecting radial arms, a horizontally-disposed chair-seat spider provided with medial downwardly-projecting ears pivoted near their lower extremities on the support, springs at the rear of the vertical plane of the axis of the pivot, a plate on the spider at the rear of the vertical plane of the pivot against which the front ends of the springs bear, a plate against the rear ends of the springs, a rod secured to the rear spring-plate and passing movably through the front spring-plate, a yoke through which said rod passes movably, said yoke having forwardly-extending cranked arms provided with transverse, transverse-bearing members extending inwardly from the upper ends of said arms of the support, and a nut turning by screw-thread on said rod against the yoke at the rear of its transverse.

4. In a tilting-chair device, a spider provided with transverse-sockets extending vertically and open upwardly in its side rails, and steps on the spider near the sockets and a spring-plate provided with transverse adapted to enter and bear in said sockets, and lugs on said plate adapted when the plate is in place having its width in vertical position to engage the steps on the spider and prevent the removal of the plate from the spider while in such normal vertical position.

5. In a tilting-chair, a support having upwardly-projecting arms provided at the front near their upper ends with inwardly-projecting transverse-bearing members having bearings for transverse, a yoke provided with forwardly-projecting cranked arms having transverse-terminals receivable in said transverse-bearings, a spider pivoted on said support, springs mounted on the spider at the rear of its pivot, a spring-controlling rod extending movably through said yoke, and a nut turning on said rod and bearing against said yoke at the rear of the axis of its transverse.

696,668. BEAN-HARVESTER. CLYDE C. FAY, Pettorville, Mich. Filed Jan. 26, 1900. Renewed Feb. 20, 1902. Serial No. 90,000. (No model.)



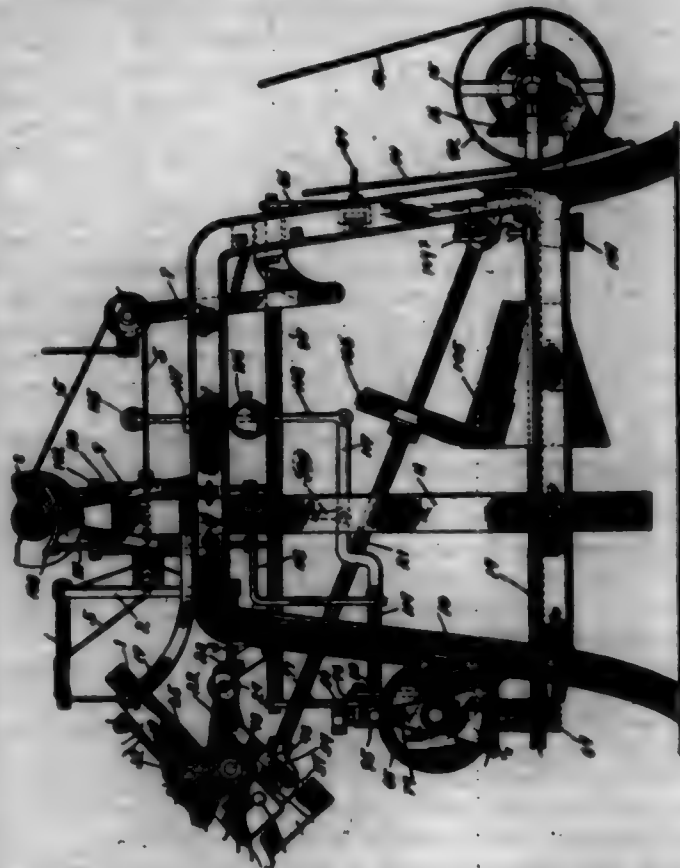
Claim.—1. In a bean-harvester, the combination with the frame and transporting-wheels, of the inclined rearwardly-converging knives, the rake disposed at the rear of said converging knives, a shaft extending longitudinally of the frame, the ends of the tines of said rake bent partly around said shaft from the under side and threaded, plates through which the tines pass, said plates lying across the upper face of said shaft and receiving the threaded ends of the tines in the rear thereof, nuts screwed onto the threaded ends against said plates, a transverse bar at the rear of the machine common to all of said tines and through which said tines pass, bolts connected with the shaft and secured at their outer ends to said bar and means for raising and lowering said bar to actuate the tines in unison.

2. In a bean-harvester, the combination of the frame and transporting-wheels, the rearwardly-converging knives, the rake disposed at the discharge end of said knives, a shaft journaled in the frame, the tines of said rake clamped to said shaft, a movable cross-bar having apertures therethrough and extending longitudinally of the frame, said bar being common to all of the rake-tines which pass freely through the apertures in said bar, bolts journaled to said shaft and secured at their outer ends to said bar, a rock-shaft journaled at the rear of the frame having an upwardly-projecting crank formed therein and having an integral end portion bent outwardly at right angles to said crank passing freely through said bar and adapted to slide therein.

696,669. BALLING-MACHINE. WILLIAM FLEMING, Chicago, Ill. Filed May 31, 1901. Serial No. 92,600. (No model.)

Claim.—1. In a balling-machine, the combination of a spindle for holding the ball and winding the strand, means for operating said winding means, means for changing the inclination of the spindle during the

winding of the strand, means for temporarily arresting the action of said spindle-inclining means and means for releasing said arresting means by the expansion of the ball, substantially as set forth.



2. In a balling-machine, the combination of a ball pin or spindle, a movable support therefor, whereby the angle of the pin with relation to the strand may be changed, winding means, a cam movable bodily with said support, a rest for said cam, means for rotating said cam, means for arresting the rotation of said cam at a certain period, means adapted to be actuated by the ball for releasing said cam, and thereby permitting a further movement of said pin-support, and means actuated by said further movement of the pin-support for throwing the winding means out of action, substantially as set forth.

3. In a balling-machine, the combination of a pin or spindle, a pivoted gravitating support or frame therefor, winding means, a cam movable bodily with said support, a stationary rest for said cam, means for rotating said cam, means for arresting the rotation of said cam at a certain period, means adapted to be actuated by the ball for releasing said cam and thereby permitting a further movement of said pin-support, and means actuated by said further movement of the pin-support for throwing the winding means out of action, substantially as set forth.

4. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, an irregular cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, means for arresting said independent movement of the cam, and means for releasing said cam from said arresting means by the expansion of the ball, substantially as set forth.

5. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a gravitating cam for supporting said frame, revolving in unison with said winding means, and being also movable independently thereof, means for arresting said independent movement of the cam, and means for releasing said cam from said arresting means by expansion of the ball, substantially as set forth.

6. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, a catch on said cam, and a stop on said pin-frame for arresting said independent movement of the cam, and means for releasing said catch and stop by the expansion of the ball, substantially as set forth.

7. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame revolving in unison with said winding means, and being also movable independently thereof, a flexible catch on said cam, and a stop on said pin-frame for arresting the independent movement of said cam, and means for releasing said stop and catch by the expansion of the ball, substantially as set forth.

8. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, a catch on said cam, having a flange

roller, 57, and a stop on said frame for engaging with said roller and arresting the independent movement of said cam, and means for releasing said roller and stop by the expansion of the ball, substantially as set forth.

9. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, a catch on said cam, a stop on said frame for engaging with said catch and arresting the independent movement of said cam, and a trip actuated by the expansion of the ball for releasing said stop and catch, substantially as set forth.

10. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, a catch on said cam, a stop on said frame for engaging with said catch and arresting the independent movement of said cam, and a trip carried by said pin-frame and actuated by the expansion of the ball for releasing said stop and catch, substantially as set forth.

11. In a balling-machine, the combination of a ball pin or spindle, a movable support or frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, a catch on said cam, a stop on said pin-frame for engaging with said catch and arresting the independent movement of said cam, an adjustable lag on said catch, and a trip arranged to be actuated by the expansion of the ball for engaging said lag and releasing said catch and stop, substantially as set forth.

12. In a balling-machine, the combination of a ball pin or spindle, a movable pin-frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means and being also movable independently thereof, means for detachably connecting said cam operatively with said winding means, and means for releasing said detachable means automatically by the rotation of the cam for permitting the independent movement of the cam, substantially as set forth.

13. In a balling-machine, the combination of a ball pin or spindle, a movable pin-frame therefor, winding means, a cam for supporting said frame, revolving in unison with said winding means, and being also movable independently thereof, means for detachably connecting said cam operatively with said winding means, means for releasing said detachable means for permitting the independent movement of said cam, a stop for arresting said independent movement of the cam, and means for releasing said stop by the expansion of the ball, substantially as set forth.

14. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, adapted to revolve in unison with said winding means, and being also movable independently thereof, means for detachably connecting said cam operatively with said winding means, means for releasing said detachable means for permitting the independent movement of said cam, a stop for arresting said independent movement of the cam, means for releasing said stop by the expansion of the ball and permitting said pin-frame to drop and means actuated by the falling of the pin-frame for throwing said winding means out of action, substantially as set forth.

15. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, adapted to revolve in unison with said winding means, and being also movable independently thereof, a spring-actuated dog for detachably connecting said cam operatively with said winding means, and means for releasing said dog, actuated by the motion of the cam, substantially as set forth.

16. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, adapted to revolve in unison with said winding means and being also movable independently thereof, a spring-actuated dog, for detachably connecting said cam operatively with said winding means, and the cam, 42, fixed with relation to said first cam for releasing said dog as said first cam revolves, substantially as set forth.

17. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, having a hub rotatable independently thereof and on which said cam is journaled, a spring-actuated lever secured to said cam, a dog connected with said lever for locking said hub and cam together, and a cam, 42, interposed in the line of movement of said lever for engaging the same and disengaging said dog from said hub, substantially as set forth.

18. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, a hub on which said cam is journaled, revolving in unison with said winding means, means for detachably connecting said hub and cam together, and cam, 41, for disengaging the last said means, and having the depression, 43, in which the last said means settles, for holding the last said cam and hub disengaged, substantially as set forth.

19. In a balling-machine, the combination of a ball pin or spindle, a

movable frame therefor, winding means, a cam for supporting said frame, a cam-shaft for said cam operatively connected with said winding means and provided with a clutch member, a second clutch member detachably secured to said cam, means for automatically detaching said cam from said second clutch member as the cam-shaft revolves, means for limiting the independent movement of said cam, and means for disengaging said clutch members at will, substantially as set forth.

20. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, movable independently of said winding means, a cam-shaft for said cam operatively connected with said winding means, a clutch member secured thereto, a second clutch member detachably connected to said cam, a second cam fixed to said frame, means carried by said first cam for engaging said second cam and releasing the first cam from said clutch member, means for limiting the independent movement of said first cam, and means for disengaging said clutch members at will, substantially as set forth.

21. In a balling-machine, the combination of a ball pin or spindle, a movable frame therefor, winding means, a cam for supporting said frame, a cam-shaft for said cam operatively connected with said winding means, a clutch member on said cam-shaft, a second clutch member, a spring-actuated dog for securing said second clutch member to said cam, means for holding said dog released as the cam-shaft revolves, a disengageable stop for holding said cam against independent movement when said dog is released, means for releasing said stop by the expansion of the ball, and means for releasing said clutch members at will, substantially as set forth.

22. In a balling-machine, the combination of means for forming the ball, means for driving said ball-forming means, a power-transmitting device for imparting motion to the last said means, a shifter for throwing said power-transmitting device out of action, a latch for holding said shifter inactive, a revolving trip for releasing said latch, a gear for actuating said trip, and means operatively related to and adapted to be actuated by the expansion of the ball for shifting said gear into operative connection with said driving means, substantially as set forth.

23. In a balling-machine, the combination of means for forming the ball, means for driving said ball-forming means, a power-transmitting device for imparting motion to said driving means, a shifter for throwing said device out of action, a latch for holding said shifter inactive, two gears normally out of action, one connected with said driving means and the other with said trip, and means for shifting said gears into engagement by the expansion of the ball, substantially as set forth.

24. In a balling-machine, the combination of means for forming the ball, means for driving said ball-forming means, as helical, means for supporting said helical against downward movement, means for releasing said supporting means by the expansion of the ball, a power-transmitting device for imparting motion to said driving means, a shifter for throwing said device out of action, a latch for holding said shifter against movement, a revolving trip for releasing said latch, a shaft for operating said trip, a gear for operating said shaft slidable longitudinally thereof, the roller, 50, arranged to be struck by said helical when it falls, means operatively connecting said roller with said gear for shifting it lengthwise of said shaft, a companion gear, and means connecting said companion gear with said driving means for imparting motion to said first gear when the latter is shifted, substantially as set forth.

25. In a balling-machine, the combination of a speed for the yarn, means for forming the ball, means for driving said ball-forming means detachably related thereto, tension devices arranged to bear against the yarn on the speed, and means for disengaging said driving means and ball-forming means by the motion of said tension devices toward the speed, substantially as set forth.

26. In a balling-machine, the combination of a speed for the yarn, means for forming the ball, driving means therefor, means for disengaging said driving means from said ball-forming means, a tension device adapted to bear against the yarn on the speed, a spring for holding said tension device against the speed, an adjustable arm connected to said tension device, a latch for holding out of action the said means for disengaging the driving means and ball-forming means, arranged over, and adapted to be released by said adjustable arm, as the tension device approaches the speed, substantially as set forth.

696,670. SPARKING FLUG. HENRY C. POLMER, HARRY MORSE, and EDWARD R. JACOBSON, West Sumnerville, Mass.; said Jacobson assignor to said Polmer and Morarty. Filed Dec. 14, 1899. Serial No. 49,393. (No model.)



Claim.—1. In a device of the kind described, containing two spark electrodes and conductors leading thereto approximately parallel, as to

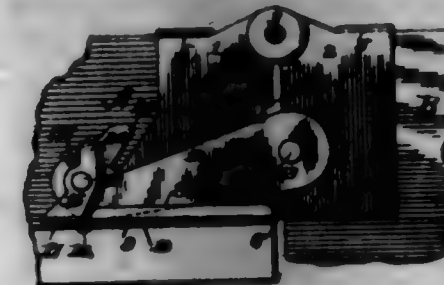
relation between said conductors consisting of two contiguous parts composed of refractory insulating material, one part being mounted in close contact around one of said conductors, and the other surrounding the former, one of said parts extending integrally lengthwise of the device, and the other of said parts being made up of a series of layers extending radially of said lengthwise part, and means holding said insulation under longitudinal compression.

2. In a device of the kind described, comprising a central conductor or core, a tubular insulation closely embracing said core and without transverse aperture or joint throughout its length, and a surrounding insulation mounted on said tubular insulation and composed of a series of disks extending transversely of said tubular insulation and compressed tightly together thereon, both of said insulations being composed of refractory material, and a second conductor mounted outside of said insulation, said two conductors being provided at one end with spark-electrodes.

3. A device of the kind described, comprising two electrodes, a casing carrying one, and a core carrying the other, combined with insulation filling the space between said core and casing, and comprising longitudinal and transverse layers of refractory insulating material compressed together, each layer being transversely integral and impervious throughout its area.

4. A device of the kind described, comprising two spark-electrodes, a central conductor for one, a concentric casing for the other, insulation filling the space between said casing and conductor composed of a tubular part closely surrounding said central conductor and transversely impervious throughout its area, and a series of disks compressed about said tubular insulation, and each extending radially thereto, said disks and tubular part being composed of refractory material, the peripheral surface of said compressed disks containing a central rib against which said casing abuts on one side, a collar adjustably secured to said casing and abutting against said rib on the opposite side, and means for holding said insulation under longitudinal pressure.

696,671. KINGS FOR FURNITURE. EDGAR A. GAY, Rochester, N. Y., assignor to the King Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 19, 1891. Serial No. 73,392. (No model.)



Claim.—1. In a hinge, the combination, of two members, a rack on one of the members, a pawl on the other member engaging the rack to support said members in adjusted position when moved outwardly, a supporting-surface on the first member, and a carrier adapted to slide on the said supporting-surface and attached to the pawl to support the latter out of engagement with the rack when said pawl is moved inwardly.

2. In a hinge, the combination, of two members, a rack on one of the members, and a pawl carried by the other member and adapted to engage the rack, a supporting-surface on the first-mentioned member, a carrier adapted to slide thereon and pivotally connected to the pawl, and means for raising the latter out of engagement with the rack, whereby the carrier is permitted to fall to an operative position for supporting the pawl on the said supporting-surface.

3. In a hinge, the combination, of two members, a rack at one side of one of said members, said rack having a supporting-surface, a pawl carried by the other member and engaging the rack, a carrier adapted to slide on the supporting-surface and pivotally connected to the pawl, and means for elevating the pawl when at the end of the rack, whereby the said carrier is caused to assume a position with relation to the supporting-surface to cause said carrier to support the pawl out of engagement with said rack.

4. In a hinge, the combination, of two members, a rack and a supporting-surface on one of said members, a pawl carried by the other member and normally engaging the rack, a stop adapted to be engaged by the pawl for limiting the operation of the said members, a carrier on the pawl, and means for causing said carrier to move beneath the pawl and engage the supporting-surface for the support of the pawl when the latter engages said stop.

5. In a hinge, the combination, of two members, a rack and a supporting-surface on one of the members, a pawl having an inclined face and pivoted to the other member and adapted to engage the rack, a carrier pivoted on the pawl, and a stop adapted to be engaged by the inclined face of the pawl whereby the pawl is limited in its movement and

elevated out of engagement with the rack and said carrier permitted to fall to the supporting-surface and thereby support said pawl.

6. In a hinge, the combination, with a member having a rack extending in substantially horizontal position, a second member pivoted to the first, of a pawl pivoted on the second member below the pivotal joint of said members and adapted to be drawn across the said rack when the members are separated, means operating to elevate the pawl out of engagement with the rack, and a carrier for supporting the pawl out of operative position when said members approach each other.

7. In a hinge, the combination, with a member having the outwardly-curved lower portion forming a supporting-surface and having the rack, of a second member, a pawl thereon the free end of which is adapted to engage the rack when said member is moved in one direction, and the carrier pivoted to the pawl and adapted to move on the supporting-surface out of operative position to support the pawl and to engage the supporting-surface and support the pawl out of engagement with the rack when the pawl is moved with its member in the opposite direction.

8. In a hinge, the combination, of two members, one having a rack, and a pawl pivoted to the other member and adapted to engage the rack, a part pivoted to the pawl and adapted to slide in an operative position on the member carrying the rack, a stop on said member, and a projection on the pawl engaging the stop, whereby the pawl is lifted out of engagement with the rack and the said pawl pivoted part allowed to pass into operative position, whereby the pawl will be supported and the hinge members allowed to close.

9. In a hinge, the combination, of two members, one of said members having a guide and a rack, a pawl on the other member coacting with said rack, a carrier pivoted to the pawl and adapted to support the latter out of engagement with the rack when said carrier and pawl are moving in one direction, said carrier having the elongated base coacting as specified with the guide.

10. In a hinge, the combination, of two members, one having a rack and a support, a pawl mounted on the other member, adapted to engage the rack and having an inclined surface, a stop on the first member adapted to be engaged by said inclined surface of the pawl and to limit the operation of the members and raise the pawl out of engagement with the rack, and means between the support and pawl adapted to coast with the two when the pawl is raised to hold the latter out of operative position when moving across the rack in one direction.

11. In a hinge, the combination, of two members, one having a rack and a support, a pawl on the other member adapted to engage the rack, said pawl having an inclined surface, a stop on the first member adapted to be engaged by said inclined surface of the pawl, to elevate the latter out of engagement with the rack, and having a projection extending over the face of the pawl to limit its pivotal movement, and means between the support and pawl actuated by the engagement of the latter with the stop to hold the pawl out of operative position when it is being returned across the rack.

12. In a hinge, the combination, of two members, one of said members having a rack and a supporting-surface, and the other provided with a pawl having an inclined surface, a stop on the first-mentioned member arranged in the path of and adapted to be engaged by said inclined surface of the pawl and to elevate the latter out of engagement with the outer end of the rack, a carrier pivoted on the pawl and having a bearing-surface extending toward the inner end of the rack in advance of its pivotal point and adapted to engage the supporting-surface of the opposite member when the pawl is elevated and to move over the same.

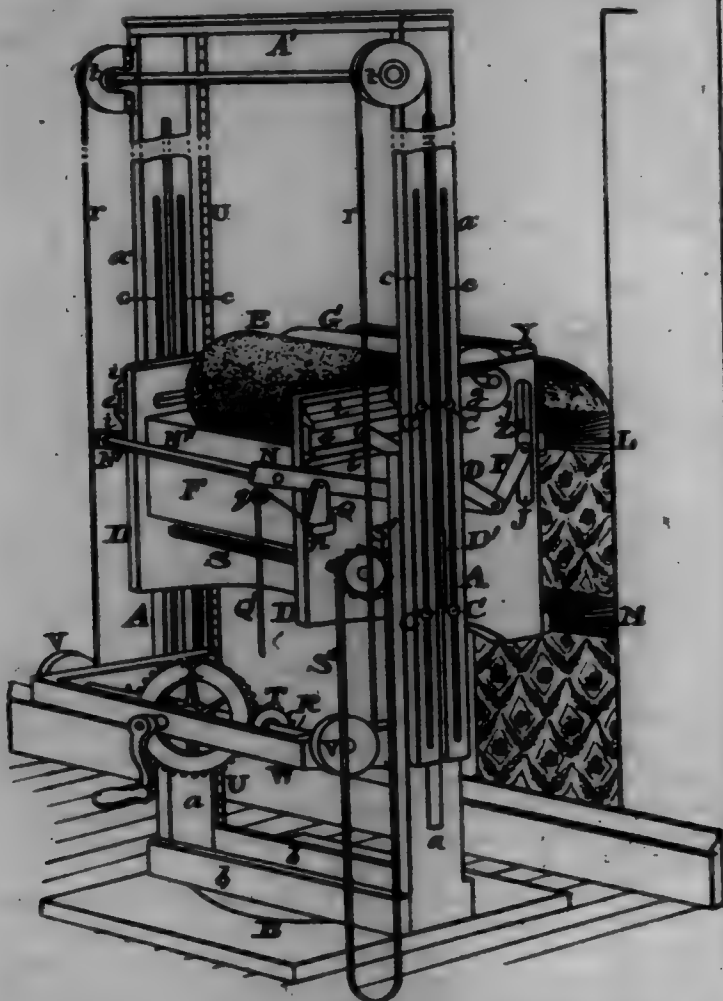
13. In a hinge, the combination, of opposite pivoted members, a rack adjacent to one of the same, a pawl pivoted to the other of said members and adapted to engage the rack when said pawl is moved in one direction, and means for permitting the engagement of the pawl at any point of the rack when said pawl and its carrying member is moved first in the disengaging direction and subsequently in an opposite or engaging direction.

14. In a hinge, the combination, of opposite pivoted leaves or members, a pawl connected loosely to one of the same, a pawl-engaging device located on the companion member or leaf and adapted to engage said pawl for the purpose of giving intermediate adjustments in said leaves or members, and means operated by the members for causing said pawl and engaging device to cooperate or engage at any of said intermediate adjustments without the necessity of operating the said hinge members to their limit of adjustment.

696,672. PAPER-HANGING MACHINE. JULIUS H. GILMERMAN, Cleveland, Ohio. Filed Feb. 2, 1898. Serial No. 60,398. (No model.)

Claim.—1. A wall-paper-hanging machine consisting of side plates D D, a supporting cross-bar D', a removable rotatable paste-brush E, journaled in slots e e' on the sides of said plates D D, a removable paste-box F suspended on the journals of the paste-brush, a movable cross-bar J playing in slots j j' in the side plates D D, a brush L carried by said cross-

bar J, arms *g g* pivoted to the sides D D carrying paper-roll holder, a permanent brush N attached to lower corners of plates D D, levers K K fulcrumed on the sides of the plates D D, links O O' connecting said levers with the sliding brush-holders *e e'*, the links P P' connecting the levers N N' with the sliding brush-holding cross-bar J, a knife Z on said sliding cross-bar, and a slotted cross-bar Y on upper corners of the plates D D, all constructed and combined to operate substantially as and for the purpose set forth.



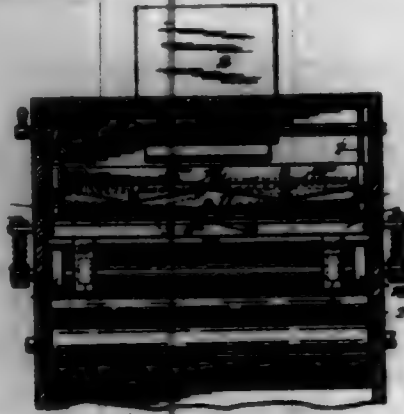
2. The wall-paper-hanging machine comprising the side supporting-plates D D supported on the cross-bar J, a removable and rotatable paste-brush E, journaled in slides *e e'* on the plates D D, a removable paste-box F suspended on the journals of the brush E, a movable cross-bar J playing in slots *j j* in the side plates D D, a brush L carried by said cross-bar J, arms *g g* pivoted to the sides D D carrying paper-roll holder, a permanent brush M attached to lower corners of the plates D D, levers N N' fulcrumed on the side plates D D, links O O' connecting said levers with the sliding brush-holders *e e'*, the links P P' connecting the levers N N' with the sliding brush-holding cross-bar J, a knife Z on said sliding cross-bar J, and a slotted cross-bar Y on the upper corners of the plates D D, in combination with the upright adjustable slotted tracks A A, frame W on pieces *a a* of the uprights, shaft E supported in said frame, grooved wheels V V on the ends of said shaft, bevel-pinion T on said shaft, a bevel-gear X journaled in the frame W and provided with a hand-crank ropes *r r* attached to said wheels V V and passing up over pulleys *t t* at the top of frame A A thence down and attached to the ends of cross-bar J, and the vertical chain U attached to top and bottom of frame A A, and the sprocket-wheel U' on the paste-brush shaft meshing with said chain, all constructed and combined to operate substantially as and for the purpose set forth.

696,678. FREDERICK COLLIER-MILLER. HENRY SCHWENDE and JOHN E. DEANBOLT, Ontario, Wis. Filed Dec. 18, 1900. Serial No. 42,300. (No model.)

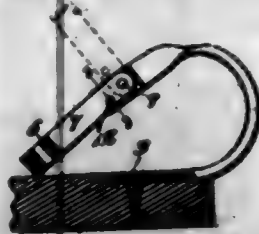
Claim.—1. The combination, in a roller-mill, of a vibrating shoe, a vertically-movable power-shaft, connections between the latter and said shoe to vibrate said shoe, a grinding-roll, friction-wheels on said power-shaft to engage said grinding-roll, tension arms or levers having bearings for said vertically-movable power-shaft, a shaft having eccentrics connected to and supporting said tension-levers, at one end thereof, and springs to depress said tension-levers, for the purpose set forth, substantially as described.

2. The combination, in a roller-mill, of a vibrating shoe, a vertically-movable power-shaft, connections between the latter and said shoe to vibrate said shoe, a grinding-roll, friction-wheels on said power-shaft to en-

gage said grinding-roll, tension-levers having bearings for said vertically-movable power-shaft, a movable grinding-roll, adjusting-arms having bearings therefor and a shaft in fixed bearings having eccentrics connected to said tension-levers and said adjusting-arms whereby said vertically-movable power-shaft and said movable grinding-roll are adjusted simultaneously, substantially as described.



696,674. CHECK-HOOK. EDWIN HARRISON and JOSEPH A. PLATT. Edred, Pa. Filed Apr. 21, 1901. Serial No. 54,888. (No model.)



Claim.—The combination with a checkrein-hook having its upper end twisted to present the end in a vertical plane, and formed with opposite shoulders, of a loop comprising spring-arms reduced to conform to said shoulders embracing the vertically-disposed end of the hook and pivotally secured thereto, and formed adjacent to their pivotal point with openings; and bosses projecting from opposite sides of the upper end of the hook below the pivotal point of the loop over which the spring-arms snap to engage the bosses in the openings of the loop.

696,675. PISTON-VALVE. WILLIAM HESTON, Homestead, Pa. Filed Apr. 22, 1901. Serial No. 54,977. (No model.)

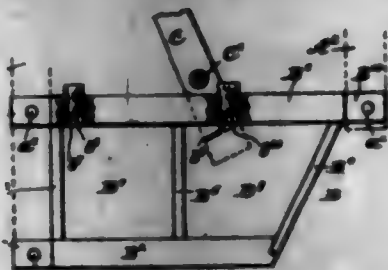


Claim.—1. The combination of a piston comprising a head *a*, in which is an external annular groove, and two stems *d d'*, cones embrace-

ing and movable upon said stems with their small ends pointing toward the head, internally-tapered split sleeves embracing said cones with their thick ends toward and in contact with said head, expandible packing-rings embracing said split sleeves, and means for forcing said cones toward said head into said split sleeves, substantially as and for the purpose specified.

2. The combination of a piston comprising a head *a*, in which is an annular groove, and two stems *a'* *a''*, cones embracing and movable upon said stems with their small ends pointing toward the head, internally-tapered split sleeves embracing said cones with their thick ends toward and in contact with said head, expandible packing-rings embracing said split sleeves, springs engaging with the large ends of said cones, caps which engage with said compress said springs, and clamp said packing-rings, and means for holding down said caps, substantially as and for the purpose specified.

696,676. GATE. THOMAS A. HILL, Knoxville, Tenn. Filed June 6, 1901. Serial No. 65,204. (No model.)



Claim.—1. A gate supported on a horizontal hinge and having a counterbalance-chest comprising two compartments which are at opposite sides of a plane cutting said gate lengthwise and near which said hinge lies, substantially as described.

2. A gate supported on a horizontal hinge and a counterbalance-chest comprising two compartments which are at opposite sides of a plane cutting said gate lengthwise and near which said hinge lies, each such compartment having an aperture and removable means for closing said aperture, substantially as described.

3. A gate having a detachable counterbalance-chest and braces, *C*, extending from the sides of said chest to the top rail of the gate and having holes for receiving a hinge-shaft, *C'*, between the point of attachment to said chest and the point of attachment to the frame of the gate, substantially as described.

4. A counterbalance-chest for a gate, said chest being provided at its upper portion and at its lower portion with means for detachably securing horizontal bars, substantially as described.

5. A counterbalance-chest for a gate, said chest being provided at its upper portion and at its lower portion with means for detachably securing horizontal bars, and braces leading from the sides of said chest toward the free end of the gate, substantially as described.

6. A gate having a top rail and a bottom rail extending, respectively, over and beneath a hinge, and a counterbalance-chest located between and detachably secured to said rails, substantially as described.

7. A counterbalance-chest substantially upright when the gate is in its closed position, a horizontal partition dividing said chest into two compartments, and suitable apertures for the insertion of weight material into said compartments, substantially as described.

8. A counterbalance-chest for a gate, said chest comprising side walls, top and bottom walls, and front and rear walls, the latter having extensions for the attachment of said chest to the gate, substantially as described.

9. The combination with two pairs of converging posts, of a gate hinged to two of said posts standing at opposite sides of said gate, a shaft, *d*, supported by the posts at one side of said gate, and an arm, *H*, secured to said shaft by a hinge permitting horizontal movement of said arm, substantially as described.

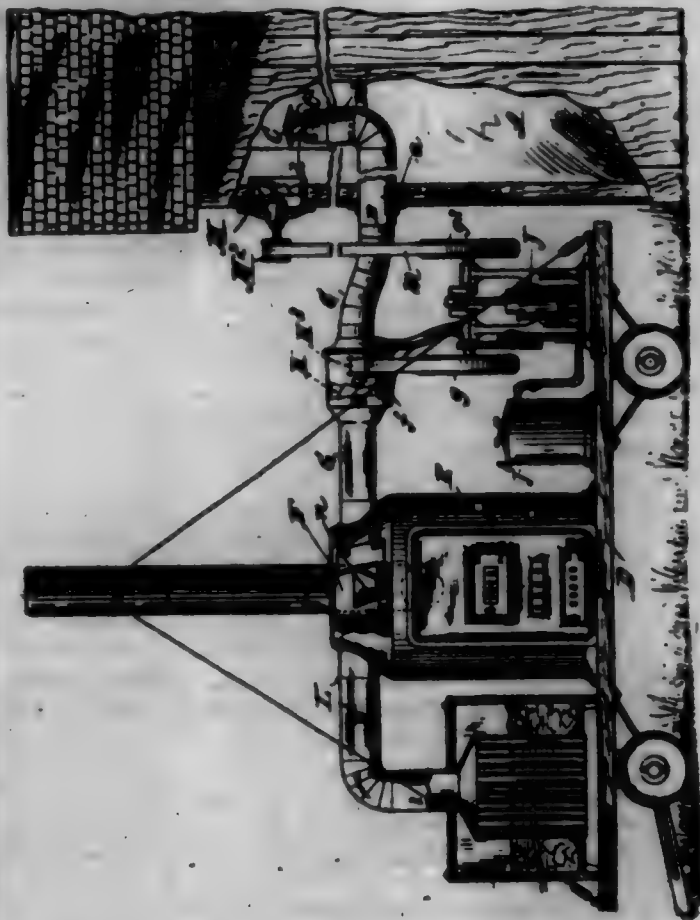
10. The combination with two pairs of converging posts, of a gate hinged to two of said posts standing at opposite sides of said gate, and a cord-supporting arm hinged to said posts above said gate to move in a horizontal plane, substantially as described.

696,677. APPARATUS FOR CURING TOBACCO. GEORGE F. HILLMAN, Florence, Mass. Filed Nov. 11, 1901. Serial No. 61,798. (No model.)

Claim.—1. In an apparatus for curing tobacco, the combination with a pipe having an upwardly-directed bend terminating within the tobacco-chest, and provided at said bend with a hood extended outwardly beyond the diameter of the pipe, and having an inverted cone dependent into the opening in the pipe, of a furnace having a hot-air chamber connected with said pipe, a blower in said pipe between the hot-air chamber and the pipe-terminal, and means for operating the blower.

2. In an apparatus for curing tobacco, the combination with a pipe

having an upwardly-directed bend terminating within the tobacco-chest, and provided at said upwardly-directed bend with a hood extended outwardly beyond the diameter of the pipe, and having an inverted-cone-shaped portion dependent into the opening in the pipe, and vertically adjustable, of a furnace having a hot-air chamber connected with said pipe, a blower in said pipe between the hot-air chamber and the pipe-terminal, and means for operating the blower.



3. In an apparatus for curing tobacco, the combination with a pipe having an upwardly-directed bend terminating within the tobacco-chest, provided with a series of externally-located staples and provided with a hood extended outwardly beyond the diameter of the pipe having an inverted-cone-shaped portion dependent into the opening in the pipe, and provided with a series of elongated eyes adapted for detachable engagement over said pipe-supported staples, of a furnace having a hot-air chamber connected to said pipe, a blower in said pipe between the hot-air chamber and pipe-terminal, and means for operating the blower.

4. In an apparatus for curing tobacco, the combination with a pipe terminating within the tobacco-chest, and having a portion thereof fitted through the side of the chest, of a truck having thereon a furnace provided with a hot-air chamber, a pipe leading from said chamber and having detachable connection with the portion of the pipe fitted through the side of the chest, a blower in said pipe between the hot-air chamber and its place of detachable connection as aforesaid, and means for operating the blower.

5. In an apparatus for curing tobacco, the combination with a pipe terminating within the tobacco-chest, and having a portion thereof fitted through the side of the chest, of a truck having thereon a furnace provided with a hot-air chamber, a pipe supported by the truck leading from said chamber having a detachable connection with the portion of the pipe fitted through the side of the chest, and having an aperture through its side, a blower having a pulley located in said pipe between the hot-air chamber and its place of detachable connection as aforesaid, a motor on said truck having a pulley, and a belt running around the motor-pulley and extending through the said pipe apertured to running engagement around said blower-pulley in the pipe, substantially as described.

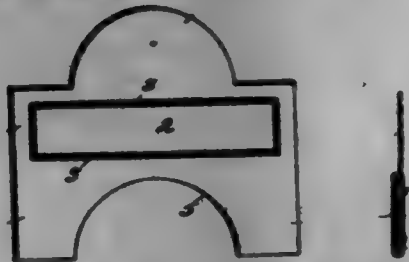
6. In an apparatus for curing tobacco, the combination with a pipe terminating within the tobacco-chest, and having a portion thereof fitted detachably fitted through the side of the chest, of a truck having an apparatus for condensing the moisture in the air and provided with an air-entrance leading thereto, a furnace mounted on said truck having a hot-air chamber, an air-duct leading from the condensing apparatus to said chamber, another duct leading from said chamber and connected with the portion of the pipe terminating within the chest, a blower in the last-named duct, and means for operating the blower.

7. The combination with a tobacco-chest having a pipe terminating therewithin, and having a portion thereof fitted through the side of the chest, and a blower located in another opening in the side of the chest and pro-

vided with an externally-located operating-pulley, of a truck for employment outside the shed having mounted thereon a furnace having an air-chamber, a pipe supported by the truck connected with the air-chamber, and also having detachable connection with the portion of the pipe fitted through the side of the shed, a blower located within the pipe between the air-chamber and its point of detachable connection, having a pulley, a motor mounted on the truck having two pulleys, and belts in running engagement around the motor-pulleys and respectively around the blower-pulleys, substantially as described.

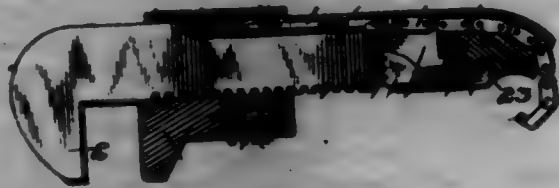
8. An apparatus for curing tobacco, the combination with the tobacco-shed having therein a pipe provided with an upwardly-opening bend, having an outwardly-widened head, which is provided with a conical portion depending within the opening in said pipe, and which head is vertically adjustable relatively to the pipe-bend, and said pipe having an end portion thereof fitted through an opening in the shed, and an outwardly-forcing blower located within another opening in the side of the shed, having an externally-located operating-pulley, of a truck outside the shed, having mounted thereon an apparatus for condensing the moisture in the air having an air-entrance opening therinto, a furnace having hot-air chamber, an air-conduit leading from the condensing apparatus to said chamber, a pipe leading from the hot-air chamber to detachable connection with the portion of the pipe opening through the side of the shed, and having apertures therein, a blower having a pulley located in the last-named pipe, a motor mounted on the truck and having pulleys and belts running therearound, one thereof extending through the apertures in the pipe for running engagement around the inclosed blower-pulley, and the other belt having running engagement around the pulley of the outwardly-forcing blower, substantially as and for the purposes set forth.

696,678. TAG. ROBERT G. HITT, Atlanta, Ga., assignor of one-fourth to Joseph H. Hitt, Augusta, Ga. Filed Apr. 23, 1901. Serial No. 53,084. (No model.)



Claim.—As an improved article of manufacture, a tag, for application to a cotton tie or band, formed of bendable sheet metal and comprising a body with a central opening in one side edge portion and a head diametrically opposed to said opening and projecting beyond the opposite side edge portion of the body, the opposite ends of the body being straight and the said opening providing projections which are bent over and lie parallel to the opposite end portions of the body to embrace the tie or band, the head being bent inwardly in a reverse direction and located between the bent projections in the opening forming the latter.

696,679. WRENCH. GEORGE R. HOWARD and JAMES LAURENCE, Jr., McKeesport, Pa. Filed Jan. 21, 1902. Serial No. 30,532. (No model.)



Claim.—1. A chain spanner attached to the movable jaw of a wrench and operating in a groove on the upper face of the handle thereof with overlapping flanges carried by the handle for securing said chain in position, substantially as described.

2. An adjustable chain spanner comprising a chain carrying a hook secured to the movable jaw of a wrench, the handle of said wrench on its rear end being arc-shaped with the upper face of the handle having a groove and overlapping flanges for securing said chain in position, substantially as described.

3. An adjustable chain spanner comprising a chain carrying a hook secured to the movable jaw of a wrench, the handle of said wrench on its rear end being arc-shaped with the upper face of the handle having a groove and overlapping flanges for securing said chain in position, and a fulcrum-arm secured in the handle, substantially as described.

4. An adjustable chain spanner comprising a chain carrying a hook secured to the movable jaw of a wrench, the handle of said wrench on its

rear end being arc-shaped with the upper face of the handle having a groove and overlapping flanges for securing said chain in position, and a spring-pressed fulcrum-arm secured in the handle, substantially as described.

5. An adjustable chain spanner comprising a chain carrying a hook secured to the movable jaw of a wrench, the handle of said wrench on its rear end being arc-shaped with the upper face of the handle having a groove and overlapping flanges for securing said chain in position, and a spring-pressed fulcrum-arm secured in the handle and having openings formed therein to receive the end of the said chain, substantially as described.

696,680. CHAIR ATTACHMENT. ALFRED E. HUNTING, Iron Mountain, Mich. Filed Feb. 23, 1901. Serial No. 49,304. (No model.)

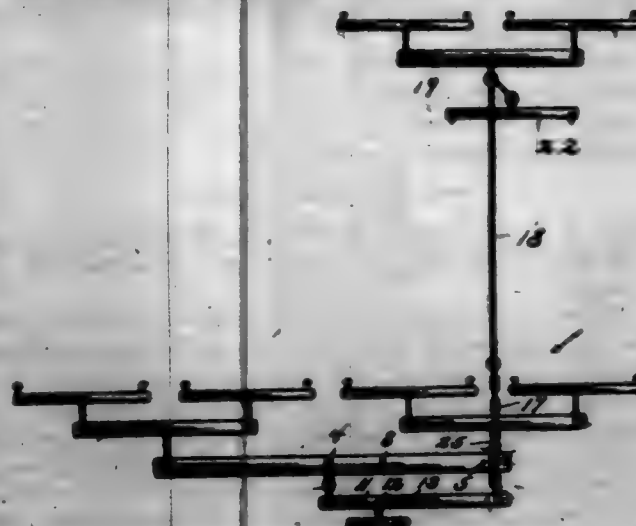


Claim.—1. In an attachment of the class described, the combination with standards carrying chair-engaging means, of a seat having a pivotal connection with the standards and adjustable thereon, and a flexible connection between the upper portions of said standards and the outer portion of the seat, said connection being extensible to permit of the raising and lowering of the seat upon the standards.

2. In an attachment of the class described, the combination with standards carrying chair-engaging means and provided with a hook, of a seat having a pivotal connection with the lower portions of the standards and adjustable thereon, and a chain secured to the outer portion of the seat and having a detachable engagement with the hook of the standards, whereby the chain may be lengthened or shortened to permit of the raising and lowering of the seat upon the standard.

3. In an attachment of the class described, the combination with spaced upright supporting-standards, each having a head provided with depending hooks and intermediate eyes, of a seat pivoted between the lower portion of the standards and adjustable thereon, chains connected to the outer side portions of the seat and having a detachable engagement with the upper portions of the standards, side arms having depending hooks at their inner ends which engage the intermediate eyes of the standards, a tray secured to the outer portion of the arms, and links pivotally connected to the arms and having a detachable pivotal connection with the outer side portions of the seat.

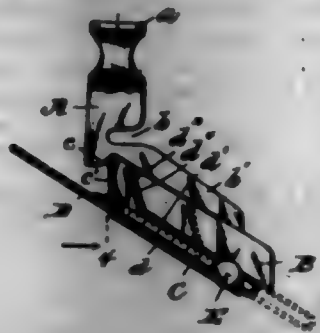
696,681. DRAFT-EQUALIZER. JOSEPH D. DODGE, Birmingham, Tex. Filed Oct. 12, 1901. Serial No. 73,474. (No model.)



Claim.—1. A draft-equalizer comprising a main doubletree formed with a plurality of openings, supplemental doubletrees adjustably connected to the main tree, an over-bar also formed with a plurality of holes to adapt the draft connections between said bar and the main doubletree to be adjusted, a chain or cable attached to one end of the over-bar, a doubletree attached to the forward end of said chain, and a loop supported in front of the over-bar and carrying a roller.

2. In a draft-equalizer, the combination with a plurality of doubletrees, and an over-bar attached to the main doubletree, of a draft-chain attached to said over-bar, and a loop comprising parallel arms depending from said main doubletree and bent forward and connected by a cross-bar, and a roller loosely mounted on said cross-bar over which the chain passes.

696,682. FELLING AND BEMMING ATTACHMENT FOR SEWING-MACHINES. WILLIAM S. JENKINS, St. Louis, Mo., assignor of one-half to Christopher Allen Wiley, St. Louis, Mo. Filed Mar. 7, 1901. Serial No. 50,229. (Model)



Claim.—1. In an attachment of the character described, the combination with a presser-foot, having a prong projecting therefrom, of a spring B secured at one end to the prong, a frame projecting laterally toward the presser-foot supported by the outer end of the spring, a curling-finger projecting from said frame, and a curling-lip also projecting from said frame and bearing a fixed relation to the curling-finger, substantially as described.

2. In an attachment of the character described, the combination with a presser-foot having a prong projecting from the lower portion thereof, a spring secured to said prong, a frame supported by the outer end of the spring and occupying a plane substantially parallel with said prong, and felling or bemming device carried by said frame, substantially as described.

3. In an attachment of the character described, the combination with a footpiece, having a prong B projecting therefrom, of a spring secured at one end of said prong, a frame supported from the other end of the spring and carrying a curling-finger whose inner end is curved upwardly to form a pronounced curve, a curling-lip in juxtaposition to said curling-finger and projecting beneath the footpiece, and an adjustable frame carrying a spreading-finger and guide-shoe; substantially as described.

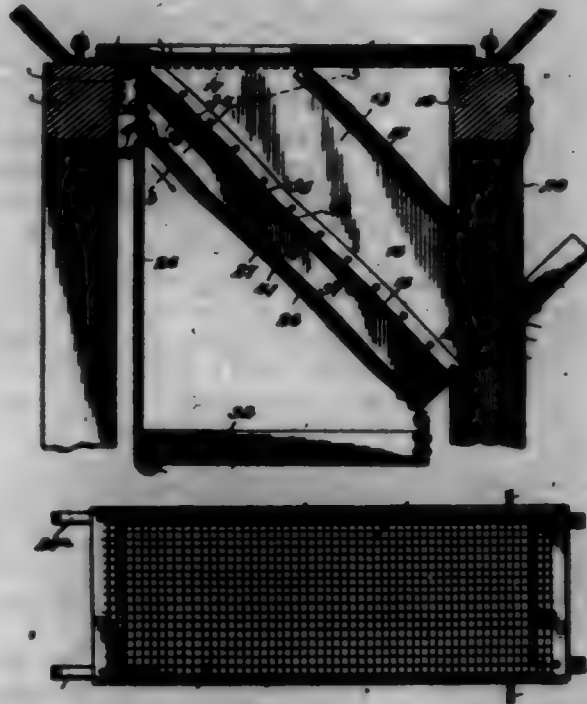
4. In an attachment of the character described, the combination with a presser-foot having a prong projecting from the lower portion thereof, a spring secured to said prong and bent upwardly and laterally at its outer end, a frame supported by said outer end of the spring and occupying a plane substantially parallel with said prong, and felling or bemming device carried by said frame, substantially as described.

5. In an attachment of the character described, the combination with a footpiece having a dotted needle-opening, of a prong B extending from said footpiece, a spring B carried by said prong and occupying a plane substantially parallel therewith its upper end projecting inwardly toward the foot, a curling-finger and curling-lip carried by the frame and approximately in alignment with the path of the needle, an adjustable frame D mounted upon the frame C and carrying a spreading-finger and guide-shoe, and means for locking said frame D in adjusted position; substantially as described.

6. In an attachment of the character described, the combination with a footpiece, of a frame, a spring supported from the foot having a portion bent inwardly toward the foot and carrying the frame, a curling-finger carried by said frame, a curling-lip cooperating with said finger and projecting beneath the footpiece, an adjustable frame mounted on the yielding frame, a spreading-finger on the horizontal plane of the curling-finger, and which is so shaped as to lie close to said curling-finger in one position of the parts, and a guide-shoe whose inner end projects beneath the footpiece; substantially as described.

7. In an attachment of the character described, the combination with a footpiece provided with a needle-opening and a prong B, said prong having a groove in its under surface extending across the same in substantial alignment with the needle-opening in advance of said opening, one wall of the groove being abrupt and the other wall thereof being gently curved, a frame supported by the prong B, and a curling-finger and curling-lip in the frame, substantially as described.

696,688. CHUTE. VAN WERT & JOHNSON, Washington, D. C. Filed Nov. 27, 1901. Serial No. 52,577. (No Model.)



Claim.—1. In apparatus of the class described, independent chutes having a common receiving-mouth, one of said chutes having an imperforate bottom, the bottom of the other being perforate, and separate means for controlling the passage-way through each chute whereby the material may be passed through either chute and immediately delivered screened or unscreened.

2. In apparatus of the class described, independent chutes located one below the other, said chutes having communication with each other contiguous to their upper ends, and means for closing said communication.

3. In apparatus of the class described, independent chutes having a common receiving-mouth inclined in the same direction, the bottom of one chute being imperforate and that of the other being perforate, and means for controlling the passage-ways through said chutes so that material may be passed through either and thereby delivered in screened or unscreened condition.

4. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, the bottom of the upper chute being imperforate, and that of the lower being perforate, said chutes having separate discharge ends located one below the other, and separate means for controlling the passage-way through each chute so that the material may be passed through either and thereby delivered in screened or unscreened condition.

5. In apparatus of the class described, independent chutes having communication at their upper ends, one of said chutes having an imperforate bottom, the other being provided with a perforate bottom, and means for controlling the passage-way through each chute so that material may be passed through either and thereby delivered in screened or unscreened condition.

6. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, said chutes having communication at their upper ends, the bottom of one chute being imperforate and the bottom of the other being perforate, and means for controlling the passage-way through each chute, so that the material may be passed through either and thereby delivered in screened or unscreened condition.

7. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, said chutes having communication with each other at their upper ends, means for closing the communication, and mechanism for controlling the passage-way through the upper chute.

8. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, said chutes having communication with each other at their upper ends, the bottom of the upper chute being solid and that of the lower being a screen, a slidably-mounted gate for closing the communication between the two chutes, and a movable gate for controlling the passage-way through the upper chute.

9. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, the upper chute having a solid bottom and the bottom of the lower chute being a screen, said chutes having communication with each other at their upper ends, a gate slidably mounted on the bottom of the upper chute and movable to close the communication between the two chutes, a hand-lever having a

connection with the gate, a gate slidably mounted on the lower end of the upper chute to control the passage-way therethrough, and a lever having a connection with said latter gate to move the same.

10. In apparatus of the class described, an inclined body having side walls, a bottom secured to said side walls above their lower edges forming thereabove a chute, and a screen detachably secured to the lower edge of said side walls.

11. In apparatus of the class described, an inclined body having side walls provided along their lower edges with guides, a bottom secured to said side walls above their lower edges and forming a chute, and a screen detachably mounted upon the guides.

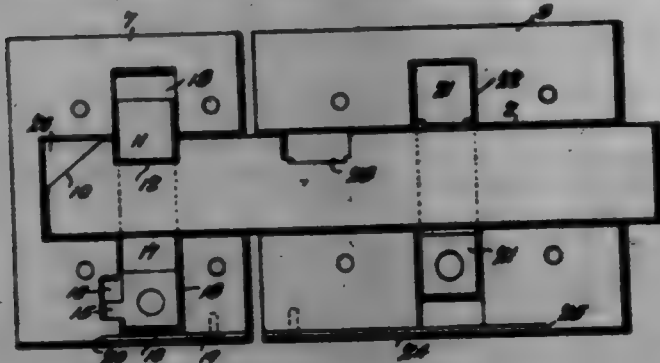
12. In apparatus of the class described, an inclined body having side walls provided along their lower edges with interned supporting-flanges, a bottom secured to the side walls above their lower edges forming a chute, and a screen detachably mounted upon the supporting-flanges.

13. In apparatus of the class described, an inclined body having side walls, a bottom secured to said side walls above their lower edges and forming a chute, a screen detachably secured to the lower edge of the side walls, and a slack-coal receptacle mounted below the screen.

14. In apparatus of the class described, an inclined body having side walls, a bottom secured to the side walls above their lower edges forming a chute, a screen detachably secured to the lower edge of the side walls, a slack-coal receptacle having a pivotal connection with the lower end of the body, and a detachable hanger connecting the body and the other end of the receptacle.

15. In apparatus of the class described, independent chutes located one below the other and inclined in the same direction, the bottom of the upper chute being imperforate and that of the lower having a screen, the bottom of the upper chute having an opening at one end to establish communication with the lower chute.

696,684. SELF-LOCKING LATCH. JAMES H. KASER, Peoria, Ill.
Filed Dec. 16, 1901. Serial No. 86,131. (No model.)



Claim.—1. A latch comprising a casing, a sliding bolt mounted in the casing and provided with a notch or recess, and a vertically-movable catch or tumbler mounted within the casing and supported by the bolt and adapted to engage the recess automatically, said catch or tumbler being arranged to be operated by the finger and being wholly concealed within the casing, substantially as described.

2. A latch comprising a casing having vertical and horizontal ways, the vertical way extending to the bottom of the casing, a sliding bolt mounted in the casing, a vertically-movable catch or tumbler arranged in the vertical way and adapted to engage the bolt, and a movable plate mounted on the casing and covering the lower end of the vertical way, substantially as described.

3. A latch comprising independent casings 3 and 7 designed in its mounted on a door, and a door-frame and having vertical and horizontal ways, a horizontal bolt provided with notches and vertically-movable catches or tumblers mounted in the vertical ways and arranged to engage the said notches to lock the bolt in its extended and retracted positions and concealed wholly within the casings, substantially as described.

4. A latch comprising the casings 3 and 7 having vertical and horizontal ways, a horizontal bolt provided with notches, vertically-movable catches or tumblers mounted in the vertical ways and arranged to engage the notches for locking the bolt in its extended and retracted positions, and movable plates mounted on the casing and covering the lower ends of the vertical ways, substantially as described.

5. A latch comprising the casings 3 and 7 having vertical and horizontal ways, the casing 7 being also provided, adjacent to its vertical way with a recess 16, a horizontal bolt mounted in the horizontal way and provided with notches, and the vertically-movable catches or tumblers arranged in the vertical ways and recessed to receive the bolt, one of the catches or tumblers being provided with a projection operating in the recess 16, substantially as described.

6. A latch comprising a casing having vertical and horizontal ways

and provided at the horizontal way with a shoulder, a horizontal bolt arranged in the horizontal way and recessed to form opposite shoulders for engaging the said shoulder and the exterior of the casing, and a catch or tumbler mounted in the vertical way and arranged to engage the bolt, substantially as described.

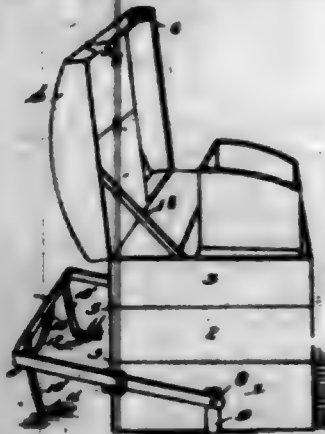
7. A latch having its casing provided with a movable wall-section, and a finger-operated bolt-locking member arranged within the casing and exposed for actuation by the movement of said wall-section, substantially as described.

8. A latch comprising a casing having a movable wall-section, a finger-operated bolt, and a bolt-locking member arranged within the casing in position for engaging the bolt and adapted to be exposed for actuation by the movement of the said wall-section, substantially as described.

9. A latch comprising a casing having a movable wall-section, a sliding bolt mounted in the casing, and a finger-operated reciprocating bolt-engaging member located within the casing and exposed for actuation by the movement of the said wall-section, substantially as described.

10. A latch comprising a casing provided with a movable wall-section, a sliding bolt mounted in the casing and provided with a notch, and a vertically-movable finger-operated bolt-engaging member arranged within the casing in position for engaging the notch of the bolt, and exposed for actuation by the movement of said wall-section, substantially as described.

696,685. TRUNK. JAMES P. LEVERSON, Wrightsville, Pa.
Filed July 30, 1901. Serial No. 70,202. (No model.)



Claim.—1. A trunk comprising a plurality of sections superimposed one upon the other, said sections being hinged together at one side and provided with clasps at the opposite side; in combination with a ball-shaped locking-strap, the central portion of which is adapted to extend across the top of the trunk and the side arms of which are pivotally connected to the lower section, positioning-stays connected with said locking-strap, and a hump-bar connected with said locking-strap and carrying a pivotally-attached hump.

2. A trunk comprising a plurality of sections superimposed one upon the other, said sections being hinged together at one side and provided with clasps at the opposite side; in combination with a ball-shaped locking-strap embracing the several sections and pivotally connected to the opposite ends of the lower section, combined supports and stays connected to the locking-strap, a hump also connected to said locking-strap, and hand-grips mounted on said strap and arranged at opposite ends of the trunk.

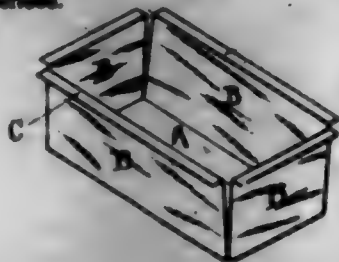
3. A trunk comprising a plurality of sections superimposed one upon the other, said sections being hinged together at one side and provided with clasps at the opposite side; in combination with a pivotally-mounted locking-strap adapted to embrace the several sections of the trunk and also adapted to be swung to one side to form a support for the upper sections of the trunk when thrown open.

4. A trunk comprising a plurality of sections superimposed one upon the other, said sections being hinged together at one side and provided with clasps at the opposite side; in combination with an anchor-strap extending along the bottom of the lower section, a locking-ball pivotally connected at its ends thereto and adapted to extend over and embrace the remaining sections, and a hump pivoted to said ball.

5. The combination with a trunk having a cover pivoted thereto, of an anchor-strap having its ends upturned, a ball pivotally secured to said ends, combined supports and stays connected to said ball, and having their free ends bent to form hooks or clasps, a hump-bar pivoted to said ball, a hump pivoted to said bar, and hand-grips mounted on the arms of said ball.

696,686. MOLD FOR HOLDING MAPLE-SUGAR. JOSEPH M. LYON, Evanston, Ill.
Filed Sept. 20, 1901. Serial No. 76,906. (No model.)

Claim.—1. A mold of the class described, comprising a mold proper having its walls divided from top to bottom whereby said walls may be spread apart for releasing molded article, and a frame having relatively fixed and immovable sides adapted to engage the walls of the mold for holding them together, the mold being entirely removable from the frame, substantially as described.



2. A mold of the class described, comprising a mold proper having its walls divided from top to bottom whereby said walls may be spread apart for releasing the molded article, and a frame having relatively fixed and immovable sides, the mold being entirely removable from the frame, and the interior dimensions of the frame being the same as the exterior dimensions of the mold, whereby when the mold is forced into the frame, the latter contracts the former, substantially as described.

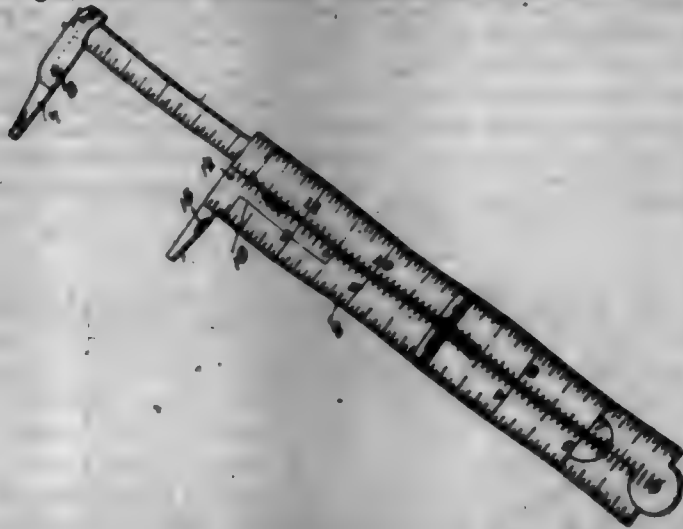
3. A mold of the class described having a mold proper, comprising a bottom and sides all made of a single piece of elastic sheet material, said sides being free to move independently of each other, and adapted to have their adjacent margins brought together, and means for holding said sides with their margins together as aforesaid, substantially as set forth.

4. A mold of the class described having a mold proper, comprising a bottom and sides all made of a single piece of elastic sheet material, said sides being normally divergent, free to move independently of each other and adapted to have their adjacent margins brought together, and means for holding said sides with their margins together as aforesaid, substantially as set forth.

5. A mold of the class described having a mold proper, comprising a bottom and sides all made of a single piece of elastic sheet material, said sides being free to move independently of each other, and adapted to have their adjacent margins brought together, and a frame surrounding the mold and engaging its sides whereby their adjacent margins are held together, substantially as set forth.

6. A mold of the class described having a mold proper, comprising a bottom and sides all made of a single piece of elastic sheet material, said sides being normally divergent, free to move independently of each other and adapted to have their adjacent margins brought together, and a frame surrounding the mold and engaging its sides whereby their adjacent margins are held together, substantially as set forth.

696,687. RULR. WILLIAM MEYER and OTTO G. MEYER, Shoberg, Wis. Filed Dec. 9, 1901. Serial No. 84,941. (No model.)



Claim.—1. In a device of the class described, the combination with a rule, of a gage-bar mounted upon one of the legs of the rule and having a head, an arm pivotally mounted on the other leg of the rule and adapted to extend from the latter, and a pivoted arm carried by the head of the gage-bar and adapted to be extended to cooperate with the said arm, substantially as described.

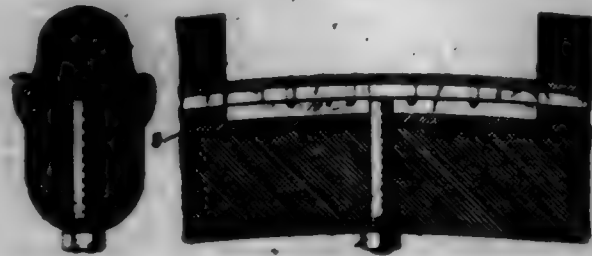
2. In a device of the class described, the combination with a rule, of a gage-bar mounted on one of the legs of the rule, and arms mounted one on the other leg of the rule and the other on the gage-bar and adapted to be folded, substantially as described.

3. In a device of the class described, the combination of a rule provided at one leg with a longitudinal way and having a groove at the outer and inner edge of the other leg, an arm pivoted in the groove and

arranged in fold within the same and to be arranged transversely of the rule, a gage-bar arranged in the said way and having a head provided with a groove, and an arm pivoted in the groove of the head and arranged to swing into the same, substantially as described.

4. In a device of the class described, the combination of a rule provided in one leg with a way, an approximately L-shaped support or casing mounted on the other leg and composed of sides spaced apart to form a groove, an arm pivoted in the support or casing and adapted to be extended therefrom, a gage-bar arranged in the said way and provided with a head having a groove, and an arm pivoted in the groove of the head and adapted to be swung outward therefrom to cooperate with the said arm, substantially as described.

696,688. RUBBER-TIRED WHEEL. RICHARD MUEHLHANS. Dunkirk, N. Y. Filed Aug. 20, 1901. Serial No. 73,572. (No model.)



Claim.—1. In a vehicle-wheel, a felly, a channelled rim superimposed thereon, a longitudinally-compressed elastic tire superimposed upon and fitting into said rim, a grooved retaining-band extending longitudinally through said tire, a bolt having a flat elongated head seating in said groove for connecting and securing the ends of the retaining-band together and forming a smooth outer joint; said bolt-head being held under compression between two opposed shoulders of the tire, substantially as set forth.

2. In a vehicle-wheel, a felly, a rim on said felly, a longitudinally-compressed tire on said rim having an interior longitudinal opening, a retaining-band in said opening having a channel and a bolt having an elongated head seated flush in the channel gripped longitudinally between shouldered parts of the tire and secured to the ends of the retaining-band, substantially as set forth.

3. In an elastic-tire wheel, a rim, a longitudinally-compressed tire on said rim, a channelled retaining-band extending longitudinally through the interior of the tire, a bolt having a flat head fitting flush into the channel in the retaining-band and connecting the ends of the band together whereby a smooth outer joint and band of uniform size throughout is obtained; the remaining space in the channel on the ends of the flat bolt-head being filled by a tongue projecting from the tire and having shouldered ends which press against the ends of the bolt-head, substantially as set forth.

4. In a vehicle-wheel, a rim, a tire longitudinally compressed on said rim and having an interior longitudinal opening, a retaining-band in said opening having a longitudinal channel in which a portion of said tire projects, said projecting portion being cut away at a certain point to leave a space and opposed shoulders, a bolt having an elongated head fitting in the space formed by cutting away a portion of the rubber and gripped between the opposed shoulders, and device, such as screws or rivets, securing the head of the two ends of the retaining-band.

5. In a vehicle-wheel, a felly, a channelled rim superimposed thereon, a longitudinally-compressed elastic tire superimposed upon and fitting into said rim and having a longitudinal groove, a grooved retaining-band of corresponding cross-section fitting in the groove in the tire and a bolt having an elongated head fitting flush in the groove in the retaining-band for connecting the ends of the retaining-band together; a portion of the tire within the groove of the retaining-band being cut away to leave a space for the bolt-head and the end walls of said space forming shoulders between which the said bolt-head is held under compression, substantially as set forth.

6. In a vehicle-wheel, a rim, a tire on said rim having a longitudinal angular opening wholly within its interior and a tongue extending into said opening nearly throughout its length, a retaining-band in the opening with its lower surface against and partially inclosing the tongue, a bolt having a head with projections extending into the retaining-band and into the under part of the tire for securing the ends of the band and ends of the tire together; a portion of the said tongue being removed for the reception of the head of the bolt, whereby the tongue in the tire the head of the bolt and the retaining-band is of uniform size throughout and a band of smooth outer surface is attained, substantially as set forth.

7. In a vehicle-wheel, a rim, a tire on said rim having a longitudinal angular opening wholly within its interior and a tongue extending into said opening nearly throughout its length, a retaining-band in the open-

ing partially inclosing the tongue, a belt having a head with projections extending into the retaining band and into the under part of the tire for securing the ends of the band and ends of the tire together; a portion of the said tongue being removed for the reception of the head of the belt.

8. In a vehicle-wheel, a rim, a tire on said rim having a longitudinal angular opening wholly within its interior and a tongue extending into said opening and cut away at one portion only in its circumference, a substantially U or C shaped retaining-band in the opening having its lower surface against and partially inclosing the tongue, a belt passing through the rim of the wheel and having a head extending into the retaining-band and fitting into the pocket formed by cutting away one portion of the tongue; the belt-head and tongue being of uniform width and thickness throughout, substantially as set forth.

9. In a vehicle-wheel, a felly, a channelled rim superimposed thereon, a longitudinally-compressed elastic tire superimposed upon and fitting into said rim and having a longitudinal opening and an interior longitudinal tongue, a grooved retaining-band extending through the opening in said tire, an elongated fastening device seating in said groove for connecting and securing the ends of the retaining-band together and forming a smooth outer joint; said fastening device being held under compression between two opposed shoulders of the tongue, and device, such as screws, passing through the retaining-band and fastening device and embedding in the tire, substantially as set forth.

10. In an elastic-tire wheel, a rim, a tire having an interior longitudinal opening and a tongue extending into the opening, a longitudinally-grooved retaining-band in the opening in the tire surrounding and partially inclosing the tongue, a belt having an elongated head in the groove of the retaining-band level with the outer edge thereof, and having projections through said band and in the under part of the tire for securing the ends of the retaining-band and the ends of the tire together, whereby a portion of the tongue of the tire being removed, the head of the belt fills its place and the retaining-band is left smooth on its outer surface and of uniform size throughout, as and for the purpose specified.

11. In an elastic-tire wheel, a rim, a longitudinally-compressed tire having an interior longitudinal opening and a tongue having a portion removed, a retaining-band in the opening in the tire having a longitudinal groove into which the tongue extends, a belt passing through the rim and having an elongated head in the groove of the retaining-band level with the outer edge thereof, and having projections through said band and in the under part of the tire for securing the ends of the retaining-band and the ends of the tire together, substantially as set forth.

12. In a vehicle-wheel, a felly, a rim on said felly, a longitudinally-compressed tire on said rim having an interior longitudinal opening and an interior longitudinal tongue, a retaining-band in said opening having a channel and a fastening device seating flush in the channel and gripped longitudinally between shouldered parts of the tongue; said fastening device being secured to the ends of the retaining-band, substantially as set forth.

13. In a vehicle-wheel, a felly, a channelled rim superimposed thereon, an elastic tire superimposed upon and fitting into said rim and having an interior longitudinal opening, a grooved retaining-band in said opening, a fastening device fitting flush within a portion of said groove for connecting and securing the ends of the retaining-band together and forming a smooth outer joint and a tongue of rubber projecting from the tire into the groove and filling said groove with the exception of that portion occupied by the fastening device, substantially as set forth.

14. In a vehicle-wheel, a solid rubber tire having an opening of an angular cross-section extending longitudinally through it; an angular hollow retaining-band fitting into said opening and having holes near its ends for the reception of screws or rivets, a T-belt having an elongated head fitting into the hollow in the retaining-band and having corresponding holes and screws or rivets fitting into said holes for securing the ends of the retaining-band together and having their lower ends projecting into the tire, as and for the purpose specified.

696,689. DRESS-SHIELD HOLDER. JOHN F. MURPHY, Adrian, Mich., assignor to George R. M. Senger and Herbert R. Clark, Adrian, Mich. Filed Feb. 14, 1901. Serial No. 47,366. (No model.)

Claim.—1. A dress-shield spreader and holder, comprising a substantially annular spreader-body corresponding in curvature to the concave edge of a dress-shield and adapted to be arranged wholly within the light or fold thereof, an intermediate portion of the spreader-body being provided with means projected at its concave side for engagement with the arm-eyes of a dress-waist to anchor the intermediate portion of the spreader-body and prevent upward bulging thereof, and means for fastening the spreader-body to a shield.

2. A dress-shield having an arcuate spreader fitted snugly within and against the back portion of the light thereof and connected to said back portion only, the remaining portion of the shield being entirely free

from the spreader, the latter comprising a plurality of members disposed in longitudinal succession with their adjacent ends overlapped and pivotally connected, and mutually-cooperating garment-engaging clamp members carried by the adjacent members of the spreader.



3. A dress-shield having an arcuate spreader fitted snugly within and against the back portion of the light thereof and connected to said back portion only, the remaining portions of the shield being entirely free from the spreader, and the latter comprising flexibly-jointed members disposed in longitudinal succession, and mutually-cooperating garment-engaging clamp members carried by the adjacent spreader members.

4. A dress-shield, having a spreader fitted snugly within and against the back portion of the light thereof and connected to said back portion only, the remaining portions of the shield being free from the spreader, the latter comprising a series of members made of flat material pivotally connected at their meeting ends, and provided at their terminals with co-operating arm-eyes-engaging clamp members.

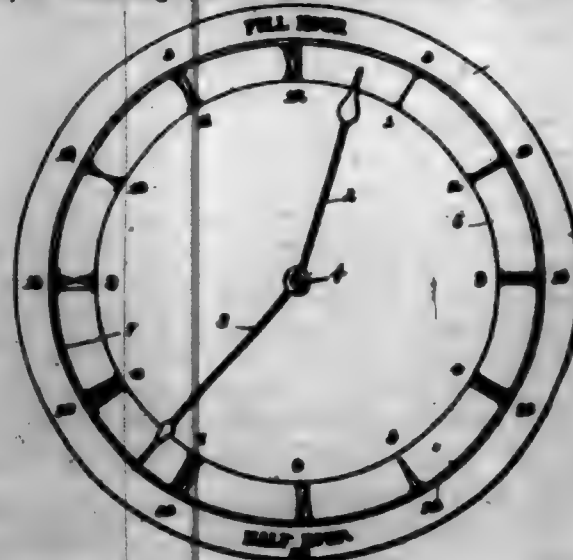
5. A dress-shield having a spreader fitted snugly within and against the back portion of the light thereof, and connected to said back portion only, the remaining portions of the shield being free from the spreader, the latter comprising a series of flexible pivotally-connected members disposed in a curved series, and an arm-eyes-engaging clamp member carried by each member of the spreader.

6. A dress-shield, having a spreader carried snugly within and against the back portion of the light thereof, and connected to said back portion only, the remaining portions of the shield being entirely free from the spreader, the latter being formed by three arcuate members disposed in longitudinal succession, the opposite ends of the intermediate member being overlapped by and pivotally connected to the inner ends of the respective terminal members, and mutually-cooperating garment-engaging clamping members carried by the ends of the intermediate spreader member and the inner ends of the respective terminal members.

7. A spreader and holder for dress-shields, consisting of an arcuate body formed by a plurality of arcuate members disposed in longitudinal succession, the adjacent ends of opposite members being pivotally connected, each member having means for connection with the light of a dress-shield, and mutually-cooperating arm-eyes-engaging members carried by adjacent members of the arcuate spreader.

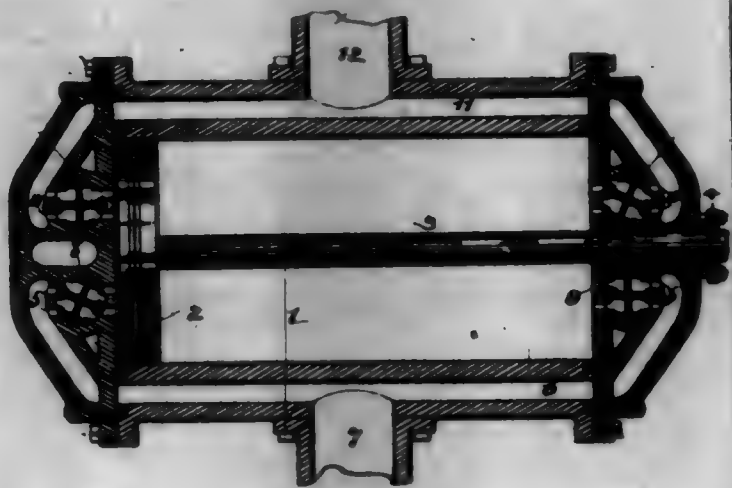
8. A spreader and holder for dress-shields, having pivotally-connected arcuate members disposed in longitudinal succession, one of which is provided with a laterally-extending clamp member which is extended from the concave side of the spreader member and projected beyond the convex side thereof, and the other spreader member having a clamp member which is projected transversely from the convex edge of the spreader and constructed to lie across and cooperate with the other clamp member for engagement with an arm-eyes when the spreader members are brought into longitudinal alignment.

696,690. EDUCATIONAL DEVICE. JOHN E. MURRAY, Washington, Pa. Filed Aug. 9, 1901. Serial No. 71,452. (No model.)



Claim.—An educational device comprising in its entirety, a flat circular disk having an hour-hand and a minute-hand centrally and movably mounted thereon, an inner and outer margin on said disk divided by circular lines, Roman characters arranged on said inner margin the inner margin having arranged beneath each Roman character its Arabic equivalent for the hour-hand, and the outer margin having arranged above each Roman character its equivalent in Arabic numerals for the minute-hand, and the words "Full hour" and "Half hour" arranged on the outer margin above the Roman characters "XII" and below the Roman characters "VI," the said hour-hand and minute-hand adapted to be revolved by the hand of the instructor whereby different hours and minutes may be readily indicated for the instruction of the pupil, substantially as described.

696,691. VALVE FOR ENGINE. JOHN G. MCCORMACK, Cleveland, Ohio. Filed June 22, 1901. Serial No. 65,664. (No model.)



Claim.—1. In an engine, the combination of a cylinder and heads thereon, each head having a duct and a valve-chamber between said duct and the cylinder and aligned ports between the valve-chamber and said duct and between the valve-chamber and the cylinder, and a valve in said valve-chamber, having a duct to connect said ports and form free passages or ducts between the first-mentioned duct and the cylinder.

2. In an engine, the combination of a cylinder, heads on the ends thereof, each head having a valve-chamber, a duct behind the valve-chamber, and ports between the valve-chamber and duct and the valve-chamber and cylinder, and a rotary valve in said valve-chamber having ducts to align with all of said ports.

3. In an engine, the combination with a cylinder, of heads secured thereto, each head having two ducts therein, one for live steam and the other for exhaust, and having two valve-chambers located between the respective ducts and the inner face of the cylinder-head, aligned ports connecting the valve-chambers with the cylinder and with said ducts, valves in said valve-chambers, each of said valves having ducts extending transversely through the same and adapted to connect the aligned ports.

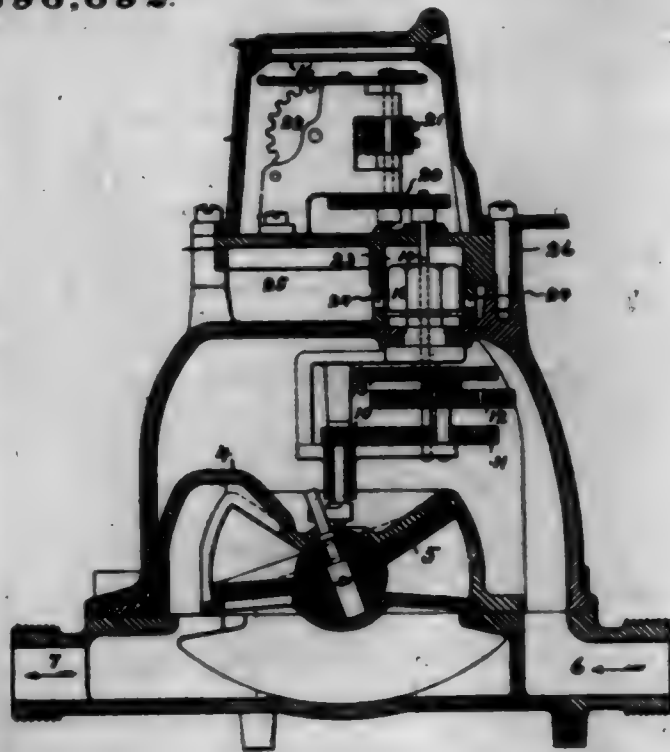
4. In an engine, the combination of a cylinder having a live-steam duct and an exhaust-steam duct in its wall, heads on the ends of said cylinder, each head having two valve-chambers communicating with the ends of the cylinder, and each head having two ducts extending behind the respective valve-chambers and communicating with the latter through ports in line with the axis of the cylinder, the ducts in the heads communicating with the live-steam and exhaust ducts, and a valve in each valve-chamber, each of said valves having ducts extending transversely through the same, substantially as and for the purpose set forth.

5. A valve for engines having a general cylindrical shape and parallel ports extending throughout the greater portion of the length of the valve, and a brace-rod extending transversely through all the ports of the valve and bracing all the walls of said ports.

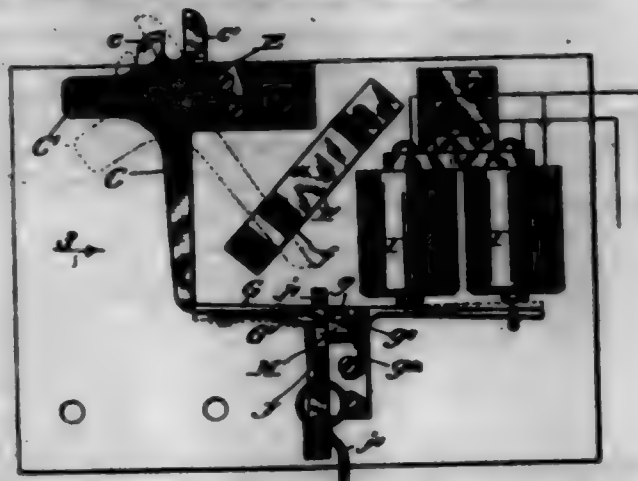
696,692. WATER-METER. LEWIS E. HARR, South Norwalk, Conn., and FREDERICK S. KING, Brooklyn, N. Y., assignors to the National Meter Company, New York, N. Y., a Corporation of New York. Filed July 7, 1901. Serial No. 642,782. (No model.)

Claim.—In a water-meter the combination of a meter-chamber, a substantially air-tight chamber containing the registering mechanism, an open intermediate space between said chambers, and a spindle communicating the motion of the piston to the dial mechanism passing through said intermediate space with a yielding joint-forming substance where the spindle enters said dial-chamber.

696,692.



696,698. DEVICE FOR HOLDING AND RELEASING FIRE DOORS. PHILIP CLARK, Chicago, Ill., assignor of two-thirds to Albert L. Deane, Chicago, Ill., and James W. Donnell, Evanston, Ill. Filed June 14, 1901. Serial No. 64,584. (No model.)



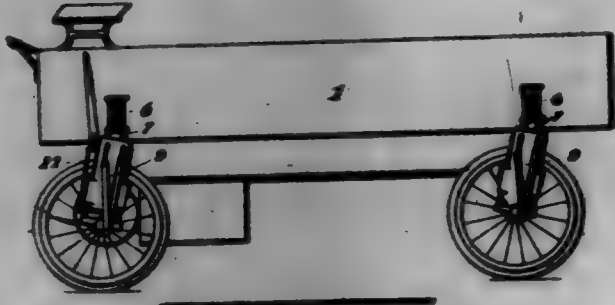
Claim.—1. In a device of the class described the combination of a latch-lever having a pair of jaws adapted to receive between them a part carried by the door, a trip-lever adapted to engage the latch-lever, thermoelectric devices for releasing the trip-lever when subjected to a predetermined temperature and a trigger adapted to engage the trip-lever for tripping it manually substantially as described.

2. In a device of the class described the combination of a latch-lever having a pair of jaws adapted to receive between them a part carried by the door, one of said jaws being arranged in and the other out of the path of said part when the door is closed, a spring arranged in the path of the latch-lever for holding it in the position last described so that as the door opens said part carried by it will engage one jaw of the latch-lever and thereby shift it bringing the other jaw into the path of said part, a trip-lever adapted to automatically engage the latch-lever, a thermoelectric appliance for automatically tripping the trip-lever when subjected to a predetermined temperature substantially as described.

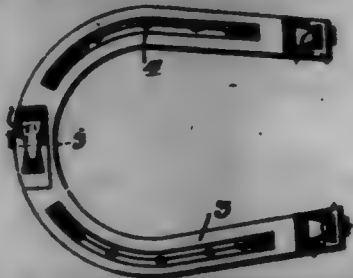
696,694. MOTOR-VEHICLE. EDWARD J. FRIEDMAN, London, England, assignor of one-half to J. W. Plank and George Edward Mills, Carlisle, Pa. Filed June 28, 1901. Serial No. 65,722. (No model.)

Claim.—In a motor-driven vehicle, the combination of driving-wheels, each mounted in a fork or standard, comprising or embodying the independent motor or driver of said wheel; a generator or distributor of motive power common to each of said motors; means for independently conveying or transmitting power to each individual motor, and an independent reversing device for each motor, whereby the vehicle may be steered by varying the peripheral speeds of the driving-wheels or changing the direction of certain of said wheels with respect to the direction of other wheels, substantially as set forth.

696,694.



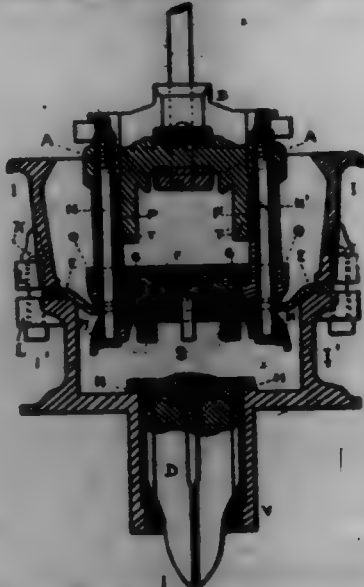
696,695. HORSESHOE. HARRY C. FORTER, Pittsburg, Pa. Filed Dec. 27, 1901. Serial No. 57,407. (No model.)



Claim.—1. In a horseshoe of the character described, the combination of a plate, a horseshoe having out-away portions at its ends and having wedge-shaped openings formed therein, said horseshoe having a recess and a wedge-shaped opening formed in the toe thereof, removable calks and a toe-plate carrying a square shank and wedge-shaped heads registering with said wedge-shaped openings in the horseshoe, and means whereby said calks and toe-plate are retained in position, substantially as set forth.

2. In a horseshoe of the character described, the combination of a plate, a horseshoe having out-away portions at its ends and having wedge-shaped openings formed therein, said horseshoe having a recess and a wedge-shaped opening formed in the toe thereof, removable calks and a toe-plate carrying a square shank and wedge-shaped heads registering with said wedge-shaped openings in the horseshoe, and set-screws secured in the ends and toe of said horseshoe to prevent the displacement of said calks and toe-plate, substantially as described.

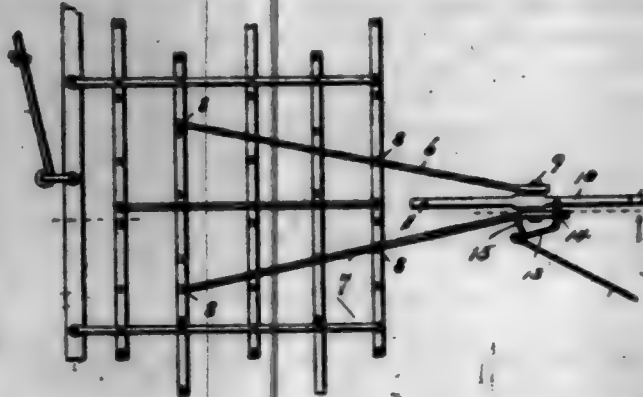
696,696. DIAPHRAGM-PUMP. WILLIAM F. RUSSELL, Newburyport, Mass. Filed Sept. 20, 1901. Serial No. 75,812. (No model.)



Claim.—In a diaphragm-pump, the combination of the diaphragm and plunger, said structure formed with an outlet from the pump-chamber, the plunger including a plate attached to the diaphragm and provided with a plurality of uprights on opposite sides of the outlet, a detachable cross head or beam connected to the upper ends of said uprights and integrally formed with a plurality of downwardly-projecting lugs conforming to the uprights and constituting elongated bearings between said uprights and the cross-head, said lugs being also arranged to act as upper stops for the outlet-valve, and an outlet-valve supported by the diaphragm and plunger structure and controlling said outlet, the said valve being adapted to encounter said lugs in its upward movement.

696,697. HARROW-JACK. ELMER W. THOMSON, Elgin, Ore. Filed Aug. 31, 1901. Serial No. 72,905. (No model.)

Claim.—1. The combination with a harrow, of a jack having a central longitudinal slot wherein it is loosely connected therewith.



2. The combination with a harrow, of a reversible jack pivotally mounted in the rear of the harrow and connected with the frame thereof.

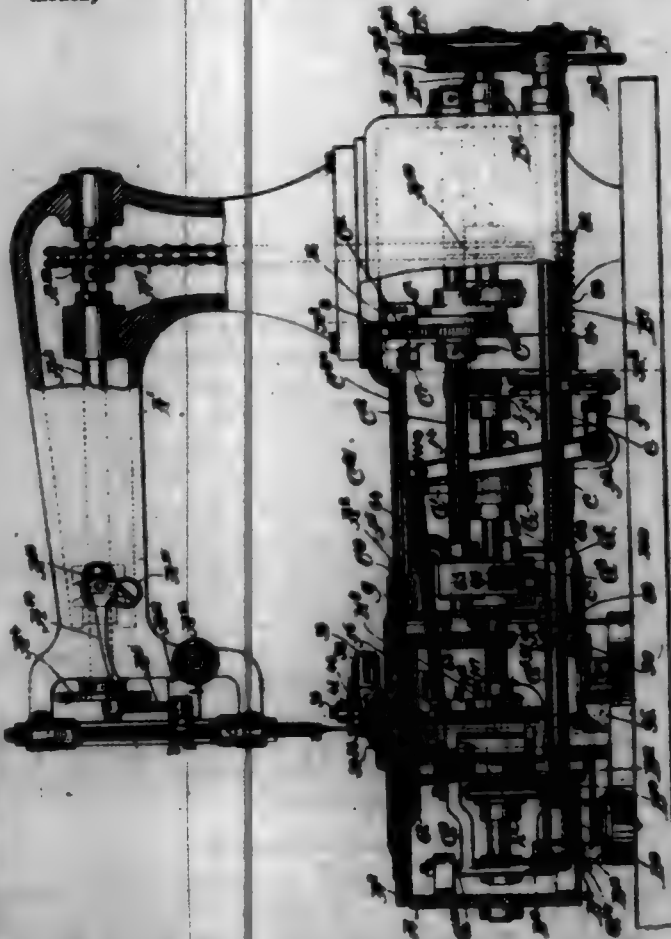
3. The combination with a harrow having rearwardly-projecting bars, of a jack pivotally mounted between said bars, and means for holding and releasing the jack.

4. The combination with a harrow, of a jack pivotally mounted in rear of the harrow and connected therewith, and a trip-lever arranged to have a portion thereof moved into and out of the path of the jack.

5. The combination with a harrow, of rearwardly-converging bars projecting therefrom, a centrally-slotted jack pivotally mounted between said bars, a trip-lever for holding and releasing said jack, a spring for retracting said trip-lever, and means for operating the trip-lever.

6. The combination with a harrow, of rearwardly-converging bars extending backward therefrom, a bolt or axle connecting the rear ends of said bars, a jack having a centrally-arranged longitudinal slot which receives said bolt or axle and adapts the jack to be slid longitudinally, and a tripping device for holding and releasing the jack.

696,698. BUTTONHOLE-MACHINE. ROBERT W. THOMSON, Lynn, Mass., assignor to Howe Buttonhole Machine Company, Boston, Mass., a Corporation of Maine. Filed Jan. 20, 1902. Serial No. 412,670. (No model.)



Claim.—1. In a machine for stitching buttonholes, stitch-forming mechanism comprising a reciprocating eye-pointed needle, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to hold the material having the slit to be overstitched entirely about its edge, means to change automatically the relative positions of said work-clamp and stitch-forming mechanism, whereby over-edge-stitches are made at both ends of the buttonhole-slit and at both

sides thereof, the overedge-stitching which completes the stitching of the buttonhole overlapping overedge-stitching made when starting the buttonhole.

2. In a machine for stitching buttonholes, stitch-forming mechanism comprising a reciprocating eye-pointed needle, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to hold the material having the slit to be overstitched entirely about its edge, means to change automatically the relative positions of said work-clamp and stitch-forming mechanism, whereby overedge-stitches are made at both ends of the buttonhole slit and at both the sides thereof, the overedge-stitching which completes the stitching of the buttonhole, overlapping overedge-stitches made when starting the buttonhole and means to stop automatically the stitch-forming mechanism when the buttonhole has been completed by the overlapping of the overedge-stitching.

3. In a machine for stitching buttonholes, stitch-forming mechanism comprising a reciprocating eye-pointed needle, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to hold the material having the slit to be overstitched entirely about its edge, means to change automatically the relative positions of said work-clamp and stitch-forming mechanism, whereby overedge-stitches are made at both ends of the buttonhole slit and in both sides thereof, the overedge-stitching which completes the buttonhole overlapping overedge-stitching made when starting the buttonhole, means to stop automatically the stitch-forming mechanism after the overedge-stitching has been overlapped, and means to thereafter continue to further change the relative positions of the work-clamp and stitch-forming mechanism at a faster speed than when overedge-stitching is being done and while the needle of the stitch-forming mechanism is out of the work, to locate the clamp in the position it must occupy for the removal of the material therefrom containing the buttonhole.

4. In a machine for stitching buttonholes, stitch-forming mechanism consisting of a reciprocating eye-pointed needle, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to hold the material having the slit to be overstitched entirely about its edge, means to change the relative positions of said work-clamp and stitch-forming mechanism whereby both ends of the buttonhole-slit, one end having an enlarged eye, and the sides of the slit may be overstitched, the overedge-stitching which completes the buttonhole overlapping the stitching made when starting the buttonhole, and means to cut the material held in the clamp preparatory to stitching the same.

5. In a sewing-machine for stitching buttonholes, stitch-forming mechanism comprising a reciprocating eye-pointed needle, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to hold the material having the slit to be overstitched, means to partially rotate the work-clamp while overstitching each end of a buttonhole, said partial rotations being in the aggregate more than a full rotation during the stitching of each buttonhole, whereby the overedge-stitching which completes the buttonhole is made to overlap overedge-stitching made to start the buttonhole.

6. A sewing-machine containing the following instrumentalities, viz: stitch-forming mechanism comprising an eye-pointed needle and an under-thread-carrying looper, means to maintain the same to form overedge-stitches, a work-clamp to hold the material, a carrier to sustain said clamp, means to move said clamp longitudinally in said carrier while the side edges of the buttonhole are being stitched, and means to partially rotate said carrier and work-clamp while overstitching each end of a buttonhole, said partial rotations being for more than a full rotation during the stitching of each buttonhole, whereby the overedge-stitching which completes the buttonhole is made to overlap overedge-stitching made to start the buttonhole.

7. In a buttonhole-stitching machine, a work-clamp, stitch-forming mechanism, and means to change the relative positions of said clamp and stitch-forming mechanism to enable overedge-stitches to be made entirely about the edge of the buttonhole, the last of the overedge-stitching overlapping the overedge-stitching made at the point where the stitching was commenced.

8. In a machine for stitching buttonholes, stitch-forming mechanism consisting of a needle to penetrate the material, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp, means to slide the work-clamp while the stitch-forming mechanism makes a series of overedge-stitches along the sides of the buttonhole, means to change the relative positions of the work-clamp and stitch-forming mechanism relatively while the stitch-forming mechanism is operating to make a series of overedge-stitches radiating about both ends of the buttonhole, the stitching that completes the overedge-stitching of the buttonhole overlapping overedge-stitching made when the stitching of the buttonhole was commenced.

9. In a machine for sewing buttonholes, overedge-stitch-forming mechanism, a carrier, a plate slidably mounted therein, a work-clamp pivoted on said plate, means to engage said carrier a plurality of times

to effect a partial rotary movement of said carrier and clamp during the overstitching of both ends of a buttonhole, means to slide said clamp in said carrier between partial rotations of the carrier, and means to swing said clamp on said plate during the time that the large eye of the buttonhole is being overstitched.

10. In a machine for stitching buttonholes, stitch-forming mechanism comprising an eye-pointed needle to penetrate the material, and complementary means cooperating therewith to form a series of overedge-stitches, a work-clamp to contain the material having the buttonhole the edge of which is to be overstitched, means to change the relative position of said work-clamp and stitch-forming mechanism while a series of overedge-stitches is being made along both sides of and about both ends of the buttonhole-slit, means to stop the action of the stitch-forming mechanism when the buttonhole has been overstitched, and means to thereafter move the work-clamp at a faster speed to place said clamp in the position from which it was started when the overstitching of the edge of the buttonhole was begun.

11. In a machine for stitching material, stitch-forming mechanism comprising an eye-pointed needle to penetrate the material, and complementary means cooperating therewith to form a series of overedge-stitches, means to clamp the material having the edge to be overstitched, and means to change the relative position of the said work-clamp and stitch-forming mechanism for a cycle of movements, and means to stop the action of the stitch-forming mechanism at the completion of the cycle of movement, the stitch-forming mechanism during each cycle of movement overstitching the beginning of the line of stitching before said stopping mechanism acts.

12. In a machine for stitching buttonholes, stitch-forming mechanism comprising an eye-pointed needle to penetrate the material back of the edge of the slit therein, and complementary means working through said slit and cooperating with the eye-pointed needle to form a series of overedge-stitches, a work-clamp, means to change the relative position of said work-clamp and stitch-forming mechanism at one speed while overstitching the side edges of a buttonhole-slit, means to change the relative position of said parts at a faster speed while stitching both ends of the buttonhole-slit, means to stop the stitching action of the stitch-forming mechanism, and means to thereafter continue said relative change of position of said work-clamp and stitch-forming mechanism at a yet faster speed while the stitching action is suspended to thereby put the work-clamp in its starting position for change of material therein.

13. In a machine for stitching buttonholes, overedge-stitch-forming mechanism, a work-clamp, a plate upon which said work-clamp is pivotally mounted, means to move said work-clamp longitudinally while stitching the sides of a buttonhole, means to rotate said clamp partially while stitching the large eye of the buttonhole, and means to swing said clamp on said plate while stitching about the large eye of the buttonhole, and while the stitching at the sides of the buttonhole is approaching and leaving said large eye.

14. In a sewing-machine, for sewing buttonholes, overedge-stitch-forming mechanism a carrier, a plate, a work-clamp mounted on said plate and free to be slid longitudinally in said carrier, a pusher, means to rotate said carrier and slide said plate therein at intervals, and a ring having an eccentric inner edge to act upon said pusher to swing the work-clamp on said plate while stitching about the eye of a buttonhole.

15. In a buttonhole-sewing machine, a work-clamp having at one edge straight and concaved portions, a plate having a pivot to sustain the work-clamp, a spring connecting said plate and clamp, and a carrier adapted to receive and guide the plate upon which the work-clamp is mounted, said carrier being provided with a stud against which the straight and concaved portions of said clamp act while stitching the sides of a buttonhole near the enlarged eye at one end thereof.

16. In a machine for sewing buttonholes, a rotatable carrier dotted centrally and provided at one side of said slot with a stud, a plate entering the slot of the carrier, and having pivoted upon it a work-clamp provided with a cam-shaped edge, means to move said plate and clamp in said carrier, a spring to keep the cam shaped edge of the work-clamp in contact with said stud, the stud and spring controlling the extent of lateral swinging movement of the clamp on the plate during the stitching of the sides of a buttonhole near the enlarged eye and thereof.

17. In a buttonhole-stitching machine, stitch-forming mechanism for making an overedge-stitch, a work-clamp to hold the slitted material the edge of which is to be overstitched, means to partially rotate said clamp when the buttonhole-stitching is commenced, means to thereafter restrain the rotation of said clamp and slide the same in the direction of the length of the buttonhole when one side of the buttonhole is being stitched, means to again partially rotate the clamp while one end of the buttonhole is being stitched, and again move the clamp in the direction of the length of the buttonhole while the opposite side edge of the hole is being stitched, and again impart circular movement to the work-clamp in the same direction while the end of the buttonhole at which the stitching was started

is completely stitched around to a point beyond the point where the stitching was started.

18. In a buttonhole-stitching machine, stitch-forming mechanism to form a series of overedge-stitches, a work-clamp to hold the material having the buttonhole to be overstitched, a clamp-actuating ring provided with a series of teeth, a shaft having a toothed gear to engage the teeth of said ring to move the same during the overstitching of the edge of the buttonhole, and means to uncouple said gear from the teeth of said ring when the overstitching of the buttonhole has been carried completely about the edge thereof.

19. In a buttonhole-stitching machine, stitch-forming mechanism to form a series of overedge-stitches, a work-clamp to hold the material having the buttonhole to be overstitched, a clamp-actuating ring provided with a series of teeth, a shaft having a toothed gear to engage the teeth of said ring to move the same during the overstitching of the edge of the buttonhole, means to uncouple said gear from the teeth of said ring when the overstitching of the buttonhole has been carried completely about the edge thereof, and means to engage said ring and move the same that it may carry the clamp holding the stitched buttonhole into position to receive the material.

20. In a buttonhole-stitching machine, stitch-forming mechanism, a work-clamp occupying normally a starting position, means to turn said clamp in one direction while overstitching a buttonhole, a carrier for said clamp, a toothed ring, a shaft having a pinion adapted to engage said toothed ring and having a worm-gear, combined with a shaft having a worm, devices to cause said worm to engage said worm-gear and rotate the shaft upon which it is mounted to turn backwardly said toothed ring and return the work-clamp into its starting position, and means to thereafter disengage said worm from said gear and leave said shaft at rest with the clamp in its starting position.

21. In a buttonhole-stitching machine, a work-clamp, a toothed ring to move said clamp while stitching a buttonhole, said ring having a series of inner teeth, a shaft having a pinion to engage said teeth, and a worm-toothed gear, said pinion and shaft occupying their inoperative position while stitching a buttonhole, a sleeve having a worm, and means to automatically move said sleeve that its worm may engage the said worm-gear and rotate said shaft and pinion that it may rotate the said toothed ring backwardly and cause it to return the work-clamp into its starting position.

22. In a machine for stitching buttonholes, stitch-forming mechanism, a work-clamp, a carrier for said clamp, a ring having two series of teeth, a cam to move said clamp longitudinally in said carrier, means engaging one series of said teeth to move the said ring in one direction while stitching a buttonhole, means to engage automatically the other of said series of teeth after the completion of a buttonhole to further turn said ring and clamp automatically into its starting position, and means to stop the shaft and ring after the clamp has been brought to its starting position.

23. In a buttonhole-stitching machine, a carrier, a clamp therein, a toothed ring having gear-teeth, a series of bevel-teeth, a beveled toothed gear to engage said bevel-teeth and rotate said ring in one direction during the stitching of a buttonhole, a shaft having a pinion engaging the gear-teeth of said ring and moved by the ring during the stitching of a buttonhole, means to disengage the teeth of the bevel-gear from the bevel-teeth of said ring after stitching a buttonhole, and devices to thereafter automatically engage and rotate the shaft carrying the said pinion in a direction to reverse the movement of said toothed ring, together with said carrier and work-clamp to bring the clamp into its normal starting position after the completion of a buttonhole.

24. In a sewing-machine for stitching buttonholes, the following instrumentalities, viz: stitch-forming mechanism, a rotating work-clamp actuating-ring provided with a series of teeth, a work-clamp, and carrier, a rotating shaft and gear to engage the teeth of said ring and rotate it forwardly while a buttonhole is being stitched, a series of internal teeth also made in said ring, a rotating shaft provided with a pinion to engage said internal teeth to put the clamp into its starting position.

25. In a sewing-machine for stitching buttonholes, stitch-forming mechanism, a work-clamp, a carrier in which it is mounted to slide, a toothed ring, a shaft to actuate said ring to move said carrier and clamp during the stitching of a buttonhole, means to stop the stitch-forming mechanism when the entire edge of the buttonhole has been overstitched, a clutch on said shaft containing as part thereof a continuously-running pulley, a second shaft driven from said continuously-running pulley when the shaft operating said work-clamp and its carrier is at rest, and actuating means between said second shaft and said toothed ring to further turn said ring to place the work-clamp in its starting position while the stitch-forming mechanism is at rest.

26. In a machine for stitching buttonholes, stitch-forming mechanism to form overedge-stitches, a work-clamp to hold the material, means to rotate said clamp partially at intervals and to move said clamp longitudinally between said partial rotations, and means to stop the action of

the stitch-forming mechanism after the overedge-stitching at both ends of the buttonhole across the center line of the slit.

27. In a buttonhole-stitching machine, stitch-forming mechanism, a rotatable carrier having opposite notches or projections at its edge, and containing a sliding work-clamp, a table-plate to contain said carrier, holding means to engage one after the other the notches or projections of the carrier to restrain its rotation while the straight sides of the buttonhole are being stitched; a toothed ring having a projection; a shaft having an attached gear to rotate said ring; means to move said shaft at two different rates of speed while stitching a buttonhole, the said shaft having its slower speed while the sides of the buttonhole are being stitched the projection of said ring meeting said holding means and putting out of operation the slower shaft-moving means after stitching each side of a buttonhole letting the faster-moving means come into operation while the rounded ends of the buttonhole are being attached.

28. In a machine for stitching buttonholes, a work-clamp, buttonhole-cutting mechanism, and stitch-forming mechanism; combined with means controlled by said cutting mechanism to automatically start the stitch-forming mechanism into operation after the cutter has been actuated to do its work.

29. In a machine for sewing buttonholes, a work-clamp, buttonhole-cutting mechanism to cut a buttonhole and remove a portion of the material to leave an enlarged eye at one end of the hole, stitch-forming mechanism, and means to change the relative positions of said clamp and stitch-forming mechanism to enable overedge-stitches to be made entirely about the edge of the buttonhole, the last of the overedge-stitching made at the point where the stitching was commenced.

30. In a machine for stitching buttonholes, a work-clamp, buttonhole-cutting mechanism to cut a buttonhole in the material held in the clamp, stitch-forming mechanism, means to change the relative positions of said clamp and stitch-forming mechanism to enable overedge-stitches to be made entirely about the edge of the buttonhole, the last of the overedge-stitching overlapping the overedge-stitching made at the point where the stitching was commenced, and means to stop the stitch-forming mechanism when the overedge-stitching has been overlapped.

31. In a machine for stitching buttonholes, a work-clamp, buttonhole-cutting mechanism to cut a buttonhole in the material held in the clamp, stitch-forming mechanism, means to change the relative positions of said clamp and stitch-forming mechanism to enable radiating overedge-stitches to be made entirely about the edge of the buttonhole, means to stop the stitch-forming mechanism when the entire edge of the buttonhole including its sides and both ends have been overstitched by radiating stitches, and means to thereafter further move relatively the clamp and stitch-forming mechanism while the latter is inoperative to place the clamp in starting position ready for the stitching of another buttonhole.

32. In a machine for stitching buttonholes, a work-clamp, buttonhole-cutting mechanism to cut a buttonhole, stitch-forming mechanism to form a series of overedge-stitches, means controlled by the cutting mechanism to start into operation the stitch-forming mechanism, means to change the relative positions of said clamp and stitch-forming mechanism, whereby the stitching along the sides of the buttonhole is made at one speed, the overedge-stitching about the ends of the buttonhole being made at an increased speed, means to stop the stitch-forming mechanism at the completion of the overedge-stitching, and means to thereafter further change the relative positions of the work-clamp and stitch-forming mechanism while the stitch-forming mechanism remains inactive to place the work-clamp holding the stitched buttonhole in the position at which the material was applied to the clamp to be stitched.

33. In a machine for stitching buttonholes, a work-clamp, buttonhole-cutting mechanism to cut a buttonhole, stitch-forming mechanism to form a series of overedge-stitches, means controlled by the cutting mechanism to start into operation the stitch-forming mechanism, means to change the relative positions of said clamp and stitch-forming mechanism, whereby the stitching along the sides of the buttonhole is made at one speed, the overedge-stitching about the ends of the buttonhole being made at an increased speed, means to stop the stitch-forming mechanism at the completion of the overedge-stitching, means to thereafter further change the relative positions of the work-clamp and stitch-forming mechanism while the stitch-forming mechanism remains inactive to place the work-clamp holding the stitched buttonhole in the position in which it received the material to be stitched, and means to lock the clamp in its position to receive the material.

34. In a buttonhole-stitching machine, stitch-forming mechanism adapted to make overedge-stitches, a work-clamp, means to change the relative positions of said stitch-forming mechanism and work-clamp in the overstitching of the edge of a buttonhole, clutch mechanism, buttonhole-cutting mechanism, and devices controlled by the return into its inoperative position of the buttonhole-cutting mechanism to operate the clutch mechanism and start the stitch-forming mechanism into operation.

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35. In a machine for stitching buttonholes, stitch-forming mechanism adapted to make overedge-stitches, and having as a part thereof a throat-plate adapted to be raised and lowered with relation to the material being stitched, a work-clamp, buttonhole-cutting mechanism the lower member of which occupies normally a position at one side the throat-plate of the stitch-forming mechanism and with its face below the face of said throat-plate, said work-clamp being adapted to be put into position between the members of said cutting mechanism and out of stitching position, means to return the clamp into stitching position after cutting the material therein, and means to start the stitch-forming mechanism automatically after the cutting of the buttonhole, and means to change the relative positions of said work-clamp and stitch-forming mechanism to make a series of overedge-stitches.

36. In a buttonhole-sewing machine, stitch-forming mechanism for producing overedge-stitches, a work-clamp, means to lock said clamp in the position in which the work is to be changed therein, a spring acting normally to keep said work-clamp in its operative position for stitching a buttonhole, and cutting mechanism, said clamp being free to be slid longitudinally against said spring to put the clamp in position to have the material held by it cut by the buttonhole-cutting mechanism, and device actuated by the cutting mechanism when coming into its inoperative position to start into operative position the stitch-forming mechanism.

37. In a buttonhole-sewing machine, a table-plate, a carrier rotatably mounted in said table-plate and provided at its edge with a notch, a work-clamp slidably mounted in said carrier, buttonhole-cutting mechanism, a dog to enter the notch of the carrier to restrain its rotation while the work-clamp is moved longitudinally in said carrier to place the material held therein between the members of the buttonhole-cutting mechanism that the latter may be operated to cut a slit in the material.

38. In a sewing-machine for stitching buttonholes, a carrier, a clamp mounted therein, a work-clamp-actuating toothed ring, a bevel-gear engaging the said toothed ring, a shaft carrying said bevel-gear, two sets of shaft-actuating devices for rotating the shaft carrying said bevel-gear, the first set being adapted to move said shaft intermittently for a greater distance at each throw than the second set, a locking device for the first set of shaft-actuating devices, and controlling device controlled by said ring to cause said locking device to operate while the second set of said devices operates to move the ring and clamp in stitching the straight sides of the buttonhole, said ring when the ends of the buttonhole are to be stitched permitting said devices to be moved to unlock said first set of shaft-actuating devices to turn said shaft and the said toothed ring at a faster speed during the operation of stitching about the ends of a buttonhole.

39. In a sewing-machine, the following instrumentalities, viz: a work-clamp to hold the material, a rotatable carrier in which the said work-clamp may slide, stitch-forming mechanism, a shaft for effecting the rotation of said carrier, two sets of actuating devices for operating said shaft, one set moving said shaft for a greater distance at each stitch than the other set, and means to effect the locking out of operation, while stitching, the straight sides of the buttonhole of the said actuating devices for moving said shaft its greatest distance, said actuating device, however, moving said shaft while the overedge-stitching is carried about the ends of the buttonhole, whereby the stitching of the sides of the buttonhole may be effected by a short stitch and about the eye by a longer stitch.

40. In a buttonhole-sewing machine, stitch-forming mechanism, a work-clamp adapted to hold stretched the material in which the buttonhole is being stitched throughout the stitching operation, means to move said work-clamp while holding the material to feed the same, combined with a throat-plate normally supporting the material within the open central portion of said closed clamp during the stitching operation, and means to lower said throat-plate from contact with the material during the feeding operation, thereby relieving the material from the friction of the throat-plate.

41. In a buttonhole-sewing machine, the combination with a work-clamp adapted to hold in a stretched condition the material having the buttonhole to be stitched, means to move the said clamp stitch after stitch; a needle-bar, an attached needle, actuating mechanism for said needle-bar, a complementary under-thread carrier; a throat-plate, a vertically-movable rod to the upper end of which said throat-plate is secured, means to reciprocate said rod to lower and raise the throat-plate, the said throat-plate being lowered while the needle is out of the material and the work-clamp is being moved to feed the material, and being raised while the needle is in the material.

42. In a buttonhole-sewing machine, the following instrumentalities, viz: stitch-forming mechanism; a work-clamp to hold in stretched condition the material containing the buttonhole to be stitched, means to move said clamp intermittently to enable the stitching to be made about the sides of the buttonhole; a throat-plate located below the work-clamp and having holes to receive and guide a cord; and means to raise and lower said throat-plate.

43. In a buttonhole-sewing machine, overedge-stitch-forming mechanism, a clamp to hold the material, and means to change the relative positions of said stitch-forming means, and work-clamp, during the stitching of a buttonhole; combined with a vertically-movable anvil arranged below said clamp; a cutter-carrier, having an attached cutter; and actuating devices for said cutter-carrier, said actuating devices having means to act on and move said anvil against the under side of the material held in the clamp during the descent of the cutter-carrier.

44. In a buttonhole-sewing machine, stitch-forming mechanism, a rotatable carrier having a plurality of notches, a plurality of dogs mounted on said carrier, locking means to enter said notches one after the other in the formation of a buttonhole to restrain at each times the rotation of the carrier, a work-clamp slidably mounted in said carrier, and a device to engage and then retire from one of said dogs after the other to effect partial rotation of the carrier and work-clamp while stitching about the ends of a buttonhole, partial rotation of the carrier and clamp taking place after stitching each straight side of the buttonhole.

45. A work-clamp, stitch-forming mechanism to form a series of overedge-stitches about the edge of a buttonhole, a work-clamp to hold the material containing said buttonhole, a rotating work-clamp-actuating cam-ring having a too D' and a groove provided with an open space 57 and projections 55 and 56 in said groove, and having a lug 54 crossing a part of said groove, a raceway-plate having openings O' and a notch 125, a circular carrier open at its center to receive and guide the work-clamp that it may be slid therein, said carrier having at its edge a plurality of notches and a plurality of pivoted dogs, each dog having at its under side a projection to enter the groove of said cam-ring, a projection O' acting normally against the edge of said carrier and adapted to enter one or the other of the notches in the edge of said carrier when the said notches come opposite said projection, the too D' forcing the projection from one and the other of said notches at the desired times.

46. In a buttonhole-stitching machine, stitch-forming mechanism to make a series of overedge-stitches about the entire edge of a buttonhole, a work-clamp, means to move the clamp while the edge of the buttonhole is being overstitched, a clutch in operative engagement with a shaft for operating the stitch-forming mechanism to make stitches, device made operative immediately after the completion of the overedge-stitching to move said clutch and stop the stitching, and automatically-controlled means to thereafter further move said work-clamp at a faster speed into its starting position.

47. In a machine for stitching buttonholes, overedge-stitch-forming mechanism, a cloth-clamp to grasp between its members and hold the material to be overstitched, a plate on which the base of said clamp is pivoted, means to move said plate and clamp longitudinally during the stitching of the edges of the buttonhole, and means to move one end of said clamp laterally on said movable plate during the stitching of the enlarged eye of the buttonhole.

48. In a machine for stitching buttonholes, overedge-stitch-forming mechanism, a cloth-clamp, means for giving a relative rotary movement to the said stitch-forming mechanism and cloth-clamp during the overedge-stitching of both ends of the buttonhole, means to move said clamp longitudinally during the overstitching of the edges of the buttonhole, and means to move one end of said clamp laterally during the stitching of the enlarged eye of the buttonhole.

49. In a machine for stitching buttonholes, stitch-forming mechanism, a work-clamp, buttonhole-cutting mechanism, means to start the cutting mechanism into operation to cut the material held in the clamp, and means controlled by the cutting mechanism to start automatically the stitch-forming mechanism into operation after the completion of the cutting operation.

50. In a buttonhole-stitching machine, a cloth-clamp, means to sustain it, a cutter located above the cloth-clamp, means to carry the cutter, stitch-forming mechanism to make an overedge-stitch, a throat-plate, an anvil, and means to move the throat-plate and anvil each into and out of contact with the under side of the material held in the clamp, the anvil occupying its operative level under the material held by the clamp only when the material is to be cut preparatory to stitching the same, the throat-plate being moved into its operative position to contact with the material only when the stitch-forming mechanism is operating to overstitch the edge of the buttonhole.

51. In a buttonhole-stitching machine, stitch-forming mechanism to form overedge-stitches, a cloth-clamp to hold the material to be stitched, means to change the relative position of said stitch-forming mechanism and cloth-clamp to enable stitches to be formed about the edges of a buttonhole-end, a vertically-movable cutter, and an anvil, both occupying normally inoperative positions out of contact with the material held by the clamp, means to move vertically automatically said anvil into its operative position to contact with the material held by the clamp, and move said cutter to contact with said anvil and cut the material held in the clamp, and means to thereafter restore said cutter and anvil to their inoperative

position and maintain them in each position until again to be actuated to cut the material for another buttonhole.

52. In a machine for stitching buttonholes, stitch-forming mechanism to form overedge-stitches, a work-clamp to hold the material to be cut and stitched, means to change the relative positions of said stitch-forming mechanism and work-clamp to effect the stitching of the edge of a buttonhole, buttonhole-cutting mechanism comprising a blade and an anvil, each occupying normally their inoperative positions out of contact with the material, a shaft, connections between said shaft and cutting mechanism, a continuously-moving pulley, means to couple said pulley with said shaft whereby the same is started and the anvil put in its operative position next the under side of the material held in said clamp, and the cutter actuated to cut the material resting above said anvil.

53. In a buttonhole-stitching machine, stitch-forming mechanism, a cloth-clamp to receive the material to be cut and stitched, buttonhole-cutting mechanism, a shaft sustained outside the frame carrying the stitch-forming mechanism, said shaft actuating said cutting mechanism, manually-controlled means for causing the cutting mechanism to act and cut the material in the clamp and return the buttonhole-cutting mechanism into its inoperative position, and automatically-actuated means to start into operation the stitch-forming means after the buttonhole-cutting means has been operated.

54. In a buttonhole-stitching machine, stitch-forming mechanism, a cloth-clamp to receive the material to be cut and stitched, buttonhole-cutting mechanism, an independent shaft located below the bench containing the stitching mechanism, means independent of the stitching mechanism for operating said shaft, and manually-controlled means to cause the buttonhole-cutting mechanism to act but once, and then come to a position of rest.

55. In a machine for stitching buttonholes, stitch-forming mechanism, means to actuate the same to form overedge-stitches, means to sustain the stitch-forming mechanism, a work-clamp to hold the material, means to change the relative positions of the work-clamp and the means sustaining the stitch-forming mechanism, whereby overedge-stitches are made about the edge of the buttonhole, means to stop automatically the action of the stitch-forming mechanism when the buttonhole has been fully stitched, and means, including a worm, a worm-gear, and a shaft having a toothed wheel to thereafter continue automatically the relative change of position of said work-clamp and the means sustaining the stitch-forming mechanism until the work-clamp and the means for sustaining the stitch-forming mechanism occupy their positions in which the work is removed from and other work applied to the work-clamp.

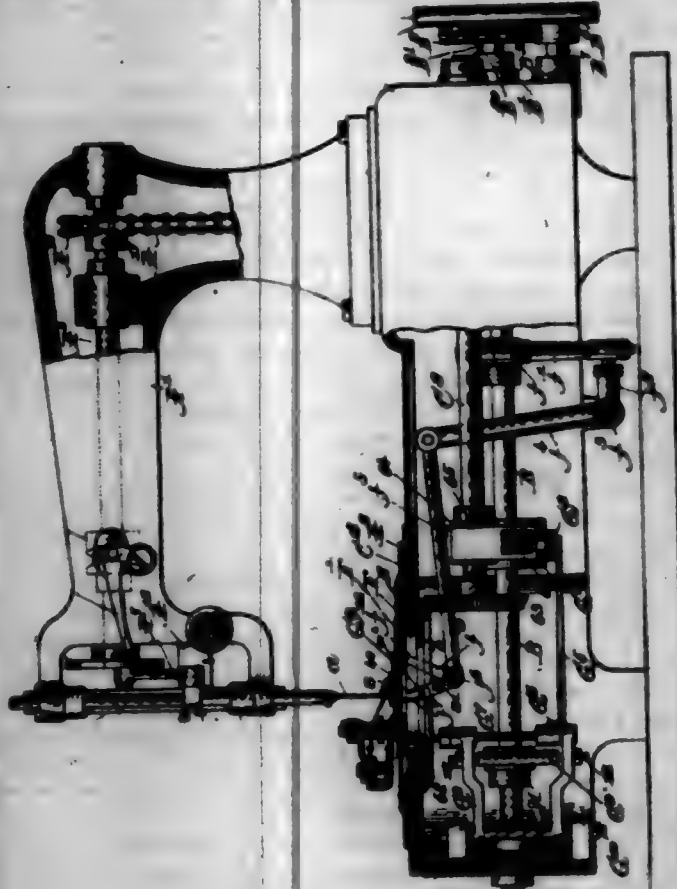
56. In a machine for stitching buttonholes, stitch-forming mechanism, means to sustain the same, means to actuate the stitch-forming mechanism to form overedge-stitches, buttonhole-cutting mechanism, a work-clamp to receive the material, means to actuate the buttonhole-cutting mechanism to cut the material in the clamp, means to start into operation the stitch-forming mechanism, means to change the relative positions of the work-clamp, and means for sustaining the stitch-forming mechanism that the stitch-forming mechanism may stitch fully about the edge of the slit cut in the material, means to stop the stitching action of the stitch-forming mechanism when the said slit has been over stitched, and means to continue at a faster speed the relative change of position of said work-clamp, and means for sustaining the stitch-forming mechanism while the stitch-forming mechanism is inactive as to making stitches until the said work-clamp and means for sustaining the stitch-forming mechanism again occupy the position in which the work may be removed from the clamp and other work inserted in the clamp.

57. In a buttonhole-stitching machine, stitch-forming mechanism, a work-clamp adapted to hold stretched the material in which the buttonhole is being stitched throughout the stitching operation, means to change the relative positions of said work-clamp and stitch-forming mechanism while making overedge-stitches about the edge of the buttonhole-slit, combined with a throat-plate normally supporting the material within the open central portion of said closed clamp while the needle is penetrating the material, and means to lower said throat-plate from contact with the material while the needle is out of the material.

696,699. BUTTONHOLE-STITCHING MACHINE. ROBERT W. THOMSON, Lynn, Mass., assignor to Essex Buttonhole Machine Company, Boston, Mass., a Corporation of Maine. Original application filed Jan. 20, 1902, Serial No. 418,678. Divided and this application filed Aug. 8, 1901. Serial No. 70,889. (No model.)

Claim.—1. The combination with upper and under needles of a buttonhole-stitching machine, and actuating means thereof, of a loop-spreader, a movable bearing sustaining the chuck of said spreader, means to impart a lateral movement to the loop-spreader bearing, and means to impart a relative movement to the loop-spreader in its bearing in the formation of a buttonhole-stitch.

2. In a buttonhole-stitching machine, a cloth-clamp to hold the material to be stitched, stitch-forming mechanism including an upper and an under thread carrying needle, a loop-spreader having a shaft, a bearing for said shaft, means to impart at the proper time a rotary movement to said loop-spreader, and means to move said bearing and loop-spreader bodily that the spreader may take the loop of upper thread and spread said loop for the entrance of the needle carrying the under thread as the latter rises past the edge to be over stitched.



3. In a machine for stitching buttonholes, a work-clamp to hold the material to be stitched, an eye-pointed upper-thread-carrying needle to penetrate the material back from its edge to be over stitched, means to actuate said needle for stitching, a curved under-thread-carrying needle located below the material, a pivoted carrier for said curved needle, a link connected with said curved-needle carrier, a lever connected with said link, an eccentric-strap, means to move it, and a ball connection between said eccentric-strap and lever.

4. In a buttonhole-stitching machine, the combination with an eye-pointed needle and an under-thread-carrying needle, of a bearing pivoted near one end, a loop-spreader having its shaft mounted in said bearing, means to swing said bearing about its pivot, and means to rotate said shaft in said bearing, whereby said spreader while being rotated in the bearing may have a bodily lateral movement given to its shaft.

5. In a buttonhole-stitching machine, the following instrumentalities, viz: a needle-bar having a needle to carry an upper thread, actuating means therefor, a vertical shaft provided with a loop-spreader, a pivoted bearing in which the shaft of said spreader is mounted, an under-thread carrier, means to actuate the under-thread carrier to move it across the edge of the material to be over stitched, and means to move said bearing with the spreader-shaft and spreader laterally to thereby remove the spreader quickly out of the path of the ascending under-thread carrier.

6. In a buttonhole-stitching machine, a needle-bar having an eye-pointed upper-thread-carrying needle, a bearing to sustain said needle-bar, means to reciprocate said needle-bar in said bearing, an under-thread-carrier adapted to carry a thread through the buttonhole and prevent it under the descending needle, and means to adjust said bearing and maintain it in adjusted position, that the needle may penetrate the material back from the edge of the slit for the desired distance to insure the desired width of overedge-stitch, as may be required.

7. In a buttonhole-stitching machine, a work-clamp, a needle-thread, a vertically-arranged needle-bar having an eye-pointed needle, a horizontally-arranged shaft having a connected under-thread carrier, arms supporting said shaft, pivots sustained in a stationary part of the frame of the machine, located near the level of the under side of the material to be held in the work-clamp, and means for actuating said shaft that the under-thread carrier, as it rises to interlock its thread with the needle-thread, will rise through the slit in the material in substantially a vertical line, thereby obviating straining the material in the direction of the width of the buttonhole-slit.

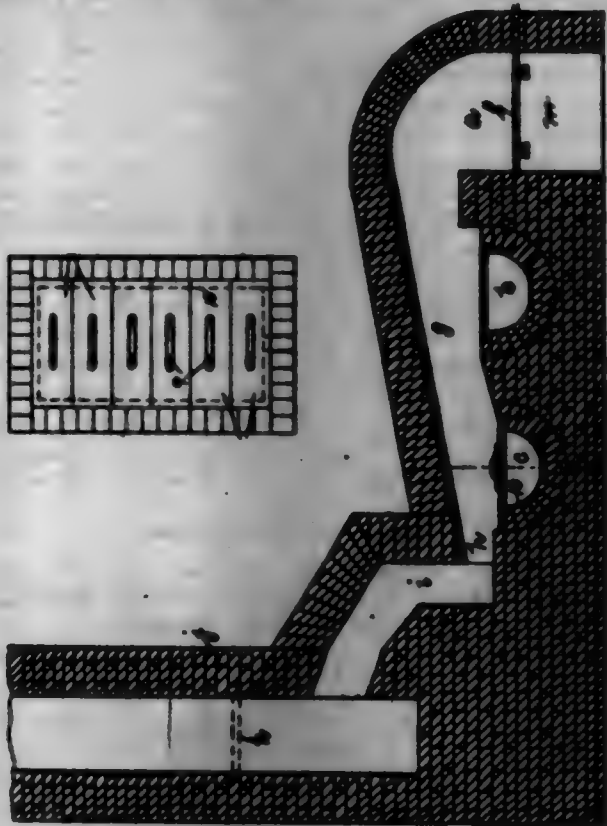
696,700. VEHICLE-TIRE. FREDERICK TILLMANT, SAN FRANCISCO, Cal., assigner, by direct and mesne assignments, to Tillmanti Steel Tube Tire Company, a Corporation of California. Filed July 5, 1901. Serial No. 67,941. (No model.)



Claim.—1. A vehicle-tire or the like consisting of a single metal tube formed with a male and a female end, a spring at one end of said tube and a depression in the opposite end, said spring being adapted to engage said depression and hold said ends together, for the purpose set forth.

2. A vehicle-tire or the like consisting of a single metal tube formed with a male and a female end, a continuous depressed portion extending the entire length of said tire, and a compressed-leather strip secured in said depressed portion and forming a non-slipping tractional surface for said tire, substantially as and for the purpose set forth.

696,701. FURNACE. WILLIAM WARELY, Taunton, Mass. Filed Dec. 7, 1901. Serial No. 66,664. (No model.)



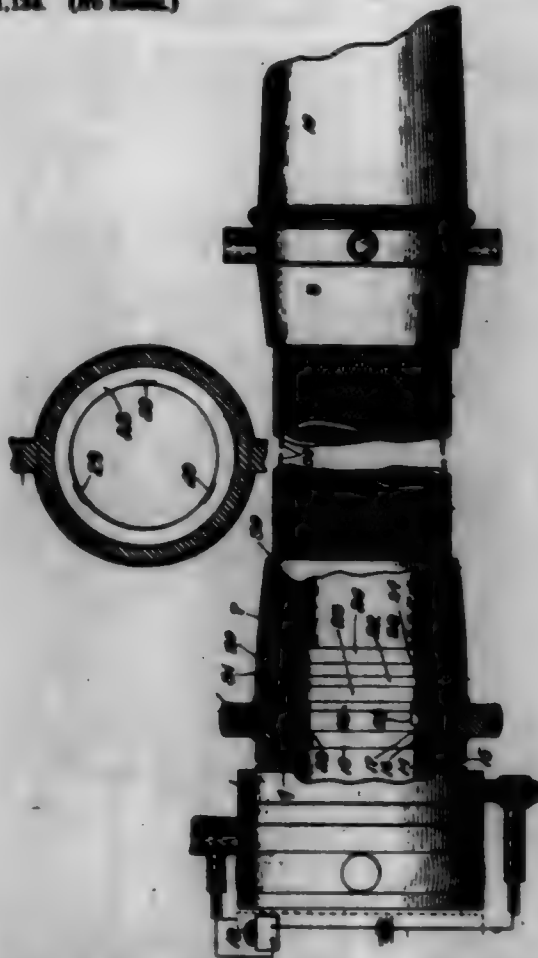
Claim.—1. In a furnace of the character described, the combination with a combustion-chamber, an outlet therefor, and an intermediate passage downwardly inclined from the combustion-chamber to said outlet, of a plurality of substantially narrow deep basins or receptacles formed in the hearth of the furnace with the basin remote from the combustion-chamber at a lower level than the one adjacent to said combustion-chamber, the said basins being extended transversely of the furnace and separated by a portion of the hearth of substantial thickness and having its surface of such inclination as to direct the flame passing over the lower basin to substantially the longitudinal center of the said basin, substantially as described.

2. In a furnace of the character described, the combination with a combustion-chamber, a downwardly-inclined passage communicating therewith, and an outlet port or opening communicating with said passage, of a plurality of basins or pockets curved in cross-sections and extended across said furnace below said inclined passage and having outlet-openings communicating with the exterior of the furnace, said basins or pockets being located at different levels with the basin remote from the combustion-chamber at a lower level than the basin adjacent to the combustion-chamber, substantially as and for the purpose specified.

3. In a furnace of the character described, the combination with a

combustion-chamber, an outlet therefor and an intermediate passage connecting the same, of a plurality of basins located in the hearth of the furnace between said combustion-chamber and said outlet, the more remote basin being located at a lower level than the basin adjacent to said combustion-chamber, and a removable cover for said remote basin, substantially as and for the purpose specified.

696,702. ELECTRIC-HOSE COUPLING. GEORGE C. WITZ, Medford, Mass., assigner to himself and Franklin K. Young and Michael P. O'NEILL, trustees, Boston, Mass. Filed Jan. 24, 1902. Serial No. 61,132. (No model.)



Claim.—1. A female member of a coupling for electric hose having a shell with an interior flange, an insulating-ring within said shell and butting against the flange of said shell, a contact-ring set in said insulating-ring and insulated thereby from the shell, said contact-ring having one or more contact-fingers projecting longitudinally therefrom, substantially as described.

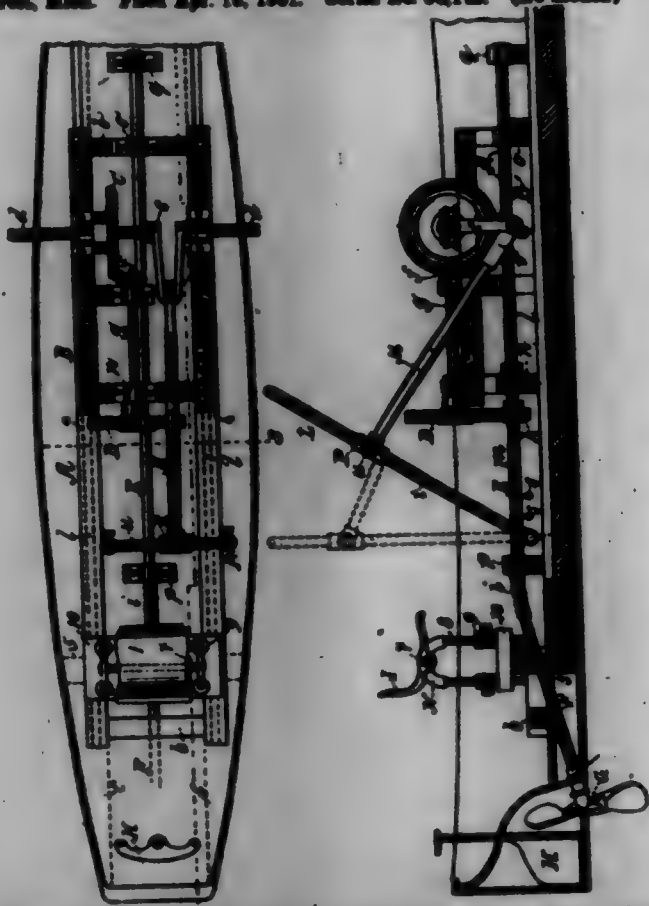
2. A female member of a coupling for electric hose having a shell with an interior flange, a flanged insulating-ring within said shell and butting against the flange of said shell, a contact-ring within the mouth of said insulating-ring and butting against the flange thereof, and insulated from said shell, said contact-ring having one or more contact-fingers projecting longitudinally outward therefrom, the inner periphery of the contact-ring, insulating-ring and said shell-flange forming a flush waterway, and a wire electrically connected with said contact-ring and an insulated passage for said wire through the flange of the shell to the hose, substantially as described.

3. A female member of a coupling for electric hose having a shell with an interior flange, a flanged insulating-ring butting against said flange, a contact-ring in the mouth of said insulating-ring butting against the flange thereof which insulates it from the shell, an insulating-gasket against the outer ends of the contact-ring and the insulating-ring, contact-fingers projecting outward from said contact-ring and a wire electrically connected with said contact-ring and leading rearwardly therefrom through the flange of the shell from which it is insulated and through the hose, substantially as described.

4. A female member of a coupling for electric hose having a shell with an interior flange, a flanged insulating-ring butting against said flange, a contact-ring in the mouth of said insulating-ring butting against the flange thereof and insulated thereby from the shell, an insulating-gasket against the outer ends of the contact-ring and the insulating-ring, contact-fingers projecting from said contact-ring, a wire leading from said contact-ring rearwardly through the flange of the shell and coiled around in a coil in said flange, and insulated from said flange, and a gasket on the rear face of said flange which holds the wire on its seat, the wire leading from the coil through the said gasket and back through the hose, substantially as described.

5. A female member of a coupling for electric hose having a shell with an interior flange, a flanged insulating-ring against said flange, a contact-ring in the mouth of said insulating-ring against the flange thereof and insulated from said shell, an insulating-gasket against the outer ends of said contact-ring, contact-fingers projecting from said contact-ring, a wire connected with said contact-ring and insulated from the shell and leading through the hose, in combination with a male member having a contact-ring with which a wire is connected, said wire and contact-ring being insulated from the body of the shell, said contact-ring making contact with the fingers on the contact-ring of the female coupling when the two members are coupled, substantially as described.

696,708. HAND-POWER PROPELLER. ISAAS A. WILSON, Detroit, Mich. Filed Apr. 16, 1901. Serial No. 94,143. (No model.)



Claim.—1. A propeller vessel comprising in its construction a hull, parallel side timbers carried thereby and provided with grooves, a framework mounted upon the said timbers adapted to engage such grooves, and means for operating propelling mechanism supported by said framework, the construction and arrangement being such that the said framework may be moved longitudinally of the said side timbers, and carry with it said propeller-operating mechanism substantially as described.

2. A propeller vessel comprising in its construction a hull, parallel side timbers mounted therein and provided with longitudinal grooves, a framework slidably mounted upon said timbers, means carried by said framework engaging said grooves, stern and side propeller-operating mechanism mounted upon said framework, and means for operating such mechanism, substantially as described.

3. A propeller vessel comprising in its construction a hull, a framework slidably mounted therein, and means mounted on said framework for simultaneously operating stern-screw and side-propeller mechanism, substantially as described.

4. A propeller vessel comprising in its construction a hull, a framework mounted therein and slidably longitudinally thereof, and hand-operated means carried by said framework for simultaneously actuating stern-screw and side-propeller mechanism, substantially as described.

5. In a hand-operated-propeller vessel, the combination with a hull of a framework slidably mounted within the same, a crank-shaft finding bearings in said framework arranged transversely of the said hull and having its ends extending beyond the sides thereof and adapted to carry side-wheel propellers, a crank interposed intermediate the length of said shaft, hand-operated means for rotating the said crank, and means carried by said crank-shaft for imparting motion to a stern-propeller, substantially as described.

6. In a hand-operated-propeller vessel, the combination with a hull of means for operating a stern-propeller, comprising a framework mounted within said hull, a crank-shaft arranged transversely of the said framework and finding bearings thereon, a crank mounted upon the said shaft, hand-operated means for rotating the same, a beveled gear-wheel rigidly

affixed to said shaft, a counter-shaft extending at right angles to said crank-shaft and carrying a pinion adapted to mesh with the said beveled gear-wheel, a spur-wheel carried by the opposite end of said counter-shaft, a main shaft extending longitudinally of said hull and carrying a pinion adapted to mesh with the said spur-wheel, a shaft extending from the stern of said hull and carrying a screw-propeller at its outer end, and flexible means connecting said propeller-shaft with said main shaft, substantially as described.

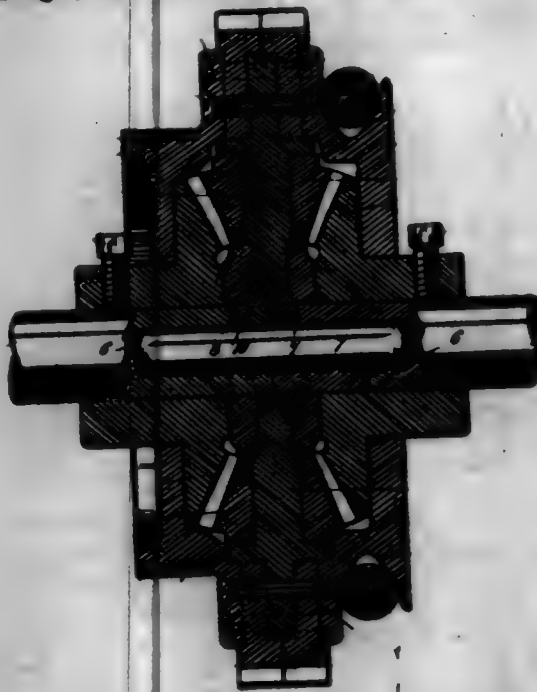
7. In a hand-operated-propeller vessel, the combination with a hull, of means for operating a stern-propeller, comprising a framework slidably mounted within said hull, a crank-shaft arranged transversely of said framework and finding bearings thereon, hand-operated means for rotating the same, a beveled gear-wheel affixed to said shaft, a counter-shaft extending at right angles thereto and carrying a pinion adapted to mesh with the said beveled gear-wheel, a spur-wheel carried by said counter-shaft, a main shaft arranged longitudinally of said hull and provided with a groove for a portion of its length, a pinion keyed to said grooved portion and slidably longitudinally of said shaft and adapted to mesh with said spur-wheel, and means for imparting motion from said main shaft to a screw-propeller at the stern of said hull, the construction and arrangement being such that the said framework together with its supported propeller-operating mechanism may be adjusted bodily longitudinally of said hull for raising or lowering the stern thereof, substantially as described.

8. In a hand-operated-propeller vessel, the combination with a hull, of a framework mounted therein, a crank-shaft extending transversely of said framework, means carried by said crank-shaft for imparting motion simultaneously to stern and side propeller-wheels, a crank mounted upon said shaft, and hand-operated means for rotating the same, comprising a yoke having its ends pivotally secured to said hull and its arched portion extending upwardly therefrom and adapted to serve as a handle, a cross-rod connecting the arms of said yoke, a pitman pivotally secured to said cross-rod and connecting the same with said crank, and means for adjusting said cross-rod longitudinally of said yoke, substantially as described.

9. In a hand-operated-propeller vessel, the combination with the hull, of crank-operated mechanism for imparting motion to stern and side propellers, and means for rotating said crank comprising a yoke having its ends pivotally secured to said hull, means for adjusting said ends longitudinally of the hull, sleeve-bearings carried by the arms of said yoke, means for adjustably securing said sleeves at varying distances longitudinally of said arms, a rod connecting said sleeve-bearings, and a pitman connecting the said rod with said crank, substantially as described.

10. In a hand-operated-propeller vessel, the combination with a hull, of crank-operated mechanism therein for imparting motion to a suitable propeller, and means for rotating said crank, comprising a yoke having its ends pivotally secured to said hull, means for adjusting the ends thereof longitudinally of said hull, a rod connecting the arms of said yoke, means for adjusting the said rod longitudinally thereof, and a pitman pivotally secured to said rod and connecting the same to said crank, substantially as described.

696,704. DRIVING-GEAR. CHARLES F. ALLEN, Humboldt, Cal., assignor of one-half to L. R. Hague and W. C. Hewitt, Santa Paula, Cal. Filed Aug. 4, 1900. Serial No. 28,947. (No model.)



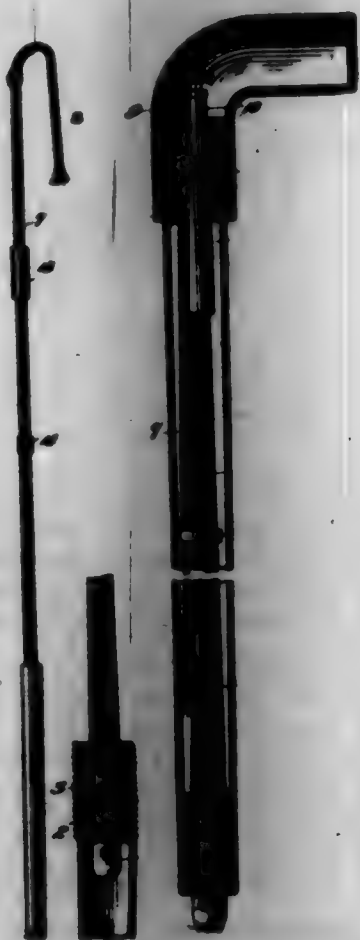
Claim.—1. The combination with an axle formed of two similar sections; of a pin loosely mounted within the adjacent end of said sec-

tions, a beveled pinion secured to each section near the inner end thereof, a sleeve loosely mounted upon the sections between the pinions, pins detachably secured to the sleeve and formed with projecting flattened heads, a gear mounted upon each pin and engaging both pinions, a toothed ring secured to the heads of the pins and surrounding the axle, and collars secured to opposite sides of the ring and enclosing the pinions.

2. The combination with an axle formed of two similar sections; of a pin loosely mounted within the adjacent ends of the sections, a beveled pinion secured to each axle-section near the inner end thereof, a sleeve loosely mounted upon the sections and between the beveled pinions, pins extending from and detachably secured to the sleeve and having projecting flattened heads, gears mounted upon the pins and engaging both pinions of the axle, a gear formed of two similar rings secured to the heads of the pins and surrounding the axle, and a collar secured to each ring and enclosing the pinions, one of said collars having a grooved periphery.

3. The combination with an axle formed of two similar sections; of a pin loosely mounted within the adjacent ends of said sections, a pinion secured to each section near the inner end thereof, a sleeve loosely mounted upon the sections between the pinions, pins detachably secured to and extending from said sleeve, a gear mounted upon each pin and engaging both pinions, each pin having a flattened head, a sectional toothed ring having on the inner face of each section a recess for the reception of said heads, said ring formed of two similar rings, collars at opposite sides of the toothed ring and enclosing the pinions, and means for binding the collars, the rings, and the heads of the pins together.

696,705. COMBINATION CASE AND WHIP. MARY A. ALLEN, Fitzgerald, Ga. Filed Oct. 22, 1901. Serial No. 78,731. (No model.)



Claim.—1. A combination case and whip comprising a hollow, cylindrical casing provided with internal and external screw-threads at its upper end, and internal screw-threads at its lower end, a whip provided at its lower end with an externally-screw-threaded butt adapted to fit in the threaded lower and upper ends of the casing as the device is used for a case and whip respectively, and an internally-screw-threaded handle to engage the external threads of the casing.

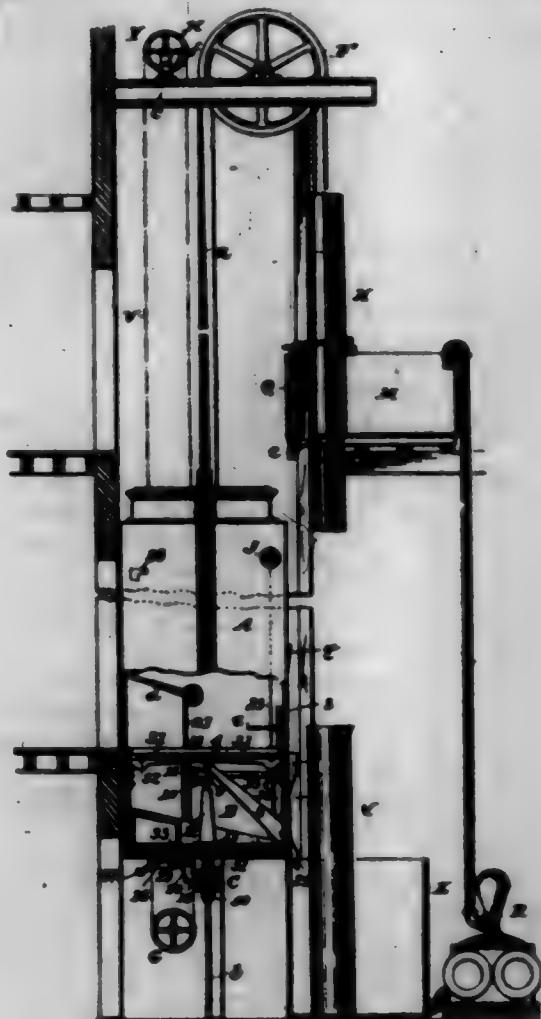
2. A combination case and whip comprising a hollow screw-threaded casing, a removable handle therefor, a whip formed of hinged sections adapted to be folded and inserted within the casing, a sliding sleeve for securing the whip-sections in their unfolded position, and a catch device for engaging the whip-link.

3. A combination case and whip comprising a hollow cylindrical casing provided with both internal and external screw-threads at its upper end, a whip consisting of jointed sections one of which is screw-

threaded to engage the internal threads of the casing, a sliding sleeve to secure the whip-sections in unfolded position, and an internally-threaded handle to engage the external threads of the casing.

4. A combination case and whip comprising a hollow cylindrical casing provided with internal and external screw-threads at its upper end, and internal screw-threads at its lower end, a whip consisting of sections provided at their meeting ends with sleeves slotted to receive a coupling-link whereby said sections are joined, a sliding sleeve to secure the whip-sections in unfolded position, a butt-end externally screw-threaded and provided with a lug to form a ferrule when the whip is converted into a cane, and an internally-threaded handle to engage the external threads of the casing.

696,706. ELEVATOR. CYRUS W. BALDWIN, Yonkers, N. Y. Mary E. Baldwin, administratrix of said Cyrus W. Baldwin, deceased, assignor to the Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Dec. 27, 1904. Serial No. 553,082. (No model.)



Claim.—1. The combination with an elevator-cage, of a receptacle open at the top and arranged near the end of the well, and a valveless counterbalance-weight securing the receptacle and loosely fitting the same, substantially as described.

2. The combination of an elevator-cage, a water-tank upon the cage, a valve, and automatic means whereby the valve is operated to discharge water from the tank in proportion to the weight of the passengers in the cage, substantially as set forth.

3. The combination of a cage, a tank carried thereby, a valve controlling the discharge of water from the said tank, and automatic apparatus carried by the cage and connected with the valve to shift the latter according to the weight in the cage, substantially as set forth.

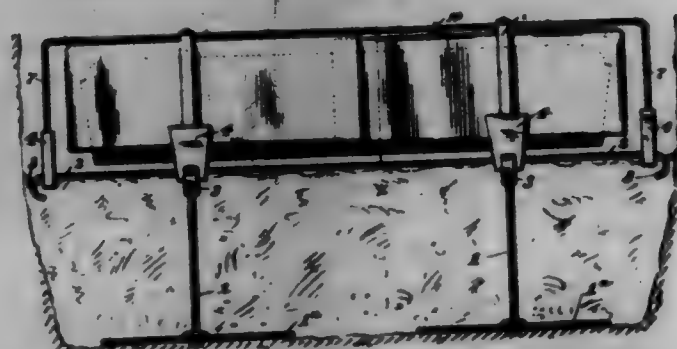
4. The combination of an elevator-cage, a movable platform in the cage, a tank carried by the cage, and a discharge-valve connected operatively to the movable platform, substantially as set forth.

5. The combination of an elevator-cage, a tank, a tubular discharge-valve, a movable platform, and connecting devices whereby the valve is lowered in proportion to the extent to which the platform descends, substantially as set forth.

6. The combination of an elevator-cage, a tank, a discharge-valve, a platform connected to operate the latter, and an indicator connected with the platform, substantially as set forth.

7. The combination of an elevator-cage, a tank, a platform, a discharge-valve connected therewith, supports for supporting the platform movably within the cage, and means for adjusting the said supports, substantially as described.

696,707. COFFIN-PROTECTOR. SAMUEL L. BLACK and HOLLIS P. BUNKER, Columbus, Ohio. Filed Aug. 13, 1901. Serial No. 73,863. (No model.)



Claim.—1. In a coffin-protector, a bottom frame, lock-cases thereon having automatically-operative bolts therein, and a top or protecting frame composed of horizontal bars with downwardly-bent legs integral with said bars whereby said legs can be simultaneously inserted and locked in said lock-cases.

2. In a coffin-protector, a bottom frame composed of bars having stops at their ends, lock-cases adapted to be placed on said bars beyond such stops, and a top or protecting frame having downwardly-extending legs integral with such top frame to enter and be secured in such lock-cases.

3. In a coffin-protector, a bottom frame, anchoring-bolts therefor extending below said frame, lock-cases on the bottom frame, and a top or protecting frame having legs integral therewith to enter and be secured in said lock-cases.

4. In a coffin-protector, a top or protecting frame adapted to be supported and secured above the top of the coffin, and an earth-supporting shield adapted to be suspended from said protecting-frame, but below the top frame.

5. In a coffin-protector, a top or protecting frame adapted to be supported above the top of the coffin, and an earth-supporting shield composed of lapping sections with means for suspending such sections from the protecting-frame, substantially as described.

6. In a coffin-protector, a top or protecting frame adapted to be supported above the top of the coffin, and an earth-supporting shield composed of lapping sections adjustable upon each other, with means for suspending such sections from the protecting-frame, substantially as described.

7. In a coffin-protector, a bottom frame, and a top or protecting frame having downwardly-extending recessed legs, and a lock-case to receive such leg having an automatically-operative bolt formed to enter a recess in the leg and bridge squarely the space between the leg and lock-case for the purpose explained.

8. In a coffin-protector, a bottom frame composed of longitudinal and cross bars having downwardly-turned ends to form hooks, lock-cases perforated horizontally to be placed on said hooked ends and recessed vertically and provided with automatic catches, a top or protecting frame composed of longitudinal and cross bars having downwardly-bent ends to enter and be secured by the automatic catches in the lock-cases, and means for anchoring the bottom frame, substantially as described.

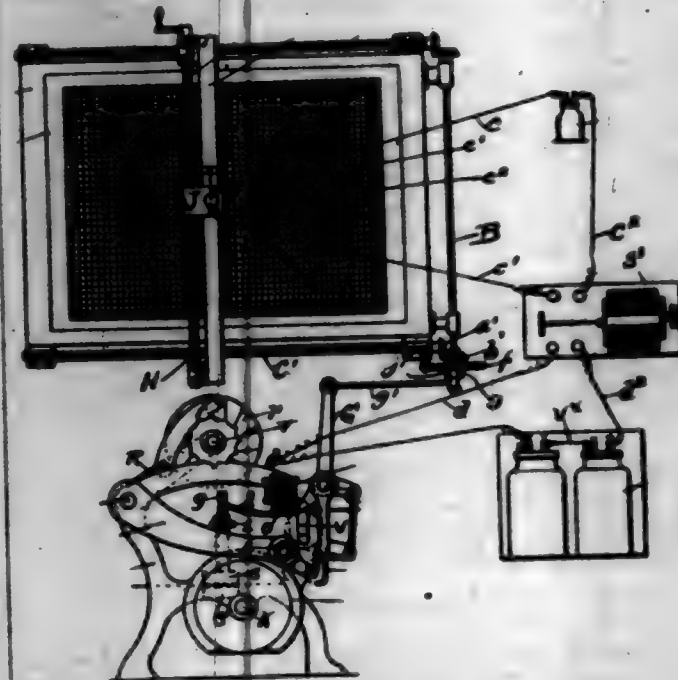
696,708. MACHINE FOR COPYING PATTERNS FOR JACQUARD-CARDS. JOHN T. BOLTON, Fall River, Mass., assignor of one-fourth to Thomas McAniff, Fall River, Mass. Filed Jan. 6, 1902. Serial No. 83,568. (No model.)

Claim.—1. The combination of a board to hold a design-pattern, having screw-shafts held in bearings attached to the upper and lower edges, a vertical shaft held in bearings at the side of the board and connected by bevel-gears with said screw-shafts, a case to slide on said bar, a solenium-coil held on said case, a screw held in bearings on said bar, a nut on said screw attached to the case, a relay-battery, electrical connection between said case and the relay-battery, substantially as described.

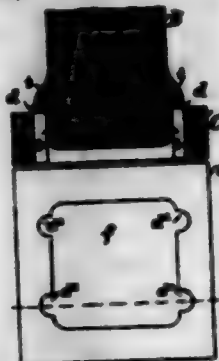
2. The combination of a pattern, a case to pass over said pattern, mechanism to move said case over the pattern, a punching-machine operated by said mechanism synchronously with said case, a relay-battery to designate what punches shall be operated by said mechanism, a solenium-coil to control said relay-battery, substantially as described.

3. The combination of a solenium-coil, a design-pattern, mechanism for passing said coil over the design-pattern, a relay-battery, wires to connect said solenium-coil and relay-battery, a punching-machine connected by said wires to the relay-battery, means for connecting said punching-machine with the mechanism that moves the solenium-coil over the design-pattern, substantially as described.

4. The combination of two end frames, a series of punches and dies, feed-rolls, a series of dogs held spirally on a shaft over said punches, a main shaft, means for turning and raising and lowering said dogs, an electromagnet to control the dropping of the punches, a relay-battery to energize the electromagnet, a board to hold a design-pattern, mechanism connected with said board to control the relay-battery according to the design-pattern, substantially as described.



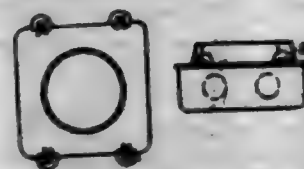
696,709. PROCESS OF MAKING CONDUIT OUTLET-BOXES. WILLIAM F. BUNKER, Utica, N. Y., assignor to the Bunker Electric Construction Company, Utica, N. Y. Filed Sept. 16, 1901. Serial No. 75,054. (No specimens.)



Claim.—1. The herein-described process of forming an outlet-box for interior conduits from a thin flat plate of ductile metal, which consists in first forming the plate with a depressed central portion and an outwardly-curved marginal flange, then bending up portions of said flange while holding other portions outwardly bent to form ears, and then grinding off said upwardly-bent portions.

2. The herein-described process of forming an outlet-box for interior conduits from a thin flat plate of ductile metal, which consists in first forming the plate with a depressed central portion and an outwardly-curved marginal flange, then bending up portions of said flange while holding other portions outwardly bent to form ears, then grinding off said upwardly-bent portions, and then bending the ears upward to the plane of the sides of the box.

696,710. INTERIOR-CONDUIT OUTLET-BOX. WILLIAM F. BUNKER, Utica, N. Y., assignor to the Bunker Electric Construction Company, Utica, N. Y. Original application filed Sept. 16, 1901. Serial No. 75,054. Divided and this application filed Jan. 17, 1902. Serial No. 90,140. (No model.)



Claim.—1. An outlet-box cover comprising a flat plate having a central opening with an upturned flange, and a plurality of parallel slots near the edge of the plate.

2. An outlet-box having its walls substantially at right angles to its bottom and provided with two or more perforated ears extending in the

same plane as the said walls; with a bodily-removable cover having slots to receive the said ears secured to the box by pins.

2. An outlet-box having its walls substantially at right angles to its bottom and provided with two or more perforated ears extending in the same plane as the said walls; with a bodily-removable cover having slots to receive the said ears and an opening in its central part, secured to the box by outer-pins.

3. An outlet-box struck or drawn up from a single piece of ductile metal, provided with two or more integral ears extending in the same plane as the walls thereof, the edges of the walls being ground off smooth, as set forth.

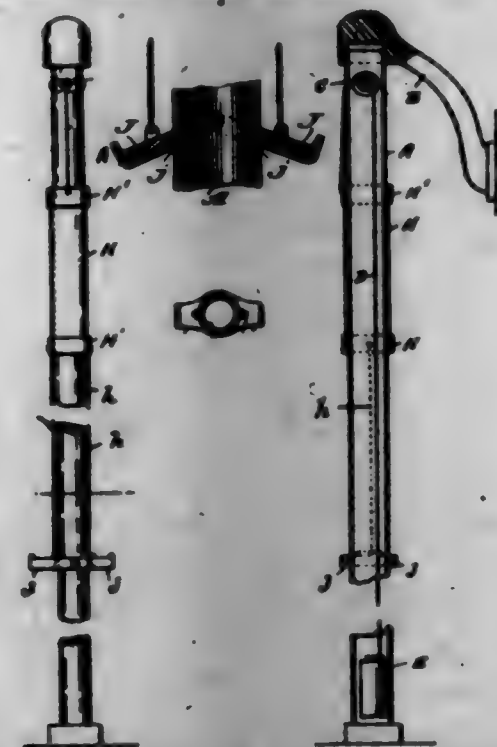
4. An outlet-box struck or drawn up from a single piece of ductile metal, provided with two or more integral ears extending in the same plane as the walls thereof, the edges of the walls being ground off smooth, as set forth.

5. The combination of an outlet-box struck or drawn up from a single piece of ductile metal, provided with two or more integral ears extending in the same plane as the walls thereof, the edges of the walls being ground off smooth, and the ears having perforations; a cover made from a single piece of metal having slots adapted to fit over the ears of the box; with spring or outer pins for the perforations of the ears, as set forth.

6. An outlet-box struck or drawn up from a single piece of ductile metal, provided with two or more integral ears extending in the same plane as the walls thereof, the edges of the walls being ground off smooth, and the ears having perforations.

7. An outlet-box struck or drawn up from a single piece of ductile metal, provided with two or more integral ears extending in the same plane as the walls thereof, the edges of the walls being ground off smooth, and the ears having perforations.

696,711. FIRE-ESCAPE. THOMAS J. BRINER, Reading, Pa. Filed Dec. 26, 1901. Serial No. 87,857. (No model.)



Claim.—In a fire-escape, a vertical hollow rod securely held at its top and bottom ends, having a pulley near its upper end and an opening therein in front of said pulley, a weight traveling inside said rod, a flexible handpiece controlling said rod adapted to ride up and down thereon, and attached to said weight by a flexible cord passing over said pulley, and a pivoted footpiece, depending from and connected to said handpiece and controlling said rod and having roughened inner surfaces capable of being forced against the outer surface of said rod by the weight of the operator, substantially as and for the purpose set forth.

696,712. SHOE-POLISHER. JOHN F. BACCHINI, New York, N. Y. Filed Dec. 20, 1901. Serial No. 87,908. (No model.)



Claim.—1. A shoe-polisher comprising an oblong block having its under side surface cut out longitudinally, and provided with a flexible polishing-strip which is stretched longitudinally of the bottom thereof and the ends of which are folded upwardly over the ends of said block, and

spring-clamps provided with angular arms which are pivoted to the sides of said block near each end thereof, and the body portion of which extends across the top of said block, the arms of said clamps being provided each with a hole or opening, and fastening devices secured in the sides of said block and provided with heads adapted to enter said holes or openings, substantially as shown and described.

2. A shoe-polisher comprising an oblong block having its under side surface cut out longitudinally, and provided with a flexible polishing-strip which is stretched longitudinally of the bottom thereof and the ends of which are folded upwardly over the ends of said block, and spring-clamps provided with angular arms which are pivoted to the sides of said block near each end thereof, and the body portion of which extends across the top of said block, the arms of said clamps being provided each with a hole or opening and fastening devices secured in the sides of said block and provided with heads adapted to enter said holes or openings, the body portions of said clamps being flat in cross-section and the inner edges thereof being provided with downwardly-directed teeth, substantially as shown and described.

3. A shoe-polisher comprising an oblong block having its under side surface cut out longitudinally, and provided with a flexible polishing-strip which is stretched longitudinally of the bottom thereof and the ends of which are folded upwardly over the ends of said block, and spring-clamps provided with angular arms which are pivoted to the sides of said block near each end thereof, and the body portion of which extends across the top of said block the arms of said clamps being provided each with a hole or opening and fastening devices secured in the sides of said block and provided with heads adapted to enter said holes or openings, the body portions of said clamps being flat in cross-section and the inner edges thereof being provided with downwardly-directed teeth, and the outer edges thereof being upwardly curved, substantially as shown and described.

696,713. DENTAL LAYER. JOHN J. BROWN, Mason, Mo. Filed Dec. 18, 1901. Serial No. 86,084. (No model.)



Claim.—1. In a machine of the class described, the combination of a frame, a table detachably mounted on the front of the frame and capable of also being mounted on the back of the latter and provided with a shaft having a pulley or wheel, a seat detachably mounted on the frame at the back thereof and adapted to be removed when the table is to be arranged at the back, cranks arranged at opposite sides of the machine, a large wheel or pulley, a belt connecting said wheel or pulleys, and gearing for communicating motion from the cranks to the large pulley or wheel.

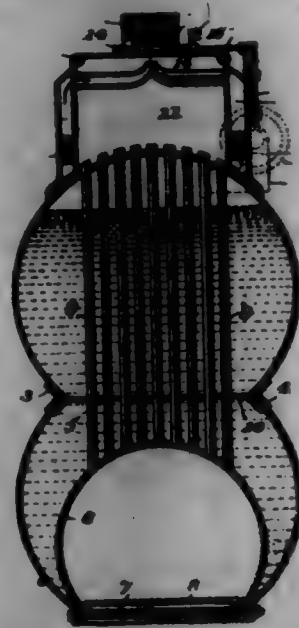
2. In a machine of the class described, the combination of a frame provided at its front with an arm, a table having a depending shank or bar detachably secured to the arm, a shaft or spindle mounted on and carried by the table, a seat-supporting bracket, detachably secured to the back of the frame and adapted to be removed to permit the table to be applied at that point, a seat mounted on the bracket, cranks arranged at opposite sides of the frame, and gearing for communicating motion from the cranks to the shaft or spindle, substantially as described.

3. In a machine of the class described, the combination of a frame comprising front legs provided with a vertical stem, rear legs having a vertical stem, a top plate connecting the stem of the rear legs with the front legs, means for connecting the lower portions of the legs, a table

having a depending shank detachably secured to the arm of the front legs, a seat-supporting bracket detachably secured to the stem of the rear legs and having a seat-supporting bar, a seat secured to the latter, a shaft or spindle carried by the table, and means for driving the shaft or spindle, substantially as described.

4. In a machine of the class described, the combination of a frame comprising front legs provided with a vertical arm, rear legs having an upright stem at the top, a top piece connecting the stem with the front legs, the side bars connecting the lower portions of the legs and extended beyond the front legs and provided with bearings, and transverse braces connecting the legs, a shaft mounted in the bearings of the side bars, a large drive-pulley mounted on the shaft, a sprocket-wheel also mounted on the shaft, the sprocket-wheel 15 adjustably mounted on the side bars, a chain connecting the sprocket-wheel, cranks connected with the sprocket-wheel 15, a table mounted on the arm of the front legs, a shaft or spindle carried by the table and provided with a small pulley, a belt connecting the mid pulley, a seat-supporting bracket secured to the stem of the rear legs, and a seat mounted on the bracket, substantially as described.

696,714. VERTICAL-TUBE STEAM-ROLLER. FRANK BURGESS and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burgess assignor of one-half of his right to said Williams. Filed Oct. 22, 1902. Removed Aug. 1, 1903. Serial No. 70,500. (No model.)



Claim.—1. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, their points of junction being connected by a perforated plate, substantially as described.

2. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, and a fire-box inclosed in one of the shells, substantially as described.

3. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, and a substantially cylindrical fire-box inclosed within the lower shell and connected thereto, substantially as described.

4. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, a fire-box within one of the shells, and tubes extending from the fire-box to the top of the upper shell, substantially as described.

5. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, a fire-box within one of the shells, a chamber above the other shell, and vertical tubes extending between the fire-box and chamber, substantially as described.

6. In a roller, two horizontally-disposed shells supported one above the other, a fire-box connected with one shell, a chamber connected with the other, and vertical tubes extending from the fire-box to said chamber, the chamber being provided with an opening and with means for controlling the opening, substantially as described.

7. In a roller, two horizontally-disposed shells supported one above the other, and vertical tubes extending from the fire-box to said chamber, the chamber being provided with an opening, binged wings, and means for operating them for controlling the opening, substantially as described.

8. In a roller having tubes extending to the outer surface thereof, a chamber inclosing the ends of said tubes, said chamber being provided with means for regulating the draft through the tubes into the chamber, substantially as described.

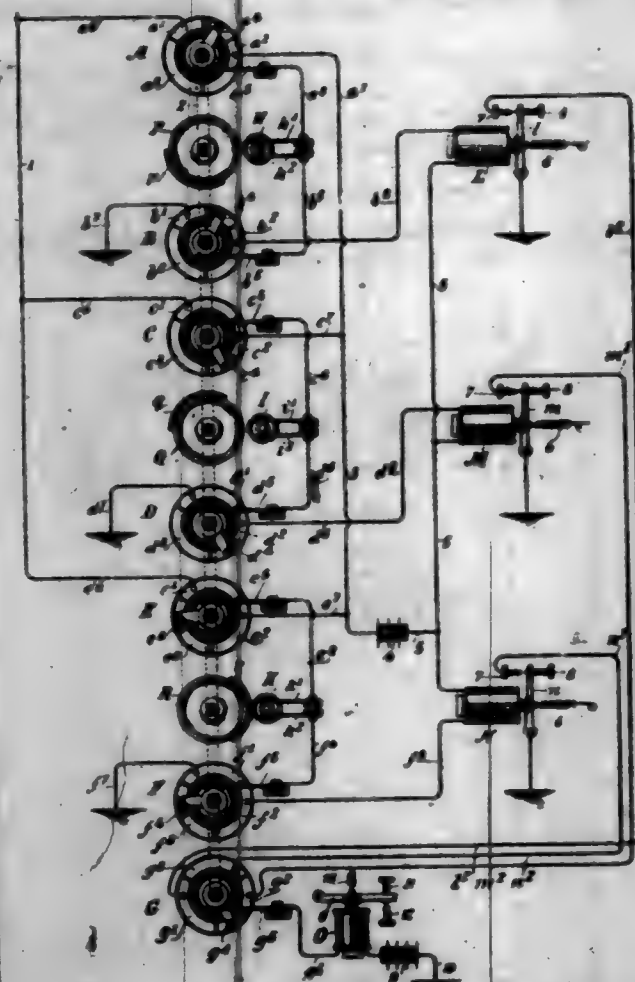
9. In a roller having tubes extending to the outer surface thereof, a

chamber inclosing the ends of said tubes, said chamber being provided with an opening and with means connected to air-chambers for controlling the draft through said tubes, substantially as described.

10. In a roller having tubes extending to the outer surface thereof, a chamber inclosing the ends of said tubes, said chamber being provided with an opening, pivoted wings controlling the opening, and means connected with the wings for adjusting their positions with relation to the opening, substantially as described.

11. In a roller, two horizontally-disposed substantially cylindrical shells supported one above the other, a plate interposed between their points of junction, a substantially cylindrical fire-box inclosed within one of the shells, a chamber supported upon the other shell, vertical tubes extending from the crown of the fire-box to the crown of the upper shell, and means for regulating the draft through said tubes into said chamber, substantially as described.

696,715. WIRELESS TELEGRAPHY. JOHN BERRY, Fort Lee, N. J. Filed Dec. 4, 1902. Serial No. 791,534. (No model.)



Claim.—1. In wireless telegraphy and the like, the combination of a collector-circuit having a number of discontinuous branches in parallel, discontinuous local circuits equal in number to the branches of the collector-circuit, imperfect electrical contacts equal in number to the said collector-circuit branches, and means for periodically including each contact first in a collector-circuit branch and then in a local circuit to complete said circuit, and said contacts being included in rotation in the collector and the local circuits and each in different local circuits and collector-circuit branches.

2. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, and means for periodically including each contact first in a collector-circuit branch, then in a local circuit, and then disconnecting it altogether, whereby said circuits are completed, and said contacts being included each in different local circuits and in different branches of the collector-circuit and in rotation in said circuits.

3. In wireless telegraphy and the like, the combination of a collector-circuit having a number of discontinuous branches, discontinuous local circuits equal in number to the branches of the collector-circuit, imperfect electrical contacts equal in number to the said collector-circuit branches, and means for periodically including each contact first in a collector-circuit branch and then in a local circuit to complete said circuit, and said contacts being included in rotation in the collector branches and the local circuits and each in different branches and local circuits, with a circuit-operating relay for and in each of said local circuits.

4. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, and means for periodically including each contact first in a collector-circuit branch, then in a local circuit, and then disconnecting it altogether, whereby said circuits are completed, and said contacts being included each in different branches of the collector-circuit and in rotation in said circuits, with a circuit-operating relay for and in each of said local circuits.

5. In wireless telegraphy and the like, the combination of a collector-circuit having discontinuous branches, discontinuous local circuits, imperfect electrical contacts equal in number to said collector-circuit branches, senders with segments of which said branches and local circuits connect, and trailers connected with said contacts and coacting with said senders to complete said collector-circuit first through one and then another of its branches, and to complete each local circuit after the completion of the collector-circuit through a corresponding branch thereof.

6. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, six three-segment senders with two segments of each of which said branches and local circuits connect, and sender-trailers connected with said contacts to complete said collector-circuit first through one and then a second and then the third branch thereof and to complete each local circuit after the completion of the collector-circuit through a corresponding branch thereof.

7. In wireless telegraphy and the like, the combination of a collector-circuit having discontinuous branches, discontinuous local circuits, imperfect electrical contacts equal in number to said collector-circuit branches, senders with segments of which said branches and local circuits connect, and trailers connected with said contacts and coacting with said senders to complete said collector-circuit first through one and then another of its branches, with a circuit-operating relay for and in each of said local circuits.

8. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, six three-segment senders with two segments of each of which said branches and local circuits connect, and sender-trailers connected with said contacts to complete the collector-circuit first through one and then a second and then the third branch thereof and to complete each local circuit after the completion of the collector-circuit through a corresponding branch, with a circuit-operating relay for and in each of said local circuits.

9. In wireless telegraphy and the like, the combination of a collector-circuit having discontinuous branches, discontinuous local circuits, imperfect electrical contacts equal in number to said collector-circuit branches, senders with segments of which said branches connect, trailers connected with said contacts and coacting with said senders to complete the collector-circuit first through one and then another of its branches, and then the corresponding local circuits, a relay for and in each of said local circuits, a sender having as many segments as there are relays, an electromagnetically-operated instrument, a battery, a trailer for the last-named sender, and circuit-completing connections including the said instrument, battery and trailer in series and connecting said segments of the last-named sender each with a different relay of the local circuits.

10. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, six three-segment senders with two segments of each of which said branches and local circuits connect, and sender-trailers connected with said contacts to complete said collector-circuit first through one and then a second and then the third branch thereof and then to complete said local circuits, with a relay for and in each of said local circuits, a sender having as many segments as there are relays, an electromagnetically-operated instrument, a battery, a trailer for the last-named sender, and circuit-completing connections including the said instrument, battery and trailer in series and connecting said segments of the last-named sender each with a different relay of the local circuits.

11. In wireless telegraphy and the like, the combination of a collector-circuit having a number of discontinuous branches, discontinuous local circuits equal in number to the branches of the collector-circuit, imperfect electrical contacts equal in number to the said collector-circuit branches, means for periodically including each contact first in a collector-circuit branch; then in a local circuit to complete said circuit, and then disconnecting it, and said contacts being included in rotation in the collector and the local circuits and each in different collector-circuit branches and in different local circuits, a circuit-operating relay for and in each local circuit, means for restoring each contact to normal condition while or disconnected, a relay for and in each local circuit, a sender having as many segments as there are relays, an electromagnetically-operated instrument, a battery, a trailer for the last-named sender, and circuit-

completing connections including the said instrument battery and trailer in series and connecting said segments of the last-named sender each with a different relay of the local circuits.

12. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, means for periodically including each contact first in a collector-circuit branch, then in a local circuit, and then disconnecting it altogether, whereby said circuits are completed, and said contacts being included each in different local circuits and in different branches of and in rotation in said circuit, a circuit-operating relay for and in each local circuit, means for restoring each contact to normal condition while or disconnected, a relay for and in each of said local circuits, a sender having as many segments as there are relays, an electromagnetically-operated instrument, a battery, a trailer for the last-named sender, and circuit-completing connections including the said instrument, battery and trailer in series and connecting said segments of the last-named sender each with a different relay of the local circuits.

13. In wireless telegraphy and the like, the combination of a collector-circuit having a number of discontinuous branches, discontinuous local circuits equal in number to the branches of the collector-circuit, imperfect electrical contacts equal in number to the said collector-circuit branches, and means for periodically including each contact first in a collector-circuit branch and then in a local circuit to complete said circuit, and said contacts being included in rotation in the collector branches and the local circuits and each in different branches and local circuits, with a circuit-operating relay for and in each of said local circuits, a line having a battery and a relay or sender therein, and means for connecting said line with said local-circuit relays one at a time in succession.

14. In wireless telegraphy and the like, the combination of a collector-circuit having three discontinuous branches, three discontinuous local circuits, three imperfect electrical contacts, and means for periodically including each contact first in a collector-circuit branch, then in a local circuit, and then disconnecting it altogether, whereby said circuits are completed, and said contacts being included each in different branches of the collector-circuit and in rotation in said circuits, with a circuit-operating relay for and in each of said local circuits, a line having a battery and a relay or sender therein, and means for connecting said line with said local-circuit relays one at a time in succession.

696,716. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. & H. Nett Company, Minneapolis, Minn., a Corporation. Filed Mar. 26, 1902. Serial No. 10,135. (No model.)



Claim.—1. A leather-holder for a stretching-machine, consisting of a body provided with means for engaging the leather to hold it, in combination with a device for pivotally connecting the holder to a part of the stretching mechanism, said holder being provided with means for varying the point of its pivotal connection to the connecting device conformably to the direction of tension of the leather, substantially as set forth.

2. A leather-holder for a stretching-machine, consisting of a body provided with means for engaging the leather to hold it and having in rear thereof a slot removed in the direction of the leather-engaging means, and a device adapted to engage in said slot and thereby pivotally connect the body to the stretching mechanism, substantially as set forth.

3. A leather-holder for a stretching-machine, comprising a body provided on its front portion with means for engaging the leather and in its rear portion with a slot removed toward the leather-engaging means, and a coupling device loosely pivoted thereto in each slot and permitting said body to turn freely in lateral direction with respect to the coupling device under tension, the coupling device having means for making adjustable connection with a stretching-machine, substantially as set forth.

4. A leather-holder for a stretching-machine, comprising a body provided with means for engaging the leather, and a coupling device loosely connected thereto and permitting free swiveling movement and lateral self-adjustment of said body with respect to the coupling device under tension, and means for adjustably connecting the coupling device to a part of the stretching mechanism, substantially as set forth.

5. A leather-holder for a stretching-machine, consisting of a body provided with means for pivoting the leather to hold it, in combination with a device for pivotally connecting the holder to a part of the stretching mechanism, said holder being provided with means for varying the point of its pivotal connection to the connecting device conformably to the direction of tension exerted upon the portion of leather engaged, substantially as set forth.

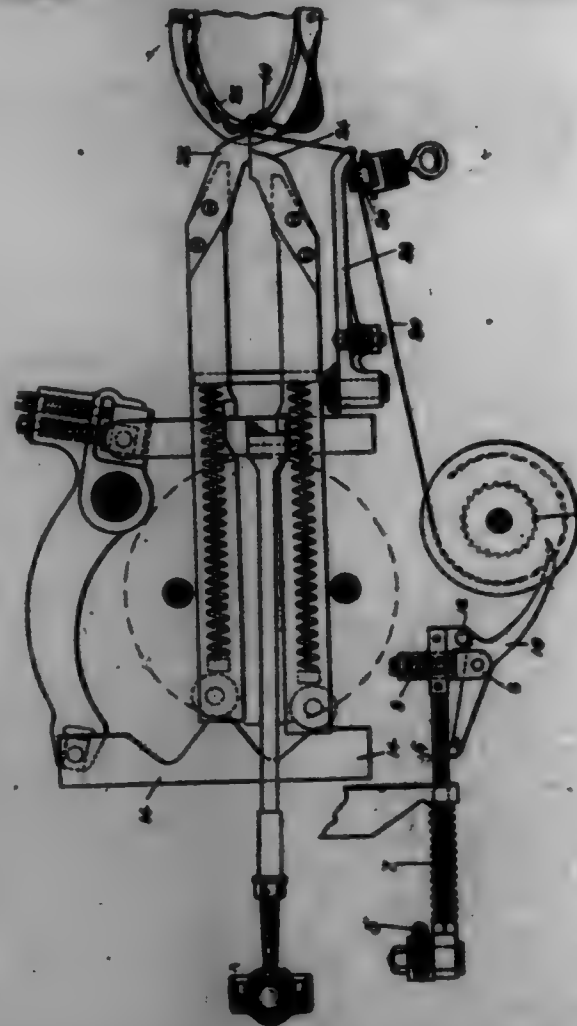
6. In a leather-stretching machine, the combination with a stretcher-head, of an independent leather-holder comprising a body provided with means for engaging the leather and having a slot concealed toward the leather-engaging means, and an inflexible coupling device loosely pivoted to each body in such slot and permitting it to turn freely thereon and adjust itself laterally with respect thereto under tension, and means whereby the coupling device may be adjusted laterally and longitudinally upon and connected to the stretcher-head, substantially as set forth.

7. In a leather-stretching machine, the combination with a stretcher-frame, stretcher-heads, and means for operating one of the heads, of a series of independent leather-holders adapted to engage marginal portions of the end of a body of leather at different angles thereto and having slots concealed toward their leather-engaging means, a corresponding series of inflexible coupling devices to which the holders are loosely pivoted by means of each slot to adapt them to crumple freely and adjust themselves in lateral direction under tension, and means provided on the stretcher-head and coupling devices permitting the latter to be adjusted to positions parallel with one another and for connecting them to the head, substantially as set forth.

8. In a leather-stretching machine, the combination with a stretcher-head, of a series of leather-holders having leather-engaging means on their front portions and in rear thereof slots curved in the direction of the leather-engaging means, a corresponding series of coupling devices adapted to engage in such slots and thereby pivotally connect the holders, and means for adjustably connecting the coupling-bars to the stretcher-head, substantially as set forth.

9. A leather-holder for a stretching mechanism, consisting of a body provided on its front portion with means for engaging the leather and having in rear thereof a slot concave in the direction of the leather-engaging means, a coupling-bar adapted to engage in such slot and thereby pivotally connect said body to said bar, and means for adjustably connecting the coupling-bars to the stretching mechanism, substantially as set forth.

696,717. LASTING-MACHINE. JAMES CAVARANE, Jr., Brooklyn, Mass., assignor to the United Shoe Machinery Company of the State of New Jersey, Boston, Mass. Filed Apr. 21, 1902. Serial No. 12,754. (No model.)



Claim.—1. A machine comprising grippers and means for actuating them to work on upper over a last, combined with means for superimposing wire or a similarly continuous material on said upper over-worked by said grippers to secure the upper on the last.

2. A machine comprising means for working on upper over a last, combined with means for placing wire or a similarly continuous material

in binding relation with said over-worked upper, said wire-placing means being inoperative during a portion of the operation of the machine.

3. A machine for working on upper over a last including separate means for over-working the toe portion of said upper, said means being arranged to operate upon different parts of the upper successively in repeated operations of the machine, combined with means for placing wire or a similarly continuous material in binding relation with said toe portion.

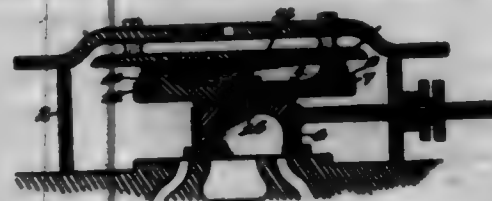
4. A lasting-machine adapted to manipulate different parts of the upper successively in repeated operations of the machine, comprising means for superimposing wire or a similarly continuous material in binding relation with said successively-manipulated parts of said upper.

5. A lasting-machine adapted for manipulating different parts of an upper successively in repeated operations of the machine, comprising means for holding wire or a similarly continuous material in left, take-up and tension device therefor, and means for superimposing said wire progressively in binding relation with said successively-manipulated parts of said upper.

6. A lasting-machine adapted to manipulate different parts of an upper successively in repeated operations of the machine, comprising means for placing wire or a similarly continuous material in position for holding said successively-manipulated parts of said upper, and means for superimposing said wire-placing operations during a number of repeated operations of said machine.

7. A lasting-machine adapted for manipulating different parts of an upper successively in repeated operations of the machine, comprising means for superimposing wire or a similarly continuous material in position for holding said successively-manipulated parts of said upper, said means being normally inoperative and put into operation as desired during the lasting process.

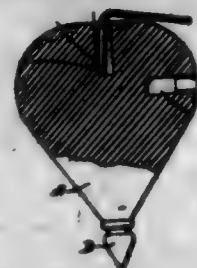
696,718. BALANCED SLIDE-VALVE. FRANK C. CHARLES, Cedar Rapids, Iowa. Filed Mar. 12, 1901. Serial No. 60,261. (No model.)



Claim.—1. In a balanced slide-valve, the combination of a valve having a disk attached thereto provided with two surfaces located at right angles to each other, a packing-ring fitting upon one of said surfaces and a spring-ring located upon the other of said surfaces and controlling the packing-ring to uphold the latter, and a balance-plate above the said packing-ring.

2. The improved balanced slide-valve, comprising a valve, a disk secured thereto and having a vertical face 7 and a horizontal surface 17, a packing-ring engaging the said face 7, a spring-ring carried upon the horizontal surface 17 and controlling the said packing-ring, the contacting surfaces of said two rings being relatively beveled or inclined so that the elasticity of the said spring-ring will cut through its beveled or inclined surface to hold the packing-ring firmly against the balance-plate.

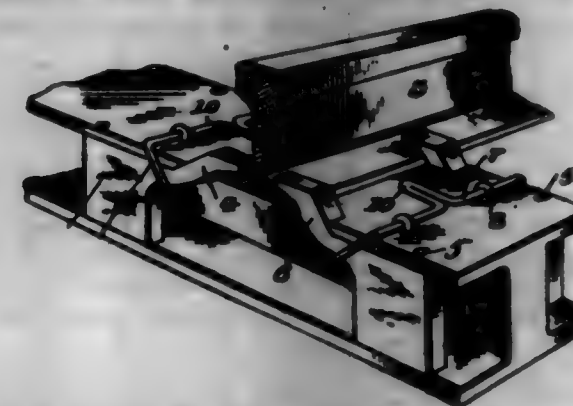
696,719. SPINNING-TOY. HENRY C. COVINE, New Haven, Conn. Filed June 17, 1901. Serial No. 64,772. (No model.)



Claim.—A toy having a rounded upper end, and sides gradually tapered to a peg, a small room in the upper or rounded part of the top into which the string may be drawn as it is passed downward over the edge of which the string may be drawn as it is passed downward over the sides to the peg immediately above which the string is wound whereby the end of the string is held in engagement with the top during the winding thereof, and from which it is readily disengaged when the top is thrown, substantially as described.

696,720. METALLIC TIE AND RAIL-FITTER. BENJAMIN E. CHASE and HENRY F. CHASE, Haverford, Pa. Filed Dec. 26, 1901. Serial No. 67,126. (No model.)

Claim.—1. In a metallic tie and rail-fitter combined, the combination of an I-beam having openings formed in the upper flange thereof, pivoted clamping members secured to said tie extending through said openings when in a closed position, and means whereby the clamping members are retained in a locked position, substantially as described.



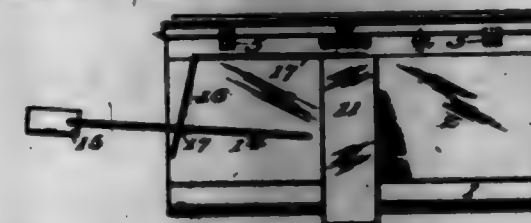
2. In a metallic tie and rail-fitter, the combination of a metallic tie formed of an I-beam, pivoted clamping members secured between the upper and lower flanges of the I-beam, said pivoted clamping members adapted to be swung outwardly, and means carried by the upper flange of the I-beam for securing the said clamping members, substantially as described.

3. In a metallic tie and rail-fitter combined, the combination of a metallic tie formed of an I-beam having openings formed therein, clamping members pivotally secured to said tie extending through said openings when in a closed position, and a yoke extending over the flange of said tie and engaging said clamping members, substantially as described and for the purpose specified.

4. In a metallic tie and rail-fitter, the combination of a metallic tie formed of an I-beam, of a pair of pivoted clamping members secured between the flanges of the I-beam on each side thereof with means carried by the upper flange of the tie for engagement with the said clamping members, whereby the latter are retained in the locked position, substantially as described.

5. In a metallic tie and rail-fitter combined, the combination of a metallic tie formed of an I-beam, of pivoted clamping members having an outward movement toward the flanges of said I-beam and adapted to engage the sides of the rail-beam, and a yoke mounted on the upper flange of the I-beam for engagement with the said clamping members whereby the latter are retained in a locked position, substantially as described.

696,721. MAIL-BOX. JOHN W. CURRIER, Boston, Mass. Filed Jan. 26, 1902. Serial No. 91,700. (No model.)



Claim.—1. A mail-box having a flat back wall and a rounded bottom, and a box-support secured to the back wall, said support being designed to receive a post or the like and being closed at top.

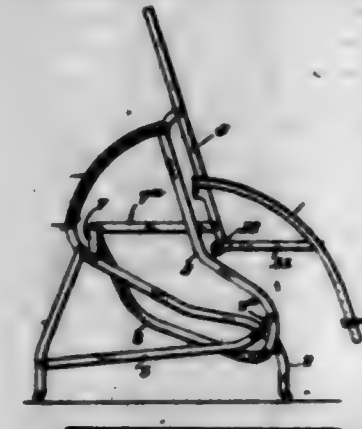
2. A mail-box having a flat back wall and a rounded bottom, a signal-red pivoted to the back wall, and a spring member to hold said red in set and erect position, said spring member being formed with recesses to receive and hold the red and adapted to exert a tension on the red when moving from one recess to the other.

696,722. PHYSICIAN'S EXAMINING CHAIR AND TABLE. ROBERT F. CHASE, Columbus, Ohio. Filed July 20, 1901. Serial No. 60,006. (No model.)

Claim.—1. In a physician's or surgeon's examining chair and table a base portion, levers pivoted in the forward part of the base portion, a chair back or table hinged near its middle to the upper ends of said levers, toggle-arms hinged to the lower portions of said chair back or table, and to the base portion, and a link connecting the toggle-arms and the lower ends of the said levers, substantially as described.

2. In a physician's or surgeon's examining chair and table, a base portion, a lever hinged in the base portion, a chair back or table hinged near its middle to the upper end of said lever, and means substantially as described connected with the lower end of said lever and with the lower portion of the chair-back to assist, when the upper end of the lever is

pushed downward, in elevating the lower end of the chair-back to table position.



696,723. MARINE RAILWAY. CHARLES M. DAVIS, Cambridgeport, Mass., assignor of one-half to Jonathan S. Goodrich, East Cambridge, Mass. Filed May 1, 1901. Serial No. 62,202. (No model.)

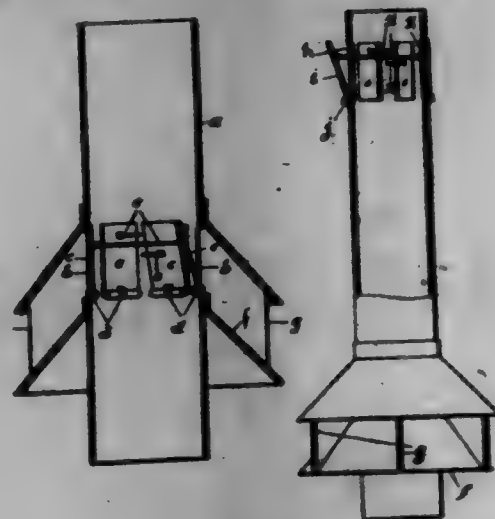


Claim.—In a marine railway, the combination with an inclined deck provided with suitable rails, of a ship-carriage arranged to travel along said rails, a plurality of gravity-pawls arranged to engage and drag along a rack during the upward travel of said carriage along said deck, connected means for simultaneously raising said gravity-pawls and maintaining them raised during the downward travel of said carriage, means for raising and lowering said carriage along said deck, a set of auxiliary spring-actuated pawls, and connections between the spring-actuated pawls and the means for actuating the carriage, arranged to permit said pawls to be thrown into engagement with the rack upon the breaking or disarrangement of the carriage-actuating means, substantially as described.

696,724. CHIMNEY AND VENTILATOR. WILLIAM DAVIS, County of Middlesex, England. Filed Sept. 22, 1901. Serial No. 70,102. (No model.)

Claim.—1. A chimney, updraft, or ventilator shaft provided in the opposite sides thereof with holes or openings, central chokes or rims secured thereto above and below said holes or openings, radial partitions between said chokes or rims and forming passages leading to said holes or openings and pivoted valves for closing said holes or openings, the diametrically opposite valves being connected, substantially as shown and described.

2. An updraft, chimney, or ventilator shaft provided with oppositely-arranged holes or openings, annular shields secured thereto above and below said holes or openings, radial partitions placed between said annular shields and forming passages leading to said holes or openings, internal pivoted valves operating to close and open said holes or openings, the oppositely-arranged valves being connected, a second series of holes or openings above the first-named holes or openings and oppositely arranged, and pivoted valves adapted to close said last-named holes or openings, the oppositely-arranged valves being connected, substantially as shown and described.



696,735. POLISHING-BRUSH. WILLIAM DEERE, New York, N. Y.
Filed July 11, 1900. Serial No. 28,178. (No model.)



Claim.—1. A polishing-brush, consisting of a block, a central bushing therein, a cylindrical middle portion of said bushing, and outwardly-flaring end portions for securing said bushing in said block, substantially as set forth.

2. The combination, with a brush-block having an opening, of a soft-metal bushing in the same and composed of a cylindrical middle portion, and portions tapering outwardly from said middle portion at each side of the same, and provided each with an outwardly-tapering opening, and end-caps projecting from said outwardly-tapering end portions into the brush-block, substantially as set forth.

3. The combination, with a brush-block having an opening, of a soft-metal bushing in the same and composed of a cylindrical middle portion, and portions tapering outwardly from said middle portion at each side of the same, and provided each with an opening tapering outwardly at a less angle than the same, and end-caps projecting from said outwardly-tapering end portions into the brush-block, substantially as set forth.

696,736. SAFETY ATTACHMENT FOR ELEVATORS. GEORGE DONNELLY, Newark, Ind.
Filed Dec. 23, 1901. Serial No. 27,282. (No model.)



Claim.—1. The combination with a reversible jaw; of a weight connected thereto and adapted to revolve said jaw and clamp or bind it upon the guide of an elevator-car, a normally tensioned spring adapted, when released, to start the weight in its rotary movement, and a lock for the weight.

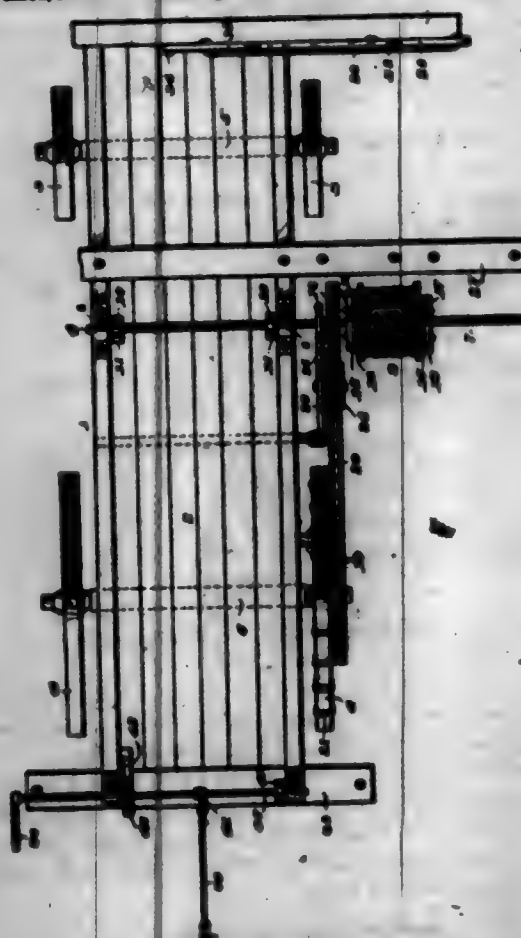
2. The combination with a reversible jaw; of a weight connected thereto and adapted to revolve said jaw and clamp or bind it upon the guide of an elevator-car, means for automatically imparting rotary movement to the jaw and its weight in one direction, and means for preventing movement of said jaw in the opposite direction.

3. The combination with a reversible jaw; of a weight connected thereto and adapted to revolve said jaw and clamp or bind it upon the guide of an elevator-car, means for automatically imparting rotary movement to the jaw and its weight in one direction, a toothed disk revoluble with the jaw, and a step normally engaging the disk and adapted to prevent movement of the jaw in the opposite direction.

4. The combination with a reversible shaft; of a jaw at each end thereof, normally vertical weighted arms extending from the shaft, toothed disks upon the shaft, steps engaging the same and adapted to prevent movement in one direction, a flexible connection between said arms and a hoisting-cable, whereby the arms are retained normally vertical, and normally tensioned springs adapted, when said connections are slackened, to automatically impart a rotary motion to the arms and jaws.

5. The combination with an elevator-car and guide therefor, of standards upon said car, a revoluble shaft journaled in said standards, a jaw at each end of the shaft adapted to travel upon the guides, normally vertical weighted arms extending from the shaft, toothed disks upon the shaft, steps engaging the same and adapted to prevent movement in one direction, a flexible connection between said arms and a hoisting-cable whereby said arms are retained normally vertical, flexible connections between the car and said hoisting-cable, normally tensioned springs adapted, when said connections are slackened, to automatically impart a rotary motion to the arms and jaws, and a strip upon the arms adapted, during the rotary movement of said arms, to contact with the connections and carry them in the direction of movement of the arms.

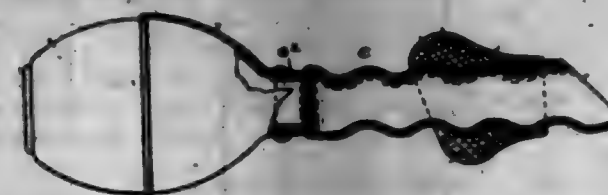
696,737. WIRE-REELING MACHINE. WILLIAM G. DUNLAP, Portland, Me. Me.
Filed Apr. 30, 1901. Serial No. 24,167. (No model.)



Claim.—1. A machine of the class described comprising a running-gear having a frame, a shaft extending laterally from the frame and located in advance of the rear wheels and adapted to receive spools, gearing for connecting the shaft with one of the rear wheels, the bar 27 located in advance of the shaft and provided with depending approximately U-shaped guides, the bar 30 arranged at the front of the frame and extending laterally therefrom in advance of the said bar 27, the levers 28 pivoted between their ends in the bar 30 and extending above and below the same and provided at their lower ends with wire-receiving openings, the operating-lever 29 fulcrumed at its lower end and arranged between the sides of the frame, and the connecting-rod 23 connected with the operating-lever and with the upper ends of the other levers, substantially as described.

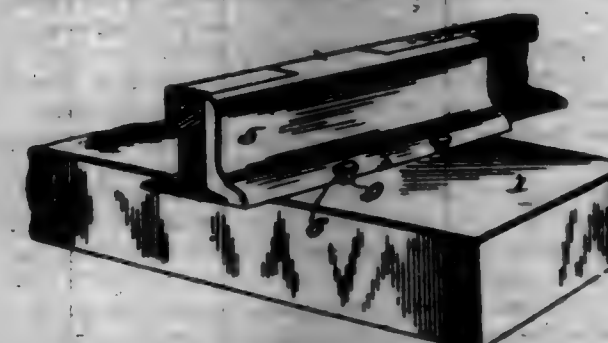
2. A machine of the class described comprising a frame, a laterally-extending shaft, a bar extending laterally from the frame, the levers 28 fulcrumed on the bar and extending above and below the same and provided at their lower ends with wire-receiving openings, the operating-lever arranged between the sides of the frame and fulcrumed at its lower end, and the rod 23 connected with the upper ends of the levers 28 and with the operating-lever, substantially as described.

696,738. STRINGER. EDWARD E. BROT, Providence, R. I.
Filed Oct. 2, 1901. Serial No. 77,493. (No model.)



Claim.—In a stringer of the class described, the combination of a tube having a helical groove; and a guard of resilient material having a bore arranged to engage the helical tube and be moved axially thereon when rotated.

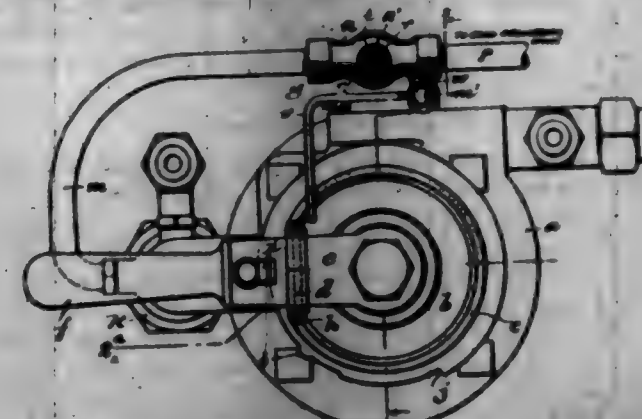
696,739. RAIL-JOINT. ANDREW RUMRATH, Allegheny, Pa.
Filed Jan. 21, 1902. Serial No. 26,575. (No model.)



Claim.—1. In a rail-joint, the combination with the rails, having their ends cut away near their meeting ends, a middle straddling said rails, an integral fish-plate extending upwardly flush with the upper face of the tread of said rails, and even-ties, and means to fasten said integral fish-plate to said even-ties and rails, substantially as described.

2. In a rail-joint, the combination of the rails, having a portion of their tread cut away, a fish-plate extending to the upper face of said rails, a middle formed integral therewith forming the chair in said cut-away portions, and a downwardly-extending base formed integral with said middle, substantially as described.

696,740. COMPRESSED-AIR CONTROLLING DEVICE FOR SAND-DISCHARGER. JAMES FARLEY, Waukegan, Wis.
Filed Sept. 14, 1901. Serial No. 75,264. (No model.)



Claim.—1. The combination with an engineer's brake-valve, and its handle, of a ring clamped to said handle to move therewith, and having an inclined upper surface; an independent valve-actuating having a channel therethrough; a reciprocating spring-controlled valve intercepting said channel and having a stem projecting beyond said casing; a pipe connecting one end of said channel with the main reservoir-pipe of the brake-valve; another pipe leading from the other end of said channel; a stud projecting from said independent valve-actuating; a lever pivoted on said stud and having a bent free end resting on the inclined top surface of said ring; a disk secured to the projecting end of the reciprocating valve; an upright lever pivoted on the said stud, and having a laterally-extended curved arm for engagement with said disk; and another lever, pivoted

to the first-named lever and having a leg for engagement with the upright lever.

2. The combination with a valve-casing having a channel therethrough; of a pipe connecting one end of said channel with a compressed-air reservoir, and another pipe leading from the other end of said channel; a reciprocating spring-controlled valve in said casing, intercepting said channel and having a stem projecting beyond said casing; a disk adjustably secured to the projecting end of said valve-stem; a stud projecting from said valve-casing; a pair of levers pivoted on said stud, one extending laterally in line with said valve-casing, and the other extending upwardly and having a bent curved arm projecting beneath said valve-disk for engagement therewith, said curved arm having a step at its free end, and a series of notches in its under side, adjacent thereto; and another lever, pivoted to the first-named laterally-extending lever, and having an upwardly-projecting leg for engagement with the notches and end step of the arm of the said upright lever.

3. The combination with an engineer's brake-valve, and its handle, of a device secured to said handle to move therewith, and provided with an inclined surface; an independent valve-actuating having a channel therethrough; a valve intercepting said channel and having a stem projecting beyond said casing; pipe connections between one end of said channel and the main reservoir of the brake-valve; another pipe leading from the other end of said channel; and means connected to the said projecting valve-stem for engagement with the inclined surface of the device secured to the brake-valve handle, and whereby controlling the admission of air to and regulating its passage through said channel.

696,741. SAFETY-FAUCET AND WATER-CONTROLLING CONNECTION. RUEL G. GAMER, New York City, N. Y.
Filed Dec. 2, 1901. Serial No. 25,324. (No model.)



Claim.—1. In a safety-faucet and water-controlling connection, a faucet, connected to the water-supply house-pipe, a rod provided with a handle by means of which water can be turned into and shut off from the house-pipe, and a connection between the faucet and the rod, such connection arranged to hold the valve-plug of the faucet off from its seat; substantially as described.

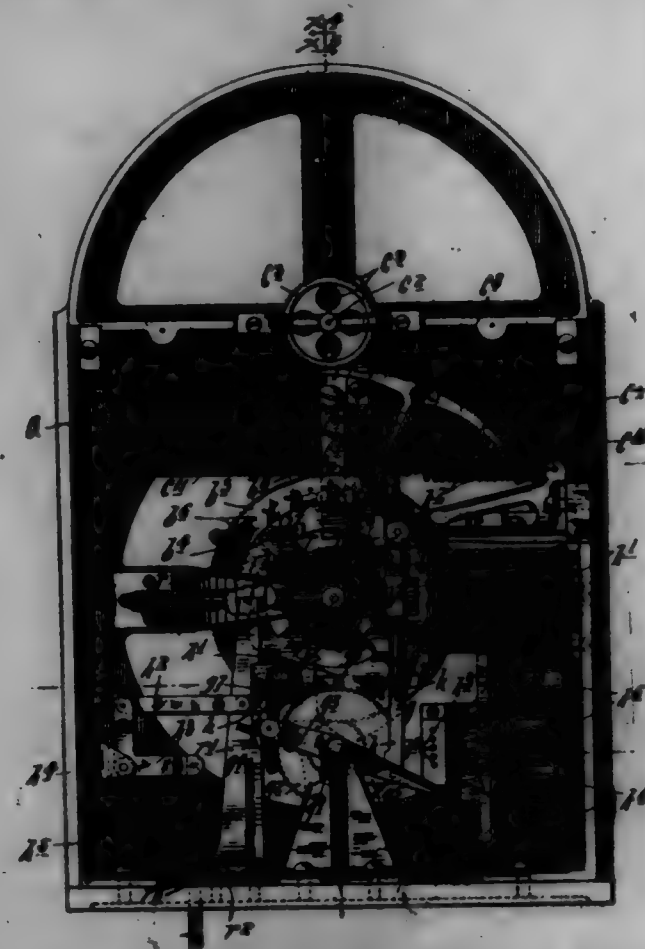
2. In a safety-faucet and water-controlling connection, the combination of a faucet connected to the water-supply house-pipe, a rod whereby water may be turned into and shut off from the house-pipe, a connection between the rod and the faucet, mechanism in such connection to maintain the valve-plug of the faucet off from its seat when the rod is turned to admit water to the house-pipe and means to release such mechanism when the rod is turned to shut water off from the house-pipe; substantially as described.

3. In a safety-faucet and water-controlling apparatus a house-pipe and a faucet consisting of a casing provided with a valve-seat and a discharge-outlet, a longitudinally-movable rod in the casing, a valve-plug on the rod and a spring yieldingly holding the valve-plug on its seat, in combination with a rod movable to turn water off from and to admit water to the house-pipe and a connection between the rod and the faucet, such connection attached to the faucet to depress the longitudinally-movable rod and maintain the valve-plug off its seat; substantially as described.

4. In a safety-faucet and water-controlling connection, the combination of a faucet to the water-supply house-pipe, a rod whereby water may be turned into and shut off from the house-pipe, and a connection between such rod and the faucet such connection consisting of a pipe or tube, a cam in each pipe or tube, each cam provided with a recess and means to turn the cam, a longitudinally-movable rod in the pipe or tube and a cam on the rod controlling the admission of water to the house-pipe, the cam, longitudinally-movable rod in the pipe or tube and the plunger-rod of the faucet, so related that when the longitudinally-movable rod is in the recess of the cam in the tube or pipe the faucet is open and the rod controlling the admission of water to the house-pipe may be turned to admit water into the house-pipe or to shut water off from the house-pipe, as desired, and when such longitudinally-movable rod is in front of

the cam on the rod controlling the admission of water to the house-pipe it is out of the room in the cam and such rod controlling the admission of water to the house-pipe is in position to permit the water in the house-pipe to run to waste and such rod cannot be turned to admit water in the house-pipe, and at such time the cam in the pipe or tube can be turned in open or close the valve of the faucet, as desired; substantially as described.

696,782. DIFFERENTIAL LETTER-SPACE REGISTER FOR COMPOSING-MACHINES. GEORGE A. GOSMAN, Minneapolis, Minn., assignor to the Goodson Graphotype Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 3, 1901. Serial No. 74,062. (No model.)



Claim.—1. A register for composing-machines, which register has, in combination, a primary unit-counter, a secondary unit-counter, or justification-indicator, and an adjustable driving device, for operating the secondary counter from the primary counter, whereby the primary counter may be made to begin to move the secondary counter at any desired step of the primary counter's movement, thus adapting the register for lines of different length, substantially as described.

2. A register for composing-machines, which register has, in combination, a primary unit-counter, a secondary unit-counter or a justification-indicator, and a driving device for operating the secondary counter from the primary counter, which driving device has a twofold or double adjustment, to wit, one adjustment in units, within a limited range, and another adjustment in multiples of the range limit of said unit adjustment, substantially as and for the purposes set forth.

3. In a composing-machine, having a traveling element under the control of the operator at the keyboard, of a differential letter-space register, and releasing connections for permitting the counting devices of said register to return to their normal or initial starting positions, which releasing connections are operated automatically from said traveling element of the composing-machine, substantially as and for the purposes set forth.

4. In a letter-space register, the combination with the counting devices, of a friction-brake operative on some movable element of the counting device, to check the return motion and prevent any backlash of said counting device, substantially as described.

5. In a letter-space register, the combination with counting devices subject to springs for returning the same to their normal or initial starting positions, of ratchet and pawl devices for moving said counting devices against the tension of said springs, in the counting action, and an automatic friction-brake operative on some movable member of said counting devices for checking the return motion and preventing backlash of said counting devices, substantially as described.

6. In a letter-space register, the combination with counting devices

subject to springs for returning the same to their normal or initial starting positions, of ratchet and pawl devices for moving the counting devices against the tension of said springs, in the counting action, a friction-brake for action on said counting device during the return motion thereof only, and a releasing device operative to release the pawls from the ratchet and to set the brake, substantially as described.

7. In a letter-space register, the combination with the primary counter having the main gear-wheel *B*, of the secondary counter having the gear-wheel *C* and the intermediate driving device, for operating the secondary from the primary counter, comprising a driving-arm pivoted to the arbor of the primary counter and adapted to be locked in different adjustments to said gear-wheel *B*, the radius-bar *D* pivoted to the arbor of the primary counter and having the secondary gear *E* in mesh with the gear-wheel *C* of the secondary counter and the spring-arm *F* also pivoted to the arbor of the primary counter and adapted to be locked to said segment *C*, in different adjustments, all for co-operation, substantially as described.

696,783. MATRIX FOR TYPE-FOUNDING. GEORGE A. GOSMAN, Minneapolis, Minn., assignor to the Goodson Graphotype Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 3, 1901. Serial No. 74,062. (No model.)

Claim.—1. An integral-plate matrix-block having the entire casting-surfaces of all of its matrices composed of comparatively soft metal, such as copper, and surrounded by a body of comparatively hard metal, such as nickel, exposed on the face of the matrix-block, so as to afford the bearing-surfaces on the face of the block, substantially as described.

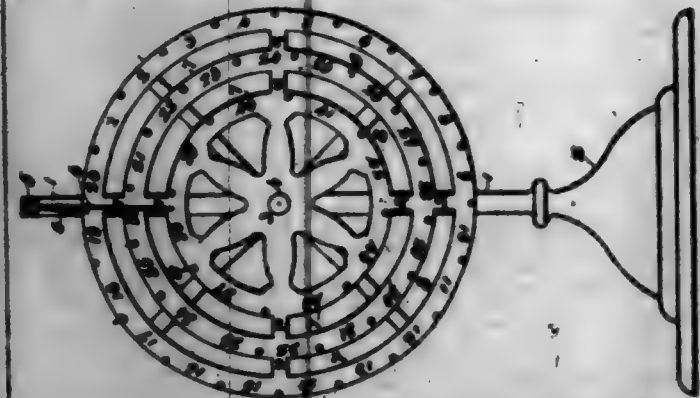
2. An integral-plate matrix-block composed of an integral-plate matrix-shell of copper, electroplated from a form of type, and a body of nickel, electroplated, on the back of said shell of copper, which block, so formed, has the copper plated off from the high surfaces of its face to expose the nickel as the bearing-surfaces on the face of the block, substantially as described.

3. The process of forming a matrix having its casting surface of copper and its bearing-surfaces of nickel, which consists in first depositing a shell of copper, under the electroplating process, on a form of type, then depositing a body of nickel, under the electroplating process, on the shell of copper, and finally, plating off the copper from the face of the matrix-block so as to expose the nickel as the high or bearing surfaces of the matrix-block, substantially as described.

696,784. FONT OF TYPE. GEORGE A. GOSMAN, Minneapolis, Minn., assignor to the Goodson Graphotype Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 3, 1901. Serial No. 74,064. (No model.)

Claim.—A font of type containing kernal type with untrimmed kerns and other co-operating type with casting-surfaces for receiving or seating the kerns of said kernal type when the type are set, which casting-surfaces are formed partly on the type proper and partly on the type-body, substantially as and for the purposes set forth.

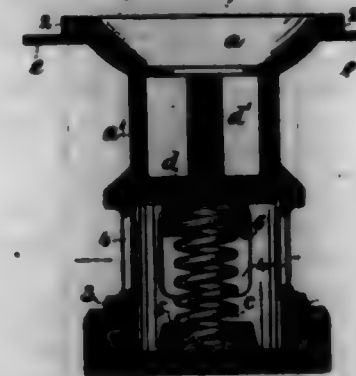
696,785. GAME APPARATUS. LOUIS C. HENNINGER, Belleville, Ill. Filed Mar. 16, 1900. Serial No. 8,616. (No model.)



Claim.—A game apparatus comprising a rotatable standard, a wheel rotatably mounted in front of the same, a series of rigid concentric circular dial-plates forming said wheel and revolving together as a unit, said plates being separated a suitable distance apart and in a step-like form, a spindle passing through the series of dial-plates, numbers arranged upon

the outer surfaces of said concentric plates and running in consecutive order from the outer to the inner plate, a closed horizontal extension forming a part of said standard and projecting therefrom over the edges of the dial-plates, spring-plates of variable lengths disposed in the same plane and having their upper or fixed ends secured to said forked extension, and pins projecting from said dial-plates at right angles to the spring-plates and located between the numbers, and co-operating with the free ends of the spring-plates, substantially as set forth.

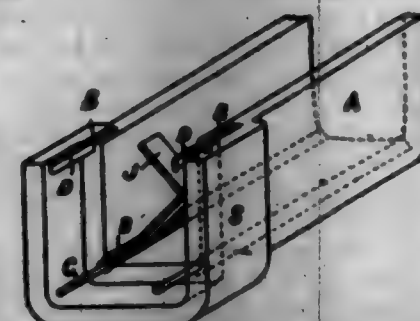
696,786. FILLING-NOZZLE FOR FLUID-HOLDING TANKS. FRANK W. HOWARD, Brooklyn, N. Y., assignor to Knapton Steamboat-borough, Brooklyn, N. Y. Filed May 31, 1901. Serial No. 62,546. (No model.)



Claim.—1. A filling-nozzle for fluid-holding tanks, comprising an open-ended valve-case having a flaring mouth, a reduced cylindrical neck with a valve-seat at the end thereof and an enlarged threaded end portion with openings therein, a valve having an integral X-stem which fits the said reduced neck, a cap fitting upon and covering the enlarged portion of the valve-case, and a spring between the said valve and cap, substantially as specified.

2. A filling-nozzle for fluid-holding tanks, comprising an open-ended valve-case having a flaring mouth, a reduced cylindrical neck with a valve-seat at the end thereof and an enlarged threaded end portion with openings therein, a valve fitting said neck and having upon one side an integral X-stem movable longitudinally in said reduced neck and an integral cap-seat on the other side, a cap fitting upon and covering the enlarged threaded end of the valve-case and having a central integral cap-seat oppositely placed to the cap-seat of the valve, and a spring having its respective ends in the said cap-seat, substantially as specified.

696,787. CONDUIT FOR UNDERGROUND CONDUCTORS. FRANK JAMES, Liverpool, England. Filed Sept. 4, 1901. Serial No. 74,066. (No model.)



Claim.—1. A system of underground conductors for the distribution of electrical energy for lighting or power, comprising a strong construction of conductors, conductors consisting of naked wires or rods within said conductors, and a filling of insulation within the conductors and about the conductors, said filling being of material having highly-insulating properties suited to currents of this nature and adapted to set more or less hard without becoming brittle, substantially as hereinafter set forth.

2. A system of underground conductors for the distribution of electrical energy for lighting or power, comprising a strong construction of conductors, conductors consisting of naked wires or rods within said conductors, supports of highly-insulating material adapted to retain the conductors in position, and a filling of insulation within the conductors and about the conductors, said filling being of material having highly-insulating properties suited to currents of this nature and adapted to set more or less hard without becoming brittle, substantially as hereinafter set forth.

3. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors therein, of a conduit-filling of highly-insulating material adapted to set more or less hard without becoming brittle and which is thoroughly neutral or free from all mineral acids and alkaline and aqueous matters substantially as described.

4. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors therein, of a conduit-filling of coal-tar pitch and refining materials, said filling being thoroughly neutral or free from all mineral acids and alkaline and aqueous matters, substantially as described.

5. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors, of a non-brittle filling of coal-tar pitch and creosote-oil therein, said filling being thoroughly neutral or free from all mineral acids and alkaline and aqueous matters, and conductors within said conductors consisting of naked wires or rods bedded in the filling, substantially as described.

6. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors, of conductor-supports consisting of loose strips of insulating material inclined and arranged crosswise in the conductors, substantially as described.

7. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors, of loose strips of insulating material arranged crosswise in the conductors to form conductor-supports and means for supporting said strips in that position, substantially as described.

8. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors, of loose strips of insulating material inclined and arranged crosswise in the conductors to form supporting-cliffs for a plurality of conductors and adapted to prevent said conductors from coming in contact with the conductors and with each other, and means for supporting said strips in that position, substantially as described.

9. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination with the conductors and the conductors, of strips of insulating material inclined and arranged crosswise in the conductors to form independent supporting-cliffs for a plurality of conductors, the inner lower face of the conductors having a central groove and supports in said groove for the adjacent ends of said strips, substantially as described.

10. In a system of underground conductors for the distribution of electrical energy for lighting or power, the combination of a series of conductors having longitudinal grooves adapted to meet at the joints, of metallic dovetail or key pieces located in said grooves to lap the joints, and a filling of cement in the grooves adapted to bind the several parts, substantially as described.

11. In a system of underground conductors for the distribution of electrical energy for lighting or power the conductors having lateral grooves running longitudinally in a continuous manner, and adapted to contain dovetail or key-pieces to lap the joints with a filling to bind them therein, and insulating-supports for the conductors in the conductors, substantially as described.

12. In a system of underground conductors for the distribution of electrical energy, for lighting or power, the combination with the conductors and an insulating-filling therein about the conductors, of wood covers bedded into the filling below the top of the conductors, and a layer of cement on said covers in a space up to the top of the conductors, substantially as described.

13. In a system of underground conductors for the distribution of electrical energy, for lighting or power, the combination with the conductors and its insulating-filling therein about the conductors, of wood covers bedded into the filling below the top of the conductors, a layer of cement on said covers in a space up to the top of the conductors, and a solid cover over all, substantially as described.

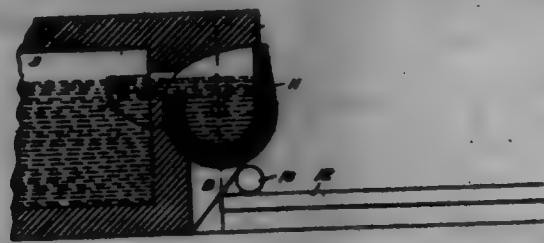
14. A system of underground conductors for the distribution of electrical energy for lighting or power, comprising conductors A having multiple ducts conductors B insulatingly supported in said ducts, and surrounded with insulation therein, longitudinal groove B, between the ducts and metallic rod M embedded in a filling in said groove adapted to lap the conductors for the purpose of imparting strength thereto and of carrying the return-current, substantially as described.

15. In a system of underground conductors for the distribution of electrical energy, for lighting or power, the combination of conductors A, groove B, support U held in said groove, and inclined strips J of highly-insulating material, coating with the support U to support three conductors B within the conductors out of direct contact with the support U and conductors, substantially as described.

696,788. APPARATUS FOR REFINING AND DELIVERING GLASS. WASHINGTON B. EYRE, Kalamazoo, Pa. Filed Aug. 27, 1900. Serial No. 28,127. (No model.)

Claim.—1. A glass-furnace having a refining-compartment the end wall of which is formed with a cast, and a superheating-compartment mounted to turn on a horizontal axis in said cast and normally in commu-

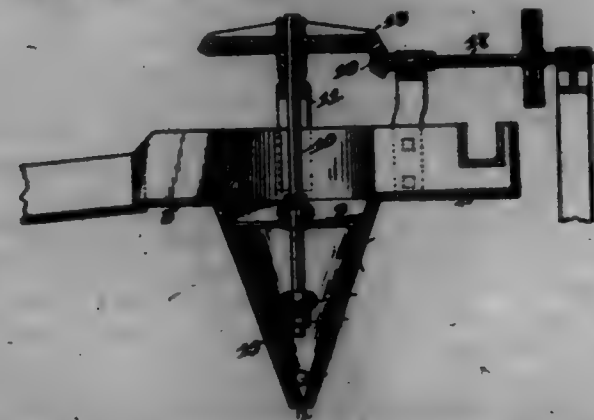
ization with the refining-compartment and forming a continuation thereof, the superrefining-compartment being adapted to be turned to break said communication and discharge its contents, substantially as shown and described.



1. A glass-furnace having a refining-compartment the end wall of which is formed with a seat, and a superrefining-compartment mounted to turn on a horizontal axis in said seat and normally in communication with the refining-compartment and forming a continuation thereof, the rear wall of the superrefining-compartment serving, when the same is oscillated, to sever the glass therein from that contained in the refining-compartment and to close the latter and to discharge its own contents directly for working substantially as shown and described.

2. A glass-furnace having a refining-compartment the end wall of which is formed with a seat, and a superrefining-compartment mounted to turn on a horizontal axis in said seat and normally in communication therewith and forming a continuation thereof, the front wall of the movable compartment being higher than the rear wall and adapted normally to close against the roof of said seat and exclude the outer air, the movable compartment when oscillated being adapted to close the refining-compartment and discharge its own contents, substantially as shown and described.

696,789. ORS-CLASSIFIER. JOHN KLEIN, Des Moines, Mo. assignor of two-thirds to Paul A. Fox and Charles D. McLaughlin, St. Louis, Mo. Filed July 12, 1901. Serial No. 64,044. (No model.)



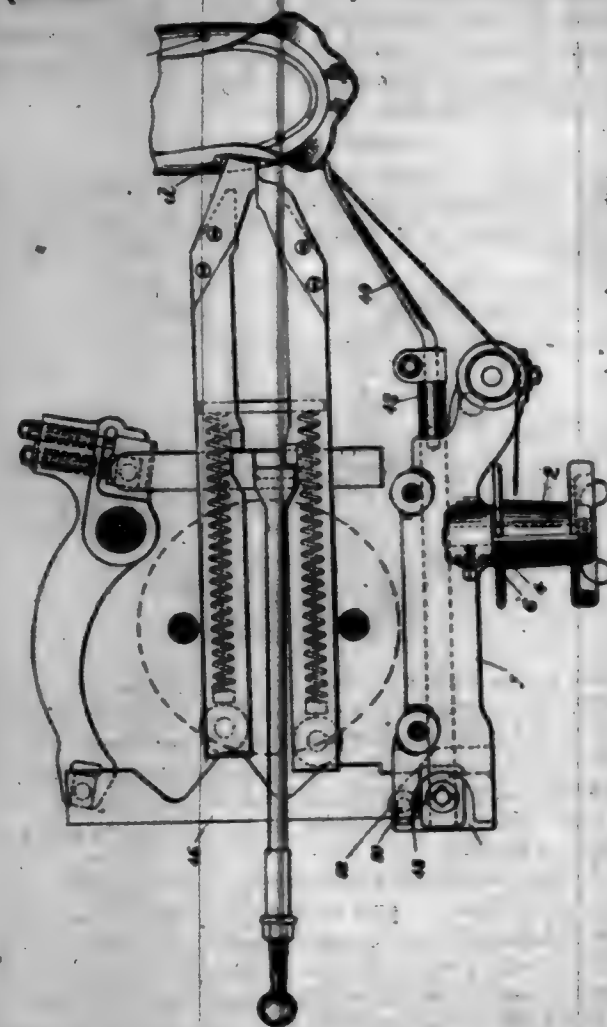
Claim.—1. An ore-classifier, consisting of a hopper adapted to receive the mixture containing the ore, an ore-outlet, a charge-outlet, an agitator within the hopper, gearing for operating the agitator, and a device for automatically stopping the agitator when the hopper contains too much ore, substantially as specified.

2. An ore-classifier, consisting of a hopper adapted to receive the mixture containing the ore and having an ore-outlet and a charge-outlet, a water-pipe leading into the hopper and directed toward the ore-outlet, an agitator within the hopper, gearing for operating the agitator, and a device for automatically stopping the agitator when the hopper is receiving more ore than can be discharged through the ore-outlet, substantially as specified.

3. An ore-classifier, consisting of a hopper having an ore-outlet near its lower end, and a charge-outlet at its upper end, a water-pipe leading into the hopper and directed toward the ore-outlet, an air-pipe leading into the hopper transversely of the water-pipe and directed toward the charge-outlet, an agitator within the hopper, means for operating the same, and means for automatically disconnecting the agitator from the operating means when too much ore is contained in the hopper, substantially as specified.

4. An ore-classifier, consisting of a hopper adapted to receive the mixture containing the ore and having an ore-outlet near its bottom and a charge-outlet at its top, a water-pipe leading into the hopper and directed toward the ore-outlet, an air-pipe leading into the hopper below the ore-outlet, transversely of the water-pipe and directed toward the charge-outlet, an adjustable agitator within the hopper, a driver for operating the agitator, and means for automatically disconnecting the agitator from the driver when more ore is contained within the hopper than can be discharged through the ore-outlet, substantially as specified.

696,740. LASTING-MACHINE. SHERMAN W. LAMB, NEWBY, Mass. assignor to the United Shoe Machinery Company of the State of New Jersey, Boston, Mass. Filed Apr. 19, 1901. Serial No. 13,462. (No model.)



Claim.—1. A machine for working an upper over a last, comprising mechanism for processing individual fastenings, mechanism for supplying continuous fastening material, and means for rendering either of said mechanisms operative or inoperative.

2. A machine for working an upper over a last, comprising a plurality of mechanisms for supplying different kinds of fastening material, and means for rendering either of said mechanisms operative during a single operation of the over-working mechanism.

3. In a machine for working an upper over a last, mechanism for securing the over-worked upper in position, means to suspend the operation of said mechanism and a second mechanism adapted to operate for supplying fastening material while said first mechanism is inoperative.

4. In a machine for working an upper over a last, means to pluck or crimp the upper, mechanism for supplying wire-fastening material, and means to render said mechanism operative when said plucking means is operative.

5. In a machine for working an upper over a last, pinners for gripping the upper, means to turn the pinners, wire-placing mechanism and means to render said mechanism operative when the pinners are turned.

6. In a machine for working an upper over a last, pinners for gripping the upper, means to turn the pinners to either side, wire-placing mechanism and means to render said mechanism operative when the pinners are turned to one side, said mechanism being inoperative when the pinners are turned to the other side.

7. In a machine for working an upper over a last, pinners for gripping the upper, means to move the pinners to either side, wire-placing mechanism and means to render said mechanism operative when the pinners are moved to one side, said mechanism being inoperative when the pinners are moved to the other side.

8. A machine for working an upper over a last comprising means for inserting fastenings, means to suspend the insertion of said fastenings during a number of repeated operations of said machine and means for placing wire or a similarly continuous material in position for holding the parts of said upper which are manipulated by operation of said machine taking place during said suspension of the insertion of said fastenings.

9. In a machine of the class described, means for working an upper over a last, auxiliary upper-manipulating mechanism normally occupying an inoperative position, means for placing wire or a similarly continuous material in position for holding said upper, said means normally occupying an inoperative position, means to advance said auxiliary mechanism

as desired for use and means to put simultaneously said wire-placing means into operative position.

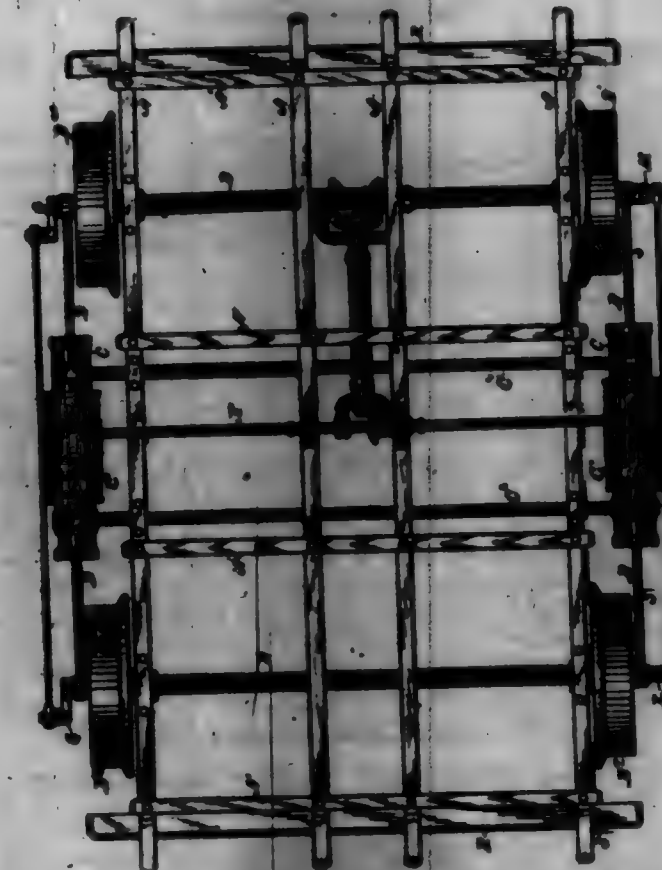
10. In a machine of the class described, means for working an upper over a last, auxiliary upper-manipulating mechanism normally occupying an inoperative position, means for placing wire or a similarly continuous material in position for holding said upper against displacement, said means normally occupying an inoperative position, mechanism for putting said auxiliary mechanism in operative position and simultaneously putting said wire-placing mechanism in operative position and means for rendering said mechanism inoperative relatively to the wire-placing mechanism at times.

11. In a machine of the class described, grippers, mechanism for actuating them to work an upper over a last, means for superimposing wire or a similarly continuous material in position for holding said over-worked upper, and means controllable by the workman for varying the tension of said wire during the operation of said machine.

12. In a machine for working an upper over a last, mechanism for delivering different-sized tasks, a device to change the size of tasks delivered by said mechanism and independent means controlling the size-changing operation of said device to prevent the delivery of any task.

13. In a machine for working an upper over a last, two task-passways for different-sized tasks, a device to receive tasks therefrom, means to change the relative positions of said passways and said device and thereby change the size of tasks delivered to said device and independent mechanism to change the relative positions of said passways and said device and thereby prevent the delivery of tasks.

696,741. MOTOR-CAR. JOHN C. HARTMAN, Three Rivers, Mich. assignor to the Sheffield Car Company, Three Rivers, Mich. Filed Sept. 7, 1900. Serial No. 39,945. (No model.)



Claim.—1. In a motor-car the combination of the framework; suitable bars or plates H under the framework and secured thereto, provided with seats for the housing of the driving-gear and with holes for the supporting-rod for the cylinder; axles B, B, with driving-wheels B', B', B'', B'', secured thereto; cranks or wrist-pins on said driving-wheels in the same relative positions at each side, but arranged at an angle to each other on opposite sides; parallel coupling-rods E, E, coupling the wheels at each side together by means of said cranks and wrist-pins; an engine-cylinder to each side of said frame supported on the rods C' extending transversely across the frame through the holes in the plate H, said cylinder being open from end to end; piston-heads D', D', in the ends of said cylinder adapted to reciprocate to and from the center thereof; pinions D extending out at opposite ends of said cylinder and connecting said pinions to oppositely-arranged wrist-pins or cranks on the driving-wheel all coacting for the purpose specified.

2. In a motor-car the combination of the framework; suitable bars or plates H under the framework and secured thereto, provided with seats for the housing of the driving-gear and with holes for the supporting-rod

for the cylinder; axles B, B, with driving-wheels B', B', B'', B'', secured thereto; cranks or wrist-pins on said driving-wheels in the same relative positions at each side, but arranged at an angle to each other on opposite sides; parallel coupling-rods E, E, coupling the wheels at each side together by means of said cranks and wrist-pins; an engine-cylinder supported on the rods C' extending transversely across the frame through the holes in the plate H, said cylinder being open from end to end; piston-heads D', D', in the ends of said cylinder adapted to reciprocate to and from the center thereof; pinions D extending out at opposite ends of said cylinder and connecting said pinions to oppositely-arranged wrist-pins or cranks on the driving-wheel all coacting for the purpose specified.

3. In a motor-car the combination of the framework; axles B, B, with driving-wheels B', B', B'', B'', secured thereto; cranks or wrist-pins on said driving-wheels in the same relative positions at each side, but arranged at an angle to each other on opposite sides; parallel coupling-rods E, E coupling the wheels at each side together by means of said cranks and wrist-pins; an engine-cylinder open from end to end; piston-heads D', D', in the ends of said cylinder adapted to reciprocate to and from the center thereof; pinions D extending out at opposite ends of said cylinder and connecting said pinions to oppositely-arranged wrist-pins or cranks all coacting for the purpose specified.

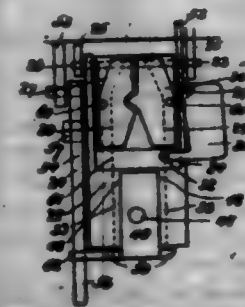
4. In a motor-car, the combination of the framework; axles B, B, with driving-wheels B', B', B'', B'', secured thereto; coupling means for said axles and driving-wheels; an engine-cylinder open from end to end; piston-heads D', D', in the ends of said cylinder adapted to reciprocate to and from the center thereof; pinions D extending out at opposite ends of said cylinder and connecting said pinions to oppositely-arranged wrist-pins or cranks, all coacting for the purpose specified.

5. In a motor-car the combination of the framework; driving-wheels secured to suitable axles thereunder; parallel coupling-rods coupling said driving-wheels and axles together, said coupling-rods being connected in different relative positions to said wheels; an engine-cylinder open at both ends; pistons toward each end of said engine-cylinder and adapted to reciprocate to and from the center thereof; and couplings from said pistons to the driving-wheels arranged to drive the front and rear wheels in the same direction on the outward stroke of the pistons, coacting for the purpose specified.

6. In a motor-car, the combination of the framework; driving-wheels secured to suitable axles thereunder; coupling means between said axles and driving-wheels; an engine-cylinder open at both ends; pistons toward each end of said engine-cylinder and adapted to reciprocate to and from the center thereof; and couplings from said pistons to the driving-wheels arranged to drive the front and rear wheels in the same direction on the outward stroke of the pistons, coacting for the purpose specified.

7. In a motor-car, the combination of the framework; bars of metal beneath the same; bearings secured to said bars carrying the axles and driving mechanism; and an engine-cylinder suspended from said bars with oppositely-acting pistons therein coupled to said driving-gear, said pistons to act simultaneously in opposite directions, whereby twisting of the frame is avoided, as specified.

696,742. ONE-OPERATED VENDING-MACHINE. GEORGE I. MERRILL and GEORGE TILLOTSON, Shelby, England. Filed Dec. 7, 1900. Serial No. 39,915. (No model.)



Claim.—1. A machine of the class described provided with a tilting device 21, a coin-holder and plate pivoted in the top thereof and provided with pivot-jaws 27, said parts being adapted to operate as a fraud-preventive, substantially as shown and described.

2. In a machine of the class described, a pivoted coin-holder 28, a plate 26, pivoted at the top thereof and provided with pivoted jaws 27, a tilting device 21 pivotally connected with said holder, another tilting device 40 pivotally connected with the lower portion of said holder and provided with fingers or projections 50, a lever 54 pivotally supported at one side of said holder and adapted to operate the tilting device 21, the said holder being also provided at its upper end with a hookwork and upwardly directed extension 53, substantially as shown and described.

3. In a machine of the class described, a pivoted coin-holder, a plate pivoted to the top thereof and provided with pivoted jaws 27, a tilting

device pivotally connected with said holder, a second tilting device pivotally connected with the lower portion of said holder and provided with projecting fingers, a lever pivotally supported at one side of said holder and operating in connection with the last-named tilting device, said holder being also provided with a backwardly and forwardly directed extension, substantially as shown and described.

696,743. COTTON-BALING MACHINE. BRADLEY MOSE, JEFFERSON, N. C. Filed Nov. 4, 1901. Serial No. 81,308. (No model.)



Claim.—1. In an apparatus for baling cotton, the combination of a flat-frame having a hollow journal, and having one of its sides hinged, a separable reel having one of its parts journaled in the main part of the flat-frame and its other part journaled in the hinged side, and means for holding the parts of the reel together, and a tension device within the flat-frame; substantially as described.

2. In an apparatus for baling cotton, the combination of a flat-frame, a reel journaled in the flat-frame, and provided with a toothed wheel, a lever pivoted on the flat-frame and carrying a pawl arranged to engage the toothed wheel and adjustable means for causing the movement of the lever on its pivot as the flat-frame rotates; substantially as described.

3. In an apparatus for baling cotton, the combination of a flat-frame, having one of its sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flat-frame, and the other journaled in the hinged side, and means for securing the parts of the reel together; substantially as described.

4. In an apparatus for baling cotton, the combination of a flat-frame having one of its sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flat-frame and provided with means for rotating it, and the other journaled in the hinged side, and means for securing the parts of the reel together; substantially as described.

5. In an apparatus for baling cotton, the combination of a flat-frame, having one of its sides hinged, a reel comprising two parts, each consisting of a reel-head and a portion of the shaft, one of said parts being journaled in the main portion of the flat-frame and provided with means for rotating it, comprising a toothed wheel, a lever carrying a pawl and pivoted on the main portion of the flat-frame, and adjustable means for moving the lever, and the other journaled in the hinged side, and means for securing the parts of the reel together; substantially as described.

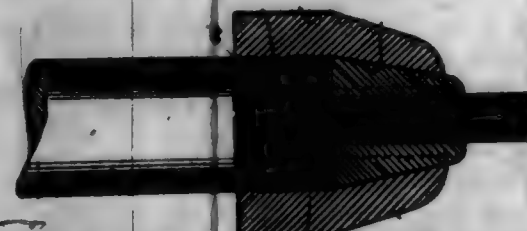
696,744. WINDOW-SCREEN. CHARLES J. GUNNERTON and JAMES F. ABRAMSON, St. Louis, Mo. Filed May 13, 1901. Serial No. 80,989. (No model.)

Claim.—In combination with a window-frame provided with parallel guide-strips, of a screen comprising a frame, having its two outer sides provided with flanges or right-angled projections adapted to fit upon one side of the parallel strips, a series of stationary metal guide plates or pieces connected to one of the sides so as to fit upon the opposite side of one of the parallel strips and a series of vertical strips secured to the outer

face of the other side of the frame and provided with two rivets or pins, and a sliding strip provided with the angular or flanged outer end, the right-angled inner end and the intermediate depressed portion provided with the parallel slots in which fit the rivets or pins of the plate so that the flanged outer end of the sliding strip may be caused to fit upon the opposite side of the parallel strip.

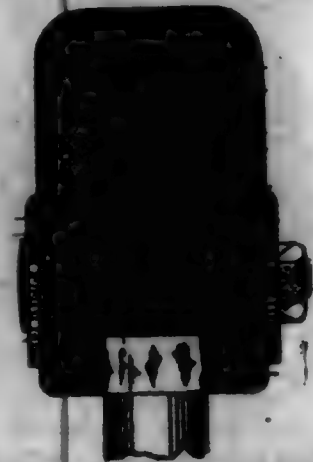


696,745. PUNCH-DRUCK. EDWIN O'BRIEN, Chicago, Ill. Filed May 18, 1901. Serial No. 80,514. (No model.)



Claim.—A holding-druck comprising a split compressible sleeve having a cylindrical interior and conical exterior, and provided at intervals around its periphery with longitudinally-extending, radially-disposed cuts or slots extending the full length of said sleeve, and whereby the latter is rendered capable of compression to grip a cylindrical body inserted therein, a ram arranged to abut against the upper end of said sleeve, and externally threaded at its lower end, a clamping-screw threaded upon the lower end of said ram and provided with a conical interior adapted to co-operate with the exterior of the holding-druck, the end of the ram being adapted to rest directly against the end of a punch having a conical-point consistent with its longitudinal axis, and a recess formed in the end of said ram adapted to receive such conical-point, substantially as described, and for the purpose set forth.

696,746. VEHICLE-TIRE. CHARLES A. PETER, Brooklyn, N. Y. Filed July 2, 1901. Serial No. 80,971. (No model.)

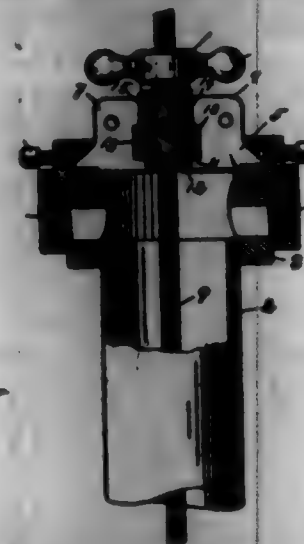


Claim.—1. The combination in a tire of a driver base portion, a solid core or buffer disc, and a cushion; together with a cover, binding-wires embedded therein, and internal flanges, said flanges and the solid core embracing the cover edges about the binding-wires.

2. In a vehicle-tire, in combination, a fully, a metal tire therefor, a solid core composed of a series of slatted sections, a flexible binding-strip for said sections, a cushion arranged about said core, a cover, binding-wires circumferentially disposed near the free edges of said cover, and fabric reinforcement therefor; together with internal flanges embracing the cover and means for holding said flanges in place.

3. In a vehicle-tire, in combination, a fully, a metal tire enclosing same, a conical solid core portion about said metal tire, a cover, retaining wires or strands therefor, alternate layers of rubber and fabric arranged in said cover, and extending about the retaining wires or strands, internal flanges for the tire, and means for holding the flanges in position.

696,747. OIL-SAVER. CLARK F. RUBY, Washington, W. Va. Filed Mar. 14, 1901. Serial No. 81,511. (No model.)

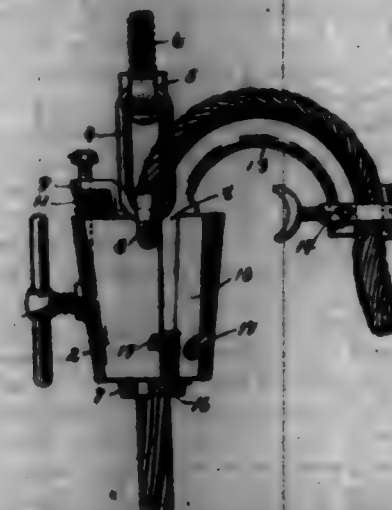


Claim.—1. The combination of a vertically-divided casing-closure formed with a vertical passage contracted below its upper end to form a packing-obstruction, and a vertically-divided packing-compressing device vertically adjustable in the upper portion of the casing-passages, said device being formed with a camber, substantially as shown and described.

2. The combination of a vertically-divided casing-closure having a central cable-passing, said passage being contracted at its lower end and threaded at its upper end, compressible material surrounding the cable immediately above the contracted lower portion of said cable-passing, and a vertically-divided screw operative in the threaded upper end of the passage for compressing said material and expanding it laterally, substantially as shown and described.

3. The combination of a casing-head, the vertically-divided casing-cap having a cable-passing, said passage being threaded at its upper end, a vertically-divided bushing in the lower end of the passage, compressible material surrounding the cable and resting on the bushing, and the vertically-divided and vertically-operated screw operative in the threaded upper portion of the cable-passing for compressing said material and causing it to expand laterally, substantially as shown and described.

696,748. ROPE-CLAMP. CLARK F. RUBY, New Martinsville, W. Va. Filed May 20, 1901. Serial No. 81,114. (No model.)



Claim.—1. The combination of a clamp-head formed with a vertical cable-inserting passage leading to its downwardly-tapering bore, downwardly-tapering cable-securing mechanism operative within the tapering bore, and means operative within the cable-inserting passage for raising the cable-securing mechanism, substantially as shown and described.

2. A clamp for well-drilling cables comprising a head having a vertical bore and a lateral slot leading to the bore, vertically-movable cable-clamping mechanism operative within the head-bore, a device operative through the head-slot for moving vertically said clamping mechanism, and means for operatively mounting said device on the said head, substantially as shown and described.

3. The combination of a clamp-head having a downwardly-tapering bore and formed with a vertical cable-inserting passage, downwardly-tapering cable-securing mechanism operative within the tapering bore, and a lifting device removably positioned within the cable-inserting passage and formed to interlock with the cable-securing mechanism, substantially as shown and described.

4. The combination of a clamp-head, cable-securing clips operative therein, one of said clips being formed with a wrench-head, and a lever-wrench adapted to be fit around to the head and operatively engage said clip for loosening it, substantially as shown and described.

5. The combination of a clamp-head formed with a cable-inserting passage, cable-securing clips operative within the head, one of said clips overhanging said passage and inclined to form a rest, the opposite face of the cable-passing being formed with bearing-points, and a lever-wrench adapted to bear therein and operatively engage the rest-clip, substantially as shown and described.

6. The combination of a clamp-head formed with a cable-inserting passage, cable-securing clips operative within the head, one of said clips overhanging said passage, and means operative in said passage for loosening said overhanging clip, substantially as shown and described.

696,749. GUIDE FOR OIL-Well-PUMP RODS. CLARK F. RUBY, New Martinsville, W. Va. Filed Sept. 11, 1901. Serial No. 78,086. (No model.)



Claim.—1. Means for holding deep-well pumps from rotating comprising a body having a vertical passage-way, said passage-way being of such form as to prevent rotation of the pump-rod which reciprocates therethrough, and tube-impinging springs projecting laterally from said body, said springs being of sufficient strength to resist rotation of the pump-rotating mechanism and pump.

2. Means for holding deep-well pumps from rotating comprising a body having a vertical passage-way, said passage-way being of such form as to prevent rotation of the pump-rod which reciprocates therethrough, and elongated outwardly-bowed springs secured at their ends to the body, said springs being adapted to lap the well-tube and resist rotation of the pump-rotating mechanism and pump.

3. Means for holding deep-well pumps from rotating in the well-tubing comprising a device adapted to frictionally engage the interior surface of the tube, said device having a vertical passage-way of such form as to prevent rotation thereof of the pump-rod which reciprocates therethrough, and means for varying the frictional engagement of said device with the tube.

4. In a device of the character described, the combination of a deep-well-pump-rotating rod angular in cross-section, an elongated body having an angular passage through which the rod reciprocates, said body being threaded at one end, elongated outwardly-bowed tube-impinging springs secured at one end to the body, a non-rotatable head slidable over the

threaded portion of the body and to which the opposite ends of the springs are secured, and a nut adjustable on the body for securing the said head, substantially as shown and described.

5. In a device of the character described, the combination of a pump-actuating rod angular in cross-section, a body having an angular passage through which the rod reciprocates, a resilient tube-impinging device carried by the body and adapted to be projected laterally by being contracted, and means for contracting said device, substantially as shown and described.

6. The combination of a rod adapted to be interposed between a deep-well pump and its actuating means, an elongated non-rotatable body through which the rod is adapted to reciprocate, outwardly-bowed leaf-springs secured at one end to the body, and a head vertically adjustable on the body to which the opposite ends of the springs are secured.

696,750. DEVICE FOR MOUNTING ENTOMOLOGICAL SPECIMENS. CLARENCE B. RYER, Maplewood, N. J. Filed Feb. 10, 1900. Serial No. 8,551. (No model.)



Claim.—1. In a device for mounting entomological and other natural-history specimens and the like, the combination of a box, a filling of batting therein in which the specimen forms the depression for or holds itself, a transparent cover-plate, and means for securing said plate and box together, substantially as described.

2. A mounting for entomological and other natural-history specimens or the like, consisting of a box, a filling of batting therein on which the specimen is placed, and in which the specimen forms the depression for or holds itself, a transparent cover-plate resting on said batting and the specimen, and means for securing said plate and box together, whereby the specimen is pressed against the cover-plate by the batting and is electrically supported from behind at substantially all points, substantially as described.

3. In a sealed mount for entomological, natural-history, or botanical specimens, the combination with a backing or tablet having an upper surface adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section having a transparent top; a lower section upon which said backing rests; and a covering and binding strip secured to said upper section and having depending flaps adapted to hold said lower section and its superposed backing in place.

4. In a sealed mount for entomological, natural-history or botanical specimens; the combination with a backing or tablet having an upper surface adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section; a transparent top; a lower section upon which said backing rests; and a covering and binding strip pasted to said upper section and having flaps by means of which said transparent top is secured in place; and depending flaps on said strip adapted to hold said lower section and its superposed backing in place.

5. A sealed mount for entomological, natural-history, or botanical specimens, comprising a backing or tablet of yielding material adapted to receive and support a specimen on its surface; a boxing or frame inclosing and protecting said backing; and a transparent plate secured to said backing, and between which and said yielding backing the specimen is held.

6. A sealed mount for entomological, natural-history, or botanical specimens comprising a backing or tablet of yielding fibrous material adapted to receive and support a specimen on its surface; a boxing or frame inclosing and protecting said backing; a transparent plate secured in said backing, and between which and said yielding backing the specimen is held; and a covering-strip secured to and surrounding said backing.

7. In a mount for entomological, natural-history, or botanical specimens; the combination with a backing or tablet formed of fibrous material, of an inclosing and protecting boxing or frame for said backing, comprising an upper section having a transparent top, and a lower section in which said backing rests, fitted to said upper section.

696,751. BLUE SULFUR DYE AND PROCESS OF MAKING SAME. GUNTERMAN, Ed. Bado, Switzerland, assignor to Aniline Colour and Extract Works, formerly John B. Gaily, Bado, Switzerland, a Corporation. Filed Aug. 28, 1901. Serial No. 78,642. (No specimens.)

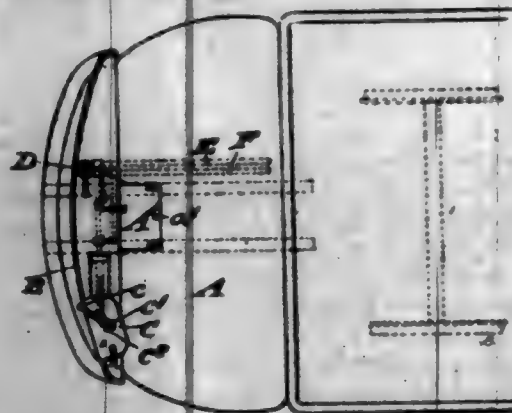
Claim.—1. The process of making a new blue color dyestuff by reacting on dimethyl-para-amido-phenyl-guanoimid, viz., the isophthal from dimethyl-para-aminophenylguanidine and carbonic acid, of the following formula:



with a normal sulfite to form a new sulfite-acid of dimethyl-para-amido-para-aminophenylguanidine, and then treating the same with polysulfide of alkali, substantially as described.

2. As a new article of manufacture the blue color dyestuff derived from dimethyl-para-amido-para-aminophenylguanidine sulfite-acid, which forms a blue paste or in dry state a blue powder with metallic aspect, almost insoluble in water and in carbonate of sodium, easily soluble in a hot solution of caustic soda with a pale-blue coloration, scarcely soluble in alcohol, insoluble in ether and benzene, soluble in concentrated sulfuric acid with blackish-blue color, insoluble in diluted mineral acids, easily soluble in sodium sulfite to a pale-blue solution, turning by an excess of sodium sulfite to a clear grayish-violet solution, growing pure blue by the oxygen of the air, and dyeing concentrated cotton in a bath containing sodium sulfite and salt pure-blue shades of great fastness, substantially as described.

696,752. MEANS FOR AUTOMATICALLY CONTROLLING CAR MOTORS AND BRAKES. JOHN H. ROBERTSON, New York, N. Y. Filed July 20, 1898. Serial No. 726,022. (No model.)



Claim.—1. In a power-propelled vehicle having a power-actuated brake, a weight-controlled means for automatically shutting off the motive power and applying the brake when the weight is removed, the said weight-controlled means being mechanically independent of the power-actuated brake.

2. In an electrically-propelled vehicle having an air-brake, a weight-controlled means for automatically shutting off the motive current and feeding compressed air to the brake when the weight is removed, substantially as set forth.

3. In an electrically-propelled car having an air-brake, a current-out-off device, a brake-controller, air-pipes and an auxiliary platform arranged, when weight is applied therein, to close the admission of air to the current-out-off device and open it through the brake-controller, and when the weight is removed, to close the admission of air to the brake-controller, open it to the current-out-off device and also to the brake, substantially as set forth.

4. A controlling mechanism for street-railway cars comprising a current-out-off device, a brake-controller, air-pipes leading through the controller to the brake, an air-pipe leading from one of the said pipes to the current-out-off device and an auxiliary pipe, a movable platform and valves under the control of the movements of the platform for opening and closing communication to the out-off device and to the brake, substantially as set forth.

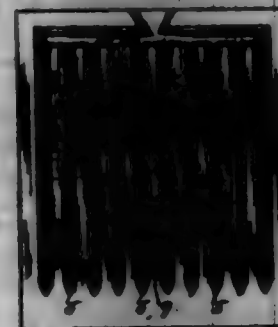
5. In a controlling device for cars having air-brakes, a brake-controller, pipes leading to and from the controller, a pipe leading from the pipe leading to the controller, an auxiliary pipe leading to the pipe leading from the controller, a movable platform and valves under the control of the movements of the platform for opening and closing communication through the brake-controller and opening it through the auxiliary pipe when the platform is moved in one direction and for closing communication through the auxiliary pipe and opening it through the brake-controller when the platform is moved in the opposite direction substantially as set forth.

6. A controlling mechanism for electrically-propelled cars having air-brakes comprising a current-out-off device, an air head-pipe leading

therein, a movable platform and a valve in said pipe under the control of the movements of the platform for opening and closing communication from the air head-pipe to the current-out-off device, substantially as set forth.

7. In an electrically-propelled car having an air-brake, a brake-controller, a current-out-off device, a pipe leading to the brake-controller, a pipe leading from the brake-controller, a pipe leading from the first-named pipe to the out-off device, an auxiliary pipe leading from the out-off device to the pipe leading from the brake-controller, a valve located in the pipe leading from the brake-controller between the junction of the said pipe with the auxiliary pipe and the brake-controller, a valve located in the pipe leading to the out-off device between the junction of the auxiliary pipe therewith and the pipe leading to the brake-controller, a connection between the said valves whereby when one is open the other is closed, and a movable platform connected with the last-named valve for opening and closing the valve, substantially as set forth.

696,753. DIE FOR MAKING FORKS. SAMUEL D. ROBERTSON, New York, Pa. Filed Dec. 12, 1900. Serial No. 68,657. (No model.)



Claim.—1. A die for making forks and similar articles, the same comprising a body having a transverse cavity or groove for forming and shaping the head or back bar of the fork, and a series of longitudinal cavities or grooves communicating with said transverse cavity for forming and shaping the tines, said transverse and longitudinal cavities being bounded by cutting-walls, and the longitudinal cavities being separated by grooves or spaces of greater depth for receiving the cut-away portions of the plate.

2. Die for making forks and similar articles, the same comprising bodies each having a transverse cavity or groove for forming and shaping the head or back bar of the fork, and a series of longitudinal cavities or grooves communicating with said transverse cavity for forming and shaping the tines, said transverse and longitudinal cavities being bounded by cutting-walls, and the longitudinal cavities on one of said dies at least being separated by grooves or spaces of greater depth for receiving the cut-away portions of the plate.

3. A die for making forks and similar articles, the same comprising a body having a transverse cavity or groove for forming and shaping the head or back bar of the fork, and a series of longitudinal cavities or grooves communicating with said transverse cavity for forming and shaping the tines, said transverse and longitudinal cavities being bounded by cutting-walls, and the longitudinal cavities being tapered toward their outer ends to form the points of the tines and being separated by grooves or spaces of greater depth for receiving the cut-away portions of the plate.

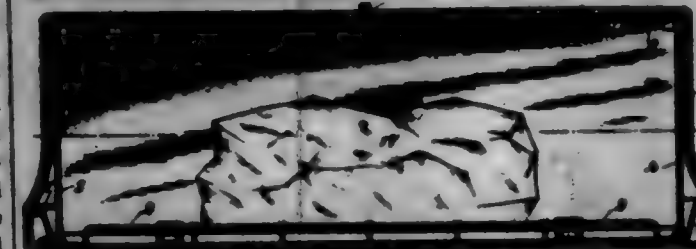
4. A die for making forks and similar articles, the same comprising a body having a transverse cavity or groove for forming and shaping the head or back bar of the fork, and a series of longitudinal cavities or grooves communicating with said transverse cavity and having sloping or curved walls for forming and shaping the tines, said transverse and longitudinal cavities being bounded by cutting-walls, and the longitudinal cavities being separated by grooves or spaces for receiving the cut-away portions of the plate.

5. A die for making forks and similar articles, the same comprising a body having a transverse cavity or groove for forming and shaping the head or back bar of the fork, a cavity communicating with said transverse cavity at its middle portion for cutting out a portion to form the tang of the fork, and a series of longitudinal cavities communicating with the transverse cavity for forming and shaping the tines, all of said cavities being bounded by cutting-walls, and the longitudinal cavities being separated by grooves or spaces for receiving the cut-away portions of the plate.

696,754. FOLDING ICE-BOX. RALPH F. BOGGS, Lakeview, N. J. Filed Dec. 14, 1901. Serial No. 68,657. (No model.)

Claim.—1. A folding ice-box, comprising a collapsible box-like member provided with a folding lid, a flexible jacket adapted to cover said member and provided with a folding flap corresponding to said lid, and means for detachably securing said lid and said flap together, so that said

flap may be readily detached from said lid and said jacket may be easily removed from said box-like member.

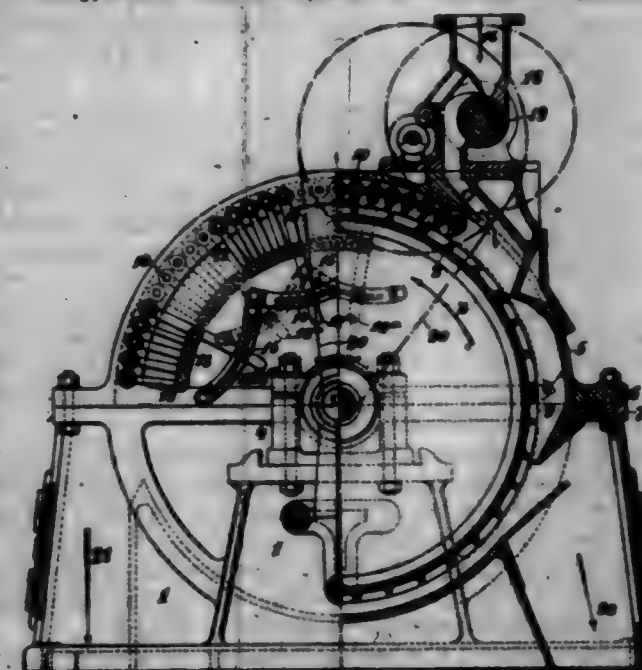


2. A folding ice-box, comprising a collapsible box-like member having a folding lid provided with a knob, and a flexible jacket of non-conducting material for removably inclosing said member, said jacket having a loose flap provided with a hole for engaging said knob, the arrangement being such that said flap together with the lid of said box-like member is normally free to move relatively to said member, yet said jacket is readily removable from said member.

3. A folding ice-box, comprising a waterproof pan, side and end leaves mounted therein and flexibly secured to the bottom thereof, a flanged top provided with an opening and with heads for engaging said side and end members, and a folding lid flexibly mounted upon said top so as to cover said opening, said parts normally constituting a collapsible box-like member, and a jacket of non-conducting material for covering said box-like member, said jacket being provided with a loose flap corresponding to the lid of said box-like member and detachably secured to said lid so as to fold therewith, yet readily detachable therefrom so that said jacket can be removed from said box-like member.

4. A folding ice-box, comprising a waterproof pan provided with a drain-tube, folding leaves hinged directly to the bottom of said pan, a removable ice-grid normally resting on the bottom of said pan, and a detachable top provided with heads for temporarily securing said leaves together at the corners thereof, the arrangement being such that said grid may be removed, said leaves folded upon each other, said grid placed upon said leaves, and said top laid upon said grid, whereby all movable parts of said apparatus will occupy said pan and be drained simultaneously.

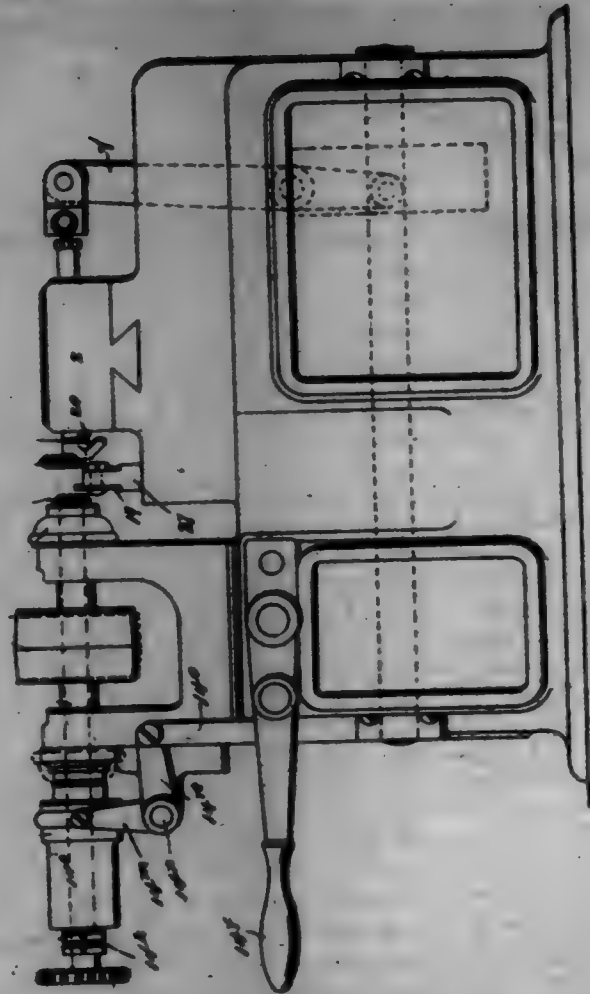
696,755. GRAIN-CRUSHER. HENRI ROSE and GEORGE ROSE, Paris, France. Filed Dec. 6, 1900. Serial No. 58,857. (No model.)



Claim.—1. In a grain-crushing machine, the outer, cylindrical casing, the movable bars in the said casing, said bars being placed close together and mounted to rock on journals, the drum rotatably mounted in the casing and having ribs on its periphery which rotate in close proximity to the movable bars in the casing, and means for separately adjusting and setting groups of the said bars, the said casing having an inlet for grain extending substantially the entire length of the enclosing drum and opening directly to the periphery of the latter, and the series of bars in the casing being wholly in advance of the grain-inlet, substantially as set forth.

2. In a grain-crushing machine, the combination with the outer casing, and the ribbed drum rotatably mounted therein, of the concentrically-disposed and parallel rock-shafts 10, mounted to the ends of the upper part of the casing, the arms 12 on the projecting ends of said rock-shafts, the links coupling said arms together in groups, means for opening and securing the coupled groups of arms, and the bars 11 placed close together on the respective rock-shafts, substantially as set forth.

696,756. JEWEL-SETTING MACHINE. WILLIAM EMMONS, Brighton, N. Y. Filed Nov. 6, 1901. Serial No. 51,281. (No model.)



Claim.—1. The combination of a spindle having a terminal enlargement, a coupling-head having a cylindrical socket and a longitudinal slot through its forward side to receive said enlargement and spindle, both said socket and slot opening at both ends of said coupling-head, and means for moving said coupling-head at right angles to the length of said spindle, substantially as set forth.

2. The combination of a spindle having a terminal enlargement, a coupling-head having a cylindrical socket and a longitudinal slot through its forward side to receive said enlargement and spindle, both said socket and slot opening at both ends of said coupling-head, means for moving said coupling-head at right angles to the length of said spindle, and means for intermittently actuating said coupling-head and spindle, substantially as set forth.

3. The combination of a blank or stock carrying device, a carrier equipped with tool-spindles and adapted to move at right angles to said device means for actuating said tool-spindles and a common coupling device between said tool-spindles and said actuating means for successively receiving said spindles, substantially as set forth.

4. The combination of a blank or stock carrying device or head-stock, a carrier equipped with tool-spindles and adapted to move at right angles to said head-stock, means for imparting such movement to said carrier, means for actuating said tool-spindles and a common coupling device comprising a cylindrical socket with a longitudinal slot therethrough, both said socket and slot opening at both ends, to connect up said socket successively with said tool-spindles, substantially as set forth.

5. The combination of a blank or stock carrying device or head-stock, a carrier equipped with tool-spindles, and adapted to move at right angles to said stock-carrying device, means for imparting such movement to said carrier a cam or intermittently-actuated lever for actuating said spindles and a common coupling device for successively effecting connection between said tool-spindles and said intermittently-actuated lever, substantially as set forth.

6. The combination of a stock or blank carrying device, a carrier equipped with tool-carrying spindles, and movable at right angles to said stock-carrying device, a gear-and-rack mechanism for actuating said carrier, means for actuating said tool-spindles and a common coupling device for successively effecting connection between said tool-spindles and said actuating means, substantially as set forth.

7. The combination of a stock or blank carrying device, a carrier equipped with tool-spindles and movable at right angles to said tool-carrying device, a gear-and-rack mechanism for actuating said carrier, and an intermittently-actuated lever for operating said spindles, substantially as set forth.

8. The combination of a stock or blank carrying device, a carrier having movement at right angles thereto, and equipped with tool-carrying spindles, an intermittently-actuated lever for said spindles, a coupling between said spindles and lever, and a rack-and-gear mechanism for said carrier, substantially as set forth.

9. The combination of a stock or blank carrying device, a carrier having an intermittent movement at right angles thereto and equipped with tool-spindles, means for imparting such movement to said carrier, means for actuating said tool-spindles, a coupling between said spindles and said means for actuating said spindles, and an intermittently-actuated dog or detent engaging said carrier, substantially as set forth.

10. The combination of a stock or blank holding device, a carrier having an intermittent movement at right angles thereto, and equipped with tool-spindles, an intermittently-actuated rack-and-gear mechanism for said carrier, a corresponding actuated dog or detent for said carrier, and means for actuating said tool-spindles, a coupling between said spindles and said means for actuating said spindles, substantially as set forth.

11. The combination of a stock or blank holder, a carrier equipped with tool-spindles having movement at right angles to said holder, a gear-and-rack mechanism for said carrier, a cam-actuated dog or detent for said carrier, and a cam-actuated lever for said tool-spindles, substantially as set forth.

12. The combination of a stock or blank holder, a carrier equipped with tool-spindles and having movement at right angles to said holder, means for imparting an intermittent rectilinear movement to said carrier, and means for transmitting an intermittent back-and-forth movement or stroke to said tool-spindles and a coupling device between said tool-spindles and the means for actuating said tool-spindles, substantially as set forth.

13. The combination of a carrier equipped with tool-spindles, an intermittently-actuated lever for actuating said spindles, means for imparting a rectilinear movement to said carrier and a coupling between said tool-spindles and lever, adapted to permit the lateral insertion thereto and the corresponding withdrawal therefrom, of said spindles, substantially as set forth.

14. The combination of a stock or blank holder, a movable and intermittently-actuated carrier equipped with tool-spindles and having movement at right angles with said holder, a cam-actuated lever adapted to control or transmit movement to said tool-spindles, a coupling forming connection between said tool-spindles and lever, and an intermittently-actuating device for said carrier, substantially as set forth.

15. The combination of a carrier equipped with tool-spindles and having a rack, a gear-wheel or pinion meshing with said rack, means for actuating said spindles, an additional pinion on the shaft of the first-named pinion, a toothed sector or quadrant meshing with said additional pinion, and means for actuating said tool-spindles, substantially as set forth.

16. The combination of a tool-spindle carrier, means for actuating the same, a dog or detent, adapted to engage said carrier, and having a right-angled arm, and a disk having cam projections upon the periphery adapted to engage said arm, and retract said dog or detent from said carrier, substantially as set forth.

17. The combination of a carrier having rectilinear movement, tool-spindles mounted in said carrier, springs arranged in connection with, and acting upon, said spindles, rollers secured upon said spindles, guide-rods secured to said carrier, said rollers having bifurcated portions engaging said guide-rods, and means for actuating said spindles, substantially as set forth.

18. The combination of a carrier, a spindle mounted in said carrier, a horizontal cutter, a base or support mounted in said spindle, a shaft bearing said cutter, and journaled in a support or case, a dog or pawl suitably supported upon said carrier, and gearing for actuating said cutter, said dog adapted to engage a pinion of said gearing as said spindle is actuated, substantially as set forth.

19. The combination of a carrier, a horizontal cutter suitably supported in a spindle of said carrier, gearing for actuating said cutter, and a triangular pivoted dog or pawl suitably supported upon said carrier and adapted to engage a pinion of said gearing as said spindle is actuated, substantially as set forth.

20. The combination of a carrier, a horizontal cutter suitably supported in a spindle of said carrier, gearing for actuating said cutter, a bracket or arm projecting from said carrier, a triangular dog or pawl pivoted upon said bracket and adapted to engage a pinion of said gearing, and having a pin or rod extending through a slot in said bracket, and engaged by a spring secured to said bracket, substantially as set forth.

21. In a machine of the character described, the combination of a spindle-carrier, a horizontal cutter secured upon a shaft having a beveled pinion secured thereto, a support for said shaft having an arm secured in a spindle of said carrier, a second shaft bearing also a beveled pinion geared to the first-named pinion and carrying a worm-wheel, a third shaft bearing a gear-wheel, and a spring-pressed triangular pivoted dog or pawl

carried by said bracket or support secured to said carrier, said dog or pawl adapted to engage said gear-wheel, substantially as set forth.

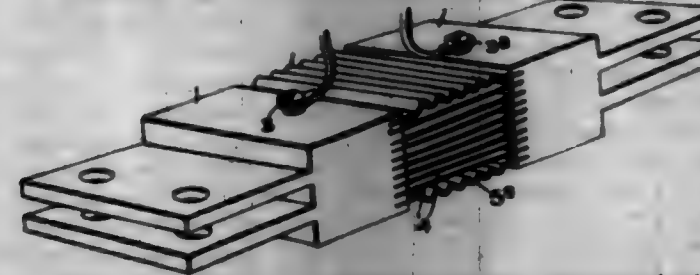
22. In a machine of the character described, the combination with a spindle of the tool-spindle carrier, of a jewel-holder comprising a tubular portion having a circular feeder at one end, and a spring-pressed pivoted gate or valve having an elongated slot therethrough receiving its pivot, and a notch in its lower end registering with the feeding-opening of said tubular portion, substantially as set forth.

23. The combination with a spindle of the tool-spindle carrier, of the jewel-holder comprising a tubular portion and a circular feeder having a pivoted valve or gate with an elongated slot therethrough for the reception of its pivot, and a spring with one end secured to said circular head and its other end connected to an extension of said gate or valve, substantially as set forth.

24. The jewel-holder comprising an outer tube or casing provided at one end with a head or feeder, and an inner conical tube, with one end adapted to fit into an enlargement of the feeding-opening of said head, and its opposite end having a screw-threaded enlargement engaging an internal screw-thread of one end of said outer tube or casing, substantially as set forth.

25. The combination with a spindle of the tool-spindle carrier, of a jewel-holder comprising a tubular portion having a circular head or feeder at one end, a pivoted spring-pressed gate or valve having a notch in its lower edge adapted to register with the feeding-opening of said head, and a stop projecting from the edge of said head and adapted to engage an extension of said gate or valve, substantially as set forth.

696,757. SHUNT FOR ELECTRICAL INSTRUMENTS. MAURICE C. RYFORD, Schenectady, N. Y. Assignor to General Electric Company, a Corporation of New York. Filed Sept. 5, 1901. Serial No. 74,377. (No model.)



Claim.—1. A shunt for an electrical measuring instrument having between its terminals a resistance-plate adapted for the reception of a fusible conductor.

2. A permanent shunt for an electrical measuring instrument having a resistance-plate formed of a diffusible-fusible metal to which a readily-fusible metal has been applied whereby the resistance may be readily and accurately graduated.

3. A shunt for an electrical measuring instrument containing a resistance-strip of diffusible-fusible metal having its conductivity increased by an application of a readily-fusible metal.

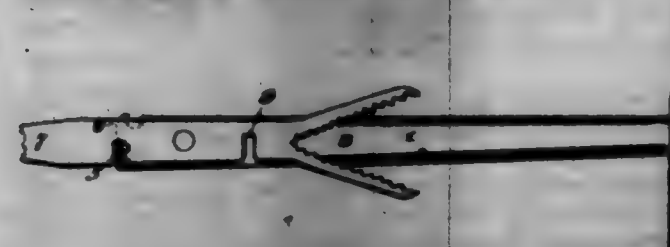
4. A shunt for an electrical measuring instrument having a resistance-plate containing recesses for a more easily fusible metal.

5. A shunt for an electrical measuring instrument having a resistance-plate containing one or more transverse grooves.

6. A shunt for an electrical measuring instrument having a transversely-grooved resistance-plate to which an easily-removable conductor has been applied to vary its resistance.

7. A shunt for an electrical measuring instrument containing a plurality of transverse corrugations to serve as recesses for a more readily fusible metal such as solder.

696,758. COMPOUND TOOL. CHARLES SAWYER, Washington, D. C. Assignor of one-half to Andrew Shtinsky, Washington, D. C. Filed June 22, 1901. Serial No. 68,693. (No model.)



Claim.—1. In a compound tool the combination with a handle of a sliding jaw pivoted at one end thereof and provided with a bifurcated wrench at one end, and an end tool at the other, the whole arranged whereby the jaws of said wrench spring over and straddle said handle when the end tool is swung into position, substantially as described.

2. In a compound tool the combination with a handle of a sliding jaw pivoted thereto, and provided with a bifurcated wrench at one end thereof and an end tool at the other, notches in said handle, means on the handle for engaging the same for limiting the movement of said jaw, the whole arranged whereby the jaws of said wrench spring over and straddle said handle when the end tool is swung into position, substantially as described.

696,759. STOP-HOLDER. PHILIP BURRIE, Chicago, Ill. Original application filed Aug. 13, 1901. Serial No. 72,101. Divided and this application filed Nov. 20, 1901. Serial No. 84,068. (No model.)



Claim.—1. The combination with the headpiece 1, having vertical guides in its ends, an aperture at one end and a corresponding locking-lip at the other end; of the wire ball 2, having right-angle portions at the ends to engage the headpiece and guides, one of the ball ends having a member to pivotally engage the aperture in the headpiece, and a hook member at the other end to engage the locking-lip on the opposite end of the headpiece, and a finger-manipulated means for pulling the ball into or out of its locked position, as specified.

2. The combination with the headpiece 1, having a plurality of apertures in one end, and a plurality of cooperating locking-lips at the other end, said lips having their opening edges beveled inward and downward, the headpiece having a stop-bearing surface on its lower edge; of the ball 2, adapted to engage the stop and hold it against the bearing-surface, said ballpiece having upturned ends, one of which has a pinlike member to engage either one of the apertures in the headpiece, and a hook at the other end to engage either one of the locking-lips, and means for pulling the hook end of the ball onto or off of the locking-lip, all substantially as shown and for the purpose described.

3. In an appliance of the character described, a headpiece having a stop-end on its under face extending its length, and a vertical guide at each end, an aperture at one end, a locking-lip at the other end cooperating with the aperture, a spring-rod ball adapted to pass under the stop-fold and hold it up against its seat on the headpiece, said ball having right-angle ends adapted to extend up between the end guides, one of the ends having a pivot member adapted to detachably engage the aperture in one end of the headpiece, and its other angle member having an eye and a hook, said hook being arranged to engage the locking-lip at the corresponding end of the headpiece, and the wire loop 5, adapted to straddle the upper edge of the headpiece and having a pivotal connection with the eye part of the ball 2, all being arranged substantially as shown and for the purpose described.

696,760. FEED-BAG. DIKE SCHUBERT, Hoboken, N. J. Filed Dec. 22, 1901. Serial No. 88,889. (No model.)

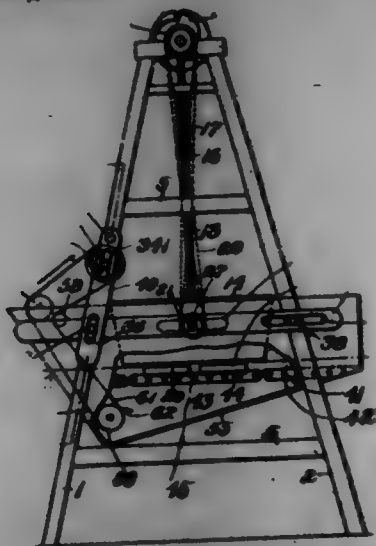


Claim.—The combination with a feed-bag, of a transversely-arranged bowed spreader secured to the rear wall of the bag near the lower end thereof, and a shield secured at its upper end to the upper rear edge of said bag, at its sides with the sides of the bag and extending downward into line with the said spreader whereby the lower end of the guard is held away from the rear wall of the bag, substantially as described.

696,761. BROWN-MACHINE. HERMAN M. SCHWARTZ, Northampton, Mass. Assignor to Florence Manufacturing Company, Northampton, Mass., a Corporation of Massachusetts. Filed June 22, 1900. Serial No. 21,106. (No model.)

Claim.—1. In a brush-machine, the combination, with a bristle-feeding hopper, and mechanism for agitating the contents of the hopper, of

means for supporting the bristle block below the hupper and changing its position while being filled.



2. In a brush-machine, the combination with a bristle-feeding hopper, and mechanism for agitating the hopper, of means for supporting the bristle-block below the hopper and changing its position while being filled.

3. In a brush-machine, the combination with a bristle-feeding hopper, and a bristle-stirrer, working within the said hopper, of a support below the hopper to receive the bristle-block.

4. In a brush-machine, the combination with a bristle-filling hopper, and a bristle-stirrer working within the said hopper, of means for supporting the bristle-block below the hopper and changing its position while being filled.

5. In a brush-machine, the combination with a bristle-feeding hopper, and mechanism for agitating the hopper, of a bristle-stirrer working within the hopper, and a support below the hopper to receive the bristle-block.

6. In a brush-machine, the combination with a bristle-feeding hopper, and mechanism for agitating the-hopper, of a bristle-stirrer working within the hopper, and means for supporting the bristle-block below the hopper and changing its position while being filled.

7. In a brush-machine, the combination with a bristle-feeding hopper, and mechanism for agitating the contents of the hopper, of a bristle-block support below the hopper and means for moving said support to shift the position of the bristle-block while being filled.

3. In a brush-machine, the combination with a bristle-filling hopper, and mechanism for agitating the hopper, of a bristle-block support below the hopper, and means for moving said support to shift the position of the bristle-block while being filled.

2. In a brush-machine, the combination with a bristle-feeding hopper, and a bristle-cirrer working within the said hopper, of a bristle-block support below the hopper, and means for moving said support to shift the position of the bristle-block while being filled.

10. In a brush-machine, the combination with a bristle-feeding hopper, mechanism for agitating the hopper, and a bristle-stirrer working within the hopper, of a bristle-block support below the hopper, and means for moving said support to shift the position of the bristle-block while being filled.

11. In a brush-machine, the combination with a bristle-filling hopper and means for supporting a bristle-block in position to be filled, of a rotary stirrer within the hopper, and means for traversing the said stirrer.

12. In a brush-machine, the combination with a bristle-filling hopper, and a support for a bristle-block, of a rotary stirrer working within the hopper, supports for the said stirrer, and means for moving the said supports transversely of the hopper to traverse the stirrer in the latter.

13. In a brush-machine, the combination with a bristle-feeding hopper, and means for supporting a bristle-block of a rotary stirrer working within the hopper, supports for the said stirrer and means for moving the said supports oppositely with relation to each other and transversely of the hopper to traverse the stirrer in the latter.

14. In a brush-machine, the combination with a bristle-filling hopper, a support for a bristle-block, and a receptacle for the loose bristles, of a conveyor for returning the said loose bristles to the hopper.

15. In a brush-machine, the combination with a bristle-feeding hopper, and a support for a bristle-block, of a receptacle for loose bristles, the said receptacle having an inclined bottom and a conveyor for returning the bristles from the said receptacle to the hopper.

16. In a brush-machine, the combination with a bristle-filling hopper, a support for a bristle-blank, and a mechanism for the loose bristles, of a moving conveyor having teeth to take the said loose bristles from the said receptacle and return them to the hopper.

17. In a brush-machine, the combination with a bristle-feeding hop-

per, and a support for a bristle block, of a grid or grating adjacent the said support and adapted to contain the bristle-blocks while being handled by the workman, and a receptacle below the said support and grid or grating to receive the loose bristles.

18. In a brush-machine, the bristle-feeding hopper, means to agitate the same vertically, and a support for the bristle-block, combined with a bristle-cirrer rotating within the hopper, supports for the said cirrer independent of the hopper, and means for moving the said supports to traverse the rotary cirrer transversely with relation to the vertically-moving hopper.

896,762. AUTOMATICALLY-OPERATED MUSICAL INSTRUMENT. REBERT & SHAPIR, Fairfield, Conn., assignors to Oliver Tarney, Fairfield, Conn. Filed Aug. 20, 1931. Serial No. 73,206. (No model.)



*Claim.—*1. Is a pneumatically-operated manual instrument, the combination with an exhaust-chamber and diaphragm in the bottom of said chamber which control the operation of the primary valve mechanism, of air-supply ducts whose lower mouths are beneath said diaphragm and whose upper extremities are beneath the paper containing the sound-producing characters, exhaust-ducts communicating between said exhaust-chamber and said air-supply ducts, and coveas extending across the air-supply ducts, designed to place said exhaust-ducts for regulating the effective caliber thereof, and whereby the supply of air beneath said diaphragm may be controlled, substantially as described.

2. In a pneumatically-operated medical instrument, the combination with an exhaust-chamber and diaphragm in the bottom of said chamber which control the operation of the primary valve mechanism, of air-supply ducts whose lower mouths are beneath said diaphragm, and whose upper extremities are beneath the paper containing the sound-producing characters, exhaust-ducts between said exhaust-chamber and said air-supply ducts, and servos passed through the walls of said air-supply ducts and across the same so as to register with the mouths of said exhaust-ducts, whereby a portion of each of said air-supply ducts is designed to serve as an exhaust-duct at predetermined times, substantially as described.

3. In a pneumatically-operated musical instrument, the combination with an exhaust-chamber and diaphragm in the bottom of said chamber which control the operation of the primary valve mechanism, of air-supply ducts whose lower mouths are beneath said diaphragm, and whose upper extremities are beneath the paper containing the sound-producing characters, exhaust-ducts communicating with said exhaust-chamber and air-supply ducts, and means traversing said air-supply ducts for controlling the effective caliber of said exhaust-ducts, whereby the portions of said air-supply ducts beneath said controlling means is designed at times to serve as an exhaust-duct, and also whereby the atmospheric pressure upon said diaphragm may be regulated, substantially as described.

696,768. TARGET-TRAP. LOUIS A. SUTHERLAND, Kansas City, Mo.
Filed Jan. 16, 1901. Serial No. 42,424. (No model.)



(Claim.— 1. Is a target-trap, a frame, a carrier-arm pivotally mounted intermediate to and upon said frame, a spring connected at one end to said frame and at the other to one end of said arm, a carrier mounted on the other end of said arm, in combination with a stop pivotally mounted upon said arm and provided with a curved or beveled rear surface and an engaging front surface, said stop provided with a shoulder on the rear surface thereof arranged to engage said arm to limit the rocking movement of said stop in one direction, and a movable latch carried by said frame with which said stop cooperates when said arm is rocked against the action of said spring into retracted position preparatory to projecting a target to lock said arm in such position, and means for withdrawing

said latch from engaging relation with said stop to release said arm, as and for the purpose set forth.

2. In a target-trap, a carrier-arm pivotally mounted intermediate the ends thereof, a carrier connected to one end of said arm, a spring connected to the other end of said arm for actuating the same, and a stop carried by said arm, in combination with an electromagnet, a pivoted armature therefor, a movable frame arranged to be engaged and disengaged by said armature, and an abutment carried by said frame with which said stop cooperates, as and for the purpose set forth.

3. In a target-trap, a carrier-arm pivotally mounted intermediate the ends thereof, a carrier connected to one end of said arm, a spring connected to the other end of said arm for operating the same, and a stop carried by said arm, in combination with an electromagnet, a pivoted armature therefor, a movable frame arranged to be engaged and disengaged by said armature, an abutment carried by said frame and arranged to be engaged by said stop, as and for the purpose set forth.

4. In a target-trap, a carrier-arm, means for actuating the same, and a stop pivotally mounted on said arm, in combination with a roller with which said stop cooperates to lock said arm in retracted position, an electromagnet, and a movable armature therefor, said armature operating to detachably maintain said roller in engaging relation with respect to said stop, as and for the purpose set forth.

5. In a target-trap, a carrier-arm pivotally mounted intermediate the ends thereof, a carrier connected to one end of said arm, a spring connected to the other end of said arm for actuating the same, and a stop carried thereby, in combination with a yielding frame having an engaging part with which said stop cooperates, pivotally-mounted levers arranged to engage said frame, an electromagnet, a movable armature therefor, said armature arranged to engage and release said levers, as and for the purpose set forth.

696,764. LEG-GUARD. BENJAMIN F. SEYER, BAL., PA. Filed July 27, 1901. Serial No. 66,576. (No model.)



Claim.—1. A guard for protecting the leg of the wearer from the impact of a blow, consisting of a curved shield portion, and stay means secured to the side of said shield portion over the concave surface thereof as to be slack, for the purpose of permitting the leg of the wearer to partially set into the concavity of said shield, and form a space between said stay means and the concave surface of the shield, and means for securing said guard to the leg of the wearer.

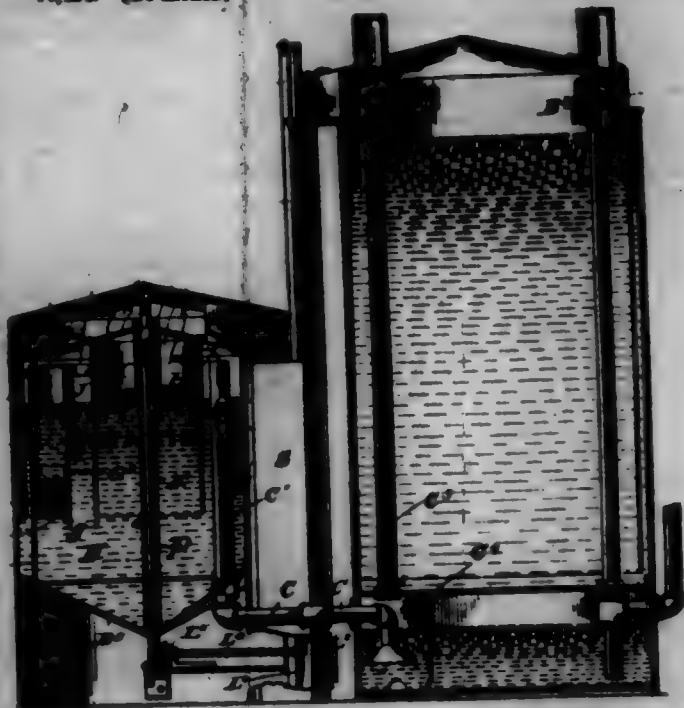
2. A guard of the character described, comprising a shield, a stay-piece shorter than the inner surface of said shield and secured to said shield over the inner side thereof, whereby a space is formed between the stay and the inner surface of said shield, and means for securing said guard to the wearer.

3. A leg-guard of the character described, comprising a curved shield, stay or stays shorter than the inner periphery of said shield and secured over the inner side thereof, whereby a space is formed between said stay or stays and the concave surface of said shield, and means for attaching said shield to the leg.

4. A leg-guard of the character described, comprising a curved shield, stay or stays of plant material shorter than the inner periphery of said shield and secured over the inner side thereof at or near its opposite edges, whereby a space is formed between said stay or stays and the concave surface of said shield, and means for securing said shield to the leg.

5. A leg-guard of the character described, consisting of a curved rigid shield portion having attached thereto at or near the edges thereof an inner plant portion that is adapted to rest against the leg, and means for attaching the guard to the leg; the said inner plant portion being less in length than the width of the blank from which the shield portion is made, substantially as described.

696,765. ACETYLENE-GAS GENERATOR. FAYEL BROSSE, STERLING, ILL. Filed Dec. 22, 1899. Renewed Oct. 2, 1901. Serial No. 77,461. (No model.)



Claim.—1. In an acetylene-gas generator, a long and narrow carbide-holder presenting a small area in cross-section of exposed surface for the carbide and formed of an imperforate body an open top and a closed and weighted bottom, means for maintaining the carbide-holder in a perpendicular position with its top above the surface of the water, and means for releasing the carbide-holder and permitting it to be submerged in the water and aided in its descent and held when submerged in a vertical position by the weighted bottom, substantially as described.

2. In an acetylene-gas generator, a desired number of long and narrow carbide-holders each presenting a small area in cross-section of exposed surface for the carbide and each formed of an imperforate body an open top and a closed and weighted bottom and normally held with the open top above a body of water contained in the generating-chamber, and means for automatically releasing each carbide-holder to permit it to descend and be submerged in the water, whereby the water enters at the top only and acts only on a small area of exposed carbide, substantially as described.

3. In an acetylene-gas generator, a desired number of long and narrow carbide-holders, each holder presenting a small area in cross-section of exposed surface for the carbide and each formed of an imperforate body an open top and a closed and weighted bottom and normally held with the open top above the surface of a body of water in the generating-chamber, a correspondingly-shaped guiding-well for each carbide-holder in which the holder is received and held vertically and guided, and means for releasing each holder from its raised position in its well to permit it to descend and be assisted in its descent and submerged in the body of water in the generating-chamber and held in a vertical position when submerged by the weighted bottom for the admission of water at the open top only, substantially as described.

4. In an acetylene-gas generator, a desired number of long and narrow carbide-holders, each holder presenting a small area in cross-section of exposed surface for the carbide and each formed of an imperforate body an open top and a closed and weighted bottom and normally held with the open top above the surface of a body of water in the generating-chamber, a correspondingly-shaped guiding-well for each carbide-holder in which the holder is received and held vertically and guided, means for supporting the carbide-holders in the wells in a raised position, and means for releasing the carbide-holders successively and at intervals from the raised position to permit them to descend and be assisted in their descent and submerged in the body of water in the generating-chamber and held in a vertical position when submerged by the weighted bottom for the admission of water at the top of each holder only, substantially as described.

5. In an acetylene-gas generator, a rotatable bell, a main shaft extending up through the generator beneath the bell and on which the bell is mounted and by which it may be rotated, means for limiting the upward movement of the bell on the shaft, and means beneath the bell for automatically imparting rotation to the main shaft at desired intervals, substantially as described.

6. In an acetylene-gas generator, a casing containing a body of water, a rotatable bell arranged in the casing, means for intermittently imparting partial rotation to the bell, a desired number of carbide-holders located in juxtaposition side by side circumferentially around the interior of the casing at its upper end, each carbide-holder open at one end and

with the open end normally supported under the bell above the body of water, means for supporting the carbide-holders individually, and means actuated by the partial rotation of the bell for automatically and successively releasing the carbide-holders and permitting them to be submerged in the water, substantially as described.

7. In an acetylene-gas generator, a casing containing a body of water, a rotatable bell arranged in the casing, means for intermittently imparting partial rotation to the bell, a desired number of carbide-holders located in juxtaposition side by side circumferentially around the interior of the casing at its upper end, each carbide-holder open at one end and with the open end normally supported under the bell above the body of water, a guiding-wall for each carbide-holder in which it is received and guided, each wall containing a single carbide-holder, means for supporting the carbide-holders individually in the walls, and means actuated by the partial rotation of the bell for automatically and successively releasing the carbide-holders and permitting them to be submerged in the water, substantially as described.

8. In an acetylene-gas generator, a casing containing a body of water, a bell arranged in the casing, a desired number of guiding-wells within the casing under the bell and extending into the body of water contained in the casing, carbide-holders open at the top and slidably arranged in the wells with the active surface of the carbide in the holders above the surface of the water, supports for maintaining the carbide-holders so arranged, a trigger device adapted to actuate the supports and release the carbide-holders, means for automatically operating the trigger device to permit the carbide-holders to be submerged in the water, and means for maintaining the carbide-holders when released and submerged in a stationary upright position while the action of generation takes place, substantially as described.

9. In an acetylene-gas generator, a casing containing a body of water, a bell arranged in the casing, a desired number of circumferentially-disposed and perpendicularly-arranged guiding-wells within the casing under the bell and extending into the body of water contained in the casing, carbide-holders open at the top and arranged in the wells with the active surface of the carbide in the holders above the surface of the water, removable supports for maintaining the carbide-holders so arranged, a trigger device adapted to actuate the supports and release the carbide-holders, a rotatable member adapted to successively engage the trigger devices and remove the supports and permit the carbide-holders to be submerged in the water, and means for automatically imparting rotation to the rotatable member at desired intervals, substantially as described.

10. In an acetylene-gas generator, a casing containing a body of water, a gas-generator chamber, a desired number of guiding-wells circumferentially disposed and perpendicularly arranged within the gas-chamber under the bell and extending into the body of the water, carbide-holders open at the top and slidably arranged in the wells with the active surface of the carbide in the holders above the surface of the water, removable supports for maintaining the carbide-holders so arranged, a trigger device adapted to actuate the supports and release the carbide-holders, an engaging member carried by the rotatable bell adapted to successively engage the trigger devices and remove the supports and permit the carbide-holders to be submerged in the water, and means for automatically imparting rotation to the bell at desired intervals, substantially as described.

11. In an acetylene-gas generator, a desired number of guiding-wells circumferentially disposed and perpendicularly arranged within the gas-chamber and extending into the body of water, carbide-holders open at the top and slidably arranged in the wells with the active surface of the carbide in the holders above the surface of the water, movable supports for the carbide-holders, a rotatable bell arranged in the generator, means carried by the bell for actuating the movable supports of the carbide holders, a main shaft on which the bell is mounted and by which it may be rotated, and means for automatically imparting rotation to the main shaft at desired intervals, substantially as described.

12. In an acetylene-gas machine, a gas-generator having a generating-chamber containing a body of water, a desired number of long and narrow carbide-holders arranged in the chamber, each holder presenting a small area in cross-section of exposed surface for the carbide and each formed of an impermeable body as open top and a closed and weighted bottom and normally held with the open top above the surface of a body of water in the generating-chamber, means for supporting each carbide-holder vertically in its normal position, a gasometer, means for conveying gas from the generating-chamber to the gasometer, and means automatically operated at a predetermined point of consumption of gas in the gasometer for releasing the carbide-holders from their raised position to permit them to descend and be assisted in their descent and submerged in the body of water in the generating-chamber and held vertically when submerged by the weighted bottom for water to enter the holder at the top only, substantially as described.

13. In an acetylene-gas machine, a gas-generator, a rotatable bell arranged in the generator, a desired number of carbide-holders open at one end and with the open end normally supported under the bell above a body of water contained in the generator, means for supporting the carbide-holders, a gasometer, means for conveying gas from the generator to the gasometer, means for intermittently imparting partial rotation to the bell into operation when the gas in the gasometer reaches a predetermined point of consumption, and means for automatically releasing the carbide-holders and permitting them to be submerged in the water actuated by the partial rotation of the bell, substantially as described.

14. In an acetylene-gas generator, a carbide-holder having an impermeable body as open top and a closed and weighted bottom, with the body of greatly-increased length as compared with its width, forming an open-top closed chamber for receiving the carbide and held in a vertical position by the weighted bottom permitting the free carbide to be exposed to the action of water from the top only with a small area of surface exposure, a generator-bell, and a well for the holder located beneath the generator-bell and having an open top and bottom and having the holder releasably supported in the upper portion of the well to descend therein when released and be maintained in perpendicular position in its descent with the open top uppermost, substantially as described.

15. In an acetylene-gas generator, a generating-chamber partially filled with water, a vertical well within the generating-chamber having an open top and bottom for the admission of water to its interior from the bottom, and a carbide-holder having an impermeable body as open top and a closed bottom with the body of an increased length as compared with its width, forming an open-top closed chamber for receiving carbide and means for supporting the carbide-holder in the well with its bottom projecting into the water of the well, the water to form a seal between the body of the holder and the wall of the well and prevent the downward flow of generated gas, substantially as described.

16. In an acetylene-gas generator, a generating-chamber partially filled with water, a vertical well within the generating-chamber having an open-top and bottom for the admission of water to its interior from the bottom, a carbide-holder having an impermeable body as open top and closed bottom with its body of increased length as compared with its width, forming an open-top closed chamber for receiving carbide and inserted in the upper portion of the well, means for supporting the holder in the well with its bottom projecting into the water of the well forming a water seal against the downward flow of generated gas, and means for releasing the holder to descend and be submerged in the water of the well to permit the water to enter the holder at the top, whereby the gas first generated will pass to the bottom of the holder and fill the interstices between the particles of carbide in the holder and exert an upward pressure in the holder, substantially as described.

17. In an acetylene-gas generator, a generating-chamber partially filled with water, a desired number of vertical wells within the generating-chamber, each provided with a hinged flap or cover for the top and each having an open top and bottom for the admission of water to its interior from the bottom, a carbide-holder for each well, each carbide-holder having an impermeable body as open top and a closed bottom with its body of an increased length as compared with its width, forming an open-top closed chamber for receiving carbide and inserted in the upper portion of its well, means for supporting each carbide-holder in the upper portion of its well with its bottom projecting into the water of the well, and means for releasing each holder from its raised position and permitting it to descend to the lower portion of the well and be submerged in the water therein, whereby the upward pressure of the gas through the confined space will remove the residuum and the hinged covers will prevent the discharge from entering the adjoining wells and protect the carbide of the holders therein from the injurious effect of the discharge, substantially as described.

18. In an acetylene-gas machine, the combination of a generator comprising an outer casing for water and provided with a bottom inclining toward the center, a pipe rising from the apex of the bottom and terminating beneath the gasometer-bell, a rotatable gasometer-bell removably mounted on an upright shaft and comprising an outer casing and a central depending inner casing secured to the top and extending downward into the water and forming a chamber around the upper end of the pipe, and a depending guide from the gasometer-bell surrounding the top of the central pipe for guiding the movements of the bell, substantially as described.

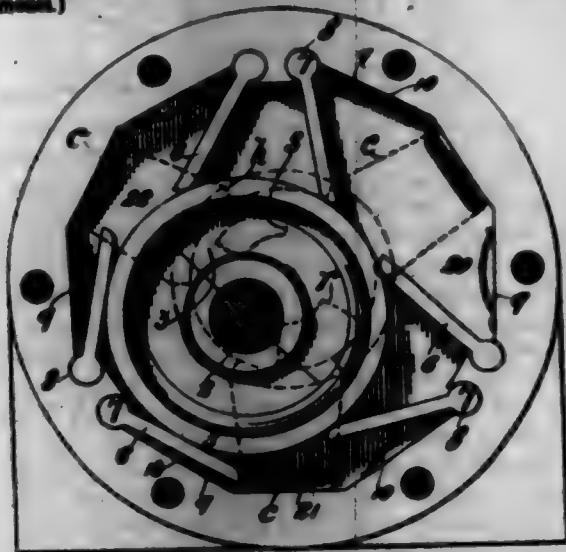
19. In an acetylene-gas machine, the combination of an angle-iron rod arranged outside of the gasometer-casing and suspended in a vertical position from the gasometer-bell and having a slot through one of its flanges and a pin on the other crossing in front of the slot, a ratchet-wheel, a pawl engaging the ratchet-wheel, a bent lever carrying the pawl and having one arm double and the double arm straddling the ratchet-wheel and provided with a hole through the double arm for mounting the lever on the shaft of the ratchet-wheel for a pivot to be engaged in action by the pin in the downward movement of the rod and curving downward on its pivot

and to be engaged by the lower end of the slot in the rod in the upward movement of the rod and carried to its normal position when at rest, substantially as described.

20. In an acetylene-gas machine, a ratchet-wheel mounted on a shaft and secured thereto, a bent lever having one arm double and the double arm straddling the ratchet-wheel and carrying a pawl to engage with the teeth of the ratchet-wheel and advance the wheel when the lever is swung or turned downward, the double arm of the bent lever being provided with a hole between the end and the angle for mounting the lever on the shaft of the ratchet-wheel as a pivot, the ratchet-wheel shaft extending horizontally to a point beneath the generator and provided with a beveled gear at its inner end, a vertical shaft extending upward through the generator within a central pipe therein and adapted to engage at its upper end the bell of the generator so as to rotate the same, a beveled gear near the lower end of the vertical shaft to engage with the bevel-gear of the horizontal shaft for imparting rotation to the vertical shaft from the horizontal shaft, and a pawl pivoted to a fixed point for preventing the ratchet-wheel from turning back while the bent lever is being drawn to its initial position, substantially as described.

21. In a gas-generator, the combination of a rotatable generator-hell having in its top a central hole for the passage of a main or driving shaft end, and a main or driving shaft for rotating the hell and on the upper end of which the hell is removably mounted to permit its withdrawal for recharging the generator, leaving the shaft in position in the generator, substantially as described.

696,766. ENGINE. FRANK E. BLUMBERG, Westmount, Canada, assignor of one-half to the North West Shoe Company, Limited, Montreal, Canada, a Corporation. Filed Oct. 20, 1902. Serial No. 34,772. (No model.)



Claim.—1. The combination of a shaft, a stationary part located adjacent to said shaft, a pair of partitions each in steam-tight contact at one end with the side of said stationary part adjacent to said shaft, means in relative relation with the shaft and forming in conjunction with said partitions and stationary part an expandable chamber, and an expandable-fluid supply to and exhaust from said chamber.

2. The combination of a shaft, a stationary part located adjacent to said shaft, a pair of partitions each in steam-tight contact at one end with the side of said stationary part adjacent to said shaft, means constantly free of said stationary part and in relative relation with the shaft and forming in conjunction with said partitions and stationary part an expandable chamber, and an expandable-fluid supply to and exhaust from said chamber.

3. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, a series of partitions, each partition being in steam-tight contact at its sides with the interior of the cylinder and the eccentric respectively, an expandable-fluid supply to and exhaust from the space between the partitions, and means for controlling said expandable fluid to be supplied to said spaces successively, substantially as and for the purpose set forth.

4. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, a series of pairs of partitions, each partition being in steam-tight contact at its sides with the interior of the cylinder and the eccentric respectively, an expandable-fluid supply to and exhaust from the alternate spaces between the adjacent pairs of said partitions, substantially as and for the purpose set forth.

5. The combination with the cylinder of an engine and shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, a series of pairs of partitions, each partition being in steam-tight contact at its sides with the interior of the cylinder and the eccentric respectively, an expandable-fluid supply to and exhaust from the alternate spaces between the adjacent pairs of said partitions and means for controlling said expandable fluid to be supplied to said spaces successively, substantially as and for the purpose set forth.

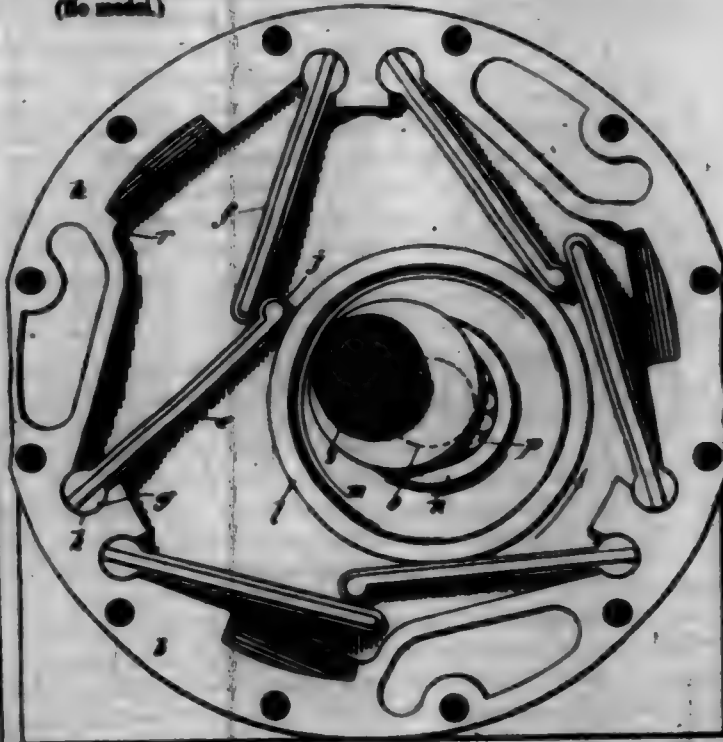
6. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, a series of pairs of flexible partitions, said pairs being disposed equidistant from one another and each partition being in steam-tight contact at its ends with the interior of the cylinder and the eccentric respectively, an expandable-fluid supply to and exhaust from the space between the said pairs of partitions, and means for controlling said expandable fluid to be supplied to said spaces successively, substantially as and for the purpose set forth.

7. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, a series of pairs of blades, said pairs being disposed equidistant from one another, and each blade being pivotally connected at one end to the interior of said cylinder and bearing at its other end loosely upon the eccentric, an expandable-fluid supply to and exhaust from the space between said pairs of blades, and means for controlling said supply to come same to be supplied to said spaces successively, substantially as described and for the purpose set forth.

8. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, said eccentric consisting of an offset portion of the shaft, a hub mounted loosely upon said offset portion, and an annulus mounted rigidly upon said hub, said annulus being of a width to closely fit the ends of said cylinder; a series of pairs of blades, said pairs being disposed equidistant from one another, and each blade being pivotally connected at one end to the interior of said cylinder and bearing at its other end loosely upon the eccentric, an expandable-fluid supply to and exhaust from the space between said pairs of blades, and means for controlling said fluid supply to come same to be supplied to said spaces successively, substantially as described and for the purpose set forth.

9. The combination with the cylinder of an engine and a shaft extending therethrough, of an eccentric mounted upon and rotatable with said shaft, said eccentric consisting of an offset portion of the shaft, a hub mounted loosely upon said offset portion, and an annulus mounted rigidly upon said hub, said annulus being of a width to closely fit the ends of said cylinder; a series of pairs of blades, said pairs being disposed equidistant from one another, and each blade being pivotally connected at one end to the interior of said cylinder and bearing at its other end loosely upon the eccentric, an expandable-fluid supply to and exhaust from the space between said pairs of blades, and means for controlling said fluid supply to come same to be supplied to said spaces successively, substantially as described and for the purpose set forth.

696,767. ENGINE. FRANK E. BLUMBERG, Westmount, Canada, assignor of one-half to the North West Shoe Company, Limited, Montreal, Canada, a Corporation. Filed Jan. 2, 1901. Serial No. 41,896. (No model.)



Claim.—1. In an engine the combination with a shaft of an expandable chamber consisting of a wall stationary relatively to said shaft, a flexible intact wall between said stationary wall and said shaft and hinged at two of its opposite sides to said stationary wall, means for closing the space between the stationary wall and the other side edges of said flexible wall, an expandable-fluid supply to and exhaust from said expandable chamber and means for relatively connecting said flexible wall to said shaft, substantially as described.

2. In an engine the combination with a shaft of an expandable chamber consisting of a wall stationary relatively to said shaft, a flexible intact wall between said stationary wall and said shaft and hinged at two of its opposite sides to said stationary wall, means for closing the space between the stationary wall and the other side edges of said flexible wall, an expandable-fluid supply to and exhaust from said expandable chamber and an eccentric carried by said shaft to receive from said flexible wall

and transmit to said shaft the thrust due to the expansion of said expansible chamber substantially as described.

3. An engine comprising a casing; a pair of heads closing the ends of said casing; a shaft extending through said casing; a portion of the shaft within said casing being offset; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing, the opposite side edges of the blades of each pair overlapping one another; and the other side edges of said blades being in contact with said heads; an intermediary between the offset portion of said shaft and each pair of blades, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

4. An engine comprising a casing of interior hexagonal form and recessed at its alternate angles and a pair of heads closing the ends of said casing; a shaft extending through said casing; a portion of the shaft within said casing being offset; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing at the other angles, the opposite side edges of the blades of each pair overlapping one another and the other side edges of said blades being in contact with said heads; the blades adjacent to the shaft being each formed with a head projecting toward the overlapping blade; an intermediary between the offset portion of said shaft and each pair of blades, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

5. An engine comprising a casing, a shaft extending through said casing, roller-bearings for said shaft in the walls of said casing, a motive-fluid supply to and exhaust from said casing, an automatic cut-off valve carried by the shaft for controlling the supply of said motive fluid, means for yieldingly connecting said cut-off valve to said shaft to accommodate the vibration of said shaft in its roller-bearings, means for causing said motive fluid to rotate said shaft, substantially as described.

6. In an engine the combination with the frame thereof, a shaft extending through said frame, roller-bearings for said shaft in said frame, a steam-chest, a cylindrical valve having a steam-port and mounted loosely upon said shaft for controlling the supply of steam from said steam-chest to said engine, and a feather connecting said valve to said shaft, substantially as described, and for the purpose set forth.

7. In an engine the combination with the frame thereof, a shaft extending through said frame, roller-bearings for said shaft in said frame, a steam-chest, a cylindrical valve having a steam-port leading at one end from the perimeter thereof and mounted loosely upon said shaft for controlling the supply of steam from said steam-chest to said engine, a feather connecting said valve to said shaft, an annular slide-valve having a port to register with and control the port in said cylindrical valve, a sleeve fitting over said shaft adjacent to said cylindrical valve and having its interior of increased diameter from the end thereof adjacent to said cylindrical valve to within a short distance of the other end thereof, means for connecting said sleeve to said slide-valve, and means connected to the shaft and to said sleeve and actuated by centrifugal force to rotate said sleeve upon said shaft, substantially as described and for the purpose set forth.

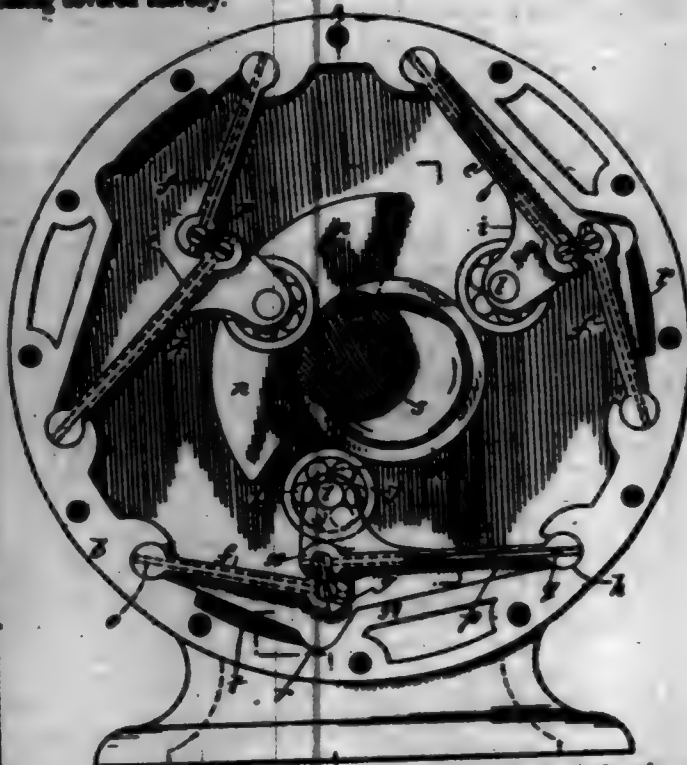
8. In an engine the combination with the steam-chest and a cylindrical valve having a port therein leading from the perimeter thereof for controlling the steam-supply from said steam-chest to said engine of an annular slide-valve encircling the portion of said valve having said port therein, said annular slide-valve having a port to register with and control said steam-supply-port, and means under the control of a rotating part of said engine for causing said annular slide-valve to slide over the surface of said cylindrical valve, substantially as described and for the purpose set forth.

9. In an engine the combination with the frame thereof, a shaft extending through said frame, a steam-chest, a cylindrical valve having a steam-port leading at one end from the perimeter thereof and an exhaust-port leading from the engine side to the opposite end thereof, said valve being mounted upon said shaft for controlling the supply of steam from said steam-chest to said engine, an annular slide-valve having a port to register with and control the steam-port in said cylindrical valve, a sleeve fitting over said shaft adjacent to said cylindrical valve, a series of bridge-pieces connecting said sleeve to said slide-valve, a cap for closing the outer end of the valve-chamber containing said cylindrical valve and slide-valve and having an exhaust-passage leading therefrom, and means connected to the shaft and to said sleeve and actuated by centrifugal force to rotate said sleeve upon said shaft, substantially as described and for the purpose set forth.

696,768. ENGINE. FRANK E. SUMNER, Westmount, Canada, assigner of one-half to the North West Shoe Company, Limited, Montreal, Canada, a Corporation. Filed Oct. 15, 1904. Serial No. 74,702. (No model.)

Claim.—1. An engine comprising a casing; a pair of heads closing

the ends of said casing; a shaft extending through said casing; a pair of blades pivotally connected at one side edge of each to the interior of said casing, the opposite side edges of said blades overlapping one another; a link-plate joining the overlapping edges of said blades and the other side edges of said blades being in contact with said heads; an intermediary between the said shaft and said blades, and an expansible-fluid supply to and exhaust from the space between said blades and the portion of the casing covered thereby.



2. An engine comprising a casing; a pair of heads closing the ends of said casing; a shaft extending through said casing; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing; the opposite side edges of the blades of each pair overlapping one another; a link-plate joining the overlapping edges of said blades and the other side edges of said blades being in contact with said heads; an intermediary between the said shaft and each pair of blades, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

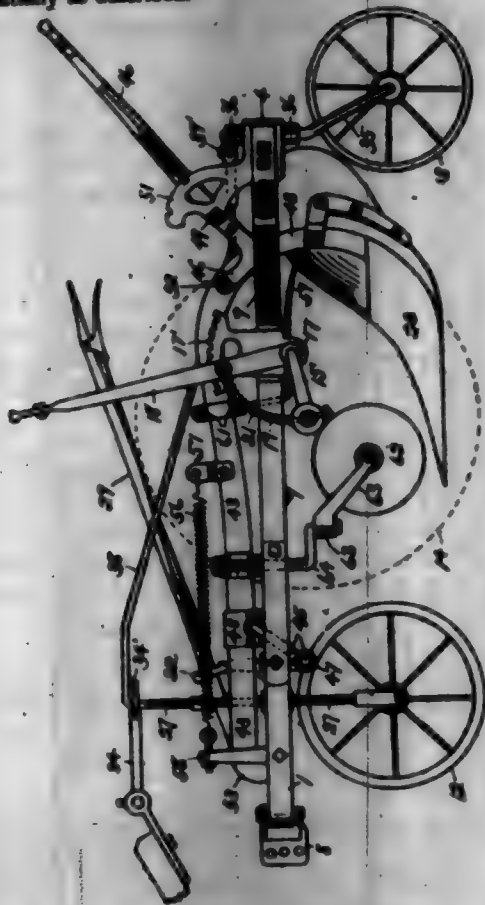
3. An engine comprising a casing; a pair of heads closing the ends of said casing; a shaft extending through said casing; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing, the opposite side edges of the blades of each pair overlapping one another and the other side edges of said blades being in contact with said heads; the blades adjacent to the shaft being each provided with an anti-friction-roller; a cam rigidly upon the shaft upon which each of said anti-friction-roller bears, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

4. An engine comprising a casing; a pair of heads closing the ends of said casing; a shaft extending through said casing; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing, the opposite side edges of the blades of each pair overlapping one another and being connected together by a link-plate, and the side edges of said blades being in contact with said heads; the blades adjacent to the shaft being each provided with an anti-friction-roller; a cam rigidly upon the shaft upon which each of said anti-friction-roller bears, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

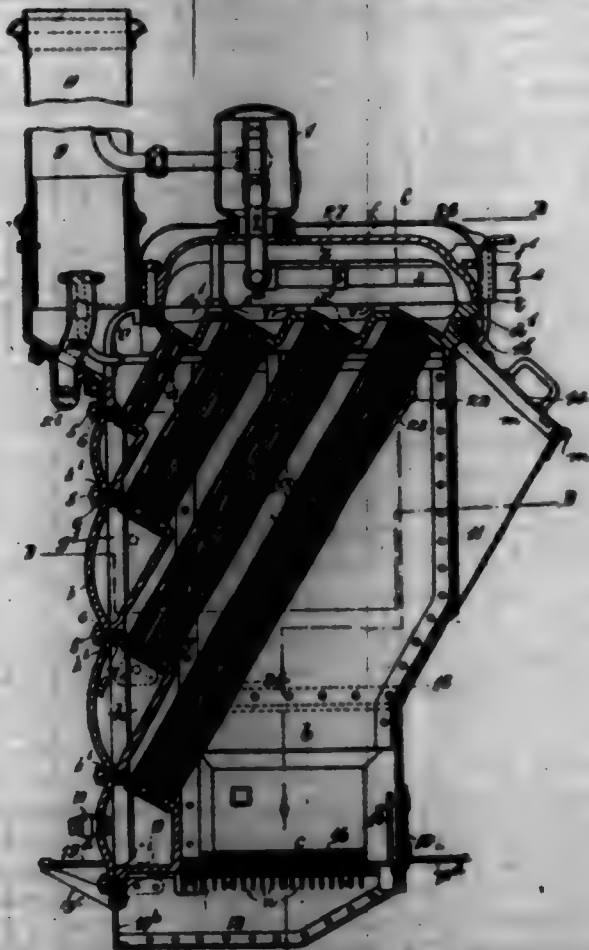
5. An engine comprising a casing of interior hexagonal form and recessed at its alternate angles and a pair of heads closing the ends of said casing; a shaft extending through said casing; a series of pairs of blades pivotally connected at one side edge of each to the interior of said casing at the other angles, the opposite side edges of the blades of each pair overlapping one another and being connected together by a link-plate, and the other side edges of said blades being in contact with said heads, the blades adjacent to the shaft being each provided with an anti-friction-roller; a cam rigidly upon the shaft upon which each of said anti-friction-roller bears, and an expansible-fluid supply to and exhaust from the space between each pair of blades and the portion of the casing covered thereby, substantially as described.

696,769. SULKY FLOW. HENRY SUMMERS, Canton, Mass. Filed June 28, 1904. Serial No. 64,302. (No model.)

Claim.—In a wheeled plow, a frame, a cranked shaft mounted near the front end thereof, a plow-beam having a depending shoulder at its front end and connected to said cranked shaft, a cross-bar forming a part of the frame, beneath the front end of the plow-beam, and a hand-lever fulcrumed in the frame and connected pivotally to the plow-beam, for raising and lowering the same, said shoulder being in contact with the front edge of said cross-bar when the plow-beam is in fully-lowered position, substantially as described.



696,770. STEAM-BOILER. ALEXANDER SPINER, London, Eng.
Inventor. Filed July 18, 1901. Serial No. 98,738. (No model.)



Claim.—1. In a steam-boiler, the combination of an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box having a stepped inner side, and water-tubes connecting the stepped sides of said vessel and box.

2. In a steam-boiler, the combination of an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box having a stepped inner side, and inclined groups of straight water-tubes connected to the stepped sides of said vessel and box.

3. A steam-boiler comprising an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box having a stepped inner side, a combustion-chamber communicating with a gas-exit passage between said vessel and box, and water-tubes arranged at one side of and above said combustion-chamber and connected to the stepped sides of said vessel and box.

4. A steam-boiler comprising an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box having a stepped inner side, a combustion-chamber communicating with a gas-exit passage between said vessel and box, and a number of groups of straight water-tubes of different lengths arranged in an inclined position at one side of and above said combustion-chamber and connected to the stepped sides of said vessel and box.

5. A steam-boiler comprising an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box having a stepped inner side, a combustion-chamber communicating with a gas-exit passage between said vessel and box and provided near its top with a normally closed fuel-filling opening, and a number of groups of water-tubes of different lengths arranged in an inclined position at one side of and above said combustion-chamber and connected to the stepped sides of said vessel and box.

6. A steam-boiler comprising an upper steam and water vessel having a stepped lower side, an upwardly-extending water-box in communication with said vessel and having a stepped inner side, a combustion-chamber communicating with a gas-exit passage between said vessel and box and provided at its opposite side with a fuel-filling chute extending downward from its upper part, and a number of groups of straight water-tubes spaced apart in an inclined position at one side of and above said combustion-chamber and connected to the stepped sides of said vessel and box, substantially as described.

7. In a steam-boiler, the combination of an upper steam and water vessel having a stepped lower side, a readily-removable cover, and stays between said stepped lower side and cover, an upwardly-extending water-box in communication with said vessel and having a stepped inner side and a readily-removable cover having outwardly curved or convex portions and flat intermediate portions secured to the adjacent stepped inner side of the box, and a number of groups of water-tubes connected to the stepped sides of said vessel and box.

8. In a boiler, the combination of an upper steam and water vessel comprising a lower part having a stepped lower side and an upwardly-extending flanged rim arranged to form two channels along two opposite sides of the stepped portion, an inverted-dish-shaped cover adapted to be secured to the flanged rim of the lower part of the vessel, and stays connecting said lower stepped part and cover, an upwardly-extending water-box comprising an inner part having a stepped inner side and flanged rim arranged to form two upwardly-extending channels that are located at the two opposite sides of the stepped portion and are in communication at the top with the two channels in the lower part of said steam and water vessel, and an outer removable cover secured to the flanged rim of the inner part, and water-tubes connected to the stepped sides of said vessel and box, substantially as described.

9. A steam-boiler comprising a casing having vertical side walls and a rear wall provided with a fuel-filling opening near the top, said walls being arranged to form a combustion-chamber, an upper steam and water vessel having a laterally-flanged stepped lower side secured to the upper ends of the said vertical side walls, an upwardly-extending water-box having a laterally-flanged stepped inner side secured to the front ends of said side walls, and a flanged upper end connected to said vessel and formed with a gas-exit opening, groups of water-tubes connected to the stepped sides of said vessel and box, and a fire-grate at the bottom of said combustion-chamber and below said water-tubes, substantially as described.

10. A steam-boiler comprising a combustion-chamber the rear wall of which is provided with an inclined fuel-filling chute and cover, an upper steam and water vessel having a flanged lower side secured to the top of the side walls of said combustion-chamber, a vertical water-box having a flanged inner stepped side secured to the front ends of said side walls and an upper flanged part connected to the front end of said water-vessel and formed with a gas-exit opening, a fire-grate and fire-box at the bottom of said combustion-chamber, a chimney having its lower end secured over said gas-exit opening, and inclined groups of straight water-tubes connected to the stepped sides of said vessel and box, substantially as described.

11. A steam-boiler having a horizontally-arranged steam and water vessel at its upper end, a vertical water-box at its front end, and a covered inclined fuel-filling chute extending downward from near the top

of its rear end, groups of water-tubes connecting said vessel and box within the combustion-chamber of said boiler and above the fire-box thereof, an upper gas-exit passage in the angle between said vessel and box, and a chimney having its base secured over said gas-exit opening.

12. A steam-boiler having a horizontally-arranged steam and water vessel at its upper end, a vertical water-box at its front end, a covered inclined fuel-feeding chute extending downward from near the top of its rear end, and a fire-grate and ash-pan at its lower end, a fire-box arranged above said fire-grate and formed of refractory material with one or more openings with doors in its sides, inclined groups of water-tubes connecting the lower side of said vessel to the inner side of said box, an upper gas-exit opening located between said vessel and box, and a chimney having its base secured over said opening.

696,771. RUBBER TIRE FOR VEHICLE-WHEELS. JOHN M. SWERT, Batavia, N. Y., assignor of one-half to Frank Richardson, Batavia, N. Y. Filed Jan. 15, 1902. Serial No. 89,921. (No model.)



Claim.—1. An elastic tire for vehicle-wheels formed with an open longitudinal groove extending into the tire from the inner or bottom face thereof, holding devices secured to the tire and bridging said groove, and a retaining-wire or the like detachably seated in said groove and held therein by said holding devices, substantially as set forth.

2. The combination with a channel-rim, of an elastic tire arranged in said rim and provided with an open longitudinal groove which extends into the base portion of the tire from the inner or bottom face thereof, a retaining-wire or the like located in said groove, and holding devices secured to the tire and holding said retaining-wire or the like in said groove, substantially as set forth.

3. The combination with a channel-rim, of an elastic tire arranged in said rim and provided with an open longitudinal groove which extends into the base portion of the tire from the inner or bottom face thereof, a reinforcing-covering which is secured to said tire and which reinforces the walls of said groove, a retaining-wire or the like located in said groove beneath or outside of said reinforcing-covering, and holding devices secured to said tire and extending into said groove for holding the retaining-wire or the like therein, substantially as set forth.

4. The combination with a channel-rim, of an elastic tire arranged in said rim and provided with an open longitudinal groove extending into the base portion of the tire from the inner or bottom face thereof, a retaining-wire or the like located in said groove, and holding devices which are secured to the tire and span said groove, forming eyes or holes through which said retaining-wire or the like passes, substantially as set forth.

5. The combination with a channel-rim, of an elastic tire arranged in said rim and provided with an open longitudinal groove extending into the base portion of the tire from the inner or bottom face thereof, a retaining-wire or the like located in said groove, and holding devices secured to the tire, each in the form of a loop having one part thereof spanning said groove and forming therewith an eye or hole, substantially as set forth.

696,772. DENTAL CROWN-SLITTING TOOL. GEORGE W. TURNER, Philadelphia, Pa. Filed Nov. 25, 1901. Serial No. 83,498. (No model.)

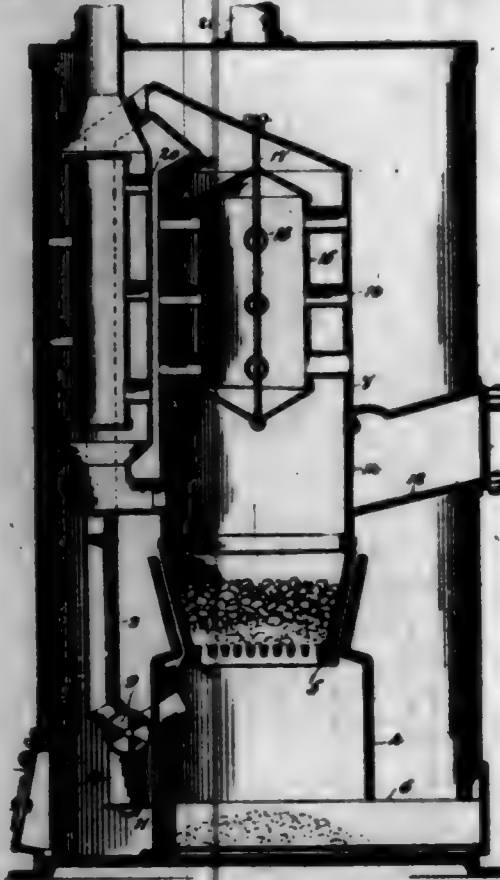


Claim.—1. In a dental tool for slitting cap-crowns, a slitting-jaw comprising an arm, the free end of which is enlarged into a ring, a stud having an inner face resting upon the outer face of said ring, a stem projecting from the stud and entering the center of the ring to form a swivel connection between the stud and ring and a knife projecting radially from the periphery of the stud and having its point projecting beyond the periphery of the ring, and a bearing-jaw cooperating with the slitting-jaw.

2. In a dental tool for slitting cap-crowns, a bearing-jaw comprising an arm, the free end of which is enlarged into a cup, said cup having its rim ridged to form an annular groove concentric with the interior of the cup, in combination with a slitting-jaw comprising an arm having its free end enlarged into a ring of a diameter less than the diameter of the cup, a stud having an inner face resting upon the outer face of the ring, a stem projecting from the stud and fitting the center of the ring to form a swivel connection between the stud and ring, and a knife projecting radially from

the periphery of the stud and having a point projecting beyond the periphery of the ring and in alignment with the inner ridge of the cup in the bearing-jaw.

696,773. HEATER. WILLIAM M. THOMAS and LEBERT VAN SCOYER, Louisville, Mo. Filed Oct. 7, 1901. Serial No. 77,902. (No model.)



Claim.—1. A heater, comprising an outer drum, a fire-pot supported within the drum, an inner drum supported on the fire-pot, a drum or cylinder supported in said inner drum and having tube communications with the outer drum, and a pipe leading from the first-named inner drum and discharging underneath the fire-pot, substantially as specified.

2. A heater, comprising an outer drum, a fire-pot arranged therein, an inner drum supported on the fire-pot, a pipe leading from the upper portion of said inner drum to the under side of the fire-pot, a jacket, a smoke-pipe surrounding the jacket and communicating with the interior of the said inner drum at its lower portion, and tube communications between said jacket and the outer drum, substantially as specified.

3. A heater, comprising an outer drum, a cylinder extended upward from the bottom thereof, a fire-pot arranged in said cylinder, a drum supported on the fire-pot, a pipe leading from said drum into said cylinder and below the fire-pot, a damper or valve in the lower portion of said pipe, and a plurality of dampers in the lower portion of the outer drum substantially as specified.

4. A heater, comprising an outer drum, a fire-pot arranged in the outer drum, an inner drum, a chute leading through the wall of the outer drum and into the inner drum, a swinging trap at the inner end of said chute, a cylinder arranged within said inner drum and having communication with the space between the inner and outer drums, a pipe leading from the upper end of the inner drum to the lower portion of the fire-pot, a jacket, a smoke-pipe surrounding the jacket, and tubes leading from said jacket through the wall of the smoke-pipe, substantially as specified.

696,774. DENTAL ARTICULATOR. JOHN TIFFIN and CHARLES E. BENTLEY, Pinos Altos, N. Mex. Filed Aug. 7, 1901. Serial No. 71,168. (No model.)



Claim.—1. In a device of the class described, the combination with an upper articulating-plate, of a lower articulating-plate, each provided with antifriction devices by which the same may be moved freely against the other, and means for rigidly securing the same together against movement, substantially as shown and described.

2. In a device of the class described, the combination one with the other, of two articulating-plates adapted to receive charges of modeling-wax, handle portions extending therefrom, a stud, 14, having a screw-threaded hole carried by one handle, a slot in the other handle, support-

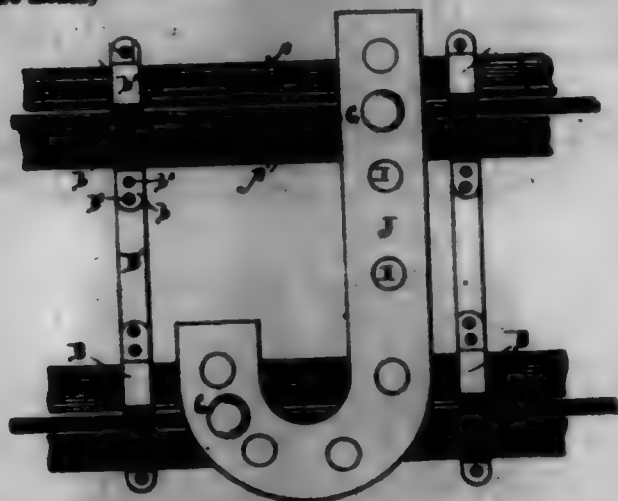
ing-studs on the handle and on the plate substantially at the height of the central stud, and a thumb-screw adapted to coast with the screw-thread of the stud for securing the parts together, substantially as shown and described.

3. In a device of the class described, the combination with two articulating-plates adapted to receive charges of modeling-wax, of handle portions projecting therefrom one of which is provided with a centrally-located stud having an axial screw-threaded hole, a ball-caster stud carried by one handle at the end thereof, one or more ball-caster studs carried by the other articulating-plate the handle of which is provided with a slot, and a securing-screw passing through the slot and into the axial screw-threaded hole of the stud, substantially as shown and described.

4. In a device of the class described, the combination with two articulating-plates adapted to receive charges of modeling-wax, of handle portions projecting therefrom, one of which is provided with a slot and with an antifriction-caster, and the other with an antifriction center or casters, and with a stud having a central axial screw-threaded hole for the securing-screw passing through the slot of the handle of one plate into the axial screw-threaded hole of the other so as to screw the same together, an indicating hand or pointer carried by the screw, and means adjacent to the screw adapted to receive ink or pencil marks, substantially as shown and described.

5. In a device of the class described, the combination with the upper and lower articulating-plates each of which is provided with a handle portion, of a securing-screw adjustably securing the handle portions together, means for securing an indicating-card to one of the handle portions, and a pointer connected with the device adjacent to the slot the point of which is adapted to move over the indicating-card when the plates are moved over one another, substantially as shown and described.

696,775. ELECTRIC-LIGHT SIGN. HERMAN TRIPP and GEORGE E. STEPHENSON, Chicago, Ill. Filed Dec. 17, 1901. Serial No. 86,346. (No model.)



Claim.—1. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger consisting of two trough-shaped halves or sections spaced apart to leave on each side an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, connecting-straps or tie-bars between the two bars or hangers, and interior supporting plates or blocks for each bar or hanger, substantially as described.

2. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger consisting of two trough-shaped hollow sections spaced apart to leave on each side an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, connecting-straps or tie-bars between the two bars or hangers, interior supporting plates or blocks of insulating material, and a conductor for each bar or hanger suspended by the interior plates or blocks, substantially as described.

3. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger consisting of two trough-shaped halves or sections spaced apart to leave on each side an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, connecting-straps or tie-bars extending from clamp to clamp between the two bars or hangers and united at the ends to the clamps, interior supporting plates or blocks of insulating material in line with the clamps or clamps on each bar or hanger, and a conductor for each bar or hanger suspended by the plates or blocks centrally within and longitudinally of each bar or hanger, substantially as described.

4. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger formed of sheet material and consisting of two trough-shaped halves or sections spaced apart to leave on each side an opening or slot longitudinally of the bar or hanger, each half

or section having three sides, clamps or clamps encircling the body of each bar or hanger, connecting-straps or tie-bars between and attached to the clamps or clamps and uniting the two bars or hangers, interior supporting plates or blocks for each bar or hanger, and a conductor suspended by the plates or blocks centrally and longitudinally of each bar or hanger, substantially as described.

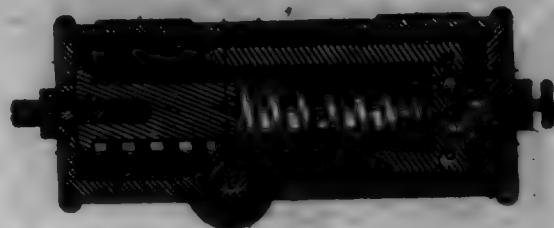
5. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger formed of sheet material and each consisting of two trough-shaped halves or sections having three sides and spaced apart to leave on each side of the bar or hanger as a whole an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, each clamp or clamp consisting of two halves or sections each half or section having four sides and each half or section having at its ends an ear, connecting-straps or tie-bars entered between the ears of the clamps or clamps, and attached to the ears by tightening-bolts and uniting the two bars or hangers, interior supporting plates or blocks having eight sides fitting the hollow trough sections or halves, and a conductor for each bar or hanger centrally and longitudinally suspended therein by the plates or blocks, substantially as described.

6. In an electric-light sign, the combination of two companion bars or hangers, each bar or hanger formed of sheet material and each consisting of two trough-shaped halves or sections, each half or section having a straight wall and a diagonal wall on each side of the straight wall, and the two halves or sections spaced apart to leave on each side of the bar or hanger as a whole an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, each clamp or clamp consisting of two halves or sections each half or section having a straight side, a diagonal side at each end of the straight side and a short straight end at the terminus of the diagonal sides with ears projecting at right angles from the straight ends, connecting-straps or tie-bars entered between the ears of the clamps or clamps on one side and attached to the ears by tightening-bolts and uniting the two bars or hangers, interior supporting plates or blocks, each plate or block having eight sides, three of the sides fitting the straight and diagonal walls of the hollow trough sections or halves of the bar or hanger, and a conductor for each bar or hanger centrally and longitudinally suspended by the plates or blocks in the bar or hanger, substantially as described.

7. In an electric-light sign, the combination of two companion bars or hangers, each bar or hanger formed of sheet material and each consisting of two trough-shaped halves or sections, each half or section having a straight wall and a diagonal wall on each side of the straight wall, and the two halves or sections spaced apart to leave on each side of the bar or hanger as a whole an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, each clamp or clamp consisting of two halves or sections each half or section having a straight side, a diagonal side at each end of the straight side and a short straight end at the terminus of the diagonal sides with ears projecting at right angles from the straight ends, connecting-straps or tie-bars entered between the ears of the clamps or clamps on one side and attached to the ears by tightening-bolts and uniting the two bars or hangers, interior supporting plates or blocks, each plate or block having eight sides three of the sides fitting the straight and diagonal walls of the hollow trough sections or halves of the bar or hanger, a conductor for each bar or hanger centrally and longitudinally suspended by the plates or blocks in the bar or hanger, and a letter detachably connected to and carried by the conductor and the bars or hangers, substantially as described.

8. In an electric-light sign, the combination of two companion hollow bars or hangers, each bar or hanger consisting of two trough-shaped halves or sections spaced apart to leave on each side an opening or slot longitudinally of the bar or hanger, clamps or clamps encircling the body of each bar or hanger, connecting-straps or tie-bars between the two bars or hangers, each connecting-strap or tie-bar connected with a clamp or clamp on each hollow bar or hanger, interior supporting plates or blocks for each bar or hanger, carrying the conductor within the bar or hanger, and openings in the bottom of each lower trough-shaped half or section of each bar or hanger, substantially as described.

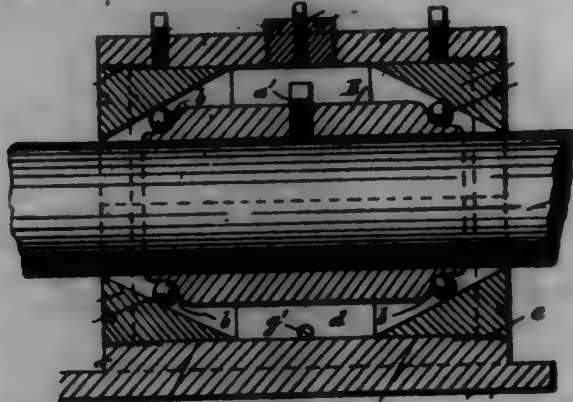
696,776. LIQUID DOOR-CHECK. HENRY S. VANDY, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Jan. 26, 1900. Serial No. 2,173. (No model.)



Claim.—1. In a liquid door-check, the combination of a piston and cylinder counterbored at one end, with a thin supplemental cylinder having one open and one solid end and with its sides fitted closely within the supporting counterbored portion of the said cylinder and with the edge of the metal at its open end abutting the shoulder formed by the said counterbore, and a cap for closing the counterbored end of the said cylinder and pressing against the solid end of the supplemental cylinder for holding it in place, whereby the said capped end of the cylinder is provided with a lining to prevent the seam thereof from leaking under the pressure of the piston, substantially as described.

2. In a liquid door-check, the combination of a cylinder having an open end, with a cap for closing the said end, a thin supplemental cylinder of the same form as the surrounding inner wall of the main cylinder and closely fitting the same to form a lining therefor, the surrounding wall of the main cylinder serving as a support for the said lining under pressure and a piston fitted within the said lining, substantially as described.

696,777. BALL-BEARING. BALDWIN D. WARR, Milport, N. Y.
Filed Jan. 22, 1901. Serial No. 44,253. (No model.)



Claim.—In a shaft-bearing, the combination, with a cylindrical casing having internally-screw-threaded end portions, an oil-chamber at its middle part, and a base-flange upon one side; of adjustable cylinders having screw-threaded portions at one end which engage freely with the screw-threaded portions of the casing, plain cylindrical guide portions at the other end which work oil-tight in the said oil-chamber of the casing, and internal inclined bearing-surfaces; locking devices for securing the said cylinders in the casing, a shaft provided with a sleeve having ball-races at its end portions and arranged in the oil-chamber of the casing between the inclined bearing-surfaces, and balls arranged between the said inclined bearing-surfaces and ball-races, substantially as set forth.

696,778. MACHINE FOR MAKING ICE-CREAM SANDWICHES.
LOREN WHEELER, JR., Philadelphia, Pa. Filed June 24, 1901. Serial No. 65,885. (No model.)



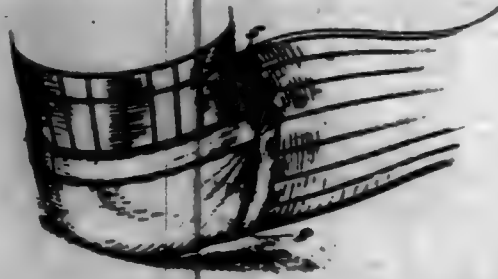
Claim.—1. The combination of the hollow standard, provided with a socket; the box at the end of the standard; a false bottom in the box; a spindle movable in said socket and connected to the false bottom; a guide-sleeve in the walls of the standard and having a side offset, and a pin connected to the standard and movable in said sleeve, the length of the sleeve being sufficient with reference to the position of the pin, to allow the false bottom to be lifted entirely out of the box; substantially as described.

2. The combination of the hollow standard, provided with a socket; the box at the end of the standard; a false bottom in the box; a spindle movable in said socket, and connected with the false bottom; a guide-sleeve in the walls of the standard; a pin attached to said spindle and an offset at the side of said guide-sleeve, the portion of the bottom walls of which away from the guide-sleeve being higher than the portion nearest the guide-sleeve; substantially as described.

3. In an ice-cream-sandwich machine, the combination with the box having a vertically-movable false bottom, of a screw penetrating a wall of said box and being movable in and out of the line of motion of said false bottom; substantially as described.

4. In an ice-cream-sandwich machine, the combination of the vertical standard; the box supported on the standard; the socket in the standard; the vertically-movable false bottom of said box; the spindle moving in said socket connected to said false bottom; and the raised dam around the top of said socket; substantially as described.

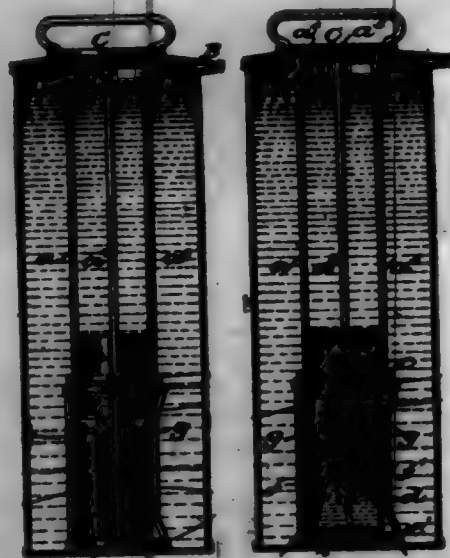
696,779. STOCKING GUARD. HENRY WHEAT, New York, N. Y.
Filed Feb. 3, 1901. Serial No. 44,096. (No model.)



Claim.—1. As a new article of manufacture, a stocking-guard, comprising a frame consisting of two bows of unequal length and having the ends of their members pivoted together, the bows being adapted to engage over the leg of the wearer, one above and the other below the knee, and a flexible material secured to the bows and extending between them, as set forth.

2. As a new article of manufacture, a stocking-guard, consisting of two bows having the ends of their members pivoted together, the bows being of unequal length and adapted to engage over the leg of the wearer, the longer one above and the shorter one below the knee, a flexible material secured to the bows and extending between them, and fastening straps secured to the guard at joint of the bows, as set forth.

696,780. FIRE-EXTINGUISHER. MARTIN E. WILLER, Fort Plain, N. Y., assignor of two-fifths to Alphonse Wehrath, Fort Plain, N. Y. Filed Jan. 10, 1901. Serial No. 42,792. (No model.)



Claim.—1. In a fire-extinguisher, the combination with a liquid-holding tank and a removable cap or cover therefor, of a cage-like structure secured to said cap or cover and adapted to receive and support an acid-bottle, and a diving-bell air-check sealing device for said bottle arranged and adapted to slide within said cage-like structure, said acid-bottle and its sealing device being adapted to be submerged within and below the surface of the liquid in said tank; substantially as described.

2. In a fire-extinguisher, the combination with a liquid-holding tank and a removable cap or cover therefor, of a cage-like structure secured to said cap or cover and adapted to receive and support an acid-bottle, a side opening in said cage-like structure and a reversible door therefor, and a diving-bell air-check sealing device for said bottle arranged and adapted to slide within said cage-like structure, said acid-bottle and its sealing device being adapted to be submerged within and below the surface of the liquid in said tank; substantially as described.

3. In a fire-extinguisher, the combination with a liquid-holding tank and a removable cap or cover therefor, of a cage-like structure comprising a series of wires or rods secured to said cap or cover and extending within the tank, near the bottom thereof and provided with a bottom, as

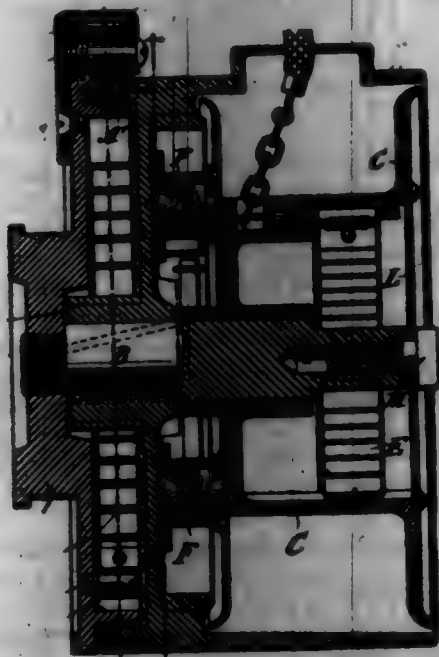
acid-bottle arranged within said cage-like structure and adapted to be supported upon the bottom thereof, and a diving-bell air-check sealing device for said bottle arranged and adapted to slide within said cage-like structure, substantially as described.

4. In a fire-extinguisher, the combination with a liquid-holding tank and a removable cap or cover thereof, of a cage-like structure comprising a series of wires or rods secured to said cap or cover and extending within the tank near the bottom thereof and provided with a bottom, a side opening in said cage-like structure, a revolving door for said opening comprising two rings connected by wires and supported upon said cage-like structure, an acid-bottle arranged within said cage-like structure upon the bottom thereof, stops for confining said revolving door and acid-bottle in place, and a diving-bell air-check sealing device for said bottle arranged and adapted to slide within said cage-like structure, substantially as described.

5. In a fire-extinguisher, the combination with a liquid-holding tank and a removable cap or cover thereof, of a cage-like structure comprising a series of wires or rods secured to said cap or cover and extending within the tank to near the bottom thereof and connected with a bottom piece, one of said wires being cut away to form a side opening for the entrance of an acid-bottle, and a revolving door for said side opening, comprising rings surrounding said cage-like structure and connected by wires, one of said wires being bent inwardly to extend substantially in line with the cut-away wire of the cage-like structure to thereby center and confine the acid-bottle in place, substantially as described.

6. In a fire-extinguisher, the combination with a liquid-holding tank, of a cage-like structure adapted to support and confine an acid-bottle near the bottom of said tank, and a weighted sealing device for said bottle comprising an inverted-cup-like device arranged and adapted to slide within said cage-like structure, and an acid-proof packing arranged in the recess of said cup-like device and adapted to engage the mouth of the bottle, the wall of said cup-like device extending below the mouth of said bottle, whereby when said acid-bottle and its sealing device are submerged in the liquid in the tank, air will be confined within said sealing device about the mouth of the bottle, substantially as described.

696,781. TROLLEY CATCHER AND RETRIEVER. CHARLES F. WILSON, Brooklyn, N. Y. Filed Aug. 12, 1891. Serial No. 71,808. (No model.)



Claim.—1. In a device of the character herein set forth, the combination with a spool carrying dogs, of an outer casing arranged to turn with respect to the back-plate, the same being supplied with an operating-spring and calculated to wind the trolley-rope upon its exterior, substantially as and for the purpose set forth.

2. In combination with the revolving drum and its operating-spring, a dog for holding said drum against the action of the spring, and means substantially as described for releasing said dog by turning the drum against the action of the spring, substantially in the manner and for the purpose set forth.

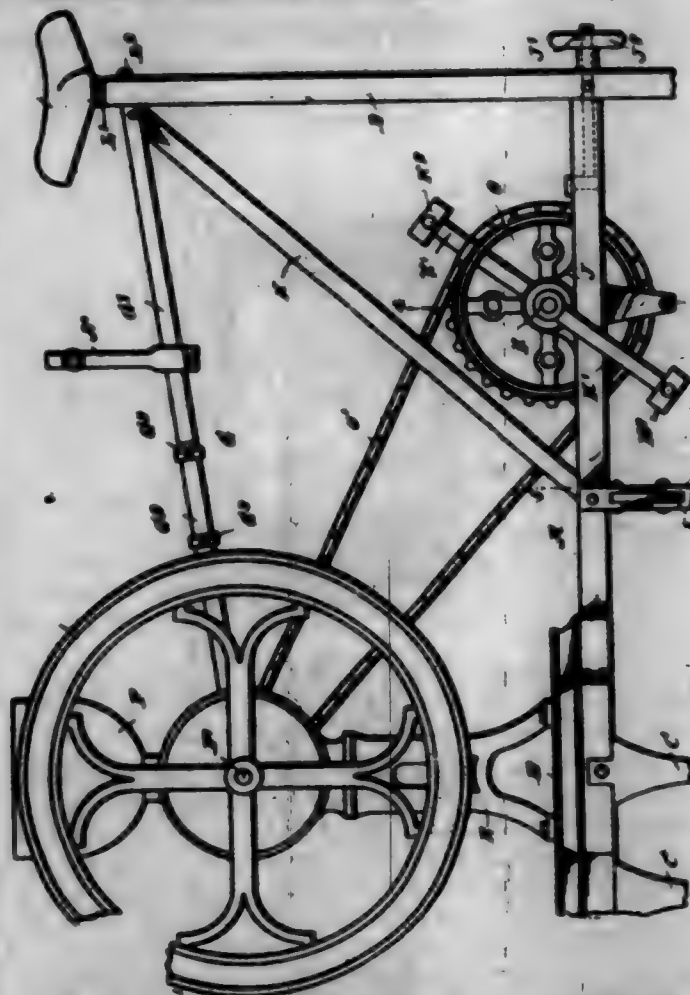
3. In a device of the character herein set forth, the combination of a spool carrying dogs, a revolving casing or drum outside said spool, and a stationary back, the spool and drum being mounted upon and arranged to turn upon the same axis, substantially as shown and for the purpose set forth.

4. In a device of the character herein set forth, the combination with the spring-actuated exterior drum and the stationary back, of a dog for holding said drum against the action of its actuating-spring, said dog be-

ing supported upon the back and held normally free from engagement with the drum, substantially in the manner and for the purpose set forth.

5. In a device of the character herein set forth, the combination of the spool, the dogs carried by said spool, a revolving casing for the spool, a stationary back, and a dog for engagement with the drum, the drum being actuated by a spring and being mounted upon the same axis as the inner spool, substantially as shown and described.

696,782. DRIVING-GEAR. JOHN C. WOOST, Mount Vernon, Ind., WILLIAM R. BAILEY, Denver, and WILLIAM H. YOUNG, Rockyford, Colo. Filed July 10, 1901. Serial No. 67,796. (No model.)



Claim.—1. A driving-gear, comprising a frame arranged to support the machine to be driven, a crank-shaft having crank-arms provided with pedals, bearings for the crank-shaft adjustable on the frame, a sprocket-chain and sprocket-wheel connection between the crank-shaft and the main shaft of the machine to be driven, the sprocket-wheel being arranged centrally between the bearings, a seat on the said frame, a brace connected with the frame below the seat and adapted to engage the machine to be driven, the brace being adjustable in length to suit the machine to be operated, and to brace the same against strain from the chain, said a handle-bar on the said adjustable brace, as set forth.

2. A driving-gear, comprising a frame having longitudinal spaced bars, a platform at the front end of the bars for supporting the machine to be driven, a crank-shaft having crank-arms provided with pedals, a sprocket-chain and sprocket-wheel connection between the said crank-shaft and the main shaft of the machine to be driven, a standard at the rear end of the bars, a seat carried by the said standard, a handle-bar on the frame, the bearings of the crank-shaft being mounted to slide longitudinally on the spaced bars in front of the standard; and means for adjusting the bearings, as set forth.

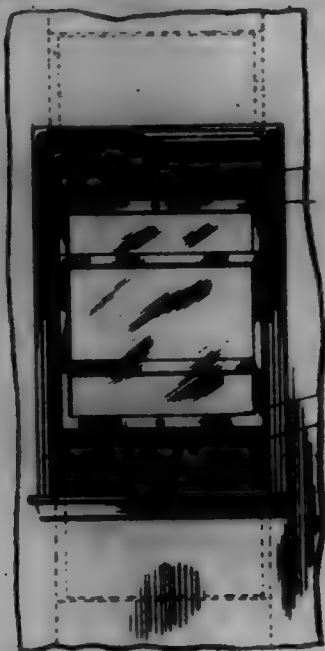
3. A frame for a driving-gear, comprising longitudinal spaced bars, a platform on the front end of the bars, legs for supporting the front ends of the bars and platform, a standard at the rear end of the bars, bearings on the said platform for supporting the machine to be driven, an upper brace connecting the bearings with the standard, the said upper brace being adjustable in length to compensate for changes in the position of the bearings and a center brace connecting the standard with the said bars, as set forth.

4. A frame for a driving-gear, comprising longitudinal spaced bars, a platform on the front end of the bars, legs for supporting the front ends of the bars and platform, a standard at the rear end of the bars, a bearing adapted to be secured on the said platform for supporting the machine to be driven, an upper brace adapted to connect the standard with the said bearing, the brace being made in sections and adjustable in suit the position of the machine to be operated, a center brace connecting the

standard with the said bars, and a set of adjustable legs on the said bars below the point of connection of the center brace with said bars, as set forth.

5. A frame for a driving-gear, comprising longitudinal spaced bars, a platform on the front ends of the bars, legs for supporting the front ends of the bars and the platform, a standard at the rear ends of the bars, bearings on the said platform for supporting the machine to be driven, an upper brace connecting the bearings with the standard, the brace being made in telescopic sections fastened together whereby it may be adjusted to suit changes in the position of the bearings on the platform, and a center brace connecting the standard with the said bars.

696,783. WINDOW-SCREEN. HENRY T. WISNET, Philadelphia, Pa. Filed July 6, 1901. Serial No. 67,342. (No model.)



Claim.—1. In an apparatus of the character described, a window-screen, a horizontal flange formed with the upper portion of the framework of said screen, said flange adapted to come in contact with the casing, means for detachably securing said flange to the casing for the purpose of raising and lowering the screen with the casing, a recess formed in the wall in which the screen is adapted to receive the casing when the casing is closed, guide-ways formed in the upright portion of the window-casing in which the side frames of the screen are adapted to slide, said guide-ways being such as to allow the screen to be pushed a sufficient distance to one side to allow the removal of one edge of the screen for the purpose of removing the screen entirely, substantially as described and for the purpose specified.

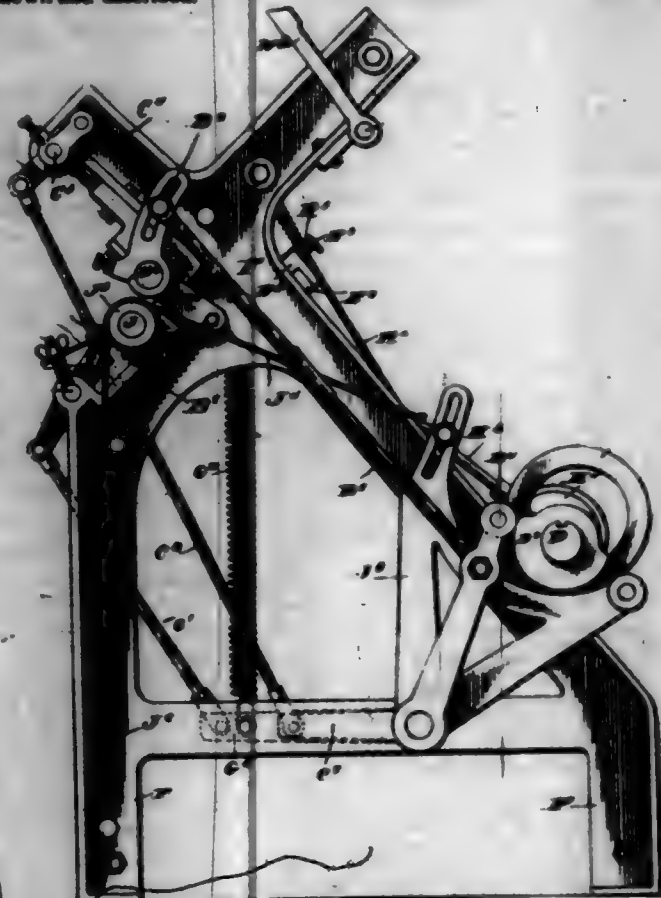
2. In combination with an apparatus of the character described, a screen, a horizontal flange formed with the upper framework of the screen, a slot formed through said flange, spring-arms arranged within the cross-rails of the casing, beveled projecting portions formed upon the free end of the spring-arms, said spring-arms adapted to be normally in contact with one another for the purpose of inserting the same through the slot in the flange of the screen, means for spreading said spring-arms for the purpose of attaching the screen to the casing, substantially as and for the purpose set forth.

3. In combination with an apparatus of the character described, two spring-arms secured in the cross-rail of the window-casing, the free ends of said spring-arms projecting beyond the casing, outwardly-extending beveled portions formed upon the free end of said spring-arms, said spring-arms adapted to be in contact with one another when in their normal position, a slot formed within the screen-frame through which the ends of the spring-arms are adapted to protrude when the screen is brought in contact with the casing, an oblong button adapted to be pivoted between the spring-arms, said button adapted to spread the arms when turned to its greatest length in a horizontal position, a knob secured upon the outside of the casing for the purpose of turning said button, substantially as and for the purpose set forth.

696,784. MACHINE FOR MAKING METAL BINDING-STRIPS. FREDERICK W. R. YAGER, Chicago, Ill. Filed May 12, 1901. Serial No. 59,909. (No model.)

Claim.—1. In a machine of the class described the combination of the shear for cutting the strips from a sheet, adjustable stops for determining the width of the strips to be cut, a discharging device for launching the strips forward after the cutting, an intermediate stop for arresting the travel of the strip edge bringing it into alignment, stops for adjusting the position of the strips to be bent with clamping and bending devices

and means for automatically actuating the several parts, substantially as shown and described.



2. In a machine of the class described, the combination of a shear for cutting the strips, mechanism for discharging covered strip from the shear, stops for holding the covered strip in a position to be bent, and a clamping-bar and a revolving bender, substantially as shown and described.

3. In a machine of the class described, the combination with a feeding-table fixed at an angle insuring the sliding of a sheet placed thereon, of means for arresting the sliding at a certain point, shearing device arranged to cut a strip from the lower side of the arrested sheet, an inclined platen in position to receive the covered strip, means for arresting the strip after it has advanced a certain distance upon the platen, and means for bending the strip.

4. The combination of a feeding-table, of a cutting-shear, adjustable stops for regulating the width of the strips to be cut, and a strip-launching device with stops and bending devices for bending the strips, substantially as shown and described.

5. In a machine of the class described, the combination with a feeding-table, of shearing device arranged to cut a strip from a sheet upon the table, stops normally limiting the advance of such sheet and at an adjustable distance from the shearing-line, a platen in position to receive the covered strip, means for clamping the strip against the platen, a rotary bender normally lying below one side of the strip when so clamped, and automatic means for rotating the bender toward the strip through approximately one hundred and eighty degrees, to bend the strip back upon itself.

6. In a machine of the class described, the combination with a feeding-table and shearing device to cut a strip from a sheet thereon, a platen in position to receive the covered strip, strip clamping and bending devices, and stops between the shearing and clamping devices to adjust and temporarily arrest the strip.

7. In a machine of the class described, the combination with a feeding-table and shearing device for severing a strip from a sheet thereon, of stops adjustable in distance from the shearing-line, to vary the width of strips, a platen in position to receive the covered strip, an automatic stop to arrest the advancing strip when its side projects to the proper distance over the platen's edge, a clamping-plate to press the non-projecting portion of the strip against the platen, a bender normally alongside the plate of the projecting portion of said strip, and means for swinging the bender about the edge of the clamping-plate to double the strip back upon itself.

8. The combination of a feeding-table, of adjustable stops for regulating the amount of feed, a cutting-off shear for severing the strip from a sheet as held upon the feeding-table, a platen for receiving the strip from the shear, and a bending device mounted upon the platen for bending the strip after the cutting, said platen being recessed to permit the passage of the adjustable feeding-stops through the surface of the platen, substantially as shown and described.

9. In a machine of the class described, the combination with a feeding-table inclined at an angle insuring the sliding of a sheet placed thereon, of a similarly-inclined plate in position to receive a strip falling from the edge of the feeding-table, an automatic clamp for momentarily holding a sheet upon the feeding-table, automatic shearing device for severing a strip while the sheet is so held, a clamp for holding a strip against the plate, and an automatic bender arranged to fold the strip back upon itself while thus clamped.

10. In a machine of the class described, the combination with a feeding-table and shearing device near one side of the same, of steps adjustable in distance from the shearing-line, a plate slightly below, and parallel to, the strip at the instant of severing, a device for impelling the severed strip sidewise across the plate, and clamping and bending device arranged to receive the strip and bend it.

11. The combination of a feeding-table, an adjustable step for regulating the width of the feed, a shear for cutting a strip from the sheet as held upon the table, a launching device for discharging the strip from the shear, and a plate for receiving the strip from the shear and clamping and bending device mounted upon the plate, substantially as shown and described.

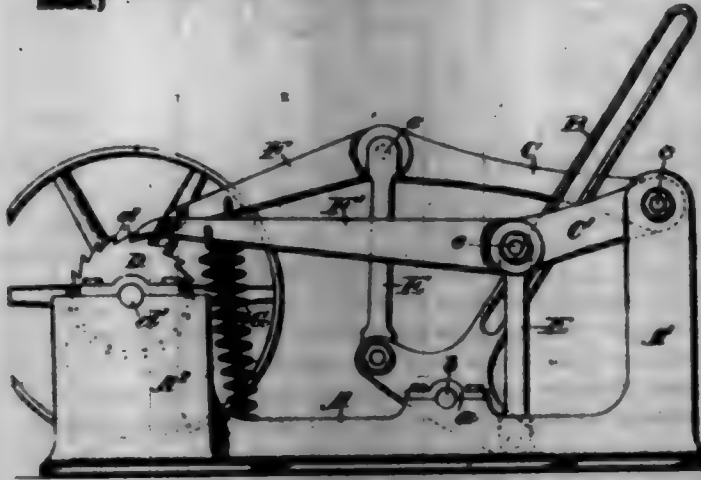
696,785. TOOTHPIKE-HOLDER. GREGG A. YARRI, Havana, Cuba. Filed Aug. 2, 1901. Serial No. 79,030. (No model.)



Claim.—1. A holder for toothpicks, comprising a casing having a conical end provided with an opening at its apex, a shoulder at the junction of said conical end and the body portion of the holder, and a retaining-plate for engaging against said shoulder, the said retaining-plate having openings around its edge, substantially as specified.

2. A holder for toothpicks, comprising a casing having a conical end provided with an opening through which a pick may pass, the said end normally forming the top of the casing, a retaining-plate arranged at the base of said conical end and having openings around its edge, the center being imperforate, and a removable bottom for the casing, substantially as specified.

696,786. MECHANISM FOR CONVERTING MOTION. GEORGE W. ELLIFF, Elyria, Minn. Filed Jan. 13, 1902. Serial No. 80,794. (No model.)



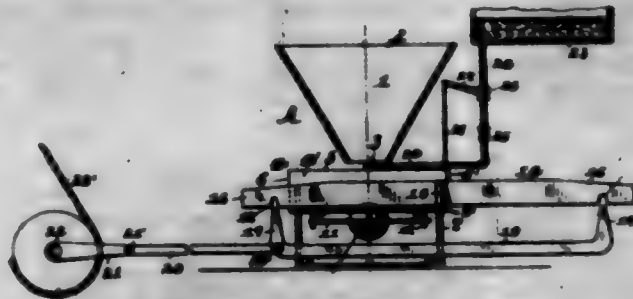
Claim.—1. In a device for converting motion, the combination of a lever having extensions on each side of its fulcrum, links pivoted to the extensions of the lever, jointed pawls pivoted to the links, a support to which one end of the jointed pawls are pivoted, and a ratchet-disk rotatably supported to be engaged by the free ends of the pawls, substantially as shown.

2. In a device for converting motion, the combination with a T-headed lever fulcrumed between its heads, a link connected to each end of the head of the lever, arms pivoted upon a support said arms being of

different lengths, pawls connected to the arms and to the links, a ratchet-wheel with which the ends of the pawls engage and springs for holding the pawls in engagement with the ratchet-wheel, substantially as shown and for the purpose set forth.

3. In a device for converting an oscillating motion into a reciprocating one, a T-headed lever fulcrumed upon a support, arms pivoted so as to be maintained in line with each other upon the support, one of the arms being longer than the other, pawls of different lengths pivoted to the arms, a ratchet-wheel with which the pawls engage, and links connecting the arms and pawls to the lever so that the joints between the pawls and arms will be alternately raised and lowered, substantially as set forth.

696,787. APPARATUS FOR FEEDING AND TEMPERING FOUNDRY-SAND. ALFRED M. ACKER, Pittsburg, Pa. Filed Oct. 28, 1901. Serial No. 79,004. (No model.)



Claim.—1. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, means engaging with said feeder-pan to lower and raise the same, a reciprocating bar having projections thereon engaging with recesses in the feeder-bar to move the same and discharge the material from said pan, and means for reciprocating said bar.

2. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, a fulcrumed lever pivoted to said pan and provided with a weight thereon to raise the pan, a reciprocating bar adapted to engage with the feeder-bar to move the same and discharge the material from said pan, and means for reciprocating said bar.

3. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, a fulcrumed lever pivoted to said pan and provided with a weight thereon to raise the pan, a reciprocating bar having projections thereon engaging with recesses in the feeder-bar to move the same and discharge the material from said pan, and means for reciprocating said bar.

4. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, means for lowering and raising said feeder-pan, a reciprocating bar adapted to engage with the feeder-bar to move the same and discharge the material from said pan, means for reciprocating said bar, and means for supplying water to said material.

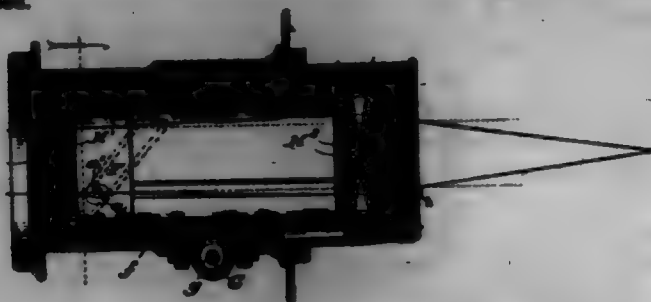
5. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, means for lowering and raising said feeder-pan, a reciprocating bar adapted to engage with the feeder-bar to move the same and discharge the material from said pan, means for reciprocating said bar, and a pipe connected to a water source and adapted to supply water to the material.

6. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, means for lowering and raising said feeder-pan, a reciprocating bar adapted to engage with the feeder-bar to move the same and discharge the material from said pan, means for reciprocating said bar, a pipe connected to a water source and provided with a valve therein, and connections between said pan and valve for opening and closing said valve to supply water to the material.

7. In a device for feeding and tempering foundry-sand, &c., the combination with a receptacle or hopper, of a feeder-pan under said hopper, a feeder-bar within said feeder-pan, means for lowering and raising said feeder-pan, a reciprocating bar adapted to engage with the feeder-bar to move the same and discharge the material from said pan, means for reciprocating said bar, a pipe connected to a water source and provided with a valve therein, a lever on said valve, and a bar or chain connected to said pan and lever for opening and closing said valve to supply water to the material.

696,788. OPTICAL OBJECTIVE. CHAS. C. ALLEN, Chicago, Ill. Filed Feb. 26, 1901. Serial No. 44,798. (No model.)

Claim.—An optical objective consisting of two fixed outer lens elements, a movable intermediate lens element adapted to be adjusted in varying intermediate positions between the two outer lens elements, and means for adjusting the intermediate lens element, substantially as described.



696,789. AUTOMATIC REGULATING DEVICE FOR STEAM-HEATERS. EDWARD R. ALLEN and WILLIAM R. SALMON, Flemington, N. J., assignors to the Allen and Van Nest Company, Flemington, N. J., and New York, N. Y. Filed Feb. 11, 1901. Serial No. 46,838. (No model.)



Claim.—1. The combination with a steam-generator provided with a draft-damper, a fine-damper and a check-draft, of regulating devices including a clamping-collar adapted to be secured to a pipe connected with the generator and provided with two oppositely-extending arms, an operating-lever pivoted to one of said arms, a connection providing for lost motion extending from one end of said lever to the draft-damper, a governor actuated by steam-pressure operatively connected with said lever, a second lever pivoted to the other arm of said collar having one end movably connected to said first lever and the other end connected to the fine-damper, said connections providing for lost motion and connections also providing for lost motion between said second lever and the check-draft, substantially as described.

2. The combination with a steam-generator provided with a draft-damper, a pivoted fine-damper and a check-draft damper in the smoke-pipe adjacent to the fine-damper, of regulating devices including an operating-lever, a steam-pressure governor connected therewith, a connection providing for lost motion between said lever and the draft-damper, a second pivoted lever having one end operatively connected with the first lever, an operating-arm on the pivot of the fine-damper, a connection providing for lost motion extending from said arm to the fine end of said second lever, a second arm on the pivot of the fine-damper and a part connected with the check-draft damper normally out of engagement with said second arm but adapted to be engaged thereby when the fine-damper is closed, to open the check-draft damper, substantially as described.

696,790. DINNER-PAIL. HENRY C. ASHMAN, Louisville, Ky., assignor of one-half to WILLIAM MILLER, Louisville, Ky. Filed May 28, 1901. Serial No. 61,908. (No model.)

Claim.—1. A dinner-pail comprising a base, having a support arranged thereon, said support having one or more hinged sections, and a cover adapted to be fitted over the support and to be fastened thereon, substantially as described.

2. A dinner-pail comprising a base having a support arranged thereon, said support having one or more hinged sections, and a cover fitted

over the support and adapted to be fastened to the top of said support, substantially as described.



3. A dinner-pail comprising a base, a support adapted to receive a vessel or receptacle thereon, and also having hinged sections, the top of said support having a napkin-holder arranged thereon, and a cover adapted to fit over the base and support and provided with means for attaching the top to the support, substantially as described.

4. A dinner-pail comprising a base having one or more receptacle-holders arranged thereon, a support arranged upon the base and adapted to receive and hold a vessel or receptacle, said support having hinged sections carrying holders, and a cover fitting upon the base over the support and provided with fastening means, substantially as described.

5. A dinner-pail comprising a base having holders arranged thereon, a support having hinged holders adjacent to its upper end, a napkin-holder at the top and knife, fork and spoon racks at the ends, and a cover adapted to fit over the support and rest upon the base, and means for fastening said cover, substantially as described.

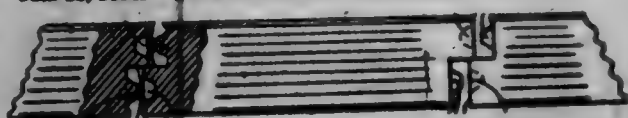
6. A dinner-pail comprising a base having a central depression, said base having receptacle-holders arranged within the depression and upon opposite sides thereof, the support arranged centrally of the base and adapted to receive and hold a bottle, the hinged sections carrying holders, the egg-holders carried by the support, the knife, fork and spoon racks arranged upon the sides of the support and the napkin-holder upon the top, and the cover having a handle, said cover being adapted to fit over the support and holders and rest upon the base, and the fastening means carried by the said cover for securing the parts together, substantially as described.

696,791. HEATING-FURNACE. LYMAN S. BAKER, Canton, Mich. Filed May 11, 1901. Serial No. 58,764. (No model.)



Claim.—In a furnace for heating purposes, in combination with a rectangular fire-pot, a rectangular combustion-chamber thereabove, a heating-chamber above said combustion-chamber, and smoke-outlet pipes located above the corners of the fire-pot, extending and converging to a common center, in said heating-chamber toward the top thereof.

696,792. CURSTONE. JOHN E. BUELL, St. Louis, Mo. Filed Jan. 13, 1902. Serial No. 69,491. (No model.)



Claim.—1. A curstone, having a projection and a recess upon one end, and a corresponding projection and recess upon the opposite end;

the faces carrying the recesses extending beyond the faces carrying the projections, and there being horizontal overlapping faces between the projections and recesses substantially as specified.

2. In a curbstone, a body having projections and recesses in its end faces, the projections of one section adapted to enter the recesses of the adjacent section, the faces having the recesses extending beyond the faces having the projections, and there being overlapping faces between the projections and recesses as required to support the section and guide the projections into the recesses.

696,798. TANK-LUG. CHARLES E. BAKER, Racine, Wis. Filed Nov. 15, 1901. Serial No. 28,694. (No model.)



Claim.—1. In combination, a coupling-bolt, a flat metal band or hoop, a tank-lug having a side closed band-slot extending completely therethrough and tapered or flared from one end to the other and therefore with the large accessible opening at one edge of the lug and the small opening at the opposite edge of the lug, and a rolling key entirely within said slot and resting throughout its length against the flat inclined outer wall of the slot and across the band and readily accessible at the large open end of the slot, said lug having a transverse bolt-eye, substantially as described.

2. A tank-lug having a transversely-arranged eye for the coupling-bolt, and a tapered band-slot extending completely therethrough with the large end opening at the inner face or edge of the lug and the small end opening at the outer opposite face or edge of the lug, one wall of said slot forming a flat seat for the band, and the other wall of said slot extending from opening to opening and the full width of the slot and forming a flat seat the full length of the wedging rolling key, in combination with a rolling key insertible and accessible at the large end of the slot and throughout its length wedging between the band and opposite wall of the slot, and a coupling member, substantially as described.

3. A tank-lug having a band-slot extending completely therethrough and flared from one end to the other with the inner and outer flat walls of said slot both inclined, substantially as described, the band adapted to rest against one of said walls within said slot, said lug formed with a transverse coupling-bolt eye exterior of said slot, in combination with a rolling locking-key insertible at the large end of the slot and readily accessible through said end and located entirely within and wedging between the band and the other inclined wall, and a coupling-bolt, substantially as described.

4. In combination, in a coupling device, a band, a coupling, a lug having a band-opening, and a band-locking wedge for locking the band in the lug comprising several loosely-joined rolling keys, substantially as described.

5. A tank-lug formed in one piece of metal with a transverse coupling-bolt eye and two side walls connected by two end walls with a tapered band-slot between said walls and extending completely through the lug and having the large exposed inner end opening and the small outer end opening, the inner wall or face of the slot being inclined to cause bending of the band when locked in the slot against said face, in combination with a separate rolling locking-key insertible and accessible through said large exposed end of the slot, substantially as described.

6. A tank-lug having a coupling-bolt eye, and a tapered or flared band-slot extending completely through the lug with its large exposed end at the inner edge of the lug and its small end at the outer face of the lug, the outer face or wall of the slot being continuous and flat, in combination with an elongated rolling or rocking key located entirely within the slot and insertible and accessible through the large end of the slot and throughout its length resting against and wedging between said flat wall of the slot and the band across which it extends, the coupling-bolt, and the band, substantially as described.

7. In combination, a coupling-bolt, a flat hoop or band, a tank-lug having a bolt-eye and formed with the slot therethrough flaring from the small outer edge opening to the large inner edge opening, with the inner and outer flat walls of the slot both inclined from the small opening to the large opening to bend the band, as described, and wedge the rolling locking-key, and the removable rolling locking-key located entirely within the slot and accessible through the large opening and throughout its length bearing against one flat inclined wall and the inclined surface of the band within the slot, substantially as described.

8. In combination, in a coupling, a tank-lug having a band-slot with an inclined wall, and a separate locking-wedge adapted to wedge between a wall of said slot and a portion of the band and comprising several loosely-connected elongated rolling keys, substantially as described.

9. In combination, in a band or hoop coupling, a hoop or band, a lug having a band-locking slot extending therethrough, and a band-locking wedge comprising several keys arranged side by side, and a cage coupling the keys together, substantially as described.

10. A tank-lug-locking wedge comprising several parallel loosely-confined keys having longitudinal flattened portions and rounded gripping or engaging edges, substantially as described.

11. A tank-lug-locking wedge comprising several parallel rocking or rolling keys with notched end edges, and a cage passing around and loosely confining the keys together and fitting in said notched ends, substantially as described.

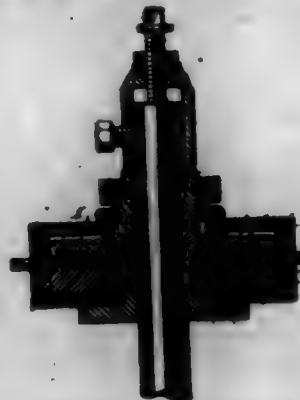
12. A tank-lug-locking wedge comprising several flattened elongated keys, one end key having its outer face longitudinally grooved, the ends of the keys having flared notches, and the binding-wire in said groove and notches, substantially as described.

13. In combination, a band, a coupling, a lug having a band-locking slot, and a band-locking key comprising several keys of differing diameters, and means confining the keys together to permit independent rocking or rolling movement, substantially as described.

14. In combination, a band, a coupling, a lug having a band-locking slot flared from end to end and having the small opening at the outer edge of the lug and the large accessible opening at the inner edge of the slot, and a removable band-to-key wedge comprising several connected elongated rolling keys located entirely within the slot and accessible through said large opening and throughout their lengths bearing against one wall of the slot and a face of said band, substantially as described.

15. In combination, a band, a coupling-bolt, a lug having a flared band-locking slot extending completely therethrough with a large readily-accessible inner end opening, and removable separate elongated rolling locking-keys located entirely within said slot and accessible through said large opening, and bearing throughout their lengths against a flat wall of the slot and a face of the band, said keys arranged end to end, substantially as described.

696,794. CUTTER-HEAD. NORMAN ELY, Crownpoint, N. Y. Filed Sept. 22, 1901. Serial No. 70,692. (No model.)



Claim.—1. A cutter-head, comprising cutter-blocks, knives on said cutter-blocks, chip-breakers carried by the cutter-blocks and having beveled outer ends to engage the bevels of the knives, a circular saw between the cutter-blocks, and a carrier for attachment to a spindle or mandrel and removably supporting the said blocks and saw, the said carrier having means for clamping the blocks and saw together and holding the same in position on the carrier, as set forth.

2. A cutter-head having cutter-bars arranged in sets, segmental knives held adjustably on the outer ends of one set of cutter-bars, straight knives held adjustably on the outer ends of the other set of cutter-bars, and a chip-breaker for each knife having a beveled edge to engage the bevel of the knife, as set forth.

3. A cutter-head, comprising a cutter-block having two sets of radial guideways, sets of cutter-bars slidably secured in the said guideways each cutter-bar having a guideway at its outer end, segmental knives adjustably secured on the guideways of one set of cutter-bars, straight knives secured on the guideways of the other set of cutter-bars, and chip-breakers secured to the cutter-bars and having their outer ends beveled, as set forth.

4. A cutter-head having a cutter-bar, a knife held on said cutter-bar, and a chip-breaker adjustably secured on the cutter-bar and having a beveled outer end to engage the bevel of the knife, as set forth.

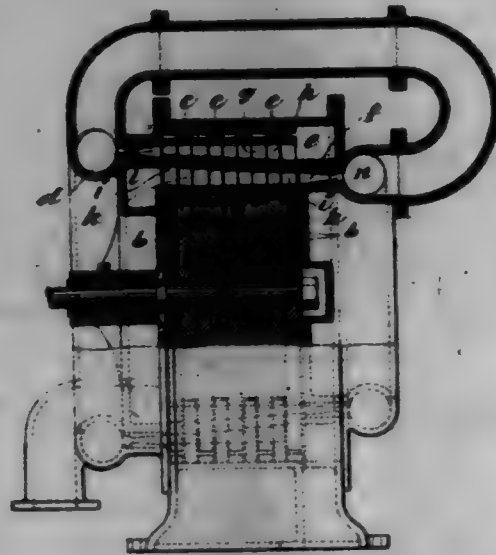
5. A cutter-head, having a knife, and a chip-arrester and knife-outer engaging the bevel of the knife, as set forth.

6. A cutter-head, comprising a cutter-block having radial guideways, cutter-bars slidably secured in the said guideways, each cutter-bar having a peripheral guideway at its outer end and a segmental knife adjustably secured on the guideway of the said cutter-bar, and a chip-breaker adjustably secured on the side of the cutter-bar to engage the bevel of the corresponding knife, as set forth.

7. A cutter-head, comprising a cutter-block having radial guide-ways, outer-bars slidably secured in the said guide-ways, each outer-bar having a peripheral guideway at its outer end and a segmental knife adjustably secured on the guideway of the said outer-bar, and a chip-breaker adjustably secured on the side of the outer-bar to engage the bevel of the corresponding knife, the said chip-breaker having a beveled outer end for engaging the bevel of the knife, as set forth.

8. A cutter-head, comprising outer-blocks, outer-bars adjustable on the outer-blocks and formed with guide-ways, segmental and straight knives arranged alternately on said guide-ways and fitted to slide thereon, means for securing the knives in place on the outer-bars after adjustment, chip-breakers adjustably secured to the sides of the outer-bars and having their outer ends beveled to engage the bevels of the said knives, a saw between the outer-blocks and a carrier for attachment to a revoluble spindle and removably supporting the said outer-blocks and saw, as set forth.

696,795. AXIAL-FLOW TURBINE. WILK & BOK and TYGER R. ROSSMAN, Stockholm, Sweden. Filed Jan. 22, 1899. Serial No. 708,366. (No model.)



Claim.—An axial-flow turbine having a plurality of concentric circles of buckets situated in the same radial plane, and having for each circle of buckets an inlet for a fully-expanded driving fluid at one side, and a discharge-outlet for same to the exhaust on the opposite side, the inlet for one circle of buckets being situated on the same side with the outlet for another circle, whereby the same driving fluid passes but once axially through the turbine, for the purpose of absorbing and transmitting the maximum energy of the driving fluid with one turbine body, substantially as set forth.

696,796. COATING FOR NAILS. JOHN V. BRAUCH and EDWARD HERMAN, Belleville, Ill. Filed June 13, 1901. Serial No. 64,372. (No specimens.)

Claim.—A composition consisting of crude turpentine and linseed oil substantially in the proportions of forty per cent. crude turpentine and sixty per cent. linseed oil.

696,797. VAPOR-GENERATOR. MARCELIN CANTERLAS and CHARLES THIAUX, Paris, France. Filed July 30, 1901. Serial No. 70,268. (No model.)

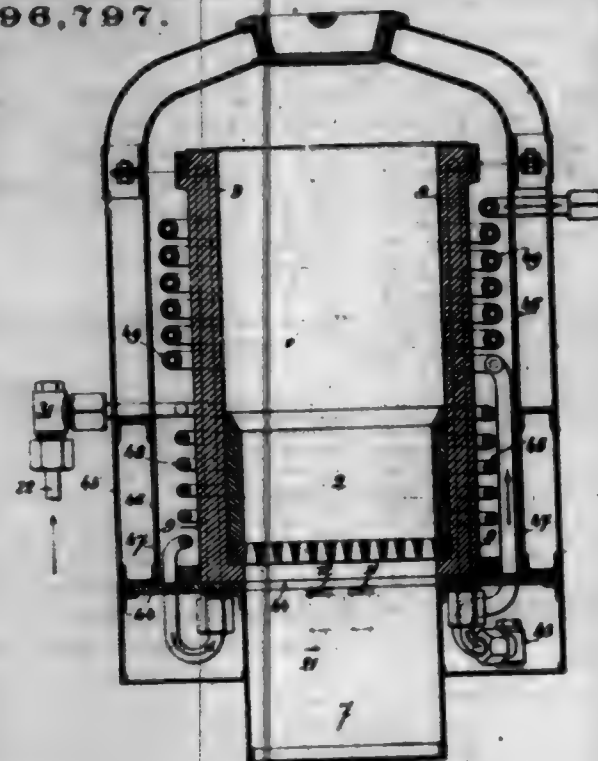
Claim.—1. A vapor-generator, comprising a cylinder built up of separate segmental blocks of steel fitted together so as to form a hollow cylinder, each block being provided with a duct and the several ducts communicating with each other, and means for heating the interior of said cylinder.

2. A vapor-generator, comprising a cylinder built up of segmental blocks of steel fitted together so as to form a hollow cylinder, each block being provided with a duct and the several ducts communicating with each other, means for heating the interior of said cylinder, and coils of pipe communicating with said ducts and surrounding said cylinder exteriorly.

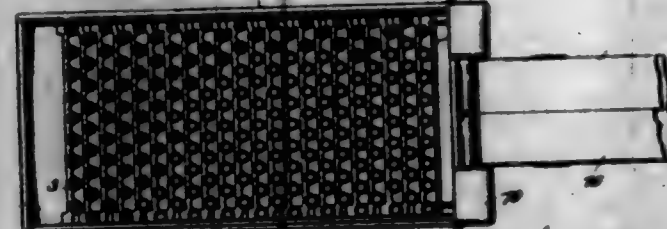
3. As an article of manufacture, an element in the construction of a generator, comprising a tubular member of steel having a general sinus form and embedded in a star-shaped block of cast-steel so as to be integral therewith.

4. As an article of manufacture, an element in the construction of a generator, comprising a tubular member of steel making a plurality of return-bends upon itself and embedded in a solid block of cast-steel so as to be integral therewith.

696,797.



696,798. BRUSH. JAMES H. CHANDLER, Thompson, Conn. Filed June 7, 1901. Serial No. 62,534. (No model.)



Claim.—1. A brush, comprising a casing, brush material carrying bars mounted to rock in said casing, shifting bars movable lengthwise in the casing, parts on the rocking bars for engaging with the shifting bars, a combined handle and cover having swinging connection with the casing, and means operated by a swinging movement of said handle and cover for moving the shifting bars in one direction, the said cover consisting of sections connected to fold one upon another, substantially as specified.

2. A brush, comprising a casing, brush-carrying bars mounted to rock in said casing, shifting bars movable lengthwise in the casing and having notches in their upper edges, projections on the rocking bars for engaging in said notches, a rod connection between the shifting bars at one end, a spring engaging with the other ends of the shifting bars, a shaft mounted at one end of the casing, concentric mounted on said shaft, an eccentric-rod extended from the eccentric to the connecting-rod of the shifting bars, a locking device for the shaft, and a combined cover and handle connected to said shaft, substantially as specified.

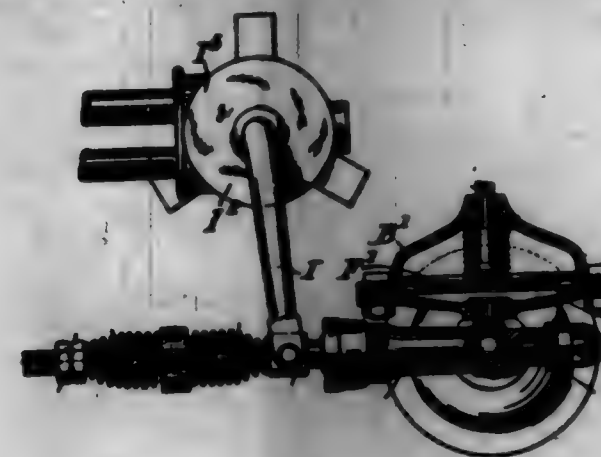
3. In a brush, a casing, bristle-carrying bars mounted to rock in said casing, shifting bars connecting with said rock-bars, a combined handle and cover, consisting of an inner portion and two flaps or wings hinged to the side edges thereof, and means operated by a swinging movement of the combined handle and cover for moving the shifting bars in one direction, substantially as specified.

696,799. HEAT REGULATING OR GOVERNING APPARATUS. THOMAS CLARKSON, London, England. Filed Oct. 20, 1901. Serial No. 50,221. (No model.)

Claim.—1. In apparatus for governing vapor, oil and similar burners, the combination with regulating mechanism, of a pump operating a fluid which directly actuates the regulating mechanism, a constantly-moving member yieldingly connected to the pump, a locking-arm connected to the pump, a plug on the arm, and a chamber in which the contents of the generator have access, cooperating with the plug to lock and release the arm in the manner and for the purpose set forth.

2. In apparatus for governing vapor, oil and similar burners, the combination with regulating mechanism comprising levers controlling the burner, of a pump, a constantly-moving member yieldingly connected to the pump, a locking-arm, a plug connected to the arm, and a chamber in which the contents of the generator have access and which cooperates with the plug to lock or release the arm, substantially as described.

3. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir for the diaphragm-chamber, a pump communicating with the reservoir and with the diaphragm-chamber, a constantly-moving lever yieldingly connected with the pump, a locking-arm connected to the pump, a plug on the arm, and a chamber subjected directly to the temperature of the contents of the generator and which cooperates with the plug to lock and release the arm, substantially as described.



4. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a flexible diaphragm, a diaphragm-chamber, a fluid-reservoir for the diaphragm-chamber, a pump communicating through valve-controlled conduits with the diaphragm-chamber and the reservoir, a constantly-moving lever yieldingly connected to the pump-plunger, a locking-arm connected to the pump-plunger, a plug on the arm, and a chamber to which the contents of the generator have access, substantially as and for the purpose described.

5. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir communicating with the diaphragm-chamber through a by-pass conduit, a pump communicating through valve-controlled conduits with the diaphragm-chamber and the reservoir, a constantly-moving lever, resilient bodies between the lever and the pump-plunger, a locking-arm, a plug on the arm, and a chamber cooperating with the plug and to which the contents of the generator have access, substantially as and for the purpose described.

6. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir communicating with the diaphragm-chamber through a by-pass conduit, a regulating device in the conduit, a pump communicating through valve-controlled conduits with the diaphragm-chamber and the reservoir, a constantly-moving lever, resilient bodies between the lever and the pump-plunger, a locking-arm, a plug on the arm, and a chamber cooperating with the plug and to which the contents of the generator have access, substantially as and for the purpose described.

7. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir, a pump communicating with the diaphragm-chamber and the reservoir, a constantly-moving lever, resilient bodies between the lever and the pump-plunger, a locking-arm, a plug on the arm, a chamber cooperating with the plug and to which the contents of the generator have access, and means between the plug and the chamber for holding the plug stationary, substantially as described.

8. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir, a pump communicating with the diaphragm-chamber and the reservoir, a constantly-moving lever, resilient bodies between the lever and the pump-plunger, a locking-arm, a plug on the arm, a chamber cooperating with the plug and to which the contents of the generator have access, and a flexible metal between the plug and the chamber, substantially as and for the purpose described.

9. In apparatus for governing vapor, oil and similar burners, the combination with lever-regulating mechanism, of a diaphragm, a diaphragm-chamber, a fluid-reservoir, a pump communicating with the diaphragm-chamber and the reservoir, a constantly-moving lever, resilient bodies between the lever and the pump-plunger, a locking-arm, a plug on the arm, a chamber cooperating with the plug and to which the contents of the generator have access, a cap for the chamber, coating grooves and lips on the cap and the chamber, and means for locking and unlatching the plug controlled by the heat of the contents of the generator passing through the chamber, substantially as described.

696,800. PROCESS OF CONVERTING CELLULOSE INTO SUGAR. ALEXANDER CLARKE, Ashton, Cheshire, England. Filed Dec. 2, 1899. Serial No. 59,269. (No specimens.)

Claim.—1. A process of converting cellulose into sugar consisting in heating cellulose in a closed vessel with sulfuric acid to a temperature from 130° to 145° centigrade, introducing into the mass chlorine to convert part of the sulfuric acid into sulfurous acid, then further heating the mass thus obtained, and then suitably boiling the mass.

2. A process of converting cellulose into sugar consisting in heating cellulose with sulfuric acid to a suitable temperature, introducing into the mass chlorine to convert part of the sulfuric acid into sulfurous acid, then further heating the mass thus obtained, and then suitably boiling the mass.

3. A process of converting cellulose into sugar consisting of heating cellulose with sulfuric acid in a closed vessel to a temperature of 130° to 145° centigrade, introducing into the mass chlorine to convert part of the sulfuric acid into sulfurous acid to effect the conversion of the mass, further heating the mass thus obtained, and then boiling the mass with water in an open vessel.

4. A process of converting cellulose into sugar consisting of heating the cellulose in a closed vessel with sulfuric acid to a suitable temperature, then adding a chlorine-yielding substance to convert the sulfuric acid into sulfurous acid to effect the conversion of the mass, then suitably heating the converted mass, and then suitably boiling the mass.

696,801. PENCIL. CARLOS V. OUTRATT, Lima, Peru. Filed Dec. 11, 1900. Serial No. 59,267. (No model.)

Claim.—1. A pencil-holder consisting of an internally screw-threaded outer tube provided with a plug in one end, a stem secured to the plug and approximately of the same length as the tube, an externally screw-threaded inner tube screwing into the outer tube and having a screw-threaded socket in its outer end, a lead-tube secured into the inner tube and having one end projecting beyond the same, said projecting end being split, and a removable tip having a tapering base and screwing into the socket of the inner tube, as set forth.

2. A pencil-holder comprising an outer internally-screw-threaded tube having one closed end and carrying a centrally-arranged stem, an externally-screw-threaded inner tube screwing into the outer tube and provided with a lead-clamping tube projecting from one end, and a screw-threaded socket concentric with the lead-clamping tube, and a tip screwing into the said socket, as set forth.

3. A pencil-holder comprising two telescopic members, one of said members carrying a lead-tube projecting at one end and therefrom formed with a clamping member, the other member of the holder carrying a stem entering said lead-tube and feeding the lead therefrom as said members are telescoped, and a clamping member secured to the telescoping member carrying the lead-tube and cooperating with the clamping member of the lead-tube to clamp the lead in its adjusted position, substantially as described.

4. A pencil-holder comprising two telescopic members, one of said members carrying a lead-tube having its end projecting therefrom and formed with a clamping portion, the other member carrying a stem entering said lead-tube and feeding the lead therefrom as the members are telescoped, and a removable clamping member attached to the end of the member carrying the lead-tube and cooperating with the clamping portion of said lead-tube to clamp the lead in its adjusted position, substantially as described.

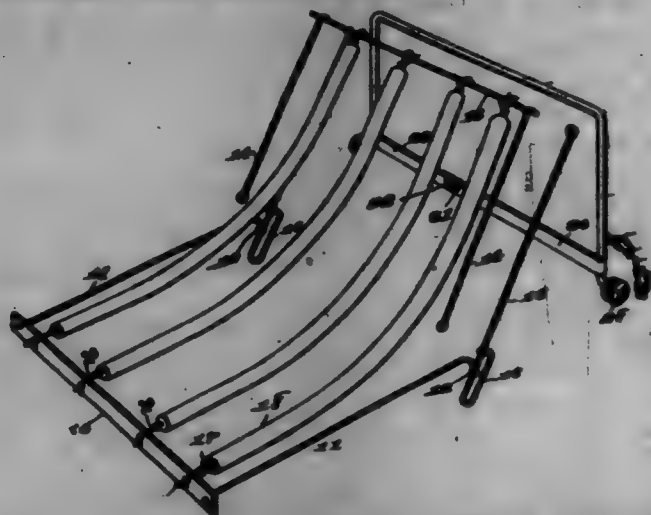
696,802. ADJUSTABLE INVALID-MATRESS. HENRY DARRIN, Des Moines, Iowa. Filed June 7, 1901. Serial No. 62,562. (No model.)

Claim.—1. In an improved mattress, the combination of independent head and foot mattress-sections, and one or more contractile coil-springs passed longitudinally through both sections, each spring having one end connected with the head-section and the other connected with the foot-section, for the purpose stated.

2. In an improved mattress the combination of independent head and foot mattress-sections, and one or more contractile coil-springs passed longitudinally through both sections, and a flexible tube for inclosing each spring, each spring having one end connected with the head-section and the other connected with the foot-section, for the purpose stated.

3. In an improved mattress the combination of head and foot mattress-sections, a cross-piece on the interior of each section, one or more contractile coil-springs passed through both sections in a direction longitudinally of the mattress, flexible ropes attached to the ends of the springs

and passed through said cross-pieces to the exterior of the mattress where by the tension of the springs may be adjusted.



4. An improved mattress, comprising in combination, independent head and foot mattress-sections, a cross-piece at the outer end of each section, springs connected with both of the cross-pieces and passed longitudinally through the sections, rods in the interior of the foot-section having loops or eyes projecting through the section at its inner corners, rods on the interior of the head-section having elongated loops projecting through the inner corners thereof and slidingly connected with the above-aid loops, for the purpose stated.

5. An improved mattress, comprising in combination, independent head and foot mattress-sections, a cross-piece at the outer end of each section, springs connected with both of the cross-pieces and passed longitudinally through the sections, rods in the interior of the foot-section having loops or eyes projecting through the section at its inner corners, rods on the interior of the head-section having elongated loops projecting through the inner corners thereof and slidingly connected with the above-aid loops, and means for adjustably supporting the head-section at different points of elevation relative to the foot-section.

6. The combination with a two-part mattress divided transversely near its central portion, the arms pivotally connected with the outer corners of the head-section, flanged wheels at the lower ends of the said arms and chains having hooks in their ends connected with the lower and portions of said arms, said hooks being designed to engage the links of the chains.

7. The combination with a two-part mattress divided transversely near its central portion, the arms pivotally connected with the outer corners of the head-section, flanged wheels at the lower ends of the said arms and chains having hooks in their ends connected with the lower and portions of said arms, said hooks being designed to engage the links of the chains, and a longitudinally-adjustable cross-piece connecting said arms at their lower portions.

8. The combination with a two-part mattress divided transversely near its central portion, of a flap secured to the inner end portion of the foot-section and means for attaching the forward end of said flap to a part of the bed-frame.

696,808. ANGLE-COCK ADJUSTER FOR AIR-BRAKES. WILLIAM B. DU CAMP, Chillicothe, Ohio. Filed Dec. 31, 1901. Serial No. 87,908. (No model.)

Claim.—1. An angle-cock adjuster comprising pneumatic means for turning the plug of said cock, and a by-pass valve for carrying the air around the angle-cock plug, said by-pass valve being located in the casing of the angle-cock substantially as described.

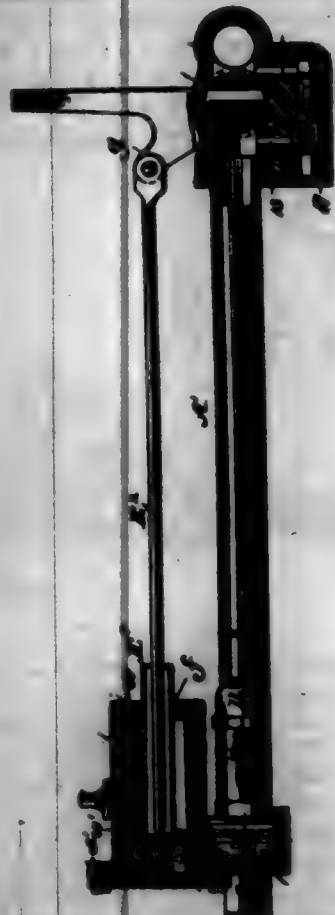
2. A pneumatic angle-cock adjuster comprising a cylinder a pressure-valve and a piston for turning the angle-cock by increased air-pressure, and a by-pass valve located in the angle-cock casing to pass air around the plug of the angle-cock substantially as described.

3. The combination with the train-pipe and the angle-cock controlling the same; of a cylinder, a coupling for the train-pipe and a valve-cock, all cast in one piece, and a pressure-valve adapted to open into the cylinder at a predetermined pressure substantially as and for the purpose described.

4. An angle-cock having a turning plug with an arm attached thereto and a pneumatic piston and cylinder for working said arm, a valve-chamber opening on opposite sides of the turning plug, and a valve located in said chamber and controlling the passage of air around the plug substantially as and for the purpose described.

5. An angle-cock having a turning plug with an arm attached thereto and a pneumatic piston and cylinder for working said arm, a valve-chamber opening on opposite sides of the turning plug, a valve located in said

chamber and controlling one of said openings, a spring arranged behind the valve, and a removable cap closing the end of said valve-chamber substantially as described.



6. In an angle-cock adjuster, the combination with the plug-arm and its turning-rod; of a pneumatic cylinder and piston for operating the rod, said piston having a hollow tube or sleeve extending through the end of the cylinder and loosely receiving and acting upon the rod which turns the cock-plug substantially as described.

7. In an angle-cock adjuster, the combination with the plug-arm and its turning-rod; of a pneumatic cylinder having an elastic cushion in its end, a piston having a tubular sleeve extending through and closely fitting said cushion and having also a ring or eccentric flange about the sleeve adapted to pinch the cushion at the end of the stroke, substantially as described.

696,804. WARE-LENGTHENING DEVICE. BENJAMIN D. LARRY, Philadelphia, Pa. Filed May 20, 1901. Serial No. 61,001. (No model.)



Claim.—1. A ware-lengthener consisting of an extensible strip of flexible material, having at each end fastening means, that at the upper end comprising a hook turned outwardly and downwardly to engage a bolt, and that at the lower end comprising an engaging eye for the hook of the corset, and means carried by said flexible strip for shortening the connection between the corset and the bolt, substantially as described.

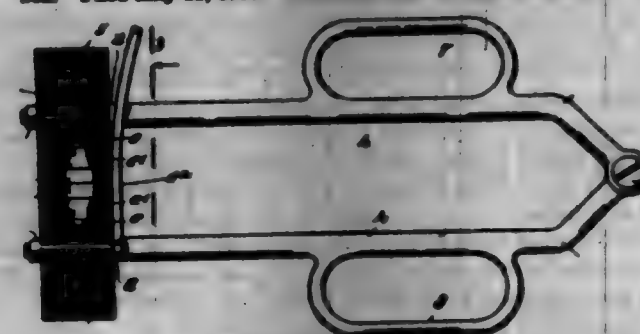
2. In a ware-lengthener, the combination of the draw-bolt, a hooked member adapted to engage the same, a corset, a clamping member carried by the same, and a flexible connection secured to the clamping member and extending from the same to the hooked member and thence to a clamping-plate carried by the clamping member, said flexible connection serving to draw said members together, thereby lowering the bolt at the front giving a pointed and lengthened effect to the draw-body.

3. In a ware-lengthener, the combination of the bolt, a hooked member carried by the same, a corset, a clamping member secured to the same by means of an eye carried thereby, and a strap for connecting said mem-

ber, said strap being secured to the rear of the clamping member, passing up from the same and through the hooked member, and then down through the front of the clamping member, and means for holding it thereat in any desired position.

4. In a ware-lengthener, the combination of a belt, an engaging plate carried thereby, a hooked member secured to said engaging plate, a corset, a fastener for the same, a clamping member carried by said fastener, and a flexible adjustable strap or band connecting the hooked member and the clamping member whereby the same may be drawn together thereby lowering the belt at the front and giving the draw body or waist a pointed and lengthened effect.

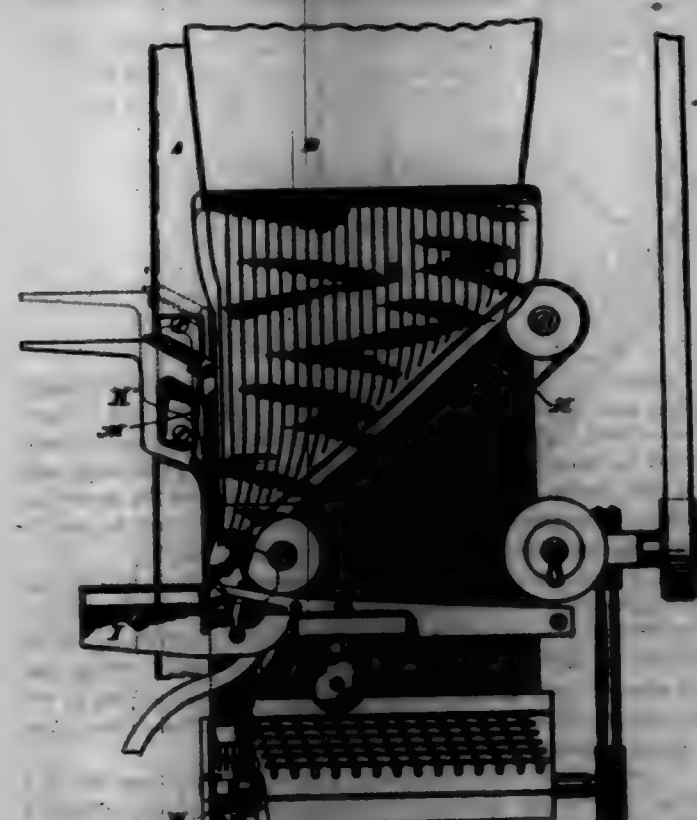
696,805. BUT-CRACKER. WILLIAM V. FURNEY, San Antonio, Tex. Filed May 22, 1901. Serial No. 61,373. (No model.)



Claim.—1. A nut-cracking implement, comprising a pair of similarly-bent handle-links pivoted together at the ends, a hammer-block rigidly secured on the opposite end of said link, each hammer-block having a cavity, said cavities being in the ends of the blocks that may have contact with each other, and a guide device on one handle-link near the hammer-blocks and adapted to guide the other link.

2. A nut-cracking implement, comprising a pair of similarly-bent handle-links, pivoted together near the ends of the links, a hammer-block rigidly held on the opposite end of each handle-link, each hammer-block having a cavity, said cavities being formed in opposed ends of the hammer-blocks, a handle-link in each handle-link, and a guide-piece having parallel members affixed by their ends to one of the handle-links, and loosely embracing the other handle-link.

696,806. LIQUTYPE-MACHINE. FREDERICK T. DODGE, Washington, D. C., assignor to Harpeth-Letter Lithotype Company, a Corporation of New York. Filed Feb. 11, 1902. Serial No. 70,008. (No model.)



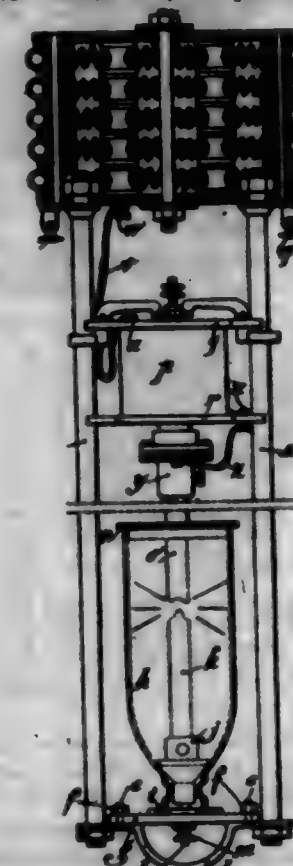
Claim.—1. In a lithotype-machine, a magazine with spacing or justifying device adjustable to and from the point of composition.

2. In a lithotype-machine and in combination with the matrix-assembler thereunder, a magazine for the spaces adjustable vertically, whereby the time required for the passage of the spaces to the line may be varied.

3. In a lithotype-machine and in combination with an assembler wherein the matrices are composed or assembled in line, a magazine from which the spaces or justifiers are delivered to the line, means for adjusting said magazine to change its distance from the assembler, and keyboard mechanism and adjustable connection between said keyboard and the adjustable magazine, whereby the parts may be caused to deliver spaces from the magazine in either of its positions.

4. In combination with the read F, the yoke R, eccentric S, roller T, yoke-containing dog V, and finger-key W, having in its rear end in direct engagement with said dog, substantially as described and shown.

696,807. ELECTRIC-ARC LAMP. RENE FRANCHET, Paris, France. Filed Sept. 7, 1901. Serial No. 74,504. (No model.)



Claim.—1. An electric-arc lamp, a regulator comprising the combination of an electromagnet, a lower central core movable within said electromagnet and rigidly connected with but electrically insulated from the upper carbon, a counter-spring lodged in the said core and adapted to be compressed between this latter and a movable cap arranged above and in the axis of the electromagnet, two brushes pivoted and bearing upon the movable cap and adapted to wedge the guide-rods in such a manner that the tension of the spring combined with the attraction of the core permits of fixing the regulator or of causing it to slide as a whole in order to maintain constant the interval separating the carbons and consequently the intensity of the current.

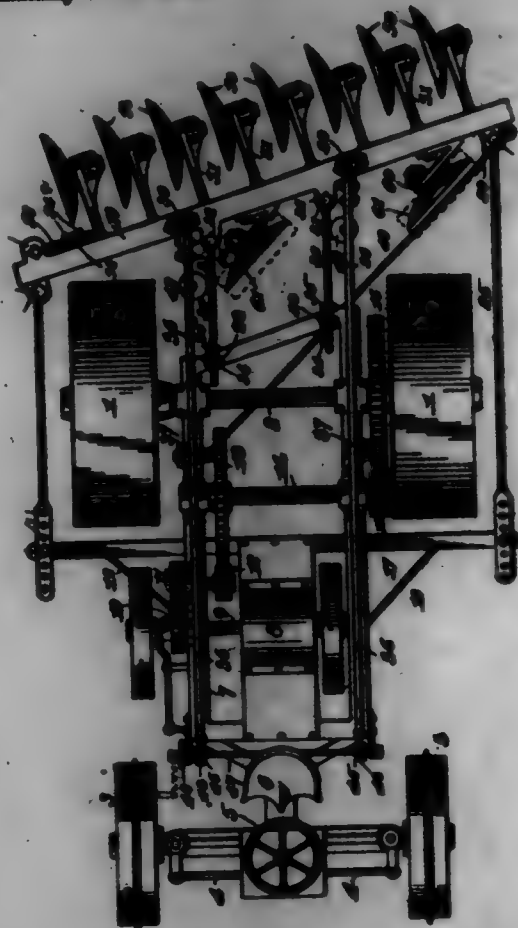
2. An arc-lamp, comprising a pair of guide-rods, a frame slidably mounted upon said guide-rods and provided with friction-brakes for engaging the same, a solenoid provided with a member for modifying the magnetic field, an armature made in sections, one of which is stationary relatively to said solenoid and the other movable relatively thereto, brushes mounted upon said frame and connected with said movable section of said armature, means for mounting a carbon upon said movable section and for connecting another carbon with said guide-rods, and means for supplying an electrical current to said solenoid and said carbon.

3. An arc-lamp comprising a pair of guide-rods, a frame slidably mounted thereon, a cap loosely mounted upon said frame and movable relatively thereto, an electrically-operated device for actuating said cap relatively to said frame, brake-shoes carried by said frame and normally free to grip said guide-rods, levers connected with said brake-shoes and provided with free ends, said free ends resting loosely upon said cap to compensate virtual differences in the space between said guide-rods at various points.

696,808. MOTOR-FLOW. EDWARD J. GATLIN, St. Louis, Mo. Filed July 12, 1901. Serial No. 60,712. (No model.)

Claim.—1. In an agricultural implement of the character described, the combination of a frame, a carrier, a series of soil-working members connected to said carrier, and adjustment means connected to each end of said carrier and to said frame, whereby the angle of said carrier may be altered, substantially as described.

2. In an agricultural implement of the character described, the combination of a frame, a carrier, a series of soil-working members connected to said carrier, adjustment means forming connection between the ends of said carrier and said frame, and adjustable stay-rods providing connection between the carrier and frame intermediate of the ends of said carrier, substantially as described.



3. In an agricultural implement of the character described, the combination of a frame, a carrier, a series of soil-working members connected to said carrier, and adjustable connections between said carrier and frame, whereby said carrier may be tilted, substantially as described.

4. In an agricultural implement of the character described, the combination of a frame, a carrier, a series of soil-working members connected to said carrier, a pair of connecting-rods attached to said carrier and adjustably connected to said frame, substantially as described.

5. In an agricultural implement of the character described, the combination of a frame, a cross-bar carried thereby, a carrier, a series of soil-working members connected to said carrier, means whereby said rods are adjustably held to said cross-bar, a pair of stay-rods attached to said carrier, eyes on said frame in which said stay-rods are seated, and adjustment-means on said stay-rods at opposite sides to said eyes, substantially as described.

6. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of soil-working members swingingly and independently connected to said carrier, and means whereby said soil-working members may be shifted to vary the angle thereof with relation to the ground in which they operate, substantially as described.

7. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of hangers independently pivoted to said carrier, soil-working members journaled in said hangers, and means for rocking said hangers on their pivots to vary the angle of the soil-working members with relation to the ground in which they operate, substantially as described.

8. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of hangers independently pivoted to said carrier, soil-working members mounted on said hangers, and a shift-bar arranged in engagement with said hangers and adapted to shift said hangers in unison, substantially as described.

9. In an agricultural implement of the character described, the combination of a frame, a carrier connected thereto, a series of hangers independently pivoted to said carrier, soil-working members mounted on said hangers, and an adjustable slide-bar arranged in engagement with said hangers and adapted to shift said hangers in unison, substantially as described.

10. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of hangers pivoted to said carrier, soil-working members mounted on said

hangers, a notched slide-bar having engagement with said hangers, and means for adjusting said slide-bar, substantially as described.

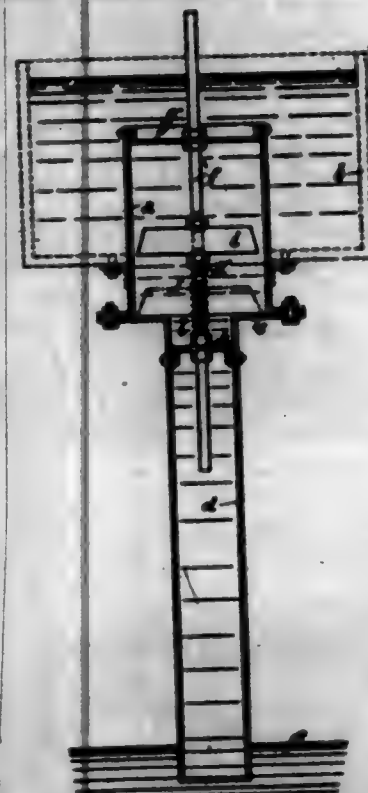
11. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of hangers pivoted to said carrier and provided with lugs, soil-working members mounted on said hangers, a notched slide-bar having engagement with the lugs of said hangers, and means for shifting said slide-member longitudinally to rock said journal members in unison, substantially as described.

12. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of soil-working members connected to said carrier at the rear side thereof, and restraining members connected to said carrier at the front side thereof, said last-named members being arranged to resist the longitudinal movement of said carrier, substantially as described.

13. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame, a series of soil-working members connected to said carrier at the rear side thereof, and reversible disks mounted upon said carrier at the front side thereof adapted to resist the longitudinal movement of said carrier incident to the strain exerted upon the soil-working members, substantially as described.

14. In an agricultural implement of the character described, the combination of a frame, a carrier connected to said frame and arranged at an angle to the path of travel of the implement, a series of soil-working members connected to said carrier, and a flexible stay connected to the rear end of said carrier and to said frame, substantially as described.

696,809. HYDRAULIC MOTOR. JAMES C. CHILLY, Paris, France. Filed Jan. 24, 1901. Serial No. 44,512. (No model.)



Claim.—1. A hydraulic motor, comprising a reservoir, a tube depending from the same and entering below the surface of a body of water of lower level, a current-operated valve connected to a power-transmitting rod for closing said tube, the arrangement of the parts being such as to form successively partial vacuums in the tube for the purpose of utilizing the pressure due to the entire depth of water from the surface water in the reservoir to the surface of the water below.

2. A hydraulic motor, comprising a reservoir, a discharge-tube depending therefrom and entering below the surface of a body of water of lower level, an automatic valve connected to a power-transmitting rod for intermittently closing said tube, and a spring for normally holding said valve open, the arrangement being such that the sudden closing of the tube causes the volume of water in the tube to rebound and thereby assist the spring in opening the valve.

3. A hydraulic motor comprising a cylinder open at one end to a body of water, a pipe leading from the opposite end of the cylinder to another body of water at a lower level and immersed therein, a poppet-valve held to reciprocate in the cylinder and controlling the communication of the cylinder with the said pipe, and a power-transmitting rod connected with said poppet-valve.

4. A hydraulic motor comprising a cylinder open at one end to a body of water, a pipe leading from the opposite end of the cylinder to an-

other body of water at a lower level and immersed therein, a poppet-valve held to reciprocate in the cylinder and controlling the communication of the cylinder with the said pipe, a spring opposing the movement of the poppet-valve toward its seat, and a power-transmitting rod connected with said poppet-valve.

5. A hydraulic motor comprising a cylinder open at one end to a body of water, a pipe leading from the opposite end of the cylinder to another body of water at a lower level and immersed therein, a poppet-valve held to reciprocate in the cylinder and controlling the communication of the cylinder with the said pipe, said poppet-valve being arranged to move up and down, and a power-transmitting rod connected with said poppet-valve.

6. A hydraulic motor comprising a cylinder open at one end to a body of water, a pipe leading from the opposite end of the cylinder to another body of water at a lower level and immersed therein, a poppet-valve held to reciprocate in the cylinder and controlling the communication of the cylinder with the said pipe, said poppet-valve being free to reciprocate, and a power-transmitting rod connected with said poppet-valve.

696,810. NECKTIE-FASTENER. GEORGE G. SMITH, Baltimore, Md. Assignor to Adolph Hollander, New York, N. Y. Filed Oct. 2, 1901. Serial No. 77,222. (No model.)

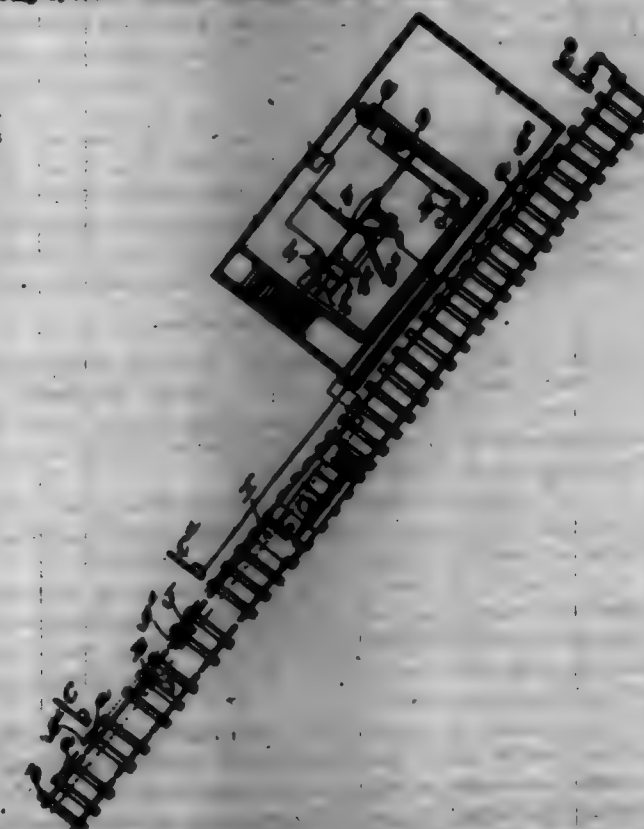


Claim.—1. As an article of manufacture, a necktie-fastener, comprising a plate of sheet metal, provided with one end with fastenings secured to a necktie-shoulder, a Y-shaped clasp pivoted to said plate and provided with a hook-like member terminating in pointed feet, and a torsional spring engaging said plate and said clasp, for normally holding said Y-shaped member in such a position that said pointed feet engage said plate.

2. As an article of manufacture, a necktie-fastener, comprising a plate of sheet metal provided with a central boss and with means for securing said plate to a shirt, a Y-shaped clasp pivoted to said plate and provided with legs terminating in pointed feet, and a torsional spring engaging said plate and said Y-shaped clasp.

3. As an article of manufacture, a necktie-fastener comprising a plate of sheet material provided with a substantially hemispherical boss integral therewith, means for securing said plate to a shirt, a Y-shaped clasp pivoted to said plate and provided with a hook-like member integral therewith, said hook-like member having V-shaped points for limiting its rocking movement, and a torsional spring engaging said plate and said Y-shaped clasp.

696,811. RAILWAY SIGNALING AND COMMUNICATING APPARATUS. HARRY GILBERT, South Yarra, Victoria, Australia. Filed July 2, 1901. Serial No. 67,090. (No model.)



Claim.—1. In a signaling system of the character described, a track, a conductor arranged along said track, a vehicle adapted to travel on said

track, a tower, an electric generator in said tower connected with the conductor, the connections including a contact-maker, a brush on said vehicle adapted to engage said conductor, signal devices on the vehicle electrically connected with said brush, a hand-lever in the tower, and means operated by said hand-lever for actuating said contact-maker.

2. In a signaling system of the character described, a track, a conductor arranged along said track, a vehicle adapted to travel on said track, a tower, an electric generator in said tower connected with the conductor, the connections including a contact-maker, a brush on said vehicle adapted to engage said conductor, signal devices on the vehicle electrically connected with said brush, a lever connected to said contact-maker, a sliding rod for operating said lever, a hand-lever, and a cam connected with said hand-lever for operating said sliding rod.

3. In a signaling system of the character described, a track, a conductor arranged along said track, a vehicle adapted to travel on said track, a tower, an electric generator in said tower connected with the conductor, the connections including a contact-maker, a brush on said vehicle adapted to engage said conductor, signal devices on the vehicle electrically connected with said brush, a hand-lever, a slide, a cam operable by said hand-lever and adapted to actuate said slide, and connections between said slide and the contact-maker for operating the latter.

696,812. STRAW-STACKER. ARTHUR HACHENBERGER, Altona, N. D. Filed July 2, 1901. Serial No. 67,217. (No model.)



Claim.—1. In a straw-stacker, a support, fan-casing mounted thereon, a hopper between said fans provided with an outlet extending beyond the said casing, the portion of the front wall of the hopper forming the rear wall of one of the fan-casings and terminating near the entrance to said outlet, a fan in each casing, and means for operating the same, substantially as described.

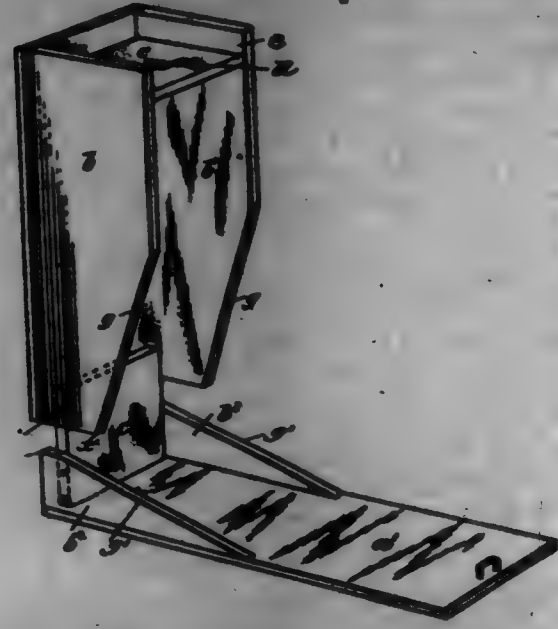
2. In a straw-stacker, a support, three fan-casing mounted thereon, two of which are at a distance from each other laterally, and the other one is located in front of and substantially on a line between the said two casings, a hopper between said casing and the two casings provided with an outlet which communicates with all of said casings, a fan in each casing and means for operating the same.

3. In a straw-stacker, a support, three fan-casing mounted thereon, two of which are at a distance from each other laterally, and the other one is at a distance in front of and on a line between said two casings, a hopper between said casing and the two casings provided with an outlet which communicates with each of said casings, three shafts mounted upon said support, all of which extend into said two casings respectively, and the other one extends entirely through the front casing, a fan upon each shaft within its respective casing, pulleys upon said shafts and belting upon said pulleys operating said two shafts from the shaft through the front casing, substantially as described.

4. In a straw-stacker, the support, three fan-casing mounted thereon, one of which is in front of the other two, a hopper between said front casing and the two rear casings, a delivery-chute communicating with said hopper and the fan-casings the bottom wall of which is formed by an extension of the bottom of the front casing and the top intersects the adjacent walls of the two casings near the center and is joined to the rear wall of the hopper, a fan in each casing, and means for operating the same.

5. In a straw-stacker, a support, casings mounted thereon, two of which are at a distance from each other laterally, and each has substantially the lower half of its inner wall cut away and provided with a centrally-located bearing, and the other casing is in front of and substantially on a line between said two casings, a hopper between said front casing and the two rear casings, a portion of the front wall of which forms the rear wall of said casing and terminates with the space formed by said cut-away portions, a delivery-chute communicating with said hopper and casings, the lower wall of which is substantially an extension of the bottom of said forward casing, and the upper wall joins the edge of the cut-away portions of said inner walls, a fan in each casing, the shafts of the case in said two casings being each journaled in the bearing on the inner wall of its respective casing, and the other shaft extending entirely through its casing, and means for operating the said two fans from the shaft of the one fan, substantially as described.

696,818. BOX. WALTER J. HARRISON, Boston, Mass. Filed May 25, 1901. Serial No. 61,999. (No model.)



Claim.—1. The herein-described box, consisting of the top *a*, the bottom *b*, the ends *c* and *d*, the end *e*, provided with a suitable catch; the side pieces *f* and *g*, secured to the top portion of the box and the side pieces *h* and *i*, secured to the bottom part of the box, and having the upper corner at *j* slightly recessed, and the parts *k* and *l*, suitably pivoted to the end piece *c*, so that the upper part of the box may be removed or swung upwardly from the lower part of the box, substantially as and for the purpose set forth.

2. In a box consisting of two parts, one part forming the upper portion having the top *a*, of the length and substantially of the width of the box, and with two side pieces *b* and *c*, of the length of the box, and with substantially the depth of the box for a portion of their length, and each hinged from substantially the middle of its length upwardly toward one end, and the whole secured together as one portion; in combination with the said second part, consisting of the bottom *d*, formed of the full size of the box, and having two parallel side pieces *e* and *f*, widest at the outer ends and extending to a point midway of the length of the box, and the end piece *g*, and all secured together as one portion; the levels of the upper and lower parts coinciding and all adapted to operate substantially as set forth.

3. In a box consisting substantially of two parts, the top part *a*, pivoted at one end and having the sides *b* and *c*, provided with the bevel *d*, secured to the top piece and one end of the box; and the bottom part *e*, having the bevel pieces *f* and *g* secured to the bottom piece and the opposite end of the box, *h*, combined and arranged substantially as set forth.

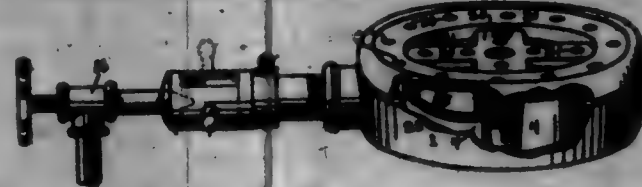
4. In a box, without partitions, the bottom *a*, formed the length and width of the box, and secured to the end piece of the box *b*; two side pieces *c* and *d*, the said side pieces being widest at the outer ends, and hinged to a point midway of the length of the box, and secured to the bottom *a*, and end piece *e*, and adapted to hold the contents of the box in place when resting on the said bottom, and while the rest of the box is removed from its normal position, substantially as set forth.

696,814. PLURAL WHISTLE. ALEXANDER F. HARRIS, Bridgeport, Conn. Filed Sept. 14, 1901. Serial No. 75,477. (No model.)



Claim.—A whistle consisting of a central valve-chamber, a mouth-piece leading thereto, a plurality of barrels leading out from the central chamber, and a corresponding number of partitions or valves between the valve-chamber and the barrels, said valves or partitions being flush with the walls of the mouthpiece at the point of junction therewith, the opposite edges of the valves or partitions being cut away to form openings 10 and each partition having a base or leg 11 to serve as a support for the walls of the barrels to preserve the shape of the opening 10, the barrels being formed with openings corresponding to the openings 10, substantially as described.

696,815. GAS-BURNER FOR STOVES. HARVEY J. HENRY, Mass. Filed Dec. 31, 1901. Serial No. 60,766. (No model.)



Claim.—In a gas-burner for stoves, the combination of a shell, a supply-pipe connected thereto, partitions located in the shell and spaced from each other, gas-passages located between the partitions and the shell, a cover spaced from the shell and said cover provided with an annular flange having a concave bottom or under side and a series of apertures located through the flange having the concave bottom, a plate located over the passages between the partitions in the shell and the plate provided with apertures, substantially as and for the purpose specified.

696,816. ROLLER-DIE. HENRY HENSON, Wilkes-Barre, Pa. Filed Dec. 14, 1901. Serial No. 60,948. (No model.)



Claim.—1. A roller-die for forming angular projections integrally on metal plates and the like, comprising a roller mounted to turn and having a peripheral beveling-face and a peripheral cutting edge, and means for moving the roller bodily in engagement with the plate, and in the direction in which the projection is to extend, whereby the roller is caused to turn in a direction toward the plate to cut the plate, the roller at the same time beveling the end portion, as set forth.

2. A roller-die for forming angular projections integrally on metal plates and the like, comprising a roller mounted to turn and having a peripheral beveling-face, peripheral cutting edges at the ends of the roller, and means for moving the roller bodily in engagement with the plate and in the direction in which the projection is to extend, whereby the roller is caused to turn in a direction toward the plate, as set forth.

3. A roller-die for forming angular projections integrally on metal plates and the like, comprising a roller mounted to rotate, and having a peripheral beveling-face and a peripheral cutting edge, means for moving the roller bodily in engagement with the metal plate, and in the direction in which the projection is to extend, whereby the said roller is caused to turn in a direction toward the plate and a bed-plate or support for supporting the plate, and having an abutment for the projection to be pressed against by the roller, as set forth.

4. A roller-die for forming angular projections integrally on metal plates and the like, comprising a support for the plate, a roller having a peripheral beveling-face and a peripheral cutting edge, a support in which the roller is mounted to turn, and adapted to be moved vertically downward to carry the roller bodily in contact with the upper side of the plate near one edge thereof, the point of contact of said roller with the plate being at one side of its axis, whereby the roller when forced in contact with the plate is caused to rotate in a direction toward the plate and the cutting force of the roller is applied in direction of the top surface of the plate, thereby insuring a clean cut at the inside corner in the plate, the roller at the same time beveling the end portion downward, as set forth.

696,817. TURNING DEVICE. GEORGE E. HARRIS, Seattle, Wash. Filed Jan. 21, 1903. Serial No. 60,664. (No model.)

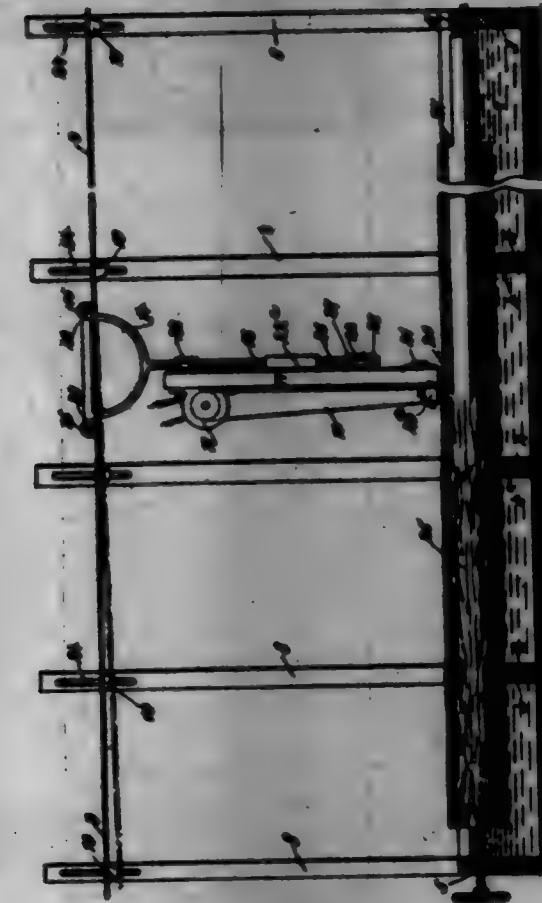
Claim.—1. A turning device, comprising a cutter, means for centering and rotating an object to be turned, and a tank containing a liquid for floating said object while being turned.

2. A turning device, comprising means for centering and rotating an object to be turned, a tank for floating said object, and a revolvable cutter free to move bodily adjacent to said object to be turned.

3. A turning device, comprising means for centering and rotating an object to be turned, a longitudinal tank for floating said object, and a traveling carrier having a depending arm provided with a revolvable cutter, the said carrier being free to move in a direction substantially parallel with said horizontal tank.

4. A turning device, comprising a longitudinal tank for holding liquid, longitudinal tracks located substantially parallel thereto, means for centering and rotating an object in said tank so as to float therein, overhead tracks substantially parallel with said tank, posts for supporting said tracks, means for adjusting said tracks relative to said posts, and a cutting device for operating upon the object to be turned.

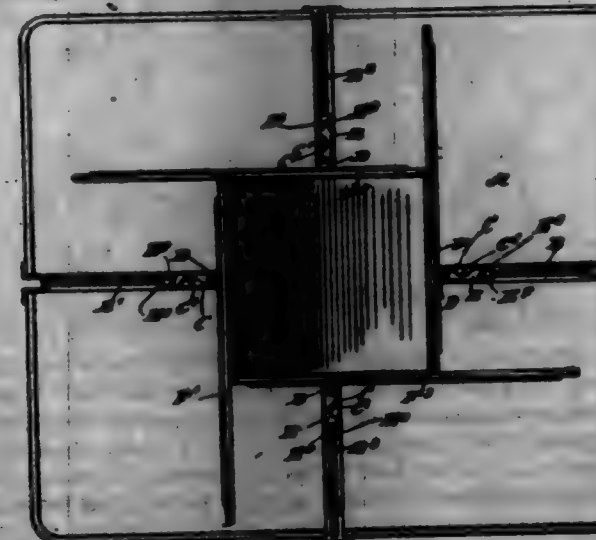
5. A turning device, comprising a longitudinal tank for holding liquid, longitudinal overhead tracks located substantially parallel to said tank, means for centering and rotating an object in the tank, a traveling carrier mounted upon said tracks and provided with a depending arm, a frame provided with a threaded member for engaging said arm and thereby adjustable relatively to said carrier, revolvable cutters mounted upon said frame and movable bodily therewith, and means for actuating said cutters.



6. A turning device, comprising means for centering and rotating an object to be turned, a tank for holding a liquid for floating said object, supports for centering said object independently of said means for centering and rotating and also independently of said liquid, and operating mechanism for cutting the object to be turned.

7. A turning device, comprising means for centering and rotating an object to be turned, a longitudinal tank for floating said object, longitudinal tracks located substantially parallel with the general direction of said tank, a traveling carrier having a depending arm provided with a revolvable cutter for engaging the object to be turned, mechanism for actuating said cutter, and means for adjusting the position of the said tracks relative to the position of said tank.

696,818. DELIVERY-TABLE FOR PRINTING-PRESS. EDWARD M. HOWELL, Denver, Colo. Assignor to Howell and Peter J. Thomas, Denver, Colo. Filed July 13, 1901. Serial No. 62,767. (No model.)



Claim.—1. The combination of a delivery-table, a series of posts adjustable radially thereon, and jagger-boards clamped to said posts and adjustable longitudinally thereon, said jagger-boards being also adjustable

with the posts and occupying an abutting and overlapping relation one to the other, whereby the jagger-boards are adapted to form a paper-receiving space of any dimensions within the limits of the jagger-boards.

2. The combination of a delivery-table having radial guideways, a series of posts adjustable in said guideways and provided with means for holding the same in place, a single group of jagger-boards mounted on the posts for adjustment therewith and each jagger-board adjustable in the direction of its length on said post and jagger-boards arranged in abutting and overlapping relation and forming a paper-receiving space or chamber which is closed on all sides, and means for clamping each jagger-board firmly to one post.

3. The combination with a table, and a slide, of a post removably fitted to the slide, a locking-plate carried by the slide and having interlocking engagement with the post, and a jagger-board said locking-plate serving to hold the post in a rigid predetermined position relative to the slide and against any tendency to lateral displacement under the wear incident to service.

4. The combination with a table, and a slide, of a post fitted to said slide and having a leg, a locking-plate pivoted to the slide and adapted to engage said leg, means for clamping the locking-plate in position, and a jagger-board.

5. A delivery-table having suitable guideways, slides adjustable on said guideways in the direction of the length thereof, supports removably secured on said slides, and jagger-boards clamped to said supports and adjustable thereon in the direction of the length of said jagger-boards, said jagger-boards being adjustable with the slides and also adjustable independently thereon, whereby the jagger-boards may be brought into abutting and overlapping relation one with the other and to form a paper-receiving space of any area within the limits of the jagger-boards.

6. A delivery-table having intersecting guideways, slides adjustable in said guideways, supporting posts removably secured on said slides, a locking device carried by each slide and having interlocking engagement with one post for locking the latter in a rigid predetermined position relative to said slide, and a group of jagger-boards mounted individually on said posts and disposed in abutting and overlapping relation.

7. A delivery-table having an adjustable post provided with a leg, a jagger-board having a recess, a slotted plate attached to the jagger-board and receiving the leg of said post, a nut confined in the recess of the jagger-board, and a thumb-screw supported by the post and engaging said nut.

8. In a delivery-table, a single group of jagger-boards disposed in abutting and overlapping relation and forming an inclosed paper-receiving space which is closed on all sides, combined with a table, and supporting devices adjustable radially on said table; said jagger-boards being adjustable with the supports and also capable of independent end-wise adjustment on said supports.

9. In a delivery-table, the combination with a carrier-slide and an supporting post removably mounted on said slide, of a separate locking device connected with said slide and with the post and holding the latter in a rigid predetermined position relative to the slide, and a jagger-board supported on the post.

696,819. LOCK-LOCK. DANIEL HOTT, South Norwalk, Conn. Assignor of one-half to the National Lock Washer Company, Norwalk, N. J., a Corporation of New Jersey. Filed Jan. 2, 1903. Serial No. 62,175. (No model.)



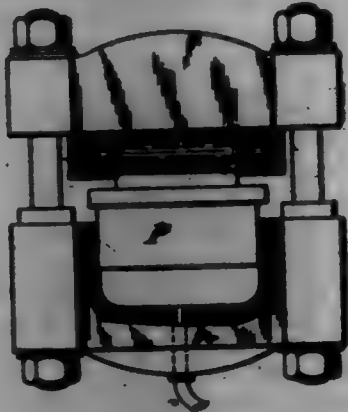
Claim.—A lock-lock comprising upper and lower eccentric locking-eyes having rearwardly-extending operating-levers, said locking-eyes being provided with contacting operating-ears, the operating-ear upon the upper locking-eye lying in front of the operating-ear upon the lower locking-eye, so that upward movement of the lower lever will disengage both locking-eyes but downward movement of the upper lever will only disengage the upper locking-eye having the lower locking-eye in the locking position.

696,820. LOCK-GAME. DANIEL HOTT, South Norwalk, Conn. Assignor of one-half to the National Lock Washer Company, Norwalk, N. J., a Corporation of New Jersey. Filed Jan. 2, 1903. Serial No. 62,176. (No model.)

Claim.—A case of the character described comprising a case proper provided with integral posts, an integral abutment 13 shorter than the posts, an integral abutment 15 the height of the posts and having a shoulder the height of abutment 13 and recesses at its upper and lower ends, the bottoms of which are of uniform height with abutment 13 and the shoulder on abutment 13, and are provided at their rear ends with solid walls and a back plate resting upon abutment 13, the shoulder on abutment 15 and the bottoms of the recesses and bearing against abutment 15 and the walls at the ends of the recesses.



**696,821. APPARATUS FOR PRESSING, STAMPING, EMBOS-
ING, OR PLUNTING FLAY SURFACES.** CARL HEDER, Karlsruhe, Ger-
many, assigner to Gesellschaft für Lederpressung Gesellschaft mit
beschränkter Haftung, Karlsruhe, Baden, Germany, a Corporation of
Germany. Original application filed Feb. 4, 1901, Serial No. 45,982.
Divided and this application filed Jan. 12, 1902. Serial No. 92,241.
(No model.)



Claim.—1. Apparatus for pressing stamping embossing or printing flat surfaces comprising a water-chamber whose walls are formed of flexible material extending continuously all around, a strong receptacle con-
fining said water-chamber so as to leave only the surface which is to exert pressure exposed, and means for bringing the surface to be impressed together with the surface for producing the impression thereon into forcible contact with the said exposed surface of the chamber, substantially as described.

2. Apparatus for pressing stamping embossing or printing flat surfaces comprising a water-chamber whose walls are formed of flexible material extending continuously all around, a strong receptacle confining said chamber so as to leave only the surface which is to exert pressure exposed, and having its walls extended beyond such surface, a bed-plate carrying the surface to be impressed and the surface for producing the impression and adapted to fit within the projecting walls of the strong receptacle, and means for bringing the surface to be impressed into forcible contact with the exposed surface of the water-chamber substantially as described.

3. Apparatus for pressing stamping embossing or printing flat surfaces comprising a water-chamber whose walls are formed of flexible material extending continuously all around, a strong receptacle confining said chamber so as to leave only the surface which is to exert pressure exposed, means for forcing liquid under pressure into said chamber, and means for bringing the surface to be impressed together with the surface for producing the impression thereon into forcible contact with the said exposed surface of the chamber, substantially as described.

696,822. BEATING-ENGINE. EDWARD A. JOSE, Pittsfield, Mass.
Filed July 9, 1901. Serial No. 67,267. (No model.)

Claim.—1. A beating-engine having a device in a vat for forcing a stream of water into or under the pulp in the direction in which the pulp is flowing, said device having a discharge-slot extending from one side of the vat to the said-furrow thereof, as set forth.

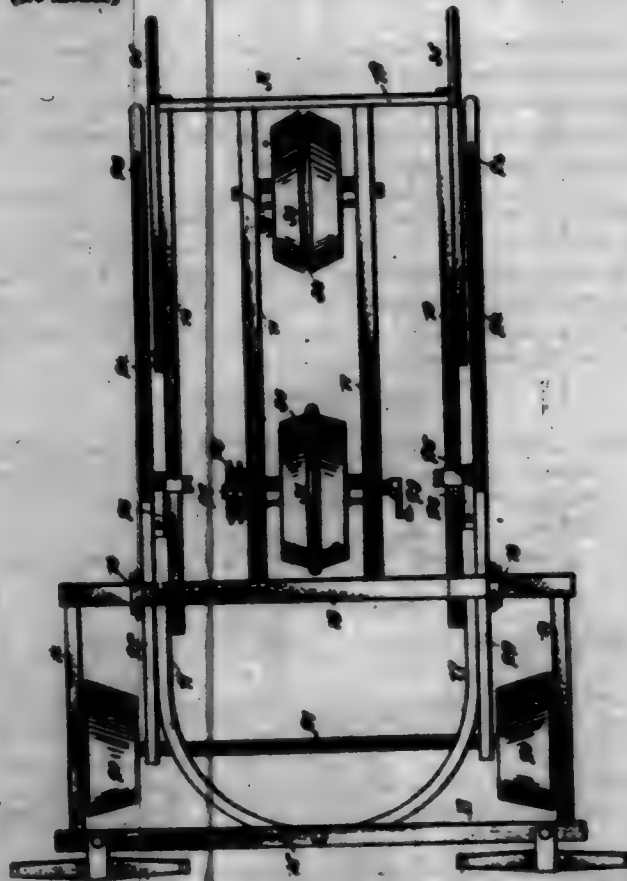
2. A beating-engine having a device in a vat for forcing a stream of water into or under the pulp in the direction in which the pulp is flowing, said device comprising a pressure-chamber extending from one side of the vat to the said-furrow at the bottom of the vat, said pressure-chamber having a discharge-opening and a connection with the fluid-pressure supply, as set forth.

3. A beating-engine having a device in a vat for forcing a stream of water into or under the pulp in the direction in which the pulp is flowing, said device comprising a pressure-chamber arranged under the rear wall of the backfill and extending from one side of the vat to the said-

furrow, said pressure-chamber having a discharge-opening and a connection with a fluid-pressure supply, as set forth.



696,823. PLANTER AND CULTIVATOR. JAMES R. JOHNS, Jack-
son, Minn. Original application filed Mar. 7, 1901, Serial No. 50,185.
Divided and this application filed July 12, 1901. Serial No. 63,010.
(No model.)



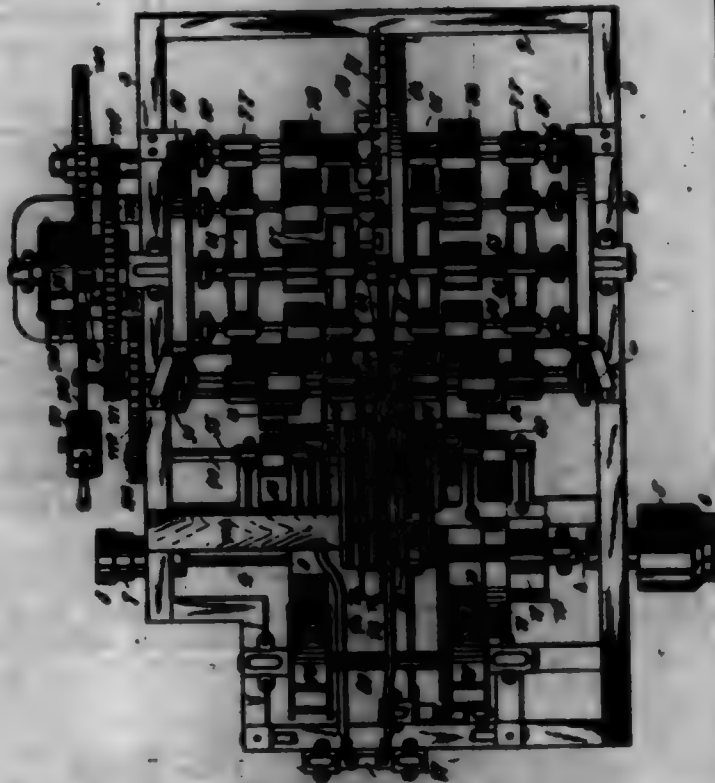
Claim.—1. In planters and like machines, a furrow-opening wheel having its periphery inclined from the center in direction of its sides and provided with a central peripheral rib, and a covering-wheel arranged in tandem with the furrow-opening wheel, the covering-wheel having its periphery also inclined from the center in direction of its sides, the said covering-wheel having a central peripheral groove, as and for the purpose set forth.

2. In planters and like machines, the combination, with the main frame, supporting-wheels for the forward portion of said main frame, and a mechanism for raising and lowering the supporting-wheels, of a furrow-

opening-wheel mounted to turn in the main frame near its center, the periphery of which wheel is inclined from the center in direction of its sides and is provided with a central peripheral rib, and a covering-wheel arranged in tandem with the furrow-opening wheel, the peripheral portion of which covering-wheel is inclined from its center in direction of its sides and is provided with a central peripheral groove in track relation to the rib upon the furrow-opening wheel, as specified.

3. A planter or the like, comprising a frame, rearwardly-extending arms pivotally mounted upon the frame, means for locking the arms in position, supporting-wheels mounted in the forward ends of the said arms, a furrow-opening wheel mounted in the frame in rear of the supporting-wheels, said wheel having its periphery inclined from the center in direction of the sides and provided with a central peripheral rib, and a covering-wheel mounted in the frame in rear of the furrow-opening wheel, said covering-wheel having its periphery inclined from the center in direction of its sides and provided with a central peripheral groove, as set forth.

696,824. WOOD-TURNING MACHINE. WILLIAM T. JOHNS, New Westminster, Canada, assignor of one-half to Henry Doyle, San Francisco, Cal. Filed July 26, 1901. Serial No. 66,791. (No model.)



Claim.—1. In a wood-turning machine, a plurality of saws arranged in axial alignment for cutting off blocks, means for supporting the wood transversely of the saws, means for carrying the blocks from the saws, a series of knives, and means for moving the blocks in axially-aligned pairs past the knives with a rotary motion, substantially as specified.

2. In a wood-turning machine, a plurality of saws arranged in axial alignment for cutting off blocks from a strip of wood, means for supporting the wood transversely of the saws, means for moving the blocks in axially-aligned pairs simultaneously from the saws, boring-tools for forming holes lengthwise in the blocks, means for moving the blocks to and from said boring-tools, a series of knives, and means for moving the blocks past the knives with a rotary motion, substantially as specified.

3. In a wood-turning machine, a pair of saws arranged side by side, one saw being of larger diameter than the other, means for supporting the work transversely to the plane of the saws, a swinging frame in which the saws are mounted, means for moving said frame, boring-tools, means for moving the blocks to the boring-tools, means for moving the blocks onto and off the boring-tools, two series of spindles for receiving the blocks, a series of cutters or knives, and means for moving said spindles carrying the blocks past the cutters, substantially as specified.

4. In a wood-turning machine, a plurality of saws in axial alignment and having a swinging motion, means for causing said swinging motion, opposite boring-tools, means for rotating said boring-tools, means for carrying blocks to the said boring-tools, means for supporting the work to be moved transversely of the saws, means for moving the blocks onto and off from said boring-tools, a reel, means for rotating the reel, a series of spindles for each saw carried by said reel and having a rotary and a longitudinal movement in the reel, means for carrying the blocks from the boring-tools to the reel to be engaged by the spindles, means for rotating the spindles while moving with the reel, and a series of cutters arranged concentrically with the reel, substantially as specified.

5. In a wood-turning machine, a plurality of saws of different diameters, means for moving said saws toward and from a strip of wood from which blocks are to be covered, means for supporting the stick of wood transversely to the saws, boring-tools, means for moving the covered blocks from the saws to the boring-tools, a reel, two series of spindles carried by said reel and mounted to rotate and to move longitudinally therein, means for causing the rotary movement of the spindles while the reel is rotated, means for forcing the spindles into the holes bored in the blocks, cutters arranged concentrically with the reel for operating on said blocks, and means for withdrawing the spindles from the blocks after passing the last of the cutters, substantially as specified.

6. In a wood-turning machine, a plurality of saws for simultaneously covering blocks from a stick, opposite boring-tools, means for rotating said boring-tools in opposite directions, means for directing a stick transversely of the saws, a block table or chute, a frame movable thereon, swinging fingers carried by said frame for engaging with the blocks and moving them along, means for moving said frame and fingers, a reel, two sets of spindles carried by the reel and having rotary and longitudinal movement therein, cutting-blades arranged concentric with the reel, means for imparting motion to the reel, means for rotating the spindles with the blocks, and means for withdrawing the spindles from finished work after leaving the last of the knives, substantially as specified.

7. In a wood-turning machine, the combination with cutters, of a reel, comprising a shaft, a center spindle mounted on the shaft and having openings or bearings in its periphery, pairs of spindles on opposite sides of said center spindle and having bearings, spindles mounted to rotate in the bearings of the said side pairs of spindles and also to move longitudinally therein, the said spindles having end portions to engage in the bearings of the center spindle, means for rotating the spindles and means for rotating the reel, substantially as specified.

8. In a wood-turning machine, a plurality of cutting-blades arranged in the segment of a circle, each of said blades having separated cutting-surfaces for operating upon a plurality of blocks arranged in axial line, and means for moving the blocks in axial pairs past the cutting-blades, substantially as specified.

9. In a wood-turning machine, a reel, block-engaging spindles mounted in said reel, so as to rotate and to move longitudinally, the spindles being arranged in pairs, one spindle of a pair being in axial line with the other spindle of the pair, means for moving said spindles inward to engage in openings formed in the blocks, segmentally-arranged cutting-blades, means for holding the spindles in the blocks while moving past said cutting-blades, a center spindle on the reel coacting with both series of spindles, means for drawing the spindles outward from the blocks, means for rotating the spindles, and means for rotating the reel, substantially as specified.

10. In a wood-turning machine, a pair of saws arranged side by side, a swinging frame in which the saws are mounted, means for swinging said frame, opposite engagers fixed as to longitudinal movement but having means for rotating the same, means for moving blocks of wood to the engagers, block-carriers for receiving said blocks, means for moving said carriers laterally onto and off the engagers, and turning or cutting devices for operating upon the blocks of wood, substantially as specified.

11. In a wood-turning machine, a pair of saws in axial alignment, a block-chute in which the saws operate, a frame movable in side portions of the chute, means for moving the frame back and forth, fingers mounted to swing relatively to the frame, means for supporting a stick transversely of the saws, cutting devices for receiving blocks from said block-chute, spring-fingers at the outlet end of said block-chute, and duplicate means for engaging the blocks held by said spring-fingers and carrying them along the cutters, substantially as specified.

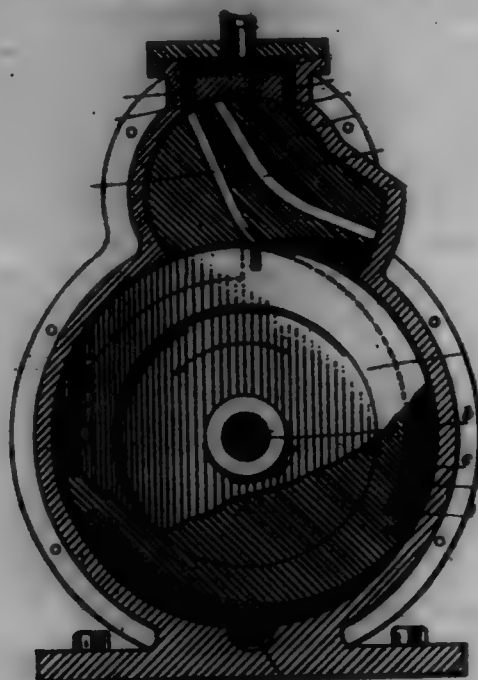
12. In a wood-turning machine, a reel comprising a center spindle having a plurality of transverse openings or bearings in its periphery, bar-cutters at the opposite ends of said openings, spindles at the opposite sides of the center spindle, said spindles having bearings for spindles, spindles mounted to rotate and to move longitudinally in said side spindles, the spindles adjacent to the center spindle having bar-cutters at the inner ends of their openings, cutting-knives arranged concentrically with the reel, means for rotating the reel to carry blocks of wood against the cutting-knives, the said blocks of wood being supported by the spindles, means for rotating the spindles, and means for moving the spindles longitudinally in the spindles, substantially as specified.

13. In a wood-turning machine, a pair of saws operating to simultaneously cover two blocks from a stick, a swinging frame in which the saws are mounted, a block chute or table in which the saws are movable, means for moving covered blocks along said chute or table, means for separating opposite blocks one from the other as they move along the chute or table, cutting-knives, means for supporting a stick transversely of the saws, and means for carrying the blocks in pairs from the chute or table to the cutting-knives, substantially as specified.

14. In a wood-turning machine, a plurality of saws, means for mov-

ing said saws toward and from a strip of wood to be operated upon, a chute or table in which the blocks are movable, means for moving the blocks along said chute or table, laterally-movable carriages for the blocks, adjustable holding devices on said carriages, means for moving said carriages simultaneously in opposite directions, a reel, a double row or set of spindles carried by said reel and adapted for engaging with the blocks as received from the chute or table, means for rotating said spindles on the reel rotatably, and cutting-knives against which the blocks are moved by the reel, substantially as specified.

696,835. ROTARY ENGINE. ISRAEL V. KETNER, Brooklyn, N. Y. Filed Sept. 27, 1901. Serial No. 70,731. (No model.)



Claim.—1. In an engine, the combination of a cylinder, a piston therein, a valve-chest communicating with the cylinder, an oscillating valve mounted in the valve-chest, the stem of the valve projecting beyond the wall of the chest, a sector fastened to said projected stem and having at each edge a laterally-projected part, an arm mounted loosely on the valve-stem, and means for adjustably fastening said arm to a relatively stationary part of the engine.

2. The combination of a circular cylinder, a rotary piston mounted therein and having a shoulder to bear the steam-pressure, a valve-chest, a valve mounted to rock therein, said valve having two steam-ports leading into the cylinder, and a steam-chest having two ports designed respectively to register with the ports in the valve, whereby to connect the steam-chest with the cylinder, the ports in valve and in the steam-chest being different distances apart for the purpose specified.

3. The combination of a circular cylinder, a rotary piston mounted therein and having a shoulder to bear the steam-pressure, a valve-chest, a valve mounted to rock therein, said valve having two steam-ports leading into the cylinder, and a steam-chest having two ports designed respectively to register with the ports in the valve, whereby to connect the steam-chest with the cylinder, the ports in valve and in the steam-chest being different distances apart for the purpose specified, the steam-chest having a third port and the valve having a cavity adapted to register with the third port, when the valve is raised clear of the piston.

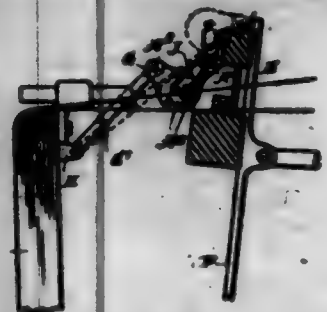
4. The combination of a cylinder, a piston, a valve-chest, a rocking valve therein, the valve having a steam-port and also having a cavity at one side of its center of movement, and a steam-chest having a port registering with the steam-port of the valve and also having a port registering with the cavity in the valve when the valve is raised clear of the piston.

696,836. SHUTTLE-GUARD FOR LOOM. JAMES F. LANE, Patents, N. J. Filed May 23, 1901. Serial No. 68,298. (No model.)

Claim.—1. A shuttle-guard, comprising approximately triangular end plates, cross-bars held on said plates, pivot-pins located on the top opposite corners of the plates and extending in opposite directions, one set of pins pivotally connecting the plates to a hand-roll, links connected with the other set of pivot-pins and provided with cushioning means, and adjustable connections between the links and the loom-frame, as set forth.

2. A shuttle-guard, comprising end plates pivoted to a hand-roll and provided with apertures counterbored on the inner face of the plates, cross-bars held on said end plates, and links connecting the end plates with the loom-frame, as set forth.

3. A shuttle-guard, comprising end plates pivoted to a hand-roll, cross-bars held on said end plates, and extension-links, comprising rods connected with the end plates, and tubes connected with the loom-frame and in which the rods telescope, the tubes being provided with cushions, as set forth.



4. A shuttle-guard having end plates, cross-bars held on said end plates, the said end plates being provided with a series of apertures for the purpose described, and pockets held on said cross-bars adjacent to the end plates, as set forth.

5. A shuttle-guard, comprising end plates adapted for pivotal connection with a hand-roll, cross-bars held on said end plates, a top cross-bar supported by the other bars, and pockets formed of flexible material and held on said cross-bars near the ends thereof, the pockets extending inwardly toward the reel, as set forth.

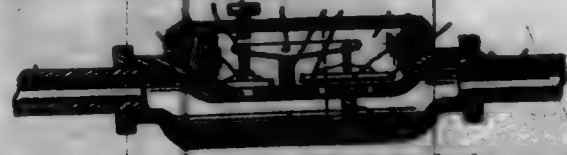
6. A shuttle-guard, comprising end plates pivoted to a hand-roll, cross-bars secured to the end plates, a top cross-bar, means for supporting the top cross-bar from the other cross-bars, and links connecting the end plates with the loom-frame, as set forth.

7. A shuttle-guard, comprising end plates pivoted to a hand-roll, cross-bars held on said end plates, and supporting a top cross-bar, and pockets held on said cross-bars and formed of cushion bands through which extend the cross-bars, as set forth.

8. A shuttle-guard comprising end plates pivoted to a hand-roll, cross-bars rigidly connecting the end plates, a top cross-bar supported from the other cross-bars, and arranged approximately in alignment with the pivots connecting the end plates to the hand-roll, and extension-links connecting the end plates with the loom-frame, as set forth.

9. A shuttle-guard, comprising end plates pivoted to a hand-roll, cross-bars held on said end plates, and cushioning-links connecting the end plates with the loom-frame, as set forth.

696,837. AUTOMATIC SHUT-OFF FOR GAS-LINER. JAMES R. LAMM and WILLIAM R. McFARLANE, Trenton, Pa. Filed Dec. 27, 1901. Serial No. 57,457. (No model.)

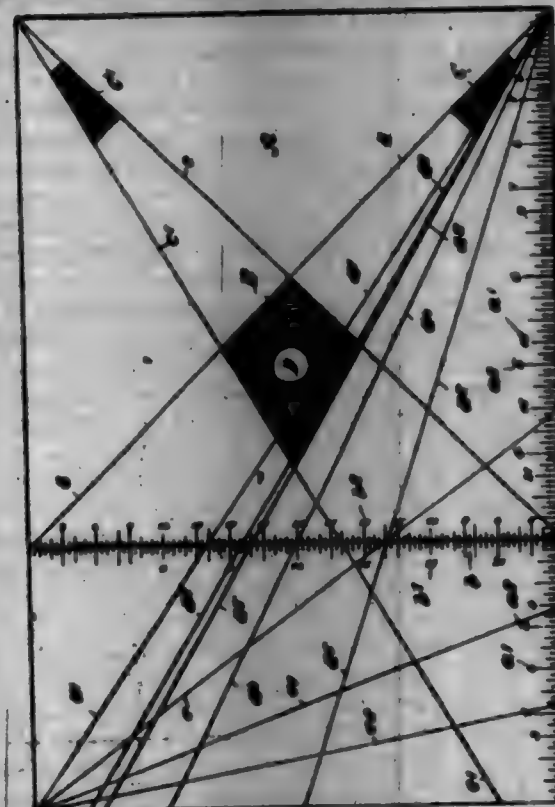


Claim.—1. The combination with a casing having an upper and a lower gas-chamber formed therein with a partition secured in the lower gas-chamber and ports formed in the upper face of the lower gas-chamber, one of said ports being on one side of the partition and the other of said ports on the other side thereof, a third port formed in the upper face of the lower gas-chamber, a lever pivotedly mounted in the upper gas-chamber, a valve carried on one end thereof for closing the last-named port leading into the lower gas-chamber, and a valve of greater size than the first-named valve carried on the other end of said lever and adapted to close both of said first-named ports formed in the upper face of the lower gas-chamber, the gas entering one of the first-named ports on the one side of the partition and supporting the valve of greater size and flowing through the other of said ports formed on the other side of the partition, substantially as described.

2. In a device of the character described, the combination with the casing having an upper and a lower gas-chamber, the ports formed on each side of the partition formed in the lower gas-chamber, and a third port formed in the upper face of the lower gas-chamber, of a pair of valves movable in unison mounted within the upper gas-chamber, one of said valves closing the last-named port and the other of said valves closing the ports on each side of said partition, the gas entering through the port on one side of the partition raising the valve and supporting the same and flowing through the other of the said ports on the other side of the partition, substantially as described.

696,838. DRAFTSMAN'S INSTRUMENT. BEN. C. LAMMERS, Pittsburgh, Pa. Filed Apr. 2, 1901. Serial No. 54,120. (No model.)

Claim.—1. A drawing instrument, comprising a transparent or translucent rectangular plate having on one of its surfaces longitudinal and transverse scales and reversed characters for said scales and provided approximately at its center with a trapezoidal-shaped block, as set forth.



2. A drawing instrument, comprising a transparent or translucent rectangular plate having on one of its surfaces a longitudinal scale along one edge, a transverse scale spaced from one edge and reverse characters for said scales, and provided approximately at its center with a trapezoidal-shaped block, as set forth.

3. A drawing instrument, consisting of a rectangular plate having longitudinal and transverse scales and lines radiating from two or more corners of the plate and intersecting each other.

4. A drawing instrument, consisting of a rectangular plate having a longitudinal scale and a transverse scale extending from the first-named scale at each point as to divide the rectangle into a square and a smaller rectangle and lines radiating from one of the corners of said square.

5. A drawing instrument consisting of a rectangular plate having a longitudinal scale and a transverse scale extending from the first-named scale at each point as to divide the rectangle into a square and a smaller rectangle, and provided with a block projecting from the surface of the plate and having its edges at an angle to those of the plate.

6. A drawing instrument consisting of a plate having lines radiating from two or more of its corners, and a block projecting from the plate and filling the quadrilateral formed by the intersection of four of said radiating lines.

7. A drawing instrument consisting of a plate, an approximately central block projecting therefrom with its edges at an angle to those of the plate, and additional blocks projecting from the same face of the plate and having two of their edges in alignment with the corresponding edges of the central block.

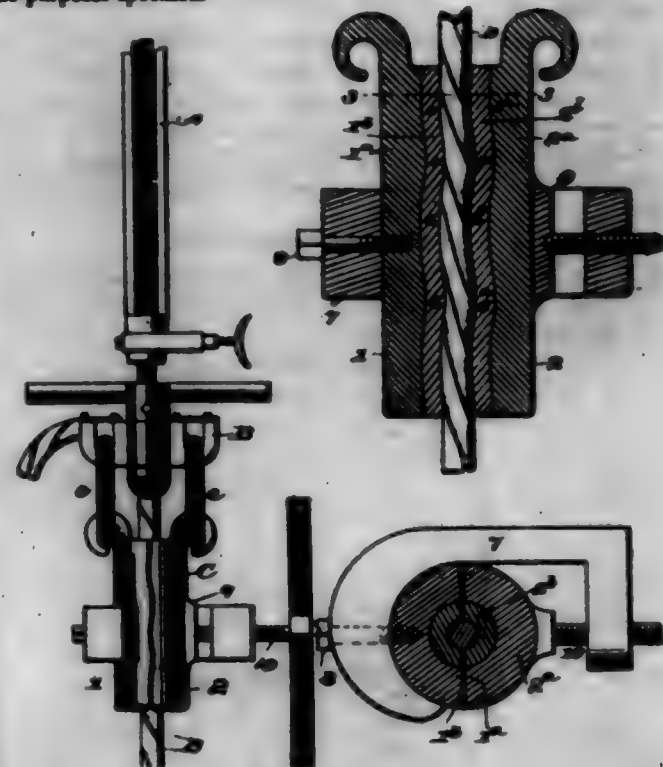
8. A drawing instrument, comprising a transparent or translucent rectangular plate having a longitudinal scale along one edge, a transverse scale spaced from one edge, a block secured to the plate approximately at its center and having its edges at an angle to the edges of the plate, and blocks secured to the plate near two corners, said blocks having two of their edges in alignment with the corresponding edges of the central block.

696,839. TEMPER-CREW CLAMP. PATRICK H. MACK, Bradford, Pa., assignor to the GE. WALL Supply Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Jan. 31, 1901. Serial No. 46,464. (No model.)

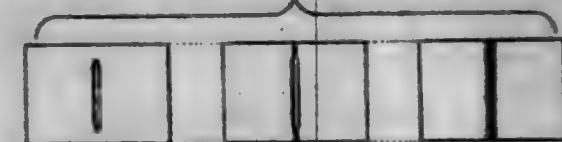
Claim.—1. A reape-clamp for temper-curves, comprising a plurality of longitudinally-separable clamp-sections having a sinuous reape-clamp therein made up of a series of reverse and equal curves oppositely placed in the coating clamp-sections, substantially as and for the purposes specified.

2. A reape-clamp for temper-curves, comprising a plurality of longitudinally-separable clamp-sections having an outer shell and a bushing, the bushings of the clamp-sections provided with sinuous reape-clamps made up of a series of reverse and equal curves oppositely placed in the coating clamp-sections, substantially as and for the purposes specified.

3. The combination with a temper-curve, of a reape-clamp comprising longitudinally-separable sections, provided with a sinuous reape-clamp therein, said reape-clamp having a plurality of equal and reverse curves oppositely placed in the coating clamp-sections, flexible connections between the clamp-sections and the crivrel-bar of the temper-curve, and means for confining the coating clamp-sections, substantially as and for the purposes specified.

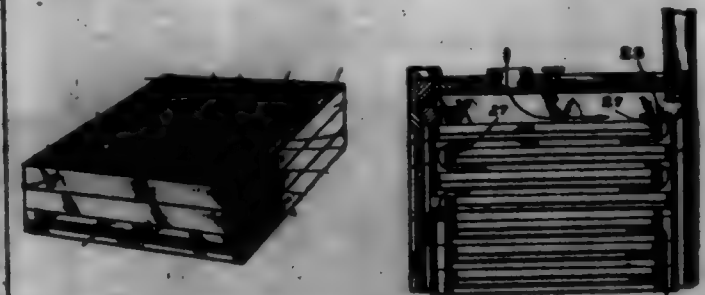


696,840. PROCESS OF MAKING REPAIRED FABRIC. DAVID MARSHALL, Norfolk, Va., assignor to one-half to England Margolian, Norfolk, Va. Filed Nov. 2, 1901. Serial No. 51,572. (No specimens.)



Claim.—The method of repairing fabrics which have state or cuts produced therein inside of their margins or edges, which method consists first in extending the state or cuts from each and completely out to the adjacent margins of the fabric, and then in connecting together the matching ends of the threads of the fabric which have been covered.

696,841. SEPARATING AND BOLLING MACHINE. DANIEL W. MARSH, Indianapolis, Ind., assignor to North & Harrison Company, Indianapolis, Ind., a Corporation of Indiana. Filed Sept. 24, 1901. Serial No. 70,002. (No model.)



Claim.—1. The combination, in a separating and bolling machine, of a series of doves having corner-blocks formed of cast-iron wood slightly longer than the width of the dove-walls and arranged to rest upon each other when assembled thus forming practically continuous parts from the top to the bottom of the set of doves, said doves being each provided with elastic compressible packing-strips filling the interstices between the doves when assembled and rendering the assembled structure substantially air and dust tight at the sides, substantially as shown and described.

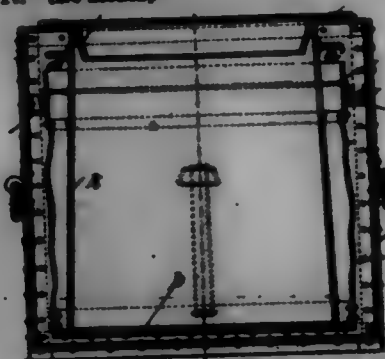
2. The combination, in a separating and bolling machine, with the frame or shell, of a series of doves mounted therein each dove having inner and outer walls arranged near each other at sides thereof, the space between the inner and outer walls forming passage-ways for the discharge of the stock being treated, said doves being equal in length and width and reversible in position whereby passage-ways at any of the various

edges and of a length equal to the thickness of any desired number of clove may be provided, substantially as set forth.

3. The combination, in a separating and bolting machine, of a series of clove of equal length and width, each of said clove having double walls along certain of their sides, and each clove being shiftable in respect to the others, whereby passage-ways of any of the various sizes, and within the clove structure, may be variably provided, substantially as set forth.

4. The combination, in a separating and bolting machine, of the frame or shell, and a series of clove mounted therein, said clove having double walls with passage-ways between, and certain of said clove having turn-out-shelves whereby the stock may be discharged either through the passage-ways in the clove structure or out into passage-ways in the frame or shell of the machine, substantially as and for the purposes set forth.

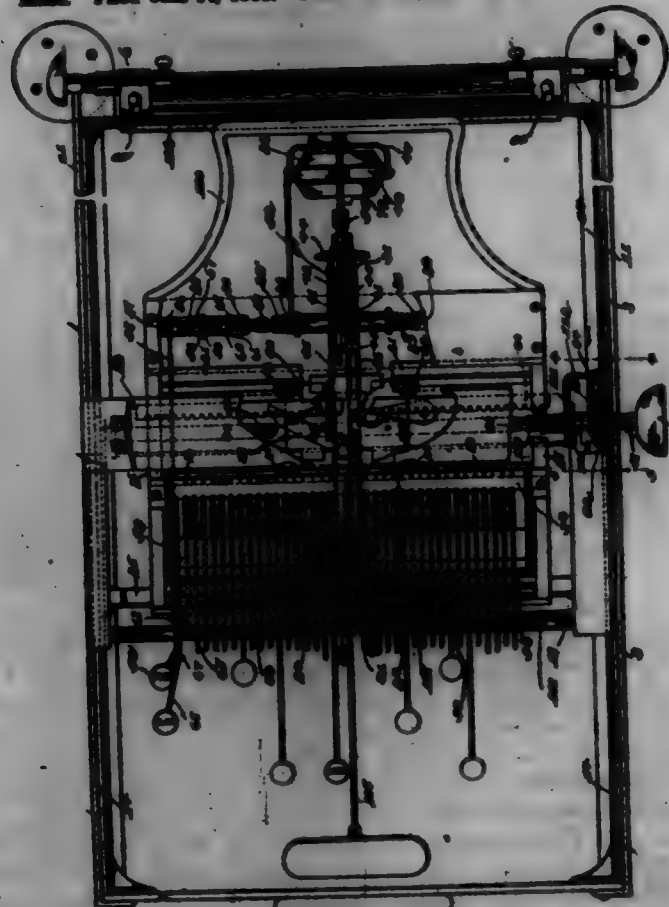
696,883. APPARATUS FOR STORING AND REMOVING RUBBER. SAMUEL HANSEN, Berlin, Germany. Filed Nov. 7, 1901. Serial No. 81,817. (No model.)



Claim.—1. The combination of a dust-bin, a rack suspended in said dust-bin, a box-like casing in the rack, a frame pivotally connected with the bin and having a depending funnel portion arranged to normally fit snugly within the upper end of said box-like casing and means for positively holding said frame in its normal position.

2. The combination of a dust-bin, a rack suspended in said dust-bin, a box-like casing in the rack, a frame pivotally connected with the bin and having a depending funnel portion arranged to normally fit snugly within the upper end of said box-like casing, a door for said bin, and means operative with the door for positively holding said frame in its normal position.

696,888. TYPE-WRITER. CHARLES E. MAXWELL, Wellington, N.Z. Filed Jan. 14, 1901. Serial No. 43,908. (No model.)



Claim.—1. In a type-writer, a type-wheel having on its exterior a plurality of type cases, type-wheel vibrating and rotating mechanism,

and means independent therefrom to rock said type-wheel about an axis transverse to the axis about which it rotates to bring either type case into operative position.

2. In a type-writer, a rotary type-wheel having on its exterior type cases at different angles to its axis of rotation, key mechanism to change the direction of the axis of rotation of said type-wheel to bring either type case into operative position, and type-wheel-vibrating mechanism independent of said key mechanism.

3. In a type-writer, a type-wheel having a plurality of type cases at different angles to its axis of rotation, a series of characters on each of said type cases, the series on different cases being different, a series of key-levers, means independent from the key-levers to bring either type case into operative position, and means operated by said key-levers to rotate the type-wheel through different angles to bring any desired character into operative position and to vibrate said type-wheel.

4. In a type-writer, a type-wheel having a plurality of type cases at different angles to its axis of rotation, one of said type cases bearing the small letters, another having the capital letters thereon, and another having figures or other characters, means to change the direction of the axis of rotation to bring either type case into operative position, and type-wheel rotating and vibrating mechanism.

5. In a type-writer, a type-wheel having on its exterior a plurality of type cases at different angles to its axis of rotation, one of said type cases having small letters thereon, another of said type cases having capital letters, and another of said type cases having figures or characters, key mechanism to change the direction of the axis of rotation of said type-wheel to bring either type case into operative position, and type-wheel-vibrating mechanism independent of said key mechanism.

6. In a type-writer, a type-wheel having a plurality of type cases at different angles to its axis, type-wheel-vibrating mechanism, and means independent therefrom to bring either type case into operative position.

7. In a type-writer, a type-wheel having a central, cylindrical type case, and at either side thereof a conical type case, and type-wheel-vibrating mechanism.

8. In a type-writer, a rotary type-wheel having a central, cylindrical surface, and a conical surface, each of said surfaces having letters or characters thereon, means to bring either of said surfaces into operative position, and type-wheel-vibrating mechanism.

9. In a type-writer, a rotary type-wheel having a central, cylindrical type-surface, and a conical type-surface, key mechanism to bring either type-surface into operative position, and type-wheel-vibrating mechanism.

10. In a type-writer, a rotary type-wheel having a central cylindrical type-surface, and at either side thereof a conical type-surface, means to swing said type-wheel to bring either type-surface into operative position, and type-wheel rotating and vibrating mechanism.

11. In a type-writer, a vibrating rotary type-wheel having a central, cylindrical type-surface, and at either side thereof a conical type-surface, means to swing said type-wheel about a transverse axis to bring either type-surface into operative position, and type-wheel rotating and vibrating mechanism.

12. In a type-writer, a vibrating rotary type-wheel having a central, cylindrical type-surface, and at either side thereof a conical type-surface, key-lever mechanism to swing the said type-wheel about a transverse axis to bring either type-surface into operative position, and type-wheel vibrating and rotating mechanism independent therefrom.

13. In a type-writer, a vibrating arm, means carried thereby to support a type-wheel for turning movement in two directions, key mechanism for turning the said type-wheel about its axis and vibrating said arm to bring the said wheel in contact with the paper, and independent key mechanism to change the direction of the axis of the type-wheel relative to the vibrating arm.

14. In a type-writer, a rotary type-wheel having a plurality of type cases at different angles to its axis, a shaft upon which said type-wheel rotates, a frame supporting said shaft, said frame being pivotally mounted upon an axis transverse to the axis of the type-wheel, key mechanism for controlling the frame, and type-wheel rotating and vibrating mechanism.

15. In a type-writer, a type-wheel having a plurality of type cases at different angles to the axis of said wheel, a yoke carrying a spindle on which said type-wheel rotates, said yoke being pivotally mounted on an axis transverse to the axis of the type-wheel, a key-lever connected to said yoke, whereby the same may be turned to bring either type case into operative position, and type-wheel-vibrating mechanism.

16. In a type-writer, a rotatable type-wheel having a plurality of type cases at different angles to its axis, a yoke having a spindle on which said type-wheel rotates, said yoke being pivotally mounted on an axis transverse to the axis of the type-wheel, a key-lever, connections between the same and the yoke, a stop limiting the movement of said key-lever, a supplemental key-lever pivotally mounted on the first-mentioned key-lever, a stop for the supplemental key-lever, said stops being of different heights, whereby the depression of the main key-lever and supplemental key-lever

operates to bring different type-cases into operative position, combined with type-wheel-vibrating mechanism.

17. In a book type-writer, a base, a carriage slidably supported thereon for movement longitudinally thereof, and printing mechanism slidably supported on said carriage for movement transversely of said base, said printing mechanism including a vibrating arm, a type-wheel pivotally supported thereon for movement about both a longitudinal and transverse axis, means to turn said wheel about its transverse axis, and type-wheel-vibrating mechanism.

18. In a type-writer, a vibrating arm, a type-wheel supported thereby for movement about both a longitudinal and transverse axis, a pinion on said arm, connections between said pinion and type-wheel, said connections including a universal joint, key-lever mechanism for rotating the pinion and vibrating the arm, and means to turn the type-wheel on its transverse axis.

19. In a type-writer, a vibrating arm, a type-wheel supported thereby for movement about both a longitudinal and transverse axis, a pinion on said arm, a slotted arm having pivotal connection with the pinion, a pin on said type-wheel engaging said slot, means for rotating the pinion, to thereby rotate the type-wheel and vibrating mechanism for the arm, and means to swing the type-wheel on its transverse axis.

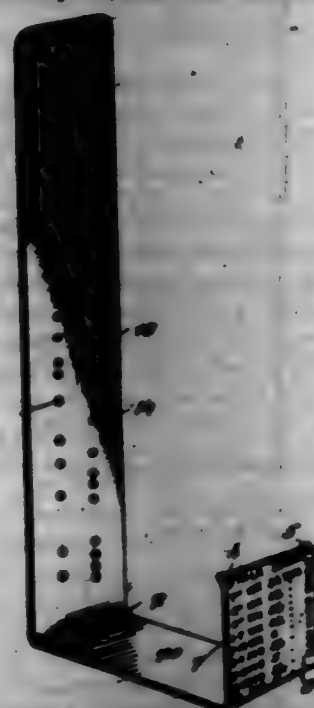
20. In a book type-writer, a base, printing mechanism movable both longitudinally and transversely of said base, and printing mechanism comprising a rotary type-wheel having a plurality of type cases at different angles to its axis, means to bring any type case into operative position, and type-wheel-vibrating mechanism.

21. In a book type-writer, a base, a carriage slidably mounted thereon, printing mechanism supported on said carriage, said printing mechanism comprising a rotatable type-wheel having a plurality of type cases at different angles to its axis, means to bring any type case into operative position, key-levers, means operated thereby to vibrate the type-wheel, combined with mechanism to advance the printing mechanism to form spaces between letters, said mechanism comprising a rack fixed to the carriage and a reciprocating pawl on the printing-mechanism frame, and means common to all the key-levers to reciprocate the pawl.

22. In a book type-writer, a type-wheel having a plurality of type cases at different angles to its axis, means to normally hold one of said type cases in operative position, key-lever mechanism to bring either of the type cases into operative position, and type-wheel-vibrating mechanism.

23. In a book type-writer, a base, a carriage slidably supported thereon for movement longitudinally thereof, and printing mechanism slidably supported on the carriage for movement transversely of said base, said printing mechanism including a rotatable type-wheel having on its surface a plurality of type cases, type-wheel rotating and vibrating mechanism, and means independent therefrom to rock said type-wheel about an axis transverse to the axis about which it rotates to bring either type case into operative position.

696,884. MILK-MODIFYING GAG. JAMES A. MITCHELL, New York, N. Y. Filed Sept. 28, 1901. Serial No. 76,171. (No model.)



Claim.—1. As an article of manufacture, a milk-modifying gag comprising a strip of sheet material bent twice at right angles, the bent portions being spaced under a distance commensurate with the size of a milk-bottle, for the purpose of embracing the exterior of said bottle, and

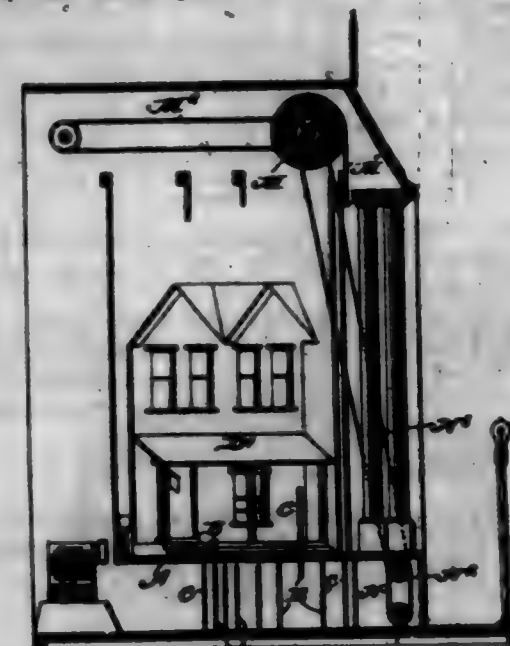
provided with graduated scales parallel with the general direction of said bottle.

2. As an article of manufacture, a milk-modifying gag, comprising a strip of sheet material bent twice at right angles so as to partially embrace a bottle by engaging one of its sides and provided with sharp corners curved slightly inward for the purpose of clamping the bottom and two external sides thereof, a plurality of graduated scales arranged parallel with each other, and a plurality of peep-holes adjacent to said scales.

3. As an article of manufacture, a milk-modifying gag, comprising a strip of sheet material bent twice at right angles so as to embrace a bottle by engaging the bottom and two external sides thereof and provided with sharp corners curved slightly inward, and also provided with a plurality of peep-holes arranged in parallel longitudinal rows and with graduations for measuring various depths of milk, lime-water and boiled water in said bottle.

4. As an article of manufacture, a milk-modifying gag, comprising a longitudinal member of thin spring metal bent twice at right angles and provided with curved corners for clamping a bottle, and also provided with three exterior faces, one of said faces having a plurality of parallel graduated scales and parallel rows of peep-holes adjacent to said scales, and the other two of said faces being provided with material tabs.

696,885. MINIATURE THEATER. ARTHUR L. MCCORMICK, Port Huron, Mich. Filed Aug. 17, 1901. Serial No. 72,778. (No model.)



Claim.—1. A miniature theater substantially as described having a stage, figures or scenic objects movable from a point above the stage when in play to a point below the upper surface of the stage when out of play and means for automatically operating the said figures or objects substantially as set forth.

2. A miniature theater having a slotted stage, movable scenic objects arranged to be projected through said slot from a point above the stage when in play to a point below the upper surface of the stage when out of play, and means for automatically operating said objects substantially as set forth.

3. A miniature theater having automatically-operating devices by which to shift the scene, and a curtain arranged for operation in connection with such devices whereby the scene will be shifted when the curtain is drawn substantially as set forth.

4. In a miniature theater the combination of the scenic objects, the keys or levers for supporting and operating the same and the drum having pins or projections for operating said keys or levers, the levers terminating alongside the drum and operating in a direction tangentially to the drum at their ends adjacent thereto, whereby the movements of the levers will not be limited by coming in contact with the drum substantially as set forth.

5. In a miniature theater the combination of a stage having slot, the scenic objects movable through said slot to points above and below the upper surface of the stage, the keys or levers for operating said objects, and the drum having pins or projections by which to operate said keys or levers, substantially as set forth.

6. The combination in a miniature theater, of the stage, the scenic objects, the keys or levers carrying the same, the drum having pins or projections for operating the keys or levers and the operating mechanism having step-by-step devices for moving the pins-drum, substantially as set forth.

7. A theater substantially as described, comprising a movable con-

tain, movable scenic objects and automatically-operating devices arranged to shift the scenic objects when the curtain is down and the stage is not in view, substantially as set forth.

8. A miniature theater substantially as described comprising the movable scenic objects, the movable curtain, a movable indicator or announcing device, and the operating mechanism connected with said indicator, curtain, and scenic objects and arranged to shift the scenic objects when the curtain is down and the stage is not in view, substantially as described.

9. In a miniature theater the combination with the curtain, of a shaft in connection therewith, a pinion having an arm provided with a cord wound on said shaft, and the operating devices having a mutilated gear meshing with the said pinion, substantially as set forth.

10. The combination with a miniature theater of the movable scenic objects, the keys supporting the same, the drum having pins or projections engaging said keys, said drum being provided with a ratchet-wheel, a rocking arm having a pawl engaging said ratchet-wheel, the operating devices having a crank and a pinion connecting said crank with the rocking arm, and a mutilated gear, and the pinion having an arm, the curtain, the shaft in connection with said curtain, and the cord connecting said shaft with the arm of the pinion, substantially as set forth.

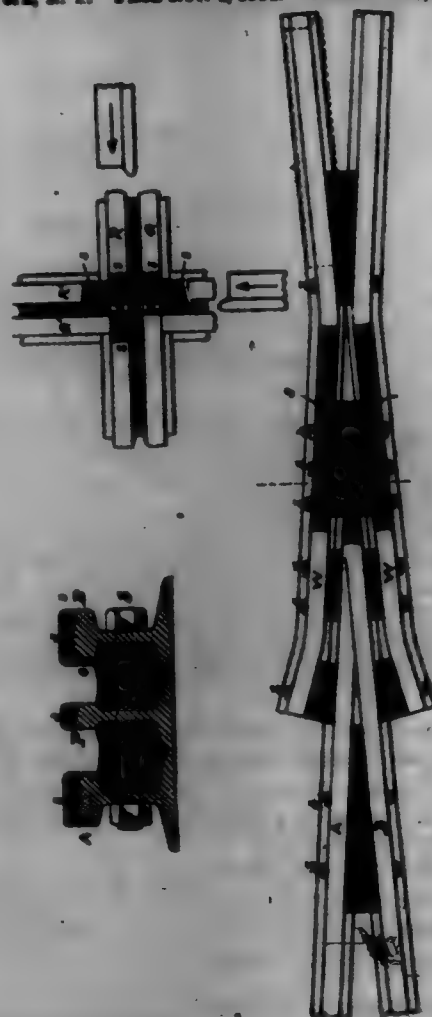
11. A theater having a stage, a curtain which may be adjusted to expose or hide the stage and operating means for shifting the curtain and moving the scenic objects and so arranged relatively to the curtain and scenic objects that the scenic objects will be shifted when the curtain is down, substantially as set forth.

12. A theater substantially as described, having a stage, figures or scenic objects movable into and out of position for exposure in connection with said stage, together with automatically-operating devices by which said figures or objects may be moved into view or entirely out of view with respect to the upper surface of the stage, substantially as set forth.

696,886. METHOD OF DESTROYING STUMPS OF TREES. JAMES J. R. McLELLAN, Groesbeck, Tex. Filed Nov. 12, 1901. Serial No. 51,354. (No model.)

Claim.—The herein-described method of destroying the stumps of trees consisting of applying a compound of saltpeter, soda and salt to the stump below the earth's surface, and then packing a protective coating around and upon the said stump to prevent removal of the compound substantially as herein set forth.

696,887. RAILWAY-TRUCK SPECIAL. THOMAS J. McTIGHER, New York, N. Y. Filed Nov. 4, 1901. Serial No. 51,078. (No model.)



Claim.—1. In a railway-truck special, a rail of mild steel having one or more of its local wearing-surfaces integrally modified into a hard steel or steel alloy capable of being hardened.

2. In a railway-truck special a rail of low-carbon steel substantially incapable of hardening, having one or more of its local wearing-surfaces integrally modified into high-carbon steel capable of hardening and tempering.

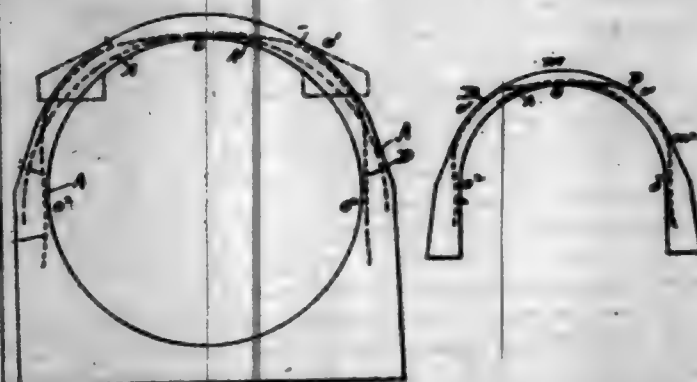
3. A railway-truck special composed partly or wholly of rolled railway-rails of low-carbon steel having one or more of their local wearing-surfaces integrally modified into high or hard steel.

4. A railway-truck special composed partly or wholly of rolled railway-rails of low-carbon steel having one or more of their wearing-surfaces integrally supercarburized.

5. A railway-truck having its point formed by two converging railway-rails of low-carbon steel, the tops of either or both said rails being locally modified into hard steel at and near the point.

6. A railway-truck having its wings formed of low-carbon-steel railway-rails which are integrally modified into hard steel locally adjacent to the intersection-point of the frog.

696,888. CONCRETE-ARCH CONSTRUCTION. WALTER C. PARKLEY, Cleveland, Ohio. Filed June 4, 1901. Serial No. 52,080. (No model.)



Claim.—1. A concrete arch having embedded therein metal bars which extend continuously through all the regions of tension in intrados or extrados of the arch, and other bars which extend through part only of the regions of tension in either intrados or extrados, substantially as described.

2. A concrete arch having embedded therein metal bars which extend continuously through all the regions of tension in intrados or extrados of the arch, and other bars alternating therewith, which extend through part only of the regions of tension in either intrados or extrados, substantially as described.

3. A concrete arch having metal bars embedded therein, both in intrados and extrados, at the regions of tension and extending continuously through the regions of tension and sufficiently into the abutments to obtain a secure anchorage, the bars in the extrados being opposite the spaces between those in the intrados.

4. A concrete arch having embedded therein metal bars which pass continuously through all the regions of tension in both intrados and extrados and other bars extending through part of the tensional regions only and far enough beyond to give secure anchorage.

5. A concrete arch having embedded therein metal bars which pass continuously through the regions of tension in both intrados and extrados and other bars alternating therewith and extending through part only of the tensional regions and far enough beyond to give secure anchorage.

6. A concrete arch having embedded therein metal bars which pass continuously through the regions of tension in both intrados and extrados and other bars which extend through a single tensional region and far enough beyond to give secure anchorage, the bars of one set being opposite the interspaces between the bars of the other set.

696,889. THILL-COUPLING. ADRIANUS PARR, Coburn, N. Y. Filed Oct. 7, 1901. Serial No. 77,347. (No model.)



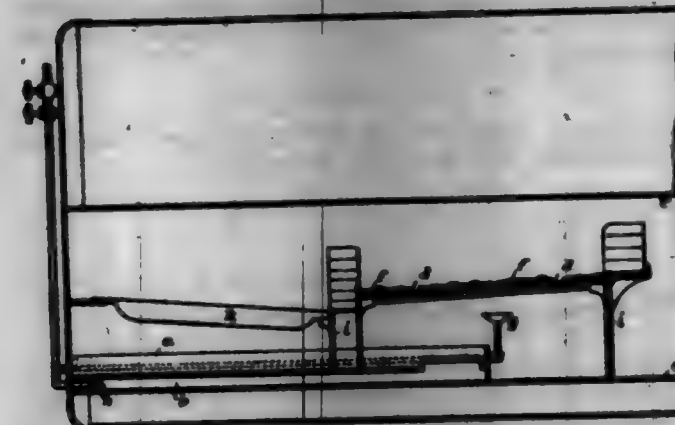
Claim.—1. In a thill coupling, the combination of a conical sleeve, a cap-nut and means securing said cap-nut and sleeve together in reversible relation to each other, devices adapted to lock the said cap-nut yieldingly upon the sleeve against accidental rotation with respect to the said sleeve, a thill-tree having a head bored apically, an axle-clip, and means for clamping the whole together and for preventing rotation of the sleeve relative to the axle-clip, substantially as described.

2. In a thill-coupling, a cap-nut having an exterior threaded portion and a central bore, a part of the bore being threaded and a part toward the bottom of the bore smooth and constituting an oil-chamber, and the cap-nut being provided with a spring-pin operating parallel with the axis of the nut, substantially as described.

3. In a thill-coupling, the combination of a cap-nut having an exterior threaded portion, a central threaded bore and a spring-pin operating parallel with the axis of the nut, a hardened sleeve having a head projecting like a collar from one end of the sleeve and the outer face of the said head being provided with a circular series of depressions adapted to receive the point of the said spring-pin, and an annular lock-nut having an interior threaded portion engaging the exterior threads of the cap-nut and a central orifice controlling the sleeve, the bottom of the lock-nut meeting the rear of the head and holding the sleeve and cap-nut together in reversible relation to each other, substantially as described.

4. In a thill-coupling, the combination of a cap-nut having an exterior threaded portion, a central threaded bore and a spring-pin operating parallel with the axis of the nut, a hardened conical sleeve having a head projecting like a collar from one end of the sleeve and the outer face of the said head being provided with a circular series of depressions adapted to receive the point of the said spring-pin, an annular lock-nut having an interior threaded portion engaging the threads of the cap-nut and a central orifice controlling the sleeve, the bottom of the lock-nut meeting the rear of the head and holding the sleeve and cap-nut together in reversible relation to each other, an axle-clip having one end provided with a circular orifice fitting the sleeve and a second end pivoted by a square hole, and a clamping-bolt having a squared shank and threaded end, the shank fitting the square hole in the clip and passing of the sleeve thereby permitting the cap-nut only to be turned, and the threaded end of the bolt engaging the central threads of the cap-nut and clamping the whole together, substantially as described.

696,840. FURNACE OF STEAM-BOILERS. ADOLPH FRANKOWITZ and STEPHEN F. JOHNSON, London, England. Filed Aug. 12, 1901. Serial No. 72,548. (No model.)



Claim.—1. In a steam-boiler furnace, the combination of a main fire-grate, and a secondary grate adjacent thereto, comprising a plate covered with asbestos or like material; of means for directing a blast of steam against the under side of said secondary grate for removing deposits therefrom, substantially as described.

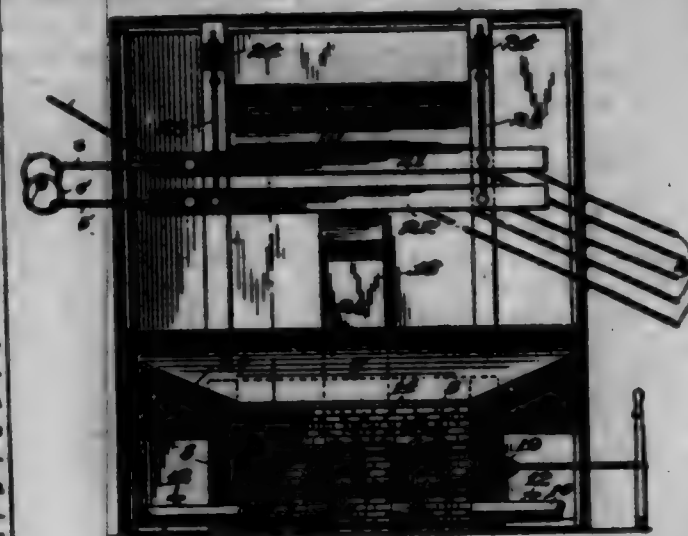
2. In a steam-boiler furnace, the combination of a main fire-grate, and a secondary grate adjacent thereto, comprising a plate covered with asbestos or like material; of a funnel-shaped nozzle located beneath said secondary grate adapted to direct a blast against the under side of said secondary grate for removing deposits therefrom, and means connected with the boiler of said furnace for supplying steam to said nozzle, substantially as described.

696,841. CULM DRINE AND SEPARATOR. JAMES W. PERRY, Shamokin, Pa. Filed Apr. 12, 1901. Serial No. 56,416. (No model.)

Claim.—1. In an apparatus for separating and drying culm, the combination of an inclosing casing, one or more screens in the upper portion of the casing, feeding and discharge chutes cooperating with said screens, a fire-box in the lower portion of the casing, a hopper above the fire-box, a heat-conducting pipe leading from the fire-box to the upper portion of the casing adjacent to the screens, and means for conducting refuse material falling through the screens to said hopper, substantially as described.

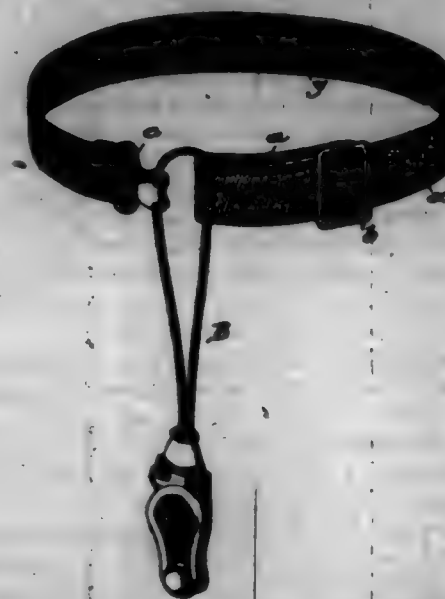
2. In an apparatus for separating and drying culm, the combination of an inclosing casing having an outlet for refuse, a fire-box in the lower portion of the casing, one or more shaking-screens in the upper portion of the casing, a heat-conducting pipe leading from the fire-box to a point adjacent to the screens, a feed-chute for supplying culm to the screens, a

discharge-chute to receive the culm therefrom, and means for conducting a portion of the refuse matter falling from the screens to the fire-box and the remainder to the refuse-outlet, substantially as described.



3. In an apparatus for separating and drying culm, the combination of an inclosing casing, a fire-box in the base of the casing, a smoke-stack, a direct flue leading from the fire-box to the smoke-stack, a second flue leading from the upper portion of the casing to the smoke-stack, a damper controlling the direct flue, a hopper above the fire-box, shaking-screens in the upper portion of the casing, feed-discharge chutes cooperating with the screens, a refuse-outlet, and converging plates inclining downwardly to direct a portion of the refuse to the hopper and a portion to said outlet, substantially as described.

696,842. GARMENT-SUPPORTER. GEORGE H. PHELPS, Boston, Mass., assignor to George Frost Company, Boston, Mass., a Corporation of Massachusetts. Filed Dec. 15, 1900. Serial No. 38,965. (No model.)



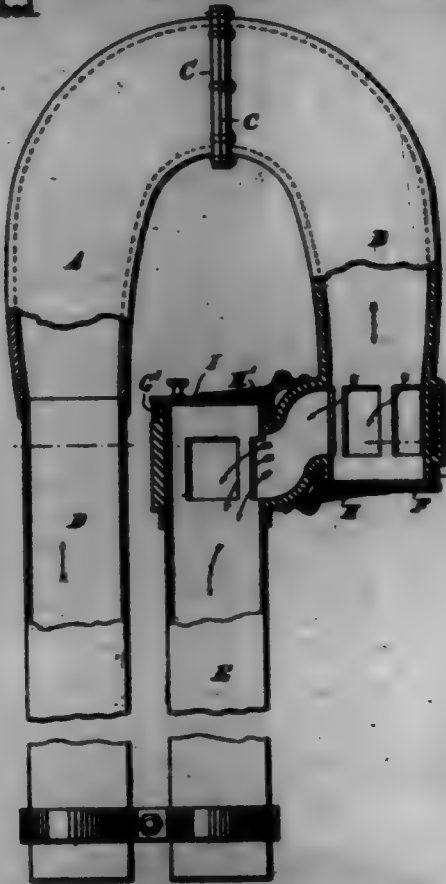
Claim.—1. A garment-supporter comprising a clamp, a suspending-cord attached thereto and a band to which the cord is connected and which is formed to have a short stretch and elasticity sufficient only to cause the garter to cling to the leg without binding or producing an objectionable tension, and which has an inner surface of rougher or coarser material than the outer surface.

2. A garter comprising a clamp, a suspending-cord attached thereto, and a band composed of webbing having its outer face formed of threads of one material, its opposite face formed of threads of rougher or coarser material which are bound to the threads forming the outer face, and elastic threads having a short stretch, interposed between the inner and outer fabrics, and having elasticity sufficient only to cause the garter to cling to the leg without binding or producing an objectionable tension.

696,843. PNEUMATIC-DESPATCH TERMINAL. FRANK C. PHILLIPS, London, England, assignor to the Lamson Consolidated Storage Service Company, Newark, N. J., a Corporation of New Jersey. Filed Dec. 12, 1900. Serial No. 740,174. (No model.)

Claim.—1. An upward-discharge terminal for pneumatic-despatch-tube system, comprising in combination a substantially conical

bular member to be secured at one end to the upper end of the receiving-tube and constituting the discharging element of the terminal, a short straight tubular member adapted to be secured to the upper end of the sending-tube directly beneath and within the curve of said semicircular member and constituting the sending element of the terminal, and an air-return-pipe section uniting said curved and straight tubular members laterally near their discharging and receiving ends respectively, the space bounded by and included within said parts being entirely open, whereby the sender is equally accessible from all sides of the terminal, substantially as described.



2. Is an upward-discharge terminal for pneumatic-dispatch-tube-system, a curved tubular member adapted to be secured to the upper end of the receiving-tube and having its downwardly-discharging end closed by a door or flap, a short straight tubular member adapted to be secured to the upper end of the sending-tube and located directly beneath and within the curve of the said first-named member and having its upper end closed by a suitable lid or door, and a pipe-section uniting said curved and straight tubular members laterally near their discharging and receiving ends respectively to permit the free circulation of the air-current through the terminal, all combined, substantially as set forth.

3. Is a pneumatic-dispatch apparatus, a terminal consisting of two members, means for holding said members together, an incoming tube attached to one member of said terminal, an outgoing tube in communication with the other member of said terminal and having its upper end open to the atmosphere, and valves for closing the outlet from said terminal and the inlet to said outgoing tube.

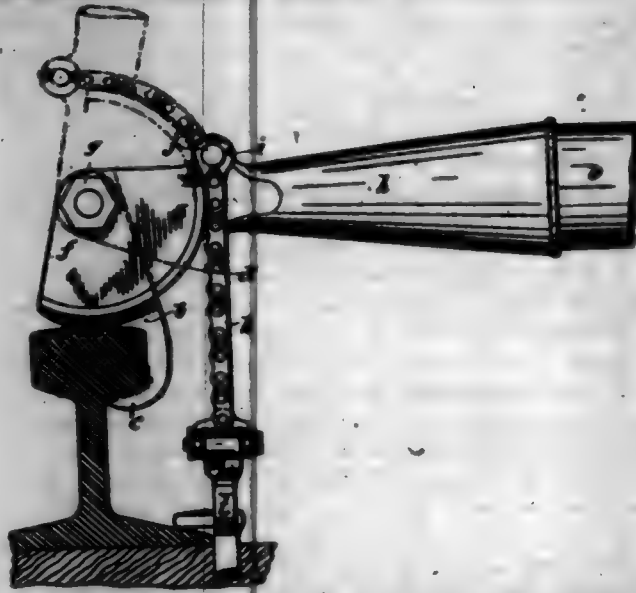
4. Is a pneumatic-dispatch apparatus, a terminal consisting of two members, means for holding said members together, an incoming tube attached to one member of said terminal, an outgoing tube in communication with the other member of said terminal and having its upper end open to the atmosphere, and spring-controlled valves adapted to automatically close the outlet from said terminal and the inlet to said outgoing tube.

5. Is a pneumatic-dispatch apparatus, a terminal consisting of two members, means for holding said members together, an incoming tube attached to one member of said terminal, an outgoing tube in communication with the other member of said terminal and located within the curved members of the terminal and having its upper end open to the atmosphere, and valves for closing the outlet from said terminal and the inlet to said outgoing tube.

696,844. SPIKE-DRAWING TOOL. JAMES E. RICE, Montreal, Canada. Filed Sept. 20, 1901. Serial No. 73,963. (No model.)

Claim.—1. A spike-drawing tool comprising a standard consisting of a single vertical plate adapted to rest upon the top of the rail and having a hooked lower end to clip the head of said rail; a segmental drum having its periphery cut away midway of its axial length to straddle said plate; means for fastening said segmental drum to the upper end of said plate concentrically of said drum; a lever-arm formed in one with and

projecting radially from said drum in line with one end of the cut-away portion of said drum; a pair of flexible lengths one on each side of said lever and carried by and depending from said lever at the point at which it abuts said segmental drum; and a pair of pivotally-connected gripping-jaws hung from the lower ends of said flexible lengths, substantially as described and for the purpose set forth.



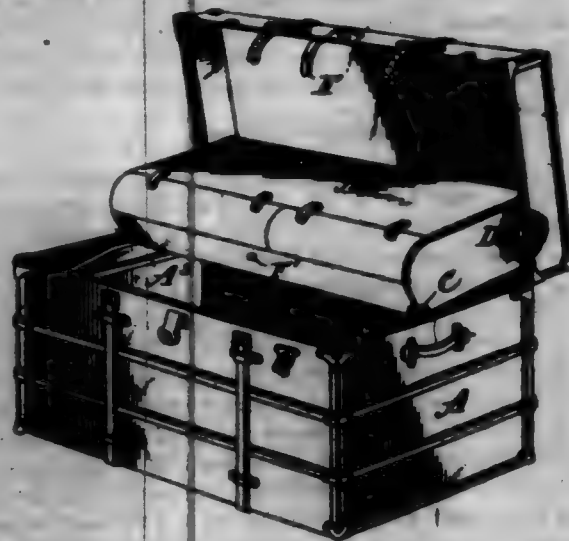
2. A spike-drawing tool comprising a standard consisting of a single vertical plate adapted to rest upon the top of the rail and having a hooked lower end to clip the head of said rail; a segmental drum having its periphery cut away midway of its axial length to straddle said plate; a pair of flanges one on each side of said plate and integral with the interior of said segmental drum and interposed to the upper end of said plate concentrically of said drum; a lever-arm formed in one with and projecting radially from said drum in line with one end of the cut-away portion of said drum; a pair of flexible lengths one on each side of said lever and carried by and depending from said lever at the point at which it abuts said segmental drum; and a pair of pivotally-connected gripping-jaws hung from the lower ends of said flexible lengths, substantially as described and for the purpose set forth.

696,845. STOCK. EDWARD J. RYBEN, Jackson, Mich. Filed Dec. 26, 1901. Serial No. 57,757. (No model.)



Claim.—A stock, in combination with a button-hole-strip secured to the inner face of the stock at a point above its lower edge and having one end extending at right angles from the body portion and secured to the stock at a distance from one of its ends, whereby is produced a longitudinal and a vertical flap, said strip being provided with button-holes, substantially as set forth.

696,846. TRUNK. SIMON E. V. SEWARD, Petersburg, Va., assignor to Seward Trunk and Bag Company, Petersburg, Va., a Corporation of Virginia. Filed Dec. 26, 1901. Serial No. 57,955. (No model.)



Claim.—1. The combination with a trunk, of a lid therefor, a tray pivotally secured to said lid, and a track having inclined and horizontal portions upon an end face within the trunk and extending from the front of the trunk less than one-half the depth thereof to support the front portion of said tray, substantially as specified.

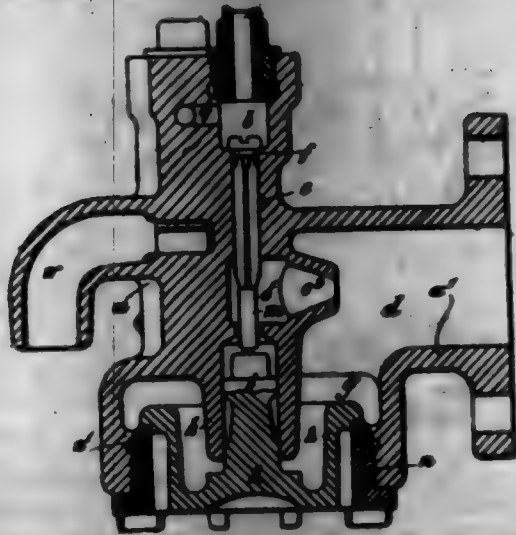
2. The combination with a trunk, of a lid therefor, a tray pivotally secured to said lid, and a track for said tray having an inclined front portion and a horizontal rear portion composed of parallel flanges and an intermediate bearing-face at a right angle thereto; substantially as specified.

3. The combination with a trunk, of a lid therefor, a tray pivotally connected with said lid sufficiently forward from the rear side thereof to enable the tray to be lifted over the rear side of the trunk when the lid is elevated, and an inclined track for the forward portion of said tray extending less than one-half the depth of the trunk; substantially as specified.

4. In a trunk, a tray-track composed of a blank having parallel flanges at its edge, and an intermediate bearing-face at a right angle to said flanges; substantially as specified.

5. In a trunk, a journaling-plate having a securing-flange at one side and end thereof, and an embossed portion disposed in a parallel plane to said flange and provided with a free edge having an open slot therein; substantially as specified.

696,847. VACUUM AND WATER RELIEF VALVE APPARATUS FOR LOCOMOTIVES. ALEXANDER BRUNNEN, London, England. Filed Sept. 30, 1901. Serial No. 77,111. (No model.)



Claim.—1. Relief valve apparatus for locomotive and other like engines, comprising a valve-casing having a tubular branch the interior of which forms a vacuum-relief passage, a steam-supply chamber adapted to be connected to a steam-generator, a steam-passage extending from said steam-chamber to said vacuum-relief passage and terminating in a nozzle projecting into said vacuum-relief passage, and an air-inlet passage leading into said vacuum-relief passage and arranged opposite to said steam-inlet passage, a steam-valve located in said steam-chamber, provided with a stem extending through said steam-passage, and adapted to normally close said passage, and an inwardly-opening air-valve that normally closes said air-passage and is provided with an inwardly-extending stem or projection arranged to abut against the stem of said steam-valve and open the same when said air-valve opens, substantially as described for the purpose specified.

2. Relief valve apparatus for locomotive and other like engines, comprising a valve-casing having a vacuum-relief passage adapted to be placed in communication with the steam chest or cylinder or cylinders of an engine of the kind referred to, oppositely-arranged steam and air inlet passages adapted to communicate with said vacuum-relief passage, and a water-relief-valve chamber having one end in communication with the steam-inlet passage, its other end adapted to be placed in communication with an engine-cylinder, and an intermediate part in connection with a water-exit passage, oppositely-arranged steam and air valves controlling said steam and air inlet passages respectively, said steam-valve having an inwardly-extending stem, and said air-valve being made of much larger area than said steam-valve and having a projection or stem adapted to abut against said steam-valve and open the same, and a water-relief valve arranged to work in said chamber and control the exit of water through said water-exit passage, substantially as described for the purpose specified.

3. Relief valve apparatus for locomotive and other like engines, comprising a valve-casing having a tubular branch the interior of which forms a vacuum-relief passage, a steam-supply chamber adapted to be connected to a steam-generator, a steam-passage extending from said steam-chamber

to said vacuum-relief passage, an air-inlet passage leading into said vacuum-relief passage and arranged opposite to said steam-inlet passage, water-exit passages the outer ends of which are adapted to be connected to an engine cylinder or cylinders, cylindrical valve-chambers each having one end in permanent communication with said steam-chamber and its other end adapted to communicate with one of said water-exit passages and having its wall between its ends formed with a water-exit port or passage, a steam-valve located in said steam-chamber, provided with a stem extending through said steam-passage, and adapted to normally close said passage, an inwardly-opening air-valve that normally closes said air-passage and is provided with an inwardly-extending stem or projection arranged to abut against the stem of said steam-valve and open the same when said air-valve opens, and water-relief valves arranged within said cylindrical chambers and normally bearing against annular seats that surround the inner ends of said water-exit passages and the inner diameter of each of which is of less diameter than the corresponding water-relief valve, substantially as described for the purpose specified.

4. Relief valve apparatus for locomotive and other like engines, comprising a valve-casing *a* having a tubular branch *a'*, a steam-chamber *b* adapted to be connected to a steam-pipe, a steam-passage *c* extending from said steam-chamber, arranged at right angles to said tubular branch *a'*, and provided with a steam-delivery nozzle *d* arranged to deliver into said tubular branch, a stationary guide *e*, and an air-passage *f* through its lower part, a steam-valve *g* located in said steam-chamber and adapted to bear against an annular seat around the inlet end of said steam-passage *c*, a stem *h* attached to said valve and extending through said steam-passage and into said guide, a bush *i* fixed in said air-inlet passage *f*, and an air-inlet valve *j* adapted to seat itself against the annular inner end of said bush and provided with a projection *k* arranged to work in said guide and to abut against the adjacent end of said valve-stem when the air-valve opens, substantially as described for the purpose specified.

5. Relief valve apparatus for locomotive and other like engines, comprising a valve-casing *a* having a tubular branch *a'*, a steam-chamber *b* adapted to be connected to a steam-pipe, a steam-passage *c* extending from said steam-chamber, arranged at right angles to said tubular branch *a'*, and provided with a steam-delivery nozzle *d* arranged to deliver into said tubular branch, a stationary guide *e*, an air-passage *f* through its lower part, water-exit passages *g* the outer ends of which are adapted to be connected to pipes *h* and the inner ends of which are surrounded by annular valve-seats *i*, cylindrical water-relief-valve chambers *j* located above said valve-seats *i*, passages *k* connecting the upper ends of said chambers to said steam-chamber *b*, and a water-delivery outlet in communication with said chambers *j* through ports *l* located between the ends of said chambers, a steam-valve *m* adapted to control said steam-passage *c*, a stem *n* attached to said steam-valve, an air-valve *o* adapted to control said air-inlet passage *f* and provided with a projection *p*, and cylindrical water-relief valves *q* arranged to work in said chambers *j* and to normally bear against said seats *i*, substantially as described for the purpose specified.

696,848. LADDER-BRACK. CHARLES A. TRUITT, Chincoteague Island, Va. Filed Aug. 2, 1901. Serial No. 76,312. (No model.)



Claim.—1. An adjustable ladder-bracket comprising a platform-support provided at one end with a pair of hooks adapted to engage the rungs of the ladder, said hooks being connected to said support by horizontally-pivoted links, adapting said hooks to be placed at varying distances from each other on the rung, in combination with a diagonally-disposed brace adjustably connected at its upper end with the outer end of said support,

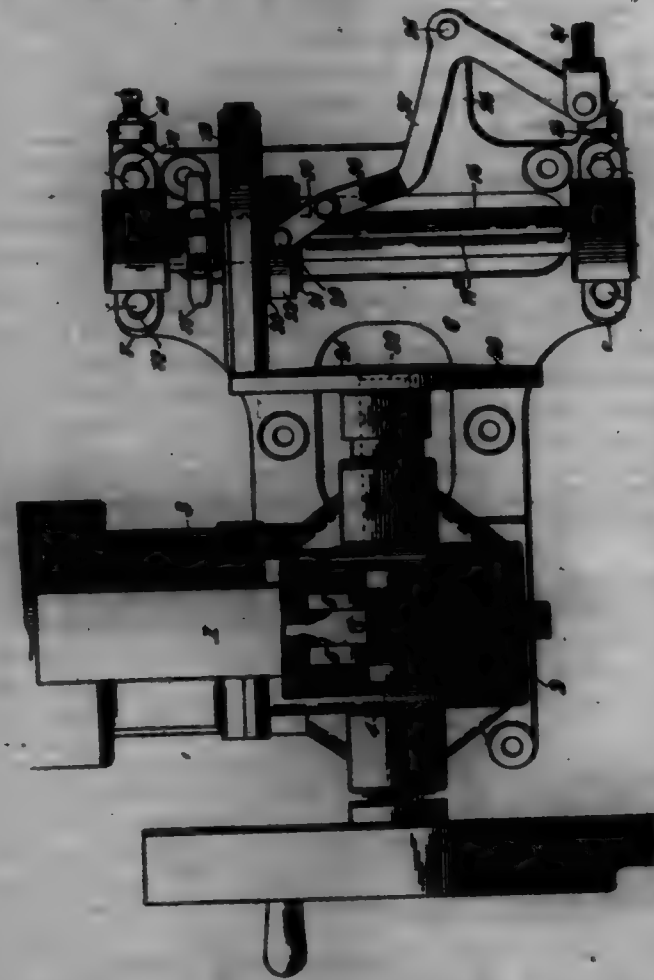
and similarly at its lower end with double hooks adapted to engage the ladder-rungs, substantially as set forth.

2. An adjustable ladder-bracket comprising a platform-support provided at one end with a pair of hooks adapted to engage the rungs of the ladder, said hooks being connected to said support by links pivoted to said support and said hooks, a rod or bar extending between said hooks and provided with steps or changes for holding said hooks at varying distances apart, in combination with a frame adjustably connected at its upper end with the outer end of said support and at its lower end with hooks adapted to engage the ladder-rungs, substantially as set forth.

3. In a ladder-bracket device of the character described, a platform-support consisting of an elongated bar provided at one end with means for adjustably engaging a supporting-brace, and at its opposite end with lateral extensions upon each side, links horizontally pivoted in such extensions, and hooks pivoted to the outer ends of said links, whereby said hooks are made adjustable at varying distances apart, substantially as set forth.

4. In a ladder-bracket device, a platform-support comprising an elongated bar adjustable at one end to a supporting-brace, and provided at its opposite end with lateral legs upon each side, links horizontally pivoted in each leg, hooks adapted to engage the rungs of the ladder horizontally pivoted in the outer ends of said links, and rods connecting said hooks and provided with spacing-changes whereby said hooks may be adjusted at varying distances apart, substantially as set forth.

696,849. REVERSING AND VARIABLE-SPEED GEARING.
HERBERT S. UNDERWOOD, Stamford, Conn., assignor to International Power Vehicle Company, Stamford, Conn., a Corporation of West Virginia. Filed Oct. 20, 1901. Serial No. 78,711. (No model.)



Claim.—1. In a friction-gearing, the combination with a driving crowned disk, of a rigidly-supported cross-shaft, and a pulley having a movement upon the said shaft and across the face of the said disk, from side to side thereof, substantially as described.

2. In a friction-gearing, the combination with a driving crowned disk, of a rigidly-supported cross-shaft, and a driven pulley mounted thereon and having a movement on the said shaft and across the said disk, from side to side thereof, the periphery of the said pulley being of yielding material whereby this movement is permitted, substantially as described.

3. The combination with a main shaft, of bearings therefor, a bracket projecting from the said bearings and having planed ends thereon, standard adjustably secured to the planed end of the bracket, a cross-shaft mounted in said standards, a driving-disk mounted on the end of the main shaft, and having a crowned face and a pulley movable upon the said

cross-shaft and across the face of the disk, from side to side thereof, substantially as described.

4. The combination with a main shaft, of bearings therefor, a bracket projecting from the said bearings and having planed ends thereon, and large adjustably secured to said ends, standard adjustably secured to the planed ends of the bracket, adjusting-screws taking into the large and bearing upon the said standards, a cross-shaft mounted in the said standards, a driving-disk mounted on the end of the main shaft, and having a crowned face and a pulley movable upon the said cross-shaft and across the face of the disk, from side to side thereof, substantially as described.

5. The combination with a main shaft, of bearings therefor, a bracket projecting from the said bearings, a driving-disk having a crowned face mounted on the end of the main shaft, a cross-shaft rigidly mounted in the bracket, a pulley, mounted on the cross-shaft to move thereon, and having a yielding face and provided with a groove, a collar mounted in the said groove in the pulley, and a lever pivoted to the said bracket and loosely connected to the said collar whereby the pulley may be shifted along the cross-shaft and across the face of the disk, from side to side thereof, substantially as described.

6. In a friction and clutch gearing, the combination with a driving crowned disk, having a central depression on its face, of a rigidly-supported cross-shaft, and a pulley having a movement across the face of the said disk from side to side thereof, substantially as described.

696,850. ANIMAL-POKE. ARTHUR ALTMAN, Grafting, Iowa. Filed Jan. 27, 1902. Serial No. 91,347. (No model.)



Claim.—1. The combination with a halter or head-harness; of a socket-plate secured to the lower end thereof and provided with an inwardly-projecting stud, a pole-bar having its lower end fitted in said socket and provided with a transversely-disposed recess engaged by the inwardly-projecting stud, whereby said bar is prevented from vertical displacement but is permitted a forward and rearward movement, a spring-rod having a longitudinal slot through which the upper end of the pole-bar projects, a pricking-point located in said casing and provided with a head at its outer end which is located within the path of movement of the pole-bar, and a spring arranged within said casing for forcing the pricking-point outwardly, substantially as specified.

2. The combination with a head-harness or halter; of jointed plates attached thereto and adapted to be arranged upon the upper surface of the neck of the animal, and the rear one of which is in close proximity to the shoulder of the animal, said plates being connected together by vertically-disposed rivets and the rearmost plate being provided with pricking teeth or points, substantially as set forth.

3. The combination with a head-harness or halter; of jointed plates attached thereto and adapted to be arranged upon the upper surface of the neck of the animal, and the rear one of which is in close proximity to the shoulder of the animal, said plates being connected together by vertically-disposed rivets and the rearmost plate being provided with pricking teeth or points, and a tackhead connected to the rearmost plate and adapted to pass around the neck of the animal, substantially in the manner described.

696,851. SEMI-AUTOMATIC GUN. LAURENCE V. REED, Paris, France. Filed June 20, 1901. Serial No. 68,282. (No model.)

Claim.—1. In a long-recoil semi-automatic gun, the combination with the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, and a lever and actuating-rod operated at any predetermined point of the recoil of the gun for actuating said breech mechanism against the action of said spring, substantially as described.

2. In a long-recoil semi-automatic gun, the combination with the gun-body and breech mechanism, of a spring under tension carried by

the gun-body and connected to said gun-body and said breech mechanism, and an actuating-rod carried by the gun and engaging the gun-mount at any predetermined point of the recoil of the gun for operating said breech mechanism against the action of said spring, substantially as described.



3. In a long-recoil semi-automatic gun, the combination with the gun-body and breech mechanism, of a spring under tension carried by the gun-body and connected to said gun-body and said breech mechanism, a rod carried by the gun and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun for actuating said breech mechanism against the action of said spring, and independent means for holding the breech mechanism in the open position and for releasing the same, substantially as described.

4. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, and an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, means operated by said lever for throwing said rod out of engagement with the gun-mount when the breech is completely open, and independent means for holding said breech mechanism in the open position and for releasing the same to be automatically closed by said spring, substantially as described.

5. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, and an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, means operated by said lever for throwing said rod out of engagement with the gun-mount when the breech is completely open, and independent means for holding said breech mechanism in the open position and for releasing the same to be automatically closed by said spring, substantially as described.

6. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, and an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, and an extractor for holding said breech mechanism in the open position and for releasing the same to be automatically closed by said spring, substantially as described.

7. In a long-recoil semi-automatic gun, the combination with the gun-body and breech mechanism, of a spring under tension carried by the gun-body and connected to said gun-body and said breech mechanism, an actuating-rod carried by the gun and engaging the gun-mount at any predetermined point of the recoil of the gun for operating said breech mechanism against the action of said spring, and an extractor holding the breech mechanism in the open position and automatically releasing the same on the insertion of a cartridge, substantially as described.

8. In a long-recoil semi-automatic gun, the combination with the

gun-body and breech mechanism, of a spring under tension carried by the gun-body and connected to said gun-body and said breech mechanism, a rod carried by the gun and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun for actuating said breech mechanism against the action of said spring, and then releasing said mechanism, and an extractor automatically holding the breech mechanism in the open position and automatically releasing the same, on the insertion of a cartridge, substantially as described.

9. In a long-recoil semi-automatic gun, the combination with the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, and a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun, for rocking said lever against the action of said spring and then moving said breech-block to the open position, substantially as described.

10. In a long-recoil semi-automatic gun, the combination with the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun, for rocking said lever against the action of said spring, and then moving said breech-block to the open position, and independent means for holding the breech-block in the open position and for releasing the same when desired, substantially as described.

11. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun, for rocking said lever against the action of said spring, and then moving said breech-block to the open position, and an extractor holding the breech-block in the open position and automatically releasing the same on the insertion of a cartridge, substantially as described.

12. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, and means for throwing said rod out of engagement with the gun-mount when the breech is completely open, substantially as described.

13. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, means operated by said lever for throwing said rod out of engagement with the gun-mount when the breech is completely open, and independent means for holding said breech mechanism in the open position and for releasing the same to be automatically closed by said spring, substantially as described.

14. In a long-recoil semi-automatic gun, the combination with the gun-mount, the gun-body and breech mechanism, of a spring under tension carried by the gun-body, and connected to said gun-body and said breech mechanism, an operating-lever, an actuating-rod engaging a stop on the gun-mount at any predetermined point of the recoil, for actuating said breech mechanism against the action of said spring, means operated by said lever for throwing said rod out of engagement with the gun-mount when the breech is completely open, and an extractor for holding said breech mechanism in the open position and for releasing the same to be automatically closed by said spring, substantially as described.

15. In a long-recoil semi-automatic gun, the combination with the gun-body and breech mechanism, of a spring under tension carried by the gun-body and connected to said gun-body and said breech mechanism, an actuating-rod carried by the gun and engaging the gun-mount at any predetermined point of the recoil of the gun for operating said breech mechanism against the action of said spring, means operated by said lever for throwing said rod out of engagement with the gun-mount when the breech is completely open, and an extractor holding the breech mechanism in the open position and automatically releasing the same on the insertion of a cartridge, substantially as described.

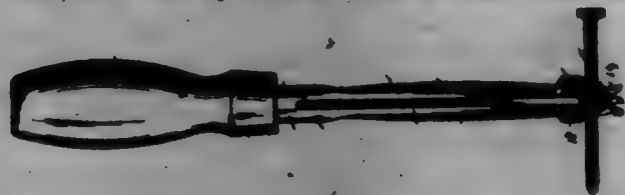
16. In a long-recoil semi-automatic gun, the combination with the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun for

racking said lever against the action of said spring, and bearing-flange on said lower arm and on said rod to automatically trip the latter clear of engagement with said gun-mount when the breech is completely open.

17. In a long-recoil semi-automatic gun, the combination with the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun, for rocking said lever against the action of said spring, and then moving said breech-block to the open position, bearing-flange on said lower arm and on said rod to automatically trip the latter clear of engagement with said gun-mount when the breech is completely open, and independent means for holding the breech-block in the open position and for releasing same when desired, substantially as described.

18. In a long-recoil semi-automatic gun, the combination with the gun-body and breech-block, and a lever for operating said breech-block, having a downwardly-projecting arm, of a spring under tension carried by the gun-body and connected to said gun-body and to said lever, a rod pivoted to the lower arm of said lever and operated by engagement with the gun-mount at any predetermined point of the recoil of the gun, for rocking said lever against the action of said spring, and then moving said breech-block to the open position, bearing-flange on said lower arm and on said rod to automatically trip the latter clear of engagement with said gun-mount when the breech is completely open, and an extractor holding the breech-block in the open position and automatically releasing the same on the insertion of a cartridge-case, substantially as described.

696,852. NAIL-HOLDING IMPLEMENT. FRANK BUCKA, Wai
Cham, Minn. Filed Apr. 16, 1901. Serial No. 98,105. (No model.)



Claim.—1. A nail-holding implement, comprising a stock, a hand-grip on the upper end of the stock, a head formed with radial grooves or channels secured on the lower end thereof, and spring-metal nail-gripping fingers attached to the stock and having their free ends passing through the channels or grooves in the said head.

2. A nail-holding implement, comprising a stock, a head on the lower end thereof provided on its sides with radial grooves or channels, and spring-metal nail-gripping fingers attached at one end to the stock and provided at their free ends with nail-gripping portions terminating in outwardly-deflecting extremities projecting beyond the head.

696,853. WARNING-MACHINE. FRANK BUCKA, Wai
Cham, Minn. Filed Sept. 28, 1901. Serial No. 76,957. (No model.)



Claim.—1. The combination with a washboard, of a wire frame comprising parallel rods connected together at their upper ends, means for securing the rods to the sides of the washboard-frame, a transverse rod loosely attached at its ends to said parallel rods, and a hand-rubber movably supported on said transverse rod.

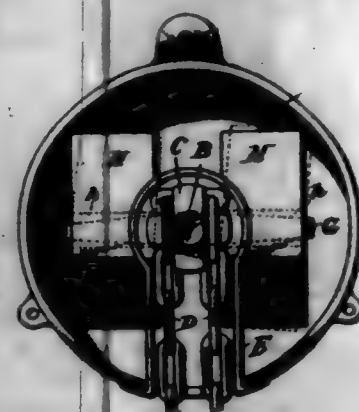
2. The combination with a washboard, of a wire frame comprising parallel rods bent rearward at their upper ends and connected by a transverse wire rod, means for detachably connecting the rods to the frame comprising the upturned ends of the rods and catches at the top of the frame, transverse rods having loops at their ends through which the parallel rods extend, and a rubber having openings through which the transverse rods extend, and provided with a corrugated rubbing-surface.

696,854. LAMP-LIGHTER AND MATCH-EXTINGUISHER. WHITNEY R. GAIN and OLIVE R. GAIN, Port Jervis, N. Y. Filed June 9, 1900. Serial No. 19,226. (No model.)



Claim.—In an attachment for lamps, a lamp-casing, core located adjacent to an opening in said casing, a tube having one end projecting through the casing, the outer end of said tube being cut away at one side to permit the tube to lie close against the lamp-casing forming a guard for the opening, means for pivoting the tube to the core, a spring for holding the tube in its normal position and a match-erecting arm on the inside of the casing, in proximity to which the inner end of the tube extends.

696,855. FIRE-ESCAPE. WHITNEY R. GAIN and HAPLEIGH R. GAIN, Port Jervis, N. Y. Filed Aug. 26, 1901. Serial No. 72,319. (No model.)



Claim.—1. The improved fire-escape comprising a circular casing a shaft journaled concentrically therein, and provided with sprocket-wheel, and a radial arm which is tapered toward its outer end, a chain adapted to travel on the wheel, and a rectangular weight having a slot whose diameter is slightly greater than the widest portion of the sprocket-wheel, the weight being of such length that when traction is applied to the chain and the shaft rotated the weight is thrown into an inclined position and one of its outer corners engaged with the inner wall of the casing, as shown and described.

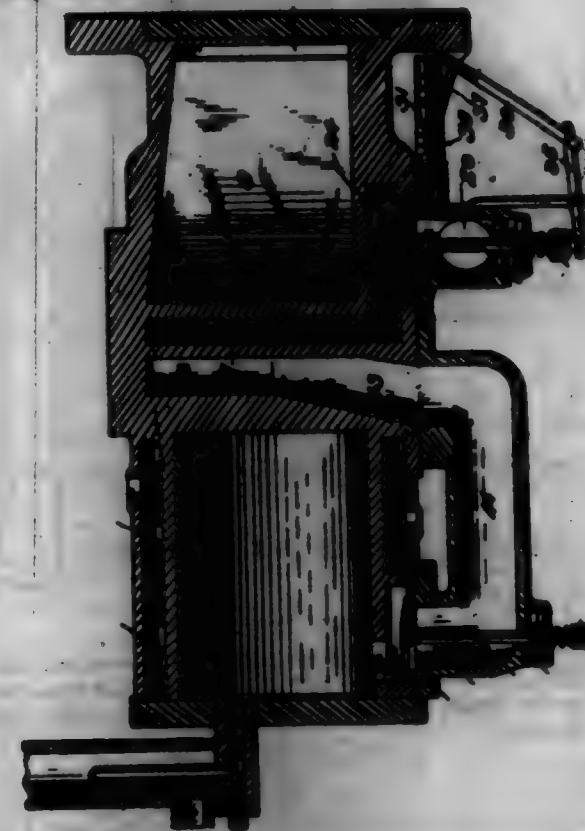
2. The combination, with the circular casing having openings in the lower sides, and a rotatable shaft journaled in said casing concentrically and provided with a sprocket-wheel, and a chain running on said sprocket-wheel, of the guard consisting of a metal plate bent into U shape and provided at its ends with laterally-bent flanges which engage the edges of the casing at the openings aforesaid, substantially as shown and described.

696,856. COMBINED STEAM AND INTERNAL-COMBUSTION MOTOR. FRED D. CLARK, McDonald, Pa. Filed May 30, 1901. Serial No. 91,068. (No model.)

Claim.—1. A combined steam and internal-combustion motor comprising a cylinder, a steam-chest, a spring-closed air and gas induction valve, a spring-closed check-valve for admitting the explosive mixture to one end of the cylinder and closing to prevent the escape of the same under compression, a valve in the steam-chest for controlling the supply of steam to the cylinder, steam, air and gas connections controlled by said valve, means for throwing the induction-valve and check-valve out of operation against the tension of their springs when the device is used as a steam-motor, means for throwing the valve in the steam-chest out of operation when the device is used as an explosive-motor, a gas-supply valve, and an adjustable system of levers connecting the said gas-supply valve with the air and gas induction valve, substantially as described.

2. In a combined steam and internal-combustion motor, the combination of a cylinder, a piston operating therein, a crank-shaft driven by

the piston, a steam-chest, an air and gas supply pipe, ports and passages communicating between the steam-chest, air and gas supply pipes and the opposite ends of the cylinder, a slide-valve in the steam-chest, an air and gas induction valve controlling the passage of air and gas into the steam-chest for admission to the cylinder, the check-valve for controlling the admission of explosive mixture to one end of the cylinder, means for holding the induction and check valves open for the free passage of the steam through the ports and passages controlled thereby, when the device is used as a steam-motor, means for throwing the slide-valve out of operation when the device is used as an internal-combustion motor, a valve in the gas-supply pipe, and variable connections between the air and gas induction valve and gas-supply valve for operating the latter, substantially as described.



3. In a combined steam and internal-combustion motor, the combination of a cylinder, a piston operating therein, a crank-shaft driven by the piston, a steam-chest, an air and gas supply pipe, ports and passages communicating between the steam-chest, air and gas supply pipes and the opposite ends of the cylinder, a slide-valve in the steam-chest, an air and gas induction valve controlling the passage of air and gas into the steam-chest for admission to the cylinder, the check-valve for controlling the admission of explosive mixture to one end of the cylinder, means for holding the induction and check valves open for the free passage of the steam through the ports and passages controlled thereby, when the device is used as a steam-motor, and means for confining the steam of the slide-valve for throwing said valve out of operation when the device is used as an internal-combustion motor, substantially as described.

4. In a combined steam and internal-combustion motor, and in combination with a cylinder, a steam-chest, air and gas supply pipes, and ports and passages communicating between the steam-chest, air and gas supply pipes and the opposite ends of the cylinder, an air and gas induction valve, a box or chamber therefor, having a threaded socket, a stem attached to the valve and sliding through said socket, a spring acting on the stem to hold the valve closed, and a threaded retreating-tube adapted to be inserted into said socket, to hold the valve open against the tension of said spring, substantially as described.

5. In a combined steam and internal-combustion motor, and in combination with a cylinder, a steam-chest, air and gas supply pipes, and ports and passages communicating between the steam-chest, air and gas supply pipes and the opposite ends of the cylinder, an air and gas induction valve, a gas-supply valve in the gas-supply pipe, a spring for closing the air and gas induction valve, means for holding said valve open against the tension of said spring, and a variable system of levers connecting the said induction-valve with the gas-supply valve, substantially as described.

6. In a combined steam and internal-combustion motor, and in combination with a cylinder, a steam-chest, air and gas supply pipes, and ports and passages communicating between the steam-chest, air and gas supply pipes and the opposite ends of the cylinder, an air and gas induction valve, a box or chamber therefor, a stem attached to the valve and sliding in the box, a spring acting on the stem to close the valve, and means for holding the valve open against the tension of said spring, a

gas-supply valve in the gas-supply pipe, and a system of pivoted operating-levers connecting the induction and gas supply valves, one of said levers being detachably connected with the stem of the induction-valve and another adjustably connected with the stem of the gas-supply valve, substantially as described.

7. In a combined explosion propelled and internal-combustion motor, a cylinder, a piston therein, a steam-chest, a slide-valve therein provided with dotted parallel flanges and a contact-piece, a valve-stem loosely mounted in the slot of the flanges and carrying a dog adapted to abut against the body of the valve and the contact-piece to move the valve toward and from its seat, and means for oscillating said stem, substantially as described.

696,857. COOKING STOVE OR RANGE. BEAVER CLARK, Seattle, Wash. Filed May 1, 1901. Serial No. 54,508. (No model.)



Claim.—1. A portable stove comprising vertical side walls disposed in triangular relation to each other, transverse partitions arranged horizontally therein to form ovens, and extending from side to side of the outer case, and separate vertical plates extending across the angles at the front side of the triangular casing from the front to the back walls, to close in the ovens and form smoke-flues alternately upon opposite sides of the series of ovens, substantially as described.

2. A portable stove comprising vertical side walls disposed in triangular relation to each other, transverse partitions arranged horizontally therein to form ovens, and extending from side to side of the outer case, and separate vertical plates extending across the angles at the front side of the triangular casing from the front to the back walls, to close in the ovens, and to form also smoke-flues and hot-air spaces, the said smoke-flues and hot-air spaces being alternately upon opposite sides of the ovens, substantially as described.

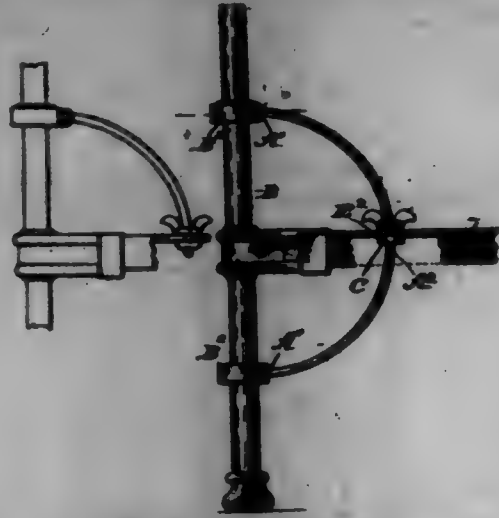
3. A heating apparatus comprising vertical side walls disposed in triangular relation to each other, transverse partitions forming ovens, smoke-flues formed in the angles at the front side of the triangular casing, alternately upon opposite sides of the ovens, closed hot-air spaces also formed in the angles at the front side of the triangular casing on a level with the ovens and on the opposite side of the same from the smoke-flues and a combined smoke-out pipe and ventilating-pipe for the ovens arranged in the back angle of the two rear sides of the casing substantially as and for the purpose described.

4. An apparatus of the nature indicated, comprising a body having a top and a fire-box beneath the top, a tier of cooking-compartments in the body intermediate said box and top and having doors, radiation-chambers interposed between the compartments and draft-openings to the chambers, a pipe passing through said tier, having its lower end closed and a vent for each compartment and a smoke-opening above the upper compartment beneath said top, a vertical flue in the wall of the first compartment from the fire-box to sides of contiguous compartments and a damper for each flue.

5. An apparatus of the nature indicated, comprising a casing composed of vertical back side walls disposed at right angles and a diagonal front side wall connected to the outer edges of the back walls, a top therefor and a fire-box at the base, a tier of cooking-compartments between said walls with door-openings through the front wall, radiation-chambers interposed between the compartments and draft-openings to the chambers, a pipe passing through said tier in the back corner having its lower end closed and a vent for each compartment and a smoke-opening above the upper compartment beneath said top, a vertical flue in one front corner

out of the first compartment leading from the fire-box to the first radiation-chamber and an air-chamber in the opposite corner of contiguous compartments and an air-chamber in the opposite corner and a damper for each fire.

696,858. BEDSTEAD. STEPHEN E. CLARK, Waltham, Wash. Filed June 10, 1901. Serial No. 68,573. (No model.)



Claim.—1. A bed having its post provided above and below its rail connection with sockets forming seats for the ends of a brace and having its rail provided with a keyhole-dial, the brace in the form of a bow formed at its ends to engage in the sockets of the post and provided at its middle with a threaded portion and passed through the keyhole-dial in the rail, with its threaded portion above and below the rail and the nuts on the brace above and below the rail substantially as set forth.

2. The improvement in beds comprising the post, the rail constructed for connection with the post the integral bow brace, and nuts adjustable on the brace above and below the rail, the ends of the brace being secured to the post on opposite sides of the rail, substantially as described.

3. The combination of the post and rail and means connecting the post and rail together, the detachable bow brace-rod extending through an opening in the rail and having the post at the ends of said brace, and means on said rod for securing it above and below said opening, substantially as described.

4. The post having a socket B' and a lateral recess or groove leading thereto, the rail, and the brace having a vertical axis in and held from longitudinal movement through the rail whereby it is held to the rail and may swing to adjust its end laterally into and out of the socket B'.

5. In a bedstead, the combination of the post, the rail, and a brace extending between the post and rail and adjustable in connection with said parts in the direction of its length substantially as set forth.

6. In a bedstead, the combination with the rail and the post to which said rail is connected of the brace-rod extended between the rail and post and having a vertical axis in connection with the rail and means for holding the brace from movement in the direction of such axis through the rail whereby the free end of the brace may be adjusted laterally into and out of engagement with the post substantially as set forth.

7. The combination of the post, the rail, the brace passed through the rail and engaged at its ends with the post, and nuts on the brace above and below the rail, substantially as set forth.

8. The combination of the post, the rail having a keyhole-dial, and the brace-rod extending between the rail and post and passed through the keyhole-dial in the rail and having means engaging with the rail adjacent to the keyhole-dial substantially as set forth.

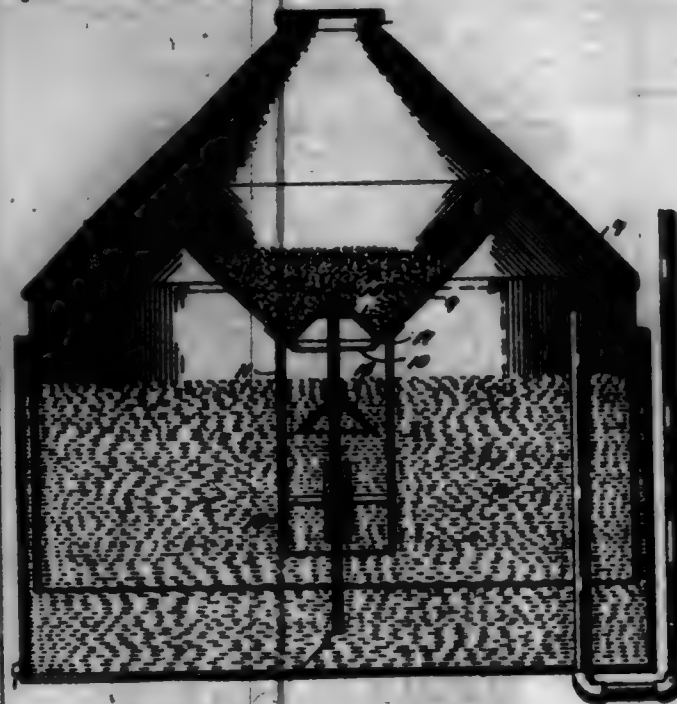
9. In a bedstead, the combination of the post, the rail having an opening for the brace and the brace passed through the rail held between its ends to the said rail and engaged at its ends with the post on opposite sides of the rail, substantially as set forth.

696,859. ACETYLENE-GAS GENERATOR. JOHN E. CLARK, Hattop, Tex. Filed Oct. 31, 1901. Serial No. 68,591. (No model.)

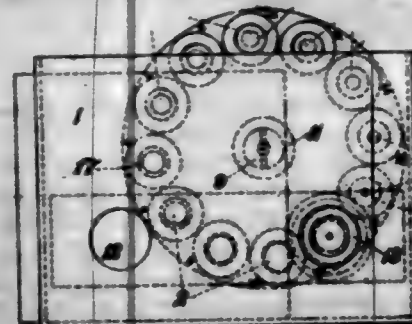
Claim.—1. The combination is a gas-generator, of a water-tank, a bell, a hopper carried by and movable with the bell and having a lower opening forming a discharge-mouth, the walls of said opening being provided with a series of radial ribs forming yielding tongues, and an automatically-operated valve adapted to be closed on the closed portion of the hopper-mouth to close said mouth, the tongues being independently movable to permit of the closing of the valve in the event of the rotation of a portion of the carter between the edge of the valve and one or more of said tongues.

2. The combination is a gas-generator, of a water-tank, a gas-bell,

a hopper carried by and movable with the bell and having a removable cap or cover, there being in the lower portion of said hopper a discharge-opening, a valve-seat extending around the opening and formed of a series of independently-movable spring-tongues, a tube or casing depending from the mouth of the hopper to a point below the water-line of the tank, a valve-stem adapted for contact with the bottom of the tank, a conical valve carried by the valve-stem at a point within the mouth of the hopper, and a second conical valve also carried by said valve-stem at a point below the mouth of the hopper.



696,860. APPARATUS FOR JUDGING THE COLOR AND DENSITY OF PHOTOGRAPHIC NEGATIVES OR LIKE BOOKS. JOHN W. DAWSON, Bradford, England. Filed Dec. 10, 1900. Serial No. 39,347. (No model.)



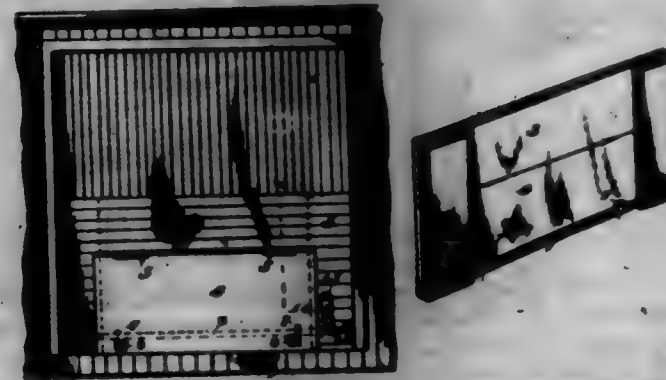
Claim.—1. In an apparatus of the character described, and in combination, a movable disk having a series of graduated apertures therein, a casing having an aperture in the back corresponding to one of the apertures in the disk, and a further aperture in front, a semi-transparent screen behind the latter aperture, a tube having an aperture carrying a lens in line with the said two apertures, and independent apertures in said casing through which light may be transmitted through the light-permeable object and whereby it can be compared with the light transmitted through the other apertures and disk.

2. In apparatus of the character described and in combination, a disk having apertures graduated in size, a disk carrying tinted material of several shades, a casing having an aperture in the back in line with the apertures of said disk, means for carrying said disk so that they may be adjusted, and a further aperture in the casing through which the light may pass through the pervious object, and semi-transparent material covering said aperture in the casing.

696,861. GRAIN-CAR DOOR. DUNCAN BROWN and DANIEL W. DRAPEL, West Superior, Wis. Filed June 7, 1901. Serial No. 68,619. (No model.)

Claim.—1. A supplementary door for use inside the door-casing of a grain-car provided with an opening in its lower edge, a trap hinged at its upper edge in position to fill said opening when closed, upwardly-pointed hooks projecting inward from the lower edge of the trap, a rod pivoted on the inner side of the supplementary door provided with double crank bands adapted to engage said hooks for locking the trap, and means operable from the outside of the door for manipulating said rod, substantially as described.

2. A supplementary grain-car door, provided with an opening in its lower edge, a trap hinged at its upper edge in said opening and provided at its lower edge with notches, angularly-bent arms of sheet metal located in said notches and projecting in the form of upwardly-pointed hooks inside of the trap, screws for securing the inner flanges of the angular arms upon the outside of the trap, a rod pivoted upon the inside of the supplementary door and provided with crank bands adapted to engage said hooks, and a handle projecting through the supplementary door to the outside for manipulating said crank bands, substantially as described.



3. A supplementary door for grain-cars having an opening at its lower edge, a trap pivoted at its upper edge in said opening, upwardly-pointed, inwardly-projecting hooks at the lower edge of the trap, a rod pivoted on the inside of the supplementary door having crank bands adapted to engage with said hooks and bent at one end to form a handle, said handle projecting through a slot in the supplementary door and a locking-pawl pivoted to the outside of the supplementary door and adapted to hold the projecting handle in its locked position, substantially as described.

4. A supplementary door for use inside the door-casing of a grain-car provided with an opening in its edge, a trap hinged in position to fill said opening when closed, a hook carried by the inner face of said trap, a rod pivoted on the inner side of the supplementary door provided with a crank band adapted to engage said hook for locking the trap, and means for rotating said rod for bringing said crank band into and out of engagement with said hook, substantially as described.

5. A supplementary grain-car door, provided with an opening, a trap hinged to said door in position to fill said opening, hooks projecting inwardly from the inner face of said trap, a rod pivoted to said door and extending longitudinally across said trap, crank bands formed in said rod and adapted by rotation of said rod to be brought into engagement with said hooks for locking said trap in a closed condition, means outside said door for rotating said rod, and means for preventing such rotation, substantially as described.

6. A supplementary grain-car door, provided with an opening, a trap hinged to said door in position to fill said opening, hooks projecting inwardly from the inner face of said trap, a rod pivoted to said door and extending longitudinally across said trap, crank bands formed in said rod and adapted by rotation of said rod to be brought into engagement with said hooks for locking said trap in a closed condition, means outside said door for rotating said rod, and means for preventing such rotation, substantially as described.

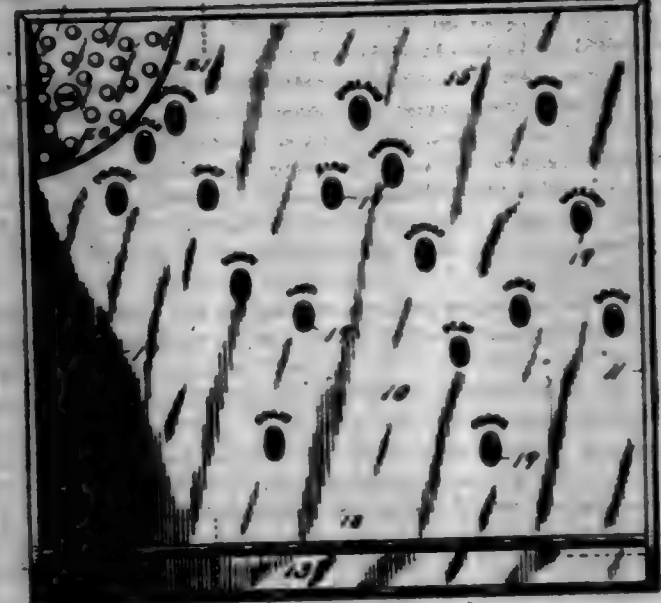
7. A supplementary grain-car door, provided with an opening, a trap hinged to said door in position to fill said opening, hooks projecting inwardly from the inner face of said trap, a rod pivoted to said door and extending longitudinally across said trap, crank bands formed in said rod and adapted by rotation of said rod to be brought into engagement with said hooks for locking said trap in a closed condition, means outside said door for rotating said rod, comprising a portion of said rod bent at an angle and extending through a slot in said door thereby forming a handle, and a pawl pivoted to said door and adapted to swing into the path of movement of said handle and engage the same for locking it against movement, substantially as described.

696,862. GAME. LOUIS BROWN, Reading, Ohio. Filed June 29, 1901. Serial No. 68,592. (No model.)

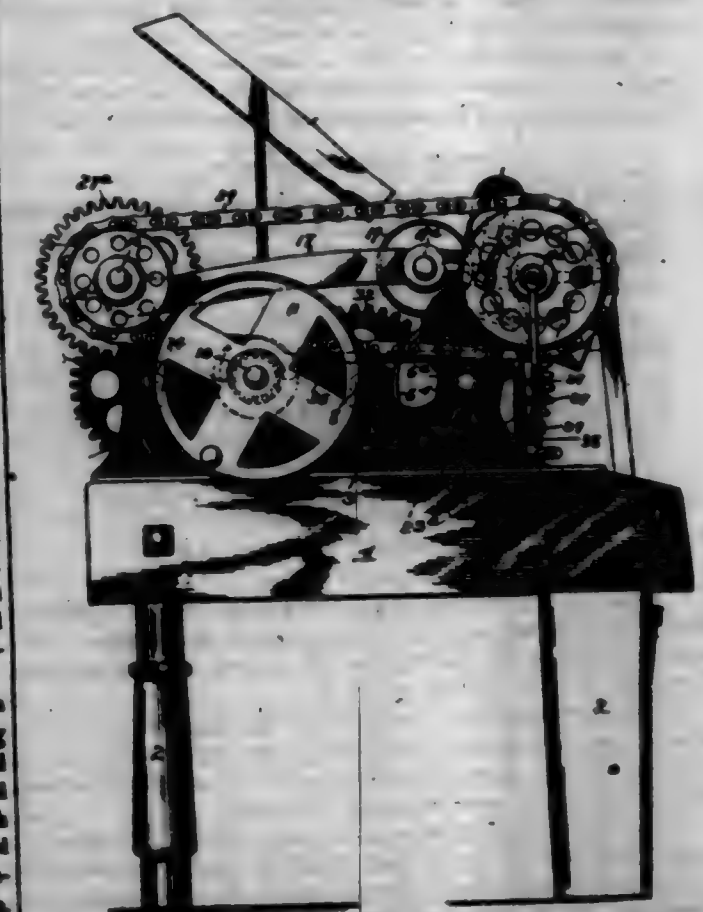
Claim.—1. A game-board comprising a parallel series of tunnels each having a ball-opening extending through different parts of the surface of the board, a pan into which the balls are discharged, a receptacle for facilitating the manipulation of the board and a depending strip adapted to provide a stop at the rear side of the board.

2. The herein-described game apparatus comprising a game-board, an upwardly-convex rim therefor, and parallel strips or guards forming an elongated terminal pan at one side of the board, the board being provided in its upper surface with openings communicating with narrowways leading from each opening to the terminal pan, an initial ball-rest located opposite the terminal pan, rolling elements adapted to traverse the surface of the board and to enter said openings and pass through the narrow-

ways into the terminal pan, a fulcrum post or rocker extending downward from the bottom of the board, and a stop extending downward from one side of the board for the purpose of limiting the rocking movement of such board.



696,868. ROLLER BALING-PRESS. JAMES J. FAHLEH, Minneapolis, Tenn. Filed May 20, 1901. Serial No. 68,631. (No model.)



Claim.—1. In a roller baling-press, the combination with a stationary roll, a pivoted frame and rolls mounted in said frame above the stationary roll and parallel therewith, of a hydraulic cylinder exerting a downward pressure on the pivoted frame, a by-pass connecting the ends of the cylinder, a valve in said by-pass, a spring pressing against said valve and means connecting said spring with the pivoted frame.

2. In a roller baling-press, the combination with a stationary roll, a pivoted frame, and rolls mounted in said frame above the stationary roll and parallel therewith, of a cylinder containing liquid, mounted beneath the frame, a piston in said cylinder connected to the frame, a spring-pressed valve regulating the escape of liquid at the upper end of said cylinder, and means connected with the frame for increasing the tension on said spring-pressed valve as the frame is raised by the rolls.

3. In a roller baling-press, the combination with a stationary roll, a pivoted frame, rolls mounted in the frame parallel with the stationary roll, a turn-back platform pivoted at one end beneath the rolls and rigidly connected at its free end to the free end of the pivoted frame, and means for retarding the upward movement of the platform.

4. In a roller baling-press, the combination with a stationary roll, a pivoted frame and rolls mounted in the free end of the frame parallel with the stationary roll, of a pivoted platform comprising two curved or turbo-back plates riveted together at their side edges forming a hollow shell, here or rods connecting the free ends of the platform and pivoted frame to prevent twisting of the rolls out of parallel, and means for retarding the upward movement of the platform and pivoted frame.

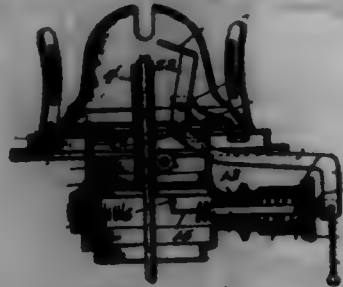
5. In a roller baling-press, the combination with a lower stationary roll, a pivoted frame, upper rolls mounted in the frame parallel with the lower roll, of a drive-shaft, a chain or gearing connecting the drive-shaft and lower roll, a gear loose on the drive-shaft, a clutch for locking said gear and shaft together, transmitting mechanism operated by said gear to revolve the upper rolls, a crank-shaft for operating the clutch, and a rod connected to the pivoted frame for operating the clutch as the bale is formed or doffed.

6. In a roller baling-press, the combination with a lower stationary roll, a pivoted frame, upper rolls mounted in said frame parallel with the lower roll and mechanism for transmitting motion to revolve all of said rolls in the same direction, of a cylinder to contain liquid, a piston in said cylinder, a rod connecting said piston and pivoted frame, said cylinder hinged at its lower end to permit the piston a direct pull against the frame in all its varying positions, a regulating-cylinder beside the main cylinder and communicating therewith at both ends, a valve opening in the upper end of said regulating-cylinder in the path of flow of the liquid, a rod projecting through said regulating-cylinder and connected to the pivoted frame, a coiled spring carried by the rod and pressing against the valve and adapted to increase the pressure thereagainst as it is contracted by the upward rise of the pivoted frame due to the increase in size of the bale.

7. A roller for a baling-press, comprising beads or spindles, and a cylinder made of abrasive material and supported by said beads or spindles, the exterior face of said abrasive cylinder being grooved spirally.

8. In a roller baling-press, the combination of a frame, presser-rolls mounted in said frame and a swinging frame mounted on the first-mentioned frame in front of the rolls to hold and guide the baling-cloth.

696,864. SELF-EXTINGUISHING NON-EXPLOSIVE LAMP.
THOMAS E. FREEMAN and THOMAS M. HENDERSON, Portsmouth, Va.
Filed Sept. 4, 1901. Serial No. 74,315. (No model.)



Claim.—1. A self-extinguishing non-explosive lamp, comprising a relief-valve in communication with the fuel, a cut-off adapted to be moved across the wick-tube, and suitable connection between the valve and cut-off whereby the valve actuates the cut-off.

2. A self-extinguishing non-explosive lamp, comprising a valve in communication with the fuel, a cut-off adapted to operate across the wick-tube, a cut-off lever connected therewith, and a link interposed between said lever and the valve and actuated by the valve.

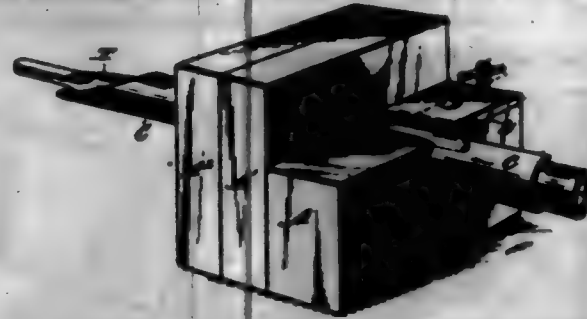
3. A self-extinguishing non-explosive lamp, comprising a valve in communication with the fuel, a cut-off adapted to move across the wick-tube, an operative connection between the cut-off and valve, a spring for holding the valve to its seat, and means for adjusting the tension of said spring.

4. A self-extinguishing non-explosive lamp, comprising a valve in communication with the fuel, a cut-off operating across the wick-tube, an operative connection between the valve and cut-off, a valve-closing spring having one end fixedly connected to the valve, and a key engaging the coils of the spring, the arrangement being such that by rotating the valve the coils of the spring may be successively engaged with the key for the purpose of increasing or diminishing the tension of the spring.

5. A self-extinguishing non-explosive lamp, comprising a spring-actuated relief-valve in communication with the fuel, a cut-off operating across the wick-tube, a link pivotally connected at one end to the cut-off lever and at its opposite end to the valve, and a hand-operated chain one of the links of which forms the pivotal connection between the valve and link.

696,865. DIE FOR COVERING TUBES. PATRICK H. FRIE,
Kansas, Wis. Filed Jan. 11, 1901. Serial No. 56,592. (No model.)

Claim.—1. The die for covering round metal surfaces with an external jacket, consisting of a block having a hole through the same opening on the upper surface of said block, a higher block having an opening through it with a V-shaped notch in its side and a filler attachment to the upper surface of the first-mentioned block on one side of its opening and having two extensions, one extending outwardly, and the other one extending inwardly into the V-shaped notch of the opening of the higher block substantially as described.



2. The die for covering round metal surfaces with an external jacket, consisting of a block having a hole through the same opening on the upper surface of said block, another block having an opening through it with a V-shaped opening in its side, a filler attached to the upper surface of the first-mentioned block on one side of its opening and having two extensions one extending outwardly and the other one extending inwardly into the V-shaped notch of the opening of the higher block, and a third block having a plain round hole disposed behind the other blocks and adapted to fit over the curved edge of the jacket substantially as and for the purpose described.

696,866. TRACK-JACK. OLAF FAYE, Rugby, and LOUIS E. JENSEN, Rindberg, N. D. Filed Aug. 2, 1901. Serial No. 70,009. (No model.)

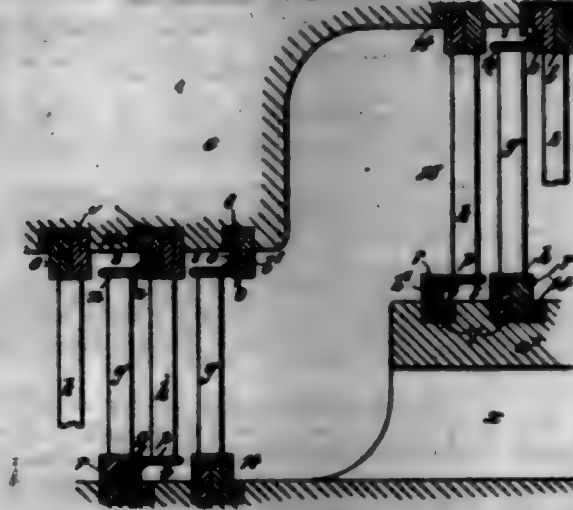


Claim.—1. A track-jack comprising a stand, a toothed lifting-bar slidably mounted thereon, a horizontal shaft having its ends grooved and mounted in the frame of the stand, retaining-arms passing through openings in the stand and entering said grooves, a toothed wheel mounted on said shaft and cooperating with the lifting-bar, an operating-lever pivoted to the frame of the stand, formed with a recess and slot, a spring located in the recess, and a dog located in the slot, having studs working in the slot, and cooperating with the teeth of said wheel.

2. A track-jack comprising a stand, a toothed and sliding lifting-bar, an operating-lever pivoted to a horizontal shaft connected with the frame of the stand, a toothed wheel mounted on the same shaft, and engaging the lifting-bar, a dog on the lever engaging said toothed wheel, and a spring-controlled retaining-dog pivotally mounted on the stand and comprising a pair of engaging lips or points, one of which cooperates with the lifting-bar and the other of which is adapted to be engaged by the operating-lever for tripping the dog.

696,867. COMPOUND STEAM-TURBINE. JOHN F. PULLAR,
Bristol, Newcastle-upon-Tyne, England. Filed Apr. 13, 1901. Serial No. 54,628. (No model.)

Claim.—1. In a turbine, the combination with the spindle and its casing, of rings of blades fixed to the said spindle, and intermediate rings of blades fixed to the casing, the free ends of each of said rings of blades being connected together and arranged to leave a wide space between them on the spindle and the interior of the casing and between these in the casing and the exterior of the spindle and to form nearly fluid-tight lateral joints with annular surfaces carried by the casing and spindle respectively and thereby cause practically the whole of the motive fluid used to pass through the rings of blades.



2. In a turbine, the combination with the spindle and its casing and rings of blades fixed to said spindle and casing, of annular buffers fixed to the free ends of the blades, and transversely-arranged annular faces located in the annular space between said spindle and casing and adjacent to which the edges of said buffers terminate.

3. In a turbine, the combination with the spindle and its casing and rings of blades fixed to said spindle and casing, of annular buffers fixed to the free ends of the blades, and transversely-arranged annular projections extending outwardly from the spindle and inwardly from the casing and adjacent to the flat faces of which the edges of said buffers terminate.

4. In a turbine, the combination with the spindle and its casing, of rings of blades fixed at one end to holding-rings fixed to the exterior of the spindle and the interior of the casing and having flat annular lateral faces, and buffers fixed to the free ends of the rings of blades and arranged adjacent to said annular faces.

5. In a turbine, the combination with the spindle and its casing and rings of blades fixed to said spindle and casing, of annular buffers fixed to the free ends of the blades as to leave considerable radial clearance between the buffers fixed to the inner ends of the fixed blades and the spindle, and between the buffers fixed to the outer ends of the rotary blades and the interior of the casing, and annular faces carried by the spindle and casing and arranged in close proximity to but out of contact with the buffers on the fixed and rotary blades respectively, substantially as described for the purpose specified.

6. In a turbine, the combination with a ring of blades fixed at one end to a carrier, of a laminated annular buffer fixed to the other end of the ring of blades and having successive buffing edges spaced apart so as to form one or more annular spaces between them, and a transversely-arranged annular face arranged near to but not in contact with said edges of the buffer.

7. In a turbine, the combination with a ring of blades fixed at one end to a carrier, of a laminated annular buffer fixed to the other end of the ring of blades and having successive buffing edges spaced apart so as to form one or more annular spaces between them, and a transversely-arranged annular face arranged near to but not in contact with said edges of the buffer.

8. In a turbine, the combination with a ring of blades fixed at one end to a carrier, of a laminated annular buffer fixed to the other end of the ring of blades and having oppositely-arranged buffing edges at its respective sides, and transversely and oppositely arranged annular faces located near to but not in contact with the opposite edges of said buffer.

9. In a turbine, the combination with a ring of blades fixed at one end to a carrier, of a laminated annular buffer fixed to the other end of the ring of blades and having successive buffing edges at each side, and transversely and oppositely arranged annular faces located near to but not in contact with the opposite edges of the said buffer.

10. In a turbine, the combination with the spindle and casing and rings of blades fixed alternately to said spindle and casing, of laminated annular buffers fixed to the free ends of said rings of blades, and each having two or more superposed buffing edges, and two sets of rings carried by said spindle and casing respectively and having laterally-arranged annular faces arranged near to but not in contact with the superposed edges of said buffers.

11. In a turbine, the combination with the spindle and casing and

rings of blades fixed alternately to said spindle and casing, of laminated annular buffers fixed to the free ends of said rings of blades and each having two or more superposed buffing edges spaced apart so as to form intervening annular spaces, and two sets of rings carried by said spindle and casing respectively and having laterally-arranged annular faces arranged near to but not in contact with the superposed edges of said buffers.

12. In a turbine, the combination with the spindle and casing, of rings of blades fixed to said spindle, intermediate rings of blades fixed to said casing, annular buffers fixed to the free ends of each of said rings of blades and arranged to leave a deep radial space between them and the adjacent part of the casing and spindle respectively, laterally-arranged annular surfaces carried by said spindle and casing and arranged in close proximity to the edges of the buffers on the fixed and rotary rings of blades respectively, and means for adjusting said spindle with its rings of blades, buffers and annular surfaces, and vice versa in relation to the casing and its rings of blades, buffers and annular surfaces and for holding said spindle and vice versa.

13. In a turbine, the combination with the spindle and casing, of rings of blades fixed to each of these parts, the free end of each blade being formed with a projection, an annular buffer secured to the projections of each ring of blades as to close the space between the outer ends of said ring of blades and having one or more buffing edges, and transverse annular surfaces carried by said spindle and casing and located near to but not in contact with the edges of said buffers.

14. In a turbine, the combination of a stepped spindle and casing arranged one within the other with an annular space between the two, and rings of blades fixed to said spindle and casing and extending into said annular space, of balancing means arranged to act upon the enlarged end of said spindle and force it outward in an opposite direction to that of the steam flowing through said annular space.

15. In a turbine, the combination of a stepped spindle and casing arranged one within the other so as to leave an intermediate space between the annular end face of the enlarged end of said spindle and the adjacent end wall of said casing, and means for admitting motive fluid to said space for the purpose set forth.

16. In a turbine, the combination of a stepped spindle and casing arranged one within the other so as to leave an annular space between the stepped portions thereof and between the annular end face of the enlarged portion of said spindle and the adjacent end wall of said casing, said space being in communication one with another, and rings of blades fixed to said spindle and casing and extending into said annular space.

17. In a turbine, the combination of a stepped and bladed spindle and casing arranged one within the other so as to leave a longitudinal annular space between the stepped portions thereof and also an annular end space between the annular end face of the enlarged portion of said spindle and adjacent end wall of said casing, said casing having an inlet-passage at its smaller end and an exhaust-passage at its larger end, said spindle being formed with symmetrically-arranged longitudinal passages connecting said annular spaces, and said annular end space being in communication with said exhaust-passage, and buffing means arranged in said end space between said longitudinal passages and said exhaust-passage.

18. In a turbine, the combination of a stepped and bladed casing having an inlet-passage at its smaller end and an exhaust-passage at its larger end, a stepped and bladed spindle arranged within said casing so as to form a longitudinal annular space between the stepped portions of the two and an annular end space that is located between the annular end face of the enlarged portion of the spindle and the adjacent end wall of the casing and is in communication at its outer periphery with said exhaust-passage, symmetrically-arranged longitudinal passages formed in said spindle and connecting said longitudinal and end spaces, and a buffing arrangement comprising concentrically-arranged rings located in said end space between said longitudinal passages and said exhaust-passage and carried by one of the walls of said space and terminating near to but not in contact with the opposite end wall of said space.

19. In a turbine, the combination of a stepped and bladed casing having an inlet-passage at its smaller end and an exhaust-passage at its larger end, a stepped and bladed spindle arranged within said casing so as to form a longitudinal annular space between the stepped portions of the two and an annular end space that is located between the annular end face of the enlarged portion of the spindle and the adjacent end wall of the casing and is in communication at its outer periphery with said exhaust-passage, symmetrically-arranged longitudinal passages formed in said spindle and connecting said longitudinal and end spaces, and a buffing arrangement comprising two sets of concentrically-arranged rings located in said end space, one set being carried by the annular end face of the enlarged portion of said spindle and the other set being carried by the opposite end wall of said casing and alternating in position with the rings in the first-mentioned set, said buffing arrangement being arranged between said longitudinal passages and said exhaust-passage.

20. In a turbine, the combination of a stepped and bladed spindle

and casing arranged one within the other so as to form a longitudinally-arranged annular working space between the stepped portions thereof, and an annular balancing-space between the larger end of said spindle and the adjacent end of said casing, said balancing-space being in communication at one end with the longitudinal annular space and at the other end with the exhaust-passage leading from said casing, and a holding device located in said balancing-space and comprising concentrically-arranged laminated rings each fixed at one end to one of the end walls of said balancing-space and having its opposite edge splined apart and terminating in proximity to the opposite end wall of said space.

21. In a turbine, a stepped and bladed spindle and casing arranged one within the other so as to leave between the larger end of the stepped portion of said spindle and the adjacent end wall of said casing an annular space one of the end walls of which is formed with concentric annular grooves, and holding-rings fixed in some or all of the grooves in each wall.

22. In a turbine, a stepped and bladed spindle and casing arranged one within the other so as to leave between the larger end of the stepped portion of said spindle and the adjacent end wall of said casing, an annular space each of the end walls of which is formed with concentric annular grooves, and holding-rings fixed in some or all of the grooves in each wall.

23. In a turbine, a stepped spindle comprising a central shaft and a number of sleeves, the inner sleeve being placed on said shaft and the others one over another, each sleeve being successively larger in diameter but shorter than the one it immediately surrounds and the whole of them being attached one to another and to said shaft.

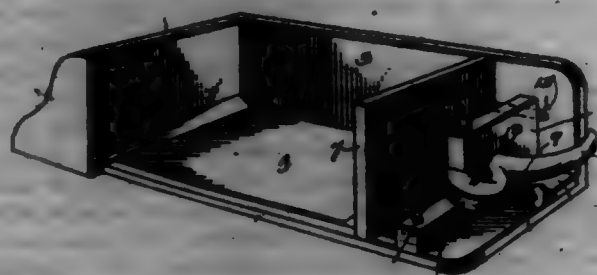
24. In a turbine, a casing having a stepped and bladed interior, a stepped and bladed spindle arranged within said casing so as to form between its stepped portion and the corresponding part of the casing, a longitudinal annular space, and between its larger end and the adjacent end of said casing, an annular space that is in communication with the exhaust-passage from said casing, and a holding arrangement in said space, the stepped portion of said spindle being built up of a number of superposed sleeves each of which, except the outermost one, is formed with concentrically-arranged longitudinal grooves or channels connecting the annular space between the stepped portions of said casing and spindle with the annular space.

25. In a turbine, a ring of blades comprising a number of radially-arranged blades and a compound holding-ring in which the roots of said blades are secured.

26. In a turbine, a ring of blades comprising a number of radially-arranged blades and a compound holding-ring comprising two bent strips of metal arranged side by side and having their adjacent edges formed with notches in which the roots of said blades are fixed.

27. In a turbine, a ring of blades comprising a number of radially-arranged blades each having its root and split and the separate portions thereof bent apart, and a compound holding-ring made of two bent strips of metal having their adjacent edges notched to receive and hold the split ends of the blades.

696,868. CIGAR-PACKING MACHINE. JOHN G. GABLE, Boston, Mass. Filed June 5, 1901. Serial No. 63,596. (No model.)



Claim.—1. In a cigar-packing machine, an open box, a follower-slide arranged within the box, an adjustable head-block mounted within one end of the box, a setting-curve carried by the head-block and cooperating with said slide, and a pressure-rod also carried by the head-block and cooperating with said slide.

2. In a cigar-packing machine, the box-body having a fixed end plate and provided with a slide-opening, a follower-slide working through said opening and having a head and a retaining-arm, an adjustable head-block mounted within the open end of the box, said head-block having a guide-opening for said retaining-arm, separate retaining devices adjustably connecting the head-block with the back and bottom of the box, and a setting-curve and a pressure device both supported by said head-block.

3. In a cigar-packing machine, an open box, a follower-slide arranged within the box, a head-block arranged within one end of the box, a setting-curve loosely extending through the head-block and pivoted to the follower-slide, a lever act arranged on the upper, and a pivotal pressure-rod supported by the head-block.

696,869. MOTOR-DRIVE. HARMONY F. CHAMBERLAIN, Rochester, N. Y., assignor to John E. Chamberlain, Rochester, N. Y. Filed May 12, 1901. Serial No. 63,600. (No model.)



Claim.—1. In a motor-drive, the combination of a disk, and flexible picture-cards mounted perpendicularly in an endless series on the face of the disk.

2. In a motor-drive, the combination of a disk, and picture-cards mounted in a plane perpendicular to said disk, said picture-cards being arranged radially on the surface of said disk.

3. In a motor-drive, the combination of a disk, flexible picture-cards mounted in a plane perpendicular to said disk, and means for supporting and rotating said disk.

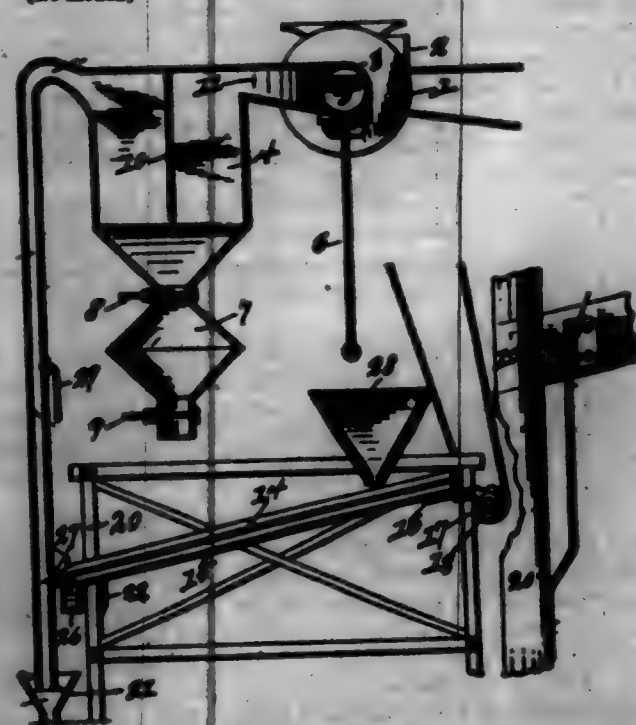
4. In a motor-drive, the combination of a disk, an endless series of picture-cards mounted on the face thereof, a thumb engaging said picture-cards at a certain period of the revolution of said disk, and means for rotating said disk.

5. In a motor-drive, the combination of an indexing casing provided with an observing-aperture, a thumb secured to said casing, a horizontal disk provided with annular washers, picture-cards vertically mounted on said disk between said annular washers, and means for supporting said disk, and means for rotating said disk.

6. In a motor-drive, the combination of an indexing casing provided with an observing-tube, a thumb secured to said casing, a table or support provided with an upwardly-projecting annular washer, a disk provided with a downwardly-projecting annular washer, and picture-cards between said annular washers, said disk being also provided with concentric annular washers on its upper surface, and picture-cards secured to said disk between said annular washers perpendicular to said surface and radially arranged thereon, and means for rotating said disk.

7. In a motor-drive, the combination of a disk, flexible picture-cards mounted perpendicularly in an endless series on the face of the disk, and a thumb for detaching and snapping said cards into view when moved relatively thereon.

696,870. MACHINE FOR CLEANING AND SORTING RAISINS. EDWARD J. KAMMEL, Toledo, Ohio, assignor to the Dew and Shell Company, Toledo, Ohio. Filed May 26, 1901. Serial No. 61,100. (No model.)

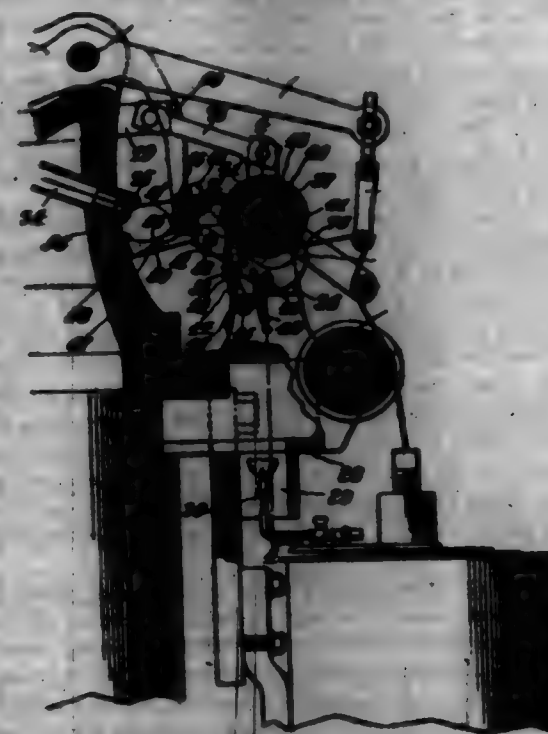


Claim.—1. A machine for cleaning and sorting raisins, comprising a receiver, a vertically-arranged tube leading therefrom, a tube leading from the opposite side of said receiver, an exhaust-fan at the end of said last-mentioned tube, a controller-valve interposed between said fan and receiver, whereby a draft may be controlled, means for supplying raisins to said tube, a receptacle for receiving raisins from the lower end of said tube, having a discharge-opening at its bottom for removing the products deposited therein and providing openings to permit of the passage of air into the lower end of the vertical tube, substantially as described.

2. A machine for cleaning and sorting raisins, comprising a vertical section-tube open at its lower end, a supply-receiver at the upper end of said tube, a fan for creating a draft within said tube and receiver, means for supplying raisins to said tube near its lower end, a return-band at the upper end of the section-tube for deflecting to the receiver the products carried upward by said draft, an auxiliary receiver carried by the lower end of said supply-receiver, a valve for discharging the products from the supply-receiver into the auxiliary receiver, and a valve for discharging said products from the auxiliary receiver, whereby the supply-receiver may be emptied while the machine is in operation, substantially as described.

3. A machine for cleaning and sorting raisins, comprising in its construction a main receiver, a tube projecting from the receiver, an exhaust-fan at the outer end of the tube, a valve interposed between the fan and receiver, means for manually operating said valve, a vertical section-tube discharging at its upper end into said main receiver, means for supplying raisins to said section-tube, a plate within the main receiver for deflecting the air-draft, an auxiliary receiver beneath deflecting-plate of the main receiver and communicating with the main receiver, a valve for controlling such communication, a valve for emptying the auxiliary receiver, and means for controlling said emptying-valve, whereby said receiver may be emptied while the machine is in operation, substantially as described.

696,871. TAKE-UP MECHANISM FOR SEWING-MACHINES. JAMES L. KIEFFER, Montreal, Canada. Original application filed Aug. 24, 1901, Serial No. 73,501. Divided and this application filed Nov. 14, 1901. Serial No. 63,597. (No model.)



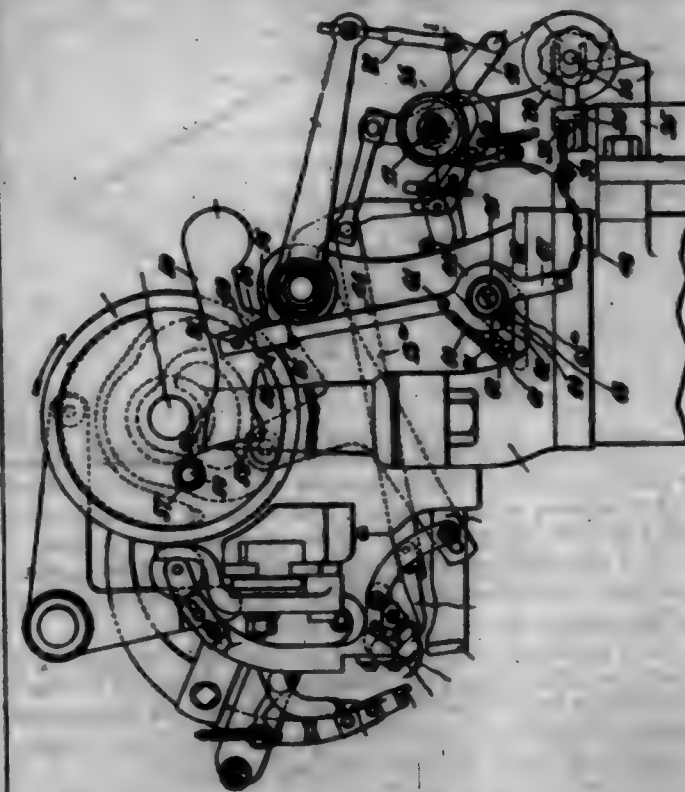
Claim.—1. In a sewing-machine of the class described, a thread-take-up mechanism comprising a revoluble member having a face adapted for engagement by the thread, a lever, a thread-pulling fork carried by the lever and arranged to be moved thereby across the path of the thread having said revoluble member on its way to the stitch mechanism, and means caused to be operated by the motion of said lever to lock the revoluble member against rotation during such traversing movement of the thread-pulling fork, substantially as described.

2. In a sewing-machine of the class described, a thread-take-up mechanism comprising a compound-ratchet mechanism having means for preventing rotation thereof in one direction and also provided with a thread-engaging face, an automatic pawl adapted to lock said ratchet against rotation in an opposite direction, a ratchet engaging with said automatic pawl, a lever riding upon the ratchet, and means for taking up the slack thread at the same time that the ratchet is locked by the automatic pawl, substantially as described.

3. In a sewing-machine of the class described, a thread-take-up mechanism comprising a compound ratchet, a check-pawl engaging with one ratchet member, an automatic pawl adapted to engage with the other ratchet member, a ratchet having an effect on the back-carriage thereof and operatively connected with the automatic pawl, a lever arranged to ride on the back-carriage of the ratchet and adapted to normally rest on the effect thereof, and means for pulling up the slack thread from the needle on the taking engagement of the automatic pawl with said ratchet, substantially as described.

4. In a sewing-machine of the class described, a thread-take-up mechanism comprising a compound ratchet, a check-pawl, an automatic pawl, a ratchet connected with the automatic pawl, a cam-actuated lever provided with a footpiece and with a shoe which rides on the ratchet, and a thread-pulling fork extending from the footpiece and movable with the lever, substantially as described.

696,872. TENSION MECHANISM FOR SEWING-MACHINES. JAMES L. KIEFFER, Montreal, Canada. Original application filed Aug. 24, 1901, Serial No. 73,501. Divided and this application filed Nov. 14, 1901. Serial No. 63,598. (No model.)



Claim.—1. In a tension mechanism for sewing-machines, the combination with a tension-wheel, means for normally retarding the rotation thereof, and a lever which controls the retarding means, of a tappet-rod carried by a rotary part of the sewing-machine, a releasing-lever having operative connection with said controlling-lever, and a tappet-arm yieldably supported by the releasing-lever in a position to be engaged by the tappet-rod to actuate said lever when said tappet-rod is turning in a backward direction but to ride over said tappet-rod without being engaged by the same in the normal forward operation of the machine.

2. In a tension mechanism for sewing-machines, the combination with a tension-wheel, a spring-pressed friction-disk and a controlling-lever engaging with said disk, of a tappet-rod carried by a rotary part of the sewing-machine, a releasing-lever having operative connection with the controlling-lever, and a tappet-arm yieldably mounted on the releasing-lever and disposed in a position for engagement by the tappet-rod, as set forth.

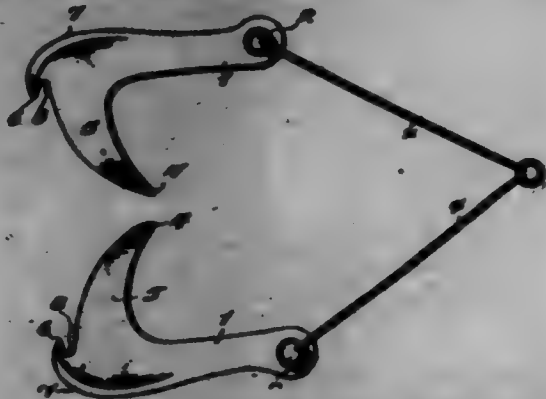
3. In a tension mechanism for sewing-machines, the combination with a tension-wheel, a spring-pressed friction-disk and a controlling-lever engaging with said friction-disk, of a releasing-lever having operative connection with said controlling-lever, means for limiting the movement of the releasing-lever, a spring to normally hold the releasing-lever in one position, and a tappet-arm yieldably supported on the releasing-lever and disposed in the path of the tappet-rod, as set forth.

4. In a tension mechanism for sewing-machines, the combination with a tension-wheel, a spring-pressed friction-disk for restraining its motion, and a controlling-lever engaging with said friction-disk, of a releasing-lever having operative connection with said controlling-lever, means for yieldably retaining said releasing-lever in one position, a shaft having a hand-wheel thereon, a disk carried by said wheel and having a stud projecting laterally therefrom, and a pawl or detent yieldably supported upon the end of the releasing-lever and disposed in the path of said stud in such manner as to be engaged by said stud to throw back the releasing-lever and the controlling-lever to release the tension mechanism when said hand-wheel is given a partial backward rotation but to permit said stud to pass over said detent without operating said lever in the normal forward operation of the machine.

5. In a tension mechanism for sewing-machines, the combination of a shaft having a hand-wheel thereon, a stud projecting laterally from said shaft at one end and concentrically thereof, a releasing-lever having a yieldably-supported pawl or tappet-arm extending into the path of said

rod and having an abrupt flange, whereby the normal forward operation of said shaft causes the said flange to depress said pawl without operating the lever but a partial backward rotation of the same causes the said flange to engage said abrupt shoulder to turn the lever about its axis, a tension-wheel, returning means engaging the same to put tension on the thread, and a two-armed lever connected at one end to said releasing-lever and at the opposite end to said returning means, whereby the operation of said lever in the manner aforesaid causes said returning means to be drawn back to release said tension-wheel, substantially as described.

696,873. GRAB-HOOK. DAVID H. LAMAR, Union, Pa. Filed Jan. 8, 1902. Serial No. 51,915. (No model.)



Claim.—1. A grab-hook comprising a shank and hooked portion the rear face of said shank being provided with a thickened or widened flange terminating at the rear of the tooth portion in a shoulder, there being a recess formed between the shoulder and the rear of the hook.

2. A grab-hook comprising a main shank and a hooked portion, there being a recess formed at the rear of the tooth and extending beyond the plane of the inner face of the shank.

3. A grab-hook having a shank 1 provided with a terminal eye 2, a hook 3, a shoulder 4 disposed to the rear of the hook and forming a continuation of the thickened flange at the outer rear wall thereof, there being an engaging recess for an extending-rod formed between the shoulder and the rear face of the tooth, substantially as specified.

696,874. SHIMS-FORMING MACHINE. WILLIAM E. LAVIS, Gloucester, Mass. Filed Sept. 20, 1900. Serial No. 31,448. (No model.)



Claim.—1. A machine for heating the para-line of coils, comprising a suitable frame, a power-shaft mounted therein, para-line-engaging drums or wheels loosely mounted on said shaft, a gearing connecting the shaft with the said wheels for driving said wheels, whereby the wheels may be turned at a greater or less speed in the same direction by reversing the said shaft, substantially as described.

2. In a machine for heating the para-line of coils, the combination with a suitable standard, of a shaft therein, grooved pulleys or drums mounted loosely on the said shaft, gearing connecting the shaft with the pulleys, and means for controlling the said gearing whereby the drums will be moved at the same speed as their shaft or at a less speed with greater power, substantially as described.

3. A machine for heating the para-line of coils, comprising a standard, a shaft mounted therein, grooved wheels loosely mounted upon said shaft, gearing interposed between the shaft and the wheels for driving the wheels at different speeds according to the direction in which the shaft is turned, and means for controlling the said gearing, whereby one of the wheels may be thrown out of engagement with the said shaft, while the other continues its operation, substantially as described.

4. A machine for heating the para-line of coils, comprising a standard, a shaft mounted therein, grooved pulleys loosely mounted on the said shaft, double ratchet-wheels mounted on the said shaft, gearing carried by the said ratchet-wheels and connecting the shaft with the said grooved wheels, and pawls for controlling the movement of said double ratchet-wheels, the structure being such that the power and speed of the grooved wheels may be changed by merely reversing the shaft, substantially as described.

5. A machine for heating the para-line of coils, comprising a standard, a shaft mounted therein, grooved pulleys loosely mounted thereon and having internal gear arranged upon their peripheries, double ratchet-wheels loosely mounted on the said shaft, actuating-pieces mounted between the ratchet-disks of the said double ratchet-wheels, the said gearing communicating motion from the shaft to the grooved wheels, pawls mounted upon the standard for holding the double ratchet-wheels against motion in one direction, and pawls carried by the grooved wheels for preventing the said double ratchet-wheels from moving in one direction with respect to said grooved wheels, the structure being such that when the shaft is turned in one direction the gearing will impart a comparatively slow movement to the grooved wheels with considerable power, and when the shaft is turned in the opposite direction the gearing will communicate motion to the grooved wheels at a greater speed but with less power.

6. A machine for heating the para-line of coils, comprising a standard, a power-shaft mounted therein, para-line-engaging wheels mounted on the said shaft, double ratchet-wheels also mounted on said shaft and comprising ratchet-disks having teeth upon their peripheries arranged in opposite directions with respect to each other, means for spacing the said disks a proper distance from each other, a pinion mounted between the disks of each double wheel and keyed to the shaft so as to turn therewith, gear-wheels pivoted between the disks of the said double wheels and meshing with the pinion secured to the shaft, the said gear-wheels also meshing with racks upon the inner surface of the para-line-engaging wheels, and pawls adapted to engage the teeth upon the peripheries of the double ratchet-wheels, whereby the speed of the drums or para-line-engaging wheels may be controlled by reversing the shaft, substantially as described.

7. A machine for heating the para-line of coils, comprising para-line-engaging wheels, a shaft for loosely supporting the same, a standard supporting the shaft, double ratchet-wheels loosely mounted on the said shaft and comprising disks spaced from each other and provided with ratchet-teeth upon their peripheries extending in opposite directions, gearing between the said disks and connecting the shaft with the para-line-engaging wheels, pawls upon the standard for engaging the inner disks of the double ratchet-wheels of the outer ratchet-wheel disks, and means for holding either set of pawls out of engagement with their respective disks, upon one side of the machine or the other, whereby one para-line-engaging wheel may be stopped while the other continues its motion, so that one side of the coils may be heated at a time, substantially as described.

8. A para-line heating machine comprising a standard, a shaft mounted therein, para-line-engaging wheels mounted on said shaft, double ratchet-wheels also mounted on the said shaft, gearing connecting the shaft with the para-line wheels, gravity-pawls carried by the said wheels and engaging one set of teeth upon the double ratchet-wheels, a cord or wire connecting the two ends of said pawls, whereby the said pawls may be held out of engagement with the ratchet upon placing the said cord or wire over a pin or projection on the said para-line wheel, pawls pivoted to the said standard and adapted to engage the inner teeth upon the ratchet-wheels and a pivoted T-shaped piece adapted to engage the outer ends of said pawls, whereby one or the other thereof may be held out of engagement with the ratchet-wheels, the structure being such that the para-line wheel on either side of the machine may be thrown out of engagement with the other is operating, and the wheel which is operating may be changed in speed when desired and a third set of pawls mounted upon the standard and engaging the periphery of the para-line wheels, teeth formed upon the periphery of said wheels adapted to be engaged by the said pawls, whereby the wheels will be prevented from turning except in one direction, and means for holding the para-line in engagement with the grooved wheels, substantially as described.

9. In a machine for heating the para-line of coils, the combination with a wheel adapted to engage a para-line, of a shaft for turning said wheel, gearing interposed between the shaft and the wheel, means for locking the gearing so that the wheel will be turned with the shaft at the same speed in which the shaft turns, and means causing the gearing to operate when unlocked and the shaft is reversed so that the wheel is turned with more power but at a less speed than before but in the same direction, substantially as described.

10. In a machine for heating the para-line of coils, the combination with wheels or drums for engaging the said para-line, of reversible gearing for turning the said wheels at different speeds according to its re-

versal, and means for throwing either of the said wheels out of engagement with the said gearing without interfering with the operation of the other wheel, whereby one line may be passed while the other is stopped and vice versa, without stopping the operation of the machine, substantially as described.

11. A machine for heating a para-line of a mine, comprising a suitable frame, a power-shaft mounted therein, a para-line-engaging drum or wheel loosely mounted on said shaft, a gearing connecting the shaft with the said wheel for driving the said wheel, whereby the wheel may be turned at a greater or less speed in the same direction by reversing the said shaft, substantially as described.

12. In a machine for heating a para-line of a mine, the combination of a suitable standard, of a shaft therein, a grooved pulley or drum mounted loosely on the said shaft, gearing connecting the shaft with the pulley, and means for controlling the said gearing, whereby the drum will be moved at the same speed as its shaft or at a less speed with greater power, substantially as described.

696,875. BICYCLE-TIRE. ROBERT L. LOWE, San Francisco, Cal. Filed Oct. 14, 1898. Serial No. 72,204. (No model.)

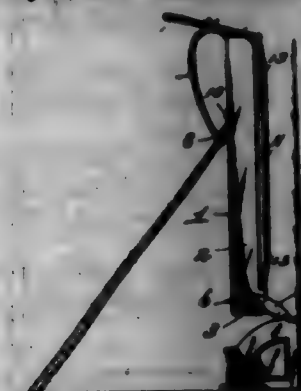


Claim.—1. In a bicycle-tire, the combination with the rim of a wheel, of a plurality of springs secured thereto and arranged in the form of segments upon said rim adapted to engage the rim, and a resilient tread engaging the springs and provided on its under side with a depending portion which projects between the free ends of the springs.

2. In a bicycle-tire, the combination with the rim of a wheel, of circular rings arranged beneath the tread thereof, a plurality of springs spaced apart and having open ends on their lower portions and having their upper portions secured to the said rings, and strips of fibrous material arranged on the free ends of the springs, and secured to the springs by the said rings.

3. In a bicycle-tire, the combination with a plurality of springs adapted to be secured to the rim of the wheel and provided with a segmental curved portion and upwardly and inwardly bent arms terminating in short distances from each other, bands connecting the free ends of the arms of each spring to the arms of the remaining springs, strips of fibrous material secured to the arms of the respective springs, and a resilient tread carried by the arms of the springs and provided with a central rib which is interposed between said arms.

696,876. BROILER OR TOASTER. HENRY E. LYNN, Pittsburgh, Pa. Filed July 30, 1901. Serial No. 62,894. (No model.)



Claim.—1. A broiler and toaster comprising a receptacle closed at one side and open at the other, a trough arranged at one end of the receptacle, a detachable grid for the open side of the receptacle adapted to have one end inserted in the trough, and a bell for covering the opposite or free end of the grid to the receptacle.

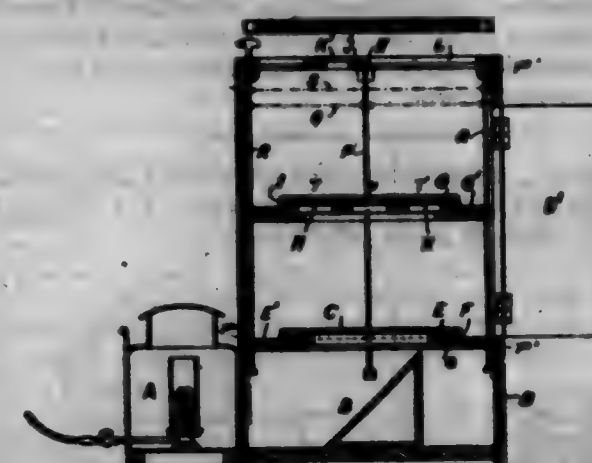
2. A broiler and toaster comprising a receptacle provided at its lower end with a drain-trough, a detachable grid for closing the open side of the receptacle, a bell pivotally connected to the grid and adapted to secure the same to the receptacle, and feet at one end of the receptacle for supporting the same in front of a fireplace, said grid being offset intermediate its ends and made reversible so that either side may be presented toward the open side of the receptacle.

3. A broiler and toaster comprising a receptacle, supporting-foot arranged at one end thereof, a detachable grid for covering the open side of the receptacle, means for securing said grid to the receptacle, and a handle on the receptacle provided with a socket to receive a suitable prop or brace.

4. A broiler and toaster comprising a receptacle, a reversible grid for covering the open side of the receptacle, feet for supporting the receptacle in a substantially vertical position in front of a fireplace, a handle on the receptacle provided with a socket adapted to receive a suitable brace or prop, and a pivoted bell on the grid adapted to engage a pin or stud on the handle of the receptacle.

5. A broiler and toaster comprising a receptacle, means for holding said receptacle in a substantially vertical position in front of a fireplace, a drain-trough at the lower end of the receptacle, a detachable grid for closing the open side of the receptacle, and a detachable guard adapted to extend across the lower portion of the receptacle and cover the drain-trough.

696,877. APPARATUS FOR PRODUCING REPEAT-DESIGNS. HARRY MACKINTOSH, Glasgow, England. Filed Sept. 14, 1900. Serial No. 32,122. (No model.)



Claim.—1. An apparatus for designing patterns, comprising a transparent support for objects from which the pattern is to be produced, a series of adjustable lenses means for supporting them in a plane parallel to the support of the said objects a screen for receiving the images of the said objects and means for throwing rays of light on the objects, so that their forms will be cast by the lenses upon the said image-receiving means for describing the result of the arrangement of the said objects, substantially as described.

2. The combination of a lantern, a plate to carry objects which are to form the pattern, a mirror reflecting the rays from the lantern onto said plate, a series of lenses in one plane, a plate at the focus of these lenses to receive the images, and means for adjusting the position of the lenses whereby the various images can be made to exactly register with each other as repeats.

3. An apparatus for producing various designs, comprising an object-support, means for rotating the object-support for varying the position of the said objects in the apparatus, a lens frame or support arranged in a plane parallel with the object-support, means for turning the said lens-support and a screen for collecting the outlines of the objects projecting through the said lenses, together with means for passing rays of light through the object-plate and the lenses, the whole structure being such that the objects may be arranged and rearranged and the lenses varied in their position until a desirable pattern is shown upon the screen, substantially as described.

4. In an apparatus for throwing a series of repeat reflections upon a screen, the combination of a series of lenses, a wheel carrying these lenses, and means for rotating that wheel, substantially as described.

5. An apparatus for throwing a series of repeat reflections upon a screen, comprising an object-support and a lens-support, supporting-arms for holding the object-support adjustably in position, means for rotating all the screws simultaneously, whereby the said object-support can be moved to various places parallel with the lens-support and a screen for collecting the forms projected by the said objects to determine the style of design they will produce, substantially as described.

6. An apparatus for reflecting a series of images for determining certain designs, comprising a casing, an object-support mounted therein, screws engaging the said support, means for operating the screws simultaneously, a lens-support mounted above the object-support, screws engaging the said lens-support and means for operating them simultaneously, the structure being such that the object-support and the lens-support can be moved to different horizontal planes which are always parallel with each other for properly projecting the images produced by the said objects, substantially as described.

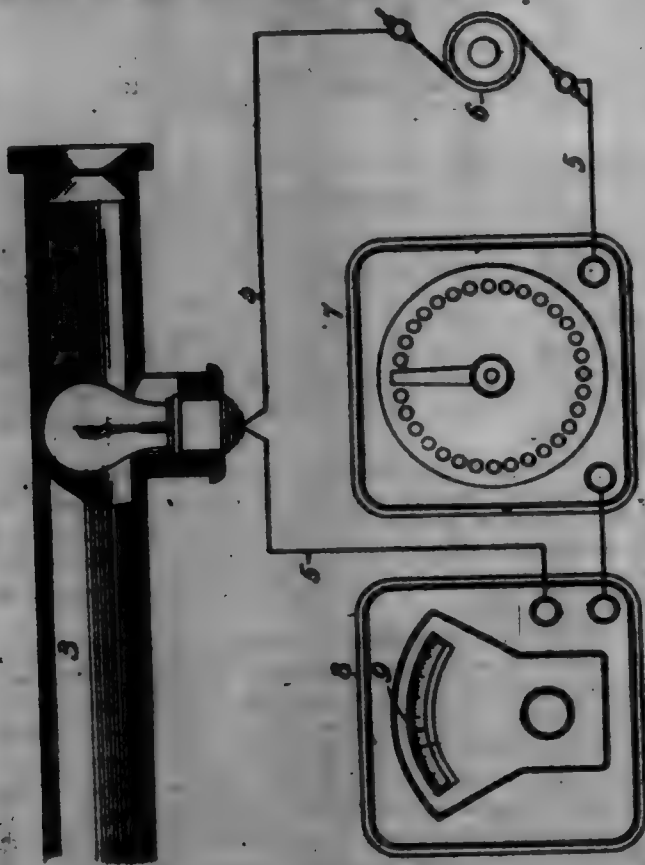
7. An apparatus for throwing a series of repeats on a screen, comprising an inclosing casing, a removable screen carried at the top thereof for collecting the images which are to produce the design, a lens-support and an object-support both adjustably mounted in the said casing, means for passing rays of light through the said casing, comprising a lamp or lantern and an inclined mirror and means for adjusting the relative position of the objects and the lenses until the desired design is produced upon the screen, substantially as described.

8. In an apparatus for throwing a series of repeat-images onto a screen, the combination of a series of similar lenses, two series of slides crossing each other at right angles on planes parallel with each other, and holding these lenses whereby the lenses can be adjusted in both directions so as not to overlap.

9. In an apparatus for throwing a series of repeat-images onto a screen, the combination with a series of similar lenses, two series of slides crossing each other at right angles and holding these lenses whereby the lenses can be adjusted in both directions so as not to overlap, of a series of blades arranged above the inner edges of the slides cutting off the light between the lenses when these latter are spread out wide.

10. In an apparatus for throwing a series of repeat-patterns onto a screen, the combination of a series of lenses arranged in parallel movable slides, the center one being capable of being slid backward and forward while the side ones are stationary, whereby the exact amount of drop required in drop-patterns can be made in the repeats and thus a correct repeat of a drop-pattern made.

696,878. METHOD OF GAGING TEMPERATURES OF HEATED SUBSTANCES. EVERETT F. MOORE, Trumbull, N. Y. Filed Aug. 4, 1906. Serial No. 726,191. (No specimens.)



Claim.—1. The method of gaging the temperature of a material which becomes incandescent when heated, consisting in comparing said material heated to a luminous state with an optical standard, said comparison being made by placing said material and standard so that at least a portion of one is in the path of the rays passing from the other to the eye, observing the standard and material and noting if the one merges in the other to such a degree as to indicate the correct temperature within the necessary limits.

2. The method of gaging the temperature of a material which becomes incandescent when heated, consisting in comparing said material heated to a luminous state with an optical standard, said comparison being made by placing said material and standard so that at least a portion of one is in the path of the rays passing from the other to the eye and varying the degree of heat until the color of one merges in that of the other.

3. The method of gaging the temperature of a material which becomes incandescent when heated, consisting in comparing said material heated to a luminous state with an optical standard, said comparison being made by placing said material and standard so that at least a portion of the one is in the path of the rays passing from the other to the eye, not-

ing the difference in color between the two whereby it may be readily determined whether the temperature of the material is above or below that indicated by the standard, and increasing or decreasing the heat of the material until the one merges into the other whereby it can easily and at once, be detected when the material is at the desired temperature.

4. The method of gaging the temperature of a material which becomes incandescent when heated, consisting in comparing said material heated to a luminous state, with a standard placed in the path of the rays passing to the eye from said material so that a portion thereof is superposed upon the field of said material, and varying the temperature of the material so that that portion of the standard superposed may be made to merge into the field of said material, thereby showing that the desired temperature thereof has been reached.

5. The method of gaging the temperature of a substance when heated to incandescence, consisting in comparing the degree of incandescence of said substance with a standard which is incandescent simultaneously therewith and incandescent to a degree corresponding to the incandescence of said substance when heated to the desired temperature, said standard being located in the path of the rays passing from the heated substance to the eye.

6. The method of gaging the temperature of a material consisting in comparing it with an optical standard whose color and luminosity correspond to that resulting from a known degree of incandescence or temperature, said comparison being made by placing one of these in the rays passing to the eye from the other so that a portion at least of one will be superposed upon the field of the other, varying the temperature of the material whereby it may be made to agree in color and luminosity with that of the standard and the portion of the one superposed made to merge in the field of the other.

7. The method of determining the temperature of an incandescent substance consisting in placing in the path of the rays passing from the incandescent substance to the eye an incandescent standard and changing the degree of incandescence of said standard until it becomes practically identical with the incandescence of said substance.

696,879. PLAYING-BALL. FRANK H. REHMAN, Hartford, Conn., assignor to the Knapshall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 4, 1908. Serial No. 56,735. (No model.)



Claim.—1. A ball comprising a whole hollow rubber sphere in a state of expansion upon a solid core of gutta-percha, and a cover of leather or fabric upon said sphere.

2. A ball comprising an integral hollow rubber sphere in a state of expansion upon a solid core, and a leather cover upon said sphere.

3. A ball comprising an integral sphere of rubber expanded over a solid and relatively hard filling formed from plastic material and a stitched leather cover upon said sphere.

4. A ball consisting of a whole thick spherical India-rubber sphere, in a state of expansion over a solid sphere of gutta-percha and a leather cover stretched over said India-rubber sphere.

5. A ball comprising a whole sphere of firm India-rubber in a state of expansion over a solid sphere of gutta-percha, the diameter of the core being more than one-half that of said sphere, and a leather cover upon said sphere.

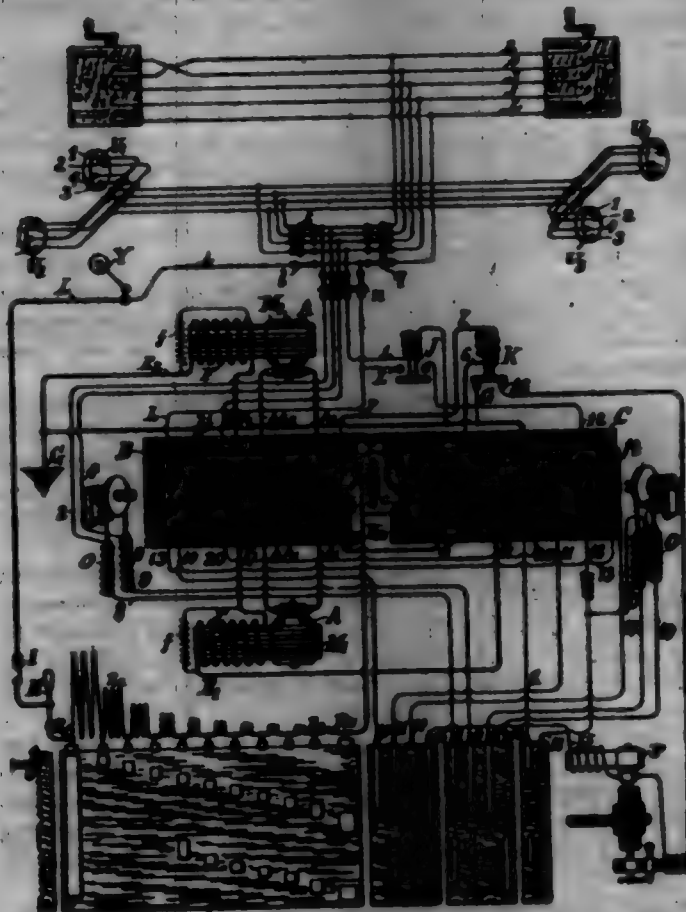
6. A ball consisting of a core formed of plastic material within a softer elastic sphere and holding the latter under tension, and a cover consisting of pliable fibrous material.

696,880. TRACTION SYSTEM. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Company, a Corporation of New Jersey. Filed Dec. 14, 1906. Serial No. 696,464. (No model.)

Claim.—1. In an electrical train system, the combination of translating devices, circuits therefor, a governing train-line independent of the other circuits provided with two pairs of controlling-wires, and means for closing circuits through a wire of one pair and a wire of the other pair simultaneously, substantially as described.

2. In an electrical train system, the combination of translating devices, circuits therefor, a governing train-line independent of the other circuits provided with two pairs of controlling-wires, means for closing circuits through one of the wires of one pair and a wire of the other pair

simultaneously, and means for closing circuits through the other wire of the first pair and one of the wires of the second pair simultaneously, substantially as described.



3. In an electrical train system, the combination of translating device, circuits therefor, a governing train-line independent of the other circuits provided with two pairs of controlling-wires, means for closing circuits through one of the wires of one pair and either of the wires of the other pair simultaneously, and means for closing circuits through the other wire of the first pair and one of the wires of the second pair simultaneously, substantially as described.

4. In a system of secondary motor control, the combination of two pairs of conductors, motor-controlling means controlled by these four conductors, and means for connecting in series in a circuit either conductor of one pair with either conductor of the other pair, substantially as described.

5. In a system of secondary motor control, the combination of two pairs of conductors, motor-controlling means controlled by these four conductors, means for connecting either conductor of one pair in series with either conductor of the other pair, and means for preventing the simultaneous connection in circuit of the two conductors of one pair, substantially as described.

6. In a system of secondary motor control, the combination of two pairs of conductors, motor-controlling means controlled by these four conductors, the two conductors of each pair being normally open at one end, means for connecting in a circuit either conductor in one pair in series with either conductor in the other pair, and means for preventing the simultaneous closure through the conductor of one pair and both of the conductors of the other pair, substantially as described.

7. In a system of secondary motor control, the combination with a pair of motor-reversing wires and a pair of motor-grouping wires, of means for connecting either wire of one pair in a circuit in series with either wire of the other pair, substantially as described.

8. In a system of secondary motor control, the combination of a pair of motor-reversing wires and a pair of motor-grouping wires, means for connecting either wire of one pair in series with either wire of the other pair, and means governed by the closure of a circuit through a reversing and motor-grouping wire for preventing simultaneous connection of the two grouping-wires with a reversing-wire, substantially as described.

9. In a system of secondary motor control, the combination of a pair of motor-reversing wires and a pair of wires for effecting series and multiple relations, respectively, of the motor, either of which motor-reversing wires may be connected with either of the motor-grouping wires for effecting desired grouping of the motor, and means for determining circuit connections consisting of two parts, one of the parts for selecting the one or the other of the direction-controlling wires, and the other part for selecting the motor-grouping wire to be placed in series therewith, substantially as described.

10. In an electrical train system, the combination of a plurality of

motor equipments, governing devices for grouping the motor in each equipment in series and multiple relation, and a train-line containing two wires for controlling the direction of motor movement, either of which wires may be connected with either of the motor-grouping devices for effecting the desired grouping of the motor, substantially as described.

11. In an electrical train system, the combination of a plurality of motor equipments, governing devices for grouping the motor in each equipment in series and multiple relation, and a train-line containing two wires for controlling the direction of motor movement, either of which wires may be connected with either of the motor-grouping devices for effecting the desired grouping of the motor, and a circuit-changer for determining circuit connections, substantially as described.

12. In an electrical train system, the combination of a plurality of motor equipments, governing devices for grouping the motor in each equipment in series and multiple relation, a train-line containing two wires for controlling the direction of motor movement, either of which wires may be connected with either of the grouping devices for effecting the desired groupings of the motor, and means for determining circuit connections consisting of two parts, one of the parts for selecting the one or the other of the direction-controlling wires, and the other part for selecting the motor-grouping device to be energized, substantially as described.

13. In a system of secondary motor control, the combination of coils for effecting reversal of the motor, coils for effecting grouping of the motor in series and multiple relation, two controlling-wires, each of which energizes a reverser-coil and one or other of the grouping-coils, and a circuit-changer for selecting which of the grouping-coils shall be energized, substantially as described.

14. In a system of secondary motor control, the combination of coils for effecting a reversal of the motor and coils for effecting grouping of the motor in series and multiple relation, two controlling-wires, each of which energizes a reverser-coil and one or other of the motor-grouping coils, and means for determining circuit connections consisting of two independent parts, one of the parts for selecting the reverser-coil, and the other part for selecting the motor-grouping coil to be energized, substantially as described.

15. The combination of a current-varying controller, which comprises a resistance-controller and means for determining circuit connections, these parts being independently movable, means moving with each part for operating the controller, and means for securing co-operative action of the parts of the controller, substantially as described.

16. The combination of a current-varying controller, which comprises a resistance and means for determining circuit connections, means for operating the controller, and a circuit-interrupter to secure co-operative action of the parts of the controller, substantially as described.

17. The combination of a current-varying controller, which comprises a resistance, and means for determining circuit connections, means for operating each of these parts of the controller, and a circuit-interrupter to secure the co-operation of the parts of the controller, the circuit-interrupter being driven with one of the parts of the controller, substantially as described.

18. The combination of a current-varying controller, which comprises a rheostat, and means for determining circuit connections, means for operating each of these parts, and a circuit-interrupter to secure co-operation of the above-named parts of the controller, the circuit-interrupter being operated with the rheostat, substantially as described.

19. In an electrical train system, the combination of a motor equipment, a controller therefor having reversing, rheostatic and series-multiple grouping parts, and an independent governing-line having two sets of controlling-wires, one for controlling the reversing and motor-grouping parts of the controller and the other for controlling the rheostatic part thereof, substantially as described.

20. In an electrical train system, the combination of a motor equipment, a controller therefor having reversing, rheostatic and series-multiple grouping parts, and an independent governing-line, having two sets of controlling-wires for the controller, one set for closing the circuit of the motor through the reversing and motor-grouping parts of the controller with resistance in the motor-circuit, and the other set for varying the resistance in the motor-circuit, substantially as described.

21. In an electrical train system, the combination of a motor equipment, governing devices for reversing and for grouping the motor in series and multiple relation and for effecting changes in the resistance of the motor-circuit, a governing-line containing two independent sets of wires, one set for effecting variations in resistance in the motor-circuit, and two of the wires of the other set for controlling the direction of motor movement, either of which directional wires may be connected with either of the grouping devices for effecting the desired grouping of the motor, and a circuit-changer for determining the circuit connections, substantially as described.

22. In an electrical train system, the combination of a motor equipment, governing devices for grouping the motor in series and multiple relation, and for effecting changes in the resistance of the motor-circuit,

and a train-line containing two independent sets of wires for controlling the governing device, two of the wires of one set being directional wires for controlling the direction of motor movement, either of which may be connected with either of the grouping devices for effecting the desired grouping of the motors, and means for determining circuit connections consisting of two independent parts, one of the parts for selecting the one or the other of the direction-controlling wires and the other part for selecting the motor-grouping device and effecting variation in resistance, substantially as described.

22. In a system of secondary motor control the combination of a motor equipment, a controller therefor consisting of reversing, series-multiple and rheostatic parts and a governing train-line for the controller consisting of two sets of wires, one set for closing circuit to the motors through the reverser and series-parallel parts of the controller and a full resistance, and the other set for varying the resistance, substantially as described.

24. In a system of secondary motor control, the combination of a motor equipment, a controller therefor having coils for effecting grouping of the motors in series and multiple relation respectively and means for effecting changes of resistance in the motor-circuit, and a governing-line having three sets of controlling-wires therein, one set for controlling the direction of rotation of the motors and energizing the series and multiple coils, another set for determining which of the series and multiple coils shall be energized, and a third and independent set for controlling the resistance in the motor-circuit, substantially as described.

25. In an electrical train system, the combination of motor equipments, controllers therefor having switches for establishing series and parallel relation of the motors and circuit-breakers in series therewith, and a controlling-circuit common to the grouping-switches and the circuit-breakers, substantially as described.

26. In an electrical train system the combination of motor equipments, controllers therefor having motor-grouping switches for establishing series and multiple relation of the motors, and circuit-breakers in series therewith, a controlling-circuit common to the grouping-switches and the circuit-breakers, and an independent controlling-circuit for effecting variations in the resistance in the motor-circuits, substantially as described.

27. In a system of secondary motor control, the combination of a motor-controller having separably-movable reversing, grouping and rheostatic parts, and a train-line having direction-controlling wires and speed-controlling wires, the direction-controlling wires also energizing the motor-grouping parts of the controller for effecting grouping of the motors, and the speed-controlling wires determining the grouping of the motors and the resistance of the motor-circuit, substantially as described.

28. In a train with equipped cars, the combination of a pair of motor-reversing wires and a pair of motor-grouping wires for each car, and means, including an independent governing train-line, for connecting either wire of one pair on each car in series with either wire of the other pair on the same car, substantially as described.

29. In a train with equipped cars, the combination on each equipped car of motors, a controller individualized as to each car for reversing the motors and for grouping them in series and parallel relation, and a governing train-line containing two wires for controlling the direction of motor movements, either of which may be connected with either of the motor-grouping devices for effecting the desired grouping of the motors, substantially as described.

30. In a train with equipped cars, the combination of motors on each equipped car, a controller individualized as to each car, having separably-movable reversing, rheostatic, and series-multiple grouping parts, and an independent governing train-line having two sets of controlling-wires, one set for controlling the reversing and motor grouping parts of each controller, and the other set for controlling the rheostatic part of each controller, substantially as described.

31. In an electrical train system, the combination of motor-equipments, controllers therefor comprising circuit-breakers and switches for grouping the motors in series and multiple relation, actuating-coils for the grouping-switches, and a controlling-circuit for the circuit-breakers including therein either the series or multiple actuating-coils, and contacts in the controlling-circuits controlled by the current therethrough, substantially as described.

32. The combination of a current-varying controller, which comprises a resistance and means for determining circuit connections, means for operating each of these means including a pilot-motor for operating the resistance, and a circuit-interrupter to secure the cooperation of the above-named parts of the controller, the circuit-interrupter being driven by the pilot-motor, substantially as described.

33. The combination of a motor equipment, a current-varying controller therefor which comprises a resistance-controller and means for determining the connections of the motor equipment, these parts being independently movable, means for operating each of these parts of the controller, and means moving with each part for securing coöperative action of the parts of the controller, substantially as described.

34. The combination of a motor equipment, a current-varying controller therefor which comprises a resistance and means for determining the connections of motor equipment, means for operating each of these parts of the controller, and a circuit-interrupter for securing coöperative action of the parts of the controller, substantially as described.

35. The combination of a motor equipment, a current-varying controller therefor which comprises a resistance and means for determining the connections of the motor equipment, means for operating each of these parts of the controller, and a circuit-interrupter for securing coöperation of the parts of the controller, the circuit-interrupter being driven with one of the parts of the controller, substantially as described.

36. The combination of a motor equipment, current-varying controllers therefor which comprise a resistance and means for determining the connections of the motor equipment, means for operating each of these parts of the controller, including a pilot-motor, and a circuit-interrupter for securing coöperation of the parts of the controller, the circuit-interrupter being driven by the pilot-motor, substantially as described.

37. A train system comprising a plurality of motor equipments, current-varying controllers therefor, which include a resistance and means for determining circuit connections for each motor equipment, these parts being independently movable, means for operating the parts of each controller, and means for securing coöperative action of the parts of each controller, substantially as described.

38. A train system comprising a plurality of motor equipments, current-varying controllers therefor, which include a resistance and means for determining circuit connections for each motor equipment, these parts being independently movable, means for operating the parts of each controller, and means for securing coöperative action of the parts of all of the controllers, substantially as described.

39. A train system comprising a plurality of motor equipments, current-varying controllers therefor, which include a resistance and means for determining the connections for each motor equipment, means for operating these parts of each controller, and a circuit-interrupter for securing coöperative action of the parts of each controller, substantially as described.

40. A train system comprising a plurality of motor equipments, current-varying controllers therefor, which include a resistance and means for determining the connections for each motor equipment, means for operating each of these parts of each controller, and a circuit-interrupter for securing coöperative action of the parts of each controller, the circuit-interrupter being driven with one of the controllers, substantially as described.

41. A train system comprising a plurality of motor equipments, current-varying controllers therefor including a resistance and means for determining the connections for each motor equipment, means for operating each of these parts of each controller, including a pilot-motor, and a circuit-interrupter for securing coöperation of the parts of the controller, the circuit-interrupter being driven by the pilot-motor, substantially as described.

42. The combination of a motor equipment, a current-varying controller therefor which comprises a resistance and means for determining the circuit connection of the equipment, means for operating these parts of the controller, including a pilot-motor for operating the resistance, and a circuit-interrupter driven by the pilot-motor for securing coöperative action of the parts of the controller, substantially as described.

43. The combination of a rheostat, a switch for operating it, means independent of the switch for interrupting the movement of the rheostat at a plurality of definite running positions, and means for opening the circuit while the rheostat is passing from one definite position to another, substantially as described.

44. The combination of a rheostat and a series-multiple switch, means for setting the series-multiple switch for series connection, means for cutting out the resistance of the rheostat, means for opening the circuit, means for throwing in resistance at the rheostat, and means for closing the series-multiple switch for multiple connection, substantially as described.

45. The combination of a rheostat and a series-multiple switch, means for setting the series-multiple switch for series connection, means for cutting out the resistance of the rheostat, means for opening the series-multiple switch, means for throwing in resistance in the circuit, and means for closing the series-multiple switch for multiple connection, substantially as described.

46. The combination of a rheostat and a series-multiple switch, means for setting the series-multiple switch for series connection, means for cutting out the resistance of the rheostat and automatically stopping it, means for opening the circuit, means for throwing in resistance at the rheostat, and means for closing the series-multiple switch for multiple connection, substantially as described.

47. The combination of a rheostat and a series-multiple switch, means for setting the series-multiple switch for series connection, means for cutting out the resistance of the rheostat and automatically stopping

it, means for opening the series-multiple switch, means for throwing in resistance at the rheostat, and means for closing the series-multiple switch for multiple connection, substantially as described.

48. The combination of a rheostat and a series-multiple switch, a switch for operating them, means independent of the switch for interrupting the movement of the rheostat at a plurality of definite positions, and means for opening the circuit at the series-multiple switch while the rheostat is passing from one definite position to another position, substantially as described.

49. The combination of a rheostat, a switch for operating it, means independent of the switch for interrupting the movement of the rheostat at a definite position, means for starting the rheostat again in the same direction by operation of the switch, means independent of the switch for opening the circuit while the rheostat is passing to another position, and means independent of the switch for again interrupting the movement of the controller at second definite position, substantially as described.

50. The combination of a current-varying controller comprising a rheostat and a series-multiple switch, means for moving the rheostat at will from one limit to another, means for moving the rheostat to a definite intermediate position and automatically stopping it there, means for continuing the movement of the rheostat in the same direction to its limit, and means for opening the circuit controlled by the controller at the controller while it is passing from the intermediate position to its limiting position, substantially as described.

51. A rheostat provided with a movable member, electrically-actuated mechanism for moving it to any one of a plurality of definite current-varying positions, and for maintaining it in the position to which it may be moved, and means for restoring it to opening position, all movements being in the same direction, substantially as described.

52. A rheostat provided with contacts, a cylinder, electrically-actuated mechanism for moving it to any one of a plurality of definite current-varying positions and for maintaining it in the position to which it may be moved, and for restoring it to open position, all movements being in the same direction, substantially as described.

53. The combination of a current-varying controller provided with a movable cylinder and means electrically controlled for effecting movement of the controller to one or more definite running positions, and for effecting movement of the controller in the same direction to release or off position, substantially as described.

54. The combination of a plurality of motor or motor equipments, current-varying controllers therefor, a suitable circuit, means electrically controlled thereby for effecting advance movement of the controllers in one direction to definite running positions or to release or off position, substantially as described.

55. The combination of a motor, a controller therefor, an operator's switch, means connected therewith for operating the controller from its initial position, and means independent of the operator's switch for restoring the controller to initial position by further movement in the same direction, substantially as described.

56. The combination of one or more operator's switches, each provided with a plurality of contacts, one or more motor equipments and circuits and current-varying controllers therefor, a plurality of sets of contacts on each of the controllers, means for closing each of the controllers at one set of contacts by closing the operator's switch at one of its contacts, means for opening the circuit at each controller, and then closing the controller at another set of contacts by closing the operator's switch at another of its contacts, substantially as described.

57. The combination of one or more operator's switches, each provided with a plurality of contacts, one or more motor equipments and circuits and current-varying controllers therefor, a plurality of sets of contacts on each of the controllers, means for closing each of the controllers at one set of contacts by closing the operator's switch at one of its contacts, means for opening the circuit at each controller and then closing the controller at another set of contacts by closing the operator's switch at another of its contacts, and means for automatically holding the controller at the different sets of contacts, substantially as described.

58. The combination of a motor to drive a car, a suitable system of circuits for operating the motor, including a current-varying controller which embraces a rheostat, pilot mechanism for the controller, connections for operating the pilot mechanism which cause increased speed of the motor, and connections operated by the current-varying controller for operating the pilot mechanism to restore the rheostat to initial or off position, substantially as described.

59. The combination of motor to drive a car, a suitable system for operating the motor, including a current-varying controller which embraces a rheostat, reverser-switch and series-multiple switch, pilot mechanism for the rheostat, connections for operating the pilot mechanism to cause increase of speed of the motor, and connections operated by the current-varying controller for operating the pilot mechanism to restore the rheostat to initial or off position, substantially as described.

60. A train with cars individually equipped with motor and current-varying controllers including a rheostat, an operator's switch for operating the same, means including contacts in the controller for restoring the rheostat to initial position independently of the operator's switch, substantially as described.

61. The combination of a rheostat, a series-multiple switch and a reverser-switch, each separately movable, means for operating these parts, and a switch for securing coöperative action thereof, substantially as described.

62. The combination of a rheostat, a reverser-switch and a series-multiple switch, means for operating these parts, and a circuit-changer for securing coöperative action thereof, substantially as described.

63. The combination of a rheostat, a reverser-switch and series-multiple switch, means for operating these parts, and a circuit-interrupter driven with the rheostat for securing coöperative action of the parts, substantially as described.

64. The combination of a rheostat, a series-multiple switch, a reverser-switch, means for operating these parts, including pilot mechanisms for operating the rheostat, and a circuit-interrupter operated by the pilot-motor, for securing coöperative action of these parts, substantially as described.

65. The combination of a rheostat, a reverser-switch and a series-multiple switch, a pilot-motor for operating the rheostat, a circuit-interrupter operated by the pilot-motor and including a limit-switch therefor, for securing coöperative action of the rheostat, reverser-switch and series-multiple switch, substantially as described.

66. The combination of a rheostat, a reverser-switch and a series-multiple switch, means for closing the reverser-switch and series-multiple switch for series connection in either direction, means for cutting out the resistance of the rheostat, means for opening the series-multiple switch and reverser-switch, means for throwing in resistance of the rheostat, and means for closing the series-multiple switch and the reverser-switch, for multiple connection in the same direction, substantially as described.

67. The combination of a plurality of cars, driving-motors therefor and circuits for the motor, a relay train-circuit, rheostats, series-multiple and reverser switches for the motor operated through the relay-circuit, and means for opening the motor-circuits at the reverser and series-multiple switches upon the current being cut off from the relay-circuit, substantially as described.

68. The combination of a motor, a motor-circuit, a rheostat for the motor, an operator's switch or master-controller for operating the rheostat through an independent governing-circuit to advance it to different running positions, means automatically operated for opening the motor-circuit independently of the rheostat, and means for restoring the rheostat by movement in the same direction as above, toward or to off position, independently of the operator's switch or master-controller, substantially as described.

69. The combination of motor, motor-circuits, rheostats for the motor, and a governing-circuit independent of the motor-circuits for operating the rheostats to advance them to different running positions, means automatically operated for opening the motor-circuits independently of the rheostats, and means for automatically restoring the rheostats toward or to off position by movement in the same direction as above, substantially as described.

70. A train with two or more individually-equipped cars and means on each car for controlling all of the cars simultaneously, a reverser-switch, a series-multiple switch and a rheostat, and means including contacts on the reverser-switch and the series-multiple switch for restoring the rheostat to release or off position upon the opening of the circuit, substantially as described.

71. A train with cars individually equipped with motor, a rheostat, a reverser-switch and series-multiple switch, a switch for operating the same, means including contacts in the reverser-switch and series-multiple switch for restoring the rheostat to initial position independently of the operator's switch, upon the opening of the circuit, substantially as described.

72. The combination of main circuits, rheostats therein, a governing-line, one or more operator's switches connected therewith, means for advancing the rheostats to different running positions, means for opening the train-line, relay mechanisms connected therewith for opening the main circuits, means for automatically restoring the rheostats toward or to off position by movement in the same direction as above, and means for preventing the closure of the main circuits or train-line after the opening thereof, until the rheostats have been restored toward or to off position, substantially as described.

73. The combination of main circuits, rheostats therein, a governing train-line, one or more operator's switches connected therewith, means for advancing the rheostats to different running positions, means for opening the train-line, relay mechanisms connected therewith for opening the main circuits, means for automatically restoring the rheostats toward or to off position by movement in the same direction as above, and means for pre-

venting the closure of the train-line or main circuits and the further advance of the rheostats until the rheostats are restored toward or to off position, substantially as described.

74. The combination of a motor, a motor-circuit, a current-varying controller for the motor, an operator's switch and circuit for operating the controller, means for opening the motor-circuit in the controller, means for restoring the controller toward or to off position independently of the operator's switch, and a cut-out switch connected with the controller and closed in certain positions thereof, which, when the controller has been restored to open position, restores control of the controller to the operator's switch, substantially as described.

75. The combination of a governing circuit one or more operator's switches connected therewith, a current-varying controller or controllers, means controlled from each operator's switch through the governing-circuit for operating the controller or controllers, means for opening the main circuits at the controllers immediately upon opening the operator's switch, means for restoring the controller or controllers to initial or off position, irrespective of further movement of the operator's switch, and means for restoring control of each controller to the operator's switch when the controller has been restored to initial or off position, substantially as described.

76. The combination of a governing train-line, one or more operator's switches connected therewith, a current-varying controller or controllers, means controlled from each operator's switch through the governing train-line for operating the controller or controllers, means for opening the main-motor circuits at the controllers immediately upon opening the operator's switch, means for restoring the controllers to initial or off position, irrespective of further movement of the operator's switch, means for restoring control of each controller to the operator's switch when each controller has been restored to its initial position, substantially as described.

77. The combination of motors, motor-circuits and current-varying controllers for the motors, one or more operator's switches, and a circuit for operating the controllers, means for opening the motor-circuits at the controllers, means for restoring the controllers independently of the operator's switches to initial or off position, and cut-out switches connected with the controllers and closed in certain positions thereof, which when closed restore control of the controllers to the operator's switches, substantially as described.

78. The combination of a motor, a rheostat, a series-multiple switch and a reverser-switch, a circuit through which these parts are operated, a cut-out switch, which is included in the circuit for operating them in a definite position or positions of the rheostat, and a shunt around the cut-out switch through the controller and reverser, which is closed in certain definite positions of these parts, substantially as described.

79. A car equipped with a motor to drive it, an electrically-operated current-varying controller and reverser for the motor, a train-line made up of two distinct pairs of wires, and reversible train connections for the train-line, substantially as described.

80. A car provided with an independent governing-line containing a pair of direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the wires in the group at one end being exchanged, as compared with their terminals in the group at the other end, and a pair of speed-controlling wires which terminate in similar groups at each end of the car without being so exchanged, substantially as described.

81. A car provided with a motor or motors, current-varying controllers and reverser therefor, a relay or governing circuit for said controllers and reverser having a pair of direction-controlling and a pair of speed-controlling wires terminating in similar groups at each end of the car, the terminals of the direction-controlling wires in the group at one end being exchanged, as compared with their terminals in the group at the other end, substantially as described.

82. A car provided with a pair of speed-controlling wires, and a pair of direction-controlling wires, which terminate in similar groups at each end of the car, the terminals of the direction-controlling wires in the group at one end being exchanged, as compared with their terminals in the group at the other end, and the terminals of the speed-controlling wires corresponding in position at both ends, substantially as described.

83. A train consisting of interchangeable cars, each of which is provided with a pair of direction-controlling wires, which terminate in similar groups at each end of each car, the terminals of the wires in the group at one end being exchanged, as compared with the terminals in the group at the other end, and a pair of speed-controlling wires, the terminals of the speed-controlling wires corresponding at both ends, and means for connecting like direction-controlling wires and like speed-controlling wires at the abutting ends of the car, substantially as described.

84. In a car equipped with a plurality of motors, the combination of a controller therefor having motor-reversing, motor-grouping, and rheostatic parts, and a controlling-line having direction-controlling wires and speed-controlling wires, the direction-controlling wires also extending the

motor-grouping parts of the controller for affecting series and multiple relation of the motors, and the speed-controlling wires determining the grouping of the motors and resistance of the motor-circuit, the direction-controlling wires terminating at similar groups at each end of the car, and the terminals of the wires in the group at one end being exchanged as compared with their terminals at the other end, and the speed-controlling wires terminating in similar groups at each end of the car, without being exchanged, substantially as described.

85. In an electrical train system, the combination of translating devices and circuits therefor, one or more reverser-switches, and one or more series-multiple switches in the circuits, and a governing train-line with two sets of train-wires, a circuit-interrupter, means for controlling the reverser and series-parallel switches connected with the first set of train-wires, and means for controlling the circuit-interrupter connected with the second set of train-wires, substantially as described.

86. In an electrical train system, the combination of translating devices and circuits therefor, one or more reverser-switches and series-multiple switches, and one or more rheostats to be operated in conjunction with the switches, a governing train-line having two sets of train-wires, a circuit-interrupter, means for controlling the reverser-switches and series-multiple switches connected with one set of train-wires, and means for controlling the circuit-interrupters and rheostats connected with the other set of train-wires, substantially as described.

87. The combination of a series-multiple switch and a reverser-switch each having a normal open-circuit off position, and means for moving these switches independently of each other, in the same or in opposite directions to each other, substantially as described.

88. The combination of a series-multiple switch and a reverser-switch, the series-multiple switch having a normal circuit off position intermediate its positions for placing the circuit in series and multiple, and means for moving the two switches in the same or in opposite directions at will, substantially as described.

89. The combination of a rheostat-cylinder, a pilot-motor for operating it, limit-switches for the pilot-motor operated with the cylinder, and a circuit-interrupter, also operated with the cylinder, substantially as described.

90. The combination of a circuit-changing device, a series motor, and a permanent shunt around the field-coil of the series motor for the purpose of holding the field and reducing the arc in breaking, substantially as described.

91. The combination of a circuit-changing device, a series motor with laminated field and a permanent shunt around the field-coil of the motor for holding the field and reducing the arc in breaking, substantially as described.

92. The combination of a pair of series motors, a series-multiple switch therefor, means for breaking the circuit in passing from series to multiple without the introduction of resistance, and a permanent shunt around the field-coil for each of the motors for the purpose of holding the field and reducing the arc in breaking, substantially as described.

93. The combination of an operator's switch, a train-line and a car system, and switches whereby all of them can be connected together, and any one be disconnected without disconnecting the others, substantially as described.

94. In a train system, the combination of a train-line and car system, the train-line being made up of a plurality of wires and the car system being connected to the train-line in multiple to each other, a current-varying controller in each car system, means operated through different wires of the train system for bringing all of the controllers to two definite positions other than the open position, the line connection when one of the wires is operated being made through a relay, substantially as described.

95. In a system of secondary motor control, the combination of motors, coils for effecting reversal of the motors, coils for effecting grouping of the motors in series or multiple relation, two controlling-wires each of which energizes a reverser-coil and one or other of the grouping-coils, a circuit-changer for selecting which of the grouping-coils shall be energized, and a throttle which controls the movement of the circuit-changer, substantially as described.

96. In the system of secondary motor control, the combination of motors, coils for effecting reversal of the motors and coils for effecting grouping of the motors in series and multiple relation, two controlling-wires, each of which energizes a reverser-coil and one or other of the motor-grouping coils, means for determining the circuit connections consisting of two independent parts, one of the parts for selecting the reverser-coil and the other part for selecting the motor-grouping coil to be energized, and a throttle which controls the movement of the last-named part, substantially as described.

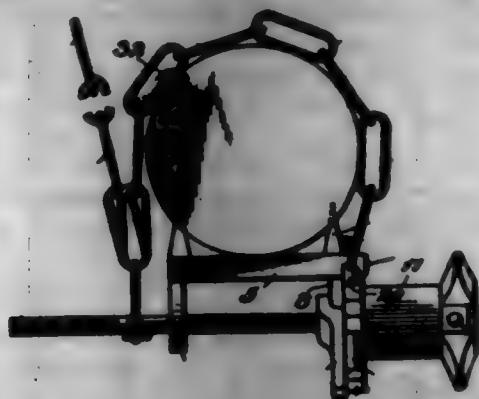
97. In a system of secondary motor control, the combination of motors, a main motor-circuit, reversing and grouping switches for the motors, actuating-coils for both the reversing and grouping switches, and a con-

trolling-circuit including in series an actuating-coil for each of these switches, and maintained through contacts controlled by the reversing-switch, substantially as described.

98. In a system of secondary motor control, the combination of motor, a main motor-circuit, reversing and grouping switches for the motor, actuating-coils for both the reversing and grouping switches, and a controlling-circuit including in series an actuating-coil for each of these switches, and maintained through contacts controlled by the grouping-switch, substantially as described.

99. In a system of secondary motor control, the combination of motor, a main motor-circuit, reversing and grouping switches for the motor, actuating-coils for both the reversing and grouping switches, and a controlling-circuit including in series an actuating-coil for each of these switches, and maintained through contacts controlled by the reversing and grouping switches, substantially as described.

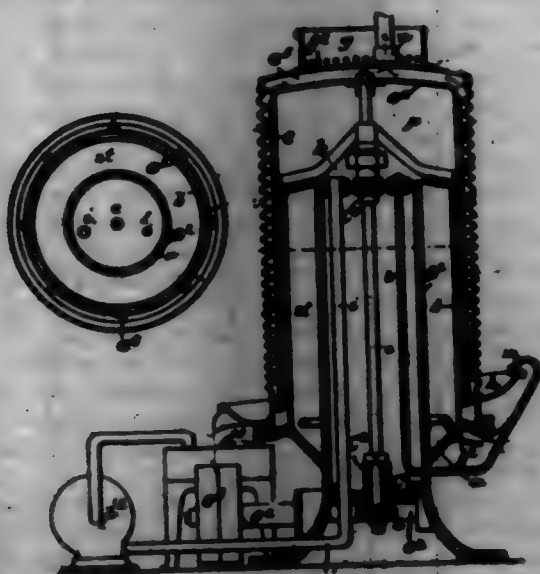
696,881. WIRE-STRETCHER. JAMES A. WALLS and ROBERT L. BOTTEN, Inventors. Filed July 8, 1901. Serial No. 67,314. (No model.)



Claim.—1. A wire-stretcher comprising a frame, a shaft mounted in the frame and provided with a winding-drum and means for rotating it, said frame having a stud, and a chain having connection with the frame having a hook for engagement with a post and adapted to be passed around the post and to engage its links interchangeably with the stud, and a chain-section attached to the first chain and having a clip for engagement with a wire to be stretched.

2. A wire-stretcher comprising a frame adapted to rest against a post and having teeth for engagement therewith, a shaft mounted in the frame and projecting therebeyond, a winding-drum upon the shaft beyond the frame and having clutches for engagement with a wire, a ratchet upon the drum, a lever pivoted upon the shaft and having a pawl for engagement with the ratchet to rotate the drum, a retaining-pawl pivoted to the frame for engagement with the ratchet and having a rearwardly-directed foot, a spring disposed between the foot and frame to hold the pawl yieldably engaged with the ratchet, means for holding the frame against a post, a stud, and a chain having connection with the frame and having a hook for engagement with a post, said chain being adapted to be passed around the post and to engage its links interchangeably with the stud, and a chain-section attached to the first chain and having a clip for engagement with a wire to be stretched.

696,882. FLOODING REGENERATIVE HEATER FOR LIQUIDS. EDWARD ARLBERG, Inventor. Filed Dec. 30, 1901. Serial No. 58,857. (No model.)



Claim.—1. The combination with a heating-chamber, of a casing enclosing the same and spaced therefrom, a rotating drum having a circular wall arranged between said enclosing casing and said heating-chamber and spaced from both, means for causing the liquid to be treated to pass through said space between the heating-chamber and the drum and the enclosing casing and the drum, and means for causing the liquid to flow over the outer surface of the enclosing casing, substantially as set forth.

2. The combination of a steam heating-chamber, a rotating drum surrounding the same and spaced therefrom, an enclosing casing surrounding the drum and spaced therefrom, an air-chamber formed by said rotating drum and means for introducing the liquid to be treated into said air-chamber, substantially as set forth.

3. The combination of a heating-chamber, a rotating drum surrounding the same and spaced therefrom as to provide a space for the liquid to be treated, said drum having a head which forms beneath the same an air-compressing chamber, an enclosing casing surrounding said drum and spaced therefrom by a space for the liquid, means for introducing the liquid into said air-compressing chamber, and means for distributing the liquid to be treated over the outer surface of the enclosing casing, substantially as set forth.

4. The combination of a base, a heating-chamber supported thereby, a rotating drum surrounding said heating-chamber and spaced therefrom, said drum having a head which is spaced from the top of said heating-chamber and forms therewith an air-compressing chamber, an enclosing casing surrounding said drum and spaced therefrom, means for introducing the liquid to be treated into said air-compressing chamber, and a distributing-receptacle supported by said enclosing casing and which distributes the liquid to be treated over the outer surface of said enclosing casing, substantially as set forth.

5. The combination of a heating-chamber, a rotating drum surrounding the same and spaced therefrom, an enclosing casing surrounding said drum and spaced therefrom, said casing being provided with a corrugated circular wall, means for causing the liquid to pass through said space between the heating-chamber and the drum and between the enclosing casing and the drum, and means for causing the liquid to flow over the outer surface of said corrugated circular wall of the enclosing casing, substantially as set forth.

6. The combination of a heating-chamber having a cylindrical outer wall, a cylindrical drum enclosing said heating-chamber and spaced therefrom, means for rotating said drum, and an outer or enclosing chamber surrounding said rotating drum and spaced therefrom, said enclosing casing having a corrugated circular wall, means for introducing liquid to be treated into the space between said heating-chamber and the rotating drum and between the enclosing casing and the rotating drum, a distributing vessel supported by the upper part of said supporting-casing for distributing the liquid over the outer surface of said corrugated circular wall, and an annular trough surrounding the lower portion of the corrugated wall of said enclosing casing, substantially as set forth.

696,883. MACHINE FOR EXTRACTING LIQUID FROM BREWERS' GRAINS. DR. LEONARD ATWOOD, Philadelphia, Pa. Filed Dec. 6, 1900. Serial No. 36,908. (No model.)

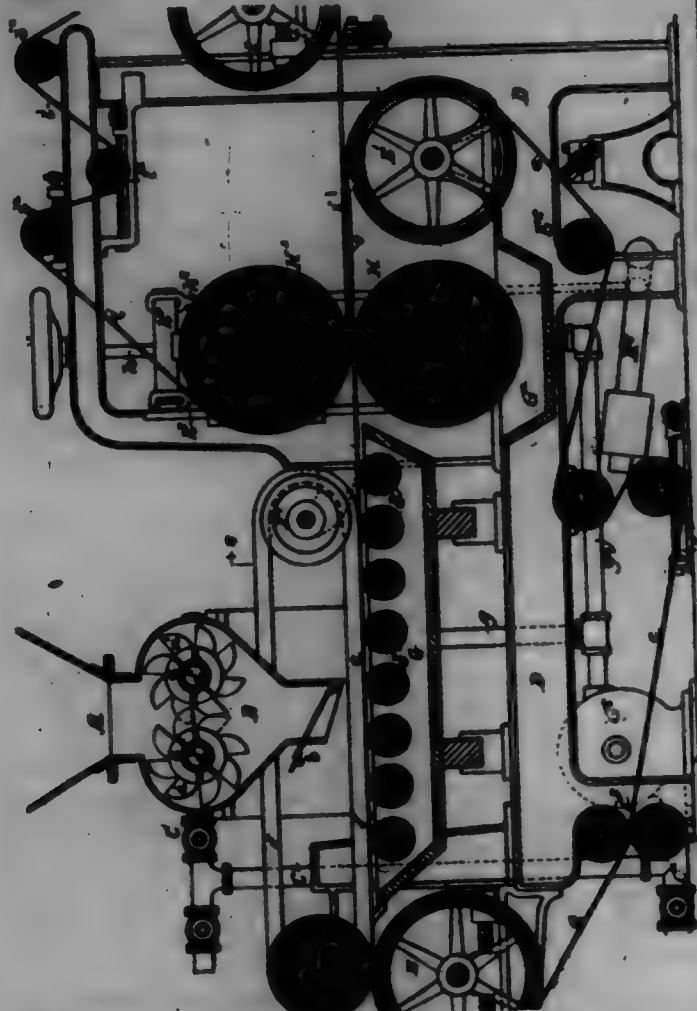
Claim.—1. The combination in a machine for extracting liquid from brewers' grains, &c., of a hopper for the grain, means for feeding the grain in an even stream from the hopper, a porous endless carrying-belt upon which the grains are discharged, mechanism connected to the hopper constructed to mix liquid with the grains previous to their discharge upon said belt, so as to cause them to flow over the belt, and means for extracting liquid from the grains while on the belt, substantially as described.

2. The combination in a machine for extracting liquid from brewers' grains, &c., of an endless carrying-belt for the grains through which the liquid can escape, a pair of squeeze-rolls between which the belt is traversed, means for driving the squeeze-rolls and belt, a hopper mounted above the belt in front of the squeeze-rolls, mechanism connected to the hopper constructed to feed the grains from the hopper to the belt at a uniform speed, and to simultaneously add liquid to the grains so that they will flow evenly over the surface of the belt, substantially as described.

3. The combination in a machine for extracting liquid from brewers' grains, &c., of an endless belt, squeeze-rolls between which the belt passes, a hopper mounted above the belt, a feeding device connected to the hopper for delivering the grains in uniform quantity to the belt, and means for mixing liquid with the grains as they are fed to the belt so that they will be spread evenly over the face of the belt, substantially as described.

4. The combination in a machine for extracting liquid from brewers' grains, &c., of a porous belt, squeeze-rolls between which the belt passes, a hopper mounted above the belt, means for feeding the grains from the hopper onto the belt, and means for collecting the liquid extracted from the grains on the belt and at the squeeze-rolls, and mechanism connected to the hopper constructed to mix said liquid with the grains and to simul-

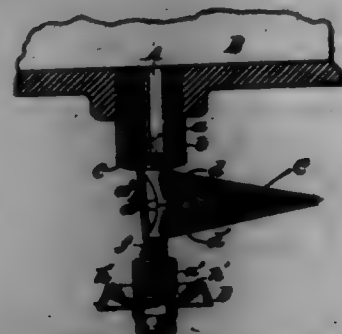
transmuted deliver them therefrom so that the extracted liquid is used for the purpose of floating the grain upon the surface of the belt, substantially as described.



3. The combination in a machine for extracting liquid from brewers' grain, *etc.*, of an endless porous belt, spaced-rolls between which the belt passes, a hopper mounted above the belt in advance of the spaced-rolls, a feeding device directly under the hopper consisting of two toothed rolls, the teeth of each roll being suitably spaced, and the teeth of one roll entering the space between the teeth of the other roll, said rolls being hollow and perforated, and a liquid-supply pipe connected to said rolls, so that the grain, as they are fed from the hopper, are mixed with sufficient liquid to cause them to be distributed in an even mass over the surface of the belt, substantially as described.

6. The combination in a machine for extracting liquid from brewers' grain, *etc.*, of a hopper, an endless porous belt, breast-rolls around which the belt passes, spaced-rolls between which the belt passes, a second belt overlapping the first-mentioned belt and passing around the upper spaced-roll and around a guide-roll, supporting-rolls for the belt where it receives the grain, collectors under the supporting-rolls and under the spaced-roll, a pump connected to the collectors, and a pipe leading from the pump to the hopper, substantially as described.

696,884. AUTOMATIC FIRE-EXTINGUISHER. WILLIAM BRY, Lowell, N. H., assignor to the Eddy Sprinkler Company, a Corporation of New Hampshire. Filed Jan. 25, 1902. Serial No. 460,576. (No model.)



Claim.—1. In an automatic fire-extinguisher, the combination with a water-supply pipe provided with a discharge-orifice and a valve-seat surrounding said orifice, of a valve for closing said orifice, a valve-support made in two parts secured together by a metal that will fuse at a low temperature, and a sprinkler-cap having its main body made con-

convex and provided at its outer edge with a flaring potted-like flange, and also having a series of oblique notches cut through its raised angular ridge and forming openings between the potted-like flange and the concave-convex portion of said cap, substantially as described.

2. In combination with the supply-pipe B, the stirrup-like casing A set in an opening in said pipe and provided with a discharge-orifice through its hub a, and with the seat b surrounding said orifice, the screw-stop f mounted adjustably in the hub c, the valve e, the mica disk d, the valve-support O made in two parts secured together by a metal that will fuse at a low temperature, and the concave-convex sprinkler-cap D provided with the potted-like flange A, the oblique notches K, and the openings i, substantially as described.

3. In an automatic fire-extinguisher, the concave-convex sprinkler-cap D provided with the flange A, the series of notches K, and the openings i, substantially as described.

4. In combination with a supply-pipe provided with a discharge-orifice, a seat surrounding said orifice, a valve for closing said orifice, a support for said valve, constructed and adapted to be disintegrated when the temperature of the room is raised above a predetermined point, and an adjustable stop for said support, of the concave-convex cap D provided with the flange A, the series of notches K, and openings i, loosely mounted upon a suitable bearing, and adapted to be reversed to present either its concave or convex side toward the outflowing jet of water, substantially as described.

696,885. IGNITION SYSTEM. FRED L. GIBSON, Chicago, Ill. Filed Dec. 5, 1901. Serial No. 54,587. (No model.)



Claim.—1. In an electric ignition system, the combination with a motor and make-and-break contact sparking device, of a dynamo operatively driven from said motor, an electric circuit extending from said dynamo through said sparking device, a second source of electric current, an alternative circuit extending from said second source through the sparking device, a power-impelled switch controlling according to position either of said circuits but tending to normally assume a position to open the second circuit, and means operable by the dynamo-current for automatically releasing said switch to open said second circuit.

2. In an electric ignition system, the combination with a motor and make-and-break contact sparking device, of a dynamo operatively driven from said motor, an electric circuit extending from said dynamo through said sparking device, a second source of electric current, an alternative circuit extending from said second source through the sparking device, a circuit-breaking device arranged to control said second circuit, and means operable by the dynamo-current for automatically throwing said circuit-breaking device into position to open said second circuit, said circuit-breaking device being constructed to remain in closed position after being operated by said automatic mechanism, for the purpose set forth.

3. In an electric ignition system, the combination with a motor and sparking device operated thereby, of a dynamo driven from said motor, an electric circuit extending from said dynamo through said sparking device, a battery, a second circuit extending from said battery through the sparking device, said sparking device being arranged in a part of said

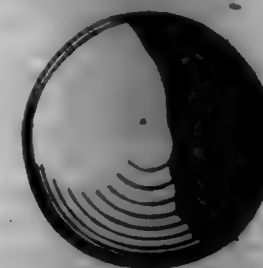
circuit common to both, a main overthrow-switch arranged to about the circuit through said battery or dynamo alternatively, a second switch device moving with said main switch device and arranged to control a magnet-circuit in about relation to the dynamo-circuit, an electromagnet in said magnet-circuit, said second switch member being arranged to open the magnet-circuit when the main switch closes the dynamo-circuit through the sparking device, and vice versa, and means operable by said magnet for automatically throwing the main switch into position to close the dynamo-circuit through the sparking device.

4. In an electric ignition system, the combination with a motor and sparking device operated thereby, of a dynamo driven from said motor, an electric circuit extending from said dynamo through said sparking device, a battery, a second circuit extending from said battery through the sparking device, said sparking device being arranged in a part of said circuit common to both, a main overthrow-switch arranged to about the circuit through said battery or dynamo alternatively, a second switch device moving with said main switch device and arranged to control a magnet-circuit in about relation to the dynamo-circuit, an electromagnet in said magnet-circuit, said second switch member being arranged to open the magnet-circuit when the main switch closes the dynamo-circuit through the sparking device, and vice versa, and means operable by said magnet for automatically throwing the main switch into position to close the dynamo-circuit through the sparking device.

5. In an electric ignition system, the combination with a motor and sparking device operated thereby, of a dynamo driven from said motor, a two-point switch having a throw-over switch member and a spring acting upon said switch to normally shift it into engagement with one of said points, a conductor extending from one side of said dynamo to that point of the switch with which said switch member is normally engaged, a second conductor leading from the opposite side of the dynamo to one of the sparking contact devices, a common return-conductor extending from the other sparking contact device to said shiftable switch member, a sparking-coil included in said common conductor, a battery, a conductor extending from said battery to the opposite or normally open point of the two-point switch, a conductor leading from the opposite side of said battery to one of the sparking contacts, an electromagnet-circuit arranged in about relation to the dynamo-circuit, an electromagnet interposed in said circuit provided with a spring-pressed armature yieldably held in open position, a second switch member connected and moving with, but insulated from said main shiftable switch member, and forming a part of said magnet-circuit, said second switch member being adapted for engagement with the armature when the latter is in open position to hold the main switch member in position to close the circuit through the battery against the tension of said spring, substantially as described.

6. In an electric ignition system, the combination with a motor and sparking device, of a dynamo and dynamo-circuit, said dynamo being driven from the motor, a battery and battery-circuit and an electromagnet and magnet-circuit in about relation to the dynamo-circuit, and a switch mechanism operated and controlled by said electromagnet and operating to simultaneously open the battery and magnet circuits, and to close the dynamo-circuit when actuated by the magnet.

696,886. MANUFACTURE OF GOLF-BALLS. BRASER KEMPWELL, Boston, Mass., assignor to the Kempwell Manufacturing Company, a Corporation of New Jersey. Filed Nov. 22, 1901. Serial No. 51,555. (No model.)



Claim.—1. A process in the manufacture of playing-balls, consisting in forming a core, applying a plastic or fluid coating to the core, and permanently compressing said coating upon the core.

2. A process in making golf-balls, consisting in forming a yielding core, applying a plastic or fluid coating to the core, drying said coating, heating and simultaneously subjecting the same to compression to an extent sufficient to compress said core, and maintaining the compression until the shell cools and hardens.

3. A process in making playing-balls, consisting in coating with plastic material a core formed of at least partially of gutta-percha, compressing said coating to an extent to compress said core, and hardening said coating when so compressed.

4. A process in making playing-balls, consisting in coating a yield-

ing core with cellulosic solution, and effecting a hardening and compression of said coating so as to form a shell upon the core.

5. A process in making playing-balls, consisting in coating a core with plastic cellulosic, then drying said coating, and then subjecting the coating to heat and compression.

6. A process in making playing-balls, consisting in coating a core of gutta-percha with cellulosic compound, drying said coating, and subjecting the same to heat and compression to an extent to compress said core.

7. A process in making playing-balls, consisting in applying successive layers of plastic material upon a relatively soft yielding core and then hardening and welding together said layers to form a permanent substantial shell harder than said core.

8. A process in making playing-balls, consisting in applying successive layers of plastic cellulosic upon a yielding core, subjecting said layers to simultaneous compression and heat, and maintaining the compression until the cellulosic hardens.

9. A process in making playing-balls, consisting in applying successive layers of plastic or fluid material upon a soft core, coating said layers to dry, and then subjecting them to heat and efficient compression to reduce the bulk of said core, and maintaining the compression until said plastic material hardens into a permanent shell.

10. A process in making playing-balls, consisting in applying to a yielding core a plurality of layers one after another of fluid or plastic material, drying one layer before another is applied, subjecting the whole to heat and compression to an extent to compress said core and also to cause said layers to weld, and maintaining the compression until the shell hardens.

11. A process in making playing-balls, consisting in applying to a core, consisting at least partially of gutta-percha, a plurality of layers, one after another, of plastic material; drying or partially drying one layer before another is applied; subjecting the whole to heat so as to render said layers plastic and also to compression so as to cause said layers to weld; and maintaining the compression until the shell hardens.

12. A process in making playing-balls, consisting in applying to a yielding core a succession of layers of cellulosic solution, causing one layer to dry before applying the next, subjecting the whole to the action of heat and compression, and maintaining the compression until the cellulosic cools and hardens.

13. A process in making playing-balls, consisting in applying to a core of gutta-percha a succession of layers of cellulosic solution, causing one layer to dry before the next is applied, and then subjecting the whole to the action of heat and compression.

14. The process of making playing-balls, consisting in producing a center piece or filling of gutta-percha, said center piece being somewhat too bulky for the capacity of the finished shell, applying thereto a thick solution of cellulosic in a substantially even layer of one one-hundredth of an inch, more or less, in thickness, allowing the coating to dry to such an extent that it can be handled safely, applying a second coating of like material and allowing it to dry or harden, applying a third coating of like material and if desired one or more additional layers, allowing the third and other coating or coatings to dry or harden, then making an overcoat ball, subjecting the ball to heat and simultaneous compression in dies, and subsequently allowing the ball to cool in the dies; said coatings or layers being welded into an integral shell, which is then condensed, toughened and stiffened, and the core being placed under a compression by the shell.

15. A process in making playing-balls, consisting in forming upon a yielding core a multiple-ply shell of plastic material, then heating said shell to render it plastic throughout, then compressing said shell while heated so as to weld the plies together into an integral shell upon said core, and maintaining the compression until the shell hardens by cooling.

696,887. GOLF-BALL. BRASER KEMPWELL, Boston, Mass., assignor to the Kempwell Manufacturing Company, a Corporation of New Jersey. Filed Nov. 22, 1901. Serial No. 51,556. (No model.)

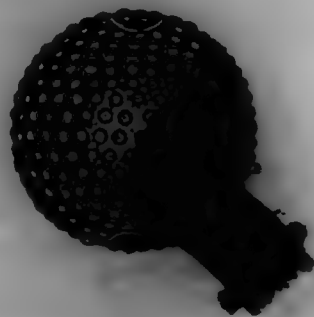


Claim.—1. A playing-ball comprising an elastic filling, and a hard, springy, substantial cushion shell formed from plastic material and compressed upon said filling and powerfully gripping the latter.

2. A playing-ball comprising a relatively soft elastic filling and a compressed cushion substantial cellulosic shell.

3. A playing-ball comprising a filling held under compression by a relatively hard, springy, substantial, seamless shell.
4. A playing-ball comprising a soft filling held under compression by a seamless, substantial cellular shell.
5. A playing-ball having a filling consisting at least partially of gutta-percha, and a substantial seamless shell formed at least partially of plastic material and compressed upon said filling, and powerfully gripping the latter.
6. A playing-ball comprising an internal mass of gutta-percha and a compressed seamless cellular shell thereon holding said gutta-percha under compression.
7. A playing-ball comprising an internal mass of gutta-percha and a seamless cellular shell, said gutta-percha being held under compression by said shell.
8. A playing-ball comprising an elastic filling and a relatively thin, hard, springy shell consisting of a plurality of seamless layers and holding said filling under compression.
9. A playing-ball comprising an elastic filling and a relatively thin, hard, compressed, springy shell consisting of a plurality of layers welded or fused together and holding said filling under compression.
10. A playing-ball comprising an elastic filling and a relatively thin, springy shell consisting of a plurality of seamless layers welded or fused together, said filling being softer than said shell.
11. A playing-ball comprising a relatively soft compressed elastic filling and a relatively thin, hard, springy shell consisting of a plurality of layers formed from plastic material, said filling being held under compression by said shell.
12. A playing-ball comprising a relatively soft, springy nucleus over which is compressed a seamless cellular shell.
13. A playing-ball consisting of a relatively soft nucleus over which is compressed a shell consisting of a plurality of seamless layers, each layer consisting at least partially of cellular.
14. A playing-ball having an internal mass of gutta-percha and a relatively thin, seamless cellular shell compressed upon said mass and holding the latter under compression.
15. A playing-ball having an internal mass of gutta-percha and a relatively thin shell consisting of several layers of cellular compressed upon said mass and holding the latter under compression.
16. A playing-ball having an internal mass of yielding material and a relatively thin shell consisting of several seamless layers of cellular compressed and welded or joined together and holding said internal mass under compression.
17. A playing-ball comprising a springy nucleus and a plurality of shell layers formed of plastic material and powerfully gripping said nucleus.
18. A playing-ball comprising a springy nucleus and a plurality of shell layers formed of plastic material and powerfully gripping said nucleus, each of said layers consisting at least partially of cellular.

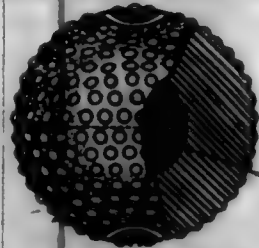
696,888. PROCESS OF MAKING GOLF-BALLS. BRASER KEMPSTALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Original application filed Nov. 8, 1901, Serial No. 81,598. Divided and this application filed Dec. 12, 1901. Serial No. 95,068. (No model.)



- Claim.—1. A process in producing playing-balls, consisting in compressing shell-segments over a filling previously prepared with a tensioned elastic compression-jacket.
2. A process in producing playing-balls, consisting of inserting within shell-segments an elastic mass having a compression-jacket under tension, the jacketed mass encasing in bulk the capacity of the finished shell, forcing the segments together, causing their contracting portions to adhere, and compressing the shell in final form.
3. A process in producing playing-balls, consisting in inserting within shell-segments an elastic mass having a compression-jacket under tension, the jacketed mass encasing in bulk the capacity of the finished shell, heating the segments, and forcing them together.
4. A process in producing playing-balls, consisting in developing an

- elastic mass with elastic fabric under tension, inserting the same within shell-segments, and forcing the segments together.
5. A process in making playing-balls, consisting in winding elastic bolting around a nucleus of elastic material, making a shell in segments which approximate their final form, and compressing the segments to final form upon the prepared nucleus.
6. A process in making playing-balls, consisting of winding curved layers of elastic bolting around a filling of rubber, making spherical cellular segments, pressing the segments together over the prepared filling so as to compress the same, and uniting the edges of the segments.
7. A process in making playing-balls, consisting of winding elastic bolting under tension around a filling of rubber, treating the bolting with cement, making spherical cellular segments, subjecting them to heat, pressing them together over the prepared filling so as to compress the same, and uniting the edges of the segments.
8. A process in making playing-balls, consisting of making a filling of rubber, providing the same with a retaining-jacket, making hemispherical cellular segments, and compressing the segments over the prepared filling.
9. A method in producing cores for playing-balls, consisting of winding elastic bolting under tension upon an elastic nucleus.
10. A method in producing cores for playing-balls, consisting in winding rubber thread to form a nucleus, and overwinding said nucleus with elastic bolting under tension.
11. A process in producing playing-balls, consisting of winding rubber thread to form a nucleus, and compressing cellular segments over said nucleus.
12. A process in producing playing-balls, consisting of compressing cellular segments over a nucleus of soft rubber and causing the edges to unite or weld.
13. A process in producing playing-balls, consisting of winding elastic bolting upon a nucleus of rubber, and compressing cellular shell-segments thereover.
14. A process in producing playing-balls, consisting of winding rubber thread into the form of a ball, winding elastic bolting under tension upon said ball, and compressing cellular shell-segments thereover.
15. A process in producing playing-balls, consisting of winding rubber thread into the form of a ball, jacketing said ball with fabric or fibrous material and compressing cellular shell-segments thereover.
16. A process in producing playing-balls, consisting of winding rubber thread into the form of a ball, jacketing said ball, treating the jacket with an adherent material, and compressing cellular segments thereover.
17. A process in producing playing-balls, consisting of winding rubber thread into the form of a ball, winding elastic bolting thereover to form a jacket, treating the jacket with adherent material, and compressing cellular segments thereover.

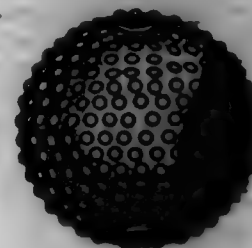
696,889. GOLF-BALL. BRASER KEMPSTALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Dec. 12, 1901. Serial No. 95,069. (No model.)



- Claim.—1. A playing-ball comprising a springy body formed from plastic material and a nucleus of springy material held under compression at the center of said body, the diameter of said nucleus being less than half the diameter of said body.
2. A playing-ball comprising a gutta-percha sphere and a round soft-rubber core, at the center of said gutta-percha sphere and held under compression thereby; the diameter of said rubber core being a little less than half that of said gutta-percha sphere.
3. A playing-ball, consisting of a body built up from previously-formed gutta-percha spherical sections, said sections being joined edge to edge, and a filling of soft rubber held under compression within said body, the diameter of said soft-rubber filling being less than half that of said gutta-percha body.
4. A playing-ball comprising a body built up of previously-shaped and highly-compressed hemispherical sections of well-seasoned gutta-percha, and a spherical filling of highly-tensioned solid soft rubber held under compression within said body; the relative diameters of said filling and said body being substantially as three-fourths to one and three-fourths.
5. A playing-ball comprising a pellet of soft rubber and compressed

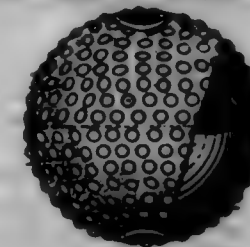
- spherical sections of gutta-percha welded thereon at their edges, the diameter of said pellet being less than half the diameter of the gutta-percha sphere.
6. A playing-ball comprising a sphere of highly-compressed gutta-percha having at its center a pellet of soft rubber, the diameter of said pellet being less than half the diameter of said gutta-percha sphere.
7. A playing-ball comprising a compressed springy body formed from plastic material, and a nucleus of softer elastic material held under compression at the center of said body, the diameter of said nucleus being not more than half the diameter of said body.

696,890. GOLF-BALL. BRASER KEMPSTALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 4, 1902. Serial No. 95,419. (No model.)



- Claim.—1. In a playing-ball, a shell of plastic material made up of layers, one of said layers being formed of joined spherical segments, and another of said layers reinforcing the joint, and a yielding filling held under compression by said shell.
2. In a playing-ball, a shell formed largely or wholly of plastic material and comprising a plurality of layers, one of said layers being in the form of joined or welded hemispherical segments, and another of said layers reinforcing the weld, and a yielding filling held under compression by said shell.
3. In a playing-ball, a shell formed largely or wholly of plastic material and comprising two layers, each consisting of joined spherical segments, the joint or seam in one layer running crosswise with the joint or seam in the other layer, and a yielding filling held under compression by said shell.
4. In a playing-ball, a shell comprising an inner and outer layer, each consisting of a plurality of welded segments, and each of said layers reinforcing the weld of the other thereof.
5. In a playing-ball, the combination with a core of a plastic shell comprising at least one layer made up of joined segments and reinforced at the joint by another layer; said shell holding said core under compression.
6. In a playing-ball, the combination of a yielding core and a cellular shell holding said core under compression; said shell comprising inner and outer layers, each of said layers consisting of segments welded together, and the weld in one of said layers running crosswise of the weld in the other thereof.
7. In a playing-ball, the combination with a yielding core, of a shell consisting wholly or partly of cellular and holding said core under compression; said shell consisting of layers, at least one whereof is in the form of segments welded together, and another of said layers reinforcing the weld; said layers being also compressed and welded together likewise.
8. A playing-ball comprising a core consisting wholly or largely of gutta-percha, and a shell consisting wholly or largely of cellular and made up of outer and inner layers, each layer consisting of hemispherical segments welded together, the welds running crosswise of each other; and said layers being solidified and welded together likewise so as to form a concrete shell, which holds said core in a state of compression.
9. In a playing-ball, a shell made up of layers, at least one of said layers consisting of cellular one of said layers being formed of joined spherical segments, and another of said layers reinforcing the joint; and a yielding core held under compression by said shell.
10. In a playing-ball, a shell comprising two layers, at least one of said layers consisting of cellular each consisting of joined spherical segments, the joint or seam in one layer running crosswise with the joint or seam in the other layer; and a yielding core held under compression by said shell.
- 696,891. GOLF-BALL. BRASER KEMPSTALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 4, 1902. Serial No. 95,421. (No model.)
- Claim.—1. In a playing-ball, a shell comprising at least three plies, the outer ply being formed of hard, springy, wear-resisting plastic material, an intermediate ply being of fabric, and an inner ply being of hard, springy material.
2. In a playing-ball, a thin shell comprising an outer ply of cellular

a ply of fabric near the outer surface of the ball, and an inner ply of hard, springy material; in combination with a yielding backing for said shell.



3. In a playing-ball, a shell consisting of hard, springy material having separate plies of fabric incorporated therein.
4. A playing-ball comprising a shell having a plurality of thin plies or plates of cellular and a ply or layer of tough material between said cellular plies.
5. In a playing-ball, a shell comprising woven fabric fixed upon both its inner and outer sides with cellular.
6. In a playing-ball, a shell comprising a plurality of plies of fabric alternating with plies of cellular.
7. In a playing-ball, a shell comprising outer and inner plies of cellular, intervening plies of fabric, and cellular between the plies of fabric.
8. In a playing-ball, a shell comprising outer and inner plies of cellular and a plurality of intervening plies of woven fabric.
9. In a playing-ball, a shell consisting of a thin outer ply of well-cured cellular backed by cloth and an inner thin ply of well-cured cellular also backed by cloth; said plies and said cloth being closely compacted.
10. In a playing-ball, a shell consisting of a thin outer ply of well-cured cellular backed by cloth, a thin inner layer of cellular; and an intervening incompletely-cured layer of cellular; said layers and cloth being closely compacted.
11. In a playing-ball, a cellular shell provided with a layer of tough material; the cellular providing an outer and inner facing for said tough material and being closely compacted therewith.
12. In a playing-ball, a shell consisting of welded segments of hard, springy material reinforced by tough material, the latter being in the form of a ply placed between outer and inner plies of said hard, springy material, and all of said plies being closely compacted.
13. In a playing-ball, a shell comprising outer and inner layers, each of said layers consisting of hard, springy material reinforced by tough material, and being formed of segments, the inner layer breaking joints with the outer layer, thereby to prevent tearing of the shell at either joint.
14. In a playing-ball, the combination of an outer and an inner shell layer, each of said layers consisting of hemispherical segments of cloth fixed with cellular and joined at their edges, and the joint of one of said layers crossing the joint of the other of said layers.
15. In a playing-ball, the combination of an outer and an inner shell layer, the inner layer being joined or welded, and the other layer closing or covering the joint or weld of the inner layer so as to form a reinforcement therefor; at least one of said layers being lined with fabric.
16. A playing-ball consisting of a yielding core and a shell holding said core under compression; said shell comprising alternate plies of cellular and fabric closely compacted; and said plies being at least three in number.
17. A playing-ball consisting of a solid sphere of yielding material or materials, and a shell holding said core under compression; said shell comprising closely-compacted plies of cloth alternating with one or more layers of hard, wear-resisting material.
18. A playing-ball consisting of a solid yielding core held under compression by a shell consisting of layers each composed of a ply of fabric fixed with hard, wear-resisting material; such composite layers being formed of segments welded or joined together at their edges.
19. A playing-ball consisting of a yielding core held under compression by a closely-compacted shell consisting of a plurality of layers, at least one of said layers consisting of spherical segments of combined fabric and cellular.
20. A playing-ball consisting of a yielding core held under compression by a closely-compacted thin shell consisting of a plurality of layers, each layer consisting of a plurality of joined fabric and cellular segments, and the joint or seam in one layer crossing the joint or seam in another layer.
21. A playing-ball consisting of a yielding core held under compression by a relatively thin closely-compacted shell consisting of a plurality of layers, each layer consisting of joined hemispherical fabric and cellular segments, the joint or seam in one layer extending crosswise of the joint or seam in the other layer.
22. In a playing-ball, the combination with a core of a shell or covering consisting of segments welded or joined at their edges, each segment comprising a ply of fabric and a layer of hard, wear-resisting, plastic springy material closely compacted with said fabric.

23. In a playing-ball, the combination of a hemispherical cover, segments joined at their edges, each segment comprising a layer of woven fabric and a layer of celluloid; and a reinforcing-cover for the joint or seam.

24. In a playing-ball, the combination of a core; spherical segments, each comprising a layer of woven fabric and a layer of celluloid, said segments meeting the core and being welded at their edges; and a fabric reinforcement for the void.

25. In a playing-ball, the combination of a relatively massive solid core, and a relatively thin shell consisting of an inner layer, an outer layer, and an intervening layer; said inner and outer layers consisting of cloth having celluloid embedded therein, and each being formed of segments welded at their edges, the voids meeting; said intervening layer being also of celluloid and firmly uniting said inner and outer layers; and said shell being compressed upon said core and holding the latter under compression.

26. In a playing-ball, the combination with a yielding core of a shell consisting of fabric and hard, wear-resisting material in alternate layers; said layers being welded into the form of a concrete substance and holding said core under compression.

27. In a playing-ball, the combination of celluloid segments or plates joined at their edges, to form a cover, and a fabric reinforcement covering the joints.

28. A playing-ball having a casing comprising an outer substantial layer of celluloid lined with fabric, said layer being formed in spherical segments which are welded together at their edges.

29. A playing-ball having a filling and a shell holding said filling under compression; said shell including an outer substantial layer of celluloid lined with fabric, said layer being formed in hemispherical segments which are welded together at their edges.

30. A playing-ball comprising a yielding filling and a shell, said shell being compounded of fabric and celluloid.

31. A playing-ball comprising a spherical body which consists of layers of fabric and layers of celluloid.

32. A playing-ball comprising a yielding filling and a shell, said shell being compounded of a plurality of layers of celluloid and at least one layer of woven fabric.

33. A playing-ball comprising a yielding filling and a shell holding the filling under compression, said shell being formed from hemispherical segments welded together at their edges, and the shell including a plurality of layers of celluloid and at least one layer of woven fabric.

34. A playing-ball comprising a yielding filling and a shell, said shell being compounded of a plurality of layers of fabric and at least one layer of celluloid.

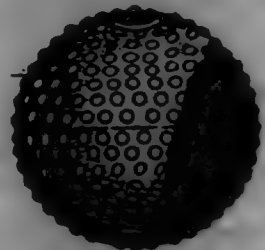
35. A ball formed in united hemispherical cups formed from celluloid in which fabric is embedded.

36. A ball formed in united spherical segments formed from celluloid which is united to woven fabric.

37. A playing-ball having a yielding filling and a shell consisting of fabric and celluloid; said shell holding said filling under compression.

38. A playing-ball having a yielding filling and a substantial shell consisting of celluloid and fabric in layers; said shell being formed in spherical segments which are welded together at their edges upon said filling; and said shell holding said filling under compression.

696,892. GOLF-BALL. BRADEN KNUFVALL, Boston, Mass., assignor to the Kumpshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 20, 1900. Serial No. 90,442. (No model.)



Claim.—1. A playing-ball comprising a spherical rubber envelop distended by a filling of gutta-percha, and a shell built up of gutta-percha and celluloid and compressed upon said envelop.

2. A playing-ball comprising a relatively large spherical core of gutta-percha, a solid soft-rubber spherical envelop thereon, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell.

3. A playing-ball comprising a spherical gutta-percha core, a soft-rubber envelop thereon, a relatively thick gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said celluloid covering being materially thicker than said gutta-percha shell.

4. A playing-ball comprising a spherical gutta-percha core, a solid

soft-rubber spherical envelop thereon, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said celluloid and gutta-percha shell being compressed upon said envelop.

5. A playing-ball comprising a spherical gutta-percha core, a solid soft-rubber envelop thereon, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said celluloid shell being formed in segments welded and compressed upon the filled gutta-percha shell.

6. A playing-ball comprising a gutta-percha spherical core, a soft-rubber envelop thereon, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said gutta-percha shell being formed in segments welded and compressed upon said soft-rubber envelop.

7. A playing-ball comprising a gutta-percha core, a soft-rubber envelop, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said gutta-percha and celluloid shell components being made in sections all of which are welded and compressed upon said soft-rubber envelop.

8. A playing-ball comprising a gutta-percha core, a soft-rubber envelop thereon, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said gutta-percha and celluloid shell components being made in sections which are welded and compressed upon said filling, and the void or joint in the celluloid covering meeting the void or joint in the gutta-percha shell.

9. A playing-ball comprising a core which is inclusive of a spherical body of india-rubber, and a shell compounded of gutta-percha and celluloid and compressed upon said core.

10. A playing-ball comprising a relatively large sphere of gutta-percha, a shell compounded of gutta-percha and celluloid, and an intervening layer of soft, springy material; said shell being compressed upon said intervening layer and core.

11. A playing-ball comprising a yielding filling and a shell compounded of welded segments of gutta-percha and welded segments of celluloid; the voids or joints meeting.

12. A playing-ball comprising a yielding filling and a shell compounded of welded segments of gutta-percha and welded segments of celluloid; the voids or joints meeting.

13. A playing-ball comprising a hard core, a soft and highly-elastic sphere thereon, a harder and less elastic sphere upon said sphere, and a still harder and still less elastic casing upon the last-mentioned sphere.

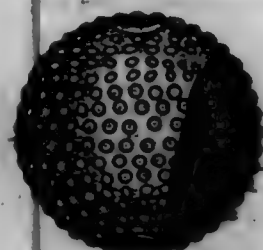
14. A playing-ball comprising a relatively hard outer shell, an inner gutta-percha shell, and a spherical filling within said gutta-percha shell, at least the exterior of said filling consisting of soft rubber.

15. A playing-ball comprising a hard core, a soft and highly-elastic sphere expanded thereon, a harder and less elastic sphere upon said sphere, and a still harder and still less elastic casing upon the last-mentioned sphere.

16. A playing-ball comprising a relatively hard outer shell, an inner gutta-percha shell, a rubber sphere within said gutta-percha shell, and a hard core upon which said rubber sphere is expanded.

17. A playing-ball comprising a hard core formed in a highly-yielding sphere, said sphere being in a state of expansion upon said core, a more resilient shell layer upon said sphere, and a still more resilient outer layer upon said shell layer.

696,898. GOLF-BALL. BRADEN KNUFVALL, Boston, Mass., assignor to the Kumpshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 21, 1900. Serial No. 91,575. (No model.)



Claim.—1. A playing-ball comprising a spherical rubber envelop distended by a filling of gutta-percha, and a shell built up of gutta-percha and celluloid and compressed upon said envelop, the celluloid portion of the shell being common.

2. A playing-ball comprising a spherical core of gutta-percha, a solid soft-rubber spherical envelop thereon, a gutta-percha shell upon said envelop, and a plurality of elastic layers of celluloid meeting said shell.

3. A playing-ball comprising a spherical gutta-percha core, a soft-rubber envelop thereon, a relatively thick gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said celluloid covering being materially thicker than said gutta-percha shell, and comprising a plurality of elastic layers fused or welded together.

4. A playing-ball comprising a spherical gutta-percha core, a solid soft-rubber spherical envelop thereon, a gutta-percha shell upon said en-

volep, and a seamless celluloid covering upon said shell; said celluloid and gutta-percha shell being compressed upon said envelop.

5. A playing-ball comprising a gutta-percha spherical core, a soft-rubber envelop thereon, a gutta-percha shell upon said envelop, and a multiple-ply thin celluloid covering compressed upon said shell; said gutta-percha shell being formed in segments welded and compressed upon said filling.

6. A playing-ball comprising a gutta-percha core, a soft-rubber envelop, a gutta-percha shell upon said envelop, and a celluloid covering upon said shell; said gutta-percha shell being made in sections or portions which are welded and compressed upon said filling, and said celluloid comprising a plurality of welded coatings compressed upon said shell.

7. A playing-ball comprising a gutta-percha core, a soft-rubber envelop thereon, a gutta-percha shell upon said envelop, and a thin celluloid covering upon said shell; said gutta-percha shell being made in sections which are welded and compressed upon said filling, and the celluloid covering comprising a plurality of seamless layers welded together and compressed upon said shell.

8. A playing-ball comprising a core which is inclusive of a spherical body of india-rubber, a shell of gutta-percha compressed upon said core and a seamless celluloid casing compressed upon said shell.

9. A playing-ball comprising a relatively large sphere of gutta-percha, a shell of gutta-percha; an intervening layer of soft, springy material; said shell being compressed upon said intervening layer and core; and a thin seamless casing of celluloid compressed upon said shell.

10. A playing-ball comprising a yielding filling, a thick gutta-percha shell compressed thereon; and a thin seamless celluloid casing compressed upon said shell.

11. A playing-ball having an internal mass of rubber and gutta-percha and a seamless casing or shell of hard, wear-resisting material.

12. A playing-ball having an internal mass of soft rubber and gutta-percha and a seamless celluloid casing or shell.

13. A playing-ball having an internal mass of soft rubber and gutta-percha and a seamless celluloid casing compressed thereon.

14. A playing-ball having an internal mass of gutta-percha and soft rubber and a relatively thin seamless celluloid shell compressed to the open end mass so as to hold the latter under compression.

15. A playing-ball having an internal mass of gutta-percha and rubber and a relatively thin shell consisting of several layers of celluloid compressed upon said mass so as to hold the latter under compression.

696,894. GOLF-BALL. BRADEN KNUFVALL, Boston, Mass., assignor to the Kumpshall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 14, 1900. Serial No. 94,596. (No model.)



Claim.—1. A playing-ball comprising a casing made in sections, said casing consisting of plastic material lined with fabric, each section having inward-pointing portions which are nested in the ball.

2. A playing-ball comprising a casing made in sections, said casing consisting of plastic material lined with fabric, each section having tongues which are turned into the ball, and the tongues upon one section lying against the tongues upon the other section, and all of said tongues lying in the joint or joints of the ball.

3. A playing-ball comprising a casing of celluloid and fabric, said casing having inward-pointing portions that lay the same to the body of the ball.

4. A playing-ball having a casing consisting of celluloid and fabric formed in segments and having portions which are turned in between the jointed body portions or segments of the ball.

5. A playing-ball comprising hemispherical cover-segments consisting of fabric-lined material each having inwardly-turned tongues, the tongues of one segment opposing those of the other segment, whereby said segments are locked or lapped upon the ball.

6. A playing-ball comprising joined hemispherical segments formed in wear-resisting material; portions of the casing material being turned in between said segments.

7. A playing-ball comprising joined hemispherical segments covered with hemispherical segments of wear-resisting material; each of the cover-segments having tongues which are turned in between the first-mentioned segments.

8. A playing-ball comprising joined or welded hemispheres of gutta-percha covered by hemispheres of celluloid; each of the celluloid hemispheres having tongues which are turned in between said hemispheres of gutta-percha.

9. A playing-ball comprising a core, and hemispheres of gutta-percha joined or welded thereon, and hemispheres compounded of fabric and celluloid meeting said gutta-percha; each of the meeting hemispheres having tongues which are turned in between the hemispheres of gutta-percha.

10. A playing-ball comprising a core; and hemispheres of gutta-percha joined or welded thereon, and hemispheres compounded of fabric and celluloid meeting said gutta-percha; each of the meeting hemispheres having tongues which are turned in between the hemispheres of gutta-percha, and the tongues upon one of said meeting hemispheres being opposed to those upon the other thereof.

11. A playing-ball comprising a sphere of soft rubber; hemispheres of gutta-percha welded or joined upon said sphere; and a covering consisting of hemispheres of fabric and celluloid covered upon said gutta-percha; each of said covering hemispheres having tongues turned in between the hemispheres of gutta-percha.

12. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelop thereon; an outer sphere of gutta-percha upon said envelop; and a covering compounded of celluloid and fabric, portions whereof are nested or lapped in said outer gutta-percha sphere.

13. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelop thereon; hemispheres of gutta-percha welded or joined upon said envelop; and a cover consisting of hemispheres of compounded fabric and celluloid meeting said gutta-percha; each of the covering hemispheres having tongues turned in between said hemispheres of gutta-percha.

14. A solid playing-ball having a celluloid cover made in joined segments, each segment having devices or portions which extend into the body of the ball, and said cover being compressed upon the ball, so as to hold the interior of the ball permanently under compression.

15. A playing-ball comprising a celluloid cover made in segments, each segment having tongues which are turned into the ball between the joints thereof, and said cover being compressed upon the ball.

16. A playing-ball comprising a celluloid cover made in segments, each segment having tongues which are turned into the ball between the joints thereof, the tongues upon one segment being connected or attached to the tongues upon the other segment, and said cover being compressed upon the ball.

17. A playing-ball comprising a yielding interior portion, and a cover of celluloid which is compressed upon the ball and holds the body thereof under permanent compression; said cover having inwardly-extended portions or parts which lay it to the body of the ball.

18. A playing-ball comprising a joined interior portion, and welded or joined hemispherical cover-segments compounded of fabric and celluloid; each of said segments having tongues turned in between the joints of the interior portion, and said cover being compressed upon the ball.

19. A playing-ball comprising joined or welded spherical segments covered with a material compounded of at least one layer of treated fabric and at least one layer of celluloid, said material being connected and the celluloid permeating the fabric; and said cover being compressed, and lapped upon the ball.

20. A playing-ball comprising joined or welded spherical segments covered with a material compounded of at least one layer of treated fabric and at least one layer of celluloid, said material being connected and the celluloid permeating the fabric; portions of said cover being turned in between said segments; and said cover being compressed, and lapped upon the ball.

21. A playing-ball comprising a cover of wear-resisting material compounded of at least one layer of fabric impregnated and fused upon both sides with celluloid; said cover being formed in segments and having tongues which are turned in between segments of which an inner portion of the ball is formed.

22. A playing-ball comprising a cover of wear-resisting material compounded of at least one layer of fabric impregnated and fused upon both sides with celluloid; said cover being lapped and compressed upon the ball.

23. A playing-ball comprising joined or welded hemispheres of gutta-percha formed by hemispheres of celluloid; each of the celluloid hemispheres having tongues which are turned in between the hemispheres of gutta-percha, and said segments and said casing being compressed upon the ball.

24. A playing-ball comprising a core and joined or welded hemi-

spheres of gutta-percha thereon and covered by hemispheres compounded of fabric and celluloid; each of the covering-hemispheres having tongues which are turned in between the hemispheres of gutta-percha, and the tongues upon one of said covering-hemispheres being opposed to those upon the other thereof; said gutta-percha and celluloid being solidified and holding said core under compression.

25. A playing-ball comprising a sphere of soft rubber; hemispheres of gutta-percha welded or joined upon said sphere; and a cover consisting of hemispheres of fabric and celluloid secured upon said gutta-percha; each of the covering-hemispheres having tongues turned in between the hemispheres of gutta-percha, and said gutta-percha and celluloid holding said core under compression.

26. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelop thereon; an outer sphere of gutta-percha upon said envelop; and a covering compounded of celluloid and fabric, portions whereof are rooted or keyed in said outer gutta-percha sphere; said gutta-percha and celluloid holding said core under compression.

27. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelop thereon; hemispheres of gutta-percha welded or joined upon said sphere; and a covering consisting of hemispheres compounded of fabric and celluloid secured upon said gutta-percha; each of the covering-hemispheres having tongues turned in between the hemispheres of gutta-percha, and said gutta-percha and celluloid holding said core under compression.

28. In a playing-ball, the combination of a filling, a cover made in segments, each of said segments having interned border portions and projections which are clenched between portions of the filling or interior mass of the ball.

29. In a playing-ball, a celluloid cover made in hemispherical segments, each segment having a substantially continuous interned border or brim, and projections.

30. In a playing-ball, a celluloid cover made in hemispherical segments, each segment having a substantially continuous interned border or brim and also a number of projections or tongues extending inwardly beyond said brim.

31. In a playing-ball, the combination with joined or welded segments of gutta-percha of segments compounded of celluloid and fabric covering the gutta-percha, said celluloid and fabric segments having inwardly-turned borders or brims and tongues extending between the segments of gutta-percha.

32. A playing-ball comprising a thin celluloid cover made in segments, each segment having an interned brim, and projections.

33. A playing-ball comprising a thin celluloid and fabric cover made in hemispherical segments, each segment having an interned brim, and said brims being united and the cover being compressed upon said ball.

34. A playing-ball comprising joined or welded spherical gutta-percha segments covered with a material compounded of at least one layer of treated fabric and at least one layer of celluloid, said material being cemented and the celluloid permeating the fabric; and said cover being compressed, and keyed upon the ball.

35. A playing-ball comprising a sphere of soft rubber, and a shell of gutta-percha thereon, said shell being covered with a material compounded of at least one layer of treated fabric and at least one layer of celluloid, said material being cemented and the celluloid permeating the fabric and said cover being compressed, and keyed upon the ball.

36. A playing-ball comprising a solid core of gutta-percha covered by a sphere of soft rubber, and a shell of gutta-percha thereon, said shell being covered with a material compounded of at least one layer of treated fabric and at least one layer of celluloid, said material being cemented and the celluloid permeating the fabric; and said cover being compressed, and keyed upon the ball.

37. In a playing-ball, the combination with a yielding filling, of a shell comprising an outer layer of celluloid, a layer of fabric, and a layer of gutta-percha.

38. In a playing-ball, the combination with a sphere of gutta-percha of a shell or casing thereon consisting wholly of an outer layer of celluloid and a lining of fabric.

39. In a playing-ball, the combination with a yielding filling, of a layer of gutta-percha thereon, and a casing upon said gutta-percha layer, said casing being thinner than said gutta-percha layer and consisting of celluloid lined with fabric.

40. A playing-ball having a springy filling and provided with a casing consisting of a single ply of celluloid lined with fabric.

41. A playing-ball having a springy filling and provided with a casing consisting of a single ply of celluloid lined with a single ply of fabric.

42. A playing-ball comprising a springy filling and a shell holding said filling under compression; said shell including a single ply of celluloid lined with fabric, and said celluloid forming the casing or periphery of the ball.

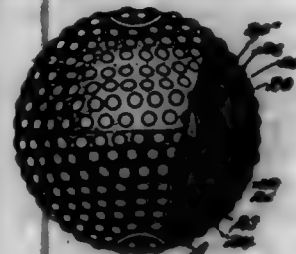
43. A playing-ball comprising a yielding filling and a shell holding

said filling under compression and comprising gutta-percha, fabric and celluloid, the celluloid forming the casing of the ball, and the fabric being between the celluloid and the gutta-percha.

44. A playing-ball comprising a yielding filling and a shell; said shell comprising spherical segments of gutta-percha welded together, and also comprising a casing consisting of fabric and celluloid; and said shell holding said filling under compression.

45. A playing-ball comprising a springy filling and a shell consisting of spherical segments welded at their edges and holding said filling under compression; said shell being inclusive of a single ply of celluloid and a single ply of fabric forming a lining for the latter.

696,895. GOLF-BALL. ELIZABETH KEMPSTALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 24, 1902. Serial No. 96,151. (No model.)



Claim.—1. In a playing-ball, the combination with a springy core of a shell comprising at least two plies, the outer ply being of hard, springy, wear-resisting material, and the inner ply being of fabric cemented to said core; said shell holding said core under compression.

2. In a playing-ball, a thin shell comprising an outer ply of celluloid, a ply of fabric near the outer surface of the ball, and an inner ply of celluloid interiorly faced with fabric; in combination with a yielding core to which said fabric is cemented.

3. In a playing-ball, a shell consisting of hard, springy material having separate plies of fabric incorporated therein, including an interior facing-ply; and a core to which said facing-ply is cemented.

4. A playing-ball comprising a core, a compacted shell having a plurality of thin plies or plates of celluloid, a ply or layer of tough material between said celluloid plies, and an inner facing of cloth cemented to said core.

5. In a playing-ball, a shell comprising celluloid and woven fabric embedded therein, and a springy core to which said shell is cemented.

6. In a playing-ball, a shell comprising a plurality of plies of fabric alternating with plies of celluloid, and a core consisting partly or wholly of rubber to which said shell is cemented.

7. In a playing-ball, a shell comprising an outer ply of celluloid, an inner ply of fabric, intervening plies of fabric and celluloid, and a core to which said inner ply of fabric is cemented, said core consisting partly or wholly of rubber.

8. In a playing-ball, a compacted shell comprising an outer ply of celluloid, an inner ply of fabric, and a core to which said inner ply is cemented.

9. In a playing-ball, a shell comprising a thin outer ply of celluloid backed by cloth, and an inner thin ply of celluloid interiorly faced with cloth; said plies and said cloth being closely compacted; and a core to which said interior facing is cemented.

10. In a playing-ball, the combination with a springy core of a shell cemented thereto and comprising outer and inner layers, each of said layers consisting of hard, springy material reinforced by tough material, and being formed of segments, the inner layer breaking joints with the outer layer, thereby to prevent bursting of the shell at either joint.

11. In a playing-ball, the combination with a sphere of rubber of an outer and an inner shell layer, each of said layers consisting of hemispherical segments of celluloid interiorly faced with cloth and joined at their edges, the inner layer being cemented to said rubber, and the joint of one of said layers crossing the joint of the other of said layers.

12. In a playing-ball, the combination with a core consisting partly or wholly of rubber of an outer and an inner shell layer, the inner layer being jointed or welded, and the other layer closing or covering the joint or weld of the inner layer so as to form a reinforcement therefor; and said inner layer being cemented to said rubber.

13. A playing-ball consisting of a yielding core and a shell cemented to said core and holding it under compression; said shell comprising alternate plies of celluloid and fabric closely compacted; and said plies being at least three in number.

14. A playing-ball consisting of a solid sphere of yielding material or materials, and a shell holding said core under compression; said shell comprising closely-compacted plies of cloth alternating with one or more layers of hard, wear-resisting material, the inner surface of said shell being of cloth, which is cemented to said core.

15. A playing-ball consisting of a solid yielding core held under compression by a shell consisting of layers each composed of a ply of fabric faced with hard, wear-resisting material; each composite layer being formed of segments welded or joined together at their edges, and being cemented to the core.

16. A playing-ball consisting of a yielding core held under compression by a closely-compacted shell consisting of a plurality of layers, at least the inner one of said layers consisting of spherical segments of celluloid faced upon its inner side with fabric, and cemented to said core.

17. A playing-ball consisting of a yielding core upon which is cemented a closely-compacted thin shell consisting of a plurality of layers, each layer consisting of a plurality of joined celluloid segments, each faced upon its inner side with fabric, and the joint or seam in one layer crossing the joint or seam in another layer.

18. A playing-ball consisting of a yielding core held under compression by a relatively thin closely-compacted shell consisting of a plurality of layers, each layer consisting of joined hemispherical fabric and celluloid segments, the fabric being upon the inner side of each layer, the joint or seam in one layer extending crosswise of the joint or seam in the other layer, and the shell being cemented to the core.

19. In a playing-ball, the combination with a core of a shell or covering comprising segments welded or joined at their edges and cemented to said core; each segment comprising a ply of fabric and a layer of hard, wear-resisting, springy material closely compacted with said fabric.

20. In a playing-ball, the combination of a core of springy material; hemispherical cover-segments joined at their edges and cemented upon said core; each segment comprising an inner layer of woven fabric, as 22, and a layer of celluloid, as 21; and a reinforcing-cover, as 23, 24, for the joint or seam.

21. In a playing ball, the combination of a core; spherical segments, each comprising an inner layer of woven fabric, as 22, and a layer of celluloid, as 21; said segments being welded at their edges and cemented upon the core; and a fabric reinforcement, as 23, for the wall.

22. In a playing-ball, the combination of a relatively massive solid core, and a relatively thin shell consisting of an inner layer, an outer layer, and an intervening layer; said inner and outer layers consisting of cloth having celluloid embedded therein, and each being formed of segments welded at their edges, the walls crossing; said intervening layer being also of celluloid and firmly uniting said outer and inner layers; and said shell being compacted upon and cemented to said core and holding the latter under compression.

23. In a playing-ball, the combination with a yielding core of a shell cemented thereto and consisting of fabric and hard, wear-resisting material in alternate layers; said layers being welded into the form of a concrete substance and holding said core under compression.

24. In a playing-ball, the combination of a springy core; celluloid segments or plates joined at their edges, to form a cover, and cemented upon said core; and a fabric reinforcement covering the joints.

25. In a playing-ball, a shell consisting of at least partially of celluloid and cemented to and compressed upon a springy core, and holding the latter under compression.

26. In a playing-ball, the combination of a core and a shell cemented thereto; said shell consisting of an outer ply of celluloid, then a ply of fabric, then a second ply of celluloid, then a second ply of fabric, then a third ply of celluloid, and then a third ply of fabric.

27. In a playing-ball, the combination with a filling of a shell or casing cemented thereto and consisting of celluloid lined with fabric.

28. In a playing-ball, the combination with a filling of a shell cemented to said filling and holding the latter under compression, said shell consisting of celluloid lined with woven fabric.

29. A ball incased in and cemented to united hemispherical cups formed from celluloid in which fabric is embedded.

30. A ball incased in and cemented to united spherical segments formed from celluloid which is united with woven fabric.

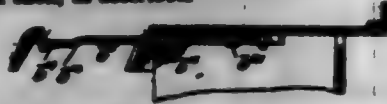
31. A playing-ball having a filling and a shell cemented to said filling and holding the latter under compression; said shell including an outer layer of celluloid lined with fabric, said layer being formed in hemispherical segments which are welded together at their edges.

32. A playing-ball comprising a yielding filling and a shell cemented thereto; said shell being compounded of fabric and celluloid.

33. A playing-ball comprising a yielding filling and a shell cemented to and holding said filling under compression, said shell being formed from hemispherical segments welded together at their edges, and the shell including a plurality of layers of celluloid and at least one layer of woven fabric.

696,896. STOVE-SHELF. EDGAR W. ANTHONY, Brooklyn, Mass., assignor to Smith and Anthony Company, Boston, Mass., a Corporation of Massachusetts. Filed Mar. 15, 1901. Serial No. 21,262. (No model.)

Claim.—1. In a stove or range a shelf, an independent rim or band, two or more bars attached to said rim, means connected to the outer edge of said shelf to support said bars in slidable relation to said shelf, said means being located slightly beyond the outer edge of said shelf forming an opening larger than the cross-section of said bars, and a vertically-projecting stop located near the end of each bar, whereby said rim may be moved away from said shelf and maintained in a horizontal position, and when raised slightly in its extreme outer position may be entirely disconnected from said shelf, as described.



2. In a stove or range a shelf, an independent rim or band, two or more bars connected to said rim, means connected to the outer edge of said shelf to support said bars in slidable relation to said shelf, each of said bars having a lock located at its end nearest said rim to lock said rim against said shelf, and a stop at its outer end to prevent its being withdrawn from said shelf when moved outwardly, as and for the purposes described.

3. The combination in a stove or range of a shelf or plate having a false rim or band cut in from the main rim or band with a movable section of the main rim or band adapted to be moved to and from the false rim or band and when in contact with the false rim or band to be flush with the fixed section of the main rim or band.

4. The combination in a stove or range of a shelf or plate having at its front edge bearings for slide-bars, a movable section of a rim or band attached to the outer ends of the slide-bars, guides upon the under surface of the plate or shelf for governing the movement of the bars, lugs for engaging the ends of the bars when near the end of their inner movement and then hold them from moving downward, the said bars having at their inner ends raised surfaces adapted to ride upon the under surface of the shelf.

5. The combination in a stove or range of a shelf or plate, a movable section of its rim or band, slide-bars to the ends of which said movable section is secured, bearings for the slide-bars and guiding and holding devices upon the under side of the plate or shelf for the slide-bars, the holding devices acting to hold the slide-bars for a portion of their movement only and to then become disengaged from them whereby the bars may be tipped and in their tipped position removed entirely from the shelf or plate.

6. The combination in a stove, of a shelf or plate having a false rim or band cut in from the main rim or band, with a movable section of the main rim or band, one or more connections attaching said movable section of said main rim or band to said false rim or band, and means whereby when said movable section is in contact with said false rim or band it will be locked in place, as and for the purposes described.

7. The combination of a shelf or plate having a false rim cut in from the main rim and a movable section of said main rim adapted to be moved to and from said false rim, and when in contact with said false rim to be flush with the fixed section of said main rim, one or more connections attaching said movable section to said shelf, each of which has a top bearing and a stop at its inner end, an incline and a notch at its outer end, the shelf or plate being raised over its connections to permit a slight upward movement and also having a bearing which coacts with the incline as described.

696,897. THILL-COUPLES. McKENNON F. BAKER and MARTIN A. TOLIER, San Jose, Cal.; said Tolier assignor to said Baker, and I. W. Winans, Plymouth, Cal. Filed Dec. 27, 1899. Serial No. 790,448. (No model.)



Claim.—1. A thill-coupling having a rocking and a stationary member, a loose pin passing through said stationary member and adapted to enter a cavity in said rocking member, said pin being formed with an enlarged head for the purpose of limiting its play, all substantially as shown and for the purposes set forth.

2. In the thill-coupling described, the combination of the clip, the plate receiving the arms of the clip and having its upper side rabbeted at its rear end and also having the concave-convex portion at its forward end forming a seat, the spring having its upper rear end seated in the rabbet

of the clip-plate and receiving one arm of the clip and also having a forwardly-extending arm terminating in a hook, the thill-iron having the rounded end resting in the seat of the clip-plate, and the clevis pivotally connected to said end of the thill-iron and having a contracted lower portion, substantially as described.

3. In a thill-coupling, the combination of a body or plate, a thill-iron bearing therein, a clevis pivotally connected to and depending from the thill-iron and having a lower contracted portion and a spring connected with the body or plate and having an arm engaging the light of the clevis, substantially as described.

696,898. SHALE-ROCK PLOW. HENRY C. BOWLER, Danville, Ill. assignor of one-half to William Butler, Danville, Ill. Filed Feb. 26, 1901. Serial No. 45,582. (No model.)



Claim.—1. A combination plow and crusher comprising a platform having a continuous under crushing-surface adapted to contact with and by the inherent weight of the platform to crush the plowed material, plow-blades secured in and extending beneath the platform and means for vertically adjusting the blades.

2. A combination plow and crusher comprising a platform having a continuous under crushing-surface adapted to contact with and by the inherent weight of the platform to crush the plowed material, and a plurality of vertically-adjustable standards provided with plow blades or points one of the standards being positioned at a distance from the other standards equal to double the space between the latter and forming a guide for the movement of the plow.

3. The combination of the platform A, blade-standards B, E, F, extending through and adjustably secured to the platform, plate B, having draft-attaching means C, secured to the platform, brace-plate U for the plate B, and sheave D on the plate B, substantially as described.

696,899. END-GATE-ROD FASTENER. WILLIAM A. DAY, City Center, Neb. Filed Nov. 18, 1901. Serial No. 82,371. (No model.)



Claim.—1. An end-gate-rod fastener, comprising a rod for engagement with an end-gate and the sides of a wagon-body, a sectional nut forming a permanent fixture of one side of the wagon-body, the threaded end of the rod being engaged by the said sectional nut, and a lever device for the said nut, to open the end-gate thereof and thereby discharge the nut from the threads of the rod, as set forth.

2. An end-gate-rod fastener, comprising a rod for engagement with an end-gate and the sides of a wagon-body, a nut for engaging the threaded end of the rod and formed of pivoted nut sections, and a lever connected with the free ends of the said nut-sections to simultaneously open or close the nut-sections, as set forth.

3. An end-gate-rod fastener, comprising a rod for engagement with an end-gate and the sides of a wagon-body, a nut for engaging the threaded end of the rod, the nut being formed of sections pivoted on the sides of the wagon-body, a lever having a recess at its fulcrum end to engage the free end of one of the nut-sections, and a link connecting the free end of the other nut-section with the fulcrum end of the lever, as set forth.

696,900. FATTY COMPOUND OF IODINE AND SULFUR AND PROCESS OF MAKING SAME. OTTO DUMMER, Eberhard, Germany, assignor to Farbwerke von Eberhard & Co., New York, N. Y., a Corporation of New York. Filed Dec. 21, 1901. Serial No. 96,898. (Specimen.)

Claim.—1. The process for producing new derivatives of fat containing sulfur and iodine, which process consists in at first treating fat with iodine and hydrogen sulfide, secondly purifying the reaction mass and thirdly isolating the new compounds, substantially as hereinbefore described.

2. The process for producing a new derivative of essence-oil containing iodine and sulfur, which process consists in at first treating essence-oil with iodine and hydrogen sulfide, secondly purifying the reaction mass and thirdly isolating the new compound, substantially as hereinbefore described.

3. The herein-described new derivative of fat containing in the molecule iodine and sulfur being more or less colored oily liquids soluble in benzene, ether and ligroin which do not split off iodine when heated on the water-bath and being valuable remedies, substantially as described.

4. The herein-described specific derivative of essence-oil containing iodine and sulfur being a yellowish-brown oil soluble in benzene, ether and ligroin with a yellowish color, iodine and sulfur being so intimately combined therein with the molecule that they cannot be discovered by means of the usual agents, being decomposed when heated over a free flame with disengagement of violet vapors of iodine and representing a valuable remedy, substantially as hereinbefore described.

696,901. CAR-BRAKE. CHARLES R. FAIRCHILD, New York, N. Y. assignor of one-fourth to Edward T. Postelwaite, Philadelphia, Pa. Filed July 2, 1901. Serial No. 66,864. (No model.)



Claim.—1. The combination in a device for operating the brake-gear of a car, of a shaft, a drum thereon, a rope partly wound on the drum, and a pulley over which a loop of said rope extends, with means for operatively connecting the brake-gear of the car to the said shaft, the said loop of rope extending within the reach of an operator substantially as described.

2. The combination of a car, brake-gear thereon, a threaded shaft on the car, a nut on said threaded shaft, the brake-gear being connected to said nut, a drum fixed to the shaft, a pulley on the platform of the car and a rope partially wound on the drum and extending over the pulley on the platform within reach of an operator thereon substantially as described.

3. The combination with a car and the braking mechanism thereof, of a nut and a threaded shaft, the same comprising members of which one is revolvable, a drum fixed to the revolvable member, a connection between the brake-gear and the second member and a rope extending around the drum whereby the device may be operated substantially as described.

4. The combination with a car having brake-gear, of a threaded shaft supported in bearing from said car, a drum keyed to said shaft, a rope wound on said drum for turning the same, a nut constructed to fit the threaded shaft and a casing attached to the said nut and extending around the end of said shaft, said casing being connected to the brake-gear, substantially as described.

5. In a device for operating the brake-gear of a car, the combination of a member fixed to prevent longitudinal motion, and a second member fixed to prevent rotary motion, a drum fixed to the first member, means wound on said drum whereby it may be made to revolve and a connection between the second member and the brake-gear, with means constructed to guide and support said second member as it is moved longitudinally, substantially as described.

6. The combination in a device of the character described, of a frame hung from the bottom of a car, a threaded shaft journaled in one of the members thereof, a threaded nut operative on the shaft and connected to the brake-gear of the car, said nut being guided on said frame, a drum on the shaft and a rope whereby said drum is made to revolve, substantially as described.

7. The combination of a car, brake-gear thereon, a threaded shaft supported from said car, a drum thereon, a threaded nut operative on the shaft, a casing surrounding the shaft and its cooperative parts, and a nut connected to the brake-gear of the car extending through an opening in said casing and connected to said threaded nut, with means wound upon the drum for turning the same, substantially as described.

696,902. BORING-TOOL. JOHN GRAY, Jr., Washington, D. C. assignor of one-half to Charles S. Campbell, Washington, D. C. Filed Sept. 4, 1901. Serial No. 74,600. (No model.)



Claim.—1. In a tool of the character described, the combination with the tubular body, of a longitudinally-movable check, a longitudinally-movable follower or abutment, a spring confined between the check and abutment, means for advancing the follower or abutment as the work progresses, and means for disconnecting the abutment from its advancing means.

2. In a tool of the character described, the combination of the tubular body, the check, the swiveled head, the compression-spring, the screw-check, the divided cone-shaped nut provided with springs adapted to thrust the two parts of said nut out of engagement with the screw-check, and a follower or abutment.

3. In a tool of the character described, the combination of the tubular body, the check, the swiveled head provided with spurs or tangs, the compression-spring and the screw-check and automatically-actuated divided nut.

4. In a tool of the character described, the combination of the tubular body, the check, the swiveled head, the compression-spring, the screw-check, the automatically-actuated divided cone-shaped nut and its follower or abutment.

5. In a tool of the character described, the combination with a tubular body, a longitudinally-movable check, a longitudinally-movable follower or abutment, a spring confined between the check and abutment, means for advancing the follower or abutment as the work progresses, and a longitudinally-adjustable sleeve provided with spurs or tangs, substantially as described.

6. In a tool of the character described, the combination with the tubular body, a longitudinally-movable check, a longitudinally-movable follower or abutment, a spring confined between the check and abutment, means for advancing the follower or abutment as the work progresses, and a longitudinally-adjustable sleeve provided with spurs or tangs, substantially as described.

7. In a tool of the character described, the combination of the tubular body, the check, the swiveled head, the compression-spring, the screw-check, the automatically-actuated divided nut, its follower or abutment, and a collar secured to and surrounding the tubular body and provided with handholds, substantially as described.

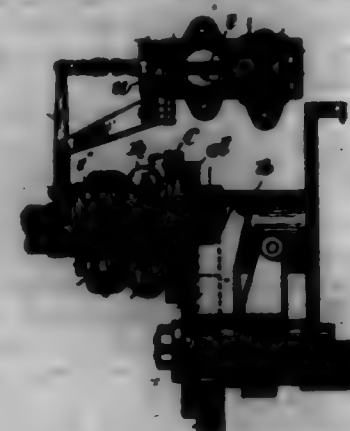
8. In a tool of the character described, the combination of the tubular body, the check, a longitudinally-adjustable sleeve provided with spurs or tangs, the head operatively secured to said sleeve, the compression-spring, the screw-check, and the automatically-actuated divided cone-shaped nut and its follower or abutment.

9. In a tool of the character described, the combination of the tubular body, the longitudinally-movable check, a longitudinally-movable follower or abutment, a spring confined between the check and abutment, a ferrule secured in the open end of the tubular body, and means for advancing the follower or abutment as the work progresses.

10. In a tool of the character described, the combination of the tubular body, the longitudinally-movable check, a longitudinally-movable follower or abutment, a spring confined between the check and abutment, a ferrule secured in the open end of the tubular body, means for advancing the follower or abutment as the work progresses, and means for disconnecting the abutment from its advancing means.

696,908. SPEED-REGULATOR FOR GAS-ENGINE. HERBERT H. HENNING, Anderson, Ind. assignor to the Danbury Manufacturing Company, Anderson, Ind. Filed June 27, 1901. Serial No. 65,866. (No model.)

Claim.—1. In a speed-regulating apparatus for a gas-engine, the combination of a pipe leading to the engine-cylinder, a supply-pipe, an open-ended valve-casing connecting these two pipes, a valve working in each open end of this valve-casing, one inward and the other outward and adapted to admit air into both ends of the cylinder-valve casing, a spring tending to open these valves, and means for permitting the valves to open automatically when the speed of the engine increases beyond normal.



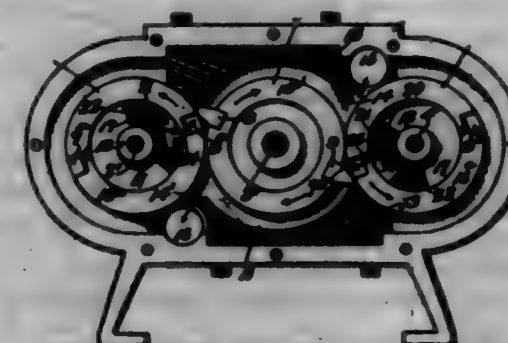
2. In a gas-engine, the combination of an open-ended valve-casing interposed in the gas-supply pipe, a valve fitting and working in each open end of the valve-casing, a spring normally tending to open the valves, and means for permitting the spring to act and open the valves when the speed of the engine increases beyond a predetermined degree.

3. In combination with a gas-engine, a shaft operated thereby, spring-actuated governor-weights on said shaft, a flanged sleeve actuated by said governor-weights, supply-pipes for the explosion mixtures and an air-admitting valve in said supply-pipes, means tending to open said valve to admit air, and means normally bearing on the flange carried by said sleeve and adapted to permit the valve to open when said flanged sleeve is actuated.

4. In a speed-regulator for gas-engines the combination of a supply-pipe, an air-admitting valve therein, a spring tending to open this valve, and means adapted to release the valve and permit the spring to open the valve when the speed increases beyond normal.

5. In a speed-regulating apparatus for a gas-engine, the combination of a pipe leading to the engine-cylinder, a supply-pipe, a valve-casing connecting these two pipes and open at both ends, a valve working in each open end of this valve-casing, one opening inward and the other outward and both adapted to admit air into the valve-casing, and means for simultaneously opening these valves when the engine reaches abnormal speed.

696,904. ROTARY ENGINE. HARRIS J. HAWLEY, Kewanee, Ill. assignor of one-half to Alfred M. Hewlett, Kewanee, Ill. Filed Oct. 28, 1902. Serial No. 94,601. (No model.)



Claim.—1. A translating device comprising a casing and a series of rotary members mounted therein and geared together, means for supplying fluid to the interior of the casing intermediate of said members to act on the peripheral faces thereof, and means for leading a fluid into contact with the interior faces of the end members only of the series at points opposite the application of external pressure to said end members.

2. In a device of the character described, the combination with a casing provided with head-blocks and with bearing-plates carried by the opposite end walls of the casing, of rotary pistons located wholly out of contact with the end walls of the casing and having peripheral contact with the head-blocks and bearing at their ends against the bearing-plates, said bearing-plates being disposed across the opposite ends of the steam-space defined between the pistons, to confine the steam to each steam-space.

3. A translating device comprising a casing and a series of rotary pistons, the end pistons of the series being hollow, means for supplying fluid to the interior of the casing intermediate of the pistons, stationary

steam-chests extended into each of the end pistons of the series from opposite sides of the casing, and means for supplying steam to the chests, each of said steam-chests having an open wall opposed to the interior face of its piston.

4. A translating device comprising a casing and a series of rotary pistons, the end pistons of the series being hollow, means for supplying fluid to the interior of the casing intermediate of the pistons, stationary steam-chests of transversely-arcuate form extended into each of the end pistons from the opposite sides of the casing, and means for supplying steam to said chests, each of said steam-chests having an open wall opposed directly to the interior face of its piston.

5. A translating device comprising a casing and a series of rotary pistons, the end pistons of the series being formed with a central web and a cylindrical rim, means for supplying a motive fluid to the interior of the casing intermediate of the pistons, stationary steam-chests of transversely-arcuate form extended into each of the end pistons from the opposite sides of the casing and terminating contiguous to the web, and means for supplying a motive fluid to the chests, each of said chests having an open wall opposed to the interior face of the adjacent piston-rim.

6. A translating device comprising a casing and a series of rotary pistons, the end pistons of the series being hollow, stationary steam-chests extended into the opposite ends of each piston from the opposite sides of the casing, and parts establishing communication between the steam-chests and the steam-space defined intermediate of the pistons, each of said steam-chests having an open wall opposed to the interior face of its piston.

7. In a translating device, the combination with a casing provided with head-blocks and bearing-pistons, of rotary pistons located out of contact with the walls of the casing and having peripheral contact with the head-blocks, and bearing at their ends against the bearing-pistons, and steam-chests extended into the ends of certain of the pistons and provided with open walls opposed to the interior face of the adjacent piston, certain of said bearing-pistons being provided with parts establishing communication between an interior steam-chest and the steam-space defined between contiguous pistons.

8. In a translating device, the combination with a casing, of a rotary center piston provided with heads, a pair of hollow end pistons geared to the center piston and provided with peripheral recesses for the reception of the heads, means for supplying a motive fluid to the interior of the casing intermediate of the pistons, and stationary steam-chests extended into the end pistons and having open walls opposed to the interior face thereof, said end pistons being provided with parts establishing communication between the interior of the casing and the interior of the steam-chests to permit the motive fluid to pass into the steam-chests for application to the interior faces of the end pistons at points opposite the application of external pressure, and means for supplying steam to the steam-chests.

9. In a translating device, the combination with a casing, of a rotary center piston therein provided with heads, a pair of hollow end pistons geared to the center piston and provided with peripheral recesses for the reception of the heads, means for supplying a motive fluid to the interior of the casing intermediate of the pistons, and stationary steam-chests extended into the end pistons and having open walls opposed to the interior face thereof, said end pistons being provided with parts establishing communication between the interior of the casing and the interior of the steam-chests to permit the motive fluid to pass into the steam-chests for application to the interior faces of the end pistons at points opposite the application of external pressure, and means for supplying steam to the steam-chests.

10. In a translating device, the combination with a casing and means for supplying steam thereto, of a rotary center piston therein provided with heads, a pair of hollow end pistons geared to the center piston and provided with peripheral recesses for the reception of the heads, stationary steam-chests extended into the end pistons and having openings opposed to the interior face thereof, head-blocks located within the casing and defining steam-spaces for the passage of the heads, and means for supplying steam to said steam-chests.

11. A translating device comprising a casing and a rotary piston therein, means for introducing steam to the interior of the casing to operate the piston, and steam-chests extending into the piston from the opposite sides thereof.

12. A translating device comprising a casing, and a rotary piston therein, means for leading steam to the interior of the casing, transversely-arcuate steam-chests extending into the piston from the opposite sides thereof, and means for leading steam to the steam-chests.

13. In a translating device, the combination with a casing provided with stationary steam-chests extending laterally from the opposite sides thereof and having open walls, a hollow piston located within the casing and having its peripheral wall disposed opposite the open walls of said steam-chests, and means for leading steam to the casing and steam-chests respectively.

14. A translating device comprising a casing and a hollow piston therein, transversely-arcuate stationary steam-chests extended into the op-

posite ends of the piston from the opposite sides of the casing and having open walls opposed to the peripheral wall of said piston, and means for establishing communication between the steam-chests and the interior of the casing whereby steam may be introduced into one of said chambers for the purpose of supplying both.

15. A translating device comprising a casing and a rotary piston therein formed with a central web and a cylindrical rim, and steam-chests extended into the opposite ends of the piston and bearing against the web thereof.

16. A translating device comprising a casing and a rotary piston formed with a central web and a cylindrical rim, stationary steam-chests of transversely-arcuate form extended into the piston from the opposite sides thereof and bearing at their inner ends against the web, said steam-chests being provided with open walls opposed to the interior face of the cylindrical rim of the piston, means for establishing communication between the casing and steam-chests, and means for leading steam into the casing.

17. A translating device comprising a casing and a plurality of pistons located wholly out of contact with the walls of the casing, bearing-pistons opposed to the ends of the pistons and closing the opposite ends of the steam-spaces defined between the pistons, a head-block having peripheral contact with the pistons, and means for introducing steam to the steam-spaces through the head-block.

18. A translating device comprising a casing and a plurality of pistons located wholly out of contact with the walls of the casing, bearing-pistons opposed to the ends of the pistons and closing the opposite ends of the steam-spaces defined between the pistons, a head-block having peripheral contact with the pistons, means for introducing steam to the steam-spaces through the head-block, and a stationary steam-chest extending into the piston and provided with an open wall disposed opposite the interior face of the piston-rim.

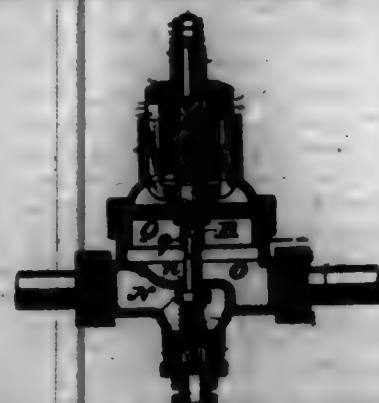
19. A translating device comprising a casing and a plurality of pistons, a stationary steam-chest located within one piston, means for introducing steam to the interior of the casing, and a port located beyond the end of the piston and communicating at its opposite ends with the interior of the casing and steam-chest respectively.

20. In a translating device, the combination with a casing and a piston, said piston being composed of a hub, a web and a cylindrical rim, of stationary steam-chests located between the hub and rim and abutting against the web of the piston.

21. A translating device comprising a casing, a series of rotary pistons arranged in alignment within the casing and moving in unison, means for supplying fluid to the interior of the casing intermediate of said pistons to act on the peripheral faces thereof, steam-chests mounted within the end pistons only of the series and having open walls opposed to the interior faces of said end pistons at points opposite the application of external pressure thereto, and means for supplying steam to said steam-chests.

22. In a translating device, the combination with a casing provided with head-blocks, and with bearing-pistons rigidly connected to the inner faces of the opposite end walls of the casing and disposed immediately adjacent to the head-blocks, of rotary pistons located wholly out of contact with the end walls of the casing and having peripheral contact with the head-blocks, and bearing at their ends against the bearing-pistons, said bearing-pistons being disposed entirely across the opposite ends of the steam-spaces defined between the pistons to confine the steam to said steam-spaces and thus prevent the application of steam-pressure to the ends of the pistons.

696,805. APPARATUS FOR APPLYING FLUID-PRESSURE.
WARREN S. JOHNSON, Milwaukee, Wis., assignor to Johnson Electric Service Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Aug. 9, 1900. Serial No. 26,242. (No model.)



Claim.—1. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply, service and waste ports and

a movable part exposed on one side to service-pressure, valve mechanism controlling the supply and waste ports and adapted to be operated by said movable part, a variable yielding resistance acting on said movable part in opposition to the service-pressure, means for varying said resistance by predetermined degrees and means for positively holding the valve mechanism in position to admit supply-pressure to the service-port independently of said yielding resistance, substantially as and for the purposes set forth.

2. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply, service and waste ports and a movable part exposed on one side to service-pressure, valve mechanism controlling said supply and waste ports and adapted to be operated by said movable part, a spring acting on said movable part in opposition to the service-pressure, means for varying the tension of said spring by predetermined degrees, and means for positively shifting said movable part to open the supply-port independently of said spring, substantially as and for the purposes set forth.

3. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply, service and waste ports and a movable part exposed on one side to service-pressure, valve mechanism controlling said supply and waste ports and adapted to be operated by said movable part, a spring on said movable part in opposition to the service-pressure, a screw for varying the tension of said spring, and a clutch for positively connecting said screw and movable part when the spring is compressed to a certain degree, substantially as and for the purposes set forth.

4. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply and service ports and a movable part exposed on one side to service-pressure, a valve controlling said supply-port, having a waste-passage leading through it from said chamber to the atmosphere, a spring normally holding said valve against its seat, a variable yielding resistance acting in opposition to the service-pressure on said movable part which is constructed and arranged to open the supply-valve and to close the waste-passage through it, and means for manually varying said resistance by predetermined degrees, substantially as and for the purposes set forth.

5. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply, service and waste ports and a movable part exposed on one side to service-pressure, valve mechanism controlling said supply and waste ports, and adapted to be operated by said movable part, a screw working in a fixed nut, and provided with a cam or incline, a spring interposed between said screw and movable part, and a part interposed between said movable part and the cam or incline on said screw and adapted, when said spring is compressed to a certain degree by said screw, to positively act on said movable part and valve mechanism independently of said spring, substantially as and for the purposes set forth.

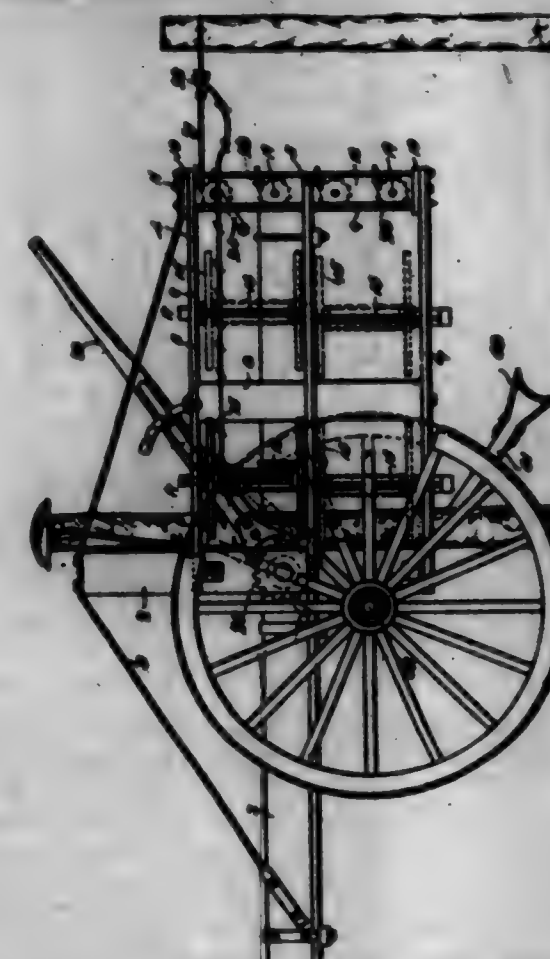
6. In apparatus for applying fluid-pressure the combination of an expandable chamber having supply, service and waste ports and a movable part which is exposed on one side to service-pressure, valve mechanism controlling said supply and waste ports and adapted to be operated by said movable part, a hollow screw working in a fixed nut and provided with a cam or incline, a yoke guided in said nut and bearing at one end against said movable part and projecting at the other end into the path of said cam or incline, a bolt passing axially through and adjustably fastened in said screw and passing through an opening in said yoke and bearing at one end against said movable part, a spring held on said bolt in said screw and bearing at one end against the screw and at the other end against an abutment on the bolt, and a crank for turning said screw, substantially as and for the purposes set forth.

7. In apparatus for applying fluid-pressure the combination with a source of fluid-pressure and a fluid-pressure motor, of a controlling device comprising an expandable chamber having a waste-port and supply and service ports connected with said source of pressure and with said motor, respectively, valves normally closing said supply and waste ports, a movable part exposed on one side to service-pressure and adapted to open either valve when the other valve is closed, a spring adapted to act on said movable part in opposition to the service-pressure, a screw acting on said spring, means for manually turning said screw and varying the pressure of said spring on said movable part, and means operated by said screw for positively opening the supply-valve and holding it open when said spring is compressed to a certain degree, substantially as and for the purposes set forth.

8. In apparatus for applying fluid-pressure the combination with a source of fluid-pressure and a fluid-pressure motor, of a controlling device comprising an expandable chamber having a waste-port and supply and service ports connected with said source of pressure and with said motor, respectively, valves normally closing said supply and waste ports, a movable part exposed on one side to service-pressure and adapted to open either valve when the other valve is closed, a spring adapted to act on

said movable part in opposition to the service-pressure, a screw acting on said spring and provided with a cam or incline, a handle for turning said screw and compressing said spring to predetermined degrees, means for permanently adjusting the tension of said spring independently of said handle, and a part actuated by said cam or incline for positively opening and holding open the supply-valve independently of said spring when said handle is moved to its limit in one direction, substantially as and for the purposes set forth.

696,806. WIRE REELING AND STRETCHING MACHINE.
HENRY C. LAMB, Boston, Mass. Filed Aug. 14, 1901. Serial No. 73,066. (No model.)



Claim.—1. In a machine of the class described, the combination with a wagon having a framework located at the rear end of the body, wire-carrying spools mounted on the framework, a series of vertically-adjustable guides mounted on the framework and located in rear of the wire-carrying spools, and a vertical series of wire-stretching devices also mounted on the framework, substantially as described.

2. In a machine of the class described, the combination of a wagon having a framework extending from the rear portion of the wagon-body and provided with spindle-rods adapted to receive spools of wire, a vertical rod located in rear of the spindle-rods and provided at intervals with wire-receiving guides, said guides being adjustably secured to the vertical rod and capable of vertical adjustment, and means for stretching a series of wires, substantially as described.

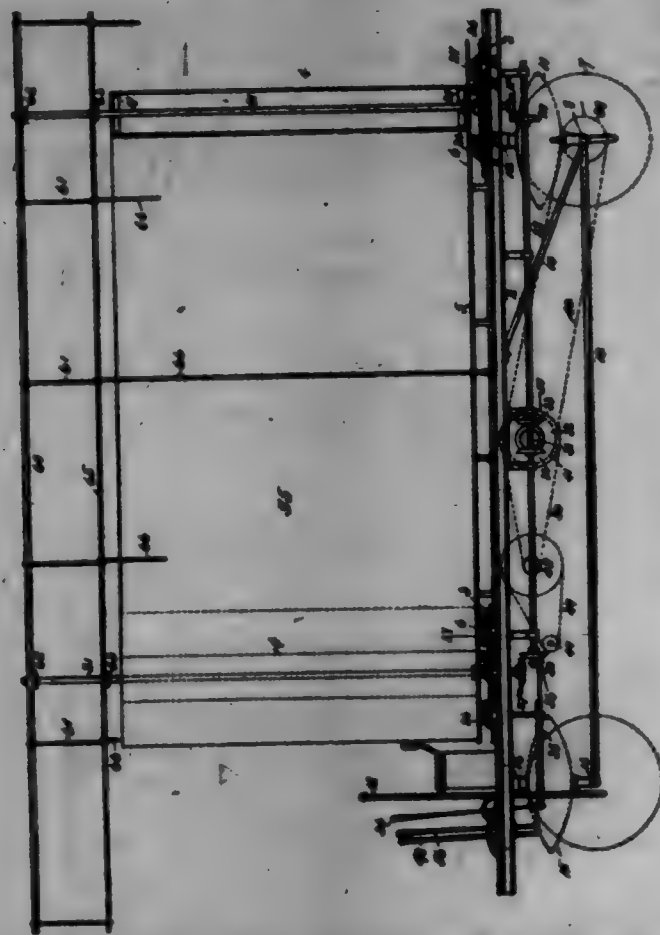
3. In a frame-making machine the combination of a body having a rearwardly-extending framework which extends above and below the plane thereof and comprising upper and lower plates and an intermediate platform to support an operator, and wire feeding and stretching devices disposed in said framework.

4. In a frame-making machine, the combination of a wagon-body having an upright at the rear portion thereof, a framework supported by said upright and rear portion of the body and extending outwardly to the rear from the latter, an arch-brace secured to the body, upright and rear portion of the framework, and wire feeding and stretching devices carried by said framework.

696,807. ADVERTISING-WAGON. JAMES LAMBERTSON, Reading, Pa., assignor of three-eighths to Charles W. Keller, Benjamin F. Pflum, William K. Kaufmann, and John E. Herringer, Reading, Pa. Filed June 28, 1901. Serial No. 66,010. (No model.)

Claim.—1. The combination with the bed, of the front and rear vertical roll-columns, centrally located transversely, the bearings on the bed for said columns, shaft extensions of the columns below said bearings, the horizontal shaft under said bed between said shaft extensions, the trans-

verse operating-shaft arranged to engage said horizontal shaft to rotate the latter in one direction or the other, and mechanism for throwing said horizontal shaft into rotating engagement with one or other of said shaft extensions, substantially as set forth.



2. The combination with the bed and the vehicle running-gear comprising a rotary rear axle, of the front and rear vertical roll-columns located centrally thereon transversely, the bearings on the bed for said columns, shaft extensions of the columns below said bearings, the horizontal shaft under said bed between said shaft extensions, the transverse operating-shaft arranged to engage said horizontal shaft to rotate the latter in one direction or the other, mechanism for throwing said horizontal shaft into rotating engagement with one or other of the columns, and operating mechanism for said transverse shaft connecting with said rotary axle, substantially as set forth.

3. The combination with the bed and the column bearing-ring fixed thereto, of the roll-column having a central shaft extending below the base-plate thereof, a bearing-disk fixed to said shaft extension below said base-plate, a ball-race formed in the meeting faces of said fixed bearing-ring and rotary bearing-disk, and guide-rollers mounted in brackets fixed to the bed and overhanging said bearing-disk, substantially as set forth.

4. The combination with the bed and the column bearing-ring fixed thereto, of the roll-column having a central shaft extending below the base thereof, and above the roll-column, operating mechanism for said roll-column located beneath the bed and arranged to engage said shaft extension, and a roof-frame mounted upon said upward extension of the column-shaft and serving to maintain a uniform spread of the columns and thereby relieve the bottom bearings of the latter substantially as set forth.

5. The combination with the bed and the two vertical roll-columns rotatably mounted thereon and having central shafts with upward extensions above the columns, of a roof-framing comprising inclined rafters loosely mounted upon said shaft extensions, and horizontal pin-bars connecting said loosely-mounted rafters to form a rigid roof-frame between the column-shafts supporting the same, substantially as set forth.

6. The combination with the bed and the two vertical roll-columns rotatably mounted thereon and having central shafts with upward extensions above the columns, of a roof-framing mounted upon said shaft extensions, a curved roof-covering depending on either side below the rafters of the roof-framing toward the bed to form side walls, and a brace or braces pivoted at one end to the bed and adapted when raised to engage and support the free lower edges of the curved covering in elevated and laterally-projected position, substantially as set forth.

696,908. SEPARABLE TROUSERS-BUTTON. ALEXANDER LEWIS, Lakeland, Fla. Filed July 26, 1901. Serial No. 66,513. (No model.)

Claim.—1. An improved article of manufacture the herein-described separable trousers-button, consisting of the half-disk A and A', the necks or shanks B and B', the clamp-plates C and C', each of said clamp-plates being provided on the outer upright edges of its respective face and back with series of teeth d and d', said clamp-plates also having respectively a rectangular aperture e and a prong f, the aperture e being provided to receive the prong f of clamp-plate C', in substance as set forth.



2. A separable trousers-button, made up of two sections, one of said sections embracing the downward-extending half disk or head A', joined to the clamp-plate C' by the neck or shank B', said clamp-plate having on the back and outer upright edges series of teeth d', and an inwardly-projecting prong f, bent at f' to any suitable angle and extending downward in a plane parallel to the clamp-plate C'; and the other section embracing the upward-extending half disk or head A joined to the clamp-plate C by the neck or shank B, said clamp-plate having on its face and outer upright edges series of teeth d, and a rectangular aperture e provided near its lower end to receive the prong f, all combined as and for the purpose shown and set forth.

696,909. CARBURETING DEVICE FOR EXPLOSIVE-ENGINE. THOMAS MCGOWAN and ARTHUR D. HILLER, Mount Pleasant, Pa., assignors of one-fourth to Samuel J. Hiller, Mount Pleasant, Pa. Filed Jan. 24, 1901. Serial No. 64,501. (No model.)



Claim.—1. The combination with a vapor-engine, of a carburator comprising a carburating-chamber and a vapor-chamber, means for passing a heated fluid through, but not into, said chambers, means for liberating said fluid within the carburating-chamber, means for leading the carburated fluid through the carburating-chamber into the vapor-chamber, and means for leading the vapor or gas from the vapor-chamber to the engine for consumption.

2. The combination with a vapor-engine, of a carburator comprising a carburating-chamber and a vapor-chamber communicating therewith, a heating-tube extending through said chambers, means for establishing communication between one end of said tube and the interior of the carburating-chamber, means for leading a heated fluid through the tube to heat said chambers prior to the delivery of said fluid to the interior of the carburating-chamber, and means for leading the gas or fluid from the vapor-chamber to the engine.

3. The combination with a vapor-engine, of a carburator comprising an exhaust-chamber, a vapor-chamber and an intermediate carburating-chamber, of means for leading the exhaust from the engine into the exhaust-chamber of the carburator, means for leading the exhaust fluid from the exhaust-chamber to the interior of the carburating-chamber, means for establishing communication between the carburating-chamber and the vapor-chamber, and means for leading the gas or vapor from the vapor-chamber to the engine for consumption.

4. The combination with a vapor-engine having an explosion-chamber and an igniter-burner, of a carburator comprising a plurality of vapor-chambers disposed to supply vapor to the explosion-chamber and igniter-burner, respectively, carburating-chambers in communication with said vapor-chambers, an exhaust-chamber disposed to receive the exhaust fluid from the engine, and having communication with the interior of each of the carburating-chambers, and means for leading the exhaust through the vapor-chambers before delivery to the carburating-chambers, whereby the tension of the vapor is raised prior to its delivery to the engine.

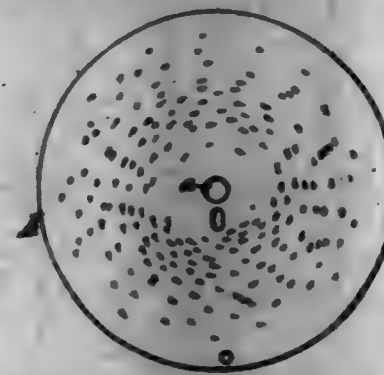
5. In a carburator, the combination with a casing comprising an exhaust-chamber, carburating-chambers and vapor-chambers, of means controlling communication between the carburating-chambers and the vapor-chambers, means for applying a fluid under pressure to the exhaust-

chamber, means for leading said fluid from the exhaust-chamber to the carburating-chambers and for leading said exhaust fluid through the carburating-chambers before delivery thereto, and means for leading the vapor from the vapor-chambers.

6. In a carburator, the combination with a casing subdivided to define a pair of carburating-chambers, vapor-chambers above and an exhaust-chamber below the carburating-chambers, of means located within the carburating-chambers and extended into the vapor-chambers, heating-tubes extending from the exhaust-chamber through the carburating and vapor chambers, filling-tubes extending through the vapor-chambers and opening into the carburating-chambers, and means for establishing communication between the upper ends of the heating and filling tubes.

7. In a carburator, the combination with a casing having an apertured partition defining a carburating-chamber and a vapor-chamber at opposite sides thereof, of cylindrical walls located in the carburating-chamber and extended into the apertures of the partition, short wick-tubes disposed within the upper ends of the walls, and means for leading a fluid through the carburator.

696,910. NOTE-SHEET OR MUSIC-BOOK. JOSEPH WATTEBER, Jersey City, N. J., assignor to Parthenon Music Box Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 22, 1901. Serial No. 57,864. (No model.)



Claim.—1. A tooth for note-sheet, located opposite and formed of the metal from an opening in said sheet, and composed of an upright shoulder and an inclined back integral with each other and with the sheet, said shoulder being of approximately the same thickness as the body of the sheet, and said back of a less thickness, and said shoulder being connected at one end with the back and at the other end with the sheet, substantially as set forth.

2. A tooth for note-sheet, located opposite and formed of the metal from an opening in said sheet, and composed of an upright shoulder and an inclined and hardened back integral with each other and with the sheet, said shoulder being of greater thickness than said back, and connected at one end therewith and at the other end with the sheet, substantially as set forth.

3. A tooth for note-sheet, located opposite and formed of the metal from an opening in said sheet, and composed of an upright shoulder and an inclined and hardened back integral with each other and with the sheet, said shoulder being of greater thickness than said back, and connected at one end therewith and at the other end with the sheet, substantially as set forth.

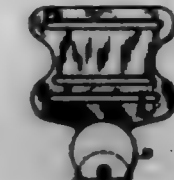
4. A tooth for note-sheet, located opposite and formed of the metal from an opening in said sheet, and composed of an upright shoulder and an inclined and hardened back integral with each other and with the sheet, said shoulder being of approximately the same thickness as the body of the sheet, and said back of a less thickness, and said shoulder being connected at one end with the back and at the other end with the sheet, substantially as set forth.

5. A note-sheet having openings, and teeth located each opposite one of said openings, and formed of the metal of the same, and composed of an upright shoulder and an inclined back integral with each other and with the sheet, said shoulder being of approximately the same thickness as the body of the sheet, and said back of less thickness, and said shoulder being connected at one end with the back and at the other end with the sheet, substantially as set forth.

696,911. HOSE-SUPPORTER. GEORGE H. PHILLIPS, Boston, Mass., assignor to George Frost Company, Boston, Mass., a Corporation of Massachusetts. Filed Nov. 22, 1901. Serial No. 21,026. (No model.)

Claim.—1. A gutterman's gutter comprising a clamp, a supporting-rod stretched thereon, a band, to one end of which the rod is permanently connected, and a hook attached to the band having an upturned lower end, and provided with a curved wearing-surface for the rod, arranged above and extending beyond both side edges of the bottom of the hook, the widest part of the wearing-surface being substantially at the bottom of the hook.

2. A hook for gutter, comprising a rear portion, a bottom portion and a front portion, which latter extends laterally from both sides of the central longitudinal axis of the back portion, in combination with a stationary curved wearing-piece, secured to the back, and extending laterally beyond both side edges thereof, the widest portion of said curved wearing-piece being substantially at the bottom of the hook, while the curved wearing-surface of the wearing-piece is arranged above the bottom of the hook.



696,912. HOSE-SUPPORTER. CHARLES J. ROSE, Calcutta, Ill., assignor to Adelle H. Rose, Calcutta, Ill. Filed May 24, 1897. Serial No. 57,890. (No model.)



Claim.—1. In hose-supporters, the combination with the webbing, of a metal loop having a contracted end portion and an engaging button each secured to said webbing, whereby the hose is held by said button in the contracted end of said loop, said loop being formed of a folded sheet-metal blank having sections with coincident openings therein, and a flat blank, of uniform thickness and of soft, flexible material, interposed between said folded sections and having a central opening smaller than but conforming in outline to the openings in said sections, said metal loop being provided with means for preventing the lateral displacement in either direction of said flexible blank, substantially as described.

2. In hose-supporters, the combination with the webbing, of a metal loop having a contracted end portion and an engaging button each secured to said webbing, whereby the hose is held by said button in the contracted end of said loop, said loop being formed of a folded sheet-metal blank having sections with coincident openings therein, and a flat blank, of uniform thickness and of soft, flexible material, interposed between said folded sections and having a central opening smaller than but conforming in outline to the openings in said sections, the metal of said loop being indented or crimped to prevent the lateral displacement in either direction of said flexible blank, substantially as described.

3. In hose-supporters, the combination with the webbing, of a metal loop having a contracted end portion and an engaging button each secured to said webbing, whereby the hose is held by said button in the contracted end of said loop, said loop having an elongated transverse opening at the larger end and being formed of a folded sheet-metal blank having symmetrical sections connected at the contracted end and with coincident openings therein, and a flat blank, of uniform thickness and of soft, flexible material, interposed between said folded sections and having a central opening smaller than but conforming in outline to the openings in said sections, said metal loop being provided with means for preventing the lateral displacement in either direction of said flexible blank, substantially as described.

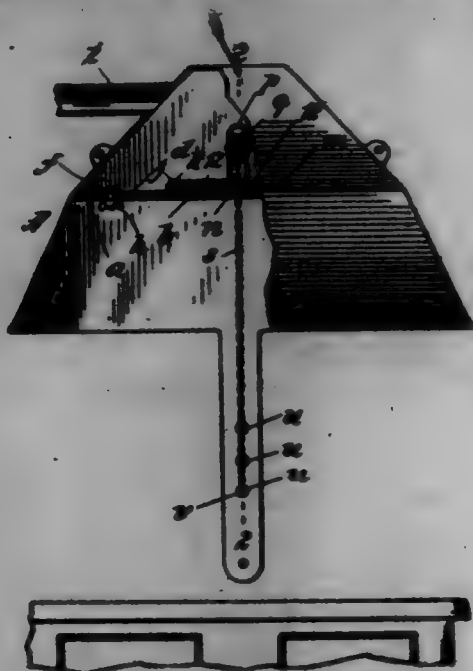
696,913. CONCENTRATOR. WILLIAM E. SULLIVAN, Denver, Colo., assignor of fifty-nine one-hundredths to Oscar C. Ratten, George T. Ratten, and C. A. Richmond, Denver, Colo. Filed Aug. 24, 1899. Serial No. 27,904. (No model.)



Claim.—In combination, a fixed table having an inclined surface with a fixed trough about the same deeper at one point than at another, a pair of gates at the deeper part of the trough, said gates being in different planes, a pedestal 6 provided with a series of steps, a vertical shaft extending from said pedestal and journaled therein, the stationary frame 10 in which the said shaft is journaled at its upper end, the screws connected to the shaft, the drags carried by the screws to move over the table, a hopper carried by the screws and surrounding the shaft, said hopper directing the material onto the slope of the pedestal, a trough for

directing the material to the hopper and means for driving the shaft, substantially as described.

698,914. VENTILATING APPARATUS. LEON S. SWANSON, Springfield, Mass., assignor of one-half to August C. J. Swanson, Springfield, Mass. Filed May 26, 1901. Serial No. 61,872. (No model.)



Claim.—1. A flaring downwardly-open hood, for employment above a range, having therewithin a horizontal partition provided with a ventilating-opening *b*, and also with an aperture *c*, and said hood having a passage leading from an upper portion thereof, combined with a plate or closing-door, for said opening *b*, hinged to the partition adjacent the latter opening, and having a spring for normally forcing the door to its closed position, a cheave mounted within the hood above said partition, a flexible connection secured to a free edge portion of the door, having a guiding engagement around said cheave, and extended downwardly from the latter through said aperture *c* to a position below the hood, substantially as described.

2. A structure having the studs or bolts, the removable sectional wall, having the opening *b*, engaging over said studs and confining means therefor, the door hinged to said wall, the bracket mounted on said wall and provided with the cheave, and the chain secured to a free portion of the door and guided over the cheave to an accessible position for operation.

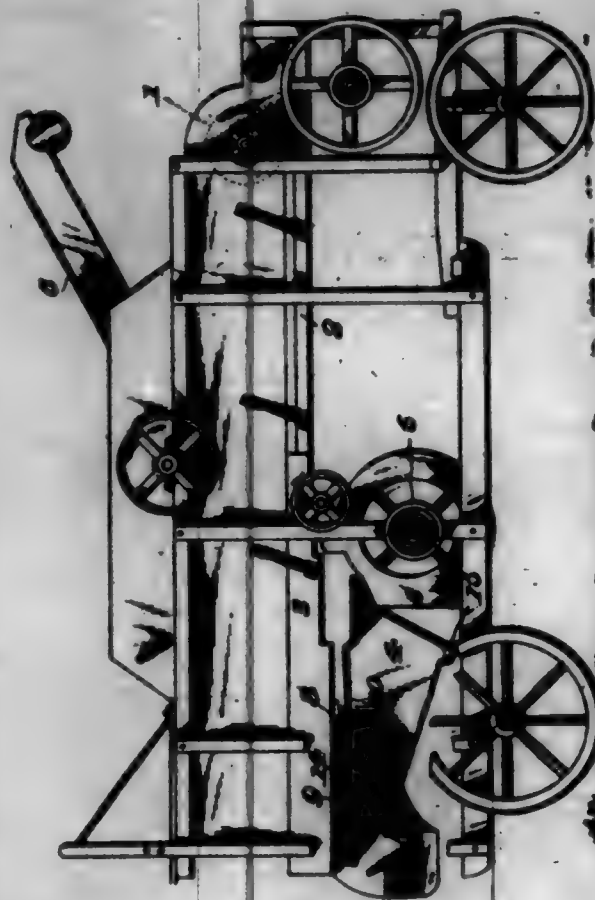
3. In an apparatus of the character described, the combination with the wall *a* having a ventilation-opening *b*, and provided with car-legs *j* and bracket *p*, of the plate or door *m* having the car-legs *k*, the hinge-rod *n*, the spring having intermediate U portion 10, aligned coils 12, 12, surrounding the rod and the oppositely-extended end portions 13, the cheave *q* in said bracket, and the chain *a*, secured to a free portion of the door and thence guided over said cheave to a convenient place to be drawn upon, all substantially as described.

4. In an apparatus of the character described, the combination with a permanent wall having the bolts or screw-studs *ff*, of the removable wall *a* having the perforations *g g*, a ventilation-opening *b*, and provided with car-legs *j* and bracket *p*, the nuts *h h*, the plate or door *m* having the car-legs *k*, and the perforation *t*, the hinge-rod *n*, the spring having intermediate U portion 10, aligned coils 12, 12, surrounding the rod, and the oppositely-extended end portions 13, the cheave *q* in said bracket, and the chain *a*, secured to a free portion of the door and thence guided over said cheave and through said perforation *t* to a convenient place to be drawn upon, and the confinement-end *v* adjacent the free end of the chain, all substantially as described and shown.

698,915. GRAIN-SEPARATOR. FRED WHITE, OMAHA, ILL. Filed Nov. 24, 1900. Serial No. 57,064. (No model.)

Claim.—1. In a shoe for grain-separators, the combination with the frame thereof provided at its rear end with a tail-board spout, of an upper riddle spaced above said spout and having its rear end projecting over the spout, a screen arranged at the bottom of the frame and having its rear end in contact with the forward edge of said spout, said screen inclining forwardly and downwardly from the spout, and a lower riddle interposed between the upper riddle and the screen, said lower riddle being inclined reversely to the screen and having its rear end resting upon

the forward edge of the tail-board spout and its forward end in close contact with the upper riddle, whereby the tailings discharged from the upper riddle are received by the lower riddle and deflected thereby from the screen into the tail-board spout.



2. In a shoe for grain-separators, the combination with the frame thereof provided at its rear end with a tail-board spout, of an upper riddle spaced above said spout and having its rear end projecting over the spout, a screen arranged at the bottom of the frame and having its rear end in contact with the forward edge of said spout, said screen inclining forwardly and downwardly from the spout, and a lower riddle interposed between the upper riddle and the screen, said lower riddle being inclined reversely to the screen and having its rear end resting upon the forward edge of the tail-board spout and its forward end in close contact with the upper riddle at a point intermediate the ends of the latter, whereby the tailings discharged from the upper riddle are received by the lower riddle and deflected thereby from the screen into the tail-board spout.

698,916. APPARATUS FOR GAGING TEMPERATURES OF HEATED SUBSTANCES. EUGENE F. MOORE, TRUMBURG, N. Y. Filed Nov. 2, 1900. Serial No. 734,502. (No model.)

Claim.—1. In an apparatus for gaging the temperature of substances which become incandescence when heated, the combination of the standard, means for supporting the same in line with the substance to be tested and the eye so that a portion at least of one may be superposed upon the field of the other, and means for bringing those portions thereof which are directly under the eye of the observer to practically the same appearance.

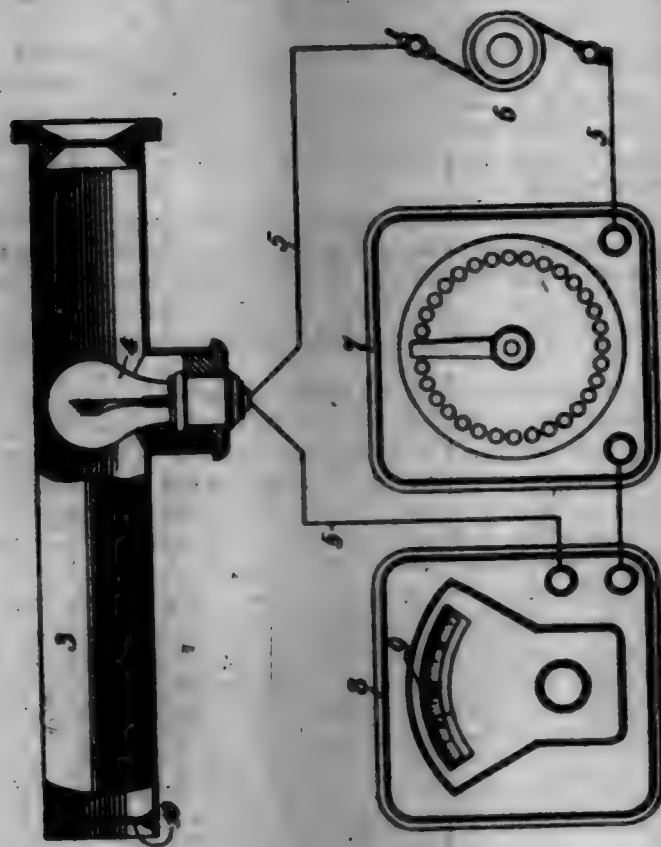
2. In an optical heat-gage apparatus, means for furnishing an optical standard of comparison with the substance to be heated and so located in the apparatus as to permit at least a portion of one to be seen superposed upon the field of the other.

3. In a heat-gage apparatus, an optical standard consisting of a substance that may be made incandescence and so located in the apparatus as to be in the path of the rays passing to the eye from the heated substance to be tested or gaged.

4. In an apparatus for gaging the temperature of a substance, a standard adapted to become incandescence to a degree corresponding to the incandescence of said substance when heated to the desired temperature, said standard being so located with respect to the line of vision through the apparatus as to permit a portion at least of one to be seen superposed upon the field of the other.

5. An optical heat-gage having an optical standard consisting of a substance whose degree or nature of incandescence is dependent upon the temperature to which it is heated and so located in the apparatus as to permit at least a part of its incandescence to be seen superposed upon the field of the incandescence of the heated substance to be tested or gaged.

6. The combination with two incandescent lamps 13 and 14, a rheostat and ammeter in the circuit of one lamp, a rheostat in the circuit of the other lamp, and a reversing switch for transposing the circuits of the lamps substantially as and for the purpose set forth.



696,917. NON-REFILLABLE AND NON-REMITTABLE VESSEL FOR LIQUIDS. ROBERT F. YER, New York, N. Y. Filed Sept. 20, 1901. Serial No. 78,972. (No model.)



Claim.—1. The combination of a vessel for liquids, having in the neck or corresponding passage thereof an annular groove, with a casing having compressible spring-plugs adapted to engage said groove, said casing having recesses at each side, and a circular interior chamber having an inlet-passage, leading from the body, and an outlet-passage protected by a perforated cap, leading to the mouth of the vessel, with a transverse shaft carrying blades within said chamber, adapted to rotate by liquid-pressure and to control inlet and outlet passages, said shaft being also provided at one end with a rigid pulley, *p*, which is connected by a cord with another pulley, *q*, so that revolving of the shaft causes the cord to be unwound from pulley *q*, and simultaneously wound onto pulley *p*, and said shaft being further provided at the other end with a rotary clutch and corresponding revolvable loops adapted to prevent reversing revolutions, substantially as shown and described.

2. The combination of a vessel for liquids, having a neck or other

corresponding passage, with a transverse shaft carrying blades adapted to rotate by liquid-pressure and to control inlet and outlet, said shaft being also provided with a rigid pulley *p*, which is connected by a cord with another pulley *q*, so that revolving of the shaft causes the cord to be unwound from pulley *q* and simultaneously wound onto pulley *p*, and said shaft being further provided with a rotary clutch and corresponding revolvable loops adapted to prevent reversing revolutions, substantially as shown and described.

3. The combination of a tube or conduit with a transverse shaft carrying blades adapted to rotate by liquid-pressure and to control inlet and outlet, said shaft being provided with a rigid pulley *p*, which is connected by means of a cord or chain (of length only to allow sufficient revolutions for the valve to open and pass the stipulated quantity) with another pulley *q* so that revolving of the shaft causes the cord or chain to be unwound from pulley *q* and simultaneously wound onto pulley *p*, and said shaft being further provided with a rotary clutch and corresponding revolvable loops adapted to prevent reversing revolutions, thereby automatically measuring and cutting off supplies, substantially as shown and described.

4. A device to limit revolutions and check reversing motion of a shaft, comprising a pulley *p* rigid on said shaft, connected, by means of a cord or chain, of length only to allow of limited number of revolutions with another pulley *q*, so that revolving of the shaft causes the cord or chain to be unwound from pulley *q*, and, simultaneously, wound onto pulley *p*, said chain being checked by the fastened end at pulley *q*; together with a rotary clutch, having one or more hook-shaped arms, carried rigid on said shaft so as to engage one or more of a series of revolvable loops mounted in proper position for reciprocal service, said clutch and revolvable loops being so located in relation to each other as to be always within interlocking range, so that, when said clutch is rotated in one direction, the resulting collision with the series of revolvable loops causes said loops to revolve and allow the clutch to clear for further rotation, but, when said clutch is rotated in the reverse direction, it must interlock with the revolvable loops, and thus break all rotation in that direction substantially as shown and described.

5. A device to limit revolutions of a shaft comprising a pulley *p* rigid on said shaft connected by means of a cord or chain of length to allow of limited number of revolutions with another pulley *q*, so that revolving of the shaft causes the cord or chain to be unwound from pulley *q*, and simultaneously, wound onto pulley *p*, said chain being checked by the fastened end at pulley *q*, substantially as shown and described.

6. A non-refillable vessel for liquids comprising the vessel or frame *A*, having in its neck the annular groove *f*; the casing *B* inserted therein and held in position by the spring-plugs *g* engaging groove *f*, said casing having side recesses *d* and *e*, a circular interior chamber *a*, outlet-passage *b*, and inlet-passage *c*; the transverse shaft *h* mounted within said casing, passing through chamber *a*, and extending into recesses *d* and *e*, said shaft carrying, in chamber *a*, the blades *m* *n*, adapted to rotate by liquid-pressure and to control inlet and outlet, also carrying, in recess *d*, the rigid pulley *p*, connected by the cord *r* to the other pulley *q*, said cord having first been securely attached, at one end, to pulley *q* then wound on same, as many times as original contents passing through chamber *a* rotates the blades *m* *n*, and then out and attached, at that end, to pulley *p*, said shaft further carrying or engaging, in recess *e*, the rotary clutch *y* and the loops *z* adapted to interlock and prevent reverse revolution of the shaft, the whole being adapted so that pressure of the originally-enclosed liquid on the blades causes the shaft to revolve and the blades to rotate until the cord is unwound from pulley *q* and, simultaneously, wound onto pulley *p*, till the fastened end at pulley *q* stops rotation, so that original contents can flow out freely, but, should the vessel be afterward wholly or partially refilled, by any means, refilling is prevented by restraint of the cord *r*, in recess *d*, and obstruction of the clutch *y* and loops *z*, in recess *e*, which prevent any further rotation of the blades controlling the outlet, substantially as shown and described.

7. In a non-refillable vessel for liquids the frame *A* having a neck or similar passage; inserted in said neck the casing *B* having inlet and outlet passages therein; covering said outlet-passage the protecting perforated cap *i*; attached to said casing the retaining-plugs *g* engaging in the annular groove *f*; mounted within said casing the shaft *h*; carried on said shaft the blades *m* *n* controlling inlet and outlet passages; carried on said shaft the pulley *p* and the clutch *y*; mounted in position to correspond with said clutch the revolvable loops *z*; connected by the regulating-cord with said pulley *p*, the additional pulley *q*; the cord *r* connecting said pulleys *p* and *q*, all adapted for the purposes named, substantially as shown and described.

REISSUES.

11,978. MOWING-MACHINE ATTACHMENT. THOMAS B. FAGAN, Van Wert, Ohio, assignor, by mesne assignments, to the Side Delivery Reaper Company, Toledo, Ohio, a Corporation of Ohio. Filed Jan. 29 1902. Serial No. 81,808. Original No. 948,948, dated Feb. 6, 1900.



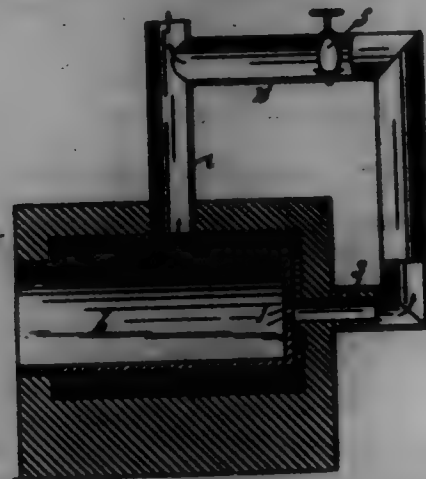
Claim.—1. A side-delivery attachment for mowing-machines, comprising in its construction a plurality of thin, resilient ribs gradually and uniformly increasing in length from one side to the other of the attachment and having their front portions in a substantially uniform flat plane to rest on the ground, and having their rear portions turned upwardly and twisted in a direction to present their concave faces toward the longer or discharge side of the attachment.

2. The combination with a mower having a side-delivery gatherer comprising a series of bars extending rearwardly from the finger-bar and having upwardly-turned free ends, of a gate parallel with the delivery side thereof and movably supported to enable it to be moved away to permit the discharge of a bunch of grass.

3. In a mower, the combination with a gatherer arranged behind the cutter-bar and composed of parallel ribs turned up at their rear ends on a diagonal line; of a gate composed of an arm having pendant teeth or tines arranged along the line of draft parallel with the delivery side of the gatherer, said arm being made adjustable to be lifted from the gatherer to discharge the bunch of grass substantially as described.

4. The combination with a mower having a gatherer with a side delivery; of a variably-working gate having revolving pendant prongs or teeth curved at their lower ends substantially as and for the purpose described.

11,979. ASHAYER'S FURNACE. JOHN J. LEONARD and ALBERT C. GALKIN, Los Angeles, Cal., assignors, by mesne assignments, to F. W. Brown & Company, Los Angeles, Cal. Filed Feb. 14, 1902. Serial No. 796,516. Original No. 698,888, dated Aug. 9, 1900.



Claim.—1. An ashayer's furnace consisting of a furnace-body, a muffle therein provided with a draft-opening, and draft-inducing means exteriorly of the furnace-body in communication with the draft-opening of the muffle.

2. An ashayer's furnace consisting of a furnace-body provided with an opening and a draft-flue, a muffle within said body provided with a draft-opening, and draft-inducing means exteriorly of the furnace-body, communicating respectively with the draft-opening of the muffle through the furnace-wall, and with the draft-flue.

3. An ashayer's furnace consisting of a furnace-body provided with an opening and a draft-flue, a muffle in the body provided with a draft-opening in communication with the opening in the furnace, a conduit exteriorly of the furnace-body communicating respectively with the draft-opening of the muffle through the furnace-wall, and with the draft-flue, and means within said conduit for regulating the draft through the muffle.

4. An ashayer's furnace consisting of a furnace-body provided with an opening and with a draft-flue, a muffle in the body provided with a draft-opening in communication with the opening in the furnace-wall, and a thin-walled draft-inducing means exteriorly of the furnace in communication respectively with the muffle through the furnace-wall and with the furnace-flue.

5. An ashayer's furnace consisting of a furnace-body provided with an opening and a draft-flue, a muffle in the body provided with a draft-opening in communication with the opening in the furnace-wall, a sheet-metal pipe communicating with the opening in the furnace-wall and with the flue, and a damper in said pipe for regulating the draft through the muffle.

6. The improved ashayer's furnace, adapted for burning gasolene or other hydrocarbon, the same comprising the body or casing, having the rear horizontal passage 2, the muffle having a rear opening registering with such passage, the rear tubular extension or bon 3, the main flue attached to top of the furnace, and the existing attachment, consisting of the exterior pipe 4, connecting the above-mentioned bon and main flue, and provided with a damper, as shown and described.

7. The improved ashayer's furnace, comprising the body having the rear passage 2, the muffle arranged with its lower end provided with an opening and separated from the rear wall of said body, save where the passage and opening coincide, the main flue, and the existing attachment consisting of an exterior pipe which connects the above-mentioned passage and main flue, as shown and described.

DESIGNS.

85,829. SPOON. FRANK P. FARMY, Kalamazoo, Mich. Filed Jan. 27, 1902. Serial No. 81,622. Term of patent 14 years.



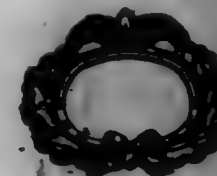
Claim.—The design for a spoon or the article, as herein shown and described.

85,880. GLASS DISH. WILLIAM C. ANDERSON, Chicago, Ill., assignor to the Libbey Glass Company, Toledo, Ohio, a Corporation of Ohio. Filed Mar. 10, 1902. Serial No. 87,642. Term of patent 7 years.



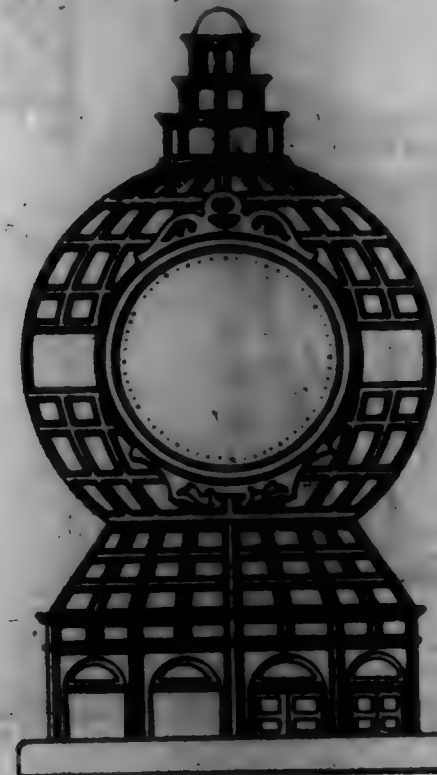
Claim.—The design for a glass dish as herein shown and described.

85,881. PICTURE-FRAME. EARL GEORGE, Newark, N. J. Filed Mar. 1, 1902. Serial No. 86,366. Term of patent 7 years.

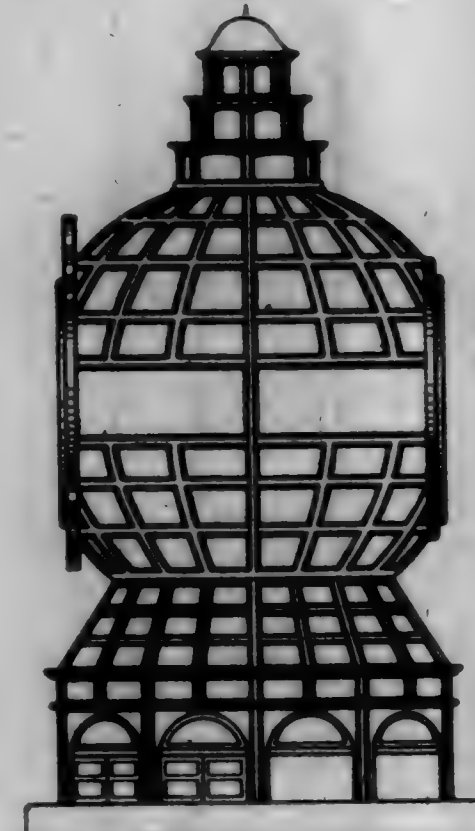


Claim.—The design for a picture-frame herein shown and described.

85,882. CLOCK-CASE. HENRY JACOB, St. Louis, Mo. Filed Dec. 21, 1901. Serial No. 87,973. Term of patent 14 years.



85,882.



Claim.—The design for a clock-case as herein shown and described.

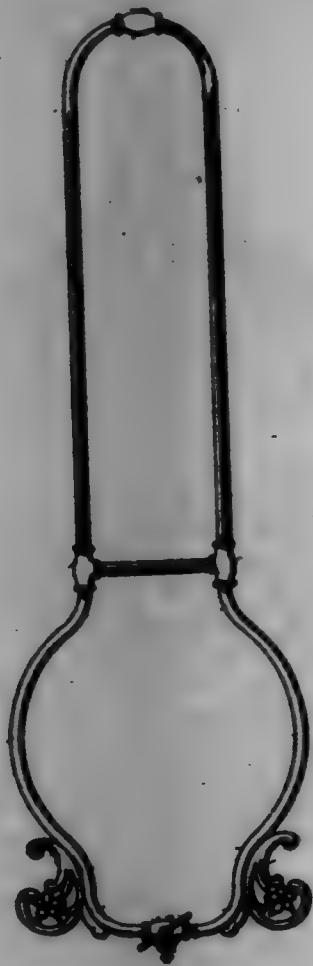
85,883. VIOLIN-CASE. FRANK E. KENNEDY, Newark, N. J., assignor to Washburn & Whittemore, Newark, N. J. Filed Feb. 5, 1902. Serial No. 86,751. Term of patent 14 years.



Claim.—The design for a violin-case as herein shown and described.

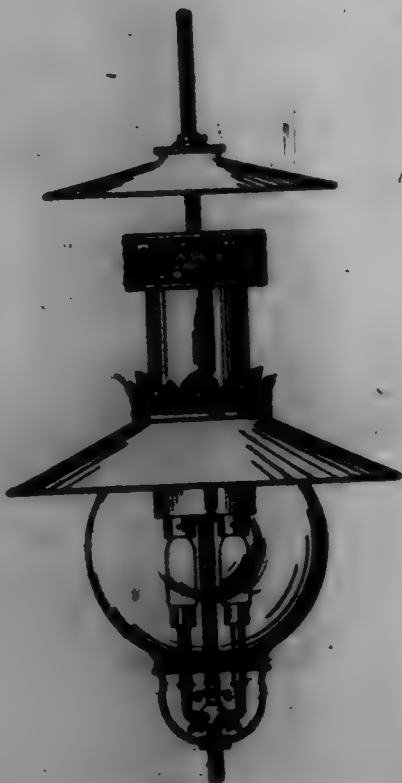
85,884. LAMP-FIXTURE. THOMAS MOORE JAMES, Memphis, Tenn. Filed Mar. 1, 1902. Serial No. 86,366. Term of patent 14 years.

85,884.



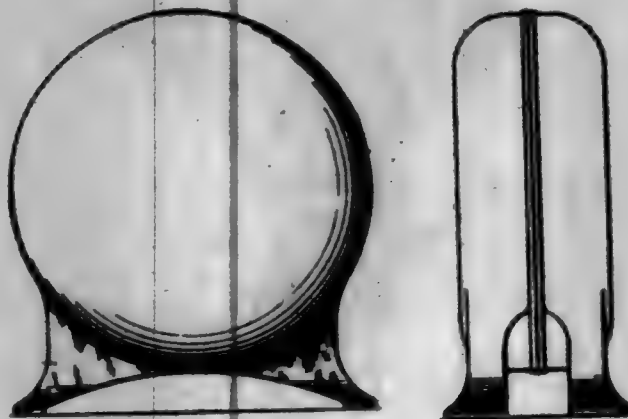
Claim.—The design for a lamp-structure, substantially as herein shown and described.

85,885. GAS-ARC LIGHT. HERMAN E. FRANK, Milwaukee, Wis.
Filed Feb. 20, 1902. Serial No. 54,353. Term of patent 7 years.



Claim.—The design for a gas-arc light, as herein shown and described.

85,886. GEAR-CASEING. CHARLES WALLACE HUNT, West New Brighton, N. Y. Filed Feb. 14, 1902. Serial No. 53,126. Term of patent 14 years.



Claim.—The design for a gear-caseing, substantially as shown and described.

85,887. WALL-CASEING. CHARLES E. LARRABEE, Oakland, Cal.
Filed Apr. 16, 1901. Serial No. 53,128. Term of patent 7 years.



Claim.—The design for a wall-caseing substantially as herein shown and described.

85,888. FONT OF PRINTING-TYPE. HERMAN ILLINGHAM, Philadelphia, Pa., assignor to the American Type Foundry Company, Newark, N. J., a Corporation of New Jersey. Filed Mar. 5, 1902. Serial No. 94,874. Term of patent 14 years.

ABCDEFGHIJKLMNNOQRSTUVWXYZ

XYZA BCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

Claim.—The design for a font of printing-type as herein described and as illustrated in the accompanying typographical impression.

85,889. FONT OF TYPE. JAMES W. FLETCHER, Hartford, Conn., assignor to the American Type Foundry Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 3, 1902. Serial No. 94,267. Term of patent 14 years.

ABCDEFGHIJKLMNNOQRSTUVWXYZ

XYZA

abcdefghijklmnopqrstuvwxyz

123456789

Claim.—The design for a font of type as herein shown and described.

85,840. APPAREL-BELT. OTTO A. LUNNAR, Hoboken, N. J. Filed Mar. 8, 1902. Serial No. 97,396. Term of patent 34 years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

85,841. APPAREL-BELT. OTTO A. LUNNAR, Hoboken, N. J. Filed Mar. 8, 1902. Serial No. 97,396. Term of patent 34 years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

85,842. BELT. LEWIS A. MYERS, Jr., Newark, N. J. Filed Feb. 10, 1902. Serial No. 95,241. Term of patent 34 years.



Claim.—The design for a belt substantially as shown and described.

85,843. PATTERN FOR DRESS-SKIRTS. HENRIETTA OTTOM, New York, N. Y. Filed Feb. 26, 1902. Serial No. 96,254. Term of patent 34 years.



Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,844. PATTERN FOR DRESS-SKIRTS. HERRING GUNDEL, New York, N. Y. Filed Feb. 26, 1902. Serial No. 95,836. Term of patent 34 years.



Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,845. PATTERN FOR DRESS-SKIRTS. HERRING GUNDEL, New York, N. Y. Filed Feb. 26, 1902. Serial No. 95,838. Term of patent 34 years.



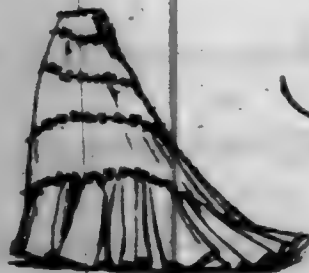
Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,846. PATTERN FOR DRESS-SKIRTS. HERRING GUNDEL, New York, N. Y. Filed Feb. 26, 1902. Serial No. 95,837. Term of patent 34 years.



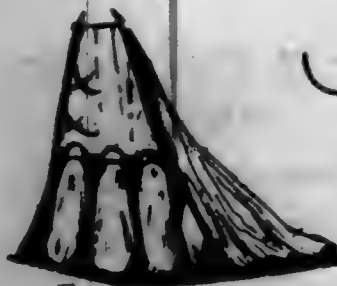
Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,847. PATTERN FOR DRESS-SKIRTS. HERRING GUNDEL, New York, N. Y. Filed Feb. 26, 1902. Serial No. 95,839. Term of patent 34 years.



Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,848. PATTERN FOR DRESS-SKIRTS. HERRING GUNDEL, New York, N. Y. Filed Feb. 26, 1902. Serial No. 95,839. Term of patent 34 years.



Claim.—The design for a pattern for dress-skirts, as herein shown and described.

85,849. CLOAK. HERMAN HAYES, New York, N. Y. Filed Jan. 17, 1902. Serial No. 95,834. Term of patent 34 years.



Claim.—The design for a cloak, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 1, 1902.

87,996. JEWELRY. FRANK PERLA, New York, N. Y. Filed Feb. 24, 1902.

EL PERFECTO

Essential feature.—The words "EL PERFECTO." Used since October, 1898.

87,997. WRITING-PAPER. JAMES WILSON CO., Dallas, Texas. Filed Feb. 2, 1902.

Defiance

Essential feature.—The word "DEFIANCE." Used since 1872.

87,998. SHIRT-NECK. BOWLEY, HAVILAND & DUNN, New York, N. Y. Filed Jan. 2, 1902.

DU BARRY

Essential feature.—The words "DU BARRY." Used since December 15, 1901.

87,999. WEEKLY PERIODICAL. FRANK LAMMA, New York, N. Y. Filed Feb. 14, 1902.

Exchange and Mart

Essential feature.—The words "EXCHANGE AND MART." Used since January 15, 1902.

88,000. HEADGEAR. GUN & CO., London, England. Filed Jan. 4, 1902.

88,000.



Essential feature.—A shield at the top of which are certain ornamentations, on either side of the shield a rampant lion, and immediately above the shield a helmet. Used since 1893.

88,001. SUSPENDERS. CANTON Suspenders Co., Boston, Mass. Filed Sept. 18, 1901.

EVERLASTIC

Essential feature.—The word "EVERLASTIC." Used since July 22, 1900.

88,002. CORSETS. KIM BROS., New York, N. Y. Filed Feb. 12, 1902.

NU-RAY

Essential feature.—The hyphenated word "NU-RAY." Used since February 1, 1902.

88,003. CORSETS. SYDNEY, ADAMS & CO., New Haven, Conn. Filed Feb. 4, 1902.

C/B ALA SPIRITE

Essential feature.—The letters, diagonal line, and words "C/B ALA SPIRITE." Used since January 1, 1900.

88,004. COLLARS AND CUFFS. UNION COLLAR COMPANY, Troy, N. Y. Filed Dec. 6, 1901.



Essential feature.—The representation of a situation. Used since October 16, 1901.

88,005. COLLARS AND CUFFS. UNION COLLAR COMPANY, Troy, N. Y. Filed Dec. 6, 1901.

Label

Essential feature.—The word "LABOR." Used since October 16, 1901.

88,006. **HOINKRY.** PHILLIPS & MARBLEY, Philadelphia, Pa. Filed Nov. 20, 1901.



Essential feature.—The representation of a battle-ship or cruiser and the word "OLYMPIA." Used since June, 1899.

88,007. **BOOTS AND SHOES.** FRANK & DUNTON, Marlboro, Mass. Filed Jan. 28, 1902.



Essential feature.—The words "OLD PUT," associated with the portrait of General Israel Putnam. Used since May 1, 1901.

88,008. **BOOTS AND SHOES.** FERRIS SHOE COMPANY, St. Louis, Mo. Filed Mar. 2, 1902.

Academy.

Essential feature.—The word "ACADEMY." Used since March 1, 1901.

88,009. **SHOES.** TOWN & HARRIS, West Winfield, N. Y. Filed Dec. 20, 1901.

College

Essential feature.—The word "COLLEGE." Used since October 20, 1901.

88,010. **BORSE-BLANKETS.** WILLIAM AYER & SONS, Philadelphia, Pa. Filed Feb. 25, 1902.

NOTAIRE

Essential feature.—The word "NOTAIRE." Used since January 1, 1902.

88,011. **COTTON FABRICS.** WARR, HANNEY & CO., London, England. Filed Mar. 4, 1902.



Essential feature.—The representation of a running stag. Used since March, 1875.

88,012. **WOOL WARDING.** NORMAN & EVANS, Lockport, N. Y. Filed Oct. 24, 1901.

Golden Fleece

Essential feature.—The words "GOLDEN FLEECE" and the representation of a tablet with four extended wings, the capital letters "H" and "E" on said wings, and a picture of a lamb's head arranged on said tablet. Used since April 1, 1896.

88,013. **TABLETS OR PELLETS FOR THE TREATMENT OF THE BRONCHITIS.** ROBERT ADAM BRADSHAW, Chicago, Ill. Filed Feb. 24, 1902.

NIX-E

Essential feature.—The hyphenated word "NIX-E." Used since February 2, 1902.

88,014. **STUPE, PICTURES, FILLS, PLASTERS, OINTMENTS, SOAPS, AND PERFUMES.** SUGGS & WHITE, Boston, Mass. Filed Feb. 2, 1902.

SANDERNA

Essential feature.—The word "SANDERNA." Used since January 25, 1902.

88,015. **PERFUMES.** ARON & LE FEVRE, Lancaster, Pa. Filed Aug. 8, 1901.

ACTON

Essential feature.—The word "ACTON." Used since September 1, 1900.

88,025. CERTAIN NAMED DRUGS. THE L. RICHARDSON DRUG Co., Greenboro, N. C. Filed Jan. 22, 1902.



Essential feature.—A triangular frame including a field in which is arranged a group of faces representing persons of different ages. Used since April 1, 1900.

88,026. STOMACH-BITTERS. BATES BROS. LADDER & CHAS. CO., Ltd., Baton Rouge, La. Filed Feb. 21, 1902.

ISTROUMA

Essential feature.—The word "ISTROUMA." Used since June, 1887.

88,027. MEDICINAL TABLETS. CLARK & CO., Baltimore, Md. Filed Feb. 14, 1902.

ENERJETS

Essential feature.—The word "ENERJETS." Used since January 15, 1902.

88,028. MEDICINAL TABLETS. EGYPTIAN MANUFACTURING Co., Grand Rapids, Mich. Filed Feb. 12, 1902.

CALENDAR.

Essential feature.—The word "CALENDAR." Used since February 1, 1902.

88,029. PROPRIETARY MEDICINE. THE HARBOR MEDICAL Co., Montreal, Canada. Filed Feb. 14, 1902.

HARBOR

Essential feature.—The word "HARBOR." Used since December 10, 1901.

88,030. MEDICINAL PREPARATIONS FOR ASTHMA, CATARRH, AND RAY-FEVER. THE T. & A. CHEMICAL Co., Dayton, Ohio. Filed Jan. 24, 1902.

88,080.

RECAL

Essential feature.—The word "RECAL." Used since January 1, 1901.

88,081. SPECIFIC FOR THE CURE OF KIDNEY AND BLADDER COMPLAINTS. FOSTER-McGILLAN Co., Buffalo, N. Y. Filed Feb. 12, 1902.



Essential feature.—The representation of a person holding the hands to the back. Used since January 2, 1902.

88,082. SALVE. EDWARD BENTON, Waco, Tex. Filed Feb. 12, 1902.



Essential feature.—A five-pointed star having a picture of registrant's head and neck therein, a circle surrounding the star, and an inner circle broken by the star. Used since January 1, 1900.

88,083. WINE. CAMEL WINE Co., New York, N. Y. Filed Feb. 25, 1902.

CAMEL

Essential feature.—The word "CAMEL." Used since November, 1900.

88,084. WINE. CAMEL WINE Co., New York, N. Y. Filed Feb. 25, 1902.

REHOBOTH

Essential feature.—The word "REHOBOTH." Used since November, 1900.

88,085. MALT PREPARATIONS. LOEWEL HAY, Hamburg, Germany. Filed Feb. 12, 1902.

MALT BEANS.

Essential feature.—The word "MALT BEANS." Used since February 1, 1902.

88,086. COFFEE AND TEA. FRANK E. WILSON, New Orleans, La. Filed Feb. 27, 1908.

DELIGHT



Essential features.—The word "DELIGHT" and the representation of an eagle's nest with the old and young birds. Used since February 11, 1908.

88,087. COFFEE, TEA, AND SPICES. SCHWENKER-SCOTTISH COFFEE COMPANY, St. Louis, Mo. Filed Feb. 24, 1908.

Ocean.

Essential features.—The word "OCEAN." Used since January 15, 1908.

88,088. WEIRAY-PLATE. H. B. FILLIS & CO., Toledo, Ohio. Filed Mar. 4, 1908.



Essential features.—The words "STELLAR KEY" and the representation of a key. Used January, 1907.

88,089. LARD AND LARD CONTAINER. ARMOUR & COMPANY, Chicago, Ill. Filed Mar. 3, 1908.



Essential features.—The words "WHITE CLOUD," associated with the representation of the head of an Indian. Used since February 1, 1908.

88,040. DEVICES FOR HOLDING SHOES WHILE CLEANING OR POLISHING THE SAME. ARTHUR J. SUMNER, Springfield, Mass. Filed Feb. 24, 1908.

DANDY-SHINER

Essential features.—The words "DANDY" and "SHINER" with a hyphen between them. Used since June 15, 1901.

88,041. PLASTER FINE. ARTHUR H. SUMNER, Boston, Cal. Filed Feb. 11, 1908.

HERCULES

Essential features.—The word "HERCULES." Used since January 1, 1900.

88,042. KIDNEY. GLOBE VENTILATOR COMPANY, Troy, N. Y. Filed Feb. 12, 1908.

GLOBE

Essential features.—The word "GLOBE." Used since December 31, 1897.

88,043. BARNETT METAL. HENRY J. BARNETT, Kansas City, Mo. Filed Feb. 7, 1908.



Essential features.—The letter "R" and an elliptical figure. Used since August 1, 1901.

88,044. WREN PRINCIPLE. FREDERICK A. WREN, Richmond, Ind. Filed Feb. 12, 1908.

ROYAL

Essential features.—The word "ROYAL." Used since March 1, 1899.

88,045. POINTS OF TYPE. AMERICAN TYPE FOUNDRY COMPANY, New York, N. Y. Filed Feb. 23, 1908.

Adtype

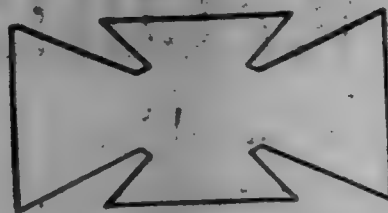
Essential features.—The word "ADTYPE." Used since January 1, 1902.

88,046. WRITING-MACHINES AND TYPE-WRITERS. THE IMPERIAL WRITING MACHINE CO'Y. (LIMITED) Montreal, Canada. Filed Feb. 26, 1902.

Empire

Essential features.—The word "THE EMPIRE." Used since December, 1894.

88,047. GAS AND CARBURET ENGINE AND MOTOR. THE WHEAT GAS AND CARBURET ENGINE COMPANY, Kansas City, Mo. Filed Feb. 15, 1902.



Essential features.—The representation of a Maltese cross. Used since December 1, 1900.

88,048. KNIVES FOR CERTAIN NAMED COMBES. THE POWERS MANUFACTURING COMPANY, Philadelphia, Pa. Filed May 12, 1902.

San to lin

Essential features.—The word "SANTOLIN." Used since November, 1897.

88,049. PUBLICATIONS, PERIODICALS, MAGAZINES, AND BOOKS. H. CHAMBERLAIN, New York, N. Y. Filed Feb. 4, 1902.

NEW ERA



Essential features.—The representation of the sun, photographs, and the words "NEW ERA." Used since June, 1901.



LABELS

REGISTERED APRIL 1, 1902.

- 9,046.—Title: "ECLIPSE LAUNDRY SOAP." (For Soap.) GETTYSBURG STEAM SOAP CO., Gettysburg, Pa. Filed March 5, 1902.
- 9,047.—Title: "BARTNER'S FLORAL CREAM." (For a Complexion Preparation.) ADOLPH H. BARTNER, St. Louis, Mo. Filed March 5, 1902.
- 9,048.—Title: "BOULE'S INFALLIBLE MOTH, TAN, FRECKLE AND PIMPLE ERADICATOR." (For a Skin Preparation.) L. M. BROCK & Co., Lynn, Mass. Filed March 6, 1902.
- 9,049.—Title: "MRS. DINSMORE'S GREAT ENGLISH COUGH AND CROUP BALM." (For a Medicine.) L. M. BROCK & Co., Lynn, Mass. Filed March 6, 1902.
- 9,050.—Title: "HEROIDS." (For a Medicine.) DINWIT & DELROSS, Chicago, Ill. Filed February 8, 1902.
- 9,051.—Title: "KRAUM'S NEW RED BLOOD." (For a Medicine.) THE KRAUM REMEDY COMPANY, Emporia, Kans. Filed March 5, 1902.
- 9,052.—Title: "ROCKY MOUNTAIN TEA." (For a Medicine.) MADISON MEDICINE CO., Madison, Wis. Filed March 7, 1902.
- 9,053.—Title: "ROCKY MOUNTAIN TEA." (For a Medicine.) MADISON MEDICINE CO., Madison, Wis. Filed March 7, 1902.
- 9,054.—Title: "GRANULOS TONICO-LAXANTES DEL DOCTOR ROBERTS." (For a Medicine.) ROBERT J. SALICRUP and JOSEPH A. SALICRUP, New York, N. Y. Filed March 7, 1902.

- 9,055.—Title: "OXYNEURA." (For a Medicine.) JOHN STOLEZ, Reading, Pa. Filed March 11, 1902.
- 9,056.—Title: "ENGLISH MUSTARD SAUCE." (For Mustard Sauce.) J. & J. COLMAN, LIMITED, London, England. Filed February 25, 1902.
- 9,057.—Title: "BLUE RIBBON." (For Oil.) CONSOLIDATED OIL CO., Memphis, Tenn. Filed January 15, 1902.
- 9,058.—Title: "BOWLER'S CLUB RYE WHISKEY." (For Rye Whisky.) WAGLAY STANTY, Chicago, Ill. Filed March 10, 1902.
- 9,059.—Title: "ROYAL CROWN GINGER ALE." (For Ginger Ale.) CHRISTIAN VALARE, Charlotte, N. C. Filed March 10, 1902.
- 9,060.—Title: "LA ROSICA." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 7, 1902.
- 9,061.—Title: "LUMINOSO." (For Cigars.) LANDFIELD BROS. & Co., New York, N. Y. Filed March 11, 1902.
- 9,062.—Title: "REGAL." (For Brooms.) THE NEW BREMEN BROOM CO., New Bremen, Ohio. Filed March 11, 1902.
- 9,063.—Title: "KISHAOCQUILLAS ALE." (For Ale.) JAMES H. MANN, Lewistown, Pa. Filed February 24, 1902.

PRINTS

REGISTERED APRIL 1, 1902.

- 479.—Title: "CLOTHING." (For Clothing.) W. C. BORN, Chicago, Ill. Filed March 6, 1902.
- 480.—Title: "NABISCO." (For Biscuits.) NATIONAL BISCUIT CO., New York, N. Y. Filed March 7, 1902.
- 481.—Title: "STUCKLER'S MAMMOTH PECANS." (For Pecans.) J. STUCKLER SONS CO., LTD., New Orleans, La. Filed February 24, 1902.

- 482.—Title: "PLASTERS." (For Plasters.) J. ELLWOOD LEE COMPANY, Conshohocken, Pa. Filed February 24, 1902.
- 483.—Title: "FOOT LIFT EMERSON GANG." (For Plows and Mowers.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 5, 1902.
- 484.—Title: "EMERSON SPRING LIFT CHAINLESS REAPER." (For Reapers and Mowers.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 5, 1902.

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE GIBON.

Decided March 5, 1902.

1. INOPERATIVENESS—AEROPLANE—FAILURE OF EXAMINER TO STATE REASONS.

Where an Examiner rejects claims for an aeroplane on the ground of inoperativeness upon the allegation that there is no instance in the history of the art of a successful ascent and prolonged flight without the aid of a gas-field, Held that he has not complied with the rule which requires him to state his reasons for rejection.

2. SAME—FAILURE OF OTHERS TO ACCOMPLISH RESULT.

This Office was created and exists for the sole purpose of encouraging inventors to furnish means to accomplish results which have not before been accomplished, and therefore it cannot consistently refuse a patent upon the sole ground that no one has heretofore succeeded in accomplishing the result had in view.

3. SAME—INOPERATIVENESS DUE TO DEFECTS—DEFECTS SHOULD BE POINTED OUT.

If a device is inoperative, it is because of some defect in principle or mechanical construction and not because similar devices have not been made operative, and the Examiner should point out the real reasons why he regards the device as inoperative.

4. SAME—OBJECTION OF INOPERATIVENESS NOT WELCOME—SHOULD NOT BE MADE DOGMATICALLY.

As a matter of practice this Office should not arbitrarily place upon the applicant the burden of proving that the device is operative without stating the reasons why it is regarded as inoperative, since the objection of inoperativeness is not a welcome one and should not be made dogmatically.

ON petition.

AEROPLANE.

Application of Theodore Gibon filed April 24, 1901, No. 57,229.

Messrs. Howson & Howson for the applicant.

ALLEN, Commissioner:

This is a petition asking that—

the Examiner be instructed to withdraw his demand for a demonstration of the practical operativeness of the device and also to withdraw his demand for further drawings.

The invention in this case is an aeroplane, and the Examiner takes the position that the device disclosed is inoperative, saying:

There is no instance in the history of the art of a successful ascent and prolonged flight without the aid of a gas-field. Aside from any other consideration, no claims based upon the present device can be allowed until its operativeness is demonstrated. The most satisfactory means of doing this is a model.

The applicant cites certain publications as showing that successful flight without a gas-field is possible and has been accomplished. The real question in this case, however, is not whether any one has ever accomplished successful flight with an

aeroplane, but whether the device in this case is operative and useful for the purpose for which it is intended. If it is operative, it is not of consequence whether any operative devices upon similar lines have heretofore been made. It is the very purpose of invention to do that which had not been done before, and this Office cannot consistently allege as a reason for refusing a patent the mere fact that no one heretofore has succeeded in accomplishing the result had in view. This Office was created and exists for the sole purpose of encouraging inventors to furnish means to accomplish results which have not before been accomplished.

If this applicant's aeroplane is inoperative, it is because of some defect in principle or in mechanical construction and not because no one has been able to make similar devices operative. If the Examiner is of the opinion that this device is inoperative, as he appears to be, it is undoubtedly his duty to reject the claims, as was done in this case, and that action is reviewable in the first instance by the Examiners-in-Chief upon appeal. As a matter of practice, however, this Office cannot properly in a case of this kind arbitrarily place upon the applicant the burden of proving that the device is operative without stating the reasons why it is regarded as inoperative. The assertion of inoperativeness is not a welcome objection and should be made only when supported by a statement of the reasons therefor and not dogmatically. The applicant obviously cannot know what argument to make in his efforts to convince the Examiner until he knows what position the Examiner takes. As has been frequently stated, it is necessary to the proper prosecution of an application that the applicant and the Examiner understand each other's position in the case.

The drawing in this case illustrating the entire machine necessarily shows the parts upon a small scale. The illustration in Figure 2 of the pipes and valves is sufficient to enable one skilled in the art to understand the invention, and it is thought that an additional view showing them upon a larger scale is not only unnecessary, but would not materially assist an understanding of the invention.

No necessity is seen for illustrating the door by which the engineer enters the machine. It is not claimed, and in so far as this invention is concerned it is not of consequence how the engineer enters the machine. The applicant expresses a willing-

ness to further illustrate the shell for the engineer. That is the only requirement for additional illustration which should be insisted upon.

To the extent indicated the petition is granted.

DUDLEY C. BLICKENSCHER AND BARNES V. SEDGWICK.

Decided March 5, 1902.

1. INTERFERENCE—MOTION TO REOPEN—NEWLY-DISCOVERED EVIDENCE—DILIGENCE.

Where an interference is reopened to permit the taking of the testimony of a single witness and after the case is again closed a motion is made to take the testimony of other witnesses to corroborate him, *Held* that the motion should be denied in the absence of a showing that the testimony could not have been produced by the exercise of diligence.

2. NEW TRIAL—NEWLY-DISCOVERED EVIDENCE—REASONABLE DILIGENCE.

A new trial will not be granted on the ground of newly-discovered evidence where that evidence could have been discovered before trial by the exercise of reasonable diligence.

APPEAL ON MOTION.

TYPE-WRITING MACHINE.

Application of George W. Dudley filed October 17, 1899, No. 733,889. Application of George C. Blickenscher and William O. Barnes filed November 26, 1898, No. 697,532. Application of Frederick Sedgwick filed September 2, 1898, No. 690,200.

Mr. Ellis Spear for Dudley.

Mr. William Cranch McIntire for Blickenscher and Barnes.

Mr. David H. Fletcher and Mr. L. S. Bacon for Sedgwick.

ALLEN, Commissioner:

This is an appeal from the decision of the Examiner of Interferences denying a motion brought by Blickenscher and Barnes to reopen the above-entitled interference with permission to take newly-discovered evidence in corroboration of the witness Stevens Rogers's testimony in rebuttal.

It appears from the record that after testimony had been filed the interference was reopened and permission was granted to Blickenscher and Barnes to take the deposition of Rogers, who had previously testified in the case in behalf of Sedgwick. This permission was granted in view of certain affidavits, among them one by Rogers to the effect that he had been mistaken in testifying in behalf of Sedgwick; that he (Rogers) had gone into Sedgwick's employ about the first of October, 1897, and had assisted in building a type-writing machine which was completed about the 8th, 10th, or 12th of December, 1897; that he had been led to so testify from a memorandum of dates furnished to him by Frederick Sedgwick; that upon further investigation he was satisfied that he had not gone to work at the time stated, but that, on the contrary, he did not go into the employ of Sedgwick until sometime in the month of April or May, 1898. It appears, further, that Rogers's misconception of the dates as testified to by him was due to the fact that he could not find his time-book before he testified, but that he afterward found this time-book and discovered that he did not go into the employ of Sedgwick until April or May, 1898.

In an affidavit in support of the present motion attorney for Blickenscher and Barnes states—that during the examination of said Rogers's memoranda of dates and circumstances and a time-book were produced by said Rogers and put in evidence and duly marked as exhibits in rebuttal, all tending to prove and, as dependent then and now believes, proving the statements testified to by said Rogers in rebuttal; that, confidently relying upon said testimony and exhibits, and being circumscribed by the decision of the Acting Examiner of Interferences, to the production of Stevens Rogers only as a witness, and having at such time no knowledge of any other corroborating witness or state of facts, no other witness was produced in rebuttal.

From the above statement it is clear that at the time the witness Rogers testified in rebuttal it was believed that his testimony, together with the exhibits introduced therewith, would be sufficient to establish the fact that he was not in Sedgwick's employ in October and December, 1897. It was not considered necessary to produce evidence to show where he was at this time, and it does not appear that any effort was made to do so. If such evidence were considered necessary to corroborate Rogers's statements, then was the time to produce it. The attorney for Blickenscher and Barnes in his affidavit states, however, that he—

took pains to satisfy himself as to the truthfulness of the statements made to him and testified to in rebuttal by the said Rogers, and became satisfied that said Rogers's statements were truthful in every respect, and worthy of belief, and deponent therefore relied upon the deposition as sufficient.

Clearly there is no showing that the evidence now sought to be introduced could not with diligence have been discovered at the same time that Rogers's mistake in his first testimony was discovered. Hence it is not such newly-discovered evidence as would warrant a reopening of the case at this late day. The authorities are unanimous that a new trial will not be granted on the ground of newly-discovered evidence which could have been discovered before trial by the exercise of reasonable diligence. (*Encyclopedia of Pleading and Practice*, Vol. 14, p. 799.) The present case, however, was reopened once to permit the introduction of testimony of the nature of that now sought to be introduced, and it was the duty of appellant to exercise diligence at that time to produce all the evidence then obtainable.

There is no error in the decision of the Examiner of Interferences, and it is accordingly affirmed.

EX PARTE CROWLEY.

Decided March 15, 1902.

1. TRADE-MARK—REGISTRATION MUST AGREE WITH MARK AS USED.

The law is very clear that the mark which is shown and described in the registration must be the same as the mark which is actually used. There is no provision for the registration of a mark not in actual use or which differs from that in actual use. (*Citing ex parte Hall*, 98 O. G., 3174.)

2. SAME—INVARIABILITY.

There is no provision in the law for registration of a mark which may be varied as circumstances may render it necessary or desirable. To use such a variable mark would defeat the very purpose for which a trade-mark is intended.

3. SAME—VARIANCE BETWEEN SHOWING AND STATEMENT OF USE.

When the facsimile shows the mark as comprising the word "Tunnel," together with certain pictorial representations, and it is stated that the word "Tunnel" alone may be used, *Held* that registration should be refused.

4. SAME—LIMITATION OF SHOWING AND DESCRIPTION.

Held, further, that if the registration is intended to cover the word "Tunnel" alone the pictorial representation should be erased from the drawing and the description thereof canceled. If, on the contrary, it is intended to cover the mark as it is shown in the facsimile, the statement of essential features and the description should be made to conform to such showing.

ON appeal.

TRADE-MARK FOR FOOTWEAR.

Application of Thomas Crowley filed January 12, 1902, No. 64,842.

Mr. James L. Norris for the applicant.

ALLEN, Commissioner:

This is an appeal from the action of the Examiner of Trade-Marks requiring that certain pictorial representations shown in the facsimile be included in the statement of the essential features of the mark for which registration is sought.

Applicant states that his trade-mark consists of the arbitrarily-selected word "Tunnel," and further states that the essential feature of the mark is the arbitrarily-selected word "Tunnel."

The facsimile of the mark disclosed in the drawing shows that this mark is used in connection with the pictorial representation of a miner's cap, lamp, and tools.

Applicant states that the mark is generally arranged as shown—that is, the word together with the pictorial representation—but that the pictorial representation may be omitted and other matter used in connection with the word.

The law is very clear that the mark which is shown and described in the registration must be the same as the mark which is actually used. There is no provision for the registration of a mark not in actual use or which differs from that in actual use. (*Ex parte Hall*, 98 O. G., 3174.)

Applicant states in his application that the mark is used as shown—that is, with the pictorial representation—or that it may be used without such pictorial representation—that is, it may consist solely of the word "Tunnel."

The word "Tunnel" to the eye clearly differs from the same word used in connection with the pictorial representation. In the mark shown this pictorial representation appeals to the eye, and it cannot be maintained that such representation is not an essential feature of the mark when its appearance alone is considered.

It is evidently applicant's desire to cover by the registration now sought a mark which may be varied as circumstances may render it necessary or desirable. There is no provision in the law, however, for such a registration. The mark as described is devoid of those indicia which must be borne by the symbols known to commerce and jurisprudence as trade-marks. Such symbols must have invariability. They must be fixed, positive, unmistakable. (*See Brooks on Trade-Marks*, sec. 142.) The reason for this requirement is that the public may not be deceived or misled. In the present case if the word "Tunnel" alone appears on goods at one time and the same word with the pictorial representation at another time purchasers would be in

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doubt as to the origin of the goods. They could not know whether or not such goods were the product of the same maker. To use such a variable mark would therefore defeat the very purpose for which a trade-mark is intended. There is no provision in the law for the registration of such a mark. (*Ex parte Hall*, *supra*.)

It is clear, therefore, that if this registration is intended to cover the word "Tunnel" alone the pictorial representation should be erased from the drawing and the description thereof canceled. If, on the contrary, it is intended to cover the mark as it is shown in the facsimile, the statement of essential features and the description should be made to conform to such showing.

The decision of the Examiner of Trade-Marks is affirmed.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

BUSCH V. JONES *et al.*

Decided March 17, 1902.

1. PATENTS—JONES—PROCESS OF DRY-PRESSING—FUNCTION OF MACHINE.

Claim 5 of Letters Patent No. 204,741, granted to Joshua W. Jones, for a process of dry-pressing and removing type indentations from printed sheets *Held* invalid, as covering merely the function of the machine. (Decision below, 16 D. C. App., 22, reversed.)

2. PROCESS—DRY-PRESSING—OPERATION OR EFFECT OF MACHINE—CLAIM INVALID.

A claim for a process of dry-pressing which includes subjecting a collection of sheets of paper to pressure without the use of faller-boards, tying them into a bundle while under pressure, removing them from the press, and allowing them to remain tied until fixed, *Held* to describe merely the operation and effect of the machine and to be invalid.

3. ANTI-COUNTERFEITING—BOOKBINDER'S DRY-PRESS—CLAIM VALID.

Claims 1, 2, 3, and 4 of Patent No. 204,741 for a bookbinder's dry-press and sheet-tie *Held* valid notwithstanding the existence of devices of the same general character used in various arts for compressing and tying various materials.

4. INFRINGEMENT—ACCOUNTING BASED ON INVALID CLAIM—DECISION REVERSED AND CLAIM REINSTATED.

Where the lower court held all claims of the patent to be valid and infringed, but the accounting was based upon the infringement of claim 5 and that claim is found on appeal to be invalid, *Held* that the decision below must be reversed and the case remanded for proceedings in accordance with this opinion.

APPEAL from the Court of Appeals of the District of Columbia.

STATEMENT OF THE CASE.

This suit was brought by appellees against appellant for the infringement of Letters Patent No. 204,741, and Letters Patent No. 452,893, issued to Joshua W. Jones, one of the appellees. An accounting was prayed, and also an injunction, pending the suit. The bill contained the usual allegations of invention and utility, and of infringement by the defendant (appellant). The answer traversed those allegations, and alleged prior use, disclosure of the invention in prior publications, and also anticipation by prior devices and processes. The answer contained a list of the devices. No evidence was given as to, and no judgment passed on, Patent No. 452,893. This appeal therefore is only concerned with Patent No. 204,741. The pat-

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ent was issued to Joshua W. Jones, one of the appellees, for a press and process (the relation of the two is disputed) for "dry-pressing" and removing type indentations from printed sheets. The validity of the patent was sustained, and its infringement by the defendant (appellant) was found by the Supreme Court of the District of Columbia, and decree passed adjudging appellees the sum of \$3,491.70 with interest and costs. The decree was affirmed by the court of appeals. (16 D. C. App., 28.) The case was then brought here. The facts are stated in the opinion.

Mr. George J. Murray for the appellant.

Mr. M. W. Jacobs for the appellee.

Mr. Justice McKENNA delivered the opinion of the Court.

1. A question of jurisdiction is raised. It is contended by appellant that the case was not one of equitable cognizance, the appellees' remedy being, it is claimed, at law. The specification of error upon which the contention is based is expressed as follows:

Because at the time of the hearing it appeared from the record that the only patent before the court had expired before the hearing, no motion for preliminary injunction having been made prior to the expiration of the patent, and defendant being a mere user of one machine, which machine was destroyed by fire before the case was brought to hearing.

This seeks to determine the jurisdiction of the court by conditions which came into existence after the commencement of the suit, not upon those which existed at the time the bill was filed. It is, however, urged in argument that the contract between Jones and the W. O. Hickok Manufacturing Company conveyed the patent-rights to the press only, and not the process described in the fifth claim of the patent, and that "the court, sitting as a court of equity, had no jurisdiction to order an injunction at the time the bill of complaint was filed." But what the contract provided was an issue to be made in the case, and pending its decision the preliminary relief by injunction could have been granted. Appellees' contention as to the jurisdiction is, therefore, not justified, and a discussion of the reasons for this conclusion is not necessary. They are expressed in *Clark v. Wooster* (37 O. G., 1477; 119 U. S., 323) and *Beidle v. Bennett*, (39 O. G., 297; 123 U. S., 71.)

2. The patent is designated an "Improvement in bookbinder's dry-press and sheet-tie." That is, a new press and process for removing type indentations from printed papers or sheets, the latter when folded being designated technically as "signatures."

The type indentations are made in printing, the type displacing somewhat the fiber of the paper, and the removal of the indentations is technically known in the art as "dry-pressing," and the device by which it is done is called a "dry-press." Such a press the patent is intended to cover, and also a particular process for dry-pressing. As a process the validity of the patent is questioned, as a new machine its invention is controverted. An inquiry into the prior art becomes therefore important, and a witness, describing it and its imperfections, testified as follows:

Previous to the invention of Mr. Jones as described in said patent, it was the custom to press printed sheets by inserting them

between heavy paper boards, sometimes called "fuller-boards," but generally now called "glassed boards," and putting said boards with the printed papers between them into a powerful press, by which pressure was produced on said boards by various means, sometimes by means of screw-pressure, sometimes by hydraulic pressure. After the pressure was produced on the paper it was continued by allowing the press to remain with its pressure on to its fullest extent for ten or twelve hours or more, say from one night to the next morning, when the pressure was removed, the papers and boards taken from the press and separated by removing the boards from the pile of combined boards and paper, and putting the boards on one side on one pile and making another pile of the printed papers. This was necessarily comparatively a slow process, inasmuch as with one press only as much printed paper as the press would hold when put between the boards could be pressed in about ten or twelve hours, so that where much work had to be done a number of such presses were necessary. It was also costly as to labor, because the sheets had to be placed between the boards and removed therefrom afterward, which took much time, especially where, as in the case of fine work, only one sheet was placed between two boards; and when this was done comparatively few sheets could be pressed at once because the boards took up much more room than the paper did, they being quite thick.

It was to meet this condition that the Jones patent was conceived, and its object is stated to be first to "furnish a bulk-compressor device, to be used to prepare the matter properly before it is inserted in the dry-press proper, thus saving time or repeated travel by the latter, before the operation of tying; second, to furnish a dry-press proper in which the compressing parts or heads—that is, the base and plunger—are constructed dividually, or with ways through them, to afford access through them, to readily insert and manipulate the twine, and to tie the bundles of paper while held compressed, thus securing the bundle together by a powerful tie, which, when they are removed from the press, retains its force *ad libitum*; third, a press-frame, having sides peculiarly set and arranged, and provided with longitudinal slots therein corresponding with the ways in the press-heads, above referred to, and for the same purpose, as well as to rightly lodge and center the paper with relation to the middle of the press-heads; fourth, certain ledges in the said press-frame and guides on the plunger thereof, to properly center different-sized sheets in press to secure the tie at the middle of the bundles both ways; fifth, a new process for treating printed and folded sheets of paper in dry-pressing, consisting of subjecting a collection of such sheets to pressure without the use of fuller-boards, and while under such pressure tying them into compact bundles, with end boards thereon; then removing them immediately from the press, and allowing them to remain tied sufficiently long to fix and complete the dry-pressing."

The press is described in the patent with particularity, and illustrated by drawings. It may be said, generally, that it is a press in which bundles of signatures (sheets) are placed, at the end of which bundles rigid boards are attached to distribute the pressure which is exerted by the press. The press moves in a "trough-formed" bed so mounted as to incline laterally "so that the folded paper may securely lodge and carry therein while being operated on." Rectangular blocks are rigidly secured at both ends of the bed. The lower block is the base of what is called in the specifications a "divided head," constructed with "openings or ways." Opposing this there is a "plunger or follower," to which there is also attached a "divided head" having "openings and ways" be-

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tween the parts of the head. The "openings and ways" are to enable the operator to pass his hand between the parts of the press and tie the bundles. The operation of the press is as follows: A bundle of signatures (sheets) with rigid boards at its ends are placed in the press, pressure is exerted by means of a screw (other means may be used) which passes through the upper block and operates on the plunger or follower and the "divided head" attached to it, and as the bundle rests on the lower block and its "divided head," it is evident that the pressure on the sheets will be in proportion to the power applied. While under pressure in the press the bundles are tied, access to them being had through the openings in the "divided head." The bundle is then removed from the press and allowed "to remain tied sufficiently long to fix and complete the dry-pressing."

The advantage of the new method is that it is not so dilatory as the old and is more economical. In the old method the sheets, coming damp from the printing-press, had to be dried before dry-pressing, and had also to be subjected to pressure in the press a number of hours to effect the smoothing (dry-pressing) of the sheets. The quantity of the work, therefore, was limited by the number of presses. In other words, as expressed by one of the witnesses, "where much work had to be done a number of such presses were necessary." And it was further testified that "it (the old method) was also costly as to labor, because the sheets had to be placed between the boards (fuller-boards) and removed therefrom afterward, which took much time, especially where, as in the case of fine work, only one sheet was placed between two boards, and when this was done comparatively few sheets could be pressed at once, because the boards took up much more room than the paper did, they being quite thick." In the new method there is no such limitations as to time, nor does it require the same expenditure of money. In the new method the initial pressure is applied in the press—the subsequent pressure necessary to remove the type indentations is continued in the tied-up bundle. The operation, therefore, is comparatively rapid. "Putting the paper in the bundle," a witness testified, "tying it up in a bundle and removing it therefrom," takes a few minutes. And the longer the sheets remain in the bundles the better the effect. Some time is necessary. Another advantage is claimed. It was testified that in the Jones method that the sheets when folded have the convex impression of one half of the sheet brought in contact with the convex side of the other half of the sheet or of the sheet next to it, "and these convex impressions coming in contact with each other tend, when under pressure, to efface each other."

There is, however, no revelation in the specifications of the patent of the operation of opposing "convex impressions," nor a word to indicate that Jones was conscious of the advantage of that assistance to the pressure upon the sheets. The discovery seems to have been made by one of the witnesses, and also seems to have been disclaimed by Jones in the following question and answer:

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I-Q. 35. Throughout the testimony a good deal has been said about the advantages derived from your supposed invention from the fact of the type indentations being convex or concave, whatever that may mean. Is there anything said in the patent about that?

A. No; neither do I claim that they are produced by my process.

There is a dispute as to the character of the patent. Appellees contend that it is "a process of 'dry-pressing' or removing type indentations from printed sheets," (claim 5 of the patent.) Second. "A press of peculiar construction and adapted to the convenient carrying of this process into effect. The novel features of which press are covered by claims one to four inclusive." The appellees contend that the patent is for a machine (claims 1 to 4) and also for a process, (claim 5.) And it is asserted the latter claim is but an operation or function of the machine. It is further contended that the machine and process were anticipated.

In discussing these contentions, it is not necessary to minutely observe the distinctions made and disputed by counsel. Even if the patent is primarily for a novel process, there is a claim for a novel press, and, by the consideration of the latter, we think, the validity of the former will be determined.

Was, then, the press anticipated, including broadly in the term the inquiry whether the press exhibited invention, in view of the prior state of the art? Anticipation is a question of fact, and the burden of establishing it is on the appellant. The patent bears a presumption of novelty and invention, and the lower courts, passing on the evidence, found against appellant's contention. Such united judgment this Court accepts unless there is a clear showing to the contrary. (*Brainard et al. v. Buck et al.*) That showing appellant claims the record establishes, and even urges that presses of various kinds had become so familiar, before the Jones patent, that judicial knowledge can be invoked for them. Hay-presses, cotton-presses, tobacco, wool and other presses are instances, all of which, it is said, were used for applying pressure to masses of matter to compact them into bundles, and in all of which the pressure was retained by strings, ropes or bands of some kind. But wherein those presses differed one from the other and received special characterization and utility would be a matter of proof, not of assumption, and wherein the Jones patent differs from either of them and has derived its special applicability is certainly not so clear that it is demonstrated against the judgment of the Supreme Court and the Court of Appeals of the District. Nor are we nearer that demonstration by the specific patents, put in evidence by appellant. There is generic sameness we concede, but there are differences, and the Patent Office and both lower courts found novelty and invention in those differences.

The appellant introduced in evidence a patent issued to D. Kellogg, October 12, 1863, for a wool-press; one to W. R. Dingham, October 20, 1863, for improvement in paper-presses; one to S. Cooley, October 13, 1866, for a wool-press; to Thomas Stibbe, September 13, 1871, for pressing yarn; to W. P. Craig, for a baling-press; to Thomas G. Hardesty,

for tobacco-press; to G. B. Archer, for baling manure and other substances; to C. Brown, for baling short-cut hay, and another for baling short-cut straw; and a patent for a signature-press to R. A. Hart. There was also testimony of the existence of a press used in the bookbinding of one John Palmer, in Philadelphia. The press was used in a later stage of bookbinding than "dry-pressing," for the purpose of tying printed sheets into bundles for storing. It was an upright press with opposing platens or heads in which there were grooves to receive the cords by which the bundle was tied while under pressure.

There is a certain resemblance between all of the devices. They are all instruments for exerting pressure upon substances placed between compressing heads or followers to compact such substances into bundles and afford facilities for tying the bundles while they are under pressure. The Dingham patent, the one most relied on by appellant, may be selected for illustration.

The Dingham device is an "improvement in paper-presses," and the inventor claimed to have "invented a new and useful machine for combining and facilitating the operation of pressing and tying paper into reams or bundles," which he called "the combination paper-press and tie-engine."

There were defects in the art of pressing and tying paper very similar to the defects in the art of dry-pressing "signatures," and Dingham described the former as follows:

The process of pressing and tying paper now generally employed requires a large and somewhat expensive press, which is located in some corner of the finishing-room, and as the paper comes from the machine it is carried to the finishing-table, there counted and folded, and when sufficient is obtained to fill the press (usually about one hundred reams) it is conveyed to the press and placed thereon, and, by means of a large screw and follower, pressed for about twelve hours, or during the night. It is then removed and conveyed to the tie-table and there tied into reams. After this (it being, when it comes from the machine, usually double crown, or double the length of the ordinary ream of wrapping-paper) it is cut into two reams or single crown. The usual mode of tying paper is by passing a strong cord or twine around the ream, with a noose or loop at the end, through which the other end is passed, and then drawn upon with the hand until the loose ream or bundle is sufficiently compressed. This operation is laborious and tedious, occupying much time, requires strong twine, and unavoidably draws the ream away or the paper out of place.

This language is quite similar to that used by Jones and his witnesses to describe the defects which existed in the bookbinders' art, and the processes of the inventors also have similarity. In both sheets of paper are pressed by being placed between "compressing-heads," which "are constructed dividually," to use the words of the Jones patent, "separate and sufficiently disconnected (to use the language of the Dingham patent) to allow the string or cord for tying the paper to pass between." Each machine, therefore, comprises a compress and tie-table. In each there is the same rapidity of operation, the same economy of time and means, and in each the pressure first applied by the machine is retained by cords and continued in the bundle. And it is manifest that this retained and continued pressure, which has for its purpose in the Jones patent to remove type indentations from the sheets, and in the Dingham patent to retain the sheets in the bundle, adds nothing to the operation of the press of the former and detracts nothing from the operation of the press of the latter. But notwithstanding these reser-

blances we may ascribe invention to the Jones patent if it be confined to the press proper. In other words, the press may be regarded as a form, adapted to the bookbinders' art, and although preceded by the Dingham patent in a general way, may be considered as an invention of that form.

The fifth claim of the Jones patent—the claim for the process—must be viewed from a different standpoint. The first four claims of the patent, as we have said, describe the elements, "in a printer's and bookbinder's dry-press and sheet-tie." The fifth claim is as follows:

5. The process herein described for treating folded printed sheets of paper in dry-pressing, the same consisting of subjecting a collection of such sheets to pressure without the use of fullers-boards, and while under such pressure tying them into compact bundles with end boards, then removing them immediately from the press, and allowing them to remain tied sufficiently long to fix and complete dry-pressing.

The dependence, therefore, is not, as counsel for appellee contends, the press upon the process. It is the other way, the process upon the press; for it is impossible to consider the fifth claim as describing anything but the operation and effect of the press. Indeed, the process is the whole value, the sole purpose of the press. What, indeed, is the process—what is the force at work? And the inquiry is entirely independent of questions as to what constitutes a patentable process discussed by this Court in *Rison Locomotive Works v. Medart* (71 O. G., 701; 188 U. S., 68) and in *Westinghouse v. Boyden Power Brake Co.* (83 O. G., 1067; 170 U. S., 587.) What, then, is the force at work and how is it applied? It is force (pressure) applied to sheets of paper placed between "compressing-heads." In other words, a special application of pressure began in the press and continued in the bundle by means of strings and cords. This, however, is the operation and effect of the machine, and it is none the less so because the pressure is held indefinitely. Its existence in the bundle is not independent of the press. The pressure is as much an effect in the bundle as when first applied. The pressure is applied by the press and so, substantially, are the bands or cords which continue the pressure, and we cannot assent to the view that the continuation of the pressure in the bundles with the consequence of removing type indentations in the printed sheets is anything but the natural and direct effect of the machine.

Infringement was put in issue by the pleadings and passed on by the lower courts. They found as a fact that all the claims of the patent had been infringed by appellant. The finding is not absolutely disputed. The assignment of error is "that the patented machine used by defendant, in view of the state of the art preceding Jones's invention, did not infringe any claims of the patent in suit." That is, appellant contends that the evidence exhibits a complete anticipation, or so limits and narrows the Jones's invention as to make the differences between the Jones press and that which was used by appellant more than formal. We have decided that the Jones press had not been anticipated, and both of the lower courts have found that the differences between it and appellant's press were not substantial. The evidence sustains the finding. The witnesses on behalf of appellees testified to the differences between the presses. They pointed out the essential resemblances of the processes and the merely formal character of the differences. There was no opposing testimony.

The accounting in the lower court, however, was had upon the basis of the validity of the process, (claim 5,) and therefore the judgment of the court of appeals must be reversed and the cause remanded, with directions to that court to reverse the judgment and decree of the supreme court and remand the cause to the latter court for further proceedings, in accordance with this opinion. So ordered.

[Vol. 95, No. 1.]

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United States Patent Office.

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TO CITIZENS OF THE UNITED STATES.

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Alaska Territory	1	1	Nevada	1	1
Arizona Territory	1	1	New Hampshire	1	1
Arkansas	1	1	New Jersey	13	4
California	54	3	New Mexico Territory	1	1
Colorado	7	1	New York	73	10
Connecticut	19	1	North Carolina	1	1
Delaware	1	1	North Dakota	1	1
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Georgia	3	1	Oregon	1	1
Hawaii Territory	1	1	Pennsylvania	47	6
Idaho	1	1	Rhode Island	1	1
Illinois	45	3	South Carolina	1	1
Indiana Territory	15	1	South Dakota	1	1
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Iowa	10	1	Texas	1	1
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Bermuda	1	1	New Zealand	1	1
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Canada	5	3	Paraguay	1	1
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Denmark	1	1	Sweden	1	1
Egypt	1	1	Switzerland	1	1
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Haiti	1	1	Total to citizens of foreign countries	51	5
India	1	1			
Ireland	1	1			
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Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1880, to June 30, 1901, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

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APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 1, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	<i>In arrears—Under one month.</i>			
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Mar. 13	Mar. 20	204
217	XXXIII. *DIMENSION, TRADE-MARKS, *PLANS AND PRINTS, *Options, and *Photography.	Mar. 13	Mar. 19	96
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286	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 5	Mar. 18	300
215	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Mar. 3	Mar. 16	305
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147	XXXI. Gas, Ammonia Water, and Wood Distillation, Charcoal and Cokes, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Mar. 3	Mar. 16	160
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145	III. Metallurgy, Metal-Framing, Electro-Chemistry, Coaling with Metal, etc.	Mar. 1	Mar. 11	190
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225	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Feb. 26	Mar. 18	200
67	XXVI. Electricity, Generation, Conductors, Motor Power, Medical and Surgical, and Electric Railways.	Feb. 26	Mar. 11	186

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The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1873, (the commencement of its publication,) to June 30, 1898, it was published and bound in semi-annual volumes; since July 1, 1898, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, \$6 per annum; to foreign subscribers, \$10; single copies, 10 cents; if mailed to foreign countries, 16 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1898,) full sheep, \$4 per volume; bound quarterly volumes, (subsequent to July 1, 1898,) full sheep, \$2.75 per volume. Payment in advance. No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

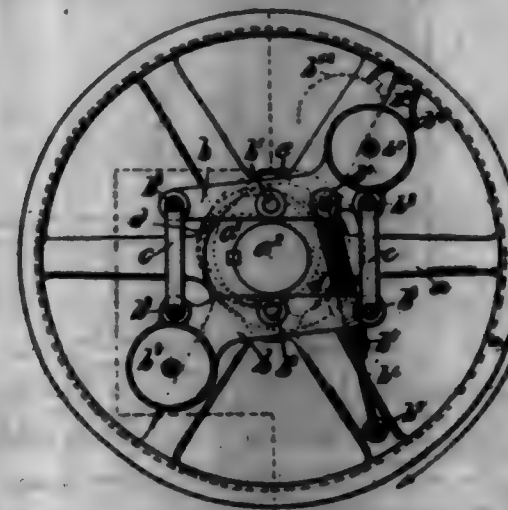
Renewal of Forfeited Applications.

Attention is called to section 4,397, Revised Statutes, relating to the renewal of allowed applications forfeited through failure to pay the final fee within six months from the date of allowance. The law requires the petition for renewal to be signed by the inventor, discoverer, or assignee and that the same be filed in this Office within two years after the allowance of the original application. If the inventor be dead, the petition must be signed by the administrator or executor; if insane, by the guardian, conservator, or legal representative. It will not be accepted if signed by the attorney. (Form 13, page 64, Rules of Practice, should be used.)

PATENTS

GRANTED APRIL 8, 1902.

696,918. STRAIN-SUCKING GOVERNOR. JAMES R. ALPHEM, Indianapolis, Ind. Filed May 24, 1899. Serial No. 717,978. (No model.)



Claim.—1. The combination with a rotating carrier and a shifting eccentric pivoted thereto, a centrifugal governor-arm attached to said eccentric by means of which the latter is shifted, a counteracting balance-weight pivoted at a point diametrically opposite from said eccentric to said carrier, a centrifugal governor-arm attached to said counteracting balance-weight adapted to swing in opposition to the shifting of said eccentric, and means interposed between said governor-arm controlling them to move in unison.

2. The combination with a rotating carrier on eccentric and the governor-arm by which it is swung, pivotally connected to said carrier, a counteracting balance-weight and the governor-arm connected thereto, adapted to swing said weight in opposition to the shifting of said eccentric being pivotally connected to said carrier at a point diametrically opposite from pivotal point of said eccentric, a link connection between the two said governor-arms, controlling them to move in unison, and means of weight located on said governor-arm at a point forwardly and outwardly in relation to said pivotal point, that the combined action of inertia and centrifugal forces may be caused to act in the movement of the said eccentric and counteracting balance-weight.

3. The combination with a rotating carrier, an eccentric and the governor-arm by which it is swung, pivotally connected to said carrier, a counteracting balance-weight and the governor-arm connected thereto, adapted to swing said weight in opposition to the shifting of said eccentric, said weight and arm being pivotally connected to said carrier at a point diametrically opposite from pivotal point of said eccentric, a mass of weight on each governor-arm located in a forwardly and outwardly position in relation to the pivotal point of said arm whereby inertia and centrifugal forces are caused to act in combination in the oscillation of said eccentric and counteracting weight, a link connection interposed between the two governor-arms controlling them to act in unison, a spring adapted to resist the combined inertia and centrifugal forces and means for adjusting said spring.

4. The combination with a rotating wheel or carrier, an eccentric and a pivot-shaft to one end of which it is secured, a weighted governor-arm secured at midway of its length to opposite end of said pivot-shaft, a counteracting balance-weight secured to one end of a second pivot-shaft, said pivot-shaft being mounted at points equidistant from center of rotating carrier and diametrically opposite from each other, a weighted governor-arm secured to second said pivot-shaft at opposite end from said counteracting balance-weight and in the same position in relation to rotation of said carrier as former said governor-arm and second flexure at midway of its length to respective pivot-shafts, weights located at a point outside of a tangential line in relation to the rotation of pivotal points on said governor-arms, that a combined effect of inertia and centrifugal forces result in action and links connecting to the weighted end of each said governor-arm the lever end of the other controlling them to move in unison.

5. The combination with a rotating wheel or carrier, an eccentric and a governor-arm attached at center of length to said eccentric, both mounted at a common pivotal point eccentrically in said carrier, an eccentric counteracting balance-weight and a second governor-arm attached at center of its length to said weight, and both likewise mounted at a common pivotal point diametrically opposite from pivotal point of said eccentric and equidistant from center, in said carrier, weights mounted on forward ends of said governor-arms and located outside of a tangential line drawn from the pivotal points of said arms so that the combined effect of inertia and centrifugal forces are called into action at slightest variations of speed, links interposed between said governor-arms connecting the lever end of each arm to the head or weighted end of the other arm controlling said arms to move in unison, and a spring exerting centripetal force tending to counteract the centrifugal force exerted by the combined oscillating mechanism as set forth.

6. The combination with a rotating carrier or wheel, an eccentric and a governor-arm attached at midway of its length to said eccentric, and pivoted with the eccentric at a point outside of center of the axis of said carrier, an eccentric counteracting balance-weight and a governor-arm attached midway of its length thereto, and pivoted with said balance-weight at a diametrically opposite and equidistant point from center of the axis of said carrier and from former said governor-arm and eccentric, the weighted end of said governor-arm projecting forward in relation to rotation of said carrier, links pivotally connected between said governor-arms connecting the lever end of each arm to the head or forward end of the other, and the eccentric and balance-weight being equal and playing in opposite directions over the axis of the carrier, the mechanism is most completely balanced as to gravity or running balance, weights fixed at forward or head end of said governor-arms at a point outside of a tangential line through said pivotal points, so that inertia and centrifugal forces act in combination, and a spring adapted to exert centripetal force against the combined inertia and centrifugal forces, and means for adjusting said spring, one end of said spring preferably being attached to one of said governor-arms, and the other anchored as in this case at or near a peripheral point in said wheel at an angle giving the greatest effect; all parts being equal and paired in opposition as to effect of gravity, as to produce perfect equilibrium, either in or out of action.

696,919. OIL-FILTERING AND LUBRICATING APPARATUS. JAMES R. ALPHEM, Indianapolis, Ind. Filed May 24, 1899. Serial No. 717,980. (No model.)



Claim.—1. In combination with a steam-engine, an open filtering collecting and separating box, eccentric mounted above said filtering-box that the drip or waste of lubricating-oil therefrom will drip into said box, a distributing-head and means for conducting oil from said box to said distributing-head as set forth.

2. In combination with a steam-engine a collecting filtering and separating box, eccentric mounted above said filtering-box that the drip or waste of lubricating-oil therefrom will drip into said box, a distributing-head and means for conducting oil from said box to said distributing-head as set forth.

rating box, eccentric mounted and operating above said filtering-box that the drip or waste of lubricating-oil from said eccentric will drip into said box, a distributing-basin, means for conducting oil from said filtering-box to said distributing-basin, a collecting-reservoir adapted to collect the waste or drip of oil from the working parts of the engine and means for conducting the oil thereby collected to the said filtering and separating box, whereby it is purified, filtered and cooled preparatory to being delivered to the distributing-basin for redistribution, as set forth.

3. In combination with a steam-engine a collecting, filtering and separating box, a collecting-reservoir located within the crank-case at a higher level than said filtering-box, that oil may flow by gravity to said box and adapted to collect the drip or waste oil from the operating parts of the engine, a distributing-basin located at a lower level than said filtering-box that oil will flow by force of gravity to said basin, means for distributing the oil from said basin and eccentric mounted over said filtering-box that waste oil will flow or drip from said eccentric into said box, as set forth.

4. In a steam-engine having an inclined crank-case, a reservoir or distributing-chamber at the bottom of said crank-case and a collecting-reservoir at a higher level and within said crank-case, a collecting, filtering and purifying box located outside of the engine-bed or crank-case and at a lower level than the collecting-reservoir and at a higher level than the distributing-chamber, and means for conducting the oil from the higher reservoir through the filtering-box to the lower reservoir or distributing-chamber, said filtering-box being located directly under the eccentric.

5. In combination with a steam-engine, a filtering, purifying and separating box, a collecting-reservoir, placed at a higher level than said filtering-box, that the waste oil collected by said reservoir will flow by gravity into said filtering-box to be refiltered, a distributing-basin at a lower level than the oil-discharge from said filtering-box and a separating-trap for separating and discharging the water of condensation that may accumulate in the bottom of said box; substantially as set forth.

6. In combination with a steam-engine a collecting, filtering and separating box, having screens arranged and adapted to receive and hold a filtering material and an adjustable tube having an opening or outlet below the top of said box, said tube passing down through the screen and provided with means for vertically adjusting said tube for the purpose of retaining the oil at a certain height, as specified.

696,920. PISTON GUIDING AND PACKING DEVICE. JAMES B. ALPHEE, Indianapolis, Ind. Filed May 24, 1900. Serial No. 717,061. (No model.)



Claim.—1. In combination with a steam-engine a chambered cylinder-head or distance-piece, a packing-chamber at one end of said chambered cylinder-head, an internally-threaded portion at the other end and an externally-curve-threaded sleeve adapted to be carried in threaded portion of said cylinder-head and means whereby said sleeve may be rotated for the purpose of longitudinal adjustment, as set forth.

2. In a steam-engine the combination with a chambered cylinder-head or distance-piece, an elongated guiding and packing sleeve, a lining of suitable bearing metal within said sleeve a piston-rod adapted to reciprocate within said guiding-sleeve and bearing upon said lining of bearing metal and a number of small annular grooves in the inner bearing-surface of said lining whereby condensation or lubrication may be retained, all as set forth.

3. In a steam-engine, the combination with a chambered cylinder-head or distance-piece, openings in the sides of the walls thereof for the purpose of admitting a circulation of air and means for attaching radial flanges projecting from its cylindrical portion for purposes of its attachment to bed-plate at one end and that of the cylinder thereto at the other end, a packing-chamber at the cylinder end of said head and means for the adjustment of packing within said packing-chamber, as set forth.

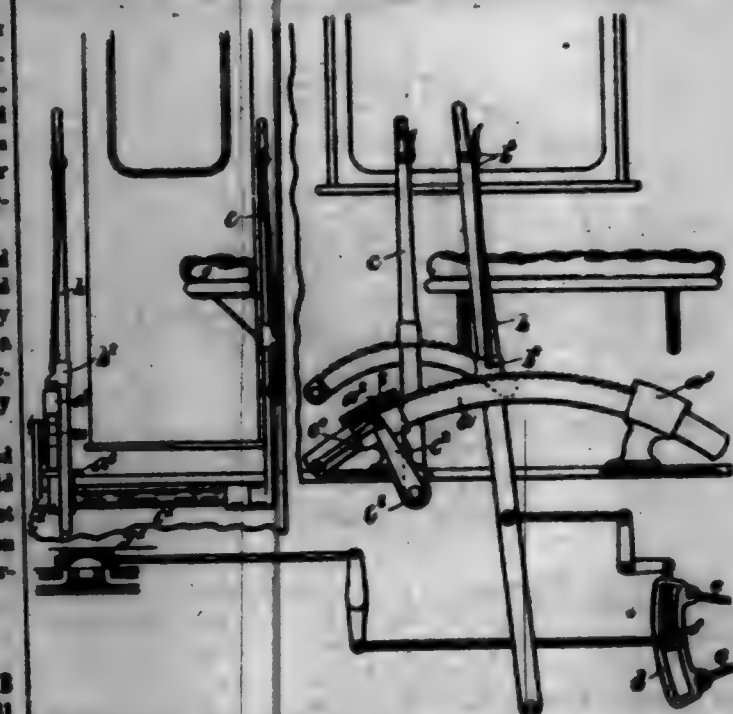
4. In a steam-engine the combination with a long relative guiding and packing sleeve, a concave or inwardly-flaring end surface at inner end of said sleeve, a series of compressible packing-rings reversely flared and equally on both sides being bowed outwardly toward the periphery, a series of non-compressible rings flared, or bowed toward the center line

said sleeve being preferably of larger bore than piston-rod to be packed, latter said rings being placed in packing-chamber in alternative with said compressible packing-rings, and means whereby said guiding and packing sleeve may be caused to impinge upon or against the combined body of said rings, as shown.

5. In a steam-engine the combination with a long sleeve having its outer end externally threaded and its internal surface fitted with small grooves and its walls perforated; of a compressible packing adapted to be compressed by said sleeve.

6. In a steam-engine the combination with a chambered cylinder-head, or distance-piece, an elongated packing-sleeve lined with a bearing metal, and a number of small annular grooves in inner surface thereof, as set forth.

696,931. REVERSING MECHANISM. JAMES B. ALPHEE, Indianapolis, Ind. Filed Oct. 11, 1900. Serial No. 22,794. (No model.)



Claim.—1. In a compound cut-off and reversing mechanism for valves of steam-engines, a reversing-lever and adjacently-mounted motor, whereby said lever is adapted to engage, and means for moving said motor in a longitudinal direction.

2. In a compound cut-off and reversing mechanism, a reversing-lever in combination with a longitudinally-adjustable toothed motor, said motor being carried in guides or their equivalent, an auxiliary lever or other equivalent means, for the purpose of adjustment of said motor, about the axis of its arc, and means whereby the toothed motor may be engaged temporarily with or detached to the reversing-lever.

3. In a compound cut-off and reversing mechanism, the combination with the ordinary reversing-lever, a longitudinally-adjustable motor, a rack and pinion or other suitable means for accomplishing the said longitudinal adjustment, means for temporary engagement of said motor with said reversing-lever by means of which said lever is moved upon its axis in unison with adjustment of said motor, as shown.

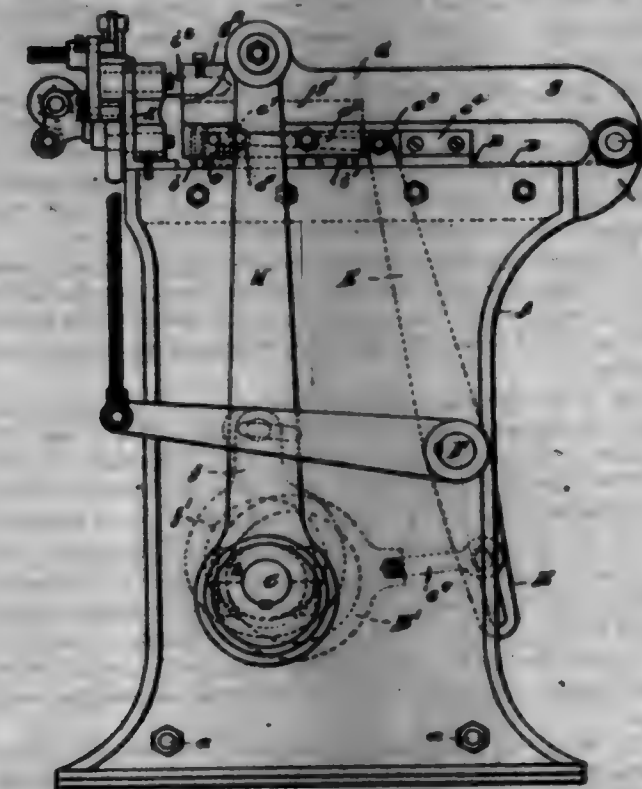
4. In a compound cut-off and reversing mechanism, a motor adjacently mounted in guide-ways or suitable bearings, and means by which said motor may be temporarily attached to a reversing-lever, an auxiliary adjusting-lever mounted in fixed bearings and a link or suitable connection between said movable motor and said auxiliary adjusting-lever, whereby the said motor may be moved, carrying with it at will said reversing-lever, for the purpose specified.

696,929. DISK-MAKING MACHINE. CHARLES ANDERSON, Chicago, Ill. Filed Mar. 28, 1901. Serial No. 41,670. (No model.)

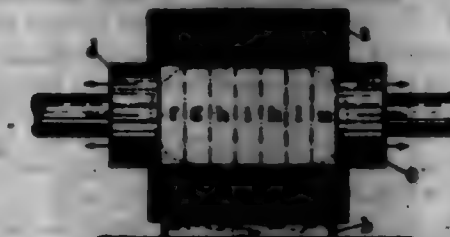
Claim.—1. In a disk-making machine, the combination of the 6-male die, the pivotal male die, the staple-clamping blocks carried by said male die, and means for operating the said die.

2. In a disk-making machine, the combination of the female die, the male die on the ends of pivoted cam-levers, the staple-clamping blocks secured to said male die, the double ball-crank adapted to operate said staple mechanism and said male-die levers, and means cooperating with the driving-shaft for actuating said ball-crank.

696,932.



696,933. MACHINE FOR FORMING BARS OR SIMILAR ARTICLES. WILLIAM BARNES, Stuttgart II, Schindler, Germany. Filed July 12, 1901. Serial No. 63,071. (No model.)



Claim.—1. In a machine for forming bars or similar articles by pressing plastic metal discontinuously through dies, the press-cylinder open at both ends, two dies working in opposite directions to each other and capable of entering said press-cylinder to cut upon the plastic metal from opposite sides, and dies in said dies arranged at points between the press-cylinder and the rod of each die through which the forming articles discontinuously leave the inside of the press-cylinder.

2. In a machine of the kind described the combination of a press-cylinder with open ends and the oppositely-arranged dies provided with dies at points between the press-cylinder and the rod of each die and capable of approaching the charge in the press-cylinder discontinuously from opposite directions, substantially as shown and described.

696,934. BATTERY. WILLIAM C. BARNES, Brooklyn, N. Y. Filed Sept. 8, 1900. Serial No. 22,692. (No model.)

Claim.—1. In a battery, the combination of a liquid-holding jar, a positive element located entirely below the solution-line of said jar, a negative element, a depolarizer located partly above and partly below said solution-line, and a pair of terminals, all substantially as set forth.

2. In a battery, the combination of a liquid-holding jar, a positive element, a negative element, a pair of terminals and a depolarizer, substantially as set forth, the positive element being located entirely below the solution-line and from one-fourth to one-sixth of the body of said jar located above said solution-line.

3. In a battery the combination of a liquid-holding jar, a zinc element, a negative element, a pair of terminals and a body of acid of copper, substantially as set forth, the positive element being located entirely below the solution-line and from one-fourth to one-sixth of the body of said jar located above said solution-line.

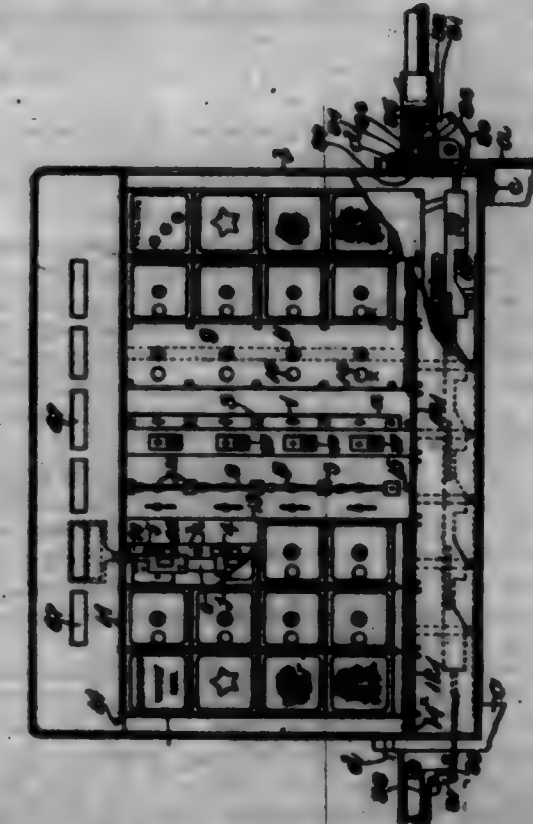
4. In a battery, the combination of a liquid-holding jar, an oxidizing fluid, a positive element located entirely below the surface of said fluid, a negative element, a depolarizer located partly above and partly below the surface of said fluid and a pair of terminals, all substantially as set forth.

5. In a battery, the combination of a liquid-holding jar, a body of zinc, a negative element, a body of copper acid, and a pair of terminals, said zinc and copper acid being arranged in such positions relative to each

other and to the solution-line of the jar that at least one-fourth of said acid shall be a distance above the upper level of the zinc and above the solution-line, while said zinc shall be entirely below said solution-line, all substantially as set forth.



696,935. VOTING-MACHINE. ARTHUR F. BARRELL, Springfield, Mass. Assignor to Frederick Albert Barreil, Boston, Mass. Filed June 27, 1901. Serial No. 63,257. (No model.)



Claim.—1. In a voting-machine, the combination of an entrance-bar; an exit-bar; a locking device for one of said bars; and a slidable releasing mechanism which operatively connects said locking device with the other bar.

2. In a voting-machine, the combination of an entrance-bar; an exit-bar; a locking device for said entrance-bar; a locking device for said exit-bar; and releasing mechanism connecting said locking devices and operated by the opening of said bars.

3. In a voting-machine, the combination of an entrance-bar; an exit-bar; an automatic locking device by which said entrance-bar is locked when it is closed; an automatic locking device by which said exit-bar is locked when it is closed; and releasing mechanism connecting said locking devices by which one bar is unlocked by the opening of the other.

4. In a voting-machine, the combination of an entrance-bar; an exit-bar; a locking device for and carried by one of said bars; and releasing mechanism connecting said locking device and the other of said bars to release said locking device.

5. In a voting-machine, the combination of a vote-registering device; a gate-bar; a locking device for and carried by said gate-bar; mechanism

anism connected to said gate-bar and operated thereby for locking said vote-registering device; and mechanism for unlocking said gate-bar and said vote-registering device.

6. In a voting-machine, the combination of an entrance-bar; an exit-bar; a locking device for and carried by said exit-bar; a vote-registering device; locking mechanism for said vote-registering device connected to said exit-bar and operated by the opening thereof; and mechanism connected to said entrance-bar and operated by the opening thereof to release said exit-bar and said vote-registering device.

7. In a voting-machine, a plurality of registers; a register-actuator for each register; a locking-slide common to all and reciprocated by said register-actuator; an individual slide for each register-actuator, said locking-slide and said individual slide cooperating to limit the rotary movement of the register-actuator; mechanism for preventing the actuation of more than a predetermined number of registers in the group without resetting; and mechanism for resetting.

8. In a voting-machine, a plurality of registers; a register-actuator for each register; a locking-slide common to all and reciprocated by said register-actuator; an individual slide for each register-actuator, said locking-slide and said individual slide cooperating to limit the rotary movement of the register-actuator; mechanism for preventing the actuation of more than a predetermined number of registers in the group without resetting; and a resetting-strip operatively connected to said locking-slide.

9. In a voting-machine, the combination of a register; a register-actuator; a pair of slides operated by said register-actuator and seating to limit the rotary movement of said register-actuator; and a resetting-strip operatively connected with said slides.

10. In a voting-machine, the combination of a register; a register-actuator; a pair of slides seating to limit the rotary movement of said register-actuator; a resetting-strip connected to one of said slides by a lever and to the other of said slides by a stud-and-slit connection; and said lever.

11. In a voting-machine, the combination of candidate groups with a straight-tickler group; a resetting-strip for said straight-tickler group; and interlocking mechanism connecting said resetting-strip with said candidate groups.

12. In a voting-machine, the combination of candidate groups with a straight-tickler group; a resetting-strip for each of said groups; and interlocking mechanism connecting the resetting-strip of the straight-tickler group with the resetting-strips of the candidate groups.

13. In a voting-machine the combination of a plurality of registers; a plurality of register-actuators; a locking-slide common to all and reciprocated by said register-actuators; an individual slide for each register-actuator; said locking-slide and said individual slide cooperating to limit the rotary movement of the register-actuator; an independent-ballet mechanism; mechanism which prevents the actuation of a register after the actuation of said independent-ballet mechanism without resetting; and mechanism for resetting.

14. In a voting-machine, the combination of a plurality of registers; a plurality of register-actuators; a locking-slide common to all and reciprocated by said register-actuators; an individual slide for each register-actuator, said locking-slide and said individual slide cooperating to limit the rotary movement of the register-actuator; an independent-ballet mechanism; and mechanism which prevents the simultaneous actuation of a register and said independent-ballet mechanism.

15. In a voting-machine, the combination of an independent-ballet mechanism with an actuator for said mechanism; an individual slide for said actuator; a register; a register-actuator; an individual slide for said register-actuator; a locking-slide moved by the operation of one of said actuators to prevent the subsequent operation of the other actuator; mechanism for preventing the simultaneous operation of said actuators; and mechanism for resetting.

16. In a voting-machine, the combination of an independent-ballet mechanism with an actuator for said mechanism; an individual slide for said actuator; a register; a register-actuator; an individual slide for said register-actuator; a locking-slide common to said actuator, said locking-slide and said individual slide limiting the movement of said actuators; mechanism for preventing the simultaneous operation of said actuators and mechanism for resetting.

17. In a question group, a pair of register-actuators; a pair of slides, one for each register-actuator, and notched to engage a locking-lever; and said locking-lever formed with ears and thereby adapted to engage one of said notched slides when actuated by the movement of the other of said notched slides.

18. In a question group, a pair of register-actuators; a pair of slides, one for each register-actuator, and notched to engage a locking-lever; said locking-lever formed with ears and thereby adapted to engage one of said notched slides when actuated by the movement of the other of said notched slides; and a resetting mechanism to disengage said locking-lever.

19. In a candidate group, the combination with a plurality of reg-

isters of register-actuators, one for each register; an individual slide for each register-actuator and reciprocated thereby; a plunger positively attached to each of said slides; mechanism for limiting the number of plungers which may be raised; and mechanism for resetting.

20. In a candidate group, the combination with a plurality of registers of register-actuators, one for each register; an individual slide for each register-actuator and reciprocated thereby; a plunger attached to each of said slides; abutments between which said plungers move; means for varying the free space between said abutments to limit the number of plungers which may be raised; and mechanism for resetting.

21. In an independent-ballet mechanism, a pair of cooperating rolls from one to the other of which the ballot-sheet passes; mechanism which positively engages with one of said rolls to turn said roll; and a lever under control of the voter for positively operating said mechanism in both directions.

22. In an independent-ballet mechanism, the combination of an actuating-slide under the control of the voter; means secured to said actuating-slide for exposing the ballot-sheet; a pair of cooperating rolls from one to the other of which the ballot-sheet passes; and means controlled by said actuating-slide for throwing said rolls into and out of operation.

23. In a voting-machine, the combination with a candidate group and means for operating the same of mechanism for feeding an independent-ballet sheet; an actuator for throwing said feeding mechanism into positive locking engagement with the resetting mechanism; means operated by said actuator for locking said candidate group; means operated by said actuator for exposing said ballot-sheet; and said resetting mechanism.

24. In an independent-ballet mechanism, the combination with an actuating-slide if a shutter secured to said actuating mechanism, and mechanism for resetting.

25. In an independent-ballet mechanism, the combination of a key-piece under control of the voter; a slide notched to engage said key-piece; a shutter secured to said slide; a pair of cooperating rolls from one to the other of which the ballot-sheet passes; mechanism controlled by said slide to throw said rolls into and out of operation; and resetting mechanism.

26. In an independent-ballet mechanism, the combination of an actuator under control of the voter; a pair of cooperating rolls for feeding the independent-ballet sheet; a pawl-and-ratchet mechanism for actuating said feed-roll; mechanism connecting said actuator with said pawl-and-ratchet mechanism to throw said pawl-and-ratchet mechanism into and out of operative connection with said feed-roll; mechanism operated by the voter on his exit to actuate said pawl-and-ratchet mechanism; and mechanism for resetting.

27. In a voting-machine, the combination with a group of registers and means for operating the same of a key-piece; an individual slide actuated by the rotation of said key-piece; a plate raised by said slide; locking means raised by said plate; and means for resetting said plate and said locking means.

28. In a voting-machine, the combination of a key-piece; a slide actuated by said key-piece; a plate; detachable means connecting said plate and slide; and means for connecting and disconnecting said slide to the independent-ballet mechanism.

29. In a voting-machine, the combination of a slide formed with a rack; catches detachably secured to said slide; a piston working with said rack; means for rotating said piston to throw said catches into engagement with locking means for a vote-registering mechanism; said locking means; and said vote-registering mechanism.

30. In a voting-machine, the combination with an independent-ballet mechanism of means for throwing said mechanism into and out of connection with a resetting mechanism; a yielding tripper connected to said resetting mechanism and operated thereby; and said resetting mechanism.

31. In a voting-machine, the combination of a standard formed with a bolt-hole; a bar pivoted in said standard and formed with a socket; a spring; a bolt; and a detent engaging said bolt.

32. In a voting-machine, the combination of a plurality of brackets; wires supported by said brackets; spacers threaded on said wires; and means for locking said spacers to said brackets.

33. In a voting-machine, the combination of a bracket; a separator; and a modified cylinder-latch mounted in said separator and adapted to engage said bracket.

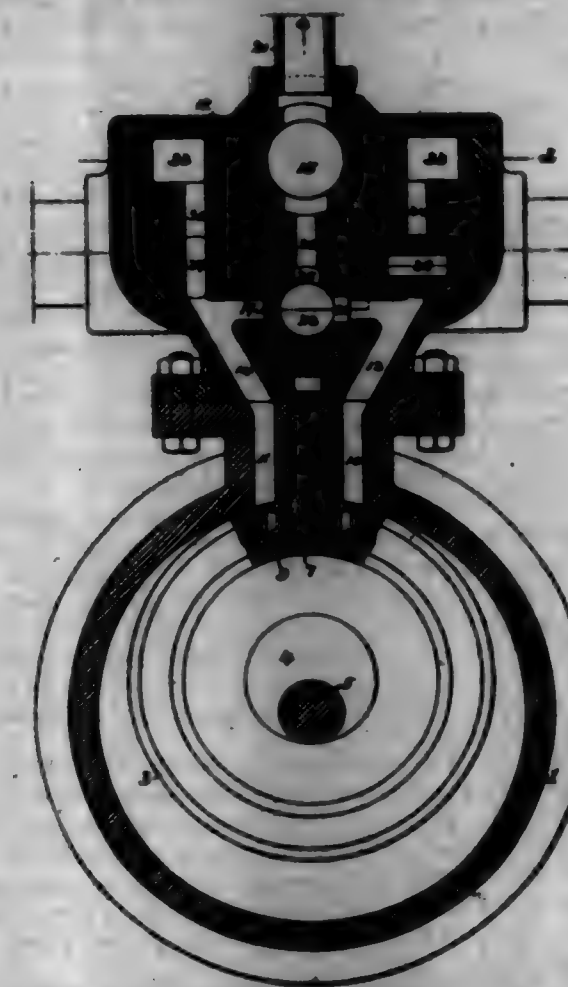
34. In a voting-machine, the combination of a standard; a bar blinged in said standard; mechanism located within said bar for automatically locking said bar and said standard; means connected to a resetting mechanism for releasing said locking device when said resetting mechanism is operated; and said resetting mechanism.

35. In a voting-machine, the combination with a plurality of voting mechanisms of an exit-bar; a resetting mechanism operatively connected with said exit-bar to reset and lock said voting mechanisms; and an entrance-bar operatively connected with said resetting mechanism to unlock

said voting mechanisms, said resetting mechanism serving also to operatively connect said bars.

36. In an independent-ballet mechanism, a pair of cooperating rolls from one to the other of which the ballot-sheet passes, a lever operated by the voter for turning one of said rolls to feed the ballot-sheet; mechanism which connects said lever with said roll; and means under control of the voter to positively throw said connecting mechanism into and out of engagement with said roll.

686,926. ROTARY ENGINE. FRANK E. BATES, Philadelphia, Pa. Filed May 15, 1901. Serial No. 66,273. (No model.)



Claim.—1. The combination of a rotary engine comprising a cylinder with eccentric piston, sliding abutment and inlet and exhaust passages located one on one side and the other on the opposite side of said abutment, with a reversing-valve whereby the motive fluid may be directed to either of said passages, and valves whereby the escape from either passage may be regulated or cut off, the passages of the valves being so disposed that when the reversing-valve is directing steam to either side of the piston, the exhaust-valve on that side will be closed and the exhaust-valve on the other side will be open, and when the reversing-valve is adjusted to cut off the flow of steam, both exhaust-valves will likewise be closed, substantially as specified.

2. The combination of a rotary engine comprising a cylinder with eccentric piston, sliding abutment and inlet and exhaust passages located one on one side and the other on the opposite side of said abutment, with a reversing-valve whereby motive fluid may be directed to either of said passages, valves whereby the escape from either passage may be regulated or cut off, and connections between said valves and the reversing-valve whereby conjoint operation of the three valves is effected, the passages of the valves being so disposed that when the reversing-valve is directing steam to either side of the piston, the exhaust-valve on that side will be closed and the exhaust-valve on the other side will be open, and when the reversing-valve is adjusted to cut off the flow of steam, both exhaust-valves will likewise be closed, substantially as specified.

3. The combination, in a compound rotary engine, of the high and low pressure cylinders each with eccentric piston, sliding abutment and inlet and exhaust passages one on one side and the other on the opposite side of said sliding abutment, a reversing-valve having two chambers, one for each of the cylinders of the engine, and ports whereby each chamber may be caused to communicate with either of the passages of its corresponding cylinder, a receiving-chamber in communication with the low-pressure chamber of said reversing-valve, two exhaust-passages, a pair of duplex valves, one controlling the communication between the forward passage of the high-pressure cylinder and the receiving-chamber and between the forward passage of the low-pressure cylinder and an exhaust-passages, and the other controlling communication between the rear passage of the high-pressure cylinder and the receiving-chamber and between the rear passage of the low-pressure cylinder and an exhaust-passages, and connections between the reversing-valve and said controlling-valves whereby conjoint operation of the three valves is effected, substantially as specified.

4. The combination, in a compound rotary engine, of the high and low pressure cylinders each with eccentric piston, sliding abutment and inlet and exhaust passages one on one side and the other on the opposite side of said sliding abutment, a reversing-valve having two chambers, one for each of the cylinders of the engine, and ports whereby each chamber may be caused to communicate with either of the passages of its corresponding cylinder, a receiving-chamber in communication with the low-pressure chamber of said reversing-valve, two exhaust-passages, and a pair of duplex valves, one controlling the communication between the forward passage of the high-pressure cylinder and the receiving-chamber and between the forward passage of the low-pressure cylinder and an exhaust-passages, and the other controlling communication between the rear passage of the high-pressure cylinder and the receiving-chamber and between the rear passage of the low-pressure cylinder and an exhaust-passages, and connections between the reversing-valve and said controlling-valves whereby conjoint operation of the three valves is effected, substantially as specified.

5. The combination in a compound rotary engine, of the high and low pressure cylinders each with eccentric piston, sliding abutment and inlet and exhaust passages, one on one side and the other on the opposite side of said sliding abutment, a reversing-valve having two chambers, one for each of the cylinders of the engine, and ports whereby each chamber may be caused to communicate with either of the passages of its corresponding cylinder, a receiving-chamber, two exhaust-passages, a pair of duplex valves, one controlling the communication between the forward passage of the high-pressure cylinder and the receiving-chamber and between the forward passage of the low-pressure cylinder and an exhaust-chamber, and the other controlling communication between the rear passage of the high-pressure cylinder and the receiving-chamber and between the rear passage of the low-pressure cylinder and an exhaust-passages, and out-off valves, one controlling the flow of motive fluid to the high-pressure chamber of the reversing-valve, and the other controlling the flow of motive fluid from the receiver to the low-pressure chamber of said valve, substantially as specified.

6. The combination in a rotary engine, of a cylinder having therein an eccentric piston with peripheral ring mounted so as to be free to turn thereon, a sliding abutment with segmental head at its inner end mounted in a conical socket of said ring, and a cap-plate let into a recess in the ring and overlapping the segmental head of said sliding abutment so as to confine the same to the ring, substantially as specified.

686,927. LOCKING DEVICE FOR SWINGING HANDLES. RICHARD BARRETT, Amberg, Germany. Filed Nov. 2, 1901. Serial No. 66,064. (No model.)

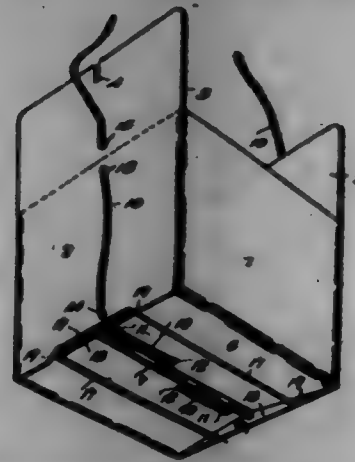


Claim.—1. A fastener for the handles of culinary and other vessels, comprising ears of which one is bent substantially at right angle to form a horizontal portion and a vertical portion, said portions having communicating slots or openings at the bend, and said vertical portion having a notch therein; and a pivoted ball having one of its ends working over the surface of the vertical portion of the ear and dipping into the notch on turning the ball uprightly, said cam-like head being engaged by the slots of said notch and preventing oscillation of the vessel when lifted or carried by the ball.

2. A fastener for the handles of culinary and other vessels, comprising ears of which one is bent substantially at right angle to form a horizontal portion and a vertical portion, said portions having communicating slots or openings at the bend, and said vertical portion having a notch therein; and a pivoted ball capable of limited horizontal movement between the ears, and having one end thereof working over the surface of said vertical portion of the ear and dipping into the notch on turning the ball uprightly, said cam-like head being engaged by the slots of said notch when the vessel is lifted or carried by the ball, and said horizontal portion of the ear constituting a rest for the ball when turned downwardly in one side.

3. In fastenings for the handles of culinary or similar vessels, a bail-car having a notch and a pivot-rod for the end of the bail, and formed with a transverse portion having a slot communicating with each end; and a bail bent near one end to form a pivot working in said pivot-rod, and having a spring-like portion engaged by the sides of the notch when the bail is turned uprightly.

696,998. FOLDING HAY-BOX. BLANK C. BROWNE, East Moravia, Ohio. Filed Aug. 28, 1901. Serial No. 73,854. (No model.)



Claim.—1. A folding box comprising the sides 1 and 2 hinged together at the corners of the box, the sides 2 being crossed between the sides 1 and arranged to fold outward away from each other, whereby they are adapted to distend and place under tension an elastic connection, substantially as and for the purpose described.

2. A folding box comprising the sides 1 and 2 hinged together at the corners of the box, the sides 2 being crossed between the sides 1 and arranged to fold outward from each other, whereby they are adapted to distend a flexible connection, a folding bottom, and the folding top flaps hinged to the upper edges of the sides 2 and arranged to swing downward over the box, said top flaps being crossed between their side edges, whereby they are adapted to fold with the sides 2, substantially as described.

3. A folding box comprising the sides 1 and 2 hinged together at the corners of the box, the sides 2 being crossed between the sides 1 and arranged to fold outward from each other, whereby they are adapted to distend an elastic connection, the folding top flaps hinged to the upper edges of the sides 2 and crossed between their side edges to enable them to fold outward with the said sides 2, the folding bottom flaps hinged to the sides 1, and the continuous tape laced through the sides 2, the top flaps and the bottom flaps being adapted to be tied, substantially as and for the purpose described.

4. A folding box composed of sides hinged together at their adjacent edges, two of the sides being arranged to project outwardly from each other in folding, a folding bottom, an elastic connection arranged to be distended and placed under tension by the outwardly-projecting sides when the box is folded, whereby the said box, when released, will be automatically unfolded, and means for holding the box folded, substantially as described.

5. The combination of a folding box having sides 1 and 2 hinged together and arranged to fold outward, an elastic connection extending across the box and attached to the same adjacent to the said corners, whereby it is distended and placed under tension when the box is folded, and is capable of automatically unfolding the box when the parts of the latter are free to move, and a locking device for holding the box folded, substantially as described.

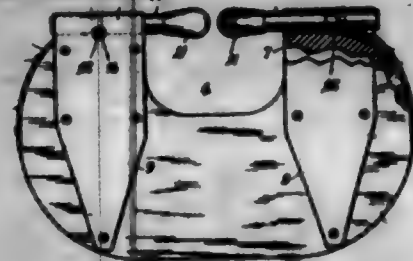
6. A folding box provided with sides arranged to fold outwardly away from each other and having notches, and an elastic band held within the notches and connecting the sides and arranged to be distended and placed under tension when the box is folded, substantially as and for the purpose described.

7. A folding box comprising the sides 1, the sides 2 hinged to the sides 1 and provided at their lower edges with notches, the folding bottom hinged to the sides 1, the top flaps, an elastic band arranged in the said notches and connecting the sides 2, and means for holding the box in its closed position, substantially as described.

696,999. CALF-WRINGER. GRANT C. BROWNE, Milwaukee, Wis. Filed Nov. 9, 1901. Serial No. 61,368. (No model.)

Claim.—1. In a calf-wringer, the combination of a guard or shield having upwardly-extending projections with a space therebetween, non-

engaging fingers along the upper edges of the projections, and having their inner ends adapted to extend into the space between the projections, one of said fingers provided with a circumferential recess, a bearing at the upper edge of one of the projections into which bearing the recessed finger is adapted to fit, a spring-dog adapted to extend into the bearing for said finger to contact with the inner wall of the recess of the finger when said finger is in position within its bearing, and an opening into said bearing through which said spring-dog may be released to permit the removal of said finger from said bearing.



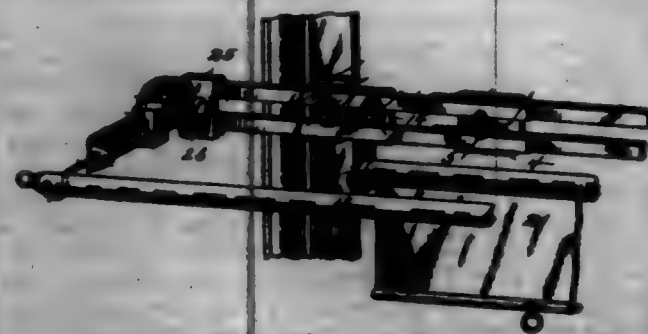
2. In a calf-wringer, the combination of a guard or shield having upwardly-extending projections with a space therebetween, non-engaging fingers along the upper edges of the projections having their inner ends adapted to extend within the space between the projections, one of said fingers provided with a circumferential recess, a bearing at the upper edge of one of the projections, in which the recessed finger is adapted to fit, a spring-dog extending into the bearing for said finger and adapted to engage a wall of the recess of the finger when the finger is in its inward position and an opening into said bearing through which a suitable implement may be inserted to move said dog from engagement with said wall to permit the removal of said finger from its bearing.

3. In a calf-wringer, the combination of a guard or shield having upwardly-extending projections with a space therebetween, of non-engaging fingers arranged along the upper edges of said projections so as to extend into the space between said projections, a bearing member secured to one of said projections for loosely encircling one of said fingers, a circumferential recess in said encircled finger and a stop member adapted when said finger is in operative position to fit in said recess to prevent outward movement of said finger without preventing the same from rotating within its bearing.

4. In a calf-wringer, the combination of a guard or shield having upwardly-extending projections with a space therebetween, bearing members secured to the upper edges of the projections, non-engaging fingers loosely mounted in the bearing members, a slot in each bearing member extending a distance around the same and removable means secured to each finger and adapted to extend through said slot to prevent longitudinal movement of said finger without preventing the same from rotating in its bearing.

5. In a calf-wringer, the combination of a guard or shield having upwardly-extending projections with a space therebetween, bearing members secured to the upper edges of the projections, a non-engaging finger provided with a circumferentially-extending recess loosely mounted in each bearing and means extending into said recess for preventing longitudinal movement of said finger, without preventing the same from rotating in its bearing.

696,980. COMBINED SHADE-ROLLER AND CURTAIN-POLE BRACKET. LOUIS RABIN, Buffalo, N. Y., assignor of one-half to Frank Kiek, Buffalo, N. Y. Filed June 20, 1901. Serial No. 61,606. (No model.)



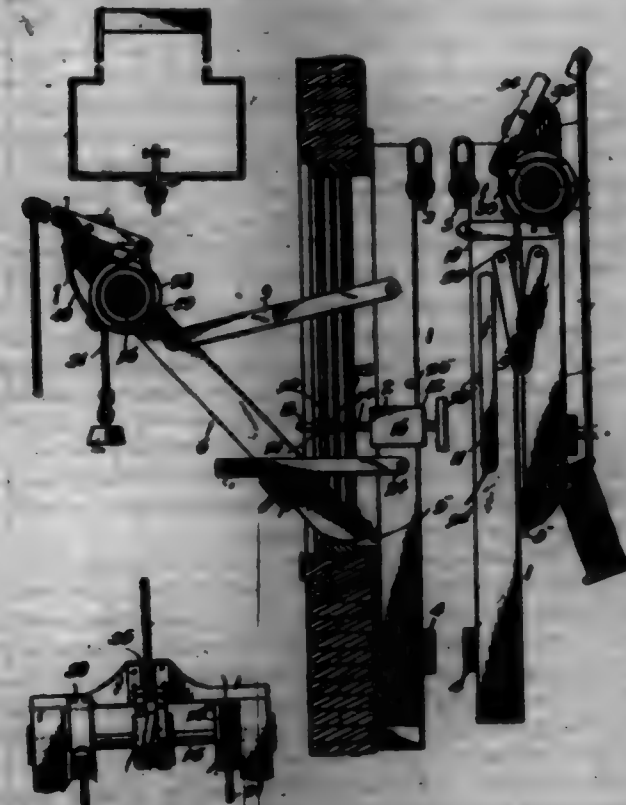
Claim.—1. A combined shade roller and curtain-pole bracket comprising longitudinally-slotted overlapping and relatively adjustable sections, means for clamping the overlapped portions of said sections together, shade-roller-supporting brackets provided with runners adjustable lengthwise of said sections, and longitudinally-extensible curtain-pole arms also provided with runners adjustable lengthwise of said sections.

2. A combined shade-roller and curtain-pole bracket comprising a bar consisting of longitudinally-slotted and relatively adjustable overlapping sections, a clamp for fastening the overlapping portions of said sections together, shade-roller brackets provided with runners adjustable

lengthwise of the bar-sections, and longitudinally-extensible curtain-pole arms having runners adjustable lengthwise on the bar-sections, each of said curtain-pole arms comprising an inner member having a bent and perforated outer end, and a sliding member in the form of a rod having a hook for the curtain-pole and having its shank slidably mounted in the perforated end of the inner member and provided at its inner end with a transverse slidable lengthwise of the inner member of the curtain-pole arm.

3. A combined shade-roller and curtain-pole bracket comprising a longitudinally-slotted bar consisting of overlapping and relatively adjustable sections, a flanged plate provided with a curved eye for clamping the overlapping ends of said sections together, shade-roller brackets adjustable lengthwise of the slotted bar, curtain-pole arms also adjustable lengthwise upon said bar, and means for connecting said bar to a window-frame and at the same time admitting of the relative adjustment of the sections thereof, said means comprising flanged plates adapted to be attached to the window-frame, screws or bolts projecting outward therefrom and adapted to be received in the slotted bar, flanged bar-holding plates mounted on said screws or bolts, and one or more retaining-nuts, substantially as described.

696,981. FIRE-ESCAPE. HERMAN BENTON, New York, Tex., assignor of one-half to Fritz Pressa, Lagrange, Tex. Filed Aug. 14, 1901. Serial No. 73,035. (No model.)



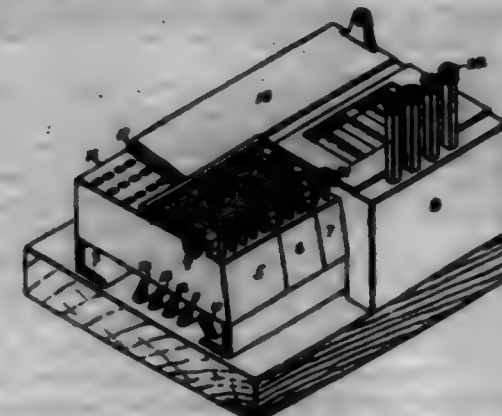
Claim.—1. A fire-escape comprising an inner frame designed to be arranged within a room and being of a length to extend from a point adjacent to the floor to a point above the top of a window, said frame being composed of side bars and suitable connecting-bars, an outer frame composed of side bars and suitable connecting-bars and hinged at its lower end to the inner frame at the lower portion thereof and arranged to swing outward to an inclined position to extend through a window, and capable of folding against the inner frame, folding braces connecting the frames and adapted to support the outer frame when the latter is in an inclined position, the platform hinged between the sides of the inner frame and arranged to swing between the same and adapted to swing outward and downward to a horizontal position and supported in such position by one of the connecting-bars of the outer frame, and means mounted on the outer frame for lowering persons or goods to the ground, substantially as described.

2. A fire-escape comprising inner and outer frames hinged together at the bottom and adapted to fold, the inner frame fitting against the inner face of a wall and provided with upright side bars and the outer frame being of a size to extend through a window, means mounted on the outer frame for lowering persons or goods to the ground, and a vertically-adjustable clamp composed of an inner jaw having a recess to receive the adjacent side of the inner frame and provided with a threaded opening, an outer jaw for engaging the exterior of the wall, and a screw passing through the threaded opening of the inner frame and connected with the outer jaw, substantially as described.

3. In a fire-escape, the combination of a frame, a shaft mounted thereon, grooved disks fixed to the shaft, ropes or cables reversely arranged on the grooved disks and coiled in the said grooves, the latter be-

ing of substantially the same width as the ropes or cables, whereby the shaft will be arranged in the same vertical plane, the reversely-arranged resilient guards covering a portion of the periphery of each disk and retaining the ropes or cables in the grooves, and a brake, substantially as described.

696,982. VOTING-MACHINE. ARTHUR J. DALY, San Francisco, Cal. Filed Mar. 20, 1901. Serial No. 625,923. (No model.)



Claim.—1. In a vote-recording machine, means for receiving the mechanism, said means comprising a grooved rod, said rod adapted to rotate or revolve the operated parts; a latch-bar connected with said rod to impart movement thereto, said latch-bar adapted to be tripped after being moved a predetermined distance, substantially as described.

2. In a voting apparatus, sections or units placed in series, one section having a series of straight-tick keys, other sections having a series of candidate-keys and counters; slotted confining rods traversing said sections, said rods operated by the straight-tick keys and acting on said counters; means independent of said rods, controlled by the candidate-key and acting on said counters, whereby votes may be cast for individual candidates without affecting the straight-tick mechanism, substantially as specified.

3. In a voting apparatus, a series of sections; said sections provided with counters; respective individual-candidate keys for operating said counters; a straight-tick section; said section provided with keys for operating each of said counters as were not cut out by substitution by said individual-candidate keys.

4. In a voting apparatus, sections or units placed in series, each provided with depressible voting-keys and counters, one section comprising straight-tick keys, other sections comprising keys and counters for individual candidates or measures, slotted confining rods passing through all the sections, each rod operated upon by a straight-tick key, said rods operating the aforementioned counters, and independent means for operating said counters controlled by the individual-candidate keys; in combination therewith, a rod passing underneath the individual-candidate keys and the levers of the straight-tick section, so that when said levers are operated the individual-candidate keys will become locked against operation.

5. In a voting apparatus, a series of individual-candidate sections, each provided with keys, levers and counters, a straight-tick section provided with keys and levers, confining rods traversing all said sections and operated by said straight-tick keys, one of said rods locking the individual-candidate keys and the remainder of said rods operating counters, means independent of said confining rods operated by the individual-candidate keys and operating the said counters, and a series of pendulous disks or wheels abutting against each other and movable laterally, in combination with the keys and levers of the several sections, whereby when one lever is depressed all the others in the series are obstructed against depression.

6. In a voting apparatus, a series of individual-candidate sections, each provided with keys, levers and counters, a straight-tick section provided with keys and levers, slotted confining rods traversing all sections and operated by the straight-tick keys, said rods operating the aforementioned counters, means independent of said confining rods operated by the individual-candidate keys and operating the said counters, and a series of pendulous pivoted disks abutting against each other and movable laterally, and a pawl and ratchet-wheel actuated by the last disk of the series and a pin-stop for limiting the number of movements made by the pendulous wheels and consequently the number of movements of the voting-keys.

7. In a voting apparatus, a series of sections; said sections provided with counters; respective individual-candidate keys for operating said counters; a straight-tick section, said section provided with keys for operating each of said counters as were not previously cut out by substitution by said individual-candidate keys; and a rod to release all levers operated.

8. In a voting apparatus, units or sections; said sections provided

bars and means of candidates with voting-mechanism adjacent; traversing said sections a series of rods for operating said counters independently of said individual-candidate keys; a rod for locking said keys against operation whether prior or subsequent to the operation of one or more of said keys; means to limit or predetermine the number of candidates that may be voted for in an office; means for maintaining said sections in their proper position.

59. In a voting apparatus, a series of interchangeable sections, one for each office, each section containing individual-candidate keys, counters and means of candidates with voting-mechanism adjacent; traversing said sections a series of rods for operating said counters independently of said individual-candidate keys; a rod for locking said keys against operation whether prior or subsequent to the operation of one or more of said keys; means to prevent voting for more than one candidate in an office; means to prevent voting for a candidate more than once; means for maintaining said sections in their proper position.

60. In a voting apparatus, a ball-crank for operating an individual-candidate counter, said ball-crank operable by an individual-candidate key, or by a straight-ticket key, each independently of the other.

61. A series of ball-cranks for operating corresponding counters, said ball-cranks operable by respective individual-candidate keys and by respective straight-ticket keys, each independently of the other.

62. A series of ball-cranks for operating corresponding counters, said ball-cranks operable by respective individual-candidate keys or by either of two or more straight-ticket keys, in combination therewith means to prevent the operation of any of said ball-cranks more than once or of more than one thereof.

63. A series of interchangeable sections, each section containing a series of individual-candidate keys, a straight-ticket section containing a series of keys and means for retaining said interchangeable sections in their proper position; traversing all sections a rod for locking said individual-candidate keys simultaneously with the operation of any of said straight-ticket keys.

64. In a voting-machine, a series of individual-candidate keys, a series of straight-ticket keys, means to prevent the operation of a straight-ticket key and an individual-candidate key at the same time, said means comprising a rocking rod and a straight-ticket key-lever with a projection thereon adapted to impart movement to said rod.

65. A series of counters individual-candidate keys for operating said counters, a series of straight-ticket keys and levers for operating said counters, a rod passing beneath all the individual-candidate keys and straight-ticket levers, the latter having a projection thereon to impart movement to said rod, thereby locking all individual-candidate keys.

66. A series of levers, means coacting to detain said levers when depressed, a series of pendulum disks chattering one against the other except the two that are operated by the depression of a lever, so as to lock the unoperated levers against depression; ball-cranks actuated by individual-candidate keys and connecting mechanism or straight-ticket keys and connecting mechanism, a stop-bar actuated by the individual-candidate key-levers to maintain the straight-ticket mechanism in a disengaged position.

67. In a voting apparatus, a series of sections, each containing individual-candidate keys, counters and means of candidates with voting-mechanism adjacent; corresponding with said keys a series of ball-cranks adapted to operate said counters by the operation of said keys; through these sections rods for operating said ball-cranks, and consequently said counters, independently of said individual-candidate keys.

68. A series of ball-cranks; individual-candidate keys for operating said ball-cranks; straight-ticket keys for operating said ball-cranks; means to prevent the operation of more than one of the ball-cranks of the series by any of said keys, said means comprising a series of disks or wards to prevent the operation of more than one straight-ticket key and a rod or bar adapted to lock all the individual-candidate keys of the series, accordingly as the individual-candidate key or the straight-ticket key is first operated.

69. A series of ball-cranks operable either by individual-candidate key-levers or by straight-ticket key-levers; a bar as described to prevent the operation of any ball-crank of the series by said straight-ticket key-levers subsequent to the operation of any one thereof by said individual-candidate key-levers.

70. In a voting apparatus, an individual counter means to operate said individual-candidate counter; additional means whereby said counter may be operated by either of two or more straight-ticket keys.

71. In a voting-machine, individual-candidate counters; respective keys for operating said counters; straight-ticket keys for operating said counters; means to prevent the operation of any of said counters more than once by said keys.

72. In a voting-machine, a series in series and protect the mechanism;

candidate-counters; respective individual-candidate keys for operating said counters; voting-mechanism to identify said keys with said counters; straight-ticket keys to operate said counters independently of said individual-candidate keys.

73. In a voting-machine; candidate-counters; respective individual-candidate keys for operating said counters; voting-mechanism to identify said keys and counters; straight-ticket keys for operating said counters independently of said individual-candidate keys.

74. In a vote-recording machine, means for receiving the mechanism, comprising a rod adapted to release or reset the operated parts; connected with said rod a deflected latch-bar; a guide for said latch-bar so as to trip said latch-bar when moved a predetermined distance; means to impart movement to said latch-bar, substantially as described.

75. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; straight-ticket keys to operate said counters; a bar operated by said individual-candidate keys to prevent the operation of said counters by any of said straight-ticket keys when operated.

76. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; straight-ticket keys to operate said counters independently of said individual-candidate keys; a bar operated by said individual-candidate keys to prevent the operation of said counters by any of said straight-ticket keys when operated.

77. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; straight-ticket keys to operate said counters; a bar operated by said individual-candidate keys to prevent the operation of said counters by any of said straight-ticket keys when operated; a rod coacting with said straight-ticket keys to lock said individual-candidate keys.

78. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; voting-mechanism to identify said keys and counters; straight-ticket keys to operate said counters; a bar, operated by said individual-candidate keys, to prevent the operation of said counters by any of said straight-ticket keys when operated.

79. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; voting-mechanism to identify said keys with said counters; straight-ticket keys to operate said counters independently of said individual-candidate keys; a bar operated by said individual-candidate keys to prevent the operation of said counters by any of said straight-ticket keys when operated.

80. In a voting-machine, keys for voting for individual candidates irrespective of party; means, independent of said keys, for voting the remainder of any party-ticket.

81. In a voting-machine, keys for voting for individual candidates irrespective of party; means independent of said keys, for voting the remainder of any party-ticket at a single operation.

82. In a voting-machine, a series of rods; transversely therewith a series of sliding bars; said bars provided with lugs, said lugs staggered on said bars to engage with said rods as the slugs may require; flexible pawls on said bars; a bar to depress said pawls.

83. In a voting-machine, segregable sections; said sections containing keys for voting for individual candidates irrespective of party; means, independent of said keys, for voting the remainder of any party-ticket.

84. In a voting-machine, a series of individual-candidate sections, comprising keys and levers for operating respective counters; a straight-ticket section provided with keys and levers for operating said counters; traversing said sections an oscillating rod adapted to release all levers operated; in combination therewith a bar to prevent the operation of the counters, in an individual-candidate section wherein one of the counters has been operated by an individual-candidate key, by said straight-ticket key-levers.

85. In a voting-machine, means to operate an individual-candidate counter by either of two or more straight-ticket keys.

86. In a voting-machine, a series of counters; individual-candidate keys to operate said counters; means whereby any of said counters may be operated by either of two or more straight-ticket keys.

87. In a voting-machine, a series of individual-candidate keys; a rod for locking said keys against operation; a series of straight-ticket levers with projections thereon to impart movement to said rod; a series of wards to prevent the operation of more than one of said levers at a time, substantially as described.

88. In a voting apparatus, a series of sections; said sections provided with counters; respective individual-candidate keys for operating said counters; a straight-ticket section; said section provided with keys for operating each of said counters as may comprise a straight ticket, or the unvoted portion thereof, independently of said individual-candidate keys.

89. In a voting apparatus, a series of individual-candidate counters; respective individual-candidate keys to operate said counters; straight-ticket keys to operate said counters; means whereby said counters may

be operated by either of two or more of said straight-ticket keys; in combination with means to prevent the operation of any of said counters more than once, or of more than one of the series, by any of said keys, substantially as described.

90. In a voting-machine, the means for voting a split ticket, comprising individual-candidate keys; ticket-keys; means coacting with the inwardly portion of said keys whereby a portion of said split ticket may be voted by said candidate-keys and a portion of said split ticket may be voted by said ticket-keys.

91. In a voting-machine, a casing to contain the mechanism; individual-candidate counters; candidate-keys to operate said counters; ticket-keys to operate said counters, said keys operating partially within and partially without said casing and so projecting therefrom that said keys may be operated; mechanism coacting with the inwardly portion of said keys whereby the whole or a portion of each of said counters as comprise a party-ticket may be operated by the operation of one of said ticket-keys.

92. In a voting-machine, a casing to contain the mechanism; individual-candidate counters; candidate-keys to operate said counters; ticket-keys to operate said counters, said keys operating partially within and partially without said casing and so projecting therefrom that said keys may be operated; mechanism coacting with the inwardly portion of said keys whereby the whole or a portion of each of said counters as comprise a party-ticket may be operated by the operation of one of said ticket-keys; mechanism to prevent voting for a candidate more than once.

93. In a voting-machine, a casing to contain the mechanism; individual-candidate counters; candidate-keys to operate said counters, said keys operating partially within and partially without said casing and so projecting therefrom that said keys may be operated; party-keys; mechanism coacting with the inwardly portion of said keys whereby the whole or a portion of each of said counters as comprise a party-ticket may be operated by the operation of one of said ticket-keys; means to prevent voting for more than one candidate in an office.

94. In a voting-machine, a casing to contain the mechanism; individual-candidate counters; candidate-keys to operate said counters; ticket-keys to operate said counters, said keys operating partially within and partially without said casing and so projecting therefrom that said keys may be operated; mechanism coacting with the inwardly portion of said keys whereby the whole or a portion of each of said counters as comprise a party-ticket may be operated by the operation of one of said ticket-keys; mechanism to limit or predetermine the number of candidates that may be voted for in an office.

95. In a voting-machine, the means for voting a split ticket, comprising a casing, candidate-keys, ticket-keys, said keys partially projecting and partially within said casing, means coacting with the inwardly portion of said keys whereby a portion of said split ticket may be voted by said candidate-keys and a portion thereof by said ticket-keys.

96. In a voting-machine, means for voting for individual candidates irrespective of party; ticket-keys; mechanism for voting the portion of any party-ticket, not otherwise voted, by the operation of one of said keys; said mechanism so disposed as to be operable only through the medium of said ticket-keys.

97. In a voting-machine, means for voting for individual candidates irrespective of party; ticket-keys; mechanism for voting the portion of any party-ticket, not otherwise voted, by the operation of one of said keys; said mechanism so disposed as to be operable only through the medium of said ticket-keys; means to prevent voting for a candidate more than once; means to limit or predetermine the number of candidates in an office; means to limit or predetermine the number of candidates that may be voted for in an office; means to reset the operated parts, substantially as described.

98. In a voting-machine, a casing; ticket-keys; said keys operating partially within and partially without said casing and so projecting therefrom that said keys may be operated; means coacting with the inwardly portion of said keys whereby the whole or a portion of a party-ticket may be voted by the operation of a ticket-key.

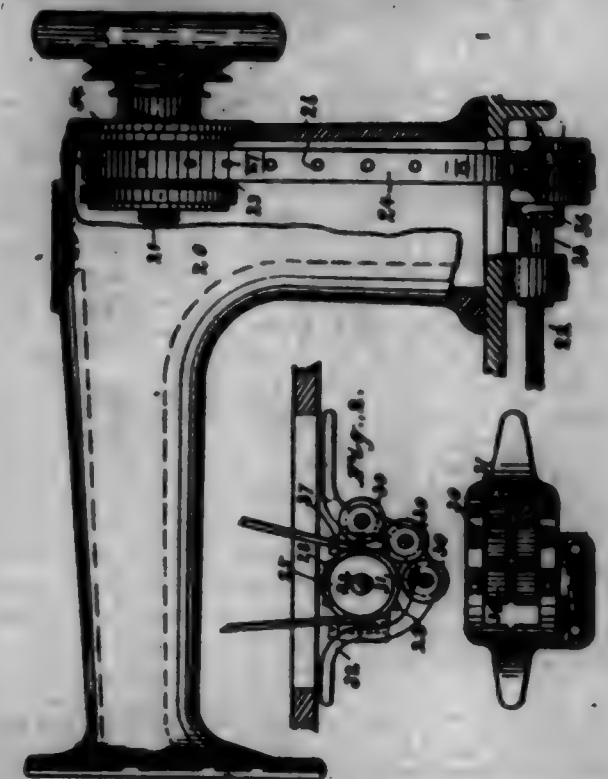
99. In a voting-machine, ticket-keys; mechanism coacting therewith whereby the whole or a portion of a party-ticket may be voted by one of said keys; means whereby a candidate may be voted for by either of two or more of said keys.

100. In a voting-machine, candidate-keys; ticket-keys; and mechanism so disposed as to prevent removal of the parts thereof coacting with said keys whereby a portion of a split ticket may be voted by said candidate-keys and a portion thereof by said ticket-keys.

101. In a voting-machine, the means for voting a split ticket, comprising counters for individual candidates; corresponding keys for operating said counters; ticket-keys for operating said counters; mechanism coacting with said keys whereby a portion of said split ticket may be ascertained on said counters by said individual-candidate keys, and a portion thereof by said ticket-keys, said mechanism so disposed as to prevent the operation of said coacting mechanism, or any of the parts thereof, except by said keys.

102. In a voting-machine, the means for voting a split ticket, comprising a casing, candidate-keys, ticket-keys, said keys partially projecting and partially within said casing, means coacting with the inwardly portion of said keys whereby a straight ticket may be voted by said ticket-keys, or whereby a portion of said split ticket may be voted by said candidate-keys and a portion thereof by said ticket-keys.

696,988. DRIVING MECHANISM FOR SEWING-MACHINES. BROWN, BENJAMIN, PROVIDENCE, R. I., and ORIN A. BROWN, BRIDGEPORT, CONN., assignors to WILCOX & GIBBS SEWING MACHINE COMPANY, NEW YORK, N. Y., a Corporation of New York. Filed Jan. 26, 1891. Serial No. 41,882. (20 claims.)



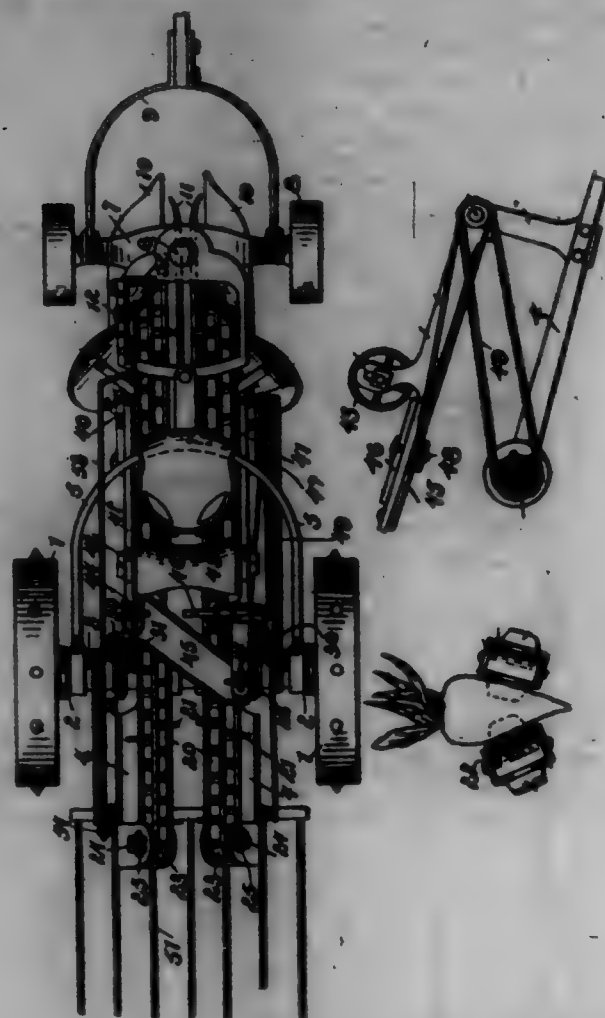
Claim.—1. The combination with the driving-shaft and back-shaft, the pulleys having peripheral pins, and the perforated belt, of a belt-guard adjacent to the driven pulley for preventing the belt slipping off the pin.
2. The combination with the back-shaft and pin-pulley thereon, and with the perforated driving-belt, of a belt-guard having a surface adjacent to said pulley, but normally out of contact with said belt, said surface having a groove or recess for entrance of the pin.
3. The combination with the back-shaft, driven pulley thereon having peripheral pins, and driving-belt having perforations engaging said pins, of a belt-guard comprising a grooved metal tongue adjacent to said pulley.
4. The combination with the back-shaft, driven pulley thereon having peripheral pins, and driving-belt having perforations engaging said pins, of a belt-guard, comprising a curved metal plate having a stationary guard-surface extending partly around said pulley, and having a groove or recess for entrance of the pin.
5. The combination with the driving-pulley on the main shaft and the driven pulley on the back-shaft, said pulleys having peripheral pins, and with the connecting-belt having perforations to engage said pins, of the grooved belt-guard adjacent to said driving-pulley.

696,984. SUGAR-SHIFT FULLER AND TUPPER. CHARLES W. HANLEY, LYONS, N. Y. Filed June 26, 1891. Serial No. 66,896. (No model.)

Claim.—1. In a beet-harvester, the combination with a pair of spaced plows, a pair of spaced fingers between the plows and whose front ends spread outward, and a carrier comprising a pair of endless chains whose inner active sides stand above the fingers and at an angle to each other and have open projecting toward each other; of connections between the main axle and chains for imparting movement to the latter, and means for raising and lowering the plows and the fingers, all substantially as described.

2. In a beet-harvester, the combination with a pair of spaced plows and a pair of spaced fingers all mounted on the framework of the machine, two pairs of axle chains to each other, means for adjusting one of each pair, and endless chains mounted on rollers on said axle with their active sides spread and leading from over the fingers upward to the rear of the machine; of a spur-wheel located within each chain about

midway between its rollers, and connections between the shaft of this wheel and the main axle, all substantially as described.



3. In a best-harvester, the combination with the main framework, and the digging mechanism at the forward end thereof; of a carrier comprising two endless chains whose active sides are spaced and stand oblique to each other, rollers in the heads of these chains, and for each chain a spur-wheel between its sides about midway of its length, a bearing supporting the shaft of this wheel and standing against the edge of the chain, a counter-shaft in a bearing, intermeshing gears connecting the two shafts, and gearing also between the counter-shaft and the main axle of the machine, all as and for the purpose set forth.

4. In a best-harvester, the combination with the digging mechanism, and a carrier for conveying the beets therefrom; of a topping-knife located above the carrier and supported by a movable frame, and a roller in said frame resting on the beets, as and for the purpose set forth.

5. In a best-harvester, the combination with the digging mechanism, and a carrier for conveying the beets therefrom; of a topping-knife located above the carrier, a frame for the knife pivoted to standards on the main framework and having slotted bearings, and a roller extending across the carrier and whose shaft is adjustably mounted in said bearings, as and for the purpose set forth.

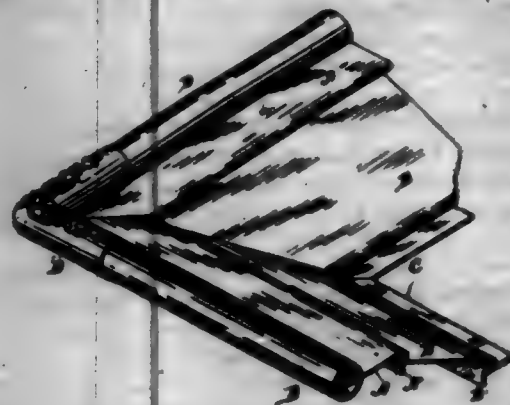
6. In a best-harvester, the combination with the digging mechanism, and a carrier for conveying the beets therefrom; of a frame pivoted to standards rising from the main framework, a topping-knife and a roller carried by said frame, a header whose shaft is journaled in the frame and whose arms operate between the roller and knife, and connections between said header-shaft and the main axle of the machine, substantially as described.

7. In a best-harvester, the combination with the digging mechanism, and a carrier for conveying the beets therefrom; of a frame pivoted to standards rising from the main framework, a topping-knife and a roller carried by said frame, a header whose shaft is journaled in the frame and whose arms operate between the roller and knife, a pulley and sprocket journaled on the pivot between one side bar of the frame and its standard, a belt connecting this pulley with a pulley on the header-shaft, and a chain belt connecting this sprocket with a sprocket on the main axle, as and for the purpose set forth.

8. In a best-harvester, the combination with the digging mechanism, and a carrier for conveying the beets therefrom; of a frame pivoted to standards rising from the main framework, a roller standing across the carrier and whose shaft is vertically adjustable in bearings in said frame, a knife extending obliquely across above the carrier and whose extremities are adjustably tilted in slots in said frame, a header whose shaft is

journaled in the frame and whose arms operate between the roller and knife, and connections between said header-shaft and the main axle of the machine, all substantially as and for the purpose set forth.

696,985. PICTURE-FRAME. FRANK A. BUSHNER, Rutland, Vt., assignor to the Bushner Manufacturing Company, Rutland, Vt. Filed May 22, 1901. Serial No. 61,533. (No model.)



Claim.—1. In a picture-frame, the combination of strips or sections of sheet metal A, with outwardly and rearwardly turned flanges A' on their inner edges suitably perforated at intervals, their ends being suitably mitered to form corners; corner-plates E of sheet metal; and a suitable solder between said sections and said corner-plates, as specified.

2. In a picture-frame, the combination of strips or sections of sheet metal A, with outwardly and rearwardly turned flanges A' on their inner edges, their ends being suitably mitered to form corners; corner-plates E of sheet metal; and a suitable solder between said sections and said corner-plates, as specified.

3. In a picture-frame, the combination of strips or sections of sheet metal with outwardly and rearwardly turned flanges on their inner edges suitably perforated at intervals their ends being suitably mitered to form corners; corner-plates E of sheet metal; suitable solder between said sections and said corner-plates; and rolls of sheet metal D having corner-sections D' cleaved upon the same, slotted to embrace the outer edges of the sections A and secured thereon, as specified.

4. In a picture-frame, the combination of strips or sections of sheet metal with outwardly and rearwardly turned flanges on their inner edges, their ends being suitably mitered to form corners; corner-plates E of sheet metal; suitable solder between said sections and said corner-plates; and rolls of sheet metal D having corner-sections D' cleaved upon the same, slotted to embrace the outer edges of the sections A and secured thereon, as specified.

5. In a picture-frame, the combination of strips or sections of sheet metal with outwardly and rearwardly turned flanges on their inner edges suitably perforated at intervals, their ends being suitably mitered to form corners; corner-plates E of sheet metal; suitable solder between said sections and said corner-plates; rolls of sheet metal D having corner-sections D' cleaved upon the same, slotted to embrace the outer edges of the sections A and secured thereon; and strips of metal C soldered in position against the outwardly-turned portion of the said flanges of said sections, for the purpose specified.

6. In a picture-frame, the combination of strips or sections of sheet metal with outwardly and rearwardly turned flanges on their inner edges, their ends being suitably mitered to form corners; corner-plates E of sheet metal; suitable solder between said sections and said corner-plates; rolls of sheet metal D having corner-sections D' cleaved upon the same, slotted to embrace the outer edges of the sections A and secured thereon, and strips of metal C soldered in position against the outwardly-turned portion of the said flanges of said sections, for the purpose specified.

7. In a picture-frame, the combination of two or more rectangular frames of sheet metal with outwardly and rearwardly turned flanges on their inner edges, the said frames being graded in size so that the outer edge of the one will fit within the said flanges on the inner edge of the other; and means of securing the said frames in such position, for the purpose specified.

8. In a picture-frame, the combination of two or more rectangular frames of sheet metal with outwardly and rearwardly turned flanges on their inner edges, the said frames being graded in size so that the outer edge of the one will fit within the said flanges on the inner edge of the other; means of securing the said frames in such position; perforations in the flanges of the inner frame; and strips of sheet metal C secured in position against the outwardly-turned portion of said flanges, for the purpose specified.

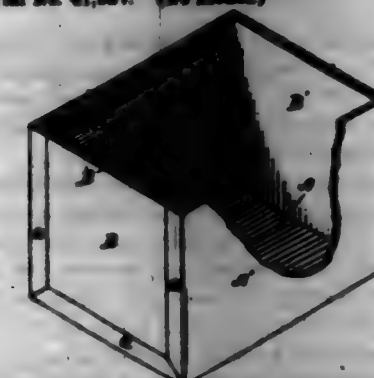
9. In a picture-frame, the combination of two or more rectangular frames of sheet metal with outwardly and rearwardly turned flanges on

their inner edges, the said frames being graded in size so that the outer edge of the one will fit within the said flanges on the inner edge of the other; means of securing the said frames in such position; perforations in the flanges of the inner frame; for the purpose specified.

10. In a picture-frame, the combination of two or more rectangular frames of sheet metal with outwardly and rearwardly turned flanges on their inner edges, the said frames being graded in size so that the outer edge of one will fit within the said flanges on the inner edge of another; means of securing the said frames in such position; perforations in the said flanges of the inner frame; and a roll of sheet metal slotted to embrace the outer edge of the outer frame and secured thereon for the purpose specified.

11. A picture-frame made up of strips of sheet metal suitably joined together, the inner edges of which are turned outwardly and rearwardly to form a flange to receive the back of the picture-frame or picture-back, as specified.

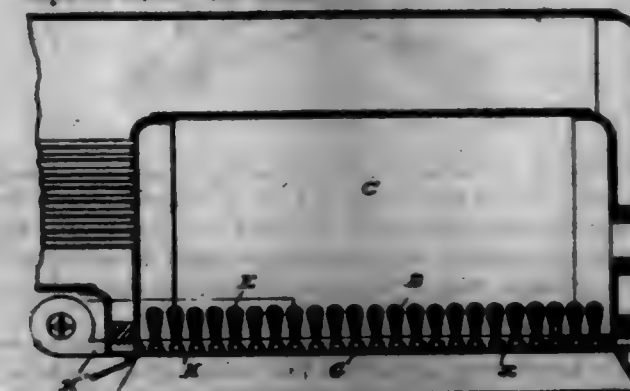
696,986. BOX. LEO J. BUSHNER, Sturgis, Mich. Filed Jan. 3, 1901. Serial No. 41,987. (No model.)



Claim.—1. In a box, the combination of the bottom A; sides A', mid bottom and sides being formed of a single piece suitably scored, and having flaps c on each end adapted to fold, said flaps being suitably notched at c'; and piece B, secured on the inner face of said flaps; and said piece B' fitted and secured between the edges of said flaps, for the purpose specified.

2. In a box, the combination of the bottom and side pieces with flaps on each end thereof; an end piece of a size and shape to fit inside of said box secured on the inner face of said flaps; and an exterior end piece of a size and shape to fit between the edges of the said flaps secured to the same, as specified.

696,987. GRATE-BAR FOR FORCED-BLAST FURNACES. FRANK BUSHNER and HENRY M. WILLIAMS, Port Wayne, Ind.; said Bushner assignor of one-half his right to said Williams. Filed May 26, 1900. Serial No. 17,731. (No model.)



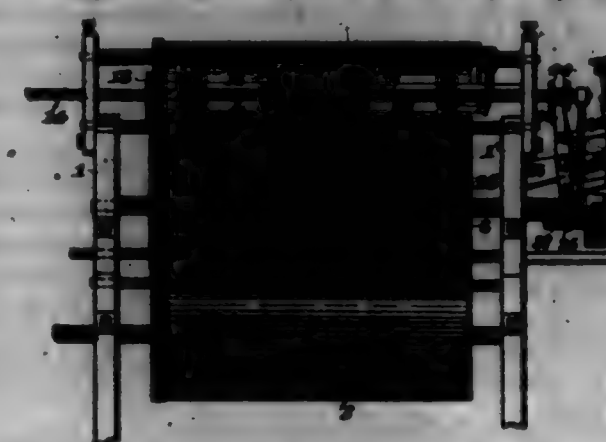
Claim.—1. A grate consisting of separated grate-bars each provided with a vertical central channel for the passage therethrough of air, and air-conductors arranged beneath said bars in a position to direct a blast of air upward through said central channels, substantially as described.

2. A grate consisting of separated grate-bars each provided with a vertical central channel having a tortuous opening at the top for the passage therethrough of air, and air-conductors arranged beneath the bars in a position to direct a blast of air upward through said channels, substantially as described.

3. In a grate, the combination of a series of grate-bars each composed of two pieces connected together to form between them a vertical central channel for the passage of air, and an air-conductor below each bar arranged to direct currents of air upward through the bars, substantially as described.

4. The combination in a grate, of a series of separated channelled bars, a series of air-conductors below said bars, and an air pipe or chamber extending around the grate and communicating with the opposite ends of the air-conductors, substantially as set forth.

696,988. MULTICOLOUR-PRINTING PRESS. JOHN R. GARD, Kansas City, Mo. Filed Mar. 2, 1901. Serial No. 60,372. (No model.)



Claim.—1. The combination with a graduated press-cylinder, and a distributor-shaft having graduations corresponding to the graduations of the cylinder, of a distributing-cylinder comprising adjustable cylinder-sections mounted upon the shaft and adapted to be set by the graduations thereof, means for setting a type form or plate upon the press-cylinder by the graduations thereof, to secure the proper relation between the form and distributing-cylinder, a subdivided ink-fountain designed to contain ink of different colors, and means for transferring ink from the fountain to the distributing-cylinder and from said distributing-cylinder to the type-form.

2. In a printing-press, the combination with a graduated ink-fountain, a graduated distributor-shaft, and a graduated press-cylinder, the latter being designed for the reception of the type form or plate, and the graduations of the several graduated elements being correlative, of adjustable partitions for the fountain, adjustable disks constituting a distributor-cylinder for the distributor-shaft, adjustable means for securing the form or plate upon the cylinder, distributing-rolls intermediate of the fountain and distributor-cylinder, and form-rolls intermediate of the distributor-cylinder and form.

3. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, a vibrating arm operatively related thereto, a vibrator, a regular-black adjustable thereon, a regulating-rod disposed to shift said black, and a link having pivotal connection at its opposite ends with the regulating-black and vibrating arm respectively.

4. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, driving and driven arms, said driven arm having an operative connection with the distributor, a vibrator furnished intermediate of its ends, and links connected at their inner ends to the driving and driven arms, respectively, and at their outer ends to the vibrator at opposite sides of the axis thereof.

5. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, oscillatory driving and driven arms, said driven arm having an operative connection with the distributor, a vibrator operatively connected with the driving-arm and designed to be driven thereby, and a shiftable connection between said vibrator and the driven arm.

6. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, oscillatory driving and driven arms, said driven arm having an operative connection with the distributor, a vibrator operatively connected with the driving-arm and designed to be driven thereby, and a shiftable connection between said vibrator and the driven arm.

7. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, driving and driven arms furnished at their contiguous ends, one of said arms having operative connection with the distributor, a vibrator, links having connection at their opposite ends with the arms and the vibrator respectively, and a link-shifter constituting a connection between one of the links and the vibrator.

8. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, a driving-arm connected therewith, a vibrator furnished at a point intermediate its ends, and provided with an arcuate guideway intersecting the axis of movement of the vibrator, a regular-black movable in said guideway, a link connected at its opposite ends to said black and to the driven arm respectively, and driving mechanism connected to one end of the vibrator.

9. In a printing-press, the combination with an ink-fountain, a press-cylinder, distributing-rolls, and form-rolls, of a vibratory lateral distributor, driving and driven arms having a common fulcrum at their contiguous ends, the driven arm being connected to the vibratory distributor to ef-

test the vibration thereof without effecting its rotary movement, a vibrator submersed at a point intermediate of its ends and having an arcuate guideway intersecting the axis of the vibrator, a regulator-block movable in the guideway, links connected at their inner ends to the driving and driven arms, and at their outer ends to the vibrator and regulator-block respectively, a regulating-arc connected to the regulator-block to shift the same, and a swinging bearing for said arc.

10. A lateral distributor for multicolor-printing process, comprising a distributor-shaft provided with a keyway, a plurality of disks loosely mounted on said shaft, each of said disks being provided with a key-cocket having a reduced internally-threaded portion, and a key seated within the key-cocket and comprising a cylindrical body portion, a reduced threaded end engaging the threaded portion of the cocket and extending into the keyway, and a reduced squared end at the opposite extremity of the cylindrical body portion, and a removable key-section designed to be inserted into the key-cocket of the disk and to engage the reduced squared end of the key proper.

11. In a printing-press, the combination with a vibratory lateral distributor, driving mechanism, and an oscillatory vibrator, of connecting devices connecting the vibrator at opposite sides of its pivot with the distributor and driving mechanism respectively, one of said connecting devices having adjustable connection with the vibrator.

12. In a printing-press, the combination with a vibratory lateral distributor, and an oscillatory vibrator having connection at opposite sides of its pivot with the distributor and driving mechanism, respectively, of a regulating device adjustable upon the oscillatory vibrator, said regulating device being arranged to shift the connection between the distributor and vibrator.

13. In a printing-press, the combination with a vibratory lateral distributor, driving mechanism, and an oscillatory vibrator connected at opposite sides of its pivot to the distributor and driving mechanism, respectively, of a regulator-block adjustable upon the vibrator and constituting a part of one of the connections, and means for shifting said block.

14. In a printing-press, the combination with a vibratory lateral distributor, and driving mechanism, of an arm connected to the distributor, a separate independently-movable arm connected to the driving mechanism, and an oscillatory vibrator connected to said arms at opposite sides of its pivot, the connection with one of said arms being adjustable.

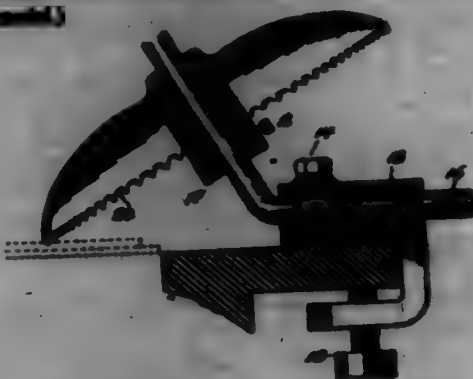
15. In a printing-press, the combination with a vibratory lateral distributor and driving mechanism, of independent oscillatory arms having a common pivot and connected to the regulator and driving mechanism respectively, and regulating mechanism disposed to transmit motion from one arm to the other, said mechanism being arranged to adjust the relative throw of the arms.

16. In a printing-press, the combination with a vibratory lateral distributor and driving mechanism, of independent oscillatory arms having a common pivot and connected respectively to the regulator and driving mechanism, an oscillatory vibrator having connection at opposite sides of its pivot with said arms, and means carried by the vibrator for shifting one of said connections to regulate the relative throw of the arms.

17. A lateral distributor for multicolor-printing process comprising a distributor-shaft provided with a keyway, a plurality of disks loosely mounted on said shaft, each of said disks being provided with a key-cocket, a key seated within the key-cocket and extended into the keyway, and a removable key-section designed to be inserted into the key-cocket of the disk to engage the key proper.

18. A lateral distributor for multicolor-printing process comprising a distributor-shaft provided with a keyway, a plurality of disks loosely mounted on said shaft, each of said disks being provided with a key-cocket having a reduced terminal threaded portion, and a key seated within the key-cocket and comprising a cylindrical body portion, a reduced threaded end engaging the threaded portion of the cocket and extended into the keyway, and a reduced squared end at its opposite extremity.

696,989. SCRAPPER FOR DOUGLASS CUTTING MACHINES. J. L. GARDNER, Kansas City, Mo. Filed Jan. 2, 1902. Serial No. 57,595. (No model.)



Claim.—1. The combination of a cutting-machine having a traveling belt on which the dough is carried, and a scraper, comprising a toothed wheel or disk engaging the dough, and rotating in substantially the same direction that the dough is moving.

2. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper, comprising a toothed wheel or disk engaging and turned by the moving dough.

3. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper comprising a shaft extending upwardly and inwardly over the dough, and a toothed wheel or disk journaled on said shaft and engaging the dough.

4. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper, comprising a rotatably-adjustable shaft extending upwardly and inwardly over the dough, and a toothed wheel or disk journaled on said shaft and engaging the dough.

5. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper, comprising a longitudinally-adjustable shaft extending transversely of and upwardly and inwardly over the dough, and a toothed wheel or disk journaled on said shaft and engaging the dough.

6. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper, comprising a shaft extending transversely of the belt and upwardly and inwardly over the same, and adjustable both longitudinally and rotatably, and a toothed wheel or disk journaled on said shaft and engaging the dough.

7. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper comprising a yoke-acting detachably clamped to the cutting-machine frame, a shaft rotatably and longitudinally adjustable in said yoke, and provided with an arm extending upwardly and inwardly over the dough, and a toothed wheel or disk journaled on said shaft and engaging the dough.

8. The combination of a cutting-machine, having a traveling belt on which the dough is carried, and a scraper comprising a shaft extending upwardly and inwardly over the dough, a toothed wheel or disk journaled on said shaft and engaging the dough, and a collar adjustable on the shaft and supporting the toothed wheel or disk at the desired elevation.

696,940. THROUNDER-HANGER. MARION H. CAMER, Chicago, Ill. Filed Jan. 2, 1902. Serial No. 58,220. (Model.)



Claim.—1. A thrasher-hanger comprising a pair of suspending spring-arms, clamping-jaws formed of a pair of elongated strips or arms pivoted to the spring-arms so as to be placed in a position at an angle thereto or approximately parallel therewith, whereby the device may be folded into compact form for shipment, and means for locking the jaws together.

2. In a thrasher-hanger, the combination of spring suspending-arms integrally formed at an angle to each other, arched spring leg-clamping jaws pivotally attached to arms so as to fold thereunder or to be placed at a normally operative angle thereto, means for adjustably locking said jaws and arms at said normally operative angle, means for locking the said jaws together, substantially as shown and described.

3. In a thrasher-hanger, the combination of spring suspending-arms integrally formed at an angle to each other, leg-clamping jaws pivotally attached to the extremities of said arms so as to be normally out of engagement with each other, the said jaws and arms being provided with an offset in the one and a depression in the other adapted for mutual engagement, spring means for keeping said offset and depression in engagement, and means for locking the said jaws together, substantially as shown and described.

4. In a thrasher-hanger, the combination of spring suspending-arms integrally formed at an angle to each other, arched spring leg-clamping jaws pivotally attached to the extremities of the said arms so as to be normally out of engagement with each other, the said jaws and arms being provided with an offset in the one and a depression in the other adapted for mutual engagement, spring means for keeping said offset and depression in engagement, and means for locking the said jaws together, substantially as shown and described.

die in engagement, and means for locking the said jaws together, substantially as shown and described.

5. A thrasher-hanger comprising two opposed elongated clamping-jaws formed of spring-metal strips, arched from end to end so as to engage the interposed fabric near their ends, said jaws being adapted to close together to stretch the fabric in the direction of the length of the jaws, a V-shaped suspending-spring, upon the ends of which said clamping-jaws are mounted, a hook at the apex of the suspending-spring, and a link or chain adapted to slide over the arms of the suspending-spring to maintain the same and hold the jaws closed upon the fabric.

6. In a thrasher-hanger a combination of spring suspending-arms integrally formed at an angle to each other, arched spring leg-clamping jaws pivotally attached to the extremities of said arms, the said jaws and arms being provided with an offset in the one and a depression in the other adapted for mutual engagement, a spring-weather under the head of the pivotally-attached rivet so as to permit the said depression and offset to be thrown out of engagement, and means for closing the said jaws together, substantially as shown and described.

696,941. MANUFACTURE OF ARMOR-PLATE. GEORGE CHART, Mulhouse, France, assignor to Co. des Forges de Châtillon, Commantry at Neuve-Maison, Paris, France. Filed Sept. 25, 1901. Serial No. 75,120. (No specimen.)

Claim.—1. As a new article of manufacture, an armor-plate of steel containing about five per cent. of nickel and from 0.1 to 0.15 per cent. of carbon, cemented on one face only, and hardened at a temperature of about 750° to 800° centigrade without subsequent annealing, whereby after hardening the cemented face has a porcelain-like texture and hardness, and the remainder of the mass has a non-facile texture.

2. As a new article of manufacture, an armor-plate of steel containing about five per cent. of nickel, from 0.1 to 0.15 per cent. of carbon, and about 0.5 per cent. of chromium, cemented on one face only, and hardened at a temperature of about 750° to 800° centigrade without subsequent annealing, whereby after hardening the cemented face has a porcelain-like texture and hardness, and the remainder of the mass has a non-facile texture.

3. The process of manufacturing armor-plates which consists in treating a plate of steel containing about five per cent. of nickel and from 0.1 to 0.15 per cent. of carbon, to cementation on one face only, and then hardening at a temperature of about 750° to 800° centigrade without subsequent annealing, whereby the cemented face is given a porcelain-like texture and hardness and the remainder of the mass has a non-facile texture.

696,942. GUN-SIGHT. ROBERT CHAMBER, Burning Springs, Ky. Filed Nov. 28, 1901. Serial No. 54,894. (No model.)



Claim.—1. In a gun-sight, a base-plate, and ears rising from the opposite sides thereof; combined with a standard carrying the sight proper, a head at the lower end of the standard fitting closely between said ears, means for holding the standard in an elevated or depressed position, and a pivot comprising a tapering conical body passing through one ear and through the head and a threaded tip engaging the other ear, so as to be for the purpose set forth.

2. A gun-sight comprising two main members longitudinally dotted in places at right angles to each other and the smaller member of a shape to telescope within the larger, and an adjusting-arc connecting the arms of the larger member and passing across the dot in the larger and immediately loosely through the dot of the smaller member; combined with a base on which one member is pivotally supported, and a sight proper carried by the other member.

3. A gun-sight comprising two main members longitudinally dotted in places at right angles to each other and the smaller member of a shape to telescope within the larger; combined with a support for the lower end of the larger member, a sight proper at the upper end of the smaller

member, a ferrule surrounding the upper end of the larger member, and a set-screw passing transversely through said ferrule and the arm of the larger member, across the dot in the latter, and through the dot in the smaller member.

4. A gun-sight comprising two main members longitudinally dotted in places at right angles to each other and the smaller member of a shape to telescope within the larger; combined with a support for the lower end of the larger member, a sight proper at the upper end of the smaller member, a ferrule surrounding the upper end of the larger member, and a set-screw passing transversely through said ferrule and the arm of the larger member, across the dot in the latter, and loosely through the dot in the smaller member, the tip of said screw engaging a threaded hole in the ferrule, so as to be for the purpose set forth.

5. A gun-sight comprising two main members one of which is dotted longitudinally and the other of which is of a disc and shape to telescope into said dot, and means for approximating the arms of the larger member against the side face of the smaller member for the purpose set forth; combined with a base-plate on which the lower end of the larger member is pivotally supported, and a sight proper at the upper end of the smaller member.

696,943. FARM-GATE. ARTHUR R. CLAYTON, Dover, Mo. Filed Aug. 31, 1901. Serial No. 74,000. (No model.)



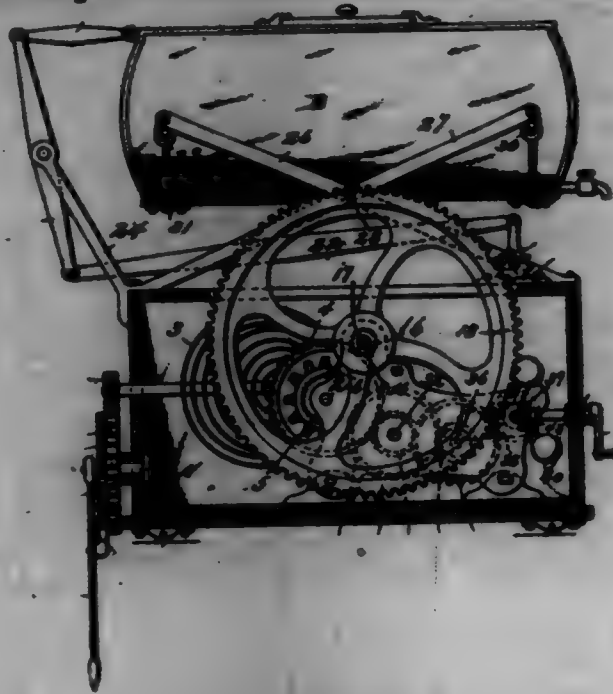
Claim.—1. The combination with a swinging gate having an upwardly-extended rear standard having an opening in its upper end and a central standard projecting above the top of the gate, of a weighted lever comprising parallel bars pivotally secured to the central standard and extending on opposite sides of the rear standard, a key in the opening of the said rear standard adapted to bear upon the upper side of the lever, a rod depending from said lever through guides on the gate-post, a bracket secured to the post on which the rod rests and a hinge connecting the gate and post which permits vertical movement of the gate.

2. The combination with a swinging gate having an upwardly-extended rear standard having an opening in its upper end, and a fixed central standard projecting above the top of the gate, of a weighted lever comprising parallel bars pivotally secured to the central standard and extending on opposite sides of the rear standard, a key in the opening of the said rear standard adapted to bear upon the upper side of the lever, a bracket secured to the post, a rod mounted in guides on the gate-post and having its lower end resting on the said bracket and pivotally supporting in its upper end the said lever and a hinge-connection between the lower end of the gate and the post, which permits of a vertical movement of the gate.

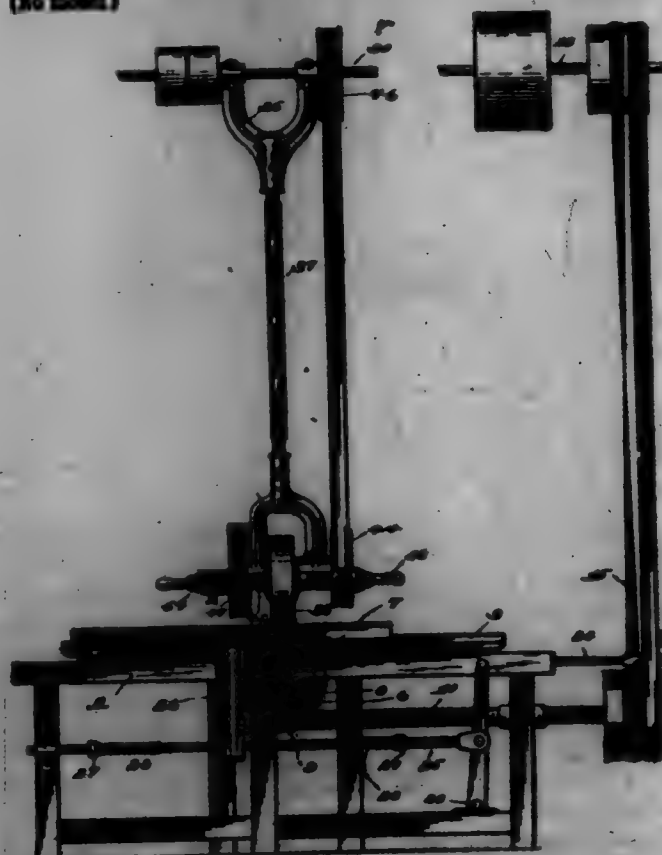
696,944. MECHANISM FOR OPERATING VIBRATING CHUQUER. HARRY COOPER, Selma, Ala., assignor of one-half to George W. Ballard, Selma, Ala. Filed Aug. 24, 1901. Serial No. 73,122. (No model.)

Claim.—The mechanism for vibrating a choker-body herein described, comprising a motor-spring, a gear on the shaft of a motor-spring, a shaft,

a pinion on the shaft in mesh with the motor-gear, a large gear-wheel on the shaft of the pinion, a pinion in mesh with the large gear-wheel and carrying a crank-arm, a piston connected to the crank, a rocking beam pivotally supported and having its lower end connected to the end of the piston, and a pull-rod having its outer end connected to the upper end of the rocking beam and its other end connected to the drum-body.



686,945. GRINDING OR POLISHING MACHINE. ADAM CHOSER, Fitchburg, Mass. Filed Jan. 10, 1901. Serial No. 43,728. (No model.)



Claim.—1. In a grinding-machine, a reciprocating platen or work-holder, means to reciprocate the same, a swing-arm carrying a polishing-wheel, said swing-arm comprising a vertical member suspended from a driving-shaft and having a shaft journaled in its lower end, a horizontal member pivotally mounted at one end on said last-mentioned shaft and carrying at its other end the polishing or abrading wheel, and pulleys on the end of the shaft connecting the horizontal and vertical members and on the outside of said members for transmitting motion from the driving-shaft to the polishing-wheel.

2. In a grinding-machine, a frame, a reciprocating platen or work-holder thereon, combined with a swing-arm for supporting the polishing-wheel, said arm comprising a vertical member suspended from a driving-shaft and having a yoke at its lower end, a shaft mounted therein, a horizontal member pivotally mounted at one end on said shaft and between the arms of the yoke, and having a shaft journaled in its other end so

which is mounted a polishing or abrading wheel, the shaft connecting the horizontal and vertical members having at each end outside the arms of the yoke a pulley, and belts connecting one of said pulleys with the driving-shaft, and the other pulley with the counter-shaft.

3. In a grinding-machine, a reciprocating platen or work-holder, means to reciprocate the same, combined with a jointed swing-arm suspended from a driving-shaft and carrying at its free end a shaft on which is mounted an abrading-wheel, pulleys located at the joint of said arm and outside of the same, both cooperating therewith for transmitting motion from the driving-shaft to the abrading-wheel, the construction being such that the belts may be removed or replaced without disconnecting the swing-arm combined with counterbalancing means for said swing-arm.

4. In a grinding-machine, a reciprocating platen or work-holder, means to reciprocate the same, combined with a swing-arm supported from a driving-shaft and carrying at its free end an abrading-wheel, said swing-arm comprising a vertical member and a horizontal member, one of said members having a yoke at one end and the other member having a head fitted between the arms of the yoke, a shaft passing through said head and the arms of the yoke and serving to pivotally connect said members, a pulley on each end of said shaft outside of the arms of the yoke, and belts connecting said pulleys with the counter-shaft and abrading-wheel, respectively, the said vertical member of the swing-arm having a swivel connection between its ends, whereby the abrading-wheel may be given a circular motion.

5. In a grinding-machine, a frame, a reciprocating platen or work-holder thereon, means to reciprocate the same, combined with a swing-arm supported from a driving-shaft and carrying at its free end an abrading-wheel, said swing-arm comprising a vertical member, a horizontal member, and a shaft connecting said members on each end of which is mounted a pulley outside of said members, belts connecting said pulleys with the counter-shaft and abrading-wheel, a bumper on the horizontal member, and stop-bars on the frame cooperating therewith to limit the horizontal movement of the swing-arm.

6. In a grinding-machine, a frame having guideways, a platen or work-holder supported thereon for reciprocating movement, and having connected therewith a rack, a gear engaging said rack, a shaft connected with said gear, and reversing mechanism for said shaft, means operated by the platen as it reaches the end of its stroke to operate said reversing mechanism combined with a jointed swing-arm supported from a driving-shaft and carrying at one end an abrading-wheel, pulleys located at the joint of said swing-arm and on the outside of said arm, and belts transmitting motion from the driving-shaft to the abrading-wheel.

7. In a grinding-machine, a frame having guideways, a platen or work-holder supported thereon for reciprocating movement, and having connected therewith a rack, a gear engaging said rack, a shaft connected with said gear for rotating the same, and reversing mechanism for the shaft comprising a sliding rod having adjustable cushioned stops thereon, and an arm on the platen slidably engaging said rod whereby the reversing mechanism is operated by the platen, combined with a jointed swing-arm suspended from a driving-shaft, and carrying at its free end an abrading-wheel, transmitting-pulleys located at the joint thereof, and on the outside of said arm, and belts connecting said pulleys with the abrading-wheel and driving-shaft respectively.

8. In a grinding-machine, a frame having guideways, a platen or work-holder supported thereon for reciprocating movement, and having connected therewith a rack, a gear engaging said rack, a shaft connected with said gear, reversing mechanism for said shaft, means operated by the platen as it reaches the end of its stroke to operate said reversing mechanism, combined with a jointed swing-arm supported from a driving-shaft and carrying at its free end an abrading-wheel, transmitting-pulleys located at the joint of said arm and on the outside thereof, belts connecting said pulleys with the driving-shaft and abrading-wheel respectively, a bumper on said swing-arm, and adjustable stop-bars on the frame cooperating therewith, to limit the longitudinal movement of said arm.

9. In a grinding-machine, a reciprocating platen or work-holder, a jointed swing-arm suspended from a shaft and carrying at its free end a yoke, a shaft journaled therein having an abrading-wheel thereon, means for driving said shaft from the driving-shaft, and adjusting device in the said yoke and engaging the ends of the abrading-wheel shaft, whereby the said shaft may be held against longitudinal movement in its bearings.

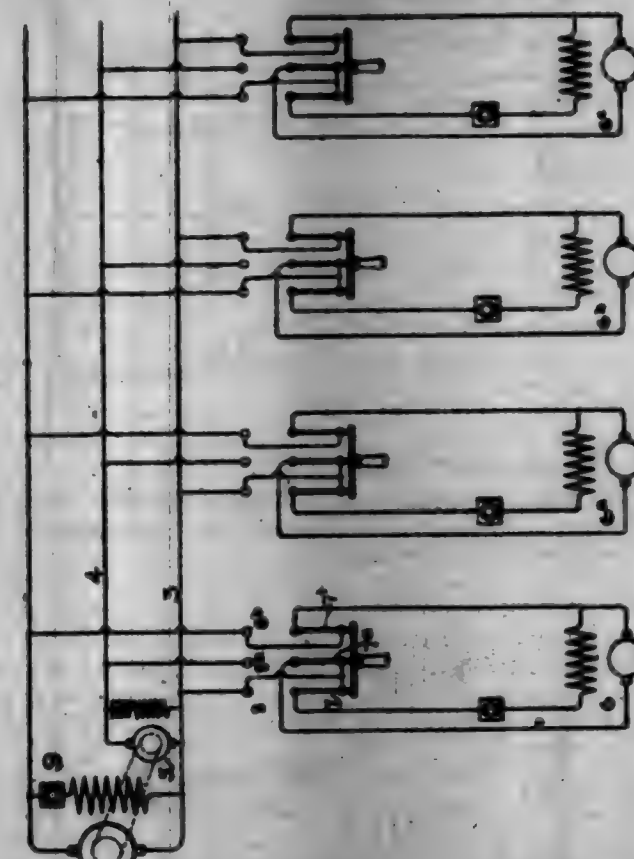
10. In a grinding-machine, a reciprocating platen or work-holder, a jointed swing-arm suspended from a shaft, and carrying at one end a yoke, a shaft having an abrading-wheel thereon mounted in said yoke with the wheel between the arms of the yoke, handles adjustably secured in the said yoke and in line with the abrading-wheel shaft, and bearing against the ends of said shaft, whereby the shaft may be adjusted for longitudinal wear, and means for transmitting motion from the drive-shaft to the abrading-wheel shaft.

11. In an apparatus of the class described, a reciprocating platen or work-holder, means to reciprocate the same, a swing-arm suspended

over the work-holder and comprising a vertical member mounted to swing about a horizontal axis, a horizontal member pivoted in the lower end of said vertical member, said horizontal member being mounted to swing about both a horizontal and a vertical axis, a polishing or abrading wheel supported on the free end of said horizontal member, means to rotate said wheel and steps cooperating with the horizontal arm to limit its movement in any direction.

12. In a grinding-machine, a reciprocating platen or work-holder, means to reciprocate the same, a swing-arm suspended over the work-holder and comprising a vertical member and a horizontal member pivoted together, a polishing or abrading wheel carried by said horizontal member, means to rotate said wheel and steps to limit the movement of the swing-arm in a direction transverse to the movement of the platen.

686,946. CONTROLLING ELECTRIC MOTORS. MAXWELL W. DAY, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed July 12, 1900. Serial No. 723,685. (No model.)



Claim.—1. A system of control for electric motors, comprising a plurality of distributing-wires carrying different electric potentials, motors supplied thereby, controlling devices for imposing different potentials on the motors, connections with the motors whereby at normal speeds they are distributed between different pairs of wires, and an equalizing device for maintaining an electrical balance in the system when some of the motors are connected for high speeds.

2. A system of control for electric motors, comprising three distributing-wires having different electric potentials, motors connected at normal speeds between different pairs of wires, means for connecting the several motors between the high-potential wire and an auxiliary generator of less capacity than the main generator, connected between the low-potential wires and adapted to absorb or yield energy according to the distribution of load on the system.

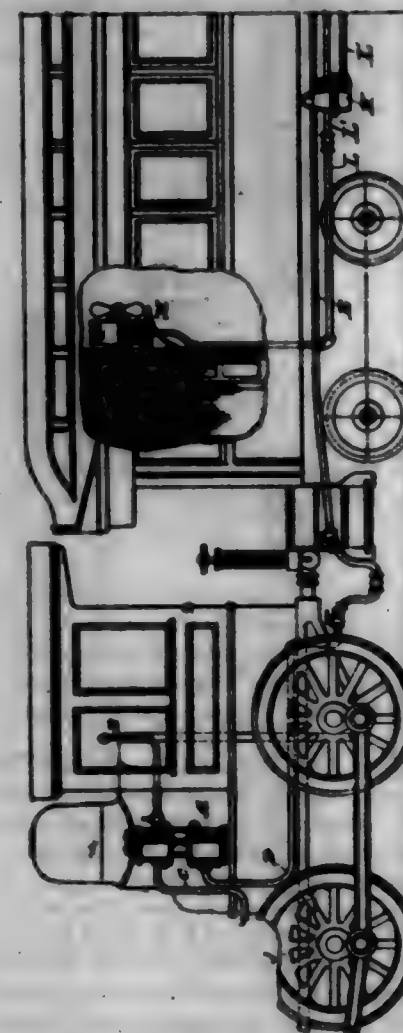
3. A system of motor control comprising a three-wire distributing system, motors connected between the wires so as to equally divide the load on the two sides of the system at normal motor speeds, switches for connecting any motor between the high-potential wire, and an auxiliary generator between the central or compensating wire and an outside wire.

4. A system of motor control comprising a three-wire distributing system, motors connected between the wires to equally divide the load on the two sides of the system at normal motor speeds, switches for connecting any motor with the high-potential wire, and an auxiliary compensating generator between a pair of low-potential wires belted or otherwise connected to the main generator and having a fractional electromotive force relatively to that of said main generator.

5. A system of motor control comprising a three-wire distributing system, motors connected between the wires to equally divide the load on the two sides of the system at normal motor speeds, switches for connecting any motor with the high-potential wire, and an auxiliary compensating generator between a pair of low-potential wires having a frac-

tional capacity and fractional electromotive force relatively to that of the main generator.

686,947. SYSTEM OF OPERATING FANS BY POWER FOR VENTILATING PARHUSSES-GARA. ROBERT H. DUNN, East Orange, N. J. Filed Sep. 18, 1900. Serial No. 34,717. (No model.)



Claim.—1. In a system of our ventilation, the combination of a steam-train-pipe system, a connection between the steam-train-pipe system and a steam supply, an air-compressor adapted to supply air to the steam-train-pipe system, a pneumatic fan-motor and a connection between the steam-train-pipe system and the pneumatic fan-motor, with means for opening and closing the said connection to prevent steam from flowing to the pneumatic motor when the steam train-pipe is employed for heating purposes.

2. The combination of a train-pipe system, a pneumatic fan-motor, a connection between the said motor and the train-pipe system, an air-storage reservoir and a gas-storage reservoir, a valved pipe connection between the air-storage reservoir and the gas-storage reservoir and a valved pipe connection between the air-storage reservoir and the train-pipe.

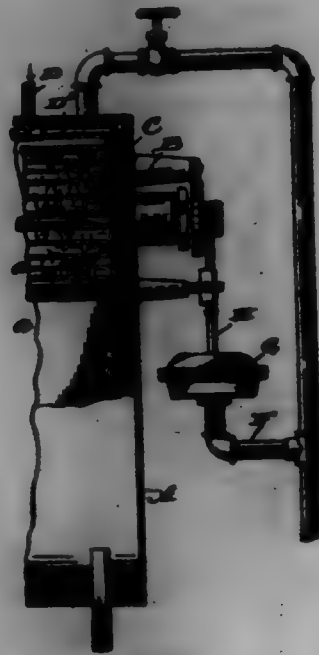
3. The combination of a train-pipe arranged for connection either with a steam-supply or with a supply of compressed air, with pneumatic fan-motors located on cars, a valved connection from the train-pipe to said pneumatic fan-motors, and another valved connection from said train-pipe to a car-heating system, whereby the train-pipe may be used either for supplying steam to the heating system only, or for supplying compressed air to the pneumatic fan-motors only.

686,948. ACETYLENE-GAS GENERATOR. EDWARD J. BOLAN, Philadelphia, Pa., assignor, by mesne assignments, to the Acetylene House Lighting Company, a Corporation of West Virginia. Filed Mar. 19, 1901. Serial No. 684,903. (No model.)

Claim.—1. In an apparatus for the production of acetylene gas, the combination with the generating-chamber, of a carbide-holder consisting of an open-work cage movably supported within the chamber, a water-supply pipe extending within the chamber to discharge on a limited portion of the carbide, and means operated by variations of the gas-pressure to move the cage and present different portions of the carbide to the water-discharge, substantially as set forth.

2. In an apparatus for the production of acetylene gas, the combination with the generating-chamber, of a carbide-holder consisting of an open-work cage pivotally supported within the chamber, means to discharge water on a limited portion of the cage-surface, and means oper-

ated by variations in the gas-pressure to move the cage and thereby change the position of the carbid within the cage, substantially as set forth.



2. The combination with the carbid-holder of an acetylene-gas generator and mechanism for automatically agitating the mass of a diaphragm adapted to be raised by the gas-pressure and to thereby automatically agitate the carbid-holder, and the weighted lever adapted to return the diaphragm to position when the gas-pressure is decreased, substantially as described.

4. In combination with a rotatable drum or cylinder for holding calcium carbid in a gas-generator, the gas-chamber, the gas-pipe leading from said chamber, a chamber having a flexible diaphragm in connection with the gas-outlet pipe, a rod attached to the diaphragm and extended through the top plate of the diaphragm-chamber, a ratchet-wheel upon the shaft of the drum or cylinder and connected substantially as described between said diaphragm and ratchet-wheel whereby an upward movement of the diaphragm will cause to partially rotate the drum.

5. The combination with a rotatable drum or cylinder for holding calcium carbid, the gas-chamber of a generator, the gas-pipe, the mechanism actuated by pressure of gas within the pipe, for effecting a partial rotation of the carbid-holder, and a weight for returning the mechanism actuated by the pressure of gas to its original position when the gas-pressure diminishes, substantially as described and for the purpose specified.

6. In a generator for producing acetylene gas, the combination of a chamber within which the gas is generated, a liquid-receptacle, and a rotary carbid-holder adapted to bring successive portions of the carbid into communication with the liquid-supply, and a shifting mechanism automatically controlled by the gas generated for rotating the carbid-holder.

7. In a generator for producing acetylene gas, the combination of a chamber within which the gas is generated, a liquid-receptacle, a rotary carbid-holder adapted to bring successive portions of the carbid into communication with the liquid-supply, and a shifting mechanism automatically controlled by the gas generated for rotating the carbid-holder.

8. In an acetylene-generator, the combination of a liquid-holder, a carbid-holder, and a motor mechanism automatically controlled by the pressure of the gas generated for moving the carbid-holder, whereby different portions of the carbid are successively subjected to the action of the liquid.

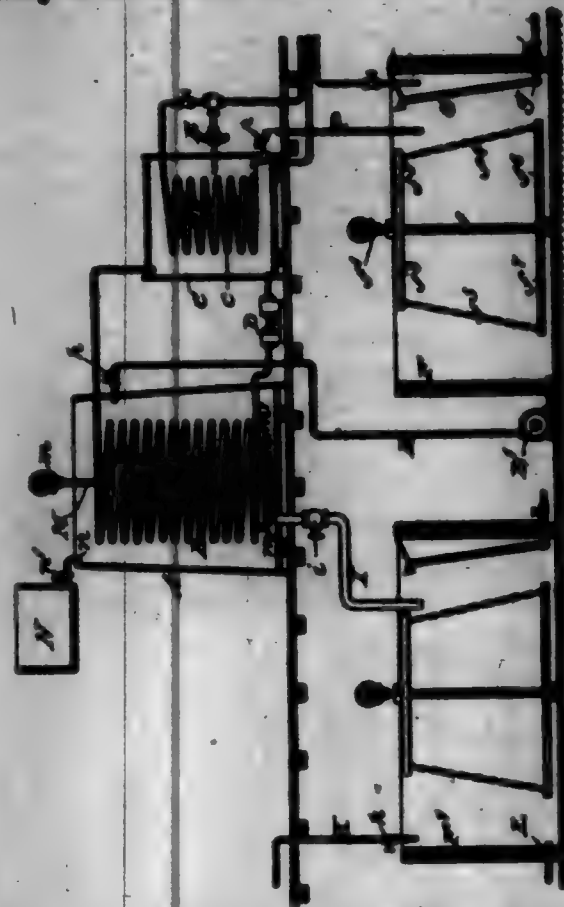
9. In a generator for producing acetylene gas, the combination of a liquid-receptacle provided with an outlet-passage, a carbid-holder, and an component automatically controlled by the pressure of the gas generated for moving one of said parts relatively to the other whereby different portions of the carbid are successively subjected to the action of the liquid.

10. In an apparatus for the production and storage of acetylene gas, a generator comprising a chamber, in combination with a rotatable perforated or open-work cylinder pivoted thereto and adapted to contain calcium carbid, a tube adapted to convey water to the carbid within the cylinder, and means for rotating the cylinder by the action of the gas generated.

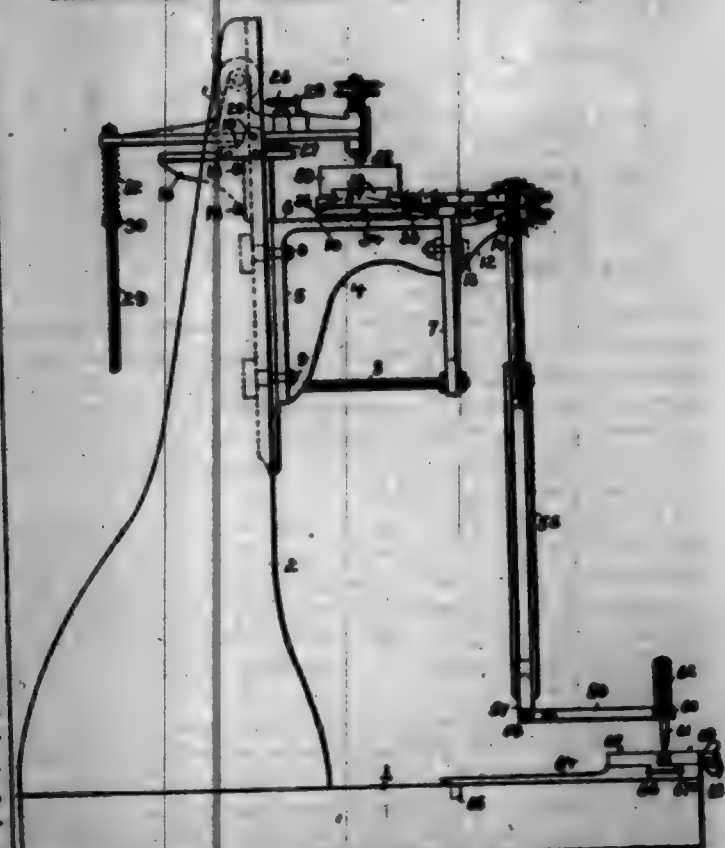
696,949. METHOD OF MAKING THIN BOILING STARCH. CHAS. H. DUNN, New York, N. Y. Filed May 24, 1901. Serial No. 81,738. (No specimen.)

Claim.—The method of making a thin boiling or modified starch consisting in treating the starch, mixed with water, with acid while the starch is held in a free flowing state of suspension and maintained at a degree of temperature as high as practicable without breaking down the

starch granules and subsequently, while the mixture is held in suspension, neutralizing the acid and finally drying.



696,950. ROUTING OR ENGRAVING MACHINE. WILLIAM S. RAYOR, Sag Harbor, N. Y. Filed Nov. 28, 1900. Renewed Nov. 1, 1901. Serial No. 58,399. (No model.)



Claim.—1. In an engraving-machine or the like, a freely-pivoted tool-carrier beam, the tool-carrier arm of said beam being free to be lifted from its working position and falling freely toward said position, and a spring interposed between some portion of said beam and the frame of the machine and operatively engaging both of said parts just about as the beam reaches its working position but out of operative engagement with one of said parts when the beam is lifted, thereby providing a cushion for said beam, substantially as described.

2. In an engraving-machine or the like, a freely-pivoted tool-carrier beam, the tool-carrier arm of said beam being free to be lifted from its working position and falling freely toward said position, a spring be-

tween some portion of said beam and the frame of the machine and operatively engaging both of said parts just about as the beam reaches its working position but out of operative engagement with one of said parts when the beam is lifted, thereby providing a cushion for said beam, said spring being attached to one of said parts, and a cut-screw attached to the other of said parts and engaging said spring as the said beam is about to reach its working position; substantially as described.

3. In a routing-machine, an upright support provided with vertical ways in combination with means mounted in said ways to support and adjust the routing-tool, and a supporting-table or right-angular frame mounted in said ways to be adjusted and secured therein, said table provided with vertical ways in combination with a supporting-bracket mounted in said ways to be adjusted and secured therein, and a lever suspended from said bracket and means to secure said parts together or to adjust the same with reference to each other, substantially as described.

4. In an engraving or routing machine, a suspended lever and adjustable connection pivotally connected and mounted as follows: a bifurcated bracket carrying center-bearing points in its arms, said bracket being adjustably mounted in vertical ways in a supporting-frame, a ring having oppositely-disposed center bearings and oppositely-disposed center points, a vertical lever provided with a collar adjustably secured thereto and having oppositely-disposed center bearings, the ring being mounted between the arms of the bracket and the collar within the ring in combination with a link having a bifurcated end, with center-bearing points in the arms of said bifurcated end, a ring having oppositely-disposed center bearings and oppositely-disposed center-bearing points; a second collar adjustably secured to said vertical lever, said collar having oppositely-disposed center bearings, the ring being mounted between the arms of the link and the second collar within the ring, substantially as described.

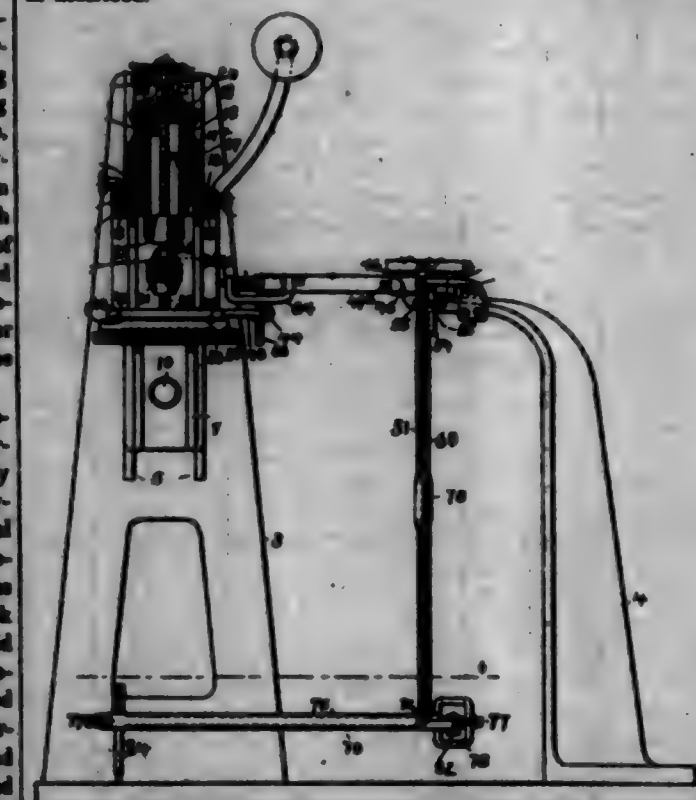
5. In an engraving or routing machine, an adjustable suspended lever pivotally connected and mounted as follows: a bifurcated bracket carrying center-bearing points in its arms, said brackets being adjustably mounted in vertical ways in a supporting-frame, a ring having oppositely-disposed center bearings and oppositely-disposed center points, a vertical lever provided with a collar adjustably secured thereto and having oppositely-disposed center bearings, the ring being mounted between the arms of the bracket and the collar within the ring in combination with a link having a bifurcated end, with center-bearing points in the arms of said bifurcated end, a ring having oppositely-disposed center bearings and oppositely-disposed center-bearing points; a second collar adjustably secured to said vertical lever, said collar having oppositely-disposed center bearings, the ring being mounted between the arms of the link and the second collar within the ring, the link being pivotally connected at the other end with an engraving-table having a universal movement, and a vertical lever being pivotally connected to a tracer-stylus, substantially as described.

6. In an engraving or routing machine, a leverage system pivotally connected and mounted as follows: a bifurcated bracket carrying center-bearing points in its arms, said brackets being adjustably mounted in vertical ways in a supporting-frame, a ring having oppositely-disposed center bearings and oppositely-disposed center points, a vertical lever provided with a collar adjustably secured thereto and having oppositely-disposed center bearings, the ring being mounted between the arms of the bracket and the collar within the ring in combination with a link having a bifurcated end, with center-bearing points in the arms of said bifurcated end, a ring having oppositely-disposed center bearings and oppositely-disposed center-bearing points; a second collar adjustably secured to said vertical lever, said collar having oppositely-disposed center bearings, the ring being mounted between the arms of the link and the second collar within the ring, the link being pivotally connected at the other end with an engraving-table having a universal movement, and the vertical lever being pivotally connected to a tracer-stylus, the vertical lever being of two parts a sleeve and a shaft, the shaft being adjustable within the sleeve and means to secure the same therein, substantially as described.

696,951. ROUTING OR ENGRAVING MACHINE. WILLIAM S. RAYOR, Sag Harbor, N. Y. Filed Nov. 27, 1900. Renewed Nov. 28, 1901. Serial No. 58,398. (No model.)

Claim.—1. In a routing-machine, means to support and revolve a routing instrument, which consists of a cylindrical part, rotatably mounted, having a central screw-threaded aperture, a second cylindrical part, externally screw-threaded at one end to mate with the first cylindrical part, with means to lock said cylindrical parts together at any position within the limits of the helical movement, a third cylindrical part having an annular shoulder at one end, and having mounted within the same at the other end a central bearing, a second central bearing, adapted to fit into and be retained in the other end of said third cylinder, a shaft carrying two central bearings, adapted to fit in said central bearings, the third cylindrical part being run within the second cylindrical part, and means to secure a suitable routing instrument to said shaft, and means to revolve said shaft, substantially as described.

2. In a routing-machine, means to support and revolve a routing instrument, which consists of a cylindrical part having a central screw-threaded aperture and beveled ways in its base, the same being mounted on a bracket having a beveled tongue upon which said beveled ways may play, a second cylindrical part, externally screw-threaded to screw into the first cylindrical part, with means to lock said cylindrical parts together at any position within the limits of the helical movement, a third cylindrical part having an annular shoulder at one end, and having mounted within the same at the other end a central bearing, a second central bearing, adapted to fit into and be retained in the other end of said third cylinder, a shaft carrying two central bearings, adapted to fit in said central bearings, said shaft having also a tapering end on which the routing-instrument holder is journaled, the third cylindrical part being run within the second cylindrical part, and means to revolve said shaft, substantially as described.



3. In an engraving or routing machine, an engraving-table adjustably mounted to have a universal movement, a link pivotally connected to said table by a universal joint, a suspended lever pivotally mounted on a bracket by a universal-joint system, the other end of the link being pivotally connected with the upper end of said suspended lever, a frame pivotally connected with the lower end of said suspended lever, and a rock-shaft journaled in said frame with a tracer secured to said shaft and a lever secured thereto also, said lever having at the other end a socket, a second bracket secured to said bracket and having at the other end a socket and a shaft with ball-heads at either end thereof, said heads being mounted in said sockets, substantially as described.

4. In an engraving or routing machine, a leverage system pivotally connected and mounted as follows: a bracket with a head having a frame mounted on said head with center-bearing points, a collar having center bearings and adjustably mounted on said frame; a bifurcated vertical lever hinged to said collar by center bearings, a plate adjustably mounted on said vertical lever and having center bearings, and a link hinged to said plate by center bearings, said link being pivotally connected at the other end to an engraving-table adjustably mounted to have a universal movement; the lower end of said vertical lever being bifurcated, a frame pivotally mounted within said last-mentioned bifurcated arm, a rock-shaft journaled within said frame with a tracer-point secured to said rock-shaft, a rod secured to said rock-shaft at one end, and having a socket at the other end, a second bracket secured to said bracket, with a socket at the end of the second bracket, a shaft having ball-bearing heads at either end thereof mounted one in each of said sockets, substantially as described.

5. In an engraving-machine, a leverage system pivotally connected and mounted as follows: a bracket, a frame pivoted to the head of said bracket, a collar adjustably mounted on said frame, a vertical lever bifurcated at its lower end, and suspended from and pivotally connected to said collar whereby through the adjustment of the collar on the frame, the said connections of the vertical lever may be brought into the same plane or moved out of such plane, an engraving-table mounted to have a universal movement, a plate adjustably mounted on the vertical lever, and connected to one end of the lever, a link pivotally connected at one end by right-angular universal-jointed connections to said engraving-table and connected at the other to said plate, a frame connected to the other

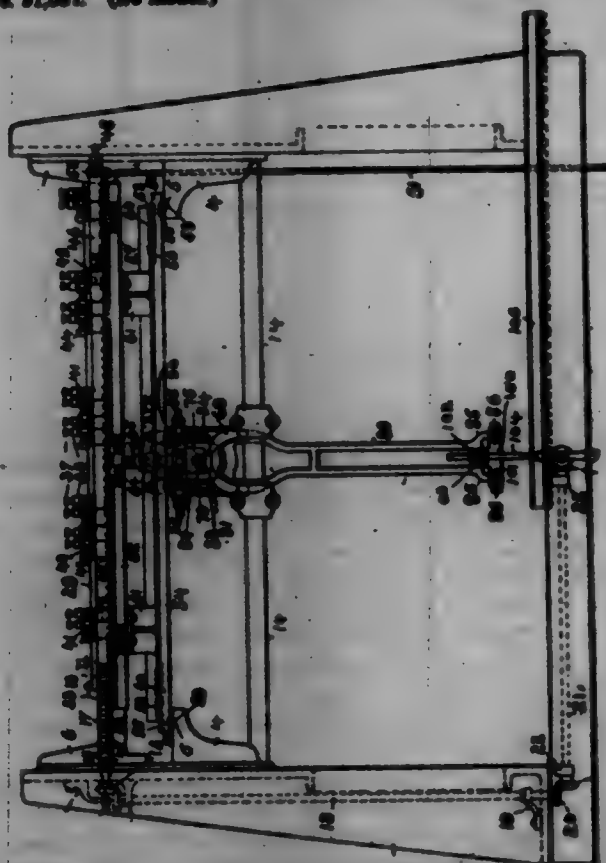
end of the suspended lever, a rock-shaft journaled within said frame, a tracer mounted to said rock-shaft, an arm secured to said rock-shaft at one end and having a socket at the other end, a second bracket secured to said first-named bracket at one end and having a socket at the other end and a rod having ball-bearings ends and having in said sockets, substantially as described.

6. In an engraving-machine, a tracer mounted on a rock-shaft, means connecting the rock-shaft to the work-table and means maintaining said tracer in a vertical position by rocking said shaft relatively to the connecting means, substantially as described.

7. In an engraving-machine the combination of a suspended lever, a tracer mounted on a rock-shaft journaled at one end of the suspended lever, connection to a work-table, and means maintaining the tracer in a vertical position by rocking the shaft relatively to the connecting means, substantially as described.

8. In an engraving-machine, a lever suspended from a suitable bracket, a guide-arm frame hinged to the lower end of the suspended lever and a rock-shaft journaled in said frame, said rock-shaft carrying at one end a tracer and connected at the other end with a rock-arm, said rock-arm having a socket at one end, a second bracket secured to said first-named bracket at one end and having a socket at the other end, a rod having a knob at each end journaled in said sockets, the parts being mounted and adjusted, substantially as described.

696,953. ENGRAVING-MACHINE. WILLIAM S. HAYES, JR., Inventor. Filed Nov. 22, 1899. Renewed Jan. 26, 1902. Serial No. 91,867. (No model.)



Claim.—1. In an engraving-machine the combination with an engraving-table capable of universal movement, of a fixed graving-tool mounted to cooperate with said engraving-table, a suspended lever fulcrumed at two points, a pivoted link connected at one end to the suspended lever between the fulcrum-points and at the other end to the engraving-table, and a tracer carried by said suspended lever.

2. In an engraving-machine the combination with an engraving-table capable of universal movement of a fixed graving-tool mounted to cooperate with said engraving-table, of a suspended lever fulcrumed at two points, said fulcrum-points being relatively adjustable, a pivoted link connected at one end to the suspended lever between the fulcrum-points and at the other to the engraving-table, and a tracer carried by said suspended lever.

3. In an engraving-machine the combination with a stationary support, a plate mounted thereon to move in one direction, and an engraving-table mounted on said plate to move at right angles thereto, of a fixed graving-tool mounted to cooperate with said engraving-table, a suspended lever fulcrumed at two points, a pivoted link connected at one end to the suspended lever between the fulcrum-points and at the other to the engraving-table, and a tracer carried by said suspended lever.

4. In an engraving-machine the combination with a stationary support, a plate mounted thereon to move in one direction and an engraving-

table mounted on said plate to move at right angles thereto, of a fixed graving-tool mounted to cooperate with said engraving-table, a suspended lever fulcrumed at two points, said fulcrum-points being relatively adjustable, a pivoted link connected at one end to the suspended lever between the fulcrum-points and at the other end to the engraving-table, and a tracer carried by said suspended lever.

5. In an engraving-machine the combination of an engraving-table mounted on a series of balls running in grooves relatively at right angles, a plurality of tools mounted to cooperate with said engraving-table, a suspended lever fulcrumed at two points carrying a tracer and a link connecting the suspended lever and the engraving-table, said link being connected to the suspended lever between the fulcrum-points, substantially as described.

6. In an engraving-machine the combination of an engraving-table mounted on a series of balls running in grooves relatively at right angles, a plurality of tools mounted to cooperate with said engraving-table, a suspended lever fulcrumed at two points, said fulcrum-points being relatively adjustable, said suspended lever carrying a tracer and a link connecting the suspended lever and the engraving-table, said link being connected to the suspended lever between the fulcrum-points.

7. In an engraving-machine the combination of an engraving-table mounted on a series of balls running in grooves relatively at right angles, a plurality of tools mounted to cooperate with said engraving-table, a suspended lever carrying a tracer and provided with adjustable fulcrum-points and a link connecting the lever and the engraving-table, said link being connected to the suspended lever between the fulcrum-points substantially as described.

8. In an engraving-machine, a supporting-bracket, a plate mounted thereon by means of a system of balls running in grooves on said bracket and adapted to move in one direction, an engraving-table mounted on said plate by means of a system of balls running in grooves on said plate and adapted to move at right angles to the movement of the plate, a tool cooperating with the engraving-table, a tracer connected with a suspended lever, said lever having relatively adjustable fulcrums and a link connecting said lever and the engraving-table, said link being connected to the suspended lever between the fulcrum-points substantially as described.

9. In an engraving-machine the combination with an engraving-table having on its under side ways, a plate with ways on its upper side and ways on its under side, and a suitable support for said plate and table also having ways, the ways in the support and the under side of the plate being parallel and the ways in the upper side of the plate and the under side of the table being parallel, the ways between the table and the plate being at right angles to the ways between the plate and the support, ball-bearings interposed in each way, of an engraving-tool mounted to cooperate with the engraving-table, a suspended lever carrying a tracer, said lever having relatively adjustable fulcrums and a link connecting said lever to said engraving-table, said link being connected to the suspended lever between the fulcrum-points, substantially as described.

10. A lever and connection mounted as follows: a bracket with a head having center bearings, a frame mounted on said head with center-bearing points, a collar having center bearings adjustably mounted on said frame, a bifurcated suspended lever connected to said collar by center bearings a plate adjustably mounted on said suspended lever and having center bearings, and a link connected to said plate by center bearings, substantially as described.

11. In an engraving-machine a suspended lever fulcrumed at two points, and connected between said fulcrums to a universally-movable engraving-table, and connected at the free end to a tracer-point, with means to adjust and change the points of fulcrum with reference to each other, substantially as described.

12. In an engraving-machine, a vertical lever bifurcated at both ends with center-bearing points in each bifurcation and dots in the upper bifurcated arm, a supporting-bracket with a head and bearings in the head, a frame carrying two center-bearing points pivoted on the head of the bracket, an adjustable collar having bearings, mounted on the frame, a plate adjustably secured to the upper bifurcated end of said lever in said dot, said plate having bearings, a link having two bifurcated ends, one end being pivotally connected to said plate, and the other end to a block, a bifurcated frame pivotally connected to said block at right angles to said link connective to the same block, and said frame being connected to an adjustable engraving-table; an arm pivotally connected to the lower bifurcated end of said suspended lever, within said bifurcation, said arm also carrying a tracer-point at the other end thereof, substantially as described.

13. In an engraving-machine a vertical lever and connection joined to move in right-angular planes, and forming together a universal-joint connection, said lever connected near one end with an engraving-table, mounted to have a universal movement, and connected at the other end to a tracer, a bracket having a head, and having a frame pivoted to said head, with an adjustable collar mounted on said frame to which is hinged

one end of the vertical lever, so that by the adjustment of the collar on the frame, the position of fulcrum of the suspended lever may be brought into or away from the plane of the bracket-head-joint connection; a plate pivotally joined to the lever by a link, said link being adjustably mounted on the vertical lever, so that the plane of its jointed movement may be brought into or out of the plane of the movement of the vertical lever in both right-angular directions, and so that it may be adjusted with reference to either or both of the axes, substantially as described.

14. In an engraving-machine the combination with a pattern-table, a graving-tool and a carriage on which said tool is mounted, both said table and carriage being suitably mounted to move in parallel ways, a screw and gear connecting said table and carriage to move the carriage in commensure with the movement of the table with a degree of movement proportional to the difference between the size of the original work to be reproduced and the reproduced work.

15. In an engraving-machine a pattern-table and a carriage on which the graving-tool is mounted, both said table and carriage being mounted to move in ways in combination with a shaft suitably journaled and having thereon a screw-thread and at one end a beveled gear, a rack on the under side of the table, a driving-shaft suitably mounted carrying a pinion engaging said rack and a beveled gear; a train of shafting and beveled gears connecting the beveled gear of the screw-shaft and that of the driving-shaft, and means to revolve the driving-shaft, and a screw-threaded bracket secured to the carriage and engaging the screw-thread of the screw-threaded shaft, substantially as described.

16. In an engraving-machine a pattern-table provided with means to move the same, a graving-tool carriage suitably mounted to move in ways parallel with the movement of the pattern-table, and means to move said carriage in commensure with the movement of the table according to the degree of reduction required in reducing the matter traced to the size of the matter to be reproduced, said carriage being provided on its upper surface with dovetailed ways adapted to receive the dovetailed tongues of suitable supporting-blocks, and means to fix the said supporting-blocks in said ways; a supporting-arm pivotally connected with each of said blocks at one end and carrying the graving-tool at the other end, said arms projecting concentric to the axis of their pivotal mounting, substantially as described.

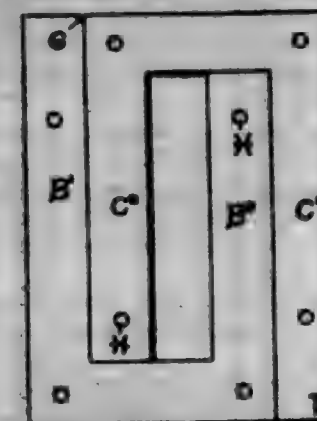
17. In an engraving-machine, a carriage suitably mounted in ways, and a pattern-table suitably mounted, both said table and carriage having a parallel motion, and means to move the same together, the degree of the movement of the carriage being dependent upon the degree of reduction from the work traced to the size of the work to be reproduced; beveled grooves in said carriage adapted to receive blades having beveled tongues; set-screws to secure said blades in the carriage; center bearings in said blocks; arms adapted to carry the graving-tool at one end and be pivotally secured to said blocks at the other end by center bearings, the arms extending from the blocks at an angle to the plane of the axis of their journal-bearings; a shaft suitably mounted in journal-bearings; said journal-bearings being concentric to the axis of said shaft, and said shaft lying beneath the arms supporting the graving-tool in such relation that when the shafts are rocked, moving concentric to their axis they will lift the arms carrying the graving instruments, and raise the graving instruments off of the engraving-table; levers secured to said shaft, and a connecting-rod adapted to depress said lever to rock said shaft, substantially as described.

18. In an engraving-machine an engraving-table suitably mounted to have a universal movement in a horizontal plane, a link pivotally connected at one end to said table by a universal joint, a suspended lever having adjustable fulcrums mounted on a bracket by a universal-joint system, the other end of the link being pivotally connected with the upper end of said suspended lever between said fulcrums; a guide-arm pivotally connected to the lower end of said suspended lever at one end thereof, and carrying at the other end a tracer-point, substantially as described.

696,958. TRANSFORMER-CORE. AUGUST R. BYRNE, LYNN, ILL., assignor to General Electric Company, a Corporation of New York. Filed Mar. 6, 1901. Serial No. 49,003. (No model.)

Claim.—1. A laminated transformer-core which has two legs, each having the same number of laminations, which comprises a plurality of substantially U-shaped laminations, each of which has a long and a short leg; and also a plurality of end laminations for completing the magnetic circuit; said core being built up as that the long and short legs of the U-shaped laminations alternate in the respective core-legs; and the end laminations, the two coils being in position on the core-legs, being also alternated so that one coil of one lamination fills the space at the end of a short leg of a U-lamination of the first core-leg, the other coil of said end lamination abuts against the long leg of the same U-lamination in the second core-leg, one end of the said end lamination fills the space at the end of the short leg of the next U-lamination in the second core-leg, and so that the other end of the latter end lamination abuts against the long leg of the latter U-lamination in the first core-leg.

2. A transformer-core, which comprises a plurality of substantially U-shaped laminations, each of which has a long and a short leg; said laminations being assembled alternately to form two core-legs of the same thickness and the same number of laminations; and end laminations which complete the magnetic circuit.



3. A laminated transformer-core, which has two legs each having the same number of laminations and which comprises a plurality of substantially U-shaped laminations, each of which has a long and a short leg, said laminations being alternately reversed, so that each short leg is included between two long legs; and end laminations which complete the magnetic circuit.

4. A laminated transformer-core, which has two legs each having the same number of laminations, and which comprises a plurality of U-shaped laminations, each of which has a long and a short leg, said laminations being alternately reversed so that a short leg lies between two long legs and a long leg lies between two short legs, and laminations having a width substantially equal to the difference between the lengths of the long and short legs, one set of ends of which laminations fill the space in one core-leg between the long legs which lie on opposite sides of the short leg, and the other set of ends of which laminations abut against the sides of the long legs of the other core-leg.

5. A transformer-core, which comprises a plurality of substantially U-shaped laminations, each of which has a long leg and a short leg, said laminations being alternately reversed, so that each short leg is included between two long legs; and end laminations which alternate to fill the space between the long legs at the ends of the short legs and serve to complete the magnetic circuit.

6. A transformer-core, which comprises a plurality of substantially U-shaped laminations, each of which has a long and a short leg, certain of the laminations having the inner corners of the long legs cut away, and a core being built up first, with one or more laminations of one kind, next, laminations of the other kind, then laminations of the latter kind turned upside down, fourth, laminations of the first kind turned upside down and so on until the core is complete; and end laminations for completing the magnetic circuit, which laminations are inserted between the long legs of the U-shaped laminations as indicated by the cut-away corners.

7. A transformer-core, which is built of a plurality of substantially U-shaped laminations, each of which has a long and a short leg, each built-up core-leg being composed of long and short legs alternately arranged, all the long legs in both core-legs having guides at their ends which serve to indicate the proper space for the insertion of end laminations.

8. A transformer-core, which is built up of a plurality of substantially U-shaped laminations, of two kinds, both kinds of which have long and short legs, one of which kinds has the inner corners of the ends of the long legs cut away, the other of which kinds has the outer corners of the ends of the long legs cut away; and each leg of the core being composed of long and short legs alternately arranged, the two long legs which include a short leg belonging respectively to the said two kinds of laminations.

9. A transformer-core, which is built up of a plurality of substantially U-shaped laminations of two kinds, both of which kinds have long and short legs, one of which kinds has characteristic guides at the ends of the long legs, and the other of which kinds has different characteristic guides at the ends of its long legs; each leg of the core being composed of long and short legs alternately arranged, and the two long legs which include a short leg belonging respectively to the two kinds of laminations.

10. A transformer-core, which comprises a plurality of substantially U-shaped laminations, each of which has a long and short leg, certain of the laminations having the outer corners of the long legs cut away, certain other of the laminations having the inner corners of the long legs cut away, and the core being built up, first, with one or more laminations having an outer corner of the long legs cut away, second, with laminations having the inner corners of the long legs cut away; said long legs lying in the other leg of the core with respect to the first long leg; third, with laminations having the inner corners of the long legs cut away, but turned upside down so that the long

15. A transformer-core, which comprises a plurality of substantially U-shaped laminas, each having a long and a short leg, the difference between the lengths of the legs being equal to the width of the base of the laminas, and to one-half the distance between the legs, and said laminas for completing the magnetic circuit, the widths of which and laminar are equal to the difference between the lengths of the long and short legs of the U-shaped laminas.

3. In a filling-machine, the combination of opposite reservoirs, each provided with a valve-cage at its upper end having overflow-ports, a

2. In a filling-machine, the combination of appetite reservoirs, each provided with a valve-cage at its upper end having overflow-ports, a

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valve in each case, upper and lower pipes connecting the lower ends of the reservoirs, a supply-pipe leading to the upper pipe, a discharge leading from the lower pipe, a two-way valve located in the upper pipe, an oppositely-disposed two-way valve located in the lower pipe, and means for simultaneously operating the four valves for the purpose described.

4. In a filling-machine, the combination of opposite reservoirs, a valved air-vent and a valved overflow at the upper end of each of the same, a discharge-valve for the reservoir, a valved inlet for the same, and means for positively alternately and reversely operating the valves of the overflow and outlet of the opposite reservoirs simultaneously with the operation of said discharge and inlet valves.

5. In a filling-machine, the combination of opposite reservoirs, an intermediate valve-case having an inlet-port communicating with each reservoir and with a discharge leading from each cylinder, oppositely-disposed two-way valves located in said case, intermeshing gears carried by the stems of said valves, an operating-handle on the lower stem and a gear on the upper stem, a valve-case on the upper end of each reservoir, air-vents in the same, overflow-ports also in said case, rotatable valves for the cases each having an air-port and overflow-port, the two being arranged at an angle to each other, gears on the inner ends of the stems of said valves, a vertical shaft, gears on the upper and lower ends of the same, said gears meshing with the gears of the upper valve-stems and with that of the lower inlet-valve, and tubes adapted to lead from a source of supply to the inlet-port and from the overflow-ports to said source of supply.

696,956. MAGAZINE TORPEDO-CASE. JOHN E. FOX, FOSTORIA, Ohio. Filed Aug. 31, 1901. Serial No. 73,916. (No model.)



Claim.—1. A device for exploding torpedoes or the like comprising a mortar, and a firing-plug mounted on the lower end of a case-body or the like, having a magazine with a lateral outlet in the plug, the said firing-plug being telescopically mounted in the mortar and freely movable as a plunger therein to and from contact with the bottom of the mortar, and the said parts coacting in their reciprocation to feed the torpedoes or the like singly from the outlet of the magazine into the mortar and explode them in succession.

2. A device for exploding torpedo-pellets comprising a mortar telescopically mounted on a firing-plug freely movable to and fro in the mortar to and from contact with the bottom of the mortar and having a top socket, and a case-body or the like secured by its lower end in the socket of the plug and having a longitudinal bore adapted to form a magazine extending from the lower end upward to an inlet and provided with a lateral outlet within the plug kept closed by the mortar, the mortar being provided with a lateral recess adapted to be brought into alignment with the outlet of the magazine by the inward and to be uncovered by the plug in the outward movement of the plug in the mortar or of the mortar on the plug.

3. In a torpedo-case, a case-body provided with a magazine in the lower end, formed by a longitudinal bore extending upward to an inlet; a firing-plug permanently mounted on the lower end of the body, having an aperture in the base of the plug opening into a cavity in the plug; a lateral opening from the cavity into the base of the magazine, forming an outlet therefor; a mortar mounted on the plug and movable telescopically thereon between stops, and having a stud portion extended and movable in the aperture and cavity of the plug, and adapted to close the opening therefrom to the magazine; a firing-chamber in the breach of the mortar adapted to be closed at the top by the plug; a firing-pin projecting from the end of the plug into the firing-chamber; a vent in the wall of the firing-chamber; and a lateral recess in the side of the stud within the mortar adapted to be brought into alignment with the outlet of the magazine by the inward and to be uncovered by the plug in the outward movement of the plug in the mortar or of the mortar on the plug.

4. In a torpedo-case the combination with a case-body having a central longitudinal bore extending from the lower end toward the top and provided with a side opening having a closure, adapted to form a magazine for the storage of torpedoes, of a firing-plug having a socket at the top adapting the plug to be permanently mounted on the lower end of the case-body, and provided with an aperture on one side through the bottom of the plug into the socket, and with a projecting firing-pin on the other; a cavity within the socket of the plug formed by a side cut in the end of the case-body; an opening from the base of the bore of the magazine into the cavity; a mortar mounted on the plug and movable telescopically thereon and having a stud extended and movable in the aperture and cavity of the plug, and adapted to close the opening from the cavity into the magazine; a vertical slot in the wall of the plug-socket opposite the cavity; a pin secured to the stud and projecting through the

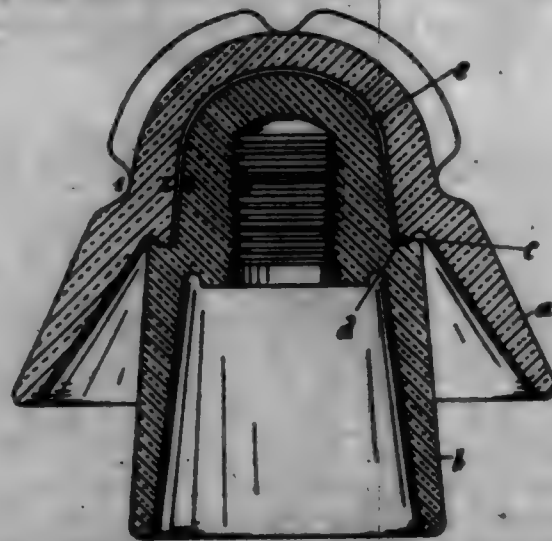
slot, adapted to movably secure the mortar to the plug and limit their telescopic movement; a firing-chamber in the breach of the mortar, adapted to be closed at the top by the plug; a vent in the wall of the firing-chamber; a firing-pin projecting from the bottom of the plug into the firing-chamber adapted to touch the bottom of the chamber at the limit of its inward movement therein; and a recess in the side of the stud adapted to be brought into alignment with the opening in the magazine by pushing the plug into the mortar and into coincidence with the firing-chamber by withdrawing it, substantially as shown and described and for the purpose set forth.

696,957. FLAG-CASE. JOHN W. FREEMAN, ELGIN, ILL. Filed Feb. 2, 1902. Serial No. 4,603. (No model.)



Claim.—A case having a bore extending from a point near its handle portion throughout the remainder of its length, a staff of less diameter than the bore, and normally housed therein, two spaced collars or shoulders carried by the staff and snugly fitting the bore, the outer collar, when the staff is projected, operating to close the open end of the bore to prevent vibration of the staff therein, and the inner collar operating to prevent any vibratory motion of that portion of the staff within the bore, whereby breakage of the staff and splitting of the case is prevented, a spring-pressed trigger projecting within the bore and engaging the inner collar to hold the staff in retracted position, a spring interposed between the latter collar and the closed terminal of the bore, and a display device carried by the outer portion of the staff, substantially as and for the purpose specified.

696,958. INSULATOR FOR HIGH-POTENTIAL CURRENTS. RUDOLF GANZNER, MARCHBURG, near Griesbach, Austria-Hungary, assignor to Karlshofen Kautschuk-Industrie-Gesellschaft, Marchburg, near Griesbach, Bohemia, Austria-Hungary. Filed Jan. 12, 1902. Serial No. 20,005. (No model.)



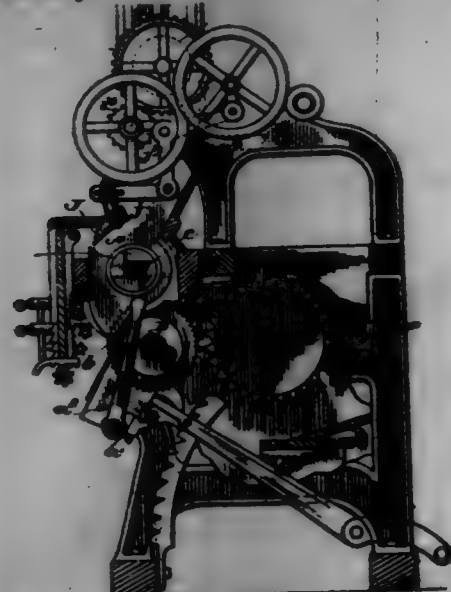
Claim.—1. A high-potential electric insulator composed of a plurality of bells connected together at the points d and e and having an air-space c practically insulating the inner bell.

2. A high-potential electric insulator composed of a plurality of glazed bells glazed together at the shoulders d and e, and having an air-space or interstice c between them.

696,959. COTTON-SEED DOLLIER. JEFFERSON M. GARDNER, New London, Conn. Filed Jan. 12, 1902. Serial No. 42,794. (No model.)

Claim.—1. A cotton-seed-dolliering machine comprising a series of rows, a movable roll-bar arranged adjacent to the rows, a feed arranged

in the roll-box, a shaft having a gear thereon, a train of gears one of which is connected to the first-shaft, meshing with the gear on the shaft, the gear on the first-shaft being capable of lateral movement without disengaging it from the remainder of the train of gears, whereby the shaft and the first remain connected by the gears irrespective of the position of the roll-box, substantially as described.



2. A cotton-seed delinting machine comprising a series of saws, a movable roll-box arranged adjacent to the saws, a shaft arranged in the roll-box, means for driving the shaft comprising a train of gears, a casing for the gears having a movable portion, whereby movement of the roll-box without disengaging the gears is permitted substantially as described.

3. A cotton-seed delinter comprising a series of saws, a movable roll-box arranged adjacent to the saws, a shaft arranged in the roll-box, and means for driving the shaft comprising a belt, a belt-tightener mounted adjacent to the belt, and a connection between the belt-tightener and the roll-box, substantially as described.

4. A cotton-seed delinter comprising a series of saws, a movable roll-box arranged adjacent to the saws, a shaft arranged in the roll-box, a shaft arranged above the roll-box, a belt connecting the shaft and the shaft above the roll-box, gears connecting the latter shaft and the shaft, a belt-tightener, and a connection between the belt-tightener and the roll-box, substantially as described.

5. A cotton-seed delinter comprising a roll-box having a portion of its inner face movable, a feeder adjacent to the roll-box, means for imparting movement to the feeder comprising three friction-wheels the intermediate one being movable to bring it into and out of contact with the others, a bell-crank lever on which the movable friction-wheel is mounted, a link pivotally connected to the lower end of the bell-crank lever, and a connection rigidly connected at one end to the movable section and adjustably connected at its other end to the link, substantially as described.

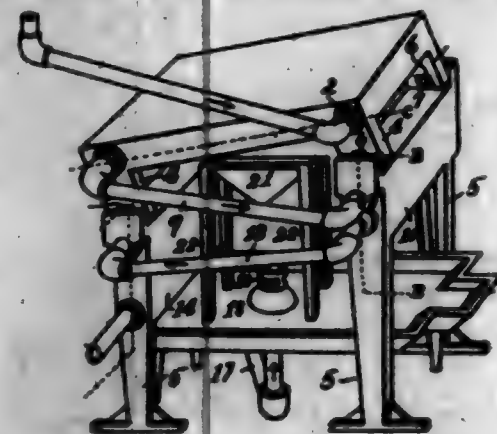
696,960. SPARK ARRESTER AND EXHAUSTOR. ALBERT GARNER, Rockburg, Va. Filed May 21, 1901. Serial No. 62,601. (No model.)



Claim.—1. In a spark-arrester, the combination of a series of supporting-rods provided with means at their lower ends for securing them to a support, a draft-tube supported on the rods, and an inverted cone supported above the draft-tube and provided with numerous outward-extending pins.

2. In a spark-arrester for smoke-stacks, the combination of a series of rods provided with means for adjustably securing them to a support at their lower ends, a draft-tube supported on the rods intermediate their ends, an inverted cone attached to the upper ends of the rods above the draft-tube and provided with numerous outward-extending pins, and means for centering the apparatus in the smoke-stack consisting of a series of fingers attached to the inverted cone and extending upward and outward and adapted so as to bear movably against the interior of the stack.

696,961. HYDROCARBON-BURNER. LEVIN G. GRAMMEL, San Jose, Cal. Filed Oct. 11, 1901. Serial No. 78,337. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of oppositely-facing standards, lateral rotors carried by said standards, a sloping upper rotor supported on said standards and having partitions extending alternately from opposite sides thereof to form a tortuous conduit therein, an oil-pen between the standards, an oil-supply pipe connected to the upper end of the upper rotor, a pipe leading from the lower end of said rotor to the upper portion of one of the lateral rotors, a pipe leading from the lower portion of the lateral rotor to the upper portion of the opposite lateral rotor, a pipe leading from the lower end of the conduit in said lateral rotor below the oil-pen and then extending upwardly therethrough, a burner mounted on the end of said latter pipe, and a spreader standing on said oil-pen above said burner, and having upwardly-flaring sides to spread the flames against the sides of the rotors, substantially as described.

2. In a hydrocarbon-burner, the combination of oppositely-facing standards, lateral rotors carried by said standards having vertical partitions extending alternately from opposite sides thereof to form a tortuous conduit therein, an oil-pen between the standards, an oil-supply pipe connected to the upper end of the upper rotor, a pipe leading from the lower end of said rotor to the upper portion of one of the lateral rotors, a pipe leading from the lower portion of the lateral rotor to the upper portion of the opposite lateral rotor, a pipe leading from the lower end of the conduit in said lateral rotor below the oil-pen and then extending upwardly therethrough, an inverted-cup-shaped burner mounted on the end of said latter pipe, and a spreader standing on said oil-pen above said burner, and having upwardly-flaring sides to spread the flames against the sides of the rotors, substantially as described.

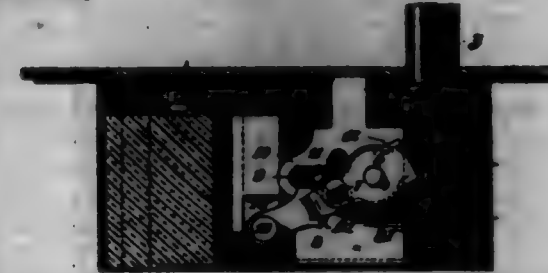
696,962. SHOT FOR FIREARMS. CLARENCE J. HANCOCK, Plymouth, Mich., assignor to C. J. Hamilton & Son, Plymouth, Mich., a Partnership. Original application filed May 13, 1901, Serial No. 66,907. Divided and this application filed Jan. 2, 1902. Serial No. 81,326. (No model.)



Claim.—1. In gun-construction, the combination of the barrel and the front sight consisting of a metal band surrounding the barrel with the free ends brought together and upstanding to form a sight, substantially as described.

2. The combination of the barrel and the front sight consisting of the metal bands surrounding the barrel with its free ends brought together to form the sight in combination with the reinforcing-piece, substantially as described.

696,968. ELECTRIC SWITCH. GERALD W. HART, West Hartford, Conn., assignor to the Hart Manufacturing Company, Hartford, Conn., a Corporation of New Jersey. Filed Nov. 18, 1901. Serial No. 68,980. (No model.)



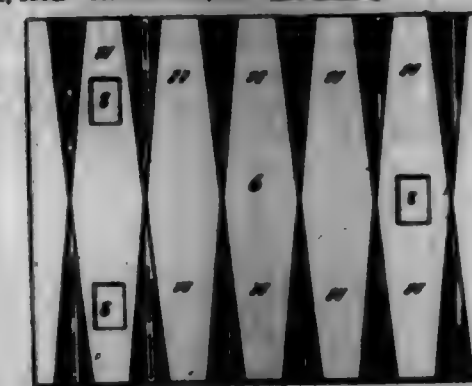
Claim.—1. In a snap-switch, a tilting operating part, a stationary frame, a link connected to said operating part, a locking-pin carried by said link and guided by said frame, a contact-carrier, said pin being adapted to engage on opposite sides of said contact-carrier, and a spring, one end being engaged by the operating part and the other end engaging said contact-carrier.

2. A snap-switch comprising, a stationary frame, a pivoted operating part, a swinging contact-carrier pivoted concentrically with said operating part, a reciprocating locking device controlled by said operating part and adapted to engage on opposite sides of said contact-carrier, and a spring one end being engaged by said operating part the other end engaging said contact-carrier.

3. In a snap-switch, a tilting operating part, a stationary frame, a link connected to said operating part, a locking-pin carried by said link and guided by said frame, a contact-carrier, said pin being adapted to engage on opposite sides of said contact-carrier, a spring, one end being engaged by the operating part and the other end engaging said contact-carrier, and another spring for normally returning the operating part to its original position.

4. In a snap-switch, a tilting operating part, a stationary frame, a link connected to said operating part, a locking-pin carried by said link and guided by said frame, a contact-carrier, said pin being adapted to engage on opposite sides of said contact-carrier, a spring, one end being engaged by the operating part and the other end engaging said contact-carrier, and a stop for limiting the movement of said operating part.

696,964. TIE-PLATE. HERBERT H. HART, Chicago, Ill. Filed Nov. 1, 1901. Serial No. 66,763. (No model.)



Claim.—1. A tie-plate provided upon its upper surface with a plurality of grooves or depressions contracted at their inner ends and gradually widening toward the edge of the tie-plate, substantially as described.

2. A tie-plate provided upon its upper surface with a plurality of grooves or depressions, said grooves or depressions being contracted at their inner ends and gradually widening and deepening as they approach the edge of the tie-plate, substantially as described.

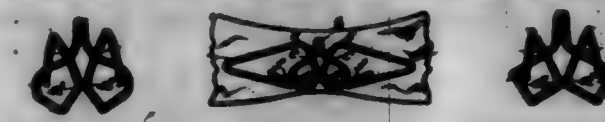
3. A tie-plate provided upon its under surface with a plurality of sharpened flanges adapted to enter the tie, and upon its upper surface with a plurality of grooves or depressions extending outward from the central portion of said tie-plate, said grooves being contracted at their inner ends and gradually widening as they approach the edge of the tie-plate, substantially as described.

4. A tie-plate provided upon its under surface with a plurality of sharpened flanges adapted to enter the tie, and upon its upper surface with a plurality of grooves or depressions extending outward from the central portion of said tie-plate, said grooves being contracted at their inner ends and gradually widening and deepening as they approach the edge of the tie-plate, substantially as described.

5. A tie-plate provided on its upper surface with two series of grooves or depressions, each series of grooves extending outward from the median line of said tie-plate, said grooves being contracted at their inner ends and gradually widening as they approach the edge of the tie-plate, substantially as described.

6. A tie-plate provided on its upper surface with two series of grooves or depressions, each series of grooves extending outward from the median line of said tie-plate, said grooves being contracted at their inner ends and gradually widening and deepening as they approach the edge of the tie-plate, substantially as described.

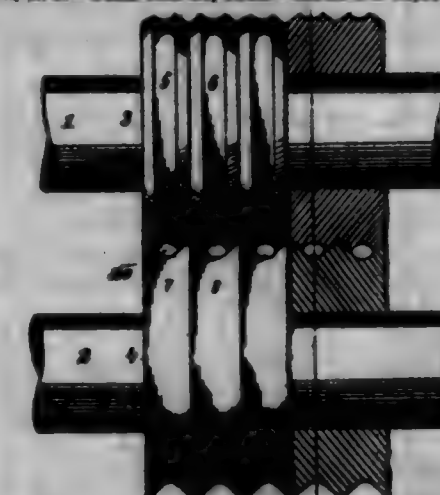
696,965. WICKING-FASTENER. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Nov. 18, 1901. Serial No. 68,487. (No model.)



Claim.—1. A wire wicking-fastener composed of two branches forming an upright diamond-shaped figure, the extensions of the upper sides of said diamond being bent upon themselves to constitute the upper securing member of the fastener, and the lower sides of said diamond being formed by the inner sides of two oppositely-disposed loops of which the wire of the inner side of each of said loops crosses under the wire of the outer side of each of said loops at the loop top of the end is bent downward and then bent upon itself to form the lower securing member of said fastener, substantially as described.

2. A wire wicking-fastener composed of two branches forming an upright diamond-shaped figure, the extensions of the upper sides of said diamond being bent upon themselves to constitute the upper securing member of the fastener, and the lower sides of said diamond being formed by the inner sides of two oppositely-disposed loops of which the wire of the inner side of each of said loops crosses under the wire of the outer side of each of said loops at the top of the loop and is then bent laterally into a triangular-shaped brace having a lower securing member for said fastener constituted by bending the lower inner end of said brace upon itself, substantially as described.

696,966. TOBACCO-STEERING ROLL. JOSEPH S. HAYES, Truxton, N. J. Filed Jan. 31, 1902. Serial No. 69,604. (No model.)



Claim.—1. A leaf-steering roll having a circumferential groove, and on each side of said groove inclined smooth portions of its periphery.

2. A leaf-steering roll having a circumferential groove, inclined smooth portions on each side of said groove, and circumferential cutting edges at the angles of said inclined portions.

3. A leaf-steering roll having a circumferential groove, and on each side of said groove two oppositely-inclined portions of its periphery.

4. The combination of two leaf-steering rolls one having circumferential grooves and abutting V-shaped channels, and the other similar circumferential grooves and abutting V-shaped ribs; the said ribs of one roll being received in the said channels of the other roll.

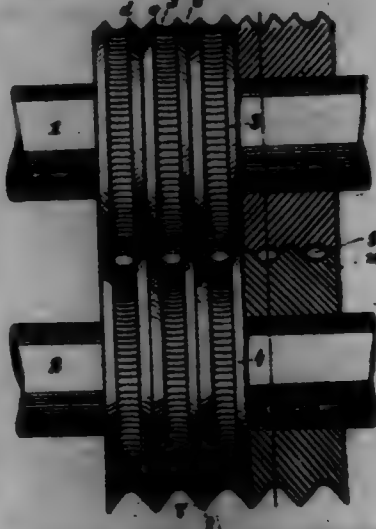
5. The combination of two leaf-steering rolls, each having its periphery so formed as that when said rolls are placed in juxtaposition leaf-like openings are produced between said rolls for the reception of the leaf to be steered.

6. The combination of two leaf-steering rolls each having a circumferential groove, the said groove extending to cross-section over an arc less than a semicircle; whereby when said rolls are placed in juxtaposition with their grooves opposite and corresponding, leaf-like openings are formed between said rolls.

7. The combination of the roll 3 having the grooves 5 and intermediate channels 10, 11, with the roll 4 having the grooves 7 and intermediate ribs 14, 15 adapted to enter said channels 10, 11.

696,967. TOBACCO-STEERING ROLL. JOSEPH S. HAYES, Truxton, N. J. Filed Jan. 31, 1902. Serial No. 69,605. (No model.)

Claim.—1. A half-stemming roll having circumferential grooves provided with concave cutting-surfaces, and alternating with said grooves pairs of circumferential cutting edges.



2. A half-stemming roll having circumferential grooves provided with concave cutting-surfaces and alternating with said grooves V-shaped channels, forming pairs of circumferential cutting edges.

3. A half-stemming roll having a circumferential groove provided with a concave cutting-surface formed of a multiplicity of small cutting projections, the said groove extending in cross-section over an arc less than a semicircle.

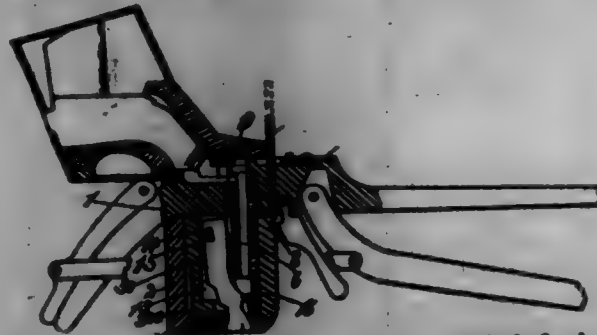
4. A half-stemming roll having a circumferential groove provided with a concave cutting-surface, and on each side of groove inclined smooth portions of its periphery.

5. A half-stemming roll having a circumferential groove provided with a concave cutting-surface and in each side of said groove two oppositely-inclined portions of its periphery.

6. The combination of the roll 3 having the grooves containing cutting-teeth 10 and intermediate channels 6 with the roll 4 having grooves 7 and cutting-teeth 10 and intermediate ribs 8 of a configuration adapted to fit in said channels 6, substantially as described.

7. The combination of the roll 3 having the grooves 5 containing cutting-teeth 10, V-shaped intermediate channels 6 with the roll 4 having grooves 7 and cutting-teeth 10 therein and the V-shaped ribs 8, substantially as described.

696,968. HAND TACKING-TOOL. ARTHUR HENRY, Manchester, N. H., assignor to Herbert R. Newton, Haverhill, Mass. Filed May 23, 1901. Serial No. 68,263. (No model.)



Claim.—1. A hand tacking-tool comprising a relatively fixed member and a movable member which is adapted to reciprocate with respect thereto and is provided with a tack-passage, a driving-plunger which is secured to said fixed member and is arranged in said passage, and a latch which is supported by said reciprocating member in said passage so that it may move freely in a predetermined path toward and away from said plunger, the path of movement of said latch being in the general direction of the path of the reciprocating member and being limited and arranged so that a portion thereof will be carried into such close proximity to the end of said plunger on one movement that a tack cannot pass therebetween and will be carried away therefrom on the opposite movement a sufficient distance to permit the passage of a tack therebetween.

2. A hand tacking-tool comprising a relatively fixed member and a movable member which is adapted to reciprocate relative thereto, and is provided with a tack-passage, a driving-plunger which is secured to said fixed member and is located in said passage, a latch which is arranged in said passage and is connected to said reciprocating member so that it may freely slide longitudinally of said passage, a projection on said latch which is so arranged that when said reciprocating member and latch are in their outermost positions said projection will be far enough beyond the end of said plunger to permit the passage of a tack therebetween, and when said

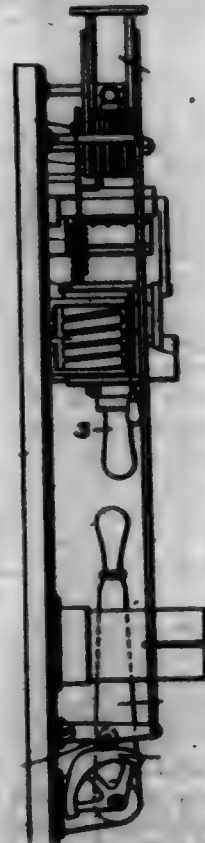
latch is moved inwardly with respect to said reciprocating member said projection will close the passage-way therebetween sufficiently to prevent the passage of a tack, and means for feeding the tacks into said passage one by one.

3. A hand tacking-tool comprising a relatively fixed member and a movable member which is adapted to reciprocate relative thereto, and is provided with a tack-passage, a driving-plunger which is secured to said fixed member and is located in said passage, a latch which is arranged in said passage and is connected to said reciprocating member so that it may freely slide longitudinally of said passage, a projection on said latch which is so arranged that when said reciprocating member and latch are in their outermost positions said projection will be far enough beyond the end of said plunger to permit the passage of a tack therebetween, and when said latch is moved inwardly with respect to said reciprocating member said projection will close the passage-way therebetween sufficiently to prevent the passage of a tack, a spring which is adapted to press the outer end of said latch toward the side of said passage below the end of said plunger, a stop for said spring which prevents it from pressing said latch into actual engagement with the side of said passage, and means for feeding the tacks one by one into said passage.

4. A hand tacking-tool comprising a relatively fixed member and a movable member which is adapted to reciprocate relative thereto, and is provided with a tack-passage, a driving-plunger which is secured to said fixed member and is located in said passage, a latch which is arranged in said passage and is connected to the reciprocating member so that it may freely slide longitudinally of said passage and swing laterally therein, a projection on the edge of said latch next the plunger at an intermediate position thereof, said projection being so arranged with respect to the end of said plunger when said reciprocating member and latch are in their outermost positions that a tack may pass between them, and will obstruct said passage of the tack when moved to its inner position with respect to said reciprocating member, means for swinging the edge of said latch below the plunger in close proximity to but not actually against the adjacent side of said passage, and means for feeding the tacks into said passage.

5. A hand tacking-tool comprising a relatively fixed member, a movable member which is adapted to reciprocate relative thereto and is provided with a tack-passage which extends to its outer end, a driving-plunger which is secured to said fixed member, and a latch which is arranged in said passage in front of said plunger, is connected to said movable member, and is adapted to reciprocate freely in a predetermined path, the path of said latch being in substantially the same direction as the path of said movable member and across the path of the tacks through said passage.

696,969. ELECTRIC SWITCH. EDWARD M. NEWLBY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 14, 1901. Serial No. 72,526. (No model.)



Claim.—1. The combination with a motor-starting switch, of an automatic circuit-breaker in circuit therewith, and connections with the

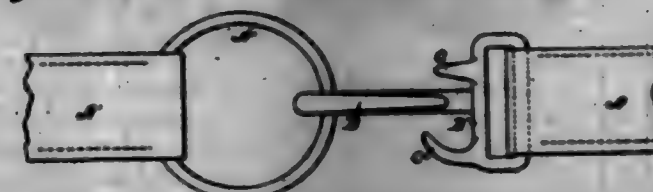
switch for temporarily raising the tripping-point of the circuit-breaker when the circuit is first closed.

2. The combination with a switch, of an automatic circuit-breaker in circuit therewith, and connections for temporarily increasing the tension of a calibrating-spring when the circuit is first closed.

3. The combination with a switch, of an automatic circuit-breaker in circuit therewith, and connections for temporarily increasing the resistance force of the tripping-arms when the circuit is first closed.

4. The combination with a switch, of an automatic circuit-breaker in circuit therewith, and mechanical connections between the switch and self-latching-spring of the circuit-breaker for temporarily increasing the tension of the latter during circuit-closure.

696,970. HARKNESS-BOOK. CHAS. W. HARKNESS, Baltimore, Md., assignor to Harkness Specialty Company, Limited, Baltimore, Md. Filed Jan. 27, 1902. Serial No. 91,682. (No model.)



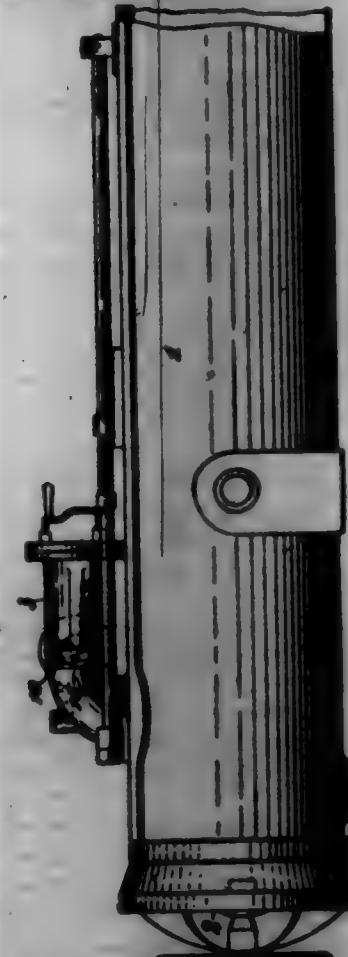
Claim.—1. In a harkness-book, the combination of an engaging portion B, having inwardly and forwardly projecting portions f, e, g, arranged alternately thereon; a loop portion B' having forwardly-extending legs c, d, on either side of the said engaging portion to serve as guards, substantially as described.

2. In a harkness-book, the combination of an engaging portion B, having inwardly and forwardly projecting portions arranged alternately thereon; a loop portion B' having a forwardly-extending leg c to one side of the said engaging portion to serve as a guard, substantially as described.

3. In a harkness-book, the combination of an engaging portion; a loop portion B' having forwardly-extending legs c, d on either side of said engaging portion to serve as guards, substantially as described.

4. In a harkness-book, the combination of an engaging portion; a loop portion B' having a forwardly-extending leg c to one side of the said engaging portion to serve as a guard, substantially as described.

696,971. FIRING-VALVE FOR SUBMERSIBLE EXPLOSION-TURNER. JOHN F. HOLLAND, Newark, N. J. Filed July 27, 1901. Serial No. 68,262. (No model.)

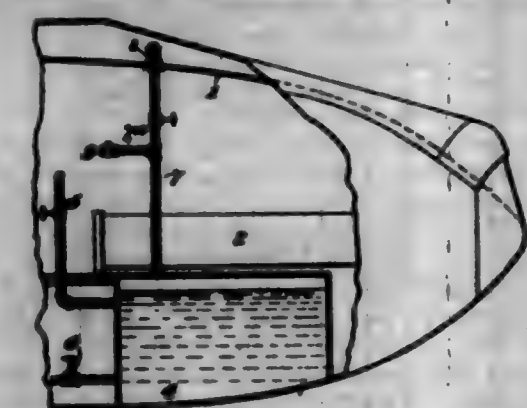


Claim.—1. The combination with an explosion-tube and its firing-valve, of an automatic stop-valve located between the firing-valve and

the said tube to prevent the access of water to the firing-valve and its connections, substantially as set forth.

2. The combination with the explosion-tube, the casing of the firing-valve, and the coupling-piece connecting said casing with the explosion-tube, of the firing-valve and its piston, and the automatic stop-valve mounted in the said coupling-piece and opening toward the explosion-tube, substantially as set forth.

696,972. SUBMERSIBLE BOAT. JOHN F. HOLLAND, Newark, N. J. Filed Aug. 7, 1901. Serial No. 71,181. (No model.)

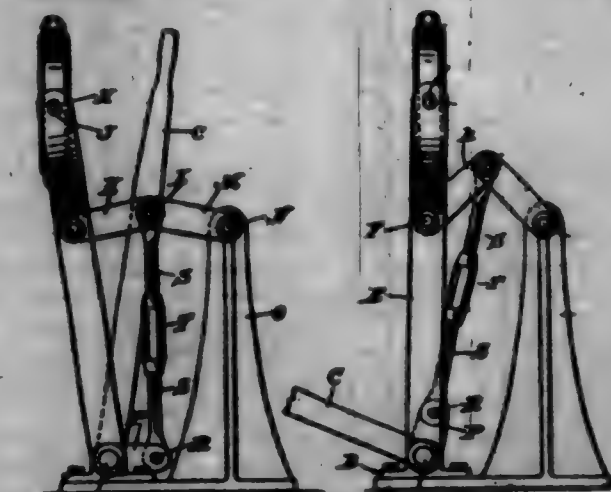


Claim.—1. A submersible boat or vessel having in it a closed tank containing a liquid hydrocarbon, means for charging and supplying the liquid from same, a ventilating-pipe extending from the upper part of said tank out through the shell or hull of the boat, a check-valve controlling said pipe and opening outwardly, and means for automatically controlling the admission of air to said tank from the interior of the boat to replace the liquid used.

2. A submersible boat or vessel having in it a closed tank containing a liquid hydrocarbon, means for charging and supplying the liquid from same, a ventilating-pipe extending from the upper part of said tank out through the shell or hull of the boat, a check-valve controlling said pipe and opening outwardly, said valve being situated exterior to the boat, and means for automatically controlling the admission of air to said tank from the interior of the boat to replace the liquid used.

3. A submersible boat or vessel having in it a closed tank containing a liquid hydrocarbon, means for discharging the accumulated gases and vapors from said tank exterior to the boat, a pipe from the interior of the boat for admitting air to said tank, and a check-valve controlling said pipe and opening inwardly, whereby the liquid consumed is replaced by air.

696,973. CLUTCH-OPERATING DEVICE. GEORGE L. BULLAN, Chicago, Ill., assignor to the Link Belt Machinery Company, Chicago, Ill., a Corporation of Illinois. Filed June 7, 1901. Serial No. 68,264. (No model.)



Claim.—1. In a controlling device, the combination of a movable part with pivoted bars on which it is supported, a fixed standard, short links pivoted together, and at their other ends respectively to the fixed standard and the pivoted bars, a rock-shaft, a lever to rock the same, an arm thereon, and a rod pivoted to the arm and to the short links at the points where they are pivoted together.

2. In a controlling device, the combination of a movable part with links pivoted together and at one end pivotedly connected with the movable part and at the other with a fixed part, and means for moving these links at the point where they are pivoted together to move the movable part, said means comprising two links pivoted together and one of them to a fixed part.

3. In a controlling device, the combination of a movable part with links pivoted together and at one end pivotally connected with the movable part and at the other with a fixed part, and means for moving these links at the point where they are pivoted together to move the movable part, said means comprising two links pivoted together and one of them to a fixed part, and arranged so as to form a straight line when the short links do not form a straight line.

4. In a controlling device, the combination of a movable part with means for moving it, comprising two sets of pivoted links adapted to successively form each set a straight line to lock the movable part at the limit of its excursion in either direction.

5. In a controlling device the combination of a movable part with links connected thereto adapted to form a straight line to lock the movable part in one direction, and a second set of links connected with the first, and adapted to form a straight line to lock the movable part at the limit of its excursion in the other direction.

6. In a controlling device the combination of a movable part with a rock-shaft and a connection from the rock-shaft to the movable part comprising two sets of links, adapted one to form a straight line to lock the movable part at the limit of its excursion in one direction, and the other to form a straight line to lock the movable part at the limit of its excursion in the other direction.

7. In a controlling device, the combination of a movable part with two systems of links, one connected with the movable part, the other with the first-mentioned system, and the two arranged so that they successively form straight lines, one to lock the movable part at the limit of its excursion in one direction, and the other to lock it at the limit of its excursion in the opposite direction.

8. In a controlling device, the combination of a movable part with a system of links connected therewith at one end and to a fixed point at the other end, and a second system of links connected at one end to a fixed point and at the other end to the first system of links intermediate between the two ends of each first system.

9. In a controlling device, the combination of a movable part with a system of links connected therewith at one end and to a fixed point at the other end, and a second system of links connected at one end to a fixed point and at the other end to the first system of links intermediate between the two ends of each first system, and means for varying the position of the second system of links to vary the position of the first system and thus move such movable part.

10. In a controlling device, the combination of a movable part with a system of links connected therewith at one end and to a fixed point at the other end, and a second system of links connected at one end to a fixed point and at the other end to the first system of links intermediate between the two ends of each first system, and means for varying the position of the second system of links to vary the position of the first system and thus move such movable part, each of said systems of links adapted in turn to form a straight line to lock the movable part at the limit of its excursion in either direction.

11. In a controlling device, the combination of a movable part with links pivoted together and at one end pivotally connected with the movable part and at the other with a fixed part, means for moving these links at the point where they are pivoted together to move the movable part, and an adjusting device associated with the means for moving the links so as to vary the excursion of the controlling device.

12. In a controlling device, the combination of a movable part with means for moving it, comprising two sets of pivoted links adapted to successively form each set a straight line to lock the movable part at the limit of its excursion in either direction and one of said sets of pivoted links adjustable in length to vary the motion of the controlling device.

13. In a controlling device, the combination of a movable part with a system of links connected therewith at one end and to a fixed point at the other end, and a second system of links connected at one end to a fixed point and at the other end to the first system of links intermediate between the two ends of each first system, said second system of links adjustable as to length to vary the excursion of the controlling device.

14. In a clutch-moving mechanism, the combination of a device to connect with the clutch, pivoted here on which it is supported, a rock-shaft and means for operating the same, and a connection from the rock-shaft to the bars, consisting of two sets of links.

15. In a clutch-moving mechanism, the combination of a device to connect with the clutch, pivoted here on which it is supported, a rock-shaft and means for operating the same, and a connection from the rock-shaft to the bars, consisting of two sets of links, one set substantially at right angles to the other and connected with each other at other the manner of toggle-bars.

16. In a clutch-moving mechanism, the combination of a device to connect with the clutch, pivoted here on which it is supported, a rock-shaft and means for operating the same, a connection from the rock-shaft to the bars, consisting of two sets of links, one set substantially at right

angles to the other and connected with each other at other the manner of toggle-bars, and an adjustable device associated with said links so as to vary the throw of the clutch-controlling part.

696,974. PEE-CUTTER. JOHN A. HOLMES, Mason City, Iowa. Filed Apr. 20, 1901. Serial No. 54,136. (No model.)



Claim.—A peg-foot, comprising a pair of levers pivoted together and extending rearwardly from the pivotal point substantially parallel to each other for some distance from said pivotal point and thence diverging upwardly, and provided at their free ends with loops or eyes, and provided at their forward ends with cutting-jaws which extend below the plane of the pivotal connection, said cutting-jaws having rounded under surfaces, the outer jaw moving upward and outward with relation to the inner jaw when opening, substantially as described.

696,975. PROPELLING AND BRAKE MECHANISM FOR VEHICLES. OMAR C. HOWEN, Cortland, N. Y., assignor to the Cortland Carriage Goods Company, Cortland, N. Y., a Corporation of New York. Filed Oct. 24, 1900. Serial No. 54,302. (No model.)



Claim.—1. In combination with a Weyde or like vehicle, a driving and braking device comprising a clutch member secured to the hub of the driven wheel; a second clutch member loose upon said hub; means for causing said second member to engage the companion member when half turned in a forward direction; a brake member rigidly secured to or carried by said hub; a sliding brake member laterally movable toward and from the first; a non-rotatable yoke or support in which the second brake member is swiveled; a locking device adapted to engage said second brake member and positively hold it against forward rotation while permitting it to turn freely backward; and means for pressing the brake members together and for relieving them of pressure, alternately and as desired.

2. In combination with a wheel or part to be driven, a driving-wheel having limited rotary play independent of the driven wheel, and provided

on its side face with inclines; a laterally-movable brake member; rollers interposed between said inclines and the laterally-movable brake member; a non-rotatable support for said member; a dog or pawl adapted to hold said member against forward rotation; and a second brake member rigidly secured to the wheel or part to be driven.

3. In combination with a wheel, and driving mechanism substantially such as described and shown, adapted to apply lateral pressure when moved in a backward direction; a brake, comprising a non-rotatable yoke or support, a friction member, swiveled therein; a sliding friction member carried by the driven wheel; and a pawl or detent adapted to engage and positively hold the swiveled friction member against forward rotation but to permit free backward rotation thereof.

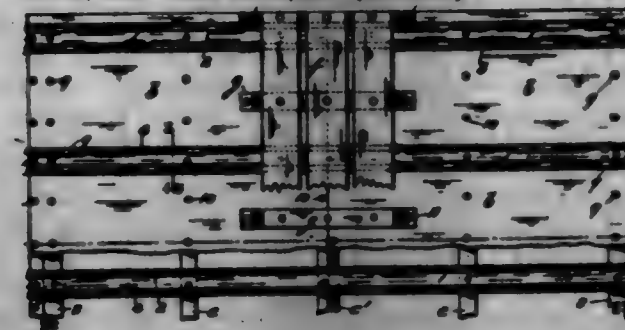
4. In combination with yoke J and a rotatable clutch member swiveled therein and provided with a notch or notches; pawl or dog O adapted to engage in said notch or notches, and tapering in the direction of its movement, substantially as and for the purpose set forth.

5. In combination with a vehicle frame and wheel, a yoke J provided with a seat or means of tapering form, a pawl or dog O having a body of corresponding form; a rotatable brake member mounted in the yoke and adapted to be engaged by said pawl or dog; a brake member secured to and rotatable with the wheel; and means for pushing said brake members into braking contact, substantially as described.

6. In combination with a wheel, and a frame or support, yoke J having a cavity or pawl-out of decreasing width toward its lower end; a rotatable brake member seated therein and provided with notches in place with said pawl-out; a pawl or dog O, likewise of decreasing width toward its lower end and provided with a nose to engage in the notches of the rotatable member; whereby the dog is adapted to move radially inward and to engage said member when the latter turns in a direction to move the pawl downward, and to be lifted and moved radially outward by said member when turned in the reverse direction; and means substantially as described and shown for forcing the brake members into braking contact.

7. In combination with a brake member provided with a groove or depression, a cap or cover Q provided with a lip or flange q to enter the groove or depression, substantially as and for the purpose set forth.

696,976. CAR-ROOF. CURTIS M. JACOBSON, St. Louis, Mo. Filed Dec. 22, 1901. Serial No. 57,004. (No model.)



Claim.—1. In a car-roof, the combination with the sides of the car having respectively an outwardly-projecting top flange, of a carline made in one piece spanning the said sides, the said carline having a flat base bearing upon the said flanges, and having two upwardly-projecting side flanges directed outward at the top and formed thence respectively with a depending flange, a roof-sheet having a side flange adapted to engage between the said side flange and depending flange of the carline, and means for fixing the carline and roof-sheet to the said top flanges of the car, substantially as described.

2. In a car-roof, the combination with the sides of the car having respectively an inside top angle-plate, of a carline made in one piece spanning the said sides, the said carline having a flat base bearing upon the said plate, and having two upwardly-projecting side flanges directed outward at the top and formed thence respectively with a depending flange, a roof-sheet having a side flange adapted to engage between the said side flange and depending flange of the carline, and means for fixing the carline and roof-sheet to the said top plate of the car, substantially as described.

696,977. STOVEPIPE ATTACHMENT. JAMES JOY and JOHN H. DORRIS, Orléans, Mo. Filed Sept. 14, 1901. Serial No. 55,629. (No model.)

Claim.—1. A device of the character described comprising a clamp or strap thereto, a second clamp adjustably secured to the strap, and a tensioning device connecting the sides of the clamp opposite the strap.

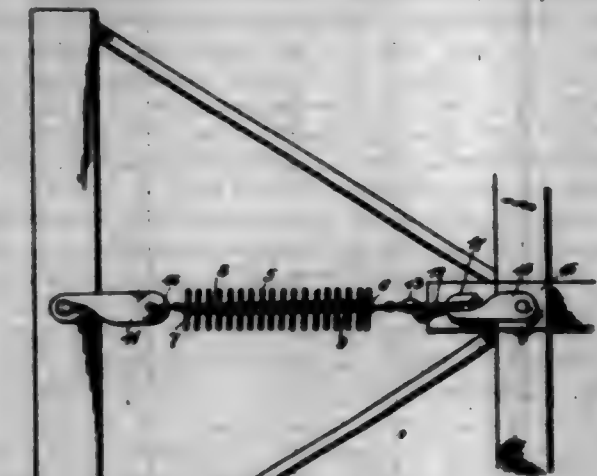
2. The combination with an elbow, a pipe-section engaging the same, of a clamp applied to the elbow at the end furthest removed from the pipe-section and having a strap extending upwardly over the elbow and

a portion of the said section, the said strap being provided with a plurality of lugs, a second clamp on the pipe-section having adjustable engagement with the lugs on the strap, and an adjustable tie for connecting the two clamps.



3. A device of the class set forth comprising a strap provided with lugs at one extremity and a clamp at the opposite extremity, a second clamp having means for adjustably engaging the said lugs, and means for securing the terminals of the clamps, and an adjustable tie device for connecting the means securing the terminals of the clamps.

696,978. WAGON-ROD SUPPORT. PHILIP A. KIMBLE and JOHN E. KIMBLE, Chicago, Ill. Filed Aug. 17, 1901. Serial No. 72,622. (No model.)



Claim.—As an article of manufacture, a helical wire spring, a U-shaped bar at each end of the spring having its extremities bent outwardly into hook form and encircling the end convolutions of the spring and having a short web portion disposed within the end of the spring, two plates having perforations in their ends, each plate receiving the light of one of the bars in one of its perforations and said plates being passed in opposite directions through the spring, a chain engaged with the outer end perforation of one plate, a hook having a perforated stem, and an open link engaged with the perforation of the stem of the hook and with the perforation of the outer end of the second plate.

696,979. CONNECTED CROSS-TIE, TRAIL-PARTITION, AND RAIL-JOINT. VINCENT L. KIMMELT, Knoxville, W. Va. Filed Dec. 10, 1901. Serial No. 56,577. (No model.)



Claim.—1. The combination with a cross-tie having a seat formed in the upper face thereof, of overlapping rail-clamping members fitted in the seat and having wedge-shaped overlapping portions, and means to draw the members inwardly in opposite directions and thereby to clamp the same upon a rail and against the opposite sides of the seat.

2. The combination with a cross-tie having a seat formed in the upper face thereof, and provided with an opening through the back of the seat, of a pair of overlapping rail-clamping members fitted in the seat and having wedge-shaped overlapping portions, one of the members being fixed to the tie and the other member which is adjustably secured to the tie in the tie being movable toward and away from the fixed member, and a

wedge-shaped fastening to be driven through the opening and into frictional engagement with the movable member to force the same toward the fixed member and into snug engagement with the adjacent wall of the seat.

3. The combination with a cross-tie having a seat formed therein and opposite openings formed in the back of the seat, of a pair of self-closing rail-gripping members fitted in the seat and having wedge-shaped overlapping portions, one of the members having a lag or projection fitted in one of the openings to prevent accidental endwise movement of the member, and a wedge-shaped fastening to be driven into the other opening in frictional engagement with the other member and thereby force the same toward the fixed member.

4. The combination with a cross-tie having a flanged seat formed therein and opposite openings formed in the back of the seat, of opposite rail-gripping members fitted in the seat with their outer edges lying beneath the flange of the seat and also provided with wedge-shaped overlapping portions, one of the members having a lag or projection fitted in one of the openings to hold the member against movement, and a wedge-shaped fastening driven in the other opening in frictional engagement with the other member to force the same toward the fixed member.

5. The combination with a cross-tie having a longitudinal dovetailed groove formed in the upper face thereof and also provided with opposite openings formed in the back of the groove, of a pair of rail-gripping members seated in the groove and having wedge-shaped overlapping back portions and upstanding endwise rail-engaging shoulders, which have their lower portions cut away at alternate sides to receive the inner end of the other member, one of the members having a pendant lag or projection seated in the adjacent opening to prevent movement of the member, and a wedge-shaped fastening driven in the other opening in frictional engagement with the inner member to force the same toward and into co-operative relation with the fixed member.

6. A track-fastening, comprising a metallic tie having in its under face provided with longitudinal channels to render the tie yieldable, the upper face of the tie being provided with a central longitudinal seat, and said upper face being beveled outwardly and downwardly in opposite directions from the opposite sides of the seat, rail-engaging fastenings fitted in the seat and having overlapping wedge portions, and means for drawing said wedge portions into mutual engagement to form the rail-engaging means into frictional engagement with the opposite sides of the seat.

7. As a new article of manufacture, a solid metallic cross-tie which is substantially triangular in cross-section, the bottom thereof having a pair of longitudinal channels formed therein and providing an intermediate longitudinal rib, the apex of the tie being removed, there being a central longitudinal seat formed in the top of the tie, and the downwardly-inclined portions of the tie at opposite sides of the seat forming longitudinal flanges to be embedded in ballast.

8. The combination with a cross-tie having an opening formed therein, of a fixed rail-clamping member, a movable rail-clamping member co-operating therewith, a headed wedge-shaped pin driven into the opening in the tie and against the movable clamping member, and a pin-locking key inserted in the opening prior to the application of the pin, and clamped between the head of the later and the movable clamp member.

9. The combination with a cross-tie having an opening formed therein, of a fixed rail-clamping member, a movable rail-clamping member, a wedge-shaped pin to be inserted into the opening and against the movable member, and a pin-locking key to be inserted in the opening, the lower end of the key having a toe to underlie the bottom of the tie, and the upper portion of the key having a lateral shoulder to rest upon the top of the tie, and also having a bendable portion which is capable of being bent over against the top of the pin to prevent displacement thereof.

10. The combination with a cross-tie, of co-operating rail-clamping members supported upon the top of the tie and having wedge-shaped overlapping portions, and means to draw the members inwardly in opposite directions and thereby to clamp the same upon a rail.

696,980. SLIDING-DOOR FASTENER. JOSEPH H. KENT and WILLIAM H. ROSS, Harrisburg, Pa. Filed June 26, 1901. Serial No. 66,094. (No model.)

Claim.—1. The combination with a slotted casing, of a rod slidably mounted in the casing, a button thereon, means for imparting longitudinal motion to the rod, and means whereby said button will be projected laterally through the slot in the casing at the beginning of the movement of the rod in one direction and whereby said button will be retracted from the slotted plate at the end of its reverse movement.

2. The combination with a slotted casing, of a rod slidably mounted therein, a button extending from the rod, a stud upon the rod, a casing adapted to receive the rod and having a curved slot engaged by the stud, whereby the button is adapted to be projected through the slot in the casing at the limit of the movement of the rod in one direction, and re-

tracted at the beginning of its reverse movement, and means for imparting motion to the rod.



3. The combination with a casing, of a recessed casing within each end thereof, each casing having curved slots therein, a rod within the casing, studs at the ends of the rod slidably mounted within the curved slots, a button extending from the rod and adapted to be projected through the slot in the casing when said rod reaches the limit of its movement in one direction and to be retracted at the beginning of its reverse movement and means for imparting motion to the rod.

4. The combination with a slotted casing, of a recessed casing within each end thereof, each casing having curved slots therein, a rod, studs extending from the rod and slidably mounted within the curved slots, a button extending from the rod and adapted to be projected through the slot in the casing when said rod reaches the limit of its movement in one direction and to be retracted from said slot at the beginning of its reverse movement, a crank-shaft journaled within the casing, a lever thereon and a link connection between said crank-shaft and the rod whereby motion is imparted thereto from the lever.

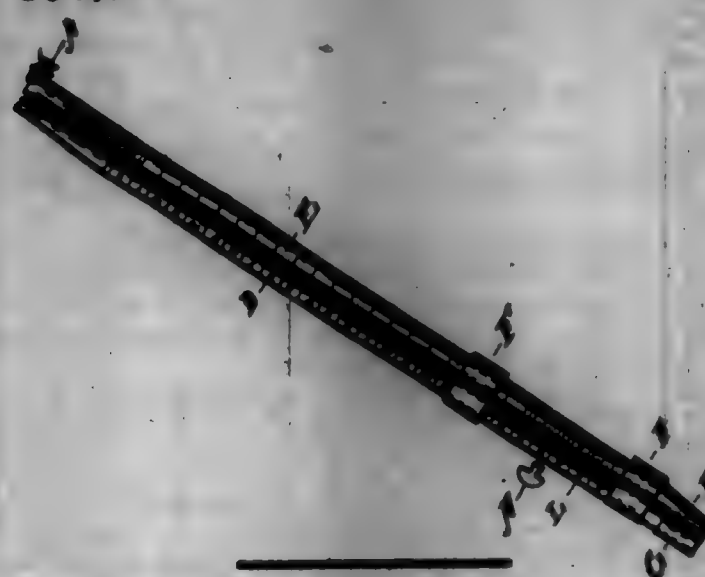
5. The combination with a structure having a slotted plate secured thereto, of a second structure, a casing secured thereto, a rod slidably mounted within the casing, a button projecting therefrom, means for imparting motion to the rod and means whereby said button will be projected into engagement with the slotted plate at the beginning of the movement of the rod in one direction and whereby said button will be retracted from the slotted plate at the end of its reverse movement.

6. The combination with a door-casing having plates secured at each side thereof and provided with butt-hole-slots, of a sliding door, a lock-casing secured to each side edge thereof and each casing containing a sliding rod, a recessed casing adapted to receive each end of said rod and having curved slots therein, studs extending from the rod and slidably mounted within the curved slots, buttons extending from the rod, a crank-shaft journaled within the casing, a lever pivoted thereto and a link connection between the crank-shaft and rod whereby motion is imparted thereto from the lever, said buttons being adapted, when the rod is moved in one direction, to project into and slide within the butt-hole-slots and to slide within and be retracted from said slots during the reverse movement of said rod.

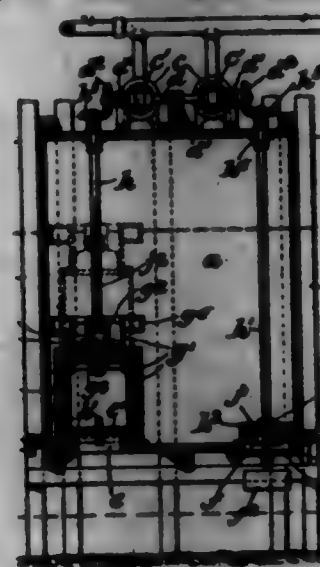
696,981. PICTURE-HANGER. GEORGE E. KAY, New Orleans, La. Filed Nov. 12, 1901. Serial No. 36,397. (No model.)

Claim.—A picture-hanger, comprising the extensible handles D and E, the collars F F, secured to said handles D and embracing handle K, the thumb-screw H, for locking the two handles together, the hook N secured to the end of handle E, bent at right angles adjacent to the point where it emerges from the end of said handle, and its shank portion disposed in a plane parallel to the end of handle E, the base bent at right angles over the end of the handle carrying the same, and formed into a hook with the extremity thereof bent to form a spur and in a plane parallel with the length of the handles as set forth.

696,981.



696,982. TIDE-MOTOR. FRANK E. LANTIER, Brooklyn, N. Y. Filed Apr. 12, 1901. Serial No. 55,305. (No model.)



Claim.—1. In a tide-motor, a casing having its upper portion air-tight and provided with a gate or valve-controlled opening in its lower portion, said casing being arranged so that the air contained therein will be compressed by the flow of the tide, and a pipe communicating with the top of said casing whereby the air contained therein may escape, substantially as described.

2. In a tide-motor, a casing provided with a gate or valve-controlled opening in its bottom and arranged so that the lower portion of said casing will be submerged by the rise of the tide, the upper part of the casing being air-tight, and a valve-controlled pipe communicating with the top of the casing to permit the escape of the air therefrom when the valve is opened, substantially as described.

3. In a tide-motor, a casing having its upper portion air-tight and arranged so that its lower portion will be submerged by the rise of the tide, an inlet to said casing, means for opening and closing said inlet, a valve-controlled pipe communicating with the top of the casing to permit the escape of the air therefrom when the valve is opened, and means for opening the inlet when the tide has reached a predetermined height on the exterior of the casing, substantially as described.

4. In a tide-motor, the combination of a casing having an inlet, of a frame in said casing communicating with the inlet and the interior of the casing, and a water-wheel in said frame actuated by the water admitted through said inlet, said water-wheel being movable with relation to the inlet, substantially as described.

5. The combination with a casing provided with an inlet, of an engine, a telescopic frame in said casing communicating with the inlet and the interior of the casing, a turbine in said casing relatively secured to a shaft operatively connected with said engine, said turbine being rotated by the water admitted through said inlet, substantially as described.

6. In a tide-motor, the combination with a casing having an inlet and an outlet, of a frame in said casing communicating with the inlet and the interior of the casing, a rotatable turbine in said frame, and a rotatable turbine in the casing arranged adjacent to the outlet substantially as described.

7. In a tide-motor, the combination with a casing having an inlet, a frame communicating with the inlet and the interior of the casing having its sides comprising one or more telescopic sections, a shaft journaled

in said frame and casing, a rotatable water-wheel keyed to said shaft and movable axially thereon, and means to extend said frame with the rise of the water in the casing, substantially as described.

8. In a tide-motor, the combination with a casing, provided with an inlet and an outlet, of means actuated by the tide for automatically opening and closing the outlet, and means actuated by the tide for automatically opening and closing the inlet when said outlet is closed and for holding said inlet open when the outlet is closed, substantially as described.

9. In a tide-motor, the combination with a casing, provided with an inlet and an outlet, a frame provided with telescopic sides communicating with said inlet and the interior of the casing, a rotatable water-wheel in said frame, means for automatically opening and closing said inlet, and means for automatically opening and closing said outlet, substantially as described.

10. In a tide-motor, the combination of a horizontally-cased casing provided with an inlet and an outlet, a frame in said casing having telescopic sides, a turbine in said frame relatively secured to a shaft journaled in said frame, a turbine arranged adjacent to the outlet and relatively secured to a shaft journaled in the casing, means for automatically closing and opening said inlet and outlet, and an engine operatively connected with the said shafts, substantially as described.

11. In a tide-motor, the combination of a horizontally-cased casing provided with an inlet and outlet, gates for closing said inlet and outlet, means dependent on the movement of the tide for automatically opening and closing the outlet-gate, means dependent on the movement of the tide for automatically opening and closing the inlet-gate when the outlet-gate is closed, a pipe communicating with the top of said casing and having a normally closed valve therein, and means dependent on the movement of the tide for opening said valve, said means being adapted to permit said valve to close before the outlet-gate is opened, substantially as described.

12. In a tide-motor, the combination with a horizontally-cased casing provided with an inlet and an outlet, a pipe communicating with the top of said casing and having a valve therein, means for automatically opening and closing the outlet, means for automatically opening and closing the inlet, means for opening the valve in said pipe while the inlet is open and for closing same before the outlet is opened, and an automatically-actuated valve in the casing for admitting air to said casing to prevent the formation of a vacuum in the casing, substantially as described.

696,983. GAS-CAPSULE. GEORGE A. LOGAN, Chicago, Ill. Filed Feb. 2, 1901. Serial No. 45,512. (No model.)



Claim.—1. A gas-capsule adapted for use in charging or aerating beverages in bottles or other receptacles, said capsule being made of metal and provided with an opening, and a removable and puncturable metal casing-plug inserted and removably secured within said opening, substantially as described.

2. A gas-capsule adapted for use in charging or aerating beverages in bottles or other receptacles, said capsule being made of metal and provided with an opening, and a removable metal casing-plug inserted and removably secured within said opening, said plug being provided with a puncturable diaphragm, substantially as described.

3. A gas-capsule adapted for use in charging or aerating beverages in bottles or other receptacles, said capsule being made of metal and having a plate or disk secured in its open end, said plate or disk being provided with an opening or aperture, and a removable metal coil inserted in said opening, substantially as described.

4. A gas-capsule adapted for use in charging or aerating beverages in bottles or other receptacles, said capsule being made of metal and having a plate or disk secured in its open end, said plate or disk being provided with an opening or aperture through which the gas is forced into the capsule, and a metal casing-plug inserted in said opening, said plug being provided with a head fitting in insertion in said opening, and the plug being provided with a bore or passage which is obstructed or closed by a diaphragm or wall, said diaphragm or wall being adapted and arranged in position to be engaged by a projection on the device to which the capsule is applied, and the plug being readily removable after the gas has been liberated from the capsule, whereby the latter may be refilled and used again, substantially as described.

5. A metallic capsule adapted to contain gas or fluid under pressure and provided with an opening, and a metallic casing-plug inserted in

said opening and provided with a longitudinal bore or passage, said bore or passage being obstructed or closed by a diaphragm or wall adapted to be engaged by a point or projection on the device to which the capsule is to be applied, so as to open the passage through the plug and thereby allow the gas to escape from the capsule, and said plug being readily removable after the gas has been liberated from the capsule, whereby the latter can be refilled and used again, substantially as described.

6. A gas-capsule provided with an opening, a metal plug inserted in said opening and having its inner end expanded or clenched to prevent the pressure of the gas from forcing it out, the said plug being formed with a penetrable diaphragm and being readily removable, so as to permit the capsule to be refilled and used again, substantially as described.

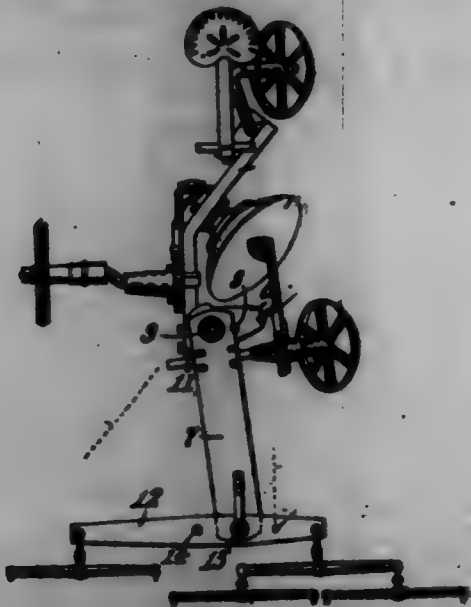
7. A gas capsule formed with arrow-threaded and polygonal portions and with a penetrable end and adapted for use in charging or aerating beverages in bottles, substantially as and for the purpose set forth.

8. A gas-capsule adapted for use in charging or aerating beverages in bottles and having its opening sealed by a removable metal plug having a head limiting its insertion therein and expanded or clenched at its inner end to an extent to properly seal the said opening but not to an extent to prevent the ready withdrawal of the plug for the purpose of permitting a refilling of the capsule.

9. A gas-capsule adapted for use in charging or aerating beverages in bottles and having its opening sealed by a removable plug formed with a head limiting its insertion in said opening and with laterally-projecting portions which prevent the pressure from forcing the plug out of place, substantially as described.

10. A gas-capsule adapted for use in charging or aerating beverages in bottles and constructed with a suitable opening, an abutment or deflecting-surface arranged at the inner end of said opening, a sealing-plug having a headed outer end and a bifurcated inner end, said plug being inserted in said opening and having its said inner end spread or deflected laterally by said abutment or deflecting-surface arranged at the inner end of said opening, substantially as described.

696,984. DISK PLOW. JOHN E. W. LOMB, Hamilton, Ohio, assignor to the Long & Altmeyer Company, Hamilton, Ohio. Filed Feb. 17, 1902. Serial No. 94,364. (No model.)



Claim.—In a disk plow, the combination, substantially as set forth, of a beam, a plow-disk obliquely mounted thereon, a hand-wheel, a furrow-wheel, a beam-head having a pivot-hole substantially in the forward-end line of travel of the disk and having another pivot-hole to the backward of the first-mentioned one, a short tongue adapted to have its rear end pivoted at either of said holes in the beam-head, a furrow-wheel carried by the tongue, steps to limit the swinging of the tongue upon the beam-head, a pivot at the forward end of the tongue, and an overer provided with two holes adapted for alternative pivotal connection with the forward end of the tongue, one of said holes being located at the mid-length of the overer and the other at one third its length from the forward end, said overer being adapted for a singletree at its backward end and for either a singletree or a doubletree at its forward end.

696,985. ENVELOP. JONATHAN LORAN, Charleston, S. C. Filed Nov. 21, 1901. Serial No. 84,365. (No model.)

Claim.—1. An envelop having closed sides and ends, composed of two sections, one of said sections having closed sides and an open end opening into said other section, the sides of said sections having an open-

ing in one of its sides, and an opening in its end communicating with said closed section at one end and a folding-line between the sections whereby material contained in said envelop may be slid into said closed section for self-keeping and into said section having the open side to display the contents of said envelop through said opening.



2. An envelop having closed sides and ends, foldable between its ends and having an opening in one side between the center and one end thereof, whereby two sections are formed, one of which is adapted to contain the contents of the envelop and into the other of which the contents are adapted to be moved to display the same.

3. An envelop having closed sides and ends, a folding-line between its ends and having an opening in its inner side between the fold and one end thereof, whereby an envelop is formed one section of which is capable of containing material and the other section of which is adapted to display the material when the material is moved to that section and means for securing the two sections of the envelop in their folded position.

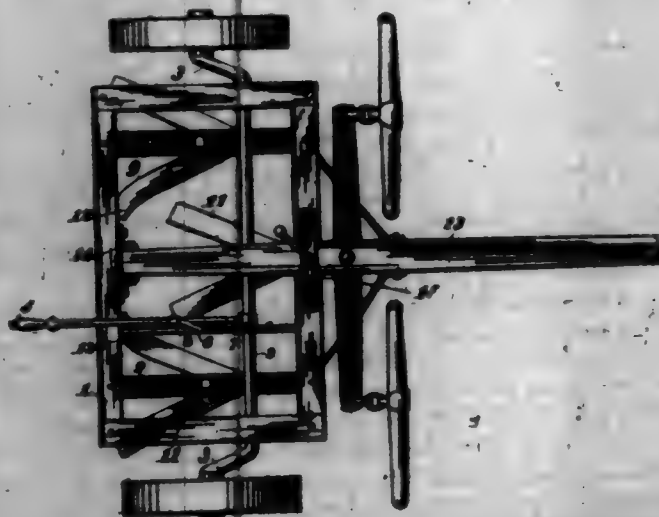
4. An envelop having closed sides and ends comprising a closed section and a section having an opening in one side thereof, a folding-line between the sections whereby an envelop is formed, one section of which is capable of securely holding the material and the other section of which is adapted to display the material, when the material is moved into that section and means for securing the two ends of the envelop in their folded position.

5. An envelop having closed sides and ends comprising a closed section and a section having an opening in one side thereof, said opening being smaller than said section, whereby an overhanging edge is formed around said opening and a folding-line between said sections, whereby an envelop is formed, one section of which is adapted to securely hold material placed therein and the other end of which is adapted to display without loss the material contained in said envelop, when the same is moved into that section.

6. An envelop having closed sides and ends comprising a closed section and a section having an opening in one side thereof, said two sections communicating, said opening being smaller than said section, whereby an overhanging edge is formed around said opening, and a folding-line between the sections, whereby an envelop is formed, one section of which is adapted to securely hold the contents thereof, and the other section of which is adapted to display without danger of loss the contents when they are moved to that section.

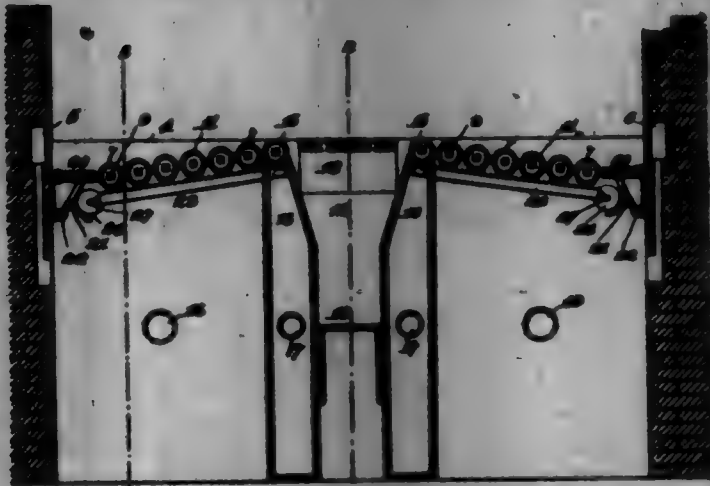
7. An envelop having closed sides and ends comprising a closed section and a section having an opening in one side thereof, said two sections communicating, said opening being smaller than said section, whereby an overhanging edge is formed around said opening, and a folding-line between the sections, whereby an envelop is formed, one section of which is adapted to securely hold the contents thereof, and the other section of which is adapted to display without danger of loss the contents when they are moved to that section, with means for securing the two ends of the envelop to their folded position.

696,986. IMPLEMENT FOR DESTROYING PLANTS. JOHN LUDWIG and JOHN CARSTEN, Newtonburg, Wm. Filed Sept. 27, 1901. Serial No. 76,740. (No model.)



Claim.—In an implement of the character as described, a series of cutting-blades suitably carried, the middle cutting-blade having straight cutting edges, the side cutting-blades having their inner rear cutting edges curved in behind the cutting edges of the middle cutting-blade.

696,987. FURNACE. JOHN HANCOCKMAN, BRYAN, N. J., assignor to Royal C. Fawcett, Brooklyn, N. Y. Filed Dec. 20, 1900. Serial No. 41,022. (No model.)



Claim.—1. In a furnace, the combination with an air-supply bar, of a hallow perforated rotatable tray partially surrounded by said bar but extending out of the same, substantially as set forth.

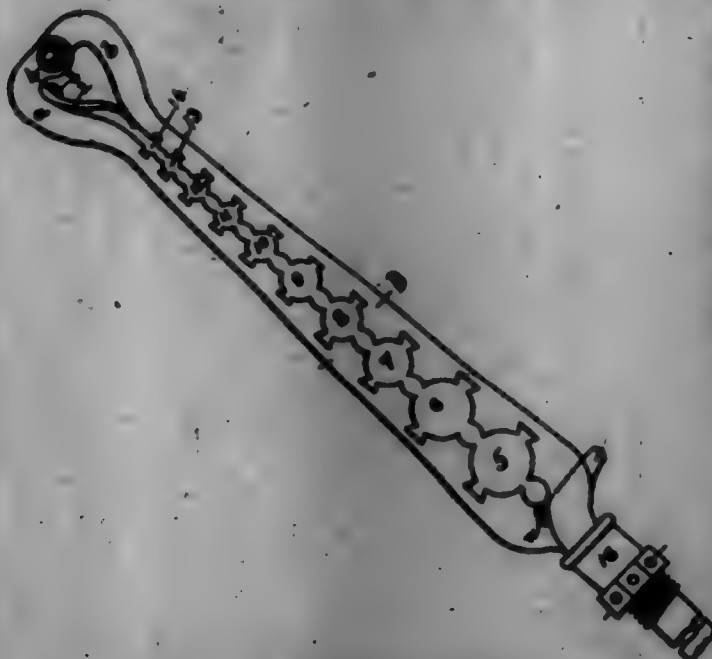
2. In a furnace, the combination with a magazine and means for forcing fuel vertically upward through the same so that the fuel piles over its side, of a series of hallow rotating grate-bars extending substantially in line with the upper edge of the magazine and onto which the fuel therefrom flows, and a hallow rotary tray interposed between the fuel-magazine and said grate-bar, substantially as and for the purposes set forth.

3. In a furnace, the combination with a magazine and means for forcing fuel upwardly through the same so that the fuel piles over the side of the magazine, of two sets of rotary grate-bars extending substantially in line with said sides and on which the fuel from the magazine flows, and a hallow rotary tray interposed between each side of said magazine and the adjacent grate-bar, substantially as and for the purposes set forth.

4. In a furnace, the combination with a series of rotatable grate-bars arranged side by side, of a toothed bar for engaging said grate-bars, and continuously-operating means for advancing said toothed bar into engagement with the grate-bars, advancing the same to rotate said bars and then withdrawing the toothed bar from engagement with the grate-bars.

5. In a furnace, the combination with a series of rotatable grate-bars, arranged side by side, of a toothed bar for engaging said grate-bars, and a rotating shaft carrying an eccentric for moving said toothed bar into engagement with the grate-bars, advancing the same to rotate said bars, and then withdrawing the toothed bar from engagement with the grate-bars.

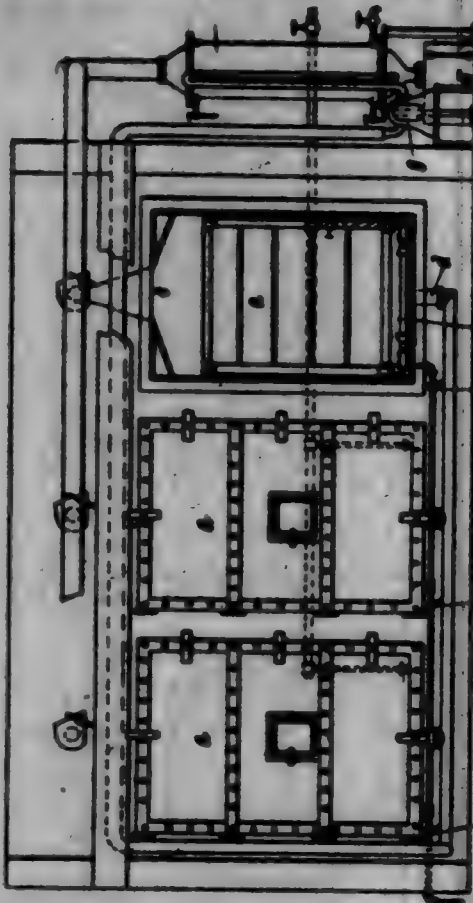
696,988. THREAD-CUTTER. ALBERT B. HANMER, Yale, Conn. Filed Aug. 5, 1901. Serial No. 78,000. (No model.)



Claim.—In a thread-cutter of the character described, the combination of two thread-cutting members pivotally connected, a spring to normally force said members apart, a handle extending from one of said members, said handle being provided with a threaded portion and an opening extending transversely through said threaded portion, said remaining member being provided with a projecting ear adapted to pass through said

opening and a wedge-shaped termination adapted to fit into said transverse opening, and a nut upon said threaded portion adapted to engage said wedge-shaped termination, as and for the purpose set forth.

696,989. METHOD OF DRYING HATS. JAMES HANNAH, Fox River, Mass. Filed Apr. 4, 1901. Serial No. 54,381. (No specimens.)



Claim.—1. The method of drying hats, consisting in subjecting the moist hats to a moderate temperature in a confined space, gradually raising the said temperature to a maximum, and simultaneously withdrawing the vapors evolved from the moist hats, substantially as described.

2. The method of drying hats, consisting in subjecting the moist hats to a moderate temperature in a confined space, passing a current of air through the confined space and about the hats therein, increasing the temperature in the confined space by successive uniform stages to a maximum, and removing the hats from the confined space, substantially as described.

3. The method of drying hats, consisting in subjecting the moist hats to a temperature at or about 100° Fahrenheit, withdrawing the vapors evolved from the hats by a current of air, condensing the vapors from the current of air, and simultaneously increasing the temperature in the confined space by successive uniform stages to a maximum of 130° or 140° Fahrenheit, substantially as described.

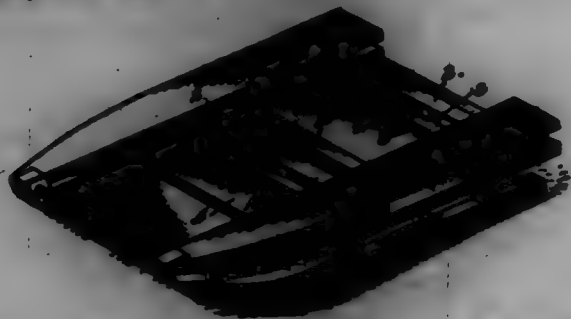
4. The method of drying hats, consisting in surrounding the moist hats by a body of air at a moderate temperature in a confined space, withdrawing this air and the vapors evolved from the hats, condensing the vapors from the air as withdrawn, replacing with dry air the portions of air withdrawn, and gradually raising the temperature of the body of air surrounding the hats by successive uniform stages to a maximum, substantially as described.

696,990. SPINNING DEVICE. GEORGE W. HERRICK and ADOLF HERRICK, Hartford, Conn., assignors to Frederick C. Packard, West Hartford, Conn. Filed Apr. 17, 1901. Serial No. 54,384. (No model.)



Claim.—A spinning device consisting of a frame-like handle, a spindle extending through and rotarily held by portions of the handle and having its outer end threaded, a spirally-twisted elastic connection between the inner end of the spindle and the end of the handle, and a cord attached to and wound about a portion of the spindle for rotating the spindle against the twist of the elastic connection, substantially as specified.

696,991. DOD-GEED. JOHN C. MYERS, Centerville, Mich. Filed Oct. 19, 1901. Serial No. 79,330. (No model.)



Claim.—1. The combination with a sled, having brackets secured thereto, of a guard comprising a body portion and a front, said front being upwardly turned and cut out to permit of the draft appliance being attached to the draft-bar, means for attaching said front to the draft-bar, and slotted cleats secured transversely to said body portion.

2. As an article of manufacture, a sled-guard comprising a body portion, an upturned front having a central opening and secured to the body portion, and a transverse cleat provided with a draft attachment.

3. The combination with a sled, of L-shaped brackets secured to the cross-bars thereof, a guard, and cleats transversely arranged on the guard and having slots through which extend the horizontal members of said brackets to secure the guard in position.

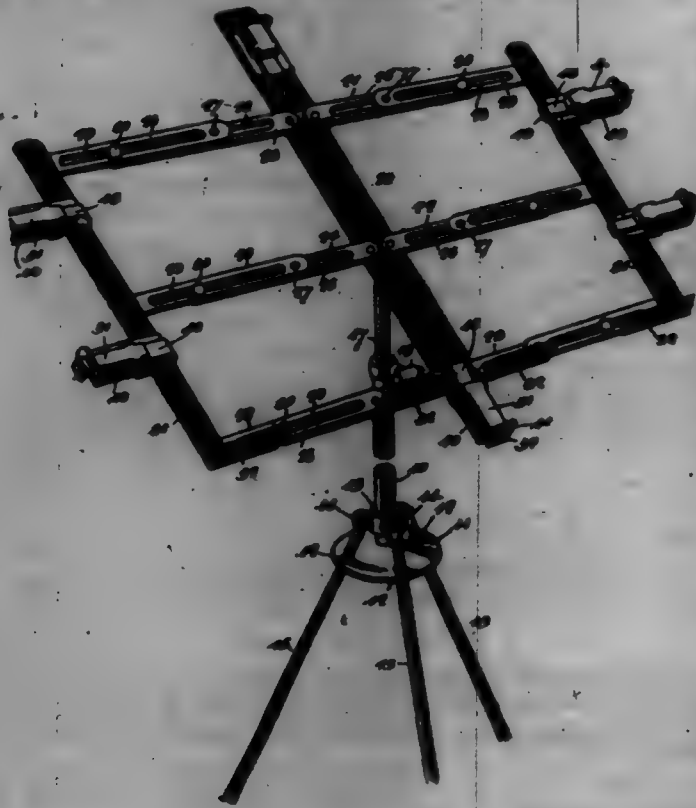
696,992. HOLLOW SEAMLESS RUBBER ARTICLE. THOMAS W. MILLER, Akron, Ohio. Filed Jan. 29, 1902. Serial No. 91,903. (No model.)



Claim.—1. As an article of manufacture, a hollow rubber article having a narrow elongated open neck or stem formed integral therewith and projected into the interior of said article, substantially as set forth.

2. As an article of manufacture, a hollow rubber article having a narrow elongated open neck or stem formed integral therewith and projected into the interior of said article, the walls of said neck or stem substantially contacting and adapted to be cemented together to close said opening, substantially as set forth.

696,993. MUSE-RACK. BENJAMIN W. HILL, Boston Harbor, Mass. Filed Feb. 1, 1900. Serial No. 4,309. (No model.)



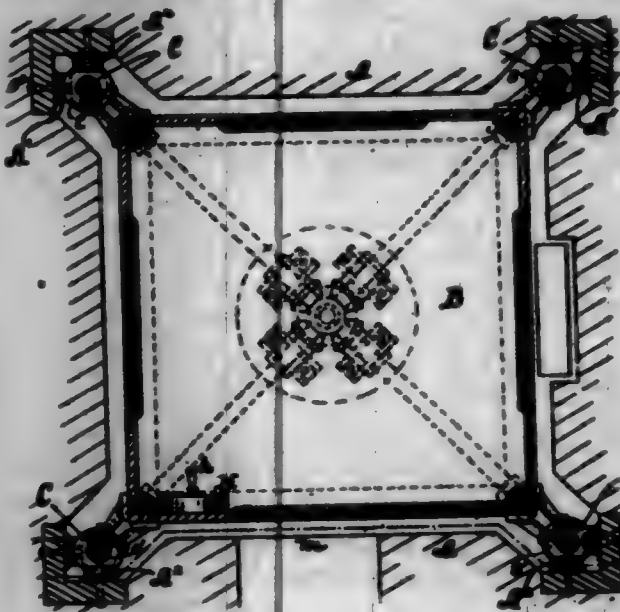
Claim.—1. A music-rack comprising a central plate having members pivoted thereto and spaced inwardly from the ends thereof, additional members slidably connected with the first members for movement to lie thereover to fold therewith over the central plate, plates pivoted to the outer ends of the second members for movement therewith to lie over the central plate, flanges upon the lower members, the flanges of the lower members terminating short of the central plate, and clips mounted upon the end portions of the central plate beyond the pivoted members, the lower clip being adapted for movement inwardly between the flanges and beyond the members to engage music upon the members, the upper clip being slidably mounted for movement toward and away from the flanges.

2. A music-rack comprising a central plate having arms pivoted thereto for movement to lie thereon, additional arms slidably connected with the first arms to lie thereon, and plates pivoted to the outer ends of the second arms for movement therewith to lie over the central plate, and music-holding clips pivoted upon the outer plates for movement to project therebeyond or to fold to lie thereon and longitudinally thereof.

3. A music-rack comprising a central plate, arms pivoted to the plate for movement to lie thereon, and the lower arms having supporting-flanges, said plate extending beyond the upper arms, and means connected with the extension of the plate for holding music upon the rack, said holding means being adjustable toward and away from the supporting-flanges.

4. A music-rack comprising a central plate having supporting-arms pivoted thereto for movement to lie thereon, said plate extending beyond the arms and having a slot therein, and a music-holding clip slidably engaged with the slot of the extension to hold music upon the rack.

696,994. ELEVATOR. AUGUST H. MOORE, Brooklyn, N. Y. Filed Apr. 10, 1901. Serial No. 65,139. (No model.)



Claim.—1. The combination with an elevator-wall; pairs of vertical rows of rollers journaled upon the walls thereof near the corners of said wall, one row of each pair having its journals arranged at right angles to the journals of the other row of the same pair; of a carriage adapted to move in said wall; vertical screws journaled upon said carriage, and each screw adapted and arranged to engage the rollers, in both rows of one of said pairs of rows; and mechanism for actuating said screws, to move said carriage, substantially as shown and specified.

2. The combination with an elevator-wall; pairs of vertical rows of rollers journaled upon the wall thereof, one row on each side of a corner thereof, near said corner, and arranged so that the journals of the row on one side of the corner will be at right angles to the journals of the row on the other side of the corner; of a carriage adapted to move in said wall; vertical screws journaled on said carriage, and each screw adapted and arranged to engage the rollers in both rows of one pair of said rows of rollers; an electric motor fastened on the bottom of said carriage; mechanism connecting said motor with said screws, whereby it is enabled to turn said screws, and move said carriage; and connections whereby said motor is supplied with an electric current, all substantially as and for the purpose set forth.

3. The combination with an elevator-wall; pairs of vertical rows of rollers journaled upon the wall thereof, one row on each side of a corner thereof, near said corner, and arranged so that the journals of the row on one side of the corner will be at right angles to the journals of the row on the other side of the corner; of a carriage adapted to move in said wall; vertical screws journaled on said carriage, and each screw adapted and arranged to engage the rollers in both rows, of one of said pairs of rows of rollers, an electric motor mounted upon the bottom of said car-

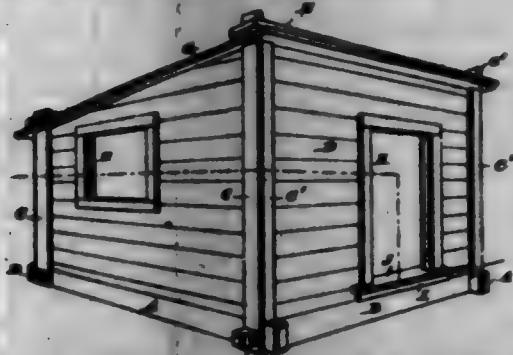
ribs and moving therewith; mechanism comprising shafts and wheels, as specified, connecting said motor with said screws, and enabling it by turning said screws to move said carriage; an electric generator, conductors connecting said generator with said motor; and means for controlling the electric current flowing from said generator in said motor; all substantially as and for the purpose set forth.

686,995. HANDLE FOR A NUMBER OF IMPLEMENTS. THOMAS G. HONER, Elm College, N. C. Filed May 4, 1901. Serial No. 53,713. (No model.)



Claim.—A handle adapted to contain a number of implements having the front and back edges parallel and the sides from about the center to near the rear ends transversely projected and parallel, and a straight partition-strip extending centrally through the handle from end to end and parallel with the major portions of the sides.

686,996. PORTABLE HOUSE. CHARLES F. HOTT, Elbert, Pa. Filed Apr. 23, 1901. Serial No. 57,666. (No model.)



Claim.—1. In a portable house, the combination of wall-boards laid longitudinally and having beveled ends, corner-uprights into which the beveled ends of the wall-boards are inserted, and means for connecting said uprights, whereby close joints are formed at the corners and the wall-boards held against lateral displacement, substantially as set forth.

2. In a portable house, the combination of wall-boards arranged to form miter-joints at the corners, rectangular corner-uprights within which the miter-joints are formed, and means for connecting said uprights, substantially as set forth.

3. In a portable house, the combination with the wall-sills, walls and roof-boards, of uprights secured to the sills for securing the wall-boards, said uprights having projections extending above the roof-boards, and tie-boards extending across the roof-boards for securing the uprights together and for holding down the roof-boards, substantially as set forth.

4. In a portable house, the combination with wall-sills, walls, and roof-boards, of uprights secured to the sills for securing the wall-boards, said uprights having projections extending through slots in the end roof-boards, and tie-boards extending across the roof-boards and provided with slots through which said projections also extend, and means for securing said tie-boards in position, substantially as set forth.

5. In a portable house, the combination of wall-sills A, B, having mortised joints, the tenons b of sill-pieces B projecting through sill-pieces A, corner-uprights consisting of rectangular pieces having mortised extensions c engaging tenons b, said uprights securing the wall-boards in position, and extensions d projecting above the roof-boards, tie-boards extending across the roof-boards and mortised to said uprights, and means for securing the mortised joints, substantially as set forth.

6. In a portable house, the combination of wall-sills A, B, having mortised joints, the tenons b of sill-pieces B projecting through sill-pieces A, corner-uprights consisting of rectangular pieces having mortised extensions c engaging tenons b, said uprights securing the wall-boards in position, and extensions d projecting through slots in the end roof-boards, tie-boards extending across the roof-boards and provided with slots through which said extensions d also extend, and means for securing all joints, substantially as set forth.

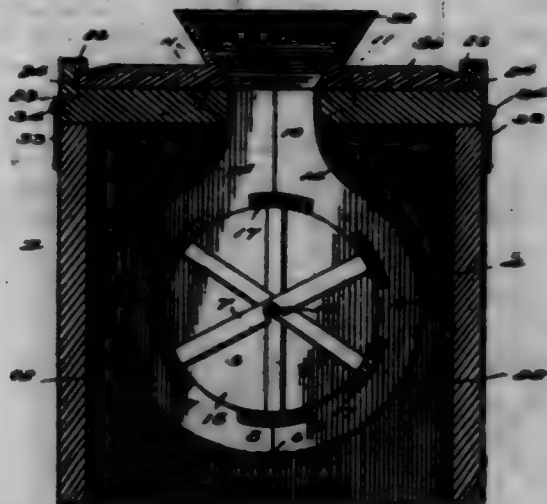
7. A door-sill for portable houses, consisting of a sub sill cut to fit wall-boards having beveled ends and having means for holding it in position, and a slotted top sill, the projections formed by the slots at both ends extending on opposite sides of the wall-boards, substantially as set forth.

8. A door-sill having in combination separable interlocking jamb, hotel and sill pieces, substantially as set forth.

9. A door-sill having in combination separable interlocking jamb, hotel and sill pieces, and said jamb-pieces being interchangeable and reversible, whereby a door hung to either of the jamb-pieces may be arranged to swing in different directions without rearranging the hinges on the jamb, substantially as set forth.

10. In a portable house, the combination with the walls, of a roof formed of separable tongue-and-grooved boards, said tongues and grooves being provided with interlocking means to prevent relative longitudinal movement of the boards, substantially as set forth.

686,997. SIFTER. JOSEPH E. MYLLER, Oak, Ill. Filed July 11, 1901. Serial No. 57,397. (No model.)



Claim.—1. In a sifter, the combination with a body; of a sieve arranged therein and provided with an upwardly-extending throat; a sectional top arranged upon said body and embracing the throat of the sieve, the sections of said top being provided with upwardly-extending flanges having overhanging ribs; a cover fitting beneath said ribs and provided with a hopper registering with the throat of the sieve, and a reel journaled in the sieve.

2. In a sifter, the combination with a body; of a sieve arranged therein and comprising a pair of sections hinged together; said sieve being provided with an upwardly-extending throat; a reel journaled within said sieve; a top arranged upon said body and embracing the throat of the sieve, said top being provided with a pair of upwardly-extending flanges having overhanging ribs; and a cover arranged beneath said ribs and provided with a hopper registering with the throat of the sieve.

3. In a sifter, the combination with a body; of a sieve arranged therein and formed of hinged sections, a sectional top carried by the casing and embracing the sieve and serving to hold the sections together and a reel in said sieve.

4. In a sifter, the combination with a body; of a sieve arranged therein and formed of hinged sections, the upper ends of said sections forming a throat, a sectional top carried by the body and embracing the throat of the sieve whereby the hinged sections are held together, and a reel in said sieve.

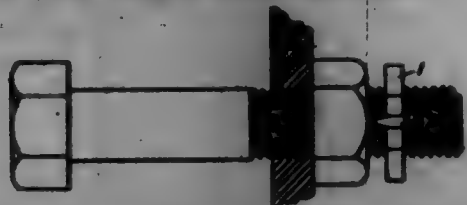
5. In a sifter, the combination with a body; of a sieve arranged therein and formed of hinged sections, the upper ends of said sections forming a throat, outwardly-extending lugs to the throat, a sectional top arranged upon said body and embracing the throat of the sieve whereby the sections thereof are held together, the sections of said top being provided with notches adapted to receive the outwardly-extending lugs carried by said throat and support the sieve, and a reel in said sieve.

6. In a sifter, the combination with a body; of a sieve arranged therein and comprising a pair of sections hinged together, a reel arranged within said sieve, and a top upon the body embracing and supporting the sieve and adapted to hold the hinged sections together.

7. In a sifter, the combination with a body; of a sieve arranged therein and comprising a pair of sections hinged together, said sieve being provided with an upwardly-extending throat, a reel journaled within said sieve, and a top arranged upon the body and embracing the throat of the sieve and adapted to support the same and hold the hinged sections together.

8. In a sifter, the combination with a body having a slot at each end; of a sieve arranged within said body and formed of hinged sections, a reel journaled within said sieve, a shaft thereto extending through said slots, securing-blocks arranged within said slots and fitting upon said shaft, and a top arranged upon the body and removably secured thereto, said top engaging the sieve and adapted to support the same and hold the hinged sections together.

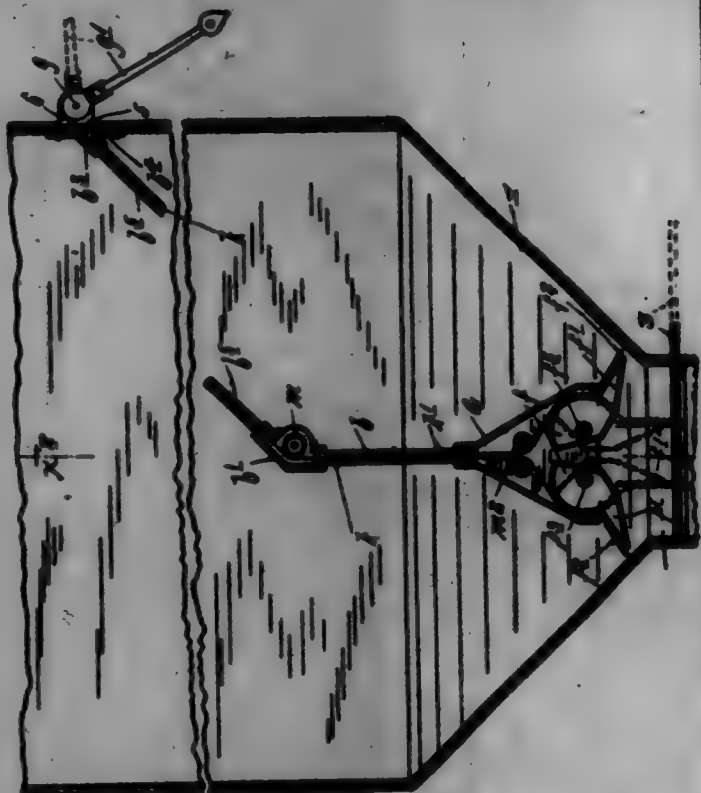
696,998. NUT-LOCK. NORMAN J. HOLMAN, West Bay City, Mich. Filed Oct. 4, 1901. Serial No. 77,699. (No model.)



Claim.—1. A nut-lock comprising an internally-threaded elastic washer, having a slit extending from the periphery to the threaded hole; together with a key inserted in said slit to hold its edges normally apart, said key having a parallel-sided upper portion and a blunt wedge-point, substantially as described.

2. A nut-lock comprising an internally-threaded polygonal spring-washer having a slit extending from the periphery to the threaded hole, the sides of said slit being normally wedged apart; together with a wedge adapted to be released from the washer, by contact with the nut to be locked, when the washer is screwed down upon the nut, substantially as described.

696,999. GRAIN-FLOW INDICATOR. CHARLES C. BRALL, Minneapolis, Minn. Filed June 10, 1901. Serial No. 62,562. (No model.)



Claim.—1. The combination with a hopper or grain-receptacle having a discharge-opening in its bottom, of an indicator or compass at the exterior of the hopper, and an actuator for said indicator located within said hopper, near the bottom thereof, and in the vicinity of the discharge-opening thereof, which actuator has a connection to said indicator and is subject to the flow of the grain in the discharging action, substantially as described.

2. The combination with a hopper or grain-receptacle, of an indicator or compass, and a pair of independently-movable indicator-actuators located within said hopper and subject to the outward flow of the grain therefrom, both of which actuators have connections for action on said indicator, substantially as described.

3. The combination with a hopper or grain-receptacle, of a compass pivoted at the exterior thereof, and an actuator for said compass comprising a pivotally-mounted blade with connections to said compass mounted within said hopper, in the vicinity of the bottom discharging-opening thereof, substantially as described.

4. The combination with a hopper or grain-receptacle, of a compass pivoted at the exterior thereof, a pair of independently-movable actuating-blades pivoted within said hopper in the vicinity of the bottom discharge-opening thereof, and flexible connections between said actuator blades or members and said compass, substantially as described.

5. The combination with a hopper 1, of the flattened shield a, tubular connections extending from the said shield a to the side of the hopper, the compass g pivoted to the exterior of said hopper, the independently-mounted chases f having exposed blades f', the flexible connections k attached to the hub of said arm g' and provided at the lower end with the strands h connected, one to each of the chases f, and sub-

stantially as described.

6. The combination with a hopper or grain-receptacle having a discharge-opening in its bottom, of an indicator or compass at the exterior of said hopper, a pivoted or hinged actuating-blade mounted within said hopper, near the bottom thereof, and in the vicinity of this discharge-opening, and a flexible connection between said actuating-blade and said indicator, substantially as described.

697,000. APPARATUS FOR APPLYING RUBBER TIES TO VEHICLE-WHEELS. JOHN BRANT, Kokomo, Ind., assignor to the Kokomo Rubber Company, Kokomo, Ind., a Corporation of Indiana. Filed June 2, 1901. Serial No. 62,524. (No model.)



Claim.—1. A machine of the character described, comprising a bed-plate, two sets of wire clamping or holding devices thereon, a ratchet-bar mounted to slide on the bed-plate tangentially to the wheel and provided with a wire-gripping device, and a tension-lever pivotally connected with the bed-plate and provided with a pawl to engage the ratchet-bar, substantially as described.

2. A machine of the character described, comprising a bed-plate, two sets of wire clamping or holding devices thereon, a ratchet-bar mounted to slide on the bed-plate tangentially to the wheel and provided with a wire-gripping device, a tension-lever pivotally connected with the bed-plate and provided with a pawl to engage the ratchet-bar to move the same in one direction, and a detent to prevent movement of the bar in the opposite direction, substantially as described.

3. A machine of the character described, comprising a bed-plate, two sets of wire clamping or holding devices thereon, a ratchet-bar mounted to slide on the bed-plate tangentially to the wheel and provided with a wire-gripping device, a tension-lever pivotally connected with the bed-plate and provided with a pawl to engage the ratchet-bar to move the same in one direction, and a series of detent-pawls of differing lengths to prevent movement of said bar in the opposite direction, substantially as described.

4. A machine of the character described, comprising a bed-plate, two sets of wire clamping or holding devices thereon, a ratchet-bar mounted to slide on the bed-plate tangentially to the wheel and provided with a wire-gripping device consisting of a fixed jaw having legs, a movable jaw guided by said legs, a pivot-bolt connecting said legs, and a cam mounted on said pivot-bolt and provided with a hand-lever, and a tension-lever pivotally connected with the bed-plate and provided with a pawl to engage the ratchet-bar, substantially as described.

5. A machine of the character described comprising a bed-plate having wire holding or clamping devices, a bracket mounted on said bed-plate and having a pair of upstanding legs at each end, a pivot-bolt connecting each pair of legs, a tension-lever mounted on one of said bolts and having a pawl, a detent-pawl mounted on the other bolt, and a ratchet-bar provided with a gripping device and sliding between the legs, substantially as described.

6. In a machine of the character described, a wire-clamping device comprising a body having an extension forming the fixed jaws, pivoted levers provided with the movable jaws and having inclined ends, and a disk having a screw-thread and operating between the inclined ends of the levers, substantially as described.

7. In a machine of the character described, a wire holding or clamping device comprising a yoke having a projection extending in one direction and forming the fixed jaws, and a threaded extension in the opposite direction, a disk mounted on said last-mentioned extension and having a feeding device engaging the thread thereof, and levers pivoted on opposite sides of the yoke and having the movable jaws at one end, and inclined bearing-surfaces for the disk at the other end, substantially as described.

8. A machine of the character described, comprising a dotted bed-plate, a tension device mounted thereon, a dotted bracket straddling the dot of the bed-plate, and wire holding or clamping devices mounted at each end of the bracket, substantially as described.

697,001. INSULATOR. WILLIAM E. FIDELLA, Birmingham, VI., assignor of one-half to Elmer E. Larrabee, Birmingham, VI. Filed Dec. 8, 1901. Serial No. 84,922. (No model.)



Claim.—1. An insulator composed of interchangeable members, both members being freely reversible, and each member substantially cylindrical and cut away at one side to form a shoulder having a V-shaped groove at its inner terminal and an outer similarly-shaped groove at a higher elevation than the former groove and provided with a series of transverse corrugations, a table extending upwardly from the shoulder at an angle of inclination and dividing the member into two parts, and interlocking projections disposed on opposite sides of the table, the latter having a central vertically-disposed opening extending therethrough.

2. An insulator composed of interchangeable and reversible members each of which is formed with upper and lower grooves, and a central upwardly-inclined table with an opening therethrough, interlocking projections being disposed on opposite sides of the table and having inverted-V-shaped apices.

3. An insulator composed of interchangeable and reversible members, each member having upper and lower grooves with transverse corrugations, and an intermediate groove of V-shaped form, a central upwardly-inclined table intersecting the intermediate V-shaped groove and having an opening extending vertically therethrough, and projections rising from the member at opposite sides of the table and provided with inverted-V-shaped apices.

4. An insulator composed of interchangeable and reversible members, said members having transversely-corrugated grooves at different elevations adapted to coincide with similar structures, an intermediate groove, and projections extending upwardly on opposite sides of the center, and having terminals to engage the said intermediate grooves.

5. An insulator composed of interchangeable and reversible members, said members having transversely-corrugated grooves at different elevations adapted to coincide, intermediate grooves in the said members, and interlocking devices on one side of the intermediate grooves.

697,002. COMBINATION TELEPHONE INSTRUMENT. JAMES S. BOLAN, Chicago, Ill. Filed Aug. 7, 1901. Serial No. 71,318. (No model.)

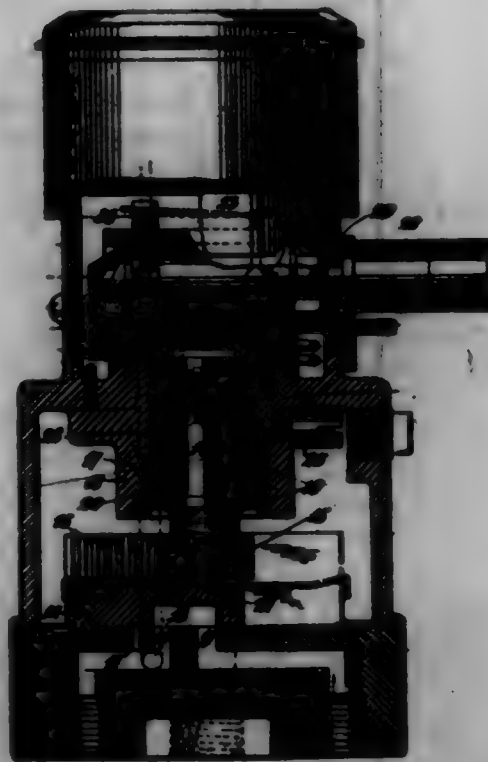


Claim.—1. A self-contained, combination telephone instrument comprising a base, a generator mounted on said base, a call-bell and indu-

tion-coil mounted on said generator, a switch-hook mounted on said base, and terminal binding-screws on said base for each element of said combination, substantially as set forth.

2. A self-contained, combination telephone instrument, comprising a base of insulating material, a current-generator mounted thereon, a switch-hook mounted on an extension of said base, an induction-coil supported between the magnets of said generator, a call-bell ring supported by said magnets between the poles thereof and said induction-coil and terminal binding-screws on said base for each element of said combination, substantially as set forth.

697,008. AIR-BRAKE. JOHN E. FURMAN, Watertown, N. Y. Filed May 4, 1900. Serial No. 15,488. (No model.)



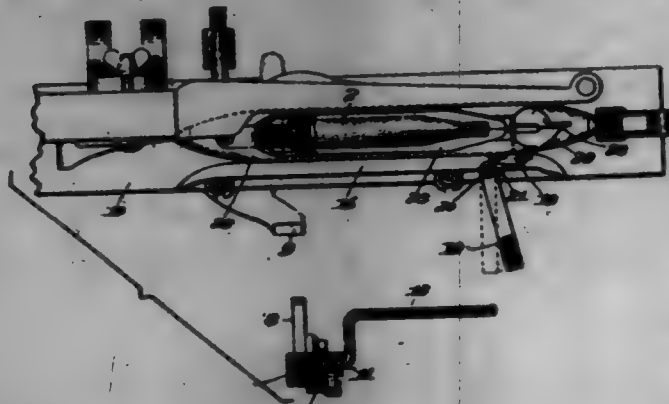
Claim.—1. In an operating-valve, the combination with a valve-casing having a plurality of ports, and a valve therein adapted in its movement to open and close said ports, of a rotatable operating-head adapted in its movement axially to operate the said valve, a removable handle adapted in its engagement with and disengagement from the rotatable operating-head at a certain predetermined intermediate position thereof, and a spring, one end of which is secured to a fixed support and the other end of which is adapted to rest against a fixed support during a movement of the said operating-head in one side of its said predetermined intermediate position and to be carried by the said operating-head during its movement to the other side thereof.

2. In an operating-valve, the combination with a valve-casing having a plurality of ports, and a valve therein, adapted in its movement to open and close the said ports, of a rotatable operating-head adapted in its movement axially to operate the said valve, a coil-spring, one end of which is secured to a fixed support and the other end of which is adapted to rest against a fixed support during a partial movement of the said operating-head and to be carried by the said operating-head during another part of its movement.

3. In an operating-valve, the combination with a valve-casing having a plurality of ports, and a valve therein, adapted in its movement to open and close the said ports, of an operating-head adapted in its movement axially to operate the said valve, a coil-spring one end of which is secured to the said casing and the other end of which is adapted to engage with a projection in said casing during a partial movement of the operating-head and to be picked up and carried by a projection on the operating-head, during another portion of its movement.

4. In an operating-valve, the combination with a valve-casing having a plurality of ports, and a valve therein, adapted in its movement to open and close the said ports, of a rotatable operating-head adapted in its movement axially to operate the said valve, a removable handle adapted to engage with the rotatable operating-head, locking mechanism whereby the valve may be automatically locked in an intermediate position upon the removal of the handle and a spring arranged to return the valve to such intermediate position from its movement in one direction, said spring arranged to have the valve free to move in either direction upon the opposite side of said intermediate position.

687,004. FILLING-REPLENISHING LOOM. JONAS NORTHER, Hopdale, Mass., assignor to Draper Company, Hopdale, Mass., a Corporation of Maine. Filed July 2, 1901. Serial No. 67,437. (No model.)



Claim.—1. In a loom, the lay, an automatically self-threading shuttle adapted to contain a supply of filling, a normally inoperative actuator mounted on the shuttle and having a finger transverse to the path of and automatically engaged by the filling when a fresh supply is inserted in the shuttle, and a body adapted to project laterally beyond the shuttle side when breakage or exhaustion of the filling releases the finger, filling-replenishing mechanism, to insert a supply of filling in the shuttle and means to control its operation, including a dagger pivotally mounted on the lay and having a part in the path of the actuator-body when the latter is operative, to move the dagger into operative position by the shuttle as it reaches the end of its throw.

2. In a loom, the lay, a shuttle, a filling-carrier therein with a supply of filling, a normally inoperative actuator mounted on the shuttle, controlled by the filling-thread between the filling-carrier and the shuttle-eye and movable into operative position by breakage or exhaustion of the filling, filling-replenishing mechanism, located at one side of the loom, and means to control the operation of said mechanism, including a dagger mounted on the lay at the end adjacent said mechanism, the actuator when operatively positioned engaging and rendering the dagger operative by the completion of the shuttle movement into the adjacent shuttle-box, and a dog moved into active position by the dagger at each time as the lay beats up.

3. In a loom, the lay, a shuttle adapted to receive a supply of filling, a device at one end of and to thread the shuttle automatically when filling is inserted, an actuator mounted on the shuttle adjacent the threading device and automatically engaged and normally held inoperative by the filling while intact, mechanism to automatically insert a supply of filling in the shuttle, and means to control its operation, including a dagger mounted on the lay and having a part in the path of the actuator, if operatively positioned by or through breakage or exhaustion of the filling, engagement of the dagger and actuator rendering the former operative when the shuttle has been completely beamed.

4. In a loom, the lay, an automatically self-threading shuttle adapted to contain a supply of filling, an actuator on the shuttle, having its outer end movable in a slot in the side wall of the shuttle and automatically engaged and maintained in inoperative position by the filling while intact, a filling-feeder, a transferer, means to operate it to transfer a supply of filling from the feeder to the shuttle, said means including a normally inoperative dog, and positioning device for the dog, actuated by or through the actuator when in abnormal, operative position, as the shuttle completes its throw and is properly beamed at the end of the lay adjacent the filling-feeder.

5. In a loom, the lay, an automatically self-threading shuttle adapted to contain a supply of filling, a filling actuator mounted on the shuttle and having its inner end extended across the filling-thread and automatically engaged thereby upon entrance of a fresh filling-supply, and having its outer end extended through an opening in the shuttle side, said actuator being maintained inoperative by the intact filling, filling-replenishing mechanism at one side of the loom, to insert a fresh supply of filling in the shuttle, a shuttle-box on the adjacent end of the lay, having an aperture in its front wall, and controlling means for the said mechanism, including a dagger pivotally mounted on the lay and having a foot extended through the aperture in the shuttle-box wall, the actuator when released by breakage or exhaustion of the filling engaging the foot as the shuttle reaches the end of its throw, thereby turning the dagger into position to cause the operation of the filling-replenishing mechanism as the lay beats up.

6. In a loom provided with filling-replenishing mechanism, means for controlling its operation, including a dagger on the lay, and a dog having an arm to be engaged by the dagger to operatively position the dog, the lay, a bumper thereon to engage the dog when operatively positioned, and effect operation of the filling-replenishing mechanism on the

forward beat of the lay, a shuttle adapted to contain a supply of filling, and an actuator mounted thereon and maintained inoperative by intact filling, release of the actuator causing it to engage and operatively position the dagger as the shuttle reaches the end of its throw at the same end of the lay.

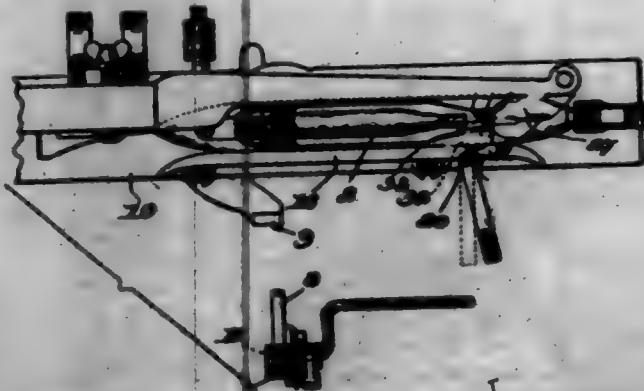
7. In a loom, filling-replenishing mechanism located at one side of the loom, means to control its operation, including a dagger mounted on the lay at the end thereof adjacent said mechanism, a take-up, the lay, a shuttle adapted to contain a supply of filling, an actuator mounted thereon and maintained inoperative by intact filling, and means, to prevent operation of the take-up, including a movable bumper mounted on the lay at the end furthest from the replenishing mechanism, the shuttle when properly beamed at the replenishing side of the loom acting through the actuator if the latter is in operative position, to move the dagger to effect actuation of the replenishing mechanism on the same pick, and to prevent the operation of the take-up when the shuttle is properly beamed at the opposite end of the lay.

8. In a loom, filling-replenishing mechanism located at one side of the loom, means to control its operation, take-up mechanism, the lay, a shuttle adapted to contain a supply of filling, and devices to suspend normal operation of the take-up mechanism and permit let-back, actuated by or through proper boxing of the shuttle at the outer end of the lay, if the filling fails or is exhausted, the proper boxing of the shuttle, under the same conditions, at the inner end of the lay, adjacent the replenishing mechanism, effecting the operation of the controlling means to cause the actuation of the filling-replenishing mechanism.

9. In a loom, a stop-motion therefor, filling-replenishing mechanism, means to control the operation thereof, take-up mechanism, the lay, a self-threading shuttle adapted to contain a supply of filling, an actuator carried by the shuttle and maintained inoperative by intact filling, the actuator when in operative position cooperating with the controlling means to effect actuation of the replenishing mechanism as the shuttle reaches the end of its stroke in one direction, a device to cooperate with the actuator when operatively positioned, as the shuttle completes its stroke in the opposite direction, to suspend the operation of the take-up mechanism, and means operative by or through two successive operations of said device to effect the actuation of the stop-motion for the loom, whereby the loom will be stopped automatically if the shuttle fails to thread after the operation of the filling-replenishing mechanism.

10. In a loom, filling-replenishing mechanism, means to control the operation thereof, take-up mechanism, including a let-back pawl, means to suspend the operation of said mechanism and permit the let-back pawl to operate, said means including an arm having a detent and a latch-bumper thereon, a shipper, a knock-off lever therefor, a latch normally held inoperative by the detent, means controlled by operation of the let-back pawl to release the latch from the detent and move the former into position to actuate the knock-off lever, after the first operation of the take-up-suspending means, a shuttle adapted to contain a supply of filling, and an actuator carried thereby and normally maintained inoperative by intact filling, the actuator when released by filling failure cooperating with the controlling means to effect filling replenishing as the shuttle reaches the end of the stroke in one direction, said actuator, when operatively positioned, effecting the operation of the means for suspending action of the take-up as the shuttle completes its stroke in the opposite direction, the successive operation of said take-up-suspending means moving the arm thereof to bring the latch-bumper into engagement with and to move the latch and thereby the knock-off device to release the shipper.

687,005. SELF-THREADING LOOM-SHUTTLE. JONAS NORTHER, Hopdale, Mass., assignor to Draper Company, Hopdale, Mass., a Corporation of Maine. Original application filed July 2, 1901, Serial No. 67,437. Divided and this application filed Feb. 13, 1902. Serial No. 33,374. (No model.)



Claim.—1. A loom-shuttle having an elongated opening there-through to receive a supply of filling, and a slot in its side wall, a device

at one end of said opening to automatically effect the threading of the shuttle, an actuator movably mounted on the shuttle within said opening and extended laterally through the slot, and a finger on the actuator extended transversely of the shuttle, and normally engaged and depressed by the filling adjacent the threading device to maintain the actuator in inoperative position.

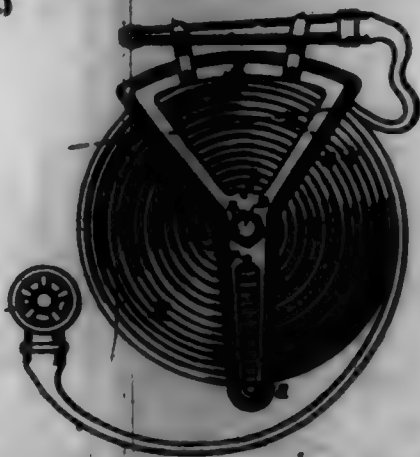
2. A loom-shuttle having a slot in its side wall, and a delivery-eye, a device to automatically thread the shuttle, a fixed downhold adjacent said device, and an actuator pivotally mounted on the shuttle and extended through the slot, said actuator having a finger movable between the downhold and the threading device, the filling in its passage from the filling-carrier to the threading device passing under the downhold and over the finger, to retain the actuator inoperative while the filling is present or intact.

3. An automatically self-threading shuttle adapted to contain a supply of filling, and having a slot in its side wall, an actuator mounted on the shuttle and having a finger transverse to the path of the filling, said actuator having a body portion projecting through the slot in the side wall of the shuttle, and adapted to project laterally beyond the side, when free to move, the filling normally engaging and depressing the finger, and thereby maintaining the actuator in inoperative position.

4. An automatically self-threading shuttle adapted to contain a supply of filling, and having an opening in its side wall, a tilting actuator mounted on the shuttle and having its inner end extended across the path of and adapted to be automatically engaged by the filling-thread, and depressed thereby upon insertion of a supply of filling into the shuttle, the outer end of the actuator extending into the opening in the shuttle side, the action of the filling upon the inner end of the actuator depressing the same, and elevating its outer end to thereby render the actuator inoperative while the filling is present.

5. In an automatically self-threading shuttle, adapted to contain a supply of filling, a threading device, a tilting actuator mounted on the shuttle adjacent the inner end of said threading device, said actuator having its inner end extended transversely across and to be engaged and depressed by the filling-thread between the filling supply in the shuttle and the threading device, the inner end of the actuator being extended through an opening in the side wall of the shuttle, the thread while intact maintaining the actuator tilted with its outer end in inoperative position.

697,008. FIRE-REVERSING APPARATUS. CHARLES HUBERT, Cincinnati, Ohio. Filed Nov. 22, 1901. Serial No. 52,497. (No model.)



Claim.—1. A base device embodying in combination a stud adapted to be affixed to a wall or vertical support, a central roller pivoted upon the stud, and a fixed vertical plate or guide to retain the base in a roll between itself and the wall upon the roller operating upon the stud.

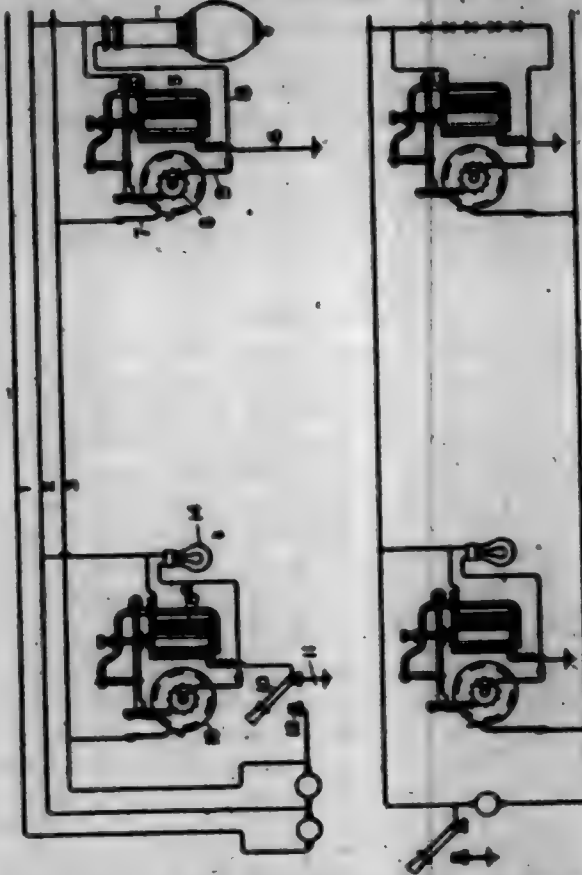
2. A base device embodying in combination a stud adapted to be affixed to a support, a central roller pivoted upon the stud, and a fixed vertical plate or guide to retain the base in a roll between itself and the support, said plate or guide being of substantially Y shape and having its side edge serving as a guide for the paying-out portion of the roll as the roll diminishes.

3. In a base device of the character indicated, the combination of a stud adapted to be affixed to a wall or support, a roller mounted upon the stud and having its periphery partly removed or recessed to admit the light of a doubled or folded base, and a vertical plate or guide fixed to the stud and serving to retain the base in a roll between itself and the wall.

697,007. CONTROLLING ARC-LAMPS. BURAGE GILLEY, Brooklyn, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Aug. 28, 1900. Serial No. 23,000. (No model.)

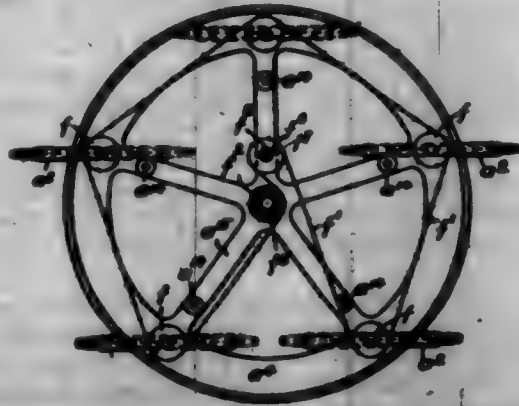
Claim.—1. In a system of electrical distribution, the combination, with a supply-circuit, of a plurality of translating devices in operative re-

lation thereto, a magnetically-operated circuit-controller in a ground branch of the supply-circuit, controlling the several translating devices, a switch operated by said circuit-controller to cut in and out the several translating devices, a second ground branch of opposite electrical potential at the control station, and a switch for opening and closing said branch.



2. In a system of electrical distribution, the combination with a supply-circuit, of a plurality of translating devices in operative relation thereto, a magnetically-operated circuit-controller in a ground branch of the supply-circuit for the respective translating devices, a switch operated thereby to cut in and out of circuit the respective translating devices, a second ground branch of opposite electrical potential at the control station governing the circuit-controller, a switch governing said branch, and an electric indicator in the control-circuit at the control station.

697,008. REVOLVING SNOW STAND OR RACK. HENRY F. PALMER, Lynn, Mass. Filed Mar. 26, 1901. Serial No. 53,124. (No model.)

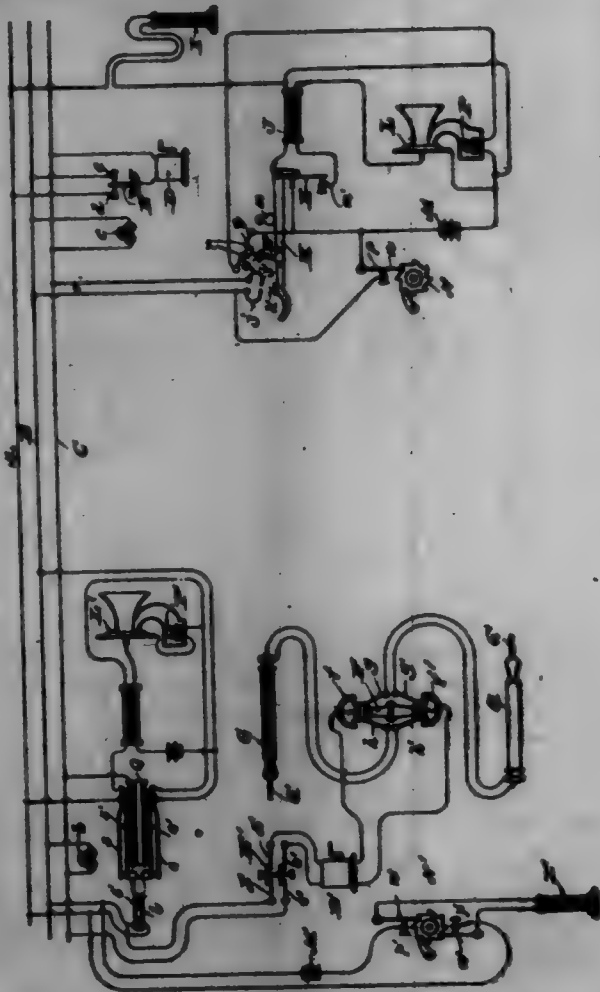


Claim.—1. A revolving display-rack, having, in combination, a revolving carrier, a fixed support therefor, shelves rotatably mounted in the carrier, a driven sprocket-wheel rigidly connected to each shelf, a driving sprocket-wheel rigidly mounted upon the fixed support, the driving and the driven sprocket-wheels having the same number of teeth, and a single sprocket-chain connecting the driving sprocket-wheel with each driven sprocket-wheel and passing over the driving and the driven sprockets in the same direction, substantially as described.

2. A revolving display-rack, having, in combination, a revolving carrier, a fixed support therefor, shelves rotatably mounted in the carrier, a driven sprocket-wheel rigidly connected to each shelf, a driving sprocket-wheel rigidly mounted upon the fixed support, the driving and the driven sprocket-wheels having the same number of teeth, an idler sprocket-wheel, a single sprocket-chain leading from the driving sprocket-wheel to each of the driven sprocket-wheels in succession and thence to the idler and back to the driving sprocket-wheel and passing over the driving and the driven sprockets in the same direction, substantially as described.

3. A revolving display-rack, having, in combination, a revolving carrier, a fixed support therefor, shelves rotatably mounted in the carrier, a driven sprocket-wheel rigidly connected to each shelf, a driving sprocket-wheel mounted upon the fixed support and normally held from movement thereon, the driving and the driven sprocket-wheels having the same number of teeth, a single sprocket-chain leading from the driving sprocket-wheel to each driven sprocket-wheel in succession, and thence back to the driving sprocket-wheel passing over the driving and the driven sprockets in the same direction, and means for adjusting the driving sprocket-wheel upon the fixed support, substantially as described.

697,009. ELECTRIC TELEPHONE SYSTEM. WILLIAM H. FENSTER, Wittenberg, Wis. Filed Dec. 24, 1900. Serial No. 60,572. (No model.)



Claim.—1. An electric telephone system having a spring-contact and an opposing contact-point normally separated at each station, a telephone-receiver and a local battery in circuit with said contact and point, a one-way ratchet-wheel operative against the spring-contact, the tilting-lever for said receiver, and means for holding the lever in normal position when said receiver is removed therefrom, whereby intermittent momentary interruptions of current from said battery occurring incidental to rotation of said wheel against said spring-contact are then audible in the aforesaid receiver.

2. An electric telephone system having an audible signal at each station thereof arranged to influence a transmitter, and means for actuating the signal simultaneously with the opening and closing of the talking-circuit at the same station, whereby when the signal is made it will be heard in receivers connected on the line.

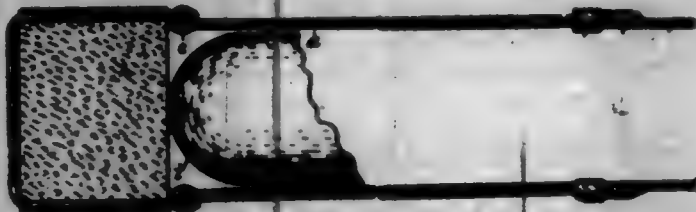
3. An electric telephone system having an audible electric signal in normally open circuit at each station thereof arranged to influence a transmitter, and means for making and breaking said circuit simultaneously with the closing and opening of the talking-circuit at the same station, whereby when the signal is made it will be heard in receivers connected on the line.

4. An electric telephone system embodying tilting-levers each provided with a shouldered arm constituting a circuit make-and-break device, an electric audible-signal device in a local circuit having terminals in the path of said lever-arm and a telephone-transmitter arranged to be influenced by the signal device.

5. An electric telephone system including a switchboard, an electric audible-signal device, the transmitter of a switchboard-telephone arranged to be influenced by the signal device, and means for energizing said signal device simultaneously with closing and opening of talking-circuit at the switchboard, as well as for preventing open signal being given while the talking-circuit is closed at said switchboard.

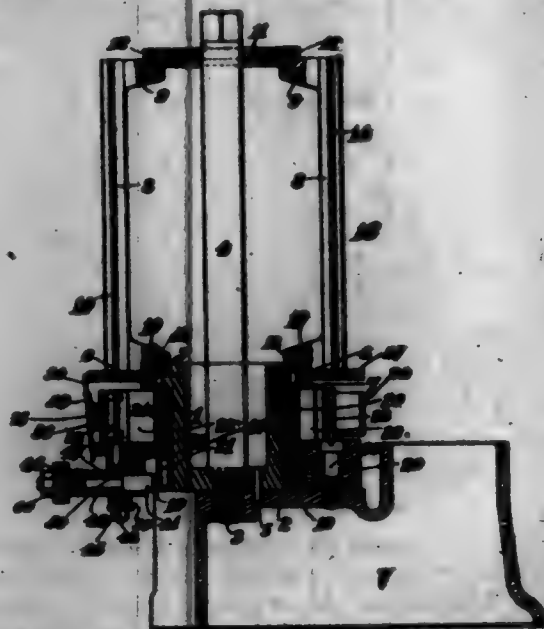
6. An electric telephone system comprising a switchboard, an electric audible signal at the switchboard in a local circuit electrically connected to the line, a transmitter arranged to be influenced by the signal device, switchboard-plugs electrically connected in pairs and likewise connected with the signal-circuit, spring-contacts insulated from each other to constitute a brush in said signal-circuit, a contact-arm movable on an arc of a circle to operate as a circuit-closer in conjunction with the brush, and a gravity swing-stop having the upper end thereof arranged in the path of said arm, this end of the stop being made with a right-angle notch facing in a direction away from the aforesaid arm when the latter and said stop are in normal position, whereby there is no interference of one with the other on swing of the arm from normal position to pass the brush, but engagement of said arm in the stop-notch preliminary to recontact with said brush on reverse movement.

697,010. MUD-GUARD FOR VEHICLES. JACOB FRIEDMAN, Rochester, N. Y. Filed Nov. 20, 1901. Serial No. 24,112. (No model.)



Claim.—A mud-guard for vehicles, comprising screw-threaded socketed rods with apertures to fit over the axle of a vehicle, said rods being offset outwardly from the apertured portions, a frame consisting of legs and a pivoted head, the legs being formed with collars and the ends of the legs being fitted in the sockets with the collars bearing against the ends of the rods, and cup-shaped couplings secured on the said legs and engaged with the collars and secured on the ends of the rods, all substantially as shown and described.

697,011. SELF-FEEDING MECHANISM FOR METAL-POTS. JOHN FLAEG and WARREN J. LOWE, Broadheath, England, assignors to the Mergenthaler Linotype Company, New York, N. Y. Filed Dec. 21, 1900. Serial No. 60,527. (No model.)



Claim.—1. In combination with a linotype-machine, a magazine adapted to receive and loosely hold a column of uniform type-metal blocks, mechanism for removing the blocks one at a time from the bottom of the column and permitting them to fall into the pot below, and intermediate driving mechanism adjustable to vary the frequency of said delivering action in relation to the speed of the machine, whereby predetermined and uniform additions of metal may be made to the body of metal in the pot at longer or shorter intervals as demanded.

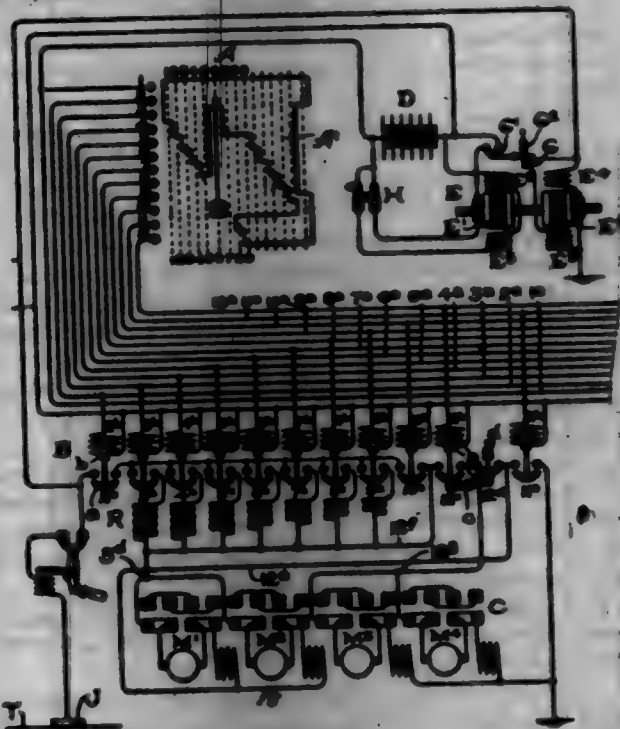
2. In combination with a linotype-machine a magazine having a plurality of upright chambers each adapted to carry a series of uniform blocks of type-metal, and mechanism substantially as described, arranged to deliver the blocks successively from one chamber, and thereafter successively from the succeeding chamber to the melting-pot.

3. The combination of the first vertically-channelled magazine, the single-ported plate thereover, an intermediate rotary magazine provided with a ratchet-wheel, mechanism for alternately locking and unlocking said ring, and an actuating-pawl connected with and operated by a linotype-machine.

4. In combination with the reciprocating metal-rod of a linotype-machine, an upper fixed magazine having a series of vertical channels, an underlying rotary ring or plate having a single port, mechanism connected with a linotype for rotating said ring step by step, that its ports may register with the overlying magazine chambers, an intermediate or secondary magazine underlying and provided with chambers corresponding in number with those in the upper magazine, a ratchet-wheel connected with the intermediate magazine, a pawl for operating the same, and adjustable connections between said pawl and the linotype for imparting to the pawl a variable movement.

5. In combination with a linotype-machine, a fixed magazine 14 with a series of channels, the underlying ring or plate 27 having a single port, the secondary or intermediate magazine 26 having a series of ports, an underlying plate 20 having a single port, and means for rotating the ring 27 and the magazine 26 intermittently and differentially, substantially as described.

897,012. CONTROLLER FOR ELECTRIC MOTORS. WILLIAM R. FORM, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 8, 1899. Serial No. 662,061. (No model.)



Claim.—1. In an electric-motor controller of the separately-actuated contact type, a contact for connecting the motors in series, a contact for connecting the motors in parallel, and a mechanical connection between said contacts whereby either one is caused to move to its open position when the other is moved to its closed position.

2. In an electromagnetic system of motor control, the combination with a contact for connecting the motors in series, of a contact for connecting the motors in parallel, a mechanical connection between said contacts whereby either moves to its open position when the other moves to its closed position, and an electromagnet for actuating said contacts.

3. In a system of control for electrical apparatus, the combination with switches thereof of a plurality of separately-actuated electromagnets for operating the switches respectively, means controlled by one of the switches for preventing the closing of another of the switches so long as the magnet of the former is energized, and means for completing the circuit of the magnets for operating the switches.

4. In a system of control for electric motors, the combination of a plurality of separate switches, magnet-coils for actuating the switches, a controller-switch capable of energizing any number of the magnet-coils at the same time, and means controlled by one of the separate switches for preventing simultaneous corresponding operation of another of the switches.

5. In a system of control for electric motors, the combination of a plurality of separate electromagnetically-controlled contacts for changing the resistance of the motor-circuit and also for grouping the motors in series or parallel relation, certain of the contacts being arranged to short one of the motors in changing from series to parallel, electromagnets for controlling the contacts, and means preventing the contacts from short-circuiting the motors when changing from series to parallel even when all of the magnets are simultaneously energized.

6. In a train system of control, the combination of master and motor controllers, comprising a plurality of separately-actuated contacts, certain of the contacts being designed to cut resistance into and out of cir-

cuit, and other contacts for grouping the motors in series or parallel relation by first shorting one motor, then interrupting the circuit of the shorted motor, and establishing a multiple connection with the source of supply, and means controlled by the contact which connects the motors in parallel for opening the contact which connects the motors in series before the parallel connection is made.

7. In a train system of control, the combination of a plurality of motor-cars suited to form a train, four or more motors mounted on each car, the motors being permanently coupled in pairs, a motor-controller for changing the grouping of the pairs of motors from series to parallel relation, the said controller consisting of a plurality of separately-actuated contacts, with electromagnets for actuating the contacts, a motor-controller for energizing one or more of the magnets at will, and means controlled by one of the contacts for interrupting the series connection between the pairs of motors prior to the establishing of the multiple connection.

8. In a circuit-breaker for protecting storage batteries or similar apparatus, the combination of a contact controlling the supply-circuit, a contact for controlling the battery-circuit, and means actuated by one of the contacts for insuring the closing of the other circuit.

9. In a circuit-breaker, the combination of a pair of moving contacts capable of separate and simultaneous movement, a coil for actuating each contact, and a mechanical connection between the contacts so arranged that one contact can open and close without affecting the other.

10. In a circuit-breaker, the combination of a pair of separate contacts, coils for actuating the contacts, and a lever connecting the contacts, which is pivotally secured to one contact, and has a last-motion connection with the other.

11. In a circuit-breaker, the combination of a pair of separate contacts, short-coils for actuating the contacts, cores for the coils which actuate the contacts, a last-motion connection between the cores, and means for insuring the closing of one contact when the other opens.

12. In a system of control, the combination of an electrically-actuated means for opening and closing an electric circuit, a storage battery for actuating said means, and a motor-generator driven by the main source of supply for charging the storage battery.

13. In a system of control, the combination of an electrically-actuated means for opening and closing an electric circuit, a storage battery, a motor-generator for charging the battery, comprising two separate armatures mechanically united, and a coil in circuit with a source of supply for the motor and of the motor-generator for controlling the circuit of the generator.

14. In a system of control, the combination of an electrically-actuated means for opening and closing an electric circuit, a storage battery, a motor-generator for charging the battery, comprising two separate armatures mechanically united, a short and a series field-winding for supplying the field excitation of the motor-armatures, a switch in the circuit of the generator, and a coil in the motor-circuit which controls the switch in the generator-circuit.

15. In a system of control for electric motors, the combination with an electromagnetic switch which normally completes a series circuit and is adapted to be actuated to connect the motors in parallel, of a separate electromagnetic switch adapted to short one motor before the first switch is actuated.

16. In a system of control for electric motors, the combination with a switch for normally connecting the motors in series, of an independently-operated switch for shorting one motor out, and means for electrically operating the first switch to break the series contact and connect the motors in parallel.

17. In an electric switch, the combination with a solenoid, a core thereof, a conducting-piece on said core, a second conducting-piece, a pivoted link to which each conducting-piece is pivoted, and a spring on the second conducting-piece acting against the solenoid.

18. In a system of electromagnetic control for electric motors, the combination with electromagnetic series and parallel switches, of a mechanical connection between said switches adapted to prevent their simultaneous closure.

19. In a system of control, the combination with electrically-operated means for motor control, of a secondary source of current, a motor-generator for charging said source, and a switch between said source and said motor-generator, which is dependent for its operation on the potential of the current supplied to the motor-generator.

20. The combination with transmitting devices, of a main source of electricity, an auxiliary source of electricity, a switch in the circuit of said auxiliary source and normally controlled in its operation by the potential of said main source, and means dependent for its operation on the failure of the main source for maintaining said switch in its closed position.

21. The combination with transmitting devices, of a main source of electricity, an auxiliary source of electricity, means con-

trolled by the potential on the main source for making or breaking a connection between the two sources, and means dependent for its operation on the failure of the main source for breaking the connection between the sources, and connecting the auxiliary source to the translating device.

23. In a system of train control, the combination with an electrically-operated controller, of an auxiliary source of current, a main source of current, a switch in the circuit of said auxiliary source and normally controlled in its operation by the potential of said main source, and means dependent for its operation on the failure of the main source for maintaining said switch in its closed position.

24. In a system of control for electric motors, in combination, an electric controller, electromagnetic means for controlling the operation of the controller-contacts, a main source of current-supply, an auxiliary source for supplying current to said electromagnetic means, electrical connections between said main and said auxiliary sources, and means controlled by the potential of the main source for opening said electrical connections.

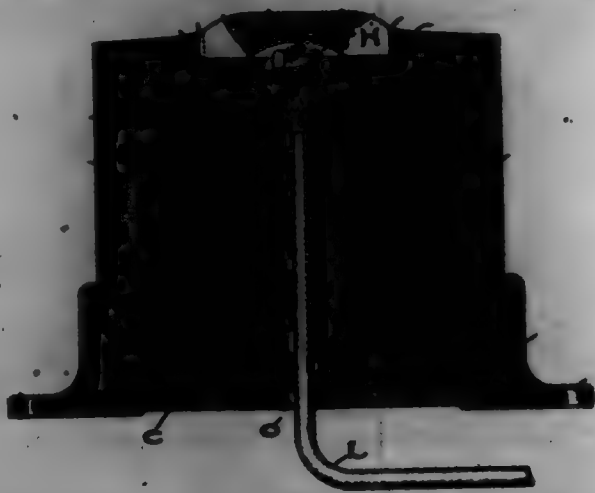
25. In a system of control for electric motors, in combination, an electric controller, electromagnetic means for controlling the operation of the controller-contacts, a main source of current-supply connected to supply current to said electromagnetic means, an auxiliary source connected to the main source, and also to said electromagnetic means, and means controlled by the potential of the main source for opening the circuit of said auxiliary source.

26. In a system of control for electric motors, in combination, an electric controller, electromagnetic means for controlling the operation of the controller-contacts, a main source of current-supply connected to supply current to said electromagnetic means, an auxiliary source connected to the main source, and also to said electromagnetic means, means controlled by the potential of the main source for opening the circuit of said auxiliary source, and means operating on the failure of the main source to open the circuit to said source and to close the circuit between the auxiliary source and the electromagnetic means.

27. In a system of electrical distribution, a main source of current-supply, an auxiliary source, translating devices connected to both of said sources, means controlled by the potential of the main source for opening the circuit of the auxiliary source, and means operating upon the failure of the main source to open the main circuit and to close the circuit between the auxiliary source and the translating devices.

28. The combination with means for opening and closing electric circuits, of a battery therefor, a motor-generator for charging said battery, and a circuit-breaker in the armature-circuit of the generator, having its coil in a short-circuit of the motor.

697,018. ELEVATOR RAILWAY. WILLIAM E. FORTY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Dec. 20, 1900. Serial No. 49,468. (No model.)



Claim.—1. In a structure for surface-contact railways, the combination with a conducting-support having an upper depression, of an independent metal disk or stud, which is removably mounted in the depression to make contact with the support.

2. The combination with a conducting-support having upper projecting walls, of a metal stud of smaller diameter than the distance between the walls, which rests between the walls to make contact with the support, and a metal filling between the sides of the stud and the walls of the support, to hold the latter in position.

3. The combination with a conducting-support having upwardly-

projecting walls, of a metal stud of smaller diameter than the distance between the walls, which rests between the walls to make contact with the support, a metal filling between the sides of the stud and the walls of the support, and projections from the stud which engage the walls of the support to protect the metal filling.

4. The combination with a conducting-support having an upper depression, of a metal stud with a smaller diameter than the depression and mounted therein, and a metal filling between the sides of the stud and the walls of the depression, said stud being formed with holes whereby it can be removed from the depression.

5. A stud for surface-contact electric railways, which consists of an independent metal disk provided with lifting-holes.

6. The combination with a conducting-support formed with a depression in its upper surface, of a metal surface-contact disk removably mounted therein, the said disk being provided with lifting-holes.

7. The combination with a conducting-support formed with a depression in its upper surface, of a metal surface-contact disk removably mounted therein, the said disk being provided with lifting-holes, and a metal filling for securing said disk in position.

8. The combination with a conducting-support formed with a shallow depression substantially rectangular in cross-section in its upper surface, of a metal surface-contact disk removably mounted therein, the said disk being provided with lifting-holes, and a metal filling for securing said disk in position.

9. The combination with a conducting-support formed with an upper depression, of a metal stud of smaller diameter than the depression and mounted therein, a metal filling between the stud and the support, said stud being formed with projections which engage the walls of the depression to center the stud therein and to prevent strains on the filling when the stud is subjected to blows, said stud being also formed with holes whereby it can be lifted from the position in which it is held by the metal filling, said holes being formed in said projections whereby the metal filling will not flow into them.

10. A stud for surface-contact electric railways, which consists of an independent metal disk formed with lateral projections, lifting-holes being formed in said projections.

11. The combination with a metal support formed with an upper depression, of a metal stud mounted therein and which has a smaller diameter than that of the depression, and a metal filling between the stud and the walls of the depression, which fills the interstices of the metal parts and secures the stud in position.

12. The combination with a metal support, of a lead extending downwardly therefrom, and a metal surface-stud removably secured to the support by a metal filling.

13. The combination with a vertically-perforated metal support, of a lead extending through the perforation from below and secured to the support from above, and a metal stud removably mounted on the support and covering the end of the lead.

14. In combination, a vertically-perforated metal support having upper and lower shoulders in the walls of the perforation, a metal connection-piece having an upwardly-extending screw-threaded portion, a lead secured to the lower part of the connection-piece, a nut which engages the upper shoulder of the support and also the threaded portion of the connection-piece, to draw the lower part of the connection-piece into good contact with the lower shoulder of the metal support, and a metal stud removably mounted on the upper part of the metal support to make good contact therewith.

15. In a roadway structure for surface-contact railways, the combination with a conducting-support, of an independent disk or stud which is removably mounted within a depression in said conducting-support, and an electrical connection extending downwardly from said support.

16. In a roadway structure, the combination with a conducting member, of insulating material surrounding said member, an electric connection extending to the conducting member through the insulating material, and a metal surface-stud mounted in a depression in said member and having a contacting surface extending above the same.

17. In a roadway structure, the combination with a conducting-support, of insulating material surrounding said support, an independent metal disk or stud which is removably mounted within a depression in said conducting-support, and an electrical connection from the supply system through the insulating material to the support.

18. The combination with a conducting-support, of insulating material surrounding the same, an independent metal disk or stud which is removably mounted within a depression in said conducting-support, a metal casing for the insulating material, and an electrical connection to the support, which extends through the insulating material and metal casing, and is insulated from the latter.

19. The combination with a metal support formed with an upper depression, of a metal disk of less diameter than that of the depression and

mounted therein, metal filling between the walls of the depression and the stud, and projections from the stud which substantially fit the depression and extend in the direction of motion of the car, to prevent the car from loosening the stud.

20. The combination with a metal support formed with an upper depression, of a metal stud of less diameter than that of the depression and mounted therein, metal filling between the walls of the depression and the stud, projections from the stud which substantially fit the depression and extend in the direction of motion of the car, and holes in the projections, by which the stud can be removed from the depression of the support.

21. A stud for surface-contact electric railways, which consists of an independent disk formed with lateral projections.

22. In a roadway structure for surface-contact electric railways, the combination with a suitably-insulated conducting support, means for connecting said support in circuit, and a removable surface-contact stud, the removal of which permits access to said connecting means.

23. In a roadway structure, the combination with a conducting member, of insulating material surrounding said member, an electrical connection extending to the conducting member, and a metal surface-contact disk or stud mounted within a depression in said member and having a central contacting surface extending above the same.

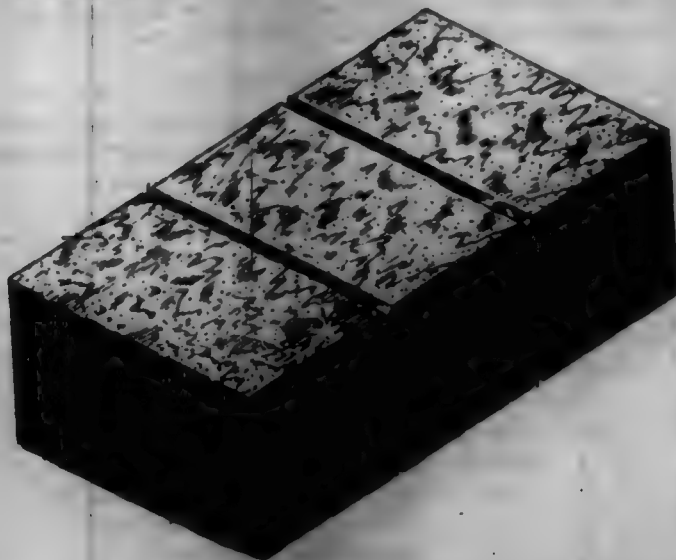
24. In a roadway structure, the combination with a conducting member having an electrical connection secured thereto, of a metal surface-contact disk removably mounted within a depression in said member and having its contacting surface extending above the same.

25. In a roadway structure, the combination with a conducting member having an electrical connection secured thereto, of a metal surface-contact disk removably mounted in a depression in said member and having its upper surface sloping upwardly from the edges of the depression so as to form an upwardly-extending central contacting surface.

26. In a roadway structure, the combination with a conducting member having a shallow depression in its upper surface, of a metal surface-contact disk removably mounted therein, the surface of the said disk sloping upwardly from the edges of the depression.

27. In a roadway structure, the combination with a conducting member having a shallow depression in its upper surface, of a metal surface-contact disk removably mounted therein, and a metal filling for securing said disk to the conducting member.

697,014. FIRE-KINDER AND METHOD OF MAKING. ALFRED F. PUTNAM, Charlton, Mass. Filed Aug. 2, 1901. Serial No. 636,944 (No model.)

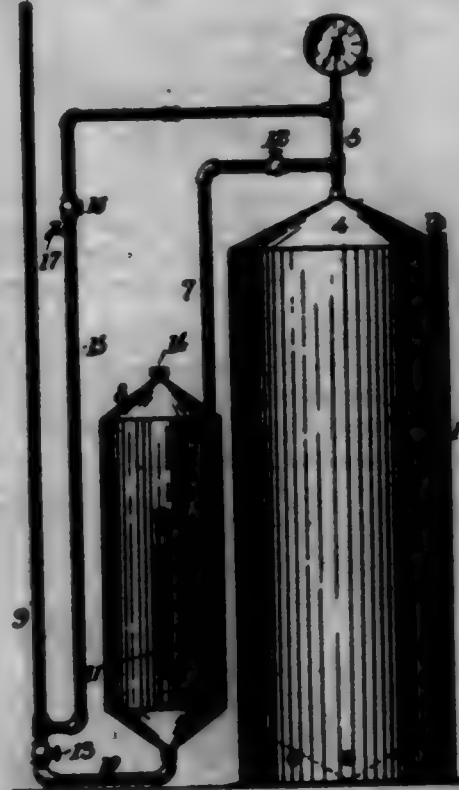


Claim.—1. The within-described improvement in the art of making fire-kindlers which consists in thoroughly mixing finely-pulverized resin and coarse resinous sawdust in the proportions of about six ounces of pulverized resin to one hundred and eight cubic inches of coarse resinous sawdust, heating said mixture by the application of dry heat to about 200° Fahrenheit, or sufficiently to cause the resinous matter of the sawdust to appear as an exudation on its outer surface and applying pressure to reduce the mixture to about one-half its original proportions, substantially as described.

2. The within-described fire-kindler composed of finely-pulverized resin and a coarse resinous sawdust in the proportions of about six ounces of resin to about one hundred and eight cubic inches of coarse resinous sawdust, thoroughly mixed together and heated to about 200° Fahrenheit, or until the resinous matter of the sawdust exudes from its surface and the mixture is increased in bulk and applying pressure to reduce the mixture to about one-half its original proportions and form a brick-shaped

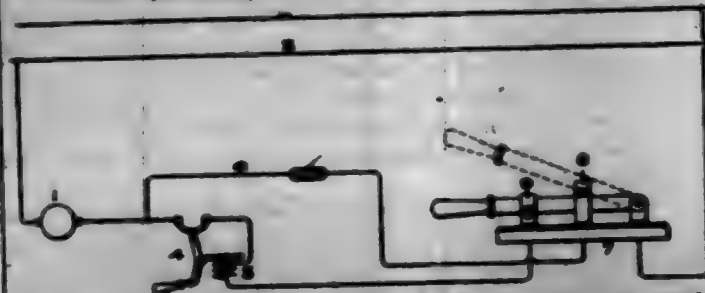
block by means of a mold adapted to form transverse depressions across the block, substantially as described.

697,015. AIR-PRESSURE SYSTEM OF LIGHTING. JAMES E. RAFF, Garwin, Iowa, assignor of two-thirds to Harry V. Meyer and Edwin Berry, Garwin, Iowa. Filed Mar. 18, 1901. Serial No. 61,769. (No model.)



Claim.—In an apparatus of the class described, the combination of an air-reservoir, a fuel-tank, a main air-pipe extending directly from the air-reservoir to the fuel-tank, a main supply-pipe extending from the bottom of the fuel-tank, a supplemental pipe extending from the main supply-pipe at a point adjacent to the plane of the bottom of the fuel-tank to the air-reservoir and having an upright portion adapted to contain a portion of the fuel and provided with a valve 16 and with a cock 17 located below the valve and adapted to be open to permit the fuel to rise in the upright portion of the supplemental pipe, said supplemental pipe forming a passage or conduit for the air when the tank is out for refilling, and valves for cutting out the tank, substantially as described.

697,016. STARTING DEVICE FOR ELECTRIC MOTORS. ROBERT H. REAR, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Nov. 20, 1901. Serial No. 62,966. (No model.)



Claim.—1. A starting device for electric motors or other translating devices absorbing heavy starting-currents, comprising an automatic magnetic circuit-breaker designed to cut the motor out of circuit on running overloads, and a switch for closing the motor-circuit through an auxiliary path when first starting the motor.

2. A starting device for an electric motor or other translating device absorbing heavy starting-currents, comprising an automatic magnetic circuit-breaker, a parallel branch around the trip-coil of the circuit-breaker, and a starting-switch adapted to first connect the branch around the trip-coil in circuit with the motor, and finally leave the circuit-breaker only in circuit.

3. A starting device for electric motors or other translating devices absorbing heavy starting-currents, comprising an automatic magnetic circuit-breaker, a protective shunt therefor, and a switch for diverting the current first through the shunt and then through the circuit-breaker.

4. A starting device for electric motors or other translating devices absorbing heavy starting-currents, comprising an automatic magnetic circuit-breaker, a protective shunt therefor, and a switch for diverting the current first through the shunt and then through the circuit-breaker.

cut-breaker, a sheet around the trip-coil, and a starting-switch provided with contacts for coupling the two paths in parallel and then cutting out the by-pass around the trip-coil.

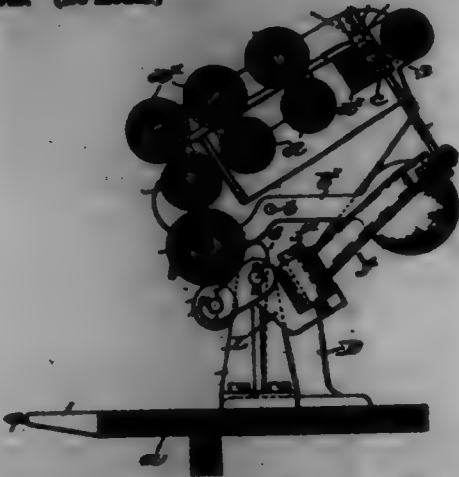
697,017. ADJUSTABLE CONE FOR BEVEL-FLUTE. ALBERT B. RISS, Chicago, Ill., assignor to the Garwood Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 28, 1901. Serial No. 88,470. (No model.)



Claim.—1. A cone for a ball-bearing having a tapered body portion circular in cross-section and a separate flange-piece *c*, said flange-piece having a disk portion *d*, and a cylindrical flange portion adapted to be fitted upon the tapering body of the cone, substantially as herein set forth.

2. The combination in a ball-bearing, of the hardened-steel adjustable cone having a slightly-tapered body portion and a flange-piece of soft steel having a disk portion *d*, and a cylindrical flange portion adapted to fit upon the tapering body of the cone, substantially as set forth.

697,018. ROVING-BREAKER FOR SPINNING-FRAMES. ALBERT B. RISS, Chicago, Ill., assignor to the Garwood Company, Chicago, Ill., a Corporation of Illinois. Filed July 22, 1901. Serial No. 88,545. (No model.)



Claim.—1. In a spinning-frame, drawing-roll, a clearer-roll, to take up roving from the drawing-roll upon breakage of the thread, and means actuated by or through accumulation of roving upon the clearer-roll to clamp and stop delivery of the roving.

2. In a spinning-frame, drawing-roll, means to clear the front roll of roving upon breakage of the thread, and means to clamp and stop delivery of the roving, said means being controlled and actuated by or through accumulation of roving cleared from the front roll.

3. In a spinning-frame, drawing-roll, means to stop delivery of the roving, said means comprising two apertured and relatively movable members, the apertures normally registering and forming a roving-guide and means, actuated by or through accumulation of roving upon breakage of the thread, to effect relative movement of said apertured members and part the roving.

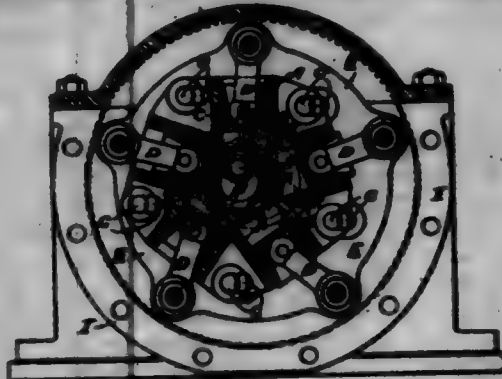
4. In a spinning-frame, drawing-roll, a clearer-roll cooperating with the front roll, a traverse-bar, means mounted thereon to clamp and stop delivery of the roving to said drawing-roll, said means normally forming a roving-guide, and actuating device for the said means, operated by or through accumulation of roving upon the clearer-roll upon breakage of the thread.

5. In a spinning-frame, drawing-roll, a clearer-roll cooperating with the front roll, a traverse-bar, fixed and movable cooperating members mounted thereon and apertured to normally form a roving-guide, movement of one of said members relatively to the other acting to clamp and stop delivery of the roving, and means, including a rocking actuator moved by accumulation of roving upon the clearer-roll, pivotally connected with and to operate said movable member upon breakage of the thread.

6. In a spinning-frame, drawing-roll, a clearer-roll cooperating therewith, a traverse-bar, a roving-breaker mounted thereon and comprising fixed, and cooperating movable, plates, each having an aperture, the apertures normally registering and forming a roving-guide, and connections between the clearer-roll and the movable plate, said connections including a lever having a fixed fulcrum and adapted to be tipped by accumu-

lation of roving on the clearer-roll, due to breakage of the thread, and a laterally-acting arm pivoted on the lever and connected with the movable plate, to operate it upon tipping of the lever, to thereby move the aperture in the cooperating plate out of register, to clamp and effect breakage of the roving.

697,019. ROTATING-CYLINDER PUMP. ROBERT RICHARDSON, Glasgow, Scotland. Filed Feb. 2, 1902. Serial No. 87,702. (No model.)



Claim.—1. A rotating-cylinder pump consisting of not less than five cylinders disposed radially around a central hollow boss, parts communicating with the bottoms of the cylinders and the center of the boss, a fixed central stand upon which the boss of the cylinder casting or carrier revolves, said central stand having a bearing-surface of about one-fourth of its circumference which as the surfaces wear automatically maintains a fluid-tight joint and thus prevents leakage between the fixed center and the cylinder-boss without the aid of packing, inlet and outlet passages in said fixed central stand for the water or other liquid, parts communicating periodically with the ports in the bottom of the cylinders, pistons in said cylinders and rods connecting the pistons with a disk or disks driven by a shaft concentric to the fixed central stand upon which the cylinder-carrier revolves, substantially as described.

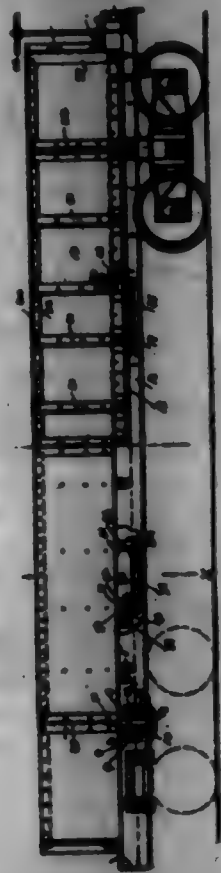
2. In a rotating-cylinder pump having a rotating cylinder-carrier on which five cylinders or a multiple of five cylinders are disposed, and a disk or disks to which the cylinder-pistons are attached rotating concentrically to said cylinder-carrier, a fixed central stand having inlet and outlet passages and ports and a bearing-surface consisting of the bridge-pieces between which the outlet-port is situated, said bearing-surface extending around about one-fourth of the periphery of the central stand, and being placed in such a position relatively to the cylinder-carrier as to be pressed upon by said carrier or its liner during the most effective portion of the piston-stroke whereby leakage between the fixed center and the boss of the cylinder-casting is prevented, substantially as described.

697,020. MEANS FOR HANGING SCREENS. CALVIN ROWLAND, Denver, Colo. Filed July 11, 1901. Serial No. 87,989. (No model.)



Claim.—In an improved pivotal support for window-screens the combination with the window-frame, of a screen-frame provided with a projecting strip adapted to extend between the blind-steps and to the meeting-rail of the upper sash of said window a screw provided with a hook having a resilient end adapted to be sprung to or away from the body of said screw, and secured into the top of said frame at each end and at a distance from each end of said screen-frame that it extends to the inner faces of the oppositely-disposed blind-steps and a nail or pin extended loosely through the loop of said screw and into the inner faces of said blind-steps, and means for securing the said screen-frame against the outer faces of said blind-steps of said window-frame, substantially as described.

697,021. DROP DOOR GONDOLA CAR. RALPH V. SAGE, Johnstown, Pa. Filed Oct. 2, 1891. Serial No. 77,367. (No model.)



Claim.—1. The combination with a car-body, of a center sill comprising two channels back to back or an I-beam of the same section, draft-rigging sills comprising two channels, of a pair of spaced channels secured at their opposite ends to said draft-rigging sills and the inner of said spaced channels also secured to said center sill, a body-bolster secured to the outside of said draft-rigging sills, and top and bottom connection-plates secured to said center and draft-rigging sills and to said bolsters.

2. In a steel gondola car, an improved draft-rigging comprising draft-rigging channels; legs formed of one leg of a channel reinforced and secured to the draft-rigging channels, said legs adapted to take the follower-plates; a channel secured between the draft-rigging channels near the top; and bent plates secured to the bottom of the draft-rigging channels.

3. An improved steel gondola car, comprising a center sill formed of two channels, back to back, or an I-beam of the same section; draft-rigging embodying draft-rigging channels; a pair of channels, secured to the draft-rigging channels and to the center sill; a malleable casting between each pair of channels, adapted to receive the king-pin; and plates secured at the top and bottom of said channels, the draft-rigging channels and center sill.

4. An improved steel gondola car, comprising spaced sills and end doors hinged at one side and provided at the bottom near the other side with a supporting-roller.

5. An improved steel gondola car, comprising side sills formed of channels and extending beyond the ends of the side plates; and sills secured in the ends of the side sills; side plates extending down to the bottom of the outside of the side sills, the sides being apliced at intervals; rolled-steel side stakes, V-shaped in cross-section, secured at intervals to the top of the sides to form the top flange; and doors hinged at one side and provided at the bottom near the other side with a roller, said doors adapted to fold back against the sides of the car and means for fastening the door in a closed position.

6. An improved steel gondola car, comprising center sills formed of two channels, back to back, or an I-beam of the same section; side sills formed of channels and extending beyond the ends of the side plates; and

sills secured in the ends of the side sills; side plates extending down to the bottom of the outside of the side sills, the sides being apliced at intervals; an angle secured along the tops of the sides, to form the top flange; rolled-steel side stakes, V-shaped in cross-section, secured at intervals to the sides as stiffeners; and doors hinged at one side and provided at the bottom near the other side with a roller; a drop-door hinged to the bottom of one of the floor-channels; and means for closing and holding said drop-door closed.

7. An improved steel gondola car, comprising center sills formed of two channels, back to back, or an I-beam of the same section; side sills formed of channels and extending beyond the ends of the side plates; and sills secured in the ends of the side sills; side plates extending down to the bottom of the outside of the side sills and secured thereto; and doors hinged in the ends of the car; drop-doors hinged to the bottom of one of the floor-channels; a shaft; chains secured at one end to the shaft and at the other end to the drop-doors; and draft-rigging embodying channels secured to each other and to the center sills and legs formed of one leg of a channel reinforced, said legs being secured to the channels and adapted to take the follower-plates.

8. An improved steel gondola car, comprising center sills formed of two channels, back to back, or an I-beam of the same section, side sills formed of channels and extending beyond the ends of the side plates; and sills secured in the ends of the side sills; side plates extending down to the bottom of the outside of the side sills and secured thereto; and doors hinged in the ends of the car; drop-doors hinged to the bottom of one of the floor-channels and adapted, when closed, to abut against another; a shaft journaled in the side sills and extending transversely beneath the car; rollers secured to the floor-channel against which the drop-doors abut; malleable cast legs secured to the drop-doors near their free edges; chains secured to such legs and to the shaft and passing over the rollers; and means for operating the same.

9. An improved steel gondola car, comprising center sills formed of two channels, back to back, or an I-beam of the same section; side sills formed of channels and extending beyond the ends of the side plates; and sills secured in the ends of the side sills; side plates extending down to the bottom of the outside of the side sills and secured thereto; and doors hinged in the ends of the car; drop-doors hinged to the bottom of one of the floor-channels and adapted to abut against another; a shaft journaled in the side sills and extending transversely beneath the car; rollers secured to the channel against which the drop-doors abut; malleable cast legs secured to the drop-doors near their free edges; chains secured to said legs and shaft and passing over the rollers; draft-rigging embodying draft-rigging channels, and legs formed of one leg of a channel reinforced and secured to said draft-rigging channels to take the follower-plates; a pair of channels, one secured to the draft-rigging channels and the other to the center sills; a malleable casting between each pair of channels, adapted to form a seat for the king-pin; and top and bottom plates secured to said pair of channels, draft-rigging channels and center sills.

10. In a steel gondola car, the combination with, an improved draft-rigging comprising draft-rigging channels, legs formed of one leg of a channel reinforced and secured to the draft-rigging channels, said legs adapted to take the follower-plates; and a channel secured between the draft-rigging channels near the top, of a bent plate having a rectangular central portion, circular portions adjoining each central portion and side portions bent back and outward to form flanges adapted to be secured to said draft-rigging channels, said bent plate adapted to receive the friction draft-gear.

697,022. CAR-COUPLER. THOMAS J. RANSOM, Corona, N. Y. Filed Sept. 14, 1891. Serial No. 77,401. (No model.)

Claim.—1. Uncoupling mechanism for railroad-cars, comprising a draw-head having coupling provision, a rotatable and longitudinally-movable disk contiguous to the draw-head and having a radial trip-pin, and connections for operating said disk to bring its pin into position and for bodily moving the same to effect the disengagement of the coupling provision.

2. Uncoupling mechanism for railroad-cars, comprising a draw-head having provision for engaging the coupling element of a companion head, a rotatable and longitudinally-movable disk contiguous to the draw-head and having a plurality of peripheral openings, a radial trip-pin interchangeably in one of the same, and connections for operating said disk to bring its pin into position and for bodily moving the same to effect the disengagement of the coupling provision.

3. Uncoupling mechanism for railroad-cars, comprising a draw-head having coupling provision, a rotatable and longitudinally-movable disk having graduations and corresponding perforations, a trip-pin interchangeably in one of the latter, and means including a similarly-graduated indicator for operating said disk to bring its pin into position and for bodily moving said disk to effect the disengagement of the coupling provision.

4. Uncoupling mechanism for railroad-cars, comprising a plurality of pairs of draw-heads each having coupling provision, movable disks, each adjacent to one of the draw-heads and having a trip-pin differentially located relative to the pins of the other disks, and means for operating said disks to cause their pins to independently disengage the coupling provision of the contiguous draw-head.



5. Uncoupling mechanism for railroad-cars, comprising a plurality of pairs of draw-heads each having coupling provision, movable disks each adjacent to one of the draw-heads and having an adjustable trip-pin, and means for operating said disks to cause their pins to independently disengage the coupling provision of the contiguous draw-head.

6. Uncoupling mechanism for railroad-cars, comprising a plurality of draw-heads, each having coupling provision, movable disks each adjacent to one of the draw-heads and having a trip-pin differentially located relative to the pins of the other disks, means for simultaneously operating said disks to cause any one of the same to independently disengage the coupling provision of the contiguous draw-head, and an indicator coacting with said means for determining the particular disengaging disk.

7. Uncoupling mechanism for railroad-cars, comprising a plurality of pairs of draw-heads having coupling provision, a plurality of spring-actuated shafts, rotatable and longitudinally movable and carrying end blocks with pivoted dogs connecting said shafts for unitary actuation, disks on said shafts, each contiguous to one of the draw-heads and having a trip-pin for independently disengaging the coupling provision of the adjacent draw-head and shaft-operating means.

8. Uncoupling mechanism for railroad-cars, comprising a plurality of pairs of draw-heads having coupling provision, a plurality of spring-actuated shafts, rotatable and longitudinally movable and carrying end blocks with pivoted dogs connecting said shafts for unitary actuation, disks on said shafts, each contiguous to one of the draw-heads and having an adjustable trip-pin differentially located relative to the pins of the other disk or disks, and means for operating said shafts to cause one of the trip-pins to disengage the coupling provision of the adjacent head, independent of any engaging action of the other pins.

9. Uncoupling mechanism for railroad cars, comprising a plurality of pairs of draw-heads having coupling provision, a plurality of shafts, rotatable and longitudinally movable and carrying end blocks with pivoted dogs connecting said shafts for unitary actuation, disks on said shafts having graduations and corresponding recesses, a pin interchangeably in one of the recesses of each disk, for disengaging the coupling provision of the adjacent head, and shaft-operating means including an indicator graduated corresponding to the disks.

10. A railroad-car coupling comprising a draw-head provided with a coupling-bar, and pivoted arm located to one side to provide for the entrance of the companion bar, the walls of the totem and said bar and arm being notched in transverse alignment, a normally depressed cross-bar for engaging said notches and the coupling-bar of the companion head, and means for vibrating said arm to raise said cross-bar.

11. A railroad-car coupling comprising a draw-head provided with a coupling-bar and pivoted arm located to one side to provide for the entrance of the companion bar, the bottom of the head being slotted and the arm having a web depending through the same, a normally depressed T-shaped bar having a transverse portion for engaging the coupling-bar of the companion head, and means for contacting with said web for vibrating the arm to raise the T-bar and uncouple.

12. A railroad-car coupling comprising a head having a lower slot flanked with ribs, coupling provision, a movable arm having a web depending in said slot, a disk contiguous to said slot and having a pin, and means for rotating said disk to bring its pin opposite to the slot and for

moving the disk to cause said pin to be guided between the ribs and actuate the arm to effect the uncoupling.

13. Uncoupling mechanism for railroad-cars, comprising a draw-head having coupling provision, a rotatable and longitudinally-movable shaft provided at one end with a block with a pivoted dog for connecting said shaft with other shafts for unitary actuation and at the other end with a sliding sleeve mounted at one end in a suitable bearing and at the other end having a miter-gear, means for rotating said sleeve and shaft, and means on the shaft for disengaging the coupling provision.

14. Uncoupling mechanism for railroad-cars, comprising a plurality of pairs of draw-heads having coupling provision, a plurality of rotatable and longitudinally-movable shafts carrying end blocks with pivoted dogs connecting said shafts for unitary actuation, a sleeve slidably mounted on one of said shafts and provided with a longitudinal slot in which a pin secured on said shaft works and with a miter-gear at one end, means for rotating said sleeve, and means on said shafts for independently disengaging the coupling provision of the draw-heads.

15. Uncoupling mechanism for railroad-cars, comprising a draw-head having a coupling provision, a rotatable and longitudinally-movable shaft carrying an end block with a pivoted dog for connecting said shaft with other shafts for unitary actuation, a sleeve slidably mounted at one end of said shaft and provided with a longitudinal slot in which a pin secured to said shaft works and with a bearing at one end and a miter-gear at the other end, a shaft suitably mounted and provided at one end with a gear meshing with said miter-gear and at the other end with operating means, a pivoted lever having one end bifurcated to engage an annular groove on said shaft, a spring connected with said lever for retracting the same, and means on said shaft for disengaging the coupling provision.

697,028. WINDOW SHADE AND CURTAIN FIXTURE. EDWIN W. SCHNEIDER, Buffalo, N. Y. Filed June 1, 1901. Serial No. 62,708. (No model.)



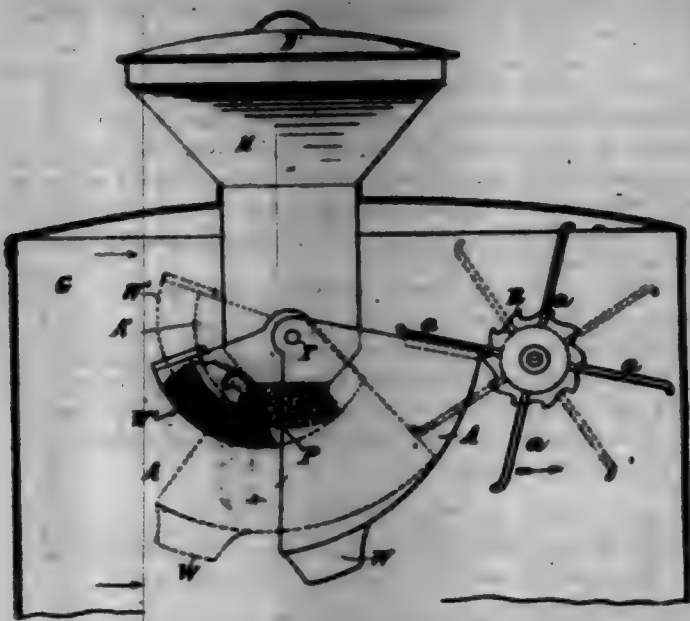
Claim.—1. In a window-fixture, the combination of a base-plate provided with a slot which opens at one end of the plate and having the portions thereof above and below the slot undercut and raised above the plane of the marginal portions of the plate, a laterally-adjustable bracket provided with a head of T-shaped cross-section having a thick central portion fitted in said slot and reduced upper and lower portions arranged on the rear side of the plate and fitted in the raised undercut portions thereof, and means for holding the bracket in position on the base-plate, substantially as set forth.

2. In a window-fixture, the combination with an arm or bracket having openings, of a pole-holder consisting of a ring or loop and a pair of legs or branches extending rearwardly therefrom and provided with angular rear ends constructed to interlock with said bracket-openings when the legs are parallel with the bracket and capable of withdrawal from the openings when the legs are turned at an angle to the bracket, and attachments arranged on the bracket in front of said openings and constructed to hold said legs against the bracket, substantially as set forth.

3. In a window-fixture, the combination with an arm or bracket having a pair of openings and provided in front of said openings with a pair of hooks, of a pole-holder consisting of a ring or loop and a pair of elastic legs or branches extending rearwardly therefrom, the rear ends of said legs being offset and connected with the legs by angular bends which pass through said bracket-openings, and the body portions of said legs being sprung under the hooks of the bracket, substantially as set forth.

4. In a window-fixture, the combination with a base-plate and an arm or bracket projecting therefrom and having several sets of openings arranged at different distances from the base-plate and provided in front of the series of openings with a pair of hooks, of an adjustable pole-holder consisting of a ring or loop and a pair of elastic legs carrying the same, the rear ends of said legs being offset parallel with the legs and connected therewith by angular bends which pass through a set of said bracket-openings, and the central portions of said legs being sprung under the hooks of the bracket, substantially as set forth.

697,024. CARBID-FEEDING DEVICE FOR ACETYLENE-GAS GENERATORS. WILLIAM R. SOWFORD, Long Island City, N. Y., assignor to the Sunlight Gas Machine Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 21, 1902. Serial No. 98,572. (No model.)



Claim.—1. In an acetylene-gas generator a carbide-chamber, in combination with two carbide-feeding cups pivoted below the chamber and operatively connected with means for rotating them in such manner that the upper cup, when tilted to its extreme limit, empties a charge of carbide into the lower cup and the latter, when returned, discharges it into the gas-chamber, the first-named cup acting simultaneously to cut off the flow of carbide, substantially as described.

2. In an acetylene-gas generator a carbide-chamber, in combination with two carbide-feeding cups pivoted below the chamber and each provided with means for normally holding its bottom in the path of the flow of the carbide from the chamber; together with means for rotating both cups simultaneously against the influence of the holding means, the arrangement being such that the charge of carbide is emptied into the lower cup when both cups are tilted to one extreme and discharged from the latter under the influence of the first-named means, when both cups are released, substantially as described.

3. In an acetylene-gas generator a carbide-chamber; a gas-generating chamber and two independent carbide-feeding cups pivotally secured below the carbide-chamber and provided with weights for holding the bottoms of the cups normally in the path of the flow of the carbide from its containing-chamber; in combination with means for tilting both cups simultaneously against the influence of the weights until a charge of carbide is deposited into the lower cup and afterward releasing both cups so that the lower cup swings under the influence of its attached weight and discharges the carbide into the gas-chamber, the second cup following after under the influence of its attached weight and acting as a cut-off for the flow of further carbide, until the operation is repeated, substantially as described.

697,025. FOLDING ROCKING-CHAIR. WILLIAM T. CHERRY, Freshwater, Ark. Filed Aug. 21, 1901. Serial No. 72,302. (No model.)

Claim.—1. In a folding chair, the combination with folding legs pivoted to each other, of outwardly-folding sectional supports for the legs, and means carried by the supports for maintaining the parts of the same in proper relative position when the chair is unfolded, substantially as described.

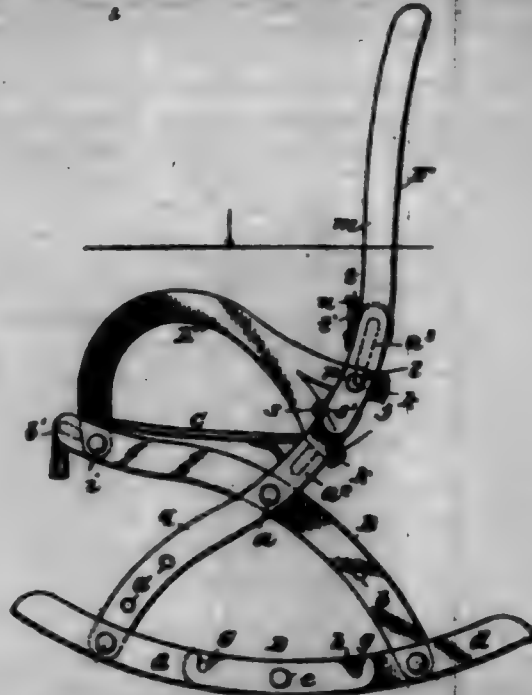
2. In a folding chair, the combination with folding legs pivoted to each other, of outwardly-folding sectional rockers connected to the legs, and means carried by the rockers for maintaining the parts of the same in proper relative position when the chair is unfolded, substantially as described.

3. In a folding chair, the combination with legs pivoted to each other, of outwardly-folding sectional rockers supporting the legs, and means carried by the rockers for maintaining the parts of the same in proper relative position when the chair is unfolded, substantially as described.

4. In a folding chair, the combination with pivotally-connected legs, of outwardly-folding sectional rockers connected thereto, and means carried by the rockers for securing the sections against independent movement, substantially as described.

5. In a folding chair, the combination with pivotally-connected legs, of outwardly-folding rockers composed of pivoted sections connected to the legs, and means carried by said sections for securing the same against independent movement, substantially as described.

6. In a folding chair, the combination with pivotally-connected legs, of outwardly-folding rockers composed of sections pivoted to each other and to the legs, and means carried by said sections for securing the same against independent movement, substantially as described.



7. In a folding chair, the combination with pivotally-connected legs, of outwardly-folding rockers composed of sections pivoted to each other and to the legs, and means carried by the sections for preventing the movement of the same in an inward direction, substantially as described.

8. In a folding chair, the combination with pivotally-connected legs, of rockers connected thereto each composed of sections pivotally connected near their inner ends and stops carried by said sections for limiting the movement of the same in an inward direction, substantially as described.

9. In a folding chair, the combination with pivoted folding legs, of rockers composed of sections pivoted to each other and to the legs, a back connected to the legs, and means for locking the back in an upright position, substantially as described.

10. In a folding chair, the combination with pivotally-connected legs, of rockers secured thereto composed of sections pivotally connected near their inner ends, and a stop-pin on each section adapted to enter a notch in another section, to limit the inward movement only of the sections, substantially as set forth.

11. In a folding chair, the combination of the front and back legs pivoted together between their ends, the rockers secured to the legs and each composed of two sections pivotally connected near their inner ends, a back hinged to the upper ends of the front legs, and means for locking the back in an upright position, substantially as described.

12. In a folding chair, the combination of the pivoted legs, the rockers therefor each composed of two sections pivoted together near their inner ends, and a stop-pin on each section adapted to enter a notch in the other section to limit the inward movement only of the sections, substantially as described.

13. In a folding chair, the combination of the front and back legs pivoted together, the sectional rockers, the arms pivoted to the upper ends of the back legs, the back loosely connected to the upper ends of the front legs, and means for locking the back in an upright position, substantially as described.

14. In a folding chair, the combination with the front and rear legs pivoted together, of a back having a slidable hinge connection with the upper ends of the front legs, pins carried by said arms, and arms on said front legs, adapted to be engaged by said pins, substantially as described.

15. In a folding chair, the combination with pivoted folding front and back legs, of a back connected to the front legs and means for locking the back in an upright position, arms connected at one end to the back legs and means on the front legs for limiting the movement of the arms, substantially as set forth.

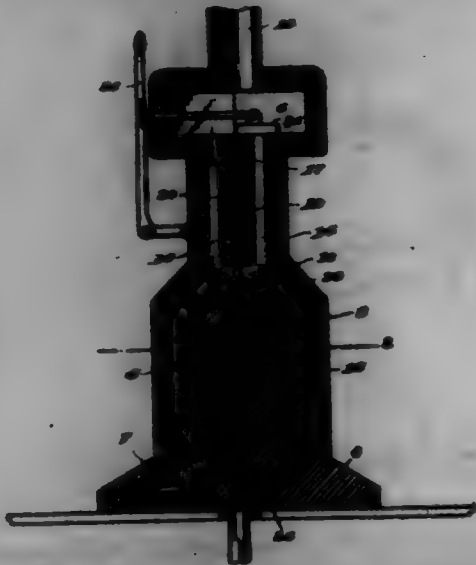
16. In a folding chair, the combination of crossed front and back legs pivotally connected to each other, rounds between the parts of the legs, cross-bars also between the parts of the legs forming supports for a seat, arms connected to the back legs, another cross-bar, and means on said cross-bar for limiting the movement of the arms, substantially as described.

17. In a folding chair, the combination with pivoted folding front and back legs, of sectional rockers secured thereto, a back connected to the front legs, and means for locking the back in an upright position, arms

connected at one end to the back legs, and means on the front legs for limiting the movement of the arms, substantially as set forth.

16. In a folding chair, the combination with pivoted folding front and back legs, of sectional folding resters connected to the legs, arms connected to move with one set of legs, a back connected to the other set of legs, and means for locking the back in an upright position, substantially as described.

697,026. ROTARY ENGINE. JAMES P. SHEPARD, Farmersburg, W. Va. Filed May 16, 1901. Serial No. 60,512. (No model.)



Claim.—1. The combination in a rotary engine, of a cylinder, a steam-chest, an inlet-port opening into the cylinder, steam-passages extending from the steam-chest to said port at opposite sides thereof, a vertically-movable abutment and valve disposed for movement through said port and adapted to entirely close the same when in alignment with the bore of the cylinder, said abutment having a narrow vertically-guided body portion separating the two steam-passages from each other and guiding the steam from one passage to one side of the cylinder and from the opposite passage to the opposite side of the cylinder, there being at the bottom of said abutment a foot portion widened at each side of the body portion for the action of steam leading from either passage, said abutment being operated in a downward direction by the pressure of steam against its foot and being operated in an upward direction by contact with the rotating piston, and a valve located in the steam-chest for controlling the flow of steam through one or either of passages, substantially as specified.

2. The combination in a rotary steam-engine, of a cylinder having convex heads, a steam-chest, a piston in said cylinder said piston having annular end portions provided with annular packings of a diameter equal to the bore of the cylinder and adapted for constant contact therewith and a central cross-sectionally elliptical portion, a steam-port opening into the central portion of the cylinder said port being of a length equal to the distance between the adjacent faces of the annular portions of the piston, an abutment disposed for vertical movement through the port into and out of the cylinder and in contact with the elliptical portion only of the piston, said abutment having a constricted body portion and a foot portion widened at each side of the body portion and adapted to be operated in a downward direction by the steam-pressure, steam-passages connecting the steam-chest with the port at opposite sides of the abutment, and a valve in said chest for opening and closing the passages interchangeably, substantially as specified.

3. The combination in a rotary engine, of a steam-cylinder, steam-chest and connecting-passages, a shell or casing containing and forming the same, said shell or casing comprising two similarly-shaped vertically-connected sections 5, 6, a central web 17 having abutment-chamber formed partly in each of said sections, a rotary piston having annular end portions fitting closely in the cylinder and provided with annular packing for preventing the escape of steam laterally, and a central portion of elliptical shape in cross-section, an entrance-port 18 of a width equal to that of the elliptical portion of the piston, said port forming the common outlet of steam-passages 15 and 16 leading from the steam-chest, and an abutment having a narrowed plate or web 20, adapted to the abutment-chamber, and having its foot portion laterally extended on each side of the web for operation by steam entering from either side of said abutment, substantially as specified.

697,027. DRUM OR BARREL HEAD. JOHN L. SHEPARD, Charleston, S. C. Filed Oct. 2, 1901. Serial No. 77,575. (No model.)

Claim.—1. The combination with a drum or barrel head, having an opening, the wall of said opening counterbored to form an annular shoulder,

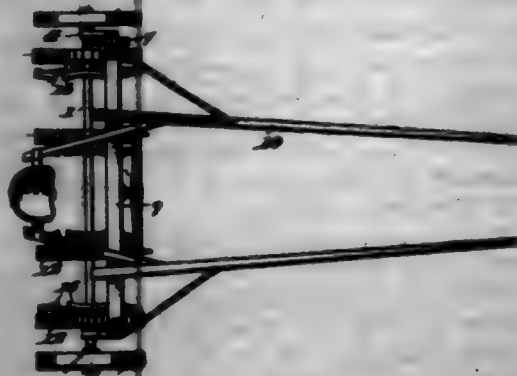
of a disk closing said opening and seated on said annular shoulder, the upper face of said disk aligning with the upper face of the head, removable fastening devices for securing the disk to the head, and a frangible sheet covering said disk and secured to the upper face of the head.



2. The combination with a drum or barrel head having an opening therein, and a flange around said opening flush with the inner face of the head, of a disk supported on said flange flush with the outer face of the head, an enlargement or extension on the disk fitting said opening and flush with the inner face of the head, legs on said extension projecting beyond the same and adapted to be moved into alignment with notches in the flange, and a bar on the outer face of the disk adapted to project over and be secured to, the head.

3. The combination with a drum or barrel head having an opening therein and a flange around said opening, said flange counterbored to form an annular shoulder, of a disk or closure adapted to fit into said opening and rest upon said annular shoulder, means for removably securing the disk in said opening, and a frangible sheet glued to the disk, overlapping the head and secured upon the latter, said frangible sheet also covering the removable securing means.

697,028. REEF-CULTIVATOR. JOHN W. SHELLER, Greensburg, Ind. Filed Sept. 12, 1901. Serial No. 73,512. (No model.)



Claim.—1. In a reef-cultivator, the combination with a shaft, traction-wheels on either end thereof, a plurality of intermediate wheels, projections carried by said wheels, a knife pivoted to each projection, a spring for projecting the knife laterally from the wheel, and means for retracting it.

2. In a reef-cultivator, the combination with a shaft, traction-wheels on either end thereof, a plurality of intermediate wheels, projections carried by said wheels, a knife pivoted to each projection, a spring for projecting the knife laterally from the wheel, and a cam-rib on the shaft for retracting the knives toward the wheel and out of engagement with the reef.

3. In a reef-cultivator, the combination with a frame, traction-wheels carried thereby, a shaft laterally disposed on said frame, a plurality of parallel wheels arranged on said shaft, a plurality of concentrically-arranged bifurcated projections carried by each wheel, a lever pivoted between each projection, a knife carried by each lever and arranged opposite the periphery of the wheel, the free ends of said levers being positioned near the shaft, a spring between the projections and shaft for projecting the knives laterally away from the wheel, and a cam-rib on the shaft for retracting the knives toward the wheel.

4. In a reef-cultivator, the combination with a shaft having traction-wheels thereon; of intermediate wheels on said shaft, and pivot-knives upon each intermediate wheel, said knives being adapted to be projected and retracted laterally in relation to their wheel.

5. In a reef-cultivator, the combination with a shaft and traction-wheels carried thereby; of intermediate wheels on said shaft, knives pivoted on said intermediate wheels and means for independently and consecutively projecting and retracting said knives laterally in relation to their wheels.

6. In a reef-cultivator, the combination with a shaft; of a wheel thereon, retractible knives pivoted to the sides of, and carried by, said wheel, and means for projecting the knives laterally from the wheel.

7. In a reef-cultivator, the combination with a shaft having traction-wheels thereon; of intermediate wheels on said shaft, a plurality of concentrically-arranged knives pivoted on the intermediate wheels, means on the shaft for retracting the knives toward their wheels, and means for consecutively and independently projecting the knives laterally from their wheels.

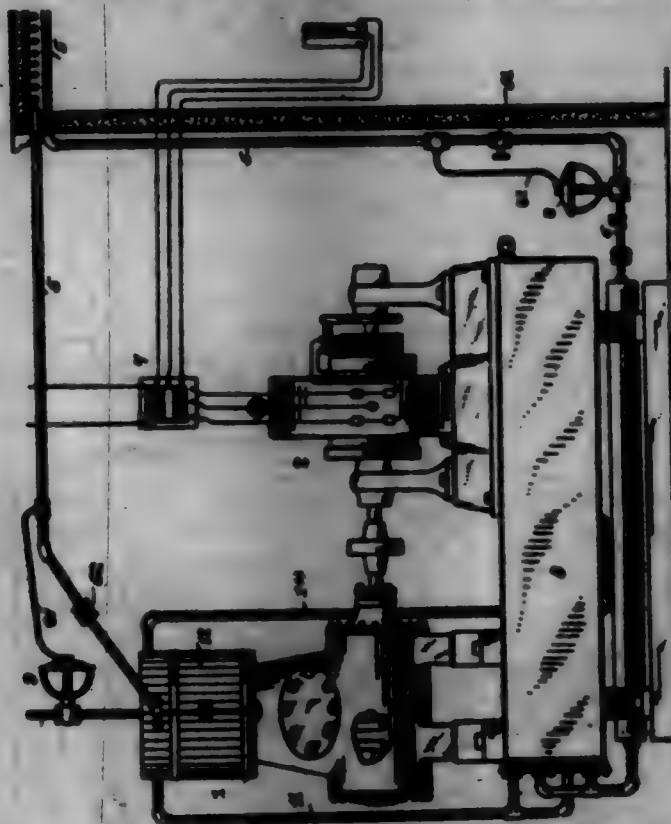
8. In a reef-cultivator, the combination with a non-rotatable shaft; of a wheel loosely mounted thereon and adapted to receive motion through

contact with the ground, pivoted knives carried by said wheel, resilient controlling means for projecting the knives laterally away from the wheel and a cam upon the shaft for retracting the knives.

9. In a beet-cultivator, the combination with a shaft; of a plurality of pivoted rotating knives arranged concentrically with relation to the shaft, means for successively and independently projecting the knives at right angles to the direction of travel of the cultivator, and means for retracting said knives during the rotation thereof.

10. In a beet-cultivator, the combination with a frame; of a crank-shaped axle thereon having traction-wheels at the ends thereof, intermediate wheels upon said axle adapted to be lowered into contact with the ground, a plurality of pivoted knives secured to the side of each intermediate wheel, resilient controlling means for projecting the knives laterally from the wheel, and fixed cams upon the axle for retracting said knives.

697,039. REFRIGERATING SYSTEM. WILLIAM F. SHERR, New York, N. Y., assignor to the Singer Automatic Ice Machine Co., Jersey City, N. J., Filed Nov. 16, 1900. Serial No. 24,614. (No model.)



Claim.—1. In a refrigerating system and in combination, a gas-compressor, a circulatory pipe system leading into said compressor, means for removing the heat of compression, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber and means interposed between said compressor and said expansion-valve and connected with and operated by the reduced pressure in said refrigerating-coil for regulating the flow of fluid through said system, substantially as described.

2. In a refrigerating system and in combination, a gas-compressor, a circulatory pipe system leading into said compressor, means for removing the heat of compression, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber, a fluid-controlling valve in said pipe system between said compressor and said expansion-valve and a tube connecting said refrigerating-coil with said fluid-controlling-valve whereby the flow of fluid through said system is automatically regulated by variations of pressure in said refrigerating-coil, substantially as described.

3. In a refrigerating system and in combination, a gas-compressor, a circulatory pipe system leading into said compressor, means for removing the heat of compression, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber, a fluid-controlling valve in said pipe system between said compressor and said expansion-valve, a diaphragm operating said fluid-controlling valve and a tube connecting said refrigerating-coil with the diaphragm-chamber of said fluid-controlling valve whereby the flow of fluid through said system is automatically regulated by variations of pressure in said refrigerating-coil acting upon said diaphragm, substantially as described.

4. In a refrigerating system and in combination, a gas-compressor,

a cooling-jacket surrounding said compressor, a circulatory pipe system leading into said compressor, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber and means automatically operated by variations of pressure in said refrigerating-coil for regulating the supply of water to said cooling-jacket, substantially as described.

5. In a refrigerating system and in combination a gas-compressor, a cooling-jacket surrounding said compressor, a condenser, a pipe leading from said cooling-jacket to said condenser, a circulatory pipe system leading into said compressor, an expansion valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber and means automatically operated by variations of pressure in said refrigerating-coil for regulating the supply of water to said cooling-jacket and condenser, substantially as described.

6. In a refrigerating system and in combination, a gas-compressor, a cooling-jacket surrounding said compressor, a circulatory pipe system leading into said compressor, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber, a feed-pipe leading to said cooling-jacket, an automatic valve in said feed-pipe and a tube connecting said refrigerating-coil with said valve whereby the supply of water to said cooling-jacket is automatically regulated by variations of pressure in said refrigerating-coil, substantially as described.

7. In a refrigerating system and in combination, a gas-compressor, a cooling-jacket surrounding said compressor, a condenser, a pipe leading from said cooling-jacket to said condenser, a circulatory pipe system leading into said compressor, an expansion-valve in said system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve converted into a refrigerating coil or chamber, a feed-pipe leading to said cooling-jacket, an automatic valve in said feed-pipe and a tube connecting said refrigerating-coil with said valve whereby the supply of water to said cooling-jacket and condenser is automatically regulated by variations of pressure in said refrigerating-coil, substantially as described.

8. In a refrigerating system and in combination, a gas-compressor, a circulatory pipe system leading into said compressor, a cooling-jacket surrounding said compressor, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve is converted into a refrigerating coil or chamber, means interposed between said compressor and said expansion-valve for automatically regulating the flow of fluid through said system and means for automatically regulating the flow of water for cooling and condensing the refrigerating-gas, both said means being connected with and operated by variations of pressure in said refrigerating-coil, substantially as described.

9. In a refrigerating system and in combination, a gas-compressor, a circulatory pipe system leading into said compressor, a cooling-jacket surrounding said compressor, an expansion-valve in said pipe system whereby expansion of the contained fluid is permitted and the portion of said pipe system beyond said valve is converted into a refrigerating coil or chamber, an automatic valve interposed between said compressor and said expansion-valve for regulating the flow of fluid through said system and an automatic valve for regulating the flow of water for cooling and condensing the refrigerating-gas, both said valves being connected with and operated by variations of pressure in said refrigerating-coil, substantially as described.

10. In refrigerating apparatus the combination with a compartment of an expansion-chamber within said compartment, valve mechanism for controlling the entrance of fluid to said expansion-chamber, an exhaust-pipe leading from the expansion-chamber, a pump connected to said exhaust-pipe, a regulator also connected to said exhaust-pipe, a condenser, a tank in which said condenser is located, means for supplying water to said tank, a valve in the water-supply means and device controlled by the regulator for actuating said valve.

11. A refrigerating system comprising a gas-compressor, an expansion coil or chamber, a pipe adapted to convey refrigerating fluid to said expansion-coil, a pipe adapted to convey water to cool and condense the gas, valves in each of said pipes and an integral means acting simultaneously and equally upon said valves whereby the flow of refrigerating-gas and the flow of water may be stopped and started automatically and at substantially the same time.

12. A refrigerating system comprising a gas-compressor, an expansion coil or chamber, a pipe adapted to convey refrigerating fluid to said expansion-coil, a pipe adapted to convey water to cool and condense the gas, diaphragm-valves in each of said pipes the diaphragm-chambers of said valves being connected to the same portion of a pipe system and means acting simultaneously upon said valves through said pipe system

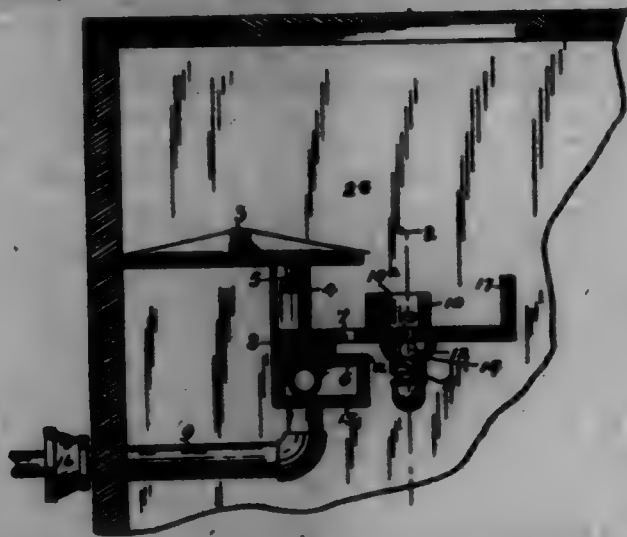
whereby the flow of refrigerating-gas and the flow of water may be stopped and started automatically and at substantially the same time.

13. A refrigerating system comprising a gas-compressor, an expansion coil or chamber, a pipe adapted to convey refrigerating fluid to said expansion-coil, a pipe adapted to convey water to cool and condense the gas, valves in each of said pipes operatively connected to a single fluid-container so as to be equally subject to variations of pressure therein and thermostatically-controlled means for varying the pressure in said container whereby the flow of refrigerating-gas and the flow of water may be stopped and started automatically and at substantially the same time.

14. A refrigerating system comprising a gas-compressor, an expansion coil or chamber, a pipe adapted to convey refrigerating fluid to said expansion-coil, a pipe adapted to convey water to cool and condense the gas, valves in each of said pipes and connected with said expansion-coil whereby a variation of pressure in said coil caused by the starting or stopping of said compressor acts to open or close said valves at substantially the same time.

15. A refrigerating system comprising a gas-compressor, a compartment, an expansion coil or chamber in said compartment, means operated by a thermostat in said compartment for starting and stopping said compressor, a pipe adapted to convey refrigerating fluid to said expansion-coil, a pipe adapted to convey water to cool and condense the gas, valves in each of said pipes and connected with said expansion-coil whereby a variation of pressure in said coil caused by the starting or stopping of said compressor acts to open or close said valves at substantially the same time.

697,080. COMBINATION GAS AND OIL BURNER. GEORGE A. SMITH, Indianapolis, Ind. Filed Mar. 22, 1901. Serial No. 32,461. (No model.)



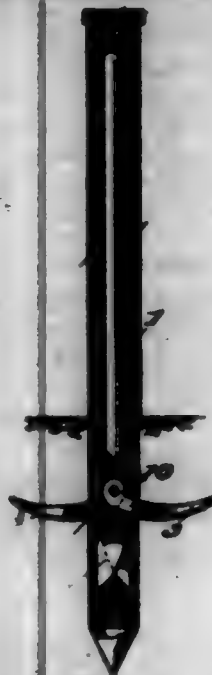
Claim.—1. In a combination gas and oil burner, a plate, a distributing-chamber under said plate having a groove or indent in its outer wall near the plate, extending into the side of the top of the distributing-chamber, the walls of said chamber having a plurality of holes leading from the chamber into the groove or indent and said plate having a slot over the holes, a pipe supplying gas to the chamber, a deflector supported above the slotted plate, an oil cup or cups on the plate adjacent to the slot therein, said plate also having a flange extending upwardly along its rear edge to direct the heat and products of combustion and means for supplying volatilized hydrocarbon to said cup.

2. In a combination gas and oil burner, a plate, a distributing-chamber under said plate having an outside groove or indent adjacent to the plate, extending into the side of the top of the distributing-chamber, the walls of said chamber having a plurality of holes leading from the chamber into the groove, said plate having a slot immediately over the holes, a pipe supplying gas to the chamber, a deflector supported above the slotted plate, an oil cup or cups on the plate adjacent to the slot therein, said plate also having a flange along upper rear edge, a distributing and volatilizing chamber under the cups having communication therewith through suitable openings and a pipe supplying oil to said volatilizing-chamber.

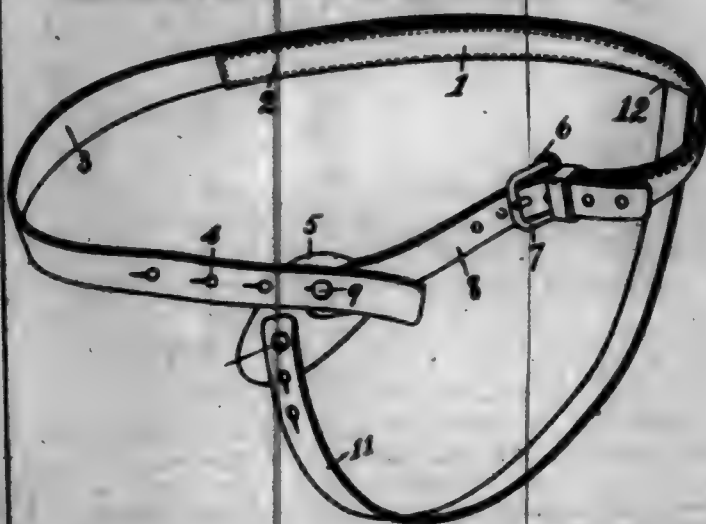
697,081. FENCE-POST. CHARLES W. SUGG, Clarksville, Ohio. Filed Oct. 2, 1901. Serial No. 77,491. (No model.)

Claim.—A tubular post having oppositely-disposed lateral openings near its lower end and having inner guide-grooves leading from the top to the upper ends, only, of the said lateral openings, a driving-point detachably fitted to the lower end of the post, a rod insertible within the post and having a slot near its lower end, anchoring-spurs located within the said slot and having their upper ends overlapped and pivoted together and to the rod by the same pivot-fastening, the upper ends of the spurs

being made rounding to obtain a bearing against the upper end of the slot, and the points of the spurs normally projecting beyond the sides of the rod to enter and travel in the aforesaid guide-grooves and limited in their inward movement by a portion of the rod at the lower end of the slot, and a cap for closing the upper end of the post and the upper ends of the said guide-grooves, substantially as described.



697,082. TRUSS. THOMAS C. SPILLER, San Francisco, Cal. Filed Jan. 20, 1902. Serial No. 31,306. (No model.)



Claim.—A truss having a spring-metal band extending around the body and pressing against the back and front of the body to hold said band in position, a short strap flexible, joined at one end to one end of the band and at the other end carrying a pad for pressing against the body at the point desired and a strap connected to the other end of the band and also to the pad, substantially as described.

697,088. VEHICLE-TIRE. CHARLES STEEL, Readville, Pa., assignor to the Steel Double Cushion Tire Co., Akron, Ohio, a Corporation of New Jersey. Filed Oct. 25, 1900. Renewed Sept. 10, 1901. Serial No. 74,399. (No model.)



Claim.—1. In a vehicle-tire, the combination of a rim having a channeled portion, and a tire having only a main body portion which has a gradual taper upwardly, and which has its outer lower corners shaped so as to normally leave a space between said lower surfaces and the lower inner surface of the rim, said tire being also formed with a lower arched portion which extends into its main body portion, and a cushioning-aperture above the lower arched portion, and intermediate its tread and under side, whereby cushioning effects are secured between the tread and the intermediate cushion, and the lower arched cushion and the lower apertured corner-cushion, and between the intermediate cushion and the arched cushion, and the apertured corner-cushion, substantially as described.

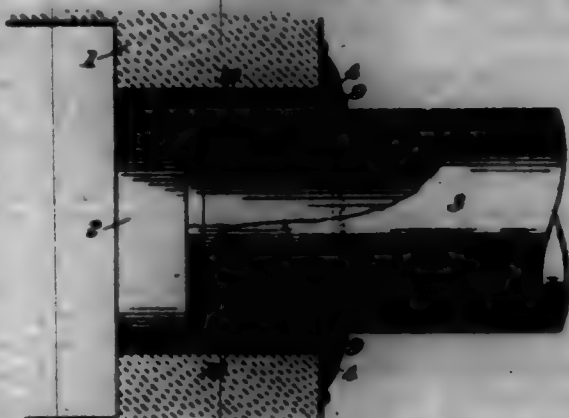
2. In a vehicle-tire, the combination of a rim having a channelled portion, and a tire having a main body portion only which has a gradual taper upwardly, the said body portion being substantially triangular in vertical cross-section with rounded corners, the lower surface of said tire being shaped so as to normally leave cushioning-spaces between said lower surface and the lower inner surface of the rim, said tire being also formed with a lower arched portion extending into the triangular-shaped body portion, and with apertures for connecting-wires, substantially as described.

3. In a vehicle-tire, the combination of a rim having a channelled portion and a tire having its outer lower corners curved so as to normally leave a space between said curved portions and the inner lower surface of the rim, said tire being also corrugated on its under surface to form a series of cushions, and provided with a cushion intermediate its tread and its under side, whereby cushioning effects are secured between the tread and the intermediate cushion, and between the intermediate cushion and the corner-cushion, and the under cushions, substantially as described.

4. In a vehicle-tire, the combination of a rim having a channelled portion and a tire having only a main, cold body portion which has a gradual taper upwardly, and which has its outer lower corners shaped so as to normally leave spaces between said lower surface and the lower inner surface of the rim, said tire being also formed with a plurality of arched portions which extend into the main body portion thereof, substantially as described.

5. In a vehicle-tire, the combination of a rim having a channelled portion and a tire having a cold main body portion only, and which has a gradual taper upwardly, the entire body portion being substantially triangular in vertical cross-section, the said tire being formed with a lower arched cushion extending into the triangular-shaped body portion and with a central cushion, and with apertures for connecting-wires, the construction and arrangement being such that cushioning effects are secured between the tread of the tire and the central cushion, and the lower arched cushion, substantially as described.

897,084. STOVEPIPE-COLLAR. JAMES SCHMIDLER, Dubuque, Ia. Filed Oct. 20, 1901. Serial No. 20,447. (No model.)



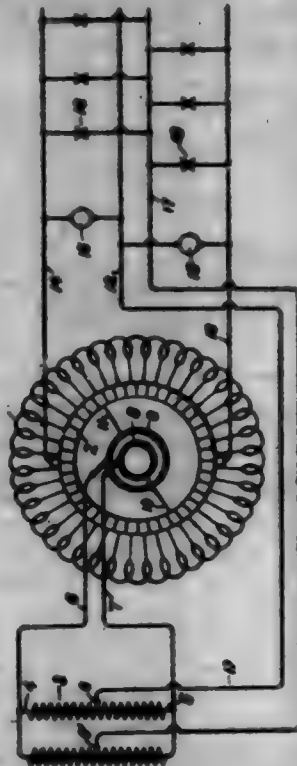
Claim.—1. The combination with a stovepipe-collar, of a spring retaining device applied to the inner surface of the collar proper, said retaining device being in the form of a spring-strip the end portions of which are bent to provide flaring arms with unconfined extremities which engage the chimney-flue and oppositely-located and inwardly-projecting elbows, which clamp the pipe, substantially as and for the purpose described.

2. The combination with a stovepipe-collar, of a combined collar-retaining and stovepipe-clamping device, the same consisting of a spring-strip the body portion of which is bent in the form of a bow and secured throughout a portion of its length to the collar, the end portions of the strip being left free and bent to form elbows which project within the edge of the opening in the collar for engaging the stovepipe, and divergent arms adapted to bear against the flue at opposite points for retaining the collar in position.

3. The combination with a stovepipe-collar, of a combined collar-retaining and stovepipe-clamping device consisting of a strip of spring material secured to the inner surface of the collar and having its end portions bent to form spring retaining arms and elbows which project partially within the edge of the opening in the collar, the said elbows being flattened to form bling edges adapted to impinge against the stovepipe at opposite points.

897,085. SYSTEM OF ELECTRIC DISTRIBUTION. CHARLES F. SCHMIDLER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 18, 1901. Serial No. 72,470. (No model.)

Claim.—1. The combination of direct-current mains, and a plurality of separate neutral conductors, each constituting with said mains a multiple-wire direct-current system of distribution.



2. The combination of direct-current mains, a plurality of neutral conductors, means for maintaining said conductors at a potential intermediate between that of said mains, and transmitting devices connected between said neutral conductors and said mains.

3. The combination of a dynamo-electric machine having a winding provided with a commutator, conductors connected to brushes on said commutator, means for deriving a plurality of points each having a potential neutral with respect to said winding, and conductors extending from said points.

4. The combination of a winding provided with a commutator, a plurality of compensators connected in multiple to each other and to points in said winding, and conductors leading from points in the windings of said compensators.

5. The combination of a winding provided with a commutator, means for deriving separate points each of neutral potential with respect to said winding, and conductors extending respectively from said points.

6. The combination of a winding provided with a commutator, windings connected with the first-mentioned winding and carrying alternating currents, and conductors adapted to carry direct current extending respectively from points in the last-mentioned windings.

897,086. BOTTLE-STOPPER. ARTHUR BRUNN, New York, N. Y. Filed Sept. 4, 1901. Serial No. 74,801. (No model.)



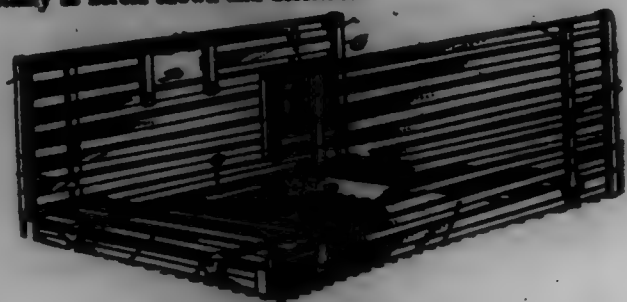
Claim.—1. A bottle-stopper consisting of an integral structure adapted to be forced into the neck of the bottle, comprising a plurality of concentric rings or bands united by internal flanges at alternate edges, the outer ring or band inclosing or surrounding the others.

2. A bottle-stopper consisting of an integral structure comprising a ring or band turned inward and downward at one edge to form a second ring or band which is half turned inward and upward at its opposite edge to form a third ring or band closed at its opposite edge, the structure being adapted to be forced into the neck of a bottle.

897,087. FOLDING CHICKEN-COOP. FRANK E. SCHMIDLER, St. Louis, Mo. Filed July 27, 1901. Serial No. 69,900. (No model.)

Claim.—1. The combination with the bottom, of the side and end sections hinged to said bottom, the cover-sections being hinged to the side sections, said cover-sections having depending staples arranged opposite each other, an arm pivoted to the bottom and carrying a strip at its outer end, said strip carrying bolts adapted to engage said staples for the purpose of locking the cover-sections together, substantially as shown and described.

2. The combination with the cover-section, having staples arranged at their opposing edges, said staples being adapted to register when the cover-sections are closed, an arm adapted to be pivoted to the bottom, the strip pivotally connected to the upper end of said arm, and the belt carried by the said strip and adapted for engagement with the staples, substantially as herein shown and described.



697,088. CAN TOP AND CAP. JAMES B. SHAW, Ohio, Cal. Filed June 28, 1901. Serial No. 69,978. (No model.)

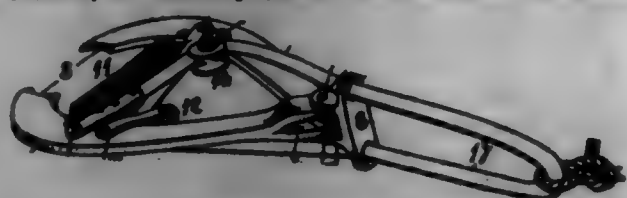


Claim.—1. A can-top comprising a central opening surrounded by a depressed grooved or creased wall which occupies the lowest level of the under side of the top and has its inner edge upwardly bent, and a horizontal shoulder above the plane of said wall and completely surrounding the latter, and a cap having a horizontal peripheral flange to engage said shoulder and to be wholly disposed above the said depressed grooved or creased wall.

2. A can-top having a central opening therein with a depressed wall therearound forming the lowest portion of the top, the inner edge of the said depressed wall being struck upwardly, the top also having a horizontal shoulder extending completely around the same above the plane of the said wall, and a cap having an edge portion to bear upon the said shoulder.

3. A can-top comprising a central opening surrounded by a depressed grooved or creased wall which occupies the lowest level of the under side of the top and has its inner edge upwardly bent, and a horizontal shoulder above the plane of said wall and completely surrounding the latter, the said top also being formed with an upstanding bead located at the outer portion of said shoulder to prevent the latter from running over onto the top, beyond the said bead, and a cap having a horizontal peripheral flange to engage said shoulder and be disposed wholly above the plane of the depressed grooved or creased wall around the opening in the top.

697,089. HORSE-KITCHING DEVICE. ARTHUR W. SWANSON, Rockford, Ill. Filed May 4, 1901. Serial No. 64,707. (No model.)

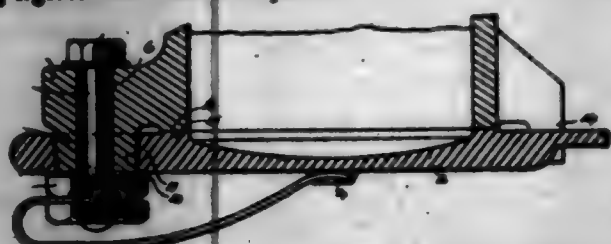


Claim.—1. A horse-kitching device comprising two jaws pivoted together, a yoke pivoted to each jaw, a wheel supported by each yoke, a strap having its ends connected to the jaws, the end of the strap connected to one jaw passing around the wheel supported by the opposite jaw.

2. A horse-kitching device comprising two jaws pivoted to a plate, the plate having two holes, a swinging yoke supported by each jaw, a roller supported by each yoke, a strap having its ends connected with the jaws, the end of the strap connected with one jaw passing around the wheel supported by the opposite jaw, the strap passing through the holes in the plate.

697,040. JOURNAL-BOX. THOMAS H. STERNBERG, Wilmington, N. C. Filed Mar. 4, 1901. Serial No. 69,964. (No model.)

Claim.—1. The combination with a journal-box of a lid loosely pivoted at one end thereof, a belt pivoted in the box, and a spring rigidly secured by one end to the end of the belt and bearing at its free end upon the lid to press it upon its seat on the box, the lid, spring, and belt turning together when the lid is opened.



2. The combination with a journal-box of a lid loosely pivoted at one end thereof, a belt pivoted in the box, and a spring rigidly secured by one end to the end of the belt and bearing at its free end upon the lid to press it upon its seat on the box, the weight of the lid being supported by projections on the box and independently of the belt, the lid, spring, and belt turning together when the lid is opened.

3. The combination with a journal-box of a belt pivoted in the box, a spring secured at one end to the end of the belt, and a lid hinged between the spring and the box and pivoted about the same center as the spring, the spring having but one free end which bears upon the center of the lid to press it upon its seat upon the box, the lid, belt and spring being arranged to turn together and about the same center when the lid is opened.

4. The combination in a journal-box of a lid supported at two points one on each side of the opening in the box, and said lid pivoted at one side of the box, a belt pivoted in a lug on the same side of the box, and a spring rigidly secured to the end of the belt beyond the outer surface of the lid and bearing at its free end upon the lid to press it upon its seat on the box, the lid, belt and spring turning together when the lid is opened.

5. The combination with a journal-box of a lid the weight of which is supported at two points one on each side of the opening in the box, a belt pivoted in a lug on the side of the box, and a spring rigidly secured by one end to the end of the belt beyond the outer surface of the lid and bearing at its free end upon the lid to press it upon its seat on the box, the said lid being free to turn with the spring about the same center, and lateral displacement of the lid being prevented by the pivot of the spring.

6. The combination with a journal-box of a belt pivoted at one side of the opening in the box thereof, a spring rigidly secured by one end to the end of the belt, a lid bearing upon a seat surrounding the opening in the box and arranged to turn with the spring about the same center, the free end of the said spring bearing upon the center of the lid to press it upon its seat on the box and being connected with the lid that when the lid is opened the lid and spring will turn together.

7. The combination with a journal-box of a lid loosely pivoted at one end thereof, a belt pivoted in the box, and a spring rigidly secured by one end to the end of the belt and bearing at its free end upon the lid to press it upon its seat on the box, the said free end of the spring being connected with the lid that when the lid is opened the lid and spring will turn together.

8. The combination with a journal-box of a belt pivoted at one side of the opening in the box thereof, a spring rigidly secured by one end to the end of the belt beyond the plane of the face of the box, a lid bearing upon a seat surrounding the opening in the box and arranged to turn with the spring about the same center, the free end of the said spring bearing upon the center of the lid to press it upon its seat on the box and being connected with the lid that when the lid is opened the lid and spring will turn together, and the box being provided with an extension-seat to support the lid when it is open.

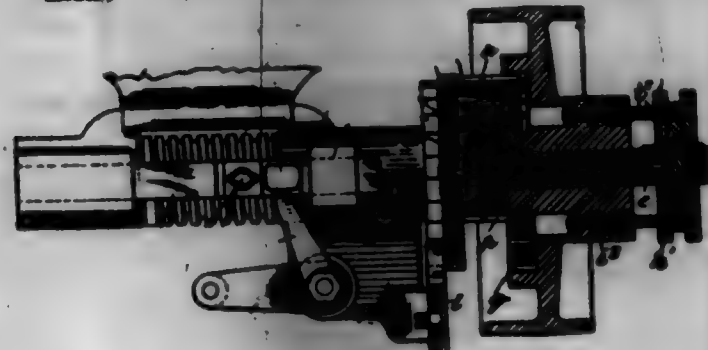
9. The combination in a journal-box of a lid thereof, and an independent U-shaped spring, having both legs turned in the same direction, one leg being longer than the other, the short leg attached to the box, and the free leg turned over the point of support of the attached leg, and bearing on the lid only at or about its center.

10. In a journal-box, the combination of a box having an opening on one side provided with a seat for a lid all around the opening, a lid pivoted to the box and supported by the box in a plane parallel with the plane of the seat on one side of its pivot only, that is to say, by the seat, the lid being opened by revolving around the pivot in or about the same plane as the seat, and a U-shaped spring having a short and a long leg supported by the box by its short leg only, having both legs turned in the same direction and having the long leg turned over the point of support, or attachment, of the short leg and resting upon the lid, at or about its center only, substantially as described.

11. The combination with a journal-box having an opening on one side, with a seat all around the opening, of a lid pivoted to the box on a

pivot perpendicular to the plane of the seat, said lid having a bearing on the seat and supported on the box in the plane of the seat, on the one side of the pivot only.

697,041. VARIABLE-MOTION MECHANISM. ALBERT E. TUBBS, Everett, Mass. Filed May 24, 1901. Serial No. 61,789. (No model.)



Claim.—1. A rotatable shaft, a pulley loosely mounted on the shaft but adapted to be connected to rotate therewith, a pinion secured to the shaft, a pinion loosely mounted on the shaft, means for preventing backward movement of the last-mentioned pinion, a plate loosely mounted on the shaft, a pinion mounted on said plate and in mesh with the pinion hereinbefore described, and a gear borne by the pulley and in mesh with the pinion on the plate.

2. A rotatable shaft, a pulley loosely mounted on the shaft but adapted to be connected to rotate therewith, a ratchet loosely mounted on the shaft, a pawl adapted to engage the ratchet, a pinion rigidly connected with the ratchet, a pinion secured to the shaft, a plate loosely mounted on the shaft, a pinion mounted on the plate and in engagement with the pinion hereinbefore mentioned, and a gear on the pulley adapted to engage the pinion on the plate.

3. A rotatable shaft, a pulley loosely mounted on the shaft but adapted to be connected to rotate therewith, said pulley having an internal gear, a ratchet loosely mounted on the shaft, a pawl to engage the ratchet, a pinion rigidly connected with the ratchet, a pinion secured to the shaft, said pinion having a different number of teeth, a plate loosely mounted on the shaft, and a pinion mounted on the plate and in mesh with said internal gear, and also with the pinion hereinbefore mentioned.

4. In a fast and slow motion mechanism, in combination, a rotatable shaft, a pulley loosely mounted on the shaft, a clutch-section splined to the shaft and adapted to be engaged with the pulley, a pinion loosely mounted on the shaft, means for preventing backward movement of said pinion, a pinion secured to the shaft, a plate loosely mounted on the shaft, a pinion in engagement with said pinion hereinbefore mentioned, and a gear on the pulley in engagement with the pinion on the plate.

697,042. CHEMOTHERAPY OF CHLORINE ALKALOIDS. RUDOLF TILKE, Frankfurt-on-the-Main, Germany, assignor to Vereinigte Chemische Werke AG, Frankfurt-on-the-Main, Germany. Original application filed Apr. 24, 1901. Serial No. 67,382. Divided and this application filed Feb. 12, 1902. Serial No. 59,784. (No specimens.)

Claim.—1. The herein-described new chlorine-alkaloid ether of the chlorine alkaloids, being difficultly soluble in water, readily soluble in alcohol, benzene, and ether, possessing basic properties and forming with inorganic and organic acids well-characterized salts, substantially as hereinbefore described.

2. The herein-described new chlorine-alkaloid ether of quinine, having most probably the formula:



being a tasteless white powder melting at 111° centigrade easily soluble in alcohol, ether and benzene, and difficultly soluble in water and glycerin, and forming well-characterized salts with inorganic and organic acids, substantially as described.

697,043. SEWED SIGNATURE. WILFRED C. TAYLOR, Chicago, Ill. assignor, by direct and mesne assignments, to Trovatin Machine Company, Chicago, Ill., a Corporation of Illinois. Filed May 24, 1900. Serial No. 17,577. (No model.)

Claim.—1. A book comprising a plurality of signatures connected at the back thereof by two threads and two lines of stitching, said threads being knotted together at one point between each pair of signatures, and alternately on each line of stitching, substantially as described.

2. A plurality of signatures attached together at their back edges by a plurality of threads on a plurality of lines of stitching, said threads being knotted together alternately on each line of stitching, the knots be-

tween each pair of signatures being arranged so as to effect the knots between the next adjoining pair of signatures, substantially as described.



3. A plurality of signatures sewed together by alternating knotted and unknotted stitches, the knots connecting each pair of signatures being so located as to effect knots connecting the next adjoining pair of signatures, substantially as described.

4. A series of signatures sewed together by a stitching comprising a plurality of threads knotted together between every alternate pair of signatures and along one line of stitching and knotted together between intervening pairs of signatures on the next line of stitching and so on repeatedly, whereby each pair of signatures is held together by a series of knotted and unknotted threads, the knots of adjoining series effecting each other, substantially as shown and described.

5. A series of signatures sewed together by stitching consisting of a loop of one thread passed inwardly through the back of one signature and outwardly through the back of the same signature at another point, a loop of a second thread knotted with the first loop at that point and passed inwardly through the back of the next signature and outwardly through that back at another place, and then knotted with a second loop of the first thread and so on repeatedly whereby there are knots between every alternate pair of signatures effecting knots between intervening pairs of signatures, substantially as shown and described.

6. A series of signatures sewed together by stitching, consisting of a loop of one thread passing inwardly through the back of one signature and outwardly through the back of the same signature at another point, a loop of another thread passing through the end of the first-mentioned loop outside of the signature, a second loop in the second thread passing through the first loop in the second thread and inwardly through the back of the next signature and outwardly through its back at another place, and another loop of the first thread passing through the last loop of the second thread and a second loop in the first thread passing through the partly-formed loop in said thread and through the back of the signature and so on repeatedly, substantially as shown and described.

697,044. TRANSVERSELY-DIVIDED BOOT OR SHOE LAST AND UNION THEREFOR. ARTHUR TYLER, JR., Brighton, Mass. Filed July 26, 1901. Serial No. 69,768. (No model.)



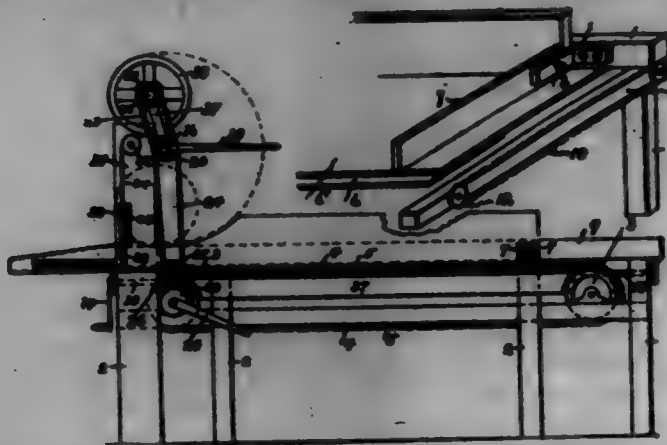
Claim.—1. The combination of the fore part and heel part of a boot or shoe last, or analogous device, with a flanged disk which is mounted in recesses in said parts, connects said parts and permits movement of one part in relation to the other part; and means for keeping said flanged disk in working position.

2. The combination of the fore part and heel part of a boot or shoe last, or analogous device, with a pair of flanged disks which are mounted in recesses in said parts, connect said parts and permit movement of one part in relation to the other part; and a separator inserted between said disks.

3. The combination of the fore part and heel part of a boot or shoe last, or analogous device, with a union which is mounted in recesses in said parts, connects said parts, and permits movement of one part in relation to the other part; said union comprising flat surfaces which contact with opposed fore part and heel part surfaces that are at right angles to transverse sections of the same, and each contact effecting a lateral pressure that resists said relative movements of the fore part and heel part, and tends to prevent accidental collapsing of the last, said union comprising a pair of flanged disks, and said recesses being formed with flange-receiving recesses, whereby the heel part and fore part are held in operative relation with each other.

4. A union for boot and shoe lasts, said union comprising a pair of flanged disks and a separator.

897,045. MATTRESS-FILLER. GEORGE W. WARREN, Phila-
delphia, Pa. Filed Mar. 28, 1901. Serial No. 58,181. (No model.)



Claim.—1. A mattress-filling machine comprising a supporting-frame, an adjustable roller mounted therein, a sliding gate, and means for simultaneously adjusting said roller and operating said gate, as set forth.

2. A mattress-filling machine comprising a frame, a roller mounted therein, means for adjusting said roller angularly, a conveyor comprising two removing-sheets, means for varying the width of said conveyor, and means for simultaneously operating said conveyor and rotating said roller, as set forth.

3. A mattress-filling machine comprising a supporting-frame, an adjustable roller mounted therein, means for adjusting the same, a conveyor, a sliding gate, and connections between said roller and said gate, whereby they are moved simultaneously, as set forth.

4. A mattress-filling machine comprising a supporting-frame, an adjustable roller mounted therein, means for adjusting the same, a conveyor, a sliding gate, connections between said roller and said gate, whereby they are moved simultaneously, and means for simultaneously operating said conveyor and rotating said roller, substantially as set forth.

5. A mattress-filling machine comprising a supporting-frame, an adjustable roller mounted therein, means for adjusting the same, a conveyor, a sliding gate, a lever pivoted in said frame and having connections with said roller, and connections between said lever and said sliding gate, substantially as set forth.

6. A mattress-filling machine comprising a supporting-frame, a shaft mounted therein and having radial arms, a roller mounted between said arms, a lever connected to said shaft, a conveyor, a sliding gate, and connections between said lever and said gate, substantially as set forth.

7. A mattress-filling machine comprising a supporting-frame, a shaft mounted therein and having radial arms, sprocket-wheels mounted loosely on said shaft, a roller mounted between said arms and carrying sprocket-wheels on each end, chains connecting the sprocket-wheels of said roller with those of said shaft, means for rotating said latter sprocket-wheel, a lever connected to said shaft, a conveyor, a sliding gate, and connections between said lever and said gate, substantially as set forth.

8. A mattress-filling machine comprising a supporting-frame, a conveyor mounted therein, removing-sheets arranged to be fed thereby, sprocket-chains arranged to vary the relative positions of said removing-sheets, a sliding gate mounted in said frame, means for operating the same and means for operating said conveyor, as set forth.

9. A mattress-filling machine comprising a supporting-frame, a conveyor mounted therein, removing-sheets arranged to be fed thereby, a rail connected to one of said removing-sheets, means for adjusting said rail, and means for operating said conveyor, substantially as set forth.

10. A mattress-filling machine comprising a supporting-frame, a conveyor mounted therein, removing-sheets arranged to be fed thereby, sprocket-wheels mounted in said frame, chains connecting said wheels, a rail connected to one of said removing-sheets and also to said chains, means for rotating said sprocket-wheel, and means for operating said conveyor, substantially as set forth.

11. A mattress-filling machine comprising a supporting-frame, a conveyor mounted therein, tick-supports one of which is adjustable with relation to the other, removing-sheets arranged to be fed by said conveyor, and means for simultaneously adjusting said tick-supports and said removing-sheets, as set forth.

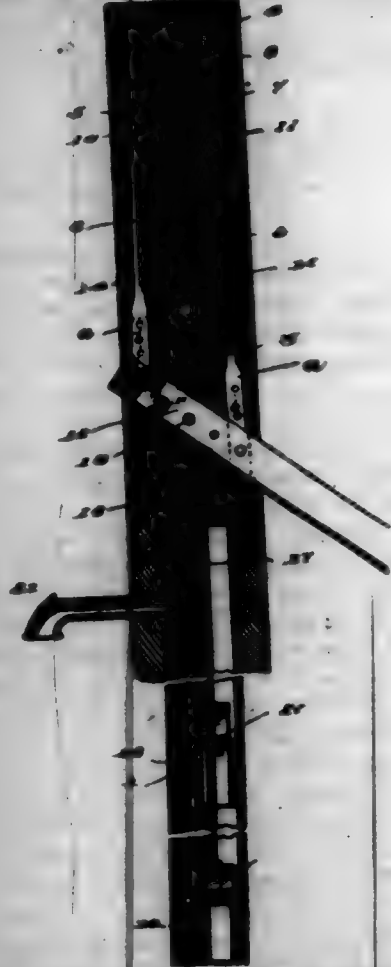
12. A mattress-filling machine comprising a supporting-frame, a conveyor mounted therein, removing-sheets arranged to be fed thereby, a rail connected to one of said removing-sheets, tick-supports, one of which is connected to said rail, and means for adjusting said rail, substantially as set forth.

13. A mattress-filling machine comprising a supporting-frame, a roller mounted therein, means for adjusting said roller radially, a sliding gate, connections between said roller and said gate whereby they are both operated simultaneously, a conveyor, means for operating the same, removing-

sheets carried by said conveyor, and means for adjusting the width thereof, substantially as set forth.

14. A mattress-filling machine comprising a supporting-frame, a roller mounted therein, means for adjusting said roller radially, a sliding gate, connections between said roller and said gate whereby they are both operated simultaneously, a conveyor, means for operating the same, removing-sheets carried by said conveyor, a rail connected to one of said removing-sheets, tick-supports one of which is connected to said rail, and means for varying the position of said rail, substantially as set forth.

897,046. PUMP. ED. WARREN, Edwards, Kans. Filed Apr. 13, 1901. Serial No. 58,739. (No model.)



Claim.—In a pump-actuating mechanism, the combination with the pump barrel or stock, and upper and lower pistons in the barrel, of vertical side pieces provided with parallel vertical slots in their inner faces arranged with guideways between them, head-blocks slidingly disposed in said guideways, rods 14, 15, secured to and depending from each of said blocks, a vertically-rocking handle fulcrumed between the said side pieces and pivotally connected to the lower end of said rods 14, 15, and plunger-rods having their upper ends fastened to the sliding blocks and their lower ends secured to the upper and lower pistons, respectively.

897,047. CLOSED MEASURING-CAN. CHARLES E. WHEELER, Minneapolis, Minn. Filed July 5, 1901. Serial No. 67,138. (No model.)



Claim.—1. The combination with a can having perforations in its bottom and having a pivoted valve for opening and closing said perforations

tion, of a measuring-cup adapted to detachably telescope with and rotate with respect to said can, said cup having detachable connection with said valve, whereby said valve may be operated while said cup closes the end of said can and said cup is adapted to be removed with the measured load, substantially as described.

2. The combination with a can having perforations in its bottom, and having a pivoted valve for opening and closing said perforations, of a measuring-cup having an adjustable false bottom, which cup telescopes with and rotates with respect to said can and has detachable engagement with said valve, whereby the said valve may be operated, by rotary movement of said cup while in operative position, substantially as described.

697,048. LOCK-LIFTER FOR RAILWAY AUTOMATIC COUPLING. THOMAS WILSON, Paw Paw, Mich. Filed July 21, 1899. Renewed Sept. 17, 1900. Serial No. 20,344. (No model.)



Claim.—1. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks, and a compression-spring engaged therewith, with an adjustable arm extending into proximity to the corresponding hook for the purpose described.

2. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks, and a compression-spring engaged therewith, each of said safety-hooks constructed with metal turned back upon itself intermediate its ends, and a spring-arm for the purpose described.

3. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks, each provided with a spring-arm extending into proximity to the corresponding hook, and a compression-spring engaged at its opposite ends with said safety-hooks, for the purpose described.

4. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks, and a flat coiled compression-spring engaged therewith, substantially as described.

5. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks, and a compression-spring engaged therewith, each of said safety-hooks constructed of metal turned back upon its intermediate ends to form a hook portion at one end thereof, and a looped portion at the other end thereof, one extremity of said metal projecting from the opposite end thereof to form a spring-arm extending from the looped portion to the hooked portion of the safety-hook, for the purpose described.

6. An unlocking device for car-couplers consisting of oppositely-arranged safety-hooks and a flat coiled compression-spring engaged therewith, the ends of said spring being turned inward to engage the loops of said safety-hooks for the purpose set forth.

7. An unlocking device for car-couplers consisting of oppositely-arranged hooks having spring-arms terminating adjacent to the hooked ends thereof, a compression-spring engaged therewith and means extending transversely of the springs to engage the extremities of the spring with the corresponding ends of the hooks to secure the compression of the spring for the purpose described.

8. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a rock-bar, a locking device and an unlocking device consisting of hooks having spring-arms terminating adjacent to the hooked ends thereof and a compression-spring, one end of one of said hooks engaged with the rock-shaft and the opposite end of the other hook engaged with the locking device for the purpose set forth.

9. The combination with the locking device of an automatic car-coupling and a rock-shaft, of a compression-spring, transversely-disposed device at the respective ends of the spring, hooks directly engaging said device, extending longitudinally of the spring and having their hooked ends projecting beyond the other ends of the spring, one of said hooks connected with the rock-shaft and another attached to the locking device.

697,049. HOSE-SUPPORTER. CLARA E. WHEELER, New York, N. Y. Filed Nov. 2, 1891. Serial No. 21,161. (No model.)



Claim.—1. A hose-supporter, comprising a band adapted to pass across the wearer's back and having curved portions formed to extend downwardly forward of the hips and in a backward or return direction below the latter, means for attachment to the hose supported by the ends of said band in a position at one side of the wearer's limbs, and an elastic band connected to the opposite sides of the first-mentioned band adapted to extend across or below the abdomen, for the purpose set forth.

2. A hose-supporter comprising a band adapted to pass across the wearer's back and being formed with a dip or downwardly-curved portion therein and also having curved portions formed to extend downwardly forward of the hips and in a backward or return direction below the latter, means for attachment to the hose supported by the ends of said band in a position at one side of the wearer's limbs, and a second band connected to the opposite side of the first-mentioned band adapted to extend across or below the abdomen, for the purpose set forth.

697,050. CUTTER-BAR. DAVID E. WHITE, Winchester, Kans. Filed Oct. 10, 1891. Serial No. 73,172. (No model.)



Claim.—1. The combination with a cutter-bar, of two sets of outer-blades, each member of one set having oppositely-directed lateral attaching-ears applied to the bar, the upper faces of the ears being below the upper faces of the blades, said blades being spaced at predetermined intervals to receive the members of the other set of outer-blades, the latter resting upon the opposite ears of adjacent blades and flush with the upper faces thereof.

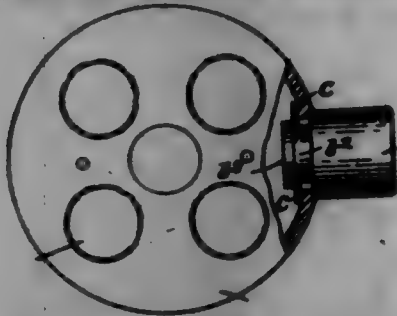
2. A cutter-bar, having a pair of outer-blades which are provided with opposite laterally-projected ears applied to the bar and having their upper faces located below the upper faces of the blades, another blade applied flat against the opposite ears of the first-mentioned pair of blades, and fastenings pivoting said blades, the ears and the bar, the upper faces of all of the blades being flush.

3. A cutter-bar having two sets of outer-blades, each member of one set having its rear end portion folded upon the under side thereof and projected at opposite sides of the blade to form attaching-ears, and the members of the other set of blades being applied to the opposite ears of adjacent blades, the upper faces of all of the blades being flush, and fastenings pivoting the bar, the ears and the blades applied thereto.

4. As a new article of manufacture, a cutter-blade having its rear edge portion folded over upon the under side thereof and also projected at opposite edges of the blade to form attaching-ears.

5. As a new article of manufacture, a cutter-blade which is substantially triangular in shape and has its opposite side edges beveled to form cutting edges, the rear edge portion of the blade being folded over upon the under side thereof and also projected at opposite edges to form attaching-ears, each of the latter being provided with a perforation for the reception of a fastening, and the folded portion being provided with an intermediate perforation.

697,051. JUNCTION-BOX COUPLING. MORRIS F. WHITTON, Hingham, Mass. Filed Aug. 28, 1901. Serial No. 72,597. (No model.)



Claim.—1. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it and having a neck at one end formed with a lateral projection or flange at its extremity which projects through the hole in the wall and a locking device for securing said coupling member to the box which engages said projection or flange, substantially as described.

2. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it and having a neck at one end formed with a lateral projection or flange at its extremity which projects through the hole in the wall and a locking device adapted to be interposed between said projection or flange and the wall of the box for securing said coupling member to the box, substantially as described.

3. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it and having a neck at one end formed with an annular flange at its extremity which projects through the hole in the wall and a locking device adapted to be interposed between said annular flange and the wall of the box for securing said coupling member to the box, substantially as described.

4. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it and having a neck at one end formed with a lateral projection or flange at its extremity which projects through the hole in the wall and a yoke adapted to be interposed between said projection or flange and the wall of the box for securing said coupling member to the box, substantially as described.

5. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it and having a neck at one end formed with a lateral projection or flange at its extremity which projects through the hole in the wall, and a yoke having a lateral projection at its crown adapted to be interposed between said projection or flange and the wall of the box for securing said coupling member to the box, substantially as described.

6. The combination with a box having a hole through its wall, of a coupling member having a longitudinal hole through it consisting of a cylindrical body shouldered at one end to form a neck which is provided with a projection or flange at its extremity, said neck projecting through the hole in the wall and the shoulder abutting against the outer side of the wall, and a locking device interposed between the projection or flange and the inside of the wall for securing said coupling member to the box, substantially as described.

697,052. JUNCTION-BOX. MORRIS F. WHITTON, Hingham, Mass. Filed Aug. 31, 1901. Serial No. 72,598. (No model.)



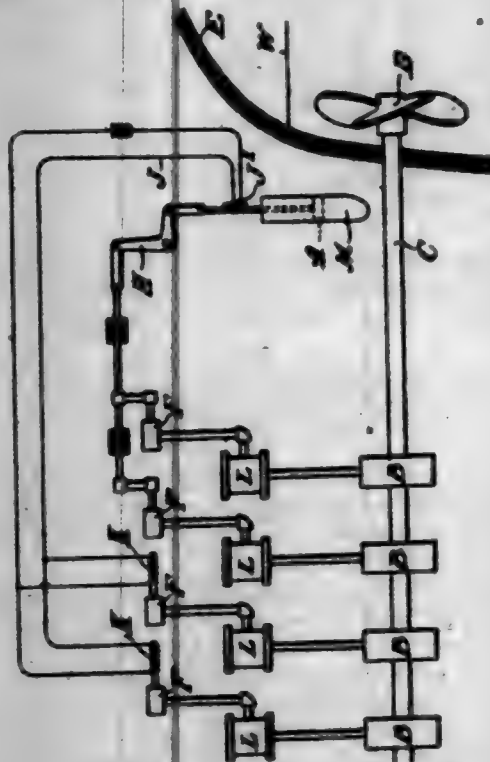
Claim.—A junction-box having holes for the pipes and removable or penetrable pieces contained in said holes formed as caps having end walls and side walls and having flanges engaging the wall of the box by which they are retained in place, substantially as described.

697,053. BRAKE FOR PROPELLER-SHAFTS. GEORGE WHITNEY, New London, Conn. Filed Dec. 19, 1900. Renewed Jan. 29, 1902. Serial No. 91,042. (No model.)

Claim.—1. In a device for preventing racing of marine engines, a float subjected to variation in water-pressure near the propeller, valves controlled by said float governing means for applying a resistance to the rotation of the propeller.

2. In a device for preventing racing of marine engines, a float subjected to variation in water-pressure near the propeller, means electrically controlled by said float for applying a power resistance to the rotation of the propeller when the normal resistance is decreased.

3. In a device for preventing racing of marine engines, a float operable by variations in pressure near the propeller for controlling the application of resistance to the rotation of the propeller, which resistance shall be independent of the power of the float.



4. In a device for preventing racing of marine engines, a float operable by variations in pressure near the propeller for controlling the application of an adjustable resistance to the rotation of the propeller when the normal resistance is decreased.

5. In a device for preventing racing of marine engines, a float adjustable in sensitiveness operable by variations in water-pressure near the propeller for controlling the application of resistance to the rotation of the propeller.

6. In a device for preventing racing of marine engines, an adjustable float operable by variations in water-pressure near the propeller for electrically controlling the application of resistance to the rotation of the propeller.

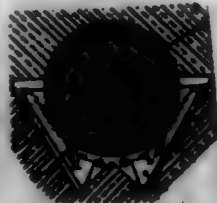
7. In a device for preventing racing of marine engines, a float adjustable in position and operable by variation in the water-pressure and by springs, means controllable by the action of said float for applying resistance to the rotation of the engine-shaft, when the resistance is decreased.

8. A governor for a marine engine comprising a brake mechanism for the propeller-shaft and brake being actuated by a fluid-pressure and pressure being in turn governed by a float, the fluid-pressure being independent of the power of the float.

9. In a device for preventing racing of marine engines, a float actuated by the pressure of water beneath it, said float controlling by an electrically-operated valve when said pressure is decreased the application of a power-brake to prevent undue increase in speed of the engine.

10. A governor for marine engines comprising a p.s.ing means, a float, means for applying resistance to the said propelling means which may be independent of the power of said float said resistance being controlled by said float.

697,054. SELF-TIGHTENING KEY FOR PULLEYS. FRANK WIGGINS, Tacoma, Wash. Filed Mar. 2, 1901. Renewed Dec. 29, 1901. Serial No. 87,377. (No model.)

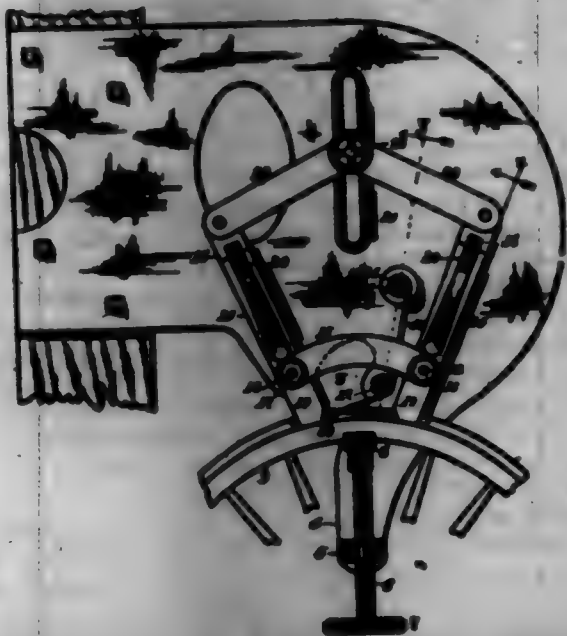


Claim.—In combination with a shaft and split pulley, one of the adjacent edges of the section of said pulley being recessed, the bottoms of the recesses being straight and inclined in relation to each other, the oppositely-disposed keys curved on their inner toothed faces, and straight on their opposite faces to correspond with the walls of said recesses, as set forth.

697,055. INNER TUBE FOR PNEUMATIC TIRES. FRANK A. WILSON, Erie, Pa. Filed Feb. 4, 1902. Serial No. 92,892. (No model.)

Claim.—In an inner tube for pneumatic tires, an end closure comprising the end portion thereof turned back into the tube, and one side of the interned portion of the tube cemented to the inner surface of the tube, and the adjacent face of said interned portion of the tube then cemented together, substantially as set forth.

697,056. RUBBER TIRE-SETTING MACHINE. JOHN E. WILLIAMS, Akron, Ohio. Filed Oct. 14, 1901. Serial No. 73,694. (No model.)



Claim.—1. In a machine for placing rubber tires on vehicle-wheels the combination of means to hold one end of the wire, means for holding back the rubber on the other end of said wire and means situated intermediate of said previously-mentioned means for drawing said wire taut.

2. The combination of two clamping-arms arranged substantially radial to the wheel to be fitted and means for drawing said wire taut situated intermediate said clamping-arms.

3. In a machine for placing rubber tires on vehicle-wheels consisting of a clamping-arm to hold one end of said wire, a second clamping-arm adapted when so desired to clamp said wire, a tightening device situated between said clamping-arms, substantially as shown and described.

4. The combination in a machine for placing rubber tires on vehicle-wheels consisting of two clamping-arms arranged substantially radial to the axis thereof, two separate tightening means situated between said clamping-arms to draw said wire taut independently of each other, substantially as shown and described.

5. The combination in a machine for placing rubber tires on vehicle-wheels consisting of two clamping-arms arranged substantially radial to the axis of said wheel and two tightening devices situated intermediate of said clamping-arms to be operated either singly or in conjunction with each other as desired, substantially as shown and described.

6. The combination in a machine for placing rubber tires on vehicle-wheels consisting of two clamping-arms arranged substantially radial to the axis of the wheel, means as a U-shaped cap for supporting said wheel during said operation, a g... is attached to said U-shaped cap to retain said cap constantly in one direction and means as winding-shafts situated intermediate said clamping-arms to tighten said wire, substantially as shown and described.

7. The combination in a machine for placing rubber tires on vehicle-wheels consisting of a pair of clamping-arms pivoted on bolts attached to the housing arranged to form fulcrums for said clamping-arms and means situated between said clamping-arms to draw said wire taut, substantially as shown and described.

8. The combination in a machine for placing rubber tires on vehicle-wheels consisting of a housing, vertical slot in said housing, a vertically sliding clamping device traveling in said slot, a pair of levers attached to said clamping device at one end severally attached to the upper end of rotating clamping-jaws arranged to grip the wire in placing said tire constructed to be placed radial to said wheel-axis by the vertical motion of said clamping device and said slot, substantially as shown and described.

9. The combination in a machine for placing rubber tires on vehicle-wheels consisting of a housing to support said device and an adjustable clamping device attached to travel in a vertical slot in said housing and

adjust the position of two clamping-arms, two clamping-arms adapted to grasp the wire used in placing said tire, and means as winding-shafts to draw said wire situated between said clamping-arms, substantially as shown and described.

10. The combination in a machine for placing rubber tires on vehicle-wheels consisting of two clamping-jaws radially adjustable, means as two winding-shafts situated in the housing supporting said clamping-jaws and means adapted to revolve said winding-shafts in unison or separately, substantially as shown and described.

11. In a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, a pair of winding-shafts situated in said housing intermediate said clamping-jaws and means to revolve said winding-shafts independently or in unison, as desired, substantially as shown and described.

12. In a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, two clamping-jaws mounted thereon and capable of radial adjustment, means as two winding-drums situated between said clamping-jaws to tighten said wires used in placing said tire and means as a crank-shaft bearing a tight pinion-gear to rotate said winding-shafts either independently or in unison, substantially as shown and described.

13. In a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, a pair of clamping-jaws radially adjustable, a pair of winding-shafts to tighten the wire used in placing said tire, a slot in the end of said shafts to start the rotation of said wires and permit their free removal therefrom, means such substantially as shown for rotating said winding-shafts either independently or in unison.

14. In a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, clamping-jaws radially adjustable mounted thereon, a pair of winding-shafts situated between said clamping-arms capable of longitudinal movement as the number of coils of wire thereon renders the same necessary and means for causing the revolution of said winding-shafts to rotate independently or in unison, substantially as shown and described.

15. In a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, a pair of clamping-arms mounted thereon radially adjustable, a pair of winding-drums situated between said clamping-arms arranged to draw taut the wire used in placing said tire, means as gear-wheels mounted on said winding-shafts to rotate said shafts, a pair of rocking pawls mounted on said housing adapted to permit the rotation of said gear-wheels and shafts in one direction and prevent it in the opposite direction, and means such substantially as shown for rotating said gears and shafts independently or in unison, substantially as shown and described.

16. The combination in a machine for placing rubber tires on vehicle-wheels consisting of a housing suitably supported, a pair of clamping-jaws mounted thereon radially adjustable, a pair of winding-shafts situated between said clamping-jaws, gear-wheels mounted on said winding-shafts to control the rotation thereof, said winding-shafts being capable of longitudinal motion, a plate mounted on a pin on said housing to retain said gears on said winding-shafts and means to rotate said gears independently of each other or in unison, substantially as shown and described.

697,057. REGULATION OF DYNAMO-ELECTRIC MACHINES. THOMAS W. WILLIAMS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Dec. 4, 1900. Serial No. 28,619. (No model.)

Claim.—1. The combination of a source of alternating current, means for converting the alternating current into direct current, and automatic means for compensating for variation of voltage of the direct current occasioned by variation of frequency of the alternating current.

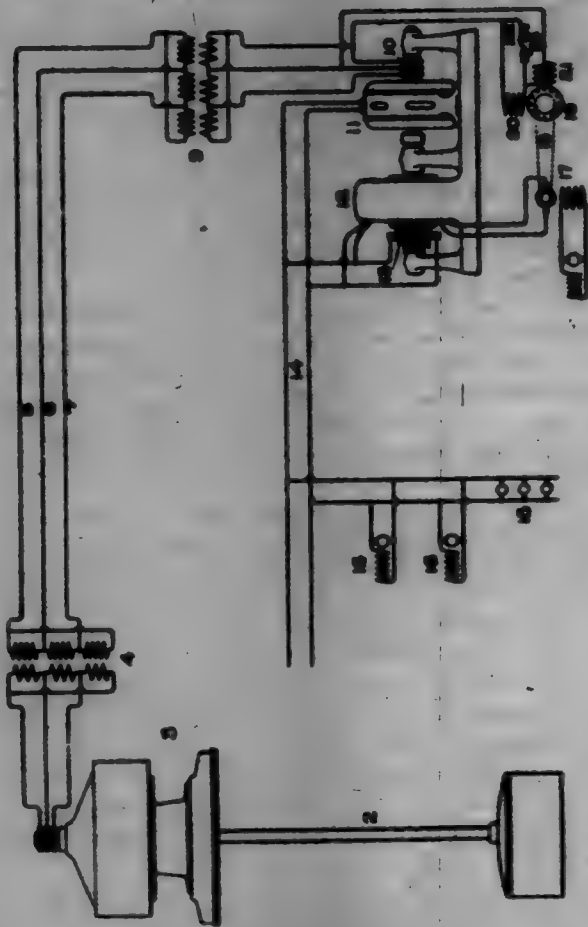
2. The combination of a prime-mover, an alternating-current generator driven thereby, a motor-generator arranged to receive energy from said alternating-current generator, and automatic means for compensating for variation of voltage of the generator element of said motor-generator occasioned by fluctuations in speed of the prime mover.

3. The combination of a prime mover, an alternating-current generator driven thereby, transmission-lines extending from said generator, a motor-generator set fed with current derived from said transmission-lines, and means for regulating the electromotive force of the generator element of the motor-generator set in accordance with variation of frequency of current in said transmission-lines.

4. The combination of alternating-current and direct-current mains leading respectively from the motor and generator of a motor-generator set, a regulating-generator operatively connected to said generator, and means responsive to the frequency of current in the alternating-current mains for driving said regulating-generator.

5. The combination of alternating-current and direct-current mains leading respectively from the motor and generator of a motor-generator

out, a regulating-generator operatively connected to said generator, and means responsive to the frequency of current in the alternating-current mains for controlling the speed of rotation of said regulating-generator.



697,058. HARROW-TOOTH FASTENING. GLENN T. WILLIAMS and JAMES PORTERSON, Fresno, Cal.; said Williams assignor to said Porterson. Filed Sept. 8, 1901. Serial No. 74,787. (No model.)



Claim.—1. In combination with a harrow-tooth, and a slotted carrying-bar for the same, a clip bearing against one face of the bar, and having an upper and a lower arm extending beyond the plane of the opposite face of the bar, the lower arm passing through the slotted bar, both arms being provided with holes to receive the teeth.

2. In combination with a harrow-tooth and a slotted carrying-bar for the same, a clip bearing against one face of the bar, and having an upper arm passing over the top of the bar, and a lower arm passing through the slotted bar, both arms being provided with holes to receive the teeth.

3. In combination with a harrow-tooth and a slotted carrying-bar for the same, a clip bearing against one face of the bar, and having an upper and a lower arm extending beyond the plane of the opposite face of the bar, the lower arm passing through the slotted bar, and a second clip bearing against the bar under the first clip, and having an upper and a lower arm extending beyond the plane of the opposite face of the bar, the upper arm of said second clip passing through the slotted bar, the arms of both clips being provided with holes to receive the teeth.

4. In combination with a harrow-tooth, and a slotted carrying-bar for the same, a clip bearing against the upper portion of one face of the bar, and having an upper arm passing over the top of the bar, and a lower arm passing through the slotted bar, and a second clip bearing against the lower portion of one face of the bar, and having an upper arm passing through the slotted bar, and a lower arm passing under the bar, the arms of both clips having holes, to receive the teeth.

697,059. CULTIVATOR. GLENN T. WILLIAMS and JAMES PORTERSON, Fresno, Cal.; said Williams assignor to said Porterson. Filed Sept. 20, 1901. Serial No. 75,001. (No model.)

Claim.—1. In a cultivator, the combination of an axle having a collar at its inner end, a cultivator attachment having a hub adapted to be mounted upon said axle, said hub having at one end a socket-flange adapted

to fit over the axle-collar, a composite coupling-flange adapted to be bolted to the socket-flange of said attachment and made of two sections one having an inner opening large enough to pass over the axle-collar and the other having an inner opening too small to pass over said collar, whereby engagement is made and broken with said axle-collar according as the smaller section is fitted in place or removed, and a suitable removable coupling engaging the axle-collar for holding said attachment on the axle, substantially as described.



2. In a cultivator, the combination of an axle having a collar at its inner end, a cultivator attachment having a hub adapted to be mounted upon said axle, said hub having at one end a socket-flange adapted to fit over the axle-collar, and at the other end a collar, a composite coupling-flange adapted to be bolted to the socket-flange of said attachment and made of two sections one having an inner opening large enough to pass over the axle-collar and the other having an inner opening too small to pass over said collar, whereby engagement is made and broken with said axle-collar according as the smaller section is fitted in place or removed, and a suitable removable coupling engaging the axle-collar for holding said attachment on the axle, consisting of a divided box having end sockets adapted to engage the axle-collar and the hub-collar.

3. In a cultivator, the combination of an axle having a collar at one end, a cultivator attachment having a hub adapted to be mounted upon said axle, said hub having at one end a socket-flange adapted to fit over the axle-collar, and a composite coupling-flange secured to the socket-flange and made of two sections, one having an inner opening adapted to pass over the axle-collar and the other having an extended portion adapted to project behind said axle-collar; substantially as described.

4. In a cultivator, the combination of an axle having a collar at its inner end, a cultivator attachment having a hub adapted to be mounted upon said axle, and provided with a collar on one end, and a divided coupling-box having end sockets adapted to engage the axle and hub collars.

5. In a cultivator, the combination of an axle having a collar at its inner end, a cultivator attachment having a hub adapted to be mounted upon said axle, and provided with a collar on one end, a divided coupling-box having end sockets adapted to engage the axle and hub collars when the attachment is in one position and means adapted to engage the axle-collar, for holding said attachment on the axle when the attachment is in reversed position; substantially as described.

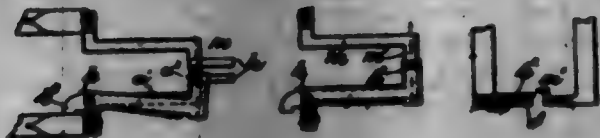
6. In a cultivator, the combination with an axle having a collar, a reversible cultivator attachment adapted to be mounted on said axle, and means at the ends of said attachment adapted to engage the collar on the axle to secure the attachment in reversed positions on the axle; substantially as described.

697,060. HARNESS-SADDLE. MATTHEW WILSON, Garrison, Iowa. Filed Nov. 7, 1901. Serial No. 81,000. (No model.)



Claim.—In a saddle, the combination of a saddle-tree provided with upwardly-extending transversely-disposed end loops, and a yoke consisting of a top plate provided with side flanges and having longitudinal extensions or tongues projecting through the end loops and secured to the middle by the same, said tongues being arranged in the same plane as the adjacent portions of the said plate and formed by reducing the same, substantially as described.

697,061. SINGLE-TRIGGER MECHANISM FOR FIREARMS.
 GEORGE E. WILKINSON, Hartford, Conn., assignor to Remington Arms Company, Inc., N. Y., a Corporation of New York. Filed Feb. 15, 1897.
 Serial No. 698,371. (No model.)



Claim.—1. In combination in a firearm, a plural number of hammers, a rear aperture to each of said hammers, a coupler mounted on one of said hammers and having a lateral swinging movement to engage the under surface of the opposite rear and arranged to engage a cam on one of said hammers, the cam on said hammer to operate the coupler, and a trigger aperture to one of said hammers.

2. In combination in a firearm, a plural number of hammers, a rear aperture to each of said hammers, a movable coupler mounted on one of said hammers and adapted to engage the opposite rear, means for moving said coupler, and a trigger aperture to one of said hammers.

3. In combination in a firearm having a plural number of hammers, a rear, a coupler pivotally supported on the rear and having a cam arranged in the path of movement of one of the hammers whereby a lateral swinging movement of the coupler into the path of movement of the rear will operate the opposite rear from that on which the coupler is pivoted is produced, a projection from the coupler extending around to the opposite side of and embracing the rear-tail whereby simultaneous vertical reciprocation of the two is produced, and a trigger.

697,062. ROASTING-FURNACE. LEWIS T. WRIGHT, Kewick, Cal. Filed July 24, 1901. Serial No. 69,598. (No model.)



Claim.—1. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, a second open-bottomed pipe in said shaft into which the first pipe discharges intermediate to said first pipe and shaft, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

2. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe in said hollow shaft, open-ended pipes leading from the said open-bottomed pipe into the hollow arms, a feed-pipe to the open-bottomed pipe, and an exhaust-pipe from the hollow shaft, substantially as described.

697,063. SOAP-BUNDLE MOWER. CLARENCE E. ALBERT, Rochester, N. Y., assignor of one-half to Harvey R. Carlton, Rochester, N. Y. Filed Jan. 2, 1902. Serial No. 81,044. (No model.)



Claim.—1. A bubble-blower consisting of a hollow body having a small eduction-aperture and a liquid-receptacle in the body having a small discharge-aperture arranged in proximity to the eduction-aperture in the body.

2. A bubble-blower consisting of a body having a small eduction-aperture and a liquid-receptacle in the body having a small discharge-aperture near that in the body and an air-passage extending around said discharge-aperture.

3. A bubble-blower consisting of a body having a chamber, an eduction-aperture at the end, and an air-passage, a liquid-receptacle arranged in the chamber having a discharge-passage arranged in proximity to the eduction-aperture in the body and separated from the walls of the chamber.

4. In a bubble-blower, the combination with a hollow body having

an air-passage, a chamber and an eduction-aperture at the end of the latter, of a removable liquid-receptacle in the chamber having a small discharge-aperture arranged in proximity to the eduction-aperture in the body.

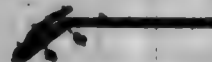
5. In a bubble-blower, the combination with the body having the chamber provided with the eduction-aperture, and the air-passage leading to the chamber, of the removable liquid-receptacle in the chamber having the small discharge-aperture arranged in proximity to the eduction-aperture in the chamber and separated from the walls of the chamber to permit the passage of air around it.

6. In a bubble-blower, the combination with the body having the chamber provided with the eduction-aperture and the air-passage leading to the chamber, of the removable liquid-receptacle in the chamber having the small discharge-aperture and the stopper therein, of material such as sponge, said aperture being arranged in proximity to the aperture in the chamber.

7. In a bubble-blower, the combination with the body having the chamber and air-passage and a perforated cap at the end of the chamber, of the removable liquid-receptacle in the chamber having a small discharge-aperture arranged in proximity to the cap and separate from the walls of the chamber to permit the passage of air around it.

8. In a bubble-blower, the combination with the body having the chamber provided with an eduction-aperture, of a removable liquid-receptacle having the small discharge-aperture and arranged in the chamber and capable of longitudinal movement therein.

697,064. LACE-FASTENER. ARTHUR E. ANDREWS and BERNARD T. MORRISON, Harrisburg, Pa. Filed Aug. 10, 1901. Serial No. 71,588. (No model.)



Claim.—1. As a new article of manufacture, a shoe-lace fastener consisting of a metal strip doubled upon itself and adapted to fit over a shoe-top, one arm of the strip being longer than the other and bowed outwardly, and the other arm terminating opposite said bowed portion.

2. As a new article of manufacture, a shoe-lace fastener consisting of a metal strip doubled upon itself and adapted to fit over a shoe-top, one arm of the strip being longer than the other and bowed outwardly, and the shorter arm terminating opposite said bowed portion and having its end turned inwardly toward the longer arm.

3. The combination with a shoe-top of a shoe-lace fastener consisting of a metal strip doubled upon itself and having its bent portion fitting over the top of the shoe and its two arms extending downwardly on the inner and outer sides of the shoe-top respectively, the outer arm being longer than the inner arm and bowed outwardly, and the inner arm terminating opposite said bowed portion.

4. The combination with a shoe-top of a shoe-lace fastener consisting of a metal strip doubled upon itself and having its bent portion fitting over and bowed to the top of the shoe and its two arms extending downwardly on the inner and outer sides of the shoe-top respectively, the outer arm being longer than the inner arm and bowed outwardly and the inner arm terminating opposite said bowed portion and having its end turned inwardly toward the longer arm.

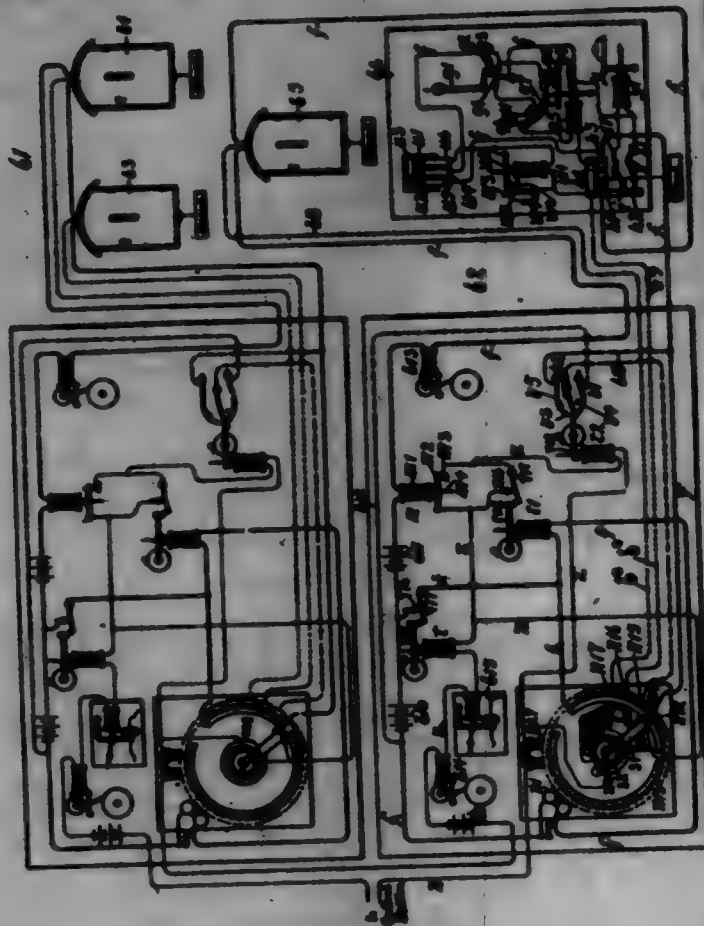
697,065. APPARATUS FOR THE TRANSMISSION OF SIGNALS. CLARENCE E. BRADY, Binghamton, N. Y., assignor to Star Electric Company, a Corporation of New York. Filed Apr. 6, 1900. Serial No. 694,494. (No model.)

Claim.—1. Signal-box, a selector controlled by said signal-box, a transmitter, an auxiliary circuit, a circuit-closer forming part of the transmitter and included in said circuit, and connections between the selector and transmitter as arranged so as to suitably vary the number and arrangement of the closures of the auxiliary circuit.

2. Signal-box, a suitable system of conductors connected with said signal-box, a selector connected to said conductors and arranged to respond to a change of connections between them, a transmitter to successively close an electric circuit, connections between the selector and transmitter as arranged so as to suitably vary the number and arrangement of the closures of the auxiliary circuit, constructed for operation substantially as shown and described, so that, when said transmitter is operated the closures produced thereby will form a combination previously chosen to designate the existing connections between the conductors connected with the signal-box during the production of each closure.

3. Signal-box, a suitable system of conductors connected with said signal-box, a selector connected to said conductors and comprising controlling-magnets arranged to respond to a change of connections between them, an auxiliary circuit, a transmitter constructed and arranged to produce impulses in said circuit, constructed for operation substantially as

shown and described, so that, the transmitter will be so governed by the selector that the impulses produced by the transmitter will form a distinctive combination previously chosen to characterize the individual conductor to which the selector-magnets are connected during the production of each impulse.



4. A general circuit, individual conductors, signal-boxes provided with means for diverting a portion of the general circuit through one of the individual conductors, a selector, magnets forming part of and controlling said selector, a series of separately-insulated contacts co-operating with the selector as to cause said magnets to be successively connected to each of the individual conductors, an auxiliary circuit, a transmitter, and connections between the selector and transmitter so arranged as to suitably vary the number and arrangement of the closures of the auxiliary circuit, constructed for operation substantially as shown and described, so that, the impulses produced by the transmitter will form a distinctive combination previously chosen to characterize the individual conductor to which the selector-magnets are connected during the production of each impulse.

5. A general circuit, individual conductors, signal-boxes provided with means for diverting a portion of the general circuit through one of the individual conductors, a selector, magnets forming part of and controlling said selector, a series of separately-insulated contacts co-operating with the selector as to cause said magnets to be successively connected to each of the individual conductors, an auxiliary circuit, a transmitter, and connections between the selector and transmitter so arranged as to suitably vary the number and arrangement of the closures of the auxiliary circuit, constructed for operation substantially as shown and described, so that, the impulses produced by the connections existing between the conductors communicating with the signal-boxes.

6. A general circuit, individual conductors, signal-boxes provided with means for diverting a portion of the general circuit through one of the individual conductors, a selector, magnets forming part of and controlling said selector, a series of separately-insulated contacts co-operating with the selector as to cause said magnets to be successively connected to each of the individual conductors, an auxiliary circuit, a transmitter, means controlled by the transmitter for closing the auxiliary circuit a number of times, and connections between the selector and transmitter so arranged as to suitably vary the number and arrangement of the closures of the auxiliary circuit.

7. A general circuit, individual conductors, signal-boxes provided with means for diverting a portion of the general circuit through one of the individual conductors, a selector, magnets forming part of and controlling said selector, a series of separately-insulated contacts co-operating with the selector as to cause said magnets to be successively connected to each of the individual conductors, an auxiliary circuit, suitably-grouped separately-insulated contacts co-operating with the selector, constructed for operation substantially as shown and described, so that, the

impulses produced by the transmitter will be so governed by the selector that the impulses produced by the transmitter will form a distinctive combination previously chosen to characterize the individual conductor to which the selector-magnets are connected during the production of each impulse.

8. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, and means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit.

9. A signal-causing mechanism, a movable part provided with a projection, glass or its equivalent arranged to so maintain the movable part as to restrain the signal-causing mechanism, a spring tending to disengage the movable part from the signal-causing mechanism whenever the glass is broken, and a suitably-supported tube containing the spring and movable part, all so constructed and arranged that if the glass or material be broken and the fracture is not sufficiently complete to permit the movable part to be disengaged from the signal-causing mechanism by the spring the pressure of the portion of the signal-causing mechanism against the projection will so revolve the movable part as to disengage the mechanism and projection.

10. A signal-causing station comprising; an electromagnet, an armature influenced thereby, an arm arranged to normally maintain the armature within the range of the attraction of the magnet and constructed and arranged to be withdrawn from the path of said armature whenever the armature is attracted by the magnet, a movable contact, a stationary contact against which said movable contact has a tendency to rest, an elastic contact so arranged with reference to the movable contact and contact-point that the movable contact will connect therewith whenever forced sufficiently far away from the stationary contact, a portion of the movable contact being placed within the path of said armature.

11. A signal-causing station comprising; an electromagnet, an armature influenced thereby and arranged to operate a circuit-changing device, an arm arranged to support said armature within the range of the attraction of the magnet at certain times and to disengage and be withdrawn from the path of the armature whenever it is attracted by the magnet, said circuit-changing device being constructed and arranged to maintain a certain electric circuit while the armature is being supported by the arm or being attracted by the magnet and to interrupt that circuit and establish another whenever the armature is neither supported by the arm or magnet.

12. A signal-causing station comprising; an electromagnet, an armature influenced thereby and arranged to operate a circuit-changing device, an arm arranged to support said armature within the range of the attraction of the magnet at certain times and to disengage and be withdrawn from the path of the armature whenever it is attracted by the magnet; said circuit-changing device being constructed and arranged to maintain a certain electric circuit while the armature is being supported by the arm or being attracted by the magnet and to interrupt that circuit and establish another whenever the armature is neither supported by the arm or magnet.

13. A normally restrained signal; causing mechanism in combination with an electromagnet, an armature influenced thereby and arranged to operate a circuit-changing device, an arm arranged to support said armature within the range of the attraction of the magnet at certain times and to disengage and be withdrawn from the path of the armature whenever it is attracted by the magnet; said circuit-changing device being constructed and arranged to maintain a certain electric circuit while the armature is being supported by the arm or being attracted by the magnet, and to interrupt that circuit and establish another whenever the armature is neither supported by the arm or magnet.

14. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector-arm operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, a second series of separately-insulated contacts, means controlled by the other train for successively connecting said contacts to one side of the auxiliary circuit, and means operated by the selector-arm for connecting distinctive groups of said contacts to the other side of the auxiliary circuit.

15. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector-arm operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, a second series

of separately-insulated contacts, means controlled by the other train for successively connecting said contacts to one side of the auxiliary circuit, suitably-grouped separately-insulated contacts connected with the second series of contacts, and means operated by the selector-arm for connecting distinctive groups of said contacts to the other side of the auxiliary circuit.

16. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector-arm operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, a second series of separately-insulated contacts, means controlled by the other train for successively connecting said contacts to one side of the auxiliary circuit, suitably-grouped separately-insulated contacts connected with the second series of contacts, means operated by the selector-arm for connecting distinctive groups of said contacts to the other side of the auxiliary circuit, and a switch arranged to release the train operating the selector-arm whenever the other train has arrived at a certain point in its operation.

17. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector-arm operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, a second series of separately-insulated contacts, means controlled by the other train for successively connecting said contacts to one side of the auxiliary circuit, suitably-grouped separately-insulated contacts connected with the second series of contacts, means operated by the selector-arm for connecting distinctive groups of said contacts to the other side of the auxiliary circuit, a shunt around the magnets controlling the train which operates the selector-arm, and a switch controlling said shunt and operated by the other train.

18. Signal-buses provided with means for diverting a portion of a general circuit through an individual conductor, a suitable system of conductors connected with said signal-buses, a selector connected with said conductors and arranged to respond to a change of connections between said conductors, a transmitter, an auxiliary circuit, a circuit-clear forming part of the transmitter and included in said circuit, suitably-grouped separately-insulated contacts cooperating with the selector and connected with the circuit-clear, constructed for operation substantially as shown and described, so that, the impulses produced in the auxiliary circuit at any time will be varied in number and arrangement by the connections existing between the conductors communicating with the signal-buses.

19. A signal-sending station comprising: three or more brushes arranged to have their free ends rest upon a revoluble part provided with conducting-strips arranged to successively connect said brushes in pairs, an electromagnet, an armature influenced thereby and arranged to operate a circuit-changing device, an arm arranged to support said armature within the range of the attraction of the magnet at certain times and to disengage and be withdrawn from the path of the armature whenever it is attracted by the magnet, said circuit-changing device being constructed and arranged to maintain a certain electric circuit while the armature is being supported by the arm or being attracted by the magnet and to interrupt that circuit and establish another whenever the armature is neither supported by the arm or magnet and said armature being constructed and arranged to be withdrawn from the range of the attraction of the magnet whenever it has been successively disengaged from the arm and released by the magnet.

20. Signal-buses provided with means for diverting a portion of a general circuit through an individual conductor, a suitable system of conductors connected with said signal-buses, a selector connected with said conductors and arranged to respond to a change of connections between said conductors, a transmitter, an auxiliary circuit, a circuit-clear forming part of the transmitter and included in said circuit, a series of separately-insulated contacts forming part of and cooperating with the selector and connected with the circuit-clear, constructed for operation substantially as shown and described, so that, the impulses produced in the auxiliary circuit at any time will be varied in number and arrangement by the connections existing between the conductors communicating with the signal-buses, a shunt between certain of the conductors which connect the selector with the signal-buses, and a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit, constructed for operation substantially as shown and described, so that, said relay will prevent the operation of the selector during the transmission of impulses in the auxiliary circuit.

21. Signal-buses provided with means for diverting a portion of a general circuit through an individual conductor, a suitable system of conductors connected with said signal-buses, a selector connected with said conductors and arranged to respond to a change of connections between them, a transmitter, magnets forming part of and arranged to restrain said transmitter at certain times, an auxiliary circuit including said magnets, and a mechanically-retarded relay connected to the selector and controlling the auxiliary circuit; constructed for operation substantially as shown and described, so that, the transmitter will not be released until a

predetermined time has elapsed after the selector has responded to a change of connections between the conductors connected therewith.

22. A magnetically-restrained normally wound motor, a pinion geared to said motor and revolving with a shaft, a gear fixed to said shaft, an arm mounted upon said shaft and arranged to revolve independently thereof, a pinion supported by said arm and engaging with the gear, an internal gear mounted upon said shaft to revolve independently thereof and engaging with said pinion, an escapement constructed and arranged to control the movement of the internal gear and a circuit-changing device operated by the arm when said arm is in a certain position.

23. A magnetically-restrained normally wound motor, a pinion geared to said motor and revolving a shaft, a revoluble arm mounted upon said shaft and moving independently thereof, a pinion supported by said arm and revolving therewith around the shaft and retaining on its own axis, a gear mounted upon and revolving with the shaft and engaging with said pinion, an internal gear so mounted upon said shaft that it may rotate independently thereof and surrounding the gear and engaging with the pinion, an escapement constructed and arranged to control the movements of the internal gear and a circuit-changing device operated by the arm when said arm is in a certain position.

24. Electromagnets, an armature influenced thereby, a revoluble part provided with a projection capable of engaging with a portion of said armature, a gear moving said revoluble part, a pinion engaging with said gear and with an internal gear, an arm influencing a circuit-changing device and operated by the movement of said pinion around the axis of the gear.

25. Electromagnets, an armature influenced thereby, a revoluble part provided with a projection capable of engaging with a portion of said armature, a gear moving with said revoluble part, an internal gear surrounding and moving independently of said gear, a pinion engaging with the gear and with the internal gear, an arm or lever supporting said pinion and arranged to derive a rotary motion from the movement of the pinion around the axis of the gear and a circuit-changing device influenced by the arm when said arm is in a certain position.

26. Electromagnets, an armature influenced thereby, a revoluble part provided with a projection capable of engaging with a portion of said armature, a gear moving with said revoluble part, an internal gear surrounding and moving independently of said gear, a pinion engaging with the gear and with the internal gear, an escapement arranged to retard the movement of the internal gear, an arm or lever supporting said pinion and arranged to derive a rotary motion from the movement of the pinion around the axis of the gear and a circuit-changing device influenced by the arm when said arm is in a certain position.

27. In a signal-selector; a magnet, an arm influenced thereby and carrying projections, a disk moving between said arm and one of the projections, said disk being provided with projections and indentations for influencing at certain times the position of said arm, and a revoluble part geared to said disk and provided with vanes or projections constructed and arranged to engage with a projection from the arm except when said arm is in a certain position.

28. A general circuit, a selector, magnets forming part of and controlling said selector and included in said circuit, signal-buses provided with means for diverting a portion of the general circuit through an individual conductor, individual conductors extending from the signal-buses to the selector, a switch forming part of the selector and so constructed that it may successively connect the individual conductors with the general circuit, a transmitter, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit, a relay included in the general circuit between the shunt and the signal-buses, and a shunt for the auxiliary circuit around the selector and transmitter controlled by said relay.

29. In a signal-selector; a magnet, an arm influenced thereby and carrying projections, a disk moving between said arm and one of the projections, said disk being provided with projections and indentations for influencing at certain times the position of said arm, a revoluble part geared to said disk and provided with vanes or projections constructed and arranged to engage with a projection from the arm except when said arm is in a certain position, a normally wound train operating the disk and controlled by said revoluble part, and a commutating device operated by each train and controlling a number of electric circuits.

30. A general circuit, a selector, magnets forming part of and controlling said selector and included in said circuit, signal-buses provided with means for diverting a portion of the general circuit through an individual conductor, individual conductors extending from the signal-buses to the selector, a switch forming part of the selector and so constructed that it may successively connect the individual conductors with the general circuit, a transmitter, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit, a relay included in the general circuit between the

shunt and signal-boxes, a shunt for the auxiliary circuit around the selector and transmitter controlled by said relay, and a mechanically-retarded relay included in the shunt for the auxiliary circuit around the selector and transmitter and so connected and arranged, that when the current is established in said shunt, said mechanically-retarded relay will immediately establish a connection between the general circuit and a conductor so connected to the switch operated by the selector, that the selector-magnets will arrest the operation of said selector when it has arrived at a point in its operation where it mechanically restrains the transmitter and interrupts the auxiliary circuit.

31. A transmitting device comprising: an arm influenced thereby, a lever pivoted upon said arm the free end of which is arranged to engage with and control a normally wound train, a disk provided with a suitable depression revolved by said train, a follower resting upon said disk and so connected with the lever that it may prevent the engagement of said lever with the train at certain times in spite of the action of the arm.

32. A general circuit, a selector, magnets forming part of and controlling said selector and included in said circuit, signal-boxes provided with means for diverting a portion of the general circuit through an individual conductor, individual conductors extending from the signal-boxes to the selector, a switch operated by the selector and so constructed that it may successively connect the individual conductors with the general circuit, a transmitter, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, a mechanically retarded relay controlling said shunt and operated by the auxiliary circuit, a relay included in the general circuit between the shunt and signal-boxes, a shunt for the auxiliary circuit around the selector and transmitter controlled by said relay, a mechanically-retarded relay included in the shunt for the auxiliary circuit around the selector and transmitter and so connected and arranged that when the current is established in said shunt said mechanically-retarded relay will immediately establish a connection between the general circuit and a conductor so connected to the switch operated by the selector that the selector-magnets will arrest the operation of said selector when it has arrived at a point where it mechanically restrains the transmitter and interrupts the auxiliary circuit, and a shunt around the selector-magnets controlled by said mechanically-retarded relay, constructed for operation substantially as shown and described, so that, when the circuit by which said relay is controlled has not been established for a predetermined period of time said shunt will be completed around the magnets of the selector.

33. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, and a switch arranged to release the train operating the selector-arm whenever the other train has arrived at a certain point in its operation.

34. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, a shunt around the magnets controlling the train which operates the selector-arm, and a switch controlling said shunt and operated by the other train.

35. A selecting device comprising: a magnet, an arm influenced thereby and carrying projections, a disk moving between said arm and one of the projections said disk being provided with projections and indentations for influencing at certain times the position of said arm, a revolvable part geared to said disk and provided with vanes or projections constructed and arranged to engage with a projection from the arm except when said arm is in a certain position, a normally wound train operating the disk and controlled by said revolvable part and a commutating device operated by each train and controlling a number of electric circuits; and a transmitting device comprising electromagnets, an arm influenced thereby, a lever pivoted upon said arm the free end of which is arranged to engage with and control a normally wound train, a disk provided with a suitable depression revolved by said train, a follower resting upon said disk and so connected with the lever that it may prevent the engagement of said lever with the train at certain times in spite of the action of the arm.

36. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times,

means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, and means for releasing the train operating the selector-arm whenever the other train has arrived at a certain point in its operation.

37. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, a shunt for the general circuit, and a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit, so constructed that said relay will prevent the operation of the selector during the transmission of impulses in the auxiliary circuit.

38. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, a shunt for the general circuit, and a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit.

39. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, and a mechanically-retarded relay controlled by the general circuit and so controlling the second train that said train will not be released until a predetermined time has elapsed after the general circuit has been reestablished.

40. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, and a mechanically-retarded relay connected with the selector and so controlling the other train that said train will not be released until a predetermined time has elapsed after the selector has come to rest.

41. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, two magnetically-controlled trains, a selector operated by one of them to successively connect the other side of the general circuit to the contacts, an auxiliary circuit, means controlled by the other train for closing the auxiliary circuit a number of times, means operated by the first train for suitably varying the number and arrangement of the closures of the auxiliary circuit, means operated by the selector for interrupting the auxiliary circuit whenever the general circuit has been interrupted, and a mechanically-retarded relay controlled by the general circuit and so constructed and arranged that when the general circuit has been interrupted said relay will provide a shunt for the auxiliary circuit around the break produced by the selector and maintain said shunt until a predetermined period of time has elapsed after the general circuit has been reestablished.

42. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, a magnetically-controlled selector to successively connect the other side of the general circuit to the contacts, a magnetically-controlled transmitter, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, and a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit.

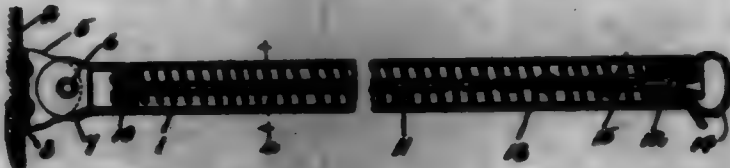
43. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, a magnetically-controlled selector to successively connect the other side of the general circuit to the contacts, a magnetically-controlled transmitter, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, a mechanically-retarded relay controlling said shunt and operated by the auxiliary circuit, a relay included in the general circuit outside of the shunt, and a shunt for the auxiliary circuit around the selector and transmitter controlled by said relay.

44. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, a magnetically-controlled selector to successively connect the other side of the general circuit to the contacts, a magnetically-controlled transmitter interlocking with the selector, an auxiliary circuit jointly controlled by the selector and said transmitter, a shunt around the selector in the general circuit, a mechanically-retarded relay

controlling said chest and operated by the auxiliary circuit, a relay included in the general circuit outside of the chest, a chest for the auxiliary circuit around the selector and transmitter controlled by said relay, and a mechanically-retarded relay included in the chest for the auxiliary circuit around the selector and transmitter, and so connected and arranged that when a current is established in said chest, said mechanically-retarded relay will immediately establish a connection between the general circuit and a separately-insulated contact co-operating with the selector, that the selector will be stopped when it has arrived at a point in its operation where it mechanically restrains the transmitter and interrupts the auxiliary circuit.

46. A general circuit, a series of separately-insulated contacts connected to one side of said circuit, a magnetically-controlled selector to successively connect the other side of the general circuit to the contacts, a magnetically-controlled transmitter interlocking with the selector, an auxiliary circuit jointly controlled by the selector and said transmitter, a chest around the selector in the general circuit, a mechanically-retarded relay controlling said chest and operated by the auxiliary circuit, a relay included in the general circuit outside of the chest, a chest for the auxiliary circuit around the selector and transmitter controlled by said relay, a mechanically-retarded relay included in the chest for the auxiliary circuit around the selector and transmitter, and so connected and arranged that, when a current is established in said chest, said mechanically-retarded relay will immediately establish a connection between the general circuit and a separately-insulated contact co-operating with the selector that the selector will be stopped when it has arrived at a point in its operation where it mechanically restrains the transmitter and interrupts the auxiliary circuit, and a circuit shunting the selector-magnets and so controlled by said mechanically-retarded relay that, when the general circuit has not been established for a predetermined period of time, the selector will be released.

697,066. WATCHMAN'S-CLOCK-KEY HOLDER. ALON RUTHER, Chicago, Ill. Filed Nov. 12, 1899. Serial No. 36,161. (No model.)



Claim.—1. In a device for the purpose described the combination of the key, the chest 1 having a ring 12 in one end thereof, the follower 10, a flexible connection between said follower and key for drawing said key into said ring, said key resting normally within said ring, a spring surrounding said flexible connection and bearing between said follower and ring and a knob having operative connection with said key and remaining normally outside of said chest, substantially as set forth.

2. In a device for the purpose described the combination of a chest, a yielding elastic connection in said chest, a key inserted in said chest and connected at its inner end to said elastic connection, a knob adapted to come against the outer end of said chest and an elongated link connecting said knob with said elastic connection at the inner end of said key, substantially as set forth.

3. In a device for the purpose described the combination of a key, a chest for containing said key having one end flattened, a bracket 5, fastening device passing through said bracket 5, said bracket having one member hooked together against and pivoted to said flattened end of the chest and covering said fastening device so as to prevent access to the latter, substantially as set forth.

4. In a device for the purpose described, the combination of a key, means connected with said key and having a flattened end, a bracket 5, fastening device passing through said bracket, said bracket having one member hooked together against and pivoted to said flattened end and covering said fastening device so as to prevent access to the latter, substantially as set forth.

697,067. SULKY HAY-RAKE. ARTHUR B. BLANK, LAMAR, Osh. Filed July 3, 1901. Serial No. 67,667. (No model.)

Claim.—1. In a sulky hay-rake, the combination with the machine-frame, of an angle-iron rake-head, rake-teeth secured thereto, rings on the angle-iron rake-head, and ring-yokes on the machine-frame in which the rings are adapted to turn a complete revolution, whereby the rake is rendered adaptable for turning a complete revolution.

2. In a sulky hay-rake, the combination with an open machine-frame, of a rake-head journaled therein, rake-teeth secured to the rake-head, a ring on the rake-head, and a bracing member secured to the forward portion of the frame and located in the open portion thereof having an antifriction-roller bearing on the ring.

3. In a sulky hay-rake, the combination with an angle-iron rake-head and rake-teeth secured thereto, of rings secured on the rake-head, a machine-frame having ring-yokes in which certain of the rings are journaled to turn a complete revolution, and a bracing member secured to the frame and provided with an antifriction-roller bearing on another of the rings.

chine-frame having ring-yokes in which certain of the rings are journaled to turn a complete revolution, and a bracing member secured to the frame and provided with an antifriction-roller bearing on another of the rings.



4. In a sulky hay-rake, the combination with a revolvable-mounted rake-head and spring rake-teeth connected thereto adapted for a complete and unrestricted revolution to dump the load, of a counterbalancing device positively connected to the rake-head and operatively connecting therewith at all times, said counterbalancing device being adapted to neutralize the desired portion of the natural gravitation of the rake-teeth and assist them to make the complete revolution and also to prevent the rake-teeth from falling heavily on the ground.

5. In a sulky hay-rake, the combination with a revolvable-mounted rake-head and spring rake-teeth connected thereto adapted for a complete and unrestricted revolution to dump the load, of weighted counterbalancing-arms rigidly connected to the rake-head which are adapted to neutralize the desired portion of the natural gravitation of the rake-teeth and assist them to make the complete revolution and also to prevent the rake-teeth from falling heavily on the ground.

6. In a sulky hay-rake, the combination with a revolvable-mounted rake-head and spring rake-teeth connected thereto adapted for a complete and unrestricted revolution to dump the load, of means for locking the rake-head in normal position, and means for manually imparting momentum to the rake head and teeth at the rake-head is being released, whereby the rotation of the rake-teeth past the position of unstable equilibrium is facilitated.

7. In a sulky hay-rake, the combination with a revolvable-mounted rake-head and spring rake-teeth connected thereto adapted for a complete and unrestricted revolution to dump the load, of a movable lock-lever adapted to lock the rake-head in normal position, a foot-lever for manipulating said lock-lever, and connections whereby when said lock-lever is manipulated by the foot-lever, it is adapted to assist the rotation of the rake-teeth past the position of unstable equilibrium on the unlatching thereof for their revolution.

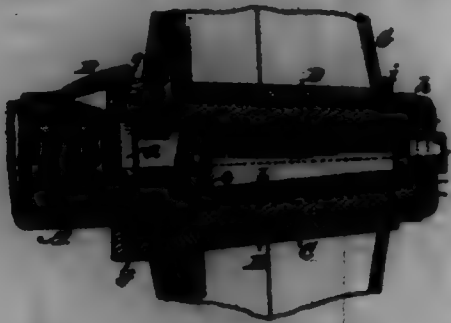
8. In a sulky hay-rake, a locking and unlatching mechanism comprising the combination with a movable lock-lever, of a foot-lever pivoted thereto, means for locking said lever, a trip-lever having means for unlatching the locking mechanism for the first-named foot-lever, and a spring for returning the parts to normal position.

9. In a sulky hay-rake, a locking and unlatching mechanism comprising the combination with a movable lock-lever, of a foot-lever pivoted thereto, a notched lock-bar connected thereto, a lock-pin adapted to engage said notch, a trip-lever and trip-bar connected together and pivoted to the foot-lever, said trip-bar being adapted to disengage the lock-bar from the pin, and a spring for returning the parts to normal position.

10. In a sulky hay-rake, the combination with the rake or rake-head, rake-frame, and a lock-arm on the rake-head, of a longitudinally-movable rigid lock-lever whose rear end engages the lock-arm and means

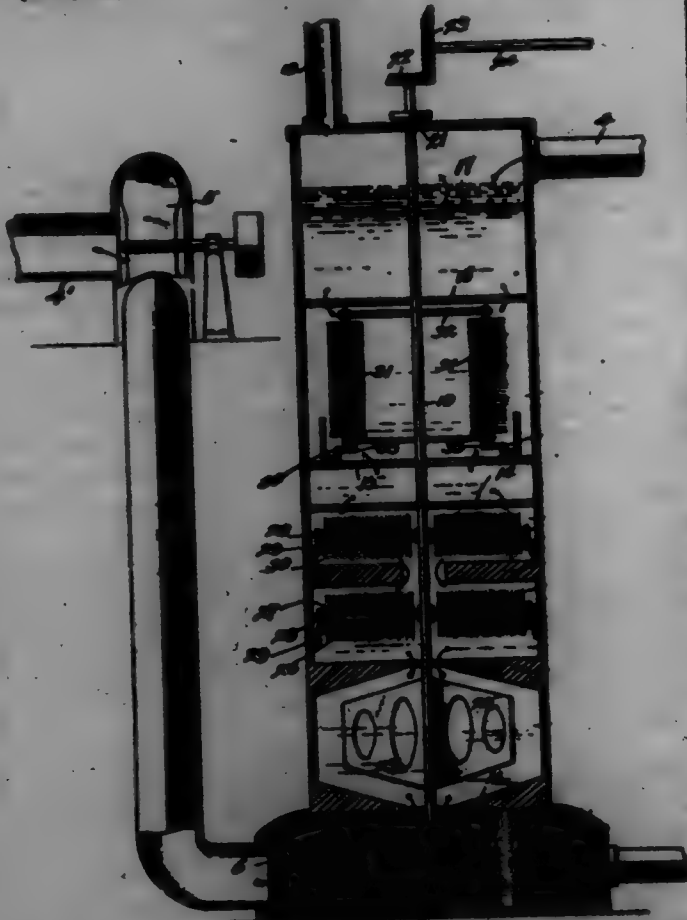
for rigidly securing the front end of the lever, whereby the rake-head is rigidly locked when the rake-teeth are gathering the load.

697,068. SELF-LUBRICATING AXLE. MARTIN BARNER, South-land, Ohio. Filed Oct. 18, 1901. Serial No. 73,734. (No model.)



Claim.—In a self-lubricating axle, a tubular shaft having circumferential collar and a plug to close the rear end of the shaft to retain the lubricant therein, a split bearing comprising two longitudinal sections having grooved flanges at their inner ends to fit over the collar of the shaft and at their outer ends terminating in inwardly-extending arched flanges to form an opening to receive the lubricant when the flanges are together, and a suitable stopper to close said opening, the bearing-sections extending beyond the end of the shaft to form a chamber for the lubricant, substantially as and for the purpose set forth.

697,069. APPARATUS FOR CONSUMING SMOKE. LOUIS E. C. REINHARDT, Brooklyn, N. Y. Filed June 12, 1901. Serial No. 64,468. (No model.)



Claim.—1. In a smoke-consumer, the combination of a liquid-containing tank, means for forcing smoke through the liquid contained therein, and means to break up the gaseous globules and separate the solid particles therefrom and cause precipitation thereof, comprising a plurality of agitators having a combined axial and orbital movement.

2. In a smoke-consumer, the combination of a liquid-containing tank, a pipe connecting therewith including a pressure-blower for forcing smoke through the liquid in the tank, a plurality of horizontally-disposed baffle-plates dividing the tank into communicating chambers, and agitators arranged within the said chambers, said agitators having combined axial and orbital movements.

697,070. CAR-TRUCK. CLARENCE GILSON, Chicago, Ill. Filed Aug. 16, 1901. Serial No. 73,133. (No model.)

Claim.—1. In a car-truck, the combination of a frame, a pair of

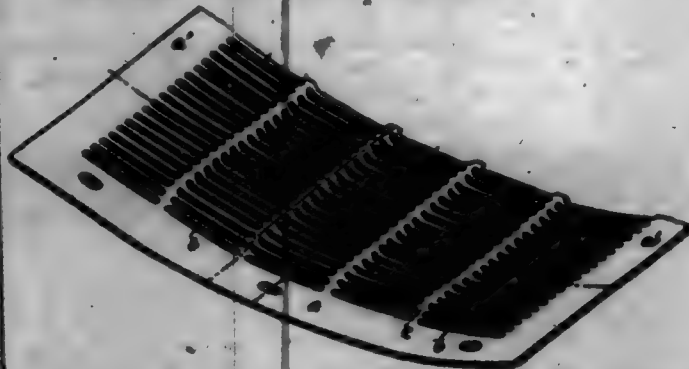
horizontally-disposed platform-beams, a pair of shafts journaled in said frame under said beams, a pair of cones rigidly secured to each of said shafts and adapted to support said beams, suitable gearing connecting said shafts so that the cones may be operated simultaneously from one part of the truck.



2. In a car-truck, the combination of a frame, a pair of horizontally-disposed platform-beams, a pair of shafts journaled in said frame transversely of said beams, a pair of cones rigidly secured to each of said shafts and adapted to support said beams, suitable gearing connecting said shafts so that the cones may be operated simultaneously from one part of the truck.

3. In a car-truck, the combination of a frame, a pair of horizontally-disposed platform-beams, a pair of horizontal shafts journaled in said frame transversely of said beams, a pair of cones rigidly secured to each of said shafts and adapted to support said beams, a third shaft extending longitudinally of said beams and connected with each of said transverse shafts by a worm and wheel, and means for turning said longitudinal shaft and thereby operating said cones to raise or lower said beams.

697,071. SCREEN. GEORGE W. CHAM, Carbondale, Pa. Filed Feb. 9, 1901. Serial No. 65,995. (No model.)



Claim.—1. In a screen-surface, a plate of uniform thickness throughout, provided with integral, imperforate tumbles, substantially straight from end to end and intersecting each bounded by webs lying in the same plane but out of the plane of said tumbles, substantially as set forth.

2. In a screen-surface, a plate of substantially uniform thickness throughout, provided with transverse elongated interstices disposed in longitudinal series and having parallel side webs, and integral, imperforate tumbles between said series, said tumbles being substantially straight from end to end and arranged out of the plane of said webs, substantially as set forth.

3. In a screen-surface, a plate of uniform thickness throughout, provided with interstices arranged in longitudinal series, the imperforate material of said plate between each series being straight and continuously elevated above the webs bounding the said interstices, substantially as set forth.

4. In a screen-surface, a plate of uniform thickness throughout provided with interstices arranged in longitudinal series and having parallel side webs, the imperforate end webs of the interstices of each series being substantially straight and arranged continuously out of the plane of said side webs, substantially as set forth.

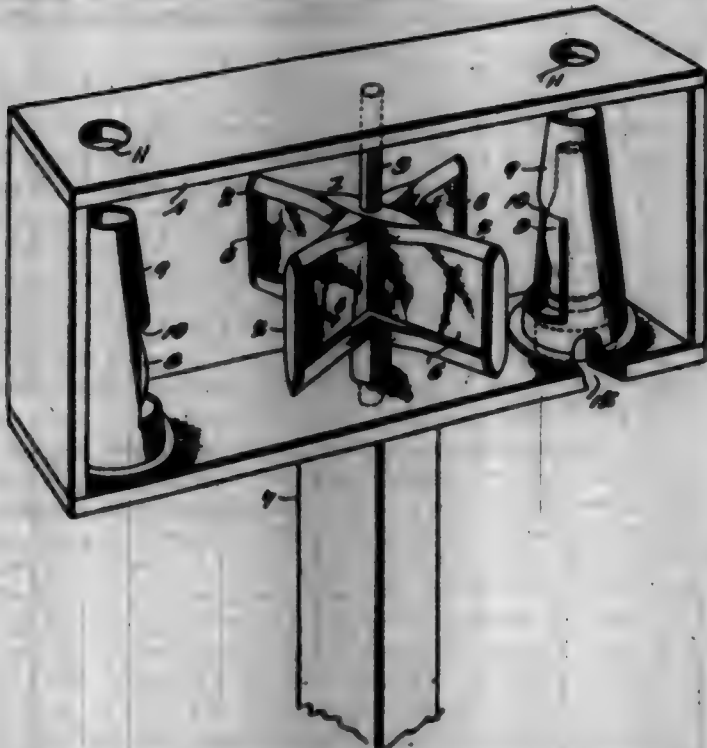
697,072. BEAR-BROW. ALFRED G. BAYNE, Lafayette, Ind. Filed Feb. 1, 1902. Serial No. 92,517. (No model.)

Claim.—1. A device of the class described provided with a plurality of rotating light-reflecting faces or mirrors, arranged at an angle to one another and adapted to throw light from one to the other, whereby the light is flashed in various directions and is deflected, substantially as and for the purpose described.

2. A device of the class described comprising a rotary wheel provided with a series of blades arranged to be acted on by the wind, whereby the wheel is rotated, said blades being arranged at angle to one another and being provided with opposite light-reflecting faces or mirrors, substantially as described.

3. A device of the class described comprising a rotary wheel having vertical blades adapted to be engaged by the wind and provided with

opposite light-reflecting faces or mirrors, and lighting devices located at opposite sides of the wheel, substantially as described.



4. A device of the class described comprising a rotary wheel having a plurality of light-reflecting faces or mirrors, and means for throwing light upon the wheel, whereby flashes of light will be thrown in various directions by the said wheel, substantially as described.

5. A device of the class described comprising a casing, a rotary wheel mounted in the casing and provided with a plurality of light-reflecting faces or mirrors, lamps located at opposite sides of the wheel, and tubular casings surrounding the lamps and provided with apertures facing the wheel, said tubular casing being opaque and forming shields for the lamps, substantially as described.

897,078. BICYCLE-GEAR. BERNARD M. DAVIS, DUNELT, N. Y.
Filed June 10, 1901. Serial No. 63,884. (No model.)



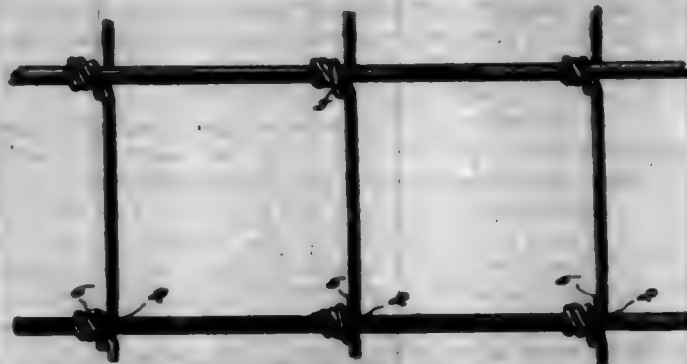
Claim.—1. In a velocipede, the combination, with two driving-shafts arranged parallel with each other, of connecting mechanism constraining the said shafts to revolve simultaneously, means for revolving the said shafts, similar toothed driving-wheels secured on the said shafts, an intermediate shaft arranged between the two said driving-shafts, a toothed pinion secured on the intermediate driving-shaft and gearing into the said wheels, and means for connecting the said intermediate shaft with one of the rear-wheels, substantially as set forth.

2. In a velocipede, the combination, with a frame provided with a forked portion, and two parallel driving-shafts journaled therein, one of the said driving-shafts being provided with cranks and treadles; of sprocket-wheels and toothed wheels secured on the said shafts outside the said forked portion, a drive-chain connecting the said sprocket-wheels, an intermediate shaft journaled in the frame between the two said shafts, a toothed pinion secured on the said intermediate shaft and gearing into the said toothed wheels, a balance-wheel secured on the intermediate shaft in the said forked portion, and means for connecting the said intermediate shaft with one of the rear-wheels, substantially as set forth.

3. The combination in a bicycle driving-gear, of a frame, a crank-shaft mounted therein, a gear and a sprocket-wheel mounted on said crank-shaft, a pinion-shaft, a pinion meshing with the crank-shaft gear, another shaft mounted in the frame, a gear and a sprocket-wheel mounted thereon said gear intermeshing with the gear on the pinion-shaft, a chain connecting said sprocket-wheels and driving them in unison, a balance-wheel and a bevel-gear on said pinion-shaft, a bevel-gear on the rear-wheel hub, and a shaft and bevel-gears thereon connecting the bevel-gear

on the pinion-shaft and the bevel-gear on the wheel-hub, substantially as and for the purpose set forth.

897,074. WOVEN-WIRE FENCING. JAMES H. DUNNIN, Cedar Rapids, Iowa. Filed Sept. 20, 1901. Serial No. 75,575. (No model.)



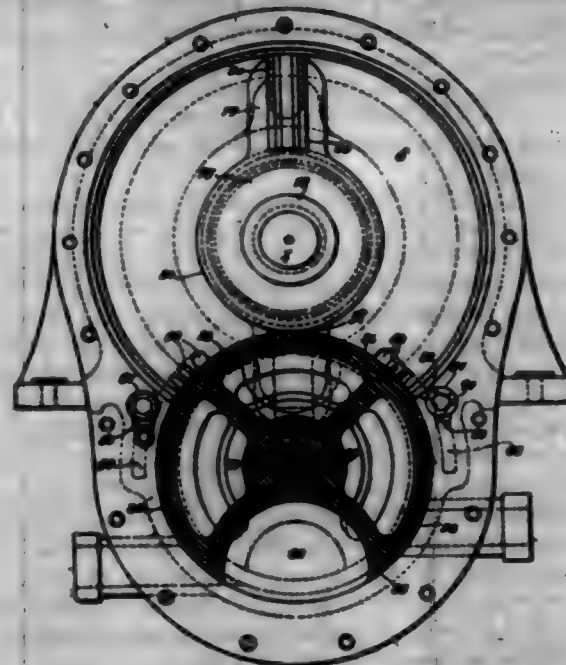
Claim.—1. A woven-wire fence fabric comprising running-wires and stay-wires connecting them together, the said stay-wires having their meeting ends coiled together, and said coiled meeting ends of said stay-wires being coiled around said running-wires, substantially as described.

2. A woven-wire fence fabric comprising running-wires and stay-wires connecting them together, the said stay-wires having their meeting ends first coiled together and finally coiled around the running-wires, substantially as described.

3. A woven-wire fence fabric comprising running-wires and stay-wires connecting them together, the said stay-wires having their meeting ends coiled and twisted together and then coiled around the running-wires, substantially as described.

4. A woven-wire fence fabric comprising running-wires having offset thereto, and stay-wires having their meeting ends coiled together and coiled around the said offset portions of said running-wires, substantially as described.

897,075. ROTATING-PISTON ENGINE. JONAS DOW, Philadelphia, Pa. Filed Dec. 20, 1900. Serial No. 61,465. (No model.)



Claim.—1. In a rotating-piston engine, in combination, a cylindrical shell or case inclosing and firmly holding in position annular cylinders formed in section and fitted together as described, a continuous main shaft passing through the common axis of said cylinders, disks carried by hubs on said shaft, one to each annular cylinder, piston-supporting arms projecting radially from the peripheries of the said disks, pistons carried by said arms and adapted for rotation through said cylinders, abutment-cylinders with self-contained seats rotating in bearings formed in or carried by the outside shell or case and furnished with ports for the passage of the pistons, gears whereby said abutment-cylinders and said piston-carrying disks are caused to be rotated synchronously, and valves for controlling the admission and exhaust of the actuating fluid to and from said cylinders.

2. In a compound rotating-piston engine, in combination, high and low pressure annular cylinders, having their axis of generation identical with that of a main shaft which is continuous through the whole series, placed side by side upon different planes, each cylinder having its center of gyration a circle and its transverse section also in the form of a circle, sectional two-part shells in which each of said cylinders is

formed which are furnished with radial and central braces and with ribs for firm holding in an outside case forming part of the central cylinder-casing and against one another, said outside case, a central and common shaft, disks, one for each cylinder, carried by said shaft carrying radial piston-supporting arms, pistons carried by said arms, cylindrical rotating abutments, furnished with integrally-constructed seats, for closing and opening the continuity of said annular cylinders at one radial point and with parts for the passage of the pistons, means for synchronously rotating said pistons and said abutments, and means for admitting the actuating fluid to and for exhausting it from said cylinders.

3. The combination is a rotating-piston engine, of annular high and low pressure cylinders placed concentrically around a common axis but upon different planes, each cylinder having the internal form of a ring of circular cross-section and formed by a shell supported and braced externally, the common axis of said cylinders being identical with that of a main shaft passing continuously through the center of a cylindrical outside case forming part of the casing of the central cylinders, said annular cylinders being formed in removable transverse sections, one fitting into another by slip-joints, to form steam-tight and continuous interiors, and with exterior braces and flanges by means of which they are firmly held in position within the outside case, said outside case divided through its transverse center through to a bearing upon the main shaft by an annular partition flanked by latitudinal braces or webs dividing the case-casing into two parts and separating the two annular cylinders contiguous to the center and to each other while interposing insulating-spaces between them, each of said contiguous annular cylinders having one transverse half formed in the said transverse partition of the outside case and integral with it, but its mating transverse half is formed in one of the said removable sections, circular disk-like pistons rotating within said cylinders, arms, which carry said pistons, fixed upon radially-carried disks, means for preventing free circulation of steam through one portion of said cylinders during its action upon said pistons, and means for controlling and conducting admission of steam to and its exhaust from said cylinders.

4. The combination with the annular cylinder and the main shaft of a rotating-piston engine of a disk carried by and at right angles to said shaft, one portion of said disk being extended to form a double-armed and inner braced piston-holder, a circular removable piston cut away to permit fitting within the holder and over its inner braced portion, a packing ring or rings adapted to be inserted in said piston and to pass around its periphery from one side of said cut-away portion to the other side thereof, and the ends of which are adapted to enter said holder one end upon one side, the other at the other side, and to form, in addition to a steam-tight joint between said cylinder and piston, means for securing said piston to said holder.

5. The combination is a compound rotating-piston engine, of annular cylinders placed side by side and having their centers of generation identical with that of a common and continuous main shaft, said cylinders being formed in outwardly-braced shells each shell being separable transversely through its center into two parts each part being adapted to be held in position by an outside case forming part of the middle cylinder and by interior bearings upon and about the main shaft, said cylinders having the form of circular annular rings and being separated by webbed inter-insulating-spaces, said outside case, said main shaft, disks carried by said shaft, one for each cylinder, said disks being furnished with projecting piston-holders, pistons carried by said holders, beveled split packing-rings, 24, 25, concentric with said cylinders, carried by the shells in which said cylinders are formed and adapted to engage the sides of the piston-carrying disks and adapted by their shape to be pressed in against the disks by the pressure of steam from the cylinders, a rotating abutment furnished with parts for the passage of the pistons, and means for conducting the actuating fluid to and away from said cylinders.

6. An engine-casing consisting of a central or main portion 6, furnished with extensions 12, sections 10 and sections 11 adapted to be held peripherally by the extensions 12, and heads 21 adapted to be bolted to the extensions 12; said sections 8, 10 and 11 having formed in them circular annular cylinders, said cylinders being formed one half in one section and the other half in the adjacent section, and said portion 6 having formed in it seats for a rotating abutment and a rotating valve.

7. In combination, an engine-casing and separable shells carrying two or more annular cylinders having their center of generation identical with that of a common and continuous main shaft, said cylinders being placed side by side and being formed one half in one shell and the other half in another shell, said shells being held firmly in place by the casing and two or more of said shells being carried axially inward to form bearings for said main shaft.

8. In a cylinder-casing, in combination, an exterior case containing, firmly held in position upon different planes, sectional braced shells having formed within them annular cylinders whose center of generation is identical with that of the main shaft of the engine, said cylinders being

formed half in one integral section and half in the contiguous section, one or more of said cylinder-carrying sections and the central integral part of the exterior case being confined inward and bored to form bearings for the main shaft.

9. In a rotating-piston engine, in combination, two or more sets of sections carrying annular cylinders placed side by side and concentric with a continuous main shaft, an outside case constructed integrally with the interior cylinders for holding said cylindrical shells, a central main shaft passing from end to end of said case, disks carried by said shaft, pistons carried by said disks, rotating abutments, with parts for the passage of the pistons, adapted to open and close one portion of the annular cylinders with each rotation of the pistons, and furnished at the outer ends with hubs one of which is adapted to carry a gear-wheel and the other to run in a bearing formed in the piston-casing, a fixed shaft or a sleeve upon which said abutment rotates, said gear-wheel upon said hub, a corresponding gear-wheel on the main shaft, and means for the admission and exhaust of steam to and from said cylinders.

10. The combination is a compound rotating engine, of a casing having formed therein annular cylinders generated from the same center, but upon different planes, a main shaft passing axially through said cylinders, disks having radial arms carried by said shaft, pistons carried by said arms, a rotating abutment carried in said casing adapted to engage at one part said disks and furnished with parts for the passage of the pistons, a shaft upon which said abutment rotates—gears carried by said main shaft and said abutment whereby they are caused to rotate synchronously, said abutment being in two parts and adapted to operate in connection with both the high and low pressure cylinders and being furnished upon its ends with hubs one of which is adapted to carry the gear-wheel and the other of which is adapted to run upon a bearing formed within the casing, and means for admitting steam to and for exhausting it from said cylinders.

11. A valve for a rotating engine comprising a stem furnished with an extended portion containing passages for conducting and distributing an actuating fluid, and a double cylindrical seat furnished between its inner and outer limits with passages each of which is furnished with a port adapted to connect with the passages in and through the valve and being themselves adapted to be connected with the inlet and exhaust ports of the engine cylinders; said passages in said extended portion of the valve being adapted, in one position of said stem and valve, to admit the propelling fluid to passages in said seat from whence it passes to the rear of the pistons in the engine-cylinders, and by a partial revolution of said stem and valve to passages in said seat from whence it passes to the front of said pistons.

12. The combination with the annular cylinders, the pistons and the rotating abutments of a compound rotating-piston engine, of a cylindrical valve having its seat and axis through the longitudinal center of the abutment, said seat having, in axial line with each other, an outer cylindrical portion having cut through it a port to admit the actuating fluid to the valve and registering with either of two ports leading to a passage through the valve and an inner portion with cylindrical bearing formed within two cylindrical walls, one separated from and contained within the other, the interspace being divided by partitions into sectional annular passages one of which is shut off from that portion of the seat which is connected with the steam-inlet to the engine and leading to the outer or admission part of the valve-seat, others being connected, separately, by means of passages, to each side of the abutment closing of the annular high-pressure cylinder and onto the exhaust-opening of the engine, said valve being capable of a partial rotation within its seat and having two portions corresponding with the two portions of the seat, namely, an outer portion for reception of the initial actuating fluid connected with an inner or distributing portion containing passages and ports cut in through its body registering with ports cut through the inner cylindrical limits of this portion of the seat which admit the actuating fluid to the said sectional annular distributing-passages to govern the forward movement of said pistons, and in exhaust, or when rotated, to register with the passages which govern the backward movement of said pistons, and in reverse, exhaust.

13. The combination with the cylinders and pistons of a rotating-piston engine, of a cylindrical valve-seat comprising a distributing portion and a cut-off portion in axial line with each other, said distributing portion being formed with sectional annular passages surrounding the seat through which seat ports are cut leading to said passages and to the steam and exhaust ports of the cylinders, a valve comprising a distributing portion and a cut-off portion in axial line with each other, said distributing portion being furnished with passages adapted in one position to register with the ports in said seat leading to those in the cylinder which govern the admission of actuating fluid to cause a forward movement of the pistons and when rotated to register with those governing a reversal of the pistons, and the extended, or cut-off portion, of which is furnished with a port registering with one of two ports in the cut-off portion of the valve both of which lead to a passage through the valve connecting to the distributing-passages, said port in said extended portion of said valve being

connected at the time the piston is passing through the abutment and the steam-ports are open to each other by an internal bearing-piece carried upon the inside of the rotating abutment and said bearing-piece.

14. A valve comprising a stationary part or seat and a rotatable cylindrical part, said stationary part consisting of an annular portion the inner bound of which surrounds and forms the seat for the distributing portion of the cylindrical valve; and which contains, separated by radial walls, passages furnished with ports connected with the distributing-passages through the cylindrical valve, also connected with the inlet and exhaust parts of a cylinder and being furnished at one end with a cylindrical projection or sleeve furnished with a part for the passage of the actuating fluid; the rotatable part of said valve being furnished with a passage through it connecting the distributing-section of said rotatable part and its parts with its inlet and out-off section and parts, said parts being adapted to register, one at a time, in the distributing portion to one of two ports leading to the cylinder of the engine, and in the inlet portion to a port through the inlet sleeve, and said cylindrical rotatable portion being further furnished with passages through the distributing-section adapted to conduct the actuating fluid from the passages leading from the high to the passage leading to the low pressure cylinder and from the low-pressure cylinder through the distributing portion to the exhaust, one position of said rotatable portion with its openings conducting the actuating fluid to the ports to cause a forward movement of the engine and another position to ports to cause a reversal of the movement.

15. The combination with the cylinders and rotating piston of a compound rotating-piston engine, of a cylindrical valve-seat comprising two portions in axial line with one another, namely, an outer portion for admission of steam to the valve and an inner portion with fluid passages and ports connected with a passage leading to the outer portion, a valve constructed in two parts in axial line with one another, that is an outer or out-off portion and an inner or distributing portion, said outer portion being furnished with two ports on different radii and connected with the valve, one of said ports registering with a port through the valve-seat for forward action of the piston and the other port adapted to register with the same port in the valve-seat for reverse action of the piston, said fluid-passages in the inner portion of the valve adapted to register with passages in the inner portion of the seat which leads to and from the cylinder of the engine.

16. The combination with a rotating-piston engine as described, of an abutment-cylinder having an internal hollow cylindrical portion rotating over a sleeve fixed in its axis between which and said hollow abutment is formed an annular steam-chamber having projecting into it from the body of the abutment a bearing-piece running in smooth contact upon the sleeve and adapted to periodically cut off the flow of actuating fluid from a port out through the sleeve to a valve within it during the passage of the piston through the ports in the periphery of the abutment-cylinder, said sleeve and said valve.

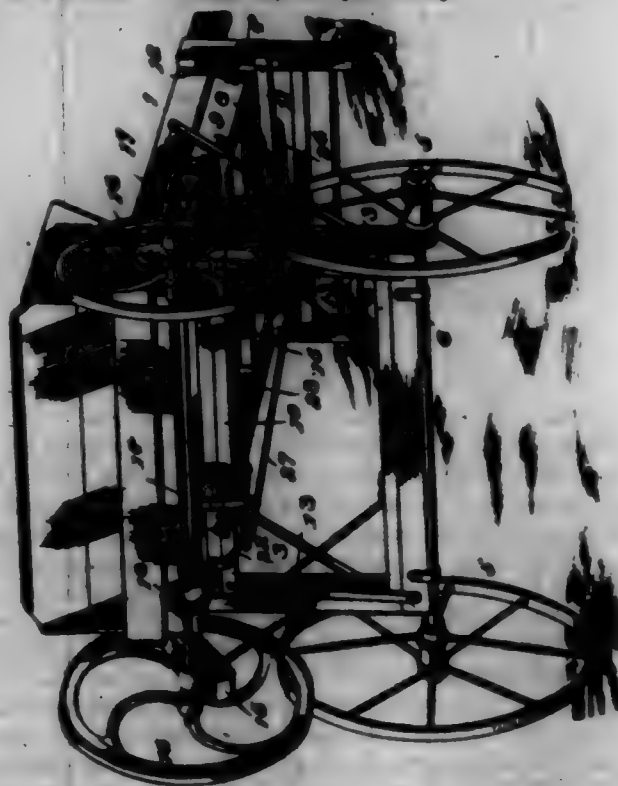
17. The combination with a rotating-piston engine as described of cylindrical valves having an outer or out-off portion in axial line and connecting with an inner or distributing portion, the outer portion having two parallel steam-ports connecting with an internal passage adapted to admit and gradually cut off the actuating fluid passing through a port in the valve-seat, one of said ports serving for a passage of the actuating fluid to drive the piston in one direction, the other for a passage of the fluid to drive them in the opposite direction, said internal passage in the valve being connected by an opening or openings to a cut-away portion of the opposing outer surface of the valve whereby a pressure of the actuating fluid against said cut-away portion may be obtained to balance against pressure through the open ports of said valve, and means whereby said valve may be partially rotated upon its axis.

18. The combination with a reversing rotating-piston engine as described, of three-way valves placed in the inlet and exhaust passages of the low-pressure cylinder by the side of the rotating abutment their axis parallel with its axis and near the admission and admission ports of the annular cylinder, axial stems upon said valves projecting beyond the abutment-seat, cranks carried by said stems, an arm or bar one end of which is connected to one crank and the other end of which is connected to the other crank, a cam formed upon the end of the abutment-cylinder or its accompanying gear and rotating with it, and a bell-crank one end of which is attached to said arm or bar and the other end of which is operated by said cam and which is fulcrumed to a fixed point, said parts being so disposed that said valves will cut off the flow of actuating fluid to and from the high-pressure cylinder during the passage of the low-pressure piston through the port in the abutment.

19. A cylindrical valve, arranged for partial rotation upon its own axis, having two portions in axial line with each other, one containing two central ports parallel with the axis and with each other connected with an internal passage through the valve and the other portion with distributing-passages constructed to register radially with ports through the seats of this portion of the valve, one to and one from the high-pressure

cylinder of a compound engine, one to and one from the low-pressure cylinder, and one to the exhaust from the engine, said partial rotation of said valve being adapted, through means of one or other of the two ports cut through the outside or out-off portion coming into registration with a port cut in the valve-seat of this portion, or such registration being changed to complete closing of said seat-part; to control the steam admitted to the engine from full admission to no admission, without disturbing the cycle or reversing the engine, the ports of the distributing portion of the valve being cut wider than those of the out-off portion, then, by continuing the rotation to reverse the position of the steam-passages and ports throughout the valve and consequently reverse the engine, at first without admission of steam through the port in the outer bearing, then inward through least admission to full admission.

697,076. SAND-SCREEN. SAMUEL W. DEW, Milled, Iowa. Filed Nov. 20, 1901. Serial No. 94,099. (No model.)



Claim.—In combination, a frame, legs at opposite ends of the frame, a screen mounted on the frame for transverse reciprocation, hangers supporting the delivery end of the screen and adapted to bear against the upper side of the lower legs, standards pivotally supporting the upper end of the screen, a transverse power-driven shaft mounted upon extensions of the frame, upper and lower bell-crank levers connected for simultaneous oscillation, links connecting corresponding arms of the bell-crank levers with the screen, and gearing between the upper bell-crank lever and the power-driven shaft, substantially as set forth.

697,077. ELECTRO-ARC LAMP. JOHN BUEHNER, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 71,997. (No model.)

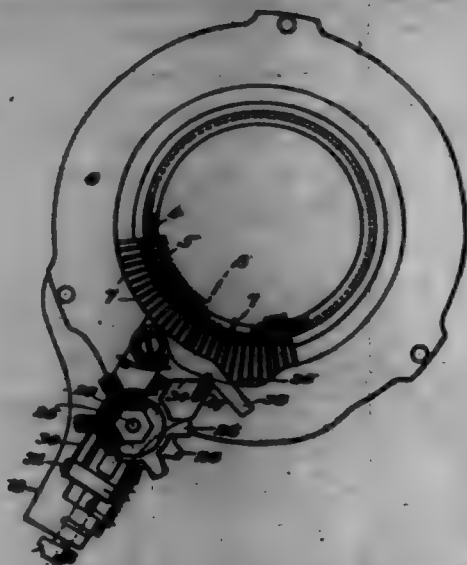


Claim.—1. A device for arc-lamps, consisting of a frame carrying a pivoted gripping-dog on one side, and a roller on the opposite side, to

combination with a stationary part, against which said roller bears and which is located between the roller and the opening in the frame, substantially as described.

2. A clutch for arc-lamps, consisting of the combination of a frame provided with tripping-lugs d^1 , a dog e pivoted thereto, a roller f carried by said frame, the standard c against which said roller bears, and a support against which the lugs d^1 are adapted to strike.

697,078. KNITTING-MACHINE. GEORGE E. ELLIS, Philadelphia, Pa. Filed June 21, 1901. Serial No. 66,309. (No model.)



Claim.—1. In a knitting-machine, the combination with the needles and mechanism for operating the same, of projecting fingers or detents adapted to pass between certain needles at certain intervals and hold the thread up while the needle is in advance of it in drawing said thread down thereby forming an enlarged or open mesh between closely-knitted meshes, and mechanism for operating certain detents during the knitting of one course and different detents during the knitting of other courses for the purpose of changing the alignment of the enlarged or open meshes, substantially as described.

2. In a knitting-machine, the combination with the needles and their operating mechanism, of detents arranged between the needles at predetermined points, a cam carried by the revolving head of the machine adjacent to the detents, and mechanism for holding said cam in the path of the detents on one or more revolutions of the head and then automatically releasing the same, for the purpose substantially as described.

3. In a knitting-machine, the combination with the needles and their operating mechanism, of detents arranged between the needles at predetermined points, a cam carried by the revolving head of the machine adjacent to the detents, and mechanism for holding said cam in the path of the detents on one revolution of the head and releasing the same on the next revolution for the purpose substantially as described.

4. The combination with the needles and their operating mechanism, of detents arranged in series between the needles at predetermined points, a series of cams carried by the revolving head of the machine, each of said cams adapted to engage a different series of detents, and mechanism for operating said cams, for the purpose described.

5. The combination with the needles and their operating mechanism, of detents arranged in series between the needles at predetermined points, a series of cams carried by the revolving head of the machine, each of said cams adapted to engage a different series of detents on each revolution of the head, and mechanism for operating said cams alternately, for the purpose described.

6. The combination with the needles and their operating mechanism, of detents arranged in series adapted to pass between needles at predetermined points, a series of cams carried by the revolving head of the machine, each of said cams adapted to engage a different series of detents, and mechanism for throwing the said cams into engagement with the detents upon certain revolutions of the head, for the purpose substantially as described.

7. The combination with the needles and their operating mechanism, of detents arranged in series adapted to pass between needles at predetermined points, a series of cams carried by the revolving head of the machine, each of said cams adapted to engage a different series of detents, and mechanism for throwing the said cams into engagement with the detents alternately upon each revolution of the head, for the purpose substantially as described.

8. The combination with the needles and their operating mechanism, a sinker-bar bed, a series of detents adapted to move radially in said bed

between the needles at certain intervals, a revolving cam-head, a movable carriage supported on said cam-head, a pivoted cam-plate carried by the carriage adjacent to the detents, mechanism for moving the cam-plate in the path of the detents at predetermined times and releasing the same, for the purpose substantially as described.

9. The combination with the needles and their operating mechanism, a sinker-bar bed, a series of detents adapted to move radially in said bed between the needles at certain intervals, a revolving cam-head, a movable carriage supported on said cam-head, a pivoted cam-plate carried by the carriage adjacent to the detents, mechanism for moving the cam-plate in the path of the detents during one revolution of the cam-head and releasing the same during the next revolution, for the purpose substantially as described.

10. The combination with the needles and their operating mechanism, a sinker-bar bed, a revolving cam-head for actuating the sinker-bar, a series of detents arranged between certain needles, a sliding carriage secured on the cam-ring, a pivoted cam-plate carried by the said carriage adjacent to the detents, a toothed wheel mounted on said carriage having its teeth adapted to engage the cam-plate and throw it in the path of the detents, and means for actuating the said toothed wheel so as to release the cam-plate at predetermined times, substantially as described.

11. The combination with the needles and their operating mechanism, a sinker-bar bed, a revolving cam-head for actuating the sinker-bar, a series of detents arranged between certain needles, a sliding carriage secured on the cam-ring, a pivoted cam-plate carried by the said carriage adjacent to the detents, a toothed wheel mounted on said carriage having its teeth adapted to engage the cam-plate and throw it in the path of the detents, and means for actuating the said toothed wheel so as to release the cam-plate on every other revolution of the cam-head, substantially as described.

12. The combination with the needles and their operating mechanism, a cam ring or head for operating the sinker-bar, a sinker-bar bed, a series of detents adapted to pass between certain needles, mechanism for actuating the said detents in advance of the sinker-bar, and means for rendering the detent-actuating mechanism inoperative, for the purpose described.

13. The combination with the needles and their operating mechanism, a cam ring or head for operating the sinker-bar, a sinker-bar bed, a series of detents adapted to pass between certain needles, mechanism for actuating the said detents in advance of the sinker-bar and means for automatically rendering the detent-actuating mechanism inoperative and again operative at predetermined times, for the purpose described.

14. The combination with the needles and their operating mechanism, of radially-disposed detents adapted to pass between certain needles in advance of the web-holder, mechanism for actuating said detents alternately, and means for rendering the detent-actuating mechanism inoperative and operative alternately during each revolution of the cam-head of the machine, for the purpose described.

15. The combination with the needles and their operating mechanism, a sinker-bar bed, a revolving cam-head for operating the sinker-bar, a series of detents arranged at intervals in the sinker-bar bed, a sliding carriage secured to the cam-head, a series of pivoted cam-plates mounted on said carriage adapted to engage certain of the detents, and means for automatically withdrawing the carriage to render the cam mechanism inoperative during a portion of each revolution of the cam-head and resetting the same during the remaining portion of said revolution, for the purpose described.

697,079. METALLIC WHEEL. GEORGE E. ELLIS, Philadelphia, Pa. Filed Apr. 18, 1901. Serial No. 66,378. (No model.)

Claim.—1. The combination of a wheel-felly formed with spoke-openings, said openings being inwardly tapered from their opposite ends, and tubular spokes tapered at their outer ends to fit the inner tapered ends of said openings, the extremities of the tapered spoke ends being flared or expanded to fit the outer tapered portions of said felly-openings, substantially as shown and described.

2. The combination of a wheel-felly formed with spoke-openings, each of said openings being inwardly tapered from opposite ends and having its smallest diameter at or about the center of the felly, tubular spokes tapered at their outer ends and fitting the inner tapered portions of the felly-openings, the extremities of the tapered spoke ends being flared or expanded to fit the outer tapered ends of said felly-openings, and rivets extending transversely through the tapered spoke ends and centrally through the felly, substantially as shown and described.

3. In a wheel, the combination of tubular metallic spokes having tapered inner and outer ends, a hub formed with inwardly-tapering depressions to receive the tapered inner ends of the spokes, and a felly formed with outwardly-tapering openings to receive the outer tapered ends of the spokes, substantially as shown and described.

4. A metallic hub having its bore formed with inwardly-extending shoulders, a wood filler adapted to be driven into the hub-bore and be confined by being impinged by said shoulders, the hub being formed with spoke depressions having inward effects, and spokes fitting the depressions and formed with effects complementary therewith, substantially as shown and described.



5. The combination of a hollow metallic fully, heads secured therein having tapering recesses, and spokes tapered complementarily with and secured in the heads, substantially as shown and described.

6. The combination of a hollow metallic fully, hollow heads secured therein, the head depressions being inwardly tapered from opposite sides of the head, and spokes tapered at the end to fit one portion of said tapered depressions, the extremities of the spokes being flared or expanded to fit the oppositely-tapered portions of said head depressions, substantially as shown and described.

7. The combination of a fully formed with spoke-receiving openings, said openings being inwardly tapered from opposite ends, and tapered spokes adapted to fit the inner tapered portions of said openings, the extremities of the spokes being flared or expanded to fit the outer tapered portions thereof, substantially as shown and described.

8. The combination of a hub formed with spoke depressions having annular effects, tubular spokes tapered at their opposite ends, the inner tapered ends of the spokes being formed with effects complementary with the hub-depression effects which they closely fit, a rim having spoke-receiving openings, said openings being inwardly tapered from opposite ends, the tapered outer ends of the spokes fitting the inner tapered portions of said depressions, and the spoke extremities expanded or flared to fit the outer tapered portions of the openings, substantially as shown and described.

697,080. GAS-LIGHTING APPARATUS. CARLOS FARRER, London, Germany. Filed Apr. 2, 1901. Serial No. 54,197. (No model.)

Claim.—1. The combination with a gas-burner, a gas-supply pipe, a cut-off valve interposed between said burner and pipe and means operated by increase of the gas-pressure in the supply-pipe to move the valve off its seat; of means operated inversely to the direction of flow of gas from the supply-pipe to decrease the volume of gas supplied to the burner, substantially as and for the purpose set forth.

2. The combination with a gas-burner, of a gas-supply pipe, a gas inlet and cut-off valve interposed between said pipe and burner and means operated by variations of the pressure to move said valve to and off its seat; of a regulating-valve moved inversely to the direction of flow of gas from the supply-pipe to decrease the volume of gas supplied to the burner, substantially as and for the purpose set forth.

3. The combination with a gas-burner, a gas-supply pipe, a gas inlet and cut-off valve interposed between said burner and pipe and means operated by variations of the pressure in the supply-pipe to move said valve to and off its seat; of a regulating-valve moved by the cut-off valve inversely to the direction of the flow of gas from the supply-pipe for de-

creasing the volume of gas supplied to the burner, substantially as and for the purpose set forth.



4. The combination with a gas-burner, a gas-supply pipe, a cut-off valve interposed between said burner and pipe, and a float connected to said valve and moved by the displacement of a liquid under the pressure of the gas from said supply-pipe; of a regulating-valve also moved by said float and operating to regulate the volume of gas supplied to the burner in accordance with the variations of the pressure of the gas on said liquid, for the purpose set forth.

5. The combination with a gas-burner, an igniter-burner, and a gas-supply pipe in communication with both burners; of a float-controlled cut-off valve for each of said burners, said floats moved by the displacement of the level of a liquid by variations of the pressure thereon of the gas from the supply-pipe, for the purpose set forth.

6. The combination with a gas-burner, an igniter-burner, and a gas-supply pipe in communication with both burners; of a float-controlled cut-off valve for each of said burners, said floats moved by the displacement of the level of a liquid by variations of the pressure thereon of the gas from the supply-pipe, and means for imparting a differential movement to said floats, for the purpose set forth.

7. In an automatic gas-lighting apparatus, the combination with a casing divided into concentric chambers, the inner chamber open at its lower end, the outer chamber in communication with the atmosphere at its upper end, a sealing liquid in said chambers the normal level of which is below said communication, a gas-supply pipe extending into the inner chamber above said normal level, a main burner and an igniter-burner both in communication with said inner chamber above the said normal level of the sealing liquid; of a float-controlled cut-off valve for each of said burners, and means for imparting to the floats a differential movement when the level of the sealing liquid drops below a normal level under an increase of the pressure in the inner chamber, for the purpose set forth.

8. In an automatic gas-lighting apparatus, the combination with a casing divided into concentric chambers, the inner chamber open at its lower end, the outer chamber in communication with the atmosphere at its upper end, a sealing liquid in said chambers the normal level of which is below said communication, a gas-supply pipe extending into the inner chamber above said normal level, a main burner and an igniter-burner both in communication with said inner chamber above the said normal level of the sealing liquid; of a float-controlled cut-off valve for each of said burners, and means for imparting to the floats a differential movement when the level of the sealing liquid drops below a normal level under an increase of the pressure in the inner chamber and when said level again rises to its normal level under a decrease of said pressure, for the purpose set forth.

9. In an automatic gas-lighting apparatus, the combination with a casing divided into two concentric chambers, the inner chamber open at its lower end, the outer chamber in communication with the atmosphere at its upper end, a sealing liquid in said chambers the normal level of which is below said communication, a gas-supply pipe extending into the inner chamber above said normal level, a main burner, and an igniter-burner

provided with a platinum-sponge igniter; of a float-controlled valve for each of said burners, means for limiting the movements of the floats in either direction and means for imparting to them a differential movement when the level of the liquid sinks below or returns to its normal level under variations of gas-pressure, for the purpose set forth.

10. In an automatic gas-lighting apparatus, the combination with a casing divided into two concentric chambers, the inner chamber open at its lower end, the outer chamber in communication with the atmosphere at its upper end, a sealing liquid in said chambers the normal level of which is below said communication, a gas-supply pipe extending into the inner chamber above said normal level, a main burner, and an igniter-burner provided with a platinum-sponge igniter; of a float-controlled valve for each of said burners, the float for the igniter-burner cut-off valve being immersed to a greater extent in the sealing liquid than the float for the main-burner valve, for the purpose set forth.

11. In an automatic gas-lighting apparatus, the combination with a casing divided into two concentric chambers, the inner chamber open at its lower end and the outer chamber in communication with the atmosphere at its upper end, a sealing liquid in said chambers the normal level of which is below said communication, a gas-supply pipe extending into the inner chamber above said normal level, a main burner and an igniter-burner both in communication with said inner chamber above the level of the liquid therein; of a double-cone float-controlled valve, controlling the inlet and outlet of the passage leading from the inner chamber to the main burner, a float-controlled cut-off valve for the igniter-burner, and means for imparting a differential movement to the floats when the level of the liquid falls below or returns to its normal level under variations of the pressure in the inner chamber, for the purpose set forth.

697,081. PARALLEL RAILWAY-RAIL BEARING. HANLEY I. GILBERT, Wethers, Kans. Filed Jan. 9, 1902. Serial No. 86,969. (No model.)



Claim.—1. The combination with a railway-rail, of a convex metal bearing, a rail-seat cast or rolled at the apex of said bearing and provided with orifices and slots forming connection with the inner ends of said orifices at their tops, the rail-seat shoulder adapted to clamp the outer flange of the rail and the bolts adapted to operate in said orifices and provided with nuts and threaded at their outer ends and having their inner ends bent to operate through the orifice-slots and clamp the inner rail-flange, the depressions in said bearings between the bolts to drain off water, the straps adapted to clamp the outer flanges of the rail-bearings, the rods having their lower ends adapted to form connection with the inner ends of said straps and clamp over the inner rail-bearing flanges, the turnbuckles to connect said rods and regulate the gage, and the plates provided with perforations to connect the rail-bearings, substantially as described and for the purpose specified.

2. The combination with two lines of convex railway-bearings set parallel, of metal straps set transversely underneath said bearings the outer ends being turned backward to clamp the outer flanges of the bearings, of a turnbuckle, of the rods whose inner ends make connection with said turnbuckle and whose outer ends are adapted to be rigidly fastened on the inner ends of said straps with extended upwardly-raised projections adapted to clamp over the inner flanges of the rail-bearings, substantially as described and for the purpose specified.

3. In a railway two parallel lines of rail-bearings and the seats thereon adapted to seat and clamp two parallel rails of a track, the flanges at the bases of said bearings, the turnbuckles, the metal straps set transversely underneath said bearings provided with turned ends to clamp the outer flanges of the bearings and the rods forming connection between said turnbuckles and straps and clamping down the inner flanges of the bearings, substantially as set forth.

4. The combination with convex railway-bearings adapted to be set parallel, of rail-seats set at the apex of said convexity and provided with orifices, bolts and shoulders with grooves for retaining the rails upon their seats, and transverse depressions in said bearings placed alternately with said bolts to drain the water off the track, substantially as described.

697,082. OIL-CUP. JAMES H. W. HANSEN, Hartford, Conn., assignor to the Winkley Company, Hartford, Conn., a Corporation of Connecticut. Filed June 15, 1901. Serial No. 84,987. (No model.)



Claim.—1. An oil-cup comprising a body portion having an annular outwardly-extending internally-supported cover, and a telescoping thimble mounted on the body below the cover to close against the cover.

2. A self-closing oil-cup, comprising a body portion having an annular outwardly-extending internally-supported cover, a telescoping thimble mounted on the body below the cover, to close against the cover, and a spring for resiliently holding the thimble to its cup-closing position.

3. In an oil-cup, the combination of an oil-receiving body, provided with an upwardly-extending stem having an annularly-extending head, forming a cover for the cup, and a telescoping thimble mounted upon the body to close against the cover.

4. A self-closing oil-cup, comprising an oil-receiving body portion, a cover comprising an annular head attached to the body by a reduced stem, a telescoping thimble mounted upon the body to close against the head, and a spring for resiliently holding the thimble in its closed position.

5. An oil-cup comprising an oil-receiving body portion, provided with an internally-supported annularly-extending head forming a cover for the cup, and a telescoping thimble mounted upon the body below the cover, having an annular shoulder forming a step for the opening movement of the thimble.

6. A self-closing oil-cup, comprising an oil-receiving body portion, having an internally-supported annularly-extending head forming a cover for the cup, a telescoping thimble mounted upon the body, provided with a shoulder extending annularly over the wall of the body of the cup, to form a step for the downward movement of the thimble, and to form a shoulder for a spring, and a spring for engaging with the said shoulder to resiliently hold the thimble in its cup-closing position.

7. The combination, in an oil-cup, of an internally-supported annular cover therefor, and a thimble resiliently closing against the cover, with a flaring joint to be wedged open by the nose of an oil-can.

8. The combination, in an oil-cup, of an annular cover, secured to the body of the cup by a reduced stem, a thimble closing against the cover and encircling the stem with an annular outwardly-flaring opening, for receiving the oil.

697,088. COLLAPSEABLE CORR-BAR. JOSEPH D. HANSEN, Birmingham, Ala. Filed Dec. 7, 1901. Serial No. 85,090. (No model.)



Claim.—1. In a corr-bar, the combination of a plurality of channelled castings forming the body of the bar, a radially-movable plate in each casting, levers pivotedly connected at adjacent points to both castings and plates, and means for shifting said levers, substantially as described.

2. In a corr-bar, the combination of the body, a series of radially-movable plates thereof, levers, interposed between the several plates and body, pivotedly connected both to the plates and body, and movable oppositely-acting cams engaging opposite ends of the levers, substantially as described.

3. In a corr-bar the combination of the body, the annular series of

radially-movable plates thereon, levers interposed between the plates and body and pivotally connected with both plates and body at adjacent points, movable oppositely-facing cams engaging opposite ends of the levers, and means for simultaneously shifting said cams, for the purpose and substantially as described.

4. In a core-bar the combination of an annular series of channelled castings forming the surface of the bar, a radially-movable plate in each casting forming the body of the bar, and cams and connections for simultaneously adjusting said movable plates, substantially as described.

5. In a core-bar the combination of an annular series of channelled castings forming the surface of the bar, a radially-movable plate in each casting, levers interposed between the plates and castings and pivotally connected to both at adjacent points, oppositely-facing cams engaging opposite ends of the levers, and means for simultaneously shifting said cams, substantially as described.

6. In a core-bar the combination of the body, a series of radially-movable plates on the exterior thereof and connected therewith, oppositely-disposed cams between the body and plates, levers pivoted to the plates and body and adapted to engage the opposite ends of the plates, and means for shifting the cams, substantially as described.

7. In a core-bar the combination of longitudinally-channelled castings, a radially-movable plate in each casting, and levers pivotally connected to the plates and castings; with longitudinally-movable cam-bars between the plates and castings having oppositely-facing cams engaging opposite ends of the levers, substantially as described.

8. In a core-bar the combination of an annular series of longitudinally-channelled castings, the radially-movable plates in said castings, and levers pivotally connected to the plates and castings; with longitudinally-movable oppositely-facing cams engaging opposite ends of the levers, and means for simultaneously shifting said cams, substantially as described.

9. In a core-bar the combination of the support, the annular series of externally-channelled castings attached thereto, the radially-movable plates fitted in said castings, the levers pivoted to the plates and castings, and pairs of oppositely-facing cams engaging the opposite ends of the levers; with cam-bars connecting and operating said cams, and the cap to which said cam-bars are attached, substantially as described.

10. In a core-bar the combination of the support, the series of longitudinally-channelled castings attached thereto, the radially-movable plates in said castings, and levers pivotally connected to the plates and castings at adjacent points; with longitudinally-movable cam-bars between the plates and castings, oppositely-facing cams on said bars engaging opposite ends of the levers, and means for simultaneously shifting said cam-bars, substantially as and for the purpose described.

11. In a core-bar the combination of the support, the annular series of channelled castings attached thereto, the radially-movable plates fitted in said castings, the levers pivoted to the inner sides of the plates and also pivoted to lugs on the castings, and pairs of oppositely-facing cams engaging the opposite ends of the levers; with cam-bars connecting and operating said cams, a movable cap on one end of the core to which said cam-bars are attached and whereby they may be simultaneously shifted, and eyebolts attached to said cap-piece, all substantially as and for the purpose set forth.

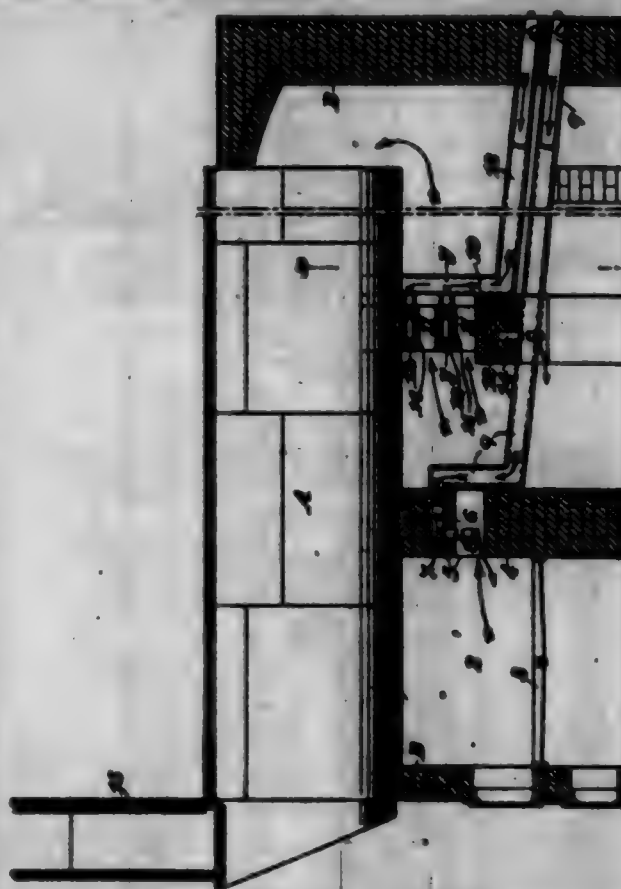
697,084. HYDRANT. WILLIAM HENDERSON, Los Angeles, Cal.
Filed Aug. 24, 1901. Serial No. 73,135. (No model.)



Claim.—In an irrigating-hydrant, a nozzle therefor composed of two circular chambers, disposed one above the other; the upper chamber having a centrally-disposed circular opening with sharp edges in the top thereof; and the lower chamber having a centrally-disposed circular threaded opening in the bottom thereof; an oblique passage connecting said two chambers, commencing at one side of the opening in the lower chamber, in combination with a stand-pipe, adapted to be screwed into the lower chamber to contact with the web separating the two chambers.

697,085. SMOKE-PREVENTER. JOHN E. HENARE, Denver, Colo.
Filed July 3, 1901. Serial No. 67,931. (No model.)

Claim.—1. The combination with a boiler, the fire-box thereof and a bridge-wall at the rear of the fire-box, of an arch fitted above the bridge-wall having an internal chamber, connections made between said chamber and the heat-passages below the arch, means for supplying air into the chamber within the arch, a second arch located at the rear of the bridge-wall having pycnoleth through, and a heating-chamber formed above said passages, with connections from the chambers into the passages, and means for supplying air into said chamber.



2. The combination in a boiler, the fire-box bridge-wall and rear combustion-chamber thereof, of a plurality of arches located beneath the boiler, one in rear of the other, a passage for the products of combustion between the bridge-wall and the first arch, a heating-chamber in the upper part of said arch and means for supplying air thereto, passages leading downwardly from said chamber, discharging air to mingle with the products of combustion in the space beneath the arch, a plurality of openings through the rearward arch with corresponding heating-chambers above each series, air-supply passages connecting with said heating-chambers and passages delivering air from the chambers into the heat-passages below.

3. A boiler-furnace including a plurality of bridge-walls located at different distances from the fire-box, an arch above each of said walls and forming between itself and the wall a passage for products of combustion, heating-chambers formed in the upper portions of the arches and passages leading from said chambers and discharging air to mingle with the products of combustion, and separate air-inlet passages connecting through openings in the rear walls of the arches.

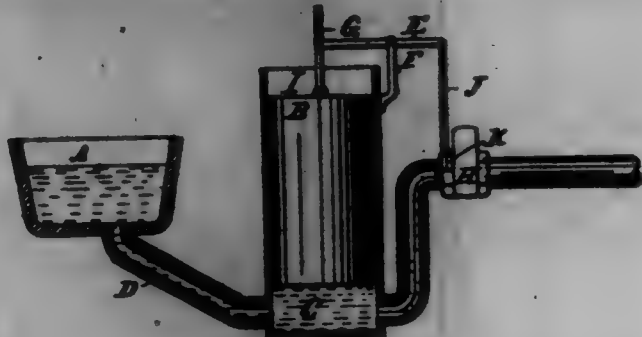
4. A boiler-furnace including a grate, a rear combustion-chamber, a plurality of walls between said grate and chamber, an arch above each wall and forming between itself and the wall a passage for the products of combustion, one of said walls having contracted openings through it, heating chambers in the upper portions of the arches and passages leading from the chambers and discharging air into the smoke-passages to mingle with the products of combustion, and air-pipes having ends captured and located back of each wall and communicating with the heating-chambers therein.

5. A boiler-furnace having a grate, and a rear combustion-chamber, transverse walls between the grate and the rear end, arches above the walls and separated therefrom to form a passage for products of combustion, air-chambers within the arches and branches communicating with the passages through, pipes extending along the inner side walls of the rear chamber, and upward at the rear of the transverse walls, said pipes having connections with each of the air-chambers.

697,086. AUTOMATIC WATER-BALANCE. ALBERT HENARE, Escondido, Mexico. Filed Apr. 20, 1902. Serial No. 13,003. (No model.)

Claim.—The herein-described means to regulate the level of water in a trough, or receptacle, comprising the trough A, having connection

with the chamber C; the cylindrical chamber C, adapted to receive the cylindrical float B; the float B carrying rod G pivoted thereto, and pivotally connected to the lever E; the lever E, being pivotally mounted on the upright F, forming a fulcrum therefor, one end pivoted to the rod G, and means, substantially as shown, to regulate the elevation of said connection with said rod, and the other end pivoted to the rod J; the rod J, pivoted to the valve-lever K of the valve H; the valve H arranged to be opened and closed by the means shown and described; and the pipe D for carrying the fluid, substantially as shown and described.



697,087. WIRE BED-BOTTOM. JOHN HORT, San Francisco, Cal.
Filed May 17, 1901. Serial No. 69,067. (No model.)



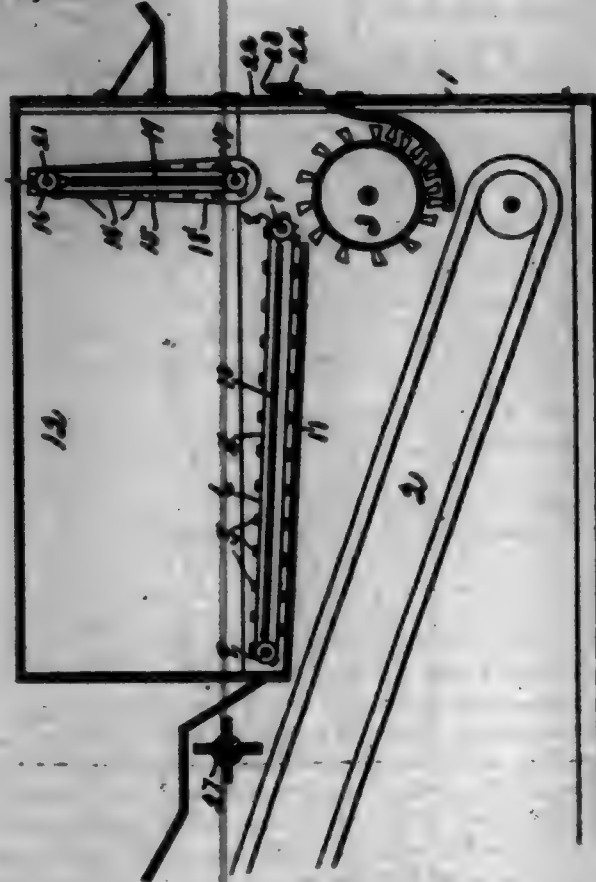
Claim.—1. The combination in a bed-bottom of a rigid rectangular frame, two superposed elastic fabric, stretched between said frame and one of said fabric serving as a reinforce for the other, and a continuous yielding pad or mattress parallel with and interposed between the entire inner surfaces of the two fabric, and adapted to gradually transmit the pressure of the upper fabric to the lower one.

2. The combination in a bed-bottom, of a rigid rectangular frame composed of side and end bars, parallel elastic fabric stretched upon opposite sides of the frame as to leave a clear uninterrupted space between the fabric, one of said fabric having a different degree of flexibility than the other and serving as a reinforce for the latter, and as a means for counterbalancing the strain of the other fabric upon the end bars of the frame, and a pad extending parallel with the fabric and through the space between them, and adapted to gradually transmit to the lower fabric, substantially throughout its length, the pressure of the upper fabric.

697,088. SELF-FEEDER FOR THRUSHERS. HATHARD I. HOWE,
Stockton, Cal. Filed Dec. 26, 1900. Serial No. 41,114. (No model.)

Claim.—In a feeder of the class described, the combination with the casing, and the threshing-cylinder of a threshing-machine; of a draper arranged to receive grain and convey it to the cylinder, a transverse shaft 21 journaled in the casing, and disposed above the cylinder, and the pendant draper for regulating the feed of grain to the cylinder; the said draper comprising sprockets 16 on the shaft 21, side bars 18 having slots 19 receiving said shaft 21 whereby they are enabled to swing and move in the direction of their length on the same, a roller 17 journaled in the lower portion of the bars 18, chains passed around the sprockets 16 and roller 17, and means on said chains for engaging the grain.

697,088.



697,089. PRINTING-MACHINE. EDWIN J. JONES, Hensley, Ger.
Filed May 7, 1902. Serial No. 15,809. (No model.)



Claim.—1. In a printing-machine, the combination with a hollow cylinder having interiorly-threaded ends, of screw-plugs threaded in said ends, a bow, and journals mounted in bearings therein and threaded into the outer ends of the screw-plugs, substantially as described.

2. In a printing-machine, the combination with a hollow cylinder having interiorly-threaded ends, of screw-plugs threaded in said ends and having threaded openings to receive journals, said screw-plugs being also provided with disk-heads, and a design-roll held in place between said heads, substantially as described.

3. In a printing-machine, the combination with a hollow cylinder, of screw-plugs threaded in the ends thereof, journals threaded in said plugs, a bow having bearings for said journals, and projections radially dotted, and screws passing through the reservoir-shell and into the radial slots, substantially as described.

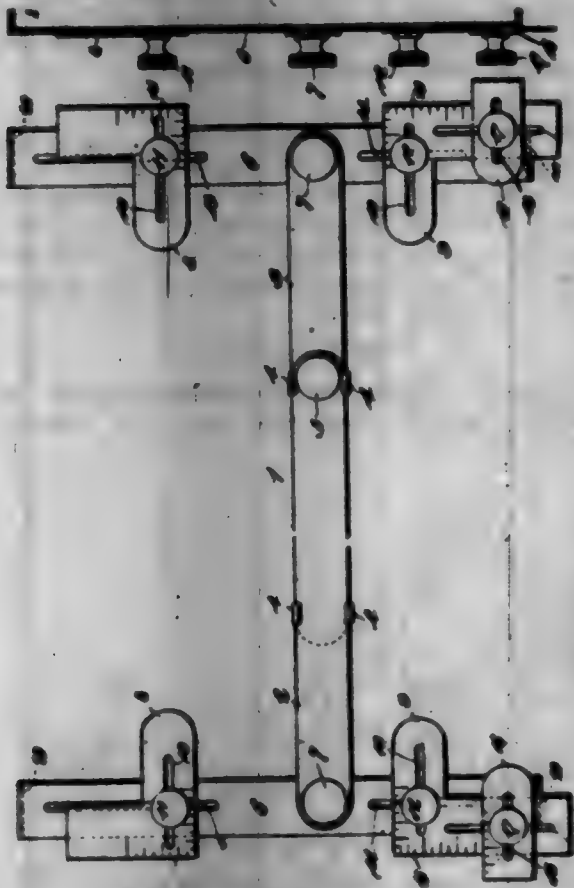
4. In a printing-machine, the combination with the design-roll and its supports, comprising disks *d'* and *d''* with the space between them, of the guide-roll comprising parts *a* and *a'* with slot *a'* between them, the steel sheet *a'* with wards *a'*, and the part provided with groove *g*, substantially as described.

697,090. THRESHOLD-GAGE. EDWIN O. KIM, Lawrence, Mass.
Filed Jan. 2, 1902. Serial No. 22,455. (No model.)

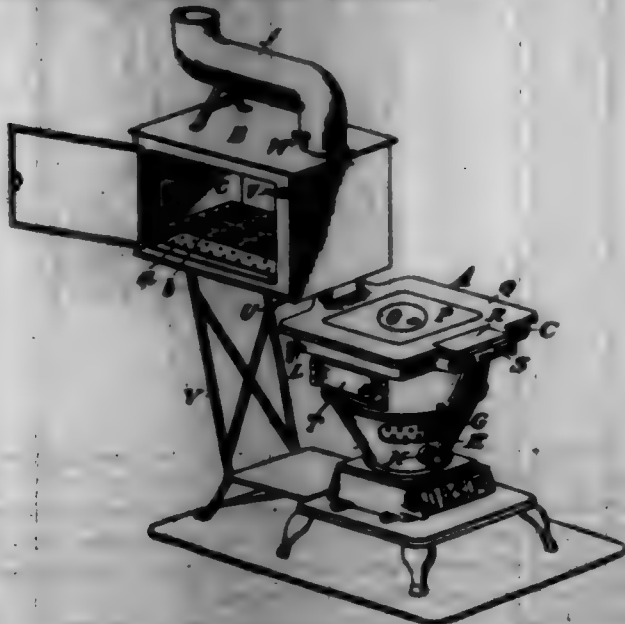
Claim.—1. A threshold-gage comprising an adjustable gage-body, jamb-face gages having pivotal connection therewith, rabbit-gages adapted for lateral and longitudinal adjustment with relation to the jamb-face gages, and jamb-side gages connected for lateral and longitudinal adjustment with two of the rabbit-gages.

2. A threshold-gage comprising a two-membered gage-body, each member being provided with a pair of lugs to interlock with the other member, and with a jamb-screw for holding the members at the desired adjustment, jamb-face gages pivotally connected with the gage-body, graduated rabbit-gages connected with the terminals of the jamb-face gages, and adapted for longitudinal and transverse adjustment with relation thereto, laterally and longitudinally adjustable jamb-side gages con-

ried by two of the rubber-gages, and legs or steps carried by the terminals of the jamb-flare gages.



697,091. STOVE. WILSON & P. KENTON, Burbank, Ohio. Filed June 14, 1901. Serial No. 64,000. (No model.)

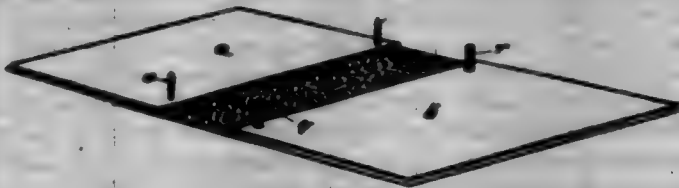


Claim.—1. In a stove, a top, an annular pan-shaped smoke-chamber immediately below said top, a direct flue-opening in said chamber provided with a damper, an indirect flue-opening in said chamber opposite the first-named opening, a member J forming a passage to the indirect flue-opening, said chamber forming with the stove-top an annular flue, and having the center of the stove-top exposed directly to the heat of combustion.

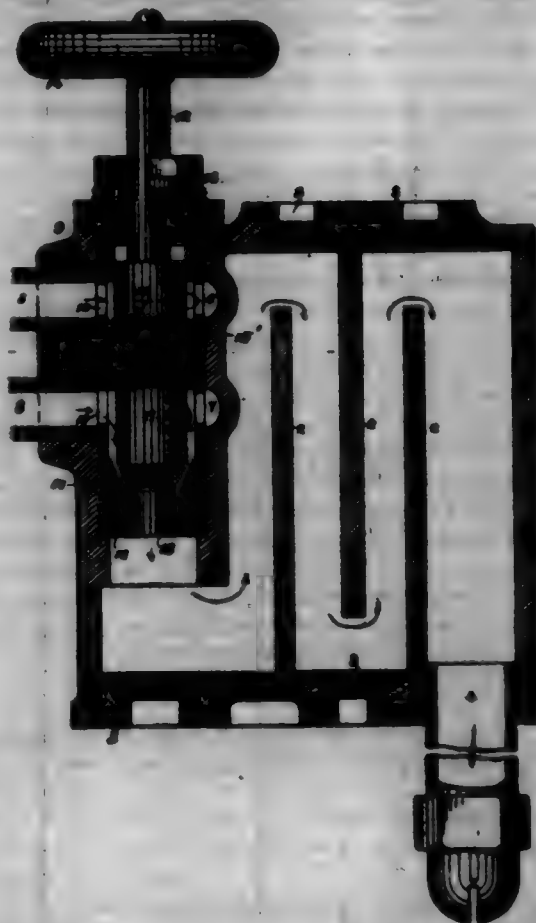
2. In a combined cooking and baking stove, a top, an annular pan-shaped smoke-chamber immediately below said top, a direct flue-opening in said chamber provided with a damper, an indirect flue-opening in said chamber opposite the first-named opening, a member J forming a passage to the indirect flue-opening, said chamber forming with the stove-top an annular flue and having the center of the stove-top exposed directly to the heat of combustion, a casing connected to the exit-flue of the stove, an oven in said casing, and a smoke-pipe leading from the casing, whereby the greater part of the heat may be directed to the stove-top for cooking, or to the oven for baking.

697,092. ACCOUNT-FILE. Leo J. Kason, Grand Junction, Colo. Filed Apr. 12, 1901. Serial No. 64,000. (No model.)

Claim.—In an account-file, two covers bound together by an elastic fabric, said fabric forming also a back for the file, and a pair of telescoping pins mounted near the opposite edges of said fabric and adjacent to the covers.



697,093. VAPORIZER, MIXER, AND REGULATOR FOR OIL-BURNERS. GEORGE H. LARKIN, San Francisco, Cal. Filed July 26, 1901. Serial No. 70,900. (No model.)



Claim.—1. A hydrocarbon vaporizer and mixer, consisting of a chamber having tortuous passages formed therein, a discharge tube and jet connecting with one end of the passage, a valve disposed within the other end, said chamber having independent oil and steam inlet passages opening against the side of the valve, and said valve having a threaded portion intermediate of the oil and steam passages and a port opening into the interior coincident with the oil-inlet passage, an annular chamber exterior to the valve into which the steam is delivered, and a seat against which the front end of the valve is slidable.

2. A hydrocarbon vaporizing and mixing apparatus, consisting of a chamber having a tortuous passage therethrough with a discharge at one end, parallel steam and oil inlet pipes opening into the side of a valve-chamber and transverse to its axis, a hollow valve turnable in said chamber to advance or retreat, and having a lateral port opening into the hollow interior of the valve in line with the oil-inlet pipe, an annular chamber surrounding the valve into which the steam-pipe opens, a seat interposed between said chamber and the annular steam-discharge by which the flow is regulated.

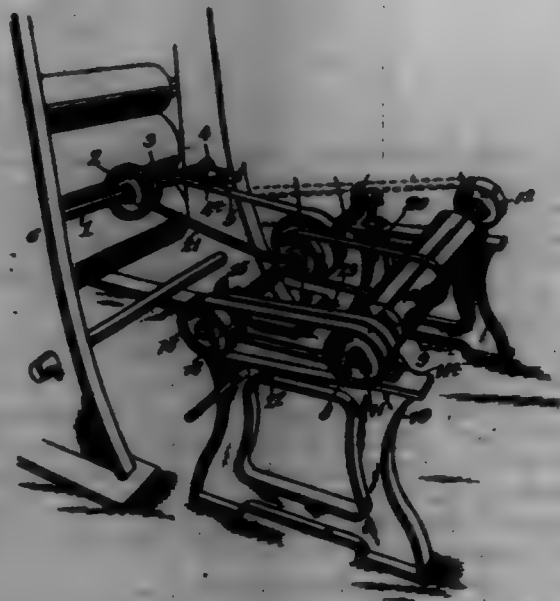
3. In a hydrocarbon-oil vaporizer and mixer a vaporizing and mixing chamber, a valve-chamber located in one side thereof, oil and steam inlet pipes opening into the side of said chamber, screw-threads formed in said valve-chamber between the inlet-passages, said chamber having a smooth surface portion between the screw-threads and the oil-inlet pipe, a valve having corresponding threads fitting and turnable in said threaded portion, a stuffing-box at one end of the valve-chamber, a stem connected with the valve passing through said stuffing-box having a means at its outer end by which the valve is turnable, said valve having a port opening to the interior coincident with the oil-inlet, an annular chamber surrounding the valve opposite the steam-inlet and separated from the oil-inlet by the screw-threaded portion of the valve, and a seat against which the end of the valve is slidable simultaneously with the port being occluded by the said smooth surface portion of the chamber.

4. A hydrocarbon-oil vaporizing and mixing chamber, a valve-chamber having annular interior grooves, oil and steam inlet pipes opening into the valve-chamber at right angles with its axis and coincident with the grooves, a hollow cylindrical valve screw-threaded and turnable in corresponding threads between the oil and steam pipes whereby the latter are separated and the valve is opened or closed, a conical seat near the discharge end of the valve-chamber, a corresponding cone upon the valve cleasable against said seat, a cylindrical extension beyond the seat of smaller diameter and a corresponding cylindrical extension of the valve, and a chamber surrounding the valve in rear of said seat and connecting with the annular space around the front of the valve, said valve having a port opening into the interior of the valve in line with the oil-inlet and said valve-chamber having a portion intermediate of the inlet-pipes which occludes the port in unison with the seating of the valve.

5. A hydrocarbon vaporizing and mixing chamber, a valve-chamber with oil and steam inlet pipes opening into one side thereof, said chamber having annular interior grooves coincident with said inlet-pipes, a hollow valve screw-threaded and fitting corresponding threads between the inlet-pipes, said valve having a port opening to the interior coincident with the oil-inlet pipe, and said chamber having an annular chamber surrounding the valve in line with the steam-inlet, a conical seat and means for adjusting it within the discharge end of the valve-chamber, a cone on the valve cleasable against said seat, and a cylindrical extension of the seat and the valve in front of the seat, with an annular space for the discharge of steam between the two.

6. The combination of a hydrocarbon-oil vaporizing and mixing chamber, a cylindrical valve-chamber having oil and steam inlet passages opening into the side thereof and annular interior grooves coincident with said passages, an interior cylindrical sleeve fitting said chamber having openings corresponding with the grooves and the steam and oil inlet passages, screw-threads interior to the sleeve located between the oil and steam inlets, a hollow cylindrical valve having screw-threads to fit those of the case and means by which it may be rotated to advance or recede, said valve having a port opening into it in line with the oil-inlet, said sleeve having a chamber surrounding the valve in line with the steam-inlet, an independent seat, means for adjusting it in the discharge end of the sleeve, and a corresponding formation of the valve cleasable against the seat, said sleeve having an annular steam-discharge passage exterior to the seat and surrounding the oil-discharge in the end of the valve.

687,094. MACHINE FOR GRINDING CALENDER-ROLLS
JOSEPH LUTON, Manchester, Va. Filed Dec. 18, 1901. Serial No. 26,410
(No model.)



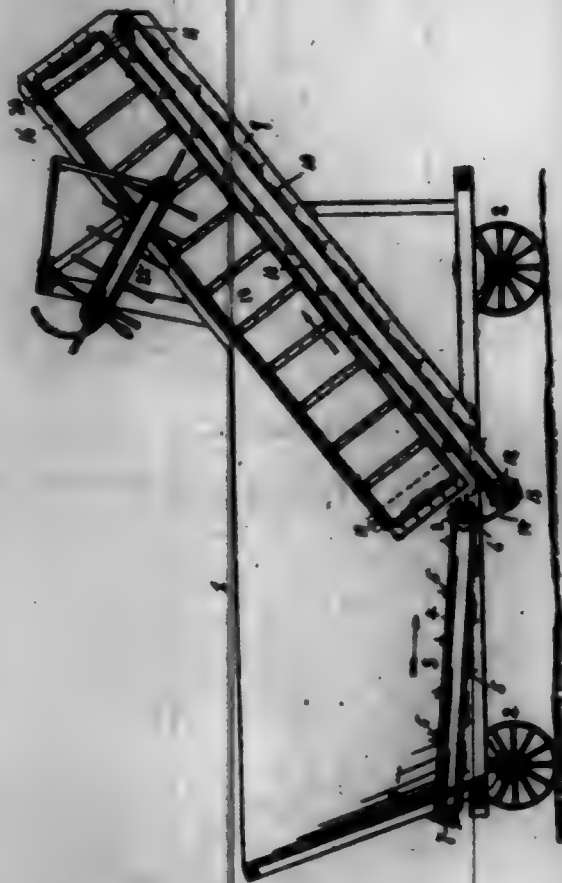
Claim.—1. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted on the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread, a sleeve carried by said screw-threaded shaft, pulleys carried by said sleeve, and means for rotating said screw-threaded shaft in either direction and for rotating said sleeve-pulleys and said grinding-wheel.

2. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted on the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread, a sleeve carried by said screw-

threaded shaft, pulleys carried by said sleeve, a shaft carrying a drum and pulleys, loose pulleys on the end of the screw-threaded shaft, bolts connecting said drum and said sleeve-pulleys and said drum-pulleys and said grinding-wheel and said drum-shaft pulleys and said loose pulleys, and means for making one of said loose pulleys fast.

3. In a machine of the class described, the combination of a shaft adapted to be adjustably mounted upon the frame carrying the calender-rolls, a grinding-wheel on and adapted to travel from end to end of said shaft, a shaft provided with a screw-thread and with loose pulleys, a clutch between the loose pulleys adapted to make one of such pulleys fast, a sleeve carried by said screw-threaded shaft, pulleys carried by said sleeve, and means for driving said screw-threaded shaft, the pulleys carried by the sleeve and grinding-wheel.

687,095. FEEDER FOR THRUSHING-MACHINES. THOMAS E. MARGREY, Fairport, Kans. Filed Apr. 27, 1901. Serial No. 27,508.
(No model.)



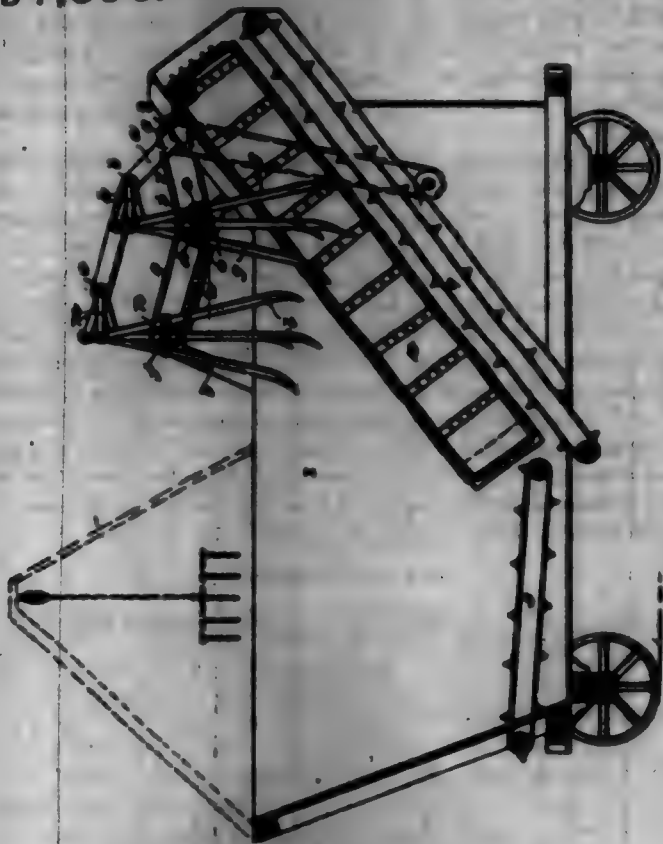
Claim.—In a feeder for thrashing-machines, the combination with a hopper, of a feeder-conveyor leading therefrom, a conveyor in the bottom of the said hopper discharging into said feeder-conveyor, auxiliary conveyors on the sides of said feeder-conveyor, and at an angle thereto, and a governor mechanism disposed above said feeder-conveyor and between said auxiliary conveyors, substantially as described.

687,096. GOVERNOR MECHANISM FOR THRUSHING-MACHINES. THOMAS E. MARGREY, Fairport, Kans. Filed May 21, 1901. Serial No. 27,505. (No model.)

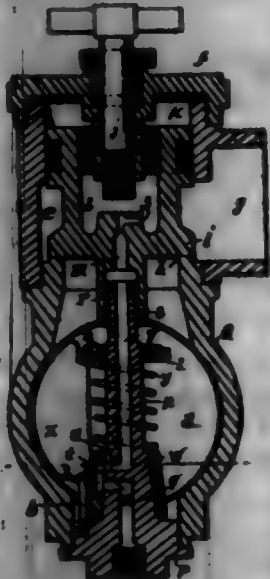
Claim.—1. In a thrashing-machine feeder of the class described, the combination of a hopper, an inclined endless traveling feeder-conveyor disposed therein and extending outwardly therefrom, and a plurality of take-back mechanisms, operative above said feeder-conveyor, disposed one in advance of the other and supported at different elevations, the one nearer the discharge of the feeder-conveyor being lower and closer to said feeder-conveyor than the other, for the purpose set forth, substantially as described.

2. In combination with a thrashing-machine feeder having a hopper and an inclined endless traveling feeder-conveyor, a reversible shaft *d* having a series of cranks, take-fingers *g* pivotally connected respectively to the said cranks, link *h*, connecting the said take-fingers to a fixed point, a crank-shaft *f* having a series of cranks and disposed in rear of and at a higher plane than the crank *d*, take-fingers *i* pivotally connected respectively to the cranks of said shaft *f*, link *h*, connecting said take-fingers *i* to a fixed point and means to communicate power to said shaft *d*, *f*, substantially as described.

697,096.



697,097. AUTOMATIC VALVE FOR STEAM FIRE-ENGINE.
By ALVARADO MAYER, Detroit, Mich. Filed Nov. 29, 1901. Serial
No. 52,962. (No model.)



Claim.—1. A valve embodying a valve-case provided with a waterway therethrough having in combination therewith a valve opened by water-pressure acting above said waterway, an aperture leading through said valve to admit water-pressure thereupon to seat the valve, a stem within the case provided with a channel-opening through both ends thereof, an oscillatory spring closing device upon said stem actuated in one direction by water-pressure to open and close communication through said stem.

2. A valve embodying a valve-case provided with a lower and with an upper chamber communicating the one with the other a valve in the upper chamber controlling said communication, an aperture leading from the upper chamber, a stem in the lower chamber provided with a channel-opening through both ends thereof, a channel leading through said valve, to admit water upon the top of the valve, an oscillatory device upon said stem actuated by water-pressure to close communication through said stem, and means to return said wing to normal position and open communication through said stem.

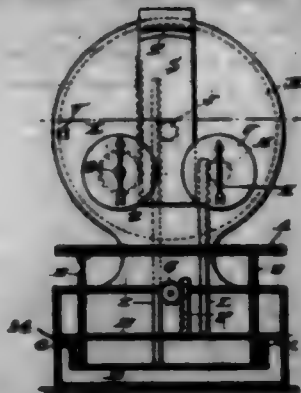
3. A valve embodying a valve-case provided with a waterway therethrough having in combination therewith a valve opened by water-pressure acting above said waterway an aperture leading from the case above the valve-case, an aperture leading through said valve, a channel-stem and an oscillatory wing provided with a hub upon said stem, said stem provided with a diaphragm intermediate of the extremities of the channel therewithin, crilless above and below said diaphragm communicating with

the channel and leading through the side of the stem, the hub of the wing provided with a chamber to register with said crilless in the stem when the wing is in closed position and to cut off the communication of said channels when the wing is in open position.

4. In combination a valve-case provided with a waterway therethrough and with an aperture above the waterway, a relief-valve actuated by water-pressure to control communication of said waterway through said aperture, means to admit water-pressure above said valve, a stem provided with a waste-channel to carry off the water from above the valve, and an oscillatory self-closing wing provided with a hub upon said stem to control the passage of water through said channel, said wing actuated by water-pressure to close said channel.

5. In combination a valve-case provided with a waterway therethrough and with an aperture above the waterway, a relief-valve actuated by water-pressure to control communication of said waterway through said aperture, means to admit water-pressure above said valve, a stem provided with a waste-channel to carry off the water from above the valve, and an oscillatory self-closing wing provided with a hub upon said stem to control the passage of water through said channel, said wing actuated by water-pressure to close said channel, said wing arranged to swing by water-pressure out of normal position and into position behind said stem.

697,098. COMPUTING-SCALE. FRED E. HARTMAN, Portland, Oha. Filed Oct. 12, 1901. Serial No. 71,507. (No model.)



Claim.—1. In a computing-scale the combination of a knob, rod two pinions G G two racks F F a frame H rack L pinion M for the purpose specified substantially as described.

2. In a price-scale, in combination, a spring-balance, a disk rotated thereby, said disk having a circular scale of weight-marks and a series of scales of price-marks, an indicator adjustable to a desired scale of said series, means to adjust the disk to allow for tare, and a scale to indicate the amount of such tare.

3. In a price-scale, the combination with a balance, a disk rotated thereby, said disk having scales of weight and price-marks thereon, and indicators for said scales, of means to reverse the motion of the disk to allow for tare, and a supplementary scale and index actuated by said reversing means to indicate the tare.

697,099. PUMP FOR VEHICLES. RALPH L. MORRIS, Toledo, Ohio, assignor to American Hydraulic Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed Jan. 16, 1902. Serial No. 89,396. (No model.)



Claim.—1. The combination of a steering-post provided with a pump-barrel, a pump-piston therein, a steering-handle for actuating said steering-

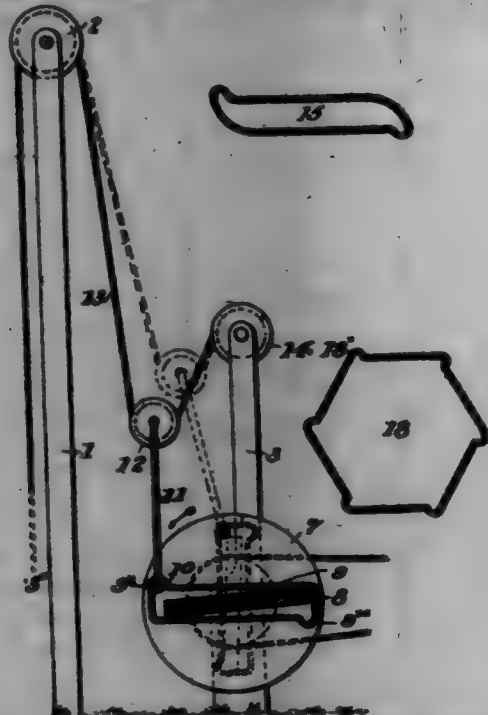
ing-post and pump-piston, and stationary valve-controlled inlet and outlet pipes communicating with said pump-barrel, substantially as described.

2. The combination of a steering-post provided with a pump-barrel, a pump-piston therein, a steering-handle for actuating said steering-post and pump-piston, a stationary casing provided with a chamber communicating with the pump-barrel, and valve-controlled inlet and outlet pipes communicating with said chamber.

3. The combination of a steering-post provided with a pump-barrel, a pump-piston therein, a steering-handle for actuating said steering-post and pump-piston, a stationary casing provided with a chamber communicating with the pump-barrel, an inlet-pipe and an outlet-pipe communicating with said chamber, a valve in each of said pipes, and means for normally closing each of said valves, substantially as described.

4. The combination of a rotatable steering-post provided with a pump-barrel, a pump-piston therein, a steering-handle for actuating said steering-post and pump-piston, a stationary casing for the steering-post having valve-controlled inlet and outlet pipes therein, and means for maintaining communication between said pipes when the steering-post is rotated, substantially as described.

697,100. MECHANICAL MOVEMENT. FRANK McKEN, Lemota, Tex. Filed July 2, 1901. Serial No. 96,023. (No model.)



Claim.—1. A mechanical movement or power, consisting of a rotatable retaining-block, a crank on said block, means for rotating said block and with it said crank, an arm in successive engagement with portions of said crank by which the former is moved in one direction, and said arm adapted to move in an opposite direction at its disengagements from said portions of said crank; said parts being combined substantially as described.

2. A mechanical movement or power consisting of a retaining-block suitably journaled, a crank mounted on said block and provided with offsets, means for rotating said block and thereby said crank, an arm having a roller adapted to be engaged successively in each of said offsets during the rotation of said crank, thereby moving said arm in one direction, and said arm adapted to move in the opposite direction on the successive disengagements of said roller from said offsets; said parts being combined substantially as described.

3. In a mechanical movement, the combination of a shaft with a retaining-block secured thereto, a crank on said block rotatable therewith and provided with offsets, an arm having an end successively engaging said offsets during the rotation of said crank thereby moving said arm in one direction, and means adapted to be operated for disengaging the arm from the offsets and moving the same in the opposite direction; said parts being combined, substantially as described.

4. In a mechanical movement, the combination of a retaining-block with a crank loosely mounted thereon, means for rotating said block and thereby said crank, an arm with a roller adapted to be successively engaged by and be retained in offsets in said crank thereby moving said arm in one direction, and means including a flexible cord engaging the said arm for moving it in the opposite direction; said parts being combined substantially as described.

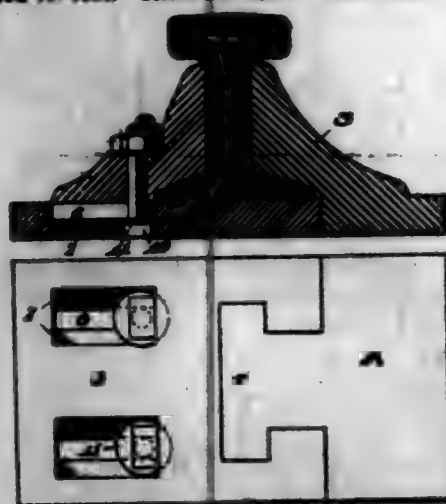
5. In a mechanical movement, the combination of a retaining-block and shaft suitably journaled, a crank loosely mounted on said block to rotate said shaft, and provided with offsets, an arm having a roller at one

end adapted to successively engage in said offsets on the rotation of said crank thereby moving said arm in one direction, a flexible cord having one end passing over a support and adapted for carrying a weight, and its other end secured to a fixed point, and a pulley secured to said arm and bearing on said cord; said parts being combined substantially as described.

6. In a mechanical movement the combination of standards with a retaining-block journaled thereon, means for rotating said block, a crank loosely secured on said block so as to be engaged thereby and rotated therewith, said crank having at regular intervals offsets therein, an arm having at one end a roller adapted to be successively engaged in said offsets and carrying at its other end a pulley, and a flexible cord having one end passing over a support and adapted for carrying a weight, and at its other end fastened to a fixed point, said pulley on said arm bearing on said cord between the supports of the latter, substantially as described.

7. A mechanical movement having a rotatable crank, an arm successively engaged at different portions of said crank to which is imparted a movement in one direction and said arm adapted to move in the opposite direction at its disengagements from said portions of the crank; said parts being combined substantially as described.

697,101. RAIL-SUPPORT. GEORGE H. GATMAN, McKeesport, Pa. Filed Oct. 12, 1901. Serial No. 79,396. (No model.)



Claim.—In a rail-joint, the combination with the rails, a base-plate formed of two sections, one of said sections having formed therein slots and guideways, on the under face thereof, and the other section carrying an integral fish-plate forming a chair portion, bolts and nuts secured in said locking fish-plates sliding in said slots and guideways, all parts being arranged and operating substantially as described.

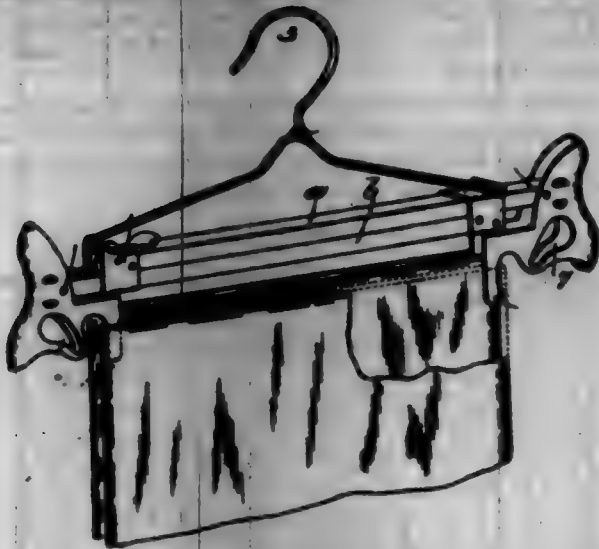
697,102. EXTENSION-BEDSTEAD. WILLIAM E. PAGE, Kansas, Utah. Filed June 14, 1901. Serial No. 64,641. (No model.)



Claim.—1. An adjustable bedstead comprising ends including posts connected for movement toward and away from each other, side rails connected with the posts having eyes on their inner faces, slots having terminal hooks removably engaged with the eyes and a separable tie constructed and arranged for joint engagement with the rails and for individual engagement with the rails to hold the rails in different spaced relations.

2. An adjustable bedstead comprising side rails arranged for movement toward and away from each other, slots movably engaged with the side rails and adapted for interchangeable cross and spaced relations, eyes carried by one of the rails, hooks carried by the other rail, a two-part tie, each member having a hook at one end and an eye at the other end and adapted for engagement one with the eye of the other and for engagement with the hooks and eyes of side rails when disjoined, the eyes upon the side rails adapted to receive the hooks of the members of the tie when the latter are connected.

697,108. GARMENT-STRETCHER. EDITH PRINCE, Inventing.
Mass. Filed July 12, 1901. Serial No. 12,521. (No model.)



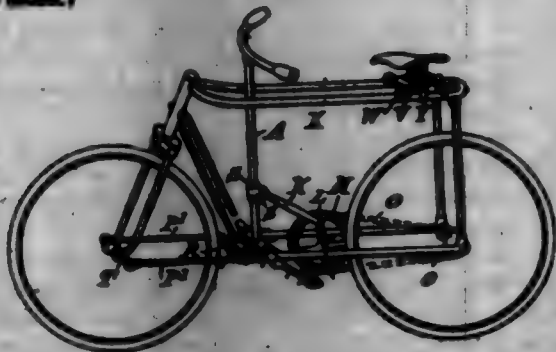
Claim.—1. A trousers-hanger comprising two bars connected to slide with relation to each other, one end of each bar being provided with a head for engaging the waistband of trousers, and prongs carried by the heads to enter and engage the legs of trousers to thereby enable the trousers to be suspended with the waistband either up or down.

2. A trousers-hanger provided with means to engage trousers at their waistband and with separate and independent means to engage the ends of the trousers-legs to thereby enable the trousers to be suspended at will with the waistband either up or down.

3. A trousers-hanger comprising two bars connected to slide one upon the other, means for holding the bars in adjusted relation, one end of each bar being provided with a head for engaging the waistband of trousers, and a plurality of prongs also carried at one end of each bar to enter different legs of trousers to enable the trousers to be suspended with the waistband either up or down.

4. A trousers-hanger provided with means to engage trousers at their waistband and with separate and independent means to engage the ends of the trousers-legs to thereby enable the trousers to be suspended at will with the waistband either up or down, the means for engaging the waistband having provisions for engaging buttons on said waistband.

697,104. BUYSIDE AND TRICYCLE. GEORGE A. E. FLETCHER.
Kata East, Victoria, Australia. Filed July 27, 1901. Serial No. 98,961.
(No model.)



Claim.—1. The combination of the frame, the steering-wheel, a hand-lever in rear of said wheel, a collar on the lower end thereof, a cross-bar pivoted behind said wheel, link connection between said collar and cross-bar, and connections between the said cross-bar and the steering-wheel shaft, whereby the latter is steered by and from said lever, substantially as described.

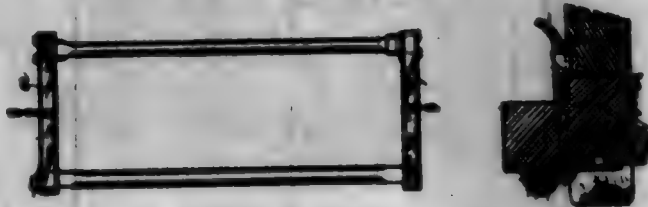
2. The combination of the frame, the front and rear wheels, a rock-shaft journaled in the frame, pedals on opposite ends of said shaft, and a lever rotatably connected to said shaft, a gear journaled on the frame in rear of the lever, a pinion for actuating said gear from said lever, means for driving the rear wheel from said gear, and connections for steering the front wheel from and by said lever, all substantially as and for the purpose described.

3. The combination of the frame, a steering-wheel, a rotary and reciprocating hand-lever in rear of said wheel, a collar on the lower end of said lever, a cross-bar pivoted behind said wheel, links connecting opposite sides of the collar with said cross-bar at opposite sides of its pivot, and rods connecting the outer ends of said cross-bar with opposite ends of the steering-wheel shaft, all substantially as described.

4. The combination of the frame and front and rear wheels, a rock-shaft journaled in the frame, a lever rotatably connected to said shaft having a collar on its lower end, and pedals on opposite ends of said

shaft, a gear journaled in rear of the lever, a pinion for actuating said gear from said lever, and means for driving the rear wheel from said gear; with an oscillating cross-bar in front of the rock-shaft, links connecting said bar to pins attached to opposite sides of the collar on said lever, and rods connecting the outer ends of said cross-bar to opposite ends of the steering-wheel shaft, all substantially as and for the purpose described.

697,105. CATTLE-STANCHION. OLIVER E. ROSSMAN, Farmville, Conn. Filed Mar. 20, 1899. Serial No. 711,007. (No model.)



Claim.—1. In combination with a pivoted neck-bar of a stanchion, a case secured to the neck-bar and having flanges located on opposite edges of said bar, means independent of the flanges for preventing movement of the case, a latch pivoted in the case, and a catch for engaging the latch.

2. In combination with a pivoted neck-bar of a stanchion, a latch-case secured to the neck-bar and having flanges located on opposite edges of the bar, a lip extending from one of said flanges into a groove in the bar, a latch pivoted to the casing and a catch for engaging the latch.

3. In combination in a loosely-suspended stanchion having top and bottom cross-bars and a rigid neck-bar connecting them, a neck-bar pivoted at one end to one of said cross-bars and having at the opposite end a shoulder engaging the upper surface of the cross-bar when the parts are engaged, whereby longitudinal strains are resisted, and means for temporarily securing the pivoted neck-bar to the upper cross-bar.

4. In a loosely-suspended stanchion, in combination, upper and lower cross-bars, a neck-bar pivoted to one of said cross-bars and adapted to be temporarily secured to the opposite cross-bar by means of a latch, the latch, and a neck-bar secured to said cross-bars and forming one member of a joint including a U-shaped bolt extending along opposite sides of the neck-bar into openings depthwise through the cross-bar, said neck-bar projecting into a mortise extending lengthwise along the inner face of the cross-bar, and means for holding the bolt in position.

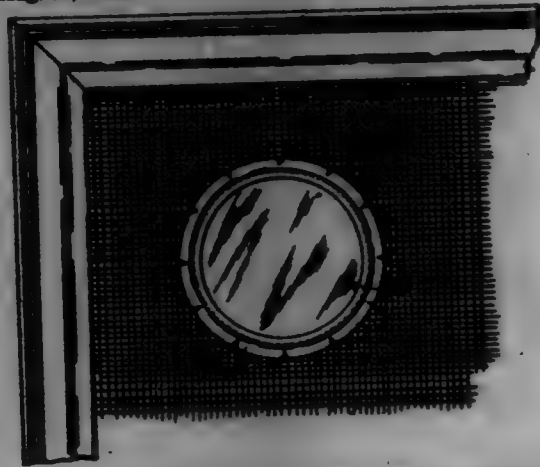
5. In combination in a loosely-suspended stanchion having top and bottom cross-bars and connections between said bars including a pivoted neck-bar, a latch-case secured to the pivoted neck-bar and having a shoulder adapted to overlap the top of the top cross-bar whereby longitudinal strains are resisted, and means for temporarily securing the pivoted neck-bar to the upper cross-bar.

6. In a loosely-suspended stanchion in combination, upper and lower cross-bars, a neck-bar pivoted to one of said cross-bars and adapted to be temporarily secured to the opposite cross-bar, one of said cross-bars having two sets of openings depthwise through the cross-bar, the openings in a set being equally spaced with respect to an opening in the opposite set, and a neck-bar secured to said cross-bars and forming one member of a joint including a U-shaped bolt extending through the neck-bar and projecting along opposite edges, the branches being arranged to fit the openings through the cross-bar, whereby adjustment of the cross-bar and neck-bar with respect to each other is permitted and means for holding the bolt in position.

7. In a loosely-suspended stanchion, in combination, upper and lower cross-bars, a neck-bar pivoted to one of said cross-bars and adapted to be temporarily secured to the opposite cross-bar, and a neck-bar secured to said cross-bars and forming one member of a joint including a U-shaped bolt projecting through the neck-bar and extending along opposite sides thereof, the end of the neck-bar projecting into and fitting a mortise of a shape to prevent turning movement of said parts with respect to each other in the cross-bar and each end of the U-shaped bolt projecting through a hole depthwise through the cross-bar, and means for holding the bolt in position.

8. In a loosely-suspended stanchion, in combination, an upper cross-bar having a mortise in its under surface at one end, and a recess at its opposite end, a bottom cross-bar having a mortise at one end and a neck-bar pivoted at its opposite end, a latch-case secured to the pivoted neck-bar and having a latch adapted to engage a catch on the upper cross-bar, and the neck-bar adapted to engage and fit the mortise in said cross-bar, said mortise and bar being of a shape to prevent relative turning movement of the two parts and said bar forming one member of the joint between said parts, each joint including a U-shaped bolt projecting through the neck-bar and extending along opposite sides thereof and through openings depthwise through the cross-bar, and means for holding the bolt in position.

697,108. WINDOW-SCREEN. JOHN S. SUTHERLAND, Paterson, N. J.
Filed Aug. 14, 1901. Serial No. 72,988. (No model.)



Claim.—The combination of a mesh screen having an opening therein, a transparent plate arranged on one side of said screen at said opening, a frame arranged in said screen about said opening, said frame comprising two annular plates disposed on the respective sides of the screen, one of the plates resting against the outer surface of the transparent plate and formed with a continuous shoulder intermediate the edges of said plate and disposed at the edge of the said transparent plate, and means for securing said transparent plate to the frame and the frame to the screen, substantially as described.

697,107. AUTOMATIC MOTOR. GEORGE J. BLATTNER, Detroit, Mich.
Filed Apr. 12, 1901. Serial No. 55,925. (No model.)



Claim.—1. A motor embodying a rotatable base, a stem projecting upwardly therefrom, a cord engaged with the upper end of said stem, means to rotate said stem, and means to hold the stem from rotation.

2. A motor, embodying a rotatable base, a stem or post projecting upwardly from the base and movable longitudinally therein, a cord engaged with the upper end of the stem or post, and a crank-arm engaged with the lower end of said post, said crank-arm also engageable with the base to hold the stem from rotating.

3. A motor embodying a rotatable base, a cord connected with said base intermediate the extremities of the base, means to twist the cord, and a retarding-fan engaged with said base, said base extending laterally from said cord.

4. A motor embodying a rotatable base, a cord connected with said base intermediate the extremities of the base, means to twist the cord, and retarding-fans engaged with opposite extremities of said base, said base extending laterally from said cord.

5. A motor embodying a rotatable base, an elastic cord connected with said base intermediate of the extremities of the base, and a crank-handle arranged to twist said cord, said base extended laterally from said cord.

6. A motor embodying a rotatable base, provided intermediate its extremities with an upwardly-projecting stem or cord, a cord engaged with the upper end of said post, and means for twisting said cord, said post movable longitudinally through the base, said base extended laterally from said cord.

7. A motor embodying a rotatable base, a stem projecting upwardly therefrom, a cord engaged with the upper end of said stem, means to rotate said stem, and means to hold the stem from rotation, said base provided with means to retard its rotation.

697,108. CHANGERECEIVER. CURTIS V. SMITH, Baltimore, Ohio.
Filed Dec. 21, 1901. Serial No. 54,508. (No model.)



Claim.—1. A coin-receiver, comprising a plate having a series of prongs or fingers dividing the plate into coin-receiving grooves of a length sufficient to hold a number of coins, and a coin-receptacle arranged at the inner end of each of the grooves.

2. A coin-receiver comprising a plate having a series of prongs or fingers dividing said plate into coin-receiving grooves, the outer ends of the prongs or fingers being rounded or tapering to afford a widened entrance for the coins to the grooves.

3. A coin-receiver comprising a plate having a series of grooves of different width and of a length sufficient to hold a small number of coins in convenient position for making change, and a removable coin-receiver arranged at the inner end of and in communication with said grooves.

4. A coin-receiver comprising a grooved plate having downwardly-extending sockets at the termination of the grooves and adapted to receive openings in the table by which the plate is carried, and a series of removable coin-receptacles extending around and carried by said sockets.

5. A coin-receiver comprising a plate having a series of prongs of a length sufficient to hold a number of coins, the edges of said prongs being provided with guides for the edges of the coins, sockets depending from the inner portions of the grooves and in alignment therewith, holding-pins on said sockets, and slotted coin-receptacles supported in position by said pins, substantially as specified.

697,109. OIL-CUP. WILLIAM E. S. STONE, Hartford, Conn., assignor, by direct and means assignments, to the Whitley Company, a Corporation of Connecticut. Filed Apr. 22, 1900. Serial No. 14,310. (No model.)

Claim.—1. In an oil-cup, the combination of a thimble, provided with an oil-inlet and with a slot, a cover having a similar inlet, and mounted upon the thimble to oscillate far enough to bring the oil-inlet into and out of coincidence; and a spring located within the thimble and extending through the wall thereof to resiliently hold the cover with its inlet out of coincidence with that of the thimble.

2. In an oil-cup, the combination of a thimble, provided with an oil-inlet and with a slot, a cover having a similar inlet, and mounted upon the thimble to oscillate far enough to bring the oil-inlet into and out of coincidence, and a spring extending through the slot of the thimble to resiliently hold the cover with its inlet out of coincidence with that of the thimble, the slot and spring serving to prevent longitudinal movement of the cover and to limit the oscillatory movement thereof.



3. In an oil-cup, the combination of a cylindrical thimble provided with an oil-inlet and with a slot, a cylindrical cover having a similar inlet and mounted upon the thimble to oscillate far enough to bring its inlet into and out of coincidence with that of the thimble, and a torsional spring attached to and located within the thimble, and extending through the slot thereof to resiliently hold the cover at one end of its oscillatory movement with its oil-inlet out of coincidence with that of the thimble, the slot and spring serving to prevent longitudinal movement of the cover, and to limit the oscillatory movement thereof.

697,110. OIL-CUP. WILLIAM E. & STROSS, Hartford, Conn., assigners, by direct and mesne assignments, to the Whitley Company, a Corporation of Connecticut. Filed Apr. 26, 1900. Serial No. 14,511. (No model.)



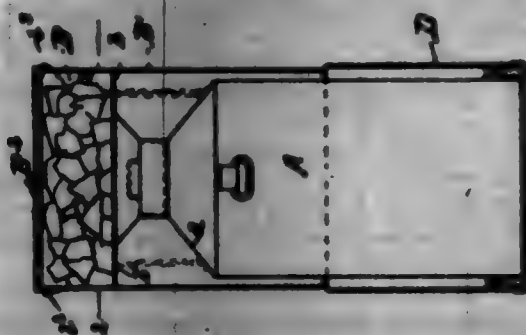
Claim.—1. In an oil-cup, the combination of a thimble provided with an oil-receiving aperture at its side, a longitudinally-movable plunger within the thimble for opening and closing the aperture thereof, one of the said parts being provided with parts for conducting the oil past the plunger when the latter is in its aperture-opening position.

2. In an oil-cup, the combination of a thimble, provided with an oil-receiving aperture at its side and adapted to be attached to a bearing, and a longitudinally-movable plunger within the thimble for opening and closing the aperture thereof, the plunger being provided with parts for the passage of the oil.

3. In an oil-cup, the combination of a thimble provided with an oil-receiving aperture at its side, a push-down plunger within the thimble, for opening and closing the oil-receiving aperture, and having a reduced stem extending through the top of the thimble, means for yieldingly holding the plunger in its aperture-closing position, and parts communicating with the aperture when the plunger is pushed down, for the downward flow of the oil past the plunger.

4. In an oil-cup the combination of a thimble, provided with an oil-receiving aperture at its side, a longitudinally-movable plunger within the thimble, with its side closing the oil-receiving aperture, the plunger being provided with a reduced stem extending through the top of the thimble, and with a recess in the upper surface of the plunger, having ports leading therefrom for the passage of the oil past the plunger.

697,111. MEANS FOR COOLING MILK-CANS. SAMUEL C. SULLIVAN, Erie, Pa. Filed Aug. 2, 1901. Serial No. 71,206. (No model.)



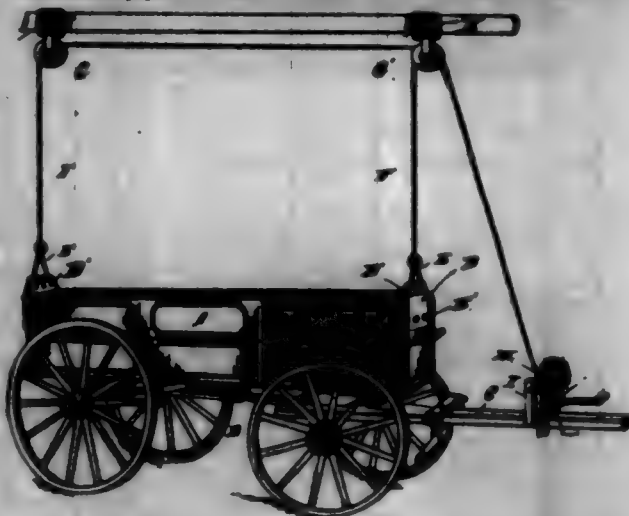
Claim.—1. In a means for cooling milk-cans, the combination with a can having a contracted opening at the top and a top wall leading to said opening, of a removable ice-receptacle arranged on the top of the can, the bottom of said receptacle being provided with a series of openings within the area above the top wall of the can, whereby the water from the ice may pass from said openings onto the shoulder of the can.

2. In a means for cooling milk-cans, the combination with a can having a contracted opening at the top and a wall leading to said opening, of an ice-receptacle arranged on the top of the can and having a wall extending from the bottom thereof to a point below the top of the can, said

receptacle being provided with an opening from which the water from the ice passes onto said top wall of the can and then down the side of the can between the wall of the can and the extension.

3. In a means for cooling milk-cans, the combination of the can, A, having the top wall, a; the removable receptacle, B, arranged on top of the can, having the extension, E, extending from the removable receptacle B, down below the top of the side wall of the can; the bottom, b, of the removable receptacle being provided with the opening, b', and the cover, B', for closing the top of the removable receptacle, B.

697,112. FARM-WINDLASS AND WAGON-HOIST. THOMAS H. TAYLOR, Montgomery, Ala. Filed Jan. 2, 1902. Serial No. 22,126. (No model.)



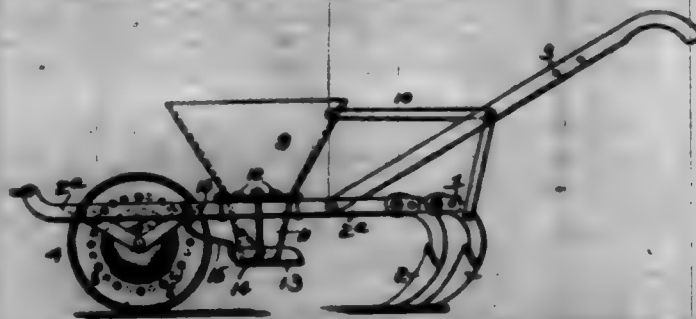
Claim.—1. The combination with a wagon-body, of an equalizing-board attached to each end-board, and provided with a number of holes, a sling connected to each of said equalizing-boards, a lifting rope or cable extending from each sling over a suitable pulley, a windlass connected by rope or cable to both said lifting-ropes, and a swivel-grapple by which the windlass is clamped to the wagon-tongue.

2. The combination with a wagon-body, of equalizing-boards having a series of perforations, slings which can be attached to said boards, a windlass, and ropes from the windlass to the slings of the equalizing-boards.

3. The combination with suspension connections to a wagon-body, of a windlass and connected cable, a swiveled grapple on the windlass, the wagon-tongue passing through said grapple, means for winding the windlass, and means for holding the windlass-drum against backward movement, substantially as described.

4. In a farm-windlass, the frame or yoke having a swiveled grapple at its closed side, a bar near one of the end bars and a crank-shaft having its bearings in said bar and the end bar, a drum in the yoke, engaging pinions on the drum and crank-shaft outside the yoke, a cable on the drum, and a swiveled hook attached to said cable, all combined.

697,118. FERTILIZER-DISTRIBUTING ATTACHMENT FOR CULTIVATORS. SAMUEL TAMMAMILL, Jr., Augusta, Ga. Filed July 12, 1901. Serial No. 68,827. (No model.)



Claim.—1. In an attachment for cultivators, the combination with a beam, of a hopper secured on the beam and having a flanged lower end, a spout below the beam, a flange on the upper end of said spout secured to the flange at the bottom of the hopper, a distributor, links secured to the flange and pivotally supporting the distributor, and means for shaking the latter.

2. In an attachment for cultivators, the combination with a beam, of a hopper secured on the beam and having a flanged lower end, a spout below the beam, a flange on the upper end of said spout secured to the flange at the bottom of the hopper, a distributor, links secured to the flange and pivotally supporting the distributor, means in the spout for regulating the discharge of fertilizer and means for shaking the distributor.

3. In an attachment for cultivators, the combination with a beam,

of a hopper thereon, a shaking distributor below the hopper, a wheel revolvably supported on the beam and comprising two metal disks, fingers punched from the disks and alternately disposed around the same, and a yoke secured to the distributor and adapted to be alternately engaged by the teeth on the opposite sides of said wheel to shake the distributor.

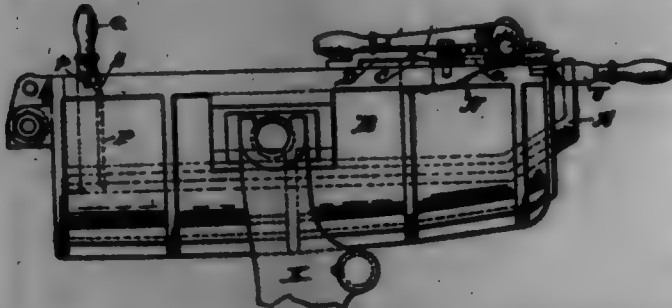
697,114. BEARING-BRACKET FOR VERTICALLY-ADJUSTABLE SHADE-ROLLERS. CALVIN P. THOMAS, Grand Rapids, Mich. Filed Apr. 13, 1901. Serial No. 86,744. (No model.)



Claim.—1. In a window-shade-hanging apparatus, the combination with an upright guide, of a roller-bracket comprising opposite members, of which one member has opposite slidable connections with the guide, and an intermediate laterally-projected pin-act, and the other member has an intermediate slot through which the pin-act is projected, and a shade-roller having a spring-actuated pin-act in the seat and rigidly clamped between the members of the roller-bracket.

2. A shade-roller bracket comprising opposite reversely-bowed members, of which one has a longitudinal slot, and the other is a spring member having its intermediate portion projected through the slot from the convex side of the first-mentioned member, and also provided with opposite terminal guide-openings, the opening between the intermediate portions of the two members forming a pin-act-receiving seat.

697,115. CASTING-MOLD. EDWIN D. TUCKER, New York, N. Y., assigner, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, (partners under name of R. Hoe and Company, of New York, N. Y.) Filed Mar. 13, 1904. Serial No. 674,364. (No model.)



Claim.—1. In a stereotype-plate-casting box, the combination with the body and cover of locking devices comprising separate locking members at each side of the box carried by one of said parts, cooperating locking means carried by the other part, said means including devices which separately engage the separate locking members, means independent of the locking devices for separating the cover from the bottom portion when the parts of the locking devices are disengaged, and a single instrumentality for operating the separating means and causing the disengagement of the locking devices, substantially as described.

2. In a stereotype-plate-casting box, the combination with the body of a cover pivoted thereto, locking devices comprising separate locking members at each side of the box carried by one of said parts, cooperating locking means carried by the other part, said means including devices which separately engage the separate locking members, means independent of the locking devices for separating the cover from the bottom portion when the parts of the locking devices are disengaged, and a single instrumentality for operating the separating means and causing the disengagement of the locking devices, substantially as described.

3. In a casting-box, the combination with the bottom portion, of a cover pivoted thereto, cooperating locking members between the cover and the bottom portion, one of said members having a reciprocating movement, releasing means for turning the cover slightly on its pivot to free it from the bottom portion after the cast has been made, and a single instrumentality for reciprocating the locking member and operating the releasing means, substantially as described.

4. In a casting-box, the combination with the bottom portion, of a cover pivoted thereto, cooperating locking members between the cover and the bottom portion, one of said members having a reciprocating movement, releasing means for turning the cover slightly on its pivot to free it from the bottom portion after the cast has been made, a shaft, and means whereby the operation of the shaft reciprocates the locking member and operates the releasing means, substantially as described.

5. In a casting-box, the combination with the bottom portion, of a cover pivoted thereto, a locking-bar carried on the cover, legs adjustably mounted on the bottom portion whereby wear may be compensated for, separating devices whereby the cover is slightly lifted from the bottom portion, and a single instrumentality for operating both the locking-bar and the separating devices, substantially as described.

6. The combination of the bottom portion of a mold, of a cover pivoted thereto, locking-bar C, a shaft, means operated by the shaft for moving the bar to and fro, and eccentric K mounted upon the shaft, for turning the cover slightly on its pivot and thus separating it from the bottom portion of the mold, whereby the two portions of the mold may be locked or separated by rotation of a single shaft, substantially as described.

7. The combination of the bottom portion and cover of a mold, means for locking them together, a shaft mounted upon the cover and adapted to operate the locking means, means for separating the cover from the bottom, also operated by the shaft, and means for fixing the shaft in a position intermediate between the position in which it causes the parts to be locked together and the position in which it causes them to be separated, substantially as described.

8. The combination of the bottom portion of a stereotype-mold and the cover thereof pivoted together, with the locking-bar C, a shaft, means operated by the shaft to draw the locking-bar into its locking position when rotated in one direction, eccentric mounted upon said shaft and adapted to force the cover from the bottom when the shaft is rotated in another direction, and means for holding the shaft in an intermediate position, substantially as described.

9. In a casting-box, the combination with the bottom portion of a cover pivoted thereto, cooperating locking members carried by the bottom and the cover, a shaft, a rack-and-pinion connection between one of the locking members and the shaft, cams on the shaft for separating the cover from the bottom portion, by turning it slightly on its pivot, and means for operating the shaft, substantially as described.

10. In a casting-box, the combination with the bottom portion, of a cover pivoted thereto, a sliding locking-bar carried by the cover, cooperating locking devices on the bottom portion, a shaft mounted in the cover, a rack-and-pinion connection between the bar and the shaft, cams on the shaft for separating the cover from the bottom portion by turning it slightly on its pivot, and means for rocking the shaft, substantially as described.

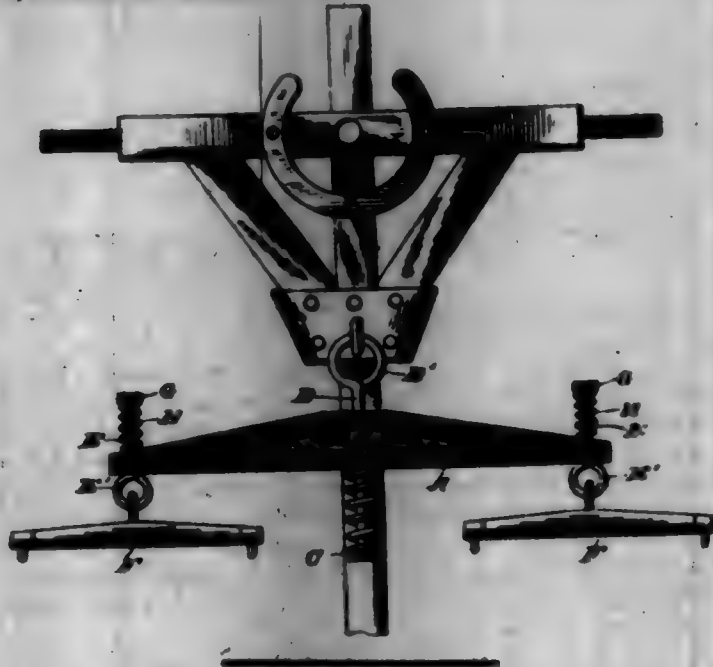
11. In a casting-box, the combination of a case, a core pivoted to said case and adapted to fit therein, means for lifting the core out of the case, locking devices adapted to secure the core in the case, and means operated by the actuation of said lifting devices for unlocking the core from the case, substantially as described.

12. In a casting-box, the combination of a case, a core pivoted thereto, locking mechanism adapted to lock the core and case together, core-lifting devices, and connecting mechanism between said locking mechanism and said core-lifting devices which operates to unlock the core when said lifting devices are actuated to lift the core, substantially as described.

697,116. DOUBLETREE-EVENER. LARSEN A. TURNER, Beaver Falls, Ind. Filed Jan. 28, 1902. Serial No. 91,005. (No model.)

Claim.—In combination with a doubtree having a centrally-disposed aperture, a bolt B having an eye B' at one end, and passing through said aperture, a head C to said bolt, a spring interposed between the doubtree and said head, bolts E mounted in apertures at the ends of said

doubletree and having eyes E to which singletrees are adapted to be connected, heads G separate from each other, on said bolts E, and springs interposed between the rear inclined edges of the doubletree and heads G, as shown and described.

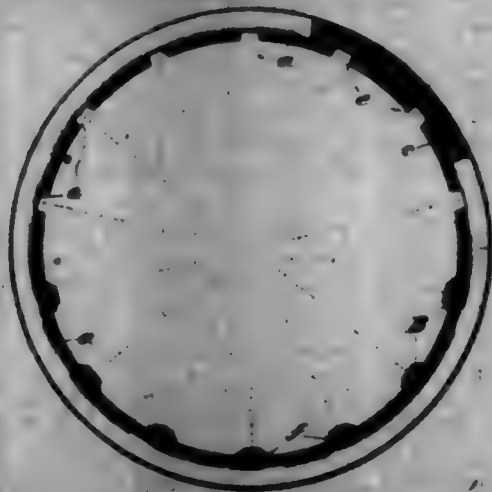


697,117. POCKET-INHALER. HARRY J. VALENTINE, Hempstead, N. Y., assignor to William Vogel & Brothers, Borough of Brooklyn, New York, N. Y., a Firm. Filed Sept. 3, 1901. Serial No. 74,083. (No model.)



Claim.—In an inhaler, the combination with a casing, of a sliding cartridge; one of which has a projection, and the other being provided with a longitudinal groove to allow the cartridge to have a limited sliding movement and with an angular groove communicating with the longitudinal groove and opening at the edge of the member of the inhaler upon which the groove is provided to allow the cartridge to be removed.

697,118. FELLY FOR VEHICLE-WHEELS. CHARLES E. VAN HORN, Philadelphia, Pa. Filed Dec. 8, 1900. Renewed Mar. 5, 1902. Serial No. 61,841. (No model.)



Claim.—1. In a felly, parallel, longitudinally-extending tubular metal felly members each having the inner bracing-wall, outer side wall, and tire-receiving face between said walls.

2. In a felly, parallel, longitudinally-extending tubular metal felly members each having the inner bracing-wall, outer side wall, tire-receiving face between said walls, and tire-retaining flange.

3. In a felly, parallel, longitudinally-extending tubular metal felly members each having the inner bracing-wall, outer side wall, tire-receiving face between said walls, and spoke-sockets in said walls.

4. In a felly, the combination of parallel metal felly members having spoke-sockets, and spoke-tension socket-pieces having prongs confined in said spoke-sockets.

5. In a felly, the combination of tubular metal felly members having spoke-sockets, and spoke-tension socket-pieces having prongs confined in said spoke-sockets and clamping said members together.

6. In a felly, the corresponding tubular members each having one of its sides forming an inner bracing-wall.

7. In a felly, the corresponding tubular members formed with inner bracing-walls, and removable spoke-tension socket-pieces engaging said members.

8. In a felly, the corresponding tubular members formed with inner bracing-walls, and removable spoke-tension socket-pieces clamping said members against separation.

9. In a felly, the corresponding tubular members having corresponding sockets and inner bracing-walls having longitudinal flat sides, and spoke-tension socket-pieces in said sockets.

10. In a felly, the corresponding tubular members having corresponding sockets and inner bracing-walls having longitudinal flat sides, and removable spoke-tension socket-pieces fitting said sockets and engaging said bracing-walls to clamp said members together.

11. In a felly, the combination of corresponding tubular felly members having corresponding sockets and inner bracing-walls and removable spoke-tension socket-pieces having prongs entering said sockets and embracing said walls.

12. In a felly, the combination of corresponding tubular felly members having corresponding sockets and inner bracing-walls, and removable spoke-tension socket-pieces having heads fitting against said members and having prongs entering said sockets and embracing said bracing-walls.

697,119. CAM FOR STAMP-MILLS. JAMES C. H. VADNEY, Philadelphia, Mont. Filed Aug. 15, 1899. Renewed Sept. 26, 1901. Serial No. 78,532. (No model.)



Claim.—1. A device of the class described comprising a cam provided with dovetailed recesses, and a shoe having lugs or enlargements arranged on its inner face and detachably interlocked with the dovetailed recesses, substantially as described.

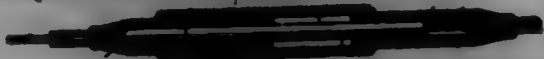
2. A device of the class described comprising a cam provided at its engaging face with a longitudinal groove having a series of tapering recesses with undercut edges, and a shoe detachably interlocked with the cam and provided at its inner face with a rib having tapering enlargements engaging the said recesses, substantially as described.

3. A device of the class described comprising a cam provided with a longitudinal groove having outwardly-tapered dovetailed recesses, and a shoe provided with a longitudinal rib arranged in said groove and having outwardly-tapered enlargements interlocking with the dovetailed recesses, substantially as described.

4. A device of the class described comprising a cam having a longitudinal groove provided with dovetailed recesses, a shoe having a rib arranged in the groove and provided with lugs or enlargements interlocked with the said recesses, and a pin or key of soft metal arranged within the inner end of the groove and engaging the shoe, substantially as described.

5. A device of the class described comprising a cam provided with a longitudinal groove having tapering recesses with undercut side walls and beveled transverse shoulders, a shoe provided with a rib having tapering legs provided with undercut side edges and beveled end edges, and a plug or key engaging the inner edge of the shoe, substantially as described.

697,120. JEWELER'S TOOL. ROYAL E. WARR, Hinn. Wash. Filed June 7, 1901. Serial No. 62,599. (No model.)

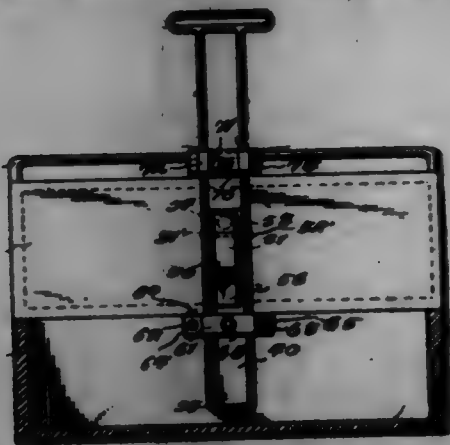


Claim.—1. A jeweler's tool comprising a tubular body open at both ends, and provided with a longitudinal slot therein, said tube having hollow bits formed on its opposite ends, an endwise-slidable stem mounted in said body and having terminal bits on its opposite ends, said stem being adapted to be projected at opposite ends of the body, a sliding sleeve mounted on said tubular body and adapted to cover said slot, and a pin connecting the sleeve and stem and working in said slot.

2. A tool of the character described, comprising a tubular open-ended body, having an intermediate longitudinal slot, and its opposite ends formed into hollow bits, an endwise-slidable stem mounted within the body, and having its opposite ends formed into terminal bits, the stem being constructed to be projected alternately at opposite ends of the body, an adjusting-sleeve slidably mounted upon the body and closing the slot, a pin connecting the sleeve and stem and working in the slot, and an intermediate-bowed spring located in the slot and in frictional engagement with the pin to hold the stem against accidental movement at its opposite limits.

3. A jeweler's tool comprising a tubular body open at both ends and having the internal diameter of one end decreased to form a marginal shoulder, said body having an intermediate slot therein, hollow bits formed on the opposite end of said tube, and provided with jewel-spanning sockets, an endwise-slidable stem mounted in said body having one end reduced to form a shoulder, said shoulder being adapted to abut against said marginal shoulder on the body and limit the movement of the stem in one direction, terminal bits disposed on the opposite ends of said stem, a sliding sleeve mounted on said tubular body and adapted to cover said slot, and a pin connecting the sleeve and stem and working in said slot.

697,121. REIN SUPPORT AND HOLDER. JAMES S. WAKEMFIELD, Mansum, Okla. Filed Dec. 30, 1901. Serial No. 57,994. (No model.)



Claim.—1. A rein-support comprising a frame outwardly bowed at its upper end and provided with a rein-guide, the rear portion of said support being adapted to extend within the dashboard of the vehicle, and a pair of adjustable clamps engaging with the lower and intermediate portions of said frame.

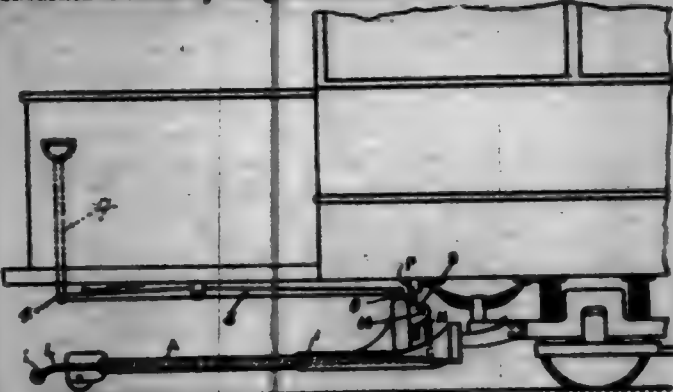
2. A rein-support comprising two parallel bars joined together at their lower ends, a rein-loop connecting the upper ends of said bars, a rein-holder disposed on said bars, and clamps for attaching said bars to the body of a vehicle.

3. A rein-support comprising a frame bowed outward at its upper portion and provided with a rein-loop at its upper end, a clamp adapted to engage the upper part of said frame near its bowed portion and clamp it to a dashboard, and another clamp adapted to engage the lower end of said frame and fasten it to a vehicle-body.

697,122. LIFE-GUARD. THOMAS E. C. WHELAN, Liverpool, England. Filed June 12, 1901. Serial No. 63,097. (No model.)

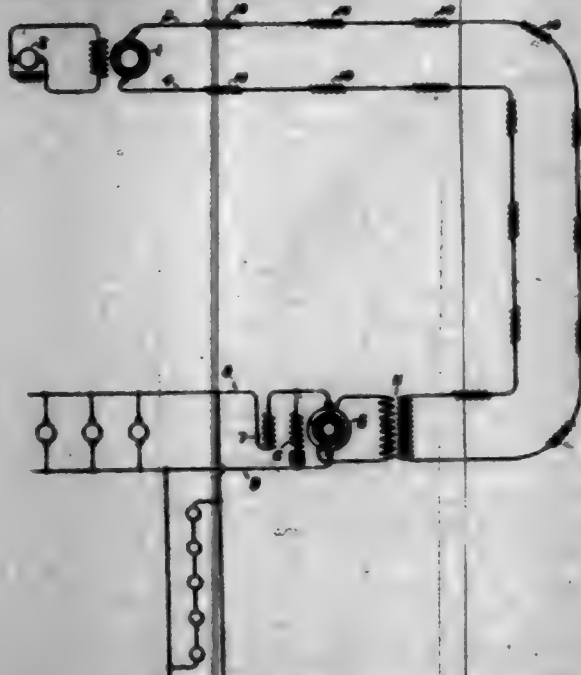
Claim.—1. A life-guard for vehicles, comprising a frame pivoted to the vehicle, a shaft journaled on the frame to the rear of its fulcrum, a spring-actuated lever carried by the shaft for engaging a projection on the vehicle, an arm depending from the shaft, and means extending to the

front of the frame for engaging said arm and releasing the lever when an obstruction is struck by the guard, substantially as described.



2. A life-guard for vehicles, comprising a frame pivoted to the vehicle, a shaft journaled on the rear end of the frame to the rear of the fulcrum-point thereof, a spring-actuated lever carried by said shaft for engaging a projection on the vehicle, an arm for rotating the said shaft, a yoke mounted in bearings on the frame and adapted to engage the said lever, and a roller upon the said yoke arranged in front of the frame, the structure being such that an object engaging the said roller will force it rearwardly and disengage the rear end of the frame from the vehicle, permitting the forward end of said frame to drop upon the ground or track, substantially as described.

697,123. MEANS FOR TRANSMITTING ELECTRICAL ENERGY. JONATHAN E. WOODWARD, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 20, 1901. Serial No. 73,738. (No model.)



Claim.—1. The combination of a source of alternating currents, lines extending therefrom, inductance-coils connected at intervals in said lines, and a compound-wound rotary converter supplied with current from said lines.

2. The combination of a source of alternating currents, transmitting-lines extending therefrom, a series of inductance-coils connected in each line, and a compound-wound rotary converter connected to the receiving end of the transmission-lines.

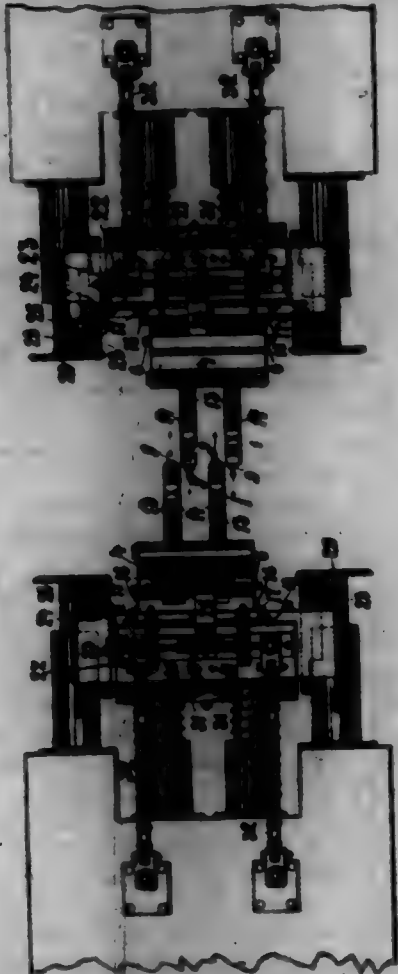
3. The combination of a source of alternating currents, transmitting-lines extending therefrom, inductance-coils located at intervals in said lines, and a source of leading current connected to the receiving end of the transmission-lines.

4. The combination of a source of alternating current, transmission-lines supplied thereby, inductance-coils connected at regular intervals in said lines, and a source of leading current such as a rotary converter supplied with current from the receiving end of the transmission-lines.

697,124. RAILWAY-COUPLING. ALBERT WYNN, Berlin, Germany. Filed May 11, 1901. Serial No. 60,099. (No model.)

Claim.—1. A coupling for railway-carriages and for trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, U-shaped blocks 1 suitably mounted on the end of the carriage or truck, an articulated plate 4 resting on the chain-wheels 5 to which it is also jointed, angle-irons 10 jointed to the chain on the chain-

wheel 5 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and then to turn the chain-wheel 5 and lower the plate 4 into the hook 1, substantially as and for the purpose set forth.



2. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to the cross-beam 3, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain 7 passing around the chain-wheel 5 and the pinion 16, angle-iron 10 jointed to the chain on the chain-wheel 5 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 into the hook 1, substantially as and for the purpose set forth.

3. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to the cross-beam 3, an articulated plate 4, resting on and jointed to the chain-wheel 5, chain-wheel 5 supported on the hook 1, chain 7 passing around the chain-wheel 5 and the pinion 16, angle-iron 10 jointed to the chain on the chain-wheel 5 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 into the hook 1, chain-wheel 20 mounted on a shaft 19 carried by the beam 2, a spring likewise mounted on the shaft 19 and adapted by means of the chain-wheel 20 and chain 21 to be wound up on the articulated plate 4 being lowered, a ratchet and pawl likewise mounted on the shaft 19, substantially as and for the purpose set forth.

4. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to the cross-beam 3, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain-wheel 5 supported on the hook 1, chain 7 passing around the chain-wheel 5 and a pinion 16, angle-iron 10 jointed to the chain on the chain-wheel 5 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 between the hooks 1, and means for raising the articulated plate and thus uncouple the carriage or trucks, substantially as set forth.

5. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to the cross-beam 3, chain-wheel 5 supported on the hook 1, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain 7 passing around the chain-wheel 5 and the pinion 16, three angle-irons 10 jointed to chain 7 on the chain-wheel 5 and adapted to be moved by the ends 9 of the hook 1 on the carriage or trucks colliding together and thus to

turn the chain-wheel 5 and lower the plate 4 between the hook 1 a plate 13 underneath the beam 2 and a spring keeping said plate in its normal position, all substantially as and for the purpose set forth.

6. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, and adapted to be moved longitudinally relative to the beam 2, U-shaped hooks 1 secured to said beam 3, chain-wheel 5 supported on the hook 1, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain 7 passing around each chain-wheel 5 and pinion 16, angle-irons 10 jointed to the chain 7 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 between the hooks 1, means for raising the articulated plate and thus uncouple the carriage or trucks, and means for securing the hook and corresponding parts in either the left or right hand position, substantially as set forth.

7. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to the cross-beam 3, vertically-mounted rollers 14 on the hook 1, chain-wheel 5 supported on the hook 1, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain 7 passing around each chain-wheel 5 and pinion 16, angle-irons 10 jointed to the chain 7 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 between the hooks 1, means for raising the articulated plate and thus uncouple the carriage or trucks and means for securing the hook and corresponding parts in either the left or right hand position, substantially as set forth.

8. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, rails 20 secured to the buffers 20 and adapted to guide the cross-beam 2, a cross-beam 3 sliding in the cross-beam 2, U-shaped hooks 1 secured to said beam 3, chain-wheel 5 supported on the hook 1, an articulated plate 4 resting on and jointed to the chain-wheel 5, chain 7 passing around each chain-wheel 5 and pinion 16, angle-irons 10 jointed to the chain 7 and adapted to be moved by the hook 1 on the carriage or trucks colliding together and thus to turn the chain-wheel 5 and lower the plate 4 between the hooks 1, substantially as set forth.

9. A coupling for railway carriages and trucks, comprising in combination a cross-beam 2 mounted on and guided between the buffers, U-shaped hooks 1 suitably mounted on the end of the carriage or truck, disk or wheel 5 supported by the hook 1, an articulated plate 4, chain 21 secured to the articulated plate 4, pulleys or chain-wheels 20 over which the chain 21 pass and means adapted to rotate the chain-wheels 20, substantially as and for the purpose set forth.

10. A coupling for railway carriages and trucks comprising in combination a cross-beam 2 mounted on and guided between the buffers, a cross-beam 3 sliding in the hollow cross-beam 2, a spring for the cross-beam 3 against which the ends 9 of the hook 1 bear when the carriage or trucks are brought together, U-shaped hooks 1, suitably mounted on the end of the carriage or trucks, disk or wheel 5 supported by the hook 1, an articulated plate 4, chain 21 secured to the articulated plate 4, chain-wheel 20 over which the chain 21 pass, means adapted to rotate the chain-wheel 20 and means for raising the articulated plate and thus to uncouple the carriage or trucks, substantially as set forth.

697,125. CAR-VENTILATOR. EMANUEL ANDERSON, Danversville Mass., assignor to Amos L. Wood, Boston, Mass. Filed Sept. 20, 1901. Serial No. 78,596. (No model.)



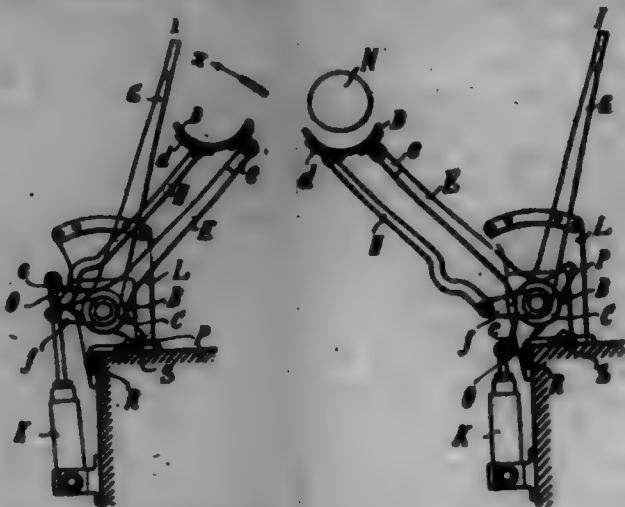
Claim.—1. A ventilator of the kind described comprising an outlet-pipe provided at its end with a double-ended hood open from end to end and containing a drum composed of a frustoconical cylinder providing outlets for the gases and closed at each end by a pointed deflector.

2. A ventilator of the kind described comprising an outlet-pipe provided at its ends with a double-ended hood open from end to end and containing a drum provided peripherally with outlets for the gases, and said drum having at its opposite end conical deflectors, said deflectors projecting beyond the surface of said drum at their edges.

3. A ventilator of the kind described comprising an outlet-pipe provided at its end with a double-ended hood open from end to end and con-

training a drum having sides of firmness material permitting the escape of gases but preventing entrance of leaves, &c., and having its ends closed.

697,136. LOADING-TRAY FOR TRANSFERRING AMMUNITION. JULIUS BUCKER, Essen, Germany, assignor to Fried. Krupp, A. G., Essen, Germany. Filed Jan. 2, 1902. Serial No. 98,978. (No model.)



Claim.—1. A device for transferring ammunition from a receiving-point to the leading-axis of a gun, comprising a quadrangular structure swinging upon pivots located between the vertical planes of said receiving-point and leading-axis, one side of the quadrangle formed by the leading-tray, and said leading-tray moving in a vertical arc with its chord horizontal or approximately horizontal.

2. A leading-tray for transferring ammunition from the lift to the leading-axis of the gun, comprising a jointed quadrangular structure swinging upon horizontal axes, having one side formed by the leading-tray, the side of the quadrangle opposite the leading-tray being shiftable substantially as described to change the angle of the leading-tray and permit its return to receiving position prior to the withdrawal of the rammer.

3. A leading-tray for transferring ammunition from the lift to the leading-axis of the gun, comprising a jointed quadrangular structure swinging upon horizontal axes, having one side formed by the leading-tray, the side of the quadrangle opposite the leading-tray being shiftable substantially as described to change the angle of the leading-tray and permit its return to receiving position prior to the withdrawal of the rammer, and having a controlling-lever for shifting said side.

4. A leading-tray for transferring ammunition from the lift to the leading-axis of the gun, comprising a jointed quadrangular structure swinging upon horizontal axes, having one side formed by the leading-tray, the side of the quadrangle opposite the leading-tray being shiftable substantially as described to change the angle of the leading-tray and permit its return to receiving position prior to the withdrawal of the rammer, and having a controlling-lever for shifting said side, provided with means for locking it at the opposite ends of its throw.

5. A leading-tray for transferring ammunition from the lift to the leading-axis of the gun, comprising a jointed quadrangular structure swinging upon horizontal axes, located between the vertical planes of the lift and of the axis of the gun, having one side formed by the leading-tray, and suitable stops for limiting the throw of the leading-tray, engaging a part of the swinging structure near the axis upon which it swings.

6. A leading-tray for transferring ammunition from the lift to the leading-axis of the gun, comprising a jointed quadrangular structure swinging upon horizontal axes, located between the vertical planes of the ammunition-lift and of the leading-axis, having one side formed by the leading-tray, a motor located and connected with the structure adjacent to the axis upon which it swings, for swinging the quadrangle from side to side, and bringing the leading-tray from one position to another, and suitable stops for limiting the motion of said parts, engaging a part of the swinging structure adjacent to said axis.

7. An ammunition-conveyor for transferring ammunition laterally from the ammunition-lift to the leading-axis of the gun, comprising a quadrangular structure having one side formed by the leading-tray, swinging upon horizontal axes in a vertical arc having a substantially horizontal chord, an arm connected with one side of the quadrilateral structure near its axis, and a motor-cylinder and piston, one of which is pivotally connected to a fixed support and the other of which is connected to said projections.

8. An ammunition-conveyor comprising a rectangular structure having one side formed by a leading-tray, horizontal axes located between the vertical planes of the receiving-point and the leading-axis of the gun, and causing the tray to swing in a vertical arc with a substantially horizontal axis, stops located near said axes, and arms projecting from the

quadrangular structure near the axes, engaging said stops as the tray reaches the opposite limits of its movement.

9. An ammunition-conveyor comprising concentric horizontal shafts C and F, long arm E and angularly-disposed short arm f projecting from said shafts, link H, jointed to the short arm f, tray D jointed to arm E and link H, arm c projecting from shaft C, and motor K secured to a fixed support and connected with the arm c.

10. In an ammunition-conveyor, the combination of the concentric shafts C and F, arms E, E, projecting from the shaft C, arms f, g, projecting from the shaft F, links H, H, jointed to the arms f, g, and paralleling the arms E, E, and tray D having hinging connection with arms E, E, and links H, H.

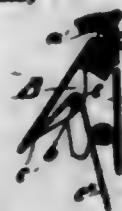
11. In an ammunition-conveyor, the combination of the concentric shafts C and F, arms E, E, projecting from the shaft C, arms f, g, projecting from the shaft F, links H, H, jointed to the arms f, g, and paralleling the arms E, E, tray D having hinging connection with arms E, E, and links H, H, and stop-arms O, P, projecting from shaft C, stops R, R, impinged by said stop-arms at opposite ends of the tray's movement, and controlling-arm c also projecting from shaft C.

12. In an ammunition-conveyor, the combination of the concentric shafts C and F, arms E, E, projecting from shaft C, arms f, g, projecting from the shaft F, links H, H, jointed to the arms f, g, and paralleling the arms E, E, tray D having hinging connection with arms E, E, and links H, H, stop-arms O, P, projecting from shaft C, stops R, R, impinged by said stop-arms at opposite ends of the tray's movement, and controlling-arm c also projecting from shaft C.

13. In an ammunition-conveyor, the combination of the concentric shafts C and F, arms E, E, projecting from the shaft C, arms f, g, projecting from the shaft F, links H, H, jointed to the arms f, g, and paralleling the arms E, E, tray D having hinging connection with arms E, E, and links H, H, stop-arms O, P, projecting from shaft C, stops R, R, impinged by said stop-arms at opposite ends of the tray's movement, controlling-arm c, also projecting from shaft C, and motor-cylinder K pivoted to a fixed support and having its piston connected with arm c.

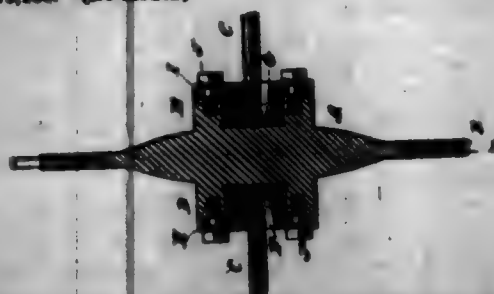
14. In an ammunition-conveyor, the combination of the concentric shafts C and F, arms E, E, projecting from the shaft C, arms f, g, projecting from the shaft F, links H, H, jointed to the arms f, g, and paralleling the arms E, E, tray D having hinging connection with arms E, E, and links H, H, and lever G connected with shaft F for changing the angle of arms f, g, relatively to arms E, E, and thereby tilting the tray.

697,137. CANDLE-HOLDER. CONRAD BOCHSOMMER, Long Island City, N. Y. Filed Apr. 10, 1900. Renewed Oct. 28, 1901. Serial No. 80,120. (No model.)



Claim.—An improved candle-holder for Christmas trees, comprising a conical piece formed with a recess upon its lower end for engaging around the branch of a tree, a flat piece pivotally fastened to the said tubular piece, a flange or jaw formed upon the upper end of said conical piece, a flange or jaw formed upon the said flat piece and adapted with the flange or jaw upon the said conical piece to hold a candle, a slot formed upon the said conical piece and adapted to admit the jaw or flange formed upon the said flat piece, and a spring having two projecting arms suitably mounted upon the device and adapted to normally keep the said jaws closed, substantially as described.

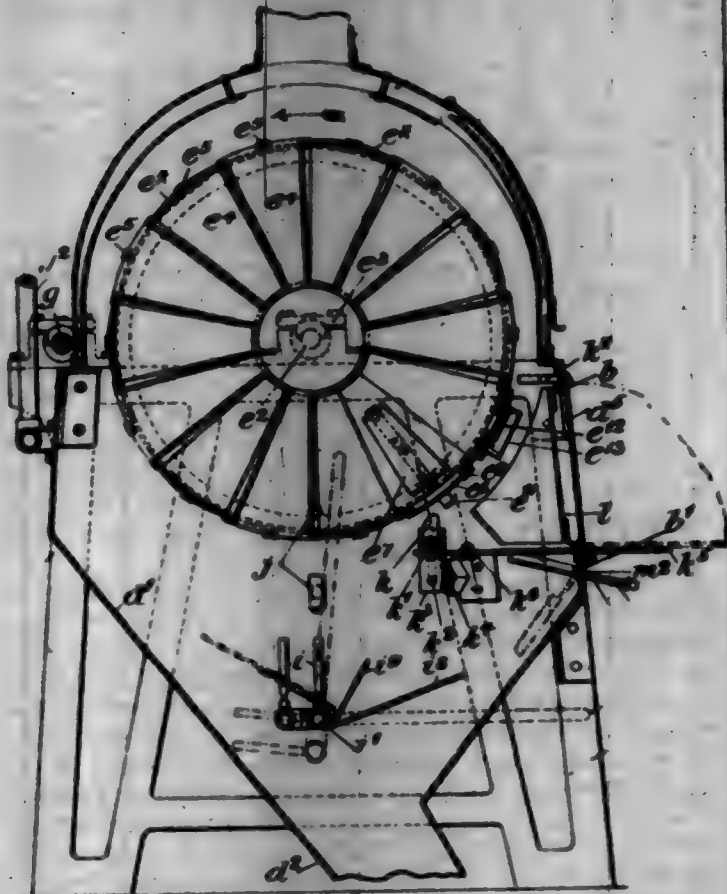
697,138. SUPPORT FOR STRAIN-TURNING WHEELS. JONAS A. BOWSER, Stockholm, Sweden, assignor to De Laval Steam Turbine Company, a Corporation of New Jersey. Filed Oct. 18, 1901. Serial No. 73,130. (No model.)



Claim.—1. The combination with a wheel having sockets on opposite sides thereof, of the supporting shaft-sections having enlarged end portions constructed to enter and fill said sockets, and means for rigidly connecting said shaft-sections to said wheel.

E. The combination with a wheel having sockets on opposite sides thereof of supporting shaft-sections having enlarged end portions F, G constructed to enter and fill said sockets, flanges H, I on said end portions, and bolts rigidly connecting said flanges to said wheel.

697,129. MEANS FOR ROASTING COFFEE. BENJAMIN BOTE, Pockham, England. Filed Feb. 14, 1901. Serial No. 29,202. (No model.)



Claim.—1. In a roasting drying or torrefying apparatus a closed drum mounted with capability of revolution means for heating the same, a closed cylinder arranged axially within the drum, a number of radially-disposed open-ended and flattened tapered tubes extending from the periphery of the drum to the axial cylinder for conducting the heat and products of combustion through the interior thereof, means for rotating the drum and a door for charging and discharging the same substantially as herein shown and described.

2. In a roasting drying or torrefying apparatus a closed drum mounted with capability of revolution, means for heating the same, a closed cylinder arranged axially within the drum, a number of radially-disposed open-ended flattened tapered tubes extending from the periphery of the drum to the axial cylinder for conducting the heat and products of combustion through the interior thereof said tubes being arranged in rows with the tubes of one row intermediate of those of the next row, means for rotating the drum and a door for charging and discharging the same substantially as herein shown and described.

3. In a roasting drying or torrefying apparatus a closed drum mounted with capability of revolution, means for heating the same, a closed cylinder arranged axially within the drum a number of radially-disposed open-ended flattened tapered tubes extending from the periphery of the drum to the axial cylinder for conducting the heat and products of combustion through the interior thereof said tubes being arranged in rows with the tubes of one row intermediate of those of the next row, a row of angularly-disposed deflecting-plates arranged in the place of one row of tubes, means for rotating the drum and a door for charging and discharging the same substantially as herein shown and described.

4. In a roasting drying or torrefying apparatus a closed drum mounted with capability of revolution, means for rotating the drum, a door for charging and discharging the same, a fire consisting of a number of Bunsen burners arranged beneath the drum and carried by a pipe mounted with capability of turning in bearings and at one end closed and at the other end formed as one part of a cock the other part being fixed to the supply-pipe the cock being so constructed that the rotation of the burners in one or the other direction opens or closes the gas-supply, means for turning the burners and a hinged deflecting-plate carried by the burner-pipe for tumbling over the burners in their turned-out position and directing the coffee discharged from the door of the drum into the required channel substantially as herein shown and described.

5. In a roasting drying or torrefying apparatus a closed drum mount-

ed with capability of revolution, means for rotating the drum, a door for charging and discharging the same means for heating the drum, a sampling-door on the periphery of the drum consisting of an eccentrically-mounted disk, a projection adapted to be brought into the path of the disk on one side of the axis of the disk to open it and a fixed projection adapted to engage the disk on the opposite side of said axis to close it and means for receiving the discharged sample substantially as herein shown and described.

6. In a roasting, drying or torrefying apparatus, the combination of a rotating drum, a burner-pipe rotatably mounted beneath the drum, burners upon the burner-pipe, means rotating the burner-pipe to throw the burners away from the drum, and means operated to cover the burner when the burner-pipe is rotated.

697,180. THILL-COUPLES. CHRISTOPHER C. BRADLEY, Syracuse, N. Y. Filed Feb. 2, 1902. Serial No. 22,574. (No model.)



Claim.—1. The combination of an axle, a clip straddling the same, a clip-plate arranged underneath the axle, a spring applied to one of the legs of said clip, screw-nuts applied to said leg above and below said spring, means for preventing the spring from turning on said leg, a coupling composed of a fixed and a movable jaw, and a connection between the spring and the movable jaw, substantially as set forth.

2. The combination of an axle, a clip straddling the same, a clip-plate, a spring applied to the rear leg of the clip and extending forwardly therefrom, screw-nuts applied to the rear leg of the clip above and below said spring, a coupling composed of a fixed and a movable jaw, and a connection between the spring and the movable jaw, substantially as set forth.

3. The combination of an axle, a clip straddling the same, a clip-plate, a spring applied to the rear leg of the clip and extending forwardly therefrom, screw-nuts applied to the rear leg of the clip above and below said spring, the latter being provided at its rear end with a lip projecting on the rear side of the upper nut, a coupling composed of a fixed and a movable jaw, and a connection between the spring and the movable jaw, substantially as set forth.

697,181. BRAN-PACKER. JOHN S. CARRISON, Evansville, Ind., assignor of two-thirds to Lighthouse Brothers, a Corporation of Indiana, and Helms Milling Company, both of Evansville, Ind. Filed Apr. 2, 1901. Serial No. 54,177. (No model.)

Claim.—1. In a packing-machine, the combination of a compressing-box, a trunk or tube suspended by chains or other flexible bands above said box and adapted to enter and be withdrawn therefrom, a plunger supported in position to enter the trunk or tube and means on the plunger to raise the trunk as the plunger descends by acting on its supporting-chains, substantially as set forth.

2. In a packing-machine, the combination of a compressing-box, a trunk or tube supported in position to enter the box, a plunger adapted to enter said trunk or tube and means carried by the plunger for withdrawing the trunk from the compression-box as the plunger moves toward it, substantially as set forth.

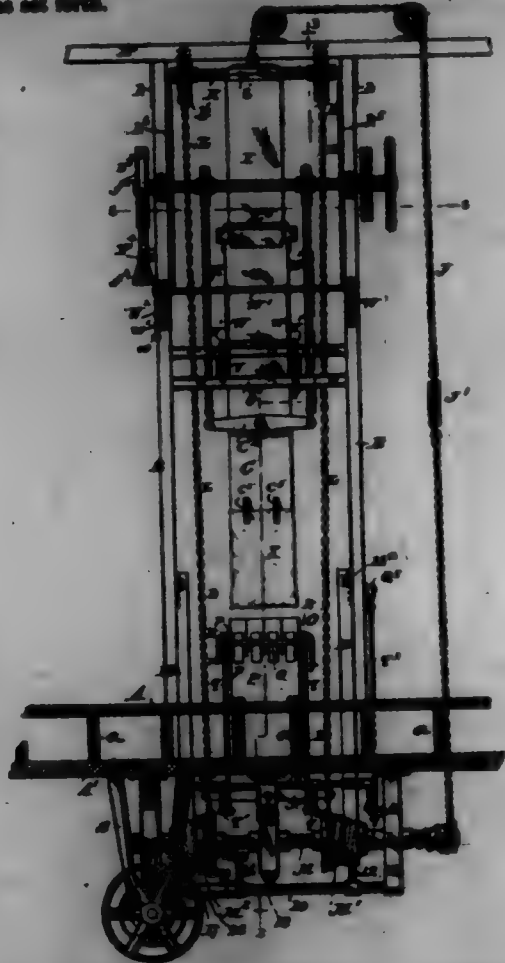
3. In combination, a packing-machine, a trunk or tube, chains for supporting the trunk or tube, a plunger adapted to enter and be withdrawn from the trunk or tube and means carried by the plunger for acting on the supporting-chains for raising the trunk as the plunger moves downwardly, substantially as set forth.

4. In a packing-machine, the combination of a trunk or tube for receiving the material to be packed, a compression-box, a receptacle to receive the material to be compressed, a plunger for compressing the material, and means for raising the receiving trunk or tube as the plunger descends to compress the material in the receptacle, substantially as described.

5. In a packing-machine, the combination of a trunk or tube for receiving the material to be packed, a plunger to compress the material, and means for withdrawing said trunk or tube before the plunger has completed its compression-stroke, substantially as described.

6. In a packing-machine, the combination of a trunk or tube for receiving the material to be packed, clamps near the lower end of the trunk for retaining thereon a suitable receptacle for the material, a com-

pressing-box placed to receive the end of the trunk with the receptacle attached, a plunger adapted to enter the trunk and compress the material therein into the sack, and means on the plunger for causing the withdrawal of the trunk from within the sack as the plunger descends, substantially as set forth.



7. In a packing-machine, the combination of a reciprocating trunk or tube for receiving the material to be packed and for temporarily holding a receptacle on its lower end, a compressing-box, a reciprocating plunger adapted to enter the trunk for compressing the material, and means reciprocating transversely to the trunk and plunger for placing a cloth between the plunger and trunk while the plunger is withdrawn from the trunk, whereby the cloth may be carried by the plunger into the receptacle and above the material therein, substantially as set forth.

8. In a packing-machine, in combination with the frame, a trunk or tube, a shaft carrying sprockets journaled to the front of the frame, a similar shaft and sprockets on the rear of frame equal gear-wheels in mesh with one another on the shafts, a chain attached to the trunk or tube on each side and passing over the sprocket-wheels on each shaft, means for rotating the shafts by hand and a friction device for holding the trunk in any position in which it may be placed, substantially as set forth.

9. In a packing-machine, the combination of the frame, a plunger for compressing the material to be packed, a shaft arranged in bearings on its upper end and in sliding boxes on the frame, a pulley fixed to the shaft on each side of the plunger, a shaft at the base of the machine with conical drums fixed thereon, a chain fastened to the top of the plunger for raising it and extending over pulleys down to and around one of the conical drums, and two chains connected to the remaining conical drums for drawing the plunger down and extending upwardly, to and around the pulleys on the shaft journaled on the plunger and an equalizing-bar pivoted to a part of the frame, and to which said chains are attached substantially as set forth.

10. In a packing-machine, the combination of the frame, a plunger for compressing the material supporting a shaft carrying pulleys, a chain attached to the plunger for raising it passing over guide-pulleys to a suitable winding mechanism other chains for drawing down the plunger attached to some fixed portion of the frame and extending upwardly and around the pulleys on said shaft to a winding mechanism, a reciprocating trunk in which said plunger moves, and means actuated from the plunger for elevating the trunk, substantially as set forth.

11. In a packing-machine, the combination of a frame, shafts carrying sprocket-wheels journaled in bearings on the frame, a trunk or tube, chains attached to said trunk or tube and passing over said sprocket-wheels, a plunger, a chain for raising the plunger, a shaft having pulleys journaled to the plunger, chains passing over the pulleys for drawing down the plunger, and means for operating the chains whereby the trunk or tube is raised when the shaft on the plunger is in its descent concentric the chain, substantially as described.

12. A trunk or tube supported by chains, each chain passing over wheels between which is a substantially horizontal stretch of chain in combination with a plunger adapted to be lowered or drawn into the trunk or tube, and means on the plunger for engaging said horizontal stretch of chain as it descends and raising the trunk, substantially as described.

13. The combination of a trunk or tube, chains for supporting the trunk, shafts having sprocket-wheels thereon, each of said chains passing over a sprocket-wheel on each shaft, means for acting on the chain between the sprockets for raising the tube and a friction device for holding said trunk in position when the means for raising it has been removed, substantially as described.

14. The combination of the frame, two horizontal shafts each carrying two sprockets journaled respectively on the front and rear sides of said frame, a trunk or tube intermediate the shafts but below them, chains attached to equalizing-bars on the front and rear of the trunk and passing over a sprocket-wheel on each shaft, and means for pressing down the stretch of chain between the sprockets, substantially as described.

15. The combination of the frame, a shaft carrying chain-wheels journaled one on the front and one on the rear of the machine, a trunk or tube, chains supporting the trunk or tube from the chain-wheels on the shaft, similar gear-wheels on the shafts meshing with each other, a hand-wheel on one shaft for turning the two shafts, and raising or lowering the trunk, and a friction device on either shaft to hold the trunk in any position in which it may be raised or lowered, substantially as described.

16. A compressor-box consisting of hinged leaves adapted to be opened and closed, wedge-blocks on the leaves, a band surrounding the compressor-box and rods attached to the band operated by a hand-lever for raising the band, closing and locking the leaves by forcing said band over the wedge-blocks, substantially as described.

17. A compressor-box consisting of hinged leaves, wedge-blocks on the leaves, a band adapted to be driven over the wedge-blocks for locking the leaves in closed position, and eccentric or cone pivoted to one or more leaves for forcing the band off the wedge-blocks, substantially as described.

18. In a packing-machine, the combination of a reciprocating trunk or tube for receiving the material to be packed, a reciprocating plunger adapted to enter the trunk for packing the same, clamp-carrying bars arranged to slide forward and backward across the machine near the mouth of the trunk or tube, clamps on the bars, means for opening the clamps to receive a piece of fabric, and means for operating the clamp-carrying bars to move the fabric across the trunk when the plunger is withdrawn from the trunk, substantially as described.

19. In a packing-machine, the combination of the frame, a reciprocating trunk or tube therein, clamp-carrying bars arranged to slide forward and backward across the machine on each side of said trunk near its mouth, clamps on the bars, means for opening the clamps at the front of the machine to receive a piece of fabric, means for operating the clamp-bars to draw the fabric across the trunk, a knife for cutting a piece of fabric of suitable size from a roll or strip after the fabric has been drawn across the mouth of the trunk, and means on the rear of the machine for opening the clamps to release the fabric, substantially as described.

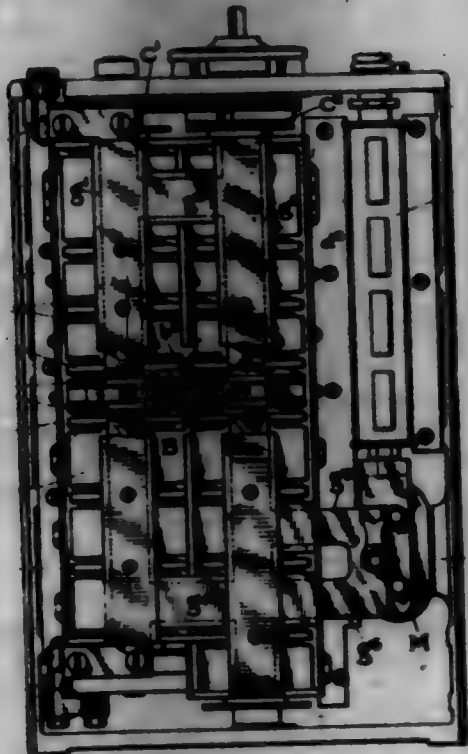
20. In a packing machine, the combination of the frame, clamp-carrying bars supported on the frame and arranged to draw a piece of fabric across it, rollers mounted on pivoted arms adapted to press on the edges of the fabric, shoes on the pivoted arms and a pin on the clamp-carrying bar for acting on the shoes and raising the rollers from the fabric, substantially as described.

21. In a packing-machine, the combination of the frame, a shaft journaled therein, winding-drums on the shaft, a plunger, a chain on one drum for raising the plunger, a shaft on the plunger, an equalizing-bar, chains fixed at one end to said equalizing-bar and passing up to and over pulleys on the shaft journaled on the plunger and then down to winding-drums, and means for rotating the shaft in opposite directions, whereby the elevating-chain unwinds from its drum at proportionate speed to the winding of the chains on the other drums and vice versa, substantially as described.

22. In a packing-machine, the combination of a trunk for receiving the material to be packed and supporting on its lower end the receptacle for holding said material, a compressor-box into which the trunk and receptacle may enter, a plunger adapted to enter the trunk, compress the material and withdraw said trunk at the same operation, means for holding the bands with which the package is covered, and means for opening the compressor-box to remove the closed package, substantially as described.

23. The combination in a packing-machine of a compressor-box, a plunger adapted to enter therein, chains attached to cone-pulleys for drawing the plunger into the compressor-box, a chain attached to a cone-pulley for raising the plunger, worm-gearing for operating a shaft carrying the cone-pulleys, a reciprocating trunk into which the plunger enters, and means actuated from the plunger for elevating the trunk, substantially as described.

697,182. ELECTRIC CONTROLLER. FRANK E. CASE, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 16, 1900. Serial No. 28,711. (No model.)



Claim.—1. In combination, in an electric controller provided with a series of movable contacts mounted on a common support and a series of fixed contacts adapted to engage therewith, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the moving contacts and substantially perpendicular to the face along which contact is made, a blow-out chamber adjacent to each of said fixed contacts, said chamber having an opening adjacent to the contacts for the reception of the arc, and a closed wall opposite to said opening in the direction of travel of the arc.

2. In combination, in an electric controller provided with a series of movable contacts mounted on a common support and a series of fixed contacts adapted to engage therewith, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the moving contacts and substantially perpendicular to the face along which contact is made, an arcing-chamber including each set of contacts, and a blow-out chamber adjacent to each arcing-chamber, said blow-out chamber communicating with the arcing-chamber through an opening adjacent to the contacts and having a closed wall opposite to said opening.

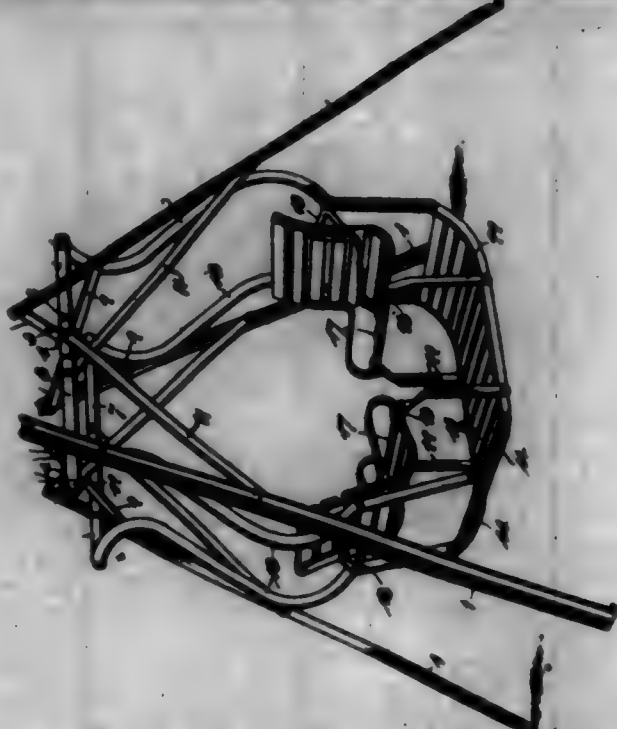
3. In combination, in an electric controller, a rotatable cylinder provided with contacts, a plurality of fixed contacts adjacent thereto, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the moving contacts and substantially perpendicular to the face along which contact is made, and a chute structure comprising arcing-chambers including the contacts, and blow-out chambers adjacent thereto, each of said arcing-chambers having portions of the walls cut away to permit the rotation of the contacts and each of the blow-out chambers communicating with an arcing-chamber through an opening adjacent to the contacts and with the atmosphere at a point or points laterally displaced therefrom.

4. In combination, in a cylindrical controller, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the contacts and substantially perpendicular to the face along which contact is made, and a chute structure comprising blow-out chambers adjacent to each set of contacts, each of said blow-out chambers having an opening adjacent to the controller-contacts and a closed wall opposite thereto in the direction in which the arc tends to travel.

5. In combination in an electric switch, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the moving contacts, an arcing-chamber including the switch-contacts, and blow-out chambers on each side of said arcing-chamber, said blow-out chambers communicating with the arcing-chamber through openings adjacent to the contacts and having closed walls opposite to said openings in the direction of travel of the arc.

6. In combination in an electric switch, fixed and movable contacts, means for producing a magnetic field in a direction substantially at right angles to the direction of motion of the moving contacts, and blow-out chambers on each side of said contacts, each of said chambers being provided with an opening adjacent to the contacts for the reception of the arc, and having a closed wall opposite to said opening.

697,188. FOLDING LAWN-SWING. DAVID C. GIBBS, Elizabeth, Pa. Filed Oct. 12, 1901. Serial No. 79,190. (No model.)



Claim.—1. A swing comprising a frame having uprights, upper end braces pivotally connected to said uprights, auxiliary braces also pivoted to said uprights and to the ends of said first-named braces, suspending-bars pivotally connected to the opposite side portions of the frame, and swinging means connected to said suspending-bars.

2. A swing comprising a frame having uprights, folding braces connecting the uprights at the upper portion of opposite ends of the frame, jointed suspending-bars at the upper opposite side portions of the frame pivotally connected to the uprights, retaining-braces pivotally attached to the suspending-bars and uprights, and swinging means having levers terminally connected to the outer ends of the suspending-bars.

A swing comprising a frame having uprights, braces pivotally connected to said uprights, auxiliary braces also pivoted to said uprights and to the ends of said first-named braces, and provided with beveled ends adapted to bear on and engage the upper edge portions of the first-named braces, suspending-bars pivotally connected to the opposite side portions of the frame, and swinging means connected to said suspending-bars.

4. A swing comprising a frame having uprights, folding braces in sets at the upper end portions of the frame, jointed suspending-bars pivotally attached to the uprights at points between the points of attachment of said folding braces, and swinging devices attached to the suspending-bars.

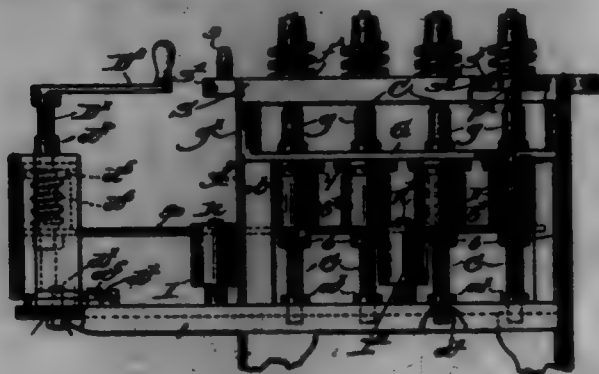
5. A swing comprising uprights, the jointed suspending-bars arranged at opposite sides of the swing and composed of sections pivoted between their ends to the uprights and pivotally connected at their inner ends, said sections also having their inner portions interlocked, the braces extending from the uprights to the sections and connected with the latter between the said uprights, and swinging devices suspended from the outer ends of the sections, substantially as described.

6. A swing comprising a frame having uprights, upper end braces pivotally connected to the uprights and crossing each other, the points of crossing of the said braces being secured by pivots, a retaining means applied to the crossed pivoted portions of the said braces, auxiliary braces also pivoted to the uprights and to the upper ends of the first-named braces and having their inner ends angularly formed to bear on the upper edge portions of the latter braces, suspending devices also foldingly constructed and disposed on opposite sides of the frame, and a swinging means attached to said suspending devices.

7. A swing comprising a frame having uprights, folding braces at the upper end portions of the frame, jointed suspending-bars pivotally attached to the upper opposite sides of the frame, the one section of each bar having a stud to removably engage a notch in the other, retaining-braces having their lower ends pivotally attached to the uprights and their upper ends similarly connected to the sections of the suspending-bars on opposite sides of the joint of the latter, the upper portions of the retaining-braces being crossed, and swing means attached to said suspending-bars.

8. A swing comprising uprights, jointed suspending-bars composed of sections pivoted between their ends to the uprights and extending inward and outward therefrom, swing devices suspended from the outer portions of the sections, and braces connecting the inner portions of the sections with the uprights, substantially as described.

697,184. **BUILDING APPARATUS.** CHARLES E. DART, Hopkinton, Mass., assignor to Draper Company, Hopkinton, Mass., a Corporation of Maine. Filed Oct. 17, 1901. Serial No. 73,980. (No model.)



Claim.—1. In a building apparatus, a fixed stripper-plate, a cooperating spirally-threaded pattern, a rotatable and longitudinally-movable carrier therefor having a master-thread of the same pitch, a fixed nut cooperating with the master-thread, fixed bearings located above and below the master-thread and nut, and independent of the stripper-plate to support the carrier laterally and permit longitudinal movement thereof at right angles to the stripper-plate, and means to rotate the carrier, said means including a gear fast on the carrier, cooperation of the master-thread and nut effecting longitudinal movement of the carrier simultaneously with its relative movement, to thereby draw the pattern.

2. In a building apparatus, a fixed stripper-plate, a cooperating spirally-threaded hollow pattern, a rotatable and longitudinally-movable carrier therefor, a fixed tubular bearing for the carrier, to enter and steady the pattern when drawn, a master-thread and a cooperating nut, one being fixedly mounted independent of the stripper-plate, and the other attached to the carrier, to effect longitudinal movement of the latter when rotated, and means to rotate the carrier.

3. In a building apparatus, a fixed stripper-plate, a plurality of like cooperating spirally-threaded hollow patterns, a carrier for each pattern, fixed bearings through which the carriers move and which enter and guide the patterns when drawn, and means to rotate in unison the said carriers and simultaneously move them and their attached patterns longitudinally in correspondence with the pitch of the pattern-threads, to thereby draw the patterns.

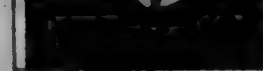
4. In a building apparatus, a fixed stripper-plate, having a plurality of openings through said openings, a rotatable and longitudinally-movable carrier for and to which each pattern is secured, a fixed guide-plate having on its upper face tubular bearings through which the carriers freely move, a master-thread on each carrier of the pitch of the pattern-threads, a fixed nut depending from and secured to the guide-plate to cooperate with each master-thread, and means to rotate in unison the carriers, and to move longitudinally with them, longitudinal movement of said carrier being simultaneously effected by the master-threads and nuts, to draw the patterns.

5. In a building apparatus, a fixed stripper-plate, a plurality of like, spirally-threaded patterns to cooperate therewith, a rotatable and longitudinally-movable carrier for each pattern, two fixed bearings for each carrier, one near the pattern, and the other at or near the lower end of the carrier, a master-thread and a cooperating nut for each carrier, one being attached to the carrier and the other fixed, to effect longitudinal movement of the several carriers when rotated, said master-thread and nut being located between the bearings for each carrier, and means to rotate the carriers in unison, said means including a gear fast on each carrier, and a common rotating device in engagement with the several gears.

6. In a building apparatus, a fixed stripper-plate, a cooperating spirally-threaded pattern, a rotatable carrier therefor movable at right angles to the stripper-plate and having an attached sprocket-wheel, a master-thread on the carrier, having the pitch of the pattern-threads, a cooperating fixed nut, a rotatable actuator having an attached sprocket-wheel, a sprocket-chain connecting said sprocket-wheels, and means to move the actuator longitudinally in unison with the carrier, whereby rotation of the actuator will operate the carrier to draw the pattern.

7. In a building apparatus, a fixed stripper-plate, a plurality of rotatable carriers movable at right angles to the stripper-plate and each having an attached sprocket-wheel, a spirally-threaded pattern mounted on each carrier, means to move said carriers longitudinally in correspondence with the pitch of the pattern-threads when rotated, a rotatable and longitudinally-movable actuator having an attached sprocket-wheel, and an endless sprocket-chain connecting said sprocket-wheel with the sprocket-wheels of the several carriers, whereby rotation of the actuator imparts rotation to the carriers, to draw the patterns, the longitudinal movement of the actuator corresponding to the longitudinal movement of the carriers.

697,185. **ANTI-SLIPPING DEVICE.** DAVID M. DRABER, Jackson, Mich., assignor of one-half to Henry W. Scott, Jackson, Mich. Filed Mar. 7, 1901. Serial No. 50,254. (No model.)

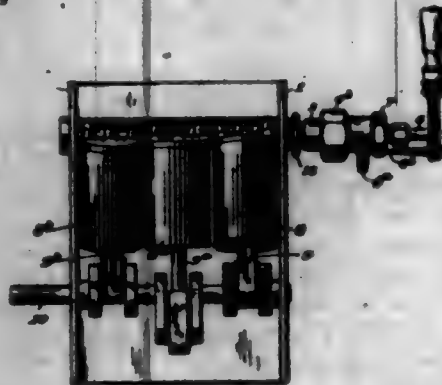


Claim.—1. In an anti-slipping device, the combination with a section of a rubber heel, of a cup-shaped disk composed of resilient material, said disk divided by slots or lugs into wings and embedded and retained in said heel, so that the edge of said cup-shaped disk shall project below the surface of said heel, substantially as described.

2. In an anti-slipping device, the combination with a section of a rubber heel and a cup-shaped disk composed of resilient material, said disk divided by slots or lugs into wings, of a base mounted upon said disk and embedded and retained in said heel, so that the edge of said cup-shaped disk shall project below the surface of said heel, substantially as described.

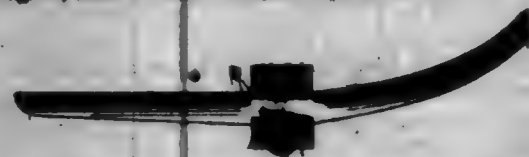
3. In an anti-slipping device, the combination with a rubber heel of a cup-shaped disk composed of resilient material, said disk divided by slots or lugs into wings, and means for retaining said disk when embedded in said heel, so that the edge of said cup-shaped disk shall project below the surface of said heel, substantially as described.

697,186. **STEAM OR FLUID-PRESSURE ENGINE.** WILLIAM J. BENTLEY, Columbus, Ohio. Filed Aug. 19, 1901. Serial No. 79,067. (No model.)



Claim.—In a fluid-pressure engine, a stationary shaft containing longitudinal passages 2' and 3' and an exhaust-port 3' opening on one end of said shaft, cylinders hung to oscillate on said shaft, ports from the passages 2' and 3' for each of said cylinders, a shiftable valve 5 containing a single through-port 5' and a connected double-ported 5', said shiftable valve working on the end of said shaft and adapted to admit live pressure through the port 5' to either of the passages 2' and 3' and exhaust from the other through the valve-port 5' and shaft-port 3', substantially as described.

697,187. **LAWN-RAKE.** WILLIAM L. FENNER, Racine, Wis., assignor to L. E. Baker Manufacturing Company, Racine, Wis. Filed Aug. 16, 1900. Serial No. 58,930. (No model.)



Claim.—1. In a rake, in combination, a rake-head comprising two longitudinal bars, one of which bars has transverse depressions for receiving the rake-teeth; means for securing the bars together; and a rake-tooth for each of said depressions, which tooth has a notch formed in its rear side in which the other of said longitudinal bars of the rake-head is adapted to fit.

2. In a rake, in combination, a rake-head comprising two longitudinal bars, one of which bars has transverse depressions for receiving the rake-teeth; means for securing the bars together; and a rake-tooth of hollow construction for each of said depressions, which tooth is formed from a piece of sheet material bent to provide a convex face and a concave rear side of said tooth, and has notches formed in the edges at its concave rear side in which the other of said longitudinal bars of the rake-head is adapted to fit.

3. In a rake, in combination, a rake-head comprising two longitudinal bars, one of which bars has transverse depressions for receiving the rake-teeth; means for securing the bars together; and a rake tooth of hollow construction, for each of said depressions, which tooth is formed from a piece of sheet material bent to provide a convex face and a concave rear side of said tooth, the rear edges of said tooth being provided

with a projection for being embedded in one of the longitudinal bars of the rake-head.

4. In a rake, in combination, a rake-head comprising two longitudinal bars, one of which bars has transverse depressions for receiving the rake-teeth; means for securing the bars together; and a rake-tooth of hollow construction, for each of said depressions, which tooth is formed from a blank of sheet metal, having two notches cut in its opposite sides, and a projection in each of said notches, which blank is bent to provide a convex face and a concave rear side of said tooth.

5. As a new article of manufacture, a rake-tooth formed from a piece of sheet material bent on a line substantially parallel with the longitudinal axis of the tooth, to form a convex face and a concave rear side of said tooth, and having a notch in the rear side of the tooth near the middle thereof, and a projection in said notch.

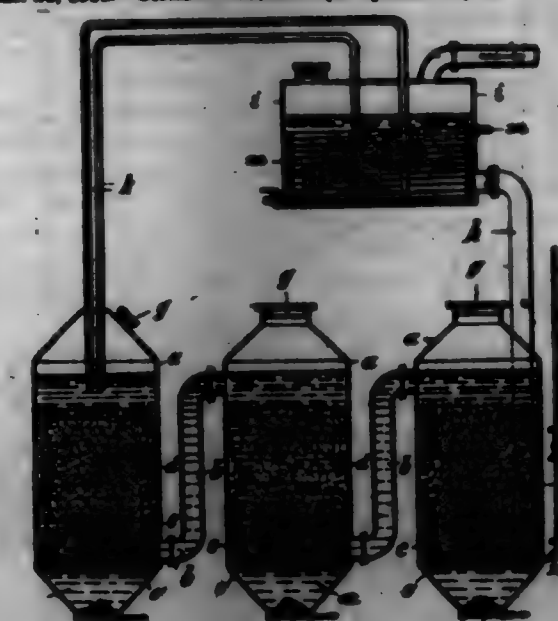
6. As a new article of manufacture, a rake-tooth formed from a piece of sheet material bent on a line substantially parallel with the longitudinal axis of the tooth, to form a convex face and a concave rear side of said tooth, and having a squared portion near the middle thereof and notches cut in the edges at its concave rear side, which notches are opposite said squared portion.

7. As a new article of manufacture, a rake-tooth formed from a piece of sheet material bent on a line substantially parallel with the longitudinal axis of the tooth, to form a convex face and a concave rear side of said tooth, and having a portion near its middle of substantially rectangular form.

8. As a new article of manufacture, a rake-tooth formed from a piece of sheet material bent on a line substantially parallel with the longitudinal axis of the tooth, to form a convex face and a concave rear side of the tooth, its middle being substantially of rectangular form, having notches cut from its rear edges at said middle point, one end of said tooth being inclined forward from the line of its longitudinal axis.

9. As a new article of manufacture, a rake-tooth formed from a piece of sheet material bent on a line substantially parallel with the longitudinal axis of the tooth, to form a convex face and a concave rear side of said tooth, one end of said tooth being curved forward from its longitudinal axis, and being provided with a heel at the lower end of said curved portion, and with a rectangular middle portion, said tooth also having a notch in each of its rear edges coinciding with said rectangular portion, and a projection in each of said notches.

697,188. **PROCESS OF TREATING METALLIC SULFIDE.** ADOLPH GUNDEL, Antwerp, and HENRI E. L. FRIEZE, Paris, France. Filed Mar. 26, 1901. Serial No. 59,378. (No specimen.)



Claim.—The process for the conversion of sulfide into sulfates consisting in subjecting them to the action of oxidized air by holding them in suspension in a liquid in the presence of an acid and blowing a current of ozone into the liquid essentially as explained.

697,189. **WINDOW-STOP-ADJUSTING DEVICE.** WILLIAM F. GILBERT, New Britain, Conn., assignor to F. & P. Corbin, New Britain, Conn., a Corporation of Connecticut. Filed Mar. 5, 1901. Serial No. 58,798. (No model.)



Claim.—1. A window-stop-adjusting device comprising a thumb, a crown within said thumb and crown and thumb being integrally

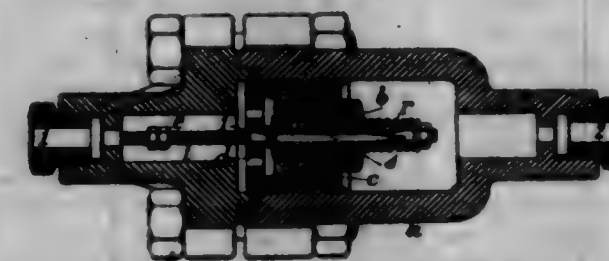
united at the lower portion of said device, an enlarged opening in the top of said crown.

2. A window-stop-adjusting device comprising, a thumb, a crown within said thumb and crown and thumb being integrally united at the lower end of said device, an integral top on said crown, an enlarged opening therein.

3. In a window-stop-adjusting device, a thumb, a crown within said thumb and crown and thumb being integrally united at the lower end of said device the top of said crown being intermediate the length of said device and a slot in the top of said crown.

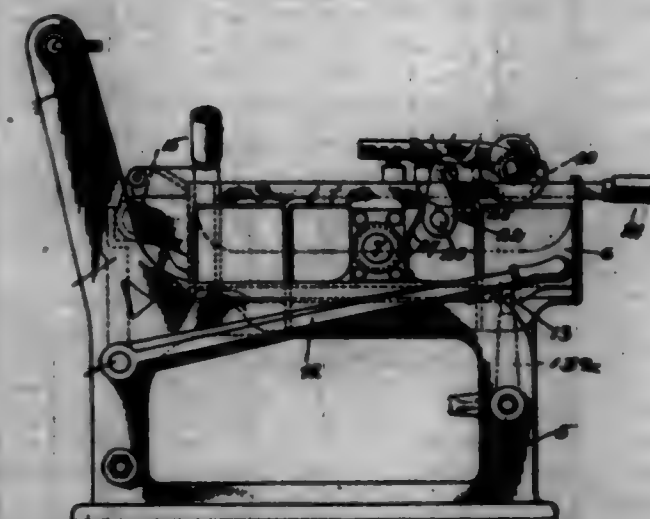
4. A window-stop-adjusting device comprising, a thumb, an annular flange at the upper edge thereof, a crown within said thumb and crown being united with said thumb at the lower edge of said device, a top on said crown, an elongated opening or slot in said crown.

697,140. **DEVICE FOR COMPENSATING FOR WEAR IN SHOES OF HYDRAULIC BRAKES.** ADOLPH GUNDEL, Paris, France. Filed Dec. 11, 1901. Serial No. 55,909. (No model.)



Claim.—An arrangement for automatically compensating for the wear in the shoes of hydraulic brakes, consisting of a cylinder 2 open at both ends, which is placed in the pipe communicating between the accumulator-reservoir and the brake-cylinder, or which may be formed as an extension upon the rear end of this latter, a movable diaphragm 4 through a central opening in which passes the rod 3 of a spring-valve 5 which normally closes the said opening and which is prolonged to the rear as a screwed rod upon which may be adjusted a regulating-nut 6, and a fixed perforated diaphragm 7, which when the brake is applied serves as a stop for the nut 6 and when the brake is taken off forms a stop for the movable diaphragm, so that the travel of the nut determines the return movement of the brake-piston, while the forward movement of the latter varies according to the state of wear of the brake-shoes, as the device readjusts automatically the required clearance between the brake-shoes and the discs, substantially as described.

697,141. **CASTING-BOX FOR STEREOTYPING.** SAMUEL G. Goss, Chicago, Ill., assignor to the Goss Printing Press Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 4, 1900. Serial No. 739,190. (No model.)



Claim.—1. In a casting-box, the combination of a case, a core pivoted to said case and adapted to fit thereto, locking mechanism adapted to lock the core in the case, means for throwing the locking device into engagement as soon as the core is brought to operative position in the case, core-lifting device, and gearing which operates to unlock the case when said lifting device are actuated to lift the core out of the case, substantially as described.

2. In a casting-box, the combination of a case, a core pivoted to said case and adapted to fit thereto, locking mechanism adapted to lock the core in the case, means for throwing the locking device into engagement as soon as the core is brought to operative position in the case, core-lifting device carried by the case, and gearing which operates to unlock the

core when said lifting device are actuated to lift the core out of the case, substantially as described.

3. In a casting-box, the combination of a case, a core pivoted to said case and adapted to fit therein, cam mechanism mounted on said core and adapted to engage said case for lifting the core out of the case, locking devices adapted to secure the core in the case, means for throwing the locking devices into engagement as soon as the core is brought to operative position in the case, and gearing actuated by the operation of said lifting mechanism for unlocking the core from the case, substantially as described.

4. In a casting-box, the combination of a pivoted-mounted case, a core pivoted to said case and adapted to fit therein, locking devices adapted to lock the core in the case, means acting independently of the movement of the case for throwing the locking devices into engagement as soon as the core is brought to operative position in the case, lifting devices carried by the core and adapted to engage the case for lifting the core out of the case, and gearing actuated by the operation of said lifting devices for unlocking said core, substantially as described.

5. In a casting-box, the combination of a case, a core pivoted thereto at one end and adapted to fit in said case, transverse shafts carried by said core, cams carried by one of said shafts and operating to raise the core out of the case, lugs carried by the other of said shafts, locking devices carried by the case and acting to engage said lugs to lock the core in the case, means connecting said shafts so that they will rotate simultaneously, and a lever for rotating said shafts, substantially as described.

6. In a casting-box, the combination with a case, of a core pivoted at one end and adapted to be fitted in said case, parallel transverse shafts carried by said core, cams carried by one of said shafts for raising the core out of the case, lugs carried by the other of said shafts, locking devices carried by the case and adapted to engage said lugs to lock the core in the case, means connecting said shafts whereby they will rotate simultaneously, and a lever for rotating said shafts, substantially as described.

7. In a casting-box, the combination with a case, of a core pivoted at one end and adapted to be fitted in said case, parallel transverse shafts carried by said core, cams carried by one of said shafts for raising the core out of the case, lugs carried by the other of said shafts, locking devices carried by the case and adapted to engage said lugs to lock the core in the case, and intermeshing gears carried by said shafts for rotating them simultaneously in opposite directions, substantially as described.

8. In a casting-box, the combination with a case, of a core pivoted at one end and adapted to be fitted in said case, parallel transverse shafts carried by said core, cams carried by one of said shafts for raising the core out of the case, segmental lugs carried by the other of said shafts, spring-latches carried by the case and adapted to engage said lugs to lock the core in the case, means connecting said shafts whereby they will rotate simultaneously, and a lever for rotating said shafts, substantially as described.

9. In a casting-box, the combination of a pivoted-mounted case, a core pivoted thereto at one end and adapted to fit therein, movable lugs carried by said core at opposite sides thereof, spring-latches carried by said case and adapted to engage said lugs to lock the core in the case, and means for moving said lugs out of engagement with said spring-latches to release the core from the case, substantially as described.

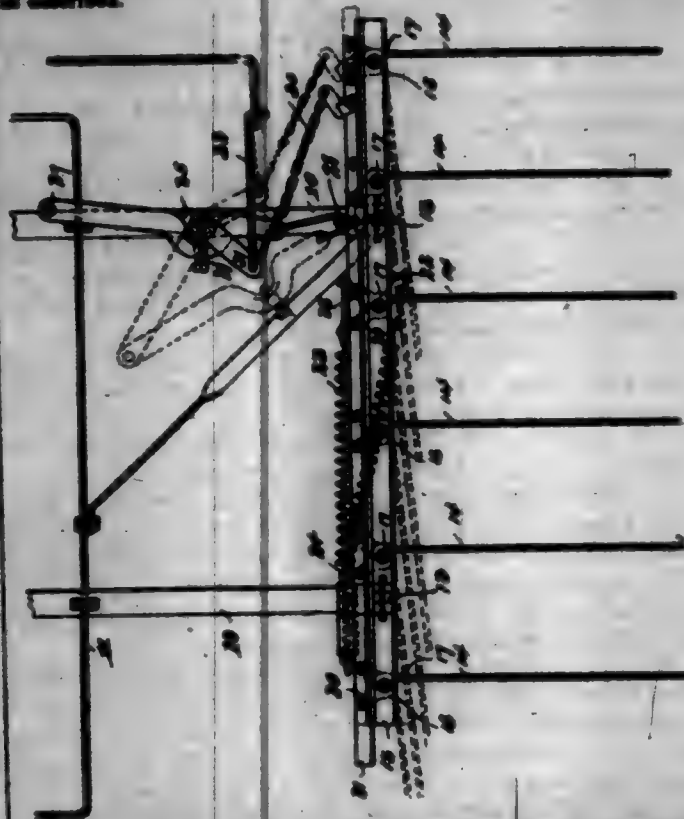
697,142. BUNDLE-CARRIER FOR HARVESTERS. HENRY GARR, Peoria, Ill., assignor to the Acme Harvester Company, Peoria, Ill., a Corporation of Illinois. Filed Apr. 26, 1901. Serial No. 57,572. (No model.)

Claim.—1. In a bundle-carrier for harvesters the combination with a rocking time-supporting bar, times pivotally mounted thereon, and adapted to fold substantially in line therewith, a time-folding bar, a pivoted lever, a connection between said lever and the time-supporting bar, and a flexible connection between the lever and the time-folding bar, and means for rocking said lever on its pivot whereby the time-supporting bar is rocked to lower the outer ends of the times into contact with the stubble before the folding of the times begins, substantially as described.

2. In a bundle-carrier the combination with a rocking time-supporting bar, times pivotally mounted thereon and adapted to be folded substantially in line therewith, a time-folding bar having crank connection with the several times, a pivoted bell-crank, a link pivotally connecting one arm of the bell-crank with the time-supporting bar, and a flexible connection between the other arm of the bell-crank and the time-folding bar, a crank-arm connected to the time-folding bar, and a spring connected to said crank-arm and tending to fold the times at the conclusion of the rocking movement of the time-supporting bar, substantially as described.

3. In a bundle-carrier the combination with a rocking time-supporting bar, of times pivotally mounted thereon and adapted to fold substantially in line therewith, crank-arms connected with said times, a time-fold-

ing bar connecting the several time-cranks, a bell-crank lever, a pivoted link connecting one arm of said lever and the time-supporting bar, and a flexible connection between the other arm of the bell-crank and the time-folding bar, means for rocking said lever upon its pivot, and the pivoted connections of the link being so disposed that the end thereof which is connected to the bell-crank is carried beyond a plane passing through the axis of the bell-crank and the point of connection to the time-folding bar when the times are extended, whereby to provide a lock, substantially as described.



4. In a bundle-carrier for self-binding harvesters, the combination with a supporting-frame, of a time-supporting bar mounted to rock upon said frame, times pivotally upon said bar and having cranks, a time-folding bar connecting the several cranks, a bell-crank lever pivoted to rock about the axis of one of the times and having one of its arms connected to the time-folding bar, a spring having one end connected at a fixed point and the other connected to one arm of the bell-crank, and the pivoted connections being so disposed that in folding the times one end of the spring is carried beyond a line passing through its fixed point of connection and the axis of the bell-crank, substantially as described.

5. In a bundle-carrier the combination with a rocking time-supporting bar and folding times carried thereby, of means for rocking the supporting-bar and shifting the folding-bar, said means comprising a bell-crank having arms extended from its pivot, one toward and the other away from the carrier, a link connecting the outer end of the arm extending away from the pivot with the time-supporting bar, and an adjustable stop for regulating the movement of said link, substantially as described.

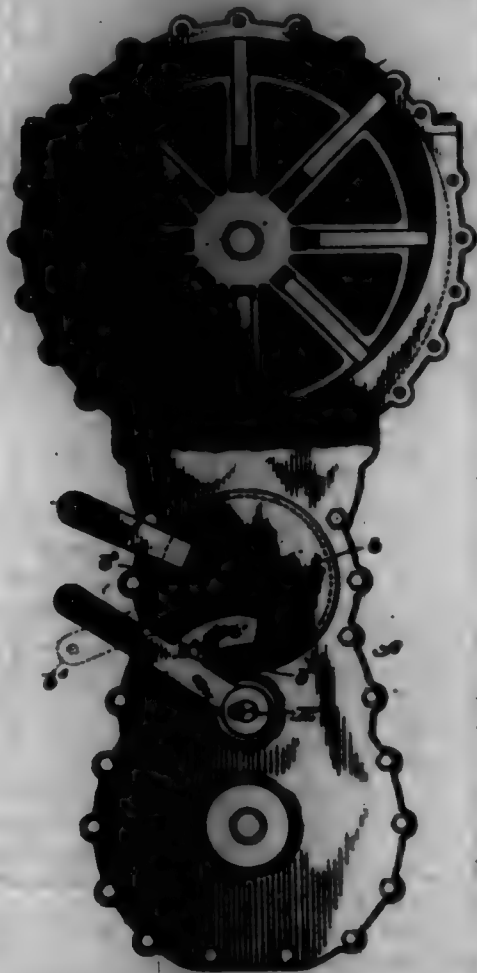
697,143. FLUID POWER-TRANSMISSION MECHANISM. JOHN HARRIS, JR., Chicago, Ill. Filed May 2, 1901. Serial No. 59,601. (No model.)

Claim.—1. In fluid-transmission mechanism, the combination of a fluid-circulating device, a fluid-actuated motor, an interposed reversing-valve, a by-pass through which the fluid may pass idly, a speed-controlling valve at said by-pass, and interlocking means for said valves, substantially as and for the purpose set forth.

2. In fluid-transmission mechanism, the combination of a fluid-circulating device provided with a by-pass through which the fluid may pass idly, a speed-controlling valve at said by-pass, a reversing-valve, a fluid-actuated motor, fluid-passages connecting said fluid-circulating device, said valves and said motor, actuating-arms for said valves, and interlocking heads on said stems, the head on said reversing-valve stem being provided with two recesses corresponding to the direct and reverse position of said valve, and the head on said speed-controlling valve-stem being provided with a projection for entering either one of said recesses, according to the position of the reversing-valve, substantially as described.

3. In fluid-transmission mechanism, the combination of a fluid-circulating device, a fluid-actuated motor, an interposed reversing-valve, a speed-controlling by-pass valve, a head on the stem of said reversing-valve provided with recesses corresponding to the direct and reverse positions of the said valve, and an interlocking head on the stem of said speed-controlling valve, provided with a curved projection having its con-

ter of curvature lying in the axis of said last-named valve, said speed-controlling valve being disposed to close said by-pass when said heads are completely interlocked and to open said by-pass when said heads are disengaged from each other, substantially as described.



4. In fluid-transmission mechanism, the combination of a fluid-circulating pump provided with a by-pass, a fluid-actuated motor, an interposed reversing-valve, provided with an actuating-stem, a disk on said stem provided with a flange having recesses corresponding to the direct and reverse positions of said valve, a speed-controlling by-pass valve interposed between said pump and said reversing-valve and provided with an actuating-stem, and an actuating-arm for said stem provided with a curved projection to engage said flange or to enter one of said recesses, according to the position of the reversing-valve, said speed-controlling valve being disposed to close said by-pass when the parts are interlocked and to open the same when the parts are disengaged, substantially as described.

697,144. CIRCUIT-CONTROLLER. EDWARD E. HEWLEY, Rahway, N. J., assignor to General Electric Company, a Corporation of New York. Filed Sept. 9, 1901. Serial No. 74,713. (No model.)

Claim.—1. The combination with a circuit-breaker, of an electro-responsive device controlling the same responsive to different line conditions, connections for actuating the circuit-breaker under one line condition, and a signal operated by another line condition.

2. The combination with an automatic circuit-breaker, of tripping mechanism for operating the same upon a maximum overload, and a signal operated thereby upon a determinate load less than the maximum.

3. The combination with a circuit-breaker, of an electromagneto device for tripping the same, means for increasing the retractile force of the armature of said device after a determinate range of movement, and an auxiliary circuit controlled during each range of movement.

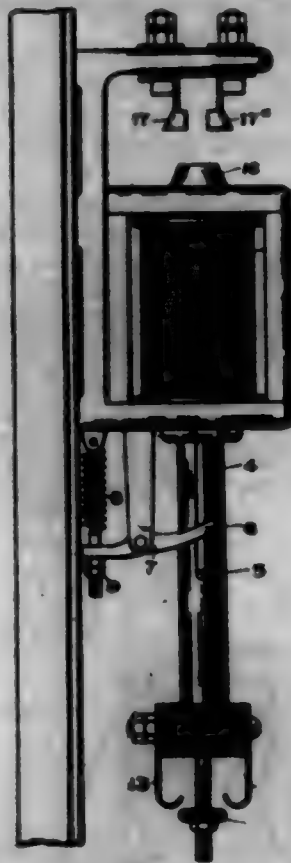
4. A circuit-controller comprising a magnet, a local circuit actuated by a determinate range of armature movement, a retractile force put in action after each range of movement, and another local circuit closed by a further range of armature movement.

5. A circuit-controller comprising an operating-coil, a movable core, a signal-circuit closed by a determinate range of core movement, a retractile spring normally disengaged but engaged by the core after a determinate range of movement, and a tripping-circuit for a circuit-breaker actuated by a further range of armature movement.

6. A circuit-controller comprising an operating-coil, a movable core, a slotted supporting-tube in alignment with the coil-axis, and a retractile agent engaged by an extension of the core through the slot.

7. A circuit-controller comprising an operating-coil, a movable core, a slotted supporting-tube in alignment with the coil-axis, an extension of

the core projecting through the slot, and a retractile agent engaged by the extension after a determinate range of core movement.

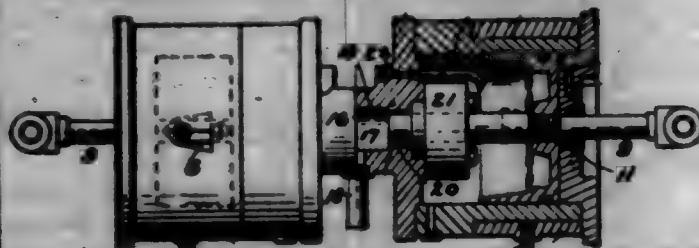


8. A circuit-controller comprising an operating-coil, a movable core, a tripping device operated by a full range of core movement, and a spring-depressed circuit-closer normally engaged by the core and released by a partial range of core movement.

9. A circuit-controller comprising an operating-coil, a movable core, an insulating tube for the latter in alignment with the coil-axis, a stop supporting the core within the grasp of the coil, a trip device for a circuit-breaker movably supported at the top of the coil, insulated-contacts for a local circuit on the bottom of the tube, and a spring-pressed bridge-piece to connect the contacts after the core has made a partial traverse.

10. The combination with a circuit-breaker, of an electro-responsive device controlling the same provided with differential coils, an indicator controlled by the coils upon a determinate strength of current-reversal, and means for tripping the circuit-breaker upon a determinate excess of current in either coil.

697,145. DASH-POT. WILLIAM A. NETTLE, Philadelphia, Pa., assignor to Edwin A. Moore, Philadelphia, Pa. Filed Sept. 24, 1901. Serial No. 75,354. (No model.)



Claim.—1. A dash-pot having a piston connected with a valve, a valve-actuating mechanism for moving the valve and the piston in one direction, means for applying a constant pressure to return the piston, and means for producing variable resistance to the return stroke of the piston.

2. A dash-pot having a piston, in combination with means for applying a constant pressure to one side of the piston, and means for producing variable resistance on the opposite side thereof.

3. A dash-pot having a cylinder provided with an opening in the wall thereof, and a revolvable jacket having an opening therein registering with the opening in the wall of the cylinder; in combination with a piston.

4. A dash-pot having a cylinder provided with a longitudinal slot in the wall thereof, and a revolvable jacket having an opening therein registering with said slot; in combination with a piston having a feather-key therein engaging said slot.

5. A dash-pot cylinder having longitudinal slots in the wall of the cylinder, and a revolvable jacket having openings therein registering with said slots; in combination with a piston having keys therein engaging said slots.

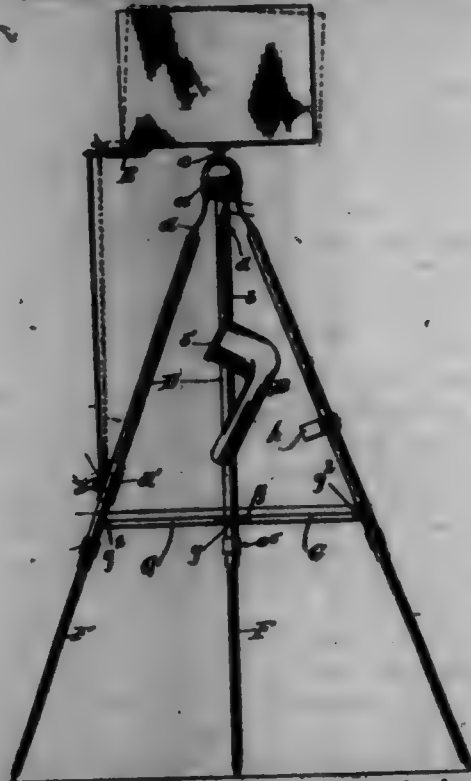
6. A dash-pot cylinder having longitudinal slots in the wall thereof the length of the travel of the piston, and a reversible jacket having a graduated opening registering with said slots; in combination with a piston having boys engaging the slots.

7. A dash-pot cylinder provided with a piston, and having induction-ports and valves in one head thereof, and an ejection-passage in the wall of the cylinder; in combination with means for regulating the discharge from the cylinder and producing variable resistance to the piston during its outstroke.

8. A dash-pot cylinder having a chamber at one end, means for supplying fluid to said chamber at a constant high pressure, and means for producing variable resistance in the dash-pot cylinder; in combination with a piston subject to said pressure and said resistance.

9. A pair of dash-pots adjacent and connected by the heads thereof, and a fluid-pressure chamber in the neck between the heads; in combination with a piston in each pot having a rod extending into said chamber.

697,146. TRIPOD OR STAND. CLARENCE W. HOWARD, Kirkwood, Ill. Filed Mar. 29, 1901. Serial No. 93,398. (No model.)



Claim.—1. A tripod or stand which consists of a head, legs, and means connecting the legs to the head consisting of spring members at the upper ends of the legs adapted to be sprung or bent inwardly to close the legs, and outwardly to spread the legs.

2. In a tripod or stand which consists of a head carrying a support for a photographic camera or other instrument, legs, and an additional support for said instrument, consisting of a rod adapted to be detachably secured at its upper end to said instrument, a clamping-sleeve secured to the lower end of said rod, and engaging one of the legs of the tripod, and a cam-lever pivoted to said sleeve and adapted to hold the same against movement.

3. In a tripod or stand which consists of a head carrying a support for a photographic camera or other instrument, legs, and an additional support for said instrument, consisting of a rod, a pin pivoted to the upper end of said rod, a sleeve removably holding said pin, and suitable means for securing said sleeve to the instrument; the lower end of said rod being secured to one of the legs of the tripod.

4. In a tripod or stand which consists of a head carrying a support for a photographic camera or other instrument, legs, and an additional support for said instrument, consisting of a rod, a pin pivoted to the upper end of said rod, a sleeve removably holding said pin, and suitable means for securing said sleeve to the instrument; a clamping-sleeve secured to the lower end of said rod, and engaging one of the legs of the tripod, and a cam-lever pivoted to said clamping-sleeve and adapted to hold the same against movement.

697,147. TRIPOD OR STAND. CLARENCE W. HOWARD, Kirkwood, Ill. Filed Aug. 9, 1901. Serial No. 71,698. (No model.)

Claim.—1. A tripod or stand consisting of a head, legs, and a device for bracing the legs when spread which consists of a rod or arm pivoted at one end to one of the legs and provided at its other end with a ring or sleeve loosely encircling one of the other legs and adapted to slide up and down thereon.

2. A tripod or stand consisting of a head, legs, and a device for bracing the legs when spread, which comprises a loose sleeve adapted to slide up and down on one of the legs, and a rod or arm pivoted at one end to said sleeve and at its other end to one of the other legs.

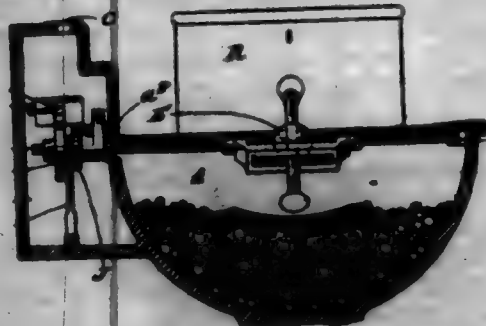


3. A tripod or stand consisting of a head, legs, and a device for bracing the legs when spread, which comprises a loose sleeve adapted to slide up and down on one of the legs, and rods or arms each pivoted at one end to the sleeve, one of the rods or arms pivoted at its other end to a second leg of the tripod, and the other arm or rod pivoted at its other end to the third leg of the tripod.

4. A tripod or stand consisting of a head, legs, and a device for bracing the legs when spread, which comprises a loose sleeve adapted to slide up and down on one of the legs, and rods or arms each pivoted at one end to the sleeve, one of the arms or rods pivoted at its other end to a second leg of the tripod and the other arm or rod pivoted at its other end to the third leg of the tripod, and also a rod or arm pivoted at each end to the second and third legs of the tripod, and having a hinge in its middle.

5. A tripod or stand comprising a head; legs G, H, I; the leg I having the extension rod or member U telescoped in said leg I and slidable longitudinally therein; and on said extension-rod near its lower end a member comprising the rings S and T, said rings adapted to tightly enclose or enclose the lower ends of the other legs G, H, when the legs are folded together and said extension-rod is pushed in, and adapted to release said legs G, H, when said extension-rod is drawn outward, substantially as and for the purpose described.

697,148. COIN-FREED APPARATUS FOR DELIVERING SWEETS OR OTHER ARTICLES. EDWARD A. JEFFREY, Mosley England. Filed Nov. 28, 1901. Serial No. 93,571. (No model.)



Claim.—1. In a coin-free article-delivery machine, the combination with a receptacle for holding a plurality of small articles, of a spoon for dipping up and removing a quantity of such articles, and coin-controlled mechanism for governing the action of said spoon, and means whereby universal movement may be imparted to said spoon for removing articles from any part of the receptacle, substantially as described.

2. In a coin-free article-delivery machine, the combination with a receptacle for holding a plurality of small articles in loose form, a cover for said receptacle, a horizontal operating-shaft, a spoon within the receptacle having a handle extending through the cover, a rocking connection between the spoon-handle and shaft, and coin-controlled means for governing the motion of said shaft, substantially as described.

697,149. SHIP'S ANCHOR. FRANK W. KENNEY, Providence, R.I. Filed Aug. 8, 1901. Serial No. 71,361. (No model.)

Claim.—1. The combination with an anchor-shank having a hook

casing provided with keyholes, of a stock having graduated wards and capable of movement longitudinally through said keyholes, a stop arranged within the path of rotary movement of one of said wards to limit the rotary movement of said stock in one direction, and a locking device adapted to engage one of the other wards and prevent its rotation in an opposite direction, substantially as set forth.



2. The combination with an anchor-shank provided with a lock-casing having aligning keyholes and an internal stop, of a stock provided with graduated wards and capable of sliding through said keyholes, two of said wards being located on the outer side of said lock-casing and one within said lock-casing, which latter one is adapted to engage the stock within the said casing and thereby limit the rotation in one direction of the stock, and a crank-lever journaled in bearings and provided with a toe adapted to engage one of the outer wards and prevent rotation of said stock in an opposite direction, said lever with its free end engaging said shank, substantially as set forth.

697,150. SHINE-PURRING MACHINE. WILLIAM R. LANTZ, Gloucester, Mass. Filed Dec. 26, 1900. Serial No. 41,004. (No model.)



Claim.—1. A double speed shine-purring machine, comprising in its construction a suitable frame, a shaft mounted in said frame, independently-operable wheels or drums mounted on said shaft, each wheel or drum having a deep substantially U-shaped rope-gripping groove which tapers slightly outward from the bottom to the top thereof, clearers for removing the rope from the grooves, the construction and arrangement being such that when the ends of the pure-line attached to a shine have been entered into the grooves of the wheels or drums, and said wheels or drums rotated, the rope will be gripped and held firmly in the bottom of the grooves without any auxiliary gripping means until it is removed by the clearers, substantially as described.

2. A double speed shine-purring machine comprising a suitable frame, a two-part shaft mounted in said frame, wheels or drums mounted on the two parts of said shaft, each wheel or drum having a groove, a crank-handle on each shaft, the grooves being of such shape and construction as to grip the ends of the pure-line, and draw in the same without auxiliary gripping means, and clearers for automatically removing the rope from the grooves, the construction also being such that one wheel or drum may be operated independently of or simultaneously with the other, substantially as described.

697,151. SHINE-PURRING MACHINE. WILLIAM R. LANTZ, Gloucester, Mass. Filed Dec. 26, 1900. Serial No. 41,005. (No model.)

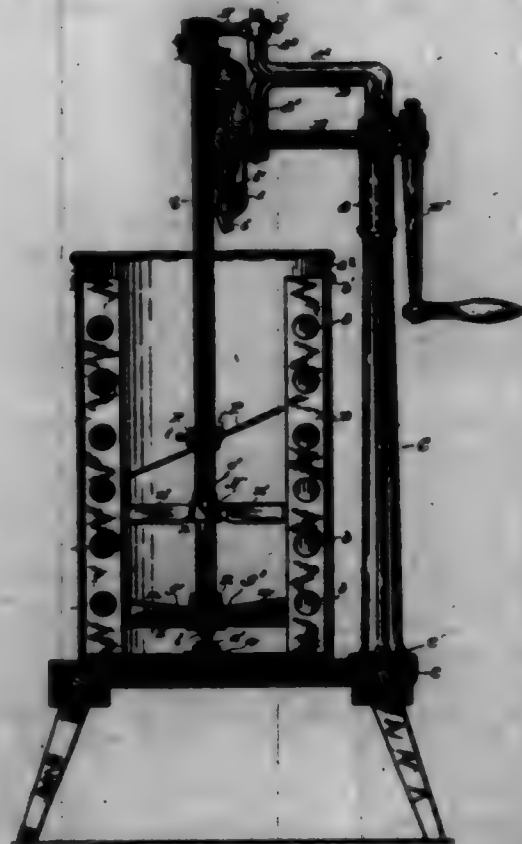
Claim.—1. A shine-purring mechanism comprising a boat, supports in said boat arranged at a distance from each other, a pure-line threaded through a shine, each end of the said line entering the boat, a pure-line-handling mechanism engaging each end of the pure-line and located upon each of the said supports so that they may be conveniently operated without interfering with each other, and means for drawing the pure-lines close together where they pass over the edge of the boat, the said lines separating again within the boat and passing to the pure-line-handling mechanisms, substantially as described.

2. A mechanism for handling and passing a shine, comprising a boat, seats secured in the boat at suitable distances from each other, a winding-drum on each seat, mechanism for operating the said drums, a pure-line threaded through the shine and having its ends brought over the side of the boat, one being secured to each of said winding-drums, and means for mounting the pure-lines at a proper distance from each other as they pass over the edge of the boat, the structure being such that two gangs of men can be used in passing the shine without interfering with each other, substantially as described.



3. A shine-purring mechanism, comprising a boat, seats in said boat, a line-handling mechanism mounted on each seat, comprising a drum, a shaft for turning the same, a ratchet for preventing a reverse movement of the drum, means for holding the pure-lines in engagement with the peripheries of the drums so that the said lines will not become tangled or disengaged from the drums, a pure-line threaded through the shine and having its ends projecting into the boat, one end being secured to one drum, the other end to the other drum, a block-supporting frame in the said boat, pulleys carried by the said frame for drawing the pure-lines comparatively close together as they pass over the said boat and then permitting them to separate again and pass to each of said drums, the structure being such that separate gangs of men can be employed for drawing in the end of the pure-lines, the said gangs working in unison when desired or alternately, according as one side or the other of the shine needs to be passed, substantially as described.

697,152. CHURN. FREDERICK W. LIPPOLD, Louisville, Ky., assignor, by mesne assignments, of one-half to T. J. Landrum, Louisville, Ky. Filed June 20, 1901. Serial No. 60,212. (No model.)

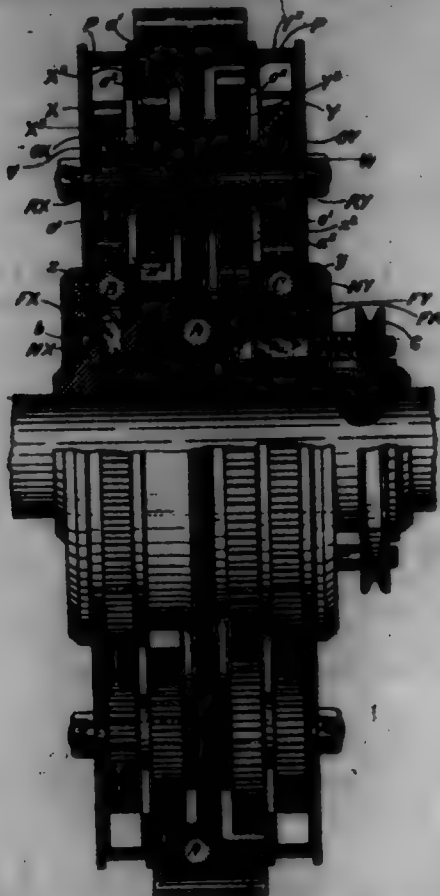


Claim.—1. In a churn, the combination with a dasher-rod, and means for rotating the same, of a disk having a central hub with a transversely-elongated opening therethrough, and set-screws for securing the disk to the dasher-rod, by which said disk is disposed at an angle with respect to the rod, substantially as shown and described.

2. In a churn, the combination with the usual and rotary dasher-rod located therein, of a standard having a reduced upper end, a frame supported by the standard and having a socket to receive said reduced end, bearings in the frame for the driving-shaft, a vertical member on said

frame having a reduced upper end, and a casting slidable upon the reduced end of said vertical member and secured thereto by a set-screw, said casting forming a bearing for the upper end of the dasher-rod, together with a large gear-wheel on the driving-shaft having two sets of teeth, a pinion slidable upon the dasher-rod and a set-screw for holding the pinion in an adjusted position, substantially as shown and described.

697,158. VARIABLE-SPEED GEAR FOR MOTOR VEHICLES, CYCLES, OR THE LIKE. JAMES R. MADAY, Salisbury, England. Original application filed July 14, 1900, Serial No. 22,612. Divided and this application filed Mar. 15, 1901. Serial No. 51,338. (No model.)

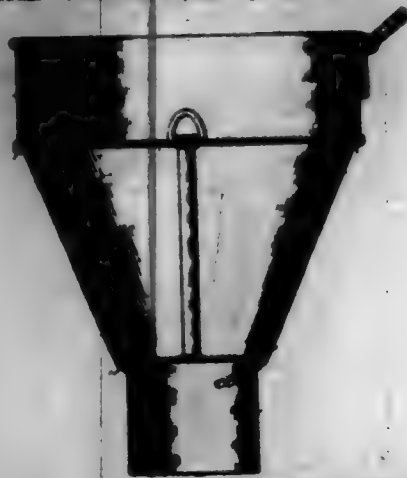


Claim.—1. The improved variable-speed and reversing gear comprising the combination with the axle of two toothed rings oppositely-acting one-direction clutch mechanisms, connecting said rings and axle, a gear-wheel disposed between the toothed rings one-direction clutch mechanism between said gear-wheel and axle, a set of independent double spur-wheels on one side of the gear-wheel gearing with the said toothed ring on that side and an internally-toothed rim on the gear-wheel and another set of independent double spur-wheels on the other side of the gear-wheel gearing with the toothed ring on that side and an externally-toothed rim on the gear-wheel and means for entirely disengaging the clutch between the main gear-wheel and the axle, all substantially as set forth.

2. The improved variable-speed gear comprising the combination with an axle of a gear-wheel, two collars fixed to the axle on either side of said gear-wheel, one-direction clutch mechanism between said gear-wheel and one of the collars, means for withdrawing the clutch between the collar and gear-wheel so as to allow the latter to run free in both directions, a toothed rim on one side of the gear-wheel and a toothed rim on the other side of the gear-wheel, two sets of double spur-wheels, one on each side of said gear-wheel, the inner halves gearing respectively with the said toothed rims thereon, toothed rings disposed upon the fixed collars at each side of the gear-wheel and gearing with the outer halves of the said double spur-wheels suitable one-direction clutch mechanism between each toothed ring and its collar, the clutch mechanism on one side driving in the opposite direction to that on the other, and means for holding and releasing the side plates which carry the double spur-wheels when it is required to vary the gear all substantially as and for the purposes set forth.

3. The improved variable-speed gear comprising the combination with shaft M, collars NX and NY, toothed rings B and C and gear-wheel A having toothed rims a' a' of double spur-wheels OX OY, axles RX RY respectively for said double spur-wheels, plates respectively X' X' and Y' Y', supporting said axles RX RY, intermediate plates X' X' and Y' Y' having apertures a', studs ry connecting plates X' X' and Y' Y' between the double spur-wheels, the band brake plates supported by said plates X' X' and Y' Y' and the brake-bands engaging said brake-band plates for locking and unlocking same, all substantially as set forth.

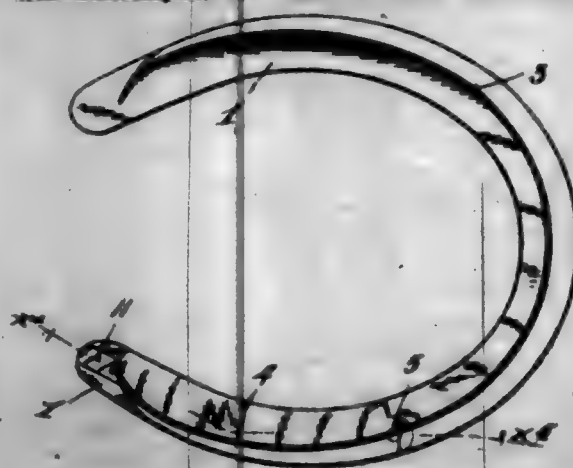
697,154. STRAINER. EDWARD L. MASON, Ipswich, Mass. Filed Jan. 22, 1900. Serial No. 90,757. (No model.)



Claim.—1. A strainer composed of a body having an inlet end and a connected neck portion, and a screen removably seated within said body and comprising an upper and a lower ring, each containing a piece of reticulated material and rods connecting the rings, said body having provisions for engaging the said upper and lower rings for sustaining the screen therein.

2. A strainer comprising a conically-shaped body portion flanged near its larger end and having a neck connected to its opposite end, a screen comprising a plurality of rings spaced apart, each ring being provided with a reticulated fabric, rods connecting said rings, the upper and lower rings adapted to be seated upon the flanged portion and connected neck respectively to sustain the screen in position within the conical body.

697,155. NAILLESS HORSESHOE. JAMES W. HONER, Barron, Wis. Filed May 11, 1901. Serial No. 59,770. (No model.)



Claim.—1. A horseshoe formed with a rigid body-section extending from end to end thereof, and provided with a segmental clamping-flange having a pivoted section, and a detent for locking said pivoted flanged section directly to the body of said shoe, substantially as described.

2. A horseshoe, provided on its upper face with a segmental clamping-flange having a pivoted section, and a spring pawl-and-ratchet device for locking said pivoted flanged section in its closed position, substantially as described.

3. A horseshoe, provided on its upper face with a clamping-flange having a pivoted section, ratchet-teeth at the free end of said pivoted flange-section, a cooperating spring-detent on said shoe, and a dovetailed connection between said shoe and the intermediate portion of said pivoted flange-section, substantially as described.

4. A horseshoe, having a rigid body portion extending from end to end thereof provided on its upper face with the clamping-flange 2 and the pivoted flange-section 4, which clamping-flange is provided with teeth or teeth 12, and means for securing said pivoted flanged section in its closed position, substantially as described.

5. The combination with a horseshoe, of the clamping-flange 2 rigidly secured to the upper face thereof, the pivoted clamping-section 4 pivoted thereto at 8, and provided with the ratchet-teeth 8 and dovetailed ribs 6, which seats 6 work in dovetailed grooves 7 of said shoe, and the spring-detent 11 on said shoe provided with teeth 10 for engagement with the said ratchet-teeth 8, substantially as described.

697,156. COMBINED LOCK AND LATCH. LEVIN E. BULLOCK, Trappe, Md. Filed Aug. 27, 1901. Serial No. 73,672. (No model.)

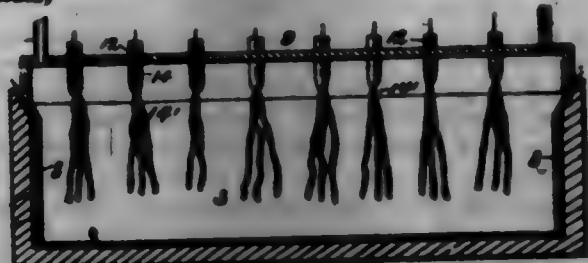
Claim.—1. A combined lock and latch, comprising a latch having

an open middle portion, means for retracting and projecting the latch, a rotary key-operated locking-disk underlying the middle opening portion of the latch and provided with a raised rib or projection adapted upon the rotation of said disk to rest against the forward end of said open portion of the latch and prevent its retraction, and said disk having notches at opposite points in its periphery, one wall of each notch being beveled or rounded and the other being abrupt to form a shoulder to prevent further rotation of the disk, a retaining-dog comprising a spring-pressed apertured plate provided with a toe or lug to snap into and be forced out of said peripheral notches by the inclined walls thereof upon the rotation of the locking-disk, substantially as set forth.



2. A combined lock and latch, consisting in the divided cylindrical casing having recesses in its inner walls near its forward end, keyholes in rear thereof, bearings at the inner sides of the casing intersected by said keyholes and bearings at its rear end, a latch mounted in said casing and having a middle open portion, a forward shank and a yoke at its rear end, a knob-spring above mounted in the rear bearings to retract the latch, a spring on the shank to project the latch, a locking-disk having hubs turning in the middle bearings, a keyhole extending through the disk and its hubs to register with the casing-keyholes, and peripheral notches in its periphery and on a line at right angles to its keyhole, one wall of each notch being rounded or beveled and the other abrupt to form a shoulder to prevent further rotation of the disk, and a retaining-dog for the disk, comprising an apertured plate mounted on the shank in rear of the spring with its side edges in the forward recesses of the casing and provided with a toe or lug to snap into and be forced out of the said notches by the beveled walls thereof upon the rotation of the disk; and also having upper and lower guide-arms engaging the upper and lower walls of the lock-casing; substantially as described.

697,157. ELECTROLYTIC APPARATUS. FRANK McDONALD, Rumford Falls, Me. Filed May 20, 1901. Serial No. 61,116. (No model.)



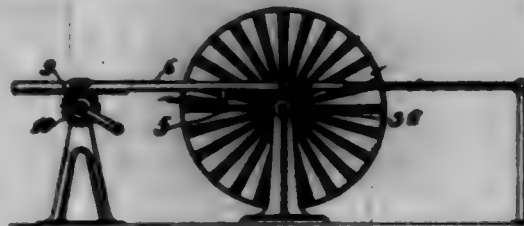
Claim.—1. In an electrolytic apparatus, the combination of a metallic tank, spaced perforated metallic plates electrically connected with the tank and subdividing the tank to form anode and cathode compartments, asbestos diaphragms lining said plates, a layer of acid-proof cement covering the inner surface of the bottom and end walls of the tank between the diaphragms, a cover hermetically sealing the anode compartment, a cover sealing the cathode-compartment, positive electrodes carried by the cover to the anode-compartment, and negative connections to the plate and the tank, substantially as described.

2. In an electrolytic apparatus, the combination of a tank, the end walls of which are provided with recesses in their upper edges, spaced perforated plates subdividing the tank to form anode and cathode compartments and having their upper edges outwardly curved to form seats cooperating with said recesses, asbestos diaphragms lining the perforated plates, a cover in the anode-compartment supported by said plates and fitting down in the seat formed by said outwardly-curved edges of the plates and the recessed end walls of the tank, a filling of cement hermetically sealing said seat around the cover, positive electrodes carried by said cover, negative connections to the plate and tank and a cover sealing the cathode-compartment, substantially as described.

3. In an electrolytic apparatus, the combination of a tank, spaced perforated plates subdividing the interior of the tank into anode and cathode compartments, the end walls of the tank being recessed and the upper edges of the plates outwardly curved to form a groove or seat, asbestos diaphragms lining the perforated plates, a cover closing the anode-compartment and resting upon said plates within said seat, sealing material inserted within the seat around the cover and hermetically closing

the joints between said cover and plates and the end walls of the tank, positive electrodes carried by said cover, negative connections to the plate and tank, a second cover closing the cathode-compartment, a layer of acid-proof cement lining the bottom and end walls of the tank and covering the space between the edges of the asbestos diaphragms, chlorine and hydrogen pipes connected, respectively, with the anode and cathode compartments, overflow-pipes connected with the cathode-compartment, a feed-pipe connected with the anode-compartment, a gage also connected with said compartment for indicating the level of the fluid therein, a valve in the feed-pipe, a vessel communicating with the anode-compartment and a float in said vessel and connected with said valve, substantially as described.

697,158. ELECTRIC-CIRCUIT-REGULATING DEVICE. GEORGE P. McFARLAND, St. Louis, Mo., assignor of forty-nine one-hundredths to Oscar R. Fleckman and Richard F. Spencer, St. Louis, Mo. Filed Oct. 22, 1901. Serial No. 60,178. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a constantly-rotating circuit-interrupter whose face is composed of insulation material and contact-making segments alternately arranged and formed tapering, said contact-making surfaces being connected to a source of supply, a brush cooperating with said segments for conducting off the derived current, means for adjusting the position of said brush with respect to said segments, whereby, the period of contact of the brush with the segments may be regulated, and yielding means for returning said brush to normal position out of contact with the live segments; substantially as described.

2. In an apparatus of the character described, the combination with a constantly-rotating circuit-interrupter in the form of a disk having tapered contact faces or segments, tapered insulation material between said contact-faces, a brush contacting with the side face of said disk, means for adjusting said brush toward and from the axis of rotation of said disk, and a spring for returning said brush to its normal position adjacent the center of said disk; substantially as described.

3. In an apparatus of the character described, the combination with a plurality of circuit-interrupting disks mounted on a common shaft and electrically connected therewith, each of said disks consisting of contact-strips and insulation between said contact-strips, brushes cooperating with said contact-strips, and means for adjusting said brushes toward and from the axis of rotation of said disks; substantially as described.

4. In an apparatus of the character described, the combination with a plurality of circuit-interrupting disks whose strips are electrically connected, of means for rotating said disks, brushes cooperating with said disks, and means for simultaneously adjusting said brushes toward and from the axis of rotation of their respective disks; substantially as described.

5. In an apparatus of the character described, the combination with a motor and its shaft, of a plurality of circuit-interrupting disks mounted on said shaft and rotating therewith, each disk having an insulation-ring in its center, and contact-strips radiating from said insulation-ring, sliding bars carrying brushes designed to contact with said radiating strips, and means for moving all of said bars simultaneously so that said brushes are adjusted toward and from the axis of rotation of the disks; substantially as described.

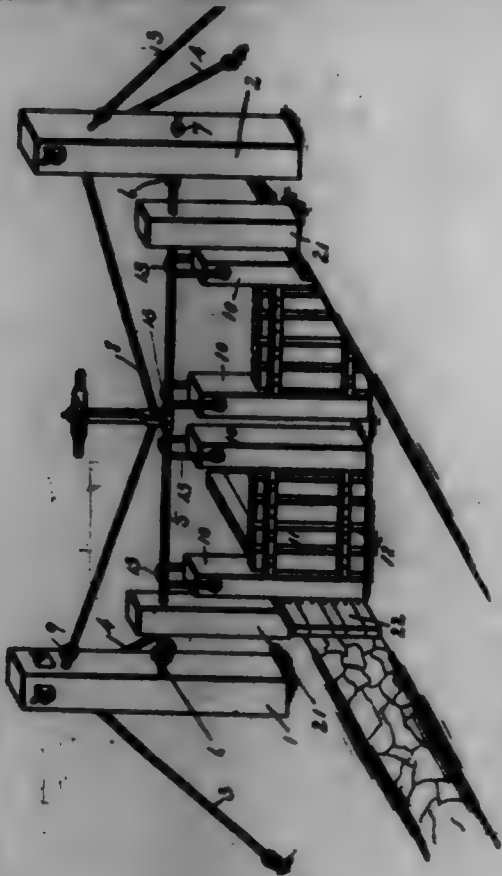
6. In an apparatus of the character described, the combination with an interrupting-disk containing an insulation-ring and conducting-strips, of a brush adapted to rest wholly upon said insulation-ring, means for moving said brush off of said insulation-ring and into contact with said strips, and a spring for returning said brush onto said insulation-ring; substantially as described.

7. In an apparatus of the character described, the combination with an interrupting-disk provided with a continuous contact-ring and a continuous insulation ring, oppositely-tapered contact and insulation strips between said continuous rings, a motor for rotating said disk, a brush, and means for moving said brush across the face of the disk from the insulation-ring in the continuous contact-ring and vice versa; substantially as described.

8. In an apparatus of the character described, the combination with a circuit-interrupter composed of a series of tapered contact-strips electrically connected together and with a source of supply, a continuous contact-ring adjacent to and connected with said strips, tapered insulation or

ranged between said contact-strips, a continuous insulation-ring adjacent said tapered strips of insulation, means constantly rotating said circuit-interrupter at a high speed, a brush designed to electrically contact with said tapered strips, and means for moving said brush over the face of said circuit-interrupter, whereby, the duration of contact between the brush and a conducting-strip may be controlled; substantially as described.

697,159. FLOOD-GATE. JOHN E. OULX, Windfall, Ind. Filed May 24, 1901. Serial No. 61,744. (No model.)



Claim.—1. The combination with cable-supporting posts, of a main cable secured thereto, an auxiliary cable connected to said supporting-posts, gates having supporting means suspended on the main cable, and means for twisting together the main and auxiliary cables at their middle portions, said means connecting said cables, as set forth.

2. The combination with the cable-supporting posts, of a main cable connected at its ends to said posts, an auxiliary cable also connected to said posts, gates suspended from the main cable, a tubular section through which the main cable passes, an extension on said tubular section through which the auxiliary cable passes, and a handle portion with stem and controlling-handle, said handle being adapted to be turned to twist together the cables, substantially as described.

697,160. WATER-COOLING TOWER. WILLIAM OETENDORFF, Union Hill, N. J. Filed Oct. 7, 1901. Serial No. 77,733. (No model.)



Claim.—The combination, with the supporting-framework of a water-cooling apparatus, of a plurality of spraying-pans arranged one above the other, and supported by said framework, each pan having its bottom provided on the under side with doubled portions forming inclined deflecting-flanges integral therewith, and also provided with perforations through said bottoms above the upper sides of said deflecting-flanges, and with wooden strips reinforcing the upper edges of said pans, and guard-nettings in the spaces between said pans and attached thereto by fastenings driven into said wooden reinforcing-strips, substantially as described.

697,161. CONTROLLING ELECTRIC LAMPS. EUSTACE OXLEY, Brooklyn, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 20, 1900. Serial No. 28,007. (No model.)



Claim.—1. An electric circuit containing a plurality of translating devices, and means controlled by current flowing through said translating devices for cutting out or in one or more of said translating devices independently of the others.

2. An electric circuit containing a plurality of translating devices, a switch controlling one or more of said devices independently of the rest, and means at a distant control-station for operating the switch by current feeding the translating devices.

3. An electric circuit containing a plurality of translating devices, a magnetically-operated switch controlling one or more of said devices independently of the rest and having its operating-coil in circuit with the translating devices, and means at a control-station to cut down current in the circuit to operate the switch.

4. A constant-current circuit, containing a plurality of translating devices connected in series relation, a switch for cutting in or out one or more of the devices independently of the rest, a switch-operating magnet in circuit with the translating devices, and means at a control-station for varying the current strength.

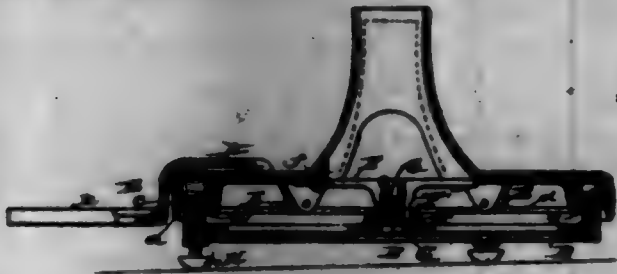
5. A constant-current circuit, containing a plurality of translating devices including one or more arc-lamps, a switch to cut in or out said lamps, a magnet in circuit controlling the switch, and means at a control-station for short-circuiting the generator.

6. A constant-current circuit, containing a plurality of translating devices including one or more arc-lamps, a magnetically-operated switch to cut in or out said lamps, and a switch at a control-station for making and breaking a short circuit for the generator.

697,162. WEIGHING-SCALE. ORANGE O. JENAS, Dayton, Ohio, assignor to Computing Scale Company, Dayton, Ohio, a Corporation of Ohio. Filed Nov. 11, 1907. Serial No. 604,167. (No model.)

Claim.—In an apparatus such as described, the combination with a subbase made in the form of a flat spider, vertically-adjustable feet arranged around the periphery of said spider and a peripheral track on its upper surface, of a scale-base having a flange extending down around

the periphery of said subbase, a series of antifriction-rollers arranged between the scale-base and a track on the subbase, a screw centrally connecting the subbase and scale-base and constituting a pivot about which the scale-base may travel and whereby the separation of the two is prevented, a series of notches on the subbase and a movable projection on the scale-base cooperating with said notches to hold said parts against accidental relative displacement.



697,163. ELECTRIC SWITCH. GEORGE E. FAIRBANKS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed May 31, 1901. Serial No. 68,561. (No model.)



Claim.—1. An electric switch, which comprises a spindle having a relatively small non-circular portion, combined with a contact-piece having a non-circular perforation and mounted over the relatively small portion of the spindle, the perforation in said contact-piece being smaller than the larger portions of the spindle on opposite sides of its small portion, whereby the contact-piece is held on the spindle, and said perforation in the contact-piece being larger than said smaller portion of the spindle, whereby the contact-piece can have lost motion with respect to the spindle; said non-circular portion of the spindle and non-circular perforation in the contact-piece cooperating to enable the contact-piece to be rotated by the spindle.

2. An electric switch, which comprises a spindle having a portion of relatively small size, combined with a contact-piece mounted over said relatively small portion and having a perforation which is larger than said small portion, so that the contact-piece can have lost motion with respect to the spindle; said spindle being adapted to rotate said contact-piece.

3. An electric switch, which comprises a spindle having a portion of relatively small size intermediate its ends, combined with a contact-piece mounted at each relatively small portion, said contact-piece having a perforation which is larger than said small portion of the spindle and smaller than the adjacent opposite larger portions of the spindle, so that the contact-piece is retained at the small portion of the spindle and prevented from longitudinal movement; said spindle being adapted to rotate said contact-piece.

4. An electric switch, which comprises a spindle having a portion of relatively small size, and projections extending therefrom beyond the larger portions of the spindle, combined with a contact-piece mounted on said small portion of the spindle, and having a perforation which is larger than the smaller portion of the spindle, said projections serving to rotate the contact-piece when the spindle is rotated.

5. The combination with the rotatable spindle of an electric switch, said spindle having a relatively small portion intermediate its ends, of a contact-piece having a perforation, said contact-piece being held upon the small portion of the spindle by the larger parts of the spindle on opposite sides of the smaller portion, said parts being constructed and arranged so that said contact-piece is rotated by the spindle.

6. The combination with the rotatable spindle of an electric switch, said spindle having a relatively small portion, of a sheet-metal contact-piece having a perforation and held on the small portion of said spindle by the larger opposite adjacent portions, said parts being constructed and arranged so that said contact-piece is rotated by the spindle.

7. The method of manufacturing an electric switch, which consists in operating upon the rotatable switch-spindle to form a portion thereof of reduced size; placing a perforated contact-piece over said reduced portion; and finally swaging the contact-piece, so that it is held with lost motion on the spindle at the reduced portion thereof.

8. The method of manufacturing an electric switch, which consists in operating upon the rotatable switch-spindle to form a portion of reduced size; producing by punching a sheet-metal contact-piece having a non-circular perforation which is larger than the reduced portion of the switch-spindle, and swaging the contact-piece upon the reduced portion of the spindle so that the parts will have a lost-motion connection.

9. The combination with the rotatable spindle of an electric switch,

said spindle having a relatively small portion, of a contact-piece having a perforation held on the small portion of said spindle by the larger opposite adjacent portions.

697,164. ABDOMINAL SUPPORT. ISAAC E. PALMER, Middle town, Conn. Filed Jan. 31, 1902. Serial No. 2,415. (No model.)



Claim.—An abdominal support comprising a band arranged to pass around the body of the wearer above the hips and to extend at the front to the lower portion of the abdomen, the said band consisting of two half-sections substantially inelastic, means for removably closing the two sections at their front ends, means for adjusting the two sections toward and away from one another at their rear ends, tension or pressure straps leading from the opposite sides of the front of the lower portion of the belt, upwardly and rearwardly toward the hip portions of the band, tension or pressure straps leading from the opposite sides of the front of the upper portion of the band rearwardly and means for taking up and letting out said straps to adjust the lower and upper portions of the belt independently of the main adjustment of the belt-sections at the back, substantially as set forth.

697,165. LINK FOR CHAINS. ALEXANDER PALMER, Fairmont, W. Va., assignor to the Wagner-Palmer Manufacturing Company, Fairmont, W. Va., a Corporation of West Virginia. Filed Apr. 27, 1901. Serial No. 57,997. (No model.)



Claim.—1. A link or connecting element for chains or other structures comprising two separable side bars and two end bars, each end bar being integral with one end of one side bar and interlocked detachably with the opposite side bar, and the interlocking ends of the side bars being each provided with a recess into which the free end of an end bar fits, and means for connecting said opposite side bars together.

2. A link or connecting element comprising separable side bars, end bars, each rigidly attached at one end to a side bar and of a length to be inserted partly into the opposite side bar, and thereby positively engage with it, and means separate from the end bars for securing the side bars to the free inserted ends of the end bars, substantially as set forth.

3. A link or connecting element formed of separable side bars and end bars, each end bar being rigidly attached at one end to one side bar and having interlocking detachable engagement with the opposite side bar, and means independent of the end bars for uniting the opposite side bars, substantially as set forth.

4. A link or connecting element comprising side bars, tubular end bars each integral with one end of one side bar and seated in a depression in the opposite side bar but not extending therethrough, and means for securing the parts together, passing through the side bars and the end bars.

5. A link comprising side bars perforated for the passage of connecting-pins, and having recesses E formed in their inner faces, tubular end bars each rigidly secured at one end to a side bar and of a length to extend to the opposite side bar and enter a recess E, whereby the free end of the end bar has an interlocking engagement with a side bar, and connecting-pins, for uniting the opposite side bars, substantially as set forth.

6. A link comprising recessed side bars and cylindrical end bars of uniform diameter from end to end, each end bar being rigidly secured to one of the side bars and of a length to extend to the opposite side bar and arranged to be seated in a recess therein, and means for connecting the opposite side bars, substantially as set forth.

7. A link element comprising a side bar and a hollow or tubular end bar integral with one end of the side bar, the side bar having at its opposite end a recess extending but part way through the side bar and arranged to receive the end bar of a corresponding element, substantially as set forth.

8. A link comprising duplicate elements, each formed of a side bar perforated at its opposite ends for the passage of connecting-pins and having its inner face recessed, as at E, near one end, and a tubular or hollow end bar integral with the side bar and projecting laterally from the side bar near the end opposite the said recess, the end bars being of a length to extend to the opposite side bars and enter the recesses E, and connecting-pins for uniting the side bars, substantially as set forth.

697,166. FLY-WHEEL FOR HARVESTERS. GEORGE L. PHELPS and JOHN G. MORRIS, Chicago, Ill., assignors to the Plano Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 23, 1901. Serial No. 78,194. (No model.)



Claim.—1. In a device of the class described, the combination with the fly-wheel, of the shaft upon which it is mounted to rotate, a differential friction member operatively interposed between said shaft and fly-wheel, and a single spring co-operating with said shaft, friction member and fly-wheel to hold them in the desired degree of frictional contact relative to each other; substantially as described.

2. In a device of the class described, the combination with the fly-wheel, and the shaft upon which it is mounted to rotate, of a differential friction member operatively interposed between said shaft and fly-wheel, a single spring co-operating with said shaft, friction member and fly-wheel, and means for adjusting the tension of said spring to obtain the desired degree of friction between said shaft and member, and between said member and fly-wheel; substantially as described.

3. In a device of the class described, the combination with the fly-wheel, of a shaft upon which it is mounted to rotate, a differential friction member operatively interposed between said shaft and fly-wheel, positive one-way clutch mechanism between said fly-wheel and friction member, and a single spring co-operating with said shaft, friction member and fly-wheel to hold them with the desired degree of frictional contact relative to each other; substantially as described.

4. In a device of the class described, the combination with the fly-wheel, of a shaft upon which it is mounted to rotate, a differential friction member operatively interposed between said shaft and fly-wheel, positive one-way clutch mechanism between said fly-wheel and friction member, a single spring co-operating with said shaft, friction member and fly-wheel, and means for adjusting the tension of said spring to obtain the desired

degree of friction between said shaft and friction member, and between said friction member and fly-wheel; substantially as described.

5. In a device of the class described, the combination with the fly-wheel, of a shaft upon which it is mounted to rotate, a differential friction member operatively interposed between said shaft and fly-wheel, and a single means for securing the desired degree of frictional contact between said shaft and friction member, and between said friction member and fly-wheel; substantially as described.

6. In a device of the class described, the combination with the fly-wheel, of a shaft upon which it is mounted to rotate, a differential friction member operatively interposed between said shaft and fly-wheel, positive one-way clutch mechanism between said fly-wheel and friction member, and a single means for securing the desired degree of frictional contact between said shaft and friction member, and between said friction member and fly-wheel; substantially as described.

7. In a device of the class described, the combination of the elongated bearing-sleeve, with the shaft mounted to rotate therein and having a friction-clutch surface thereon, means for rotating said shaft, a fly-wheel mounted to rotate relative to said shaft and having a friction-clutch surface thereon, a friction-clutch member interposed between said shaft and said fly-wheel and having two friction-clutch surfaces complementary to and co-operating with the friction-clutch surfaces on the shaft and wheel, and means for holding said surfaces with the desired degree of frictional contact; substantially as described.

8. In a device of the class described, the combination of the elongated bearing-sleeve, with the shaft mounted to rotate therein and having a friction-clutch surface thereon, means for rotating said shaft, a fly-wheel mounted to rotate relative to said shaft and having a friction-clutch surface thereon, a friction-clutch member interposed between said shaft and said fly-wheel and having two friction-clutch surfaces complementary to and co-operating with the friction-clutch surfaces on the shaft and wheel, and means for holding said surfaces with the desired degree of frictional contact, consisting of a spring interposed between said shaft and wheel; substantially as described.

9. In a device of the class described, the combination of the elongated bearing-sleeve, with the shaft mounted to rotate therein and having a friction-clutch surface thereon, means for rotating said shaft, a fly-wheel mounted to rotate relative to said shaft and having a friction-clutch surface thereon, a friction-clutch member interposed between said shaft and said fly-wheel and having two friction-clutch surfaces complementary to and co-operating with the friction-clutch surfaces on the shaft and wheel, a spring for holding said surfaces in contact, and means for adjusting the tension of said spring to obtain the desired degree of friction between said shaft and friction-clutch member, and between said friction-clutch member and fly-wheel; substantially as described.

10. In a device of the class described, the combination of the elongated bearing-sleeve, with the shaft mounted to rotate therein having a friction-clutch surface thereon, means for rotating said shaft, a fly-wheel mounted to rotate on said shaft and having a friction-clutch surface thereon, a friction-clutch member interposed between said shaft and said fly-wheel and having two friction-clutch surfaces complementary to and co-operating with the friction-clutch surfaces on the shaft and fly-wheel, positive one-way clutch mechanism between said fly-wheel and friction-clutch member, and means for holding said friction-clutch surfaces in contact; substantially as described.

11. In a device of the class described, the combination of the elongated bearing-sleeve, with the shaft mounted to rotate therein and having a friction-clutch surface thereon, means for rotating said shaft, a fly-wheel mounted to rotate on said shaft and having a friction-clutch surface thereon, a friction-clutch member interposed between said shaft and said fly-wheel and having two friction-clutch surfaces complementary to and co-operating with the friction-clutch surfaces on the shaft and wheel, positive one-way clutch mechanism between said fly-wheel and friction-clutch member, a spring for holding said friction-clutch surfaces in contact, and means for adjusting said spring to obtain the desired degree of frictional contact between said shaft and friction-clutch member, and between said friction-clutch member and fly-wheel; substantially as described.

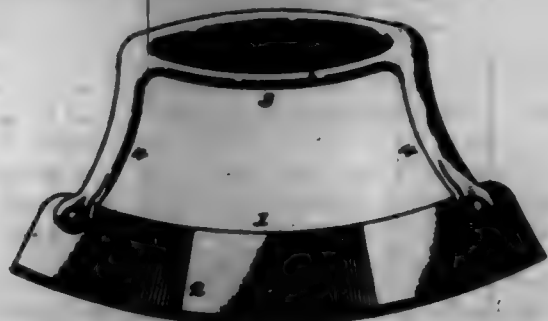
12. In a device of the class described, the combination with the cup-shaped disk 26 having the annular bearing-surface 30 on its inner periphery, of the annulus 31 having the bearing-surface 33 on its periphery co-operating with the bearing-surface 30 and the additional annular bearing-surface 36 thereon, the fly-wheel having the annular bearing-surface 38 thereon complementary to and co-operating with the bearing-surface 36, supports for said disk, annulus and fly-wheel, and means for holding them in frictional contact with each other; substantially as and for the purpose described.

13. In a device of the class described, the combination with the cup-shaped disk 26 having the annular bearing-surface 30 on its inner periphery, of the annulus 31 having the bearing-surface 33 on its periphery, co-operating with the bearing-surface 30, and the additional annular bear-

ing-surfaces 28 thereon, the fly-wheel having the annular bearing-surfaces 29 thereon complementary to and cooperating with the bearing-surfaces 28, supports for said disk, annulus and fly-wheel, and a spring for holding them in frictional contact; substantially as and for the purpose described.

14. In a device of the class described, the combination with the cup-shaped disk 28 having the annular bearing-surfaces 29 on its inner periphery, of the annulus 31 having the bearing-surfaces 28 on its periphery cooperating with the bearing-surfaces 29 and the additional annular bearing-surfaces 36 thereon, the fly-wheel having the annular bearing-surfaces 29 thereon complementary to and cooperating with the bearing-surfaces 36, supports for said disk, annulus and fly-wheel, a spring for holding them in frictional contact, and means for adjusting the tension of said spring to obtain the desired degree of friction between said disk and annulus, and between said annulus and fly-wheel; substantially as described.

697,167. CULINARY CHOPPING-KNIFE. ELWOOD C. PHILLIPS, Chicago, Ill., assignor of one-fourth to Oscar A. Schell, Chicago, Ill. Filed Aug. 23, 1900. Serial No. 51,345. (No model.)



Claim.—A culinary chopping-knife, comprising a handle, and a cutting-blade having a segmental shape and formed with vertically-extending corrugations that taper away from the cutting edge of the blade and have a radial arrangement with relation to a common center, substantially as set forth.

697,168. KNOB-ATTACHING DEVICE. GEORGE E. FEMER, New Britain, Conn., assignor to P. & F. Curtis, New Britain, Conn., a Corporation of Connecticut. Filed Dec. 17, 1901. Serial No. 38,211. (No model.)



Claim.—1. In a device of the character described, a knob-spindle, a knob and a set-screw, openings in said knob for said spindle and set-screw, an independent contact-piece between the inner end of the screw and the knob-spindle and frictionally fitting the opening adapted to receive the screw.

2. In a knob-attaching device in combination, a knob, a shank thereon, a spindle-passageway therein extending longitudinally thereof, a transverse opening therein said opening being screw-threaded, a scalp or contact-piece slightly smaller than the largest diameter of said transverse opening, and a screw cooperating with said contact-piece and carried in said transverse opening.

3. In a knob-attaching device in combination, a knob, a shank thereon, a spindle-passageway therein extending longitudinally thereof, a transverse opening in said shank extending into said spindle-passageway, a flexible scalp or contact-piece carried in said opening and of slightly-less diameter than the largest diameter of said transverse opening, and a screw cooperating with said contact-piece and fitted in said transverse opening.

4. In a knob-attaching device, a knob, a shank, a longitudinal spindle-passageway, an opening extending transversely of the spindle-passageway, a contact-piece within said opening of slightly-less diameter than the diameter of said opening, a screw cooperating with said contact-piece to advance or retract the same.

5. In a knob-attaching device in combination, a knob, a shank, a longitudinal passageway through to receive the knob-spindle, an opening in the side of said shank extending into said spindle-passageway, a set-screw adapted to fit said opening, a scalp or contact-piece at the inner end of said set-screw said scalp being of less diameter than the diameter of said screw, and cup-shaped, substantially as and for the purpose described.

697,169. VIBRATOR FOR WARP STOP-MOTIONS. ALBERT K. FRATE, Winsterville, Mass., assignor to The White Machine Works, Incorporated, of Winsterville, Mass. Filed May 21, 1901. Serial No. 61,319. (No model.)



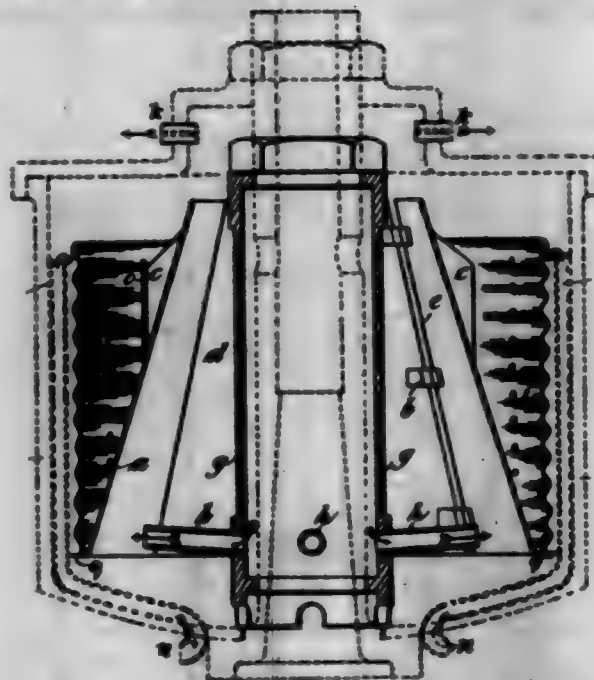
Claim.—1. A vibrator-blade for warp stop-motions for looms having teeth the vertical clamping edges of which are oblique to the plane of the blade, as described.

2. A guide-plate for warp stop-motions for looms, having two lines of teeth, the clamping edges of which are on a plane oblique to the guide-plate, as described.

3. In a vibrator feeder device for warp stop-motions for looms, a tooth having the clamping edge oblique to the plane of the teeth, as described.

4. In a warp stop-motion for looms, the combination with a guide-plate having two lines of teeth separated by a vibrator-blade having a line of teeth, the clamping edges of said teeth being oblique to the plane of the movement of the vibrator-blade, as described.

697,170. CENTRIFUGAL CREAMER. HERRARD RICE, London, England, and ARATULE BUNZ, Melsfeld, Germany. Filed Aug. 6, 1901. Serial No. 71,102. (No model.)



Claim.—1. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve provided with a series of areal plates having radial ribs connecting them at their upper ends with said sleeve, said plates also being inclined upwardly toward said sleeve and forming a divided liner having slots extending from base to top of the liner, and suitably connected together, substantially as set forth.

2. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve having a series of areal plates provided with radial ribs connecting them to said sleeve and inclined upwardly and toward said sleeve, and forming a divided liner having slots extending from the base to the top of the liner, said plates being connected upon opposite sides of said slots by short pieces, substantially as set forth.

3. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve having a series of areal plates inclined upwardly and toward said sleeve and having slots therebetween, also having radial ribs connecting the edges of said plates nearest the center of the bowl with the said central sleeve, forming a series of partially-closed cells, around said central sleeve, connected with the space outside of the liner-plates by said slots.

4. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve having a series of areal plates provided with radial ribs connecting them to said sleeve and inclined upwardly and toward said sleeve, said plates forming a divided liner with longitudinal slots between the edges of the plates, and radial wings attached to the exterior edges of said liner-plates, farthest from the center of the bowl.

5. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve having a series of horizontally-curved plates connected by radial ribs to said sleeve and inclined upwardly and horizontally toward said sleeve, said plates forming a divided liner with

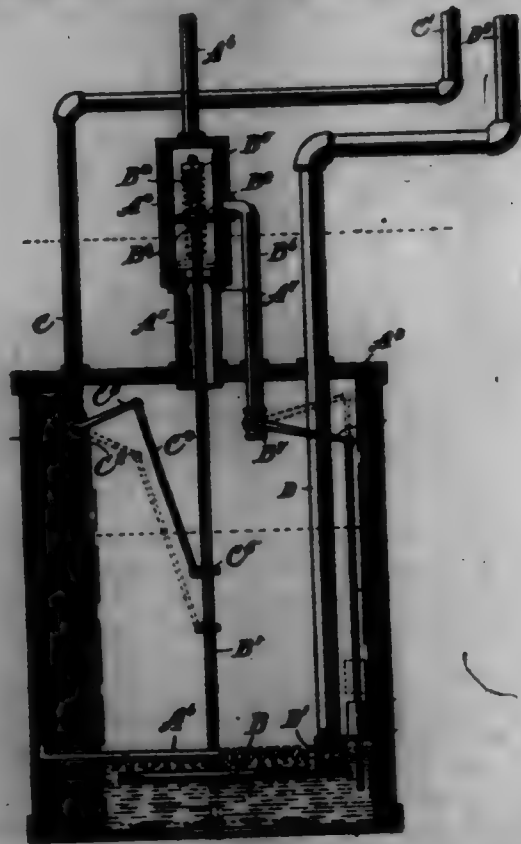
longitudinal slots between the edges of the plates, and radial wings attached to the exterior surface of said plates.

6. In a centrifugal separating-machine, the combination of a rotating bowl, a central feed-sleeve having a series of horizontally-curved plates connected by radial ribs to said sleeve and inclined upwardly and toward said sleeve, said plates forming a divided liner with longitudinal slots between the edges of the plates, and a perforated cylindrical cover inclosing said liner-plates, open at its upper end and mounted on the lower edges of the plates, and separate outlets for the cream and milk.

7. In a centrifugal separating-machine, the combination of a rotating bowl and a central feed-sleeve having a series of horizontally-curved plates connected by radial ribs to said sleeve and inclined upwardly and toward said sleeve, said plates forming a divided liner, radial wings attached thereto, a perforated cylindrical cover inclosing said liner and forming, with said wings, partially-closed cells, said plates having between them longitudinal slots connecting the cells on the interior with those on the exterior of said liner.

8. In a centrifugal separating-machine, the combination of a rotating bowl, a central feed-sleeve having a series of horizontally-curved plates connected by radial ribs to said sleeve and inclined upwardly and toward said sleeve, said plates forming a divided liner, with longitudinal slots between the edges of the plates, radial wings attached to said plates, a corrugated cylindrical cover inclosing said plates and having perforations in the depressions and ridges of the corrugations, outlets at the top of the bowl for the cream, and pipes having their inlet at the top of the bowl and their outlet at the bottom of the bowl for the outflow of the skimmed milk.

697,171. COMPRESSED-AIR WATER-ELEVATOR. JAMES R. RICHES, Kingston, Okla., assignor of one-half to George W. Wilson, Kingston, Okla. Filed Dec. 2, 1901. Serial No. 84,861. (No model.)



Claim.—1. The combination with a water vessel, of an air-pipe connected therewith, a liquid-discharge extending from the lower portion of the vessel, an escape-pipe extending from the upper portion of the vessel, an inlet-valve having a stem extending upwardly therefrom, and an escape-valve movable simultaneously with said inlet-valve and adapted to reciprocate upon said stem to close said escape-pipe before the seating of the inlet-valve; substantially as specified.

2. The combination with a water vessel, of an air-pipe connected therewith, a liquid-discharge extending from the lower portion of said vessel, an escape-pipe extending from the upper portion of said vessel, an inlet-valve having a stem extending upwardly therefrom, an escape-valve movably mounted upon said stem, a vent-pipe communicating with said escape-pipe above the escape-valve, and means for automatically opening and closing said vent-pipe; substantially as specified.

3. The combination with a water vessel, of an air-pipe connected therewith, a liquid-discharge extending from the lower portion of said vessel, an escape-pipe extending from the upper portion of said vessel, an inlet-valve having a stem extending upwardly therefrom, an escape-valve movably mounted upon said stem, a vent-pipe communicating with said

escape-pipe above the escape-valve, means for automatically opening and closing said vent-pipe, an inlet-cock for said air-pipe, and a connection between said cock and valve-stem for automatically operating the former; substantially as specified.

4. The combination with a water vessel, of an air-pipe communicating therewith, a liquid-discharge extending from the lower portion thereof, an air-escape valve in the upper portion, an inlet-valve adapted to automatically operate said escape-valve, and a vent adapted to permit the escape of air from the vessel before the opening of the inlet and escape valves; substantially as specified.

5. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, and an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve; substantially as specified.

6. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve, a stop-nut on said stem to limit the downward movement of said escape-valve, and an adjustable spring for retaining said escape-valve in yielding contact with said nut; substantially as specified.

7. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve, a stop-nut on said stem to limit the downward movement of said escape-valve, an adjustable spring for retaining said escape-valve in yielding contact with said nut, a stop-cock upon said air-pipe, and an operating-rod for said cock adjustably connected to said valve-stem; substantially as specified.

8. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve, a stop-nut on said stem to limit the downward movement of said escape-valve, an adjustable spring for retaining said escape-valve in yielding contact with said nut, a vent-cock upon said air-pipe, an operating-rod for said cock adjustably connected to said valve-stem, a vent-pipe extending from said valve-chamber into said vessel and provided with a stop-cock thereon, and a float for closing said vent-cock; substantially as specified.

9. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve, a stop-nut on said stem to limit the downward movement of said escape-valve, an adjustable spring for retaining said escape-valve in yielding contact with said nut, a stop-cock upon said air-pipe, an operating-rod for said cock adjustably connected to said valve-stem, a vent-pipe extending from said valve-chamber into said vessel and provided with a vent-cock thereon, a float for closing said vent-cock, and a connecting-neck between said vessel and valve-chamber having its upper end forming a valve-seat for the escape-valve; substantially as specified.

10. The combination with a water vessel, of an air-pipe communicating therewith, a discharge-pipe extending from the lower portion thereof, an escape-pipe communicating with the top of said vessel and provided with a valve-chamber therein, an inlet-valve at the lower portion of said vessel, a valve-stem extending upward from said valve, an escape-valve carried by said stem and adapted to seat before the seating of the inlet-valve, a stop-nut on said stem to limit the downward movement of said escape-valve, an adjustable spring for retaining said escape-valve in yielding contact with said nut, a stop-cock upon said air-pipe, an operating-rod for said cock adjustably connected to said valve-stem, a vent-pipe extending from said valve-chamber into said vessel and provided with a vent-cock thereon, a float for closing said vent-cock, a connecting-neck between said vessel and valve-chamber having its upper end forming a valve-seat for the escape-valve, a suitable guide within said neck for said valve-stem, a stop and guide within the vessel for the lower end of said valve-stem, and an automatically-operated valve for preventing the return of water from said discharge-pipe; substantially as specified.

697,172. HORSESHOE. JOHN RILEY, New York, N. Y. Filed Nov. 16, 1901. Serial No. 22,519. (No model.)



Claim.—1. A horseshoe, comprising a metal frame, having slots and holes therethrough; depending tapered pillars, riveted through the holes in the frame, and projecting above the upper face thereof; an elastic material completely surrounding the frame and engaging the depending and projecting portions of the pillars and binding the portions above and below the frame with integral binders passing through the slots.

2. In a horseshoe, the combination of a metal frame, having clips at the heel and toe, and a yielding material completely surrounding the frame and embodying a tread portion located between the clips.

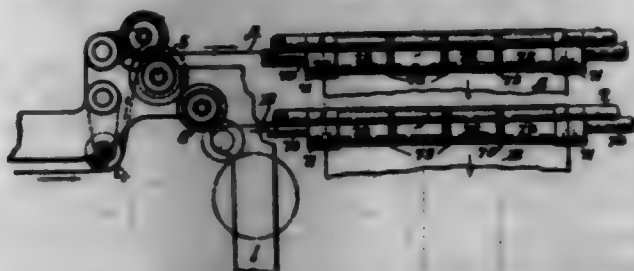
3. In a horseshoe, the combination of a metal frame, having at the toe a clip or calk depending therefrom, the front of which is in a plane substantially transverse to the plane of the frame; a toe-clip above said calk, having its front face in the same plane as the front of the calk; and rubber completely surrounding said frame and clips.

4. A horseshoe, comprising a metal portion having openings therethrough, tapered pillars attached by their small ends to the metal portion, an elastic material entirely surrounding said metal portion and pillars, bonds integral with and uniting the elastic material on the upper and lower sides of the metal portion, and passing through the openings in the metal portion.

5. A horseshoe, comprising a metal portion, having upwardly-projecting stays, an elastic material secured upon its upper portion and surrounding the stays.

6. A horseshoe, provided with a metal portion, having upwardly-projecting stays and slots; and a hoof-pad applied to such upper portion enveloping the stays and entering the slots.

697,173. WEB-GUIDE FOR PRINTING-MACHINES. OSCAR ROSSER, New York, N. Y., assignor to Robert Hoe, New York, N. Y. Filed June 1, 1901. Serial No. 62,730. (No model.)



Claim.—1. The combination with a web-guide having shoulders which underlie the margins of the web, of a guard loosely mounted thereon serving to hold the web away from the guide, substantially as described.

2. The combination with a web-guide having shoulders which underlie the margins of the web, of a disk loosely mounted thereon serving to hold the web away from the guide, substantially as described.

3. The combination with a web-guide having shoulders which underlie the margins of the web, of a serrated disk loosely mounted thereon serving to hold the web away from the guide, substantially as described.

4. The combination with a web-guide having shoulders which underlie the margins of the web, of a plurality of disks loosely mounted thereon, said disks serving to hold the web away from the guide, substantially as described.

5. The combination with a web-guide having shoulders which underlie the margins of the web, of a plurality of serrated disks loosely mounted thereon, said disks serving to hold the web away from the guide, substantially as described.

6. The combination with a roll forming a web-guide, of a guard loosely mounted thereon serving to hold the web away from the guide, substantially as described.

7. The combination with a roll forming a web-guide, of a plurality of disks loosely mounted thereon, said disks serving to hold the web away from the roll, substantially as described.

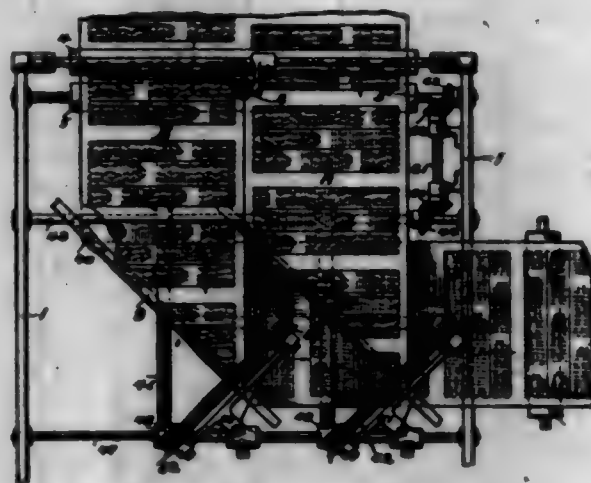
8. The combination with a roll forming a web-guide, of a plurality of serrated disks loosely mounted thereon, said disks serving to hold the web away from the roll, substantially as described.

9. The combination with a shouldered roll forming a web-guide, of a guard loosely mounted on the roll between the shoulders serving to hold the web away from the roll, substantially as described.

10. The combination with a shouldered roll forming a web-guide, of a plurality of disks loosely mounted thereon between the shoulders serving to hold the web away from the roll, substantially as described.

11. The combination with a shouldered roll forming a web-guide, of a plurality of serrated disks loosely mounted on the roll between the shoulders, said disks serving to hold the web away from the roll, substantially as described.

697,174. DEVICE FOR PREVENTING SMEARING. OSCAR ROSSER, New York, N. Y., assignor to Robert Hoe, New York, N. Y. Filed June 1, 1901. Serial No. 62,731. (No model.)



Claim.—1. The combination with a plurality of stationary web-guides, of a plurality of shields interposed between the web and the guides, and means for driving the shields, substantially as described.

2. The combination with a plurality of stationary web-guides arranged to change the direction of movement of the web, of a plurality of shields, one for each guide, interposed between the web and the guides, and means for driving the shields, substantially as described.

3. The combination with a plurality of stationary web-guides, of a plurality of endless shields, one for each guide interposed between the web and the guides, and means for driving the shields, substantially as described.

4. The combination with a plurality of stationary web-guides, arranged to change the direction of movement of the web, of a plurality of endless belts, one for each guide, interposed between the web and the guides, and means for driving the belts, substantially as described.

5. The combination with a stationary web-guide provided with means for preventing parts of the web from coming in contact with the guide, of a shield co-operating with said means, and means for driving the shield, substantially as described.

6. The combination with a stationary guide-bar having parts or ribs operating to prevent certain parts of the web or sheet from coming in contact with the body of the bar, of a shield interposed between said raised parts, and means for driving the shield, substantially as described.

7. The combination with a stationary guide-bar provided with raised parts or ribs operating to prevent certain parts of the web from coming in contact with the guide-bar, an endless belt passing around said guide-bar, and means for driving the belt, substantially as described.

8. The combination with a plurality of stationary guides, each guide being provided with raised parts operating to prevent certain parts of the web from coming in contact with the guide, of a plurality of belts, one for each guide interposed between the web and the guides, and means for driving the belts, substantially as described.

9. The combination with a turner-bar having spirally-arranged ribs operating to prevent certain parts of a passing web from coming into contact with the bar, of a belt interposed between the bar and the web, and means for driving the belt, substantially as described.

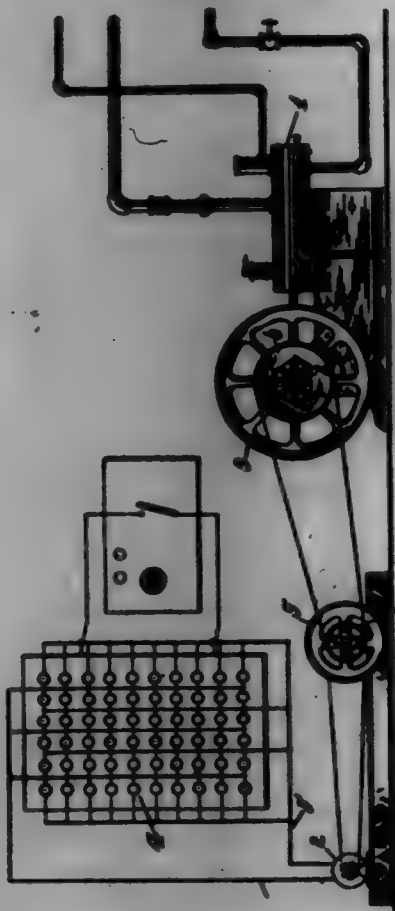
10. The combination with a plurality of turner-bars having spirally-

arranged ribs thereon, of a shield co-operating therewith, and means for driving the shield, substantially as described.

11. The combination with a plurality of turner-bars having spirally-arranged ribs thereon, of a shield comprising a plurality of belts, one for each bar, and means for driving the belts, substantially as described.

12. In a printing-machine, the combination with means for forwarding two webs, of a turner-bar, one for each web, said bars having spirally-arranged ribs thereon, a plurality of endless belts, one for each bar, a shaft around which the belts pass, means for driving the shaft, and suitably-arranged guides whereby one run of the belts is interposed between the turner-bars and the web passing thereover, substantially as described.

697,175. MECHANISM FOR UTILIZING THE POWER OF ENGINES OR MOTORS. HENRY W. SCHLOMANN, New York, N. Y.; Minnie Schloemann executrix of said Henry W. Schloemann, deceased. Filed July 26, 1901. Serial No. 68,703. (No model.)



Claim.—1. The combination of a main fly-wheel, its shaft and an auxiliary balance-wheel mounted on a shaft separate from the main fly-wheel shaft, but driven directly from it at a higher speed, substantially as and for the purpose set forth.

2. The combination of a main fly-wheel, its shaft and an auxiliary balance-wheel mounted on a shaft separate from the main fly-wheel shaft, between said fly-wheel shaft and its load, and driven directly from the driving-shaft but at a higher rate of speed, substantially as and for the purpose set forth.

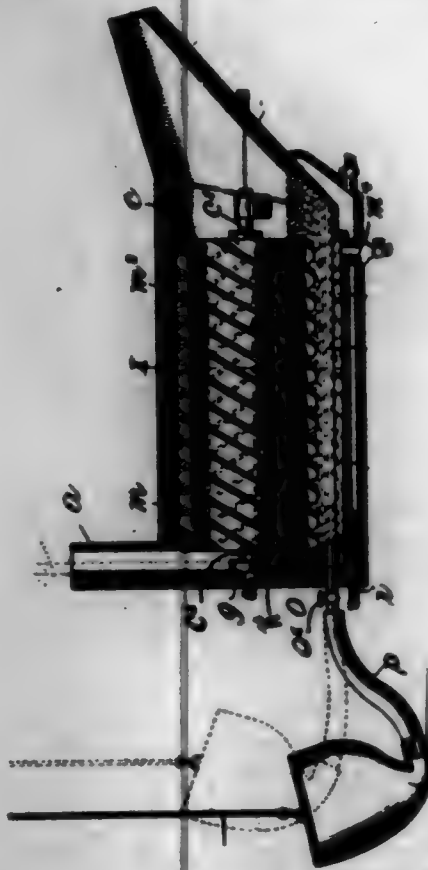
3. The combination substantially as hereinbefore set forth of a prime motor, its driving-shaft, a fly-wheel thereon, an auxiliary balance-wheel having a preponderance of weight in its periphery and mounted on an independent or separate shaft and means for driving said auxiliary balance-wheel at a rate of speed higher than that of the fly-wheel.

4. The combination substantially as hereinbefore set forth of a prime motor, its driving-shaft, a fly-wheel thereon, an independent or separate shaft, a motor or generator driven therefrom, an auxiliary balance-wheel mounted thereon, and means for driving the auxiliary balance-wheel at a rate of speed higher than that of the fly-wheel.

697,176. ANALAMATING-MACHINE. EDWARD C. SCOTT, Columbus, Ohio. Filed June 23, 1901. Serial No. 68,500. (No model.)

Claim.—In an amalgamating-machine, the combination with a casing having an inlet-opening at one end and outlet-opening at the other, of an amalgamating-body rotatably supported within said casing and adapted to run in a body of mercury contained within the casing, of a pipe-section leading outward from the body of mercury, a mercury reservoir or holder, means for raising said holder to a higher level than said pipe-section and lowering the same to a level below that of said pipe-section and

a flexible connection between said outlet-pipe and reservoir, substantially as specified.



697,177. ANALAMATING-MACHINE. EDWARD C. SCOTT, Columbus, Ohio. Filed Aug. 23, 1901. Serial No. 71,977. (No model.)



Claim.—In an amalgamator, the combination with a casing having inlet and outlet openings, said casing adapted to contain a body of mercury in the lower portion thereof and rotatably mounted independently-arranged ore-pulp conductors within said casing, said conductors being so arranged as to insure one of their ends being retained at a higher plane than the opposite end during their passage through the lower arc of their revolutionary cycle, and amalgamating material within said conductors, substantially as specified.

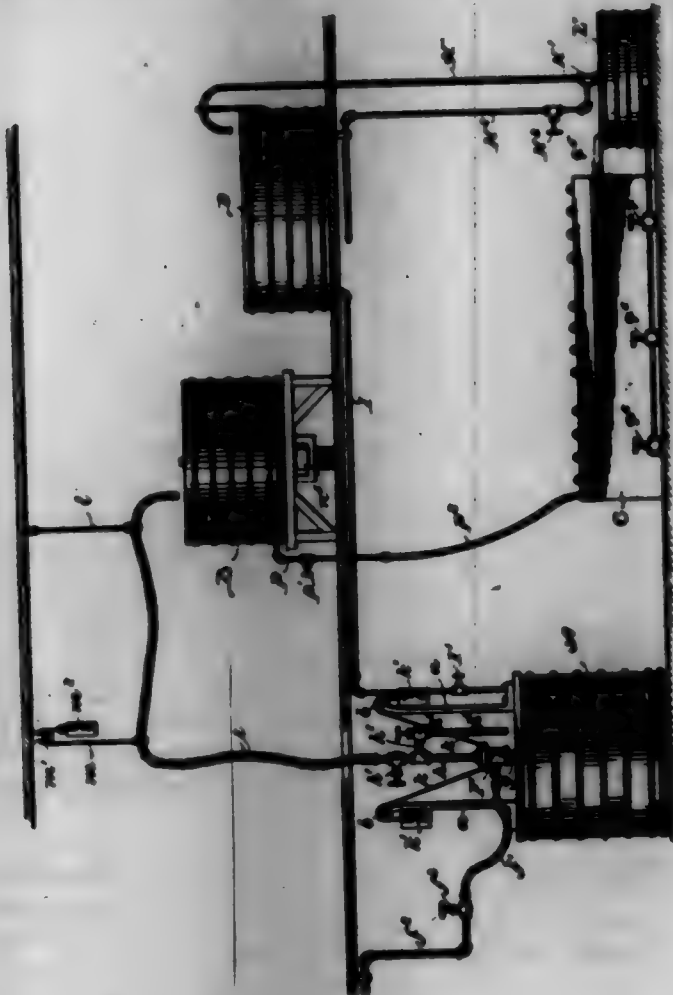
697,178. APPARATUS FOR THE TREATMENT OF ORES. ELM L. SHARPEN, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 67,468. (No model.)

Claim.—1. As a means for facilitating the dissolving of the values in ore, the combination of a leaching-tank, a conduit leading from and discharging directly into the tank, and means in the conduit connected with a heating-medium supply for agitating, circulating and heating the liquid contents of the tank.

2. As a means for facilitating the dissolving of the values in ore, the combination of a leaching-tank, a conduit leading from and discharging into the tank, and a jet-nozzle connected with a steam-supply and discharging directly into the conduit whereby the liquid contents of the tank is agitated, circulated and heated.

3. The combination with a leaching-tank of an agitating device for the liquid contents thereof comprising a conduit leading from and returning to the tank, a jet-pump interposed in said conduit for circulating said liquid contents through it and means for raising and lowering the jet-pump and conduit with relation to the said leaching-tank.

4. The combination with a leaching-tank and a filtering-tank of a valved conduit extending between said tanks, a valved branch pipe extending from said conduit below the valve therein back to the leaching-tank and a jet-pump interposed in said conduit between the said leaching-tank and branch pipe, whereby the liquid contents of the leaching-tank may be circulated through said conduit and branch pipe or transferred through said conduit to the said filtering-tank, substantially as described.



697,179. GOLF-CLUB. FRANK L. BLANCHARD, New York, N. Y.
Filed Oct. 3, 1901. Serial No. 71,107. (No model.)

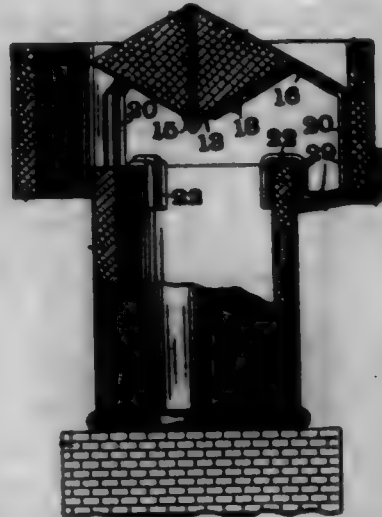


Claim.—A golf-club and the like comprising a handle portion, the cooperating member, and a reinforcing-shaft lying parallel with said handle portion with anchoring-terminals embedded in said handle portion and a thimble surrounding and snugly sleeved upon said handle portion and bearing against said reinforcing-shaft all substantially as and for the purpose specified.

697,180. VENTILATOR FOR CHIMNEYS. CHARLES D. SMITH,
St. Louis, Mo. Filed Apr. 15, 1901. Serial No. 66,831. (No model.)

Claim.—1. The combination with a cone, of a plurality of radial arms adjustably secured to said cone, brackets carried by said arms for engaging

ing with the top of a chimney, and brackets carried by said arms, and a sleeve removably supported by said brackets.

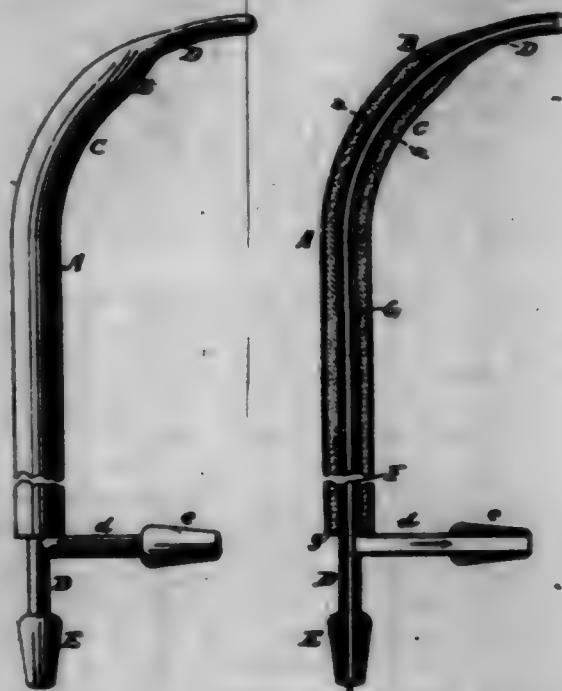


2. The combination with a cone, of a spider secured to said cone, a plurality of radially-adjustable arms attached to said spider, brackets carried by said arms for engaging with the top of a chimney, and brackets carried by said arms for supporting a sleeve.

3. The combination with a cone, of a spider secured to the under face thereof, a plurality of radial arms adjustably attached to said spider, downward extensions on said arms, outwardly-projecting brackets on said downward extensions for supporting a sleeve, and inwardly-projecting brackets also on said downward extensions for engaging with the top of a chimney.

4. In a chimney-ventilator, the combination with a plurality of arms, of a set of brackets carried by said arms for removably securing the same to the top of a chimney, a second set of brackets also carried by said arms, a sleeve removably supported by said second set of brackets, and a cone supported by said arms.

697,181. INSTRUMENT FOR COOLING OR FOR WARMING INTERNAL PORTIONS OF THE HUMAN BODY. ROY E. SMITH, Portland, Oreg., assignor of two-thirds to Lundy R. Smith and Caryl T. Smith, Portland, Oreg. Filed Aug. 26, 1901. Serial No. 73,705. (No model.)

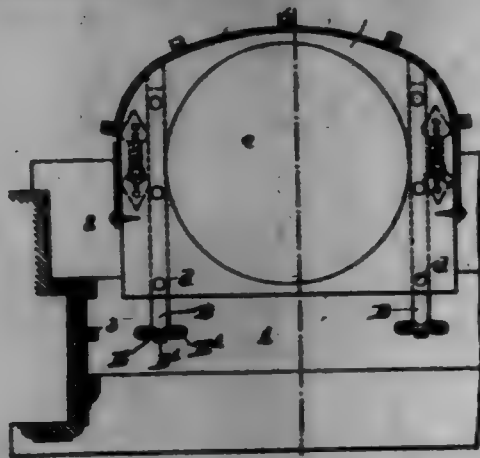


Claim.—1. An instrument of the character described, consisting of a tube D having its front end closed and its rear end provided with a lateral branch, a tube F concentrically within the tube D, a tube A concentric with the tubes D and F and having its front end conical and adapted to embrace the front portion of the tube D, and cement filling the interior of the tube A the whole length thereof, substantially as described.

2. An instrument of the character described consisting of a tube D having its front end closed and its rear end provided with a lateral branch, a tube F concentrically within the tube D, a tube A concentric with the tubes D and F and having its front end conical and adapted to embrace the front portion of the tube D, the three tubes being bent to one side and having a spider-brace within said bent portion, and cement filling

the interior of the tube A, the whole length thereof, substantially as described.

697,182. WINDOW-CHAIR. JOHN F. BRICKMETER, Chicago, Ill. Filed May 12, 1901. Serial No. 60,322. (No model.)



Claim.—1. A window-chair comprising a solid horizontal seat or platform, bars attached to the lower side of said seat and extending from front to rear thereof for the purpose of reinforcing said seat, the extremities of which bars extend forwardly beyond the seat and are adapted to be detachably connected with fixtures on the window-frame, brackets detachably secured to the under side of the seat, one at each side thereof, each of said brackets being provided with arms by which it is attached to said seat and with a part having a vertical screw-threaded opening, and a screw-threaded stud or jack extending upwardly into said opening and provided at its lower end with a head or flange which is adapted to be supported on the outside sill of the window-frame, said studs or jacks being located entirely below the seat and vertically adjustable in said brackets from below the seat.

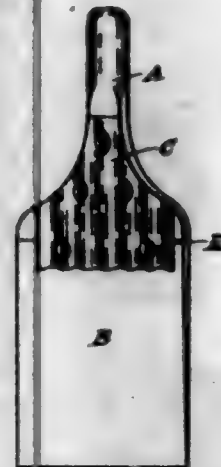
2. A window-chair comprising a solid horizontal single-piece seat or platform, bars attached to the lower side of said seat and extending from front to rear thereof for the purpose of reinforcing the seat, the extremities of which bars extend forwardly beyond the seat and are adapted to be detachably connected with fixtures on the window-frame, a rail rising from said seat, vertical standards extending between said rail and seat, said standards being curved outwardly at their lower ends, brackets detachably secured to the under side of the seat, one at each side thereof, each of said brackets being provided with arms by which it is attached to said seat and with a part having a vertical screw-threaded opening located a distance below the seat, and a screw-threaded stud or jack extending upwardly into said opening and provided at its lower end with a head or flange which is adapted to be supported on the outside sill of the window-frame, said studs or jacks being vertically adjustable in said brackets from below the seat and located entirely below the seat, and the screw-threaded portions of the brackets being located a sufficient distance from the seat to permit the ends of the screws to extend between the same and the seat in the adjustment of the screws.

3. A window-chair comprising a solid single-piece horizontal seat or platform, laterally-separated bars attached to the lower side of said seat and extending from front to rear thereof, said bars being contained in downward-opening grooves in said seat and the extremities of which bars extend forwardly beyond the seat and are adapted to be detachably connected with fixtures in the window-frame, brackets detachably secured to the under side of the seat, one at each side thereof, each of said brackets being provided with a vertical screw-threaded opening, a screw-threaded stud or jack extending upwardly into said opening and located entirely below the seat and adapted to bear at its lower end on the outside sill of the window-frame, said studs or jacks being vertically adjustable in said brackets from below the seat, and a rail rising from the seat and provided with standards which extend between the rail and the seat, the lower ends of said standards being curved outwardly.

697,183. SUGAR-PADDLE. GENELOUS STOUT, Panama, Cal. Filed Jan. 2, 1901. Serial No. 42,566. (No model.)

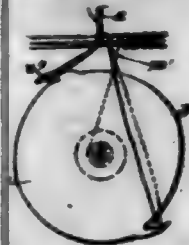
Claim.—1. A sugar-paddle comprising a handle, having fluted clamps secured thereon, the clamps extending beyond the handle and carrying in the extended portion thereof binding-screws to detachably secure therein a blade, a wooden blade adapted to be secured within said clamps, the said blade being wedge-shaped, large at the butt and tapering therefrom to an edge at the point of the blade, longitudinal openings therein extending from the butt in the direction of the point of the blade to permit the butt of the blade to be moved past the binding-screws into the clamps and against the handle.

2. A sugar-paddle, comprising a handle and wooden blade and means to secure the blade to the handle and to replace the blade with a new one when it becomes worn and broken, comprising corrugated clamps secured to the handle, having portions extending beyond the handle, binding-screws in said extended portions, the handle having a V-shaped socket for the reception of the butt of the blade, the blades being wedge-shaped and having at the butt-end a V-shaped projection adapted to fit into the socket in the handle.



3. A paddle for use in sugar-making, having a handle provided with means to secure thereto wooden blades and to detach therefrom said blades when they become worn and useless comprising the handle A, having V-shaped socket for the reception of the butt of the blade, the corrugated clamp C attached thereto, and having blade-engaging portions thereof, extending beyond the handle, the said extending portions carrying binding-screws for securing the blade therein, the binding-screws E in said clamps, the wedge-shaped wooden blade B having openings B' in the butt thereof to receive the binding-screws, the blade being V-shaped at the butt to fit in the V-shaped socket in the handle, substantially as shown and described.

697,184. LOOP-TAKING MECHANISM FOR SEWING-MACHINES. HENRY E. TRACY, New Brighton, N. Y., assignor, by mesne assignments, to Jeremiah Evans Tracy, Plainfield, N. J. Filed Dec. 11, 1900. Serial No. 374,367. (No model.)



Claim.—1. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided with hooks which one at a time seize the loops of needle-thread; said shuttle or the like being constructed for receiving a ball, spool or cap of thread, and being so mounted as to permit the passage of the loop of thread entirely around it; and a device whereby the shuttle is contained and revolved; the construction and arrangement being such that the thread passes between said revolving device and said shuttle, and one of said hooks takes up the loop previously opened out by another of said hooks.

2. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided with hooks which one at a time seize the loops of needle-thread; said shuttle being constructed for receiving a ball, spool or cap of thread; and a revolving shaft wherein the shuttle is carried; one of said hooks taking up the loop previously spread out by another of said hooks.

3. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided with opposite peripheral hooks which one at a time seize the loops of needle-thread; said shuttle being constructed for receiving a ball, spool or cap of thread, and being so mounted as to permit the passage of the loop of thread entirely around it; and a device whereby the shuttle is contained and revolved; the construction and arrangement being such that the thread passes between said revolving devices and said shuttle or the like, and one of said hooks takes up the loop previously spread out by another of said hooks.

4. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided with opposite peripheral hooks which one at a time seize the loops of needle-thread; said shuttle being constructed for receiving a ball, spool or

cup of thread; and a revolving shaft whereon said shuttle is carried; one of said hooks taking up the loop previously spread out by another of said hooks.

5. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided with a series of hook-shaped peripheral projections; and a shaft whereon said shuttle is carried and whereby it is revolved; said shuttle being so carried upon said shaft that the thread may pass entirely around the shuttle and between the shuttle and the shaft; and one of said projections taking up the thread-loop previously spread out by another of said projections.

6. In a sewing-machine having a reciprocating needle, the combination of a shuttle or the like arranged near thereto and provided upon opposite sides with hook-shaped peripheral projections; and a shaft whereon said shuttle is carried and whereby it is revolved; said shuttle being so carried upon said shaft that the thread may pass entirely around the shuttle; and one of said projections taking up the thread-loop previously spread out by another of said projections.

7. In a sewing-machine having a reciprocating needle, the combination of a sectional shuttle arranged near thereto and provided upon opposite sides with hook-shaped peripheral projections; and a two-part shaft whereon said shuttle is carried and whereby it is revolved; said shuttle being so carried between the parts of said shaft that the thread may pass entirely around the shuttle and between said parts of said shaft; and one of said projections taking up the thread-loop previously spread out by another of said projections.

8. In a sewing-machine having a reciprocating needle, the combination of a shuttle arranged near thereto and provided with hook-shaped projections; said shuttle being adapted to receive a spool, ball or cup of thread; and a revolving shaft whereon said shuttle is carried; said shuttle having diverging faces so as to spread out or open the loops of thread, which pass around said shuttle and between said shuttle and said shaft; one of said hooks approaching the needle when another thereof has fully drawn out a loop, and after seizing a bite of thread from the needle operating to take up said loop.

9. In a sewing-machine having a reciprocating needle, the combination of a shell arranged near thereto and provided upon opposite sides with hook-shaped projections; said shell being adapted to receive a spool, ball or cup of thread; and a revolving shaft whereon said shell is carried; said shell having diverging faces so as to spread out or open the loops of thread, which pass around said shell and between the same and said shaft; one of said hooks approaching the needle when another thereof has fully drawn out a loop, and after seizing a bite of thread from the needle operating to take up said loop.

10. In a sewing-machine having an ordinary needle, the combination of a carrier arranged near thereto and designed to receive a spool, ball or cup of thread, and provided with hook-shaped projections; and a driving-shaft connected with the carrier so as to support the same in such a manner as to impart motion thereto, and at the same time to permit the passage of thread between the shaft and the carrier, substantially as described; and one of said projections taking up the thread-loop previously spread out by another of said projections.

11. In a sewing-machine having an ordinary needle, a carrier arranged near thereto and designed to receive a spool, ball or cup of thread, and provided upon opposite sides with hook-shaped projections; and a driving-shaft connected with the shell so as to support the same in such a manner as to impart motion thereto, and at the same time to permit the passage of the thread between the shaft and the carrier, substantially as described; and one of said projections taking up the thread-loop previously spread out by another of said projections.

12. In a sewing-machine, the combination of a shuttle or the like mounted so as to permit the passage of a loop of thread entirely around it, and provided with hooks for engaging loops of needle-thread; and a revoluble device whereon said shuttle or the like is supported and whereby it is revolved; said hooks projecting beyond said revoluble device, and being so disposed that one hook takes up the thread drawn out by the preceding hook.

13. In a sewing-machine, the combination of a shuttle or the like mounted so as to permit the passage of a loop of thread entirely around it, and provided upon opposite sides with hooks for engaging loops of needle-thread; and a revoluble device whereon said shuttle or the like is supported and whereby it is revolved; said hooks projecting beyond said revoluble device, and being so disposed that one hook takes up the thread drawn out by the preceding hook.

14. In a sewing-machine, the combination of a shuttle or the like having a plurality of hooks, and means for supporting said shuttle in operative position and causing the same to rotate; said supporting and rotating means including a rotating shaft whereon said shuttle is carried; and said hooks being so disposed that one takes up the thread drawn out by another.

15. In a sewing-machine, the combination of a shuttle or the like

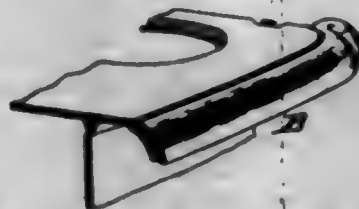
having a plurality of hooks, and means for supporting said shuttle in operative position and causing the same to rotate; said supporting and rotating means including a rotating shaft whereon said shuttle is carried; said hooks being so disposed that one takes up the thread drawn out by another; and said hooks projecting from the periphery of said shuttle on opposite sides thereof.

16. In a sewing-machine having a reciprocating needle, the combination of a looper arranged near thereto and provided with hooks which one at a time seize the loops of needle-thread; said looper being so mounted as to permit the passage of the loop of thread entirely around it; and a device whereby the looper is sustained and revolved; the construction and arrangement being such that the thread passes between said revolving device and said looper, and one of said hooks takes up the loop previously spread out by another of said hooks.

17. In a sewing-machine having a reciprocating needle, the combination of a looper arranged near thereto and provided with hooks which one at a time seize the loops of needle-thread; and a revolving shaft whereon the looper is carried; one of said hooks taking up the loop previously spread out by another of said hooks.

18. In a sewing-machine having a reciprocating needle, the combination of a looper arranged near thereto and provided with hook-shaped projections; and a revolving shaft whereon said looper is carried; said looper having diverging faces so as to spread out or open the loops of thread, which pass around said looper and between said looper and said shaft; one of said hooks approaching the needle when another thereof has fully drawn out a loop, and after seizing a bite of thread from the needle operating to take up said loop.

697,185. STOVE. ARTHUR W. WALKER, Malden, Mass. Filed Sept. 26, 1901. Serial No. 78,588. (No model.)



Claim.—1. A stove-plate having a flange, an ornamental rim loosely applied to the plate and overlying and covering said flange to present a finished edge to the plate, and means for detachably securing the ornamental rim over said flange with an air-space separating the flange and ornamental rim throughout.

2. A stove-plate having a flange, an ornamental rim loosely applied to the plate and overlying said flange to present a finished edge to the plate, means for readily attaching the said rim to and detaching it from the flange, and a stop for arresting the downward movement of the ornamental rim after the engagement of said means to maintain the rim out of contact with the flange and provide an air-space between the entire rim and flange.

3. A stove-plate having a flange and engaging holes, an ornamental or finishing rim having a rounded surface or contour to conform with and cover said flange and provided with rounded ends, said ornamental rim being provided near its opposite ends with engaging devices to engage the holes in the flange to removably secure the ornamental rim in place over the flange with a space or air-space separating the entire rim from the flange.

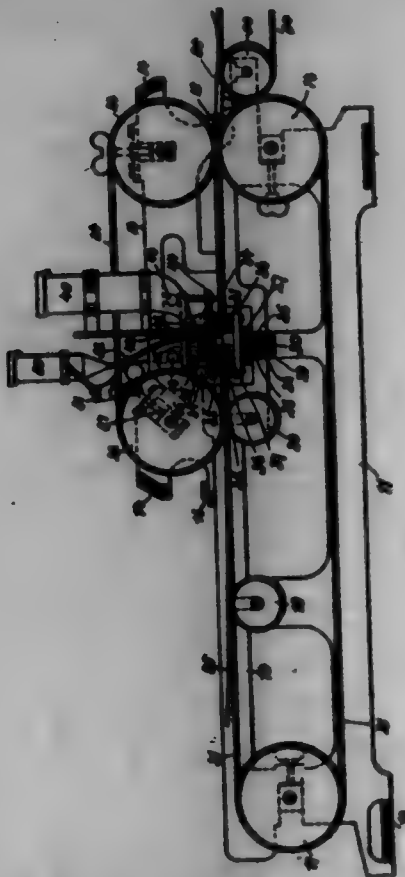
4. A stove-plate having a flange, a stop projecting from the flange, a finishing-rim loosely applied to the plate and overlying said flange to present a finished edge to the plate, means for detachably connecting the rim to the flange, said rim having a stop to engage the stop projecting from the flange to limit the downward movement of the rim and maintain the entire rim out of contact with the flange to provide a space or air-space between the entire rim and flange.

5. A stove-plate having a flange, a finishing-rim loosely applied to the plate to cover said flange, and means for detachably connecting the rim to the plate with the upper edge of the rim spaced from and lower than the plate edge so that crumbs or refuse brushed from the plate will pass readily over the rim.

6. A stove-plate having a flange and an ornamental rim loosely applied to the plate, and contained outside of the flange of the plate to leave an air-space extending between the entire flange and the inner side of the rim.

7. A stove-plate having a flange and an ornamental rim loosely applied to the plate to cover the flange, means for detachably supporting the rim over the flange with a space between them, the upper edge of the rim being below the upper surface of the plate.

697,186. MACHINE FOR BORDERING PAPER. EDWARD A. WATT, New York, N. Y. Filed Nov. 17, 1900. Serial No. 26,817. (No model.)



Claim.—1. A machine of the class described, comprising a main frame, drums mounted therein, an endless belt mounted on said drums, a roller positioned between said drums and over which said belt passes, two drums mounted above the main frame one of which is over said roller and the other over one of the drums in the main frame, two endless belts mounted on said last-named drums and separated by a narrow space, inking devices connected with the opposite sides of the main frame rearwardly of said roller and laterally adjustable and another inking device mounted at the rear of said roller and above the same, substantially as shown and described.

2. A machine of the class described, the frame of which is provided at its opposite sides with laterally-adjustable inking devices consisting of separate plates between the ends of which are placed inking-blocks, said blocks being provided adjacent to the main frame of the machine with beveled edges which communicate with inking-spaces between said blocks, substantially as shown and described.

3. A machine of the class described, the frame of which is provided at its opposite sides with laterally-adjustable inking devices consisting of separate plates between the ends of which are placed inking-blocks and blocks being provided adjacent to the main frame of the machine with beveled edges which communicate with inking-spaces between said blocks, and said machine being also provided midway between said first-named inking devices with another inking device, substantially as shown and described.

4. A machine of the class described comprising a main oblong frame, drums mounted in the opposite ends of said frame, a roller positioned between said drums, an endless belt mounted on said drums and passing over said roller, a supplemental frame positioned over the main frame and hinged thereto, two drums mounted in the supplemental frame one of which is over said roller, two endless belts mounted on said last-named drums, inking devices arranged at the opposite sides of the main frame and rearwardly of said roller and another inking device arranged centrally between the first-named inking devices and rearwardly of and above said roller, devices for supplying ink to said inking devices and means for operating said drums, substantially as shown and described.

5. A machine of the class described comprising a main oblong frame having drums mounted in the opposite ends thereof and a roller positioned between said drums, an endless belt mounted on said drums and passing over said roller, a supplemental frame arranged over the main frame and at one end thereof, drums mounted in the opposite ends of the supplemental frame, one of which is over said roller, two endless belts mounted on said last-named drums and separated by a narrow space, said supplemental frame being hinged to the rear end of the main frame, and devices for inking both sides of a sheet of paper at the edges thereof as it is passed through the machine and also for inking one side of the paper at the longitudinal center thereof, substantially as shown and described.

6. A machine of the class described comprising a main oblong frame, drums mounted therein, a roller positioned between said drums, an endless belt mounted on said drums and the upper reach of which passes over said roller, two other drums one of which is mounted over said roller and the other rearwardly thereof over one of the drums in the main frame, two separate belts mounted on said last-named drums and separated longitudinally of the center of the machine, and devices for inking both sides of a sheet of paper at the opposite edges thereof and for inking the longitudinal center thereof on one side, as said sheet of paper is fed between said roller and the drum thereover, substantially as shown and described.

7. A machine of the class described comprising a main frame, an endless belt mounted therein, a roller over which the upper reach of said belt passes, a supplemental frame connected with the main frame and provided with two drums one of which is positioned over said roller, two endless belts mounted on said last-named drums and separated longitudinally of the center of the machine and inking devices mounted rearwardly of said roller and the drum thereover, and adapted to ink both sides of a sheet of paper at the edges thereof, and also the longitudinal center thereof on one side as said sheet is fed between said drum and said roller, substantially as shown and described.

8. In a machine of the class described, an inking device consisting of a frame composed of top and bottom plates, and inking-blocks secured between one end of said plates the adjacent surfaces thereof being beveled at one side, said said blocks being provided in their adjacent surfaces with recesses, and means for feeding ink thereto, substantially as shown and described.

9. In a machine of the class described, an inking device comprising a frame consisting of top and bottom plates connected by screws passing therethrough and provided with springs which separate said plates and inking-blocks placed between said plates at one end, the adjacent sides of said blocks being beveled at one edge and the inner faces thereof being provided with recesses and means for feeding ink to said recesses, substantially as shown and described.

10. A machine of the class described, the frame of which is provided at its opposite sides with projecting supports, longitudinally-adjustable slides mounted on said supports, inking devices mounted on said slides, an inking device mounted centrally of the frame, ink-reservoirs for feeding ink to said inking devices, and means for feeding sheets of paper through and between said side inking devices and beneath the central inking device, substantially as shown and described.

11. A machine of the class described, comprising a main frame and a supplemental frame connected with the top thereof, rollers or drums mounted in the main frame and provided with adjustable collars, a belt mounted on said rollers or drums, rollers or drums mounted in the supplemental frame and provided with end and middle collars, two belts mounted on the rollers or drums in the supplemental frame, and inking devices supported in connection with the main and supplemental frames and adapted to border a sheet of paper as it is passed between the rollers or drums of the main and supplemental frames, substantially as shown and described.

12. A machine of the class described, provided with rollers or drums in the bottom portion thereof, a belt mounted thereon, other rollers or drums in the top thereof provided with two belts separated by a central space, all of said rollers or drums being provided with adjustable collars for holding the belts in proper position, and inking devices at the sides and top central portion of the machine for bordering a sheet of paper as it is passed between the belt on the bottom rollers and those in the upper portion of the machine, substantially as shown and described.

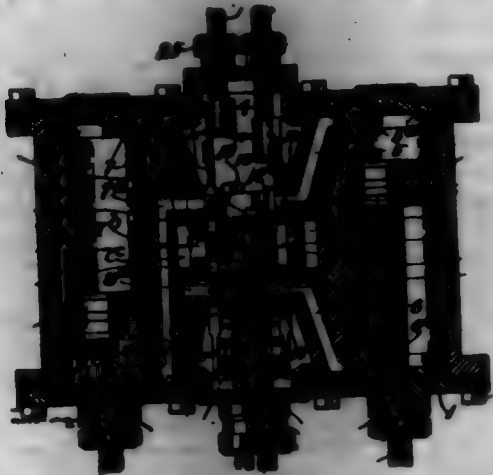
13. A machine of the class described, comprising a main frame provided at each of its opposite ends with a drum, a roller positioned between said drums, a supplemental frame connected with the main frame and provided with two drums, one of which is over said roller, laterally-adjustable inking devices mounted at the opposite sides of the main frame at the rear of said roller, and a central inking device mounted in the supplemental frame and at the rear of said roller and at the rear of the drum in the supplemental frame over said roller, and belts mounted on the drum in the main frame and on the drums in the supplemental frame.

697,187. STEAM-ENGINE. PERLIN B. WHITNEY, Walpole, Mass. Assignor of one-half to J. Edward Plimpton, Norwood, Mass. Filed June 27, 1900. Serial No. 21,799. (No model.)

Claim.—1. A steam-engine having a cylinder provided with two sets of steam-passages, a valve for each set of passages, a pair of slides intermediate the said valves and said passages, and means for operating said valves and said slides to close either set of said passages, for the purposes and substantially as described.

2. In a steam-engine, in combination, a cylinder having two sets of steam-passages, two valves, one co-operating with one set of passages, and the other co-operating with the other set of passages, a pair of movable

slides located between said valves and said passages for closing one set of passages and opening the other set when in one position, and for reversing the condition of the passages when in another position, and means for operating the said valves alternately, substantially as described.

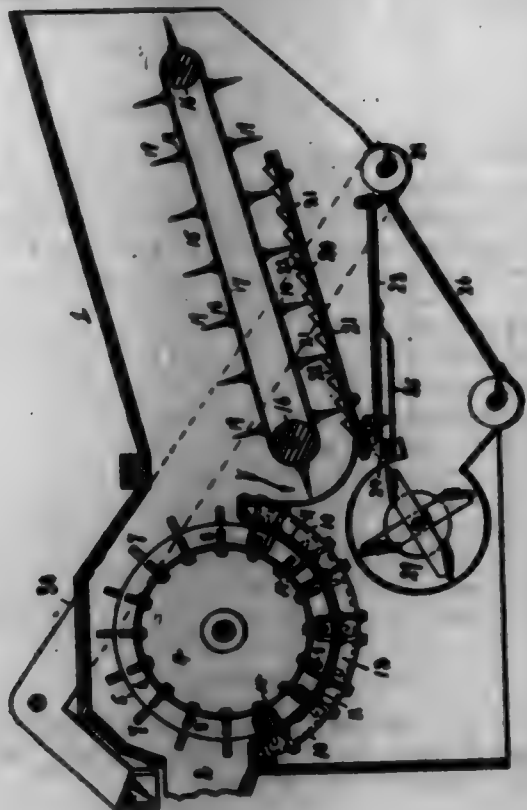


3. In a steam-engine, in combination, two cylinders, each having two sets of steam-passages, with one set of passages of one cylinder crossed as described, two valves, one for controlling one set of passages of one cylinder and the other for controlling one set of passages of the other cylinder, and both connected to move in unison, two other valves, one for controlling the other set of passages of the first cylinder and the other for controlling the other set of passages of the second cylinder, and both connected to move in unison, and two pairs of slides, one pair located between the valves and passages of one cylinder and the other pair located between the valves and passages of the other cylinder, for the purposes and substantially as described.

4. In a steam-engine, in combination, a cylinder provided with two sets of steam-passages, a valve for each set of passages, a pair of slides intermediate the said valves and said passages, substantially as set forth, a throttle, and means connected with said throttle and said slides by which the action of the engine and the steam-supply to the latter are controlled and varied simultaneously.

5. In a steam-engine, in combination, the two cylinders and the steam-chest, the said cylinders having each the two pairs of steam-passages opening into the steam-chest, the slides located at the opposite walls of the said steam-chest, means to move the said slides to control the flow of steam through the respective pairs of passages of each steam-cylinder whereby the said pairs are placed in and out of service alternately with each other, the valves working against the inner sides of the said slides and loosely connected in pairs, and means for actuating said pairs of valves alternately, substantially as described.

697,188. PEA THRESHING AND SEPARATOR. SAMUEL H. WILLIAMS, Birmingham, Tenn. Filed May 12, 1901. Serial No. 69,962. (No model.)



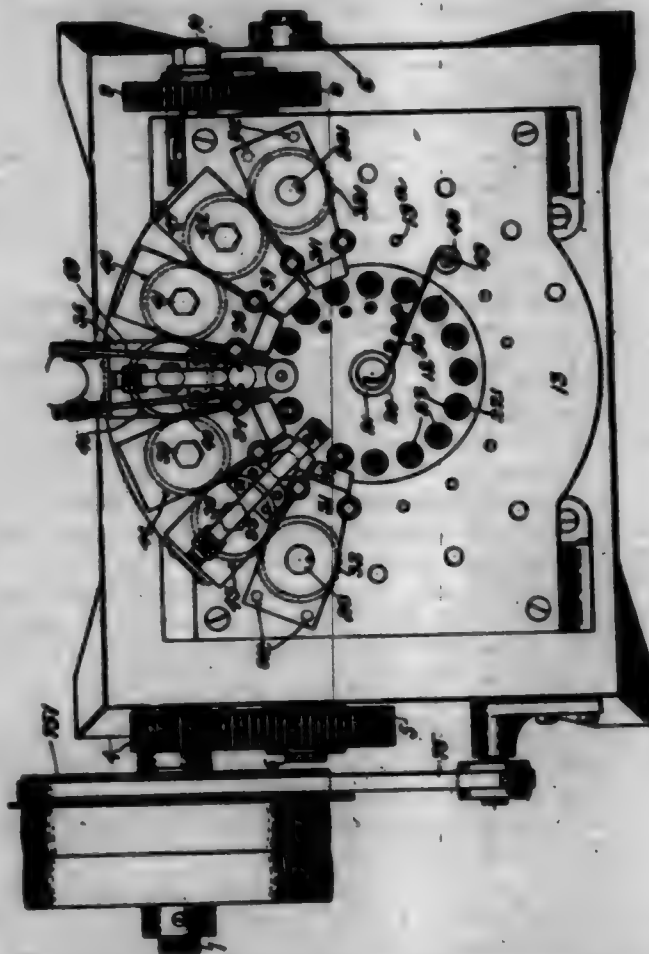
Claim.—1. A pea-threshing runner and concave, each comprising a stripping and a hulling division of unequal diameter, joined by closely-approaching shoulders isolating the two working surfaces, and means substantially as described, whereby a portion of the product discharged from the one may be delivered to the other.

2. A pea-threshing runner and concave each comprising a stripping and a hulling division of unequal diameter, joined by closely-approaching shoulders, isolating the two working surfaces, the teeth in the hulling division being more closely spaced than those in the stripping division, in combination with means to separate the pods from the hain discharged from the stripping division, and means to return the pods to the hulling division, substantially as described.

3. A pea-threshing runner and concave, each comprising a stripping and a hulling division, of unequal diameter, joined by closely-approaching shoulders isolating the two working surfaces, in combination with means to separate the pods from the hain discharged from the stripping division, and means to return the pods to the hulling division, substantially as described.

4. A pea-threshing runner and concave, each comprising a stripping and a hulling division, of unequal diameter, joined by closely-approaching shoulders isolating the two working surfaces, the teeth on said stripping division having narrow front edges and rearwardly-diverging sides, in combination with means to separate the pods from the hain discharged from the stripping division, and means to return the pods to the hulling division, substantially as described.

697,189. MACHINE FOR MAKING BUTTONS OR OTHER ARTICLES. WILLIAM B. ALDEN, Springfield, Mass. Filed June 27, 1901. Serial No. 69,922. (No model.)



Claim.—1. In a machine of the character described, in combination a rotary work-support adapted to hold a number of blanks to be operated upon; a group of stationarily-supported tools disposed about the periphery of the work-support; a cam cooperating with teeth fast to the work-support and adapted to move the work-support a step during part of the revolution of the cam and to lock the work-support during the balance of the revolution of the cam; means for driving the cam; and means connecting said tools and cam for throwing the tools into and out of action while the work-support is locked by the cam.

2. In a machine of the character described, in combination, a rotary work-support adapted to hold a number of blanks to be operated upon; a group of stationarily-supported tools disposed about the periphery of the work-support; a cam cooperating with teeth fast to the work-support and adapted to move the work-support a step during part of the revolution of the cam, and to lock the work-support during the balance of the revolution of the cam; means for driving the cam; a train of intermesh-

ing gears; means for driving the train of gears; and means operatively connecting each tool with one of the gears.

3. In a machine of the character described, in combination, a rotary work-support adapted to hold a number of blanks to be operated upon; a group of stationarily-supported tools disposed about the periphery of the work-support; a cam adapted to move the work-support a step during part of its revolution and to lock the work-support during the balance of the revolution of the cam; means for driving the cam; and teeth fastened to the work-support with provision for adjustment so that each tooth may be adjusted independently of the others to position the work-support relatively to the tools for each step movement of said support.

4. In a machine of the character described, a rotary work-support having tangential pockets in the periphery thereof, and adjustable teeth fitting into said pockets, adapted to be engaged by the cam-actuating means.

5. In a machine of the character described, a rotary work-support; means for imparting an intermittent motion to the work-support; and a brake for holding the work-support stationary between movements, in opposition to which brake the work-support is moved intermittently by its actuating means.

6. In a machine of the character described, in combination, a work-support; means for imparting an intermittent movement to the work-support; a multiplicity of tools; and means, including a train of gears, for throwing the tools into and out of action while the work-support is at rest; means for applying power to the train of gears; and means connecting each tool with one of the gears.

7. In a machine of the character described, in combination, an oil-chamber surrounding the periphery of the work-support; the work-support; a cam for actuating the work-support, and an oil-chamber surrounding said cam.

8. In a machine of the character described, in combination, a rotary work-support; means for imparting an intermittent movement to the work-support; a group of stationarily-supported tools disposed about the periphery of the work-support and means for throwing the tools of the group into action successively during each dwell of the work-support.

9. In a machine of the character described, the tool-operating device consisting of a tool-carrier sliding in perpendicular ways in a frame; a cam; a slide actuated by the cam; and means connecting the slide and tool-carrier, whereby the tool-carrier is perpendicularly reciprocated by the revolution of the cam.

10. In a machine of the character described, the tool-operating device consisting of the tool-carrier sliding in perpendicular ways in the frame; a cam; a slide actuated by said cam; means connecting the slide and tool-carrier to cause the tool-carrier to be perpendicularly reciprocated by the revolution of the cam; and means to rotate the tool as it is reciprocated.

11. In a machine of the character described, a spring finger 70; slide 77 on which said finger is mounted; cam 78 for operating said slide, chuck 23 having a groove 80, and means to actuate the cam; all combined and operating substantially as described.

12. In a machine of the character described, the tool-operating device, consisting of the tool-carrier sliding in horizontal ways in a frame; a cam-pin fast to the carrier; a cam to actuate the pin and carrier and fast to a spur-gear; and the spur-gear.

13. In a machine of the character described, a friction device consisting of an interiorly-tapered hub 16; an exteriorly-tapered split bushing 17 fitting within that hub; a stud 21 fast to the rotary work-support and within the bushing 17; means to force and retain the bushing within the hub; all organized and operating to cause the split bushing to grip the stud with a constant grip as desired.

14. In a machine of the character described, a bed-plate; a rotary work-support sliding near its periphery upon that bed-plate; teeth fast to the rotary work-support; a cam supported by the bed-plate and engaging the teeth to actuate the rotary work-support; and tool-operating devices fast to the bed-plate.

15. In a machine of the character described, the tool-operating device, consisting of a frame; a cam within that frame; a rocker-arm pivoted upon that frame; a sliding member, sliding in ways in the frame engaging the cam and connected with the rocker-arm; a second sliding member, sliding in ways in the frame and having a tool-carrying projection extending beyond the frame; a link connecting this projection and the rocker-arm; all organized so that the motion of the rocker-arm is translated into reciprocation of the sliding member, and so that the power is applied directly above the projection and the tool.

16. In a machine of the character described, a rotary work-support; means for imparting an intermittent movement to the work-support; and a multiplicity of interchangeable self-contained tool-operating mechanisms, each transmitting power to its neighbor, arranged about the rotary work-support.

17. In a machine of the character described, in combination, a rotary work-support; a pocket in the upper face of said support; a hollow work-holder in the pocket; an opening through the bottom of said pocket; and a hollow screw in said opening for holding the work-holder in the pocket.

18. In a machine of the character described, in combination with a work-support-carrying chuck 23 having a groove 80, of the finger 76 for discharging the work from chuck 23; and means for operating finger 76 to cause it to enter groove 80 under the work and to discharge the latter from the chuck.

19. In a machine of the character described; a rotary work-support; means for imparting an intermittent movement to the work-support; a train of tool-operating gears; a number of interchangeable frames by which said gears are carried; tools on some of these frames; and means operatively connecting those tools with their respective gears.

20. In a machine of the character described, a rotary work-support; means for imparting an intermittent movement to the work-support; and a multiplicity of interchangeable self-contained tool holding and operating mechanisms arranged about the rotary work-support.

697,190. LINK FOR CHAINS. THOMAS G. AULMAN, Fairmont, W. Va., assignor to the Wagner-Palmers Manufacturing Company, Fairmont, W. Va., a Corporation of West Virginia. Filed May 11, 1901. Serial No. 59,726. (No model.)



Claim.—1. A connecting link or element for chains and other structures comprising separable side bars, one side bar having two end bars integral therewith, and the other side bar having interlocking engagement detachably with the ends of the said end bars, and means independent of the end bars for connecting said side bars together.

2. A connecting link or element for chains and other structures comprising a side bar formed with two integral inwardly-projecting end bars, each end bar having a transverse aperture and an opposing side bar having sockets or cavities in its inner surface to detachably engage positively with the ends of the said end bars, and having apertures respectively registering with the apertures in the end bars, and pins passing through the said end bars and separable side bars, substantially as set forth.

3. A chain for transmitting power and other purposes, comprising links or elements each made up of a longitudinal or side bar having two tubular transverse bars integral with the ends thereof, and a longitudinal or side bar recessed to form seats for the transverse bars and pins passing through the sides and transverse bars and making a rigid structure thereof, and intermediate links connecting the links first named.

697,191. COMBINED HAND SEED-DRILL AND CULTIVATOR. HENRY K. BACON and HIRSH A. BACON, Fenton, Mich. Filed May 13 1901. Serial No. 59,911. (No model.)

Claim.—1. In a seed-drill, the combination of a hopper, a passage leading from said hopper, and a slide adapted to reciprocate in said hopper at one side of the opening to said passage, said slide being provided with a notch adjacent to said opening.



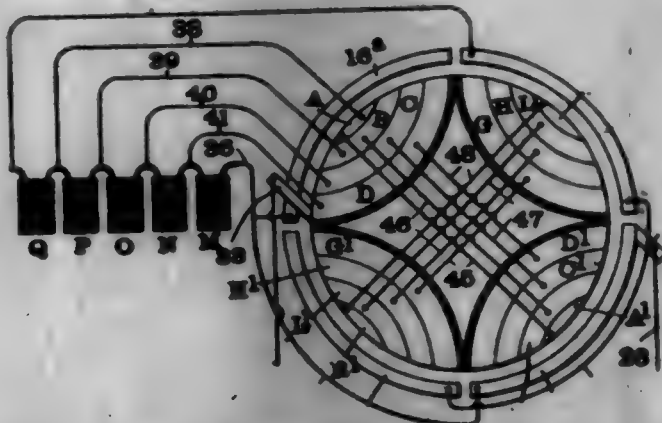
2. In a seed-drill, the combination of a hopper, a seed-passage leading from said hopper, a slide adapted to reciprocate in said hopper at one side of the opening to said passage, said slide being provided adjacent to said opening with a notch having outwardly-diverging walls.

3. In a seed-drill, the combination of a hopper, a seed-passage leading from said hopper, a slide adapted to reciprocate in said hopper at one side of the opening to said passage, said slide being provided with a notch adjacent to said opening, and a seed-agitator engaging with said slide and adapted to be actuated by the movement thereof.

4. In a seed-drill, the combination of a hopper, a seed-passage leading from said hopper, a slide adapted to reciprocate in said hopper at one side of the opening to said passage, said slide being provided with a notch adjacent to said opening, and a seed-agitator engaging in said notch.

5. In a seed-drill, the combination of a hopper, a horizontal seed-passage leading from said hopper, a slide adapted to reciprocate in said hopper at one side of the opening to said passage, said slide being provided with a notch adjacent to said opening, and a longitudinally-adjustable bottom to said passage.

697,192. METHOD OF CHARGING ACCUMULATORS. ROYAL E. BALL, New York, N. Y. Filed July 1, 1901. Serial No. 61,948. (No model.)



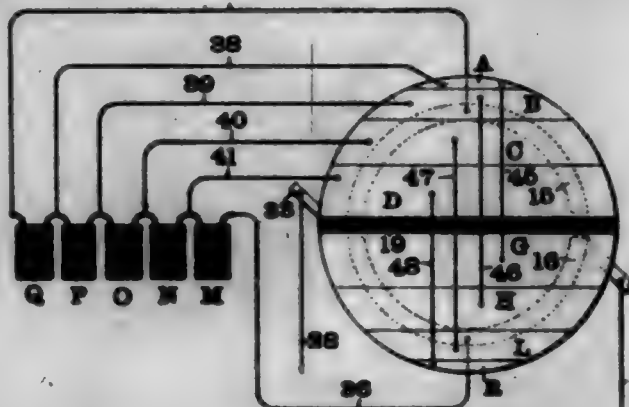
Claim.—1. The method of charging an accumulator composed of a plurality of units, which consists in passing through said accumulator a current the electromotive force of which rises and falls in a series of waves, varying the number of said units in circuit by cutting said units into and out of circuit in a predetermined order during the rise and fall of one of said waves, and then varying the number of said units in circuit by cutting said units into and out of circuit in an order reverse to said first-named order during the rise and fall of a succeeding wave.

2. The method of charging an accumulator composed of a plurality of units, which consists in passing through said accumulator a current the electromotive force of which rises and falls in a series of waves, varying the number of said units in circuit by cutting said units into and out of circuit in a predetermined order during the rise and fall of one of said waves, interrupting the flow of said current through said accumulator during the time when its electromotive force is less than the electromotive force of one of said units, and then varying the number of said units in circuit by cutting said units into and out of circuit in an order reverse to said first-named order during the rise and fall of the succeeding wave.

697,198. MEANS FOR CHARGING ACCUMULATORS. ROYAL E. BALL, New York, N. Y. Filed July 1, 1901. Serial No. 62,641. (No model.)

Claim.—1. An accumulator composed of a plurality of units, an electric circuit connected therewith, means for varying the number of said units in circuit by cutting said units into and out of circuit in a predetermined order, and means for varying the number of said units in circuit by cutting said units into and out of circuit in an order reverse to said first-named order.

2. An accumulator composed of a plurality of units connected in series, an electric circuit connected therewith, means for varying the number of units in said series connection in circuit by cutting said units into and out of circuit in a predetermined order, and means for varying the number of said units in circuit by cutting said units into and out of circuit in an order reverse to said first-named order.



3. An accumulator composed of a plurality of units connected in series, an electric circuit connected therewith, means for varying the number of units in circuit by cutting said units into and out of circuit in a predetermined order, means for automatically breaking said circuit, and means for varying the number of said units in circuit by cutting said units into and out of circuit in an order reverse to said first-named order.

4. An accumulator composed of a plurality of units, a circuit for passing through said accumulator a current of fluctuating electromotive force, automatic means for increasing the number of said units in circuit during the rise in electromotive force of said current and decreasing the number of said units in circuit during the fall in electromotive force in said current, and automatic means for interrupting said current in said circuit when its electromotive force falls below the electromotive force of one of said units.

5. An accumulator composed of a plurality of units, a circuit for passing through said accumulator a current the electromotive force of which rises and falls in a series of waves, means for progressively increasing and decreasing the number of units in circuit in a predetermined order during the rise and fall of one of said waves, and means for progressively increasing and decreasing the number of units in circuit in an order reverse to said first-named order during the rise and fall of the succeeding wave.

6. An accumulator composed of a plurality of units, an electric circuit connected therewith, a reversing-commutator in said circuit, a commutator for increasing and decreasing the number of units in said circuit, brushes bearing upon said commutators and connected with said circuit, and means for producing rotation between said brushes and commutators in synchronism with the fluctuations in electromotive force of the current flowing in said circuit.

7. An accumulator composed of a plurality of units, an electric circuit connected therewith, a reversing-commutator in said circuit, a commutator for varying the number of units in said circuit, a brush connected to one side of said circuit and adapted to bear upon said first-named commutator, a brush connected to the other side of said circuit and adapted to bear on said last-named commutator, and means for producing rotation between said commutators and brushes in synchronism with the fluctuations in electromotive force of the current flowing in said circuit.

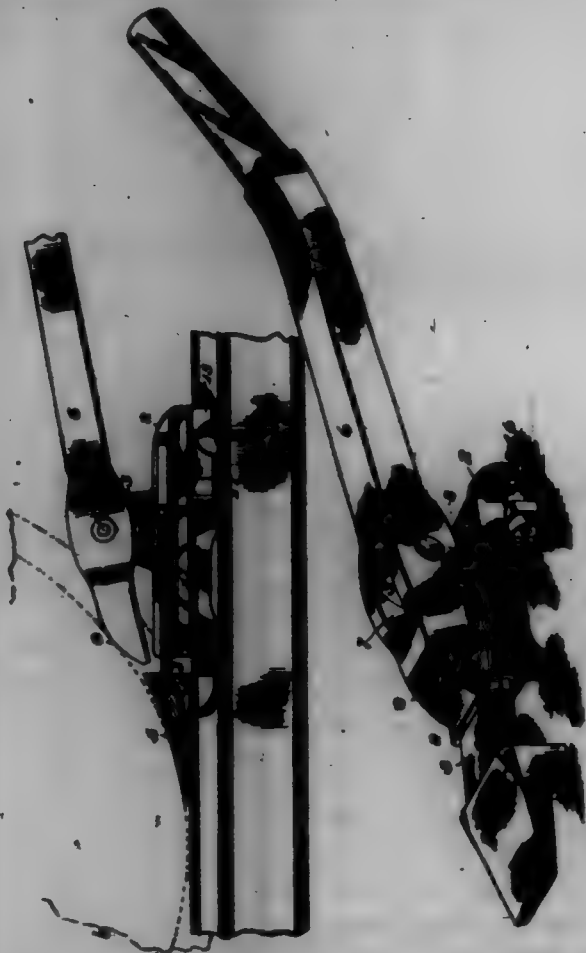
8. An accumulator composed of a plurality of units connected in series, a reversing-commutator, connections leading from the segments of said reversing-commutator to the end elements of said series-connected units, a second commutator, connections leading from the segments of said second commutator to the intermediate points in said series connection, brushes bearing on said commutators, and means for producing rotation between said commutators and brushes.

9. An accumulator composed of a plurality of units connected in series, a reversing-commutator, connections leading from the segments of said reversing-commutator to the end elements of said series-connected units, a second commutator, connections leading from the segments of said second commutator to the intermediate points in said series connection, brushes bearing on said commutators, and means for producing rotation between said commutators and brushes.

697,194. CAR-PUSHER. EDWARD C. BUTER AND FRANK RADFORD, Dayton, Ohio. Filed Dec. 12, 1901. Serial No. 65,004. (No model.)

Claim.—1. In a car-pusher, the combination of a base adapted to rest upon a rail and provided with flanges on either side for engaging the sides of the rail, upwardly and inwardly extending flanges arranged along a portion of the upper edges of the base opposite each other and forming guideways, an inclined slidable cheek provided with a relatively long, rearwardly-extending plate of substantially the same width as the cheek

and base, said plate fitting and moving in said guideways, a spring interposed between the rear end of the plate and said base for causing the check to follow the wheel, and a lever mounted on the base for moving forward the wheel of a car, substantially as described.



2. In a car-pusher, the combination of a base provided centrally with an upwardly-extending inclined leg, an operating-lever having its head portion apertured to the rear of its nose, the leg on the base extending through said apertured portion of the lever and connected to such lever by a pivot, an inclined toe having a relatively long rearwardly-extending flat plate adapted to be slidably mounted on said base, inwardly-turned flanges on the top of said base, a rearwardly-extending bolt carried by said plate, a spring coiled about said bolt and interposed between the rear end of the plate and the leg, the rearward movement of the plate being thus limited.

3. A car-pusher comprising in its construction a base, recessed or notched flanges extending downwardly from the longitudinal edges thereof, a pair of legs extending laterally from each of said flanges and spaced apart, and a knife extending transversely of said base, having its edge cut away to snugly fit the contour of the upper edge of a rail, and each end of said knife being secured between one of the pairs of said laterally-extending legs, substantially as described.

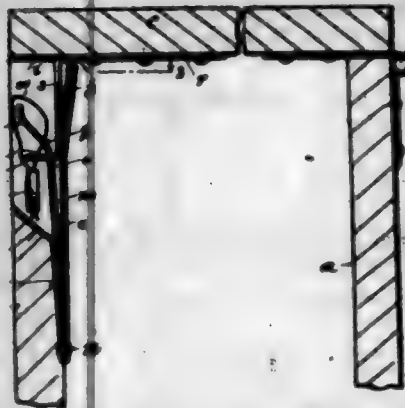
4. A car-pusher, comprising in its construction a base, an operating-lever carried thereby, and a transversely-arranged knife secured in the under face of said base and designed to engage a rail for preventing sliding of the base, the under edge of said knife being cut away to fit the contour of the upper edge of the rail, and also being beveled rearwardly for forming a biting edge of its rear longitudinal corner, substantially as described.

5. A car-pusher, comprising a base adapted to fit upon a car-rail, a laterally-extending leg extending upwardly from said base, a lever provided with an opening at a point to the rear of its nose for fitting upon said leg and pivoted upon and holding the same in position, the lever being thus pivoted comparatively far from the wheel which it is to engage, a nose formed on the lever which is rounded at its point on its upper side so that when the handle end of the lever is depressed, the said nose will so clip upon the surface of the wheel that it will tend to push the wheel forward on the track, instead of lifting it therefrom, substantially as described.

697,195. BOX-FASTENER. ARTHUR C. BRIDGEMAN and WALTER A. ANGER, Milwaukee, Wis. Filed Jan. 27, 1902. Serial No. 91,323. (No Model.)

Claim.—1. The combination with a box, provided with a cover and having an opening in its front wall, of a closing-plate rigidly secured to the inner surface of said front wall and wholly covering said opening; a spring-tongue secured between the front of the closing-plate and the back

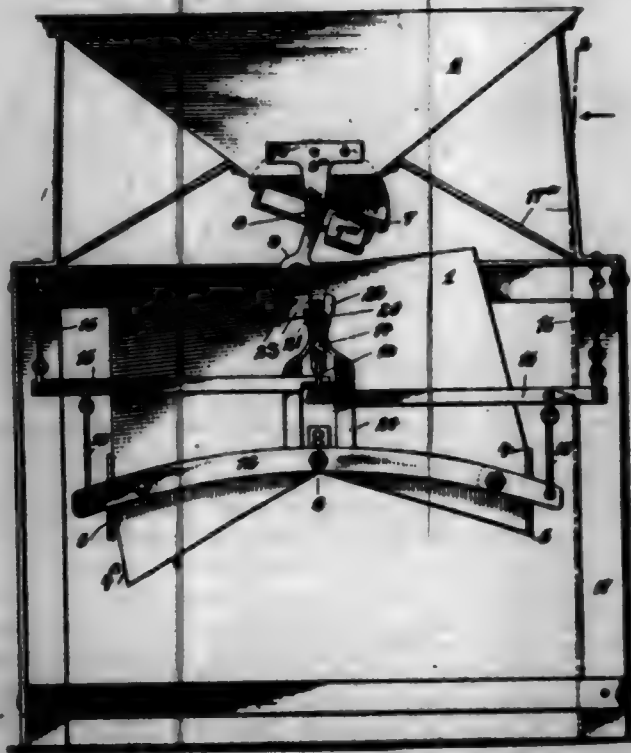
of the said front wall, and having a dotted free upper end; and a spring-catch secured to the under side of said cover, and having a downward-projecting portion for engagement with the slot in the said spring-tongue.



2. The combination with a box, provided with a cover, and having an opening in its front wall, of a closing-plate rigidly secured to the inner surface of said front wall and wholly covering said opening; a spring-tongue secured between the front of the closing-plate and the back of the said front wall, and having a free upper end formed with a slot and another hole therethrough; a spring-catch secured to the under side of said cover and having a downturned portion for engagement with the slot in said spring-tongue, said spring-catch having also a hole therethrough; and a wire seal passed through the holes in the said catch and tongue, and lying wholly within the walls of the said opening in the front wall, back of the front outer line of said front wall and in front of said closing-plate.

3. The combination with a box, provided with a cover, and having an opening in its front wall, of a closing-plate rigidly secured to the inner surface of said front wall and wholly covering said opening, and being formed with a concave inclined guide-pocket in its upper portion; a spring-tongue rigidly secured to the front surface of said plate, and having play or movement between the plate and the back of the front wall and the free upper end of said spring-tongue having a slot therethrough, and being curved outwardly and upwardly; and a spring-catch secured to the under side of said cover and having a downturned portion for engagement with said guide-pocket in the closing-plate, and a forwardly-projecting end for engagement with the slot in the spring-tongue.

697,196. WEIGHING-MACHINE. EDWIN CAMERON, Brooklyn, N. Y. Filed Apr. 10, 1901. Serial No. 60,366. (No Model.)



Claim.—1. In a device for weighing coal or the like, the combination with a suspended frame, of a tilting bucket pivoted thereon, notches in the side of the bucket, a lever normally spring-pressed into engagement with one of said notches, and means operated by the weight of the material being weighed to disengage said lever and permit of the tilting of the bucket, substantially as described.

2. In a device for weighing coal and the like, the combination with a frame, of a tilting bucket pivoted thereon and having a plurality of compartments with an opening at the top and bottom of each compartment,

4. In a device for weighing a continuous stream of coal, or the like, the combination with a stationary supporting-frame, of links depending therefrom, levers fulcrumed at their outer ends on said links, a frame suspended from said levers at points nearer their fulcrums than their inner ends, a tilting basket having a plurality of compartments and pivoted on said suspended frame, a slot on the tilting basket provided with a notch for each compartment, a bracket secured to the suspended frame, a hatching-lever pivoted intermediate its ends to said bracket having its inner end normally engaged in the slot of the uppermost compartment of the basket and connection between the outer end of the hatching-lever and the inner ends of the first-mentioned levers, substantially as described.

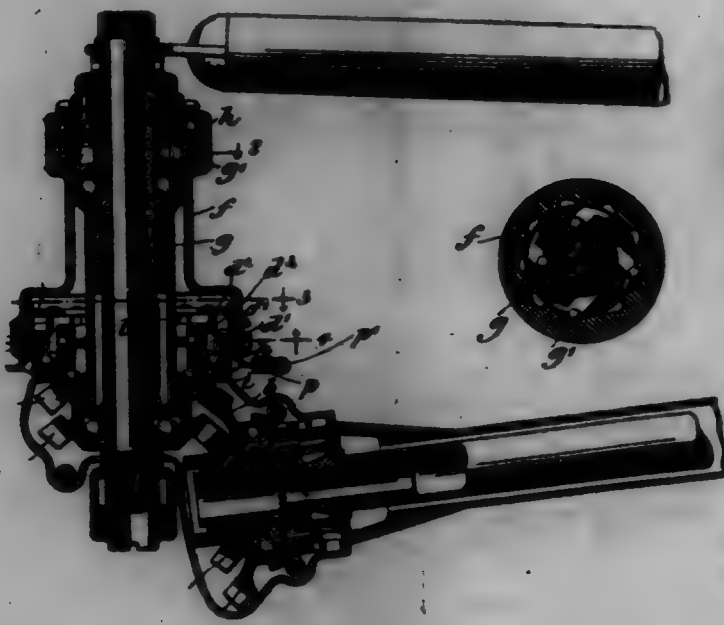
4. In a turn-gate adapted to swing open when its hinged end is lifted, the combination with the gate having apertured hinging-brackets, one of which is provided with oppositely-projecting cam-like arms 13ⁿ, and the hinging-post having apertured hinging-brackets, one of which has shoulders 9ⁿ for the arms 13ⁿ to impinge upon, of the upper and lower cranks mounted on the hinging-brackets on the post, the oblique hinging-rod 10, fixed in said cranks at its respective ends, and means for operating the upper crank to open the gate.

A large, stylized, calligraphic letter 'J' with decorative flourishes, likely a logo or monogram. The letter is rendered in a thick, black, hand-drawn style with a white outline. It features a long, sweeping vertical stroke that curves at the top and bottom. To the left of the main vertical stroke, there is a horizontal bar with a small, curved flourish underneath it. To the right, there is a circular flourish with a small, curved flourish underneath it. The overall design is elegant and artistic, typical of early 20th-century branding.

2. In a three-gate, the combination with the gate having apertured hinging-brackets on its hinging-ends, the hinging-post 1, the hatching-posts 3 and 4, and the hinge-brackets 8 and 9 on the hinging-post, of the upper crank 11, having a bearing in the bracket 8, the lower crank 12,

Claim.—1. Transmitting-gearing comprising a driver, a driven part intermeshing gears carried by said driver and driven part respectively and a clutch interposed between one of said gears and its carrier, said clutch comprising a driving member, engaging parts positively carried thereby, a toothed member and means adapted to be inserted between the engaging parts and the toothed member to retain the engaging parts out of engagement with the toothed member.

2. Transmitting-gearing comprising a driver, a driven part, intermeshing gears carried by said driver and driven part respectively, and a clutch interposed between one of said gears and its carrier, said clutch comprising a driving member having pockets, a member having recesses, balls disposed in said pockets and adapted to engage said recesses, and means to retain said balls in said pockets.



3. Transmitting-gearing comprising a driver, a driven part, intermeshing gears carried by said driver and driven part respectively, and a clutch interposed between one of said gears and its carrier, said clutch comprising a driving member having pockets, a member having recesses, balls disposed in said pockets adapted to engage said recesses, one of said members encompassing the other, and a ring movable longitudinally with respect to said members and having flange to enter between said members and to retain the balls in said pockets.

4. Transmitting-gearing comprising a driver, a driven part, intermeshing slow-speed gears and intermeshing fast-speed gears carried by said driver and driven part, a loose driving-clutch interposed between one of said slow-speed gears and its carrier to drive when the fast-speed gear is not operative and to permit one part to overrun the other when the fast-speed gear is operative, a driving-clutch interposed between one of the fast-speed gears and its carrier and means to hold said last-named clutch out of operation.

5. Transmitting-gearing comprising a driver, a driven part, intermeshing slow-speed gears and intermeshing fast-speed gears carried by said parts, a loose driving-clutch interposed between one of the slow-speed gears and its carrier and a driving-clutch interposed between one of the fast-speed gears and its carrier, said last-named clutch comprising a driving member, engaging parts and a toothed member, and means to retain said engaging parts out of engagement with said toothed member.

6. A two-speed gear comprising a driver, a driven part, intermeshing slow-speed gears and intermeshing fast-speed gears carried by said parts, a loose driving-clutch interposed between one of the slow-speed gears and its carrier and a driving-clutch interposed between one of the fast-speed gears and its carrier, said last-named clutch comprising a driving member having pockets, a member having recesses and balls disposed in said pockets and adapted to engage said recesses, and means to retain said balls in said pockets.

7. Transmitting-gearing comprising a driving-shaft, a driven part, intermeshing slow-speed bevel-gears and intermeshing fast-speed bevel-gears carried by said driving-shaft and said driven part, a loose driving-clutch interposed between one of said slow-speed gears and its carrier, a driving-clutch interposed between one of the fast-speed gears and its carrier and means operable to control said last-named clutch.

8. Transmitting-gearing comprising a driver, a driven part, a fast and slow speed gear fixed on one of said parts, intermeshing fast and slow speed gears carried on the other of said parts, a loose driving-clutch interposed between the last-named slow-speed gear and its carrier to drive when the fast-speed gear is not operative and to permit one part to overrun the other when the fast-speed gear is operative, a driving-clutch interposed between the last-named fast-speed gear and its carrier and means operable to control the engagement of said last-named clutch.

Claim.—1. In a machine of the character named, a tank adapted to contain suitable material for cleansing or sterilizing, or both cleansing and sterilizing, and means for passing a bottle to traverse said tank up and down and from side to side through said material.



2. In a machine of the character named, a tank adapted to contain suitable cleansing or sterilizing material, an endless chain or conveyor passing through said tank up and down and transversely thereof and means for holding a bottle on said conveyor.

3. In a machine of the character named, a tank, a plurality of compartments therein adapted to contain cleansing or sterilizing material, an endless chain or conveyor passing from one compartment to the other, devices for holding a bottle carried by said conveyor, and means for opening and closing said devices for the insertion and removal of the bottle.

4. In a machine of the character named, a tank, a plurality of compartments therein adapted to contain cleansing or sterilizing material, pulleys suitably supported in said compartment, and an endless chain or conveyor around said pulleys and passing from one compartment to the other and adapted to carry bottles thereon.

5. In a machine of the character named, a tank adapted to contain suitable cleansing or sterilizing material, shafts journaled in said tank, pulleys on said shafts, an endless chain or conveyor adapted to pass around said pulleys, agitators in said tank, and means for operating said agitators.

6. In a machine of the character named, an endless chain or conveyor in combination with a bottle-holder on said chain, consisting of spring-arms suitably supported and a guide which passes between said spring-arms to open the same.

7. In a machine of the character named, a tank, compartments therein, a hood over one of said compartments, shafts in said compartments carrying pulleys, an endless belt or conveyor adapted to pass around said pulleys, bottle-holders on said conveyor, and means for opening and closing said bottle-holders.

8. In a machine of the character named, a bottle-holder consisting of a block and spring-arms secured thereto, and a guide which passes between said spring-arms to open the same.

9. In a machine of the character named, a tank, adapted to contain suitable cleansing or sterilizing material, and a hood over said tank adapted to prevent the escape of said material, and means for causing a bottle to traverse said tank in said material.

10. In a machine of the character named, a tank, compartments therein, a hood for one of said compartments arranged to form in the walls thereof a steam-trap, and permitting the entrance of a bottle into said hood and compartment.

11. In a machine of the character named, a tank adapted to contain suitable cleansing or sterilizing material, pulleys in said tank and endless chain or conveyor adapted to pass around said pulleys, agitators in said tank and means for operating said agitators.

12. In a machine of the character named, a plurality of tanks a steam-trap for one of said tanks, and an endless chain or conveyor passing through said tanks and said steam-trap.

13. In a machine of the character named, a plurality of tanks adapted to contain suitable cleansing or sterilizing material, a hood over one of said tanks adapted to form a steam-trap, and means for causing a bottle to pass from one tank to the other and into said tank beneath the hood.

14. In a machine of the character named, a plurality of tanks adapted to contain suitable cleansing or sterilizing material, an endless chain or conveyor adapted to pass from one tank to the other through said material, devices for holding a bottle carried by said conveyor, and means for opening and closing devices for the insertion and removal of the bottle.

15. In a machine of the character named, a plurality of tanks, adapted to contain suitable cleansing or sterilizing material, an endless chain or conveyor adapted to pass through said tanks, and from one to the other, agitators in said tanks, and means for operating said agitators.

697,202. MECHANISM FOR TRANSFERRING BOATS. LEON DOWNS, Chicago, Ill., assignor to Le Forest Ingersoll and Frederick Ingersoll, Pittsburg, Pa. Filed May 26, 1901. Serial No. 62,299. (No Model.)



Claim.—1. As a means for moving boats from one level to another the combination of two shafts provided with wheels, one of said shafts being located below the level from which the boat is to be moved, and the other shaft at a higher level, an endless belt or apron provided, arranged around the wheels on said shafts and provided with supports for the boat, and means for preventing a sagging of the carrying portion of the endless belt or chain, substantially as set forth.

2. As a means for moving boats from one level to another, the combination of two shafts provided with wheels, one of said shafts being located below the level from which the boat is to be moved, and the other shaft at a higher level, an endless belt or apron passing around the wheels on said shafts, supporting-blocks secured to the belt or apron, and guideways or supports for the blocks extending from one level to the other, substantially as set forth.

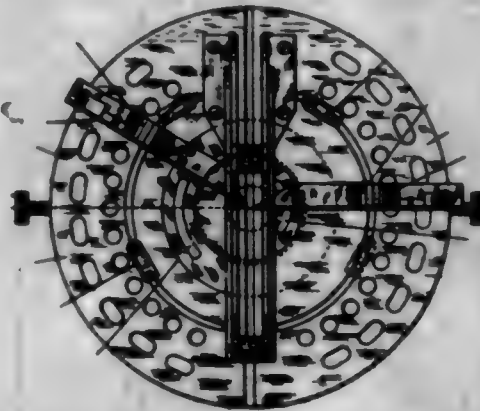
3. The combination of two water-channels located on different levels, two pairs of shafts provided with wheels, one shaft of each pair being located below the level of the water in the respective channel, and the other shaft of each pair being located in a plane above the water in the higher channel, endless belts or aprons arranged around the wheels on said pairs of shafts, supporting-blocks secured to said belts, and guideways or supports for the ends of the blocks extending between the shafts of each pair, substantially as set forth.

4. The combination of two water-channels located on different levels, two shafts provided with wheels, one of said shafts being located below the level of the water in the lower channel, and the other shaft above the level of the other channel, an endless belt or chain arranged around the wheels on said shafts, boat-supports secured to the belt or chain, means for preventing a sagging of the carrying portion of the endless belt or chain, and means for receiving the boat from said supports and directing it into the other channel, substantially as set forth.

697,203. MITER-BOX. RUFUS H. DOWS, Los Angeles, Cal. Filed June 5, 1901. Serial No. 62,233. (No model.)

Claim.—1. A circular miter-box mounted by means of a pivot at its center upon a circular spider whose outer ring or periphery constitutes a clamping-surface for enabling the circular miter-box to be clamped thereto in any angular position required, and by releasing the clamping-screws, to be readily rotated on the pivot into any required position, the central part of said spider constituting the means for holding in their operative position the rings to which the radially-movable backs of the miter-box are fastened, the ring of the spider being provided with feet, all operating in the manner and for the purposes, substantially as hereinbefore described.

2. In combination with a miter-box table or base and with stops adjustable in slots therein, the movable backs against which the mitering or timber being cut rests with passages or short tunnels therein for enabling the said backs to be moved over and without impediment by the stops whereby the mitering or timber being cut is maintained against the movable backs, whereby also the stops are enabled to be moved in their grooves or slots to the rear of the movable backs, substantially as hereinbefore described.



3. The combination of a circular miter-box, the pivot at the center of the circular miter-box, the spider carried upon said pivot, the legs and clamping-screws attached to the table of the miter-box and operating in conjunction with the ring of the spider, substantially as hereinbefore described.

4. The combination of the circular miter-box, the pivot, the spider, the legs, the clamping-screws, the feet in the clamping-ring of the spider and the movable backs with passages or short tunnels therein, all operating together in the manner and for the purposes substantially as set forth.

697,204. CHURN. JOHN GRONOVYER, Danville, Ill. Filed June 15, 1901. Serial No. 64,715. (No model.)



Claim.—1 The herein-described churn comprising a suitable body a standard rising therefrom, a pair of arms at right angles to the standard upon opposite sides, pulleys carried by said arms, a shaft mounted in the upper end of the standard, a grooved wheel journaled upon the shaft, a bracket upon the forward part of the standard provided with a pair of arms, sliding recesses formed in the outer end of said arms, a spool having a reduced upper end, a grooved central portion and a reduced lower end mounted in said recesses, an endless cord or band passing around the wheel, through the pulleys and crossing over and around the grooved portion of the spool to transmit power to the spool and hold the same in the recesses, a churn-receptacle upon the base, and means carried by the spool for charging and supplying air to the contents of the receptacle.

2. A churn comprising a suitable base, a standard rising therefrom, an arm secured to the rear side of said standard and having its ends extending upon each side and at right angles thereto, pulleys secured to the upper portion of said ends, a shaft journaled in the upper end and extending to the rear of the standard, a grooved crank-wheel mounted upon said shaft, an arm secured to the forward side of said standard and provided with a recess so as to form two parallel arms the lower one of which is in line with the arm secured to the rear of the standard, vertical recesses or lugs formed in the outer end of said arms so as to align with each other, a spool provided with a reduced upper end and a reduced lower end having a collar therearound journaled, respectively, in the recesses of said arms, a grooved pulley formed integral with said spool, an endless belt passing around the wheel, through the pulleys, crossing over and then around the grooved pulley of the spool, to transmit power to the spool

and hold it in the recess, an aerating-tube carrying a dasher secured to the lower end of the spoon below the collar, and a churn-receptacle mounted upon the base.

3. A churn comprising a suitable base, the standard rising therefrom a bracket provided with two parallel aligned arms provided with vertical slots in the ends thereof carried by the standard, a churn-receptacle mounted upon the base and having its center directly below the center of the inner edge of the slots, a spoon having a terminal at one end and one near the other end fitting in said slots, a collar near the lower end, a hollow tube fitting upon the lower end and abutting against the collar, a series of air-directing apertures carried by the tube near the top thereof, a dasher carried upon the lower end of the tube which is above the bottom of the receptacle and surrounded by the same, a mechanism for revolving the tube and keeping the spoon in the slots connected to the standard.

697,205. HANDLE FOR WASHBOILERS. EUGENE T. HALL, Philadelphia, Pa. Filed Aug. 2, 1901. Serial No. 71,312. (No model.)



Claim.—1. A handle of the character stated, having a grip, and a supporting-bracket therefor, the latter consisting of arms, a collar adapted to embrace said grip, and a clip embracing said side arms, said arms being provided with means for attachment.

2. In a handle of the character stated, a grip-supporting bracket, consisting of a pair of arms with crimps thereon, and a clip embracing said pair of arms and formed with a crimp, which latter engages the crimps of said arms.

697,206. CLUTCH. HERMAN L. REMBERG, Stephens Mills, N. Y. Filed Aug. 31, 1901. Serial No. 74,008. (No model.)



Claim.—1. In a clutch, cooperating members, one of the members having inclined grooves and the other member having an annular groove and notches extending therefrom, and balls fitted in the respective grooves and constituting antifriction and gripping elements, substantially as set forth.

2. In a clutch, cooperating members, one of the members having inclined grooves and the other member having an annular groove and inclined notches extending from the said groove, and balls fitted in said grooves and constituting gripping elements, substantially as set forth.

3. In a clutch, cooperating male and female members, the female member having inclined grooves in its inner wall and the male member having an annular groove in its projecting portion and notches extending from the said groove, and balls fitted in the said grooves and adapted to effect an interlocking between the members and cause simultaneous rotation thereof in the same direction, substantially as set forth.

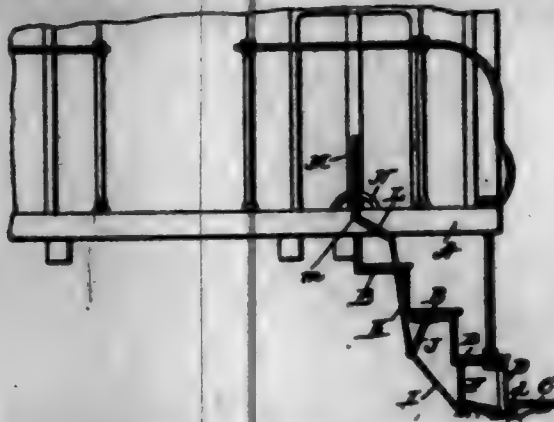
697,207. MANUFACTURE OF WATER AND FAT PROOF PAPER WITH GLAZED SURFACE. HERMANN HERTZ, Bonn, Germany. Filed July 31, 1901. Serial No. 70,000. (No specimens.)

Claim.—To employ supplementarily to (before, during, or after) all other processes for making paper waterproof, a coating of lac varnish and then a coating of talc, drying and otherwise treating the paper both after the lac and after talc coating, substantially as set forth and described.

697,208. FOLDING STEP FOR CARS OR OTHER CONVEYANCES. BLANKA J. HURT, New York, N. Y. Filed June 24, 1900. Serial No. 21,702. (No model.)

Claim.—1. The combination with a vertically-vibrating and endwise-movable hanger, of a step pivotally connected therewith, a trans-

verse link pivotally connected to said hanger, and an arm pivotally connected with said link and said step, as and for the purpose specified.



2. The combination with a pair of vertically-pivoted hangers, of a step pivotally connected to the front hanger, a link pivotally connected with both hangers, and an arm pivotally connecting the link and said step, as shown and described.

3. The combination with a vertical pivoted hanger, having a leg, of a step provided with a recessed portion whereby to pivot the same to the leg, the step being also provided with an extension whereby to adapt the same to abut against the under side of said leg, a link pivoted to an ear of said hanger, and an arm pivoted to the extension of said step, and to said link, substantially as specified.

4. The combination with a series of vertically-vibrating and endwise-movable hangers, a transverse cross-bar pivoted to the hangers, a step mounted on the cross-bar, and a step pivoted to the lower end of the outer hanger, and means connected to said hangers whereby to fold the steps, as and for the purpose set forth.

5. The combination with a vertically-pivoted hanger, of a step pivotally connected therewith, a link pivotally connected to the rear portion of the hanger, a guide-arm pivoted to the link and step, and means for folding the hanger and step together, as shown and described.

6. The combination with a pivotally-expanded hanger, of a step pivotally connected therewith, a link pivotally connected with the hanger, a guide-arm pivotally connecting the link and step, a rear hanger pivotally connected with said link, and means for actuating the last-mentioned hanger, to fold the first-mentioned hanger and step together, as shown and described.

7. In folding steps for cars and other conveyances, the combination with a cross-bar having central and end hangers vertically pivoted thereto, and steps pivoted to the cross-bar and hangers, and means connected to the hangers whereby to fold said steps and hangers, as shown and described.

8. In folding steps for cars and other conveyances, the combination with a central vertical hanger, a cross-bar pivoted midway thereof, and vertical hangers pivoted to the ends of the cross-bar, and steps pivoted to said cross-bar and said hangers, substantially as specified.

697,209. DEVICE FOR FACILITATING TAKING PILLS. BENNO KORTENHAUSEN, Unterhaching, Germany. Filed July 24, 1901. Serial No. 69,801. (No model.)

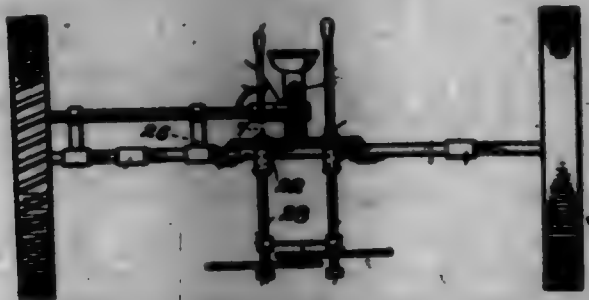


Claim.—As a means for facilitating the taking of medical pills the combination with a small vessel adapted to receive such a quantity of liquid as suffices to wash down a medical pill, of a pipe forming a longitudinal extension of said vessel and a grate located at the inner end of said pipe and being adapted to support the pill to be washed down by the liquid contained in the said vessel; the said pipe being hinged obliquely with regard to the vessel and its free end being obliquely cut away in the same direction of inclination so as to be adapted to form a gap behind the tongue when pressed down upon the inner end of the latter, substantially as described and shown.

697,210. CORNSTALK-CUTTER. NORMAN C. KRAMER, Wallon, Ind. Filed July 11, 1901. Serial No. 67,375. (No model.)

Claim.—1. A stalk-cutting machine comprising vertical shafts mounted for sliding movement, a fixed knife connecting the shafts, cutters mounted upon and rotatable with the shafts in operable relation to the fixed knife, means for rotating the shafts and means for raising and lowering the shafts slidably and therewith the cutters.

2. A stalk-cutting machine comprising an axle having supporting-wheels, vertical cutter-shafts provided with cutting mechanisms, ches at the lower ends of the shafts, and a tongue connected with the axle and with the ches.



3. A stalk-cutting machine comprising an axle having supporting-wheels, cutter-shafts connected with the axle and adapted for longitudinal sliding movement, means connected with a supporting-wheel for rotating the cutter-shafts, ches at the lower ends of the cutter-shafts, a tongue connected with the axle, movable connections between the tongue and ches, and means for raising and lowering the cutter-shafts with the tongue.

4. A stalk-cutting machine comprising an axle provided with supporting-wheels, a drive-shaft mounted upon the axle and operatively connected with a supporting-wheel for rotation thereby, a double beveled gear mounted upon the drive-shaft, means for clatching the double gear to the shaft, vertical cleaves rotatably mounted upon the axle and provided with bevel-gears engaged with the double gear, said cleaves having angular passages therethrough, cutter-shafts slidably fitted in the passages of the cleaves, a fixed cutter mounted upon the shafts, movable cutters mounted upon the shafts for cooperation with the fixed cutter, and means connected with one of the cutter-shafts for raising them both with the cutters thereon.

5. A stalk-cutting machine comprising cutter-shafts, a fixed knife mounted upon the cutter-shafts, and cutters carried by the shafts and rotatable therewith in operative relation to the fixed knife.

6. A stalk-cutting machine comprising cutter-shafts, a fixed knife having terminal bearings in which the shafts are mounted, and cutters carried by and rotatable with the shafts in operative relation to the fixed knife.

7. A stalk-cutting machine comprising shafts mounted for longitudinal sliding movement, a fixed knife having bearings in which the shafts are received, cutters mounted upon and rotatable with the shafts in operative relation to the fixed knife, means for rotating the shafts, and means for sliding the shafts longitudinally to raise and lower the cutters.

697,911. STOPPER FOR JARS. LINDY LOEWENBERG, New York, N. Y. Filed Feb. 17, 1902. Serial No. 94,532. (No model.)



Claim.—1. A stopper for jars composed of a plug, a surrounding flexible covering, a cap engaging said covering, and means for removably securing said cap to the plug, substantially as specified.

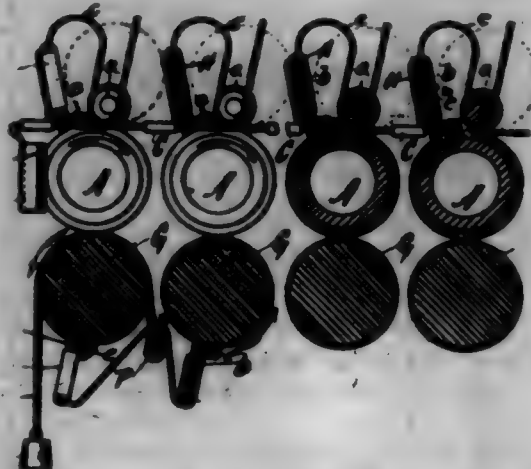
2. The combination of a perforated plug, with a superposed perforated cap, a connecting soft-metal fastener having upwardly-extending cheeks that are bent down over the cap, and a flexible covering surrounding the plug and clamped between plug and cap, substantially as specified.

697,912. TEXTILE-ROLLER CLEARER. EDWIN S. MATTHEWS, Providence, R. I. Filed May 2, 1901. Serial No. 92,493. (No model.)

Claim.—1. A clearer for textile rolls consisting of a pair of horizontal bars, holders having loops and arranged to slide on said bars, bars carrying felt strips, connecting said holders together and arranged to rest on the rolls to be cleared, rolls covered with felt and held in the loops of said holders on the upper side of the top rolls, and said top rolls, substantially as described.

2. In a clearer for textile rolls the combination of a pair of horizontal bars having their front ends turned down, holders with loops, arranged to slide on said bars, bars with strips of felt in said holders on the top of the rolls to be cleared, rolls covered with felt and held in loops of said holders on the upper side of the top rolls, and a bar having a lining of

felt, made flat at each end to the turned-down ends of the horizontal bars, substantially as described.



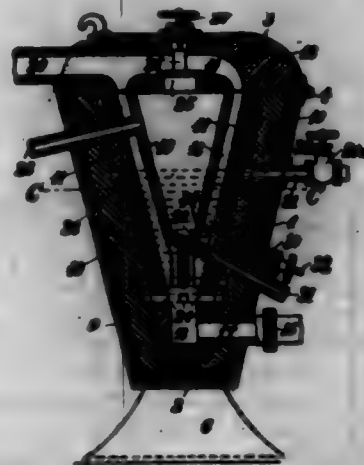
3. In a textile-roll clearer the combination of a series of bars carrying strips of felt, a series of rolls covered with felt and driven by the top rolls, means for connecting each bar of the series with a roll of the series, and connections between each pair of a bar and a roll, and the other like pair in the same division of the top rolls, substantially as described.

4. In a textile-roll clearer, drawing-rolls, a series of flexible or gathering strips supported throughout their length running parallel with and bearing against said rolls, in combination with means for collecting and retaining the waste as that as gathered by said flexible strips, and arrangements for pressing said strips against the rolls by the action of said rolls when revolving, substantially as described.

5. In a textile-roll clearer, a series of drawing-rolls, a series of flexible gathering-strips bearing against the surface of said rolls with means for adjusting each individual strip separately to bear against the surface of its roll, in combination with means for collecting and retaining the waste when gathered by said strips, substantially as described.

6. In a textile-roll clearer, a series of drawing-rolls, a series of flexible gathering-strips bearing against the surface of said rolls held automatically adjusted by their weight vertically, and mechanically adjustable laterally, in combination with rolls for collecting and retaining the waste when gathered by said strips, substantially as described.

697,913. APPARATUS FOR MAKING IRON OR STEEL. EDUARD HEMMINGHAUS, Düsseldorf, Germany, assignor to Joseph Leinberger, Darmstadt, Germany. Filed Nov. 22, 1901. Serial No. 92,398. (No model.)

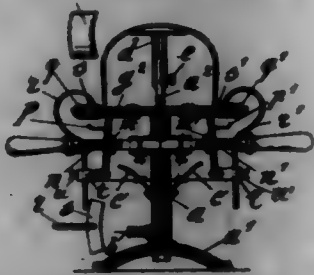


Claim.—1. In a furnace for producing wrought iron or steel direct from the ore in combination with a crucible 16 having an opening 26 in its enlarged top, a self-closing valve 26 upon said opening, a screw-spindle 27 guiding said valve, an outlet-pipe 28 near the upper end of the crucible for letting out dross and also molten metal from the crucible, an opening 29 at the bottom of the crucible, said opening communicating with two channels 30 and 31 respectively, the first one of which serving for opening or closing said opening by a plug 32 at the end of a spindle 32 passing through said channel 30; the other one, 31, serving for letting out fluid metal out of the crucible or for blowing air and gases into the crucible, the whole as described and illustrated and for the purposes set forth.

2. In a furnace for producing wrought iron or steel direct from the ore, a crucible 16 having an opening 26 in its enlarged top, a valve 26 closing said opening, an outlet-pipe 28 near its upper end, an opening 29 at the bottom, channels 30 and 31 communicating with said opening, channels 18 surrounding said crucible, a lining 11 of refractory bricks inclosing said channels, a layer of fire-bricks 10 outside of the lining 11 and

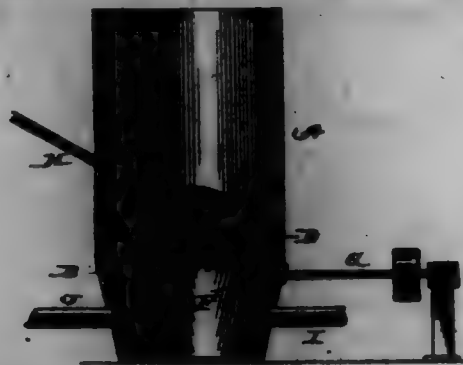
leaving channels 23 between the lining 11 and the fire-bricks 10, a lining 9 surrounding the fire-bricks 10 made of material conducting heat badly and a casing 1 and bottom 2 of sheet metal surrounding the whole, a hinged cover 3 lined inside with fire-bricks 12 covering the crucible and leaving a passage 19 between the top of the crucible and the lining, said passage communicating with the channels 18 and with an exhaust-pipe 20 connected to the cover 3, an air-pipe 21 and valve 21' communicating with a channel 22 leading to the channels 23 at the upper part of the furnace, a free space 13 below the bottom of the crucible, said space communicating with the channels 23 by holes 24 and with the channels 18 and also with a pipe 14 for blowing in gas by a valve 15 of a gas-main outside of the furnace, the whole as described and illustrated and for the purpose set forth.

697,214. HAT-BLOCK. CARL HOLLER, Berlin, Germany. Filed Aug. 18, 1901. Serial No. 72,527. (No model.)



Claim.—An apparatus for stretching or altering the form and dimensions of hats without alteration of the brim comprising a stand having a foot *a'* and stand having a passage for gas forked at its upper end, an elliptically-shaped plate *f* secured to the stand on which works a hat-block in two parts *g g'* carrying side plates *l l'* having claws *l'' l'''* to engage the upper edge of the plates *g g'* and parts *g g'* and plates *l l'* being operated by means of female screws *h h'*, *m m'* and screw-splines *i i'*, *n n'* respectively, said stand *a* at its upper end being reduced and carrying a hollow hat supported, adjustable thereon by means of a screw *e*, brim-holders *s s'* provided with cushions *q q'* and curved cheeks *r r'* carried adjustably in brackets *t t'* on the hat-block, substantially as set forth.

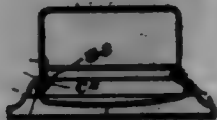
697,215. DREDGING APPARATUS. PATRICK E. MOLAN and MORRIS MORRISON, Superior, Wis., assignors of three-fifths to David E. Roberts, Taylor E. Wolford, and William E. Locke, Superior, Wis. Filed July 24, 1900. Serial No. 24,961. (No model.)



Claim.—1. In a dredging apparatus, a tank having a hemispherical screen mounted upon rollers therein, a jet-pipe mounted in the wall of the tank above the said screen, an intake-pipe mounted in the wall of the tank below the said screen, a suction-pipe, and mechanism for revolving the screen, substantially as shown and described.

2. In a dredging apparatus, a tank having a jet-pipe and intake and suction pipes mounted in its wall, a revolving hemispherical screen mounted upon rollers within the tank intermediate the jet-pipe and the intake and suction pipes, and mechanism for revolving the screen, substantially as set forth.

697,216. BOX. HARVEY GLASSMAN, Hoboken, N. J., assignor to Kirschbaum & Glitschewsky Company, a Corporation of New York. Filed Oct. 2, 1901. Serial No. 77,268. (No model.)

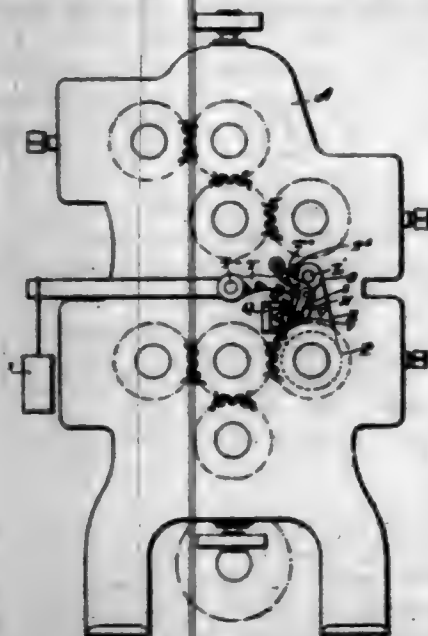


Claim.—1. In a device of the character described, the combination of a box-body having in its rear wall a plurality of cut-out pieces bent inwardly, a cover having a socket projecting therefrom on one side, and an inward projection at the opposite side, a piston, and a spring one end

of which projects through the box-body and bears against the inside of the cover and a projection near the other end of the spring extending through the box-body, substantially as shown and described.

2. In a device of the character described, the combination of a box-body having in its rear wall a plurality of cut-out pieces bent inwardly, a cover having a socket projecting therefrom on one side, and an inward projection at the opposite side, a piston and a spring one end of which projects through the box-body and bears against the inside of the cover, a projection near the other end of the spring extending through the box-body and a separable base-plate therein substantially as shown and described.

697,217. MACHINE FOR WORKING RUBBER. JOHN H. FRANK, New Haven, Conn., assignor to Henry Stuart Hotchkiss, New Haven, Conn. Filed Apr. 22, 1901. Serial No. 54,908. (No model.)



Claim.—1. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes a finishing-roll, a pressure-roll arranged to coast directly with the said finishing-roll for uniting and blending into one sheet the several films produced by the several film-forming mechanisms, and means connected with the pressure-roll for moving it toward and away from the said finishing-roll coming it to automatically accommodate its position to variations in the thickness of the films.

2. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes a finishing-roll, a pressure-roll arranged to coast directly with the said finishing-roll for uniting and blending into one sheet the several films produced by the several film-forming mechanisms, and means connected with the pressure-roll for causing it to automatically accommodate its position to variations in the thickness of the films.

3. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes an inclined finishing-roll, and a pressure-roll arranged to coast directly with the said finishing-roll, whereby the films produced by the respective film-forming mechanisms are united and blended between the said finishing-roll and the said pressure-roll after the finishing-roll has acted upon one film and before that film has left its surface.

4. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes an inclined finishing-roll, of a pressure-roll arranged to have its upper surface coast directly with the lower surface of the said finishing-roll, whereby the films produced by the respective film-forming mechanisms are united and blended between the finishing-roll and the pressure-roll after the finishing-roll has acted upon one film and before that film has left its surface.

5. In a machine for working rubber, the combination with an upper series of rolls including a finishing-roll, for producing a film of rubber, of a lower series of rolls for producing a film of rubber, and a pressure-roll located between the two series of rolls in position to have its upper surface coast directly with the lower surface of the finishing-roll of the upper series, the films produced by the respective series of rolls being passed between the said finishing-roll of the upper series and the upper surface of the pressure-roll, whereby the said films are united and blended together after the finishing-roll has acted upon one film and before that film has left its surface.

6. In a machine for working rubber, the combination with a plurality of film-producing mechanisms, one of which includes a finishing-roll, of a pressure-roll coasting directly with the said finishing-roll for

uniting and blending the respective films formed by the said mechanisms, the said pressure-roll being driven frictionally by the said finishing-roll when coating therewith, and means connected with said pressure-roll for rotating it independently of the said finishing-roll.

7. In a machine for working rubber, the combination with a plurality of film-producing mechanisms, one of which includes a finishing-roll, of a pressure-roll coating directly with the said finishing-roll for uniting and blending the respective films formed by the said mechanisms, the said pressure-roll being driven frictionally by the said finishing-roll when coating therewith, and means for rotating the said pressure-roll independently of the said friction-roll and automatically brought into operation when the said pressure-roll is moved away from the finishing-roll and out of operation when it is moved up to the same.

8. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes a finishing-roll, of a pressure-roll coating directly with the said finishing-roll for uniting and blending the respective films formed by the said mechanisms, the said pressure-roll being frictionally driven by the said finishing-roll when coating therewith, movable supports for the pressure-roll by which it is moved toward and away from the said finishing-roll, and a driving mechanism for the pressure-roll automatically brought into action for driving the said pressure-roll when the same is moved away from the finishing-roll and automatically out of action when the said pressure-roll is moved up to the said finishing-roll.

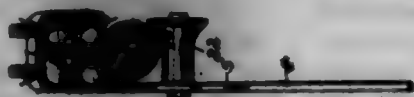
9. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of which includes a finishing-roll, of a pressure-roll coating directly with the said finishing-roll for uniting and blending the films into one composite sheet, and an adjustable guide-roll coating with the said finishing and pressure rolls.

10. In a machine for working rubber, the combination with a plurality of film-forming mechanisms one of which includes a finishing-roll, of a pressure-roll coating directly with the said finishing-roll for uniting and blending the films into one composite sheet, pressure-layers carrying the said pressure-roll and movable toward and away from the said finishing-roll, and means for driving the said pressure-roll independently of the said finishing-roll which normally drives it frictionally.

11. In a rubber-working machine, the combination with a plurality of film-forming mechanisms, one of which produces a film of uneven surface, of means for uniting and blending the films including that having an uneven surface, so as to produce a composite sheet with the uneven surface of the film of uneven surface exposed on one side of the said sheet.

12. In a machine for working rubber, the combination with a plurality of film-forming mechanisms, one of the said mechanisms having an inclined finishing-roll, of a pressure-roll coating with the said inclined roll for uniting and blending on the inclined roll before the film acted upon thereby has left its surface, the several films produced in the machine.

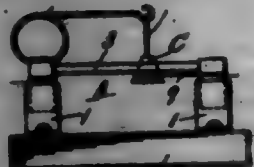
697,918. DOOR-HANGER. JOHN J. ECKHART, Chicago, Ill., assigner to himself and Gilbert E. Shaw, Chicago, Ill. Filed Aug. 2, 1901. Serial No. 73,722. (No model.)



Claim.—1. A door-hanger, composed of a suitable frame having suitable channels, and two sets of traveling bearing devices mounted in said channel channels and arranged to run in a track, substantially as described.

2. The combination of a suitable frame, a plurality of sets of traveling bearing devices carried therein, said sets being arranged side by side, and a rail having a convex surface on which said bearing devices run, substantially as described.

697,919. ELECTRIC CIRCUIT PROTECTOR. CHARLES A. BAILEY, Chicago, Ill., assigner to the Rolfe Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 8, 1902. Serial No. 96,481. (No model.)



Claim.—1. In a protector for electric circuits, a releasing device comprising a metallic shell, a mass of fusible or softenable material enclosed within the shell, a heat-generating device associated with the softenable or fusible material so that the latter will be fused or softened by the generation of heat in the heat-generating device, and a loop or hook engaged

by the fusible or softenable mass so as to be held thereby when such mass is hard and to be released when the same is fused or softened, the metallic shell and loop or hook being electrically connected with the heat-generating device.

2. In a protector for electric circuits, a releasing device comprising a metallic shell, a body or mass of fusible or softenable material enclosed within the shell, a coil of fine wire associated with the body or mass of fusible or softenable material so that the latter will be fused or softened by the generation of heat in the coil of wire, and a loop or hook engaged by the fusible or softenable material so as to be held thereby when such material is hard and to be released by the fusion or softening of the same, the said hook having its free end projecting out of the metallic shell and the coil of wire having one of its ends connected with the metallic shell and the other with the loop or hook, substantially as described.

3. In a protector for electric circuits, a releasing device comprising a conical-shaped metallic shell, a body or mass of fusible material enclosed within the shell, a coil of fine wire embedded in the body or mass of fusible material, and a hook having one of its ends surrounded by the coil of fine wire and the other end projected out of the said mass of material and also out of the metallic shell, the coil of wire having one of its ends connected with the hook and the other with the metallic shell, substantially as described.

4. In a protector for electric circuits, a releasing device comprising a conical-shaped metallic shell, a body or mass of wax enclosed within the shell, a coil of fine wire embedded in the body or mass of wax, and a hook having one of its ends surrounded by the coil of fine wire and the other end projected out of the said mass of wax and also out of the metallic shell, the coil of wire having one of its ends connected with the hook and the other with the metallic shell, substantially as described.

5. In a protector for electric circuits, the combination with a releasing device comprising a metallic shell, a body of fusible or softenable material contained by the shell, a heat-generating device associated with the body of fusible or softenable material, and a loop or hook having one of its ends engaged by the said mass of material so as to be held thereby when said material is hard and to be released when the same is fused or softened, the heat-generating device being electrically connected with the shell and hook, of a contact adapted to engage the said metallic shell, and a tension device adapted to engage the hook, substantially as described.

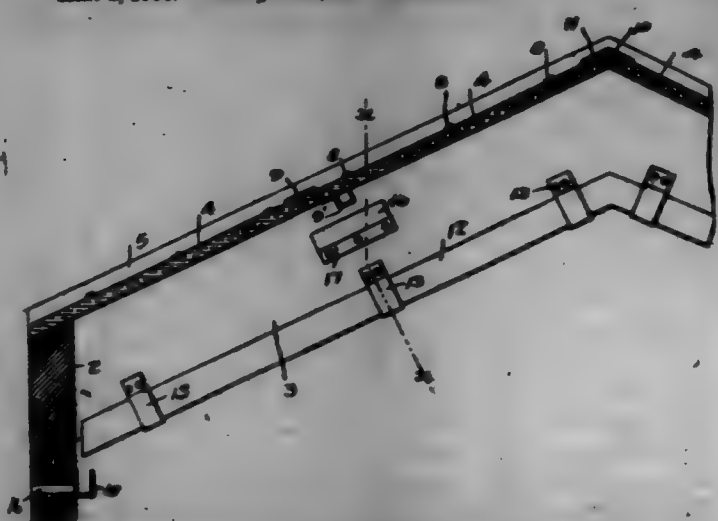
6. In an electrical protector for electric circuits, the combination with a base having contact-jaws, of a holder consisting of an insulating-strip having its opposite ends provided with contacts adapted to fit into said contact-jaws, said strip being also provided with an aperture between its ends, a spring secured to one end of the strip and connected with the contact at that end, a metallic strip connected with the contact at the other end of the insulating strip and extended to the aperture therein and constructed with portions arranged to substantially coincide with said aperture, a releasing device comprising a conical shell, a metallic hook, a mass or body of fusible or softenable material, and a coil of fine wire, the said wire being coiled about the end of the hook and connected with the same and with the shell, and the mass of fusible or softenable material being enclosed within the shell and embedding the end of the hook and the fine-wire coil, the said releasing device being arranged with the metallic shell in the aperture in the insulating-strip and in contact with the said contact-strip extending from one of the contacts and the hook in engagement with the spring, substantially as described.

7. In a protector for electric circuits, a holder comprising an insulating-strip having its opposite ends provided with metallic contacts and provided with an aperture between its ends, a metallic strip extended from one of said contact-strips along the under side of the insulating-strip and having a forked end, whose bifurcations embrace the aperture in the insulating-strip, and a spring secured to the other end of the insulating-strip and connected with the contact at each other end, substantially as set forth.

8. In a protector for electric circuits, the combination with a spring and a contact, both composed of conducting material, of a releasing device comprising a metallic shell or casing, a mass of heat-responsive material enclosed therein, a heat-generating device, and a metallic hook or like connection engaged by the heat-responsive material, the said device consisting of a single bodily-removable unitary structure, and the shell or casing and hook being connected in circuit and adapted for engagement with the contact and spring, respectively, substantially as described.

9. In a protector for electric circuits, the combination with a base having contact-jaws, a holder having metallic tips adapted to fit into said contact-jaws and also provided with an aperture, a metallic strip extending from one of said metallic tips to the aperture on the lower side of the holder, a spring mounted at the opposite end of the holder, an across-current-operated device having a metallic shell adapted to fit into said aperture and also adapted to rest against the said metallic strip, and a connection between said across-current-operated device and spring for holding the latter normally in tension, substantially as described.

697,220. SKYLIGHT. ALLEN H. SWAPLER, St. Paul, Minn. Filed Mar. 1, 1901. Serial No. 46,417. (No model.)



Claim.—1. In a skylight, the combination, with the bars 2 and the glass panes resting thereon, of gutters suspended beneath the lower edges of said bars, and plates 17 having wings 18 provided on said bars beneath the abutting ends of said plates, for the purpose specified.

2. In a skylight, the combination, with the bars 2 and the glass panes resting thereon, of gutters suspended beneath the lower edges of said bars, clips 9 interposed between the abutting ends of said plates, and wings or clips provided on the sides of said bars and adapted to receive the drippings from said clips 9, for the purpose specified.

3. In a skylight, the combination, with the curb 3 having a water-outlet 15 and the trough 16, of bars provided on said curb and upwardly-inclined therefrom, gutters provided beneath the lower edges of said bars and adapted to direct the drippings therefrom into said trough, for the purpose specified.

4. In a skylight, the combination, with a curb 2, of inclined bars supported thereon, metal ribs provided in the upper edges of said bars and extending lengthwise thereof, glass panes resting upon said curb and bars between and abutting said ribs, means for securing said plates, gutters provided on the lower edges of said bars, and troughs arranged on the inside walls of said curb to receive the contents of said gutters, substantially as described.

5. In a skylight, the combination, with wooden curb-bars arranged at an incline, of metal ribs inserted into the upper edges of said bars and extending lengthwise thereof, glass panes resting upon said bars between and abutting said ribs, a suitable filling material such as putty closing the joints between said ribs and glass and wherein the edges of the glass are embedded, gutters suspended beneath the lower edges of said bars and adapted to gather up the leakage and water of condensation, and wings provided on said bars between said gutters and the abutting edges of said plates, substantially as described.

6. In a skylight, the combination, with wooden curb-bars arranged at an incline, of metal ribs inserted into the upper edges of said bars and extending lengthwise thereof, glass panes resting upon the upper edges of said bars between and abutting said ribs, means for securing said plates, clips interposed between the abutting edges of said plates to conduct the leakage to the sides thereof, gutters substantially V-shaped in cross-section suspended beneath the lower edges of said bars to receive the leakage from said clips and the water of condensation from said plates and bars, and water-conducting means provided on said bars between said gutters and said clips, substantially as described.

7. In a skylight, the combination, with wooden curb-bars arranged at an incline and having substantially flat upper and lower edges, of metal ribs inserted into the upper edges of said bars and extending lengthwise thereof, glass panes resting upon the flat upper edges of said bars between and abutting said ribs, clips interposed between the abutting edges of the plates substantially at right angles to said bars, V-shaped gutters provided on the lower edges of said bars and guiding strips or plates provided on said bars between said gutters and said clips, for the purpose specified.

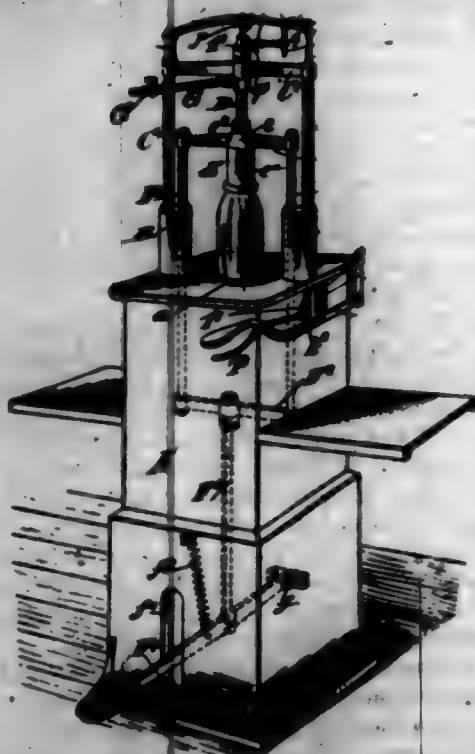
8. The combination, with wooden bars arranged at an incline, of a curb wherein said bars are supported, metal ribs inserted into the upper edges of said bars and extending lengthwise thereof, glass panes resting upon said upper edges and said curb between said ribs and abutting the same, means for holding said plates in place, gutters provided on the lower edges of said bars to receive the drippings therefrom, troughs near the lower ends of said gutters and discharge-holes provided in said curb wherein the leakage of the skylight and the water of condensation are directed by said troughs, substantially as described.

9. In a skylight, the combination, with the curb-bars and the glass panes resting thereon, of gutters provided beneath the lower edges of said bars, clips 18 having depending loops 14 provided on said bars and sup-

porting said gutters, clips 8 provided between the abutting ends of said plates and wings secured on said bars between said gutters and said clips, for the purpose specified.

10. In a skylight, a curb provided with troughs on its inside wall and discharge-holes communicating with said troughs, in combination, with curb-bars and plates, and gutters carried by said bars and adapted to deliver the drippings from said plates to said troughs.

697,221. BOTTLE-FILLING MACHINE. LOUIS SYMMER and CHARLES W. WILLIAMS, New York, N. Y., assignors to The Century Squeezer Company, New York, N. Y., a Corporation of New Jersey. Filed Apr. 27, 1901. Serial No. 57,786. (No model.)



Claim.—1. In a bottle-filling machine, the combination, with a guide-stack suitably supported, of a cup-shaped housing guided and shiftable longitudinally on said stack, means for supplying liquid directly into the bottle, and means for removing the stopper from the bottle, substantially as set forth.

2. In a bottle-filling machine, the combination, with a suitably-supported guide-stack, of a housing guided on said stack and being shiftable longitudinally thereon, means for supplying liquid to the bottle while housed, and means for picking the stopper up completely from the mouth of the bottle so that no part of the stopper projects into the mouth, and for shifting the same bodily to one side out of the path of the supply-stream, substantially as set forth.

3. In a bottle-filling machine, the combination, of a housing or casing for horizontally inclining the neck portion of the bottle to be filled, a longitudinally-movable gripper or clutch adapted to engage the stopper, means for exerting a pull on the gripper for unscrewing the stopper, means for shifting the gripper with the attached stopper to one side, and means for supplying and shooting the liquid directly into the bottle, substantially as set forth.

4. In a bottle-filling machine, the combination, of a housing or casing for horizontally inclining the neck portion of the bottle to be filled, a spring-jaw gripper, the jaws of which are suitably recessed to engage the stopper of the bottle to be filled, a slide-rod to which the gripper is pivoted, means for operating said slide-rod, means for shifting the gripper sidewise, and means for supplying liquid directly into the mouth of the bottle, substantially as set forth.

5. In a bottle-filling machine, the combination of a housing or casing for horizontally inclining the neck portion of a bottle to be filled, means for operating said housing, and a guide-stack suitably supported and on which the housing is movable, said stack being provided with a liquid-supply passage or channel, and also an independent and separate air-outlet passage or channel, both extending longitudinally through the guide-stack, substantially as set forth.

6. In a bottle-filling machine, the combination, with a suitably-supported guide-stack provided with air and liquid passages, of a housing or casing shiftable on said guide-stack and adapted to receive the neck portion of the bottle to be filled, a gripper or clutch at the outer end of the guide-stack, means for exerting a pull on the gripper, and means for shifting the same to one side, substantially as set forth.

7. In a bottle-filling machine, the combination, with a suitably-sup-

ported guide-stack provided with a liquid-supply channel, and a stationary tubular discharge-nozzle projecting from the lower end of said channel, of a housing or casing shiftable longitudinally on the guide-stack, means for operating the housing, means for unscrewing the stopper from the bottle and shifting the same to one side, and means for permitting the escape of the air displaced from the bottle, substantially as set forth.

8. In a bottle-filling machine, the combination, with a spring-jaw gripper or clutch for engaging the bottle-stopper, of means for shifting the gripper or clutch laterally, so as to move the stopper to one side, substantially as set forth.

9. In a bottle-filling machine, the combination, with a spring-actuated gripper or clutch adapted to engage the stopper of the bottle, of means for shifting the gripper or clutch to one side against the action of its spring, substantially as set forth.

10. In a bottle-filling machine, the combination, with a guide-stack provided at one end with an incline or cam surface, of a housing or casing guided on the said stack, a stopper gripper or clutch provided with a shoulder, means for exerting a pull on said gripper, whereby the shoulder is brought in contact with said incline, and means for supplying a liquid into the bottle while housed, substantially as set forth.

11. In a bottle-filling machine, the combination with a stack having a longitudinal bore, of a slide-rod, one of the ends, being irregular in cross-section, so as to provide minute passages or channels between the adjacent points of contact of the slide-rod and the wall of the bore, and suitable means actuated by the slide-rod for unscrewing the bottle, substantially as set forth.

12. In a bottle-filling machine, the combination, with a suitably-supported housing or casing adapted to horizontally incline the neck portion of the bottle to be filled, of means for automatically opening the stopper of the bottle, means for filling the bottle, a relief device or valve, a hand-lever connected with said hand-lever and engaging said disconnected from the spindle of the valve of the relief device, substantially as set forth.

13. In a bottle-filling machine, a slide-rod, having a pivoted stopper gripper or clutch thereon, provided with automatically-opening recessed gripping-jaws, substantially as set forth.

14. In a bottle-filling machine, a slide-rod, in combination with a spring-jaw gripper or clutch pivoted to the said rod, and a spring leading to also the gripper with the rod, substantially as set forth.

697,222. CLASP FOR GARMENT-SUPPORTER. THOMAS P. TAYLOR, Bridgeport, Conn. Filed Feb. 10, 1902. Serial No. 58,595. (No model.)



Claim.—1. In a garment-supporter comprising a steel and a slotted metal plate carried by a suitable tape, the loop secured in position intermediate of said plate and steel, said loop composed of a non-elastic core and an outer covering of rubber, substantially as set forth.

2. In a garment-supporter comprising a steel and a slotted metal plate carried by a tape, the loop secured in position intermediate of said plate and steel, which loop does not extend to the bottom of said slot in said plate and is composed of a core of non-elastic flexible material and an outside covering of rubber, substantially as set forth.

697,223. MAP-WRINGER. FRANK W. TRAVIS, Birmingham, Ala., assignor to Anna B. Travis, Birmingham, Ala. Filed Aug. 21, 1901. Serial No. 54,598. (No model.)

Claim.—1. In a map-wringer, the combination with a rigid frame having perforate walls, of a rotating jaw pivoted in said frame on the side nearest the center of the roll, on a single center of oscillation; a swinging jaw pivoted to the frame on the side toward the wall of the roll, and an operating-handle connected with the frame having an operative connection with said swinging jaw, substantially as specified.

2. In a map-wringer, the combination with a rigid frame having perforate walls, of a rotating jaw pivoted in said frame on the side nearest the center of the roll, on a single center of oscillation; a swinging jaw

pivoted on the frame on the side toward the wall of the roll, having a perforate bottom attached thereto, and an operating-handle connected with the frame having an operative connection with said swinging jaw, substantially as specified.

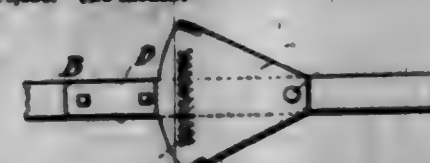


3. The combination in a map-wringer of a frame, two opposing-jaws mounted in said frame one of which is movable, both of which jaws are provided with grid-bars having V-shaped faces and so disposed that the faces of the bars of one jaw shall oppose the spaces between the bars of the other jaw, and means for actuating one of the jaws, substantially as specified.

4. The combination in a map-wringer of a frame, a movable compressing-jaw mounted in said frame and means connected therewith for actuating the same, an accommodating jaw pivoted on the frame on a single center of oscillation, and a device intermediate said jaws and actuated by the back stroke of the compressing-jaw for setting the accommodating jaw to its most open position to take in a map, substantially as specified.

5. The combination in a map-wringer of a frame and two opposing-jaws supported therein, one of which is pivoted on a single center of oscillation and the other is arranged to reciprocate toward and from the first, both of said jaws having parallel V-shaped faces and so disposed that the faces of the bars of one jaw shall oppose the spaces between the bars of the other, the reciprocating jaw being provided with a horizontal perforated plate which forms the bottom of the inclosure which receives the map, and a retracting-hook connected with the reciprocating jaw adapted to cooperate with the bottom edge of the oscillating jaw to open the jaws to their widest capacity on the completion of the back stroke of the reciprocating jaw, substantially as specified.

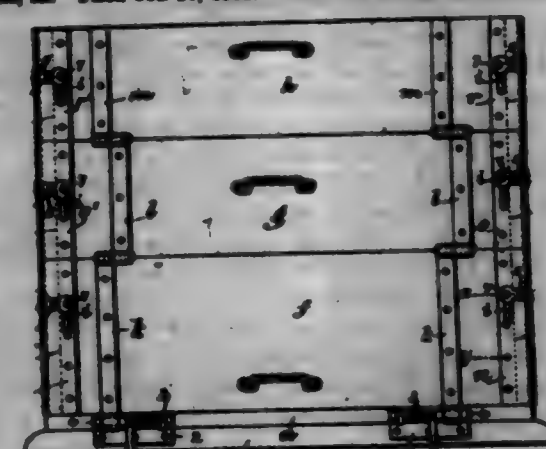
697,224. VEHICLE-REACH. JAMES W. TRAVIS, Boardman, and HARRISON A. DUNN, Medical Lake, Wash. Filed Sept. 20, 1901. Serial No. 71,528. (No model.)



Claim.—1. The combination with a two-part reach, of two plates secured to one part of the reach on its upper and lower sides against movement and provided with stop-ears, a bolt pivotedly connecting the other part of the reach to the forward end of the plates, and a coiled spring carried by the rear end of the forward part of the reach and adapted to coast with the stop-ears and thereby relieve the pivot-bolt of undue strain, substantially as set forth.

2. The combination with a two-part reach, of two plates secured to one part of the reach on its upper and lower sides against movement and provided with stop-ears, a bolt pivotedly connecting the other part of the reach to the ends of the plates, and a coiled spring located in a transverse aperture formed in the rear end of the forward part of the reach and having its ends projecting beyond the sides thereof and adapted to engage the stop-ears and thereby relieve the pivot-bolt of undue strain, substantially as set forth.

697,225. FARM-WAGON BODY. BRADLEY F. WARDENBURG, Rock Hill, S. C. Filed Oct. 17, 1901. Serial No. 71,521. (No model.)

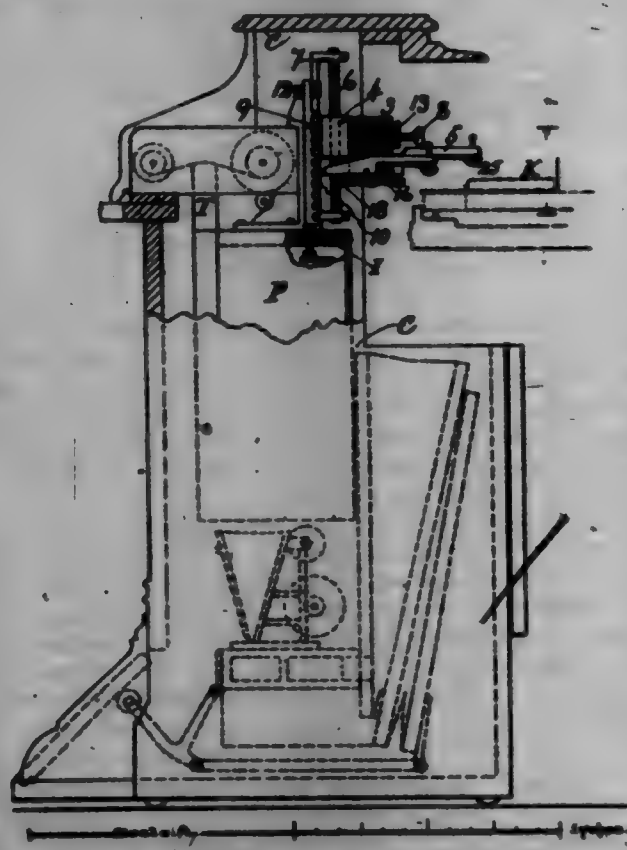


Claim.—1. In a wagon-body, the combination with the sides, the bottom and an end-gate section, of corner angle-plates secured to the ends of the mid section projecting beyond the same to receive and overlapping upon the ends of the sides, and devices attached to the sides and adapted to pass through the said corner angle-plates and other devices pivotally connected to the said corner angle-plates and adapted to engage the abutment devices in connecting the parts, substantially as set forth.

2. In a wagon-body, the combination with the sides, the bottom and an end-gate section, of corner angle-plates secured to the ends of the mid section projecting beyond the same to receive and overlapping upon the ends of the sides, said corner angle-plates having mortises and lapped or outwardly-bent portions, and latch angle-plates secured to the sides and adapted to pass through the lapped and mortised portions and project beyond the surfaces of the corner angle-plates, and pivoted locking-levers adapted to engage the free ends of the latch angle-plates in connecting and holding the parts together, substantially as set forth.

3. In a wagon-body, the combination with the sides, the bottom and an end-gate section, of corner angle-plates secured to the ends of the mid section projecting beyond the same to receive and overlapping upon the ends of the sides, having mortises in the rear portions that are secured upon the mid and section and lapped or outwardly-bent portions in the overlapping ends of mid angle-plates and adjacent to the mortises, latch angle-plates connected to the sides by bolts passing through mortises therein and which provide an adjustment, said latch angle-plates passing beneath and through the lapped portions and mortises and projecting beyond the surfaces of the corner angle-plates and pivoted locking-levers with gravity-handles and cam-ribs secured to the corner angle-plates at the ends of the end section and adapted to engage grooves in the free edges of the latch angle-plates in connecting the parts and securing the same together, substantially as set forth.

697,226. AUTOMATIC PIANO-PLAYER. FRANK C. WHITE, Morristown, Conn., assignor to White & White Company, Morristown, Conn., a Corporation of Connecticut. Filed Nov. 24, 1901. Serial No. 227,761. (No model.)



Claim.—1. In an automatic piano-player, the combination with the body-casing, and pneumatically-controlled action devices or puppets; of finger-actuating members respectively provided with means for engagement of the playing-finger at various positions thereon, a series of detachably-engaged playing-fingers actuated thereby, and means for the support of said fingers adjustable for elevation and depression within the casing, for changing the operating relation and height of the series of fingers with respect to the positions of engagement with the finger-actuating members, and to the pneumatically-controlled action devices.

2. An automatic piano-player having an independently-adjustable series of playing levers or fingers, in combination with the finger-actuating mechanism, the fingers and operating devices having means for connecting and operating said fingers at different positions of height in relation to the actuating mechanism.

3. In an automatic piano-player, the combination, with the fingers, finger-bed and mano-controlled action devices; of a series of finger-engaging levers or pistons respectively provided with a plurality of notches, lugs or detents engageable with said fingers, at different positions or heights thereon, and means for adjusting the finger-bed for establishing engagement of the fingers with the lever-detents, at different working positions.

4. The combination, with the finger-bed, the player levers or fingers, and the upright standards or supporting-guides for the ends of said bar, of bearing-pieces adjustable up and down said guides, said bearing-pieces respectively provided with an arm whereon said finger-bed is movably supported, means for securing said finger-bed upon the arms, and devices for securing the bearing-pieces at adjustable position on the guides.

5. The combination of a finger-piston having a series of notches, lugs or projecting detents, a finger-lever adapted for detachably engaging therewith at its free end, a slidable finger-bed in which said finger is pivotally fingered, supports for containing the bar and fingers, and means for releasing said finger-bed for disengaging and reengaging said finger and with either of said lever-detents, and means for securing said finger-bed at the positions of adjustment.

6. In an automatic piano-player, the combination with actuating members and playing-fingers mutually engageable at steps or positions corresponding with notches or detents on the actuating members, and a movable finger-bed carrying said fingers; of guides, and adjustable supporting devices for said finger-bed adapted for adjusting and containing the finger-bed and fingers at said step positions, and for varying the adjusted relation of the finger-bed to stand above or below the normal working level of the fingers as engaged at the respective notches or detents.

7. In an automatic piano-player, the combination of a movable finger-bed, the series of playing-fingers fingered thereon, guiding-supports for the respective ends of said finger-bed, and adjusting levers or bearing-pieces connecting said finger-bed to the guiding-supports, said bearing-pieces being independently adjustable thereon at each end of the bar, and adapted for permitting a skew or inclined adjustment of said bar and series of fingers relatively to the level of the action-bed.

8. In an automatic playing attachment for manual musical instruments, comprising a pneumatically-operated action mechanism, a set of organ-reeds with valves and tracker-pins therefor, a series of manual playing-fingers, a finger-bed or bar that is adjustable up and down to different working positions; the finger-actuating pistons respectively having a plurality of notches or detents for engaging the finger, and provided with a rest for the end of said tracker-pin, and a foot-pin engaging the action-puppet, substantially as and for the purpose set forth.

9. In an automatic piano-player provided with a set of organ-reeds or sound-producing devices, the combination, of the detented lifters, the playing-fingers engageable therewith at different heights, a movable finger-bed carrying said fingers, standards, and guide-rods and/or movable in said standards, supporting-bearings for said finger-bed adjustably secured on said guide-rods, and a controlling means, substantially as described, for moving said guide-rods within the standards for throwing the fingers into and out of playing contact.

10. In a piano-player, the combination with the finger-actuating pistons having a plurality of finger-engaging notches or detents, a series of disengageable fingers, and the adjustably-supported finger-bed carrying said fingers; of an overer device adapted for supporting the finger ends in serial alignment when disengaged from the lifters.

11. In a piano-player, the combination with the finger-bed carrying the fingers, the standing guide-rod and the bearing-piece adjustable on said guide-rod and having an arm upon which said finger-bed is supported; of a set-screw threaded into said arm and/or and impinging against the guide-rod, and a collar-nut threaded upon said set-screw and impinging against said finger-bed, for the purpose set forth.

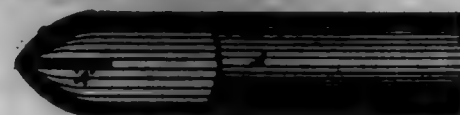
12. In a piano-player, in combination with the notched finger-actuating lifters, the adjustable finger-bed carrying the fingers, the adjustable bar-supporting bearing-piece, and standard guide-rods; of a spring-pressed steel arranged in said bearing-piece, and a guide-standard having lugs or recesses for engaging with said steel in corresponding relation to the detents of the lifters, for the purpose set forth.

13. In a piano-player, a finger or playing lever having a pressure-head consisting of a conical or cylindrical cushioned block transversely secured to a metal spring, the opposite end of said spring-arm being connected by fastening devices to the under side of the finger at a distance from its end, and an adjusting screw arranged through the end of the finger, and impinging upon the spring-plate at the back of the head, substantially as shown and described.

14. In an automatic piano-player, the combination, of a finger-actuating member having a plurality of engaging detents, a series of playing-fingers having ends adapted for engaging therewith, a finger-bed carrying said fingers, and finger-bed supports that afford horizontal move-

ment and vertical adjustment at each end of said finger-bed, and means for independently confining the parts at adjusted positions.

697,227. INNER TUBE FOR PNEUMATIC TIRES. FRANK A. WILSON, Erie, Pa., and JOHN E. GARNER, Akron, Ohio, assignors to Pennsylvania Rubber Company, Erie, Pa., a Corporation of Pennsylvania. Filed Feb. 24, 1902. Serial No. 22,392. (No model.)



Claim.—1. In an inner tube for pneumatic tires, an end closure comprising the end portion thereof turned back into the tube, the adjacent faces of said internal portion of the tube cemented together, and a reinforcing-strip of rubber or fabric cemented around the end of the tube, substantially as set forth.

697,228. MACHINE FOR SHREDDING AND GRINDING LEATHER. ROBERT J. YOUNG, Philadelphia, Pa. Filed Nov. 22, 1901. Serial No. 22,222. (No model.)



Claim.—1. In a shredding machine of the character stated, a beater formed of a body, a shaft carrying the same, and arms projecting radially from said body in combination with blades having radial slots in their inner ends which latter are seated on said arms, and bolts passing through said slots into said arms.

2. In a shredding-machine of the character stated, a casing having a concave throat and openings in its wall, in combination with shoulders projecting radially from the exterior of said casing adjacent to said openings, blades passing through said openings and having slots on their exterior ends, which latter are seated on said shoulders, and bolts passing through said slots into said shoulders.

3. A casing having a concave throat, blades passing freely through the wall of said casing and projecting into said concave, and bolts on the exterior of said casing for connecting said blades with said wall and adjusting them in inwardly and outwardly directions.

4. A casing having a concave throat, blades passing freely through the wall of said casing, said blades being provided with slots, radially-extending shoulders on the exterior of said casing and screws passing through said slots into said shoulders.

5. A casing having a concave throat, stationary blades entering said concave, a rotary beater with blades thereon in said concave, the opposed edges of the sets of said blades being respectively of cutting and grinding nature and means for adjusting the blades of the concave and beater in inwardly and outwardly directions.

6. In a machine of the character stated, a casing having openings therein, blades freely fitted in said openings and projecting outside of said casing, the exterior portions of said blades having slots therein, radial shoulders on the exterior of said casing, and bolts passing through said slots, in combination with a beater having arms and blades adjustably connected with said arms.

7. In a machine of the character stated, a beater provided with arms, blades with slots on said arms, and bolts passing through said slots into said arms, in combination with a casing having openings in the wall thereof, blades in said openings projecting partly within and partly without said casing, shoulders on the exterior of said casing and means for adjustably connecting the blades of the casing with said shoulders.

697,229. ROLLERS FOR ROLLING AND ORNAMENTING SHEET OR FLAT GLASS. LEON APPEL, Paris, France. Filed Oct. 2, 1901. Serial No. 22,097. (No model.)

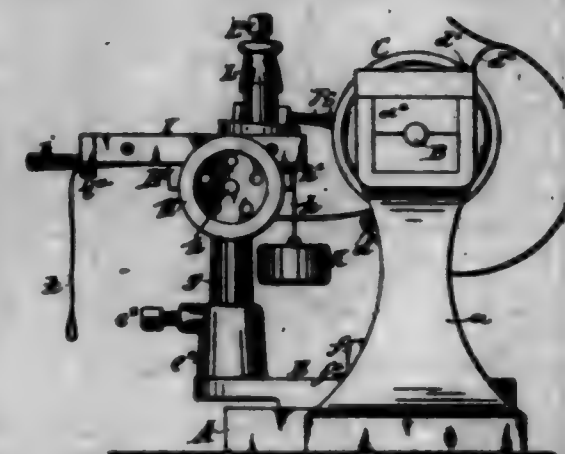
Claim.—1. In a device for ornamenting glass, a shaft with a longitudinal feather, and cylindrical ornamented disks or plates removably set on the said shaft and bolted together, the said disks having each a

notch to fit the feather on the shaft and holes for the passage of the bolts, as set forth.



2. A roller for ornamenting glass, consisting of a shaft with an exterior longitudinal feather, a plurality of cylindrical ornamented disks removably secured on said shaft and having notches to receive the feather, larger disks at the ends of said disks bearing against the ends of said feather and the adjacent disks and bolts passing through the end and intermediate disks and provided with nuts on their ends, substantially as shown and described.

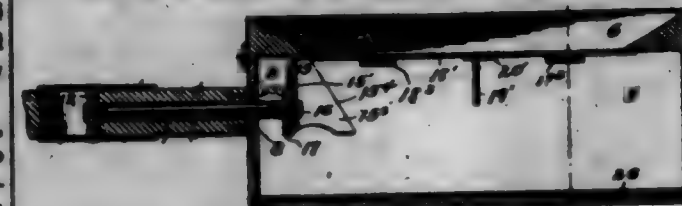
697,230. DIAMOND-CROSS-CUTTING MACHINE. OTTO ADAM, New York, N. Y. Filed May 22, 1901. Serial No. 21,624. (No model.)



Claim.—1. In a diamond-cross-cutting machine, the combination of a cutting-disk, means for operating the same, a suitably-supported guide-rail arranged transversely to the cutting-disk, a traverse-disk guided on said guide-rail, a feed-disk guided on the traverse-disk in a line transverse to the line of travel of the traverse-disk, a clutch-holding device mounted on the feed-disk, a pulley at the inner end of the traverse-disk, a cord connected therewith and guided over said pulley, a weight suspended from said cord and movable with the traverse-disk, and means for connecting said cord at different points in its length with said feed-disk, substantially as set forth.

2. In a diamond-cross-cutting machine, the combination of a cutting-disk, means for operating the same, a guide-rail supported transversely to the cutting-disk, a traverse-disk guided on said guide-rail and provided with a channel at its upper part, a feed-disk guided on the traverse-disk parallel with said channel, a clutch-holding device on the feed-disk, a pulley at the inner end of the traverse-disk in line with said channel, a cord connected with the rear end of said feed-disk, in line with said channel, and passing through the latter and over said pulley, and a weight suspended from said cord and movable with said traverse-disk, substantially as set forth.

697,231. CONTRIBUTION BOX. EDWARD A. SUMM, Hartford, Conn. Filed Feb. 4, 1902. Serial No. 22,222. (No model.)



Claim.—1. In a collection-box, the combination, with a receptacle, of a cover, a false bottom for said cover, a handle, and means movably mounted on the handle for actuating the false bottom.

2. In a collection box, the combination, with a receptacle, of a cover, movable lid carried by said cover, a handle rigid with the receptacle; a movable device constructed to control the movement of said lid; and means carried by the handle for actuating said device.

3. In a collection-box, the combination, with a receptacle, of a pair of hinged lids; a handle; and means movably mounted on the handle for actuating said lids.

4. In a collection-box, the combination, with a receptacle, of a false bottom; steps for limiting the movement of said false bottom; a device for closing said false bottom; a handle; and means movable on said handle for actuating said device.

5. In a collection-box, the combination, with a receptacle, of a handle having a bore; a rod movably mounted in said bore; said rod movably connected to the receptacle; and means controlled by the rod for actuating the lid.

6. In a collection-box, the combination, with a receptacle, of a handle having a slot and a longitudinal bore communicating with the slot and the interior of the receptacle; of a rod mounted in said bore; a hand-group connected to the rod; a cover; a false bottom to said cover; and means controlled by the rod for actuating said false bottom.

7. In a collection-box, the combination, with a receptacle, of a handle having a slot; plates covering said slot; a rod; means for connecting said plates to the rod; and said rod controlled by the rod.

8. In a collection-box, the combination, with a receptacle, of a handle; a rod carried by said handle; a winged plate carried by said rod; and a false bottom actuated by said plate.

9. In a collection-box, the combination, with a receptacle, of a movable plate having a cam-surface; and a false bottom actuated by said plate.

10. In a collection-box, the combination, with a receptacle, of a movable cover; steps carried by said cover; a pair of lids hinged to the cover; steps carried by said lids; a handle; a rod carried in a bore of said handle; a movable plate having cam-surfaces, and carried by said rod; and cam-plates carried by said handle and connected to said rod.

11. In a collection-box, the combination, with a cover for said box, of a false bottom for said cover; a handle; and means movably mounted on the handle for controlling the movement of said false bottom.

12. In a collection-box, the combination, with a hinged cover constituting a hopper; of a false bottom for said cover; a handle; and means carried by the handle for actuating said false bottom.

13. In a collection-box, the combination, with a receptacle, of a cover movably mounted on said receptacle; a false bottom carried by the cover; and opening by gravity; and means for positively closing said false bottom.

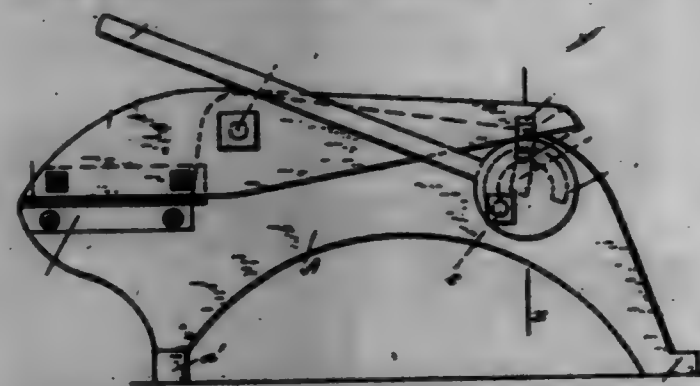
14. In a collection-box, the combination, with a receptacle having a handle, of a cover hinged to said box; a false bottom composed of movably-mounted plates carried by the cover; a device having cam-surfaces for actuating said plates; and means carried by the handle for actuating said device.

15. A collection-box consisting of a receptacle; a false bottom; a handle; a device for closing said false bottom; and means movable on said handle for actuating said device.

16. A collection-box consisting of a receptacle; a false bottom opening by gravity; and upon which contributions may be deposited; a movable device for closing said false bottom; and means for actuating said movable device.

17. A collection-box consisting of a receptacle; a cover; a false bottom composed of plates movably connected to said cover; means for actuating said plates; and a device for actuating said means.

697,982. **SHERR, HARLOW F. CANT, Austinville, Iowa.** Filed July 17, 1901. Serial No. 63,605. (No model.)

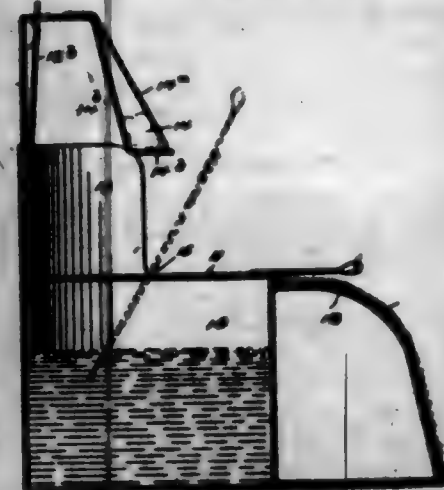


Claim.—1. The combination, with a main frame, and a lever shear-blade secured at its front end; of an operating-lever pivoted against the side of the said frame, an upper shear-blade secured to the front end portion of the said lever and working against the lower shear-blade, an eccentric pivoted to the rear end portion of the main frame and provided with a handle which projects forwardly over the said blades, and means for holding the rear end portion of the said lever in contact with the said eccentric, substantially as set forth.

2. The combination, with a main frame provided with a projecting pivot and a slot at its rear end curved concentric with the pivot, and a

lower shear-blade secured to the front end portion of the said frame; of an operating-lever mounted on the said pivot and having a hole in its rear end portion, an upper shear-blade secured to the front end portion of the said lever, an eccentric pivoted to the rear end portion of the main frame and provided with a curved slot in its side and an operating-handle, and a removable bar which is slidable in the said curved slot of the frame and provided with projections at its ends which engage respectively with the hole of the lever and the slot of the eccentric, substantially as set forth.

697,983. **ANIMAL-TRAP. JAMES GRABBE, Torrington, Conn.** Filed Jan. 14, 1902. Serial No. 63,578. (No model.)



Claim.—1. A trap comprising a reservoir, a tilting platform covering the reservoir, a guard, a bait-holder and a runway leading to the platform, the surface of said runway being covered first with wire-netting and then with felt.

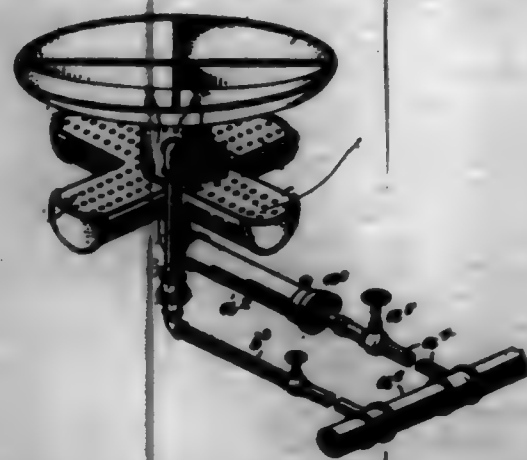
2. A trap comprising a reservoir, a tilting platform covering the reservoir, a guard at the back of the platform, a runway leading to the platform, a primary bait-holder and a secondary bait-holder back of and above the primary bait-holder so that an animal in attempting to reach it will tilt the platform and be thrown into the reservoir.

697,984. **FUEL BLOCK AND BRIOUET. FRANCIS CHASE, New York, N. Y., assignor to Standard Brick-Block Company, a Corporation of New Jersey.** Filed June 22, 1901. Serial No. 66,605. (No specimens.)

Claim.—1. A fuel block or briquet composed of compressed fuel and a binder containing an essential ingredient calcium silicate and alkali.

2. A fuel block or briquet composed of compressed fuel and a binder containing as ingredients calcium silicate, sodium silicate and dextrine, in substantially the proportions specified.

697,985. **GAS-HEATER. OLIN W. KATYMER, Indianapolis, Ind.** Filed Dec. 1, 1902. Serial No. 64,271. (No model.)



Claim.—1. In a heater, the combination of a burner having gas-emitting apertures, a second burner consisting of a hollow part located centrally above and smaller than the other burner, and having a substantially vertical surface in which are gas-emitting apertures, and a deflector above both of said burners, substantially as described.

2. In a heater, the combination with a part having substantially horizontal hollow arms provided with gas-emitting apertures, of a hollow part located centrally above said arms having a substantially vertical sur-

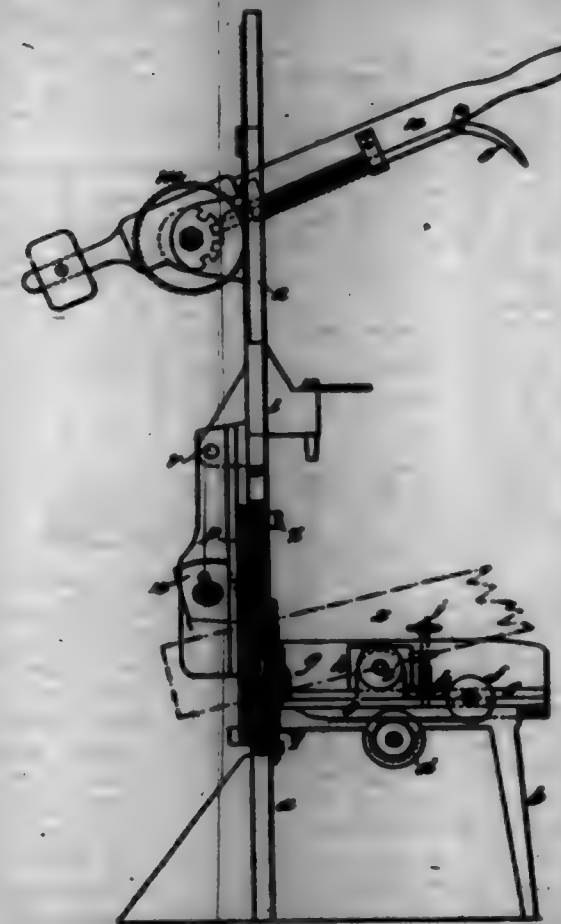
face in which are gas-emitting apertures, and a deflector above said parts, substantially as and for the purpose described.

3. In a heater, the combination with a part having substantially horizontal hollow arms provided with gas-emitting apertures, of a hollow part located centrally above said arms having a substantially vertical surface in which are gas-emitting apertures that are above the level of said first-mentioned apertures, and a deflector above said parts, substantially as and for the purpose described.

4. In a heater, the combination with a part having hollow arms radiating horizontally from a center, each arm having gas-emitting apertures, of a hollow part having a substantially vertical surface in which are gas-emitting apertures, that are above the level of said first-mentioned apertures, each part being located centrally above said arms, and a substantially circular horizontal deflector above said parts, substantially as and for the purpose described.

5. In a heater, the combination of a burner having gas-emitting apertures and provided with a centrally-disposed flange on its upper side, the gas-emitting apertures being outside of the flange, a second burner consisting of a hollow cylindrical part having gas-emitting apertures in its side and fitted over said flange, and a deflector for both of said parts supported by said hollow part, substantially as and for the purpose described.

697,986. **NORTHROP, THOMPSON, AND GROOVING MACHINE. JOHN CLARK, London, England.** Filed Jan. 26, 1902. Serial No. 61,337. (No model.)



Claim.—A hand mortising, tunneling and grooving machine comprising a table adjustable transversely and movable longitudinally by hand, provided with means of tilting and clamping the wood operated on, a hand-lever toothed wheel and rack for vertically reciprocating a piece adapted to hold a mortising-tool, a pair of transversely-sliding plane-holders with racks and gear worked by a loaded lever descending to an adjustable stop, and a pair of planes guided to reciprocate vertically, substantially as described.

697,987. **FRUIT-DRAINING TRAY. JAMES E. CHASE, Nashville, Tenn.** Filed Apr. 5, 1901. Serial No. 64,602. (No model.)

Claim.—1. The herein-described drying-frame composed of the corner-plates having the corner-blocks, and the legs depending therefrom and provided at their lower ends with tenons E, and having each corner-block, legs and tenons curved providing sockets in the upper end of the corner-blocks to receive tenons on a mating frame, each corner-plate being provided with upright side plates and with inwardly-projecting base-plates, the base and top rails fitting to said corner-plates and abutting at their ends against the corner-blocks, and the base-rails being supported at their lower ends on the base-flanges of the said corner-plates and hav-

ing in their upper ends rabbets extending from their inner edges, the frame-work bottom resting at its edges in said rabbets and below the top rails, and the bolts securing the parts together, substantially as and for the purpose set forth.



2. In a drying-frame, a corner-plate provided in its upper end with a socket and at its lower end with a depending leg adapted to rest upon the next lower corner-plate and having a projecting tenon to fit within and formed to turn in the socket of said next lower corner-plate when the frames are stacked together whereby in stacking the frames together, a projecting tenon on the uppermost frame may be fitted in the proper socket of the top frame of the pile and swing on said tenon as a pivot to bring the frame into full register with those already stacked, substantially as set forth.

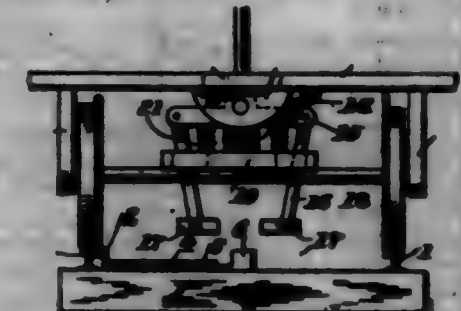
3. A drying-frame composed of the rails, the corner-plates having seats for said rails, the frame-work bottom, the bracing-rail extending below said bottom between the sides of the frame, and the leg pivoted to said bracing-rail near the side of the frame and arranged for adjustment to elevate each side of the frame, substantially as set forth.

4. The combination in a drying-frame, of the corner-plates having corner-blocks and base and side flanges projecting therefrom and arranged to form seats for the rails, the base-rails fitted to said seats resting upon the base-flanges and abutting at their ends the corner-blocks, the frame-work bottom resting upon the base-rails, the top rails resting over the frame-work bottom, and the securing device, substantially as set forth.

5. A drying-frame comprising corner-plates, having upright portions and lateral horizontal end-plates for the rails, the rails secured upon the said end-plates, and a frame-work bottom, substantially as set forth.

6. A drying-frame comprising the rails, the frame-work bottom, the corner-plates having upright portions provided at one end with the sockets and at their other ends with the tenons, to enter the sockets of the next frame, and also provided with lateral seats for the rails, substantially as set forth.

697,988. **SWITCH-OPERATING DEVICE. THOMAS CURT, New Waterford, Ohio.** Filed Jan. 2, 1902. Serial No. 63,590. (No model.)



Claim.—In a switch-operating device, the combination with the car having a slot formed therein, of an operating-lever extending through said slot, a rod-shaft suitably mounted beneath the platform of the car, said

rock-shaft being rigidly secured to said lever, a rock-arm rigidly secured to said rock-shaft, a pair of downwardly-extending converging levers pivotally secured to the ends of said rock-arm, angularly-disposed shoes carried by the lower ends of said levers, a hanger secured to the under face of the platform, an outwardly-extending slotted guide rigidly secured to said hanger, said levers passing through the said slots formed in the guide, a pair of springs interposed between the said rock-shaft and the said guide, and a switch-tongue having a rod connected thereto with a head carried by the rod for engagement with said slots whereby the switch-tongue is actuated, substantially as described.

697,289. HOG-TROUGH. FRANK E. DAVIS, Audubon, Iowa. Filed Jan. 7, 1901. Serial No. 88,708. (No model.)



Claim.—1. In combination with a hog-trough, supports for adjustable fenders composed of boards fixed to uprights that project down over the ends of the trough, fenders adjustably connected with the supports, cleats fixed to the inside faces of the ends of the boards and the uprights and cleats jointly hinged to the fixed ends of the trough at one side of the trough and the uprights and cleats detachably fixed to the fixed ends at the other side of the trough as shown and described for the purposes stated.

2. In combination with a hog-trough, supports for adjustable fenders hinged to the fixed ends of the trough and provided with slots for the reception of pivots on the ends of fenders, steps fixed to the inside faces of the supports to engage fenders and rigid fenders composed of parallel side pieces and fixed cross-pieces and pivots at the ends of the fenders adapted to extend through and traverse said slots, as shown and described for the purposes stated.

3. In combination with a hog-trough, supports for adjustable fenders hinged to the fixed ends of the trough and provided with slots for the reception of pivots on the ends of fenders, steps fixed to the inside faces of the supports to engage fenders and rigid fenders composed of parallel side pieces and fixed cross-pieces and pivots at the ends of the fenders adapted to extend through and traverse said slots and solid roof-sections hinged to the supports above the slots to fold together to produce a roof and also to fold upward and downward relative to the trough as shown and described for the purposes stated.

4. In combination with a hog-trough, supports for adjustable roof-sections and adjustable fenders, adjustable roof-sections, adjustable fenders, tapering blocks fixed to the inside faces of said supports to rest on the trough, boards fixed to the tops of the blocks, fenders composed of straight bars and short bars fixed thereto and to the top edges of said fixed boards to engage the top edges of the sides of the trough, as shown and described for the purposes stated.

5. A hog-trough and hay-rick comprising a trough having supports for roof-sections and fenders hinged to the ends of the trough, slots in said hinged supports for pivots on the ends of fenders and steps at their tops to engage fenders, fenders composed of parallel side pieces and fixed cross-bars and fixed pivots, roof-sections hinged to the supports, tapering blocks fixed to the inside faces of the supports, boards fixed to the edges of the

blocks and fenders fixed to said boards and the top edges of the sides of the trough, all arranged and combined to operate in the manner set forth for the purposes stated.

697,240. ADVERTISING DEVICE. JOHN E. DUNBAR and JOHN G. KREMER, Buffalo, N. Y. Filed Jan. 24, 1901. Serial No. 44,610. (No model.)



Claim.—1. A plurality of advertising devices, a single shiftable operating-shaft extending through and having connection with all of said advertising devices, a motor, a reversing connection between the motor and operating-shaft and means for shifting said shaft.

2. An advertising device comprising an enclosing case, two rollers in said case, an advertising-ribbon on said rollers, a shifting operating-shaft adapted to operatively engage with either of the rollers, a motor and a reversing device connecting the shaft to the motor.

3. An advertising device comprising an enclosing case, two rollers in said case, an advertising-ribbon on said rollers, a shifting operating-shaft adapted to operatively engage with either of the rollers, a gear-wheel on the operating-shaft, a motor having a shaft, and reversing-gearing connecting the motor-shaft to the gear-wheel.

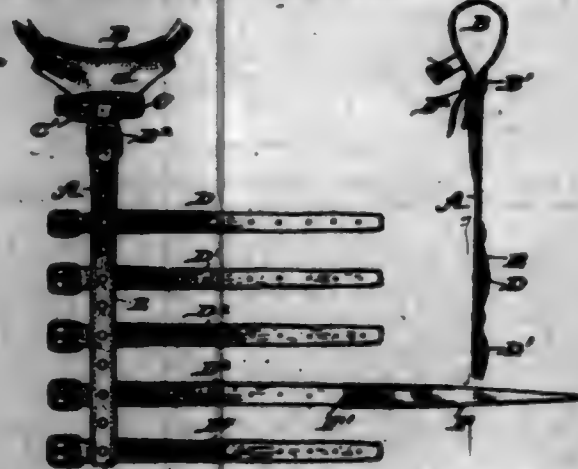
4. A car having a curved upper side provided with upper and lower recesses, a shifting operating-rod supported from the car, and a plurality of advertising devices having portions adapted to detachably fit in the recesses and slots for the passage of the shifting operating-rod; each of said slots having an inner enlarged opening to provide for the shifting movement of the rod.

697,241. WORM. FULFORD V. BURNER, Tarentum, Pa. Filed Jan. 14, 1902. Serial No. 89,723. (No model.)



Claim.—The combination with a handle having a toothed face and an integral jaw at one end, of a sliding jaw mounted on the handle and having a cut-away portion forming an arm at one end of the jaw, a worm mounted in the cut-away portion of the jaw, an operating-shaft pivoted at its inner end to the jaw and on which the worm is rotatably mounted, said shaft extending through an aperture provided therefor in the arm of the jaw and having a head on its outer end, a locking-sleeve mounted to slide on the shaft and engage in the aperture in the arm to retain the worm in engagement with the teeth of the handle, the said shaft being capable of swinging movement when the sleeve is withdrawn from the arm whereby the worm is disengaged from the teeth of the handle, and a spring on the shaft between its head and the sleeve to normally hold the sleeve in engagement with the arm, substantially as described.

697,242. HORSE-TAIL HOLDER. HARRY E. GAVITY, Topeka, Kans. Filed Nov. 4, 1901. Serial No. 81,004. (No model.)



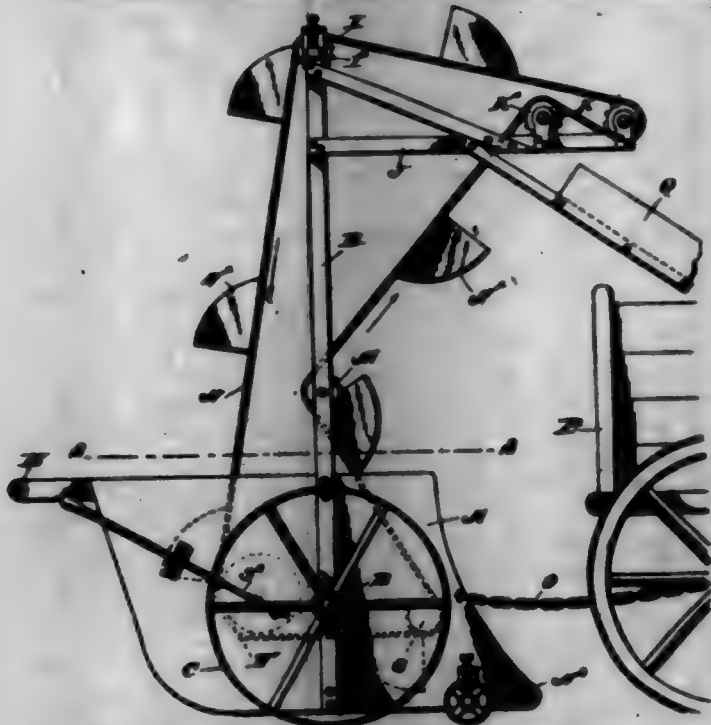
Claim.—1. A horse-tail holder substantially as herein described, consisting of the main strap, the crupper-loop secured at one end to the upper end of the main strap, buckle devices for securing the other end of the crupper-loop to the main strap, a short strap secured in the crupper-loop near the buckled end thereof and arranged for adjustment into ring form for securing the hair from working down and a series of cross-straps secured to and ranging along the main strap below the crupper-loop and adapted for use, substantially as set forth.

2. A horse-tail holder provided with a loop for connection with the crupper whereby it may be supported within the folded-up tail of the animal and having at its upper end a strap for securing the tail at the upper returned portion thereof and provided below said strap with a series of cross-straps for securing the hair, substantially as set forth.

3. A horse-tail holder adapted to secure the tail in turned-up position and to be obscured from view within the folded tail when in use and provided with devices for connection with the harness, with a strap-loop to secure the returned portion of the tail and with a series of hair-securing straps whereby it may operate to so hold the tail as to cause it to prevent the appearance of being docked, substantially as set forth.

4. A horse-tail holder, comprising a main strap a transverse crupper-loop at the upper end of the main strap, a strap adjacent to the upper end of the main strap for securing the upper returned portion of the hair, and devices on the main strap for securing the hair below the upper returned portion thereof, substantially as set forth.

697,248. CART SHOVEL AND SCRAPER. ADAM GERRINGER, Philadelphia, Pa. Filed June 11, 1901. Serial No. 64,065. (No model.)

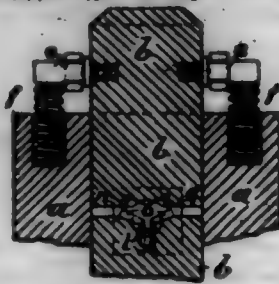


Claim.—1. In an apparatus of the character described, two traction-wheels secured to a common axle, a shovel or scraper pivoted upon said axle, two sets of sprocket-wheels, shafts upon which said sprocket-wheels are secured, said shafts extending across the interior of the shovel and journaled in each side thereof, uprights extending upward from each side of the shovel, arms extending forward from said uprights, a series of sprocket-wheels journaled upon said uprights and arms, continuous link belts, a series of buckets secured to said link belts at intervals, said link belts adapted to pass around and underneath the sprocket-wheels upon the interior of the shovel, and around and over the sprocket-wheels in the uprights and arms, said sprocket-wheels arranged so as to give the proper inclination to the belts at a certain point to cause the buckets to be emptied, a chute carried by the framework into which the buckets are adapted to empty, a vehicle adapted to be secured to said shovel, the said chute adapted to convey the dirt to said vehicle, means for transmitting power from the traction-wheels to revolve certain sprocket-wheels around which the chain passes so as to cause the chains and buckets to travel forward against the incoming dirt, substantially as described and for the purpose specified.

2. In combination, a cart shovel and scraper, two traction-wheels C, a shaft E, the ends of which are secured to the traction-wheels, a shovel or scraper A mounted upon the shaft E, a shaft F, the ends of which are journaled upon the inside of the sides of the shovel, sprocket-wheels secured upon the shaft F, sprocket-wheels G journaled upon the interior of the shovel, uprights extending upward from the sides of the shovel, arms extending forward from said uprights, sprocket-wheels H and I journaled in said uprights, sprocket-wheels K and L journaled in said arms,

continuous link belts adapted to pass around all of said sprocket-wheels, a series of buckets carried by said link belts, a vehicle adapted to be secured to said shovel, a chute carried by the framework, said chute adapted to convey the dirt emptied from said buckets into said vehicle, a gear-wheel K journaled loosely upon the shaft E, a gear-wheel T secured upon the shaft F and adapted to mesh with the gear-wheel K, a clutch fastened upon the shaft E and adapted to connect and disconnect the gear-wheel K with said shaft, means adapted to be operated from the exterior of the shovel for throwing said clutch in and out of engagement with the gear-wheel K, a handle secured to the rear end of the shovel for guiding the same, wheels D journaled in the forward end of the shovel upon each side thereof, substantially as described and for the purpose specified.

697,244. TOOL FOR MAKING, MENDING, AND SHARPENING ROCK-DRILLS. GILBERT J. STAMER, Leeds, England. Filed Sept. 3, 1901. Serial No. 74,080. (No model.)

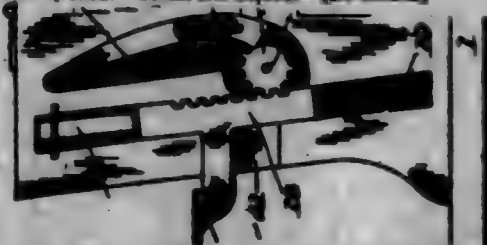


Claim.—1. In a tool for making, mending and sharpening three-winged rock-drills the combination of a holder or block a having a vertical opening through it and an opening b through the front side, a bottom die c having a vertical recess l with parallel sides and inclined bottom chisel-forming faces e and taper-side-forming faces m inclined in the opposite longitudinal direction to the incline of the faces e and a top die d having chisel-forming faces p taper-side-forming faces n inclined in the opposite longitudinal direction to the incline of the faces p and edge-forming surfaces q, the cooperating dies b and c fitting freely in the said vertical opening all substantially as and for the purposes herein set forth and illustrated.

2. In a tool for making, mending and sharpening rock-drills the combination of a block a with vertical and side openings, cooperating top and bottom dies b and c fitting freely in said vertical opening, side pins or studs e attached to the top die, springs f, and hinged forked-ended levers g g all substantially as and for the purpose or purposes set forth and illustrated.

3. In a tool for making, mending and sharpening three-winged rock-drills the combination on the working faces of bottom and top cooperating dies c and b of a vertical recess l having parallel sides and inclined bottom, chisel-forming faces e taper-side-forming faces m inclined in the opposite direction longitudinally to the incline of the faces e in the bottom die, and chisel-forming faces p, taper-side-forming faces n inclined in the opposite direction longitudinally to the incline of the faces p and edge-forming faces q in the top die respectively all substantially as and for the purpose or reasons set forth and illustrated in the accompanying drawings.

697,245. MATCH-BOX. EUGENE GREENGLASS, Brooklyn, Pa. Filed Jan. 7, 1902. Serial No. 81,312. (No model.)

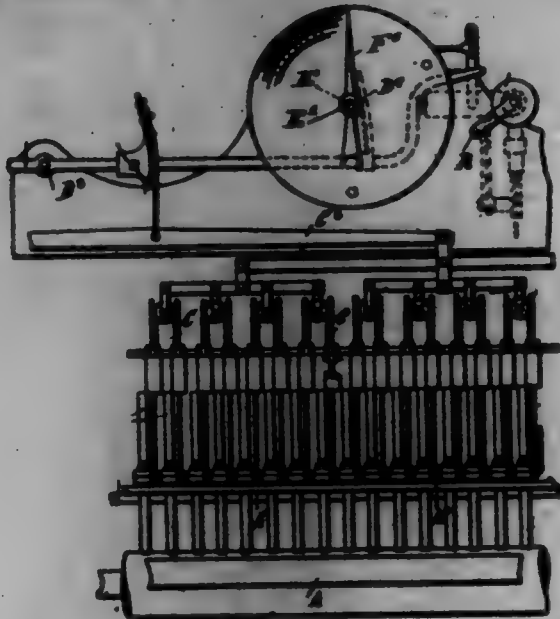


Claim.—1. In a match-box, a receptacle having inwardly-extending walls therein, an agitator mounted within said receptacle, a roller having a groove therein located within the receptacle, and means to operate the roller and agitator simultaneously.

2. In a match-box, the combination of a base, a match-receptacle mounted thereon, an agitator secured in said receptacle, inclined walls formed in said receptacle having a space therebetween, a roller having a groove formed therein secured in said receptacle, a segmental cog-wheel, a spring-pressed lever connected with said agitator, said lever bearing against said segmental cog-wheel, a cog-rack, an operating-lever connected to said rack, and means whereby said mechanism is returned to its normal position, all parts being arranged and operating substantially as described.

697,246. MECHANISM FOR MEASURING AND RECORDING MEASUREMENTS OF MATERIAL. JAMES HALL, Leeds, England. Filed May 3, 1901. Serial No. 68,068. (No model.)

Claim.—1. In a machine for measuring material such as skin and the like, the combination with the measure-indicating mechanism of a series of printing-drums and means for simultaneously imprinting the results attained onto the skin or the like and on a moving tape or strip substantially as described.



2. In a machine of the class specified, the combination of a series of printing-drums and means for pressing an intermittently-moving tape or strip against one set to receive the impression to which the types have been adjusted and means for depressing another set to imprint the same impression on the material being measured substantially as described.

3. In a machine of the class specified, the combination of type-drums mounted on the measure-indicating spindle, means for intermittently moving a tape or strip of material past the said drums, a series of swingingly-supported type-drums mounted above the material being treated, means for adjusting the same from the indicating-spindle and means for pressing the tape or band against the first set of drums and simultaneously depressing the swingingly-mounted set onto the material after it has passed the measuring-rolls in the manner and for the purpose substantially as described.

4. In a machine of the class specified, the combination of a pair of type-drums mounted on the indicating-spindle, an intermittently-moving tape or band mounted in proximity thereto, one of said type-drums having a scale of measures and the other having current numbers, an ink-pad mounted at the rear of said tape and means for projecting the same against the type-drum, a second set of two type-drums mounted above the delivery-table of the machine and corresponding to the first-mentioned set, means for adjusting them simultaneously with the latter and for depressing them, when adjusted down onto the material on the delivery-table, and means for turning the disk with the current numbers one number after each impression substantially as described.

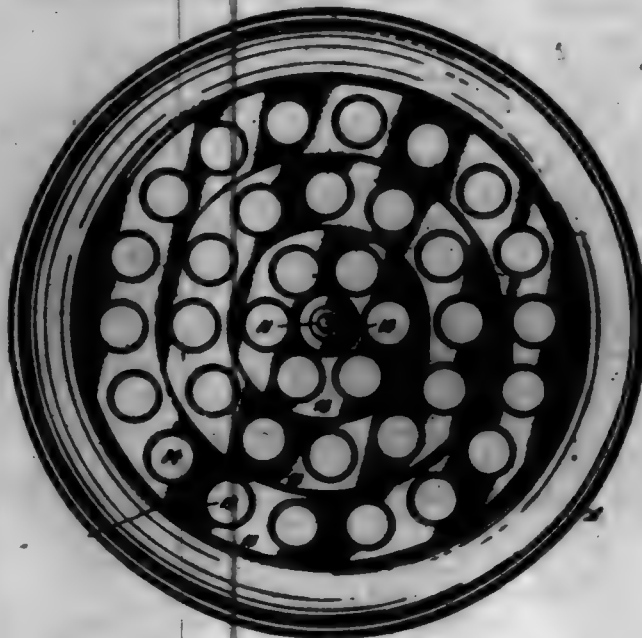
5. In a machine of the class specified, the combination of type-drums on the indicating-spindle, one of which has the scale of measures and is rotated with said spindle, and the other being loosely mounted thereon, a lever mechanism consisting of a piston with inking-pad thereon movable toward and from the said type-drum, a hand-lever to project the same toward the said drum, and a rock-lever connected to said piston draw-rolls to intermittently move a band or tape past the said drums between them and the said pad, and pawls to the said rock-lever to move one of the said rolls and the loosely-mounted type-drum at each oscillation of the said rock-lever substantially as described.

6. In a machine of the class specified, the combination of a set of type-drums on the indicating-spindle, means for adjusting one to the dimension of the skin or material being treated, and means for adjusting the other one step farther forward at each operation of the first drum, a corresponding set of type-drums mounted above the delivery-table and means for depressing the same onto the said table, a yielding frame, to connect the spindle of the indicating mechanism with that of the set of type-drums above the delivery-table, and chain-wheels and chains to couple the corresponding type-disks of each set to each other in the manner said for the purpose substantially as described.

7. In a machine of the class specified, the combination of a set of type-drums and means in connection with the same for imprinting the types adjusted by the passage of the material through the machine, onto an intermittently-moving tape or band, a second set of type-drums mounted above the delivery table and means for depressing the same down onto the table, a hand-lever and means in connection therewith for pressing the tape onto the first set of drums and for depressing the second set down

on the table when the said lever is moved and a lever system operated by the further movement of the said hand-lever to throw the dot-marks of the measuring-quadrants out of engagement as soon as the recording-disks have been operated substantially as described.

697,247. INDIVIDUAL COMMUNION-SERVICE. CALVIN F. HARRIS, New York, N. Y., assignor to Reed and Barton Corporation, Taunton, Mass. Filed Dec. 3, 1901. Serial No. 35,918. (No model.)



Claim.—1. An individual communion-service comprising a tray formed with a plurality of steps adapted to support the bottoms of the glasses, and a cover stepped to conform to the tray and formed with glass-receiving openings, and a lining for the cover formed with openings of less diameter than those in the cover, to support the glasses intermediate their ends.

2. An individual communion-service comprising a tray formed with steps, pads on said steps upon which the bottoms of the glasses rest, a removable cover stepped to conform to the tray and formed with openings, and a lining for said cover having openings of less diameter than those in the cover.

3. An individual communion-service comprising a tray formed with a plurality of steps or platforms, a removable cover for the tray provided with steps or platforms each having a row of openings, and a lining for said cover formed with openings of less diameter than the openings in the cover, but registering therewith to afford supporting-pads for glasses extending through said openings.

4. An individual communion-service comprising a tray formed with a plurality of annular steps or platforms, and a central platform; a removable cover having steps or platforms conforming to those of the tray and formed with glass-receiving openings, means for securing the cover upon the tray; pads resting on the tray-platforms, and a lining for the cover formed with openings registering with the openings of the cover but of less diameter than the latter.

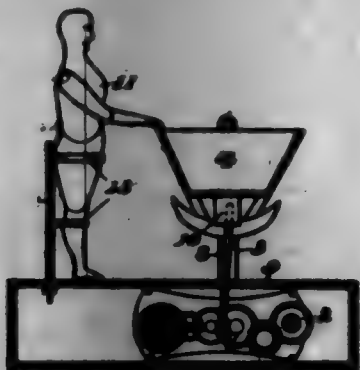
5. An individual communion-service comprising a tray having a plurality of steps or platforms, to support glasses, and a central platform, a cover having steps or platforms conforming to those of the tray and formed with glass-receiving openings, pads surrounding the tray-openings and a centrally-arranged screw for detachably securing the cover in position.

6. An individual communion-service comprising a tray formed with annular steps or platforms, a central platform, and an annular shoulder; a cover having platforms conforming to those of the tray, glass-receiving openings, and an annular depending flange resting on said shoulder, means for securing the cover in position, and a lining for said cover having openings registering with those of the cover but of less diameter than the latter.

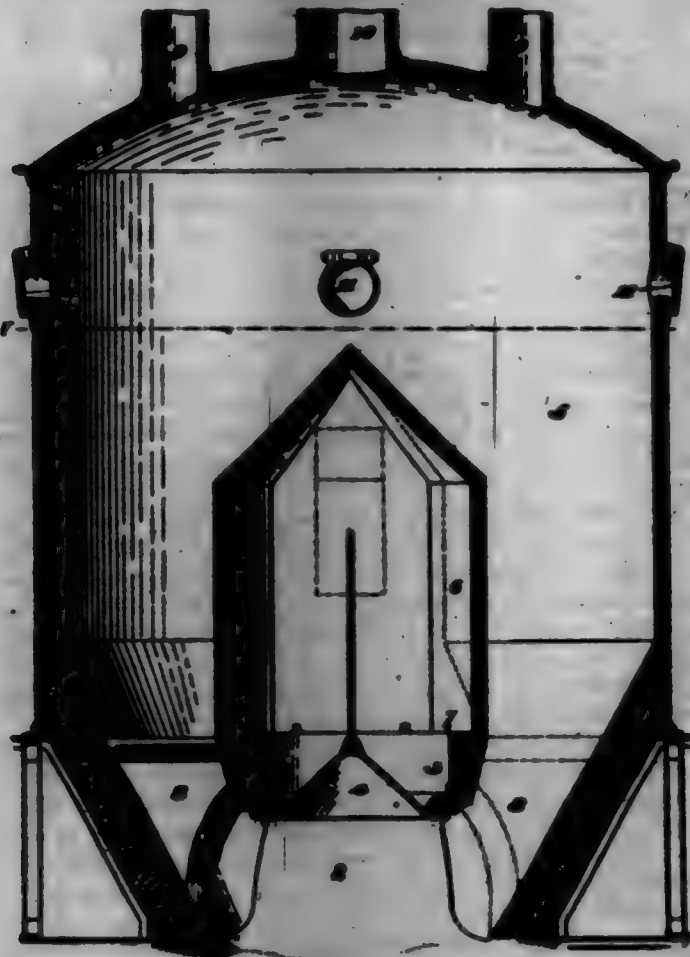
697,248. FIGURE TOY. ANNA E. HAWLEY, Manchester, Vt. Filed Feb. 2, 1901. Serial No. 46,711. (No model.)

Claim.—1. In a toy of the class described, a cradle, a motor, a direct connection between the motor and cradle whereby the latter is rocked, a figure having no direct connection with the motor, and an arm of rigid material operatively connecting the body of the figure and the cradle, all substantially as set forth, whereby the motor that moves the cradle and connection also moves the figure bodily through the medium of the cradle.

2. In a toy of the class described, a cradle, a jointed figure detachably connected to the cradle, a standard, spring-clip to hold the figure detachably to the standard, a motor to rock the cradle and move the figure, and a spring-stop bearing on the body of the figure opposite the cradle to limit the motion of said body.



697,949. BLAST-FURNACE. GEORGE F. HERRICK, New York.
N. Y. Filed Oct. 1, 1901. Serial No. 77,908. (No model.)



Claim.—1. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace and concentric hopper and an outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber situated between the stock-line and the off-charge-pipe enlarged transversely to the direction of natural flow of the gases and prolonged upwardly, said dust-chamber opening downwardly and freely into the furnace below the hopper, and an off-charge-pipe leading to a place of use and situated at such distance from the stock-line that the particles of dust to be retained in the furnace shall be checked before reaching said off-charge-pipe; substantially as described.

2. Apparatus for preventing escape of dust from blast-furnaces comprising in combination with the furnace and concentric hopper and an outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber situated between the stock-line and the off-charge-pipe, enlarged transversely to the direction of the natural flow of the gases and prolonged upwardly, said dust-chamber opening downwardly and freely into the furnace below the hopper and forming a passage for the gases at some part substantially vertical; substantially as described.

3. Apparatus for preventing escape of dust from blast-furnaces comprising in combination with the furnace, hopper and concentric outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber enlarged transversely relatively to the furnace-throat, prolonged vertically above the hopper and opening freely at its base into the furnace,

and an off-charge-pipe leading to a place of use from the dust-chamber at such elevation that the particles of dust to be retained in the furnace shall be checked before reaching said off-charge-pipe; substantially as described.

4. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace and an outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber prolonged upwardly above the stock-line enlarged transversely relatively to the furnace-throat, and opening freely at its base into the furnace below the level of the charging-opening, and an off-charge-pipe leading to a place of use from the dust-chamber at such elevation that the particles of dust to be retained in the furnace shall be checked before reaching said off-charge-pipe; substantially as described.

5. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace, a concentric charging device and outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber prolonged upwardly at the top of the furnace and enlarged transversely relatively to the furnace-throat, said dust-chamber having its blast-inlet solely from the furnace and opening downwardly and freely into the furnace below the charging-opening, and an off-charge-pipe; substantially as described.

6. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace, a dust-chamber at the top of the furnace, a concentric charging-opening, and a transverse passage leading to the charging-opening, said dust-chamber extending above said passage; substantially as described.

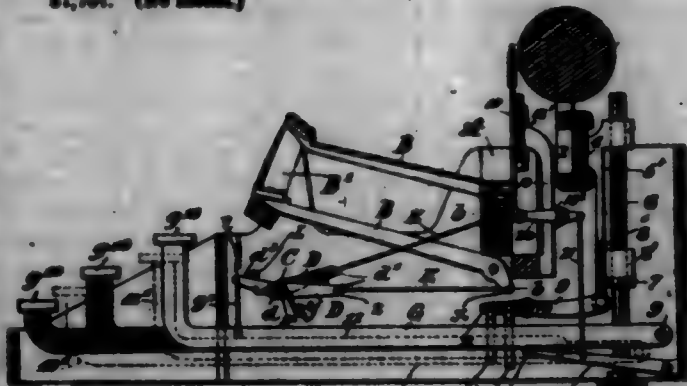
7. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace, a concentric charging device, and an outwardly-directed stock-distributor situated at the top of the furnace, a dust-chamber prolonged upwardly at the top of the furnace and enlarged transversely relatively to the furnace-throat, said dust-chamber having its blast-inlet solely from the furnace and opening downwardly and freely into the furnace through an opening or openings through which the dust enters from and returns to the furnace, and an off-charge-pipe leading to a place of use; substantially as described.

8. Apparatus for preventing escape of dust from blast-furnaces, comprising in combination with the furnace and a bell-charging device situated at the top of the furnace, a dust-chamber situated at the top of the furnace and opening downwardly and freely into the furnace, said chamber being prolonged vertically and also enlarged horizontally relatively to the throat of the furnace, and an off-charge-pipe situated above the charging-opening of the furnace and leading to a place of use; substantially as described.

9. In combination with a blast-furnace, a dust-chamber situated above the stock-line opening downwardly and freely into the furnace, prolonged upwardly at the top of the furnace-stack and enlarged transversely to the direction of the natural flow of the gases and relatively to the furnace-throat, an off-charge-pipe having its mouth vertically above the dust-chamber and a charging device situated vertically above the furnace-stack and constructed to deflect the gases outwardly in their course to the off-charge-pipe; substantially as described.

10. Apparatus for preventing escape of dust from blast-furnaces comprising in combination with the furnace, hopper and concentric outwardly-directed stock-distributor situated at the top of the furnace, and constructed to deflect the gases outwardly, a dust-chamber enlarged transversely relatively to the furnace-throat, prolonged upwardly at the top of the furnace and opening freely at its base into the furnace, and an off-charge-pipe leading to a place of use from the dust-chamber at such elevation that the particles of dust to be retained in the furnace shall be checked before reaching said off-charge-pipe; substantially as described.

697,950. WRITING-MACHINE. EDWARD R. HERR, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y., a Corporation of New York. Filed Dec. 20, 1901. Serial No. 77,707. (No model.)



Claim.—1. The combination of a pivoted type-bar, a back-stop upon which it normally lies, a type-bar-actuating connection adapted to be

10. The combination of a pivoted type-bar normally lying toward the front of the machine, an actuating connection arranged under the type-bar and comprising two members united by a flexing joint and one of which is operatively connected to the type-bar, a fixed axis about which

19. The combination of a pivoted type-bar, a type-bar-actuating con-

26. The combination of a pivoted type-bar, its operating connection comprising two members united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other rocks, the connection being arranged substantially in a straight line between the stationary axis and the point of connection with the type-bar; a stop locking the connection against flexure in one direction, to resist the tendency of the type-bar to rebound after it has completed its excursion from the printing-point; a finger-piece, and means, on the depression of the finger-piece, for flexing the connection in opposite direction, to throw the type-bar to the printing-point.

22. The combination of a pivoted type-bar, normally lying toward the front of the machine; a type-bar-extending connection arranged under the type-bar and comprising two links united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other link rocks, the connection being arranged substantially in a straight line between said axis and the point of connection with the type-bar, but with the flexing joint to one side of said line; a stop locking the connection against further flexure on the same side of the line; a spring applied directly to the link rocking about the stationary axis, and tending to hold the connection in its normal position; a finger-piece, and

means, situated by the finger-piece and connected to said connection between the stationary axis and the type-bar, for flexing the connection on the opposite side of said line, to throw the type-bar to the printing-point.

34. The combination of a pivoted type-bar, normally lying toward the front of the machine; a type-bar-actuating connection arranged under the type-bar and comprising two links united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other link rocks, the connection being arranged substantially in a straight line between said axis and the point of connection with the type-bar, but with the flexing joint to one side of said line; a stop limiting the connection against further flexure on the same side of the line; a key-lever arranged below said connection, and means interposed between the key-lever and said connection at a point between the type-bar and the stationary axis for, on the depression of the key-lever, flexing said connection on the other side of said line, to throw the type-bar to the printing-point.

35. The combination of a pivoted type-bar, normally lying toward the front of the machine; a type-bar-actuating connection arranged under the type-bar and comprising two links united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other link rocks, the connection being arranged substantially in a straight line between said axis and the point of connection with the type-bar, but with the flexing joint to one side of said line; a stop limiting the connection against further flexure on the same side of the line; a spring applied directly to the link rocking about the stationary axis, and tending to hold the connection in its normal position; a key-lever arranged below said connection, and means interposed between the key-lever and said connection at a point between the type-bar and the stationary axis for, on the depression of the key-lever, flexing said connection on the other side of said line, to throw the type-bar to the printing-point.

36. In a front-stroke or visible-writing machine, the combination of the type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine; type-bar-actuating connections, one for each type-bar, each composed of two links united by a flexing joint, and one of which is operatively connected to its type-bar, a stationary axis toward the front of the machine about which the other link rocks, the several stationary axes being arranged in a space of greater transverse width than that occupied by the type-bar segment, and these at the sides of the central one being placed at varying inclinations to a vertical longitudinal plane, the inclination increasing toward the ends of the series, so that the type-bar-actuating connections, as a whole, constitute a converging series; a stop for limiting flexure of each said connection in a direction to resist the strain of rebound of its type-bar; key-levers horizontally disposed beneath the type-bar-actuating connections, and means interposed between the key-levers and each connection to flex them in the opposite direction, to throw the type-bar to the printing-point.

37. In a front-stroke or visible-writing machine, the combination of the type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine; type-bar-actuating connections, one for each type-bar, each composed of two links united by a flexing joint, and one of which is operatively connected to its type-bar, a stationary axis toward the front of the machine about which the other link rocks, the several stationary axes being arranged in a space of greater transverse width than that occupied by the type-bar segment, and these at the sides of the central one being placed at varying inclinations to a vertical longitudinal plane, the inclination increasing toward the ends of the series, so that the type-bar-actuating connections, as a whole, constitute a converging series; a stop for limiting flexure of each said connection in a direction to resist the strain of rebound of its type-bar; key-levers arranged below the type-bar-actuating connections, and a device or link interposed between each key-lever and the corresponding type-bar-actuating connection, at a point in the latter intermediate the type-bar and the stationary axis.

38. In a front-stroke or visible-writing machine, the combination of the type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine; type-bar-actuating connections, one for each type-bar, each composed of two links united by a flexing joint, and one of which is operatively connected to its type-bar, a stationary axis toward the front of the machine about which the other link rocks, the several stationary axes being arranged in a space of greater transverse width than that occupied by the type-bar segment, and these at the sides of the central one being placed at varying inclinations to a vertical longitudinal plane, the inclination increasing toward the ends of the series, so that the type-bar-actuating connections, as a whole, constitute a converging series; a stop for limiting flexure of each said connection in a direction to resist the strain of rebound of its type-bar; a spring applied to one of the links and tending to hold the type-bar-actuating connection in its normal position, in which it looks the type-bar against rebound; key-levers horizontally disposed beneath the type-bar-actuating connections,

and means interposed between the key-levers and each connection to flex them in the opposite direction, to throw the type-bar to the printing-point.

39. In a front-stroke or visible-writing machine, the combination of the type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine; type-bar-actuating connections, one for each type-bar, each composed of two links united by a flexing joint, and one of which is operatively connected to its type-bar, a stationary axis toward the front of the machine about which the other link rocks, the several stationary axes being arranged in a space of greater transverse width than that occupied by the type-bar segment, and these at the sides of the central one being placed at varying inclinations to a vertical longitudinal plane, the inclination increasing toward the ends of the series, so that the type-bar-actuating connections, as a whole, constitute a converging series; a stop for limiting flexure of each said connection in a direction to resist the strain of rebound of its type-bar; a spring applied to one of the links and tending to hold the type-bar-actuating connection in its normal position, in which it looks the type-bar against rebound; key-levers arranged below the type-bar-actuating connections, and a device or link interposed between each key-lever and the corresponding type-bar-actuating connection, at a point in the latter intermediate the type-bar and the stationary axis.

40. The combination of a pivoted type-bar, its actuating connection comprising two members united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other rocks; a spring applied to the latter intermediate the stationary axis and flexing joint, and normally tending to deflect said joint to one side of a straight line between said axis and the point of connection with the type-bar; a stop for limiting movement in that direction to thereby look the type-bar against rebound; a finger-piece, and means, on the depression of the finger-piece, for flexing said connection on the opposite side of the straight line, to throw the type-bar to the printing-point.

41. The combination of a pivoted type-bar, its actuating connection comprising two members united by a flexing joint, and one of which is operatively connected to the type-bar; a stationary axis about which the other rocks; a coiled spring applied to the latter intermediate the stationary axis and flexing joint, and normally tending to deflect said joint to one side of a straight line between said axis and the point of connection with the type-bar; a stop for limiting movement in that direction to thereby look the type-bar against rebound; a finger-piece, and means, on the depression of the finger-piece, for flexing said connection on the opposite side of the straight line, to throw the type-bar to the printing-point.

42. In a front-stroke or visible-writing machine the combination of a pivoted type-bar normally lying toward the front of the machine; a horizontally-disposed key-lever arranged below the type-bar; a flexing type-bar-actuating connection intermediate the type-bar and key-lever, and extending between the head of the type-bar and a stationary axis toward the front of the machine; a link independent of the key-lever for limiting its flexure in a direction to resist rebound of the type-bar, and an operative connection between the key-lever and the type-bar-actuating connection to flex the latter in the opposite direction, to throw the type-bar to the printing-point.

43. In a front-stroke or visible-writing machine, the combination of a type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine; a flexing connection for operating the type-bar, comprising two members, one operatively connected with the type-bar, and the other rocking about an axis fixed in the frame of the machine, said connection being locked against movement in one direction relatively to said axis to look the type-bar against rebound, and free to rock in the other direction to throw the type-bar to the printing-point.

44. In a visible-writing machine, the combination of a type-bar segment, type-bars pivoted therein, flexing connections, one for each type-bar, each comprising two members united by a hinge-joint, the rear one being operatively connected to the type-bar and the front one to a stationary axis, the assemblies of flexing connections diverging from the front of the machine toward the type-bar segment and lying in a transverse curve or segment, means whereby the flexing connections are locked to prevent rebound of the type-bars from their back stops or rests and means for actuating the flexing connections to throw the type-bars to the printing-point.

45. In a visible-writing machine, the combination of a type-bar segment, type-bars pivoted therein, flexing type-bar-actuating connections disposed horizontally radially and in a transverse curve, means for locking them to prevent rebound of the type-bars from their back stops or rests and means for actuating them to throw the type-bars to the printing-point.

46. The combination of a pivoted type-bar, a flexing connection for actuating it comprising two members connected by a flexing joint, one of which is operatively connected to the type-bar and the other to a stationary axis about which it rocks and a spring acting to return the parts to normal position, and so applied directly to the flexing connection that

while its tension is increased during the extension of the type-bar to the printing-point the leverage of its reactionary pull is decreased.

47. The combination of a pivoted type-bar, its actuating device normally locked to prevent rebound of the type-bar from its rest and a spring so applied to the actuating device that while its tension is increased during the extension of the type-bar to the printing-point, the leverage of its reactionary pull is decreased.

48. The combination of a pivoted type-bar, its decreasing-leverage-actuating device acting to impart an increasing acceleration to the type-bar and a spring coacting with said device and so applied directly thereto that its tension is increased and the leverage of its pull decreased during the extension of the type-bar to the printing-point.

49. The combination of a pivoted type-bar, its decreasing-leverage-actuating device normally locked to prevent rebound of the type-bar from its back stop or rest and acting to impart an increasing acceleration to the type-bar and a spring coacting with said device and so applied directly thereto that its tension is increased and the leverage of its pull decreased during the extension of the type-bar to the printing-point.

50. The combination of a pivoted type-bar, a link connected thereto by a universal joint, means for actuating the link with a decreasing leverage to move it endwise and change its angular relation to the type-bar whereby the type-bar is thrown to the printing-point with an accelerating speed, and a spring so applied to said device that its tension is increased and its leverage decreased during the extension of the type-bar to the printing-point.

51. The combination of a pivoted type-bar, a link connected thereto by a universal joint, means for actuating the link with a decreasing leverage to move it endwise and change its angular relation to the type-bar whereby the type-bar is thrown to the printing-point with an accelerating speed, means for locking the device in normal position to resist and prevent rebound of the type-bar from its back stop or rest and a spring so applied to said device that its tension is increased and its leverage decreased during the extension of the type-bar to the printing-point.

52. The combination of a pivoted type-bar, its actuating device comprising two members arranged end to end and connected by a flexing joint, one operatively connected to the type-bar and the other rocking about a stationary axis, a link arranged transversely thereto, a key-lever for operating it to flex said joint in one direction to throw the type-bar to the printing-point and means for locking the joint against flexure in the opposite direction to thereby prevent rebound of the type-bar from its back stop or rest.

53. The combination of a pivoted type-bar, its horizontally-arranged actuating device capable of moving upwardly and downwardly as the type-bar moves toward and from the printing-point and a stop to prevent movement vertically from the normal position and thereby lock the type-bar against its rest.

54. The combination of a pivoted type-bar, a link loosely connected therewith, a decreasing-leverage device acting to move the link endwise with a pull and at the same time change its angular position, a key-lever, a connection between the key-lever and the decreasing-leverage device, a spring whose reaction tends to hold the parts in normal position and the tension of which is increased but the leverage of its pull decreased during the depression of the key-lever and the consequent extension of the type-bar to the printing-point and means for locking said link against strain of rebound of the type-bar from its rest.

55. In a front-stroke or visible-writing machine, the combination of the type-bar segment, type-bars pivoted therein, horizontally-arranged flexing type-bar-actuating connections, horizontally-arranged key-levers, vertically-arranged springs tending to urge the connections upwardly and locking-stops for preventing rebound of the type-bars from their rests and against which the springs tend normally to draw the connections.

56. In a front-stroke or visible-writing machine, the combination of a type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine, flexible connections extending from the type-bars toward the front of the machine and horizontally and radially arranged, means for locking them against flexure to prevent rebound of the type-bars from their rests, springs for maintaining the lock and means for actuating the connections to throw the type-bars to the printing-point.

57. In a front-stroke or visible-writing machine, the combination of a type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine, flexible connections extending from the type-bars toward the front of the machine and horizontally, radially and segmentally arranged, means for locking them against flexure to prevent rebound of the type-bars from their rests, springs for maintaining the lock and means for actuating the connections to throw the type-bars to the printing-point.

58. In a front-stroke or visible-writing machine, the combination of a series of type-bars arranged in a segment or curve and locked to prevent rebound from their back stops or rests, a series of flexing connections for operating the type-bars, correspondingly segmentally arranged

at their rear ends and at their front ends rocking about fixed axes and means for unlocking the bars and throwing them to the printing-point on the depression of their corresponding finger-pieces.

59. In a front-stroke or visible-writing machine, the combination of type-bars arranged in a curve or segment and locked against rebound from their back stops or rests and each having multiple type or characters thereon, flexing connections each composed of two links placed end to end and united by a flexing joint and arranged substantially in the same horizontal plane, a platen and means for changing the relation between the type-bars and the platen.

60. In a front-stroke or visible-writing machine, the type-bars arranged in a curve or segment and locked against rebound from their back stops or rests, flexing connections connected thereto and each comprising a decreasing-leverage member attached to another member by a universal joint and both members lying in substantially the same horizontal plane, and means for actuating the flexing connections to throw the type-bars to the printing-point.

61. In a front-stroke or visible-writing machine, the combination of type-bars arranged in a curve or segment, flexing connections each attached at one end to its type-bar and at the other end to a fixed point or part in the machine and comprising a decreasing-leverage member, and a decreasing leverage spring, the reaction of which tends to maintain the parts in normal position.

62. In a front-stroke or visible-writing machine, the combination of a pivoted type-bar, a link coupled therewith by a universal joint and subjected to tensile strain only on the extension of the type-bar, a decreasing-leverage link or member connected with the first-named link by a universal joint, a third link or member arranged transversely to both of the other two links, means for locking the two first-named links to hold the type-bar against its back stop or rest and a key-lever on the depression of which the type-bar is unlocked and thrown to the printing-point.

63. In a writing-machine, the combination of a normally locked part to be actuated, a flexing actuating connection, comprising links hinged together at their adjacent ends extending between said part and a fixed point and adapted when flexed to actuate said part with a pull, a finger-piece, and a flexible connection between the finger-piece and said actuating connection, intermediate its fixed point and the part to be actuated.

64. In a writing-machine, the combination of a type-bar segment, normally locked type-bars pivoted therein and normally lying toward the front of the machine, flexing actuating connections, acting substantially as described, extending from and under the type-bars to fixed points at the front part of the machine, finger-pieces and connections between the finger-pieces and each actuating connection.

65. In a writing-machine, the combination of a platen and segment, normally locked type-bars pivoted in the segment and normally lying toward the front of the machine, flexing actuating connections, acting substantially as described, extending from and under the type-bars to fixed points at the front part of the machine, finger-pieces and flexible connections between the finger-pieces and each actuating connection.

66. In a writing-machine, the combination of a flexing connection extending from a normally locked movable part to be actuated to a fixed point, a link having its upper end connected to said flexing connection intermediate its ends, and an actuating device to which the lower end of the link is connected, the operation being substantially as described.

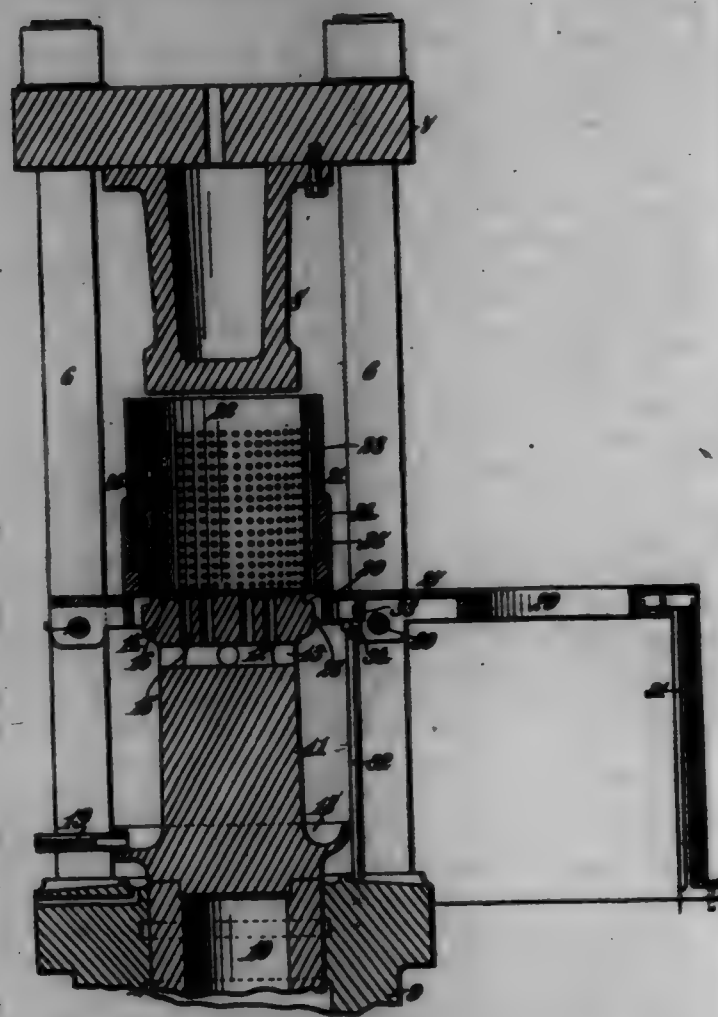
67. In a writing-machine, the combination of a flexing connection extending from a normally locked movable part to be actuated to a fixed point and comprising links united at their adjacent ends by a hinge-joint, a third link whose upper end is hinged to the flexing connection intermediate its ends and an actuating device to which the lower end of the link is connected, the operation being substantially as described.

68. In a writing-machine, the combination of a flexing connection extending from a normally locked movable part to be actuated to a fixed point and comprising two links united at their adjacent ends by a hinge-joint, a third link hinged at one end to the connection in line with said joint, and an actuating device by which the other end of the link is depressed, the operation of the flexing connection being substantially as described.

69. In a writing-machine, the combination of a normally locked pivoted type-bar, a flexing connection operatively connected at one end to the type-bar and at the other end to a fixed point and comprising two links united at their adjacent ends by a hinge-joint, a third link hinged at one end to the connection in line with said joint, and an actuating device by which the other end of the link is depressed, the operation of the flexing connection being substantially as described.

697,951. CASE-PRESS. James H. Housman, Dayton, Ohio, assigner in Deeds to Iron and Brass Works, Dayton, Ohio, a Corporation of Ohio. Filed Sept. 7, 1901. Serial No. 74,009. (No model.)

Claim.—1. In a press, a cage comprising an inner perforated cylinder provided with exterior longitudinal grooves, and an outer metal casing shrunk upon said cylinder.



2. In a press, a cage comprising an inner perforated cylinder provided with exterior longitudinal grooves and a series of superposed rings surrounding said cylinder.

3. In a press, a cage comprising an inner integral perforated cylinder having a series of longitudinal grooves cut in its outer surface, and a series of superposed rings shrunk upon said cylinder.

4. In a press, a cage comprising an inner perforated cylinder provided with exterior longitudinal grooves, and an outer metal casing surrounding said cylinder.

5. In a press, in combination with a cage having an inner perforated cylinder and longitudinal grooves, a ram-block having its upper face grooved and provided with a chamber having lateral outlets leading to the exterior of the ram-block and with ducts leading from said chamber to the upper face of said block and communicating with the grooves therein.

6. In a press, in combination with a cage having an inner perforated cylinder and longitudinal grooves, a ram-block having its upper face provided with intersecting cross-grooves, and having a chamber provided with lateral outlets leading to the exterior of the ram-block and ducts leading from said chamber to the upper face of said block at the intersection of the grooves therein.

7. In a press of the character described, a ram-block having its upper face provided with circular and intersecting cross-grooves, and having a chamber provided with lateral outlets leading to the exterior of the ram-block and ducts leading from said chamber to the upper face of said block at the intersection of said grooves.

8. In a press, in combination with the upper and lower plunger, one of said plungers being movable and carrying a ram-block, a platform extending between said plungers and having two openings, one of said openings being in line with said plunger, whereby the ram-block may work therethrough, and a cage mounted to travel on said platform and register with said openings.

697,252. VEHICLE-WHEEL. EDWARD HUBBARD, Templeton, Mass. Filed Jan. 12, 1902. Serial No. 66,904. (No model.)

Claim.—1. The combination, with a vehicle-wheel; of a wooden tire formed of sections, the grain of which is disposed substantially at right angles with the peripheral line of said tire, each of said sections having an annular groove for receiving the wheel-rim; and a pair of annular

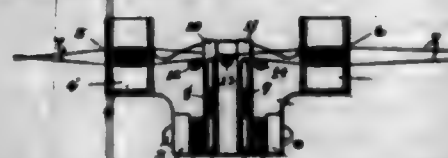
members disposed at opposite sides of and engaging the tire and the wheel-rim, and the outside diameter of which is substantially equal to that of the tire.



2. The combination, with a vehicle-wheel; of a wooden tire formed of sections the grain of which is disposed substantially at right angles with the peripheral line of said tire, each of said sections having an annular groove for receiving the wheel-rim; and a pair of metallic members disposed at opposite sides of and for reinforcing said tire laterally, said members having annular projections on their inner faces; and means for forcing said members together and thus drive the projections into the tire laterally of the grain thereof.

3. The combination, with a vehicle-wheel; of a wooden tire formed in sections, the grain of which is disposed substantially at right angles with the peripheral line of said tire, each of said sections having an annular groove for receiving the wheel-rim; and a pair of sectional metallic members disposed and overlapping each other, at opposite sides of, and for reinforcing, said tire, laterally, said members having annular projections on their inner faces; and means for forcing said members together and thus drive the projections into the tire laterally of the grain thereof.

697,253. WARP STOP-MOTION FOR LOOMS. EMERY J. JARRE, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 12, 1901. Serial No. 66,346. (No model.)



Claim.—1. In a warp stop-motion for looms having two sets of drop bars or wires, and a lease-rod outside of each set, to divide the warp-threads into two planes, a warp-supporting rod or rest between the two sets of drop bars or wires, to support all the warp-threads, and a warp-supporting rod or rest on the outside of each set of drop bars or wires, and inside of the lease-rod, to support the lower planes of the warp-threads, so that the warp-threads will have a support at each side of the drop bars or wires, substantially as shown and described.

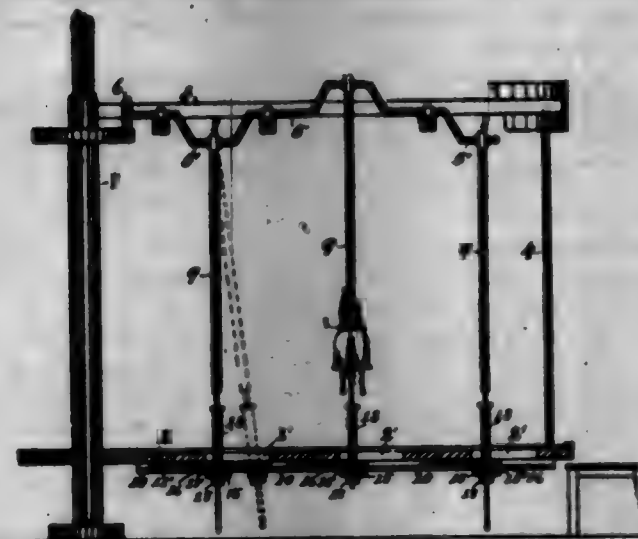
2. In a warp stop-motion for looms having two sets of drop bars or wires, and a lease-rod outside of each set, to divide the warp-threads into two planes, a warp-supporting rod or rest between the two sets of drop bars or wires, to support all the warp-threads at their point of intersection, and a warp-supporting rod or rest on the outside of each set of drop bars or wires, and inside of the lease-rod, to support the lower planes of the warp-threads, substantially as shown and described.

3. In a warp stop-motion for looms having two sets of drop bars or wires, and a lease-rod outside of each set, to divide the warp-threads into two planes, the combination with the two and plates of the frame, of a warp-supporting rod or rest between the two sets of drop bars or wires, to support all the warp-threads, and a warp-supporting rod or rest on the outside of each set of drop bars or wires, and inside of the lease-rod, to support the lower planes of the warp-threads, substantially as shown and described.

4. In the warp stop-motion of a loom having two sets of drop bars or wires, and a lease-rod outside each set, to divide the warp-threads into two planes, the combination with brackets or arms having a vertical opening or recess therein, of lease-rods extending loosely at their ends in said opening or recess, to have a vertical motion therein, substantially as shown and described.

5. In the warp stop-motion of a loom having two sets of drop bars or wires, and a lease-rod outside each set, to divide the warp-threads into two planes, and warp-supporting rods or rests between the lease-rods to support the warp-threads on each side of the drop bars or wires, the combination with brackets or arms having a vertical opening or recess therein, of lease-rods extending loosely at their ends in said opening or recess, to have a vertical motion therein, substantially as shown and described.

697,254. CAROUSEL. WILLIAM JOHNSON, Brooklyn, N. Y. Filed Nov. 21, 1900. Serial No. 57,961. (No model.)



Claim.—1. In a carousel, in combination, a revolvable platform having a radial opening; a shield-supporting slide carried by and movable radially along the platform at the opening therein, the said shield projecting upwardly from said slide and being capable of movement universally in radial planes with respect thereto; a rotatable part situated above the platform; a carrier-rod depending from said part, the said part being adapted when rotated to impart a rocking reciprocating movement to said rod and said shield having a telescopic engagement with said shield; and means for rotating said part, substantially as herein specified.

2. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a tubular shield mounted on said slide and movable universally in radial planes with respect thereto, the said shield being provided with a bushing at one end; a carrier-rod extending longitudinally through said shield and telescopically engaging said bushing; and means for imparting a rocking reciprocating movement to said carrier-rod.

3. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a tubular shield having an extension provided with a plurality of bearing parts; a socket comprising a primary member and a secondary member, and each of said members having a suitable bearing-surface for engagement by said bearing parts; means for adjustably securing said socket members in position for service and in a manner that said shield may be moved in variable planes with respect thereto, the said socket as a whole being firmly mounted on said slide; a carrier-rod extending telescopically through said shield; and means for imparting a rocking reciprocating movement to said carrier-rod.

4. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a socket firmly mounted on said slide; a tubular shield engaging said socket and capable of movement in variable planes with respect thereto; a carrier-rod extending telescopically through said shield; and means for imparting a rocking reciprocating movement universally to said carrier-rod.

5. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a socket firmly mounted on said slide; a tubular shield engaging said socket and capable of movement in variable planes with respect thereto; a carrier-rod extending telescopically through said shield; and means for imparting a rocking reciprocating movement to said carrier-rod.

6. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a socket firmly mounted on said slide, the said socket comprising a primary member and a secondary member, each having a suitable bearing-surface and the former having adjusting-lugs; a tubular shield having bearing parts adapted to engage the bearing-surfaces of said socket members, in service; means for securing said socket members in position for service at the bearing parts of said shield, and in a manner that the latter may be moved in variable planes with respect to said socket; a carrier-rod extending telescopically through said shield; and means for imparting a rocking reciprocating movement to said carrier-rod.

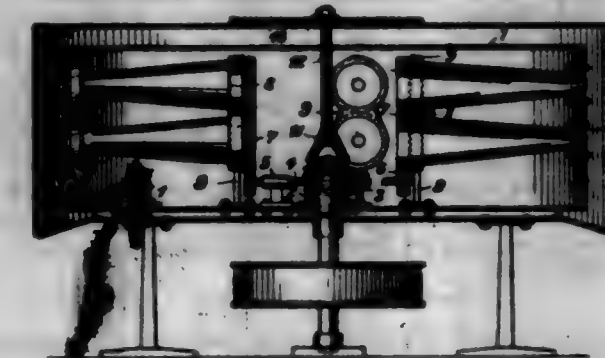
7. An apparatus of the class herein described comprising a revolvable platform having a suitable opening; a slide carried by said platform at the opening therein; a tubular shield having a bushing let into one end thereof; elastic guides mounted within said shield away from said bushing; a carrier-rod extending longitudinally through said shield, and movably engaging said guides and said bushing; and a socket whereby said shield

may be secured in position for service, the said shield having a universal connection with said socket, substantially as herein set forth.

8. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a tubular shield mounted on said slide and movable in variable planes with respect thereto, the said shield being provided interiorly with a guide or guides suitably removed from the confined end thereof; a carrier-rod extending telescopically through said shield and having a sliding engagement with said guide or guides; and means for imparting a rocking reciprocating movement to said carrier-rod, substantially as herein specified.

9. In a carousel, in combination, a revolvable platform having a radial opening; a slide carried by and movable radially along the platform at the opening therein; a tubular shield loosely connected at its lower end to said slide, projecting upwardly therefrom, and movable universally in radial planes with respect thereto; a carrier-rod telescopically engaging said shield; and means for imparting movement to said carrier-rod, all substantially as herein described and for the purposes set forth.

697,255. CENTRIFUGAL MACHINE. ALVIN KAMINSOWSKI, Kallish, Russia. Filed Oct. 26, 1901. Serial No. 73,860. (No model.)

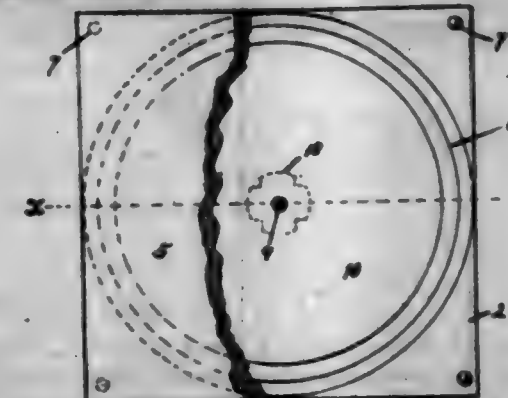


Claim.—1. In combination with a centrifugal drum for treating sugar-leaves, a set of tangentially-arranged holder-slaves for the leaves and means for rotating the same around their own axes when the drum is rotated in the manner and for the purpose substantially as described.

2. In a centrifugal machine for treating sugar-leaves, the combination with a drum of a series of superposed holders for the ends of the leaves and means for rotating the same when the drum is rotated, the said holders being mounted to support the leaves in a direction tangential to a circle concentric with the drum-axis in the manner and for the purpose substantially as described.

3. In a centrifugal machine for treating sugar, the combination with a drum of a series of tangentially-arranged sugar-leaf-holding slaves 8, a centrally-disposed stationary worm in the drum, a series of worm-wheels engaging said worm, said wheels having bearings adapted to rotate with the drum, and ball-bearings in the drum-wall to support the outer end of the leaves in the manner and for the purpose substantially as described.

697,256. MATRIX FOR MAKING RECORDS FOR GRAMOPHONES, SONOPHONES, OR SIMILAR RECORDS. HERBERT KAPLAN, Newark, N. J. Filed Nov. 1, 1901. Serial No. 69,761. (No model.)



Claim.—1. A matrix for making records for gramophones, sonophones, &c., having at its center a bushing of more resisting material than the body of the matrix.

2. A matrix of the character described, having at its center a disk of material harder than the body of the matrix, said matrix having a central perforation through said disk.

3. A matrix of the character described, comprising a disc-like body portion with a central bushing in the plane of said body and being of harder material.

4. A matrix for making records for gramophones, sonophones, &c.,

comprising a flange 10, of copper or the like, a backing 11, of lead or similar material, a bushing 12, of iron or steel at the center of the matrix and in the plane of the backing 11, said matrix being perforated through said bushing.

5. A matrix for making records for gramophones, phonographs, &c., comprising a flange 10, of copper or the like, a backing 11, of lead or similar material, and a bushing of material harder than the backing inserted into said backing, the matrix being perforated through said bushing.

6. A matrix for making records for gramophones, phonographs, &c., comprising a copper face 10, a disk 12, applied to the back thereof, and a backing of lead or the like around said disk, said disk being more resistant material than the backing, and the matrix being perforated through said disk.

7. The herein-described matrix, having a flange 10, a bushing 12 centrally disposed at the back of said flange, and a backing 11, around said bushing, said bushing being of more resistant material than the backing and held in place thereby.

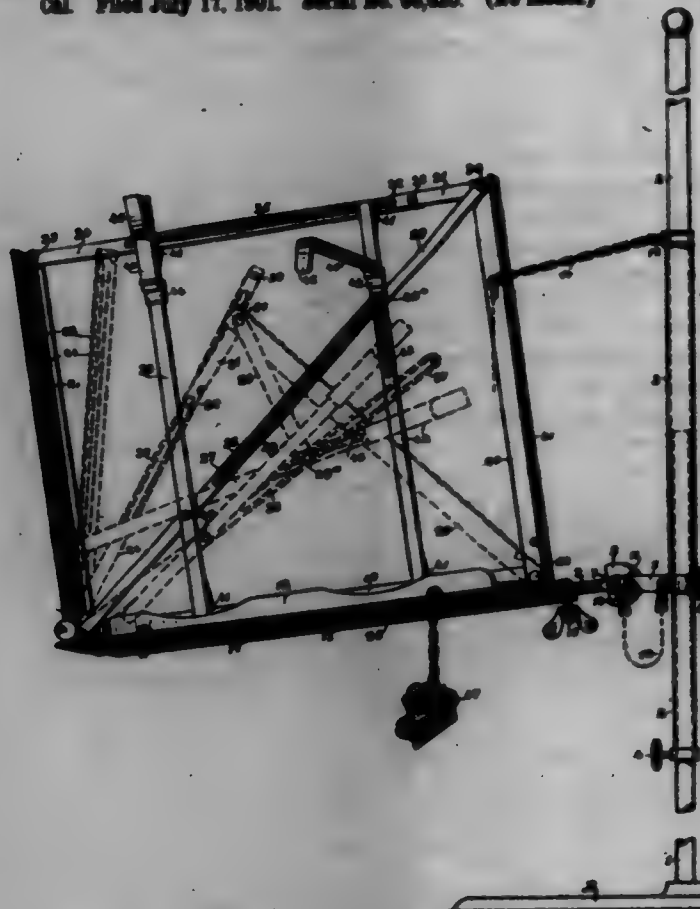
8. The herein-described matrix, having a flange 10, a center bushing 12, and a backing 11, around said bushing, said bushing being of harder material than the backing and being adapted at its peripheral edges to be overlapped by said backing and held in place.

9. The herein-described matrix having a flange 10, a center bushing 12, and a backing 11, around said bushing, said bushing being of harder material than said backing and being shaped in plan to be held against rotation by said backing.

10. A matrix for making records for gramophones, phonographs, &c., having a central bushing of material harder than the body of the matrix, said bushing being embedded in said body of the matrix and held thereby.

11. A matrix for making records for gramophones, phonographs, &c., having a central bushing of material harder than the body of the matrix, said bushing engaging at its edges with the said body of the matrix to prevent displacement.

697,957. READING-STAND. JOHN KRIWANEK, San Francisco, Cal. Filed July 17, 1901. Serial No. 64,425. (No model.)



Claim.—1. The combination in a book-support of a vertical standard, a sleeve slidable thereon, a second sleeve slidable and turnable upon the first, a bracket, means for fixing it upon the second sleeve, a pivoted adjustable arm projecting from the bracket; a book-holder having a sleeve at the bottom adapted to fit the adjustable arm and flexible connection between the upper part of the sleeve and the upper part of the book-holder.

2. A book-supporting frame, a tubular sleeve extending horizontally across the base of the same, a rod upon which the sleeve is slidable, means for holding the sleeve in its adjusted position, a vertical support, adjustable connection between the support and the rod, and adjustable connection between said support and the upper portion of the book-supporting frame.

3. A book-support consisting of a book rack or holder, a vertical adjustable standard, a sleeve turnable and adjustable thereon, having a bracket and an adjustable support at the lower end, and flexible connection with the rack at the top.

4. The combination with a stand and supporting means, of a rack consisting of bars pivoted and flexible, said rack having a tubular sleeve along its lower edge adapted to fit the support from the stand, and means for adjusting the angle of the rack with relation to the stand.

5. The combination of a standard, a sleeve adjustable and turnable thereon, a book-rack having a sleeve extending along its lower edge, means connecting the last-named sleeve with the lower portion of the first-named sleeve, and means connecting the upper portion of the rack with the upper portion of said first-named sleeve.

6. A rack consisting of a lower bar having ledges for the lower edge of the book, side bars pivoted to the ends of said bottom bar, a top bar consisting of two flexible and adjustable bars connected together, having their upper ends pivoted to the tops of the side bars, a diagonal two-part brace-bar and vertical adjustable intermediate bars pivoted thereon, and having their ends forked and adapted to engage the top and lower bars of the rack.

7. A book-rack consisting of a bottom bar with ledges upon opposite sides adapted to support the bottom of a book, side bars pivoted to the ends of the bottom bar, a top bar made in two parts flexible and slidable upon each other, having their top ends pivoted to the tops of the side bars, a diagonal brace-bar pivoted at opposite angles of the frame, intermediate bars pivoted to said diagonal bar and foldable thereon, said bars having forked ends adapted to engage the top and bottom bars of the stand, short supplemental arms having flaps at the outer ends to engage and hold the book-leaves, slides movable upon the intermediate bars to which slides said arms are hinged, so as to be folded and unfolded, and adjustable up and down on the bars.

8. The combination in a book rack and support, of a vertically-adjustable standard, a tubular sleeve turnable and adjustable thereon, a foldable and reversible rack having a tubular bottom sleeve, a bracket carried by the standard with a pivoted rod and means for adjusting its angle, said rod fitting the sleeve of the rack which is supported and adjustable thereon.

697,958. DAMPER. ROBERT O. LATHAM, Manchester, N. H. Filed Oct. 2, 1900. Serial No. 22,480. (No model.)



Claim.—1. In a stove or furnace funnel, a radial standard secured interiorly and extending to a point near the radial center of said funnel, a damper having a radial opening adapted to straddle said standard and pivotally connected to the latter a crank and flexible connection for the same to said damper and within said funnel, and means for operating said crank and damper upon the outside of said funnel.

2. A damper having a central perforation and a radial opening connecting said perforation with its periphery, one located one at each side of said perforation, a vertical standard or support secured and extending to a point near the radial center of and within a smoke pipe or funnel and pivotally connected to the one of said damper, a bar having a crank interior and exterior of said funnel, and a suitable flexible connection between the interior crank and the said damper.

3. In a stove or furnace funnel, a radial standard secured interiorly of and extending to a point near the radial center of said funnel, a damper pivotally connected to said standard, a crank within said funnel, a crank-bar therefor pivoted to the standard and to the funnel, flexible connection between the crank and the damper adapted to operate the latter, and means for operating the crank upon the outside of the funnel.

4. In a smoke-funnel, a damper provided with a radial opening terminating at its center and lateral counter-arms located one at each side of said opening, a vertical standard secured at one end to said funnel and provided with threaded perforations at opposite sides of its free end, curves threaded to the perforations in said standard and having cone-points adapted to bear in the counter-arms of said damper, and a vertical bar having bearings in said funnel and standard and provided with a crank between its bearings and a crank outside of said funnel, and a chain connecting the inner crank with said damper.

5. In a stove or furnace funnel, a radial standard secured interiorly of said funnel, a damper centrally pivoted to said standard, a crank within said funnel, a crank-bar therefor, having its bearings in said

lateral arm of the standard and in the funnel, flexible connection between the crank and the damper adapted to operate the latter, and means for operating the crank upon the outside of the funnel.

697,959. FENCE. BRAS LARLEY, Bucyrus, Ohio, assignor to Sarah Jane Larley, Bucyrus, Ohio. Filed Oct. 21, 1901. Serial No. 79,412. (No model.)



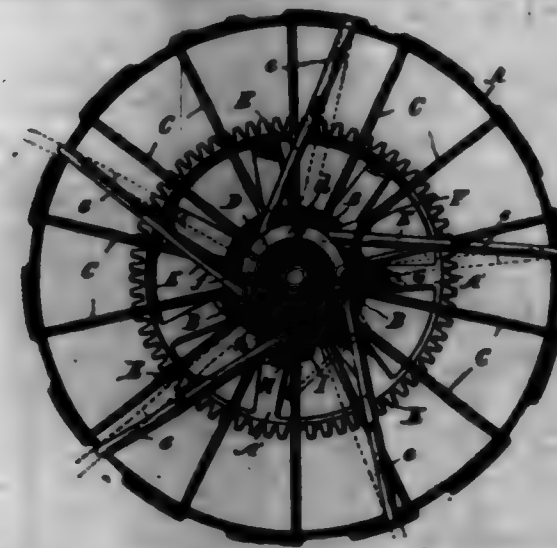
Claim.—1. A fence-post formed in a single strip of metal and bent at an angle to form a base adapted to bear upon the ground, a downwardly-bent stem to the base adapted to be embedded in the ground, and a laterally-bent arm at the upper end of the post, and a wire-support, a spring-coil at one end adapted to engage the post, and means for securing the support to the arm of the post.

2. The combination with a post having a lateral arm at one end and thereof, of a wire-support, a loop thereto adapted to engage the post at a point intermediate its ends, and means for securing the support to the arm of the post.

3. The combination with a post having a lateral arm at one end; of a wire-support, a spring-coil at one end adapted to engage the post, and means for securing the support to the arm of the post.

4. The combination with a post having a lateral arm at one end and thereof, and a web secured to said post and its arm; of a wire-support, a coil at one end thereof adapted to engage the web and the post, means for securing the support to the arm, and an eye at the free end of the support.

697,960. TRACTION-ENGINE DRIVING-WHEEL. EARL R. LEE, Earl, Iowa. Filed Jan. 21, 1902. Serial No. 92,964. (No model.)



Claim.—1. A drive-wheel for a traction-engine having on its hub a rotary adjustable sleeve with two flanges *d d* near the middle thereof, call-bars made in a single piece hinged at their lower ends between the two flanges of the sleeve and having their outer ends divided into two branches, and a rim or tire having holes through which the forked branches protrude.

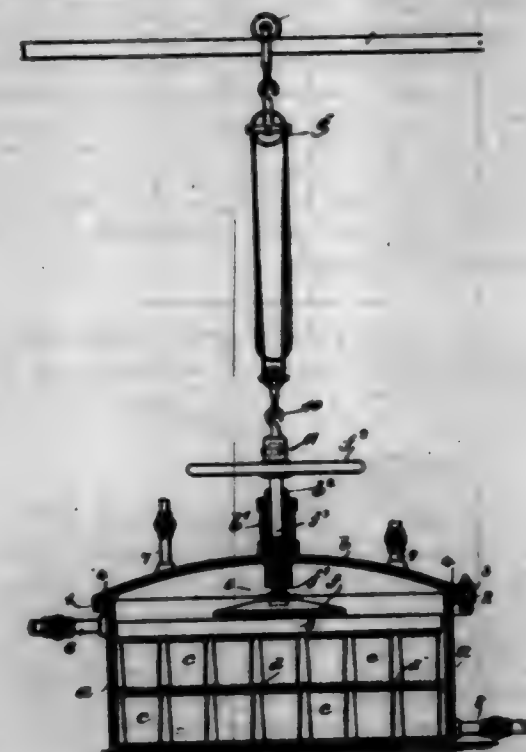
2. A drive-wheel for a traction-engine comprising a hub with flanges on its ends, a rotary adjustable sleeve on the hub between said flanges, call-bars joined to the sleeve and extending through the rim of the wheel, a crank-arm rigidly fixed to the said sleeve, a link attached thereto, a rock-shaft with cranked portion attached to said link, and separate clips bolted to the flanges of the hub and having journal-bearings for the rock-shaft, and means for adjusting said rock-shaft substantially as described.

3. A drive-wheel for a traction-engine, comprising a hub with end

flanges, a rotary adjustable sleeve arranged on said hub between its end flanges and carrying at each end a rigidly-attached crank-arm, call-bars joined to the sleeve and extending through the rim of the wheel, links connected to the crank-arms of the sleeve, a rock-shaft journaled in bearings on the hub parallel to the same and having a middle cranked portion extended inwardly between the hub-flanges and connected to the two links, and means for adjusting the rock-shaft substantially as described.

4. A drive-wheel for a traction-engine, comprising a hub with end flanges of greater diameter than the middle part, a rotary adjustable sleeve arranged on the hub between the end flanges and having at each end a rigidly-attached crank-arm *F* and in the middle the two flanges *d d*, call-bars made in a single piece hinged between the flanges *d d* at their inner ends and made forked at their outer ends and extending through holes in the rim, links *G G* connected to the cranks of the sleeve, a rock-shaft having a cranked portion *A* extended inwardly between the hub-flanges and connected to the two links, and detachable bearing-clips fastened to the external faces of the hub-flanges and carrying the rock-shaft substantially as described.

697,961. APPARATUS FOR CANNING FOOD. GEORGE LEE, Chicago, Ill., assignor to himself, and Charles O. Harvey, Bridgeport, N. Y. Filed Aug. 17, 1901. Serial No. 73,322. (No model.)



Claim.—1. In an apparatus for canning food, the combination with the cylinder, a removable top or cover and means for connecting the same together, of a cover-plate within the cylinder and adapted to rest upon the covers of the uppermost series of cans, an interiorly-threaded sleeve and a stuffing-box in line with each other and forming parts of the removable cover, a stem passing through the stuffing-box and having a threaded portion passing through the sleeve, a pressure-plate and a flexible joint for connecting the same to the lower end of the said stem and a hand-wheel secured to the upper end of the stem above the cover, substantially as set forth.

2. In an apparatus for canning food, the combination with a cylinder, a removable top or cover and means for connecting the same together, of a cover-plate within the cylinder and adapted to rest upon the covers of the uppermost series of cans, an interiorly-threaded sleeve and a stuffing-box in line with each other and forming parts of the removable cover, a stem passing through the stuffing-box and having a threaded portion passing through the sleeve, a pressure-plate and a flexible joint for connecting the same to the lower end of the said stem and a hand-wheel secured to the upper end of the stem above the cover and a hook 10 and flexible joint connecting the same to the upper end of the stem above the hand-wheel, and a supported differential pulley device adapted to engage the hook for elevating and suspending the cover of the apparatus, and the parts connected therewith, substantially as set forth.

697,962. METHOD OF TRUING UP THE DRAWING-ROLLS OF SPINNING OR TWISTING MACHINES. FRANK H. MARY, Worcester, Mass. Filed Aug. 21, 1901. Serial No. 73,704. (No model.)

Claim.—1. The method of truing up an old and worn drawing-roll, said roll consisting of a core having coverings of soft material, which consists in rotating the roll and applying pressure thereto, to render said roll

uniform in diameter by a compression of the materials with which said roll is covered.



2. The method of truing up an old and worn drawing-roll, said roll consisting of a core having coverings of soft material, which consists in rotating the roll and progressively applying pressure at different longitudinal points on said roll, so as to render the roll uniform in diameter by a compression of the materials with which the roll is covered.

3. The method of truing up an old and worn drawing-roll, said roll consisting of a tube having coverings of soft material, which consists in mounting the roll upon a rotating arbor and rendering the same uniform in diameter by a compression of the materials with which the roll is covered, applied by squeezing the roll in a clamp while the roll is being rotated.

4. The method of truing up an old and worn drawing-roll of a spinning or twisting machine, said roll consisting of a shell covered with a layer of felt and a facing of leather, which consists in mounting the same upon a rotating arbor, and then rendering the same uniform in diameter by a compression of the materials with which the roll is covered, so as to secure the shifting and repositioning of the fibers of the inner felt layer of the roll, said compression being applied by squeezing the roll in a clamp while the same is being rotated, and shifting the clamp to different longitudinal points along the roll.

697,268. HEAD OF PILE-WIRE FOR LOOMS. EMORY L. HART, York, N. Y. Filed Jan. 23, 1902. Serial No. 93,969. (No model.)



Claim.—1. In a pile-wire for looms, a head having a slot therein, a recess at the end of said slot, cut-away portions upon each side of the head adjacent to the slot, a wire having a bent end engaging the slot and recess, a semicircular plate bent centrally upon itself adapted to fit snugly over the said wire, apertures in the plate registering with apertures in the head and wire, rivets secured in the said apertures, flanges upon the plate adapted to be bent so as to form a collar around the wire, substantially as shown and described.

2. In a pile-wire for looms, a head having a slot therein, a recess at the end of said slot, cut-away portions upon each side of the head, a wire having a bent end, the said wire engaging the said slot and recess, a semicircular plate folded upon itself, the said plate adapted to fit snugly over the wire, flanges upon the said plate adapted to form a collar around the wire, and rivets passing through the said plate, wire and head, substantially as shown and for the purpose set forth.

697,264. LOCK WATER-CLOSET SEAT. WILLIAM C. MILLER, Jersey City, N. J. Filed July 26, 1902. Serial No. 34,961. (No model.)



Claim.—1. A combination-cover consisting of a water-closet ring seat, and a small cover hinged to it and adapted to close the opening in it, so that both in position connected together form and constitute a closure to the underlying toilet-seat for the purpose set forth.

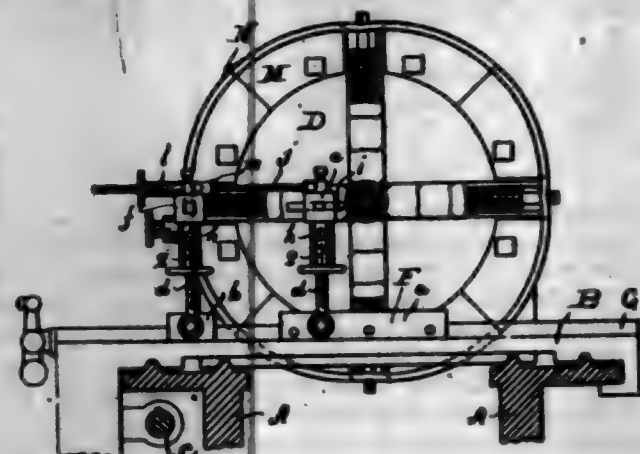
2. The combination of a water-closet ring seat, and a small cover hinged to it, a block or like device on under side of small cover adapted to enter and close the opening in it, the parts in position connected together forming and constituting a closure to an underlying toilet-seat for the purpose set forth.

3. The combination of a water-closet ring seat and a small cover hinged to it adapted to close the opening in it, and a latch to connect the small cover with the ring seat, the parts thus compactly joined forming and constituting a closure for an underlying toilet-seat for the purpose set forth.

4. The combination of a water-closet ring seat and a small cover hinged to it adapted to close the opening in it, and a catch to connect the cover with the ring seat, the parts thus compactly joined forming and constituting a closure to an underlying toilet-seat for the purpose set forth.

5. The combination of a water-closet ring seat and a small cover with a block on under side of it adapted to enter and close the opening in ring seat, the parts in their relative position connected together forming and constituting a closure to an underlying toilet-seat; and locking device to compactly join the parts of the combination together for the purpose set forth.

697,265. LATHE ATTACHMENT. JOHN R. MILLER, Chicago, Ill. Filed June 17, 1901. Serial No. 94,790. (No model.)



Claim.—1. In a lathe, the combination with a chuck and a tool-carriage, of a cam mounted on said chuck, a pivotally-movable tool-head transversely adjustable mounted on the tool-carriage, and device on said tool-head engaging said cam to impart reciprocal movement to the cutting-tool, substantially as described.

2. In a lathe, the combination with the chuck and the tool-carriage, of a tool-holder mounted on the tool-carriage, said tool-holder comprising two heads pivotally and relatively movable, means for adjusting same in relative position, and device for imparting pivotal movement to said heads comprising a drum-cam mounted on the chuck, a rack-bar passing through one of said heads and movable relatively thereto, and relatively adjustable arms at one end of said rack-bar engaging opposite peripheral faces of said cam.

697,266. DESK. WILLIAM J. McDEVITT, Philadelphia, Pa. Filed May 11, 1900. Renewed Oct. 11, 1901. Serial No. 73,962. (No model.)



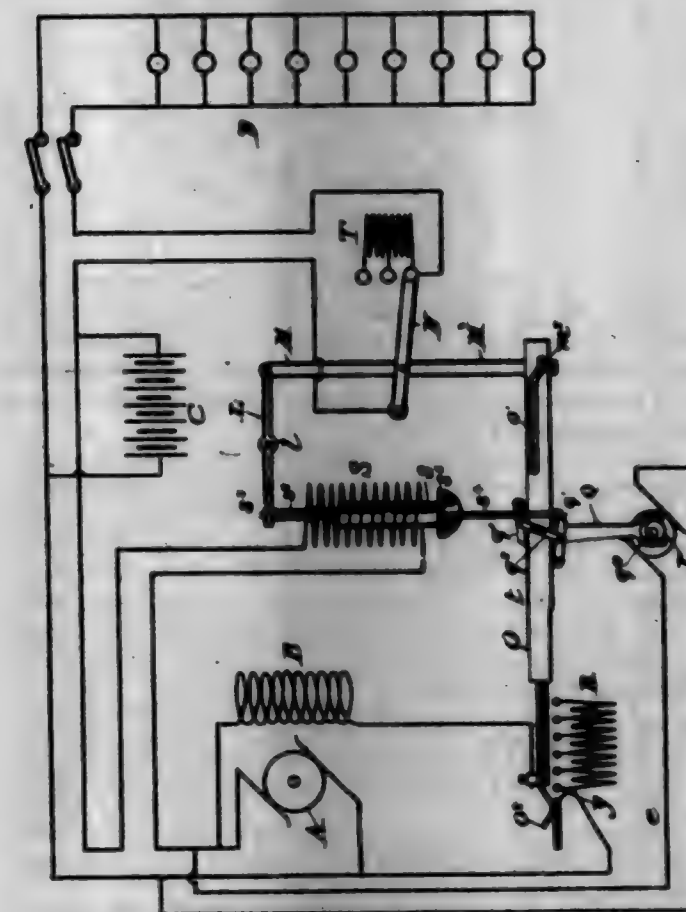
Claim.—1. A desk of the character described, comprising a body and a hinged cover or lid therefor, movable supports adjacent said lid and body, and adapted to sustain the lid when in its lowermost position, movable compartments arranged within the body of the desk, and arms connected to the lid, links pivoted to the arms and attached to the compartments for automatically and simultaneously moving said supports and compartments with the opening and closing of the desk.

2. A desk of the character described, comprising a body provided with guideways, said body having movable compartments therein, adapted to hold an ink-well, pen-riper, pen-rest, and stationary, a hinged lid

or cover for said body, movable supports adapted to move in guideways formed in the body of the desk, and to support said lid or cover when in its lowermost position, and arms connected to the lid, links pivoted to the arms and attached to the compartments and to the supports whereby said supports and compartments are automatically moved with the opening and closing of the desk.

3. A desk of the character described, comprising a body having movable compartments therein, a hinged cover for said body, said cover being provided with grooves, arms adapted to said grooves and pivoted to said cover, links connected to said arms and pivoted to the base of said compartments, movable supports adapted to sustain said cover when in its lowermost position, and rods connected to the compartments and to the supports to move therewith, substantially as described.

697,267. AUTOMATIC ELECTRIC CONTROLLER. ALEXANDER MCGARY and FRANK WEAVER, Lagrange, Ill. Filed May 25, 1901. Serial No. 51,222. (No model.)



Claim.—1. In an automatic electric controller, the combination of a dynamo adapted to be driven from an axle, a dynamo-circuit, a storage battery and lamp-circuit, of a variable resistance arranged for introduction into the dynamo-circuit, a traveling bar whereby said resistance may be varied, constantly-actuated means for moving said bar, a solenoid having a core, a spring pressing on said core, connections between the core and constantly-actuated means, a lever against which said spring bears, and means between the lever and the traveling bar for moving the latter to compress the spring when the core of the solenoid is moved.

2. In an automatic electric controller, the combination of a dynamo adapted to be driven from an axle, a dynamo-circuit, a storage battery and lamp-circuit, of a variable resistance arranged for introduction into the dynamo-circuit, a traveling bar whereby said resistance may be varied, constantly-actuated means for moving said bar, a solenoid having a core, a lever operatively connected to said traveling bar, a spring interposed between the lever and core and means to cause the lever to compress the spring when the current through the dynamo-circuit is increased.

3. In an automatic electric controller, the combination of a dynamo and its circuit, a storage battery and lamp-circuit, a resistance adapted to be introduced into the dynamo-circuit, a traveling bar whereby the resistance may be varied, constantly-actuated means for moving said bar, a solenoid having a core operatively connected to control said constantly-actuated means, a lever, a yielding connection between said lever and core, a link interposed between said lever and traveling bar, and means operative upon movement of said bar to move said link and compress the yielding connection between the lever and core.

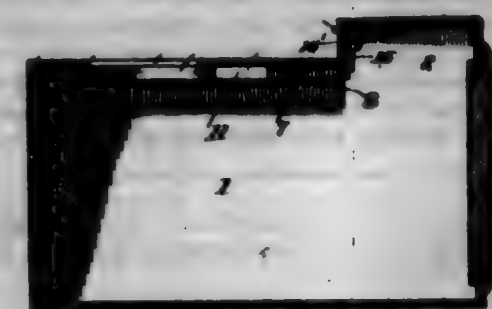
4. In an automatic electric controller, the combination of a dynamo and its circuit, a storage battery and lamp-circuit, a resistance adapted to be introduced into the dynamo-circuit, a traveling bar having a slot with an inclined or cam portion whereby the resistance may be varied, con-

stantly-actuated means for moving said bar, a solenoid having a core operatively connected to control said constantly-actuated means, a lever, a yielding connection between said lever and core, a link interposed between said lever and traveling bar, and having one end engaged by the slot in said bar to move the link and compress the yielding connection between the lever and core.

5. In a system for lighting cars comprising an axle-driven dynamo, storage battery and incandescent lamps, the combination of a rheostat to control the current passing to the storage battery, of a second rheostat to control the current passing from the storage battery to the lamps, and automatic means for controlling said rheostats consisting of a solenoid located in the circuit between the dynamo and battery, a spring-pressed armature, an oscillating lever and means for constantly actuating it, said lever carrying at one end two oppositely-directed pawls, means for connecting said pawls to the armature of the solenoid, a rack-bar adapted to be moved in one direction by one of said pawls and in the opposite direction by the other and being provided at one end with a contact-strip of the first rheostat and with means at the other end to actuate the contact-strip of the second rheostat.

6. In a system for lighting cars comprising an axle-driven dynamo, storage battery and incandescent lamps, the combination of a rheostat in the circuit between the dynamo and battery, a second rheostat in the circuit between the battery and lamps, means controlled by the current passing from the dynamo for regulating or controlling said rheostats, comprising a solenoid having a spring-pressed armature, a reciprocating rack-bar, means for actuating said bar controlled by said solenoid, said rack-bar being provided within the contact-strip of the first rheostat and a cam-disk at the other end, a reciprocating link M having a projection at one end to enter the cam-disk, a pivot-trump carrying the contact-strip of the second rheostat adapted to be actuated by link M, and a lever L connected at one end to the link M and adapted to engage the spring of the solenoid-armature at its other end.

697,268. SAVINGS-BANK. FRANK C. McFERRIN, Danversville, Pa. assignor to John W. Hoffman, Mont D. Youtan, and J. Foster Bell, Rochester, Pa. Filed Nov. 19, 1901. Serial No. 95,653. (No model.)



Claim.—1. In a savings-bank, a box or receptacle partially cut away in the top or cover, a false bottom secured in the box a slight distance below top or cover, a coin-delivery plate arranged to slide longitudinally of the box within the space between the false bottom and the top or cover, said plate having a coin-receiving opening and provided in one end with a slot communicating with the opening, a gate pivotally mounted in the box or receptacle, and a spring for normally holding said gate in front of the space between the cover and the false bottom, substantially as described.

2. In a savings-bank, a box having a cut-away portion in the top thereof, a false bottom located within the box a slight distance below the top, a spring-held gate pivotally mounted in the box and lying normally in front of the space between the top and false bottom, and a coin-delivery plate adapted to slide on the false bottom, said plate having a coin-receiving opening and provided in one end with a slot which receives the gate when the box is tilted, as and for the purpose described.

3. In a savings-bank, a box or receptacle having a portion of its top or cover cut away, a false bottom within the box or casing, and a spring-held gate which is normally held in front of the space between the top or cover and the false bottom, combined with a slidable coin-delivery plate supported by the false bottom and having a coin-receiving opening and provided with a slot adapted to receive the gate when the box or receptacle is tilted whereby the gate is engaged by the coin and operated to permit the discharge of the coin into the box or receptacle, substantially as described.

697,269. ENVELOPING-MACHINE. DAVID HADEN, Berlin, Germany. Filed Dec. 26, 1900. Serial No. 730,749. (No model.)

Claim.—1. An enveloping-machine comprising in combination stitch-forming mechanism, feeding mechanism and controlling mechanism therefor comprising a crank and means for operating the crank compari-

ing a pattern-drum having complementary cam-paths, and independent elements operatively connecting said cam-paths and crank.



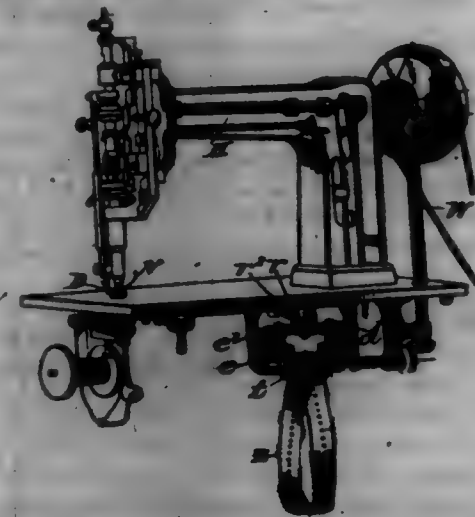
2. An overlocking-machine comprising in combination stitch-forming mechanism, feeding mechanism, and means for controlling the feeding mechanism comprising a crank, a pattern-drum having complementary cam-paths, elements connecting the crank and the cam-paths and so disposed that the leverage of one is at its maximum while the other is at its minimum.

3. An overlocking-machine comprising in combination stitch-forming mechanism, feeding mechanism, and means for controlling the feeding mechanism including a shaft, a crank having arms arranged at an angle to each other and carried by the shaft, a pattern-drum having complementary cam-paths, and a pair of rods, each connecting a cam-path with the corresponding arm of the crank, the connections being so disposed that the effective working angle is greater than the actual angle of the arms.

4. An overlocking-machine comprising in combination stitch-forming mechanism, feeding mechanism, and means for controlling the feeding mechanism comprising a shaft, a crank having arms arranged at an angle to each other and carried by the shaft, a pattern-drum having two complementary cam-paths, and a pair of rods, each connecting a cam-path with the corresponding arm of the crank, the connections being so disposed that the effective working angle is greater than the actual angle of the arms.

5. An overlocking-machine comprising in combination stitch-forming mechanism, feeding mechanism, and means for controlling the feeding mechanism, comprising a shaft, a crank having arms arranged at an angle to each other and carried by the shaft, a pattern-drum having complementary cam-paths, connecting-rods, each attached to an arm of the crank and operated by the cam-paths, and means for holding the rods in position in the cam-paths, substantially as described.

697,270. PATTERN MECHANISM FOR SEWING-MACHINE. CHINER, DAVID HAME, Berlin, Germany. Filed Jan. 2, 1902. Serial No. 106. (No model.)

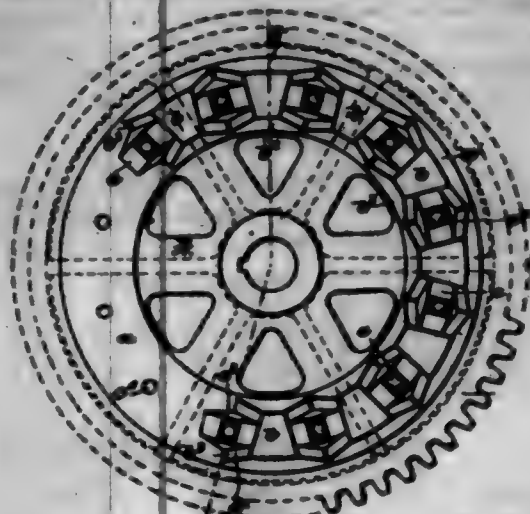


Claim.—1. In an overlocking-machine, the combination of a universal feed mechanism, a crank mechanism for controlling the direction of the feed, and pattern mechanism operating on said crank mechanism, comprising a pattern-former rotated in suitable manner, provided with two sets of gearing means, intermediate reversing-gear operated by said sets of gearing on the pattern-former, and gearing driven by said reversing-gear and transmitting its motion to the crank, whereby an automatic reversal of the direction of rotation of said crank is effected at desired intervals, all substantially as and for the purpose set forth.

2. In an overlocking-machine, the combination of a universal feed mechanism, a crank mechanism for controlling the direction of the feed, and pattern mechanism operating on said crank mechanism, comprising a pattern-former rotated by suitable gearing from the main shaft of the machine, and provided with two lateral sets of teeth, toothed gears each

operated by only one set of the teeth, and gearing actuating the crank and mounted intermediately of said toothed gears and meshing with both, so as to be rotated alternately in opposite directions, according as one or other set of pattern-former teeth come into operation, substantially as and for the purpose set forth.

697,271. FRICTION-CLUTCH. ALLEN R. BERNER, Cambridgeport, Mass. Filed Oct. 14, 1901. Serial No. 73,788. (No model.)



Claim.—1. A friction member comprising a wheel having a flat face, a circularly-arranged series of radially-movable friction-blocks applied thereon, said blocks having outer and inner inclined friction-faces, the adjacent ends of said blocks being inclined toward each other, wedge-shaped holding members arranged between adjacent blocks, with means to clamp said holding members to said wheel.

2. A friction member comprising a wheel having a flat face, a circularly-arranged series of radially-movable friction-blocks applied thereon, said blocks having outer and inner inclined friction-faces, the adjacent ends of said blocks being inclined toward each other, wedge-shaped holding members arranged between adjacent blocks, with means to clamp said holding members to said wheel, the wedge-faces of said holding members and adjacent ends of said blocks standing respectively at an angle of ninety degrees from each other whereby is obtained the highest clamping efficiency without appreciable tendency to separate said blocks.

3. A friction member comprising a wheel having a flat face, a circularly-arranged series of friction-blocks applied to said flat face and having outer and inner inclined friction-faces, the adjacent ends of said blocks being notched and inclined toward each other, wedge-shaped holding members arranged between adjacent blocks and clamping devices passing through the recesses formed by the adjacent notched ends of said blocks to clamp said holding members to said wheel.

4. A friction member comprising a wheel having a flat face, a circularly-arranged series of friction-blocks applied to one of the faces of said wheel and having outer and inner inclined friction-faces, said blocks having the capacity to move radially on said wheel, and means to secure said blocks to said wheel while permitting said radial movement.

5. A friction member comprising a wheel having a flat face, a circularly-arranged series of friction-blocks applied to said face and having outer and inner inclined friction-faces, said blocks having wedge-shaped ends, wedge-shaped holding members arranged between said blocks, and clamping-bolts for said holding members extended inward through openings in said wheel-face, said openings being larger in diameter than said bolts to permit the radial movement of the latter as said blocks go and come.

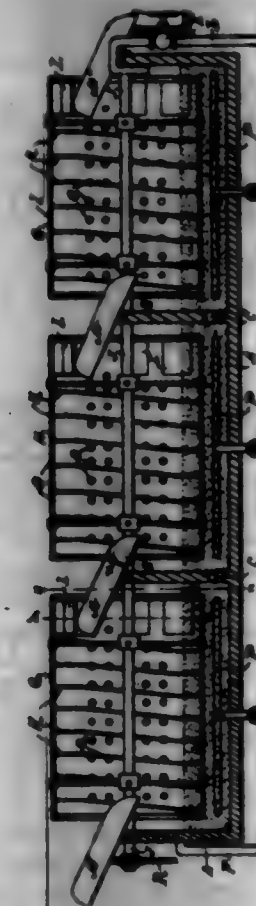
6. A friction member comprising a wheel, a circularly-arranged series of friction-blocks applied to one of the faces of said wheel, each block having an outer and an inner inclined friction-face and each block being arranged with its grain radial, that is, exposed at its outer and inner friction-faces, said blocks being free to move radially on said wheel, and means to clamp said blocks upon said wheel while preserving the capacity of said blocks to move radially.

697,272. METHOD OF BLANCHING FRUIT. AL. CLARKE H. FLEMING, Wash. D. C. Filed July 22, 1905. Serial No. 24,598. (No specimens.)

Claim.—1. The method of blanching peas or other vegetables, which consists, first, in using heated water successively in a series of compartments to soften the vegetables and facilitate the separation of the deleterious portions; and, second, causing the vegetables to move through the several compartments from the last water-receiving compartment toward that in which the water is first admitted.

2. The method of blanching peas and other vegetables, which consists, first, in using heated water successively in a series of compartments

to soften the vegetables and facilitate the separation of the deleterious portions; second, causing the vegetables to move through the several compartments in a direction opposite to that taken by the water; and, third, causing the vegetables to travel back and forth in the water of each compartment at an angle to their general line of travel.



3. The method of blanching peas and other vegetables, which consists, first, in using heated water successively in a series of compartments to soften the vegetables and facilitate the separation of the deleterious portions; second, causing the vegetables to move through the several compartments in a direction opposite to that taken by the water; and third, conveying the vegetables freely along in the water of each compartment by means of a supporting element, acting upon them at an angle to their general line of advance.

4. The method of blanching peas and other vegetables, which consists, first, in using heated water successively in a series of compartments to soften the vegetables and facilitate the separation of the deleterious portions; second, conveying the vegetables freely along in the water by means of a supporting element acting to lift them at an angle to the general line of advance, but permitting them to roll freely by gravitation in the opposite direction and toward the point of discharge.

5. The method of blanching peas and other vegetables which consists in using heated water to soften them and facilitate the separation of impurities; and, second, causing them to roll in each water upon a supporting element, acting to continuously lift them and permit their free descent by gravitation whereby the impurities are removed by the separate action of the heated and softened vegetables in the water and upon the contacting surfaces of the supporting element.

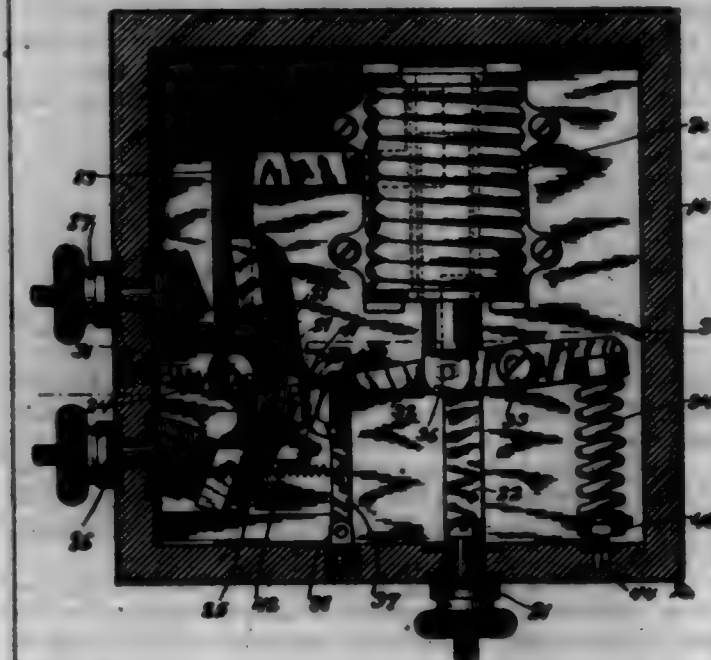
6. The method of blanching peas and other vegetables which consists, first, in using heated water successively in a series of compartments to soften the vegetables and facilitate the separation of the deleterious portions; and, second, rolling the vegetables through the water of the several compartments in a direction opposite to that taken by the water in passing through said series.

697,273. AUTOMATIC SAFETY-SWITCH FOR ELECTRIC CIRCUITS. OLIVER I. FLEMING, Chicago, Ill., assignor of one-half to John W. Ware, trustee. Filed Jan. 10, 1901. Serial No. 46,897. (No model.)

Claim.—1. As an article of manufacture, an automatic switch mechanism for branch electric circuits comprising a pair of terminals, a switch-arm oscillating between the terminals, a spring for oscillating the arm, and an electromagnet and a spring acting in opposition to throw the switch-arm oscillating spring, the electromagnet being incorporated into the circuit to be controlled and being normally weaker than the spring.

2. As an article of manufacture, an automatic switch mechanism for branch electric circuits comprising a pair of terminals, a switch-arm co-

oscillating between the terminals, a spring for oscillating the switch-arm, a lever to which one end of the spring is attached, and an electromagnet and a spring acting in opposition to move the lever as to throw the switch-arm oscillating spring, the electromagnet being incorporated into the circuit to be controlled.



3. As an article of manufacture, an automatic switch mechanism for branch electric circuits comprising a pair of terminals, a switch oscillating between the terminals, and an electromagnet and a spring acting in opposition to oscillate the switch, the electromagnet being in circuit with the switch and having a terminal for connection with the main wire of the circuit to be controlled.

4. In an electric switch, in combination, a pivoted switch-arm having projections thereon, a lever adapted to play between the projections and engage the same alternately, a spring the free end of which is connected to the lever and adapted to travel past the pivot of the switch-arm to throw the switch-arm, and an electromagnet and a spring acting in opposition to move the lever as to throw the switch-arm oscillating spring, the electromagnet being in circuit with the switch and having a terminal for connection with the main wire of the circuit to be controlled.

5. In an electric switch, in combination, an oscillating switch-arm having studs or shoulders on opposite sides of its pivot, an arm swinging on the same pivot with the switch-arm and between the studs or shoulders, a retractile spring attached at one end to the swinging arm and having fixed anchorage for its outer end back of the pivot, a stem projecting from the switch-lever oppositely from the anchorage of said spring, a V-shaped cam engaging said stem, and a spring of weaker tension than the before-named spring for holding the cam to the stem.

6. In an electric switch, in combination, a pivoted switch-arm, a lever mounted on the pivot of the switch-arm, a spring connected to the lever and adapted to move past the pivot of the arm to throw the same, means for actuating the lever to throw the spring, and a spring-actuated lever adapted to hold the switch-arm when thrown.

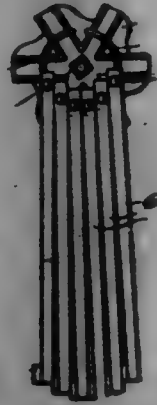
7. In an automatic switch mechanism for a divided electric circuit, in combination, an electromagnet and an oscillating switch-arm both in the main circuit, a pair of branch terminals with which the switch-arm alternately engages, a pivoted lever, a retractile spring for oscillating the switch-arm and attached to the lever and having an anchorage beyond its fulcrum, a lever 32, attached to the armature of the electromagnet for imparting initial movement to the lever for throwing the switch-arm oscillating spring, and a spring acting upon the lever 32 in opposition to the electromagnet.

8. In an automatic switch mechanism for a divided electric circuit, in combination, an electromagnet and an oscillating switch-arm both in the main circuit, a pair of branch terminals with which the switch-arm alternately engages, a pivoted lever, a retractile spring for oscillating the switch-arm and attached to the lever and having an anchorage beyond its fulcrum, a lever 32, attached to the armature of the electromagnet for imparting initial movement to the lever for throwing the switch-arm oscillating spring, a spring acting upon the lever 32 in opposition to the electromagnet, and a spring-actuated lever adapted to hold the switch-arm when thrown.

697,274. HARVESTER-REEL. CHARLEY W. FLEMING, Sharps, Tenn. Filed Oct. 14, 1901. Serial No. 73,804. (No model.)

Claim.—1. In a reel, a hub having curved ways, the curves of which are concentric with the axis of said hub, braces extending from the hub,

and fastening devices uniting said parts, fitted in said curved ways, substantially as described.



2. In a reel, a hub having curved slots, the curves of which are concentric with the axis of said hub, braces extending from said hub, and fastening devices uniting said parts extending into said slots, substantially as described.

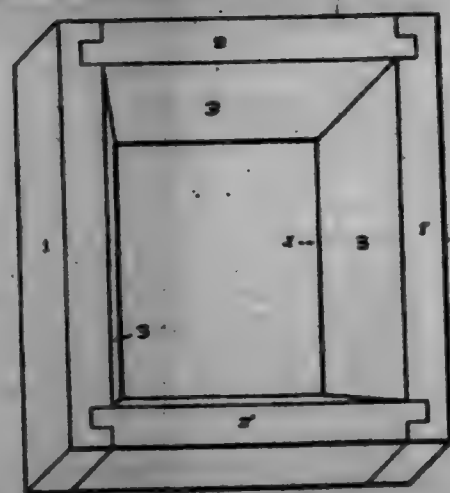
3. In a reel, a hub having curved slots, braces extending from said hub and bolts passing through the braces and also through the slots, and the hub having ends to receive the inner ends of said braces, substantially as described.

4. In a reel, a hub having curved ways and grooves, braces, the ends of which are fitted in said grooves, and fastening devices uniting the braces and hub and fitted in said curved ways, substantially as described.

5. In a reel, a hub provided with an inclined face having projections arranged in pairs and curved slots intersecting said projections, braces fitted against said face and arranged between said projections, and fastening devices uniting the braces and hub and fitted in said curved ways.

6. In a reel, a hub having an inclined face and provided with radial arms, projections on said face and arms and curved slots in said face intersecting said projections, braces between said projections, and bolts passing through said braces and slots.

697,275. FIRE-POT FOR BLACKSMITHS' HEARTH. DAVID B. EMMET, Sumner, Pa., assignor of one-half to Eugene D. Curwin, Sumner, Pa. Filed Feb. 12, 1901. Serial No. 47,880. (No model.)



Claim.—1. The herein-described fire-pot for blacksmiths' hearths, comprising several pieces of refractory material quadrangular in cross-section, the said pieces being arranged so as to form an inclosure, and the pieces joined by tongues and grooves set in a vertical direction, whereby the pieces are easily separable, removable and replaceable by sliding in a vertical direction, substantially as and for the purpose specified.

2. In combination with a blacksmith's hearth and grate, a fire-pot constructed from pieces of refractory material, said pieces superposed on said grate and having their ends joined so as to form an inclosure, the joining ends interlocked by means of tongues and grooves set in a vertical direction, and the outer exposed sides of said pieces being vertical planes whereby the pieces are easily separable, removable and replaceable by sliding vertically, substantially as specified.

697,276. HOIST. DAVID B. BOULANGER, Canton, Ohio. Filed Nov. 21, 1901. Serial No. 58,100. (No model.)

Claim.—1. In a hoist of the class described, a frame provided with independent rotatable pulleys located side by side, an elevating-chain located over the pulleys, a swiveled head connected to a head, said head having connected thereto a suspending-hook, a lever pivoted to the swiveled head and to the frame, said lever provided with a pivoted arm lo-

cated at its outer end, a link pivoted to the arm, pivoted bars carried by the lever and a key actuated by the pivoted bars adapted to lock the lever in a lowered position, and means for connecting the pulleys, and disconnecting substantially as and for the purpose specified.



2. In a hoist of the class described, a frame provided with a shaft having pulleys mounted loosely thereon, an elevating-chain located over the pulleys, means for connecting and disconnecting the pulleys, a lever pivoted to the frame and to a swiveled head, a key or wedge located upon the lever and means for sliding the key upon the lever, substantially as and for the purpose specified.

3. In a hoist of the class described the combination of a frame having pivoted thereto a lever, pulleys loosely mounted upon a shaft, a grooved collar provided with pins, apertures formed in one of the pulleys adapted to receive the pins of the sliding collar, a yoke to actuate the sliding collar, a swiveled head pivotally connected to the lever, and said lever provided with an arm located at its outer end, a sliding key located upon the lever, and means for operating the key by means of the swinging movement of the arm located at the outer end of the lever, substantially as and for the purpose specified.

4. In a hoist of the class described, a frame pulleys mounted upon a shaft, the shaft carried by the frame one of said pulleys provided with a toothed flange, a lever provided with a downward-extending arm 16 and means for locking the lever in a lowered position and releasing the pulleys one from the other, and an elevating-chain, substantially as and for the purpose specified.

5. In a hoist of the class described the combination of a frame, a lever pivoted thereto, an arm pivoted to the outer end of the lever, a link connected to the pivoted arm, bars pivoted to the lever, a sliding key or wedge provided with a slotted arm, a pin to engage the slot and the key provided with a guide extension, a slot formed in the frame, pulleys mounted upon a shaft carried by the frame, an elevating-chain located over the pulleys, and means for disengaging the pulleys, substantially as and for the purpose specified.

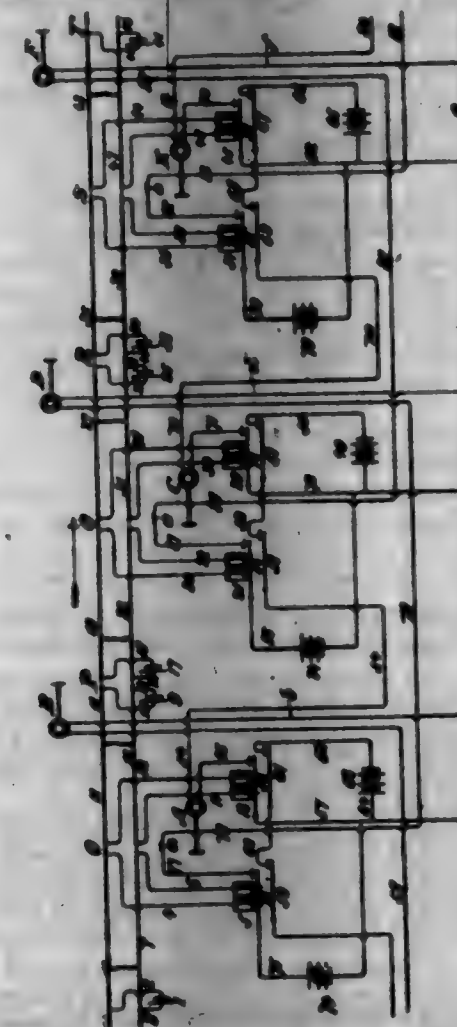
697,277. SIGNALING SYSTEM FOR SINGLE-TRACK RAILWAYS. WILLIAM W. SALMON, Chicago, Ill., assignor to the Bell Signal Company, a Corporation of Maine. Filed July 21, 1904. Serial No. 518,217. (No model.)

Claim.—1. In an electric signaling system for single-track roads, the combination of a series of out-running blocks and a series of overlapping incoming blocks, signals for the blocks, signal-operating devices connecting the incoming signals together and the out-running signals together and interconnecting the incoming and out-running signals, an electromagnetic double switch controlling the out-running signals of its section, a second electromagnetic double switch controlling with the first of said switches the corresponding signal and the out-running of the preceding block, and the incoming signal of the section at which the second-named magnet is located, said incoming signal being located in the rear of its corresponding out-running signal not less than the distance between the said incoming signal and the next incoming signal toward the said out-running signal, substantially as set forth.

2. In an electric block-signaling system the combination of a series of incoming blocks, and a series of out-running blocks, signals for the blocks and signal operating or controlling devices for signals connecting the incoming signals together and the out-running signals together and interconnecting the incoming and out-running signals, an electromagnetic double switch controlling the out-running signals of its section, a second electromagnetic double switch controlling with the first of the said switches the corresponding signal and the out-running signal of the preceding block, and the incoming signal of the section at which the second-named magnet is located, substantially as set forth.

3. In an electric signaling system for single-track roads, the combination of a series of out-running blocks and a series of overlapping incoming blocks, signals for the blocks and operating or controlling devices for

the signals connecting the incoming signals together and the out-running signals together and interconnecting the incoming and out-running signals, each out-running signal guarding a portion of the track which is also guarded by a corresponding incoming signal, said incoming signal being located in the rear of its corresponding out-running signal not less than the distance between the said incoming signal and the next incoming signal toward the said out-running signal, a pair of double electromagnetic switches located at the out-running signal, one of said switches controlling the out-running signals of a block, the other of said switches controlling the corresponding signal, substantially as set forth.



4. In an electric signaling system for single-track roads, the combination of a series of out-running blocks and a series of overlapping incoming blocks, signals for the blocks connecting the incoming signals together and the out-running signals together and interconnecting the incoming and out-running signals, each out-running signal guarding a portion of the track which is also guarded by a corresponding incoming signal, said incoming signal being located in the rear of its corresponding out-running signal not less than the distance between the said incoming signal and the next incoming signal toward the said out-running signal, a magnetic double switch controlling the out-running signal of its section, a second magnetic double switch controlling with the first of the said switches the corresponding signal and the out-running signal of the preceding block, and its corresponding signal, substantially as set forth.

5. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, said signals being arranged alternately along the track, first a signal from one series, then a signal from the other and so on, limited sections of track for the signals, a track-circuit for each of said sections of track adapted to be operated by the train while on said section, a double switch-relay in each of said circuits, secondary signaling circuits adapted to operate the signals, circuit-breakers in each of said signaling-circuits adapted to the signal-circuits of one series of said signals to be operated by the relays in three of said track-circuits and in the signaling-circuits of the other series to be operated by the relays in four of said track-circuits, substantially as set forth.

6. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, said signals being arranged alternately along the track, first a signal from one series, then a signal from the other and so on, limited sections of track for the signals, a normally closed track-circuit for each of said sections of track adapted to be operated by the train while on said section,

a double switch-relay in each of said circuits, secondary signaling-circuits, normally closed, adapted to operate the signals, circuit-breakers in each of said signaling-circuits, adapted to the signaling-circuits of one series of said signals to be operated by the relays in three of said track-circuits and in the signaling-circuits of the other series to be operated by the relays in four of said track-circuits, substantially as set forth.

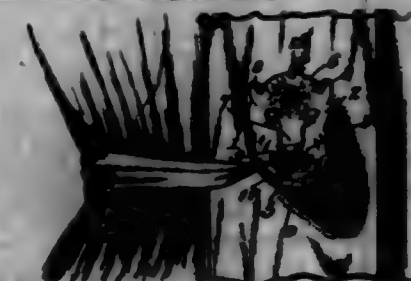
7. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, limited sections of track, track-circuits including said limited sections adapted to be operated by the train, double switch-relays in said circuits, secondary signaling-circuits adapted to operate the signals, circuit-breakers in each of said signaling-circuits adapted to the signaling-circuits located at the danger-signals of one series of said signals to be operated by the relays of the track-circuits covering the portions of track between a signal of said first series and the opposing signal of the other series which is the second one of said series beyond a preliminary track-section which lies immediately in advance of the said signal of the first series, and adapted in the signaling-circuits of the other series of said signals to be operated by the relays of the track-circuits covering the said preliminary track-sections and the track-sections between it and the second signal of the said other series beyond said preliminary track-section, substantially as set forth.

8. The signal system comprising series of signals, each series constructed to operate as danger-signals when a train is moving in one direction, and as rear signals when the train is moving in the opposite direction, and double switch-relays connecting the individual members of the series and interconnecting the members of the different series, and under the control of a moving train to act successively and maintain a plurality of signals of one series in advance of the train as danger-signals and a signal of another series out to the rear of the train as rear signals, substantially as set forth.

9. The signal system, comprising series of signals arranged in sets, the individual members of a set being electrically interconnected, the one member of a set serving to control the setting of the signal of its companion to danger as a danger-signal when the train is running in one direction, and a double switch-relay and electric circuits under the control of the train to simultaneously operate adjacent sets of signals to set two of the signals of one series in advance of the train as danger-signals and to set two of the signals of another series to the rear of the train as rear signals, substantially as set forth.

10. The signal system, comprising series of signals arranged in sets, the individual members of a set being electrically interconnected, the one member of a set serving to control the setting of the signal of its companion to danger as a danger-signal when the train is running in one direction, circuits for the signal and rail-circuits, double switch-relays in said rail-circuits operating or controlling the signal-circuits, said circuits being organized and arranged to protect the train in front and rear by at least three signals maintained at danger whereby when two signals of one series are held at danger as danger-signals at least one signal of the other series must be held at danger as a rear signal and when two signals of one series are held at danger as rear signals at least one signal of the other series must be held at danger as a danger-signal, substantially as set forth.

697,278. EARTHEN AND FASTERIES HEARTH. ALBERT BULLOCK, JR., New York, N. Y. Filed Feb. 27, 1901. Renewed Dec. 12, 1901. Serial No. 38,448. (No model.)



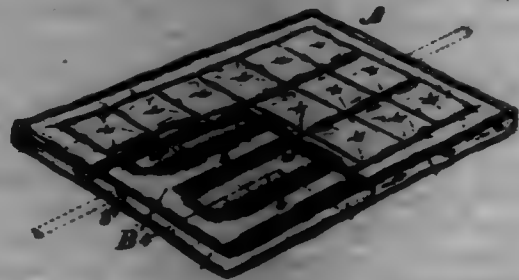
Claim.—1. An improved device of the class described, comprising a hollow body portion, a clamping member arranged adjacent to an opening formed in said body portion and consisting of relatively movable jaws, and a securing member whereby the device may be connected with a support, said clamping member and said securing member embodying a head and a spring member a portion of which constitutes one jaw of said clamping member.

2. An improved device of the class described, comprising a stamped metal body portion formed to simulate the head of an animal, a clamping member arranged adjacent to the mouth portion of the simulation and consisting of relatively movable spring-mounted jaws provided with teeth, and a securing member whereby the device may be connected with a wall or other support, said securing member and one of said jaws combining

of a single bent strip of spring metal, and the other of said jaws consisting of a single strip of spring metal which is secured to said first-mentioned strip.

3. An improved device of the class described, comprising a stamped-metal body portion formed to simulate the head of an animal, a clamping member arranged adjacent to the mouth portion of the simulation and consisting of relatively movable spring-mounted jaws provided with teeth, and a moving member whereby the device may be connected with a wall or other support, said securing member and one of said jaws consisting of a single bent strip of spring metal which is connected with the body portion and formed at one end into said jaw and at the other end into a hook, and the other of said jaws consisting of a single strip of spring metal which is secured to said first-mentioned strip.

697,279. MATTRESS OR CUSHION AND HEATING ATTACHMENT THEREFOR. *ALFRED E. SUMMERS*, Maryville, Kans., assignor of one-half to David van Rensen, Maryville, Kans. Filed Dec. 2, 1901. Serial No. 81,361. (No model.)



Claim.—1. A mattress or cushion adapted for receiving a heating appliance, the same having top and bottom portions which are connected at one side but otherwise separable, one of them being provided interiorly with projections or ribs, and spaces intervening them for accommodating a heater, substantially as shown and described.

2. An improved mattress or cushion for receiving a heating appliance, the same having separable top and bottom portions and interior ribs or projections surrounded by spaces which intervene them and the side portions of the mattress, substantially as shown and described.

3. The improved mattress or cushion having separable top and bottom portions and provided interiorly with projecting portions extending parallel and spaced apart from each other and from the sides and ends of the mattress whereby the latter is adapted to receive a heating appliance having a form corresponding to the spaces surrounding said projections, substantially as shown and described.

4. The combination with a mattress or cushion having separable top and bottom portions and provided interiorly with projecting portions which are spaced apart, of a heater formed of tubular portions which are adapted to fit in the spaces between the said projections of the mattress, substantially as shown and described.

5. The combination with the mattress or cushion having separable top and bottom portions and interior parallel lengthwise projections or ribs formed on the bottom portion which projections are spaced from each other and from the sides and ends of the mattress, of a heating appliance consisting of a series of parallel tubular and tubular end portions adjoining the same, the heater as a whole being adapted to fit in the spaces provided between the said projections of the mattress and the sides and the ends of the latter, as shown and described.

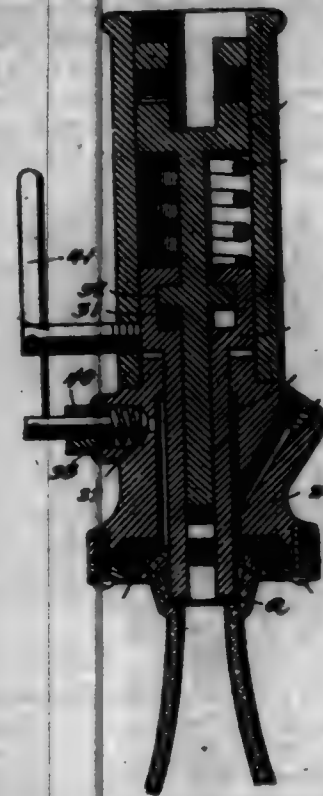
6. The combination with a flexible mattress having divided top and bottom portions and provided interiorly with ribs or projections which are spaced apart, of a flexible heating appliance composed of a series of longitudinal tubular portions and tubular end portions, the latter having nozzles which are accessible at the ends of the mattress and adapted for application of screw-plugs or circulating-pipes, whereby the mattress and its contained heater are adapted for use in the manner described.

697,280. MACHINE FOR APPLYING BOTTLE-COALS. *HOWARD R. SUMMERS*, Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Camden, N. J., and Baltimore, Md., a Corporation of New Jersey. Filed Sept. 28, 1895. Serial No. 70,574. (No model.)

Claim.—1. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one part being adapted to seal the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal and lock the seal in place therein, substantially as described.

2. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one part being adapted to seal

the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal and lock the seal in place therein, of means to operate the plunger to seal and lock the seal, substantially as set forth.



3. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one part being adapted to seal the seal in the inside of the bottle-neck and another to engage the locking means of the seal and lock the seal in place therein, and to operate yieldingly upon said seal, of means to operate the plunger to seal and lock the seal, substantially as described.

4. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one part being adapted to seal the seal in the inside of the bottle-neck and the other to engage the locking means of the seal to lock the seal in place therein, and to operate yieldingly upon the seal, means for operating the plunger to seal the seal, and means for returning the parts to normal position, substantially as described.

5. In a machine for applying bottle-coal, the combination with a sealing-head formed with a liquid-inlet therein and a chamber to receive the same and a valve communicating with said chamber for the purpose set forth, of a compound plunger in said head, the parts thereof being capable of independent movement, one part being adapted to seal the seal in the inside of the bottle-neck in its downward movement and the other part to lock the seal therein after the stoppage of the first-mentioned part, means for operating the plunger and means for returning all the parts to normal position, substantially as described.

6. In a machine for applying bottle-coal, the combination with a sealing-head formed with a liquid-inlet therein and a chamber to receive the same, and a valve communicating with said chamber for the purpose set forth, of a compound plunger in said head, the parts thereof being capable of independent movement, one part being adapted to seal the seal in the inside of the bottle-neck in its downward movement and the other part to lock the seal therein after the stoppage of the first-mentioned part, means for supporting the bottle below the head and moving the same to seal from said head, means for operating the plunger, and means for returning all the operating parts to normal position after each operation, substantially as described.

7. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one adapted to seal the seal in the inside of the bottle-neck in its downward movement, and the other to engage the locking means of the seal to lock said seal in place therein, after the stoppage of the first-mentioned part, a bottle-supporting table below the head, means for raising and lowering the same, and means for returning all the operating parts to normal position after each operation.

8. In a machine for applying bottle-coal, the combination with a sealing-head, a plunger in said head comprising an upper member having a cross-head as 23 thereon, and a two-part lower member mounted to receive the cross-head, the two parts being adapted to operate in the described relation to each other to seal the seal in the inside of the bottle-neck and to lock the same therein, a spring interposed between the two members and keeping the cross-head normally at the top of the recess in the

lower member, and means for operating the plunger to cause both members to descend together in the initial movement of the plunger but to continue the movement of the upper member after the stoppage of the lower member, substantially as described.

9. In a machine for applying bottle-coal the combination with a sealing-head, a plunger in said head comprising an upper member having a cross-head thereon, and a lower member having a chamber to receive the said cross-head, said cross-head being capable of vertical movement in said chamber, a spring interposed between the two members and keeping the cross-head normally at the top of the chamber in the lower member, means for operating the plunger to cause both members to descend together in the initial movement of the plunger but to continue the movement of the upper member after the stoppage of the lower member, a lower head portion formed with a liquid-inlet therein and a chamber to receive the same and a valve communicating with said chamber for the purpose set forth, and means for controlling the admission of liquid to the chamber, substantially as described.

10. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger the parts thereof being capable of independent vertical movement, of means for operating the sealing-plunger to seal the seal in the inside of the bottle-neck upon the initial movement of a part of the plunger, and to cause the locking-plunger to engage the locking means of the seal and lock the seal in place therein by a further downward movement, and means for returning the parts to normal position, substantially as described.

11. In a machine for applying bottle-coal, the combination with a suitable frame, of a sealing-head containing a compound plunger, the parts thereof being capable of independent vertical movement, one part being adapted to seal the seal in the inside of the bottle-neck and another to engage the locking means of the seal and lock the seal in place therein, and to operate yieldingly upon the seal, the movement of the part of the plunger to lock the seal being independent of the movement of the sealing-plunger, and means for returning the operating parts to normal position.

12. In a machine for applying bottle-coal, the combination with a sealing-head containing a compound plunger, the parts thereof being capable of independent movement, means for operating the plunger to seal the seal in the inside of the bottle-neck upon the downward movement of one of the parts and to lock the same in place therein after the stoppage of the first-mentioned part, a bottle-supporting table below the head, and means for raising and lowering the same, a bottle-centering device secured to the table and adjustable toward and from the center thereof, and means for returning all the operating parts to normal position after each operation.

697,281. MACHINE FOR APPLYING BOTTLE-COALS. *HOWARD R. SUMMERS*, Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Camden, N. J., and Baltimore, Md., a Corporation of New Jersey. Filed Sept. 28, 1895. Serial No. 70,575. (No model.)



Claim.—1. In a bottle-sealing machine, the combination with a sealing-head provided with a spring-pressed plunger having ends adapted to extend into the bottle-neck and adapted to seal the seal therein, of a spring-pressed locking-plunger adapted to engage the locking means of the seal to lock said seal in place after it has been sealed in the bottle, a slidable lower portion adapted to be engaged by the bottle-head to slide said portion to bring the seal-sealing-plunger ends into the mouth of the bottle to seal the seal, and the locking-plunger into engagement with the locking means to lock the seal, substantially as described.

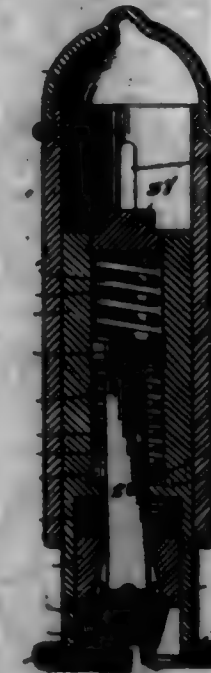
2. In a bottle-sealing device, the combination with a sealing-head provided with a compound plunger, the parts thereof being spring-pressed and capable of independent movement, one member being adapted to seal the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal to lock the seal in place therein after the stoppage of the first-mentioned part, a slidable lower head portion adapted to be engaged by the bottle-head to slide said portion to bring the seal-sealing member into the mouth of the bottle for the purpose set forth, and the locking member into engagement with the locking means of the seal to lock the seal in place, substantially as described.

3. In a machine for applying bottle-coal, the combination with a

sealing-head provided with a compound plunger, the parts thereof being spring-pressed and capable of independent movement, one member being adapted to seal the seal in the inside of the bottle-neck and the other to lock it in place therein, a lower slidable portion adapted to be engaged by the bottle-head to slide it on the upper portion to bring the seal-sealing member into the bottle-mouth to seal the seal, and the locking-plunger into engagement with the locking means of the seal to lock said seal in place, and means for moving the bottle against the lower head portion, substantially as described.

4. In a machine for applying bottle-coal, the combination with a sealing-head provided with a compound plunger the parts thereof being held normally closed by springs or their equivalents, and capable of independent movement, one member being adapted to engage the seal to seal it in the bottle-neck and the other to engage the locking means to lock the seal, a lower slidable portion provided with an undermost centering-surface to be engaged by the bottle to slide the slidable portion to bring the sealing member of the plunger into the bottle-mouth, and the locking member into engagement with the locking means of the seal for the purpose set forth, a vertically-movable bottle-supporting table below the head, and means for raising the same, and means for returning the table to normal position, substantially as described.

697,282. MACHINE FOR APPLYING BOTTLE-COALS. *HOWARD R. SUMMERS*, Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Baltimore, Md., and Camden, N. J., a Corporation of New Jersey. Filed Dec. 21, 1901. Serial No. 87,000. (No model.)



Claim.—1. A machine for applying bottle-coal, comprising an outside sleeve, a vertically-movable core in said sleeve and containing a compound plunger, the parts thereof being spring-pressed and each member capable of a movement independent of the other in the core, one of said plunger members being adapted to seal the seal in the inside of the bottle-neck, and the other adapted to engage the locking means of the seal to lock said seal in place therein, substantially as described.

2. A machine for applying bottle-coal, comprising an outside stationary sleeve, a vertically-movable core in said sleeve containing a compound plunger, the parts thereof being spring-pressed and each member capable of a movement independent of the other in the core, one of the plunger members being adapted to seal the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal to lock said seal in place in the bottle-neck upon the downward movement of the core, and means for so moving the core, and means for returning the core to normal position after each operation, substantially as described.

3. A seal-applying machine, comprising an outside stationary sleeve, a vertically-movable core in said sleeve and containing a compound plunger, the parts thereof being spring-pressed and each member capable of a movement independent of each other in the core, one member being adapted to seal the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal to lock said seal in place therein upon the downward movement of the core, a vertically-movable spring-pressed lower portion, slidable in said core and adapted to be engaged by the bottle-head in the downward movement of said core to guide the ends of the plunger members into proper position to operate upon the seal, substantially as described.

4. A seal-applying machine, comprising an outside stationary sleeve,

a vertically-movable core in said sleeve and containing a compound plunger, the parts thereof being spring-pressed and each member capable of a movement independent of the other in the core, one member being adapted to seat the seal in the inside of the bottle-neck, and the other to engage the locking means of the seal to lock said seal in place therein upon the downward movement of the core, a vertically-movable spring-pressed lower portion slidable in relation to said core and adapted to be engaged by the bottle-head in the downward movement of the core to guide the ends of the plunger member into proper position to operate upon the seal, means for moving the core downward in the sleeve, means for restoring the core to normal position after each operation, and a bottle-supporting table below said core and means for adjusting said table vertically, substantially as described.

5. A seal-applying machine comprising an outside stationary sleeve, a vertically-movable core in said sleeve, bored to receive a compound plunger, comprising a two-part lower member adapted to seat the seal in the inside of the bottle-neck, and an upper member adapted to engage the locking means of the seal to lock the same in place in the bottle-neck, each member being capable of a movement independent of the other in the sleeve, a spring interposed between the two members, and a spring bearing on the upper member, a vertically-movable spring-pressed lower portion, slidable in relation to the core and adapted to be engaged by the bottle-head in the downward movement of the core to guide the ends of the plunger members to proper position to operate upon the seal, and means for restoring the core to normal position after each operation, substantially as described.

697,288. CAR-BRAKE. FRANK F. SHAFER, Cumberland, Md. Filed Jan. 14, 1902. Serial No. 92,545. (No model.)



Claim.—1. The combination with a series of car-wheels arranged in line with each other and a series of brake-shoes therefor, designed to engage the rims of said wheels above the axles thereof, brake-levers for said shoes having the arms thereof opposite the points of attachment of said shoes heavier than said shoes, and common actuating means for simultaneously applying all of said brake-shoes to said wheels, the weight of the heavier arms of said levers serving to automatically remove said shoes from engagement with said wheels when the brake-actuating mechanism is released.

2. The combination with a series of car-wheels arranged in line with each other, a pair of brakes for the central wheel of the series, and a brake for each of the end wheels of the series, of two levers, one co-operating with one of the brakes for the central wheel and with the brake for one of the end wheels, for operating them, and the other co-operating

with the other brake for the central wheel, and with the brake for the other end wheel, for operating them, and means for rocking said levers simultaneously, for applying all of said brakes at the same time.

3. The combination with a series of car-wheels arranged in line with each other, a pair of brakes for the central wheel of the series, and a brake for each of the end wheels of the series, of two levers, one co-operating with one of the brakes for the central wheel and with the brake for one of the end wheels, for operating them, and the other co-operating with the other brake for the central wheel, and with the brake for the other end wheel, for operating them, and a brake-rod secured to one of said levers and having a sliding connection with the other, whereby upon the operation of said brake-rod, both of said levers will be rocked, and all of said brakes will be simultaneously applied.

4. The combination with a series of car-wheels arranged in line with each other, a pair of brakes for the central wheel of the series, and a brake for each of the end wheels of the series, of two levers, one co-operating with one of the brakes for the central wheel and with the brake for one of the end wheels, for operating them, and the other co-operating with the other brake for the central wheel, and with the brake for the other end wheel, for operating them, and a brake-rod secured to one of said levers, and having a flexible portion therein which passes around a pulley on the other of said levers, whereby when said brake-rod is operated, both of said levers will be rocked and all of said brakes will be simultaneously applied.

5. The combination with a plurality of car-wheels arranged one in front of the other, and brake-shoes for said wheels, of brake-levers connected with said shoes fulcrumed upon the car-truck, and having their free ends extending toward each other, an equalizing-lever fulcrumed upon the car-truck, a link connecting said equalizing-lever with the free end of one of said brake-levers, a floating lever pivoted to the free end of the other of said brake-levers, and having a link connection with said equalizing-lever, and brake-actuating mechanism acting upon said floating lever for applying both of the brake-shoes to said wheels simultaneously.

6. The combination with a plurality of car-wheels arranged one in front of the other, and brake-shoes for said wheels, of brake-levers connected with said shoes fulcrumed upon the car-truck, and having their free ends extending toward each other, an equalizing-lever fulcrumed upon the car-truck, a link connecting said equalizing-lever with the free end of one of said brake-levers, a floating lever pivoted to the free end of the other of said brake-levers, and having a link connection with said equalizing-lever, an operating-lever fulcrumed upon the car-truck, and having a link connection with said floating lever, and brake-actuating mechanism acting upon said operating-lever for applying both of the brake-shoes to said wheels simultaneously.

7. The combination with a plurality of sections of a car-truck, capable of turning movement independently of each other, car-wheels carried by each of said truck-sections, and arranged one in front of the other, and brakes for said wheels, of brake-actuating mechanism for applying both of said brakes simultaneously, equalizing connections between said brake-actuating mechanism and said brakes, including a lever and a link, and a universal joint between said lever and link.

8. The combination with a plurality of sections of a car-truck, capable of turning movement independently of each other, car-wheels carried by each of said truck-sections, and arranged one in front of the other, and brakes for said wheels, of an operating-lever for applying both of said brakes simultaneously, equalizing connections between said lever and said brakes, and a universal joint between two of the parts of said equalizing connections.

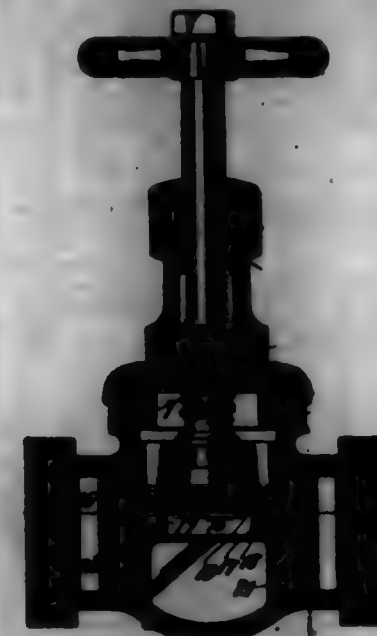
9. The combination with a plurality of sections of a car-truck, capable of turning movement independently of each other, car-wheels carried by each of said truck-sections, and arranged one in front of the other, and brakes for said wheels, of brake-levers connected with said brakes, fulcrumed respectively on said truck-sections and having their free ends extending toward each other, an equalizing-lever fulcrumed upon one of said truck-sections and having a link connection with one of said brake-levers, a floating lever pivoted to the other of said brake-levers, a link pivoted to said equalizing-lever and having a universal-joint connection with said floating lever, and brake-actuating mechanism acting upon said floating lever for applying both of said brakes simultaneously.

10. The combination with a plurality of sections of a car-truck, capable of turning movement independently of each other, car-wheels carried by each of said truck-sections, and arranged one in front of the other, and brakes for said wheels, of brake-levers connected with said brakes, fulcrumed respectively on said truck-sections and having their free ends extending toward each other, an equalizing-lever fulcrumed upon one of said truck-sections and having a link connection with one of said brake-levers, a floating lever pivoted to the other of said brake-levers having a hemispherical socket in its outer end, a link pivoted to said equalizing-lever and having a link at its upper end, between the branches of which said floating lever is located, a coupling-plate bounded between the branches

of said fork provided with a ball which fits within the socket in said floating lever, and having a loop adjacent to said ball, a pivot-pin extending through said loop and through the branches of said fork, and brake-actuating mechanism acting upon said floating lever for applying both of said brakes simultaneously.

11. The combination with a pair of brake-rods longitudinally movable on the under side of a car, and operatively connected with the car-brakes, of levers connected respectively to said brake-rods fulcrumed to the under side of the car, and extending toward each other, links pivoted to the inner ends of said levers, a cross-rod connecting said links, a brake-cylinder having the piston thereof operatively connected with said cross-rod, a lever fulcrumed to the under side of the car and operatively connected to said cross-rod, and a cord or chain connected with the latter lever, by means of which the brakes may be operated by hand.

697,284. VALVE. WILLIAM P. SHUTTER, New York, N. Y., assignor to the Fairbanks Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 11, 1901. Serial No. 44,738. (No model.)



Claim.—1. The combination of the body of a valve and a bonnet therefor, each body and bonnet having overlapping engaging stems and means for securing them together, the outer engaging part having a compressing-flange provided with an inclined inner surface and the inner engaging stem having an inclined surface coating with the inclined inner surface of the outer stem, substantially as set forth.

2. The combination of the body of a valve and a bonnet therefor, the bonnet having a stem constructed to enter and engage with a stem of the body, and the bonnet having an overhanging compressing-flange with an inclined inner surface and the stem of the body having an inclined surface coating therewith, substantially as set forth.

3. The combination of the body of a valve and a bonnet therefor, the body having a screw-stem and the bonnet having a screw-stem constructed to enter and engage with the body-stem, and the bonnet having an overhanging compressing-flange with a conical inner surface and the body-stem having a conical surface mating therewith, substantially as set forth.

4. The combination with the casing of a valve, a valve-seat therein, a valve-disk coating with such seat, and means for closing such valve-disk upon its seat, of ribs integral with the casing and seat and extending from the valve-seat to the walls of the casing in opposite directions, substantially as set forth.

5. The combination with the casing of a valve, a valve-seat therein, a valve-disk coating with such seat and means for closing such valve-disk upon its seat, of longitudinal ribs integral with the casing and seat and extending from the valve-seat to the walls of the casing in opposite directions and substantially in the direction of the pressure of the valve-disk upon the seat, substantially as set forth.

6. The combination with the casing of a valve, a valve-seat therein, a valve-disk coating with such seat and a screw-stem therefor, of the longitudinal ribs 20 and 21, integral with the valve-seat and casing and extending from the valve-seat to the walls of the casing in opposite directions, and the lateral ribs 22, 23, also integral with the valve-seat and casing and extending from the face of the valve-seat to the casing, all of said ribs being substantially in the direction of pressure of the valve-disk upon the seat, substantially as set forth.

7. A valve comprising a casing, the valve-seat 17 therein, an annular curb 18 surrounding the valve-seat, a valve-disk coating with such

seat and curb, means for operating the valve-disk, and longitudinal ribs 20 and 21, integral with the valve-seat, curb and casing and extending from the valve-seat to the walls of the casing in opposite directions, substantially as set forth.

8. The combination with the casing of a valve, the valve-seat 17 therein, an annular curb surrounding the valve-seat, a valve-disk coating with the valve-seat and curb, means for operating the valve-disk, longitudinal ribs 20 and 21, integral with the valve-seat, curb and casing and extending from the valve-seat to the walls of the casing in opposite directions, and the lateral ribs 22, 23, also integral with the valve-seat, curb and casing and extending from the face of the valve-seat to the casing, all of said ribs being substantially in the direction of pressure of the valve-disk upon the seat, substantially as set forth.

9. The combination of the body of a valve and a bonnet therefor, each body and bonnet having overlapping engaging parts and means for securing them together, the outer engaging part having a compressing-flange provided with an inclined inner surface and the inner engaging part having an inclined surface coating with the inclined inner surface of the outer part, a valve-seat in each body, a valve-disk coating with such seat, a valve-stem constructed to press the valve-disk on the seat by engagement with the bonnet, and ribs integral with the body and seat and extending from the valve-seat to the walls of the body in opposite directions, substantially as set forth.

10. The combination of the body of a valve and a bonnet therefor, each body and bonnet having overlapping engaging parts and means for securing them together, the outer engaging part having a compressing-flange provided with an inclined inner surface and the inner engaging part having an inclined surface coating with the inclined inner surface of the outer part, a valve-seat in each body, a valve-disk coating with such seat, a valve-stem constructed to press the valve-disk on the seat by engagement with the bonnet, and longitudinal ribs integral with the body and seat and extending from the valve-seat to the walls of the body in opposite directions and substantially in the direction of the pressure of the valve-disk upon the seat, substantially as set forth.

11. The combination of the body of a valve and a bonnet therefor, each body and bonnet having overlapping engaging parts and means for securing them together, the outer engaging part having a compressing-flange provided with an inclined inner surface and the inner engaging part having an inclined surface coating with the inclined inner surface of the outer part, a valve-seat in each body, a valve-disk coating with such seat, a valve-stem constructed to press the valve-disk on the seat by engagement with the bonnet and longitudinal ribs 20 and 21, integral with the valve-seat and body and extending from the valve-seat to the walls of the body in opposite directions, and the lateral ribs 22, 23 also integral with the valve-seat and body and extending from the face of the valve-seat to the casing, all of said ribs being substantially in the direction of pressure of the valve-disk upon the seat, substantially as set forth.

12. The combination of the body of a valve and a bonnet therefor, the body having a screw-stem and the bonnet having a screw-stem constructed to enter and engage with the body-stem, and the bonnet having an overhanging compressing-flange with an inclined inner surface and the body-stem having a conical surface coating therewith, a valve-seat in the body, a valve-disk coating with such seat, a valve-stem constructed to press the valve-disk on the seat by engagement with the bonnet, an annular curb surrounding the valve-seat, curb and body and extending from the valve-seat to the walls of the body in opposite directions, and lateral ribs 22, 23, also integral with the valve-seat, curb and body and extending from the face of the valve-seat to the body, all of said ribs being substantially in the direction of pressure of the valve-disk upon the seat, substantially as set forth.

697,285. PRINTING ATTACHMENT FOR FLOUR-PACKERS. HARRY P. SMITH, Minneapolis, Minn. Filed Oct. 22, 1901. Serial No. 90,172. (No model.)

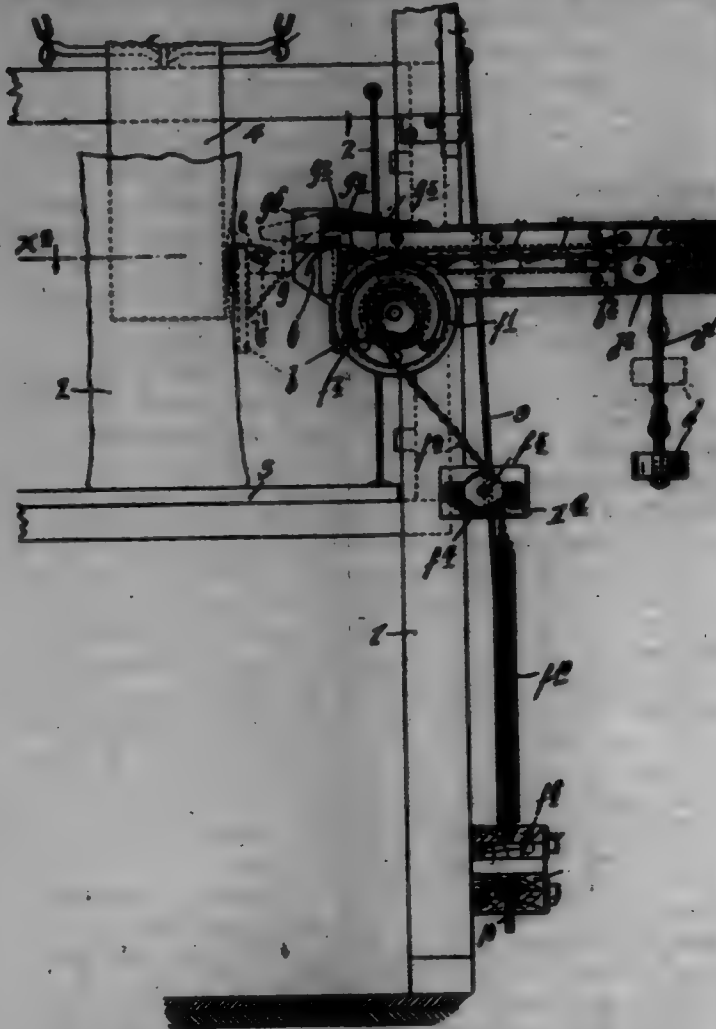
Claim.—1. The combination with a flour-packer and a cooperating printing device, of a single trip or controller arranged to be actuated, at will, to throw both of the said devices into action, substantially as described.

2. The combination with a flour-packer, of a printing device, and a common foot-operated controller or trip for throwing both the said devices into action, substantially as described.

3. The combination with a flour-packer having a packing-tube and a movable support for the neck, of a printing device having a type-head which is movable to and from the printing position and has a limited movement in the direction of the travel of the said support, substantially as described.

4. The combination with a flour-packer having a packing-tube and a movable support for the neck or barrel, of a printing device having a type-head mounted for movement to and from the printing position and

having a limited movement in the direction of the travel of the said support, and a common trip or controller for throwing said packer and printing device into action, substantially as described.



4. The combination with a four-packer and a printing device, of a two-part trip, a single action of which, throws both the said device into action and one section of which is movable back to normal in advance of the other, to permit the printing device to be restored to normal position before the sack has been filled, substantially as described.

697,986. TRILL-SUPPORT. WILLIAM B. SMITH, Redgum, Ill.
Filed Oct. 28, 1901. Serial No. 79,797. (No model.)



Claim.—1. A trill-support comprising a step or abutment upon the thill, in combination with a tension device upon the front bolster arranged to engage said step or abutment when under tension, and to support the thill, and means for lowering against disengagement of said device and step, substantially as specified.

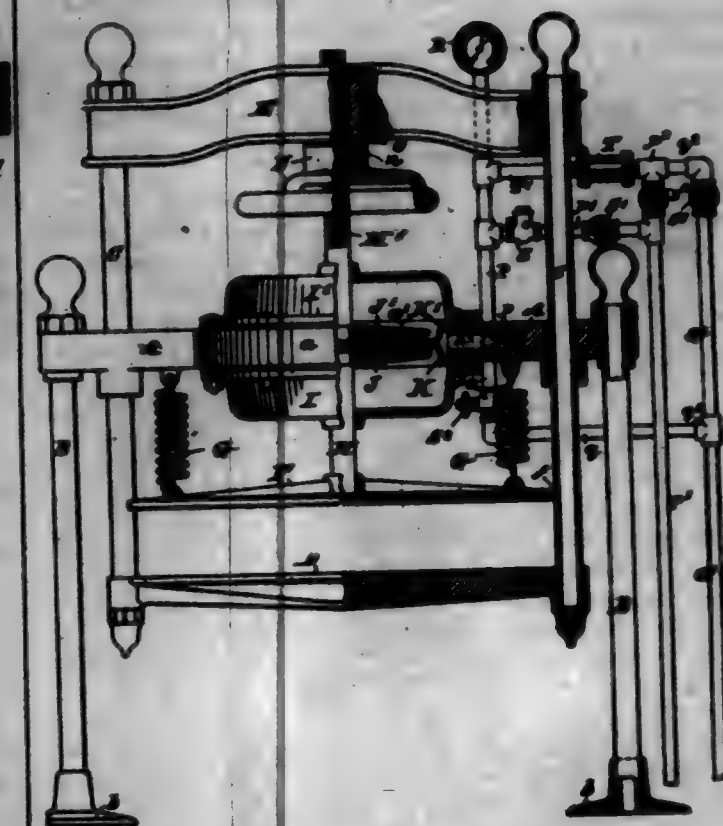
2. A trill-support consisting of the pivoted lever-latch having bolster connections, the tension-spring upon the pivot-pin of said latch, and a rest-bearing for said latch carried by the bolster, in combination with the step or abutment upon the thill for engagement with said latch when under tension, to support the thill, substantially as specified.

3. A trill-support consisting of the pivoted lever-latch carried by the bolster, the tension-spring for said latch, and the rest-bearing for said latch when not in use, in combination with the step or abutment, of the thill for engagement with said latch, and the hook carried by the thill for engagement with said latch to insure its action, substantially as specified.

4. A trill-support consisting of the pivoted lever-latch carried by the bolster, the tension-spring upon the pivot-pin of said latch, and a rest-

bearing for said latch when not in use, in combination with the U-shaped clamp carried by the transverse shaft-bar, and forming a step or abutment for the latch-lever, and a hook carried by said bar, and arranged to turn over the shaft-lever to insure its action, substantially as specified.

697,987. PRESS. WHITLEY L. SPANGLER, Manchester, N. H.
Filed Oct. 2, 1900. Renewed Sept. 5, 1901. Serial No. 74,308. (No model.)



Claim.—1. In a power-press, a stationary frame, a vertically-movable frame mounted in said stationary frame and supporting a bed-plate, the said bed-plate, a spring-supported pressure-plate, and means for forcing said plates toward each other, said means comprising a diaphragm or piston for each plate mounted within oppositely-disposed caps or cylinders and pneumatic or hydraulic force introduced between said diaphragms or pistons.

2. In a power-press, a stationary frame, a vertically-movable frame mounted in said stationary frame and supporting a bed-plate, a threaded shaft and head-end fitted thereon for adjusting the frame carrying said bed-plate, a spring-supported pressure-plate, a cylindrical chamber carrying diaphragms or pistons one of which connects with the movable frame carrying the bed-plate and the other with the pressure-plate, and means for introducing pneumatic or hydraulic force centrally within said chamber for forcing said diaphragms or pistons apart.

3. In a power-press, a spring-supported pressure-plate, a vertically-movable frame carrying a bed-plate, a threaded shaft and head-end attached and adapted to adjust said movable frame, a cylindrical chamber provided with an opening for the introduction of pneumatic or hydraulic force, and diaphragms or pistons located within said chamber one piston being connected with said movable frame and the other with said pressure-plate whereby said pistons are forced apart and said plates forced toward each other by pneumatic or hydraulic force.

4. In a power-press, a frame comprising vertical standards supporting a cross-bar, a pressure-plate and suitable springs connecting the same with said cross-bar, a vertically-movable frame mounted in said cross-bar, a bed-plate attached to said movable frame, caps or cylindrical projections secured to opposite sides of said cross-bar, a piston in each cap or cylindrical projection the upper piston being attached to a shaft which is adjustably connected to the movable frame and the lower piston being connected by a shaft with said pressure-plate, and means for introducing pneumatic or hydraulic force simultaneously to said pistons, substantially for the purpose set forth.

5. In a power-press, diaphragms or pistons adapted to operate the pressure-plates for clamping the work, the said pressure-plates, a pair of connected cylinders of unequal diameter and located in the pressure-supply pipe, a piston fitted to each cylinder, a single piston-rod upon which said pistons are mounted, and a supply-opening in the larger cylinder for the admission of pneumatic or hydraulic force, whereby the work in the press may be clamped and a continuous or following pressure maintained as long as the valve controlling the supply is left open.

6. In a press, a frame comprising vertical standards supporting a cross-bar, the said cross-bar, a pressure-plate and suitable springs connecting the same with said cross-bar, a vertically-movable frame mounted in said cross-bar, a bed-plate attached to said movable frame, and a threaded shaft and head-end fitted thereto whereby said plates may be forced toward each other, substantially for the purpose set forth.

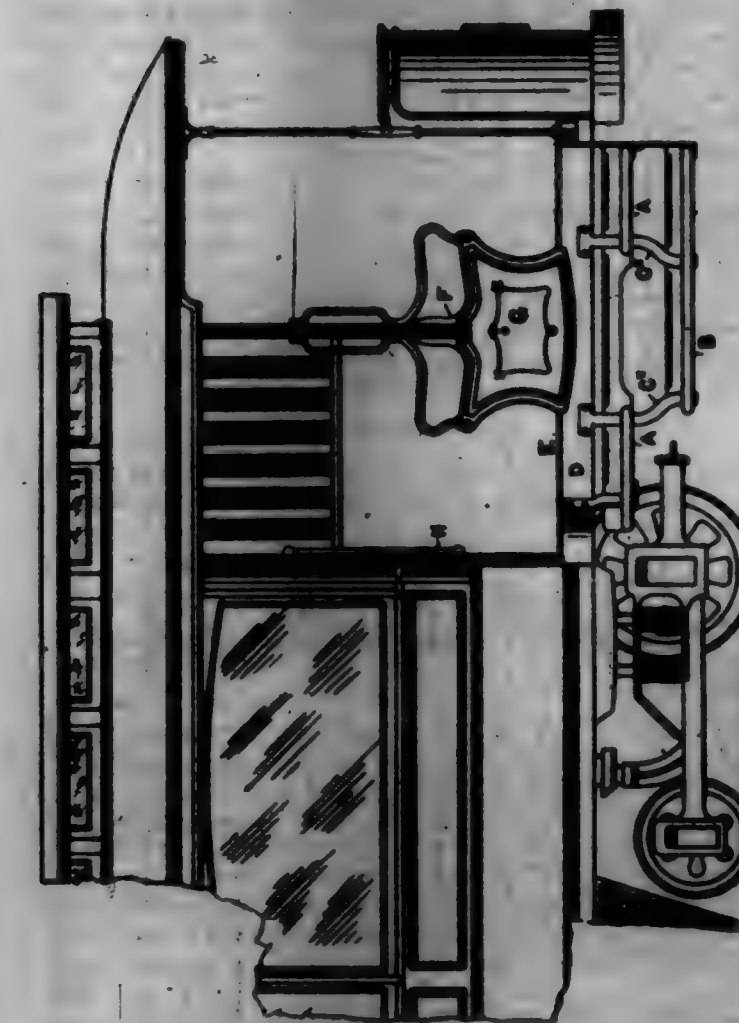
7. In a fluid-operated press, two pressure-plates, a piston or diaphragm operatively joined with each of the said plates, means for causing fluid to enter between and act upon said pistons or diaphragms to move one away from the other to thereby force said plates one toward the other.

8. In a fluid-operated press, two pressure-plates, a piston or diaphragm operatively joined with each of the said plates, means for causing fluid to enter between and act upon said pistons or diaphragms to move one away from the other to thereby force said plates one toward the other, and auxiliary means for increasing or multiplying the pressure.

9. In a fluid-operated press, a plurality of pressure-plates, a piston or diaphragm in operative connection with each of said plates and located at one side of the horizontal plane occupied by said plates, and means for introducing fluid between said pistons or diaphragms for separating them and forcing said plates toward each other.

10. In a fluid-operated press, a cylinder, a plurality of opposed pistons or diaphragms therein, means to supply fluid to said cylinders between said pistons or diaphragms and pressure-plates operatively connected with said pistons or diaphragms and actuated thereby.

697,988. TRAN-CAR. STEPHEN A. SPANGLER, Preston, and JOHN E. ADAMS, Southampton, England. Filed Feb. 4, 1902. Serial No. 82,880. (No model.)



Claim.—1. In a trans-car, the combination with a platform having the end frame D of the two vertical depending brackets C fixed at their upper ends to the side of the under frame a horizontal step B connected with the lower ends of the brackets and bridging the space between them, horizontal steps A connected at their inner ends with the brackets at a higher level than step B and extending outward in opposite directions, and supports for the outer ends of said steps connected with the frame of the car.

2. In trans-car having the combination of a platform formed with an embayment at its sides, steps A and B arranged as described, a cross-rod made to overhang the embayment a little so as not to reduce its carrying capacity, and a panel G at the end of said cross-rod located at the bottom so as to join the side of the platform, and curved inward at the sides so as not to obstruct the entry of the passenger when mounting, whereby

a passenger can ascend into the car with as much ease as if the cross-rod did not project from the sides of the platform, substantially as described.

3. In trans-car, the combination of the upright I, the panel G with ledge J and cheeks K forming a pocket for the end of the upright, and a knee-piece for holding the panel and upright in position, substantially as described.

697,989. HAT AND COAT RACK. JOHN L. SCOTT, Pittsburg, Pa. Filed Sept. 25, 1901. Serial No. 76,622. (No model.)



Claim.—In a hat and coat rack, the combination of a rectangular base-board having raised portions on its outer face at its upper end and lower side in parallel alignment, eyes secured to said uppermost portion, a rectangular wire frame carrying looped securing ends engaging said eyes, strengthening-ribs secured to said frame, a downward extension and an inverted-U-shaped loop formed in the lower portion of the said rectangular frame, a staple carried by the outer face of said lower raised portion, a loop carried by the base-board for receiving said downward extension when the device is in a locked position, a second loop secured to the outer lower edge of the base-board, a padlock engaging said staple and said last-mentioned loop, and arms secured to said base-board within said rectangular frame, substantially as described.

697,990. HUT-LOCK. JOHN J. SULLIVAN, Birmingham, W. Va.
Filed Sept. 20, 1901. Serial No. 76,747. (No model.)



Claim.—In a hut-lock, the combination with a bolt, of a nut having a recess formed therein the bottom wall of which is square and at right angles to one side wall thereof, the other side wall of said recess being at an obtuse angle to said bottom wall, a lock of a substantially rectangular form in cross-section, a series of serrations on the upper edge of said lock corresponding to the threads of said bolt, said lock being movably inserted in said recess with its bottom and one side engaging the bottom wall and right-angled wall of the recess, and adapted to have its said serrations and its other side wall engage said angular wall of the recess with its lower face out of engagement with the bottom wall of the recess when in a locked position, substantially as described.

697,991. LEADING-SPINDLE. GEORGE SMITH, Cleveland, Ohio, assignor to the Garrett-Overvill Engineering Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 29, 1901. Serial No. 82,022. (No model.)

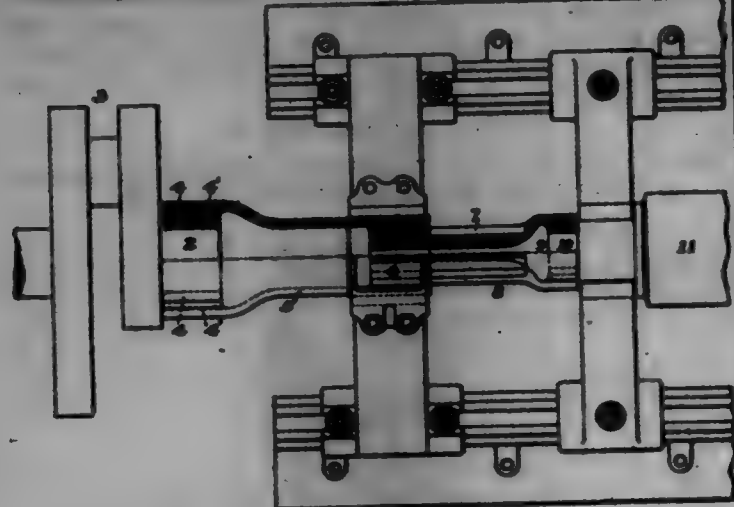
Claim.—1. A leading-spindle formed of a plurality of parts connected end to end, the end sections having loose detachable connections at their outer ends arranged to support said ends, and an intermediate bearing for the spindle at or near a joint between its parts; substantially as described.

2. In leading-spindle connection, an overhanging crank, a spindle having a detachable loose connection therewith at one end and consisting of a plurality of parts having a telescopic connection and a loose supporting connection at the other end of the spindle, the telescoping connection being arranged to prevent injury from breaking of the driving connections; substantially as described.

3. A leading-spindle formed of a plurality of parts having telescopic end to end connections with each other, the end sections having loose detachable connections at their outer ends arranged to support said ends,

APRIL 8, 1902.

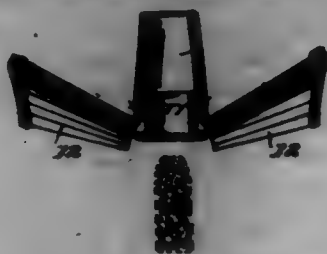
and an intermediate bearing for the spindle at or near a joint thereon; substantially as described.



4. A leading-spindle formed of several sections, the end sections having interlocking and supporting connections at their outer ends, one part having a cylindrical outer portion at the intermediate joint, and a bearing supporting said cylindrical part; substantially as described.

5. A leading-spindle formed in two parts, each having an interlocking connection at its outer end with the supporting-shaft, the larger part being hollow, and having an end hole with recesses, the smaller part having projections engaging said recesses, and a bearing surrounding the joint; substantially as described.

697,292. LIGHTING. RUSSELL THAYER, Philadelphia, Pa., assignor to Carbon Light and Power Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Feb. 8, 1901. Serial No. 46,698. (No model.)



Claim.—1. In combination, a lantern, an incandescent burner supported above the lantern-base, a reflector detachably fitted in the top of the lantern and having a central opening provided with a marginal seat or flange, and a tubular member supported above the burner and having a shoulder, which cooperates with said seat or flange, substantially as described.

2. In combination, a lantern, an incandescent burner supported above the lantern-base, a reflector mounted in the lantern above the burner and having a central opening provided with a marginal seat or flange, and a tubular member supported above the burner and having a shoulder which cooperates with said seat or flange, said flange being perforated to provide air-passages, substantially as described.

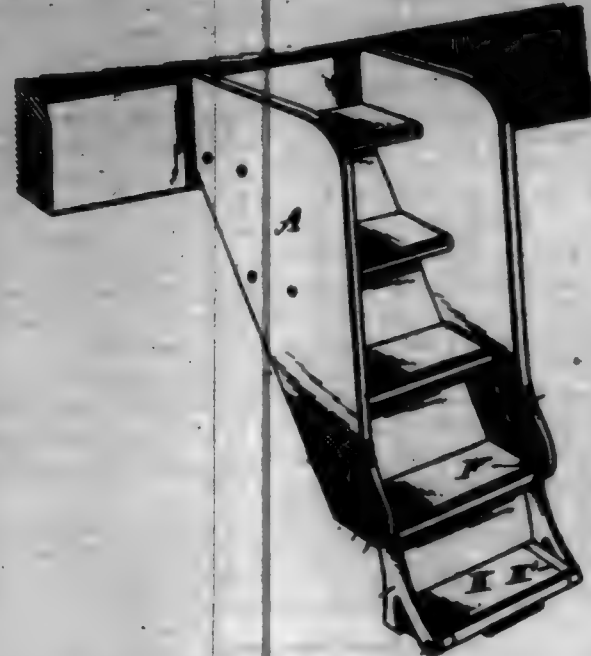
3. In combination, a lantern, an incandescent burner supported above the lantern-base, a reflector mounted in the lantern above the burner and having a central opening provided with a marginal seat or flange, perforated for the passage of air, a tubular member supported above the burner and having a shoulder which cooperates with said seat or flange, and a non-conductor located between the shoulder and the seat, substantially as described.

697,293. FOLDING CAR-STEP. OSCAR F. THOMAS, Adams, N. Y., assignor of one-fourth to Frank S. Kanyon, Adams, N. Y. Filed Jan. 27, 1902. Serial No. 91,690. (No model.)

Claim.—1. A folding car-step, comprising in combination with the side pieces of the fixed steps, a red supported thereby, step-supporting members pivoted on said red, a pivoted step mounted on said members, angled portions of the members forming bracket-arms to receive and support the swinging edge of the pivoted step, when extended, said step adapted to be folded between the lower fixed steps of the car, as set forth.

2. In combination with the side pieces of the fixed steps of the car, the red supported thereby, folding step-supporting members, pivoted on said red, said members being forked a red supported to corresponding arms of said forked members, one arm of each member being bent at right angles, and adapted to form a bracket for supporting the free swinging edge of the step when in a horizontal position, a red under-

neath the fixed step, against which the edges of said members are adapted to contact, to hold the folding step in a horizontal position, as set forth.



3. In combination with the side pieces of the fixed step, a red supported thereby, the step-supporting members pivoted on said red, and adapted to turn in recesses in the bottom fixed step, a folding step and red carried thereby, which is pivoted on said members, the angled portions of the step-supporting members forming means to support the free swinging edge of the step, a red U mounted in the side pieces of the fixed step, and adapted to receive the notched portions of the step-supporting members, whereby the folding step when extended, is held in a horizontal position, as set forth.

4. In combination with the side pieces of the fixed steps of a car, the base of the car, the inner face of said side strips, a red supported in the curved ends of said base, the forked step-supporting members pivoted on said red, the angled arms E, and the folding step pivoted on the arms E of said members, a bar U supported by the side strips of the steps, and against which the notched edge of the step-supporting members is adapted to contact, to hold the folding step in a horizontal position when extended, as set forth.

697,294. EXTENSION LADDER. CHARLES E. TUCKER, Minneapolis, Minn. Filed Dec. 21, 1900. Serial No. 48,708. (No model.)



Claim.—1. In a ladder of the character herein shown, the combination with a stationary section and a movable section, of the clamping mechanism, embodying the reversely-threaded shaft 4, revolvably mounted in the frame of the said stationary section; the reversely-threaded jaws 5, mounted upon, and carried by the said reversely-threaded shaft, the steps 6, affixed to the said stationary section and interlocking with the said reversely-threaded jaws; and the spring 10, one end of which is affixed to the said stationary section, and the other end of which is connected with the said reversible shaft, which spring, through its reflex action rotates the said reversely-threaded shaft thereby causing the jaws adjustably mounted thereon, to respectively approach their fellows, thereby clamping the beams of the said movable section, and means for operating the said clamping mechanism, all substantially as shown and described.

2. In a ladder of the character herein shown, the combination with the stationary section, and the movable section thereof; of the clamping mechanism C, and the operating mechanism D, said clamping mechanism embodying a reversely-threaded shaft revolvably affixed in the frame of the said stationary section, reversely-threaded jaws mounted thereon and carried thereby, steps affixed to said stationary section and interlocking with the said jaws, and a spring for normally holding the said jaws in contact with the beams of the said movable section; and the said operating mechanism embodying a lever affixed upon the said reversible shaft; a pulley affixed to and revolvable with the said shaft, a ribbon affixed to the periphery of the said pulley and connected with the spring of the said clamping mechanism; and a rope to depress the said lever and to depress the said spring, substantially as shown and described.

APRIL 8, 1902.

U. S. PATENT OFFICE.

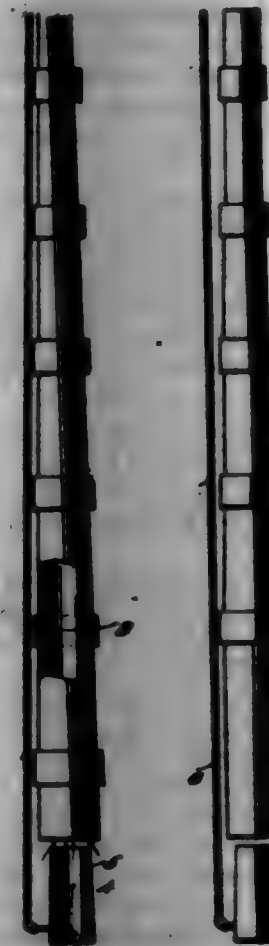
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697,295. BRUSH. FRANK E. TUCKER, Liverpool, New York. Filed Mar. 20, 1901. Serial No. 53,698. (No model.)



Claim.—A brush for wetting surfaces comprising a compressible body having a lateral filling-opening, and a hollow extension provided with a plug, the forward open end of the body having its edges returned inwardly, a brush string said open end, the sides of the brush contacting with the returned edges of the body, and projecting beyond said edges both inwardly and outwardly, a band extending around the body adjacent to the front end, and a rest projecting from the body adjacent to the front end.

697,296. COMPRESSED-AIR WATER-ELEVATOR. GEORGE E. TYLER, Fremont, Cal. Filed Nov. 20, 1901. Serial No. 53,514. (No model.)



Claim.—1. In a compressed-air water-elevator, an eduction-pipe having its bore diminished in diameter from its intake to its discharge end, and means disposed below and spaced from the lower end of the pipe for discharging a current of air concentrically of the pipe.

2. In a compressed-air water-elevator, an eduction-pipe having its bore diminished in diameter, in a predetermined ratio, from its intake to its discharge end, and means disposed below and spaced from the lower end of the pipe for discharging a current of air concentrically of the pipe.

3. In a compressed-air water-elevator, an eduction-pipe tapered from its intake to its discharge end, and means disposed below and spaced from the lower end of the pipe for discharging a current of air into and concentrically of the pipe.

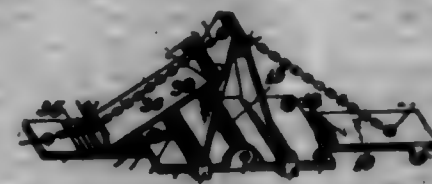
4. In a compressed-air water-elevator, the combination with an eduction-pipe having its bore diminished in diameter from its intake to its discharge end, of a nozzle adapted to discharge a tubular column of air into and concentrically of the pipe.

5. In a compressed-air water-elevator, the combination with an eduction-pipe having a tapered bore, of a nozzle having its discharge end disposed below the lower end of the pipe and constructed to project a tubular column of air into and concentrically of the pipe.

6. In a compressed-air water-elevator, the combination with an eduction-pipe having a tapered bore, of a nozzle having an annular air-discharge mouth and a centrally-disposed water passage-way.

7. In a compressed-air water-elevator, the combination with an eduction-pipe having a tapered bore, of a nozzle disposed below and spaced from the lower end of the pipe and comprising an outer tapered shell, an inner straight cylindrical shell, and an annulus connecting the lower edges of the two shells.

697,297. SHUTTER-OPERATING DEVICE. WILLIAM W. VAN DUSEN, Warwick, N. Y. Filed Jan. 21, 1900. Serial No. 51,352. (No model.)



Claim.—1. In a device of the character described, the combination of the main operating-arm, means for pivoting connecting said arm, a pair of pivotedly-connected arms or links extending outwardly from said operating-arm and connected respectively thereto, an operating chain, wire or rope passing through suitable openings in the outer ends of said main operating-arm and said pivotedly-connected links, and means for attaching one end of said operating chain, wire or rope to a fixed support, and the other end to a shutter to be operated, substantially as set forth.

2. In a device of the character described, the combination of the two main operating-arms, one of which is adapted to be rigidly attached adjacent to a window, a spring-binge pivotedly connecting said operating-arms, a pair of pivotedly-connected arms or links, one of which is pivoted to each of said operating-arms, an operating chain, wire or rope passing through suitable openings formed in said operating-arms and in the outer ends of said pivotedly-connected links, and means for attaching one end of said operating chain, wire or rope to a shutter to be operated.

3. In a device of the character described, the combination of the main operating-arm, one of which is adapted to be rigidly attached adjacent to a window, a spring-binge pivotedly connecting said arm, an adjustable connection between one member of said spring-binge and one of the operating-arms, a pair of pivotedly-connected arms or links projecting outwardly from said operating-arm and pivoted to them, an operating chain, wire or rope passing through suitable openings in said operating-arms and said pivoted links, and means for attaching said operating chain, wire or rope to the shutter to be operated, substantially as set forth.

4. In a device of the character described, the combination of the main operating-arm, means for rigidly supporting one of said arms, a spring-binge pivotedly connecting said arm, a series of ribs constituting a rack upon one of said operating-arms, a pair of pivotedly-connected links pivoted to said operating-arms and projecting outwardly therefrom, an arm or pawl pivotedly mounted upon one of said links and adapted to engage said rack, an operating chain, wire or rope passing through suitable openings formed in said operating-arms, said links, and said pawl or arm, and means for attaching one end of said chain, wire or rope to the shutter to be operated, substantially as set forth.

5. In a device of the character described, the combination of the main operating-arm, means for rigidly supporting one of said arms, a spring-binge connecting said arm, a pair of pivotedly-connected links extending outwardly from and pivoted to said operating-arms, an operating chain, wire or rope passing through suitable openings formed in said operating-arms and said pivotedly-connected links, and a plate or bar connected adjacent to one of its ends to said operating chain, wire or rope and adapted to engage the pivoted ends of a shutter for closing them, substantially as set forth.

697,298. CORNER-IRON FOR VEHICLE-BODIES. GEORGE W. VINCE, Haverwood, Ky., assignor of one-half to J. Edward Martin, Haverwood, Ky. Filed Dec. 20, 1901. Serial No. 50,723. (No model.)



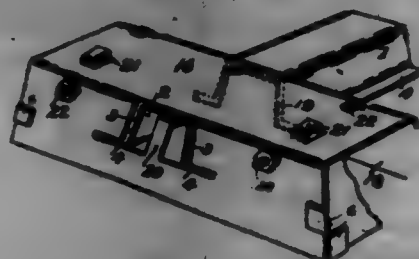
Claim.—1. A corner-iron consisting of a body portion one member of which terminates at a substantially right-angle base-plate as set forth, and the other member extends below the base-plate and the member terminating at the base-plate and having its lower end bent outwardly forming a shelf substantially as shown and for the purpose set forth.

2. A one-piece corner-iron consisting of a body portion, a base-plate integral therewith, and a downward extension from one member of the body portion having a shelf at its lower end, the other member of the body portion being constructed with an upwardly-projecting head forming a support substantially as set forth for the purpose set forth.

697,299. METALLIC CROSS-TIE. JOHN J. WAGGONER, Lehigh, Pa., Ind. Filed Aug. 21, 1901. Serial No. 73,513. (No model.)

Claim.—1. A device of the class described comprising a railway steel cross-tie provided at the top with an inwardly-bent extension or integral tongue to engage the outer side flange of a rail, inner side of the

roll having either slot or an inclined groove or depression disposed longitudinally of the cross-tie, and a rail-engaging square shank or bolt extending through the opening longitudinally of the cross-tie and having a hook located at the mid slot or groove to engage the inner side flange of a rail, the outer end of the square shank or bolt is secured and fastened by a flat and edge-tapering key or nut, a transversely-disposed head or end casing which is open at its bottom, is composed of a horizontal top and slightly-inclined sides and ends, which are connected at their adjacent edges by means of tongues which are bent at right angles to embrace the adjacent walls of the head or end casing, to prevent the same from spreading, when filled with the material of which the road-bed is constructed, said head or end casing being formed of a pot-casing from a single piece of heavy sheet-steel, substantially as described.



2. A device of the class described comprising a cross-tie composed of a top and sides provided with bottom flanges, with an open channel along its bottom, said cross-tie capable of supporting one or more transversal casings, said casing having openings through both sides receiving the cross-tie, a transversal casing to be cut at different angles for accommodation of a switch or branch rail, the casing may be bolted or otherwise secured to the cross-tie, to retain it in such position, said casing being provided at opposite sides of the cross-tie with rail-engaging tongues and bolt-hooks substantially as described.

3. A device of the class described comprising a cross-tie provided with a top and having depending sides, said top being provided with an intermediate transverse support and arranged to engage a rail, and an end support disposed transversely of the rail and consisting of a casing provided with an opening receiving the cross-tie, said support being provided with a slot arranged to receive the extension of the top of the cross-tie, substantially as described.

4. A device of the class described comprising a cross-tie provided with sides and having an extension at its top bent to form a rail-engaging flange or tongue, an end support receiving the cross-tie and provided with a slot for the said extension, and a fastening device arranged to engage the rail and connecting the support and the cross-tie, substantially as described.

5. A device of the class described comprising a cross-tie provided with an inwardly-bent extension arranged to engage the outer flange of a rail, a rail-support receiving the cross-tie and provided with a slot or opening for the said extension, and a longitudinally-disposed fastening device connecting the support and the cross-tie and arranged to engage the inner side of the rail, substantially as described.

6. A device of the class described comprising a railway steel cross-tie provided with an inwardly-bent extension and projecting through a longitudinal opening at the top of the head or end casing arranged to engage the outer side flange of a rail and having a slot longitudinally of the cross-tie and a rod or square shank engaging hook or bolt extending through the slot with the outward portion of the hook or shank resting on each side of the slot and engaging the inner side flange of a rail, the said hook or bolt is locked by an extension or resilient key, the latter is shortened by bending it up between its ends, the said ends are provided with depending tongues, and after the tongues have been introduced in the longitudinal slot of the cross-tie the extension or resilient key is straightened to engage the hook or bolt and the cross-tie at the inner end of the slot, to remove said extension or resilient locking device a sharp-pointed instrument is introduced by inserting it between its ends and the cross-tie to bend it back into its original shape, whereby it may be readily attached, the other end of the rod or square shank is secured and fastened by a flat and edge-tapering key at the outer side of the head or end casing to draw and to hold the outer edge of the longitudinal slot located in the top of said head or end casing, the outer edge of the slot to come in contact in the rear of the inwardly-bent extension or the outer side rail-engaging hook, for one purpose of strengthening and supporting the latter substantially as described.

7. A device of the class described comprising a steel cross-tie, composed of a top and sides provided with bottom flanges, said cross-tie forms a groove or a hollow channel open along its bottom, a head or end casing is provided with sides, ends and a top, the corners are secured or fastened by tongues and slots or other means to prevent the same from spreading, when tamped and compressed with crushed stones, gravel and other substances, the inner and outer sides of the head or end casing are pro-

vided with bottom flanges, the ends of said head or end casing and the cross-tie which rests upon the stringer or ballast roll, are provided at the head or end casing with a depending extension 71 which conforms to the configuration of the stringer or ballast roll, the said stringer or ballast roll is held in contact with the same by means of hooks or bolts arranged at a slight inclination and extending downward and inward from the outer side of the head or end casing, the aforesaid stringer or ballast roll 5 for the purpose of resting or loading on stone ballast, bridges and on any common road-beds, and to conform to the track and to release the strain from frogs, rail joints and junctions, and the joints of the aforesaid stringer or ballast roll are designed to be arranged at points between the rail-joints, by removing the stringer or ballast roll from the head or end casing the said head or end casing is provided with suitable openings in the bottom flanges for the reception of fastenings to bridges or other structures, by leaving the depending extension and 71 of the aforesaid head or end casing in full size and bending the same out (which is not illustrated) to correspond with the side flanges, the head or end casing can be applied on stone ballast, bridges and to any ordinary road-bed substantially as described.

8. A device of the class described comprising a cross-tie provided with top and side extensions, an end support receiving the cross-tie and provided with top and side slots for the said extensions, the side extensions being bent against the support, and the top extension being bent over to engage one side of a rail, and means for engaging the other side of the rail, substantially as described.

9. A device of the class described comprising a cross-tie composed of a top and sides provided with bottom flanges, said cross-tie being cut away at the sides to form top and side extensions, a support consisting of a casing having an opening at its inner side to receive the cross-tie, and arranged at its outer side to receive the cross-tie, and provided at its outer side with upper and lower slots for the said extensions, the top extension being bent over to engage one side of a rail, and means for engaging the other side of a rail, substantially as described.

10. A device of the class described comprising a cross-tie composed of a top and sides, and an intermediate support provided with sides having openings to receive the cross-tie, said support being provided at opposite sides of the cross-tie with rail-engaging devices, substantially as described.

11. A device of the class described comprising a cross-tie, an intermediate support provided with sides having openings to receive the cross-tie and capable of lateral adjustment, and an end support fixed to the cross-tie, substantially as described.

12. A device of the class described comprising a cross-tie, having a top and sides, and an intermediate support provided at opposite sides with openings conforming to the configuration of the cross-tie and forming interior tongues, substantially as described.

13. A device of the class described comprising a head or end casing composed of a top, ends and sides 5, forms a hollow basin in its outer side, said head or end casing is locked or fastened together at the corners with tongues or other means, the head or end casing having an opening at its inner side to receive the cross-tie, the latter is provided with bottom flanges the ends of said flanges are turned downward and fastened to the inner side of the outer wall by bolts or other means, the said cross-tie having at each end and top an inwardly-bent extension arranged to engage the outer side flange of a rail, the cross-tie can be provided with either a slot or inclined groove longitudinally of the track-bed, and a hook bar or bolt extending through the opening and engaging the inner side flange of a rail, and provided at its outer side of the head or end casing or cross-tie with a key or nut for adjusting the same, the aforesaid head or end casing and cross-tie can be constructed for each of a single piece of heavy sheet-steel or the head or end casing can be pressed or rolled to construct a solid hollow basin substantially as described.

14. A device of the class described comprising a railway steel cross-tie provided with side flanges located at its bottom, an end casing or head provided at its inner wall with an opening conforming to the configuration of the cross-tie, and having extension-slots to receive the bottom flanges, means for securing the end of the flanges of the cross-tie and the outside of the outer wall of the end casing or head with bolts or other means, or the end flanges may be turned down on the outer side of said wall as clearly illustrated, a railway steel cross-tie provided with an inwardly-bent extension or tongue at its top for engaging the outer side flange of a rail, having a longitudinal slot located on the inner side of the rail in the cross-tie, and a hook shank or bolt forming a pair of shoulders adapted to rest upon the cross-tie at opposite sides of the slot extending through the opening and engaging the inner side flange of a rail, the aforesaid hook shank or bolt is also engaged by a resilient locking device consisting of a plate, said plate is shortened by bending between its ends, and provided at the inner with depending tongues, and after the tongues have been introduced into the slot the plate is straightened to engage the

hook shank or bolt and the tie at the inner end of the slot, the outer end of the hook shank or bolt is tightened by an edge tapering key or nut to draw and to hold the outer side flange located at the top of each end of the head or end casing to engage the outer side flange of a rail substantially as described.

15. A device of the class described comprising a cross-tie, a head or end casing provided at its inner side with an opening conforming to the configuration of the cross-tie and receiving the same, the end of the cross-tie fitting against the inner face of the outer side of the head or end casing, and means for securing the end of the cross-tie to the outer side of the head or end casing, substantially as described.

16. A device of the class described comprising a railway steel cross-tie, composed of a top, depending sides and ends to form a hollow trough or channel along the under side of the entire length of the cross-tie, the sides and ends are fastened at the corners with tongues and slots or other means, the anchoring bar or plate is located in the center between the sides and the top of the cross-tie, said anchor-plate is provided with tongues located at the top and ends of the plate and extended through suitable slots at the top and sides of the cross-tie and bent against the outer side and top of the cross-tie for the purpose of holding the cross-tie from spreading, and to retain the same against longitudinal movement, the aforesaid cross-tie is provided with a rail-engaging middle or chair located on top at each end of the cross-tie with flaps projecting downward on each side of the cross-tie, and fastened to the outer side of the same by girder-hooks that extend through an opening from the outer side walls of the cross-tie and turned upon the inner side of said walls, the inner side of said middle or chair is provided with crosser-hooks which extend through the opening of the slots or grooves and turned back and under longitudinally of the cross-tie, and a rail-engaging hook or bolt extending through said slots or grooves to engage the inner side of a rail and fastened at the outer side by an edge-tapering key or nut substantially as described.

17. A device of the class described comprising a steel end support or casing the number of intermediate rail-supports may be varied, and the length of the same may be changed to enable one or more rails to be mounted on the same support or casing, the intermediate support or casing is enlarged to receive the rails of the frog and the end supports or casings are extended to provide a supporting-surface for the movable portion of the switch-rail, the end supports or casings are located at the opposite sides of the switch and are constructed in the same manner, the supports or casings are provided with suitable openings in the sides to receive the cross-tie, a steel cross-tie is composed of a horizontal top and depending sides provided with bottom flanges, the said flanges are for the purpose of forming tongues or extensions to be locked or fastened to the outer side wall of the end support or casing and to strengthen the sides, the cross-tie formed beneath a hollow shape to be filled with broken stones, gravel or other heavy material of which the road-bed is constructed, one or more of the cross-ties may be extended to receive a support for a switch-stand, the fastening devices for engaging the rails are provided with a slot located in the support or casing, or the cross-tie on the inner side of the rail may be arranged in any suitable manner to correspond to the position of the rails, a shank-engaging hook or bolt extending through the slot or opening with the outward portion of the hook or shank resting on each side of the slot and engaging the inner side flange of a rail, and provided at the outer end of said shank or bolt with a slot for the reception of a flat and edge-tapering key to be driven in said slot to draw and to hold the engaging hook in contact with the inner side flange of a rail, to be made or constructed of steel or other suitable material substantially as described.

697,800. AMORON. JOHN G. WARD, Chester, Pa. Filed Sept. 24, 1891. Serial No. 74,881. (No model.)

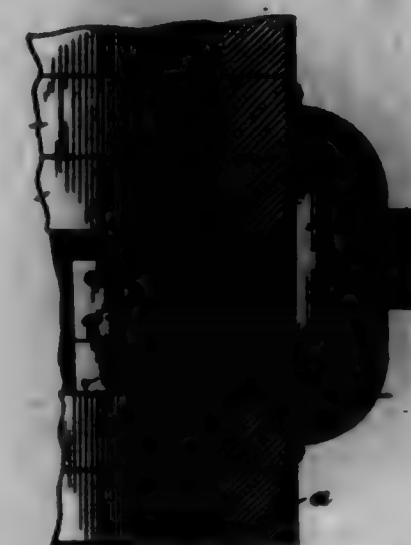


Claim.—1. An anchor consisting of the head formed with the wings or extensions provided on the under face with a central channel, said head also carrying flanges and having middle-bearing provided with the extensions, the shank, the middle-block carried by the shank being clamped out for pin to pass through to hold in said portion.

2. The anchor, consisting of the head carrying the flanges and formed with the central enlarged portion having a shank-receiving opening and a nut or bearing on each side of the opening, the shank fitting in said opening and having the middle-block fitting in the bearing of the head, said middle-block having an open bearing-channel, one or guides on each side of said channel and a pin connecting the shank to the head.

3. An anchor consisting of the head having a central enlargement formed with a nut or bearing, the extensions on the head formed with a channel, the flanges carried by the head, the shank fitting in the head and carrying the middle-block formed with an open bearing-channel formed with a pair of ears or guides, and a pin arranged in the head and pivoting the shank therein.

697,801. TWYER FOR CUPOLA-FURNACE. STEWART WATT and FREDERICK E. WATT, Dayton, Ohio; said FREDERICK E. WATT assignor to said Stewart Watt. Filed Jan. 6, 1902. Serial No. 68,619. (No model.)



Claim.—1. In a cupola-furnace, a series of trysers adapted to form part of the lining of the cupola, each consisting of a hollow body having an air-inlet in its back and its inner or front end open, and a removable changeable face or front plate secured to and closing the inner end of each body, each plate being provided with jet-apertures, substantially as described.

2. In a cupola-furnace, the combination of a trysers consisting of a hollow casing adapted to form part of the lining of the furnace and having a removable changeable front plate provided with jet-apertures, an air-trunk exterior to the trysers and communicating with the rear and thereof, and an air-supply pipe, substantially as described.

3. In a cupola-furnace, the combination of a series of similar trysers each consisting of a hollow cylindrical casing, adapted to form part of the lining of the furnace, and having an air-blend inlet at rear but open at its front or inner end, and each trysers having a removable front plate closing its inner end and provided with a series of air-jet openings; with an air-trunk exterior to the trysers, and an air-supply pipe, substantially as and for the purpose described.

4. A trysers for cupola-furnaces, having a blast-inlet at rear, jet-apertures in its front and tubular projections within the trysers around each opening, substantially as described.

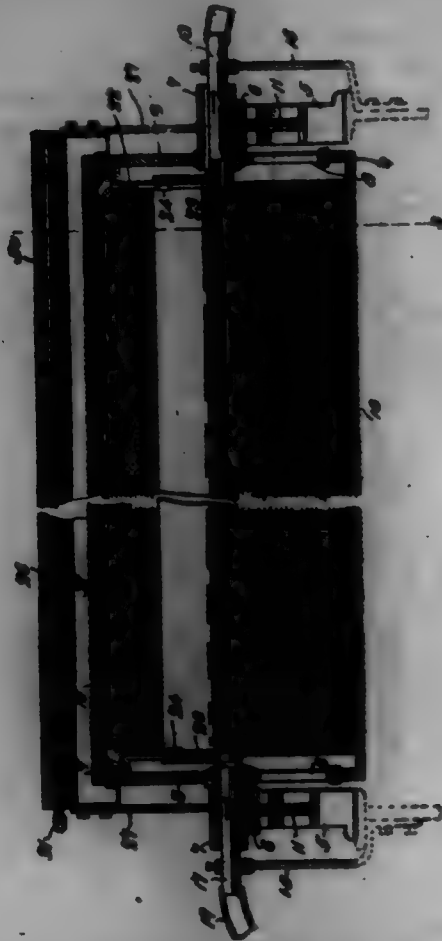
5. A trysers for cupola-furnaces, consisting of a hollow casing, having a blast-inlet in rear, a detachable front provided with jet-apertures, and tubular projections within the trysers surrounding the jet-openings substantially as described.

6. A trysers for cupola-furnaces comprising a hollow casing wider at top than at bottom, having a blast-inlet at rear, and a removable front provided with air-jet openings some of said openings having tubular projections around their inner ends within the trysers, substantially as described.

7. A trysers for cupola-furnaces consisting of a hollow casing having an air-inlet at back, removable fronts provided with jet-apertures, and intermediate vertical stays or liners, also provided with jet-apertures, substantially as described.

8. The combination with a cupola-furnace of a series of similar trysers therein each consisting of a hollow cylindrical casing, adapted to form part of the lining of the furnace, and having an air-blend inlet at rear, and a removable front plate provided with a series of air-jet openings, and inclined tubular extensions or projections on the inner face of the front covers of the jet-openings, all substantially as and for the purpose set forth.

697,802. DANDY-ROLL CLEANER. WILLIAM W. WEAVER and LEWIS H. SAMPSON, Augusta, Ga. Filed Oct. 25, 1901. Serial No. 80,280. (No model.)



Claim.—1. A cleaning device for a dandy-roll, comprising a collecting-trough situated within the roll, a deflecting-guard arranged above the roll, and a perforated fluid-supply pipe extending longitudinally of said roll.

2. The combination with a dandy-roll, of a collecting-trough, fluid supply and discharge pipes leading into the opposite ends of the roll and adapted to support the trough in position, said fluid-supply pipe being provided with a perforated section arranged above the trough in proximity to the inner surface of the roll, and a deflecting-guard arranged above said roll.

3. The combination with a dandy-roll, of a collecting-trough, a perforated fluid-supply pipe arranged within the roll and above said trough, a perforated fluid-supply pipe arranged outside and at the top of the roll, and a deflecting-guard disposed above said second pipe.

4. The combination with a dandy-roll, having hollow transverse or bones at its opposite ends, fluid supply and discharge pipes extending through said bones, a collecting-trough carried by said pipes and in communication with the discharge-pipe, a perforated pipe-section in communication with the fluid-supply pipe and arranged above the trough in proximity to the inner surface of the roll, a deflecting-guard arranged above said roll, and a perforated fluid-pipe arranged between the guard and the roll, substantially as specified.

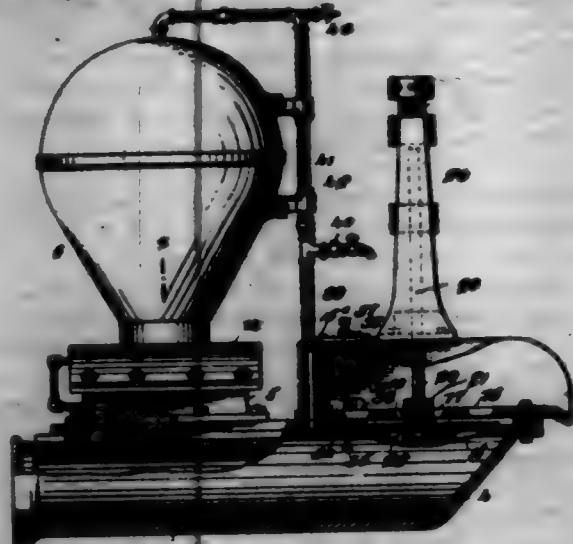
5. A cleaning device for a dandy-roll, comprising a collecting-trough situated within the roll, and a perforated fluid-supply pipe arranged above the top of the roll, substantially as specified.

6. The combination with a dandy-roll having hollow transverse or bones 7 at its opposite ends, spiders 8 carried by said bones, a flanged rim 9 secured to the spiders, wire-guns 10 secured to said rim and forming a working surface for the roll, of fluid discharge and supply pipes 17 and 18 extending through said bones, a perforated pipe-section 21 arranged longitudinally of the roll, a connecting pipe-section 20 extending between the pipes 17 and 21, a plugged pipe or rod 22 extending between the pipe-section 21 and the discharge-pipe, a collecting-trough 23 supported by said pipes, a curved deflecting-guard 24 arranged above the dandy-roll, and a perforated pipe 20 disposed between the guard and the top of the roll and in alignment with the perforated pipe-section 21, substantially as specified.

697,808. RAIL. CHARLES C. WHITWORTH, Roanoke, Va. Filed June 11, 1901. Serial No. 84,406. (No model.)

Claim.—1. In a hydraulic ram, the combination with the air-dome and the drive-pipe, of an automatic air-supply for the air-dome, consisting of a stand-pipe having its lower end in open communication with the

drive-pipe and its upper end opening into the air-dome, said stand-pipe having an inwardly-opening air-valve intermediate its length, and having above said air-valve a nozzle a glass sight-tube and one or more check-valves opening upwardly into the air-dome, substantially as and for the purposes described.



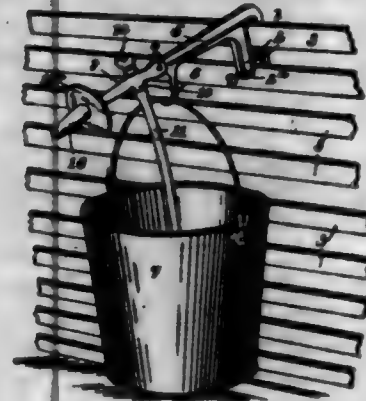
2. In a hydraulic ram, the combination with the air-dome and the drive-pipe, of an automatic air-supply for the air-dome consisting of a stand-pipe having its lower end in open communication with the drive-pipe and its upper end opening into the air-dome, said stand-pipe having an inwardly-opening air-valve intermediate its length, a check-valve and nozzle with sight-tube above the air-valve and at a higher point a relief-valve and a second check-valve opening into the dome, substantially as shown and described.

3. In a hydraulic ram, the combination with the waste-valve having a vertical rod and a valve-seat arranged above said valve, of an opening-spring for the same arranged to be put under a resilient tension only by the last part of the movement of the valve in closing, and means for adjusting the valve-seat while in action.

4. In a ram, a waste-valve, a frame, a rod having yielding connection with the waste-valve, a sleeve adjustable in the frame and through which said rod passes, a collar on the rod above the sleeve, a spring arranged between said collar and the sleeve, a spring on the rod above the collar, and an adjustable abutment in the frame with which said last-named spring is designed to engage, substantially as specified.

5. In a ram, a spool arranged on the receiving-rod and having ports communicating therewith, a valve for controlling said ports and a supplemental quick-opening valve having a rod extended upward from the same, and a pointer on said rod above the spool, substantially as specified.

697,804. FEEDER FOR YOUNG CALVES OR COLTS. ROLLAND A. WHITFORD, Knoxville, Ind. Filed Oct. 31, 1901. Serial No. 80,008. (No model.)



Claim.—1. In a device of the class described, the combination with a nozzle, of a bar on said nozzle, a flexible gasket over said bar and projecting beyond the end of said nozzle, and a nipple snugly fitted over said gasket said nipple being held from collapsing by said gasket, substantially as described.

2. In a device of the class described, a clamp provided with a clamp for attaching it to a support and a hook for supporting a bucket, a nozzle pivoted to said clamp and having a connection thereon in line with an aperture therein, a hose-pipe attached to said connection, a curve-pipe inserted in said aperture to serve to regulate the flow of milk and to give access to the interior of the nozzle, and a nipple on the end of said nozzle, substantially as described.

697,805. POTATO PICK-UP. WILLIAM A. WILBY, Rochester, Minn. Filed May 14, 1901. Serial No. 80,205. (No model.)



Claim.—A potato pick-up consisting of two wire-mesh jaws, one fixed at the lower end of the handle and the other adapted to slide thereon, the whole operating in the manner and for the purposes set forth.

697,806. DOOR-LATCH. WILLIAM E. WILBY, St. Louis, Mo. Filed Jan. 4, 1902. Serial No. 80,917. (No model.)



Claim.—1. The combination of a door, a bar mounted on said door for turning movement, a handle for operating the bar, means independent of the handle for positively turning the bar, and a latch for engaging the bar to hold the door shut.

2. The combination of a door, a spring-actuated bar mounted on said door for turning movement, a latch for engaging the bar to hold the door shut, and means for turning the bar in opposition to its actuating-spring.

3. The combination of a door, a bar mounted on said door for turning movement, and a spring constituting a latch for engaging the bar to hold the door shut.

4. The combination of a door, a bar mounted on the door for turning movement, a handle for operating the bar, means independent of the handle for positively turning the bar, a latch for engaging the bar to hold the door shut, and means upon the bar for putting the latch into its ineffective position.

5. The combination of a door, a bar mounted on said door, a yieldable latch for engaging the bar to hold the door shut, a transverse extension upon the bar for actuating the latch, and means upon the bar for manually turning the same.

6. The combination of a door, a bracket upon the door, a bar mounted upon the bracket, for turning movement, a spring controlling the bar and connected thereto and also to the bracket, a yieldable latch for engaging the bar, and means upon the bar for actuating said latch.

7. The combination of a door having a lug, a bar mounted on the door for turning movement and having a handle, means for normally holding the handle in contact with the lug, a yieldable latch for engaging the bar to hold the door shut, and means operative with said bar for actuating the latch.

8. The combination of a door, a bar mounted on the door for turning movement and having a reduced portion, a coiled spring surrounding said reduced portion and connected to said bar and also to a fixed member, a yieldable latch for engaging the bar, and means on said bar for moving the latch into a position to release the door.

697,807. PREPARING ASPHALT. AGOSTIN WOLKEN, Ess. Victoria, Australia. Filed Jan. 4, 1902. Serial No. 80,925. (No specification.)

Claim.—In the preparation of asphalt, roasting sand and grit or particles of silicium or like matter at not substantially less than 500° Fahrenheit, cooling the mass to its normal temperature, then reheating to about 350° Fahrenheit, and mixing therewith molten bitumen or asphaltum until each particle is completely coated, substantially as described.

697,808. STREET-INDICATOR FOR STREET-CARS. JOHN G. WHELAN, St. Louis, Mo. Filed June 26, 1901. Serial No. 80,008. (No model.)



Claim.—In a street-indicator device, a casing, a glass opening formed through the casing through which the names of the streets are adapted to be read, two rolls, a flexible strip upon which the names of the streets are adapted to be represented, said strips adapted to be wound and unwound from said rolls and extend between the same, ratchet-wheel

secured to and adapted to revolve with the roll, gear-wheels journaled loosely upon said rolls, pawls pivoted to the gear-wheels and adapted to engage the ratchet-teeth of the ratchet-wheel, pivoted segments, the teeth of which are adapted to be brought into mesh with the gear-wheels, springs adapted to hold said segments normally out of mesh with the gear-wheel, armatures secured to the segments, electrical magnets arranged in juxtaposition to said armatures, means for establishing a circuit at predetermined times from the trolley-wire through one or the other of the magnets to the ground, and a switch adapted to switch one or the other of the magnets in or out of its circuit, substantially as and for the purpose set forth.

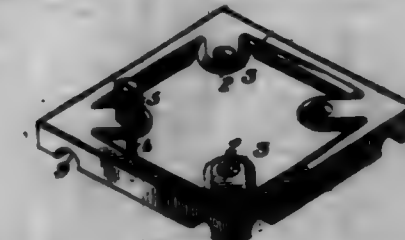
697,809. TOY BANK. WILLIAM E. YOUNG, Milwaukee, Wis. Filed June 3, 1901. Serial No. 82,708. (No model.)



Claim.—1. A bank of the kind described, comprising a receptacle having coin-slits in the top and a transparent side, the slotted coin-tubes arranged within the receptacle, the connecting-plate attached to the rear of the tubes, the block and wedges for holding the tubes in position, and the indicating scales or cards arranged adjacent to the slots of the coin-tubes, substantially as described.

2. A registering toy bank comprising a receptacle having a detachable top formed with coin-slits, said receptacle having a transparent panel at one side, the bolt for securing the receptacle and top together, the supplemental top or cap hinged to the main top, the longitudinally-slotted vertical coin-tubes arranged within the receptacle adjacent to the transparent panel, the indicating cards or scales arranged adjacent to each coin-tube, the plate connecting the tubes, and the block and wedges for securing the tubes within the receptacle, substantially as shown and described.

697,810. COLUMN-STOP. THOMAS J. YOUNGLOVE, Richmond, Va. Filed Oct. 5, 1900. Serial No. 23,112. (No model.)



Claim.—1. A column-stop consisting of an open-center frame upon which the column is adapted to rest, and legs extending inward from the frame to receive fastening devices, substantially as and for the purpose specified.

2. A column-stop consisting of a frame or rim with an open center and provided with drain and ventilation ports in its lower side, and legs extending inward from the frame to receive fastening devices, substantially as set forth.

3. A column-stop consisting of an open-center frame notched on its under side to form drain and ventilation ports, said legs being located above the bottom of the frame, substantially as described.

4. A column-stop consisting of an open-center frame, and perforated legs extending inward therefrom, in combination with fastening devices adapted to pass through said legs, and sleeves surrounding said fastening devices and forming column-stops, substantially as described.

5. A column-stop consisting of a column-supporting plate or frame, and a combined stop-fastener and column-stop adapted to extend above and beneath the plate or frame for the purpose of securing the stop in place and also preventing lateral displacement of the base of the column, substantially as described.

6. A column-stop comprising a continuous open rim provided in its

4. Means for inserting cables into conduits which comprise a self-propelled car adapted to traverse the conduit, and provided with a pivotally-mounted electric motor, means for normally disconnecting the motor to permit the car to travel rearward, and a flexible power connection attached to the car and adapted to be fed into the conduit, substantially as described.

5. Means for inserting cables into conduits, which comprise a self-propelled car adapted to traverse the conduit and provided with a pivotally-mounted electric motor, means for normally disconnecting the motor to permit the car to travel rearward, guide devices attached to the car and arranged to bear upon opposite walls of the conduit, and flexible connections attached to the car and adapted to be fed into the conduit, substantially as described.

6. Means for use in introducing a cable into a conduit, which comprise a car adapted to travel through the conduit and provided with an electric motor, means for normally disconnecting the motor to permit the car to be drawn backward, power-conductors connected with the car and adapted to be fed into the conduit as the car travels through it, and means yieldingly interposed between the car and top of the conduit for insuring proper contact of the driving-wheels, substantially as described.

7. Means for use in introducing a cable into a conduit, which comprise a car adapted to travel through a conduit and provided with an electric motor, means for normally disconnecting the motor to permit the car to be drawn backward, power-conductors connected with the car and adapted to be fed into the conduit as the car travels through it, which applied to said car and adapted to bear upon opposite walls of the conduit, and spring-pressed means attached to the car and bearing against the top of the conduit for insuring proper contact of the driving-wheels substantially as described.

697,816. NUT-LOCK. ROBERT & BUTER, Moline, Ill. Filed Feb. 4, 1901. Serial No. 92,793. (No model.)



Claim.—1. A nut-lock comprising a bolt, a nut therefor, the said bolt having its end projected beyond the outer surface of the nut, a collar adapted to engage on said projected end, means for preventing a rotary movement of the collar relatively to the bolt, a device carried by the collar for engaging with the nut, and a spring attached to the bolt and operating to hold the collar in locking position, substantially as specified.

2. A nut-lock comprising a bolt, a nut therefor, the bolt having its end extended outward of the nut, the said end being made angular in cross-section, a collar for engaging over said end, a spring secured to the bolt and having a hook end for engaging with the outer end of the collar, and a device carried by the collar for engaging with the nut, substantially as specified.

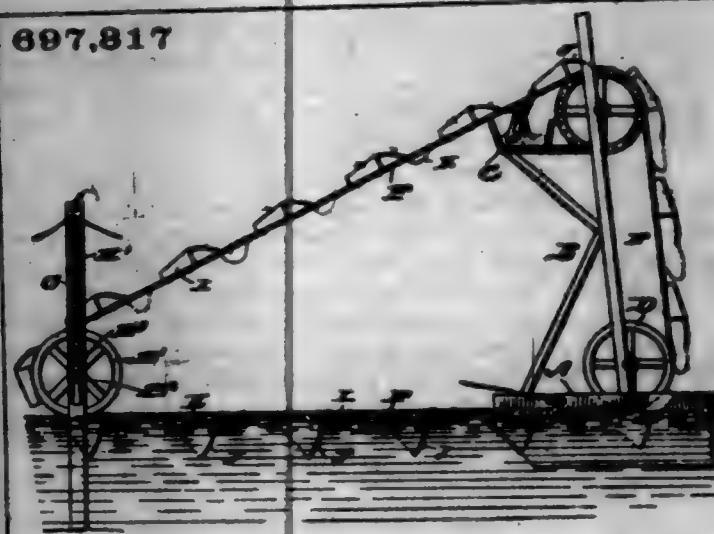
3. A nut-lock comprising a bolt, a nut for the bolt and having perforations, the said bolt having its end extended outward from the nut, the said end being made angular in cross-section, a collar for engaging over said end, means for holding the collar in position on the bolt, and fingers extended from the collar and adapted to engage in perforations in the nut, substantially as specified.

697,817. WATER-ELEVATOR. DON C. SMITH, Houston, Mo. Filed Aug. 17, 1901. Serial No. 72,266. (No model.)

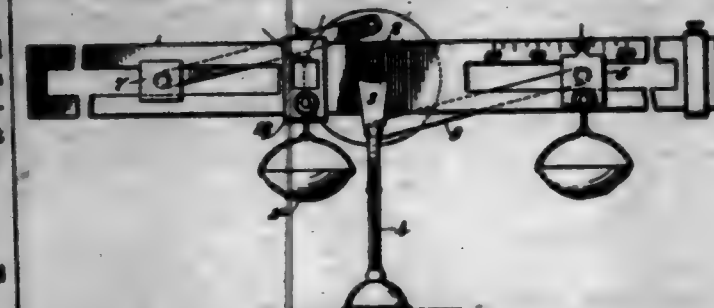
Claim.—1. A water-elevator comprising a float and a fixed frame a derrick arranged upon said float and carrying guide-pulleys, and a cable, the adjustable guide-pulleys arranged in the fixed frame, the endless cables having the buckets attached thereto, said buckets being closed at one end and open at the opposite end, and the hinged blades or wings attached to the closed ends of the buckets, substantially as described.

2. A water-elevator comprising a float, the derrick arranged upon said float and carrying the guide-pulleys, a cable, the vertically-slotted fixed standards, the adjustable shaft carrying guide-pulleys and means for adjusting the said shaft vertically, the endless cables passing around the guide-pulleys, the buckets attached to the cables, the closed ends of the buckets being wider than the open ends, and the blades or wings hinged to the closed ends of the buckets and connected to the cables by ropes or chains, all arranged and adapted to operate substantially as set forth.

697,817



697,818. PROPORTIONATE SCALE. GEORGE E. BROWN, Windsor, Tex. Filed May 22, 1901. Serial No. 92,942. (No model.)



Claim.—A scale-beam, a disk mounted to rotate on one of the fulcrum-points of the beam, blocks mounted to slide on the beam at opposite sides of the fulcrum, links connecting the disk and blocks, a pan supported on one of the blocks, a loop slidable on the beam, a set-screw for holding the loop as adjusted, and a pan supported by said loop, substantially as specified.

697,819. PROCESS OF MAKING DOLOMITIC SANDSTONE. RICHARD E. BROWN, Caldwell, Mich. Filed June 19, 1901. Serial No. 93,128. (No specimens.)

Claim.—1. The process of making dolomitic sandstone, consisting in calcining the alkaline earths contained in dolomite, hydrating the calcined product, mixing with silicious combinations, and molding and heating the mixture.

2. The process of making sandstone, consisting in calcining dolomite, hydrating the mass, and chemically combining the composition with silica.

3. The process of making dolomitic sandstone, consisting in calcining alkaline earths of dolomite, adding water sufficient to form hydroxide of the said earths, adding finally, ground, or a mixture of ground and unground, compounds of silica, and curing the resultant composition.

4. The process of making artificial sandstone, consisting in subjecting silicious earths to the chemical action of the hydrated alkaline earths of dolomite.

5. The process of making artificial stone, consisting in calcining dolomite, adding sufficient water to form hydroxide, adding silicious compounds, mixing the composition with water, and molding and curing the resultant mixture.

6. A dolomitic sandstone, consisting of five to thirty-five per cent. of hydrated calcined dolomite and sixty-five to ninety-five per cent. of one or more of the various forms of silica.

7. A dolomitic sandstone, consisting of five to thirty-five per cent. of hydrated magnesium and calcium oxide, and sixty-five to ninety-five per cent. of combinations of silica.

8. A sandstone, consisting of five to thirty-five per cent. of calcium and magnesium hydroxide and sixty-five to ninety-five per cent. of silicious compounds.

9. An improvement in the art of making artificial stone, which consists in calcining dolomite by heating the same to drive off the carbon dioxide and other gases normally combined therewith, subjecting the resulting calcined substance to which the required amount of water has been added to the action of steam under pressure for the purpose of hydrating the same, next mixing the hydrated compound with a comminuted silicious substance, for the purpose of forming silicates, and finally subjecting the compounds to the action of steam and accompanying carbon dioxide, for the purpose of forming carbonates in addition to said silicates.

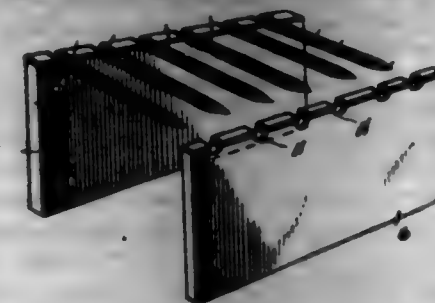
10. An improvement in the art of making artificial stone, which consists in removing from native dolomite the carbon dioxide and water normally combined therewith, subjecting the resulting calcined substance to which the required amount of water has been added to the action of steam under pressure for the purpose of hydrating the same, next mixing the hydrated compound with a comminuted silicious substance, for the purpose of forming silicates, and finally subjecting the compounds to the action of steam and accompanying carbon dioxide, for the purpose of forming carbonates in addition to said silicates.

mainly combined therewith, subjecting the resulting calcined substance to the action of aqueous vapor for the purpose of hydrating the same, mixing the hydrate thus formed with a silicious substance for the purpose of forming silicates, and then subjecting the mass to the action of carbon dioxide for the purpose of forming carbonates in addition to said silicates.

11. An improvement in the art of making artificial stone, which consists in calcining dolomite, hydrating the resulting substance by a distinct step and subjecting the hydrate thus formed to the independent successive action of silicates and of carbon dioxide, thus forming both silicates and carbonates.

12. An improvement in the art of making artificial stone, which consists in calcining dolomite, applying steam to the resulting substance, thus forming a hydrate, treating the hydrate thus formed with silicious substances, thus forming silicates, and subjecting the entire mass to a mixture of steam and carbon dioxide, thus forming both carbonates and silicates.

697,820. BROOM-SAVING DEVICE. THOMAS E. BROWN, Viroqua, Wis. assignor to the New Broom and Supply Company, Viroqua, Wis. Filed Oct. 2, 1901. Serial No. 77,428. (No model.)



Claim.—1. A broom-saving device comprising a pair of movable laterally-separable side clamp members constructed to fully engage upon opposite sides of a broom-head, one of said members having rigid teeth with a plurality of laterally-extending needles piercing the broom-head and having a slidable engagement with the opposite member, said needles being provided therein with longitudinal guiding-grooves.

2. A broom-saving device comprising a pair of movable laterally-separable clamp members constructed to engage upon opposite sides of a broom-head, one of said members being provided at one edge thereof with a series of holes and the opposite member also being provided at its corresponding edge with a plurality of laterally-extending longitudinally-grooved needles piercing the broom-head and engaging the said holes.

697,821. WRENCH. VOLNEY C. BROWN, Balys Harbor, Wis. Filed July 6, 1901. Serial No. 97,512. (No model.)



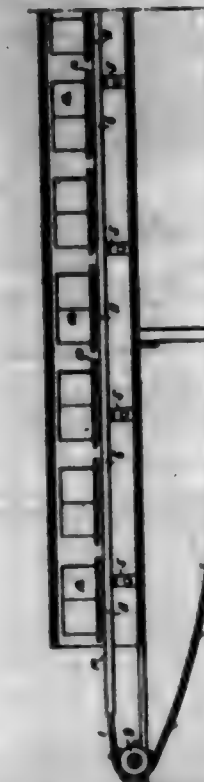
Claim.—In a wrench composed of two sections each of which terminates at one end in handle portions, and at their opposite ends terminating in semicircular steel-sections that are hinged together, ratchet-teeth formed upon the inner surface of each semicircular section, a head having a non-circular opening formed therein and having its periphery provided with spring-pawls that are adapted for engagement by the ratchet-teeth, and a thumb-screw carried by one of the said handle-sections and arranged for engagement with a recess formed in the opposite section for locking the said sections together, substantially as described.

697,822. CAN-STRAINING MACHINE. CHARLES E. BUNNELL, Baltimore, Md. Filed May 15, 1901. Serial No. 93,577. (No model.)

Claim.—1. A can-straining machine comprising a box or casing open at the ends, steam-supplying pipes at the lower portion of the casing, means for moving the cans through the casing, and elevated supports for the can-carrier, so disposed that the cans during their travel will be maintained close to the top of the casing, substantially as specified.

2. A can-straining machine comprising a box or casing open at the ends, pipes for supplying steam to the interior of said casing at the lower portion thereof, grooved longitudinal supports for the cans extending

through the casing, and mounted above the bottom thereof, and endless chains running in said grooves and having projections extending above the tops of the cans, substantially as specified.



697,823. PENCIL-SHARPENER. ROBERT BAKER, Lakeview, Ore. Filed Aug. 16, 1901. Serial No. 72,264. (No model.)



Claim.—1. A pencil-sharpener, comprising a handle, a blade pivoted upon the handle near one end thereof, and an arm pivoted by one end on the pivot of the blade, and rockable toward the sharp edge of said blade for support of the end of a pencil to be sharpened by said edge of the blade.

2. A pencil-sharpener, comprising a handle, a blade sharp on one edge, and pivoted by one end at an end of the handle, said blade having a longitudinal slot in its heel, and a bent arm pivoted in the slot of the blade-heel on the blade-pivot, which adapts the arm to rock toward and from the sharp edge of the blade for support of a pencil end to be cut by the blade.

3. A pencil-sharpener, comprising a supported blade, having a slot in its heel, a bent arm pivoted at its heel in the slotted heel of the blade, and means to limit the rockable movement of the arm on its pivot.

4. A pencil-sharpener, comprising a handle, a blade pivoted at one end in an end of the handle, said blade having a beveled side and a straight side, and a bent arm pivoted with the blade in the handle.

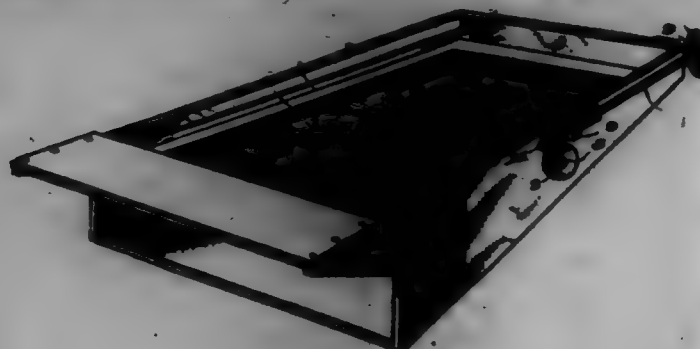
5. A pencil-sharpener, comprising a handle, a blade having a beveled side and a straight side, the sharp edge of the blade sloping convexly toward the point, and a bent arm pivoted to fold with the blade and receive adjustment toward and from the sharp edge of the blade.

6. In a pencil-sharpener of the character described, the bevel-sided blade having its cutting edge convexly sloped toward the point of the blade, and the rockable arm bent to provide a foot at its free end, the end wall of said foot being grooved, and the edge of the arm adjacent to the edge of the blade having a plurality of indentations therein.

697,824. ADJUSTABLE RIDGOL FOR WINNERS. CHARLES E. CASTELL and WILLIAM B. FAIR, Little River, Kans. assignors of one half to Charles E. Hamilton, Little River, Kans. Filed Mar. 4, 1901. Serial No. 95,102. (No model.)

Claim.—A shaking-shed having a shaft 2 journaled therein, a worm-wheel on said shaft, a set-shaft having a worm engaging said worm-wheel, supporting-bars attached to, and supported solely by said shaft 2, said bars having side flanges 6 and end flanges 7 on their upper sides, and a removable screen or riddle supported on said adjustable bars, adapted to be lifted therefrom and engaged by the flanges thereof, said bars being

laterally adjustable on said shaft to adapt them to receive and support ridges or curves of various widths, substantially as described.



697,825. BOTTLE-CARRIER. OLIVER F. CLARK, St. Louis, Mo. Filed Aug. 26, 1901. Serial No. 78,250. (No model.)



Claim.—1. A bottle-carrier comprising a series of strips extending in one direction, a series of crossing strips, and wires running in the direction of the greater transverse dimension of the strips passing alternately from opposite sides through slots in the strips and drawing them together edgewise.

2. In a bottle-carrier, the combination of crossing strips formed with slots, and wires secured to the upper row of strips and threaded through the slots by passing them alternately first on one side of the strips and then on the other side, substantially as set forth.

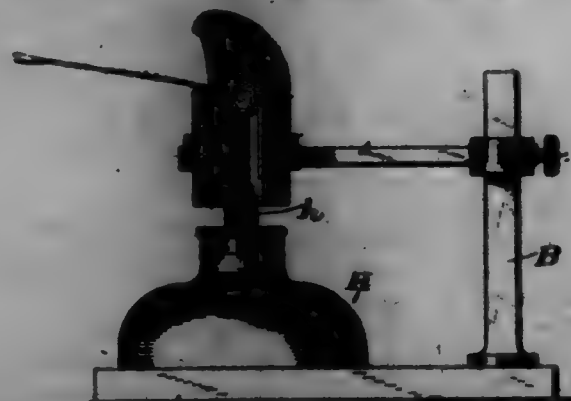
3. In a bottle-carrier, the combination of crossing strips, wires threaded through the strips, and a row of bottom strips through which the wires are passed and to which they are connected so that when the last-mentioned strips are turned horizontally they will act to tighten said wires, substantially as set forth.

4. In a bottle-carrier, the combination of crossing strips, and a series of wires secured to the upper row of strips and threaded through slots in the intermediate strips and which are connected to the lower row of strips in a manner whereby the lower row of strips act as levers to tighten the wires, substantially as set forth.

5. A bottle-carrier consisting of crossing strips and wires connecting the strips together and so connected to the strips as to prevent lateral movement of the strips, substantially as set forth.

6. In a bottle-carrier, the combination of crossing strips, wires connecting the strips together, and a row of bottom strips to which said wires are connected in such a manner as to permit said bottom strips to be turned flatwise, when the carrier is opened to form a bottom to the carrier, substantially as set forth.

697,826. DENTAL APPLIANCE. GEORGE H. CLAUER, Annapolis, Md. Filed July 2, 1901. Serial No. 67,644. (No model.)



Claim.—1. In a dental furnace, the combination with a support, a vertically-adjustable arm carried thereby, and a burner beneath said arm; of a cylindrical furnace supported by said arm, and a heating device adapted

to be removably supported upon the said furnace, substantially as described.

2. In a dental furnace, the combination with a support, an adjustable arm carried thereby, and a burner beneath said arm; of a cylindrical furnace supported by said arm, and a curved deflecting-head provided with an exit in one side carried by said furnace, substantially as described.

3. In a dental furnace, the combination with a support, a vertically-adjustable arm carried thereby, and a burner beneath said arm; of a furnace supported by said arm, a covering of asbestos upon the outside of said furnace, and a device adapted to receive articles to be heated, removably secured to said furnace, substantially as described.

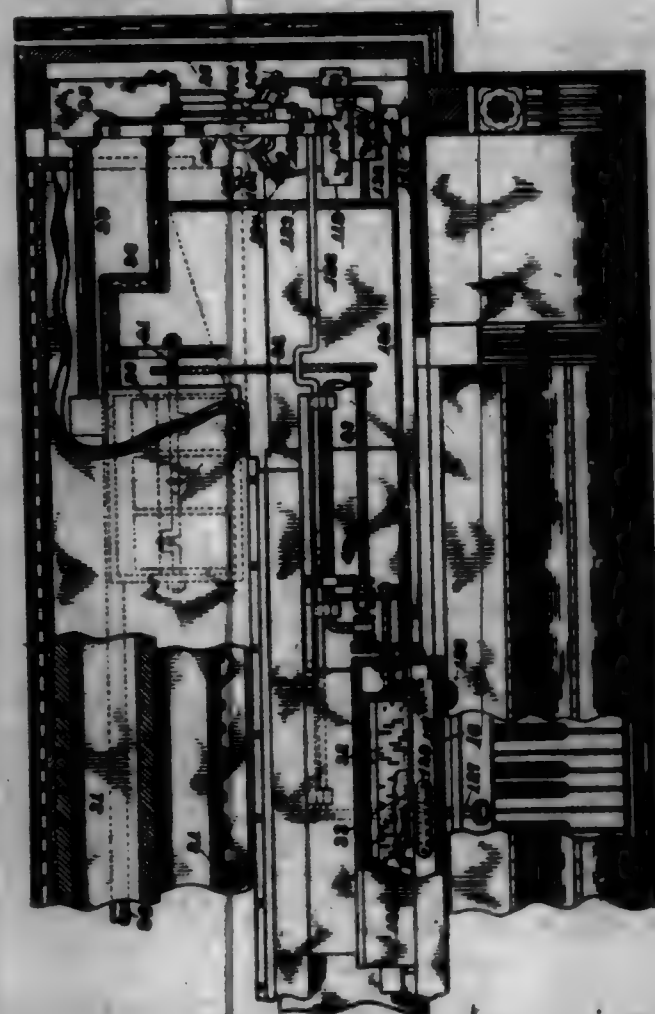
4. In a dental furnace, the combination with a support, an adjustable arm carried thereby, and a burner beneath said arm; of a furnace having a flange adapted to rest in said arm, and a curved head having an opening in one side carried by said furnace, substantially as described.

5. In a dental furnace, the combination with a base, an adjustable arm mounted thereon, provided with a ring upon one end, and a burner located beneath said ring; of a cylindrical furnace, resting in said ring, and provided with an annular flange for supporting the same, and a recess in the upper end of said furnace, and a curved head having an opening in one side adapted to rest upon said furnace, and a flange upon said head adapted to lock with said recess, substantially as described.

6. An investment-cup adapted to be used in combination with a dental furnace, comprising a woven-wire cup, having a filling of asbestos or the like, into which is adapted to be embedded the crown of a tooth, substantially as described.

7. An investment-cup adapted to be used in combination with a dental furnace, comprising a woven cup of flexible wire adapted to be bent in any desired shape, and a filling of spongy asbestos, within said cup, substantially as described.

697,827. AUTOMATICALLY-OPERATED REED AND PIPE ORGAN. JAMES W. CHURCH, Boston, Mass., assignor of one-half to Winchester Veneer, Brookline, Mass. Filed Sept. 2, 1901. Serial No. 74,817. (No model.)



Claim.—1. In an organ automatically operated by means of a perforated music-sheet, the combination with the stop-valves and the lever-and-rod mechanism for operating the same, of supplemental levers for operating the stop-valve rods to open the stop-valves, pneumatic mechanism for operating said supplemental levers, means for retaining each supplemental lever after being depressed to hold open the stop-valve connected therewith, and electrically-operated mechanism controlled by the music-sheet for controlling the operation of said pneumatic mechanism.

2. In an automatically-operated organ, the combination with the stop-valves and the lever-and-rod mechanism for operating the same, of a series of supplemental spring-pressed levers provided with bolts through which loosely pass the stop-valve rods, the latter having bottoms or nuts on which said levers rest to draw down said rods, independent pneumatic mechanism for actuating each lever to open the stop-valve connected therewith, means controlled by the music-sheet for independently operating the pneumatic mechanism of each of said levers, and a retaining device consisting of a pivoted spring-pressed rocker-board having a longitudinal shoulder, and arms projecting from said levers and adapted to engage said shoulder, whereby, each lever after being depressed to open its stop-valve may be retained to hold said valve open, or when retained may be released to permit said valve to be closed.

3. In an automatically-operated organ, the combination with the stop-valves and the lever-and-rod mechanism for operating the same, of a series of supplemental levers provided with bolts through which loosely pass the stop-valve rods, the latter having bottoms or nuts on which said levers rest to draw down said rods, independent pneumatic mechanism for actuating each lever to open the stop-valve connected therewith, an electric circuit for the pneumatic mechanism of each supplemental lever, said circuit containing a magnet for actuating the primary puppet-valve of said pneumatic mechanism, a music-sheet provided with longitudinal rows of metallic spots or portions acting as circuit-closers, whereby said pneumatic mechanism is brought into action, and a retaining device, whereby each supplemental lever, when depressed to open its stop-valve, may be retained in position to hold said stop-valve open, or when retained may be released to permit said stop-valve to be closed.

4. In an automatically-operated organ, the combination with the motor for actuating the music-sheet and its inlet-valve, of pneumatic mechanism for moving said valve in a direction to open the same, pneumatic mechanism for moving said valve in the opposite direction to close the same, and means controlled by the music-sheet for independently controlling the operation of each of said pneumatic mechanisms.

5. In an automatically-operated organ, the combination with the motor for actuating the music-sheet and its inlet-valve, of pneumatic mechanism for moving said valve in a direction to open the same, pneumatic mechanism for moving said valve in the opposite direction to close the same, and electrically-operated mechanism controlled by the music-sheet for independently controlling the operation of each of said pneumatic mechanisms.

6. In an automatically-operated organ, the combination with the motor for actuating the music-sheet, and its inlet-valve, of pneumatic mechanism for moving said valve in a direction to open the same, pneumatic mechanism for moving said valve in the opposite direction to close the same, an electric circuit for each of said pneumatic mechanisms, said circuit containing a magnet for actuating the primary puppet-valve of said pneumatic mechanism, and a music-sheet provided with longitudinal rows of metallic spots or portions acting as circuit-closers, whereby said pneumatic mechanisms are independently brought into action to effect the opening or closing of said motor-valve.

7. In an automatically-operated organ, the combination with the motor for actuating the music-sheet and its inlet-valve and valve-rod, of friction feed mechanism for intermittently moving said valve-rod in opposite directions, whereby said valve may be gradually opened or closed, mechanism connected with said valve-rod to indicate the amount of movement of said valve, pneumatic mechanism for actuating said valve-rod feed mechanism, and means automatically controlled by the music-sheet for controlling the operation of said pneumatic mechanism.

8. In an automatically-operated organ, the combination with the motor for actuating the music-sheet and its inlet-valve and valve-rod, of a rack-bar secured to the valve-rod, a gear in mesh with said rack-bar, a friction-wheel fast on the shaft of said gear, a pair of levers fulcrumed on the gear-shaft and arranged on opposite sides of the friction-wheel, sliding shoes mounted on said levers and adapted to be brought into contact with the friction-wheel to intermittently rotate the same in opposite directions, rods for moving said levers and friction-shoes, means for withdrawing the shoes from contact with the friction-wheel, pneumatic mechanism for independently actuating said rods and friction-shoes to open or close the motor-valve, and means automatically controlled by the music-sheet for independently controlling the operation of each of said pneumatic mechanisms to vary the speed of the motor.

9. In an automatically-operated organ, the combination with the motor, its inlet-valve and valve-rod, the latter provided with a rack-bar, the gear meshing with said rack-bar, and the friction-wheel on the gear-shaft, of a lever fulcrumed on the gear-shaft, a friction-shoe secured to a sliding spring-pressed rod mounted on said lever, a bell-crank pivoted to said sliding rod, a forked rod embracing the end of the lever, pneumatic mechanism for actuating said forked rod, and a throw-off device mounted on said lever and adapted to disengage said bell-crank from said forked

rod to relieve the friction-wheel of the pressure of the sliding shoe, substantially as described.

697,828. CUFF-HOLDER. PAUL CONNOR, Keywest, Fla. Filed Nov. 14, 1901. Serial No. 82,301. (No model.)



Claim.—1. A cuff-holder, comprising two clamping-arms having opposed fingers on their free ends, a longitudinally-extended sleeve at the opposite ends of said arms, a bent arm having a cylindrical end on which the sleeve is loosely mounted, means to restrict end play of the sleeve on one end of the arm, and a locking-plate held to rock on the other end of the bent arm.

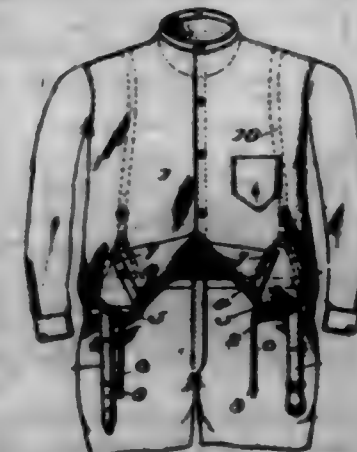
2. A cuff-holder, comprising two clamping-arms formed one within the other, said arms having laterally-extended fingers at like ends of the arms, and oppositely-bent curves thereon between the ends of the arms, a sleeve having a spring-finger at one edge, a bent arm having a tubulation at one end wherein spaced beads are formed, the spring-finger engaging one of said beads, and a locking-plate held to rock on a ring-eye formed on the opposite end of the bent arm.

3. A cuff-holder, comprising a bent arm having a ring-eye on one end, a locking-plate held to rock on the ring-eye and having a spring-tongue adapted to engage its free end in notches formed in the edge of the ring-eye, a tubulation on the opposite end of the bent arm, having a bead at each end, two clamping-arms formed one within the other and having clamping-fingers adapted to press one toward the other, a sleeve on the opposite end of the clamping-arms, said sleeve being fitted upon the tubulation and having a finger adapted to bear on one of the beads, and tubulations in the clamping-arms, which when compressed are adapted to spread apart the clamping-fingers.

4. A cuff-holder comprising an arm bent at a right angle and having a ring-eye on one end, a locking-plate held to rock on said arm upon said ring-eye, a latch-tongue formed integral with the locking-plate and adapted to engage its free end in either of two notches in the ring-eye, two clamping-arms having clamping members laterally projected at their free ends, and means for rockably connecting the other ends of the arms with the remaining end of the bent arm.

5. The combination with an arm bent at a right angle, and two clamping-arms connected together near one end of each arm and having laterally-projected clamping members at similar ends thereof, of a rockable joint between an end of one clamping-arm and an adjacent end of the bent arm, comprising a longitudinally-extended tubulation on the bent arm, a sleeve on the clamping-arm loosely mounted on the tubulation, two bead formations on the tubulation loosely contacting with respective ends of the sleeve, and a spring-finger on one end of the sleeve, adapted to contact with an adjacent bead.

697,829. BELT AND SHIRT-WAIST CONNECTOR. JOHN H. CHAMBERLAIN, Washington, D. C. Filed Aug. 6, 1901. Serial No. 71,068. (No model.)



Claim.—1. The combination of a shirt-waist having a waistband provided with openings, a belt having loops to pass through the openings, and a band or tape adapted to be threaded through said loops to secure the belt to the waistband, substantially as described.

2. The combination of a shirt-waist having a waistband provided

at its ends with buttonholes and between the same with openings, a belt having loops to project through said openings, and a band or tape to be threaded through said loops to connect the belt to the waistband, and provided at its ends with buttons to engage the buttonholes in the waistband, substantially as described.

697,880. TUBE-CLAMP. WILLIAM DE FREITAS, New York, N. Y. Filed Nov. 7, 1901. Serial No. 51,296. (No model.)



Claim.—1. A tube-clamp comprising two clamping members for engaging opposite sides of a tube and a lever member having extensions at an angle to the body, and arms projected from the extensions substantially parallel with the body, one of the clamping members having bearings at the ends of the arms and the other clamping member having bearings at the ends of the extensions, substantially as specified.

2. A tube-clamp, comprising two clamping members for engaging opposite sides of a tube, and a lever member consisting of a substantially U-shaped top portion having an extension at an angle to the body and arms at the ends of the extension projected substantially parallel with the body, one of the clamping members having bearings at the end of the arms, and the other clamping member having bearings at the end of said extensions, substantially as specified.

3. A tube-clamp, comprising two clamping members for engaging opposite sides of a tube, one of said clamping members having portions extended at substantially right angles to its body and terminating in outwardly-extended lugs, the other of said members having at its ends outwardly-extended lugs, and a lever member having a U-shaped body portion, portions extended at substantially right angles to the body portion, and arms projecting from said extensions forming eyes to receive the lugs last mentioned, and the said arms having eyes at the ends to receive the lugs first mentioned, substantially as specified.

697,881. BOILER-TUBE CLEANER. CORNELIUS T. DEMAREZ, Rochester, N. Y. Filed Apr. 22, 1901. Serial No. 54,572. (No model.)



Claim.—1. A tube-cleaner, comprising a horizontal head provided with a plurality of spaced cutters projecting from the respective front and rear ends thereof, said cutters being biased by V-shaped webs connecting said cutters with the main body of said head, said webs being partially cut away at the rear end of said head so as to admit the end of a rod for the purpose of manipulating the head.

2. A tube-cleaner, comprising a longitudinal head provided with a plurality of substantially tongue-shaped cutters, spaced apart and projecting from the respective front and rear ends thereof, said cutters alternating with slots which extend throughout the length of the head and communicate with each other by means of undercut recesses extending beneath the cutters.

3. A tube-cleaner, comprising a longitudinal head provided with a plurality of substantially tongue-shaped cutters projecting from the respective front and rear ends thereof, the said cutters at their bases being joined to the main body of the head, and the middle of said cutters standing asunder from said main body but connected thereto by webs.

697,882. FRIED-SCREW ADJUSTMENT. JOHN DUNN, Pen Ar-
cyle, Pa. Filed Nov. 20, 1901. Serial No. 54,188. (No model.)

Claim.—1. The combination of a feed-out, the upper end of which is externally threaded, an adjusting-nut arranged above the feed-out and adjustable thereon, and means for locking the adjusting-nut, as set forth.

2. The combination of a feed-out the upper end of which is threaded externally, an adjusting-nut arranged upon the threaded end of said feed-out, and the locking-nut for securely locking the adjusting-nut in position, as set forth.

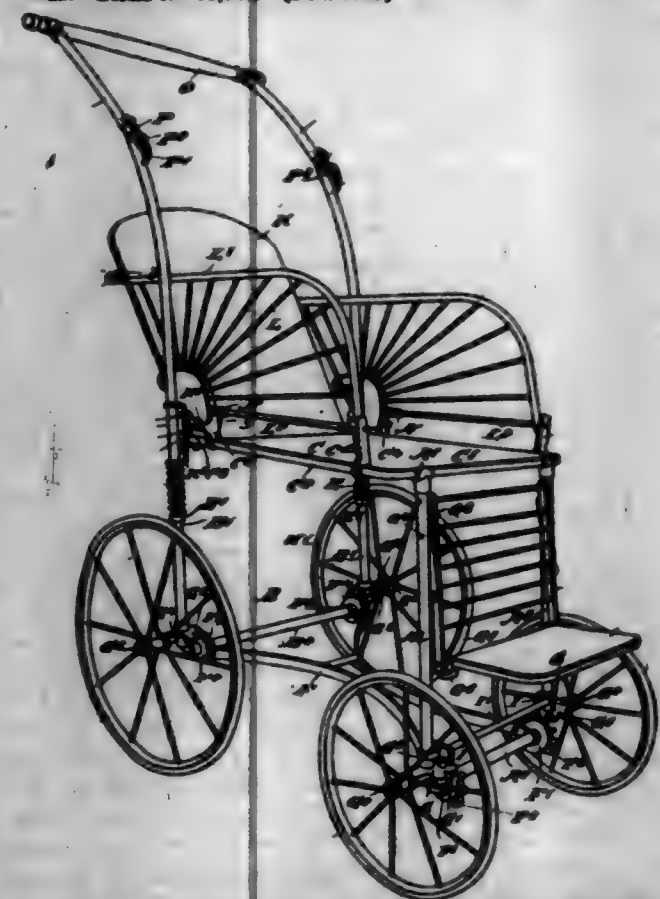
3. The combination with the feed-out threaded at its upper end, of the adjusting-nut arranged upon said threaded end, a jam-nut arranged upon the threaded end of the feed-out and below the adjusting-nut, and the locking-nut arranged upon the adjusting-nut and adapted to bear upon the jam-nut, substantially as set forth.

4. The combination of a feed-out, the upper portion of which is externally threaded, an adjusting-nut, the lower end of which is recessed

said recessed portion being internally and externally threaded, the upper end of the feed-out engaging the interior threads, a jam-nut arranged upon the threaded portion of the feed-out and below the adjusting-nut, and a locking-nut arranged upon the adjusting-nut and bearing upon the jam-nut, substantially as set forth.



697,883. FOLDING CARRIAGE. CHARLES E. FARRER, Devon
port, Iowa, assignor to Folding Wheel Carriage Company, Des Moines,
Iowa, a Corporation of Iowa. Filed June 5, 1901. Renewed Feb. 27,
1902. Serial No. 55,524. (No model.)



Claim.—1. A folding vehicle, comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotedly connecting said frames with each other, front and rear axle-carriers mounted to swing on said frames and controlled by said reach, wheels journaled on said axle-carriers, a seat fulcrumed on the front seat-supporting frame, spring-supported slides movable on the rear seat-supporting frame and on which the rear part of the seat is fulcrumed, and a seat-back fulcrumed on said slides and arranged to swing rearward into an inclined position relatively to the seat, as set forth.

2. A folding vehicle, comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotedly connecting said frames with each other, front and rear axle-carriers mounted to swing on said frames and controlled by said reach, wheels journaled on said axle-carriers, a seat fulcrumed on the front seat-supporting frame, spring-supported slides movable on the rear seat-supporting frame and on which the rear part of the seat is fulcrumed, and spring-controlled pivoted seat sides and a seat-back fulcrumed on said slides and arranged to rest on the rear ends of said seat sides, as set forth.

3. A folding vehicle, comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotedly connecting said frames with each other, front and rear axle-carriers mounted to swing on said frames and controlled by said reach, wheels journaled on said axle-carriers, a seat fulcrumed on the front seat-supporting frame, spring-supported slides movable on the rear seat-supporting frame and on which the rear part of the seat is fulcrumed, a seat-back fulcrumed on said slides and arranged to swing rearward into an inclined position relatively to the seat, and a locking device controlled by said seat-back for locking the seat to said slides, as set forth.

4. A folding vehicle, comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotedly connecting said frames with each other, front and rear axle-carriers mounted to swing on said frames and controlled by said reach, wheels journaled on said axle-carriers, a seat fulcrumed on the front seat-supporting frame, spring-supported slides movable on the rear seat-supporting frame and on which the rear part of the seat is fulcrumed, and a locking device under the control of the operator, for locking the front axle-carrier in an extended position, said locking device comprising pivoted arms and lugs on the front axle-carriers, as set forth.

5. A folding vehicle, comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotedly connecting said frames with each other, front and rear axle-carriers mounted to swing on said frames and controlled by said reach, wheels journaled on said axle-carriers, a seat fulcrumed on the front seat-supporting frame, spring-supported slides movable on the rear seat-supporting frame and on which the rear part of the seat is fulcrumed, a locking device under the control of the operator, for locking the front axle-carriers in an extended position, said locking device comprising locking-arms pivoted on said front seat-supporting frame, a cross-bar connecting the locking-arms with each other, and lugs on said front axle-carriers and adapted to be engaged by said locking-arms, as set forth.

6. A folding vehicle having a locking device for the front axle-carriers, comprising locking-arms pivoted on the front seat-supporting frame, a cross-bar connecting said arms with each other, and lugs on said axle-carriers and adapted to be engaged by said locking-arms, as set forth.

7. A folding vehicle having a rear seat-supporting frame, slides spring-supported on said frame, a seat pivoted on said slides, a seat-back fulcrumed on said slides, and a locking device controlled by said back for automatically locking the seat to the slides, as set forth.

8. A folding vehicle having a rear seat-supporting frame, slides spring-supported on said frame, a seat pivoted on said slides, a seat-back fulcrumed on said slides, a locking device controlled by said back for automatically locking the seat to the slides, said locking device comprising spring-arms on the seat and adapted to be engaged by said back, and pins carried by said spring-arms and adapted to pass into registering apertures in the seat and the slides, as set forth.

9. A folding vehicle having a seat, a seat-back hinged to the seat, said back fulcrumed on the seat and extending rearwardly beyond the seat, and supports on the rear ends of the slides for the seat-back to rest against and extend in an inclined position relatively to the seat, as set forth.

10. A folding vehicle having a seat, a seat-back hinged to the seat, said back fulcrumed on the seat and extending rearwardly beyond the seat, supports on the rear ends of the slides for the seat-back to rest against and extend in an inclined position relatively to the seat, and means on the rear ends of the seat sides, for locking the back in a rearmost position, as set forth.

11. In a folding vehicle, the combination with front and rear frames, of wheel-carriers mounted to swing on said frames and each provided with a gear-wheel, and a reach having at each end bearings mounted on the cross-bars of the frames and each provided with a gear-wheel, the said gear-wheels meshing with the gear-wheels of the wheel-carriers, as set forth.

12. In a folding vehicle, the combination with front and rear frames, of wheel-carriers mounted to swing on said frames and each provided with a gear-wheel, the gear-wheels on the front-wheel carriers being provided with projections on their upper faces, a reach having at each end bearings mounted on the cross-bars of the frames and each provided with a gear-wheel, the said gear-wheels meshing with the gear-wheels of the

wheel-carriers, and pivoted locking-arms for engaging the projections of the said gear-wheels, as set forth.

13. In a folding carriage, the combination of front and rear frames, the rear frame being provided with spring-pressed slides, a reach pivotedly connecting said frames, wheel-carriers mounted to swing on said frames and controlled by the reach, a seat having its forward end pivoted to the front frame and its rear end to the spring-pressed slides of the rear frame, a seat-back pivoted to the said spring-pressed slides, and seat sides pivoted to the seat and adapted to fold on the rear side of the seat-back when the vehicle is folded, as set forth.

14. In a folding vehicle, the combination with front and rear frames, of a seat pivotedly connected with the said frames, a pivoted seat-back, seat sides pivoted to the seat and extending rearwardly beyond the seat, said sides being adapted to fold on the rear face of the back when the vehicle is folded, and means for securing the back to the sides to hold it in a rearmost position as set forth.

15. In a folding vehicle, the combination with front and rear frames, of a seat pivoted to the front frame, spring-pressed slides on the rear frame and to which the rear portion of the seat is pivoted, and a locking device for engaging one of the slides to lock the seat thereto, as set forth.

16. In a folding vehicle, the combination with front and rear frames, of a seat pivoted to the front frame, spring-pressed slides on the rear frame and to which the rear portion of the seat is pivoted, a pivoted back, and a spring-pressed locking device for engaging one of the slides to lock the seat thereto, said locking device being controlled by the back, as set forth.

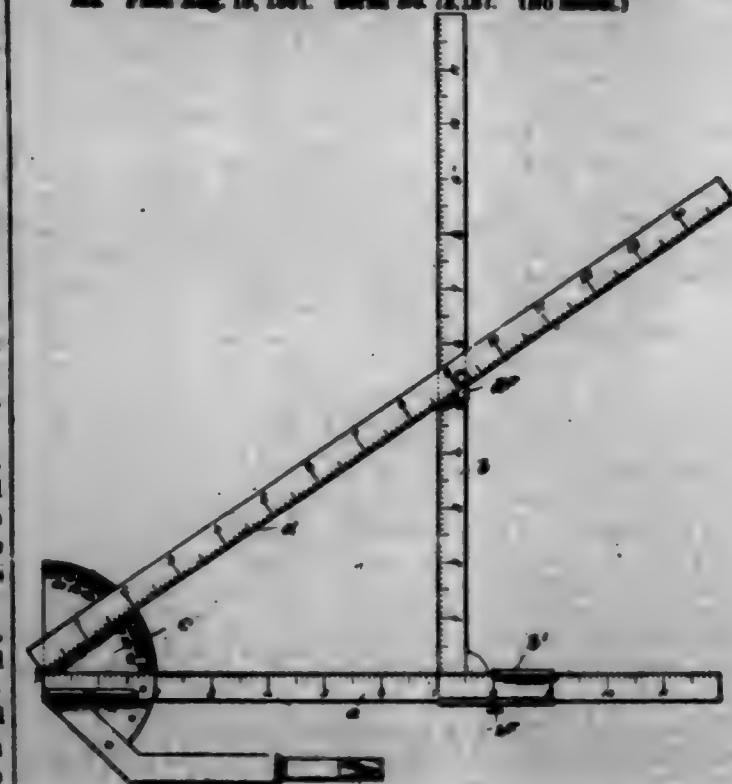
17. A folding vehicle comprising front and rear frames having up-right side arms, a reach pivotedly connecting said frames, wheel-carriers mounted to swing on the said frames and controlled by the reach, a seat pivotedly connected with the frames, seat sides pivoted to the seat, a pivoted seat-back normally held in locking engagement with the rear portions of the seat sides, a handle having its side arms hinged to the side arms of the frame, and a locking device for locking the handle side arms to the frame side arms, as set forth.

697,884. PUMPER. WALTER W. FARRER, Boston, Mass. Filed
June 18, 1901. Serial No. 54,718. (No model.)



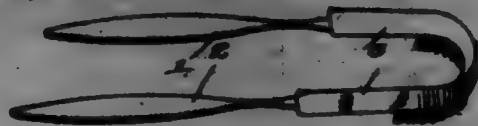
Claim.—A game apparatus comprising a flat circular base A a circular wall arranged thereon, said base having a depression arranged centrally of the wall, a hollow sphere having a single opening, and a solid sphere of a size adapted to fit into the central depression, and also pass through the opening in the sphere, substantially as described.

697,885. MEASURING INSTRUMENT. IRA B. HAGAN, North
Lanndon, Mo., assignor of three-fifths to Frederick W. Hagan and Cole-
man Hagan, North Lanndon, Mo.; Ira B. Hagan, Jr., Edward F. Hagan,
D. Page Hagan, and Percy M. Hagan and Lowella F. Crane, Crane,
Mo. Filed Aug. 18, 1901. Serial No. 72,157. (No model.)



Claim.—A measuring instrument, comprising a base-rule, a protractor-plate having at the lower end thereof a spirit-level carried longitudinally of the base-rule, a perpendicular rule, the lower end of which is slidably mounted on the base-rule, an angle-rule pivotally mounted on the lower end of the base-rule and movable over the protractor-plate, and an arm fastened rigidly to the protractor-plate and projecting outward from the base-rule and thence parallel therewith, for the purpose specified.

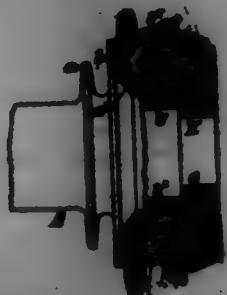
697,886. TOPOGRAPHIC. JESSE HANNEY, Austin, Tex. Filed June 20, 1891. Serial No. 61,340. (No model.)



Claim.—1. In a topographic, a substantially U-shaped body portion, triangular in cross-section, constructed of base and having an upper smooth scraping edge, and a series of bristles suitably connected to the lower surface of said body portion.

2. In a topographic, a body portion substantially triangular in cross-section, having an upper smooth scraping edge, a brushing means connected to the lower surface of said body portion, and a handle connected to each end of said body portion.

697,887. COASTED-BRAKE FOR VEHICLES. ROBERT E. KAHN, Philadelphia, Pa. Filed July 22, 1891. Serial No. 61,339. (No model.)



Claim.—1. The combination in a combined brake and clutch, of a driving member having oppositely-placed cam-surfaces, and a bearing-surface, a driven member having bearing-surfaces of which one is placed to cooperate with the bearing-surface of the driving member, a stationary member, a piece having a cam-surface directly operative upon one of the surfaces of the driving member and a second piece also having a cam-surface, the same being operative directly upon the second cam-surface of the driving member and on the same side thereof as the first piece, substantially as described.

2. The combination of a driving member having oppositely-placed cam-surfaces and a bearing-surface, a driven member, two bearing-surfaces of which one is placed to cooperate with the bearing-surface of the driving member, a fixed member and two rings having cam-surfaces placed to act directly upon the cam-surfaces of the driving member, one of said rings acting between the driving member and the driven member, the second ring being placed on the same side of said driving member as the first ring and acting between the driving member and the stationary member, substantially as described.

3. The combination of a driving member having oppositely-placed cam-surfaces at right angles to its axis and a bearing-surface, a driven member having two bearing-surfaces of which one is placed to cooperate with the bearing-surface of the driving member, a stationary member and two rings each provided with a cam-surface, substantially as described.

4. The combination of a sprocket-wheel having at one side a bearing-surface, a wheel-hub provided with bearing-surfaces of which one co-operates with the bearing-surface of the sprocket-wheel, a relatively stationary member, a series of oppositely-placed cam-surfaces upon the sprocket-wheel at right angles to the axis thereof, a ring having cam-surfaces constructed to act in connection with one series of cam-surfaces upon the sprocket-wheel whereby said wheel is moved longitudinally and is operatively coupled with the hub, said ring also bearing upon a second bearing-surface of the hub when the sprocket-wheel revolves at a higher rate of speed than that of said hub, together with a second ring also having cam-surfaces placed to coast with the second series of cam-surfaces on the sprocket-wheel to retard the motion of the hub when said sprocket-wheel is turned backward, substantially as described.

5. The combination of a sprocket-wheel having upon it two oppositely-placed series of cam-surfaces, two rings of a wedge-shaped section, each having cam-surfaces upon one edge and constructed to engage the cam-surfaces upon the sprocket-wheel, the hub having two inclined sur-

faces upon it, one placed to be engaged by one of the rings and the other placed to be engaged by the sprocket-wheel, and a relatively stationary piece also having an inclined surface placed to be engaged by the second ring, substantially as described.

6. The combination of a sprocket-wheel having two series of oppositely-placed cam-surfaces and a bearing-surface, two rings of a wedge-shaped section provided with cam-surfaces placed to correspond with the cam-surfaces of said wheel, a hub provided with two oppositely-inclined bearing-surfaces, and a relatively stationary piece, substantially as described.

7. The combination of a sprocket-wheel having upon it two oppositely-placed series of cam-surfaces, two concentric rings each having a cam-surface placed to cooperate with a surface of the sprocket-wheel, a hub provided with an inclined bearing-surface, an adjustable piece fixed thereto, a relatively stationary piece, the inner one of said rings acting to couple the hub to its sprocket, when said sprocket is revolved at a rate of speed higher than that of the hub, and the outer ring acting to free the stationary piece against the piece fixed to the hub when the sprocket is turned backward, substantially as described.

697,888. PROCESS OF UTILIZING WASTE-RUBBER GRAP. THOMAS HANSEN, Burlington, N. J., assignor to the Manufactured Rubber Company, Metuchen, N. J.; and Philadelphia, Pa., a Corporation of New Jersey. Filed May 8, 1891. Serial No. 61,338. (No specimens.)

Claim.—1. As a new article of manufacture, a composition of matter consisting of refuse rubber, gutta-percha, one or more of the natural soft rubber gums and an oil substance.

2. As a new article of manufacture, a composition of matter consisting of refuse rubber, gutta-percha, one or more of the natural soft rubber gums, and a filling material.

3. As a new article of manufacture, a composition of matter consisting of refuse rubber, gutta-percha, one or more of the natural soft rubber gums, an oil substance and a filling material.

4. As a new article of manufacture, a composition of matter comprising refuse rubber, paraffin, stearine and oil substance, in about the proportions named.

5. As a new article of manufacture, a composition of matter comprising refuse rubber, gutta-percha, one or more of the natural soft rubber gums, oil substance, and barytes, in about the proportions named.

6. The process herein described of utilizing refuse rubber, said process consisting in mixing the same in a finely-commingled state with gutta-percha preferably ground with the rubber, and a suitable quantity of oil substance, and then subjecting the entire mass to the action of steam under pressure.

7. The process herein described of utilizing refuse rubber, said process consisting in mixing said rubber with gutta-percha, one of the natural soft rubber gums, and an oil substance, reducing said mass to a finely-commingled state by grinding and then subjecting the ground material to the action of steam under pressure.

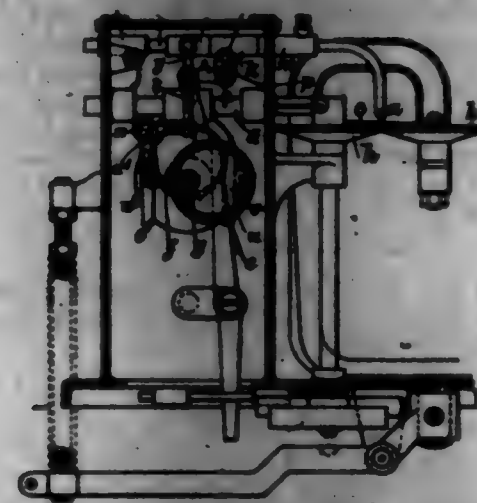
8. The process herein described of utilizing refuse rubber, said process consisting in mixing said rubber with gutta-percha, one of the natural soft rubber gums, an oil substance, and a filling material, reducing said mass to a finely-commingled state by grinding and then subjecting the ground material to the action of steam under pressure.

9. The process herein described of utilizing refuse rubber, said process consisting in mixing said rubber with gutta-percha, one of the natural soft rubber gums, an oil substance, and barytes in about the proportions named, reducing said mass to a finely-commingled state by grinding, and then subjecting the mass to the action of steam under pressure, substantially as described.

697,889. FUR AND GLOVE SEWING MACHINE. MORRIS HANSEN, London, England. Filed Aug. 21, 1891. Serial No. 72,991. (No model.)

Claim.—1. In a fur and glove sewing machine the combination with the looper-hook stem, of a bearing or support for the rear end thereof in which the looper-stem is fitted to slide, a transverse horizontal axis on which said bearing is mounted to revolve, the said bearing being adapted to permit both longitudinal reciprocating movement of the said stem and vibrating movement thereof about said axis, a bearing or support for the front end of the stem, said end being adapted to be incapable of longitudinal motion relatively thereto, and means for operating the looper-stem, comprising a radius arm or arms pivotally connected to said front bearing and adapted to receive angular motion about an axis transverse to the said stem, as so to thereby impart to said stem both longitudinal sliding motion and also vibrating motion in its vertical plane about the transverse axis at its rear end, and mechanism for imparting the said movement to the radius arm or arms, as specified.

2. In a fur and glove sewing machine, the combination with the looper-hook stem of a bearing or support for the rear end thereof, adapted to permit both longitudinal reciprocating movement of the said stem and vibrating movement thereof about a transverse horizontal axis situated at the said bearing, a front bearing or support for said stem as connected to said mass as to be incapable of longitudinal movement relatively thereto, and means for operating the looper-stem comprising a radius arm or arms in pivotal connection with said front bearing and adapted to receive angular motion about a transverse axis, an eccentric in the main shaft, and means intermediate thereof and of said radius arm or arms whereby the rotation of the eccentric is caused to impart vibrating movement in an arc to the said radius arm or arms, and thereby to impart combined longitudinal sliding and vibrating motion to the looper-stem, substantially as specified.



3. In a fur and glove sewing machine, the combination with the looper-hook stem as mounted as to be adapted to receive longitudinal reciprocating motion, vibrating motion about a transverse horizontal axis at its rear end, and rocking motion about its own longitudinal axis, of means for imparting the said reciprocating and vibrating motion to the looper-stem, and mechanism for imparting the rocking motion to the said stem about its own longitudinal axis, the said mechanism comprising a cam on the main shaft, a bell-crank lever having one arm engaged in the cam-groove and the other arm coupled to a laterally-projecting arm fixed on the looper-hook stem by an intermediate link and universal joints to permit of the relative movement of the parts, as described.

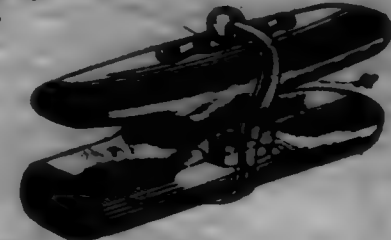
4. In a fur and glove sewing machine, the combination with the looper-hook stem, and a rear guide-bearing in which the looper-stem is fitted to slide, the said bearing being mounted to revolve on a transverse axis, of a front bearing through which the looper-stem passes, the front bearing being held against longitudinal movement on the stem, a transverse bearing carrying the front bearing, and means for operating the looper-stem, comprising a shaft mounted to rock, radius-arms carried by the rock-shaft and to which the said transverse bearing is pivotally connected, an eccentric on the main shaft of the machine, and a rod connecting the eccentric-rod with an arm on the rock-shaft, whereby the rotation of the eccentric will cause the radius-arms to impart to the looper-stem a longitudinal sliding movement and a vibrating movement in its longitudinal vertical plane, substantially as specified.

5. In a fur and glove sewing machine, the combination with the main shaft of the machine, the looper-hook stem, the bearings for the same, and means for imparting a longitudinal reciprocating motion and vibrating motion in a vertical plane to said looper-stem from the main shaft, of means for imparting a rocking motion to the looper-stem about its own longitudinal axis, the said means comprising a cam-disk revolving with the main shaft and provided with a groove, a bell-crank lever fulcrumed on a fixed point and having one arm provided with a roller engaging the groove of the cam, a collar fixed on the stem of the looper-hook and having a laterally-projecting arm, and a link connected by universal joints with the said laterally-projecting arm and the other arm of the bell-crank lever, substantially as described.

697,840. WHIFFLER-CHUYLER. FREDERICK H. HANSEN, and WILLIAM F. KELL, Mason, Ohio. Filed Feb. 4, 1892. Serial No. 61,336. (No model.)

Claim.—1. A whiffler-blending comprising a socket-plate fastened to the shaft or frame of a vehicle and provided with a recess in its rear edge, a plate secured to the under face of a singletree and having a projected portion which is received in said socket-plate, a leg-carrying plate secured to the upper surface of the singletree, and a spring-clip fastened at its lower end to the shaft or frame and having a socket member at its upper end adapted to spring over said leg on the upper surface

of the singletree, said clip adapted to engage in the recess in the edge of the socket-plate, as set forth.



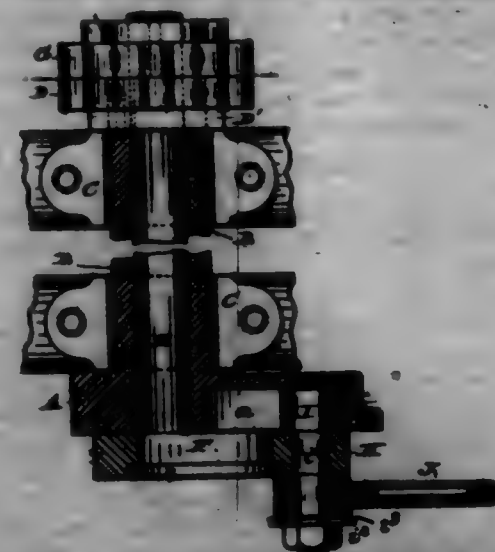
2. A fastening for singletrees comprising in combination with the shaft or frame, a socket-plate having a flange extending over one edge of the shaft, the outer face of said flange being recessed, a swivelled plate fastened to the under surface of the singletree and provided with a flanged edge extending about the edge of the singletree, a leg on said swivelled plate seated in said socket, a plate fastened to the upper face of the singletree and having a leg, a spring-clip fastened at its lower end to the under face, the upper end of said clip having a socket which is adapted to spring over the leg on the plate fastened to the upper face of the singletree, the stem of said clip adapted to rest in said recessed flange to hold same from lateral movement, as set forth.

697,841. WHEEL. ADAM L. HENRY, Hartford, Conn. Filed Sept. 17, 1890. Serial No. 59,200. (No model.)



Claim.—A wheel, comprising a rim, oppositely-disposed rim-flanges of angular cross-section connected to opposite edges of the inner periphery of said rim, flexible side walls connected to said rim-flanges, concentric hub-rings carried by each of said walls, one of said rings being internally threaded, and a hub passed through said rings and provided with an annular shoulder at one end and presented to the adjacent end of the hub and external screw-threads adjacent to its opposite end, said shoulder and screw-threads being adapted for engagement with the hub-rings.

697,842. MECHANICAL MOVEMENT. MORRIS HANSEN, London, E. I. Filed Aug. 21, 1891. Serial No. 72,990. (No model.)



Claim.—1. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, mechanism for revolving the crank-arm, and continuously-running power-driven mechanism for changing the position of the crank-pin provided with device for at times allowing the crank-pin to remain stationary and at times to move.

2. A mechanical movement comprising a crank-arm, a crank-pin moving radially with reference to the axis of rotation of the crank-arm, mechanism for revolving the crank-arm, and separate mechanism acting automatically at times on the crank-pin to move it radially on the crank-arm.

3. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, and mechanism for automatically controlling the relative movements of

the crank-pin and crank-arm to cause the crank-pin to describe arcs of different radii during a single revolution of the crank-arm and to repeat these movements during successive revolutions, substantially as described.

4. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, mechanism for automatically controlling the relative movements of the crank-pin and crank-arm to cause the crank-pin to describe one or more arcs and one or more straight paths during a single revolution of the crank-arm, and to repeat these movements during successive revolutions, substantially as described.

5. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, mechanism for rotating the crank-arm, device for temporarily stopping the revolution of the crank-arm, and mechanism for moving the crank-pin radially while the crank-arm is at rest.

6. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, means for intermittently rotating and stopping the crank-arm, and means for moving the crank-pin while the crank-arm is stationary.

7. The combination of a crank-arm, a shaft on which it is mounted, power-driven mechanism for driving said shaft, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, a shaft connected with the crank-pin, separate power-driven mechanism operating said last-mentioned shaft, and device for automatically starting and stopping the rotation of said crank-pin-operating shaft.

8. The combination of a crank-arm, a shaft on which it is mounted, a crank-pin mounted radially with reference to the axis of rotation of the crank-arm, an eccentric connected with the crank-pin, a shaft to which the eccentric is secured, gearing for operating the crank-shaft, power-driven gearing for operating the eccentric-shaft, and device for automatically starting and stopping the rotation of said eccentric-shaft.

9. The combination of a crank-arm, a drive-shaft to which it is secured, a pinion on said shaft, a crank-pin movable radially in guides on the crank-arm, an eccentric, an eccentric-rod connected with the crank-pin, a shaft to which the eccentric is secured, a pinion on said shaft, power-driven mechanism connected with the pinion of the crank-operating shaft, and power-driven mechanism connected with the pinion of the eccentric-shaft provided with device for at times moving said eccentric-shaft, and at times holding it stationary.

10. A mechanical movement comprising a crank-arm, a crank-pin moving radially with reference to the axis of rotation of the crank-arm, means for driving the crank-arm, and mutilated gearing for operating the crank.

11. A mechanical movement comprising a crank-arm, a crank-pin movable radially with reference to the axis of rotation of the crank-arm, mutilated gearing for driving the crank-arm, and mutilated gearing for operating the crank-pin.

12. The combination of a crank-arm, a shaft from which it projects laterally, a crank-pin extending into a radial groove in said arm, an eccentric-ring to which the crank-pin is attached, an eccentric operating said ring, a shaft to which said eccentric is secured, pinions secured to said shaft, and mutilated gearing driving said pinions.

697,848. FEED AND WATER DEVICE FOR CHICKENS. GEORGE C. LATIMER, Washington, D. C. Filed July 14, 1901. Serial No. 69,472. (No model.)



Claim.—1. A feed and water device for poultry consisting of a pan or basin and a conical body or cover having a plurality of corrugated continuous troughs each of which increases in width and in depth toward the base and terminates in an open end.

2. A feeding and watering device for poultry consisting of vertically-inclined corrugated walls forming contiguous and continuous troughs open at their lower ends, and a pan or basin the rim of which forms a seat for the lower ends of the troughs.

3. In a feeding and watering device for poultry, the combination with a corrugated device forming a plurality of vertically-inclined contiguous and continuous troughs open at their lower ends, a pan or basin the rim of which forms a seat for the lower ends of the troughs, and hooks on the outer ridges of the corrugations adapted to detachably engage the edge of the basin to hold the separate trough part in proper relation thereto.

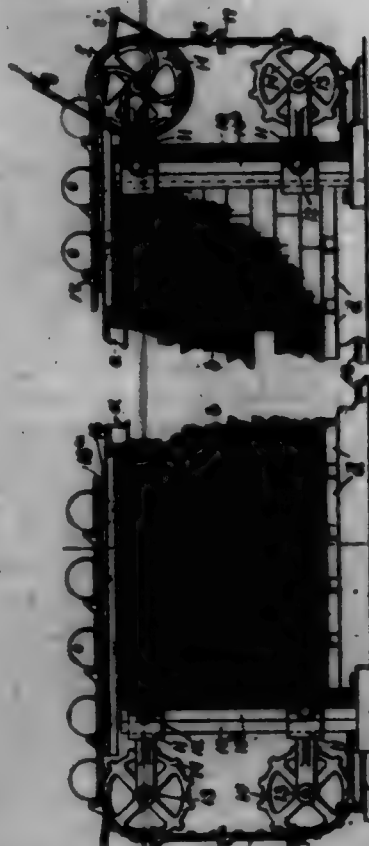
697,844. EYELET. FRANK J. LEMOND, Knoxville, Tenn. Filed June 12, 1901. Serial No. 69,399. (No model.)



Claim.—1. A belt-eyelet, comprising two members each having an oblong hollow undivided shank and a head, the head being in the form of a flange extending outwardly and curved inwardly, the edges of the flanges being serrated, one of the shanks being provided with a plurality of shoulders on each side and the other with a tongue on each side adapted to spring into engagement with the shoulders, as set forth.

2. A belt-eyelet, comprising two members, each having an oblong hollow undivided shank and a head, one of the shanks being of yielding material and provided with a rigid tongue on each side and the other with a plurality of shoulders on each side, whereby the opposing sides of the shank carrying the tongues will spring inward toward each other when the said shank is forced into the other shank to allow the passage of said tongues and permit them to snap into engagement with the shoulders with which they will be held in engagement by the elasticity of the sides of the shank, as set forth.

697,845. SOLDERING-MACHINE. JAMES M. E. LORSON and FRANK W. BOWEN, Vancouver, Canada. Filed Mar. 9, 1901. Serial No. 69,473. (No model.)



Claim.—1. In a machine of the class described in combination; two rectangular pillars vertically arranged at opposite ends of a solder-bath, having an angled cam-railway thereover; right-angled brackets having rectangular openings to receive said pillars, and means for fixing each bracket at the desired elevation; wheels mounted on the brackets, and a sprocket-chain having laterally-projecting fingers thereon, taking therearound; a support-plate having a channel for the chain integral with the cam-railway, and means for imparting movement to the wheels carrying the chain.

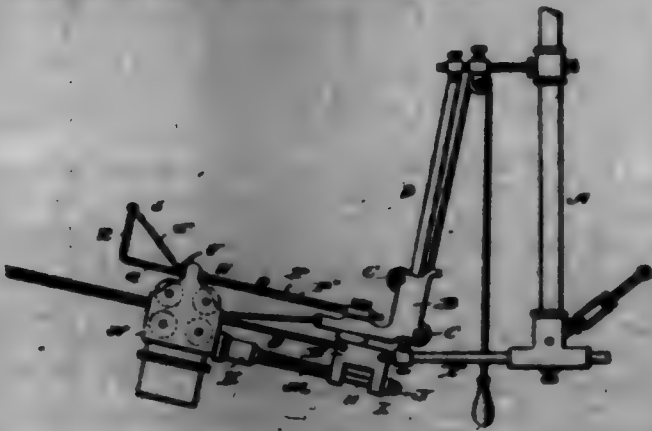
2. A machine for the purposes described, comprising in combination, a furnace, a solder-bath, extending lengthwise and over the top thereof, pillars at each end of the furnace; upper and lower brackets vertically adjustable on the pillars, chain-wheels mounted on said brackets, an endless chain taking around the several chain-wheels, to pass under the furnace and over the top thereof, a cam-railway on the top of the furnace having an inclined portion extended over the solder-bath, said chain having laterally-projecting fingers to engage the cam, all being arranged substantially as shown and for the purposes described.

697,846. ENGINE. WILLIAM B. LEMMON, Piedmont, S. D., assignor of four-tenths to George C. Hunt, Rapid City, S. D., and Glad Olson Lyng, Christopher Derbyshire Hooper, and Michael James Gillman, Piedmont, S. D. Filed June 7, 1901. Serial No. 69,471. (No model.)

Claim.—An engine, comprising a cylinder having an inwardly-disposed web-like portion, a shaft running centrally through the cylinder, a piston fastened to the shaft at each side of said web-like portion of the cylinder and having web-like portions lying alongside of the web-like portion of the cylinder, all of each web-like portion having registering annular or tubular steam-passages with V-shaped ribs or vanes therein, said vanes being set oppositely in each of said web-like portions, and means for conducting the motive fluid to and from the said steam-passages.



697,847. CASH-CARRIER. DAVID LEVY, Mansfield, Ohio, assignor to the Mansfield Cash and Package Carrier Co., Mansfield, Ohio. Filed Dec. 24, 1901. Serial No. 57,671. (No model.)



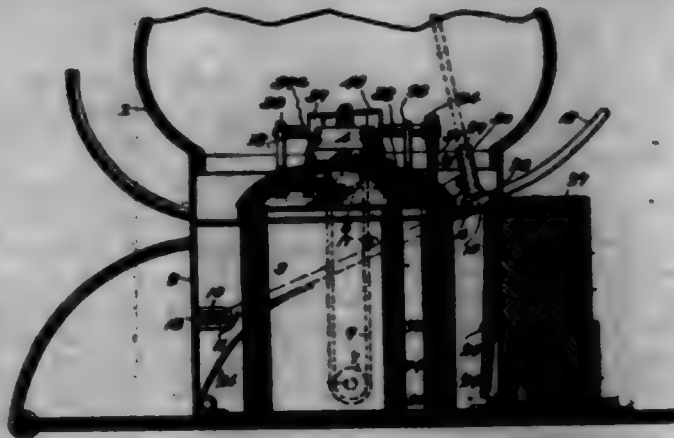
Claim.—1. In a store-service apparatus, the combination of the hangers or brackets, the upper spring-bulb, the lower track-wire, and the foot, of the bifurcated clip hinged to said foot and holding one end of the lower track-wire, a spring buffer-bar guided in said clip, the inclined rod, the case mounted to slide thereon, and to rest normally on said clip, and the upper track-wire secured to said case, substantially as described.

2. In a store-service apparatus, the combination of the hanger or bracket, the upper spring-bulb, the lower track-wire, and the foot, of the bifurcated clip hinged to said foot and holding one end of the lower track-wire, a spring buffer-bar guided in said clip, the inclined rod, the case mounted to slide thereon and to rest normally on said case, the upper track-wire secured to said case, and a car-retainer, a latch thereon, and cushioning-springs, all substantially as shown and described.

3. In a store-service apparatus, the combination of the hanger or bracket, the upper spring-bulb, the lower track-wire and the foot, of

the bifurcated clip hinged to said foot and holding one end of the lower track-wire, a spring buffer-bar guided in said clip, the inclined rod, the case mounted to slide thereon and to rest normally on said clip, the upper track-wire secured to said case, a car-retainer, a latch thereon, cushioning-springs, and stops carried by said latch, all substantially as described.

697,848. RAILROAD-LANTERN. EDWIN LOVE and WILLIAM RAY, Panama, Mo. Filed July 8, 1901. Serial No. 57,499. (No model.)



Claim.—1. In a lantern, the combination of a revolvable match-magazine having a ratchet-wheel, a spring-dog engaging said ratchet-wheel, a wick-ruler, a lever to operate said dog and said wick-ruler, a match guide and igniter, and means, carried by said lever to feed the matches successively from said magazine to said match guide and igniter, substantially as described.

2. In a lantern, the combination of a revolvable match-magazine, having a ratchet-wheel, a bowed spring-dog fast at one end, adapted to lengthen to engage and rotate said ratchet-wheel and said magazine by a step-by-step movement, a lever to operate said spring-dog, a match guide and igniter and means carried by said lever to feed the matches successively from said magazine to said match guide and igniter, substantially as described.

3. The combination of a revolvable match-magazine having a series of peripheral match-retaining pockets and springs to displace the lower ends of the matches outwardly from said pockets, a match guide and igniter and a lever having an engaging finger to successively engage the lower displaced ends of the matches and feed the latter successively from said magazine to said match guide and igniter, substantially as described.

4. The combination with a burner, of a wick-ruler, a pivotally-supported match-igniter, a match-magazine and means to simultaneously feed a match from the magazine to the igniter, and operate the wick-ruler, substantially as described.

5. The combination with a burner, of a wick-ruler, a pivotally-supported match-igniter, a match-magazine means effective when moved in one direction to simultaneously feed a match from the magazine to the igniter, and operate the wick-ruler, and a snuffer, operated by the initial movement of the wick-ruler-operating means, to trim the wick, and moved by the reverse movement of said wick-ruler-operating means, clear of the wick, substantially as described.

6. The combination with a lantern, of a tubular match guide and igniter pivotally mounted, a match-holder and means to feed a match therefrom to said match guide and igniter, the latter being arranged to topple to one side by the leverage of the match, to apply the match to the wick, substantially as described.

7. The combination with a burner, of a tubular match guide and igniter pivotally mounted, and means to feed a match, longitudinally into and partly through said match guide and igniter, whereby the match will be ignited, and whereby the leverage of the match will cause the match guide and igniter to topple to one side to apply the ignited match to the wick, substantially as described.

8. The combination with the lantern of a match guide and igniter mounted for axial movement, and means to feed a match thereto, said match guide and igniter being adapted to topple to one side by the leverage of the match to displace the latter across the wick, substantially as described.

9. The combination of a revolvable match-magazine having peripheral match-receiving pockets, a fixed match-retainer, in which said magazine rotates, said retainer having an opening in one side, springs to displace the lower ends of the matches outwardly from said pockets, through said opening, a lever having means to engage the lower ends of the matches successively as they are presented to said opening, and cause the matches from said magazine, and means operated by said lever to rotate said magazine by a step-by-step movement, substantially as described.

10. The combination of a reversely-threaded screw-shaft, screw-arms thereon, engaged thereby and movable by said screw-shaft toward and from each other, a rod connecting said screw-arms and on which rod said screw-arms play, a spring mounted at a fixed point and having its free end attached to said rod, and means to rotate said screw-shaft, in reverse directions alternately, substantially as described.

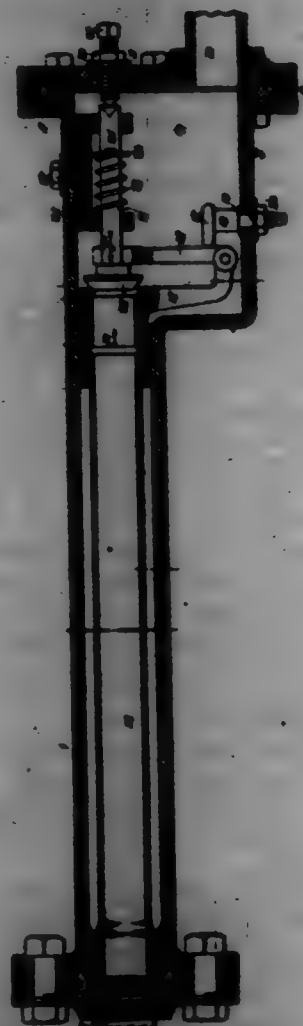
11. In a lantern, the combination of a screw-shaft, a screw-armed thereby, a spring connected to the screw-armed to normally depress the latter, a lever connection between the latter and said screw-shaft to rotate said screw-shaft in reverse directions alternately, a match guide and igniter, and means, operated by said lever, to feed a match to said match guide and igniter, substantially as described.

12. The combination of a burner, a wick-raiser, a match guide and igniter pivotally mounted for oscillatory movement, and means to operate said wick-raiser, and to feed a match to said match guide and igniter, substantially as described.

13. The combination of a burner, a wick-raiser, a match guide and igniter, a lever, and means connected thereto, to operate said wick-raiser and feed a match to said match guide and igniter, substantially as described.

14. The combination of a burner, a wick-raiser, a match guide and igniter, a match-magazine, a lever and means, connected to said lever, to operate said wick-raiser and feed a match from said magazine to said match guide and igniter, substantially as described.

697,849. STEAM-TRAP. GEORGE HAPPEL, Philadelphia, Pa., assignor to James Smith and Company, Incorporated, Charleston, W. Va., a Corporation of West Virginia. Filed Feb. 7, 1901. Serial No. 66,488 (No model.)

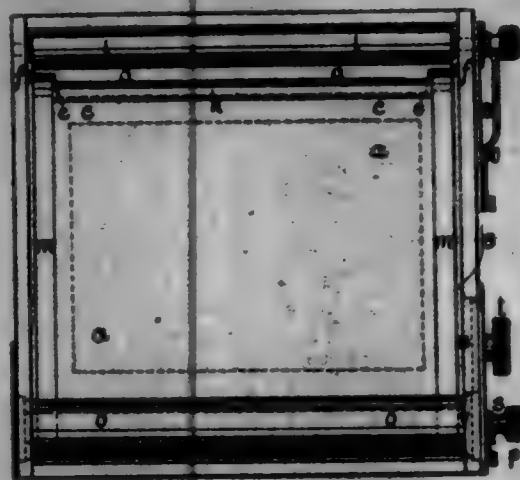


Claim.—1. A steam-trap in which are combined a steam-tight casing, having an outlet therefrom, an expansion-tube contained entirely within said casing and having a valve-seat at its free end, a valve adapted to said seat, a rod connecting said valve and casing, whereby the admission of steam into the space between the two is prevented, and lever mechanism interposed between the expansion-tube and the valve, also contained within the casing, and serving to transmit movement from the tube to the valve, substantially as described.

2. A steam-trap in which are combined a casing, an expansion-tube contained therein and having a valve-seat at its free end, a valve adapted to said seat, a lever interposed between the expansion-tube and the valve, and a stud rotatably mounted on the casing of the trap and having an eccentric head serving as a fulcrum for said lever, substantially as specified.

3. A steam-trap in which are combined a steam-tight casing, an expansion-tube contained therein, and having a valve-seat at its free end, a valve adapted to said seat, a lever interposed between the expansion-tube and said valve and also combined within the casing, and a rod-crow for limiting the opening movement of the valve, substantially as specified.

697,850. FOCAL-PLANE SHUTTER. LEONARD MONETTI, Turin, Italy, assignor to the Thompson Patent Manufacturing Company, Limited, Altrincham, England. Filed Sept. 12, 1901. Serial No. 75,214 (No model.)



Claim.—1. In a focal-plane shutter for photographic purposes, the combination with the roller *f* a blind in two parts with a slit between and bands *m* attached to one part of the blind, and passing through eyes in the other part to connect the two, of an inner roller to which the part *c* of the blind and the bands *m* are attached and wound thereon in opposite directions, mechanism for rotating the inner roller, and an outer roller with a slit through which the blind and bands pass to the inner one, and upon the periphery of which the blind and bands are wound in the same direction substantially as described.

2. A focal-plane shutter for photographic purposes comprising in its construction a blind in two parts *c* and *b*, and bands *m* attached to the part *c* passing through eyes *f* in the part *b*, a roller *g* to which the part *b* of the blind is attached, an inner roller *g* to which the part *c* of the blind and the bands *m* are attached and wound in opposite directions, mechanism to rotate the roller *g*, an outer driving-roller *e* upon the periphery of which the blind and bands are wound, and a driving-spring *2* to actuate the roller *e* in one direction when released, all arranged substantially as described.

3. A focal-plane shutter for photographic purposes comprising in its construction a blind in two parts *c* and *b*, and bands *m* attached to the part *c* passing through eyes *f* in the part *b*, a roller *g* to which the part *b* of the blind is attached, an inner roller *g* to which the part *c* of the blind and the bands *m* are attached and wound in opposite directions, a knob *l* and pinions *u* to rotate the roller *g*, an outer driving-roller *e* upon the periphery of which the blind and bands are wound, and a driving-spring *2* to actuate the roller *e* in one direction when released arranged substantially as described.

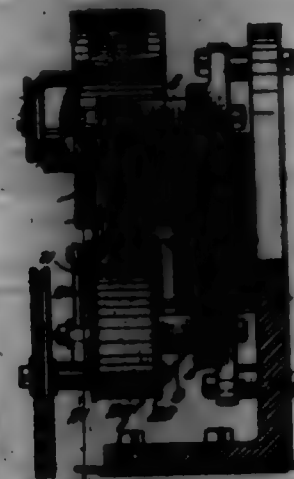
4. In a focal-plane shutter for photographic purposes the combination with the roller *g*, means to hold and release the roller, the blind in two parts *c* and *b* and bands *m* to connect the two parts of the blind and provided with a slit *c* between them, of the inner roller *g* to which the part *c* of the blind and the bands *m* are both attached but wound in opposite directions, the knob *l* and wheels *u* to rotate the roller *g*, the outer roller *e* with slit *p* around which the blind and bands are wound in the same direction, and the driving-spring *2* attached to the outer roller *e* to operate it substantially as described.

697,851. OIL-SEPARATOR. JAMES H. MCCLAVE, FRANK H. ELLIOT, and BENNETT E. CHASE, Denver, Colo. Filed May 14, 1901. Serial No. 59,806. (No model.)

Claim.—1. An electromagnetic oil-separator, comprising opposite electromagnets, a drum of non-magnetic material movable between the poles of the magnets, projecting pole-pieces on one of the magnets, a carrier movable over the lower magnet, a hopper adjacent to and discharging directly into said carrier, and bands of magnetic material supported on the drum, substantially as specified.

2. An electromagnetic oil-separator, comprising electromagnets of opposite polarity, a drum of non-magnetic material movable between the poles of the magnets, pole-pieces attached to one of the electromagnets and having ends extended in the direction of rotation of the drum, bands of magnetic material surrounding the drum, and a carrier movable be-

tween the magnets, the said carrier being adjustable as to pitch, substantially as specified.



3. An electromagnetic oil-separator, comprising electromagnets of opposite polarity, a revolving drum movable between the poles of the magnets, one of said magnets being arranged within said drum, a series of shoes or pole-pieces attached to said magnet within the drum and having their ends extended beyond the magnet in the direction of rotation of the drum, bands of magnetic material surrounding the drum, a carrier-belt movable between the drum and the lower electromagnet and a driving frame on which the belt is mounted, substantially as specified.

4. An electromagnetic oil-separator, comprising opposite pole electromagnets, a drum mounted to rotate and within which one of the poles of the magnet is located, the said drum having peripheral channels, bands of magnetic material nested in said channels, a driving frame, a driving-pulley carried by said frame, rollers on the frame, an endless band passing around said rollers and movable between the electromagnets, and a hopper for discharging material onto said band, substantially as specified.

697,852. BOW-BOTTLE. JAMES W. MCCHESNEY, Lexington, Mass. Filed Oct. 30, 1901. Serial No. 66,412. (No model.)



Claim.—1. The combination with a bottle having a short neck and a neck mainly rectangular in cross-section curving on said neck, of a bottle-plate device insertible in the rectangular part of the neck, and a locking device comprising opposite catches in the neck and short neck, and pins seated on springs in the catches in the neck, adapted to enter the catches in the neck when said neck is curved fully on the neck.

2. The combination with a bottle having a short neck, a rounded nipple extended from the neck, and a partly-rectangular neck threaded at one end and curving on the nipple, of a pin-and-catch device for holding the neck on the nipple when the neck is in place, a circular-edged valve adapted to seat on the nipple, a non-removable weight flexibly connected with the valve, said connection passing through a guide-bar, and an insertible slapping-passing device held in the angular portion of the neck.

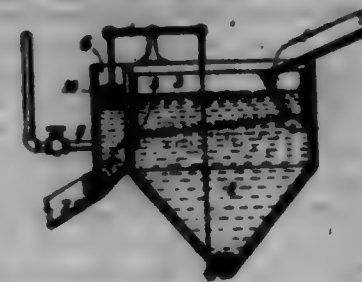
3. The combination with a neck cylindrical formed at its discharging end, threaded internally at the opposite end and rectangular in cross-section between said ends, of two bottle-plates having angular wings projected in the neck-here as to provide a slapping passage therethrough, and means for holding said plates opposite each other and for preventing their displacement.

4. The combination with a bottle, a short neck thereon having an externally-threaded nipple at its upper end of reduced diameter, providing an annular shoulder outside of the nipple, of a neck internally threaded to screw on the nipple, a pin-like joint-rod between the shoulder on the neck and the end of the nipple, the nipple and engaged end of the neck having catches that may be closed with each other, and spring pressed pins in the catches in the neck, that will enter the catches in the nipple when the neck is seated on the washer.

5. The combination with a bottle, a short neck thereon, and a nipple on the neck, of a valve seating on the nipple, a guide-bar supported centrally in the nipple, a flexible connection extended from the valve through the guide-bar, a weight-block on the lower end of the flexible connection

and a check-bar loosely secured between its ends to the lower end of the weight-block, the ends of the check-bar having engagement with recesses in the bottle-neck.

697,853. APPARATUS FOR SCREENING CROUCHING GRASS OR OTHER MATERIALS. WALTER McDONNELL, London, England. Filed Mar. 22, 1901. Serial No. 66,564. (No model.)



Claim.—1. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-passage on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank, so as to prevent interflow, a discharge for the water-chamber, a separate discharge in the main tank for the slimes and water which have passed through the screen, and means for feeding the material under treatment into the chamber above the screen and for causing it to move thereon.

2. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-passage on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank, so as to prevent interflow, a discharge for the water-chamber, a separate discharge in the main tank for the slimes and water which have passed through the screen, means for feeding the material under treatment into the chamber above the screen and for causing it to move thereon, and means for automatically discharging the slimes from beneath the screen.

3. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-passage on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank so as to prevent interflow, a discharge for the water-chamber, a separate discharge in the main tank for the slimes and water which have passed through the screen, means for feeding the material under treatment into the chamber above the screen and for causing it to move thereon, a float in the water-compartment, a valve on the slime-discharge valve in the main tank and connection between the float and valve for automatically regulating the discharge of slimes.

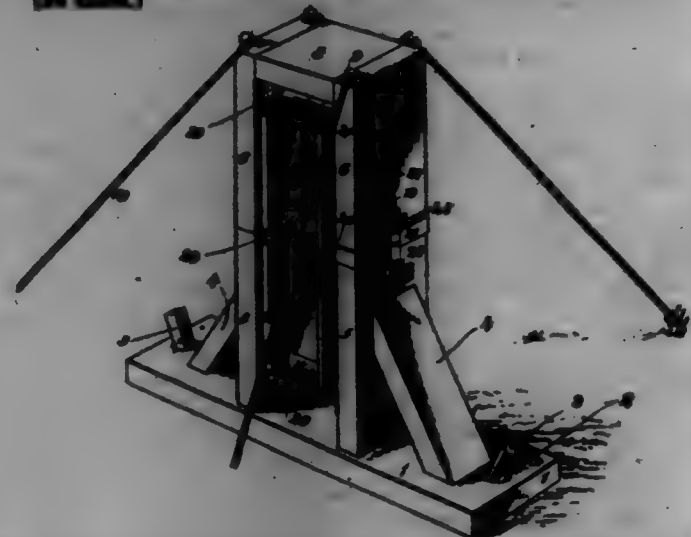
4. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-passage on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank so as to prevent interflow, a discharge for the water-chamber a separate discharge in the main tank for the slimes and water which have passed through the screen, means for feeding the material under treatment into the chamber above the screen, a closed compartment communicating with the chamber beneath the screen and a plunger so working in said compartment as to impart a pulsating movement to the water through the screen.

5. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-passage on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank so as to prevent interflow, a discharge for the water-chamber, a separate discharge in the main tank for the slimes and water which have passed through the screen and means for feeding the material under treatment into the chamber above the screen, a closed compartment communicating with the chamber beneath the screen and a plunger so working in said compartment as to im-

part a pulsating movement to the water through the screen, and means for automatically discharging the slime which have passed through the screen.

6. In a screening device, a main tank subdivided into reception and discharge chambers separated by a screen, the chamber below the screen being closed against inflow of water except through the screen, the upper chamber being provided with a restricted discharge-plunge on a level with the upper surface of the screen and leading into a water-chamber, a water-supply for said water-chamber adapted to maintain a head of water therein substantially the same as that in the main tank so as to prevent interflow, a discharge for the water-chamber, a separate discharge in the main tank for the slime and water that have passed through the screen and means for feeding the material under treatment into the chamber above the screen, a second compartment communicating with the chamber beneath the screen and a plunger or working in said compartment so as to impart a pulsating movement to the water through the screen, a float in the water-compartment, a valve in the slime-discharge in the main tank and connections between the float and valve for automatically regulating the discharge of slime.

697,854. BELT-GUIDE. CHARLES McKIM, WILLIAM RAYNE, and WILLIAM RAYNE, White, N. H. Filed Aug. 14, 1901. Serial No. 71,302. (No model.)



Claim.—1. A belt-guide, comprising a frame provided with a belt receiving aperture and separable into two members flexibly connected together, each of said members being provided with rollers disposed at different angles relatively to each other, for the purpose of engaging independent surfaces of the belt.

2. A belt-guide, comprising a frame made of substantially U-shaped members hinged together, a clasp for rigidly securing said members in the general shape of a rectangle, and an idle roller disposed directly across said rectangle so as to separate the same into compartments.

697,855. FOLDING CRATE. AUGUST J. KELT, Memphis, Tenn. Filed Aug. 14, 1901. Serial No. 71,307. (No model.)

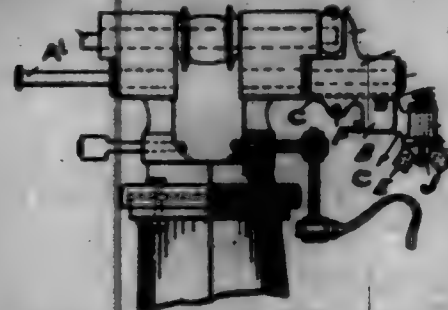


Claim.—1. In a folding crate a rectangular bottom wall, a like top wall, two side walls each formed of two sections hinged together, hinges connecting edges of the side walls with edges of the top wall, two end walls hinged at lower edges on projections from the bottom wall at opposite edges said end walls being adapted to hold the side walls from flexure at their hinges, a rear-chest loosely mounted on the top wall, arms on the rear-chest which may be reared toward the bottom wall and be secured thereto, and bracer-rods on said chest that may engage lower sides of the end walls to hold them erect.

2. In a folding crate, a rectangular bottom wall, a similar top wall, two side ledges thereon, two end ledges, two side walls each comprising two half-sections, hinged together, spring-hinges connecting the lower edges of the side walls with corresponding ledges on the bottom wall,

spring-hinges connecting the upper edges of the side walls with corresponding edges of the top wall, and walls, spring-hinges connecting the lower edges of said end walls with the corresponding ledges on the bottom wall, the end walls working between the side walls so as to keep the side walls erect, a rear-chest on the top wall having depending two bracer-rods, and two depending arms terminating in hooks, staples on the end walls or ledges and hinged thereto, said staples receiving the hooks when the crate is completely folded, and the bracer-rods which are spread from the arms extending therewith to hold the end walls erected.

697,856. EDGE-SETTING MACHINE. HENRY A. OLSENHAW, Leicester, England. Filed Nov. 14, 1902. Serial No. 34,702. (No model.)



Claim.—In a machine of the character specified a tool-holder comprising a body in which is fixed a screw in screw-threaded and projecting beyond said body so as to be locked by two nuts, said screw carrying tool-holder arms; a two-diameter spindle fitting within said screw and carrying bolts or catches which under the influence of an open spring on the narrower portion of said spindle engage close out end opposite to each other in the rim of the tool-holder body, said body having a locking-ring fitting within legs of a vibrating lever, substantially as described and set forth.

697,857. FENCE-MACHINE. LEO R. FRANK and JOHN W. GARDNER, Kankakee, Ill., assignors of one-third to WILLIAM A. FRANK, Kankakee, Ill. Filed Oct. 28, 1901. Serial No. 34,698. (No model.)



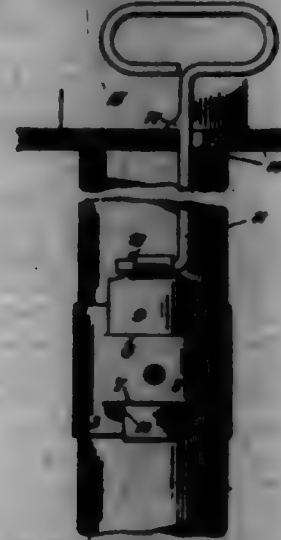
Claim.—1. In a fence-machine, the combination of the traveling frame, a series of twisting-rollers mounted in said frame, a series of dogs or pawls engaging said twisting-rollers, mechanism for operating said dogs or pawls to turn the rollers, and means for holding the dogs out of operation.

2. In a fence-machine, the combination of a rectangular traveling frame having hark to receive the horizontal wires and the stay-wires, the ratchet-wheel mounted in said frame and having hark to receive the stay-wires, the links carrying the pawls or dogs engaging the ratchet-wheel, the dogs and connecting said links to move simultaneously, and the handle for moving the rod to operate the links to engage and move the ratchet-wheel through the medium of the pawls or dogs.

3. In a fence-machine, the combination of a traveling frame, the horizontal mounting thereon, the ratchet-wheel carried by said mounting, the pawls or dogs having one end engaging the ratchet-wheel and having the other end extended, the pivoted rod having the arms for engaging said extended ends to hold the pawls out of operation, the mechanism for reciprocating said pawls or dogs when engaging the ratchet-wheel, and the detaching-pawl engaging the ratchet-wheel to prevent turning of said wheel.

697,858. VENT-GLASS VALVE FOR PUMPS. JOHN E. FRYMAN, Kansas, Mo. Filed Oct. 5, 1901. Serial No. 71,314. (No model.)

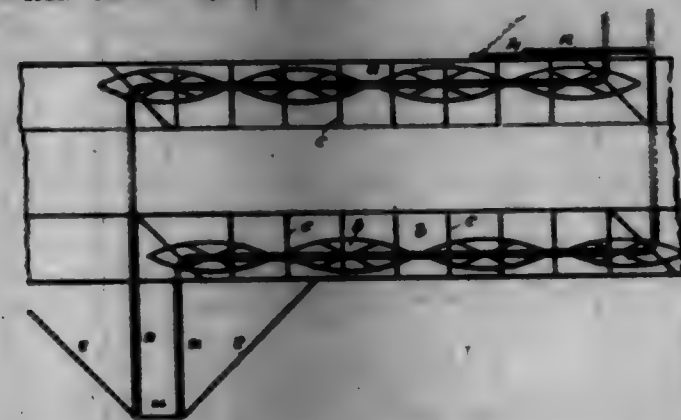
Claim.—1. A vent-closing valve, comprising a clamping-strip having a struck-up portion provided with an aperture, and a slide mounted between said struck-up portion and the body of the strip and having an aperture therein.



2. A vent-closing valve, comprising a clamping-strip having a struck-up portion provided with an aperture, and a slide mounted between said struck-up portion and the body of the strip, said slide having an aperture therein and provided with a stop.

3. A vent-closing valve comprising a tilted clamping-strip having an apertured offset portion forming a guide, an apertured packing held in the space formed by said offset, and a slide movable in the guide formed by the offset and adapted to traverse the aperture in the packing and the strip.

697,859. APPARATUS FOR LAUNCHING LIFE-BOATS FROM SHIPS. CHRISTIAN F. FRIEDMAN, Wilmington, Del. Filed June 11, 1901. Serial No. 64,678. (No model.)



Claim.—1. In boat-launching apparatus, the combination of a permanent overhead track with support, a swinging combination of arms with stay and guys, a truck as a means of transporting boats from the permanent track to the end of the swinging track, the truck having sheaves, a girth embracing the boat and meeting at a point above the boat, two thinblades, a link passing through said thinblades, launching-ropes fastened to said link passing over the sheaves of the truck, a boat having sheaves located at the bottom of the boat and over which the launching-ropes pass, and a brake controlling the position of the rope and thereby the position of the boat relatively to the truck.

2. In boat-launching apparatus, the combination of a permanent overhead track carrying a number of boats ready for launching, the truck having a swinging combination, said boats having eyes at the bow, and clips on the deck of the ship, the boats being kept from moving by a rope-lashing through said eyes and clips.

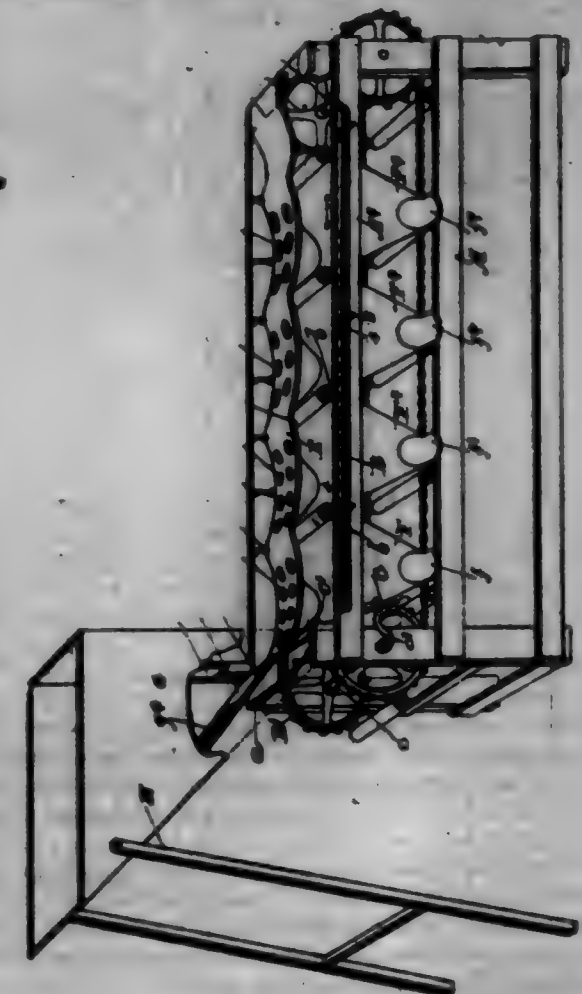
3. In boat-launching apparatus, the combination of a permanent overhead track, a swinging truck or beam having a depression at the end to prevent the truck going back when the ship rolls, a top stay supporting the beam, a hinge-joint between permanent and swinging beams, a strap at the end of the permanent beam supporting the end of the swinging truck, and side guys for regulating the angle of the swinging truck and for steadying the same.

4. In boat-launching apparatus, the combination of a permanent track, a swinging truck, a truck resting on the same and carrying boats suspended by hangers, said ropes fastened to the boats by a notch in the stem and stem, guided by blocks forming open eyes at the sides of the beam, whereby the hangers can easily be dropped when not wanted and securely holding the boat when the latter is resting in the hanger.

5. In a boat hoisting and conveying apparatus, a track, a pair of

beams one located at each end of the track, a pin supporting the beams, and means for swinging the beams to any position relative to the track, stays for guiding and supporting said beams, a truck adapted to run over said track and out on said beams, a pair of sheaves carried by said truck, ropes passing over said sheaves, girths fastened to said ropes, and a boat having hooks and notches for holding and fastening said girths, whereby the boat may be pushed out and dropped or lowered.

697,860. FRUIT-GRADING MACHINE. ANDREW E. PETER, Grimsby, Canada. Filed Nov. 27, 1901. Serial No. 65,004. (No model.)



Claim.—1. A fruit-grading machine comprising a horizontal apron suitably supported and having a series of openings of graded size, cross-rollers beneath said apron, and means whereby said cross-rollers frictionally rotate by the apron so as to cause them to travel continuously and successively the full length of the apron and in contact with the under surface thereof and with the fruit in the openings, substantially as described.

2. A fruit-grading machine comprising a stationary apron held in a suitable frame and having a series of sections of openings of graded size and a series of rollers suitably supported and frictionally contacting with the belt whereby they are rotated in opposite directions to that in which they are carried longitudinally so as and for the purpose specified.

3. The combination with the stationary apron suitably held at the end on the frame of the machine and provided with a series of sections of openings of graded size extending crosswise of the apron, of the endless chains provided with suitable bearings and rollers journaled in each bearing and designed to come in frictional contact with the apron, so as to cause them to rotate in the opposite direction to that in which the rollers are carried longitudinally so as and for the purpose specified.

4. The combination with the stationary apron suitably held at the end on the frame of the machine and provided with a series of sections of openings of graded size extending crosswise of the apron, of the endless chains provided with suitable bearings and rollers journaled in each bearing and designed to come in frictional contact with the apron, so as to cause them to rotate in the opposite direction to that in which the rollers are carried longitudinally and rollers for supporting the upper portion of the chain immediately underneath the apron so as and for the purpose specified.

5. The combination with the stationary apron suitably held at the end on the frame of the machine and provided with a series of sections of openings of graded size extending crosswise of the apron, of the endless chains provided with suitable bearings and rollers journaled in each bearing and designed to come in frictional contact with the apron, so as to cause them to rotate in the opposite direction to that in which the rollers

are carried longitudinally and a feed-hopper provided with an adjustable slide immediately above the feed end of the apron and a slatted feed-board whereby the surplus dirt is removed as and for the purpose specified.

6. The combination with the stationary apron suitably held at the end on the frame of the machine and provided with a series of motions of openings of graded size extending crosswise of the apron, of the endless chains provided with suitable bearings and rollers journaled in such bearings and designed to come in frictional contact with the apron, as to cause them to rotate in the opposite direction to that in which the rollers are carried longitudinally and the bias or hopper extending underneath each section of openings comprising the different grades, each bias being suitably padded as and for the purpose specified.

697,861. HANTLE FOR INCANDESCENT BURNERS. BARRY J. PHILLIPS, New York, N. Y., and VERNER H. SHANK, Philadelphia, Pa. Original application filed Oct. 12, 1900, Serial No. 698,397. Divided and this application filed July 23, 1901. Serial No. 69,268. (No model.)



Claim.—1. An incandescent element for a light consisting of a ring or eyelet, and a sheet of incandescent fabric or material surrounding the exterior of the ring and having its edges overlapped to form a tube, and a cord or wire for securing the sheet to place on the ring, substantially as described.

2. An incandescent element for gas-light consisting of a ring or eyelet and a sheet of incandescent fabric or material surrounding the exterior of the ring and having its edges overlapped to form a tube, a cord or wire for securing the sheet to place on the ring, and a ball attached to said cord or wire, substantially as described.

697,862. LIFE-PRESERVER. HENRY FAY, Montreal, Canada, assignor to Henry Fay, Ltd., Montreal, Province of Quebec, Canada. Filed July 1, 1901. Serial No. 69,269. (No model.)



Claim.—1. In an instantaneous inflating device for life-boats and the like, the combination with a collapsible bag, of a gas-generating auxiliary casing having a hopper with an inner receptacle designed to hold one of the constituents of a chemical gas, and a passage-way leading outside the bag, means for retaining one of said contents in the said inner receptacle, and for releasing the same, and suitable connections to the bag to be inflated, as and for the purpose specified.

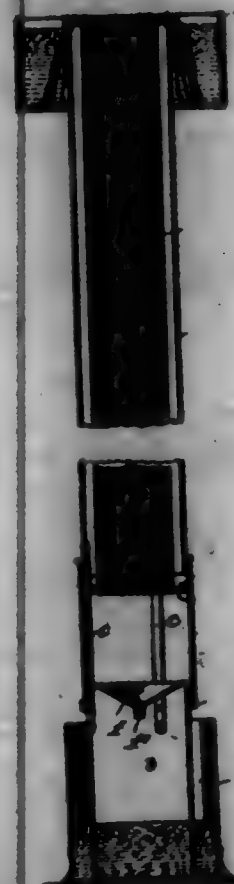
2. The combination with a collapsible bag of an auxiliary gas-generating collapsible casing having an inner receptacle extending laterally from the neck thereof, a gas-supply pipe in proximity to the inner receptacle and leading to the collapsible bag to be filled, and means for opening the inner receptacle and the mouth of the gas-supply pipe simultaneously, as and for the purpose specified.

3. The combination with a collapsible bag, of a substantially cylindrical inner receptacle having a removable bottom, a threaded spindle controlling the bottom and inserted through an orifice and stuffing-box on the top end of the receptacle, a gas-supply pipe in proximity to the receptacle above and having its mouth open or closed through the action of the said spindle simultaneously with the removable bottom, an auxiliary gas-generating collapsible casing converging to a comparatively small neck where it fits on to the cylindrical inner receptacle, and suitable connections from the gas-supply pipe to the bag to be inflated, as and for the purpose specified.

4. The combination with a collapsible bag, of an inner receptacle, a removable bottom therefor, suitably facing on the inside of said bottom, a rod suitably connected to the bottom and controlling its upward and downward movement from the top end of the receptacle, an auxiliary gas-generating collapsible casing fitted around the neck of the receptacle, and suitable connections between a passage for the gas from the auxiliary casing and the bag to be filled, as and for the purpose specified.

5. The combination with a collapsible bag, of an inner receptacle having a cylindrical chamber, and a passage to one side thereof, and a threaded spindle controlled by a suitable thumb-screw where it protrudes through the top end of the receptacle and designed to close both chamber and passage-way simultaneously, an auxiliary gas-generating collapsible casing surrounding the lower portion of the said receptacle, an outlet with suitable connections from the said passage to the collapsible bag to be filled, as and for the purpose specified.

697,868. VENTILATOR. IRVING S. BARNES, Pueblo, Mexico. Filed Sept. 4, 1901. Serial No. 74,521. (No model.)



Claim.—1. The combination of two tube-sections, means connecting the sections together but holding them spaced from each other, a thin plate mounted loosely on the sections and extending between their adjacent ends, said thin plate having a discharge-orifice, an absorbent material arranged in the upper tube-section, a liquid-containing cup at the top thereof, and a drip-cup at the lower tube-section.

2. The combination of two tube-sections, means connecting the sections together but holding them spaced from each other, a thin plate mounted loosely on the sections and extending between their adjacent ends, said thin plate having a discharge-orifice, an absorbent material arranged in the upper tube-section, a liquid-containing cup at the top thereof, a drip-cup in the lower tube-section, and an orifice wind-break arranged above the drip-cup and below the discharge-orifice of the thin plate.

3. The combination of two tube-sections, means connecting the sections together but holding them spaced from each other, a thin plate mounted loosely on the sections and extending between their adjacent ends, said thin plate having a discharge-orifice, an absorbent material arranged in the upper tube-section, a drip-cup in the lower tube-section, an orifice wind-break arranged above the drip-cup and below the discharge-orifice of the thin plate, and a cup at the top of the upper tube-section, the upper ends

of the absorbent material being turned over the upper end of the upper tube-section and dipped into the cup, each cup serving to receive the primary supply of liquid.

697,864. TANK-LUG. JOHN BARNES, Boston, Wm. Filed Jan. 8, 1902. Serial No. 69,264. (No model.)

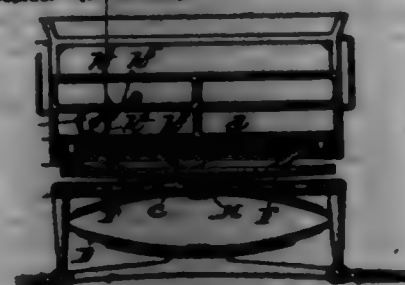


Claim.—1. The coupling-lug formed in one piece and composed essentially of the two side walls forming the two elongated bearing edges and connected at the ends by the two outwardly-deflected bridge-pieces, and between said bridge-pieces connected by the transverse inwardly-deflected web, each bridge-piece forming a high arch and a low arch, and said web forming two depressed inclined ends, having their lower edges located between the side walls and close to the tank-surface, when the lug is applied, the lug open below said bridge-pieces and above said web, substantially as described.

2. The coupling-lug formed in one piece and composed of the two side walls, the lower longitudinal edges of which form the bearing-surfaces of the lug against the tank-surface, the two end bridge-pieces between said walls, each bridge-piece composed of a low entrance-arch and a high abutment-arch with the intervening-flange, and the transverse web between said walls forming two oppositely-inclined ends and the intervening longitudinal rib at its ends connecting said flanges of said bridge-pieces, said lug open below the bridge-pieces and above said web, substantially as described.

3. The coupling-lug composed of the side walls having the elongated lower bearing-surfaces, said walls connected at their ends by the outwardly-arched bridge-pieces and between said bridge-pieces connected by the inwardly-deflected web having the low or depressed ends, said lug open below the bridge-pieces and above the web, substantially as described.

697,865. TRACE HOLDER AND CASE-OFF. CHARLES J. REYNOLDS, Boston, Mass., assignor of two-thirds to RAYMOND M. WOOD, Boston, Mass., and Benjamin F. Frost, Boston, Mass. Filed May 14, 1901. Serial No. 69,212. (No model.)



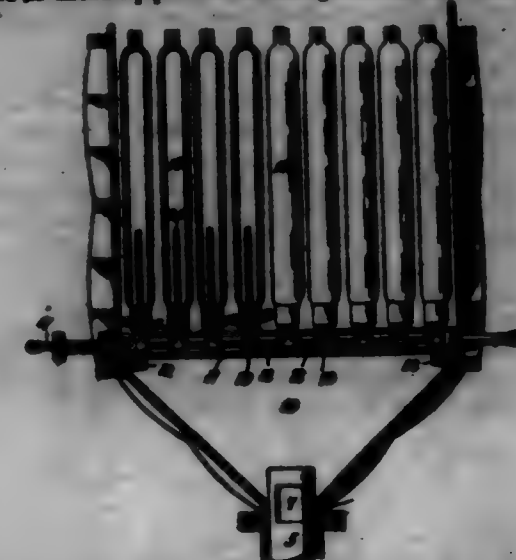
Claim.—1. A whiffletree having at its end a stud to enter a hole in a trace, a case-off composed of a sliding bar mounted upon the whiffletree, said bar being provided at its outer end with a fork to embrace a trace, the arms of said fork having holes to embrace the stud, a pivoted actuating device provided with a die eccentric to the pivot thereof, a stud on said sliding bar the walls of said die being arranged to engage said stud to positively move the sliding bar lengthwise of the whiffletree in either direction.

2. A whiffletree having at its end a stud to enter a hole in a trace, a case-off composed of a sliding bar mounted upon the whiffletree, and having trans-engaging means, a pivoted actuating device provided with a die eccentric to the pivot thereof, a stud on said sliding bar the walls of said die being arranged to engage said stud to positively move the sliding bar lengthwise of the whiffletree in either direction, and a locking device to lock the actuator in position to hold the trace upon the stud.

3. A whiffletree having at its end a stud to enter a hole in a trace, a sliding bar mounted upon the whiffletree and provided with means to embrace a trace, a pivoted actuating device provided with a die eccentric to the pivot thereof and having a recess at one end of the die and a cam adjacent said recess, said bar being provided with a stud to engage the eccentric die, and adapted to be moved by the said cam to cause the stud to be locked in the recess.

697,866. VALVE-CLAMP. GEORGE L. SHAW, Grand Rapids, Mich. Filed Oct. 21, 1901. Serial No. 70,000. (No model.)

Claim.—1. The combination with a vacuum-pan, of a transverse tube supported in the lower part thereof, a second tube passing through the wall of the pan and threaded into said first tube, a steam-pipe passed in the second tube and extending through the latter and into the first tube, said steam-pipe having separable sections which are united by couplings and said pipe being withdrawable from the pan through the second tube, a series of heating-tubes, branch pipes united by the couplings to the steam-pipe, and an exhaust-pipe communicating with the first tube.



2. In combination with a vacuum-pan having an outlet at its base, of a discharge-chamber having an upwardly-extending closed neck slightly fitted in said outlet and curving as a valve in closure therefor and provided with an aperture in its side, and means for raising and lowering said chamber, whereby said neck acts as a valve for opening and closing said outlet.

3. A vacuum-pan provided with a series of laterally-extending louvers having dovetail grooves therein, and a series of tubes supported thereby and having ribs engaging said grooves.

4. The combination with a vacuum-pan having an outlet at its base, of a discharge-chamber provided with an upwardly-extending neck, said neck of the chamber being slightly fitted in said outlet and adapted to serve as a means for breaking up crust therein and as a valve closure for said vacuum-pan, and means for raising said chamber.

5. The combination with a vacuum-pan having an outlet, of a discharge-chamber, means for extending from said discharge-chamber into said outlet and adapted to serve as a crust-breaker for matter which may solidify across the discharge-opening, and means for imparting movement to the crust-breaking means relative to the vacuum-pan.

697,867. SNAP-HOOK. GEORGE W. H. SHAW, Grand Rapids, Mich. Filed Nov. 1, 1901. Serial No. 69,213. (No model.)



Claim.—A snap-hook, comprising a hook proper, a tubular shank to which the hook is joined, a pin sliding in the tubular shank to meet the bill of the hook, the shank having a longitudinal slot therein, a stud carried by the pin and projected through the slot, and a shield fastened to the stud and embracing the major part of the shank, said shield extending longitudinally with the shank and being curved down around the sides thereof, and the shield moving with the pin toward and from the bill.

697,868. WAREHOUSE-PAINTER. JOHN W. SHAW, Grand Rapids, Mich. Filed Aug. 7, 1901. Serial No. 71,104. (No model.)



Claim.—1. A fastening device for a packing-ring or washer, comprising a segmental strip of metal having outwardly-turned ends designed to pass through the packing-ring or washer from the inner to the outer side and projecting beyond the outer side, substantially as specified.

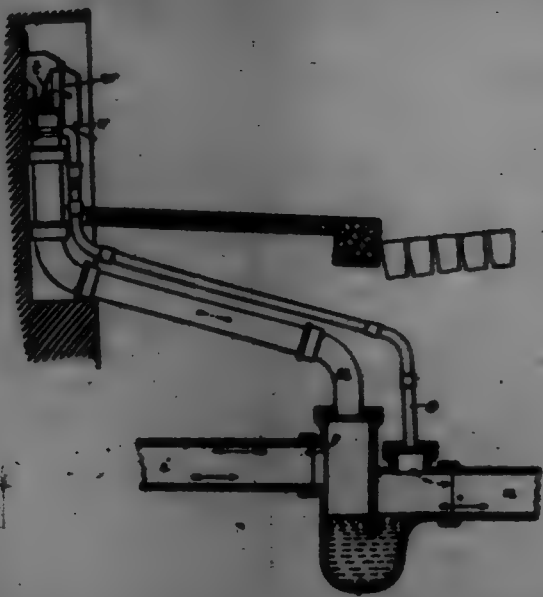
2. The combination with a washer having a channel formed in its interior surface, of a fastener comprising a strip of resilient metal having a segmental body portion terminating in outwardly-extended ends, the said body portion being designed to be inserted in the channel of the washer, substantially as specified.

3. The combination with a washer having an annularly-disposed channel formed in its inner wall, of a fastener having a body portion adapted to be seated in said channel, a coil arranged in said body portion, and ends extended outward from the body portion and designed to pass through the washer material.

4. In combination with a washer, a fastener consisting of a strip of metal arranged wholly within the washer and having its ends turned outward and passed through the washer, substantially as specified.

5. In combination with a washer, a fastener consisting of a segmental strip of resilient metal embraced wholly within the circumference of the washer and having outwardly-turned ends projecting from the outside thereof, substantially as specified.

697,869. HOOD OF AND MEANS FOR VENTILATING AND FLUSHING HOUSE-DRAINS OR OTHER DRAINS AND SEWERS.
MAAS SMITH and EDWIN ARIZ, Westminster, London, England. Filed Aug. 8, 1901. Serial No. 71,499. (No model.)



Claim.—1. In a drain and cover system, a power-driven device for drawing air into and through the system, an air-exhaust shaft, a plurality of air-inlet valves provided with means for regulating the inlet-opening for the purpose stated, and a safety-valve loaded so as to open when a predetermined maximum pressure has been produced in the system, for the purpose of preventing the flooding of inspection or other traps.

2. The drain from the house, in combination with the inspection trap and chamber, the drain therefrom to the cover, a rising branch from said drain, an air-inlet valve with means for regulating the inlet for the purpose stated, the loaded safety-valve for the purpose stated, the fan, an inspection-chamber, and a valved air-inlet-throat, substantially as set forth.

3. The drain from the house in combination with the inspection trap and chamber, the drain therefrom to the cover, a rising branch in the inspection-chamber, from said drain, a box thereon with a diaphragm valve and inlet with ferrule of adjustable diameter and with a loaded safety-valve, an air-inlet hood with gauge screen, a diaphragm valve opening into the inspection-chamber and a fan substantially as set forth.

4. The soil-pipe from the house in combination with a flushing-ejector tank with siphon device and trapped outlet therefrom, the rising cubic contents of said tank several times larger than that of a water-closet flushing charge, a ventilating-pipe carried up a suitable height from the tank, and inspection-chamber with trapped drain to the cover, a rising branch from the said drain, the air-inlet valve with means for regulating the inlet for the purpose stated, the loaded safety-valve, the valved air-inlet to the inspection-chamber, and the fan substantially as set forth.

5. The soil-pipe from the house in combination with a flushing-ejector tank of the size specified, with siphon device and trapped outlet therefrom, and inspection-chamber wherein said tank is placed, a ventilating-pipe carried up from the tank, the drain, from the tank to the cover, a branch pipe in the inspection-chamber and rising from the said drain, the air-inlet valve with means for regulating the inlet for the purpose stated the loaded safety-valve, the valved air-inlet to the inspection-chamber and the fan substantially as set forth.

6. The drain from the house in combination with the inspection-trap, the drain therefrom to the cover a rising branch from said drain, and air-inlet valve provided with means for regulating the inlet for the purpose stated, the fan, an air-inlet hood with gauge screen and a light valve for admitting air from the hood to the house side of the inspection-trap, substantially as set forth.

7. In a drain and cover system, a power-driven device for drawing air into and through the system, an air-exhaust shaft, a plurality of air-inlet devices each consisting of a box fitted with a light air-inlet valve of a diaphragm form, a ferrule for regulating the inlet-opening thereto, and a safety-valve, substantially as set forth.

8. An air-inlet device, consisting of a box having two compartments and applied in connection with an inspection-trap, one of said compartments fitted with a light air-inlet valve of a diaphragm form for admitting air to the cover side of the trap, a ferrule for regulating the inlet-opening to said valve, and a safety-valve; and the other compartment fitted with a light balanced air-inlet valve of diaphragm form for admitting air to the below or house side of the trap, substantially as set forth.

697,870. PROCESS OF TREATING COPPER-NICKEL-SULFIDE ORES. DANIEL P. SULLIVAN, Sudbury, Canada. Filed Aug. 14, 1900. Serial No. 24,451. (No specimens.)

Claim.—1. The herein-described process of treating ores of the class described, that is, ores containing nickel-iron sulfide with copper-iron sulfide, which consists in subjecting the comminuted ore to magnetic separation so as to produce therefrom headings and tailings, the headings being richer in iron and sulfur than the tailings, but generally poorer in nickel; then bringing about, by the magnetic separation, a variation or readjustment of the relative proportions of iron and nickel, so as to produce the proportions which are proper for the making of nickel-steel, then roasting the headings, and finally smelting them to produce pig-iron containing a proportion of nickel which makes it suitable for the direct manufacture of nickel-steel.

2. The herein-described process of treating ores of the class described, that is, ores containing nickel-iron sulfide with copper-iron sulfide which consists in subjecting the comminuted ore to magnetic separation so as to produce therefrom headings and tailings, the headings being richer in iron and sulfur than the tailings, but generally poorer in nickel; then bringing about, by the magnetic separation, a variation or readjustment of the relative proportions of iron and nickel, so as to produce the proportions which are proper for the making of nickel-steel and then smelting the headings to produce pig-iron containing a proportion of nickel which makes it suitable for the direct manufacture of nickel-steel.

3. The herein-described process of treating ores of the class described, that is, ores containing nickel-iron sulfide with copper-iron sulfide which consists in subjecting the comminuted ore to magnetic separation so as to produce therefrom headings and tailings, the headings being richer in iron and sulfur than the tailings, but generally poorer in nickel; then bringing about, by the magnetic separation, a variation or readjustment of the relative proportions of iron and nickel, so as to produce the proportions which are proper for the making of nickel-steel, then roasting the headings, and finally smelting them with the addition of Bessemer iron ore, to produce pig-iron containing a proportion of nickel which makes it suitable for the direct manufacture of nickel-steel.

4. The herein-described process of treating ores of the class described, that is, ores containing nickel-iron sulfide with copper-iron sulfide which consists in subjecting the comminuted ore to magnetic separation so as to produce therefrom headings and tailings, the headings being richer in iron and sulfur than the tailings, but generally poorer in nickel; then bringing about, by the magnetic separation, a variation or readjustment of the relative proportions of iron and nickel, so as to produce the proportions which are proper for the making of nickel-steel, and then smelting the headings, with the addition of Bessemer iron ore, to produce pig-iron containing a proportion of nickel which makes it suitable for the direct manufacture of nickel-steel.

697,871. JAR-CLOSURE. WILLIAM SHEDDEN, Mobile, Ala. Filed Nov. 6, 1901. Serial No. 61,942. (No model.)

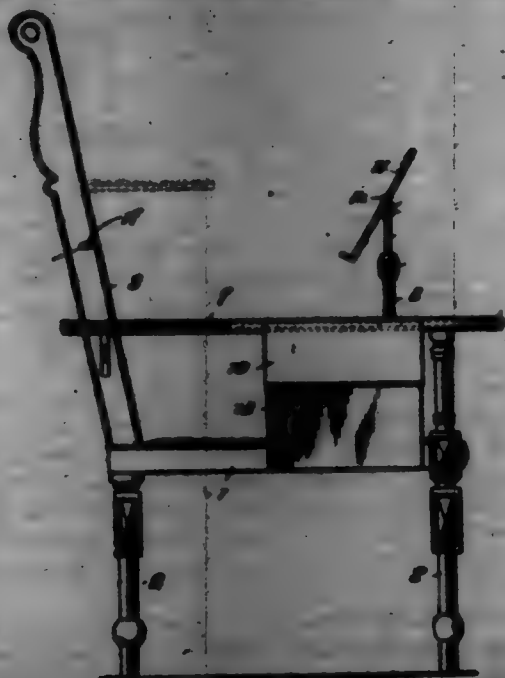


Claim.—1. In a jar-closure, the combination with a jar having its upper and ribbed or set away to form a contracted neck, the inner member

face of said neck or of the upper end of said jar being provided with a plurality of L-shaped grooves, one portion of each of which extends from the upper edge of said neck downwardly, and the other portion of which has its upper wall lying at an angle to the plane of the upper edge of said neck, of a lid or cover made in a single piece, having a central stopper which fits closely the inner surface of said neck and is provided with outwardly-extending integral lugs adapted to fit within said grooves, the said lid or cover being further provided with an overhanging flange or rim forming an annular groove around said stopper, and a packing-ring in said groove, the upper end of said neck adapted to fit within said groove and said rim or flange adapted to fit within the rabbeted portion of said jar and to surround the contracted neck thereof, as and for the purpose set forth.

2. In a jar-closure, the combination with a jar having its upper end rabbeted or cut away to form a contracted neck and a shoulder adjacent thereto, the inner surface of said neck or of the upper end of said jar being provided with a plurality of L-shaped grooves, one portion of each of which extends from the upper edge of said neck downwardly and the other portion of which has its upper wall lying at an angle to the plane of the upper edge of said neck, of a lid or cover made in a single piece having a central stopper which fits closely the inner surface of said neck and is provided with outwardly-extending integral lugs adapted to fit within said grooves, the said lid or cover being further provided with an overhanging flange or rim forming an annular groove around said stopper, and a packing-ring in said groove, the upper end of said neck adapted to fit within said groove and said rim or flange adapted to fit within the rabbeted portion of said jar, to surround said contracted neck and to engage said shoulder, the outer surface of said rim or flange lying flush with the outer surface of said jar.

697,873. CHAIR. ADOLPH H. SMITH, Superior, Wis. Filed May 4, 1901. Serial No. 54,941. (No Model.)



Claim.—1. A chair having arms with portions extended rearward of the chair-back, the said arms being provided with longitudinal channels opening outward at the rear end of the arms and closed at the front end, and slots opening outward from the channels, blocks movable in said channels, posts extended from the blocks through the slots, and a back-rest adapted to be supported by the posts, substantially as specified.

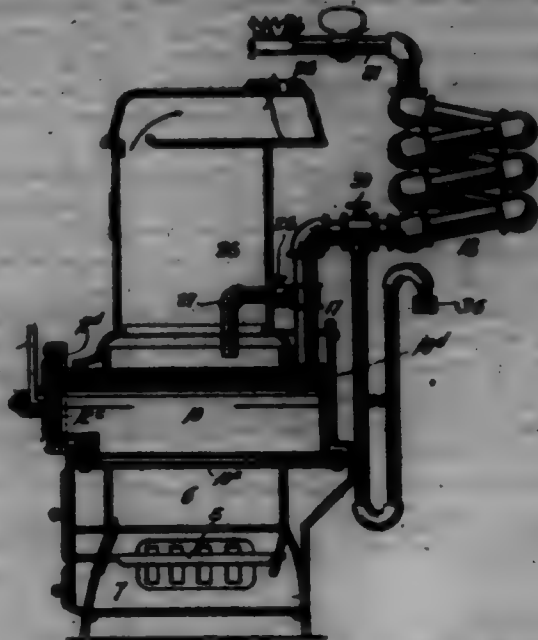
2. A chair having arms and a back, the side bars of said back being provided with notches, a recess or opening in the back, a swinging section for closing said recess or opening, a back-rest adapted to be placed in said recess or opening, a rod on the back-rest for passing into said notches, and means for supporting the back-rest on the arms of the chair, substantially as specified.

697,878. GAS-MAKING APPARATUS. HENRY SWANSON, Elyria, Ohio. Filed Oct. 2, 1903. Serial No. 21,503. (No Model.)

Claim.—1. In a gas-making stove or furnace, the combination with a fire-box and a retort, of a pipe connected with the retort, and means heated within the pipe for straining and refining the gas as it passes therethrough, the refining-pipe being elevated above the retort and arranged to allow the liquid strained out of the gas in the refining-pipe, to flow back into the retort, to be converted into gas.

2. In a gas-making apparatus, the combination with a fire-box and retort, of a pipe heated above the retort and connected therewith, said

pipe being provided with a series of strainers for purifying the gas, the strainer-pipe being arranged to allow the liquid which is separated from the gas during the refining operation, to flow back into the retort.

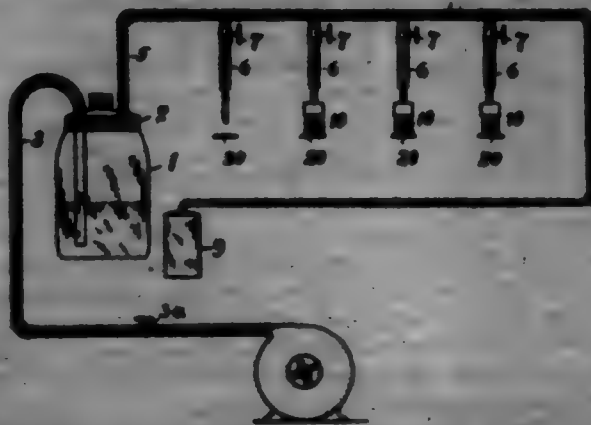


3. In a gas-making apparatus, the combination with the fire-box and retort, of a coil of pipe arranged above the retort and containing a series of wire-gauze strainers, the said coil being connected with the retort to allow the gas resulting from the destructive distillation of the coal therein, to pass to the coil, the arrangement being such that the liquid separated from the gas during the straining operation, flows back into the retort.

4. In a gas-making apparatus the combination with a retort, of a pipe connected with the retort, and a series of strainers located within the pipe for straining and refining the gas as it passes therethrough.

5. In a gas-making apparatus the combination with a retort, of a pipe connected with the retort, a series of strainers located within the pipe for straining and refining the gas as it passes therethrough, and means connected with the refining-pipe to allow the liquid resulting from the refining operation, to escape therefrom for gas-making or other purposes.

697,874. POWDER-DISTRIBUTER. JAMES A. STUART, Quincy, and BERT F. UPHAM, Boston, Mass. Filed Oct. 26, 1903. Serial No. 24,502. (No Model.)



Claim.—1. In a means for preventing offsetting, a powder-receptacle constructed to receive a current of air, and a tube constructed to conduct the dust-laden air from said receptacle and direct the same upon the surface to be protected, substantially as described.

2. In a means for preventing offsetting, the combination with the traveling tapes for conveying freshly-printed sheets, of a tube constructed to receive a dust-laden current of air and provided with outlets discharging the dust-laden air upon said tapes, substantially as described.

3. In a means for preventing offsetting, the combination with the traveling tapes for conveying freshly-printed sheets, of a tube receiving a dust-laden current of air, a plurality of branches opening from said tube, one for each tape, and a valve for each branch, substantially as described.

4. In a means for preventing offsetting, the combination with the traveling tapes for conveying freshly-printed sheets, of a tube constructed to receive a dust-laden current of air, branches from said tube, one for each tape, the tube extension or return, and the receiver at the end of said return, substantially as described.

5. The combination with the tube receiving dust-laden air, of the

brush constructed to receive the said air and discharge it from between the bristles thereof, substantially as described.

6. In a means for preventing offsetting, the combination with the traveling tapes for conveying freshly-printed sheets, of a brush for each tape constructed with a hollow head receiving a dust-laden air and delivering the same between the bristles thereof, substantially as described.

7. In a means for preventing offsetting, the combination with ink-receiving surfaces, of means for directing a dust-laden current of air thereon, substantially as described.

8. The combination with a means for supplying a dust-laden current of air, of a tube for receiving the same, a plurality of flexible branches leading from said tube, a dust-receiver at the outer end of said tube, and means for giving a back pressure to the said outer end, substantially as described.

9. In a powder-distributor, the combination of the air-tight powder-receptacle, the tube delivering an air-current near the bottom of said receptacle, the tube opening at one end through the top of said receptacle, the plurality of branches opening from said tube and having each a valve, the tube extension or return, and the receiver at the end of said return, substantially as described.

697,875. SHAP-SEAL. EDWARD J. BROWN, East Orange, N. J.
Filed Feb. 18, 1908. Serial No. 94,082. (No model.)



Claim.—1. An improved snap-earl composed of a flexible sheet metal shank having withdrawal-resisting snap-catches at its respective ends, projecting from its face and its back respectively, an oppositely-projecting supplemental snap-earl between one of said catches and its extremity of the shank and a catch-hole between the other of the catches first named and its extremity of the shank adapted to interlock with said supplemental snap-earl, and a hollow sheet-metal earl part having an inlet for the shank ends, a chamber in communication with said inlet adapted to accommodate said shank ends within it, and recesses in the respective sides of said chamber adapted to interlock with said catches first named and to mask the free end of said supplemental snap-earl.

2. The combination, in a snap-earl, of a flexible sheet-metal shank having withdrawal-resisting snap-catches at its respective ends, and a hollow sheet-metal earl part composed of a pair of body-pieces and a disk-shaped inlet-forming piece interlocked with each other and adapted to inclose said shank ends and to interlock with said snap-catches respectively.

3. The combination, in a snap-earl, of a flexible sheet-metal shank having withdrawal-resisting snap-catches at its respective ends, covered from the body of the shank at one end and projecting from its face and from its back respectively, and a hollow sheet-metal earl part composed of a pair of body-pieces and a disk-shaped inlet-forming piece interlocked with each other and having a chamber, in communication with the inlet, provided with a catch-recess in one side adapted to interlock successively with both of said snap-catches.

4. The combination, in a snap-earl, of a flexible sheet-metal shank having withdrawal-resisting snap-catches at its respective ends, covered from the body of the shank at one end and projecting from its face and from its back respectively, an oppositely-projecting supplemental snap-earl between one of said catches and its extremity of the shank and a catch-hole, between the other of the catches first named and its extremity of the shank, adapted to interlock with said supplemental snap-earl, and a hollow sheet-metal earl part composed of a pair of body-pieces and a disk-shaped inlet-forming piece, interlocked with each other and adapted to inclose said shank ends and to interlock with said catches first named.

5. The combination, in a snap-earl, of a flexible sheet-metal shank having withdrawal-resisting snap-catches at its respective ends, covered from the body of the shank at one end and projecting from its face and from its back respectively, an oppositely-projecting supplemental snap-earl between one of said catches and its extremity of the shank and a catch-hole, between the other of the catches first named and its extremity of the shank, adapted to interlock with said supplemental snap-earl, and a hollow sheet-metal earl part composed of a pair of body-pieces provided respectively with a recess adapted to interlock with said catches

first named and a recess to mask the free end of said supplemental snap-earl, and a disk-shaped inlet-forming piece interlocked with said body-pieces, substantially as hereinbefore specified.

697,876. MECHANICAL DIRECTORY. GEORGE W. HAYWELL, Los Angeles, Cal. Filed Nov. 20, 1906. Serial No. 737,000. (No model.)



Claim.—1. A directory comprising a directory-strip having alphabetically-arranged lists of individual names; an index device with letters of the alphabet arranged thereon to correspond with said lists and at distances apart less than and proportionate to the spaces occupied by the directory-lists under the corresponding letters of the alphabet, respectively; and automatic reversible means for simultaneously operating said directory-strip and said index device continuously throughout the full extent of their lists at speeds proportionate with their respective spacings in one and the other direction, alternately.

2. A directory comprising a main directory-strip having alphabetically-arranged lists of individual names; an index-strip with letters of the alphabet arranged thereon to correspond with said lists and at distances apart less than and proportionate to the spaces occupied by the directory-lists under the corresponding letters of the alphabet, respectively; and automatic reversible means for simultaneously operating the directory-strip and the index-strip continuously throughout the full extent of their lists at speeds proportionate with their respective spacings, and in one and the other direction, alternately.

3. A directory comprising a directory-strip having alphabetically-arranged lists of individual names; a supplemental directory-strip having a less number of individual names than the main strip, the same being alphabetically arranged and relatively spaced to correspond with the main strip on a shorter scale; and automatic reversible means for simultaneously operating the said strips continuously throughout the full extent of their lists in either direction at speeds proportionate to their respective spacings, and in one and the other direction, alternately.

4. The combination of two rollers mounted parallel with each other; a flexible strip connected at one end with one of the rollers and at the other end with the other roller to be wound and unwound from roller to roller; wheels for said rollers, respectively; wheels for driving said rollers, respectively; a lever carrying said driving-wheels and pivoted to simultaneously hold one of the driving-wheels in operative engagement with its roller-wheel and the other driving-wheel out of engagement with its roller-wheel, and vice versa; a master-wheel journaled to revolve and operatively engaging with said driving-wheels and being frictionally connected with the lever to throw the lever in the direction of the rotation of the master-wheel; and means for rotating the master-wheel.

5. The combination of two rollers mounted parallel with each other; a master-wheel; a flexible strip connected at one end with one of the rollers and at the other end with the other roller, to be wound and unwound from roller to roller; wheels for said rollers, respectively; a lever comprising two spring-bases journaled on the shaft of the master-wheel on opposite sides of said master-wheel, and contacting with the hub of the master-wheel; arms between said bases at the ends thereof, respectively; said bases being sprung friction-tight against the hub of the master-wheel; wheels for driving said roller-wheels, respectively, journaled on said arms and meshing with the master-wheel; and means for rotating the master-wheel.

6. A directory comprising a main directory-strip having alphabetically-arranged lists of individual names and addresses; a set of rollers for operating said directory-strip; an index-strip; a set of rollers for operating the index-strip; small gear-wheel, respectively, on the rollers of

the main strip; larger sprocket-wheel, respectively, on the rollers of the index-strip; a sprocket-chain operatively connecting one of the small sprocket-wheels with one of the large sprocket-wheels; a sprocket-chain operatively connecting the other small sprocket-wheel with the other large sprocket-wheel; and automatic reversible means for driving the rollers of one of said sets of rollers continuously in the full extent of said list in one and the other direction, alternately.

7. The combination of two main rollers mounted parallel with each other; a master-wheel; a flexible strip connected at one end with one of the rollers and at the other end with the other roller to be wound and unwound from roller to roller; wheels for said rollers, respectively, at one side of the machine; small sprocket-wheels fastened to the main roller-shafts, respectively, at the other side of the machine; a plurality of sets of supplemental rollers; flexible supplemental strips, one for each set of supplemental rollers, each supplemental strip being connected at its ends respectively with the rollers of its set to be wound and unwound from roller to roller; large sprocket-wheels on the ends of the supplemental rollers at the same side of the machine with said small sprocket-wheels; sprocket-chains connecting the sprocket-wheels of one of the main rollers with one sprocket-wheel, respectively, of each of the sets of supplemental rollers; sprocket-chains connecting the sprocket-wheel of the other main roller with the other sprocket-wheel of the respective sets of supplemental rollers; wheels for driving said main roller-wheels respectively; a lever carrying said driving-wheels and pivoted to simultaneously hold one of the driving-wheels in operative engagement with its roller-wheel and the other driving-wheel out of engagement with its roller-wheel, and vice versa; a master-wheel journaled to revolve and operatively engaging with said driving-wheels and being frictionally connected with the lever to throw the lever in the direction of the rotation of the master-wheel; and means for rotating the master-wheel.

8. A directory comprising a directory-strip having alphabetically-arranged lists of individual names; an index device with letters of the alphabet arranged thereon to correspond with said lists and at distances apart less than and proportionate to the spaces occupied by the directory-lists under the corresponding letters of the alphabet, respectively; and automatic reversible means for simultaneously operating the directory-strip and index device at speeds proportionate with their respective spacings in one and the other direction, alternately.

9. A directory comprising a main directory-strip having alphabetically-arranged lists of individual names; an index-strip with letters of the alphabet arranged thereon to correspond with said lists and at distances apart less than and proportionate to the spaces occupied by the directory-lists under the corresponding letters of the alphabet, respectively; and automatic reversible means for simultaneously operating the directory-strip and the index-strip at speeds proportionate with their respective spacings, and in one and the other direction, alternately.

10. A directory comprising a directory-strip having alphabetically-arranged lists of individual names; a supplemental directory-strip having a less number of individual names than the main strip, the same being alphabetically arranged and relatively spaced to correspond with the main strip on a shorter scale; and automatic reversible means for simultaneously operating the said strips in either direction at speeds proportionate to their respective spacings, and in one and the other direction, alternately.

11. A directory comprising two rollers mounted parallel with each other; a flexible strip connected at one end with one of the rollers and at the other end with the other roller, to be wound and unwound from roller to roller; wheels for said rollers respectively; wheels for driving said roller-wheels respectively; a lever carrying said driving-wheels and pivoted to simultaneously hold one of the driving-wheels in operative engagement with its roller-wheel, and the other driving-wheel out of engagement with its roller-wheel, and vice versa; a master-wheel journaled to revolve centrally of the pivot of the lever; and means for rotating the master-wheel.

12. The combination of the frame with supplement extension; main ribbon-roller and idler in the frame; a directory-ribbon on said roller and idler; a supplement directory-ribbon in the supplement extension; ribbon-roller and idler for said supplement-ribbon; a driving-shaft; means for turning said shaft; a master-wheel driven by said shaft; a lever journaled coaxial with the master-wheel, two pinions, one at each end of the lever, and which pinions mesh with and are driven by the master-wheel; a cog-wheel fastened to one of the main rollers; a cog-wheel fastened to the other main roller; a frictional device fixed to the lever and engaging the master-wheel to cause the rotation of the master-wheel to shift the lever to mesh a transmitting-pinion with one or the other roller cog-wheel; and means operatively connecting one of the main rollers with one of the supplement-rollers.

13. A directory comprising a main directory-ribbon and a supplement directory-ribbon; main directory-roller; supplement directory-ribbon roller; cog-wheels fastened to the main directory-ribbon roller; a

driving-shaft; means for turning the shaft; a master-wheel on the shaft and driven by the driving-shaft; a lever journaled coaxial with the master-wheel and provided at each end with a transmitting-pinion, said pinions meshing with and driven by said master-wheel to independently mesh with the cog-wheels of the respective rollers when the lever is vibrated in one or the other direction; frictional means being provided to cause the rotation of the master-wheel to shift the lever to mesh a transmitting-pinion with one or the other of the roller cog-wheels; a sprocket-wheel fixed to one of the main rollers; a sprocket-wheel fixed to one of the supplement-rollers; a sprocket-chain connecting said sprocket-wheels, a sprocket-wheel fixed to the other supplement-roller; a sprocket-wheel fixed to the other main roller; and a sprocket-chain connecting each two sprocket-wheels.

14. The combination of a directory-strip; an index therefor; means for moving the directory-strip; means for moving the index; means operatively connecting the directory-strip-moving means and the index-moving means; a crank; and automatic reversing mechanism interposed between the crank and the directory-strip-moving means for transmitting motion from the crank to operate said means alternately in one and the other direction.

15. A mechanical directory provided with a main directory-strip; means for moving said strip; a supplemental directory-strip; means for moving said supplemental strip; operative mechanism for causing both of said strip-moving means to move simultaneously; a crank; and automatic-reversing mechanism interposed between the crank and the strip-moving means to operate the same alternately in one and the other direction.

16. In a strip-directory, strip-operating mechanism comprising two rollers mounted parallel with each other; pinions mounted on the roller-shafts; a master-wheel mounted between said rollers; a pinion-carrying lever mounted to turn on an axis coaxially of the master-wheel; pinions mounted on the ends of said lever and meshing with the master-wheel and arranged to alternately mesh, one with one of the roller-shaft pinions, and the other with the other roller-shaft pinion; and means for turning the master-wheel.

17. In a strip-directory, strip-operating mechanism comprising two rollers mounted parallel with each other; pinions mounted on the roller-shafts; a master-wheel mounted between said rollers; a pinion-carrying lever mounted to turn on the master-wheel shaft; pinions mounted on the ends of said lever and meshing with the master-wheel and adapted to alternately mesh, one with one of the roller-shaft pinions, and the other with the other roller-shaft pinion, frictional means being provided whereby the lever is thrown in the direction of the rotation of the master-wheel; and means for turning the master-wheel.

18. The combination of a plurality of pairs of rollers; a plurality of strips fastened at their opposite ends to the rollers of said pairs respectively to be wound and unwound from roller to roller of their respective pairs; means operatively connected with one roller of each of said pairs to cause said rollers to simultaneously rotate; means operatively connected with the other roller of each of said pairs to cause said other rollers to simultaneously rotate; a reversible prime mover; and automatic-shifting power-transmitting mechanism interposed between said prime mover and said roller-rotating means to drive the one and release the other of said roller-rotating means when the prime mover is operated in the one direction; and vice versa when the prime mover is operated in the other direction.

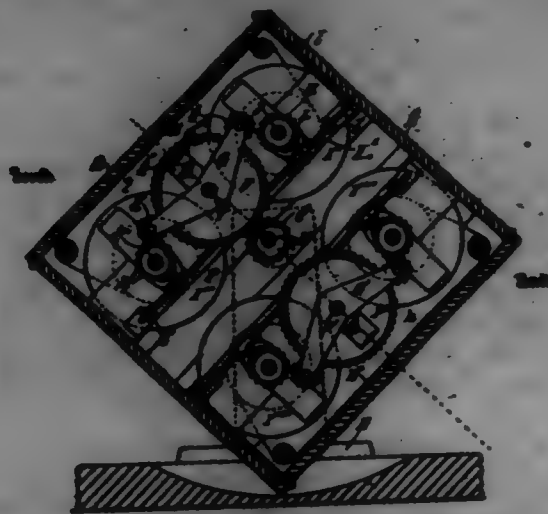
19. The combination of two rollers; a strip fastened at its ends to said rollers respectively, to be wound and unwound from roller to roller; means for driving one of said rollers; means for driving the other of said rollers; a prime mover adapted to be moved in one and the other direction; and automatic-reversing power-transmitting mechanism operated by the prime mover and interposed between said prime mover and the means for driving said rollers to operate the one of said means to drive one of said rollers and to release the other of said rollers when the prime mover is turned in one direction, and to operate the other means to drive the other roller and to release the first-named means and roller when the prime mover is turned in the other direction.

697,877. GANNET-DIRECTORY. GEORGE W. HARVEY, Los Angeles, Cal. Filed Apr. 1, 1906. Renewed Aug. 1, 1908. Serial No. 25,001. (No Model.)

Claim.—1. A directory or like information-exhibiting device comprising a reversible case provided upon its different sides with right-openings; mechanism for moving information-strip back and forth behind each right-opening; means whereby one set of strip-operating mechanism is brought into operative connection with the control operating-shaft when the case is revolved to bring any one of the right-openings into a predetermined position.

2. A directory or like information-giving device comprising the reversible case provided upon several of its sides with right-openings for dis-

playing information printed upon strips; means for moving the strips back and forth behind the sight-openings; the one mounted to receive eccentrically whereby the central shaft engages with one of and disengages from the other strip-operating mechanisms.



3. A directory or like information-exhibiting device comprising a case provided upon its different sides with sight-openings; means for passing each information back and forth behind such sight-openings; the operating-shaft; the driving-wheel mounted on such shaft; the master-wheel for operating the information-giving device; the eccentric bearings mounted in the revolvable case whereby an eccentric travel is imparted to the case to carry one set of strip-operating master-wheels out of engagement with the driving-wheel, and another set into engagement therewith.

4. In a strip-directory, two sets of strip-operating rollers mounted coaxially; means for operating each roller to wind the strip from one roller to the other roller in one of the sets of the strip-operating rollers; the pinion loosely mounted upon the ends of the coaxial roller-shafts; and means for shifting each pinion from one shaft to the other whereby one set of rollers is thrown into motion and the other set is left inoperative.

5. In a strip-directory, the two sets of strip-operating rollers mounted coaxially; a master-wheel; a pivoted lever carrying a pinion on each end; a friction device attached to the pivoted lever and bearing on the master-wheel; the pinion loosely mounted upon the coaxial roller-shafts and adapted to engage with the pinion on the pivoted lever when the lever is thrown in its direction; means for shifting the pinion from one roller-shaft to the other; and means for engaging the pinion with each shaft.

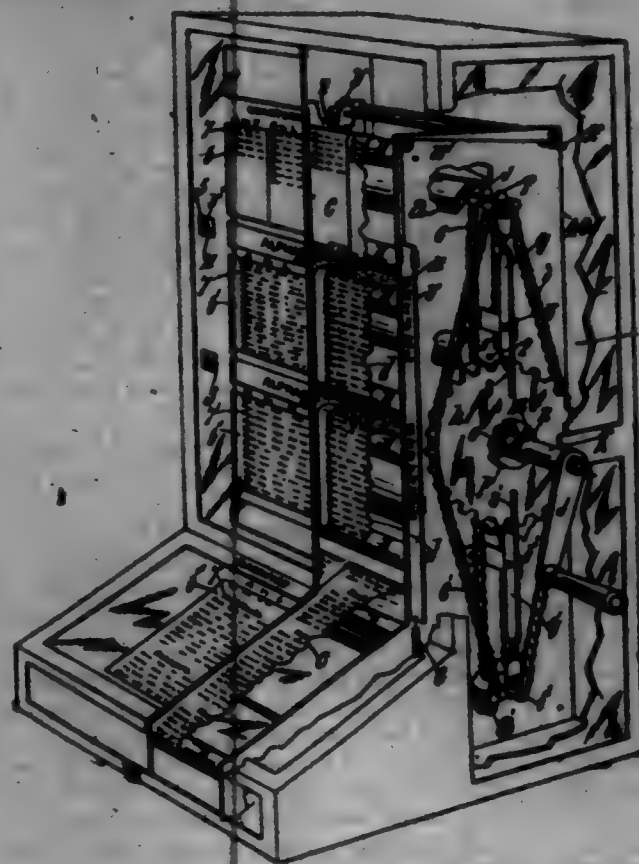
6. The combination of two rollers; a strip fastened at its ends respectively to the rollers of one pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

7. The combination of two pairs of rollers with directory-strips, one for each pair of rollers, the shafts of two of the rollers being not coaxial with each other to form a unitary arbor and the shafts of the other two rollers being not coaxial with each other to form a unitary arbor, and each roller-shaft being provided with a projection; two roller-driving cog-wheels, one mounted upon each of said arbors and each provided with lateral projections to engage the projections of the roller-shafts respectively when the roller-driving cog-wheel is shifted to one or the other of said roller-shaft projections; and means for shifting the roller-driving cog-wheels.

8. The combination of two directory-ribbon rollers; a cog-wheel fastened to one of said rollers; a cog-wheel fastened to the other roller; a driving-shaft; a master-wheel and frictional disk fixed on the driving-shaft; a lever journaled coaxially with the master-wheel and provided at each end with a transmitting-pinion, said pinions meshing with and driven by said master-wheel to independently mesh with the cog-wheels of the respective rollers when the lever is vibrated in one or the other direction; and a frictional device fixed to the lever and engaging the frictional disk on the master-wheel to cause the rotation of the master-wheel to shift the lever to mesh a transmitting-pinion with one or the other of the roller cog-wheels.

697,878. MECHANICAL DIRECTORY. GEORGE W. HAYWORTH, Los Angeles, Cal. Filed Oct. 28, 1900. Serial No. 94,979. (No model.)
Claim.—1. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its

ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.



2. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

3. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

ends the other clutch when the wheel is shifted to one side, and vice versa when the wheel is shifted to the other side.

4. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

5. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

6. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

7. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

8. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

9. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

10. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; a wheel operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said wheel in one and the other direction; and means operatively connected with said wheel for simultaneously operating the clutch mechanisms to throw the one into and the other out of operation when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction.

11. In a directory, the combination with the strip-operating means, of a shaft; a master-wheel having a limited lateral and rotary movement on said shaft; means connecting said wheel with the roller-operating means; two levers for throwing said roller-operating means into and out of operative position; and means for shifting said wheel in one direction to operate said levers to throw one of said roller-operating means into and the other of said roller-operating means out of operative position when the wheel is shifted in one direction, and vice versa when the wheel is shifted in the other direction.

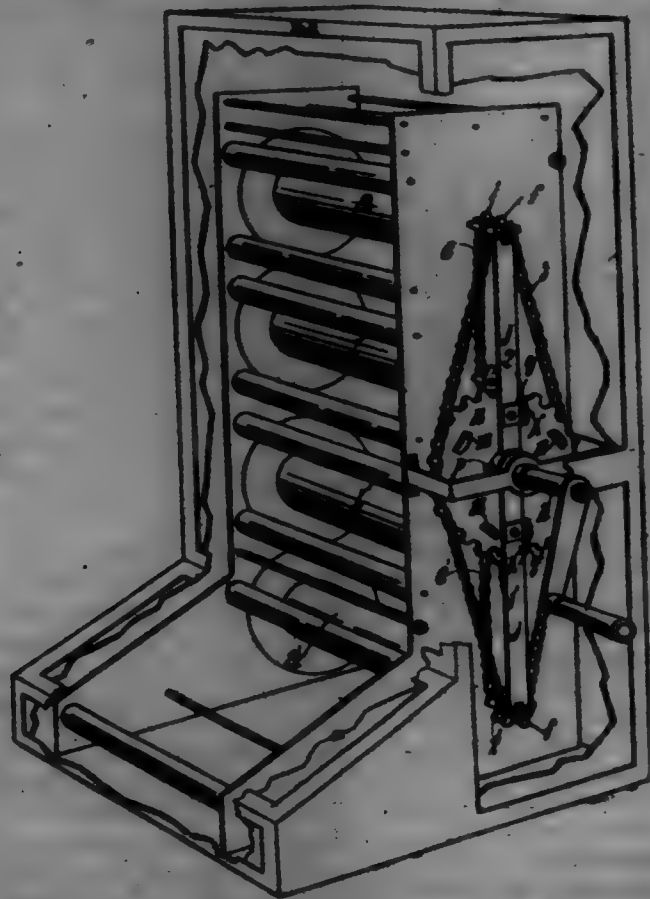
12. In a directory, a support; two sets of rollers journaled thereon; a directory-ribbon on each set of rollers; means for connecting the corresponding rollers of each set to rotate them in unison; clutch mechanisms connected with both rollers of one set; a bifurcated lever for each clutch; a screw-threaded cam-shaft; and a screw-threaded master-wheel mounted on said shaft and having its periphery within the bifurcation of said levers, said wheel being operatively connected with said set of rollers and adapted to be moved laterally upon its shaft when the direction of rotation of the shaft is reversed.

13. In a directory, a casing provided with four sight-openings; a master-wheel; two sets of rollers journaled in said casing; means for driving said rollers from the master-wheel; a directory-ribbon on each set of rollers, each side of each ribbon being provided with means; means for engaging a portion of each side of each ribbon through one or the other of said openings; and means for simultaneously moving said ribbons longitudinally in the same direction and automatically reversing the direction of their movement as the direction of rotation of the master-wheel is reversed.

697,879. MECHANICAL DIRECTORY. GEORGE W. HAYWORTH, Los Angeles, Cal. Filed Oct. 28, 1900. Serial No. 94,980. (No model.)

Claim.—1. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its

setting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of the one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; means for driving one of said second-named connected rollers; a clutch for connecting said means with and disconnecting it from its roller; a shaft; means operatively connecting said shaft with both of said roller-driving means for simultaneously driving them; a lever connection for connecting and disconnecting said clutches; reversibly-arranged dogs on said lever connection at opposite sides of the shaft; and tappets connected with said shaft to rotate therewith and arranged to move across the path of said dogs whereby when the shaft is rotated in one direction, said tappets operatively engage one of said dogs to operate the lever connection in one direction to connect one of said clutches and disconnect the other of said clutches, and when the shaft is rotated in the other direction said tappets will operate the other dog and throw the lever to connect the other clutch and disconnect the first-named clutch.



2. The combination of two pairs of rollers; a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of the one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; means for driving one of said second-named connected rollers; a clutch for connecting said means with and disconnecting it from its roller; a shaft; means operatively connecting said shaft with both of said roller-driving means for simultaneously driving them; a lever journaled on and pivoted to the shaft to allow the shaft to rotate in said lever and to allow the lever to vibrate on said shaft; reversely-arranged dogs on said lever; and one or more tappets connected with the shaft to rotate therewith and to move in the path of the dogs to operatively engage one of said dogs to throw the lever in one direction when the shaft is rotated in one direction and to operatively engage the other of said dogs to throw the lever in the other direction when the shaft is rotated in the other direction, said lever being operatively connected with the clutches to connect the one and disconnect the other when the shaft is thrown in one direction, and when thrown when the shaft is thrown in the other direction.

2. The combination of two pairs of rollers; a strip fed into at its ends respectively to the rollers of one pair; a strip fed into at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of the one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said

roller; means for driving one of said second-mentioned connected rollers; a clutch for connecting said means with and disconnecting it from the roller; a shaft; means operatively connecting said shaft with both of said roller-driving means for simultaneously driving them; a lever connection for connecting and disconnecting said clutches; and reversely-arranged dog and tappet mechanisms for transmitting motion from the shaft to operate said lever connection for connecting one clutch and disconnecting the other clutch when the shaft is rotated in one direction, and vice versa when the shaft is rotated in the other direction.

4. The combination of two pairs of rollers; a strip fitted at its ends respectively to the rollers of one pair; a strip fitted at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of the one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; means for driving one of said second-named connected rollers; a clutch for connecting said means with and disconnecting it from its roller; a shaft; means operatively connecting said shaft with both of said roller-driving means for simultaneously driving them; a lever journaled on and pivoted to the shaft to allow the shaft to rotate in said lever and to allow the lever to vibrate on said shaft; and reversibly-arranged dog and tappet mechanism whereby the rotation of the shaft in one direction throws the lever in one direction and the rotation of the shaft in the other direction throws the lever in the other direction, said lever being connected with the clutches to connect the one and disconnect the other when the shaft is thrown in one direction, and vice versa when the shaft is thrown in the other direction.

8. The combination of two pairs of rollers; a cone respectively to the rollers of one pair; a strip respectively to the rollers of the other pair; means for connecting one roller of one pair with one roller of the other rollers operation; means operatively connecting the pair with the other roller of the other pair for their rotation; means for driving one of said first-named conical rollers for connecting said means with and disconnecting it from said roller; means for driving one of said second-named conical rollers; a clutch connecting said means with and disconnecting it from its roller-wheel on said shaft; a sprocket-chain led around said sprocket-wheel and arranged to drive said roller-driving means; tappets on said sprocket-wheel and pivoted lever extending across said sprocket-wheel between sides of the center of said wheel with severally engaged by said tappets when said wheel is rotated in one direction is thrown in one direction when the wheel is rotated in the other direction when the wheel is rotated, said lever being operatively connected with one of the sprocket-chains and the other when the shaft is thrown in one direction, and vice versa when the shaft is thrown in the other direction.

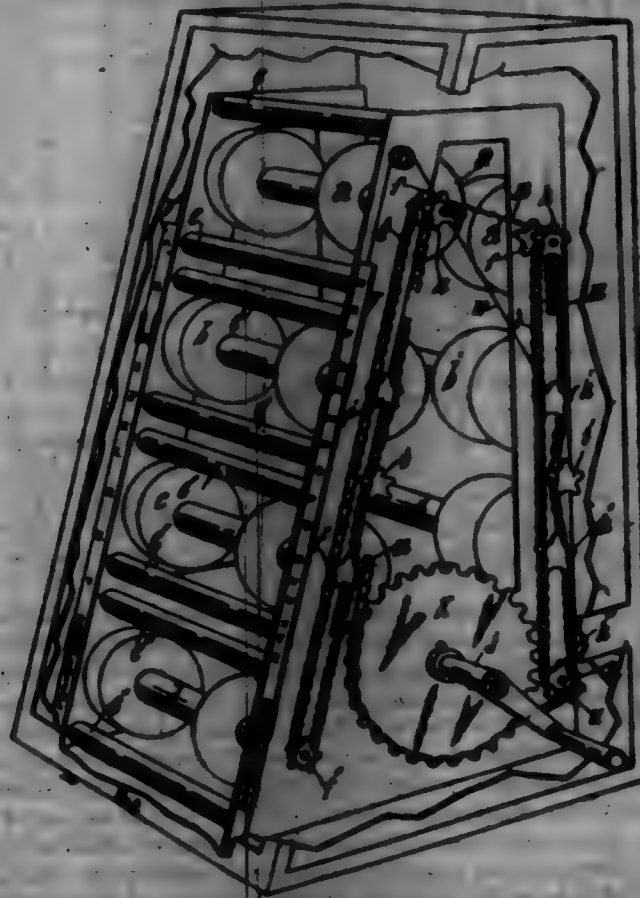
6. The combination with the rollers and directory-strips of a mechanical directory, of means for operating said rollers to move the directory-strips in one and the other direction; an index-strip; two rollers upon which said index-strip is mounted to be wound and unwound from roller to roller; a bevel-wheel operatively connected with one of the directory-strip rollers; a worm gear-wheel operatively connected with the index-strip rollers; and a shaft furnished with a bevel-gear meshing with the bevel-gear on the directory-strip roller, and also furnished with a worm engaging the worm-gear of the index-strip roller.

7. The combination of two pairs of rollers, a strip fastened at its ends respectively to the rollers of one pair; a strip fastened at its ends respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; means for driving one of said first-named connected rollers; a clutch for connecting said means with and disconnecting it from said roller; means for driving one of said second-named connected rollers; a clutch for connecting said means with and disconnecting it from said other roller; a shaft operatively connected with both of said roller-driving means for simultaneously driving them; means for rotating said shaft in one and the other direction; a lever extending crosswise of the shaft and furnished on opposite sides of the shaft with reversely-arranged dogs and one or more tappets connected to rotate with said shaft to move across the path of said dogs to engage the same to throw the lever in one direction when the wheel is rotated in one direction, and vice versa when the wheel is rotated in the other direction; said lever being operatively connected with said clutches, for alternately connecting the one and disconnecting the other, and vice versa.

8. The combination of two pairs of rollers; a strip fastened at the ends transversely to the rollers of one pair; a strip fastened at the ends

respectively to the rollers of the other pair; means operatively connecting one roller of one pair with one roller of the other pair for their simultaneous operation; means operatively connecting the other roller of one pair with the other roller of the other pair for their simultaneous operation; a sprocket-wheel slightly mounted on one of said fixed-axled connected rollers; a clutch for connecting said idling sprocket-wheel with and disconnecting it from said roller; another sprocket-wheel slightly mounted on one of said second-axled connected rollers; a clutch for connecting said idling sprocket-wheel with and disconnecting it from said other roller; a master sprocket-wheel; a sprocket-chain interposed said sprocket-wheels and master-wheel; stops for rotating said master sprocket-wheel in one and the other direction; tappets connected with the master-wheel to rotate therewith; means for shifting the sprocket-wheels on their respective rollers to absolutely connect and disconnect their clutches; and reversely-arranged dogs on opposite sides of the axle of the master-wheel, operatively connected with the sprocket-wheel-shifting means, and arranged in the path of the tappets to be actuated by said tappets.

897,880. MECHANICAL DIRECTORY. George W. Harvill.
Los Angeles, Cal. Filed Oct. 28, 1909. Serial No. 84,081. (No model.)



China.—1. The combination of a plurality of pairs of rollers; strips for said pairs of rollers respectively, each strip having its ends fastened to the respective rollers of its pair to be wound and unwound from roller to roller; means connecting a train of rollers, which train comprises one roller of each of said pairs for the simultaneous rotation of one roller of each of said pairs; means connecting a train of rollers which comprises the other roller of each of said pairs respectively for the simultaneous rotation of the said other rollers of the several pairs; a wheel fastened with a clutch member and having a rotary and a lateral movement; means operatively connected with the first-named train to shift said wheel laterally to operatively connect it to drive said first-named train when said wheel is rotated in one direction and to disconnect said wheel from said first-named train when the wheel is rotated in the other direction; a wheel having a lateral and a rotary movement and arranged for operative connection with the second-named train; means for shifting said wheel laterally to operatively connect it to drive said second-named train when the wheel is rotated in one direction and to disconnect it from said train when the wheel is rotated in the other direction; and means operatively connected with said wheels and having a movement in one and the other direction to turn one of said wheels in one direction and the other in the other direction to drive one train and release the other, and vice versa.

2. The combination of a plurality of pairs of rollers, strips for said pairs of rollers respectively, each strip having its ends fastened to the respective rollers of its pair to be wound and unwound from roller to roller, means connecting a train of rollers, which train comprises one roller of each of said pairs for the simultaneous rotation of one roller of each of

mid pairs; means connecting a train of rollers which comprises the other rollers of each of said pairs respectively for the simultaneous rotation of the said other rollers of the several pairs; a sprocket-wheel furnished with a chain member and having a rotary and a lateral movement; means operatively connected with the first-named train to shift said sprocket-wheel laterally to operatively connect it to drive said first-named train when said sprocket-wheel is rotated in one direction and to disconnect said sprocket-wheel from said first-named train when the sprocket-wheel is rotated in the other direction; a sprocket-wheel having a lateral and a rotary movement and arranged for operative connection with the second-named train; means for shifting said sprocket-wheel laterally to operatively connect it to drive said second-named train when the sprocket-wheel is rotated in one direction and to disconnect it from said train when the sprocket-wheel is rotated in the other direction; a master sprocket-wheel; and a sprocket-chain led around said master sprocket-wheel and around said sprocket-wheels for their simultaneous rotation in one and the other direction.

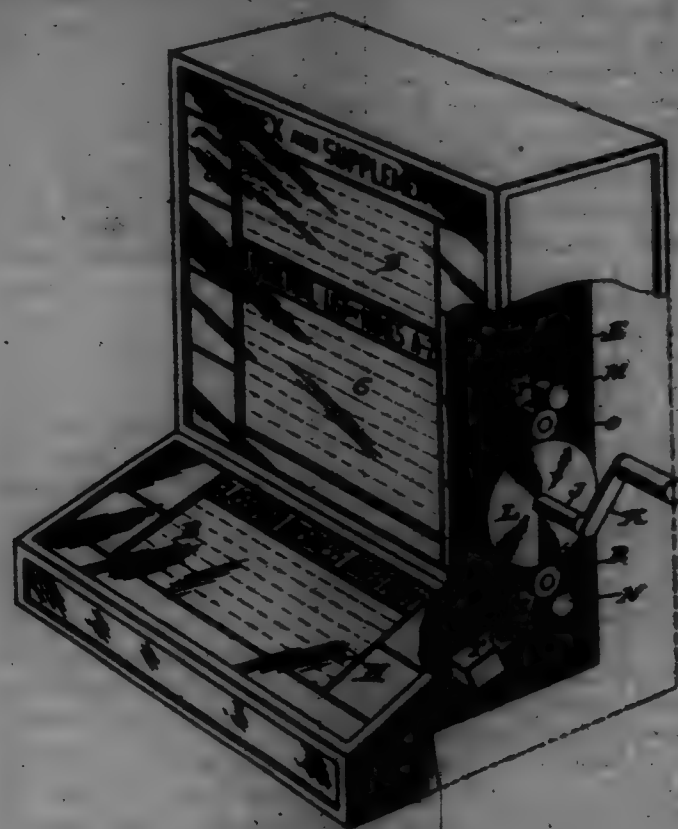
11. The combination of a plurality of pairs of rollers; strips for said pairs of rollers respectively, each strip having its ends fastened to the respective rollers of its pair to be wound and unwound from roller to roller; means connecting a train of rollers, which train comprises one roller of each of said pairs for the simultaneous rotation of one roller of each of said pairs; means connecting a train of rollers which comprises the other roller of said pairs respectively for the simultaneous rotation of the said other roller of the several pairs; a shaft positively connected with one of said trains and furnished with a screw-threaded portion and with a plain portion; a wheel furnished with a nut to screw onto and off of said screw-threaded portion and to rotate freely on said unthreaded portion; resilient means to throw the wheel onto the screw-threaded portion; a clutch for connecting the wheel and the shaft for the rotation of the shaft when the nut is screwed upon the screw and to disconnect the same when the nut is upon the plain portion; a shaft connected with the other train to rotate therewith and furnished with a screw-threaded portion and a plain portion; a wheel furnished with a nut to screw upon said screw and to rotate upon said plain portion and furnished with a clutch member for connecting said wheel with said shaft when the nut is screwed upon the screw-threaded portion and disconnecting the wheel when the nut is upon the smooth portion; resilient means for holding the nut against the end of the screw; and means adapted to be turned in one and the other direction and connected with said wheels to turn one in the one direction to screw it upon the screw and the other in the other direction to unscrew it from its screw, and vice versa.

4. The combination of a plurality of pairs of rollers; strips for said pairs of rollers respectively, each strip having its ends fastened to the respective rollers of its pair to be wound and unwound from roller to roller; means connecting a train of rollers, which train comprises one roller of each of said pairs for the simultaneous rotation of one roller of each of said pairs; means connecting a train of rollers which comprises the other roller of said pairs respectively for the simultaneous rotation of the said other roller of the several pairs; a shaft operatively connected with one of said trains and furnished with a screw-threaded portion and with a plain portion; a wheel furnished with a nut to screw onto and off of said screw-threaded portion and to rotate freely on said unthreaded portion; resilient means to throw the wheel onto the screw; a clutch for connecting the wheel and the shaft for the rotation of the shaft when the nut is screwed upon the screw and to disconnect the same when the nut is upon the plain portion; a shaft connected with the other train to rotate therewith and furnished with a screw-threaded portion and a plain portion; a wheel furnished with a nut to screw upon said screw and to rotate upon said plain portion and furnished with a clutch member for connecting said wheel with said shaft when the nut is screwed upon the screw-threaded portion and disconnecting the wheel when the nut is upon the smooth portion; resilient means for holding the nut against the end of the screw; a master sprocket-wheel and a sprocket-chain led around said master sprocket-wheel and around said sprocket-wheels for their simultaneous rotation in one and the other direction.

8. The combination of a frame; a plurality of rollers arranged in two rows and in a plurality of pairs; means operatively connecting the rollers of one row in a train for their simultaneous rotation; means operatively connecting the rollers of the other row in a train for their simultaneous operation; a row of idlers arranged in front of one of said rows of rollers, and in pairs, the pairs of idlers being devoted to and arranged in front of the pairs of rollers, respectively; strips for the pairs of rollers, respectively, each strip being led in front of its respective pair of idlers and fastened at its ends respectively to the rollers of its pair; and automatic reversing means for simultaneously driving one train of rollers, and releasing the other train of rollers, and vice versa.

697,881. MINERALIAL DISTRICT. James W. Maxwell.
Los Angeles, Cal. Filed Dec. 2, 1902. About 100 claims. (No model.)

Claim.—1. In combination with a suitable casing provided with an inspection-opening, a pair of shafts mounted therein; a web or band passing from one shaft to the other; said inspection-opening; a wheel mounted in the casing intermediate the ends of said shafts; arms pivotally connected to the casing adjacent to the ends of the shafts; and rollers carried by the free ends of said arms and normally resting on the wheel, said rollers being of such size that as the wheel is rotated in one or the other direction, one or the other of said rollers will be brought into operative or driving relation with the end of the adjacent shaft.



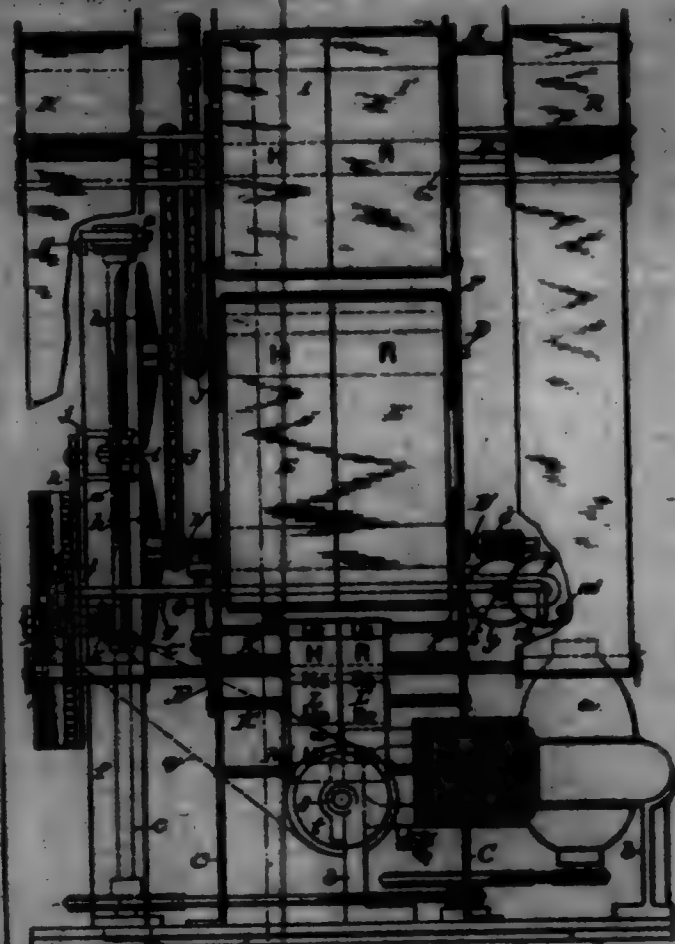
2. In combination with a suitable casing provided with an inspection-opening, a pair of shafts mounted therein; a web or band passing from one to the other of said shafts past said inspection-opening; a wheel mounted intermediate the ends of said shafts; a slotted arm P pivotally connected to the casing adjacent to the upper shaft; a roller carried by said arm and normally resting upon the wheel; an arm pivotally connected to the casing below the wheel; a roller carried by said arm and normally held in contact with the wheel; and means for rotating the wheel, substantially as and for the purpose described.

3. In combination with a suitable casing provided with an inspection-opening, a pair of shafts mounted therein; a web extending from one to the other of said shafts past the inspection-opening; a wheel mounted intermediate the shafts; a slotted arm P pivotally connected to the casing adjacent to the upper one of the shafts; a roller carried by the lower end of said arm and normally resting upon the wheel; a step to limit the swinging movement of the arm away from the end of the shaft; a slotted lever S pivotally connected to the casing below the wheel; a roller carried by said lever and normally held in contact with said wheel; and a step to limit the movement of said lever.

4. In combination with a suitable casing provided with inspection-openings B, C and D, a pair of shafts mounted in said casing; a series of life rollers mounted in the casing; a band or web connected to the shafts and passing about the life rollers, substantially as shown and described, whereby one face of said web will be exposed to view at the inspection-opening B while the opposite face will be brought to view at the inspection-opening C; a wheel mounted intermediate said shafts; a slotted arm P pivotally connected to the casing adjacent to the upper one of said shafts; a roller carried by the lower end of said arm; a step to limit the movement of said arm away from the shaft; a slotted weighted lever S pivotally connected to the shaft below the wheel; a roller carried by the upper end of said lever; a step to limit the swinging movement of said lever; a second pair of shafts located in the upper portion of the casing adjacent to the inspection-opening D; a web passing from one to the other of said shafts past the inspection-opening D; and connections between said second pair of shafts and the first pair of shafts whereby motion is imparted to said second shafts as one or the other of said first pair is moved.

697,882. MECHANICAL DICTIONARY. GEORGE W. MAXWELL, Los Angeles, Cal. Filed Nov. 8, 1901. Serial No. 61,728. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts and adapted to be wound about said shafts in reverse directions; a disk carried by the end of each of said shafts; a continuously-rotating shaft mounted in line with the faces of said disks; a friction-wheel slidably mounted upon said shaft and rotating therewith; and means controllable from without the apparatus for shifting the wheel upon the rotatable shaft to bring it into contact with one or the other of the disks, substantially as described.



2. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts and adapted to be wound about said shafts in reverse directions; a disk carried by each of said shafts; a shaft extending past the faces of said disks; a friction-wheel slidably mounted upon said shaft; means for bringing said wheel into operative relation with one or the other of said disks; and means for automatically shifting said wheel when the entire web has been nearly wound around one of said web-carrying shafts.

3. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts and adapted to be wound about said shafts in reverse directions; means controllable from without the apparatus for causing one or the other of said shafts to be rotated; and means operated by the rotation of one of the shafts for stopping the rotation of the shaft when the web has been wound about the shaft a predetermined distance.

4. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other thereof and adapted to be wound about said shafts in reverse directions; a friction-disk carried by the end of each of said shafts; a third shaft mounted in line with the faces of said disks; a friction-wheel slidably mounted on said shaft; means for rotating the shaft; and means controllable from without the apparatus for moving the wheel into contact with one or the other of said disks and to position the same with reference thereto, whereby the speed of rotation of the web-carrying shafts may be regulated and determined.

5. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts and adapted to be wound about said shafts in reverse directions; disks carried by the ends of each of said shafts; a third shaft mounted in line with the faces of said disks; a friction-wheel slidably mounted upon said shaft; means for determining the position of said wheel upon the shaft and its relation to the disks; and means for maintaining the wheel in proper frictional contact with the disks.

6. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts; a friction-disk carried by the end of each of said shafts; a third shaft mounted in line with the faces of said disks; a friction-wheel slidably mounted upon said shaft; means for continuously operating said shaft; means controllable from without the apparatus for shifting the wheel upon the shaft to bring it into contact with one or the other of said disks, substantially as described.

ble from without the apparatus for positioning the friction-wheel with relation to the disks; and means for automatically shifting the position of the wheel when the web has traversed a predetermined distance in one or the other direction.

7. In an apparatus of the character described, the combination of a pair of shafts; a web connected to said shafts and arranged to be wound about said shafts in reverse directions; a disk connected to the end of each of said shafts; a third shaft extending parallel to the faces of said disks; means for continuously rotating said shaft; a friction-wheel slidably mounted upon said shaft; a sliding frame mounted adjacent to the shaft and in operative connection with the friction-wheel; means controllable from without the machine for raising or lowering the frame and thereby bringing one or the other of the disks into operative relation with the friction-wheel; and connections substantially such as described between the frame and one of the shafts for automatically shifting the position of the frame when the entire web is substantially wound about one of the web-carrying shafts.

8. In an apparatus of the character described, the combination of a pair of shafts; a web connected thereto and arranged to be wound about said shafts in reverse directions; a disk carried by the end of each of said shafts; a third shaft extending parallel to the faces of said disks; means for rotating said shaft; a friction-wheel slidably mounted upon said shaft; a frame mounted in suitable bearings adjacent to the shaft; means controllable from without the apparatus for shifting the position of the frame to bring the wheel into contact with one or the other of said disks; a pair of racks carried by said frame; a counter-shaft driven from the rotating shaft; pinions loosely mounted on said shaft and in engagement with the racks of the frame; a clutch slidably mounted upon said counter-shaft and rotating therewith; and connections between said clutch and a moving part of the apparatus to shift the clutch into operative connection with one or another of said pinions when the web has been practically wound about one of said web-carrying shafts.

9. In an apparatus of the character described, the combination of a pair of shafts; a web extending from one to the other of said shafts and arranged to be wound about said shafts in reverse directions; a disk carried by the end of each of said shafts; a third shaft extending parallel to the faces of said disks; means for positively rotating said shaft; a friction-wheel slidably mounted upon said shaft; a frame mounted in suitable bearings and moving parallel with the length of said third shaft; a rack mounted on the frame; a pinion engaging said rack; connections substantially as described extending to the outer portion of the apparatus and under the control of the user to elevate said pinion and thereby to elevate or depress the frame; a second pair of racks also connected to the frame; a counter-shaft extending through an opening in the frame in line with said pair of racks; driving connections intermediate said counter-shaft and the main driving-shaft; pinions loosely mounted on said counter-shaft and in operative connection with each of said pair of racks; a sliding clutch mounted on the counter-shaft; a shifter for said clutch adapted and arranged to move said clutch into operative connection with one or the other of said pinions; connections intermediate said shifter and one of the web-carrying shafts; and clutch-releasing devices carried by the frame to release the clutch when the frame has been elevated or depressed to the required degree.

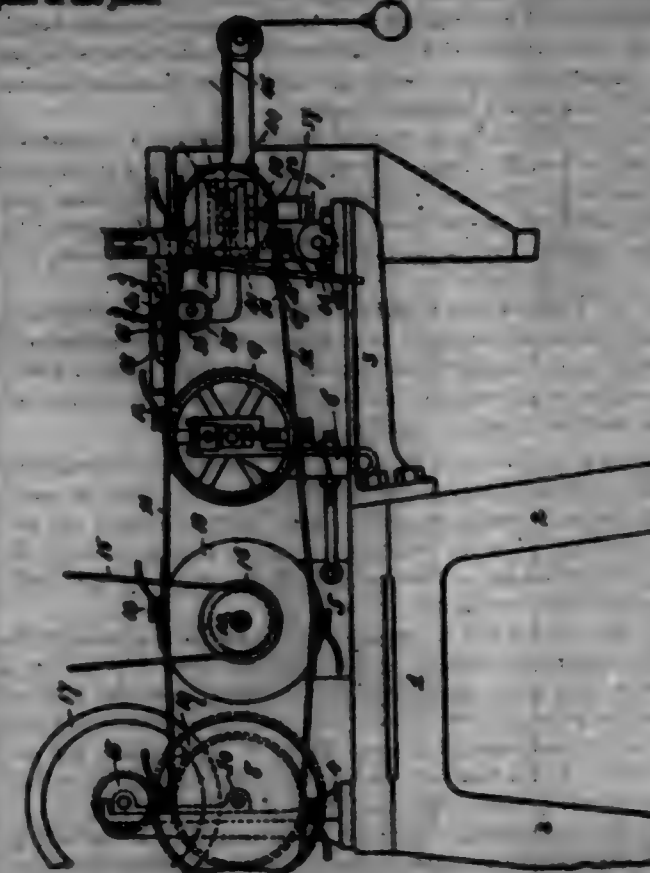
10. In an apparatus of the character described, the combination of a pair of shafts; a pair of webs extending from one to the other of said shafts and arranged to be wound about said shafts in reverse directions; means for positively rotating one or the other of said shafts; a second pair of shafts; a pair of webs connected to said shafts; driving connections intermediate said second pair of shafts and one of said first pair, said connections being such that the second pair of shafts is driven at a relatively low speed; a third pair of shafts; a third set of webs connected to said shafts; driving connections between said third pair of shafts and the first pair of shafts; and a fourth pair of webs connected to shafts mounted and rotated by the outer ends of said third pair of shafts, substantially as described.

697,888. MACHINE FOR GRINDING AND POLISHING STEEL OR OTHER METALLIC SURFACES. JAMES W. HALLAM and HENRY HALLAM, Birmingham, England. Filed Oct. 21, 1901. Serial No. 70,028. (No model.)

Claim.—1. In a machine for grinding and polishing pans, the combination of a conveyor having means for holding the pans, means for feeding the pans, including an electromagnet arranged in juxtaposition to the conveyor, and means to hold the pans in the path of the pan-holding means on said conveyor.

2. In a machine for grinding and polishing pans, the combination of a conveyor provided with supports for holding the pans and a grinding and polishing device, said supports being arranged longitudinally of the conveyor and having jaws adapted to receive the pans and feeding means to

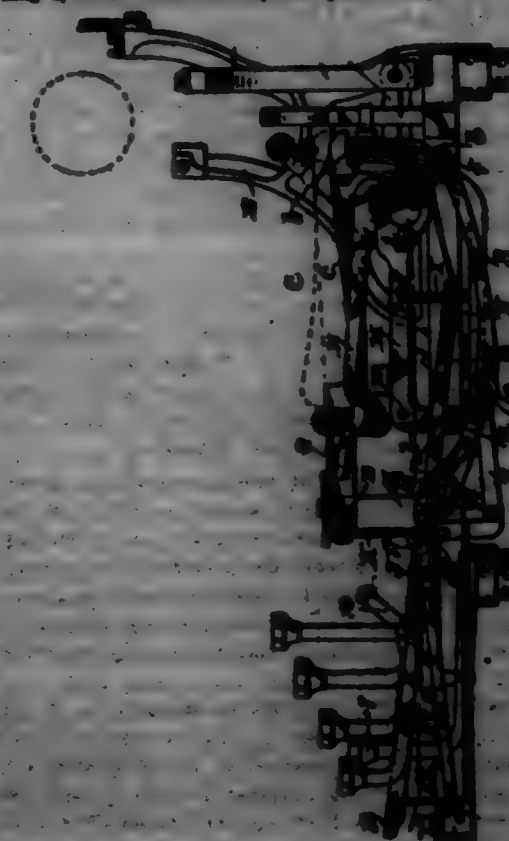
feeding the pans, including a magnet arranged to hold the pans in the path of the jaws.



3. In a machine for grinding and polishing pans, the combination of a grinding and polishing device, of a conveyor having jaws arranged to hold the pans, the respective jaws serving to grip the pans, means for actuating the jaws, and superposed plates between which the conveyor is arranged to travel, said plates being adjustably mounted and collapsible respectively with the jaw-actuating means.

4. In a machine for grinding and polishing pans, the combination of a grinding and polishing device, a conveyor having means for holding the pans and presenting them successively to said grinding and polishing device, means for feeding the pans crosswise of the line of travel of the conveyor, including an electromagnet, and a spring collapsible with the ends of the magnet, the spring being adjustably mounted and arranged in the path of the pans as they progress toward said conveyor.

697,884. TYPE-WRITER. JOHN W. PAUL, Birmingham, Pa., assignor to Pitney Writing Machine Company, Troy, Pa. Filed May 1, 1901. Serial No. 61,577. (No model.)



Claim.—1. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, a key-lever located thereunder, a substantially horizontally arranged member located between said key-lever and type-bar, the intermediate member operatively connected with said type-bar and a direct-connection between the key-lever and said horizontal member.

2. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, having a projection at its pivotal end, a key-lever located thereunder, and a rigid pivoted intermediate horizontal member having a socket at one end and receiving the type-bar projection, and a connection at its opposite end with said key-lever.

3. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar having a projection at its pivotal end, a key-lever, and a pivoted intermediate member having at one end a socket receiving said type-bar projection, and a cam connection between its opposite end and said key-lever.

4. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, a key-lever, an essentially L-shaped intermediately-pivoted lever having horizontal and vertically-projecting arms, the horizontal arm having at its end a socket engaging the pivoted end of the type-bar, and its vertical end operatively connected with the key-lever.

5. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar having a projection at its pivotal end, a key-lever, a substantially horizontally-arranged L-shaped intermediately-pivoted lever located thereunder, the said lever having horizontal and vertically-extending arms, the end of the horizontal arm provided with a socket receiving the type-bar projection, and the vertical arm operatively connected with the key-lever.

6. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, an intermediately lever located under the type-bar, the said intermediate lever having an inwardly-extending horizontal arm operatively connected with the pivoted end of the type-bar, a key-lever located below the said intermediate lever, the intermediate lever having at its pivoted end a depending arm operatively connected with the key-lever.

7. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, an intermediately lever pivoted at one end near the free end of the type-bar, the free end of the intermediate lever directly operatively connected with the type-bar, and a key-lever located below the intermediate lever and directly operatively connected with the said intermediate lever.

8. In a type-writer, a type-bar action comprising a substantially normally horizontally arranged pivoted type-bar, an intermediately lever pivoted near but below the free end of the type-bar, the free end of the lever being operatively connected with the pivoted end of the type-bar, a key-lever below the intermediate lever and pivoted at a point below and between the end of the type-bar and the said lever, the pivoted end of the said intermediate lever being connected with the key-lever at a point intermediate the ends of the latter.

9. In a type-writer, a type-bar action comprising a plurality of substantially normally horizontal pivoted type-bars arranged in the arc of a circle, a plurality of key-levers, a plurality of essentially L-shaped pivoted levers having horizontal and vertically-extending portions their horizontal portions operatively connected with the type-bars, and their vertical portions of various lengths, and cam connections of various pitches between the key-levers and the vertical portions of the said L-shaped levers.

10. In a type-writer, a type-bar action comprising a plurality of pivoted type-bars arranged in the arc of a circle, a plurality of pivoted L-shaped levers located therebelow and arranged in a corresponding arc, the vertical portions of the L-shaped levers at either side of the central one increasing in length, a plurality of key-levers arranged in a common horizontal plane, and operative connections between the ends of said L-shaped levers, the type-bars and key-levers respectively.

11. In a type-writer, a type-bar action comprising a plurality of pivoted type-bars arranged in the arc of a circle, a plurality of pivoted L-shaped levers located therebelow and arranged in a corresponding arc, a plurality of key-levers located below the L-shaped levers, connections between the vertical portions of the L-shaped levers and the key-levers, all of said connections arranged in substantially the same horizontal plane, and connections between the horizontal ends of the said L-shaped levers and the type-bars.

12. In a type-writer, a type-bar action comprising a plurality of pivoted type-bars arranged in the arc of a circle, a plurality of pivoted L-shaped levers located therebelow and arranged in a corresponding arc, the downwardly-projecting ends of the L-shaped levers at opposite sides of the central one being deflected and arranged in substantially a true vertical plane, a plurality of key-levers having a movement in substantially

a true vertical plane, and operative connections between opposite ends of the L-shaped levers.

13. In a type-writer, a type-bar action comprising a plurality of pivoted type-bars arranged in the arc of a vertical circle, a plurality of L-shaped levers located therebelow and arranged in a corresponding arc, the said L-shaped levers pivoted at the junction of the arms of the L, a plurality of key-levers, cam connections between the vertical arms of the L-shaped levers and the said key-levers, the cam connections consisting of cam-discs and pins engaging therein.

14. In a type-writer, the combination of a plurality of type-bars arranged in the arc of a vertical circle, a plurality of L-shaped levers having horizontal and vertically-projecting arms located therebelow, pivoted supports for the said levers at the junction of the arms constituting the L-shaped levers, an operative connection between the free ends of the horizontal arms and the type-bars, the vertical arms of the L-shaped levers provided with cam-shaped discs all of which are located in the same horizontal plane, and a plurality of key-levers located in a corresponding horizontal plane and provided with projections engaging the said cam-discs.

15. In a type-writer, a type-bar action comprising a frame, a plurality of type-bars pivoted therein and arranged in the arc of a vertical circle, a plurality of key-levers having their inner ends loosely connected with the said frame at a point below and between the ends of the type-bars, a plurality of L-shaped levers pivoted at the junction of the arms constituting the L-shaped levers, the said pivoted point located below and adjacent the free ends of the type-bars, and direct operative connections between the ends of the L-shaped levers and the type-bars and key-levers respectively.

16. In a type-writer, a type-bar action comprising a vertically-movable frame, a plurality of type-bars pivoted in one end thereof and arranged in the arc of a vertical circle, a plurality of L-shaped levers arranged in a corresponding arc and pivotedly supported in the said frame at the junction of the arms constituting the L-shaped levers, the pivoted point located at a point between the ends of the said frame, a plurality of key-levers located below the L-shaped levers and having their inner ends loosely connected with the frame at a point between the ends of the horizontal portions of the L-shaped levers, and operative connections between the ends of the L-shaped levers and the type-bars and key-levers respectively.

17. In a type-writer, a type-bar action comprising a frame, a plurality of type-bars pivotedly supported in one end of the frame and arranged in the arc of a vertical circle, a plurality of key-levers supported in the same frame and having their inner ends loosely connected therewith, and a plurality of intermediate connecting members having one end connected with the pivoted ends of the type-bars and their opposite ends connected with the key-levers at points between the ends of the key-levers.

18. In a type-writer, a type-bar action comprising a vertically-shifting frame, a plurality of type-bars pivoted at one end of the frame and arranged in the arc of a vertical circle, a plurality of key-levers located below the type-bars and having their inner ends loosely supported by the said frame at a point intermediate the ends of the frame, the end of the frame opposite the pivoted point of the type-bars provided with a depending key-lever-guiding device, and intermediate connections between the key-levers and the type-bars.

19. In a type-writer, the combination of a vertically-shifting type-bar action, and a counterweight operatively connected therewith and of less bulk than the bulk of the type-bar action, and serving to assist in moving the type-bar action vertically.

20. In a type-writer, the combination of a substantially horizontally arranged vertically-shifting type-bar action having a pivotal support at one side of the center thereof, a key-lever for moving the said type-bar action upward, and a counterweight connected therewith and serving to assist the key-lever in moving the type-bar action upward.

21. In a type-writer the combination of a substantially horizontally arranged vertically-shifting type-bar action including type-bars, a pivotal connection therefor located at one side of its center, and a counterweight operatively connected with the heavier portion of said type-bar action, and serving to counterbalance it.

22. In a type-writer the combination of a substantially horizontally arranged vertically-shifting type-bar action, a pivotal support for one end of the said type-bar action, and a counterweight operatively connected with the free end of said type-bar action, and serving to assist in moving the type-bar action.

23. In a type-writer the combination of a substantially horizontally arranged vertically-shifting type-bar action, a counterweight connected therewith, a key-lever, and a connection between the type-bar action and the key-lever at a point intermediate the latter.

24. In a type-writer the combination of a substantially horizontally arranged vertically-shifting type-bar action pivotedly supported at its outer portion, a counterweight operatively connected therewith to assist in moving the

type-bar on the free end thereof, and a compound key-lever connection for shifting the free end of said type-bar.

25. In a type-writer the combination of a substantially horizontally arranged vertically-shifting type-bar action pivotedly supported at its outer portion, and a compound key-lever connected therewith and constructed to lift the type-bar when the key-lever is depressed.

26. In a type-writer the combination of a substantially horizontally arranged vertically-shifting pivoted type-bar action, an intermediately-pivoted member having one end operatively connected with the free end of said type-bar action, a shifting lever pivoted at one end and having an intermediate connection with the opposite end of said intermediately-pivoted member.

27. In a type-writer the combination of a substantially horizontally arranged vertically-shifting pivoted type-bar action, an intermediately-pivoted member having one end operatively connected with the free end of said type-bar action, an inwardly-extending shift-lever having its inner end independently pivotedly supported, and a connection between the opposite end of the intermediately-pivoted member and the shift-lever at a point intermediate the ends of the latter.

28. In a type-writer, the combination of a substantially horizontally arranged vertically-shifting pivoted type-bar action, an intermediately-pivoted member having one end operatively connected with the free end of said type-bar action, a shift-lever pivoted at one end to an independent support, and a link connected to the opposite end of the intermediately-pivoted member and to the shift-lever at a point intermediate the ends of the latter.

29. In a type-writer the combination of a substantially horizontally arranged vertically-shifting pivoted type-bar action, an intermediately-pivoted member having one end operatively connected with the free end of said type-bar action, and a counterweight connected with the opposite end of said intermediately-pivoted member and serving to depress the end of said lever with which it is connected.

30. In a type-writer the combination of a substantially horizontally arranged vertically-shifting pivoted type-bar action, an intermediately-pivoted member having one end operatively connected with the free end of said type-bar action, a counterweight in the form of a chain attached to and extending substantially parallel the opposite end of said intermediately-pivoted member.

31. In a type-writer the combination of a type-action including a plurality of key-levers, a universal carriage-feed member, a space-bar, and a lever pivoted at its inner end intermediately engaging said universal-feed member and its opposite end connected with the space-bar.

32. In a type-writer the combination of a frame, a type-action including a plurality of type-bars, a universal carriage-feed member adapted to be engaged thereby, a space-bar pivotedly connected with said frame, a lever extending over said universal feed member and pivotedly supported at its inner end, the outer end of said lever connected with the space-bar.

697,885. **SAFETY-LOCKING APPARATUS.** GEORGE J. ADAMS, Pittsburg, Pa., assignor to Harrold C. Adams, Pittsburg, Pa. Filed Mar. 20, 1897. Serial No. 690,017. (No model.)

Claim.—1. The combination of a jarring-block having a central passage through the same, a jarring-table resting on said block, a lifting-bar connected to said table and passing through said block, lifting mechanism operating upon said lifting-bar below the jarring-block, and adjustable guides within the jarring-block for controlling the movement of the lifting-bar, substantially as set forth.

2. The combination of a jarring-block having a central passage through the same, a jarring-table resting on said block, a lifting-bar connected to said table and passing through said block, lifting mechanism operating upon said lifting-bar below the jarring-block, horizontal slots formed in the jarring-block, and guide-blocks fitting in said slots and engaging with the lifting-bar, substantially as set forth.

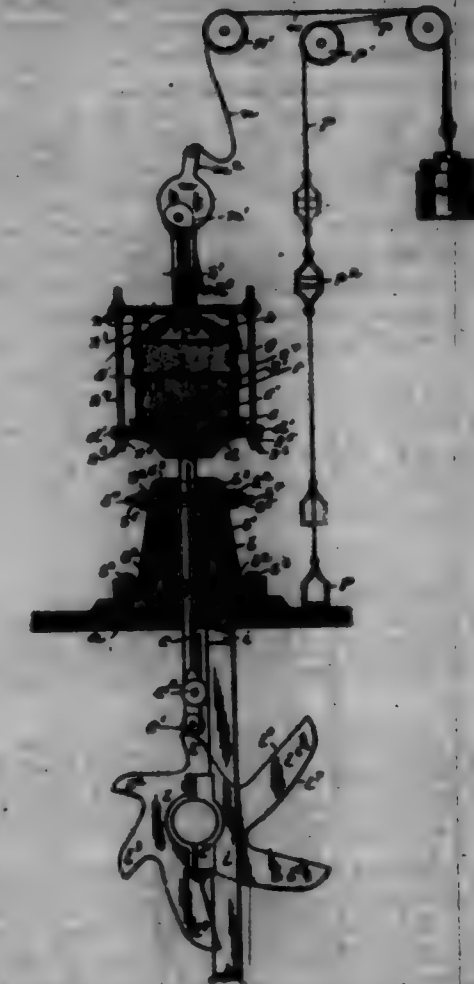
3. The combination of a jarring-block having a central passage through the same, a jarring-table resting on said block, a lifting-bar connected to said table and passing through said block, lifting mechanism operating upon said lifting-bar below the jarring-block, horizontal slots formed in the upper part of the jarring-block and in the lower part of the jarring-block respectively, and guide-blocks fitting in said slots and engaging with the lifting-bar, substantially as set forth.

4. The combination of a jarring-block, a jarring-table, and a lifting-bar operating to raise said table and permit it to drop upon the jarring-block, said bar having outer more short cam-arms and one or more long cam-arms, substantially as set forth for the purposes set forth.

5. The combination of a jarring-block and a jarring-table, a flask, a reservoir, and a follower adapted to enter the reservoir and hold the said flask from rebounding in jarring, and a guide connected to and above the follower-body to hold the same horizontal, substantially as set forth.

6. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame above the reservoir and carrying a guideway, and a follower having a guide entering said guideway, substantially as set forth.

7. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame adapted to be secured to the table and carrying a guideway and having a support engaging with the reservoir, and a follower within said support adapted to enter the reservoir and having a guide entering said guideway, substantially as set forth.



8. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a guided follower and a retainer for said follower arranged to prevent back movement thereof during the jarring operation, substantially as set forth.

9. The combination of a jarring-block, a jarring-table, a flask, a reservoir, and a clamping-frame engaging the reservoir and having depending bars detachably engaging with the jarring-table, substantially as set forth.

10. The combination of a jarring-block, a jarring-table having slots in the edges thereof, a flask, a reservoir, and a clamping-frame having depending arms entering said slots and carrying cams engaging with the lower face of the jarring-table, substantially as set forth.

11. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame carried by said table and having a guideway thereon and a bearing above the guideway, a follower having a guide-bar entering said guideway and a cam mounted in said bearing and contacting with the upper end of the guide-bar, substantially as set forth.

12. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame, a pulley above the table, a rope connected to the frame and passing over the pulley and a counterbalancing-weight connected to said rope, substantially as set forth.

13. In sand-molding apparatus, the combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame, a pulley above the table, a rope connected to the frame and passing over the pulley and a counterbalancing-weight connected to said rope, and an operating-rope adapted to raise the weight and permit the descent of the clamping-frame, substantially as set forth.

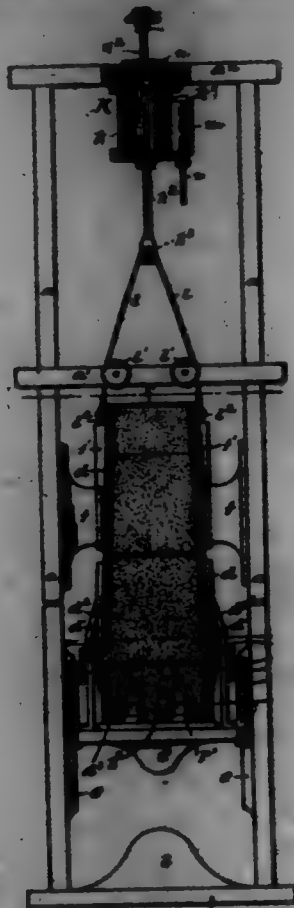
14. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a clamping-frame, a pulley above the table, a rope connected to the frame and passing over the pulley and a counterbalancing-weight connected to said rope, and an operating-rope adapted to raise the weight and permit the descent of the clamping-frame and having stops thereon, substantially as set forth.

15. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a jarring-frame carrying a follower and having a bearing, a cam mounted in said bearing and engaging with the follower and having an arm thereon, a pulley above the jarring-table, a rope connected to said cam-arm and passing over said pulley, and a counterbalancing-weight connected to the rope, substantially as set forth.

16. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a single clamping means arranged to secure both the reservoir and flask to the table, and a guided follower adapted to enter the reservoir, substantially as set forth.

17. The combination of a jarring-block, a jarring-table, a flask, a reservoir, a follower adapted to enter the reservoir and a retaining device arranged to engage therewith and prevent back movement during the jarring operation, substantially as set forth.

697,886. SAND-HOLDING APPARATUS. STEVEN J. ADAMS, Pittsburg, Pa., assignor to Harveith G. Adams, Pittsburg, Pa. Filed Mar. 20, 1897. Serial No. 698,918. (No model.)



Claim.—1. In sand-molding apparatus, the combination of a jarring-table, a flask, and a sand-feeding chute supported on the table independent of the flask, substantially as set forth.

2. In sand-molding apparatus, the combination of a jarring-table, a flask, and a sand-feeding chute permanently supported on the jarring-table independent of the flask, substantially as set forth.

3. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on the table independent of the flask, and clamping means between said flask and chute, substantially as set forth.

4. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on the table independent of the flask, and a sand-feeding chute engaging with the flask, substantially as set forth.

5. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute above the flask, stationary vertical guideways, guides on the chute engaging said stationary guideways, and mechanism for raising the table and chute, substantially as set forth.

6. In sand-molding apparatus, the combination of a jarring-table, a sand-feeding chute permanently secured above the same, guides engaging with said table and with the upper part of said chute, and lifting mechanism for raising the table and chute, substantially as set forth.

7. In sand-molding apparatus, the combination of a jarring-table, a sand-feeding chute permanently secured thereon, guides engaging with the table and with the upper end of the chute, lifting mechanism above the chute and a flexible connection between said lifting mechanism and the chute, substantially as set forth for the purpose set forth.

8. In sand-molding apparatus, the combination of a jarring-table, a sand-feeding chute permanently secured thereon, a filling-engine above and connected to the chute and having a piston-rod extending above the engine, a head or end piston-rod and a stop engaging the said head, substantially as set forth.

9. In sand-molding apparatus, the combination of a jarring-table, a sand-feeding chute permanently secured thereon, lifting mechanism above the chute having a vertical depending rod carrying a pulley, guided pul-

leys above the chute and a flexible connection passing from said chute over said guided pulleys and over the pulley on the depending rod, substantially as set forth.

10. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on the table a short distance above the top of the flask, and a cutting-frame carrying a wire, said frame being adapted to pass within the space between the flask and chute, substantially as set forth for the purpose set forth.

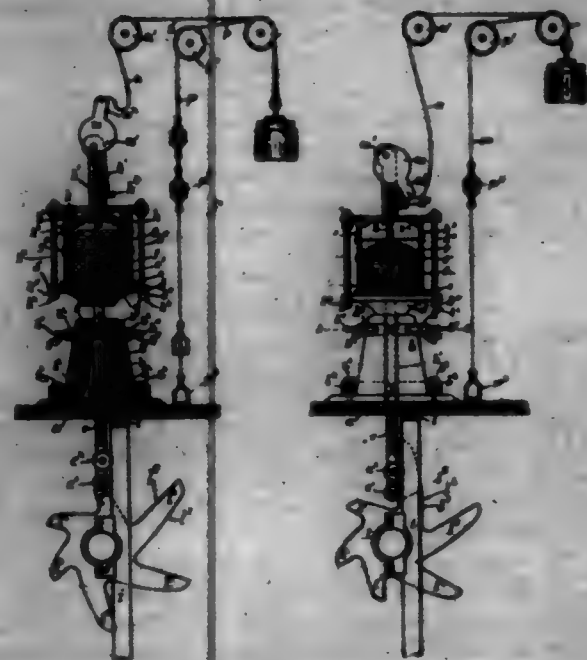
11. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on the table a short distance above the top of the flask, and a cutting-frame carrying a wire, said frame being adapted to pass within the space between the flask and chute, substantially as set forth for the purpose set forth.

12. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on the table a short distance above the top of the flask, and a cutting-frame carrying a wire and back of the same a clecker, and adapted to pass in the space between the flask and chute substantially as set forth.

13. In sand-molding apparatus, the combination of a jarring-table, a flask and a sand-feeding chute supported on the table independently of the flask and having wires extending across near the base thereof to support the sand therein, substantially as set forth.

14. In sand-molding apparatus, the combination of a jarring-table, a flask, a sand-feeding chute supported on and movable with the jarring-table, a permanent sand-reservoir above and at one side of the chute and a horizontally-moving transfer-box adapted to receive the sand from the reservoir and pass over and deliver it to the chute, substantially as set forth.

697,887. METHOD OF FORMING SAND MOLDS. STEVEN J. ADAMS, Pittsburg, Pa., assignor to Harveith G. Adams, Pittsburg, Pa. Original application filed Mar. 20, 1897, Serial No. 698,917. Divided and this application filed Feb. 6, 1901. Serial No. 68,161. (No model.)



Claim.—1. The herein-described method of forming sand molds consisting in imparting one or more light or short distributing jets to the sand within the flask or core-box and subsequently imparting one or more heavy or long packing jets to each mold.

2. The herein-described method of forming sand molds consisting in imparting one or more light distributing jets to the sand within the flask, and then imparting two or more heavy packing jets to each mold, said packing jets increasing gradually in strength.

697,888. METHOD OF FORMING SAND MOLDS. STEVEN J. ADAMS, Pittsburg, Pa., assignor to Harveith G. Adams, Pittsburg, Pa. Original application filed Mar. 20, 1897, Serial No. 698,918. Divided and this application filed Feb. 6, 1901. Serial No. 68,162. (No model.)

Claim.—The herein-described method of forming sand molds, consisting in imparting a jet to a flask containing sand around the pattern and to a superimposed body of sand of sufficient height to act as a weight and prevent rebound of the sand in the upper part of the flask in the jarring action.

697,888.



697,889. PLOW. JAMES F. BARNES, Minn., assignor of one-half to F. H. Bennett and J. L. Hall, Minn. Filed Aug. 15, 1891. Serial No. 73,164. (No model.)



Claim.—In a plow, the combination with the plow-beam; of a forward set of cross-bars pivoted to the upper and lower sides thereof, a rear set of cross-bars also pivoted to the upper and lower sides of the plow-beam, links disposed between the ends of the forward set of cross-bars and the rear set of cross-bars and pivoted to said cross-bars, bifurcated plow-standards straddling said links and beam, trusses connecting the outer standards to the rear ends of the links, bolts passed through the upper ends of said standards above the links and beam, bolts passed through said standards below the links and beam, a segmented perforated bar, and a pin adapted to pass through said perforations and lock the bar in adjustment with the beam, substantially as specified.

697,890. WOVEN TUBULAR FABRIC. WILLIAM BEN, LAWRENCE, Mass., assignor, by mesne assignments, to the Preston Hose and Tire Company, a Corporation of Maine. Filed Oct. 20, 1899. Renewed Jan. 22, 1902. Serial No. 69,890. (No specimen.)



Claim.—1. A two-tube of continuous woven fabric having a woven reinforcing-ply overlying the tread portion of the tube and a second woven

reinforcing-ply overlying the first, together with two sets of stitching-wraps interwoven with the same web-threads of the first reinforcing-ply, one set of said stitching-wraps being interwoven with web-threads of the tube proper and the other set being interwoven with web-threads of the second reinforcing-ply.

2. A two-tube of continuous woven fabric having a number of superposed woven reinforcing-ply overlying its tread portion, each ply having its own warp-threads while the same filling-threads is common to or continuous between the reinforcing-ply; together with stitching-wraps uniting the plys to each other and to the tube proper.

3. A two-tube of continuous woven fabric with a woven reinforcing-ply overlying its tread portion and a narrower woven reinforcing-ply overlying the first, each ply having its own warp-threads while the filling-threads extend continuously through both reinforcing-ply as follows: from one edge of the first ply part way through the latter and thence through the second ply and back through the same and thence through the first ply to the other edge thereof and back through the full width of said first ply; together with stitching-wraps uniting the two plys to each other and to the tube proper.

4. A two-tube of continuous woven fabric having a number of superposed woven reinforcing-ply overlying its tread portion and graduated in width, each ply having its own warp-threads, while the same filling-threads is common to or continuous between the reinforcing-ply; together with stitching-wraps uniting the plys to each other and the tube proper.

697,891. WOVEN TUBULAR FABRIC. WILLIAM BEN, LAWRENCE, Mass., and JAMES F. BARNES, Bangor, Minn., assignors to the Preston Hose and Tire Company, Bangor, Minn., a Corporation of Maine. Filed Jan. 4, 1900. Renewed Jan. 22, 1902. Serial No. 69,891. (No model.)



Claim.—1. Fabric hose for tires, the same comprising a continuously-woven tube, and a plurality of tubularly continuous reinforcing-ply overlying the tread portion of said tube and stitched together and to the tube.

2. Fabric hose for tires, the same comprising a continuously-woven tube, and a plurality of tubularly continuous reinforcing-ply overlying the tread portion of said tube, and single-ply lateral extensions from the junctions of said reinforcing-ply, the latter being stitched together and to the main tube together with the lateral extensions.

3. Fabric hose for tires, the same comprising a continuously-woven tube, and a plurality of tubularly continuous reinforcing-ply overlying the tread portion of said tube, together with stitching-wraps or tie-threads uniting the reinforcing-ply together and to the tube.

4. Fabric hose for tires, the same comprising a continuously-woven foundation-tube, a tread-reinforcing double ply at the middle and single ply at the sides, each ply having its own warps but the filling threads or web of the entire reinforcing being common to all the plys and extending as follows: from one edge of the single-ply portion of the reinforcing to the double-ply portion and then through the outer ply of the latter and on through the single-ply portion to the opposite edge from that first mentioned, thence back through this portion of two single ply and on through the inner ply of the double-ply portion of the reinforcing and back through the outer ply thereof and thence returning through the inner ply and the single-ply part of the reinforcing to the first-mentioned edge thereof.

697,892. ART OF WEAVING TUBULAR FABRIC. WILLIAM BEN, LAWRENCE, Mass., and JAMES F. BARNES, Bangor, Minn., assignors to the Preston Hose and Tire Company, Bangor, Minn., a Corporation of Maine. Filed Jan. 4, 1900. Renewed Jan. 22, 1902. Serial No. 69,892. (No specimen.)



Claim.—1. The improvement in the art of weaving tubular reinforced fabric for vehicle-tires, the same consisting in weaving a continuous tube and simultaneously weaving a multi-ply reinforcing over the tread portion thereof and uniting the same to the tube proper.

2. The improvement in the art of weaving tubular reinforced fabric for vehicle-tires, the same consisting in weaving a continuous tube and simultaneously weaving a multi-ply reinforcing over the tread portion thereof with a filling-threads common to all the reinforcing-ply, and uniting the same together and to the tube proper.

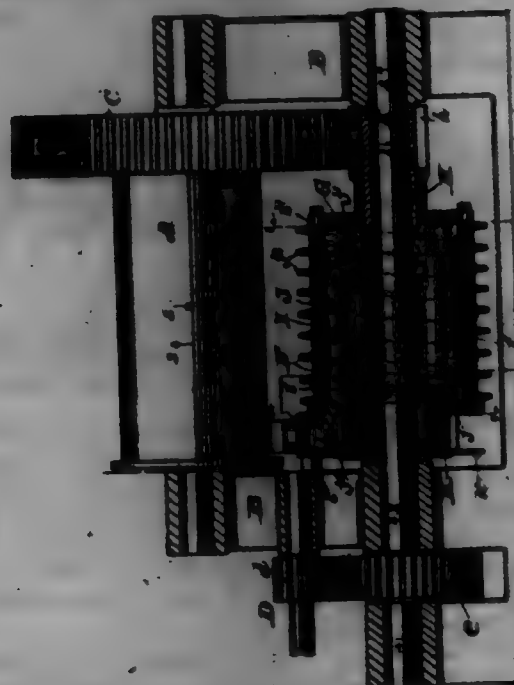
3. The improvement in the art of weaving tubular fabric for vehicle-

ties, the same consisting in weaving a continuous tube, simultaneously therewith weaving a plurality of tubular continuous reinforcing-pieces over the tread portion of the tube, and at the same time knitting the reinforcing-pieces together and to the tube proper.

4. The improvement in the art of weaving tubular fabric for vehicles, the same consisting in weaving a continuous tube, simultaneously therewith weaving a plurality of tubular continuous reinforcing-pieces over the tread portion of the tube, and single-ply lateral extensions from the junction thereof; and at the same time knitting the reinforcing-pieces together and to the tube proper.

5. The improvement in the art of weaving tubular fabric for vehicles, the same consisting in weaving a continuous tube, simultaneously therewith weaving a plurality of tubular continuous reinforcing-pieces over the tread portion of the tube, and single-ply lateral extensions from the junction thereof, all with one and the same filling-thread.

697,898. AUTOMATIC BRAKE. MATTHEW A. BONE, Milwaukee, Wis., assignor to Pawling and Harshbarger, a partnership composed of Almon Pawling and Henry Harshbarger, Milwaukee, Wis. Filed Jan. 2, 1900. Serial No. 791,508. (No model.)



Claim.—1. In an automatic friction-brake the combination of driving and driven members connected by a spiral friction-band, and a shell surrounding said friction-band and free to turn in one direction but held from turning in the opposite direction, the driving member and said friction-band being provided with beveled engaging faces adapted, when the driving member is turned in a direction to carry the shell with it, to force said band outwardly into engagement with said shell, substantially as and for the purpose set forth.

2. In an automatic friction-brake the combination of a driving member and a driven member connected by a spiral friction-band, a shell surrounding said friction-band and free to turn in one direction but held from turning in the reverse direction, the friction-band being connected with the driving member by a block held in a recess of said member and having beveled ends which are adapted, by engagement with beveled ends of said shell, to force said band outwardly into engagement with said shell, substantially as and for the purpose set forth.

3. In an automatic friction-brake the combination with a rotary shaft supported by suitable bearings, of a driving member fixed upon said shaft, a driven member loosely mounted on said shaft, a spiral friction-band for transmitting motion from one member to the other, a perforated barrel loosely inserted between said members inside of said band, and a cylindrical shell supported concentrically with said shaft around said friction-band and free to turn in one direction but held from turning in the other direction, substantially as and for the purpose set forth.

4. In an automatic friction-brake the combination of a driving member, a driven member, a shaft extending continuously through both members, one of which is fixed and the other loose on said shaft and having a supporting-bearing outside of each of said members, a spiral friction-band connecting said members, a cylindrical shell surrounding said friction-band and free to turn therewith in one direction, a ratchet-wheel fixed to said shell and a pawl adapted by engagement with said ratchet-wheel to prevent said shell from turning in the opposite direction, substantially as described.

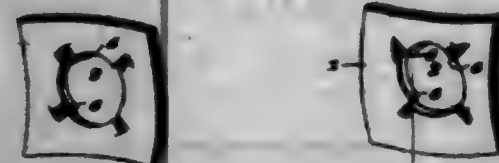
5. In an automatic friction-brake the combination of coaxial driv-

ing and driven members, a spiral friction-band connecting them, a shell surrounding said band and free to turn therewith in one direction, a ratchet-wheel fixed to said shell and provided with friction-faces perpendicular to its axis, and a pawl pivoted to a stationary support for holding said shell from turning in the opposite direction and provided with opposing friction-faces, a spring pressing said blocks outwardly against said friction-faces and adapted to move said pawl into engagement with the ratchet-wheel when it is turned in one direction, and out of engagement therewith when it is turned in the other direction, substantially as described.

6. In an automatic friction-brake the combination with driving and driven members, one fixed and the other loosely mounted on a shaft, a spiral friction-band connecting said members, a cylindrical shell surrounding said band and free to turn therewith in one direction, and means for holding said shell from turning in the opposite direction, said shell having closed ends and being adapted to contain oil, and the driven member having a hub or sleeve which projects through and is fixed to turn in one end of said shell, substantially as and for the purpose set forth.

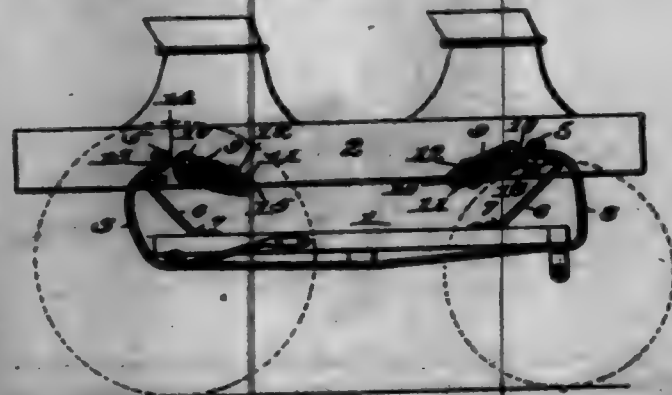
7. In an automatic friction-brake the combination of driving and driven members, a spiral friction-band connecting said members, a cylindrical shell surrounding said band and free to turn therewith in one direction, means for holding said shell from turning in the other direction, a sleeve to which the driven member is fixed, extending through and adapted to turn in one end of said shell, and a shaft passing axially through both members of the brake, substantially as and for the purpose set forth.

697,894. RUT-LICK. RYMER LAMER, Spring Valley, Minn. Filed Oct. 10, 1891. Serial No. 73,268. (No model.)



Claim.—A rut-licking washer consisting of a concave resilient plate having a hub-hole and adjacent thereto a series of indentations in its inner face, whereby the metal of the washer is upset forming projecting teeth, said teeth terminating short of the edge of the washer, as set forth.

697,895. VEHICLE. FRANK BONE, Crescent City, Cal., assignor of one-half to William P. Butler, San Francisco, Cal. Filed Sept. 21, 1901. Serial No. 78,984. (No model.)



Claim.—The combination with the running-gear and body of a vehicle, of a pair of bars connected to the lower face of the said body and having their ends projecting outwardly from the body, each of the said ends of the said bars provided with an opening, a series of standards secured at their lower ends with the upper face of the running-gear, a series of hangers secured to the lower face of the said standards, the latter supporting the said hangers, said hangers having their upper ends terminating in a hook, and a series of springs connected at one end to the hooks of the hangers and at their other end in the openings of the bars, substantially as shown and described and for the purpose set forth.

697,896. COIN-DELIVERY DEVICE. JAMES H. BROWN, Denver, Colo., assignor of one-half to Burton Brown, Denver, Colo. Filed June 6, 1901. Serial No. 62,417. (No model.)

Claim.—1. In a coin-delivery device, the combination with a suitable casing and a coin-tray mounted thereon, of a platform provided with channels in line with the coin-receptacles of the tray, coin-ejecting tongues located in said channels, means for operating said tongues to eject coins from the bottoms of the stacks in the receptacles, and means for depressing the forward extremities of the tongues to a position below the plane

of the coin during the backward movement, and raising the same to the plane of the lowermost coin during the forward movement.



2. The combination with a casing and coin-receptacles, of a platform mounted on the casing, coin-ejecting tongues supported by said platform, means for reciprocating the tongues to eject coins, and means for depressing the tongues to a position below and out of contact with the coins during the backward movement, whereby said movement is unimpeded by the gravity of the coins.

3. The combination with a casing and coin-receptacles, of a platform mounted on the casing and provided with channels in line with the coin-receptacles, said channels being provided with upper and lower guide-grooves, tongues arranged to reciprocate in said channels, and provided with projections adapted to engage said guide-grooves, and means for depressing the forward extremities of the tongues as they begin their backward movement whereby the projections are made to travel in the lower groove during the backward movement, and means for raising the tongues as they reach their rearward limit of movement, whereby their projections are in position to travel in the upper groove during the forward movement.

4. The combination of a casing and coin-receptacles, of a platform mounted on said casing, channels formed in the platform in line with said coin-receptacles, slides located in the channels, tongues hinged to the slides, and springs located in the bottoms of the channels and arranged to throw the forward extremities of the tongues upward previous to beginning the forward movement, and downward previous to beginning the backward movement.

5. The combination with a casing and coin-receptacles, of a platform located below the plane of the coin-receptacles, and provided with ledges forming a support for the lowermost coin of the receptacles, the platform being provided with channels in line with the coin-receptacles, coin-ejecting tongues located in said channels, slides to which said tongues are pivoted, each tongue being provided with two depending, expanded projections, and springs located in the bottoms of the channels and adapted to engage one projection of the tongues before they begin the forward movement and the other projection before they begin the backward movement, whereby the forward extremities of the tongues are arranged to travel in different phases while making the two movements.

6. The combination with a casing and coin-receptacles, of a platform, coin-ejecting tongues mounted on said platform, ball-crank levers, a connection between each tongue and one arm of its corresponding lever, depending rods connected with said levers, slides having projections adapted to engage said rods, levers connected with said rods at one extremity, other slides connected with the levers at the opposite extremity, and expanded levers for operating the last-named slides.

7. The combination with a casing, coin-receptacles, and coin-ejecting tongues, of ball-crank levers mounted to move in horizontal planes, a connection between one arm of each lever and its corresponding tongue, depending rods connected with the other arms of the levers, slides having levers adapted when actuated to engage said depending rods, and a spring-

hold retracting-slide having projections engaging the rods from opposite sides from the projections of the first-named slides.

8. The combination with coin-receptacles, and coin-ejecting mechanism, of means for operating said mechanism, comprising ball-crank levers suitably arranged, depending rods connected with said levers, slides having projections adapted to engage said rods, levers connected with said slides at one extremity, other slides connected with the levers at the opposite extremity, and expanded levers for operating the last-named slides.

9. The combination with a casing, coin-receptacles, and means for ejecting the coins from said receptacles, of levers exposed on the casing and having stems passing through slots formed therein, slides with which the levers are connected, levers suitably arranged and connected with said slides at one extremity, other slides connected with the levers at the opposite extremity and provided with projections, rods treated in the path of said projections, and ball-crank levers connected with the rods and with the coin-ejecting mechanism, the arrangement being such that said mechanism is actuated by the movement of the levers.

10. The combination with coin-receptacles, and coin-ejecting mechanism, of ball-crank levers connected with said mechanism, rock-shafts upon which said levers are mounted, said shafts being provided with crank-arms at the extremities remote from the ball-crank levers, rods connecting the crank-arms of the rock-shafts and the ball-crank levers, slides provided with projections adapted to engage the rods, levers connected with the slides at one extremity, other slides connected with the levers at the opposite extremities of the levers, and operating-levers mounted on the casing and connected with the last-named slides.

11. The combination with coin-receptacles, and coin-ejecting mechanism, of ball-crank levers connected with said mechanism, rock-shafts upon which said levers are mounted, said shafts being provided with crank-arms at the extremities remote from the ball-crank levers, rods connecting the crank-arms of the rock-shafts and the ball-crank levers, slides provided with projections adapted to engage and actuate the rods, and a spring-held retracting-slide having projections engaging the rods on opposite sides from the projections of the first-named slides.

12. The combination with coin-ejecting mechanism, of ball-crank levers connected therewith, depending rods connected with the ball-crank levers, slides provided with projections adapted to engage the rods on the slides are operated, and a spring-held retracting-slide having projections engaging the rods on opposite sides from the projections of the first-named slides.

13. The combination with a casing, coin-receptacles, and coin-ejecting mechanism, of ball-crank levers connected with said mechanism, rods connected with said levers, slides having projections arranged to engage the rods on one side, a retracting-slide having projections engaging the rods on the opposite side, and a spring-held coacting device with which the retracting-slide is connected, the arrangement being such that as the first-named slides are shifted, one or more of the rods are moved in one direction to operate the coin-ejecting mechanism, the retracting-slide being also operated and its spring placed under tension whereby as the operating force ceases to act, the retracting-slide returns the rods and their connections to their normal position.

14. The combination with a casing, coin-receptacles, and coin-ejecting mechanism, of ball-crank levers connected with said mechanism, rods connected with said levers, slides having projections engaging said rods, each slide having one or more projections according to the number of rods to be actuated by each slide, a retracting-slide having projections engaging the rods on opposite sides from the first-named slides, a spring-held coacting part connected with the retracting-slide whereby the coacting part is actuated and its spring placed under tension every time a rod is actuated by one of the other slides, and a part slidable in the coacting device and adapted to be projected to a position to engage and operate a certain rod every time any other rod or set of rods is actuated, whereby the amount of change to be ejected at each operation may be increased by a uniform amount, and suitable means for actuating the sliding part of the coacting device.

15. The combination with coin-ejecting mechanism, of frames, each composed of a rock-shaft and a rod extending parallel therewith, crank-arms connecting the rod and shaft, a suitable operative connection between the said frames and the coin-ejecting mechanism, slides provided with projections arranged to engage and actuate one or more of the frames, whereby the coin-ejecting mechanism is actuated, each slide being arranged to operate one or more frames, and a spring-held retracting-slide having projections engaging the rods on opposite sides from the projections of the first-named slides.

16. The combination with coin-ejecting mechanism, of frames, each composed of a rock-shaft and a rod extending parallel therewith, crank-arms connecting the rod and shaft, a suitable operative connection between the said frames and the coin-ejecting mechanism, slides provided with projections arranged to engage and actuate one or more of the frames, whereby the coin-ejecting mechanism is actuated, an auxiliary

part adapted to be projected to engage one of the frames, and a connection between said auxiliary part and each of the other frames whereby the said part is actuated every time any frame is actuated, the arrangement being such that the amount of coin delivered by each coin-ejecting operation, may be increased by a predetermined amount through the instrumentality of the auxiliary device.

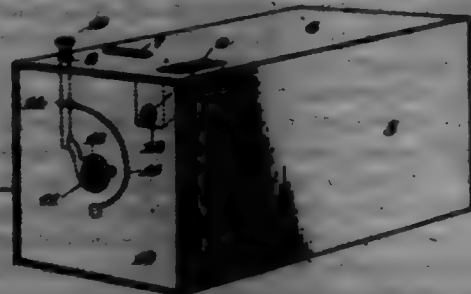
17. The combination with coin-ejecting mechanism, of frames, each composed of a rock-shaft and a rod extending parallel therewith, crank-arms connecting the rod and shaft, a suitable operative connection between the said frames and the coin-ejecting mechanism, slides provided with projections arranged to engage and actuate one or more frames, whereby the coin-ejecting mechanism is actuated, each slide being arranged to operate one or more frames, a retracting-slide provided with projections engaging the rods of the frames on the opposite side from the projections of the other slides, whereby the retracting-slide is actuated every time any frame is actuated, a spring-held oscillating keeper actuated by the forward movement of the retracting-slide, and an auxiliary device slidably mounted in the keeper and arranged to be projected to engage an additional frame every time one or more of the other frames are actuated.

18. The combination with coin-ejecting mechanism, of frames composed of rock-shafts, crank-arms at its extremities, and a rod connecting said crank-arms, an operative connection between the said coin-ejecting mechanism and said frames, means for actuating the frames, an auxiliary device arranged to be projected to engage a certain frame, and a suitable connection between the auxiliary device and each of the other frames whereby as any frame is actuated, the additional frame is operated to eject an additional amount at each coin-ejecting operation.

19. The combination with coin-receptacles, coin-ejecting mechanism, rock-shafts connected therewith, depending rods connected with the rock-shafts, slides for actuating the rods, a spring-held retracting-slide arranged to be actuated every time a rod is actuated, an oscillating keeper connected with said retracting-slide, a spring-held auxiliary part slidable in the keeper and adapted to be projected to engage a certain rod, a rock-shaft, and a suitable connection between the rock-shaft and the auxiliary part for actuating the latter when the slide is actuated.

20. The combination with a casing, coin-receptacles and coin-ejecting mechanism, of levers slidable in the casing, front slides connected with the levers, rear slides, levers connecting the front slides and the rear slides, a suitable connection between the rear slides and the coin-ejecting mechanism, comprising ball-crank levers connected with the coin-ejecting device, rock-shafts upon which said levers are mounted, said shafts being provided with crank-arms at the extremities remote from the ball-crank levers, and rods connecting the crank-arms of the rock-shafts with the ball-crank levers, said rods being arranged to be operated by the movement of the rear slides which are provided with projections engaging the rods for the purpose, the arrangement being such that as the levers are moved the coin-ejecting device are actuated, and a spring-held retracting-slide having projections engaging the said rods on opposite sides from the projections of the rear slides.

697,897. ADVERTISING DEVICE. JAMES E. CUMMIS and Geo. W. REYNOLDS, Cambridgeport, Mass. Filed Sept. 28, 1901. Serial No. 71,881. (No model.)

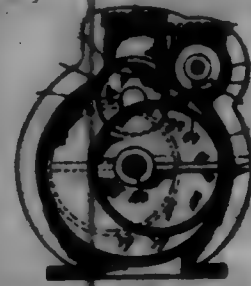


Claim.—The combination with the case 5 having the top 6 with its slot 7 and perforation 8, and furnished with the end 10 having the opening 11, and the spring-operated button 12 working through the perforation 8, of the holder 17 having the compartments 19 and 20, and the mirrors 21 22, or their equivalents, contained in the compartments 20, as and for the purpose described.

697,898. ROTARY ENGINE. WILLIAM E. DODDGE, New York, N. Y., assignor to the American Motor and Power Company, Jersey City, N. J. Filed Apr. 23, 1901. Serial No. 58,951. (No model.)

Claim.—1. In a rotary engine, a plurality of cylinders, pistons concentrically and oppositely mounted therein, abutments mounted in the walls of said cylinders and bearing with their edges against said pistons, a shaft mounted to suitable bearings, crank-arms on said shaft and on said

abutments, and rods connecting said crank-arms whereby said abutments coast to keep the edges thereof against the respective pistons.



2. In a rotary engine a plurality of cylinders, pistons concentrically and oppositely mounted therein, abutments mounted in the walls of said cylinders and bearing with their edges against said pistons, a shaft mounted on the cylinders, crank-arms on said shaft and on said abutments, and rods connecting said crank-arms whereby said abutments coast to keep the edges thereof against the respective pistons, as and for the purpose set forth.

3. In a rotary engine a plurality of cylinders, pistons oppositely mounted therein, abutments mounted in the walls of said cylinders and bearing with their edges against said pistons, a shaft mounted on the cylinders, crank-arms on said shaft and on said abutments, and rods connecting said crank-arms whereby said abutments coast to keep the edges thereof against the respective pistons, one of said rods being composed of separate parts, and a compression-spring mounted between said parts, as and for the purpose set forth.

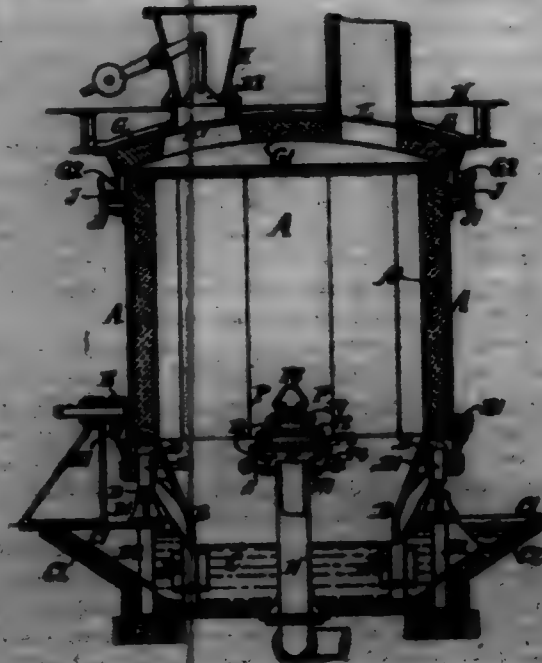
4. In a rotary engine, an abutment adapted to cooperate with the pistons, and a bearing-plate secured at one edge thereof to the under side of said abutment the other edge projecting outwardly at an angle to said under side of the abutment whereby a pocket is formed between them, the free edge of said plate acting as a bearing-strip, as and for the purpose set forth.

5. In a rotary engine, an abutment adapted to cooperate with the pistons, and a spring-plate secured at one edge thereof to the under side of said abutment, said plate projecting outwardly at an angle to the under side of said abutment whereby a pocket is formed between them, the free edge of said plate projecting in advance of said abutment to form a bearing-edge, as and for the purpose set forth.

6. In a rotary engine, a piston provided with a concave end and a head having a bearing for the main shaft extending within the plane of rotation of said piston, said bearing being provided with an oil-hole exposed to the motion of said piston, as and for the purpose set forth.

7. A rotary engine comprising a plurality of cylinders, circular pistons in said cylinders in substantially tangential contact with the walls thereof, and oppositely mounted, cut-off valves operated by an eccentric on the main shaft and alternately admitting steam to said cylinders, abutments mounted in the walls of said cylinders and bearing with their edges against said pistons, and means connecting said abutments whereby they coast to keep their edges in contact with the respective pistons, and grooves in said pistons whereby a water packing is provided, as for the purpose set forth.

697,899. GAS-PRODUCER. EDWARD J. DUFF, Liverpool, England. Filed Aug. 28, 1901. Serial No. 72,671. (No model.)



Claim.—1. A gas-producer having an upright rotating shell of polygonal cross-section internally and means for rotating it, and an ash-trough below it, substantially as described.

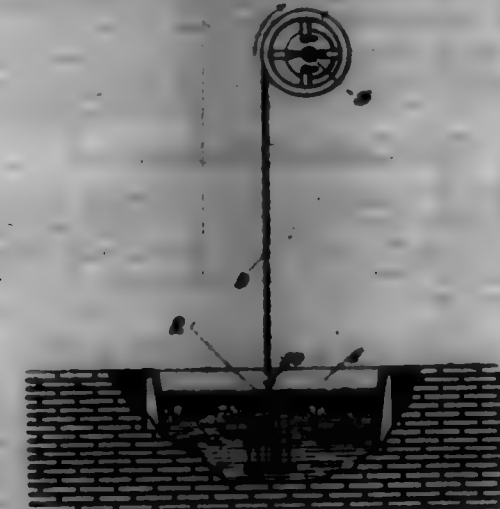
2. Improvements in gas-producers comprising a rotating shell as using the contour of the internal surface of which is polygonal in plan, the shell having a lower depending plate dipping into a water-cooled ash-trough, the upper end of said shell or casing being closed by a cover suspended from the charging-platform, a depending annular plate on the cover dipping into a liquid seal in a trough encircling the top end of the casing, substantially as and for the purposes herein set forth.

3. Improvements in gas-producers having a rotating shell of polygonal cross-section internally and provided with a water-cooled ash-trough, a liquid seal and cover-plate being arranged in connection with the upper end of the casing, substantially as and for the purposes herein set forth.

4. Improvements in gas-producers comprising a rotating shell or casing the contour of the internal surface of which is other than circular in plan, the casing being provided with a water-cooled ash-trough, and a liquid seal and cover-plate being arranged in connection with the upper end of the casing, substantially as and for the purposes herein set forth.

5. A gas-producer having an upright shell of polygonal cross-section internally and means for rotating it, with a water-cooled ash-trough and a cover-plate, substantially as described.

697,400. LIFT MECHANISM FOR TIN-PLATE. JAMES F. FAY, Pittsburg, Pa., assignor of one-half to John Hamilton, Pittsburg, Pa. Filed Sept. 8, 1901. Serial No. 72,110. (No model.)



Claim.—1. The combination with an actuating-shaft, of an eccentric pulley mounted thereon, and a flexible lifting device secured at one end to the periphery of said pulley and having means at its other end for carrying the article to be lifted thereby, substantially as described, whereby the speed with which the article is lifted is varied while the same is being lifted, as specified.

2. A plate-lifting mechanism for tinning apparatus, in the tin, comprising a device for carrying the plates, an eccentric lifting-pulley, means for turning said pulley, and a flexible connection between the periphery of said pulley and the plate-carrying device, substantially as described and for the purpose set forth.

3. A means for producing an approximately uniform coating of plates, or the tin, comprising, in combination, a vessel containing the coating liquid, an eccentric lifting-pulley, means for turning the latter, a flexible connection secured at one end to said eccentric pulley as to be lifted thereby at varying speed, and a plate-carrier attached to the other end of said connection, substantially as described and for the purpose set forth.

4. The combination with an actuating-shaft, of a pulley eccentrically mounted thereon, means for varying the eccentricity of said pulley, an article-carrier, and a flexible connection between the periphery of said pulley and said carrier.

5. The combination with an actuating-shaft, of an eccentric lifting-pulley fixed thereon, said pulley comprising an inner member fixed to the shaft, an outer member having an opening which receives said inner member and means for adjustably connecting said outer member with said inner member whereby the eccentricity of the former may be varied, a flexible lifting device attached at one end to the periphery of the outer member of said pulley and actuated thereby at variable speed, and an article-carrier connected to the other end of said lifting device.

6. The combination with a vessel containing a coating liquid, of a means for lifting therefrom the articles coated and for gradually reducing the speed of the articles while being elevated, said lifting means comprising an actuating-shaft, an eccentric pulley mounted thereon and having means for varying the eccentricity thereof, a shaft for the article be-

ing coated, and a flexible connection between said shaft and pulley, said connection having one of its ends attached to the periphery of said pulley.

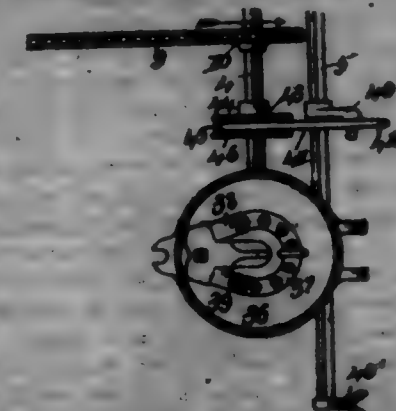
697,401. RAIL-BRACE. JOHN E. GRABAM, Bannock, Va., assignor to the Graham Combined Guard-Rail and Frog Brass Company, Bannock, Va. Filed Feb. 24, 1901. Serial No. 69,280. (No model.)



Claim.—1. A rail-brace of a length to engage the webs of a pair of seated rails, the terminals of the brace being provided with tables to engage the under sides of the rail-heads and with guard-faces disposed at diverging angles to the inner sides of the tracks, thereby to adapt the brace to rails having tracks of different widths.

2. A rail-brace of a length to engage the webs of a pair of seated rails, the upper portions of the terminals of the brace being provided with tables to engage the under sides of the tracks and with guard-faces disposed at diverging angles to the inner sides of the tracks, and the lower portions of the terminals being provided each with a recess of a size to include a rail-base of any standard size.

697,402. CURB-PLANTER. WILLIAM S. GRABAM, Canton, Ill., assignor to Parlin & Granger's Company, Canton, Ill., a Corporation of Illinois. Filed Sept. 28, 1901. Serial No. 72,682. (No model.)



Claim.—1. In a curb-planter, the combination with a member and a rod-rod thereon, of a pair of cut-offs presented in opposite directions, whereby the said-rod may be driven in one direction to plant in short-cuts and in the contrary direction to drill the end.

2. In a planter, the combination of a shaft to drive the dropping mechanism, aatchet-wheel for the shaft comprising a notched disk having internally-extended pins, and a drive-part for the aatchet-wheel having a

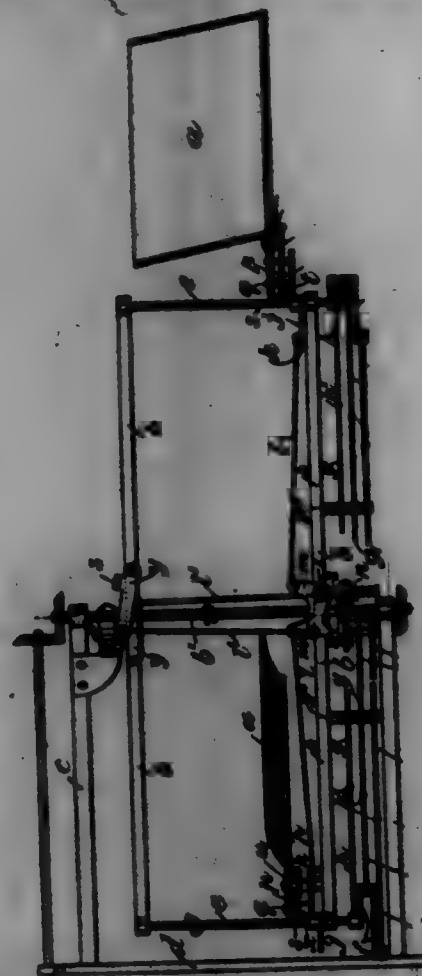
slidewire-extended pin to engage the notches of the disk and a tooth to engage the pins of the wheel.

3. In a plunger, the combination of a shaft to drive the dropping mechanism, a lantern-wheel on the shaft the end disks whereof are notched in their peripheries, a rock-shaft, an arm on the rock-shaft and a pawl on the arm having laterally-extended pins to engage the notches of the disks and also having an end tooth to engage the rods of the lantern-wheel.

4. In a plunger, the combination of a shaft to drive the dropping mechanism, a lantern-wheel on the shaft, a rock-arm, a pawl on the rock-arm to drive the lantern-wheel, a brake-arm bearing against the rods of the lantern-wheel and a spring connecting an extension of the brake-arm with an extension of the rock-arm and tending to retract the pawl while holding the brake-arm to its work.

5. In a plunger, the combination with a ratchet-wheel on a drive-shaft and with a fixed part of the plunger-frame, of a rock-arm and a pawl on the rock-arm having an extension beyond its pivot to engage the frame when the pawl is not in use and hold the pawl out of contact with the ratchet-wheel.

697,408. PROPELLER FOR AIR-SHIPS. CHARLES GREEN-
BRIDGE, London, England, assignor of one-half to William Alfred South-
London, England. Filed Feb. 12, 1901. Serial No. 47,094. (No model.)



Claim.—1. In a propeller for flying-machines, air-ships, balloons, and the like, having a revolving vane-carrying frame and a vane-axis pivoting therein, the combination of a vane carried by a radius-bar flat on said axis, and which bar is constructed in two parts flexibly united in such a manner as to permit of the vane being turned into the propelling and feathering positions automatically by the pressure of the air.

2. In a propeller for flying-machines, air-ships, balloons, and the like, the combination of a revolving vane-carrying frame having a vane-axis pivoting therein, a vane carried by a radius-bar flat on said axis, the said bar constructed in two parts flexibly united in such manner as to permit of the vane being turned into the propelling and feathering positions automatically by the pressure of the air, and means for automatically rotating the vane backward at a certain point in its revolution.

3. In a propeller for flying-machines, air-ships, balloons, and the like, the combination of a revolving vane-carrying frame having a vane-axis pivoting therein and a vane carried by a flexible radius-bar flat on said axis, with a three-shank shaft flat on the vane-axis, a series of jointed levers connected at one end to said shaft, and pivoted to the frame near their other end, and stationary cams adapted to operate said levers for the purpose of turning the vane backward during feathering.

4. In a propeller for flying-machines, air-ships, balloons, and the like, the combination with a vane of the vane-carrying radius-bar formed in two parts flexibly united in alignment and rotatably mounted in bearings

upon a support flat on the vane-axis, and means adapted to offer resistance to the turning of said bar in its bearings, thereby permitting the vane to rise and fall and to yield under the pressure of the air during the propelling and feathering strokes respectively.

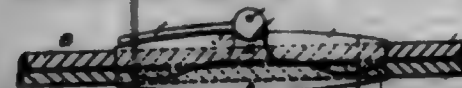
5. In a propeller for flying-machines, air-ships, balloons, and the like, the combination with a vane of the vane-carrying radius-bar (formed in two parts hinged together in alignment), a leg on each part and a tension-spring coupling the legs, said bar being rotatably mounted in bearings upon a support flat on the vane-axis and having a curved arm at its rear end connected by a tension-spring to a fixed support, and which spring is adapted to offer resistance to the turning of the bar on its own axis.

6. In a propeller for flying-machines, air-ships, balloons, and the like, the combination of the revolving frame, the vane-axis pivoting therein, the vane carried by a radius-bar flat on said axis, and means for automatically turning the vane forward at the commencement of feathering, with a catch flat on the vane-axis, a stop on the revolving frame adapted to engage said catch and lock the vane-axis during the propelling stroke, and means for automatically engaging and releasing said stop from said catch.

7. The combination with the revolving vane-carrying frame, of levers and rods connecting the vane-axis crank with an inclined plane flat on the axis of the revolving frame, to effect the engagement and disengagement of the catch and stop for locking and releasing the vane.

8. A propeller for flying-machines, air-ships, balloons, and the like, comprising a revolving frame, a vane carried by a radius-bar adapted to permit the vane to be turned into the propelling and feathering positions automatically by the pressure of the air, means for rotating the vane backwardly at the commencement of feathering, means for automatically locking and releasing the vane-axis to hold and set free the vane, and means for driving the whole vane-carrying frame around, whereby the vane is caused to fly out and travel in a wide radius during the propelling stroke, and to turn backward and travel in a lesser radius during feathering.

697,404. COMBINED SAFETY CLOTHES-LINE AND PEG
HOLDERS OR CLAMP. THOMAS GUNST, Auckland, New Zealand, as-
signor of one-half to Robert Foster, Auckland, New Zealand. Filed
July 20, 1901. Serial No. 70,128. (No model.)

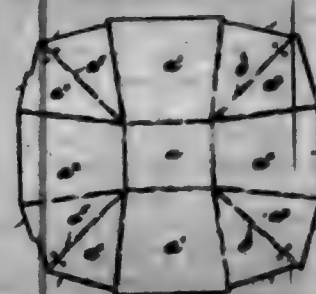


Claim.—1. A clothes holder or clamp consisting of a lower piece provided with a pair of upwardly-extending projections, a lever mounted between said projections and eccentrically connected thereto, and an upper piece loosely fitted between the projections and adapted to overlap said lower piece when operated by said lever.

2. A clothes holder or clamp consisting of a lower piece provided with a pair of upwardly-extending projections, lever mounted between said projections and eccentrically connected thereto, and an upper piece loosely fitted between said projections and provided with a recess in which operates the eccentric portion of the lever.

3. A clothes holder or clamp consisting of a lower piece provided with a pair of projections, an upper piece mounted between said projections and provided with a recess, said pieces adapted to lap one over the other, and a lever mounted between said projections, eccentrically connected thereto and adapted to have its eccentric portion operate within said recess.

697,405. PAPER PAIL. WALTER C. HAAS, Dayton, Ohio, as-
signor of one-half to the Dayton Paper Novelty Company, Dayton, Ohio,
a Corporation. Filed Dec. 10, 1901. Serial No. 38,528. (No model.)



Claim.—1. A blank for a paper pail having two correspondingly-scored lines intersecting two correspondingly-scored lines extending transversely thereto forming four sides and one bottom section and four triangular corner-sections, a scored line bisecting each of said triangular-shaped corner-sections and a portion of the outer edges of said corner-sections being cut away whereby in folding the outer and inner layers of material upon opposite sides of the pail, one flange with the top of the pail, inter-

mediate layers of material terminating at a point below the top, substantially as specified.

2. A pail formed of a blank bent into shape, having corner-flaps formed in folding overlapping upon the opposite exterior sides of the pail, a half hatched through said overlapping flaps upon each side, leaving the adjacent inside walls unperforated, and a metallic binding-strip embracing the top edges of the pail, a portion of the top edges of the said overlapping flaps which occupies an intermediate position when the pail is formed, being cut away slightly, substantially as and for the purposes specified.

3. A pail formed of a blank bent into shape, having corner-flaps overlapping upon the opposite exterior sides of the pail, a half having inwardly-bent spring-shoulders, adapted to hold the cover on the pail, said half being pivoted to said overlapping flaps upon each side, leaving the adjacent inside walls unperforated, and a metallic binding-strip embracing the top edge of the pail and binding the inner walls to the outer layers of the said overlapping corner-flaps, substantially as described.

4. A paper pail or vessel formed of a single blank, and having a metallic binding-strip around the top edge of the pail, covering the top edges of the pail and the overlapping flaps together, a wedge-shaped cover of similar cross-section, adapted to be compressed into the mouth of the pail, a metallic binding-strip around the top edge of the cover, the lower edge of the said cover-binding strip being adapted to rest upon the top edge of the pail-binding strip when the cover is in position, a ball pivoted to the sides of the pail below its binding-strip and inwardly-bent spring-shoulders, formed on the ball, adapted to engage the top edges of the cover-binding strip, whereby the cover is held in position between metallic binding elements at the top and bottom, substantially as described.

697,406. GAME APPARATUS. MARTIN V. HANNAKE, Thibault, Va., assignor of one-half to Harry W. Miller, Thibault, Va. Filed Sept. 8, 1901. Serial No. 74,282. (No model.)

Claim.—1. A game apparatus comprising a board in the form of a star the points of which have runs for the use in playing games thereon, diagrams being formed on the surface of said board in its center and at regular intervals around it, which define the runs for the projection, or runs, and the counts which are used in the games played thereon, substantially as set forth.

2. A game apparatus comprising a board in the form of a star having stars represented on its surface with runs for projection at their points and center, the points at the points of the star extensions on the table, whereby it is adapted for the playing of games thereon with projection and a cue, substantially as set forth.

3. A game apparatus comprising a board, projecting leaves hinged to its sides which run to a point, a guide or flange around the sides, pockets in the ends of said leaves, whereby it is adapted for the playing of games thereon with projection and cue, substantially as set forth.

4. A game apparatus comprising a central horizontal board, pointed leaves attached thereto at each of its sides, means for supporting them, stars formed on the surface of said table in its center and in the center of each leaf, a flange around the edge of said leaves, and pockets in their ends, substantially as set forth.

697,407. CUTTING APPARATUS FOR MOWERS, REAPERS, OR THE LIKE. HARVEY L. BOWEN, Chicago, Ill., assignor, by direct and several assignments, to Hamilton Patent Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 1, 1901. Serial No. 31,128. (No model.)

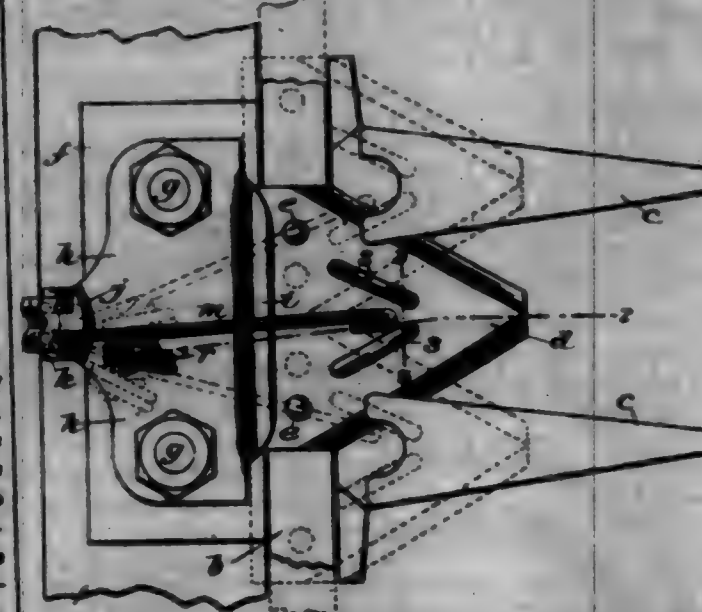
Claim.—1. In a cutting apparatus for mowers, reapers and the like, the combination with the finger and outer bars, of a spring the rear end of which is vertically journaled on the finger-bar, and the front and ends thereof extend forward and bend downwardly on the outer bar as to move laterally when the outer-bar reciprocates.

2. In a cutting apparatus for mowers, reapers and the like, the combination with the finger and outer bars, of a spring having a coil intermediate of its length, one end of the spring being secured to the finger-bar and the other extending forward substantially in line with the first end and bending downwardly on the outer bar as to move laterally as the outer-bar reciprocates.

3. In a cutting apparatus for mowers, reapers and the like, the combination with the finger and outer bars, of a spring secured at one end to the finger-bar and at the other bearing downwardly on the outer bar as to move laterally as the outer-bar reciprocates, said spring having two coils intermediate of its length, one of said coils lying within the other.

4. In a cutting apparatus for mowers, reapers and the like, the combination with the finger and outer bars, of a clip having a notch, a spring journaled in said notch and free to oscillate therein, and a cutter or disk section having ribs or projections on its upper surface struck up from the metal.

5. In a cutter-cap for mowers, reapers and the like, the combination of a clip for attachment to the finger-bar, said clip having a vertical notch, and a spring having a vertical portion pivoted in the notch of the clip and a portion extending forwardly beyond the clip in position to bend downwardly on the outer-section.



6. In a cutter-cap for mowers, reapers and the like, the combination of a clip for attachment to the finger-bar, said clip having a vertical notch, and a spring having a vertical portion pivoted in the notch, and a portion extending forwardly beyond the clip in position to bend downwardly on the outer-section, said vertical portion of the spring having a hook to engage the clip and hold the pivotal portion in the notch in all operative positions of the spring.

7. In a cutter-cap for mowers, reapers and the like, the combination of a clip for attachment to the finger-bar, said clip having a vertical notch, and a spring having a vertical portion pivoted in the notch, and a portion extending forwardly beyond the clip in position to bend downwardly on the outer-section, said vertical portion of the spring having a hook which holds it in the notch in all vertical positions of the spring, and is releasable only when the spring is in an inoperative position.

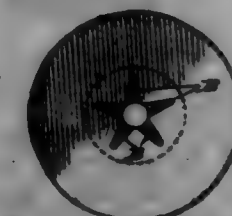
8. A spring for the cutter-cap of mowers, reapers, and the like, having a vertical portion provided with a hook-like part at its end, a coil intermediate of its length, and a forward portion to bend downwardly on the outer-section.

9. A spring for the cutter-cap of mowers, reapers, and the like, having a hook at its rear end, one or more coils intermediate of its length, and a forward portion folded or doubled upon itself and adapted to bend downwardly upon the outer-section.

10. In mowers, reapers and the like, in combination with the finger and outer bars thereof, a spring outer-cap comprising a clip or spring-holder having a substantially vertical open-ended notch, and a spring having a substantially vertical portion adapted to be passed into the notch and provided with a hook at its lower end to engage the holder at the lower end of the notch and hold the spring in place.

11. In mowers, reapers and the like, in combination with the finger and outer bars thereof, a spring outer-cap comprising a clip or spring-holder having a substantially vertical open-ended notch, and a spring having a substantially vertical portion adapted to be passed into the notch and provided with a hook at its lower end to engage the holder at the lower end of the notch and hold the spring in place.

697,408. SPOOL AND PROCESS OF PRODUCING SAME. BENJAMIN HARRIS, Chicago, Ill. Filed Aug. 14, 1901. Serial No. 71,921. (No model.)



Claim.—1. The process of making a spool of fibrous pulp which consists of the following steps, to wit: first, molding a pulp-body with an axial aperture having recesses leading radially from it along its entire length, wedge-shaped in transverse section of the spool; second, drying each pulp-body to hardness; third, applying glue to the inner surfaces of each wedge-

shaped radial recesses; fourth, introducing endwise through the axial aperture and entering edgewise into the recesses respectively wood strips or base wedge-shaped in cross-section; fifth, passing longitudinally through the axial aperture a cylindrical mandrel adapted to cover all the wedge-shaped strips edgewise simultaneously into their respective apertures.

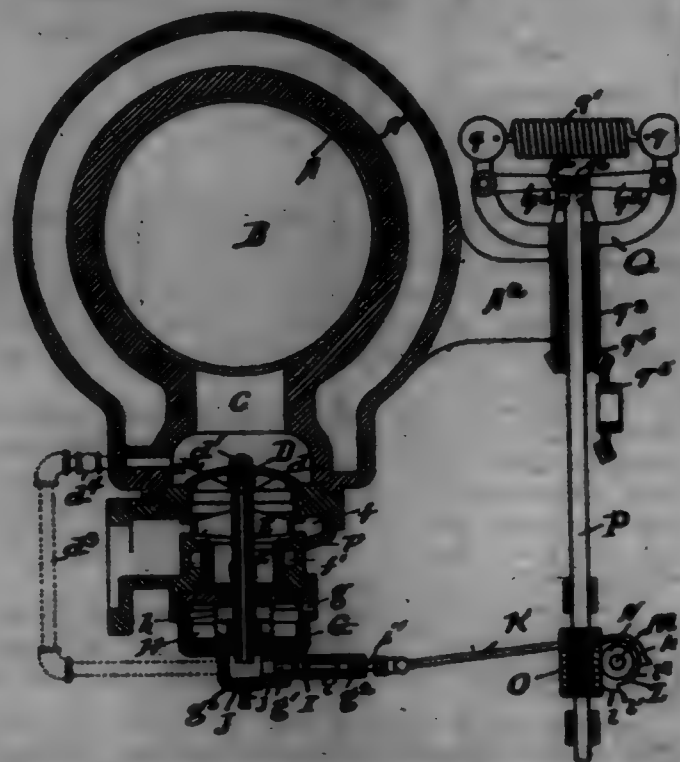
2. A spool, comprising a body molded of fibrous pulp, with an axial aperture having recesses leading off radially from it along its entire length, and wooden strips glued in such recesses.

3. A spool of fibrous pulp, having through its entire length a star-shaped wooden core with an axial aperture.

4. A spool, having a star-shaped wooden core with an axial aperture, and a pulp-body in which such core is embedded, such core being composed of strips wedge-shaped in cross-section, arranged with their bases or wider edges encompassing the central aperture.

5. A spool-body of molded fibrous pulp, having an axial star-shaped aperture extending from end to end.

697,409. SPEED-REGULATOR FOR EXPLOSIVE-ENGINE.
JOHN S. ELDER, CH. CHY., Pa. Filed May 2, 1901. Serial No. 55,554.
(No model.)



Claim.—1. In a mechanism compressing gases, the combination with the cylinder and compressing-piston therein; of a valve device arranged to control the period of admission of gases; means for opening and closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston and an opposing pressure; and mechanism controlling the application of the pressure so reduced by the motion-stroke of the piston to open and close the valve.

2. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases and for preventing an outflow of gas through the intake; and a fluid-actuated mechanism for closing said valve device during the intake movement of the piston.

3. In a mechanism compressing gases, the combination with the cylinder and compressing-piston therein; of a valve device controlling the period of admission of the gases and for preventing an outflow of gases through the intake; means for closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston and an opposing pressure; and mechanism controlling the application of the pressure so reduced by the motion-stroke of the piston to close the valve.

4. In a mechanism compressing gases, the combination with a cylinder and a compressing-piston therein; of a valve device controlling the period of admission of gases to the cylinder; a fluid-actuated motor connected with said valve device; means for balancing the pressure on the moving element of the motor during the inflow of gas and for giving a preponderance of pressure to the closing side of the moving element of the motor to close the valve device.

5. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases; a fluid-actuated motor for actuating said valve device; and means for subjecting one side of the moving element

of the motor to the reduced pressure in the cylinder incident to the intake movement of the piston for closing the valve device.

6. In a mechanism compressing gases, the combination with a cylinder and a compressing-piston therein; of a valve device controlling the period of admission of gases therein; a fluid-actuated motor for operating said valve device; means for subjecting both sides of the moving element of the motor to atmospheric pressure during the inflow of gas and for subjecting one side of the moving element of the motor to the reduced pressure of the cylinder incident to the intake movement of the piston to close the valve device.

7. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the inflow of gas; a fluid-actuated motor for operating said valve device; means for subjecting the side of the moving element of the motor opposed to the closing movement of the valve to a balancing pressure during the inflow of gas; a valve mechanism for cutting off the supply of the fluid furnishing the balance of pressure; means for subjecting the side of the moving element of the motor opposed to the closing movement of the valve device to the reduced pressure in the cylinder incident to the intake movement of the piston for closing said valve.

8. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases, said valve device being arranged to open in the direction of the movement of the inflowing gases; and a fluid-actuated mechanism for closing said valve device previously to the completion of the intake-stroke of the piston.

9. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases to the cylinder; a fluid-actuated motor connected with said valve device; means for balancing the pressure on the moving element of the motor with an inflow of gas and for giving a preponderance of pressure to the closing side of the moving element of the motor to close the valve device; and means for changing said pressure on the moving element of the motor to close the valve before the completion of the intake-stroke of the piston.

10. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases; a fluid-actuated motor for actuating said valve device; means for subjecting one side of the moving element of the motor to the reduced pressure incident to the intake movement of the piston for closing the valve device; and a mechanism for making said means active before the completion of the intake-stroke of the piston.

11. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases therein; a fluid-actuated motor for operating said valve device; means for subjecting both sides of the moving element of the motor to atmospheric pressure during the inflow of gas and for subjecting one side of the moving element of the motor to the reduced pressure of the cylinder incident to the intake movement of the piston for closing the valve device; and means for effecting a change in pressure on the moving element of the motor to close the valve device before the completion of the intake movement of the piston.

12. In a mechanism compressing gases, the combination with the cylinder and compressing-piston therein; of a valve device arranged to control the period of admission of gases and for preventing an outflow of gas through the intake; means for closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston and an opposing pressure; and mechanism controlling the application of the pressure so reduced by the motion-stroke of the piston to close the valve device during the motion movement of the piston.

13. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases, said valve device being arranged to open in the direction of movement of the inflow of gas; means for closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston and an opposing pressure; and mechanism controlling the application of the pressure so reduced by the motion-stroke of the piston to open and close the valve.

14. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases to the cylinder, said valve device being arranged to open in the direction of movement of the inflow of gas; a fluid-actuated motor connected with said valve device; means for balancing the pressure of the moving element of the motor during the inflow of gas and for giving a preponderance of pressure to the closing side of the moving element of the motor to close the valve device.

15. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the

inflow of gases, said valve device being arranged to open in the direction of the movement of the inflowing gas; a fluid-actuated motor for actuating said valve device; and means for subjecting one side of the moving element of the motor to the reduced pressure in the cylinder incident to the intake movement of the piston for closing the valve device.

16. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve for controlling the inflow of gas, said valve device being arranged to open in the direction of movement of the inflowing gas; a fluid-actuated motor for operating said valve device; and means for subjecting both sides of the moving element of the motor to atmospheric pressure during the inflow of gas, and for subjecting one side of the moving element of the motor to the reduced pressure of the cylinder incident to the intake movement of the piston to close the valve device.

17. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas, said valve device being arranged to open in the direction of movement of the inflowing gas; a motor for actuating said valve device; means for subjecting the moving element of the motor to a reduced pressure of the cylinder; a valve for cutting off the supply of fluid furnishing the balance in pressure; means for subjecting one side of the moving element of the motor opposed to the closing movement of the valve to the reduced pressure of the cylinder incident to the intake movement of the piston for closing said valve.

18. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas; a fluid-actuated motor for operating said valve device; a connection through the valve between the cylinder and the side of the motor opposing the closing movement of the valve.

19. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas; a fluid-actuated motor for operating said valve device; a connection through the valve between the cylinder and the side of the motor opposing the closing movement of the valve; a passage leading from the side of the motor opposing the closing of the valve to the atmosphere; a valve device for controlling said passage; and means for actuating said valve to close said passage during the intake movement of the piston.

20. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases; a fluid-actuated motor for operating said valve device; a connection between the cylinder and that side of the motor opposing the closing of the valve device; and a check-valve in said connection preventing the flow of gas from the cylinder to the side of the motor opposing the closing of the valve device.

21. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gases; a motor controlling said valve device; a passage leading from the side of the motor opposing the closing of the valve to the atmosphere; a check-valve in said passage opposing the passage from the atmosphere to said motor; and permitting a passage of gas from said motor.

22. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas; a fluid-actuated motor for operating said valve device; a connection between the cylinder and that side of the motor opposing the closing of the valve device; a check-valve in said passage preventing a return of gas from the cylinder to said motor; a passage leading from said side of said motor to the atmosphere; a check-valve closing said passage and preventing a flow of air to said motor, but permitting a movement of air from said motor; a second passage from said side of said motor; and a valve controlling said passage.

23. In a mechanism compressing gases, the combination of the cylinder, A; the piston, B; inlet-passage, C; the valve, D, arranged in said passage; the stem, E, of said valve, having the passage, F, therethrough; the cylinder, G, having the passages, G', G'' and G''', to the atmosphere; the piston, H, arranged in said cylinder and secured to the stem, E'; the stem-valve, E'', in the passage, G'; a check-valve, J, arranged over the passage, G'; and the valve, I, arranged in the passage, G'.

24. In a mechanism compressing gases, the combination of the cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases; means for closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston, and an opposing pressure; and mechanism for controlling the application of the pressure so reduced to effect the action of said means at different points in the motion-stroke of the piston to vary the volume of gas compressed by the return stroke of the piston.

25. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the

period of admission of gases; means for opening and closing said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston, and an opposing pressure; and mechanism controlling the application of the pressure so reduced for effecting an action of said means to open the valve during the initial movement of the piston and to close said valve at different points in the motion-stroke of the piston to vary the volume of gas compressed by the return stroke of the piston.

26. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases and for preventing an outflow of gas through the intake; a fluid-actuated mechanism for closing said valve device at different points in the intake-stroke of the piston to vary the volume of gas compressed by the return stroke of the piston.

27. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas to the cylinder; a fluid-actuated motor connected with said valve device; means for balancing the pressure on the moving element of the motor during an inflow of gas and for giving a preponderance of pressure to the closing side of the moving element of the motor to close the valve device; and means for varying the moment of the change in pressure on the respective sides of the moving element of the motor to vary the point in the intake-stroke at which the valve device is closed.

28. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gas therein; a fluid-actuated motor for operating said valve device; means for subjecting both sides of the moving element of the motor to atmospheric pressure during an inflow of gas and for subjecting one side of the moving element of the motor to the pressure of the cylinder incident to the intake movement of the piston for closing the valve device; and means for varying the moment of subjecting the one side of the moving element of the motor to the reduced pressure to vary the point in the intake-stroke at which the valve device is closed.

29. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the inflow of gases; a fluid-actuated motor for operating said valve device; means for subjecting the moving element of the motor opposed to the closing movement of the valve to a balancing pressure during an inflow of gases; a valve mechanism for cutting off the supply of fluid furnishing the balance of pressure; and means for subjecting the side of the moving element of the motor opposed to the closing movement of the valve device to the reduced pressure in the cylinder incident to the intake movement of the piston for closing said valve; and means for actuating said valve mechanism to vary the point of cutting off the supply of fluid furnishing the balance of pressure to vary the point in the intake movement of the piston at which the valve device is closed.

30. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the inflow of gases; a fluid-actuated motor for actuating said valve device; a connection between the side of the motor opposing the closing movement of said valve device and the cylinder; a passage from said side of the motor to the atmosphere; a valve controlling said passage; and means for actuating said valve at various points in the intake-stroke to vary the volume of gas admitted.

31. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases; means for closing the said valve device, said means being subjected to the reduction of pressure incident to the motion-stroke of the compressing-piston and an opposing pressure; mechanism for controlling the application of the pressure so reduced to effect the closing of said valve device at various points in the motion-stroke of the piston; and a governor for controlling the point at which said mechanism acts.

32. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the period of admission of gases and for preventing an outflow of gas through the intake; a fluid-actuated mechanism for closing said valve device at different points in the intake-stroke of the piston; and a governor for controlling the point at which the said closing mechanism is made active.

33. In a mechanism compressing gases, the combination with a cylinder and compressing-piston therein; of a valve device controlling the period of admission of gases therein; a fluid-actuated motor for operating said valve device; means for subjecting both sides of the moving element of the motor to atmospheric pressure during the inflow of gas and for subjecting one side of the moving element of the motor to the reduced pressure of the cylinder incident to the intake movement of the piston for closing the valve device; and a governor controlling the moment at which the one side of the motor is subjected to the cylinder-pressure to vary the moment of closing the valve device.

34. In a mechanism for compressing gases, the combination with a

42. In a gas-engine, the combination of a cylinder; the valve, D, controlling the inflow of gas thereinto; a field-actuated motor for operating said valve device; means for subjecting the side of the moving element of the motor opposed to the closing movement of the valve to a balancing-pressure during the inflow of gas; a valve mechanism for cutting off the supply of field furnishing the balance of pressure; means for subjecting the side of the moving element of the motor opposed to the closing movement of the valve device to the reduced pressure in the cylinder incident to the intake of the piston for closing said valve; and a governor for controlling the moment at which the said element of the motor is subjected to the pressure from the cylinder.

43. In a mechanism compressing gas, the combination with a cylinder and compressing-piston therein; of a valve device for controlling the inflow of gas thereinto; a motor connected with said valve device; a connection between the cylinder and that side of the motor opposed to the closing of the valve device; a passage from said side of the motor to the atmosphere; a valve controlling said passage; and a governor controlling said valve.

44. In a mechanism for compressing gas, the combination with a cylinder, A, and compressing-piston therein; of a valve, B, controlling the inflow of gas thereinto; a cylinder, G; a connection between the cylinder, G, and the cylinder, A; a check-valve in said connection; the piston, H, said piston being subjected to atmospheric pressure on the side toward the valve, D; the passage, G; a valve, I, controlling said passage; and a governor controlling the valve, I.

45. In a mechanism compressing gas, the combination with a cylinder, A, and compressing-piston therein; of a valve, D, controlling the inflow of gas thereinto; a cylinder, G; a connection between the cylinder, G, and the cylinder, A; a check-valve in said connection; the piston, H, said piston being subjected to atmospheric pressure on the side toward the valve, D; the passage, G; a valve, I, controlling said passage; and a governor mechanism controlling the valve, I, to open said valve during the initial movement of the piston and to close said valve at various points in the intake movement of the piston.

46. A governor comprising a reciprocating and rotating stem acting with the controlling element of the governor mechanism; a worm on said stem; a gear meshing said worm; a valve device, and means driven with said gear for controlling a valve device.

47. A governor comprising a reciprocating and rotating stem acting with the controlling element of the governor mechanism; a worm on said stem; a gear meshing said worm; a cam driven by said gear; and a valve device operated by the relative movement of said cam incident to the rotating movement of the worm, the action of the valve device being varied by a variation in the position of the cam due to an axial movement of said worm.

48. In a mechanism compressing gas, the combination with a cylinder and compressing-piston therein; a valve device controlling the inflow of gas; a governor mechanism comprising the worm, G, gear, H, cam, I, having the cam-curve, L, and shoulder, F; means operated by said cam for making active said valve device, said cam being arranged to effect the closing of said valve device during the intake movement of the piston and to vary the moment of closing by a relative variation in the position of the shoulder, F.

49. In a mechanism compressing gas, the combination of a cylinder and compressing-piston therein; a valve device controlling the inflow of gas thereinto; a field-actuated motor for operating said valve; the valve, I, for controlling said motor; a cam, L, for controlling the valve, I; a worm-gear operating with said cam; a worm having a relative and axial movement operating with the controlling element of the governor meshing said gear, and a governor.

50. In a mechanism compressing gas, the combination of the cylinder, A; the valve, D, controlling the inflow of gas thereinto; a cylinder, G; a connection between the cylinder, G, and the cylinder, A; the valve, I, controlling the inflow of the cylinder, G; the cam, L; means for communicating movement from the cam, L, to the valve, I; a worm-gear operating with said cam; a worm meshing said gear; a governor; means actuated with the controlling element of the governor for reciprocating said worm; and means for giving said worm relative movement.

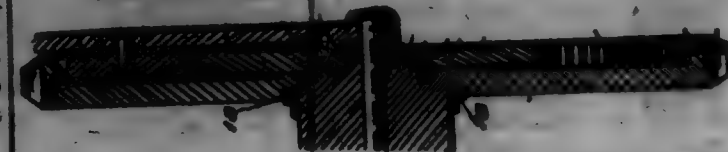
51. In a gas-engine, the combination of a cylinder; the valve, D, controlling the inflow of gas thereinto; the air and gas valve carried with said valve; a motor operating upon said valve; a connection between the side of the motor opposed to the closing of the valve, D, and the cylinder; a passage leading from the said side of said motor to the atmosphere; a valve, I, controlling said passage; and means for closing said valve during an intake-stroke of the engine.

52. In a gas-engine, the combination of a cylinder; the valve, D; the air and gas valve carried with said valve; a motor operating upon said valve; a connection between the side of the motor opposed to the closing of the valve, D, and the cylinder; a passage leading from the said side of said motor to the atmosphere; a valve, I, controlling said passage; and means for closing said valve during an intake-stroke of the engine.

53. In a gas-engine, the combination of a cylinder; the valve, D; the air and gas valve carried with said valve; a motor operating upon said valve; a connection between the side of the motor opposed to the closing of the valve, D, and the cylinder; a passage leading from the said side of said motor to the atmosphere; a valve, I, controlling said passage; means for closing said valve, I, during an intake-stroke of the engine; and a governor for controlling the moment of the closing of the valve, I.

54. In a gas-engine, the combination with the cylinder, A; the valve, D, controlling the inflow of gas thereinto; the stem, J, extending therefrom; a passage, G, through said stem; a check-valve, G', in said passage; the air and gas valves, E and F, arranged on said stem; the cylinder, G, having the passage, G, G' and G'; the piston, H, arranged in the cylinder, G; the check-valve, J, on the passage, G; the valve, I, in the passage, G; and a governor mechanism controlling the valve, I.

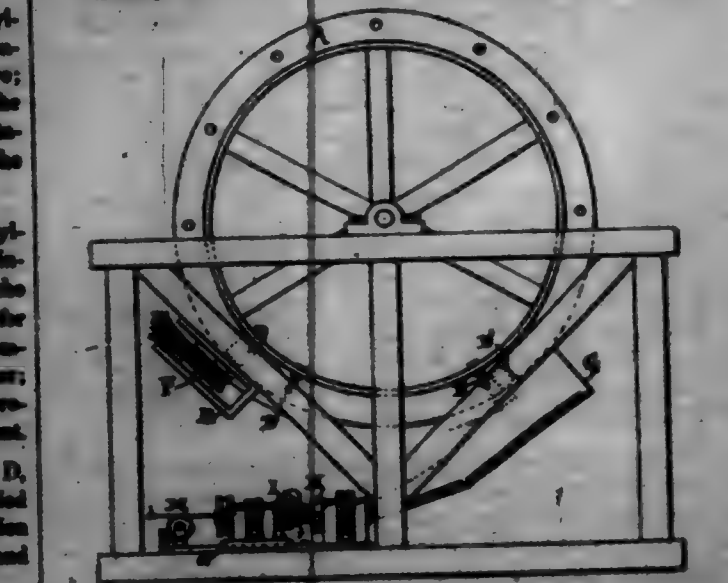
597,410. VARIABLE-SPEED CHAIRING. LEONARD E. KNEE, Chayman, Wyo., assignor of two-thirds to Frederick W. Bredel and Gerhard T. Gubary, Chayman, Wyo. Filed May 27, 1901. Serial No. 68,072. (No model.)



Claim.—1. In a variable-speed chairing, the combination of a hub or stationary bearing provided with a locking-opening, an internal gear rotatably mounted thereon, a control gear also rotatably mounted upon the hub and provided with a pair of locking-openings, one of which is adapted to cooperate with the opening in the hub, a crank-arm mounted in said hub, a crank or lever fixed to the axle and provided with a locking-opening to cooperate with the other locking-opening in the control gear, a planetary gear carried by the lever and meshing with the internal and control gears, and a locking pin or screw interchangeable for insertion into either of the said two sets of locking-openings for rigidly connecting the control gear to the hub to adapt the internal gear to run at a higher rate of speed than the crank, or to rigidly connect the movable parts so as to adapt the internal gear to rotate with the crank at a corresponding rate of speed, substantially as set forth.

2. In a variable-speed chairing, the combination, with a stationary bearing and a crank-arm, of a rotatable internal gear, a rotatable control gear, an interposed planetary gear carried by the crank-arm, the said parts being provided with two sets of cooperative locking-openings, and a locking pin or screw interchangeable for insertion into either of said sets of openings, for in one instance, locking the control gear to the hub, and, in the other instance, locking the movable parts of the gearing, including said control gear together, substantially as described.

597,411. MACHINE FOR MAKING TWINE. LOUIS J. HENRIKSEN and CARLOS KUNKE, Chayman, Wyo., assignors of one-third to Fred H. Steiger, Fremont, Wyo. Filed Mar. 4, 1900. Serial No. 707,700. (No model.)



Claim.—1. In a machine for making twine, the combination, of a movable conveying mechanism, a rotatable part, fingers loosely hung on said rotatable part, said fingers adapted to engage and feed the material carried by the conveying mechanism, and an adjustable cam with which the fingers are adapted to make direct contact while said fingers are engaging the material.

2. In a machine for making twine, the combination, of a rotator, means for rotating the same, a tension-carrying shaft, a tension device carried thereby, a spool or thread carrying shaft, means for rotating the tension-carrying shaft, and means for rotating the spool or thread carrying shaft at a faster rate of speed than the tension-carrying shaft, said tension-carrying shaft and the spool or thread carrying shaft being rotated in the same direction with each other, but in a different direction from the rotator.

3. In a machine for making twine, the combination, of a tension-carrying shaft, a tension device carried by the shaft, said tension device consisting of a split collar engaging the shaft and adapted to be held thereby by friction, means for adjusting the friction of the collar, a thread-carrying shaft adapted to rotate about the tension-carrying shaft, and a spring-arm extending from the split collar, said arm adapted to carry and take the thread from the thread-carrying shaft.

4. In a machine for making twine, the combination, of means for forming lengths of material into twine, a bearing, a shaft journaled in said bearing, a spool of thread rotatably mounted on the shaft, and means for rotatably holding the bearing, whereby when the holding means is released the bearing can be adjusted further away from the twine-forming mechanism in order to permit of the removal of the spool and the substitution of a new spool.

5. In a machine for making twine, the combination, of means for forming the lengths of material into twine, a standard, a tension-carrying device and a spool-carrying device carried by the standard, an adjustable plate, a connection between the plate and the standard, and means for holding the plate in adjusted position, whereby the tension-carrying device and the spool-carrying device are brought closer to or further away from the twine-forming mechanism.

6. In a machine of the class described, a wrapping mechanism comprising a tubular shaft, the material to be wrapped arranged to pass longitudinally through said shaft, a tension device loosely mounted on said shaft and held thereby by friction, a thread-carrying shaft chucked upon the tension-carrying shaft, a thread or cord guide carried by the tension device, and means for adjusting the frictional engagement of the tension device with its shaft.

597,412. STRETCH-SPOOLER. ROBERT L. McFERRAN, Portsmouth, Va., assignor of one-third to Robert S. Marshall, Portsmouth, Va. Filed Dec. 24, 1901. Serial No. 57,100. (No model.)



Claim.—1. A syringe-needle comprising an outer perforated cylinder and an inner impervious core of smaller external diameter than the internal diameter of said cylinder and arranged concentrically within the latter, substantially as described.

2. A syringe-needle comprising an outer perforated cylinder and an inner impervious core of smaller external diameter than the internal diameter of said cylinder and arranged concentrically within the latter, and means for maintaining every portion of the periphery of said core at a uniform distance from the interior of said cylinder, substantially as described.

3. A syringe-needle comprising an outer hollow cylinder provided with a plurality of perforations located rearwardly and an inner impervious core of smaller external diameter than the internal diameter of said cylinder and arranged concentrically within the latter, substantially as described.

4. A syringe-needle comprising an outer perforated cylinder provided at one end with a perforated cap and at its other end with a nipple for introducing the cleansing fluid into said cylinder, and an inner impervious core of smaller external diameter than the internal diameter of said cylinder, and of less length than said cylinder, said core being arranged concentrically within the cylinder, and means for maintaining every part of the exterior of said core out of contact with the interior of the cylinder and its cap, substantially as described.

5. A syringe-needle comprising an outer perforated cylinder and an inner impervious core of smaller external diameter than the internal diameter of said cylinder, and arranged within the latter, and projections on the periphery of said core arranged to loosely engage the interior of the cylinder and hold said core concentrically within the cylinder, substantially as described.

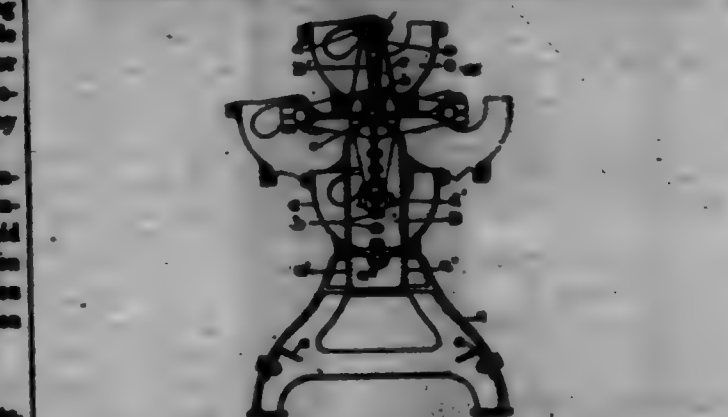
6. A syringe-needle comprising an outer perforated cylinder, provided at one end with a perforated cap and at its other end with a nipple for the introduction of a cleansing fluid, of an inner impervious core of smaller external diameter than the internal diameter of said cylinder and arranged within the latter and loosely projecting past the periphery of said core and loosely engaging the interior of the perforated

cylinder, said pipe operating to hold the core concentrically in the cylinder, substantially as described.

7. A syringe-needle comprising an outer perforated cylinder, provided at one end with a rounded perforated cap and at its other end with a nipple for the introduction of a cleansing fluid, a hollow inner impervious core rounded at its opposite ends, and of less length and diameter than the inner diameter of the cylinder and cap, and projections on the periphery and forward end of said core for holding the latter out of contact with the interior of both the cylinder and cap, substantially as described.

8. A syringe-needle comprising an outer perforated cylinder laterally threaded at its opposite ends, a hollow rounded, perforated cap screwed in one end of said cylinder, a nipple for the introduction of a cleansing fluid screwed in the opposite end of said cylinder and a removable impervious core, rounded at its opposite ends, and of less diameter externally than the internal diameter of said cylinder and cap and removably arranged within said cylinder, and projections on the periphery and forward end of said core for holding the latter out of contact with the interior of the cylinder and cap, substantially as described.

597,413. LATH-PAN REVER. HENRY C. GUNTER, Cleveland, Ohio, assignor to American Gun Co., Cleveland, Ohio, a Partnership. Filed Mar. 22, 1901. Serial No. 68,500. (No model.)



Claim.—1. In lath-pan, a removable frame, a removable member thereon, means for raising and lowering the same, and a reversible member in combination with removable receptacles supported by the reversible member, substantially as set forth.

2. In lath-pan, in combination, a frame, and members rotatably mounted thereon, each connecting said and members, means adapted to be suspended from said rods, one of said and members having a longitudinal web and a handle pivoted to said frame and having a bifurcated part which may engage said web, substantially as set forth.

3. In lath-pan, in combination, a trough adapted to be formed of sheet metal, and plates having grooves into which the ends of said trough fit, and the rods passing through said and plates, substantially as set forth.

4. In lath-pan, in combination, a trough adapted to be formed of sheet metal, and plates having heels, and the rods passing through said and plates and adapted to hold said trough in position, substantially as set forth.

5. In lath-pan, in combination, a trough adapted to be formed of sheet metal, and plates having grooves into which the ends of said trough fit, said and plates having ears which project to a point lower than the bottom of said trough, and the rods which pass through said and, substantially as set forth.

6. In lath-pan, the combination of a central trough portion, and plates having hand-openings formed thereon and means for holding the parts in assembled relation, substantially as set forth.

7. In lath-pan, the combination of a central trough portion, and plates having deep projections formed thereon, and means for holding the parts in assembled relation, substantially as set forth.

597,414. AIR-COMPRESSOR. FRANK L. KENNEDY and ALBERT R. FRYVILL, Louisville, Ky., assignors to the National Foundry and Machine Company, Louisville, Ky., a Corporation. Filed Feb. 6, 1901. Serial No. 68,500. (No model.)

Claim.—1. In an air-compressor, the combination with the taper threaded valve-chamber, having an annular interior groove, and a passage connecting chamber and cylinder, of a taper-threaded double valve-seat having a projecting threaded end portion, the valve in said chamber, and the threaded plug engaging a threaded opening in the end wall of the valve-seat chamber, substantially as specified.

2. An air-compressor having valve-chambers at each end of the cylinder thereof, and having passages connecting each end of the cylinder

with said chambers, and having a passage connecting said chambers, said chambers having each an interior annular groove registering with the passage connecting chamber and cylinder, and integral double valve-seat bushings having a tapered threaded engagement with said chambers, said bushings having perforations registering with said interior grooves, and having portions thereof projecting from the chambers, the valves in said bushings and jaw-sets engaging said projecting portions of the bushings and having air-inlet perforations, substantially as specified.



2. An air-compressor having valve-chambers at each end of the cylinder thereof, and having passages connecting each end of the cylinder with said chambers, and having a passage connecting said chambers, said chambers having each an interior annular groove registering with the passage connecting chamber and cylinder, and integral double valve-seat bushings having a tapered threaded engagement with said chambers, said bushings having perforations registering with said interior grooves, and having portions thereof projecting from said chambers, the valves in said bushings, jaw-sets engaging the projecting portions of said bushings, and having air-inlet perforations, and cover-plates engaging perforations of the said walls of said chambers, substantially as specified.

697,415. LAW-MOWER. CHARLES R. SMITH, Bismarck, N. Dak., assignor of one-half to S. H. Smith, Ostriville, N. Dak. Filed Dec. 27, 1901. Serial No. 57,002. (No model.)



Claim.—1. A law-mower comprising a base-plate formed with fingers, and a cap or gear-riding formed with coating aligned fingers, a drive-shaft journaled in said casing, traction-wheels mounted upon said drive-shaft and arranged within the sides of the casing, a rotary disk journaled between said gear-riding and base-plate and adapted to rotate with its blades between the casing fingers, and an intermediate gearing connecting the drive-shaft with said rotary disk, substantially as set forth.

2. A law-mower comprising a base-plate formed with a segmental row of guard-fingers and with a circular recess, and a cap or gear-riding connected to the base-plate and provided with sliding guard-fingers, a drive-shaft journaled in the cap or gear-riding, traction-wheels fixed to said shaft within the sides of the casing, a rotary disk mounted in the recess of said base-plate, and a pin of gearing for transmitting the movement of the drive-shaft to said rotary disk, substantially as set forth.

3. A law-mower comprising a base-plate formed at its forward end with a segmental row of guard-fingers and with an annular recess having a concentric annular groove, and a cap or gear-riding secured to the base-plate, a drive-shaft journaled in said cap or gear-riding, traction-wheel fixed to said drive-shaft, a rotary disk seated in said annular recess and having an annular rib to engage the annular groove, and an intermediate gearing for transmitting movement from the drive-shaft to the rotary disk, substantially as set forth.

4. A law-mower comprising a base-plate provided with guard-fingers and having near its rear end and at its side parallel longitudinal slots or openings, a cap or gear-riding secured to said base-plate and provided with sliding guard-fingers, a transverse shaft journaled in said cap or gear-riding, traction-wheels fixed to said shaft and projecting through the longitudinal slots or openings in the base-plate, a rotary disk, and means for transmitting movement from the drive-shaft to the rotary disk, substantially as set forth.

5. A law-mower comprising a base-plate provided with guard-fingers and having near its rear end and at its side parallel longitudinal slots or openings, a cap or gear-riding secured to said base-plate and provided with sliding guard-fingers, a central chamber, side chambers, a transverse shaft journaled in the side plates of said cap or gear-riding, a counter-shaft arranged at right angles to the transverse shaft and located within the central chamber, traction-wheels fixed to said shaft and rotating in the side chambers and projecting through the longitudinal slots or openings in the base-plate, a beveled gear fixed to said transverse shaft, beveled gears fixed to said counter-shaft, one in mesh with the aforesaid beveled gear, and a rotary disk having a fixed beveled gear in mesh with the forward beveled gear of the counter-shaft, substantially as set forth.

697,416. NUT-LOCK. WILLIAM S. FOTHERGLASS, Chelsea, Ind. Ter. assignor of one-half to David S. Elliott, Chelsea, Ind. Ter. Filed Nov. 23, 1901. Serial No. 52,641. (No model.)



Claim.—1. The combination with a bolt and nut, of a lock comprising a washer, a locking device that projects from the washer and engages both the nut and bolt to hold them against relative movement, and a holding device that engages the bolt to hold said washer against longitudinal displacement.

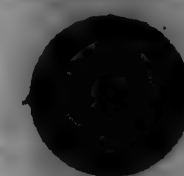
2. The combination with a bolt and nut, of a lock comprising a washer, a locking device projecting from one side of the washer, said locking device engaging both the nut and bolt to hold them against relative movement, and a holding device projecting from the side of the washer opposite the locking device and engaging the bolt to hold said washer against longitudinal displacement.

3. The combination with a bolt and nut, having slots adapted to be placed in alignment, of a lock comprising a washer having a locking-clip that engages in the aligned slots of the nut and bolt to hold them against relative movement, and a holding device carried by the washer and engaging the bolt to hold it against longitudinal displacement upon said bolt.

4. The combination with a bolt and nut having slots adapted to be placed in alignment, of a lock comprising a washer having a locking-clip that engages in the aligned slots of the nut and bolt to hold them against relative movement, and a bendable holding-clip carried by the washer and arranged to engage the threads of the bolt to hold said washer against longitudinal displacement.

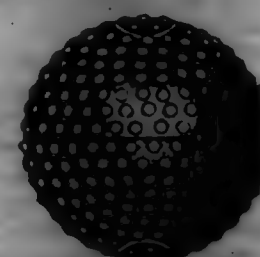
5. The combination with a bolt and nut having slots in their opposite faces, the slots of said nut being adapted to align with the corresponding slots of the bolt, of a lock comprising a washer having a pair of oppositely-disposed locking-arms that engage in the aligned slots of the nut and bolt to hold them against relative movement, and a pair of oppositely-disposed holding-lugs carried by the washer and projecting from the side opposite the locking-arms, said holding-lugs engaging the bolt-threads to hold the washer against longitudinal displacement.

697,417. GOLF-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed July 27, 1900. Serial No. 20,000. (No model.)



Claim.—A playing-ball provided with three diametrical perforations at right angles to each other.

697,418. GOLF-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed Sept. 28, 1901. Serial No. 70,001. (No model.)



Claim.—1. A playing-ball having a stiff, springy shell formed of plastic material, an elastic cushion, and an intervening independent layer of fibrous material; said shell holding said cushion under compression.

2. A playing-ball comprising a shell formed from plastic material, and a springy cushion held under compression by said shell; said cushion being wound around with fibrous strips so as to form an independent layer.

3. A playing-ball consisting of a solid nucleus of springy material which is overwound with twine, and a shell of plastic material holding said nucleus under compression.

4. A playing-ball comprising a core of yielding material, an independent flexible tough fibrous jacket thereon, and a shell of plastic material compressed upon said jacket.

5. A playing-ball comprising a core of gutta-percha overwound with linen twine, and a shell of plastic material holding said core under compression.

6. A playing-ball comprising a yielding core, an independent tough flexible fibrous layer thereon, and a shell of plastic material compressed upon said layer and core.

7. The combination of a core consisting largely of gutta-percha, an independent layer of fibrous material covering said core, and a casing of celluloid compressed upon the fibrous material and core.

8. A playing-ball having a yielding core and a celluloid shell which is reinforced with an independent layer of fibrous material, said shell holding said core under compression.

9. A playing-ball having a core which consists largely of gutta-percha, fibrous material wound upon said core and forming an independent layer, and a celluloid shell compressed upon said fibrous material and core.

10. A playing-ball having a yielding core overwound with strips of fibrous material, and a shell of plastic material consisting of segments welded at their edges and holding said core under compression.

11. A playing-ball having a core which consists largely of gutta-percha, and a celluloid shell reinforced by an independent layer of fibrous material and consisting of spherical segments which are welded together at their edges and hold said core under compression.

12. A playing-ball comprising a shell consisting of hemispherical sections welded together at their edges, and a filling of springy material having an independent tough, flexible jacket of fibrous material and held under compression by said shell.

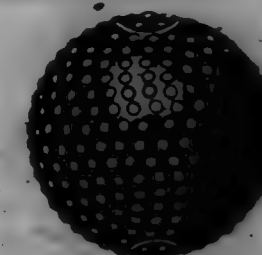
13. A playing-ball comprising a shell which consists of hemispherical segments of celluloid welded together at their edges, and a spherical filling of gutta-percha covered with twine and held under compression by said shell.

14. A ball consisting of a solid sphere of gutta-percha wound compactly with several layers of hard-twisted linen twine, and held under compression by a relatively thin celluloid shell.

697,419. GOLF-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed Oct. 10, 1901. Serial No. 70,000. (No model.)

Claim.—1. A playing-ball comprising a springy core, windings of fibrous material thereon, and a shell formed of plastic material and held

ing said fibrous material and said core under compression; said fibrous material being permeated with adhesive material.



2. A playing-ball comprising a springy core, several layers of fibrous material wound around said core, a shell consisting of segments of plastic material welded at their edges and holding said fibrous material and said core under compression, and adhesive material uniting said shell to said fibrous material.

3. A playing-ball comprising a filling consisting at least partially of gutta-percha; windings of twine thereon; a shell formed of plastic material and compressed upon said twine and core; and an adhesive substance between said twine and said shell.

4. A playing-ball comprising a springy core, windings of fibrous material thereon, and a celluloid shell compressed upon said fibrous material and holding said core under compression.

5. A playing-ball comprising a springy core and a shell of celluloid compressed thereon; said core being covered with fibrous material which is independent of said layer and also independent of said shell, and said shell being cemented to said fibrous layer.

6. A playing-ball comprising a springy core, a layer of fibrous material thereon, and a shell formed of plastic material and holding said core under compression; said shell consisting of one set or pair of spherical segments welded at their edges, and said fibrous material being also joined to said shell by adherent material.

7. A playing-ball comprising a gutta-percha core, a layer of fibrous material thereon, and a shell formed from plastic material and holding said core under compression; said shell consisting of a single pair of hemispherical segments welded at their edges, and said fibrous material being also joined to said shell by adherent material.

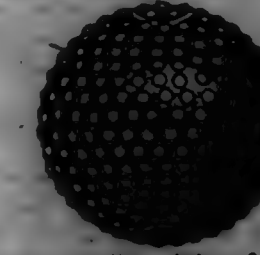
8. A playing-ball comprising a springy core, a layer of fibrous material thereon, and a celluloid shell holding said core under compression; said shell consisting of a single pair of spherical segments welded at their edges, and said fibrous material being also joined to said shell by adherent material.

9. A playing-ball comprising a core consisting at least partially of gutta-percha, a layer of fibrous material upon said core, and a shell formed of celluloid and holding said core under compression; said shell consisting of a single pair of hemispherical segments welded at their edges, and said fibrous material being also joined to said shell by adherent material.

10. A playing-ball comprising a springy core, windings of cord thereon, and a shell holding said core under compression; said shell being formed of segments of plastic material which are welded at their edges, and said cord being cemented to said shell.

11. A playing-ball comprising a springy cord overwound with cord and a shell of plastic material formed of segments of plastic material welded at their edges and holding said core under compression; said cord being embedded in plastic material of the same nature of that from which the shell is formed, and whereby said cord is firmly joined to said shell.

697,420. GOLF-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed Oct. 10, 1901. Serial No. 70,011. (No model.)



Claim.—1. A playing-ball consisting of a solid nucleus of springy material which is overwound with rope fiber, and a shell of plastic material holding said nucleus under compression.

2. A playing-ball comprising a core of gutta-percha overwound with rope fiber and a shell of plastic material holding said core under compression.

3. A playing-ball comprising a yielding core, rope fiber wound thereon, and a celluloid shell compressed upon said layer.

4. The combination of a core consisting largely of gutta-percha, rope fiber covering said core, and a casing of celluloid compressed thereon.

5. A playing-ball having a core which consists largely of gutta-percha, rope fiber wound upon said core, and a celluloid shell compressed upon said fibrous material.

6. A playing-ball having a yielding core overwound with rope fiber, and a shell of plastic material consisting of segments welded at their edges and holding said core under compression.

7. A playing-ball comprising a shell consisting of hemispherical segments welded together at their edges, and a filling of springy material having a jacket of rope fiber and held under compression by said shell.

8. A playing-ball comprising a shell which equals of hemispherical segments of celluloid welded together at their edges, and a spherical filling of gutta-percha covered with rope fiber and held under compression by said shell.

9. A ball consisting of a solid sphere of gutta-percha wound compactly with several layers of rope fiber and held under compression by a relatively thin celluloid shell.

697,421. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to the Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Nov. 5, 1901. Serial No. 51,565. (No model.)



Claim.—1. The combination with a springy core of windings of elastic tubing tensioned thereon, and a shell formed from plastic material and holding said core under compression.

2. The combination with a core made of windings of rubber thread of elastic tubing tensioned thereon, and a shell formed of plastic material and compressed upon said tubing and core.

3. The combination with a rubber-thread ball of a celluloid shell holding the same under compression.

4. The combination with a rubber-thread ball of a shell consisting of hemispherical segments of celluloid welded together at their edges and holding said ball under compression.

5. A playing-ball comprising a celluloid shell, a rubber core, and an intervening layer of fibrous and elastic material, said core being held under compression by said shell.

6. A playing-ball comprising a celluloid shell, a rubber core, and an intervening layer of fibrous and elastic material; said core being held under compression by said shell, and said shell consisting of hemispherical segments welded together at their edges.

7. A playing-ball comprising a celluloid shell, a rubber core, and an intervening layer of fibrous and elastic material; said core being held under compression by said shell, and said fibrous material being cemented to the latter.

8. A playing-ball comprising a celluloid shell, a rubber core, and an intervening layer of fibrous and elastic material; said core being held under compression by said shell, said shell consisting of hemispherical segments welded together at their edges, and said fibrous material being cemented to said shell.

9. A playing-ball comprising a shell made from plastic material, a core formed from springy material, and an intervening layer of tensioned elastic fabric; said core being held under compression by said shell.

10. The combination of a rubber core, windings of elastic tubing tensioned thereon, and a shell of celluloid; the latter holding said core under compression.

11. In a playing-ball, a nucleus consisting of an elastic substance over which elastic tubing is tensioned.

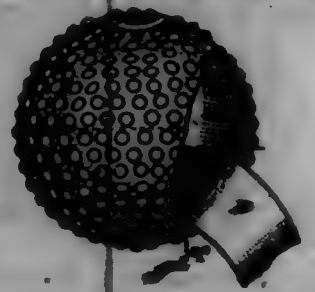
12. In a playing-ball, a nucleus consisting of a ball made up of windings of tensioned rubber thread over which elastic tubing is tensioned.

13. The combination of a springy core, elastic tubing tensioned thereon, and a hard shell formed from plastic material; said tubing being cemented to said shell and the latter holding said core under compression.

14. A playing-ball comprising a springy filling, a celluloid shell and an intervening elastic layer under tension; said shell holding said layer and said filling under compression.

15. A playing-ball comprising a springy filling, a celluloid shell, and an intervening elastic layer under tension; said shell holding said layer and said filling under compression, and being formed from hemispherical segments which are welded together at their edges.

697,422. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to the Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 16, 1902. Serial No. 52,005. (No model.)



Claim.—1. A playing-ball comprising an elastic core and a celluloid shell, the exterior portion of the shell being well cured and the interior portion thereof being incompletely cured and compressing the core directly to said exterior, and the shell being compressed upon the core and holding the same under compression.

2. A playing-ball comprising an elastic core and a shell built up of celluloid layers, the outer layer being thin and highly cured and compressed or welded upon the inner layer, and the latter being incompletely cured and adhering to all portions of the surface of the core.

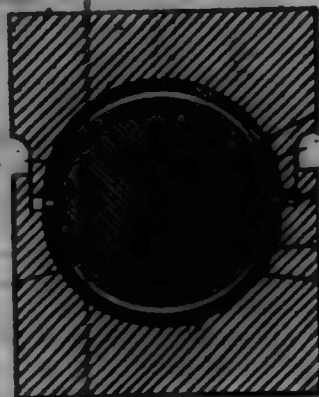
3. A playing-ball comprising an elastic core, and a shell compressed thereon; said shell comprising a highly tensioned or cured outer layer of celluloid and a lining of incompletely-cured celluloid adjacent to the core.

4. A playing-ball comprising an elastic core enveloped or incased in fabric and celluloid, a portion of the celluloid upon the exterior of the ball being highly cured, and an interior portion thereof being incompletely cured; and said fabric being embedded in the celluloid adjacent to the core.

5. A playing-ball comprising an elastic core enveloped or incased in elastic tubing and celluloid, a portion of the celluloid upon the exterior of the ball being highly cured, and an interior portion thereof being incompletely cured; and said elastic tubing being embedded in the celluloid.

6. A playing-ball comprising a core of elastic thread wound under tension; elastic tubing covering said core; tensioned celluloid segments incasing and incorporated with said covering; and segments of highly-tensioned celluloid incasing said tensioned celluloid; said segments being welded together at their edges and also welded thereto to said tensioned celluloid; and said elastic core being held under compression by said celluloid shell.

697,423. MANUFACTURE OF GOLF-BALLS. BRADEN KEMPWALL, Boston, Mass., assignor to the Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 14, 1902. Serial No. 54,000. (No model.)



Claim.—1. A process in producing playing-balls, consisting in incasing a core or filling in a layer of incompletely-cured celluloid, and compressing a shell of highly tensioned or cured celluloid thereon.

2. A process in producing playing-balls, consisting in incasing a core or filling with a shell consisting of a plurality of layers, at least one of said layers being incompletely-cured celluloid, and at least one other of said layers including said layer and consisting of highly-tensioned celluloid, and causing said layers to unite or weld by means of heat and compression.

3. A process in producing playing-balls, consisting in incasing a springy core or filling within a shell consisting of a plurality of layers, at least one of said layers consisting of incompletely-cured celluloid, and at least one other of said layers including said layer and consisting of highly-tensioned celluloid, and subjecting said layers to heat and compression sufficient to join or weld said layers and put said core or filling under compression.

4. A process in producing playing-balls, consisting in incasing a springy core or filling within a shell consisting of a plurality of layers, at

least one of said layers consisting of incompletely-cured celluloid, and at least one other of said layers including said layer and consisting of highly-tensioned celluloid, subjecting said layers to heat and compression sufficient to join or weld said layers and put said core or filling under compression, and maintaining the compression while the shell hardens.

5. A process in producing playing-balls, consisting in incasing a layer of incompletely-cured celluloid upon a springy core or filling, incasing the ball then formed in a shell consisting partially or wholly of highly-tensioned celluloid, heating and compressing the ball then formed, and continuing the compression while the shell hardens.

6. A process in producing playing-balls, consisting in covering a core with layers of celluloid and fabric; at least two layers of celluloid being employed, and the outer layer thereof being more tensioned than the inner layer; subjecting the ball then assembled to heat and compression, and continuing the compression while the shell hardens.

7. A process in producing playing-balls, consisting in covering a core with previously-formed layers of celluloid and causing said layers to join or weld under heat and compression.

8. A process in producing playing-balls, consisting in covering a springy core with a layer of fabric and layers of celluloid and causing all of said layers to unite under heat and compression.

9. A process in producing playing-balls, consisting in heating and compressing well-cured and incompletely-cured celluloid upon a springy core and causing the compression to be continued while the shell hardens.

10. A process in producing playing-balls consisting in winding elastic tubing upon a springy core, cementing said tubing, including the ball core in a shell consisting of layers of celluloid, and subjecting the ball then assembled to heat and compression.

11. A process in producing playing-balls, consisting in forming a hard, springy core with a tensioned elastic jacket, and compressing heated layers of highly-tensioned and incompletely-cured celluloid thereon.

12. A process in producing playing-balls, consisting in solidifying under heat and pressure a springy core, a tensioned elastic jacket upon said core, and layers of celluloid incasing said jacket.

13. A process in producing playing-balls, consisting in compressing linear and outer shell-segments over a filling previously prepared with a tensioned elastic compression-jacket.

14. A process in producing playing-balls, consisting in incasing within laminated shell-segments of highly-tensioned and incompletely-cured celluloid an elastic core having a compression-jacket under tension, heating and forcing the segments together, causing their edges to weld or adhere, and causing the shell to harden while under compression.

15. A process in producing playing-balls, consisting in winding elastic tubing under tension upon a springy core, incasing the ball then formed in a laminated celluloid shell, and subjecting the whole to compression and heat.

16. A process in making playing-balls, consisting in making a core of rubber, providing the same with a covering consisting of fabric and layers of celluloid, subjecting the whole to heat and compression, and continuing the compression while the shell hardens.

17. A process in making playing-balls, consisting in making a core of rubber, providing the same with a covering consisting of elastic tubing and layers of celluloid, subjecting the whole to heat and compression, and continuing the compression while the shell hardens.

18. A process in producing playing-balls, consisting in winding rubber thread under tension into the form of a ball, winding elastic tubing under tension upon said ball, incasing the ball then formed in layers of incompletely-cured and well-cured celluloid, and subjecting the whole to compression and heat.

19. A process in producing playing-balls, consisting in incasing a core or filling in a layer of incompletely-cured celluloid, compressing segments of highly tensioned or cured celluloid thereon and welding said segments together.

20. A process in producing playing-balls, consisting in incasing a core or filling with a shell consisting of a plurality of layers, at least one of said layers being in the form of segments of incompletely-cured celluloid, and at least one other of said layers including said layer and consisting of segments of highly tensioned celluloid, and causing all of said segments to weld together by means of heat and compression, so as to form an entire shell.

21. A process in producing playing-balls, consisting in incasing a springy core or filling within a shell consisting of a plurality of layers, at least one of said layers consisting of incompletely-cured celluloid, and at least one other of said layers including said layer and consisting of segments of highly-tensioned celluloid, subjecting said layers to heat and compression sufficient to join or weld said layers and weld said segments at their edges and also put said core or filling under compression, and maintaining the compression while the shell hardens.

22. A process in producing playing-balls, consisting in incasing a layer of incompletely-cured celluloid upon a springy core or filling, incasing

the ball then formed in segments consisting partially or wholly of highly-tensioned celluloid, heating and compressing the ball then formed, and continuing the compression while the shell hardens.

23. A process in producing playing-balls, consisting in covering a core with layers of celluloid and fabric; at least two layers of celluloid being employed, and the outer layer thereof consisting of hemispherical segments and being more tensioned than the inner layer; subjecting the ball then assembled to heat and compression; and continuing the compression while the shell hardens.

24. A process in producing playing-balls, consisting in covering a core with previously-formed layers of celluloid each layer being in the form of segments, and causing said layers to join or weld together and said segments to weld at their edges under heat and compression.

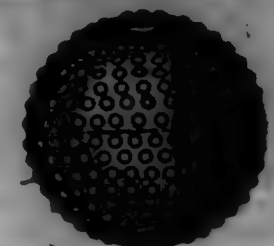
25. A process in producing playing-balls, consisting in heating and compressing and welding well-cured segments and incompletely-cured segments of celluloid upon a springy core and causing the compression to be continued while the shell hardens.

26. A process in producing playing-balls consisting in winding elastic tubing upon a springy core, cementing said tubing, including the ball core in segments of celluloid, incasing the ball then formed in other segments of celluloid, and subjecting the ball then assembled to simultaneous heat and compression.

27. A process in producing playing-balls, consisting in forming a hard, springy core with a tensioned elastic jacket, and heating and compressing highly-tensioned segments and incompletely-cured segments of celluloid thereon.

28. A process in producing playing-balls, consisting in solidifying under heat and pressure a springy core, a tensioned elastic jacket upon said core, and layers of celluloid in segmental form incasing said jacket.

697,424. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to the Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 24, 1902. Serial No. 55,100. (No model.)



Claim.—1. In a playing-ball, the combination with a yielding core of a shell compressed thereon, said shell comprising an inner layer and an outer layer of well-cured or cured celluloid and an intervening layer of more plastic celluloid which welds together said inner and outer layers.

2. In a playing-ball, the combination with a yielding core of a shell compressed thereon, said shell comprising an outer layer of well-cured celluloid, and an inner layer of hard, springy material welded or adhering thereto.

3. In a playing-ball, the combination with a yielding core of a shell compressed thereon, said shell comprising an outer layer of well-cured celluloid, an inner layer of hard springy material, and an intervening layer or plenum of cementing or welding material.

4. In a playing-ball, the combination of a springy core, a layer of well-cured celluloid thereon, a coating of more plastic celluloid upon said layer, and welded segments of celluloid compressed upon and united by said plastic coat to said first layer; the shell then formed holding said core under compression.

5. In a playing ball, the combination of a springy core, segments of well-cured celluloid thereon, a coating of more plastic celluloid upon said segments, and segments of well-cured celluloid united by said plastic celluloid to said inner segments; all of said segments being also welded at their edges and holding said core under compression.

6. In a playing-ball, the combination with a yielding core of a shell compressed thereon, said shell being made up of hard layers united by a cementing-layer, one of said hard layers being formed of joined spherical segments, and another of said layers reinforcing the joint.

7. In a playing-ball, the combination with a yielding core of a shell compressed thereon, said shell comprising a plurality of hard layers cemented one upon the other; one of said layers being in the form of edge-welded hemispherical segments, and another of said layers reinforcing the weld.

8. In a playing-ball, the combination of a yielding core and a celluloid shell holding said core under compression; said shell comprising inner and outer layers, each of said layers consisting of segments welded together, and the weld in one of said layers running crosswise of the weld in the other thereof, and also comprising an intervening adherent or welding layer or film.

9. In a playing-ball, the combination with a yielding core, of a shell consisting wholly or partly of celluloid and having said core under compression; said shell consisting of layers, at least one whereof is in the form of segments welded together, and another of said layers reinforcing the weld; said layers being also compressed and welded together so as to form an intervening adherent layer.

10. A playing-ball comprising a core consisting wholly or largely of gutta-percha, and a shell consisting wholly or largely of celluloid and made up of an outer layer, an inner layer, each of said layers consisting of hemispherical segments welded together, the welds running crosswise of each other, and an intervening layer; and said outer and inner layers being solidified and welded together upon said intervening layer so as to form a concrete shell, which holds said core in a state of compression.

11. In a playing-ball, a shell made up of layers, one of said layers being formed of jointed spherical segments, another of said layers reinforcing the joint, and a layer intervening between said layers; and a yielding core held under compression by said shell.

12. In a playing-ball, a shell comprising two layers, each comprising jointed spherical segments, the joint or seam in one layer running crosswise with the joint or seam in the other layer, and also comprising an intervening weld-layer; and a yielding core held under compression by said shell.

697,425. MANUFACTURE OF GOLF-BALLS. BRADLEY KEMP-
SHALL, Boston, Mass., assignor to the Kempshall Manufacturing Com-
pany, a Corporation of New Jersey. Filed Mar. 6, 1902. Serial No.
56,502. (No model.)



Claim.—1. A process in producing playing-balls, consisting in providing a core with a thick solid rubber envelop and forming thereon under heat and pressure a shell of gutta-percha and celluloid.

2. A process in producing a playing-ball, consisting in providing a core of gutta-percha with a solid rubber envelop and heating and compressing thereon a shell consisting partially or wholly of celluloid and gutta-percha.

3. A process in producing a playing-ball, consisting in compressing a body of soft rubber between a hard core and a multiple-layer shell while the latter is in a plastic condition, and causing said shell to harden while compressed, thereby to hold said rubber under permanent compression.

4. A process in forming a playing-ball, consisting in providing a spherical gutta-percha core with a highly-vulcanized firm rubber envelop, compressing upon said envelop a heated shell of gutta-percha and celluloid, and causing said shell to harden while under compression.

5. A process in forming a playing-ball, consisting in providing a spherical gutta-percha core with a highly-vulcanized firm rubber envelop, compressing upon said envelop a heated shell of gutta-percha and celluloid, and causing said shell to harden while under compression.

6. A process in forming a playing-ball, consisting in combining a spherical core of hard material with a thick rubber envelop, providing said envelop with a hard shell, compressing upon said shell heated segments of celluloid, and causing said celluloid to harden while under compression.

7. A process in forming a playing-ball, consisting in combining a spherical core of hard material with a highly-vulcanized thick rubber envelop, compressing upon said envelop heated hemispherical segments of gutta-percha and celluloid, so as to compress and weld said segments and also place said rubber under compression, and causing the gutta-percha and celluloid to harden while under compression.

8. A process in producing playing-balls, consisting in compressing a plastic shell consisting of gutta-percha and celluloid upon a soft-rubber and gutta-percha filling so as to put said rubber in a state of compression, and hardening said shell while under compression.

9. A process in producing playing-balls, consisting in heating a previously-formed gutta-percha and celluloid shell and compressing it upon a sphere of soft rubber which contains a core of gutta-percha.

10. A process in making playing-balls, consisting in heating and pressing celluloid and gutta-percha shell-segments together over a soft-rubber sphere containing a core of gutta-percha, so as to compress the

soft rubber and also to cause the edges of the shell-segments to unite or weld, and hardening the shell while under compression.

11. A process in making playing-balls, consisting in placing a gutta-percha sphere between hemispheres of soft rubber, pressing hot gutta-percha and celluloid shell-segments together over said filling so as to cause the edges of the segments to unite, to compress the soft rubber and also to compress the shell to final size, and causing the shell to harden while under compression.

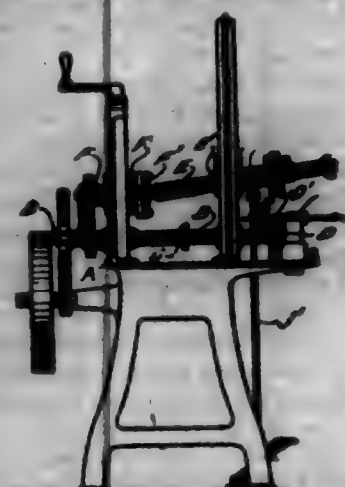
12. A process in making playing-balls, consisting in making a filling at least partially of gutta-percha and highly-vulcanized soft rubber, making hemispherical gutta-percha and celluloid shell-segments, heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the segments to weld or unite, the joints or welds crossing, and hardening the shell while under compression.

13. A process in making playing-balls, consisting in inclosing a soft-rubber sphere in a shell of gutta-percha, putting the ball thus formed in a shell of celluloid, subjecting the ball thus formed to heat and compression, and maintaining the compression until the celluloid and gutta-percha harden.

14. A process in making playing-balls, consisting in inclosing a soft-rubber sphere in a shell of gutta-percha, putting the ball thus formed between segments of celluloid, subjecting the ball thus formed to heat and compression, so as to weld said segments and compress said rubber, and maintaining the compression until the celluloid and gutta-percha harden.

REISSUES.

11,980. MACHINE FOR MOUNTING ORNAMENTAL COMPOSITION DIRECTLY UPON CIRCULAR PICTURE-FRAMES. FRANK E. ADAMS, Chicago, Ill., assignor to Samuel Franklin, Chicago, Ill. Filed Jan. 29, 1902. Serial No. 11,984. Original No. 646,589, dated Jan. 29, 1901. Reissue No. 11,980, dated Oct. 22, 1901.



Claim.—1. In a machine for directly mounting ornamental composition on frames, the combination, with a support provided with an impression-roller and means for operating the same, of two tables on the support, each of which is provided with a slot, two bolts in each slot, two cross-pieces between the tables, the ends of which extend under the slots and engage with the bolts, a guide projecting from the central portion of each cross-piece above the tops of the tables, and a wheel journaled between the tables and the cross-pieces, the axis of which is substantially in alignment with the guides and the periphery is provided with teeth and projects above the tops of the tables.

2. In a machine for directly mounting ornamental composition on frames, the combination, with a support provided with an impression-roller and means for operating the same, of two tables on the support, the adjacent edges of which are parallel, each table being provided with a slot, parallel with its edge and having a portion of its top around the slot cut away, two cross-pieces between the tables, each end of each of which is halved and extends under the table and the top fits squarely between the tables and is even with the tops thereof, a bolt through each end of each cross-piece, the head of which fits within the recessed portion of the table and the bolt clamps the cross-piece against the under side of the table, a roller journaled at the central portion of each cross-piece so as to project above the tops of the tables, and a roller journaled between the tables and the cross-pieces, the axis of which is substantially in alignment with the rollers on the cross-pieces and the periphery projects above the tops of the tables and is provided with teeth.

3. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein upon a horizontally-disposed axis, an impression-roll disposed above said feed-roll and journaled in said

frame in a vertically-movable bearing, a guide located upon each side of the feed-roll at its upper part and both of said guides being located in a vertical plane extending through and parallel with the axis of both of said rolls, said feed-roll being removable toward one side and the guide on said side being movably mounted to permit the removal of said feed-roll.

4. In a machine of the class described, the combination of a supporting-frame, a horizontally-disposed rotary shaft journaled therein and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled above the other shaft in a vertically-movable bearing and having a free end projecting beyond its bearing, an impression-roll adapted to coast with said feed-roll and removably mounted upon the free end of said second shaft, a guide located on each side of said feed-roll at its upper part and both of said guides being in a vertical plane extending through and parallel with the axis of both of said shafts, a movable member secured to said frame and supporting the guide on the outside of said feed-roll in adjustable manner to permit the removal of the feed-roll toward the free end of its shaft.

5. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein upon a horizontally-disposed axis, an impression-roll disposed above said feed-roll and journaled in said frame in a vertically-movable bearing, a guide located upon each side of the feed-roll at its upper part and both of said guides being located in a vertical plane extending through and parallel with the axis of both of said rolls, and each being adjustable toward and from each other, said feed-roll being removable toward one side and the guide on said side being movably mounted to permit the removal of said feed-roll.

6. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein upon a horizontally-disposed axis, an impression-roll disposed above said feed-roll and journaled in said frame in a vertically-movable bearing, a guide located upon each side of the feed-roll at its upper part, and both of said guides being located in a vertical plane extending through and parallel with the axis of both of said rolls, a platform having a recess through which the upper face of said feed-roll projects, cross-pieces adjustably mounted upon opposite sides of said recess and each supporting one of said guides.

7. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein, an impression-roll journaled in said frame in movable bearings, said impression-roll having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, and a pair of guides mounted on said supporting-frame and adapted to have contact with opposite sides of said picture-frame at points located in a plane extending through and parallel with the axis of both of said rolls, one of said guides being adjustable in said plane toward and from the other guide.

8. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein, an impression-roll journaled in said frame in movable bearings, said impression-roll having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, and a pair of guides mounted on said supporting-frame and adapted to have contact with opposite sides of said picture-frame at points located in a plane extending through and parallel with the axis of both of said rolls, both of said guides being adjustable in said plane toward and from each other.

9. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein, an impression-roll journaled in said frame in movable bearings, said impression-roll having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, and a pair of guides mounted on said supporting-frame and adapted to have contact with opposite sides of said picture-frame at points located in a plane extending through and parallel with the axis of both of said rolls, both of said guides being adjustable in said plane toward and from each other.

10. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein, an impression-roll journaled in said frame in movable bearings, said impression-roll having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, and a pair of guides mounted on said supporting-frame and adapted to have contact with opposite sides of said picture-frame at points located in a plane extending through and parallel with the axis of both of said rolls, said rolls being removably mounted and one of said guides being movably mounted to permit the removal of said feed-roll in the direction of each guide.

11. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein upon a horizontally-disposed axis, an impression-roll disposed above said feed-roll and journaled in said frame in a vertically-movable bearing, a guide located upon one side of the feed-roll at its upper part and substantially in a vertical plane extending through and parallel with the axis of both of said rolls, said feed-roll being removable toward said guide, and said guide being movably mounted to permit the removal of said feed-roll.

12. In a machine of the class described, the combination of a supporting-frame, a horizontally-disposed rotary shaft journaled therein and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled above the other shaft in a vertically-movable bearing and having a free end projecting beyond its bearing, an impression-roll adapted to coast with said feed-roll and removably mounted upon the free end of said second shaft, a guide located at the upper part of said feed-roll at the side of same toward the free end of its shaft, said guide being movably mounted to permit the removal of said feed-roll toward the free end of its shaft.

13. In a machine of the class described, the combination of a supporting-frame, a horizontally-disposed rotary shaft journaled therein and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled above the other shaft in a vertically-movable bearing and having a free end projecting beyond its bearing, an impression-roll adapted to coast with said feed-roll and removably mounted upon the free end of said second shaft, a guide located at the upper part of said feed-roll at the side of same toward the free end of its shaft, said guide being located substantially in a vertical plane extending through and parallel with the axis of both of said rolls and being movably mounted to permit the removal of said feed-roll toward the free end of its shaft.

14. In a machine of the class described, the combination of a supporting-frame, a horizontally-disposed rotary shaft journaled therein and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled above the other shaft in a vertically-movable bearing and having a free end projecting beyond its bearing, an impression-roll adapted to coast with said feed-roll and removably mounted upon the free end of said second shaft, a guide located at the upper part of said feed-roll at the side of same toward the free end of its shaft, said guide being located substantially in a vertical plane extending through and parallel with the axis of both of said rolls and being adjustable toward and from said feed-roll.

15. In a machine of the class described, the combination of a supporting-frame, a rotary shaft journaled in said frame and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled in said frame in a movable bearing and having a free end projecting beyond its bearing, an impression-roll mounted on said free end and having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, a guide located upon one side of the feed-roll at the part of its periphery disposed toward said impression-roll, said guide being substantially in a plane extending through and parallel with the axis of both of said rolls, said feed-roll being removable toward said guide, and said guide being movably mounted to permit the removal of said feed-roll.

16. In a machine of the class described, the combination of a supporting-frame, a rotary shaft journaled in said frame and having a free end projecting beyond its bearing, a removable feed-roll mounted on said free end, a second rotary shaft journaled in said frame in a movable bearing and having a free end projecting beyond its bearing, an impression-roll mounted on said free end and having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, a guide located upon one side of the feed-roll at the part of its periphery disposed toward said impression-roll, said guide being substantially in a plane extending through and parallel with the axis of both of said rolls, said feed-roll being removable toward said guide, and said guide being movably mounted to permit the removal of said feed-roll, yielding means acting on the movable shaft and normally holding said impression-roll away from the feed-roll and picture-frame, and means for urging said impression-roll toward said feed-roll and upon said picture-frame.

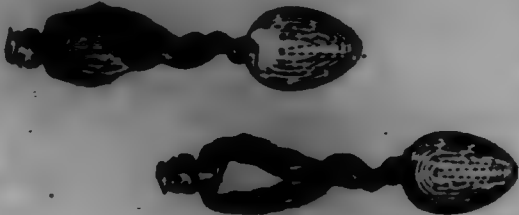
17. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein upon a horizontally-disposed axis, a rotary shaft journaled in said frame above the axis of the feed-roll in a vertically-movable bearing and having a free end projecting beyond its bearing, an impression-roll adapted to coast with said feed-roll and removably mounted upon the free end of said rotary shaft, a guide located at the upper part of said feed-roll at one side of same and substantially in a vertical plane extending through and parallel with the axis of both of said rolls, yielding means acting on the movable shaft and normally holding said impression-roll away from the feed-roll and picture-frame, and means for urging said impression-roll toward said feed-roll and upon said picture-frame.

18. In a machine of the class described, the combination of a supporting-frame, a feed-roll journaled therein, a rotary shaft journaled in said frame in a movable bearing and having a free end projecting beyond its bearing, an impression-roll mounted on said free end and having its free end opposed to and adapted to coast with the face of the feed-roll upon an interposed picture-frame, a guide located upon one side of the feed-roll at the part of its periphery disposed toward said impression-roll, said guide being substantially in a plane extending through and parallel with

the axes of both of said rolls, yielding means acting on the movable shaft and normally holding said impression-roll away from the feed-roll and picture-frame, and means for urging said impression-roll toward said feed-roll and against said picture-frame.

DESIGNS.

85,850. HANDLES FOR SPOONS OR SIMILAR ARTICLES. HENRY H. BURDICK, SYRACUSE, N. Y. Filed Feb. 13, 1902. Serial No. 94,002. Term of patent 7 years.



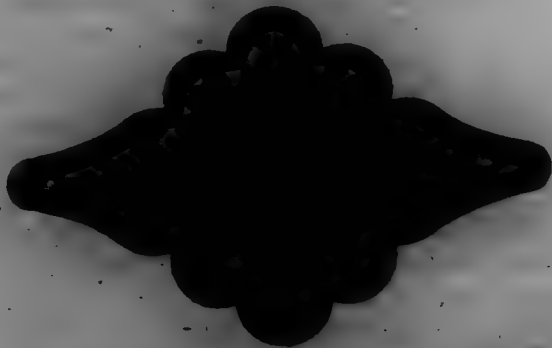
Claim.—The design for a handle for spoons, or similar articles, as herein described and shown.

85,851. WATCHCASE. HENRI VICTOR DUCOUSSON, CHAM-DE-FONDS, SWITZERLAND. Filed Dec. 6, 1901. Serial No. 94,007. Term of patent 14 years.



Claim.—The design for a watchcase herein shown and described.

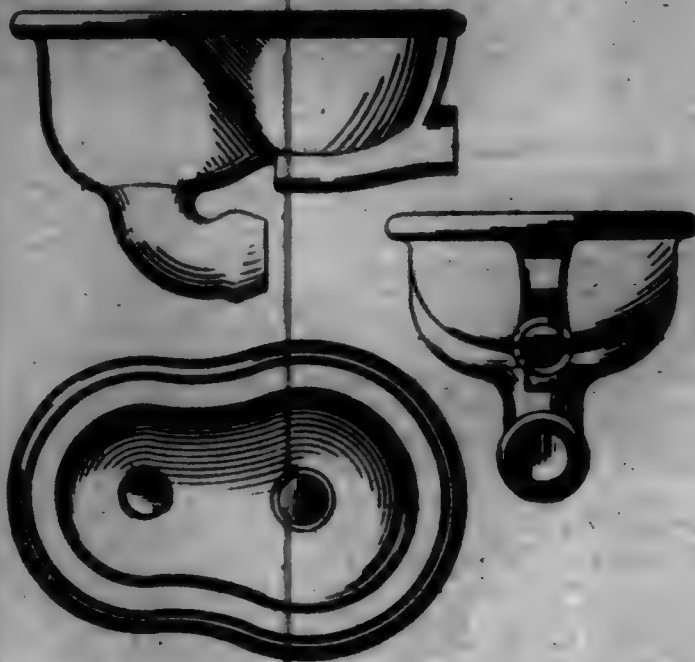
85,852. RING-TRAY. JAMES L. HENSON, NEW YORK, N. Y. Filed Mar. 11, 1902. Serial No. 97,794. Term of patent 34 years.



Claim.—The design for a ring-tray as herein shown and described.

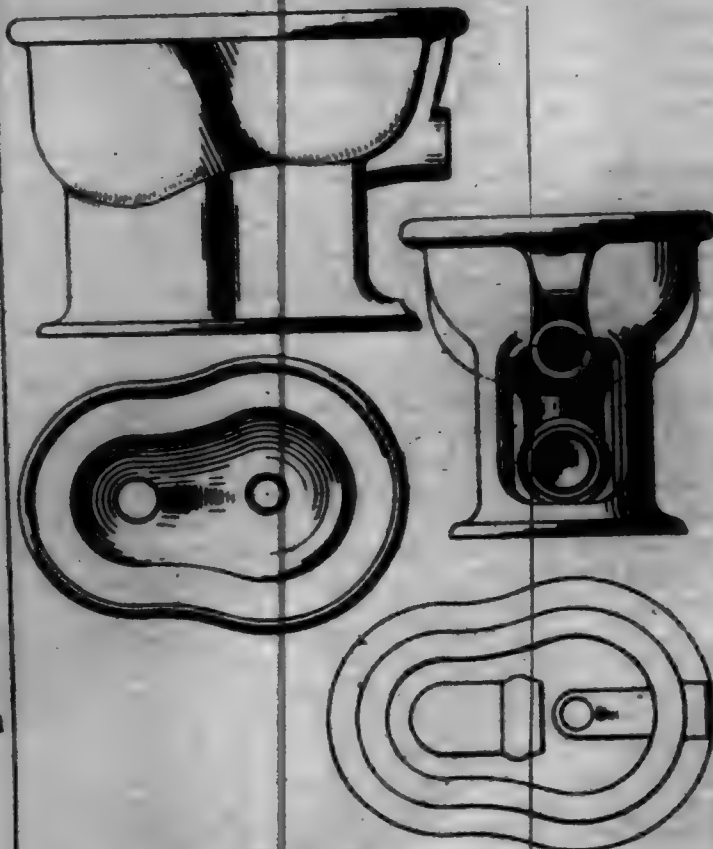
85,853. MUG. FRANK A. WELLS, NEW YORK, N. Y. Filed Feb. 10, 1902. Serial No. 94,405. Term of patent 14 years.

85,858.



Claim.—The design for a mug, substantially as herein shown and described.

85,854. MUG. FRANK A. WELLS, NEW YORK, N. Y. Filed Feb. 10, 1902. Serial No. 94,406. Term of patent 14 years.



Claim.—The design for a mug, substantially as herein shown and described.

85,855. TRIMMING. JENNIFER WILLIAMS, NEW YORK, N. Y. Filed Mar. 12, 1902. Serial No. 94,408. Term of patent 34 years.



Claim.—The design for a trimming substantially as herein shown and described.

April 8, 1902.

U. S. PATENT OFFICE.

437

85,856. CUT-GLASS VESSEL. PAUL F. FARMER, Chicago, Ill.
Filed Mar. 11, 1902. Serial No. 98,116. Term of patent 7 years.



Claim.—The design for a cut-glass vessel substantially as herein shown and described.

85,857. LAMP. PAUL F. FARMER, Chicago, Ill. Filed Jan. 27, 1902.
Serial No. 98,372. Term of patent 7 years.



Claim.—The design for a lamp, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 8, 1902.

88,050. PERIODICAL. W. E. GANNETT, Publisher, Augusta, Me. Filed Mar. 6, 1902.

COMFORT

Essential feature.—The word "COMFORT." Used since November 21, 1899.

88,051. CERTAIN NAMED PAPER. BLAKE, HOFFITT & TOWNE, San Francisco, Cal. Filed Jan. 14, 1902.



Essential feature.—The representation of a four-leafed clover. Used since February 29, 1897.

88,052. GAME. ARTHUR J. PATTERSON, Kalamazoo, Mich. Filed Mar. 10, 1902.

FLINCH.

Essential feature.—The word "FLINCH." Used since May, 1901.

88,053. WITHDRAWN.

88,054. COARSE UNBLEACHED COTTON. HINER HOFFER & Co., New York, N. Y. Filed Feb. 17, 1902.



Essential feature.—The representation of a monkey standing on its hind with its limbs extended. Used since February 14, 1902.

88,055. ORIENTAL. RICHARDSON, New York, N. Y. Filed Feb. 17, 1902.



Essential feature.—The representation of a scroll with a Chinese word thereon and two stags, one on each side of it, and a border. Used since October 1, 1901.

88,056. CLOTH, CORDING, AND LINO FABRIC. HARRY W. SMITH, North Crafton, Mass. Filed Mar. 21, 1901.



Essential feature.—The word "RUDDY." Used since December 19, 1900.

88,057. WOVEN SILK FABRIC. PRALANT SILK MILL, Jersey City, N. J. Filed Feb. 15, 1902.

FW

Essential feature.—The word "FORT." Used since October 15, 1894.

88,058. OVERALLS AND COATS. AMERICAN MANUFACTURING Co., Greensboro, N. C. Filed Feb. 21, 1902.



Essential feature.—The words "BATTLE-AXIS" and the representation of a battle-ax upon a disk. Used since January, 1902.

88,059. BOOTS AND SHOES. CRAWFORD SHOE MAKING, New York, N. Y. Filed Feb. 27, 1902.

88,059.



Essential feature.—The representation of a shield ornamented by a crown, a lion wearing a crown at each side of the shield, and a scroll beneath the shield and lion. Used since February 18, 1902.

88,060. **BOOTS AND SHOES.** G. H. WITT SHOE CO., Lynchburg, Va. Filed Mar. 12, 1902.

DIXIE

Essential feature.—The word "DIXIE." Used since March 4, 1902.

88,061. **BOOTS AND SHOES.** G. H. WITT SHOE CO., Lynchburg, Va. Filed Mar. 12, 1902.

DIXIE GIRL

Essential feature.—The words "DIXIE GIRL." Used since March 4, 1902.

88,062. **SHOES.** FORD & FRASER, Baltimore, Md. Filed Feb. 12, 1902.

Nacirema

Essential feature.—The word "NACIREMA." Used since December 5, 1901.

88,068. **PEANUTS.** ALFRED S. FORTY, Philadelphia, Pa. Filed Feb. 26, 1902.

HAVSUM.

Essential feature.—The word "HAVSUM." Used since December 15, 1901.

88,064. **WHEAT-FLOUR.** EDWARD WATSON MILL CO., Burlington, Kans. Filed Feb. 9, 1902.



Essential feature.—The representation in profile of a woman standing at one side of and pointing with extended arm to a map showing the Missouri, Kansas & Texas railway, together with the States and Territories through and adjacent to which said railway extends. Used since January 17, 1902.

88,065. **LARD COMPOUND.** THE SOUTHERN COTTON OIL CO., Jersey City, N. J.; Savannah, Ga., and Graton, La. Filed Feb. 21, 1902.

SNOWDRIFT

Essential feature.—The word "SNOWDRIFT." Used since November 17, 1902.

88,066. **LARD COMPOUND.** THE SOUTHERN COTTON OIL CO., Jersey City, N. J.; Savannah, Ga., and Graton, La. Filed Feb. 21, 1902.

SNOWDROP

Essential feature.—The word "SNOWDROP." Used since January 26, 1902.

88,067. **CURTAIN HANGING CROCHING.** J. B. BROWN, GROCERY Co., Wheeling, W. Va. Filed Jan. 9, 1902.



Essential feature.—The words "CLUB HOUSE" and the pictorial representation of a conventional club-house located in the midst of hilly scenery. Used since March 20, 1902.

88,068. CERTAIN NAMED GROCERIES. MARSHALL SMITH, Toledo, Ohio. Filed Feb. 17, 1902.

ARNA

Essential feature.—The word "ARNA." Used since June 1, 1901.

88,069. CERTAIN NAMED GROCERIES. SPRAGUE, WARNER & COMPANY, Chicago, Ill. Filed Mar. 10, 1902.

MONSOON

Essential feature.—The word "MONSOON." Used since February 19, 1902.

88,070. CERTAIN NAMED GROCERIES. SPRAGUE, WARNER & COMPANY, Chicago, Ill. Filed Mar. 10, 1902.

TABLE D'HOTE

Essential feature.—The words "TABLE D'HOTE." Used since February 19, 1902.

88,071. CERTAIN NAMED GROCERIES. SPRAGUE, WARNER & COMPANY, Chicago, Ill. Filed Mar. 10, 1902.

MASTIFF

Essential feature.—The word "MASTIFF." Used since February 19, 1902.

88,072. NON-INTOXICATING BEVERAGES. PHILIP SCHALLER and BEVINS COMPANY, Birmingham, Ala. Filed Mar. 8, 1902.

HOP-JACK

Essential feature.—The word "HOP-JACK." Used since March 20, 1902.

88,073. VINEGAR. JAMES BROS. & CO., Louisville, Ky. Filed Mar. 4, 1902.

BLUE GRASS BELLE

Essential feature.—The words "BLUE GRASS BELLE." Used since April 1, 1901.

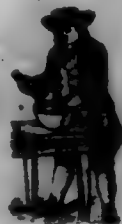
88,074. CERTAIN NAMED FOODS AND DELICIES. ADAM & BARNETT and THE WESTERN SWEETEN ORANGE CO., Ltd., Yeovil, England. Filed Mar. 8, 1902.

SILVEL

Essential feature.—The words "ST. IVEL." Used since April, 1901.

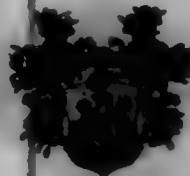
88,075. BREAD-POWDER FOR CAKES AND CONFECTIONERY. HENRY H. OTTER, Philadelphia, Pa. Filed Jan. 10, 1902.

Quaker



Essential feature.—The word "QUAKER" and the representation of a Quaker apparently in the act of mixing being in a receptacle before him. Used since October 27, 1901.

88,076. BREADS, CAKES, AND CONFECTIONERY. FRANKLIN I. DUNNETT, New York, N. Y. Filed Dec. 11, 1901.



Essential feature.—The representation of a shield and three hills, from the central one of which a grape-vine extends, on the upper portion of the shield being a star and supported on the shield the representation of a helmet, together with scrolls and branches extending from opposite sides of the helmet and downward at the sides of the shield. Used since November 14, 1901.

88,077. CERTAIN NAMED FRUIT AND MEDICINAL AND FOOD PRODUCTS OF SUCH FRUIT. FRANKLIN A. BARNES, Hamilton, Bermuda. Filed Jan. 15, 1902.



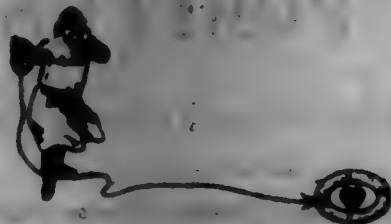
Essential feature.—A pyramidal arrangement of fruit, the letters "V C," and a monogram comprising the letters "F A R." Used since March 4, 1901.

88,078. COUGH-SYRUPS AND REMEDIES FOR CERTAIN NAMED DISEASES. CURE G. B. GLEN, New York, N. Y. Filed Feb. 24, 1902.

Cheer Bee Gee

Essential feature.—The grouped syllables "O CHEER BEE GEE." Used since February 4, 1902.

88,079. MEDICINAL COMPOUND IN POWDER FORM PUT UP IN GELATINOUS CAPSULES. JAMES R. HENDERSON COMPANY, Philadelphia, Pa. Filed Dec. 8, 1904.



Essential feature.—The representation of a life-cover or coat-guard and a life-preserver, within which is limited the representation of a heart. Used since September, 1904.

88,080. MEDICAL COMPOUND FOR CERTAIN NAMED DISEASES. GEORGE A. KNOX, Rochester, N. Y. Filed Feb. 7, 1902.

ROX

Essential feature.—The word "ROX." Used since March 1, 1906.

88,081. CERTAIN NAMED MEDICINAL REMEDY. KRAM & OWEN COMPANY, New York, N. Y. Filed Dec. 25, 1902.

GLYCO-THYMOLINE

Essential feature.—The word "GLYCO-THYMOLINE." Used since June, 1906.

88,082. MEDICINAL OIL. MAX R. RABEN, Stettin, W. Pr. Filed Jan. 27, 1903.

ZMO

Essential feature.—The letters "Z M O." Used since October 27, 1907.

88,083. CERTAIN NAMED OIL. ROBERT SCHULMANN'S OILWORKS, SCHULMANN & SONS, BREITENBURGER HAUPTSTADT, Hamburg, Germany. Filed Feb. 7, 1902.



Essential feature.—A swastika enclosed in a circle. Used since January 1, 1905.

88,084. SOAP. MAPLE CITY SOAP WORKS, Monmouth, Ill. Filed Nov. 12, 1901.

MAPLE CITY

Essential feature.—The words "MAPLE CITY." Used since October 12, 1904.

88,085. STICKY FLY-PAPER. THOMAS D. BOSTRAN, Chicago, Ill. Filed Feb. 6, 1902.

NICKEL PLATE

Essential feature.—The words "NICKEL PLATE." Used since November 1, 1901.

88,086. WALL-PLASTER. GRANITE WALL-PLASTER CO., Lebanon, Pa. Filed Mar. 4, 1902.

GRANITINE

Essential feature.—The word "GRANITINE." Used since October 22, 1905.

88,087. POCKET-KNIVES, RAZORS, AND SCISSORS. HERMANN RICH & CO., Solingen, Germany. Filed Mar. 4, 1902.

TREE

Essential feature.—The word "TREE." Used for the last thirty years.

88,088. INCANDESCENT BAYONET. WALTER H. TAYLOR, Toronto, Canada. Filed Mar. 10, 1902.

IRONSIDES

Essential feature.—The word "IRONSIDES." Used since March 4, 1901.

88,089. TALKING-MACHINES. UNIVERSAL TALKING MACHINE CO., New York, N. Y. Filed Feb. 25, 1902.

ЗОНОФОНЪ

Essential feature.—The word "ЗОНОФОНЪ" in Russian characters. Used since November 1, 1901.

88,090. BOTTLES. WILLIAM ALLEN CHAPMAN, New York, N. Y. Filed Mar. 1, 1902.

RHODIA

Essential feature.—The word "RHODIA." Used since August 12, 1901.

88,091. WATER-FILTERS. SMITH & BOWEN, Windsor, Canada, and Chicago, Ill. Filed Feb. 25, 1902.

ROTA

Essential feature.—The word "ROTA." Used since January 27, 1906.

88,092. PRINTING AND ENROBING PRESS AND APPL-
ICATIONS THEREFOR. JAMES THOMAS PRESS CO., NEW
YORK, N. Y. Filed July 17, 1901.



Essential feature.—The representation of an internal gear with the
representation of a colt within the gear. Used since March, 1901.

88,098. VENTILATING DEVICES. THE BUREAU VENTILATING
CO., INC., DETROIT, MICH. Filed Feb. 25, 1902.

PURITUS

Essential feature.—The word "PURITUS." Used since October
24, 1901.

88,094. CERTAIN BAKED FLOURING COOKIES. BECK'S BAKING
POWDER CO., NEW YORK, N. Y. Filed Feb. 6, 1902.

CELLUVARNO

Essential feature.—The word "CELLUVARNO." Used since Jan-
uary 1, 1900.



LABELS

REGISTERED APRIL 8, 1902.

9,064.—Title: "A. MFG. CO." (For Overalls.) AMERICAN MFG.
CO., GREENSBORO, N. C. Filed March 10, 1902.

9,065.—Title: "NONE SUCH." (For Brooms.) THE NEW
BROOMS CO., NEW BRUNSWICK, OHIO. Filed March 17, 1902.

9,066.—Title: "PINEAPPLE." (For Chewing-Gum.) Wm.
H. BARNES and Wm. H. H. HART, SAN FRANCISCO, CAL. Filed
December 24, 1901.

9,067.—Title: "BUNKIE." (For Cigars.) E. J. ROOT, REAM-
TOWN, PA. Filed March 12, 1902.

9,068.—Title: "GOLDEN DREAM." (For Cigars.) SCHMIDT &
CO., NEW YORK, N. Y. Filed March 14, 1902.

9,069.—Title: "FLOTO'S BREAKFAST DRINK." (For a Coffee
Substitute.) TESSONSON D. FLOTO, BROOKLYN, N. Y. Filed
March 14, 1902.

9,070.—Title: "WHITE LABEL HUNTER WHISKEY." (For
Whisky.) JOHN KIMMEL & SON, INC., BROOKLYN, N. Y. Filed
March 15, 1902.

9,071.—Title: "E-Z-BAKE." (For Flour.) GEO. T. EVANS,
INDIANAPOLIS, IND. Filed February 24, 1902.

9,072.—Title: "LUSTREINE." (For a Cleaning and Polishing
Preparation.) J. C. WHITMAN, CLEVELAND, OHIO. Filed March
15, 1902.

9,073.—Title: "EUREKA SKIN CLEANSER." (For a Toilet
Preparation.) EUREKA TOILET CO., BROOKLYN, N. Y. Filed
March 15, 1902.

9,074.—Title: "HAMADALA CREAM." (For a Toilet Prepa-
ration.) MARCUS PETERSEN, BUFFALO, N. Y. Filed March 15,
1902.

9,075.—Title: "HAMLIN'S WIZARD OIL." (For a Medicine.)
HAMLIN WIZARD OIL CO., CHICAGO, ILL. Filed January 10,
1902.

9,076.—Title: "GLASCOCK'S PEPIN ZONE." (For a Medi-
cine.) TRAVIS GLASCOCK, WASHINGTON, D. C. Filed February
15, 1902.

9,077.—Title: "DR. FOWLER'S MEAT AND MALT." (For a
Proprietary Compound.) THE MEAT & MALT CO., LOUIS-
VILLE, KY. Filed March 15, 1902.

9,078.—Title: "DR. DANIELS' VETERINARY OSTER-
COUS LINIMENT." (For a Veterinary Liniment.) DR. A. C.
DANIELS, INC., BOSTON, MASS. Filed March 15, 1902.

PRINTS

REGISTERED APRIL 8, 1902.

485.—Title: "OREGON SOUVENIR PLAYING CARDS." (For
Playing Cards.) EDWARD H. MITCHELL, SAN FRANCISCO, CAL.
Filed March 15, 1902.

486.—Title: "KNOW ALL MEN BY THESE PRESENTS THAT
CARTER'S INKS ARE THE OLD RELIABLE MAKE." (For Inks.)
THE CARTER'S INK CO., BOSTON, MASS. Filed
March 17, 1902.

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487.—Title: "BALZ BOCK." (For Bock-Beer.) THE J. & P.
BALZ BROS. CO., PHILADELPHIA, PA. Filed March 15, 1902.

488.—Title: "ORIGINAL FOOT LIFT." (For Prints and How-
ers.) AMERICAN LITHOGRAPHIC COMPANY, BUFFALO, N. Y.
Filed March 15, 1902.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SILVERMAN v. HENDRICKSON.

Decided May 4, 1897.

1. INTERFERENCE—PRIORITY—STIPULATION.

A stipulation that S. completed the invention in June and July does not prove that he completed it before June 9, when H. filed his application.

2. SAME—REDUCTION TO PRACTICE—EXPERIMENTAL PRODUCTION OF COMPOSITION.

Where the issue is for defiberized cornstalk-pith saturated with oil and it appears that S. produced the pith and in experimenting with it saturated small quantities with oil, but made no practical use of it to determine its properties and value, *Held* not a reduction to practice.

3. SAME—SAME—MUST BE PRACTICAL USE OF COMPOSITION.

It is not necessary to a reduction to practice that S. should have thought of all uses to which the composition could be applied and have actually employed it practically for those uses, but merely that he should have tested it to determine its qualities, so as to demonstrate its practical utility for some purposes.

4. SAME—FAILURE OF INVENTOR TO TESTIFY.

The failure of an inventor to appear and testify in his own behalf is capable of an unfavorable inference; but where he has assigned his invention and is not friendly with the assignee it is not entitled to much weight.

5. SAME—SUPPLEMENTAL OATH—EX PARTE MATTER.

The question whether or not a party should be called upon for a supplemental oath is an *ex parte* matter not open to argument in an interference proceeding.

APPEAL from Examiners-in-Chief.

DOCKET-PATENT.

Application of Lazarus Silverman filed December 4, 1897, No. 660,782. Application of Joseph C. Hendrickson filed August 20, 1897, No. 648,871.

Messrs. Church & Church for Silverman.

Mr. A. B. Stoughton and Messrs. Foster & Freeman for Hendrickson.

ALLEN, Commissioner:

This is an appeal by Silverman from the decision of the Examiners-in-Chief awarding priority of invention to Hendrickson upon the following issue:

A composition consisting of the light cellular substance separated out from the fibers in cornstalk-pith, the same being charged with oil, substantially as described.

There is some contention as to what fibers are referred to in this issue; but it is clear from a consideration of the entire case that they are those embedded in and extending lengthwise of the pith contained within the outer shell of the cornstalk.

The decision of the Examiner of Interferences was in favor of Silverman.

In his preliminary statement Silverman claims

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to have conceived the invention and disclosed it to others "during the early part of 1897" and to have made samples embodying it "during the summer of 1897." In his testimony he alleges conception and disclosure in February, 1897.

It has been stipulated—

* * * that as early as June and July of 1897, the said Silverman, at Indianola and elsewhere, made various tests with the said defiberized corn-pith, by using said defiberized corn-pith as an absorbent for oil, and demonstrating the value of said mixture as a lubricant by its application to shafting or journals.

This stipulation clearly covers a reduction to practice of the invention and establishes about as early a date therefor as Silverman could be permitted to prove under the allegation in his statement.

Hendrickson in his statement alleges conception and disclosure in January, 1897, and does not specifically allege a reduction to practice. He filed an application for a patent, however, on June 9, 1897, which was subsequently abandoned in favor of his present application, and therefore he is entitled to June 9, 1897, as the date of constructive reduction to practice of the invention.

The Examiner of Interferences held that Silverman was the first to conceive and also the first to reduce to practice, whereas the Examiners-in-Chief came to the opposite conclusion on both questions, and I fail to find any contention in the brief on behalf of Silverman that he was the first to reduce to practice. On the contrary, it is practically admitted that he was not the first, since it is contended that the decision should be in his favor on the ground that Silverman is shown—

to have been the first to have conceived the invention and to have thereafter with reasonable diligence reduced the invention to practice.

The stipulation clearly does not show Silverman to have been the first to reduce to practice, since the statement that he did so in June or July does not prove that it occurred prior to June 9, when Hendrickson's application was filed. Silverman cannot be permitted to show by testimony a reduction to practice earlier than the summer of 1897, (*Cross v. Phillips*, 87 O. G., 1896,) and therefore he can prove no date earlier than June 1. The testimony on his behalf shows that in February, 1897, he made experiments with cornstalk-pith, his principal object being to remove the fiber and produce a substance "superior to that which the Marsden people made."

He used the substance in an experimental way to absorb different liquids, including some forms

of oil, and therefore there seems to be no doubt that he actually produced in small quantities the composition of the issue. If the mere production of this composition in the manner indicated in the testimony could be considered a reduction to practice in any event, it could not, as above stated, avail Silverman for any date prior to June 1. It does not, however, in my opinion, amount to a reduction to practice. Silverman does not seem to have appreciated the practical utility of the composition, and its production seems to have been a mere incident of his tests to determine the qualities of the pith which he had produced. He knew, as others skilled in the art knew, that cornstalk-pith was a good absorbent, and therefore he naturally in testing the pith which he had produced tried it as an absorbent. The production of the composition in this manner does not seem to have demonstrated to him or to his witnesses the practical utility of it, since they made no practical use of it to determine its properties and value.

It appears that during experiments at a carpenter's shop the carpenter used a stick of pith "soaked in oil in place of a rag" to lubricate his saw. (Berry, Q. 222.) It cannot be held upon the testimony presented that this use amounted to a reduction to practice of the invention in issue.

If nothing more had been done after these experiments by Silverman, the public would have been in no better position than it was before and would not have derived the benefits from the present invention. It was not necessary to a reduction to practice that Silverman should have thought of all the uses to which the composition could be put and have actually employed it practically for those uses, but merely that he should have tested it to determine its qualities, so as to demonstrate its practical utility for some purposes. Silverman himself did not regard what he did as a reduction to practice, for he continually refers to it as an experiment, and in his preliminary statement does not allege it as a reduction to practice.

It is held that Silverman did not reduce the invention to practice before June 2, 1897, and that therefore Hendrickson was the first to reduce to practice.

I am not prepared to accept the view of the Examiners-in-Chief that what Silverman did in February, 1897, does not show a conception of the invention, although his actions indicate that he did not appreciate the practical utility of it. In any event the evidence satisfies me that Hendrickson had a conception of the invention prior to that time.

Gibbs testifies positively that Hendrickson disclosed the invention to him in January, 1897, and his statement is supported to a certain extent by a letter written by him to one Marden on March 27, 1897. In that letter he ordered some—

cellulose to be used for the purpose of packing journal-boxes of cars—

and it was said that—

Mr. Hendrickson . . . is under the impression that a coarse grade as free from fiber as possible would be the best.

That letter was written after the date of Silver-

man's experiments, but it must be borne in mind that Silverman does not claim to have disclosed his invention to Gibbs or Hendrickson, and since there was no contest at that time between these parties as to the invention the letter must be taken as showing that as early as its date Hendrickson had an independent conception of the invention. It adds plausibility to Gibbs's statements that prior thereto and in January Hendrickson disclosed the invention to him.

Hendrickson failed to appear and testify in his own behalf; but this is explained by the statement that he has assigned his entire right, title, and interest to the Marden Company and is not now friendly to that company. His failure to testify is undoubtedly capable of an unfavorable inference; but under the circumstances it should not be given so much weight as has been accorded it by Silverman and by the Examiners of Interferences.

Much of the argument on behalf of Silverman has been directed to the question whether or not Hendrickson's application as filed disclosed the present invention and whether or not he has made oath that he is the inventor of it. Hendrickson says in his specification filed June 2, 1897, (p. 2, l. 1):

Corn-pith in its natural state is not suited to the purpose described. Corn-pith is usually associated with fibers and with woody material. The fibers and woody materials may be removed, but, if present, do not necessarily destroy the feeding properties of the pith. The corn-pith is a feeder and conveys the lubricant to the journal.

Hence it appears that the inventor suggested the removal of the fibers in his original application, furnishing proper foundation for the insertion of the later claim, (the fourth,) now in interference. This is a clear description of the composition of the issue and carries back Hendrickson's constructive reduction to practice to June 2, 1897.

The question whether or not Hendrickson should be called upon for a supplemental oath is an *ex parte* matter not open to argument in an interference proceeding. (*Reinyson v. Merritt*, 58 O. G., 1415.) It may be noted, however, that Hendrickson has in his preliminary statement at least made oath that he is the inventor of the matter in issue.

It is held that Hendrickson was the first to conceive and the first to reduce to practice and that therefore he is entitled to an award of priority.

The decision of the Examiners-in-Chief is affirmed.

PETER C. DE SCHWEINITZ.

Decided July 1, 1901.

1 INTERFERENCE—TESTIMONY OF INVENTOR INCOMPETENT—CORROBORATION.

Considering the natural bias of a party and the incentive to color the testimony in his own interest, the rule that his testimony upon a point will not be accepted as sufficient is so universally accepted that it may be said that his testimony is incompetent until corroborated.

2 SAME—EVIDENCE—REDUCTION TO PRACTICE—CONCEPTION.

Where P. alleged that he successfully performed the process of the issue at a certain time and witnesses state that he then told them that he had performed the process, but they did not see it performed, Held not a corroboration as to reduction to practice, but merely as to conception.

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3 SAME—LACK OF DILIGENCE—POVERTY.

Where poverty cannot excuse an absence of all effort in regard to an invention for a period of six years.

4 SAME—SAME—FAILURE TO PRACTICALLY USE INVENTION.

Where a party claims to have had a complete knowledge of a process involving the use of bacterial food and had one form of such food, Held that his failure to practically use the process for several years is not to be excused upon the allegation that he was trying to find a food which could be obtained at all seasons.

APPEAL FROM EXAMINERS-IN-CHIEF.

TREATING TOBACCO.

Application of James P. Petrie filed August 10, 1899, No. 726,881. Application of Emil A. de Schweinitz filed February 4, 1897, No. 692,084.

Mr. C. W. Rice, Mr. Clarence K. Chamberlain, and Mr. Hervey S. Knight for Petrie.

Messrs. Pennie & Goldsborough for De Schweinitz.

ALLEN, Commissioner:

This is an appeal by Petrie from the decision of the Examiners-in-Chief awarding priority of invention to De Schweinitz upon the following issue:

1. The process of treatment of tobacco of inferior quality, consisting, first, in sterilizing the same, under such conditions and sufficiently long-continued as to destroy the original bacteria and spores existing therein, then adding to the sterilized tobacco bacteria or cultures thereof to produce a new and characteristic flavor, and then subjecting the tobacco to fermentation, substantially as and for the purpose described.

2. The process of changing the flavor of tobacco, which consists in first freezing the tobacco of the species of bacteria originally existing thereon, and then adding in place thereof bacteria or cultures thereof, to produce a new and characteristic flavor, and also a material suitable for bacterial food, substantially as described.

De Schweinitz has taken no testimony and relies upon his filing date, February 4, 1897, for proof of priority.

Petrie alleges conception in the spring of 1896, disclosure to others in 1898, and a reduction to practice in the spring of 1899, not later than June 15. His application was not filed until August 10, 1899.

The substance of Petrie's own testimony is as follows: In 1896 he first began making investigations in regard to the bacteria of tobacco and at that time—

• • • procured specimens of tobacco, of native tobacco, and after sterilizing the same, by the use of steam, I would prepare a bacterial food which was composed of the juice of green vegetation and sprinkle upon this native tobacco, Havana tobacco, and put it away for fermentation.

This was intended to first destroy the bacteria existing upon the native tobacco and then cultivate thereon the bacteria of the higher-grade tobacco, so as to improve the flavor. He used several kinds of "green vegetation," among which was blue grass, and by its use—

the aroma of the tobacco was improved, but the tobacco had a woody taste that was objectionable.

Hardly a day passed between that time and 1898, when he moved to Burlington, Iowa, to engage in the crockery business, that he was not at work on his invention. At Burlington he explained to Doctor Cochran—

a good deal of the process of this changing of native tobacco—

and—

told him that the process was complete as far as I could complete it, but there was one thing that bothered me and that was to obtain this bacterial food at all times.

He continued in business in Burlington until the latter part of 1899, when he failed, losing everything. During that time he worked on the inven-

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tion in the evenings and told Doctors Jones, Wilson, and Holiday of it, "but only in a general way." (Q. 67.) In 1898 he hit upon the idea of using sprouted barley to obtain his "bacterial food" and found this to be satisfactory in every respect. He says:

The process was perfect in 1898. There was one link that I did not get until the spring of 1899. I was looking continually for a bacterial food that could be gotten at all times, and I did not get that until 1899.

From 1898 to 1899 he was very poor, but continued to experiment with his process of treating tobacco and upon coming into possession of some money, in 1899, filed his application. He did not file his application earlier because he did not have the money to pay the expenses. (Q. 159.)

No witnesses called to corroborate Petrie as to the statements made by him testify to a personal knowledge of the work which he did. Most of them say merely that Petrie told them that he had made some invention relating to tobacco; but they did not understand what the invention was. Petrie himself says:

I concluded very early in my investigations that the best thing I could do was to keep everything I was doing strictly to myself—

and the testimony of the witnesses indicates that he succeeded in doing so. The witnesses Brady and Cochran, however, do state that Petrie described to them the process used by him. Brady says:

• • • He said that his process consisted of taking our native tobacco, sterilizing it, placing the better grades of tobacco with its bacteria upon the native tobacco, after first having treated the native tobacco with bacterial food, and after fermentation the tobacco was so changed (the native tobacco was so changed) as to make a decided improvement.

The testimony of Cochran is to the same effect, although he admits that he was not interested in the subject and paid very little attention to Petrie's disclosures.

The testimony of the witnesses as to what Petrie told them he was doing or intended to do may be taken as showing that he had a conception of the invention at that time; but it cannot be accepted as showing a reduction to practice. Petrie himself is the only one who testifies to an actual performance of the process of the issue. None of the others saw it, and all that they know of it was derived from Petrie's statements. The testimony of these witnesses does not corroborate Petrie's present statement that he successfully performed the process, and his unsupported statement to that effect is insufficient to establish the fact. From the nature of the invention the result of his experiments performed in secret could not be preserved to show what was done and whether or not it amounted to a reduction to practice of the invention, and his present statement of his conclusion that his experiments were successful and constituted a reduction to practice of the invention is not capable of being rebutted any more than would be the statement of an inventor as to his conception. Considering the natural bias of a party and the incentive to color the testimony in his own interest, it has been repeatedly held that the unsupported testimony of the inventor is insufficient to establish facts of this kind. (*Mergenthaler v.*

No. 2.]

Scudder, 81 O. G., 1417; *Winslow v. Austin*, 86 O. G., 2171.) This rule is so universally accepted that it may be said that the testimony of the inventor on questions of this kind is incompetent until corroborated.

Considering Petrie as the first to conceive but the last to reduce to practice, the question arises whether he was exercising diligence when De Schweinitz filed his application. There is a delay of thirteen years after his alleged conception to be explained. He alleges that for the first seven years, or until 1888, he was searching for the proper "bacterial food," and after that date he was financially unable to apply for a patent. Considering all of the circumstances, these excuses are clearly insufficient. The first rests upon his own statement, and that statement is not consistent with other testimony given by him or with his conduct. He says himself that his invention was complete in 1888 and that the only difficulty was that he was not able to obtain the bacterial food at all times, thus indicating that the trouble, if any, was in his ability to obtain the food easily and not in its character. This view is strengthened by an inspection of the issue and the other claims of Petrie's application, none of which are limited to the particular "bacterial food" obtained from sprouted barley which is now claimed to be so important. They are broad and apply to what Petrie claims to have had in 1888. Petrie's own testimony shows that he had ample means to make practical use of the invention or file an application at any time up to 1898.

Even if the time after his discovery of sprouted barley in 1898 is alone considered, Petrie did not exercise reasonable diligence. It is true that he seems to have been poor; but there is no showing whatever that he tried to interest others in the invention to assist him in securing a patent or in making practical use of the invention; but, on the contrary, he seems to have intentionally kept it from the public. Mere poverty cannot excuse an absence of all effort for such a length of time. According to his own showing all that Petrie did between 1898 and 1899 was to make a few experiments in private upon the same lines as his previous experiments without accomplishing or expecting to accomplish anything further than he had previously accomplished.

If it is conceded that Petrie was the first to conceive, he was the last to reduce to practice and was lacking in diligence when De Schweinitz entered the field. De Schweinitz must therefore be considered the first inventor.

The decision of the Examiners-in-Chief is affirmed.

EX PARTE BAUERCAMPER.

Decided March 22, 1902.

EXTENSION OF TIME FOR FILING AMENDMENT—SECTION 4894 OF THE REVISED STATUTES.

A request for an extension of time for filing an amendment cannot be granted when the period extends over the statutory limit within which the application must be prosecuted under the provisions of section 4894 of the Revised Statutes in order to save it from abandonment.

ON petition.

CARTILIDGE-CHIEFTON MACHINES.

Application of Charles C. A. Bauercamper filed March 1, 1901, No. 49,482.

Mr. George W. Sues for the applicant.

ALLEN, Commissioner:

This is a petition that "the time for the filing of the amendment be extended ninety days."

This request is somewhat indefinite, as the date from which the ninety days is desired to run is not stated.

The records show that the application received a full and complete action on April 2, 1901. Under the provisions of section 4894 of the Revised Statutes the petitioner has until April 2, 1902, in which to prosecute this application. On the failure to prosecute within that time as the condition of the case may require the application—

shall be regarded as abandoned . . . unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable. (Section 4894, Revised Statutes.)

Inasmuch as the petitioner has, under the provisions of the statute, until April 2, 1902, in which to prosecute this application, it is presumed that the petitioner desires the ninety days to run from April 2, 1902. However, whether the date from which the extension is desired to run is April 2, 1902, or March 14, 1902, the date of this petition, the period of ninety days extends over the statutory limit within which the application must be prosecuted in order to save it from abandonment.

It is therefore seen that the request for this extension amounts to a request for the Commissioner to set aside the plain provision of a statute. This he has no authority to do.

The petition is denied.

LOOMIS v. HAUSER.

Decided October 4, 1901.

1. INTERFERENCE—REDUCTION TO PRACTICE—COMPLETE DEVICE. Some inventions are so simple that no actual test is required when the device is a complete construction of full size and form. (Citing *Mason v. Hepburn*, 94 O. G., 147.)

2. SAME—SAME—HAND-MADE ENVELOPE.

An envelop constructed by hand made from a sheet of light brown paper, which on inspection is clearly seen to be capable of securely holding tickets, for which use the invention is intended, though never put into commercial use. Held to constitute a full and complete reduction to practice.

3. SAME—SAME—ABSENCE OF PRINTED MATTER.

A theater-ticket holder made from a sheet of ordinary paper and constructed as stated in the issue Held a reduction to practice, although the advertisements, program, time-table, and diagram of seats usually found on such holders were not printed thereon.

APPEAL from Examiners-in-Chief.

HOLDERS FOR THEATER AND TRANSPORTATION TICKETS.

Application of Eugene O. Loomis filed July 6, 1900, No. 22,681. Patent granted George Hauser June 19, 1900, No. 652,107.

Mr. R. W. Bishop for Loomis.

Mr. W. A. Redmond for Hauser.

MOORE, Assistant Commissioner:

This is an appeal by Hauser from the decision of the Examiners-in-Chief awarding priority of in-

vention to Loomis, which decision reversed the decision of the Examiner of Interferences awarding priority of invention to Hauser.

This interference is declared between the patent to Hauser, No. 652,107, granted June 19, 1900, on an application filed April 23, 1900, and the application of Loomis, filed July 6, 1900.

[The issue is in two counts, as follows:

1. A ticket-holder consisting of a blank having a flap at one corner thereof adapted to be folded but once over onto and pasted along merely two of its edges to said blank to form an open-ended pocket and said blank being folded on itself, so as to leave the pocket-opening uncovered, to a rectangular shape corresponding to the pocket.
2. A ticket-holder consisting of a blank having a flap at one corner thereof adapted to be folded but once over onto said blank and pasted thereto along merely two of its marginal edges to form an open-ended pocket, and said blank containing spaces for theater diagrams, programs, and advertising matter, and suitable to a rectangular shape corresponding to the pocket.]

Hauser having had a patent granted to him before Loomis filed his application, it is incumbent upon Loomis to prove his case beyond a reasonable doubt. In other words, any doubts that may exist should be resolved in favor of Hauser.

The patentee, Hauser, alleges conception of the invention in issue in May, 1897, and reduction to practice in September, 1897.

Loomis alleges conception in July, 1898, (not 1897, as stated by the Examiners-in-Chief,) and reduction to practice in November, 1898.

An exhibit filed by Hauser is in evidence, and it is clearly proven that this exhibit was constructed under the direction of Hauser in September, 1897. (Hauser Exhibit No. 1.)

Both of the lower tribunals agree as to this fact, and it is unnecessary now to analyze this part of the evidence.

This exhibit fully embodies the invention defined in the issue. It does not differ from the disclosure of the Hauser patent. The evidence shows that two of the three edges of the flap were originally secured to the sheet by some adhesive substance to form the envelop or pocket.

The Examiners-in-Chief state with respect thereto that—

these edges have since become detached. When we first examined the exhibit, the flap was still secured at the corner which, when the flap is folded upon the sheet, defines the intersection of the corners.

The flap is now completely detached. The adhesive substance is, however, clearly visible thereon. In view of the fact that the exhibit has been subjected to more or less handling and usage during a period of four years before and after it was filed in this Office, it is not surprising that the flap should have become detached. From a careful consideration of the law and the facts in this case it seems clear that this exhibit constitutes a full and complete reduction to practice.

The invention is a simple one and comes under the class of inventions considered by the court of appeals in *Mason v. Hepburn*, (94 O. G., 147.)

The device shown in Exhibit No. 1 is a complete construction of full size and form. It demonstrates the fact that it is capable of practical use. It is a complete envelop and is capable of securely holding the tickets. In order to constitute a reduction to practice, it is necessary that the device should be capable of performing the function or capable

of being put to the use for which it was intended. These envelopes are only intended to be put in use once. They are then destroyed or thrown away. It is not necessary that the device as constructed should be intended for commercial use.

The Examiners-in-Chief state that the device as shown in the Exhibit No. 1 is not, in their opinion, a complete device, for the reason that the various advertisements, the program, the time-table, and the diagram of seats are not clearly printed thereon.

This printed matter is merely an incident of the device. The device is complete in its construction without this printed matter. The printing does not affect the issue of the invention. It does not in any way affect the patentability of the device. The Examiners-in-Chief clearly err in holding that the Exhibit No. 1 is not the perfected thing because the various printed matter is not displayed thereon.

The description quoted by the Examiners-in-Chief from the specification can, however, be clearly read on the exhibit device. Another fault found by the Examiners-in-Chief with the Exhibit No. 1 is that it is made from "an unprinted sheet of light brown paper." The quality of the paper does not affect the issue of the invention. It is only necessary that the paper should be of such quality as to clearly and effectually prove the capability of the device for the use to which it is intended.

In fact, Mr. E. T. Mayer, who was associated with Mr. Max Meyer in canvassing for the envelopes among the various theater-managers, made the following suggestion, referring to the Loomis envelop in his letter to Mr. Meyer dated November 12, 1898, Loomis's Exhibit Y², (Loomis's record, pp. 46 and 47:)

Those gentlemen who are not under contract already, all advance the objection that the envelop is too heavy and large for a lady's pocket-book and as there is no occasion for them to be particularly lasting or tough, that is why I suggest a very thin, white paper, which would also reduce cost.

In the same letter Mr. Mayer also finds fault with the diagram as printed, saying that it is impossible to distinguish the numbers, and is therefore of no use. This goes to show that the diagram was equally indistinct on both envelopes as then constructed.

The decision by the court of appeals in *Lindemeyer v. Hoffman et al.* (95 O. G., 885) is cited by the Examiners-in-Chief as controlling in this case.

The facts are not the same in the case now under consideration as were present in the decision above cited. There the court laid great stress on the testimony of Hoffman himself—

who, in cross-examination, in answer to a question whether he regarded this particular cap as fit for practical use on a bottle, said:

"The design of it I do, but not the cap itself, as it is made in a very crude manner."

The facts were shown to be such that the cap submitted in evidence had to be changed and perfected in detail so as to be complete and capable of performing its function when put to the use for which it was intended.

Here in this case nothing has to be added to the envelop or taken from it. The envelop submitted is complete in itself, wholly capable of performing

the function for which it was intended—namely, that of securely holding and carrying the tickets inserted therein. To hold that the device shown in Hauser Exhibit No. 1 is not a complete reduction to practice of the invention would, in my opinion, be the equivalent of holding that a device in order to constitute a reduction to practice under the law must be machine-made and ready for immediate commercial use.

The machine-made device and the home-made device are equally capable of performing the function for which they are intended. Each is equally capable of securely holding tickets placed therein. In my opinion a device so simple in construction as the envelop in question in order that its practical use may be demonstrated can just as well be constructed at home with a sheet of paper, a pair of scissors, and a pot of glue as when made in a manufacturing establishment by means of a perfected envelop-machine.

Hauser being the first to conceive and the first to construct a device capable of practical use and having been granted a patent before Loomis filed his application is entitled to an award of priority over Loomis, who did not construct a device capable of practical use until a period of one year and four months had elapsed after the date on which Hauser made a complete device, unless it is proven beyond a reasonable doubt that Hauser during the interval of two years and seven months between the date of his construction of the device and the date of his application for a patent so abandoned any rights that he may have had, as was the case in *Mason v. Hepburn*, *supra*, that Loomis succeeded to them, Loomis having innocently entered the field during that interval.

There is no evidence in this case which goes to show that Hauser after constructing the envelop in September, 1897, laid the invention aside and forgot all about it, or, as stated in *Kendall v. Winsor*, (21 How., 322,) quoted in *Mason v. Hepburn*, *supra*, that he "designedly, and with the view of applying it indefinitely and exclusively for his own profit," withheld his invention from the public. On the other hand, he showed the invention to various parties—Mr. Bradley, Mr. Gorman—and asked their advice as to its commercial value and as to its patentability. He was not a man of means. On the contrary, he was compelled to borrow money in order to apply for his patent.

It is true that in comparison with Loomis he did not show the same business and commercial activity as Loomis. Diligence as between two parties is, however, in law not a matter of comparison; but the question to be determined is, in the one sufficiently diligent or active to show that he did not abandon his rights to the other party?

Hauser did not destroy the device constructed in September, 1897. He destroyed several of them, but kept the one useful. The device, Exhibit No. 1, was shown to witnesses Bradley and Holahan. The device was placed in Mr. Bradley's hands, who turned it over to Mr. Gorman to submit to a patent attorney in Washington. The ap-

plication was prepared from the Exhibit No. 1, and the patent corresponds in all respects to it. These facts are clearly proven and negative the contention that Hauser had destroyed the device constructed by him. On the other hand, it is clearly shown by the evidence that Hauser turned the actual device, Exhibit No. 1, over to parties in whom he had confidence for the very purpose of having a search made in the records of the Patent Office as to its novelty. He was sufficiently diligent to retain his rights. At all events it has not been proven beyond a reasonable doubt that he was not.

With respect to the application filed by Loomis, No. 897,076, filed November 31, 1898, which has been introduced in evidence, I agree with the Examiners-in-Chief in their opinion that—

the aforesaid application of Loomis does not, in our opinion, disclose the invention of the issue. The original drawing shows a pocket one wall of which is formed by a separate piece of paper, and the amended drawing, while it discloses the flap of the issue, shows that said flap is provided with adhesive material along three instead of two of its sides.

Loomis in his testimony states that this construction was not satisfactory for several reasons, and he improved the same when he invented the device defined in the issue of this interference. His statement as to the defects of his old device and the reasons for the invention of the new device defined in the present issue are clearly set forth in his answer to question 8, page 7, Loomis's record. This answer is as follows:

Answer. Shortly after I had received from the Rees Printing Company the ten thousand folders like Exhibit B, and while using them in the theater and elsewhere, I observed that the slot-opening would not always be sufficiently wide to accommodate or admit the insertion of transportation tickets; for, while short transportation trip-tickets could be readily inserted in the slot-opening, tickets for longer distances and requiring folding could not readily be adjusted to the slot-opening. It was therefore my desire to remedy this defect. Another thing I observed was that at times in inserting theater-tickets in the pocket, the end of the ticket would cut through the tissue-paper, thus rendering the pocket inconvenient and sometimes useless; and I also began to figure upon a ticket-holder which would be less expensive to manufacture than the one constructed like Exhibit B, and which at the same time would not only have the slot-opening, but also the end opening, the latter wider than the slot-opening, and therefore accommodating tickets that were wider than the ordinary theater-tickets. I began to revolve these different features in my mind about in December, 1898, and having settled in my mind the model I should adopt I went to Mr. Martin of the Rees Printing Company, in January, 1899, and directed him to cut out the model with both slot-opening and end opening, which I now hand to the notary and ask him to attach the same to my deposition, and mark it "Exhibit L." This model, Exhibit L, has been retained by me ever since January, 1899, with the exception of a short period when it was in the hands of my attorney, Mr. Bishop, at Washington.

The actions of Hauser have been in accordance with the policy of the law and within the spirit and purpose of the constitutional provision relating to the promotion of "the progress of science and useful arts."

Hauser is shown by the evidence to be the first to conceive, the first to reduce to practice, the first to come into the Patent Office with an application, and the only one to have a patent. In addition to this it is not shown beyond a reasonable doubt that between September, 1897, and April, 1899, during which time—namely, January to March, 1899—Loomis constructed the device and placed it before the public, that Hauser's actions were such as not to come within the "policy or objects of the Constitution or acts of Congress," and thereby to lose by his own acts his rights as prior inventor, and thereby not to entitle him to an award of priority.

Priority of invention is therefore awarded to George Hauser.

The decision of the Examiners-in-Chief is reversed.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 68.—No. 3.

TUESDAY, APRIL 15, 1902.

Price—\$5 per year.

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Patents	877—No. 877,000 to No. 877,500, inclusive.
Designs	19—No. 35,000 to No. 35,070, inclusive.
Trade-Marks	10—No. 8,000 to No. 8,100, inclusive.
Labels	6—No. 9,070 to No. 9,084, inclusive.
Prints	6—No. 450 to No. 454, inclusive.
Releases	None.
Total issue	610

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4		Nebraska	5	
Alaska Territory			Nevada	3	
Arizona Territory	1		New Hampshire	15	3
Arkansas	1		New Jersey	15	3
California	17	1	New Mexico Territory	70	20
Colorado	2		New York	2	2
Connecticut	15	1	North Carolina	2	2
Delaware			North Dakota	1	1
District of Columbia	6		Ohio	20	4
Florida		1	Oklahoma Territory	1	1
Georgia	1		Oregon	4	4
Hawaii Territory			Pennsylvania	63	3
Idaho	3		Rhode Island	3	1
Illinois	37	5	South Carolina	1	1
Indian Territory			South Dakota	1	1
Indiana	16		Tennessee	2	1
Iowa	10		Texas	7	1
Kansas	6	1	Utah	3	3
Kentucky	3	1	Vermont	1	1
Louisiana	1		Virginia	3	1
Maine	3		Washington	11	
Maryland	10	1	West Virginia	1	
Massachusetts	64	1	Wisconsin	10	3
Michigan	10	2	Wyoming		
Minnesota	6		U. S. Navy	3	
Mississippi			Total to citizens of the United States	453	50
Missouri	17	3			
Montana	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria			Mexico	1	
Austria-Hungary	3		Netherlands		
Barbados			Newfoundland		
Belgium	3		New South Wales	1	
Bermuda			New Zealand	1	
Brazil			Norway		
Canada	11		Peru		
Cape Colony			Queensland		
Chile			Russia	1	
China			Scotland	1	
Colombia			South African Republic		
Cuba			Spain	1	
Denmark			Sweden	1	
Egypt	20	3	Switzerland	3	
England	3		Turkey in Asia		
France	13		Victoria	3	
Germany			Western Australia		
Guatemala			Total to citizens of foreign countries	70	3
Haiti		1			
India					
Ireland	1				
Italy					

Amendment of Section 4883, Revised Statutes, Relating to the Signing of Letters Patent.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., April 12, 1902.

By the act approved April 11, 1902, section 4883, Revised Statutes, has been amended to read as follows:

Sec. 4883. All patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Commissioner of Patents, and they shall be recorded, together with the specifications, in the Patent Office in books to be kept for that purpose.

F. L. ALLEN,
Commissioner.

Revision of Trade-Mark Rules.

(Under No. 1,000.)

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., April 5, 1902.

Rule 21, subdivision (b.) governing the registration of trade-marks, is hereby amended to read as follows:

(b) A statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used, and if the applicant be a corporation it must set forth under the laws of what State or nation incorporated.

F. L. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 8, 1903.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	<i>In arrears—Under one month.</i>			
217	XXXIII. *DESIGNS, *TRADE-MARKS, *LABELS and PRINTS, Optics, and Photography.	Mar. 21	Mar. 25	74
126	II. Farm Stock, Products, etc., Lubricators, Presses, Stationary, etc.	Mar. 20	Mar. 27	215
220	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Mar. 14	Mar. 24	350
229	XIV. Metal Bending, Ornamentation, and Personal Wear, Farinery, and Small Tools, Toys, Wire-Working, Sheet-Metal Ware, Making, etc.	Mar. 10	Mar. 25	280
224	I. Carriages and Wagons.	Mar. 10	Mar. 25	95
225	XXXVI. Curtains, Shades, and Screens, Drafting, Drains, Measuring Instruments, and Wind-Wheels.	Mar. 10	Mar. 25	225
125	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Mar. 10	Mar. 25	180
245	I. Tillage, etc., and Fences.	Mar. 10	Mar. 25	155
227	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Mar. 10	Mar. 25	225
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 10	Mar. 25	160
223	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Mar. 10	Mar. 25	261
128	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Mar. 10	Mar. 19	195
67	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Mar. 10	Mar. 17	228
20	IV. Cranes and Derricks, Bridges, Fire-Fire Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Mar. 10	Mar. 14	320
222	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Mar. 8	Mar. 25	175
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Ornaments, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Mar. 8	Mar. 25	285
127	XXXI. Gas, Ammonia, Water and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Mar. 8	Mar. 25	175
221	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Mar. 8	Mar. 25	205
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Mar. 8	Mar. 25	205
123	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Mar. 8	Mar. 25	195
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Mar. 8	Mar. 24	205
	<i>Between one and two months.</i>			
221	XIII. Metal-Working, Arm and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Mar. 4	Mar. 24	125
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Mar. 4	Mar. 24	245

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
218	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Mar. 8	Mar. 15	225
125	XXIX. Wood-Working Machines, Coopering and Booming.	Feb. 26	Mar. 14	135
125	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Feb. 17	Mar. 25	590
120	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Feb. 14	Mar. 10	171
21	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Feb. 10	Feb. 20	541
245	XVIII. Steam-Engineering, etc.	Feb. 10	Feb. 4	525
20	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Feb. 8	Feb. 8	425
<i>Between two and three months.</i>				
22	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 6	Jan. 20	425
125	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Feb. 3	Feb. 13	425
245	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Jan. 25	Jan. 25	445
125	V. Fine Arts, Book-Binding, Harvesters, Jewellery, and Music.	Jan. 25	Jan. 7	327
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 13	Mar. 11	360
105	XI. Boots and Shoes, Harness, Hoses and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 10	Feb. 17	325

Total number of applications awaiting action.....2,720

Under one month.

*Designs.....	Mar. 17	Mar. 24	119
†Trade-Marks.....	Mar. 25	Apr. 4	75
‡Labels and Prints.....	Mar. 25	Apr. 4	5

Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, corrected to January 8, 1903, has been published, and copies will be furnished at the price of ten cents each, two five-cent coupons being acceptable in payment therefor.

Registrants are requested to give notice of any errors that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents or to any other official of the Patent Office, for evidence of his professional standing, does so without authority.

Punctuation and Amendments.

Attention is called to Order 723, dated November 23, 1892, which is as follows:

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

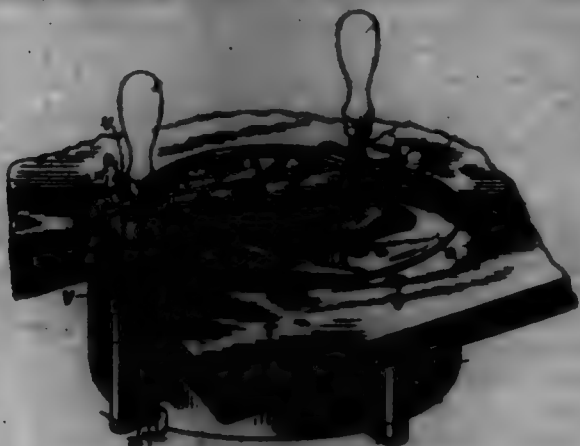
This order is still in force.

Examiners are prohibited from making any change in the claims or specification of an application without the consent of applicants or their attorneys; but when amendment becomes necessary the Office will duly advise, by letter, the applicant or his representative before passing a case to issue.

PATENTS

GRANTED APRIL 15, 1902

897,426. CALCULAGRAPE. HENRY AMORY, New York, N. Y., assignor to Calculagraph Company, New York, N. Y., and East Orange, N. J., a Corporation of New Jersey. Filed May 28, 1900. Serial No. 17,578. (No model.)



Claim.—1. In combination with feed-reversing mechanism, a printing-ribbon, means for operating said mechanism to reverse the direction of feed of the ribbon, a frame or casing, an indicator on the exterior of the latter to show the direction of feed, and a second indicator on the exterior of the frame or casing to show when to reverse the feed, substantially as and for the purpose described.

2. In combination with an inked printing-ribbon, mechanism for moving said ribbon in opposite directions, mechanism for reversing the direction of movement of the ribbon, a frame, or casing, a rotatable operating-bar for the reversing mechanism, mounted in the frame or casing, and a bar movable by said rotatable bar and transmitting the motion thereof to the reversing mechanism, said bars having coating cam-faces, substantially as and for the purpose described.

3. In combination with an inked printing-ribbon, mechanism for moving said ribbon in opposite directions, a lever for reversing the direction of movement of said ribbon, a longitudinally-movable bar, connections between the latter and said lever, and a rotatable bar, said bars having coating cam-faces whereby the rotation of one controls the longitudinal movement of the other, substantially as and for the purpose described.

4. In combination with the feed-reversing mechanism of an inked ribbon used for printing purposes, a longitudinally-movable bar and a rotatable bar which are contained within a suitable housing and have their contiguous ends oppositely beveled, means for holding the former, with a yielding pressure at the inner limit of its motion, and means for giving to the latter a partial rotation, substantially as and for the purpose specified.

5. In a printing mechanism in which ink is supplied by a ribbon that is automatically moved longitudinally, in either direction, by the rotation of a wheel, a reversing mechanism consisting of a longitudinally-movable bar having one end pivoted to or upon a lever and its opposite end provided with a beveled section, a rotatable bar that is journaled in a housing, axially, with said longitudinally-movable bar and provided at its contiguous end with a beveled section, a spring that operates to hold said longitudinally-movable bar, with a yielding pressure, at the inner limit of its movement, means for operating said rotatable bar, and means for connecting said lever with device for reversing the rotary movements of the ribbon wheel, whereby a half-rotation of said rotatable bar will operate to press said longitudinally-movable bar to the limit of its outer motion and cause said inked ribbon to be fed in one direction, while a second half-rotation of said rotatable bar, will permit said longitudinally-movable bar to be returned to its normal position, so as to reverse the feed of said inked ribbon, substantially as shown.

6. In a printing mechanism in which ink is supplied by a longitudinally-movable inked ribbon that is simultaneously and alternately wound upon and from two spools, a device which bears upon the ribbon as wound upon one of said spools and, by the increase or decrease of the diameter

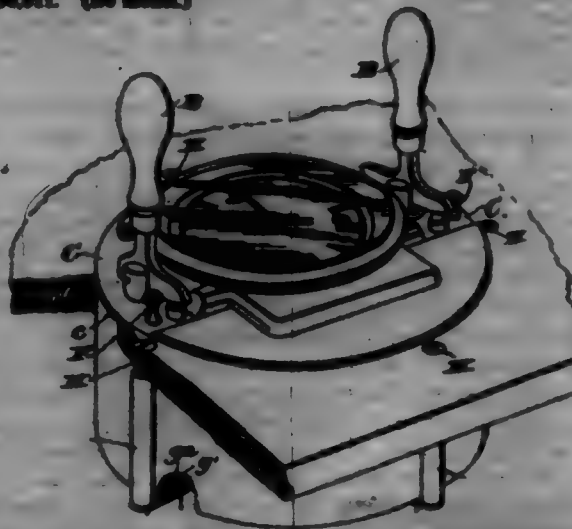
of such wound portion, indicates the longitudinal position of said ribbon, substantially as and for the purpose set forth.

7. In a printing mechanism in which ink is supplied by a longitudinally-movable inked ribbon that is located between the printing surface and platen, a pair of spools upon which the ribbon is alternately wound, a stud which is arranged vertically over one of the ribbon-spools with its lower end in contact with the ribbon wound thereon and its outer end extending through a stationary portion of the mechanism, whereby the quantity of ribbon wound upon said spool will be indicated by the relative positions of the outer end of said stud, substantially as and for the purpose shown and described.

8. In combination with an inked printing-ribbon, mechanism for moving said ribbon in opposite directions means for reversing the direction of movement of the ribbon, and a ribbon-actuated indicator to indicate when its movement should be reversed, substantially as and for the purpose specified.

9. In combination with an inked printing-ribbon, mechanism for moving said ribbon in opposite directions, means for reversing the direction of movement of the ribbon, a ribbon-actuated indicator to indicate when its movement should be reversed, and a direction-indicator for the reversing mechanism, substantially as and for the purpose specified.

897,427. CALCULAGRAPE. HENRY AMORY, New York, N. Y., assignor to Calculagraph Company, East Orange, N. J., and New York, N. Y., a Corporation of New Jersey. Filed Mar. 4, 1900. Serial No. 98,611. (No model.)



Claim.—1. In combination with a plate, a mechanism supported therefrom, an inclosing casing for the mechanism, threaded legs upon the interior of such casing, covers passing through said plate downward into the legs, a supporting-table, threaded pillars on the casing, and covers passing through such table into the threaded portions of the pillars, substantially as and for the purpose described.

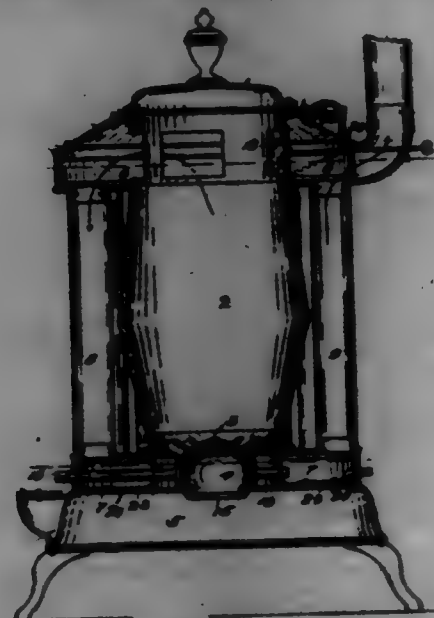
2. In combination with the casing provided within opposite sides with vertical, laterally-threaded legs, the mechanism-supporting plate adapted to fit into and over the upper end of each casing, and provided within its lower face with recesses which are adapted to fit over the upper ends of the threaded legs, and covers which pass downward through said table and into the threaded interior of said legs, substantially as described.

3. In combination with a mechanism and its inclosing casing, pillars with threaded openings in their upper ends on the outside of the casing, and having at their lower ends legs that project beneath the casing, and covers for the threaded openings in the pillars, adapted to pass through a supporting-table, substantially as described.

4. In combination with the casing shown, a number of pillars having within their upper portions threaded openings and at their lower ends legs that project laterally beneath and are attached to the bottom of each

casing, which pillars are arranged at equidistant points around said casing and when the latter has its upper portion contained within an opening in a supporting-table at their upper ends, bear against the lower side of each table in position to each receive a screw which passes downward through the latter and operates to secure said casing firmly thereto, substantially as and for the purpose described.

697,428. HEATING-STOVE. THOMAS M. ANDERSON, New
Whitcomb, Wash. Filed June 10, 1901. Serial No. 63,345. (No model.)



Claim.—1. In a heating-stove, the combination with a fire-box and an ash-pit, of an upper compartment having partitions therein and communicatively connected with the said fire-box, a lower compartment having a series of cleaning-holes in the bottom thereof opening in the said ash-pit, means to simultaneously close all of said cleaning-holes, vertical tubes arranged concentric of the stove connecting said upper and lower compartments to form return-current channels for the passage of the combustion-gases therebetween, a rotatable circular plate or ring having an aperture therein and adapted to be rotated so as to move the aperture over and in line with each of the said vertical tubes, substantially as and for the purpose set forth.

2. In a heating-stove, the combination with a fire-box, an ash-pit, an upper compartment having partitions therein and communicatively connected with the said fire-box, a lower compartment having a series of cleaning-holes in the bottom thereof opening in the said ash-pit, vertical tubes arranged concentric of the stove connecting said upper and lower compartments; of means to simultaneously close all of the said cleaning-holes, and a rotatable circular plate or ring having an aperture therein adapted to be moved directly over and in line with each of the said vertical tubes for cleaning the same, substantially as described.

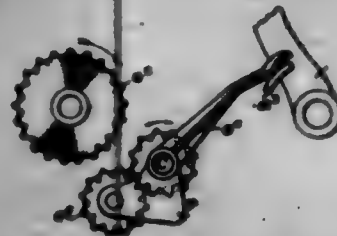
3. In a heating-stove, the combination with a fire box, an ash-pit, an upper compartment communicatively connected with the said fire-box, a lower compartment communicatively connected by a plurality of openings with said ash-pit, means to coincidentally close said communicative connections between said lower compartment and the ash-pit, and vertical tubes arranged concentrically of the stove connecting said upper and lower compartments; of a rotatable circular plate having a hole therein adapted to be used to give access for cleaning each of the said vertical tubes, substantially as and for the purpose set forth.

4. In a heating-stove, the combination with a fire-box, an ash-pit, an upper compartment communicatively connected with the said fire-box, a lower compartment communicatively connected by a plurality of openings with said ash-pit, means to coincidentally close said communicative connections between said lower compartment and the ash-pit, vertical tubes arranged concentrically of the stove connecting said upper and lower compartments, and a grate; of a rotatable circular plate having a cleaning-hole therein adapted to be used to give access for cleaning each of the said vertical tubes, substantially as and for the purpose set forth.

697,429. AUTOMATIC GRAIN-MOWER. JOHN F. APPLBY, Chicago, Ill., assignor to Deering Harvester Company, Chicago, Ill. Filed Nov. 28, 1900. Serial No. 37,795. (No model.)

Claim.—1. In a grain-binder, the combination with the packer-shaft, of a drive-shaft mounted in fixed relation to and rotating in the same direction as the packer-shaft, gears on said shafts, a swinging arm pivoted coaxially with the drive-shaft and carrying an intermediate gear normally meshing with both gears, a connection between the arm and a movable

part of the binder to swing the arm so as to disconnect the intermediate gear from the packer-shaft gear when the needles rise, and means for swinging the arm so as to cause the intermediate gear to roll around the drive-shaft gear into mesh with the gear on the packer-shaft when the needles fall, said packer-shaft gear and intermediate gear being provided with pitch-line chords to form stops to prevent them from being thrown too closely into mesh.



2. In a grain-binder, the combination with the packer-shaft, of a drive-shaft mounted in fixed relation to and rotating in the same direction as the packer-shaft, gears on said shafts, a rocking sleeve on the end of the drive-shaft that projects beyond the gears, an arm on one end of the sleeve carrying an intermediate gear meshing with the drive-shaft gear, a cam on the needle, and an arm projecting from the other end of the sleeve in the plane of movement of the cam.

697,480. TYPE-WRITING MACHINE. GLENN J. BARNETT, Grand Rapids, Mich., assignor to the Fox Machine Company, Grand Rapids, Mich. Filed June 12, 1900. Serial No. 29,002. (No model.)



Claim.—1. In a type-writing machine, the combination of the main frame A; a carriage B adapted to reciprocate thereon; a rack-shaft C with a suitable buffer at one end; a rack-bar D connected to said rack-shaft C by suitable arms; a rack-shaft E with arms L, L', thereon having connections L', L', to the finger-keys below to be actuated thereby; a dog-block F; a dog F on said dog-block adapted to engage in a fixed plane transverse to said rack-bar; a pivoted dog G having a locking-dog G' attached thereto; a plate H secured to the frame A of said machine and arranged to extend horizontally over the oscillating dog-block; and an arm I which is pivoted at r and adjustable between set-screws n, n, and ears H', H', on said plate H; and a stop I' positioned to engage the said locking-dog G' when the dog-block is actuated by depressing a key, all coacting substantially as described for the purpose specified.

2. In a type-writing machine the combination of the main frame A; a carriage B adapted to reciprocate thereon; a rack-shaft C; a rack-bar D connected to said rack-shaft C by suitable arms; a rack-shaft E with arms L, L', thereon having connections L', L', to the finger-keys below to be actuated thereby; a dog-block F; a dog F on said dog-block adapted to engage in a fixed plane transverse to said rack-bar; a pivoted dog G having a locking-dog G' attached thereto; a plate H secured to

the frame A of said machine and arranged to extend horizontally over the oscillating dog-block; and an arm I which is pivoted at r and adjustable between set-screws u, u, and ears H' H' on said plate H; and a stop I' positioned to engage the said locking-dog G' when the dog-block is actuated by pressing a key, all operating substantially as described for the purpose specified.

3. In a type-writer the combination of a carriage; a rack-bar; a dog-block; connections to the keys to operate the same; a dog normally engaging the rack-bar in a fixed plane transverse thereto; a pivoted dog to be moved into engagement with said rack-bar having suitable stops to limit its motion; an adjustable stop carried by the type-writer frame; and a locking-dog attached to said pivoted dog to be thrown into engagement with said stop when completing the stroke of the escapement mechanism to lock the carriage until the return movement thereof, for the purpose specified.

4. In a type-writing machine, the combination of a carriage; means of putting the same under tension; an escapement mechanism therefor, a dog in said escapement mechanism fixed in reference to the forward movement of the carriage and its connection; a vibrating dog movable in the direction of the movement of the carriage; a locking-dog, timed to engage the escapement mechanism and prevent the forward movement of the carriage only when a key is depressed to substantially the end of its stroke whereby the carriage will feed only when the key is in a partially-depressed position, either on the up or down stroke.

5. In a type-writing machine, the combination of a carriage; means of putting the same under tension; an escapement mechanism therefor, a dog in said escapement mechanism fixed, in reference to the forward movement of the carriage and its connection; a vibrating dog movable in the direction of the movement of the carriage; a laterally-adjustable locking-dog timed to engage the escapement mechanism and prevent the forward movement of the carriage only when a key of the machine is depressed to substantially the end of its stroke whereby the carriage will feed only when the key is in a partially-depressed position, either on the up or down stroke.

6. In a type-writing machine, the combination of the main frame of the machine; the carriage adapted to reciprocate thereon; a rack-bar carried by said carriage; an escapement consisting of a dog engaging in a fixed plane transverse to said rack-bar that normally engages the same and a dog pivoted to swing in the direction of said rack-bar; a locking-dog carried by said pivoted dog; a stop supported by the frame of the machine to be engaged by said dog; and suitable connections to the keys of the machine for actuating said escapement mechanism and throwing the dog into engagement with the stop whereby the escapement mechanism will not to release the carriage from normally engaging dog on the downstroke of the keys and the locking-dog to prevent the movement of the carriage until the return movement of the escapement mechanism, all operating for the purpose specified.

7. In a type-writing machine the combination of the main frame; a carriage adapted to reciprocate thereon; a rack-bar carried by said carriage; an escapement consisting of a dog engaging in a fixed plane transverse to said rack-bar, that normally engages the same and a dog pivoted to swing in the direction of said rack-bar; a locking-dog positioned and timed to lock the carriage after the operation of the escapement; suitable connection to the keys of the machine for actuating the escapement and throwing the locking-dog into engagement whereby the escapement will not to release the carriage on the downstroke of the keys, and the dog will prevent the movement of the carriage until the return movement of the escapement begins, operating for the purpose specified.

8. In a type-writing machine the combination of the main frame of the machine; a type-writer carriage reciprocating thereon; a rack-shaft supported on said carriage; a rack-bar carried by said rack-shaft; a suitable escapement for the said rack-bar; and a deadener at the end of said rack-shaft consisting of a screw a having a pivot a' thereon, with a shoulder between a washer c of leather or similar material, and a metallic washer c' between the said rod and washer c.

9. In a type-writing machine, having a carriage under tension, an escapement for controlling the movement thereof, comprising a rack and dogs cooperating therewith, said dogs being so arranged to allow a forward movement of the carriage during the depression of the finger-keys; and a lock positioned and timed to engage and lock the carriage against such forward movement, when the finger lever or key approaches the limit of its movement.

10. In a type-writing machine having a carriage under tension, an escapement for controlling the movement thereof, comprising a rack and dogs cooperating therewith, said dogs being so arranged to allow a forward movement of the carriage during the depression of the finger-keys; and a lock positioned and timed to engage and lock the carriage against such forward movement when the finger lever or key approaches the limit of its movement; and means for adjusting said lock so as to lock the

carriage at any point of the completing depression of said finger-key, substantially as described.

697,481. GASH-CORD PULLEY. JOHN W. HANCOCK and CHARLES T. HANCOCK, Ellsworth, Maine. Filed May 22, 1901. Serial No. 62,572. (No model.)



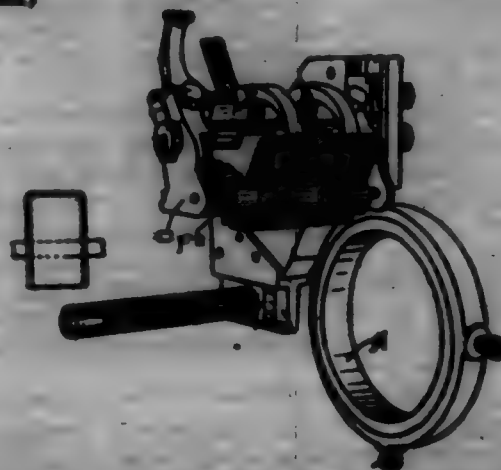
Claim.—1. A device of the class described comprising an open-ended tubular frame provided at its outer end with a flange to form a stop and having a pair of longitudinal incisions at its rear portion, the portion of the tube between the incisions being perforated and adapted to be bent outward to form an ear after the device has been placed in position, and a pulley arranged within the frame, substantially as described.

2. A device of the class described comprising an open-ended tubular frame having a longitudinal slot and provided at opposite sides thereof with internal flanges, said tubular frame being provided at its rear portion with a pair of longitudinal incisions, the portion of the tube between the incisions being perforated and adapted to be bent outward at right angles to form an ear, and a pulley located between the internal flanges, substantially as described.

3. A gash-cord pulley, comprising an open-ended tubular frame, having a longitudinal slot in the under side thereof, and internal flanges rising from the opposite edges of the slot, and a pulley mounted between the flanges.

4. A gash-cord pulley, comprising an open-ended tubular frame having a longitudinal slot formed in the bottom thereof and extending throughout the length of the frame, longitudinal internal flanges rising from the opposite edges of the slot, an outwardly-directed marginal flange at the front end of the frame, the top of the rear end of the frame having a pair of longitudinal incisions formed therein and a perforation provided in the portion of the frame between the incisions, said perforate portion being capable of being bent laterally outward to form an attaching-ear, and a grooved pulley mounted between the opposite flanges, the latter rising above the pulley and forming opposite guards for a gash-cord.

697,482. BRUSH-HOLDER. NORMAN C. RAMMETT and JOHN W. HILL, Lynn, Mass., assignors to the General Electric Company, a Corporation of New York. Filed Aug 21, 1900. Serial No. 29,042. (No model.)



Claim.—1. As an article of manufacture, a body for a brush-holder, comprising a casting consisting of similar and parallel end pieces connected by an angularly-disposed back for the brush, so that it may be used either for a right or a left hand holder, the body being open at the top, bottom and front, and the space included between the end pieces and the back being unobstructed with any integral parts of the brush-holder body.

2. As an article of manufacture, a body for a brush-holder, comprising a casting having an open-front receptacle for receiving the brush, and parallel extending end pieces which form the sides of the receptacle the said end pieces being provided with clamping-ears which are bent out to receive the supporting-rod, whereby the holder may be retained in place.

3. In a brush-holder, the combination of a base or body having a receptacle for receiving a brush, a means for moving the brush toward the commutator, and a coiled spring which presses directly against the brush.

4. In a brush-holder, the combination of a base having a brush-receptacle, a spring for forcing the brush against the commutator, and a spiral or clock spring which rests on one of the flans of the brush and forces it against the base.

5. In a brush-holder, the combination of a base having a brush-receptacle, a spring for pressing the brush against the commutator, and a second spring for forcing the brush into its proper place in the receptacle, which spring rests on the brush and is capable of an angular and also a twisting movement as the brush moves.

6. In a brush-holder, the combination of a base having a brush-receptacle, a spring for pressing the brush against the commutator, and a clock-spring which presses the brush against the base of the holder and is so arranged that it will move angularly to a greater or less extent as the brush moves up and down.

7. As an article of manufacture, a spring for a brush-holder, comprising a spiral of flat spring metal, which is surrounded by a tubular piece of metal that forms a bearing-surface.

8. As an article of manufacture, a spring for a brush-holder comprising a spirally-wound sheet of metal having a central sleeve and an insulating tube, the ends of said tube being turned inwardly to prevent it from slipping outwardly off from the spring.

9. In a brush-holder, the combination of a base having a brush-receiving receptacle, a shaft or stud extending parallel with said base, and a clock-spring which is mounted on the stud and presses the brush into engagement with the base.

10. In a brush-holder, the combination of a base-piece which is mounted on a suitable support and is provided with a brush-receptacle, a shaft, and a flat coiled spring which is sleeved on the shaft in such manner that it is free to rotate as the brush moves up and down.

11. In a brush-holder, the combination of a base having an open-front receptacle for receiving a plurality of brushes, a shaft which extends across the receptacle; a plurality of coiled springs mounted on the shaft and arranged to press the brushes against the base, each of said springs being capable of angular movement independent of the other or others.

12. In a brush-holder, the combination of a base having a receptacle for receiving a plurality of brushes, a stud extending across the front of the receptacle, a plurality of clock-springs coiled around said stud, each engaging with a brush and capable of a certain amount of angular movement, and spacers which are mounted on said stud for separating the springs.

13. In a brush-holder, the combination of a base having a brush-receptacle, a shaft or stud extending across the face of the receptacle, a coiled spring wrapped around the stud for holding the brush in position, and a head or guard which surrounds a portion of the spring and is secured to the stud.

14. In a brush-holder, the combination of an insulating-support, a metal end piece for said insulating-support, which is provided with a slot or groove, a brush-holder stud having a rectangular head, which head is mounted in the groove or slot, a spring for pressing the brush against the commutator, and a coiled spring which engages with and presses the brush against the base of the brush-holder.

15. In a brush holder, the combination of a base having a receptacle in which the brush is held in an angular position with respect to the commutator as distinguished from a holder in which the brush is radial, a clock-spring which at its periphery engages with and presses the brush against the base, and a spring-pressed arm for forcing the brush against the commutator.

16. In a brush-holder, the combination of a brush-receptacle, a coiled spring which presses the brush against the face of the receptacle, and a head which surrounds a portion of the spring, and protects it from wear caused by an adjacent brush.

17. In a brush-holder, the combination of a brush-receptacle, coiled springs for pressing the brushes against the face of the receptacle, and a head or protector which insulates the springs and extends across the receptacle and is provided with guide-pieces which hold the brushes in place when they tend to jump, but at no other time.

18. In a brush-holder, the combination of a brush-receptacle designed to receive a plurality of brushes, a clock-spring for pressing each brush against the face of the receptacle, a head or protector composed of a single casting which is provided with a receptacle for each brush, and means for securing the head or protector to the end piece of the brush-receptacle.

19. A brush-holder which comprises a casting having similar and parallel end pieces connected by an angularly-disposed back for the brush, a support mounted on the two end pieces, and a spirally-coiled spring-strip mounted on said support, to press the brush against the back of the casting.

697,488. BUCKLE-CHAFE. WILLIAM BARNHAM, Waterloo, Iowa.
Filed Sept. 2, 1901. Serial No. 74,894. (No model.)

Claim.—1. A buckle-fastener, composed of a chafe-plate having a loop, in combination with a spring-bar adapted to enter and engage said loop, as and for the purpose set forth.

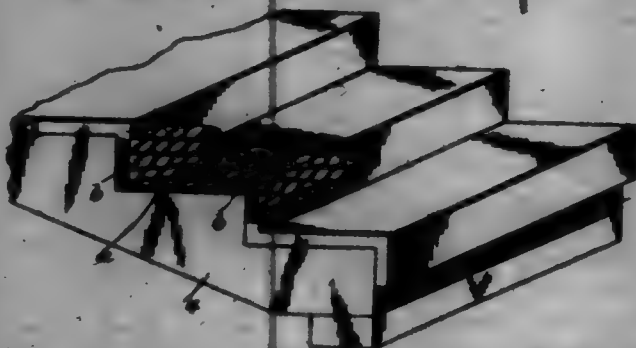
2. A buckle-fastener for reins, composed of a rein having a slot, a

chafe-plate having a loop adapted to be inserted in said slot, and a spring-bar adapted to be inserted within said rein and through the loop of said chafe-plate, as and for the purpose set forth.



3. A buckle-fastener for reins, composed of a rein having a slot, a chafe-plate having a loop adapted to be inserted within said slot, and having a buckle-bearing, a buckle pivoted within said bearing, and a spring-bar adapted to pass within and engage the inner portion of said loop after the loop has been inserted within the slot in said rein, as and for the purpose set forth.

697,484. STEP STRUCTURE. EMERY W. BRADLEY, Buffalo, N. Y. Filed July 21, 1901. Serial No. 70,376. (No model.)



Claim.—1. A step structure comprised of strings having stepped upper edges, a perforate tread and riser body secured to the stepped edge of the strings, and cement bands and risers supported by and anchored to the said body.

2. A step structure comprised of sleepers, metallic stepped strings secured to the sleepers, a perforate tread and riser body secured to the strings, and cement bands and risers supported by and anchored to the said body.

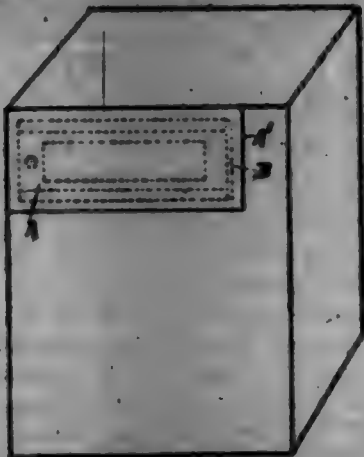
697,485. BICYCLE-FORK. FREDERICK J. FLETCHER, Fitchburg, Mass., assignor to Mary Elizabeth Johnson, Fitchburg, Mass., executrix of Iver Johnson, deceased. Filed Nov. 9, 1900. Serial No. 695,940. (No model.)



Claim.—The combination in a bicycle-fork, of an arched crown-piece provided with a vertical, tubular boss *O'* at its central section and having reduced cheeks *E, E*, at its ends, tubular sides *B, B*, having their upper ends latching and braced to said cheeks, an arched brace *G* having a central hole *G'* and having its ends curved as at *G''* to fit the tube-

for sides B, B, and being braced thereto opposite said cheeks, and a tube D braced to the interior of said tubular base and having its lower end entering the hole G and braced to said curved base, substantially as described.

697,486. SLIDING-FRAME FRAME & BURN, East Orange, N. J., assignor of one-half to Charles C. Capeland, South Orange, N. J. Filed Aug. 14, 1904. Serial No. 72,100. (No model.)



Claim.—1. A slide-opening comprising, a frame, a depression in the frame, lugs extending from the frame, guides on the frame, a slide actuating in the said guides, a depression in the slide engaging the depression in the frame and on edge thereof.

2. A receptacle, an opening in the receptacle, a cover closing the said opening on a side, a frame and lugs thereon bent over the edges of the opening in the receptacle, a depression in the frame, a slide, a depression in the slide engaging the depression in the frame and on edge thereof.

3. A receptacle, an opening in the receptacle, a frame with lugs extending from its four inner edges, and other lugs extending from the frame, the lugs at the inner edges bent over the edges of the opening in the receptacle, and the other lugs pivoting the said receptacle, a depression in the frame, a slide extending over the frame, a depression in the slide engaging the depression in the frame and on edge thereof, a cover inclosing the slide and frame with the receptacle.

697,487. ROPE-LAYING MACHINE. WILLIAM C. BROWN, Boston, N. J. Filed Nov. 2, 1906. Serial No. 610,000. (No model.)



Claim.—1. In a rope-laying filar, the combination of three hollow journals, with hollow or tubular filar-arms on opposite sides of the intermediate hollow journal, means detachably connecting said intermediate journal with said hollow arms, means detachably connecting the hollow

journals at the ends of the filar with the respective hollow arms, said hollow arms opening through the means that connect them with the journals, a laying-top connected with the forward hollow journal, and means for supporting bobbins in the filar, substantially as described.

2. In a rope-laying filar, the combination of a hollow or perforated journal, and arms θ projecting therefrom, with circular heads or disks connected with said arms, hollow or tubular filar-arms connected with and opening through said heads or disks, and other circular heads or disks connected with the opposite ends of said hollow arms, said arms opening through said last-mentioned heads or disks, hollow journals connected with the last-mentioned heads or disks, means for supporting bobbins in the filar, and a laying-top connected with the forward journal, substantially as described.

3. In a filar, the combination of a hollow journal, arms θ projecting therefrom, a head between said arms and detachably connected therewith, a hollow journal at the end of the filar, hollow filar-arms, a head connected with the last-mentioned journal and with said filar-arms, said filar-arms opening through said heads, substantially as set forth.

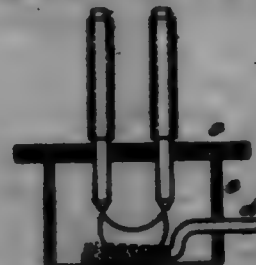
4. In a filar, the combination of a hollow journal, arms θ carried thereby and projecting outwardly therefrom on opposite sides, a head interposed between each pair of said arms and detachably connected therewith, hollow journals on opposite sides of the central journal, arms θ carried by the last-mentioned journals, a head detachably connecting each pair of arms θ , and hollow filar-arms interposed between a pair of heads and opening through the heads, the filar-arms being detachably connected with the corresponding heads, substantially as described.

697,488. HAT AND COAT RACK. MARK BRAYNER, Philadelphia, Pa. Filed Dec. 6, 1901. Serial No. 64,905. (No model.)



Claim.—The combination in a hat and coat frame, of a pin driven into the said frame and projecting from it; of a slotted bar, held to the frame by the said pin, but adapted to slide in or out; of a filament on which to rest the slotted bar in a convenient position; of a series of folding bars, hinged to the slotted bar, and to each other; of filaments on each bar, to prevent the next bar from rotating in the wrong direction; of a mirror hinged to the extremity of the last folding bar; all substantially as set forth and for the purpose specified.

697,489. ELECTRIC-ARC LAMP. RUDOLF BRUNN, Koblenz, Germany. Filed Sept. 28, 1902. Serial No. 31,100. (No model.)



Claim.—1. In an electric-arc lamp, search-light, &c., the combination of a pair of downwardly-pointed parallel or converging carbon pencils containing a high percentage of metallic salts and a chamber surrounding the carbon ends for the purpose described and set forth.

2. In an electric-arc lamp, search-light, &c., the combination of a pair of downwardly-pointed parallel or converging carbon pencils containing a high percentage of metallic salts a chamber inclosing the carbon ends and a magnetic field arranged near the arc for the purpose described and set forth.

3. In an electric-arc lamp, search-light, &c., the combination of a

pair of downwardly-pointed parallel or converging carbons containing a high percentage of metallic salts and a reflecting agent arranged above the luminous arc to prevent upward movement of air for the purpose described and set forth.

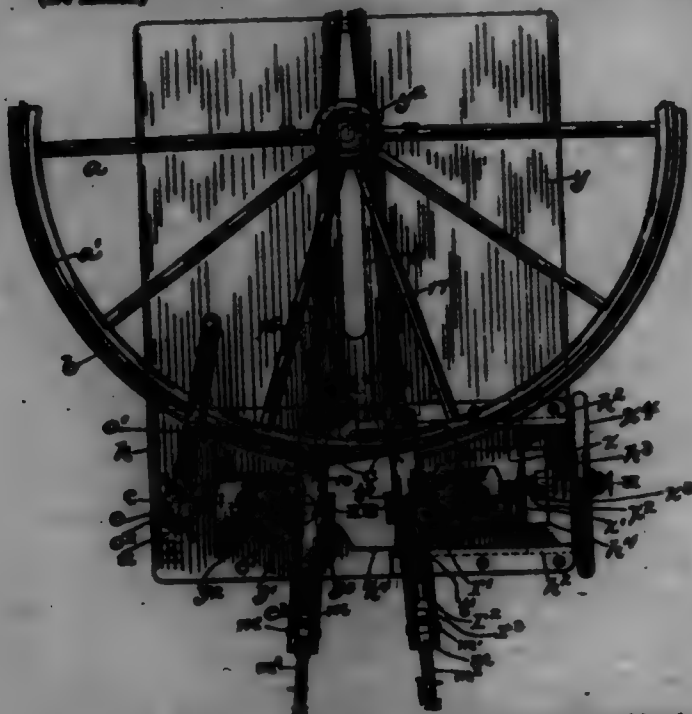
4. In an electric-arc lamp the combination of a pair of downwardly-pointed parallel or converging carbons containing a high percentage of such metallic salts which give to the arc a high illuminating power and a magnetic field arranged near the arc for the purpose described and set forth.

697,440. WHEARE. GRAPES C. BUCKER, Hallowell, Me. Filed July 16, 1900. Serial No. 28,778. (No model.)



Claim.—In combination with shear-blades provided with handles, one having a lip and the other having two ears to receive said lip, openings through said ears and lip, a bolt adapted to pass through said openings together with a coil-spring surrounding the lower end of said bolt and a nut upon said bolt, substantially as described.

697,441. APPARATUS FOR EQUIPPING VEHICLE WHEELS WITH TIRES OF RUBBER OR OTHER ELASTIC MATERIAL. WILLIAM S. BUCKER, Akron, Ohio. Filed May 20, 1901. Serial No. 61,110. (No model.)



Claim.—1. A machine of the character indicated, the combination with a winding-drum having a bore formed therein and extending longitudinally of the drum, of an endwise-shiftable pin or member *u* extending transversely of the drum and having bearing in opposite walls of the bore and provided with an inwardly-facing shoulder *o'* arranged to clamp the tire-retaining wire to the drum, and means for shifting the said endwise-shiftable member, substantially as and for the purpose set forth.

2. In a machine of the character indicated, the combination, with a suitably-supported upright winding-drum having a bore or bore formed therein and extending longitudinally of the drum, and provided with two oppositely-arranged and registering apertures or holes *o'* and *o'* formed in the surrounding wall of the said bore, of an endwise-shiftable pin or member *u* extending transversely of the drum and engaging the said holes *o'* and *o'* and provided with an inwardly-facing shoulder *o'* arranged to clamp a tire-retaining wire to the drum, and means for shifting the said endwise-shiftable member, substantially as and for the purpose set forth.

3. In a machine of the character indicated, a winding-drum having a bore formed therein and extending longitudinally of the drum, of an endwise-shiftable pin or member *u* extending transversely of and having bearing within the drum and provided with an inwardly-facing shoulder *o'* arranged to clamp the tire-retaining wire to the drum, a wedge extending through and transversely of the said endwise-shiftable member, a screw within the said bore of the drum in position to operate the wedge, and screw-threads formed upon the surrounding wall of the said bore and engaged by the screw, substantially as and for the purpose set forth.

4. In a machine of the character indicated, the combination, with a suitably-supported upright winding-drum having a bore or bore extending from its upper end downwardly, screw-threads formed upon the upper portion of the surrounding wall of the said bore, two oppositely-arranged and registering lateral apertures or holes *o'* and *o'* formed in the said wall below the said screw-threads, and an outwardly-facing shoulder *o'* formed upon the surrounding wall of one of the said lateral holes or apertures, of an endwise-shiftable pin or member *u* extending transversely of the drum and engaging the said holes *o'* and *o'* and provided with a vertical slot *v'* and an inwardly-facing shoulder *o'* opposite the said shoulder *o'*, a wedge *w* extending through the slot in the endwise-shiftable member and arranged with its smaller end lowermost, and a screw engaging the said screw-threads and arranged to operate the wedge, all arranged and operating substantially as shown, for the purpose specified.

5. In a machine of the character indicated, the combination, with a supporting-bed *h* provided with a vertically-arranged stud *k'*, and a vertically-arranged tubular winding-drum having its lower end embracing the said stud and having screw-threads formed upon the upper portion of the surrounding wall of its bore, the two oppositely-arranged and registering lateral apertures or holes *o'* and *o'*, and the two outwardly-facing shoulders *o'* and *o'* arranged at the top and bottom, respectively, of one of the said lateral apertures or holes, of an endwise-shiftable pin or member *u* extending transversely of the drum and engaging the said holes *o'* and *o'* and provided with a vertical slot *v'* and two inwardly-facing shoulders *o'* and *o'* formed at the top and bottom, respectively, of the said endwise-shiftable member and arranged to clamp the tire-retaining bands against the said shoulders *o'* and *o'*, a wedge *w* extending through the slot in the endwise-shiftable member and arranged with its smaller end lowermost, and a screw engaging the said screw-threads of the surrounding wall of the bore of the drum and arranged to operate the wedge, substantially as and for the purpose set forth.

6. In a machine of the character indicated, two clamping mechanisms arranged a suitable distance apart laterally and adapted to clamp opposite ends, respectively, of a tire-retaining band or bands; two plates carrying the different clamping mechanisms, respectively, and capable of oscillating or swinging in a horizontal plane; a wheel-carriage arranged between and a suitable distance from the axes of the said plates and shiftable toward and from the said plates, and means whereby the said plates are automatically actuated in opposite directions, respectively, during the shifting of the wheel-carriage toward or from the said plates, and the arrangement of the parts being such that the two clamping mechanisms are caused to approach or recede from each other according as the wheel-carriage is shifted toward or from the said plates, substantially as and for the purpose set forth.

7. In a machine of the character indicated, two clamping mechanisms arranged a suitable distance apart laterally and adapted to clamp opposite ends, respectively, of a tire-retaining band or bands; two plates *g* and *t* carrying the different clamping mechanisms, respectively, and supported so as to render them capable of oscillating or swinging in a horizontal plane; a wheel-carriage arranged between and a suitable distance from the axes of the said plates and comprising two disks 12 and 14 arranged one above the other with open-ended recesses 13 and 15 formed in the opposing faces of the disks 12 and 14, respectively, and bars 16 and 17 engaging the recesses 13 and 15, respectively, and attached to the said plates *g* and *t*, respectively, substantially as and for the purpose set forth.

8. A machine of the character indicated, comprising a table; two suitably-supported rotary disks 12 and 14 shiftable forwardly and rearwardly upon the said table and having, respectively, the open-ended recesses 13 and 15 formed in their opposing faces at opposite sides, respectively, of the axes of the disks; a bed *h* arranged forwardly of the said table; a plate *g* swiveled or pivotally mounted upon the said bed and arranged to swing or oscillate in a horizontal plane; clamping means carried by the said plate; the slide *a* movable toward and from the plate *g*; means for operating the slide; a plate *t* swiveled or pivotally mounted upon the slide and arranged to swing or oscillate in a horizontal plane, clamping means carried by the said plate *t*, and two bars 16 and 17 engaging the said recesses 13 and 15, respectively, and attached to the said plates *g* and *t*, respectively, all arranged and operating substantially as shown, for the purpose specified.

9. A machine of the character indicated, comprising a horizontally-arranged table *g* provided centrally with a forwardly and rearwardly extending slot *y'*; a vertically-arranged stud *y'* extending through the said slot; two disks or collars 12 and 14 turnably embracing the said stud and having, respectively, the open-ended recesses 13 and 15 formed in their opposing faces, at opposite sides, respectively, of the stem; a bed *h* arranged forwardly of the said table; a plate *g* swiveled or pivotally mounted upon the said bed and arranged to swing or oscillate in a horizontal plane; clamping means carried by the said plate; a slide *a* movable toward and from the plate *g*; means for operating the slide; a

plate *i* swivelled or pivotally mounted upon the slide and arranged to swing or oscillate in a horizontal plane; clamping means carried by the said plate *i*, and two bars 16 and 17 engaging the said recesses 13 and 15, respectively, and attached to the plates *g* and *h*, respectively, all arranged and operating substantially as shown, for the purpose specified.

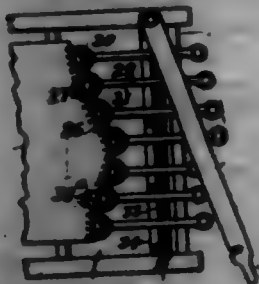
10. A machine of the character indicated, comprising a horizontally-arranged table *g* provided centrally with a forwardly and rearwardly extending slot *g'*; a vertically-arranged stem *g''* extending through the said slot; two disks or collars 13 and 14 loosely embracing the said stem and having, respectively, the two open-ended recesses 13 and 15, formed in their opposing faces at opposite sides, respectively, of the stem; two bars 16 and 17 engaging the recesses 13 and 15, respectively, and extending forwardly from the disks or collars; a bed *A* arranged forwardly of the said table; a plate *j* swivelled or pivotally mounted upon the said bed and capable of swinging or oscillating in a horizontal plane, which plate has two upright members *j'* and *j''* arranged at opposite sides, respectively, of the bar 16; clamping means over the said bar 16 between the said members *j'* and *j''* and comprising an upper jaw tiltable in a vertical plane and a relatively stationary lower jaw; means for attaching the said bar 16 to the said lower jaw; a slide *k* movable toward and from the said plate *j*; slideways for the slide; a plate *l* swivelled or pivotally mounted upon the slide so as to render the said plate *l* capable of swinging or oscillating in a horizontal plane, which plate has two upright members *l'* and *l''* provided at opposite sides, respectively, of the said bar 17; clamping means over the said bar 17 between the members *l'* and *l''* and comprising an upper jaw tiltable in a vertical plane and a relatively stationary lower jaw; means for attaching the said bar 17 to the last-mentioned lower jaw, all arranged and operating substantially as shown, for the purpose specified.

697,442. BOWLOCK. CHARLES H. BOWLOCK, Norwich, Conn. Filed Aug. 7, 1901. Serial No. 71,399. (No model.)



Claim.—In combination, is a bowlock, a plate having an enlargement *c* and threaded portion *b*, and a nut formed with upper and lower bearings for said plate, as set forth, also with internal threads *b'* and with an annular chamber *b''* that is above the lower bearing and is adapted to receive the plate-threads when the parts are assembled.

697,448. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Hott Company, Minneapolis, Minn., a Corporation. Filed Jan. 15, 1908. Serial No. 1,494. (No model.)



Claim.—1. In a stretching mechanism, the combination with a stretching-frame, of a stretcher-head provided with serrations on its surface, a series of independent leather-holders having means for attachment to short marginal portions of the leather, and a corresponding series of coupling devices loosely pivoted to the holders and permitting them to swing freely under tension, the coupling devices being adapted to be adjusted laterally and longitudinally upon and to engage each serrated surface, and means for locking said coupling devices in their adjusted position on said surface, substantially as set forth.

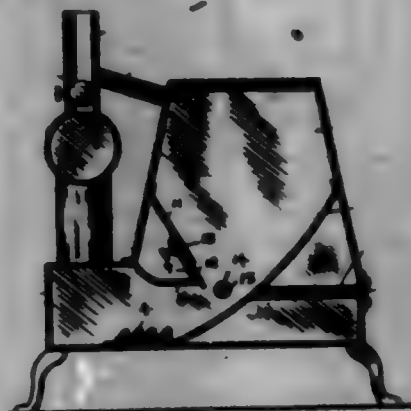
2. The combination with a stretcher-head provided with transverse serrations, of a series of leather-holders adapted to engage short marginal portions of the leather, and a corresponding series of coupling devices loosely pivoted to the holders and provided with teeth, whereby the coupling

devices may be adjusted laterally and longitudinally and connected with the serrations on the stretcher-head, substantially as set forth.

3. In combination in a leather-stretching mechanism, a frame; a sliding and a fixed head therein; leather-holders, comprising bodies provided with means for engaging the leather, and pivotally-connected shanks capable of independent adjustment and provided with teeth; and serrations on the stretcher-head for engaging said teeth, substantially as set forth.

4. In combination in a leather-stretching mechanism, a frame; a sliding and a fixed head therein; leather-holders, comprising bodies provided with means for engaging the leather, and pivotally-connected shanks capable of independent adjustment and provided with teeth; serrations on the stretcher-head for engaging said teeth; and means for holding the shanks in place thereon, substantially as set forth.

697,444. SAWDUST-BURNING STOVE. WILLARD F. CANOE and CHARLES F. WOOLLEY, West Mansfield, Ohio. Filed May 28, 1901. Serial No. 61,908. (No model.)



Claim.—1. In a stove of the class described, the combination with the body thereof, and a magazine-carried thereby, of a feed-slide arranged within said magazine and extending into the body for conveying the sawdust from the magazine to the body, a gate arranged within the magazine, air-inlets arranged within the body and communicating with the interior thereof, a heating-drum carried by the body and communicating therewith, a chimney-pipe communicating with said heating-drum, and a smoke-pipe arranged between the chimney-pipe and a magazine for conveying the products of combustion from the latter to the chimney-pipe.

2. In a stove of the class described, the combination with the body thereof, and a magazine carried thereby, of a feed-slide in said magazine and body, a gate therein for retarding the movement of the material fed upon the slide, an air-inlet pipe extending across the slide and having outlets into the interior of the stove, a heating-drum communicating with the body, a chimney thereon, and a pipe connecting said chimney and magazine.

697,445. ELECTRIC CONTROLLER. FRANK E. CASE, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed June 28, 1905. Serial No. 694,119. (No model.)

Claim.—1. The combination of a regulating-switch, a brake-switch, a reversing-switch, and a mechanical connection between the regulating and brake switches, such that movement of the regulating-switch handle brings the brake-switch into an operative position, and the further movement of the handle actuates only the regulating-switch.

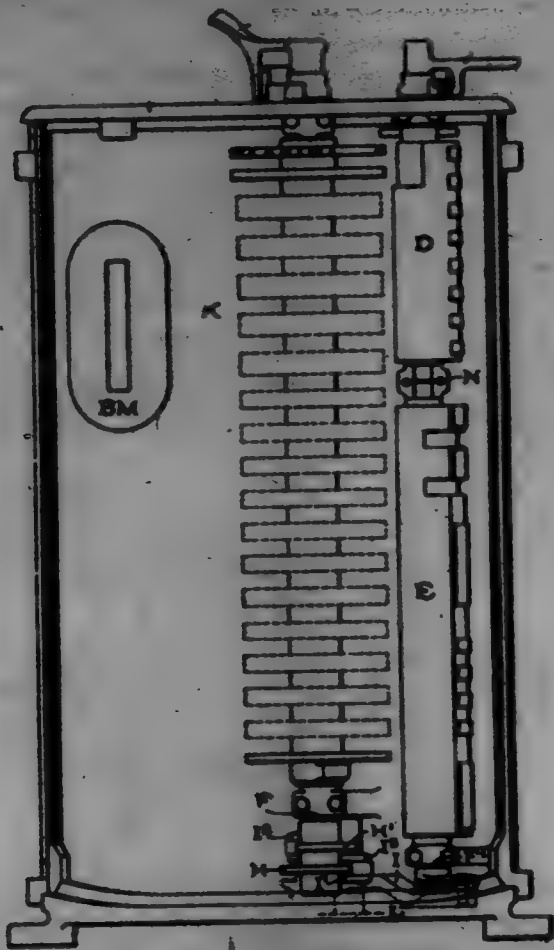
2. The combination of a regulating-switch, a brake-switch, a reversing-switch, and a mechanical connection between the regulating and the brake switches, such that the movement of the regulating-switch handle brings the brake switch to one of two operative positions, and further movement of the handle actuates only the regulating-switch.

3. The combination, in a controller, of three separate cylindrical switches, two of which have a common axis, and a mechanical connection between the third switch and one of the other two, moving them simultaneously.

4. The combination in a controller, of a regulating-switch of cylindrical form, a reversing-switch and a brake-switch the axes of which are in line, and a mechanical connection between the regulating and brake switches.

5. The combination, with a motor-regulating switch of combined resistance-changing and series-parallel type, of a second switch mechanically connected thereto and having contacts by which, when the motor-regulating switch is moved in one direction from its off position, the circuits are established by the second switch for motor regulation, and when

moved in the opposite direction braking-circuits are established, including the resistance-changing contacts only of the power-switch.



6. The combination of the cam on the regulating-switch, the crank on the brake-switch, and a lever having its short arm operated by the cam and its long arm actuating the crank; whereby the brake-switch is brought to operative position before the contacts are closed at the regulating-switch, and further movement of the handle affects only the regulating-switch.

7. In an electric controller, the combination with a regulating-switch, of a separate brake-switch, a single actuating device for said switches, attached to said regulating-switch, and an independently-working reversing-switch.

8. In a controller, the combination with regulating and brake switches, of means for operating the regulating-switch, means for operating the brake-switch at a time when the regulating-switch being operative only by the operation of the regulating-switch, and an independently-working reversing-switch.

9. In a controller, the combination with regulating and brake switches, of an actuating-handle for the regulating-switch, means whereby the movement of the regulating-switch, exclusive of other means, operates the brake-switch at a time when the regulating-switch connections are broken, and an independently-working reversing-switch.

10. In a controller for dynamo-electric machines, the combination of a switch adapted to regulate said electric machines, both when operating as motors and as generators, a switch adapted to make connections whereby the machines are changed from motors to generators at a time when the connections of said regulating-switch are open, a single actuating means for said switches, and an independent reversing-switch.

11. In a controller for electric machines, the combination of a switch adapted to regulate said machines both when operating as motors and as generators, a switch adapted to change the mode of operation of said machines, a single actuating means for said switches, adapted to operate the brake-switch at a time when the connections of the regulating-switch are broken, and an independent reversing-switch.

12. In a controller for dynamo-electric machines, the combination of power and brake circuits for said machines, a regulating-switch adapted to be used in both the power and brake circuits, means for operating said switch, and a separate switch for connecting the machines to operate as motors or generators, said switch being adapted to be actuated only by the movement of the regulating-switch from its open position to its power or brake positions.

13. In a controller for dynamo-electric machines, the combination of power and brake circuits for said machines, a regulating-switch adapted to be used in both power and-brake circuits, means for operating said switch, a separate switch for connecting the machines to operate as mo-

tors or generators, and means whereby the said switch can be actuated only by the moving regulating-switch when the latter is passing over its off position.

14. In a controller for electric machines, the combination of power and brake circuits for said machines, a regulating-switch for both said circuits, a separate switch for causing the machines to operate as motors or generators, a single actuating-handle for said switches attached to the regulating-switch, a mechanical connection between said switches, whereby the said separate switch is actuated, and an independent reversing-switch.

15. In a controller for electric machines, the combination of power and brake circuits for said machines, a regulating-switch for both said circuits, a separate switch for causing the machines to operate either as motors or generators, a single actuating-handle for said switches attached to the regulating-switch, means controlled by said actuating-handle for operating said separate switch when the regulating-switch is in its off position, and an independent reversing-switch.

16. In an electric controller for power and brake circuits, the combination with a regulating-switch arranged to regulate the flow of current both in the power and in the brake circuit, of a reversing-switch, a separate brake-switch, and means for actuating the regulating-switch, said means also exclusively controlling the operation of the brake-switch.

17. In a controller for electric machines, the combination of a switch adapted to regulate said electric machines both when operating as motors and as generators, a switch adapted to make connections whereby the machines are changed from motors to generators, a single actuating means for said switches, and a third independently-operated switch adapted to change the direction of motion of said machines.

18. In an electric controller, the combination with a regulating-switch and a reversing-switch, of a brake-switch, means for actuating the regulating-switch, and a mechanical connection between the switches whereby alone motion is communicated to the brake-switch.

19. In a controller, the combination with a regulating-switch and a reversing-switch, of a brake-switch, means for actuating said regulating-switch, a mechanical connection between the regulating and brake switches, and guiding means on each switch adapted to engage the mechanical connection to intermittently and exclusively operate the brake-switch.

20. In a controller, the combination with a regulating-switch and a reversing-switch, of a brake-switch, means for actuating said regulating-switch, a mechanical connection pivoted independently of the switches, and guiding means on the regulating and brake switches adapted to engage the mechanical connection to intermittently operate the brake-switch.

21. In a controller, the combination with regulating, brake, and reversing switches, of means for actuating the former, cam-surfaces on the regulating-switch, a slotted crank on the brake-switch, and a mechanical connection between the switches adapted to engage with the cam and crank.

22. The combination with two electric switches, of supporting-shafts therefor, means for actuating one shaft, two cam-surfaces on the latter, a slotted crank on the other shaft, and an independently-pivoted lever adapted to engage with said cam and crank, whereby the driven shaft is partially rotated during a part of the rotation of the actuating-shaft.

23. The combination with two electric switches, of supporting-shafts therefor, means for actuating one shaft, two cam-surfaces on the latter, a slotted crank on the other shaft, and an independently-pivoted three-armed lever carrying a pin on one arm to engage with the slotted crank, and rollers on the other arms for engaging with the cam.

24. In a controller, the combination with a regulating-switch, actuating means therefor, a separate brake-switch, means whereby the latter is actuated by the operation of the regulating-switch, and an independently constructed and operated reversing-switch having its axis in the same line with that of the brake-switch.

25. In combination, in a controller having contacts for power and braking, a main switch provided with current-regulating contacts, and an auxiliary switch provided with circuit changing and equalizing contacts.

26. In combination, in a controller having contacts for power and braking, a main switch provided with current-regulating contacts, an auxiliary switch provided with circuit changing and equalizing contacts, and an independent reversing-switch.

27. In combination, in a controller having contacts for power and braking, a main switch comprising current-regulating and series-multiple contacts, and an auxiliary switch comprising circuit changing and equalizing contacts.

28. In combination, in a controller having contacts for power and braking, a main switch comprising current-regulating contacts, an auxiliary switch comprising circuit changing and equalizing contacts, and a mechanical connection between said switches.

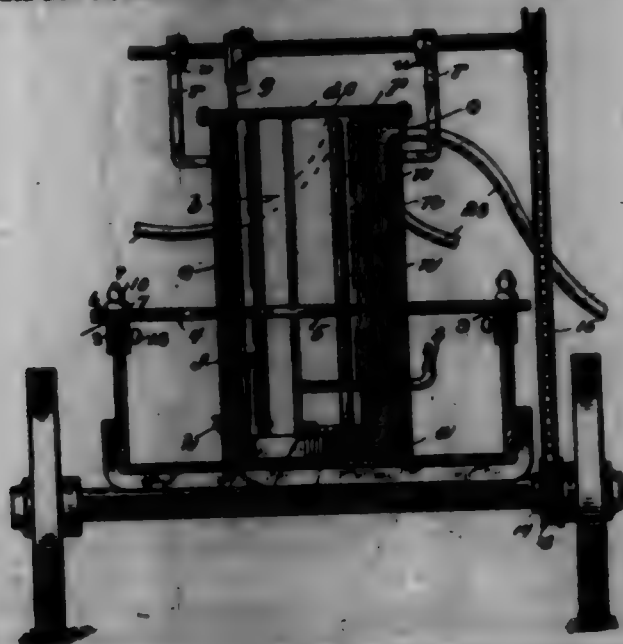
29. In combination, in a controller having contacts for power and braking, a main switch comprising current-regulating contacts, an auxiliary switch comprising circuit changing and equalizing contacts, and a mechanical means whereby the auxiliary switch is thrown into one of its

operative positions by the movement of the main switch from its off position.

30. In combination, is a controller having contacts for power and braking, a main switch comprising current-regulating contacts, an auxiliary switch comprising circuit changing and equalizing contacts, and a mechanical means whereby the auxiliary switch is thrown into one of its operative positions by the initial movement of the main switch from its off position.

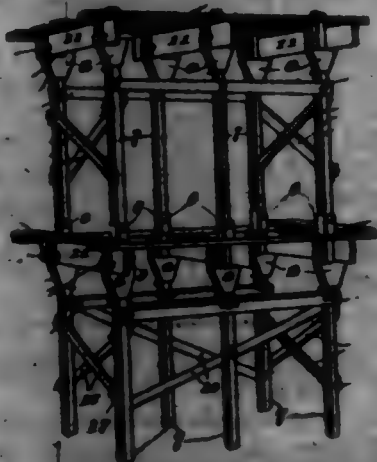
31. In combination, is a controller having contacts for power and braking, a main controlling-switch, an auxiliary controlling-switch, a reversing-switch, and a mechanical connection between the main and the auxiliary controlling-switches.

697,446. SPRAYER. WILLIAM E. CHANDLER, Chicago, Ill.
Filed Nov. 18, 1900. Serial No. 35,778. (No model.)



Claim.—A sprayer comprising a tank adapted to be carried within a vehicle, a vertical partition within the tank dividing it into a major and a minor compartment, an air-pump mounted in the minor compartment an air-tight cover upon the tank, a pipe passing from the base of the minor compartment and opening into the major compartment, a number of perforations in the pipe, a valve between the partition and the minor compartment, pipes extending vertically within the tank and passing outwardly therefrom at its upper end, arms projecting upwardly from the tank, a shaft journaled in the arms, disks mounted upon the shaft adjacent the arms, a cam mounted between the disks and having connection with the piston-rod of the air-pump, said rod being passed through a perforation in the air-tight cover, a sprocket-wheel upon the shaft, a sprocket-wheel carried by the running-gear of the vehicle, a chain connecting the two sprockets, a bar connected to the tank and extending laterally therefrom at two opposite sides, slots in the ends of the bar, yokes adjustably mounted upon the bar and adapted to receive the sides of the vehicle-body and cut-aways mounted in the yokes to hold them firmly in position.

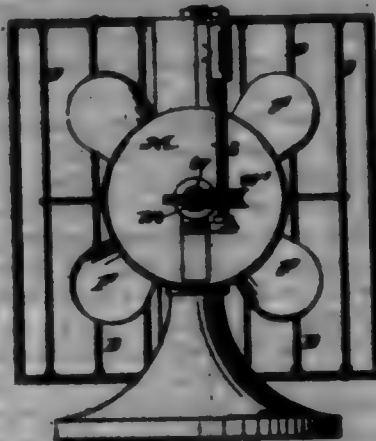
697,447. PORTABLE SCAFFOLD. EDWARD CHASTRAUD, Chicago, Ill.
Filed Jan. 27, 1902. Serial No. 61,866. (No model.)



Claim.—1. In a scaffold, the combination of a standard, a cleave thereon having an arm projecting upwardly and spaced from the standard, and a ledger supported upon the cleave having a bracket-receiving said arm.

2. In a scaffold, the combination with standards, of a bracket on a standard having an upwardly-extending arm spaced from the standard, a ledger supported on the bracket between the arm and the standard having a socket receiving said arm, and a cleave-coupling for the standards supported by the ledger.

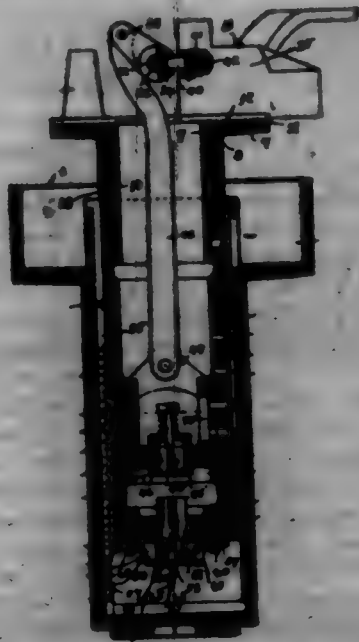
697,448. FAN. WALTER E. GUNNMAN, New York, N. Y. Filed July 12, 1901. Serial No. 67,908. (No model.)



Claim.—1. The combination with an electric motor M, and fan F, of the guard G, the series of slats D, pivotally supported in said guard G, and means for automatically moving said deflectors or slats D, by the direct action of the motor, substantially as herein set forth.

2. The combination of the electric motor M, the fan F, the guard G, a series of pivoted slats D, and mechanism for transmitting motion from the motor-shaft m, to said deflectors D, for the purpose and substantially in the manner described.

697,449. HYDRAULIC BARBER-CHAIR. TIMOTHY J. COLLIER, Toledo, Ohio. Filed Dec. 20, 1901. Serial No. 67,907. (No model.)



Claim.—1. In a hydraulic base for a chair, the combination with a cylinder adapted to be mounted vertically on a base and having a rack-bar secured vertical to its inner wall, of a tubular piston for the cylinder having a vertical longitudinal groove in its outer wall to receive the rack-bar as a guide for the vertical movement of the piston in the cylinder and prevent its rotation therein, and having its lower end closed and provided with a port normally closed by a check-valve; a locking-bar secured to the piston and normally engaging the rack-bar; a pump-plunger for the base of the piston; means to reciprocate the plunger in the piston; means to disengage the locking-bar from the rack-bar by the downward stroke of the plunger; and means to automatically reengage it therewith during the upward stroke of the plunger.

2. In a hydraulic base for a chair, the combination of a cylinder closed at the bottom and adapted to be mounted vertically on a base; a rack-bar secured vertical to the inner wall of the cylinder; a tubular piston for the cylinder having a vertical longitudinal slot to receive the rack-bar as a guide for the vertical movement of the piston in the cylinder and prevent its rotation therein, and having its lower end closed and provided with a port normally closed by a check-valve; a locking-bar normally secured to the lower end of the piston and held normally in engagement

ment with the rack-bar when the valve is closed, and adapted to be disengaged therefrom by the check-valve when the valve is opened; a pump mechanism mounted on the piston having a plunger adapted to reciprocate in the bore of the piston forming a barrel for the pump, and to open the check-valve by its downward stroke and disengage the locking-bar from the rack-bar; and means to automatically reengage the locking-bar with the rack-bar during the upward stroke of the plunger.

3. In a hydraulic base for a chair, the combination of a cylinder closed at the bottom and adapted to be mounted vertically on a base; a rack-bar secured vertical to the inner wall of the cylinder; a tubular piston for the cylinder having a vertical longitudinal slot to receive the rack-bar as a guide for the vertical movement of the piston in the cylinder and prevent its rotation therein, and having its lower end closed and provided with a part; a pump mechanism mounted on the piston having a plunger adapted to reciprocate in the bore of the piston, forming a barrel for the pump; a spring-closing check-valve for the part in the piston adapted to be opened by the downward stroke of the plunger; a spring-pressed locking-bar movably secured to the lower end of the piston and held normally in engagement with the rack-bar by the spring when the valve is closed, and adapted to be disengaged therefrom by the check-valve when the valve is opened; and a pump mechanism mounted on the piston having a plunger adapted to reciprocate in the bore of the piston, forming a barrel for the pump, and to open the check-valve by its downward stroke and disengage the locking-bar.

4. In a hydraulic base for a chair, the combination of a cylinder closed at the bottom and adapted to be mounted vertically on a base; a rack-bar secured vertical to the inner wall of the cylinder; a tubular piston for the cylinder having a vertical longitudinal slot to receive the rack-bar as a guide for the vertical movement of the piston in the cylinder and prevent its rotation therein, and having its lower end closed and provided with a part; a pump mechanism mounted on the piston having a plunger adapted to reciprocate in the bore of the piston, forming a barrel for the pump; a spring-closing check-valve for the part in the piston adapted to be opened by the downward stroke of the plunger; a spring-pressed locking-bar movably secured to the lower end of the piston and held normally in engagement with the rack-bar by its spring and having a central aperture with an inclined wall; and an axial projection from the valve extending through the aperture of the locking-bar, having an inclined face adapted to engage the incline of the locking-bar and withdraw the bar from its engagement with the rack-bar when the valve is opened by the plunger.

5. In a barber-chair, the combination with a support for the chair-body, rotatably mounted on a hydraulic base provided with a pump mechanism adapted to raise and lower the body of the chair, of locks respectively adapted to automatically lock the chair-body against rotation, and in various reclined positions; a shaft journaled in the support, adapted to be longitudinally shifted in its bearings between fixed limits; arms mounted on the shaft in position to unlock the locks when the shaft is shifted to its limit in one direction, a collar provided with an arm adapted to reciprocate the pump-plunger, loosely mounted on the shaft and adapted to be engaged by a clutch fixed on the shaft, when the shaft is shifted to its opposite limit; a spring-pressed locking-pin normally engaging the pump-arm collar, and locking it against movement and adapted to be automatically disengaged therefrom by the clutch, when brought into engagement with the collar, and a lever for oscillating the shaft.

6. In a barber-chair, the combination with a support for the chair-body, rotatably mounted on a hydraulic base provided with a pump mechanism adapted to raise and lower the body of the chair, of locks respectively adapted to automatically lock the chair-body against rotation, and in various reclined positions; a shaft journaled in the support, adapted to be longitudinally shifted in its bearings between fixed limits; arms mounted on the shaft in position to unlock the locks when the shaft is shifted to its limit in one direction, a collar provided with an arm adapted to reciprocate the pump-plunger, loosely mounted on the shaft and adapted to be engaged by a clutch fixed on the shaft when the shaft is shifted to its opposite limit; a lever for oscillating the shaft; and a leaf-spring adapted to be secured by one end to the chair-body and having the other end extending into an elongated slot in the shaft adapted to return the lever to its normal position when oscillated in either direction therefrom.

897,460. MAIL-BILL. ALBERT F. SUMNER, New Britain, Conn., assignor to Curtis United Lock Company, New Britain, Conn., a Corporation of Connecticut. Filed Feb. 21, 1901. Serial No. 42,987. (No model.)



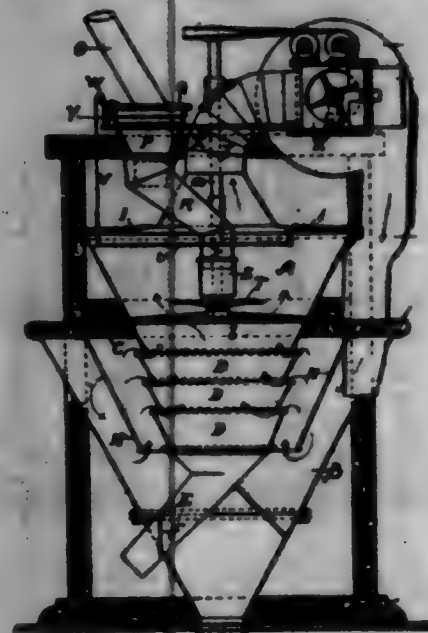
Claim.—1. A tubular mail-box closed at one end and having an attached door at the opposite end, and means for pivotally supporting said box at a point between its ends whereby the box is permitted to move in a vertical plane.

2. A self-signaling mail-box comprising a tubular shell closed at one end and having an attached door at its opposite end, and a pivotal connection between the box and a suitable support secured to one side of the tubular shell at a point between its extremities, substantially as described and for the purposes set forth.

3. A box hung pivotally and adapted by swinging on its pivot to occupy different positions in combination with spring-steps for its different adjustments, all substantially as described and for the purposes set forth.

4. In combination the round box pivotally hung and provided with an end door, said box being adapted, by swinging on its pivot, to occupy different positions in combination with spring-steps for its different adjustments, all substantially as described and for the purposes set forth.

897,461. MIDDLEBURY-FURIFIER. ALBERT S. CHASE, West Superior, Wis. Filed May 6, 1900. Serial No. 716,719. (No model.)



Claim.—1. A separator comprising concentrically-arranged upper and lower hoppers in open communication, a fan connected at its outlet-port with the upper hopper and a discharge-pipe leading from said fan to the lower hopper, a series of rings arranged below the upper hopper and spaced apart, a deflector in the lower hopper interposed between the fan-discharge opening and said rings and surrounding all of said rings, a discharge-spout below said rings leading out of the lower hopper, and a feed-spout opening into the upper hopper, substantially as described.

2. A separator comprising concentrically-arranged upper and lower hoppers in open communication, a fan connected at its outlet-port with the upper hopper and arranged to discharge into the lower hopper, a series of rings arranged below the upper hopper and spaced apart, a deflector in the lower hopper interposed between the fan-discharge opening and said rings, a discharge-spout below said rings leading out of the lower hopper, a revolving disk below the discharge end of the feed-spout, a floating lever pivoted at one end and suspended by a spring at its opposite end, a floating feed-hopper mounted on said lever and arranged to discharge into the feed-spout, a sleeve upon the discharge end of the feed-spout suspended from a second lever, said lever being fixedly pivoted at one end, and a cord trained around a pulley and connecting the other end of said lever with the free end of the floating lever, substantially as described.

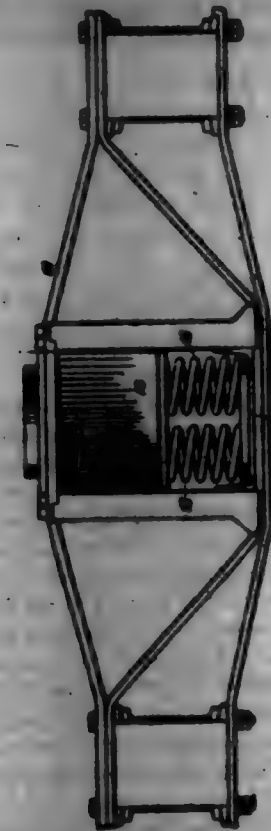
3. The combination with a separator and means for maintaining a circulation of air therethrough, of a feed-spout, a revolving disk below the discharge end of the feed-spout, a floating lever pivoted at one end and suspended by a spring at its opposite end, a floating feed-hopper mounted on said lever and arranged to discharge into the feed-spout, a sleeve upon the discharge end of the feed-spout suspended from a second lever, said lever being fixedly pivoted at one end, and a cord trained around a pulley and connecting the other end of said lever with the free end of the floating lever, substantially as described.

897,462. CAR-TRUCK. BENJAMIN A. CHASE, New York, N.Y. Filed Aug. 22, 1901. Serial No. 73,600. (No model.)

Claim.—1. In a car-truck, the side frame, the connecting-beam, the springs, and the bolster seated at its ends on said springs, combined with means pivotally connecting said bolster and beam and admitting of the vertical movement of said bolster; substantially as set forth.

2. In a car-truck, the side frame, the connecting-beam, the springs, and the bolster seated at its ends on said springs, combined with the

bolster seated on said bolster, and the bolster seated on said beam, one of said bolsters having the horizontal pivot-pin, and the other having the slot engaging said pin; substantially as set forth.



3. In a car-truck, the side frame, the connecting-beam therefor, the springs, and the bolster seated at its ends on said springs, combined with means intermediate said bolster and beam for permitting the tilting or turning of said bolster in a direction laterally of the truck and at the same time allowing said bolster to yield vertically; substantially as set forth.

4. In a car-truck, the bolster, and the springs supporting said bolster at its ends, combined with means for restraining said bolster against endwise movement and permitting said bolster to have a pivotal or rocking motion; substantially as set forth.

897,463. CORNERED TAIL AND KERN GUARD. CHARLES DANIEL, Spencer, Mass. Filed Feb. 27, 1901. Serial No. 68,104. (No model.)



Claim.—1. The combination with a crupper having its members provided each with a clip, of a combined tail and kern guard substantially circular in form and of greater diameter than the crupper, the terminals of the guard being passed through the clips and bent to prevent rotation that would operate to hold the guard associated with the clips.

2. The combination with a crupper provided on the upper side of its terminals with clips, of a tail-guard comprising a piece of wire bent in substantially circular form to include the crupper but of greater diameter than the same, the terminals of the wire being passed through the clips and bent upon themselves to prevent rectangular rotation, the clips being held associated with the wire-guides by the vertically-disposed members thereof, substantially as set forth for the purposes specified.

897,464. METHOD FOR ADJUSTING BELLS TO PULLEY. JAMES W. BRYAN, Chicago, Ill. Filed May 24, 1901. Serial No. 81,316. (No model.)

Claim.—1. A belt-adjuster comprising two pieces of metal of substantially equal lengths placed one upon the other, there being an elongated slot in each of said pieces, a bolt carried by each of said pieces and engaging the slot in the opposing piece, fastening-nuts applied to said bolts, and gripping-arms carried by said pieces, substantially as described.

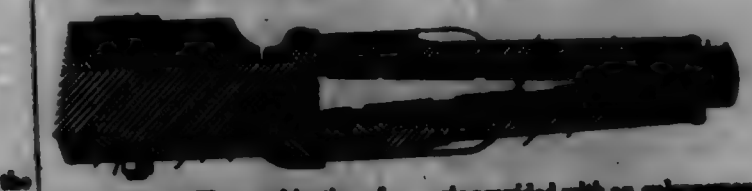
2. A belt-adjuster comprising two pieces of metal of substantially equal lengths placed one upon the other, there being an elongated slot in each of said pieces, a bolt carried by each of said pieces and engaging the slot in the opposing piece, fastening-nuts applied to said bolts, a pulley-gripping arm carried by one of said pieces, a belt-engaging arm carried by the other of said pieces, and being for said pulley-gripping arm, substantially as described.



3. A belt-adjuster comprising two pieces of metal of substantially equal lengths placed one upon the other, there being an elongated slot in each of said pieces, a bolt carried by each of said pieces and engaging the slot in the opposing piece, fastening-nuts applied to said bolts, a pulley-gripping arm carried by one of said pieces, a belt-engaging arm carried by the other of said pieces, a being for said pulley-gripping arm, and a handle applied to the belt-engaging arm, substantially as described.

4. A belt-adjuster comprising two pieces of metal of substantially equal lengths placed one upon the other, there being an elongated slot in each of said pieces, a bolt carried by each of said pieces and engaging the slot in the opposing piece, fastening-nuts applied to said bolts, a pulley-gripping arm carried by one of said pieces, a belt-engaging arm carried by the other of said pieces, a being for said pulley-gripping arm, and a handle applied to the belt-engaging arm, substantially as described.

897,465. AXLE-SPINDLE. THOMAS DE LA MARRE, Toledo, Ohio. Filed Aug. 20, 1901. Serial No. 73,900. (No model.)



Claim.—The combination of an axle provided with an enlargement forming a shoulder at its inner end and having a curved outer face, and a sleeve arranged on the axle and provided with an arm or extension having a curved recess to receive the enlargement, said sleeve being adapted to be partially rotated to engage the arm or extension with the enlargement and to disengage it therefrom, substantially as described.

897,466. LIGOTYPE-MACHINE. PHILIP T. DODGE, Washington, D.C., assignor to Ligotyper-Lithograph Company, a Corporation of New York. Filed Feb. 17, 1902. Serial No. 94,004. (No model.)



Claim.—1. A distributing mechanism having an upward inclination in the direction in which the matrices travel.

2. The distributor-bar inclined upward toward the delivery end, in combination with means for carrying the matrices upward along said bar.

3. The combination of the inclined distributor-bar and adjacent feed-covers, correspondingly inclined.

4. The inclined distributor-bar and the inclined elevator, in combination with means for carrying the matrices upward along the elevator toward the distributor.

5. In a ligotype-machine, a distributor inclined upward in the direction of matrix travel, in combination with matrix-carrying channels thereunder and matrices dovetailed at the lower end as described.

6. The inclined distributor-bar, in combination with an adjacent feed-cover, having its threads vertically disposed on the side adjacent to the bar.

897,467. GAME APPARATUS. ALBERT R. DUNN, Philadelphia, Pa. Filed Sept. 20, 1901. Serial No. 76,813. (No model.)

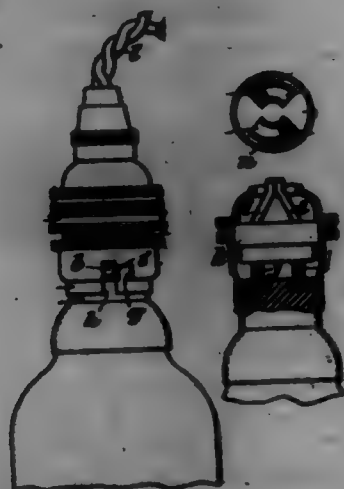
Claim.—1. A game apparatus comprising a rail having tapered extremities and an intermediate groove, and a bat having a reduced end adapted to engage the groove.

2. A game apparatus comprising a rail having tapered extremities and an intermediate circumferential groove, and a bat having a reduced end adapted to engage the groove.

3. A game apparatus comprising a cat having tapered extremities and an intermediate circumferential groove, and a bat having a rounded flattened end to engage the groove.



697,458. ELECTRIC LAMP AND LAMP-HOLDER. RICHARD J. DOWNS, London, England. Filed Oct. 28, 1901. Serial No. 28,522. (No model.)



Claim.—In combination, a tubular lamp-holder, or socket, a pair of split spring-plugs within the same, the edge of the holder projecting beyond the ends of the plug, a lamp having a neck adapted to telescope within said tubular holder, and metal contact-tubes embedded in the insulating material in the stem of the lamp, said plug being adapted to slide into and make perfect contact with said contact-tubes, substantially as described.

697,459. APPARATUS FOR UNRAILING RAW COTTON. RANSEN BARNES, Charles-Owen-Barry, near Manchester, and EDWARD R. MANNING, Middlesbrough, near Manchester, England. Filed Aug. 5, 1901. Serial No. 70,561. (No model.)



Claim.—1. In a machine of the type herein referred to a drawing-off roller driven by the rolling contact of the bale itself in combination with supports on which it is mounted, said roller being free to descend under the action of gravity as the bale descends in close proximity to the upper face of the bale substantially as and for the purpose set forth and shown.

2. In an unrailing-machine of the type herein referred to the combination with a drawing-off roller of a stripping-plate, means for securing said roller and plate together and means for mounting and guiding them, although leaving them free to descend by gravity in close proximity to the upper face of the bale substantially as and for the purpose set forth and shown.

697,460. TOOTH FOR REEDERS AND CULTIVATORS. EDWARD J. EDWARDS, La Crosse, Wis., assignor to Fountain City Bell Company, La Crosse, Wis. Filed Oct. 19, 1901. Serial No. 73,278. (No model.)

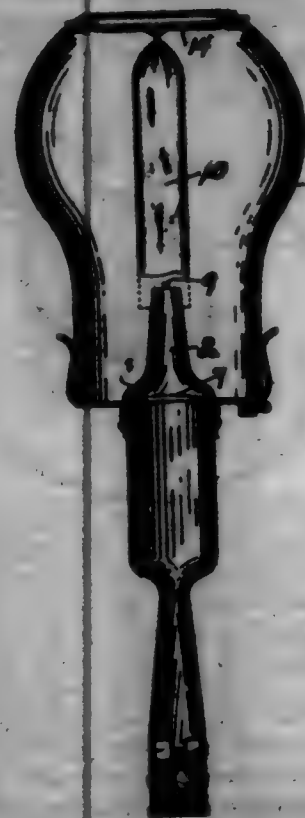


Claim.—1. The combination with drag-bar, of a spindle having bearings in said drag-bar, a tooth pivoted at one end to the drag-bar, a spring yoke or frame hinged between its ends on said spindle, links connecting one end of the yoke or frame with the tooth, a block secured to the drag-bar, and a spring normally holding the free end of said yoke or frame against said block.

2. The combination with drag-bar, of an angular spindle having bearings in said drag-bar, a tooth pivoted at one end to the drag-bar and having a horizontal series of holes therein, a spring yoke or frame hinged between its ends on said spindle, links connecting one end of the yoke or frame with any one of the holes in the tooth, a stop-block adjustably secured between the drag-bar, a spring secured to the spindle, coiled around the same and holding its other end against the said block and adapted to normally hold the free end of the yoke or frame against said block.

3. The combination with drag-bar, of an angular spindle having bearings in said drag-bar, a tooth pivoted at one end to the drag-bar, a spring yoke or frame hinged between its ends on said spindle, links connecting one end of the yoke or frame with the tooth, a stop-block adjustably secured between the drag-bar, inclined flanges at the ends of said block for regulating the position of said yoke or frame, and a spring normally holding one end of the yoke or frame against said inclined flanges.

697,461. GAS-BURNER. WILLIAM BARNES, Memphis, Tenn. Filed Aug. 31, 1901. Serial No. 74,048. (No model.)



Claim.—1. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet, a conical-shaped air-inlet tube above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

2. In a gas-burner, the combination with an independent mantle

and a suitable support therefor, of a contracted gas-inlet, a conical-shaped air-inlet tube concentrically located above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

3. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet, a conical-shaped air-inlet tube above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube, a gas screen over the upper end of said chamber, and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

4. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet, a conical-shaped air-inlet tube concentrically located above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube, a gas screen over the upper end of said chamber, and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

5. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet, an upwardly-converging conical-shaped air-inlet tube above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

6. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet on upwardly-converging conical-shaped air-inlet tube concentrically located above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

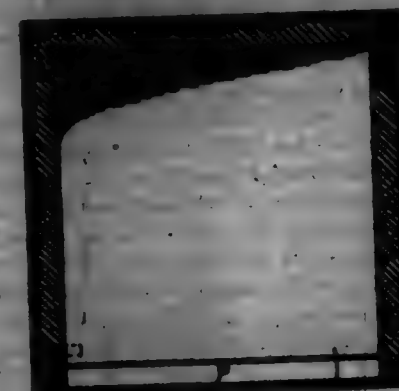
7. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet on upwardly-converging conical-shaped air-inlet tube above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube, a gas screen over the upper end of said chamber, and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

8. In a gas-burner, the combination with an independent mantle and a suitable support therefor, of a contracted gas-inlet on upwardly-converging conical-shaped air-inlet tube concentrically located above said gas-inlet, perforations around the bottom of said air-inlet tube, an enlarged mixing-chamber fixed to the upper end of said air-inlet tube, a gas screen over the upper end of said chamber and an upwardly-converging conical nozzle for said mixing-chamber, substantially as shown and described.

9. An improved Bunsen burner, for producing a self-burning mixture of air and gas, composed of an upwardly-converging hollow air-inlet cone into which the gas and air are admitted, a suddenly-enlarging mixing-chamber fixed to the top of said cone and an upwardly-converging conical nozzle, substantially as described.

10. An improved Bunsen burner, for producing a self-burning mixture of gas and air, composed of an upwardly-converging hollow air-inlet cone into which the air and gas are admitted, a suddenly-enlarged mixing-chamber carried by said air-inlet cone to check the flow of gas and air and cause their thorough admixture, and an upwardly-converging conical nozzle, to concentrate the flame, substantially as shown and described.

697,462. FUMIGANT-TRAP FOR SAWYER. RANSEN BARNES, Weymouth, Wis. Filed Aug. 9, 1901. Serial No. 71,027. (No model.)



Claim.—1. In a saw, the combination with the main shell having a cavity, of an inner removable receptacle, removable means for holding the inner receptacle against removal, a handle for the inner receptacle removably mounted thereon, a spring-pressed jaw mounted for movement to

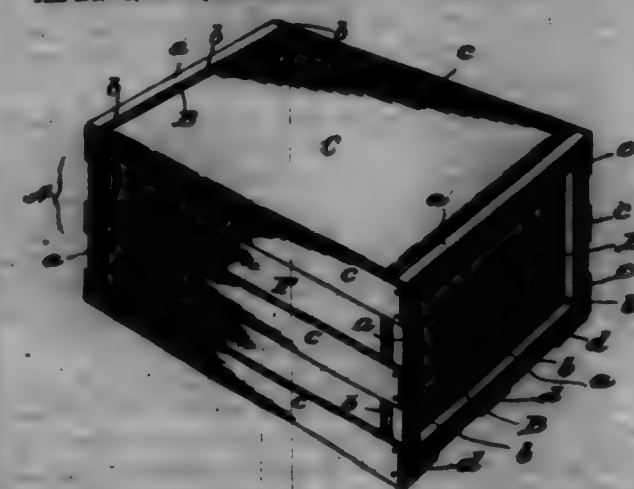
clamp against the handle and having a retaining means for holding it retracted, and connection between the handle and the retaining means for actuating the latter to release the spring-pressed jaw when the handle is moved with respect to the receptacle.

2. The combination with a receptacle of a trap including a movable handle, a jaw for movement to clamp against the handle, means for actuating the jaw, and a latch for holding the jaw retracted, said latch being contracted and arranged to release the jaw when the handle is moved with respect to the receptacle.

3. In a saw, the combination with the main shell having a cavity, of a receptacle removably disposed in the cavity, a removable bolt for retaining the receptacle, said receptacle having an opening in its front wall, a plate within the receptacle, a handle attached to the plate and passed outwardly through the opening, a spring-pressed jaw adapted to engage and exert a clamping action against the handle, and a latch-pivot pivoted to the plate for holding the jaw retracted, said latch having a beveled portion for engagement with a wall of the slot of the receptacle to move it pivotally and release the jaw.

4. The combination with a receptacle having a movable handle, of a spring-pressed jaw contracted and arranged to engage the handle, and retaining means for holding the spring-pressed jaw retracted, said retaining means having connection with the handle for actuation thereby to release the spring-pressed jaw when the handle is moved.

697,463. SHIPPING-PACKAGE. JEREMY T. FANNIN, Anderson, Ind., assignor to J. W. Fannin Manufacturing Company, Anderson, Ind., and Chicago, Ill., a Corporation of Indiana. Filed Aug. 13, 1901. Serial No. 71,781. (No model.)



Claim.—1. A shipping-package comprising an outer wooden crate and an inner lining composed of a series of four separate disengageable interlocking paper boards forming the top and bottom and the end and side walls, substantially as described.

2. A shipping-package comprising an outer wooden crate and an inner lining composed of a series of separate interlocking corrugated paper boards, the top and bottom being connected respectively with the front and rear side walls; substantially as described.

3. A shipping-package comprising an outer wooden crate and an inner lining of disengageable corrugated paper boards provided with interlocking flanges operating to hold the several boards of the lining in position; substantially as described.

4. A shipping-package comprising an outer crate and an inner lining formed of four separate pieces, two of said pieces constituting the end walls of the lining, another the bottom and front wall thereof hinged together, and the fourth the top and rear wall likewise hinged together and permitting said top to be swung upward to open position and downward to closed position; substantially as described.

5. A shipping-package comprising an outer crate and an inner lining formed of four separate pieces, two of said pieces constituting the end walls of the lining and the other two constituting, respectively, the bottom and front wall, and the top and rear wall, thereof, the rear wall being provided along its lower edge with an internal locking-flange resting upon the rear edge of the bottom of the lining, and the front wall being provided upon its upper edge with an internal flange to support the forward edge of the top of the lining in closed position; substantially as described.

6. A shipping-package comprising an outer crate and an inner lining formed of four separate pieces, two of said pieces constituting the end walls of the lining, and the other two constituting, respectively, the bottom and front wall, and the top and rear wall, thereof, and certain of said pieces being provided with locking-flanges operating to hold the several parts of the lining in position and prevent inward movement thereof; substantially as described.

7. A shipping-package comprising an outer crate and an inner lining composed of the two end pieces B B, the bottom E with the vertical front wall F hinged thereto and provided at its upper edge with the flange f, and the rear wall D having the top O hinged to its upper edge and provided at its lower edge with the flange f resting upon the rear edge of the bottom E; substantially as described.

8. A shipping-package comprising an outer crate and an inner lining composed of the two end pieces B B, the bottom E provided with the end flanges e e and having hinged to its forward edge the front wall F provided with like end flanges e e, the rear wall D provided with the end flanges e e and having hinged to its upper edge the top O provided with like end flanges e e, said end flanges e e being cut away at right angles to each other at their adjacent ends so that when the lining is assembled within the crate they will abut against each other and lock the top, bottom and sides of the lining against inward movement; substantially as described.

9. A shipping-package comprising an outer crate and an inner lining composed of the two end pieces B B, the bottom E provided with the end flanges e e and having hinged to its forward edge the front wall F provided with like end flanges e e and also with the flange f along its upper edge, and the rear wall D provided with the end flanges e e and bottom flange f and having hinged to its upper edge the top O provided with the end flanges e e and adapted to rest at its forward edge, when in closed position, upon the flange f at the upper edge of the front wall F; substantially as described.

10. The herein-described crate-lining, composed of four separate pieces, two of said pieces being duplicates of each other and constituting the end walls of the lining, and the other two pieces being also duplicates of each other and constituting, respectively, the bottom and front wall, and the top and rear wall, of said lining, the top being hinged to the upper edge of the rear wall so as to swing upward to open position or downward to closed position; substantially as described.

11. The herein-described crate-lining composed of four separate pieces, two of said pieces being duplicates of each other and constituting the end walls of the lining, and the other two being also duplicates of each other and constituting, respectively, the bottom and front wall of the lining with a longitudinal flange projecting from the upper edge of the front wall, and the rear wall and top of the lining with a longitudinal flange projecting from the bottom of the rear wall, the top being hinged to the upper edge of the rear wall so as to swing upward to open position or downward to closed position; substantially as described.

12. The herein-described crate-lining composed of four separate pieces, two of said pieces being plain flat boards constituting the end walls of the lining, and the other two pieces being duplicates of each other and constituting, respectively, the bottom and front wall of the lining, each provided with end flanges, and the top and rear wall of the lining, each also provided with end flanges, said end flanges being cut away at right angles to each other at their adjacent ends so as to abut together when the lining is assembled within the crate and lock the top, bottom and sides of the lining from inward movement; substantially as described.

13. The herein-described crate-lining composed of four separate pieces, two of said pieces being plain flat boards constituting the end walls of the lining, and the other two pieces being duplicates of each other and constituting, respectively, the bottom and front wall of the lining, each provided at its upper edge with a longitudinal flange, and the rear wall provided at its lower edge with a longitudinal flange adapted to rest upon the rear edge of the bottom of the lining, said end flanges of the top, bottom and sides being cut away at right angles to each other so as to abut together when the lining is assembled within the crate and lock said parts from inward movement; substantially as described.

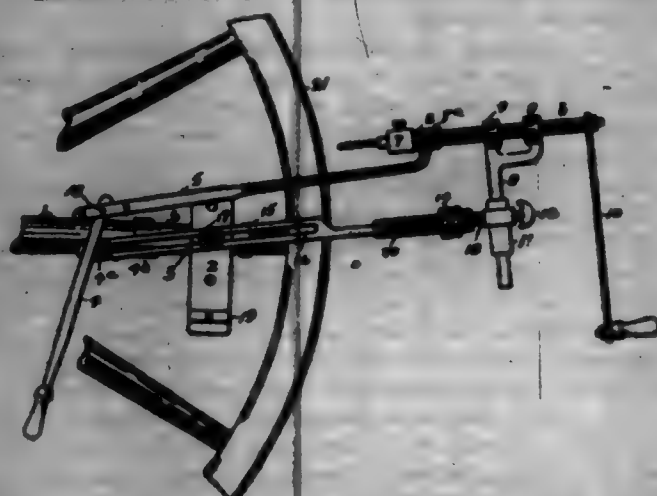
14. A shipping-package comprising an outer crate and an inner lining formed of two separate end pieces and two substantially similar pieces of two parts each hinged together, one of which pieces forms the bottom and one side wall and the other of which forms the opposite side wall and the top; substantially as described.

15. The herein-described crate-lining composed of four separate pieces, two of said pieces being duplicates of each other and constituting the end walls of the lining and the other two of said pieces also being duplicates of each other and constituting respectively the bottom and one side wall and the top and the other side wall; substantially as described.

16. The herein-described crate-lining composed of four separate pieces adapted to interlock and thereby form a supported unitary structure within the crate, two of said pieces being duplicates of each other and constituting the end walls of the lining and the other two of said pieces also being duplicates of each other and constituting respectively the bottom and one side wall and the top and the other side wall; substantially as described.

17. The herein-described crate-lining composed of four separate pieces two of said pieces being duplicates of each other and constituting the end walls of the lining and the other two of said pieces also being duplicates of each other and constituting respectively the bottom and one side wall and the top and the other side wall, said latter two pieces having flanges beveled at their ends to abut against each other when the lining is in position; substantially as described.

697,464. WHEELWRIGHT-MACHINE. FRANK W. FARR. Filed July 10, 1901. Serial No. 68,513. (No model.)



Claim.—1. In a wheelwright-machine the combination with a cutting mechanism, of a clamp for moving said cutting mechanism to a spoke, the said clamp having a plurality of seats or ribs for the attachment of said cutting mechanism whereby the latter may be adjusted for cutting a spoke, or the felly between spokes.

2. In a wheelwright-machine, the combination of a clamp to be secured to a spoke, a rod connected to said clamp, means for adjusting the rod to different positions on the clamp in a direction at right angles to the axis of the rod, a shaft carried by said rod, means on said shaft for securing a cutting-tool thereto, means for turning said shaft and means for moving the shaft longitudinally.

3. In a wheelwright-machine, the combination of a clamp to be secured to a spoke, a rod connected to said clamp, and disposed at right angles thereto, means for adjusting the rod to different positions on the clamp at right angles to the axis of the rod, a shaft carried by said rod, means on said shaft for securing a cutting-tool thereto, a crank for turning the shaft, and a lever pivoted between its ends and connected at one end to the shaft to move the latter toward or away from the spoke or wheel.

4. In a wheelwright-machine, the combination of a clamp to be secured to a spoke, a transverse rib on said clamp, a rod having a longitudinal slot to receive the rib, the said rod being adjustable longitudinally on the rib, means for locking the rod to the clamp, a rod adjustably secured to the outer end of the sliding rod and provided with bearings, a shaft mounted in said bearings and carrying a cutting-tool, a lever pivoted to the sliding rod at a point in rear of the clamp, and a link connecting said lever and shaft.

5. In a wheelwright-machine, the combination with a bar to be secured on a spoke, ribs on said bar, a rod slotted to receive either of said ribs, means for securing the rod on the ribs, another rod projecting at right angles to said first-mentioned rod and having a bearing for a shaft, means on said shaft for securing a cutting-tool thereto, means for turning said shaft, a lever pivoted between its ends on said first-mentioned rod and a link connecting one end of the lever with a collar loose on the shaft.

6. In a wheelwright-machine, the combination with a clamp to be secured on a spoke, a rod mounted on the clamp at right angles thereto, another rod adjustably secured to the outer end of said first-mentioned rod and bifurcated at one end, bearings in the bifurcated members of said last-mentioned rod, a shaft mounted in said bearings, a crank secured to the outer end of the shaft, a block on the inner end of the shaft to receive either a transverse or a bearing rib, a collar loose on the shaft, a lever pivoted between its ends on said first-mentioned rod, a link connecting said lever and collar and means for securing the first-mentioned rod at different adjustments on the clamp at right angles to the axis of the rod, to dispose the collar in line with a spoke, or in line with the tire between two spokes.

697,465. PROCESS OF MAKING CAUSTIC ALKALI. HAN A. FRANK, New York, N. Y. Filed Jan. 6, 1902. Serial No. 58,968. (No specimens.)

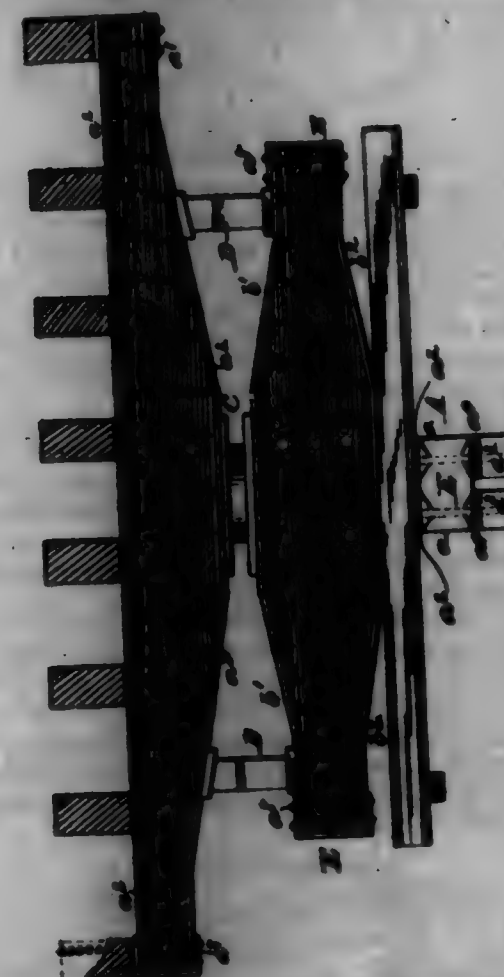
Claim.—1. An improvement in the process of making alkali, which consists in absorbing ammonia in a solution of a salt of an alkali, and adding thereto an acid of a metal capable of reacting with the ammonia and producing the alkali.

2. An improvement in the process of making caustic alkali, which consists in absorbing ammonia in a solution of a salt of an alkali, and adding thereto an acid of a metal capable of reacting with the ammonia and producing the caustic alkali.

3. The method of making caustic soda, consisting in absorbing ammonia in a solution of sodium salt, and converting the sodium salt into caustic soda by the addition of an acid of alkali.

4. The method of making caustic soda, consisting in absorbing ammonia in a solution of sodium chloride, adding thereto alcohol-hydrochloric acid, thereby producing caustic soda and alcohol-ammonium chloride, separating the latter from the caustic-soda solution, dissolving it in water, adding calcium hydroxide, and recovering the ammonia by distillation, and repeating the alcohol acid by suitable means, such as filtration.

697,466. RAILWAY-CAR BOLSTER. HARRY W. FARR, Detroit, Mich. Filed Jan. 21, 1901. Serial No. 68,561. (No model.)



Claim.—1. A railway-car bolster having its ends tapered on top and bottom, the metal of each end being reduced whereby the same amount of metal is retained at the ends, but the cross-section is substantially the same as that of the body portion.

2. A railway-car bolster having its ends tapered on top and bottom, in combination with another superposed bolster having its ends tapered on the bottom, the metal of each end being reduced whereby the same amount of metal is retained on the ends, but the cross-section is substantially the same as that of the body portion.

697,467. GATCH FOR PUMPS OR GAS FRAMES. ALBERT F. FOLLAN, Newark, N. J., assignor to the J. H. Margott Company, a Corporation of New Jersey. Filed Oct. 16, 1901. Serial No. 70,774. (No model.)



Claim.—1. In a pump or bag frame, the combination, with a pair of frame-sections, of a holding-rod on one of said frame-sections, and a holding projection or rod on the other of said frame-sections, said hold-

ing-rod comprising a cap-shaped plate, a finger-piece on said plate, a marginal projection on said plate with which said rod is adapted to be brought in holding engagement, a downwardly-projecting member on said holding-rod, extending through an opening in said frame-section, said downwardly-projecting member having a cut-away part 17, a holding-bag on said downwardly-projecting member, bent at a right angle thereto, or approximately so, and a spring secured to said frame-section, on arm 11 on said spring having its free end extending into said cut-away part 17, and a spring-tongue 10 in engagement with the said bag, substantially as and for the purposes set forth.

2. In a pump or bag frame, the combination, with a frame-section having a dotted part, of a holding-rod provided with a downwardly-projecting holding member extending through said dotted part, said downwardly-projecting member having a cut-away part 17, a holding-bag on said downwardly-projecting member, bent at a right angle thereto, or approximately so, and a spring secured to said frame-section, a short arm 11 on said spring having its free end extending into said cut-away part 17, and a spring-tongue 10 in engagement with the said bag, substantially as and for the purposes set forth.

3. In a pump or bag frame, the combination, with a frame-section having a dotted part, of a holding-rod provided with a means of pivotal connection extending through the said dotted part, and a spring secured at one end to the inner portion of said frame-section, on arm 11 on said spring having its free end in engagement with said means of pivotal connection for the oscillation of said holding-rod, and a spring tongue or arm 10 also in engagement with a portion of said means of pivotal connection of the said holding-rod, substantially as and for the purposes set forth.

4. The herein-described holding-rod for a pump or bag frame, comprising a cap-shaped plate 12, a finger-piece on said plate, a downwardly-projecting holding member 16 on said cap-shaped plate, and an inwardly-extending leg 10 on said member 16, substantially as and for the purposes set forth.

5. The herein-described holding-rod for a pump or bag frame, comprising a cap-shaped plate 12, a finger-piece on said plate, said finger-piece consisting, essentially, of a member 20, a rivet for securing said member to said plate, and a cap 21 on said member 20, a downwardly-extending holding member 16 on said cap-shaped plate, and an inwardly-extending leg 10 on said member 16, substantially as and for the purposes set forth.

697,468. VEGETABLE-PULLER. WILLIAM GALARRAGA, Bay City, Mich. Filed June 12, 1901. Serial No. 64,664. (No model.)



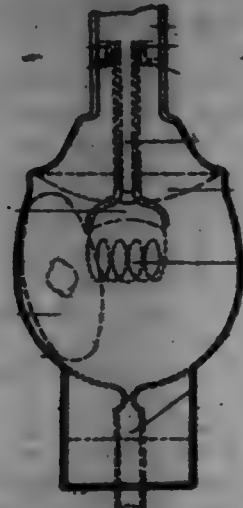
Claim.—1. In a vegetable-puller of the class described, the combination of a beam, a combined collar and standard, a horizontally-disposed shoe at the lower end of said combined collar and standard, a puller secured on the shoe at the ends thereof, said puller being disposed on one side of said combined collar and standard, having its center portion raised and inclining downwardly toward its ends, and a point at the front end of said shoe and puller, substantially as described.

2. In a vegetable-puller of the class described, the combination of a beam, a combined standard and collar secured thereto, a horizontally-disposed shoe at the lower end of said combined collar and standard, a puller extending in front and rear of said combined collar and standard, said puller secured to the ends of said shoe, said puller being disposed on one side of said combined collar and standard, having its front portion forming an ascending plane, and its rear portion forming a descending plane, and a point secured on the ascending front portion of said puller and on the front portion of said shoe, substantially as described.

697,469. METHOD OF MANUFACTURING INCANDESCENT ELECTRIC LAMPS. EDGAR S. GARDNER, Boston, Mass., assignor to Barnstable Electric Manufacturing Company, Portland, Me., a Corporation of Maine. Filed July 22, 1901. Serial No. 68,182. (No specimens.)

Claim.—1. The method of manufacturing incandescent electric

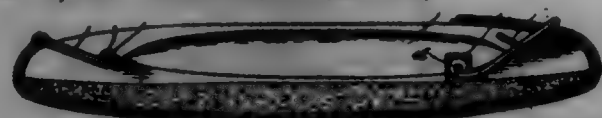
lamps, which consists, first, in inserting a reflector within the bulb, second, in passing through said reflector the stem carrying the filament, third, in moving the stem and reflector into position, fourth, in sealing the stem to the neck of the bulb, fifth, in exhausting the bulb, and lastly, in closing the tip.



2. The method of manufacturing incandescent electric lamps, which consists, first, in inserting through the end opposite the neck the reflector, second, in inserting through the end opposite the neck the stem carrying the filament, third, in passing said stem through said reflector, fourth, in moving the stem and reflector up into position, fifth, in sealing the stem to the neck of the bulb, sixth, in exhausting the bulb, and lastly, in closing the tip.

3. The method of manufacturing incandescent electric lamps, which consists, first, in cutting off the end of the bulb opposite the neck, second, in inserting the reflector through the open end opposite the neck, third, in inserting through the open end opposite the neck the stem carrying the filament, fourth, in passing said stem through said reflector, fifth, in moving the stem and reflector up into position, sixth in sealing the stem to the neck of the bulb, seventh, in exhausting the bulb, and lastly, in closing the tip.

697,470. FOLZHEIM. MILTON W. GAYNE, Cincinnati, Ohio. Filed Dec. 27, 1901. Serial No. 87,466. (No model.)



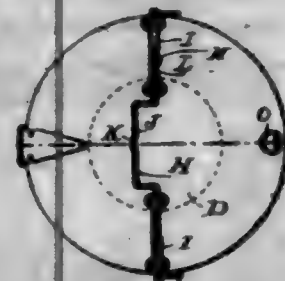
Claim.—In a pulley, the combination with a rigid block or body provided at or near one end with a pivoted loop and at or near its other end with a spring-clamp comprising torsional coil-spring portions received within a recess with which the lower face of the said body is provided, of a cushion attached to the lower face of said block or body, and a doubled strip of flexible material covering said cushion and removably attached to the said block or body by means of the said pivoted loop and spring-clamp.

697,471. DRAWER-GUIDE. WILLIAM E. HICKER, San Francisco, Cal. Filed Nov. 14, 1901. Serial No. 88,291. (No model.)



Claim.—In combination with a sliding drawer and its case, relatively narrow guide-strips A, hinged at their forward ends and adapted to bear against the drawer sides at points approximately midway between the top and bottom edges thereof, and devices for forcing the strips into contact with the sides of the drawer, each comprising an elongated flat metallic spring B curved intermediate of its ends to the inner surface of the wall of the case and having its respective ends projecting outwardly adjacent to the back of its strip, and means for securing said strip to the ends of said spring to permit automatic adjustment of the strip and a sliding engagement of both ends of the springs therewith, said means comprising U-shaped staples C secured to the strips and loosely surrounding the spring ends at each end thereof, substantially as described.

697,472. COOKING UTENSIL. HARRY GRIMM, Chicago, Ill. Filed Nov. 9, 1900. Renewed Mar. 10, 1902. Serial No. 88,981. (No model.)



Claim.—1. A cooking utensil comprising a receptacle, a cover hinged on said receptacle, a ball pivotally mounted on said cover, having its middle portion offset to form a handle, hooks formed on the ends of said ball, practically diametrically opposite said handle, adapted to be depressed as said handle is raised, legs on said receptacle adapted to be engaged by said hooks as said handle is raised, and a projection on said ball adapted to strike said cover as said ball is raised to prevent same from being turned past an upright position.

2. A cooking utensil comprising a receptacle, a cover hinged on said receptacle, a ball pivotally mounted on said cover, having its middle portion offset to form a handle, a projection on said handle portion adapted to hold said handle slightly above said cover when said ball is in its normal position, hooks formed on the ends of said ball, practically diametrically opposite said handle, adapted to be depressed as said handle is raised, legs on said receptacle adapted to be engaged by said hooks as said handle is raised, and a projection on said ball adapted to strike said cover as said ball is raised to prevent same from being turned past an upright position.

697,478. GARBAGE OR REFUSE CAN. EDWARD R. GEMAN, New York, N. Y., assignor to the Iron Can Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Jan. 22, 1901. Serial No. 84,368. (No model.)



Claim.—1. A nesting garbage or refuse can, having tapered side walls and provided with stop-faces integral with and projecting from said tapered walls and located in position to rest or bear upon the top or edge of another can of the same size and construction, and handles located above the said stop-faces, the said stop-faces serving as a means whereby the said cans may be loosely nested and also serving to separate the handles on adjacent cans so that a large free space is provided between the handles of adjacent cans.

2. A nesting refuse-can having tapered side walls and provided with means located in position to bear or rest upon the top or edge of another can of the same size and construction and integral with and projecting beyond the normal wall of the can and forming upper and lower walls merging into the lower wall of the can, and a hoop or band intermediate said upper and lower walls and effective to equalize the load.

3. A nesting refuse-can having tapered side walls and provided with means located in position to bear or rest upon the top or edge of another can of the same size and construction and integral with and projecting beyond the normal wall of the can and forming upper and lower walls merging into the lower wall of the can, and a hoop or band intermediate said upper and lower walls and effective to equalize the load, said hoop or band having its inner face substantially flush with the inner wall of the can whereby a substantially continuous and unobstructed inner surface is provided.

697,474. BABY-WALKER. CHARLES G. GLASSCOCK and JOHN W. GLASSCOCK, Minnola, Ind. Filed July 9, 1901. Serial No. 87,871. (No model.)



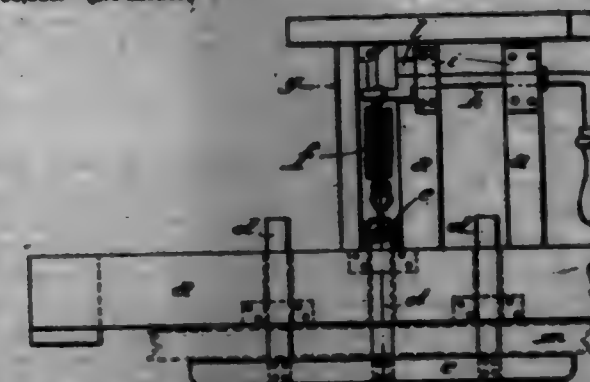
Claim.—1. In a baby-walker, the combination with a base-ring, of a body-ring located above the base-ring, and a standard connecting the base and body rings, said standard having an inwardly-extending arm provided with laterally-yieldable portions at its ends, the inner yieldable portion being connected to the body-ring, and the outer yieldable portion being secured to the base-ring, whereby said body-ring may yield laterally and vertically with respect to the base-ring.

2. In a baby-walker, the combination with a base-ring, of a body-ring located above the base-ring, a standard connecting the rings and comprising a stem depending from the body-ring, a stem projecting above the base-ring, and an intermediate offset portion having a yielding connection with said stems.

3. In a baby-walker, the combination with a base-ring, of a body-ring located above the base-ring, and a standard connecting the rings, said standard comprising a stem depending from the body-ring, a stem projecting above the base-ring, an intermediate offset arm, and coiled springs connecting the ends of the arm and the free ends of the stems.

4. In a baby-walker, the combination with a base-ring, of a body-ring located above the base-ring, a standard connecting the rings and comprising a stem depending from the body-ring and having an eye at its upper end secured thereto, a stem projecting above the base-ring and having a screw-threaded shank at its lower end passing through said base-ring, and an intermediate offset arm having a yielding connection with the free ends of said stems.

697,476. CLAMPING DEVICE FOR WORK-BENCHES. RICHARD G. MAER, Kunkirshen, Germany. Filed Dec. 13, 1901. Serial No. 88,303. (No model.)



Claim.—A clamping device for work-benches, comprising a jaw or clamping-bar C guided in a frame fixed to the bench in a suitable manner, a crank-shaft A mounted in the frame and by which the jaw may be moved, the crank-pin being connected to the movable jaw by means of the coiled spring F which is secured to the guiding-bar by regulating-screw e, a handle for throwing the crank from one dead-center to the other and a stop for said crank slightly past the outer dead-center.

697,476. CASH-REGISTER. PHILIP F. GANN, Chicago, Ill. Filed May 14, 1901. Serial No. 88,171. (No model.)

Claim.—1. In a cash-register or similar machine, a series of counters or

scorers adapted to be manually engaged and moved into scoring or counting position in a group containing one or more of such counters or scorers, and means for locking the remaining counters or scorers against movement while the advance counters or scorers remain in advanced position, as and for the purpose set forth.



2. In a cash-register or similar machine, a series of counters or scorers adapted to be manually engaged and moved into scoring or counting position in a group containing one or more of such counters or scorers, in combination with means for locking said counters or scorers in advanced or counting or scoring position, as and for the purpose set forth.

3. In a cash-register or similar machine, a series of counters or scorers adapted to be manually engaged and moved into scoring or counting position in a group containing one or more of such counters or scorers, means normally tending to return said counters or scorers to initial position, means for locking said counters or scorers in counting or scoring position, and means for releasing said lock, as and for the purpose set forth.

4. In a cash-register or similar machine, a series of counters or scorers adapted to be moved into scoring or counting position in a group containing one or more of such counters or scorers, means normally tending to return said counters or scorers to initial position, means for locking said counters or scorers in counting or scoring position, and means for releasing said lock, as and for the purpose set forth.

5. In a cash-register or similar machine, a series of counters or scorers adapted to be moved into scoring or counting position in a group containing one or more of such counters or scorers, means for locking said counters or scorers in counting or scoring position, and means for releasing said lock, as and for the purpose set forth.

6. In a cash-register or similar machine, a series of counters or scorers adapted to be moved into scoring or counting position in a group containing one or more of such counters or scorers, means normally operating to return said counters or scorers to initial position, means for retaining said counters or scorers in counting or scoring position, and means for releasing said lock, as and for the purpose set forth.

7. In a cash-register or similar machine, a series of counters or scorers adapted to be manually engaged and moved into scoring or counting position in a group containing one or more of such counters or scorers, means for locking the advanced counters or scorers in counting or scoring position, and means for locking the remaining counters or scorers in initial position, as and for the purpose set forth.

8. In a cash-register or similar machine, a series of counters or scorers adapted to be moved into counting or scoring position in a group containing one or more of such counters or scorers, means whereby when a group of such counters or scorers is moved to counting or scoring position the remaining counters or scorers are locked, and means operated by the return of the advanced counters or scorers for releasing said lock, as and for the purpose set forth.

9. In an apparatus of the class described, a support, a series of counters or scorers mounted to move relatively to said support, and a corre-

spending series of locking devices whereby when any one or more of the counters or scores are moved into counting or scoring position the remaining counters or scores are locked against movement, as and for the purpose set forth.

10. In an apparatus of the class described, a support, a series of counters or scores mounted thereon and adapted to be manually engaged and moved therealong, a locking device arranged when any one or more of such counters or scores are moved into counting or scoring position to lock the remaining counters or scores against movement into counting or scoring position, as and for the purpose set forth.

11. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement relatively thereto, a stop device pivotally mounted upon said support and so arranged that when one or more of said counters or scores is moved into counting or scoring position the remaining counters are locked against movement toward or into counting or scoring position, as and for the purpose set forth.

12. In an apparatus of the class described, a series of counters or scores mounted thereon for movement therealong, a corresponding series of stop devices pivotally mounted upon said support, said stop devices operating, when any one or more of said counters or scores are moved toward counting or scoring position, to lock the remaining counters or scores against movement into counting or scoring position, as and for the purpose set forth.

13. In an apparatus of the class described, a support, a series of counters or scores mounted for movement thereon, a part pivotally suspended upon said support and arranged to yield in one direction, a stop pin for limiting the rocking movement of said part in the opposite direction, as and for the purpose set forth.

14. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, a corresponding series of locking-pawls pivotally suspended from said support and arranged a distance apart corresponding to the transverse thickness of a counter or score, as and for the purpose set forth.

15. In an apparatus of the class described, a support, a series of movable counters or scores mounted thereon for movement therealong, a corresponding series of locking-pawls pivotally suspended from said support, said counters or scores arranged to engage said pawls, said pawls being arranged to yield in one direction, and means for flexing a stop for said pawls in the opposite direction, as and for the purpose set forth.

16. In an apparatus of the class described, a support, a series of counters or scores mounted thereon, a locking device carried by said support, a rod connected to said locking device, one of said counters or scores arranged to engage said rod, when in counting or scoring position, to lock the same against movement, as and for the purpose set forth.

17. In an apparatus of the class described, a support, counters or scores mounted for movement thereon, movable stops suspended from said support, a rod connecting said stops, and means arranged to engage said rod when one or more of said counters or scores are in counting or scoring position, to lock the same, as and for the purpose set forth.

18. In an apparatus of the class described, a support made in relatively movable sections, a series of counters or scores mounted upon said support, one of said sections adapted to receive said counters or scores when out of counting or scoring position, and the other of said sections adapted to receive said counters or scores when in counting or scoring position, to bring devices for locking said counters or scores in counting or scoring position, and means actuated by the movement of said movable sections for releasing said lock, as and for the purpose set forth.

19. In an apparatus of the class described, a support, counters or scores mounted for movement thereon, locking devices for holding said counters or scores in counting or scoring position, and including a movable bar, means for engaging said bar when one or more counters or scores are in counting or scoring position, for locking the same against movement, and means for releasing said bar from locking position, as and for the purpose set forth.

20. In an apparatus of the class described, a support, a series of counters or scores mounted thereon, the first or initial counter or score provided with a projection, means for locking said counter or score in counting or scoring position, including a movable bar, said bar arranged to engage said projection, and means for moving said bar out of engaging relation with respect to said projection, as and for the purpose set forth.

21. In an apparatus of the class described, a support made in relatively movable sections, a series of counters or scores mounted for movement upon said support, locking devices carried by one section of said support for locking said counters or scores in initial position, and locking devices carried by the other section of said support for locking said counters or scores in counting or scoring position, and means actuated by the movement of said movable sections for releasing said locking mechanism, as and for the purpose set forth.

22. In an apparatus of the class described, a support having a stationary section and a relatively movable section, a series of counters or scores mounted for movement upon said support, locking-pawls pivotally suspended from said supporting-sections and arranged to engage said counters or scores to lock the same, and means for moving said movable section whereby the locking-pawls carried thereby are released, as and for the purpose set forth.

23. In an apparatus of the class described, a support, a series of counters or scores mounted thereon including an initial or primary counter, means normally operating to maintain said initial or primary counter or score in retracted position, whereby all of said counters or scores are retained normally in retracted position, stop devices for said score, whereby when any one or more of said counters are moved from said initial or retracted position the remaining counters are locked against movement, and means for locking said initial or primary score in advanced position, as and for the purpose set forth.

24. In an apparatus of the class described, a support, a casing including said support, a series of counters or scores mounted on said casing for movement therealong, said casing being slotted, said counters provided with projections extending into said slot, and stop devices carried by said support, as and for the purpose set forth.

25. In an apparatus of the class described, a hollow or tubular casing, a series of counters or scores arranged to be strung upon said casing for movement therealong, and stop devices carried by said casing, as and for the purpose set forth.

26. In an apparatus of the class described, a hollow casing, a support arranged therein and including a stationary section and a movable section, stop devices carried by said sections, and counters or scores mounted upon said casing and movable therealong, and arranged to be engaged and locked by said stop devices, as and for the purpose set forth.

27. In an apparatus of the class described, a hollow or tubular casing, a stationary supporting-section mounted therein, a rocking supporting-section also mounted within said casing, stop devices carried by each of said supporting-sections, a series of counters or scores adapted to be strung upon said casing, and means for rocking said supporting-section, as and for the purpose set forth.

28. In an apparatus of the class described, a support, a series of counters or scores movably mounted thereon and each provided with a handle whereby said counters or scores may be grasped and moved with reference to said support and into counting or scoring position, and means for locking said counters or scores in counting or scoring position, as and for the purpose set forth.

29. In an apparatus of the class described, a support, a series of counters or scores movably mounted thereon and each provided with a grasping-handle, said grasping-handles being arranged in staggered relation, whereby said counters or scores may be moved into counting or scoring position, locking devices for locking said counters or scores when advanced to counting or scoring position, and means for releasing said locking devices, as and for the purpose set forth.

30. In an apparatus of the class described, a support, a series of counters or scores movably mounted thereon and each provided with indicating devices, means for moving said counters or scores into counting position, locking devices for locking the same in advanced or scoring position, and means for releasing said locking mechanism, as and for the purpose set forth.

31. In an apparatus of the class described, a support, a series of indicators arranged to move thereon, each counter or score carrying an indicating device adapted to disclose the value thereof to denote the amount of the purchase, and means whereby each counter or score when in counting or scoring position will conceal the indicator of the preceding counter or score, as and for the purpose set forth.

32. In an apparatus of the class described, a support, a series of counters or scores sliding thereon for movement therealong, and adapted to be moved from initial or normal position into counting or scoring position, an indicator-plate mounted on each counter or score, the indicator-plate of each counter or score being arranged to lap past the indicator-plate of the preceding counter or score when said counters or scores are in counting or scoring position, as and for the purpose set forth.

33. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, an indicator-plate carried by each counter or score, said indicator-plates being of S shape in cross-section, whereby when the counters or scores are in counting or scoring position the indicator-plates of each counter or score will conceal the indicator-plate of the preceding counter or score, as and for the purpose set forth.

34. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, and adapted to be moved from initial or retracted position into advanced or counting or scoring position, means for locking the counters or scores in advanced or counting position, and means operating to lock the remaining counters, and an alarm-signal arranged to be actuated when any one or

more of the counters are moved to counting or scoring position, as and for the purpose set forth.

35. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, one of said counters or scores provided with a projection, an alarm-signal arranged in the path of movement of said counters or scores and adapted to be engaged by said projection, whereby when said counters are moved into counting position said alarm-signal is actuated, as and for the purpose set forth.

36. In an apparatus of the class described, a support, a series of counters or scores mounted thereon, all of equal value, means for moving said counters or scores into counting or scoring position, and a registering mechanism arranged to be actuated by the movement of each of said counters or scores into counting or scoring position, as and for the purpose set forth.

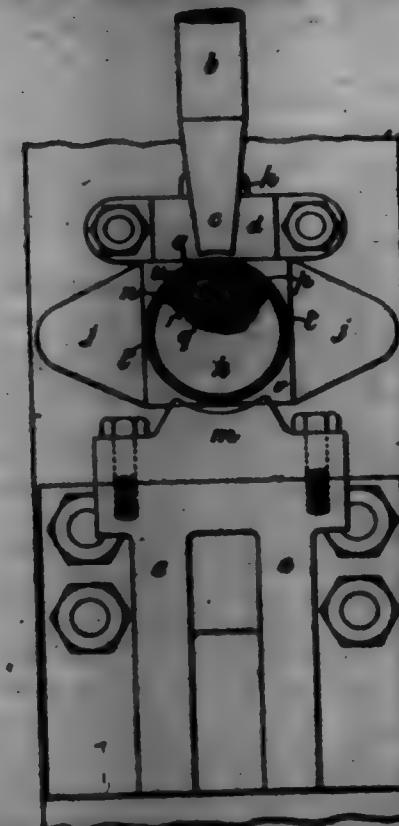
37. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, a projection carried by each of said counters or scores, a registering mechanism arranged to be engaged and actuated by the projection on each of said counters or scores as they are moved thereon into counting position, and means for preventing actuation of said registering mechanism during the return movement of said counters or scores, as and for the purpose set forth.

38. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, a pivoted part mounted upon each counter or score, a registering mechanism arranged to be engaged by the pawl on each of said counters or scores when moved toward counting or scoring position, said pawls yielding to prevent movement of said registering mechanism when said counters are returned to initial position, as and for the purpose set forth.

39. In an apparatus of the class described, a support, a series of counters or scores mounted thereon for movement therealong, said counters or scores adapted to be moved into counting or scoring position, means for locking said counters or scores in advanced or counting or scoring position, and means for releasing said lock, in combination with a catch-drawer, device for normally holding said drawer in closed position, and means actuated by the release of said lock for releasing said drawer-holding means, as and for the purpose set forth.

40. In an apparatus of the class described, a support, a series of counters or scores mounted thereon and adapted to be moved into counting or scoring position, locking devices for locking said counters or scores in advanced or scoring position, releasing mechanism for said locking devices, in combination with a catch-drawer, means for retaining said drawer in closed position, and means actuated by said releasing mechanism for releasing said retaining mechanism, as and for the purpose set forth.

697,477. FRAMES FOR WORKING SHEET METAL. HENRY F. SHAW, Flintley, and WALTON R. SHAW, London, England. Filed Feb. 28, 1901. Serial No. 57,148. (No model.)



Claim.—1. The combination, in a press, of a standard, a punch, a bar, guide-rollers on said bar, guides on said standard for guiding said

bar, a spring acting on said bar, and a guide arranged in the path of said bar, substantially as, and for the purpose, heretofore described.

2. The combination, in a press, of a punch, a standard, guide-rollers on said standard, a shaft in said standard, a bar on said shaft, a spring acting on said bar, guide-rollers on said bar, corresponding guide-rollers on said standard, a bar on said bar, and a correspondingly-shaped guide arranged in the path of said bar, substantially as described.

3. The combination, in a press, of a standard, a punch, a bar, a recess in the surface of said bar, a movable blade forming one edge of said recess, springs acting outwardly on said blade, a stop for limiting the outward travel of said blade, guide-rollers on said standard and on said bar, a spring acting on said bar, and a guide arranged in the path of said bar, substantially as described.

697,478. COIN-CONTROLLED TOY. WILLIAM C. HARRIS, Chester-on-Edw., near Manchester, England. Filed Feb. 1, 1901. Serial No. 48,992. (No model.)



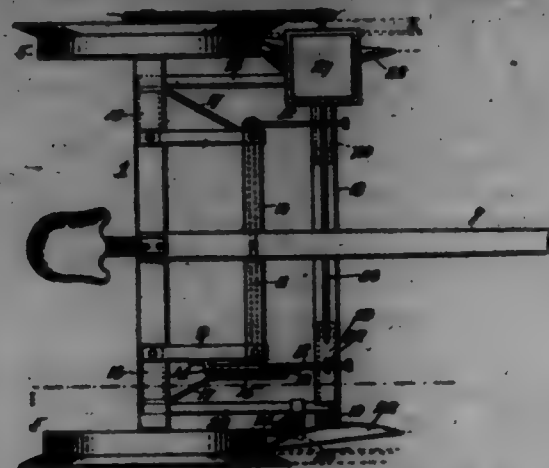
Claim.—1. In a coin-controlled toy, two toy figures, fixed side by side, each figure having a loose leg and arm and a link connecting each leg and arm, and a stand to which the feet and the top of the leg is connected, so that by the inclining of the figure the arm is caused to move radially upward and toward the other figure, a lever adjacent to each figure, a head on each lever, a link-rod connecting the levers, and coin-controlled mechanism, substantially as and for the purposes herein set forth.

2. In a coin-controlled toy, two plates representing the body parts of two toy figures, stands on which said figure-plates are mounted, and an inclined box or casing within which the stands are fixed, an arm fixed on each of the said figure-plates, a leg with slot connected to each plate, a further end within the box or casing and on which the said loose leg is mounted, a loose arm pivotally connected to each figure-plate, a link pivotally connected to the loose arm and leg of each figure-plate, means for independently moving the plates upon their axes, a lever alongside each figure-plate, a pin on the plate and on which the said lever is mounted, a toy head on the upper end of said lever, and a link or connecting rod common to both figure-plate levers connected to the opposite end, a pair of coin-slides in the said casing and adjacent to the said figure-plate-operating means, spiral-plates pivotally mounted on the sides of the casing, a bar or link connecting each plate, and a rod connecting the said bar to the connecting-link of the levers, substantially as and for the purposes set forth.

3. In a coin-controlled toy, a casing, two toy figures of the kind described pivotally supported within said casing, a set of link-rod chains, a set of spiral-plates with slots upon the sides of each chain, a link or bar connecting the spiral-plates, and means for connecting each link or bar to a link by which parts of the toy figures are connected to each other, as set forth.

4. In a coin-controlled toy, a pair of coin-latch chains, plungers for operating toy figures, a pair of levers, one arm of each lever lying below one of the latch-chains, and the other arm lying adjacent to one of the said plungers, a bar or cross-piece upon each arm, a collar with flange upon each plunger, and a fixed guide or abutment, between which latter and the said collar the cross-piece of the lever-arm assembly lies, as set forth.

697,479. SEED-PLANTER. THOMAS E. HARRINGTON, Newbury, Mo. Filed Dec. 21, 1900. Serial No. 41,799. (No model.)



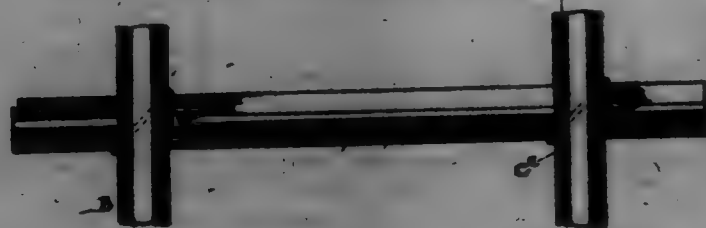
Claim.—1. In a seed-planter machine, a suitable frame, means carried thereby for forming parallel furrows in the ground and for dropping seed in said furrows, means also carried by said frame for making companion parallel furrows and incidentally filling the first-named furrows with the displaced earth, and means for pressing or packing down the earth thus filled in said first-named furrows, substantially as described.

2. In a seed-planter machine, a suitable frame, cutting-disks journaled therein and adapted to furrow the ground in parallel lines, seed-dropping devices mounted on the frame, above adjacent to the disks to hold back the earth and insure the deposit of the seed at the proper depth in the furrow, drive-wheels mounted on the frame, and following in the wake of the disks, and comprising flanges which open up furrows outward of and parallel with the disks furrows and incidentally fill in the furrows of the latter after the seed is dropped therein, and tread-rollers which pack the earth in the disk-furrows thus filled, substantially as described.

3. In a seed-planter machine, a suitable frame, a secondary frame in front of and pivotally linked to the main frame, means to raise and secure said secondary frame at the desired point of adjustment, furrow-making devices secured to the secondary frame, seed-dropping devices, means to insure the deposit of the seed at the proper depth in the furrows made by said furrow-making devices, means for making companion parallel furrows and incidentally filling the first-named furrows with the displaced earth, and means for pressing or packing down the earth thus filled in said first-named furrows, substantially as described.

4. In a seed-planter machine, a suitable frame, a secondary frame in front of and pivotally linked to the main frame, means to raise and secure said secondary frame at the desired point of adjustment, furrow-making devices secured to the secondary frame, seed-dropping devices, means to insure the deposit of the seed at the proper depth in the furrows made by said furrow-making devices, and wheels for operating the seed-dropping devices and comprising a tread-roller, and an annular cutting-flange of greater diameter than the wheel proper and adapted to make a furrow parallel with the first-named furrows and fill the latter with the displaced earth, the said tread-roller being adapted to press or pack down the earth thus filled in, substantially as described.

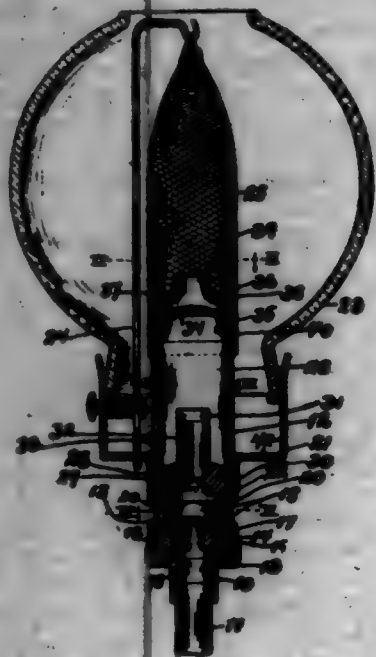
697,480. RAILWAY-TIE. ALBERT J. HARRIS, Elmhurst, Ill. Filed June 20, 1901. Serial No. 65,282. (No model.)



Claim.—1. A metallic railway-tie having a broad base, the vertical web portion of the tie being formed with coats of a width substantially equal to the base-flanges of the rails, and clamps extending beneath the rails and engaging the base of the tie, said clamps having bent ends interlocking with the base-flanges of the rails on opposite sides of said web portion of the tie.

2. A metallic railway-tie having a broad base, a narrow vertical web or body portion provided with means to receive the base-flanges of the rails and U-shaped clamps having inwardly-bent upper ends, said clamps extending diagonally beneath the tie and rails, the bent upper ends of the clamps overlapping the base-flanges of the rails.

697,481. GAS-BURNER. JOHN HARRIS, Cleveland, Ohio, assignor to Samuel Holmes Smart, trustee, Wiloughby, Ohio. Filed Aug. 19, 1901. Serial No. 72,500. (No model.)



Claim.—1. A gas-burner having the following: an upright tube 12; a mixing-chamber 26 formed within the tube and having its upper end gradually reduced upwardly; a head 36 provided at the upper end of the tube and having an upwardly-discharging port 37 whose lower portion is enlarged downwardly; an upwardly-bulging screen 34 arranged between the lower end of the said port 37 and the upper reduced end of the mixing-chamber, and means for supplying air and gas to the mixing-chamber.

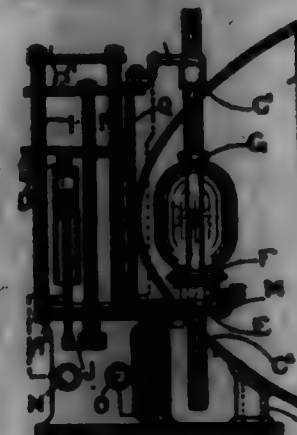
2. A gas-burner having the following: an upright tube 12; a mixing-chamber 26 formed within the tube; a bushing 35 removably secured within the upper portion of the tube and having the inner wall thereof flaring downwardly, with the upwardly-reduced space within the said bushing forming the upper portion of the mixing-chamber; a screen 34 resting upon the upper end of the said bushing; a head 36 provided at and removably secured within the upper end of the tube and arranged to hold the screen against the aforementioned bushing, which head has an upwardly-discharging port 37 whose lower portion flares downwardly toward the screen, and means for supplying air and gas to the mixing-chamber.

3. A gas-burner having the following: a vertically-arranged tube 12, a chamber 17 formed within the lower portion of the said tube, a mixing-chamber 26 formed within the tube above the first-named chamber; a head 36 provided at the upper end of the tube and having a centrally-located upwardly-discharging port 37 whose lower portion is enlarged downwardly; an upwardly-bulging concave-convex screen 34 held in place within the tube at the lower end of the said head; an upright part 27 formed in and centrally of the wall located between the said chamber 17 and the mixing-chamber 26 with its lower end flaring downwardly and with its upper end flaring upwardly, and means for supplying air and gas to the lower chamber 17.

4. A gas-burner having the following: an upright tube 12; a chamber 17 formed within the lower portion of the said tube; lateral apertures or inlets 18 formed in the surrounding wall of the said chamber; a sleeve 19 rotatably embracing the lower portion of the tube 12 and having lateral apertures or holes 20 arranged to register with the said lateral inlets 18; a mixing-chamber 26 formed in the upper portion of the tube 12; an upright part 27 formed in and centrally of the wall located between the said chamber 17 and the mixing-chamber 26 and having a downwardly-flaring lower end and flaring upwardly at its upper end; a head 36 provided at the upper end of the tube 12 and having a centrally-located upwardly-discharging port 37 whose lower portion is enlarged downwardly and whose upper end has a slight internal annular flange having a downwardly-flaring under side, and means for discharging gas upwardly into and centrally of the said lower chamber 17 opposite the air-inlets 18.

5. A gas-burner having the following: an upright tube; a mixing-chamber 26 formed within the tube and having its upper end gradually reduced upwardly; a head 36 provided at the upper end of the tube and having an upwardly-discharging port whose lower portion is enlarged downwardly; means for supplying air and gas to the lower end of the mixing-chamber, and a screen arranged between the lower end of the said head 36 and the upper extremity of the gradually-reduced upper end of the mixing-chamber and vent adjacent to the said extremity.

697,482. ELECTRIC-ARC LAMP. CHARLES E. HARTMAN, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Oct. 22, 1900. Serial No. 24,682. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a fixed carbon-holder, a movable carbon-holder, a magnet located below the movable holder, an armature clamped below and movable toward or away from the magnet, a rod extending from the armature to the holder and forming the sole retaining means, guides for the rod, and guides for the carbon-holder.

2. In an arc-lamp, the combination of a box-like support, a reflector, an extension on the support to which the reflector is secured, a pair of retentive magnets, movable covers therefor, a yoke connecting the covers, a carbon-holder, a guide for the holder, and a rod which is secured to the yoke and the holder so that as the covers are removed, the position of the cover within the retentive magnet varies for a given length of arc.

3. In an electric-arc lamp, the combination of a base, a pair of solenoids mounted thereon, a head or plate connecting the solenoids at the top and acting also as a guide, an armature for the solenoids, a carbon-holder, a rod connecting the armature and said holder which passes through the head and is guided thereby, and a pair of guides on which the holder travels.

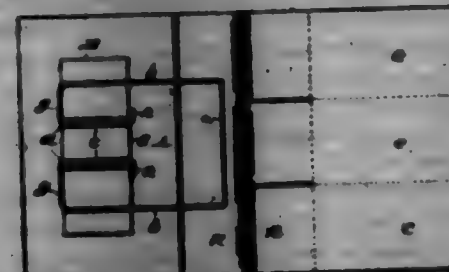
4. In an electric-arc lamp, the combination of a box-like base, a pair of solenoids secured to the outside of the box, a core for each solenoid, a yoke for connecting the cores which is located within the box, a head or plate connecting the magnets, a dash-pot, one portion of which is secured to the plate and the other portion to the yoke within the box.

5. In an electric-arc lamp, the combination of a combined globe and carbon holder, a clamp for holding the globe, means for securing the carbon, a support for the holder comprising a plate having a slotted opening and extending core, and a clamping-cover for drawing the core together in a manner to secure the holder.

6. In an electric-arc lamp, the combination of a base, an actuating-magnet, a core threaded into the outside of the base, a core for each solenoid, a yoke for connecting the cores which is located within the base, a head or plate connecting the magnets, a dash-pot, one portion of which is secured to the plate and the other portion to the yoke within the box.

7. In an electric-arc lamp, the combination of a fixed carbon-holder, a movable carbon-holder, a base, a pair of magnets mounted on the base, a plate connecting the magnets at their upper ends, a core for the magnets, a rod clamped between the magnets for connecting the core with the movable carbon-holder, which rod passes through the plate and is guided thereby, and a pair of vertically-extending rods which pass through the plate to the upper-carbon holder and act as guides thereby.

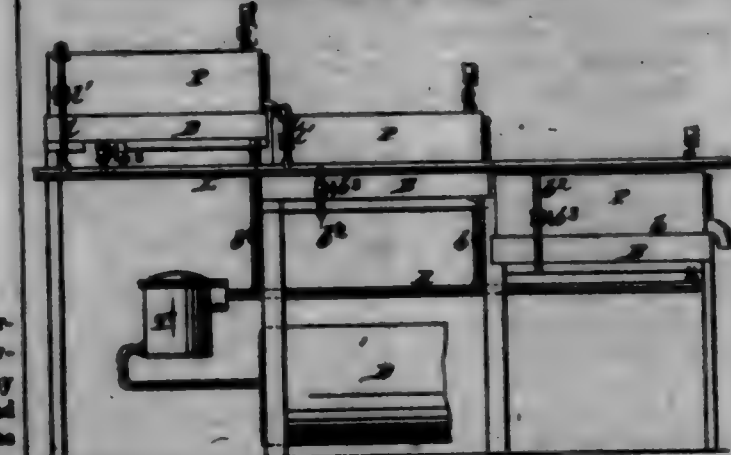
697,488. STUD-HOLDER FOR CHECK-BOOKS. WILLIAM E. HAVEN, Springfield, Mass. Filed July 22, 1901. Serial No. 69,461. (No model.)



Claim.—A stud-holder constructed from spring-wire comprising an open frame having a stud-engaging border, borders extending laterally from the stud-engaging border, frame-terminals opposite the stud-engaging border extending in parallelism inwardly the ends of the frame-terminals being bent, parts of the frame connecting the borders extending laterally from the stud-engaging border with the frame-terminals, means securing the frame to a book-cover consisting of a paper or like board

having transverse surface grooves to receive the frame-terminals, said board being cemented to the book-cover, thereby firmly uniting said frame and cover, substantially as described.

697,484. EVAPORATING-PAN. JAMES E. HILL and JOHN RIVETT, Worcester, Mass., assignors to Abbot Augustus Low, Brooklyn, N. Y. Filed Sept. 20, 1901. Serial No. 75,795. (No model.)

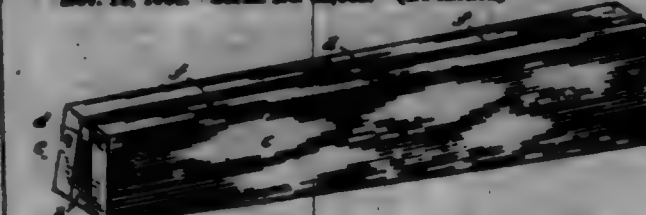


Claim.—1. The combination with a hollow rectangular base having flanges upon its upper side, of the rectangular evaporating-pan removably supported on the base and held within said flanges, means for supplying steam to the interior of the said base, coils in said pan, a connection between said coils and the interior of the base, and a return-pipe connecting said base with a trap, substantially as described.

2. The combination with a rectangular hollow base having flanges on its upper face, of a rectangular evaporating-pan removably supported thereon and held within said flanges, alternately-disposed partitions in said pan, a coil in the pan divided into sections by said partitions, means for supplying steam to the interior of said base, a connection between said coil and the base, a trap, and a return-pipe connecting the base and trap, as set forth.

3. The combination of a plurality of open evaporating-pans arranged upon different horizontal planes, separable hollow bases therefor forming steam-jackets, an independent coil in each pan, an outlet from the one pan to the next, a steam-supply pipe, a connection from the same to each of the coils, a connection from each coil to the steam-jacket of said pan, a connection from each steam-jacket to the said steam-supply pipe, a trap, a connection from each jacket to said trap, and means connected to said trap for utilizing the heat thereof, as set forth.

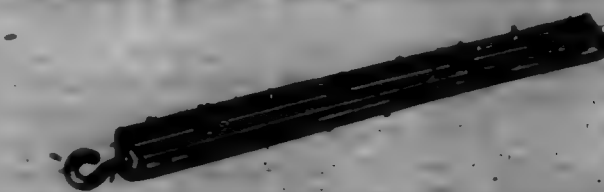
697,485. CONDUIT. WILLIAM HOUTON, Norfolk, Wash. Filed Nov. 12, 1901. Serial No. 80,082. (No model.)



Claim.—1. A conduit made trough-shaped and formed with inclined sides and bottom, substantially as described.

2. The conduit, having inclined bottom 4, inclined sides 5, and distance-pieces 6, substantially as described.

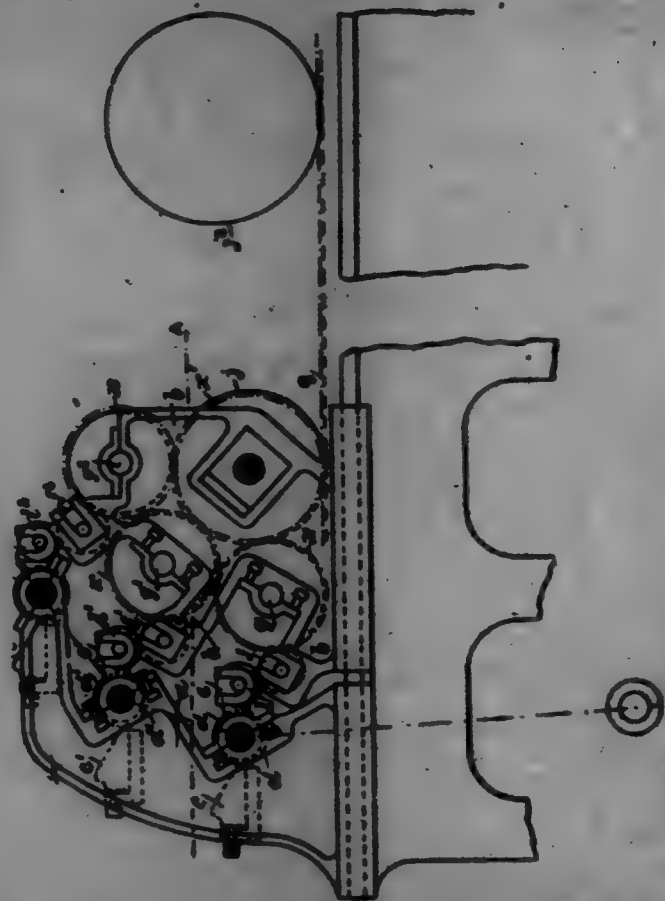
697,486. ATTACHMENT FOR BRIDLES. JAMES A. BULL, Chicago, Ill., assignor of one-half to George W. Hall, South Bend, Ind. Filed May 1, 1901. Serial No. 53,246. (No model.)



Claim.—1. The combination with a bridle, of sheet-metal casings applied to the cheek-straps thereof, said casings comprising longitudinal edges spaced apart and provided with lugs arranged in staggered relation and adapted to penetrate the cheek-straps upon opposite sides of the median line thereof to secure the casing to the cheek-straps, extendible connections contained within the casings and a bit supported by said connections, substantially as described.

2. In an extensible connection for bridge-bits, a casing made from a sheet-metal blank having flange upon its side edge, grooves formed in the ends of the blank, and adapted to receive and plates when the blank is bent, a spring within the casing, a connecting-rod engaged at one end by the spring, and playing in the casing, and the other end formed with a hook by means of which the bit is attached, combined with the side strap D to which the extensible connection is secured, substantially as set forth.

697,487. MULTICOLOR-PRINTING MACHINE. GEORGE W. JAMES and ELI G. FRANKLIN, Manchester, England. Filed June 18, 1900. Serial No. 20,057. (No model.)



Claim.—1. In a multicolor-printing machine, the combination of an ink-cylinder as *j*, with adjacent shafts carrying rings as *r*, adjustable on the shafts and segments as *a*, circumferentially adjustable on the rings, substantially as described.

2. In a multicolor-printing machine, the combination of an ink-cylinder as *j* with superposed shafts as *g*, *g'*, grouped around said roll, the said shafts carrying rings as *r*, adjustable on the shafts with segments as *a*, circumferentially adjustable on the rings, substantially as described.

3. In a multicolor-printing machine, the combination of an ink-cylinder, form and a form-taking roll as *j*, with adjacent shafts carrying rings as *r*, adjustable on the shafts with segments as *a*, circumferentially adjustable on the rings, substantially as described.

4. In a multicolor-printing machine, the combination of an ink-cylinder, form and a form-taking roll as *j*, with superposed shafts *g*, *g'* grouped around said roll, the said shafts carrying rings as *r*, adjustable on the shafts with segments as *a*, circumferentially adjustable on the rings, substantially as described.

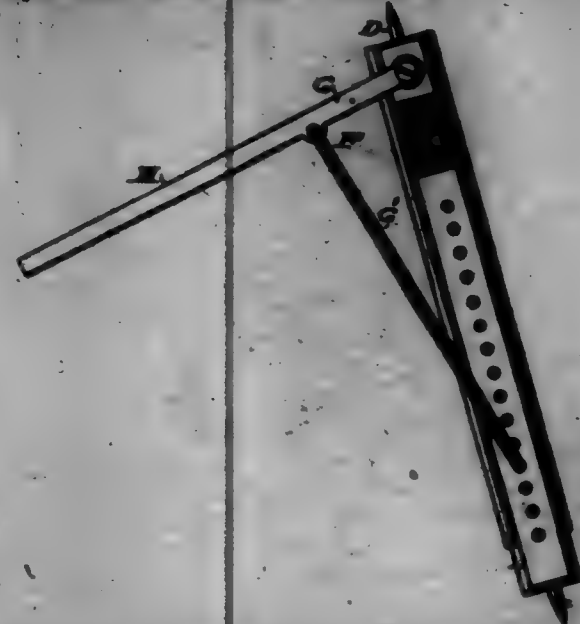
5. In a multicolor-printing machine, the combination of a form-taking roll as *j* with shafts as *g*, *g'*, grouped around said roll, the said shafts carrying rings as *r*, adjustable on said shafts with segments as *a*, circumferentially adjustable on the rings, an ink-dot, distributor and distributing-roller being combined with each ring-shaft, all substantially as described.

6. In a multicolor-printing machine, the combination of a form-taking roll with wored ink-distributing rings free to turn independently of said roll to distribute lines of ink evenly thereon, substantially as described.

7. In a multicolor-printing machine, the combination of a form-taking roll as *j* with wored ink-distributing rings *p* to distribute lines of ink evenly on the printing-cylinder and shafts having rings as *r*, adjustable on the shafts and segments as *a*, circumferentially adjustable on the rings, substantially as described.

8. In a multicolor-printing machine, the combination of an ink-cylinder, form and form-taking roll with wored rings as *p* free to turn independently of said ink-cylinder, and distributor-pattern-blades provided with a design, arranged around said ink-cylinder and geared to revolve at equal speeds, substantially as described.

697,488. STAIR-CARPET FASTENER. JOHN S. JARVIS, Philadelphia, Pa., assignor to Charles L. E. Jordan, Philadelphia, Pa. Filed July 12, 1901. Serial No. 68,210. (No model.)



Claim.—1. A stair-carpet fastener consisting of members fitted to each other telescopically, and a toggle having one link pivotally connected with one member and the other link pivotally connected with the opposite member.

2. A stair-carpet fastener consisting of members fitted to each other telescopically, and a toggle having one link pivotally connected with one member and the other link pivotally connected with the opposite member, one of said members having means for adjustably connecting the link of the toggle therewith relatively to a desired length of the fastener.

3. A stair-carpet fastener consisting of members fitted to each other telescopically, one of said members having a series of vertically-extending openings therein, a toggle having one link connected with one member and the other link provided with a pivot adapted to enter either of said openings.

4. A stair-carpet fastener consisting of members fitted to each other telescopically, one of said members having a series of vertically-extending openings therein, a toggle having one link connected with one member and the other link provided with a pivot adapted to enter either of said openings, one of said links having a handle thereon for opening the toggle.

5. A stair-carpet fastener having a bar, and a spur or prong, the latter being provided with a hook which is held in the end of said bar.

6. A stair-carpet fastener, consisting of members fitted to each other telescopically, upon the ends of said members, and a toggle-lever, one link of which is pivotally connected with one member and the other is pivotally connected with the opposite member, one of said links being extended beyond its connection with the other link, forming a handle for the toggle.

697,489. MACHINE FOR PRODUCING BOTTLE-CHALING CAPS. ALBERT JONES, Baltimore, Md., assignor to Louis Kelling, Baltimore, Md. Filed May 21, 1900. Serial No. 68,114. (No model.)

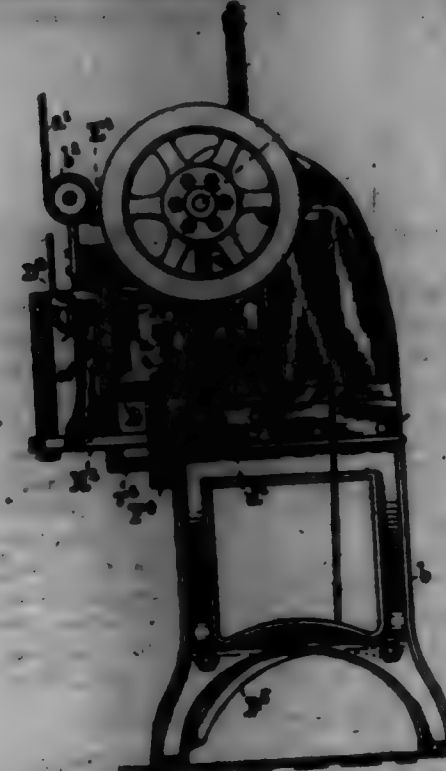
Claim.—1. In a machine for producing sealing-caps for bottles, mechanism for forming from a sheet-metal blank an unshaped cap, combined with device to feed into the said unshaped cap, the end of a flexible sleeve, and to cut off the introduced portion so as to leave in the said cap a joint-forming gasket, and other mechanism to turn in the edge of the cap upon the introduced gasket, substantially as specified.

2. In a machine for producing sealing-caps for bottles, mechanism to form from a sheet-metal blank an unshaped cap, device to feed a flexible sleeve along a manifold and into the said cap, and to cut off the introduced portion so as to provide the cap with a joint-forming gasket, and mechanism to turn in the edge of the cap upon the introduced gasket, substantially as specified.

3. As means to feed into a sealing-cap, the lower end of a flexible sleeve, a manifold upon which the said sleeve is placed, and device substantially as described, to clamp the said sleeve and feed it down independently of the manifold, substantially as specified.

4. As means to feed the lower end of a flexible sleeve into a sealing-cap and cut off the introduced portion to form in the cap a joint-forming gasket, the combination of a rotatable manifold upon which the sleeve is placed, a vertically-sliding block at the lower end of the manifold, portion of which block comes to the circumference of the manifold, downwardly-moving levers arranged to clamp the flexible sleeve against the exposed portion of the sliding block, mechanism to push down the clamp-

ing-levers and through them and the sliding block, the clamped sleeve from the cap, and leads mechanism to cut off the inserted portion of the said sleeve, substantially as specified.



5. In a machine for producing sealing-caps for bottles, mechanism for forming from a sheet-metal blank a cup-shaped device, combined with mechanism to feed into the said cup-shaped device, the end of a flexible sleeve, and mechanism to cut off the introduced portion of the said sleeve and thereby provide the said cup-shaped device with a joint-forming gasket, substantially as specified.

697,490. CULTIVATOR. GEORGE C. JONES, Montgomery, Pa. Filed Oct. 17, 1901. Serial No. 70,000. (No model.)



Claim.—1. In a cultivator or the like, means for throwing the dirt, a vertically-movable flapper supported at the side of said means and in operative relation thereto, a spring adjustably supporting said flapper with relation to said means for throwing the dirt and tending at all times to hold said flapper in an elevated position, and a foot-rod by means of which the flapper may be depressed against the action of the spring; substantially as described.

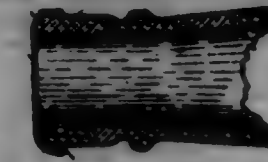
2. In a cultivator or the like, means for throwing the dirt, a flapper vertically movable at the side of said means and in operative relation thereto, and a spring connected to said flapper and a relatively fixed portion of the cultivator and adjustably supporting said flapper with relation to said means for throwing the dirt, whereby said flapper is yieldingly supported in an elevated position; substantially as described.

3. In a cultivator or the like, means for throwing the dirt, a flapper vertically movable at the side of said means and in operative relation thereto, and a connector between said flapper and a relatively fixed portion of the cultivator and adjustably supporting said flapper with relation to said means for throwing the dirt, said connector including a spring attached to the flapper and a chain adjustably connected to said fixed portion of the cultivator; substantially as described.

4. In a cultivator or the like, a frame including an arch, disk gangs supported upon said arch, transversely-extending levers between the supports for said gangs and a suitable portion of said frame, suitably-spaced flapper-plates between said gangs, flaps pivoted to said plates and pivotally supported by said levers, strips upon said flapper-plates and having inwardly-extending portions with crank-ends, a plate having an opening therethrough between said crank-ends, a coacting member extending through said opening and the said plate, a spring coacting to said plate, and a chain coacting to said crank-ends and the said plate, a spring coacting to said plate.

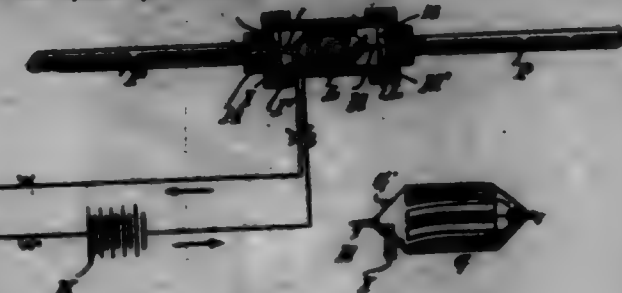
a chain coacting to said spring, a member upon the said arch to which said chain is adjustably connected, and a nut upon the frame and so related to said flapper-plates that said plates can be depressed by the foot of a person seated upon said nut; substantially as described.

697,491. BOTTLE-CHALING DEVICE. LOUIS KALLER, Baltimore, Md. Filed June 18, 1901. Serial No. 68,040. (No model.)



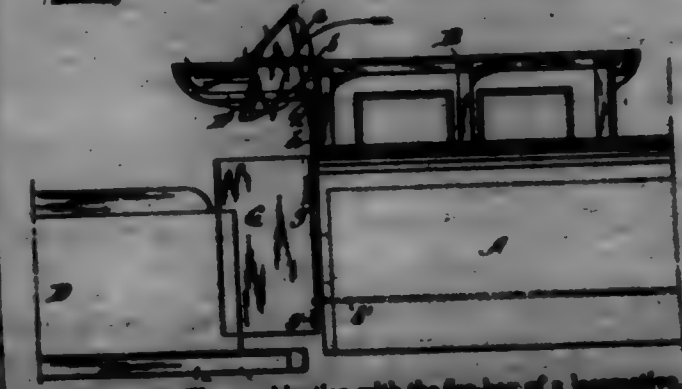
Claim.—A sealing-cap adapted for application to a bottle-head, which consists of a crown, and a compressible cylindrical annular wall depending therefrom, the said wall having its edge provided with an internal bead of an external diameter corresponding with that of the cylindrical wall, combined with an annular compressible joint-forming gasket situated within the annular wall and above and to contact with the internal bead, and which annular gasket, as the said annular wall is reduced in diameter, in the cap-offing operation, is compressed so as to form a joint between the said wall and the bottle-head, substantially as, and for the purpose specified.

697,492. ELECTRO-MAGNETIC WATER-METER. WILLIAM E. KELLY and ALBERT THOMAS, New York, N. Y. Filed Mar. 14, 1901. Serial No. 51,513. (No model.)



Claim.—In combination, a water-supply pipe provided with an enlarged portion or casing, cross-bars mounted therein at the ends of the enlarged portion or casing, said cross-bars being mounted in said enlarged portion or casing, said cross-bars being mounted in the cross-bars, a series of curved grooves upon the surface of the cylinder, conical ends to said cylinder, a vortical carried by the cylinder, and electrical connections adapted to be operated every revolution of the cylinder to measure the flow of water through the pipe.

697,493. VENTILATOR FOR LOCOMOTIVE-ENGINEER. HARRIS KRAMER, Reading, Pa. Filed Nov. 24, 1901. Serial No. 68,998. (No model.)



Claim.—1. The combination with the fire-box of a locomotive, of a sub-throat having its roof extended rearwardly beyond the fire-box and

provided with an air-inlet opening adjacent to the end of the fire-box, and an air-outlet comprising an adjustable air-scooping portion secured to the extended roof above said opening and a deflecting portion below said opening substantially as set forth.

3. The combination with the fire-box of a locomotive of a cab thereon having its roof extended rearwardly beyond the fire-box, of air-outlets comprising adjustable air-scooping portions located at opposite sides of said cab substantially as and for the purpose set forth.

4. The combination with the fire-box of a locomotive, of a cab thereon having its roof extended rearwardly beyond the fire-box and provided with an air-inlet opening adjacent to the end of the fire-box, an air-outlet comprising an adjustable air-scooping portion secured to the extended roof above said opening and a deflecting portion below said opening, and lateral air-deflector plates arranged to cooperate with said roof-outlet to produce converging air-currents to rearward of the fire-box substantially as and for the purpose set forth.

697,494. SPRING ROCKING-CHAIR. CHARLES W. KING and WILLIAM H. KING, Kansas City, Mo. Filed May 13, 1901. Serial No. 69,919. (No model.)



Claim.—1. A rocking-chair, comprising the rockers, having their rear ends overturned forwardly and terminating between the body portions of the rockers and the seat, metallic strips depending from the seat and terminating below the overturned ends of the rockers, and links pivotally connecting the overturned ends of the latter with the contiguous ends of the depending strips, substantially as described.

2. A rocking-chair, comprising the rockers composed of resilient metal and having their rear ends overturned forwardly, and strips secured to the seat and formed with depending U-shaped portions, and links connecting said portions with said overturned ends of the rockers, substantially as described.

3. A rocking-chair, comprising the rockers having their rear ends overturned forwardly, strips secured to the seat and terminating at their front ends in legs united to the front ends of the rockers, and at their rear ends in depending U-shaped resilient portions, and links pivotally connecting said portions with said overturned ends of the rockers, substantially as described.

4. A rocking-chair having its back movable with relation to the seat, and springs 14, above and secured to the latter near its front corners and having their rear ends swiveled to and supporting the back, substantially as described.

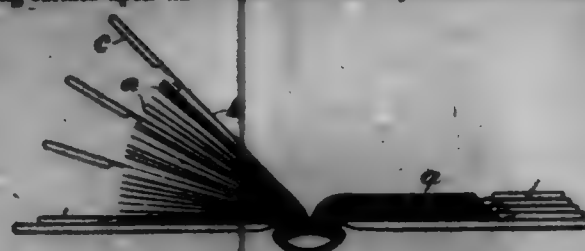
5. A chair, comprising springs secured to the seat, a back supported upon the rear ends of said springs and swiveled thereto, and means for detachably connecting the lower end of the back to the seat as to relatively fix the relation of said springs, substantially as described.

6. A rocking-chair, comprising springs secured to the seat, a back supported upon the rear ends of said springs and swiveled thereto, and a back and loop connection between the lower end of the back and the rear edge of the seat substantially as described.

7. A rocking-chair, comprising springs secured to the seat, a back supported at the rear ends of said springs, and a spring secured at its opposite ends to the seat and the lower end of the back, and means to resist downward or rearward movement of the latter, substantially as described.

697,495. BOOK-GRINDER HAVING WIRE AND HARDENED LEAVES. ARTHUR R. KITTENDGE and ROBERT E. KITTENDGE, Trinity N. J., assignors to the Acoustal, Acoustal & Acoustal Company, Limited New York, N. Y., a Corporation of New Jersey. Filed Aug. 10, 1900. Serial No. 27,717. (No model.)

Claim.—1. A book having wide and narrow leaves with an integral flap upon the margin of each of the wide leaves folded uniformly backward to thicken the edge and to produce a level and unobstructed writing-surface upon all of the said leaves upon the same side thereof.



2. A sheet folded to form two leaves of equal width and having the margin of each leaf folded over to form an integral flap, and the longitudinal edge of each flap being secured to the face of the leaf to form a longitudinal pocket having openings at the ends only.

3. A sheet having marginal flaps upon two opposite edges folded over in reverse directions and secured to the opposite faces of the sheet, whereby when the sheet is folded between said margins to form two leaves, the marginal flaps are on the same side of each leaf.

4. A bound book consisting of sections each consisting of the group of an integral pair of wide leaves with their margins thickened, with a series of integral pairs of narrow leaves inserted in the fold of each wide leaf, and a similar series of pairs of narrow leaves adjacent to the side of each group, whereby the thickness upon each of the wide leaves compensates for the narrow leaves at one side of each wide leaf.

697,496. SHIPPING VESSEL FOR ICE-CREAM. FREDERICK C. ELSON, Louisville, Ky. Filed Jan. 27, 1902. Serial No. 91,308. (No model.)



Claim.—1. In a vessel for shipping ice-cream, the combination of a pasteboard cream tub or box, a pall or receiver therefor which is composed of strawboard or the like, waterproofed on its interior and having a corrugated sheet outside and a covering over the same connected to the pall, and a drainage-tube passing through the outer casing, corrugated packing, and waterproofed side of the pall.

2. In a vessel for shipping ice-cream, the combination of the inner ice-receptacle of sheet material waterproofed on its inner surface, the outer covering and the interposed corrugated packing, and a drainage-tube passing through the side of the ice-receptacle and its covering, said covering being waterproofed on its outer surface near the terminal of the drainage-tube, substantially as described.

3. The combination, in an ice-cream storage vessel, of the cream-tub, a pasteboard pall having a wooden bottom and waterproofed on its inner face only, an outer tubular covering of pasteboard and an interposed corrugated sheet, and wire hoops confining the pasteboard tub to position, substantially as described.

4. In an ice-cream shipping and storing vessel, a pall composed of a tube of pasteboard, a wooden bottom, and a covering around the tubular portion consisting of a corrugated non-conducting lining, and a paper covering, cover-detents connected to this tubular covering, and a flat cover having clips which may be passed through said detents.

5. In an ice-cream-storing vessel, a receiver having its sides of strawboard or the like waterproofed on its inner surface only, a corrugated sheet surrounding said sides, a paper covering therefor waterproofed on a part only of its outer surface, and a drainage-tube passing through the waterproofed portion of the outer cover and into the receiver, all combined.

697,497. SAWING-MACHINE. CHARLES C. KRAFT, Buffalo, Cal. Filed June 20, 1901. Serial No. 68,890. (No model.)

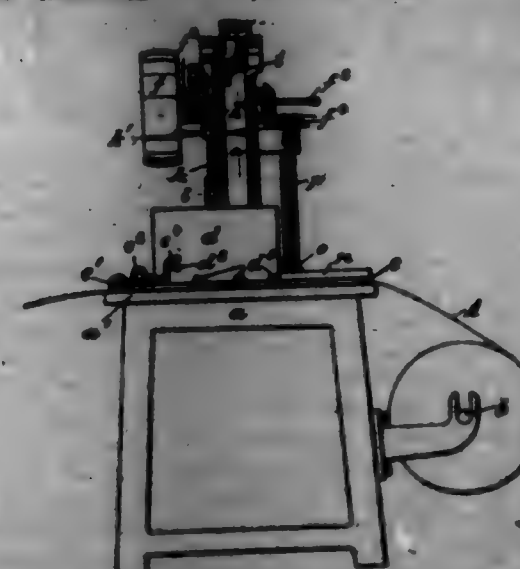
Claim.—1. In a sawing-machine attachment, the combination with the vertically-arranged feed-rolls, of the means arranged upon the carriage for operating the said feed-rolls upon the reciprocation of said carriage,

together with means for moving one of the rolls out of engagement with the remainder of the block and simultaneously operating a disengaging-plate for disengaging the block from the other feed-roll, substantially as described.



2. In a sawing-machine attachment, the combination with the feed-rolls, of the brackets and arms carrying the said feed-rolls, one of said arms being pivoted and normally held in position by means of a spring, the ratchet, pawl, lever and connecting-rod, the plunger and rocking lever, the disengaging-plate, the rod to which said disengaging-plate is attached, the rocker-arm connected to the pivoted feed-roll arm by means of a link, and the vertically-movable rod adapted to be projected into the path of the free end of the pivoted arm for the purpose of simultaneously disengaging the said feed-roll and operating the disengaging-plate, substantially as and for the purpose described.

697,498. MACHINE FOR FORMING PLASTIC PATTERNS ON WALL-PAPER. EDWARD KRAUS, New York, N. Y., assignor of one-half to CHARLES KRAUS, New York, N. Y. Filed Feb. 4, 1902. Serial No. 92,799. (No model.)



Claim.—1. In a machine for forming plastic patterns on wall-paper, the combination of a mold-box with a pattern-plate, a plunger, and means for raising the pattern-plate, substantially as specified.

2. In a machine for forming plastic patterns on wall-paper, the combination of a mold-box with a pattern-plate, a plunger, and means for raising the mold-box and pattern-plate, substantially as specified.

3. In a machine for forming plastic patterns on wall-paper, the combination of a paper-clamp with a mold-box, a pattern-plate secured there-

to, a plunger within the mold-box, and means for raising the clamp and mold-box, substantially as specified.

4. In a machine for forming plastic patterns on wall-paper, the combination of a mold-box with a pattern-plate, means for raising the pattern-plate, and a knife adapted to be projected into the mold-box, substantially as specified.

5. In a machine for forming plastic patterns on wall-paper, the combination of a mold-box with a pattern-plate secured thereto, a knife adapted to be projected into the mold-box, a paper-clamp, and means for raising said clamp and the pattern-plate, substantially as specified.

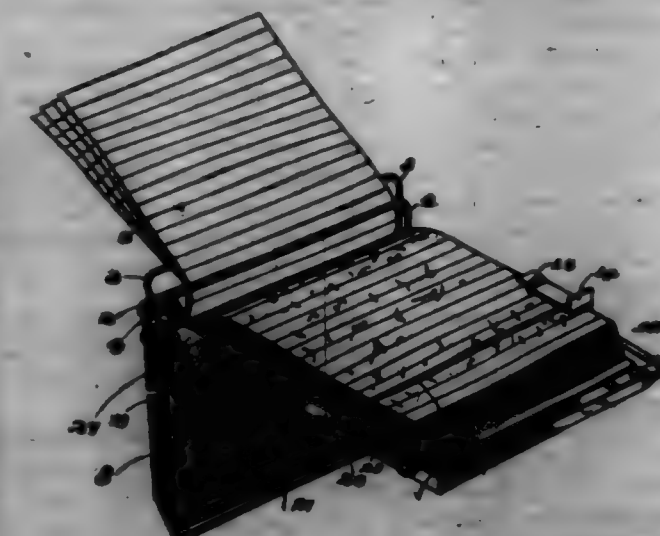
6. In a machine for forming plastic patterns on wall-paper, the combination of a hinged mold-box having a pin, with a hinged paper-clamp having a hook adapted to be engaged by said pin, substantially as specified.

7. In a machine for forming plastic patterns on wall-paper, the combination of a cam, with a lever actuated thereby, a screw-bolt, a universal coupling between lever and screw-bolt, a threaded sleeve engaging the screw-bolt, a plunger, and a second universal joint between the threaded sleeve and plunger, substantially as specified.

8. In a machine for forming plastic patterns on wall-paper, the combination of a hinged mold-box with a pattern-plate secured thereto, means for tilting the mold-box, a knife adapted to be projected into the mold-box, a lever for actuating said knife, and means for disengaging the knife from said lever, substantially as specified.

9. In a machine for forming plastic patterns on wall-paper, the combination of a hinged mold-box, with steps projecting into the upper part of the case, and a plunger which is adapted to engage said steps and tilt the mold-box, substantially as specified.

697,499. BOOK-BINDER. CHARLES W. KROEMER, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 70,861. (No model.)



Claim.—1. The herein-described book-binder comprising the body portion 1 provided at its upper end with a plurality of book-markers as 2, 3 and 4, in combination with a guiding-rod 11 disposed at right angles to said markers; a member movably secured upon said guiding-rod; supporting-legs; a finger pivotally attached to said guide and designed to designate any part of the page of the book and a loop member 24 movably secured in guiding-brackets carried by said body portion and operatively connected to the supporting-legs whereby the latter may be tilted parallel with said body portion when not required for use, all combined substantially as specified and for the purpose set forth.

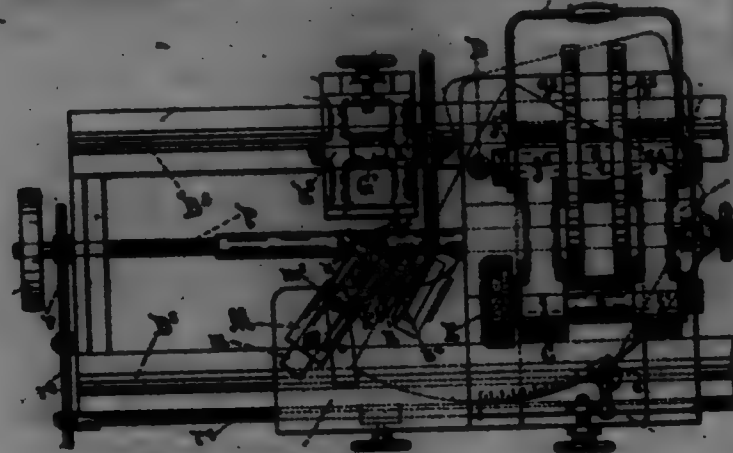
2. The combination of a body portion, pivotally-mounted book-markers, a guiding-rod at one side of the body portion, an underbar member loosely mounted upon said guiding-rod, a finger pivotally secured to said underbar member, loop members, legs pivotally connected to said loop members and guides for the said loop members, all substantially as shown and described.

697,500. MACHINE FOR GRINDING HEARINGS. HENRY LA GARE, Auburn, N. Y. Filed Jan. 2, 1901. Serial No. 68,890. (No model.)

Claim.—1. In a machine for simultaneously grinding two surfaces, the combination with a work-support, of a wheel having two grinding-surfaces disposed at equal angles to the axis of rotation of said wheel, said wheel rotating in a plane angularly disposed relative to the plane of the work.

2. In a machine for simultaneously grinding two surfaces, the combination with a rotating work-support, of a wheel having two grinding-surfaces disposed at equal angles to the axis of rotation of said wheel, and

wheel rotating in a plane angularly disposed relative to the plane of rotation of the work.



3. In a machine for simultaneously grinding a plurality of surfaces, the combination of a wheel having a plurality of grinding-surfaces disposed at different planes to the axis of rotation of said wheel, said wheel rotating in a plane angularly disposed relative to the plane of the work, and adjusting means for varying the angle of the grinding-surfaces.

4. In a machine for simultaneously grinding two surfaces, the combination with a rotating work-support, of a wheel having two grinding-surfaces oppositely inclined relative to the axis of rotation of said wheel, said wheel rotating in a plane angularly disposed relative to the plane of rotation of the work, the angle of inclination of said grinding-surfaces to the axis of the wheel being equal.

5. In a machine for grinding two surfaces simultaneously, the combination with a rotating work-support, of a cup-shaped wheel rotating in a plane inclined relative to the plane of rotation of the work, said wheel having its rim provided with two inclined grinding-surfaces.

6. In a machine for grinding two surfaces simultaneously, the combination with a rotating work-support, of a cup-shaped wheel rotating in a plane inclined relative to the plane of rotation of the work, said wheel having its rim provided with two continuous inclined grinding-surfaces.

7. In a machine for grinding two surfaces simultaneously, the combination with a rotating work-support, of a cup-shaped wheel having its rim provided with two continuous oppositely-inclined grinding-surfaces, said grinding-surfaces being inclined at equal angles to the axis of rotation of said wheel.

8. In a machine for grinding bearings, the combination with a work-support, of a grinding-wheel having oppositely-inclined grinding-surfaces to dress the bearing simultaneously at two points and means for adjusting said grinding-wheel angularly relative to the work.

9. In a machine for grinding bearings, the combination with a work-support, of a grinding-wheel having oppositely-inclined grinding-surfaces to dress the bearing simultaneously at two points, means for adjusting said grinding-wheel angularly relative to the work, and means for adjusting said grinding-wheel longitudinally of the machine to compensate for wear.

10. In a machine for grinding ball-bearings, the combination with a suitable supporting-frame, of a grinding-wheel for dressing the outer surface of the bearing mounted on said frame, a table mounted on said supporting-frame, a work-support carried by said table, a grinding-wheel for dressing the inner surface of said bearing mounted on said table, and means for feeding said table and the instrumentalities mounted thereon past the first-named grinding-wheel.

11. In a machine for grinding bearings, the combination with a stationary grinding-wheel support, of a work-support, means for moving said work-support and work toward said grinding-wheel, and a second grinding-wheel in operative relation to said work-support and movable therewith.

12. In a machine for grinding bearings, the combination with a stationary adjustable grinding-wheel support, of an adjustable work-support, automatic means for moving said work-support and work toward said grinding-wheel, a second grinding-wheel in operative relation to said work-support, and means for adjusting said second grinding-wheel angularly relative to the work.

13. In a machine for grinding the outer and inner surfaces of bearings, the combination with a stationary adjustable grinding-wheel support, of a grinding-wheel for dressing the outer surface of the bearing mounted thereon, a table movable relative to said grinding-wheel, a work-support adjustably mounted on said table, and a second grinding-wheel to dress the inner surface of the bearing adjustably mounted on said table.

14. In a machine for grinding the outer and inner surfaces of bearings, the combination with a stationary adjustable grinding-wheel support, of a grinding-wheel for dressing the outer surface of the bearing mounted thereon, a table movable relative to said grinding-wheel, a work-support

adjustably mounted on said table, a second grinding-wheel to dress the inner surface of the bearing adjustably mounted on said table, said grinding-wheel having two grinding-surfaces to act simultaneously on two bearing-surfaces, and automatic means for feeding said table and the instrumentalities carried thereby past the first-named grinding-wheel.

15. In a machine for grinding two surfaces simultaneously, the combination with a suitable work-support, of a cup-shaped grinding-wheel having a rim substantially V-shaped in cross-section.

16. In a machine for grinding two surfaces simultaneously, the combination with a suitable work-support, of a cup-shaped grinding-wheel having a rim substantially V-shaped in cross-section, the axis of said rim being inclined at equal angles to the longitudinal axis of the wheel.

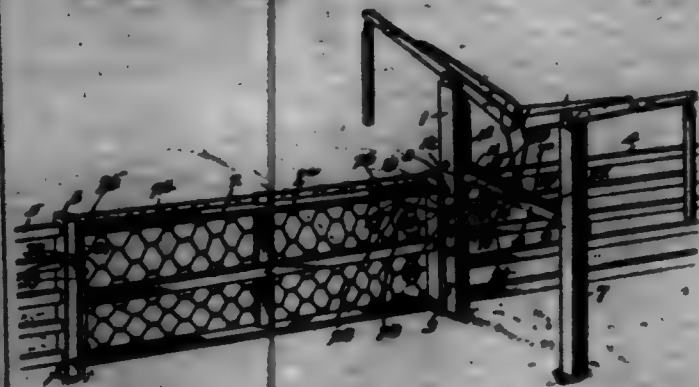
17. In a machine for simultaneously grinding two surfaces, the combination with a work-support of grinding-wheels mounted in angular relation to said work, and means for adjusting said wheels to vary the angle thereof relative to the work.

18. In a machine for simultaneously grinding three surfaces angularly disposed relative to one another, the combination with a work-support, of a grinding-wheel adapted to dress two of said surfaces at the same time, a second grinding-wheel to simultaneously dress the third surface, and means for giving an angular adjustment to said grinding-wheels relative to the work, and means for moving the work past said second grinding-wheel.

19. In a machine for simultaneously grinding three surfaces angularly disposed relative to one another, the combination with a rotating work-support, of a grinding-wheel adapted to dress two of said surfaces at the same time, a second grinding-wheel to simultaneously dress the third surface, means for giving an angular adjustment to said grinding-wheels relative to the work, and means for moving the work past said second grinding-wheel.

20. In a machine for grinding bearings, the combination of a work-holding support, pivoted to swing horizontally, so as to change the angle of application of a grinding-wheel, as G, thereon, the grinding-wheel, G, and another grinding-wheel, as H, having two grinding-surfaces equally disposed to its axis of rotation, and mounted so as to admit of angular adjustment in the horizontal plane, to the work whereby three points may be ground at once, at chosen angles in relation to each other, substantially as described.

697,501. GATE-OPENER. CHARLES F. LEE, Astoria, Ill., assignor of one-half to William G. Gage, Astoria, Ill. Filed May 20, 1901. Serial No. 61,152. (No model.)



Claim.—1. In a device of the class described, the combination of a support, a horizontally-rotating gate, a vertically-movable operating-bar arranged at right angles to the gate, when the latter is closed and held against lateral and longitudinal movement, a horizontally-rotating bracket mounted on the support and arranged to swing horizontally across the path of the vertically-movable bar and located at one side of the gate when the gate is open and at the opposite side thereof when the gate is closed, operating mechanism connected with the vertically-movable bar, and means for connecting the bracket with the gate and with the vertically-movable bar, said means forming a lock for holding the gate in its open and closed positions, substantially as described.

2. In a device of the class described, the combination of a support, a horizontally-rotating gate, a vertically-movable operating-bar arranged at right angles to the gate, when the latter is closed and held against lateral and longitudinal movement, a horizontally-rotating bracket mounted on the support and arranged to swing horizontally across the path of the vertically-movable bar and located at one side of the gate when the gate is open and at the opposite side thereof when the gate is closed, operating mechanism connected with the vertically-movable bar, and means for connecting the bracket to the gate and to the vertically-movable bar and forming a lock for holding the gate in its open and closed positions, substantially as described.

3. In a device of the class described, a support, a gate disposed to swing horizontally, a bar arranged at right angles to the gate when the

latter is closed and pivotedly supported in one end and movable vertically by the other end, said bar being held against lateral movement, a bracket hinged by one end to said support and free to swing across the path of said bar, means for connecting the movable part of said bar to the free end of said bracket, and means for connecting said gate to the free end of said bracket, substantially as described.

4. In a device of the class described, the combination of a support, a horizontally-rotating gate, a vertically-movable bar arranged at right angles to the gate when the latter is closed and pivoted at one end and held against lateral movement, a bracket mounted on the support and arranged to swing across the path of the vertically-movable bar to points at opposite sides of the gate, links connecting the bracket with the gate and with the bar and forming a lock for holding the gate in its open and closed positions, and means for operating the bar, substantially as described.

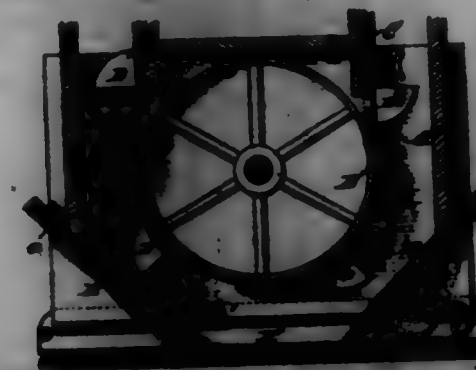
5. In a device of the class described, a vertical support, a bracket hinged by one end to said support, a gate disposed to swing horizontally, a rod disposed upon said gate and with downwardly-turned ends, a link-bar connected to one of said downwardly-turned ends, a vertically-movable bar, means for connecting the free end of said bracket with said bar, and means for connecting the free end of said bracket with the other downwardly-turned end of said rod, substantially as described.

6. In a device of the class described, the combination of a vertical support, a gate hinged to said support, a bracket hinged at one end to the support, a vertically-movable bar having its free end located directly above the hinged end of the bracket, a connecting-rod pivotedly united at its ends to the free end of the bracket and to the said bar, a rod pivotedly united at its ends to the free end of the bracket and to the gate, and means for elevating said bar, substantially as described.

7. In a device of the class described, a support, a gate disposed to swing horizontally, a bracket hinged by one end to said support, a vertical guide upon said support, a bar hinged by one end and engaging said guide by the other end, means for connecting the free end of said bracket with said gate, and means for connecting the free end of said bracket with the movable part of said bar, substantially as described.

8. In a device of the class described, a vertical post, a gate hinged to said post, a bracket hinged by one end to said post, a second post vertically disposed in alignment with said gate-post, a bar hinged by one end to said second post, and free to move vertically by the other end above said bracket, means for connecting the free end of said bracket to said gate, and means for connecting the free end of said bracket with the movable part of said bar, substantially as described.

697,502. REMOVABLE TRAY FOR ELEVATOR-BOOTS. JOHN H. LAMBERT, Des Moines, Iowa. Filed Aug. 1, 1901. Serial No. 79,421. (No model.)



Claim.—1. In combination with an elevator-boot provided with removable gates, of a removable tray which forms the bottom of the lower end of the boot, substantially as and for the purpose specified.

2. In combination with an elevator-boot of a removable tray therefor, said tray having upturned sides and forming the bottom of the lower end of the boot, substantially as and for the purpose specified.

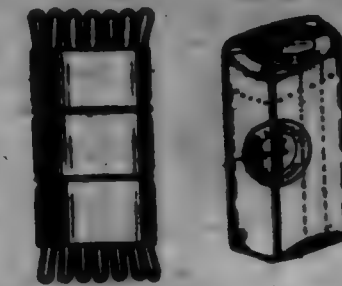
3. In combination with an elevator-boot of a removable tray therefor, said tray having upturned sides and engaging guide slots or grooves in the boot, substantially as and for the purpose specified.

4. In combination with an elevator-boot having removable gates which form the two sides of the lower end of the boot and disposed on an incline, of a removable tray having upturned sides, the lower ends of the gates extending over the tray to hold it in place, substantially as and for the purpose specified.

697,503. PACKAGE. CLARENCE A. LEBLANC, New York, N. Y. Filed Nov. 26, 1901. Serial No. 58,774. (No model.)

Claim.—1. A package of merchandise in which the articles are partially inclosed in an inner wrapper of less width than the length of the articles, and are separately removable through one end of said wrapper.

and an outer inclosing wrapper having a removable end to expose a portion of the sides of the articles for withdrawal from the package.



2. A package of merchandise in which the articles are arranged and held between the folds of an inner wrapper and are separately removable through one end of said wrapper, and an outer inclosing wrapper secured to the inner wrapper and having a removable end to expose the articles for withdrawal from the package.

3. A package of merchandise in which the articles are arranged and held between the folds of an inner wrapper and are separately removable through one end of the wrapper, and an outer inclosing wrapper having perforations adjacent to one end to facilitate the removal thereof and to expose a portion of the articles for withdrawal from the package.

4. A package of merchandise in which the articles are arranged and held upon itself with the articles between the folds and which are separately removable through one end of the wrapper, an outer wrapper having a fold on its side and folded ends, and perforated adjacent to one end, and means for securing the folds of said outer wrapper.

5. A package of merchandise in which the articles are arranged on a wrapper of less width than the length of the articles, held between the folds thereof, and are removable through one end of the wrapper, and means for automatically contracting the package as the articles are removed.

6. A package of merchandise in which the articles are arranged on a wrapper and held between the folds thereof, and elastic bands encircling the package for contracting the package as the articles are removed.

7. A package of merchandise in which on inner rectangular wrapper is rolled upon itself with articles of greater length than the width of the wrapper between the folds, and which articles are removable separately through one end of the wrapper, and an outer inclosing wrapper secured to the inner wrapper and provided with a removable end.

697,504. CARTER. DANIEL R. LEITCHFIELD, Chicago, Ill. Filed Mar. 28, 1901. Serial No. 61,200. (No model.)

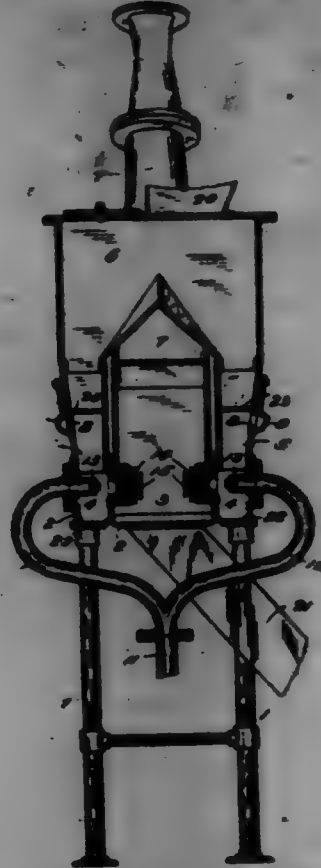


Claim.—1. A garter comprising a continuous strip of fabric doubled to so to form an upper and a lower loop, a clasp mounted upon said fabric at the point where said upper and said lower loops meet, and means for attaching said lower loop to a stocking, substantially as described.

2. In a garter, the combination of an upper loop, a lower loop supported thereby, and means mounted upon said loops at the points where they join each other for separately closing said loops, substantially as described.

3. A knee-supporter, comprising a band doubled upon itself to form upper and lower loops, an adjustable friction-clip mounted upon one of the doubled ends of said band, means attached to the doubled ends of said band for separately connecting said ends to each other, and means connected with said lower loop for engaging a stocking, substantially as described.

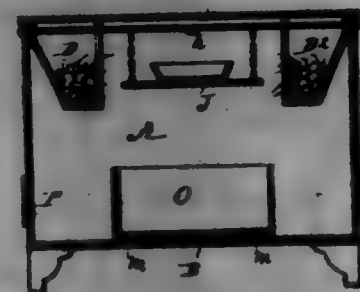
897,505. ROCK-PULVERIZER. HARRY LOCKERBACH, Seattle, Wash., assignor of one-half to James A. Howell, Seattle, Wash. Filed Dec. 10, 1900. Serial No. 48,431. (No model.)



Claim.—1. In a device of the character described, a central chamber, wing-compartments, oppositely-disposed nozzles discharging the contents of the wing-compartments into the central chamber, each of said wing-compartments having an opening above the nozzle and a pocket beneath the nozzle, and covers for the openings provided with perforations in their upper parts, substantially as described.

2. In a device of the character described, a feed-compartment, a nozzle projecting therefrom, said compartment having an opening above the nozzle and a pocket beneath the nozzle, and a cover for the opening provided with an inclined perforated portion, substantially as described.

897,506. STOVE FOR HEATING, COOKING, AND BAKING. ROBERT C. MACCOLLUM, Des Moines, Iowa. Filed Dec. 14, 1901. Serial No. 98,094. (No model.)



Claim.—1. In a stove having an open top, covers fitted thereon to slide in opening and closing the top and baskets for supporting fuel under the covers at the ends and top of the stove, arranged and combined as set forth for the purpose stated.

2. In a stove having an open top, covers fitted thereon to slide in opening and closing the top and baskets for supporting fuel under the covers at the ends and top of the stove and an oven in the form of a sliding drawer in the bottom and central portion of the stove, arranged and combined as set forth for the purpose stated.

3. A stove for heating, cooking and baking comprising a four-sided wall, sliding covers on top of the wall, rods extended through the top portion of the stove and fixed to the ends of the wall, baskets for fuel fixed in the top and end portions of the stove, an oven in the lower and central portion of the stove, registers in the lower portions of the ends of the wall and a flue at the top of one end of the wall, arranged and combined to operate in the manner set forth for the purpose stated.

897,507. ELECTRICAL CONDENSER. GEORGE F. MAURER, Whitelien, England. Filed Nov. 15, 1900. Serial No. 50,764. (No model.)

Claim.—1. As an article of manufacture an electrical condenser consisting of two strips of paper wound up together in the form of a roll, each of said strips being coated on one side with metal in a finely-divided state.



2. As an article of manufacture an electrical condenser consisting of the combination of two strips of paper each of which is coated on one side with metal in a finely-divided state, with a plurality of strips of uncoated paper interposed between said coated strips.

3. As an article of manufacture, an electrical condenser consisting of two pairs of strips of paper wound up together in the form of a roll, each of said strips being coated on one side with metal in a finely-divided state, and each pair of strips having the metallic sides face to face in contact with one another.

897,508. LOOMSHUTTLE. FAY E. MARSH, Hydeport, Mass., assignor to the American Loom Company, Randolph, Mass., a Corporation of New Jersey. Filed Jan. 14, 1901. Serial No. 42,102. (No model.)



Claim.—1. In a loomshuttle having the threading-chamber in advance of the yarn-carrying cavity thereof, a tilted yarn-passing leading from said cavity to said chamber, the tilted or open delivery eye or

advent, the bottom and grooved collar within said chamber, and the downwardly-extending flange on said bottom formed with the detent to prevent the yarn from being drawn back from around the bottom and collar, substantially as described.

2. A loomshuttle having the longitudinal groove or depression in the top thereof, the threading-chamber, the tilted or open delivery eye or advent, the bottom flanged at its top and having the depending flange formed with the detent, and the collar, said bottom and collar enclosing the said chamber, substantially as described.

3. A loomshuttle having the longitudinal groove or depression in the top thereof, the threading-chamber, the tilted or open delivery eye or advent, the bottom having the depending flange formed with the detent, the said bottom having the flange at the top thereof cut away as described across the said groove or depression, and the collar, said bottom and collar enclosing the said chamber, substantially as described.

4. A loomshuttle having the longitudinal groove or depression in the top thereof, the threading-chamber in advance of the yarn-cavity, the tilted yarn-passing leading from said cavity to said chamber, the tilted or open delivery eye or advent, the bottom having the depending flange formed with the detent, the said bottom having the flange at the top thereof cut away as described across the said groove or depression, and the collar, said bottom and collar enclosing the said chamber, substantially as described.

897,509. MOLD FOR PAPER OR PULP. JOHN F. MARTIN, New York, N. Y. Filed Feb. 14, 1902. Serial No. 94,121. (No model.)



Claim.—1. A mold comprising a bottom provided at intervals with sides or openings arranged to receive eyes or loops and adapted to support the same, whereby the latter are partially embedded in a past, sides connected with the bottom, and end pieces, substantially as described.

2. A mold comprising a bottom, transverse strips, sides connected with the bottom and supporting the transverse strips, and an end piece supported by the transverse strips, substantially as described.

3. A mold comprising a bottom, sides, strips secured to the sides and arranged in pairs to form grooves, and end pieces supported by the grooves, substantially as described.

4. A mold comprising a bottom, sides having grooves, and an end piece hinged to the bottom and detachably interlocked with the grooves, substantially as described.

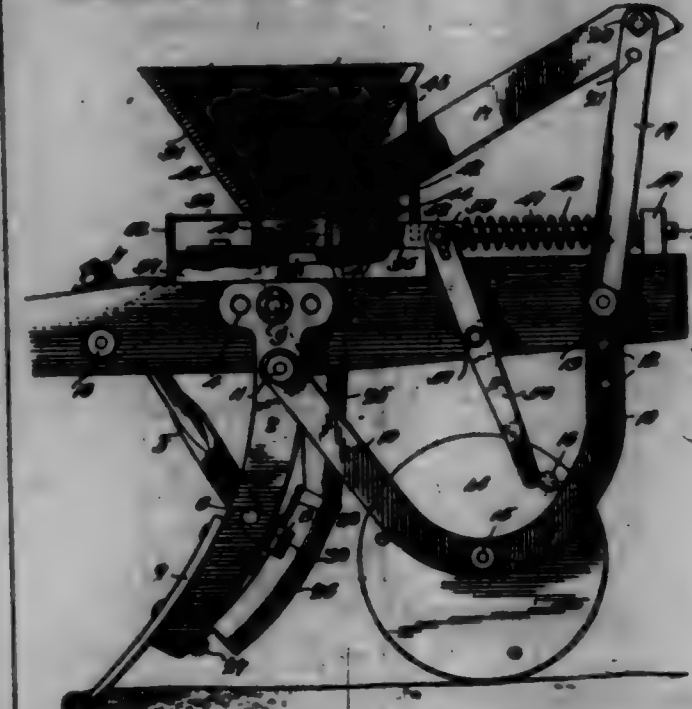
5. A mold comprising a bottom, longitudinal strips secured to the bottom at opposite sides of the center thereof and spaced from the side edges, sides hinged to the bottom and arranged upon the side portions of the bottom beyond the strips thereof and provided at their upper edges with longitudinal strips, transverse strips mounted on the sides and forming grooves, an end piece detachably interlocked with the grooves, and upper and lower transverse strips or pieces arranged at the top and bottom of the end piece, substantially as described.

6. A mold provided in one of its walls with a longitudinal groove

and having a series of short strips or pieces arranged within the mold and spaced apart to form recesses or openings adapted to receive eyes or loops of a fine-past or pulp, substantially as described.

7. A mold comprising a bottom, sides hinged to the bottom, an end piece also hinged to the bottom, and strips secured to the sides and bottom and supporting the end piece, substantially as described.

897,510. COMBINED CORN-PLANTER AND FERTILIZER-DISTRIBUTOR. HENRY D. MATTHEW, Haledorf, Va. Filed Nov. 31, 1901. Serial No. 93,102. (No model.)



Claim.—1. The combination of a fertilizer-hopper a slide under the same, said slide having a longitudinal fertilizer-opening, a drop-plate forming the bottom of the rear portion of said opening, and a cut-off plate covering the front portion of said opening, a fixed stop disposed in the front portion of said opening, under said cut-off plate, and a sweep element, relatively fixed and operating in the rear portion of said opening, over said drop-plate, and opposite said fixed stop, substantially as described.

2. The combination of a fertilizer-hopper, a slide under the same, said slide having a longitudinal fertilizer-opening, a drop-plate forming the bottom of the rear portion of said opening, and a cut-off plate covering the front portion of said opening, a fixed stop disposed in the front portion of said opening, under said cut-off plate, and a relatively fixed adjustable sweep-gage, disposed in the rear portion of said opening over said drop-plate and opposite said fixed stop, substantially as described.

897,511. MACHINE FOR TREATING TOBACCO-STEMS. RAY C. HAY, Richmond, Va., assignor to W. Gray Mosley, Richmond, Va. Filed May 20, 1901. Serial No. 68,300. (No model.)

Claim.—1. In a machine for treating tobacco-stems, the combination with a device for breaking the stems and leaf attached to the same, and a sleeve for separating and grading the broken stems and leaf, of an endless carrier for carrying the stems and attached particles of leaf to the disintegrating device, a trough through which said carrier travels, and means for directing an air-current through said trough, substantially as described.

2. In a machine for treating tobacco-stems, the combination with a device for breaking the stems and leaf attached to the same, and a sleeve for separating and grading the broken stems and leaf, of a carrier for delivering the stems and attached leaf to the disintegrating device, and means for subjecting the stems and attached leaf to the action of steam before delivering the stems and attached leaf to the disintegrator, substantially as described.

3. In a machine for treating tobacco-stems, the combination with a device for breaking the stems and leaf attached to the same, and a sleeve for separating and grading the broken stems and leaf, of an endless carrier for carrying the stems and attached particles of leaf to the disintegrating device, a trough through which said carrier travels a fan for impelling a current of air through said trough, a compartment for treating a portion of the carrier next to the disintegrating device, and a perforated pipe in said compartment, substantially as described.

4. In a machine for treating tobacco-stems, the combination of a disintegrator for breaking the stems and the leaf attached to the same, a separating sleeve having a grading-surface of different grades, separate

chambers beneath the stove to receive the different grades of tobacco-leaf means for separating leaf from stems, a drying-chamber, and means for delivering the tobacco-stems to said chamber, substantially as described.



5. In a machine for treating tobacco-stems, the combination of a disintegrator for breaking the stems and the leaf attached to the same, a re-disintegrating device having a grading-surface of different meshes, separate chambers to receive the separate grades of leaf, means for separating leaf from stems, and means to receive the stems separate from the leaf, substantially as described.

6. In a machine for treating tobacco-stems, the combination of a disintegrator for breaking the stems and the leaf attached to the same, a re-disintegrating device having a grading-surface of different meshes, separate chambers to receive the separate grades of leaf, means for creating an air-blast for carrying the leaf from particles of the stems, and means for delivering the stems to a drying-chamber, substantially as described.

7. In a machine for treating tobacco-stems, the combination of a disintegrator for breaking the stems and the leaf attached to the same, a re-disintegrating device having a grading-surface of different meshes, a box formed with a hopper to receive the tobacco-leaf and particles of stems from the sieve and having separate compartments for the separate grades of leaf, inclined boards in said hopper to direct the broken leaf and particles of stems toward the separate compartments, air-flow and means for impelling an air-current through the same and against the falling leaf and stems to carry the leaf from the stems, and means for receiving the particles of stems separated from the leaf, substantially as described.

8. In a machine for treating tobacco-stems, the combination of a disintegrator and separator for detaching the leaf from the stems and separating one from the other, a drying-chamber and means for delivering the stems from the separator to the drying-chamber, said drying-chamber containing a platform formed of a number of plates having their adjacent edges overlapping and out of line with each other, an endless carrier for moving the stems over said platform in the direction in which the plates overlap each other, heating-pipes extending along the under side of the overlapping plates, and means permitting the entry of air into one end of said chamber and its exit from the opposite end, substantially as described.

697,513. MACHINE FOR DRYING LEAF-TOBACCO. DAVID C. HAYS, Richmond, Va., assignor to W. Gray Hensley, Richmond, Va. Filed June 13, 1901. Serial No. 63,172. (No model.)

Claim.—1. A machine for drying leaf-tobacco comprising a preliminary steam-spraying room for spraying and opening up the tobacco-leaf, a drying-room in communication with the spraying-room, a cooling-room in communication with the drying-room, an "ordering-room" at the end of the cooling-room, means for carrying leaf-tobacco through the several rooms, a steam-spraying device in the preliminary spraying-room, means for exhausting the moisture-charged air from the spraying-room and dis-

charging it outside of said room without a recirculation of it in the room, means for impelling into the drying-room hot air derived from a source outside of the drying-room, means for exhausting the air from the drying-room at the portion thereof toward the cooling-room, means for impelling cool air through the cooling-room, means for heating the "ordering-room" and creating a vapor mist therein, and means for exhausting air from the "ordering-room," substantially as described.



2. In a machine for drying leaf-tobacco, the combination with a drying-room, of a preliminary spray-room provided with means for creating a steam spray therein for loosening and opening up the tobacco-leaves, means for exhausting the moisture-charged air from the spray-room and discharging it outside of said room without a recirculation of it in the room and means for conveying the leaf-tobacco from said spray-room into the drying-room, substantially as described.

3. In a machine for drying leaf-tobacco, a drying-room, a chamber heated outside of the drying-room and provided with means for heating air therein, an air-impelling device communicating with said heating-chamber and delivering hot air into the drying-room, means for exhausting air from the drying-room at a point toward the discharge end of the drying-room and discharging it from said room without permitting a recirculation through the room whereby an inflowing current of fresh hot air is impelled over the material in the room and the heated air is carried off without again coming in contact with the material, and means for carrying through said room the material to be dried, substantially as described.

4. In a machine for drying leaf-tobacco, the combination with a cooling-room, of an "ordering-room," means for exhausting air from said room, without permitting a recirculation through said room, and means for carrying tobacco-leaf from the cooling-room into and through the "ordering-room," substantially as described.

5. In a machine for drying leaf-tobacco, having a tobacco-leaf carrier, an "ordering-room" provided with spray-pipes heated in the room beneath the leaf-carrier to create beneath the carrier a vapor mist, and means for drawing the mist up through the tobacco-leaf and carrying it out of the room without its recirculation through the tobacco-leaf, substantially as described.

6. In a machine for drying leaf-tobacco, the combination of a series of rooms separated by partitions, a tobacco-leaf carrier passing through the rooms, a door to each partition, beneath the upper part of the leaf-carrier, and a flexible apron above the partition and the upper part of the leaf-carrier, substantially as described.

7. In a machine for drying leaf-tobacco, the combination of a series of rooms in communication one with the other, an endless-chain carrier there-

ing through the rooms, said carrier consisting of two end chains and a central chain, the central chain having flanges extending at intervals from its opposite sides and the end chains each having flanges projecting from their sides toward the central chain, to receive and support leaf-tobacco, supporting means between the central chain and the two end chains, substantially as described.

697,518. ROLL WRAPPER PRINTING DEVICE. FRANK L. HENSON, Columbus, Ohio. Filed Nov. 2, 1901. Serial No. 58,964. (No model.)



Claim.—1. In a printing apparatus, a holder for the articles to be printed, combined with a printing-roller and an inking device therefor, a lock between the roller and its carrying-frame for limiting the rotation of said printing-roller, and a lever arranged to operate said lock to effect the release thereof by the manipulation of the article to be printed.

2. In a printing apparatus, a holder for the articles to be printed, combined with a printing-roller and an inking device therefor, a stop device on said printing-roller, an automatically-movable abutment for said stop, and a lever arranged to release said abutment from the stop device on the roller by the manipulation of the article to be printed.

3. In a printing apparatus, a holder for the articles to be printed, combined with a printing-roller and an inking device therefor, a stop device on said roller, a frame in which said printing-roller and inking device are mounted, a spring-actuated abutment in said frame coacting with the stop device to limit the movement of said roller, and a lever to be actuated by the manipulation of the article to be printed to release said abutment from engagement with said stop device.

4. In a printing apparatus, a holder for the articles to be printed, combined with a printing-roller and an inking device therefor, a stop device on said roller, a frame in which said printing-roller and inking device are mounted, a spring-actuated abutment in said frame coacting with said stop device to limit the movement of said roller a cam edge or surface on said spring, and a lever to be actuated by the manipulation of the article to be printed to release said abutment from engagement with said stop device.

5. In a printing apparatus, a holder for the articles to be printed, combined with a printing-roller and an inking device therefor, a stop device on said roller, a frame in which said printing-roller and inking device are mounted, a spring-arm constituting a part of said frame, a projection from said arm coacting with said stop device on the inking-roller to limit the movement of the roller, a cam edge on said projection, and a lever to be actuated by the manipulation of the article to be printed to act on the cam edge to release the projection from the said stop device on the inking-roller.

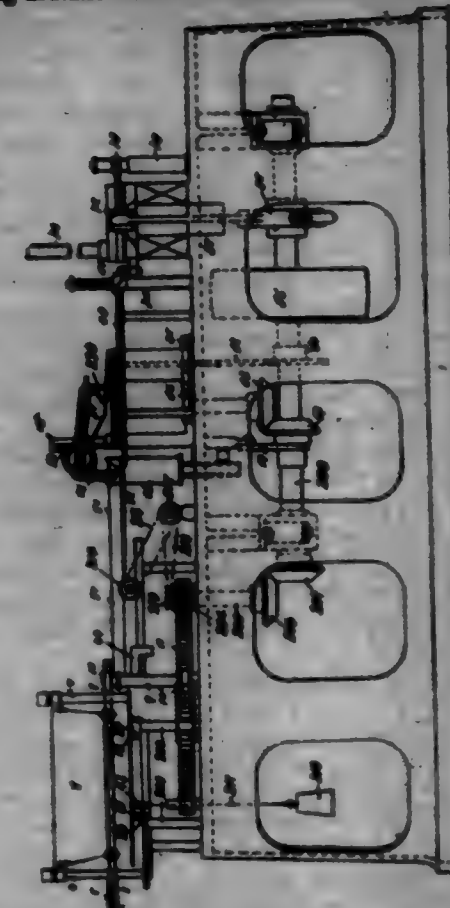
697,514. MATCH-BOX-FILLING MACHINE. LOUIS KREYENFELD, Louis Kreymann, and ARTHUR REISS, Brussels, Belgium, assignors to La Societe Anonyme de Machines Industrielles, Brussels, Belgium. Filed Sept. 11, 1900. Serial No. 73,126. (No model.)

Claim.—1. In a machine for filling match-boxes the combination of frames carrying the matches; a hopper divided into longitudinal compartments each corresponding to a fixed number of rows of matches and a collector of the frames, a plurality of receivers, means for moving said receivers underneath the hopper and successively into alignment with the collector, and the rolls for discharging the contents of each receiver onto a collector, means for operating the collector to forward the matches from these receivers, means adapted to separate from the entire body of matches on the collector a determined quantity, a mechanical hand adapted to place these quantities into box-drawers, a rotating plate for advancing the drawers successively to this hand, and an inserting mechanism adapted to receive the filled drawers from the plate and place them into the box-covers.

2. In a match-box-filling machine the combination of a collector and a divided hopper with a plurality of receivers and means for moving the receivers successively into said line with the collector and means having movement longitudinally of said receivers for discharging the matches from the receiver into the collector.

3. In a match-box-filling machine the combination of a divided hopper terminating in chambers with inclined bottoms in combination with a frame adapted to be supported under said hopper, a plurality of receivers

on hinged to said frame, a connecting-rod articulated to said receivers so as to cause them to tilt simultaneously and on inclined plane adapted to form a tilting abutment to one of said receivers.



4. In a match-box-filling machine, a divided hopper 87 in combination with a plurality of receivers 87 having slotted walls, means for reciprocating said receivers under said hopper and stationary plates 90 parallel with the line of motion of the receivers extending from the lower chamber 91 of the divided hopper into the slots of the walls of the receivers.

5. In a match-box-filling machine the combination of a divided hopper, a plurality of receivers, a frame to which said receivers are hinged, a second frame in which the above said frame has limited sliding movement and carrying an inclined plane for tilting said receivers, and means for reciprocating the second frame substantially as set forth.

6. In a match-box-filling machine the combination of a hopper, a plurality of parallel receivers, and a collector, parallel to said receivers, a frame to which said receivers are hinged, a table having guides for said frame and means for limiting the sliding movement of the frame on the table, guides for said table, a notched sliding bar fixed to said table, a lever, means for vibrating said lever, a dog pivoted on said lever and adapted to engage the notched sliding bar in order to intermittently feed the table to bring the receivers successively into alignment with the collector, parts adapted to engage the sliding bar to prevent its return movement, means not in operation at the end of the travel of the table for disengaging said parts to permit of the return of the table under the hopper, and means for returning the table to its initial position.

7. In a match-box-filling machine the combination of a hopper, a plurality of receivers, a collector, means for advancing the receivers successively from under the hopper into alignment with the collector, a valve, means for moving the valve with to-and-fro movement and a guide-trust having a hinged crank on the side of the hopper, adapted to guide the valve so that it falls with its prongs behind the row of matches in the receiver, draws the matches into the collector and then rises in order to pass back over and engage the row of matches of the next following receiver.

8. In a match-box-filling machine the combination with a collector, consisting of two slotted side walls and a movable floor, of rollers loosely mounted in the slots of the said side walls above the bottom of the same adapted to bear with slight pressure on the body of matches when advancing along on the movable floor the said rollers having a grooved or roughened part and a smooth part of less diameter than the grooved part, and the floor of the collector having a longitudinal groove so that the rollers do not exercise pressure upon the heads of the matches.

9. In a match-box-filling machine the combination with a collector having slots in the bottom thereof, and solid portions intermediate of said slots adapted to uphold matches from falling therein, of a device for removing determined quantities from the body of matches advancing over said slots, the said device comprising fork-shaped plates and means for moving the same vertically in the slots in the bottom of the collector so as to raise from the floor of the collector the matches lying across said slots.

10. In a match-box-filling machine, the combination of separated supports adapted to hold a body of parallel matches bridging the space between them, of a gripping device comprising two fingers adapted when closed to inclose a space, means for operating said fingers to open, move toward said supports, close around said body of matches, and move from the supports in order to remove the body of matches without compression.

11. In a match-box-filling machine the combination of an oscillatory plate, a diametrical guide-bar thereon, a rod, a block adapted to slide on said guide-bar and pivoted to said rod, a cam integral with said block, a gripper comprising two articulated fingers, a shaft eccentric to said oscillatory plate carrying said gripper, a sleeve on said shaft having a projection and a recess, a pawl pivoted to said sleeve and adapted to coast with said cam, a pin on one of the gripper-fingers adapted to engage the recess and means for vibrating the oscillatory disk for the purpose set forth.

12. In a match-box-filling machine for causing the regular settlement of the matches in the box or drawer, the combination with a drawer feed-plate, of a pivoted rod, and means for vibrating the same to strike upon the upper open part of the drawer.

13. In a match-box-filling machine for inserting the boxes into their covers, the combination with a rotary notched feed-plate of a lever adapted to remove the filled drawers from the notches of the feed-plate, a chamber to receive the same, said chamber having a lateral opening, a notched wheel horizontally journaled by the side of said chamber and adapted to receive the outer covers of the match-boxes, and prevent them to the lateral opening of said chamber and a chute above the said wheel for supplying the covers to said wheel.

14. In a match-box-filling machine a drawer inserting device comprising in combination a rotary notched feed-plate, a lever adapted to remove the drawers consecutively from the feed-plate, a chamber for receiving said drawer, a notched wheel internally of said chamber for bringing the covers opposite the drawer therein, a plug for assuring the perfect centering of the cover during the insertion of the drawer, in combination with a sliding bar and a cam thereon for the displacement of the said lever and lever systems connecting the same with the notched wheel and the centering-stop, for simultaneous action, substantially as set forth.

697,515. COMBINED JACK AND DROP. KENNETH B. HILGREN, Chicago, Ill., assignor to Kallings Dutchboard & Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 4, 1901. Serial No. 81,647. (No model.)



Claim.—1. In a combined jack and drop, a suitable frame, a sleeve mounted on the frame, a contact-spring carried by and insulated from the frame and adapted to be engaged by the plug when it is inserted in the sleeve, and a drop, said spring being constructed and arranged to engage and restore the drop when the plug is inserted in the jack, substantially as described.

2. In a combined jack and drop, a suitable support, a contact-spring mounted upon and insulated from the support and forming a line-terminal of the jack, and a drop also mounted upon the support, said spring being formed to engage and restore the drop when a plug is inserted in the jack, substantially as described.

3. The combination with a suitable frame, of a tip-contact spring mounted thereon, a leaf spring with which said tip-spring normally engages, a drop-extending magnet, the circuit of said magnet being normally completed through said spring, a drop, and a connecting-plate having a tip-contact adapted to engage the tip-spring to separate said spring and open the circuit through said magnet, said tip-spring being arranged to restore the drop upon the insertion of the plug, substantially as described.

4. In a combined jack and drop, the combination with a suitable supporting-structure, of a drop-extending magnet and a drop carried thereon, a line-spring mounted upon and insulated from said framework and having a forwardly-extending end adapted to engage and restore the drop when a plug is inserted in the jack, a leaf spring also carried by and insulated from said framework, the said line-spring being adapted to normally engage said leaf spring and to thereby close the circuit through the said magnet, whereby when the plug is inserted in the jack the circuit through the magnet is opened and the drop restored by the line-spring, substantially as described.

5. The combination with a drop-extending magnet and a drop, of a jack having a line-spring and a leaf spring mounted upon and insulated from the jack structure, said springs being normally in engagement and serving to complete the line-circuit through the drop, said line-spring having an extended end and upturned end to engage the drop when lifted, and a

connecting-plate adapted to engage and lift said line-spring when inserted in the jack, whereby the drop is restored and the magnet cut out, substantially as described.

6. In a combined jack and drop, a suitable support, a contact-spring mounted upon and insulated from the support and forming a line-terminal of the jack, said spring having a forwardly-extending end upturned end and a strip of insulation isolated upon said end, and a drop adapted to be engaged by said insulated upturned end and to be restored thereby when a plug is inserted in the jack, substantially as described.

7. In a combined jack and drop, the combination with a contact-spring forming one terminal of the jack, of a drop, and means restored by said spring for restoring the drop when a plug is inserted in the jack, substantially as described.

8. In a combined jack and drop, the combination with a drop, of a contact-spring forming one terminal of the jack and having an extension to engage and restore the drop when a plug is inserted in the jack, substantially as described.

9. In a combined jack and drop, the combination with a drop, of a contact-spring forming one terminal of the jack, of a sleeve forming another terminal of the jack, said spring having an extension to engage and restore said drop when a plug is inserted in the jack, substantially as described.

10. The combination with a jack and drop structure having a drop, a contact-spring forming one terminal of the jack, a sleeve forming another terminal of the jack, of a connecting-plate adapted to be inserted in the jack and having contacts to cooperate respectively with the terminals of the jack, and means controlled by said spring to restore the drop upon the insertion of the plug into the jack, substantially as described.

11. The combination with a jack and drop structure having a drop, a contact-spring forming one terminal of the jack, a sleeve forming another terminal of the jack, and a connecting-plate adapted to be inserted in the jack and having contacts to cooperate respectively with the terminals of the jack, said spring having an extension to engage and restore the drop when the plug is inserted in the jack, substantially as described.

12. A metallic-line drop and jack, comprising a framework, a sleeve mounted thereon, said framework and sleeve being connected with one side of the metallic line, a contact-spring mounted upon, but insulated from said framework and connected with the other side of the metallic line, a normal contact for the spring, a drop-extending magnet having its winding connected on one side with said framework and the other with said normal contact, a drop, said spring having an extension, and means actuated by said extension for restoring the drop when a plug is inserted in the jack, substantially as described.

13. A metallic-line drop and jack, comprising a framework, a sleeve mounted thereon, said framework and sleeve being connected with one side of the metallic line, a contact-spring mounted upon, but insulated from said framework and connected with the other side of the metallic line, a normal contact for the spring, a drop-extending magnet having its winding connected on one side with said framework and the other with said normal contact, and a drop, said spring having a forwardly-projecting end to engage and restore the drop when a plug is inserted in the jack, substantially as described.

14. In a combined jack and drop, the combination with a front plate, of a drop mounted upon said plate, and a contact-spring forming one terminal of the jack, said spring being extended through an aperture in said front plate to engage said drop and restore the same when a plug is inserted in the jack, substantially as described.

15. In a combined jack and drop, the combination with a front plate, of a drop mounted upon said plate, and a contact-spring forming one terminal of the jack, said spring being extended through an aperture in said front plate and having an upturned end to engage and restore the drop when a plug is inserted in the jack, substantially as described.

16. In a combined jack and drop, the combination with a front plate, of a drop mounted upon said plate, and a contact-spring forming one terminal of the jack, said spring being extended through an aperture in said front plate and having an upturned end to engage and restore the drop when a plug is inserted in the jack, said front plate and upturned end having an insulating-covering, substantially as described.

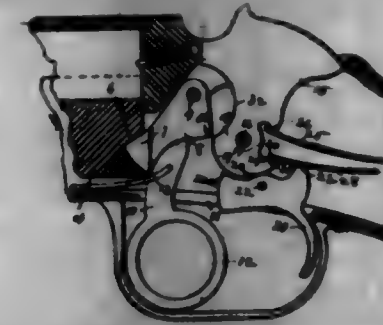
17. In a combined jack and drop, the combination with a front plate or support having a jack-socket therein and an aperture above the socket, of a jack-frame secured to the rear face of the front plate or support, a drop pivoted above the said aperture upon said plate or support, and a contact-spring mounted upon and insulated from the frame and forming one terminal of the jack, said spring having a contact portion disposed in line with said socket and a drop-extending portion extending above said socket and through said aperture, substantially as described.

18. In a combined jack and drop, the combination with a supporting-strip, of a jack-frame comprising a pair of side plates and front and rear bars joining them, the said front bar being placed against the rear face of the supporting-strip, a sleeve extending through the said support-

ing-strip and front bar to secure the said frame to the strip, said sleeve forming the jack-opening, a contact-spring forming one terminal of the jack mounted upon and insulated from said rear bar and having a contact portion disposed in line with said sleeve, the forward end of said spring being extended over said sleeve, and a drop adapted to be restored by said extended end when a plug is inserted in the jack, substantially as described.

19. In a combined drop and jack, the combination with a support, of a drop pivoted upon the face of said support, a drop-extending magnet secured to the rear face of said support, a jack-frame also secured to the rear face of the support, a sleeve extending through the support and into said frame and forming a terminal of the jack, and a contact-spring mounted upon and insulated from said frame and forming the other terminal of the jack, said spring being extended forward over the sleeve and through the support to engage and restore the drop when a plug is inserted in the sleeve, substantially as described.

697,516. FIREARM-LOCK. GEORGE F. HANCOCK, Flintburg, Mass., assignor to Harry Elmer Johnson, Flintburg, Mass., executor of the will of George F. Hancock, deceased. Filed Nov. 4, 1901. Serial No. 80,688. (No model.)



Claim.—1. The combination with a pivoted hammer provided with a notch to receive the trigger, a pivoted trigger adapted to engage said notch and hold the hammer in a cocked position and a hammer-spring by which said hammer is actuated, of a trigger-spring bearing against said trigger and a projection on said hammer arranged to receive the pressure of said trigger-spring, said projection having a shoulder arranged to abut against the end of said trigger-spring, said projection and said shoulder lying normally below the axis of said hammer, whereby the hammer is held out of contact with the firing-pin by the contact of said shoulder and said trigger-spring, substantially as described.

2. The combination of a pivoted hammer provided with a notch 30 to receive a trigger and a recess 17 to receive the ends of a hammer and a trigger spring, a hammer-spring and a trigger-spring, said hammer having a bearing-surface 26 to receive the pressure of said hammer-spring, and a projection 31 to receive the pressure of the trigger-spring, said projection having a shoulder 32 arranged to abut against the end of the trigger-spring, said projection and said shoulder lying normally below the axis of the hammer, whereby the hammer is held out of contact with the firing-pin by the contact of said shoulder and said trigger-spring, and a pivoted trigger having a projection 23 bearing against said trigger-spring and a tooth 23' engaging the notch in said hammer, substantially as described.

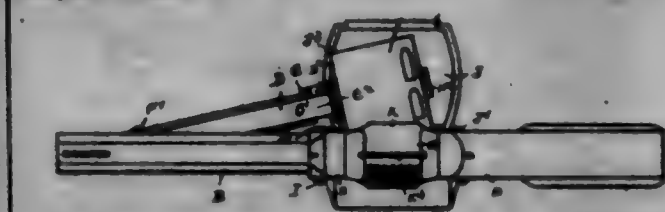
3. The combination with the frame of a firearm and a barrel hinged thereto and having a notch to receive a latch, of a latch pivoted at its upper end and having a downwardly-projecting tail-piece 10 extending through a slot in the frame, a spring by which said latch is held in said notch, a pivoted hammer provided with a notch 33 to receive said latch and a concave surface 19 by which said latch is locked in position, said hammer having a recess 17 to receive the hammer and trigger springs, a hammer-spring 26 and the trigger-spring 26 entering said recess, a projection 31 to receive the pressure of the trigger-spring, said projection having a shoulder 32 arranged to abut against the end of the trigger-spring, said projection and said shoulder lying normally below the axis of the hammer, substantially as described.

697,517. REVOLVING FIREARM. GEORGE F. HANCOCK, Flintburg, Mass., assignor to Harry Elmer Johnson, Flintburg, Mass., executor of the will of George F. Hancock, deceased. Filed Aug. 23, 1901. Serial No. 79,599. (No model.)

Claim.—1. The combination with the frame and barrel of a revolving firearm, of an arm pivoted at one end to the barrel, a cylinder carried by and capable of rotating on the free end of said arm, a right bar pivoted at one end to said arm, a spiral spring held in said arm with one end bearing against said bar to crowd it away from said arm, and a screw held in the arm and bearing against the opposite end of said spiral spring, substantially as described.

2. The combination with the frame and barrel of a revolving fire-

arm, of an arm pivoted at one end to the barrel, a cylinder carried by and capable of rotating on the free end of said arm, a right bar pivoted at one end to said arm, a spiral spring held in said arm with one end bearing against said bar to crowd it away from said arm, and a screw held in the arm and bearing against the opposite end of said spiral spring, substantially as described.



3. The combination with the frame and barrel of a revolving firearm, of an arm pivoted beneath said barrel, a cylinder journaled on the end of said arm, a spring applied to said arm to swing it on its pivot, a lug projecting from said arm, and a cover for the cylinder pivoted on said frame and bearing against said lug to hold the cylinder in its normal or firing position, substantially as described.

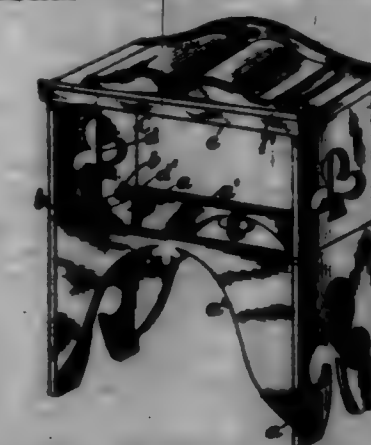
4. The combination with the frame and barrel of a revolving firearm, of an arm pivoted at one end beneath said barrel, a cylinder journaled on the free end of said arm and capable of swinging in a horizontal plane, a spring applied to said arm to swing said cylinder out of its normal firing position, a cover for said cylinder hinged at one end to said frame and bearing against said arm to hold the cylinder in its firing position and means for holding said cover against the pressure of the cylinder, substantially as described.

5. The combination with the frame and barrel of a revolving firearm, of a rotating cylinder held in said frame and in its normal position of firing, a cover including one side of said cylinder, said cover being hinged at its lower edge to said frame and having a lip at its upper edge, a locking plate forming the top plate of the frame and hinged beneath its center and a spring to carry one edge of said plate into engagement with said lip with the opposite edge of said plate forming a thumb-piece by which it is retracted to release said cover, substantially as described.

6. In a revolving firearm, the combination with a frame and a barrel carried therein and a revolving cylinder held in a firing position, a cover hinged to said frame and including said cylinder, a plate forming the top plate of the frame and hinged beneath its center and a spring acting on said plate to hold it in engagement with said cover, substantially as described.

7. The combination of a frame A and barrel B, of an arm-D pivoted at its end to said barrel and provided with a longitudinal slot H', a cylinder journaled on the free end of said arm, an ejector with its stem held in said arm, a spring to hold said ejector in its normal position and a knob H' projecting from said ejector-stem through said slot, and means for holding said cylinder on said arm during the sliding movement of said ejector, substantially as described.

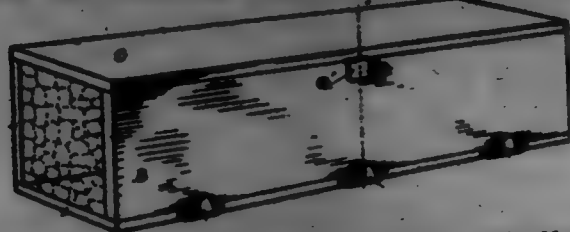
697,518. BOOK-BINDER. GERRIT E. MOULTON, Washington, D. C. Filed Oct. 25, 1901. Serial No. 82,424. (No model.)



Claim.—1. A book-binder consisting of a supporting-base, and piece hinged to the upper end of the base sides to be elevated, means for holding the end pieces when elevated, and a table flanged on its under side and adapted to rest on the top of the base and the end pieces when the latter are folded and to rest on the free ends of the end pieces when the latter are elevated.

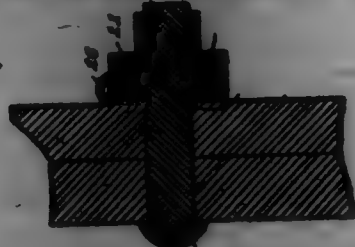
2. A book-binder consisting of a support, and piece hinged to the support to fold inwardly, springs operating to press the end pieces upwardly, and a table flanged on its under side and adapted to rest on the support and folded end piece and to rest on the end pieces when elevated by the springs.

697,519. BOX OR POUCH FILLS. WILLIAM B. HURRAY, Detroit, Mich. Filed Feb. 26, 1901. Serial No. 68,318. (No model.)



Claim.—A box for filling soap, composed of two plain side bars, a bottom bar upon which the side bars are supported and having upturned marginal flanges adapted to tie the side bars together at the bottom, a tie of hand-iron laid across the top of the side bars in the middle and having short ends turned down upon the outside of the side bars for tying the same together at the top, and a top placed over said tie, the top-down ends of which tie are exposed beyond the cover and sides to be turned off in heating the soap.

697,520. NUT-LOCK. IRON M. McCORMACK, Bureau, Ohio. Filed Aug. 28, 1901. Serial No. 72,897. (No model.)



Claim.—1. The combination of a threaded bolt, a nut secured thereon, an external screw-thread on said nut of a greater pitch than that of the thread on the bolt, a nut secured thereon, and means to prevent rotation of the same, substantially as shown and described.

2. In combination, a threaded bolt, a nut secured thereon, an external screw-thread on said nut of a greater pitch than that of the thread on the bolt and adapted to receive a second nut, a washer-plate having a perforation for the passage of the bolt, a projection at the edge of the perforation to enter an enlargement of the bolt-head and prevent rotation of the washer, and a tongue on the outer edge of the washer adapted to be turned up against the outside nut, substantially as and for the purpose described.

697,521. FINISHING-MACHINE FOR GLASSWARE. WALTER R. McCLAY, Wood, Ind. Filed Apr. 8, 1901. Serial No. 64,308. (No model.)



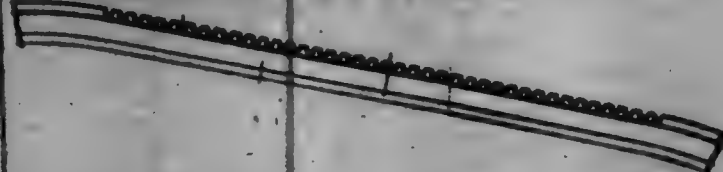
Claim.—1. In a machine for expanding and improving the tubular end of glass articles while in a plastic state, the combination of a rotating cylinder, fingers secured to said cylinder, the free ends of said fingers converging to a common center, leaders secured to said cylinder and capable of a horizontal movement, means for operating the forward ends of said fingers and said leaders, transversely to their lengths.

2. In a machine for expanding and improving the tubular end of glass articles while in a plastic state, the combination of a rotating cylinder, spring-actuated fingers secured to said cylinder, leaders spring-actuated and capable of a horizontal movement secured to said cylinder and a spreader, means for advancing it horizontally.

3. In a machine for expanding and improving the tubular end of glass articles while in a plastic state, the combination of a rotating cylinder, spring-actuated fingers secured to said cylinder, leaders, spring-actuated and capable of a horizontal movement secured to said cylinder, and a spreader operating said fingers and said leaders.

4. In the approximately simultaneous expanding and improving of the end of a glass article while in a plastic state, means for expanding said end and secondary means for improving outwardly said expanded end.

697,522. GUARD-RAIL. THOMAS MCINTYRE, Matthews, Ind. Filed Sept. 8, 1901. Serial No. 74,897. (No model.)



Claim.—1. A guard-rail having inwardly-bent ends and provided with a head projecting a greater distance in one direction from the web than in the opposite direction, said guard-rail having a series of notches in one of its flanges for the reception of fastening devices.

2. The combination with a main rail, of a guard-rail having one of its flanges abutting against a flange of the main rail, said guard-rail having a series of notches in its flange which abut against the flange of the main rail, and fastening devices passing through said notches, the head of said rail projecting a greater distance toward the main rail than in the opposite direction.

3. As an article of manufacture, a guard-rail having one side of its head or tread projecting an appreciably greater distance from its central web than the other side of said head or tread and a series of notches in the edge of the base-flange on the same side of the rail as the enlarged side of the head or tread.

697,523. VEL-ROLLER. HANAN E. McCRACK, Germantown, Pa. Filed Nov. 11, 1901. Serial No. 61,508. (No model.)



Claim.—A fastening device for veils and similar hat ornaments comprising two wires wound into each other to form a twisted base, the free ends of one of the wires projecting downward from said base and arranged to enter the brim of the hat and to be fastened thereto and the free ends of the other wire projecting upward from said base and adapted to be bent inward in opposite directions toward each other to encircle the knot of the veil or ornament, said free ends when bent projecting beyond the knot as to be readily accessible when the free ends are subject to release said knot.

697,524. ROLLER-BUSHING FOR SHEAVES. CLARENCE E. McINTYRE, Camden, Me. assignor to the Dupont Roller Bushing Company, Camden, Me., a Corporation of Maine. Filed May 28, 1901. Serial No. 61,509. (No model.)



Claim.—A roller-bushing comprising two opposable bushing members adapted to enter a sheave or pulley, and having positive connecting devices at their meeting inner ends, each member having a cylindrical recess in its inner side, the margin of which forms a runway, and an annular flange at its outer end forming an end wall of the recess, said flange having in its inner side an annular groove separated from the runway margin and from the inner edge of the flange by outer and inner annular bearing-surfaces, a series of bearing-rolls in contact with the cylindrical margin of the chamber and having transverse projecting into the

grooves of the flange, and a series of separating-rolls in contact with the said cylindrical margin and with the bearing-rolls, the ends of the separating-rolls bearing against the outer bearing-surfaces, while the ends of the bearing-rolls bear against both the outer and the inner bearing-surfaces.

697,525. BALL-BEARING HUB. DONALD McKAY, Pittsburgh, Pa. Filed July 20, 1901. Serial No. 68,131. (No model.)



Claim.—In a device of the class described, the combination of a spindle, a hub provided at its ends with interior screw-threads, the inner and outer axle-box sections provided with outer enlarged ends having annular grooves, the inner and outer ball-caps provided with annular grooves, the inner ball-cap being fixed to the inner end of the spindle and the outer ball-cap being internally threaded for engaging the outer threaded end of the spindle, the anti-friction-balls arranged in the annular grooves and supporting the axle-box sections out of contact with the spindle, the axle-box, the washer interposed between the nut and the outer ball-cap and interlocked with the spindle, the outer cap closing the outer end of the hub and engaging the outer screw-threads of the same, and the inner washer engaging the screw-threads of the inner end of the hub and fitting against the inner ball-cap and closing the inner end of the hub, substantially as described.

697,526. BOLT AND CHIEF GUARD FOR RAILWAY COACHES OR PASSENGER CARRIAGES. JAMES S. McINTYRE, Birmingham, Ala. Filed July 2, 1901. Serial No. 64,309. (No model.)



Claim.—The combination with the window-casing and the lower rail of the lowermost coach, of a longitudinally-grooved cabinet secured to the main sill of the window-casing, and a dust and choler guard comprising a semi-cylindrical pan having a longitudinal vertically-disposed front flange which is arranged adjacent to but separate from the inner face of the lower rail and provided with a longitudinal rib to fit said groove of the cabinet, and a discharge-pipe leading from said pan to a point without the coach, substantially as set forth.

697,527. BOLT AND CHIEF GUARD FOR ALL KINDS OF RAILWAY PASSENGER-CARRIAGES. JAMES S. McINTYRE, Birmingham, Ala. Filed July 2, 1901. Serial No. 64,310. (No model.)

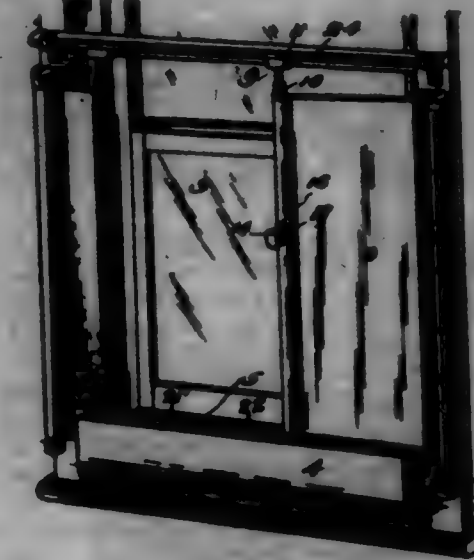
Claim.—1. The combination with the window-casing of a railway passenger-coach, of a dust or choler pan located at the lower end of the window-casing, a flexible shield movable across the window-opening and having its lower end disposed to conduct dust and choler, entering the window-opening, into the pan, substantially as set forth.

2. The combination with the window-casing of a railway passenger-coach, of a dust or choler pan located at the lower end of the window-casing, a flexible shield movable across the window-opening and having its lower end disposed to conduct dust and choler, entering the window-opening, into the pan, substantially as set forth.

3. The combination with the window-casing of a railway passenger-coach, of a dust or choler pan located at the lower end of the window-casing, a flexible shield movable across the window-opening and having its lower end disposed to conduct dust and choler, entering the window-opening, into the pan, and means for holding the shield in its adjusted position across the window-opening, substantially as set forth.

4. The combination with the window-casing of a railway passenger-

coach, of a dust or choler pan located at the lower end of the window-casing, a brush located within said pan, and a flexible shield movable across the window-opening and having its lower end disposed to conduct dust and choler, entering the window-opening, into the pan, substantially as set forth.



697,528. TELEPHONE. ARTHUR W. BAKER, Boston, U.S.A. Filed June 12, 1901. Serial No. 64,311. (No model.)

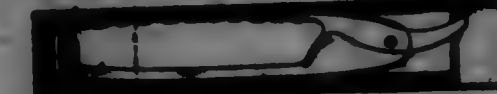


Claim.—1. The combination with a receiver, of a disk secured to the back thereof, a contact-plate secured to said disk and having one of the conducting-arms connected therewith, a spring-actuated button secured to said disk and having a conducting-arm connected therewith, whereby when said button is pressed the circuit is closed, and when the pressure is relieved the circuit is broken, substantially as described.

2. The combination with a receiver, of a disk of insulating material secured to the back thereof, a wire or conductor leading into said disk, a plate located in a central opening in said disk and secured at one end to said disk, a wire or conductor secured to said plate, and a spring located between said plate and receiver, whereby said plate when pressed, contacts with said first conductor, and separates therefrom when the pressure is released, substantially as described.

3. The combination with a receiver, of a disk secured thereto and provided with a central opening, the conductor of leading into said disk, the plate occupying the opening in said disk and having a button secured to the outer side thereof, a wire or conductor indirectly connected with said plate and a spring located between said receiver and plate, whereby when said button is pressed, its attached plate will contact with said conductor, substantially as and for the purpose set forth.

697,529. METHOD OF RENDERING SHARP AND EVEN CUTTING EDGES OF IMPLEMENTS. GEORGE H. HUNTER, San Francisco, Cal. Filed Mar. 28, 1901. Serial No. 62,497. (No model.)



Claim.—The art of rendering a metallic cutting edge in proper condition, consisting in rendering the same in proximity to a magnet with its edge directed toward the magnet.

697,530. THERMO-ELECTRIC SWITCH. JAMES S. McINTYRE, Birmingham, Ala. Filed Sept. 12, 1901. Serial No. 75,148. (No model.)

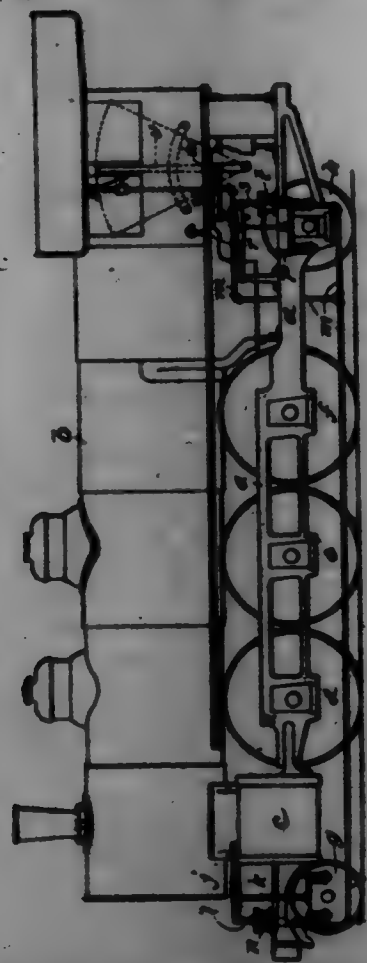
Claim.—1. In a thermo-electric switch the combination with a base of a resilient, insulating line-support, a line carried thereby, metallic ter-

6. In a locomotive of the class described, the combination of a frame portion provided with a set of main driving-wheels, front guiding and rear trailing wheels, equalizing mechanism pivoted upon the frame of the machine and connecting the different sets of wheels together to normally distribute the weight in proper proportion upon said wheels, an operating-lever pivoted to the frame of the machine and to the equalizers in the front of the locomotive, a second operating-lever pivoted to the frame of the locomotive and the equalizer at the rear of the locomotive, an intermediate lever pivoted to both said operating-levers, an operating-cylinder provided with a movable piston connected with each intermediate lever to simultaneously move both of said operating-levers and redistribute the weight upon the wheels, a supply-pipe connecting the operating-cylinder with a source of motive fluid, and a controlling-valve in each supply-pipe connected with the reversing-lever of the locomotive and provided with a passage to admit motive fluid gradually to the operating-cylinder, substantially as described.

7. In a locomotive of the class described, the combination of a frame portion provided with a set of driving-wheels, front guiding and rear trailing wheels, equalizing mechanism for distributing the weight of the locomotive upon these wheels, and means for gradually operating the equalizing mechanism to redistribute and rearrange the weight upon these wheels, substantially as described.

8. In a locomotive of the class described, the combination of a frame portion provided with a set of main driving-wheels, front guiding and rear trailing wheels, equalizing mechanism pivoted upon the frame of the machine and connecting the different sets of wheels together to normally distribute the weight in proper proportion upon said wheels, operating-levers pivoted to the frame of the machine and to the equalizers, and means for actuating these operating-levers in a gradual manner, substantially as described.

697,586. LOCOMOTIVE. JOHN PLATER, Tipton, Ind. Filed Aug. 10, 1901. Serial No. 71,563. (No model.)



Claim.—1. In a locomotive of the class described, the combination of a frame portion provided with a set of driving-wheels, front pilot and rear trailing wheels, equalizing-lever mechanism for distributing the weight upon the rear trailing wheels, an operating-lever connected with this equalizing-lever mechanism, and a fluid-pressure cylinder connected with the operating-lever and with the frame portion of the locomotive to move the operating-lever, raise the equalizing-lever mechanism and throw a portion of the load upon the said main driving-wheels, substantially as described.

2. In a locomotive of the class described, the combination of a frame portion provided with a set of driving-wheels, front pilot-wheels and rear trailing wheels, equalizing mechanism for the front pilot-wheels, an op-

erating-lever connected to the frame and pivoted to the equalizing mechanism for the front guiding-wheels, an operating-cylinder provided with a piston-rod connected to the operating-lever to move the same and thereby raise the equalizer and throw a portion of the load upon the front pilot-wheels upon the set of main drivers, substantially as described.

3. In a locomotive of the class described, the combination of a frame portion, a set of main drivers, front pilot-wheels and rear trailing wheels, equalizing mechanism connected with the front pilot-wheels and with the main drivers and with the rear trailing wheels to equalize or distribute the weight thereon, an operating-lever connected with the equalizers adjacent to the rear trailing wheels and pivoted to the frame and provided with a piston connected with the operating-lever to operate the same and throw a portion of the load from the rear trailing to the set of main drivers, a second operating-lever pivoted to the frame and with the equalizers adjacent to the front pilot-wheel, and an operating-cylinder connected with the frame and provided with a piston to the second operating-lever to move the same and throw a portion of the load from the front pilot-wheel to the set of drivers, substantially as described.

697,587. BASKET. JOHN R. FARRER, Belleville, Ill. Filed May 26, 1901. Serial No. 68,671. (No model.)



Claim.—1. A basket comprising a bottom upper and lower and handle bands provided with lips or hangers, and sides composed of a single piece of wire bent to extend back and forth between the top and bottom bands and having the upper and lower portions thereof in engagement with the lips or hangers of the top and bottom bands.

2. A basket comprising a bottom top and bottom bands having downwardly and upwardly projecting malleable hangers respectively, and sides composed of a single length of wire bent to extend upward and downward between the top and bottom bands and having its upper and lower portions bent over and beneath the top and bottom bands respectively and engaged with the malleable lips or hangers thereof.

3. A basket comprising a bottom top and bottom bands of malleable metal having their top and bottom edges respectively beveled and bent downward and upward upon the outer sides thereof to form hangers, and sides composed of a single length of wire bent to extend back and forth between the top and bottom bands and having its upper and lower portions engaged beneath the hangers thereof.

4. A basket comprising a bottom top and bottom bands provided with malleable hangers, sides composed of a single piece of wire bent to extend back and forth between the top and bottom bands and having its upper and lower portions in engagement with the hangers, and an intermediate band provided with clips in engagement with upright portions of the wire forming the sides of the basket.

5. A basket comprising top and bottom bands, a bottom consisting of a single plate having radiating arms having their edges bent to form reinforcing and supporting flanges, and an auxiliary wire bottom supported thereon and consisting of an inverted coil of wire connected at intervals to the supporting-bottom.

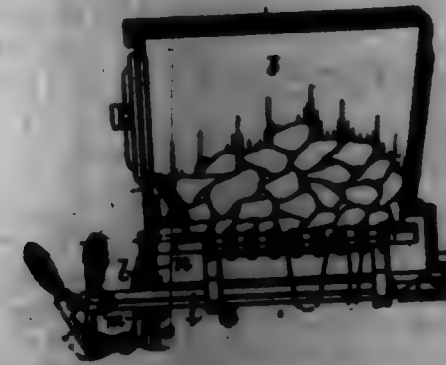
6. A basket comprising top and bottom bands, sides composed of wire extending back and forth between the top and bottom bands, a supporting-bottom comprising radiating arms provided with pendent flanges which reinforce the bottom and form a support for the basket as a whole, and an auxiliary wire bottom in the form of an inverted coil of wire secured at intervals to the supporting-bottom, substantially as described.

697,588. GRATE. CHARLES E. PROCTOR, Montreal, Canada. Filed Feb. 26, 1901. Serial No. 68,664. (No model.)

Claim.—1. The combination with a stationary fire-pot, of a conical cylindrical integral fire-grate presenting a permanently-flush fuel-supporting surface of twice the area of the bottom opening in the fire-pot, the extended area of each supporting surface being bladed, and means adapted either to reciprocate or oscillate said grate so as to cause the bladed portion to completely close each bottom opening of the fire-pot, substantially as described and for the purpose set forth.

2. The combination with a stationary fire-pot, of a movable fire-grate twice the width of that of the bottom opening of the fire-pot, of less

length than the supporting frame thereof and having its portion of extended width bladed, the whole presenting a permanently-flush fuel-supporting surface and means adapted to either reciprocate or oscillate said grate, for the purpose set forth.



2. The combination with a stationary fire-pot having an oblong bottom opening, of a conical cylindrical grate of twice the circumferential length of the width of said bottom opening, said grate comprising an open-grate portion and closed or bladed portion and the ends of the half-circle so formed connected by bars extending transversely of the grate; a shaft upon which said bars are mounted, and means connected to said shaft adapted either to reciprocate or oscillate said grate to cause either said open portion or bladed portion to extend across the bottom opening of the fire-pot, substantially as described and for the purpose set forth.

3. The combination with a fire-pot having an oblong bottom opening, of a conical cylindrical grate of twice the circumferential length of the width of said bottom opening, said grate comprising an open-grate portion and a closed or bladed portion, which together present a permanently-flush fuel-supporting surface, and means adapted to either oscillate said grate to cause said open portion or bladed portion to extend across said bottom opening of the fire-pot, or to reciprocate said grate longitudinally of said bottom opening, substantially as described and for the purpose set forth.

4. The combination with a fire-pot having an oblong bottom opening, of a conical cylindrical grate of twice the circumferential length of the width of said bottom opening, said grate comprising an open-grate portion of as great area as said bottom opening, and the ends of the half-circle so formed connected by bars extending transversely of the grate; a shaft upon which said bars are mounted, and means adapted either to reciprocate or oscillate said grate to cause either said open portion or bladed portion to extend across said bottom opening of the fire-pot, substantially as described and for the purpose set forth.

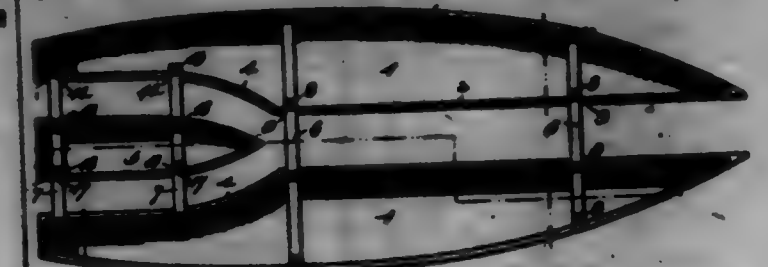
5. The combination with a fire-pot having an oblong bottom opening, of a conical cylindrical grate of twice the circumferential length of the width of said bottom opening, said grate comprising an open-grate portion of as great area as said bottom opening, and a closed or bladed portion of as great area as said bottom opening, which portions together present a permanently-flush fuel-supporting surface, and means adapted to either oscillate said grate to cause said open portion or bladed portion to extend across said bottom opening of the fire-pot, or to reciprocate said grate longitudinally of said bottom opening, substantially as described and for the purpose set forth.

6. The combination with a stationary fire-pot, of an oscillating conical cylindrical grate comprising an open-grate portion and a closed or bladed portion and means adapted either to oscillate or reciprocate said grate, substantially as described and for the purpose set forth.

7. The combination with an oscillating grate and its operating-shaft, of a part rotatable with said shaft; means for covering said part against longitudinal movement with said shaft; a lever extending transversely of said shaft and fastened at one end to said part; and means pivotedly connecting said lever midway of its length to said shaft, substantially as described and for the purpose set forth.

8. The combination of the front frame-plate of a stove; a fire-pot having an oblong bottom opening; an oscillating conical cylindrical grate comprising an open axial grate portion and a closed or bladed axial grate portion; a squared shaft for oscillating said grate; a cross-bar rotatable with said shaft; a hub integral with said cross-bar midway of the length thereof and projecting through and rotatable in an opening in said frame-plate and having a squared opening to allow the passage of the squared end of said shaft therethrough; a pair of flanges integral with the periphery of said hub and located one on each side of said frame-plate; a pair of steps for limiting the oscillatory movement of said cross-bar; a lever extending transversely of said shaft and pivotedly connected midway of its length thereto; and a link interconnecting one end of said lever to the corresponding end of said cross-bar, substantially as described and for the purpose set forth.

697,589. BOAT. CHARLES E. PROCTOR, Montreal, Canada. Filed July 12, 1901. Serial No. 68,665. (No model.)



Claim.—1. A boat comprising side sections adapted to be arranged contiguous to each other and capable of being spaced apart, said sections being provided at their rear portions with inner recesses adapted to form a pocket when the side sections are arranged together, and a rear section conforming to the configuration of the pocket and located between the rear portions of the side sections, substantially as described.

2. A convertible boat comprising separable tapering side sections having abutting inner sides and forming a boat of the ordinary configuration and providing a tapering bow, said side sections extending the entire length of the boat and capable of being spaced apart to form a boat of the catamaran type, and means for rigidly connecting the sections, substantially as described.

3. A boat comprising side sections provided at their rear portions with recesses to form a pocket, said side sections being adapted to be arranged contiguous to each other and to be spaced apart, and a rear section arranged in the said pocket and adjustably connected with the side sections and adapted to be raised and lowered independently of the side sections, substantially as described.

4. A boat comprising the side sections provided at their inner walls or sides with straight front portions and having curved rear portions to form a pocket, and the pointed rear section conforming to the configuration of the pocket and adjustably connected with the side sections, substantially as described.

5. A boat comprising the separable side sections arranged contiguous to each other to form a boat of the ordinary construction and capable of being spaced apart to provide a boat of the catamaran type, cross-bars connecting the side sections, and the vertically-adjustable rear section mounted independently of the side sections and adjustably connected with the adjacent cross-bars, substantially as described.

6. A boat provided with a vertically-adjustable propeller section mounted independently of the rest of the boat and designed to contain the propelling mechanism and capable of being arranged at different depths to permit the propeller to operate in both deep and shallow water, and means for securing the propeller-section in its adjusted position, substantially as described.

7. A boat having a propeller-section arranged within the contour of the body portion and vertically movable independently thereof and with relation thereto to raise and lower the propeller, and means for securing the propeller-section against independent lateral movement.

8. A catamaran boat having a rear pocket and provided therein with a vertically-movable rear propeller-section mounted independently of the rest of the boat and capable of adjustment to position a propeller properly, substantially as described.

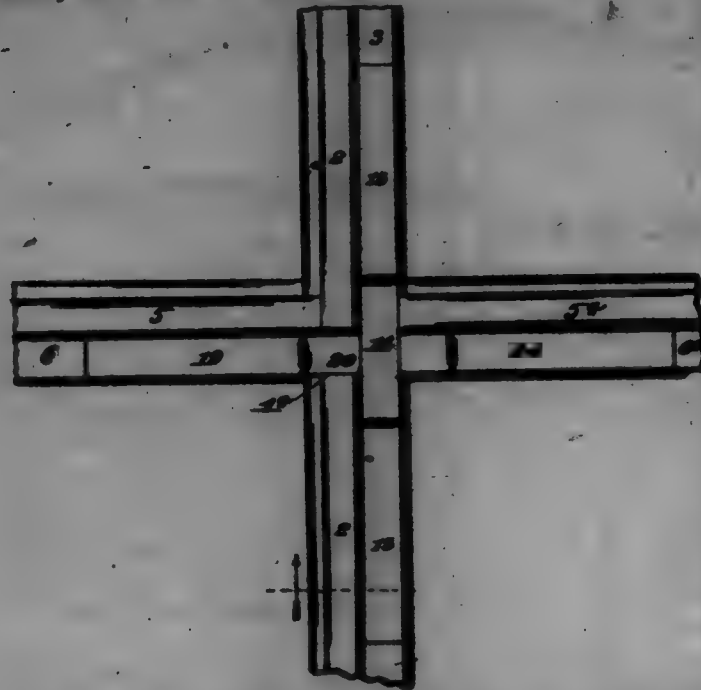
697,540. RAILROAD-CROSSING. EDWARD E. RAWLINSON, St. Louis, Mo., assignor of one-fourth to Roger P. Amos, St. Louis, Mo. Filed June 8, 1901. Serial No. 68,567. (No model.)

Claim.—1. In a railroad-crossing, the combination with a continuous rail and crossing-rails at angles thereto; of a series of members having inclined tracks extending to a common center at the junction of said rails, bolts passing horizontally through said members and removably securing them to said rails, whereby the strain on said members will be borne by said rails.

2. In a railroad-crossing, the combination with a continuous rail and crossing-rails, at angles thereto; of a series of members having inclined tracks extending to a common center at the junction of said rails, bolts passing horizontally through said members and removably securing them to said rails, and said members also having curved feet bearing against the base of said crossing-rails, whereby the strain on said members will be borne by said crossing-rails.

3. In a railroad-crossing, the combination with a continuous rail and crossing-rails, at angles thereto; of a double-inclined member having inclined tracks extending upwardly from the ends thereof to an apex, and a pair of members having single-inclined tracks extending upwardly from their outer ends and arranged to abut against said double-inclined member at the apex thereof, all of said members being removably connected to the rails of said crossing-rails by means of bolts passing horizontally

through and having curved feet bearing upon the base of said rails, whereby the strain on said members will be borne by said rails.



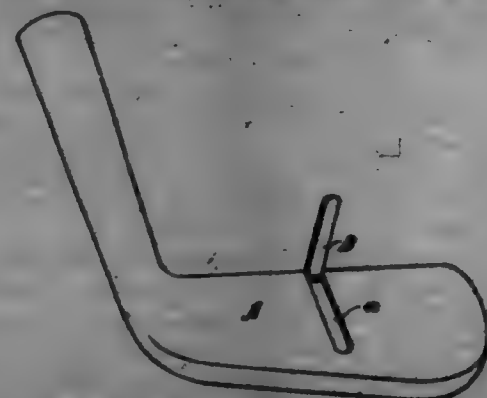
4. In a railway-crossing, the combination with a continuous rail, a notch in the tread of the same, and cross-rails positioned at angles thereto; of a double-inclined member positioned beside said continuous rail and having inclined tracks extending upwardly from the ends thereof in an open, a pair of members positioned beside said cross-rails and having single-inclined tracks extending upwardly from their outer ends, the inner end of one of said single-inclined members abutting said continuous rail, the tread of the same extending through the notch in said continuous rail and abutting the tread of the double-inclined member at the apex, the other inclined member being provided with a tongue on its inner end, said tongue adapted to fit between the tread and feet of the double-inclined member and to hold the tread of said inclined member in abutment against the tread of the double-inclined member at the apex thereof.

697,541. WICK FOR HYDROCARBON-BURNERS. WILLIAM KEAR, Birmingham, Mass., assignor to Charles F. Brown, Reading, Mass. Filed June 17, 1901. Serial No. 64,518. (No model.)



Claim.—1. A flat wick with having its upper end provided with an asbestos collar in contact with both sides thereof and adapted to form a seal to retain the carbon formed by burning the end of the wick.
2. A flat wick with having its upper end provided with an asbestos collar, the material of the collar at the two edges of the wick being cut away or beveled for the purpose described.

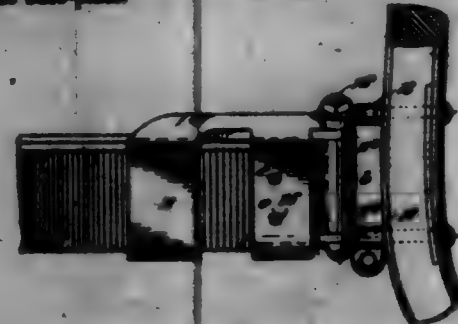
697,542. GOLF-CLUB. WILLIAM BARNHART, Germantown, Pa. Filed Aug. 27, 1900. Serial No. 24,220. (No model.)



Claim.—A golf-club A having a groove a at the upper end of which a "guide" is hingedly attached to said club at all for the purpose and substantially as set forth.

697,543. BOOKS FOR TUG-GRAPES. WILLIAM E. BIRD, Birmingham, Mass. Filed May 1, 1901. Serial No. 64,501. (No model.)
Claim.—1. The combination with a frame comprising a base plate and spaced flanges thereon, of a tongue-plate pivoted at one end between

said flanges, and detachably secured at the other end thereof by a transverse bolt, and a stud projecting from the tongue-plate through a perforation in the base-plate.



2. The combination with a base-plate having spaced flanges at the sides thereof and spaced perforations in said base-plate, of a tongue-plate having a tabulation at each end, a pivot-rod engaging one of said tabulations and fixed in the spaced flanges near one end thereof, one at the opposite end of the flanges, having aligned perforations, and a bolt having engagement with the one end and also with the remaining tabulation on the tongue-plate.

697,544. ALLOY. WALTER EHRH, Ludwigshafen, Germany. Filed Dec. 8, 1901. Serial No. 54,022. (No specimen.)
Claim.—An alloy composed of aluminum and phosphorus containing from four to seven per cent. of phosphorus.

697,545. PROCESS OF MAKING INDIGO. TRANSDONT BARNHART, Bielefeld, Germany, assignor to Indigo Colour and Extract-Works, formerly John R. Selig, Bielefeld, Germany, a Corporation. Filed Aug. 28, 1901. Serial No. 71,908. (No specimen.)

Claim.—The herein-described process of producing indigo which consists in treating alpha-thiobenzene, made by reacting with calcinated hydrogen upon an acid solution of alpha-thiobenzene, with a suitable alkaline solution in presence of calcinated hydrogen substantially as set forth.

697,546. PACKING-GASKET. JAMES J. BROWN and ARTHUR BROWN, Milwaukee, Wis. Filed Jan. 2, 1902. Serial No. 64,102. (No model.)



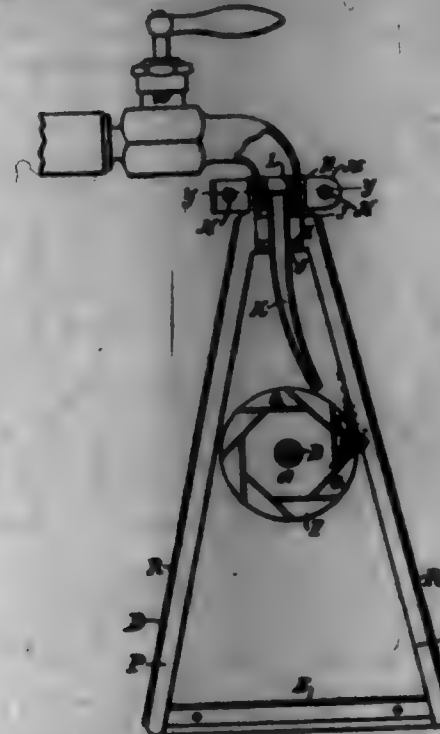
Claim.—1. A packing-gasket consisting of a ring of compressible soft metal or metallic composition and a harder metallic ring in crimped tongue-and-groove connection one within the other.
2. A packing-gasket consisting of a ring of compressible soft metal or metallic composition having an annular tongue, and a harder metallic ring provided with an annular groove in which the tongue of the former ring is crimped.

697,547. WATER-MOTOR. BENJAMIN SUMNER, Milwaukee, Wis. Filed June 28, 1901. Serial No. 64,501. (No model.)

Claim.—1. A water-motor, comprising a motor-wheel; an including case; a wheel-supporting shaft having journal-bearings in the walls of said case; a discharge-nozzle having its discharge end in close proximity to the buckets of said wheel; a coupling, comprising an exterior elastic sleeve adapted to be clamped to the exterior wall of the nozzle; an interior elastic sleeve, or packing, adapted to be forced outwardly by the water-pressure, against the interior wall of said nozzle; and an elastic clamping-band for clamping said exterior sleeve to the nozzle, as set forth.

2. The combination of a motor-wheel A; an including case comprising two separable parts, provided with outwardly-projecting flanges F, and clamping-pieces H fitted to said clamping-flanges; a wheel-supporting shaft B having journal-bearings in the walls of said case; a per-

forated bottom piece K, including the lower end of said case; a discharge-nozzle H; and means for connecting said case to the nozzle, substantially as set forth.



3. In a water-motor, the combination with a water-wheel A, comprising two side plates F, F', and an annular series of buckets G, secured at their sides to said vertical plates; a supporting-shaft B; and including case D, said shaft B having journal-bearings in the walls of said case; a discharge-nozzle K; means for suspending said case from a fixed support, comprising a flexible metallic collar H secured to the exterior wall of the nozzle; an interior rubber collar L, having bearings against the interior wall of the nozzle; a flexible clamping-band M; and means for securing said clamping-band around said collar, substantially as and for the purpose specified.

697,548. HYDRAULIC-MOTOR. HARRAN SHAW, New York, N. Y. Filed July 28, 1901. Serial No. 64,501. (No model.)



Claim.—1. An improved article of manufacture, an enveloping-tube comprising a hollow tube or barrel having a closure at one end, a pad held in the opposite end of the barrel and arranged to project therefrom, and a removable buffer or guide at the end of the barrel, the said guide having its outer portion formed into a loop and having a shank extending into the barrel between the pad and the wall of the barrel.

2. A device of the kind described, comprising a hollow tube or barrel having a closure at one end, a porous pad held in the opposite end of the barrel as to project therefrom, and a spring buffer or guide held in the end of the barrel next the pad, the said guide abutting with the pad when it projects from the barrel and having spring members extending into the barrel between the wall thereof and the pad.

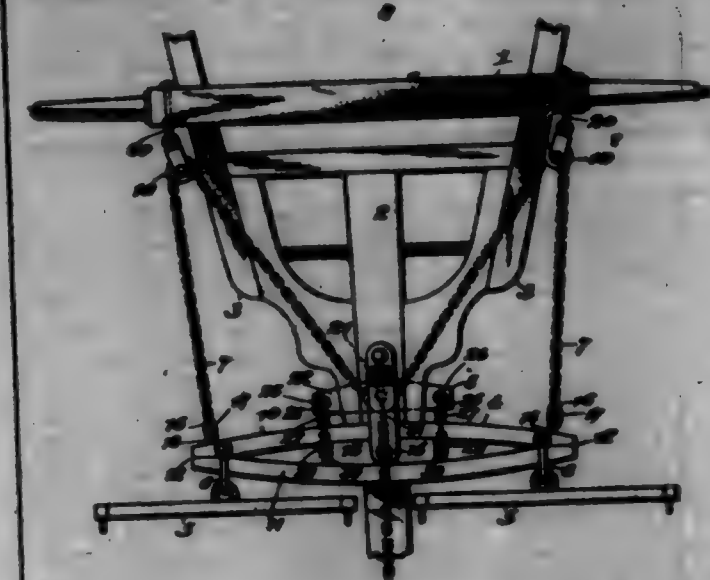
3. The combination with the hollow tube or barrel, having a closure at one end, with a pad in the opposite end of the barrel, of a spring-buffer projecting from the padded end of the barrel, the buffer having its outer portion made in the form of a loop, engaging in parallel spring members, the said members lying in the tube between the wall thereof and the pad.

697,549. DRAFT-SQUALLER. JOHN S. CRAWFORD, Boston, Wis. Filed Aug. 27, 1901. Serial No. 71,921. (No model.)

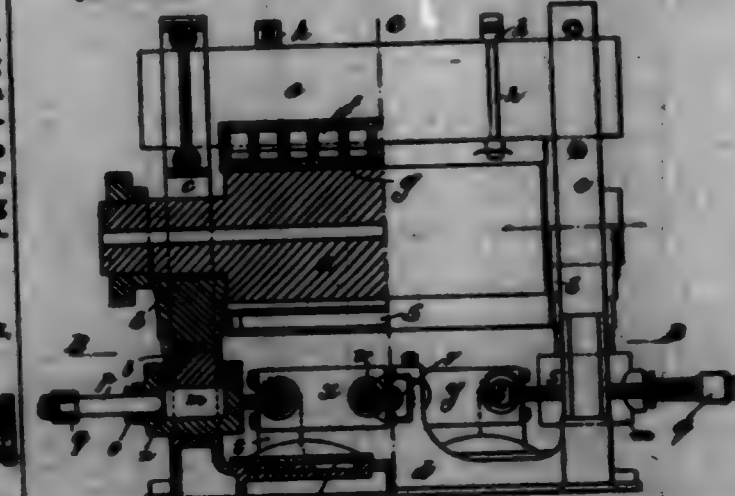
Claim.—1. An improved draft-squaller of the class described, comprising, in combination with the vehicle-axle and the pole connected therewith, a draft-squaller having an elongated transverse slot in the center through which it is pivotally mounted on the pole, draft-squaller connected with the ends of the draft-squaller, pulleys secured to the axle, a pulley having an elongated block adjustably connected at each end with the draft-squaller, and a chain passing around said pulleys and secured at its ends to the ends of the draft-squaller.

2. An improved draft-squaller of the class described, comprising, in combination with the vehicle-axle and the pole connected therewith, a draft-squaller having an elongated transverse slot in the center through which it is pivotally mounted on the pole, draft-squaller connected with the ends

of the draft-squaller, pulleys secured to the axle, a pulley having an elongated block adjustably connected at each end with the draft-squaller, a chain passing around said pulleys and secured at its ends to the ends of the draft-squaller, and draft means connected with the elongated block and extending forward.



697,550. PRESS FOR PRESSING LINOLEUM. GEORGE H. BURT, Gloucester, England. Filed Feb. 27, 1901. Serial No. 64,500. (No model.)



Claim.—1. In a press suitable for pressing linoleum and similar material, the combination of a roll, a pressure-plate arranged adjacent to and made concave on the side next said roll, reciprocating means connected to one of said parts for moving it toward and from the other part and means for actuating said reciprocating means as to subject material located between them to intermittent pressure.

2. In a press suitable for pressing linoleum and similar material, the combination of a roll, a pressure-plate arranged adjacent to and made concave on the side next said roll, hydraulic rams connected to one of said parts for reciprocating it toward and from the other part, hydraulic pumps adapted to reciprocate said rams, and means for reciprocating the pump-plungers and causing them to make their strokes and counter-strokes together.

3. In a press suitable for pressing linoleum and similar material, the combination of a roll, a pressure-plate arranged adjacent to and made concave on the side next said roll, hydraulic rams connected to one of said parts for reciprocating it toward and from the other part, hydraulic pump-plungers adapted to reciprocate said rams, means for reciprocating the pump-plungers and causing them to make their strokes and counter-strokes together, an auxiliary pump adapted to supply water to the main pumps, on the outer ends of their plungers, and safety devices adapted to allow of the escape of surplus water from said main pumps on the strokes of their plungers.

4. A press suitable for pressing linoleum and similar material, comprising a pressure-plate having a concave pressing face, a roll arranged in proximity to the concave face of said plate, hydraulic rams connected to one of said parts for reciprocating it toward and from the other part, hydraulic pump-plungers for operating said rams, and oppositely-arranged rotary means for operating said pumps.

5. A press suitable for pressing linoleum and other material, comprising a stationary frame, a hollow pressure-plate fixed thereto and having a concave pressing-face; means for heating said pressure-plate, a roll

arranged parallel to said pressure-plate and adjacent to its concave face, means for reciprocating said roll to and from said pressure-plate, means for rotating said roll in an intermittent manner, and means for guiding material to be pressed between said pressure-plate and roll.

6. A press suitable for pressing linoleum and other material, comprising a stationary frame, a hollow pressure-plate fixed thereto and having a concave pressing-face, means for heating said pressure-plate, a roll arranged parallel to said pressure-plate and adjacent to its concave face, means for reciprocating said roll to and from said pressure-plate, hollow hot plates arranged at the back of and below said roll, means for heating said pressure and hot plates, and means for guiding material to be pressed between said roll and the hot and pressure plates, substantially as described.

7. In a press suitable for pressing linoleum and similar material, the combination of a roll, a pressure-plate arranged adjacent to and made concave on the side next said roll, hydraulic rams connected to one of said parts for reciprocating it toward and from the other part, hydraulic plunger-pumps adapted to reciprocate said rams, and cranks connected to said plungers and arranged to cause them to make their strokes while the cranks are turning in a direction away from said plungers.

8. A press suitable for pressing linoleum and similar material, comprising a stationary frame, a hollow pressure-plate fixed to the upper part thereof and having a concave lower pressing-face, a roll arranged below said pressure-plate, mounted in bearings arranged to reciprocate in said frame, and provided with means for rotating it, hydraulic cylinders fixed to said frame and fitted with rams connected to said bearings, hydraulic plungers arranged to compress water within said cylinders, cranks and connections for reciprocating said plungers, an auxiliary pump connected to said hydraulic cylinders and adapted to supply water thereto on the contraction of their plungers, and safety-valves to allow of escape of surplus water from said cylinders after a predetermined pressure has been reached on the intake of said plungers, substantially as described.

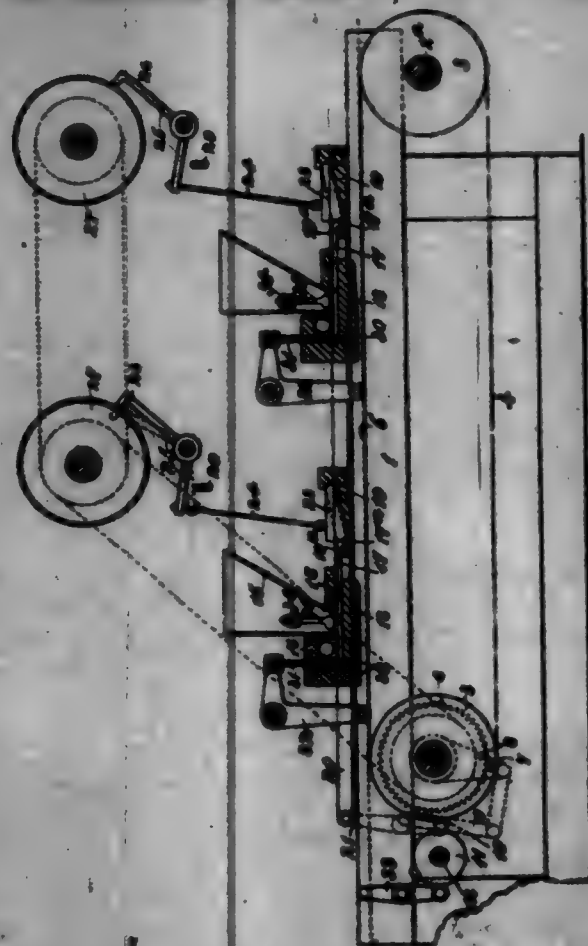
9. In a press suitable for pressing linoleum and other material, the combination of a stationary pressure-plate having a concave pressing-face, a roll arranged parallel to said pressure-plate and near to its concave face, bearings for said roll, hydraulic rams connected to said bearings, guide-ways for said bearings, hydraulic cylinders for said rams, a crank-shaft located between said hydraulic cylinders, plungers arranged at the outer side of said cylinders and capable of compressing liquid within said cylinders, and driving means connected between said crank-shaft and plungers for causing the latter to make their strokes and contract together.

10. In a press suitable for pressing linoleum and other material, the combination of a stationary pressure-plate having a concave pressing-face, a roll arranged parallel to said pressure-plate and near to its concave face, bearings for said roll, hydraulic rams connected to said bearings, guide-ways for said bearings, hydraulic cylinders for said rams, a shaft located between said hydraulic cylinders and provided with cranks arranged opposite to each other, plungers arranged at the outer side of said cylinders and capable of compressing liquid within said cylinders, and driving means connecting the outer ends of said plungers to the oppositely-arranged cranks, substantially as described.

11. A press suitable for pressing linoleum and other sheet material, comprising a stationary frame, a pressure-plate fixed to the upper part of said frame and having a concave pressing-face, a roll arranged horizontally below said pressure-plate and near to the concave face thereof and mounted in bearings arranged to work in guide-ways in said frame, vertical hydraulic cylinders fixed to said frame and provided with rams connected to said bearings, horizontal plungers arranged to work through the outer sides of said cylinders, a transverse rotary shaft located between said cylinders and provided with three cranks two of which are arranged directly opposite to the third, means connecting two of said cranks to the outer end of one plunger and the third crank to the outer end of the other plunger, a pump adapted to supply liquid to said cylinders on the stroke of their plungers, and safety-valves adapted to allow of escape of surplus water from said cylinders on the intake of said plungers, substantially as described.

12. A press suitable for pressing linoleum and similar material, comprising a stationary frame, a hollow pressure-plate fixed to the upper part thereof and having a concave pressing-face, hot plates fixed to the back and lower part of said frame, means for heating said plates, a roll mounted below said pressure-plate, vertical hydraulic cylinders fixed to said frame and fitted with rams carrying bearings in which said roll is mounted, horizontal plungers working in the outer side of said cylinders, separate pairs of inner and outer crank-hands connected together and to the outer end of each plunger, a transverse crank-shaft arranged between said cylinders and having oppositely-arranged cranks connected to the inner ends of each plunger, means for rotating said shaft, an auxiliary pump driven from said shaft and connected to said cylinders, safety-valves for escape of surplus water from said cylinders, and means for guiding the material to be pressed between said roll and the hot and pressure plates, substantially as described.

697,551. MACHINERY FOR THE MANUFACTURE OF LINOLEUM. CHARLES H. SMYTH, Gloucester, England. Filed May 1, 1901. Serial No. 64,361. (No model.)



Claim.—1. In apparatus for the manufacture of linoleum, the combination of a die, means for supplying linoleum mixture thereto, a transverse discharge-passage in communication with said die, and means for compressing the mixture within the die into a piece of the required size and shape and discharging it from said die into said passage, as set forth.

2. In apparatus for the manufacture of linoleum, the combination of a die, means for supplying linoleum mixture thereto, a transverse discharge-passage in communication with said die, means for supporting a traveling backing beneath said passage and means for compressing the material within the die into a piece of the required size and shape and discharging the compressed piece from the die into the discharge-passage and onto said backing, as set forth.

3. In apparatus for the manufacture of linoleum, the combination of a transverse row of dies, means for supplying linoleum mixture thereto, means for compressing the mixture within the dies into pieces of the required size and shape, a transverse discharge-passage in communication with said dies, and means for discharging the compressed pieces, as set forth.

4. In apparatus for the manufacture of linoleum, the combination of a number of transversely-arranged rows of dies, means for supplying linoleum mixture thereto, plungers therein adapted to compress the mixture into pieces of the required size and shape against transversely-movable plates that normally close said dies, means for withdrawing said plates and means for discharging the compressed pieces, as set forth.

5. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, compressing-plungers therein, transverse discharge-passage communicating with the outlets from said dies, pressure-plates located in said discharge-passage and adapted to close the outlet ends of the dies, means for reciprocating said plungers at the required times and means adapted to move said pressure-plates clear of the outlets of the dies after part of the forward movement of the plungers has occurred, and to reversely move said pressure-plates after the plungers have completed their forward movements and then discharge the compressed mixture, substantially as described.

6. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, compressing-plungers therein, transverse discharge-passage communicating with the outlets from said dies, pressure-plates located in said discharge-passage and adapted to close the outlet ends of the dies, a bar extending across the ends of said plungers, means for moving said bar toward and from said dies on abutment-plates opposite the outer end of each

plunger and carried by said bar and each capable of being separately moved into and out of engagement with its plunger, means adapted to move said pressure-plates at the required times, as set forth.

7. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, a series of compressing-plungers, one in each die, means for reciprocating said plungers and pattern-controlling means whereby the reciprocating means of the several plungers are held in and out of their operative attitude in the required order, as set forth.

8. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, a transverse discharge-passage in communication with said dies, plungers in said dies adapted to compress the mixture into pieces of the required size and shape, and a movable device having a surface of a particular contour adapted to control the reciprocating means of the several plungers, as set forth.

9. In apparatus for the manufacture of linoleum, the combination of a die-plate 13 having a series of grooves 14, hopper 15, plungers 17 having heads 17', transverse bar 19 with lip 19', means for moving said bar to and fro, abutment-plates 20, a movable device having perforations, pins or points 26 resting against said device, means connecting said pins or points 26 to said abutment-plates 20 and a link-bar 28, as set forth.

10. In apparatus for the manufacture of linoleum, the combination of a grooved die-plate 13, hopper 15, heated plate 16, plungers 17, transverse bar 19, links 20, levers 21, cam 22, abutment-plates 23, links 24, levers 26 having pins or points 26, perforated drum 27, means for moving said drum at the required times, and link-bar 28, as set forth.

11. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, compressing-plungers therein, transverse discharge-passage communicating with the outlets from said dies, pressure-plates located in said discharge-passage and connected to bell-cranks, links connecting said bell-cranks to levers moved at the required times by cam, as set forth.

12. In apparatus for the manufacture of linoleum, the combination of a series of dies, means for supplying linoleum mixture thereto, compressing-plungers therein, transverse discharge-passage communicating with the outlets of said dies, means for supporting and intermittently moving a traveling backing beneath said discharge-passage and means for discharging the compressed pieces from said dies and discharge-passage onto said backing, as set forth.

697,552. MANUFACTURE OF LINOLEUM. CHARLES H. SMYTH, Gloucester, England. Filed July 24, 1902. Serial No. 63,912. (No model.)



Claim.—1. In the manufacture of linoleum, the combination with a support for linoleum, vertically-movable hollow dies for cutting out pieces of linoleum from a layer thereof on said support, and means for moving said support relatively to said dies, of an air-exhausting device connected to each die for the purpose of holding the piece of linoleum therein until the die is in position to apply it to the linoleum backing, and a plate in each die for then forcing its respective piece of linoleum out onto said backing, substantially as set forth.

2. In an apparatus for manufacturing linoleum, the combination with a support for loose granulated linoleum, one or more vertically-movable hollow dies for cutting portions of loose granulated linoleum from a layer thereof on said support, and means for moving said support and die or dies relatively to each other, of a plate within each die for compressing the portion of linoleum therein and constructed to pneumatically hold it therein until the die is in position to apply it to the linoleum backing, and means for forcing down each plate to deposit said portion upon the said backing, substantially as set forth.

3. In a machine for striking linoleum, the combination with a support for linoleum, vertically-movable dies adapted to cut out pieces of linoleum from a layer thereof on said support, and means for moving said support and dies relatively to each other, of plates fitting said dies and movable endwise therein, said plates being provided with air-exit openings so that a partial vacuum can be set up in the space between each plate and a piece of linoleum within the corresponding die, substantially as described for the purpose specified.

4. In a machine for making linoleum, the combination of dies adapted to cut out pieces of linoleum from a layer thereof, and plates fitting said dies and movable endwise therein, said plates being provided with air-exit openings controlled by one-way valves, substantially as described for the purpose specified.

5. In a machine for making linoleum, the combination of a table, a pressure-block arranged above said table and provided on its under side with dies, means for raising and lowering said block, plates fitting said dies air-tight and each formed with an air-exit opening through which air can pass from the under side of said plates, means for preventing the return of said air, means for raising and lowering said plates relatively to said dies, a plate serving to carry a layer of linoleum, means for moving said plate under said pressure-block and for withdrawing it therefrom, and means for feeding a backing below said pressure-block and plate.

6. In a machine for making linoleum, the combination of a table, a pressure-block arranged above said table and provided on its under side with dies, means for raising and lowering said block, plates fitting said dies air-tight and movable endwise therein, each plate being formed with an air-exit opening through which air can pass from the under side of said plates, a plate adapted to be moved under said pressure-block and to be withdrawn and serving to carry a layer of linoleum, means for feeding linoleum over said plate, and means for feeding a backing below said plate.

7. A machine for making linoleum comprising a table, two or more independent pressure-blocks provided on their under sides with dies, means for separately raising and lowering each of said blocks with dies, a plate arranged within each of said dies and fitted with an air-exit passage through which air can pass from the under side of said plates, means for preventing the return of said air to the under side of said plates, and means for raising and lowering said plates relatively to said dies, plates arranged horizontally above said table, means for moving each of said plates below its corresponding pressure-block and afterward withdrawing it, and means for feeding linoleum over each of said plates.

8. In a machine for making linoleum, the combination with a vertically-movable pressure-block provided on its under side with hollow dies, of plates fitted to slide air-tight within said dies, and having rounded or beveled lower edges, substantially as described for the purpose specified.

9. In a machine for making linoleum, the combination with a vertically-movable pressure-block provided on its under side with hollow dies, of plates arranged to slide air-tight within said dies and formed with air-exit passages through which air can pass from the under sides of said plates, means for preventing the return of said air, and means external to said dies for moving the plates endwise therein alternately in opposite directions, substantially as herein described for the purpose specified.

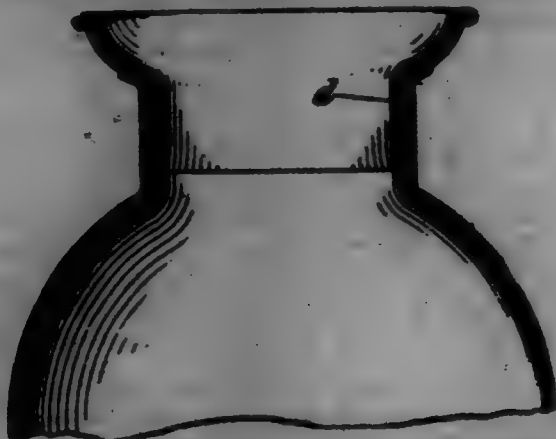
10. In a machine for making linoleum, the combination of a pressure-block provided on its under side with hollow dies, a vertically-movable cross-piece to which said pressure-block is connected so as to be capable of rising and falling relatively thereto, springs tending to force said pressure-block and cross-piece apart, plates fitting said dies and having their ends extending through said block and adapted to be depressed by said cross-piece and plates being formed with air-exit passages through which air can pass from the under side of said plates, means for preventing the return of said air, means for raising and lowering said cross-piece, a plate adapted to support a layer of linoleum below said pressure-block,

means for moving said plate below said pressure-block, means for withdrawing it, and means for feeding a backing below said pressure-block.

11. In a machine for making insid linoleum, the combination of a pressure-block provided on its under side with hollow dies, a vertically-movable cross-piece to which said pressure-block is connected as to be capable of rising and falling relatively thereto, springs tending to force said pressure-block and cross-piece apart, pistons fitting said dies and having their rods extending through said blocks and adapted to be depressed by said cross-piece, said pistons being formed with air-exit passages through which air can pass from the under side of said pistons, means for preventing the return of said air, means for raising and lowering said cross-piece, a plate adapted to support a layer of linoleum below said pressure-block, means for moving said plate below said pressure-block and withdrawing it, means for automatically feeding a layer of linoleum over said plate, and means for feeding a backing below said plate.

12. A machine for making insid linoleum comprising a table, two or more combined pressure-blocks and cross-pieces arranged independently of each other above said table, each of said pressure-blocks being provided on its under side with hollow dies, with pistons fitting said dies and having their rods bear against the corresponding cross-pieces, and springs tending to force said block away from the corresponding cross-piece and permitting the latter to move toward and away from said block when downward movement thereof is arrested, said pistons being formed with air-exit passages through which air can pass from the under side of said pistons, means for preventing the return of said air, mechanism for raising and lowering each of said cross-pieces independently of each other, horizontal plates arranged above said table, means for reciprocating said plates below said pressure-blocks, and stationary tiring-boxes each adapted to deposit a layer of granulated linoleum over its corresponding plate when the same is moved under it in one direction, substantially as described.

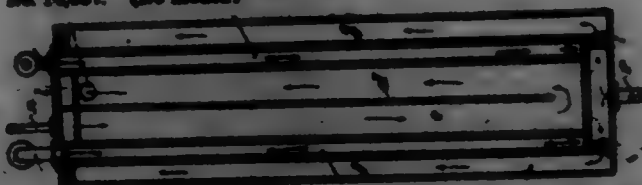
697,558. MILK-CAN. BENJAMIN G. BRAMAN, New York, N. Y. Original application filed Jan. 30, 1901, Serial No. 45,303. Divided and this application filed Dec. 7, 1901. Serial No. 84,904. (No model.)



Claim.—1. A milk-can having a breast member and a bowl member, the breast member and bowl member being each formed of a single thickness of metal and each provided with a rigid integral neck member, said neck members overlapping throughout substantially their entire extent to form a double neck, the inner neck member stopping short of overlapping the outer neck member, the inner neck member having its free edge chamfered or beveled in order to avoid the formation of a recess liable to hold impurities.

2. A milk-can having a breast member and a bowl member, the breast member being formed of a single thickness of metal and provided with a rigid integral neck member, the bowl member also having a neck member, said members overlapping throughout substantially their entire extent to form a double neck, the inner neck member having its free edge chamfered or beveled in order to avoid the formation of a recess liable to hold impurities, the other neck member having a bent portion engaging the other part of the can.

697,554. APPARATUS FOR HEATING OR COOLING LIQUIDS. EDWARD GILLER, Düsseldorf, Germany. Filed Apr. 24, 1900. Serial No. 14,667. (No model.)



Claim.—An apparatus for heating and cooling liquids, composed of a pair of oppositely-arranged communicating channel channels, a pair of

inner communicating heating or cooling chambers intermediate said channels, a series of outer heating or cooling chambers that inclose the channels and the inner chambers, the adjoining outer heating or cooling chambers being connected alternately at the top and bottom, substantially as specified.

697,555. MIXER OR VAPORIZER FOR HYDROCARBON-ENGINE. CHAS. EDWARD SUTHERLAND, Chicago, Ill. Filed Mar. 13, 1901. Serial No. 51,671. (No model.)



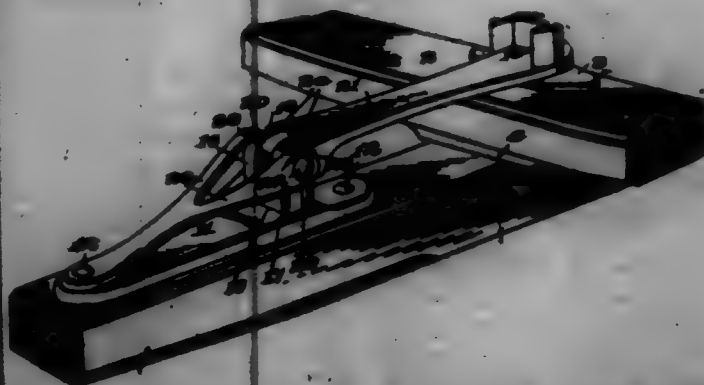
Claim.—1. A mixer or vaporizer for hydrocarbon-engines consisting of a chamber through which the air passes on its way to the cylinder, a pump-casing opening into the chamber, a hollow plunger working in the casing and ending, an oil-inlet valve in that part of the plunger within the casing, and a discharge-port in the plunger adapted to open into the chamber during a portion of the stroke of the plunger and to be closed during the remainder of the stroke by passing within the casing.

2. A means of supplying oil to hydrocarbon-engines consisting of a pump-casing, supply and overflow pipes connected thereto, valves in said pipes, a plunger in the casing, a chamber in the plunger, said chamber having an inlet-valve opening under less pressure than the valve of the overflow-pipe and a discharge-port closed by the casing during a portion of the stroke.

3. A mixer or vaporizer for hydrocarbon-engines consisting of a mixing-chamber in the air-passage leading to the cylinder, a pump-casing opening into the mixing-chamber, a chambered plunger working within the casing and the mixing-chamber, an oil-inlet valve in the plunger, an oil-discharge port in the plunger adapted to alternately open and close by passing without and within the casing, and means to regulate the amount of oil discharged through said port.

4. A mixer or vaporizer for hydrocarbon-engines, consisting of a mixing-chamber, a pump adjacent thereto having a plunger working partly within the chamber, an oil-passage in the plunger having a port opening into the chamber, a sliding block in the passage to regulate the size of the port, and means to adjust the block.

697,556. WHIRLETYPE-COUPLINE. JOHN C. BRADLEY, Fairmont, W. Va. Filed July 12, 1901. Serial No. 68,964. (No model.)



Claim.—1. The combination with a draft-pin, a relatively fixed whirleytype, and a pivot-rod pivoting these parts, of a brace having one end connected to the pivot-pin, a laterally-projected support carried by

the pole and located at the opposite end of the brace, a pivotal connection between the support and the brace.

2. The combination with a draft-pole, a relatively fixed whiffletree and a pivot-bolt piercing these parts, of a laterally-directed projection carried by the pole, a brace having its opposite ends connected, respectively, to the projection and the pivot-pin, and an inclined brace having its opposite ends connected with the pole and projection and extended away from the first-mentioned brace.

3. The combination with a draft-pole, a relatively fixed whiffletree, and a pivot-pin piercing these parts, of a laterally-directed and bifurcated projection carried by the pole, a substantially horizontal brace having one end provided with an opening receiving the pivot-pin, and its opposite end provided with a reduced perforated bearing-ear which is received within the bifurcation of the projection, a forked inclined brace having one end connected to the pole and its forked members embracing the projection, and a pivot-pin piercing the forked members, the projection and the bearing-ear of the first-mentioned brace.

4. A whiffletree-brace embodying a support constructed for application to a draft-pole, a whiffletree-brace having one end pivotally connected to the support and its opposite end provided with a perforation for the reception of the pivot-pin of a whiffletree, and an inclined brace having one end connected to the support and located opposite the whiffletree-brace, the outer end of the inclined brace having means for connection with a draft-pole.

5. A whiffletree-brace embodying an attaching-bracket, having a laterally-directed projection, which is bifurcated longitudinally, a whiffletree-brace having one end provided with a perforate bearing-ear mounted within the bifurcation of the projection, and its opposite end provided with a perforation for the reception of a whiffletree-pin, and an inclined brace located opposite the whiffletree-brace and having its outer end connected to the bracket, the opposite end of said brace being bifurcated to straddle the projection, and a pivot-pin piercing the forked portion of the inclined brace, the projection and the bearing-ear of the whiffletree-brace.

697,557. GRAIN-CAR DOOR. GEORGE S. SMITH, DART, N.H., assigner of one-half to WILLIAM S. LEWIS, DART, N.H. Filed Nov. 30, 1901. Serial No. 84,388. (No model.)



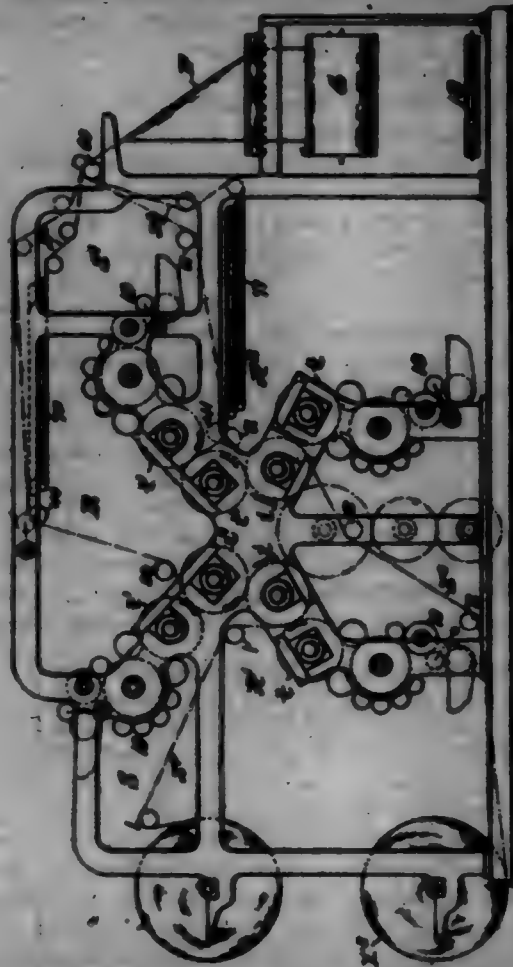
Claim.—1. The combination with a grain-car door provided at its bottom with an opening and having ways at opposite sides thereof, of a sliding supplemental door arranged in the ways and adapted to cover and uncover the opening, and the vertical rods mounted on the car-door and adapted to detachably engage the bottom of the car and preventing the said door from springing outward, substantially as described.

2. The combination of a grain-car door having an opening at its bottom and provided at opposite sides with ways, a supplemental door mounted in the said ways and provided with central guides, and the vertical rods secured at their upper ends to the car-door and extending through the said guides and detachably engaging the bottom of the car, substantially as described.

3. The combination of a car-door having an opening at its bottom, the metal strips secured to the door and provided with L-shaped flanges forming vertical ways and having arms at their upper and lower ends, said arms being secured to the door, and a supplemental door mounted in the ways and adapted to cover and uncover the said opening, substantially as described.

4. The combination of a door having a bottom opening and provided above the same with a horizontal cleat, the metal strips secured to the car-door at opposite sides thereof and provided with vertical L-shaped flanges forming ways and having upper and lower arms, the upper arm being secured to the cleat and the lower arm being fastened to the car-door at the back thereof, the supplemental door mounted in the ways and provided with guides, and the vertical rods secured to the cleat and passing through the guides of the supplemental door, substantially as described.

697,558. PRINTING-PRESS. WILLIAM SWANENBERG, Brooklyn, N. Y., assigner, by direct and mesne assignments, to Robert E. E. and Charles W. Carpenter, copartners as R. E. E. and Company, New York, N. Y. Filed Dec. 31, 1897. Serial No. 688,082. (No model.)



Claim.—1. In a printing-press, the combination of two printing and perfecting mechanisms, each of said mechanisms comprising a pair of printing-couplers, the two couplers of each printing and perfecting mechanism being arranged one above the other and the four printing-couplers being arranged in radii from a common center, the impression-cylinders of each couple being placed nearest the center and the inking mechanism for each couple being placed furthest from the center in the case of each printing mechanism, all of the printing mechanisms being arranged in line and with their cylinders parallel, and means whereby a single web may be led through both said mechanisms for color-printing, or separate webs may be led through said mechanisms for printing and perfecting a plurality of webs, substantially as described.

2. In a printing-press, the combination of two printing and perfecting mechanisms, each of said mechanisms comprising a pair of printing-couplers, the four printing-couplers being arranged in radii from a common center, the impression-cylinders of each couple being placed nearest the center and the inking mechanism for each couple being placed furthest from the center in the case of each printing mechanism, all of said mechanisms being arranged in line with their cylinders parallel, means whereby a single web may be led through both said mechanisms for color-printing, or separate webs may be led through said mechanisms for printing and perfecting a plurality of webs, and a fifth printing mechanism arranged to coast with said two web printing and perfecting mechanisms in color-printing, substantially as described.

3. The combination of two printing and perfecting mechanisms consisting of a pair of printing-couplers arranged in radii from a common center, the impression-cylinders of each couple being placed nearest the center and the inking mechanism for each couple being placed furthest from the center in the case of each printing mechanism, all of said printing mechanisms being arranged in line with their cylinders parallel, means whereby a single web may be led through both said mechanisms for color-printing, or separate webs may be led through said mechanisms for printing and perfecting a plurality of webs, and a third printing mechanism placed in the V-shaped space above the center of the press and arranged to coast with said two web printing and perfecting mechanisms in color-printing, substantially as described.

4. The combination with a plurality of web-printing mechanisms arranged in line with their cylinders parallel, of two folding and delivery mechanisms having longitudinal folders arranged in line with and between said printing mechanisms, with the folders facing in opposite directions and toward each other, and means for guiding the web from the respective mechanisms to either of the folders, substantially as described.

5. The combination with a plurality of web-printing mechanisms at each end of the press, arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side with their printing-couples radiating from a common center, of two folding and delivery mechanisms arranged in line with and between the printing mechanisms at the opposite ends of the press, substantially as described.

6. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side, of folding and delivery mechanisms arranged in line with and between the printing mechanisms at the opposite ends of the press, substantially as described.

7. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side, of two folding and delivery mechanisms arranged in line with and between the printing mechanisms at the opposite ends of the press, substantially as described.

8. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side, of two folding and delivery mechanisms arranged in line with and between the printing mechanisms at the opposite ends of the press and having longitudinal folders facing in opposite directions and toward each other, substantially as described.

9. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side with their printing-couples radiating from a common center, of two folding and delivery mechanisms arranged in line with and between the printing mechanisms at the opposite ends of the press, and having longitudinal folders facing in opposite directions and toward each other, substantially as described.

10. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side of two folding and delivery mechanisms arranged between the printing and perfecting mechanisms at the opposite ends of the press, and means for guiding the webs from the respective mechanisms to either of the folders, substantially as described.

11. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side, of two folding and delivery mechanisms arranged between the printing mechanisms at the opposite ends of the press, and having longitudinal folders facing in opposite directions and toward each other, and means for guiding the webs from the respective mechanisms to either of the folders, substantially as described.

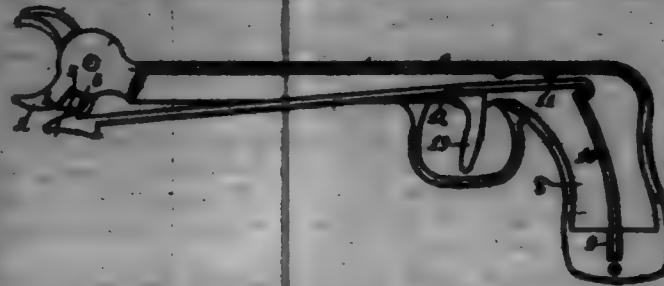
12. In a printing-press, the combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel and with the printing and perfecting mechanisms at the same end of the press arranged side by side, of two folding and delivery mechanisms arranged in line with and between the printing and perfecting mechanisms at the opposite ends of the press, and means for guiding the webs from the upper type-cylinders of the respective printing and perfecting mechanisms to the folders, with space between the upper and lower webs for access to the upper type-cylinders and inking mechanisms of the two inside printing and perfecting mechanisms, substantially as described.

13. The combination with a plurality of web-printing and perfecting mechanisms at each end of the press arranged in line with their cylinders parallel, of two folding and delivery mechanisms each arranged in line with and between said web-printing and perfecting mechanisms with the front side of the folding and delivery mechanisms facing in opposite directions and toward each other, substantially as described.

697,559. STOCK-RINGER. ANTHONY J. BRUNER, Kansas City, Mo. Filed May 17, 1901. Serial No. 68,705. (No model.)

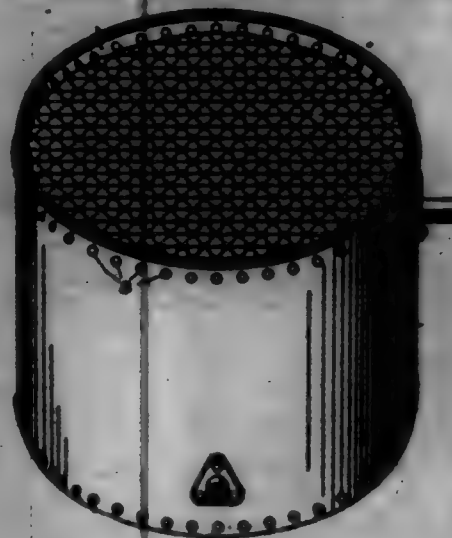
Claim.—1. The combination substantially as described of oppositely-disposed pivotally-connected jaws, a stock upon which said jaws are mounted, a spring mounted in said stock, a latch connected with said spring, a trigger adapted to engage said latch to hold the spring under tension, a stop on said latch for effecting the engagement of said latch with the trigger, a leg upon one of said jaws provided with a catch adapted to engage said latch and a projection on said leg adapted to engage said latch and release the catch therefrom, as the jaws are closed.

2. In a stock-ringer, the combination of a stock, oppositely-disposed, pivotally-connected jaws mounted upon said stock, a spring mounted in said stock, a retained latch connected with said spring, a trigger mounted in said stock and arranged to engage said recess in said latch to hold said spring under tension, and a catch on one side of said jaws arranged to be brought into engagement with said latch to set said jaw upon the ring after the spring is set; substantially as set forth.



3. In a stock-ringer the combination of a stock, oppositely-disposed, pivotally-connected jaws on said stock, a spring mounted in said stock, a latch connected with said spring and arranged to be engaged by one of said jaws, a trigger mounted in said stock and arranged to engage said latch to hold the spring under tension, a pole upon which said stock is mounted, and a wire extending along said pole and connected with said trigger for releasing the same from said latch; substantially as set forth.

697,560. TUBULAR BOILER. JAMES A. STEVENS, Philadelphia, Pa. Filed Mar. 26, 1901. Serial No. 68,904. (No model.)



Claim.—1. A boiler comprising a drum, and fire-tubes having their ends expanded and welded together in line of a crown-sheet, substantially as specified.

2. A boiler comprising a drum, fire-tubes having expanded ends fitted and connected together so as to form a crown, and a band connecting said drum and tubes, substantially as specified.

697,561. STEAM-BOILER. JAMES A. STEVENS, Barberton, Ohio. Filed Oct. 3, 1901. Serial No. 73,004. (No model.)

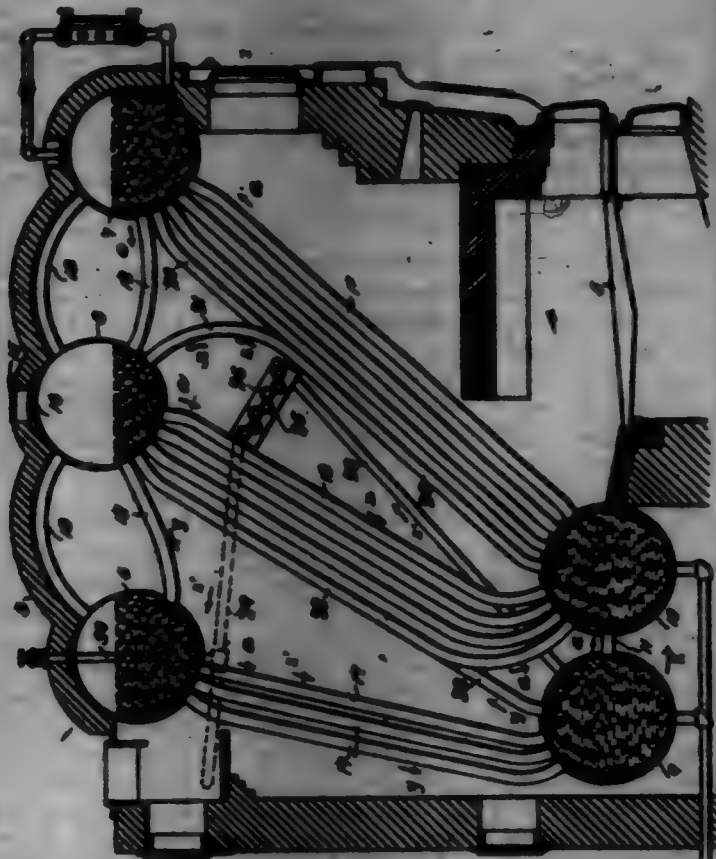
Claim.—1. A water-tube boiler having a plurality of banks of tubes, the tubes forming the rear portions of one or more of the banks being arranged closely together and forming a baffle-plate.

2. A water-tube boiler comprising a plurality of upper drums having communication with each other, a lower mud-drum, a plurality of banks of tubes extending between the mud-drum and the upper drums, the tubes forming the rear wall of the first bank being arranged closely together for a portion of their length and forming a baffle-plate, and thence being separated for the remainder of their length, alternate tubes being connected to different drums.

3. A steam-boiler having as elements, a pair of connected upper drums 7 and 8, a lower mud-drum 10, a bank of tubes 20 extending from the mud drum to the drum 7 at a point adjacent to the combustion-chamber, a second bank of tubes 18 extending between the mud-drum and the second upper drum 8, and an auxiliary set of tubes 21 alternating with the tubes 20 forming the rear row of the first bank, the said tubes of the rear row and the tubes 21 being arranged closely together for a portion of their length to form a baffle-plate and thence being separated for the remainder of their length, the tubes 20 continuing with those of the first bank to the drum 7 and the said tubes 21 being connected to the drum 8, substantially as specified.

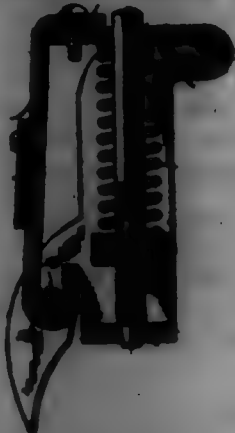
4. The combination in a water-tube boiler, of a series of upper drums

6, 7 and 8, having communication with each other, two lower drums 9 and 10 also in communication with each other, a bank of water-tubes 17 extending between the drums 6 and 8, a crossed bank of tubes 18 extending between the drums 8 and 10, a third bank of tubes 19 extending between the drums 7 and 10, an auxiliary row of tubes 21 arranged in alternation with the rear row of tubes in the bank 19 and being arranged closely together for a portion of their length to form a baffie-plate, said tubes 21 being separated from the tubes 19 near their upper ends and being connected to the drum 8, an auxiliary row of tubes 23 arranged in alternation with the rear row of tubes and the bank 18 and being arranged closely together for a portion of their length, said tubes 23 being separated from the tubes 18 near their lower ends and being connected to the rear end-drum 2, substantially as specified.



5. In combination in a water-tube boiler, of a plurality of upper drums, a rear-drum, tubes connecting the rear-drum to the upper drums, an auxiliary set of transversely-disposed tubes arranged closely together and forming a baffie-plate or deflector, and drums or manifolds 26 and 27 to which the opposite ends of said auxiliary tubes are connected, and connections between one of said drums and the rear-drum and between the opposite side drums and one of the upper drums, substantially as specified.

697,562. PICKER-CHECK FOR LOCKER. CHARLES A. DE GREE, Dover, Mo. Filed Dec. 5, 1891. Serial No. 84,384. (No model.)



Claim.—1. In a device of the class described, the combination with a support, of a holding-plate movably mounted on the support, a flexible check-strap secured to the holding-plate, and a tension-spring engaging the holding-plate.

2. In a device of the class described, the combination with a support, of a holding-plate movably mounted on the support, a flexible check-strap secured to the holding-plate, a tension-spring engaging the holding-plate, and means for regulating the tension of the spring.

3. In a device of the class described, the combination with a support, of a holding device pivoted upon the support, a flexible check-strap

connected to the holding device, and a tension-spring engaging the holding device.

4. In a device of the class described, the combination with a support, of a holding device pivoted upon the support, a flexible check-strap connected to the holding device, a tension-spring engaging the holding device, and mechanism for regulating the tension of the spring.

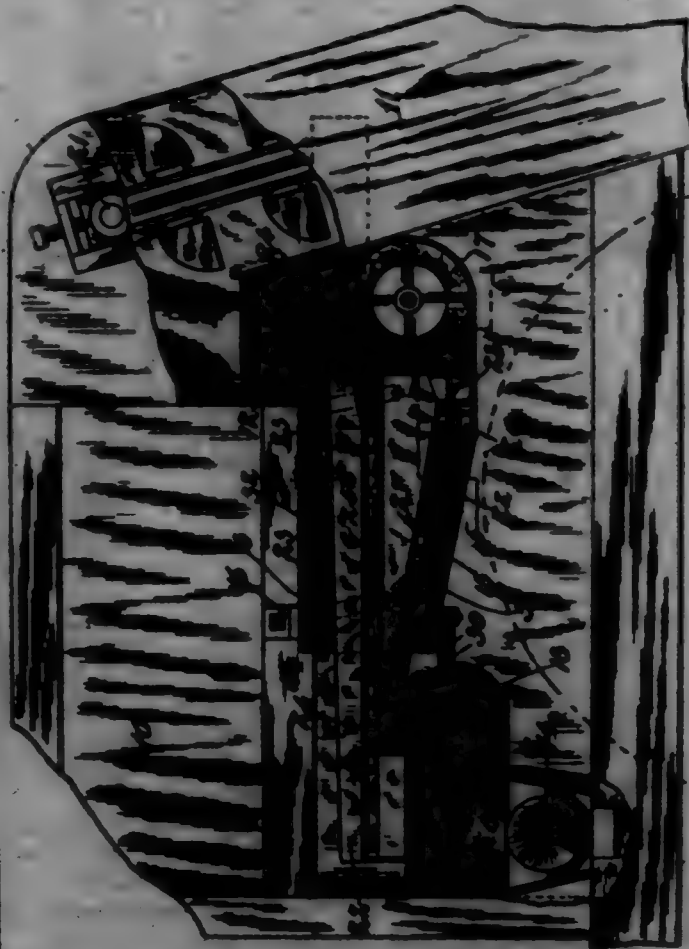
5. In a device of the class described, the combination with a support, of a holding device pivoted to the support at one end, a flexible check-strap secured to the free end of the holding device, and a tension-spring mounted upon the support and bearing against the holding device.

6. In a device of the class described, the combination with a support, of a holding device pivoted to one end of the support, a flexible check-strap secured to the opposite end of the support at one end and attached at its opposite end to the holding device, and a tension-spring engaging the holding device.

7. In a device of the class described, the combination with a support, of a holding-plate pivoted to the support at one end, a flexible check-strap secured to the free end of the holding-plate, a tension-spring engaging the holding-plate between its pivot and the point of attachment, and means for regulating the tension of the spring.

8. In a device of the class described the combination with a support, of a holding-plate pivoted to one end of the support, a flexible check-strap secured to the opposite end of the support and attached to the holding-plate, a tension-spring engaging the holding-plate between its pivot and the point of attachment of the check-strap, an adjusting-screw passing through the spring, and a nut threaded on the screw and engaging said spring.

697,563. THRASHING-MACHINE. PHILIP P. CURTIS, Lowell, Ind. Filed Sept. 4, 1899. Serial No. 28,908. (No model.)



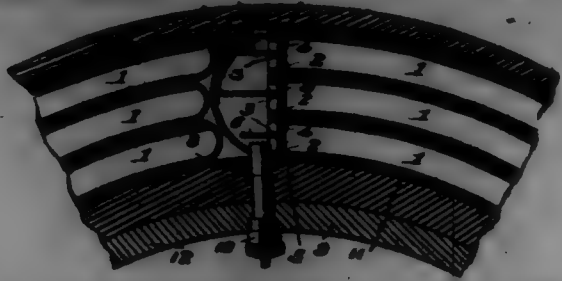
Claim.—In combination, a thrashing-machine having a reciprocating ridge-chase, a roller-chase secured to the side of the thrashing-machine, a reciprocating ridge-chase in each case, a bracket secured to the ridge-chase of the thrashing-machine, and a link connecting the bracket with the roller ridge-chase and being pivotally attached to each.

697,564. PNEUMATIC TIRE. CHARLES E. THOMAS, Tucson, Ariz. Filed Sept. 28, 1891. Serial No. 78,351. (No model.)

Claim.—1. A tire embodying a series of tubes, each with a valve, and a pouch common to all of said valves and tubes, said pouch including the ends of the tubes, and induced by the tire.

2. A tire of the character described, embodying a series of tubes, an inflating-valve for one end of each tube and a flexible pouch including said valves and stems, said pouch provided with an inflating-valve and induced by the tire.

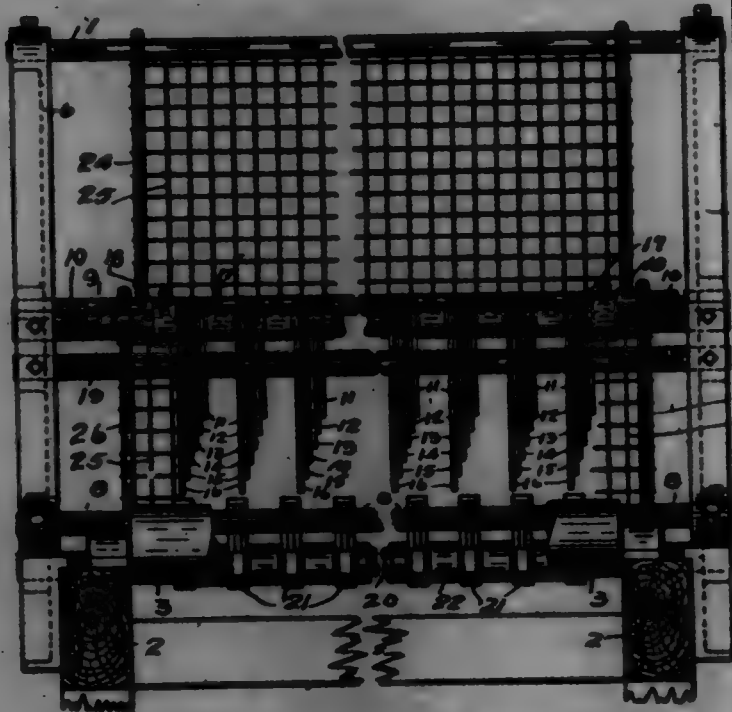
3. A tire embodying a series of tubes each provided with a valve at one end, said tubes and valves inclosed by an inflating-pouch which is inclosed by the tire and means on the valves within the pouch permitting of deflation of the tubes.



4. In a tire of the character described, a series of tubes and a series of valves each provided with a projecting stem, and a pouch inclosing said tubes and valves, said pouch inclosed by the tire.

5. In a tire a plurality of tubes closed at one end, a valve in the other end of each of said tubes, a stem projecting from each of said valves, and a flexible pouch embracing the said valved ends of the tubes and the stems and secured to the said ends, as set forth.

697,565. GUARD FOR GANG-EDGER. EDWIN E. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Oct. 12, 1901. Serial No. 78,410. (No model.)



Claim.—1. The combination, with the feed-rolls, of swinging pawls arranged in groups above the same, each group being composed of two or more pawls of different length, the pawls of each group being substantially the same length as the corresponding pawls of the other groups and those of the same length in the different groups being adapted to engage the upper surface of the lumber of the thickness for which they are appropriate and prevent backward movement of the same.

2. The combination, with a gang-edger and its feed-rolls, of swinging pawls provided above and below the level of said rolls and adapted to engage respectively the upper and lower surfaces of the lumber and prevent backward movement of the same while it is passing through the edger.

3. The combination, with a gang-edger and its feed-rolls, of swinging pawls arranged in groups above the level of the same, each group being composed of two or more pawls of different length, those of the same length in the different groups being adapted to engage the upper surface of the lumber of the thickness for which they are appropriate and prevent backward movement of the same, and swinging pawls provided below the level of said rolls and adapted to engage the under surface of the lumber.

4. The combination, with a gang-edger and its feed-rolls, of means above and below the level of said rolls between which the lumber passes and is engaged and held against backward movement.

5. The combination, with a gang-edger and its feed-rolls of oscillating means above and below the level thereof and between which the lumber passes and is locked and held against vertical and backward movement.

6. The combination, with a gang-edger feed-table and the rolls thereon of standards provided on said table, rods connecting said standards, and a series of pawls pivotally supported between said standards, said

pawls being arranged in groups and each group being composed of pawls of different length, those of the same length in the different groups being adapted to engage the upper surface of the lumber of the thickness for which they are appropriate and prevent backward movement of the same, substantially as described.

7. The combination, with a gang-edger feed-table and the feed-rolls, of standards secured on said table, rods connecting said standards, a series of pawls pivotally supported between said standards, said pawls being arranged in groups and each group being composed of pawls of different length, the corresponding pawls of the several groups being of the same length, and a series of swinging pawls provided below the level of said rolls and adapted to engage the under surface of the lumber, substantially as described.

697,566. COMPOSITION FOR PRESERVING FRUITS. JAMES E. THOMAS, Payson, Wash. Filed Mar. 20, 1901. Serial No. 58,700. (No specimens.)

Claim.—A composition of matter for preserving fruits and vegetables, composed of slaked lime, ordinary hard-plaster, and wheat-middlings, thoroughly mixed together and in a dry condition, substantially in the proportions described.

697,567. HYDRO-PNEUMATIC RENOVATOR. JOHN S. THOMAS, St. Louis, Mo. Filed June 22, 1901. Serial No. 66,722. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a curtain-wall, of means for projecting liquid against the front face thereof, substantially as described.

2. In an apparatus of the character described, the combination with a curtain-wall, of end walls, and means for projecting liquid against the front face of said curtain-wall, substantially as described.

3. In an apparatus of the character described, the combination with a receptacle, of a curtain-wall extending thereabove, end walls coincident in height with the curtain-wall, and means for projecting liquid against the front face of the curtain-wall, substantially as described.

4. In an apparatus of the character described, the combination with a receptacle whose end walls are projected upwardly, of curtain-walls located centrally with respect to said receptacle and extending from end wall to end wall to the top thereof, the upper ends of said curtain-walls being curved outwardly, and means for projecting liquid from the top edges of said curtain-walls downwardly in front thereof, substantially as described.

5. In an apparatus of the character described, the combination with a receptacle containing a liquid, of a curtain-wall, a nozzle entering said receptacle below the line of the level of the liquid therein, a pressure-supply pipe connected to said nozzle, and a pipe for receiving liquid injected therewith by the blast from said nozzle, said pipe leading to the upper edge of the curtain-wall where it is provided with a discharge for directing the liquid in front of the curtain-wall and into the receptacle, substantially as described.

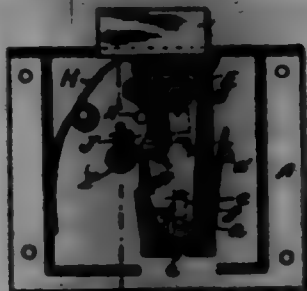
6. In an apparatus of the character described, the combination with a receptacle containing a liquid, of a curtain-wall, a pipe leading from said receptacle to the upper edge of the curtain-wall, the upper end of said pipe being flared with a discharge for directing liquid downwardly in front of the curtain-wall and into said receptacle, and means for forcing the liquid from said receptacle up into and through said pipe, substantially as described.

7. In an apparatus of the character described, the combination with a receptacle, of a curtain-wall, a nozzle entering said receptacle below the

line of the level of the liquid contained therein, a pipe in line with said nozzle for receiving liquid forced thereto by a blast emanating from said nozzle, said pipe extending to the upper edge of the contain-wall where it discharges said liquid, and a screen around the nozzle, substantially as described.

11. An apparatus for collecting and precipitating dust from air comprising a housing open at one side, the back wall of said housing having a sheet of water constantly traversing the same, substantially as described.

697,568. LOCK. JOHN J. TUNER, New Britain, Conn. Filed July 31, 1901. Serial No. 70,361. (No model.)



Claim.—1. A lock mechanism operating as and for the purposes specified, said mechanism comprising the casing, the spring-actuated bolt provided with a stump, the tumblers arranged one above the other, and the latch-plate located between the tumblers and the lock-bolt and adapted in one of its positions to maintain the tumblers in such a position that their notches shall register with one another and lie in the path of movement of the stump, substantially as described.

2. A lock mechanism operating as and for the purposes specified, said mechanism comprising the casing, the spring-actuated lock-bolt, the tumblers arranged one above the other, the latch-plate located between the tumblers and the bolt, notches in the tumblers and oppositely-disposed notches in the latch-plate, the stump on the bolt engaging with the notches in the tumblers and in the latch-plate, substantially as described.

3. A lock adapted to operate alternately as a positive and as a spring lock, comprising the casing, the lock-bolt, the tumblers arranged one above the other, and the latch-plate located between the tumblers and the bolt, the parts being so constructed and arranged that the lock is changed from a positive to a spring lock by means of the key, and is changed from a spring lock to a positive lock automatically by the movement of the bolt.

4. The combination in a lock with the casing, the tumblers, and the spring-actuated lock-bolt provided with a stump, of the latch-plate located between the tumblers and the lock-bolt, said latch-plate having notches of different depths, the parts being so constructed and arranged that the lock is changed from a positive lock to a spring-lock when the bolt is retracted by means of a key, and changed from a spring-lock to a positive lock automatically when the bolt is retracted, substantially as described.

5. The combination in a lock with the casing, the pivoted tumblers and the bolt, of the latch-plate pivotally mounted and having a limited longitudinal movement, the latch-plate being so constructed and arranged that on one extreme position it permits the stump of the bolt to move entirely out of the notches in the tumblers, and that in its opposite extreme position it prevents the stump on the bolt from moving out of the notches in the tumblers.

6. The combination with a lock and with the casing, the pivoted tumblers spring-actuated in one direction, slots in said tumblers, the sliding bolt and the stump carried by said bolt, of a pivotally-mounted latch-plate spring-actuated in one direction and capable of limited longitudinal movement, and notches of different depths in said latch-plate, as and for the purposes specified.

7. A lock mechanism comprising a bolt, a plurality of pivoted tumblers located one above the other, and a latch-plate located between the tumblers and the bolt, said mechanism being adapted to operate alternately, first as a positive and then as a spring lock, the change from the spring-lock to the positive lock being accomplished automatically by the movement of the bolt.

697,569. RAIL-JOINT. BLANCHARD E. TERRY, Havana, Iowa, assignor of one-half to Francis E. Turner and Benjamin B. Smith, Havana, Iowa. Filed Dec. 26, 1901. Serial No. 67,315. (No model.)

Claim.—1. A device of the class described comprising the oppositely-converging inner and outer trans-plates designed to be arranged at opposite sides of a rail, and a bottom support having downwardly-converging sides, substantially as described.

2. A rail-joint lock comprising inner and outer trans-braces adapted to engage rail ends at their head and bottom flanges, and a double trans-brace adapted to be connected with the lower edges of said braces.

3. A rail-joint lock comprising inner and outer trans-braces adapted

to engage rail ends on their opposite sides, said braces being adapted to extend up on each side of a rail even with the top thereof, and a bottom support connected with said braces.



4. The combination with the rails, of a bottom-supporting brace, trans-braces provided with flanges for engaging the edges of said bottom brace and the edges of the rail-flanges, said trans-braces being provided with means for engaging the rail-heads, and means for fastening said parts together.

5. The combination with the rails and fish-plates, of a double trans-supporting bottom brace adapted to extend under said rails, and means for connecting said rails, fish-plates and bottom brace.

6. The combination with the rails, of a double trans bottom brace having the edges thereof extended flush with the edges of the bottom rail-flanges, and side braces adapted to engage the edges of said flanges and brace and hold them together, said braces having means at their upper end for engaging the rail-heads, and means for holding said parts firmly together.

7. The combination of rail ends disposed adjacent to each other and provided with recesses on one side thereof, a bottom support for said rail ends, and a trans-brace having an extended lip adapted to engage said recesses.

697,570. SPRING-GEAR FOR VEHICLES. DAVID TOWN, Amesbury, Mass. Filed Oct. 2, 1902. Serial No. 31,772. (No model.)



Claim.—1. In a spring-gear for vehicles, a frame above the axle for supporting the carriage-body; a pair of rotative rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts rotation to the other; load-supporting springs intermediate with and connected with said rods or shafts; and neutralizing or compensating springs connecting said rods or shafts with the frame, substantially as described.

2. In a spring-gear for vehicles, the frame above the axle for supporting the carriage-body; the rotative rods or shafts D, D' supported by and having their bearings in the frame; mechanism intermediate with said rods or shafts whereby rotation of one imparts similar rotation to the other; the substantially radial hooks or catches J, J', the former rigidly secured to and extending upward from the rod D', and the latter rigidly secured to and extending downward from the rod D; and springs intermediate with said rotative rods and each having one end connected with one of the upwardly-extending hooks J, and the other end connected with one of the downwardly-extending hooks J', substantially as set forth.

697,571. TEMPORARY BINDER. EMORY A. TRIMBLE, St. Louis, Mo., assignor to the Huber & Trumbull Manufacturing Company, St. Louis, Mo., a Corporation. Filed Jan. 14, 1901. Serial No. 68,148. (No model.)

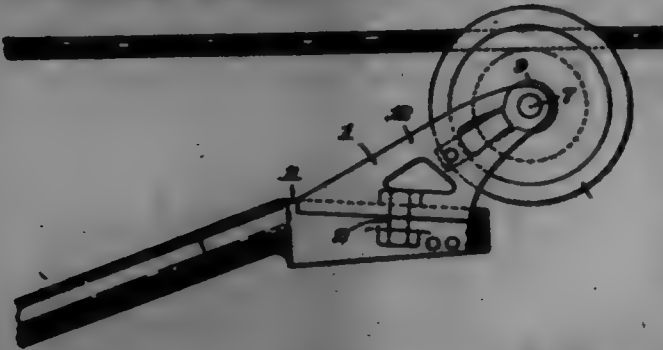


Claim.—1. In a temporary binder, the combination of a pair of cover-boards, flaps applied to the cover-boards and extending across the back of the binder and serving as back members, a flexible reinforcing-stay interposed between said flaps at the binder-back and having its ends inserted within said cover-boards and attached to said boards independently of said flaps, and sheet-holding means attached to the binder-back, substantially as described.

2. In a temporary binder, the combination of a pair of cover-boards, flaps applied to said cover-boards and extending across the back of the binder and serving as back members, a flexible reinforcing-stay interposed between said flaps at the binder-back and having its ends inserted within said cover-boards and attached to said boards independently of said flaps, and a stiffening member located between one of said flaps and said flexible reinforcing-stay, substantially as described.

3. In a temporary binder, the combination of cover-boards, inner and outer flaps applied to said boards, said flaps connecting said boards at their rear edges and serving as members of the back of the binder, a stay interposed between said flaps and having its ends secured to said cover-boards, a frame composed of two bars hinged together, sheet-holding prongs carried by said frame, clamping-strips arranged against said stay, and means for connecting said frame and said clamping-strips to clamp said stay and said inner flaps, substantially as described.

697,572. TROLLEY-HARP. THOMAS H. TURNER and GEORGE R. WILSON, Springfield, Ohio, assignors of three-fifths to J. E. Cooper, L. F. Young, and J. M. Todd, Springfield, Ohio. Filed Sept. 11, 1901. Serial No. 75,001. (No model.)



Claim.—1. In a trolley-harp the combination of a fixed bracket, a movable wheel-frame pivoted thereto a wheel mounted in said frame to the rear of the pivot, and the antifriction-wheel 2, operating between the pivot-frame and the fixed bracket at the point of engagement between the frame and bracket which is nearest to the axis of the trolley-wheel.

2. The combination of a fixed bracket adapted to be secured to the trolley-pole, a trolley-wheel frame pivotally secured to the bracket forward the axis of the trolley-wheel and antifriction means interposed between the bracket and the movable wheel-frame approximate the point of greatest pressure when the device is in normal position, substantially as described.

3. In combination with a cored-out bracket fixed to a trolley-pole, a movable wheel-frame pivoted to the bracket forward the axis of the trolley-wheel, a lag on the under side of the movable frame projecting into the cored-out part of the bracket and spring means operating between the lag and the fixed bracket for maintaining the normal position of the wheel-frame with respect to the bracket.

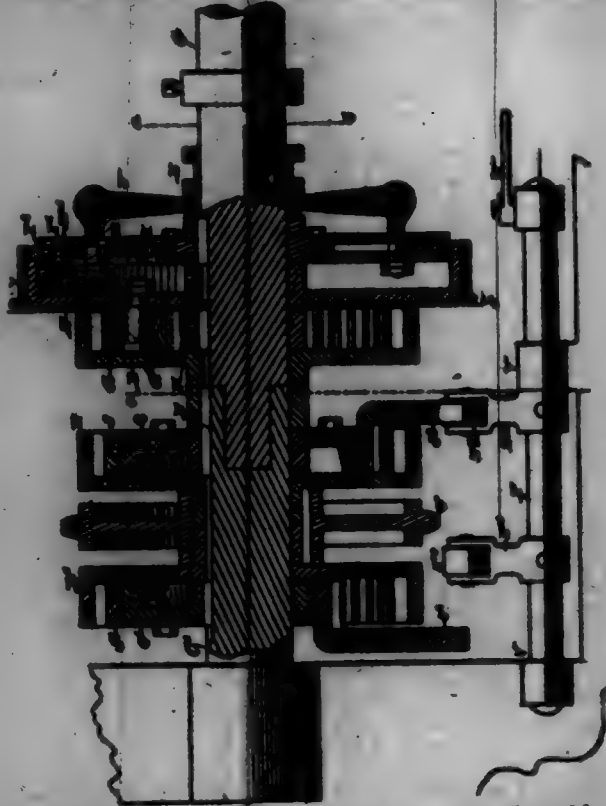
4. In combination with a cored-out bracket fixed to a trolley-pole, a movable wheel-frame pivoted to the bracket forward the axis of the trolley-wheel, a lag on the under side of the movable frame projecting into the cored-out part of the bracket and spring means operating between the lag and the fixed bracket for maintaining the normal position of the wheel-frame with respect to the bracket with antifriction-wheel operating between the rear of the bracket and the wheel-frame.

5. The combination of a trolley-pole, a bracket recessed at its upper rear extension having a shoulder with an arc-shaped edge, a wheel-frame

having an arc-shaped front edge conforming to the arc-shaped edge of the shoulder and pivotally secured to the bracket at a point concentric to its arc-shaped edge.

6. The combination of a trolley-bracket having a cored-out rear horizontal extension, a wheel-frame pivotally secured thereto having a lag upon its under side extending into and movable in the cored-out part of the bracket with springs secured to the fixed bracket and adapted to co-operate with the lag for maintaining the normal position of the wheel-frame, substantially as described.

697,573. MOTION-TRANSMITTER. ROBERT TUTTLE, Cedar Rapids, Iowa. Filed June 20, 1901. Serial No. 68,474. (No model.)



Claim.—1. In a motion-transmitter, the combination with a rotating shaft, of a pair of gears loosely mounted thereon, a driver, secured to said gears, annular gears of different diameters adapted to engage said gears, means for alternately holding the annular gears from revolving axially, and means for imparting an orbital movement to said annular gears and causing a revolution at a different rate of speed of the engaging gears.

2. The combination with a rotating shaft, of a plurality of driving-gears loosely mounted thereon, annular gears of different diameters mounted to mesh therewith, and having each a radial arm projecting beyond the path of said annular gear, and a sliding stop adapted to be moved in or out of the path of said arm, and alternately prevent the axial turning of the annular gears, and eccentric flat to said shaft, on which the annular gears are mounted, substantially as and for the purpose set forth.

3. The combination with a rotating shaft, internal gears mounted revolvably thereon, eccentric flat to said shaft, and annular gears mounted revolvably on said eccentrics and adapted to engage the internal gears at their longer radii, with arms extending beyond the paths of said gears, of intercepting-stops to hold said arms, with antifriction-rollers thereon to take the reciprocating movement of the arms.

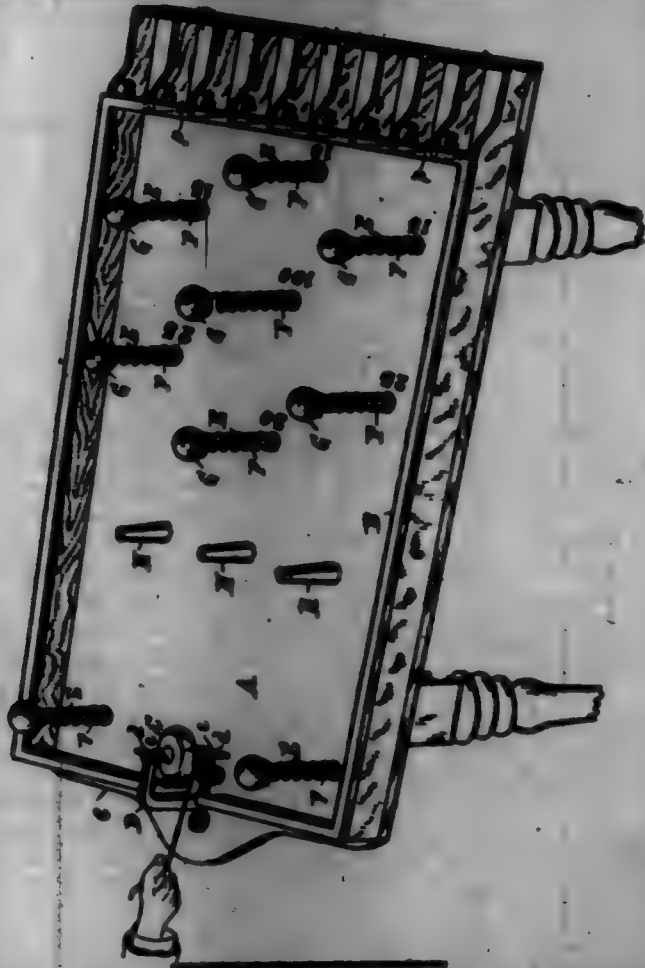
4. The combination of a rotating shaft, internal driving-gears mounted revolvably thereon, eccentrics secured to said shaft, annular gears mounted on said eccentrics and partially meshing with the internal gears, and means for preventing the annular gears from turning, of a second shaft carrying a friction-clutch adapted to connect the driving mechanism of both shafts intermittently, substantially as described.

697,574. GAME. FRANK WALSH, North Tarrytown, N. Y. Filed Nov. 20, 1901. Serial No. 64,087. (No model.)

Claim.—1. A game-board consisting of a flat table with a plurality of flexible and elastic pillars rigidly attached at their bases to the table and provided with ball-caps at their upper ends, the pillars being free to vibrate at their upper ends in any lateral direction, substantially as described.

2. A game-board consisting of a flat table with a plurality of flexible and elastic pillars formed of helical springs rigidly attached at their bases to the table and provided with ball-caps at their upper ends, the pillars being free to vibrate at their upper ends in any lateral direction, substantially as described.

2. In a game, the combination of a flat and slightly-inclined table with a plurality of pillars having ball-cups at their upper ends, balls for the ball-cups, a top, the body of which is a height above the table which is greater than the diameter of the balls, an inclining rolling for the table at a height even with the body of the top, a series of pockets at the lower end of the table and outside the rolling, and passage-ways under the rolling and on the surface of the table between the portion of the table within the rolling and the pockets, substantially as described.



697,575. COMPOSITE WIRE AND METHOD OF MAKING SAME. ARTHUR T. WALL, East Greenwich, R. I. Filed Dec. 20, 1900. Serial No. 41,846. (No model.)



Claim.—1. As a new article of manufacture, a composite wire comprising a thin and attenuated metallic tubular shell filled throughout its interior with a non-metallic substance in a finely-divided state.

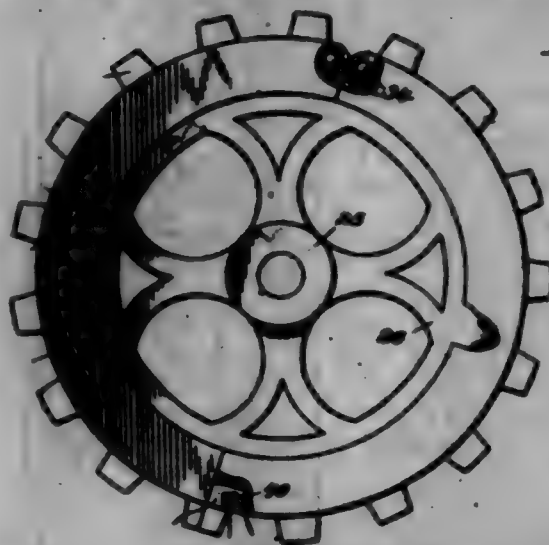
2. The method of making composite wire, consisting in filling a hollow cylinder of ductile metal throughout its interior with a non-metallic substance in a finely-divided state, and then drawing said metallic cylinder into an attenuated wire to form a thin tubular outer metallic shell including a finely-divided substance.

697,576. GARMENT. JAMES J. WALKER and JOHN S. BUCKNER, Wapakoneta, Ohio; last inventor assignor to said Walker. Filed Jan. 12, 1901. Serial No. 42,908. (No model.)



Claim.—A shirt, the upper front part C, thereof being essentially in the form of an inverted V, the edges being curved and extending from the armpit on each side to the center of the neck, and the flaps D, D, integral with the shoulder and back portions of the shirt, the edges of said flaps being curved to correspond with the curved edges of the front and which they overlap, said front and flaps being provided with buttons and buttonholes at the bottom and intermediate points and a draw-string extending around the upper edge of the back portion and along the upper edges of the flaps, the ends of said string projecting beyond the ends of the flaps, substantially as shown and described.

697,577. SPROCKET ATTACHMENT. JOHN S. WALKER, Springfield, Mass. Filed Sept. 21, 1901. Serial No. 75,001. (No model.)



Claim.—1. A device of the class described comprising arcuate members having sprocket-teeth on their outer peripheries and having circumferential grooves in their inner peripheries and recesses in the bottoms thereof, a tongue-and-groove connection between certain member ends, the tongue and the walls of the groove having perforations therethrough, and means for engagement with the perforations when aimed to hold the members against pivotal movement the remaining member ends being hinged removably together.

2. A device of the class described comprising arcuate members having sprocket-teeth on their outer peripheries and having grooves in their inner peripheries having depressions in the bottoms thereof, to receive the edge and teeth of a wheel, a universal hinge connection between certain member ends to permit of folding in its flat against each other and to permit of movement in the plane of the members to apply and remove them, and locking means between their member ends to hold the members in mutual engagement.

697,578. STACKER. SAMUEL F. WALKER, Wapakoneta, Ohio. Filed Dec. 11, 1900. Serial No. 39,067. (No model.)

Claim.—1. In a portable grain, hay and straw stacker, the combination of a pair of open runners, open front and rear knee-blocks mounted on said runners, a pair of cross-beams mounted on rear knee-blocks, a cross-beam mounted on front knee-blocks, power mechanism, vertical mast carrying arms and pulleys mounted on rear knee-blocks, vertical post and adjustable arms carrying pulleys mounted on front cross-beam and front knee-blocks, conveyor-frame carrying conveyor-aprons, mounted on adjustable arms carried by front knee-blocks and arms carried by vertical mast, sprocket-chains communicating from power mechanism to the conveyor-frame, substantially as described.

2. In a portable grain, hay and straw stacker, the combination of a pair of open runners, open front and rear knee-blocks carried by said runners, a pair of cross-beams mounted on rear knee-blocks, power mechanism, comprising a stationary rim, a rotating rim loosely mounted on the stationary rim, a stationary rim 11' mounted to the first-mentioned stationary rim mounted on rear open-beams, a horizontal shaft carrying pinion and sprocket-wheel, mounted on cross-ties and inside rear knee-blocks, said pinion engaging cog on rotating rim, adjustable arms pivotally secured to front knee-blocks, a horizontal shaft carried by said arms, double-sprocket-wheel loosely mounted on said shaft, vertical mast mounted over the knee-blocks and the power mechanism, adjustable arms carried by said mast, conveyor-frame carrying conveyor-aprons supported on said arms and mast at the rear end of the machine, and the adjustable arms at the front end, sprocket-wheel and sprocket-chain transmitting power from the power mechanism to the conveyor-frame, substantially as described.

3. In a portable grain, hay and straw stacker, a pair of open runners, open knee-blocks mounted thereon, cross-beams, power mechanism, and vertical mast carrying adjustable arms, mounted on rear knee-blocks and runners, cross-beam and adjustable arms carried by front knee-blocks, vertical post supported on said cross-beam, guide roller and supporting-braces carried by said adjustable arms, conveyor-frame adapted to carry conveyor-apron supported on adjustable arms, sprocket-wheels and sprocket-chains adapted to transmit power from the power mechanism to the conveyor-apron, substantially as described.



4. In a grain, hay and straw stacker, a pair of channelled runners, open knee-blocks, mounted on said runners, cross-beams and power mechanism mounted on rear knee-blocks, vertical mast carrying adjustable arms mounted over the power mechanism and said cross-beams, cross-beam carried by front knee-blocks, vertical post mounted on and carried by said cross-beam, adjustable arms pivotally secured to said front knee-blocks, adapted to raise and lower the conveyor-frame, said conveyor-frame supported on said arms at the front and on adjustable arms carried by vertical mast at the rear, adjustable aprons, and adjustable depending frames carried by conveyor-frame, and means for transmitting power from the power mechanism to the conveyor-frame, substantially as described.

5. In a portable grain, hay and straw stacker, the combination of a pair of open runners, adjustable arms 3 and 4 secured to their ends, cross-beam 36 to their front ends, open knee-blocks, cross-beams, and power mechanism, mounted on rear ends of said runners, open knee-blocks and cross-beam mounted near the front end of said runners, vertical post and adjustable arms carried by said cross-beam and front knee-blocks, vertical mast carrying adjustable arms mounted from the rear knee-blocks, conveyor-frame carrying conveyor-apron, carried by said adjustable arms in front and the adjustable arms carried by vertical mast at rear, supporting-braces 35, spiral springs 57 and supporting-braces 55 and means for raising and lowering the conveyor-frame, and means for transmitting power from the power mechanism to the conveyor-frame, substantially as described.

6. In a portable grain, hay and straw stacker, the combination of a pair of open runners, shields closing open tops of said runners, open front and rear knee-blocks mounted thereon, cross-beams, power mechanism and vertical masts carrying arms, mounted on rear knee-blocks, cross-beam and adjustable arms carrying horizontal shaft mounted on front knee-blocks, conveyor-frame carrying rollers and conveyor-apron and, hood mounted on horizontal shaft and arms carried by vertical masts, horizontal shaft carrying pinion and sprocket-wheel mounted on cross-beam and inside half of rear knee-block, sprocket-chains carried by said sprocket-wheel through open runners under hold-down pulleys, transmitting power from power mechanism to conveyor-roller carried by front end of conveyor-frame, substantially as shown and described.

697,579. DEVICE FOR MIXING LIQUIDS, PARTIAL LIQUIDS OR THE LIKE. HENRY C. WHITTIER and WILLIAM J. DARRINER. Cincinnati, Ohio. Filed Dec. 2, 1901. Serial No. 34,308. (No model.)



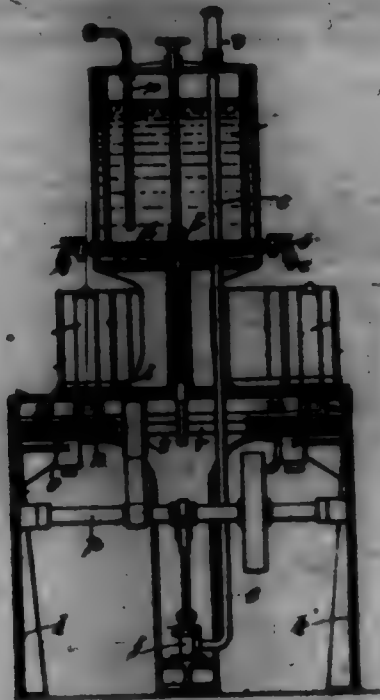
Claim.—1. In a mixing device of the character described, the combination of a shaft with a bung-shaped lower end, and a gear D at its upper end, a central longitudinally-slidable operating-shaft splined within and to said gear and slidable longitudinally of the shaft and gear, an upper pivot-piece for blades surrounding and splined to said operating-shaft and connected to positively rotate therewith, with the operating-shaft slidable longitudinally therethrough, a bearing for and surrounding the pivot-piece located within the bung-shaped lower end, a lower pivot-piece for blades at the lower end of the shaft, a series of blades pivoted to said upper pivot-piece, a series of blades pivoted to said lower pivot-piece and pivots between the two series of blades, for forming two interlapped series of blades arranged in upward extension positively driven from top and bottom, all substantially as and for the purpose specified.

2. In a mixing device of the character described, the combination of the shaft A having the bung-shaped lower end *a'* and the gear D, gear E and crank F at its upper end, the shaft B, the pivot-piece K, the pivot-piece K' secured to the lower end of the shaft, two series of blades I and I' pivoted together in upward extension, with pivots between the blades I and the pivot-piece K and pivots between the blades I' and the pivot-piece K', with the shaft B splined to and slidable longitudinally through the gear D and pivot-piece K and constructed and arranged for securing the pivot-pieces K and K' against rotary motion to the shaft B for imparting direct power at the top and bottom of the series of blades, the bearing H in the bung-shaped lower end *a'* for the pivot-piece K, the sleeve b secured to shaft B, the collar c taking about the sleeve and secured against longitudinal movement thereon, the handle G on the collar c, the slot e in which the handle freely slides extending through the side of the shaft A, and the catch e' extending through the side of the shaft A connecting with the slot e for receiving the handle from the slot and maintaining the shaft B in elevated position and the blades I I' in spread relation, all constructed and arranged substantially as and for the purpose specified.

3. In a mixing device of the character described, the combination of the shaft A having the bung-shaped lower end *a'* and the gear D, gear E and crank F at its upper end, the shaft B, the pivot-piece K, the pivot-piece K' secured to the lower end of the shaft, two series of blades I and I' pivoted together in upward extension, with pivots between the blades I and the pivot-piece K and pivots between the blades I' and the pivot-piece K', with the shaft B splined to and slidable longitudinally through the gear D and pivot-piece K and constructed and arranged for securing the pivot-pieces K and K' against rotary motion to the shaft B for imparting direct power at the top and bottom of the series of blades, the bearing H in the bung-shaped lower end *a'* for the pivot-piece K, the sleeve b secured to shaft B, the collar c taking about the sleeve and secured against longitudinal movement thereon, the handle G on the collar c, the slot e in which the handle freely slides extending through the side of the shaft A, and the catch e' extending through the side of the shaft A connecting with the slot e for receiving the handle from the slot and maintaining the shaft B in elevated position and the blades I I' in spread relation, the pin I and knob P for taking against the inner wall of the shaft A and the spring L for urging the collar c about its axis and the handle G into its catch e' all constructed and arranged substantially as and for the purpose specified.

697,580. APPARATUS FOR THE PRODUCTION OF FIBERLESS FILAMENTS. WILLIAM A. P. WILSON, London, England. Filed Aug. 12, 1901. Serial No. 33,514. (No model.)

Claim.—1. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, casings for the reception of the filaments discharged from the receptacle, and means for effecting the relative motion of the receptacle and casings.



2. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, casings for the reception of the filaments discharged from the receptacle, and means for giving a gyratory motion to the casings.

3. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, casings for the reception of the filaments discharged from the receptacle, a disk upon which such casings are mounted, and means for giving a gyratory motion to the disk.

4. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, casings for the reception of filaments discharged from the receptacle, a disk upon which such casings are mounted, wheels arranged beneath the disk and connection between the wheels and the disk by which a gyratory motion is given to the disk on the rotation of the wheels.

5. In apparatus for the production of fibrous filaments in combination, an air-tight receptacle for the solution, an air-pump in communication with said receptacle to maintain pressure of air upon the solution contained therein, casings for the reception of the filaments discharged from the receptacle, and means for effecting the relative motion of the receptacle and casings.

6. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, a water-jacket for said receptacle, casings for the reception of the filaments discharged from the receptacle, and means for effecting the relative motion of the receptacle and casings.

7. In apparatus for the production of fibrous filaments in combination, a receptacle for the solution, casings for the reception of the filaments discharged from the receptacle, removable apertures within said casings upon which the filaments are wound, and means for effecting the relative motion of the receptacle and casings.

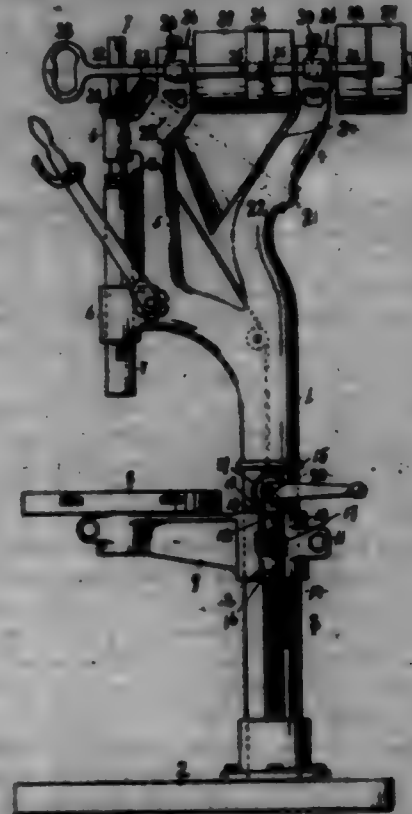
8. In apparatus for the production of fibrous filaments, a circular receptacle for the solution, valve-cocks radially arranged thereon by means of which the solution is discharged therefrom in filaments, casings for the reception of the filaments, and means for effecting the relative motion of the receptacle and casings.

9. In apparatus for the production of fibrous filaments, a circular receptacle for the solution, valve-cocks radially arranged thereon by means of which the solution is discharged therefrom in filaments, needles mounted in the valve-cocks, casings for the reception of the filaments, and means for effecting the relative motion of the receptacle and casings.

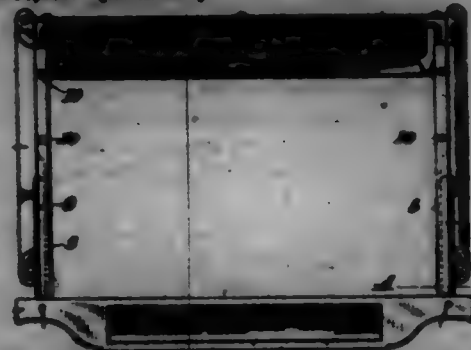
697,581. DRILLING-MACHINE. CARL A. WHITMAN, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 92,000. (No model.)

Claim.—In a drilling-machine, the combination of a standard having forked arms at its upper end, one of said arms being vertical, a drill-shaft journaled in bearings on said vertical arm, an inclined shaft journaled in bearings in said forked arms and geared to said drill-shaft, a friction-cone on said inclined shaft, the upper side of said cone being disposed in a horizontal plane, a horizontally-disposed power-shaft, journaled in bearings on said forked arms and having flat and loose pulleys thereon, a cylindrical, elongated pulley 20 on said power-shaft, opposite said friction-cone, a longitudinally-movable shifting-rod, in supports with which said forked arms are provided, a pulley and steps on said shifting-rod, and an endless friction-belt, connecting said pulley and said pulley 20, said belt engaging said friction-cone and being shiftable thereon by said rod, to vary the speed of the drill-shaft, substantially as described.

tion-cone, a longitudinally-movable shifting-rod, in supports with which said forked arms are provided, a pulley and steps on said shifting-rod, and an endless friction-belt, connecting said pulley and said pulley 20, said belt engaging said friction-cone and being shiftable thereon by said rod, to vary the speed of the drill-shaft, substantially as described.



697,582. DRAWER FOR SEWING-MACHINE STANDS OR OTHER ARTICLES OF FURNITURE. SAMUEL H. WHITMAN, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Oct. 20, 1901. Serial No. 90,257. (No model.)



Claim.—1. A drawer-frame, having drawer-supports composed of similar parallel strips rigidly secured at their inner ends to the frame, with their outer ends free and yielding, to adapt themselves to any irregularity in the inward movement of the drawer; and forming ways in which the drawer is moved.

2. A drawer-frame, having parallel drawer-supports rigidly secured at their inner ends to the frame, and having unsecured outer ends grooved to receive the drawer and adapted to yield to conform to and rectify any irregularity in the inward movement of the drawer.

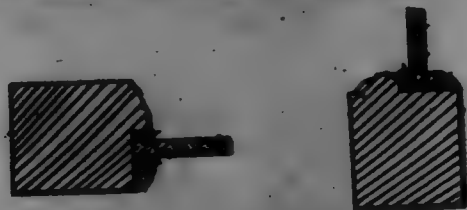
3. A sewing-machine stand, having parallel ways rigidly secured thereto at their inner ends, and with their outer ends grooved longitudinally to receive and support the drawer and free to yield laterally to compensate for any irregularity in the movement of the drawer, combined with a drawer having slides to engage the grooves in said ways, substantially as described.

4. A drawer, having round rods projecting rearwardly therefrom and constituting slides, combined with grooved strips secured at their rear ends only and free to yield laterally at their forward ends, and constituting ways to receive said slides and support and guide the drawer in opening and closing the same.

697,583. SYSTEM OF GLAZING. ARTHUR D. L. WHITMAN, North Adams, Mass. Filed Jan. 24, 1901. Renewed Sept. 20, 1901. Serial No. 74,307. (No model.)

Claim.—1. A casing-strip for the purpose set forth, consisting of a body-strip and an outer covering-strip, the latter consisting of a plastic or flexible material enveloping said body-strip, substantially as described.

2. A sealing-strip for the purpose set forth, comprising a body-strip, and a covering-strip, the latter consisting of pliable sheet metal folded to envelop said body-strip, substantially as described.



3. A sealing-strip for the purpose set forth, consisting of a body-strip and a covering-strip, the latter being composed of tin-foil bent to inclose said body-strip, substantially as described.

4. A sealing-strip for the purpose set forth, comprising a body-strip and a covering-strip, said covering-strip consisting of a plastic metal shield enveloping said body-strip and having a free folded edge portion adapted when pressed to expand, substantially as described.

5. A sealing-strip for the purpose set forth, comprising a body-strip and a covering-strip, said covering-strip consisting of an outer layer of tin-foil bent or folded to embrace the opposite sides and one edge of said body-strip and having a free outwardly-projecting folded portion for the purpose described.

6. In a system of glazing, the combination of a sash provided with a rabbet having its shoulder inwardly disposed, a glass pane, sealing-strips interposed between the pane and shoulder of the rabbet, molding-strips on the interior of the sash to retain the pane in position, and sealing-strips between said molding-strips and the pane, said inner and outer sealing-strips consisting each of a body-strip having an outer covering-strip of a pliable metal, substantially as described.

7. In a system of glazing, the combination of a sash-frame having a rabbet, a glass pane, molding-strips for retaining the pane in position, and sealing-strips interposed between the shoulder of the rabbet, the molding-strips and the pane, each of said sealing-strips consisting of a body-strip and a covering-strip folded longitudinally upon itself to embrace the body-strip and having a free portion projecting beyond the joint and adapted when pressed upon to flatten and more effectually close the joint, substantially as described.

8. In a system of glazing, the combination of a sash having a rabbet and a muntion comprising fixed and removable sections, a glass pane adapted to bear upon the shoulder of the rabbet and fixed section of the muntion, molding-strips for holding the pane in position against outward displacement, sealing-strips interposed between the said molding-strips and the pane and between said pane and the shoulder of the rabbet, and fastening devices for securing the removable section of the muntion in position and acting as stops to hold the pane from sliding, substantially as described.

9. In a system of glazing, the combination of a sash formed with a rabbet having its shoulder inwardly disposed, a muntion consisting of a fixed section and a removable section, a glass pane, molding-strips for retaining the pane against outward displacement, sealing-strips between the said fixed section of the muntion, the shoulder of the rabbet and the molding-strips and pane, each of said strips consisting of a body having a covering of plastic metal, such as tin-foil, and fastening devices for holding said removable section of the muntion in position and acting as stops to prevent sliding of the pane in one direction, substantially as described.

697,584. DRILL-GRINDING MACHINE. HENRY P. WHITE, Kalamazoo, Mich., assigner, by means assignators, to the Whitworth and Norman Company, Grand Rapids, Mich. Filed Apr. 2, 1900. Serial No. 11,300. (No model.)

Claim.—1. In a drill-grinding machine, the combination of a suitable frame; a revolvable grinding-wheel; a suitable drill-holder positioned opposite the face of said grinding-wheel; a bracket to support said drill-holder having a pivotal support in a line transverse to and substantially opposite the apex of the holder whereby the drill can be ground to different angles, for the purpose specified.

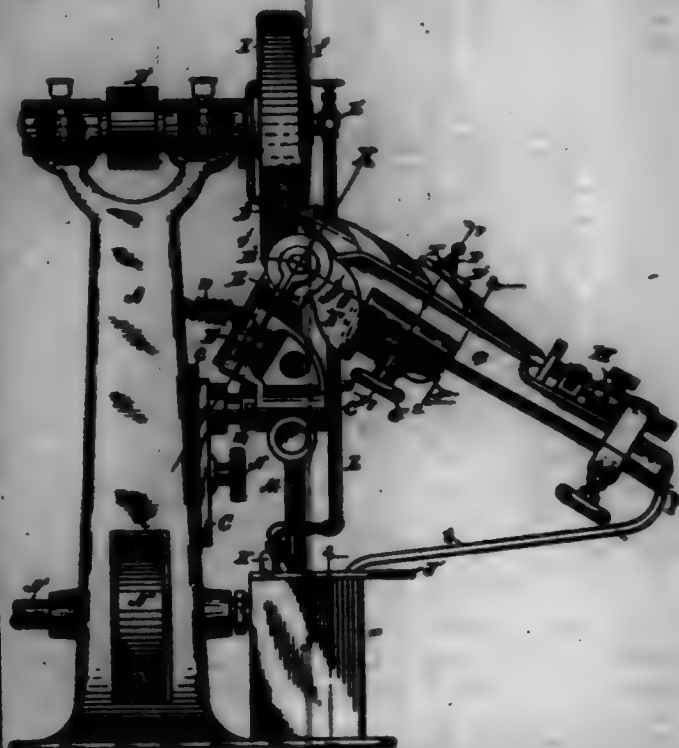
2. In a grinding-machine, a suitable drill-holder, means for supporting the same, said means having a pivotal support substantially in line with the apex of said holder for the purpose specified.

3. In a grinding-machine, the combination of a grinding-wheel; a suitable holder, means for supporting the same, said means being pivotally adjustable substantially in a line transverse to the apex of the holder.

4. In a drill-grinding machine, the combination of a casing; a suitable revolvable grinding-wheel carried thereby; a V-shaped drill-holder; a bracket for supporting said holder having an adjustable pivotal support transverse to said drill-holder, and opposite the apex thereof, for the purpose specified.

5. In a drill-grinder, the combination of a suitable frame; a revolvable grinding-wheel thereon; a V-shaped drill-holder opposite the face

of said grinding-wheel; a bracket having a transverse pivot which supports said drill-holder, the pivot being substantially in line with the apex of said holder; a supporting-bracket having an oblique journal supported in a suitable bearing, the axis of which, if extended, would form an acute angle with the face of the grinding-wheel, all coacting for the purpose specified.



6. In a drill-grinder, the combination of a suitable frame; a revolvable grinding-wheel supported thereon; a V-shaped drill-holder supported on an adjustable transverse pivot arranged at the apex thereof; a supporting-bracket having an oblique journal carried by a horizontally-adjustable bracket containing a suitable journal-bearing, coacting for the purpose specified.

7. In a drill-grinding machine, the combination of a suitable frame; a revolvable grinding-wheel thereon; a suitable drill-holder; an adjustable bracket C secured to said frame and having a stud C' thereon which carries the drill-holder whereby it may be raised or lowered for the purpose specified.

8. In a drill-grinding machine, the combination of a V-shaped holder G having a suitable adjustable tail-block; and a rest for the drill arranged within the holder consisting of the finger V extending through the slot at the forward end, pivoted at F' beneath the drill-holder and adapted to project upwardly in a central position; a spring to hold the same yieldingly in the upward position, and a cross-pin V'' near the upper end to prevent the rest extending too far into the flute of the drill, for the purpose specified.

9. In a drill-grinding machine a V-shaped holder having a drill-rest arranged to project up from the bottom of said groove; means to hold the same yieldingly in position whereby it will adapt itself to different sizes of drills when they are placed upon the same and pressed down into the holder.

10. In a drill-grinding machine the combination of a grooved drill-holder with a drill-rest projecting upwardly from the bottom of the groove and adapted to engage the flutes of the drill and supported yieldingly in position whereby when different sizes of drills are placed in the holder the said rest will be depressed whereby the said holder will be adapted to any size of drill within its scope, for the purpose specified.

11. In a drill-grinding machine the combination of a grooved drill-holder with a rest adapted to move upwardly from the bottom of the groove to engage the flutes of different sizes of drills when placed within the holder, as specified.

12. In a drill-grinder, the combination of a V-shaped holder G; a drill-rest V arranged in a slot in the bottom thereof and supported by a pivot F'; a trigger V' to the under side of the same for depressing it in the holder; a spring to hold the same normally into the holder; and a cross-pin V'' at the upper end of the drill-rest, for the purpose specified.

13. In a drill-grinder, the combination of a V-shaped holder G; a drill-rest V arranged in a slot in the bottom thereof and supported by a pivot F'; a trigger V' to the under side of the same for depressing it in the holder; and a spring to hold the same normally into the holder, for the purpose specified.

14. In a drill-grinding machine the combination of a V-shaped

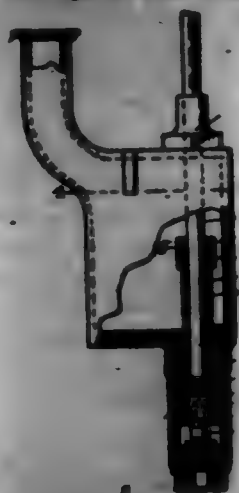
holder; a yielding drill-stop in the bottom thereof; a clamp pivoted to the holder and adapted to press upon the drill to hold it down into the holder and against the drill-stop within the same, for the purpose specified.

15. In a drill-grinding machine the combination of a V-shaped holder with yielding drill-stop in the bottom thereof for the purpose specified.

16. In a drill-grinding machine, the combination of a V-shaped holder; a clamp for retaining the drill in the holder, consisting of an arm P, having a cross-arm P' pivoted to one side of said holder; a spring T to hold the same into contact with the drill in the holder; and a hook U to engage the clamp when the holder is open, for the purpose specified.

17. In a drill-grinding machine, the combination of a V-shaped holder; a clamp for retaining the drill in the holder, consisting of an arm P having a cross-arm P' pivoted to one side of said holder; a spring T to hold the same into contact with the drill in the holder, for the purpose specified.

697,585. HAND-PUMP. ROLLIN E. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 19, 1901. Serial No. 88,541. (No model.)



Claim.—1. The combination of a valve-casing having a discharge-opening, a tubular cylinder movably supported and capable of closing and opening said opening and of discharging through it when it is open, and a pump-piston movable in said cylinder, substantially as specified.

2. The combination of a valve-casing containing a transverse valve-coat, a movably-mounted valve-cylinder having a closed end which is adapted to fit said valve-coat and is adapted to be moved against and from it, and which has an outlet-dust near said closed lower end, and a piston movable in said cylinder, substantially as specified.

3. The combination of a valve-casing containing a transverse valve-coat, a valve-cylinder having a screw-threaded connection with said casing, and having a closed end adapted to fit said valve-coat and having also suitable ports, and a pump-piston movable in said cylinder, substantially as specified.

4. The combination of a valve-casing having an outlet-opening surrounded by a valve-coat, a valve-cylinder having endwise movement adapted to cover or uncover said outlet, which cylinder has a screw-threaded connection with said casing, a piston in said cylinder, and a single device capable of reciprocating said piston and turning said valve-cylinder, substantially as specified.

5. The combination of a valve-casing containing a transverse valve-coat, a valve-cylinder which is screwed into said casing and has a closed lower end formed to fit said valve-coat, and has also a lateral perforation through said lower end, a pump-piston movable in said cylinder, and means whereby said plunger may be reciprocated and said cylinder may be turned, substantially as specified.

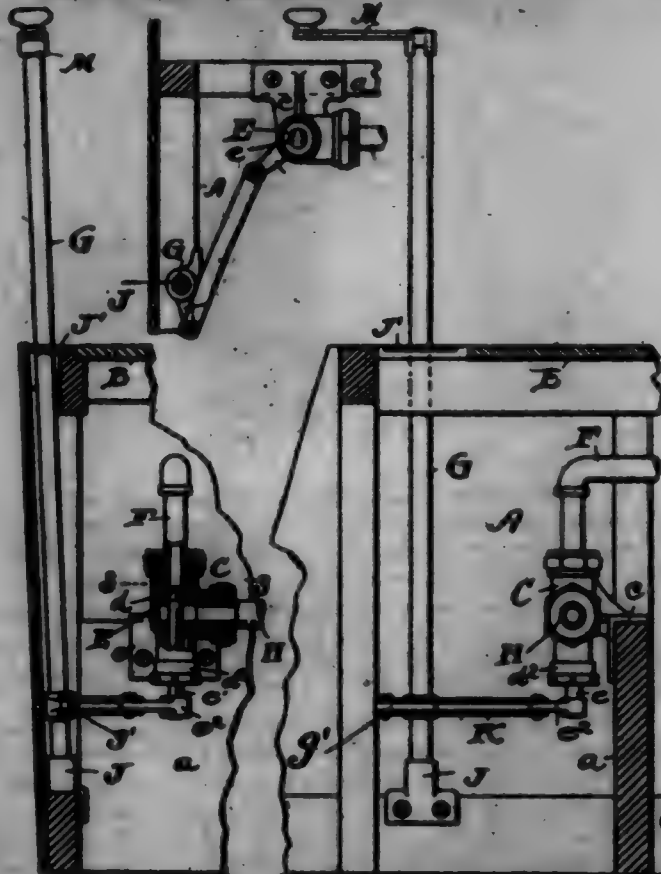
6. The combination of a valve-casing containing a transverse valve-coat, a valve-cylinder which is screwed into said casing and has a closed end adapted to fit said valve-coat, a lateral perforation through said closed end, and a lateral perforation above said end, with a pump-piston movable in said cylinder, a piston-rod connected therewith, and means preventing the relative rotation of said piston-rod and cylinder, substantially as specified.

7. The combination of a valve-casing containing a valve-coat, a check-valve on one side of said coat, and a valve-cylinder having, first, a screw-threaded connection with said casing; second, a closed end fitting said valve-coat; third, a lateral perforation through said closed end, and, fourth, a lateral perforation above said screw-threaded connection, with a pump-piston in said cylinder, a piston-rod, and means preventing the relative rotation of said rod and cylinder, substantially as specified.

8. The combination of a receptacle having laterally-extended ears, a

valve-casing secured to its lower end and containing a valve-coat, a valve-cylinder having a screw-threaded connection with said casing, a pump-piston movable in said cylinder, a piston-rod, and means preventing the relative rotation of said rod and cylinder, substantially as specified.

697,586. THROTTLE-VALVE FOR STREAM-CARRIAGE. ROLLIN E. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 19, 1901. Serial No. 88,541. (No model.)



Claim.—1. The combination of a throttle-valve casing having a valve-coat through which one or more ports are formed, said casing being adapted, above said coat, for connection with the inlet-pipe, and adapted, below said coat, for connection with the outlet-pipe, a rotatable valve resting on said coat and having one or more ports extending through it from its top downward and adapted to be brought into line with the ports in the coat, a valve-stem projecting from the lower side of said valve down through and out of said casing, a laterally-projecting arm secured to said valve-stem, a vertical operating-shaft mounted in suitable bearings, an arm secured to said shaft, a link connecting the two arms, and a handle secured to the upper end of said shaft, substantially as described.

2. The combination of a throttle-valve casing having a tapered valve-coat through which one or more ports are formed; said casing being adapted, above said coat, for connection with the inlet-pipe, and being adapted, below said coat, for connection with the outlet-pipe, a rotatable tapered valve fitted to said coat and having one or more ports extending from its top down through its tapered lower surface, a valve-stem projecting from the lower side of said valve down through and out of said casing, a laterally-projecting arm secured to said valve-stem, a fixed horizontal bracket, an operating-shaft stepped therein, a bearing for said shaft above said bracket, a laterally-extended arm secured to said shaft, a link connecting said arm with the arm on the valve-stem, and an operating-handle secured to the upper end of said shaft, substantially as specified.

3. The combination of an automobile-body, a throttle-valve casing having wings wherewith it may be attached to a horizontal frame member of said body, said casing containing a horizontal tapered valve-coat through which one or more ports are formed, an inlet-pipe connected with said casing above said valve-coat, an outlet-pipe connected with said casing below said valve-coat, a rotatable conical valve fitted to said coat and having one or more ports extending from its top down through its tapered sides, a valve-stem secured to the under side of said valve and extended out through said casing, a laterally-extended arm secured to said valve-stem, a horizontal bracket secured to the vehicle-body, an operating-shaft stepped therein, a bearing embracing said shaft above its lower end and secured to the vehicle-body, and an operating-handle removably secured to the upper end of said shaft, substantially as specified.

697,587. CORK-EXTRACTOR. ROBERT J. WILLIAMS, Mount Vernon, Ind. Filed Feb. 22, 1901. Serial No. 68,090. (No model.)

Claim.—1. In a cork-extractor, the combination with a tubular stem provided at one of its ends with a perforating-point and having adjacent to each of its ends a vent-opening communicating with the bore of the stem, of a handle pivotally and slidably connected to said stem and into which the latter is folded when not required for use, and means for automatically removing the cork from the stem after the cork is withdrawn from the bottle.



2. In a cork-extractor, the combination with a stem provided at one of its ends with a perforating-point, of a handle pivotally and slidably connected to said stem and into which the latter is folded when not required for use, a cap adapted to be mounted upon said stem and to slide longitudinally thereon, and a spring encircling said stem and interposed between the handle and said cap, whereby said cap is adapted, under the tension of said spring, to force the cork from the stem after the cork is withdrawn from the bottle.

3. In a cork-extractor, the combination with a stem provided at one of its ends with a perforating-point, of a handle pivotally connected to said stem, said handle being provided with oppositely-disposed longitudinally-extending slots into which the pivot of said handle is arranged and capable of sliding movement, whereby the stem may be folded into said handle when not required for use, a cap adapted to be mounted upon said stem and to slide longitudinally thereon, and a spring encircling said stem and interposed between the handle and said cap, whereby said cap is adapted, under the tension of said spring, to force the cork from the stem after the cork is withdrawn from the bottle.

4. In a cork-extractor, the combination with a tubular stem provided at one of its ends with a perforating-point and having adjacent to each of its ends a transversely-extending vent-opening communicating with the bore of the stem, of a handle pivotally and slidably connected to said stem and into which the latter is folded when not required for use, a cap adapted to be mounted upon said stem and to slide longitudinally thereon, and a spring encircling said stem and interposed between the handle and said cap, whereby said cap is adapted, under the tension of said spring, to force the cork from the stem after the cork is withdrawn from the bottle.

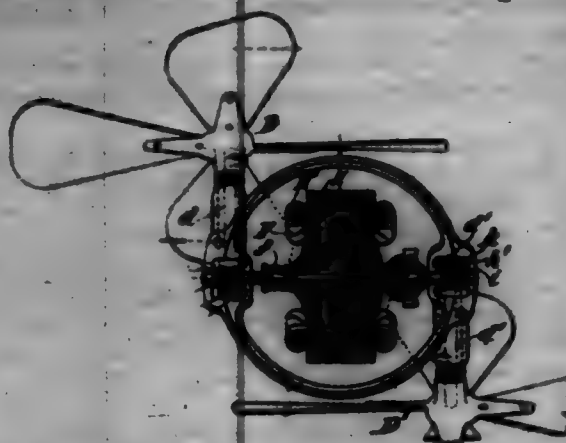
5. In a cork-extractor, the combination with a stem provided at one of its ends with a perforating-point, of a handle pivotally connected to said stem, said handle being provided with oppositely-disposed longitudinally-extending slots in which the pivot of said handle is arranged and capable of sliding movement, whereby the stem may be folded into said handle when not required for use, said handle also having one of its ends curved-throated, a cap normally mounted upon the curved-throated end of said handle but adapted to be positioned upon said stem, when the extractor is required for use, and to slide longitudinally thereon, and a spring encircling said stem and interposed between the handle and said cap, whereby the latter is mounted upon the stem, whereby said cap is adapted, under the tension of said spring, to force the cork from the stem after the cork is withdrawn from the bottle.

6. In a cork-extractor, the combination with a tubular perforating-point having closed ends one of the ends of which is pointed and a gripping-handle pivotally mounted on the opposite end of said stem, of a band or funnel-shaped collar loosely mounted on said stem, said collar having its interior conical surface directed outwardly, and a coil-spring interposed between said collar and said handle, all substantially as and for the purpose set forth.

697,588. HENRY F. FARR. James J. Wynn, Port Wayne, Ind.
Filed Aug. 17, 1908. Serial No. 57,144. (No model.)

Claim.—1. In an electric fan, the combination with a single electromotor, of a support mounted to rotate upon a vertical axis, and two fans both driven from said motor mounted to rotate upon axes on opposite

sides of said vertical axis and tangential thereto so as to rotate said support.



2. In an electric fan, the combination with a single electromotor, of a support mounted to rotate upon a vertical axis, and two fans both driven from said motor mounted to rotate upon axes on opposite sides of said vertical axis and tangential thereto so as to rotate said support, said fans being rotated in the same direction as you face them.

3. In an electric fan the combination of a motor, a support adapted to rotate about an axis, a shaft rotated by said motor and having a gear at each end, and two fans mounted on shafts on opposite sides of said axis and each having a gear at its inner end, one meshing with the gear at one end of said motor-shaft, and the other meshing with the gear at the other end of said shaft, said motor and shafts being situated upon said support.

4. In an electric fan, the combination of a stationary support, a rotary support mounted thereon, a motor, a shaft rotated by said motor, having a gear at each end, and two fans mounted on shafts on opposite sides of said axis and each having a gear at its inner end, one meshing with the gear at one end of said motor-shaft, and the other meshing with the gear at the other end of said shaft, said motor and shafts being situated upon said rotary support.

5. In an electric fan the combination of a motor, a support adapted to rotate about an axis, a shaft rotated by said motor and having a helical gear at each end, and two fans mounted on shafts on opposite sides of said axis, and each having a helical gear at its inner end, the one meshing with the gear at one end of said motor-shaft, and the other meshing with the gear at the other end of said shaft, said motor and shafts being situated upon said support.

6. In an electric fan the combination of a motor, a support adapted to rotate about an axis, a shaft rotated by said motor and having a helical gear at each end, and two fans mounted on shafts on opposite sides of said axis, and each having a helical gear at its inner end, the one meshing with the gear at one end of said motor-shaft, and the other meshing with the gear at the other end of said shaft, the teeth of the gears on said motor-shaft being inclined in opposite directions, said motor and shafts being situated upon said support.

7. The combination with a support mounted to rotate about a vertical axis, of a fan mounted in bearings in said support so that it rotates on an axis oblique to the horizontal and on one side of said vertical axis and tangential thereto so as to rotate said support, and means for rotating said fan.

8. The combination with a support mounted to rotate about a vertical axis, of a fan mounted in bearings in said support so that it rotates on an axis oblique to the horizontal and on one side of said vertical axis and tangential thereto so as to rotate said support, and means for rotating said fan, the reaction due to the paddle-wheel effect of the blades being opposite to that due to the wedging action thereof.

9. The combination with a support mounted to rotate about a vertical axis, and an electromotor carried thereby, of a fan receiving motion from said motor and mounted on said support to rotate upon an axis extended obliquely to the horizontal and on one side of said vertical axis and tangential thereto so as to rotate said support.

10. In an electric fan, the combination with a motor of a support mounted to rotate upon a vertical axis, and two fans mounted to rotate upon axes arranged on opposite sides of the axis of said support and tangential thereto so as to rotate said support, the axes of rotation of said fans being extended obliquely to the horizontal.

11. In an electric fan, the combination with a motor of a support mounted to rotate upon a vertical axis, and two fans mounted to rotate upon axes arranged on opposite sides of the axis of said support and tangential thereto so as to rotate said support, the axes of rotation of said fans being extended obliquely to the horizontal, and said fans being arranged to rotate in the same direction as you face them.

12. An electric fan comprising a support adapted to rotate about a vertical axis, a motor mounted upon said support, a shaft rotated by said

motor and having a helical gear at each end, and two fans mounted on shafts extended angularly to said motor-shaft, and each having a helical gear at its inner end, the one meshing with the gear at one end of said motor-shaft, and the other meshing with the gear at the other end of said shaft, said fan-shafts extended downwardly in an oblique direction, whereby a downward blast is delivered by each of said fans, and the support is caused to rotate by the reactive thrusts of said fans.

13. In an electric fan, the combination with a stationary casing, of a rotary motor-casing, said stationary casing comprising a pair of shells one of which supports said rotary casing and the other of which carries contact-arms for conveying the current to said rotary casing.

14. In an electric fan, the combination with a stationary casing comprising a pair of shells a' and a'' , of a rotary motor-casing having a neck extending within the stationary casing, a collar on said neck supported by a ball-bearing in said shell a' , and conductors in said neck adapted to contact with contact-arms carried by said shell a'' .

15. The combination with a support mounted to rotate upon a vertical axis, of a fan mounted to rotate upon an axis on one side of said vertical axis and tangential thereto so as to rotate said support by a wedging reaction, the axis of rotation of said fan being oblique to the horizontal, and means for rotating said fan in a direction to produce a paddle-wheel reaction opposed to said wedging reaction.

16. The combination with a support mounted to rotate upon a vertical axis, of two fans mounted to rotate upon axes on opposite sides of said vertical axis and tangential thereto so as to rotate said support by a wedging reaction, the axes of rotation of said fans being oblique to the horizontal, and means for rotating said fans in a direction to produce a paddle-wheel reaction opposed to said wedging reaction.

697,589. ELECTRIC FAN. JAMES J. WOOD, Port Wayne, Ind. Filed Feb. 26, 1901. Serial No. 61,042. (No model.)



Claim.—1. The combination in an electric motor of a casing composed of a pair of shells surrounding the field-magnet thereof, the meeting edges of said shells being in a plane transverse to the armature-shaft, means for securing said field-magnet to one of said shells, and means for securing said shells together.

2. The combination in an electric motor of a casing B composed of a pair of shells A' and A'' surrounding the field-magnet thereof, means for securing said field-magnet to said shell A' , and means for securing the other shell A'' to said shell A' .

3. The combination in an electric motor of a casing A composed of a pair of shells A' and A'' surrounding the field-magnet thereof, bolts D entering said shell A' , and projecting through said shell A'' , said field-magnet being secured to said shell A' by nuts on said bolts, and said shells being secured together by nuts on said bolts.

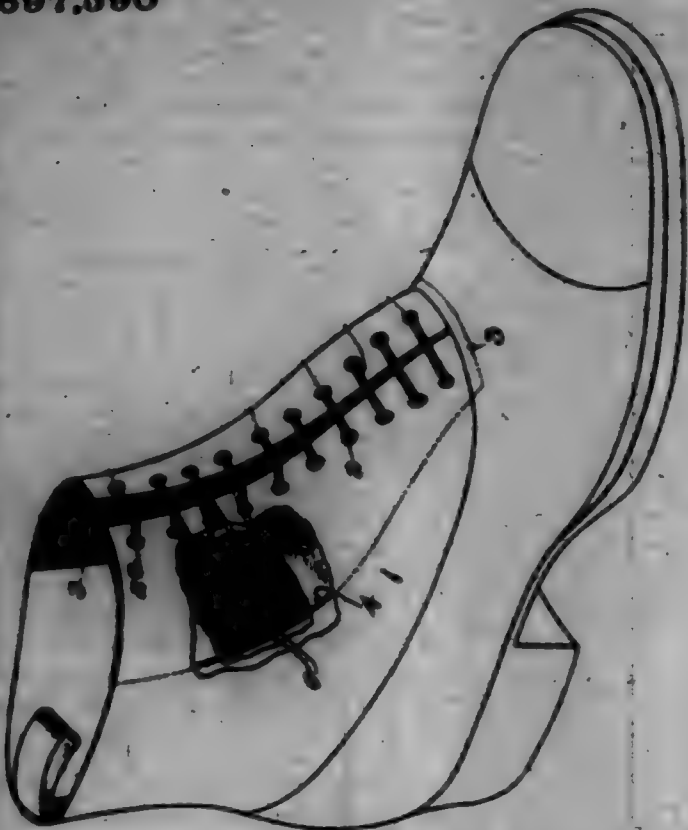
4. The combination in an electric motor, of a brush-holder tube P having a grooved face, and a wedge-shaped slide T fitted in said groove and adapted to be attached to the end of a cable.

697,590. SHOE. JOHN C. WATSON, Brooklyn, N.Y. Filed May 16, 1901. Serial No. 61,235. (No model.)

Claim.—1. A heel or shoe having a divided top, lacing-holes on each side of the division, a series of guides attached to the inside of the shoe further from the division-opening than are the lacing-holes, and an elastic lacing which passes through the said lacing-holes and said guides, the guides and the portion of the lacing between the guides and the lacing-holes being concealed from external view, substantially as described.

2. A heel or shoe having a divided top, lacing-holes on each side of the division, an elastic tongue secured to the inside of the shoe on both sides of the division-opening at a greater distance therefrom than the lacing-holes, a series of guides attached to the shoe between the tongue and the upper on each side of the opening and at a greater distance from the division-opening than are the lacing-holes, and an elastic lacing which passes through the said lacing-holes and said guides, the holes on one side being level with the guides on the other, substantially as described.

697,590



697,591. OPERATING RAILWAY-SWITCHER. ARTHUR YOUNG, JR., North Augusta, S. C. Filed Sept. 14, 1902. Serial No. 20,015. (No model.)



Claim.—1. The combination substantially as described of the switch-points, the switch-bar connecting the same, the operating-frame having a yielding connection with the switch-bar and provided with an inclined flange for engagement by the operating projection on the rolling-stock, said operating projection being provided with a carrier, a frame in which said carrier is movable laterally, a detent-lever for locking the carrier in its lateral adjustment, an operating-lever arranged to adjust the carrier laterally, and a lever arranged to release the detent and locked relatively to the lever for operating the carrier, substantially as and for the purpose set forth.

2. In an apparatus substantially as described, the combination of the operating projection, the carrier therefor, a frame in which the said carrier is movable laterally, a detent-lever by which to lock the carrier in its different adjustments, a rod or connection leading from said detent, an operating device connecting with the rod or connection, and the lever for adjusting the carrier laterally, the point of connection between the rod or connection for operating the detent and its operating device, being arranged to coincide with the pivot-point of the lever for adjusting the carrier in the released position of the detent, substantially as set forth.

3. The combination of the metal points, the spring switch-bar connected therewith and notched for engagement by the locking-belt, and arranged to spring into and out of engagement with said belt, and means for operating said switch-bar, substantially as set forth.

4. In an apparatus substantially as described, the combination with the switch-operating projection, the carrier therefor, the frame in which said carrier is adjustable laterally, the pivoted lever and intermediate devices whereby it adjusts the carrier laterally, the detent for securing the carrier in its different adjustments, the lever for operating said detent, a connection between said lever and the detent, and the lever for adjusting the carrier laterally, the detent-releasing lever being pivoted to the carrier-adjusting lever and having its connection with the rod or connection leading to the detent arranged to coincide with the pivot of the carrier-adjusting lever when the detent is released, substantially as set forth.

5. In a railway-switch the combination with the switch-points and the switch-bar, of the movable frame for operating said switch-bar having means whereby it may be operated by a projection on the rolling-stock, said operating-frame being engaged at one end with the switch-bar and being movable to a limited extent at such end independently of the switch-bar, and a spring for resisting such independent movement, substantially as set forth.

6. In a railway-switch the combination of the switch-points, the switch-bar connecting the same and having an upwardly-projecting beam, the operating-frame having at one end a notch or recess fitting over said beam and made wider than the beam whereby to permit a limited independent movement of the said beam, and a spring operating to arrest such movement, substantially as set forth.

7. In a railway-switch, the combination of the switch-points and the switch-bar having a beam, the operating-frame having a slot or recess in which said beam operates and which is wider than the said beam whereby to permit an independent movement of the parts, and a spring operating between said beam and the frame whereby to cushion the operation of the parts, substantially as set forth.

8. The combination in a railway-switch, of the points, the switch-bar connecting the same and having a beam, the operating-frame having a slot or recess for receiving said beam and made wider than the beam, and a spring rod or bar secured at one end to the beam and at its other end to the operating-frame, substantially as set forth.

9. In a railway-switch the combination with the switch-points and the switch-bar, of the opposite operating-frames and spring devices by which the adjacent ends of the operating-frames are yieldingly connected with the switch-bar, substantially as set forth.

10. In a railway-switch, the combination with the switch-points and the switch-bar, of the operating-frames pivoted at their outer ends and connected at their adjacent ends with the switch-bar and having at their opposite edges flanges spaced apart for the operation between them of the projection of the rolling-stock, substantially as set forth.

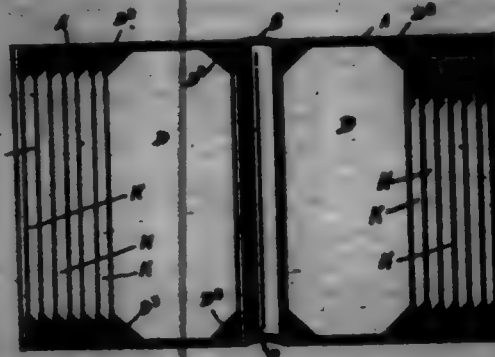
11. In a railway-switch substantially as described, the combination of the switch-points, a switch-operating bar in connection therewith, a casing through which said switch-operating bar is passed, said casing having a slot for the passage of the ward of the operating-lever, the operating lever or shaft having a ward arranged to be passed through said slot and adapted to engage the switch-operating bar, and a spring arranged to exert an upward tendency upon the said lever and shaft whereby to press the same into position to adjust its ward out of position for engagement with the switch-operating bar, substantially as set forth.

12. In a railway-switch the combination substantially as described of the switch-points, the operating-bar connected therewith, a notch for engagement by the ward of the operating shaft or lever, the casing through which said operating-bar is passed, said casing having a keyhole-slot, the lever or shaft having a ward and movable through said slot to position for the engagement of its ward with the notches of the switch-operating bar, and the spring arranged in said casing below the keyhole-slot in position to form a seat for the lower end of the operating-lever, whereby it will exert an upward tendency upon said shaft or lever, substantially as set forth.

697,592. FILE AND DISPLAY BOOK. ERNEST REVE, Chesham, Chas. Filed Dec. 2, 1901. Serial No. 65,262. (No model.)

Claim.—1. The combination of a book-cover, leaves separate there-

from, a foundation-piece as C distinct from the leaves and the cover and having slots C', said leaves each having a hinge-leaf E, said hinge-leaf being passed through the adjacent slot and bent and secured flat upon the back of the foundation-piece, substantially as and for the purposes specified.



2. The combination of a book-cover, a foundation-piece C, having slots C', leaves D and a hinge-leaf E, each leaf D being composed of two pieces D¹, D², the edge of the hinge-leaf E being located between the pieces D¹, D², the latter and the hinge-leaf E being united together, the hinge-leaf passing through the adjacent slot C' and secured at the back of the foundation-piece C, substantially as and for the purposes specified.

3. The combination of a book-cover, a foundation-piece C, having slots C', leaves D, and a hinge-leaf E, the latter secured to the leaf D, and passed through the adjacent slot, and bent and secured to the back of the foundation-piece, and means for enabling display or other cards to be held to the side of the leaf E, substantially as and for the purposes specified.

4. The combination of a book-cover, a foundation-piece C, having slots C', leaves D, and a hinge-leaf E, the latter secured to the leaf D, and passed through the adjacent slot, and bent and secured to the back of the foundation-piece, and the corners D¹ on the leaves D, arranged to adapt the leaves to receive the separate file or display papers, and the file, substantially as and for the purposes specified.

5. The combination of a book-cover, a foundation-piece C, having slots C', leaves D each composed of at least two subpieces D¹, said slots by slots, a hinge-leaf E, having one edge held between the subpieces D¹, and the other edge passed through the slot and bent and secured flat against the back of the foundation-piece, and the corners D¹, united to the edge of the leaf D, but separate elsewhere therefrom, substantially as and for the purposes specified.

6. The combination of a book-cover, a foundation-piece C, having slots C', leaves D and a hinge-leaf E, each leaf D being composed of two pieces D¹, D², the edge of the hinge-leaf E being located between the pieces D¹, D², the latter and the hinge-leaf E being united together, the hinge-leaf passing through the adjacent slot C' and secured at the back of the foundation-piece C, the leaves D being of the same size, and when down presenting a broad outer edge, on which index or other characters may be, substantially as and for the purposes specified.

697,593. SAND-MOLDING MACHINE. DANIEL L. ADAMS, Belling, Pa. Filed June 27, 1901. Serial No. 65,212. (No model.)

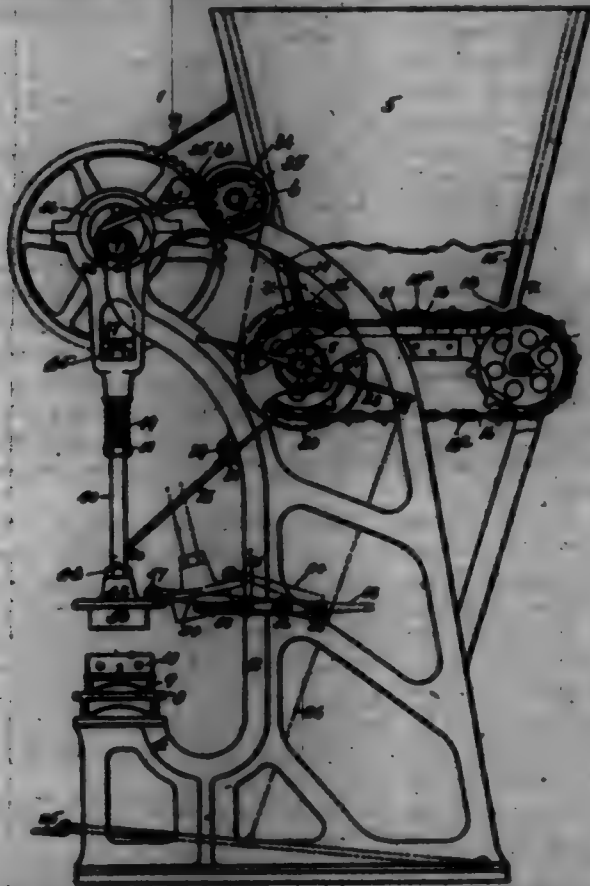
Claim.—1. A ramming mechanism for sand-molding machines, embracing a rammer-carrying rod having means by which it is raised and lowered, combined with a guiding device therefor, embracing an arm pivoted at one end to the rammer and having its other end pivoted at a fixed point, said arm having a plurality of members pivoted together at their confronting ends, and means actuated to turn said arm on the latter pivot and thereby swing said rammer laterally.

2. A ramming mechanism for sand-molding machines, embracing a rammer-carrying rod having means by which it is raised and lowered, combined with a guiding device therefor, embracing an arm pivoted at one end to the rammer and having its other end connected to a pivotal shaft, said arm having a plurality of members pivoted together at their confronting ends, and means for turning said shaft to thereby swing said rammer laterally.

3. A ramming mechanism for sand-molding machines, embracing, in combination, an operating-shaft, a rammer, rammer-rods attached to opposite ends of said rammer, connections between said rods and shaft for actuating the rods to thereby raise and lower said rammer, a rock-shaft, and guide-arms, each pivoted at one end to said rammer and having its other end secured to said rock-shaft and each comprising two members pivoted together at their confronting ends, and means actuated to turn said rock-shaft and thereby swing said rammer.

4. In a sand-molding machine, the combination with a frame, a shak-table, a hopper, and means for feeding sand from said hopper to the shak-

of a shaft, means for actuating the same, eccentrics on said shaft, eccentric-strap engaging said eccentrics, rods carried by said straps, rammer mounted to said rods, and arms each pivotally connected at one end to the rammer and at its other end to a fixed point on the machine-frame, each of said arms being formed of two parts hinged together at their contiguous ends, and means for folding or opening the hinged parts to swing the suspended rammer.



5. In a sand-molding machine, the combination with a rammer-actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric, a rammer, a rod to the lower end of which said rammer is secured, said rod being suspended directly from said strap and supported to have longitudinal movement relative thereto and a buffer-spring for said rod and rammer.

6. In a sand-molding machine, the combination with a rammer-actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric and having an opening in one end, a rod having one of its ends projecting into said opening and movable longitudinally therein, a rammer secured to the other end of said rod, means on said rod by which it is supported directly from said strap, and a buffer-spring for absorbing excessive pressure imposed on said rammer.

7. In a sand-molding machine, the combination with a rammer-actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric, a rod supported directly by said strap and having a rammer at its lower end, said rod having means by which the length of its projection from said strap is adjustably determined and having movement relative to said strap, and a buffer-spring for absorbing excessive pressure imposed on the rammer.

8. In a sand-molding machine, the combination with a rod, said means for supporting and for raising and lowering the same, of a rammer carried by said rod and partaking of the movements thereof, said rammer having movement relative to the means for supporting and raising and lowering said rod, a buffer-spring for absorbing excessive pressure imposed on the rammer, and a guiding means for said rod independent of its said raising and lowering and supporting means.

9. In a sand-molding machine, the combination with the machine-frame, a rammer-actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric, a rod supported directly from said strap and having movement relative thereto, a rammer secured to said rod and partaking of the movements thereof, a buffer-spring for said rammer and rod, and a guiding means for said rod and rammer, said guiding means being pivoted to said rod and the machine-frame at its respective ends.

10. In a sand-molding machine, the combination with a rammer-actuating shaft, an eccentric thereon, an eccentric-strap engaging said eccentric, a rammer, a rod to which said rammer is secured, and a nut threaded upon the upper end of said rod and serving to suspend said rod directly from said strap and to adjustably determine the length of the projection of said rod from said strap.

11. In a sand-molding machine, the combination with a rammer-

actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric, a rod having longitudinal movement relative to said strap, a nut threaded upon the upper end of said rod and engaging said strap, said nut serving to suspend said rod directly from said strap and adjustably to determine the length of the projection of the rod from the strap, a rammer secured to said rod, and a buffer-spring for said rod and rammer.

12. In a sand-molding machine, the combination with a rammer-actuating shaft, and an eccentric thereon, of an eccentric-strap engaging said eccentric and having an opening through one end and an open portion with which said opening communicates, a rod projecting through said opening into said open portion, said rod being movable relative to said strap, a nut threaded upon said rod and located in said open portion of the eccentric-strap, a rammer secured to said rod, and a buffer-spring for said rod and rammer.

13. In a sand-molding machine, the combination with the frame, flask-table, a hopper, and means for feeding sand from said hopper to the flask, of a shaft, means for actuating the same, an eccentric on said shaft, an eccentric-strap engaging said eccentric, a rod suspended from said strap, a rammer secured to said rod, said rod being movable relative to said strap, a buffer-spring connected with said rod and strap, an arm pivotally connected at its opposite ends to the rammer and machine-frame, said arm being composed of two members hinged together at their contiguous ends, and means for folding or opening the same, for the purpose specified.

14. A ramming mechanism for sand-molding machines, embracing a main driving-shaft, a loose pinion and a clutch device thereon, a rammer-operating shaft, a rammer connected therewith, a fixed gear-wheel on the latter shaft geared with said pinion, a clutch-lever and means controlled by said gear-wheel for actuating said lever.

15. A ramming mechanism for sand-molding machines, embracing a main driving-shaft, a loose pinion thereon, a spring-pressed sleeve on said shaft, a rammer-operating shaft, a collar loosely mounted thereon and confined against movement longitudinally thereof, a pivoted lever connected with said sleeve and collar, a fixed gear-wheel on said rammer-operating shaft geared with said pinion, a cam carried by said gear-wheel, and a bell-crank connected with said lever and projecting into the path of said cam.

16. A ramming mechanism for sand-molding machines, embracing a main driving-shaft, a loose pinion thereon, a spring-pressed sleeve on said shaft, a rammer-operating shaft, a collar loosely mounted thereon and confined against movement longitudinally thereof, a pivoted lever connected with said sleeve and collar, a fixed gear-wheel on said rammer-operating shaft geared with said pinion, a cam carried by said gear-wheel, a spring-pressed bell-crank having a heel portion or stop, said bell-crank being connected with said lever and arranged to be actuated automatically by said cam, and a means connected with said bell-crank by which the same may be actuated manually, substantially as described and for the purposes set forth.

17. In a sand-molding machine the combination with the frame, the flask-table, the sand-hopper, and the sand-feed mechanism, of the main driving-shaft with loose pinion and clutch device thereon, the rammer-operating shaft having a fixed gear-wheel in mesh with said pinion, the clutch-lever arranged to be automatically operated by said gear-wheel, and the rammer connected with said rammer-operating shaft substantially as set forth.

18. In a sand-molding machine the combination with the frame, the flask-table, the sand-hopper, and the sand-feed mechanism, of the main driving-shaft with loose pinion and clutch device thereon, the rammer-operating shaft having a fixed gear-wheel in mesh with said pinion, the clutch-lever arranged to be automatically operated by said gear-wheel, the rammer connected with said rammer-operating shaft, and means for operating said clutch independently of the said gear-wheel, substantially as set forth.

19. In a sand-molding machine, the combination with a flask-support, of a sand-feed mechanism therefor comprising a hopper having a closed bottom and provided with openings in its sides, and an endless feed-belt traveling across the lower portion of said hopper and through said openings and having projections which travel therewith and are caused thereby to positively discharge the sand from the hopper through one of said openings, substantially as described.

20. In a sand-molding machine, the combination with a flask-support, of a sand-feed mechanism therefor mounted above and at one side of said support, said hopper having a horizontal closed lower end and provided with openings in its opposite sides, an endless feed-belt traveling across the lower portion of said hopper above said bottom and through said openings and having projections which travel therewith and are caused thereby to positively discharge the sand from the hopper through one of said openings, and a discharging means for the sand, arranged between the latter opening and the flask, substantially as described.

697,594. DRAWING IMPLEMENT. FREDERICK A. ALTHOFF, Canada, Pa. Filed Sept. 21, 1891. Serial No. 74,694. (No model.)



Claim.—1. An implement of the class described, comprising a transparent body provided with a guiding edge; a means in said guiding edge; and an opaque substance secured in said recess, substantially as set forth.

2. An implement of the class described, comprising a body of transparent material having opposite parallel plane surfaces provided with a guiding edge; a recess extending parallel with said guiding edge and intermediate of said plane surfaces; and an opaque substance secured in said recess, substantially as set forth.

3. An implement of the class described, comprising a flexible transparent body provided with a guiding edge; a recess in said guiding edge; and an opaque substance secured in said recess, substantially as set forth.

4. An implement of the class described, comprising a body of transparent flexible material having opposite parallel plane surfaces provided with a guiding edge; a recess extending parallel with said guiding edge and intermediate of said plane surfaces; and an opaque substance secured in said recess, substantially as set forth.

697,595. AUTOMATIC PUMPING MECHANISM. ALFRED R. AMMANN, New York, N. Y., assignor to himself and Max I. Schindler, New York, N. Y. Filed Aug. 20, 1899. Serial No. 57,595. (No model.)



Claim.—1. An improved automatic pumping apparatus, comprising a movably-suspended weight, a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, a pump proper, power-transmission device between the float and the weight, power-transmission device between the float and the pump proper, and means operated by the weight in its movement for throwing said power-transmission device into and out of operation.

2. An improved automatic pumping apparatus, comprising a casing provided with an inlet and outlet, a float within the casing, means for intermittently discharging the contents of the casing, a pump proper, storage means for storing the energy supplied by the movement of the float within the casing, power-transmission device between said float and said storage means, and power-transmission device between said storage means and said pump proper, said storage means embodying device for throwing said power-transmission device into and out of operation.

3. An improved automatic pumping apparatus, comprising a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, said means being operated by said float, a pump proper, storage means for storing the energy supplied by the movement of the float within the casing, power-transmission device between said float and said storage means, and power-transmission device between said storage means and said pump proper.

said storage means embodying device for throwing said power-transmission device into and out of operation.

4. In an automatic pumping apparatus, a pump proper, a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, a movably-suspended weight, power-transmission device between the float and the weight, and power-transmission device between the weight and the pump proper, said power-transmission device embodying each an adjustable member actuated by the weight in its movement.

5. In an automatic pumping apparatus, a pump proper, a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, a movably-suspended weight, power-transmission device between the weight and the float, and power-transmission device arranged between the weight and the pump proper and embodying an adjustable member actuated by the weight in its movement.

6. In an automatic pumping apparatus, a pump proper, a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, a movably-suspended weight, a rotary drum, a cable or rope connected with said weight and adapted to be wound upon said drum, power-transmission device between said float and said drum, power-transmission device between said drum and said pump proper, and device operated by said weight in its movement for throwing said power-transmission device into and out of operation.

7. In an automatic pumping apparatus, a pump proper, a casing provided with an inlet and an outlet, a float within the casing, means for intermittently discharging the contents of the casing, storage means for storing the energy supplied by the movement of the float within the casing, a rotary drum operatively connected with said storage means, adjustable power-transmission device between said float and said drum, adjustable power-transmission device between said drum and said pump proper, and means for operating said power-transmission device, said power-transmission device embodying each a flexible gear-carriage provided with a shifting counterbalance member.

8. In a pumping apparatus of the class described, a driven mechanism, a movably-suspended weight, a drum with which the weight is connected in suspended position, means for operating the drum to raise the weight, and power-transmission device between the drum and the driven mechanism whereby the weight in its downward movement operates the latter, said power-transmission device embodying a movable gear-carriage provided with a gear mechanism adapted for operative connection with the drum and with the driven mechanism, said gear-carriage being operated in its movement by the moving weight and embodying a counterbalance device, substantially as and for the purpose set forth.

697,596. HOSE-SUPPORTER. ELMER AMMANN, Applicant Pa. Filed Oct. 14, 1891. Serial No. 72,696. (No model.)

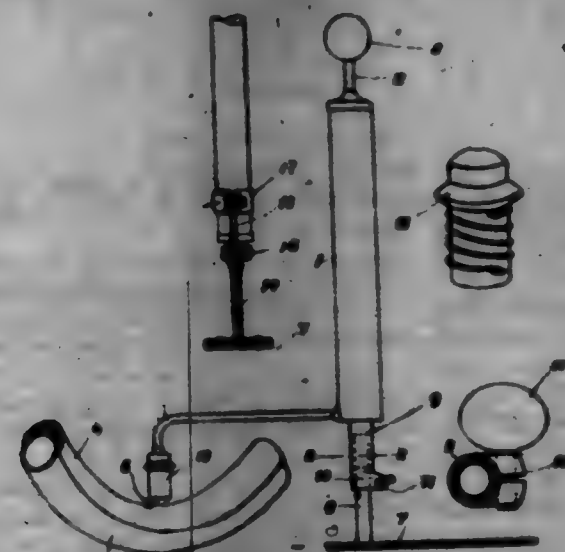


Claim.—1. The herein-described hose-supporter comprising front and back straps, with means for attaching the same to the carriage of the wearer, in combination with front and rear loops adapted to be connected to the front and rear parts of the hose to be supported, and each of said loops provided with a clasp attachment to one of the straps above, together with transverse bands connecting a front and rear strap at each side, and an additional transverse band connecting the rear straps, whereby the main part of the supporter is raised, and the several loops effect said ends easily separable therefrom, substantially as specified.

2. In a hose-supporter of the kind described, the combination with front and back supporting-straps, transverse bands connecting a front and back strap at either side, the upper ends of said straps having suitable connection to the carriage of the wearer, another transverse band connecting the back straps in the vicinity of their connection to the carriage, in combination with a number of pairs of hose-clamps connecting with the hose front and back, loops to which said hose-clamps are connected, and the said loops further connected by means of separable clasps to the front

and back supporting-straps, whereby the loops are rendered readily separable from the supporting-straps without separation from the hose, substantially as specified.

697,597. TIRE-INFLATER. EMERY E. ASHBY, Boston, Mass. Filed Apr. 20, 1899. Renewed Mar. 14, 1900. Serial No. 68,597. (No model.)



Claim.—An inflating device comprising a pump member and a supporting member, the latter having a substantially flat ground-piece to be held between the operator's feet and the ground, the pump member having a coupling laterally remote from said ground-piece and of a substantially right nature to connect with the tire-valve and form a support for the pump member, and an adjustable connection between the pump member and the supporting member comprising a stem formation on one of the members and a clamp on the other member slidably adjustable longitudinally of said stem formation whereby the pump member may be raised and lowered to change the elevation of its coupling with respect to the ground-piece.

697,598. WATER-GATE. CHARLES H. BAKER, York, Maine. Filed Aug. 20, 1891. Serial No. 72,698. (No model.)

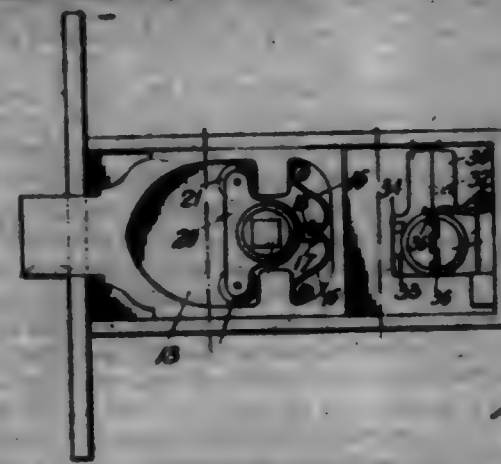


Claim.—The combination with a casing having oppositely-disposed openings, of pipe-sections within these openings, and having their inner ends forming valve-seats, a non-rotating valve-stem, a valve slideable between and in contact with said ends and valve seats in two parts, and springs interposed between the two parts of the valve, for holding said parts in contact with the seats, said valve-stem extending above the valve to form a chamber having ball-and-groove guides upon its inner wall whereby the chamber is restricted in its upper part, to prevent the parts of the valve spreading apart when the valve is open, and a stop at the upper portion of the guides to prevent unnecessary opening of the valve.

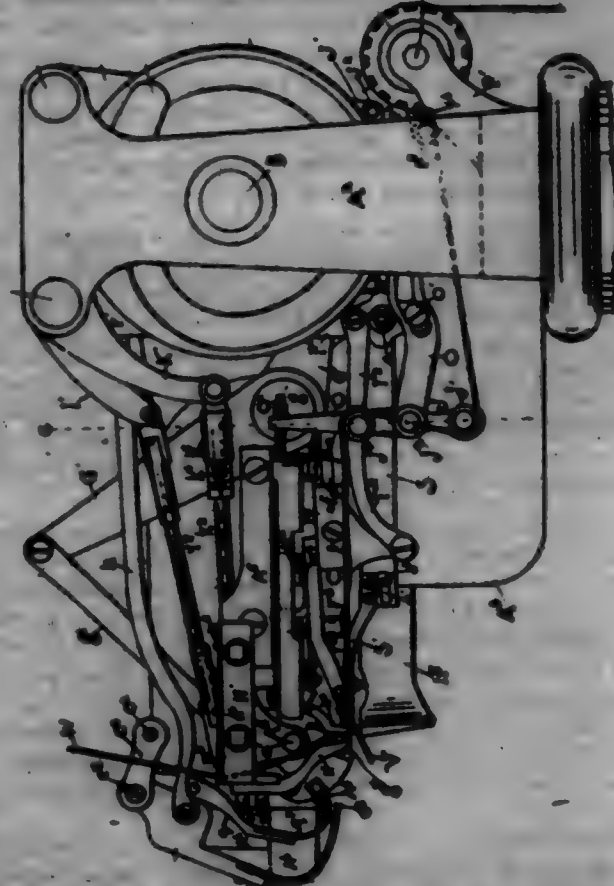
697,599. LOCK. CHARLES W. HANCOCK, Raleigh, N. C. Filed June 12, 1891. Serial No. 68,599. (No model.)

Claim.—In a mortise-lock, the combination with a casing; of a latch-bolt having a body portion formed with a slot, the walls of which are provided intermediate their ends with oppositely-located lugs, a support upon the casing projecting into the slot, a protruding-spring supporting the rear portion of the slot and caused to aid support and having forwardly-curved ends bearing against said lugs, an annular-grooved key-tumbler, a rotary key-bolt having a collar loosely fitting the groove in the key-tumbler, said bolt and collar being longitudinally divided, forming corresponding sections, means for adjustably securing said sections to-

gether to regulate the frictional engagement of the collar with the key-tumbler, a detent-spring for causing resistance to the movement of the key-tumbler, a contact-piece carried by the key-bolt, a contact-piece on the key-tumbler to engage said contact-piece on the bolt and turn said bolt in one direction or the other, the tumbler having nearly one complete revolution in order to bring the contacts in engagement in either direction of movement, and a stop limiting the extent of rotation of said key-tumbler, substantially as set forth.



697,600. SEWING MACHINE. EDWIN R. DEAR, Warren, N. H., assignor to the Loop-Lock Machine Company, Portland, Me., and Boston, Mass. Filed Aug. 21, 1899. Serial No. 58,600. (No model.)



Claim.—1. A sewing machine comprising an oscillating needle, means for advancing the same through the work, an arm which is adapted to engage one side of the needle and positively hold it against movement in one direction, a pressure-foot, means for yieldingly forcing said foot against the opposite side of the needle, a shoulder on said pressure-foot having a flange which moves in a predetermined path, a pivoted latch having a flange which is adapted to engage the flange of said shoulder, the pivot of said latch being so arranged that the path described by the flange of the latter as it is swung on its pivot intersects the path of the flange on the shoulder at nearly right angles, the surface of one of said flanges being inclined at an acute angle to the path of any point thereon so that as the flange of the latch crosses the path of the flange of the shoulder, the are described by a given point in the flange of the latch will intersect the flange of the shoulder in whatever position the latter may assume while in engagement with the work, and means for swinging the flange of said latch into engagement with the flange of the shoulder after the foot has been brought into engagement with the work and before the needle passes therethrough, thereby positively locking said foot in whatever position it may assume while in engagement therewith.

2. A shoe-sewing machine comprising an oscillating needle, means for advancing the same through the work, an arm, means for positively forcing the same rearwardly into engagement with the sole of the shoe, a presser-foot, means, acting through a spring, for forcing said presser-foot forwardly so that it will force the upper against the edge of the sole, a shoulder on said presser-foot a pivoted latch having its pivot so arranged that said shoulder moves away therefrom when said presser-foot moves forwardly, an engaging surface on said latch which is adapted to engage said shoulder in various positions of the latter and lock said presser-foot against backward movement, a lever, a rod which connects said latch and lever, a spring through which said lever must act to move said latch forwardly into engagement with said shoulder, and means for oscillating said lever so that the engaging surface of said latch will be brought into engagement with said shoulder after the presser-foot has been brought into engagement with, and before the needle passes through, the work.

3. A shoe-sewing machine comprising a hooked needle, means for advancing the same through the sole and upper in turn, means for placing the thread in the needle-hook while the needle is in its advanced position and for causing it to draw back a loop of thread through the work, a presser-foot having a forked end, means for causing the same to press the upper against the edge of the sole on each side of the path of the needle, a presser-finger, means for causing the same to press the upper against the edge of the sole below the path of the needle and in advance of the passage of the needle through the upper, and means for throwing said foot out of engagement with the upper while the needle is drawing back its loop.

4. A shoe-sewing machine comprising a hooked needle, means for advancing the same through the sole and upper in turn, means for placing the thread in the needle-hook while the needle is in its advanced position and for causing it to draw back a loop of thread through the work, a presser-foot, means for causing the same to press the upper against the sole at each side of the path of the needle, a presser-finger, means for causing the same to press the upper against the edge of the sole below the path of the needle and in advance of its passage through the upper and means for moving said presser-foot out of engagement with the upper while the needle is drawing back its loop.

5. A shoe-sewing machine comprising a needle, a presser-foot having two arms at its lower end and between which the needle may pass, means for causing said arms to press the upper against the sole at each side of the path of the needle, a finger, means for advancing the same so that it will engage the upper directly below the ends of said arms, means for advancing the needle so that it will pass through the work and between said arms, and its point will emerge inside the angle included by the foot and finger, means for causing the needle to draw back a loop of thread through the work and for moving said foot and finger out of engagement with the upper while the needle is drawing back its loop.

6. A shoe-sewing machine comprising a needle, means for oscillating the same, and for causing it to draw a loop of thread through the work, a presser-foot having two arms at its lower end, inclined surfaces at the ends of said arms, means for causing said arms to press the upper against the edge of the sole at each side of the path of the needle, a presser-finger having an inclined surface at its end and on the upper side thereof, means for advancing said finger and for causing said inclined surface to come into engagement, and the under side of the finger to hold the upper against the flange of the sole in advance of the passage of the needle therethrough and means for separating said foot and finger while the needle is drawing in its loop.

7. A shoe-sewing machine comprising a needle, means for advancing the same through the work and causing it to draw back a loop of thread as it recedes, a presser-foot, and a presser-finger, each being bifurcated for the passage of the needle, means acting through springs for causing said foot and finger to press the upper against the shoulder of the sole on each side of the path of the needle, and against the flange of the sole below the path of the needle, respectively, in advance of the passage of the needle through the work, and means for withdrawing said foot and finger from the work while the needle is drawing back its loop, and for separating them so that the strand of thread leading from the preceding stitch may be drawn between them and against the upper.

697,601. MATCH-BOX. SHOSH BRESN, Brooklyn, N. Y., assignor to Frank Katz, Brooklyn, N. Y. Filed June 28, 1891. Serial No. 64,316. (No model.)

Claim.—As a new article of manufacture, a match-box having flat side walls, and having on one flat side wall a projecting annular rim forming a picture-receiving compartment, a picture in said compartment, which has a flat back resting against the wall of the match-box and a convex face, and a cylindrical retaining-ring in engagement with the periphery of said rim and having an internal annular flange for engaging the cen-

terity of said picture and also having an external rim forming a means for handling the ring to remove it, substantially as shown and described.



697,602. METHOD OF ORNAMENTS. GEORGE W. BLAIR, Pittsburg, and FRANK G. BORN, Jeannette, Pa. Filed Oct. 28, 1891. Serial No. 70,000. (No specimens.)

Claim.—1. The method of ornamenting, consisting in making a transfer from the plate to the surface to be ornamented, dusting color upon this transfer, applying a second transfer embodying the same design over the dusted first transfer, and then reducing the second transfer with color, substantially as described.

2. The method of ornamenting, consisting in applying a plurality of overlaid transfers to the article and dusting the article with color after each transfer; substantially as described.

3. The method of ornamenting, consisting in taking a transfer from a plate which contains the outline and at least a part of the shade, applying this transfer to the surface to be ornamented, dusting on color, applying a second transfer which matches with the first, but contains a solid design with the high lights therein, and then reducing with color, and firing the article; substantially as described.

697,603. THILL-COUPLES. GEORGE W. C. BRADLEY, Syracuse, N. Y. Filed Feb. 20, 1892. Serial No. 84,000. (No model.)



Claim.—1. In a thill-coupling, the combination with the fixed and movable jaws and the tightening lever and spring, of a longitudinally-movable connection whereby the spring is attached to the movable jaw and the spring is enabled to change its position lengthwise with reference to the jaw and also is caused to open the jaw upon releasing the lever, substantially as set forth.

2. In a thill-coupling, the combination of a fixed jaw, a movable jaw provided with a transverse slot, a tightening-lever, and a tightening-spring which is operated by said lever and arranged with its free end in said slot and capable of lengthwise movement therein, substantially as set forth.

3. In a thill-coupling, the combination of a fixed jaw, a movable jaw provided with a transverse slot, a tightening-lever, and a tightening-spring which is attached to said lever and arranged with its free end portion in said slot and capable of lengthwise movement therein and which has its free end provided with a projection for opening the jaw, substantially as set forth.

697,604. MACHINERY FOR MANUFACTURING TUBE-BANDS. JOHN BRADLEY, Birmingham, England. Filed Aug. 28, 1891. Serial No. 72,673. (No model.)

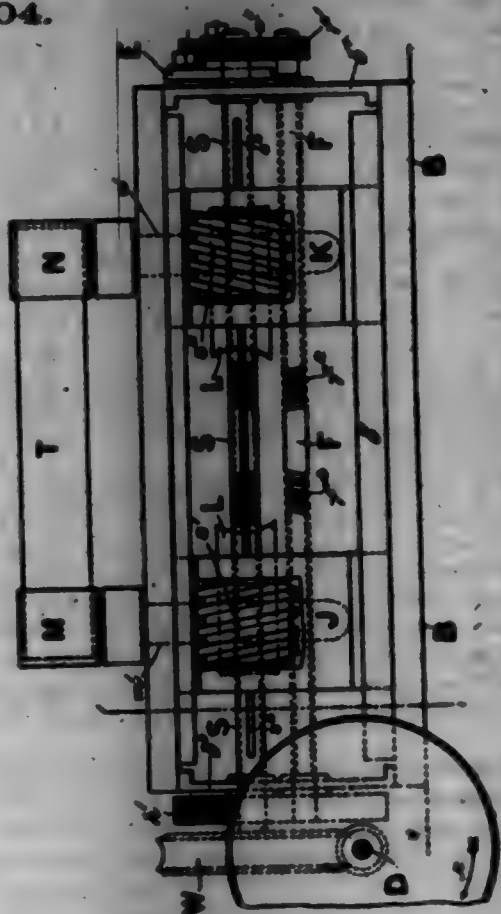
Claim.—1. The improvements in machinery for manufacturing tube-bands consisting essentially of two carriers capable of traveling in reverse directions, a dog or gripper pivotally mounted in each carrier with means for operating or moving the dogs upon their pivots in the manner and for the purpose substantially as herein set forth.

2. In machines for making tube-bands, a pair of carriers capable of traveling in reverse directions, a dog or gripper pivotally mounted in each carrier, and quadrants and worms for operating said dogs, substantially as described.

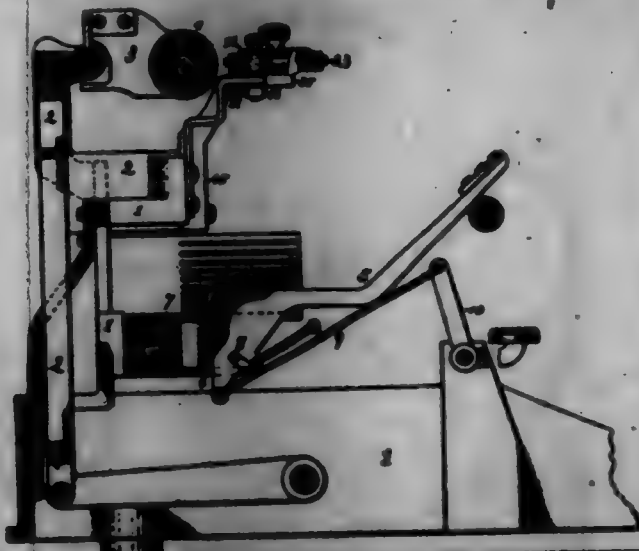
3. In machines for making tubes, a pair of carriers, dogs or grippers mounted therein, and means for simultaneously moving said dogs or grippers and carriers, substantially as described.

4. In machines for making tubes, a pair of traveling carriers, dogs or grippers having quadrants and pivotally mounted in said carriers, an operating-shaft, worms keyed to said shaft and engaging the quadrants, and screw-shafts for operating said carriers in reverse directions, substantially as described.

697,604.



697,605. TYPE-WRITING MACHINE. LEO A. BURMAN, New York, N. Y. Filed Nov. 27, 1901. Serial No. 22,801. (No model.)



Claim.—1. An inking mechanism for type-writing machines comprising two rollers, one being relatively small and light, and constructed to be struck by the type mechanism, and to swing against the second roller which is relatively stationary and large, substantially as shown and described.

2. An inking mechanism for type-writing machines comprising two rollers, one having a stationary pivot, and the other a swinging pivot so constructed that the latter when struck by the type mechanism is caused to swing against the former, as set forth.

3. In a type-writing machine, the combination of a series of type-carriers, a platen, and two inking-rollers adjacent to the platen, so constructed that one of them is in the path of all the type-carriers, and when struck by a type-carrier is caused to strike against the other inking-roller, as set forth.

4. An inking mechanism for type-writing machines comprising two rollers, one having a series when struck by the type which causes it, by reason of momentum to go out of contact with the type and to strike the other roller which is relatively stationary, substantially as shown and described.

5. In a type-writing machine, the combination of an inking-roller constructed to swing when struck by a type-carrier, and a supply-roller constructed to act as a buffer and arrest the swinging motion of the inking-roller, substantially as shown and described.

6. In a type-writing machine, the combination of an inking-roller disposed in the path of the type-carrier and arranged to swing out of such path when struck by a type-carrier, and a supply-roller positioned at some distance away from the path of the type-carrier, as shown and described.

7. In a type-writing machine, the combination of an inking-roller constructed to swing when struck by a type-carrier, and a supply-roller relatively stationary and constructed to act as a buffer and arrest the swinging motion of the inking-roller, substantially as shown and described.

8. In a type-writing machine, the combination of type mechanism having a plurality of type in one line, with an inking-roller constructed to be struck by only one of the type and to swing against a supply-roller substantially as set forth.

9. In a type-writing machine, the combination of a type-carrier having a plurality of type in one line, with an inking-roller constructed to swing in a right-angled direction to the line of type, and to swing against a supply-roller, as set forth.

10. An inking mechanism for type-writing machines comprising a small roller and a relatively large roller together with type mechanism, all normally out of contact with each other, and so constructed that the type when operated strikes the small roller and takes the ink therefrom, and the latter strikes the large roller and takes the ink therefrom, as shown and described.

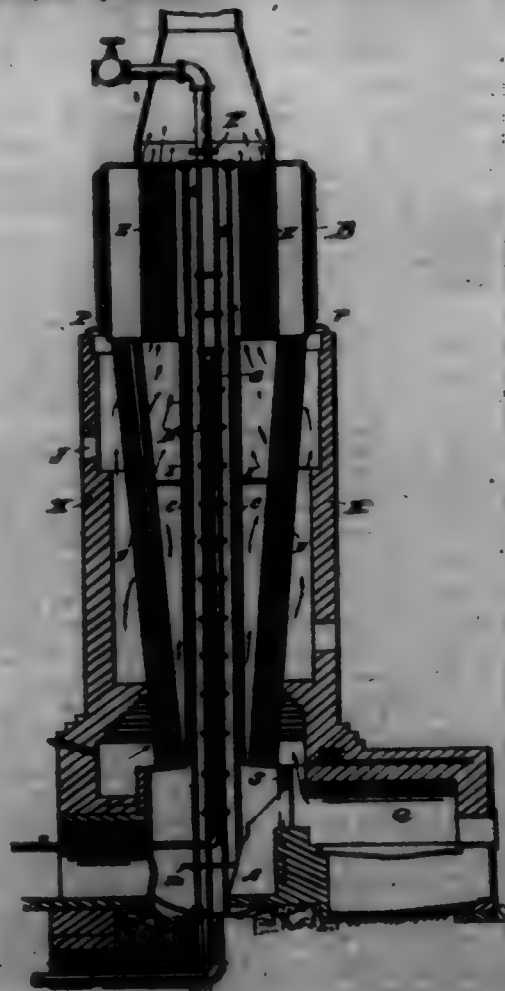
11. An inking mechanism for type-writing machines comprising an inking-roller positioned so as to be struck at approximately the same place by the type mechanism and ink the type, and a supply-roller constructed to be struck by the inking-roller and supply the latter with ink, substantially as shown and described.

12. In a type-writing machine, the combination of a type-carrier, a guide for said carrier at or near the printing-point, and an inking-roller approximately central with the guide and constructed to be struck by the type-carrier and to swing against a supply-roller, as set forth.

13. An inking mechanism for type-writing machines comprising an inking-roller secured in a swinging bracket, said bracket having a projection which connects it to a spring-pressed bracket; both brackets swinging around an extension of the same axis, substantially as shown and described.

14. In a type-writing machine, the combination of type-carriers with a swinging inking-roller and a stationary supply-roller; the axis of swinging roller being parallel with a line drawn from top to bottom of the type on the type-carrier.

697,606. COMBINED WATER AND FIRE TUBE STEAM-GENERATOR. THOMAS R. BUTMAN, Chicago, Ill. Filed June 24, 1901. Serial No. 60,898. (No model.)



Claim.—1. In a steam-boiler the combination of an upper and lower drum with a central water-pipe connecting the same, water-tubes surrounding the water-pipe and connecting the drums, and a series of fire-tubes passing through said upper drum.

2. In a steam-boiler the combination of an upper and lower drum with a central water-pipe connecting the same, continuous tie-rods extending through said central water-pipe and securing the upper and lower heads to each other, water-tubes surrounding the water-pipe and connecting the drums, and a series of fire-tubes passing through said upper drum from head to head.

3. In a steam-boiler the combination of an upper and lower drum with a central water-pipe connecting same, continuous tie-rods securing the two outer heads of the drums together, and straps secured to two or more of the tie-rods, forming a ladder for climbing into the upper drum.

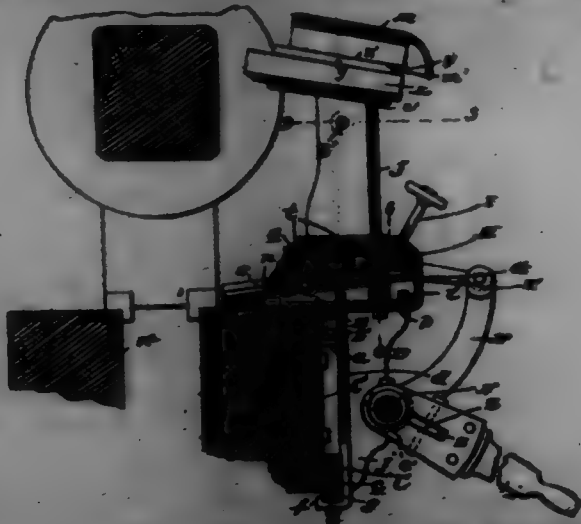
4. In a steam-boiler the combination of an upper and lower drum with a central water-pipe connecting the same, and provided with a deflecting-plate *I* on its outside which also serves as a platform, a series of water-tubes surrounding said water-pipe and plate, said water-tubes being so arranged as to leave a space by which access may be had to the platform, and a door in the casing of the boiler for the purpose substantially as described.

5. In a steam-boiler the combination of an upper and lower drum, with a central water-pipe connecting the same, a series of water-tubes surrounding the water-pipe and connecting the drums, continuous tie-rods securing the two outer heads of the drums, and a haffle-plate in the lower drum secured to said tie-rods.

6. In a steam-boiler the combination of an upper and lower drum, with a central water-pipe connecting the same, a series of water-tubes connecting said drums outside of said pipe and a feed-water pipe which enters the lower drum, and passes up into the water-pipe, said feed-pipe being provided with a return bend or gooseneck directing the feed-water downwardly to assist in causing a rapid circulation of the water in the boiler as set forth.

7. In a steam-boiler the combination of an upper and lower drum with a central water-pipe connecting the same, tie-rods securing the two outer heads of said drums, water-tubes surrounding the central water-pipe and connecting the drums, and fire-tubes passing through the upper drum for the purpose set forth.

697,607. WOOD-TURNING MACHINE. WILLIAM J. COCHRAN, San Francisco, Cal. Filed Nov. 8, 1901. Serial No. 61,600. (No model.)



Claim.—1. In a wood-turning machine, the combination of a bench, a carriage movable longitudinally on the bench, a slide-rest on the carriage, overhanging the upper side of the bench, a slide held to and movable in and out on said rest, a tool carried by and movable with the slide, a shaft journaled in the carriage, and having arms connected with the slide, and also having a notched disk, a lever fulcrumed on the shaft and straddling the notched disk thereof, a rotatable, notched disk carried by the lever and disposed at right angles to the disk of the shaft, and means for adjustably fixing the slide with respect to the slide-rest.

2. In a wood-turning machine, the combination of a bench, a carriage movable longitudinally on the bench, a slide-rest on the carriage, overhanging the upper side of the bench, and having its upper side beveled or inclined downwardly and inwardly, a slide held to and movable in and out on and having its under side beveled in conformity to the upper side of the slide-rest, means for adjustably fixing the slide with respect to the slide-rest, a tool carried by the slide, a shaft journaled in the carriage and having arms connected with the slide, and also having a notched disk, a lever fulcrumed on the shaft and straddling the notched disk thereof, and a rotatable notched disk carried by the lever and disposed at right angles to the disk of the shaft.

3. In a wood-turning machine, the combination of a bench having the lower and upper beveled guide-bars on its front side, a carriage having portions engaging said guide-bars, gearing for moving the carriage carried thereby and engaging one of the guide-bars, a slide-rest on the carriage, overhanging the upper side of the bench and having its upper side beveled or inclined inwardly and downwardly, and also having a dovetail groove in said side, a slide arranged on and beveled in conformity with the slide and having a dovetail projection arranged in the groove thereof, a tool carried by the slide, means for fixing the slide with respect to the rest, a shaft journaled in the carriage, and having arms connected with the slide, and also having a notched disk, a lever fulcrumed on the shaft, and a rotatable notched disk carried by the lever and disposed at an angle to and adapted to engage the disk of the shaft.

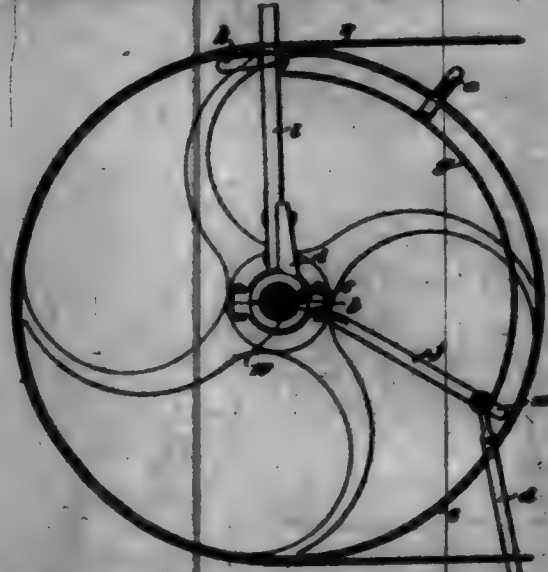
4. In a wood-turning machine, the combination of a tool-holder, concave in cross-section, a concave tool in said holder, and a concave head secured on the holder and serving in conjunction with said holder and the tool to form a tubular chisel.

5. In a wood-turning machine, the combination of an upright, a concave tool-holder member fixed with respect to said upright and having interior and exterior shoulders *u* and *v* and a flange *y*, a concave tool-holder member adjustably connected with the upright and also having interior and exterior shoulders *u* and *v* and a flange *y*, a concave tool arranged in the tool-holder between the interior shoulders *u* of the members thereof, a concave head having its edges disposed on the exterior shoulders *v* of the tool-holder, and also having interior shoulders arranged on the flange *y* of the tool-holder members, and means for securing said head on the tool-holder.

6. In a wood-turning machine, the combination of a tool-holder, concave in cross-section, a concave tool in said holder, and a concave head secured on the holder and having the depending lip *m* at its rear or outer end.

7. In a wood-turning machine, the tubular chisel arranged to receive the chips as the same are cut, and having the deflecting-flap at its rear or outer end.

697,608. BELT-ADJUSTER. ANDREW COULDER, Miami, Fla. Filed Sept. 3, 1901. Serial No. 74,122. (No model.)



Claim.—1. In a belt-adjuster, the combination with a drive-shaft; and an adjusting-ring thereon; of a two-part sleeve on said ring and freely turnable on said shaft; a pin having an enlarged head, mounted on said sleeve, said head extending to the periphery of the shaft; a beveled bar carried by said sleeve; and a bifurcated rod adapted to engage with said pin.

2. In a belt-adjuster, the combination with a drive-shaft, and an adjusting-ring thereon; of a two-part sleeve on said ring, and freely turnable on said shaft; a headed pin on said sleeve, the head extending to the periphery of the shaft; a beveled bar carried by said sleeve; an arm-carrying bow attached to said bar, said bow having an arm bent toward the pulley; a connecting-arm, connecting said sleeve with the free end of said bow; and a bifurcated rod adapted to engage with said pin.

3. In a belt-adjuster, the combination with a drive-shaft; of a beveled bar freely turnable on said shaft; an arm-carrying bow attached to said bar and having an arm bent toward the pulley; and an arm extending from the opposite face of said bar from said bow, said latter arm having its end within the rim of the pulley.

697,609. MEANS FOR OPERATING TRAMWAY OR SIMILAR FUNDED FROM VEHICLE. WILLIAM A. DAY, Southport, England. Filed Dec. 21, 1901. Serial No. 80,300. (No model.)

Claim.—1. In a transway-switch, the combination with a switch-point, of a sliding rod connected therewith, a ball-socket lever having one arm connecting with said rod, a pressure-plate connected with the other arm, a rocking lever extending transversely of the rod-bed and having one end connected with said other arm of the ball-socket, and a pressure-plate connected with the opposite end of said lever, substantially as described.



2. In a transway-switch, the combination with the switch-point, of a transverse sliding rod connected to both points, a ball-socket in proximity to each rail having a vertical arm engaging said rod, and having a horizontal arm, a pressure-plate connected to each horizontal arm, and a rocking lever having its opposite ends connected with the horizontal arms of said ball-sockets, substantially as described.

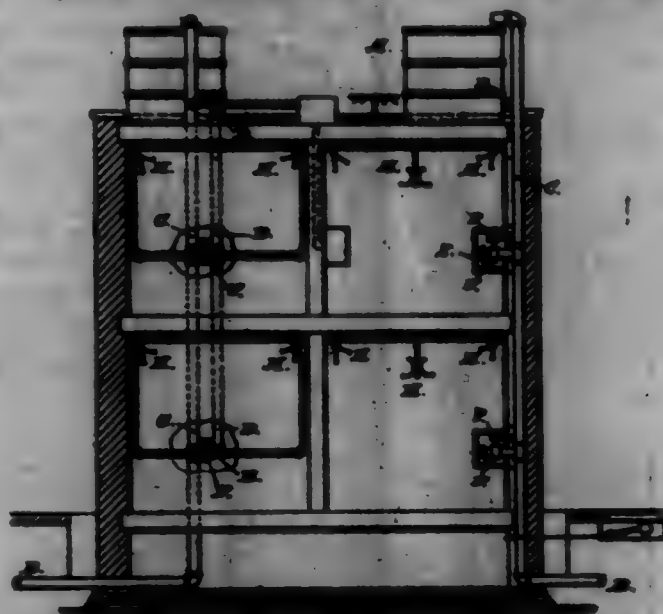
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697,611. FIRE-EXTINGUISHING DEVICE. WILLIAM DELL, San Francisco, Cal. Filed May 22, 1901. Serial No. 61,000. (No model.)



Claim.—1. In a fire-extinguishing apparatus for buildings, the combination of a storage-tank located in the upper part of the building, a supply-pipe connecting said tank with the main water-supply outside the building, a pipe leading from said tank downwardly through the building and in close relation to the supply-pipe of the tank, a series of sprinkling devices, a branch pipe connecting each sprinkling device with the pipe leading down from the storage-tank and also with the supply-pipe connected with the main water-supply outside the building, a controlling-valve in the branch pipe operating to open and close connection between the branch pipes of the sprinkling device and both of said supply-pipes simultaneously, and means for operating said valve.

2. In a fire-extinguishing apparatus for buildings, the combination of a storage-tank, a pipe leading therefrom downward through the several stories of the building, a pipe connected with the main water-supply leading from the street-main upward through the several stories to the tank, branch pipes at every story at predetermined points tapped into both standing pipes, a series of sprinkling devices in each room, a controlling-valve having an operating-lever adapted to turn on or off the connection between the branch pipes and standing pipes, and means for operating said valves both separately and in groups, comprising the rock-shaft at every floor, and wires separately connecting the valve-levers with the rock-shaft, whereby the movement of the rock-shaft in one direction will open all the valves, and in the other direction will close them.

3. In a fire-extinguishing apparatus for buildings, the combination of a storage-tank, a pipe leading therefrom downward through the several stories of the building, a pipe connected with the main water-supply leading from the street-main upward through the several stories to the tank, branch pipes at every story at predetermined points tapped into both standing pipes, a series of sprinkling devices in each room, a controlling-valve having an operating-lever adapted to turn on or off the connection between the branch pipes and the standing pipes, and means for operating said valves both separately and in groups, comprising the rock-shaft at every floor, wires separately connecting the valve-levers with the rock-shaft whereby the movement of the rock-shaft in one direction will open all the valves and in the other direction will close them, and means

located outside the building to which said rock-shafts are connected by wires U' V' for operating said rock-shafts from the outside of the building.

4. In a fire-extinguishing apparatus for buildings, the combination of stationary sprinkling devices, a storage-tank, a water-pipe leading therefrom downward through the several stories of the building, a water-supply pipe leading upward from the street-main to the tank, branch pipes tapped into both water-pipes and connecting the sprinkling devices with the water-supply both of the street-main and the storage-tank, a controlling-valve in the connection between the branch pipe and the supply-pipe, having an operating-lever, and means connecting the lever of all the valves with operating devices outside the building, comprising the rock-shafts having arms to each valve, and wires connecting said arms of the valve-levers with the operating devices.

697,612. ACETYLENE-GAS GENERATOR. CHARLES E. BRACK, Ostrum, N. Y. Filed Dec. 17, 1902. Serial No. 68,105. (No model.)



Claim.—1. In an acetylene-gas machine the combination of a tank formed with a central well extending from the bottom to a point above the tank and surrounding annular chamber, of less depth than the central well, an annular chamber beneath the annular chamber first named, a cover fitted over the central well and projecting above the tank and forming with said well a generating-chamber, a generator-bell working in the annular chamber and guided by the cover, and means carried by said cover for applying carbide to the generating-chamber and means for conducting gas from the generating-chamber through the second-named annular chamber, to the bell, and from the bell to a point of consumption.

2. In an acetylene-gas apparatus the combination of a tank formed with a central well and with a surrounding annular well or chamber of less depth than the central well and with an annular chamber beneath the annular chamber first named, a cover fitting over the central well, forming therewith a generating-chamber and carrying means for delivering carbide into said generating-chamber, an annular bell working in the annular well or chamber surrounding the generating-chamber and guided by the walls of the latter, means for conducting gas from the generator into the annular chamber beneath the annular well, means for conducting the gas thence, and means for maintaining a water-level in the generating-chamber and annular well, and a separate water-level in the chamber beneath the well; substantially as set forth.

3. In an acetylene-gas apparatus the combination of a tank formed with a central generator-well and a surrounding annular generator-well, a cover and a bell, fitted respectively to the central and surrounding wells, a condensation-chamber surrounding the generator-well beneath the annular well, a water-supply pipe communicating with both the generator and generator wells, a water supply pipe communicating with and maintaining a water-level in the condensation-chamber, a gas-outlet extending from the generating-chamber above the water-level to a point beneath the water-level in the condensation-chamber, whereby water is retained below an objectionable level in the said gas-outlet, the gas-pipe 26 and 27, and means carried by the generator-cover for applying carbide.

4. In an acetylene-gas apparatus, the combination of a main tank formed with a central generator-well, a surrounding annular generator-well and a condensation-chamber beneath the generator-well, a cover forming with the generator-well a generating-chamber, and having means for applying carbide thereto, a bell forming with the generator-well a generator, and guided upon the generator, a partition in the condensation-chamber forming a drip-compartment therein, a pipe leading from above the water-level in the generator to a point beneath the water-level in the condensation-chamber, a pipe communicating from above the water-level in the condensation-chamber to a point above the water-level in the generator and a pipe leading from above the water-level in the generator to a point outside the machine and having an extension projecting below the water-level in the drip-compartment of the condensation-chamber.

5. In an acetylene-gas apparatus, the combination of a main tank formed with annular generator and condensation chambers, and with a central well projecting below both of said annular chambers, a cover and a bell fitted respectively to the well and to the generator-chamber, means carried by the cover for applying carbide to the central well, means for conducting gas from the generator to the generator and from the latter to a point outside the machine, and pipes for supplying and drawing off water extending into the central well beneath the annular chambers, substantially as set forth.

6. In an acetylene-gas apparatus the combination of a tank formed with central and annular wells of different depths, a cover extending to the bottom of the annular well and a bell fitted respectively to the central well and the annular well and forming therewith a generating-chamber and a generator, the bell being guided upon the cover, means for applying carbide, carried by said cover, and a connection between the carbide-supply means and the generator whereby the former is actuated by the latter.

7. In an acetylene-gas apparatus the combination of a tank formed with central and annular wells, a cover and a bell forming with said central and annular wells respectively, a generator and a generator, the generator-bell being guided by the generator, carbide-supply means located in the generator, a rock-shaft actuating said carbide-supply means, a lever mounted on the protruding end of said rock-shaft, and a connection between said lever and the generator-bell which surrounds the generator.

8. In combination with the generator of an acetylene-gas apparatus, a hopper for holding carbide provided with a discharge-opening, a rock-shaft extending transversely through to the hopper above the discharge-opening, a valve located a distance below the discharge-opening sufficient to prevent clogging by the carbide passing through the latter onto the burner and pendulous connections between the valve and the rock-shaft whereby the valve may be vibrated horizontally for the purpose herein set forth.

9. In combination with the generator of an acetylene-gas machine, a hopper for holding carbide therein, a horizontal support or valve located a distance beneath the discharge-opening of the hopper, a rock-shaft extending transversely to the hopper in a plane above the discharge-opening, a pendulous support from the rock-shaft to the support or valve, a lever mounted upon the end of the rock-shaft and carrying a counterpoise controlling the shaft and normally holding the support or valve in a position beneath the discharge-opening of the hopper and a connection between the light end of the lever and the generator of the acetylene-machine.

10. In an acetylene-gas apparatus the combination of a tank formed with central and annular wells, a cover and a bell forming with said central and annular wells respectively, a generator and a generator, the generator being guided by the generator, carbide-supply means located in the generator at all times at the point of discharge, a rock-shaft actuating said carbide-supply means, and means connecting said rock-shaft with the generator-bell.

697,618. GRASS-SEPARATOR. ALAN B. ELLIS, Minneapolis, Minn. Filed May 22, 1901. Serial No. 61,427. (No model.)



Claim.—In a grass-separator, the combination with a receptacle, of a water-supply pipe located at one side of the receptacle, and having its discharge and arranged in the lower end thereof, eyes control to the receptacle above, the discharge end of the water-supply pipe, and an in-

holding eye located in the receptacle above the discharge end of the supply-pipe, and comprising screw-ribs having terminal heads that detachably engage the eyes.

697,814. LOCK. ALAN B. FREDMAN, Mount Vernon, N. Y. Filed Mar. 12, 1901. Serial No. 61,670. (No model.)



Claim.—1. A lock comprising one or more drawers or sliding members; a table; panels or slides located above said table and provided with grooves; a sliding top working in said grooves; and locking means for said drawers or drawers and having a part thereof projecting through said table and into one of said grooves at the forward part thereof and in position to be directly engaged and positively operated by a part of said top on the drawing forward thereof, thereby to lock said drawer or drawers closed.

2. A lock comprising one or more sets of drawers or sliding members; a table; panels or slides located above said table and provided with grooves; a roll-top working in said grooves; locking means for each set of said drawers and having a part thereof projecting through said table and into one of said grooves at the forward part thereof and in position to be directly engaged and positively operated by the roll-top on the drawing forward thereof, thereby to lock said drawers closed; and means for returning said locking means to its normal position.

3. A lock comprising one or more drawers or sliding members each having a recess adjacent to its forward end; a table; panels or slides located above said table and provided with grooves; a roll-top working in said grooves; locking means for said drawer or drawers and comprising a bar having a part thereof projecting through said table and into one of said grooves at its forward end and in position to be directly engaged and positively operated by the roll-top on the drawing forward thereof, said bar having a laterally-projecting arm or arms co-operating with said recess or recesses; and means for returning said bar to its normal position.

4. A roll-top lock comprising a table; panels or slides located above and below said table; guide-grooves in said upper panels; a roll-top working in said grooves; one of said lower panels having a groove; an opening in said table communicating with a groove in one of said upper panels and with the groove in said lower panel; a drawer having a downwardly-extending recess; a sliding bar adapted to work in the lower panel-groove and provided with an arm to enter the recess in said drawer, the upper end of said bar being in position to be engaged by said sliding top on the drawing forward thereof.

5. A lock comprising one or more drawers or sliding members each having a cam-shaped recess in the side thereof; a table carrying panels or slides provided with grooves; a roll-top working in said grooves; and locking means for said drawer or drawers and having a part thereof projecting into one of said grooves and in position to be engaged and operated by the roll-top on the drawing forward thereof, thereby to lock said drawers closed, said locking means having one or more laterally-extending projections co-operating with said cam-shaped recess or recesses.

6. A lock comprising a table; one or more drawers below the same each having a recess adjacent to its forward end; slides or panels supported by said table and provided with grooves; a top working in said grooves, said table having an opening communicating with one of the grooves in said panels; a bar located at the side of said drawer or drawers and having its upper end projecting through said opening in the table and into said groove and provided with an arm or arms adapted to engage said drawer or drawers when said bar is depressed by the roll-top on the drawing forward thereof, the organization being such that when any one of the drawers is open so that one arm is out of register with its recess the

bar cannot be depressed by the engagement of the top therewith, whereby the bar acts to maintain the top in a partially-closed position.

7. A roll-top lock comprising a table; two sets of drawers, each drawer having a recess; slides or panels above said table having grooves; side panels below said table also having grooves, said table having a pair of openings communicating with the grooves in said panels; a top sliding in said upper panel-grooves; bars located in the lower panel-grooves at the sides of said drawers and normally projecting above said table and into the grooves for the top and having arms adapted to enter said recesses when the bars are depressed by the top on the drawing forward thereof.

8. A roll-top lock comprising a table; two sets of drawers, each of said drawers having a recess; slides or panels above said table having grooves; slides or panels below said table also having grooves, said table having a pair of openings communicating with the grooves in said panels; a top sliding in said upper panel-grooves; bars located in the lower panel-grooves at the sides of said drawers and normally projecting above said table and into the grooves for the top and having arms adapted to enter said recesses when the bars are depressed by the top on the drawing forward thereof; and means for returning said bars to their normal position.

9. A lock comprising a table; one or more drawers below the same; slides or panels supported by said table and provided with grooves; a top working in said grooves; and means in position to engage said top and prevent the closing thereof when one or more of the drawers are open, said means comprising a bar having its upper end projecting into one of said grooves and provided with a projection or projections in position to engage said drawer or drawers.

10. A lock comprising a table; one or more drawers below the same; slides or panels supported by said table and provided with grooves; a top working in said grooves; and means in position to engage said top and prevent the closing thereof when one or more of the drawers are open, said means comprising a bar having its upper end projecting into one of said grooves and provided with a projection or projections in position to engage said drawer or drawers; and means for raising said bar.

11. A lock comprising a table; one or more drawers below the same; slides or panels supported by said table and provided with grooves; a top working in said grooves; means in position to engage said top and prevent the closing thereof when one or more of the drawers are open, said means comprising a bar having its upper end projecting into one of said grooves and provided with a projection or projections in position to engage said drawer or drawers; and means for raising said bar.

697,815. HAND CHIPPING-KNIFE. ALAN A. FLANN, Jefferson, Va. Filed May 12, 1901. Serial No. 61,104. (No model.)



Claim.—1. A hand chipping-knife comprising a bar provided with a suitable radially or laterally extending handle, and a plurality of cutting-blades pivotally mounted, at intervals, in said bar and extending in a direction opposite said handle.

2. A hand chipping-knife comprising a bar provided with a laterally-extending handle, a plurality of cutting-blades provided with curved-throated cheeks, said cheeks being pivotally mounted in said bar, and clamping-nuts on said cheeks, whereby said knives are adapted to be pivotally adjusted and secured in adjusted position.

697,816. KNITTING-MACHINE. JOHN J. FRANK, Orléans, Pa. Filed Nov. 21, 1900. Serial No. 57,908. (No model.)

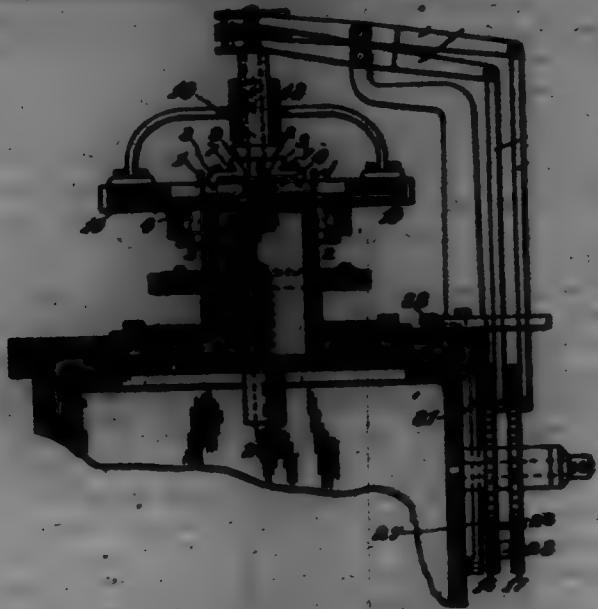
Claim.—1. An attachment for circular-knitting machines comprising a series of transducers arranged in a circle and movable radially, and means for shifting them radially as a whole to take loops off of the fabric and return them to the needles and thereby form a seamless web, substantially as described.

2. A circular-knitting machine provided with a series of transducers and means for shifting the same radially in respect to the needles and vertically in respect to the same, substantially as described.

3. The combination of a carrier, transducers mounted to move radially of the carrier, means for shifting the carrier and transducers, and means for shifting the transducers in respect to the carrier, substantially as described.

4. A transducer having a tiltable and flexing disc with an open

slot between them through which a needle can enter laterally, and said times having catches for engaging a loop, substantially as described.

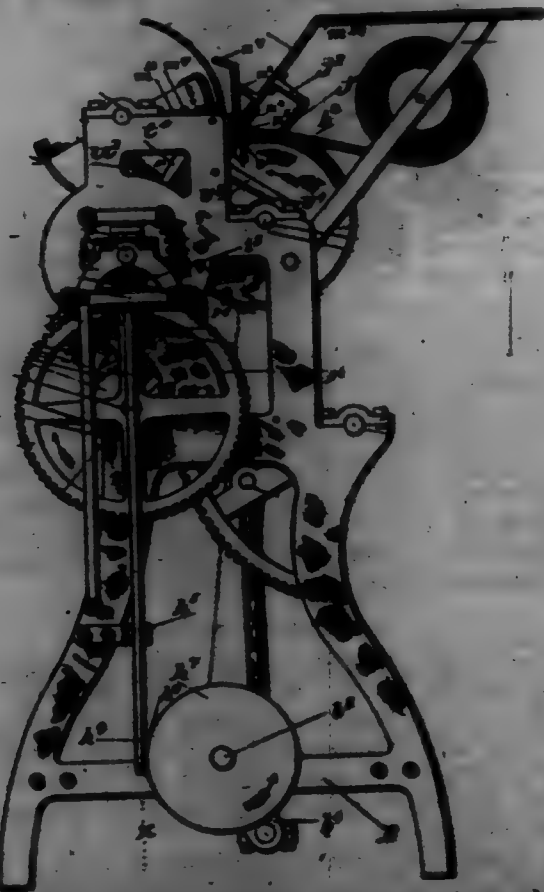


5. The combination of a carrier, transverse carrier by and movable radially of the carrier, cam, a part for shifting the transverse, and link-work interposed between the last-mentioned part and one of the cams and between the carrier and the other of the cams, substantially as described.

6. The combination of a carrier, transverse carrier by and movable radially of the carrier, cam, a part for shifting the transverse, link-work interposed between the last-mentioned part and one of the cams and between the carrier and the other of the cams, and mechanism for automatically driving and reversing said cam, substantially as described.

7. The combination of a circular carrier provided with radial grooves, transverse movable in said grooves, a cam or frustum adapted to shift the transverse in one direction, means for shifting the transverse in the other direction, and mechanism for operating said parts, substantially as described.

697,617. WRAPPING-MACHINE. GEORGE L. GAY, Spokane, Wash. Filed Apr. 24, 1901. Serial No. 57,129. (No model.)



Claim.—1. A wrapping-machine comprising a driving-crank, a reciprocating part operated by the crank, mechanism engageable with and rotated by the stroke of the reciprocating part in one direction but idle during the reverse stroke thereof, rotating folders operated by said intermittently-acting mechanism, spring-pressed formers spanning and yieldingly clamped against the folders, mechanism for withdrawing the folders longitudinally of the formers, feeding-cylinder for conveying a paper sheet or pam-

phlet and the wrapping material therefor between the folders, and pasting mechanism mounted within one of the feed-cylinders and adapted to apply an adhesive to the detached end of the wrapper through an opening in the periphery of the cylinder, substantially as and for the purpose specified.

2. In a wrapping-machine the combination of a driving-crank and pinion, a rack vibrated by the pinion, pawl-and-ratchet mechanism operated by the rack by its movement in one direction but disconnected on the reverse movement thereof, lengthwise-movable, rotatable folders intermittently revolved by said ratchet mechanism, pressure-plates or formers spanning and yieldingly clamped against the folders, mechanism for retracting the formers by the rotation of the driving-crank, a continuously-rotating feed-cylinder driven in unison with the driving-crank and having an opening in its periphery, pasting mechanism carried within the cylinder and adapted to deliver an adhesive to the wrapping material through the said opening, a continuously-rotating segment driven in unison with the pasting feed-cylinder and provided with differential friction-pads for unequally conveying the paper to be folded and the wrapping material and feeding the paper ahead of the wrapper, and a cutter for covering the wrapping material back of its pasted surface, substantially in the manner and for the purpose specified.

3. In a wrapping-machine the combination of a driving-crank and pinion, a rack vibrated by the pinion, a pinion rotated alternately in reverse directions by the vibration of the rack, ratchet mechanism rotated by the pinion in one direction and releasable in the reverse direction, gears intermittently rotated by the ratchet mechanism, wrapping plates or folders mounted to slide in said gears lengthwise of their axial line and driven by the rotation of the gears, spring-actuated formers spanning and yieldingly clamped against the folders, cam carried by the crank-shaft, lever connections operated by the cam to withdraw the folders from between the formers, and feeding mechanism for conveying a paper or pamphlet and wrapping-material between the folders, substantially as and for the purpose specified.

4. In a wrapping-machine the combination of a driving-crank and pinion, a rack vibrated by the pinion, a pinion rotated alternately in reverse directions by the vibration of the rack, ratchet mechanism rotated by the pinion in one direction and releasable in the reverse direction, gears intermittently rotated by said reciprocating mechanism, ball-bearings supporting said intermittently-rotating gears and adapted to contain the inward axial thrust thereof, wrapping-plates or folders mounted to slide in said gears lengthwise of their axial line, and driven by the rotation of the gears, yielding formers spanning and clamped against the folders, mechanism for withdrawing the folders from between the formers and feed mechanism for conveying a paper or pamphlet between the folders, substantially in the manner and for the purpose specified.

5. In a wrapping-machine the combination of the intermittently-rotating folders movable longitudinally of their axis of revolution, the yielding pressure-plates or formers spanning the same, mechanism for withdrawing the folders from the plane of the formers, a continuously-rotating feed-cylinder having an opening in its periphery, pasting mechanism carried within the cylinder and adapted to deliver an adhesive to the wrapper through said opening, a continuously-rotating segment revolving in unison with the pasting-cylinder provided with differential friction-pads for unequally conveying the paper to be folded and the wrapping material, a knife or cutter carried by the segment, an incline or chute for conveying the paper or pamphlet between the rolls, a gate for holding the paper upon the incline, tripping mechanism for lifting the gate to drop the paper to the feed-rolls, and checking mechanism for preventing the backward slip of the wrapper over the pasting-cylinder.

6. In a wrapping-machine the combination of the intermittently-rotating folders movable longitudinally of their axis of revolution, the yielding pressure-plates or formers spanning the same, mechanism for withdrawing the folders from the plane of the formers, a feed-cylinder having an opening in its periphery, pasting mechanism carried within the cylinder and adapted to deliver an adhesive to the wrapper through said opening, a segmental feed-roll revolving in unison with the pasting-roll, a knife or cutter carried by the segmental roll, mechanism provided with a series of teeth carried by the pasting-roll adapted to lift the wrapping material from the surface of the cylinder after feeding through the rolls, and a stationary comb fixed in the revolving path of the said clearing mechanism with its spaces adapted to permit the rotation of the teeth of the clearing mechanism through the same, to deposit the leading end of the wrapping material on the comb, substantially in the manner and for the purpose specified.

7. In a wrapping-machine the combination of the intermittently-rotating folders movable longitudinally of their axis of revolution, the yielding pressure-plates or formers spanning the same, a feed-cylinder having an opening in its periphery and journaled at one end upon a stationary shaft, a paste-receptacle supported within the cylinder and held stationary by said fixed shaft, a pasting-roll journaled in said receptacle and pro-

vided with a gear, a gear carried by the cylinder intermeshing with said roll-gear, a pasting-belt carried by the pasting-roll and a roll hung within the receptacle and the paste-belt to maintain the tension of the belt, substantially as and for the purpose specified.

8. In a wrapping-machine the combination of the intermittently-rotating rollers movable longitudinally of their axis of revolution, the yielding pressure-plates or frames spanning the same, a feed-cylinder having an opening in its periphery and journaled at one end upon a stationary shaft, a paste-receptacle supported within the cylinder and held stationary by the said feed shaft, an elliptical pasting-roll journaled in the upper edge of the said receptacle adapted to revolve past the opening in the cylinder, a weighted roll revolved in the bottom of the receptacle, a pasting-belt carried upon the said roll, a gear concentrically mounted and carried within the cylinder, and a gear intermeshed therewith mounted on the elliptical-roll shaft, substantially in the manner and for the purpose specified.

9. In a wrapping-machine the combination of the intermittently-rotating rollers, the yielding frames spanning the same, a pasting-cylinder journaled at one end upon a stationary shaft and mounted upon a revolving shaft at the opposite end, a paste-receptacle held within the cylinder and supported by the stationary shaft, pasting mechanism supported by the receptacle and rotated by the cylinder, a gear carried with the cylinder, a segmental roll geared therewith to feed with the paste-cylinder, and a knife or cutter carried by the segmental roll and adapted to cover the wrapping material fed between the rolls, substantially in the manner and for the purpose specified.

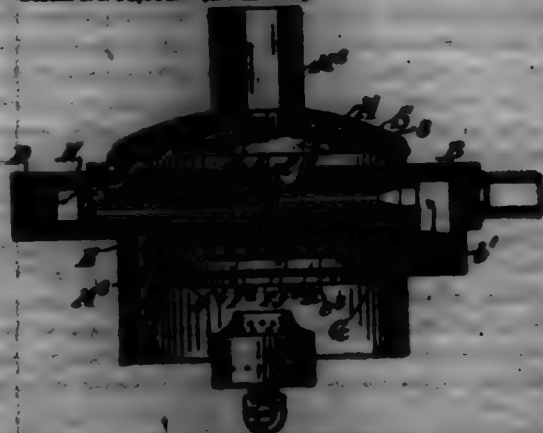
10. In a wrapping-machine the combination of a continuously-revolving feed-cylinder having an opening in its periphery, pasting mechanism supported within the cylinder, a segmental feed-roll geared therewith, a knife or cutter carried by the segmental roll and an elastic pressure-pad carried by the segmental roll in advance of and in juxtaposition to the knife and adapted to press the detached end of the wrapping material upon the pasting-belt after emergence from the roll, substantially as and for the purpose specified.

11. In a wrapping-machine the combination of intermittently-rotating rollers movable longitudinally of their axis of revolution, a pair of vibrating frames spanning the rollers and connected at points intermediate of their centers of suspension, whereby the movements of the frames are reciprocal and opposite, and a spring for compressing the plates, substantially as and for the purpose specified.

12. In a wrapping-machine the combination of a pair of wrapping-plates or frames suspended and adapted to swing upon rolls of different lengths, the plate of shorter radius having a spring bearing upon the ends of the plate of longer radius intermediate of the centers of suspension of the said plates, and means for automatically compressing the plates, substantially in the manner and for the purpose specified.

13. In a wrapping-machine the combination of the intermittently-rotating rollers, the yielding frames spanning the same, a pasting-cylinder having a pasting-opening in its periphery and journaled at one end upon a stationary shaft, and mounted upon a revolving shaft at the opposite end, a paste-receptacle held within the cylinder and supported by said stationary shaft, pasting mechanism supported by the receptacle and adapted to convey the adhesive to the peripheral opening of the cylinder and a segmental feed-roll adapted to feed contact with the cylinder, and driven in rotation therewith, substantially in the manner and for the purpose specified.

697,618. HYDROCARBON VAPORIZER OR BURNER. LAWRENCE C. GERRARD and JAMES H. ROWLEY, Buffalo, N. Y. Filed Dec. 4, 1899. Serial No. 33,001. (No model.)



Claim.—1. In a vaporizer, a vaporizing-chamber, an admission-passage thereto, and two discharge-passages therefrom adapted to conduct the vapor to the vaporizing and main burners respectively, and a check-valve in the main-burner passage opening outward from said vaporizing-chamber.

2. In a vaporizer, a vaporizing-chamber, an admission-passage thereto, and two discharge-passages therefrom adapted to conduct the vapor to the vaporizing and main burners respectively, and means in the main-burner passage resisting the discharge of vapor therefrom so as to insure that the first vapor generated shall pass to the vaporizing-burner.

3. In a hydrocarbon-vaporizer, the combination with a member comprising a main portion B recessed on one face, of a pair of diaphragms F F' removably attached to said recessed face and with a space between them so as to form with said recessed face and with each other a double vaporizing-chamber.

4. In a hydrocarbon-vaporizer, the combination with a member comprising a main portion B recessed on one face, of a pair of thin metal diaphragms F F' removably attached to said recessed face and with a space between them so as to form with said recessed face and with each other a double vaporizing-chamber.

5. In a hydrocarbon-vaporizer, the combination with a member comprising a main portion B having on one face a long groove, of a pair of diaphragms F F' removably attached to said grooved face and having a space between them so as to form with said recessed face and with each other a double vaporizing-chamber composed of a long passage C' and a large chamber B.

6. In a hydrocarbon-vaporizer, the combination with a member comprising a main portion B having on one face a long groove, of a diaphragm F' forming with said grooved face a long passage C', a diaphragm F spaced apart from said diaphragm F' and forming therewith a large chamber B, and a ring G holding said diaphragms removably attached in position.

697,619. TELEGRAPH-CONSIDER. GEORGE A. GANN, Duxbury, Mass.; assignor to John S. Wright, Duxbury, Mass. Filed Apr. 16, 1899. Serial No. 33,001. (No model.)



Claim.—1. In a telegraph-consider, two sounding-drums, a horizontal wire, a hammer fast to and suspended from said horizontal wire between said sounding-drums; in combination with a telegraphic relay, an armature-lever in said relay, and a wire joining said armature-lever and said hammer.

2. In a telegraph-consider, two sounding-drums, a horizontal wire, a hammer fast to and suspended from said horizontal wire between said sounding-drums; in combination with a telegraphic relay, an armature-lever in said relay, a wire joining said armature-lever and said hammer, and means for adjusting said hammer with relation to said armature-lever.

3. In a telegraph-consider, two sounding-drums, a horizontal wire, a hammer fast to and suspended from said horizontal wire between said sounding-drums, and means for adjusting said drums with relation to said hammer; in combination with a telegraphic relay, an armature-lever in said relay, a wire joining said armature-lever and said hammer, and means for adjusting said hammer with relation to said drums without changing the location of said armature-lever with relation to the magnets of said relay.

697,620. FURNACE. WILLIAM E. GANN, Duxbury, John S. Wright, Duxbury, and GEORGE A. GANN, Duxbury, Mass. Filed Feb. 20, 1899. Serial No. 33,001. (No model.)

Claim.—1. A fuel-carrying gate provided with retarding means for offering resistance to the progressive movement of the fuel on the gate, said means being constructed to permit the passage of air therethrough.

2. A fuel-carrying gate provided with a transversely-arranged dam of open-work construction offering resistance to the progressive movement of the fuel on the gate.

3. A fuel-carrying gate provided with a transverse dam of open-work construction having an inclined surface which rises from the gate and which offers resistance to the progressive movement of the fuel resting thereon.

4. The combination with a fuel-carrying gate of a transverse dam located in the path of the fuel on the gate, said dam being constructed to afford a supply of air through said dam to the fuel resting thereon.

5. The combination with a fuel-carrying gate, of a transverse dam of open-work construction located in the path of the fuel, said dam rising obliquely upward from the gate at its side toward which the fuel moves.

6. The combination with a fuel-carrying grate, of a transverse dam of open-work construction located in the path of the fuel, said dam consisting of two oppositely-inclined parts, the forward one of which rises from the grate-surface, and the rearward one of which projects over the ash-pit.



7. The combination with a fuel-carrying grate, of a transverse dam located in the path of the fuel, said dam consisting of two oppositely-inclined parts, the forward one of which rises from the grate-surface, and the rearward one of which projects over the ash-pit, said dam being formed to afford a plurality of air-spaces extending therethrough to provide for passage of air upwardly through the dam.

8. The combination with a fuel-carrying grate, of a transverse dam located in the path of the fuel, said dam rising obliquely upwardly from the grate-surface, and being constructed of a plurality of longitudinally-arranged bars, separated by spaces to permit the passage of air upwardly between the same.

9. The combination with a fuel-carrying grate, of a transverse dam located in the path of the fuel, said dam rising obliquely upwardly from the grate-surface, and being constructed of a plurality of parts separated to permit the passage of air upwardly between the same and some of which are movable for agitating the fuel.

10. The combination with a fuel-carrying grate, of a transverse dam consisting of a plurality of separate bars provided with two angularly-disposed arms, and means for supporting said bars above the grate, said bars being constructed to form, when assembled, oppositely-inclined surfaces, one of which rises from the grate, and the bars being separated by spaces to afford air-passages between the same.

11. The combination with a fuel-carrying grate, of a transverse dam consisting of a plurality of bars provided each with two angularly-disposed arms separated to provide air-spaces between the same and means for supporting said bars above the grate, said bars being constructed to form, when assembled, two oppositely-inclined surfaces, one of which rises from the grate, some of said bars being vertically movable.

12. The combination with a fuel-carrying grate, of a transverse dam consisting of a plurality of independent bars each provided with two angularly-disposed arms separated to provide air-spaces between the same, and a girder supporting said bars above the grate, said bars being constructed to form two oppositely-inclined surfaces one of which rises from the grate, some of said bars being movably supported on the said girder.

13. The combination with a fuel-carrying grate, of a transverse dam, embracing a plurality of bars having angularly-disposed arms, a girder located transversely over the grate for supporting said bars, said bars constituting oppositely-disposed inclined surfaces, the forward one of which rises from the grate, and complementary curved bearing-surfaces on the bars and girder, the curved surfaces of the bars constituting arcs of circles whose centers coincide with the points of engagement of the bars with the grate.

14. The combination with a fuel-carrying grate, of a transverse dam

embracing a plurality of bars, a girder located transversely over the grate for supporting said bars, a portion of said bars being movable with respect to, and having interlocking connection with the girder, and means for actuating said movable bars.

15. The combination with a fuel-carrying grate, of a transverse dam embracing a plurality of bars, a girder located transversely over the grate for supporting said bars, some of said bars being movable in vertical planes and means for actuating the movable bars, said girder and the movable bars having complementary curved guiding-surfaces.

16. The combination with a fuel-carrying grate, of a transverse dam comprising a plurality of bars each consisting of two angularly-disposed arms, a girder located transversely over the grate and engaging said bars at the angle thereof to support the same, said bars being separated to provide air-spaces between the same, and the girder being of open construction to provide air-passages therethrough.

17. The combination with a furnace and a grate therein constructed to carry the fuel therethrough during combustion, of a transverse dam of open-work construction located in the path of the fuel for retarding the movement of said fuel, and a damper located between the discharge end of the grate and the ash-pit.

18. The combination with a furnace and a grate therein constructed to carry the fuel therethrough during combustion, of a transverse dam composed of two oppositely-inclined parts of open-work construction, one of which rises upwardly from the grate-surface, and the other of which overhangs the ash-pit of the furnace, and a damper located between the discharge end of the grate and the ash-pit.

19. The combination with a furnace and a grate therein constructed to carry the fuel therethrough during combustion, of a transverse dam of open-work construction which overhangs the ash-pit of the furnace, and a damper-plate which is supported from the furnace-wall to swing toward and from said dam and which tends to rest by gravity against the rear part of said dam.

20. The combination with a furnace and a grate therein constructed to carry the fuel therethrough during combustion, of a transverse dam of open-work construction which overhangs the ash-pit of the furnace, a damper-plate, a hinge-plate embedded in the wall of the furnace and provided with hooks on which said damper-plate is suspended said damper-plate being adapted to swing toward and from the dam and tending by the action of gravity to rest against said dam.

21. The combination with a fuel-carrying grate, of a transverse dam comprising a plurality of bars having angularly-disposed arms, a girder located transversely over the grate for supporting said bars, some of said bars being movable and the other stationary, and lateral projections on said movable bars adapted for engagement with the lower margins of the stationary bars.

22. A fuel-carrying grate provided with a transverse dam which rises from the grate and affords a resistance to the progressive movement of the fuel on the grate, said dam having a limited upward and rearward movement.

23. The combination with a furnace, of a fuel-carrying grate, provided with a transverse dam which rises obliquely upward from the surface of the grate, and embracing a girder supported in walls of the furnace, said girder having a limited rearward and upward movement.

24. The combination with a furnace, of a fuel-carrying grate, provided with a transverse dam which rises obliquely upward from the surface of the grate and embracing a girder supported in the walls of said furnace, stationary blocks embedded in the walls of the furnace having oblique upper surfaces, and movable blocks directly supporting said girder and resting on said oblique surfaces of the stationary blocks.

25. A fuel-carrying grate provided with a transverse dam of open-work construction which rises from the surface of the grate with its rear end extending over the ash-pit of the furnace and a lower dam located between the first-mentioned dam and the fuel-receiving end of the grate.

26. The combination with a fuel-carrying grate, of a transverse dam located in the path of the fuel, said dam rising obliquely upwardly from the grate-surface and having spaces for the passage of air therethrough, and a steam-pipe located in position to direct jets of steam at or near the forward end of said dam.

27. The combination with a traveling grate the fuel-supporting surface of which is formed by pivotally-connected link-bars and which passes over supporting-wheels at the rear end of the grate, of a dam embracing a plurality of bars some of which are movable and means for moving the said bars comprising arms on the bars located in position for engagement with link-bars of the grate so said link-bars pass over said supporting-wheels.

697,621. FURNACE VEHICLE-TIRE. ROBERTSON COMPANY, Inventor, R. I., assignor, by mesne assignments, to the American Rubber Works Company, a Corporation of New Jersey. Filed Jan. 4, 1906. Serial No. 32,571. (No model.)

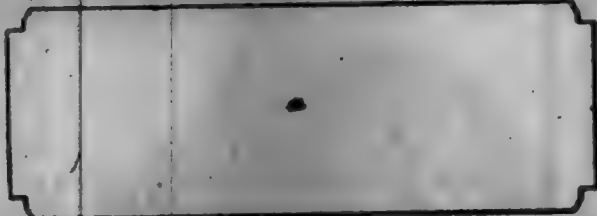
Claim.—1. A pneumatic rubber tire provided with lateral thrust-weight-carrying ribs, projecting from its sides, said ribs being located in a position to carry a part of the load and to receive the lateral thrust of the tire directly under the edges of the wheel-rim, leaving a non-contacting space, between the upper side of the said ribs and the top center of the tire substantially as described.



2. A pneumatic rubber tire provided with lateral thrust-weight-carrying ribs, a, located one on each side of the tire directly under the edge of the wheel-rim leaving a non-contacting space between the upper side of the said ribs, and the top center of the tire, said ribs constructed of soft yielding rubber to permit of compression under the wheel-rim, thereby creating a greater lateral expansion in the tire substantially as described.

3. The combination of a wheel-rim with a pneumatic tire provided with projecting longitudinal weight-carrying ribs, a, one on each side leaving a non-contacting space between the said ribs and the top center of the tire, the rim being so formed as to rest on the upper center of the tire and the two weight-carrying ribs, the latter preventing the edge of the rim from coming in contact with the side of the tire when compressed substantially as described.

697,622. SHEET-METAL BOX OR CAN. ROBERT F. GUNTER, Fitchley, and WALTON R. HORN, London, England. Filed Dec. 21, 1901. Serial No. 55,221. (No model.)



Claim.—1. A sheet-metal box or can, comprising a body-piece rolled into cylindrical form, projecting pieces at two opposite edges of said body-piece, a solderless liquid-tight folded seam uniting said projecting pieces to form the can-body, overlapping edges forming continuations of said seam in both directions, flexible metal making said overlapping edges, flanges on the two ends of said can-body, and end pieces secured to said flanges, substantially as described.

2. The method of making sheet-metal boxes or cans, consisting in forming notches in the corners of a body-piece of sheet metal so as to form projections at opposite edges of said body-piece, rolling said body-piece into a cylindrical form, uniting said projections by a solderless liquid-tight multiple-fold seam to form the can-body, flanging the ends of said can-body, striking said seam along its whole length, uniting by flexible metal the overlapping edges of said body-piece beyond said seam, forming head or top and bottom pieces for the can-body, and securing said pieces to the body, substantially as described.

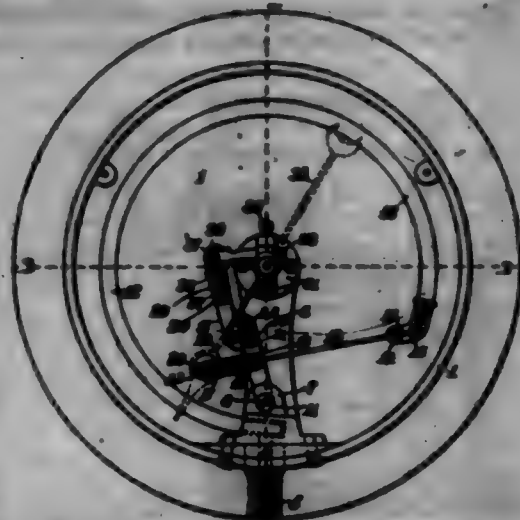
3. A can-body comprising a body-piece of sheet metal rolled into cylindrical form, projecting pieces at two opposite edges of said body-piece, a solderless liquid-tight folded seam uniting said projecting pieces, flanges at the ends of said body, overlapping edges at the ends of said seam, and solder uniting said overlapping edges, substantially as, and for the purpose, hereinbefore described.

697,623. PRESSURE-GAGE. FRANK E. HANKEL, Boston, Mass. Filed Jan. 17, 1902. Serial No. 55,197. (No model.)

Claim.—1. In a pressure-gage, the combination with a Bourdon spring-tube extending around approximately three-fourths of a circle; of a tube-supporting socket; a shaft-supporting stand formed in one piece with said socket; an index-carrying shaft; a pinion mounted on said shaft; a rack engaging said pinion; a rack-operating lever fulcrumed in near proximity to said socket; and a rod having one end pivoted directly to the movable end of said spring-tube and its other end pivoted to said lever between its fulcrum and its movable end.

2. In a pressure-gage, the combination with a Bourdon spring-tube extending around approximately three-fourths of a circle; of a spring-tube-supporting socket; a shaft-supporting stand, formed in one piece with said socket, the outer end of said stand being provided with a threaded hole therein of greater diameter than said shaft; a shaft provided with

shouldered journals, and mounted in said stand; a threaded tubular bearing fitted to the threaded hole in said outer end and forming a bearing for the outer journal of said shaft; a rack-operating lever mounted on said shaft; and a rod pivoted at one end to the movable end of said spring-tube, and at its other end to said lever between its fulcrum and its movable end.



3. In a pressure-gage, the combination with a Bourdon spring-tube, a socket for supporting the same, a dial, an index-finger, its spindle, a pinion mounted on said spindle, and a rack and lever for rotating said spindle, of a flexible connection between the movable end of the Bourdon spring and said pinion-operating lever, the ends of said flexible connection being rigidly clamped one to said spring, and the other to said lever.

4. In a pressure-gage, the combination with an index-finger, its spindle, a pinion mounted on said spindle, a Bourdon spring-tube its supporting socket and stand, a lever mounted in bearings in said stand, and a reciprocating rack operated by said lever, of the plate 13 firmly secured to the movable end of said spring, and provided with the dotted stud 14, and the clamping-screw 15; the two-armed plate 21, adjustably secured to the rack-operating lever; the dotted plate 17 adjustably secured to the plate 21, and provided with the dotted stud 18 and the clamping-screw 19; and the flexible connection 16, provided with an eye at each end to receive the clamping-screws 15 and 19, said flexible connection, being engaged by the dotted studs 14 and 18, in near proximity to the clamping-screws 15 and 19 respectively.

5. In a pressure-gage, the combination with a Bourdon spring-tube, its supporting-socket, and a shaft-supporting stand, a lever fulcrumed in said stand, a connection between the movable end of said spring-tube and said lever; an index-finger, and its spindle, of a pinion provided with teeth having rounded outer ends; and a reciprocating rack provided with V-shaped teeth with the spaces between said teeth curved to rest of circles to rest upon the rounded outer ends of said pinion-teeth, said rack being pivoted by one end to the movable end of said lever; a stop to limit the upward movement of said rack at its point of contact with said pinion; and a spring carried by said lever and bearing upon the upper side of said rack to press it into contact with the teeth of said pinion.

6. In a pressure-gage the combination with a Bourdon spring-tube, its supporting socket and stand, a lever fulcrumed in said stand, a connection between the movable end of said spring-tube and said lever, an index-finger, and its spindle, of the pinion 24 provided with teeth having rounded ends; and the reciprocating rack 26 provided with V-shaped teeth with the spaces between said teeth curved to the arc of a circle, and its upper surface curved longitudinally to compensate for the rise and fall of its pivoted end, due to the arc described by the movable end of its operating-lever.

697,624. PHOTOGRAPHIC CAMERA. HENRY E. HENCK, Great Yarmouth, England. Filed Oct. 14, 1901. Serial No. 71,022. (No model.)

Claim.—1. A photographic camera consisting of three compartments, two of which are made in one piece and have a common sliding back provided with a shallow recess for holding a plate, a focusing-screw and a movable shelf to drop the exposed plate out of the camera, one of these two compartments being fitted to contain a number of reserve plates which are spring-pressed against the sliding back, the other compartment being provided with an adjustable lens and blinged shutter, and a third compartment provided with two vessels one containing a developing solution and the other a fixing solution the former vessel lying close under the movable shelf in the position occupied when a plate is exposed, substantially as described and shown.

2. A photographic camera consisting of three compartments two of which are made in one piece with a common sliding back fitted with a

movable shelf, one of these two compartments being a magazine of reserve plates and the other a camera proper, these two compartments being hinged to the third compartment so that the two compartments may be turned through a right angle relatively to the third and rigidly secured in that position by a folding bracket, and in the other position to substitute that the movable shelf, when withdrawn, will permit a plate, in the compartment forming the camera proper, to drop into the third compartment which will then be light-tight substantially as described and shown.



697,625. PIPE-LIFTING MECHANISM. ALVIN HOSKINS, Calmar, Iowa. Filed Aug. 12, 1901. Serial No. 93,101. (No model.)



Claim.—1. In pipe-lifting mechanism, the combination of a frame, a lifting-lever secured thereto, clutches secured to said lever, means for adjusting said clutches at different points along said lever, a guide-rod secured in said frame, a guide secured in said frame below said guide-rod, a guide at the top of said guide-rod, an adjustable friction-actuator secured on said guide-rod for the purpose of holding the lifted pipe, substantially as described.

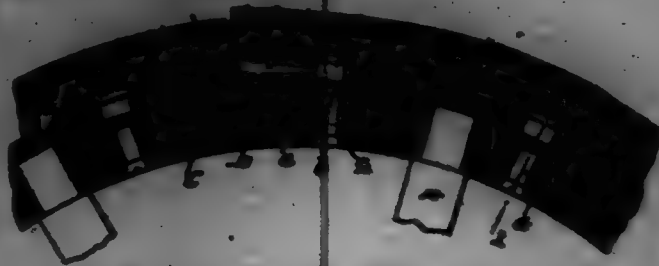
2. In pipe-lifting mechanism, the combination of a frame, a lifting-lever secured thereto, a guide-rod secured thereto, a guide at the top of said guide-rod, an adjustable friction-actuator secured on said guide-rod, adjustable clutches secured to said lifting-lever, and means for adjusting said clutches at variable distances from the fulcrum of said lever, substantially as described.

3. In a pipe-lifting machine, the combination of the frame a lifting-lever secured thereto clutches secured thereto, provided with an opening between the two sections thereof, a threaded pin in the ends of said sections, a stop-block on the shorter section extending across and over and adapted to engage the longer section, the whole arranged whereby the opening between said sections is adjusted by revolving the shorter section, substantially as described.

697,626. RUBBER VEHICULAR-TIRE. FRANK E. HYDE, Toronto, Canada. Filed Aug. 12, 1901. Serial No. 73,302. (No model.)

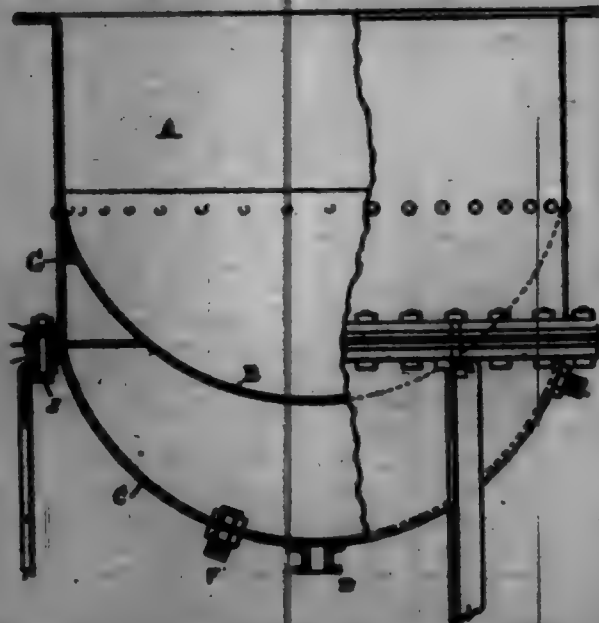
Claim.—1. The combination with a wheel having a felly and a metallic tire provided with coincident apertures; of the rubber tire, the apertured metallic band arranged at the inner side of the rubber tire and on

the exterior periphery of the metallic tire of the wheel, and the headed, laterally-threaded nuts extending through the apertures of the metallic band and resting in the apertures of the metallic tire of the wheel; said rubber tire, metallic band and nuts being vulcanized together, and headed and threaded bolts extending through the apertures of the wheel-felly and engaging the laterally-threaded nuts.



2. The combination with a wheel having a felly and a metallic tire provided with coincident apertures; of the rubber tire, the apertured metallic band arranged at the inner side of the rubber tire and on the exterior periphery of the wheel-tire and having one of its ends extended beyond the adjacent end of the rubber tire and exteriorly beveled, and its other end arranged in rear of the adjacent end of the rubber tire and laterally beveled, and the headed, laterally-threaded nuts extending through the apertures of the metallic band and resting in the apertures of the metallic tire of the wheel; said rubber tire, metallic band and nuts being vulcanized together, and headed and threaded bolts extending through the apertures of the wheel-felly and engaging the exteriorly-threaded nuts.

697,627. JACKETED KETTLE. MAX W. JENNISON, WASHINGTON I. KAWHAR, Louisville, Ky.; said John assigner to said Jennison. Filed Feb. 2, 1901. Serial No. 48,737. (No model.)



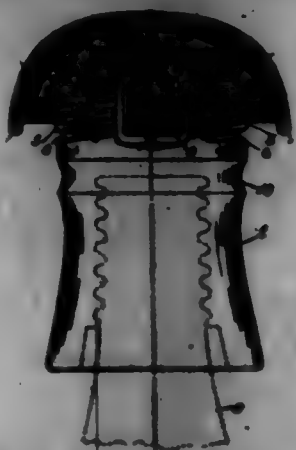
Claim.—1. In a jacketed kettle, the combination of an inner bottom shell, a top section permanently joined thereto, extending down below the joint with said bottom and having an outwardly-extending flange, an outer bottom shell having an outwardly-extending flange at its upper edge, means for separably uniting said flanges whereby the joint between said inner bottom shell and top section may be rendered accessible, and the solder G closing said joint at the under side, substantially as set forth.

2. In a jacketed kettle, the combination of an inner bottom shell, a top section permanently joined thereto, extending down below the joint with said bottom, an outer bottom shell, and means for separably uniting the extension of said top section and said outer bottom shell, substantially as set forth.

697,628. INSULATOR AND ATTACHMENT FOR ELECTRIC WIRES. GRANT C. JENNISON, Scranton, Pa. Filed Sept. 11, 1901. Serial No. 73,303. (No model.)

Claim.—1. The herein-described insulator consisting of a body portion adapted to be secured to a peg, and provided with a channel extending horizontally through the top of said portion, and a pair of upwardly-extending legs on opposite sides of said channel outwardly screw-threaded, in combination with a cap arranged to be secured to said body portion, the said cap being provided with a central projection arranged to grasp the wire to be insulated at a central point on the said body portion, and the said cap provided with an overhanging flange arranged to shed water at a point distant from the point of contact of the wire, and arranged at

a higher level than the wire to be insulated, substantially as and for the purpose specified.



2. An insulator of the kind described comprising a body portion with a grooved neck for tying-wire and adapted to be secured to a peg, the said body portion further provided with a channel extending horizontally through the top of said portion, and a pair of oppositely-extending legs on opposite sides of said channel outwardly cover-threaded, in combination with a cap arranged to be secured to said body portion, the said cap being provided with a central projection arranged to grasp the wire to be insulated at a central point on the said body portion, and the said cap provided with an overhanging flange arranged to shed water at a point distant from the point of contact of the wire, and arranged at a higher level than the wire to be insulated, substantially as and for the purpose specified.

697,699. COMBINED GRABING AND CASING THEREFOR.
HENRY B. KIRBY, Lancaster, Pa. Filed June 10, 1901. Serial No. 93,982. (No model.)



Claim.—1. A gear-train-including casing constructed in separable hollow sections of unequal size, secured together so as to form an inclosure having an unobstructed space therein to receive a train of gears, one of said sections being removable to permit access to but without disturbing the included gearing, in combination with a train of spur-wheels included in said casing, bearings for said wheels at opposite sides of the lower or larger section of the casing, a shaft journaled parallel with said gear-train, and a gear-wheel on said shaft in gear with said gear-train.

2. A gear-train-including casing constructed in unequal separable hollow sections, united to form a complete inclosure with unobstructed interior and one of which may be removed to permit access to but without disturbing the gearing included within the casing, in combination with a train of gears having their bearings in opposite sides of the larger section of said casing beyond or below the dividing-line which separates the removable section from said larger including portion, a shaft journaled parallel with said train of gears and a gear-wheel on said shaft in gear with said gear-train.

3. A gear-train-including casing constructed in separable hollow sections of unequal size, one of which may be removed without disturbing the arrangement of the gearing included within the casing, and which together form a narrow oblong housing without interior obstructions and adapted to receive a train of gears journaled therein, in combination with a train of gear-wheels included within said casing and having their bearings in opposite sides of the larger section thereof, a shaft journaled within the casing parallel with said train of gears and a gear-wheel on said shaft in gear with said train.

4. A gear-train-including casing constructed in substantially horizontally-divided separable hollow sections of unequal size, one lying upon the other edge to edge and removable therefrom to permit access to but without disturbing the gearing included within the casing, in combination

with a train of gear-wheels included in the lower larger section, bearings for said train of gears at opposite sides of said lower section, a shaft journaled below said train of gears, and a gear-wheel on said shaft geared to one of the gears of said train.

5. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, said train including a beveled gear-wheel, and said shaft having a similar wheel engaged thereby, and an including casing for said parts constructed of two horizontally-divided separable hollow sections secured together edge to edge, one of said sections constituting a cover for the casing, and the other supporting the said gear-train and shaft, said shaft and train of gears having their bearings in and included by said separable sections, substantially as set forth.

6. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, and an including casing for said parts constructed of two horizontally-divided separable hollow sections secured together edge to edge, one of said sections constituting a cover for the casing and provided with means for the introduction of a lubricant, and the other section supporting the said gear-train and shaft, said shaft and train of gears having their bearings in and included by said separable sections, substantially as set forth.

7. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, said train including a beveled gear, a stub-shaft supported at right angles to said shaft and having a similar right gear, said second-named gear being operated from the train, and an including casing for said parts constructed of horizontally-divided separable sections, said shaft and train of gears having their bearings in and included by said separable sections, substantially as set forth.

8. A gear-train casing comprising an inverted-trough-like section, a similar section of greater depth supporting the former and forming therewith a gear-train inclosure complete, a train of gears housed within said casing, bearings for said gears at opposite sides of the casing, a shaft journaled in bearings in the casing, and a gear-wheel on said shaft engaging one of the gears of said train.

9. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, said train including a beveled gear-wheel, and said shaft having a similar wheel engaged thereby, and an including casing for said parts constructed of horizontally-divided separable sections, said casing being provided with an integral plate for attachment of the structure to a support, substantially as herein shown.

10. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, and an including casing for said parts comprising separable sections, one of said sections having an interior offset, provided with a headed pin, and the other section having an interior lag provided with a slot in which said pin is received, substantially as shown and described.

11. In combination, a gear-train casing composed of hollow sections of unequal size mounted one upon the other with their hollow sides confronting and having overlapping abutting edges, a train of gear-wheels housed within said casing, bearings for said wheels at opposite sides of the lower larger section of said casing, a shaft journaled adjacent to said train of gears, and a gear on said shaft engaging one of the gears of said train.

12. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, a beveled gear on said shaft and an including casing for said parts constructed of horizontally-divided separable sections, one of said sections constituting a cover or lid, and the other supporting the wheels of the gear-train and having an integral tubular portion supporting said shaft, said latter section also having a hollow pendant portion, and a stub-shaft working therein and provided with a beveled gear engaging the similar gear on the shaft, as set forth.

13. A device or structure of the character herein described, comprising a gear-train, a shaft operated thereby, said train including a beveled gear-wheel, and said shaft having a similar wheel engaged thereby, and an including casing for said parts constructed of horizontally-divided separable portions or sections, one of said sections constituting a cover and provided with a self-closing device for admitting a lubricant, the other section supporting the shaft and the wheels of the train and having an integral attaching-plate, and the two sections having interlocking means for detachably securing them together, as set forth.

14. A gear-train-including casing composed of unequal separable sections of substantially trough-like form divided upon an approximately horizontal plane and secured together so as to provide an unobstructed interior, bearings at opposite sides of the casing for a train of gears, a train of gear-wheels journaled in said bearings, a shaft journaled in bearings formed in the larger section of the casing and a gear-wheel on said shaft engaging a gear of said train.

15. A gear-train casing composed of two separable trough-like sections of unequal size mounted one upon the other with their hollow sides confronting, leaving a clear space within to receive a train of gears in

combination with a train of gear-wheels housed within the casing, bearings at opposite sides of the casing for the shafts of said gear-wheels, a shaft extending longitudinally of the casing and a gear-wheel on said shaft engaging one of said train of gears.

697,680. LAMP-HOOK. ROBERT L. KILGORE, Seattle, Wash. Filed Aug. 15, 1901. Serial No. 73,176. (No model.)

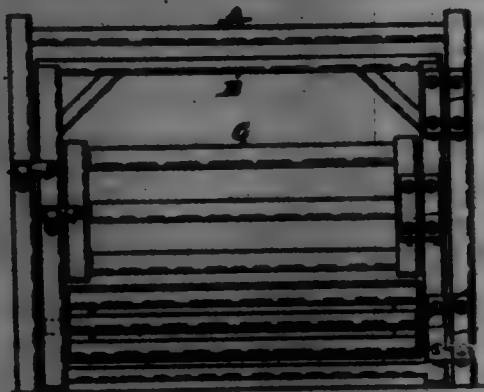


Claim.—1. A lamp-hook comprising a body portion having reversely-turned hooks at its ends, said body portion being provided with a neck, a block slidably mounted upon the body portion, and keepers for the hooks pivoted to the block, one of the keepers being constructed and arranged for engagement with the neck to hold the block against movement.

2. A lamp-hook comprising a body portion having terminal hooks, a block slidably upon the body portion, and keepers for the hooks mounted upon the block, one of the keepers being constructed for engagement with the body to hold the block at times against movement.

3. A lamp-hook comprising a body portion having terminal hooks one of which is provided with a jaw, a block slidably upon the body portion and having a jaw for engagement with the jaw of the hook, and keepers for the hooks pivoted to the block, one of the keepers being adapted for engagement with the body to hold the block against movement.

697,681. FARM-GATE. ELIAS KIM, Des Moines, Iowa. Filed June 20, 1901. Serial No. 69,591. (No model.)



Claim.—1. In a gate, a framework hinged to any suitable support, a roller mounted in said framework, and a gate hinged to the framework, substantially as shown and described.

2. In a gate, a framework hinged to any suitable support, a slatted roller mounted in said framework, and a gate hinged to the framework, substantially as shown and described.

3. In a gate, a framework hinged to any suitable support, a slatted roller mounted in said framework, said roller comprising circular end pieces and slats secured to the periphery of said end pieces, and a gate hinged to the framework, substantially as shown and described.

4. In a gate, a framework hinged to one post thereof, a rod connecting the side bars of said framework, circular disks loosely mounted on said rod, slats secured to the periphery of said disks, and a gate hinged to one of the side bars of said framework, substantially as shown and described.

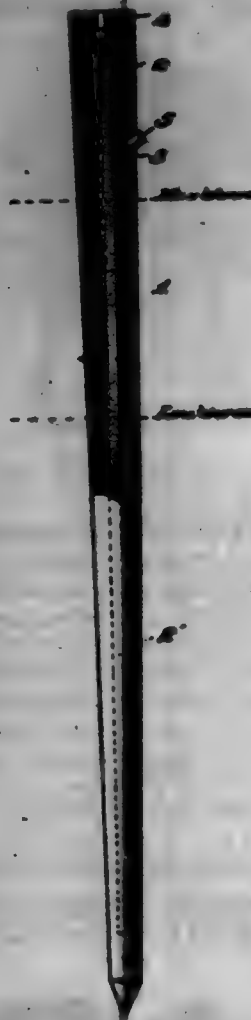
697,682. WOOD-PRESERVING COMPOUND. CARL KLUMME, Seattle, Wash., assignor to Frank Mark Klumme, Seattle, Wash. Filed Oct. 4, 1901. Serial No. 73,123. (No specimens.)

Claim.—1. A wood-preserving compound composed of blue vitriol, sulfate of iron, cyanid of potassium, sulfuric acid, prussic acid, and refined petroleum, compounded in about the proportions set forth.

2. A wood-preserving compound containing sulfate of iron, cyanid of potassium, sulfuric acid, prussic acid and refined petroleum compounded in approximately the proportions set forth.

3. A wood-preserving compound containing blue vitriol, cyanid of potassium, sulfuric acid, prussic acid, and refined petroleum compounded in approximately the proportions named.

697,683.



697,683. AXLE-BEARING. CARL C. KIMM, Northtown, Pa. Filed May 4, 1901. Serial No. 69,712. (No model.)



Claim.—1. A shaft or axle having an adjusting device engaging a sleeve on the shaft and adjustable in a line oblique to the axis.

2. A shaft or axle having a sleeve adjustable along the bearing-surface, and an adjusting device carried by the shaft engaging the sleeve and adjustable across the plane of the axis of the shaft.

3. A shaft or axle having a bore inclined to its axis, adjusting device in the bore, and a movable sleeve on the shaft engaged by said device.

4. A shaft or axle perforated at an oblique angle to its axis and provided with an adjusting-screw in the perforation adapted to shift the bearing-surface of the wheel.

5. A shaft or axle perforated at an acute angle to its axis and provided with an adjusting-screw in the perforation adapted to shift the bearing-surface of the wheel.

6. A shaft or axle perforated at an acute angle to its axis and provided with an adjusting-screw in the perforation, a sliding collar on the shaft and a jam-nut for the screw.

7. A shaft or axle having a beveled end perforated on the beveled place at an acute angle to its axis, an adjusting-screw in the perforation and a sliding collar on the shaft engaged by the screw.

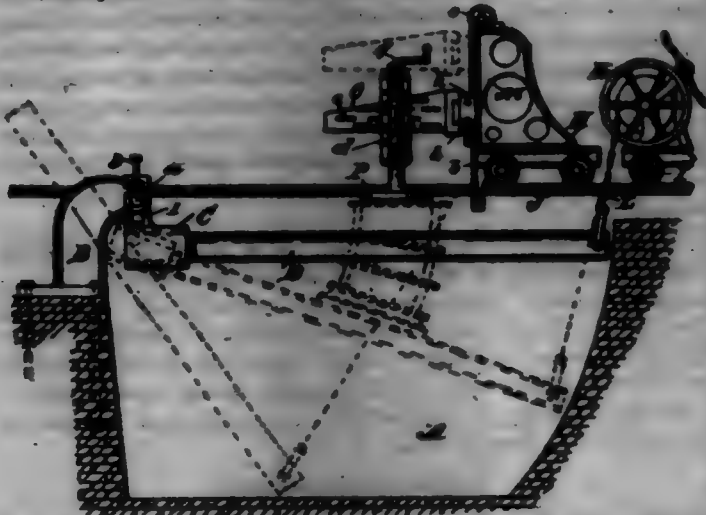
697,684. CAN-OPENER. FRANK KIMM, Northtown, Pa. Filed May 15, 1901. Serial No. 69,755. (No model.)



Claim.—A can-opener, consisting of a handle, a stem having an enlargement near its outer end, a bent portion just beyond said enlargement,

and terminating in a sharp penetrating-point, and a rotating cutting-wheel mounted and longitudinally shiftable on said stem and consisting of a cutting edge and a hub adapted to contact with the end-top to limit the penetration of said cutting edge, said wheel having a convex outer face and a straight inner face.

697,685. APPARATUS FOR MAKING HOLES AND CORES.
HENRY G. LAMBERT, Fitchburg, Ohio, assignor of forty-nine one-eighths to Adelle B. Clark, Steubenville, H. D., and James A. Craft, Hartman, Ohio. Original application filed Aug. 2, 1901, Serial No. 79,572. Divided and this application filed Feb. 26, 1902. Serial No. 81,008. (No model.)



Claim.—1. In apparatus for making molds and cores for pipe-bands, the combination of a swinging carrier, mechanism for raising and lowering said carrier through the arc of a circle, and an adjustable chaper adapted to be shifted toward or from the pivotal axis of said carrier, substantially as described.

2. In apparatus for making molds and cores for pipe-bands, the combination of a swinging carrier, mechanism for raising and lowering said carrier through the arc of a circle, exterior mold and core mechanism adjustable on said carrier, and an adjustable chaper adapted to be shifted toward or from the pivotal axis of said carrier, substantially as described.

3. In apparatus for making molds and cores for pipe-bands, the combination of a swinging carrier, mechanism for raising and lowering said carrier through the arc of a circle, and a vertically-adjustable chaper adapted to be shifted toward and from the pivotal axis of said carrier, substantially as described.

4. In apparatus for making molds and cores for pipe-bands, the combination of a pit, a swinging carrier pivoted at one end of said pit, mechanism for raising and lowering said carrier, and an adjustable chaper adapted to be shifted toward or from the pivotal axis of said carrier, substantially as described.

5. In apparatus for making molds and cores for pipe-bands, the combination of a pit, a swinging carrier composed of I-beams united together and pivoted at one end of said pit, adjustable mechanism for raising and lowering said carrier, and an adjustable chaper adapted to be shifted toward or from the pivotal axis of said carrier, substantially as described.

6. In apparatus for making molds and cores for pipe-bands, the combination of a pit, a swinging carrier composed of I-beams united together and pivoted at one end of said pit, adjustable mechanism for raising and lowering said carrier, a track on the sides of said pit, a car on said track with means for locking it at any point desired, an adjustable chaper-carrier on said car, and a chaper adjustable on said carrier, substantially as described.

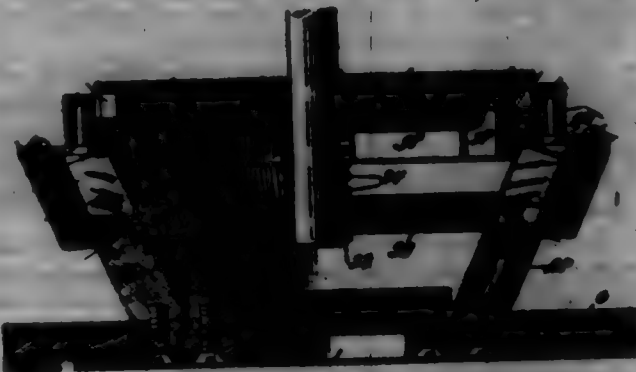
7. In apparatus for making molds and cores for pipe-bands, the combination of a pivoted vertically-swinging carrier, mechanism for raising and lowering said carrier, a supporting base-piece on said carrier, and a stationary chaper registering with and above said base-piece, whereby a flask may be placed upon said base-piece surrounding said chaper, and, as the plastic material is rammed in around said chaper said carrier may be lowered and successive sections of flask may be added and secured one above the other, as desired.

8. In apparatus for making molds and cores for pipe-bands, the combination of a pivoted vertically-swinging carrier adjustable on its pivotal bearings, mechanism for raising and lowering said carrier, an adjustable supporting base-piece on said carrier, and an adjustable chaper registering with and above said base-piece, whereby external molds or cores may be built up on said carrier having bands of different radii and with or without straight ends, as desired, substantially as described.

9. The combination of the pit A, the adjustable swinging carrier D pivoted at one end of said pit, a car G capable of traveling across the top of said pit, winch mechanism on said car and connected to the free end

of said swinging carrier, a second carrier H capable of traveling across said pit, a former-carriage on said car, and an adjustable chaper on said former-carriage, substantially as described.

697,686. MACHINE FOR WIRING SHEET-METAL ARTICLES.
JOSEPH LAMBERT, EDWIN THREMLAY, and ANTOINE LALANDE, Montreal, Canada. Filed July 9, 1901. Serial No. 67,974. (No model.)



Claim.—1. In a machine for wiring sheet-metal articles, cooperating male and female dies, the female die having spring-actuated yieldable sections movable upwardly on diverging lines and each provided with means for retaining a wire in position on the active face thereof, as set forth.

2. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die provided with yieldable stems for retaining a wire ring adjacent to a deflecting or bending surface of the die, substantially as described.

3. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a common die-shell, a series of die members yieldably confined within said shell, and means for retaining a wire ring in operative position relative to the die members, substantially as set forth.

4. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a series of yieldable sections each having a wire-ring-retaining means, substantially as set forth.

5. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a series of yieldable sections and provided with yieldable pins adapted to retain a wire ring in proper relation to the female die, substantially as set forth.

6. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a series of spring-actuated die members disposed in matching relation, and said male die provided with yieldable stems arranged at intervals thereon and adapted to rest upon and to open the spaces between the sections of the female die when the two dies are brought into cooperating relation, substantially as set forth.

7. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a common die-shell, a series of spring-actuated die members arranged in matching relation within said die-shell, a series of wire-ring retainers, and means for holding the retainers of the die-sections in proper relation, substantially as set forth.

8. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die consisting of a fixed die-shell provided with an internal plate or disk which forms a nest for a sheet-metal article, a series of die-sections within the shell, and ring-retaining means cooperating with said die-sections, substantially as set forth.

9. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die comprising a die-shell having an internal nest in a series of yieldable sections adapted to said nest, said male die provided with a central stem and a spring-actuated clamping-disk arranged to enter the space formed by the series of members of the female die, said disk in the cooperative positions of the two dies adapted to open the spaces between the internal nest and the female die members on the depression of the latter to occupy the nest, substantially as set forth.

10. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die having movable spring-actuated members seated in a die-shell, said male die comprising a suitable head, and a plurality of arcuate members yieldably mounted on the head and each having a grooved working face, and a series of yieldable stems carried by said arcuate members of the male die and arranged to be seated upon the movable members of the female die, substantially as described.

11. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die having downwardly-yielding members, said male die comprising a series of radially-yielding arcuate members each having the external chambered bottom, a series of vertical stems fixed in said bottom and provided with feet to rest upon the female die members, and cushion-springs for said stems, substantially as set forth.

12. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die having downwardly-yieldable members normally held in raised divergent relation, and said male die provided with radially-expandible die members and with spring-embodied vertical stems adapted to be coated upon the female die members and to open the spaces between the same, as set forth.

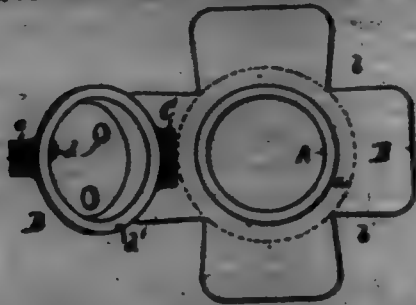
13. In a machine for wiring sheet-metal articles, cooperating male and female dies, said male die comprising a head, a series of arcuate members yieldably confined on the head, and cushioned stems arranged to be coated upon the female die, substantially as described.

14. In a machine for wiring sheet-metal articles, cooperating male and female dies, said female die having yieldable members, and said male die provided with expandible members disposed in cooperative relation to the female die members, and cushioned stems mounted on the male die members and adapted to remain inactive until the final period of downward thrust of the male die, substantially as described.

15. In a machine for wiring sheet-metal articles, cooperating male and female dies, the female die having yieldable members arranged for movement on divergent lines, and the male die comprising a head, a series of radially-movable yieldable members confined on the head and disposed in cooperative relation to the female die, chambered stems carried by the members of the male die, and spring-biased stems fitted in the bones and arranged to rest upon the cottages of the female die, substantially as set forth.

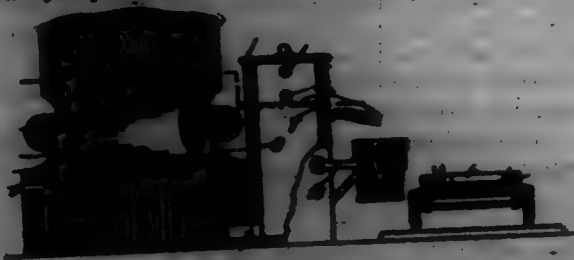
16. In a machine for wiring sheet-metal articles, a female die provided with a bending or deflecting groove, and a series of yieldable stems coated in said die and normally exposed above the active face thereof in cooperative relation to the groove therein, combined with a male die or plunger, substantially as described.

697,687. SHIELD FOR VACCINATIONS, &c. JOHN R. LEE, Cincinnati, Pa. Filed Nov. 12, 1901. Serial No. 92,919. (No model.)



Claim.—A shield comprising a ring having a horizontally-projecting flange with a strip of surgeon's adhesive plaster fitting over and around the ring and on the flange thereof, in combination with a cap fitting over the ring and a strip of adhesive material surrounding the cap and adhering to the first-mentioned strip to hold the cap in place.

697,688. PROCESS OF DRAWING MOLTEN METAL FROM RECEPTACLES. LUTHER LINCOLN, Boston, Mass., assignor of one-half to Charles S. Gooding, Boston, Mass. Filed June 18, 1901. Serial No. 92,920. (No specimens.)



Claim.—1. The process of drawing molten metal from a receptacle which consists in collecting the molten metal in a suitable receptacle; creating a superatmospheric air-pressure upon the surface of said molten mass, thereby maintaining it at a level below its normal level and forcing a portion of the molten metal into a second receptacle to a level higher than its normal level in said first-named receptacle; then tapping said molten mass in said second receptacle at a point above its normal level in said first-named receptacle, and finally creating a superatmospheric air-pressure upon the surface of the molten metal in said second receptacle.

2. The process of drawing molten metal from a receptacle which consists in collecting the molten metal in a suitable receptacle; creating a superatmospheric air-pressure upon the surface of said molten mass, thereby maintaining it at a level below its normal level and forcing a portion of the molten metal into a second receptacle to a level higher than its normal level in said first-named receptacle; then tapping said molten mass in said second receptacle at a point above its abnormal level in said

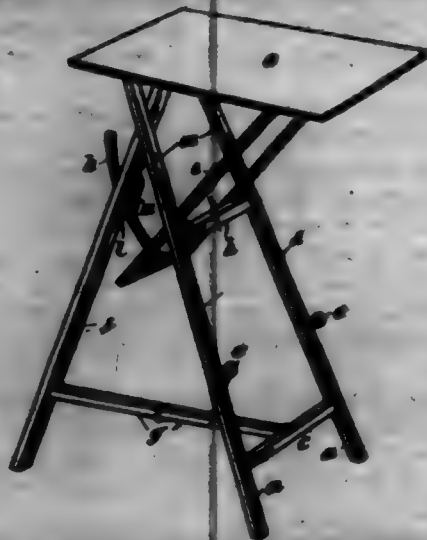
first-named receptacle; and finally creating a superatmospheric air-pressure upon the surface of the molten metal in said second receptacle.

3. The process of drawing molten metal from a receptacle which consists in collecting the molten metal in a suitable receptacle; creating a superatmospheric air-pressure upon the surface of said molten mass, thereby maintaining it at a level below its normal level and forcing a portion of the molten metal into a second receptacle to a level higher than its normal level in said first-named receptacle; then tapping said molten mass in said second receptacle at the surface of its abnormal level; and finally creating a superatmospheric air-pressure upon the surface of the molten metal in said second receptacle.

4. The process of drawing molten metal from a receptacle which consists in collecting the molten metal in a suitable receptacle; creating a superatmospheric air-pressure upon the surface of said molten mass, thereby maintaining it at a level below its normal level and forcing a portion of the molten metal into a second receptacle to a level higher than its normal level in said first-named receptacle; creating a partial vacuum in said second receptacle and then tapping said molten mass in said second receptacle at a point above its abnormal level in said first-named receptacle.

5. The process of drawing molten metal from a receptacle which consists in collecting the molten metal in a suitable receptacle; creating a superatmospheric air-pressure upon the surface of said molten mass, thereby maintaining it at a level below its normal level; forcing the molten metal into a second receptacle to a level higher than its normal level in said first-named receptacle; creating a partial vacuum in said second receptacle and then tapping said molten mass in said second receptacle at the surface of its abnormal level.

697,689. ADJUSTABLE TABLE OR DESK. EMER LINCOLN, Brooklyn, N. Y. Filed Mar. 8, 1901. Serial No. 92,921. (No model.)



Claim.—1. An adjustable table or desk, comprising front and back legs pivotally attached together at their upper ends; a support pivotally attached to said front legs and provided with adjusting means attached thereto and to said back leg; and a top, one end of said top being supported by the upper ends of the legs and the other end of the top being supported by said support.

2. An adjustable table or desk, comprising front and back legs pivotally attached together at their upper ends and adapted to fold together when not in use; a brace adapted to hold the lower ends of said legs apart and to fold as to permit them to come together; an adjustable support pivotally attached to said front legs and provided with adjusting means attached thereto and to said back leg; and a top adapted to be borne by said legs and said adjustable support.

3. An adjustable table or desk, comprising front and back legs pivotally attached together at their upper ends and adapted to fold together when not in use; a brace adapted to hold the lower ends of said legs apart and to fold as to permit them to come together; an adjustable support pivotally attached to said front legs and provided with adjusting means attached thereto and to said back leg; and a top provided with inferior bars or strips provided with grooves or notches.

4. In an adjustable table or desk, the combination with legs *a* and *b*, a pawl *m* pivotally attached to the leg *f*, a horizontal bar *h* connecting the front legs *a* and *b* and to which the back leg *f* is pivotally attached, folding braces or bars *g* between the front and back legs, a supporting frame *i* pivotally attached to the legs *a* and *b* and aatchet *k* pivotally attached to said frame *i* adapted to engage with the pawl *m*; of a top *c* having bars or strips *p* on its under surface provided with grooves or notches *q*.

5. In an adjustable table or desk, the combination with legs *a* and *b* pivotally attached together at their upper ends, a pawl *m* pivotally at-

tached to the leg *f*, filling beam or bar *g* between the front and back legs, a supporting-frame *i* pivotally attached to the legs *a* and *c*, and a ratchet *k* pivotally attached to said frame *i* and adapted to engage with said pawl *m*, of a top *e* having bars or strips *p* on its under surface provided with grooves or notches *q*.

6. In an adjustable table or desk, the combination with legs *a* and *c*, a pawl *m* pivotally attached to the leg *f*, a horizontal bar *g* connecting the front legs *a* and *c* and to which the back leg *f* is pivotally attached, a supporting-frame *i* pivotally attached to the legs *a* and *c*, and a ratchet *k* pivotally attached to said frame *i* and adapted to engage with said pawl *m*, of a top *e* having bars or strips *p* on its under surface provided with grooves or notches *q*.

7. In an adjustable table or desk, the combination with legs *a* and *c* pivotally attached together at their upper ends, a pawl *m* pivotally attached to the leg *f*, a supporting-frame *i* pivotally attached to the legs *a* and *c*, and a ratchet *k* pivotally attached to said frame *i* and adapted to engage with said pawl *m*, of a top *e* having bars or strips *p* on its under surface provided with grooves or notches *q*.

697,640. RAILWAY-TIE. HENRY E. J. HANSEN, Des Moines, Iowa. Filed July 24, 1901. Serial No. 68,082. (No model.)



Claim.—1. An improved metallic railway-tie comprising a body portion substantially A shape in cross-section and having portions cut away near each end to thereby form two parallel edges on the sides of the body and two vertical shoulders at the ends of the parallel edges, and a rail-support for each end of the tie, each of said supports having its end portion shaped to rest upon the parallel edges and against the under faces thereof to prevent movement transversely of the tie and also shaped to engage the vertical shoulder to prevent movement longitudinally of the tie, and means for securing rails to the rail-supports.

2. An improved metallic railway-tie comprising a rolled metal body portion of such shape that in cross-section its central portion is curved upwardly, said body portion having its top portion cut away near each end to thereby form two parallel edges on the sides of the body portion and two shoulders at the ends of the parallel edges, and a rail-support for each end of the rail, each of said supports being of a size and shape to rest upon said parallel edges and against both of said vertical shoulders, and means for securing a rail to the top of each support.

3. An improved metallic railway-tie comprising a body portion substantially A-shaped in cross-section and having portions cut away near each end to thereby form two parallel, longitudinal edges and two vertical transverse shoulders, a rail-support for each end, said support having its under surface designed to rest on the straight edges, and having a downwardly-projecting projection to enter between said straight edges, an integral base portion on the rail-support to overlap the sides of the body portion, a shoulder on the rail-support to engage the said vertical, transverse shoulders, said supports having a platform to receive the two metallic surfaces and having an integral rail-securing member to engage the outer portion of a rail, and also having a detachable rail-securing device to en-

gage the under portion of the rail, substantially as and for the purposes stated.

697,641. FIRE-EXTINGUISHING COMPOSITION. JAMES E. HILLMAN, Richmond, Ind. Filed Sept. 2, 1901. Serial No. 74,282. (No specimen.)

Claim.—1. The herein-described composition of matter, consisting of bicarbonate of soda, soda-ash, sulfur, manganese, lime, caustic soda, salt, meal-powder, saltpeter and sea-sand, substantially as described and for the purpose specified.

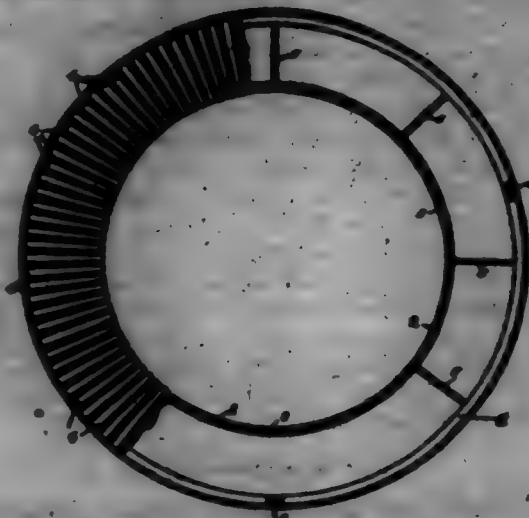
2. The herein-described composition of matter for extinguishing fire, consisting of bicarbonate of soda twenty-five pounds, soda-ash five pounds, sulfur three pounds, manganese ten ounces, lime three pounds, caustic soda eight ounces, salt one pound, meal-powder eight ounces, saltpeter four ounces and sea-sand four pounds, substantially as described.

697,642. PROCESS OF STRENGTHENING CLAY HYDRAULIC PIPE, VASES, CROCKERY-WARE, &c. LORENZO MILLER, Hingham, Maine. Filed Mar. 9, 1901. Serial No. 69,512. (No model.)



Claim.—The method of strengthening pipe and other pottery articles by first burning the same to the proper consistency, then grooving the same around the outside, then wrapping wire or iron rods tightly in the grooves, then applying the glazing to form a hard and smooth surface.

697,643. PORTABLE MOTO-TRUCK. GEORGE E. RUSSELL, Chicago, Ill., and WILLIAM LIND, New York, N. Y. Filed Nov. 2, 1901. Serial No. 61,892. (No model.)



Claim.—In a portable moto-truck, the combination with upper and lower rings 1 and 2, the lower ring being of less diameter than the upper ring, of converging separated track-chains 4 connecting said rings and angular supports having their vertical and horizontal portions connected respectively with the upper and lower rings, substantially as specified.

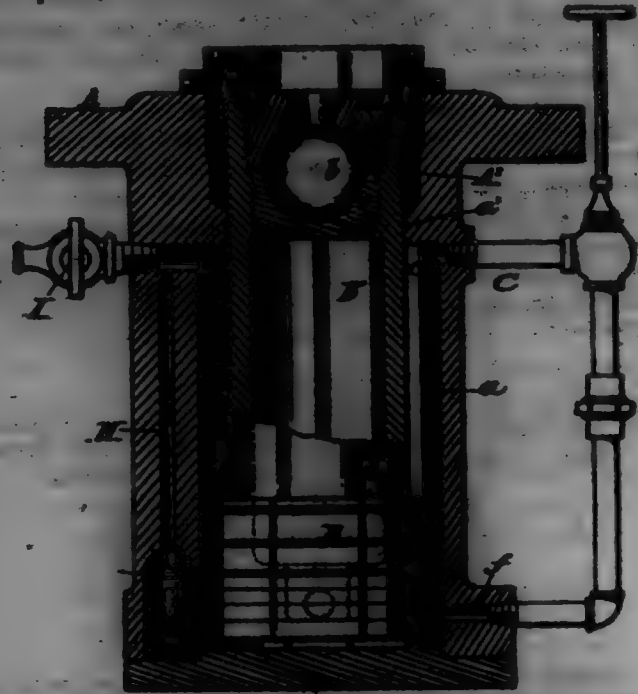
697,644. BASH-FUL. MATTHEW E. BROWN, Indianapolis, Ind., assignor to Atlas Engine Works, Indianapolis, Ind., a Corporation of Indiana. Filed July 2, 1901. Serial No. 67,611. (No model.)

Claim.—1. In a dash-pot adapted for the use of an elastic fluid, a piston B and cylinder C with a passage connecting points near the top and bottom of each cylinder, arranged to cause the fluid above the piston to be compressed with uniformly-increasing force as the piston is raised, and provision D for varying the area of the connecting-passage and thereby allowing the variably-retarded transfer of such air during the whole of the upper portion of the movement under all conditions, substantially as herein specified.

2. In a dash-pot the cylinder bored as shown, and a corresponding piston B and large piston-rod B' with provision for working the same air alternately above and below the larger part of each piston, and provision D for varying the area of the connecting-passage and thereby allowing the variably-retarded transfer of such air during the whole of the upper portion of the movement under all conditions, substantially as herein specified.

3. In a dash-pot a piston and cylinder with provision for working the same air alternately above and below the piston and provision for

variably checking the transfer of the air downward and a separate passage and self-closing valve therein for allowing it to be more easily transferred upward, all substantially as herein specified.



4. In a dash-pot having a cylinder, a piston and a large piston-rod providing an annular space above and a larger cylindrical space below, the passage *O* *F* connecting the upper space with a point above the bottom of the lower space so that the piston will not only be urged downward by the pressure above and the vacuum below with varying force as required, but also that the air will be positively imprisoned under the piston near the end of the movement and more rapidly cushion it, all substantially as herein specified.

5. In a dash-pot having a cylinder, a piston and a large piston-rod providing an annular space above and a larger cylindrical space below, the passage *O* *F* connecting such spaces, and a valve *D* for adjusting the size of such passage, in combination with a separate passage *H*, and a check-valve *G* therein, arranged to deliver air or oil or both upward but forbid its descent, all substantially as herein specified.

6. In a dash-pot having a cylinder, a piston and large piston-rod providing an annular space above and a larger cylindrical space below, the passage *O* *F* connecting the upper space with a point as much above the bottom of the lower space that the piston will not only be urged downward by vacuum with varying force as required, but also that the air will be imprisoned and more rapidly cushion the motion at the end of the movement, in combination with the check-valve *G* and passage *H* arranged to deliver air or oil or both upward but forbid its descent, all substantially as herein specified.

697,645. OIL-WATER SEPARATOR. CHARLES L. MORRIS, Patbury, Me. Filed Oct. 2, 1901. Serial No. 77,310. (No model.)

Claim.—1. In a cream-separator, a double-walled receptacle comprising an outer shell and an inner shell connected by top and bottom walls and forming an outer annular water-space, in combination with a cluster of inner water-tubes removably mounted in the receptacle, a disk or plate to which the upper ends of the water-tubes are connected for their support, said disk or plate having a ventilated flange which rests on the top of the receptacle, and means providing for a circulation of water between the inner tubes and outer water-space, substantially as described.

2. In a cream-separator, a double-walled receptacle embodying an outer annular water-space, in combination with a cluster of water-tubes centrally and removably mounted in the receptacle, an upper receptacle to which said tubes are connected at their upper ends, and a conical bottom or receptacle with which the lower ends of said tubes communicate, said conical bottom or receptacle having a valve communicating with the milk-space, substantially as described.

3. In a cream-separator, a double-walled receptacle embodying an outer annular water-space, in combination with a centrally-arranged cluster of inner water-tubes, a conical bottom connecting the lower ends of said tubes, a control valve-tube arranged between the water-tubes and extending through the conical bottom, a valve controlling an opening leading from the interior of said tube to the conical bottom, and means at the top of the apparatus whereby the valve may be manipulated.

4. In a cream-separator, a vessel or receptacle comprising concentric outer and inner walls forming an outer annular water-space, a bottom coating to which said walls are connected at the bottom, and draw-off pipes connected with said coating and communicating with the milk-space

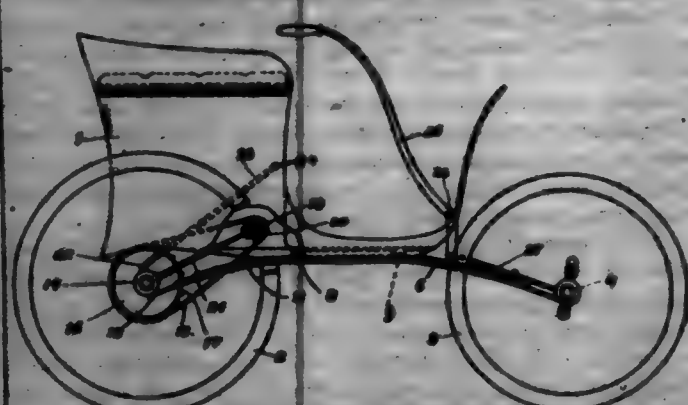
and outer water-space, in combination with a cluster of inner water-tubes removably mounted in the milk-space, an upper receptacle with which said tubes communicate, and an overflow-tube leading from said upper receptacle to the outer water-space.



5. In a cream-separator, a double-walled receptacle embodying an outer water-space, and a top therefor comprising an inwardly-extending annular flange which overhangs the milk-space, in combination with a cluster of inner water-tubes removably mounted in the milk-space and having their upper and lower ends placed in communication with each other and out of communication with the milk-space, means for filling and emptying said water-tubes, and means whereby the inner tubes are placed in communication with the outer water-space.

6. In a cream-separator, a double-walled receptacle embodying an outer water-space, in combination with a cluster of inner water-tubes removably mounted therein, an upper receptacle to which said tubes are connected and with which they communicate, an overflow-tube connected with said upper receptacle and adapted to discharge into the outer water-space, and fastening means for holding the water-tubes in place, substantially as described.

697,646. MOTOR-VEHICLE. CHARLES E. MORRIS, New York, N. Y. Filed Aug. 11, 1901. Serial No. 56,577. (No model.)



Claim.—1. In a motor-vehicle, the combination with the vehicle-body, of a wheel and a crank connection therefrom, a substantially straight bar-spring extending longitudinally of the vehicle and attached at its inner end to said vehicle-body and at its outer end to said crank connection, whereby the vehicle-body is yieldingly supported, and a longitudinal thrust-bar pivoted at its inner end to the vehicle-body and its outer end to said connection.

2. In a motor-vehicle, the combination with the vehicle-body, and the cross-frame to the ends of which the steering-wheel axle is pivoted, of a pair of substantially straight bar-springs attached at their inner ends to the vehicle-body and at their outer ends to the said cross-frame at or near the ends of the latter, said springs being arranged lon-

gitudinally of the springs in a substantially horizontal manner, and converging inwardly or outwardly their point of attachment to the vehicle-body to permit a substantial amount of turning movement to the steering-wheel.

3. In a motor-vehicle, the combination with the vehicle-body, and the cross-frame to the ends of which the front-wheel axle is pivoted, of a pair of substantially straight bar-springs attached at their inner ends to the vehicle-body and at their outer ends to the said cross-frame at or near the ends of the latter, said springs being arranged longitudinally of the springs in a substantially horizontal manner, and converging rearwardly to permit a substantial amount of turning movement to the front wheel, and to resist twisting thrust of said wheel, as set forth.

4. In a motor-vehicle, the combination with the vehicle-body, of a driving-wheel and its axle, a motor-shaft journaled within the vehicle-body, a driving connection between said motor-shaft and driving-wheel, a roller-bar interposed between said motor-shaft and axle, and a substantially straight bar-spring having an inner point of attachment to the vehicle-body and an outer point of attachment to the axle, said outer point being horizontally and longitudinally remote from said inner point.

5. In a motor-vehicle, the combination with the vehicle-body, of a driving-wheel and its axle, a motor-shaft journaled on the vehicle-body in an elevated position with respect to said axle, a driving connection between said motor-shaft and wheel, and a yielding supporting and thrust connection between the vehicle-body and wheel-axle extending longitudinally of the vehicle and comprising a bar-spring and a pivotal arm connected to the vehicle-body, respectively below and above the motor-shaft, and connected to the wheel-axle below and above the latter.

6. In a motor-vehicle, the combination with the vehicle-body, of a driving-wheel and its axle, a motor-shaft journaled on the vehicle-body in an elevated position with respect to said axle, a driving connection between said motor-shaft and driving-wheel, a roller-bar interposed between said motor-shaft and axle, a longitudinally-extending arm connected pivotally to the axle on the upper side thereof, and to the vehicle-body above the motor-shaft, and a longitudinally-extending bar-spring pivotally connected to the axle on the under side thereof and attached to the vehicle-body below the motor-shaft.

7. In a motor-vehicle, the combination with the vehicle-body, of the driving-wheel and its connecting-axle, a motor-shaft journaled on the vehicle-body in an elevated position with respect to said axle, a driving connection between said motor-shaft and wheel, a roller-bar interposed between said motor-shaft and axle, a pair of longitudinally-extending bar-springs attached at their inner ends to the vehicle-body below the motor-shaft, and pivotally connected to the axle on the under side thereof, and a pair of longitudinally-extending arms connected pivotally at their inner ends to the vehicle-body above the motor, and at their outer ends to the axle on the upper side thereof.

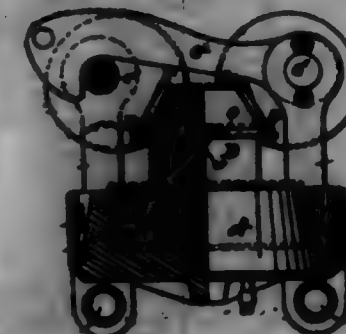
697,647. PIPETTE. EDWARD HANSMANN, Barmen-on-the-Rhine, Germany. Filed Mar. 17, 1902. Serial No. 55,700. (No model.)



Claim.—1. A pipette, comprising a flexible container, having a tube terminating in a rigid nozzle with an aperture through same; a casing also provided with an aperture fitting over said nozzle; and a spring, whereby said apertures in nozzle and casing respectively, are held out of coincidence when the appliance is not being used; substantially as described.

2. A pipette, comprising a flexible container *a*, tube *b* and nozzle *c*, having an aperture *d*; a casing *e* provided with aperture *f*, and a spring *g*, whereby said apertures *d* and *f* are held out of coincidence when the appliance is not in use, substantially as described.

697,648. MECHANISM FOR REMOVING TRILLY-WIRE. WILLIAM A. McALLISTER, Cincinnati, Ohio. Filed July 20, 1901. Serial No. 70,105. (No model.)



Claim.—1. A die for the compression of trilly-wire, having a longitudinal perforation for the reception of the wire, and provided with lateral channels for the reception and play of compression-chucks, said die having an enlargement at one side only of its perforation to receive and control the displaced metal, as set forth.

2. In trilly-wire-compressing apparatus, a die provided with a longitudinal perforation and lateral channels substantially as set forth, said die being divided in two parts in an axial plane of the longitudinal perforation and one of said parts having its portion of the said perforation enlarged to receive and control the displaced metal.

3. The combination of a die having a longitudinal perforation for the reception of the trilly-wire, said perforation being enlarged at one side to receive and control the displaced metal, and lateral channels opening into the same, in combination with compression-chucks adapted to be contained and guided in the lateral channels, as set forth.

4. A die for holding and removing trilly-wire, consisting of a block of metal longitudinally perforated to fit the wire, with a central enlargement on one side of the perforation to receive and control the displacement of metal caused by compression of sections at opposite sides, substantially as set forth.

5. A die consisting of two flat blocks of metal to fit one upon the other, each having a corresponding semicircular groove, the two grooves forming a longitudinal aperture for reception of a trilly-wire, one of said grooves being enlarged, correspondingly with the recesses to be formed in the wire, to receive the metal displaced by compression, in combination with two chucks entering the aperture at opposite sides, substantially as set forth.

6. In a trilly-wire-removing device, a die adapted to embrace the wire, compression-chucks entering the die at opposite sides and bearing against the wire, and means including bell-crank levers engaging the chucks horizontally, for applying mechanical pressure equally to the outer ends of the compression-chucks to force them into the wire a predetermined distance, substantially as set forth.

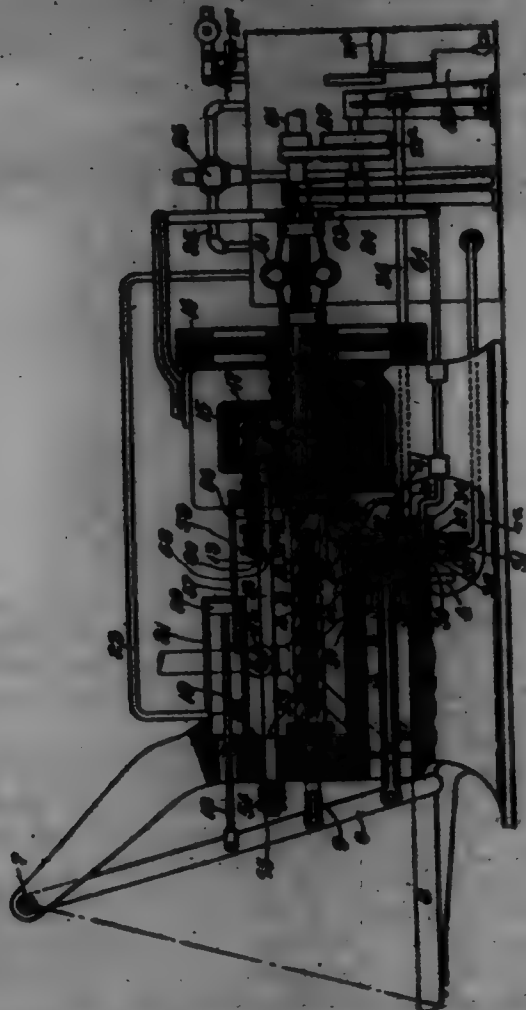
7. In a trilly-wire-removing device, the combination of a hydraulic single-acting cylinder, a piston adapted to act as a platen, a block-die perforated for the reception of the wire and adapted to rest upon and be carried upward by the platen, compression-chucks entering the block-die laterally toward the perforation, and pivotally-supported bell-crank levers arranged at the sides of the die each with one arm bearing vertically upon the die and the other bearing horizontally against the chucks, substantially as set forth.

697,649. ROTARY EXPLOSIVE-ENGINE. JAMES A. McALLISTER, Boston, Mass. Filed June 7, 1902. Serial No. 15,242. (No model.)

Claim.—1. In an internal-combustion engine, a combustion-cylinder and a piston adapted to reciprocate therein; a screw-and-nut motion-transmitting device; means connecting the piston with the reciprocating member of the motion-transmitting device to its initial position at the end of the stroke; a driving-shaft and a one-way clutch connecting the rotating member of the motion-transmitting device with the driving-shaft.

2. In an internal-combustion engine, a combustion-cylinder and a piston adapted to reciprocate therein; a screw-and-nut motion-transmit-

ing device; means connecting the piston with the reciprocating member of the motion-transmitting device; an auxiliary motor to return the reciprocating member of the motion-transmitting device to its initial position at the end of the stroke; a driving-shaft and a fly-wheel governing the same and a one-way clutch connection between the rotating member of the motion-transmitting device and the driving-shaft.



3. In an internal-combustion engine, a combustion-cylinder and a piston adapted to reciprocate therein; a screw-and-nut motion-transmitting device; means connecting the piston with the reciprocating member of the motion-transmitting device; a driving-shaft and a one-way clutch connecting the rotating member of the motion-transmitting device with the driving-shaft; an auxiliary motor, 20, 21, connected with the combustion-piston; a compressed-air-storage tank for the auxiliary motor; inlet 22 between that tank and the motor, all organized and arranged to cause the combustion-piston to be returned to its initial position by the operation of the auxiliary motor.

697,650. FREIGHT-CAR. FRIEDRICH HASEL, Essen, Germany. Assignor to Fried. Krupp, Essen, Germany. Filed Jan. 2, 1901. Serial No. 41,861. (No model.)



Claim.—1. A railway-car having a suitable frame and a removable flooring replaceable in whole or in part, made up of structural iron beams each of which is movable into and out of place independently of the others, and each fixed in place upon the frame of the car by its own independent and readily-removable securing means.

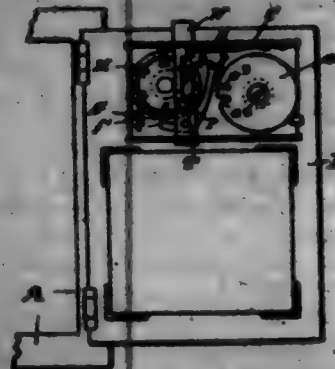
2. A flooring for freight-cars, comprising a series of iron flooring-

beams, each movable into and out of place independently of and without disturbing the others, and secured to the frame of the car by its own independent and readily-detachable securing means.

3. A flooring for freight-cars, comprising a series of separate and detachable flooring-beams, each secured in place upon the frame of the car by its own independent and readily-detachable means and each movable into and out of place independently of and without moving the remaining beams.

4. In a freight-car, the combination of the framing members B, C, D, forming a fixed framing-structure, and the floor members A formed of structural iron placed upon the framing members, each separately and detachable from the rest and independently movable into and out of place without moving the rest, and securing-bolts E for each separate flooring member detachably securing said members in place.

697,651. COMBINATION-LOCK. WILLIAM J. HINES, New Britain, Conn. Filed Aug. 26, 1901. Serial No. 73,504. (No model.)



Claim.—1. In a lock of the class specified a plurality of dial, tumblers operated by the dial, notches in the periphery of the tumblers, the lock-bolt and an unbalanced lever connected with said bolt, the ends of said lever cooperating with the notches in the tumblers to retract the bolt by further movement of some of the tumblers, substantially as described.

2. In combination in a device of the class specified, dial, tumblers operated thereby, recesses in said dial, the lock-bolt and an unbalanced lever connected with said bolt, the ends of said lever cooperating with said recesses to operate the bolt by further movement of part of the tumblers, substantially as described.

3. In combination in a device of the class specified, the dial and their operating-handles held against lengthwise movement, tumblers secured to each dial, a tumbler mounted independent of the dial, a stationary lug on one of the first-mentioned tumblers adapted to engage a projection from the last-mentioned tumbler, recesses in the periphery of each of the tumblers, the lock-bolt and mechanism connected therewith and operated by further movement of part of said tumblers for retracting said bolt, substantially as described.

4. In a device of the class specified the dial, tumblers secured to each dial and a tumbler mounted independent of said dial, notches in the periphery of said tumblers, the lock-bolt, an unbalanced lever connected with said lock-bolt, one end of said lever cooperating with the notches in the other dial-tumbler and in the independent tumbler, substantially as described and for the purposes set forth.

5. In a device of the class specified two or more dial, a notched tumbler operated by each of said dial, an independent tumbler mounted adjacent to one of said dial-tumblers, a notch in the periphery of said independent tumbler, the lock-bolt and the lever carried thereby, one end of said lever cooperating within a notch in one of the dial-tumblers, the opposite end of said lever being bent to cooperate with the notches in the other dial-tumbler and the adjacent independent tumbler, as and for the purposes specified.

6. In a device of the class specified, the dial mounted in the front of the door, tumblers on the inside of said door connected with said dial, recesses formed in the periphery of said tumblers, a tumbler mounted on a removable support independent of the dial-tumbler, and recesses in the periphery of said independent tumbler, a lug on one of said dial-tumblers engaging a projection on the independent tumbler, the locking-bolt and a lever pivoted to said bolt, said lever having at one end a tooth adapted to enter the recess in one of the dial-tumblers, and at the other end a pawl adapted to enter the recess in the other dial-tumbler and the independent tumbler, as and for the purposes specified.

7. In a device of the class specified the dial marked into divisions in the ordinary manner, an arm positively secured to one of said dial and carrying at its ends a pin, a tumbler having a series of holes corresponding to the divisions of the dial, said tumbler connected with said dial by said pin, a second tumbler mounted independently of the other dial and having a series of holes corresponding to the divisions on the dial, and connections between the second dial, and the independent tumbler.

8. In a device of the class specified the disk having the ordinary divisions marked thereon, an arm positively connected with one of said disks and having a pin at its outer end, a tumbler having a series of holes corresponding to the divisions on the disk connected therewith by said pin, and an arm mounted independently of the second disk and having at its end a pin, a second tumbler having a series of holes corresponding to the divisions on the second disk, said pin projecting through one of the holes in said tumbler, and a finger operated by said second disk and adapted to engage said pin to operate the second tumbler, substantially as described.

9. In a device of the class specified the disk suitably divided, arms operated by said disk, pins located in the ends of said arms, tumblers having series of holes corresponding to the divisions of the disk, and pins in the ends of said arms being adapted to enter different holes in the disk to change the combination, said tumblers being held in position by a spring, substantially as described.

10. In a device of the class specified the disk mounted side by side, tumblers connected with and operated by said disk, a tumbler mounted independent thereof, recesses in the periphery of said tumblers, a lock-bolt and an unbalanced lever pivoted thereto and means located at each end of said lever cooperating with said tumblers, as and for the purposes specified.

11. In combination in a device of the class specified the disk the tumblers H' secured to and operated thereby, the notches J' of the independent tumbler H, notch m on the periphery thereof, bolt T, unbalanced lever P pivoted thereon, teeth Q on one end of said lever and the pawl p at the opposite end thereof, all arranged and adapted to operate substantially as described.

697,653. GAME. GERRARD BROWN, Sr., and GERRARD BROWN, Jr., Chicago, Ill. Filed Oct. 23, 1901. Serial No. 59,309. (No model.)



Claim.—1. In apparatus of the character described, the combination of a target, a ball-impelling device, and an open-topped interposed ball-carrier serving to support and expose a ball, said ball-carrier having motion relatively to the other two parts and said ball-impelling device being arranged perpendicularly to the path of the ball.

2. In apparatus of the character described, the combination of a target having a circular outer edge, and a rotary ball-carrier adjacent to said outer edge.

3. In apparatus of the character described, the combination of a target divided into radially-arranged chambers and having a circular outer edge, and a rotary ball-carrier adapted to support balls adjacent to the outer edge of said target.

4. In apparatus of the character described, the combination of an annular target, an annular ball-carrier, and means for supporting and rotating said carrier, substantially as described.

5. In apparatus of the character described, the combination of a platform having a circular slot, a rotary ball-carrier projecting through said slot, and actuating means for said carrier.

6. In apparatus of the character described, the combination of a platform having a circular slot, an annular ball-carrier projecting through said slot, and an impelling device located outside said slot, substantially as described.

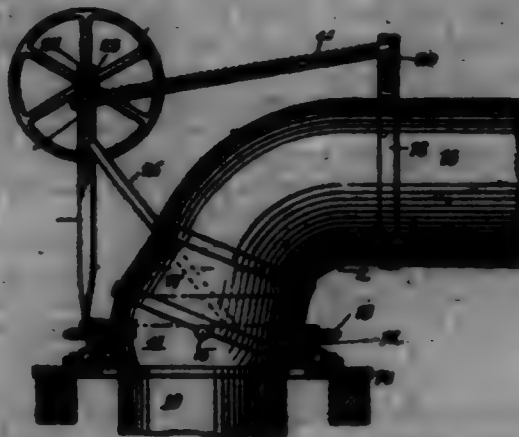
7. In apparatus of the character described, the combination of an annular platform having an inner annular flange and divided into radially-arranged chambers, and a rotary ball-carrier encircling said platform, substantially as described.

8. In apparatus of the character described, the combination of an annular platform having an inner annular flange and divided into radially-arranged chambers, a rotary ball-carrier encircling said platform, and a series of suitably-supported, plunger-equipped impelling devices arranged outside said carrier, substantially as described.

697,658. PNEUMATIC STACKER. FREDERICK L. BROWN, Racine, Wis. Filed Jan. 6, 1901. Serial No. 59,302. (No model.)

Claim.—1. In pneumatic stacker, the combination with the blast-

fan and its stationary casing, of the bustle-pipe extended therefrom, the oscillatory turn-table at the outer end of said pipe and the continuous main chute devoid of cross-joint, contained freely from the turn-table but slidably fitting the bustle-pipe so as to shift universally thereon, substantially as described.



2. In pneumatic stacker, the combination with the blast-fan and its stationary casing, of the bustle-pipe extended therefrom, the oscillatory turn-table at the outer end of said pipe and the continuous main chute devoid of cross-joint, curved downward at the rear and by opposite pin-plate connections contained freely from the turn-table but slidably fitting the bustle-pipe so as to shift universally thereon, substantially as described.

697,654. TRAIN SIGNAL. AMERAS BOVAY, Trenton, N. J., assignor of one-half to Sigmond Seiler, Trenton, N. J. Filed Nov. 20, 1901. Serial No. 59,126. (No model.)



Claim.—1. A train-signal composed of a series of metallically-connected metal frames arranged along the rails, transmitting and receiving contacts mounted upon said frames, means for connecting the transmitting-contacts with a source of electricity, means for closing the transmitting and receiving contacts by each of two moving engines, slugs on the engines adapted to be brought into metallic connection with the receiving-contacts, and a return-wire, substantially as specified.

2. A train-signal composed of a series of levers g, projecting above the rails, a series of contacts c, a transmitting-contact d, having an insulated section, and a receiving-contact e, the levers g, being adapted to engage the contacts d, e, and the contact d, being adapted to engage the contact c, substantially as specified.

3. A train-signal composed of rails arranged in blocks, a series of chambers, frames within the chambers, contacts c, d, and e, pivoted to the frames, levers g, for engaging the contacts d, e, cables connecting the contacts c, cables connecting the frames h, and a return-wire i, substantially as specified.

4. A train-signal composed of rails arranged in blocks, a series of chambers, frames within the chambers, contacts c, d, and e, pivoted to the frames, levers g, for engaging the contacts d, e, cables connecting the contacts c, cables connecting the frames h, and a return-wire i, combined with an engine having a trolley-wheel, and an arm which is in metallic contact with said wheel and with the engine-frame, substantially as specified.

697,655. GARRAGE-CAR. EMMA O'LEARY, Syracuse, N. Y. Filed Aug. 2, 1901. Serial No. 78,708. (No model.)



Claim.—1. The combination with a garage-structure, of a removable cover having a receiving-shell composed of open-sided sections their

open sides facing each other, and each serving as a closure, for the opening in the other, one section being movable upon the other for the purpose described.

2. A removable cover for garbage-receptacles comprising an outer case, and an inner shell composed of open-sided sections, one being movable relatively to the other in opposite directions from its closed position and each forming a closure for the open side of the other for the purpose set forth.

3. A removable cover for garbage-receptacles comprising an outer case, and an inner shell composed of open-sided sections having their open sides facing each other, one section forming a closure for the opening in the other section and being movable in opposite directions from its closed position for receiving and discharging the garbage.

4. A removable cover for garbage-receptacles comprising an outer case having an inlet-opening for the garbage, and an inner shell composed of open-sided sections having their open sides facing each other one being movable and forming a closure for the opening in the outer case and the other section, said movable section being arranged to close the opening in the outer case and to simultaneously open the other section into the garbage-receptacle and also to close communication with the garbage-receptacle when the open side of said other section is closed with the opening in the outer case.

5. The combination with a garbage-receptacle, of a removable cover having a tapering flange and shoulder interlocking with the open end of the receptacle, said cover consisting of outer and inner shells, the outer shell having a movable lid provided with an inlet-opening, and the inner shell being composed of open-sided sections, one forming a closure for the opening in the other and for the opening in the outer case, the closure-section being movable in the opposite direction from its closed position for receiving the garbage through the opening in the outer case and for discharging the same into the receptacle.

697,656. BEVERAGE AND PROCESS OF MAKING SAME. MARCEL PERREA, Brest, France. Filed June 14, 1901. Serial No. 64,512. (No specimen.)

Claim.—1. The process whereby the said beverage is prepared, to wit, by crushing pineapples into a mash, filtering the juice therefrom, fermenting a part of this juice alone, obtaining brandy from such fermented juice by distillation, by adding to one hundred pounds of the other portion of such pineapple-juice one-half of a pound of brewer's yeast, and one-half of a pound of white sugar, fermenting this compound, until alcohol is developed, again straining this fermented liquor, adding to each one hundred pounds of such fermented liquor, six pounds of the said pineapple-brandy, and bottling the compound as prepared, under pressure, substantially as described, and for the purpose specified.

2. The herein-described composition of matter consisting of pineapple-juice, one hundred pounds, brewer's yeast one-half of a pound, and white sugar one-half of a pound mixed and fermented, and six pounds of pineapple-brandy, added to said fermented liquor, all substantially in the proportions, and prepared by the process heretofore set forth, thereby producing a beverage which is pleasantly flavored with the taste and odor of pineapple, and is an exceedingly agreeable, sparkling, refreshing drink, all substantially as described, and for the purpose set forth.

697,657. FURNACE BRIDGE-WALL. EDWARD A. FORTMEYER, Evanston, Ill. Filed Oct. 31, 1901. Serial No. 52,702. (No model.)



Claim.—1. A masonry furnace-wall provided with an overhanging part which consists of tiles having looking-surfaces at their inner ends and anchor-blocks having interlocking connection with the wall and having looking-surfaces which engage the said looking-surfaces of the tiles.

2. A furnace bridge-wall provided with an overhanging part which consists of tiles which project horizontally forwardly from the bridge-wall, and anchor-blocks having interlocking connection with said bridge-wall and also with said tiles.

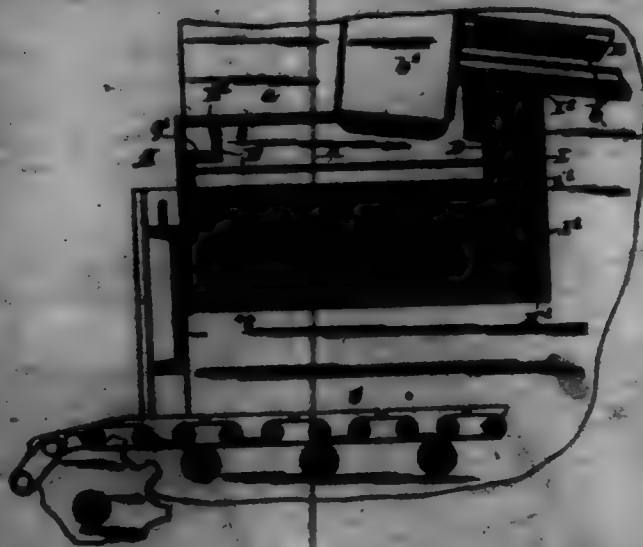
3. A wall having an overhanging part which consists of a plurality

of tiles having looking projections on their inner ends and metal anchor-blocks provided with integral, horizontal base-plates which are embedded in the wall, said anchor-blocks having interlocking engagement with the projections on the said tiles.

4. A wall comprising a tile which overhangs the face of the wall, and is provided at its inner end with a projection which is wider at its lower than at its upper part, and a metal anchor-block having an integral, horizontal bottom plate which is embedded in the wall, said anchor-block being wider at its upper than at its lower part and adapted to engage the lateral surfaces of the projections on two adjacent tiles.

5. A furnace bridge-wall provided with an overhanging part which consists of tiles which project horizontally forwardly from the bridge-wall, and metal anchor-blocks having interlocking connection with said wall and also with said tiles, said wall being provided with a longitudinal air-space affording access of air to said metal anchor-blocks.

697,658. FIRE-ARCH. EDWARD A. FORTMEYER, Evanston, Ill. Filed Dec. 21, 1901. Serial No. 52,702. (No model.)



Claim.—1. A fire-arch comprising a plurality of longitudinally-arranged tiles, transverse supporting-girders one of which directly supports one end of each tile and hanger supported by the other girder and which severally support the opposite ends of said tiles.

2. A fire-arch comprising a plurality of longitudinally-arranged tiles, transverse supporting-girders one of which directly supports one end of each tile, hangers supported by the other girder and which severally support the opposite ends of said tiles, and means for holding engaged the hangers and girder with the tiles.

3. A fire-arch comprising a plurality of longitudinally-arranged tiles, transverse supporting-girders one of which directly supports one end of each tile, hangers supported by the other girder which severally support the opposite ends of said tiles and tie-rods extending between and connecting said tile-engaging girder and hangers.

4. A fire-arch comprising longitudinally-arranged tiles provided at both ends with notches, two transverse supporting-girders, one of which is provided with a flange engaging the notches at one end of the tiles, and hangers connected with the other girder and having horizontal lower arms which engage the notches at the other ends of the several tiles.

5. A fire-arch comprising longitudinally-arranged tiles, provided at both ends with notches, two girders provided with bottom flanges which extend in the same direction from the webs thereof, the flange of one of said girders engaging the notches in the ends of the tiles adjacent thereto, and hangers both ends of which have horizontal arms extending in the same direction, and the upper and lower arms of which are engaged with the flange of the other girder and also with the recesses at the other ends of the tiles, and means for holding engaged the hangers and girder with the tiles.

6. A fire-arch comprising longitudinally-arranged tiles, front and rear transverse girders, of which the rear girder engages the rear parts of the tiles, and hangers supported by the front girder and engaging the front parts of the tiles, and a fire-wall supported on the rear girder between the same and the furnace.

7. A fire-arch comprising longitudinally-arranged tiles, front and rear transverse girders, one of which directly supports one end of each tile, hangers supported by the other girder, and severally supporting the opposite ends of said tiles, each of said tiles being provided at its rear end with a projection extending rearwardly past the rear girder and a fire-wall occupying the space above said projections of the tiles and in rear of the rear girder.

8. A fire-arch comprising longitudinally-arranged tiles, each of which

is provided in its forward and rear ends with inwardly-extending notches, and has at its rear end a lower, rearwardly-extending portion, front and rear transverse girders provided with bottom flanges, the flange of the rear girder being engaged with the notches in the rear ends of the tiles, hangers engaging the flange of the forward girder and engaged at their lower ends with the notches in the forward ends of the tiles, and a fire-wall supported on the rear girder and extending downwardly to the lower rearwardly-projecting parts of the tiles.

9. A fire-arch comprising longitudinally-arranged tiles, each of which is provided at its forward and rear ends with inwardly-extending notches, front and rear transverse girders provided with bottom flanges, the flange of the rear girder being engaged with the notches in the rear ends of the tiles, hangers engaging the flange of the forward girder and engaged at their lower ends with notches in the forward ends of the tiles, said rear girder being provided with an upwardly-facing ledge and fire-brick supported on said ledge and engaged with the rear ends of the arch tiles.

10. A fire-arch comprising a plurality of longitudinally-arranged tiles which are each transversely divided into a plurality of sections, transverse supporting-girders one of which directly supports one end of each tile, hangers supported by the other girder which severally support the opposite ends of said tiles, and means for holding engaged the hangers and girder with the tiles.

11. A fire-arch comprising a plurality of longitudinally-arranged tiles which are each transversely divided into a plurality of sections, transverse supporting-girders one of which directly supports one end of each tile, hangers supported by the other girder which severally support the opposite ends of said tiles, two or more of said sections of each tile being made duplicate and interchangeable, and means for holding engaged the hangers and girder with the tiles.

12. A fire-arch comprising a plurality of longitudinally-arranged tiles which are each transversely divided into a plurality of sections, transverse supporting-girders, one of which directly supports one end of each tile, hangers supported by the other girder which severally support the opposite ends of said tiles, the abutting ends of said sections being provided with registering notches which form, when the sections are assembled, key-openings, keys in said openings, and means for holding engaged the hangers and girder with the tiles.

697,659. AUTOMATIC AIR-MOUNTING APPARATUS. WILLIAM W. PRATT, Chicago, Ill. Filed June 26, 1899. Renewed Sept. 13, 1901. Serial No. 73,945. (No model.)



Claim.—1. In apparatus of the character described, the combination with a radiator, or the like, an evaporator, and a fluid-passage connecting said evaporator and radiator, of means for automatically regulating the flow of fluid through said passage, comprising a valve, and a float within said evaporator connected with and operating said valve, substantially as and for the purpose set forth.

2. In apparatus of the character described, the combination with a radiator, or the like, and an evaporator, of a pipe within said evaporator and in communication with said radiator and serving to conduct fluid from the radiator, a valve controlling the discharge from said pipe, and a float within said evaporator for moving said valve, substantially as and for the purpose set forth.

3. In apparatus of the character described, the combination with a radiator, or the like, of an evaporator, a pipe within said evaporator above the water-level and in communication with said radiator and serving to conduct fluid from the radiator, a valve controlling the discharge from said pipe, and a float for moving said valve to close it when the water reaches a predetermined level, substantially as and for the purpose set forth.

4. The combination with a radiator, or the like, an evaporator vessel resting on the top thereof and mounted thereon, of a pipe within said evaporator and projecting past an end of the radiator, an automatically-operated

valve connected with said pipe, and means of communication between said pipe and radiator end, substantially as and for the purpose set forth.

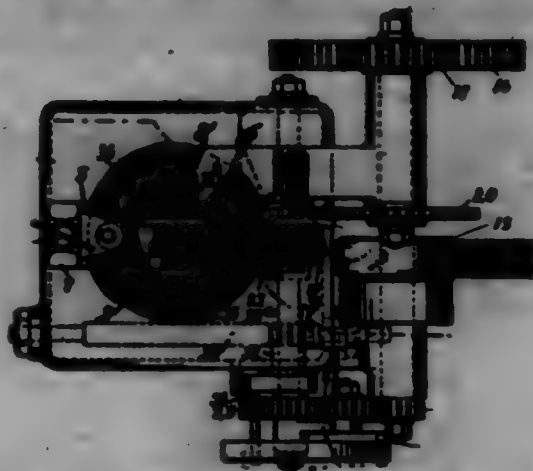
5. The combination with a steam-radiator, or the like, and an evaporator vessel, of a pipe within said vessel having its discharge end below the normal water-level and in communication at its opposite end with said radiator, an automatically-operated valve for regulating the discharge from said pipe and determining the normal water-level, and a check-valve in the course of said pipe for preventing back siphonage in case of a vacuum in said radiator, substantially as and for the purpose set forth.

6. The combination with a radiator, of an evaporator vessel, a pipe communicating with said vessel and having its discharge end beneath the water-level of said vessel, a float-controlled valve regulating the steam-flow, and a union *H* joining said pipe to said radiator and provided with a check-valve *G* and screw-valve *F*, substantially as and for the purpose set forth.

7. The combination with a radiator of the form described, of an evaporator vessel having a longitudinally-hollowed bottom conforming to the radiator-top and provided at its ends with downward extensions for securing it to the radiator, curved *F* projecting inwardly from said extensions into the air-space *a* of the radiator, a pipe within said vessel communicating with said radiator, and a valve for controlling the steam-passage through said pipe, substantially as and for the purpose set forth.

8. The combination with a radiator *A*, of an evaporator vessel *B* provided at its top with perforations and guides, a slide provided with perforations capable of registering with said first-named perforations, and valve-controlled pipe communication between said vessel and radiator, substantially as and for the purpose set forth.

697,660. WINDING-MACHINE. MICHAEL I. PUGH, New York, N. Y., and SAMUEL W. BALAN, Montreal, N. J. Filed Aug. 21, 1901. Serial No. 73,955. (No model.)



Claim.—1. In a machine for winding wire on annular cores, the combination of a wire carrying and winding device, a movable clamp for the annular core, a fixed bearing for the clamp, and a motion-transmitting mechanism geared with the wire carrying and winding device and with the clamp for the annular core, substantially as described.

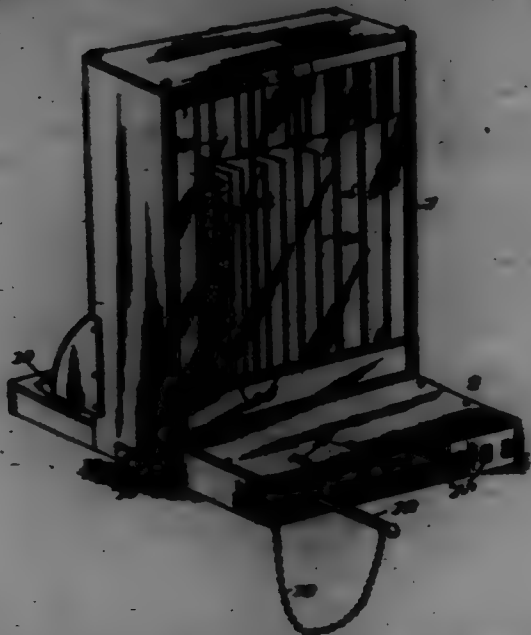
2. In a machine for winding wire on annular cores, the combination of a wire carrying and winding device, a fixed bearing for the wire carrying and winding device, a movable clamp for the annular core, a fixed bearing for the clamp, and a motion-transmitting mechanism geared with the wire carrying and winding device and with the clamp for the annular core, substantially as described.

3. In a machine for winding wire on annular cores, the combination of a wire carrying and winding device, a movable clamp for the annular core, a fixed bearing for the clamp, and a motion-transmitting mechanism geared with the wire carrying and winding device and through a reversing mechanism with the clamp for the annular core, substantially as described.

4. In a machine for winding wire on annular cores, the combination of a wire carrying and winding device, a movable clamp for the annular core, a fixed bearing for the clamp, a motion-transmitting mechanism geared with the wire carrying and winding device and through a reversing mechanism with the clamp for the annular core, a quick-acting device for throwing the reversing mechanism, and a slow-acting device operatively connected to the clamp for the annular core and operating to throw the quick-acting device into engagement, substantially as described.

5. In a machine for winding wire on annular cores, the combination of a wire carrying and winding device, a motion-transmitting mechanism geared therewith, a clamp on the wire carrying and winding device for the end of the wire while being wound thereon, and means for releasing the clamp while the wire is on the wire carrying and winding device, substantially as described.

697,661. AUTOMATIC VENDING-MACHINE. JAMES J. REED,
New Philadelphia, Ohio. Filed Apr. 13, 1901. Serial No. 65,780. (No
model.)



Claim.—A vending-machine comprising a cabinet having a series of vertical magazines provided at their upper ends with means for supporting packages containing the articles to be vended, some of the magazines being vertically subdivided below the packages to separate the goods into groups, an independent coin-actuated mechanism for each compartment, comprising a plunger, certain of the plungers having spaced portions to correspond with the subdivisions of the respective compartments in which they work, and a single operating-rod for actuation of any selected coin-actuated mechanism to effect a delivery of the goods, substantially as described.

697,662. COMBINATION SAFETY REGULATING AND DRAIN VALVE. ARTHUR E. REED, Lebanon, Pa. Filed Sept. 21, 1901. Serial No. 76,057. (No model.)



Claim.—1. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage therethrough closed in the absence of pressure, a regulating device for controlling said valve, said device being movable independently of said valve and arranged to project into the path of movement thereof, and means for varying the position of the regulating device to vary the extent to which the valve may open.

2. In a hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage therethrough closed in the absence of pressure, and a yielding regulating device for controlling said valve, said device being disconnected from said valve and arranged to project into the path of movement thereof and having a tendency under normal pressure to keep the valve closed.

3. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage therethrough closed in the absence of pressure, a yielding regulating device for controlling said valve, said device being movable independently of said valve and arranged to project into the path of movement thereof and having a tendency under normal pressure to keep the valve closed, and means for varying the position of the regulating device to vary the extent to which the valve may open.

4. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage therethrough closed in the absence of pressure, a movable pressure device disconnected from said valve and having a tendency under normal pressure to keep the valve closed, and means for varying the position of said pressure device to vary the extent to which the valve may open.

5. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage closed in the absence of pressure, a regulating device arranged to bear on said valve, said device being provided with a passage for normally maintaining atmospheric pressure on the valve, and means for varying the position of the regulating device to vary the extent to which the valve may open.

6. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage closed in the absence of pressure, and a yielding regulating device arranged to bear on said valve, said device being provided with a passage for normally maintaining atmospheric pressure on the valve.

7. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable main valve in said casing and arranged to keep the passage closed in the absence of pressure, a movable hollow regulating-valve seated on said main valve and having communication with the atmosphere, whereby atmospheric pressure is maintained on one side of said main valve, and means for varying the position of the regulating-valve.

8. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable main valve in said casing and arranged to keep the passage closed in the absence of pressure, and a freely-movable hollow regulating-valve adapted to be seated on said main valve and having communication with the atmosphere, whereby atmospheric pressure is maintained on one side of said main valve, said regulating-valve under normal pressure serving to keep the main valve closed.

9. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage closed in the absence of pressure, a regulating device disconnected from and lying in the path of movement of said valve, a counterweighted lever connected to said regulating device, and means for adjusting the position of said lever for varying the position of the regulating device.

10. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage closed in the absence of pressure, a regulating device disconnected from and projecting into the path of movement of said valve, and a dash-pot for controlling the movements of said regulating device.

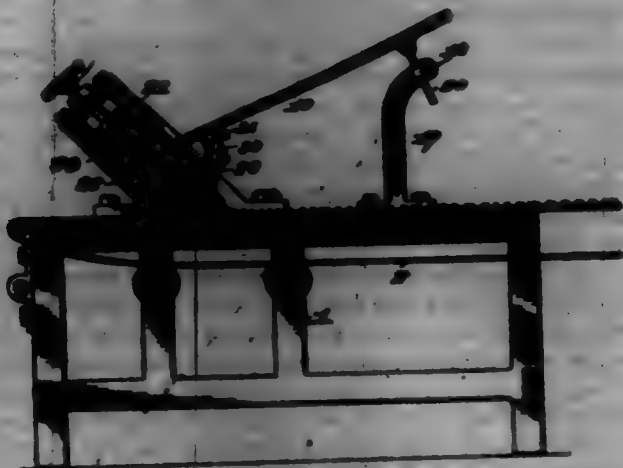
11. A hot-blast-regulating and safety valve for blast-furnaces designed to be placed in a by-pass from the cold-blast main to the hot-blast main, the same comprising a casing having a passage therethrough, a freely-movable valve in said casing and arranged to keep the passage closed in the absence of pressure, a guide and indicating rod connected to said valve and projecting through the valve-casing, a regulating device movable independently of said valve and projecting into the path of movement thereof, and means for varying the position of the regulating device to vary the extent to which the valve may open.

697,663. CRACKER-MACHINE. JOHN EMMERTSON, St. Louis, Mo. Filed Feb. 17, 1906. Serial No. 94,022. (No model.)

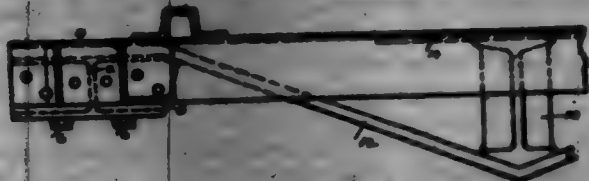
Claim.—1. In a cracker-machine, the combination of a pair of rolls, a carrier arranged to travel toward the forward end of the machine and extending rearwardly beyond the location of said rolls, and a delivery-table arranged forward of said rolls and from which the dough to be rolled is delivered to said rolls to pass therethrough in one direction and be deposited from said rolls onto said carrier in the opposite direction from that of its passage through the rolls, substantially as described.

2. In a cracker-machine, the combination of a pair of rolls, a carrier arranged to travel toward the forward end of the machine and extending rearwardly beyond the location of said rolls, a delivery-table arranged forward of said rolls and from which the dough to be rolled is

delivered to said rolls to pass through in one direction and to be deposited from said rolls onto said carrier in the opposite direction from that of its passage through the rolls, and a knife adapted to bear against the lowermost of said rolls and separate the dough therefrom and cause it to fall upon said carrier beneath said roll, substantially as described.



697,664. TRUNK-ROLLER. RALPH V. BARR, Johnstown, Pa.
Filed Oct. 18, 1906. Serial No. 78,814. (No model.)



Claim.—1. An improved roller of the class described, comprising a body portion and a tie-bar fitted together at their ends, and a separate hollow malleable cast member provided with longitudinal and transverse partitions and with lugs at the bottom to receive the roller-springs and secured below the tie-bar at the joint, said separate member having its upper surface curved complementary to the under surface of the tie-bar adjacent to its ends to form a bearing-surface for each tie-bar whereby the strain is taken partly off the rivets and borne by said separate member.

2. An improved roller of the class described, comprising a flanged body portion, a tie-bar having its ends fitted against the base of the body portion between a pair of its flanges, a center strut composed of a section of an I-beam, and a hollow malleable casting having its top fitted against the lower face of the tie-bar at the joint and having its upper surface curved complementary to the under surface of the tie-bar adjacent to its ends to form a bearing-surface for each tie-bar whereby the strain is taken in part by each casting, rivets extending through the body portion, the tie-bar and the top of the casting, and rivets extending through the flanges of the body portion and the sides of the casting.

697,665. STOVE-FIXTURE. HENRY E. BARRETT, Chicago, Ill.
Filed July 14, 1906. Serial No. 58,606. (No model.)

Claim.—1. In a display-rack for merchandise, the combination with a suitable supporting rack or cabinet provided with supporting ropes or cables, of a shaft provided with a pair of pulleys keyed to said shaft and cooperating with said ropes, one of said pulleys having a recess and an auxiliary controlling-pulley having a belt horizontally movable therein and adapted to engage one of said fixed pulleys, means to normally throw said belt into engagement with the recess in said fixed pulley, a fixed bracket upon the opposite side of the movable pulley having a recess corresponding to the location of said belt and additional means to overcome the normal tendency of said belt and thrust it into the recess in said bracket as desired by the operator all combined substantially as specified and for the purpose set forth.

2. The herein-described controlling mechanism for display-racks comprising a shaft 22, a pair of fixed pulleys keyed thereon, one of said pulleys having a recess, means supported from said pulleys, an auxiliary pulley having a belt adapted to normally engage the recess in said fixed pulley, a bracket having a recess opposite said belt and a cam-controlling belt, means for moving the cam at right angles to said first-mentioned belt whereby the said auxiliary and fixed pulleys may be locked together substantially as described.

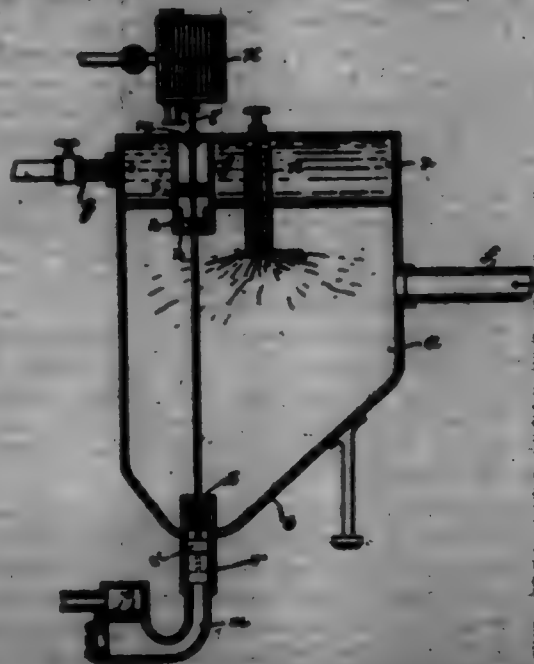
3. In a display-rack, the combination with a rotatable shaft, a pulley fixed thereon and having a recess parallel with its shaft, a bracket with a recess in alignment with that of the pulley, a pulley loose on said

shaft and having a recess in alignment with the recess of the fixed pulley and a recess at right angles thereto, a belt movable in the first-mentioned recess, a belt movable at right angles thereto, a fixed support for the last-mentioned belt and a spring acting on said belt and a rack suspended from said pulleys substantially as described.



4. The combination with a spring-actuated shaft and a pulley thereon having an aperture, of a belt adapted to engage in said aperture, a spring-actuated rope-controlled belt, movable at right angles to said first-mentioned belt, a fixed support therefor, a bracket having an aperture in line with the aperture of the pulley, a spring acted in the pulley and acting on the first-mentioned belt and a controlling-rope and hoisting and lowering ropes for the rack wound upon said pulleys, all substantially as herein shown and described.

697,666. CONDENSER. FREDERICK BARRETT, Chicago, Ill.
Filed Feb. 8, 1906. Serial No. 61,657. (No model.)



Claim.—1. A condensing apparatus provided with a vacuum-pump with the open end of its cylinder projecting into the condensing-chamber, means being provided for establishing communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at one end of its stroke, whereby as the piston is returned the air admitted to the cylinder may be forced out, substantially as described.

2. A condensing apparatus provided with a vacuum-pump with the open end of its cylinder projecting into the condensing-chamber, means being provided for establishing communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at one end of its stroke, whereby as the piston is returned the air admitted to the cylinder may be forced out, the head of the cylinder being provided with valve mechanism for permitting the egress of the air that is to be exhausted and preventing the ingress of atmospheric air, substantially as described.

3. In a condensing apparatus, the combination with a condensing-chamber, of a pump-cylinder through which the condensed fluid may be forced, the pump-cylinder being provided with communicating means affording communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at the corresponding end of its stroke, whereby fluid may pass from the condensing-chamber into the cylinder, whereupon said fluid may be forced away upon the reverse reciprocation of the piston, a vacuum-pump in direct communication with the condensing-chamber, and a common actuating device for effecting the operation of the vacuum and fluid pumps, substantially as described.

4. In a condensing apparatus, the combination with a condensing-chamber, of a pump-cylinder through which the condensed fluid may be forced, the pump-cylinder being provided with communicating means affording communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at the corresponding end of its stroke, whereby fluid may pass from the condensing-chamber into the cylinder, whereupon the said fluid may be forced away upon the reverse reciprocation of the piston, a vacuum-pump having its cylinder communicating directly with the interior of the condensing-chamber, and a common actuating device for effecting the operation of the vacuum and fluid pumps, substantially as described.

5. In a condensing apparatus, the combination with a condensing-chamber, of a pump-cylinder through which the condensed fluid may be forced, the pump-cylinder being provided with communicating means affording communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at the corresponding end of its stroke, whereby fluid may pass from the condensing-chamber into the cylinder, whereupon the said fluid may be forced away upon the reverse reciprocation of the piston, a vacuum-pump with its cylinder projecting into the condensing-chamber, means being provided for establishing communication between the interior of the condensing-chamber and the cylinder when the piston within the cylinder is at one end of its stroke, whereby as the piston is returned the air admitted to the cylinder may be forced out, and a common actuating device for effecting the operation of the vacuum and fluid pumps, substantially as described.

6. In a condensing apparatus, the combination with a condensing-chamber, of a pump located in communication with the bottom of said condensing-chamber for withdrawing the water of condensation, and a separate vacuum-pump located at the top of said condensing-chamber for exhausting the air, and means whereby both of said pumps may be operated by the same prime mover, substantially as described.

7. A condensing apparatus provided with a condensing-chamber, a vacuum-pump having the open end of its cylinder in direct communication with the condensing-chamber, and means independent of said vacuum-pump for withdrawing condensed fluid from said condensing-chamber, substantially as described.

8. A condensing apparatus provided with a condensing-chamber, a vacuum-pump having the open end of its cylinder communicating directly with the interior of the condensing-chamber, and means independent of said vacuum-pump for withdrawing the liquid of condensation from said condensing-chamber, substantially as described.

9. A condensing apparatus provided with a condensing-chamber, a vacuum-pump in direct communication with the condensing-chamber, means independent of said vacuum-pump for effecting a withdrawal of fluid of condensation from said condensing-chamber, and a reservoir partially inclosing said vacuum-pump through which condensing liquid is adapted to pass, substantially as described.

10. A condensing apparatus provided with a condensing-chamber, a vacuum-pump having its cylinder communicating directly with the interior of the condensing-chamber, means independent of said vacuum-pump for effecting a withdrawal of fluid of condensation from said condensing-chamber, and a reservoir partially inclosing said vacuum-pump through which condensing liquid is adapted to pass, substantially as described.

11. A condensing apparatus provided with a condensing-chamber, a vacuum-pump in direct communication with the condensing-chamber, means independent of said vacuum-pump for effecting a withdrawal of fluid of condensation from said condensing-chamber, a reservoir partially inclosing said vacuum-pump through which condensing liquid is adapted to pass, and means in communication with said reservoir for spraying condensing liquid into said condensing-chamber, substantially as described.

12. A condensing apparatus provided with a condensing-chamber, a vacuum-pump having its cylinder communicating directly with the interior of the condensing-chamber, means independent of said vacuum-pump for effecting a withdrawal of fluid of condensation from said condensing-chamber, a reservoir partially inclosing said vacuum-pump through which condensing liquid is adapted to pass, and means in communication with said reservoir for spraying condensing liquid into said condensing-chamber, substantially as described.

13. In a condensing apparatus, the combination with a condensing-chamber, of pumping means located at the top of and in communication with said condensing-chamber into which air is adapted to enter which is thereafter removed therefrom through the agency of said pumping means, a pump into which liquid of condensation is adapted to enter to be thereafter removed therefrom through the agency of said pumping mechanism, and means for simultaneously operating both pumps, substantially as described.

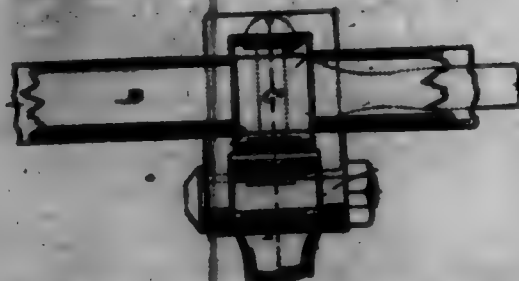
14. In a condensing apparatus, the combination with a condensing-chamber, of a pump located at the top of and projecting into said condensing-chamber, and a piston for said pump one end of said pump-cylinder being in constant communication with the said condensing-chamber, the remaining end of said cylinder being adapted for periodic communication with the said condensing-chamber, substantially as described.

15. In a condensing apparatus, the combination with a condensing-chamber, of a pump located at the top of and projecting into said condensing-chamber, a piston for said pump, one end of said pump-cylinder being in constant communication with the said condensing-chamber, the remaining end of said cylinder being adapted for periodic communication with the said condensing-chamber, and pumping means for removing condensed liquid from said condensing-chamber, substantially as described.

16. The combination with a condensing-chamber, of a vacuum-pump having its cylinder projecting within the condensing-chamber, a reservoir for condensing liquid, inclosing the said vacuum-pump, means for spraying the condensing liquid into the condensing-chamber, and a pump for effecting the egress of liquid of condensation from the said condensing-chamber, substantially as described.

17. The combination with a condensing-chamber, of a vacuum-pump having its cylinder projecting within the condensing-chamber, a reservoir for condensing liquid, inclosing the said vacuum-pump, means for spraying the condensing liquid into the condensing-chamber, a pump for effecting the egress of liquid of condensation from the said condensing-chamber, and means for effecting a simultaneous operation of both pumping means, substantially as described.

897,867. THILL-COUPLES. WALTER F. SHAWVER, Schenectady, N. Y. Filed Jan. 26, 1901. Renewed Jan. 14, 1902. Serial No. 28,778. (No model.)



Claim.—1. In an adjustable thill-coupling, the combination with clip C having the lower ends of its links, respectively, provided with a pivot-hole which is in alignment with that of the other, and having integral with one of said links forwardly-projected perforated lugs adapted to receive between them a thill-iron, of a tie-plate having vertical perforations through which the perforated end portions of said links of the clip freely pass to a distance above the pivot perforations therein, a cam provided with an arm for operating it in either direction and having through it a suitable pivot-receiving perforation, and a pivot through the perforations in the lower ends of the links of the clip and said cam, as set forth.

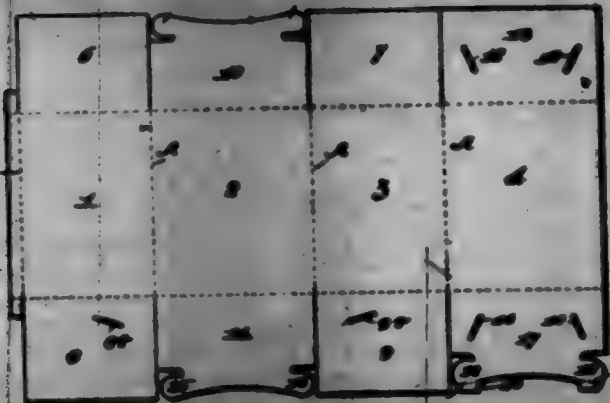
2. In an adjustable thill-coupling the combination with clip C having a recessed seat in its bow portion from its under side, and having integral with one of its vertical links a pair of perforated lugs between which a thill-iron may be received, and having in the lower end of each link a pivot-hole, said a pivot supported from said holes in said links, of a tie-plate having vertical perforations receiving the lower ends of said links of the clip, a cushion in the recessed form-seat in the bow portion of the clip and a cam pivoted between the lower ends of the links of the clip and below the said tie-plate and adapted to be operated as to force the latter upward in direction toward the said bow of the clip and at pleasure operated in reversed direction for allowing said tie-plate to move downward in direction from said bow, as set forth.

3. In an adjustable still-coupling the combination with clip *C* having in its lower portion a recessed seat, and having in the lower ends of its side limbs perforations in alignment, and a cushion in said seat adapted to prevent the said bow portion of the clip moving the axle-bed at said bow portion, of a tie-plate provided with vertical perforations through which the perforated lower end portions of the said limbs of the clip are freely passed, an elastic cushion between the said tie-plate and the bow portion of the clip, and a cam provided with a suitable operating-arm between the perforated lower ends of the said limbs of the clip and below the tie-plate, and a pivot holding said cam jointed on said lower portions of said limbs, as set forth.

4. In an adjustable still-coupling, the combination with clip *C* having in the lower ends of its side limbs perforations which are in alignment, a tie-plate provided with vertical perforations which freely receive the said lower end portions of said limbs, and having in its upper side and between the said vertical perforations a recessed seat, of an elastic cushion seated in said seat, a cam provided with an operating-arm and a pivot jointing said cam on the lower ends of the said limbs of the clip, the cam being adapted to be operated at pleasure to force said tie-plate toward the bow of said clip and said cushion being adapted to move said tie-plate in opposite direction, as set forth.

5. The combination with an axle of a vehicle, of a pair of perforated lugs for receiving between them a still-iron, a clip holding said lugs connected to the axle, a tie-plate provided with vertical openings which freely allow the lower end portions of the limbs of the clip to have passage through the said tie-plate, a cam provided with an operating-arm, a pivot pivoting said cam between the lower ends of said clip-limbs and beneath said tie-plate and adapting the said cam to force the said tie-plate upward for clamping the axle and at pleasure loosening the same and an elastic cushion adapted to force said tie-plate, when loosened, to move relatively down toward the pivot of said cam as set forth.

697,668. PAPER BOX. FRANK J. SCHLESINGER, St. Louis, Mo., assignor to the St. Louis Paper Box Company, St. Louis, Mo., a Corporation. Filed Dec. 24, 1900. Serial No. 69,000. (No model.)



Claim.—1. A box comprising side walls, flaps forming an end wall, a portion of said flaps being provided with a slit, and one of said flaps being provided within the side edges thereof with a tongue having a rounded corner on one side, and an auxiliary folding tongue projecting forwardly from the other side of the main tongue and in a line therewith.

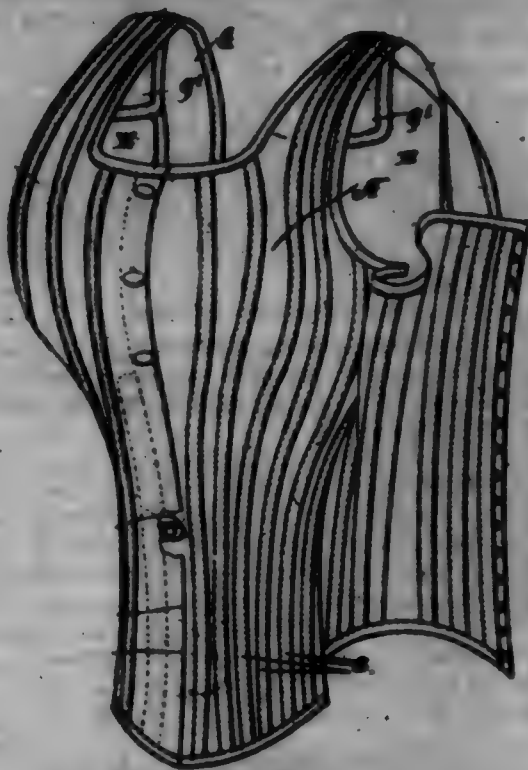
2. A box comprising side walls, flaps forming an end wall, a portion of said flaps being provided with slits, and one of said flaps being provided within the side edges thereof with main tongues curved upon opposite sides of said flaps and extending outwardly therefrom, each main tongue having a rounded corner on one side and an auxiliary folding tongue projecting forwardly from the other side of the main tongue, and in a line therewith.

3. A box comprising side walls, flaps forming an end wall of the box, a portion of said flaps being provided with slits; and one of said flaps having in its free corners provided within the side edges thereof with tongues extending outwardly therefrom in opposite directions and a cut-away portion extending from one tongue to the other.

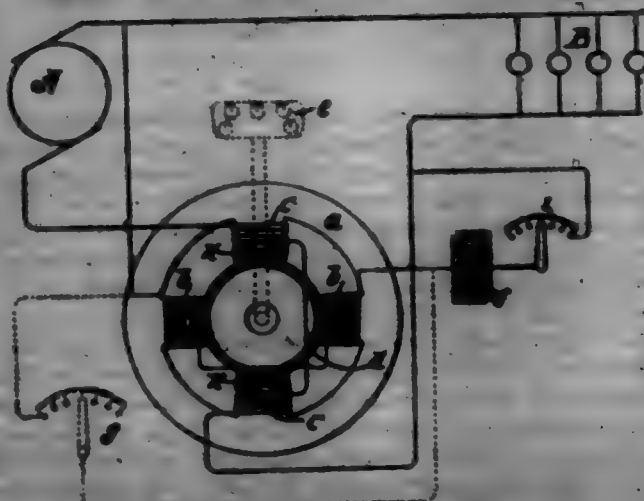
4. A box comprising side walls; two flaps disposed opposite one another on one end of the side walls and provided with slits; a third flap provided with slits and having main tongues curved upon opposite sides of the flap and extending outwardly therefrom; each main tongue having a rounded corner on one side and an auxiliary folding tongue projecting forwardly from the other side of the main tongue and in a line therewith; and a fourth flap curved opposite the third flap and having tongues adapted to enter the slits in said third flap.

697,669. COMBINED CURRENT AND BURN-FORM. CHARLES E. SHERMAN, Aurora, Ill. Filed June 14, 1900. Serial No. 59,300. (No model.)

Claim.—A garment comprising a lower tight-fitting or corset portion and an upper loose or bust-form portion, and consisting of two halves or sections adapted to be joined together at their rear, and detachably joined at their front edges, and which are provided at the sides of their front portions with shoulder extensions terminating in shoulder-stays, said sections being provided with vertical stays and in their upper or bust portions with transverse stiffening-strips which form with the stays a stiffening means by which the loose bust portions of the sections are held in shape; said vertical stays in the front part of the sections being extended from bottom to top of the sections through said bust portions and to the upper ends of the shoulder extensions to afford continuous stiffened connection between the said bust portion and both the lower corset portion and the stiffened shoulder extensions, and said sections being also provided, at the front edges of the lower corset portions thereof, with studs and eyes, or like fastenings, which are held in engagement by the tension of the parts when drawn around the body and at the front edges of the upper or bust-form portions thereof with detachable fastenings adapted to hold said edges from spreading apart and also from overlapping under external pressure on the form tending to collapse the same.



697,670. ALTERNATING-CURRENT MOTOR. FRANK SCHMIDTKE, Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 9, 1900. Serial No. 590. (No model.)



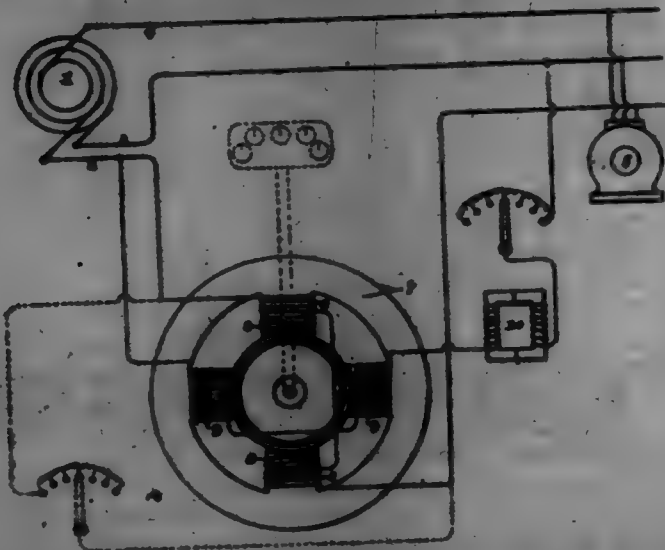
Claim.—1. In an alternating-current system of distribution, the combination with an alternating-current generator, of transmission means, a voltmeter for measuring the energy of said system of distribution, said motor comprising a series field-coil for creating a field varying in phase and magnitude with the current of the said system, a closed circuit conductor associated with said series field-coil and receiving its current solely by induction for causing the phase of the field due thereto to lag with respect to the current in the system, a pressure field-winding adapted for induction with said system, and means for causing the phase of the field due thereto to lead with respect to the pressure of the system, whereby

a phase rotation of substantially ninety degrees is obtained between the series and pressure fields, substantially as described.

2. In an alternating-current system of distribution, the combination with an alternating-current generator, of transmission means, a wattmeter for measuring the energy of said system of distribution, said meter comprising a series field-coil for creating a field varying in phase and magnitude with the current of the said system, a closed-circuited conductor associated with said series field-coil and receiving its current solely by induction for causing the phase of the field due thereto to lag with respect to the current in the system, a pressure field-winding adapted for induction with said system, and a condenser in series with said pressure field-winding for causing the phase of the field due thereto to lead with respect to the pressure of the system, whereby a phase rotation of substantially ninety degrees is obtained between the series and pressure fields, substantially as described.

3. In an alternating-current system of distribution, the combination with an alternating-current generator, of transmission means, a wattmeter for measuring the energy of said system of distribution, said meter comprising a series field-coil for creating a field varying in phase and magnitude with the current of the said system, a closed-circuited conductor associated with said series field-coil and receiving its current solely by induction for causing the phase of the field due thereto to lag with respect to the current in the system, a pressure field-winding adapted for induction with said system, a condenser in series with said pressure field-winding for causing the phase of the field due thereto to lead with respect to the pressure of the system, whereby a phase rotation of substantially ninety degrees is obtained between the series and pressure fields, and an adjusting impedance in circuit with said pressure-field-winding circuit, substantially as described.

697,671. ALTERNATING-CURRENT METER. FRANK SCHMIDTKE, Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Feb. 12, 1900. Serial No. 4,500. (No model.)



Claim.—1. In a wattmeter for balanced three-phase systems of distribution, the combination with a movable measuring element, of a series winding inductively associated with said movable measuring element, a pressure-winding also inductively associated with said movable measuring element, and a closed-circuited secondary winding receiving its current inductively from said series winding, the magnetic field due to the said pressure-winding being displaced nearly ninety degrees from its impressed pressure, substantially as described.

2. In a wattmeter for balanced three-phase systems of distribution, the combination with a movable measuring element, of a series winding inductively associated with said movable measuring element, a pressure-winding also inductively associated with said movable measuring element, and a short-circuited secondary winding receiving its current inductively from said series winding, the magnetic field due to the said pressure-winding being displaced nearly ninety degrees from its impressed pressure, substantially as described.

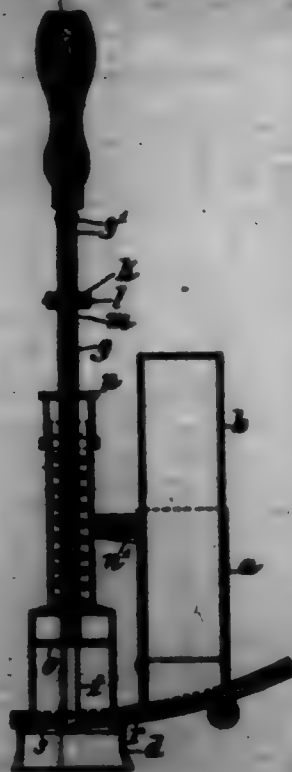
3. In a wattmeter for balanced three-phase systems of distribution, the combination with a movable measuring element, of a series winding inductively associated with said movable measuring element, a pressure-winding also inductively associated with said movable measuring element, a short-circuited secondary winding receiving its current inductively from said series winding, the magnetic field due to the said pressure-winding being displaced nearly ninety degrees from its impressed pressure, and an impedance-winding in circuit with said pressure-winding, substantially as described.

4. In a balanced three-phase system of distribution, the combination with a source of current, of a wattmeter comprising a movable measuring element, a series winding inductively associated with said movable measuring element, a closed-circuited secondary winding for said series winding, and a pressure-winding also in inductive relation with said movable measuring element and receiving its current from the conductor of the system including the series winding and one of the remaining conductors, substantially as described.

5. In a balanced three-phase system of distribution, the combination with a source of current, of a wattmeter comprising a movable measuring element, a series winding inductively associated with said movable measuring element, a closed-circuited secondary winding for said series winding, a pressure-winding also in inductive relation with said movable measuring element and receiving its current from the conductor of the system including the series winding and one of the remaining conductors, and an impedance-winding in series with said pressure-winding, substantially as described.

6. In a balanced three-phase system of distribution, the combination with a source of current, of a wattmeter comprising a movable measuring element, a series winding inductively associated with said movable measuring element, means for lagging the phase of the effective magnetic field due to said series winding, and a pressure-winding also in inductive relation with said movable measuring element and receiving its current from the conductor of the system including the series winding and one of the remaining conductors, substantially as described.

697,672. BOTTLE-CAPPING MACHINE. WILLIAM H. SHERT, Ottawa, Canada. Filed Nov. 2, 1891. Serial No. 32,300. (No model.)



Claim.—1. In a bottle-capping machine, the combination of a base, a cap-receiver mounted upon said base, a plunger, a casing mounted upon said base to support the plunger, a foot-slide supported by said base and operatively connected with the plunger to transfer the lowermost cap in the receiver into position beneath the plunger and two flat, spring-fingers vertically disposed within said casing on opposite sides of the path of the foot-slide to receive and yieldingly hold the cap transferred by the foot-slide, substantially as shown and described.

2. In a bottle-capping machine, the combination of a base, a cap-receiver mounted upon said base, a plunger, a casing mounted upon said base and supporting the plunger, a foot-slide supported by said base and operatively connected with the plunger to transfer the lowermost cap in the receiver into position beneath the plunger, said slide having a forwardly-projecting tongue to support the cap, and two flat, spring-fingers vertically disposed within the casing on opposite sides of the path of the foot-slide to receive and yieldingly hold the cap when the slide and tongue are withdrawn, substantially as shown and described.

697,673. FRUIT-JAR. LEROY VAN SUREN, Louisville, Mo. Filed Nov. 27, 1891. Serial No. 32,300. (No model.)

Claim.—In a fruit-jar, the combination with a casing consisting of upper and lower sections, of an interposed screen-section having a pin-and-cocket connection with the upper and lower casing-sections, said

screen-section embodying three superposed screens, the intermediate one of which is removable, substantially as set forth.



697,674. AUTOMATIC TROLLEY-CATCHER. THOMAS E. SHANAHAN, Gloversville, N. Y. Filed Aug. 7, 1901. Serial No. 71,193. (No model.)



Claim.—1. An automatic trolley-catcher, consisting of a fixed casing or shell, a spring-controlled drum mounted to turn in the said shell or casing, the drum being adapted to carry one end portion of a trolley-pole rope, a spring-controlled barrel independently mounted within the said drum, means for laterally shifting the said drum, means from the drum and barrel, which means are brought in the path of each other when the drum is shifted in one direction, and locking device for the spring-controlled barrel, controlled by the shifting movement of the drum, for the purpose described.

2. An automatic trolley-catcher, consisting of a fixed casing or shell, a shaft, a drum mounted loosely on the said shaft and adapted to carry a portion of the trolley-pole rope, a spring secured to the shaft and to the drum, which spring is of sufficient strength to take up the slack of the trolley-pole rope, a barrel mounted on the said shaft within the drum, a spring within the said barrel, acting in the same direction as the spring in the drum, but of greater strength, extensions from the barrel and the spring-containing portion of the drum, which extensions are adapted to be brought one in the path of the other when the drum is shifted sideways, a spring-controlled bearing for one end of the shaft, having lugs which normally enter an opening in a side of the barrel, a cam carried by the shaft, having bearing against the drum, and a lever provided with a head having an inclined surface, which inclined surface is in engagement with the said cam, whereby through the movement of the lever the shaft upon which the barrel and drum are mounted is given and movement, as set forth.

3. An automatic trolley-catcher, consisting of a fixed casing or shell, a shaft, a drum mounted loosely on the said shaft and adapted to carry a portion of the trolley-pole rope, a spring secured to the shaft and to the drum, which spring is of sufficient strength to take up the slack of the trolley-pole rope, a barrel mounted on the said shaft within the drum, a spring within the said barrel, acting in the same direction as the spring in the drum but of greater strength, extensions from the barrel and the spring-containing portion of the drum, which extensions are adapted to be brought one in the path of the other when the drum is shifted sideways, a spring-controlled bearing for one end of the shaft, having lugs which normally enter an opening in a side of the barrel, a cam carried by the shaft, having bearing against the drum, a lever provided with a head having an inclined surface, which inclined surface is in engagement with

the said cam, whereby through the movement of the lever the shaft upon which the drum and barrel are mounted is given and movement, a spindle extending from the lever within the said shell or casing, the free end of the lever extending out through a slot in the said shell or casing, a friction-pulley carried by the said spindle and located over the peripheral portion of the drum, over which pulley the trolley-pole rope carried by the drum is adapted to pass, and a spring coiled around the said shaft, having bearing against the said barrel and against a partition in the drum, the spring serving normally to hold the barrel in position to be locked and its extensions out of the path of the extensions carried by the spring-section of the drum.

697,675. BI-CYCLES DRIVING-GEAR. ARTHUR E. SHANK, Union, Ohio. Filed Dec. 4, 1901. Serial No. 94,961. (No model.)



Claim.—1. In a bicycle or like machine, and in combination with the drive-wheel and crank-axis, a drive-shaft for transmitting motion from the crank-axis to the drive-wheel, the same composed of sections arranged out of line, and speed-gearing connecting the proximal ends of the drive-shaft sections, substantially as set forth.

2. In a bicycle or like machine, the frame having a lower side run composed of tubular sections arranged out of line, rigid connection between the proximal ends of the said sections, the drive-wheel and crank-axis, a drive-shaft between the drive-wheel and crank-axis composed of parts passing through the respective sections of the aforementioned side run, and speed-gearing connecting the proximal ends of the drive-shaft sections, substantially as set forth.

3. In a bicycle or like machine, the frame having its lower side run composed of tubular sections arranged out of line, a fork rigidly attached to the rear end of a section and having the rear end of its upper member connected with the lower end of the proximal rear fork member, yokes connecting the upper and lower fork members at their rear ends and intermediate of their ends, the intermediate yokes forming a brace for the rear portion of the aforementioned side run, the drive-wheel and crank-axis, a sectional drive-shaft between the drive-wheel and crank-axis and having its parts located within the sections of the aforementioned side run, and speed-gearing connecting the proximal ends of the drive-shaft sections, substantially as specified.

697,676. TYPE-WRITING MACHINE. CHARLES E. SHAFER, Brooklyn, N. Y., assignor to Wyckoff, Seaman & Denodet, Inc., N. Y., a Corporation of New York. Filed Jan. 2, 1901. Serial No. 48,513. (No model.)

Claim.—1. In a type-writing machine, the combination of a carriage, a feeding-rack and platen therefor, a pivoted lever, and means co-operating with said lever for effecting minute longitudinal adjustment of the platen relatively to the feed-rack.

2. In a type-writing machine, as a means for adjusting the paper, the combination of a carriage, a feeding-rack therefor, a lever and cam interposed between said rack and carriage for adjusting one relatively to the other.

3. In a type-writing machine, the combination of a carriage, a feeding-rack therefor, a cam supported upon one of said carriage-and-rack elements, and a co-operating shoe pivoted upon the other of said carriage-and-rack elements.

4. In a type-writing machine, as a means for adjusting the paper, the combination of a carriage, a feeding-rack therefor, an intermediate cam, a set of ratchet-teeth, and a pawl.

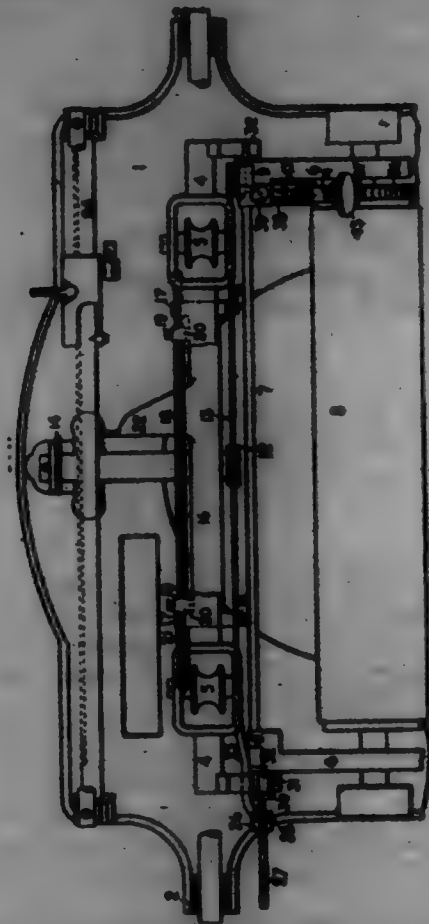
5. In a type-writing machine, the combination of a carriage, a feeding-rack therefor, an intermediate pivoted cam whose working edge is provided with ratchet-teeth, and a pawl adapted to said teeth.

6. In a type-writing machine, the combination of a carriage, a feeding-rack therefor, an intermediate pivoted cam-lever whose working edge is provided with ratchet-teeth, and a pivoted shoe opposed to said cam, one point of said shoe being adapted to enter said teeth to detain said cam-lever in its adjusted position.

7. In a type-writing machine, the combination of a carriage, means for adjusting said carriage through minute distances in later-space direction and holding it in its adjusted position, and means for automatically releasing the carriage from the control of said adjusting means.

8. In a type-writing machine, the combination of a carriage, means for adjusting said carriage through minute distances in later-space direc-

tion, and means operating automatically at the return of the carriage to the beginning of the line, for releasing said carriage from the control of said adjusting means.



9. In a type-writing machine, the combination of a carriage, a feed-rack therefor, said carriage being movable relatively to said rack in a longitudinal direction, a cam-lever having ratchet-teeth and mounted upon said rack, a pawl mounted upon said carriage, and a stop for arresting said rack during the final portion of the return movement of the carriage for beginning a new line, whereby said cam-lever and said pawl are separated.

10. In a type-writing machine, the combination of a carriage, also 20 pivoted thereon, a rack relatively to which said carriage is movable, lever 27 pivoted upon said rack and having teeth 29 formed upon its working end edge 24, steps 27' and 25 upon said lever, and stop 23 for arresting said rack.

11. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a spring-pressed detent for said wheel and which is normally in contact therewith, and means for adjusting the spring of said detent through minute distances.

12. In a type-writing machine, the combination of a carriage, a feed-rack which is carried by said carriage, the carriage and feed-rack being movable independently one of the other in the direction of the travel of the carriage and hand-operated means for adjusting the carriage relatively to the feed-rack and in the direction of the travel of the carriage for fractions of a letter-space distance.

13. In a type-writing machine, the combination of a carriage, a feed-rack which is carried by said carriage, the carriage and feed-rack being movable independently one of the other in the direction of the travel of the carriage, hand-operated means for adjusting the carriage relatively to the feed-rack and in the direction of the travel of the carriage for fractions of a letter-space distance, and means for automatically restoring the carriage and rack to their normal relative positions when the carriage is restored to the right to begin a new line of writing.

14. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a detent which is normally in contact with said wheel, a spring which carries said detent, and a screw for adjusting said spring.

15. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a platen-frame, an extensible spring-arm mounted upon said platen-frame, and a detent carried upon the free end of said arm and engaging said line-space wheel.

16. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a spring-arm, a detent thereon, and a screw upon said arm for moving said detent minute distances.

17. In a type-writing machine, the combination of a platen, a line-space wheel, spring-arm 20, a portion of which is bent into U form, detent-collar 27, and transverse screw 43.

18. In a type-writing machine, the combination of a platen, a line-space wheel, spring-arm 20, a portion of which is bent into U form, detent-collar 27, transverse screw 43, and steps 45 and 42.

19. In a type-writing machine, the combination of a platen, a line-space wheel, spring device 20, 40, 41, 42, detent-collar 27, screw 43, screw 45, nut 46, and nut 47.

20. In a type-writing machine, the combination of a platen, a carriage, means for adjusting said carriage through fractions of a letter-space distance in the direction of the travel of the carriage and means for adjusting said platen through fractions of a line-space distance circumferentially, whereby the paper upon the platen may be adjusted in two directions relatively to the printing-center.

21. In a type-writing machine, the combination of a platen, a carriage therefor, hand-operated means for adjusting the carriage in the direction of its travel through fractions of a letter-space distance, and independent hand-operated means for turning the platen fractions of a line-space distance, whereby the platen may be adjusted in two directions at right angles to each other and relatively to the printing-point.

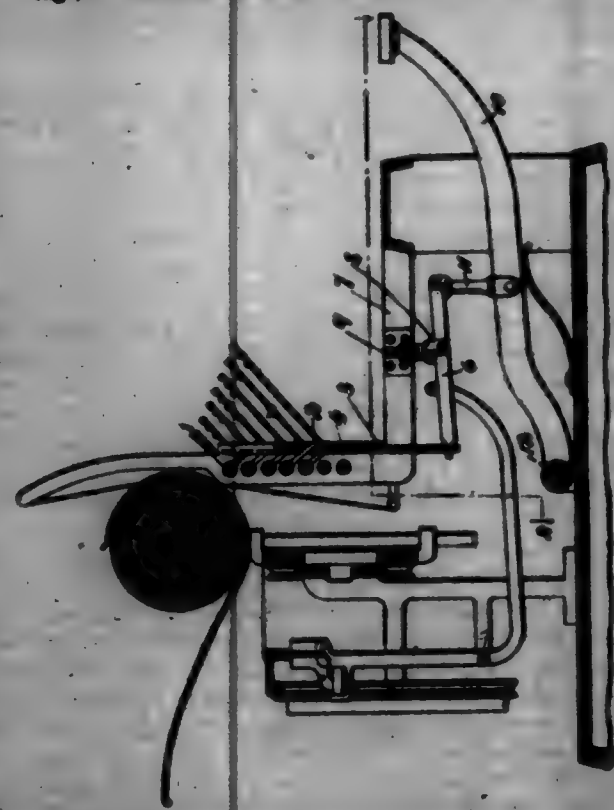
22. In a type-writing machine, the combination of a carriage, a platen carried thereby, a feed-rack which is carried by said carriage, the carriage and rack being movable independently one of the other in the direction of the travel of the carriage, hand-operated means for adjusting the carriage relatively to the feed-rack and in the direction of the travel of the carriage for fractions of a letter-space distance, and independent hand-operated means for turning the platen fractions of a line-space distance.

697,677. **HO-CLEAN INKER.** GEORGE W. BROWN, Rochester, N. Y., assignor to Anna B. Brown, Rochester, N. Y. Filed July 28, 1901. Serial No. 59,151. (No model.)



Claim.—In a device for the purpose set forth, the combination with the bowl and handle, of a series of blades pivoted within the bowl and adapted to sweep the inner wall thereof, a gear-engagement on the journal of said blades, a bifurcated lever pivoted to the upper face of the handle having the sides of its fork extending either side of the handle, said fork carrying a gear-engagement on the stem thereof which meshes with the gear-engagement of the blades and having depending plates on the ends of the fork sides adapted to engage the opposite edges of the handle to arrest the movement of said lever in both directions.

697,678. **TYPE-WRITING MACHINE.** FREDERICK SMITH, Chicago, Ill. Filed Dec. 7, 1902. Serial No. 26,009. (No model.)



Claim.—1. In a type-writer the combination of the type-bars, slidable toward a common center, means for causing said type-bars to shift

and strike having flaps operatively connected with said type-bars respectively and arranged in two opposite groups or series with a dividing-space between the series, key-levers corresponding in number to said flaps arranged in a single series or group without said dividing-space and intermediate levers connecting said flaps with said key-levers respectively, substantially as set forth.

2. In a type-writer the combination of the type-bars slidable toward a common center, means for causing said bars to shift and strike having flaps arranged in two opposite groups or series with a dividing-space between the series, key-levers corresponding in number to said flaps and arranged in a single group or series without said dividing-space and diagonally-arranged intermediate levers connecting said flaps with said key-levers respectively, substantially as set forth.

3. In a type-writer the combination of the type-bars, slidable toward a common center, the cam-plates 4, the flaps 2, the arms 2 operatively connecting said flaps and cam-plates with said type-bars, said flaps 2 being arranged in two groups one on each side of said common center, the key-levers 10 arranged in a single series equal distance apart, and the intermediate levers 6 connected at one end with said flaps 2 and inclined toward and connected with said key-levers respectively, substantially as set forth.

4. In a type-writing machine, the combination of angular type-bars having pivot-arms capable of turning and moving endwise and provided with fingers, slides having oblique slots engaging with the fingers on said arms, key-levers and auxiliary levers connected with said slides and by flaps with said key-levers, substantially as set forth.

697,679. **AIR-COOLING APPARATUS.** ALFRED BROWN, St. Louis, Mo. Filed Oct. 4, 1901. Serial No. 77,006. (No model.)



Claim.—1. In an air-cooling apparatus, a cooling-coil comprising a cell-chamber, having perforated and partitioned a cooling-coil arranged within the cell-chamber, partitioned between the fields of the coil, a receiving-chamber communicating through one of the perforated partitions with the cell-chamber and a discharge-chamber with which the cell-chamber communicates through the other perforated partition.

2. In an air-cooling apparatus, the combination of a cooling-coil comprising a cell-chamber having perforated and partitioned a cooling-coil arranged within the cell-chamber, partitioned between the fields of the coil, a receiving-chamber communicating through one of the perforated partitions with the cell-chamber, and a discharge-chamber with which the cell-chamber communicates through the other perforated partition; and an air-mixing chamber communicating with the discharge-chamber of the cooling-coil.

697,680. **VALVE.** WILLIAM F. SUMER, New York, N. Y., assignor to the Singer Automatic Ice Machine Company, of New Jersey. Filed May 1, 1901. Serial No. 54,905. (No model.)

Claim.—1. In a valve, the combination with a valve-body and connected pipe, of a field-chamber connected with the valve-body, a diaphragm therein, a valve, a valve-rod bearing against said diaphragm, means for lifting said valve from its seat, a diaphragm-chamber beyond the field-chamber, a diaphragm in said diaphragm-chamber and of greater area than said first diaphragm, a rod interposed between said diaphragms, regulatable means for exerting pressure upon the outer diaphragm and a pipe communicating with the outer portion of the diaphragm-chamber, substantially as set forth.

2. In a valve, the combination with a valve-body and connected pipe, of a field-chamber connected to the valve-body, a diaphragm therein, a valve, a valve-rod which at its upper end bears upon said diaphragm, a spring around the valve-rod interposed between the valve and diaphragm

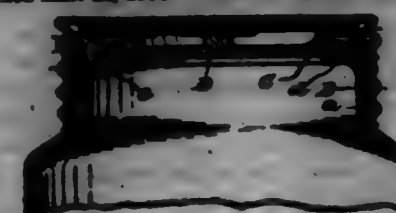
for lifting the valve from its seat when fluid-pressure is exerted upon the diaphragm, a diaphragm-chamber beyond the field-chamber, a diaphragm dividing the same and of larger area than the aforesaid diaphragm, a rod interposed between the diaphragms, regulatable means for exerting pressure upon the outer diaphragm and a pipe communicating with the portion of the chamber beyond the diaphragm, substantially as set forth.



2. A valve-regulating device comprising with a valve-body and connected pipe, a valve and valve-rod, adjacent superposed field-chambers, diaphragms dividing the same and differing from one another in area, means for communicating the movement of one diaphragm to another, means for connecting the pipe and distant diaphragm-chamber, whereby the reduced pressure upon the diaphragm of greater area is employed for closing the valve, and a spring around the valve-rod and interposed between the valve and the first diaphragm for lifting the valve from its seat when fluid-pressure is exerted upon said first diaphragm, substantially as set forth.

4. In a valve, the combination with a valve-body 2 and connected pipes 1 and 11, of a fluid or diaphragm chamber 3 connected to the valve-body, a diaphragm 21 therein, a valve 22, a valve rod or stem 23 at its upper end bearing upon the diaphragm 21, a spring 25 around the valve-rod and interposed between the valve and diaphragm for lifting the valve from its seat when fluid-pressure is exerted upon the diaphragm 21, a large diaphragm-chamber 4, a diaphragm 41 extending substantially centrally through the same, the said diaphragm-chamber opening into the outer end of the diaphragm-chamber 3, a rod 42, a guide 43 therefor, said rod 42 extending between and connecting with the said diaphragms, an adjustable rod 45, a stuffing-box 47, and threaded aperture 44 through which the said rod 45 passes, a thrust-spring 46 between the diaphragm 41 and the rod 45, and a pipe 5 opening into the diaphragm-chamber 4, substantially as and for the purposes set forth.

697,681. **FRUIT-JAR CLOSER.** ARTHUR CHALKER, Rochester, N. Y. Filed Mar. 12, 1900. Serial No. 1,267. (No model.)



Claim.—1. A jar-chamber including a neck, a lid, a grooved sealing ring cast, an annular rib extending into the grooved neck, a sealing-ring, and a pressure-cap sliding relatively upon the rib.

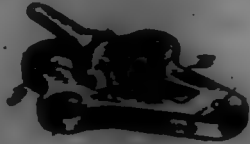
2. In a jar-chamber, the combination of the neck, the exterior threads on the neck, the lid-support, the lid, the sealing-ring cast, the sealing-ring, the annular rib engaging the sealing-ring and frictionally retained thereby against rotation, the pressure-cap sliding relatively upon said rib, and the threads in said cap, substantially as set forth.

3. In a jar-chamber, the combination of the neck, the exterior threads on the neck, the straight plate portion above said threads, the lid-support, the lid, the sealing-ring cast, the sealing-ring, the annular rib engaging the sealing-ring and frictionally retained against rotation thereby, the pressure-cap sliding relatively upon said rib, the threads in said cap, and the curved groove in said cap above said threads, substantially as set forth.

697,682. **SCISSORING-MACHINE.** ARTHUR W. SUMER, New York, N. Y. Filed Jan. 14, 1900. Serial No. 99,045. (No model.)

Claim.—1. A brush-cutting machine having an overhanging jaw, a spring-actuated and pivoted lever connected to the brush-cutting

with a clamping-jaw and projecting finger, in combination with a suitable loop to engage the overhanging jaw and the clamping-jaw, said loop having means for connecting it to a suitable handle and provided with a suitable bearing to act against the projecting finger in depressing it for the purpose of releasing the handle, substantially as and for the purpose set forth.



2. A bracket for brush-heads having a depending flange, an overhanging jaw upon the bracket, a spring-actuated lever pivotally connected to the bracket and provided with a clamping-jaw and a projecting finger, a loop and bearing adapted for attachment to a suitable handle, substantially as and for the purpose specified.

3. A bracket for brush-heads, having an overhanging jaw, a lever provided with a clamping-jaw and a bearing finger at its outer end, said lever at its inner end having laterally-projecting pivot-pins having a rounded upper side and a flat under side, a spring bearing against the under side of the lever and performing the double function in holding the pins in engagement with their seats and rendering the lever spring-actuated, and a suitable loop and bearing adapted for attachment to a suitable handle, substantially as and for the purpose described.

697,688. CLUTCH. FRED L. SMITH, Franklin Falls, N. H. Filed May 14, 1901. Serial No. 90,312. (No model.)



Claim.—1. In combination in a clutch, two aligned shafts, a frictional member secured to one shaft, a connecting member secured to the other shaft and having a cylindrical rim surrounding the first member, a ring having a cylindrical outer face fitting within said rim and an inclined inner face adapted to make frictional contact with the frictional member, bolts connected with said ring and passing through the cylindrical member, and means for moving said bolts longitudinally, substantially as described.

2. In a clutch, the combination with two members secured to two aligned shafts, a wedge-shaped ring interposed between said members, bolts secured to said ring and passing through one of the members, and cam-plates on the latter; of a sleeve sliding on the hub of the last-mentioned member, radial levers connecting said sleeve with said bolts, and cams riding on said plates, as and for the purpose set forth.

3. In a clutch, the combination with two members secured to two aligned shafts, a wedge-shaped ring interposed between said members, bolts secured to said ring and passing through one of the members, cam-plates on the latter and lugs on the other member; of a sleeve sliding on the hub of the last-mentioned member, radial levers connecting said sleeve with said bolts, cams riding on said plates, and positive clutch devices connected with and operated by said levers and passing through said clutch member into engagement with the lugs on the other member, substantially as described.

4. In a clutch, the combination with two adjacent clutch members secured to two aligned shafts, a frictional clutch mechanism near their peripheries, a sliding sleeve, and radial levers connecting said sleeve with said mechanism for moving the latter; of lugs on the face of one member, plates connected with said levers and having cam-faces, and bolts moving in radial grooves in the other member and having lugs engaged by said cams, as and for the purpose set forth.

697,684. WIND-REPLENISHING LOOM. HARRY W. SMITH, North Grafton, Mass. Filed Sept. 20, 1901. Serial No. 75,619. (No model.)

Claim.—1. In a loom, filling-replenishing mechanism, an electric circuit having terminals, a shuttle provided with circuit-changing means exterior to the filling in the shuttle to change the circuit through the terminals and cause the said replenishing mechanism to be actuated when the filling is to be changed.



2. In a loom, filling-replenishing mechanism, an electric circuit having terminals, a shuttle provided with circuit-changing means exterior to the filling in the shuttle, and means controlled by the filling for rendering the circuit-changing means operative to change the circuit and cause the replenishing mechanism to be actuated when the filling is nearly exhausted.

3. In a loom, filling-replenishing mechanism, an electric circuit containing an electromagnet having a plurality of terminals exterior to the shuttle, a shuttle provided with circuit-changing means exterior to the filling in the shuttle, and a device to render said means inoperative by the presence and operative by the substantial absence of filling in the active shuttle to thereby control the actuation of the said replenishing mechanism.

4. In a loom, filling-replenishing mechanism, an electric circuit controlling said mechanism and having its terminals contained exterior to the shuttle, and a shuttle having mounted thereon circuit-changing means exterior to the filling in the shuttle, and adapted to close said circuit through said terminals upon the exhaustion of the filling in the shuttle to a predetermined extent.

5. In a loom, a filling-replenishing mechanism and means for controlling the time of its operation, said means comprising an electric circuit, a shuttle and means exterior to the filling in the shuttle for completing the circuit through the shuttle when the filling in the shuttle has become nearly exhausted.

6. In a loom, an electric circuit containing an electromagnet and having a plurality of terminals exterior to the shuttle, and a shuttle provided with circuit-closing means exterior to the filling in the shuttle, and adapted to engage said terminals and complete the circuit when the filling has become nearly exhausted.

7. In a loom, a shuttle adapted to carry a supply of filling and provided with circuit-closing means situated exterior to the filling in the shuttle, an electric circuit including an electromagnet and having yielding terminals situated exterior to the shuttle to engage said circuit-closing means and complete the circuit when the filling has become nearly exhausted.

8. In a loom, filling-replenishing mechanism, and means to control the time of operation of said mechanism, said means comprising an electric circuit, a shuttle adapted to contain a supply of filling and having an exposed circuit-closer, filling-induced movement of the terminals of said circuit preventing change of circuit through the circuit-closer until the filling has become exhausted to a predetermined extent, whereupon the circuit-closer carried by the shuttle acts upon the terminals to change the circuit and induce operation of the replenishing mechanism.

9. In a loom, filling-replenishing mechanism, an electric circuit containing an electromagnet and having terminals exterior to the shuttle, a shuttle provided with circuit-closing means exterior to the filling in the shuttle, a feeler to feel for the filling in the shuttle, said terminals being movable with said feeler to prevent closing the circuit when a sufficient or working supply of filling is present in the shuttle, and to close said circuit when the filling has become exhausted to a predetermined extent.

10. In a loom, filling-replenishing mechanism, an electric circuit having terminals exterior of the shuttle, a shuttle provided with an exposed metallic plate, a feeler arranged to be struck by the filling on the filling-carrier and controlling said terminals of the electric circuit to prevent contact of said terminals with the metallic plate until the filling has been exhausted to a predetermined point, after which to permit the terminals to meet said plate and complete the circuit, and means set in motion by closing said circuit to actuate said filling-replenishing mechanism to supply fresh filling.

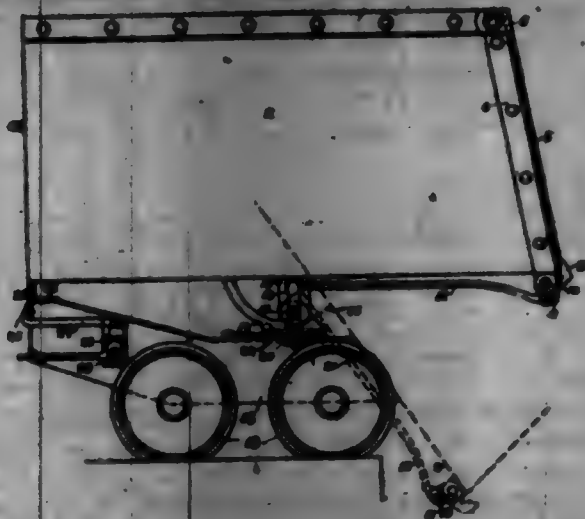
11. A feeler, and an electric circuit having terminals, a key having a shuttle-bar provided with a shuttle having a hole in one side and with a metallic plate, and a filling-carrier in said shuttle, the end of said feeler being free to be struck and moved by the filling until the latter has become exhausted to a predetermined point when said terminals meet said metallic plate and close the circuit, filling-changing means, and device in said circuit and actuated after closing said circuit to move said filling-changing means and supply fresh filling.

12. A shiftable feeler having connected with it near its inner end the terminals of an electric circuit, a key having a shuttle-bar provided with a shuttle having a hole in one side and with a metallic plate, and a filling-carrier in said shuttle, the end of said feeler being free to be struck and moved by the filling until the latter has become exhausted to a predetermined point when said terminals meet said metallic plate and close the

circuit, filling-changing means, and device in said circuit and actuated after closing said circuit to move said filling-changing means and supply fresh filling.

13. A key having a shuttle-box, a shuttle having a connected metallic body and containing a filling-carrier, a movable feeler, means to operate said feeler that it may be moved forwardly with the key while the filling-carrier contains filling of the minimum quantity desired, an electric circuit the terminals of which are controlled by said feeler, said terminals contacting with the metallic body of the shuttle after the filling has been exhausted from the filling-carrier to a predetermined point, filling-changing means, and means act in motion by closing said circuit to operate said filling-changing means.

697,685. AUTOMATIC-DUMPING ORE-CAR. CHARLES E. SNOW.
San Francisco, Cal. Filed Jan. 12, 1901. Serial No. 89,447. (No model.)



Claim.—1. The combination with a car-body having a hinged swinging gate or door and a truck upon which the body is slidably mounted, of a fulcrumed latch and lever adapted to hold the door in a closed position, a fixed yoke having transverse upon the end about which the car-body supports are turnable, and a rod connecting the curved portion of the yoke with the latch of the door.

2. A wheeled truck, an arched yoke carried thereby having transverse at the ends, a car-body having supports journaled and turnable upon said transverse, a hinged door by which the end of the car-body is closed by gravitation, a fulcrumed latch engaging the lower edge of the door when closed, said latch having a lever-arm and a rod connecting said lever-arm with the upwardly-curved portion of the transverse-chest.

3. A wheeled truck having the two members of a turn-table carried thereon, the upper member having upturned sides, transverse projecting from the sides, a car-body having supports extending downwardly from the bottom and turnable upon said transverse, an upwardly-curved central portion of the transverse-chest having one end of a rod turnably connected therewith, a hinged automatically-closing door at the end of the car-body, a pivoted latch adapted to engage the bottom of the door and having a downwardly-projecting arm and connection between said arm and the opposite end of the rod whereby the tilting of the car unlatches the door.

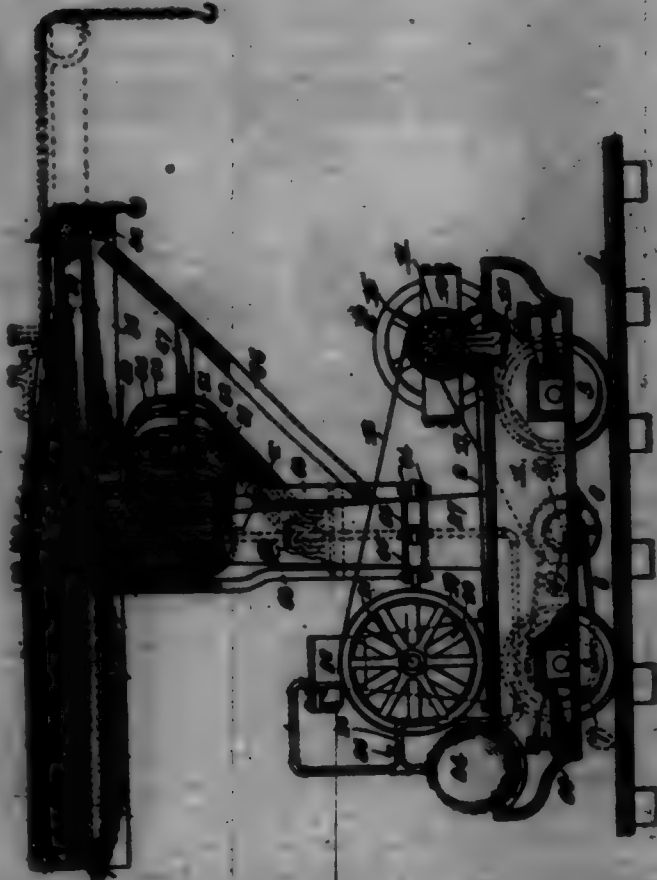
4. The combination with a wheeled truck and a car-body slidably mounted thereon, and a turn-table upon the upper member of which the car-body is mounted, of an upwardly-curved or arched bar made substantially rectangular near the ends so that it may be immovably secured upon the turn-table, the ends of said arched bar provided with transverse, and a yoke on the car-body and engaging and turnable about said transverse.

5. A car-body having an inclined open end, a door hinged at the top and closable by gravitation, a centrally-pivoted latch adapted to engage the bottom of the door and having a downwardly-projecting arm, a truck having a transverse-support about which the car is tiltable, a fixed pin or shaft located above the line of the transverse and a rod connecting said shaft with the lever-arm of the latch.

6. A wheeled truck having an upwardly-inclined rear end with side flanges leveled or inclined to form a transverse V-shaped depression, a tiltable car-body having an extension below its rear end fitting said depression and having a slot made centrally therein, an upturned horizontally-moving latch adapted to engage the slot, a spring-pressed angle-lever carried upon the truck, to which the opposite end of the latch-bar is pivoted and a flat-lever projecting beneath the latch and adapted to disengage the latch when the car is to be dumped.

697,686. PORTLAND CEMENT. EDWARD F. BROWN, JR. Louisville, Mo.
Filed June 22, 1901. Serial No. 65,612. (No model.)

Claim.—1. In a crane, the combination of a horizontally-mounted support, a carrier telescopingly positioned within said support, hoisting means mounted on said carrier, and means for moving said carrier telescopingly within said support, substantially as and for the purpose set forth.



2. In a crane, the combination of a horizontally-mounted support, a carrier telescopingly positioned within said support, hoisting means mounted on said carrier, means for moving said carrier telescopingly within said support, and means mounted on said support adapted to prevent the tilting of said carrier when its forward end is projected beyond the forward end of the support, substantially as and for the purpose set forth.

3. In a crane, the combination of a reciprocating carrier, means for supporting said carrier, a hoist-cylinder mounted on said carrier, a lift piston and rod arranged to operate in said cylinder, a reciprocating pusher-cylinder fixed to said carrier and adapted to impart movement to the carrier, and a fixed piston and piston-rod on which said pusher-cylinder travels, substantially as described.

4. In a crane, the combination of a reciprocating carrier, means for supporting said carrier, a hoist-cylinder mounted on said carrier, a lift piston and rod arranged to operate in said hoist-cylinder, a reciprocating pusher-cylinder fixed to said carrier and adapted to travel therewith, a piston in said pusher-cylinder, and a piston-rod by which said last-named piston is connected to said carrier-support, substantially as described.

5. In a crane, the combination of a pair of rotatably-mounted beams, a pair of carriers reciprocally mounted between said beams, a pusher-cylinder fixed to said carriers and adapted to move therewith, a piston in said pusher-cylinder, a piston-rod having a fixed connection to said beams and to which said piston is connected, a hoisting-cylinder fixed to said carriers and arranged to move therewith, a piston in said hoist-cylinder, and a lifting piston-rod carried by said last-named piston, substantially as described.

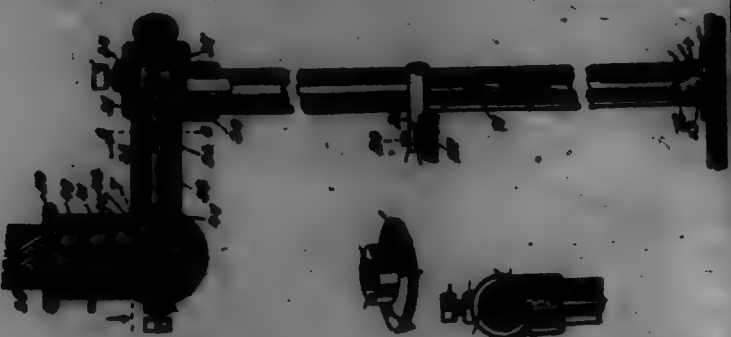
6. In a crane, the combination of a reciprocating carrier, a support for said carrier, supporting-rollers on which said carrier is mounted, means for reciprocating said carrier, hoisting means mounted on said carrier, a guide-roller on said carrier and guides mounted on said carrier, supporting means adapted to receive said guide-roller, substantially as described.

7. In a crane, the combination with means for providing pressure medium, of valve-housings adapted to receive pressure medium, valves in said housings, pipes leading from said valve-housings, a carrier-support, a reciprocating carrier mounted on said support, a pusher-cylinder attached to said carrier and to which a portion of said pipes lead, and a hoist-cylinder to which the remainder of said pipes lead, substantially as described.

697,687. UNIVERSAL STANDARD. JAMES H. BRADLEY, Norwalk, Conn. Filed Mar. 14, 1901. Serial No. 61,188. (No model.)

Claim.—1. In an universal support, a standard provided with a terminal end having a lateral shoulder and rounded on the side opposite the shoulder, said shoulder being arranged within the vertical plane of the standard, in combination with a rigidly-mounted bracket provided with a

round opening of approximately the same size as the stud, and a compressible washer surrounding the stud above the shoulder, and between the end of the standard and the keeper.



2. In an umbrella-support, a standard having a terminal stud rounded on one side and provided at the opposite side with a lateral shoulder, which is arranged within the vertical plane of the standard, said stud being smaller in diameter than the standard so as to provide a shoulder at its junction therewith, in combination with an elevated, hollow cylindrical keeper having a base-attaching flange and provided with a round opening of approximately the same size as the stud, the stud being adapted to pass through the opening and its shoulder engage the inner wall of the keeper.

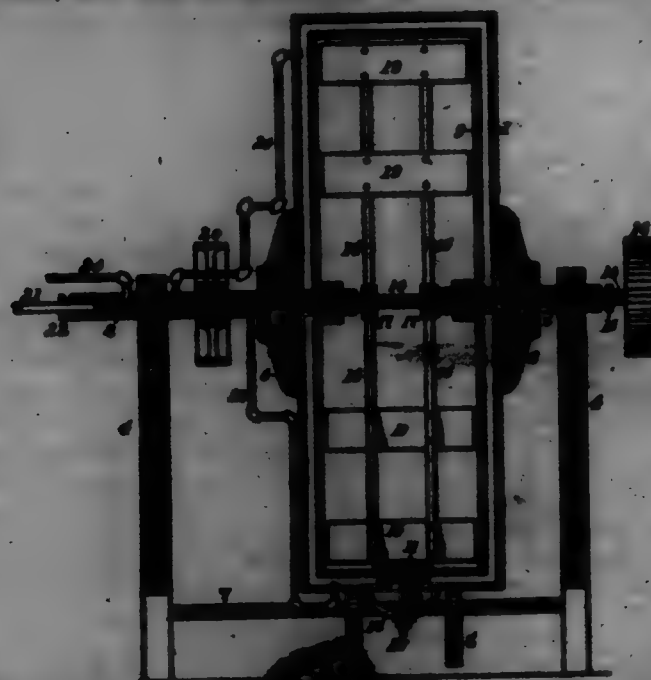
3. In an umbrella-support, a horizontal bar provided with a cylindrical socket at one end, said socket having a rounded bottom and open at the top and recessed at one point of its side to provide engaging corner, a canopy-staff provided with a cylindrical thimble at its lower end, the bottom of the thimble being rounded to fit the bottom of the socket, and a nut-screw passing through the side of the socket and engaging said thimble opposite the engaging corner of the socket.

4. In an umbrella-support, the bar provided with a socket, in combination with a canopy-staff removably fitted in said socket, a runner on said staff, and interlocking means between said runner and said bar to prevent rotation of the runner.

5. In an umbrella-support, a standard, and a horizontal bar adjustable thereon and provided with a socket, in combination with a canopy-staff, removably fitted in said socket, a runner on said staff provided with a notch, and a lug on the horizontal bar adapted to enter said notch to form an interlocked engagement between the horizontal bar and runner.

6. In an umbrella-support, a standard, a horizontal bar adjustably mounted thereon and provided with a socket, a canopy-staff provided with a terminal thimble fitted in said socket, a runner mounted on the staff, and interlocking means on the horizontal bar and runner for preventing rotation of said runner.

697,688. DEVULGARISING APPARATUS. LOUIS A. SYRMAN, Akron, Ohio. Filed Jan. 12, 1902. Serial No. 22,522. (No model.)

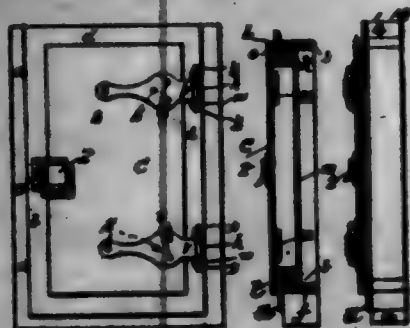


Claim.—1. An improved devulgarising apparatus consisting of a shoulder hollow cone, and an outer concentric cone, with an opening to introduce material into said hollow cone, and a cover to close it, said cone being journaled to revolve on a central axis, and means for revolving them, a paddle-wheel mounted inside of and concentric with

said inner cone, and means for driving it in a direction opposite to that of said cone, means for introducing live steam between said cones, and an exhaust to permit its escape therefrom, substantially as shown and described.

2. An improved devulgariser consisting of a double hollow cone having its diameter greater than its length to cause the contents to accumulate in a clear mass by gravitation, a concentric insulating cone separated therefrom to leave a steam-space, means for introducing live steam into said space and permitting its escape therefrom, common journals to revolvably support said cones, means for revolving said cones; a paddle-wheel concentrically mounted in said inner cone and means for revolving it independently of said cone, substantially as shown and described.

697,689. DOOR AND FRAME FOR AIR-TIGHT CHAMBERS. E. P. SCHWENK, Chester, Pa. Filed Sept. 14, 1900. Renewed July 12, 1901. Serial No. 62,522. (No model.)



Claim.—1. A door for air-tight compartments consisting of rigid stiles united by rails susceptible of torsion, a flexible inner sheathing, a flexible outer sheathing having a rim projecting beyond the stiles and rails, and a compressible gasket secured to said projecting rim, in combination with elastic hinges and a latch so proportioned as to exert equal pressure upon the gasket in all parts between the rim of the door and a casing surrounding the door-opening as set forth.

2. A combined frame and casing for the door-openings of refrigerating-chambers, consisting of stiles and rails rigid in the direction of their breadth and length, and susceptible of torsional flexure, in combination with a front casing secured thereto, adapted to contact with the gasket of the door opposed thereto, the whole arranged and adapted to be adjustably applied thereto, substantially as set forth.

3. In a door for air-tight compartments, rigid stiles united by rails susceptible of torsion, and a flexible inner sheathing attached to said frame, in combination with a flexible outer sheathing, also secured to said stiles and rails, and provided with a rim projecting beyond the stiles and rails, adapted to overlap and by flexure apply closely to the casing of the door-opening substantially as set forth.

4. In a frame for doors of air-tight compartments, stiles and a head and a sill rigid in longitudinal direction, and torsionally flexible, in combination with a torsionally-flexible casing attached to the front of said frame, and adapted to be adjusted by torsion to fit the deviations from a flat plane of a door applied thereto, substantially as set forth.

5. In a combined air-tight door and frame for refrigerating and like chambers, a door having rigid stiles, rails connecting with said stiles, susceptible of torsional flexure, an inner sheathing susceptible of torsional flexure, an outer sheathing projecting beyond the stiles and rails, also torsionally flexible, and a frame having all parts rigid in the direction of their depth, a casing secured to said frame, a gasket applied to said outer sheathing to contact with said casing, in combination with elastic hinges and a latch, proportioned and arranged to press said door upon said gasket uniformly in all parts against said casing, with continuous pressure, as and for the purpose set forth.

6. Doors having rigid edges and torsionally-flexible flaps in combination with elastic hinges and fastenings, arranged and adapted to apply the edges to contact with casings liable to variably deviate from flat planes, as and for the purpose set forth.

7. A door in combination with hinges, and fastenings, arranged to convert the momentum of the door in closing into a constant elastic force, to maintain pressure upon a gasket applied between the door and the margin of the door-opening as set forth.

8. In a door for air-tight inclosures, a doorway-frame, a flexible door fitted to overlap the front margin of said frame, elastic hinges applied to edge of said door, an automatic fastening, applied to the opposite edge of the door, and arranged to elastically enforce contact between the margin of the frame and the margin of the door, substantially as set forth.

9. In a door for air-tight apartments, a torsionally-flexible frame formed of rigid stiles and rails, an inner and outer torsionally flexible sheathing secured thereto, said outer sheathing projecting as a rim be-

yond the frame and provided with a compressible gasket adapted to contact closely with the casing of a door-frame, substantially as set forth.

10. In a door and frame for air-tight apartments, a door frame and casing, having rigid edges and torsionally-flexible casing, in combination with a door having an edge-wise-rigid frame and torsionally-flexible flaps, one of which flaps overlaps the flaps of the casing, and a gasket applied to said overlapping flaps, substantially as set forth.

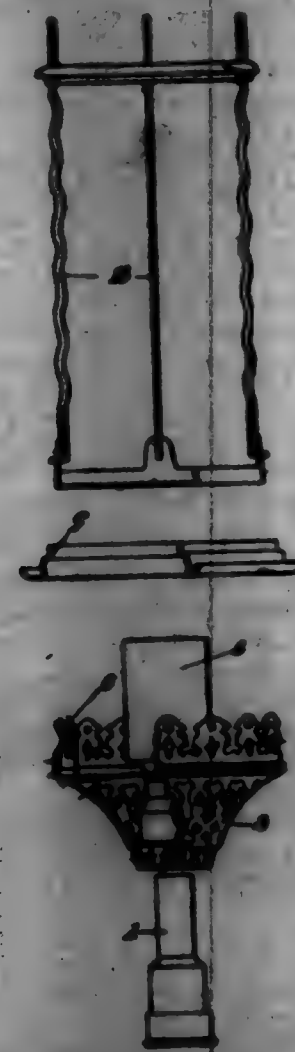
11. A door having an edge-wise-rigid frame and flexible flaps, one of which flaps projects beyond the frame, in combination with a gasket applied to said projecting flaps, and elastic hinges attached to said door, adapted to elastically enforce the door with a door-frame, substantially as set forth.

12. A door having an edge-wise-rigid frame and flexible flaps, one of which flaps projects beyond the frame, and a gasket applied to said projecting flaps, in combination with a locking-latch adapted to automatically engage a keeper and hold the gasket under compression against a door-frame casing, substantially as set forth.

13. In a frame for doors of air-tight inclosures embracing torsionally-flexible joints and a head rigid in longitudinal direction, adapted to be adjustably applied to an opening in a wall and a casing attached to the front of said frame, adapted to support the bearings of extended hinges from said casing as shown and described.

14. In a frame for doors of air-tight apartments embracing a head a sill and torsionally-flexible joints and a head fixed casing adapted to support extended hinges arranged to swing the door clear of the line of the doorway-opening when opened at right angles as set forth.

697,690. BURNER. THOMAS SYRMAN, Gloucester City, N. J., assignor to Weibach Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Sept. 22, 1901. Serial No. 74,522. (No model.)



Claim.—1. A burner provided with a gallery, a detachable chimney-guide provided with a base-ring adapted to the gallery, and locking devices between the gallery and base-ring, substantially as described.

2. A burner provided with a gallery having bottom, a globe-ring detachably fitted outside of the bottom, and a chimney-guide detachably fitted inside of the bottom, substantially as described.

3. A burner provided with a gallery having chimney-supports and having bottom, a removable globe-ring detachably fitted to said bottom, and a removable chimney-guide detachably fitted to said bottom, substantially as described.

4. A burner provided with a gallery, a removable chimney-guide consisting of top and bottom rings, and arms arranged between said rings with their ends projecting through the bottom ring and said projecting ends constructed and arranged to cooperate with openings in the gallery, substantially as described.

5. A burner comprising a gallery provided with arms radiating from the base-land and with openings in the arms arranged opposite said arms, each arm having an upwardly-projecting bifurcated chimney-support of which the legs join the arms intermediate of its length and having a tongue-like end on the arm that extends beyond and between the legs of the chimney-support and engages said openings, substantially as described.

6. A burner provided with two sets of concentric arms and having three coats, one coat between the sets of arms and a second coat inside of the inner set of arms and a third coat outside of the outer set of arms, substantially as described.

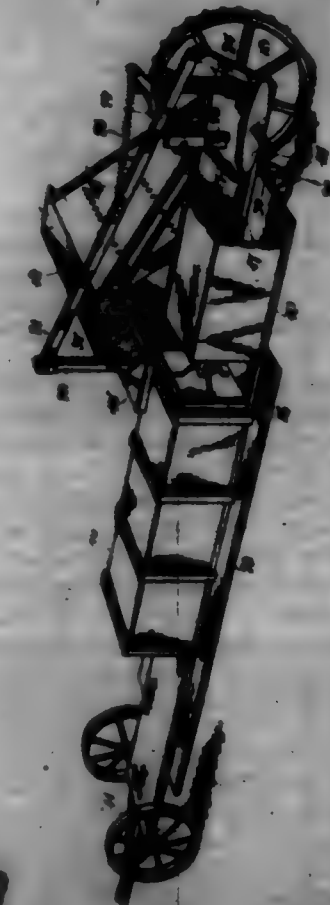
7. A burner provided with a gallery, a removable globe-ring and a removable chimney-guide, each constructed for engagement with and disengagement from said gallery and to be held thereby, substantially as described.

697,691. CUSHION-TIRE. WILLIAM E. DE JON, Brooklyn, N. Y. Filed Oct. 1, 1901. Serial No. 77,521. (No model.)



Claim.—As a new article of manufacture, a cushion-tire comprising a base adapted to fit the rim of a wheel, a relatively narrow tread, and cushions joining the said base and tread at intervals, the said cushions being narrower at the top and broadening laterally downward to the width of the base, the said tread, cushions and base being constructed in one piece, substantially as described.

697,692. RAY RAKER AND RAKER. JERAM E. STRAHM and ROBERT A. KIRKMAN, St. Paul, Minn. Filed Aug. 12, 1901. Serial No. 71,522. (No model.)



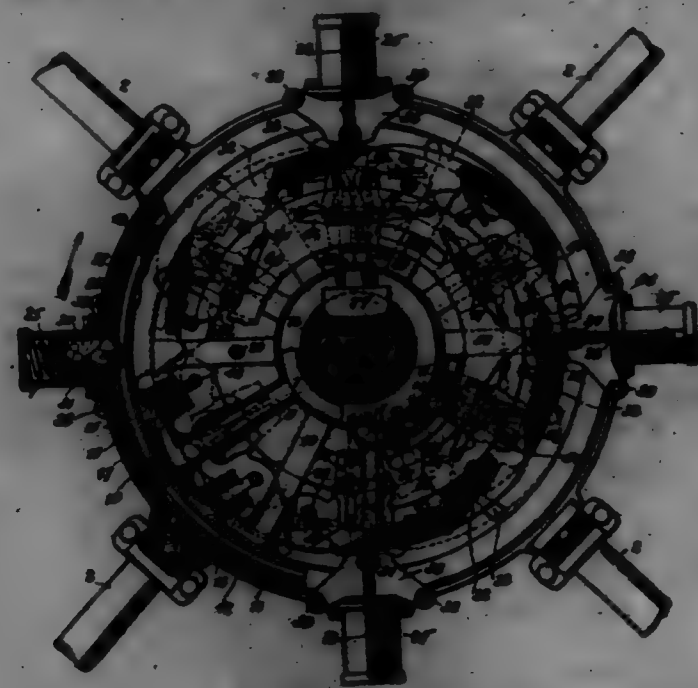
Claim.—1. In a combined ray raker and rake, the combination with the press-bar and hopper, of a horizontally-extending chute leading to the hopper, an elevating apparatus for raising and discharging to the chute, a plunger for the press-bar, a rotatable cam disposed for engagement with the plunger to move it forwardly, a pivoted lever, a feeder-plunger carried by the lever for movement to engage and feed hay into the bar in advance of the press-plunger, and having a depending ear and in the path of movement of the cam for engagement thereby to operate the lever and thence with the feeder-plunger, a pivoted lever having springs at

its ends connected with the lever and pressure-plunger, a ball-wheel, and connections between the ball-wheel and the cam and the elevating apparatus.

2. In a baler, the combination with a press-bar and its hopper, of a feeding device for the hopper, a plunger for the press-bar, a pivoted lever having springs connected with its ends and with the feeding device and plunger respectively, and means for engagement with the feeding device and plunger alternately to operate them and place the springs under tension to retract the inspiratory member.

3. In a baler, the combination with the press-bar and plunger of a rotatable cam disposed for engagement with the plunger to give it forwardly, a pivoted lever, a feeder-plunger carried by the lever for movement to engage and feed hay into the box in advance of the pressure-plunger, a link pivoted to the opposite end of the lever in the path of movement of the cam for operating the lever and through the feeder-plunger, and a pivoted lever having springs at its ends connected with the lever and pressure-plunger, for the purpose set forth.

697,698. ROTARY ENGINE. JAMES THOMSON, Patent No. 1,111, Filed May 24, 1901. Serial No. 61,707. (No model.)



Claim.—1. In combination, a stationary support, a driving-wheel and a rotary engine comprising a stationary member mounted on the support and a rotary member adjustably connected to the spokes of the wheel for adjusting the rotary member with respect to the said spokes, substantially as set forth.

2. In combination, a stationary support, a driving-wheel and a rotary engine comprising a stationary member yieldingly mounted on the support and a rotary member mounted to the spokes of the wheel, substantially as set forth.

3. In combination, a stationary support, a driving-wheel and a rotary engine comprising a stationary member yieldingly mounted on the support and a rotary member adjustably connected to the spokes of the wheel for adjusting the rotary member with respect to the said spokes, substantially as set forth.

4. In combination, a stationary support, a driving-wheel, a rotary engine comprising a stationary member mounted on the support and a rotary member and clips for securing the rotary member to the driving-wheel, substantially as set forth.

5. A rotary engine comprising a stationary member having an annular piston-chamber, stationary chambers in the chamber, a rotary member, ball-pistons carried thereby and fitted to travel along within the said piston-chamber and over the chambers, means for controlling the inward and outward movements of the ball-pistons and means for controlling the admission and escape of the motive fluid to and from the piston-chamber, substantially as set forth.

6. A rotary engine comprising a stationary member having an annular piston-chamber in its periphery, motive-fluid inlet and outlet ports, stationary chambers located between each pair of inlet and outlet ports, a rotary member, and spring-actuated ball-pistons fitted to travel along within said piston-chamber and over the chambers and means for controlling the admission and escape of the motive fluid to and from the piston-chamber, substantially as set forth.

7. A rotary engine comprising a stationary member having an annular piston-chamber in its periphery and two inner, annular chambers,

alternating inlet and outlet conduits connecting the inner annular chambers with the piston-chamber, valves for opening and closing the conduits, stationary chambers between the two conduits of each alternating pair, a rotary member, spring-actuated ball-pistons carried thereby and fitted to travel along within the said piston-chamber and over the chambers and means carried by the rotary member for controlling the operation of the valves in the conduits in the stationary member, substantially as set forth.

8. A rotary engine comprising a stationary member having an annular piston-chamber with chambers therein, motive-fluid inlet and outlet conduits arranged in pairs, valves therefor, an annular series of valve-operating plates for operating the inlet-valves and a second series of valve-operating plates for operating the outlet-valves, a rotary member, ball-pistons carried thereby and fitted to travel along within said piston-chamber and over the chambers and rollers carried by the rotary member in position to successively engage the two annular series of valve-operating plates for opening the valves at predetermined intervals, substantially as set forth.

9. In a rotary engine, a stationary member, a piston-chamber therein, a motive-fluid conduit leading to the piston-chamber, a valve for opening and closing said conduit, a valve-operating plate pivoted to the stationary member, and connected with the valve-stem, a rotary member, a piston carried thereby and a roller carried by the rotary member in position to force the plate inwardly to open the valve, substantially as set forth.

10. In a rotary engine, a stationary member having a piston-chamber therein, a motive-fluid conduit communicating with the piston-chamber, a valve for opening and closing said conduit, a valve-operating plate secured on the stationary member and connected to the valve-stem, a movable cam-plate for adjusting the valve-operating plate, a rotary member, a piston carried thereby and a roller carried by the rotary member in position to depress the valve-operating plate for opening the valve, substantially as set forth.

11. In a rotary engine, a stationary member having an annular piston-chamber therein, fluid inlet and outlet conduits communicating with the piston-chamber, valves for opening and closing the said conduits, a series of valve-operating plates upon each face of the engine for operating the inlet and outlet valves, respectively, the said plates being secured on the stationary member, a cam-plate having a limited rotary movement in opposite directions for adjusting the two series of cam-plates for controlling the length of time that the valves shall remain open, a rotary member, pistons carried thereby and rollers carried by the rotary member in position to engage the two series of valve-operating plates for successively operating the valves, substantially as set forth.

12. In a rotary engine, a stationary member having an annular piston-chamber therein, a rotary member having spring-actuated ball-pistons fitted to travel along within said piston-chamber and a stationary cam-plate connected with the ball-pistons for controlling the inward and outward movement of the same, substantially as set forth.

13. In a rotary engine, a rotary member, a ball-piston, a casing, a spring-actuated follower within the casing and hinged outlet-pieces interposed between the ball-piston and the follower and hinged to the follower, substantially as set forth.

14. In combination, a valve, a valve-operating plate connected with the valve-stem and having an elongated groove therein, a support having a stationary fulcrum within the said groove, a yoke having an elongated groove embracing the fulcrum and a transverse groove therein, a loose stud located in the said transverse groove and the elongated groove in the plate and means for raising and lowering the yoke for adjusting the position of the loose pin with respect to the fulcrum for adjusting the movement of the plate, substantially as set forth.

15. In combination, two valves, a valve-operating plate for each valve connected thereto and having an elongated slot therein, stationary fulcrums for each plate located in the said elongated groove, a yoke for each plate having an elongated groove embracing the fulcrum and a transverse groove therein, a loose stud located in the said transverse groove and the elongated groove in the plate, a rotary cam-plate having an irregular cam-slot therein comprising a concave central portion and two outwardly-extended wing portions, the said yokes being provided with studs engaging said slot, whereby, when the cam-plate is moved in one direction or the other, the movement of the one or the other of the valve-operating plates is adjusted, substantially as set forth.

16. A rotary engine comprising a circular stationary member, a rotary ring-shaped member mounted on the periphery of the stationary member and confining liquid carried to the movable member and overlapping the opposite face of the stationary member for holding the rotary member in position thereon, substantially as set forth.

17. A rotary engine comprising a circular stationary member having an annular peripheral piston-chamber therein, a rotary member mounted on the periphery of the stationary member, ball-pistons carried by the rotary member and fitted to travel along the said piston-chamber, pack-

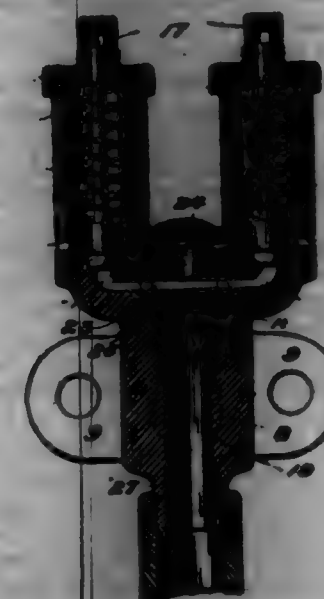
ing-rings, triangular in cross-section, located along the periphery of the stationary section upon the opposite sides of the piston-chamber and spring-actuated adjustable follower-rings for forcing the packing-rings snugly against the face of the rotary member and against the walls of the ball-pistons for taking up wear, substantially as set forth.

18. In combination, a wheel, a rotary engine comprising a stationary member and a rotary member, and means for adjustably connecting the rotary member with the spokes of the wheel comprising a plurality of split clips embracing the spokes and having laterally-extended rectangular plates and open-ended recesses on the periphery of the rotary member having convex sides which recesses are adapted to receive the clip-plates and bolts for securing the centers of the clip-plates to the rotary member, substantially as set forth.

19. In combination, a stationary support, a rotary engine and means for yieldingly mounting the engine on the support comprising a box embracing three sides of the support and a spring-actuated bearing-plate interposed between the engine and the other side of the support, substantially as set forth.

20. In combination, a stationary support, a rotary engine comprising a stationary member and a rotary member mounted thereon and means for yieldingly mounting the stationary member on the support comprising a box embracing three sides of the support, a spring-actuated follower-plate interposed between the other side of the support and the stationary member and means for adjusting the spring tension thereof, substantially as set forth.

697,694. PRESSURE-RETAINING VALVES FOR AIR-BRAKES. JOHN A. TOLL, Chas. H. Hunt, assignors of one-half to Peter Henry, Chas. Hunt. Filed Nov. 20, 1901. Serial No. 60,000. (No model.)



Claim.—1. The combination with an air-brake system, of a pipe connected to the exhaust-port of the triple valve; a duplex valve embracing two valves requiring different pressures to operate the same; and a plug adapted to place the pipe in communication with the said valves alternately.

2. The combination with an air-brake system, of a pipe connected to the exhaust-port of the triple valve; a duplex valve embracing two valves requiring different pressures to operate the same; and a plug adapted to place the pipe in communication with the said valves alternately.

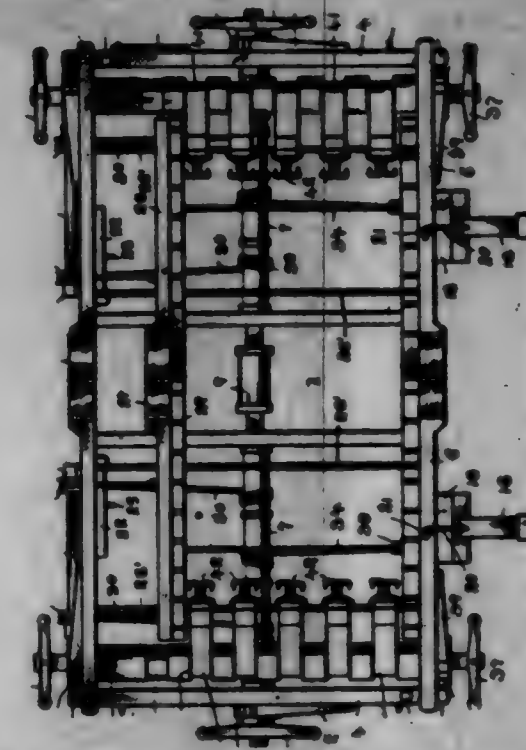
3. The combination with an air-brake system, of a pipe connected to the exhaust-port of the triple valve; a duplex valve embracing a plurality of valves of unequal power; a plug adapted to place the pipe in communication with the valves; and means for opening a passage from the pipe to the atmosphere.

4. The combination with an air-brake system, of a pipe connected to the exhaust-port of the triple valve; a duplex valve embracing a plurality of valves held to their seats with unequal pressures; a plug with passages adapted to open communication between the pipe and the valves; and means in connection with the plug for opening a passage to the atmosphere.

697,695. CURTAIN-STRETCHER. FRANCIS VALENTI, Milwaukee, Wis. Filed July 12, 1901. Serial No. 60,500. (No model.)

Claim.—1. In a curtain-stretcher, the combination with a sectional frame; of means for locking the sections together; a central sectional roller on the frame; stationary engaging hooks carried by the sections of the frame; a slide-bar arranged upon said sections; engaging hooks carried by said slide-bar; shafts journaled on the slide-bar; a flexible strip connected to the slide-bar and central roller and passing over the

rollers of the frame whereby movement of the slide is effected; and means for effecting longitudinal stretching of the curtain.



2. In a curtain-stretcher, the combination with a sectional frame provided with means for engaging a curtain; of a sectional slide-bar carried by said frame and provided with means for engaging the curtain, a central longitudinal sectional shaft, means connecting the slide and roller whereby transverse stretching of the curtain is effected; shafts carried by said sections and arranged transversely thereof; and straps carried by said shaft for engaging the curtain to effect longitudinal stretching thereof.

3. In a curtain-stretcher, the combination with a sectional frame provided with means for engaging a curtain; of a sectional slide-bar carried thereby and also provided with means for engaging the curtain; shafts extending longitudinally of said sections; connections between said shafts and the slide-bar for operating the latter; and means for coupling said shafts together for simultaneously operating the same.

4. In a curtain-stretcher, the combination with a sectional frame provided with means for engaging the curtain; of a sectional slide-bar carried thereby and also provided with means for engaging the curtain; shafts arranged upon said sections and extending longitudinally thereof; a coupling-shaft carried by one of said shafts and adapted to receive the other whereby said shafts are simultaneously operated; suitable connections between the slide-bar and said shafts for operating the former; and transversely-arranged shafts carried by the sections and provided with means for engaging the curtain to effect longitudinal stretching thereof.

5. In a curtain-stretcher, the combination with a sectional frame provided with means for engaging a curtain; of a slide-bar carried by said frame; and also provided with means for engaging the curtain; means for locking the sections of the frame together; shafts carried by said sections and extending longitudinally thereof; means for coupling said shafts together to effect simultaneous operation of the same; transversely-arranged shafts also carried by the sections; and straps carried by said shafts and provided with means for engaging the curtain to effect longitudinal stretching thereof.

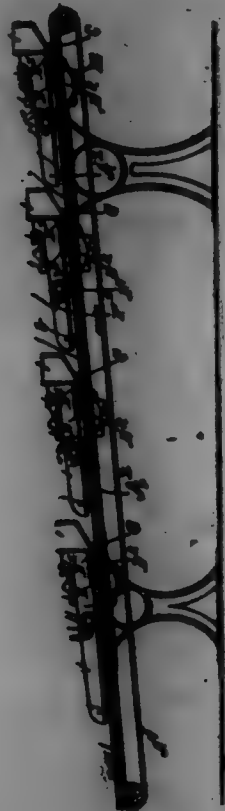
697,696. MACHINE FOR MAKING KICK-BOARD. HENRY F. WATSON, Valparaiso, Ind., assignor of one-half to Milton A. Gilder, Valparaiso, Ind. Filed Feb. 15, 1901. Serial No. 67,067. (No model.)

Claim.—1. A machine for making kick-board, or the like, comprising a movable support, means to impart movement thereto, a hopper above said support, a feed mechanism adapted to deliver the contents of said hopper upon said support, a roll revolvably mounted above said support to deliver the contents of said hopper upon said movable support, and a feed mechanism adapted to deliver the contents of said hopper upon said movable support, substantially as described.

2. A machine for making kick-board, or the like, comprising a movable support, means to impart movement to said support, pivoted arms, a hopper supported thereon, means to adjust the free ends of said arms toward and from said movable support, and a feed mechanism adapted to deliver the contents of said hopper upon said movable support, substantially as described.

3. A machine for making kick-board, or the like, comprising a movable support, means to impart movement to said support, pivoted arms, a hopper supported thereon, means to adjust the free ends of said arms toward and from said movable support, and a feed mechanism adapted to deliver the contents of said hopper upon said movable support, substantially as described.

hopper supported upon said arm, a roll revolvably mounted in said arm at the discharge side of said hopper, means to adjust the free ends of said arm toward and from said movable support and a feed mechanism adapted to deliver the contents of said hopper upon said movable support, substantially as described.



4. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said opening, and means to impart reciprocating movement to said plate, substantially as described.

5. A machine for making min-board, or the like, comprising a movable support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said opening, the hopper-wall on the discharge side thereof being thin at its lower edge, and means to impart reciprocating movement to said plate, substantially as described.

6. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of the opening in said hopper in such position that it declines toward the discharge side thereof, and means to impart reciprocating movement to said plate, substantially as described.

7. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said opening, a plate supported beneath said figured plate and means to impart reciprocating movement to both of said plates, substantially as described.

8. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of the opening in said hopper, the means for supporting said figured plate comprising a rod fitted to and longitudinally movable in suitable bearings in brackets secured to said hopper and means applied to said rod to impart reciprocating movement to said figured plate, substantially as described.

9. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said hopper-opening, the means for supporting said figured plate comprising a rod fitted to and longitudinally movable in brackets on said hopper, and means to impart reciprocating movement to said plate, said means comprising a cam-wheel and a pivoted bell-crank, one arm of which is connected to said plate-supporting rod and the other arm of which projects into the path of travel of said cam-wheel, substantially as described.

10. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said hopper-opening, the

means for supporting said figured plate comprising a rod fitted to and longitudinally movable in brackets on said hopper and means to impart reciprocating movement to said plate, said means comprising a pivoted bell-crank, one arm of which is connected to the rod on which said figured plate is supported and the other end of which projects into the path of travel of a cam-wheel, means to rotate said cam-wheel and a spring applied to said bell-crank adapted to move it in the opposite direction from said cam-wheel, substantially as described.

11. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said hopper-opening, the means for supporting said figured plate comprising a rod fitted to and longitudinally movable in brackets on said hopper, and means to impart reciprocating movement to said figured plate, said means comprising a link adjustably connected to said figured plate, substantially as described.

12. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said hopper-opening, the means for supporting said plate comprising a rod fitted to and longitudinally movable in brackets on said hopper and cross-arms on said rod to which said figured plate is attached, substantially as described.

13. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support provided with an opening in its under side, a figured plate supported in contact with the edges of said hopper-opening, a plate supported beneath said figured plate, the means for supporting said plate comprising a rod supported in brackets and cross-arms on said rod to which said plate is attached and means for imparting reciprocating movement to said plate, substantially as described.

14. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a hopper above said support provided with an opening in its under side, a plate supported in contact with the edges of said hopper-opening, fingers on said plate which extend beyond the wall of said hopper on the discharge side thereof and means to impart reciprocating movement to said plate, substantially as described.

15. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a hopper above said support provided with an opening in its under side, a plate supported in contact with the edges of said opening, fingers on said plate which extend beyond the wall of said hopper on the discharge side thereof, a plate beneath said figured plate and means to impart reciprocating movement to said plates, substantially as described.

16. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a plurality of hoppers above said support provided with openings in their under sides, figured plates supported in contact with the edges of the openings in said hoppers, plates beneath said figured plates and means to impart reciprocating movement to said plates, substantially as described.

17. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a hopper above said support, a retaining-roll revolvably mounted above said support at the rear of said hopper, said hopper being provided with an opening in its under side, a plate supported in contact with the edges of the opening in said hopper, fingers on said plate which extend beyond the wall of said hopper and into close proximity to the under side of said retaining-roll and means to impart reciprocating movement to said plate, substantially as described.

18. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a hopper above said support, a retaining-roll revolvably mounted above said support at the rear of said hopper, said hopper being provided with an opening in its under side, a plate supported in contact with the edges of the opening in said hopper, fingers on said plate which extend beyond the hopper-wall and into close proximity to the under side of said retaining-roll, a plate beneath said figured plate and means to impart reciprocating movement to said plates, substantially as described.

19. The combination with a hopper provided with an opening in its under side of means to feed the contents of said hopper therefrom, said means comprising a figured plate supported in contact with the edges of said hopper-opening, a plate supported beneath said figured plate and means to impart reciprocating movement to said plates, substantially as described.

20. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support, a feed mechanism adapted to deliver the contents of said hopper upon said support and means for applying a bonding agent to the material delivered upon said support, said means comprising a per-

forated cylinder the interior of which communicates with a source of supply, a casing which incloses said perforated cylinder provided with an opening in its under side and means to pack or close the space between said cylinder and casing at the edges of the opening in said casing, substantially as described.

21. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support, a feed mechanism adapted to deliver the contents of said hopper upon said support and means for applying a bonding agent to the material delivered upon said support, said means comprising a perforated cylinder the interior of which communicates with a suitable source of supply, a rotatable casing which incloses said perforated cylinder, said casing being provided with an opening adapted to be brought beneath or above said perforated cylinder by turning said casing and means to close or pack the space between said cylinder and casing at the edges of the opening in said casing, substantially as described.

22. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support, a feed mechanism adapted to deliver the contents of said hopper upon said support and means for applying a bonding agent to the material delivered from said hopper upon said support, said means comprising a rotatable perforated cylinder the interior of which communicates with a source of supply, a rotatable casing or jacket which incloses said perforated cylinder, said casing being provided with an opening adapted to be brought beneath or above said perforated cylinder by turning said casing, packings which close the space between said cylinder and casing at the edges of the opening in said casing and means to rotate said cylinder, substantially as described.

23. A machine for making min-board, or the like, comprising a movable support, means to impart movement to said support, a hopper above said support, a feed mechanism adapted to deliver the contents of said hopper upon said support and a bond-applying mechanism, comprising a rotatable perforated cylinder the interior of which communicates with a source of supply, means to rotate said cylinder, a rotatable casing which incloses said cylinder, said casing being provided with an opening which may be brought above or below said cylinder by turning said casing and packings which close the space between said cylinder and casing at the edges of the opening in said casing, comprising a strip of suitable material secured to said casing so that it will rub on the surface of said cylinder, substantially as described.

24. The combination of a rotatable perforated cylinder the interior of which communicates with a source of fluid-supply, means to rotate said cylinder and a rotatable casing which incloses said cylinder, said casing being provided with an opening adapted to be brought above or beneath said cylinder by turning said casing, substantially as described.

25. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a plurality of hoppers above said support provided with openings in their under sides, figured plates supported in contact with the edges of the openings in said hoppers and means to impart reciprocating movement to said plates, substantially as described.

26. A machine for making min-board, or the like, comprising a movable support, means to impart movement thereto, a plurality of hoppers above said support disposed at intervals along the same, means to feed the contents of said hoppers upon said movable support and means located at the delivery side of said hoppers for applying a bonding agent to the material delivered upon said support from said hoppers, substantially as described.

697,697. FAN. JAMES J. WOOD, Fort Wayne, Ind. Original application filed Feb. 28, 1891, Serial No. 61,046. Revised and this application filed June 16, 1900. Serial No. 61,061. (No model.)

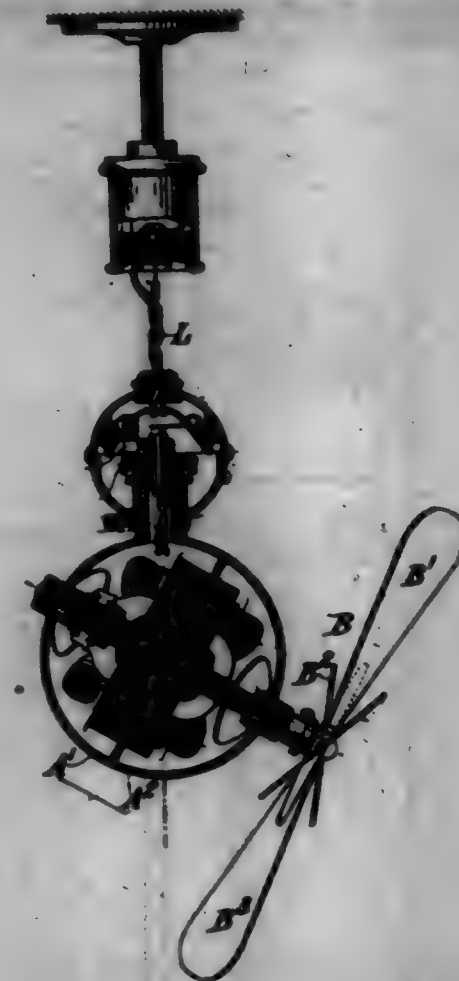
Claim.—1. The combination with a support mounted to rotate on its axis, of means for rotating said support consisting of a fan mounted on said support on a shaft oblique to said axis, the said fan being substantially unbalanced and the obliquity of said fan-shaft alone causing the rotation of said support.

2. The combination with a support mounted to rotate on its axis, of means for rotating said support consisting of a fan mounted on said support on a shaft oblique to said axis, the said fan being substantially unbalanced and the obliquity of said fan-shaft alone causing the rotation of said support.

3. The combination with a support mounted to rotate on its axis, of a fan mounted on said support on a shaft oblique to said axis, means for rotating said fan whereby said support is rotated on its axis, and means for controlling the speed of rotation of said support on its axis.

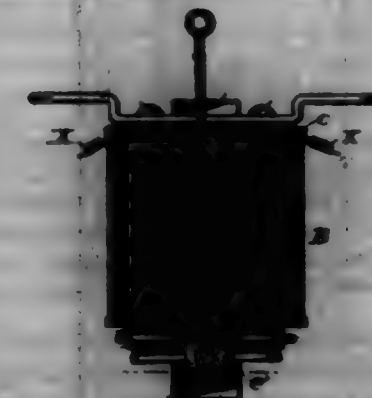
4. The combination with a support mounted to rotate on its axis, of a fan mounted on said support on a shaft oblique to said axis, means for rotating said fan whereby said support is rotated on its axis, and a brake for retarding the rotation of said support on its axis.

5. The combination with a support mounted to rotate on its axis, of a fan mounted on said support on a shaft oblique to said axis, means for rotating said fan whereby said support is rotated on its axis, a brake for retarding the rotation of said support, and means for adjusting said brake so as to control the speed of rotation of said support on its axis.



6. The combination with a rotary motor-casing, of a stationary casing supporting it, said stationary casing being composed of a shell E carrying the rotary casing, and a shell F carrying a brake adapted to bear upon the rotary casing, and means for giving said shells a movement toward or away from each other so as to adjust the pressure of said brake on said rotary casing.

697,698. MAGNETO-BELL RINGER. BRUNN E. YALLEN, Chicago, Ill. Filed Dec. 4, 1891. Serial No. 61,061. (No model.)

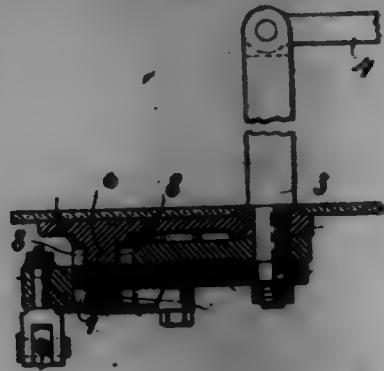


Claim.—In a magneto-bell ringer, the combination of electromagnets having cores presenting projecting, rounded and portion, an armature-support comprising a yoke having openings to receive said cores, and adjustable nuts on each of the threaded and portions of the cores clamping the yoke between them, substantially as and for the purpose set forth.

697,699. STEERING-LOCK FOR VEHICLES. GEORGE P. ADAMS, Boston, Mass., assignor of one-half to R. J. FINE, Boston, Mass. Filed Sept. 11, 1891. Serial No. 61,061. (No model.)

Claim.—1. In a locking device, a fixed locking member having two opposed locking-curbs, a rotary member to be moved, a pair of automatic clutches located on the same side of the rotary axis of said rotary member and acting simultaneously in opposite radial directions on the respective locking-curbs to lock said axis to the fixed locking member, and a rotary actuator to release the clutches and rotate the rotary member.

2. In a locking device, a fixed locking-segment having two opposed locking-surfaces, an oscillatory arm to be moved, two pairs of automatic clutches located on the same side of the rotary axis of said arm, the pairs locking alternatively in opposite angular directions, the two clutches of a pair acting simultaneously in opposite radial directions on the respective locking-surfaces to lock said arm to the segment, and an oscillatory actuator acting in opposite angular directions to release the clutches and oscillate the arm.



697,700. OILER. ARTHUR H. ALDER, Westport, N. H. Filed Dec. 18, 1901. Serial No. 88,471. (No model.)



Claim.—1. An oiler, comprising a can, a cylinder adapted to be secured in said can, a ball-valve secured in the lower end of the cylinder, a piston-head provided with a vertical opening adapted to operate in the cylinder above the ball-valve, a pipe secured to the upper end of the piston-head and passing through a collar on the upper end of the cylinder, and adapted to receive a T-joint provided with a pin-valve, substantially as described.

2. An oiler comprising a can, a cylinder adapted to be secured in said can, a ball-valve secured in the lower end of the cylinder, a piston-head provided with a vertical opening adapted to operate in the cylinder, a pipe the lower end of which is secured to the piston-head, and the upper end terminating at right angles and secured to a T-joint, a valve-seat portion provided with a vertical opening secured to the lower end of the T-joint, and having a valve-seat in the upper end thereof, a pin-valve the stem portion of which is provided with a series of grooves, and the upper portion terminating in a pin projection, a screw-threaded plug provided with a lug projection secured in the top of the T-joint, a spiral spring around the pin projection and plug projection normally holding the valve in the valve-seat, substantially as described.

697,701. MACHINIST'S SCALE. ALBERT E. AYER, East Boston, Mass., assignor of one-half to Herbert B. Newton, Haverhill, Mass. Filed Feb. 21, 1901. Serial No. 88,665. (No model.)

Claim.—1. A machinist's scale having a longitudinal straight edge which is provided with a regular series of standard graduations, a series

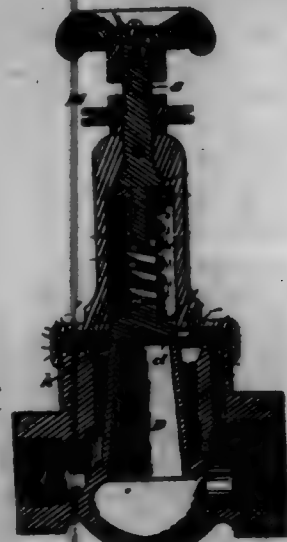
of steps arranged along the opposite longitudinal edge, each step consisting of two edge sections, one of which is parallel to one end of the scale and perpendicular to the graduated edge, and to the other edge section, each of the latter edge sections being of a length expressed in standard units by a recognized coefficient suitably indicated by markings on the scale.



2. A scale having a regular series of graduations along one edge, the opposite edge of the scale being provided with a series of steps or shoulders which are different standard distances apart, the sections of the edge between each shoulder being parallel to the edge on which the graduations are formed, and the distances between each shoulder and one end of the scale being indicated by the graduations to which they correspond at appropriate points.

3. A machinist's scale having a series of steps arranged along the entire length of one longitudinal edge, each step consisting of two edge sections, one of which is parallel to the widest end of the scale and perpendicular to the other edge section, each of the latter edge sections being of a length different from the others, and expressed in standard units by a recognized coefficient suitably indicated by markings on the scale.

697,702. PRESSURE-REGULATOR. THOMAS J. DOWLEY and FREDERICK R. PLANK, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 88,217. (No model.)



Claim.—1. In a pressure-regulator, the combination of the shell provided with a channel in its upper surface, a passage leading into it from the discharge side of the pump, and a cylindrical partition with a diaphragm for controlling the opening in said partition, and also provided with openings registering with said channel whereby the reduced pressure controls from the top the movement of the diaphragm, substantially as described.

2. In a pressure-regulator, the combination with the shell and cap for the same provided with adjoining channels separated by a diaphragm, said diaphragm being perforated between the channels, one side of the channel in the cap being also perforated, a passage leading from the discharge side of the casing into said channels, and means for admitting fluid under the diaphragm substantially as described.

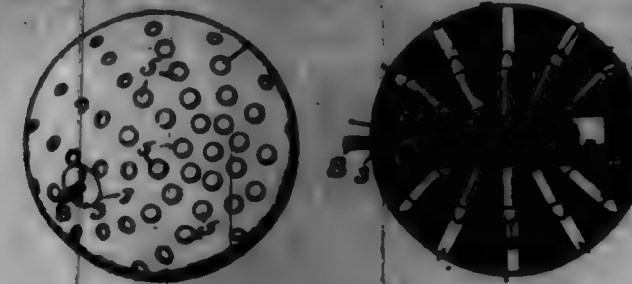
3. In a pressure-regulator, the combination of a casing provided with an inlet and outlet ports, a channel in the upper surface, a passage leading from the outlet into the same with a diaphragm, an opening in the shell controlled by the diaphragm, openings in the diaphragm opposite the channels, and a regulating spring on the back of the diaphragm, substantially as described.

4. In a pressure-regulator, the combination of a casing provided with a channel on its upper surface with a cap having a channel in its upper surface, a diaphragm held between the two surfaces formed by the channels, perforations in said diaphragm between the channels and a passage leading from the discharge side of the regulator through the channels to the back of the diaphragm, substantially as described.

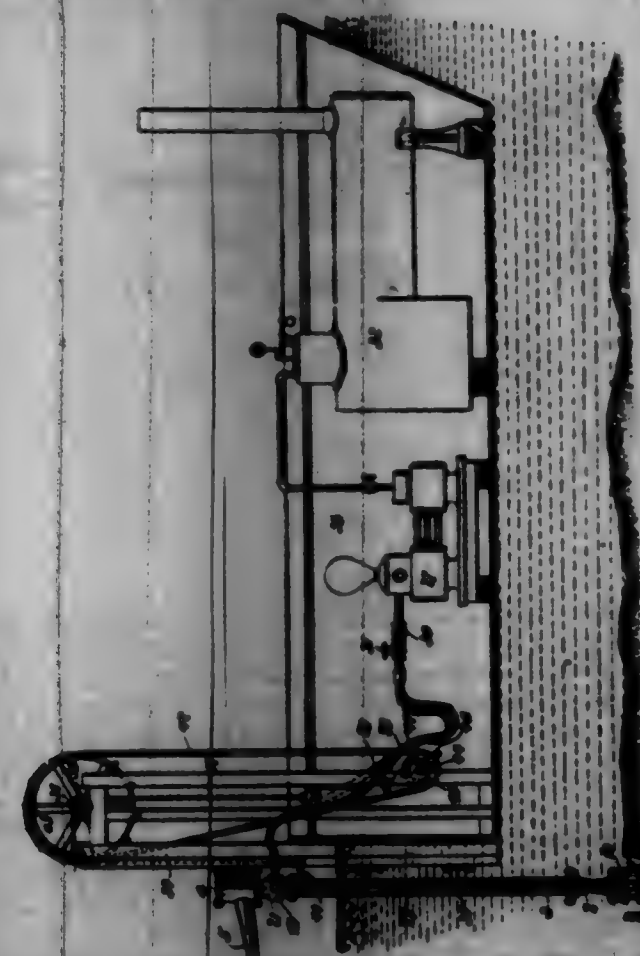
697,703. SHELL. WHELAN & GALLAGHER, Mountbush, Maine. Filed May 1, 1901. Serial No. 88,330. (No model.)

Claim.—A projectile having a breach-opening threaded at its inner end and enlarged at its outer end and adapted to receive an explosive and having other openings in communication with the breach-opening and adapted to receive cartridges, and a hollow breach headed at its outer

end and threaded at its inner end and having an opening in its side, the headed end serving to enter the enlarged outer end of the breach-opening and close the same, substantially as set forth.



697,704. HYDRAULIC BREEDER, ELEVATOR, AND ELEVATOR. CURTIS L. CURTIS, New York, N. Y. Filed June 4, 1901. Serial No. 88,308. (No model.)



Claim.—1. A dredger, excavator and elevator comprising a stand-pipe having an inlet and outlet for the material and a waste-chest secured to the stand-pipe and spaced from the inlet, the said waste-chest having opposite projected nozzles arranged to direct jets into the material and into the stand-pipe for disintegrating the material, drawing it into the stand-pipe and elevating it, substantially as set forth.

2. A dredger, excavator and elevator comprising a stand-pipe having an inlet and an outlet, a waste-chest spaced from the inlet and having two chambers therein, a nozzle projected outwardly from one chamber for directing a jet into the material for disintegrating it and another nozzle projected inwardly from the other chamber for directing a jet into the stand-pipe for drawing in and elevating the disintegrated material, substantially as set forth.

3. A dredger, excavator and elevator comprising a stand-pipe having its bottom and top ends open to form an inlet and outlet respectively, a waste-chest spaced from the open inlet end of the pipe having an outwardly-projected nozzle and an inwardly-projected nozzle and hydraulic feed-pipes communicating with the waste-chest, substantially as set forth.

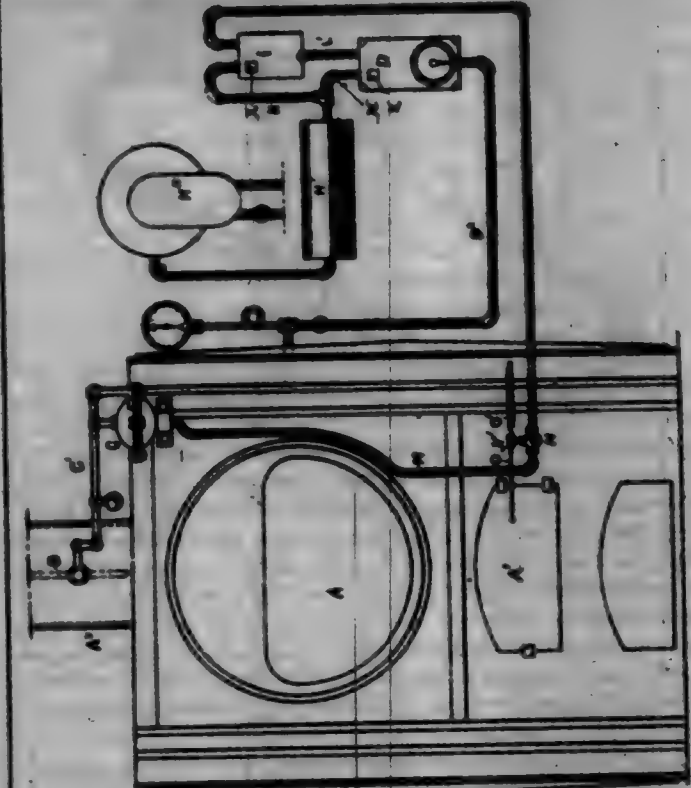
4. A dredger, excavator and elevator comprising a stand-pipe consisting of a head-section, an injector-section and one or more intermediate sections and a waste-chest spaced from the injector-section and having an inwardly-projected nozzle arranged to form an injector with the injector-section of the stand-pipe for drawing in and elevating the material, substantially as set forth.

5. A dredger, excavator and elevator comprising a stand-pipe having an inlet and an outlet for the material, a waste-chest, a diaphragm partition dividing the waste-chest into two chambers, feed-pipes leading to

the two chambers, a nozzle projected outwardly from one chamber and a nozzle projected inwardly from the other chamber, substantially as set forth.

6. A dredger, excavator and elevator comprising a stand-pipe having an open bottom, a waste-chest having oppositely-projected nozzles, means for securing the waste-chest to the bottom of the stand-pipe and spacing it therefrom comprising an annular series of bolts and sleeves located on the bolts and interposed between the chest and the bottom of the stand-pipe, substantially as set forth.

697,705. DAMPER-CONTROLLER. DAVID H. BARNES, Grandford, N. J., assignor to Halsey Nelson, Brooklyn, N. Y. Filed Jan. 18, 1900. Serial No. 88,473. (No model.)



Claim.—1. The combination with a damper-regulator for boiler-furnaces controlled by variations of pressure of the steam in the boiler, through the medium of a damper-motor, actuated by a fluid under pressure to hold the damper open, of the furnace-door and a cut-off and vent device so connected to and operated by the furnace-door as to cut off the controlling fluid medium from the damper-motor and relieve said motor of pressure and so allow the damper to be closed when the furnace-door is opened.

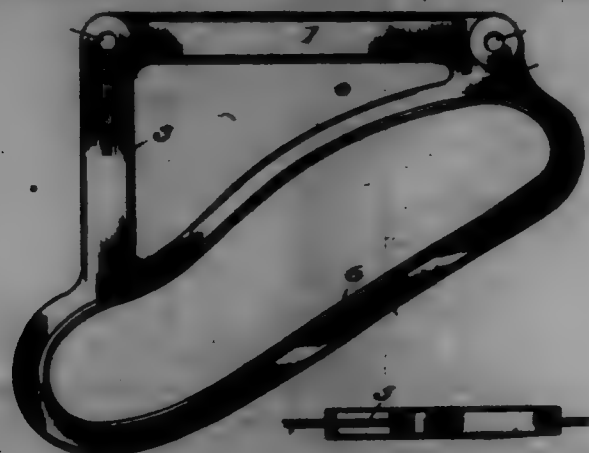
2. A combined steam-pressure and furnace-door-damper controller, consisting of a damper-motor connected to the damper and actuated by a fluid under pressure, a controlling device actuated by changes in the material being heated by the furnace to allow the fluid under pressure to pass to the damper-motor and to vent the same, a reservoir for each fluid under pressure, pipes connecting the source of fluid-supply to the controlling device and the damper-motor, a cut-off and vent valve in the supply-pipe to the damper-motor, and means connecting the cut-off and valve and the furnace-door whereby the fluid is cut off from and the damper-motor vented when the furnace-door is open and when the boiler-pressure is above the normal.

3. A combined steam-boiler pressure and furnace-door-damper controller, comprising a damper-motor, a source of fluid-pressure supply for actuating the damper-motor to hold the damper open, a controlling device, comprising a governor and a relay, said governor being actuated by steam from the boiler to allow the fluid under pressure to actuate the relay to cause it to allow the fluid under pressure to pass to the damper-motor and to allow the fluid to escape from the damper-motor when the pressure of the steam rises, pipes connecting the source of fluid-supply, the controlling device and the damper-motor, a cut-off and vent device located in the supply-pipe to the damper-motor, and a connection between the furnace-door and the cut-off and vent-valve whereby said valve is closed and its vent opened during the initial opening of the door.

4. In a steam-boiler furnace, the combination of the smoke-stack damper, a motor controlling the damper, means for controlling the motor operated by the boiler-pressure and means for controlling the motor operated by the furnace-door to cause the closing of the damper when the steam-pressure rises above a predetermined point or when the furnace-door is opened, and to cause the opening of the damper when the boiler-pressure is normal or less than normal and the furnace-door is closed.

5. In a steam-blower furnace, the combination of the smoke-stack damper, a motor for closing the same when the steam-pressure rises above a predetermined point or when the furnace-door is opened, and for opening the damper when the steam-pressure falls below the predetermined point and the furnace-door is closed, means for controlling said motor actuated by the boiler-pressure, and means for controlling the motor actuated by the furnace-door.

897,706. GUIDE-PLATE FOR CIGAR-WRAPPER-CUTTING MACHINE. HANCOCK DU BOIS, Cincinnati, Ohio. Filed June 4, 1901. Serial No. 68,128. (No model.)



Claim.—1. As a new article of manufacture, a replaceable or interchangeable shaping-guide for that type of cigar-wrapper-cutting machines employing a floating tool; said guide comprising an open frame corresponding to the outline of the wrapper to be cut, formed with a vertically-extending guiding track or flange, integral supporting and attaching arms of different lengths extending rearwardly from one side of the frame so as to leave the front side of the frame free, and connected at their rear ends by a bar so that the major axis of the frame lies at an angle to said bar; said bar being constructed for detachable connection with the machine and designed to be parallel to the front of the machine when so attached.

2. As a new article of manufacture, a shaping-guide for cigar-wrapper-cutting machines, employing a floating tool; the same comprising an open frame constructed of a horizontal base-flange, integral attaching-arms extending outwardly therefrom and in the plane of said base-flange, constructed for replaceable attachment to the machine without disturbing the working parts of the latter, and having a flange conforming to a cigar-wrapper outline projecting vertically from the horizontal base-flange along the edge of the opening, out of the plane of the base-flange and providing a track for engagement with the tool and direction of the latter over the projecting arm.

3. As a new article of manufacture, a replaceable or interchangeable shaping-guide for cigar-wrapper-cutting machines of the type employing a floating tool; the same comprising an open frame formed along the inner edge of the opening with a thin vertical tool-receiving track or flange and around the outer side with an outwardly-extending stiffening base or flange, and arms extending rearwardly from said flange or base on one side only of said frame and provided at their rear ends with means for detachably securing them to the type of machine specified; said arms being connected at their rear ends by a cross-bar which lies parallel to the front of the machine when the guide is connected for use, and the arms being of different lengths whereby they hold the shaping-guide in a position with its major axis at an angle to the front of the machine.

4. A cutter-guide plate for wrapper-cutters, comprising a frame, and means upon opposite faces thereof for guiding a cutting-tool.

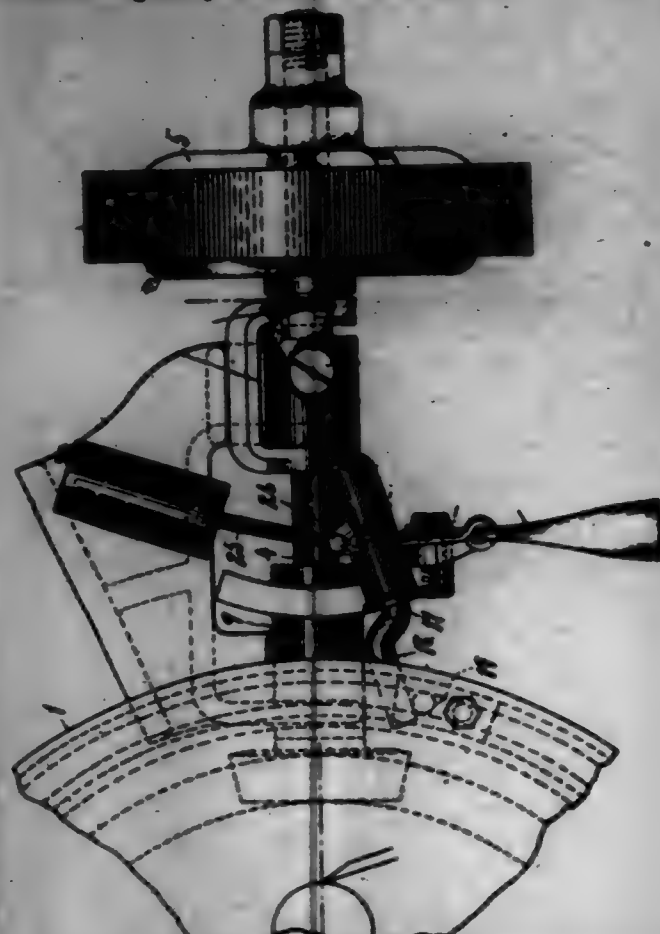
5. A cutter-guide plate for wrapper-cutters, comprising a frame, and angularly-disposed tracks upon opposite faces thereof.

6. A cutter-guide plate for wrapper-cutters, comprising a frame, means upon opposite faces thereof for guiding a cutting-tool, and a long and a short supporting-arm.

897,707. STOPPING OR STARTING DEVICE. WILLIAM C. HAYES and WILLIAM A. REED, Boston, Mass., assignors to Flegg Manufacturing Company, Boston, Mass., a Corporation of Maine. Filed Oct. 6, 1901. Serial No. 77,068. (No model.)

Claim.—1. A machine of the character described comprising a rotatable member, driving means for rotating it, an arresting device adapted to stop the rotatable member with a disintegrating resistance at a point slightly beyond a complete rotation and to return it to its starting-point, and means for automatically disconnecting the driving power from the rotatable member.

2. A machine of the character described comprising a rotatable member, driving means for rotating it, said means including a clutch, an arresting device adapted to stop the rotatable member with a disintegrating resistance at a point slightly beyond a complete rotation and to return it to its starting-point, and means for automatically disconnecting the clutch member during the operation of the arresting device.



3. A machine of the character described comprising a rotatable member, driving means for rotating it, said means including a clutch, an arresting device adapted to stop the rotatable member with a disintegrating resistance at a point slightly beyond a complete rotation and to return it to its starting-point, said device having means for varying the rate of disintegration of said resistance, and means for automatically disconnecting the clutch member during the operation of the arresting device.

4. A constantly-actuated driver, a driven member, a clutch to connect and disconnect said driver from the driven member, a trip-lever connected to cut and release the clutch, means acting on the trip-lever to yieldingly arrest the same, a projection on the driven member, a rotary stem carried by the trip-lever and having a member to be engaged by said projection and offset from the axis of rotation of the stem to avoid said projection upon rotation of the stem, a lost-motion connection between the stem and trip-lever, and an operating device connected with the stem.

897,708. LAMP HOOD AND SWITCH. HARRY BERNHARD, Baltimore, Pa. Filed July 26, 1901. Serial No. 68,415. (No model.)

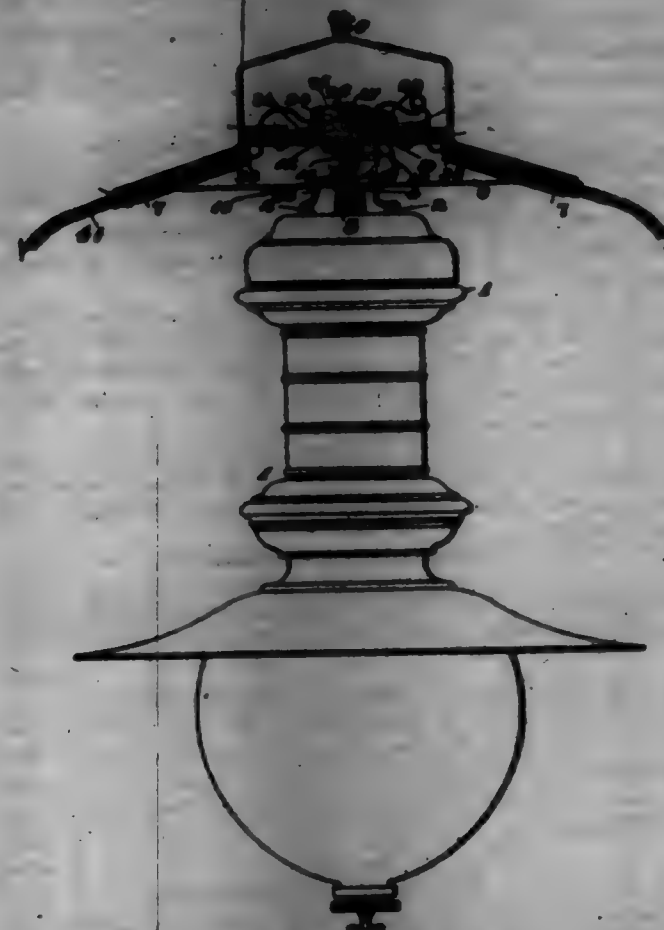
Claim.—1. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, and an arc-lamp supported above and pivoted about the same center whereby the weight thereof operates to move said switch-arm into and retain the same in either of its operative positions when moved past its control or neutral point.

2. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an arc-lamp supported above and pivoted about the same center whereby the weight thereof operates to move said switch-arm into and retain the same in either of its operative positions when moved past its control or neutral point, and a cushion adapted to take up the shock of said arm when oscillated to its operative position.

3. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts and engage at one side before leaving the other, and an arc-lamp supported above and pivoted about the same center whereby the weight thereof operates to move said switch-arm into and retain the same in operative position when moved past its control or neutral point.

4. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate be-

tween said contacts, an oscillable lamp-supporting member operating upon the same center as said arm, and a lamp suspended from said member above its axis which is adapted by its weight to act upon said member when moved past its control or neutral point in either direction to actuate said arm into and retain the same in operative position.



5. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an oscillable lamp-supporting member operating upon the same center as said arm, a lamp suspended from said member above its axis which is adapted by its weight to act upon said member when moved past its control or neutral point in either direction and actuate said arm into and retain the same in operative position, and means to take up the cushion when said arm is moved into said operative position.

6. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, an oscillable lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point, and means whereby said switch-arm remains unactuated until said lamp member has been actuated past its neutral point.

7. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, an oscillable lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said switch-arm remains unactuated or unremoved until said lamp member has been actuated past its neutral point, and means to take up the cushion of said arm when moved into operative position.

8. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an arc-lamp pivoted about the same center, whereby the weight thereof operates to move said switch-arm into and retain the same in either of its operative positions when moved past its control or neutral point, and a cushion adapted to take up the shock of said arm when oscillated to its operative position.

9. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an arc-lamp supported above and pivoted about the same center whereby the weight of said lamp operates to move said switch-arm into and retain the same in either of its operative positions when

moved past its control or neutral point, a cushion adapted to take up the shock of said arm when oscillated to its operative position, and a crank or the equivalent thereof carried by said arc-supporting mechanism to operate the lamp past its neutral point of suspension.

10. In a lamp for use in a lamp, the combination with the necessary contacts, of a switch-arm pivoted to oscillate between said contacts and engage at one side before leaving the other, an arc-lamp supported above and pivoted about the same center, whereby the weight thereof operates to move said switch-arm into and retain the same in operative position when moved past its control or neutral point, and a crank or the equivalent thereof carried by said arc-supporting mechanism to operate the lamp past its neutral point of suspension.

11. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an oscillable lamp-supporting member operating upon the same center as said arm, a lamp suspended from said member above its axis which is adapted by its weight to act upon said member when moved past its control or neutral point in either direction and actuate said arm into and retain the same in operative position, and a crank or the equivalent thereof carried by said arc-supporting mechanism to operate said member past its neutral point.

12. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm pivoted to oscillate between said contacts, an oscillable lamp-supporting member operating upon the same center as said arm, a lamp suspended from said member above its axis which is adapted by its weight to act upon said member when moved past its control or neutral point in either direction and actuate said arm into and retain the same in operative position, means to take up the cushion of said arm when moved into operative position, and a crank or the equivalent thereof carried by said operating mechanism to operate said member past its neutral point.

13. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and a crank or the equivalent thereof carried by said shaft to operate said lamp member past its neutral point.

14. In a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and means to take up the shock when said arm is moved into operative position.

15. A head, a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and means to take up the shock when said arm is moved into operative position.

16. A head, a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and means to take up the shock when said arm is moved into operative position.

17. A head, a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and means to take up the shock when said arm is moved into operative position.

18. A head, a lamp for use in a lamp, the combination with a switch having the necessary contacts, of a switch-arm loosely mounted upon a shaft and adapted to oscillate between said contacts, a lamp-supporting member carried by said shaft, a lamp suspended from said member above its axis which is adapted by its weight to move said member in either direction when actuated past its control or neutral point and actuate said switch-arm into and retain the same in operative position, means whereby said arm is unactuated until said lamp member has been actuated past its neutral point, and means to take up the shock when said arm is moved into operative position.

upon each lead-wire to partly extend and engage in said insulation, a switch inclosed in said head the movable member of which is provided with a crank, a lamp suspended from said crank whereby the gravitating force thereof will co-operate with the force employed to move said switch-member crank divert the current and maintain the continuity of the circuit in said diverted path, means of applying the necessary force to said crank to co-operate with said lamp gravity, and means of reducing tension when the movable contact member is forced to operative position.

19. A head, tubular insulation carried by said head, a helix formed upon each lead-wire which partly extend and engage in said insulation, a switch inclosed in said head the movable member of which is provided with a crank, a lamp suspended from said crank whereby the gravitating force thereof will co-operate with the force employed to move said switch-member crank divert the current and maintain the continuity of the circuit in said diverted path, means whereby disengagement of the switch members is not effected until said lamp-gravitating force becomes active, and means of reducing tension when the movable contact member is forced to operative position.

20. A head, tubular insulation carried by said head, a helix formed upon each lead-wire to partly extend and engage in said insulation, a switch inclosed in said head the movable member of which is provided with a crank, a lamp suspended from said crank whereby the gravitating force thereof will co-operate with the force employed to move said crank divert the current and maintain the continuity of the circuit in said diverted path, means of applying the necessary force to said crank to co-operate with said lamp gravity, means whereby the disengagement of the switch members is not effected until said lamp-gravitating force becomes active, and means of reducing the tension when the movable contact member is forced to operative position.

21. The combination with a lamp and the leads thereof, of a flanged head adapted to inclose the lamp-switch, tubular insulation carried by the flange of said head, and a helix formed upon each of said lead-wires to adjustably engage in said insulation.

22. The combination with a lamp and the leads thereof, of a head adapted to inclose the switch and having an annular inclined flange extending thereabout, tubular insulation secured upon said flange, and a helix formed upon each of said leads to adjustably engage in said insulation.

23. The combination with a lamp and leads thereof, of a head adapted to cover the switch mechanism, tubular insulation carried by said head and helices formed upon said leads circumferentially engaging in said insulation.

24. The combination with a lamp and leads thereof, of a head adapted to inclose and support the switch mechanism, tubular insulation carried thereby, and helices formed upon said leads circumferentially engaging in said insulation.

25. The combination with a lamp and the leads thereof, of a head adapted to cover the switch mechanism and provided with an annular flange, tubular insulation carried thereby beneath said flange, and helices formed upon said leads circumferentially engaging in said insulation.

26. The combination with a lamp and the leads thereof, of a head adapted to inclose and support the switch mechanism and provided with an annular flange, tubular insulation carried thereby beneath said flange, and helices formed upon said leads circumferentially engaging in said insulation.

697,709. TAY BOLT. DAVID L. FINEBERG, THORNTON, N. C. Filed Oct. 12, 1901. Serial No. 73,772. (No model.)



Claim.—In a device of the character described, the combination with a head provided with a house for a small animal, of a tread-drum having an opening in its periphery located adjacent the said house, a hollow extension to the said house and having its outer end adjacent the said drum, said outer end being curved to conform to the curvature of the drum, a propeller-shaft having its inner end adjacent the said drum, and means whereby the said shaft and drum will rotate simultaneously.

697,710. RAG-PANTHER. LAWRENCE C. GERRARD and JAMES M. ROWLEY, Buffalo, N. Y. Filed June 1, 1901. Serial No. 66,778. (No model.)

Claim.—1. In a bag-fastener, the combination of a fixed clamping member, and a movable clamping member adapted to clamp a cord between them, and a cam-lever of which said movable clamping member forms the axis.

2. In a bag-fastener, the combination of a plate, a fixed clamping member carried by said plate, a movable clamping member, and a cam

operated to bear against said plate to operate said movable member to clamp a cord.



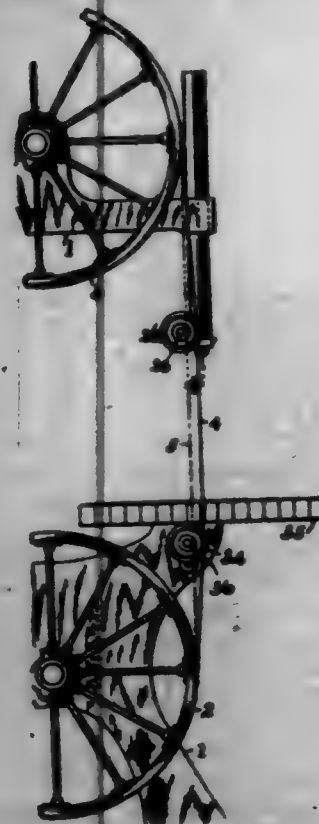
3. In a bag-fastener, the combination of a fixed clamping member, a movable clamping member, a cam for operating said movable member to clamp a cord, and means for locking said cam when said movable member is in the clamping position.

4. In a bag-fastener, the combination of a plate, a fixed clamping member carried by said plate, a movable clamping member, and a cam adapted to bear against said plate to operate said movable member to clamp a cord, an operating-arm connected to said cam, said arm and said plate having helms adapted to register with each other in the clamping position of the parts.

5. In a bag-fastener, the combination of a plate having helms at opposite ends for the reception of a cord, means intermediate of the ends for clamping said cord, and an operating-arm K for said clamping means, said plate and arm having helms adapted to register with each other in the clamping position of the parts.

6. In a bag-fastener, the combination of a plate carrying a clamping member, of an arm connected to a second clamping member and adapted to bear upon and extend beyond said plate in the clamping position of the parts.

697,711. SAND-BAW GUINER AND THOMSON DEVER. ARNOLD GILLARDSON, Philadelphia, Pa. Filed June 5, 1901. Serial No. 68,188. (No model.)



Claim.—1. The combination in a hand sawing-machine, of pulleys; a hand-saw supported by the pulleys; guide and tension wheels each composed of a metallic flange and hub, a non-metallic disk and a web covering applied to the periphery of the disk; and adjustable supports for the said wheels.

2. The combination in a hand sawing-machine, of pulleys; a hand-saw; rotary guide and tension wheels, each wheel having a metallic rim and hub, and a non-metallic disk, said hub being provided with double conical bearing-surfaces; and a spindle for each wheel having double conical bearings in the hub and one of said bearings adjustable; the said hub being provided with an open space for the reception of a lubricant.

3. In a hand sawing-machine, rotary guide and tension wheels having a metallic hub, back and narrow rim, a pulley formed by the parts above said, and therein inserted and held, a non-metallic block having properties to retain cement or other adhesive substance.

4. In a hand sawing-machine, metallic guide and tension wheels having a non-metallic body secured thereto, and covered with leather or like material upon the parts of the wheels in contact with the saw rim, and a metallic edge raised around one edge of the cover above said which the saw's back edge may rest when resisting pressure against its cutting edge or teeth.

5. The combination in a hand sawing-machine, of pulleys; a hand-saw supported by the pulleys; guide and tension wheels located above and below the table; and means for adjusting each wheel in two directions in a horizontal plane; each of the adjusting means comprising an arm with a groove 10, a bearing 12 with a tongue 11, and a bolt 14, for adjusting the wheel relative to the back edge of the saw; and a box 15 with a groove 16 fitting a tongue on bearing 12 and clamping-bolts, for adjusting the wheel relative to the flat side of the saw; said box 15 supporting a spindle with a free end upon which is located the guiding-wheel.

697,712. FAIRBANKS-WHEEL. JOHN GARDNER, Galveston, Tex. Filed Jan. 24, 1902. Serial No. 61,693. (No model.)

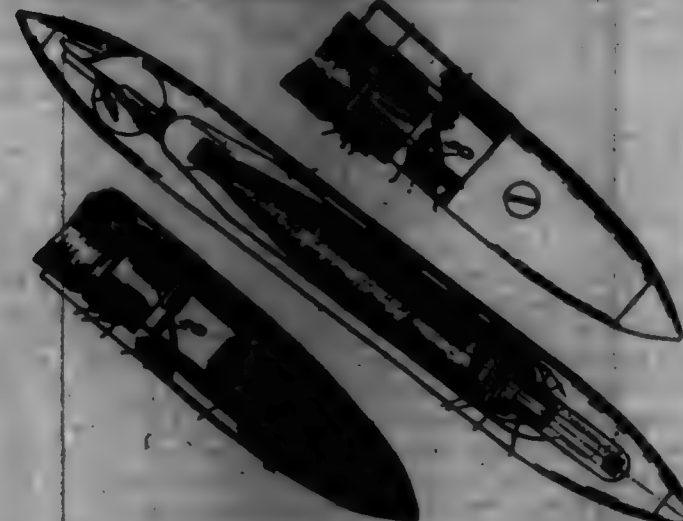


Claim.—1. In a wheel of the character described, the combination with a paddle-wheel loosely mounted upon a shaft, of an inner paddle-wheel rigidly keyed to a shaft and mounted within and concentrically to the first-named paddle-wheel, whereby the paddles of the respective wheels intermesh.

2. In a wheel of the character described, the combination with a support of a paddle-wheel mounted upon said support and adapted to freely revolve thereon, of a shaft journaled in said support and a paddle-wheel journaled in said support concentrically to said paddle-wheel and a paddle-wheel rigidly keyed to said shaft within said wheel whereby the said paddle-wheels intermesh and their combined power is concentrated in the said shaft.

3. In a wheel of the character described, the combination with suitable supports, short shafts having circular enlargements secured to said supports and a paddle-wheel mounted to freely revolve upon said enlargements, of a shaft journaled in said enlargements concentric to the paddle-wheel, a drum keyed to said shaft within said paddle-wheel, inverted-V-shaped brackets secured to the periphery of said drum and adapted to intermesh with the paddles of said paddle-wheel, whereby the combined power of the two wheels is concentrated, and means for transmitting said power.

697,713. LOON-HUTTLE. ORRIN GILMAN, Putnam, Conn., assignor to Bunker Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 9, 1901. Serial No. 61,691. (No model.)



Claim.—1. A shuttle-body having an opening to receive a filling-carrier, holding-jaws for and to yieldingly engage opposite sides of the head of the filling-carrier, and located at one end of said opening, and resilient means mounted on the shuttle-body to engage and steady the head of the filling-carrier held by the jaws, the latter holding the filling-carrier wholly independently of said means.

2. A shuttle-body having an opening to receive a filling-carrier, laterally-separable holding-jaws for the latter at one end of said opening, and a resilient finger mounted on the shuttle-body above and between said jaws and extending toward the opposite end of the shuttle-body to enter and interiorly engage the tubular head of a filling-carrier when the latter is inserted between and held by the jaws, to steady the filling-carrier and maintain it in operative position.

the said jaws, and connecting with the head of the filling-carrier at a point intermediate the engaging points of the jaws.

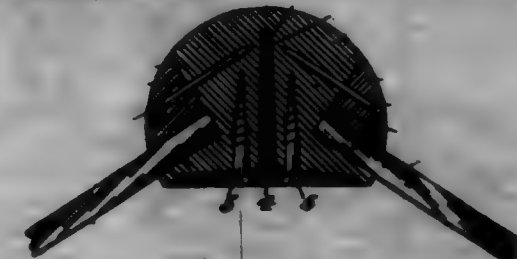
3. A self-threading shuttle-body having an opening to receive a filling-carrier, holding-jaws in said opening, an inclined guide in the rear of the cutting flange and between said jaws, and a resilient finger longitudinally extended above the guide and forwardly to engage and steady the head of a filling-carrier held by the jaws.

4. A self-threading shuttle-body having an opening to receive a filling-carrier, holding-jaws, an inclined, slotted guide in the rear of the cutting flange and between said jaws, and a resilient finger longitudinally extended through the slotted guide, to engage and steady the head of a filling-carrier held by the jaws.

5. A shuttle-body having an opening to receive a filling-carrier, holding-jaws in said opening at one end thereof, a filling-carrier having a tubular head provided with annular projections to be engaged by said jaws, and a resilient, longitudinally-extended finger on the shuttle-body, to enter the tubular head of the filling-carrier and engage and steady the same when supported by the holding-jaws.

6. A shuttle-body having an opening to receive a filling-carrier, laterally-separable holding-jaws for the latter at one end of said opening, and a resilient finger mounted on the shuttle-body above and between said jaws and extending toward the opposite end of the shuttle-body to enter and interiorly engage the tubular head of a filling-carrier when the latter is inserted between and held by the jaws, to steady the filling-carrier and maintain it in operative position.

697,714. CORNER-POST, TRANSDOM-BAR, OR MULLION. JAMES GOLDENHITTE, Columbus, Ohio, assignor to Maggie A. Graham, Columbus, Ohio. Filed Apr. 26, 1901. Serial No. 68,191. (No model.)



Claim.—1. In a window, a corner-post, transdom-bar, or mullion consisting of a bar of wood, a metallic angle-bar attached longitudinally thereto, a recess in the side of the wood portion to receive the edge of a glass plate or pane, and means to secure the glass in such recess.

2. In a window, a corner-post, transdom-bar or mullion of wood, a core of angle-bar of metal therein, a recess in the side of the wood portion to receive the edge of a glass plate or pane, and a stop to secure the glass in such recess.

3. In a window, a corner-post, transdom-bar or mullion of wood, a recess in the side of said wood portion to receive a glass plate or pane, and a flanged metallic bar having a flange embedded longitudinally in said wood portion, substantially as described.

697,715. CHURCH. JAMES M. HARTER, Chicago, Ill. Filed Feb. 8, 1902. Serial No. 66,696. (No model.)



Claim.—1. In a churn, a rotatable dasher-rod, a dasher carried thereby and having a propeller form, a stationary member arranged to

surround said dasher, and held in concentric relation therewith by a web or spider engaging the dasher-rod, an exterior projection on said annulus forming a step, a containing vessel, and means within said vessel for engaging said step.

2. In a churn, a reversible dasher-rod, a dasher carried thereby and having a propeller form, a stationary annulus arranged to surround said dasher, and held in concentric relation therewith by a web or spider, the hub of which is provided with a side opening to permit lateral disengagement, an exterior projection on the annulus forming a step, a containing vessel, and means within said vessel for engaging said step.

3. In a churn, the combination of a main cylindrical casing, a reversible dasher-rod arranged vertically therein, a dasher secured to the said rod, means for imparting rotary movement to the dasher, a pair of vertical plates or breaks arranged within the casing in diametrically-opposed relation, a pair of elastic conical connections cutting said breaks together, a stationary annulus co-spirally with the dasher, a spider on said annulus engaging the dasher-rod to maintain concentric relation between the parts, and a step on the exterior of each annulus for engagement with one of the vertical breaks to prevent a turning movement of each annulus, substantially as set forth.

697,716. APPARATUS FOR LOADING CARS, WAGONS, OR ALIEN F. HARRIS, Hudson, N. Y. Filed Oct. 7, 1901. Serial No. 77,988. (No model.)



Claim.—1. In a loader, the combination with a base and elevating-conveyor, of a shaker-board pivoted at one end in said base, the other end of the board being free, and means on the shaft of the conveyor engaging the said free end for agitating the said shaker-board.

2. In a loader, the combination with a base and elevating-conveyor, of a shaker-board mounted in said base, and adjustable guides secured on said board to direct the flow of material on said board.

3. In a loader, the combination with a base and an elevating-conveyor, of a shaker-board pivoted within said base and intermittently engaged by the conveyor.

4. In a loader, the combination with a base, a shaker-board pivoted within the same, guides pivotedly mounted on the upper face of said board and means adjustable on said board for holding the said guides in different positions.

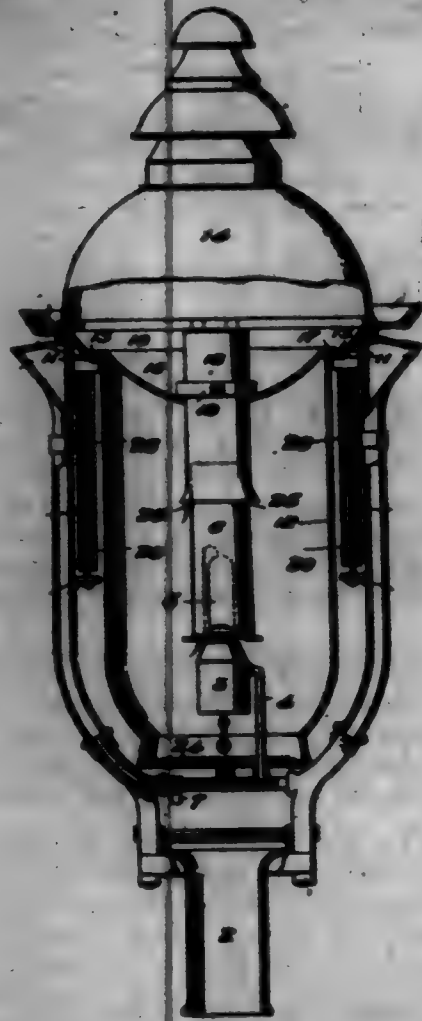
5. In a loader, the combination with a base and an elevating-conveyor extending upwardly therefrom, of a shaker-board pivotedly mounted in said base and toothed wheels mounted on one of the shafts of the conveyor adapted to engage said shaker-board.

6. In a loader, the combination with a base and an elevating-conveyor extending upwardly therefrom, of a shaker-board pivotedly mounted in said base and extending in the path of the conveyor, guides pivotedly mounted on the upper face of said shaker-board, a series of openings in said board in the path of the free ends of said guides, pins adapted to be secured in said openings to hold the guides in the desired adjusted position, toothed wheels secured upon each end of the lower shaft of said conveyor adapted to engage the free end of the shaker-board, gang-planks hinged to each side of the base, and removable gang-planks bridging said base, means for supporting the conveyor in its elevated position, and means for operating said conveyor.

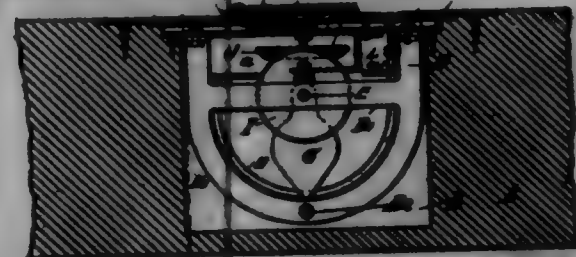
697,717. STREET-LAMP. JOHN C. HENNING and JAMES W. HENNING, Baltimore, Md., assignors of one-third to Richard H. Johns, Baltimore, Md. Filed Sept. 21, 1901. Serial No. 78,044. (No model.)

Claim.—1. In a lamp and in combination, a burner, a tank for supplying oil thereto, a globe and a reflector having a central opening, a draft-tube extending through the reflector, and a ring-clamp movable on the outer walls of the tube, freely seated upon the inner wall of the reflector closing the joint around its central opening and freely suspending said tube from the reflector.

2. In a lamp and in combination, a burner, a tank for supplying oil thereto, a chimney for the burner, a globe and a reflector having a central opening, a draft-tube extending through the reflector, means for adjustably suspending the tube from the reflector, said draft-tube being of greater diameter than the burner-chimney, telescoping with it and forming a draft between the outer walls of the chimney and the inner walls of the draft-tube.



697,718. LEVEL. THOMAS F. HENRY, Johnsonville, N. Y., assignor of one-half to Charles J. Van Wert, Johnsonville, N. Y. Filed June 12, 1901. Serial No. 64,311. (No model.)



Claim.—A level provided with a reliable chamber, a plumb-bob pivotedly supported therein and adapted to swing longitudinally of the level, a dial-plate on the top of the level, a pointer operating in connection therewith, said pointer being in operative connection with said plumb-bob, two segmental strips between which the lower end of the plumb-bob swings, and means for operating one of said strips so as to lock the plumb-bob in a stationary position, consisting of a revoluble screw mounted in the cover of the chamber a nut mounted on said screw and provided with a finger passing through an inclined slot formed in one of said segmental guide-strips, substantially as shown and described.

697,719. PIPE-LIFTING MACHINE. ARTHUR HARRISON, Colmar, Iowa. Filed Nov. 14, 1901. Serial No. 80,486. (No model.)

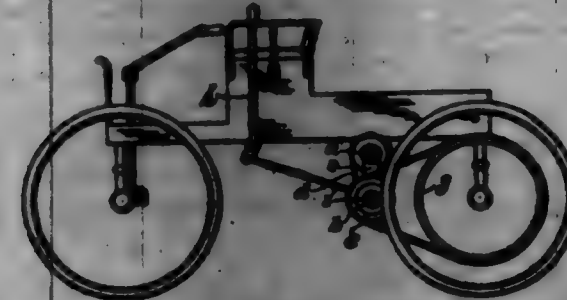
Claim.—1. In a pipe-lifting mechanism, the combination of an inverted-U-shaped frame, brackets secured thereto, a guide-rod secured in one of said brackets, and a lifting-lever pivoted between said brackets, guide-rollers journaled in front of said lifting-lever, said rollers increasing in diameter toward their rear ends, whereby the pipe is supported at its rear end, chains or cables connected to said lifting-lever, substantially as described.

2. In a pipe-lifting mechanism, the combination with a frame, and

pipe-lifting means of guide-rollers secured to said frame; the rear ends of said rollers being greater in diameter than the front ends, whereby pipes of a different diameter may be accommodated by said rollers substantially as described.



697,720. AUTOMOBILE. HENRY E. HARRIS, Chicago, Ill. Filed July 21, 1901. Serial No. 78,045. (No model.)



Claim.—1. In an automobile, the combination with the traction-wheel mounted on a stationary axle or bearing and having a pulley-wheel thereon, of a driving-shaft mounted in bearings movable relative to the traction-wheel bearings, a driving-pulley mounted thereon, a roller-disk secured to said shaft to rotate therewith in the plane of the traction-wheel, a belt or rope connecting said pulley-wheel, means for continuously rotating the driving-shaft, and means for moving the driving-shaft toward the traction-wheel so as to release the driving-belt and subsequently apply the roller-disk to the traction-wheel to reverse it.

2. In an automobile, the combination with the traction-wheel mounted on a stationary axle or bearing and having a pulley-wheel thereon, of a driving-shaft having a driving-pulley-wheel thereon and a reversing-disk in the plane of the traction-wheel, a belt connecting said pulley-wheel, means for driving said driving-shaft, a means for bringing the driving-shaft and traction-wheel toward each other so as to release the traction of the driving-belt and to apply the reversing-disk to the traction-wheel.

3. In an automobile, the combination with the power-shaft, of a counter-shaft having driving-pulleys thereon, levers for the counter-shaft adapted to swing about the axis of the power-shaft, driving connections from the power-shaft to the counter-shaft, traction-wheels having driven pulleys, and a band from each driving-pulley to its associated driven pulley.

4. In an automobile, the combination of a power-shaft, a through-shaft having driving-pulleys, levers for the through-shaft adapted to swing about the axis of the power-shaft, a chain from the power to the through-shaft, traction-wheels having driven pulleys, and a band from each driving-pulley to its associated driven pulley.

5. In an automobile, in combination a driving and driven pulley having a band, a combined band and reverse disk associated with the driving-pulley, means to move the said pulley to slack the band and cause the disk to lay upon the traction-wheel.

697,721. SELF-LUBRICATING PULLEY. CHARLES J. HUNT and EDWARD E. LAMBERT, Dayton, Ohio. Filed Aug. 20, 1901. Serial No. 78,057. (No model.)

Claim.—1. In a self-lubricating pulley the combination with the pulley made in sections transversely of its axis with a portion of the hub on each section, an oil-chamber within the pulley and on the outer side of the hub, and the adjacent ends of said hub-sections formed with an annular oil-passage between them, a portion of said annular passage extending parallel with the axis of the pulley, of an annular chamber in the said portion of the passage parallel with the axis and an annular pervious packing located in said chamber and bridging the passage; substantially as described.

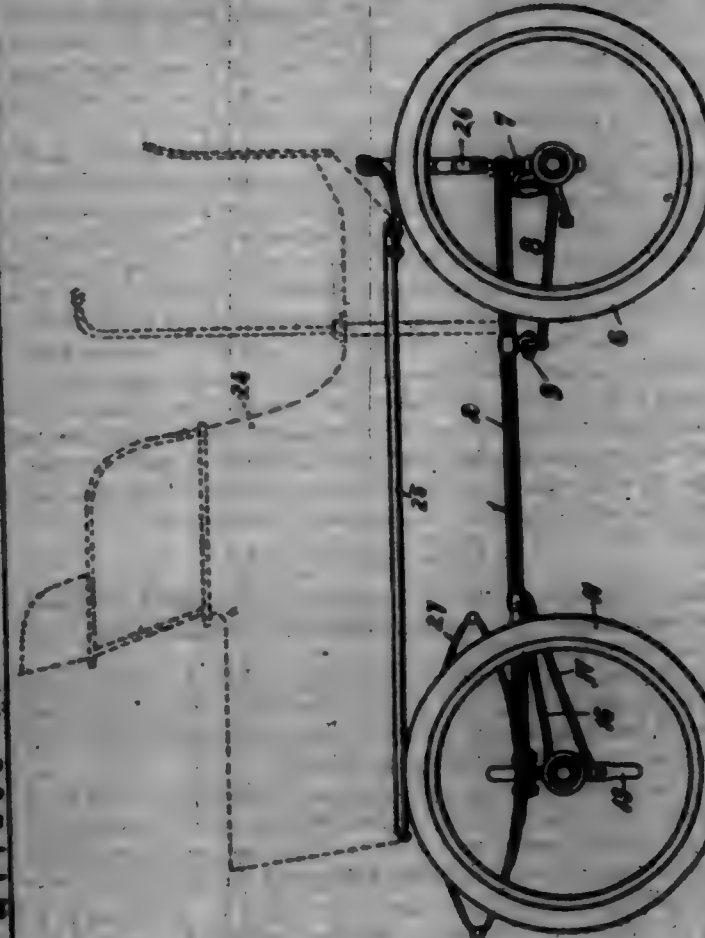
2. In a self-lubricating pulley, the combination with the pulley made in sections transversely of its axis with a portion of the hub on each section, an oil-chamber within the pulley and on the outer side of the hub, and the adjacent ends of said hub-sections formed with an annular oil-passage between them, a portion of said annular passage extending parallel with the axis of the pulley, of an annular pervious packing located in an enlargement of said passage, remote from the inner end of the passage; substantially as described.



3. In a self-lubricating pulley the combination with the pulley made in sections transversely of its axis with a portion of the hub on each section, an oil-chamber within the pulley and on the outer side of the hub, and the adjacent ends of said hub-sections formed with an annular oil-passage between them, a portion of said annular passage extending parallel with the axis of the pulley, of an annular chamber in the said portion of the passage parallel with the axis and an annular pervious packing located in said chamber and bridging the passage; substantially as described.

4. In a self-lubricating pulley, the combination with the pulley made in sections transversely of its axis with a portion of the hub on each section, an oil-chamber within the pulley and on the outer side of the hub, and the adjacent ends of said hub-sections formed with an annular oil-passage between them, a portion of said annular passage extending parallel with the axis of the pulley, of an annular chamber in the inner wall of said portion of the passage parallel with the axis and an annular pervious packing located in said chamber and bridging the passage; substantially as described.

697,722. AUTOMOBILE-FRAME. GEORGE A. HUNT, Reading, Mass., assignor of one-half to F. C. Alden, Reading, Mass. Filed Feb. 11, 1902. Serial No. 64,322. (No model.)



Claim.—1. In an automobile-underframe the combination of a cross-frame for the driving-wheels comprising a substantially vertical yoke, upper and lower outwardly-converging diagonal bars projecting from both sides of said yoke and connected at their outer ends, tubular axle-housings located between the upper and lower diagonal bars on each side, longitudinal members attached to the upper diagonal bars, and diagonal braces connecting said members with the lower diagonal bars and located in substantially the same vertical planes with the members.

2. An automobile-underframe comprising a longitudinal frame structure having side bars formed with a curved portion at their forward ends and having a downwardly-projecting bracket or lug at the extreme front, and a cross-frame for the steering-wheels pivoted to the said bracket or lug underneath the said curved portion.

697,723. CARBONATING-MACHINE. THOMAS E. LEWIS, Jersey City, N. J., and HENRY J. MILLER, Brooklyn, N. Y. Filed Mar. 14, 1901. Renewed Feb. 14, 1902. Serial No. 94,122. (No model.)



Claim.—1. In a carbonating apparatus, the combination with a tank or casing consisting of a lower and an upper portion secured together, of a perforated partition or diaphragm secured between the two portions thereof, a water-pipe provided with an upwardly-extending and having side perforations in communication with the upper portion of the tank or casing above the diaphragm and extending downward on the outside parallel with the lower portion of the casing, a water-pressure supply in communication with the water-pipe at the lower end, a gas-pipe in communication with the water-pipe above the communication with the water-supply, a gas-pipe having side perforations extending into the lower portion of the casing adjacent to the bottom, and a gas-pressure supply in communication with the gas and with the water-pipe, substantially as shown and described.

2. In a carbonating apparatus, the combination with a tank or casing consisting of a lower and an upper portion secured together, of a perforated partition or diaphragm secured between the two portions thereof, a water-pipe provided with an upwardly-extending and having side perforations in communication with the upper portion of the tank or casing above the diaphragm and extending downward on the outside parallel with the lower portion of the casing, a water-pressure supply in communication with the water-pipe at the lower end, a gas-pipe in communication with the water-pipe above the communication with the water-supply, a gas-pipe having side perforations extending into the lower portion of the casing adjacent to the bottom, a gas-pressure supply in communication with the two gas-pipes, and a filling of solid matter in the form of pebbles, &c., in the water-pipe above the communication with the gas-supply pipe therewith, substantially as shown and described.

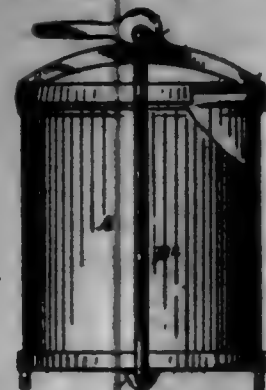
697,724. TEMPORARY CAP OR COVER HOLDER FOR JARS. AXEL JOHANSEN, San Jose, Cal. Filed Jan. 17, 1901. Serial No. 43,637. (No model.)

Claim.—1. A device of the character described comprising a holder, a ball secured thereto, a ring having intersecting ribs δ , δ' , and means carried by the ball adapted to exert pressure upon said ribs and through the ribs to the ring, substantially as described.

2. A device of the character described comprising a holder, a ball secured thereto, a ring, a rib δ' on said ring and having a cast intermediate of its ends, and a cam carried by the ball adapted to engage said cast to exert pressure upon said rib and through the rib to the ring, substantially as described.

3. A device of the character described comprising a holder, a ball

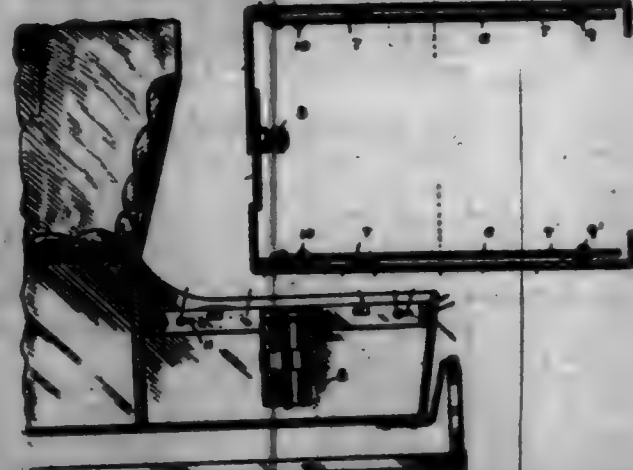
pivotedly secured thereto, a ring, a rib δ' on said ring, means carried by the ball adapted to engage said rib to exert pressure upon said rib and through the rib to the ring, and a shoulder δ'' on the rib adapted to limit the movement of the ball in one direction, substantially as described.



4. In combination with a receptacle, a cover therefor having an outer depending tapered flange, and means for forcing the cover to its seat comprising a correspondingly tapered ring adapted to overlap the flange of the cover, and a pressure device including a pivoted ball operatively associated with said ring for the purpose set forth.

5. In combination with a receptacle, a cover therefor, and means for forcing the cover to its seat, and comprising a holder, a pressure-exercising device operatively associated with the holder and including a pivoted ball, and an unattached holding-ring adapted to be inserted beneath the pressure device and over the cover, substantially as described.

697,725. VIAL-CARRYING FRAME. JAMES C. JONES, Buffalo, Ky. Filed July 20, 1901. Serial No. 92,145. (No model.)



Claim.—1. In a device of the character described, the combination with two adjustable right-angled bars each provided with vertical notches designed to receive the transverse bars or rods, of slidable bars provided on the inner side of the first-named bars and having L-shaped notches adapted to engage the transverse bars and lock them with relation to the first-named bars.

2. In a device of the character described, the combination with two outer bars provided with notches, of transversely-arranged vial-carrying rods adapted to be seated in said notches and notched inner bars parallel with the first-named bars to engage the transverse rods to lock them in position.

3. In a device of the character described, the combination of two parallel fixed outer bars having vertical notches, two sliding inner bars provided with locking-notches, and connected with the outer bars and working on the latter, a lever eccentrically mounted on an inner bar and engaging the adjacent outer bar.

4. In a device of the character described, the combination of two fixed outer bars adjustably secured together, inner bars secured to the outer bars and adapted to slide with relation thereto; both sets of bars being provided with notches, and the locking-levers secured to adjacent bars for the purpose described.

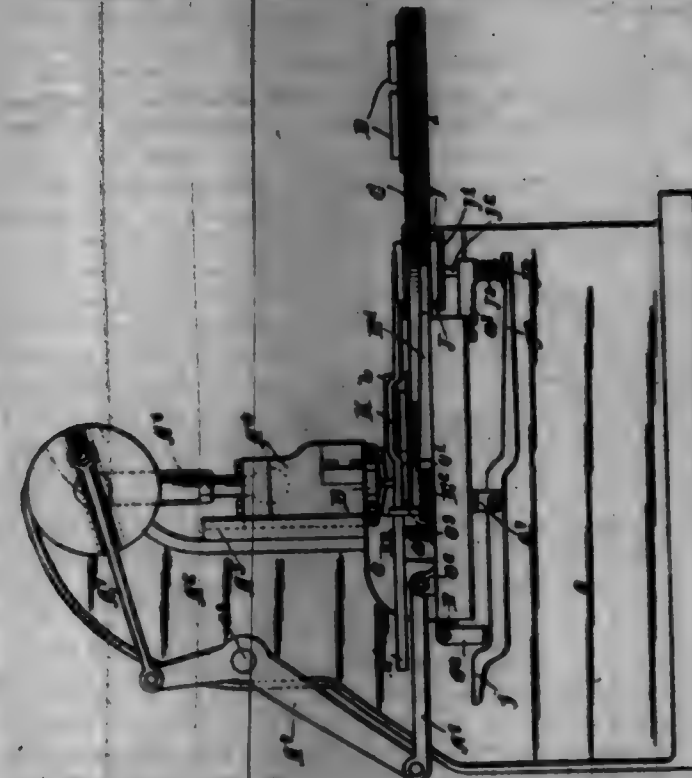
5. In a device of the character described, the combination of two parallel outer bars, having right-angled slotted ends, whereby they are adjustably secured, and opposite ends providing inwardly-actuating right-angled short arms, each having a notch formed on its extremity, two parallel inner bars, and levers adjustably and locking simultaneously the parallel inner bars.

6. In a device of the character described, the combination of two parallel bars, adapted to be adjustably secured by arms formed at each end, extending forwardly at right angles, inner bars sliding parallel to the outer bars, and actuated by locking-levers, having an engaging lug formed

on their lower pivoted ends and operating in a notch or slot formed in the outer bar.

7. In a device of the character described, the combination of two outer bars, provided with notches, transversely-arranged vial-carrying rods adapted to be seated in said notches, and inner bars having L-shaped notches, said bars slidably secured to the outer bars, and levers pivotedly mounted on the inner bars, and having cut-out portions on their upper ends, and pinning-lugs formed on their lower parts engaging the outer parallel bars, whereby the inner bars are actuated into a locking position.

697,726. MACHINE FOR FLAMING CAR-BODIES. WILLIAM J. KENT, Montpelier, N. H. Filed Mar. 14, 1901. Serial No. 91,527. (No model.)



Claim.—1. In a machine for the purpose stated, the combination with a die provided with an expandible and contractible center block constructed to hold a sheet-metal body which embraces the block, said block filling said body and the side faces of which have contact with, and exert pressure against, all parts of the walls of the body throughout the vertical depth of the block to prevent inward flexure of the body, of a hollow punch adapted to pass over said die and body, and means for forming a flange between said die and punch on the margin of said body.

2. In a machine for the purpose stated, the combination with a die provided with an expandible and contractible center block constructed to hold a sheet-metal body which embraces the same, said block filling said body and the side faces of which have contact with, and exert pressure against, all parts of the walls of the body throughout the vertical depth of the block to prevent inward flexure of the body, an expanding-pin on said punch which engages said block to expand the same outwardly against said body and means for forming a flange between said die and punch on the margin of the body.

3. In a machine for the purpose stated, the combination with a die having a center block embracing a stationary transverse member and a plurality of transversely-pivoted members, of a hollow punch adapted to pass over said block, and means for forming a flange between said die and punch on the margin of a sheet-metal body surrounding said block and located between the block and punch.

4. In a machine for the purpose stated, the combination with a die provided with an expandible and contractible center block constructed to hold a sheet-metal body which embraces the block, said block being of less depth than the width of said body and formed to laterally fill the body from end to end of the block, of a hollow punch adapted to pass over said body and block, and means for holding that portion of the margin of the body which projects beyond the said center block away from the body and compressing the same between the die and punch to form a flange.

5. In a machine for the purpose stated, the combination with a die provided with an expandible and contractible center block adapted to hold a sheet-metal body which embraces the block, and the side faces of which have contact with the walls of the body throughout the vertical depth of the block to prevent inward flexure of the body, of a hollow punch adapted to pass over said die and body, and provided with side parts which

are made of a depth equal to the depth of the block and adapted to surround and fit closely over said body, when the punch is in its inwardmost position, to prevent outward flexure of said body and means for forming a flange between said die and punch on the margin of the body.

6. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, of a hollow punch adapted to pass over said die and body, said punch embracing a plurality of separable wings constituting, when contracted, a complete closed shell, said wings when free being adapted to swing away from each other to expand the punch.

7. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, of a hollow punch adapted to pass over said die and body, said punch embracing a plurality of separable wings provided with side parts adapted to pass outside the body to prevent flexure of that part of the body between said side parts of the punch and the die and each provided at its margin with a deflecting-surface.

8. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, of a hollow punch adapted to pass over said die and body, said punch embracing a plurality of separable wings provided with side parts adapted to pass outside the body to prevent flexure of that part of the body between said side parts and the die, and each wing being provided at both end margins with deflecting-surfaces.

9. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, of a hollow punch adapted to pass over said die and body, said punch embracing a plurality of separable wings constituting, when contracted, a complete closed shell, said wings, when free, being constructed to swing away from each other to expand the punch, and an inclined deflecting-ring surrounding said die adapted to engage the exterior margins of the hollow punch to close said wings together.

10. In a machine for the purpose stated, the combination with a die provided with a center block constructed to hold a sheet-metal body which embraces the block, said block being made of less depth than that of the body, of a hollow expandible punch adapted to pass over said die and body and provided with interior deflecting-surfaces constructed to engage the margin of said body which projects above the center block to hold said margin inwardly over said block to form a flange thereon, and means associated with the die for contracting the punch upon depression thereof.

11. In a machine for the purpose stated, the combination with a suitable die, constructed to receive and hold a hollow body thereover, of a hollow punch constructed to pass over and outside of said die and body and means for forming a flange on the lower margin of said die and body and said punch after said punch has passed outside of said body.

12. In a machine for the purpose stated, the combination with a die comprising a die-base and a center block, and a punch adapted to pass over said block, of means for holding the center block yieldingly above the die-base, said base being provided below the block with a deflecting-surface.

13. In a machine for the purpose stated, the combination with a die comprising a die-base and a vertically-movable center block thereon constructed to hold a sheet-metal body which embraces the block, of means for holding said block above said base, said block being made of less depth than that of the body, whereby the body projects below the block, a hollow punch adapted to pass over said block and body, and a deflecting-surface on the die-base adapted to turn the lower margin of said body out of the plane of the body to form a flange thereon upon the descent of the punch.

14. In a machine for the purpose stated, the combination with a die comprising a die-base and a center block, of means for yieldingly holding said block above said base, said block being less of width than that of a sheet-metal body embracing the same, whereby said body projects below said block and engages the die-base, and a hollow punch adapted to pass over said block and body, said die-base being provided with a deflecting-surface which turns the lower margin of said body when the center block is depressed upon said base to form a flange thereon.

15. In a machine for the purpose stated, the combination of a die comprising a die-base and a center block, said block being constructed to hold a sheet-metal body which embraces the block, and spring-pressed pins which pass upwardly through said base to hold said block yieldingly out of contact with the base, said block being made of less depth than the body whereby the body projects below said block in contact with the base, of a hollow punch adapted to pass over said block and body and, when depressed, to press the block against said die-base and the die-base being provided with a deflecting-surface which turns the lower margins of the body to form a flange thereon.

16. In a machine for the purpose stated, the combination with a die provided with an expandible and contractible center block constructed

to hold a sheet-metal body which embraces the block, said block filling said body and the side faces of which have pentast with, and exert pressure against, all parts of the walls of the body throughout the vertical depth of the block, to prevent inward flange of the body, of a hollow punch adapted to pass over said block and body, means for forming a flange on the margin of said body between said die and punch and an ejector device for removing said body from the die.

17. In a machine for the purpose stated, the combination with a die provided with a center block constructed to hold a sheet-metal body which embraces the block, of a hollow punch adapted to pass over said block and body, and means for forming a flange on the margin of said body between said die and punch, and an ejector device for removing said body from the die, said ejector device embracing a ring surrounding said die and provided with radial fingers, the inner ends of which are located in contact with the die-face beneath said body when placed on the die.

18. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, a hollow punch adapted to pass over the die and body, and means for forming a flange on the margin of said body between the die and punch, of a gage-plate for automatically locating the body on the die before the die passes under the punch.

19. In a machine for the purpose stated, the combination with a carrier, a die thereon, a punch which cooperates with said die, the punch being made hollow to pass over the die, and means for forming a flange on the margin of the body between said die and punch, of a gage-plate movable with the punch constructed to locate the body properly on the die before the die passes under the punch.

20. In a machine for the purpose stated, the combination with a carrier, a die on said carrier, and a vertically-reciprocating punch, and means for forming a flange on a body located between the die and punch, of ejector device embracing a ring surrounding the die and adapted to lift the body away from said die and a gage-plate movable with the punch adapted to locate the body properly on the die before it is moved under the punch, said plate being provided with projections adapted to engage the ejector-ring, to seat the same at the same time the body is adjusted on the die.

21. In a machine for the purpose stated, the combination with a die embracing a center block provided with an outwardly-expandible member and constructed to hold a sheet-metal body which embraces the block and formed to laterally fill the body from end to end of the block, a hollow punch adapted to pass over said block and body, and an expanding-pin on said punch adapted to spread the expanding members of the block outwardly against the body, of spring-actuating device tending to hold said expanding members inwardly, and means for forming a flange on the margin of the body between said die and punch.

22. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, and a hollow punch embracing a plurality of pivoted wings which are adapted to swing away from each other, and which, when closed together, form the shell of the punch, of means engaging the pivoted wings of the punch to hold the same closed during a part of the rising movement of the punch.

23. In a machine for the purpose stated, the combination with a die constructed to hold a sheet-metal body which embraces the die, and a hollow punch adapted to pass over said die and body, said punch embracing a plurality of pivoted wings adapted to swing away from each other, and which, when closed, form the shell of the punch, and means for forming a flange on said body between said punch and die, of spring-actuated pins or studs mounted in said die adapted to engage the free ends of said wings to hold the wings in their closed positions during a part of the rising movement of the punch.

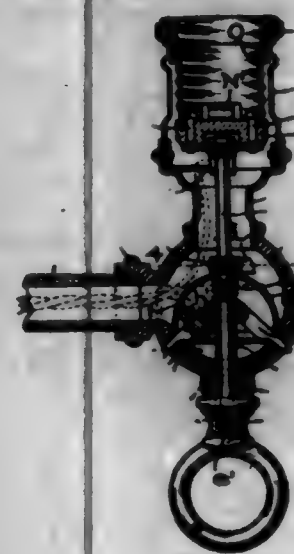
24. In a machine for the purpose stated, the combination of a rotary carrier, a plurality of dies disposed annularly upon the upper surface of said carrier, a reciprocating punch adapted to cooperate severally with said dies, said dies each embracing a center block adapted to hold thereon a sheet-metal body which fits over said block, means for forming a flange on said body between the die and punch, and an ejector device embracing a ring surrounding each of said dies, a vertically-oscillatory lever pivoted between its ends to the machine-frame and provided at one end with fingers or plungers adapted to pass through the openings in the carrier to severally actuate said ejector-rings, and means actuating said lever embracing

25. In a machine for the purpose stated, the combination of a rotary carrier, a plurality of dies disposed annularly upon the upper surface of said carrier, a reciprocating punch adapted to cooperate severally with said dies, said dies each embracing a center block adapted to hold thereon a sheet-metal body which fits over said block, means for forming a flange on the body between the punch and die, and an ejector device embracing a ring surrounding each of said dies, a vertically-oscillatory lever pivoted between its ends to the machine-frame and provided at one end with fingers or plungers adapted to pass through openings in the carrier to severally actuate said ejector-rings, and means actuating said lever embracing

a horizontally-movable slide, and a pivoted dog on said slide adapted to engage an inclined part of said lever.

26. In a machine for the purpose stated, the combination of a rotary carrier, a plurality of dies disposed annularly upon the upper surface of said carrier, a reciprocating punch adapted to cooperate severally with said dies, said dies each embracing a center block adapted to hold thereon a sheet-metal body which fits over said block, means for forming a flange on the margin of said body, and an ejector device embracing a ring surrounding each of said dies, a vertically-oscillatory lever pivoted between its ends to the machine-frame, and provided at one end with fingers or plungers adapted to pass through openings in the carrier to severally actuate said ejector-rings and actuating said lever, and a horizontally-movable knock-off arm adapted to move the body from the die after it has been raised therefrom by the ejector device.

697,727. SWITCH FOR ELECTRIC LAMPS. JAMES F. KEATHE, Philadelphia, Pa., assignor to General Electric Company, a Corporation of New York. Filed Mar. 10, 1906. Serial No. 728,618. (No model.)



Claim.—1. A switch for an incandescent lamp, provided with a holder for the lamp-base, a casing for the switch mechanism, a key having its operating-arm in a line axial to the holder, a fixed contact yieldingly mounted in a vertical plane, a movable contact rotated by the key-stem in cooperative relation to the fixed contact, and means for effecting a snapping rupture of the circuit when the contacts separate.

2. A socket for incandescent electric lamps, provided with a receptacle for the lamp-base, a casing connected to the bottom thereof and separable therefrom, switch mechanism housed within the casing, a lateral pipe connection in the casing through which the current leads may be led, and a key below the casing turning on a plane transverse to the axis of the lamp and socket.

3. A socket for incandescent electric lamps, provided with a receptacle for the lamp-base, a casing below the same, snap-switch mechanism within the casing, said casing being formed of separable parts to admit access to its interior, a lateral pipe connection from the casing for connection with a tubular bracket to house the current leads, and a key controlling the switch turning on a plane transverse to the axis of the lamp-socket.

4. A socket for incandescent electric lamps, provided with a receptacle for the lamp-base mounted on an insulating-support, means therefor for affixing connection with the lamp-terminals, a casing mechanically connected with the socket, provided with a lateral tubular connection for the circuit leads, a switch in said casing composed of an electrically-mounted terminal, a rotatable contact cooperating therewith, a key on the bottom of the casing mounted to turn in a plane transverse to the axis of the lamp and socket, a hot-motion connection being provided between the key and the rotatable contact, and a spring and cam controlling the movement of the contact to effect a snapping motion on opening the circuit.

697,728. MACHINE FOR TRIMMING CORNER-PINCHES. FRED LAYMAN, Syracuse, N. Y. Filed Oct. 4, 1901. Serial No. 77,617. (No model.)

Claim.—1. Is a machine of the described class, a plunger with a rigid head having an angular cutting edge and provided with a longitudinal recess terminating at the cutting end of said plunger, a spring-actuated triangular-shaped leader projecting from said recess and terminating at its free end in an angular apex, said apex normally removed some distance from the end of said plunger, and a plate in the line of movement with said plunger provided with an opening therethrough con-

responding in form to the head of said plunger and having an angular cutting edge around the entire mouth of said opening through said plate.

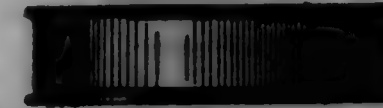


2. Is a machine of the described class a plunger with longitudinal opening extending into the shank thereof, a movable spring-actuated leader riding in said longitudinal opening and terminating in a triangular apex with straight lines from the point of said apex to the outer edges of said leader, a head having a right-angle cutting edge on said plunger, a plate in proximity to said plunger having an opening conforming to the head thereof, and guide-plates with suitable beveled channels adapted to hold therein the angular sides of the material to be operated upon.

3. Is a machine of the described class, a plunger with a rigid removable head having an angular cutting edge and having a longitudinal opening therein, a spring-actuated triangular-shaped leader projecting normally to some distance beyond said removable head and terminating in an apex, a plate-holder with central orifice therein in line with said removable head, and a detachable plate secured to said plate-holder with central opening coincident with that of the opening in the plate-holder and also in line with said head.

4. Is a machine of the described class, a cutting-plunger with spring-actuated triangular leader normally removed from the cutting-face of said plunger, a plate-holder with central orifice and rigidly connected with a parallel head and slightly removed therefrom, posts connecting said head, a cutting-plate removably connected with said plate-holder and provided with a central opening corresponding to the contour of the cutting edge of said leader.

697,729. TOILET-POWDER BOX. ELIA H. LINTHURN, New York, N. Y. Filed Oct. 28, 1901. Serial No. 78,957. (No model.)



Claim.—1. In an article of the class described, the combination with a box, of a thin and flexible diaphragm loosely fitting the interior of the box, and provided with a plurality of centrally-grouped apertures, whereby the diaphragm is adapted for being flexed to eject the comminuted contents through the centrally-grouped apertures, substantially as described.

2. The combination in an article of the class described, of a box comprising a circular body, a cover therefor, and a circular diaphragm loosely fitting the interior of the box, and adapted to be moved to the bottom thereof, said diaphragm being made of thin flexible material, and provided with a plurality of apertures centrally grouped with reference to the periphery thereof, whereby the diaphragm is adapted for being flexed to eject the comminuted contents through the centrally-grouped apertures, substantially as described.

3. In an article of the class described, the combination with a box, of a thin, flat and flexible diaphragm loosely fitting the interior of the box, and provided with a plurality of apertures grouped at the central and flat portion thereof, whereby the diaphragm is adapted for being flexed to eject the comminuted contents through the centrally-grouped apertures, substantially as described.

697,730. ISOMERIZATION DERIVATIVE AND PROCESS OF MAKING SAME. ARTHUR LAMMERS, Frankfurt-on-the-Main, Germany, assignor to Farbwerke, vorm. Meister, Loeb & Co., Höchst-on-the-Main, Germany, a Corporation of Germany. Filed July 17, 1901. Serial No. 61,622. (Specimen.)

Claim.—1. Process for the manufacture of dialkylated acids of isovaleric and bromoisovaleric acids, which consists in treating the compound of isovaleric acid described with dialkylated oxides, substantially as set forth.

2. As a new product, the dialkylated acid of isovaleric acid, distilling between 205° and 205° at twenty millimeter pressure, soluble with difficulty in water, readily soluble in alcohol, and benzenes, but less soluble in ether, substantially as set forth.

697,781. PROCESS OF MAKING LITHOPHON. BEN F. LEHR, Cleveland, Ohio, assignor to the Grinnell Chemical Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 21, 1906. Serial No. 57,590. (No specimen.)

Claim.—1. The process for preparing from solution, lithopone of

various grades and a soluble commercial by-product probably of sodium, which consists in preparing separate solutions of zinc sulfide and barium sulfide, which solutions are mixed with each other and with that of a third salt adapted to enter into combination with a fixed acid group from the first-named salts, the same being brought together in equivalent and calculated amounts to produce and precipitate lithopone of the desired percentage, and leave in solution the soluble by-product, substantially as described.

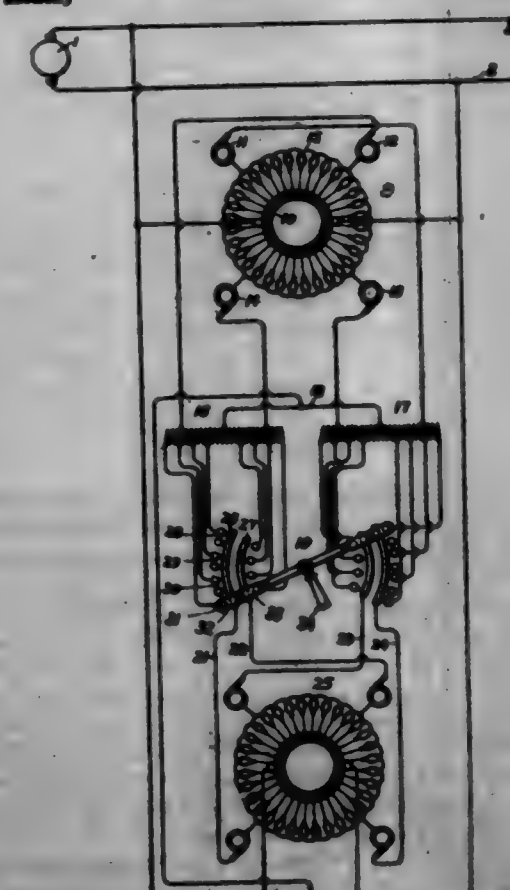
2. The herein-described process for manufacturing lithopone of various grades and a by-product of sodium hydrosulfide, which consists in preparing separate solutions of zinc sulfide and barium sulfide, which solutions are mixed with each other and with that of sodium bisulfide, all in equivalent and calculated amounts to produce and precipitate the desired grade of lithopone and leave the sodium hydrosulfide in solution, substantially as described.

697,782. DRAFT-EQUALIZER. GEORGE LEHMAN, Detroit, Mo. Filed Nov. 23, 1901. Serial No. 52,614. (No model.)



Claim.—In a draft-equalizer, the combination with the pole carrying the loose-mouth-yoke at its forward end, the cross-piece pivoted near the inner end of the pole to provide a long and short arm, the singletons mounted on the long arm, the connection leading from the short arm, the hinged guide for said connection carrying a roller-bearing, a cross-bar connected centrally to said connection, and a pair of singletons carried by said cross-bar.

697,788. MULTIPLE-CONDUCTOR SYSTEM. ALEXANDER D. LEWIS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 27, 1901. Serial No. 78,708. (No model.)



Claim.—1. The combination of a source of direct current, an inverted rotary converter fed thereby, a second rotary converter connected so as to receive alternating current from the inverted rotary converter, and a multiple-conductor direct-current system including conductors extending from the direct-current ends of both of said converters.

2. The combination of a source of direct current, an inverted rotary

converter fed thereby, means for altering the electromotive force of alternating current derived from said inverted rotary converter, a rotary converter fed by each alternating current, and a plurality of coöperating conductors extending from the direct-current ends of both converters.

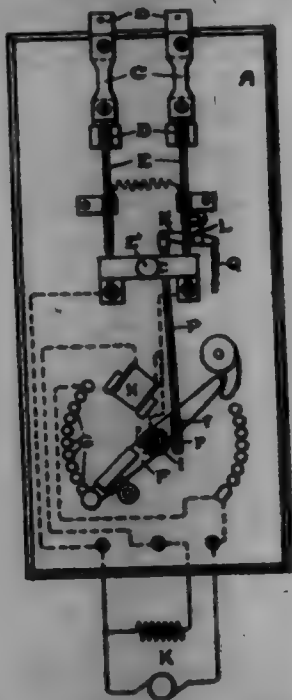
3. The combination of two rotary converters, connections between the alternating-current leads of both rotary converters, and means for changing the electromotive force of the alternating current supplied by one rotary converter to the other.

4. The combination of a plurality of rotary converters, connections between the alternating-current terminals of both rotary converters, means for deriving a point having a potential neutral with respect to the windings of both converters, a neutral conductor extending from said neutral point, and other conductors extending from the direct-current terminals of said rotary converters and constituting with said neutral conductor a common distribution system.

5. The combination of a source of direct current, means for deriving therefrom a variable alternating electromotive force, means for converting said variable alternating electromotive force into a variable direct electromotive force, and means for impressing said variable direct electromotive force upon a consumption-circuit.

6. The combination of a main source of direct current, mains extending therefrom, and means for subdividing the difference of potential between said mains, said means consisting of two rotary converters, one of which is driven by the other through the medium of alternating currents of regulable electromotive force, the direct-current terminals of one of said rotary converters being connected to said mains and the direct-current terminals of the other rotary converter to a separate set of mains.

897,784, SAFETY DEVICE FOR CIRCUIT-CLOSERS. **FREDERICK MACKINTOSH**, Schenectady, N. Y., assigner to General Electric Company, a Corporation of New York. Filed Aug. 28, 1901. Serial No. 72,940. (No model.)



Claim.—1. The combination with a line-switch and a starting-rheostat, of a spring-actuated locking device for said switch, and means operatively connected with the movable arm of said rheostat for putting a tension on said spring.

2. The combination with a line-switch and a starting-rheostat, of a locking device for said switch comprising a pivoted dog adapted to move into the path of said switch, and means operatively connected with the arm of said rheostat for returning said dog to an inoperative position.

3. The combination with a line-switch and a starting-rheostat, of a locking device for said switch comprising a pivoted spring-actuated dog adapted to move into the path of said switch, and a rod operatively connected with the arm of said rheostat for putting a tension on said spring, and returning said dog to an inoperative position.

4. The combination with a line-switch and a starting-rheostat, of a locking device for said switch, comprising a pivoted dog adjacent to said switch, a lever engaging with said dog, and a rod pivoted to the lever and connected with the rheostat-arm.

5. The combination with a line-switch and a starting-rheostat, of a locking device for said switch, comprising a pivoted dog to enter into the path of said switch, means for exerting a forward pressure on said dog, a lever on which said dog rests, a rod connected with the lever and with the rheostat-arm, and a spring to return the lever to a normal position.

6. The combination with a line-switch and a starting-rheostat, of a locking device for said switch, comprising a pivoted dog to enter into the path of said switch, means for causing said dog to press against the switch-blade when closed, a lever on which the dog rests, a rod pivoted to the lever and having a longitudinal slot, and a pin on the rheostat-arm engaging with said slot.

897,785. GASTER. GEORGE S. MASON, Babylon, N. Y., assignor to the Acme Ball Bearing Gaster Company, a Corporation of New York. Filed Aug. 31, 1909. Serial No. 28,674. (No model.)



Claim.— 1. The combination with a center-body and a bearing-ball mounted therein so as to be free to rotate in all directions, of a bearing-ring surrounding said center-body, said ring being adapted to form a track for said bearing-ball to roll upon, substantially as described.

2. The combination of a caster-body and a bearing-ball mounted therein so as to be free to rotate in all directions, of a bearing-ring surrounding said caster-body, said ring having an annular concave inner surface adapted to form a track for said bearing-ball to roll upon, substantially as described.

2. The combination with a center-body and a bearing-ball mounted therein so as to be free to rotate in all directions, of a bearing-ring surrounding said center-body, said ring having a substantially cylindrical outer surface and an annular concave inner surface adapted to form a track for said bearing-ball to roll upon, substantially as described.

4. The combination with a center-body, a bearing-ball mounted therein, and a universal anti-friction-bearing for said bearing-ball, of a bearing-ring surrounding said center-body, said ring being adapted to form a track for said bearing-ball to roll upon, substantially as described.

5. The combination with a center-body and a bearing-ball mounted therein so as to be free to rotate in all directions, of a socket for said center-body having a pinile concentrically arranged with reference to the vertical axis of the socket, an annular bearing-surface concentric with the pinile, a socket-piece within which said pinile is free to rotate, said socket-piece having an annular bearing-surface, antifriction-balls located between said annular bearing-surfaces, and a bearing-ring surrounding said center-body, said ring being adapted to form a track for said bearing-ball to roll upon, substantially as described.

6. The combination with a center-body and a bearing-ball mounted therein so as to be free to rotate in all directions, of a socket for said center-body having a pinhole arranged to one side of but parallel with the vertical axis of the center, and a bearing-ring surrounding said center-body, said ring being adapted to form a track for said bearing-ball to roll upon, substantially as described.

7. The combination with a center-body and a bearing-ball mounted therein as so to be free to rotate in all directions, of a socket for said center-body having a pinion arranged to one side of but parallel with the vertical axis of the center, and a bearing-ring surrounding said center-body, said ring having an annular concave inner surface adapted to form a track for said bearing-ball to roll upon, substantially as described.

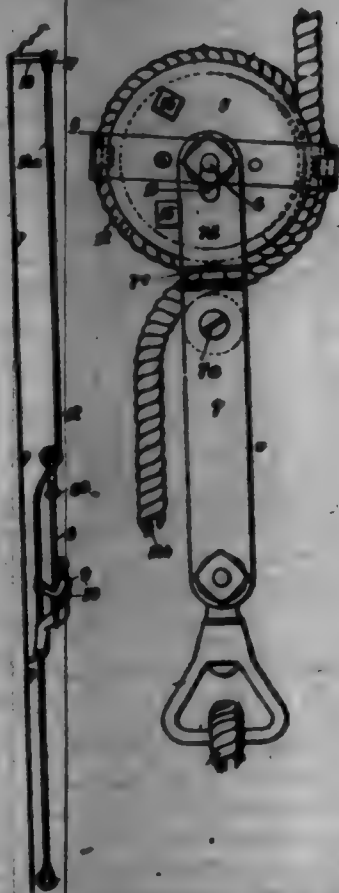
8. The combination with a waster-body, a bearing-ball mounted thereon, and a universal anti-friction-bearing for said bearing-ball, of a socket for said waster-body having a pinole arranged to one side of but parallel with the vertical axis of the waster, and a bearing-ring surrounding said waster-body, said ring being adapted to form a track for said bearing-ball to roll upon, substantially as described.

9. The combination with a center-body, a bearing-ball mounted therein, and a universal anti-friction-bearing for said bearing-ball, of a socket for said center-body having a pinion arranged to one side of but parallel with the vertical axis of the center, and a bearing-ring surrounding said center-body, said ring having a substantially cylindrical outer surface and an annular concave inner surface adapted to form a track for said bearing-ball to roll upon, substantially as described.

897,786. FIRE-ESCAPE JOHN T. MAHAR, New York, N. Y.
Filed Nov. 26, 1901. Serial No. 52,575. (No model.)

Claim.—1. In a fire-scope, a circular block the perimenter of which is provided with a spiral groove, a yoke-shaped suspending device be-

tween the opposite sides of which the said block is mounted and free to turn through a part of a revolution, said block being also provided with side lugs or projections which operate in connection with the yoke-shaped suspending device to limit the turning movement thereof and in connection with which the yoke-shaped suspending device operates, substantially as shown and described.



2. In a fire-escape, a circular block the perimeter of which is provided with a spiral groove, a yoke-shaped suspending device between the opposite sides of which the said block is mounted, and free to turn through a part of a revolution, said block being also provided at the opposite sides thereof with lugs or projections in connection with which the yoke-shaped suspending device operates to limit the movement of the block, and a rope or cord wound around said block and means for holding said rope or cord in said groove, substantially as shown and described.

3. In a fire-escape, a circular block, the perimeter of which is provided with a spiral groove, and a yoke-shaped suspending device, between the opposite sides of which the said block is mounted, and free to turn through a part of a revolution, said block being also provided at the opposite sides thereof with lugs or projections in connection with which the yoke-shaped suspending device operates, and a rope or cord wound around said block and means for holding said rope or cord in said groove, consisting of a plate mounted to one side of said block diametrically thereof, and angular members hinged to the opposite ends and extending across the perimeter of said block and radially inwardly, and the inner ends of which are dotted and adapted to receive a shaft or bolt which passes centrally through said block, substantially as shown and described.

4. In a fire-escape, a circular block, the perimeter of which is provided with a spiral groove, and a yoke-shaped attachment, between the sides of which the block is mounted, said block being provided with a central shaft, the ends of which pass through slots formed in the ends of the sides of the yoke-shaped attachment, one side of said yoke-shaped attachment being also provided with a hinged member, substantially as shown and described.

5. In a fire-escape, a circular block, the perimeter of which is provided with a spiral groove, and a yoke-shaped attachment, between the sides of which the block is mounted, said block being provided with a central shaft, the ends of which pass through slots formed in the ends of the sides of the yoke-shaped attachment, one side of said yoke-shaped attachment being also provided with a hinged member, and said block being also provided with means for holding the rope thereon consisting of a plate secured diametrically of one side thereof and provided at its ends with hinged members extending across the perimeter thereof, and inwardly radially of the other side thereof and the inner ends of which are dotted, substantially as shown and described.

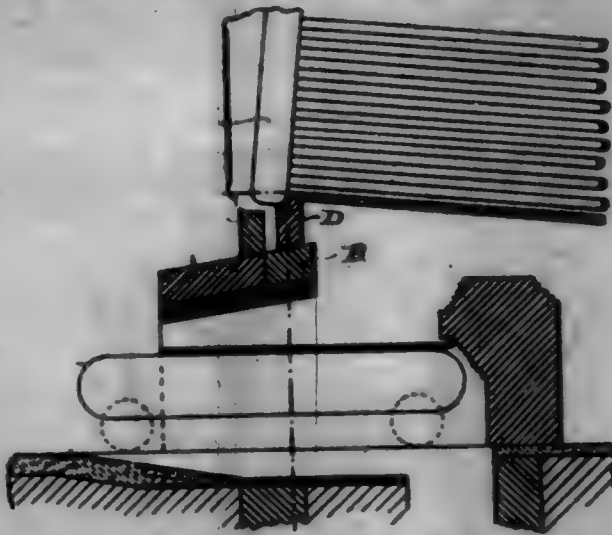
6. In a fire-escape, a circular block, the perimeter of which is provided with a spiral groove and a yoke-shaped attachment between the sides of which the block is mounted, one side of said attachment being

provided with a hinged member, and the ends of both sides being provided with oblong slots or openings and said block being provided with a stationary shaft, the ends of which pass through said slots or openings, substantially as shown and described.

7. In a fire-escape, a circular block, the perimeter of which is provided with a spiral groove and a yoke-shaped attachment between the sides of which the block is mounted, one side of said attachment being provided with a hinged member, and the ends of both sides being provided with oblong slots or openings and said block being provided with a stationary shaft, the ends of which pass through said slots or openings, said block being also provided with hinged devices for holding a rope thereon and the ends of which are held in position by one side of the yoke-shaped attachment, substantially as shown and described.

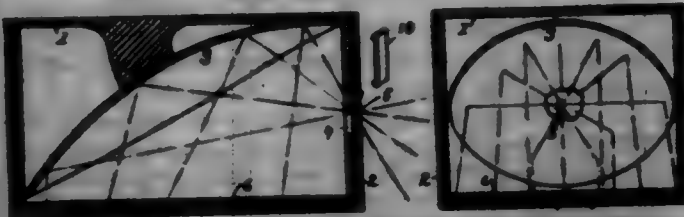
8. A fire-escape comprising a circular block, the perimeter of which is provided with a spiral groove, a yoke-shaped suspending device between the opposite sides of which the said block is mounted and free to turn through a part of a revolution, said block being also provided with side lugs or projections which operate in connection with the yoke-shaped suspending device to limit the movement of said block and in connection with which the yoke-shaped suspending device operates, a roller mounted between the sides of the yoke-shaped device adjacent to said block and a rope which is passed around said block, and one end of which is passed through the yoke-shaped suspending device over said roller, substantially as shown and described.

697,787. ARCH FOR BOILER-FURNACE. JOHN F. HENNING. Chicago, Ill. Filed Dec. 9, 1901. Serial No. 86,188. (No model.)



Claim.—In a boiler-furnace, the combination with the grate, the boiler-front and the boiler, of an arch spanning said grate and divided transversely between its ends into two independent parts, one of which may be removed and replaced without removing the other part, a parallel or concentric arch above each part of said first-named arch and independent of the latter, each last-named arches extending to the lower ends of the boiler-front and the forward end of the boiler to protect same from direct heat and prevent smoke and gases from entering the space between said front and the forward end of the boiler.

697,788. PHOTOGRAPHIC INSTRUMENT. HERMAN E. MILLER. Milwaukee, Wis. Filed May 4, 1901. Serial No. 86,768. (No model.)



Claim.—1. In a device of the described class, the combination of an enclosing case, provided with a light-aperture, adapted to substantially enclose the parallel rays from the interior; a specimen located within the case, and diagonally disposed across the horizontal plane of the light-aperture; and means for supporting a concoidal plate within the case in substantially the focal plane of the specimen, but at an angle to the specimen, whereby the rays reflected from the specimen are distorted on the plate.

2. In a device of the described class, the combination of an enclosing case provided with a light-aperture; a specimen located in said case in a position to receive the rays of light coming through said aperture; and means for supporting a concoidal plate approximately in the focal

plane of the specimen, but at an angle thereto, said light-aperture being of such relatively small dimensions as to exclude substantially all the parallel rays from the specimen.

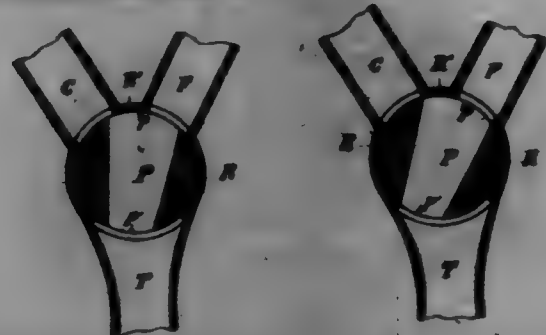
3. In a device of the described class, the combination of a rotary casing, having a recess in one side, and having a light-admitting aperture formed to exclude parallel rays, located in the recess, on the axial line of rotation; a specimen mounted in the casing and adapted to receive the light from said aperture; and means for supporting a stationary annular plate within the casing in such a position, and of such dimensions, as to substantially coincide with the focal plane of the specimen and receive the light-rays therefrom at all points of casing adjustment.

4. In a device of the described class, the combination of a rotary casing; a specimen located therein at one side of the axis of rotation; said casing having a light-admitting aperture located on the axis of casing rotation, and formed to substantially exclude parallel rays; and means for supporting a stationary annular plate within the casing, substantially in one or more focal planes of the specimen, when the casing is at different points of adjustment.

5. In a device of the described class, the combination of a rotary casing provided with a recess having vertical opaque walls, and having a light-admitting aperture located on the axis of casing rotation; a specimen located within the casing at one side of the axis of rotation, and arranged to receive rays of light from the aperture; and means for supporting a stationary annular plate within the casing, in substantially the focal plane of the specimen at one or more points of casing adjustment.

6. In a device of the described class, the combination of an inclining casing provided with one or more light-admitting apertures, formed to exclude parallel rays from the interior; a specimen adapted to receive light from each such aperture; and means for supporting a stationary plate, substantially in the focal plane of the specimen.

697,789. COMPOUND FAUCET FOR FLUIDS. CERNIVAL & LOTURINI Y MURRIETA, Madrid, Spain. Filed July 30, 1901. Serial No. 60,134. (No model.)



Claim.—1. A compound cock or faucet comprising a casing having an outlet, and two inlets with a space between them situated opposite to the outlet, and a plug having in it a transverse part wider at one end than the other, the lower end of said part being of greater width than the space between the inlets and of less width than said space plus the width of one of said inlets.

2. A compound cock or faucet comprising a casing with two inlets and a common outlet, and a rotatable plug having a part which is wider at one end than at the other, the wider end of said part being substantially equal in width to one inlet plus the space between the inlets, and its narrower end substantially equal in width to one inlet.

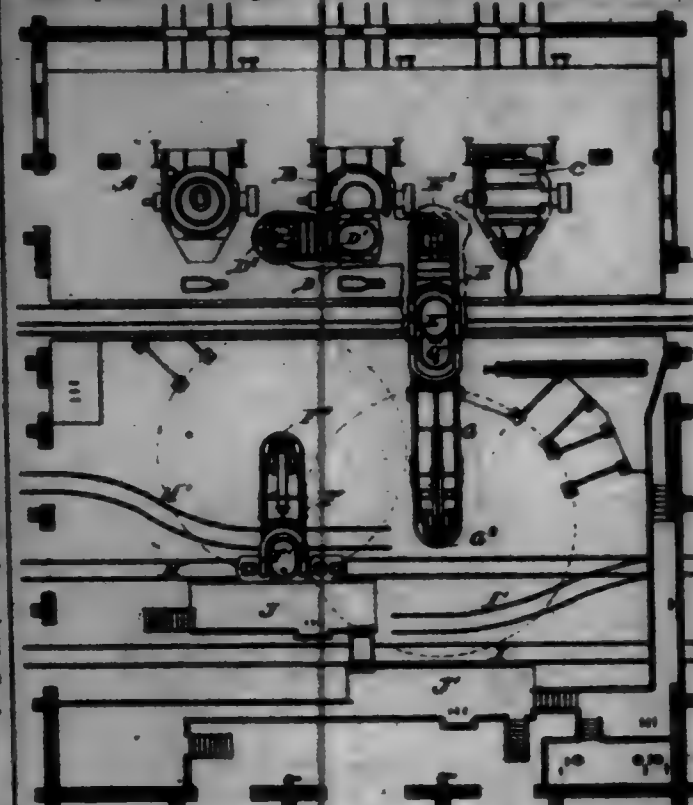
697,740. BEEHIVE-STEEL PLANT. CHARLES E. MCCLURE, JR., and LEONARD C. R. HOLMES, Chicago, Ill. Filed Jan. 7, 1901. Serial No. 42,268. (No model.)

Claim.—1. The combination of a plurality of converter vessels, arranged in groups, receiving-crane each operative with a group of the converter vessels, and casting-crane, one for each receiving-crane and co-operative therewith and having their pivotal masts or posts at different fixed distances from the pivotal posts of the receiving-crane with which they co-operate for the pouring-crane to pour at different points in relation to the converter vessels, substantially as described.

2. The combination of a group of converters comprising three vessels, two receiving-crane jointly serving the three vessels, and two casting-crane, one for each receiving-crane, one casting-crane having its pivotal mast or post at a greater distance than the other from the pivotal post of the receiving-crane operating therewith for the two casting-crane to pour at different points in relation to the converter vessels, substantially as described.

3. The combination of a group of converters comprising three vessels, two receiving-crane jointly serving the three vessels, two casting-

crane, one for each receiving-crane, one casting-crane having its pivotal mast or post at a greater distance than the other from the pivotal post of the receiving-crane operating therewith, and two independent pouring-trucks, one for each casting-crane, each truck operative only in connection with its particular casting-crane, substantially as described.



4. The combination of a group of converters comprising three vessels, two receiving-crane jointly serving the three vessels, each crane having its own ladle, two casting-crane, one for each receiving-crane, each casting-crane having its own ladle and one casting-crane having its pivotal mast or post at a greater distance than the other from the pivotal post of the receiving-crane operating therewith for each set of cranes to be independently operative of the other set and both sets conjointly operating in serving the division of converters, substantially as described.

5. The combination of two receiving-crane, two casting-crane, one for each receiving-crane, one casting-crane having its pivotal mast or post at a greater distance than the other from the pivotal post of the receiving-crane operating therewith, and two independent pouring-trucks, one for each casting-crane for conducting the pouring operation at different distances from the converter vessels, substantially as described.

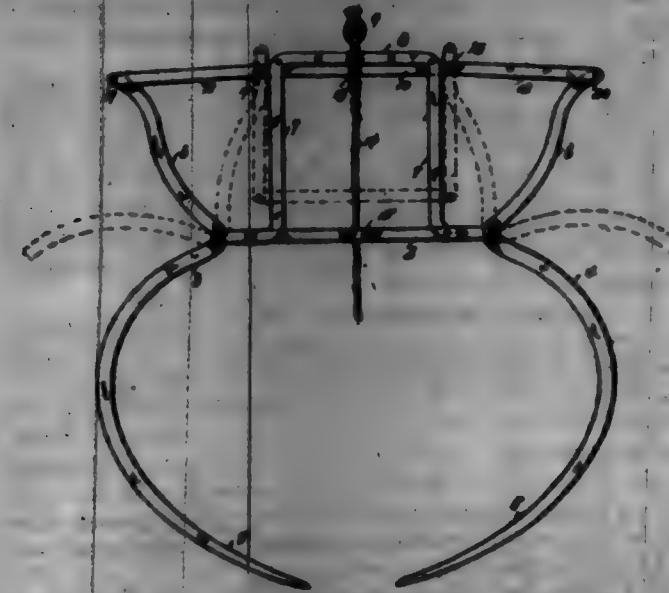
6. The combination of a group of converters comprising three vessels, two receiving-crane jointly serving the three vessels, two casting-crane, one for each receiving-crane, one casting-crane having a greater radius of action than the other and having its pivotal mast or post at a greater distance than the other from the pivotal post of the receiving-crane operating therewith, a separate and independent pouring-truck for each casting-crane, and one with casting or ingot molds thereon operatively movable on the two independent pouring-trucks, substantially as described.

697,741. BEEHIVE. GYÖRGY WERNER, Lager, Austria-Hungary. Filed Nov. 18, 1901. Serial No. 52,267. (No model.)



Claim.—A beehive, consisting of a casing, horizontal and vertical partitions therein dividing the same into longitudinal compartments, detachable rear walls for said casing, a removable glass partition in the rear part of each compartment, flaps for supporting the same, a bee-passage through one of said flaps in each compartment, bee-passages, one for each compartment, in the front wall of the casing, bee-passages in the horizontal partition of the casing adjacent the front wall, a valve in each upper compartment, pivoted to and supported upon said partition, and controlling one of said last-mentioned bee-passages, each frame in said compartments, provided each with downwardly-projecting pins, the pins of the front frame of each upper compartment being located in the path of the valve of said compartment for limiting the movement of the same, substantially as set forth.

697,742. HAY-FORK. BETH A. REMOND, Fowlerville, Mich. Filed Sept. 20, 1901. Serial No. 77,048. (No model.)



Claim.—1. In a hay-fork, the combination of pivoted grapple-teeth provided with projections extending above the pivot, a link pivoted to each of said projections, an intermediate link pivoted between the first-mentioned links, a guide and stop arranged to allow the linkage to pass a straight line cutting the joints of the linkage to the grapple-teeth, and means for stopping the linkage immediately above the straight line.

2. In a hay-fork, the combination of pivoted grapple-teeth provided with projections extending above the pivot, a link pivoted to each of said projections, an intermediate link pivoted between the first-mentioned links, a guide adapted to constrain the movement of said intermediate link, and to allow it to turn to a small, and prevent it turning to a large extent, and a stop arranged to allow the linkage to pass a straight line cutting the joints of the linkage to the grapple-teeth, and means for stopping the linkage immediately above the straight line.

3. In a hay-fork, the combination of two parallel strips shaped in the form of a frame having two uprights and a cross-bar, the two strips being spaced from each other at the top, a bar extending between the ends of said uprights, the ends of said bar being secured between said strips to space them from each other at their ends, then pivoted to said frame and having extensions, links pivoted to said extensions, connected with each other and guided by a part extending between said strips where they form said uprights.

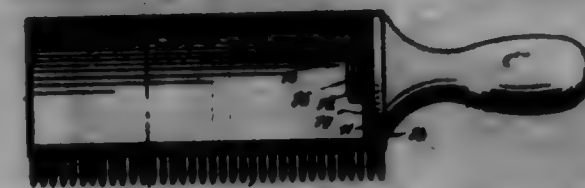
4. In a hay-fork, the combination of two parallel strips shaped in the form of a frame having two uprights and a cross-bar, the ends of said uprights being bent outwardly from said uprights, the two strips being spaced from each other at the top, a bar extending between the ends of said uprights, the ends of said bar being secured between said strips to space them from each other at their ends, then pivoted between the laterally-extending portions of said strips and having extensions, links pivoted to said extensions, connected with each other and guided by a part extending between said strips where they form said uprights.

5. In a hay-fork, the combination of two parallel strips shaped in the form of a frame having two uprights and a cross-bar, the two strips being spaced from each other at the top, a bar consisting of two pieces lying parallel and side by side extending between the ends of said uprights, the ends of said bar being secured between said strips to space them from each other at their ends, the constituent pieces of said bar being bent outward to form an eye, then pivoted to said frame and having extensions, links pivoted to said extensions, connected together and guided by a part extending between said strips where they form said uprights, and a trip-rope secured to said links and extending through said eyes.

6. In a hay-fork, the combination of two parallel strips shaped in the form of a frame having two uprights and a cross-bar, said strips being spaced from each other at the top and bottom, then pivoted on opposite sides of said frame and having upward extensions, links pivoted to said extensions and a link extending between said strips where they form the uprights and pivoted to the first-mentioned links, the intermediate link being provided with stops adapted to prevent its turning too far from a horizontal position by contacting the frame.

7. In a hay-fork, the combination of two parallel strips shaped in the form of a frame having two uprights and a cross-bar, said strips being spaced from each other at the top and bottom, then pivoted on opposite sides of said frame and having upward extensions, parallel bars pivoted upon opposite sides of each of said extensions, and a link extending between said strips where they form the uprights and having in each pivoted between said parallel bars.

697,743. DEVICE FOR DRYING HAIR. WILLIAM J. O'HARA, Bridgeport, Conn., assignor of one-third to Charles F. Tucker, Hartford, Conn. Filed Feb. 28, 1900. Renewed Feb. 28, 1903. Serial No. 64,194. (No model.)

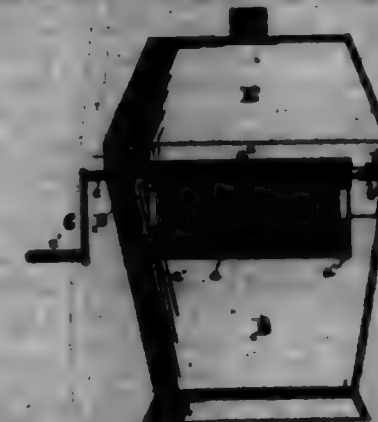


Claim.—1. A hair-drying device comprising a hollow head, a heat conducting and diffusing body, a non-conductive handle therefor, and an independent toothed strip secured to said body, said strip having a series of relatively thin teeth which are wide at their bases and taper abruptly at their points, whereby a large drying area is provided.

2. A hair-drying device comprising a hollow, chamber body portion of heat conducting and diffusing material, said body portion having a water-inlet in one end thereof, means for closing said water-inlet, a non-conductive handle for said body, and an independent toothed strip secured to said body but removable therefrom, said strip being provided with relatively thin teeth which are wide at their bases and taper abruptly toward their points, whereby a large drying area is provided.

3. A hair-drying comb or device having a hollow, chamber body portion of heat conducting and diffusing material to form a receptacle for the heating medium, a water-inlet in one end of said body, a non-conductive handle adapted to screw into and close said water-inlet and thereby serve as a handle and stopper for the said body portion, and an independent toothed strip secured to but removable from said body portion, said strip being provided with relatively thin hollow teeth which are wide at their bases and taper abruptly toward their points whereby a large drying area is provided.

697,744. AIR FILTER AND RECEPTACLE. JOHN M. GANN, Chicago, Ill., assignor of one-third to Carl G. Kjerfve, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 73,664. (No model.)



Claim.—1. In an air filter and receptacle, the combination of an oscillating filter, a journal or pivot-pin on each end of the filter, a frame or band having a slit in one side into which one of the pivot-pins is removably mounted, hinged journal-bases on the inner wall of the frame or band removably mounting both journals or pivot-pins of the filter, a receptacle adapted to receive the frame or band and have the same removably and rigidly entered into its top, a cover for the receptacle over the filter slidable over and around the frame or band to rest against the top rim of the receptacle, and a handle for oscillating the filter, substantially as described.

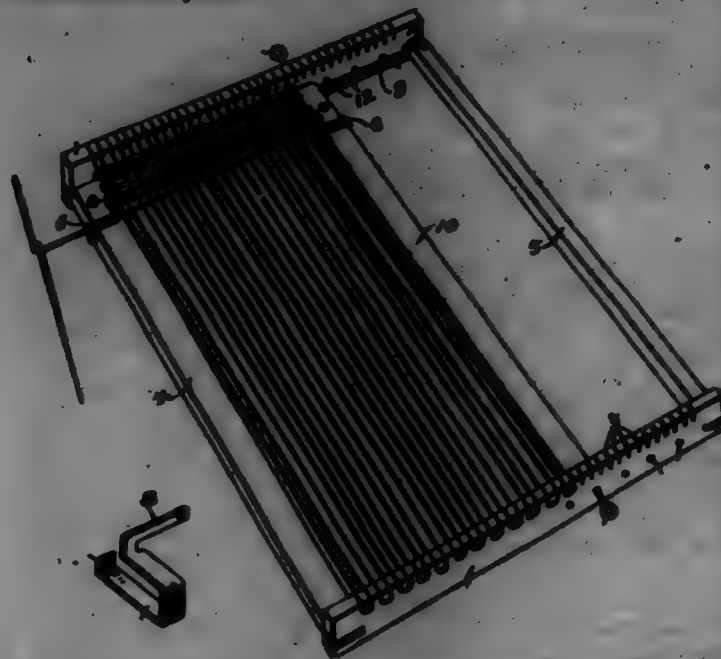
2. In an air filter and receptacle, the combination of a cylindrical oscillating filter having conical ends, a rounded cover-carrier between the ends and a hinged lid or cover, a journal or pivot-pin on each end of the filter, a frame or band in which the filter is removably mounted, hinged journal-bases on the inner wall of the frame or band removably mounting the journals or pivot-pins of the filter, a handle or arm on one of the journals or pivot-pins, and a receptacle adapted to receive the frame or band and have the same removably entered into its top, substantially as described.

697,745. LOOM. JONATHAN B. FAIRBANKS, Minneapolis, Minn. Filed Nov. 25, 1901. Serial No. 52,659. (No model.)

Claim.—1. In a loom, a clip provided upon each side of the warp-threads and adjustable lengthwise thereof and over which the weft-threads are passed.

2. In a loom, a clip provided upon each side of the warp-threads and adjustable lengthwise thereof and over which the weft-threads are passed, one of said devices at least being adjustable toward the other.

3. In a loom, a clip adjustable lengthwise of the warp-threads and having a finger substantially parallel with said threads and over which the warp-threads are passed.



4. In a loom, clips provided upon each side of the warp-threads and adjustable lengthwise thereof and having fingers substantially parallel with said threads and around which the warp-threads are passed.

5. A loom, comprising end pieces between which the warp-threads are stretched and side bars running parallel with said threads, and clips adjustably arranged on said bars and having fingers around which the warp-threads are passed and dropped as the ends are moved.

6. A hand-loom, comprising end pieces between which the warp-threads are stretched, parallel bars connecting said end pieces, clips adjustably arranged on said bars and having fingers around which the warp-threads are passed and one of said bars being laterally adjustable.

7. A hand-loom, comprising end pieces between which the warp-threads are stretched, side bars connecting said end pieces, means provided on said bars to engage and hold the warp threads or threads and one of said bars being laterally adjustable to adapt the frame for work of different width.

8. A hand-loom, comprising end pieces between which the warp-threads are stretched, fixed bars connecting said end pieces, a bar slidable in grooves in said end pieces toward or from either of said fixed bars, means for securing said slidable bar and warp-thread-engaging device provided on one of said fixed bars and said slidable bar.

9. A hand-loom, comprising end pieces between which the warp-threads are stretched, fixed bars connecting said end pieces, a movable bar arranged between said fixed bars, means for securing said movable bar, and clips provided on said movable bar and one of said fixed bars and adjustable lengthwise thereof and provided with fingers extending substantially parallel with the warp-threads and around which the warp-threads are passed.

897,746. RASH-BAR FOR GREENHOUSES OR OTHER GLAZED STRUCTURES. PAUL H. PHINNEY, Saratoga, N. Y. Filed June 28, 1891. Serial No. 66,342. (No model.)



Claim.—1. A rash-bar for greenhouses and other glazed structures, comprising a metal bar of substantially U shape, a wooden bar the larger part of which is received within the channel of the metal bar, a portion of the wooden bar extending between the glasses and projecting beyond the same and receiving the device securing the glasses, there being shoulders at either side of the projecting portion of the wooden bar upon which the glasses rest and are supported and fastening devices for connecting the metal and wooden bars, substantially as set forth.

2. A rash-bar for greenhouses and other glazed structures, comprising a wooden bar having a portion of reduced width forming a rib with

a shoulder at either side, a metal bar receiving the main portion of the wooden bar, and the rib portion of the wooden bar being between the glasses and projecting beyond the same, and fastening devices passing through the metal bar from the under side into the wooden bar for connecting the parts, substantially as set forth.

3. A rash-bar for greenhouses and other glazed structures, comprising a wooden bar having a portion of reduced width forming a rib with a shoulder at either side, a metal bar receiving the main portion of the wooden bar and the rib portion of the wooden bar being between the glasses and projecting beyond the same and fastening devices passing through the metal bar into the wooden bar for connecting the parts, and moisture-trenches connected to and supported by and coming at opposite longitudinal sides of the metal bar, substantially as set forth.

4. A rash-bar for greenhouses, comprising a wooden bar having a rising projecting longitudinal rib, a U-shaped metal bar surrounding the larger portion of the wooden bar and adapted at its free edges to come up to the under surface of the glass and completely inclose the part of the wooden bar beneath the glass, the rib of the wooden bar coming between the glasses and projecting above the same, there being grooves upon the opposite sides of the projecting rib to receive putty into which the glasses are set, and fastening devices passing through openings in the lower portion of the U-shaped metal bar into the wooden bar for connecting the parts, substantially as set forth.

5. A rash-bar for greenhouses comprising a wooden bar having a rising projecting longitudinal rib, a U-shaped metal bar surrounding the larger portion of the wooden bar and adapted at its free edges to come up to the under surface of the glass and completely inclose the part of the wooden bar beneath the glass, the rib of the wooden bar coming between the glasses and projecting above the same, there being grooves upon the opposite sides of the projecting rib to receive putty into which the glasses are set, and screws passing through openings in the lower portion of the U-shaped metal bar into the wooden bar for connecting the parts, and a moisture-trench below the U-shaped metal bar with upturned edges and located parallel with the metal bar and held thereby by the same screws that connect the metal and the wooden bars, substantially as set forth.

6. A rash-bar for greenhouses comprising a wooden bar having a rising projecting longitudinal rib, a U-shaped metal bar surrounding the larger portion of the wooden bar and adapted at its free edges to come up to the under surface of the glass and completely inclose the part of the wooden bar beneath the glass, the rib of the wooden bar coming between the glasses and projecting above the same, there being grooves upon the opposite sides of the projecting rib to receive putty into which the glasses are set, screws passing through openings in the lower portion of the U-shaped metal bar into the wooden bar for connecting the parts, a moisture-trench below the U-shaped metal bar with upturned edges and located parallel with the metal bar and held thereby by the same screws that connect the metal and the wooden bars, the openings in the metal bar being of larger area than the screws passing therethrough, and the openings for the screws in the moisture-trench being provided with a neck for deflecting the moisture from the screws, and the said neck being received in the openings in the metal bar, substantially as set forth.

7. A rash-bar for greenhouses and other glazed structures, comprising a wooden bar, a metal bar receiving a part of the wooden bar, and a part of the wooden bar being between the glasses, and projecting beyond the same, and fastening devices for connecting the metal and wooden bars, there being openings through the lower portion of the metal bar and the wooden bar not entirely filling the metal bar, so that an appreciable internal chamber is formed between the same and the base of the metal bar to receive any collected moisture passing between the said bars, substantially as set forth.

8. A rash-bar for greenhouses and other glazed structures, comprising a wooden bar having a portion of reduced width forming a rib with a shoulder at either side, a metal bar receiving the main portion of the wooden bar and the rib portion of the wooden bar being between the glasses and projecting beyond the same and fastening devices passing through the metal bar into the wooden bar for connecting the parts, moisture-trenches connected to the said parts for receiving the condensation from the under side of the glasses and water that may leak through the structure and a plate of metal over and longitudinal with the projecting portion of the wooden bar and secured thereto with the edges of the plate extending down to and preferably bearing upon the outer surfaces of the glasses, substantially as set forth.

9. A rash-bar for greenhouses and other glazed structures, comprising a wooden bar having a portion of reduced width forming a rib with a shoulder at either side, a metal bar receiving the main portion of the wooden bar and the rib portion of the wooden bar being between the glasses and projecting beyond the same, fastening devices passing through the metal bar into the wooden bar for connecting the parts, and a plate of metal over and longitudinal with the projecting portion of the wooden bar and secured thereto with the edges of the plate extending down to and

and preferably bearing upon the outer surface of the glasses, substantially as set forth.

10. A rash-bar for greenhouses, comprising a wooden bar having a rising projecting longitudinal rib, a metal bar surrounding the larger portion of the wooden bar and adapted at its free edges to come up to the under surface of the glass and completely inclose the part of the wooden bar beneath the glass, the rib of the wooden bar coming between the glasses and projecting above the same, and moisture-trenches connected to the said parts for receiving the condensation from the under side of the glasses and water that may leak through the structure, substantially as set forth.

897,747. RASH-BAR FOR GREENHOUSES. PAUL H. PHINNEY, Saratoga, N. Y. Filed July 28, 1891. Serial No. 66,343. (No model.)



Claim.—1. A rash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-trenches and a part extending between and slightly beyond the outer faces of the glasses, and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, substantially as set forth.

2. A rash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-trenches and a part extending between and slightly beyond the outer faces of the glasses, and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, and device, such as bolts, passing through parts of the auxiliary and main bars for firmly connecting the parts together, substantially as set forth.

3. A rash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, auxiliary bars of heavy bent sheet metal resting upon and carried by the main bar and having in themselves grooves for the putty into which the glasses are embedded, and moisture-trenches formed thereof at each side of and below the line of said grooves with the free edges of the said auxiliary bars overlapping the sides of the main bar and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, and device, such as bolts, passing through parts of the auxiliary and main bars for firmly connecting the parts together, substantially as set forth.

4. A rash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of substantially U shape in cross-section, an auxiliary bar of heavy bent sheet metal having central parallel adjacent portions extending through between the glasses and beyond the same with grooves upon opposite sides of said portions for the putty into which the glasses are embedded, and with moisture-trenches formed thereof at each side of and below the line of said grooves with the free edges of the said auxiliary bars overlapping the sides of the main bar and a cap-plate connected to the auxiliary bars outside of and above the glasses and overlapping the edges thereof, and device, such as bolts, passing through parts of the auxiliary and main bars for firmly connecting the parts together, substantially as set forth.

5. A rash-bar for greenhouses and other glazed structures, comprising a main supporting-bar of relatively heavy metal and substantially U form in cross-section, and auxiliary bars of heavy bent sheet metal having central parallel portions passing between the glasses of each row and extending beyond the surfaces thereof and having grooves upon opposite sides of said portions for the putty into which the glasses are embedded, and moisture-trenches formed of the material of said auxiliary bars at either side of the putty-grooves and below the plane thereof with the free edges of the auxiliary bars extending over the free edges of the main bar and overlapping the sides thereof, so that the glasses are supported on appreciable distance above the main bar, and a cap-plate outside of and above the glasses overlapping the edges thereof and connected with the auxiliary bars and means for connecting the cap-plate to the auxiliary bars and the auxiliary bars to the main bar, substantially as set forth for the purpose set forth.

897,748. DISTRIBUTOR FOR GOLD-SEPARATORS. ROBERT E. FURBERWATER, San Francisco, Cal., assignor to Edison Iron and Locomotive Works, San Francisco, Cal., a Corporation of California. Filed May 28, 1891. Serial No. 66,188. (No model.)



Claim.—1. The combination with the separator, of the distributing-box, a series of controlled outlets therein, the collecting-tables arranged below at the sides thereof, a distributor interposed between the separator and distributing-box having discharges at its respective sides, and means adjacent said respective sides on the face of the distributor for guiding the material delivered thereto to the outlets of the distributing-box for the respective collecting-tables.

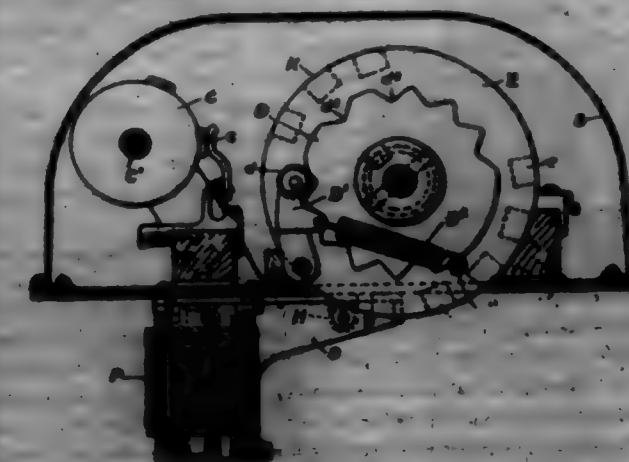
2. The combination with a separator, of the distributing-box, the collecting-tables arranged below and at the sides thereof, the distributor interposed between the distributing-box and the separator, a series of oppositely-arranged inclined ribs, ridges or guides on the face of said distributor and by means of which the material fed therein is directed from the respective sides thereof toward the outlets of the distributing-box for the respective collecting-tables, and means whereby water is supplied to the distributor during the working of the separator.

3. The combination with a separator, of a distributing-box having a series of outlets, collecting-tables arranged at the sides of the distributing-box, an auxiliary distributor interposed between the separator and distributing-box having discharge-openings at its sides, and means on the face of the auxiliary distributor adjacent to the sides having the discharge-openings for guiding the material delivered thereto toward the outlets of the distributing-box for the collecting-tables; substantially as described.

4. The combination with a separator, of a distributing-box, collecting-tables arranged at the sides thereof, an auxiliary distributor interposed between the distributing-box and the separator, a series of oppositely-arranged inclined ribs, ridges or guides on the face of said auxiliary distributor by means of which the material fed thereto is directed from the respective sides thereof toward the outlets of the distributing-box for the collecting-tables; substantially as described.

5. In an apparatus of the character described, a rotary grizzly arranged to discharge from its lower portion, a distributing-box supported beneath the grizzly, collecting-tables at the sides of the distributing-box arranged to receive the discharge therefrom, and an auxiliary distributor intermediate of the grizzly and the distributing-box, the longitudinal center of the auxiliary distributor occupying a plane at one side of the plane of the longitudinal center of the grizzly, substantially as described, to enable said auxiliary distributor to catch the discharge from the grizzly thrown by centrifugal force toward said side, and deliver the same to the distributing-box for the collecting-tables.

897,749. CONTROLLING DEVICE FOR ELECTRIC MOTORS. WILLIAM B. FORTY, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Apr. 22, 1890. Serial No. 66,768. (No model.)



Claim.—1. A current-limiting device comprising an electromagnet in circuit with the apparatus to be protected, its coil carrying only a small

part of the current during normal working, a current-regulator, a stop for the regulator controlled by the electromagnet, and means for throwing the entire current through the magnet-coil when the current rises to a determined maximum.

2. The combination with electric motor, of a movable controller, means for locking said controller from movement, a magnet controlling said means, a shunt around the magnet-coil, and means for opening the shunt when the current in the motor-circuit rises to a given value.

3. In combination, motor and a controller, a ratchet upon the controller, and a pawl adapted to engage with said ratchet to check the movement of said controller and controlled by an electromagnet in the main circuit; with a shunt-circuit around the electromagnet controlled by a circuit-breaker the coil of which is in the main circuit.

4. The combination with electric motor, of a controller therefor, and means for checking the movement of said controller whenever a predetermined current flows through any of the motor while it is in any relation with respect to the other motor.

5. The combination with two or more electrically-connected translating devices, of a movable controller therefor, a locking device for said controller, an electromagnet for actuating said locking device, and a circuit-breaker adapted to cause the entire working current to pass through said electromagnet when said current reaches a predetermined maximum.

6. A plurality of motors, cut-out switches, and a current-limiting device; in combination with connections arranged to leave the current-limiting device always in series with at least one active motor.

7. A plurality of electric motors, a current-limiting device having coils in series with each motor, a series-parallel controller, and connections such that as the motors are thrown into series or parallel, the coils upon the current limiting device are connected in circuit in a similar relation.

8. The combination of a number of electric motors with a motor-controller, a cut-out switch for each motor, and a current-limiting device consisting of an electromagnet and a stop for the controller; the cut-outs being so connected that as any one of them is thrown, it shifts the coil of the electromagnet to the circuit of the other motor.

9. The combination with electric motor, of a current-limiting device for said motor, an electromagnet actuator for said limiting device adapted to be connected in circuit with said motor, and means whereby said electromagnet shall be operative while current flows through any motor.

10. The combination with electric motor, of a current-limiting device therefor, an electromagnet actuator for said limiting device adapted to be connected in series with any motor, and means for automatically cutting out that motor and connecting the electromagnet in another motor-circuit.

11. The combination with electric translating device of a current-limiting device for said device, an electromagnet whose coil is in circuit with said translating device, for actuating said limiting device, and cut-outs for said translating device adapted to leave the magnet-coil in circuit with a translating device still in circuit.

12. The combination with electric motor, of a controller therefor, means for checking the movement of said controller, an electromagnet in circuit with the motor for actuating said means, and cut-outs adapted to connect said magnet in another motor-circuit when the motor-circuit in which it is connected is opened.

13. The combination with electric motor, of a current-limiting device therefor, an electromagnet actuator for said limiting device, having its coil composed of two or more coils, each of which is adapted to remain connected in series with a motor in all relations of said motor with respect to said other.

14. The combination with a rotatable motor-controlling switch, of a ratchet-disk secured thereto, a pawl for said disk, an electromagnet actuator for said pawl, and means for causing sufficient of the working current to flow through said electromagnet to actuate the same, only when the working current reaches a predetermined amount.

15. The combination with electric motor, of a controller, a locking device for said controller, an electromagnet actuator for said device, and means for causing sufficient working current to flow through said electromagnet to actuate the same only when the working current reaches a predetermined maximum.

16. The combination with electric motor, of a series-parallel controller therefor, means for checking the movement of said controller, an electromagnet actuator for said means, having its coil composed of separate coils each of which is in circuit with a motor, and all of which have their relation changed by the controller with those of the motor.

17. The combination with translating device, of a current-limiting device therefor, an electromagnet actuator for said limiting device, having its coil composed of separate coils, each coil connected in series with one of the translating devices.

18. The combination with electric motor, of a controller therefor, means for checking the movement of said controller, an electromagnet in

a motor-circuit for actuating said means, and a circuit-breaker for causing an operative current through the electromagnet when the motor-current reaches a predetermined amount.

19. The combination with electric motor, of a controller therefor, means for checking the movement of said controller, an electromagnet actuator having its coil in series with one motor, a low-resistance shunt around the coil of said actuator and a circuit-breaker controlling the shunt-circuit, having its coil in series with the magnet-coil and adapted to open the low-resistance shunt when the current flowing through the motor reaches a predetermined amount.

20. The combination with a current-limiting device, of an electromagnet for actuating said device, and means for causing the working current to flow through the electromagnet when the supply-current reaches a predetermined maximum.

21. The combination with a current-limiting device, of an electromagnet for actuating said device, and a circuit-breaker adapted to cause said electromagnet to be actuated when the supply of current reaches a predetermined maximum.

22. The combination with a movable controller for translating device, of a locking device therefor, an electromagnet for actuating said device, means for actuating said electromagnet, and means for determining in advance the point at which the electromagnet shall be actuated.

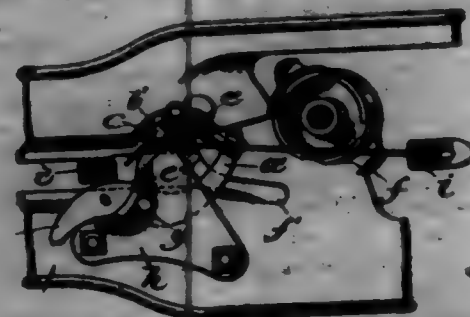
23. The combination with electric motor, of a controller therefor, and means for checking the movement of said controller whenever a predetermined current flows through any one of said motors.

24. The combination with electric motor, of a series-parallel controller therefor, and means for checking the movement of said controller during its series or parallel position when a predetermined current flows through any one of said motors.

25. The combination with electric motor, of a controller therefor, means for checking the movement of said controller, an electromagnet for actuating said means, and means for diverting from a normal path to a motor a current for operating said electromagnet.

26. In combination, in a circuit containing a plurality of translating devices, means for connecting said devices either in series or in parallel, means for controlling the flow of current in said circuit, and means controlled by the current flowing in each of said devices for limiting the movement of said current-controlling means.

697,750. BRAIN-BENDER. JOHN W. FREDERICK, Chicago, Ill. Filed Nov. 4, 1903. Serial No. 26,608. (No model.)



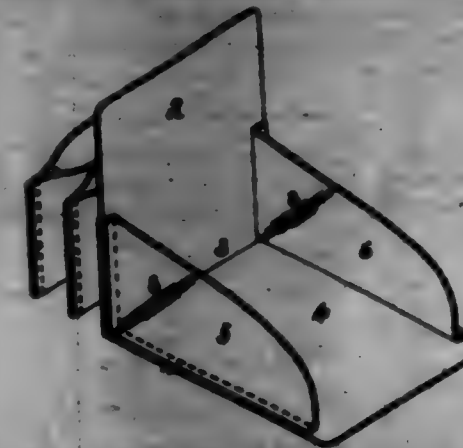
Claim.—1. The combination with a knitter having only a single revolution to each knot, and which steps with its jaws treading in the direction of discharge of the handle, of a stationary card-supporting finger in front of the knitter, and a supplemental movable finger operated by the needle to close the slot and when so operated being located beyond the knitter but within the range of movement of its jaws, so as to prevent the outer or lower strand from escaping the knitter-jaws in the formation of the loop.

2. The combination with a knitter having only a single revolution to each knot, and which steps with its jaws treading in the direction of discharge of the handle, of a stationary card-supporting finger in front of the knitter, and a supplemental pivoted finger on one side of the slot, with its point in proximity thereto, having a talisman normally extending partially over the slot whereby it is adapted to be struck by the needle as it rises and cause its point to close the slot, said point when so operated being located beyond the knitter, but within the range of movement of its jaws, thereby preventing the outer or lower strand from escaping the knitter-jaws in the formation of the loop.

3. The combination with a knitter having only a single revolution to each knot, and which steps with its jaws treading in the direction of discharge of the handle, of a stationary card-supporting finger, a horizontal finger pivoted at one side of the slot with its point in proximity thereto and having a talisman normally extending partially over the slot whereby it is adapted to be struck by the needle as it rises and cause its point to close the slot and when so operated being located beyond the knitter but within the range of movement of its jaws, thereby preventing

ing the lower or outer strand from escaping the knitter-jaws in the formation of the loop.

697,751. FOCKER-ROSE. RICHARD F. RANDELL, Rochester, N. Y. Filed Jan. 12, 1906. Serial No. 18,571. (No model.)



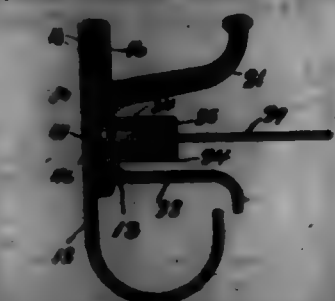
Claim.—A pocket-book comprising a series of pockets, an end pocket made up of an end, back and two side pieces, the side pieces curved to the end and back, the end forming the division between the end pocket and series of pockets and having a flap extension.

697,752. FOLDING HEAD-REST. ADOLF REILL, Elmwood Park, Ill. Filed Oct. 31, 1904. Serial No. 28,661. (No model.)



Claim.—A folding head-rest comprising in combination two inverted U-shaped supports, a strip of material connected at each end to one of said supports, two pairs of bars adapted to keep the supports at a distance for disengaging the material, each pair of bars being pivoted together, and each separate bar pivoted at one end to one of the supports and at the other provided with slots adapted to engage pins on the opposite support, and cross-bars connecting the upper ends of each pair of bars, substantially as described.

697,753. SAFETY COAT-HOOK. OTTO C. STUEBE, Chicago, Ill. Assignor to William C. Burton and Charles F. Hansen, Chicago, Ill. Filed Apr. 20, 1904. Serial No. 24,795. (No model.)



Claim.—1. In a device of the class described, the combination with the two relatively movable members, one of which is provided with the corrugations, of the plunger cooperating with said corrugations, a spring co-operating with said plunger to hold it yieldingly in engagement with said corrugations, and means for holding said plunger in any position of adjustment of the two members to prevent their unassisted relative movement in either direction; substantially as described.

2. In a device of the class described, the combination with the two relatively movable members, of a lock interposed between said members to lock them from movement in either direction in any position of adjustment, and a key for said lock, said lock and said key being so constructed that the key cannot be removed unless said members are locked together; substantially as described.

3. In a device of the class described, the combination with the two relatively movable members, of a lock interposed between said members and consisting of the sliding plunger held from rotation and having the cam-lugs thereon, together with the rotating cam-piece adapted to be turned by the key and co-operating with said cam-lugs; substantially as described.

4. In a device of the class described, the combination with the two relatively movable members, one of which is provided with the corrugations, of the spring-pressed plunger co-operating with said corrugations and having the cam-lugs thereon, means for preventing the rotation of said plunger, and the rotating cam-piece adapted to be turned by the key and co-operating with the cam-lugs on said plunger; substantially as described.

5. In a device of the class described, the combination with the two relatively movable members, of a lock interposed between said members and consisting of the sliding plunger held from rotation and having the cam-lugs thereon, the rotating cam-piece adapted to be turned by the key and co-operating with said cam-lugs, the key, and the wedge adapted to prevent the withdrawal of the key except when the plunger is in locking position.

6. In a device of the class described, the combination with the two relatively movable members, one of which is provided with the corrugations, of the spring-pressed plunger co-operating with said corrugations and provided with the cam-lugs thereon, the rotating cam-piece adapted to be turned by the key and co-operating with said cam-lugs, the key, and the wedge adapted to prevent the withdrawal of the key except when the plunger is in locking position; substantially as described.

7. In a device of the class described, the combination with the two relatively movable members, of a lock interposed between said members and consisting of the cup-shaped sliding plunger held from rotation and having the cam-lugs on its edges, the cup-shaped rotating cam-piece adapted to be turned by the key and co-operating with said cam-lugs, and the expanding-spring between said plunger and cam-piece; substantially as described.

8. In a device of the class described, the combination with the two relatively movable members, of a lock interposed between said members and consisting of the cup-shaped sliding plunger held from rotation and having the cam-lugs on its edges, the rotating cam-piece adapted to be turned by the key and co-operating with said cam-lugs, the key, and the expanding-spring between said plunger and cam-piece; substantially as described.

9. In a device of the class described, the combination with the barrel having the channels 26 therein and the flange 25 at the outer end thereof, of the spring-pressed plunger adapted to slide in said barrel and having lugs 40 projecting in the channels 26 and the cam-lugs 30 thereon, the rotating cam-piece 24 having the channel 25 therein and the cam-lugs 27 thereon, words 30 having the lugs 31 thereon adapted to fit in the channels 26 of the barrel and having the elongated slots 23 therein, and the key having the notches 43 adapted to co-operate with the words and the end 35 adapted to co-operate with the channel 25; substantially as described.

697,754. AUTOMATIC SPRING-WINDING MECHANISM FOR MECHANICAL INSTRUMENT DEVICES. HERMAN E. SHARP and WILLIAM F. COOPER, Bridgeport, Conn. Filed Feb. 10, 1902. Serial No. 22,322. (No model.)



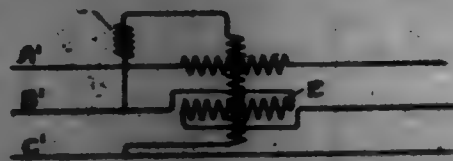
Claim.—1. In an automatic spring-winding mechanism for mechanical instrument devices, the combination of the stationary casing, the shaft journaled within said casing, the motor-spring having its inner and outer extremities respectively secured to said shaft and to the mechanism by means of which the coiling of the perforated time-sheet is effected, a wheel capable of revolution independent of said shaft, a spring relatively more powerful than the motor-spring and having its inner and outer extremities respectively secured to said wheel and to a stationary element, means—as a coil—secured to said wheel and to the pedal whereby the power-stroke of the latter will revolve the wheel in one direction to wind the more powerful spring, and a friction-clutch whereby said wheel will, when revolved in a reverse direction, be rigidly connected with said shaft to wind the motor-spring on the return movement of the pedal, substantially as set forth.

2. In an automatic spring-winding mechanism for mechanical instrument devices, the combination of the stationary casing, the shaft journaled within said casing, a motor-spring having its inner and outer extremities respectively secured to said shaft and to the mechanism by means of which the coiling of the perforated time-sheet is effected, a wheel capable of revolving independent of said shaft, a spring relatively more powerful than the motor-spring and having its inner and outer extremities respectively secured to said wheel and to a stationary element, said springs being wound in reverse directions, the pedal, a connection between said wheel and pedal whereby the power-stroke of the latter will revolve said wheel in one direction and wind said powerful spring, and a friction-clutch carried by said shaft and adapted to engage with said wheel on its reverse movement whereby at the return stroke of the pedal said powerful spring will effect the reverse movement of the wheel and thereby wind the motor-spring, substantially as set forth.

3. In an automatic spring-winding mechanism for mechanical instrument devices, the combination of the stationary casing, the shaft journaled within said casing, the motor-spring having its inner and outer extremities respectively secured to said shaft and to the mechanism by means of which the coiling of the perforated time-sheet is effected, the friction-clutch moving in harmony with said shaft, the wheel capable of independent rotation in one direction, the springs which are each relatively more powerful than the motor-spring, and which are each wound in a direction reverse to that of said motor-spring and whose inner and outer extremities are respectively secured to said wheel and to a stationary element, the pedal, and connections between said wheel and pedal whereby the power-stroke of the latter will effect the two rotations of said wheel thereby winding the powerful springs, while at the return movement of said pedal the relaxation of said powerful springs will effect the engagement of said clutches and wheels and cause the latter to revolve in a reverse direction thereby winding the motor-spring, substantially as set forth.

4. In an automatic spring-winding mechanism for mechanical instrument devices, the combination of the stationary casing, the shaft journaled within said casing, the drum loosely carried by said shaft, the motor-spring whose inner and outer extremities are respectively secured to said shaft and drum, a wheel capable of revolving independent of said shaft, a spring relatively more powerful than the motor-spring and having its inner and outer extremities respectively secured to said wheel and to a stationary element, said springs being wound in reverse directions, the pedal, a connection between said wheel and pedal whereby the power-stroke of the latter will revolve said wheel and wind said powerful spring, and a friction-clutch carried by said shaft and adapted to engage with said wheel on its reverse movement whereby at the return stroke of the pedal said powerful spring will effect the reverse movement of the wheel and thereby wind the motor-spring, substantially as set forth.

697,755. ALTERNATING-CURRENT METER. GEORGE STERN, Charlottenburg, Germany, assignor to General Electric Company, a Corporation of New York. Filed Aug. 20, 1900. Serial No. 50,000. (No model.)



Claim.—1. In combination in an induction-meter for three-phase systems, series windings included in circuit with two of the mains, and a circuit containing a short-winding connected between the third main and one of the other mains, said circuit being so organized that the current therein is displaced by thirty degrees from its impressed electromotive force.

2. In combination in an induction-meter for three-phase systems,

series windings included in circuit with two of the mains, and a circuit containing a short-winding connected between the third main and one of the other mains, said circuit being so organized that the current therein is displaced by thirty degrees from its impressed electromotive force.

3. In combination in an induction-meter for three-phase systems, series windings included in circuit with two of the mains, a short-winding connected between the third main and one of the other mains, and means in circuit with said short-winding for causing the current therein to be displaced by thirty degrees from its impressed electromotive force.

697,756. ALTERNATING-CURRENT METER. GEORGE STERN, Charlottenburg, Germany, assignor to General Electric Company, a Corporation of New York. Filed Aug. 22, 1900. Serial No. 50,000. (No model.)

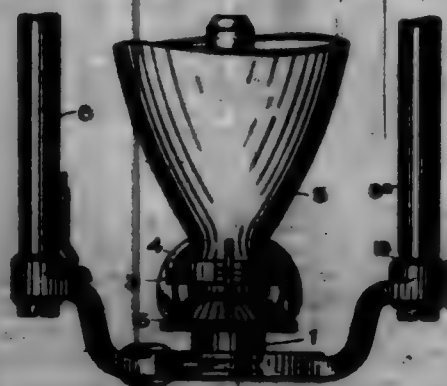


Claim.—1. A three-phase alternating-current meter comprising two measuring systems in which the current flows differ in phase from one another by one hundred and fifty degrees, each of said flows being produced by the combined action of windings in circuit with two of the three-phase mains, and in which the potential flux on non-inductive load legs in one system lags behind and in the other is in advance of the corresponding current flux.

2. In a three-phase alternating-current meter, two measuring systems, each comprising current-windings connected in circuit with two of the mains and a potential winding, the current-windings being so connected and arranged that the resultant of the current fluxes in the two systems are displaced in phase from one another by one hundred and fifty degrees, and the potential windings being connected and arranged to generate on a non-inductive load a potential flux lagging by a certain angle behind the current flux in one system and a potential flux leading the current flux by the same angle in the other system.

3. In a three-phase alternating-current induction-meter, two measuring systems, each comprising current-windings connected in circuit with two of the mains, and a potential winding, the current-windings being so connected and arranged that the resultant of the current fluxes in the two systems are displaced in phase from one another by one hundred and fifty degrees and the potential windings being connected and arranged to generate potential fluxes displaced in phase from one another by the same angle, the potential flux on non-inductive load lagging in one system behind and in the other leading the current flux.

697,757. GLASS-GLIDER FOR AIR-LAMP. GEORGE E. STEVEN, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Sept. 18, 1900. Serial No. 73,000. (No model.)



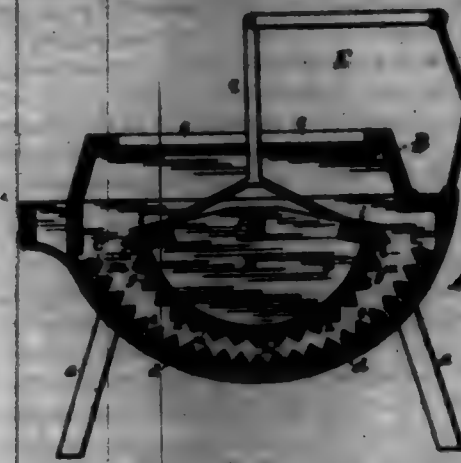
Claim.—1. A globe-holder for an incandescent lamp, comprising a recessed end for the neck of the glass globe, a socket for the lower end of the globe below said end, a stem detachably connected with a yoke connecting the side rods, a plurality of symmetrically-spaced pivoted clamps, and a nut threaded on the stem to adjust the clamps, said nut being below the plane of the globe-end.

2. A supporting-yoke for a globe-holder split longitudinally of its axis to form two jaws, a cylindrical socket between the jaws for the stem of the globe-holder, and a gas-arrow to compress or spread the jaws.

3. An insulated metal bushing comprising a metal tube surrounding an insulating lining and having its ends open over the edges of said lining.

4. An insulated metal bushing comprising said or more thin metal tubes surrounding an insulating lining and open at its ends over the edges of the lining.

697,758. WASHING-MACHINE. WILLIAM W. TAYLOR, Minneapolis, Minn. Filed Sept. 6, 1901. Serial No. 74,000. (No model.)



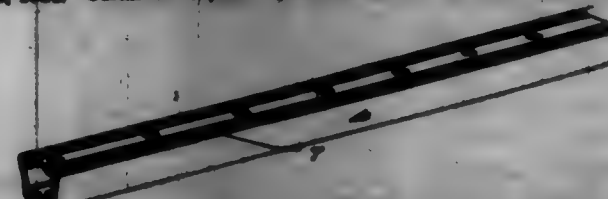
Claim.—In a washing-machine of the character herein shown, the combination in the rubber throat, of the parallel plates forming the sides thereof, the laterally-placed rubbing-bars forming the curved base or bottom thereof, wires extending laterally through the laterally-placed bars, staples driven over the said wires, between the said bars and into the said side plates, and cushions lying between the said rubbing-bars and the said side plates; said cushions being secured in place by means of the said staples, substantially as shown and for the purposes specified.

697,759. DISSEPARATOR. ANDRÉ LA BOW WALKER, Canada, E. I. Filed Jan. 2, 1902. Serial No. 60,000. (No model.)



Claim.—An agitator, comprising a receptacle having a handle, a guard extending from the lower upper edge of the receptacle on an angle toward the bottom, said receptacle having an opening under the guard, as and for the purpose described.

697,760. WINDOW-CLEANER. HENRY C. WALSH, Philadelphia, Pa., assignor of one-half to Louis V. Gray, Philadelphia, Pa. Filed July 20, 1901. Serial No. 75,000. (No model.)



Claim.—1. In a window-cleaner, a washing-strip holder consisting of a trough-shaped holder, the edges of its open side formed each with a return-bend standing obliquely toward each other within and toward the bottom of the trough to engage and form detents for the washing-strip within the holder.

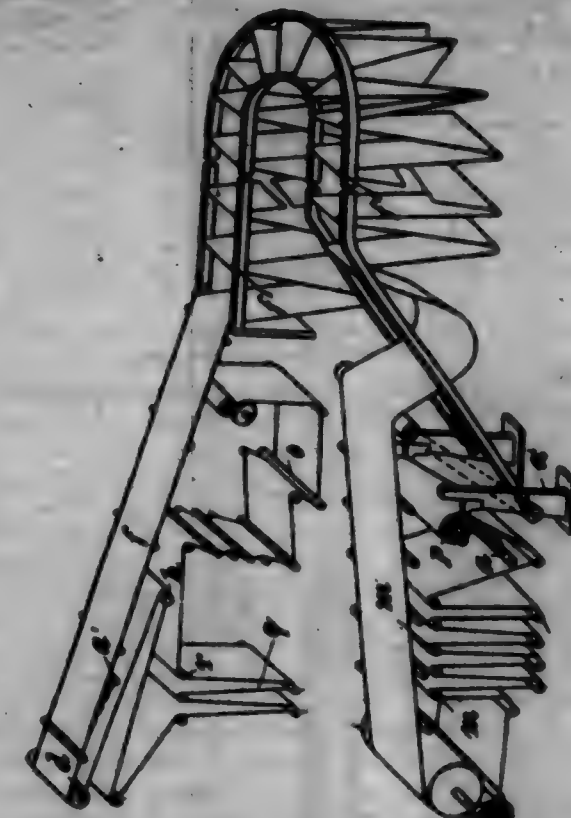
2. In a window-cleaner and in combination with a chamber for containing water of a separate holder or holder of trough shape in cross-section, attached to the edges at the open side of the chamber-casing, having holes in its closed side, its edges terminating in inward-turned lips or flanges standing obliquely toward each other whereby to engage and form detents for a flexible washing-strip bound within the holder.

697,761. PLANT FOR TREATING PAPER. JULIUS WERN, Leipzig, Germany. Filed June 20, 1902. Serial No. 65,170. (No model.)

Claim.—1. In a plant for treating paper for anti-printing, the combination of means for maintaining the paper and stretching the same before the coating is applied thereto, means for applying the coating and means for maintaining and stretching and drying the same before it is rolled onto the roll substantially as described.

2. In a plant for treating paper for anti-printing the combination of means for maintaining and stretching the paper, means for applying the

coating thereto, means for drying the said coating and means for again maintaining and stretching the said paper previous to its being rolled up, substantially as described.



3. In a plant for treating paper for anti-printing, the combination of means for maintaining and stretching the paper, means for applying the coating, means for then drying the paper means for maintaining it again, a calendaring-engine to calender the paper after the second maintaining, means for drying the paper after the calendaring and for rolling the same up substantially as described.

4. In a plant of the class specified, the combination of means for maintaining and stretching the paper previous to the application of the coating, means for applying the coating, and then drying the paper, means for maintaining the paper again and a movable frame having a series of loose rolls mounted therein to stretch the paper and capable of adjustment to and from the rolling-up mechanism, and means for rolling up the paper in the manner and for the purpose substantially as described.

5. In a plant of the class specified, the combination of a paper roll, an atomizer directed toward the width of the paper, a series of stretchers to receive the paper after it has passed the atomizer, means for applying the coating to the paper and for subsequently drying the same, a second atomizer to again stretch the paper after it has been dried, stretchers mounted on an adjustable frame over which the paper is passed after the second maintaining and means for subsequently winding the paper to form a roll substantially as described.

6. In a plant of the class specified, the combination of means for maintaining and stretching the paper, means for applying the coating and subsequently drying the paper, means for again maintaining the same, a calendaring-engine and means for drying the paper after the calendaring operation, consisting of a series of sets of loose rolls, draw-rolls to pull the paper from end to end to the next set and draw-rolls to return the paper to the original size consecutively substantially as described.

7. In a plant of the class specified, the combination of a paper-roll, an atomizer to spray the paper coming from the said roll and stretchers through which the paper is passed, a device for applying the coating to the paper and means for simultaneously stretching the said coating-machine and the atomizer, means for drying the coated paper, a second atomizer and a machine for rolling up the said paper and means for simultaneously stretching the rolling-machine and the second atomizer substantially as described.

697,762. GAB-FRAME. LAURENCE WERN, Baltimore, Md. Filed Feb. 27, 1902. Serial No. 61,000. (No model.)

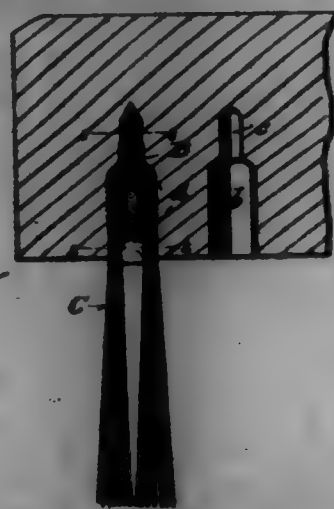
Claim.—1. A frame of the character described, comprising two laterally-extending wings each wing consisting of a main section, A, and a pivoted extension, B, that can be extended in alignment with and folded back against the main section; means for locking said pivoted extension in extended relation to the main section; and means for holding said foldable wings in operative position or in retracted position, as and for the purpose set forth.

2. A frame of the character described, comprising two laterally-

swinging wings spring-pressed outwardly; two links each connected at one end to one of said wings and provided at its other end with an eye; and a fast-operated tripping-lever provided at one end with a hole adapted to be inserted in said eyes whereby to hold said wings in retracted position against the action of their springs, as and for the purpose set forth.

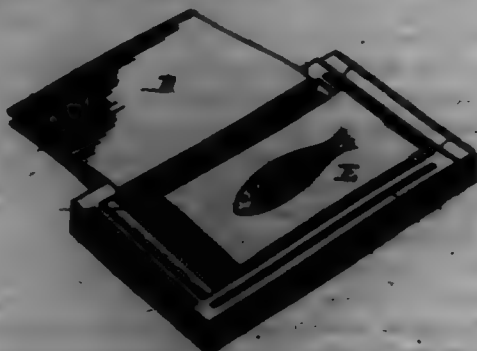


697,768. BRUSH. ADOLF R. WIEBE, Milwaukee, Wis. Filed Jan. 16, 1902. Serial No. 1,471. (No model.)



Claim.—A multiple-tuft brush having a one-piece wood back provided with a recess back of each tuft-cocket in communication therewith but of less diameter than the same, and a plug driven through the tuft-hut in each cocket with some of the tuft material and its binding-threads into the adjacent recess.

697,764. MEANS FOR TRACING PICTURES. ED. EDGAR L. WILLIAMS, Fort St. Filed Nov. 12, 1901. Serial No. 52,942. (No model.)



Claim.—1. A multiple-tuft brush having a one-piece wood back provided with a recess back of each tuft-cocket in communication therewith but of less diameter than the same, and a plug driven through the tuft-hut in each cocket with some of the tuft material and its binding-threads into the adjacent recess.

2. A multiple-tuft brush having a one-piece wood back provided with a recess back of each tuft-cocket in communication therewith but of less diameter than the same, and a plug driven through the tuft-hut in each cocket with some of the tuft material and its binding-threads into the adjacent recess.

3. A multiple-tuft brush having a one-piece wood back provided with a recess back of each tuft-cocket in communication therewith but of less diameter than the same, and a plug driven through the tuft-hut in each cocket with some of the tuft material and its binding-threads into the adjacent recess.

4. A multiple-tuft brush having a one-piece wood back provided with a recess back of each tuft-cocket in communication therewith but of less diameter than the same, and a plug driven through the tuft-hut in each cocket with some of the tuft material and its binding-threads into the adjacent recess.

5. A means for tracing pictures, drawings or the like, comprising a frame having an opening or space through which a picture or the like may be traced and having a plurality of transfer-sheets of different colors attached to the frame at the edge of said opening, certain of said sheets being shrouded than said opening in order to pass through said opening in being turned away therefrom.

6. A means for tracing pictures, drawings or the like, comprising a frame having an opening or space through which a picture or the like may be traced, and having one or more transfer-sheets attached to the frame at the edge of said opening, said frame having a slit adjacent the edge of the opening to receive a portion of the sheet containing the picture, or the like object to be reproduced.

7. A means for tracing pictures, drawings or the like, comprising a frame having an opening through which a picture or the like may be traced and having one or more transfer-sheets attached to the frame at the edge of said opening, said frame being provided with a plurality of slots or holders adjacent the edge of the frame and adapted to engage the sheet containing the picture or the like object to be reproduced.

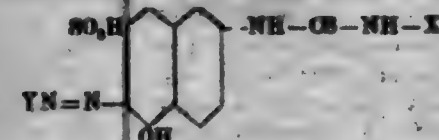
8. A means for tracing pictures, drawings or the like, comprising a frame having an opening through which a picture or the like may be traced, a pad consisting of leaves or blank sheets whereon the picture are traced, a strip of flexible material whereby said frame is connected to said pad at one edge, a plurality of transfer-sheets attached to said frame at one of its free edges, and suitable means for holding the picture-sheet.

697,765. RED COTTON-DYE AND PROCESS OF MAKING SAME. HENRI WINTER, Höchst-am-Main, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-am-Main, Germany, a Corporation of Germany. Filed Aug. 5, 1901. Serial No. 70,708. (Opposition.)

Claim.—1. The herein-described process for the manufacture of dyestuff for cotton, which consists in combining asymmetric this-urea, obtained by the action of asymmetric mustard-oil on 2,4,7-trinitrophenol-sulfonic acid with diamine compounds, substantially as set forth.

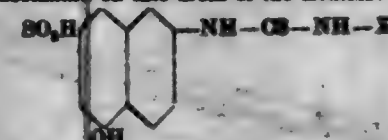
2. The herein-described process for the manufacture of a dyestuff for cotton, which consists in combining asymmetric this-urea obtained by the combination of an aromatic mustard-oil with 2,4,7-trinitrophenol-sulfonic acid with the diamine compound of para-aminobenzoic acid, substantially as set forth.

3. As new products, the dyestuffs having the general formula:



wherein Y is the radical of a diamine compound, X the radical of an amine of the benzene series, being brown-red powders soluble in water and which directly dye cotton red shades fast to acids.

4. As a new product, the dyestuff obtained by the action of diamine para-aminobenzoic acid on this-urea of the formula:



wherein X means the radical of an amine of the benzene series, being a brown-red powder of metallic water soluble in water to a red solution becoming blue-red on addition of mineral acid, and yellow-red on adding alkali; little soluble in alcohol; insoluble in petroleum ether; soluble in concentrated sulfuric acid, with a blue-red color; and which directly dyes cotton blue-red shades fast to acids.

697,766. FOLD-CHOPPER. HENRI K. WOOD, Hartford, Conn., assignor, by means of assignment, to the Windsor Hardware Manufacturing Corporation, Hartford, Conn., a Corporation of Connecticut. Filed Nov. 14, 1901. Serial No. 52,943. (No model.)



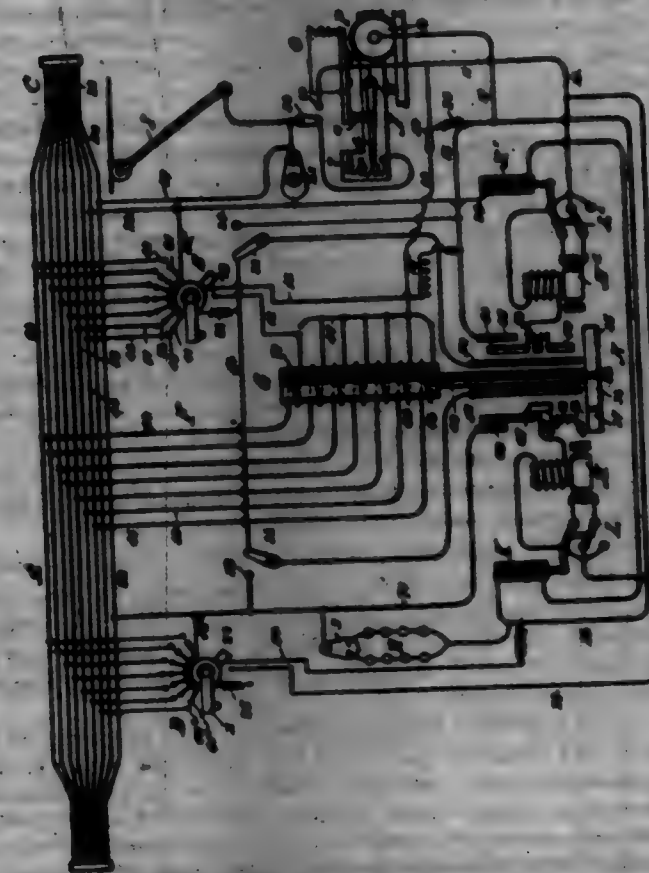
Claim.—1. In a fold-chopper, the combination, with a casing, of a stationary cutter having inwardly-flaring, curved teeth having a cutting edge; a screw driven a revolution of which terminates in a blunt

face, said surface curving to form the feed against the inner cutting edge of the stationary cutter; and a rotary cutter cooperating with exterior cutting-surfaces of said stationary cutter.

2. In a fold-chopper, the combination, with a casing, of a screw driven, two of the revolutions of which terminate in blunt surfaces; a stationary cutter-plate having inwardly-flaring, curved teeth against the inner sharp ends of which the feed is forced by the non-cutting end surfaces of the screw; a rotary cutter; and means for moving said rotary cutter to the feed.

3. In a fold-chopper, the combination, with a casing, of a screw driven, two of the revolutions of which terminate in blunt surfaces; a stationary cutter-plate having inwardly-flaring, curved teeth against the inner sharp ends of which the feed is forced by the non-cutting end surfaces of the screw; a rotary cutter; and means for moving said rotary cutter to the feed.

697,767. SYSTEM OF ELECTRICAL CONTROL. GRAYMAN T. WOOD AND LEONARD WOOD, New York, N. Y., assignors, by direct and means of assignment, to Henry C. Townsend and Robert H. Decker, trustees. Filed May 12, 1901. Serial No. 60,988. (No model.)



Claim.—1. The combination of a plurality of motors, a series-parallel controller therefor, and an automatically-acting current-modifying device having its movable portion in circuit with said motors, and adapted to be actuated by an abnormally great flow of current and thereby interrupt the tendency of such current to affect the normal condition or action of said motors.

2. In a system of electrical control the combination of a motor or other transmitting device, a motive switch having a stop-by-stop motion and adapted to control the current action of said motor or other transmitting device, means for placing said motive switch in communication with the source of power-supply, and an automatically-acting electromechanical device having its movable portion in circuit with said motor or other transmitting device and adapted to move and thereby interrupt the tendency of a current to affect the normal action or condition of said motor or other transmitting device.

3. In a system of electrical control the combination of a motor or other transmitting device, a motive switch having a plurality of current-carrying coils, each of which is energized independently of the other coils, a connecting-switch for electrically connecting said coils in sequence to the appropriate current-supply circuit thereby enabling said motive switch to control said motor or other transmitting device, and a spring or other device which constantly tends to snap the movable part of said connecting-switch to cut off all of said coils out of the circuit and thereby preventing the motive switch to assume its normal position.

4. In a system of electrical control the combination of a motor, a motive switch for controlling the speed of said motor, the connecting-coils

of said motive switch having one set of their terminals permanently connected together to lead current from said coils while the other set of their terminals are in a normally open circuit and a manually-operable switch which is adapted to connect the latter terminals in sequence to the open circuit terminals of the current-supply circuit, said manually-operable switch being provided with means which constantly tends to snap said latter switch to cut out of circuit all of the coils of said motive switch.

5. In an electric system the combination of a driving-motor, a speed-controlling motive switch for controlling the speed of said motor, one set of the terminals of the motive-switch-connecting coils being permanently connected together and leading to the armature of said motor while the other set of terminals of said coils are in a normally open circuit, and means for connecting the latter terminals in sequence to the current-supply circuit.

6. In an electric system the combination of a driving-motor, a motive switch for controlling the speed of said motor, a connecting-switch for controlling the action of said motive switch, a speed-controlling circuit connection between said connecting-switch and said motive switch, a driving-motor-reversing device having one terminal electrically communicating with the armature of said driving-motor and the other terminal of said device being adapted to be electrically connected to said speed-controlling circuit, and a single-point switch for controlling said motor-reversing device.

7. In combination, a motor, a controller therefor comprising fixed contacts and a movable contact, a series of oppositely-actuated devices adapted to move said movable contact step by step, in one direction, through a series of operative positions, and a connecting-switch controlling only the circuit connections which are adapted to successively operate said actuating devices to change the speed or work of said motor.

8. In an electrically-controlled system, the combination of a motor or other electrical transmitting device, a self-actuating motive switch having a plurality of independent current-carrying coils, each of which when energized influences a movable electromagnet body which is common to all of said coils, said coils being in a branch circuit in series with the motor, a contact carried by but insulated from said magnet body and adapted to change the resistance of the motor-circuit, and means whereby said coils are connected in sequence to the supply-circuit.

9. In a system of electrical control the combination of a motor, circuit therefor, a motor-speed controller, a device adapted to control the direction of rotation of said motor-armature, a single group, or set of wires whereby both of said devices are connected to said motor and an automatically-acting current-modifying device in circuit with said motor and adapted to move and interrupt the tendency of a current to affect the normal action or condition of said motor.

10. In an electrical system the combination of a motor, circuit therefor, a motive-switch device, a direction-controlling device, both of said devices being connected to said motor-circuit, a connecting-switch, means for causing the latter switch to remain in normal position when the manual control of the said latter switch ceases, and means in circuit with said motor and adapted to move automatically and interrupt the tendency of a current to affect the normal condition or action of said motor.

11. In an electrical system, the combination of a motor equipment, a motive-switch device, having a plurality of coils, all of which influence, in sequence, one and the same electromagnet body to change its position in reference to the motor-circuit and a connecting-switch adapted to connect said coils in sequence to the current-supply circuit, the said electromagnet body being free to act promptly in response to any movement of said connecting-switch.

12. In an electrical system, the combination of two sets of contacts, one set being connected to the current-supply circuit while the contacts of the other set are each connected with one wire leading to a coil of the motive switch; means for connecting one of the contacts of the latter set with the appropriate one of the former set and an automatically-acting device in circuit with a motor and adapted to move upon the flow of an abnormal current and prevent such current from changing the normal condition or action of said motor.

13. In an electrical system, the combination of a driving-motor, circuit therefor, a plurality of simultaneously-actuated contacts for effecting changes in the motor-circuit a motive switch for controlling said contacts, and a connecting-switch mechanism connected therewith and to the motor-circuit whereby when the movable part of said connecting-switch is actuated one coil of the motive switch is brought into the motor-circuit.

14. In a system of electrical control, the combination of a motor, a connecting-switch, a motive switch, and a dead-resistance connection between the motive-switch coils and the ground or return-conductor.

15. In a system of electrical control, the combination of a motor, a connecting-switch, means whereby said connecting-switch always tends to stand at open circuit, a motive switch, a high-resistance temporary connection between the motive-switch coils and the ground or return-conductor.

motor, and a low-resistance connection between said motive-switch coils and the said motor.

16. In a system of electrical control, the combination of a translating device, a commencing-switch, a motive switch, an automatically-acting device which is adapted to move under the influence of an abnormal current and interrupt the tendency of such current to interfere with normal action or condition of said translating device, and a dead-resistance temporary connection between the motive-switch coils and the ground or return-conductor.

17. In a system of electrical control the combination of a motor-controlling apparatus having a series of wire coils and adapted to control said motor, the said coils of said apparatus having one end of their terminals permanently connected together and leading to one part of their supply circuit, while the other end of their terminals are each in a normally open circuit, a manually-operable commencing-switch which is adapted to connect the latter terminals in sequence to the open-circuit terminals of their current-supply circuit, and means located at said commencing-switch whereby if the manual control of the latter switch ceases while the current is on, the circuit will be automatically opened.

18. In a system of electrical control, the combination of a motor, a commencing-switch, a motive switch, a normally open circuit connection between the motive-switch coils and the ground or return-conductor, and means whereby said circuit is closed to initially estimate said motive switch.

19. In an electrical system, a plurality of motor-controlling devices, each having its movable contacts carried by a suitable supporting apparatus, a plurality of separately-energized coils operatively related to said supporting apparatus of each controller device, each of said coils, when energized, being adapted to cause the movable contacts to move through a portion only of the full length of their path, a set of wires extending along the train and to which the said coils are connected, and a commencing-switch adapted to supply current simultaneously to the corresponding coils of the several controller devices.

20. The combination of a plurality of cars united to form a train, some of said cars being equipped with driving-motors, motor-speed-controlling apparatus upon each motor-equipped car, the motor portion of said controlling apparatus on each car being energized section by section, means on each motor-equipped car whereby the motor may be reversed, coupling-head devices on each motor-equipped car and connected with the speed-controlling apparatus and the motor-reversing means thereon, and means adapted to be coupled between the coupling-head on one motor-equipped car and a coupling-head on another motor-equipped car, whereby the corresponding sections of all of the motor-speed-controlling apparatus on the train may receive energy simultaneously by the movement of one switch, and all of said motor may be reversed at another time by the movement of another switch.

21. The combination of a plurality of cars connected up to form a train, motors upon each motor-car, some of said wires, on any given motor-car, having five terminals, the corresponding terminals of the latter wires being grouped together and then forming sets, two of said sets ending in commencing-switch apparatus, another two of said sets ending in two coupling-head devices located at the respective ends of the car, the remaining set of said terminals ending in sectionally-energized motor-controlling apparatus, and means adapted to be temporarily connected between the appropriate coupling-head device on one motor-car and a coupling-head device on another motor-car, whereby the corresponding coils of the motor-controlling apparatus on the several cars will be connected in multiple independently of the order or condition of said cars, and thereby permitting the simultaneous control of all of the driving-motors by the manipulation of either commencing-switch.

22. The combination of a motor, sectionally-energized controlling apparatus therefor, a commencing-switch to govern said controller apparatus section by section, reversing apparatus for said motor, an independent switch adapted to govern said reversing apparatus, and means located at the commencing-switch whereby the motor-circuit will be caused to be automatically opened upon failure of the motorman to control said commencing-switch during the whole time that operative current is received by said motor.

23. In a system of electrical control, the combination of a pair of motors, a commencing-switch, a speed-controlling device and a direction-controlling device, said speed-controlling device being adapted to couple said motors in series and then in parallel, and both of said devices being electrically connected to the circuit of said motors.

24. In a system of electrical control, the combination of a pair of motors, a motive-switch device having a plurality of coils all of which influence, in sequence, one and the same electromagnet body to change its position in reference to the said motors, to couple them in series and then in parallel, and a commencing-switch adapted to connect said coils in sequence to the supply-circuit.

25. In a system of electrical control, the combination of a pair of

motors, circuits therefor, a plurality of simultaneously-actuated contacts for effecting changes in the electrical connection between said motors, a motive switch for controlling said contacts, and a commencing-switch mechanism connected therewith and with the motor-circuits whereby, when the movable part of said commencing-switch is moved from one pair of its contacts to its next such pair, the resistance in said motor-circuit is thereby caused to change said motive switch being adapted to be connected in series with a motor.

26. In a system of motor control, the combination of a driving-motor, circuits therefor, sectionally-energized speed-controlling apparatus connected to the motor-circuit, a switch for governing said speed-controlling apparatus, motor-reversing mechanism connected to the motor-circuit and adapted to act only when the reversal of said motor is desired, and a switch to govern the action of said reversing mechanism.

27. In a system of motor control, the combination of a plurality of driving-motors, circuits therefor, sectionally-energized speed-controlling apparatus connected to said circuits and adapted to connect said motors in series and then in multiple, a switch for governing said speed-controlling apparatus, motor-reversing mechanism connected to the motor-circuits and adapted to constantly maintain such connection except during the reversal of said motors and a switch adapted to govern said reversing mechanism.

28. In a system of electrical control, the combination of a pair of motors, a motive switch for changing the relation of said motors from series to parallel, a commencing-switch, and a reversing device for each such motor, the coil or coils of one reversing device being in series with the coil or coils of the other such device.

29. The combination of a plurality of electrically-equipped cars, each of said cars having a driving-motor, a plurality of wires upon each car, each wire having five terminals, the corresponding terminals of the several wires upon a car being grouped together to form sets, two of said sets ending in commencing-switch apparatus, another two of said sets ending in two coupling-head devices, at the respective ends of the car, the remaining set of said terminals ending in motor-controlling apparatus, and means whereby the said terminals at the adjacent ends of two cars may be electrically connected together and the corresponding coils of the several controller devices connected in multiple and thereby permitting the simultaneous control of all of the driving-motors by the manipulation of either of said commencing-switch apparatus.

30. The combination of a circuit, and two coils or switches connected therein, one of said switches being adapted to control the other, and both having a constant tendency to automatically open the circuit.

31. The combination of a motor, a motive switch, for controlling said motor, and a single set or group of wires having five sets of terminals, two of the latter sets terminating in coupling-heads, one at each end of the car, two other of the said five sets ending in commencing-switch contacts, and wires of the remaining set of terminals being connected to the coils of the motive switch.

32. A train equipment which includes a motor or motors upon each car of such train, and a motive switch of the character described, carried by each car to control said motor or motors, each motive switch being arranged in multiple relation with each other and the other plurality of such devices being controllable upon the manual operation of one commencing-switch, said commencing-switch being adapted to be connected in series with a motor.

33. In a system of motor control, the combination of a driving-motor, circuits therefor, speed-controlling apparatus connected to the motor-circuit, a hand-switch for governing said speed-controlling apparatus, means located at said hand-switch and adapted to cause said motor-circuit to be automatically opened if the manual control of said hand-switch ceases while the motor is receiving operating-current, motor-reversing mechanism connected to the motor-circuit and adapted to constantly maintain such connection except during the reversal of said motor, and a switch for controlling said reversing mechanism.

34. In a system of electrical control, the combination of a plurality of cars, motors on some of said cars, sectionally-energized motor-controlling apparatus upon each of the motor-cars, commencing-switches for governing the motor-controlling apparatus, motor-reversing mechanism upon each motor-car and having a connection with said motors, each connection being constantly maintained except during the reversal of said motor, and means adapted to couple the motor-governing devices on one car to such devices on another car that the manual operation of any one of said commencing-switches will cause all of said motor-controlling apparatus to act simultaneously independently of the order or condition of said cars.

35. In a system of electrical control, the combination of a translating device, a commencing-switch, and a motive switch having a plurality of contacts carried by the movable part thereof and in series with the coils of the stationary part of the latter switch.

36. In a system of electrical control, the combination of a translat-

ing device, a commencing-switch, and a motive switch having a plurality of contacts carried by the movable part thereof and in series with the coils of the latter switch and also in series with said translating device.

37. In a system of electrical control, the combination of a translating device, a controlling device therefor and an automatic device acting independently of said controlling device and without disturbing the movement thereof, and adapted to proportion the energy received by said translating device to the work being done by the latter device.

38. A train of electrically-equipped cars, each car having a commencing-switch and a reversing-switch at each end thereof, means for coupling said cars together so that the several cars may be operated simultaneously from any one of the several commencing-switches, motive switches, one upon each car, circuit connections between the commencing-switches and the motive switches whereby all of the latter switches may be controlled by any one of the former switches, and means carried by each car, said means being governed by each appropriate motive switch as herein described.

39. In an electrically-equipped train system, the combination of means to drive the train, a self-actuating motive-switch device upon each car and adapted to change the connection of the car-motors from series to multiple and vice versa, two commencing-switches upon each car, each such latter switch being adapted to cause the several motive switches to simultaneously adjust the motor under their control, a motor-reversing device on each car and means upon each car whereby the several reversing devices may be controlled from any car on the train.

40. In an electrically-equipped train consisting of "added units" or a series of independently-equipped cars, the combination of a plurality of motors for each car, a motor-controlling switch on each car to control the said motors thereon, a motor-reversing means upon each car, means whereby the several motors upon the train may be adjusted simultaneously from any car of the train, and means adapted to move automatically and acting independently of any of said apparatus to prevent the power-current from causing an abnormal action or condition of said motor.

41. A train of cars each equipped with a motor to drive it, a common controlling device for the motors, means which tend to hold said device out of the circuit, and means acting independently of the said motor and without disturbing any of the controlling apparatus to check any tendency of the power-current to cause the motor to become abnormal.

42. A train with one car each individually equipped with a pair of driving-motors initially coupled together in series, and a current-varying controller therefor, the motor on each car being initially coupled in multiple series with respect to those on the other cars, and means whereby said controller are always caused to move synchronously and inductively, thereby the connections of the several pairs of motors are simultaneously changed from series to multiple.

43. In a system of electrical control, the combination of driving-motors, a motive switch having a series of independently-energizable coils, and a commencing-switch adapted to control said motive switch, the contacts carried by said motive switch being insulated from each other and from the parts of said motive switch upon which said contacts are mounted.

44. In a system of electrical train control, the combination of a plurality of cars each having a driving-motor, motor-controlling apparatus upon each such car, and means adapted to electrically connect any given point of each controller apparatus with the corresponding point of each of the other of said controller apparatus.

45. In a system of electrical train control, the combination of a plurality of cars each having a driving-motor, motor-controlling apparatus upon each such car, means adapted to electrically connect the motor-controlling apparatus on one such car to such apparatus on another car so that a given point of one controller apparatus will be in electrical connection with the corresponding point of each of the other controller apparatus.

46. In a system of electrical control, the combination of a plurality of cars each having a motor to drive it, a motor-speed controller upon each such car, a commencing-switch for each speed-controller and means adapted to couple the said electrical apparatus on one car to such apparatus on an adjacent car, means adapted to cause all of said speed-controllers to simultaneously and synchronously change the action of said motor.

47. In a system of electrical control, the combination of a plurality of electrical conductors, a plurality of motors connected between said conductors, motor-control apparatus in electrical communication with said conductors, and means adapted to be energized section by section and thereby cause said control apparatus to change the relation of said motors from series to parallel.

48. In a system of electrical control, the combination of a plurality of conductors, a plurality of motors, connected between said conductors, a motor-control apparatus in electrical communication with said conductors, means adapted to be energized section by section and thereby cause

said control apparatus to change the relation of said motors from series to parallel, and means adapted to reverse said motor.

49. The combination of a plurality of electrically-equipped cars, a motor-controlling device upon each such car, means adapted to electrically connect the motor-controlling device on the car to such device on an adjacent car, and means adapted to cause all of said controlling devices to start simultaneously and move with a synchronously step-by-step motion.

50. In an electrical system, the combination of plurality of cars, each having two commencing-switches thereon, a commencing-switch or operator's line on each such car and connected between the two said switches thereon, and branches from said switch-line and adapted to electrically connect the commencing-switches on one car with such devices on the adjacent car independently of any other electrical circuit.

51. An electrically-equipped car having in combination, a motor, controlling apparatus therefor, a plurality of commencing-switches, one each for the respective ends of the car, a group of wires connected between said commencing-switches, a plurality of coupling-heads, one each for the respective ends of the car, each of said heads having all of its connecting fingers or terminals arranged in a vertical series, and appropriate connections between said fingers or terminals and said group of wires.

52. An electrically-equipped car having in combination, a motor, controlling apparatus therefor, a plurality of commencing-switches, one each for the respective ends of the car, a group of wires connected between said commencing-switches, a plurality of coupling-heads, one each for the respective ends of the car, each such head having all of its connecting fingers or terminals arranged in a vertical series, and appropriate connections between said fingers or terminals and said group of wires, the arrangement being such that a given wire will be connected to fingers or terminals in the respective coupling-heads, which have the same relative position when the said two series of fingers or terminals are compared.

53. The combination of a plurality of cars, each having a motor to drive it, a motor-controller for each car, and means adapted to electrically connect the corresponding points of all the controllers.

54. The combination of a plurality of cars, each having a motor to drive it, a motor-controller for each car, means adapted to deliver electrical energy simultaneously to the corresponding points of all the controllers and means adapted to reverse said motor.

55. In a motor-controller, the combination of a plurality of coils adapted to be successively energized, and means external to the finally-energized coil and adapted to maintain a minimum current in the latter coil.

56. In motor-control apparatus, the combination of a plurality of individually-actuated coils, and a branch circuit therefrom and in series with the motor.

57. In motor-control apparatus the combination of a plurality of individually-actuated coils having a branch circuit in series with the motor, and contacts moved by said coils.

58. The combination of a motor, a plurality of individually-actuated coils having a branch circuit in series with said motor, and a commencing-switch adapted to estimate said coils.

59. The combination of a motor, and controller apparatus, the coils of the latter apparatus having a branch circuit in series with said motor, and another branch circuit in parallel with said motor.

60. A car, a driving motor or motors thereon, a circuit therefor, a plurality of movable contacts for effecting changes in the motor-circuit, means adapted to operate said movable contacts, and a commencing-switch connected therewith and communicating with a branch circuit which is in series with said motor.

61. A plurality of cars, a plurality of driving-motors on each car, a set of fixed contacts and a set of movable contacts for effecting changes in the circuits of the motors, means adapted to estimate said movable contacts, and commencing-switches on the several cars and connected with the contact-estimating means and communicating with a branch circuit which is in series with the motor.

62. A plurality of cars, a plurality of driving-motors for each car, a plurality of contacts for reversing said motor, means adapted to estimate said contacts, means adapted to connect the electrical apparatus on one car to that on an adjacent car, commencing-switches communicating with said contacts, and means adapted to be energized section by section to connect the motors in series and in multiple.

63. A plurality of cars, a plurality of driving-motors for each car, a plurality of contacts for reversing the motors, means adapted to estimate said contacts, means adapted to connect the electrical apparatus on one car to that on an adjacent car, commencing-switches communicating with said contacts, and means adapted to be energized section by section to connect the motors in series and in multiple and to vary the resistance in circuit therefor.

64. The combination of a plurality of motors, a plurality of fixed contacts and a movable contact, means controlled thereby for changing

the grouping of the motors from series to parallel and vice versa, and electromagnets apparatus energized section by section to control said means.

65. A plurality of cars, driving-motors upon a number of such cars, movable contacts for changing the circuit connections of the said motors to vary the work performed thereby, means energized section by section to control said contacts, means adapted to connect the electrical apparatus on one car to such apparatus on another car, and one or more connecting-switches for controlling said movable contacts.

66. The combination of one or more connecting-switches each provided with a plurality of contacts, a plurality of motors, and controller apparatus adapted to connect said motors in series and then in multiple, the said controller apparatus being provided with a set of fixed contacts and a plurality of movable contacts and adapted to have one motion energized to move said movable contacts one step when the connecting-switch makes connection with one of its contacts.

67. The combination of a plurality of motors, a controller apparatus therefor, and a connecting-switch adapted to govern the controller apparatus section by section, the said controller being so arranged and connected that it will automatically open the motor-circuit upon the failure of the line-current.

697,768. GAS AND AIR MIXING BURNER. WILLIS J. WOODWARD, Indianapolis, Ind. Filed Sept. 4, 1901. Serial No. 74,385. (No model.)



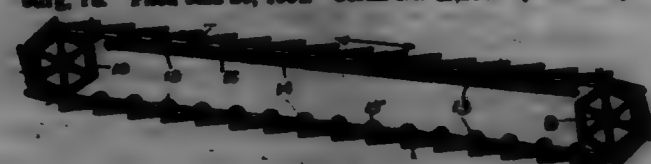
Claim.—1. A gas and air mixing burner comprising draft-tubes having each an external screw-thread at the lower end thereof and also having at the opposite or upper end thereof draft-tubes formed with the bottom thereof extending inwardly and upwardly from the outer surface of the tube to the edge of the top adjacent to the lower end of the tube where the perforations in said bottom plate are engaged by the threads on said tubes whereby the same are supported, a top plate having perforations in which said tubes may rotate, and a wall connecting said plates.

2. In a gas and air mixing burner, the combination with the perforated top plate and the perforated bottom plate, of the screw-threads in the perforations in said bottom plate, and the draft-tubes having the external screw-threads engaging the screw-threads in said perforations and also having each the draft-tubes with the bottom thereof extending inwardly and upwardly from the outer surface of the tube to the edge of the top adjacent to the lower end thereof, said draft-tubes extending into the perforations in said top plate.

3. The herein-described burner-tube consisting of a hollow cylinder the upper end of which has the grooves formed with the bottom thereof extending inwardly and upwardly from the outer surface of the tube to the edge of the top adjacent to the lower end thereof, and the lower end of which has the external screw-thread formed thereon.

4. In a gas and air mixing burner, the combination of the bottom plate having the apertures therein, the screw-threads in said apertures, the top plate having the apertures therein, the draft-tubes having the screw-threads engaging and supported by the screw-threads in said apertures and having the upper ends thereof movably inserted in the apertures in said top plate, and the air-drafts and the gas-drafts in said tubes, substantially as set forth.

697,769. CASTING APPARATUS. ALFRED M. ASKIN, Pittsburgh, Pa. Filed Jan. 20, 1901. Serial No. 45,307. (No model.)



Claim.—1. The combination with a traveling carrier, provided with a series of molds, and a furnace, of a means for conducting molten metal from the furnace to said molds, continuously and at constant or regulated speed, comprising a trough interposed between said carrier and furnace and normally so related thereto as to constitute a stationary guide for conducting metal from the furnace to the molds approximately without interruption in the flow thereof, said trough having its forward end in communication with the furnace-spout so as to receive metal therefrom and constructed and arranged to discharge continuously into said molds, and, being constructed, rearward of its said metal receiving and discharging end, to form a reservoir for the accumulation therein of excess metal under abnormal conditions, and means for adjusting said trough so as to cause the metal to be conducted to the molds as rapidly as it flows from

the furnace, or cause a regulated portion of the metal to be diverted from the discharge end of the trough and be detained in said reservoir, or to cause metal in the reservoir to flow into said discharge end.

2. The combination with a traveling carrier, provided with a series of molds, and a furnace, of a means for conducting molten metal from the furnace and discharging the same continuously and at constant or regulated speed into the molds, comprising a trough pivoted near its front end and interposed between said furnace and molds, said trough having an approximately plane bottom and approximately triangular sides, and having its forward end arranged in communication with the furnace-spout so as to receive the metal therefrom and arranged to discharge into the molds continuously, said forward end terminating in a constructed pouring-lip, the rear portion of said trough constituting a reservoir which is normally arranged to detain metal of the metal flowing from the furnace, and means connected with the rear end of the trough for adjusting the inclination of the latter so as to cause a regulated quantity of the metal to be diverted from the metal-receiving end thereof into said reservoir, or to cause metal in the reservoir to flow therefrom into said receiving end, substantially as described and for the purposes set forth.

3. The combination with a continuously-rotated carrier, provided with a series of molds, and a furnace having continuously-open communication with its spout of a means for conducting molten metal from the furnace and discharging the same continuously and at constant or regulated speed into the molds, comprising a pivoted trough interposed between said furnace and carrier, having its forward end in communication with the furnace-spout so as to continuously receive molten metal therefrom and arranged to discharge metal continuously into the molds, said trough being constructed rearward of its said metal receiving and discharging end, to form a reservoir which is normally arranged to detain metal of the metal flowing from said furnace, and means for adjusting said trough so as to cause a regulated portion of the metal to be diverted from said forward end thereof into said reservoir, or to cause metal from said reservoir to flow into said forward end, substantially as described and for the purposes set forth.

4. The combination with a pivoted device designed to receive molten metal from a furnace and having a pouring-lip at one end, and an endless carrier projecting to beneath said lip at one end, of a series of flat molds arranged in a step-by-step relation upon said carrier and each having an end overlapping that of the one next adjacent, said parts being so related that when a mold has reached a position where it directly receives the flow from said lip the one approaching said position will have assumed a horizontal plane to retain an overflow, substantially as described.

5. The combination with a pivoted device designed to receive molten metal from a furnace and having a pouring-lip at one end and disposed constantly to discharge the metal and, when the speed is normal, discharging said metal approximately so fast as the metal is delivered to it, and having a reservoir portion, and means for adjusting the inclination of said device when the speed is abnormal and to accord therewith, and an endless carrier projecting to beneath said lip at one end, of a series of flat molds arranged in a step-by-step relation on said carrier and each having an end overlapping that of the one succeeding it, said parts being so related that when a mold has reached a position where it directly receives the flow from said lip the one approaching said position will have assumed a horizontal plane to retain an overflow, all substantially as described and for the purposes set forth.

697,770. AUTOMATIC INJECTOR. CHARLES R. ALLER, Wabash, Ind. Filed Feb. 1, 1908. Serial No. 52,211. (Model.)



Claim.—1. An injector, having an overflow-chamber with two or more overflows therein, and an opening to the atmosphere from said chamber arranged at a point above the level of the rear overflow.

2. In an injector, a single overflow-chamber containing two or more overflows, and a combining-tube, the forward overflow being at a point in the rear of the smallest diameter of said tube a distance equal to at least twice said diameter.

3. In an automatic injector of the class described, the combining-tube, the forcing-tube, a series of overflows x , y and z in a single chamber, and an atmosphere overflow above the series of overflows and provided with a check-valve, combined and arranged so that the series of overflows must be submerged before water can issue from the atmospheric overflow and of all other things the check-valve under vacuum action in the chamber above the atmospheric overflow.

4. In an automatic injector of the class described, the tube t having an adjustable angular head, and the tube q also having an adjustable angular head, an intermediate overflow-chamber having two or more overflows and an opening to the atmosphere arranged above the level of the rearward overflow.

5. An automatic injector of the class described, having a combining-tube interposed between the overflow-chamber and the boiler connection, and provided with a series of lateral holes near its side of a combined area not greater than one and six-tenths of the smallest cross-sectional area of said tube, and serving as an intermediate overflow, and a series of holes of similar capacity arranged forward of the intermediate overflow-holes and near the smallest diameter of the tube, substantially as described.

697,771. ANIMAL-SERRARE. RAYMOND W. ALLER, Chicago, Ill. Filed Aug. 7, 1901. Serial No. 71,354. (No model.)



Claim.—1. In a shearing-machine the combination with a frame, vibrator, vibrator-rod, and means for actuating the vibrator, of means additional to the stud for supporting the vibrator in operative position.

2. In a shearing-machine the combination with a frame, vibrator, vibrator-rod, and means for actuating the vibrator, of means for supporting the vibrator located between its stud and the means by which the vibrator is operated.

3. In a shearing-machine the combination with a frame, vibrator-rod, vibrator, and means for operating the vibrator, of a flat-bottomed room in the frame, and a rocker provided with a convex head, located in the room and supporting the vibrator.

4. In a shearing-machine the combination with a frame, vibrator-rod, vibrator, and means for actuating the vibrator, of two pairs of jaws upon the vibrator, and a tension-lever resting in said jaws and operatively connected thereby with the vibrator.

5. In a shearing-machine the combination with a frame, vibrator-rod, vibrator, and means for actuating the vibrator, of an externally

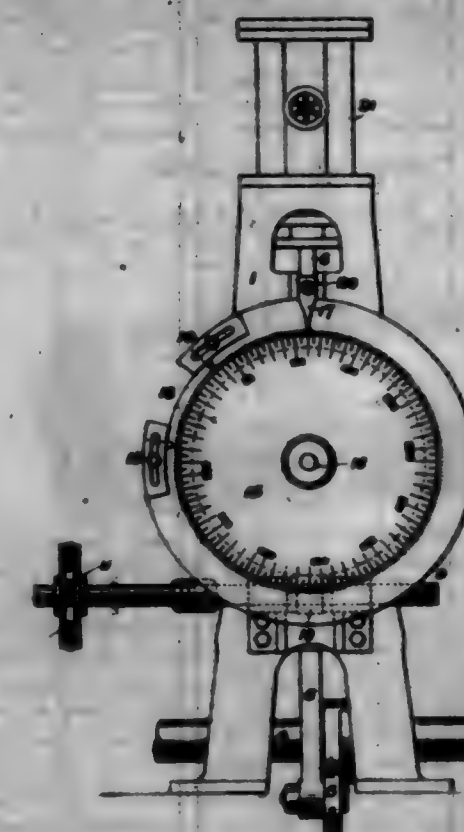
spherical collar upon the vibrator, a tension-lever provided with a corresponding bearing, and means for assembling the parts.

6. In a shearing-machine, the combination with a frame, vibrator-rod, vibrator, and means for actuating the vibrator, of a tension-lever carried by the vibrator, a nut on the stud, and ball-bearing members between the tension-lever and nut.

7. In a shearing-machine the combination with a frame, vibrator-rod, vibrator, and vibrator-actuating mechanism, of an externally spherical collar upon the vibrator, a tension-lever provided with a corresponding bearing, a block upon said bearing around the stud, an annulus, intermediate ball-bearings between the annulus and the block, and a nut working against the annulus on the threaded extremity of the stud.

8. In a shearing-machine the combination with a frame, vibrator-rod, vibrator, and vibrator-actuating mechanism, of an externally spherical collar upon the vibrator, a tension-lever provided with a corresponding bearing, a block upon said bearing around the stud, an annulus, intermediate ball-bearings between the annulus and the block, a nut working against the annulus on the threaded extremity of the stud, and a sleeve surrounding the annulus and block.

697,772. SAFETY CONTROLLER AND INDICATOR FOR ELEVATORS. CHARLES R. ALLER, Port Carbon, Pa. Filed July 12, 1901. Serial No. 68,154. (No model.)



Claim.—1. The combination in a device of the character described, of the winding-drum, braking means applied thereto, a movable piston for controlling said braking means, an indicating-dial, and means controlled by said dial for throwing the piston into action under certain conditions, substantially as described.

2. The combination in a device of the character described, of the winding-drum, braking means applied thereto, a movable piston adapted to actuate said braking means, a valve for controlling the movement of said piston, an indicator-dial, a tripping-lever controlled by said dial and a connection between said tripping-lever and the valve whereby the latter may be opened when the tripping-lever is released by the dial.

3. The combination in a device of the character described, of the winding-drum, braking means carried thereby, a lever connected to said braking means, a movable piston controlling said lever, an indicator-dial, means for operating said dial in unison with the winding-drum, a tripping-lever supported out of action by the indicator-dial, and a connection between said tripping-lever and the piston-valve whereby the latter may be operated when the tripping-lever is released by the dial.

4. The combination in a device of the character described, of the winding-drum, braking means applied thereto, a movable piston for controlling said braking means, an indicator-dial, means for rotating said dial in unison with the movement of the winding-drum, and a tripping-lever supported out of action by said indicator-dial, said dial having a weighted portion into which the lever may fall under certain conditions and when in such position will operate the piston-valve of the braking mechanism and the throttle-valve of the braking-cylinder.

5. The combination in a device of the character described, of the winding-drum of a hoisting-engine, braking means applied thereto, a movable piston for controlling said braking means, a valve controlling the movement of said piston, an indicator-dial controlled and operated in unison with the winding-drum, and a tripping-lever normally held in contact with said dial by means of a suitable spring, said dial having a notch into which the tripping-lever may be pulled under certain conditions, and when in such position operating the piston-valve and the throttle-valve of the engine.

6. The combination in a device of the character described, of the winding-drum of a hoisting-engine, braking means applied thereto, a movable piston for controlling said braking means, a valve controlling the movement of said piston, an indicator-dial controlled and operated in unison with the winding-drum, a tripping-lever normally held in contact with said dial by means of a suitable spring, said dial having a notch into which the tripping-lever may be pulled under certain conditions, and when in such position operating the piston-valve and the throttle-valve of the engine, and means for returning said tripping-lever to its normal position whereby the automatic braking mechanism may be reset, substantially as described.

7. In a device of the character described, a dial for use in connection therewith, a tripping-lever controlled by said dial, said dial having a notch to receive said tripping-lever, and adjustable pieces for regulating the width of said notch.

8. The combination in a device of the character described, of the winding-drum, braking means applied thereto, a movable piston for controlling said braking means, an indicator-dial, means controlled by said dial for throwing the piston into action under certain conditions, and means for returning the movement of said piston, substantially as described.

697,778. TARKLEY, JOHN F. ALGERHATTY and DANIEL T. VAN TINE, Australia, Wash. Filed July 6, 1901. Serial No. 67,861. (No model.)



Claim.—The combination, in a roll paper holder and covering device, of a roller adapted to receive a roll of paper and having bearings formed in its ends, a frame formed of spring-wire extending across and above the roll of paper and having its central portion bent to form a substantially inverted V-shaped offset and having its ends bent downward to form side arms, said side arms having plates adapted to spring into the said bearings, a transversely-curved plate provided adjacent to one end with downwardly-extending ears having an opening to receive the wire frame whereby the plate is pivotally mounted, a spring coiled on the frame about the said offset portion and having its extremities bearing against the under side of the said plate, and an upwardly, rearwardly-curved handle extension formed integral with the rear side of the transversely-curved plate whereby the said roller may be raised or lowered.

697,774. APPARATUS FOR AMAYING ORNS. WILLIAM T. AMSTERDAM, San Jose, Cal. Filed Jan. 20, 1902. Serial No. 90,051. (No model.)



Claim.—1. The combination in an apparatus for amaying orns, of a receptacle having a suitable closure, and an ore-containing envelop or cap of fibrous material adapted to be inserted into said receptacle whereby the ore is prevented from coming in contact with the sides of said receptacle during the process of reduction.

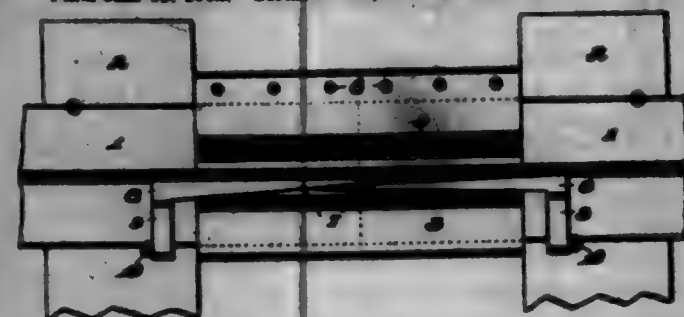
2. The combination in an apparatus for amaying orns, of a tubular receptacle having a removable closure, and an ore-containing envelop or cap of fibrous material adapted to be inserted into said receptacle.

3. The combination in an apparatus for amaying orns, of a tubular structure of heat-resisting material, closed at one end and having a perforated removable cover or cap on the other end, and an ore-containing receptacle or cap adapted to telescope within said tubular structure.

4. In an apparatus for amaying orns, the combination of a tube having one end closed and a removable perforated cap fitting the other end

of the tube, said tube having a lining of material which carbonizes during reduction.

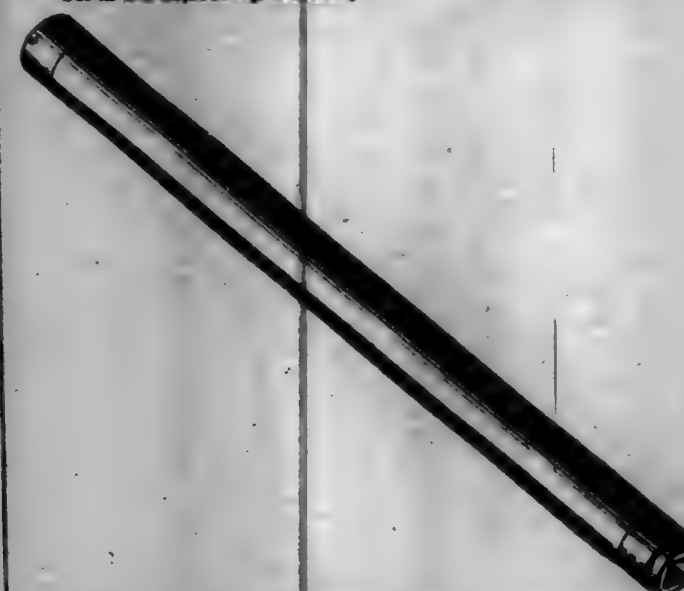
697,775. RAIL-JOINT. PAUL BARAN, New Kensington, Pa. Filed Jan. 12, 1902. Serial No. 30,092. (No model.)



Claim.—1. In a rail-joint, a chair having a fish-plate formed integral therewith, and a second fish-plate secured to said chair, independent wedges engaging between one of said fish-plates and the webs of the rails, and foot extensions carried by the outer ends of said wedges, said foot extensions extending beyond the ends of the fish-plate and chair, engaging the base of the rail and secured to the tie, substantially as described.

2. In a rail-joint, a chair having a fish-plate, formed integral therewith, and a second fish-plate carried by the chair and engaging the webs of the rails, independent wedges engaging between said first-named fish-plate and the webs of the rails, and means carried by the said wedges adapted for engagement with the base of the rails secured to the tie, substantially as described.

697,776. ROLLER FOR WINDING PAPER ON FASTBOARD TUBES. EDWARD J. BARKER, Morgan Park, Ill. Filed Dec. 12, 1901. Serial No. 30,093. (No model.)



Claim.—1. A roller for winding paper on tubes having a longitudinal shoulder on their inner circumference, which has such construction as to prevent an opposing edge to said shoulder.

2. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, which is provided with a longitudinal shoulder adapted to oppose the shoulder of said tube, when revolving.

3. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder, which latter is adapted to oppose the shoulder of said tube when revolving.

4. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane, that is adapted to oppose the shoulder of said tube when revolving.

5. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference comprising a wooden body so constructed as to present an opposing edge to said shoulder, and metallic ferrules on the ends thereof.

6. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof.

7. A roller for winding paper on paper tubes having a longitudinal

shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder, which latter is adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof.

8. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane which shoulder is adapted to oppose the shoulder of said tube when revolving, and metallic ferrules on the ends thereof.

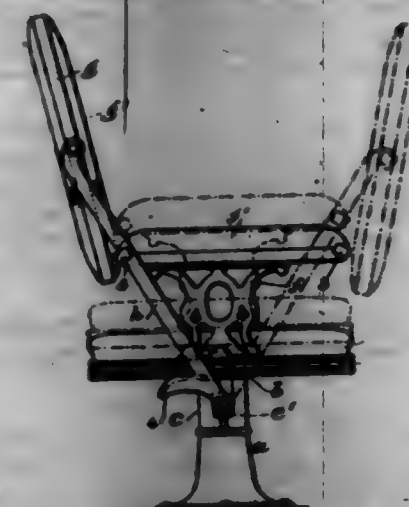
9. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body so constructed as to present an opposing edge to said shoulder, and metallic ferrules on the ends thereof beyond the circumference of which said edge projects.

10. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

11. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder which latter is adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

12. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumference, comprising a wooden body which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane which shoulder is adapted to oppose the shoulder of said tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

697,777. PARLOR-CAR CHAIR. ALLEN F. BARNET, Washington, D. C. Filed Dec. 2, 1901. Serial No. 30,312. (No model.)



Claim.—1. In a railway-car seat, the combination with the seat, the swinging back and a supporting-pedestal, of means for guiding the seat vertically and device for raising and lowering the seat with said by the swinging movement of the back from one position to another, substantially as set forth.

2. In a railway-car seat, the combination with the seat, the swinging back and a supporting-pedestal, of means for guiding the seat vertically, device for raising and lowering the seat with said by the swinging movement of the back from one position to another, and steps for limiting the movement of the back in both directions, substantially as set forth.

3. In a railway-car seat, the combination with the pedestal, of a seat and frame and a guide-post connected therewith and vertically movable in the said pedestal, a back and swinging arm connected therewith and supports therefor adapted to rotate with the seat, and device connected to and acting with said arm for raising and lowering the seat with the movement of the back, substantially as set forth.

4. In a railway-car seat, the combination with a chair pedestal, of a device surrounding the upper part thereof and having radial opposite arms, arms pivotally connected to the above said arms and a swinging back pivotally connected to their upper ends and arm-arms projecting from and preferably integral with the said pivoted arm near their lower ends, a guide-post turning in and vertically movable in said pedestal, a frame carried thereby, a seat-frame connected therewith, arm-frames connected to opposite sides of the seat-frame and rising therefrom and having steps or lugs at their respective ends adapted to engage the pivoted arms of the back, the guide-post, its frame, the seat-frame, seat and arm frames sub-

stantially in the manner and for the purposes set forth.

5. In a railway-car seat, the combination with the pedestal, of a seat and frame and a guide-post connected therewith and vertically movable in the said pedestal, a back and swinging arm connected therewith, and supports therefor adapted to rotate with the seat, and arm-arms projecting from and preferably integral with the said swinging arm near their lower ends and acting with the movement of the said arm for raising and lowering the seat, substantially as set forth.

6. In a railway-car seat, the combination with the seat, the swinging back and a supporting-pedestal, of means for guiding the seat vertically, device for raising and lowering the seat with said by the swinging movement of the back from one position to another, and steps for limiting the movement of the back in both directions, and device substantially as specified for changing the relation of the back and seat in the raised and depressed positions of the seat to decrease the depth of the seat in the depressed position and increase the space between the back and seat, substantially as set forth.

7. In a railway-car seat, the combination with the seat, the swinging back and a supporting-pedestal, of means for guiding the seat vertically, device for raising and lowering the seat with said by the swinging movement of the back from one position to another, and steps for limiting the movement of the back in both directions, the steps at one side being farther from the vertical center than at the other side to cause the relative positions of the back and seat to one another to be changed with the change from the elevated to the depressed position to shorten the depth of the seat, substantially as specified.

697,778. WARDROBE. ALLEN F. BARNET, Washington, D. C. Filed Dec. 2, 1901. Serial No. 30,093. (No model.)



Claim.—1. The combination with a supporting-beam placed transversely of a room and secured to the walls thereof adjacent to the ceiling, a frame extending around the room and located adjacent to the ceiling, and means for securing the same in place, of a wardrobe device or receptacle comprising sides, ends and a bottom portion, and fitting within the space bounded by said beam and frame hinges for connecting the wardrobe device at one end to the supporting-beam, and means connected to the other end and engaging the said frame for supporting the wardrobe in a horizontal position of the end opposite to the hinges, substantially as set forth.

2. The combination with a supporting-beam placed transversely of a room and secured to the walls thereof adjacent to the ceiling, a frame extending around the room and located adjacent to the ceiling, and means for securing the same in place, of a wardrobe device or receptacle comprising sides, ends and a bottom portion, hinges for connecting the same at one end to the supporting-beam, means connected to the other end and

engaging the said frame for supporting the wardrobe at the end opposite to the hinges, and spring devices existing in returning the wardrobe device to and supporting the same in a normally horizontal position, substantially as set forth.

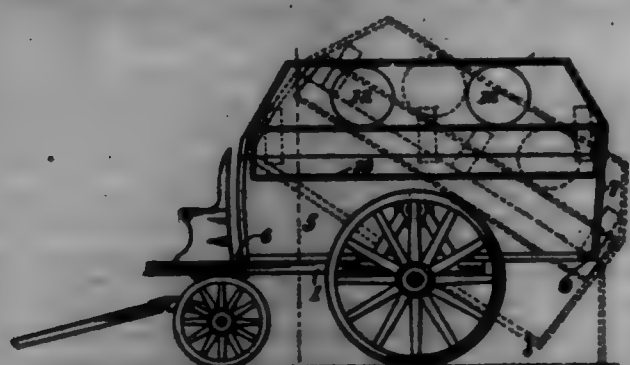
3. The combination with a supporting-beam placed transversely of a room and secured to the walls thereof adjacent to the ceiling, a frame extending around the room and located adjacent to the ceiling, and means for securing the same in place, of a wardrobe device or receptacle comprising sides, ends and a bottom portion, hinges for connecting the same at one end to the supporting-beam, means connected in the other end and engaging the said frame for supporting the wardrobe at the end opposite to the hinges, spring devices existing in returning the wardrobe device to and supporting the same in a normally horizontal position, and means for imparting to the wardrobe or receptacle a longitudinal movement simultaneously with the swinging movement, substantially as set forth.

4. A wardrobe device adapted to fit up against the under side of the ceiling of a room, comprising a supporting-beam secured in place, a frame surrounding the sides of the room and occupying a position parallel with the ceiling, one or more wardrobe-receptacles fitting within the frame, and device for hinging the same at one end to the means of support and at the other end for removably connecting the same to the frame, whereby the under surface of the wardrobe device, and the frame form a substitute for the ceiling, substantially as set forth.

5. The combination with an inverted-T supporting-beam placed centrally and transversely of a room and at its ends connected to and supported by the side walls, of a frame of boards parallel with the ceiling fitting within the room and coming below the said beam, means for supporting the said frame in place, wardrobe devices or receptacles each comprising sides, ends and bottom portions paneled, undermost channels or slideways in the outer faces of the sides, channel-bars received therein and provided with T-head members at one end, hinges connecting said members at one end with the inverted supporting-beam, spring devices connected to said beam and also to the other ends of said T-head members, means secured to the other ends of the wardrobe devices and connecting with the free ends of the channel-bars for longitudinally moving the wardrobe devices with reference to the channel-bars whereby said wardrobe devices may swing downward and also longitudinally of the channel-bars and may be returned to place and means for suitably supporting the wardrobe devices with reference to the frame, substantially as set forth.

6. The combination with an inverted-T supporting-beam placed centrally and transversely of a room and at its ends connected to and supported by the side walls, of a frame of boards parallel with the ceiling fitting within the room, and coming below the said beam, means for supporting the said frame in place, wardrobe devices or receptacles each comprising sides, ends and bottom portions paneled, undermost channels or slideways in the outer faces of the sides, channel-bars received therein and provided with T-head members at one end, hinges connecting said members at one end with the inverted supporting-beam, spring devices connected to said beam and also to the other ends of said T-head members, a shaft placed transversely of the wardrobe device at the opposite end and drums on the ends of said shaft, steel tapes or equivalent devices connected at one end to the free ends of the channel-bars and at their other ends to said drums, means for rotating the said shaft and drums and holding the same in position, and a device connected to the wardrobe structure and adapted to engage the frame when the wardrobe is diverted to position, substantially as set forth.

697,779. AME-GARE. NATHAN BARNET, New York, N.Y. Filed July 10, 1901. Renewed Mar. 13, 1902. Serial No. 97,508. (No model.)



Claim.—1. In a cart, the combination with the body portion, of a cover adapted to loosely rest thereon and having slats adapted to normally maintain said cover in place, said cover having inclined sides, one or more openings in said inclined sides of said cover, a plurality of covers for said openings, and springs adapted to normally hold said last-mentioned covers closed, substantially as described.

2. In a cart, the combination with the body portion thereof of a detachable cover resting upon said body portion and having one or more openings therein, normally closed covers for said openings, and a detachable foot-board carried by said body portion below said openings, substantially as described.

3. In a cart, the combination of the body portion pivoted upon the frame of the cart, a cover for said body portion, a tail-board at the rear of said body portion, one or more openings in said cover, spring-pressed covers for said openings, and a detachable foot-board carried by said body portion below said openings, substantially as described.

697,780. PEDAL FOR VELOCEPHEDE. JAMES H. BARRY, London, England. Filed Oct. 5, 1901. Serial No. 77,714. (No model.)



Claim.—1. In a folding pedal, a crank-arm having a slot in its outer end, a spindle having a head pivoted in said slot, a recess in said head and a movable part in said crank-arm adapted to engage said recess; substantially as described.

2. In a folding pedal, the combination with a crank-arm having a slot in its outer end; of a spindle having a head pivoted in said slot, a recess in said head and a movable part in said crank-arm adapted to engage said recess; substantially as described.

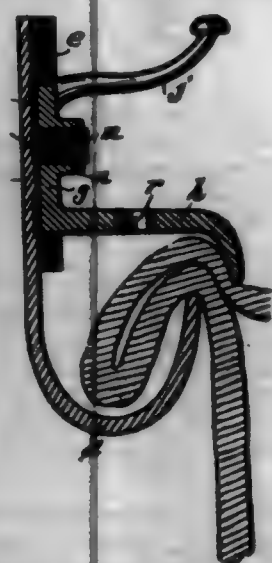
3. In a folding pedal, the combination with a crank-arm having a slot in its outer end; of a spindle pivoted in said slot and having a recess therein, and a sliding bolt on said crank-arm adapted to engage said recess; substantially as described.

4. In a folding pedal, the combination with a crank-arm having a slot in its outer end; of a spindle pivoted in said slot and having a recess therein, and a sliding bolt on said crank-arm having a nose adapted to engage said recess; substantially as described.

5. In a folding pedal, the combination with a crank-arm having a slot, a spindle pivoted in said slot and having a recess therein; of a sliding bolt on said crank-arm, and a nose on said sliding bolt adapted to enter said slot and engage said recess in said spindle; substantially as described.

6. In a folding pedal, the combination with a crank-arm having a slot, a spindle pivoted in said slot and having a recess therein; of a sliding bolt on said crank-arm, a pin on said sliding bolt adapted to enter said slot and engage said recess in the spindle, and a knob on said sliding bolt; substantially as described.

697,781. SAFETY COAT-HOOK. WILLIAM C. BARTON and CHAS. F. HAMMON, Chicago, Ill. Filed Feb. 9, 1901. Serial No. 44,619. (No model.)



Claim.—1. In a device of the class described, the combination with the stationary hook, of the locking-piece adapted to be moved down over the hook, a locking mechanism between said hook and piece to hold the parts from movement in either direction in any position, said mechanism comprising the ratchet-teeth on the hook and a locking-bolt movable to and from said teeth; substantially as set forth for the purpose described.

2. In a device of the class described, the combination with the base-piece having ways formed therein, the serrations between said ways and a hook projecting therefrom, of a locking-piece adapted to slide in said ways and cooperate with the hook and locking mechanism carried by said

locking-piece and cooperating with said serrations to hold said base-piece and locking-piece in any position of adjustment.

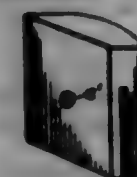
3. In a device of the class described, the combination with the base-piece having ways formed therein and a serrated channel between said ways, a hook projecting therefrom, of a locking-piece adapted to slide in said ways and cooperate with the hook, and a screw-threaded locking-ping in said locking-piece having a point adapted to be screwed into one of the serrations of the channel.

4. In a device of the class described, the combination with the base-piece having ways formed therein and a serrated channel between said ways, a hook projecting from said base-piece, of a locking-piece adapted to slide in said ways and cooperate with the hook, and a screw-threaded locking-ping in said locking-piece having a point adapted to be screwed into one of the serrations of the channel and having a special recess adapted to receive the blade of a key by which it is turned.

5. In a device of the class described, the combination with the base-piece having ways formed therein, the serrations between said ways and a stationary hook projecting from bottom thereof, of a locking-piece adapted to slide in said ways cooperating with the hook, and having the hook; projecting from said locking-piece, and locking mechanism carried by said locking-piece, and cooperating with said serrations to hold said base-piece and locking-piece in any position of adjustment.

6. In a device of the class described, the combination with the base-piece having ways formed therein and a serrated channel between said ways, a hook projecting from the bottom thereof, of a locking-piece adapted to slide in said ways and cooperate with the hook, a hat-hook; projecting from the upper part of said locking-piece, a screw-threaded locking-ping in said locking-piece having a point adapted to be screwed into one of the serrations of the channel and provided with a special recess adapted to receive the blade of a key.

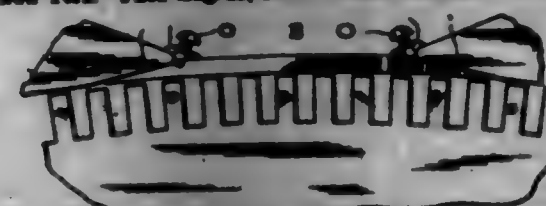
697,782. INSULATOR. ADOLPH E. BROS and EDWARD E. BROS., Chicago, Ill. Filed Aug. 10, 1901. Serial No. 72,609. (No model.)



Claim.—1. As an improved article of manufacture, an insulator having a longitudinal slot to receive the edge or rim of a canopy and provided with a recess into which a portion of the canopy may be bent, substantially as described.

2. As an improved article of manufacture, an insulator comprising a piece having a longitudinal slot, an opening on its inner portion communicating with said slot, and a recess on the inner wall of the outer portion of the insulator and registering with said opening, substantially as described.

697,783. DYNAMO-ELECTRIC MACHINE. HENRY J. BROS, Schenectady, N.Y., assignor to the General Electric Company, a Corporation of New York. Filed Aug. 26, 1900. Serial No. 728,000. (No model.)



Claim.—1. A dynamo-electric machine provided with slotted copper bridges between the poles.

2. A dynamo-electric machine provided with pole-pieces and slotted copper plates under the pole-corners.

3. A dynamo-electric machine provided with pole-pieces and slotted plates, or bodies of conducting material under the pole-corners.

4. A dynamo-electric machine provided with pole-pieces, a plate or body of conducting material extending between pole-pieces, and a plurality of openings or holes in said plate or body.

5. A dynamo-electric machine having field-magnets, and slotted bridges of conducting material under the pole-tips and extending between the poles.

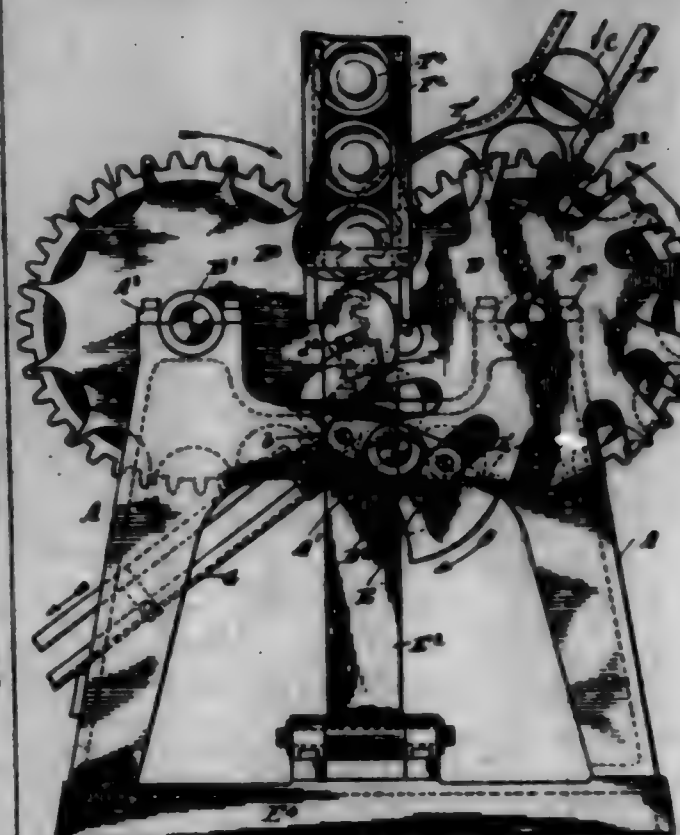
6. A dynamo-electric machine having field-magnets and slotted bridges of non-magnetic conducting material extending between the poles of the field-magnets.

7. A dynamo-electric machine having two relatively rotatable members, one of which is provided with teeth and the other with opening slots closed at the ends and of the same pitch and width as the slots between the teeth of the first member.

8. A dynamo-electric machine provided with pole-pieces carrying slotted bodies of conducting material under the pole-tips.

9. A dynamo-electric machine provided with pole-pieces and bodies of slotted conducting material arranged to intercept the lines of force flowing through the pole-tips.

697,784. CAN-BODY-ENDING MACHINE. HENRY C. BLAKE, Oakland, Cal. Filed June 14, 1901. Serial No. 64,548. (No model.)



Claim.—1. In a can-body-ending machine, the combination with the oppositely-rotating disks, of seats formed in the periphery of said disks, the drive-shaft, means whereby a step rotation is imparted to the oppositely-rotating disks, the tapered pruner-plates for applying the ends to the can-bodies, devices carried by the drive-shaft whereby the pruner-plates are operated to apply the ends, and means for supplying the can-bodies and ends to the machine.

2. The combination in a can-body-ending machine, of the oppositely-rotating disks, of a series of can-body seats formed in the periphery of each disk, of means for imparting a step rotation to the said disks, and device whereby the ends are forced onto the can-body during the step rotation of the said disks.

3. The combination with the oppositely-rotating disks which receive and hold the can-bodies during the operation of ending the same, of a series of can-body-holding seats formed in the periphery of each disk, a peripheral slotted drive-disk, device for imparting a step rotation to the oppositely-rotating disks through the medium of the said drive-disk, and means whereby the ends are applied to the can-body during the step rotation of the disks.

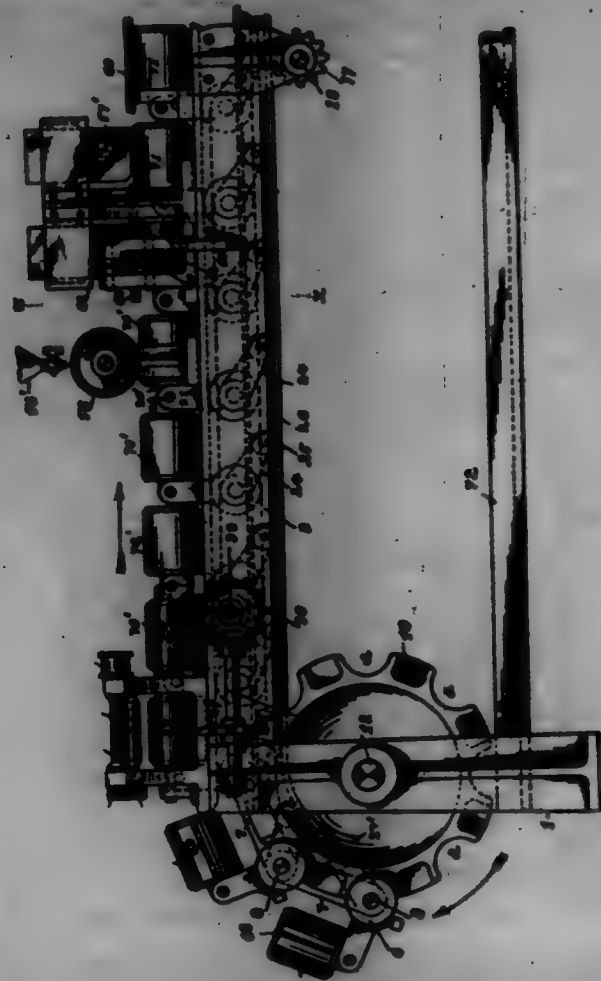
4. The combination with the oppositely-rotating disks, of means for imparting a step rotation thereto, the tapered pruner-plates for forcing the ends onto the can-body held and carried by the oppositely-rotating disks, and means by which the pruner-plates are actuated during the step rotation of the said disks.

5. In a can-ending machine, the combination with the oppositely-rotating disks which receive and hold the can-bodies, the drive-shaft, device actuated by the drive-shaft for imparting a step rotation to the oppositely-rotating disks, the tapered pruner-plates by means of which the ends are applied to the held can-body, and can device carried by the drive-shaft for operating the pruner-plates.

6. The combination with the oppositely-rotating disks for receiving and holding the can-bodies during the operation of ending the same, of means whereby a step rotation is given to said disks, the spring-pressed tapered pruner-plates for applying the ends onto the can-bodies, and means for actuating the pruner-plates during the step rotation of the receiving and holding disks.

697,785. CAN-BODY FORMING AND GOLDENING MACHINE. HENRY C. BLAKE, Oakland, Cal. Filed June 14, 1901. Serial No. 64,549. (No model.)

Claim.—1. In a can-body forming and soldering machine, the combination with the endless carrier, of means whereby a non-reciprocating intermittent travel is imparted thereto, a series of expansible canner-horns carried thereby, mechanism whereby can-body blanks are fed to and rolled directly upon the canner-horns, and means actuated during the movement of the endless carrier for expanding the canner-horns.



2. In a can-body forming and soldering machine, the combination with an endless carrier, of means for imparting a non-reciprocating intermittent movement to the carrier, a series of expansible canner-horns carried thereby, device by means of which can-body blanks are rolled upon the canner-horns, the soldering-iron beneath which the can-bodies are carried, the roller-feed mechanism, means for expanding the canner-horns and holding same expanded while traveling beneath the soldering-iron, and device actuated by the can-body carried upon the canner-horn for controlling the feed of the solder to the soldering mechanism.

3. The combination with the endless carrier, of means for imparting a non-reciprocating intermittent travel thereto, a series of expansible canner-horns carried thereby, of means whereby can-body blanks are rolled upon the canner-horns, of means whereby the can-bodies are carried, the soldering-iron beneath which the can-bodies are carried, and device for holding down the top edge of the can-bodies as carried beneath the soldering mechanism.

4. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating travel thereto, a series of canner-horns delivered to the endless carrier, of means whereby can-body blanks are fed to and rolled directly upon the canner-horns, soldering mechanism beneath which the rolled can-bodies are carried, means actuated during the movement of the carrier for expanding the canner-horns as they approach the soldering mechanism, and device whereby the canner-horns are thrown into a horizontal position as they approach the feed mechanism and so held during travel through the machine.

5. The combination with the endless carrier, of means for imparting an intermittent travel thereto, a series of expansible canner-horns carried to the endless carrier, of means whereby can-body blanks are fed to and rolled around the canner-horns, the soldering mechanism, means actuated during the travel of the carrier whereby the horns and the body-blanks rolled thereupon are expanded during travel toward the soldering mechanism and held expanded while carried thereunder and means operated by the held can-bodies whereby solder is fed to the soldering mechanism as the can-bodies move thereunder.

6. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating travel thereto, a series of canner-horns attached to and carried by the endless carrier, of means whereby can-body blanks are rolled directly upon the canner-horns, soldering mechanism

beneath which the rolled can-bodies are carried, and device by means of which the top edge of the can-bodies are held down as carried beneath the solder mechanism.

7. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating movement thereto, a series of canner-horns hinged to and carried by the endless carrier, of means for rolling can-body blanks around the canner-horns, of soldering mechanism, means for holding down the top edge of the can-bodies as carried beneath the soldering mechanism, and device actuated during the travel of the endless carrier for expanding the canner-horns as carried toward the soldering mechanism.

8. The combination with the endless carrier, of means by which the carrier is driven with an intermittent movement, a series of canner-horns delivered to and carried by the carrier, of device for placing the canner-horns into horizontal alignment and so holding the same while traveling through the machine, of mechanism whereby can-body blanks are fed to and rolled around the canner-horns, the soldering device, of means actuated during the travel of the endless carrier by means of which the canner-horns and body-blanks rolled thereon are expanded as the horns move toward the soldering device, of means for supplying solder thereto, and device actuated by the can-body upon the horns during travel of the carrier and by which is operated the solder-supplying means.

9. The combination with the endless intermittently non-reciprocating traveling carrier, of a series of expansible canner-horns secured to and carried thereby, means whereby can-body blanks are fed to and rolled around the canner-horns, an eccentric cam arranged within each canner-horn, a crank-arm attached to said cam, device located in the path of travel for the canner-horn whereby the crank-arm is actuated during travel of the endless carrier to throw the eccentric cam so as to expand or permit of its canner-horn being contracted, soldering mechanism beneath which the rolled can-bodies are during travel of the endless carrier, and means actuated by the can-bodies during the travel of the carrier for feeding solder to the soldering mechanism.

10. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating travel thereto, a series of expansible canner-horns hinged to and carried by the endless carrier, of means whereby can-body blanks are fed to and rolled directly upon the canner-horns, and a gage-shoulder carried by each horn and against which the under lap of the rolled can-body blank bears.

11. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating travel thereto, a series of canner-horns hinged or delivered to and carried by the endless carrier, of means whereby can-body blanks are fed to and rolled upon the canner-horns, means for expanding the canner-horns and its body-blanks rolled thereon during travel of the endless carrier, the soldering mechanism, and device by means of which the expanded bodies are held firmly to the horns as carried beneath the soldering mechanism.

12. The combination with the endless carrier, of means for imparting an intermittent non-reciprocating travel thereto, a series of expansible canner-horns hinged to and carried thereby, of means whereby can-body blanks are rolled directly upon the canner-horns, the soldering mechanism, the wire-solder feed, and device actuated by the can-bodies during travel of the canner-horns and by means of which the solder-feed is operated to feed the wire solder to the soldering mechanism.

697,786. COMBINED BOTTOMER AND CRIMPER FOR CAN-BODIES. HENRY G. BLACK, Oakland, Cal., assignor to Axel Johnson, Oakland, Cal. Filed June 14, 1901. Serial No. 94,860. (No model.)

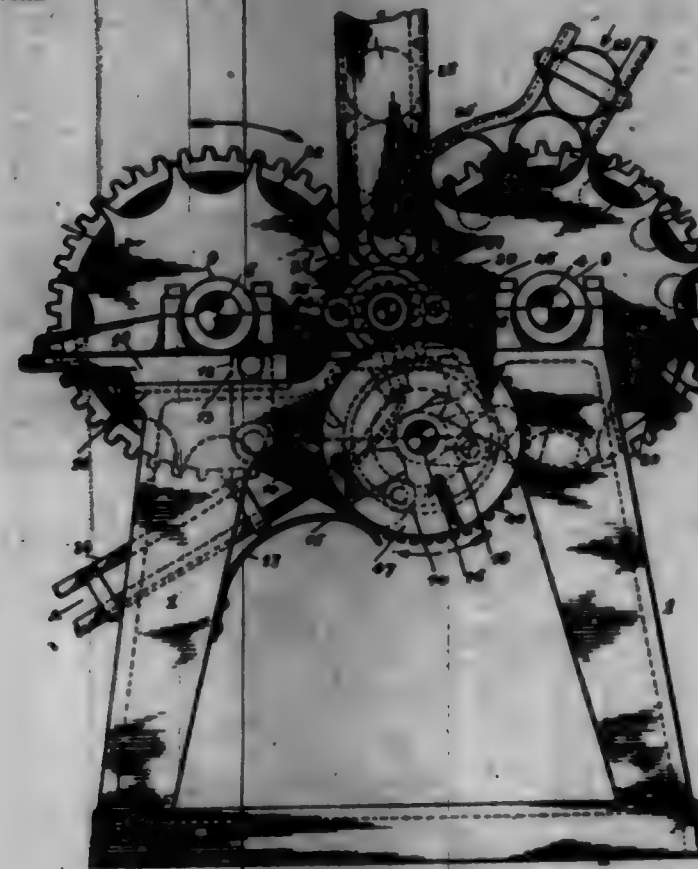
Claim.—1. The combination with the receiving and retaining disks which receive and hold the can-bodies, of device for imparting movement thereto, means whereby a bottom is applied to the can-body while held by the said disks, and mechanism by means of which the open head end of the can-body is crimped.

2. The combination with the receiving and retaining disks which receive and hold the can-bodies, each disk being provided with a series of seats in the periphery, of device for imparting a step rotation to the said disks, means whereby slight longitudinal movement is given to the retaining-disks, means whereby bottoms are applied to the can-bodies held between the disks, and mechanism whereby the open head end of the can-body is crimped while the bottom is forced thereon.

3. The combination with the carrier-disks which receive and hold the can-bodies, of means for imparting a step rotation to the carrier-disks, crimping-rolls, device whereby the crimping-rolls are moved in and out of the can-body to be crimped, means for imparting rotation to the said rolls, device whereby the crimping-rolls are expanded after insertion within the can-body, and means whereby bottoms are applied to the can-bodies while the open head end thereof is being crimped.

4. The combination with the carrier-disks which receive and hold the can-bodies, of device for imparting a step rotation to said disks, of

means whereby bottoms are forced onto the held can-bodies, the crimping-rolls by means of which the head end of the can-bodies are crimped while held by the carrier-disks, a rotating piston by which the rolls are carried, device whereby reciprocating movement is imparted to the said piston, an expander working through the piston and by means of which the crimping-rolls are forced against the inner wall of the can-body, and means whereby the expander is moved in and out of the piston of the crimping-rolls.



5. In a combination with the receiving-disks, of the retaining-disks, the side bearing-blocks within which the shaft of the retaining-disks work, device whereby the side bearing-blocks are forced inward and the retaining-disks moved against the receiving-disks during the operation of crimping the can-bodies and away from said disks after the bodies have been crimped, means for imparting a step rotation to the receiving and retaining disks, mechanism whereby the head end of the can-body is crimped, and device for moving the crimping mechanism in and out of the can-bodies.

6. The combination with the receiving and retaining disks which receive and hold can-bodies during the operation of applying bottoms thereto, of the feed-chutes for the can bodies and bottoms, a series of seats for the can-bodies cut in the periphery of each disk, means for imparting a step rotation to the said disks, a piston by means of which the bottoms are forced onto the can-bodies, and device actuated by the drive-shaft of the machine by which the piston for applying the bottoms is moved inward and outward.

7. The combination with the receiving-disks, of the retaining-disks which cooperate therewith, of device for imparting a step rotation to the receiving and retaining disks, and mechanism whereby the retaining-disks are moved horizontally toward and from the receiving-disks.

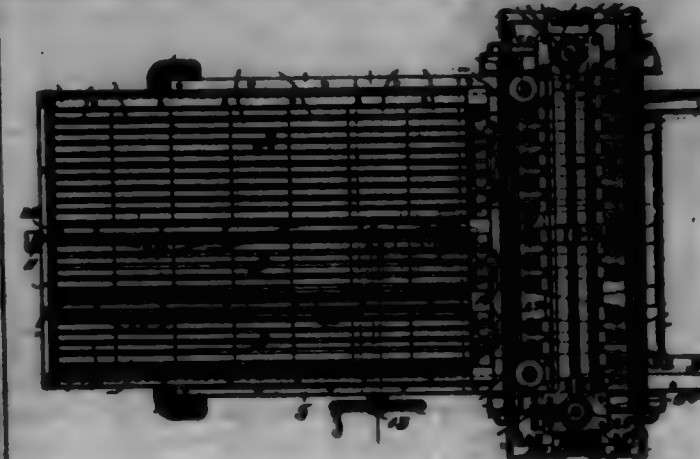
8. The combination with the receiving-disks, of the retaining-disks which cooperate therewith, a series of can-body seats cut or formed in the periphery of each disk, of device for imparting a step rotation to the receiving and retaining disks, mechanism whereby the retaining-disks are moved horizontally toward and from the receiving-disks, the crimping-rolls which work within the head end of the can-body held within the seats of the said disks, device whereby the crimping-rolls are moved in and out of the can-body.

9. The combination with carrying mechanism for the can-bodies, of crimping-rolls for crimping the end of the can-bodies, a rotary piston to which the crimping-rolls are elastically attached, means whereby the piston is moved inward and outward during its rotation so as to place the crimping-rolls in or out of the can-bodies, and means for expanding the crimping-rolls when moved within the open end of the can-bodies.

697,787. DOWELLING-MACHINE. JOHN J. BLACKMAN, New Britain, Conn. Filed Jan. 2, 1902. Serial No. 93,940. (No model.)

Claim.—1. The combination, with a movable work-support, of means for clamping material upon said work-support; cutters shaped to form re-

cesses and counterpart intermediate projections in the work; and means for actuating said cutters, the said cutters disposed in sets, arranged to operate within different areas of the work, and the cutters of one set being proportioned to those of the others, so that the recesses produced by the former shall correspond to the projections produced by the latter.



2. The combination, with a movable table, of means for clamping sections of material to said table; a series of cutter-spin-dies, recessing-cutters secured to said spin-dies; said cutters being disposed in sets arranged to operate within different areas of the work, and the cutters of one set being proportioned to those of the others, so that the recesses produced by the former shall correspond to the projections produced by the latter.

3. In a dovetailing-machine, the combination, with a table, of gear-work for reciprocating said table; means for clamping sections of material in which counterpart dovetail recesses and projections are to be formed to said table; a series of sets of cutters one set forming one series of recesses and projections in one section of material, and another set a different series of recesses and projections in the other section of material; spin-dies to which said cutters are secured; means for rotating the spin-dies; and a support for said spin-dies.

4. In a dovetailing-machine, the combination, with a reciprocating table, of means for securing sets of blocks in which a certain number of dovetail recesses are to be formed to one portion of said table; means for securing sets of blocks in which a different number of dovetail recesses are to be formed to another portion of said table; a set of cutter-spin-dies; cutters carried by said spin-dies for forming dovetail recesses in the first-named set of blocks; a second series of cutter-spin-dies; cutters carried by said second series of cutter-spin-dies for forming dovetail recesses in the second set of blocks; means for actuating the cutters; and means for actuating the table.

5. In a dovetailing-machine, the combination, with a reciprocating table, of strips upon said table; an abutment at one end of the table; clamps for forcing sections of material placed between the strips against said abutment; means for reciprocating the table; sets of cutters disposed to operate within different areas of the work; and the cutters of one set being proportioned to those of another set, so that the recesses produced by one set of cutters shall correspond to the projections produced by another set of cutters; and means for rotating the cutters.

6. In a dovetailing-machine, the combination, with a table, of strips dividing said table into a series of compartments; means for clamping sections of material upon said table; means for actuating the table; a series of sets of cutters for recessing the material, said sets arranged to operate, respectively, within different areas of the work, and the cutters of one set being proportioned to those of the other set, so that the recesses produced by one set will correspond to the projections produced by another set; and means for rotating the cutters.

7. In a dovetailing-machine, the combination, with a frame having ways, of a table mounted on said ways; means for reciprocating the table; a frame located over the table and having a guideway on each of its sides; a series of heads adjustably mounted on the guideway on one side of said frame; a series of adjustable heads fitted to the guideway on the other side of said frame; spin-dies mounted in the heads; recessing-cutters carried by the spin-dies; means for rotating the cutters; and means for clamping material upon the reciprocating table.

8. The combination, with a movable support for maintaining and feeding the material, of means for actuating said support; a frame located at each side of said support; spin-dies carried by the frame; levers pivoted to each end of said frame; pressure bars or rollers connecting said levers, and means for actuating the levers to cause said pressure bars or rollers to bear against the material on the support.

9. The combination, with a movable support for maintaining and feeding material, of means for actuating said support; a frame located over said support and having a guideway on each of its sides; a series of heads

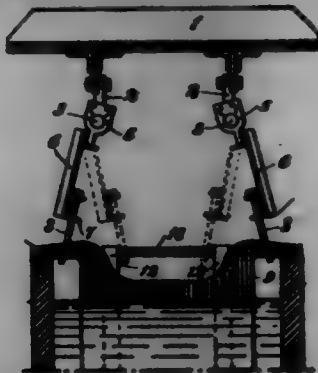
adjustably mounted on each of said guideways; spindles journaled in the heads; cutters carried by the spindles; means for rotating the spindles; presser bars or rollers movably mounted on said frame; and means for causing said presser bars or rollers to bear against the material on the support.

10. The combination, with a support for sustaining material, of a frame located over said support; cutters, and means for actuating the same carried by said frame; presser bars or rollers movably mounted on the frame and located on each side thereof; means for actuating said presser bars or rollers to cause them to bear against the material on the support; an intermediate presser bar or roller carried by the frame; and means for forcing said intermediate bar or roller against the work upon the support.

11. The combination, with a support, of means for actuating said support; a frame adjustably mounted over said support and having a guideway on each of its sides; a pair of levers pivoted to each end of said frame, each lever having a long arm and a short arm; presser bars or rollers carried by the long arms of said levers; lugs on the frame at each end thereof; a spring for forcing the short arms of the levers against said lugs; heads adjustably mounted on the guideways of the frame; cutter-spindles carried by said heads; and means for actuating the cutter-spindles.

12. The combination, with framework having guideways, of a table mounted on said guideways; strips for dividing said table into compartments; means for securing material in said compartments; means for re-presenting the table; a frame mounted over said table; means for adjusting said frame; a series of heads adjustably mounted on the frame; spindles journaled in the heads; means for rotating the spindles; cutters carried by the spindles; presser bars or rollers; and means for causing said presser bars or rollers to bear with yielding pressure against the material on the table.

697,788. METALLURGICAL CRANE. DAVID W. BLAIR, Perth Amboy, N. J., assignor of one-half to James C. McCoy, Perth Amboy, N. J. Filed Jan. 17, 1900. Serial No. 90,114. (No model.)



Claim.—1. A metallurgical crane, comprising a member to be disposed over a metallurgical bath and adapted to be lifted, a plurality of longitudinal shafts connected with said member and free to slide endwise, and hooks connected with said shafts and adapted to engage electrodes, the arrangement being such that said hooks are free to engage said electrodes when said shaft is shifted endwise.

2. A metallurgical crane, comprising a member disposed over a metallurgical bath and adapted to be lifted, a plurality of shafts journaled to said member and normally free to shift endwise, and L-shaped hooks connected with said shafts, the arrangement being such that said hooks can be brought into engagement with the electrodes by the longitudinal movement of said shafts.

3. A metallurgical crane, comprising a member to be lifted, a plurality of longitudinal shafts connected therewith and free to slide endwise and also to rock radially, and hooks connected with said shafts; the arrangement being such that said hooks may be brought into simultaneous engagement with a particular class of electrodes, and then by longitudinal and lateral movements of said shafts, brought into simultaneous engagement with a separate class of said electrodes.

4. A metallurgical crane, comprising a member located over a metallurgical bath and adapted to be lifted, a plurality of longitudinal shafts connected therewith and free to move endwise and also free to rock, a plurality of L-shaped hooks connected with said shafts, the hooks upon either shaft all being disposed in the same plane and having their bills extended in the same direction; the arrangement being such that said hooks can all be rocked simultaneously, and can also be moved simultaneously in the general direction in which the bills extend, for the purpose of engaging electrodes.

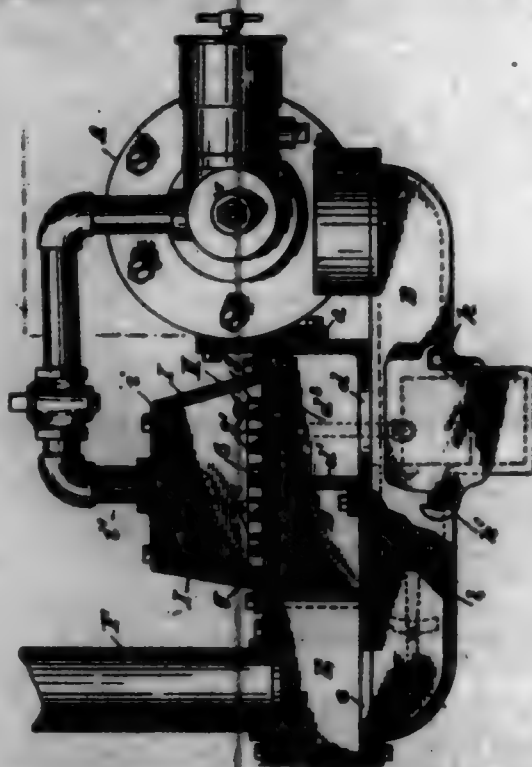
5. A metallurgical crane, comprising a frame to be located over a metallurgical bath having anodes and cathodes disposed alternately, a plurality of shafts mounted upon said frame, a plurality of hooks connected

with said shafts, said hooks being free to rock in planes extending across said bath, and also free to move in the general longitudinal direction of said bath; the arrangement being such that said hooks are free to simultaneously engage all of said anodes, or to simultaneously engage all of said cathodes, as desired.

6. A metallurgical crane, comprising a frame to be located over a metallurgical bath having anodes and cathodes disposed alternately, a plurality of shafts mounted upon said frame, and a plurality of L-shaped hooks connected with said shafts, all the hooks of each shaft being disposed in the same plane and normally having their bills turned in the same direction, said hooks being free to rock in planes extending across said bath, and also free to travel in the general longitudinal direction of said bath; the arrangement being such that said hooks are free to simultaneously engage all of said anodes, or to simultaneously engage all of said cathodes, as desired.

7. A metallurgical crane, comprising a member to be disposed over a metallurgical bath and adapted to be lifted, and rows of hooks adapted to engage electrodes, said hooks being free to move in the general direction of said rows and also to move transversely to said rows, whereby to engage electrodes.

697,789. GAS-GENERATOR FOR GAS-ENGINE. GEORGE W. BROWN, Fremont, Cal. Filed Aug. 12, 1901. Serial No. 71,708. (No model.)



Claim.—1. In a gas-generator, a heating-plate having a continuous passage formed on the surface thereof, a plurality of outlets from said passage, all located adjacent to one edge of the heating-plate, and means for controlling said outlets; substantially as described.

2. In a gas-generator, a heating-plate having a boundary-flange and a series of parallel ribs extending alternately from opposite sides or ends of said boundary-flange and terminating at points short of the opposite sides, whereby a continuous passage is constructed, a plurality of outlets located adjacent to one edge of the heating-plate, one in each space formed by the shortening of the alternate ribs at said edge, and means for controlling said outlets; substantially as described.

3. In a gas-generator, a casing comprising a flat heating-plate formed with a continuous passage on its upper surface, and constituting the bottom of said casing, said walls secured to said plate, an inlet through one of the side walls, a removable cover *c*, and an outlet through said cover; substantially as described.

4. A gas-generator comprising a heating-plate, a chamber above the same having a suitable inlet and outlet, a box *D* located immediately below the heating-plate, a division-wall *d'* in said box, an inlet into said box through the bottom thereof at one side of said division-wall and an outlet at the opposite side thereof, a chamber *B* adapted to contain a heating medium located directly below the box *D* and having two exhausts, one registering with the opening in the bottom of the box and the other registering with the exhaust from said box, and a controlling-damper in the chamber *B*; substantially as described.

5. A gas-generator comprising a heating-plate, a chamber above the same having a suitable inlet and outlet, a box *D* located immediately below the heating-plate, a division-wall *d'* in said box having the laterally-extending shield-plate *d''* as inlet into said box through the bottom thereof at one side of said division-wall and an outlet at the opposite

side thereof, a chamber E adapted to contain a heating medium located directly below the box D and having two exhausts, one registering with the opening in the bottom of the box and the other registering with the exhaust from said box, and a controlling-damper in the chamber E; substantially as described.

697,790. PYROXYLIN COMPOUND. JEAN R. G. BERNARD, Belgium. Filed Nov. 11, 1901. Serial No. 51,948. (No specimens.)

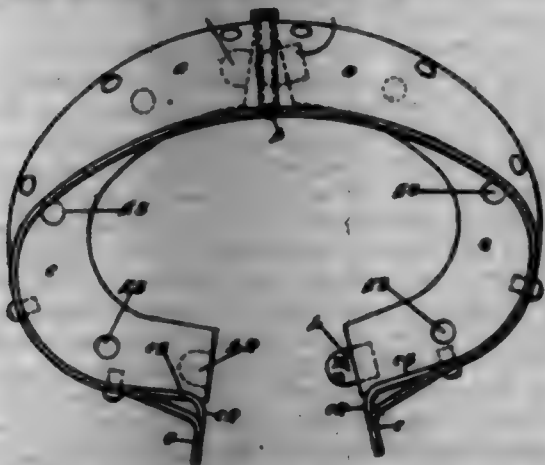
Claim.—1. The process of making pyroxylin compounds which consists in adding to a pyroxylin solution, a solution made by dissolving gum-copal in boiling castor-oil.

2. The process of making pyroxylin compounds which consists in adding to a solution of pyroxylin, a solution composed of gum-copal dissolved in boiling castor-oil, mixed with sugar of lead, white copperas, and litharge.

3. The process of making pyroxylin compounds, which consists in adding to a pyroxylin solution, a solution composed of gum-copal dissolved in boiling castor-oil, sugar of lead, white copperas, litharge, and a small quantity of vanilla.

4. The process of making pyroxylin compounds which consists in dissolving nitrocellulose in methylated alcohol and campher, and adding to the solution thus obtained, a solution composed of gum-copal dissolved in boiling castor-oil, and of sugar of lead, litharge, white copperas, and adding a small quantity of vanilla.

697,791. BURNINGHOOD. DONALD L. BURNAL, New York, N. Y. Filed Oct. 13, 1901. Serial No. 73,417. (No model.)



Claim.—A device of the class described comprising two members a hinged together at b, said device being adapted to be secured to and to inclose the hoof of a horse, the connection with the hoof being such that the point where the separate members a are hinged together is, when the device is connected with the hoof, at the central front portion of said hoof, said members being also provided at their rear ends with projecting jaws by which they are secured to the hoof, said jaws being arranged in pairs and the bottom pair being set inwardly further than the upper pair, and said separate members being also provided at the bottom thereof with inwardly-directed flanges or supports to which a shoe may be secured, one of the members being also provided at each end with a projection adapted to enter a corresponding socket or recess in the ends of the other member, substantially as shown and described.

697,792. PROCESS OF VULCANIZING RUBBER. AUGUSTUS C. BROWN, Bristol, R. I. Filed Jan. 2, 1902. Serial No. 22,572. (No specimens.)



Claim.—1. The within-described process of vulcanizing articles made of rubber compounds, consisting in subjecting the articles to heat

and pressure in an atmosphere of a gas having an affinity for sulfur compounds, that will neutralize these compounds injurious to rubber, substantially as set forth.

2. The within-described process of vulcanizing rubber articles, consisting in subjecting the articles to heat and pressure in an atmosphere of volatilized ammonium salt, substantially as set forth.

3. The within-described improvement in vulcanizing articles of rubber under heat and pressure, consisting in heating the articles, together with a volatilizable substance having an affinity for sulfur compounds, in a closed chamber, substantially as set forth.

4. The within-described improvement in vulcanizing articles of rubber under heat and pressure, consisting in heating the articles, together with a volatile ammonium salt, in a closed chamber, substantially as set forth.

5. The within-described improvement in vulcanizing articles of rubber under heat and pressure, consisting in heating the articles in a closed chamber, together with a volatilizable substance having an affinity for sulfur compounds, in proper quantity to produce when volatilized the desired pressure in said chamber, substantially as set forth.

697,793. PNEUMATIC HAMMER. JOSEPH BUTER, St. Louis, Mo., assignor to Chicago Pneumatic Tool Company, a Corporation of New Jersey. Filed Nov. 12, 1900. Renewed Jan. 4, 1901. Serial No. 62,121. (No model.)



Claim.—1. A pneumatic hammer comprising a cylinder formed at its front end to receive the shank of the working tool and having a grasping-handle secured to its rear end, a valve-chamber separate from the piston-chamber in said cylinder and located at the rear end thereof, two longitudinal passages in the cylinder-wall communicating at their rear ends with the motive-fluid supply and with the valve-chamber, respectively, a piston-controlling valve located in the valve-chamber, and a hammering-piston located in the piston-chamber and operating at its forward stroke to place the front ends of the two longitudinal passages in communication with each other and thereby admit motive fluid to the valve-chamber to shift the valve in one direction, and operating at its rearward stroke to cut off such communication and open the exhaust from the valve-chamber to permit the valve to be shifted in the opposite direction, substantially as described.

2. A pneumatic hammer comprising a cylinder formed at its front end to receive the shank of the working tool and having a grasping-handle secured to its rear end, a valve-chamber separate from the piston-chamber in said cylinder and located at the rear end thereof, two longitudinal passages in the cylinder-wall communicating at their rear ends with the motive-fluid supply and with the valve-chamber, respectively, a piston-

being provided with two longitudinal passages opening at their forward ends into the smaller portion of the piston-chamber and at their rear ends communicating, respectively, with the motive-fluid supply and with the larger area of the valve, the stem of the piston controlling the ports at the forward ends of said passages and operating at the forward stroke of the piston to place them in communication with each other and at its rearward stroke to cut off communication between them and open the exhaust from the larger area of the valve, substantially as described.

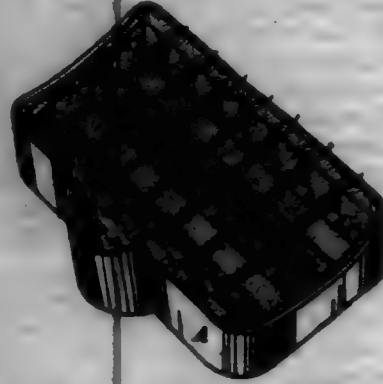
22. In a pneumatic hammer, the combination of a cylinder containing a piston-chamber having a forward portion of less diameter than its rear portion, a differential piston located in said chamber, and a differential valve located in a chamber at the rear end of the piston-chamber and controlling the inlet and exhaust of the motive fluid at the rear end of the piston-chamber, to the smaller area of which valve the motive fluid is constantly admitted and to the larger area of which it is intermittently admitted, said cylinder being provided with two passages opening at their forward ends into the smaller portion of the piston-chamber and at their rear ends communicating, respectively, with the motive-fluid supply and with the larger area of the valve, and the piston operating at its forward stroke to place the former of such passages in communication with the passage leading to the larger area of the valve and with the larger portion of the piston-chamber, and operating at its rearward stroke to cut off such communication and open the larger area of the valve to the exhaust, substantially as described.

23. In a pneumatic hammer, the combination of a cylinder containing a piston-chamber having a forward portion of less diameter than its rear portion, a differential piston located in said chamber, and a differential valve located in a chamber at the rear end of the piston-chamber and controlling the inlet and exhaust at the rear end of the piston-chamber, to the smaller area of which valve the motive fluid is constantly admitted and to the larger area of which it is intermittently admitted, said cylinder being provided with two longitudinal passages opening at their forward ends into the smaller portion of the piston-chamber and at their rear ends communicating, respectively, with the motive-fluid supply and with the larger area of the valve, and also provided with an exhaust-passage opening at its forward end into the smaller portion of the piston-chamber and at its rear end into the larger portion thereof, and the piston operating at its forward stroke to close said exhaust-passage and to place the motive-fluid passage in communication both with the front end of the large piston-chamber and with the passage leading to the larger area of the valve, and operating at its rearward stroke to cut off such communication and to open both the front end of the large piston-chamber and the larger area of the valve to the exhaust, substantially as described.

24. In a pneumatic hammer, the combination of the cylinder A containing the differential-piston chamber, the piston fitting therein and composed of the head H, stem I, and intermediate reduced portion J, the valve-chamber located at the rear end of the cylinder A and containing the differential-piston valve O, the handle B having the inlet-passage D and exhaust-passage Q, the former of which is in constant communication with the smaller area of the valve O, and both of which are alternately placed in communication with the rear end of the piston-chamber by the movement of the valve, the cylinder A being also provided with the two longitudinal passages L and K, both opening at their forward ends into the smaller portion of the piston-chamber, and the former communicating at its rear end with the inlet-passage D and the latter communicating at its rear end with the larger area of the valve, and the front ends of said passages being placed in communication at the forward stroke of the piston by the interposition between them of the reduced portion J of the piston, the rearward stroke of the piston cutting off such communication by the interposition between them of its stem I, and opening the front end of the passage L to the exhaust, substantially as described.

25. In a pneumatic hammer, the combination of the cylinder A containing the differential-piston chamber, the piston fitting therein and composed of the head H, stem I, and intermediate reduced portion J, the valve-chamber located at the rear end of the cylinder A and containing the differential-piston valve O, the handle B having the inlet-passage D and exhaust-passage Q, the former of which is in constant communication with the smaller area of the valve O, and both of which are alternately placed in communication with the rear end of the piston-chamber by the movement of the valve, the cylinder A being also provided with the two longitudinal passages K and L, both opening at their forward ends into the smaller portion of the piston-chamber, and the former communicating at its rear end with the inlet-passage D and the latter communicating at its rear end with the larger area of the valve, said cylinder being also provided with a third longitudinal passage opening at its forward end into the smaller portion of the piston-chamber and at its rear end into the larger portion thereof, and the portions I and J of the piston serving to control the forward ends of all three of said passages, in the manner and for the purpose described.

897,794. MOLD FOR CASTING BRAKE-SHOES. ARTHUR L. BRAKE, Toronto, Canada. Filed Sept. 10, 1906. Serial No. 690,022. (No model.)



Claim.—1. A mold, comprising a drag, a sand mold therein provided with a series of connected mold-cavities, detachable partitions inserted vertically edgewise in the sand at the sides of the mold-cavities and partially separating the same into individual mold-cavities, and a plate-cope covering the upper edges of the partitions and mold-cavities, and shaped to conform to the adjacent faces of the articles to be cast; substantially as described.

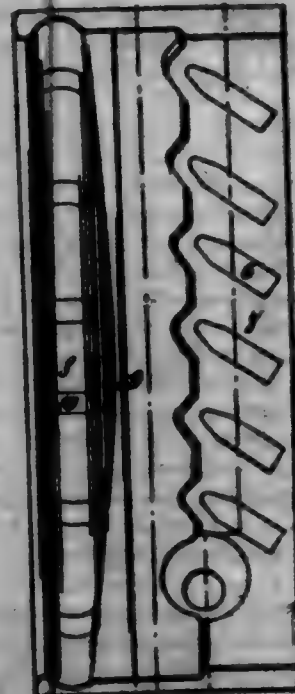
2. A mold comprising a drag, a sand mold therein provided with a series of mold-cavities, and a metallic plate-cope covering said sand mold and having a portion of its surface over the several mold-cavities provided with a permanently attached non-metallic composite material to prevent chilling the adjacent face of the casting; substantially as described.

3. A mold, comprising a drag, a sand mold therein, a detachable metal partition within the mold and dividing the same into a plurality of mold-cavities, and a plate-cope shaped to conform to a portion of the contour of the article to be cast, said cope having its under or mold face composed partly of metal and partly of non-metallic material, substantially as specified.

4. A mold, comprising a drag, a sand mold therein divided into a plurality of mold-cavities, and a plate-cope shaped to conform to a portion of the contour of the article to be cast, said plate having its under or mold face composed partly of metal chilling-surfaces and partly of a composition of fire-clay and graphite, substantially as specified.

5. A mold, comprising the drag, the pattern-block provided with a series of individual patterns separated by a series of ridges or ribs and adapted to be set across the drag with its patterns and ribs depending therein, and an imperforate plate-cope adapted to serve as a bottom board to support the sand and, on removal of the pattern, cover the sand and the mold-cavities therein, the said cope being provided over the mold-cavities with non-metallic material; substantially as described.

897,795. BRAKE-SHOE. FREDERICK A. BRAVER, Chattanooga, Tenn. Filed Aug. 28, 1901. Serial No. 72,990. (No model.)



Claim.—1. A brake-shoe having its entire body portion made of hard metal and its wearing-surfaces provided with a series of soft-metal inserts set diagonally across the face of the shoe.

2. A brake-shoe made of hard metal and having a wearing-surface

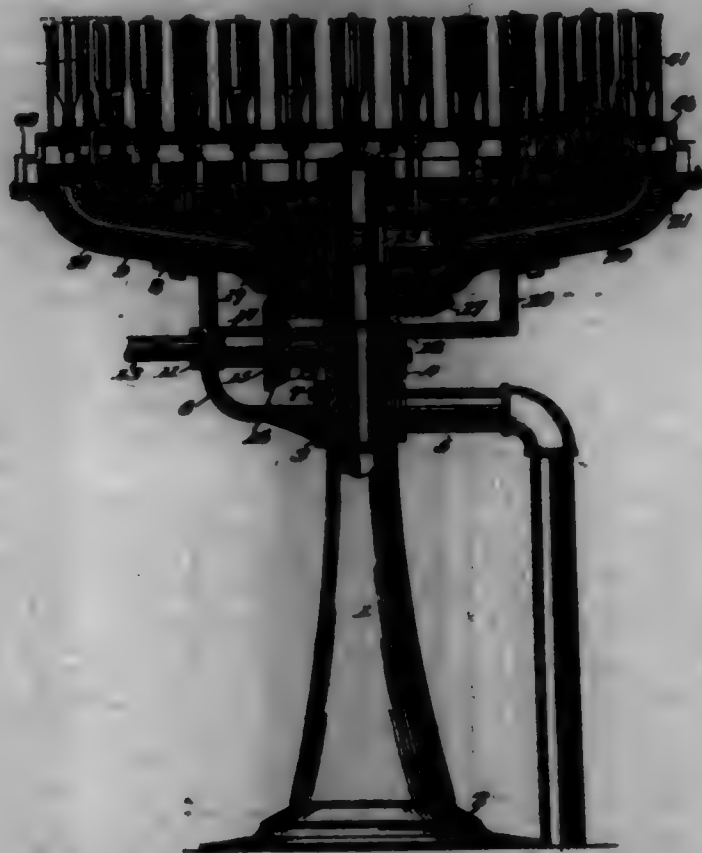
and a groove, and soft-metal inserts set diagonally in said wearing-surface and transversely in the bottom of said groove.

3. A brake-shoe having a strengthening-rib projecting outward from its inner side, said rib being of greater height in the middle than at the ends.

4. A brake-shoe having a curved inner surface and a strengthening-rib extending from end to end of the shoe on its inner side and having a lesser curvature than the face of the shoe.

5. A brake-shoe having its body made of hard metal and its wearing face provided with a series of soft-metal inserts, and a strengthening-rib extending from end to end of the shoe on its inner side and being higher in the middle than at ends.

697,796. BOTTLE-WASHING MACHINE. HENRY S. BREWSTER, Baltimore, Md., assignor of one-half to William F. Seim, Baltimore, Md. Filed Aug. 27, 1901. Serial No. 73,486. (No model.)



Claim.—1. In a bottle-washing machine the combination with a hollow standard and water-supply pipe, of a revoluble wheel comprising a hollow hub, a ring connected to the hub by hollow spokes, said hub having communication with the hollow standard, a series of vertically-disposed spindles supported upon said hollow ring, valves for controlling the flow of water to the spindles, bottle-holders supported above said hollow ring, means for revolving said spindles and means for simultaneously cutting off the supply of water to the spindles and releasing the bottles from their holders.

2. In a bottle-washing machine the combination with a standard and the water-supply pipe, of a hollow revoluble wheel mounted upon the standard and having communication therewith and comprising a hollow ring, a hollow hub, and spokes connecting said ring and hub, a plurality of spindles supported upon said wheel, valves for controlling the supply of water to said spindles, bottle-holders supported upon said wheel, and means for simultaneously operating said valves successively as the bottles are released from their holders.

3. In a bottle-washing machine the combination with a hollow standard and a water-supply pipe, of a revoluble wheel comprising a hollow hub, hollow spokes, and a hollow ring, said hub communicating with the upper portion of the hollow standard, a plurality of valve-casings supported upon said hollow ring and communicating therewith, valves within said casings, a hollow spindle secured to each of the valve-casings and communicating therewith, a bottle-holder supported above each valve-casing and means for simultaneously operating the valve and bottle-holder.

4. In a bottle-washing machine the combination with a hollow standard and water-supply pipe, of a revoluble wheel comprising a hollow hub, hollow spokes, and a hollow ring, a series of valve-casings supported by said hollow ring, valves within said casings, a hollow spindle secured to each of said casings and communicating therewith, a gear-pinion on each of said spindles and an internally-gear'd stationary ring with which said pinions intermesh.

5. In a bottle-washing machine the combination with a hollow standard and water-supply pipe, of a revoluble hollow wheel, a plurality of spindles supported upon said wheel, a gear-pinion mounted on each of said spindles, a water-pan supported below the wheel, and an internally-gear'd ring supported upon said pan with which said pinions intermesh.

6. In a bottle-washing machine the combination with a revoluble wheel, of a plurality of hollow spindles supported upon said wheel, means for supplying water to said spindles, and a bottle-holder for each spindle, said holder each comprising a plurality of stationary fingers and a movable finger, and means for tilting said movable finger and simultaneously shutting off or turning on the supply of water to the spindle.

7. In a bottle-washing machine the combination with a hollow standard and a water-supply pipe communicating therewith, of a hollow revoluble wheel communicating with the upper portion of the standard, a series of vertically-disposed hollow spindles supported upon said wheel and means for revolving said spindles, a bottle-holder for each spindle provided with a pivoted finger adapted to engage a bottle and means for simultaneously tilting said pivoted finger and shutting off and turning on the supply of water to the spindle.

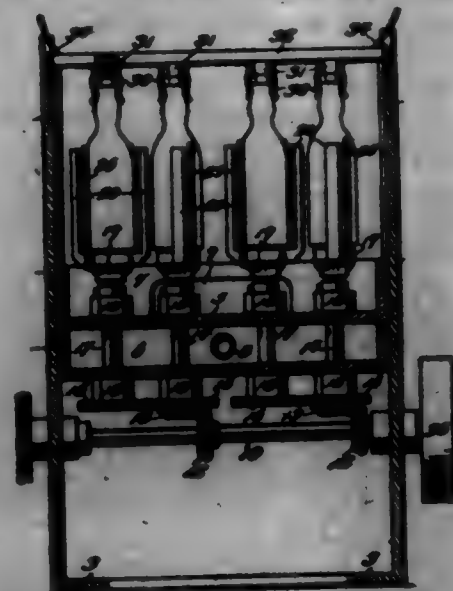
8. In a bottle-washing machine the combination with a bottle-holder comprising a plurality of stationary fingers and a pivoted finger formed with a lip to engage the bottom of a bottle, of means for tilting said pivoted finger comprising a trip-lever and a projection with which the trip-lever is adapted to contact.

9. In a bottle-washing machine the combination with a revoluble hollow wheel, of a plurality of valve-casings supported on said wheel, a hollow spindle supported upon each of said casings, a valve within each casing, having an outwardly-projecting stem, a bottle-holder for each spindle having a pivoted finger and means for simultaneously operating the said valve and pivoted finger, comprising a trip-lever fulcrumed upon said valve-stem and having an inclined arm and a projection against which said trip-lever is adapted to contact.

10. In a bottle-washing machine the combination with a hollow standard and water-supply pipe communicating therewith, of a pan supported by said standard, an internally-gear'd ring supported upon said pan, a hollow revoluble wheel having communication with the upper portion of the standard, a series of valve-casings mounted upon the wheel, valves within said casings, each having an upwardly-projecting stem, a hollow spindle secured to the upper end of each of said casings, a bottle-holder for each spindle, comprising a plurality of rigid fingers and a pivoted finger formed with a lip to engage the bottom of a bottle, a spring bearing upon said pivoted finger, and means for simultaneously operating said valve and pivoted finger comprising a trip-lever, projections on said pan and an angle-lever pivoted to the under side of the wheel.

11. In a bottle-washing machine the combination with a hollow standard and water-supply pipe, of a revoluble hollow wheel, a stationary pan below said wheel, an internally-gear'd ring having a break or opening at the front of the machine, a plurality of spindles supported by said wheel, and a gear-pinion mounted on each of said spindles, and intermeshing with said internally-gear'd ring.

697,797. BOTTLE-WASHER MACHINERY. HENRY S. BREWSTER, Baltimore, Md., assignor of one-half to William Seim, Baltimore, Md. Filed Sept. 12, 1901. Serial No. 74,905. (No model.)



Claim.—1. In a bottle-washer, the combination with a water-box, and a hollow rotary spindle, of a brush-holder having upwardly-extending arms, brushes removably secured to said arms, and perforated pipes

arranged adjacent to said brushes and communicating with the hollow spindle.

2. In a bottle-washer, the combination with a water-box, of a plurality of hollow spindles revolvably supported by said water-box, brush-holders carried by said spindles, and each comprising a disk having an annular water-chamber communicating with the spindle, upwardly-projecting arms to support the brushes and perforated pipes communicating with the water-chamber of the disk.

3. In a bottle-washer, the combination with a water-box and hollow rotary spindles supported thereby, of gearing connecting said spindles in pairs and causing the members of each pair to revolve in opposite directions, and brush-holders carried by said spindles.

4. In a bottle-washer, the combination with a water-box and hollow rotary spindles supported thereby, of brush-holders supported upon the spindles, brushes removably secured thereto, and yielding devices for supporting the bottles upon the brush-holders.

5. In a bottle-washer, the combination with a water-box, of hollow spindles revolvably supported thereby, brush-holders carried by said spindles, each comprising a disk having an annular water-chamber, parallel arms, and perforated pipes communicating with the spindle, and bottle-supporting devices consisting of a rod extending through the spindle, a yielding disk loosely supported on the upper end of said rod, and a plate supported above the spindle, and provided with depending clamping-springs.

697,798. NON-REFILLABLE BOTTLE. ALFRED J. BRONKH, Prospect Park, Pa., assignor of one-half to George L. Husband, Philadelphia, Pa. Filed Jan. 23, 1902. Serial No. 93,900. (No model.)



Claim.—1. In combination with the bottle having the internal shoulder or offset, the stopper having one or more laterally expandible and contractible arms at its inner end adapted to engage said shoulder, and having at its outer end the enlargement whose base is adapted to rest upon the top portion of the neck of the bottle, which enlargement is provided with two or more communicating ducts extending from a point in the interior of the latter toward the base thereof, and the longitudinal passage-way communicating with said ducts and with the interior of the bottle, together with means for preventing the escape of the contents of the bottle between the body of the stopper and the neck of the bottle, substantially as and for the purpose set forth.

2. In a stopper for bottles of the character described, the combination of one or more laterally contractible and expandible arms on one end of the stopper, an enlargement on the other end thereof whose base is adapted to rest on the neck of the bottle, two or more communicating ducts extending from a point in the interior of said enlargement toward the base thereof, and a longitudinal passage-way in the stopper communicating with said ducts, together with the packing around the portion of the stopper between said arms and said enlargement, substantially as and for the purpose set forth.

3. In combination with the bottle having the internal shoulder or offset, the stopper having one or more laterally contractible and expandible arms on its inner end adapted to engage said shoulder, and having at its outer end the enlargement whose base is adapted to rest upon the top of the neck of the bottle, and having also the communicating ducts extending from a point in the interior of said enlargement toward the base thereof, the longitudinal passage-way leading from said ducts to the interior of the bottle and the packing encircling the body portion of the stopper; together with the cap for preventing the escape of the contents of the bottle, substantially as and for the purpose set forth.

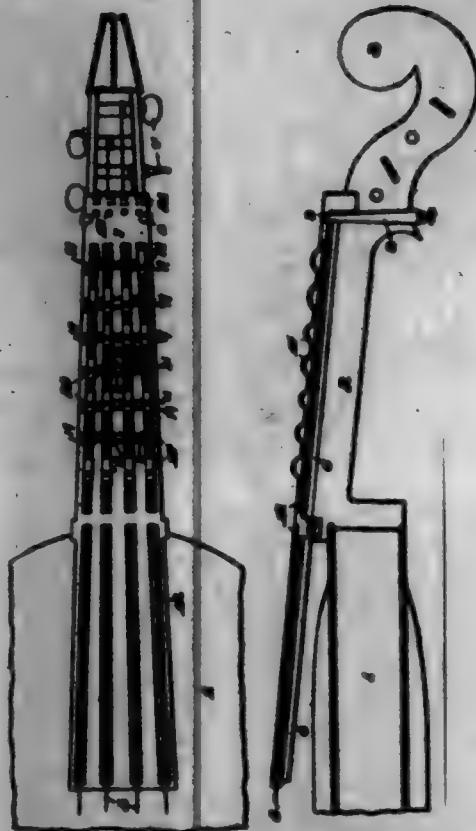
4. In a stopper for bottles of the character described, the combination of one or more laterally contractible and expandible arms on one end of the stopper, an enlargement on the other end thereof adapted to rest upon the top of the neck of the bottle, two or more communicating ducts extending from a point in the interior of said enlargement toward the base thereof, a longitudinal passage-way of the stopper communicating with said ducts, a suitable packing encircling the body portion of the stopper, together with the longitudinal grooves or channels of the said enlargement communicating with said ducts respectively substantially as and for the purpose set forth.

5. In a stopper for bottles of the character recited, the combination of the said contractible and expandible backwardly-projecting and tapering arms on one end of the stopper, the enlargement on the other end thereof, the ducts extending backwardly and outwardly from a point in the interior of said enlargement where they communicate, the longitudinal passage-way leading from the said ducts where they communicate,

and the packing around the body portion of the stopper, substantially as and for the purpose set forth.

6. In combination with the bottle having the internal shoulder or offset, and the depression in the top of the neck thereof, the stopper having one or more laterally expandible and contractible arms at its inner end adapted to engage said shoulder, and having at its outer end the enlargement whose base portion is adapted to rest in the said depression of the bottle-neck, which enlargement is provided with two or more communicating ducts extending from a point in the interior of the latter to the base thereof, the longitudinal passage-way leading from said ducts to the interior of the bottle and the packing or the like for preventing the escape of the contents of the bottle between the body of the stopper and the neck of the bottle, substantially as and for the purpose described.

697,799. KEYBOARD FOR VIOLIN. GEORGE F. BUCHANAN, Albany, Pa. Filed May 21, 1901. Serial No. 92,907. (No model.)



Claim.—1. In a device of the character described, a keyboard having a series of longitudinal openings formed therein, keys operating in said openings, springs carried by said keys, means carried by the springs for securing said keys to the under face of said keyboard, and a yoke for securing said keyboard to the violin, substantially as described.

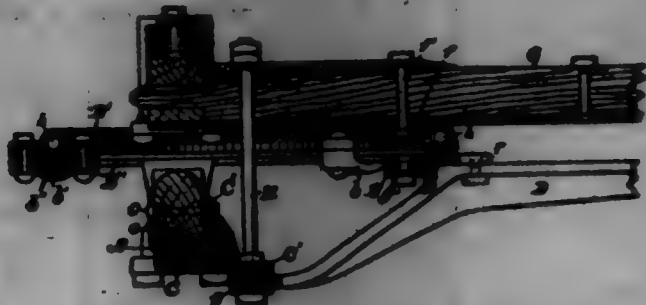
2. In a device of the character described, a keyboard having openings formed therein, keys operating in said openings, a pair of springs secured to each of said keys, keys carried by the said springs, and means for securing said keys to the keyboard, substantially as described.

3. In a device of the character described, a keyboard having longitudinal openings formed therein, keys operating in said openings, springs secured one to each side of each of said keys, keys carried by said springs and adapted to engage the keyboard, and means securing the keyboard to the violin, substantially as described.

697,800. VEHICLE RUNNING-GEAR. CHARLES F. BROWN, Kansas, Mo. Filed Sept. 7, 1902. Serial No. 93,206. (No model.)

Claim.—1. In a running-gear for a vehicle, the combination of the front and rear head-blocks; a rigid shaft connecting the same; circles secured to the under side of said front and rear head-blocks, the front circle having its center to the rear of the front head-block and the rear circle having its center to the front of the rear head-block; ball-runs grooved into the under side of said circles; the front axle with a suitable circle clipped to the same, corresponding to the circle on the front head-block, the same projecting into the groove of the circle above and being provided with a suitable ball-run; a ball extending down through the shaft and through a bracket on the front axle at the center of the said bearing-circle; an arm D secured to the said ball and the under circle and extending rearwardly; and a pivoted lever F with cap F' carried on the rear end of said arm; a circle carried by the rear axle and fitting into the circle on the said rear head-block being overlapped thereby; an arm E terminating in a round journal portion E' at its forward end, fitting within the

sleeve F and a vertical bolt K extending down through the plate carried by the rear head-block through a bracket on said rear axle and the rear end E' of the arm E, retaining the same securely together, all coacting for the purpose specified.



2. In a running-gear for a vehicle, the combination of the front and rear head-blocks; a rigid reach connecting the same; circles secured to the under sides of said front and rear head-blocks, the front circle having its center to the rear of the front head-block and the rear circle having its center to the front of the rear head-block; ball-races grooved into the under sides of said circles; the front axle with a suitable circle clipped to the same corresponding to the circle on the front head-block, the same projecting into the groove of the circle above and being provided with a suitable ball-race; a belt extending down through the reach and through a bracket on the front axle at the center of the said bearing-circle; an arm D secured to said belt and the under circle and extending rearwardly; and a pivoted sleeve F carried on the rear end of said arm; a circle carried by the rear axle and fitting into the circle on the said rear head-block being overlapped thereby; an arm E terminating in a round journal portion E' at its forward end, fitting within the sleeve F and a vertical bolt K extending down through the plate carried by the rear head-block through a bracket on said rear axle and the rear end E' of the arm E, retaining the same securely together, all coacting for the purpose specified.

3. In a running gear for vehicles, the combination of the front and rear head-blocks; the axle pivoted beneath the same carrying arms extending toward each other, one of which arms has a sleeve F having a cap F' pivoted thereto; and a bolt on the opposite arm extending into the sleeve to afford a sliding and swinging connection between the parts, for the purpose specified.

4. In a fifth-wheel or coupling for a vehicle, the combination with the head-block B; the reach G; the complete circle B' secured to the under side thereof by suitable clips and with a circular ball-race in a groove on its under side, said circle being located with its center to the rear of the axle; the lower circle B'' being narrowed at the top with a ball-race therein, secured by suitable clips to the axle; a bar C secured to the axle having the brackets C' projecting rearwardly therefrom; retaining-bolt H extending through the reach G and through the bracket C' carried by the axle; and yokes, A, A', A'' with extensions B'', B'', fitting in a groove on the under side of the lower circle B'', all coacting substantially as described for the purpose specified.

5. In a fifth-wheel or coupling for a vehicle, the combination with the head-block B; the reach G; the complete circle B' secured to the under side thereof by suitable clips and with a circular ball-race in a groove on its under side, said circle being located with its center to the rear of the axle; the lower circle B'' being narrowed at the top with a ball-race therein, secured by suitable clips to the axle; a bar C secured to the axle having the brackets C' projecting rearwardly therefrom; retaining-bolt H extending through the reach G and through the bracket C' carried by the axle, all coacting substantially as described for the purpose specified.

6. In a fifth-wheel or coupling for vehicles, the combination of a head-block; a reach; an upper circle having a cone-shaped groove in its under surface, the bottom of said groove being circular in cross-section, secured beneath the said reach; an axle; an under circle, the sides of the upper portion of which are made to closely fit the sides of the groove in the said upper circle to form a bearing therewith, and also provided with a ball-race in its upper edge, secured to said axle, for the purpose specified.

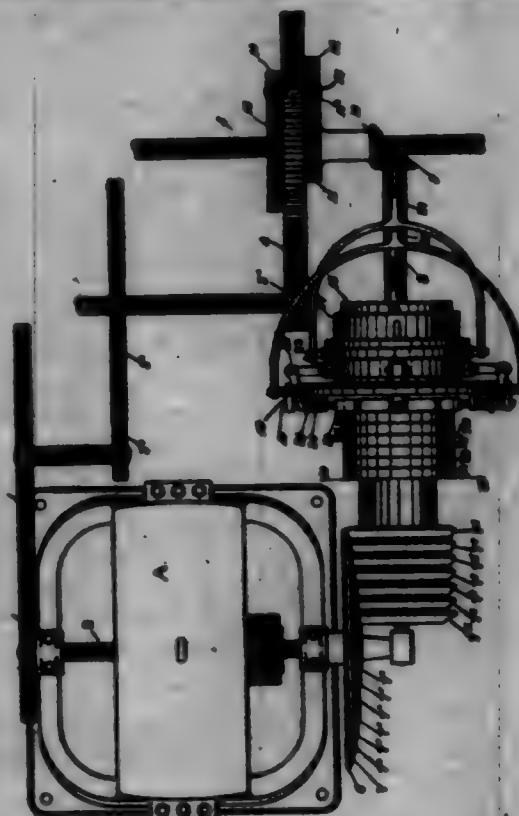
7. In a fifth-wheel or coupling for vehicles, the combination of a head-block; a reach; and an upper circle having a cone-shaped groove in its under surface, the bottom of said groove being circular in cross-section, secured beneath the said reach; an axle; an under circle, the sides of the upper portion of which are made to closely fit the sides of the groove in the said upper circle to form a bearing therewith, as specified.

8. In a coupling for a vehicle the combination of the reach G; the plate I with a circular ball-race on a groove on its under side with a downwardly-extending post I' with a head-block above; the axle; the plate J secured by the edge to the upper side of said axle, extending under the plate I and provided with a journal-bearing to embrace the post I' and having a ball-race on its upper side toward the periphery and a ball-race

on its lower side toward the center; the nut I'' with a ball-race on its upper side, screw-threaded to engage the post I'; jam-nut I''' for locking the said ball-bearing nut I'' in position; a bar L with a bracket L' secured to the reach A' and a tie-bolt K extending centrally through the bearing-plates and bracket L' to retain the parts pivotally together, for the purpose specified.

9. In a coupling for a vehicle the combination of a reach; the plate I with a circular ball-race on a groove on its under side with a downwardly-extending post I' with a head-block above; the axle; the plate J secured by the edge to the upper side of said axle, extending under the plate I and provided with a journal-bearing to embrace the post I' and having a ball-race on its upper side toward the periphery and a ball-race on its lower side toward the center; the nut I'' with a ball-race on its upper side screw-threaded to engage the post I'; jam-nut I''' for locking the said ball-bearing nut I'' in position, for the purpose specified.

697,801. DIFFERENTIAL GEARING. WILLIAM S. CANNON, Reno Nev. Filed May 27, 1901. Serial No. 98,578. (No model.)



Claim.—1. A differential gear consisting in the combination with a shaft having a series of gears and having a constant speed in one direction, of a second shaft, loose and fixed gears upon the latter and connections between said gears and the first-named shaft whereby the second shaft is given a variable speed in either direction, said connections including a series of pinions having a common axis and said pinions adapted to engage corresponding gears on said first-named shaft.

2. The combination with a revoluble shaft of a plurality of gears upon one end of said shaft, corresponding pinions engaging said gears, the shafts of said pinions revoluble one within and independently of the other, a shaft in line with and having an axis common to said pinion-shafts, and a clutch mechanism on said aligned shaft adapted to engage with one or the other of said pinion-shafts whereby said aligned shaft is given the same movement as the said engaged pinion-shaft.

3. The combination with a revoluble shaft of a plurality of gears on said shaft, a corresponding number of pinions engaging said gears, said pinions having their shafts revoluble one within and independently of the other, pulleys upon each of said shafts, a shaft in line with said pinion-shafts and having a common axis therewith, a clutch mechanism upon said aligned shaft including a fixed sleeve thereon a collar slidable lengthwise of and revoluble with said sleeve, knee-levers and contractible chucks and means whereby said chucks are made to engage one or the other of said pulleys.

4. The combination with a revoluble shaft, of a plurality of gears upon one end thereof, pinions meshing with said gears, the shafts of said pinions revoluble one within the other, pulleys upon said shafts, said pulleys adjacent to each other and of equal diameter, another shaft, a sleeve fixed on said shaft, a collar slidable on and revoluble with said sleeve, and clamps by which one or the other of said pulleys may be engaged when said collar is moved upon the sleeve, and means by which said slidable movement is effected.

5. The combination of a revoluble shaft, gears thereon, pinions mesh-

ing said gears, the shafts of said pinions having a common axis, a shaft carrying a clutch mechanism adapted to connect with the said pinion-shafts, said mechanism comprising a longitudinally-slidable collar, radially-contractionable cheeks carried upon this collar, a second collar slidable lengthwise on the first-named collar, and knee-levers having one member pivoted on the first-named collar and tending to rotate the cheeks when the second collar is moved upon the first collar.

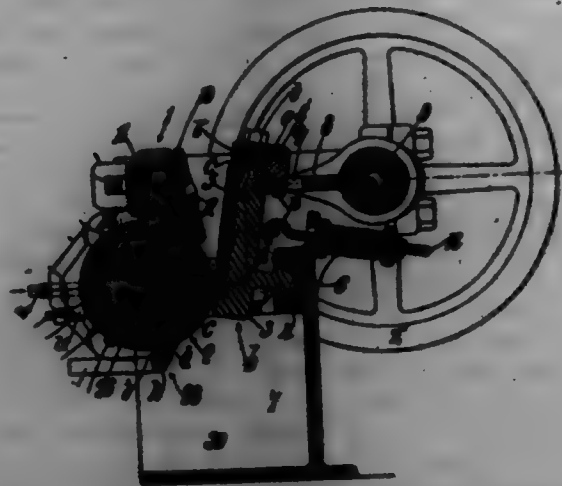
6. The combination of a revoluble shaft, gears thereon, pinions meshing said gears, said pinions having their shafts revoluble one within another, a shaft having a clutch mechanism, said clutch mechanism adapted to connect with said pinion-shafts, said mechanism including two concentric collars slidable longitudinally in relation to each other and to their supporting-shaft, a rod engaging each of said collars, a lever, one of said rods connecting directly with said lever by which its respective collar is operated, and a segmental lever-and-rack device pivoted on said last-named lever and with which the other rod is connected and by which its respective collar is operated.

7. The combination of a shaft revoluble in one direction at constant speed, a second revoluble shaft, a loose pulley on said second shaft, a fixed gear also thereon, gears journaled on said loose pulley and engaging said fixed gear, connection between the first-named shaft with the loose pulley whereby the latter is given a constant relative speed in one direction, and connections of the first-named shaft with the gears carried on the loose pulley whereby the speed of said gears may be varied, and a motion in either direction gives the second-named shaft.

8. A differential gear consisting in combination, of a shaft revoluble at constant speed in one direction, a series of gears thereon, pinions meshing said gears, the shafts of said pinions revoluble one within another, pulleys fixed on each of said pinion-shafts, a shaft continuous with the innermost of said pinion-shafts and independently revoluble therewith, a clutch mechanism on said shaft adapted to engage one or the other of said pulleys whereby the last-named shaft is given a like motion to the pulley, a shaft carrying fixed and loose pulleys, connections between said pulleys and means whereby said loose pulleys are revolved each constantly in one direction.

9. A differential gear consisting in combination of a revoluble shaft, a series of gears thereon, pinions engaging said gears, said pinions having their shafts revoluble one within another, a shaft carrying engaging fixed and loose pulleys, one of said loose pulleys adapted to be revolved constantly at a relative speed with the first-named shaft, and connections of the other loose pulley with one or the other of said pinion-shafts whereby said pulley is given a movement relative to said pinion-shaft.

697,802. ORB-CRUSHER. ALBERT C. CALKINS, Los Angeles, Cal., assignor to Frederick William Braun, Los Angeles, Cal. Filed Mar. 12, 1906. Serial No. 4,374. (No model.)



Claim.—1. A crusher comprising a vibratory jaw which vibrates in an approximately horizontal arc; and a non-vibrating jaw, the lower section of which non-vibrating jaw is formed of a roll; the portion of the vibratory jaw which is contiguous to the roll being formed in a segment of the outer face of a cylinder, substantially as set forth.

2. In a crusher, the combination of a non-vibrating jaw composed of a fixed section and a roll journaled in the frame to constitute the lower section of said jaw; and a vibratory jaw which vibrates in an approximately horizontal arc, provided with a face having the portion contiguous to the roll formed in the segment of the outer face of a cylinder described from the axis of vibration of the vibratory jaw.

3. A crusher comprising a vibratory jaw and a non-vibrating jaw, the lower section of which non-vibrating jaw is formed of a roll which is free to be propelled in the direction of the discharge-outlet by the crushed material; and means to prevent rotation in the opposite direction; the

portion of the vibratory jaw which is contiguous to the roll being formed in a segment of the outer face of a cylinder.

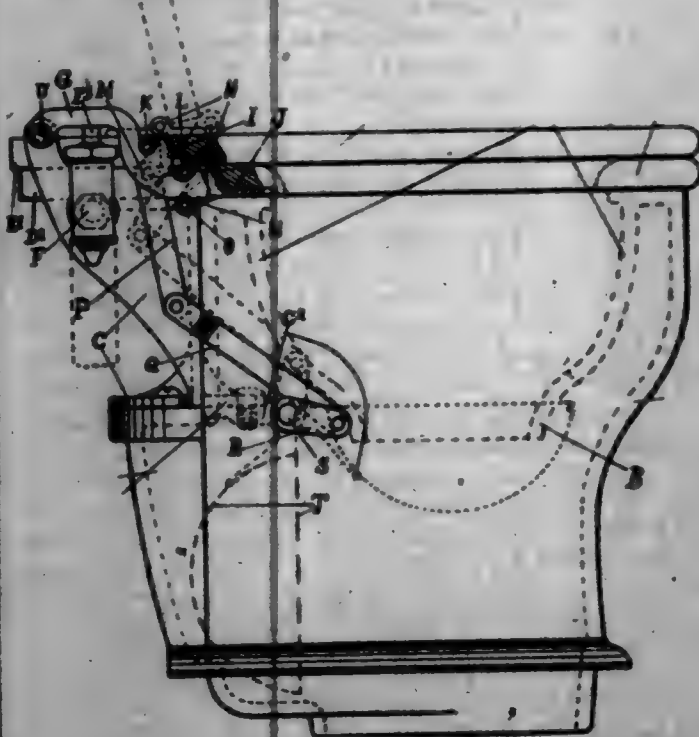
4. In a crusher, the combination of the frame of the crusher provided with vertical guides and with horizontal ways; a non-vibrating jaw comprising a block with extensions to fit in said ways, means for fastening the block in said guides; blocks to move in said horizontal ways; a shaft journaled in said blocks; a roller mounted to turn on said shaft and to form the lower section of the non-vibrating jaw; and means for holding the blocks in the adjusted position.

5. A crusher comprising a frame provided at the top with an open space extending from the front rearward to receive the vibratory and non-vibrating jaws and provided in its side walls with vertical guides and horizontal ways beneath said guides; a vibratory jaw mounted to vibrate in said space; means for vibrating the jaw; a block to form a section of the fixed jaw provided with lateral extensions to fit in said guides; means for fastening the said block in the guides; blocks to slide in said ways; a shaft fastened at its ends to the blocks; a roll mounted to rotate on said shaft; and means for holding the blocks in said ways to bring the roll into position beneath the fixed section of the non-vibrating jaw to form the lower section of the non-vibrating jaw.

6. In a crusher, the combination of a frame provided with an open space extending from the front rearward to receive the vibratory and non-vibrating jaws and provided in its side walls with vertical guides and horizontal ways beneath said guides; a vibratory jaw mounted to vibrate in said space; means for vibrating the jaw; a block to form a section of the fixed jaw provided with lateral extensions to fit in said guides; means for fastening the said block in the guides; blocks to slide in said ways; a shaft fastened at its ends to the blocks; a roll mounted to rotate on said shaft; frame members extending in front of the horizontal ways; and means in said frame and frame members to adjust the blocks in said ways.

7. In a crusher, the combination of the frame; an eccentric shaft mounted in said frame; a vibratory jaw provided with a seat for a face-plate and having at its lower end a lip to retain the face-plate in said seat and being provided at the upper rear side with a socket for a connecting-rod; a wearing face-plate seated in said seat; a connecting-rod mounted on the eccentric of the shaft and socketing in the said socket and provided with an opening rearward of its socket; and a clamp-piece for the top of the body of the vibratory jaw and provided at its front with a lip to extend in front of the face-plate and provided at the rear with a finger to extend through said opening in the connecting-rod to hold the end of the connecting-rod in the socket; and means for fastening the clamp member to the upper end of said body.

697,808. WATER-CLOSET. JOHN CAMPBELL, Denver, Colo. Filed Oct. 11, 1901. Serial No. 75,234. (No model.)



Claim.—1. In a water-closet, the combination with a hinged cover, of a roll on said cover adapted to swing from the hinge center with the cover; a flush-valve located below the surface of the said cover; a lever adapted to open said valve and provided with opposite inclined faces projecting into the path of movement of the said swinging roll; and a descending, self-draining pipe connection from the said valve to the flushing-entrance of the closet-bowl.

2. In a water-closet, the combination, with a flush-valve, of a lever adapted to open said valve; a hinged cover and seat; rolls upon said cover and seat, adapted to swing from their hinge centers; and oppositely-inclined flaps upon the valve-lever, projecting into the path of movement of the rolls of the cover and seat.

3. In a water-closet, the combination, with a pan supported by a rock-shaft and crank, of a hinged cover; a lever pivoted to said cover eccentric to its hinge; a connection from said lever to said rock-shaft crank; and a fulcrum-bearing in position and adapted to engage the said lever as the cover is tipped.

4. In a water-closet, the combination, with a dump-pan supported by a rock-shaft and crank, of a hinged cover; a lever pivoted to the cover eccentric to its hinge; a connection from said lever to said rock-shaft crank; a hinged seat; and a fulcrum secured to said seat pendulous to its hinge, and in position to engage said lever.

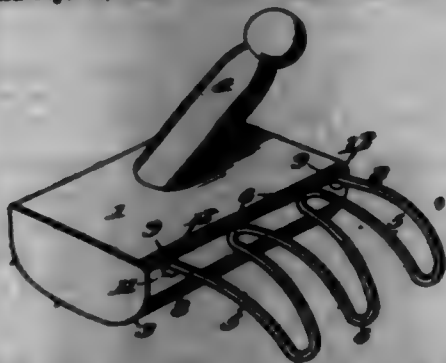
5. In a water-closet, the combination, with a dump-pan, of a hinged cover; a lever and connection from said cover to said pan; and a hinged seat having a fulcrum projection located in position and adapted to be swung out of position to engage said lever when said cover and seat are simultaneously tipped.

6. In a water-closet, the combination, with a hinged cover and hinged seat, of a dump-pan; a lever pivoted to said cover and connected with said pan; a fulcrum on said seat in position and adapted to engage said lever; and a flush-valve operatively connected with said cover.

7. In a water-closet, the combination, with a hinged cover and a hinged seat, of a flush-valve and valve-lever having inclined flaps; projections upon said cover and seat in position and adapted to operate said valve by engaging said flaps; and connections from said cover to said pan, adapted to swing the pan in its upper position when the cover is up and the seat is down.

8. In a water-closet, the combination, with a flush-valve and valve-lever, of a hinged cover in operative engagement with said lever; a cover-lever pivoted eccentric to the cover-hinge; a dump-pan connected with the cover-lever; a resilient fulcrum controlled by a hinged seat; and a descending pipe connection from the flush-valve to the entrance of the closet-bowl.

697,804. KEENING DEVICE. LAMARCA H. CAMPBELL, Allen.
Filed Sept. 11, 1901. Serial No. 78,078. (No model.)

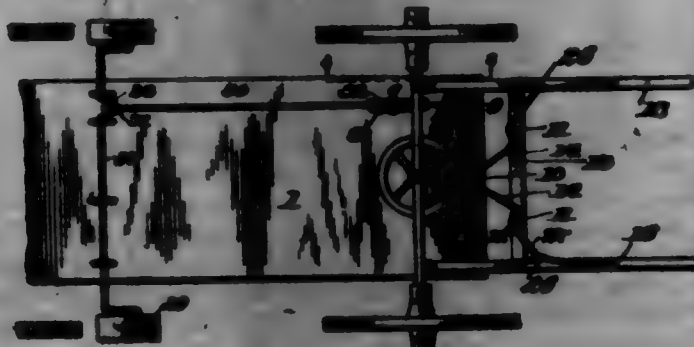


Claim.—1. A keener comprising a block, a handle projecting upward therefrom, and a series of fingers projecting from said block and curved downward.

2. A keener comprising a block, a handle projecting from the upper surface thereof, at an angle to said surface, and a wire bent to form a plurality of downwardly-curved loops, the ends of said wire being secured to the block.

3. A keener comprising a block and handle, said block having transverse horizontal openings, and a resilient wire bent to form downwardly-curved loops curving as fingers, and having their ends inserted in said openings and secured therein.

697,805. HORSE-DETACHER. HOWARD GASKIN, Vandergrift, Pa.
Filed Feb. 5, 1902. Serial No. 98,600. (No model.)



Claim.—1. In a horse-detacher, the combination with the brake-rod carrying brake-shoes, a longitudinally-disposed rod connected at its rear end to the said brake-rod, means carried by the shaft of the vehicle for engagement with the harness, and connected to the forward end of the said longitudinally-disposed rod, and a lever pivoted to the said last-mentioned rod for operating the same.

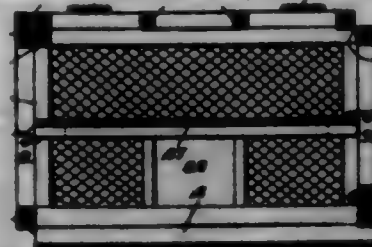
2. In a horse-detacher, the combination with the shaft of the vehicle, of levers pivoted to the shaft, rods connected to said levers for engagement with the traces and breeching-strap of the harness, a brake-rod carrying brake-shoes, a longitudinally-disposed rod operatively connected to the said levers and brake-rod, and a lever pivoted to the wagon-body and having its lower end pivotedly connected with the said longitudinally-disposed rod.

3. In a horse-detacher, the combination with the shaft of the vehicle, of bell-crank levers pivotedly mounted thereon and spaced apart, rods connected to the outer ends of said bell-crank levers, levers pivotedly secured to the vehicle-shafts for engagement with the traces and breeching-strap of the harness, and in engagement with the said rods, a brake-rod carrying brake-shoes, and means for simultaneously operating the said brake-shoes and bell-crank levers.

4. In a horse-detacher the combination with the shaft of the vehicle, of levers having hooked upper ends, said levers pivotedly secured to said shaft, a brake-rod carrying brake-shoes, and means for simultaneously operating the said brake-shoes and said levers.

5. In a horse-detacher, the combination with the shaft of the vehicle, of levers having hooked upper ends, said levers pivotedly secured to said shaft, bell-crank levers pivotedly mounted upon the shaft, rods connected to the first-mentioned levers and the said bell-crank levers, a brake-rod, a longitudinally-disposed rod connected at its rear end to the said brake-rod, rods connected to the forward end of the said longitudinally-disposed rod and the said bell-crank levers, and means for operating said longitudinally-disposed rod.

697,806. FOLDING CRATE. BARBARA J. CANTRELL, Ocala, Fla.
Filed Mar. 30, 1900. Serial No. 9,678. (No model.)



Claim.—A folding crate comprising a top, bottom, and end sections hinged together; a deck or partition hinged to said end sections and cut away at its corners; and sides hinged respectively to the top and bottom sections, the end rails of which fit the cut-out corners of the deck; and longitudinal battens arranged centrally of the sides and fitting under the side edges of the deck.

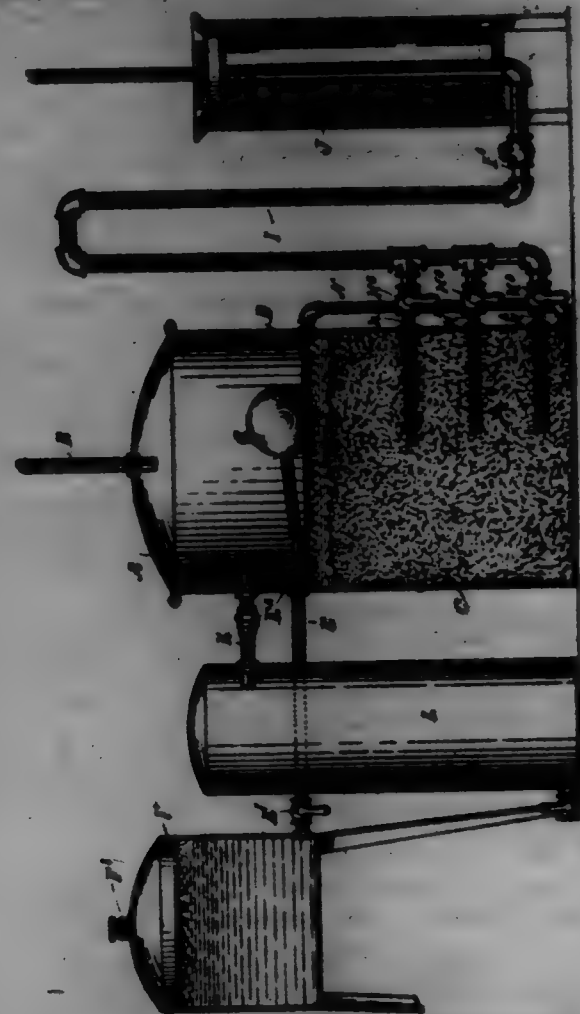
697,807. CARBURIZER. CHARLES I. CHANTON, St. Louis, Mo.
Filed June 20, 1901. Serial No. 98,508. (No model.)

Claim.—1. A carburizer having a generator-casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the said material, to completely submerge the latter on filling the casing with the hydrocarbon liquid to a desired level, means for maintaining the liquid at the desired level above said loose material, and an air-supply discharging into the said loose material below the top thereof, to divide the air into small parts which, in rising, pass through the hydrocarbon liquid into the upper portion of the casing, as set forth.

2. A carburizer having a generator-casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the said material, to submerge the latter on filling the casing with the hydrocarbon liquid to a desired level, a valve controlling the admission of the hydrocarbon liquid to the casing, a float arranged in the casing above the loose material and connected with the said valve, and an air-supply discharging into the said loose material below the top thereof, to divide the air into small parts which, in rising, pass through the hydrocarbon liquid into the upper portion of the casing, the said air-supply having a plurality of valved discharge-pipes opening into the loose material one above the other, as set forth.

3. A carburizer having a generator-casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the said material, to submerge the latter on filling the casing with the hydrocarbon liquid to a desired level, an air-supply discharging into the said loose material below the top thereof, to divide the air into small parts which, in rising, pass through the hydrocarbon liquid into the upper portion of the casing, and a circulating connection for connecting the hydro-

carbon liquid in the casing with the lower portion of the loose material, to allow the liquid to flow by gravity into the loose material at the lower part thereof, as set forth.



4. A carburetor having a generator-casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the said material, to submerge the latter on filling the casing with the hydrocarbon liquid to a desired level, an air-supply discharging into the said loose material below the top thereof, to divide the air into small parts which, in rising, pass through the hydrocarbon liquid into the upper portion of the casing, an overflow above the predetermined level of the liquid, and a closed safety-tank connected with the said overflow, as set forth.

5. A carburetor having a generator-casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the said material, to submerge the latter on filling the casing with the hydrocarbon liquid to a desired level, an air-supply discharging into the said loose material below the top thereof, to divide the air into small parts which, in rising, pass through the hydrocarbon liquid into the upper portion of the casing, and an air-pump for the said air-supply having its discharge-pipe rising above the generator-casing, the discharge-pipe containing a check-valve, as set forth.

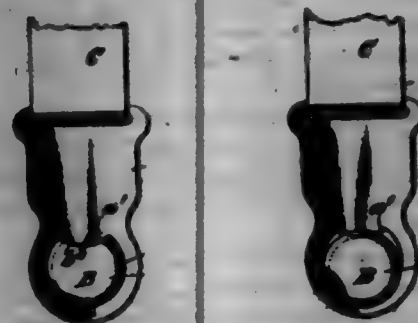
6. A carburetor, comprising a casing containing loose material, and having an outlet at its top, a reservoir for hydrocarbon liquid provided with a discharge-pipe opening into the casing above the loose material, an air-pump having a U-shaped discharge-pipe rising above the top of the casing, a series of pipes connected with one leg of said discharge-pipe and extending into the casing, the said pipes opening into the loose material one above the other, as set forth.

7. A carburetor, comprising a casing containing loose material, a hydrocarbon-liquid supply for the said casing and having its inlet above the loose material to submerge the latter, an air-supply discharging into the loose material below the top thereof, a pipe extending from the hydrocarbon liquid in the casing to the lower portion of the loose material, an overflow-pipe leading from the casing above the predetermined level of the liquid, and a tank connected with the said overflow-pipe, as set forth.

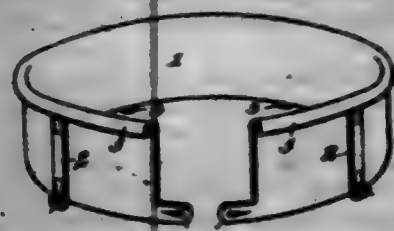
697,808. FASTENING DEVICE FOR GARMENT-SUPPORTERS. JAMES P. COLLIER, Paris, France. Filed Sept. 28, 1900. Serial No. 121,888. (No model.)

Claim.—The combination of a perforated plate and a tongue projecting into said perforation, of a button, a circumferential groove therein and a cut-away portion in one of the walls of said groove to admit entrance of the tongue into the same, substantially as set forth.

697,808.



697,809. WEARING-APPAREL. ISA W. COLLIER, Kilmarnock, Mo. Filed July 23, 1901. Serial No. 68,800. (No model.)



Claim.—1. A device of the character described, formed of moisture-proof material shaped to fit the part to which it is applied, the opposite ends thereof being provided with buttonholes, and the exposed edge of the device having hooks which are elastically connected thereto.

2. A device of the character described, formed of moisture-proof material and shaped to fit the part to which it is to be applied, the opposite ends thereof being provided with buttonholes, the exposed edge of the material being rolled over upon the outer side thereof, and hooks elastically connected to the opposite edge of the device.

3. A device of the character described, having its opposite ends provided with corresponding buttonholes, its exposed edge being rolled over upon the outer side thereof, and fastenings elastically connected to the opposite edge of the device.

697,810. ELECTRIC FURNACE. WILLIAM R. COLLEY, New York, N. Y., assignor to Electric Furnace Company, a Corporation of New York. Filed Dec. 5, 1901. Serial No. 84,704. (No model.)

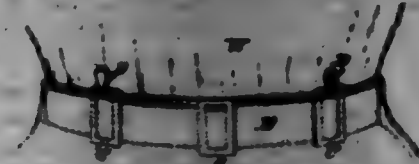


Claim.—1. An electric furnace having its body portion made of refractory non-conducting material and formed with a main inner chamber, a neck at the bottom of said inner chamber, a hearth below the neck, a heating zone forming substantially the wall of the neck and made up of a series of plates or parts adapted to be heated to incandescence by the passage of an electric current through them, and a second heating zone in the hearth formed also of plates or parts which are adapted to be substantially flush with the furnace-wall and incandescent under the influence of a strong electric current.

2. The herein-described electric furnace, comprising a body made of refractory non-conducting material and having its inner portion closed to exclude the ingress of air and provided in its walls with a plurality of heating zones arranged on different horizontal planes, the inner parts of the heating zones lying substantially flush with the furnace-wall and the said zones being made of material of low electrical conductivity adapted to glow incandescent under the influence of an electric current.

3. An electric furnace, comprising a body portion formed of refractory non-conducting material and closed to prevent the ingress of air while the furnace is in operation, the said body being reduced interiorly to form a comparatively small neck with a hearth below the neck, the hearth, neck and chamber of the body forming one continuous incandescent, and a heating zone or bulb forming the wall of the neck, said bulb or zone being made of material of low electrical conductivity adapted to glow incandescent on the passage of an electric current through it.

697,811. GARMENT-SUPPORTING APPLIANCE. JOHN P. SHAW, New York, N. Y. Filed Sept. 2, 1901. Serial No. 74,100. (No model.)



Claim.—As an improvement in garment-supporters, the combination with the band B, and means thereon for supporting it on the lower end of a waist, of the plate C, having slots c' c' for the passage of the band, and a y-shaped extension d', at the upper end, and a cam-snap pivoted to the free end of the extension d', said snap having its gripping edge provided with prongs adapted to engage the slots c' c', in the plate C, for the purpose described.

697,812. FLEXIBLE-GRASP COLLAR OR CUFF BUTT. JAMES H. CHAM, Indianapolis, Ind. Filed July 1, 1901. Serial No. 68,005. (No model.)



Claim.—In a flexible button, the combination of the hollow yielding band, the unyielding one in said hollow band extending nearly to the edge thereof, the hollow yielding band, the unyielding one in said hollow band extending nearly to the edge thereof, and the band attached to said band and to said one, substantially as shown.

697,813. HEATING SYSTEM. JAMES H. CHAM, Madison, N. H. Filed Nov. 21, 1900. Serial No. 87,300. (No model.)

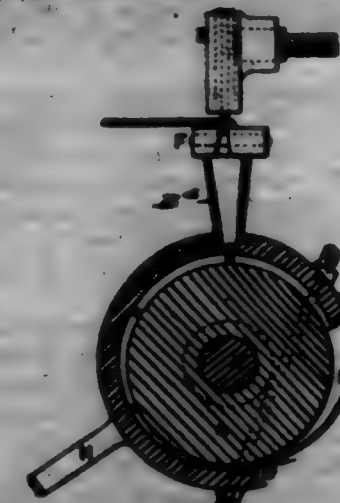


Claim.—1. In a heating apparatus of the character described, the combination with a radiator comprising a series of vertically-disposed sections, a heater provided with a water-jacket, go and return pipes communicating with the water-jacket and with the adjacent end of the radiator at the top and bottom thereof, an expansion-tank located above the radiator and provided with an ingo-pipe communicating with an inter-

mediate section of the radiator and extending nearly to the top of the tank, an open-pipe communicating with the hot section of the radiator at the end thereof furthest from the heater and communicating with the bottom of the expansion-tank at the end thereof opposite the ingo-pipe, and a safety-valve on said tank designed to permit the escape of steam to prevent excessive steam-pressure in the radiator.

2. In a heating system, the combination with a heater comprising a water-jacket, a combustion-chamber located thereby, an air-box located below the water-jacket and having its upper edge secured directly to the outer wall thereof, a heat-dome located above the jacket and having its lower edge fitted closely around and secured directly to the outer wall thereof, and a dampener shell enclosing the water-jacket in spaced relation thereto, the ends of said shell being extended above and below the water-jacket in order to insure the joints between said jacket and the air-box and dome respectively, of go and return pipes passed through and constituting exclusive supports for the shell and communicating with the water-jacket adjacent to the upper and lower ends thereof to constitute a circulatory system, one or more radiators incorporated in said system, an expansion-chamber in communication with the system of the pipes most remote from the heater, and means for automatically relieving the pressure of the expansion-chamber.

697,814. SHOT-MAKING MACHINE. JAMES L. GORMAN, Dunedin, New Zealand. Filed July 20, 1901. Serial No. 75,140. (No model.)



Claim.—In a machine for manufacturing shot, a disk having circumferential peripheral grooves and mounted upon a rotatable shaft, a band constructed of yielding material including one half of the periphery of said disk and having its ends extended to insure the upper and lower portions of the other half of the grooved periphery of said disk, said band having its inner face provided with grooves registering with the peripheral grooves of the disk, said grooves adapted to receive the material for rolling it into shot, means suitably connected to the ends of said band for adjusting the width of the space between the band and disk when desired, a hopper for the material integral with the said band and communicating with the grooves thereof and the grooves of the disk, and segment-shaped scrapers connected to the upper end of said band and extending toward the lower end thereof and engaging in the grooves for removing the shot therefrom, substantially as herein shown and described.

697,815. MEANS FOR VENTILATING BUILDINGS. THOMAS BARRINGTON, South Melbourne, Victoria, Australia. Filed Oct. 21, 1901. Serial No. 75,620. (No model.)



Claim.—1. Improved means for ventilating buildings comprising blocks (such as A) of brick or other material having part of their upper surface inclined and fitted with projections (as B) at intervals in combination with rolled-iron or other bars (as C) having their adjacent surfaces formed with projections (as D) the whole being constructed and arranged substantially as set forth for the purpose specified and illustrated in the accompanying drawings.

2. In means for ventilating buildings, oblong blocks of brick or other material having part of their upper surface inclined and formed with projections (as D) along one side, substantially as and for the purpose specified, and as illustrated in the accompanying drawings.

697,816. GOLF-BALL. CHARLES DAVIS, U.S. Navy. Filed Sept. 27, 1901. Serial No. 73,705. (No model.)



Claim.—1. A golf-ball, comprising a hollow spherical shell composed of a nitrocellulose compound and an elastic coating exterior to said shell and provided on its outer surface with a plurality of projections, substantially as described.

2. A golf-ball, comprising a hollow central shell of a nitrocellulose compound, an outer envelope of gutta-percha provided with a plurality of projections thereon, and an intermediate layer of elastic material not integral with either the inner shell or the gutta-percha coating, substantially as described.

3. A golf-ball, comprising a hollow central shell of a nitrocellulose compound, an outer envelope of gutta-percha provided with a plurality of projections thereon, and an intermediate layer of rubber not integral with either the inner shell or the gutta-percha coating, substantially as described.

4. A golf-ball, provided with a plurality of projections thereon, and comprising a hollow spherical shell of elastic material, and a distinct elastic coating thereon, with air-pockets between the shell and coating, substantially as described.

5. A golf-ball, provided with a plurality of projections thereon, and comprising a hollow central shell of highly-elastic material, an outer envelope of gutta-percha, and an intermediate layer of elastic material, with air-pockets provided between the outer envelope and the intermediate elastic material, the said intermediate layer being not integral with either the inner shell or the exterior coating, substantially as described.

6. A golf-ball, provided with a plurality of projections thereon, and comprising a hollow central shell of highly-elastic material, an outer envelope of gutta-percha, and an intermediate layer of elastic rubber, with air-pockets between said outer envelope and said rubber layer, the said intermediate layer being not integral with either the inner shell or the outer coating, substantially as described.

697,817. DEVICE FOR ELECTRICALLY CONNECTING RAILS. GERHARD DUNHAM, Winsted, Conn. Filed Jan. 11, 1902. Reissued Oct. 15, 1901. Serial No. 73,706. (No model.)



Claim.—1. A new and improved electrical conductor for connecting rails, and comprising a binder formed hollow with one end normally closed and fitted, said binder being adapted to be wedged home in suitable holes formed in the said rails offering an increased surface of contact for conducting the current and insuring permanency of the said binder in position, substantially as described.

2. In a new and improved binder for electrically conducting rails for conducting a current the combination of a cylindrical hollow body adapted to pass through holes provided in said rails, an annular flange on one end of said binder-body, a slotted normally closed end in said other end and a bolt adapted to be driven into said binder expanding the same and wedging it firmly and permanently in place, substantially as described.

3. In a new and improved binder for electrically conducting rails for conducting a current, the combination of a hollow cylindrical, slotted body, a neck formed on each end thereof, a flange on one end of said binder, a connecting slotted web, one thereon and bolts adapted to be driven into said binder and wedge the same permanently into place offering a large contact-surface for the current, substantially as described.

697,818. TANK FOR STORING ABRATED LIQUIDS UNDER PRESSURE. GEORGE S. DE LAET, New York, N. Y. Filed Oct. 12, 1901. Serial No. 73,682. (No model.)



Claim.—1. In a tank for storing abraded liquids, a joint for sections or parts of said tank, comprising a collar-tight recess formed in one of the parts to be united, the inner wall of which presents a smooth surface and tapered edge, rivets extending through the inner and outer walls of said recess and counterbored in the inner wall, and bayonet-joint slots formed on the other part which receives the rivets, as said part enters the recess and engages with them as the parts are relatively turned; the parts being soldered together to prevent turning in a manner to disengage the bayonet-joint.

2. In a tank for storing abraded liquids, the combination of a body portion having bayonet-joint slots formed near its annular edge and a bottom formed with a collar-tight recess constructed to receive said body portion, and rivets extending through the walls of said recess, the inner wall presenting a smooth interior face with outwardly-tapered annular edge; the parts being interlocked and soldered to prevent unscrewing.

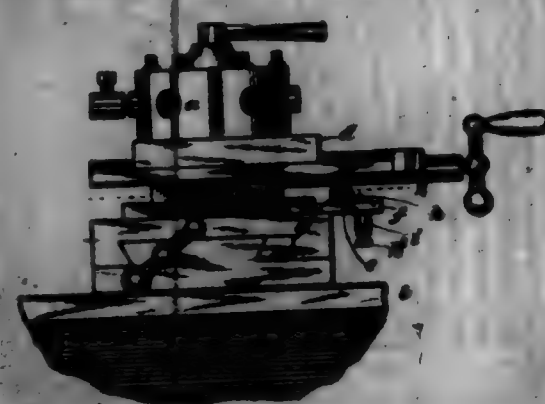
3. In a metal tank, the combination of a body portion having bayonet-joint slots, a bottom having a lip surrounding the body portion, an inner ring covering the joint between the body portion and bottom, spaced apart from the lip to provide a recess to receive the body portion and rivets secured in the inner ring, and in the lip, and passing through the bayonet-joint slots.

4. In a metal tank, the combination of a body portion having bayonet-joint slots, a bottom having a lip surrounding the body portion, an inner ring covering the joint between the body portion and bottom, forming with said lip a recess to receive said body portion and having inclined edges to avoid making shoulders with said body portion or the bottom, and rivets having their outer ends secured in the lip, and with their inner ends flush with the inner face of the inner ring and passing through the bayonet-joint slots.

5. A joint for metal tanks, comprising bayonet-joint slots in the body portion, a cap having a lip surrounding the body portion, an inner ring for covering the joint between the body portion and cap, fixed within the cap with a space between it and the lip to receive the body portion, and having a collar-tight connection with the cap, and rivets secured in said ring and in the lip and passing through the bayonet-joint slots.

6. A joint for metal tanks, comprising the body portion formed with bayonet-joint slots, a cap having a lip surrounding the body portion, a ring for covering the joint between the body portion and cap, fixed within the cap with a space between it and the lip to receive the body portion, and soldered at its lower edge to the cap to form a collar-tight closure at the bottom of said body-portion space and rivets fixed at their ends in the ring and lip and passing through the bayonet-joint slots.

697,819. LATCH ATTACHMENT. WILLIAM H. DICK, New York, N. Y. Filed Dec. 26, 1901. Serial No. 67,682. (No model.)



Claim.—1. A turn-bolt attachment, comprising a body-plate adapted to be fastened to the inner turn-bolt and to project therefrom, a spring-latch carried by the body-plate and normally projecting from the face thereof in the path of the turn-bolt-rod or lever, a stop-pin carried by the said body-plate at one side of the latch, and means for holding the latch in inactive position, as set forth.

2. A latch attachment, comprising a body-plate, a sleeve fitted thereto and projecting from one face thereof, a spring-latch carried in the sleeve and biased on its outer side, a head or finger-piece on the stem of the latch at the projecting end of the sleeve, a pin projecting from the head or finger-piece of the latch, and adapted to engage the end of the sleeve to hold the latch inactive, the said pin normally engaging an opening in the said sleeve, and a stop-pin projecting from the face of the body-plate at the inner side of the latch.

3. A latch attachment, comprising a body-plate adapted to be fastened to the latch, a sleeve secured in the body-plate and flush with the upper surface thereof, the sleeve projecting below the lower face of the plate, a spring-latch carried in the sleeve and having a stem extending through a contracted opening in the lower part of the sleeve, a head or finger-piece on the lower end of the stem, and adapted to normally engage the lower end of the sleeve, an oppositely-extending pin on said head and adapted to engage an opening in the lower end of the sleeve, the head or finger-piece of the latch, when drawn down to retract the latch being capable of being turned to move the pin out of registry with said opening to hold the latch retracted, and a stop-pin projecting upward from the plate at one side of the latch as set forth.

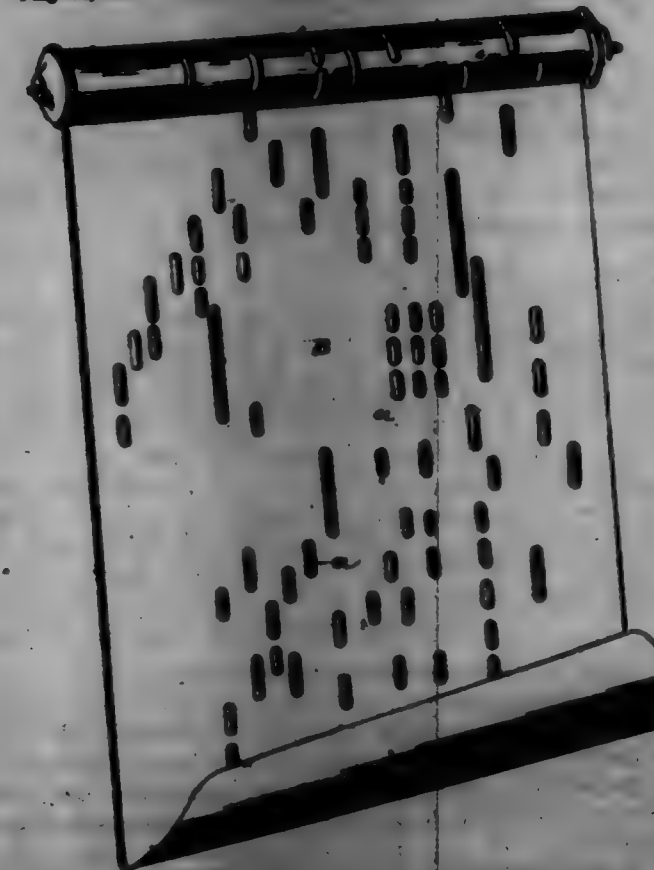
697,820. CAR-DOOR AND GRAIN-DOOR OPERATOR. WILLIAM H. DUNHAM and JOHN A. WILSON, Cumberland, Md. Filed Sept. 26, 1901. Serial No. 73,772. (No model.)



Claim.—1. In combination with a car-door, a grain-door arranged to the rear thereof, a handle carried by the car-door for moving said grain-door thereto, longitudinal ribs carried by said grain-door, a cross-bar secured transversely to said ribs, levers having a locking-pin, said levers adapted to extend through said ribs, engage said cross-bar and engage the car-door frame, substantially as described.

2. In combination with a car-door, a grain-door arranged to the rear thereof, a handle carried by the said car-door for engagement with said grain-door, longitudinal ribs carried by the grain-door for engagement with the car-door frame, a cross-bar carried by the grain-door, levers having a downwardly-extending locking-pin, chains connecting said levers to said cross-bar, said levers adapted to pass through the longitudinal ribs and engage the car-door frame with said locking-pin engaging through the cross-bar, and a bar carried by the car-door and connected to the cross-bar, substantially as described.

697,821. MUSH-ROLL. LOUIS R. DUNHAM, Hattisburg, N. Y. Filed July 22, 1901. Serial No. 68,222. (No model.)



Claim.—1. A mush-roll having its perforations gradually increasing in length to compensate for the increasing diameter of the take-up roll.

2. A mush-roll having provision for the automatic compensation of the increased size of the take-up roll.

3. A mush-roll or roll having gradually-increasing length of space occupied by members, perforations and bridges between perforations from the beginning to the end, whereby the increasing linear speed of the mush-roll and consequently increasing speed of the mush due to the windings of the sheet on the take-up roll are compensated for.

4. A perforated mush-roll having its perforations regulated as to length according to the diameter of the roll.

5. A perforated mush-roll or roll having provision for keeping the time of the mush constant as the feed becomes faster due to the increasing diameter of the take-up roll.

6. A perforated mush-roll or roll having provision allowing for a gradual increase in its linear speed as the take-up roll increases in size without increasing the speed or "tempo" of the mush.

7. A perforated mush-roll or roll having its perforations and bridges between perforations regulated as to length according to the diameter of the roll.

8. A perforated mush-roll or roll for use on instruments provided with means for revolving its take-up roll a certain number of revolutions per unit of time, said perforated sheet or roll being provided with means whereby the increasing linear speed of the mush-roll and consequently increasing tempo of the mush due to the increasing circumference of the take-up roll are compensated for.

697,822. CURTAIN-FIXTURE. ALBERT E. W. DUFFIELD, New-castle, Pa. Filed Aug. 2, 1901. Serial No. 73,684. (No model.)



Claim.—In a curtain-fixture, brackets composed of flat sheet metal having recesses formed in their front edges, springs secured to the top of the window-frame with their lower ends bowed and extending in alignment with said recesses, pulleys mounted between said springs and brackets, a pulley secured to the upper end of one of said brackets, a pulley adjustably mounted on the lower end of said window-frame, a cord secured to one end of the curtain-pole and being passed over both of said first-named pulleys, an endless cord pinned over said pulley carried by the upper end of the bracket and over the pulley secured to the window-frame, the end of said first-named cord being secured to said endless cord.

697,823. SHIRT. SYDNEY J. BELLARD, Dublin, Ireland. Filed Jan. 12, 1902. Serial No. 69,682. (No model.)



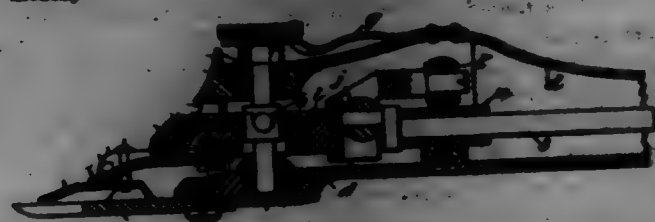
Claim.—1. A shirt composed of two side halves, and a yoke or neck-band, said side halves being fastened to said neck-band or yoke in such a manner that they overlap each other at the front and rear.

2. A shirt composed of two side halves, provided with the usual sleeves, and a yoke or neck-band, said side halves being fastened to said yoke or neck-band in such a manner that they overlap each other at the

front and rear and drupe downward, each side half being cut on a long curve from its upper, inner edge to its lower outer edge, so as to produce a bifurcation at the lower part of the shirt.

3. A shirt, composed of two side halves provided with the usual sleeves, and a yoke or neckband, said side halves being fastened to said yoke or neckband in such a manner that they overlap at the front and rear and drupe downward free from each other, one of said side halves being fastened to said yoke or neckband in such a way that it may be detached therefrom for the purpose of putting on or taking off the shirt, and each of said side halves being cut on a long curve from its upper, inner edge to its lower, outer edge so as to produce a bifurcation at the lower portion of the shirt.

697,824. MACHINES FOR SHEARING AND CLIPPING WOOL OR HAIR. WILLIAM H. HYMAN, Sydney, New South Wales, Australia, assignor to Hyman and Bell, Limited, Sheffield, England, a Corporation of England. Filed Apr. 15, 1901. Serial No. 69,493. (No model.)



Claim.—1. In combination for a sheep-shearing apparatus, a rocker-bar and a rocker-tension-spring having cross-head pins and passing through the rocker-bar, said rocker-bar having a U-shaped frame constructed in the top thereof to receive the cross-head pins and means for adjusting the spring, substantially as described.

2. In combination, the rocker-bar, the tension-spring passing through the same and having laterally extending pins resting on the top edges of the rocker-bar, the cutters and the roller-bearing for the rear end of the rocker-bar, said spring having a bearing above and below in the frame, substantially as described.

3. In combination in a sheep-shearing machine, a casing, a rocker-bar, a dust-escape of flexible material and suitable means for securing it to the front end of the casing and rocker-bar, substantially as described.

4. In combination with the cutters, a fork to press said cutters together and fast or points inserted in the lower face of the fork and bearing upon the upper cutter, substantially as described.

697,825. WURMERY MILK-WARMER AND NIGHT-LAMP. JAMES H. FINE, Malone, N. Y. Filed July 27, 1901. Serial No. 69,576. (No model.)



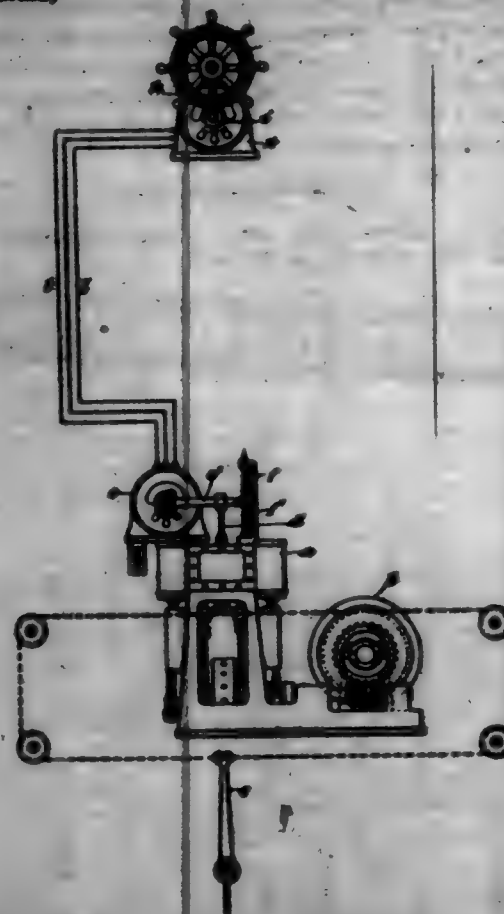
Claim.—1. In a wormery milk-warmer and night-lamp, an outer vessel for liquid, an inverted inner vessel constituting a bottom for said outer vessel and forming therewith a space for the liquid, the adjacent walls of said vessels being cut away on each side of the said space to form an opening, a substantially horizontal tube or casing connecting said walls at the cut-away portions, a ground-glass window in said tube or casing, an electric lamp within the inner vessel having its main light-giving portion opposite the window, and a bottom plug fitted closely and supported frictionally within the lower end of the inner vessel for holding the lamp in position, said plug being fitted with a non-conductor of heat.

2. In a wormery milk-warmer and night-lamp, an outer vessel for liquid, an inverted inner vessel constituting a bottom for the outer vessel and forming therewith a heating-space for the liquid, the adjacent walls of said vessels being cut away on each side of the said space to form an opening, a substantially horizontal tube or casing connecting said walls at the cut-away portions, a bottom plug fitted closely within the lower end of the inner vessel and an electric lamp within the inner vessel, said lamp being supported by the bottom plug and having its main light-giving portion opposite the tube or casing.

3. In a device of the character described, an outer vessel for liquid, an inverted inner vessel constituting a bottom for the outer vessel and forming therewith a heating-space for the liquid, the adjacent walls of said vessels being cut away on each side of the said space to form an opening, a substantially horizontal tube or casing connecting said walls at the cut-away portions, a double-convex ground-glass window in said tube or casing, an electric lamp within said inner vessel for heating the liquid and emitting a light through said window, the main light-giving portion of the lamp being opposite the window, and a bottom plug fitting the mouth of the inner vessel and holding the lamp in position.

4. In a device of the character described, an outer vessel for liquid, a cover for said vessel, an inverted inner vessel constituting a bottom for the outer vessel and forming therewith a heating-space for the liquid, the adjacent walls of said vessel being cut away on each side of the said space to form an opening, a substantially horizontal tube or casing connecting said walls at the cut-away portions, a double-convex ground-glass window in said tube or casing, an electric lamp within said inner vessel for heating the liquid and emitting a light through said window, the main light-giving portion of the lamp being opposite the window, a bottom plug fitting the mouth of the inner vessel and holding the lamp in position, said plug being substantially a non-conductor of heat, means connected with the outer vessel near its top for hanging up the device, and means connected with said outer vessel near its bottom for preventing the same from rocking.

697,826. ELECTRICAL SHEDDING APPARATUS FOR SHEEP. BRADLEY A. FINE, U. S. Navy, assignor to Western Electric Company, a Corporation of Chicago, Ill. Filed Oct. 17, 1900. Serial No. 26,226. (No model.)



Claim.—1. In an electrically-controlled shearing apparatus, the combination with a beam, of an electric motor device and mechanism associated therewith for moving the beam, a hand steering-wheel, and a generator of electricity having an armature or rotor adapted to be turned by said steering-wheel, and connected with the motor device, whereby the beam may be controlled by moving said steering-wheel, substantially as set forth.

2. In an electrically-controlled shearing apparatus, the combination with a beam and an engine for operating the same, of an electric motor device controlling the engine, and a generator of electricity having an ar-

ature or rotor adapted to be turned by hand, said generator being electrically connected with said motor device, whereby the beam may be moved in one side or the other by turning the armature or rotor of the generator in a corresponding direction, substantially as described.

3. In an electrically-controlled shearing apparatus, the combination with a beam and a steering-engine for moving the same, of a reversing-valve for the engine, a polyphase-current induction-motor for moving the reversing-valve and for controlling the engine, a hand steering-wheel, and a generator of polyphase currents geared to said steering-wheel and connected with the said induction-motor, substantially as set forth.

4. In an electrically-controlled shearing apparatus, the combination with a beam and an engine for operating the same, said engine having a reversing-valve, whereby it may be controlled, said valve being adapted to be moved in either direction to cause the engine to run correspondingly, the valve being normally maintained in a central position to keep the engine at rest, of an induction-motor adapted, under the influence of polyphase currents transmitted thereto, to open the valve in one direction or the other, and a generator of polyphase currents connected with said motor, said generator being adapted to be manually operated, whereby the beam may be moved in one side or the other by turning the generator, substantially as described.

5. In an electrically-controlled shearing apparatus, the combination with a beam and a steering-engine adapted to operate the same, said engine having a reversing-valve whereby it may be controlled, said valve being adapted to be moved in either direction to cause the engine to run in one direction or the other, according to the direction of such movement, the valve being normally maintained in a central position to keep the engine at rest, of an electric motor device adapted to move said valve in either direction, according to the character of current supplied to it, and a generator of electricity connected with said motor device and adapted to be operated manually to supply current of suitable character to operate said motor device in either direction, whereby the engine may be caused to move the beam in one side or the other by manually operating the generator in a corresponding manner, substantially as set forth.

697,827. JOINING FLANGES FOR TIE-ROPS. BENJAMIN FLEISS, Schwanau, Germany, assignor of one-half to Franz Engel, doing business under the firm-name of Engel & Green, Bremen, Germany. Filed Nov. 12, 1901. Serial No. 69,690. (No model.)



Claim.—1. In a coupling the combination with joining-flanges on the parts to be coupled shearing against each other, one of said flanges having radial slots, of tappets reversibly moved in said slots and pressing-curves mounted in said tappets in position to engage the other flange, substantially as described.

2. In a coupling the combination with joining-flanges on the parts to be coupled shearing against each other, one of said flanges having radial slots, of tappets reversibly guided in said slots, pressing-curves mounted in said tappets in position to engage the other flange and means for simultaneously moving all said tappets toward and from the center, substantially as described.

3. In a coupling the combination with joining-flanges on the parts to be coupled shearing against each other, one of said flanges having radial slots, of tappets reversibly guided in said slots, pressing-curves mounted in said tappets in position to engage the other flange and means for simultaneously moving all said tappets toward and from the center comprising a disk having a plurality of spiral grooves to receive tappets or projections from the tappets, substantially as described.

697,828. TIE-ROD JOINT. FRANK L. FOWLER, Philadelphia, Pa. Assignor of two-thirds to Theodore A. Royal, Jr., and Harold Kottler, Philadelphia, Pa. Filed July 11, 1901. Serial No. 67,327. (No model.)

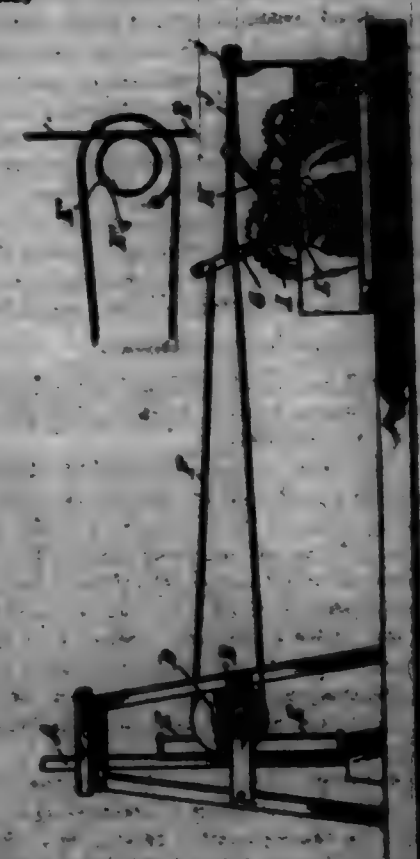
Claim.—1. In a tie-rod joint, formed in sections, one of which is secured to a rod and the other carrying the tie-rod wheel, a pin rigidly secured to one section and reversibly connected to the other section whereby one section can turn with respect to the other section, said sections comprising a disk of said section, each spring having one end secured to the section and the other end secured to the other section.

2. In a tie-rod joint formed in sections, a pin rigidly secured to one section, means for reversibly securing said pin to the other section and serving as an axis therefor, pins secured to said sections and springs coiled in opposite directions connected with said sections for holding the parts in normal position.



3. In a tie-rod joint formed in sections, a pin rigidly secured to one section, a head on said pin with a reduced neck connecting the same and forming a recess around said pin, and a bolt seated in said recess and connected with the other section, whereby said pin serves as an axis for said section and connects the same together.

697,829. CONVERTING MOTION. GEORGE H. FRALBY and GEORGE F. HALL, Alma, Mich. Filed Jan. 14, 1902. Serial No. 69,577. (No model.)



Claim.—1. The apparatus for converting motion, substantially as herein described, consisting of the reversing rod, a drum, a cord connected between the drum and the rod whereby the rod as it is depressed will revolve said drum, a spiral drum in connection with said first drum and transmitting therewith, a main shaft-wheel, a gear, a spring

connection between the gear and the ratchet-wheel, pivoted pawl-lever provided with pawls engaging said main ratchet, a cable connecting said lever, a guide for said cable, and cable connections between each of said levers and the second drum all substantially as set forth for the purpose set forth.

2. In an apparatus substantially as described the combination with a main ratchet-wheel and the pawl-lever provided with pawls and operating thereon, of means for operating said lever, a device arranged for operation by the main ratchet-wheel, and a spring connection between said device and the main ratchet-wheel substantially as set forth.

3. The combination of the reciprocating rod, the drum adjacent thereto, the cord connection between the drum and rod whereby the rod may oscillate the drum, a second drum in connection with the first drum, the main ratchet-wheel, the lever having pawls operating upon said ratchet-wheel, and cable connections between said levers and the second drum substantially as set forth.

4. The combination with the main ratchet-wheel of pawls operating upon the said wheel, lever device carrying said pawls, the reciprocating rod, and intermediate devices between said rod and the lever device substantially as set forth.

697,880. APPARATUS FOR MEASURING AND DRAWING LINES. HENRY FRANK, London, England. Filed Aug. 26, 1901. Serial No. 73,334. (No model.)



Claim.—1. In a device of the class described, a vessel having primary and secondary compartments in communication, a conduit communicating with the primary compartment and arranged to communicate with a suitable receptacle, a second conduit, connected with the secondary compartment, and a tube having an end in the primary compartment, and the other end arranged to be connected with said receptacle, and the primary compartment having air-venting means.

2. In a device of the class described, a vessel having communicating primary and secondary compartments, a conduit communicating with the primary compartment and arranged to communicate with a suitable receptacle, a second conduit, communicating with the secondary compartment, and a tube passing through the first conduit and having one end in the primary compartment, said tube being also arranged to communicate with said vessel, and said primary compartment having air-venting means.

3. In a device of the class described, a vessel, an inclined partition dividing said vessel into a plurality of superposed communicating compartments the upper compartment having an air-vent, a conduit connected with the lower compartment, a second conduit connected with the upper compartment, and a drawing-tube having an end in the upper compartment, the opposite end of said tube and the lower end of the second conduit being arranged for communication with a suitable receptacle.

697,881. METHOD OF RECOVERING METALS BY ELECTROLYSIS. HENRY FRANK, London, Canada. Filed Dec. 1, 1901. Serial No. 68,254. (No specimens.)

Claim.—1. The process of recovering metals by electrolysis, which consists in electrolyzing a double salt of ammonium and metals whose hydrides are soluble in ammonium, in presence of a suitable anode and an anode electrolyte (anolyte) containing metals different from the one contained in the cathode electrolyte (catholyte) but free from ammonium.

2. The method of electrolyzing a double salt of ammonium and metals whose hydrides are soluble in ammonium, consisting of electrolyzing a solution of an ammonium double salt containing metal in presence of an anode capable of combining with the acid or halogen radicals contained in the ammonium double salt, and having constituents different from the contents of the catholyte.

3. The method of recovering ammonium from an electrolyte composed of an ammonium double salt, consisting in electrolyzing a solution of an ammonium double salt containing metal in presence of a suitable anode, and an anode capable of binding the acid or halogen radical of the ammonium salt, the cathode and anode being separated by a suitable diaphragm, depositing the metal contained in the solution upon the cathode, and binding the acid or halogen radical to the substance of the anode, keeping the ammonium in solution in the cathode electrolyte.

4. The method of recovering nickel from a nickel-ammonium salt,

consisting in supplying an electrolytic bath with an anode composed of a metal-bearing substance in a concentrated form, covering it with a chemically and electrically inert permeable substance above which suitable cathodes are arranged, supplying the anode with a solution capable of dissolving the metallic salts therefrom, applying the cathode with a solution of the nickel-ammonium salt, subjecting it to an electric current, depositing the nickel upon the cathodes and displacing the metallic solution at the anode by a fresh supply of solvent, keeping the ammonium in solution in the cathode electrolyte.



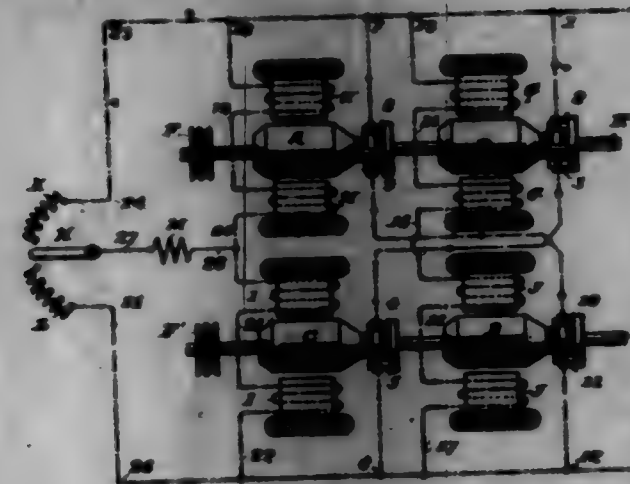
5. The process of recovering nickel by electrolysis, which consists in supplying a cathode with a solution of nickel-ammonium chloride containing an excess of ammonium, and supplying a suitable anode consisting of different metals with a solution of sodium chloride, separating the two solutions by means of a permeable diaphragm, and by means of an electric current precipitating the nickel in metallic form upon the cathode, and forming at the anode a solution of the chloride of the various metals contained in the anode, substantially as described.

6. The process of recovering nickel by electrolysis, which consists in supplying a cathode with a solution of nickel-ammonium chloride containing an excess of ammonium, and supplying a suitable anode consisting of different metals with a solution of sodium chloride, separating the two solutions by means of a horizontal permeable diaphragm, and by means of an electric current precipitating the nickel in metallic form upon the cathode, forming at the anode a solution of the chloride of the various metals contained in the anode, and displacing the chloride solution from below the diaphragm by addition of fresh sodium-chloride solution.

7. The process of recovering nickel by electrolysis, which consists in supplying a cathode with a solution of nickel-ammonium chloride containing an excess of ammonium, and supplying a suitable anode consisting of different metals with a solution of sodium chloride, separating the two solutions by means of a horizontal permeable diaphragm, and by means of an electric current precipitating the nickel in metallic form upon the cathode, forming at the anode a solution of the chloride of the various metals contained in the anode, displacing the chloride solution from below the diaphragm by addition of fresh sodium-chloride solution, and further electrolyzing the cathode solution until the last trace of nickel has been removed.

8. The process of recovering nickel by electrolysis, which consists in supplying a cathode with a solution of nickel-ammonium chloride containing an excess of ammonium, and supplying a suitable anode consisting of different metals with a solution of sodium chloride, separating the two solutions by means of a horizontal permeable diaphragm, and by means of an electric current precipitating the nickel in metallic form upon the cathode, forming at the anode a solution of the chloride of the various metals contained in the anode, displacing the chloride solution from below the diaphragm by addition of fresh sodium-chloride solution, and further electrolyzing the cathode solution until the last trace of nickel has been removed from the cathode electrolyte, and adding the remaining solution of free ammonium for the production of fresh nickel-ammonium chloride.

697,882. ELECTRIC TRANSMISSION OF POWER. ROBERT H. FRANK, Toronto, E. T., assignor to the Niagara Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 4, 1900. Serial No. 15,514. (No model.)



Claim.—1. The combination with a source of electric supply, of a plurality of sets of motor, the armatures of a motor of each set being connected in series, the field of each motor of one set being separately connected in series with the field of a motor of another set, and means for varying the field of one of the motors, substantially as described.

2. The combination with a source of electric supply, of a plurality of sets of motor, the armatures of each set being mechanically connected, the armatures of a motor of each set being connected in series, the field of a motor of each set being connected in series, and means for varying the field of one of the motors, substantially as described.

3. The combination with a source of electric supply, of two sets of motor, the armatures of each set being connected to a single circuit, each of the armatures of one set being connected in series with an armature of the other set, each of the fields of each set being connected in series with a field of the other set, and means for varying the field of one of the motors, substantially as described.

4. The combination with the leading conductors of a source of electric supply, of parallel circuits between said leading conductors, a plurality of sets of motor, the armatures of which sets are mechanically connected, each parallel circuit including a motor element of each set in series, and means for varying the current flowing through the motors, substantially as described.

5. The combination with a source of electric supply, of two sets of motor, the armatures of each set being mechanically connected, the armatures of a motor of each set being connected in series, the field of a motor of each set being connected in series, a circuit around the field of one of the motors, substantially as described.

6. The combination with a source of electric supply, of two sets of motor, the armatures of each set being mechanically connected, the armatures of a motor of each set being connected in series, the field of a motor of each set being connected in series, a circuit around the field of one of the motors including a variable resistance, and a permanent resistance also included in the circuit, substantially as described.

7. The combination with two sets of motor adapted to normally run at the same speed, of means for varying the field of one of the motors, and circuits and connections between the motors whereby one set of motors will speed up and the other set of motors will speed down, substantially as described.

8. The combination with two sets of motor adapted to normally run at the same speed, the armatures of each set being mechanically connected, of means for varying the field of one of the motors, and circuits and connections between the motors whereby one set of motors will speed up and the other set of armatures will speed down, substantially as described.

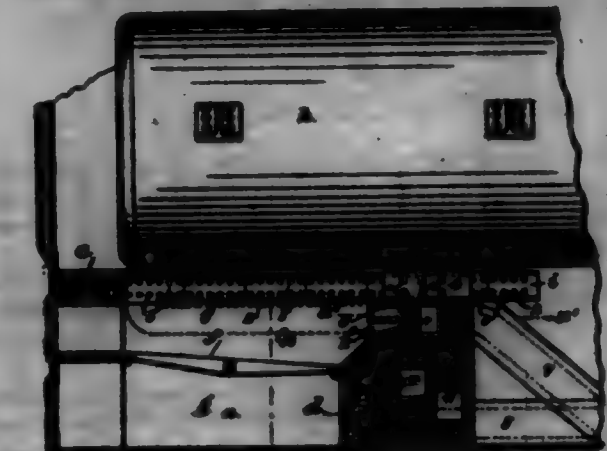
9. The combination with two sets of motor adapted to normally run at the same speed, the armatures of a motor of each set being connected in series, and the field of a motor of each set being connected in series, of means for varying the current of one only of the motors, and circuits and connections whereby the rate of speed between the sets of motors will be varied, substantially as described.

10. The combination with two sets of motor adapted to normally run at the same speed, the armatures of each set of motor being mechanically connected, and the fields and armatures of one set of motor being electrically connected in series, with the fields and armatures respectively of the other set of motor, of means for varying the field of one of the motors, substantially as described.

11. The combination with a source of electric supply, of a plurality of sets of motor, and circuits and connections whereby varying the ar-

rest to one motor only of one set will vary the speed of the other set of motors, substantially as described.

697,883. FURNACE. GEORGE R. GALLAGHER, New York, N. Y., assignor, by direct and mesne assignments, to the Rumney Furnace Company, New York, N. Y., a Corporation of New Jersey. Filed July 18, 1901. Serial No. 65,761. (No model.)



Claim.—1. The combination in a furnace adapted for the consumption of smoke and gases, with the side walls and the bridge-wall, of a series of ribs built into the side walls in a continuous line each the carrying in the structure a flue or opening through the back portion and parallel openings connecting the flue with the flue of the rib, said openings or flues, when the ribs are set up, forming a continuous passage-way through the side walls and the said parallel openings forming passage-ways for the delivery of the air of the flues into the combustion-chamber of the furnace, and air-flues communicating with the flues of the side walls and the flue of the bridge-wall from the rear of the furnace and exposed for the purpose of heating the air therein, substantially as set forth.

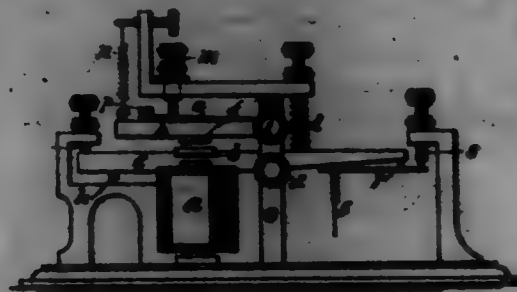
2. The combination in a furnace adapted for the consumption of smoke and gases with the side walls and the bridge-wall and flues in the side walls and delivery-openings therefrom, of a series of ribs set into the flue of the bridge-wall toward the fire-chamber, the ribs being ribs and each having an open-ended transverse flue or opening, an intake-opening and a discharge-opening communicating with one another and the discharge-opening communicating with the flue, and the flues, when the ribs are set together, forming a complete passage-way across the bridge-wall, substantially as set forth.

3. The combination in a furnace adapted for the consumption of smoke and gases, with the side walls and the bridge-wall and flues in the side walls and delivery-openings therefrom, of a series of ribs set into the flue of the bridge-wall toward the fire-chamber, the ribs being ribs and each having an open-ended transverse flue or opening, an intake-opening and a discharge-opening communicating with one another and the flues, when the ribs are set together, forming a complete passage-way across the bridge-wall, and a bridge-wall extension of tapering form and hollow, rising from the top of the bridge-wall slightly toward the rear surface of the boiler, and a flue extending forward from the back of the furnace and communicating with the flue in the ribs of the ribs, in the bridge-wall and with the flue in the bridge-wall extension, substantially as set forth.

4. The combination in a furnace adapted for the consumption of smoke and gases, with the side walls, of series of ribs set into the side walls and forming thereby continuous rows along the combustion-chamber, each rib having an open-ended flue and parallel rows of circular openings at right angles to the said flue and forming said passage-ways for the air from said flue into the combustion-chamber, the said ribs, when the ribs are set up, forming a continuous passage-way through the side walls, inclined crossing flues in the bridge-wall communicating at the ends with the flues in the ribs of the side walls, and air-flues communicating therewith from the rear of the furnace and exposed for the purpose of heating the air therein, substantially as set forth.

5. The combination in a furnace adapted for the consumption of smoke and gases with the side and front walls and the bridge-wall, of a series of ribs set into the side wall each having openings through the ribs and said openings collectively forming a continuous passage through the side wall and each rib having parallel rows of openings through the ribs communicating with the said ribs and opening into the combustion-chamber, a flue in the side wall beneath and parallel with the said ribs of ribs, a flue at the forward end of the furnace connecting the flue of the ribs of ribs and the parallel flue beneath the ribs, a flue through the bridge-wall communicating with the latter flue in the side wall and a flue extending rearward therefrom, substantially as set forth.

697,884. CIRCUIT-CONTROLLER. JOHN J. GUNN, Newark, N. J. Filed Aug. 20, 1891. Serial No. 73,002. (No model.)



Claim.—1. A compound circuit-controller comprising an electromagnet and its armature, with a second armature actuated by the magnetism induced in the regular armature, and a plurality of "make-and-break" points controlled by said armature.

2. A compound circuit-controller comprising an electromagnet and its armature, with a second armature actuated by the magnetism induced in the regular armature, the said armature being provided with contact-points.

3. In a compound circuit-controller, the combination of a plurality of circuit-controlling contacts, with a series of three or more parts of magnetic material adapted to contact said contacts, and a source of electric current adapted to induce magnetism in one of said parts, the said series being so arranged that magnetism induced in one of said parts will, in turn, induce magnetism in the second, and so on throughout the series.

4. A compound circuit-controller comprising an electromagnet and its armature, a second armature actuated by the magnetism induced in the regular armature, and a plurality of "make-and-break" points controlled by the said armature at different times for each make or break in the circuit of the electromagnet.

5. The combination of two compound circuit-controllers each comprising an electromagnet provided with two armatures actuated thereby, with two circuits each including the coils of one of said magnets, and a short-circuit for each of said magnets, the short-circuit of one magnet being controlled by one of the armatures of the other magnet.

6. The combination of two compound circuit-controllers each comprising an electromagnet provided with two armatures actuated thereby, with two circuits each including the coils of one of said magnets, two relays, each controlling one of said circuits, and a short-circuit for each of said magnets, the short-circuit of one magnet being controlled by one of the armatures of the other magnet.

7. The combination of two compound circuit-controllers each comprising an electromagnet provided with two armatures actuated thereby, with two circuits each including the coils of one of said magnets, two relays, each controlling one of said circuits, a short-circuit for each of said magnets, the short-circuit of one magnet being controlled by one of the armatures of the other magnet, and two more circuits each including one of the said relays and controlled by the other armature of one of the magnets.

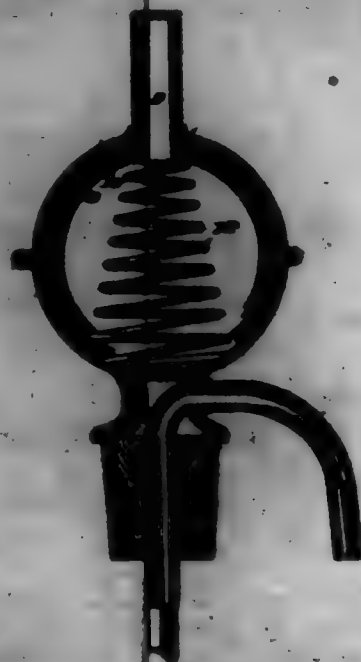
8. The combination of two circuit-controllers each comprising an electromagnet provided with two armatures actuated thereby, with two circuits each including the coils of one of the said magnets, two relays each controlling one of said circuits, a short-circuit for each of said magnets, the short-circuit of one magnet being controlled by the second armature of the other magnet, two more circuits each including one of said relays and controlled by the first armature of the magnet whose circuit is controlled by the other relay, and means for adjusting the said armatures of each controller to first close the short-circuit of the other controller and then open the circuit of the relay controlling the first-named circuit of said other controller at one station of the controller-magnet, and at the other station thereof to first close the last-named relay-circuit and then open said short-circuit of the other controller.

697,885. SPRING-PUMP. GIOVANNI GONZALE, Boston, U.S.A.; J. F. LEE, Boston, and DAN FROST, Boston, Mass. Filed Nov. 12, 1891. Serial No. 82,811. (No model.)

Claim.—1. A spring-pump comprising a suitable hollow plug, a fluid-tight pipe passing through said plug, said pipe being of smaller diameter than the lower diameter of the plug, which forms a passage, a handpiece of spherical formation above the plug, said handpiece being formed in sections, a flexible valve in the handpiece, a perforated plug projecting through the spherical handpiece and connected to the valve, and a spring under the valve, substantially as described.

2. A spring-pump comprising a suitable hollow plug, a pipe passing through the plug, a handpiece or sphere extending from the plug and made in two sections, a flexible valve interposed between the meeting ends of the sections and clamped thereby, a spring to normally open the

valve, and a hollow piston fitting the valve and guided through the hand-piece, substantially as described.



3. A spring-pump comprising a plug, an exit-tube, a hollow hand-piece extending from the plug, said handpiece being formed in sections, each section having a flange, a flexible valve in the handpiece which is fastened between the flanges of the sections, a perforated projection secured to the valve and extending from the handpiece, and a spring to normally force the projection outwardly, substantially as described.

697,886. SCREW-DRIVER. JOHN A. GUNN, Hartford, Conn. Filed July 20, 1891. Serial No. 73,122. (No model.)



Claim.—1. As an article of manufacture, a screw-driver provided with a tapering blade, strengthening-rib extending longitudinally along the edge of the blade, the blade being of greater thickness at its edges than intermediate thereof on account of the presence of the rib.

2. As an article of manufacture, a screw-driver provided with a tapering blade, strengthening-rib extending longitudinally along the edge of the blade, the ribs diverging from one another as they approach the point of the blade of the screw-driver, the blade being of greater thickness at its edges than intermediate thereof on account of the presence of the rib.

3. A screw-driver consisting of a shaft, the lower portion of the shaft formed into a blade, strengthening-rib extending longitudinally along the edge of the blade, the ends of the rib extending below the point of the screw-driver, the point of the screw-driver being narrower than the breadth of the rib.

4. A screw-driver consisting of a blade, longitudinal strengthening-rib formed on the edge of the blade, the ribs diverging from each other as they approach the point of the screw-driver, the ends of the ribs extending below the point of the screw-driver and being oppositely beveled at their extreme ends.

5. A screw-driver consisting of a blade, the diameter of which gradually increases as it approaches the point, ribs formed on the gradually-diverging edges of the blade, the ribs provided with ends projecting beyond the point of the blade, the ends of the ribs adapted to enhance the sides of the screw-head and prevent the point of the screw-driver from slipping outwards in the slot in the screw-head.

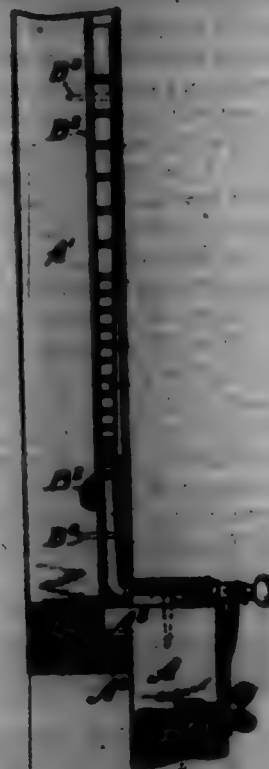
697,887. RASH-LOCK. HENRIETTA E. GUNN, Boston, U.S.A. Filed Nov. 25, 1891. Serial No. 82,825. (No model.)

Claim.—1. A rash-lock comprising a ratchet secured to one end, a dog pivotedly mounted upon a parallel end, a handle for normally holding said dog by gravity in engagement with said ratchet, and a check pivoted to said handle to limit the upward movement thereof, substantially as specified.

2. A rash-lock comprising a ratchet secured to one end, a dog pivotedly mounted upon a parallel end, a handle for normally holding said dog by gravity in engagement with said ratchet, and a tapering lip adapted to engage said dog at one side of said ratchet for drawing the ratchet together.

3. A rash-lock comprising a ratchet secured to one end, a dog carried by a calibrating end and provided with a pivoting-shaft and a weighted handle extending laterally therefrom beyond the end to which

it is secured, a bearing for said shaft, rollers on said shaft at opposite ends of said bearing, and means for holding said dog in or out of engagement with said ratchet, substantially as specified.



4. A rash-lock comprising a ratchet secured to one end, a dog provided with pivoting-shaft and a handle extending laterally therefrom, a bearing for said shaft carried by a calibrating end, rollers on said shaft at opposite ends of said bearing, means for normally holding said dog in engagement with said ratchet, a check pivoted at its upper end to said handle and provided with a slotted lower end, and a securing device passing through said slot into said end, substantially as specified.

5. A rash-lock comprising a dog provided with a pivoting-shaft and a handle extending laterally therefrom beyond the end to which it is secured, a bearing for said shaft, rollers on said shaft at opposite ends of said bearing, a check pivoted at its upper end to said handle and provided with a slotted lower end, and a securing device passing through said slot into said end, and a series of notches carried by a calibrating end and decreasing in length from the upper end downwardly, substantially as specified.

6. A rash-lock comprising a ratchet secured to one end and having a series of teeth decreasing in length from the upper end downwardly, a dog provided with a pivoting-shaft and a handle extending laterally therefrom, a bearing for said shaft carried by a calibrating end, rollers on said shaft at opposite ends of said bearing, means for normally holding said dog in engagement with said ratchet, a check pivoted at its upper end to said handle and provided with a slotted lower end, and a securing device passing through said slot into said end, and a tapering lip at one side of said dog and ratchet increasing in width from the upper end downwardly, substantially as specified.

7. A rash-lock comprising a body having a series of teeth decreasing in length from the upper end downwardly, means for carrying said ratchet to a end and a tapering lip at one side of said teeth increasing in width from the upper end downwardly, substantially as specified.

8. A rash-lock for a rash-lock having a series of teeth decreasing in length from the upper end downwardly, a lip at one side of said teeth having parallel vertical walls and increasing in width from the upper end downwardly, substantially as specified.

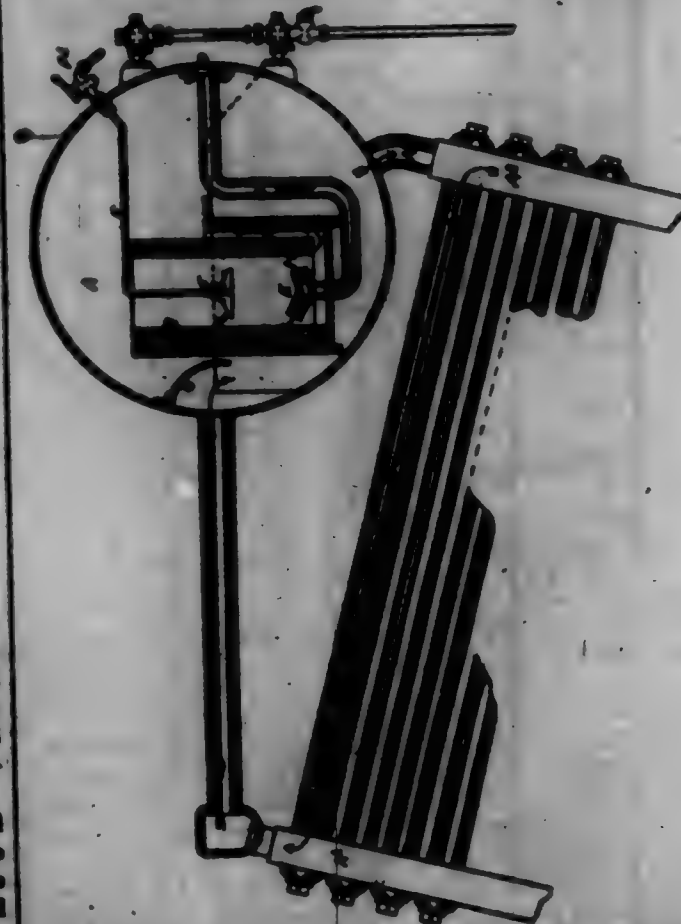
9. In a rash-lock, the combination with an upper end, of a ratchet secured to the face of a side thereof, a lip at one side of said ratchet having a straight outer wall and an inclined inner wall, a lower end provided with a lip having a notch in which said ratchet-lip fits, and a locking-dog carried by the lower end and having a handle extended beyond the end, substantially as specified.

10. In a rash-lock, the combination with an upper end, of a ratchet having teeth decreasing in length downwardly from the top thereof secured to the face of a side thereof, a lip or flange at one side of said ratchet, a locking-dog carried by the lower end and having a handle extended beyond the end, and a bearing-plate for said locking-dog having projecting legs on opposite sides of said ratchet-lip, substantially as specified.

11. In a rash-lock, the combination with an upper end, of a ratchet secured to the face of a side thereof, a lower end provided with a lip having a notch in which said ratchet-lip fits, a locking-dog carried by the

lower end, and a bearing-plate for said locking-dog having projecting legs on opposite sides of the notch in said lip; a handle for said dog, a check secured to said handle and means for clamping said check to the end for retaining the dog in or out of engagement with said ratchet, substantially as specified.

697,888. APPARATUS FOR PURIFYING WATER FOR STEAM GENERATORS. ALEXANDER GRAY, Newcastle-upon-Tyne, England, assignor of one-half to THOMAS THOMPSON, Blackheath, England. Filed Sept. 12, 1891. Serial No. 73,145. (No model.)



Claim.—1. In a feed-water purifier, the combination of a vessel, a feed-water inlet at the bottom thereof, a blow-off pipe opening into the upper portion of said vessel, said vessel having an opening at the top communicating with the steam-space of the boiler, and a water-outlet at said vessel for delivering the feed-water to the boiler.

2. In a feed-water purifier, the combination of a vessel, a feed-water inlet at the bottom thereof, said vessel being adapted to be partially submerged in the boiler, an opening in said vessel communicating with the steam-space of the boiler, a feed-water outlet, and a blow-off outlet depending into said vessel below the water-line thereof.

3. In a feed-water purifier, the combination of a vessel, a feed-water inlet, a feed-water outlet entering the bottom of said vessel, a passage adapted to form communication between said vessel and the steam-space of a boiler, radially-disposed needles connected to said feed-water inlet, and a blow-off pipe depending into said vessel.

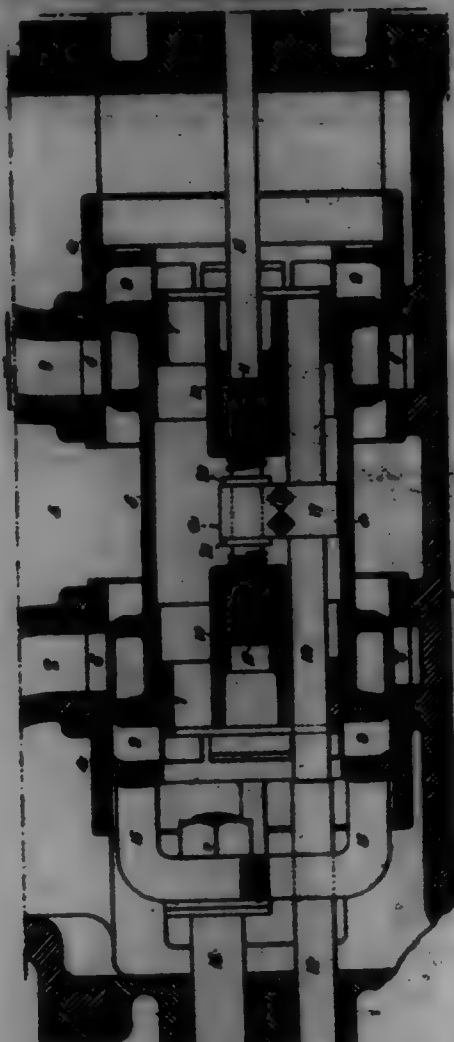
4. In a feed-water purifier, the combination of a vessel, a casing upon the outside of said vessel, a feed-water inlet passing through said casing and entering the bottom of said vessel, radially-disposed needles connected to said feed-water inlet, a passage adapted to form communication between said vessel and the steam-space of a boiler, and a blow-off pipe having its opening in the upper part of said vessel adapted to carry off the steam and other impurities.

5. In a feed-water purifier, the combination with a boiler, of a casing in communication with the water-space within the boiler, a vessel connected to said casing, in communication with the steam-chamber of the boiler, a feed-water pipe entering the bottom of said vessel, and a blow-off pipe having its opening in the upper part of said vessel adapted to carry off the steam from the feed-water, substantially as described.

6. An apparatus for purifying feed-water and flowing the air therefrom in steam-generators in which the feed-water of condensed steam entering the boiler passes into the apparatus comprising in combination a vessel partly submerged below the water-level and partly rising into the steam-space, with an open top and a closed bottom, through which is inserted an internal pipe connected with the feed-pipe fitted with a needle by which the impure water has a whirling agitation imparted to it, causing the oil, grease or other impurities, to be deposited upon the surface of the water in the purifier and prevented from rising with the rest of

the boiler-water, and a connecting-pipe for blowing off said deposit; substantially as described.

697,889. CUT-OFF VALVE MECHANISM. JOHN HARR, Philadelphia, Pa. Filed Jan. 20, 1899. Serial No. 99,961. (No model.)

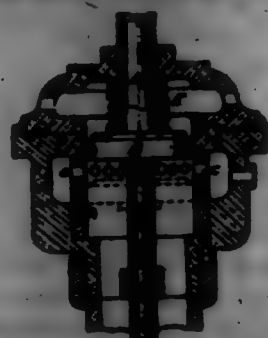


Claim.—1. The combination of the tubular main valve, the duplex internal cut-off valve and the screw for adjusting the same, with the cut-off valve stem located on the inside of the main valve, substantially as specified.

2. The combination of the tubular main valve, the duplex internal cut-off valve and the adjusting-screw, with the cut-off valve stem located on the inside of the main valve and having connection with the adjusting-screw of the cut-off valve at a point between the two members of said valve, substantially as specified.

3. The combination of the tubular main valve, the duplex cut-off valve contained therein and the adjusting-screw for said valve having collar thereon at a point between the two members of the valve, the cut-off valve stem located on the inside of the main valve, and a two-part clamp engaging said stem and embracing the adjusting-screw between the collars of the same, substantially as specified.

697,840. CONSTRUCTION AND APPLICATION OF PISTON-VALVE. JAMES H. R. HARR, South Shields, England. Filed Apr. 20, 1899. Serial No. 97,998. (No model.)



Claim.—1. In a valve mechanism, the combination with a perforated cylinder provided with an inlet and outlet for fluid under pressure, of a piston provided with a cupped packing-ring, a perforated cupped washer fitting in said packing-ring for admitting pressure behind said packing-ring, the said packing-ring having its free edge level with the top edge of the perforated washer to prevent backing of the packing-

ring when passing the perforations in said cylinder, and means for operating said piston for controlling the delivery of fluid under pressure through the perforations in said cylinder.

2. In a quick-closing valve mechanism, the combination with a supply-pipe, and a check-valve opening from said supply-pipe; of a perforated cylinder arranged in line with said check-valve, a piston in said cylinder adapted to pass over said perforations, a piston-rod extending both ways from said piston, a second cylinder in line with the first cylinder, and a second piston in said second cylinder, connected with the first piston, a spring pressing at one end upon the first piston and at the other end upon said check-valve, and means for admitting fluid under pressure from said supply-pipe to the second cylinder and piston to operate the first piston, substantially as described.

3. In a quick-closing valve mechanism, the combination with a supply-pipe, and a check-valve opening from said supply-pipe; of a perforated cylinder arranged in line with said check-valve, a piston in said cylinder adapted to pass over said perforations, a packing-ring on said piston and means for admitting pressure behind said packing-ring, a piston-rod extending both ways from said piston, a second cylinder in line with the first cylinder, and a second piston in said second cylinder, connected with the first piston, a spring pressing at one end upon the first piston and at the other end upon said check-valve, and means for admitting fluid under pressure from said supply-pipe to the second cylinder and piston to operate the first piston, substantially as described.

697,841. DRAFT-EXHAUSTER. EMERY J. HARRIS, Tompkins, Iowa. Filed Dec. 20, 1899. Serial No. 97,732. (No model.)



Claim.—1. In a draft-exhausing apparatus, the combination with a support, of an over-bar having its inner end pivoted thereto, a draft connection carried by the free end of the over-bar, a swinging member pivoted to an intermediate portion of the over-bar, a brace having to opposite ends secured respectively to the support and the swinging member, and a draw-bar connected intermediate to the free end of the swinging member and projected at opposite sides of the support.

2. In a draft-exhausing apparatus, the combination with a relatively fixed support, of an over-bar having its inner end pivoted to the support and its outer end provided with a draft connection, a horizontally-swinging member having its outer end pivotally connected to the over-bar at a point between the middle and the inner end thereof, a draw-bar connected to the free end of the swinging member and provided with terminal draft connections, and a flexible hose having one end pivotally connected to an intermediate portion of the swinging member and its opposite end connected to the fixed support.

3. The combination with a vehicle having a pole, and a brace extending between one side of the pole and the vehicle, of an over-bar having its inner end pivoted to the pole and having its outer end pivotally connected thereto, a draft connection carried by the free end of the over-bar, a horizontal swinging member having its outer end pivotally connected to the over-bar, a draw-bar connected to the free end of the swinging member and provided with terminal draft connections, and a flexible hose having its forward end pivotally connected to an intermediate portion of the swinging member and its rear end pivotally connected to the brace.

4. A draft-exhausing device, comprising an over-bar having its inner end provided with a pivotal or telescopic connection for application to a support, a draft connection carried by the opposite free end of the bar, a horizontally-swinging member having its outer end pivotally connected to the over-bar at a point between the middle and the inner end thereof, a draft connection carried by the free end of the swinging member, a pivotal hook carried by and projected rearwardly from the swinging member, a flexible-brace connection having one end provided with a detachable connection with the swinging hook, and an attaching bracket

or clamp having a pivotal detachable connection with the other end of the flexible brace.

5. The combination with a vehicle-frame, and the draft-pole thereof, of an over-bar pivotally connected to the pole, a draft connection carried by the outer end of the over-bar, a swinging member pivotally carried by an intermediate portion of the over-bar, a flexible hose having one end connected to the swinging member and its opposite rear end connected to the frame at the opposite side of the pole, whereby the hose inclines transversely across the latter, and a draft connection applied to the free end of the swinging member.

6. In a draft-exhausing apparatus, the combination with a pole, of an over-bar having its inner end pivoted thereto, a draft connection carried by the free end of the over-bar, a swinging member pivoted to an intermediate portion of the over-bar and terminated short of the pole, a brace extending rearwardly from the swinging member and secured to the pole, and a draw-bar pivoted to the free end of the swinging member and projected at opposite sides of the pole.

7. In a draft-exhausing apparatus, the combination with a relatively fixed support, of an over-bar having its inner end pivoted thereto, a draft connection carried by the free end of the over-bar, a swinging member pivoted to an intermediate portion of the over-bar, means fixed to and carried by the support to limit the forward movement of the swinging member, and a draw-bar pivoted to the free end of the swinging member.

697,842. DYNAMITE DETONATING-CAP. ARTHUR R. HOOVER, Philadelphia, Pa. Filed Sept. 10, 1899. Renewed Sept. 7, 1901. Serial No. 74,795. (No model.)



Claim.—1. A cap for cartridges having a plurality of tangs formed about the edge of its open end, some of said tangs being bent to extend inwardly upon the interior of the cap and others bent to extend upon the exterior of the cap, substantially as described.

2. A cap for cartridges having a plurality of tangs formed about its upper edge, some of said tangs being bent and others pointed, the pointed and the bent tangs alternating each other, said bent tangs being bent outwardly to extend at right angles to the cap, and the pointed tangs bent downwardly on the inside of the cap, substantially as set forth.

697,848. MAIN GUN-TURRET. CHARLES E. HOWLAND-SUMNER, Washington, D. C., assignor of one-fourth to George H. Howard, Washington, D. C., and Samuel G. R. Cook, London, England. Filed Dec. 15, 1899. Serial No. 98,571. (No model.)

Claim.—1. Combined in a main turret structure, means for supporting the turret-pit framing and a tubular turret-pit ring superposed upon the tops of said columns, substantially as described.

2. Combined in a main turret structure, columns for supporting the turret-pit framing, a tubular turret-pit ring superposed upon the tops of said columns, and means for securing said ring to said columns, substantially as described.

3. Combined in a main turret structure, columns for supporting the turret-pit framing, concentrically disposed with reference to the axis of revolution of the turret, a tubular turret-pit ring superposed upon the tops of said columns, and means for securing said ring to said columns, substantially as described.

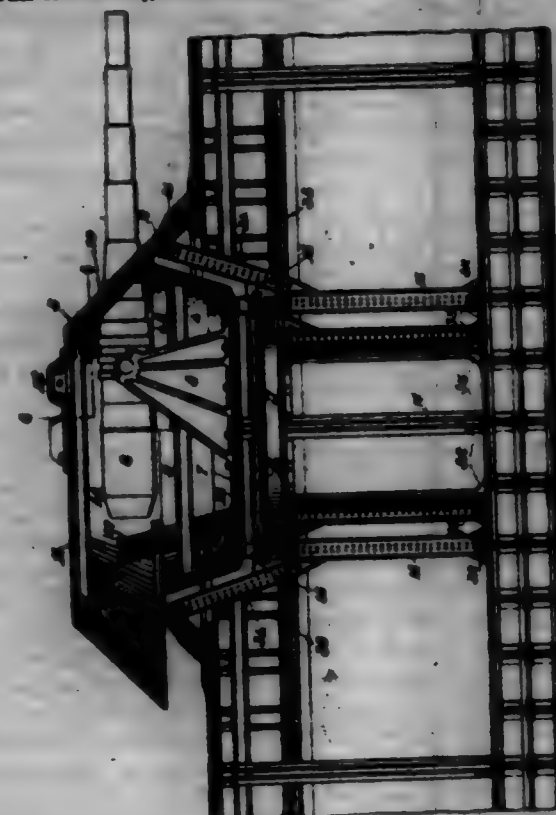
4. Combined in a main turret structure, columns for supporting the turret-pit framing, concentrically disposed with reference to the axis of revolution of the turret, means for securing the bases of said columns to the hull structure, a tubular turret-pit ring superposed upon the tops of said columns, and means for securing said ring to said columns, substantially as described.

5. Combined in a main turret structure, columns for supporting the turret-pit framing, concentrically disposed with reference to the axis of revolution of the turret, means for securing the bases of said columns to the hull structure, a tubular turret-pit ring concentric with the axis of revolution of the turret superposed upon the tops of said columns, and means for securing said ring to said columns, substantially as described.

6. Combined in a main turret structure, a turret-pit ring, and struts rising therefrom for supporting the turret-base, and means for connecting said struts to said ring, substantially as described.

7. Combined in a main turret structure, a turret-pit ring, struts ris-

ing therefrom for supporting the turret-base, and means for connecting said struts to said ring, substantially as described.



8. Combined in a main turret structure, a turret-pit ring, struts rising therefrom for supporting the turret-base, means for connecting said struts to said ring, and means for securing said struts to said base, substantially as described.

9. Combined in a main turret structure, a turret-pit ring concentric with the axis of revolution of the turret, struts radially disposed about the periphery of said ring and rising at an outward point to support the turret-base, means for connecting said struts to said ring, and means for securing said struts to said base, substantially as described.

10. Combined in a main turret structure, a tubular turret-pit ring concentric with the axis of revolution of the turret and having integral radial flanges extending therefrom, columns secured to and supporting said ring at the plan location of said radial flanges, gun-mounts secured to said columns beneath said radial flanges, struts extending outwardly stepped upon said flanges, means for integrating said struts, flanges and gun-mounts, and means for securing said struts to the turret-base, substantially as described.

11. Combined in a main turret structure, a tubular turret-pit ring adapted to serve the double purpose of a gun-bed and a base for the turret-pit framing, tracks superiorly attached to said ring, rolls traveling upon said tracks, and a mount traveling rotarily upon said rolls, substantially as described.

12. Combined in a main turret structure, a turret-pit ring, struts connected to and rising from said ring, and a reaction-ring attached to and integrating said struts, substantially as described.

13. Combined in a main turret structure, a turret-pit ring, struts connected to and rising from said ring, columns secured to and supporting said turret-pit ring and struts, and a reaction-ring attached to and integrating said struts, substantially as described.

14. Combined in a main turret structure, a turret-pit ring, struts connected to and rising from said ring, columns secured to and supporting said turret-pit ring and struts, a reaction-ring attached to and integrating said struts, means for attaching said reaction-ring to the deck-beams of the hull, and means for attaching said struts to the turret-base, substantially as described.

15. Combined in a main turret structure, a turret-pit ring, outwardly-extending struts connected to and rising from the periphery of said ring, a reaction-ring formed as the inverted frustum of a conical shell having an axis coincident with the axis of revolution of the turret, means for integrating said reaction-ring with said struts, and means for securing said reaction-ring to the deck-beams of the hull, substantially as described.

16. Combined in a main turret structure, a turret-pit ring, concentric with the axis of revolution of the turret, outwardly-extending struts connected to and rising from the periphery of said ring, a reaction-ring formed as the inverted frustum of a conical shell having an axis coincident with the axis of revolution of the turret, means for integrating said reaction-ring with said struts, means for securing said reaction-ring to the deck-beams of the hull, and means for securing the tops of said struts to the inwardly-inclining, conical turret-base, substantially as described.

17. In a main turret structure, a united three-part or trisectional turret proper, consisting of two end, erect conical casements, and a central erect pyramidal frustum, combined with a subjacent mount secured thereto, substantially as described.

18. In a main turret structure, a united three-part or trisectional turret proper, the same consisting of two end, erect conical casements, and an intermediate erect pyramidal frustum, combined with an attached inverted conical frustum composing the subjacent mount, substantially as described.

19. Combined in a main turret structure, an erect superior conical casement composing the front of the turret proper; an erect pyramidal frustum tangentially secured to said front conical casement; an erect superior conical casement composing the rear of the turret proper, and tangentially attached to the rear of said pyramidal frustum; and an attached inverted inferior conical frustum composing the subjacent mount, substantially as described.

20. A main turret structure comprising the following elements in combination, to wit: an erect conical casement composing the rear of the turret proper; an intermediate pyramidal frustum composing the central part of the turret proper, and secured to the two part of the said frustum element; an erect conical casement composing the front of the turret proper and secured to the two part of said second-named element; and an inverted conical frustum composing the subjacent mount, and secured to an element of the turret proper, substantially as described.

21. Combined in a main turret structure, two end, erect superior conical casements; a pyramidal frustum secured between said two end conical casements; said three united parts forming the turret proper; an attached subjacent mount consisting of an inverted inferior conical frustum; and a floor secured to the mount on the bottom plane of the apex end of said inverted frustum, substantially as described.

22. Combined in a main turret structure, two end, erect superior conical casements; an erect pyramidal frustum secured between the said two end conical casements, the three united parts forming the turret proper; a roof fitting flush within the top of the turret so peripherally defined; and an inverted inferior conical frustum secured to the forward end of the said two erect superior conical casements, substantially as described.

23. Combined in a main turret structure, two end, erect superior conical casements; a pyramidal frustum secured between said two end conical casements the three united parts forming the turret proper; a roof fitting within the top of the turret so peripherally defined; a mount consisting of an inverted inferior conical frustum secured to the forward end of the said erect superior conical casements; a mount-floor secured to the lower part of said inverted inferior conical frustum; and a gun-room floor interposed and secured between said mount-floor and the turret-roof, substantially as described.

24. In a main turret structure, a pyramidal-conical turret proper consisting of two end erect superior conical casements, and an intermediate erect pyramidal frustum secured between said two end parts; combined with a conical turret-base adapted to angularly register with the said forward erect conical casement universally at all positions of lateral train, substantially as described.

25. In a main turret structure, a pyramidal-conical turret proper consisting of two end erect superior conical casements and an intermediate erect pyramidal frustum secured between said two end parts; combined with a conical turret-base adapted to radially register at a common exterior focal angularity with the forward of the said two conical casements universally at all positions of lateral train, substantially as described.

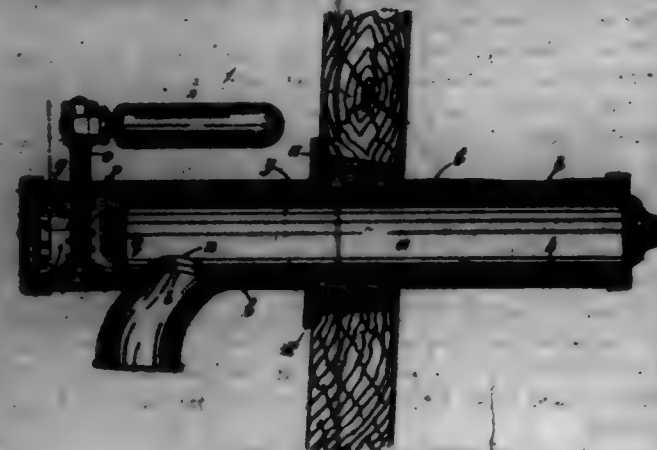
26. In a main turret structure, a united three-part or trisectional turret proper, the same consisting of two end erect conical casements and an intermediate erect pyramidal frustum, the said parts being secured together; combined with an attached inverted conical frustum composing the subjacent mount; and a conical turret-base adapted to radially register flush at the same focal angularity with the forward end of the said two conical casements universally at all points of lateral train, substantially as described.

27. Combined in a main turret structure, a revolvable pyramidal-conical turret proper comprising two end superior conical casements with an intermediately-secured pyramidal frustum and a subjacent-secured mount; a conical turret-base; turret-pit struts; a turret-pit ring; supporting columns; and means for securing said struts to said columns and to each other, substantially as described.

28. Combined in a main turret structure, a revolvable pyramidal-conical turret proper comprising two end superior conical casements with an intermediately-secured pyramidal frustum and a subjacent-secured mount; an inwardly-inclined conical turret-base adapted to radially and finally register with the forward of said superior conical casements at all positions of lateral train; means for securing said subjacent mount to the forward end of said superior conical casements, respectively; outwardly-inclined turret-pit struts adapted to support the said inwardly-inclined conical turret-base; a reaction-ring adapted to unite said struts in

plan position; a turret-pit ring; supporting-columns; girders adapted to unite said outwardly-inclined turret-pit struts to said supporting-columns; and means for uniting said supporting-columns to said turret-pit ring, substantially as described.

697,844. MEASURING AND REGISTERING COCK FOR LIGHTS.
BENJAMIN W. HOBBS and LESTER L. CAMPBELL, Kensington, England.
Filed Jan. 27, 1902. Serial No. 91,693. (No model.)

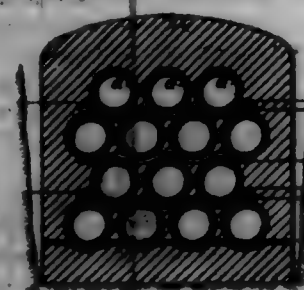


Claim.—1. In a registering-cock, the combination with a cylinder closed at one end, a second longer cylinder closed at its rear end, surrounding and forming a projecting chamber opposite the closed end of said first cylinder, and mechanism contained in and located by said chamber for operating said inner cylinder and registering each rotation of the same.

2. In a registering-cock the combination with a cylinder closed at one end, a second longer cylinder closed at its rear end, surrounding and forming a projecting chamber opposite the closed end of said first cylinder, a bevel gear-wheel mounted on said inner cylinder, a shaft journaled transversely of said chamber, a bevel gear-wheel mounted on said shaft in engagement with said first bevel gear-wheel, a registering-wheel rotatably mounted in said chamber, means carried by said shaft for operating said wheel, means for rotating said shaft, and means for preventing the backward rotation of same.

3. In a registering-cock, the combination with a cylinder closed at one end, a second longer cylinder closed at its rear end, surrounding and forming a projecting chamber opposite the closed end of said first cylinder, a bevel gear-wheel mounted on said inner cylinder, a shaft journaled transversely of said chamber, a bevel gear-wheel mounted on said shaft in engagement with said first bevel gear-wheel, a registering-wheel rotatably mounted in said chamber provided with a plurality of laterally-projecting lugs, a key carried by said shaft for successively engaging said plurality of lugs, means for rotating said shaft, and means for preventing the backward rotation of said shaft.

697,845. CONDUIT FOR ELECTRIC OR LIKE CABLES. CARL A. W. REICHMAN, Stockholm, Sweden.
Filed Jan. 9, 1902. Serial No. 90,061.
(No model.)



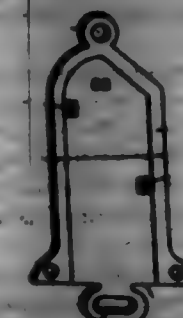
Claim.—1. A conduit for electric cables comprising a plurality of tubes, transversely-arranged bars interposed between said tubes, longitudinally-arranged rods connecting the free ends of said bars and a protecting means including the tubes, substantially as and for the purpose specified.

2. A conduit for electric cables comprising a plurality of tubes formed with an inner lining of cement, a reticulated body embedded therein, an asphalt coating including said lining transversely-arranged bars interposed between said tubes, longitudinally-arranged rods connecting said bars at their ends, and a protecting means including said tubes and rods, substantially as and for the purpose specified.

697,846. IDENTIFICATION DEVICE. CHARLES A. HYDE, Philadelphia, Pa.
Filed Dec. 11, 1901. Serial No. 88,422. (No model.)

Claim.—1. An identification device consisting of a plate having a series of numbers on the face thereof, and a key adapted to be placed on

said plate and contained within said rim and provided with a plurality of recesses to receive a plurality of numbers of said series.

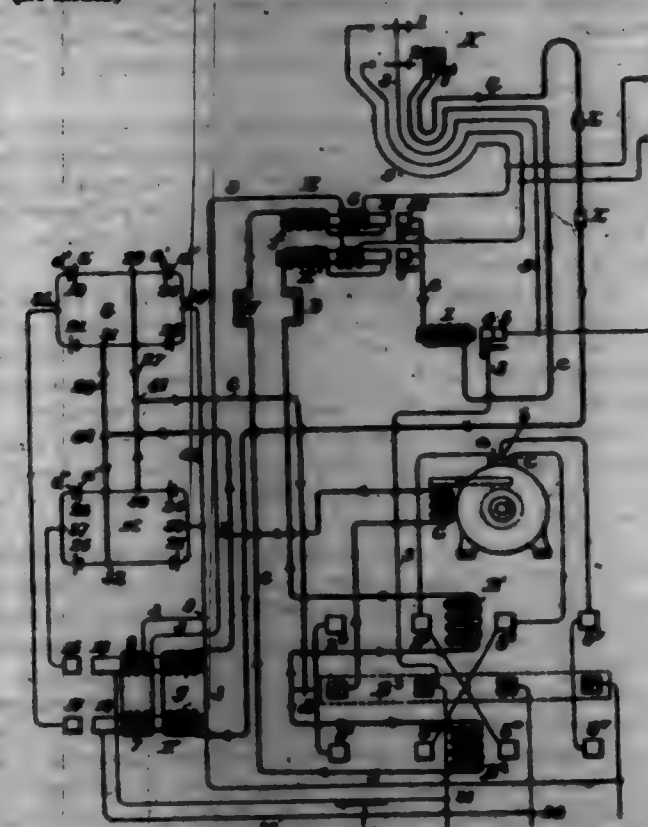


2. In an identification device, a plate having a series of numbers on the face thereof, and a key provided with a plurality of recesses adapted to receive a plurality of numbers of said series and having a carrying-eye.

3. An identification device, consisting of a plate having a raised rim or the margin thereof, and a series of numbers on the face of said plate, and a key adapted to be placed on said plate and contained within said rim and to receive one or more numbers of said series.

4. An identification device consisting of a plate having a raised rim and a series of numbers on the face, and a key adapted to be placed on said plate within said rim, having a plurality of recesses adapted to receive a plurality of numbers of said series, and provided with a carrying-eye.

697,847. ELECTRIC ELEVATOR SYSTEM. JOHN B. HILLMAN, Yonkers, N. Y., assignor to Otto Elevator Company, East Orange, N. J., a Corporation of New Jersey.
Filed Aug. 21, 1901. Serial No. 73,798.
(No model.)



Claim.—1. The combination with an electric motor, of controlling means therefor operated by rectified current, an alternating-current circuit, and means for supplying rectified current from said circuit to said controlling means, substantially as described.

2. The combination with an alternating-current motor, of mechanical controlling means therefor electrically operated by rectified current, and means for supplying rectified current to said controlling means, substantially as described.

3. The combination with an asynchronous motor, of controlling means therefor energized by rectified current, substantially as described.

4. The combination with a polyphase asynchronous motor, of controlling means therefor energized by rectified current, substantially as described.

5. The combination with an alternating-current supply-circuit, of a motor, mechanical controlling means therefor electrically operated by rectified current from said circuit, and means for supplying rectified current to said controlling means, substantially as described.

6. The combination with an alternating-current motor, of mechanical controlling means therefor and means for supplying rectified current to operate said controlling means, substantially as described.

7. The combination with an alternating-current supply-circuit, of a motor, controlling means therefor, and means for rectifying a portion of the current from said supply-circuit, for operating the controlling means, substantially as described.

8. The combination with an alternating-current supply-circuit, of a motor, controlling means therefor, and means for rectifying a portion of the current from said supply-circuit for energizing the controlling means, substantially as described.

9. The combination with an electric motor, of mechanical controlling means therefor, and electrolytic means for supplying rectified current to operate said controlling means, substantially as described.

10. The combination with an electric supply-circuit, of a motor, controlling means therefor, and electrolytic means for rectifying a portion of the current from said supply-circuit for operating the controlling means, substantially as described.

11. The combination with a polyphase supply-circuit, of a motor, controlling means therefor, and electrolytic means for rectifying a portion of the current from said supply-circuit, for operating the controlling means, substantially as set forth.

12. The combination with a polyphase supply-circuit, of a motor, controlling means therefor, and electrolytic cells for rectifying a portion of the current from said supply-circuit for operating the controlling means, substantially as described.

13. The combination with an alternating supply-circuit, of a motor, controlling means therefor, and electrolytic current-rectifying cells for rectifying a portion of the current from the said supply-circuit for operating the controlling means, substantially as described.

14. The combination with an alternating-current supply-circuit, of a motor, controlling means therefor, and electrolytic cells having an electrolyte of ammonium carbonate with lead and aluminum electrodes, for rectifying a portion of the current from said supply-circuit to energize the controlling means, substantially as described.

15. The combination with an alternating-current motor and its supply-circuit, of an alternating-current branch circuit containing control devices, and controlling means for the motor operated by rectified current from the supply-circuit, substantially as described.

16. The combination with an alternating-current motor and its supply-circuit, of controlling means therefor operated by rectified current, and an auxiliary alternating-current circuit, containing devices for controlling the operation of the said controlling means, substantially as described.

17. The combination of an electric motor, controlling means therefor operated by rectified current, and an auxiliary alternating-current circuit controlling said controlling means, substantially as described.

18. The combination with an alternating-current supply-circuit, of a motor, controlling means therefor, means for supplying rectified current to said controlling means, and an auxiliary alternating-current circuit for controlling the supply of said rectified current, substantially as described.

19. The combination with an alternating-current supply-circuit, of a motor, mechanical controlling means therefor, means for operating said controlling means by rectified current, means for supplying rectified current to said controlling means, and means for controlling the operation of the controlling means, substantially as described.

20. The combination with a polyphase supply-circuit, of a polyphase motor, controlling means therefor, means for rectifying a portion of the current from the supply-circuit for operating said controlling means, and an auxiliary alternating circuit connected to the supply-circuit, for controlling the operation of the controlling means, substantially as described.

21. The combination of an electric motor, controlling means therefor, electrolytic means for supplying rectified current to operate the controlling means, and an auxiliary alternating-current circuit for controlling said controlling means, substantially as described.

22. The combination with an electric supply-circuit, of a motor, controlling means therefor, electrolytic means for rectifying a portion of the current from said supply-circuit, for operating the controlling means, and means for controlling the operation of the controlling means, substantially as described.

23. The combination with a two-phase three-wire circuit, of sets of electrolytic cells for rectifying one phase of the current, sets of cells for rectifying the other phase of the current, and connections whereby a rectified current is obtained, substantially as described.

24. The combination with a two-phase three-wire circuit, of sets of electrolytic cells connected in parallel to rectify both impulses of each phase of the current, connections between the parallel sides of each set of cells and connections between said connections, substantially as described.

25. The combination with a two-phase three-wire circuit, of sets of electrolytic cells connected in parallel to rectify both impulses of each phase of the current, connections between the parallel sides of each set of cells and connections including electrostatic devices between said connections, substantially as described.

26. The combination with a polyphase circuit, of sets of electrolytic

cells for rectifying each phase of the current, and connections whereby a rectified current is obtained, substantially as described.

27. In an elevator, the combination of the car, an electric motor for operating the same, controlling means for said motor operated by rectified current, an alternating-current circuit, and means for supplying rectified current from said circuit to said controlling means, substantially as described.

28. In an elevator, the combination with the car and an electric motor for operating the same, of reversing means for the motor and a brake controlled by rectified current, an alternating-current circuit, and means for supplying rectified current from said circuit to the reversing means for the motor and the brake, substantially as described.

29. In an elevator, the combination of the car, an electric motor for operating the same, and reversing means for the motor controlled by rectified current, substantially as described.

30. In an elevator, the combination of the car, an electric motor therefor, an alternating-current supply-circuit, mechanical motor-controlling means electrically operated by rectified current from said supply-circuit, and means for supplying rectified current to said controlling means, substantially as described.

31. In an elevator, the combination of the car, an electric motor therefor, an alternating-current supply-circuit and motor-controlling circuit, including reversing and brake magnets, energized by rectified current from said supply-circuit, substantially as described.

32. In an elevator, the combination of the car, an electric motor therefor, mechanical controlling means for the motor, and electrolytic means for supplying rectified current to operate said controlling means, substantially as described.

33. In an elevator, the combination of the car, an electric motor therefor, an alternating-current supply-circuit, controlling means for the motor, and electrolytic means for rectifying a portion of the current from said supply-circuit for operating the controlling means, substantially as described.

34. In an elevator, the combination of the car, an electric motor therefor, a polyphase supply-circuit, controlling means for the motor, and electrolytic cells for rectifying a portion of the current from said supply-circuit for operating the controlling means, substantially as described.

35. In an elevator, the combination with the car, of an electric motor therefor, an alternating-current supply-circuit, controlling means for the motor, and electrolytic cells having an electrolyte of ammonium carbonate with lead and aluminium electrodes, for rectifying a portion of the current from said supply-circuit to energize the controlling-circuits, substantially as described.

36. In an elevator, the combination of the car, an alternating-current motor for running the same, a supply-circuit for the motor, an alternating-current circuit containing push-buttons and switches, and controlling-circuits for the motor energized by rectified current from the supply-circuit, substantially as described.

37. In an elevator, the combination of the car, an electric motor therefor, a brake and reversing-switch for the motor, operated by rectified current, and an auxiliary alternating-current circuit, containing circuit-controllers, for controlling the operation of the brake and reversing-switch, substantially as described.

38. In an elevator, the combination of the car, an alternating-current motor therefor, a supply-circuit for the motor, controlling-circuits for the motor, and electrolytic means for rectifying a portion of the current from the supply-circuit to energize the controlling-circuits, substantially as described.

39. In an elevator, the combination of the car, an electric motor therefor, a brake, reversing-switch and starting resistance for the motor, operated by rectified current, and an auxiliary alternating-current circuit containing circuit-controllers for controlling the operation of the said brake, reversing-switch and starting resistance, substantially as described.

40. In an electric elevator, the combination of the car, an electric motor therefor, a brake and reversing-switch for the motor, electrolytic means for supplying rectified current for the operation of the brake and reversing-switch, and an auxiliary alternating-current circuit containing circuit-controllers for controlling the operation of the brake and reversing-switch, substantially as described.

41. In an apparatus for controlling elevators, the combination with the car and an elevator-motor, of motor-controlling means operated by rectified current, and an alternating-current circuit, including switches on the car, for controlling the operation of the motor-controlling means, substantially as described.

42. In an apparatus for controlling elevators, the combination with the car and an elevator-motor, of motor-controlling means, electrolytic means for supplying rectified current to the motor-controlling means, and an alternating-current circuit including switches on the car, for controlling the operation of the motor-controlling means, substantially as described.

43. In an apparatus for controlling elevators, the combination with

the car and an elevator-motor, of motor-controlling circuits energized by rectified current, and a push-button circuit for the car and landings energized by alternating current and controlling the motor-controlling circuits, substantially as described.

44. In an apparatus for controlling elevators, the combination with the car and an alternating-current elevator-motor, of a supply-circuit for the motor, motor-controlling circuits, electrolytic cells for rectifying current from the supply-circuit, means for energizing the motor-controlling circuits with rectified current, and an alternating push-button circuit including the car and landings and controlling the supply of rectified current, substantially as described.

45. In an elevator, the combination of the car, and an electric motor, of controlling-circuits for the motor, energized by rectified current, circuit-closures in the motor-controlling circuits, an alternating-current push-button circuit, and means jointly controlled by the motor-controlling circuits and push-button circuit for operating said circuit-closures, substantially as described.

46. In an elevator, the combination of the car, and an electric motor, controlling-circuits for the motor energized by rectified current, circuit-closures in the controlling-circuits, an alternating-current push-button circuit including a circuit-breaker, means jointly controlled by the motor-controlling circuits and push-button circuit, for operating the circuit-closures, and means controlled by the motor-controlling circuits for operating said circuit-breaker, substantially as described.

47. In an elevator, the combination of the car and an alternating-current motor, circuits including current-rectifying means, circuit-closures in said circuits, motor-controlling circuits supplied with rectified current, an alternating-current push-button circuit, and means jointly controlled by the motor-controlling circuits and push-button circuit for operating said circuit-closures, substantially as described.

48. The combination with an alternating-current circuit, of a current-rectifier, circuits therefor including circuit-closures, and means jointly controlled by alternating and rectified current for operating said circuit-closures, substantially as described.

49. In an elevator, the combination of the car and an alternating-current motor, circuits including current-rectifying means, circuit-closures in said circuits, motor-controlling circuits supplied with rectified current, an alternating-current push-button circuit, and means jointly controlled by alternating and rectified current for operating said circuit-closures, substantially as described.

50. In an elevator, the combination of the car and an electric motor, controlling-circuits for the motor, supplied with rectified current, circuit-closures in the motor-controlling circuits, an alternating-current push-button circuit, and means jointly controlled by rectified and alternating current for operating said circuit-closures, substantially as described.

51. The combination with an asynchronous motor having a short-circuited armature including starting resistance in the rotor-circuit, of means operated by rectified current for cutting out said resistance on starting, substantially as described.

52. The combination with an asynchronous motor having a short-circuited armature including a starting resistance in the rotor-circuit, of a supply-circuit, electrolytic means for rectifying a portion of the current from the supply-circuit, and means controlled by the rectified current for cutting out the said resistance on starting, substantially as described.

53. In an elevator, the combination of a car and an asynchronous elevator-motor, a supply-circuit, electrolytic means for rectifying a portion of the current from the supply-circuit, and means controlled by the rectified current for cutting out the resistance from the rotor-circuit on starting, substantially as described.

54. In an elevator, the combination of a car and an asynchronous elevator-motor, a supply-circuit, electrolytic means for rectifying a portion of the current from the supply-circuit, and means controlled by the rectified current for cutting out resistance from the rotor-circuit on starting, and means for controlling the rectified current, substantially as described.

697,848. DRAWING-BOARD. EDGAR E. JARVIS, Toronto, Canada.
Filed Nov. 2, 1901. Serial No. 81,000. (No model.)



Claim.—11. In a drawing-board, independent side bars, hinged at one end to the board and extending from underneath the board to a point outside of the board as in

to form a rest for the bars and with the pivot of the hinge on the outer lower edge, each bar being so arranged that they fold inwardly and downwardly from such pivot, so as to abut the edges of the board and draw down the paper overhanging such edges as specified.

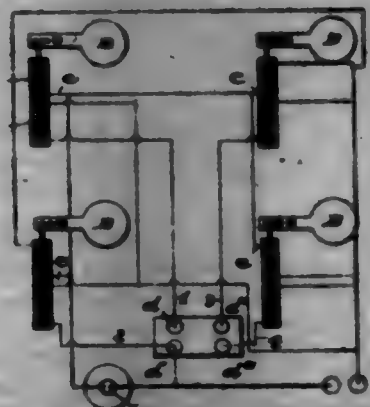
2. In a drawing-board independent side bars, hinges extending from underneath the board to a point outside of the board, so as to form rests for the bars and with the pivot of the hinge on the outer lower edge, the said board being provided with an underlying stop or projection extending lengthwise of the lower portion of the edge of the board, and the said bars being provided with an overlying stop or projection designed to fit over the underlying stop on the board, so that the paper is gripped and securely held as specified.

3. In a drawing-board, the board, independent side bars, hinges extending from underneath the board to a point outside of the board, so as to form rests for the bars and with the pivot of the hinge on the outer lower edge, the said board being provided with an underlying stop or projection extending lengthwise of the lower portion of the edge of the board and the said bars being provided with an overlying stop or projection designed to fit over the underlying stops on the board, so that the paper is drawn and stretched and a gripping device extending along between such overlying and underlying portion as specified.

4. The combination with the central board, of the bars forming a boundary for the frame, hinges having one member secured to the board and the other member secured to the bars, so that the pivot of the hinge is outermost, the member of the hinge secured to the bar being above the surface thereof and the member of the hinge secured to the board having a band whereby the inner end is securely fastened close to the surface of the board as and for the purpose specified.

5. The combination with the board and the independent bars suitably connected thereto at the outside edges, of pressure-plates connected to two bars and extending over the end edges of the two existing bars and adjusting means for securing the aforesaid bars in position as and for the purpose specified.

697,849. INDICATING MECHANISM FOR POST-OFFICE BOXES.
THOMAS F. KELLY, Admr. Invt. Filed June 10, 1901. Serial No. 93,994.
(No model.)



Claim.—1. The combination with a plurality of post-office boxes, of an indicating device for each box, and electrical means for operating said indicating device, said means including electromagnetic devices operatively connected with the indicating device, electrical connections for connecting said electromagnetic devices with a source of electrical energy, and circuit-closing devices for controlling said electromagnetic devices whereby the indicating devices may be simultaneously operated and severally restored to initial position.

2. The combination with a plurality of post-office boxes having each a hinged door, of an indicating device carried by each door, and means for operating said indicating device, said means being operatively connected with the indicating device when the doors are open as well as when they are closed.

3. The combination with a plurality of post-office boxes, having movable doors closing the fronts thereof, of an indicating device carried by each door and means for simultaneously displaying all of said indicating devices and means for severally restoring them to initial position.

4. The combination with a plurality of post-office boxes having movable doors, of an indicating device carried by each door, electrical means for simultaneously displaying all of said indicating devices, and means whereby said devices may be severally restored to initial position.

5. The combination with a plurality of post-office boxes having movable doors, indicating devices carried by said doors, double solenoids also carried by said doors having their cores connected with the indicating devices, and electrical connections for separately energizing the members of said double solenoids whereby the cores are moved in opposite directions.

6. The combination with a plurality of post-office boxes, of indicating devices therefor, a double solenoid for each box, having its core connected

with the corresponding indicating device, electrical connections for simultaneously energizing one of the members of all the double solenoids, and electrical connections for severally energizing the other members.

697,850. LOCOMOTIVE DRIVING-WHEEL. LOWELL E. KINTON, Allegheny, Pa. Filed Feb. 4, 1902. Serial No. 92,595. (No model.)



Claim.—1. In a locomotive, a driving-wheel having two counterbalances of unequal weights, on different sides of the axle.

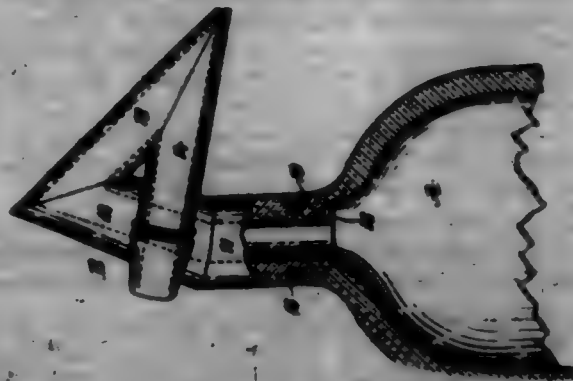
2. In a locomotive, a driving-wheel having two counterbalances of unequal weights, one on the crank-pin side and one opposite thereto.

3. In a locomotive, a driving-wheel having two counterbalances of unequal weights, the heavier being opposite the crank-pin.

4. In a locomotive, the combination with a main driving-wheel and one or more coupled wheels, of two counterbalances on each of said coupled wheels, the weight of one counterbalance being less than that of the other by an amount equal to the weights of the crank-rod, pin, and the proportional weight of the rod on that pin.

5. In a locomotive, the combination with a main driving-wheel and its connected parts, of one or more coupled wheels, and a counterbalance for said coupled wheel of such weight that the aggregate of its weight and those of the coupled wheel and its connected revolving parts shall be substantially equal to that of the main driving-wheel, its counterbalance and the connected revolving parts.

697,851. NON-REFILLABLE BOTTLE. FREDERICK KLEIN, New York, N. Y. Filed Dec. 27, 1901. Serial No. 87,412. (No model.)



Claim.—1. A bottle provided with a neck formed in a series of connected members at angles to each other, the mouth or outlet member extending across the face of one of the intermediate members, as specified.

2. A bottle the neck of which is formed in a series of connected members at angles to each other, the mouth or outlet member extending across the face of one of the intermediate members with an upward inclination, as and for the purpose specified.

3. A bottle provided with a neck formed by a series of connected members at angles to each other, and approximating in shape that of a figure 4, as described.

4. A bottle provided with a neck having an upwardly-projecting member, an outwardly and downwardly projecting member, and an inwardly-projecting member extending across the upwardly-projecting member, as set forth.

5. A bottle provided with a neck having an upwardly and outwardly projecting member, an outwardly and downwardly projecting member, and an inwardly and upwardly projecting member, as set forth.

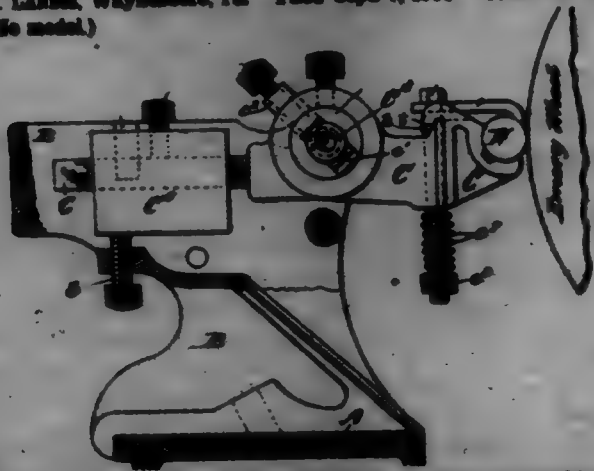
6. A bottle cap or outlet section, comprising a straight member, an upwardly and outwardly inclined member, outwardly and downwardly inclined member, and an inwardly and upwardly inclined member, as set forth.

7. A bottle, comprising a body having a socket member, and a cap or outlet section, comprising a straight member secured to the socket member of the bottle, an upwardly and outwardly inclined member, an outwardly and downwardly inclined member and an inwardly and upwardly inclined member, as set forth.

8. A bottle, comprising a body having an interiorly-threaded socket member, a cap or outlet section, consisting of a straight member having an exteriorly-threaded extension screwing into the bottom section, an upwardly and outwardly inclined member, an outwardly and downwardly inclined member, and an inwardly and upwardly inclined member, and means whereby the cap or outlet section is prevented from being unscrewed from the body, as set forth.

9. A bottle, comprising a body having an interiorly-threaded socket member, a glass cap or outlet section formed of a series of connected members at angles to each other, one of the members having an exteriorly-threaded extension screwing into the socket member of the body, the cap and body at their point of juncture being provided with an annular groove, and a ring in said groove, as set forth.

687,852. WORK-REST FOR GRINDING-MACHINES. ABRAHAM S. LAUREN, Waynesboro, Pa. Filed Sept. 7, 1901. Serial No. 74,619. (No model.)



Claim.—1. In a work-rest for grinding-machines, the combination of a base or support, a bar pivoted between its ends at one side of the work provided with a work-engaging bearing on one end thereof and an adjustable weight at its other end.

2. In a work-rest for grinding-machines, the combination of a base or support, a bar pivoted between its ends at one side of the work provided with a work-engaging bearing at one end thereof, and an adjustable stop controlling the elevation of said bearing.

3. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing at one end thereof, said bar pivoted on said base, an adjustable stop controlling the elevation of said bearing and an adjustable weight on the opposite side of the pivot in said bar from said work-engaging bearing.

4. In a work-rest for grinding-machines, the combination of a base or support, and a pivoted bar with a work-engaging bearing at one end thereof, the pivot of said bar engaging an oblique surface.

5. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing at one end thereof, an adjustable weight on the other end, and a central pivot engaging an adjustable oblique surface.

6. In a work-rest for grinding-machines, the combination of a bar having a work-engaging bearing, an adjustable weight, a pivot engaging an oblique surface, and an adjustable stop engaging said pivot.

7. In a work-rest for grinding-machines the combination of a bar having a work-engaging bearing, and a yieldingly-mounted clip to engage the top of the work.

8. In a work-rest for grinding-machines, the combination of a pivoted bar having a work-engaging bearing, an adjustable weight on said bar, and a clip to engage the top of the work.

9. In a work-rest for grinding-machines the combination of a bar

having a work-engaging bearing, a pivot in said bar, said pivot engaging an oblique surface, and a clip to engage the work.

10. In a work-rest for grinding-machines the combination of a pivoted bar, and a work-engaging bearing mounted on the end thereof, said bearing having a hook by which it is supported to said bar.

11. In a work-rest for grinding-machines, a bar having a work-engaging bearing at one end, a pivot approximately at its center, an adjustable weight on the other end and means for clamping said bar rigidly when required.

12. In a work-rest for grinding-machines a base or support having a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an oblique surface, an adjustable stop engaging said pivot, an adjustable weight on said bar and a stop to control the upward position of said work-engaging bearing.

13. In a work-rest for grinding-machines, a base or support, having a bar pivoted thereto, said bar having a work-engaging bearing, the pivot of said bar engaging an oblique surface, an adjustable stop engaging said pivot, an adjustable weight on said bar, a stop to control the upward motion of said work-engaging bearing, and a clip to engage the top of the work.

14. In a work-rest for grinding-machines, a base or support, having a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an oblique surface, an adjustable weight on said bar, an adjustable stop engaging said pivot, a stop to control the upward motion of said work-engaging bearing and means for locking said bar in a rigid position when required.

15. In a work-rest for grinding-machines, a base or support formed like an open box having sides to which a bar is pivoted, said bar having a work-engaging bearing on one end, a weight on the other end of said bar, said parts being contained in said box which thus forms a protection to said bar so that its free motion cannot be interfered with.

16. In a work-rest for grinding-machines, a base or support, a bar pivoted thereto, said bar having a work-engaging bearing, said pivot engaging an adjustable oblique surface, an adjustable weight on said bar, an adjustable stop engaging said pivot, an adjustable stop to control the upward motion of said work-engaging bearing, a clip to engage the top of the work and means for locking said bar in a rigid position when required.

17. In a work-rest for grinding-machines, a pivoted bar, a work-engaging bearing on one end thereof, a roller on said pivot engaging an oblique surface, and means for holding the bearing yieldingly to the work attached to the other end of said bar.

18. In a work-rest for grinding-machines, the combination of a base or support, a pivoted bar with a work-engaging bearing at one end thereof, the pivot engaging an oblique surface and an adjustable weight at the other end of said bar.

19. In a work-rest for grinding-machines the combination of a base or support, a pivoted bar with a work-engaging bearing at one end thereof, the pivot engaging an adjustable oblique surface, and means for holding said bearing yieldingly in engagement with the work.

20. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar pivoted on an oblique surface, a stop controlling the upward motion of said bearing, and means for holding said bar yieldingly in engagement with the work.

21. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar being pivoted on an adjustable oblique surface, a stop controlling the upward motion of said bearing, and means for holding said bearing yieldingly in engagement with the work.

22. In a work-rest for grinding-machines, the combination of a base or support, a bar with a work-engaging bearing, said bar pivoted on an oblique surface, an adjustable stop engaging said pivot controlling the forward position of said bearing and means for holding said bearing yieldingly in engagement with the work.

23. In a work-rest for grinding-machines, the combination of a bar with a work-engaging bearing, said bar being pivoted on an adjustable oblique surface and adjustable stops engaging said pivot controlling the forward position of said bar, a stop controlling the upward position of said bearing, means for holding said bearing yieldingly in engagement with the work and a clip to engage the top of said work.

24. In a work-rest for grinding-machines, a pivot-bar with a work-engaging bearing, a clip engaging the top of the work and a spring for holding said clip yieldingly to said work.

25. In a work-rest for grinding-machines, a work-engaging bearing, means for holding said bearing to the work, a clip engaging the top of the work, and a spring holding said clip yieldingly to said work.

26. In a work-rest for grinding-machines, a work-engaging bearing arranged with a hook as shown to attach to the end of a bar with means for holding said bearing yieldingly in contact with the work, a clip for engaging the top of the work and also the top of the bearing by which said bearing is held in position.

27. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with the pivot in the support.

28. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with the pivot in the support, said plug having a pin by which it is turned to adjust the obliquity as desired, a screw for locking said plug and a screw-stop engaging the pivot passing through the pin.

29. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface which engages with a pivot formed with a roller, said roller having flanges at each end to hold the bar against side movement.

30. A work-rest for grinding-machines comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction whereby the forward tension of the bearing against the work is adjusted, and an adjustable weight whereby the upward tension is adjusted.

31. A work-rest for grinding-machines, comprising a bar having a work-engaging bearing, said bar having a slotted plug, said slot forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction whereby the forward tension of the bearing against the work is adjusted, and stops for limiting the movement of said bar.

32. A work-rest for grinding-machines, comprising a bar having a work-engaging bearing, said bar having a slotted plug forming an oblique surface, said surface bearing upon a pivot, said plug being adjustable in a rotary direction, whereby the forward tension of the bearing against the work is adjusted, means by which the upward tension on the work is produced, stops for limiting the movement of said bar and a clamping-screw by which said bar is rigidly locked.

33. A work-rest for grinding-machines, comprising a bar pivoted and mounted to slide on an oblique surface which is adjustable as to pitch, substantially as set forth.

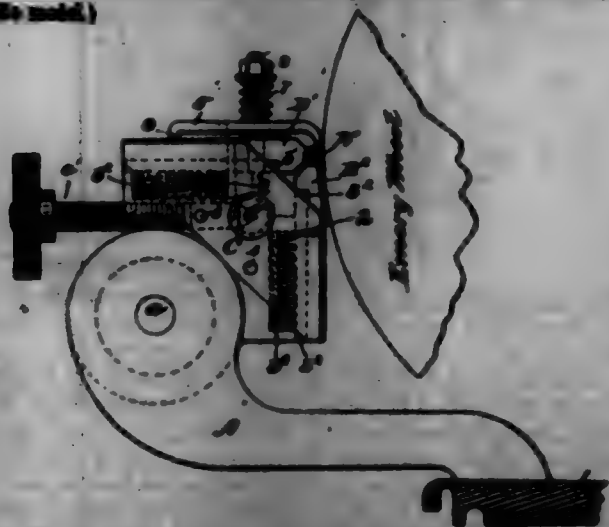
34. A work-rest for grinding-machines comprising a bar pivoted and mounted to slide on an oblique surface under an adjustable pressure, substantially as set forth.

35. A work-rest for grinding-machines comprising a support provided with the work-engaging bearing mounted to both pivot and slide toward the work under adjustable pressure, substantially as set forth.

36. In a work-rest for grinding-machines, the combination of the frame, the pivoted bar mounted therein, means for automatically adjusting said bar toward the work, the work-engaging bearing on said bar, and controlling-stops, substantially as set forth.

37. In a work-rest for grinding-machines, the combination with the work-engaging bearing, of a yieldingly-mounted clip or finger arranged to engage the upper side of the work lightly, substantially as set forth.

697,858. WORK-REST FOR GRINDING-MACHINES. ABRAHAM B. LAZER, Waynesboro, Pa. Filed Sept. 12, 1901. Serial No. 74,682. (No Model.)



Claim.—1. In a work-rest for grinding-machines, the combination, of the supporting-frame, sliding bars therein and provided with the work-engaging bearings arranged to bear against the work from different directions, and means operated by a single device for locking said bars simultaneously, substantially as set forth.

2. In a work-rest for grinding-machines, the combination of the supporting-frame mounted at one side of the work, sliding bars mounted therein to be operated and locked simultaneously by a single device, and provided with the work-engaging faces arranged to bear against the work from different directions.

3. In a work-rest for grinding-machines, the combination, of the supporting-frame, sliding bars mounted therein and provided with the work-engaging faces, means for normally forcing said bars toward the work, and clamping means operated by a single device for locking them simultaneously in desired position, substantially as set forth.

4. In a work-rest for grinding-machines, the combination, of the supporting-frame, and bars with the rest-faces mounted to slide in ways extending in radial lines from the work, and means for simultaneously clamping said bars.

5. In a work-rest for grinding-machines, the combination, of the supporting-frame, and parts provided with the rest-faces arranged in said frame to bear against the work in different directions, and means for simultaneously clamping said parts.

6. In a work-rest for grinding-machines, the combination, of the supporting-frame containing ways, bars with rest-faces mounted therein, springs for forcing said bars toward the work, a clamping-plate for simultaneously securing them, and means for operating said clamping-plate.

7. A work-rest for grinding-machines comprising a plurality of parts with rest-faces arranged to bear against the work from different directions, and means for operating and locking them simultaneously.

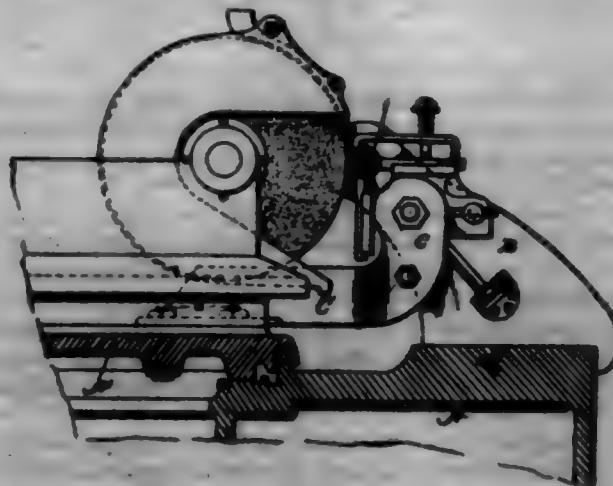
8. In a grinding-machine, the combination of the table carrying the grinding-wheel, and a work-rest supported thereon with the point of rest bearing against the work directly opposite the operating-face of said grinding-wheel but with its advance edge somewhat behind the advance edge of the said wheel, substantially as set forth.

9. In a grinding-machine, the combination, of the table carrying the grinding-wheel, the work-rest supported on said table, the point of rest bearing against the work being arranged directly opposite the operating-face of said wheel but with its advance edge slightly behind the advance edge of said wheel, and means for adjusting said point of rest to the work.

10. In a grinding-machine, the combination, of the table carrying the grinding-wheel, the work-rest supported on said table, the rest being arranged with its face opposite the face of the grinding-wheel but slightly behind its advance edge, means for adjusting said rest to the work, and means for clamping it rigidly in adjusted position, substantially as set forth.

11. In a work-rest for grinding-machines, the combination, of the supporting-frame, the sliding bars therein provided with the rest-faces, means for forcing said bars to the work, and a clamping-plate bearing against said bars and adjustably secured to the frame by a transverse pin having a depression with a tapered side, and a screw with a tapered point mounted in said frame with said point adapted to engage said depression and bear against the tapered side, whereby said plate may be forced in to clamp said bars against the frame, substantially as set forth.

697,864. AUTOMATIC WORK-REST FOR GRINDING-MACHINES. ABRAHAM B. LAZER, Waynesboro, Pa. Filed Sept. 11, 1901. Serial No. 73,022. (No Model.)



Claim.—1. In a work-rest, the combination of the points of rest adjustably supported, and means for automatically clamping them in position.

2. In a work-rest for grinding-machines, the combination of the points of rest adjustably supported, means for automatically adjusting them, and means for automatically locking them, substantially as set forth.

3. In a work-rest for grinding-machines, the combination, of the supporting-frame, points of rest carried on parts mounted in said frame to move on circular lines, clamping means, and means for automatically operating said locking means, substantially as set forth.

4. In a work-rest for grinding-machines, the combination, of the supporting-frame, blocks mounted on circular connections therein and carrying the points of rest, means for clamping said parts in place, and means for automatically operating said clamping mechanism.

5. In a work-rest for grinding-machines, the combination, of the supporting parts, the blocks carrying the points of rest mounted therein on circular connections, a wedge mounted between adjacent faces of portions of said blocks beyond said circular connections, means for forcing said wedge forward, means for clamping said parts against the operation of said wedge, and means for automatically operating said clamping mechanism, substantially as set forth.

6. In a work-rest for grinding-machines, the combination, of the supporting parts, the blocks carrying the points of rest mounted to be adjusted toward or away from each other at their ends, means for effecting said adjustment, means for clamping said parts in adjusted position, and means for operating said clamping mechanism automatically, substantially as set forth.

7. In a work-rest for grinding-machines, the combination, of the supporting parts, the blocks carrying the points of rest mounted therein to move on circular connections, means for adjusting said blocks, and means for securing them in adjusted position, substantially as set forth.

8. In a work-rest for grinding-machines, the combination, of the supporting parts, parts carrying the points of rest mounted therein to be adjusted on circular tracks, and means for securing them in the desired position, substantially as set forth.

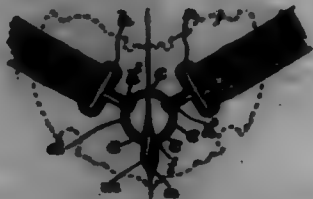
9. In a work-rest for grinding-machines, the combination, of the supporting parts, the parts carrying the points of rest mounted therein to be moved on circular lines to approach or recede from each other at their ends, substantially as set forth.

10. In a work-rest for grinding-machines, the combination, of the supporting parts, the moving parts carrying the points of rest mounted therein, and a spring-wedge for forcing the said parts to the work, substantially as set forth.

11. In a work-rest for grinding-machines, the combination, of the support C, the plate C' attached thereto, the blocks 1 and 2 mounted between them by interengaging circular grooves and flanges, the rest-blocks mounted thereon, the clamping-belt, the spring-wedge, the arm 7 with nut on the clamping-belt, and the cam on the machine with which said arm engages.

12. In a work-rest, the combination of the supporting parts, the parts carrying the points of rest mounted therein to move on circular connections, and a spring-wedge for operating them provided with a handle by which it may be manipulated against the operation of the spring, substantially as set forth.

697,855. BELT-BUCKLE. ALMA E. LEE, Lynn, Mass., assignor of one-half to Jacob F. Frost, Lynn, Mass. Filed Mar. 25, 1901. Serial No. 62,714. (No model.)



Claim.—1. The combination with a belt or girdle, of a hook on the one end, and a buckle connecting the ends of the belt or girdle, said buckle being adapted to be connected with the hook on the one end; substantially as described.

2. The combination with a belt or girdle, of a buckle for connecting the ends thereof, said buckle comprising an ornamental plate or shield and an endless ring connected to the back of said shield and forming the connection between the ends of the belt or girdle, substantially as described.

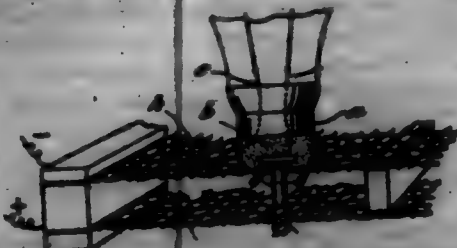
3. The combination with a belt or girdle, of a buckle for connecting the ends thereof, said buckle comprising an ornamental plate or shield, and a ring having downturned lugs secured to the back of said ornamental plate or shield, substantially as described.

4. The combination with a belt or girdle, of a buckle connecting the ends thereof said buckle comprising an ornamental plate or shield, and an endless ring having downturned lugs secured to the back of the ornamental plate or shield, the ring between the lugs forming two curved hook-engaging sections for the ends of the belt, and an outwardly-bent section to engage a hook on the one end, substantially as described.

697,856. CONTACT FOR ELECTRIC GLOW-LAMPS. ARMAND LEVINE, Paris, France, assignor to Electric Lighting Board, Limited, London, England. Filed Nov. 11, 1901. Serial No. 61,914. (No model.)

Claim.—1. An electrical lamp having a sheath, insulating material inclosed by said sheath, a conducting member having a head embedded in said insulating material, and projecting from the sheath, leading-in wires connected respectively with the sheath and conducting member, in combination with a pair of separate conductors passable by said conduct-

ing member and one of them being adapted for electrical connection with the sheath.

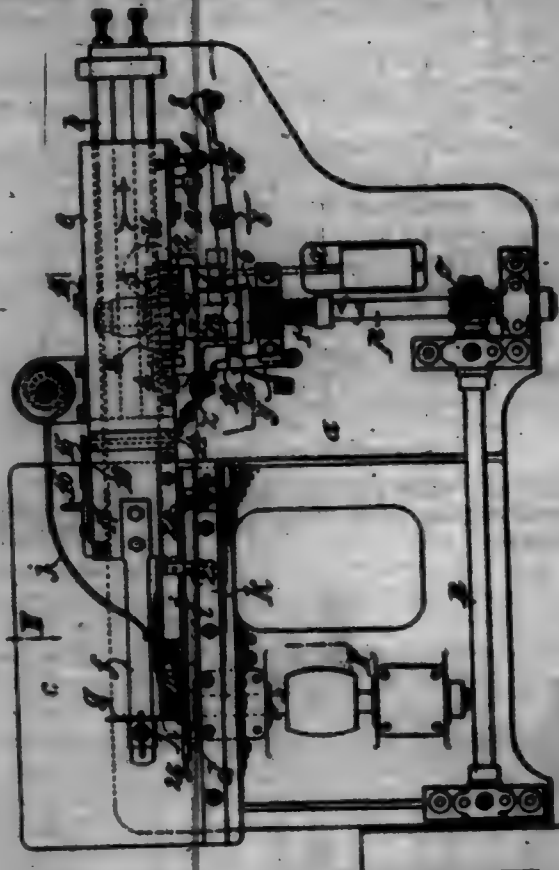


2. The combination of a pair of separate framework conductors, and an electrical lamp, said lamp having a projecting conducting member adapted to extend through the openings in said conductors, and a sheath, the sheath and conducting member being insulated from each other, and leading-in wires connected respectively with the sheath and conducting member.

3. The combination of a pair of framework conductors, one of which is covered with insulating material, an electric lamp having a projecting conducting member, a sheath insulated from said conducting member, said conducting member being adapted to extend through openings in said conductors, and leading-in wires connected respectively with the sheath and conducting member, and a part in rotatable connection with the lamp and electrically connected with the sheath thereof and having a projection adapted to penetrate the said insulating material and the conductor to which the same is attached.

4. The combination of separate woven-wire conductors and an electrical lamp having a projecting member adapted to extend through the conductors and a sheath, the sheath and conducting member being insulated from each other.

697,857. CIRCULAR SAW. BERNARD LICHTE, Buda, Austria-Hungary. Filed Apr. 3, 1902. Serial No. 11,778. (No model.)



Claim.—1. In a machine of the class described, the combination with a suitable table, a saw and a carriage reciprocable on the table, of devices mounted independently of the carriage and operated thereby to engage and shift the work from the saw, substantially as described.

2. In a machine of the class described, the combination with a suitable table, a saw and a carriage reciprocable on the table, of devices to exert pressure on and hold the work in position to be cut by the saw, and devices independent of and operated by the carriage to engage and shift the work from the saw against the action of the holding devices, substantially as described.

3. In a machine of the class described, the combination with a suitable table and saw, of a reciprocable carriage, a guide to regulate the thickness of material to be cut, means for holding the material against said guide, a device for holding it down on the table and a stop mechanism for said carriage arranged to be operated by said means to stop the carriage, substantially as described.

4. In a machine of the class described, the combination with a suitable table and saw, of a reciprocable carriage, a guide, means for holding the material to be cut against said guide, a device for holding the material down on the table, mechanism for shifting the material from the saw at the end of each cut and operated by the carriage and a stop mechanism arranged to be operated by the means for holding the material against the guide when substantially all of the material has been cut in order to stop said carriage, substantially as described.

5. In a machine of the class described, a reciprocable carriage, a rack thereon, a gear-wheel arranged to engage the rack to drive the carriage forward, a clutch on the shaft arranged to engage said gear-wheel, a clutch-operating mechanism arranged to automatically disengage said shaft and wheel, a weight arranged to return the carriage to position to start its forward travel, a spring to hold the work, a lever to hold the clutch out of engagement and a projection 14 moved by said spring to move the lever to stop the machine, substantially as described.

6. In a machine of the class described, a reciprocable carriage, a wheel arranged to drive said carriage forward, a driving-shaft and a clutch thereon, a clutch device on the shaft arranged to engage said wheel, a clutch-operating mechanism arranged to disengage said clutch and wheel at the end of its forward travel and connect them again at the end of its rearward travel, a weight arranged to move the carriage rearward, and means operated from the carriage to hold the clutch permanently disengaged, substantially as described.

7. In a machine of the class described, a reciprocable carriage, a rack thereon, a driving-shaft, a spring-actuated clutch thereon, a gear-wheel engaging the rack and arranged to be coupled to the shaft by said clutch, a weighted ball-crank lever arranged to move the clutch against the stress of its spring, a second lever operated from the carriage arranged to disengage the ball-crank lever to allow the clutch to engage the gear-wheel and to disengage it again at the end of the forward travel of the carriage and means for causing the return travel of said table, substantially as described.

8. In a machine of the class described, a reciprocable carriage, and a rack and gear-wheel for moving it forward, a driven spring-held clutch arranged to engage said wheel, a lever acting on the clutch, a weighted ball-crank lever acting on the latter, means at one end of the carriage to engage the first-mentioned lever to allow the engagement of clutch and wheel, a latch to lock the first-mentioned one when moved, and a device on the carriage, whereby said latch is moved to allow the weighted ball-crank lever to act on the first-mentioned one to move the clutch out of engagement with the wheel and against the stress of its spring, substantially as described.

9. In a machine of the class described, the combination with a table, a reciprocable carriage thereon, a saw and mechanism to reciprocate the carriage, of cam-fingers connected together, a rod to simultaneously move them, a stop on the carriage to move said rod at substantially the end of its forward travel to rotate the cam-fingers into the path to move the next work transversely of the carriage, substantially as described.

887,858. TYPE-CASTING MACHINE. JOHN W. LAMER, Chicago, Ill., assignor to August H. Weymann, Indianapolis, Wis. Filed Mar. 11, 1901. Serial No. 59,548. (No model.)

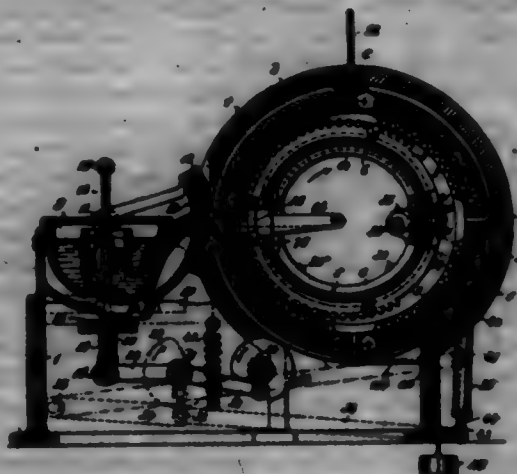


Claim.—A self-joint device, comprising a pair of complementary elongated rigid and anyhiding joint-plates provided with registering ball-balls, one of said plates being substantially smooth on its outer surface adjacent to said ball-balls and the other plate being provided on its outer surface with shoulders adjacent to said ball-balls, the shoulders being equidistant from the ball-balls and parallel with each other and extending the entire length of the plate, a screw-threaded bolt or bolt having an expanded head or heads adapted to be inserted through said pair of plates and through an interposed wall, and a nut or nut adapted to take said bolt or bolts therein and to fit between and bear against said parallel shoulders, whereby said bolt or bolts may be rotated in the nut or nuts which are held by the shoulders against turning while the inner surfaces of the head of the bolt or bolts bear against the smooth surface of the one-shouldered plate.

887,858. TYPE-CASTING MACHINE. JOHN W. LAMER, Berlin, Germany. Filed May 1, 1902. Serial No. 14,124. (No model.)

Claim.—1. In a machine for casting a type-bar from a previously-

composed line of matrices, the combination of a movable mold provided with a casting-chest, a carrier for the matrices normally movable with the mold, means for moving the mold and carrier together, and independent means for moving the carrier relative to the mold to change the position of the matrices transversely of the casting-chest, substantially as set forth.



2. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a carrier for the matrices, a casting-mold, the said mold and carrier being provided with teeth which mesh together whereby they are united, and means for moving the carrier and mold together from one position to another, substantially as set forth.

3. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a mold provided with a casting-chest, a carrier for the matrices, means for moving the carrier to bring them into casting position opposite the mold, other means for moving the carrier in order to adjust the matrices transversely relative to the casting-chest, means for connecting the carrier and the mold, and means for moving them together when connected, substantially as set forth.

4. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a carrier for the matrices of cylindrical form, a casting-mold connected with the said carrier whereby they move simultaneously, and means for moving the mold and the carrier into casting position, and from there to the position for discharging the bar of type and matrices, respectively, substantially as set forth.

5. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a carrier for the matrices of cylindrical form, a mold of hollow cylindrical form surrounding the said matrix-carrier, and means for moving the said carrier and mold to the casting position and to the discharge position, substantially as set forth.

6. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a carrier for the matrices of cylindrical form, a casting-mold of hollow cylindrical form surrounding the said casting-mold, the said carrier and mold being provided, respectively, with intermeshing projections whereby they are caused to move together, and means for moving them, substantially as set forth.

7. In a machine for casting a type-bar from a previously-arranged line of matrices, the combination of a carrier for the matrices of cylindrical form, means for imparting a rotary movement to the carrier, a casting-mold arranged concentrically to the carrier, and means for connecting the mold and carrier whereby they are caused to move together during portions of the rotation of the carrier, and whereby they may be separated or disconnected during other parts or portions of the rotation thereof, substantially as set forth.

8. In a machine for casting a type-bar from a previously-composed line of matrices, the combination of a carrier for the matrices of cylindrical form, a casting-mold of hollow cylindrical form surrounding the said carrier, the said parts being mounted concentrically relative to each other, and being provided with projections adapted to intermesh and hence cause the said parts to move together during part of their rotation, and being adapted to become disconnected when the parts are moved into certain positions, substantially as set forth.

9. In a machine for casting a type-bar, the combination of the matrices each provided on its face with a plurality of type impressions differing from the other, a carrier for the matrices, a casting-mold, means for connecting the mold and carrier whereby they move together, and means for adjusting the mold and carrier relative to each other whereby any one of the series of type impressions in the matrices may be brought opposite to the casting-opening in the mold, substantially as set forth.

10. In a machine for casting type-bars, the combination of a series of matrices each formed with a plurality of type impressions differing one from the other, a carrier for the said matrices, a casting-mold, a series of teeth or projections carried respectively by the mold and the carrier adapted to intermesh, whereby these parts are united and are caused to move together, and means for adjusting the mold and carrier relative to each

other whereby the different type impressions upon the matrices may be brought opposite the casting-opening in the mold, substantially as set forth.

11. In a machine for casting type-bars, the combination of a series of matrices, a carrier for the matrices, a casting-mold, means for tightly securing and holding the matrices in the carrier, means for uniting the mold and the carrier whereby they are caused to move together, and means whereby the carrier and mold may be adjusted relative to each other without distributing the matrices secured in the carrier, substantially as set forth.

12. In a machine for casting type-bars, the combination of a series of matrices, each provided with a plurality of type impressions differing one from the other, a carrier for the matrices of cylindrical form, a casting-mold of hollow cylindrical form surrounding the carrier and mounted eccentrically thereto, teeth or projections carried by the said carrier and mold adapted to intermesh and unite these parts, the teeth on one of the parts being interrupted whereby when moved into certain positions, the said parts are disconnected, means for moving one of said parts relative to the other one when thus disconnected in order to change the position of the matrices relative to the casting-opening in the mold, and means for moving the carrier and mold when connected, substantially as set forth.

13. In a machine for casting a bar of type, the combination of a series of the matrices adapted to be arranged in line with each other, each matrix having in its face a plurality of type impressions, a carrier for the matrices, a mold having a casting slot or opening adapted to be brought opposite the matrices, teeth carried respectively by the mold and the carrier and adapted to intermesh, the distance between adjacent teeth being equal to the distance between the different characters on a matrix, means for disconnecting the said teeth, and means whereby one of the said parts (the carrier and the mold) may be adjusted to change the relation of the intermeshing teeth whereby the position of the line of matrices relative to the casting-opening in the mold may be changed, substantially as set forth.

14. In a machine for casting a type-bar from a previously-arranged line of matrices, the combination with the line of matrices and the justifying device thereof, of a carrier for receiving and holding the line of matrices, and mold having a casting-opening, means for moving the carrier to bring the line of matrices opposite the casting-opening, a slide arranged to move the line of matrices close to the mold, another slide substantially parallel with the slide just referred to for operating the justifying device, and a single operating member for acting upon the said slides, substantially as set forth.

15. In a machine for casting a type-bar from a previously-arranged line of matrices, the combination with a line of matrices, a carrier therefor, a mold having a casting-opening, means for moving the carrier to bring the line of matrices opposite to the opening in the mold, and inclined or wedge-like devices arranged to act simultaneously upon opposite sides of the line of matrices to force it bodily toward the face of the mold, substantially as set forth.

16. In a machine for casting type-bars, the combination of a line of matrices, a carrier therefor, a mold provided with a casting-opening opposite to which the line of matrices is arranged, means for moving the mold and carrier simultaneously into casting position, and then for moving them simultaneously away therefrom, means for gradually moving the line of matrices toward the face of the mold as the parts approach the casting position and for gradually moving it away from the mold as they move from the casting position, and means for moving the line of type bodily against the face of the mold after the parts have come into casting position, substantially as set forth.

17. In a machine for casting type-bars, the combination of a cylindrical carrier for a line of matrices, a hollow cylindrical mold having a casting-opening opposite to which the line of matrices is arranged, the mold and carrier being mounted eccentrically relative to each other, and being so disposed that the line of matrices are brought close to the face of the mold when the parts are moved to molding position, and are gradually moved away from the face of the mold as the parts approach the position for discharging the cast bar of type and the line of matrices, substantially as set forth.

18. In a machine for casting type-bars, the combination of a line of matrices, the matrices being provided with inclined or cam-shaped surfaces, a carrier for the matrices, a mold having a casting-opening opposite to which the matrices are moved, a bar or slide arranged to be moved into engagement with the inclined surfaces of the matrices, and to thereby force them bodily toward and against the face of the mold, and means for moving the said bar or slide, substantially as set forth.

19. In a machine for casting type-bars, the combination of a line of matrices formed with inclined side edges, a carrier for the matrices, a mold having a casting-opening opposite to which the matrices are placed, a slide G1 adapted to engage with the inclined edges G3 of the matrices to force them bodily toward the face of the mold, and means for moving the slide, substantially as set forth.

20. In a machine for casting type-bars, the combination of a line of matrices, each provided upon its opposite edges with inclined surfaces

G2, G2, a carrier in which the matrices are placed, a mold having a casting-opening opposite to which the matrices are moved, two slides arranged upon opposite sides of the line of matrices and adapted to engage with the inclined surfaces G2 thereof, and means for moving the said slides into engagement with the matrices simultaneously, whereby the matrices are bodily moved toward the face of the mold, substantially as set forth.

21. In a machine for casting type-bars, the combination of a line of matrices, a carrier therefor of cylindrical form, a mold having a casting-opening opposite to which the matrices are moved, slides G1 mounted in the carrier for the matrices and arranged to engage with the matrices to force them toward and against the face of the mold, and means for moving the slides, substantially as set forth.

22. In a machine for casting type-bars, the combination of a series of matrices, a carrier therefor of cylindrical form, a mold, a pair of slides G1 mounted in the matrix-carrier and arranged to engage with the line of matrices and to move it bodily against the face of the mold, a slide G2 arranged to be moved between the ends of the slide G1 to move them into engagement with the matrices, and means for moving the slide G2, substantially as set forth.

23. In a machine for casting type-bars, the combination of a line of matrices, a carrier therefor, a mold, means for moving the line of matrices bodily toward and against the face of the mold, and springs for moving the line of matrices away from the face of the mold, substantially as set forth.

24. In a machine for casting type-bars, the combination of a line of matrices, a carrier therefor, a mold, means for moving the line of matrices into casting position and away therefrom, means for moving the line of matrices bodily toward and against the face of the mold when the parts are in casting position, and springs for moving the line of matrices away from the mold after the casting has been completed, substantially as set forth.

25. In a machine for casting type-bars, the combination of a line of matrices, a carrier having a cut or opening in which the line of matrices is arranged, a mold, means for moving the carrier so as to bring the line of matrices opposite the mold in casting position, means for moving the line of matrices bodily outward in its cut in the carrier toward the face of the mold, and springs arranged between the carrier and the matrices and tending to move the line of matrices inward in its cut, substantially as set forth.

26. A justifying device for use in a type-bar-casting machine consisting of three members arranged side by side, and having tail portions which are pivotally connected, and head portions arranged to be inserted between the type-matrices, the inner or middle member of the device being wedge shape and arranged to be moved between the outer members to crowd them apart, substantially as set forth.

27. In a machine for casting type-bars, the combination of a line of matrices, a carrier therefor of cylindrical form, a justifying device placed between certain of the matrices consisting of a plurality of members arranged side by side and having tail portions which extend to the axis of the carrier-cylinder, where they are pivotally united, the adjacent faces of the parts or members of the justifying device being inclined, whereby when the parts of the justifying device are moved into line with each other the line of matrices is justified, substantially as set forth.

28. In a machine for casting type-bars, the combination of a line of matrices, justifying devices, a carrier for the matrices and justifying devices, a mold, means for moving the carrier so as to bring the matrices into casting position, means for moving the line of matrices bodily toward the face of the mold, means for operating the justifying devices, the last said means being in operative relation only after the line of matrices has been bodily moved close to the mold, but being out of operative relation when the line of matrices is moved away from the face of the mold, substantially as set forth.

29. In a machine for casting type-bars, the combination of a line of matrices, justifying devices, a carrier for the matrices and justifying devices, a mold, means for moving the carrier to bring the matrices into casting position opposite the mold, slides which engage with the line of matrices and the justifying devices, and move them bodily toward the face of the mold and operate the justifying devices, and another slide which engages with and operates the justifying devices after the parts have been moved by the first-mentioned slides, to complete the justifying of the line, substantially as set forth.

30. In a machine for casting type-bars, the combination of a line of matrices, justifying devices, a carrier therefor, in the form of a hollow cylinder, a mold, slides G1, G1 arranged on the outside of the said cylindrical carrier which engage with the matrices and move them bodily toward the face of the mold, and also engage with the justifying devices and operate them, another slide G2 arranged on the inside of the said hollow cylindrical carrier and arranged to engage with and complete the movement of the justifying devices after the parts have been moved against the face of the mold, and means for operating the said slides, substantially as set forth.

31. In a machine for casting type-bars, the combination of a line of matrices, and justifying device, on elastic cap or casing 118 in which the said matrices and justifying device are arranged, and a carrier in which the cap or casing and the matrices and justifying device are mounted, substantially as set forth.

32. In a type-bar-casting machine, the combination of a carrier for the matrices, a gear having a continuous cycle of movement for driving the carrier, an intermittently-acting connection between the said gear and the carrier, whereby the latter is moved into the casting position and there allowed to rest, and is then moved to the discharging position for the cast line of type, substantially as set forth.

33. In a machine for casting type-bars, the combination of a carrier for the line of matrices, a gear for driving the carrier having a continuous cycle of movement, connecting means between the gear and carrier through which the gear moves the carrier, and means for disconnecting the carrier from the gear temporarily when it arrives at the casting position, whereby the carrier is given an intermittent motion without requiring the gear to stop in its movement, substantially as set forth.

34. In a machine for casting a bar of type and ejecting the same after casting operation, the combination of a carrier for a line of matrices adapted to move the matrices into the casting and the ejecting positions, a gear for driving the carrier, intermittently-acting connections between the gear and carrier, means for disconnecting such connections when the parts are in the casting position and the type-bar-ejecting position, and means independent of the gear for restoring the carrier to its initial position after the bar of type has been ejected, substantially as set forth.

35. In a machine for casting type-bars, the combination of a carrier for a line of matrices, a gear for driving the same, adapted to have a complete cycle movement, a continuously-rotating gear for giving motion to the carrier-driving gear, means under the control of the operator for starting the carrier-driving gear, and intermittently-operated connections between the said driving-gear and the carrier, whereby the latter is given an intermittent motion during the continuous cycle movement of its driving-gear, substantially as set forth.

36. In a machine of the class described, the combination of a part to be driven of cylindrical shape, a driving-gear therefor substantially concentric therewith, means for giving to the gear a continuous cycle of motion, a connecting-piece carried by the gear and adapted to engage with the part to be driven, and means for intermittently moving the said connecting-piece into and out of engagement with the part to be driven, whereby the latter is intermittently moved, substantially as set forth.

37. In a machine of the character described, the combination of a cylindrical member to be driven, a ring-shaped driving-gear concentric with a portion of the said cylindrical member, a catch 51 carried by the said ring-shaped gear and adapted to engage with the member to be driven, and a cam device for intermittently forcing the said catch into engagement with the body to be driven, substantially as set forth.

38. In a machine of the character described, the combination with a member to be driven having a cylindrical part such as the flange 2, a ring-shaped driving-gear concentric with the said flange, a catch-piece 51 carried by the said gear and adapted to engage with the said cylindrical flange, a stationary cam device 54 for moving the catch into engagement with the said flange, a spring tending to move it out of engagement therewith, and means for rotating the ring-like driving-gear, substantially as set forth.

39. In a machine for casting type-bars, the combination with a carrier for a line of matrices, molding devices for the cast bar of type, and the matrices, of a driving-gear for the carrier having a continuous cycle of movement, intermittently-operated connections between the said gear and the carrier, whereby the latter is brought to rest in the casting and ejecting positions, gearing for operating the casting devices arranged to be operated by the said driving-gear when the carrier is at rest in the molding position, and gearing for operating the ejecting devices, also driven by the said driving-gear arranged to operate when the carrier is at rest in the ejecting position, substantially as set forth.

40. In a type-bar-casting machine, the combination of a part to be driven having a cylindrical flange 2, a ring-like driving-gear 26 arranged concentric to the said flange, and provided with a set of internal teeth 45, cut away or interrupted as at 47, and with a set of external teeth 48, a driving-pinion 46 adapted to engage with the said teeth 45 and drive the gear 26, connections between the flange 2 and the gear 26, and casting and ejecting devices operated by the external gear-teeth 48, substantially as set forth.

41. In a type-bar-casting machine, the combination of matrices and justifying device, a carrier therefor, a driving-gear for the carrier having a continuous cycle of movement, connections between the gear and the carrier, means for intermittently disconnecting or breaking such connections, whereby the carrier is brought to rest in the casting position, mechanism for operating the justifying device, and gearing for the last said operating mechanism arranged to be put into motion by the said driving-

gear when the carrier comes to rest in the casting position, substantially as set forth.

42. In a machine for casting type-bars, the combination of a carrier for the matrices of cylindrical form, a driving-gear therefor, having a continuous cycle of movement, intermittently-operated connections between the driving-gear and the carrier, whereby the latter is intermittently moved, a sliding locking-bolt for locking the carrier when it comes to rest, and means operated by the said driving-gear for moving the said locking-bolt when the carrier is disconnected from the gear and comes to rest, substantially as set forth.

43. In a machine for casting type-bars, the combination with a carrier for the matrices, of a lock therefor, comprising a sliding bolt 107, a spring for forcing the said bolt in one direction, a controlling-bolt 108 for moving the sliding locking-bolt in the other direction, a driving-gear constituting part of the driving mechanism for the carrier having a continuous cycle of movement provided with raised and depressed portions with which a projection from the bolt 108 engages, whereby the latter is re-depressed, and intermittently-operated connecting means between the carrier and the said gear, substantially as set forth.

44. In a machine for casting type-bars, the combination with the molding device and the ejecting devices for the cast type-bar, of a cylindrical carrier for the matrices, a cylindrical mold having a casting-opening opposite to which the matrices are arranged, the mold and carrier being mounted concentrically relative to each other and so disposed that the surfaces of the mold and carrier are closest together when the parts are in casting position and are somewhat separated when they are in the ejecting position, substantially as set forth.

45. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold in which the bar of type is cast, means for connecting the mold and the carrier, whereby they move together from the casting to the discharging position, a slide for forcing the matrices out of the carrier provided with a receiver for the cast type-bar; and means for forcing the cast type-bar out of the mold upon the receiver of the said slide, substantially as set forth.

46. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold, means for moving the carrier and the mold away from the casting position, a sliding receiver for the bar of type provided with a pivoted bottom 98 adapted to constitute a chute or incline for discharging the type-bar, means for moving the said receiver, and means for forcing the cast bar-type out of the mold onto the said pivoted bottom of the receiver, substantially as set forth.

47. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold having a casting-recess, means for moving the mold and the carrier from the casting position, a receiver for the cast bar of type arranged to be moved adjacent to the casting-recess in the mold, and having a pivoted swinging bottom, means for forcing the cast bar of type out of the mold and upon the said pivoted bottom of the receiver, means for moving the receiver, pins 100 with which the swinging bottom of the carrier engages when in position to receive the cast bar of type, and by which it is held up in line with the carrier, and stops or pins 101 with which the swinging bottom is adapted to engage when the receiver is withdrawn to discharge the bar of type, and by which the said bottom is held in an inclined position as to constitute a chute for the discharge of the type-bar, substantially as set forth.

48. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold in which the type-bar is cast, a slide arranged to force the matrices out of the carrier and also to receive the cast type-bar, means for forcing the cast type-bar from the mold upon said slide, a lock for holding the slide in position while the type-bar is being forced out of the mold, and means for releasing the lock and for withdrawing the slide, substantially as set forth.

49. In a machine for casting type-bars, the combination of a cylindrical carrier having a recess for the line of matrices, a hollow cylindrical mold having a casting-recess opposite to which the line of matrices is arranged, means for connecting the mold and the carrier, whereby they move together, a sliding rack 75 adapted to be moved into the recess in the carrier and force therefrom the matrices after the casting has been effected, a wheel 74 having an interrupted toothed portion arranged to drive the said sliding rack, an ejector 98 arranged to enter the casting-recess in the mold and discharge therefrom the cast bar of type, a lever for operating the ejector, and a cam 89 for operating the lever, the cam being arranged on the same shaft with the wheel 74, and means for withdrawing the sliding rack, substantially as set forth.

50. In a machine for casting type-bars, the combination with the mold, the feet for containing the molten metal and means for forcing the metal from the feet to the mold, of a movable member having a series of openings through which the molten metal may be forced arranged between the feet and the mold, and means for moving and covering the same in different positions, whereby one or the other of the openings therein is brought into use, substantially as set forth.

51. In a machine for casting type-bars, the combination with the mold, the feed for containing the molten metal and means for forcing the metal from the feed to the mold, of a movable member arranged between the feed and the mold and provided with a series of openings through which the molten metal is forced to the mold, the said openings being of different sizes, and means for adjusting and securing the said member in different positions for bringing one or another of the said openings into use, substantially as set forth.

52. In a machine for casting type-bars, the combination of a mold having a plurality of casting-rooms of different sizes, a feed in which the molten metal is arranged, a feed member arranged between the feed and the mold provided with a plurality of openings of different sizes through which the molten metal is forced from the feed to the mold, and means whereby the mold and the said feeding member may be adjusted to bring the feeding-openings and casting-rooms of proper size opposite to each other, substantially as set forth.

53. The combination with a mold, a feed in which the molten metal is arranged and means for forcing the metal from the feed into the mold, of a pivoted feeding-coaster 13 arranged between the discharge-opening of the feed and the mold and provided with a series of openings 13 adapted to register with the casting-opening in the mold and the discharge-opening of the feed, and means for adjusting the said coaster so as to bring one or the other of its openings 13 into position for use, substantially as set forth.

54. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold, means connecting these two parts whereby they are caused to move simultaneously, means whereby the parts may be disconnected, and means for moving one of these parts relative to the other when they are disconnected whereby their relative position may be changed, substantially as set forth.

55. In a machine for casting type-bars, the combination of a carrier having a recess adapted to receive a line of matrices, a mold having a casting-room, means for uniting the mold and carrier whereby they move together, automatic means for moving the mold and carrier into and away from the casting position, means under the control of the operator for disconnecting the mold and carrier, and for changing the relative position of the mold and carrier and then connecting them, substantially as set forth.

56. In a machine for casting type-bars, the combination of a carrier for the line of matrices of cylindrical form, a hollow cylindrical mold having a casting-opening opposite to which the line of matrices is arranged, means for uniting the mold and carrier whereby under normal conditions they move together, means under the control of the operator for disconnecting the mold and the carrier, and means for changing the relative positions of the mold and carrier, substantially as set forth.

57. In a machine for casting type-bars, the combination of a carrier for a line of matrices of cylindrical form and arranged to turn about its axis, a hollow cylindrical mold arranged outside of the carrier and mounted to turn on its axis, the mold and the carrier being concentric to each other, interlocking projections carried by the mold and carrier, respectively, arranged to unite these parts and cause them to move together under normal conditions of operation and also arranged to separate, by reason of the offset concentric mounting of the parts when moved into an unusual position, means under the control of the operator for moving the mold and carrier into an unusual position to disconnect their interlocking projections, and means whereby one of the parts may be partly turned relative to the other to change their angular relation, substantially as set forth.

58. In a machine for casting type-bars, the combination of a cylindrical carrier for the line of matrices, a cylindrical mold, the carrier and mold being provided, respectively, with gear-teeth, means for normally connecting the carrier and mold, means whereby they may be at the will of the operator disconnected, gear-wheels meshing with the said gear-teeth of the mold and carrier, means for uniting the said gear-wheels whereby they move together, and means for moving one of the wheels without moving the other, whereby the angular relations of the carrier and mold may be varied, substantially as set forth.

59. In a machine for casting type-bars, the combination of a cylindrical carrier for a line of matrices arranged to be turned about its axis, a cylindrical mold arranged to be turned about its axis, means for connecting the mold and carrier under normal conditions of operation whereby they are caused to move together, adjusting-gear under the control of the operator arranged to be brought into engagement with the said mold and carrier to change their angular relations, and means for holding the said adjusting-gear out of engagement with the mold and carrier under normal conditions of operation, substantially as set forth.

60. In a machine for casting type-bars, the combination of the carrier for the matrices of cylindrical form, a hollow cylindrical mold surrounding the carrier, the said mold and carrier being provided with toothed flanges, means for connecting the carrier and mold under normal conditions

whereby they will move together, gear-wheels 124 and 126 arranged to mesh with the toothed flanges of the carrier and mold, respectively, a shaft and sleeve upon which the said gear-wheels are respectively mounted, means for connecting the shaft and sleeve whereby they are caused to turn together and means for disconnecting them whereby one may be moved independently of the other to move either the mold or the carrier without a corresponding movement of the other part, substantially as set forth.

61. In a machine for casting type-bars, the combination of a carrier for the matrices, a mold, a gear having a continuous cycle movement for moving the parts into positions for casting, and for discharging the cast type-bar and the matrices, intermittently-operated connecting means between the said gear and the carrier and mold whereby the latter are brought to rest at the casting and the discharging positions respectively, and a weight for restoring the carrier and mold to their initial positions after the discharging of the type-bar and the matrices has been effected, substantially as set forth.

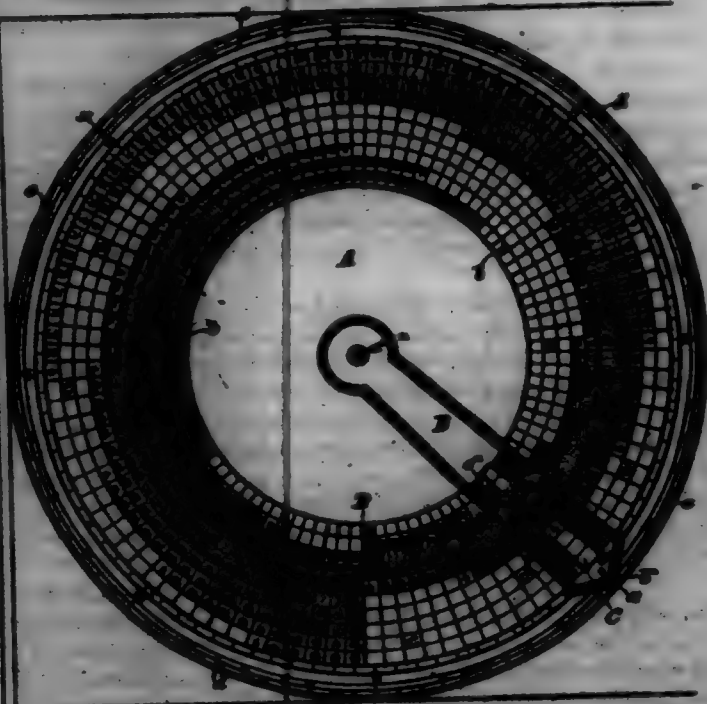
697,860. PLACKET-CLOSURE. LAWRENCE W. LORIAN, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 78,141. (No model.)



Claim.—1. A placket-closure comprising two flexible members finally secured together at one end and adapted to be attached to opposite edges of the placket, these members being normally curved in opposite directions.

2. A placket-closure comprising two flexible members finally secured together at one end and adapted to be attached to opposite edges of the placket, one of these members being of a form substantially similar to that carried in use and the other being curved in the opposite direction.

697,861. MECHANICAL CALCULATOR. WILLIAM H. MAC-CHILL, Philadelphia, Pa., assignor to the Western-Union Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Jan. 7, 1902. Serial No. 26,771. (No model.)



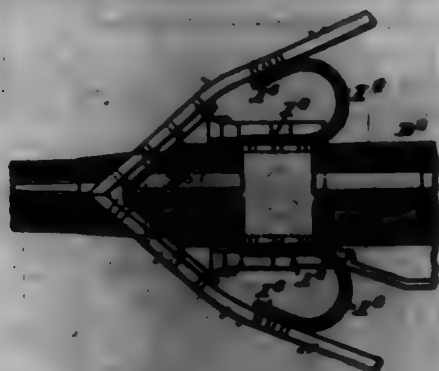
Claim.—1. A calculating device comprising a chart of cubical form having a series of spaces, certain dimensions marked within said spaces, lines adjacent to, but beyond the spaces containing the dimensions, each line being divided into parts of equal length, a division-line for the dimensions marked within the spaces of the chart, the said dimensions differing in character on either side of said division-line, and a pointer suitably mounted with relation to the chart, one of said members being movable with respect to the other, said pointer having an opening equal to one row of spaces and having also a series of numbers disposed on either side of said slot, which numbers are to be read when the end of the

pointer is opposite one of the markings of the outer line, in connection with the numbers viewed through said opening, the numbers on one side of said dial being read in connection with the dimensions on one side of the dividing-line, and vice versa.

2. A calculating device consisting of a disk having a series of spaces formed by radial and concentric lines having a common center, certain dimensions marked in said spaces, outer concentric circles divided into a series of spaces of equal length, a dividing-line for the dimensions marked within the spaces of the disk, the said dimensions differing in character on either side of said dividing-line, and a pointer mounted at the center of the disk or disk, one of said members being movable with respect to the other, said pointer having a dot overlying the series of dimensions marked within the concentric spaces, and having also a series of numbers disposed on either side of said dot, which numbers are to be read, when the end of the pointer is opposite one of the markings of the outer circle, in connection with the numbers viewed through said dot, the numbers on the left-hand side of said dot being read in connection with the dimensions in the spaces to the right of the dividing-line, and vice versa.

3. A calculating device having a series of spaces with dimensions therein representing "stair-cases," another series of spaces with dimensions therein representing "stair-treads," marks arranged beyond said spaces to indicate heights between floors, and a dotted pointer carrying certain figures indicating the number of steps, the dimensions of "rises" and "treads" being viewed through the dot of the pointer when the end of the same is brought opposite one of the marks indicating the height between floors.

697,869. SHIELD ATTACHMENT FOR GUN. JOHN F. HARR, Bethlehem, Pa., assignor to Bethlehem Steel Company, South Bethlehem, Pa., a Corporation of Pennsylvania. Filed Nov. 4, 1904. Serial No. 51,697. (No model.)



Claim.—1. The combination of the gun-shield consisting of two shield-sections having their front edges beveled to fit together at an angle, a gun-support having a V-shaped extension fitting into the angular portion of the shield, means for securing the shield to said extension, and yielding side supports for the shield-sections, substantially as described.

2. The combination with a gun, of a V-shaped shield centrally supported on the gun, with its apex above and below and on a line extending through the axis of the gun, and yielding side supports for the shield, substantially as described.

3. A gun-shield formed of two shield-sections of armor-plate meeting above and below the gun on a line extending vertically through the axis thereof, a support for the forward portion of the shield, and side supporting-springs, substantially as described.

4. A gun-shield consisting of two shield-sections meeting and secured together at their front edges along a vertical line and at an angle to each other, combined with a gun-cleave, and a V-shaped extension connected with said gun-cleave at its forward end, and secured to and supporting said shield-sections, with a gun-part in the front end of each shield-section, substantially as described.

5. The combination of two shield-sections of armor-plate, with the front edges beveled to fit together at an angle, a gun-cleave having a V-shaped extension at its front end fitting within the front end of each shield, means to secure each shield to said extension, and supporting-springs secured to said gun-cleave and to said shield-sections, substantially as described.

6. The combination of shield-sections of armor-plate, each being bent about a vertical line near the center of the same and the front edges meeting and beveled to fit together, a gun-cleave to support a gun, an extension formed on said gun-cleave and secured to said shield-sections, and curved laminated springs secured to said shield-sections and to said gun-cleave, substantially as described.

7. The combination of two shield-sections of armor-plate, meeting at an angle and having a gun-part in the front and provided with a sight-hole, a gun-cleave, a shield-supporting extension secured to said gun-cleave,

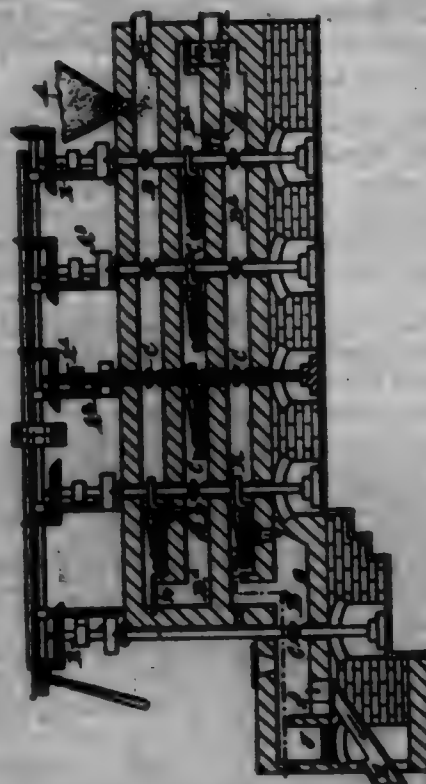
means to secure said shield-sections to said extension, and side supporting-springs, substantially as described.

8. The combination of two shield-sections of armor-plate, meeting at an angle, a gun-cleave having a V-shaped extension at its front end fitting within the angle formed by the shield-sections, and means to secure each shield-section to said extension, substantially as described.

9. The combination with a gun, of a V-shaped shield with its apex on a line extending vertically through the axis of the gun and having a part for the gun in the angular portion, and means for supporting the shield to swing with the gun, substantially as described.

10. The combination with a gun, of a V-shaped shield having its apex in a line extending vertically through the axis of the gun and provided with a gun-part in its angular portion, and means for supporting the shield to move in all directions with the gun, substantially as described.

697,868. ONE-ROASTING FURNACE. THOMAS B. KERR, Spotswood, Victoria, Australia. Filed Dec. 21, 1900. Serial No. 41,601. (No model.)



Claim.—In an one-roasting furnace, a plurality of superposed communicating hearths, a series of hollow vertical shafts passing through the hearths, a water-supply pipe having a series of depending branches corresponding in number with and located in the respective shafts, a driving-shaft common to all and operatively connected with said shafts, arms extending radially from said shafts, means for connecting the arms rigidly yet removably to said shafts, bars connected to said arms, rubbing-rolls detachably depending from said bars, notched lugs extending from said arms, and stay-rolls connected to said bars and having eyes to engage the notched lugs.

697,864. JOURNAL-BEARING. IRVING HERRMAN, Winfield, Iowa. Filed Sept. 1, 1900. Serial No. 22,177. (No model.)



Claim.—1. In a journal-bearing, the combination of a spindle; a box having an enlarged oil-chamber and two points of bearing against said spindle; and a collar secured to said spindle between said points of bearing; substantially as set forth.

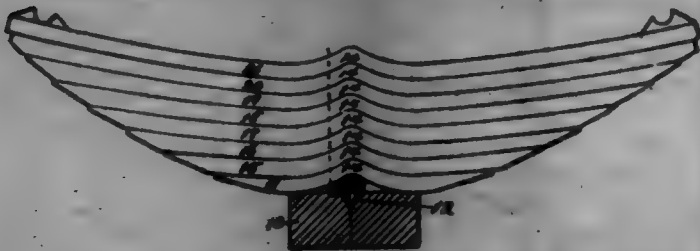
2. In a journal-bearing, the combination of a spindle; a box constructed around said spindle at one point and having an enlarged oil-chamber surrounding said spindle at another point; a collar secured to said spindle and abutting against said construction; and a bushing threaded in said box and abutting against said collar; substantially as set forth.

3. In a journal-bearing, the combination of a spindle; a box constructed around said spindle at one point and having an enlarged oil-cavity surrounding said spindle at another point; a collar detachably secured to said spindle and abutting against said construction, and also bearing at its periphery against said box; and a bushing threaded in said box and abutting against said collar; substantially as set forth.

4. In a journal-bearing, the combination of a spindle having the shoulder 8; a collar secured on said spindle at a distance from said shoulder; a bushing secured between said shoulder and collar; a box inserted over said spindle and collar and threaded on said bushing and having a construction abutting against the end of said collar remote from said bushing, the outer end of said box being closed around the end of said spindle and having an oil-cavity surrounding said spindle; substantially as described.

5. In a journal-bearing, the combination of a spindle having the shoulder 8; a collar secured on said spindle at a distance from said shoulder; a bushing located on said spindle between said shoulder and collar; a box closed at its outer end and inserted over said spindle and collar and threaded on said bushing; a hub inserted over said box; the flange 11 on said bushing abutting against the inner end of said hub; and a screw-plug in the outer end of said box, having an enlarged flange 13 also overlapping and abutting against the outer end of said hub; substantially as set forth.

697,865. ELLIPTICAL SPRING. CHARLES A. MILLER, Marshalltown, Iowa. Filed Dec. 18, 1901. Serial No. 61,338. (No model.)



Claim.—1. A leaf for an elliptical spring, which leaf is formed of bar metal and has a stud stamped in its center and portions struck up on either side of and spaced apart from said stud and extending laterally to the long margins of the leaf.

2. A leaf or plate for an elliptical spring, having struck-up portions in the centers of its long edges and a central stud or stud between said struck-up portions.

3. The combination of a saddle formed with a seat in its upper face, the plurality of spring-leaves, each formed with a central depressed seat and struck-up angular portions in the centers of its long edges, conforming to and nesting with each other successively, the lowermost leaf conforming to and nesting in the seat of its support, together with counter-part band members shaped to embrace the several leaves jointly and also shaped to conform to the upper and lower faces of the collection of leaves and to the upper face of the saddle, in which band members the spring-leaves are mounted loosely.

697,866. NEEDLE-HOLDER. ROBERT MILLER, Cortland, N. Y. Filed Dec. 8, 1901. Serial No. 64,730. (No model.)



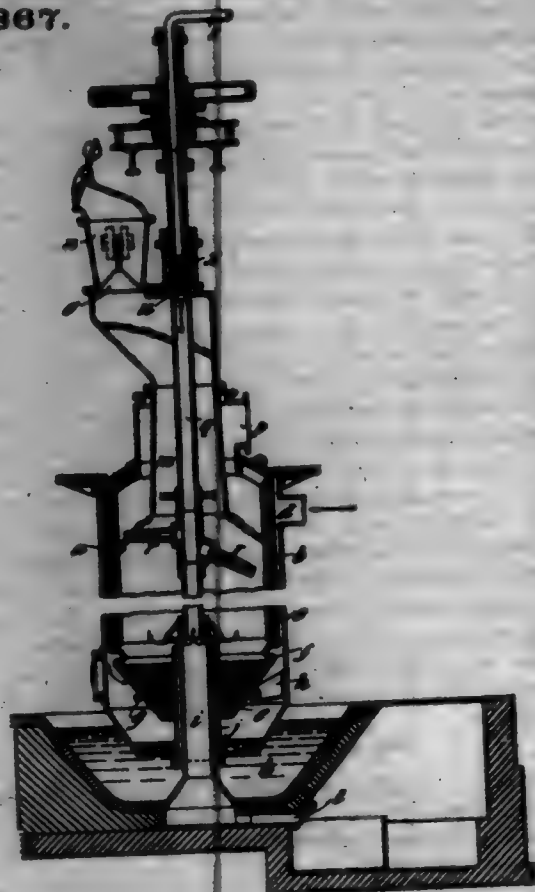
Claim.—1. A toilet article embodying a Shank hollow at one end and forming a needle-eye in said end, a plurality of disks spaced and secured on the hollow portion of the Shank, thus providing thread-spools integral therewith; and a thumb-like casing removably secured on the disk furthest from the hollow end, thus affording a cover for the open end of the case and for the spool.

2. A toilet article, embodying a Shank hollow at one end, disks secured at intervals upon the hollow portion of the Shank, one disk having its edge screw-threaded, and a thumb-like casing adapted to screw upon the threaded edge of the disk.

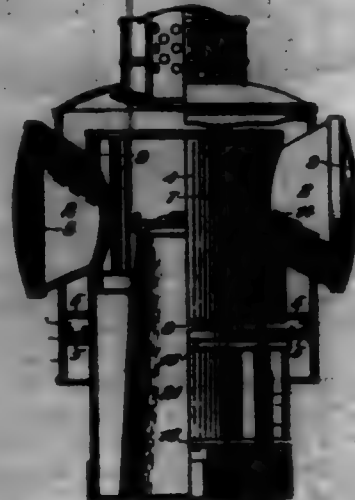
697,867. GAS-PRODUCER. LOUIS W. HARR, Regents Park, London, England. Filed Nov. 15, 1901. Serial No. 52,756. (No model.)

Claim.—In combination with a cylindrical gas-producer having at the top a bell containing raw fuel and at the bottom a grate in the form of an inverted truncated cone, a central hollow retentive shaft carrying agitating-arms, having at the top of the bell lateral inlets for gases and vapors, a steam-injector within it, and having at its lower end outlets for gases and vapors into the mass of incandescent fuel, substantially as and for the purpose set forth.

697,867.



697,868. TRAIN-SIGNAL LAMP. EDWARD F. MOORE, Hobart, Mo., and JOHN LAMER, Littlefield, Ill. Filed Sept. 2, 1901. Serial No. 74,332. (No model.)



Claim.—1. In a lantern, a casing having conical projections, a cylinder therein having horizontal and vertical intersecting slots, webs, one of which is slotted, connecting the casing and cylinder and forming a way, an inner cylinder having openings registering with the conical projections, racks thereon, transparent plates of varying colors in the racks, a rod having an end projecting through the slot of the first-named cylinder and joined to the inner cylinder and means for holding the rod elevated.

2. In a lantern, a casing having conical projections, a cylinder therein having horizontal and vertical intersecting slots, webs, one of which is slotted, connecting the casing and cylinder and forming a way, an inner cylinder having openings registering with the conical projections, racks thereon, transparent plates of varying colors in the racks, a rod having an end projecting through the slot of the first-named cylinder and joined to the inner cylinder, a sliding plate, a guide thereon for the rod and means for holding the rod elevated substantially as described.

697,869. GLOVE-FASTENING. WILLIAM E. MURPHY, New York, N. Y. Filed July 2, 1901. Serial No. 66,369. (No model.)

Claim.—1. In a fastener for gloves and similar articles, a circular spring coact member constructed with two or more parallel slots or cuts, substantially as described.

2. In a fastener for gloves and similar articles, a circular coact member divided into four or more sections by means of parallel slots or cuts, substantially as described.

3. In a fastener for gloves and similar articles, a socket member divided into four or more sections by means of parallel slots or cuts, two of said sections being larger segments of circles than the others, substantially as described.



4. In a fastener for gloves and similar articles, a circular socket member constructed with two or more parallel slots or cuts, and means for securing the socket member to the glove or other article, substantially as described.

5. In a fastener for gloves and similar articles, the combination with a stud, of a socket constructed with two or more parallel slots or cuts adapted to receive said stud, substantially as described.

6. A socket for a glove-fastener having a stud-receiving opening, an annular part or projection surrounding said opening, divided into four or more sections by means of parallel slots or cuts, two of said sections being comparatively wide and stiff and the others comparatively narrow and yielding, substantially as described.

7. A socket for a glove-fastener formed with a stud-receiving portion, the edges of which are turned and folded back upon themselves, parallel slots being arranged in said edges and in the walls of the socket comparatively close together so as to form wide comparatively stiff portions and intermediate yielding or resilient portions, the intermediate yielding portions facilitating the inserting of a stud into the socket, while the stiff portions enable the socket to grip the stud efficiently to retain the same, substantially as described.

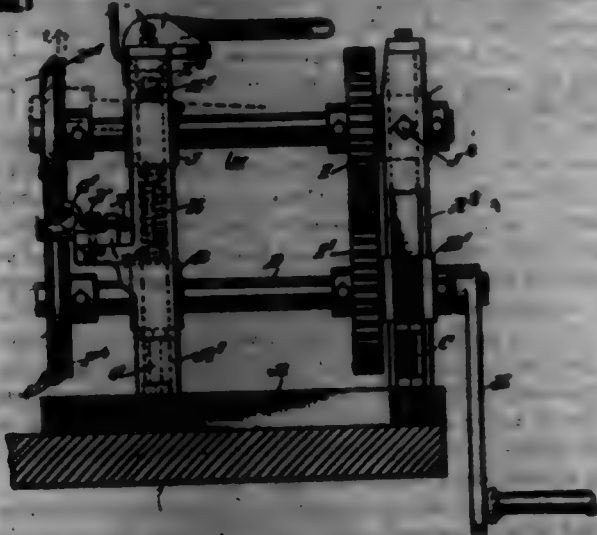
8. A socket for a glove-fastener comprising a stud-receiving portion having approximately cylindrical walls, the outer edges of said walls being made yielding by slots arranged parallel with each other and comparatively close together, whereby two sections of the walls will be wide and comparatively stiff while the other two sections will be quite narrow and yielding or resilient and means for holding the socket-walls in position on the glove or other article, substantially as described.

697,870. **WY-LOCK.** HENRIETTA McDONALD, Fitch, Canada, assignor of one-half to ALVIN J. CRIG, Fitch, Canada. Filed June 14 1901. Serial No. 64,364. (No model.)



Claim.—A wy-lock, comprising a plate having openings for receiving nuts of bolts for securing fish-plates to rails, and also having perforations near the ends, and locking-clips of plate-like construction arranged between the locking-plate and the fish-plate and through which securing-bolts pass, the said clips being of sufficient width to engage their edges against the head and base flange of the rail, and tongs on said clips for passing through the perforations at the ends of the locking-plate, substantially as specified.

697,871. **CURVED-HAT-SWAY-FLANGING MACHINE.** ARTHUR E. HILLMAN and FREDERICK BARNES, Brooklyn, N. Y., assignors to CANTARUS HESS, Brooklyn, N. Y. Filed Dec. 12, 1901. Serial No. 66,981. (No model.)



Claim.—1. A flanging-machine, comprising a pair of revoluble dies, and a guide-plate at the entrance side of the dies for guiding the edge of

an article to the dies, the said guide-plate having an upturned and overhanging flange forming a tapering guideway with outwardly-flaring mouth to guide the article to the dies and to assist in turning over the edge of the blank sufficiently for the revoluble dies to complete the crimping, the bottom of the guide-plate being arched to accommodate tubular articles of different diameters, as set forth.

2. A flanging-machine, comprising a pair of revoluble dies, a guide-plate at the entrance side of the dies for guiding the edge of an article to the dies, the said guide-plate having a segmental body portion and an upturned and overhanging flange forming a tapering guideway with outwardly-flaring mouth to guide the article to the dies and to assist in turning over the edge of the blank sufficiently for the revoluble dies to complete the crimping, and means for adjusting the guide-plate relatively to the said dies, as set forth.

3. A flanging-machine, comprising a pair of revoluble dies located one above the other, a guide-plate at the entrance of the said dies for guiding the edge of an article to the dies, shafts carrying the revoluble dies and geared together, bearings for the said shafts, one of the bearings for the upper shaft being telescoped and the other bearing mounted to slide, springs arranged on opposite sides of the sliding bearing and means for compressing one of the springs, as set forth.

4. A flanging-machine, comprising a pair of revoluble dies located one above the other, a guide-plate at the entrance of the said dies for guiding the edge of an article to the dies, shafts carrying the revoluble dies and geared together, bearings for the said shafts, one of the bearings for the upper shaft being telescoped and the other bearing mounted to slide, springs arranged on opposite sides of the sliding bearing, and a cam-lever for compressing the spring on one side of the sliding bearing to lock the said bearing against the tension of the spring on the other side of the bearing, as set forth.

5. A flanging-machine, comprising a pair of revoluble dies having annular registering bevels and annular registering grooves adjacent to the bevels and half-round in cross-section, the grooves being adjacent to the inner faces of the dies and the bevel of one inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove and a guide-plate at the entrance side of the dies for guiding an article to the same, as set forth.

6. A flanging-machine, comprising a pair of revoluble dies having annular registering bevels and annular registering grooves adjacent to the bevels and half-round in cross-section, the grooves being adjacent to the inner faces of the dies and the bevel of one inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove and a guide-plate at the entrance side of the dies for guiding an article to the same, the said guide-plate having a curved bottom and an upwardly-turned flange forming a tapering guideway with outwardly-flaring mouth, as set forth.

7. In a flanging-machine, a pair of revoluble dies having annular registering bevels and grooves adjacent to the inner faces, the bevel of one die inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove, as set forth.

697,872. **FRAME.** SAMUEL GLASSMAN, Hoboken, N. J., assignor to KRONHEIMER & GLASSMAN, Company, a Corporation of New York. Filed Dec. 20, 1901. Serial No. 67,714. (No model.)



Claim.—1. In a device of the character described, the combination of a sheet-metal frame member *a*, the rear edges of the sides of which are bent inwardly and a back *b*, provided with bent-over edges, substantially as shown and described.

2. In a device of the character described, the combination of a sheet-metal frame member the front and rear edges of the sides of which are bent inwardly, the rear edges being also bent toward the center at points intermediate of the corners, and a back, substantially as shown and described.

3. In a device of the character described, the combination of a sheet-metal frame member, the front and rear edges of which are bent inwardly, the rear edges being also bent toward the center at points intermediate of the corners and a back member provided with converging bent-over edges, substantially as shown and described.

697,878. LADY'S BELT. EDWARD CLAMMERTON, Hoboken, N. J., assignor to Krumboltz & Oldenbush Company, a Corporation of New York. Filed Jan. 16, 1902. Serial No. 89,894. (No model.)

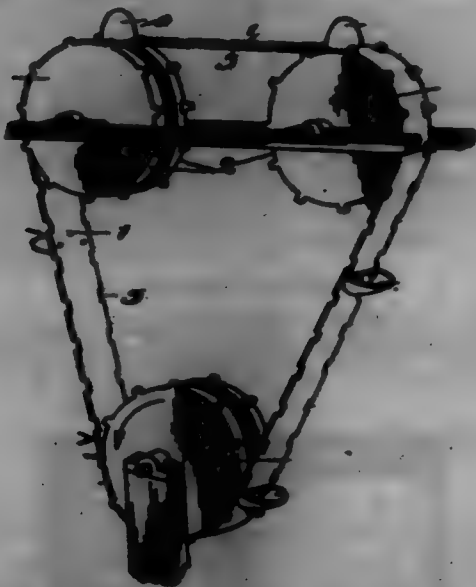


Claim.—1. In a device of the character described, a back bar provided with an eyelet near the lower end thereof, a belt threaded through such eyelet, an eyelet near the upper end of the back bar, and having a belt therein, and means for connecting the free ends of the belt, substantially as shown and described.

2. In a device of the character described, a back bar provided with three eyelets, one of such eyelets being placed near the lower end of such back bar and two of such eyelets being placed near the upper end of such back bar, a belt in the lower eyelet and another belt in the upper eyelet and means for holding together the free ends of the said belt, substantially as shown and described.

3. In a device of the character described, a back bar provided with an eyelet *A*, a belt *f* therein, a secondary belt *e* above the belt *f*, means for holding the belt *e* and *f* apart at the back of the wearer, and means for connecting the ends of the belt, substantially as shown and described.

697,874. CONVEYER. JOSEPH OLSEN, Brooklyn, N. Y. Filed Apr. 2, 1901. Serial No. 85,957. (No model.)



Claim.—The combination of a belt of sheet metal having notches or recesses in its lateral edges, and carrying buckets upon its outer surface, and the pairs of spaced-apart disks each pair being secured upon a common shaft and having peripheral teeth engaging said notches of said belt, substantially as set forth.

697,875. ROTARY CUTTER. FRIEDRICH FARM, Essen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Jan. 11, 1902. Serial No. 89,893. (No model.)

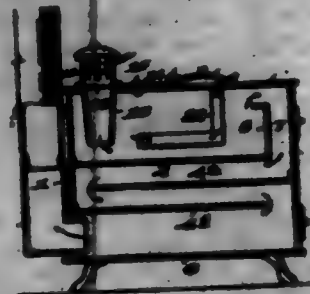
Claim.—1. A rotary cutter having its surface divided by oblique channels into cutting-sections, and each cutting-section being grooved to form a large number of inwardly-curved ridges of approximately triangular or outwardly-tapering section, forming at their intersection with the channels, cutting-teeth offset in one section with respect to those in a neighboring section.

2. A rotary cutter comprising a cylindrical body, cut with oblique channels dividing it into sections and intersecting circumferential spiral

grooves of profile forming inwardly-curved ridges of outwardly-tapering cross-section; the intersection of said ridges with the channels forming outwardly-tapered cutting-teeth.



697,876. HEATING AND COOKING STOVE. JAMES C. PARKER, New Britain, Mo. Filed Sept. 26, 1901. Serial No. 78,672. (No model.)



Claim.—1. In a stove, the combination with the combustion-chamber, of air-fuel tubes projecting through the top of the stove vertically into said chamber in the path of the flames and escaping products of combustion and provided with horizontal discharge branches extending through the fuel-space of the combustion-chamber and over the bottom of the latter, the upper ends of said fuel-tubes being in communication with the atmosphere, substantially as described.

2. In a stove, the combination with the combustion-chamber, of air-fuel tubes projecting vertically into said chamber through the top of the stove and provided with horizontal discharge branches extending through the fuel-space of the combustion-chamber and over the bottom of the latter, whereby the air fed by said tubes is heated before it is discharged into the chamber, a tube extending through the top of the stove and projecting into the combustion-chamber, the said tube operating to feed air at the temperature of the atmosphere into the combustion-chamber in proximity to the discharge ends of the hot-air-fuel tubes, and means for regulating the passage of the air through the said pendant tube, substantially as described.

3. In a stove, the combination with the combustion-chamber of air-fuel tubes projecting vertically into said chamber through the top of the stove and provided with horizontal discharge branches extending through the fuel-space of the combustion-chamber and over the bottom of the latter, the upper end of said fuel-tubes being in communication with the atmosphere and a circulation line for conducting the heated air and products of combustion from said chamber to and over the bottom of the stove and underneath said combustion-chamber said line operating to cause the heated air and products of combustion to pass in a direction opposite to which the heated air passes through the horizontal branches of said fuel-tubes, substantially as described.

4. In a stove, the combination with the combustion-chamber, of an air-fuel tube projecting into said chamber through the top of the stove and provided with a draft-regulator, a circulation line for conducting the heated air and products of combustion from said chamber to and over the bottom of the stove and beneath the combustion-chamber, and means for introducing heated air through the fuel into the combustion-chamber near the discharge end of the air-fuel tube, substantially as described.

5. In a stove, the combination with the combustion-chamber, of an air-fuel tube projecting into said chamber through the top of the stove, said stove-top being provided with a fuel-fuel aperture, an oscillating cover for closing said aperture, and means automatically thrown into operation by the oscillating opening movement of said cover for closing the air-fuel tube, substantially as described.

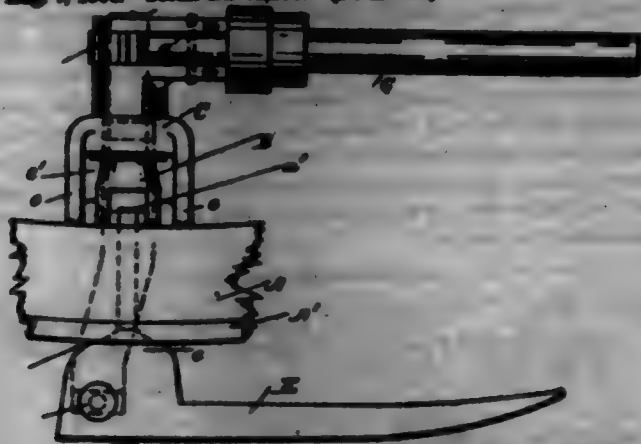
6. In a stove, the combination with the combustion-chamber, of an air-fuel tube projecting into said chamber through the top of the stove, said stove-top being provided with a fuel-fuel aperture, an oscillating cover for closing said aperture, means automatically thrown into operation by

the oscillating opening movement of said cover for closing the air-fed tube, and a draft-regulator for controlling said air-fed tube, substantially as described.

7. In a stove, the combination with the combustion-chamber and means for feeding atmospheric air thereto, of air-tubes leading from the exterior of the stove to and through the combustion-chamber in the path of the flames and escaping products of combustion and over the bottom of said chamber and arranged to deliver heated air into the latter, and a circuitous flue for conducting the heated air and products of combustion from said chamber to and over the bottom of the stove and beneath the combustion-chamber, substantially as described.

8. In a stove, the combination with the combustion-chamber and means for feeding atmospheric air thereto, of air-tubes arranged in the interior of the combustion-chamber, each of said air-tubes being bent at an angle and communicating at its upper end with the atmosphere through the top of the stove and arranged at its lower end horizontally over the bottom of the combustion-chamber to deliver heated air into the said chamber, the pendant portion of said tubes being arranged in the path of the flames and escaping products of combustion, and a circuitous flue for conducting the heated air and products of combustion from the combustion-chamber to and over the bottom of the stove and beneath the said chamber, substantially as described.

697,877. WRENCH. JOHN E. PARSONS, Gering, Neb. Filed Aug. 7, 1904. Serial No. 71,232. (No model.)



Claim.—1. The combination, with a wrench-jaw provided with an operating-spindle; and a plate in which the said spindle is journaled said plate having two bearings for engaging the wheel-rim arranged one on each side of the said spindle and having also a bar which projects across the wheel-rim between the said bearings; of a clamping-lever pivoted against the front side of the said bar overwise and to one side of the axis of the said spindle and working in a plate which is overwise of the two said bearings, said lever having a bearing edge arranged longitudinally of it, substantially as set forth.

2. The combination, with a wrench-jaw provided with an operating-spindle; and a plate in which the said spindle is journaled said plate having two bearings for engaging the wheel-rim arranged one on each side of the said spindle and having also a bar which projects across the wheel-rim between the said bearings and has a pivot-pin projecting from the front side of its free end portion overwise and to one side of the axis of the said spindle; of a clamping-lever pivoted on the said pivot-pin and working in a plate overwise of the said bearings, said lever having a bearing edge arranged longitudinally of it, substantially as set forth.

697,878. NON-REFILLABLE BOTTLE. JAMES Y. PATTON, Wal-
dron, Ark. assignor of one-half to Gordon Cox, Waldron, Ark. Filed
Aug. 17, 1904. Serial No. 72,577. (No model.)



Claim.—1. A non-refillable bottle comprising the bottle-neck having a bottom wall provided with a filling-part, port, the neck of the bottle being provided diametrically opposite the filling-part with the discharge-part and with a tubular portion forming a continuation of said part and terminating below the upper end of the neck of the bottle, each bottle-neck being provided internally near its upper end with a groove having a stop-shoulder for engagement by a detent, the longitudinal rib within the bottle-neck and terminating at its ends short of the upper and lower ends of the neck, the cap-stopper fitted to the bottle-neck and having said detent operating in the groove of the bottle-neck and a lateral flange provided in its under side with a groove to receive the end of the bottle-neck, each flange being arranged to overlap the outer end of the outlet-part and having a notch which may be set into register with each end of the part, the plunger having a shank portion movable longitudinally in the cap-stopper and hinged thereto, whereby it can only turn with the said stopper, said plunger being provided with a piston having a longitudinally-extended rib and opposite the same a tooth or spur occupying a position above the upper end of the said rib, and the dispensing-cylinder fitted within the bottle-neck snugly below the rib therein and having a slot which may be entered by the rib of the plunger-piston, a chamber in which said piston may operate and being movable by the operation of the plunger to adjust said slot into register with the filling and discharge parts of the bottle-neck, substantially as and for the purpose set forth.

2. A non-refillable bottle comprising the bottle-neck having a filling-part and a discharge part, a dispensing-cylinder having a side slot which may be adjusted to register with one or the other of said parts, and means for operating the said cylinder to cause its slot to register with one or the other of said parts, substantially as set forth.

3. A non-refillable bottle having a bottle-neck provided with a filling-part and a discharge-part, a dispensing-cylinder having a slot through which it may be filled and discharged, and means for operating the dispensing-cylinder including a piston to occupy the chamber thereof in re-adjusting the cylinder from discharging to filling position, substantially as set forth.

4. The combination of the bottle-neck having a filling-part and a discharge-part, the dispensing-cylinder having a slot which may be turned to register with either of said parts, and will when registered with one part, operate to close the other part, and means for operating the cylinder, substantially as set forth.

5. The combination of the bottle-neck, the dispensing-cylinder arranged to rotate therein, and the plunger having piston movable into the said cylinder and arranged to rotate within the bottle-neck, and the plunger rotating with and movable longitudinally independently of the cylinder, said cylinder being formed to cooperate with the said parts in the bottle-neck, substantially as set forth.

6. A bottle having filling and outlet parts, combined with a dispensing-cylinder having a chamber and a port leading thereto, which port may be adjusted to register with the filling or outlet part of the bottle, and means for occupying the chamber of the dispensing-cylinder in the readjustment of said port from register with the outlet-part to its registry with the filling-part whereby to exclude liquid from said chamber during each operation, substantially as set forth.

7. The combination of a bottle having a filling-part and a discharge-part, a dispensing device having a chamber and a port leading thereto through which the chamber may be filled from the filling-part, and emptied from the discharge-part, and a piston movable into the dispensing device in the readjustment thereof from registration with the outlet-part to its registration with the filling-part, whereby to secure the discharge of any material within the dispensing device before each device is adjusted into registry with the filling-part, substantially as set forth.

8. A bottle having its neck provided with a bottom wall having a filling-part and provided alongside said neck with a tubular portion communicating at its lower end with the neck and affording an outlet or discharge part, and a rotatable dispensing device in the neck above the bottom wall and having a slot or opening which may be adjusted by the turning of the dispensing device, successively into register with the inlet and outlet parts substantially as set forth.

9. A bottle having inlet and outlet parts provided within its neck with a longitudinally-extended rib which may limit the turning movement of a device inserted in the neck of the bottle, and a rotatable dispensing device controlling said inlet and outlet parts operating in the neck and cooperating with said rib, substantially as set forth.

10. The combination of the bottle-neck having filling and discharge parts, the cylinder in said neck and movable between positions in which it will register with one or the other of said filling and discharge parts, and a piston adapted to fill said cylinder and exclude liquid therefrom and movable into and out of position in which it will fill said cylinder substantially as set forth.

11. The combination in a bottle of the neck having the longitudinal

rib and provided with the filling and outlet ports, the dispensing-cylinder operating below said rib and having a slot which may be adjusted into registry with the filling-port, and with the outlet-port, the plunger having a piston movable longitudinally in the dispensing-cylinder and provided with a rib to operate in the slot of the dispensing-cylinder, said plunger being movable longitudinally independent of the cylinder and rotatable with said cylinder, and means whereby to prevent the reverse movement of the plunger, and confine its turning movements to one direction, substantially as set forth.

12. The combination of the bottle-neck having a filling-port and an outlet-port, the cap-stopper held in the bottle-neck and arranged to turn therein, means limiting the turning movement of the cap-stopper to one direction, a longitudinal rib within the neck of the bottle, the dispensing-cylinder operating in the bottle-neck below the said rib and having at one side a slot through which it may be filled and emptied, the plunger having a shank keyed to and movable longitudinally in the cap-stopper, and a piston movable within the dispensing-cylinder and provided with a rib operating in the slot thereof, substantially as set forth.

13. The combination of the bottle-neck, provided within it near its upper end with an annular groove, and the ratchet-teeth in the base-wall of said groove, the cap-stopper having a portion fitted within the neck of the bottle and provided with an annular groove and with a socket leading therefrom, and the detent having its end portion fitting in said socket and a projecting portion which may be pressed into the groove of the cap-stopper or may spring outward into the groove of the bottle-neck, substantially as set forth.

14. A bottle having its neck provided with a bottom wall having a filling-port and said neck also provided with a lateral outlet-port and a dispensing device having a port which may be registered alternately with the filling and discharge ports of the bottle-neck, and means for operating the dispensing device to adjust its port into register with one or the other of the bottle-ports, substantially as set forth.

15. The combination with the bottle-neck having the internal longitudinal rib and the dispensing-cylinder having a side slot, of the plunger having a piston fitted to the dispensing-cylinder and provided with a rib and with a tooth or spur for engagement with the rib of the bottle-neck, the bottle being provided with filling and outlet ports with which the said side slot may be registered, substantially as set forth.

16. The combination with the bottle-neck, and a dispensing-cylinder operating therein, of the plunger arranged to operate such cylinder and having a portion arranged and adapted to fill the cylinder when the latter is being adjusted to its filling position, the bottle-neck and cylinder having cooperating ports, substantially as set forth.

17. The combination of the bottle-neck having a filling-port and a discharge-port, and an internal rib, a cap-stopper provided with means whereby it may be held in the bottle-neck and for limiting the turning movement thereof to one direction, the dispensing-cylinder having a slot through which it may be filled and emptied and arranged to turn within the bottle-neck beneath the rib thereof, and the plunger having a shank keyed to and movable longitudinally in the cap-stopper and a piston to operate in the dispensing-cylinder, each plunger being provided with a stop-rib, and with an opposite tooth or spur to cooperate with the rib in the bottle-neck, substantially as set forth.

18. A bottle-neck, provided with a bottom wall having a filling-port at one side and provided with an opposite discharge-port and with a tubular portion communicating with said discharge-port, and provided with an annular neck near its outer end with an annular groove having a stop-shoulder and beneath said groove with a longitudinally-extending rib, the cap-stopper having pawl devices operating in said groove, the cylinder having an opening cooperating with said filling and discharge ports, and the piston operating in said cylinder and having its shank passed through the cap-stopper, substantially as set forth.

697,879. FOLDING PARCEL-CARRIER. JOHN R. PHILLIPS, Stamford, Conn. Filed Feb. 22, 1902. Serial No. 95,702. (No model.)

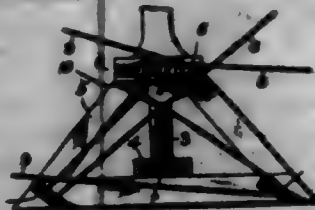


Claim.—1. A folding parcel-carrier comprising two substantially trough-shaped members hinged together at their ends and adapted to fold together face to face, and a swinging hook on each member adapted to fold within the recess.

2. A folding parcel-carrier comprising two members formed to substantially trough shape and having corresponding hinge members at one end and slots at the other end and hooks pivoted to the hinge members contiguous to the slots and adapted to swing through the slots in the operative position and to fold within the members in the closed position.

2. A parcel-carrier consisting of two members having longitudinal recesses 20, corresponding hinge members at one end and slots at the other end, and hooks formed from a single piece of wire and pivoted in the recesses and adapted to fold within said recesses in the closed position and to pass through the slots in the operative position.

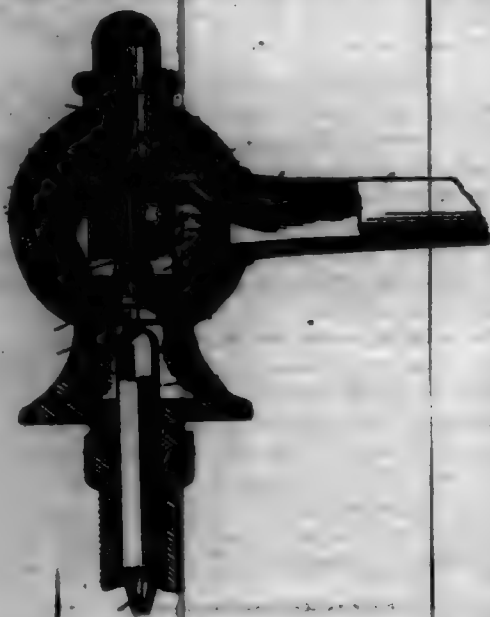
697,880. GATE. WILLIAM H. PLASTER, Cotton, Tex., assignor of one-half to Henry Plaster, Cotton, Tex. Filed Nov. 22, 1901. Serial No. 82,773. (No model.)



Claim.—1. The combination of a frame having a forwardly-tapering opening, guides arranged in pairs at the front and back of the opening, a swinging gate having an arm arranged in the opening of the frame, a pivoted plate mounted on the arm and the front and rear operating-rope arranged in pairs in the said guides and extending therefrom to the arm of the gate and connected with the plate, said operating-rope extending from the gate in opposite directions, substantially as described.

2. The combination of a horizontal frame having a forwardly-tapered opening, a swinging gate having an arm extending into the opening, pulleys or guides mounted on the frame in pairs at the front and back of the opening, the front operating-rope arranged in the front guides or pulleys and extended across the frame to opposite sides of the roadway, the rear operating-rope extending from the arm to the rear guides or pulleys and crossing the frame and extended to opposite sides of the roadway, a pivoted plate mounted on the arm and having the ropes secured to it and means for supporting the outer portions of the operating-rope, substantially as described.

697,881. FAUCET. JOHN C. FORT, Spokane, Wash., assignor to Forts Automatic Faucet Co., Incorporated. Filed Dec. 31, 1900. Serial No. 41,672. (No model.)



Claim.—1. The combination, substantially as described, of the main valve provided with a tubular portion and with a piston therein, a casing-section having a chamber in which the said piston operates and provided with a seat for the main valve and with ports opening into the faucet, a drainage-section abutting the upper end of the piston-chamber and provided with ports communicating with the faucet and also having a central guide for the starter-rod, the threaded cap for securing the valve mechanism in the said faucet and provided with an opening for the starter-rod and with a recess for the push-button or head thereof, the starter-rod having the push-button or head at its outer end and provided at its inner end with a valve, and above said valve with a chamber for conducting pressure to the piston-chamber and thence to the drainage-chamber and the head or disk on said starter-rod for operation by the supply-pressure, substantially as set forth.

2. The combination of the main valve, a seat and piston, a chamber in which the piston operates, a drainage-chamber, and means for admitting pressure to the piston-chamber for opening the main valve and for establishing communication between said chamber and the drainage-chamber when the main valve is closed, substantially as set forth.

3. A faucet provided with a valve mechanism comprising a main valve provided with a tubular portion and a piston held therein, a seat for said valve and a chamber in which its piston operates, a starting-rod operating in the tubular portion of the main valve and grooved forming a channel for the passage of water to the cylinder-chamber and a valve for shutting off the supply of water to said channel, and a disk or button connected with the starting-rod and arranged for operation by the supply-pressure, substantially as set forth.

4. The combination of the faucet-casing having a discharge-chamber and a drainage-chamber, and the valve mechanism fitted to the casing, and comprising a main valve provided with a piston, a chamber in which the piston operates, and starting mechanism by which to admit pressure to operate upon the piston for opening the main valve and for establishing communication between the piston-chamber and the drainage-chamber when the valve is closed, substantially as described.

5. A self-closing faucet provided with a valve and with means for operating the same and with a float having a channelled lower end and arranged in the supply-pipe in advance of said valve, and adapted to operate, substantially as shown and described.

6. In an automatic faucet, the combination of the main valve, the starting mechanism having a channelled stem or rod through which pressure may be applied to open the main valve, the outer end of the stem being arranged for manipulation by hand, substantially as described.

7. The combination, in a faucet, of the main valve and its piston, the drainage-section, the section having the chamber in which the valve-piston operates, and the stem extending through the main valve and channelled for the passage of pressure to the piston-chamber, said stem being removable longitudinally whereby its channel may open into the drainage-chamber when the main valve is closed, substantially as described.

8. The valve mechanism, substantially as described, comprising the cap-section, the drainage-section, the section provided with a chamber for the piston, the main valve having a tubular portion and a piston at the end thereof, and the starting mechanism having a longitudinally-removable stem provided with a channel, and the valve and the disk or button, all substantially as set forth.

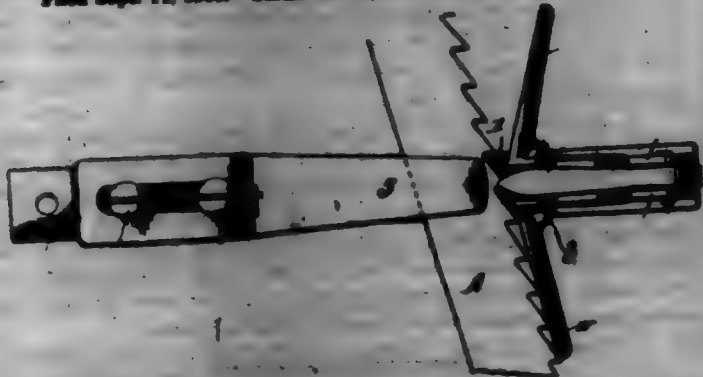
9. A valve arranged to be opened and closed by the water-pressure and having a starting mechanism including a rod grooved spirally for the passage of the water substantially as set forth.

10. The combination of the faucet-casing having a main discharge-chamber and a drainage-chamber and a partition between the same having an opening for the valve mechanism and having in line with said opening a seat B for such mechanism, and the valve mechanism including the inner section fitting in said seat and in the opening in the partition, the section abutting said inner section and having ports opening into the drainage-chamber, the valve and starting device and means for securing the valve mechanism in the faucet-casing substantially as set forth.

11. The combination of the faucet-casing having an opening for the insertion of the valve mechanism and a seat for the inner end of the valve mechanism, the valve mechanism having a casing fitted at its inner end to the faucet-casing, devices threaded into connection with the faucet-casing and bearing against the outer end of the valve-casing and securing the latter firmly to its seat and the valve and starting device substantially as set forth.

12. A self-closing faucet consisting of a valve mechanism comprising a main valve a piston for opening the same, and a cylinder for said piston, a starting mechanism arranged to be operated by hand to admit pressure to said piston-chamber to operate the piston and means independent of said starting mechanism for limiting such pressure-operated movement of the piston substantially as set forth.

697,882. SAW-TOOTH CASE. ROBERT E. FURBER, Indianapolis, Ind. Filed Sept. 11, 1901. Serial No. 75,976. (No model.)



Claim.—1. In a saw-cut the combination, of the base formed with the saw, the die pivoted thereto to cooperate with said saw, the adjust-

able rest 3 with wings extending out therefrom at angles with a line extending straight across the saw, substantially as set forth.

2. In a saw-cut, the combination of the base having the saw thereon, a die pivoted thereto to cooperate with said saw, and a rest for the edge of the saw having wings extending back obliquely from the central point of rest, substantially as described and for the purpose specified.

3. A saw-cut comprising a base having an saw, a die pivoted to cooperate with said saw, and a rest for the edge of the saw extending back from said saw at an oblique angle, whereby the teeth is supported at the desired angle to the cutting-die, substantially as set forth.

4. In a saw-cut, the combination, of the base having an saw near one end, a die pivoted to cooperate therewith, a rest for the edge of the saw, and a rest for the side of the saw opposite the saw, and a pressure-finger mounted on the top of the base to extend forward over said rest for the side of the saw-blade to rear said saw, whereby said saw-blade is embraced between said rest and said pressure-finger except the extreme edge or teeth being operated upon, substantially as set forth.

5. In a saw-cut, the combination, of the base with the saw formed on its top, the die pivoted thereto to cooperate with said saw, the rest for the edge of the saw mounted to be adjusted longitudinally of said base and formed with lateral wings extending back at an oblique angle, and the pressure-finger, substantially as set forth.

697,888. SAW-TOOTH CASE. ROBERT E. FURBER, Indianapolis, Ind. Filed Oct. 2, 1901. Serial No. 77,964. (No model.)



Claim.—1. The combination, in a saw jointer and gage, of a gage-plate having a horizontal gaging-surface for the points of the teeth, and also a tapered gaging-surface for the sides of the teeth, substantially as set forth.

2. In a saw-jointer and gage, the combination, of the block and the gage-plate formed with a longitudinal slot through which the teeth project when being operated upon, and transverse grooves at each end of said slot formed with beveled sides to serve as a gage in forming the bevel of the teeth, substantially as set forth.

3. A gage-plate for forming the points of saw-teeth having a square top surface, and a transverse beveled surface, substantially as set forth.

4. A gage-plate for forming the points of saw-teeth having a separate form for both the points and sides thereof.

697,884. TROLLEY-POLE. WILLIAM FULLMAN and CHARLES G. FIELD, Boston, N. Y. Filed Oct. 11, 1901. Serial No. 78,368. (No model.)



Claim.—1. The combination of the trolley-pole, a pivoted carrier for said pole, a slidable locking-bolt for holding the trolley-pole in operative position, the lower portion of said bolt being adapted for contact with a fixed point to effect its movement to a releasing position, substantially as specified.

2. The combination of the trolley-pole, a pivoted carrier to which said pole is pivoted, the pivotal connection between the pole and its support being arranged in advance of the fulcrum-point of the carrier, and means for locking the pole to its support, substantially as specified.

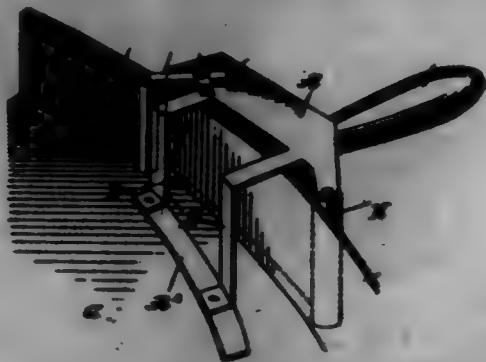
3. The combination of the carrier, a pivoted support for said carrier, a trolley-pole pivotally connected to said support at a point in advance of the pivotal support of the carrier, means for locking the pole to the support, and a seat or support arranged at the rear of the fulcrum-point of the carrier and forming a fulcrum for the trolley-pole while the latter is being locked to its carrier, substantially as specified.

4. The combination of the carrier, a trolley-pole pivoted thereto, a spring connected to said carrier, a locking-belt with which said carrier is held in contact by said spring, the lower end of said belt being adapted for contact with a fixed point, and a seat or support forming a fulcrum for the trolley-pole while the latter is being locked to its carrier, substantially as specified.

5. The combination with a pivoted carrier or support, of a trolley-pole pivotally connected to said carrier or support at a point at one side of the pivot or fulcrum of said carrier, a locking member carried by the trolley-pole and adapted for engagement with said carrier at a point on the opposite side of said fulcrum, and a spring normally tending to hold said carrier in contact with said locking member, substantially as specified.

6. The combination with a pivoted carrier or support comprising a pair of carrying-plates of a trolley-pole pivoted between said plates, a slidable belt carried by said trolley-pole and having locking-dogs for engagement with said plates, a spring or springs connecting said plates to a fixed point, and a seat or support adapted to hold said trolley-arm when the latter is in inoperative position and forming a fulcrum-point for said trolley-pole when the latter is being locked to its carrier, substantially as specified.

697,885. CHEESE-BOX TRIMMER. HENRY W. QUARR, Water town, Wis. Filed Aug. 12, 1901. Serial No. 71,094. (No model.)



Claim.—1. A cheese-box trimmer, comprising a hand-operated frame having an overhanging bearing-plate adapted to rest and travel on a cheese, a cutter secured on the frame, and rollers journaled in the ends of the frame, one of the rollers being adapted to engage the outer face of the cheese-box rim, and the other roller being adapted to engage the inner face thereof, as set forth.

2. A cheese-box trimmer, comprising a hand-operated frame having an overhanging bearing-plate adapted to rest on a cheese, rollers for engaging the cheese-box rim at opposite faces, a block vertically adjustable in said frame, and a cutter extending transversely and secured to said block, as set forth.

3. A cheese-box trimmer, comprising a hand-operated frame having an overhanging bearing-plate adapted to rest on a cheese, rollers for engaging the cheese-box rim at opposite faces, a block vertically adjustable in said frame, and a cutter held transversely adjustable on said block, as set forth.

4. A cheese-box trimmer, comprising a frame, a bearing-plate secured thereon and adapted to rest on a cheese, a cutter carried by the frame, a roller for engaging the roller journaled on one end of the frame, and arranged to engage the outside of the cheese-box rim, a second roller for engaging the inner face of the cheese-box rim, and means adjustable on said frame and in which said second roller is journaled, as set forth.

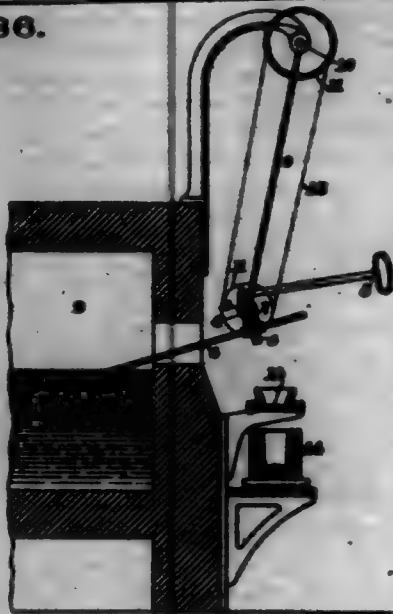
697,886. GLASS-GATHERING MACHINE. DANIEL C. REPLY, Pittsburg, Pa. Filed Mar. 14, 1901. Serial No. 51,108. (No model.)

Claim.—1. In a glass-gathering device, a supporting-frame, said frame being movable toward and from the furnace, an axially-rotatable gathering-iron pivotally mounted in the frame, power-driven means for rotating the gathering-iron, and a handle or pilot by which said iron may be manually moved lengthwise within the furnace and tipped to and from the glass, substantially as described.

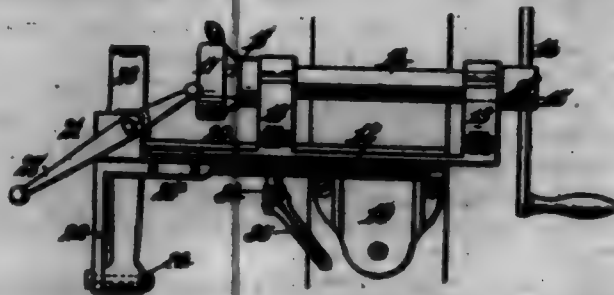
2. In a glass-gathering device, a supporting-frame, said frame being movable toward and from the furnace, axially-rotatable gathering-irons pivotally mounted in the frame, power-driven means for rotating the gathering-irons simultaneously, and a handle or pilot by which said irons can be manually moved lengthwise within the furnace and tipped to and from the glass, substantially as described.

3. A swinging frame, a shaft carried thereby and provided with worms, gathering-irons driven by the worms and carried by the frame, and an overhead driving-gear by which the shaft is rotated, substantially as described.

697,886.



697,887. METAL-WORKING MACHINE. WILLIAM H. ROSSMAN, Evansville, Ind. Filed May 6, 1901. Serial No. 58,004. (No model.)



Claim.—1. In a machine of the class specified, a pair of frames one of which is relatively fixed and the other of which is slidable upon said relatively fixed frame, and the slidable frame being movable backward to a position directly under the fixed frame, and having a plurality of holes extending lengthwise thereof and a loosely-mounted lever having a projection for entering one of said holes.

2. In a machine of the class specified, a pair of frames one of which is relatively fixed and the other of which is slidable upon said relatively fixed frame, and the slidable frame being movable backward to a position directly under the fixed frame, and having a plurality of holes extending lengthwise thereof, a loosely-mounted lever having a projection for entering one of said holes, a tool-carrying shaft upon the fixed frame, and a work-holder upon the movable frame.

3. In a machine of the class specified, a pair of substantially rectangular frames one slidably supported by and between the side bars of the other and having a perforated bar extending lengthwise thereof, a work-holder carried by one of the frames, a tool-carrying shaft on the other frame, and a lever the free end of which is adapted to enter one of the perforations of said perforated bar.

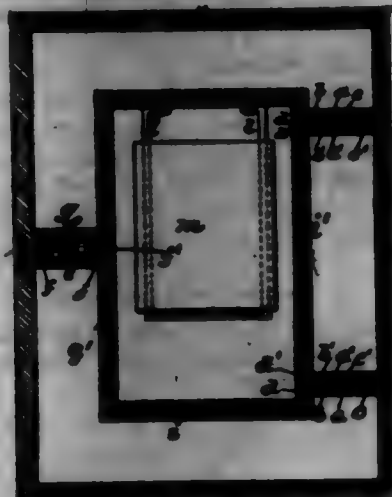
4. In a machine of the class described, a pair of parallel bars, bearings connected to said bars, a shaft supported by the bearings, a slide having side bars grooved to receive said parallel bars and also including a bar having a series of holes and a loosely-mounted lever having a pin to enter one of said holes.

5. In a machine of the class described, a pair of parallel bars, bearings connected to said bars, a slide consisting of a rectangular frame, the side bars of which have grooves to receive said parallel bars, and said slide including an intermediate bar in parallelism with the side bars, having a plurality of aligned holes, a lever having a longitudinal slot, and provided with a pin adapted to enter one of said holes, and a pin passing through said longitudinal slot.

6. In a machine of the class specified, a pair of frames one of which is relatively fixed and the other of which is slidable upon said relatively fixed frame, and the slidable frame being movable backward to a position directly under the fixed frame, and having a plurality of holes extending lengthwise thereof, a loosely-mounted lever having a projection for entering one of said holes, a tool-carrying shaft on one of the frames and a work-holder on the other frame, including a pair of jaws and each jaw having a pair of transversely-disposed intersecting jaws.

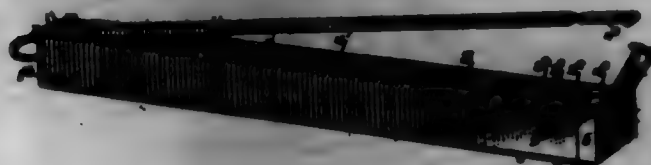
697,888. REFRIGERATOR. HENRIK ROSSMAN, Charlottenburg, Germany. Filed Jan. 2, 1902. Serial No. 65,971. (No model.)

Claim.—1. A refrigerator provided with a double-walled case having a suitable door-opening, a wooden frame secured to each wall around said opening, a non-conducting layer connecting the wooden frames of the inner and outer walls and surrounding the door-opening, a double-walled door adapted to close the door-opening, a wooden frame surrounding each wall of the door, and a non-conducting layer connecting and secured to said wooden frames of the door-walls and surrounding the space between said door-walls, substantially as described.



2. A refrigerator provided with a double-walled case having a suitable door-opening, a wooden frame secured to each wall around said opening, a non-conducting layer connecting the wooden frames of the inner and outer walls and surrounding the door-opening, and a non-conducting stay for the walls, comprising opposite wooden strips secured to the inner and outer walls, strips of asbestos board connecting said strips, and non-conducting packing in the space between the wood and asbestos strips, substantially as described.

697,889. TEMPORARY BLINDER. GEORGE A. BROWN, Vancouver, Canada. Filed Nov. 25, 1904. Serial No. 88,000. (No model.)



Claim.—1. A temporary blinder, comprising a casing, clamping devices detachably secured to the ends of the casing, adapted to extend over the edges of a cover, locking-bars hinged at one end to the casing to swing lengthwise thereof, and means for locking the free ends of the bars to the casing, as set forth.

2. A temporary blinder, comprising in combination; with a look-cover, a casing extended longitudinally thereof, locking-bars pivotally mounted on the one end of the casing to swing upward in a vertical plane, a look device in the other end of the casing for securing the free ends of the locking-bars to their closed position, clamp members detachably connected to the ends of the casing, adapted to clamp over the outer edges of the cover, whereby to hold the casing firmly on the cover, as specified.

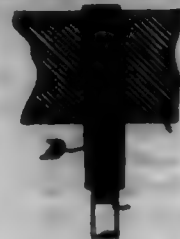
3. A temporary blinder, comprising in combination, with a look-cover, a U-shaped casing extended longitudinally on the suitable part of the cover, locking-bars pivotally mounted on one end of the casing to swing upward in a vertical plane, a look device in the other end of the casing for securing the free ends of the locking-bars to their closed position, said casing having clamps for engaging the outer edges of the cover, and a leaf-spring secured to the bottom of the casing, extended lengthwise thereof, and having its free ends held to press upward in the direction of the locking-bars, all being arranged substantially as shown and described.

4. A temporary blinder, comprising a casing consisting of the three independent sections 1, 2, 3, adapted, when fitted together, to form a U-shaped body, the lower section 1 having a vertical end, and a hinge-plate journaled transversely of the casing on said end, a look device on the other end of the casing, and locking-bars pivotally secured at one end on the abutment hinge-plate, their other end being made to engage the look device when closed down, and means for detachably securing the casing to a look-cover, all being arranged substantially as shown and for the purposes described.

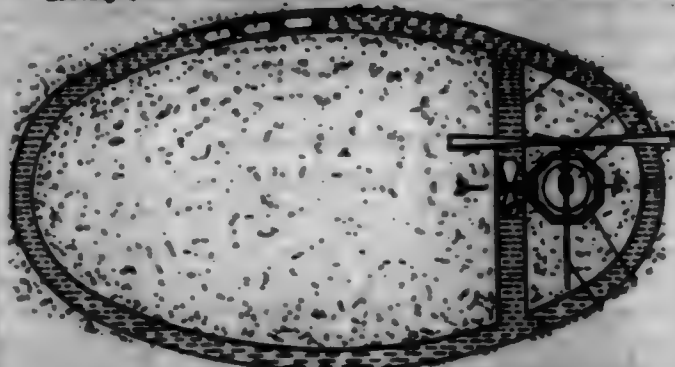
697,890. RAIL-ROAD. RICHARD C. BROWN, Chicago, Ill. Filed July 21, 1902. Serial No. 34,864. (No model.)

Claim.—In a rail-road a headless cleave of hard metal tapered from end to end with its smaller end of smaller diameter and its larger end of

greater diameter than the bore into which the cleave is to be driven, having a cylindrical bore of slightly greater diameter than that of the conducting-wire, and slotted from end to end, all substantially as and for the purposes specified.



697,891. AMUSEMENT APPARATUS. EMERY F. BURMAN, Brooklyn, N. Y. Filed Dec. 7, 1904. Serial No. 84,000. (No model.)



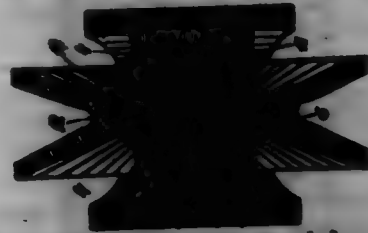
Claim.—1. An amusement device, comprising means constituting a disk or canal, a tower located adjacent to said means and having openings at its top and bottom, stairs running up into the tower, a shaft extending vertically through the tower, an exhaust-fan carried on the shaft at the upper part of the tower, a horizontal shaft mounted at the base of the tower and geared with the vertical shaft, means for driving the shaft, and a paddle-wheel carried on the horizontal shaft and working in said disk or canal.

2. An amusement device, comprising means constituting a disk or canal, a tower located adjacent to said means and having an opening at its bottom and an opening at its upper portion, stairs leading up the tower to the opening in the upper portion thereof, a shaft extending vertically through the tower, a fan carried on the upper part of the shaft, a horizontal shaft mounted at the base of the tower and geared with the vertical shaft, and means attached to the horizontal shaft, each means engaging with the means forming the disk or canal.

3. An amusement device, comprising a tower with an inner balcony in the upper portion thereof, an outer balcony opposite the inner balcony, the tower having an opening leading from one balcony to the other, a stair running through the tower and leading to the inner balcony, means forming a disk or canal adjacent to the tower, a horizontal shaft mounted in the base of the tower and projecting therefrom, means attached to the horizontal shaft and engaging with the means forming the disk or canal, a vertical shaft extending through the tower and geared with the horizontal shaft, and a fan at the upper end of the vertical shaft.

4. An amusement device, comprising means constituting a disk or canal, a tower located adjacent to said means and having openings at its top and bottom portions, stairs running up into the tower, a shaft extending vertically through the tower, a fan carried on the shaft at the upper part of the tower, a cowl mounted locally on the shaft above the tower, a wind-wheel and vane carried in the cowl, and means geared with the vertical shaft and engaging with the said means forming the disk or canal.

697,892. TROLLEY-WHEEL. WILLIAM SULLMAN, Everett, Mass. Filed Jan. 21, 1902. Serial No. 33,000. (No model.)



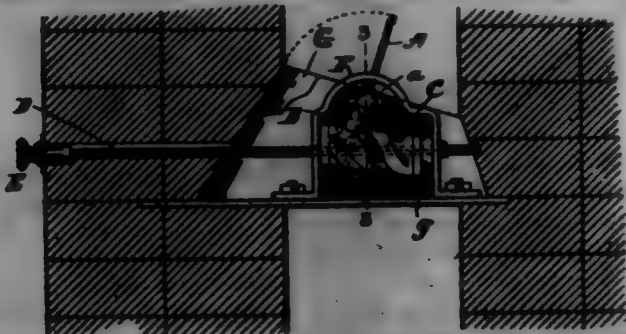
Claim.—1. A trolley-wheel having two hubs, an annular partition which is arranged between the outer ends thereof, two cylindrical bearings which are oppositely arranged in said hubs so that their ends engage opposite sides of said partition, an aligning-shaft which is arranged in both bearings, and means for connecting the outer ends of said bearings to the support of the wheel.

2. A trolley-wheel having two hubs, an annular partition which is arranged between the outer ends thereof, two relatively short bearings which are oppositely arranged in said hubs so that their ends engage opposite sides of said partition, means for holding said bearings in alignment, and means for connecting the outer ends of said bearings to the support of the wheel.

3. A trolley-wheel having two hubs, an annular partition which is arranged between the outer ends thereof, two bearings which are oppositely arranged in said hubs so that their ends engage opposite sides of said partition, flanges on said bearings which are adapted to engage the outer ends of said hub, an aligning-shaft which is arranged in both bearings, and means for connecting the outer ends of said bearings to the support for the wheel.

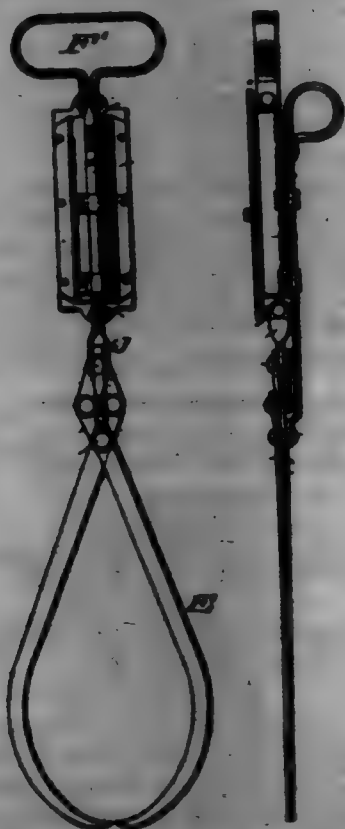
4. A trolley-wheel having two hubs, two bearings which are oppositely arranged therein, means for securing the outer ends of said bearings to a support for the wheel, said bearings being axially bored from their inner ends partly through to their outer ends, forming closed recesses therein, and an aligning-shaft which has its ends arranged and fitted in said recesses, said wheel being provided with an oil-passage which leads to the recess about said shaft between the ends of said bearings.

697,898. DAMPER FOR FIREPLACES. SAMUEL SHAW, Boston Mass. Filed May 2, 1901. Serial No. 58,613. (No model.)



Claim.—In a damper, the combination with a casing having a flange, of a damper pivoted in said casing and having a shaft projecting therefrom above the flange, an arm on said shaft, a head secured to said flange and extending over the damper-shaft and arm, an operating-shaft journaled in said head, and a worm on said operating-shaft within the head and in engagement with said arm, said operating-shaft having a suitable handle at its outer end.

697,894. WEIGHING-TONGUE. WILLIAM F. SMILEY, Philadelphia, Pa. assignor of one-half to Charles A. Hestett, Philadelphia, Pa. Filed Nov. 4, 1901. Serial No. 58,978. (No model.)



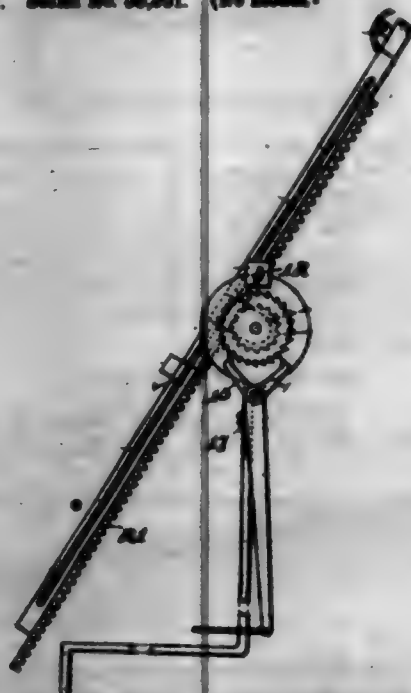
Claim.—1. A weighing-scale, a handle connected with the casing thereof, a vertically-arranged sliding bar mounted on said casing, a han-

dle on the upper end of the said bar, lazy-tongs levers depending from a weighing member of said scale and having their upper axis connected with the same, and grappling-tongs connected with the lower axis of said levers, said bar being connected with said levers by said lower axis, the parts named being combined forming an improvement in weighing-tongs.

2. Lazy-tongs levers, grappling-tongs connected with the lower members thereof, a weighing-scale, a handle thereon, a movable member of said scale being connected with the upper axis of said levers, a sliding bar mounted on said casing, the lower axis of said levers being connected with the lower end of said bar and a handle on the upper end of said bar adjacent to the handle of the scale.

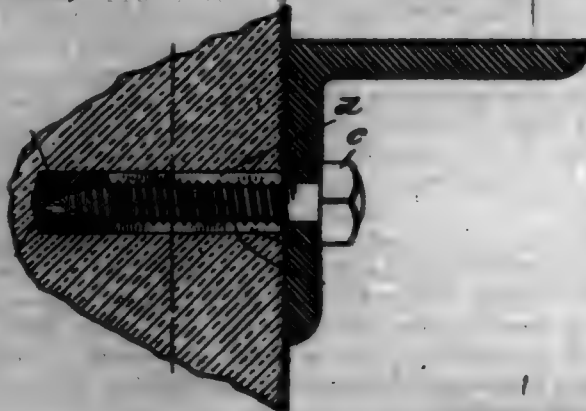
3. A weighing-scale, lazy-tongs levers, a link connecting the upper axis of said levers with a movable weighing member of said scale, grappling-tongs continuous of the lower pair of said levers, and a vertically-movable bar mounted on the scale and connected with the lower axis of said levers, said link being deflected partly from its broad side presenting the same to the front where it is connected with said upper axis of the levers.

697,895. COPY-HOLDER AND LINE-INDICATOR FOR TYPE-WRITING MACHINES. FRANK C. SMOOTH, Allegheny, Pa. Filed Apr. 11, 1901. Serial No. 58,301. (No model.)



Claim.—A copy-holder comprising a frame and support therefor, said frame having an elongated slot, a shaft carried by said support, a pinion-wheel keyed to said shaft, a rack-bar on each longitudinal edge of said frame, an indicator 20 having its ends angled and secured respectively to said rack-bars, a lug on each end of said indicator projecting beyond the rack-bar, and engaging said elongated slot in the frame, a ratchet-wheel mounted on said shaft, an escapement and a lever connected therewith for allowing said ratchet-wheel to make an intermittent rotary movement under the influence of the weight of the rack-bars, as shown and described.

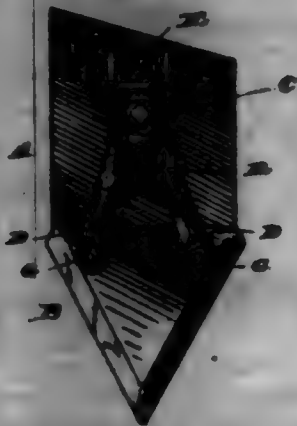
697,896. ANCHOR-BUSHING FOR SCREWS. DR. WILLIAM S. SMITH, Springfield, Mass. Filed Nov. 31, 1901. Serial No. 58,112. (No model.)



Claim.—1. An anchor-bushing for screws consisting of a cylinder of metal adapted to receive the threads of a screw, said bushing having a cylindrical hole therethrough of less diameter than a screw for entering it, there being saw-cuts extending diametrically through said bushing from said hole and toward the opposite end, and located in planes at an angle one to the other.

2. An anchor-bushing for screws consisting of a cylinder of metal adapted to receive the threads of a screw, said bushing having a cylindrical hole therethrough of less diameter than a screw for entering it, there being saw-cuts extending diametrically through said bushing from each end toward the opposite end, and each extending past the other in places at an angle to each other.

697,897. CULTIVATOR-SHOVEL. THOMAS E. SMITH, Menasha, Ill., assignor of one-half to Elmer E. Randolph, Menasha, Ill. Filed Aug. 1, 1901. Serial No. 70,446. (No model.)



Claim.—1. A cultivator-shovel comprising an upper and a lower section, a support for the said sections, the same being attached to the upper one and which consists of the hollow housing C for attachment to the cultivator, the diverging arm D D extending downward below the lower extremity of the upper section and to which the lower section is attached by bolts as shown, the adjacent edges of said sections being beveled substantially as and for the purposes set forth.

2. A cultivator-shovel comprising an upper and a lower section A and B respectively, the same abutting at their edges and beveled as shown, the one-piece support consisting of the hollow housing C for attachment to the cultivator and also having the upper section A secured thereto, the downwardly and outwardly extending arms D D of said support projecting below the abutting edges of the sections and having the lower section B secured thereto by bolts, the said lower section being detachable from said support substantially as described and for the purposes set forth.

697,898. PROCESS OF PURIFYING ZINC-BEARING SOLUTIONS. CARL E. F. BRUNNEN, Cleveland, Ohio. Filed Jan. 12, 1901. Serial No. 42,891. (No specimen.)

Claim.—1. The process of purifying zinc-bearing solutions containing copper, lead, arsenic, cadmium and other metals kindred with zinc, which consists in treating such solutions with zinc powder, that is to say, with a mixture of about seventy-five parts of zinc and about twenty parts of zinc acid, to precipitate the copper, lead, arsenic, and cadmium and to simultaneously reduce the amount of any free acid the solution may contain.

2. The process of purifying zinc-bearing solutions containing copper, lead, arsenic, cadmium, or metals kindred with zinc, which consists in treating the solutions with unacidified iron and zinc powder consisting of zinc proper and zinc acid in the proportions of about seventy-five to twenty parts, respectively, as described.

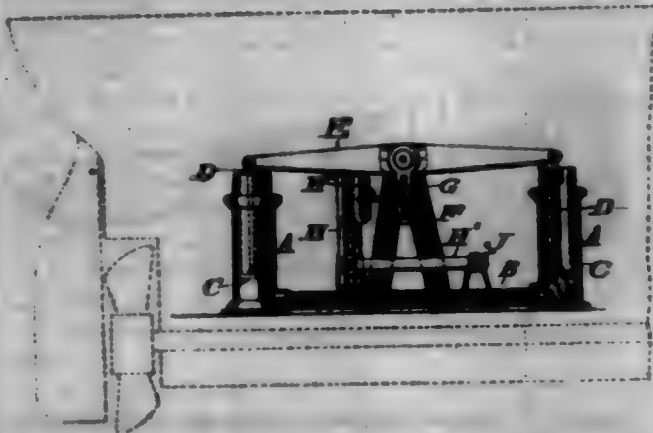
3. The process of purifying zinc-bearing solutions, containing iron, manganese, cobalt, which consists in treating such solutions with zinc powder, to precipitate the metals kindred with zinc, then removing any iron and manganese that may be contained in the solution, and, lastly, again treating the partly-purified solution with zinc powder, to precipitate the cobalt and nickel, as described.

4. The process of purifying zinc-bearing solutions containing hydrochloric acid, iron, manganese, cobalt, nickel, copper, lead, arsenic, cadmium or other metals kindred with zinc, which consists in treating the solutions with zinc powder, to precipitate those metals which are kindred with zinc, then removing any iron and manganese that may be contained in the solution, then treating the latter with the hydrate of an alkali and with the hydrochloric of the same alkali, to remove part of the cobalt and nickel, and, lastly, again treating the partly-purified solution with zinc powder, to precipitate the remainder of cobalt and nickel as described.

697,899. GOVERNOR FOR MARINE ENGINES. BRADFORD W. SISK, Mount Holly, N. J., assignor, by mesne assignments, to the International Marine Governor Company, a Corporation of New Jersey. Filed May 17, 1901. Serial No. 68,668. (No model.)

Claim.—1. A governor for a marine engine for preventing or reducing

ing racing, consisting of a chamber, a fluid therein, a plunger occupying said chamber and adapted to be controlled by the level of said fluid, a beam controlled by the motion of said plunger, and a connection between said beam and the supply-valve of said engine, consisting of a rocker, a link attached to a member of said beam and rocker and an arm connected with said rocker and the lever of said valve.



2. A governor for a marine engine for preventing or reducing racing, consisting of a chamber, a fluid therein, a plunger occupying said chamber and adapted to be controlled by the level of said fluid, a beam controlled by the motion of said plunger, and a connection between said beam and a supply-valve of said engine, said connection consisting of a rocker, a link attached to a member of said beam and rocker, and an arm connected with said rocker and the lever of said valve, said member, rocker and arm being provided with means for adjustment of the same.

3. A governor for a marine engine for preventing or reducing racing, consisting of a chamber, a fluid therein, a plunger occupying said chamber and adapted to be controlled by the level of said fluid, a beam controlled by the motion of said plunger, a connection between said beam and the supply-valve of said engine, consisting of a rocker, a link attached to a member of said beam and rocker and an arm connected with said rocker and the lever of said valve, and means for disconnecting said lever from said arm.

4. A governor for a marine engine for preventing or reducing racing, consisting of a chamber, a fluid therein, a plunger occupying said chamber and adapted to be controlled by the level of said fluid, a beam controlled by the motion of said plunger, and a connection between said beam and the supply-valve of said engine, consisting of a rocker, a link attached to a member of said beam and rocker and an arm connected with said rocker and the lever of said valve, and means for disconnecting said lever and arm, said member, rocker and arm being provided with means for adjustment of the same.

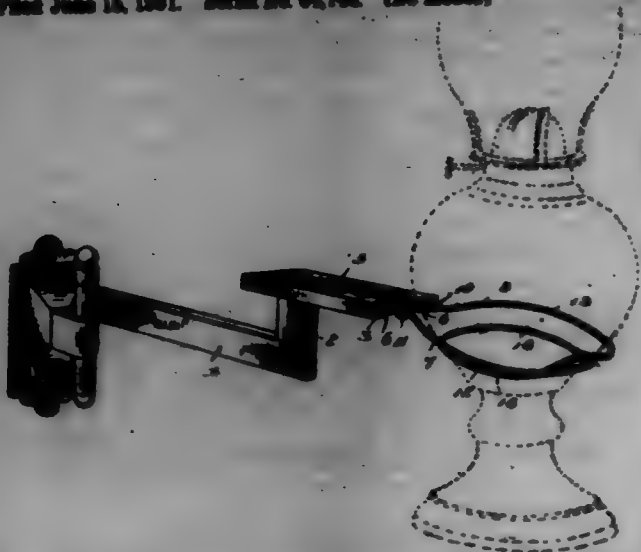
697,900. SEED-SOWING MACHINE. DEBORAH SUMNER, Pleasant Township, Wapello county, Iowa. Filed Jan. 17, 1902. Serial No. 80,131. (No model.)



Claim.—1. In a seed-sowing apparatus, the combination of a support, a hopper mounted thereon and having two separate seed-discharge openings in its bottom, devices below each seed-opening for metering the seed, two out-off plates attached to the hopper-bottom and extending or diverging from said seed-openings to a point at one side of the hopper, the outer ends of these plates being overlapped and pivotally connected together, means on the hopper for guiding these plates to and from the respective seed-openings as said plates are moved in and out to adjust the openings, and a single operating device connected to the overlapped ends of the plates, for the purposes set forth.

2. In a seed-sowing apparatus, the combination of a support, a hopper mounted thereon and having two separate seed-discharge openings in its bottom and also two curved guides diverging respectively from said seed-openings to a point at one side of the hopper, means supported below the hopper-bottom for centering the seed, two curved out-off plates mounted respectively in said guides and extending from the seed-openings to a point at one side of the hopper where they are connected together, a single operating-lever connected to the connected ends of the guides for simultaneously sliding said plates to and from the seed-openings.

697,901. LAMP-BRACKET. ALFRED THURMER, Veroville, Cal.
Filed June 14, 1901. Serial No. 64,744. (No model.)

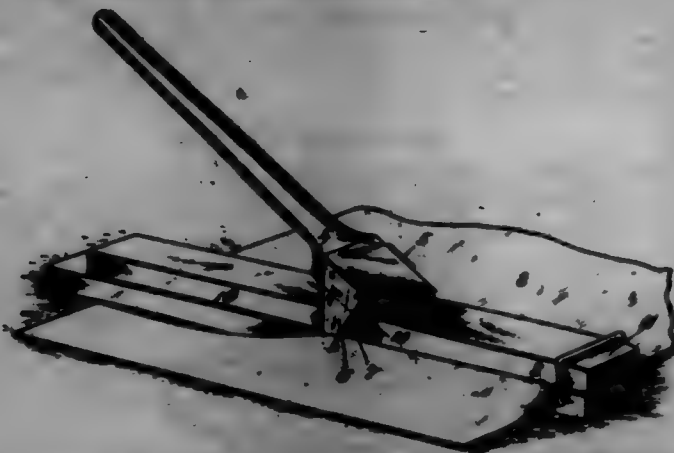


Claim.—1. A lamp-bracket having at its outer end a horizontal plate provided with a raised portion, in combination with lamp-holding jaws provided with rearwardly-extending arms, the inner ends of which are mounted upon said plate, and a casing having one end open and the lower edges of its sides and closed end provided with retaining-flanges adapted to be slid over the ends of said arms and horizontal plate.

2. A lamp-bracket having at its outer end a horizontal plate provided with a raised portion, said raised portion being wider at its inner end than at its outer end, in combination with lamp-holding jaws having rearwardly-extending arms, the inner ends of which terminate in a loop and fit about the raised portion of said plate, and a housing or casing adapted to be slid over said horizontal plate.

3. In a lamp-bracket, the hinged swinging arm having the horizontal plate and the raised portion on its upper surface which gradually decreases in width from its inner end, in combination with a pair of semi-circular lamp-holding jaws having their inner ends bent to form a loop and fitting about said raised portion, a clamp mounted upon one of said arms, and an enclosing casing fitting over the inner ends of said arms and the bracket-plate.

697,902. LINCOLN-CUTTER. FREDMAN L. TRIPP, Hlansburg, Wash. Filed Jan. 21, 1902. Serial No. 66,042. (No model.)



Claim.—1. A Lincoln-cutter, comprising a pair of longitudinal bars of the same width, means for tentatively securing said longitudinal bars in registry with each other upon opposite sides of the substance to be cut, and a hand-operated member of substantially the same width as one of said bars, for traveling along the surface of the same, said member being provided with a depending knife and a depending guide-plate straddling said bar and engaging the edges thereof.

2. A Lincoln-cutter, comprising a pair of longitudinal bars of the same width, means for tentatively securing said bars in registry with each other upon opposite sides of the substance to be cut, and a convex member for engaging one of said bars, said convex member being provided with a knife and guide-plate for engaging opposite edges of said last-mentioned bar, and also provided with a handle, the arrangement being such that said convex member is free to rock upon the said bar which it engages.

3. A Lincoln-cutter, comprising a pair of flat bars of uniform width for engaging opposite sides of the Lincoln to be cut, one of said bars being provided with a clamp and the other being beveled to engage said clamp, and a cutter consisting of a manually-operated rocker-like member of the same width as one of said bars, and provided with a guide-plate

and a knife secured respectively upon its opposite sides, the arrangement being such that said member is free to travel along one of said longitudinal members, said guide-plate and said knife serving to keep the same accurately in register with the edges of said bars.

697,903. FLOUR-SIFTER. WILLIAM M. VINEY, Harrodsburg, Ky. Filed July 26, 1901. Serial No. 66,227. (No model.)



Claim.—1. A sifter comprising of an open-ended body, a sieve therein, an external rotatable handle, an agitator cooperating with the sieve and having a stem projected outwardly through the body and fulcrumed therein, and an operative connection between the rotatable handle and the agitator.

2. A sifter comprising a body, a sieve therein, a rotatable handle, an agitator cooperating with the sieve and provided with a stem projected outwardly through the body and fulcrumed therein, and a crank-arm carried by the rotatable handle and loosely connected to the outer end of the stem.

3. A sifter comprising a body, a sieve therein, opposite handle-brackets projected outwardly from the body, a rotatable handle mounted between the brackets, an agitator cooperating with the sieve and provided with a stem projected outwardly through an opening in the body and located below the lower handle-bracket, the stem forming a closure for the opening and also having an intermediate fulcrum connection with the edges of said opening, and a crank-arm carried by the lower end of the rotatable handle and having a pivotal connection with the outer end of the stem, said pivotal connection being located between the handle and the body of the sifter.

697,904. RAILWAY. ALONZO WHEA, Sumner, Ky. Filed Oct. 2, 1901. Serial No. 77,208. (No model.)



Claim.—1. The combination with railway-rails, of ties, a trans carried by said ties and means carried by said rails to hold the ties from spreading to prevent displacement of said trans.

2. The combination with railway-rails, of ties having recesses, a trans resting in said recesses, and angle-irons for preventing the spreading of said ties.

3. The combination of ties having inclined recesses, a beveled trans adapted to fit in said recesses, and angle-irons secured to the bases of the rails for preventing spreading of the ties.

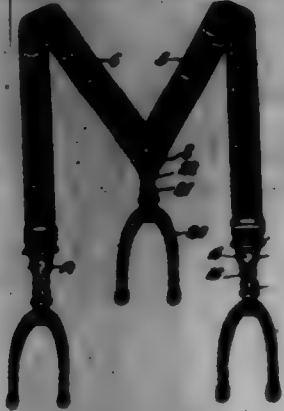
697,905. SUSPENDER. ELIAS WHITMAN, Brooklyn, N.Y. Filed Dec. 14, 1901. Serial No. 66,222. (No model.)

Claim.—1. A convertible support for trousers, comprising two straps having overlapped ends, means for connecting said ends whereby the straps may be disposed to form a belt or arranged to pass over the shoulders of a wearer, links on the free ends of said straps, and clip-plates attached to said links, each plate having a slot reduced in width at one end and a button on each plate located a distance from the reduced end of the slot, substantially as specified.

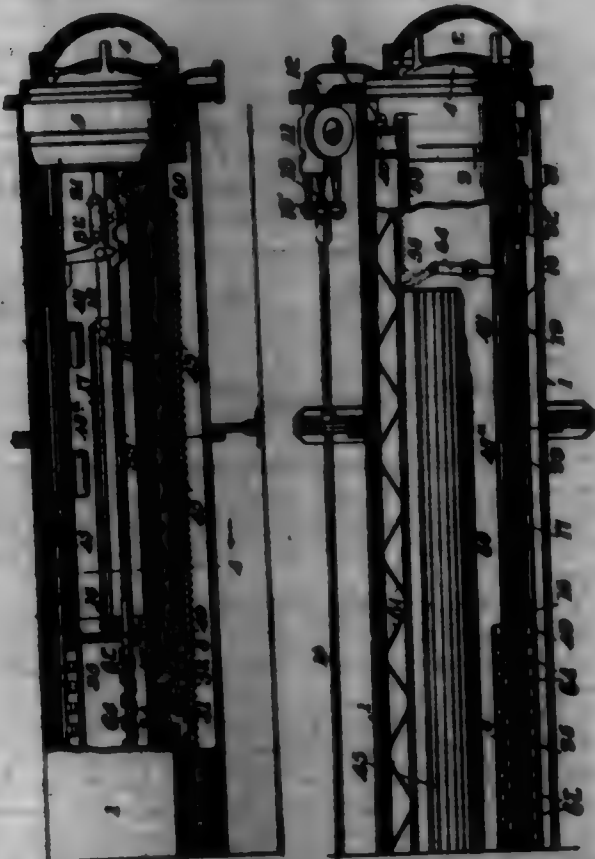
2. A convertible support for trousers, comprising two straps having overlapping ends, ring-plates between which the straps pass, a pivot passing through said ring-plates and through the straps, an offset on one of the plates, a tongue in the offset, a button on the tongue and fastening-clip at the free ends of the straps, substantially as specified.

3. A convertible support for trousers, comprising straps having overlapped ends, a ring-plate engaging against the inner side of one of said straps and having a cross-bar, a ring-plate engaging against the outer

side of the other of said straps and having a cross-bar, a pivot passed through the said cross-bar and through the straps, a button carried by one of said ring-plates, a suspender-end adapted for removable engagement with said button, clips on the free ends of the straps, and suspender-ends having removable connection with said clips, substantially as specified.



697,906. TORPEDO-LAUNCHING APPARATUS. JOHN WHITEHEAD, France, Austria-Hungary. Filed July 24, 1901. Serial No. 69,594. (No model.)



Claim.—1. In an apparatus for firing off torpedoes under water from the broadside of moving vessels in combination with a torpedo-tube casing and a torpedo-tube adapted to move therein a piston at the rear or inner end of the torpedo-tube tightly fitting the inner cylindrical end of the torpedo-tube casing and a torpedo guide-shield composed of folding doors secured to the front end of the torpedo-tube, a valve for admitting fluid under pressure into the casing in rear of the torpedo-tube, and means for increasing the width of the passage uncovered by the said valve progressively as the torpedo-tube moves outward in the casing, substantially as described.

2. In an apparatus for firing off torpedoes under water from the broadside of moving vessels in combination with a torpedo-tube casing, a torpedo-tube having a piston at its rear and tightly fitting the inner cylindrical end of the torpedo-tube casing and a guiding-shield at its front end, a valve for admitting fluid under pressure into the casing in rear of the torpedo-tube, a screw connected with said valve, a rack on the torpedo-tube, a pinion journaled on the torpedo-tube casing and engaging with said rack, and gearing intermediate between the said pinion and the screw, substantially as and for the purpose set forth.

3. In an apparatus for firing off torpedoes under water from the broadside of moving vessels in combination with a torpedo-tube casing, a torpedo-tube having a piston at its rear and tightly fitting the inner cylindrical end of the torpedo-tube casing, a series of the upper doors hinged on bars secured to the front end of the torpedo-tube and parallel to the axis of said tube a series of lower doors hinged on and adapted to move

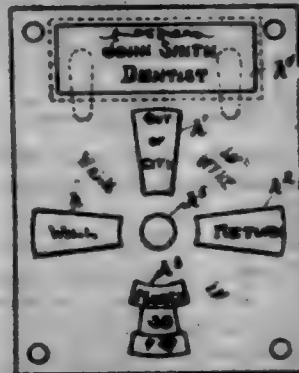
along bars secured to the front end of the torpedo-tube, locking-lugs secured to the upper edge of the lower doors and adapted to enter lengthwise into holes in the lower edge of the upper doors, and means for turning both sets of doors on their hinge-bars and for moving the lower doors along their hinge-bars substantially as and for the purpose described.

4. In an apparatus for firing off torpedoes under water from the broadside of moving vessels in combination with a torpedo-tube casing having an enlarged rectangular outer end and a cylindrical inner portion, a torpedo-tube having a piston at its rear and tightly fitting the inner cylindrical end of the torpedo-tube casing a series of the upper doors hinged on bars secured to the front end of the torpedo-tube and parallel to the axis of said tube, a series of the lower doors hinged on and adapted to move along bars secured to the front end of the torpedo-tube locking-lugs secured to the upper edge of the lower doors and adapted to enter lengthwise into holes in the lower edge of the upper doors, means for turning both sets of doors on their hinge-bars, means for moving the lower doors outward along the hinge-bars an arm adapted to turn on the hinge-bar of each of the lower doors, a link connecting each arm with the lower door, and a guide-roll in the enlarged front end of the torpedo-tube casing for the said arm to slide upon substantially as and for the purpose described.

5. In an apparatus for firing off torpedoes under water from the broadside of moving vessels in combination with a torpedo-tube casing having an enlarged rectangular outer end and a cylindrical inner portion, a torpedo-tube having a piston at its rear and tightly fitting the inner cylindrical end of the torpedo-tube casing a series of upper doors hinged on bars secured to the front end of the torpedo-tube and parallel to the axis of said tube, a series of lower doors hinged on and adapted to move along bars secured to the front end of the torpedo-tube, locking-lugs secured to the upper edge of the lower doors and adapted to enter lengthwise into holes in the lower edge of the upper doors, means for turning both sets of doors on their hinge-bars, a lever pivoted to the torpedo-tube adapted to be engaged by a projection on the torpedo-tail when the latter leaves the torpedo-tube, a rod guided on the torpedo-tube and adapted to push upward the lower doors along their hinge-bar, link-and-lever gearing carried by the torpedo-tube casing with pneumatic-power-furnishing devices and link-and-lever gearing with the pneumatic device being adapted to transmit motion from the said lever to the said rod and means for moving the lower doors, inward along the hinge-bars, substantially as and for the purpose described.

6. In an apparatus for firing torpedoes under water from the broadside of ships a guiding-shield comprising a set of upper doors hinged at the top to a bar parallel to the axis of the torpedo-tube, a set of corresponding lower doors hinged at the lower edge on and movable along a bar parallel to the axis of the torpedo-tube, projections on the upper edge of the lower doors carrying locking-lugs adapted to enter lengthwise into holes in projections on the lower edge of the upper doors and a spring-actuated lock-lever pivoted to either of the doors and adapted to enter between the projections of the upper and lower doors and to be forced out from between such projections by the torpedo on its entering the guiding-shield substantially as and for the purpose described.

697,907. OFFICE-INDICATOR. WILLIAM W. WILDER, JR., Cincinnati, Ohio. Filed July 20, 1901. Serial No. 70,000. (No model.)



Claim.—1. In an office-indicator the combination of a base-plate, a forwardly-projecting post thereon, a face-plate having slots therein secured to the base-plate, concentric sign-bearing disks mounted between the base and face plate and being perforated to pass the post, a key to pass over said post and means for holding it at points upon the post opposite to the respective disks to engage them to expose various data at the slots in the face-plate, substantially as shown and described.

2. In an office-indicator the combination of a base-plate, a face-plate having slots cut therein, a series of circular concentric disks mounted rotatably between said plates the disks decreasing in diameter from the base-plate outward with the exception of the outermost which has a segment

out out to expose the other disks said outermost disk bearing signs upon its face and the others upon their edges, and means for rotating the disks to expose the signs at the slots of the face-plate, substantially as shown and described.

3. In an office-indicator the combination of a base-plate, radial arms secured thereto about a common center each having a similar series of parallel inwardly-projecting flanges at increasing distances from the base-plate and decreasing distances from the center forming circular ways, sign-bearing disks seated in the ways formed by the similar flanges, a slotted face-plate and means for rotating the disks to expose the signs at the slots, substantially as shown and described.

4. In an office-indicator the combination of a slotted face-plate, a base-plate, a stud bearing a series of annular heads secured to the base-plate, a series of disks between the base and face plate having notched perforations to pass the post and slanted at distances apart equal to the distances apart of the annular heads, and a key having a hollow shank to fit over the post a spring-finger to engage the post between the heads and teeth to engage the notches in the disks to rotate them to expose different signs at the slots, substantially as shown and described.

697,908. CARD OR SIGN HOLDER. FRANK F. WELSH, Salt Lake City, Utah. Filed July 6, 1901. Serial No. 67,371. (No model.)



Claim.—1. A card or sign holder comprising two members having oppositely-projecting clamping-jaws at their outer ends and hinged together at the inner ends of their body or fixed members; substantially as described.

2. A card or sign holder, comprising two longitudinally-aligned clamps, two corresponding members of which are hinged together adjacently at their adjacent ends; substantially as described.

3. A card or sign holder, comprising two longitudinally-aligned clamps, ears, and a knuckle on the adjacent ends of corresponding members of said clamps, and a set-screw passing through the said ears and knuckles; substantially as described.

4. A card or sign holder, comprising two longitudinally-aligned clamps pivoted together at the adjacent ends of corresponding members, one of said members being provided with a foot to steady it when serving as a base for the other clamp; substantially as described.

5. A card or sign holder, comprising two longitudinally-aligned clamps pivoted together at the adjacent ends of two corresponding members, one of said members having transverse apertures, and a U-shaped foot, the legs of which are passed through said apertures; substantially as described.

6. A card or sign holder comprising two clamping members or jaws to receive the card or sign between them, and a sliding suspension-hook mounted on the outer side of one of said members or jaws; substantially as described.

7. A card or sign holder, comprising the duplex clamp, a guide or sheath on one member having a set-screw, and a hook, the shank of which is mounted in said guide or sheath; substantially as described.

8. A card or sign holder, comprising two longitudinally-aligned oppositely-projecting clamps, hinged together at the inner ends of corresponding members, a transverse sliding foot, and a suspension-hook; substantially as described.

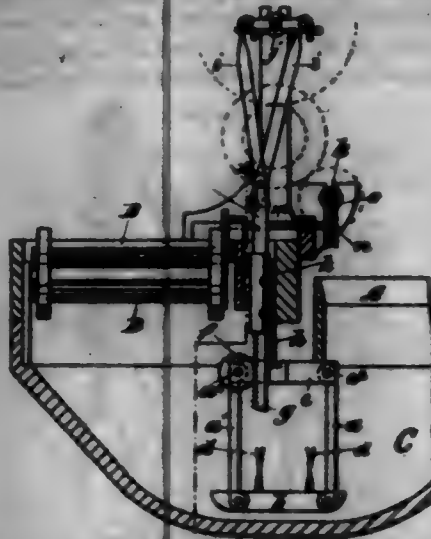
697,909. APPARATUS FOR COATING METAL PLATES. JOHN E. WILLIAMS, Abertillery, England. Filed June 10, 1901. Serial No. 68,908. (No model.)

Claim.—1. Apparatus for coating tin, terne and like plates, comprising a coating-bath, oppositely-movable plate-carriers mounted therein and means whereby said plate-carriers may be caused to travel forward and backward alternately from the receiving end to the delivery end of the bath, and from the delivery end to the receiving end, and to pass each other in transit substantially as described.

2. Apparatus for coating tin terne and like plates comprising a coating-bath, oppositely-movable plate-carriers pivotedly mounted therein adapted to carry the plates edgewise and means whereby said plate-carriers may be caused to travel backward and forward alternately in the bath and to pass each other during this movement substantially as described.

3. Apparatus for coating tin terne and like plates comprising a coating-bath, oppositely-oscillating plate-carriers mounted therein and provided with means adapted to carry the plates edgewise, means whereby said plate-carriers may be caused to travel backward and forward alternately in the bath and to pass each other during this movement and means

for causing the simultaneous oscillation of said carriers substantially as described.



4. An apparatus for coating plates comprising a bath, a plate-carrier pivotedly supported at its upper end and depending into said bath and provided at its lower end with means for holding a plate edgewise, and means for oscillating said plate-carrier edgewise, for the purpose set forth.

5. Apparatus for coating tin, terne and like plates, comprising a coating-bath, oscillating plate-carriers pivotedly depending therein and adapted to describe a sector-like path, plate-clipping devices mounted on said carriers, means for oscillating said carriers, comprising a pinion attached to one of the pivots of each plate-carrier, a reciprocating rack-bar for each pinion, connecting-rods connected to said racks, and a crank-shaft connected to said racks, substantially as described.

697,910. FISHING-GEAR. ALBERT W. WILSON, San Francisco, Cal. Filed Dec. 13, 1901. Serial No. 68,909. (No model.)



Claim.—1. A fishing-gear, comprising a concave-convex spoon, a hook connected to the convex side thereof within the line of its longitudinal center, and means for connecting the fish-line to the front end of the spoon, said means being situated at one side of the longitudinal center of the spoon.

2. A fishing-gear, comprising an elongated spoon, a fish-hook connected thereto adjacent to its tail, and means for attaching a line to the spoon, said means being located at one side of the longitudinal center of the spoon.

3. A fishing-gear, comprising a concave-convex spoon, a hook having the end of its shank pivotedly connected to the convex side of the spoon adjacent to its tail, but removed from the marginal edge of the spoon, and means for connecting the fish-line to the front end of the spoon.

4. A fishing-gear, comprising a concave-convex spoon, a hook having the end of its shank pivotedly connected to the convex side of the spoon adjacent to its tail, but removed from the marginal edge of the spoon, and means for connecting the fish-line to the front end of the spoon, said means being situated at one side of the longitudinal center of the spoon.

5. A fishing-gear, comprising a concave-convex spoon, a hook connected thereto within the line of its longitudinal center, and means for connecting the fish-line to the front end of the spoon at one side of the longitudinal center of the spoon.

697,911. ADJUSTABLE COUNTER-STOOL. ASHURA ABLE, Tacoma, Wash. Filed Sept. 20, 1901. Serial No. 70,670. (No model.)

Claim.—1. In a stool, the combination with a bell-shaped base and bell-shaped top piece, of the intermediate telescoping sectional tubular standard, a cup or sleeve member to the bell-shaped portions in which the standard fits so as to be removable therefrom, and a ball and spring for holding the sleeve member and standard together, the standard and sleeve being formed one with an annular groove and the other with an aperture to receive the ball, substantially as described.

2. A stool comprising a base, a seat, an intermediate standard, and a cup or sleeve member with which the standard telescopes, one of said parts having a ball-socket and the other an aperture in its wall, a ball in said aperture, and a spring for pressing the ball into the ball-socket, substantially as described.

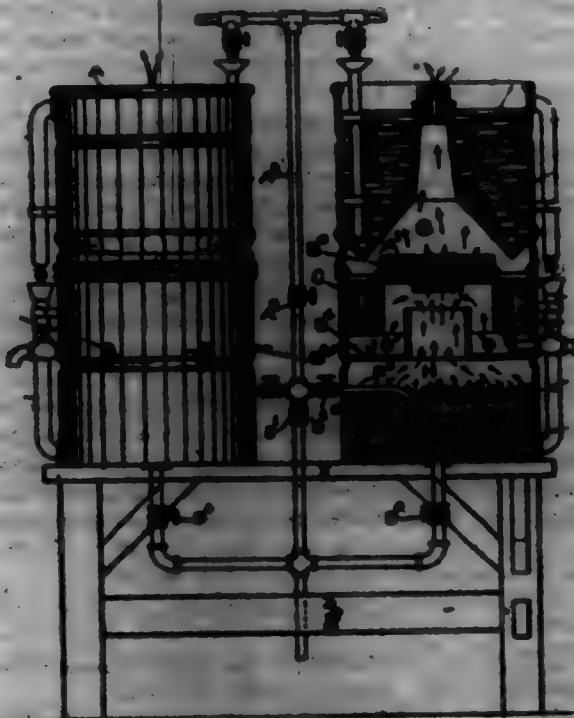
3. A stool comprising a base, a seat, an intermediate standard, and

a cup or sleeve member with which the standard telescopes, one of said parts having a ball-cocket and the other an aperture in its wall, a ball in said aperture, and a spring pressing the ball into the ball-cocket, said spring being formed with an opening in which a portion of the ball fits, substantially as described.



4. A steel comprising a base, a cast, an intermediate standard, and a cup or sleeve member with which the standard telescopes, one of said parts having a ball-cocket and the other an aperture in its wall, a ball in said aperture, a spring for pressing the ball into the ball-cocket, and a stop for limiting the movement of the standard and sleeve member one within the other, substantially as described.

687,912. APPARATUS FOR DISTILLING WATER. ANDREW J. CLARK, Boston, Mass. Filed June 26, 1901. Serial No. 66,081. (No model.)



Claim.—1. In a water-still having an evaporating-boiler and a condenser; in combination therewith, a centrally-located filter vertically placed between the evaporator and condenser and so arranged that all ascending vapor and air pass through the said filter; substantially as shown and described.

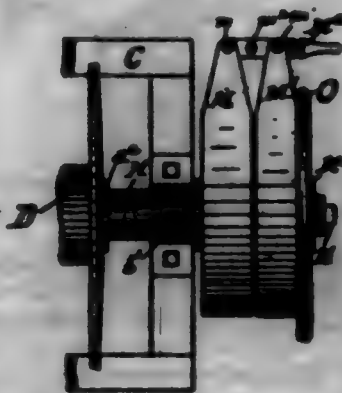
2. In a water-still having an evaporating-boiler and a condenser, in combination therewith, a filter concentrically located above the sterilizing-chamber, manifold air-holes permitting air to commingle with the vapor below the said filter, said filter so arranged that the air and vapor is forced to pass through it, in its ascent before it can reach the condensing-cham-

ber and the escape-vent of the still, and a water-reservoir surrounding said filter, arranged substantially as shown and described.

3. In a water-still having an evaporating-boiler and a condenser; in combination therewith a manifold of inlet air-holes into the sterilizing-chamber below the filter, a filter and a reservoir occupying the whole area within the still compelling the commingling of the vapor and air before passing through said filter to be condensed, a condensing-surface above said filter and a reservoir for receiving the condensed vapor; substantially as shown and described.

4. In a water-still having an evaporating-boiler and a condenser; in combination therewith a filter provided with filtering material located within the still proper and so arranged that through said filter all air and vapor in its ascent must pass previous to condensation; substantially as shown and described.

687,918. CLUTCH. WILLIAM E. GOSSETT, Portland, Oreg. Filed Nov. 12, 1901. Serial No. 22,121. (No model.)



Claim.—1. The combination with a shaft; bearings for said shaft; mechanism carried by said shaft between said bearings; and a clutch for locking said mechanism with said shaft; of means acting with the shaft outside of the bearings for throwing said clutch into and out of engagement with a yielding or frictional pressure, said means being arranged to confine the thrust for setting the said clutch to said shaft and the parts carried by said shaft.

2. The combination with a shaft; bearings for said shaft; mechanism carried by said shaft between said bearings; and a clutch for locking said mechanism with said shaft; of a system of gears carried by said shaft outside the bearings; and means acting with said gears for actuating said clutch through the action of the shaft, said means being arranged to confine the thrust for setting said clutch to the shaft and the parts carried by said shaft.

3. The combination with a shaft; bearings for said shaft; mechanism carried by said shaft between said bearings; and a clutch for locking said mechanism with said shaft; of a system of gears carried by the shaft outside the bearings; and means acting with said gears for throwing said clutch into and out of engagement, said means being arranged to confine the thrust for setting said clutch to said shaft and the parts carried by said shaft.

4. The combination with a shaft; bearings for said shaft; mechanism carried by said shaft between said bearings; and a clutch for locking said mechanism with said shaft; and a system of gears normally moving with the shaft; means carried by said shaft and arranged to act with said gears to actuate said clutch when a part is retarded, said means being also arranged to confine the thrust for setting said clutch to said shaft and the parts carried by said shaft; and means for retarding a part of said gear system.

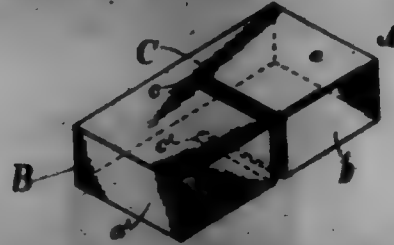
5. The combination with a shaft; bearings for said shaft; mechanism carried by said shaft between said bearings; and a clutch for locking said mechanism with said shaft; of a system of gears normally moving with the shaft; means carried by said shaft and arranged to act with said gears to throw the clutch into engagement when one part is retarded and throw the clutch out of engagement when another part of said gear system is retarded, said means being also arranged to confine the thrust for setting said clutch to said shaft and the parts carried by said shaft; and means for retarding the different parts of said system to throw said clutch into and out of engagement.

6. The combination with the shaft A; clutch carried by said shaft; the bearings B & C for said shaft; the pin I for communicating a thrust movement from without the bearing B to the clutch; a shaft extension outside of the bearing B; two gears journaled on said shaft extension; an intermediate gear between said gears; a carrier for said intermediate gear fixed with the shaft extension; and means for retarding either of the gears journaled on the shaft extension; a screw arranged in the shaft extension

against the pin I; and means for communicating the action of the gear to the screw.

7. The combination with the shaft A; the clutch carried by said shaft between the bearings B B; the bearings C C; the pin I for communicating the thrust to the clutch through the bearing B; the shaft extension J; the screw H arranged in said shaft; the beveled gear K K' journaled on said shaft extension; the carrier L' fixed on said shaft extension; the intermediate gear L journaled on said carrier and meshing with the gear K K'; the rim A' extending from the gear K K' respectively; brake mechanism for said rim; and a spline-and-groove connection between the screw H and the gear K.

697,914. BRICK. FRANK CHAFFIN, Chicago, Ill. Filed May 20, 1901. Serial No. 61,697. (No model.)



Claim.—1. A brick having a plain outer face and an upper and lower portion plain for a short distance back of the corner of the outer face, and a weakened or breaking line at its middle portion.

2. A brick having a plain outer face, a groove midway of the length of the brick, and extending around the other three sides but stopping short of the corner made by the outer face and the top and bottom surfaces.

697,915. BOTTLE OR JAR PRESS. JEREMIAH HADLEY, ALTON, Ohio. Filed Feb. 10, 1901. Serial No. 61,700. (No model.)



Claim.—1. In a machine of the class designated the combination with a supporting-table having vertical parallel guides, and a blank-mold, of a cross-head to slide in said guides, having a vertical orifice, a screw-threaded hollow shaft in said orifice, adjustably secured therein, a cross-head below said first cross-head secured to the lower end of said hollow shaft, a rim-mold below said second cross-head sustained by rods supported and slidable in a plate adjustably secured between the first and second cross-heads, and pressed downward by springs resting against said plate, a third cross-head below said rim-mold with a neck-mold sustained therein sustained by rods slidable in the second cross-head, and adapted to fit said form an annular top for the blank-mold, a shaft within said hollow shaft spring pressed at the top and bearing a plunger to enter the neck and blank mold, and means for vertically reciprocating said upper cross-head, substantially as shown and described.

2. In a machine of the class designated the combination with a supporting table having vertical parallel guide-rods, a cross-head arranged to slide therein carrying a hollow shaft adjustably secured therein attached to a second lower cross-head, a vertically-sliding spring-pressed shaft within the hollow shaft bearing a plunger, and a spring-pressed rim-mold below the second cross-head sustained by rods passing through the two

and cross-heads slidable secured in a plate adjustably secured on said hollow shaft; and a cross-head below said rim-mold sustained by rods upwardly slidable in said second cross-head, and adapted to fit and form an annular cover for a blank-mold, and a blank-mold supported on said table and adjusted to receive said neck-mold and plunger, of wrist-bearing wheels below said table having connecting-rods running through said table to move said upper cross-head, and a motor attached to said table to move said wrist-bearing wheels, substantially as shown and described.

3. In a machine of the class designated the combination with the table and blank-mold supported thereon with vertical guides and a cross-head bearing on adjustable hollow shaft secured in a second lower cross-head, and a shaft vertically movable within the hollow shaft, spring-pressed at the top and bearing a plunger at the lower end adapted to enter the blank-mold; and a rim-mold including said plunger sustained from a plate adjustably secured to the hollow shaft above said second cross-head by rods free to slide in said plate, and bearing-springs to press said rim-mold, and a neck-mold adapted to fit said blank-mold, and sustained by rods arranged to slide in said second cross-head, of two wrist-bearing wheels journaled on a shaft below said table, one whereof has gear-teeth; connecting-rods from said wrist to said upper cross-head, a power-shaft counter to said wrist-bearing shaft having a free gear to engage the wrist-bearing gear-wheel, clutch mechanism to cause said free gear to run with its shaft, and a device upon said opposite wrist-bearing wheel to release said clutch mechanism at a predetermined time, substantially as shown and described.

4. In a machine of the class designated the combination with a supporting-table having vertical guides and a cross-head adapted to slide therein, with a hollow shaft adjustably secured therein, and a second cross-head running in said guides secured to the lower end of said hollow shaft bearing a plunger; a downwardly spring-pressed rim-mold surrounding said plunger supported from a plate secured on the hollow shaft, and a vertically-sliding neck-mold supported from said second cross-head of a sliding plate arranged to bring a blank-mold in alignment with said plunger, and a motor arranged by suitable connections to reciprocate said first cross-head, substantially as shown and described.

5. In a machine of the class designated the combination with a supporting-table of a vertically-reciprocating plunger and means for operating it, a sliding plate arranged to hold the blank-mold, and separable blow-mold and to bring them successively under said plunger with an opening in said table to permit the descent of the blow-mold, and an upwardly-pressed vertically-moving plate to receive and hold said blow-mold, and on a lifting-arm arranged to be swung into coincidence with the blow-mold by the movement of said plate, having a flat portion to rest on the jar in the blow-mold, and a valve arranged to be engaged and opened by the descent of the plunger, and to close as it recedes, and means for returning said arm, and mechanism for causing said several parts to meet, substantially as shown and described.

6. In a machine of the class designated the combination with a reciprocating plunger having a determinate vertical stroke, of a table having an opening adapted to be brought in vertical alignment with said plunger, and a vertically-moving depressible upwardly-pressed plate within said opening, a blow-mold adapted to rest on said plate, on a lifting-arm adapted to swing above and close said blow-mold, and means for swinging it, a valve in said arm arranged to be engaged and opened by the descent of said plunger, said arm being arranged to descend and rise with said mold and plunger, and means for returning said arm, substantially as shown and described.

7. In a machine of the class designated the combination with a table and a way thereon for a sliding plate, and diverging grooves in the face of said table, of a sliding plate arranged to move therein provided with a separable blow-mold with the halves hinged at one side, and plate depending from the base thereof through slots in said plate and adapted to run in said grooves, to open and close said mold as said plate slides back or forward, substantially as shown and described.

697,916. SUPPLEMENT. JEREMIAH F. HADLEY, ALTON, Ohio. Filed Nov. 7, 1901. Serial No. 61,801. (No model.)

Claim.—1. In suspension, the combination with the shoulder-strap, a girlo-strap or cord connected therewith in front, and a rear strap, of a suitable connection between the lower extremity of the shoulder-strap in the rear, the girlo-strap and the rear strap, said connection comprising a bifurcated part 7 having two separated bearings for the girlo-strap, and a loop through which the girlo-strap passes between the separated bearings, substantially as described.

2. In suspension, the combination with the shoulder-strap, a girlo-strap or cord connected therewith in front, and a rear strap, of a bifurcated part, a loop 6 connecting the bifurcated part with the shoulder-strap in the rear and provided with two separated bearings which the

girlo-strap or cord engage, and a loop 12 connecting the rear strap with the girlo-strap or cord between the bearings of the bifurcated part.



3. In suspension, the combination with a continuous shoulder-strap part, a loop 6 in the rear through which the said part passes and in which it is movable, a rear strap and a girlo-strap or cord, of a bifurcated part connected with the said loop 6 and having two separated bearings which the girlo-strap engages, and a loop 12 connecting the girlo-strap between the said bearings with the rear strap, substantially as described.

697,917. MANUFACTURE OF GOLF-BALLS. BRADEN KEMPWALL, Boston, Mass., assignor to The Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Nov. 21, 1901. Serial No. 61,802. (No model.)



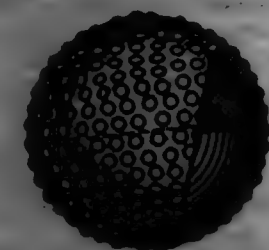
Claim.—1. The process of making playing-balls, consisting in winding twice or the like around a nucleus of elastic material, causing an inherent tendency permanently maintains said envelope in a state of tension.

2. The process of making playing-balls, consisting of winding several layers of twice or the like around a filling of gutta-percha, applying cement to the twice, making spherical colloidal segments, pressing the segments together over the prepared filling so as to compress the same, and making the edges of the segments.

3. The process of making playing-balls, consisting of winding several layers of twice or the like around a filling of gutta-percha, applying colloidal compound to the twice, making spherical colloidal segments, subjecting them to heat, pressing them together over the prepared filling so as to compress the same, and making the edges of the segments.

4. The herein-described process of making playing-balls, consisting of compressing a coat of twice or three times material over a filling of gutta-percha or the like, causing a colloidal compound or its equivalent to permeate said coat, drying said compound, and compressing heated colloidal shell-sections over the coated filling, substantially as set forth.

697,918. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to The Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 2, 1902. Serial No. 61,804. (No model.)



Claim.—1. A playing-ball comprising a shell built up from lap-jointed sections, and a filling held under compression by said shell, the

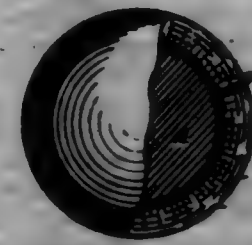
material of the lap at the joint between said sections forming a head or web around the interior of the shell.

2. A playing-ball comprising a shell built up of lap-jointed sections of stiff, springy material, and a filling of elastic material held under compression by said shell, said sections being welded together, and the material of the lap forming a head or web which crosses the filling.

3. A playing-ball comprising hemispherical lap-jointed segments of colloidal welded and compressed, and a filling of elastic material held under compression by said shell, the material of the lap forming an interior web or head upon said shell.

4. A playing-ball comprising a colloidal shell made in lap-jointed segments welded together, and a filling consisting wholly or largely of gutta-percha held under compression by said shell; the material of the lap at said joint or web forming a web or head upon the interior of the shell.

697,919. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to The Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 20, 1902. Serial No. 61,805. (No model.)



Claim.—1. A ball consisting of a spherical envelope of solid rubber cured upon a compressible radiant core, which by its inherent expansive tendency permanently maintains said envelope in a state of tension.

2. A ball consisting of a solid rubber envelope cured upon a gutta-percha sphere, which by its inherent expansive tendency constantly stretches said envelope.

697,920. GOLF-BALL. BRADEN KEMPWALL, Boston, Mass., assignor to The Kempwall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 61,806. (No model.)



Claim.—1. A playing-ball comprising a highly-compressed substantial gutta-percha shell expanded by plastic material injected thereto and forming a core, the shell constantly tending to compress the core and the latter to expand the shell.

2. A playing-ball comprising a highly-compressed substantial gutta-percha shell distended by gutta-percha injected thereto.

3. A playing-ball comprising a gutta-percha shell consisting of joined segments, and distended by gutta-percha injected thereto.

4. A playing-ball consisting of a highly-compressed shell built up from compressed gutta-percha segments, said segments being connected edge to edge, and said shell being expanded by gutta-percha forced thereto.

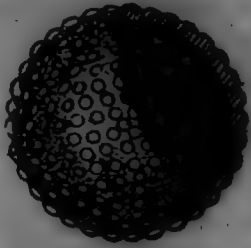
5. A playing-ball comprising a shell built up of highly collidized or compressed thick hemispherical sections of well-cured gutta-percha, said shell being expanded by suitable material injected thereto.

6. A playing-ball comprising a highly-compressed gutta-percha shell distended by gutta-percha injected thereto and forming a core; the diameter of said core being about one-half that of the complete ball.

7. A playing-ball comprising a shell formed at least partially from plastic material and distended by similar plastic material injected thereto.

8. A playing-ball comprising a highly-compressed, substantial gutta-percha shell, and a sphere of gutta-percha held under permanent compression by said shell.

697,921. GOLF-BALL. BRADEN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 97,886. (No model.)



Claim.—1. In a playing-ball, the combination of a gutta-percha sphere, a soft-rubber bag distended thereon, and a hard, wear-resisting shell upon said rubber and gutta-percha; said rubber bag having sufficient elasticity and a mouth of sufficient size to permit the insertion of said sphere bodily therethrough.

2. A playing-ball comprising a spherical gutta-percha core, a plurality of soft-rubber envelopes or bags drawn over said core, one envelope including another, and each of said envelopes being in a state of expansion, and a hard, wear-resisting shell formed from plastic material and compressed upon said envelopes.

3. A playing-ball comprising a spherical gutta-percha core, a hard shell, and a plurality of rubber bags or envelopes drawn over said core and compressed between the latter and said shell; the mouth of one envelope being closed or reinforced by the body of another.

4. In a playing-ball, the combination of a hard sphere, a soft-rubber bag distended thereon, and a shell consisting at least partially of celluloid and compressed upon said rubber and sphere; said rubber bag having sufficient elasticity and a mouth of sufficient size to permit the insertion of said sphere bodily therethrough.

5. In a playing-ball, the combination of a hard sphere, a soft-rubber bag distended thereon, and a shell consisting at least partially of celluloid; said rubber bag having sufficient elasticity and a mouth of sufficient size to permit the insertion of said sphere bodily therethrough, and said shell being formed from spherical segments which are welded together at their edges.

6. In a playing-ball, the combination of a hard sphere, a soft-rubber bag distended thereon, a disk of rubber closing the mouth of said bag, and a hard, wear-resisting shell formed from plastic material and compressed upon said rubber and gutta-percha; said rubber bag having sufficient elasticity and a mouth of sufficient size to permit the insertion of said sphere bodily therethrough.

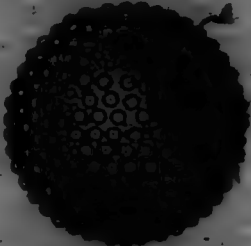
7. A playing-ball comprising a spherical gutta-percha core, a hard shell, a plurality of rubber bags upon said core and compressed between the latter and said shell, and a disk closing the mouth of each of said bags; the body of one envelope overlying the mouth of another.

8. A playing-ball comprising a hard core and a succession of complete soft-rubber envelopes including said core.

9. A playing-ball comprising a hard core, a succession of complete soft-rubber envelopes including said core, and a hard shell upon said envelopes, said shell holding said envelopes and core under compression.

10. A playing-ball comprising a hard core formed from plastic material, a plurality of complete rubber envelopes upon said core, and a hard shell formed from plastic material.

697,922. GOLF-BALL. BRADEN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 97,885. (No model.)



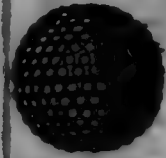
Claim.—1. A playing-ball comprising a gutta-percha shell consisting of welded segments, and a solid sphere consisting entirely of gutta-percha filling said shell and held under compression thereby.

2. A playing-ball consisting of a highly-compressed shell built up from gutta-percha segments, said segments being welded edge to edge, and a filling consisting of gutta-percha powerfully gripped by said shell.

3. A playing-ball comprising a shell built up of highly solidified or compressed thick hemispherical sections of well-cured gutta-percha, and a sphere of highly-compressed gutta-percha held under compression by said shell.

4. A playing-ball comprising a highly-compressed substantial gutta-percha shell and a sphere of highly-compressed gutta-percha powerfully gripped by said shell; the diameter of said sphere being about one-half that of the complete ball.

697,923. GOLF-BALL. BRADEN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 97,884. (No model.)



Claim.—1. A playing-ball including a core and a shell holding said core under compression, said shell consisting largely or wholly of compressed gutta-percha whose internal strains due to other causes than the expansive tendency of said core have been substantially eliminated.

2. A playing-ball including a core of soft rubber and a shell holding said core under compression, said shell consisting of compressed gutta-percha whose internal strains due to other causes than the expansive tendency of said core have been substantially eliminated.

3. A playing-ball comprising a shell and a solid sphere of well vulcanized soft rubber held under compression by said shell, the latter consisting of welded segments of compressed gutta-percha from which the internal strains due to other causes than the expansive tendency of said sphere have been substantially eliminated.

4. A playing-ball comprising a shell and a sphere of springy material held under compression thereby; said shell being built up of hemispherical sections welded edge to edge, and said sections consisting of gutta-percha from which the internal strains due to other causes than the expansive tendency of said sphere have been substantially eliminated.

5. A playing-ball comprising a substantial shell and a sphere of softer springy material gripped thereby; said shell consisting of compressed gutta-percha whose internal strains due to other causes than the expansive tendency of said sphere have been substantially eliminated.

6. A playing-ball consisting at least partially of a compressed gutta-percha sphere whose internal strains have been substantially eliminated.

697,924. GOLF-BALL. BRADEN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 97,874. (No model.)



Claim.—1. In a playing-ball, the combination with a springy core of a shell cemented thereto and formed of a single pair of welded segments each consisting of two layers, each of said layers consisting of hard, springy material reinforced by tough material.

2. In a playing-ball, the combination with a sphere of rubber of a shell consisting of a single pair of hemispherical segments each consisting of two layers of celluloid interiorly faced with cloth, the inner layer being cemented to said rubber sphere, and the latter being held under compression by said shell.

3. A playing-ball consisting of a yielding core upon which is cemented a closely-compressed thin shell consisting of a single pair of multiple-ply celluloid and fabric segments, each faced upon its inner side with fabric.

4. In a playing-ball, the combination with a core of springy material of a single pair of hemispherical cover-segments welded at their edges and holding said core under compression; each segment comprising an inner layer of woven fabric, a layer of celluloid, as 21, a second layer of woven fabric, and a second layer of celluloid.

5. In a playing-ball, the combination with a core of a single pair of spherical segments, each comprising two layers of woven fabric, as 22, and two layers of celluloid, as 21; said segments being welded at their edges and cemented upon the core.

6. In a playing-ball, the combination of a core and a shell compressed thereon and consisting of an outer ply of well-cured celluloid, then a ply

of fabric, then a second ply of celluloid, and then a second ply of fabric, the latter being cemented to said core.

7. In a playing-ball, the combination with a spherical core consisting at least partially of soft rubber of a shell thereon consisting of a ply of woven fabric next to said core, a ply of celluloid, a second ply of woven fabric, and a second ply of celluloid, the latter forming the outer surface of the ball.

897,925. BILLIARD-BALL. HERMAN KIMMEL, Boston, Mass., assignor to The Kimmell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1908. Serial No. 88,718. (No model.)



Claim.—1. A playing-ball, comprising an inner and an outer sphere, whereof one has integral ribs which penetrate the other.

2. A playing-ball, comprising an inner and an outer sphere; one of said spheres being harder than the other, and one of said spheres having integral ribs which penetrate the other.

3. A playing-ball, comprising an inner and outer sphere whereof one is harder than the other, said harder sphere having ribs which penetrate the softer sphere.

4. A playing-ball, comprising inner and outer spheres, said outer sphere having inwardly-projecting integral ribs which penetrate the inner sphere.

5. A playing-ball, comprising inner and outer spheres, whereof one has integral ribs and the other has corresponding pits, said ribs extending into said pits and locking the spheres together.

6. A playing-ball, comprising an inner soft sphere provided with pits, and an outer hard sphere provided with ribs which engage said pits.

7. A playing-ball, comprising an inner sphere of rubber and an outer sphere of celluloid, one of said spheres having ribs and the other of said spheres having pits engaged by said ribs.

8. A playing-ball, comprising an inner rubber sphere having pits and an outer celluloid sphere having ribs which project into said pits.

9. A playing-ball, having a hard core, a sphere upon said core, and a shell upon said sphere, one of said sphere and shell elements having integral ribs which penetrate the other of said elements.

10. A playing-ball, comprising a hard core, a soft sphere thereon provided with pits and a hard shell upon said sphere, said shell having integral ribs which enter said pits.

11. A playing-ball, comprising a hollow metal sphere, a rubber envelop thereon, provided with pits and a celluloid shell upon said envelop, said shell having ribs which enter said pits.

12. A playing-ball, comprising a hard core, a soft envelop thereon and a hard shell interlocking with said envelop.

13. A playing-ball comprising a hard core, a soft-rubber envelop thereon and a celluloid shell interlocking with said envelop.

14. A playing-ball, comprising an inner soft sphere provided with pits, and an outer hard sphere compressed thereon and provided with ribs which engage said pits.

15. A playing-ball, comprising an inner sphere of rubber and an outer sphere of celluloid compressed thereon, one of said spheres having ribs and the other of said spheres having pits engaged by said ribs.

16. A playing-ball, comprising an inner rubber sphere having pits and an outer celluloid sphere compressed thereon and having ribs which project into said pits.

17. A playing-ball, having a hard core, a soft sphere upon said core, and a hard shell compressed upon said sphere, one of said sphere and shell elements having ribs which penetrate the other of said elements.

18. A playing-ball, comprising a hard core, a soft sphere thereon provided with pits and a hard shell compressed upon said sphere, said shell having ribs which enter said pits.

19. A playing-ball, comprising a hollow metal sphere, a rubber envelop thereon, provided with pits and a celluloid shell upon said envelop and holding the same under compression, said shell having ribs which enter said pits.

20. A playing-ball, comprising a hard core, a soft envelop thereon and a hard shell interlocking with said envelop and holding it under compression.

21. A playing-ball, comprising a hard core, a soft-rubber envelop thereon and a celluloid shell interlocking with said envelop and holding the same under compression.

22. In a playing-ball, an indented springy sphere and a hard shell interlocked with and maintaining said sphere under compression.

23. In a playing-ball, a rubber sphere uniformly ragged throughout its surface and a hard envelop interlocked with and maintaining said sphere under compression.

24. In a playing-ball, a resilient sphere uniformly ragged throughout its surface and a pyroxylin-composition envelop interlocked with and maintaining said sphere under compression.

25. In a playing-ball, a resilient sphere uniformly ragged throughout its surface and a celluloid envelop interlocked with and maintaining said sphere under compression.

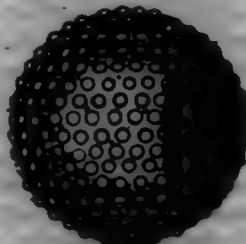
26. In a playing-ball, a springy sphere and a hard shell thereon said sphere and shell being interlocked.

27. In a playing-ball, a hard core, a hard shell and a cushion held under compression between said core and shell and interlocked with the latter.

28. In a playing-ball, a hard hollow core, a hard shell, and a cushion held under compression between said core and shell and interlocked with the latter.

29. In a playing-ball, the combination of a metallic core, a celluloid shell, and a resilient cushion held under compression between said core and shell and interlocking with the latter.

897,926. GOLF-BALL. FRANK H. EDWARDS, Hartford, Conn., assignor to The Kimmell Manufacturing Company, a Corporation of New Jersey. Filed Feb. 28, 1908. Serial No. 88,588. (No model.)

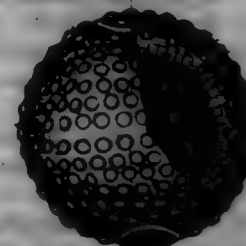


Claim.—1. A playing-ball comprising a filling and a shell of celluloid thereon, said shell having a series of holes.

2. A playing-ball comprising a springy filling and a shell consisting largely or wholly of celluloid, said shell having numerous scattered perforations.

3. A playing-ball comprising a springy filling and a shell consisting largely or wholly of celluloid and holding said filling under compression, said shell having numerous scattered perforations.

897,927. GOLF-BALL. FRANK H. EDWARDS, Hartford, Conn., assignor to The Kimmell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 2, 1908. Serial No. 87,987. (No model.)



Claim.—1. A ball comprising an integral hollow rubber sphere in a state of expansion upon a solid core, and a gutta-percha shell compressed upon said sphere.

2. A ball comprising an integral sphere of rubber expanded over a solid and relatively hard filling formed from plastic material, and a gutta-percha shell holding said sphere under compression.

3. A ball consisting of a whole thick spherical india-rubber sphere in a state of expansion over a solid sphere of gutta-percha, and a gutta-percha shell.

4. A ball comprising a whole sphere of firm india-rubber in a state of expansion over a solid sphere of gutta-percha, the diameter of the core being more than one-half that of said sphere, and a gutta-percha shell compressed upon said sphere.

5. A ball comprising an integral sphere of soft, elastic material expanded upon a solid core of gutta-percha, and a shell formed largely or wholly of gutta-percha and holding said sphere under compression.

6. A ball comprising a solid spherical gutta-percha core, a highly-vulcanized solid soft-rubber envelop expanded thereon, and a shell consisting at least partially of gutta-percha and gripping said envelop.

7. A ball consisting of a core formed of plastic material within a softer elastic sphere and holding the latter under tension, and a shell

formed at least partially of gutta-percha and holding said sphere under compression.

8. A ball consisting of a thick, spherical india-rubber envelop A^1 stretched over a core of gutta-percha E and having an opening closed by a plug B , and a gutta-percha shell upon said envelop.

9. In a playing-ball, the combination of a spherical cut-rubber shell inflated or distended by a mobile mass injected thereto, and a cover or casing of compressed gutta-percha upon said cut-rubber shell.

10. In a playing-ball, the combination of a spherical shell formed of springy material and inflated or distended by gutta-percha injected thereto, and a casing formed of gutta-percha compressed upon said springy shell.

11. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereto, one of said shell and injected-material elements being harder than the other, and a casing of gutta-percha compressed upon said shell.

12. In a playing-ball, the combination of a seamless springy shell inflated or distended by springy material injected thereto, one of said shell and injected-material elements being harder than the other, and a casing formed of segments of gutta-percha and welded and compressed upon said shell.

13. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereto, said shell being softer than said injected material, and a casing formed of compressed gutta-percha and holding the latter under compression.

14. In a playing-ball, the combination of a seamless rubber shell expanded by gutta-percha injected thereto, and a casing formed of gutta-percha upon said rubber shell.

15. In a playing-ball, the combination of a spherical shell formed of springy material and inflated or distended by gutta-percha injected thereto, and a casing formed of spherical segments of gutta-percha welded at their edges and compressed upon said spherical shell.

16. In a playing-ball, the combination of a shell formed of springy material and inflated or distended by springy mobile material injected thereto, and a casing consisting of at least partially of gutta-percha and holding said springy shell under compression.

17. In a playing-ball, the combination of a seamless springy shell inflated or distended by springy material injected thereto, one of said shell and injected-material elements being harder than the other, and a casing of gutta-percha holding said seamless shell under compression.

18. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereto, said shell being softer than said injected material, and a casing consisting of welded segments holding said shell under compression; said casing consisting largely or wholly of gutta-percha.

19. In a playing-ball, the combination of a seamless rubber shell expanded by gutta-percha injected thereto, and a gutta-percha casing compressed upon said shell and holding the latter under compression.

20. A playing-ball comprising a solid spherical envelop expanded upon a core and a casing of compressed gutta-percha upon said envelop.

21. In a playing-ball, the combination of a filling consisting of a spherical envelop of cut material expanded upon a solid sphere and a shell consisting of compressed segments of gutta-percha and holding said filling under compression.

22. A playing-ball comprising a solid cut spherical envelop expanded upon a solid sphere of gutta-percha, and a shell formed of gutta-percha and compressed upon said envelop.

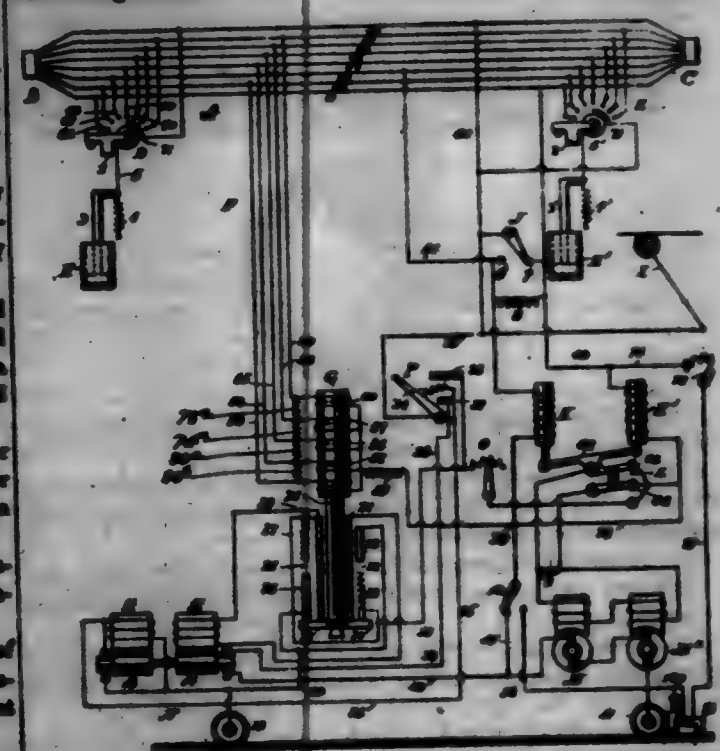
23. A ball comprising an integral hollow rubber sphere in a state of expansion upon a hollow core, and a gutta-percha shell compressed upon said sphere, the diameter of said core being substantially two-thirds the diameter of said sphere, and said sphere having substantially eighty-five per cent. of the diameter of said shell.

897,998. MOTOR CONTROLLING APPARATUS. GRAYVILLE T. WOOD and LYMAN WOOD, New York, N. Y., assignors, by direct and mesne assignments, to Henry C. Townsend and Robert H. Decker, trustees. Filed Sept. 2, 1901. Serial No. 74,595. (No model.)

Claim.—1. In a system of motor control, the combination of a driving-motor, an electrical armature in series therewith, an electromagnetic field-magnet for said armature, a motor-switch in circuit with said field and adapted to control the same, and a commutating-switch, which, when manually operated, causes said motor-switch or controller to change the resistance of said field-circuit.

2. In a system of motor control, the combination of a driving-motor, an electrical armature in series therewith, an electromagnetic field-magnet for said armature, a motor-switch in circuit with said field and adapted to vary and reverse said field, and a commutating-switch which, when operated manually, is adapted to cause said motor-switch to vary and reverse said field.

3. In a system of motor control, the combination of a driving-motor, an electrical armature in series therewith, an electromagnetic field-magnet for said armature, a motor-switch in circuit with said field and adapted to control the same, a commutating-switch in circuit with said motor-switch and adapted to control the same, and means adapted to reverse the driving-motor.



4. In a system of motor control, the combination of a driving-motor, an electrical armature in series therewith, an electromagnetic field-magnet for said armature, a motor-switch in circuit with said field and adapted to vary and reverse said field, a commutating-switch in circuit with said motor-switch and adapted to control the same, and means adapted to reverse said driving-motor.

5. In a system of motor control, the combination of a driving-motor, a generator-armature in series therewith, a field-magnet for said armature, a motor-switch in circuit with said field and adapted to control the same, and an automatically-acting device in circuit with said driving-motor and adapted to move under the influence of an abnormal current and thereby interrupt the supply of said current to damage said driving-motor.

6. In a system of electrical control, the combination of a driving-motor, a generator-armature in series therewith, a field-magnet for said armature, a motor-switch having a stop-by-stop motion and adapted to control said field, a commutating-switch in circuit with said motor-switch and adapted to control the motion of the same, and means for reversing the driving-motor.

7. In a system of electrical control, the combination of a driving-motor, a generator-armature in series therewith, a field-magnet for said armature, a motor-switch in circuit with said field and adapted to control the same, a commutating-switch in circuit with said motor-switch and adapted to control the motion thereof, and a switch in the field-circuit of said driving-motor and adapted to reverse the same.

8. In an electrical system, the combination of a driving-motor, a controller divided into sections, a commutating-switch adapted to energize said controller section by section, and means adapted to check the commutating-switch in its forward movement only when said switch is operated in both directions by hand.

9. In an electrical system, the combination of a driving-motor, a controller apparatus divided into sections, a commutating-switch adapted to energize said apparatus section by section, means adapted to check the movement of the motor-switch, and means adapted to cause said commutating-switch to stand open circuit when the latter is at rest.

10. The combination of a motor, a speed-controller a reversing device for said motor, a commutating-switch, and means adapted to check said commutating-switch in its forward movement only when operated in both directions by hand.

11. The combination of a motor, a speed-controller, a reversing device for said motor, a commutating-switch, and means adapted to check said commutating-switch in its forward movement only when operated in both directions by hand.

12. The combination of a motor, a speed-controller, a motor-reversing device, a single set of wires, and a commutating-switch provided with means to check it in its forward movement only and said switch being adapted to feed energy from said single set of wires to both the said controller and said reversing device.

13. In combination, an electrically-operated car or vehicle, a driving-motor therefor, a controller for said motor, a commutating-switch to govern said controller, and means adapted to act automatically and assist in bringing the car or vehicle to rest when manual control of said commutating-switch ceases.

14. In combination, a plurality of electrically-operated cars adapted to be connected together to form a train, a plurality of driving-motors for each car, a motor-controller upon each car, a commutating-switch adapted to simultaneously control the entire number of said motors, and means adapted to act automatically and assist in bringing the car to rest when manual control of the commutating-switch ceases.

15. In combination, a controller comprising two parts, a fixed contact part and a movable contact part, the appropriate contact or contacts of one part being adapted to have a positive spring-pressure against the appropriate contact or contacts of the other part, a series of actuating devices adapted to move said movable part step by step, a commutating-switch adapted to successively bring said actuating devices into operation, and means adapted to prevent a rapid forward movement of said commutating-switch.

16. In combination, a controller comprising a set of fixed contacts and a set of movable contacts, a series of separately-actuating devices adapted to move said movable set of contacts step by step, through a series of operative positions, means adapted to successively bring said actuating devices into operation, and means adapted to yieldingly press the appropriate contacts of one set against the appropriate contacts of the remaining set.

17. In combination, a controller comprising a set of fixed contacts, and a set of movable contacts, a common support for said movable contacts, a series of separately-actuating devices for moving said set of movable contacts step by step, through a series of operative positions, means adapted to successively bring said actuating devices into operation, and elastic means adapted to press the appropriate contacts of one set against the appropriate contacts of the remaining set.

18. In combination, a controller comprising a set of fixed contacts and a set of movable contacts, a common support for said movable contacts, a series of separately-actuating devices for moving said set of movable contacts step by step, through a series of operative positions, means adapted to successively bring said actuating devices into operation, and means adapted to elastically press the appropriate contacts of one set against the appropriate contacts of the remaining set.

19. In combination, a motor-controller comprising a set of fixed contacts and a set of movable contacts, a common support for said movable contacts, a series of separately-actuating devices for moving said set of movable contacts step by step, through a series of operative positions, means adapted to successively bring said actuating devices into operation, and elastic means adapted to press the appropriate contacts of one set against the appropriate contacts of the remaining set.

20. In combination, a controller comprising a set of fixed contacts and a set of movable contacts, a common support for said movable contacts, a plurality of separately-actuating devices adapted to shift said set of movable contacts through a series of operative positions, each of said actuating devices being adapted to move said support through a portion only of its full movement, a commutating-switch operatively connected to said actuating device, said commutating-switch being constructed and arranged to successively energize said actuating device, and means adapted to yieldingly press the appropriate contacts of one set against the appropriate contacts of the remaining set.

21. In a train system, a plurality of motor-controllers each having a set of fixed contacts and a set of movable contacts, each set of movable contacts being mounted upon a common support, a plurality of separately-actuating devices operatively related to the common support of each controller, each of said devices being adapted to move the said support through a portion only of its full movement, means adapted to connect the said actuating devices in multiple, a commutating-switch connected and arranged to supply current simultaneously to said actuating devices of the several controllers, and means adapted to yieldingly press the appropriate contacts of one set against the appropriate contacts of the remaining set of the several controllers.

22. In a train system, a plurality of motor-controllers each comprising a set of fixed contacts and a set of movable contacts, a plurality of separately-actuating devices, operatively related to the movable contacts of each controller, each of said devices being adapted to move said movable contacts through a portion only of their full movement, a set of conductors extending through the train and to which said actuating devices are connected, a commutating-switch adapted to extend the connection between a source of supply and said conductors to simultaneously move the movable contacts a predetermined distance.

23. In combination, a controller comprising fixed contacts and a movable contact or contacts, the faces of the appropriate contacts being pressed together by a spring-like pressure during their electrical connection, a series of separately-actuating devices adapted to move said movable contact or contacts, and means adapted to deliver energy, successively and at the will of the operator, to any portion of the entire number of said coils.

24. In combination, a controller comprising fixed contacts and movable contacts, a series of separately-actuating devices adapted to move said movable contacts step by step, in one direction only, through a series of operative positions, means adapted to return said movable contacts to their normal position, and means adapted to successively energize said actuating devices.

25. In combination, a controller comprising fixed contacts and movable contacts, a set of actuating-coils adapted to move said movable contacts, and a commutating-switch adapted to deliver current to a circuit which includes a plurality of said actuating-coils less than the total number.

26. In combination, a controller provided with fixed contacts and movable contacts, a set of actuating-coils adapted to control said contacts, and a commutating-switch adapted to deliver current, successively, to a plurality of circuits, each such circuit including a plurality of said actuating-coils less than the total number.

27. In combination, a controller comprising fixed contacts and movable contacts, a set of actuating-coils adapted to actuate said movable contacts, a commutating-switch, a set of separately-energized circuits controlled thereby, each of such circuits containing a plurality of said coils, and a resistance in circuit with a plurality of such coils.

28. In combination, a controller comprising fixed contacts and movable contacts, a set of actuating-coils adapted to operate said movable contacts, a set of separately-energized circuits, each containing a plurality of said coils, and a commutating-switch adapted to deliver energy, at the will of the operator, to a plurality of said coils less than the total number.

29. The combination of a motor, a commutating-switch, and a controller comprising fixed contacts, movable contacts and a set of actuating-coils for operating said movable contacts, the said coils being adapted to receive energy in varying amounts, each coil causing the appropriate change in the contact connections upon each coil receives its proper proportion of the current.

30. The combination of an electric motor, a controller therefor, a commutating-switch to govern said controller, a source of supply for said motor, and a regulating device in series with the armature of said motor and acting to vary the electromotive force of the current delivered from said source of supply to said motor.

31. The combination of an electric motor, a controller therefor, a commutating-switch to govern said controller, a source of supply for said motor, and an inductive regulating device in series with the armature of said motor and acting to vary the electromotive force of the current delivered from said source of supply to said motor.

32. The combination of an electric motor, a controller therefor, a commutating-switch to govern said controller, a regulating-armature in series with the armature of said motor, and means adapted to drive said regulating-armature.

33. The combination of an electric motor, a controller therefor, a commutating-switch to govern said controller, a regulating-armature in series with the armature of said motor, and means adapted to reverse said motor.

34. The combination of an electric motor, a controller therefor, a commutating-switch to govern said controller, a regulating-armature in series with the armature of said motor, means adapted to drive said regulating-armature and means adapted to reverse said motor.

35. The combination of an electric motor, a controller therefor, a commutating-switch adapted to cause said controller to move step by step, a regulating-armature in series with the armature of said motor, and electromagnetic means for reversing said motor.

36. A train having a plurality of electrically-equipped cars, a regulating-armature upon each such car and in series with the armature of the car-driving motor, and a commutating-switch adapted to control the operation of the entire plurality of regulating-armatures.

37. A train having a plurality of electrically-equipped cars, a regulating-armature upon each such car and in series with the armature of the car-driving motor, means for reversing said motor and a commutating-switch adapted to control the entire plurality of regulating-armatures whereby the current delivered to said car-driving motors will be proportioned to the work performed by each motor.

38. In combination, a driving-motor, a speed-controller therefor, a commutating-switch and means adapted to vary the current in the motor-field circuit independently of the armature-circuit thereof.

39. In combination, a driving-motor, a speed-controller therefor, a commutating-switch means adapted to reverse said motor, and means adapted to vary the field strength of said motor, independently of the armature circuit thereof.

40. In combination, a driving-motor, a speed-controller therefor, a commutating-switch in circuit with said speed-controller, and means adapted to vary the field strength of said motor, independently of the armature-circuit thereof.

41. In combination, a plurality of driving-motors, having their fields in series with each other, a speed-controller for said motors, means for reversing said fields, and means adapted to vary the strength of said fields independently of the armature-circuits thereof.

42. In combination, a plurality of motors having their fields in series with each other, an electromagnetic device in series with the armature of said motor, and an electrically-operated reversing-switch in circuit with said field.

43. In combination, a plurality of motors, having their fields connected in series with each other, an electromagnetic device in series with the armature of said motor, an electromagnetic reversing-switch in circuit with said fields, and means adapted to control the current which actuates said switch.

44. In combination, a plurality of motors, a speed-controller therefor, an electromagnetic device in series with the armature of said motor, a reversing-switch in circuit with the fields of said motors, and means adapted to actuate said reversing-switch.

45. In combination, a plurality of motors, a speed-controller therefor, a reversing-switch in circuit with the fields of said motors, an electromagnetic device in series with the armatures of said motors, means adapted to prevent sparking during the reversal of said motors, and means adapted to actuate said reversing-switch.

46. In combination, a plurality of motors, a speed-controller therefor, a commutating-switch adapted to actuate said speed-controller, a reversing-switch in circuit with the fields of said motors, an electromagnetic device in series with the armatures of said motors, means adapted to prevent sparking during the reversal of said motors, and means adapted to actuate said reversing-switch.

47. The combination of a motor, a speed-controller, a commutating-switch, and an automatic circuit-controller, the latter controller having two levers which constantly tend to move to open the circuit, one of such levers being held in its normal position by a latch and the other lever is held in its normal position by a magnet.

48. The combination of a motor, a speed-controller, a commutating-switch, an automatic circuit-controller having two levers, one of such levers being held in its normal position by a latch and means adapted to act, upon an excessive flow of current, and release said lever.

49. In combination, a motor, a controller therefor, a spring-controlled commutating-switch adapted to electrically actuate said controller through a series of operative positions, and a spring adapted to return said controller to its normal position.

50. In combination, a motor, a controller therefor, a commutating-switch adapted to govern the controller and means such as a spring constantly tending to restore the controller to its normal position independently of the retrograde movement of the commutating-switch.

51. In combination, a motor, a controller therefor, a commutating-switch adapted to govern said controller, a reversing-switch for said motor, and means such as a spring constantly tending to restore the controller to its normal position independently of the retrograde movement of said commutating-switch.

52. In combination, a motor, a controller therefor, and a commutating-switch adapted to be connected, through the coils of said controller, to a two-point switch, one of the points of the latter switch being connected to a branch circuit in series with the motor, and the remaining switch-point being connected to a circuit in parallel with the motor.

53. In combination, a motor, a motor-controller comprising fixed contacts and movable contacts, a motor-reversing device, a plurality of commutating-switches, a commutating-switch line connected between the latter switches, and a connection between said line and said controller whereby either of the commutating-switches will be enabled to cause said controller to be energized section by section and to move step by step.

54. The combination of a train having a plurality of electrically-equipped cars, each of such equipments having a motor-controller with spring-pressed contacts and a commutating-switch to energize the controller section by section, and means adapted to make a direct electrical connection between the commutating-switch on car and a like device on another car independently of the sequence of the equipped cars.

55. In a system of electrical control, the combination of a driving-motor and its circuits, speed or work controlling apparatus for said motor, a commutating-switch adapted to govern said controlling apparatus, motor-reversing mechanism connected to said motor-circuits, and an independent switch adapted to deliver energy to said reversing mechanism each time the latter is operated, the said mechanism being inactive except during the reversal of said motor.

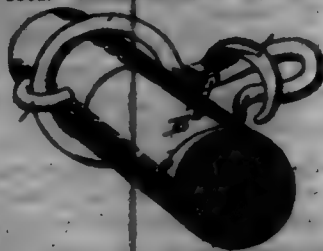
56. A car provided with a motor, motor-controlling apparatus, a plu-

rality of commutating-switches, and a group of commutating-switch wires, said wires having branches leading to the controlling apparatus, and other branches leading to coupling-heads at each end of the car, all of the wires being connected in said heads in a single vertical or substantially vertical series, the serial number of a given wire connection in one head being a duplicate of such connection in the other head.

57. The combination of a plurality of cars, driving-motors upon each of said cars, controller apparatus for said motors, spring-pressed contacts for such controllers, commutating-switches upon each equipped car and adapted to energize said controller apparatus section by section and means for directly connecting the commutating-switch wires of one car in series with such wires on another car independently of the sequence or order relation of the cars.

58. In a system of electrical control, the combination of a plurality of cars, driving-motors and their circuits upon each of said cars, speed-controlling apparatus upon each motor-equipped car, fixed contacts and movable contacts being included in said speed-controlling apparatus, a commutating-switch adapted to govern all of the speed-controlling apparatus simultaneously, means, such as springs, relating to said movable contacts, whereby the latter contacts constantly tend to open the motor-circuits, and means, such as a spring, located at said commutating-switch whereby all of said movable contacts will be caused to act automatically and open the motor-circuits upon failure of the motorman to control said commutating-switch while actuating-current is being delivered to said motors.

697,989. INSULATING-ROCK. THOMAS S. YOUNG, Fenn, Oreg. Filed Dec. 2, 1901. Serial No. 94,948. (No model.)



Claim.—1. A device substantially as herein described, composed of a rod of metal bent between its ends to form the loop or ring, united immediately adjacent to the said loop or ring and having one extremity bent to form the hook proper, with its end bent outwardly, and the safety-keeper curving laterally outward over the hook proper and extending downwardly to a point outside of and below the plane of the hook proper, substantially as set forth.

2. A device substantially as herein described, provided with the returned hook proper and with a safety-keeper extending from a point adjacent to the shank of the hook laterally across the hook proper and to a point beyond the said hook, substantially as set forth.

3. A device substantially as herein described, comprising the loop or ring, the shank portion extending therefrom, the hook proper and the safety-keeper extending laterally across and to a point beyond the hook proper, substantially as set forth.

4. A device substantially as herein described, comprising the ring or loop, the hook proper and the safety-keeper extending from a point adjacent to the shank of the hook proper and curving thence upwardly and then downwardly to a point above, outside of, and below the hook proper, substantially as set forth.

5. A device substantially as described, composed of a rod of metal bent between its ends to form the ring or loop and at its ends to form the hook proper, and the safety-keeper, substantially as set forth.

697,980. RAIL CHAIR AND INSULATOR. WALTER D. YOUNG, Baltimore, Md. Filed Mar. 5, 1901. Serial No. 48,103. (No model.)

Claim.—1. An appliance of the character described, comprising a casting having means for detachably supporting an insulated rail-chair, and its opposite ends constructed to support guard-rails.

2. An appliance of the character described, comprising a casting, adapted to support a rail-chair, its opposite ends having means to support guard-rails, and members to which said rails can be made fast.

3. An appliance for the purpose stated, having a central upwardly-projecting spindle and vertical end portions, as set forth.

4. An appliance of the character described, having a central hub and a spindle, each 10° at the outer ends and vertical portions 10, having bolt-apertures, for the purpose described.

5. The hereinbefore-described appliance, comprising a member 1, adapted to be spiked to a cross-tie, said member 1, having a spindle 14, each 10°, and vertical flange 10°, and having integral vertical members 10, having bolt-apertures, all being arranged substantially as shown and for the purpose described.

6. A combined rail holder and insulator, comprising a base member adapted to be secured to the cross-tie, a rail holder and support mounted on the base-plate and insulated therefrom, said base-plate having upturned portions provided with seats to receive the guard-rails, substantially as shown and for the purposes described.



7. A third-rail insulator having its base provided with means for supporting a guard-plank.
8. A third-rail insulator having its base provided with extensions adapted to support a guard-plank.
9. A third-rail insulator having on its base extensions provided with one or more flanges to support a guard-plank.
10. A third-rail insulator having on its base an extension provided with a pedestal, and means for securing a guard-plank on said pedestal.
11. A third-rail insulator having on its base an extension provided with a pedestal having one or more flanges to support a guard-plank.
12. A third-rail insulator having a base provided with extensions, pedestals on said extensions, and upright flanges on said pedestals.
13. The combination with a third-rail insulator having lateral extensions on its base, of a guard-plank supported on each extension, and rising above the top of the rail.

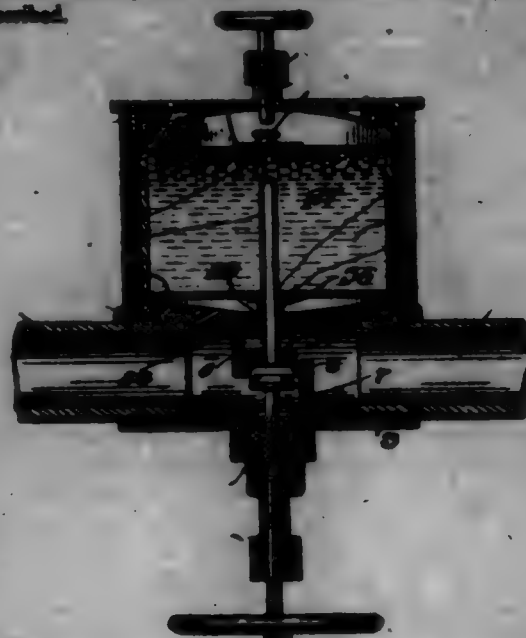
697,981. METHOD OF MAKING GAS-PURIFYING AGENTS.
HARRY S. BLACKMON, Mount Vernon, N. Y. Filed Feb. 18, 1891. Serial No. 47,976. (No model.)

- Claim.*—1. The process of making a composition for use in purifying gas which consists in exposing dense or vitreous iron ore to the action of metallic acid and water capable of liberating heat in the mixture by chemical reaction.
2. The process of making a composition for use in purifying gas which consists in exposing a water-insoluble compound, containing iron as principal constituent, to the action of calcium acid and water.
 3. The process of making a composition for use in purifying gas which consists in exposing a broken or comminuted composition, insoluble in water, containing iron acid as principal ingredient, to the action of calcium acid and water.
 4. The process of making a composition for use in purifying gas which consists in pulverizing hematite, mixing the same with pulverized calcium acid, and exposing it to the action of water.
 5. The process of making a composition for use in purifying gas which consists in exposing a refractory ore containing iron to the combined action of calcium acid and water.
 6. The process of making a composition for use in purifying gas which consists in exposing a refractory compound containing iron as principal constituent, to the action of calcium acid and water.

697,982. AUTOMATIC BRIF FOR STEAM-LINES. JAMES H. BLACKLY, Homestead, Pa., assignor of one-half to James H. Blackly, Homestead, Pa. Filed Dec. 16, 1901. Serial No. 22,761. (No model.)

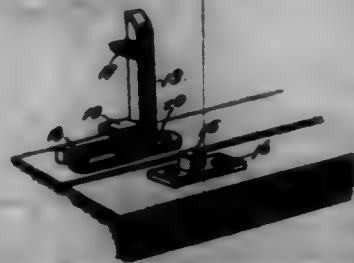
- Claim.*—1. In a steam-line, the combination of a regulating-valve, a mercurial thermostat secured to said regulating-valve, and a hollow valve-stem extending into said mercurial thermostat, substantially as described.
2. In a device of the character described, the combination with a steam-line, a casing, a mercurial thermostat secured in said casing, a regulating-valve comprising a hollow stem extending into said thermostat,

and means whereby said valve is automatically regulated, substantially as described.



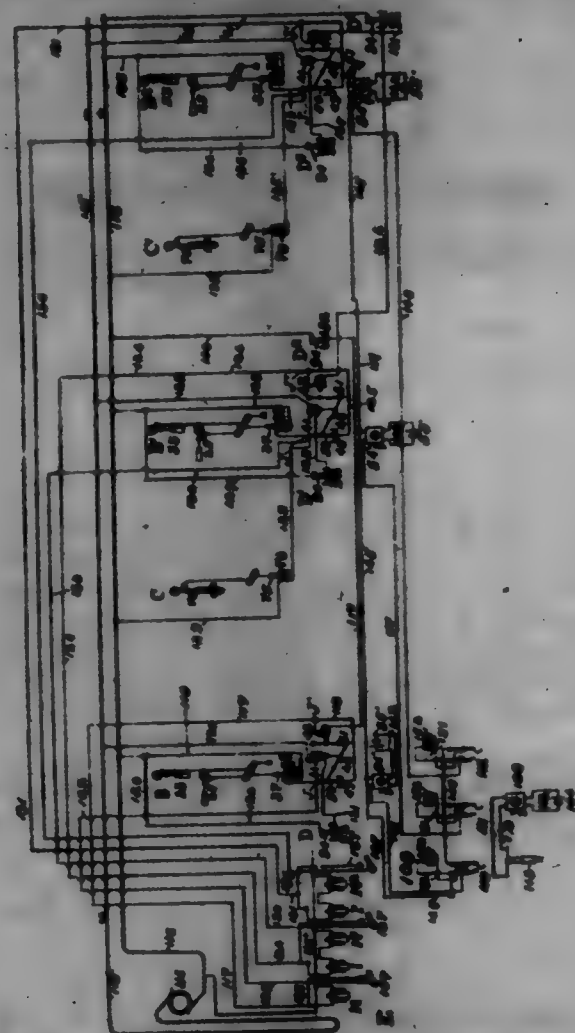
3. In a device of the character described, the combination with a steam-line, a casing formed therein, a cup arranged in said casing, a diaphragm secured to the upper and lower sides of said cup, means to regulate the expansion and contraction of said diaphragm, a valve, a hollow stem secured to said valve and extending into said cup and secured to one of said diaphragms, and a spring arranged between said diaphragm and casing, all parts being arranged substantially as described, and for the purpose set forth.

697,988. LOCK. HILDEBRAND E. MATCHLEY, Whitehall, Ill., assignor to H. G. Tuntion, Whitehall, Ill. Filed Jan. 20, 1901. Serial No. 44,893. (No model.)



- Claim.*—1. A device of the class described, comprising a cleave and a latch-lever, the latch-lever including an arm and a stem lying at an angle to the arm, said stem having a portion adapted for engagement with the cleave to hold the stem against rotation, and a portion adapted for rotation in the cleave to permit of movement of the arm into and out of operative position, and a latch carried by one member for engagement with the other member to hold the angular portion in engagement with the cleave.
2. A lock comprising an attaching-plate having a cross-sectionally angular cleave formed therein, and a latch-lever including an arm and a stem lying at an angle to the arm, said stem having a cross-sectionally angular portion adjacent to the arm to fit the cleave and prevent rotation of the arm, and having the remaining portion rounded to permit of rotation of the arm into and out of operative position when the stem is moved with its rounded portion to lie in the cleave, and a latch carried by one member for engagement with the other member to hold the angular portion in engagement with the cleave.
 3. A lock comprising an attaching-plate having a cross-sectionally angular cleave formed therein, and a latch-lever comprising an arm and a stem, said stem having a cross-sectionally angular portion adjacent to the arm to fit the cleave and hold the arm against rotation and having its remaining portion formed for rotation in the cleave, and a spring-catch carried by the arm and projecting normally from the stem to lie against the cleave and prevent displacement of the angular portion of the stem therefrom.
 4. A lock for meeting-rolls of rubber, comprising an attaching-plate having an angular cleave, a second attaching-plate having a beveled stud, and a latch-lever including an arm having a stem projecting at an angle therefrom, said stem having its portion adjacent the arm formed to fit the cleave and prevent rotation therein, and the remaining portion formed to permit of rotation in the cleave, said arm having a beveled lug for engagement with the first-named beveled lug to draw the plates together when the stem is moved slidably to engage the angular portion thereof with the cleave.

697,984. RAILWAY SAFETY-BLOCK SYSTEM. GEORGE W. CURTIS, Allegheny, Pa., assignor of nine-sixteenths to John R. C. Wheeler, Charles L. Stevens, R. A. Sutton, A. Hart McKee, George F. Bock, and Jacob Wolf, Allegheny, Pa., and William C. McElhenny, and George O. Morgan, Pittsburg, Pa. Filed Aug. 3, 1901. Serial No. 71,393. (No model.)



Claim.—1. An electromechanical railway signal system, comprising a plurality of main signal-stands placed along the railway to divide the same into blocks or sections each of which is provided with a pair of oscillable signal-arms, intermediate signal-stands each having a single signal-arm thereon, an indicator-board having indicators thereon representing each block, a miniature oscillable arm on each indicator, means whereby a train on entering the first block will automatically and simultaneously oscillate the signal-arms of the first main stand and its indicator from safety to danger position, means at the terminus of said block whereby the train on leaving the same will automatically and simultaneously oscillate the signal-arms on the intermediate stand therein and the succeeding main stand at the entrance of next block and their respective indicator-arms from safety to danger position, means at the entrance of said block whereby the signal-arms of the first block-stand and its indicator will be automatically restored by the train to their normal or safety position, means at the terminus of the same and each succeeding block whereby the signals of the intermediate stand therein and the succeeding main stand thereof with their respective indicator-arms will be automatically and simultaneously oscillated by the train from safety to danger position, means at the entrance of said last-mentioned and each succeeding block whereby the signal-arms on said intermediate and main stand and their respective indicators will be automatically and simultaneously restored by the train from danger to safety position, and a telephone arranged on said indicator-board and each of said main signal-stands.

2. An electromechanical railway signal system, comprising a plurality of main signal-stands placed along the railway to divide the same into blocks or sections each of which is provided with a pair of oscillable signal-arms, intermediate signal-stands each having a single signal-arm thereon, an indicator-board having indicators thereon representing each block, a miniature oscillable arm on each indicator, means whereby a train on entering the first block will automatically and simultaneously oscillate the signal-arms of the first main stand and its indicator from safety to danger position, means at the terminus of said block whereby the train on leaving the same will automatically and simultaneously oscillate the signal-arms on the intermediate stand therein and the succeeding main stand at the entrance of next block and their respective indicator-arms from safety to danger position, means at the entrance of said block whereby the signal-arms of the first block-stand and its indicator will be automatically restored by the train to their normal or safety position, means at the terminus of the same and each succeeding block whereby the signals of the intermediate stand therein and the succeeding main stand thereof with their respective indicator-arms will be automatically and simultaneously oscillated by the train from safety to danger position, means at the entrance of said last-mentioned and each succeeding block whereby the signal-arms on said intermediate and main stand and their respective indicators will be automatically and simultaneously restored by the train from danger to safety position.

will be automatically restored by the train to their normal or safety position, means at the terminus of the same and each succeeding block whereby the signals of the intermediate stand therein and the succeeding main stand thereof with their respective indicator-arms will be automatically and simultaneously oscillated by the train from safety to danger position, and means at the entrance of said last-mentioned and each succeeding block whereby the signal-arms on said intermediate and main stand and their respective indicators will be automatically and simultaneously restored by the train from danger to safety position, and means at said indicator-board whereby the signals controlling each block may be separately operated therefrom to danger or safety position independent of the train-actuating means.

3. An electromechanical railway signal system, comprising a plurality of main signal-stands placed along the railway to divide the same into blocks or sections each of which is provided with a pair of oscillable signal-arms, intermediate signal-stands each having a single signal-arm thereon, an indicator-board having indicators thereon representing each block, a miniature oscillable arm on each indicator, means whereby a train on entering the first block will automatically and simultaneously oscillate the signal-arms of the first main stand and its indicator from safety to danger position, means at the terminus of said block whereby the train on leaving the same will automatically and simultaneously oscillate the signal-arms on the intermediate stand therein and the succeeding main stand at the entrance of next block and their respective indicator-arms from safety to danger position, means at the entrance of said block whereby the signal-arms of the first block-stand and its indicator will be automatically restored by the train to their normal or safety position, means at the terminus of the same and each succeeding block whereby the signals of the intermediate stand therein and the succeeding main stand thereof with their respective indicator-arms will be automatically and simultaneously oscillated by the train from safety to danger position, means at the entrance of said last-mentioned and each succeeding block whereby the signal-arms on said intermediate and main stand and their respective indicators will be automatically and simultaneously restored by the train from danger to safety position, and a telephone arranged on said indicator-board and each of said main signal-stands.

4. An electromechanical railway signal system comprising a plurality of main signal-stands placed along the railway to divide the same into blocks or sections each of which is provided with a pair of oscillable signal-arms, intermediate signal-stands each having a single signal-arm thereon, an indicator-board having indicators thereon representing each block, a miniature oscillable arm on each indicator, means whereby a train on entering the first block will automatically and simultaneously oscillate the signal-arms of the first main stand and its indicator from safety to danger position, means at the terminus of said block whereby the train on leaving the same will automatically and simultaneously oscillate the signal-arms on the intermediate stand therein and the succeeding main stand at the entrance of next block and their respective indicator-arms from safety to danger position, means at the entrance of said block whereby the signal-arms of the first block-stand and its indicator will be automatically restored by the train to their normal or safety position, means at the terminus of the same and each succeeding block whereby the signals of the intermediate stand therein and the succeeding main stand thereof with their respective indicator-arms will be automatically and simultaneously oscillated by the train from safety to danger position, means at the entrance of said last-mentioned and each succeeding block whereby the signal-arms on said intermediate and main stand and their respective indicators will be automatically and simultaneously restored by the train from danger to safety position, means at said indicator-board whereby the signals controlling each block may be separately operated therefrom to danger or safety position independent of the train-actuating means, and a telephone arranged on said indicator-board and each of said main signal-stands.

5. An electromechanical-operated block-signal system, a signal-stand, comprising a stand, a pair of oscillable signal-arms mounted on one side thereof which are positioned at right angles to one another, a pulley or drum mounted thereon, a chain extending from said drum to a crank on each of said arms, a weight suspended from said drum to rotate the same in one direction, a core suspended from said drum, and a solenoid-magnet arranged in said stand which when energized is adapted to act upon said core and rotate said drum in an opposite direction to reverse the positions of said signal-arms.

6. In an electromechanical-operated block-signal system, an intermediate block-stand, comprising a stand, a vertical oscillable signal-arm mounted upon one side thereof, a pulley or drum arranged thereon, a chain connecting said signal-arm with said drum, a core suspended from said drum, and a solenoid-magnet in said stand which is adapted when energized to act upon said core and rotate said drum to rotate said signal-arm to a horizontal position.

7. In an electromechanical block-signal system, a circuit-closer, comprising a casing, a horizontal shaft extending therefrom having cranks rigidly fixed at its outer and inner end, a vertical chamber on said casing, a piston-plunger in said chamber connected to said inner crank and normally opened by spring-pressure, and means in said chamber whereby a circuit is closed by the downward movement of said plunger when said outer crank is depressed.

8. In an electromechanical railway signal system, a train-actuated circuit-closer, comprising a chamber, a piston-plunger operatively arranged in said chamber, a crank-lever adapted to engage with and be depressed by the wheels of a train, a pump connecting said lever with the plunger to move the latter in one direction when depressed, circuit-closing members in said chamber and insulated therefrom which are adapted to be brought into engagement by said plunger when so moved, and means for restoring said plunger and crank to their normal position.

9. In an electromechanical railway signal system, a train-actuated circuit-closer, comprising a chamber, a piston-plunger operatively arranged in said chamber, a crank-lever adapted to engage with and be depressed by the wheels of a train, means connecting said lever with the plunger to move the latter in one direction when depressed, circuit-closing members in said chamber and insulated therefrom which are adapted to be brought into engagement by said plunger when so moved, means for restoring said plunger and crank to their normal positions, and means carried by one of said circuit members whereby engagement of the plunger therewith may be adjusted.

10. In an electromechanical semaphore-signal system operated by the train, the combination therewith, of indicating devices representing said semaphores, and means whereby said devices will automatically and simultaneously indicate the positions assumed by said semaphores.

11. In an electromechanical semaphore-signal system operated by the train, the combination therewith, of oscillable indicators representing said semaphores, and means whereby said indicators will automatically and simultaneously oscillate to positions assumed by said semaphores.

12. In an electromechanical semaphore-signal system operated by the train, the combination therewith, of indicating devices representing said semaphores, means whereby said devices will automatically and simultaneously indicate the positions assumed by said semaphores, and means independent of that actuated by the train for separately actuating any one of said semaphores and its indicator.

13. In an electromechanical semaphore-signal system operated by the train, the combination therewith, of oscillable indicators representing said semaphores, means whereby said indicators will automatically and simultaneously oscillate to positions assumed by said semaphores, and means independent of that actuated by the train for separately actuating any one of said semaphores and its indicator.

14. In a railway signal system, the combination of a signal-circuit having a make-and-break mechanism therein, a second circuit having therein a train-actuating circuit-closer and a mechanism to operate the make-and-break mechanism of said signal-circuit when closed by the train, means to automatically lock said make-and-break mechanism in the position assumed at closure of said second circuit, and a third circuit having therein a train-actuating circuit-closer and a mechanism to act upon and release said lock when closed by the train to effect a restoration of said signal-circuit.

15. In a railway signal system, the combination of a signal-circuit having a make-and-break mechanism therein, a second circuit having therein a train-actuating circuit-closer and a mechanism to act upon and bring together the make-and-break members of said signal-circuit when closed by the train, means to automatically lock said make-and-break members when brought together at closure of said second circuit, and a third circuit having therein a train-actuating circuit-closer and means for acting upon and releasing said lock when closed by the train to effect a restoration of said signal-circuit.

16. In a railway signal system, the combination of a signal-circuit having therein a signal on indicator therefor and a make-and-break mechanism, a second circuit having therein a train-actuating circuit-closer and a mechanism to operate the make-and-break mechanism of said signal-circuit when closed by the train, means to automatically lock said make-and-break mechanism in the position assumed at closure of said second circuit, and a third circuit having therein a train-actuating circuit-closer and a mechanism to act upon and release said lock when closed by the train to effect a restoration of the signal and its indicator.

17. In a railway signal system, the combination of a signal-circuit having therein a signal on indicator therefor and a make-and-break mechanism, a second circuit having therein a train-actuating circuit-closer and a mechanism to act upon and bring together the make-and-break members of said signal-circuit when closed by the train, means to automatically lock said make-and-break members when brought together at closure of said second circuit, and a third circuit having therein a train-actuating circuit-closer and means for acting upon and releasing said lock when

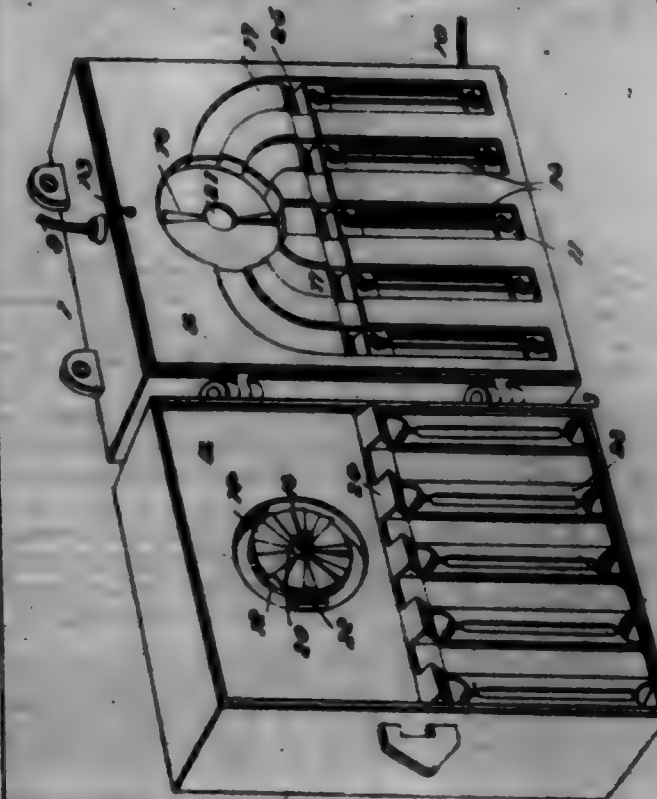
closed by the train to effect a restoration of the signal and its indicator.

18. In a railway signal system, the combination of a signal-circuit having therein a signal on indicator therefor and a make-and-break mechanism, a second circuit having therein a train-actuating circuit-closer and a mechanism to operate the make-and-break mechanism of said signal-circuit when closed by the train, means to automatically lock said make-and-break mechanism in the position assumed at closure of said second circuit, a third circuit having therein a train-actuating circuit-closer and a mechanism to act upon and release said lock when closed by the train to effect a restoration of the signal and its indicator, and means independent of that operated by the train to operate said signal and indicator.

19. In a railway signal system, the combination of a signal-circuit having therein a signal on indicator therefor and a make-and-break mechanism, a second circuit having therein a train-actuating circuit-closer and a mechanism to act upon and bring together the make-and-break members of said signal-circuit when closed by the train, means to automatically lock said make-and-break members when brought together at closure of said second circuit, and a third circuit having therein a train-actuating circuit-closer and means for acting upon and releasing said lock when closed by the train to effect a restoration of the signal and its indicator, and means independent of that operated by the train to operate said signal and indicator.

20. In a railway signal system, the combination of a circuit having a signal and a make-and-break mechanism therein, a second circuit having therein a train-actuating circuit-closer and a mechanism to operate the make-and-break mechanism of said signal-circuit when closed by the train, means to automatically lock said make-and-break mechanism in the position assumed at closure of said second circuit, a third circuit having therein a train-actuating circuit-closer and a mechanism to act upon and release said lock when closed by the train to effect a restoration of said signal, and means independent of that operated by the train for operating said signal.

697,985. PLURAL-POSS OUT-OUT. CHARLES J. DORSEY, Baltimore, Md., assignor, by direct and mesne assignments, to Ames Press Box Company. Filed Nov. 23, 1902. Renewed Sept. 5, 1901. Serial No. 74,399. (No model.)



Claim.—1. In a plural-poss out-out, a series of parallel insulated bars, a series of insulated conducting blocks each adapted to be put in an electric circuit with a fuse, and a rotatable circuit-closing device having a path tangential to each block, said blocks being of unequal lengths and comprising parts that are curved to surround the circuit-closing device and prevent fuses in the path of said device.

2. A series of fuses adapted to be successively put in an electric circuit, a fuse-box comprising parts separable near the plane of the fuses, a circuit-closer adapted to be electrically connected with each fuse in turn, said closer comprising a rotatable ratchet and a corresponding fixed ratchet, the latter being fixed in one part of the box and the other carried by the other part of the same.

3. A series of fuses adapted to be successively put in an electric circuit,

coil, a two-box comprising parts separable near the plane of the frame, a circuit-closer adapted to be electrically connected with each line in turn, said closer comprising a movable ratchet and a corresponding fixed ratchet, the latter being fixed in one part of the box and the other carried by the other part of the same, a ratchet-operating key, and a spring pressing the ratchets together, said spring and key being carried with the same separable part of the box that carries the movable ratchet.

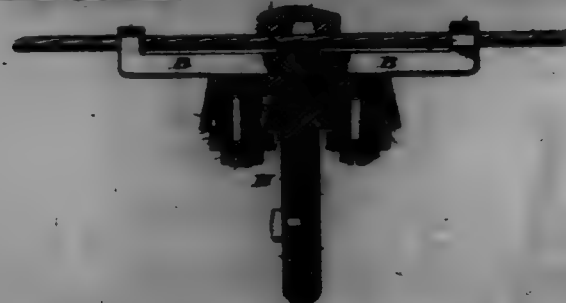
4. A series of fuses adapted to be successively put in an electric circuit, a two-box comprising parts separable near the plane of the frame, a circuit-closer adapted to be electrically connected with each fuse in turn, a series of conducting-blocks in the path of the circuit-closer, each of said blocks being provided with a groove, means for connecting a fuse to each block, and non-conducting ribs adapted to enter the grooves, the blocks being situated in one part of the box and the ribs in the other, and the ribs extended transversely through a plane passing between the parts.

697,986. HICKY-BAND FASTENER. WILLIAM S. DUNBAR, Brooklyn, N. Y., assignor of one-half to the E. J. Manville Machine Company, Waterbury, Conn., a Corporation of Connecticut. Filed Nov. 12, 1900. Serial No. 36,578. (No model.)



Claim.—A hicky-band fastener bent to shape from a single piece of metal and having a shank with loops, a curved guard extending forwardly from the shank and a tongue with a forwardly-projecting point extending between the loops of the shank to the curved guard and provided with a hump whereby the point may be pressed out of the guard-loop, substantially as specified.

697,987. TROLLEY-WIRE HANGER. RAO L. BOWARD, Aurora, Ill., assignor of two-thirds to Spencer A. Sanders, Louis M. Cota, and Aurelio Cota, Aurora, Ill. Filed Jan. 29, 1900. Serial No. 31,882. (No model.)



Claim.—1. A trolley-wire hanger having shiftable means for engaging a stringer-wire comprising a bar having hooks, a slotted screw-threaded stud, and a nut on the stud to directly engage the stringer-wire, the hooks and slot in the stud being in alignment whereby bending or kinking of the wire is obviated, substantially as described.

2. A trolley-wire hanger having shiftable means for engaging a stringer-wire comprising a bar having hooks, a slotted stud screw-threaded, and a nut on the stud, and having a shiftable trolley-wire clamp, substantially as described.

3. A trolley-wire hanger having a trolley-wire clamp comprising a fixed and a movable member, a screw to draw them together, a lug on one member to enter an opening in the other, and means to limit the separation of said members at a point before the lug becomes freed from the opening, substantially as described.

4. A trolley-wire hanger having an insulator-cup and a trolley-wire clamp secured to the cup by nuts and threaded posts, said clamp having a movable member adapted to engage one of the nuts to limit the separation of the movable member from the other member, substantially as and for the purpose described.

5. In a trolley-wire hanger, the combination of an insulator-cup, a trolley-wire engaging part, posts and nuts connecting the latter and the cup, and washers seated in cavities in the nuts, substantially as described.

697,988. LOCKING DEVICE. CHARLES B. FOSTER, JR., Cincinnati, Ohio, assignor of one-half to Walter Macleod, Newport, Ky. Filed Oct. 2, 1901. Serial No. 77,578. (No model.)

Claim.—1. A locking device consisting of two complementary parts, one being a keeper and the other a bolt carried on a base-plate, a guiding-lug 24 projecting from one of the edges of the base-plate, the one nearest the keeper when the parts are in position, guides 15 projecting from near the other edge of the base-plate, a bolt supported between these three projecting parts in a manner to be free for manual movement in two directions, one being between guides 15 near its rear or inner end

and from the base-plate to lying the outer end of the bolt opposite the keeper, the other movement being in a direction lengthwise of the base-plate for the purpose of entering the keeper from the position found by the first movement and when the bolt is aligned therewith, and a cam pivotally supported between the outer ends of guides 15 closing the space therebetween them, and serving in its operative position to hold the bolt on the base-plate in any of its positions in which it has found and engaged the keeper.



2. A locking device consisting of a bolt and a complementary keeper, a base-plate, guides between which this bolt is received to the base-plate in a manner to have a limited movement to and from this latter and also one in a longitudinal direction to engage the keeper out of any position due to its first movement, a lip 27 at the front end of the bolt, a projection at the rear end thereof and a pivotally-supported cam adapted to rest upon this latter projection on the bolt after the same has engaged its keeper, thereby causing a reverse longitudinal movement of the bolt for the purpose of drawing the complementary parts of the lock together.

697,989. SAME-TIGHTENING DEVICE. CHARLES B. FOSTER, JR., Cincinnati, Ohio. Filed Oct. 12, 1901. Serial No. 78,085. (No model.)



Claim.—1. In a nut-tightening device, the combination of two complementary parts of which one is to be secured to the nut so as to move therewith, and the other is a stationary portion adjacent thereto, one of the parts being a pivotally-supported pawl having also a bodily movement toward or from the other part and in a direction at right angles to the plane of the nut and the guide-ribs thereof and the other part having two projections of which one, when coming in contact with the pawl, causes the same to tilt, while the other returns it again to its normal position, and a spring to yieldingly impel the movement of the pawl toward the other part.

2. In a nut-tightening device, the combination of two complementary parts, of which one is a pawl having a slot, a pin received by this latter and on which the pawl is supported to have a tilting motion, a housing within which this supporting-pin is secured, a spring also in the housing in contact with the inner end of the pawl and with a normal tendency to push the same outwardly on the pin occupying its slot toward the other part which latter has two projections of unequal extent and whereby when the two parts pass each other, the longer projection is capable of tilting the pawl to bring it in contact with the other part, while the shorter projection, when passing in reverse direction, returns it again into its former position, in which it remains, leaving the nut free to move in either direction without coming in contact with the stationary part.

3. In a nut-tightening device, the combination of two complementary parts, one being a pivotally-supported pawl having also a bodily movement to or from the other part, which latter has two projections of unequal extent adapted to engage the pawl to tilt it either toward and in contact with each other part or away therefrom, a spring to hold each pawl in the former controlling position and means to positively lock it in each position.

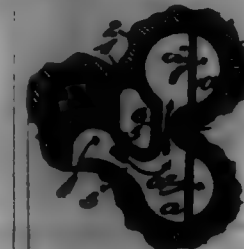
697,940. WRENCH. SAMUEL A. HAINES, Carroll, Tex., assignor to William H. Spahn, Anaheim, Cal. Filed Apr. 3, 1901. Serial No. 34,181. (No model.)

Claim.—An adjustable wrench comprising an angular socket portion adapted to extend partially within the wheel-hub to engage the nut, an integral handle extending from the socket portion at an angle to the axis thereof, said socket portion having two rearwardly-extended oppositely-disposed walls forming spaced pivot-cams, jaws pivoted between the cam at points within the exterior face of said socket portion, the inner flat faces of said jaws being adapted to fit snugly against the exterior wall

of the socket member to parallel the curvature of the wheel while a small wheel-hub and the outer face of said jaws being rounded for engagement with the inner wall of the hub, transversely-extended operating-levers for said jaws, and a ring disposed upon the handle for engagement with the corrugations to hold said jaws in an adjusted position, substantially as specified.



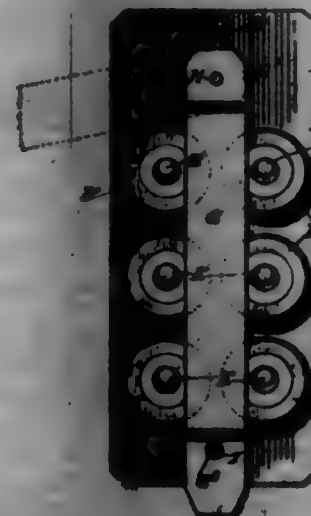
697,941. GAS-FIRE APPLIANCE. JOSEPH F. HEWITT, Allegheny, Pa. Filed July 22, 1900. Serial No. 754,788. (No model.)



Claim.—1. A gas-burner comprising a hollow body formed of refractory material and metallic gauze or mesh, the refractory material forming the front being supported by the gauze or mesh and having numerous minute perforations formed therein through the interstices of the gauze.

2. A gas-burner comprising a number of intercommunicating bodies formed of refractory material and metallic gauze or mesh, the refractory material forming the front thereof being supported by the gauze or mesh and having numerous minute perforations therein through the interstices of the gauze.

697,942. SPEECH-HOLDER. JOHN H. REEDER, New York, N. Y., assignor of one-half to Clarence F. Curley, Brooklyn, N. Y. Filed Feb. 7, 1900. Serial No. 69,908. (No model.)



Claim.—A speech-holder comprising a back plate, rows of spaced pins projecting from the back plate to receive and carry the speech, a hook-bar of spring metal made approximately U-shaped and having end flanges, one of which is pivoted on the back plate, and the other is formed with an aperture and projects below the end of the back plate, and a pin on the back plate, adapted to be engaged by the said aperture and flange, to hold the hook-bar against side-to-side swinging movement, as set forth.

697,943. METAL SHEET-PIPING. GEORGE W. JAMISON, Chicago, Ill., assignor to the International Steel Piping Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 24, 1901. Serial No. 27,788. (No model.)

Claim.—1. Metallic sheet-piping consisting of metal beams provided on their adjacent side margins with distal ends partially closed, looped flanges, one of said flanges being bent so as to extend laterally from and backwardly upon the web of the beam and then inwardly with its free edge directed toward and terminating in a distance from the adjacent face of the said web, and the other flange being bent or folded so as to extend laterally from the plane of the beam, then in the direction of said plane and then inwardly toward the same and having its free edge directed outwardly parallel with the inwardly-directed portion, so as to form thereon a marginal groove, said flanges being so constructed that the corresponding portions thereof have close-fitting contact with each other and the inwardly-directed edge of the first-mentioned flange fits within the said groove of the second one.



2. The combination with a pile structure embracing a plurality of metal beams which have interlocking edges adapted for connection and separation of the beams by relative endwise movement thereof, of supporting-brackets adapted for detachable connection with the beams.

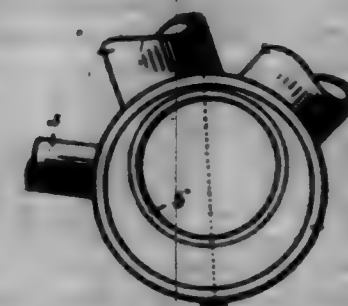
3. The combination with a pile structure embracing a plurality of metal beams which have interlocking edges adapted for connection and separation of the beams by relative endwise movement thereof, of a blocking-web, and supporting-brackets adapted for detachable connection with the beams to which said web is affixed.

4. The combination with a piling-section, of a web-supporting bracket and a plate which is attached permanently to said section and with which said bracket is adapted for detachable engagement.

5. The combination with a piling-section of a bracket-supporting plate adapted to be permanently attached to said section and a bracket which is adapted for detachable connection with said plate.

6. The combination with a piling-section of a bracket-supporting plate having an upwardly-opening socket at its upper end and a seat at its lower end, and a bracket having an upper downwardly-directed end to engage said socket, and a lower end adapted to engage said seat.

697,944. CRANK-SHAFT BEARING OF MOTOR. FRANKLIN J. JENNISON, Philadelphia, Mass. Filed Jan. 24, 1900. Serial No. 2,007. (No model.)



Claim.—1. In a crank-shaft bearing, the combination with the barrel of the crank-shaft provided with a slot, of a sleeve adapted to receive the crank-shaft, a pair of eccentric rings attached to the ends of said sleeve, a thick eccentric ring attached to the central portion of said sleeve, said eccentric rings fitting the barrel of the crank-shaft, a stud projecting radially from said central ring through the slot in said barrel and a clamping-nut carried by said stud by which the sleeve is held from rotation in said barrel, substantially as described.

2. In a crank-shaft bearing, the combination with the barrel of the crank-shaft provided with a slot, of a sleeve adapted to receive the crank-shaft consisting of a piece of tubing and having braced or colored eccentric rings fitting said barrel, with a screw-threaded stud projecting radially from one of said rings through said slot and a clamping-nut carried by said stud, substantially as described.

697,945. RUNNING-GEAR FOR MOTOR-VEHICLES. HARRY A. KINK and JAMES H. JONES, Springfield, Mass., assignors to Kink Automobile Company, Springfield, Mass., a Corporation. Filed Nov. 24, 1901. Serial No. 69,112. (No model.)

Claim.—1. A running-gear for motor-vehicles consisting of a pair of axles, two springs constituting the rear ends of said gear, supports on said axles for the ends of the springs, and a rigid arm secured by one end to one of the springs near the center of the latter and extending to one of said axles and having a pivotal connection therewith.

2. A running-gear for motor-vehicles consisting of a front and a rear axle, two springs, supports for the opposite ends of said springs, respectively, on said axles, one end of one of said springs having both a rotation and a sliding movement to its support.

8. A running-gear for motor-vehicles consisting of a front and a rear axle, two springs, supports for their opposite ends respectively on said front and rear axles, and both ends of each spring having a relative movement in their supports.



4. A running-gear for motor-vehicles consisting of a front and a rear axle, two springs, supports for their opposite ends respectively on said front and rear axles, both ends of each spring having a relative movement in their supports on the axles, and one end of each spring having in addition a sliding movement therein.

5. A running-gear for motor-vehicles consisting of a front and rear axle, two springs, supports for the opposite ends of said springs, respectively, on said axle, one end of one of said springs having both a relative and a sliding movement relative to one of said axles.

6. A running-gear for motor-vehicles consisting of a front and a rear axle, two springs, supports for their opposite ends respectively on said front and rear axles, both ends of each spring having a relative movement in their supports on the axles, and one end of one spring having in addition a sliding movement therein.

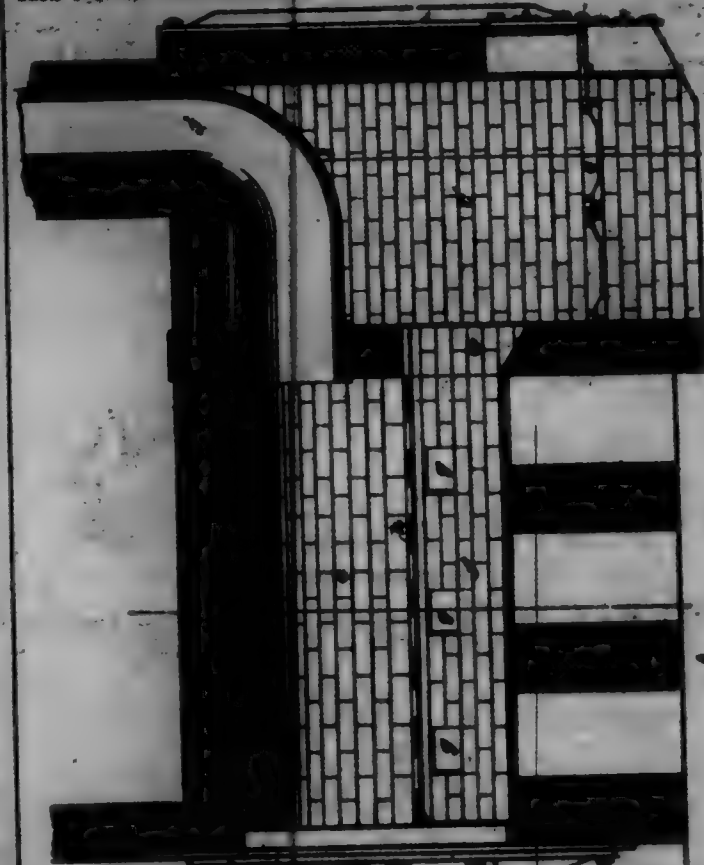
7. A running-gear for motor-vehicles consisting of a front and a rear axle, two springs, supports for their opposite ends, respectively, on said front and rear axle, said springs constituting the members of the gear, the ends of said springs on the front axle having a relative movement relative to each other.

8. A running-gear for motor-vehicles consisting of a pair of axles, two springs, constituting members, extending between the axles, a driving-shaft for the driving-axle mounted on said springs, parallel with said driving-axle, a rigid connection between the latter and said shaft, and a yielding connection between said axle and said springs, whereby the flexure of the latter may take place without varying the distance between the said shaft and the axle driven thereby.

697,946. FURNACE FOR CRYSTALLIZING OR INCRYSTALLIZING HUMAN BONES. HENRY C. EYMER, HENGE Village, N. Y., assignor to Crystallizing Company of New York, New York, N. Y., a Corporation of New York. Filed Mar. 10, 1901. Serial No. 61,899. (No model.)

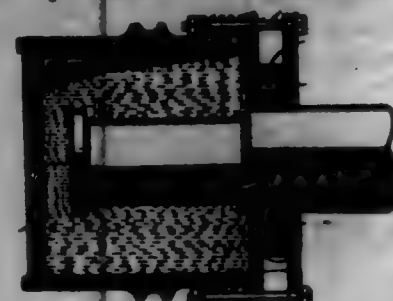
Claim.—1. A crystallizing-furnace, comprising a structure forming a crematory-chamber closed at one end, a combustion-chamber located at the other end of the crematory-chamber, a support located in the crematory-chamber at a distance above its bottom and spaced from the side thereof, a passage leading from the combustion-chamber to the crematory-chamber below said support at the end of the crematory-chamber opposite to its closed end; and an outlet-flue leading from the crematory-chamber above said support at the same end at which the said passage is located, whereby the combustion-gases will be caused to enter the crematory-

chamber below the support, pass around the substance to be cremated, and back over the substance into the flue.



2. A crystallizing-furnace, comprising a structure forming a combustion-chamber and a crematory-chamber the inlet of which communicates with the outlet of the combustion-chamber, and an outlet-flue leading from the crematory-chamber through the combustion-chamber, said flue leading directly from the crematory-chamber and having imperforate walls from the outlet of the crematory-chamber to a point beyond the combustion-chamber, so that the cremation products will not pass through the combustion-chamber on their way from the crematory-chamber to the outlet-flue.

697,947. CAR-JOURNAL BOX. THOMAS W. MITCHELL, Omaha, Neb. Filed Sept. 2, 1901. Serial No. 74,705. (No model.)

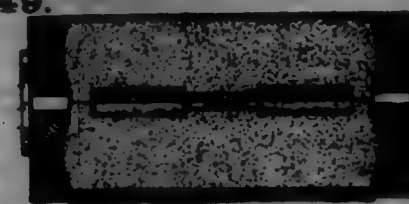


Claim.—The combination with the box having the tight but removable cover and elongated opening in its rear face for the entry of the journal whereby the box and journal may move laterally with respect to each other, of a hard-metal disk, working against the face of the box and movable transversely with the journal, a packing-ring resting against the disk and having inwardly-projecting soft-metal flat-faced segments, a follower bearing against the packing-ring to advance said ring and disk toward the box, whereby side wear will occur only between the hard-metal disk and rear face of the box, both passing loosely through eyes on the follower and box whereby the follower and ring may partake of the transverse movements of the disk and journal and springs surrounding the bolts for advancing the follower; substantially as described.

697,948. MILLING APPARATUS. WILLIAM E. MCGILVER, Hopkinton, Mass., assignor to Sprague Company, Portland, Me., and Hope Falls, Mass. Filed Oct. 3, 1901. Serial No. 71,046. (No model.)

Claim.—In milling apparatus, drag and cope flasks, a pattern-frame to rest upon the drag-flask and contain the cope-flask during the construction of the cope, and stops projecting beyond the opposed portions of the flasks and cooperating with each other when the pattern-frame is interposed, said stops also cooperating with each other after removal of the said frame, to equalize and positively control the pressure between the parting faces of the mold.

697,949.



697,949. METAL WAGON-BODY. WILLIAM E. SHAWFIELD, Chicago, Ill. Filed July 19, 1901. Serial No. 66,971. (No model.)



Claim.—1. As a new article of manufacture, a wagon-body having its sides, bottom and ends formed from sheet-metal plates, the sides having corrugations therein arranged in panels and in ornamental design, and the bottom having corrugations extending throughout its length, and yokes each formed of a single flanged bar bent to embrace said sides and bottom and secured thereto, substantially in the manner and for the purpose set forth.

2. As a new article of manufacture, a wagon-body having its bottom and ends formed from sheet-metal plates, and having sides formed of two sheet-metal plates, the outer plate having corrugations therein, and the inner plate being plain, and the corrugations being arranged in panels of ornamental design, and yokes, each formed of a single flanged bar bent to embrace said sides and bottom and secured thereto, substantially as set forth.

3. As a new article of manufacture, a wagon-body having its bottom and ends formed from sheet-metal plates, sides formed from two plates spaced apart, the inner plate being plain, and the outer plate being corrugated, a stiffening backing or filling arranged between said side plates, and metal yokes embracing said sides, and bottom and secured thereto, substantially as described.

4. As a new article of manufacture, a wagon-body composed of sheet-metal sides, bottom and ends, said sides having corrugations therein, and said bottom being reinforced by a corrugated metal plate, and yokes embracing the sides and bottom, substantially as set forth.

5. A wagon-body composed of sheet-metal sides, bottom and ends, the sides formed of two plates, the outer one of which has corrugations formed therein, and the bottom formed of two plates, the lower one of which is corrugated and supports the upper one, and yokes embracing the sides and bottom, substantially as described.

6. As a new article of manufacture, a wagon-body having ends, sides and bottom formed from sheet-metal plates, yokes formed of flanged metal bars embracing said sides and bottom and secured thereto, metal channel-bars extending longitudinally under the bottom plate, other channel-bars extending transversely under the bottom plate, and vertical channel-bars embracing the side plates and secured to the transverse channel-bars, as described.

7. In a wagon having sides, bottom and ends formed of sheet-metal plates, yokes embracing the sides and bottom, said yokes formed of bent-metal channel-bars extending transversely under the bottom and projecting on each side thereof, and vertical channel-bars secured to said horizontal bars and embracing the sides of the wagon-body, sliding-rings secured to said vertical bars, and levers secured to said vertical and horizontal bars.

8. In a wagon, having sides, bottom and ends formed of sheet-metal plates, a sheathing-board formed by extending the side and bottom plates beyond the tail-gate or rear end of the wagon-body, and flanged bars extending longitudinally under said bottom and its extension, to support same.

9. In a wagon, a bottom formed of two metal plates spaced apart with wooden bars interposed therebetween, and flanged metal bars extending longitudinally, and other flanged metal bars extending transversely under said bottom, as set forth.

697,950. METAL WHEEL. WILLIAM E. SHAWFIELD, Chicago, Ill. Filed July 19, 1901. Serial No. 66,972. (No model.)

Claim.—1. In a wheel, a metal hub-ring of the resilient character described, having a series of depressions in its face adapted to form half-

vertical seats or bearings for spokes, the portions between said depressions being plane or sub-plane.



2. In a wheel, a metal hub-ring of the resilient character described, having inwardly-curved depressions in its face said depressions adapted to fit the bent portion of U-shape spokes.

3. In a wheel, a metal hub-ring of the compressible or resilient character described, having a series of curved depressions in its face, said depressions being of maximum depth at their centers and gradually diminishing toward each end, for the purpose described.

4. In a wheel, a resilient metal hub-ring having curved spoke-seats formed therein by stamping inwardly portions of the ring substantially as set forth.

697,951. METAL TONGUE FOR VEHICLES. WILLIAM E. SHAWFIELD, Chicago, Ill. Filed Dec. 26, 1901. Serial No. 67,165. (No model.)



Claim.—1. A wagon-tongue composed of two metal T-bars secured together, and having their side flanges curved inwardly for a portion of their length, and straight or normal for the rest of their length, said straight portion being at the rear end of the tongue.

2. A wagon-tongue composed of two metal T-bars secured together, and having their side flanges extending normally at the rear portion of the tongue, and gradually curving into curved flanges, the latter occupying the rest of the tongue, substantially as set forth.

3. A wagon-tongue composed of two metal T-bars secured together with gradually-varying space therebetween, the greatest space being toward the rear portion of the tongue, whereby the tongue is given a tapering contour, the flanges of said bars being curved inwardly for a portion of their length.

tion of their length, and left normal for the rest of their length, the radii of said curved portions gradually increasing from the front end of the tongue toward the rear portion, substantially in the manner shown.

4. As a new article of manufacture, a wagon-tongue formed of two complementary metal bars, secured together with a space therebetween for a portion of their length, and forming, when joined, a metal tongue having its rear portion rectangular in cross-section, and its forward portion rounded and tapering substantially in the manner and for the purpose set forth.

697,952. METAL RUNNING-CHAR FOR WAGONS. WILLIAM H. SCHOFIELD, Chicago, Ill. Filed Dec. 28, 1891. Serial No. 57,154. (No model.)



Claim.—1. In a running-char for wagons, the combination of a transverse axle composed of two flanged conical sections formed from sheet metal and secured together, a bolster composed of flanged metal bars supported by the axle, and metal standards having portions secured to and embraced by the bars forming the bolster.

2. In a running-char for wagons, the combination of a tubular axle composed of two flanged conical sections formed from sheet metal and secured together at their flanges, a bolster composed of flanged metal bars, each secured in the axle and to the bolster, and metal standards having portions secured to and embraced by the metal bars forming the bolster.

3. In a running-char for wagons, the combination of a tubular axle composed of two flanged conical sections formed from sheet metal and secured together at their flanges, a bolster formed of flanged metal bars having outwardly-turned flanges, each secured to the axle and the bolster, and standards having portions secured to and embraced by the metal bars composing the bolster.

4. In a running-char for wagons, a metal standard composed of a flat metal bar, a horizontal foot at the lower end of said bar, a vertical extension below said foot and at right angles to said bar, and a vertical rib extending from the top of the bar to the foot, said bar, foot, extension and rib all integrally formed, substantially as set forth.

5. In a running-char for wagons, a bolster formed of two complementary flanged metal bars secured together with a space therebetween and with their flanges outward, substantially as described.

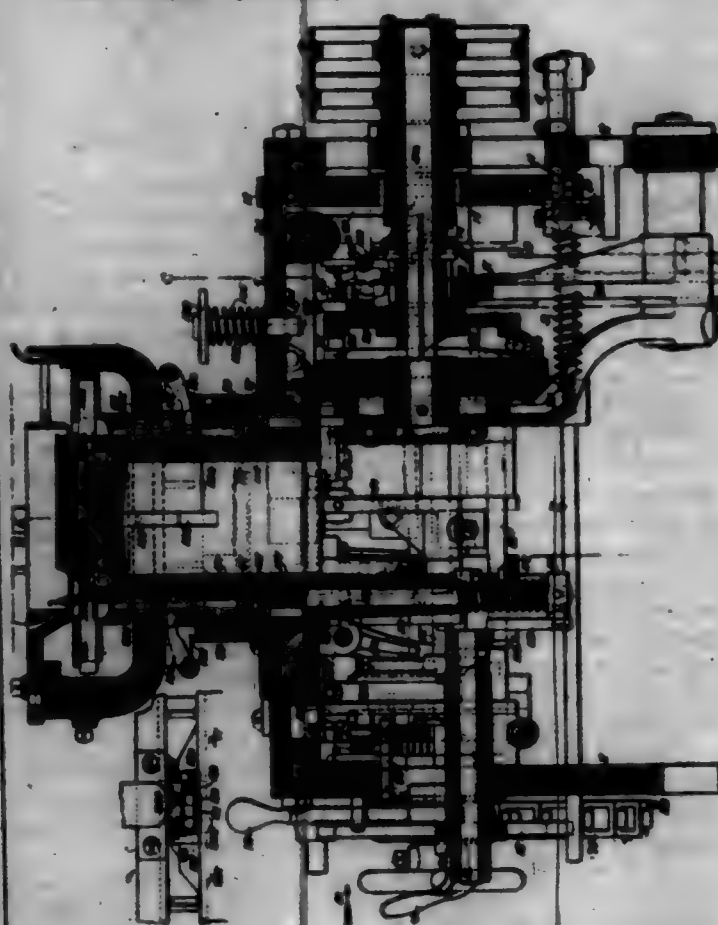
6. In a running-char for wagons, an axle composed of two flanged conical sections formed from sheet-metal plates and secured together at their flanges, and having extensions at each end of the axle, said extensions being without flanges.

7. In a running-char for wagons, an axle composed of two flanged conical sections formed from sheet-metal plates and secured together at their flanges, and having end portions without flanges and having the edges of said end portions not secured, and metal sleeves fitting over said end portions and forming spindle-bearings, substantially as described.

8. In a running-char for wagons, an axle composed of two conical sections formed from sheet-metal plates, secured together at their flanges and having end portions without flanges, metal sleeves fitting said end portions of the axle, and means for preventing said sleeves from turning and from longitudinal displacement.

9. In a running-char for wagons, an axle composed of two conical sections formed from sheet-metal plates secured together at their flanges and having unflanged end portions, metal sleeves fitting said end portions, said sleeves having a rib formed thereon and slide out thereon, and rings fitting over said sleeves and secured to the flanges of the axle.

697,953. KNITTING-MACHINE. ROBERT W. SMITH, Philadelphia. LOUIS E. D. WILLIAMS, ALEXANDER, and HARRY SWINDELMAN, Philadelphia, Pa., assignors to said Smith and Williams. Filed Sept. 4, 1891. Serial No. 74,307. (No model.)



Claim.—1. The combination of the cam-shaft of the machine, a pattern-chain wheel loosely mounted thereon, a pair of ratchet-wheels, one connected to the cam-shaft and the other to the pattern-chain wheel, a device operated by the cam-shaft ratchet-wheel for controlling the action of the pawl which operates the pattern-chain ratchet-wheel, and a device operated by the pattern-chain ratchet-wheel whereby said cam-shaft and pattern-chain are operated alternately, substantially as specified.

2. The combination of the cam-shaft of the machine, a pattern-chain wheel loosely mounted thereon, a pair of ratchet-wheels one connected to the cam-shaft and the other to the pattern-chain wheel, said cam-shaft ratchet-wheel having a stop-tooth formation, a device operated by the cam-shaft ratchet-wheel for controlling the action of the pawl which operates the pattern-chain ratchet-wheel, and a device operated by the pattern-chain ratchet-wheel whereby said cam-shaft and pattern-chain are operated alternately, substantially as specified.

3. The combination of the cam-shaft of the machine, a ratchet-wheel connected thereto, a pattern-chain wheel mounted loosely in respect to the cam-shaft, a ratchet-wheel connected to said pattern-chain wheel, a cam on the cam-shaft ratchet-wheel for moving into and out of action the pawl which operates the ratchet-wheel of the pattern-chain, a lever for controlling the operation of the pawl which acts upon the cam-shaft ratchet-wheel, and a leg on the pattern-chain for operating said lever, substantially as specified.

4. The combination of the cam-shaft of the machine, a ratchet-wheel connected thereto and having a stop-tooth formation, a pattern-chain wheel mounted loosely in respect to the cam-shaft, a ratchet-wheel connected to

said pattern-chain wheel, a device operated by the cam-shaft ratchet-wheel, a cam on the cam-shaft ratchet-wheel for moving into and out of action the pawl which operates the ratchet-wheel of the pattern-chain, a lever for controlling the operation of the pawl which acts upon the cam-shaft ratchet-wheel, and a leg on the pattern-chain for operating said lever, substantially as specified.

5. The combination of the cam-shaft, the pattern-chain wheel, ratchet-wheel and pawl mechanism for independently and alternately operating said parts, a disk on the cam-shaft having groups of ratchet-teeth of various pitch than those of the cam-shaft ratchet-wheel, and a reciprocating pawl for acting upon said teeth of the disk, substantially as specified.

6. The combination of the pattern mechanism having a ratchet and pawl, the pawl-operating rock-shaft and its arm and the knitting-head adapted to be reciprocated by a swinging segment having a portion for engaging said arm, the termination of the arm when the latter reaches a predetermined point in its throw being circular and of the same radius as the path of the engaging portion of the segment whereby the arm is moved by the latter only up to a certain point in its swing, substantially as specified.

7. The combination of the cam-cylinder of the machine and its knitting-cams, with a supplementary lift or down-down cam, a radially-guided slide carrying the same, and having a normal tendency to move in one direction, and a retaining-trigger therefor, said slide and trigger being in different horizontal planes whereby they may be operated by different adjustments of a single disk or tappet, substantially as specified.

8. The combination of the needle-cylinder having some needles with short butts and some with long butts, the cam-cylinder and its knitting-cams, the supplementary lift-cam, the slide thereby guided to move in a plane transverse to the movement of the needles, and means for retaining said slide in two different positions of adjustment in advance of the position of rest whereby, when retracted, it will not act upon any of the needles, when partially projected, it will operate only the long-butted needles, and, when fully projected, it will operate also the short-butted needles, substantially as specified.

9. The combination of the needle-cylinder having some needles with long butts and others with short butts, the cam-cylinder and its knitting-cams, a supplementary lift-cam, a radially-guided slide carrying the same and having a normal tendency to move in one direction, and a spring-trigger for retaining said slide, said trigger having two notches whereby it is adapted to retain the slide in a partially-projected position, and also in a fully-projected position, substantially as specified.

10. The combination with the needle-cylinder having some needles with long butts and others with short butts, the cam-cylinder and its knitting-cams, a supplementary lift-cam, a radially-guided slide carrying the same and having a normal tendency to move in one direction, means for retaining said slide in different positions of adjustment, and two independent disks or surfaces for causing projection of the slide, one of said disks or surfaces moving the slide to a greater distance than the other, substantially as specified.

11. The combination of a supplementary cam of the cam-cylinder, a radially-guided slide carrying the same, and a locking device for said slide, with a control-disk, and means for operating the same, comprising a rotated cam-disk, and a rock-shaft with two arms, one acted upon by the cam of said disk and the other acting upon the stem or spindle of the control-disk, substantially as specified.

12. The combination of the cam-cylinder of the machine, with needle-lifting pickers and needle-depressing pickers independently mounted upon said cam-cylinder but having frictional driving contact therewith whereby they are caused to move in the plane of the cylinder, and independent cams, one for raising the lifting-picker and the other for lowering the depressing-picker, substantially as specified.

13. The combination of the cam-cylinder of the machine, with needle-lifting pickers and needle-depressing pickers independently mounted upon said cam-cylinder but having frictional driving contact therewith whereby they are caused to move in the plane of the cylinder, and independent cams, one for raising the lifting-picker and the other for lowering the depressing-picker, substantially as specified.

14. The combination of the cam-cylinder of the machine, with needle-lifting pickers and needle-depressing pickers independently mounted upon said cam-cylinder but having frictional driving contact therewith whereby they are caused to move in the plane of the cylinder, and independent cams for operating said lifting and depressing pickers, each of said cams having a stripper-cam for continuing and completing the partial movement imparted to the needle by the picker, substantially as specified.

15. The combination of the cam-cylinder with a needle-picker mounted thereon so as to be free to move independently thereof but having frictional driving contact with the cylinder whereby it is caused to move in the plane of the cylinder, and means for preventing rebound of the picker when it strikes the butt of a needle, substantially as specified.

16. The combination of the cam-cylinder with a needle-picker

mounted thereon so as to have movement independently thereof but having frictional driving contact with the cylinder whereby it is caused to move in the plane of the cylinder, and a spring-actuated retainer for preventing rebound of the picker when it strikes the butt of a needle, substantially as specified.

17. The combination of the cam-cylinder with a needle-picker mounted thereon so as to have movement independently thereof but having frictional driving contact with the cylinder whereby it is caused to move in the plane of the cylinder, and a spring-actuated retainer for preventing rebound of the picker when it strikes the butt of a needle, and holding said picker in contact with said needle-butt with a yielding pressure, substantially as specified.

18. The combination of the cam-cylinder with a needle-picker mounted thereon so as to be capable of movement independently thereof but having frictional driving contact with the cylinder whereby it is caused to move in the plane of the cylinder, and one or more yielding retainers acting to hold said picker in its intermediate position, substantially as specified.

19. The combination of the cam-cylinder with a needle-picker mounted thereon so as to be capable of movement independently thereof, and yielding retainers for holding said picker in its intermediate and opposite extreme positions, substantially as specified.

20. The combination of the cam-cylinder with a needle-picker mounted thereon so as to be free to move independently thereof, and a spring-actuated lever mounted so as to be tripped when the needle-picker approaches either limit of its movement and then acting to retain said picker in such position, substantially as specified.

21. The combination of the cam-cylinder and a needle-picker mounted thereon, so as to have movement independently thereof, a pair of levers acting to retain the picker in either of its opposite positions, a spring connecting said levers, and shoulders to limit the approach of the levers under the action of the spring, substantially as specified.

22. The combination of the cam-cylinder with a needle-picker mounted thereon so as to be capable of movement independently thereof, a lever mounted so as to be tripped as the needle-picker approaches the limit of its movement, and a spring-actuated arm bearing upon said lever on opposite sides of the fulcrum of the same so as to retain it in a central position or permit movement of the same in either direction from such central position, substantially as specified.

23. The combination of the cam-cylinder of the machine, with a picker-carrier mounted thereon so as to be capable of movement independently thereof, and a spring-actuated shoe bearing upon said picker-carrier when it is in its intermediate position so as to yieldingly retain it in that position, substantially as specified.

24. The combination of the cam-cylinder of the machine with a needle-picker carrier mounted so as to be capable of movement thereon, a cam for operating said picker, and means for moving the picker-carrier in one direction or the other on each occasion when the picker has been moved out of engagement with the butt of a needle, substantially as specified.

25. The combination of the cam-cylinder of the machine with a needle-picker carrier mounted so as to be capable of movement thereon, a cam for operating said picker, and yieldingly-mounted buffers for moving the picker-carrier in one direction or the other after the picker has been moved out of engagement with the butt of a needle, substantially as specified.

26. The combination of the cam-cylinder of the machine, picker-carrier thereon, one carrying a lifting-picker and the other a depressing-picker, cams for operating the said pickers, buffers, one for the lifting-picker carrier and the other for the depressing-picker carrier, and means for moving said buffers into and out of operative position, substantially as specified.

27. The combination of the cam-cylinder of the machine, picker-carrier thereon, one carrying a lifting-picker and the other a depressing-picker, cams for operating the said pickers, buffers, one for the lifting-picker carrier and the other for the depressing-picker carrier, and means for moving said buffers first into position to act upon the lifting-picker carrier, then into position to act upon the depressing-picker carrier, and then to a neutral or inoperative position, substantially as specified.

28. The combination of the cam-cylinder of the machine and its picker-carrier, opposite buffers for engagement with said picker-carrier, a yoke carrying said buffers, and means for reciprocating said yoke, substantially as specified.

29. The combination of the needle-cylinder of the machine and its needles, means for raising the needles so that all of their butts will be in the same horizontal plane, means for raising the needle-cylinder independently of the needles, and a retaining-disk for engaging with the butts of the needles and preventing rise of the same by reason of their frictional contact with the needle-cylinder, substantially as specified.

30. The combination of the needle-cylinder of the machine, its needles and the knitting-cams, with a needle-cylinder support, and means for

gradually lowering the same so as to vary the length of the stitches, said means comprising a cylinder-supporting lever, a shaft with cam for acting upon said lever, a rock-shaft having an arm for controlling the position of said lever when it is free from the control of the cam, and a pattern-chain acting upon another arm on said rock-shaft and having legs of different size for imparting successive movements to said rock-shaft, substantially as specified.

31. The combination of the needle-cylinder and its needles, the knitting-cams, and needle-cylinder support, a lever acting thereon, a cam acting upon said lever, and a controlling device for the lever independent of the cam, said device comprising an arm having an eccentric hook engaging a projection on the lever and a pattern device for operating said cam, substantially as specified.

32. The combination of the needle-cylinder and its needles, the knitting-cams, the needle-cylinder support, the lever acting thereon, the cam acting on said lever, a rock-shaft having two arms, one for controlling the movement of the lever independently of the cam, and a pattern-chain having legs for acting upon the other arm of the rock-shaft, substantially as specified.

697,954. RECTANGULAR OR TANK. ROBERT P. STEWART, Paris, Tex., assignor of one-half to William E. Hagan, Paris, Tex. Filed Oct. 14, 1901. Serial No. 73,573. (No model.)



Claim.—1. That method of producing an underground receptacle which consists in first applying a layer of hot asphaltum to the surface of a tank and permitting said layer to stand until it becomes partially set and adhesive, next applying a layer of tarred-felt paper to the asphaltum layer under sufficient pressure to effect an adhesive union therewith, and finally applying to the surface of the tarred-felt paper a second layer of hot asphaltum and permitting the same to set.

2. That method of producing an underground receptacle which consists first in applying a layer of hot asphaltum to the surface of a tank, and permitting said layer to partially set, next applying a layer of tarred-felt paper to the layer of asphaltum, next wrapping the tarred-felt paper with a binding-strand, and finally applying a second layer of asphaltum to the surface of the paper.

3. That method of producing an underground receptacle which consists first in applying a layer of hot asphaltum to a tank, and permitting said layer to become partially set, next applying a layer of tarred-felt paper to the asphaltum layer, next binding the tarred-felt paper with a flexible binding-strand, next applying a second layer of asphaltum to the surface of the bound paper, next applying a layer of fabric upon the asphaltum layer while the latter is in an adhesive condition, and next applying to the fabric a final layer of asphaltum.

4. That method of producing an underground receptacle which consists in applying alternate layers of asphaltum and tarred-felt paper to a tank, binding the tarred-felt paper layer or layers with a flexible binding strand or strands, applying a layer of fabric to the last layer of asphaltum, and finally applying an asphaltum layer to the outer surface of the fabric.

5. An underground receptacle of the character specified, comprising a tank equipped with a protective covering of asphaltum and tarred-felt paper, said paper being bound with a flexible binding-strand.

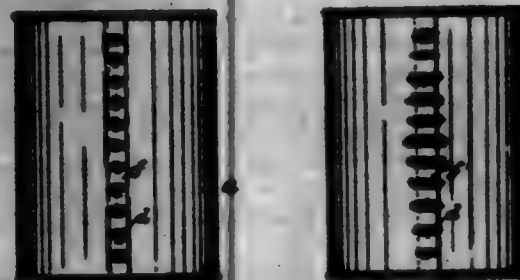
6. An underground receptacle of the character specified, comprising a tank equipped with a protective covering composed of alternate layers of asphaltum and tarred-felt paper, a flexible binding-strand wound upon the layer or layers of tarred-felt paper, a fabric layer imposed upon the outer layer of asphaltum, and a final layer of asphaltum covering the fabric.

7. That method of producing an underground receptacle which consists in applying alternate layers of asphaltum and tarred-felt paper to a tank, next applying a layer of fabric to the last layer of asphaltum, and finally applying an asphaltum layer to the outer surface of the fabric.

8. An underground receptacle of the character specified, comprising

a tank equipped with a protective covering composed of alternate layers of asphaltum and tarred-felt paper, a fabric layer imposed upon the outer layer of asphaltum, and a final layer of asphaltum covering the fabric.

697,955. SOLDERLESS JOINT MEAN FOR THE CANS OR OTHER METALLIC VESSELS. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pasteur's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Oct. 12, 1901. Serial No. 73,708. (No model.)



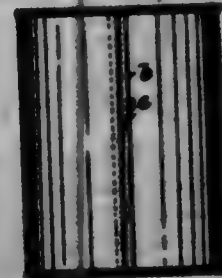
Claim.—1. A lock-joint for sheet-metal vessels having the portions of its metal at spaced intervals throughout the length and width of said joint indented and stretched, and then displaced, transversely of said joint, to form transverse ribs.

2. A lock-joint for sheet-metal vessels provided with elongated transverse indentations arranged at right angles to the joint, each of said elongated indentations being curved inwardly.

3. A sheet-metal vessel having the meeting edges of its body portion interlocked with each other to form the side seam or joint, said seam or joint being provided with transverse elongated indentations and being curved or channelled inwardly to a longitudinal direction, said indentations being arranged at right angles to the joint substantially as described.

4. A sheet-metal vessel having the meeting edges of its body portion interlocked with each other to form the side seam or joint, said seam or joint being provided with a series of transverse elongated indentations increasing in length toward the center of the joint and extending into the body portion of the sheet-metal vessel, substantially as described.

697,956. SOLDERLESS JOINT MEAN FOR SHEET-METAL VESSELS. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pasteur's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Nov. 20, 1901. Serial No. 80,700. (No model.)



Claim.—1. A solderless lock-joint for sheet-metal vessels provided with a series of conical indentations arranged longitudinally of the joint, any two adjoining indentations being spaced a distance approximating their width to thus form alternating ridges and effect an unbroken contact between the surfaces of the layers of the joint throughout the length of said series to form a continuous undulating seam, substantially as described.

2. A lock-joint for sheet-metal vessels provided with conical-shaped indentations arranged in close proximity to each other and forming curved ridges, the layers of the joint being thickest at the top of the ridges and thinnest at the point of the conical-shaped indentations, substantially as described.

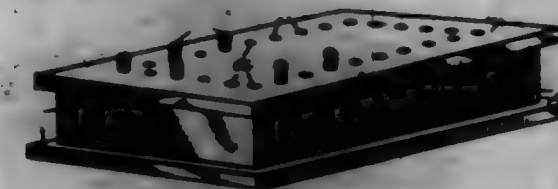
3. A solderless lock-joint for sheet-metal vessels provided with a series of conical indentations arranged longitudinally of the joint, any two adjoining indentations being spaced a distance approximating their width to thus form intermediate ridges and effect an unbroken contact between the surfaces of the layers of the joint throughout the length of said series to form a continuous undulating seam, and said series of indentations being arranged in parallel rows, substantially as described.

697,957. METHOD OF EXTRACTING RUBBER-LIKE GUM FROM GREENWOOD. ALBERT T. WHITTEN and FRANK R. BLAIR, Green City, Mo., assignors, by direct and mesne assignments, of one-third to William H. Stewart and Charles J. Kappeler, Green City, Mo. Filed Sept. 20, 1901. Serial No. 74,008. (No specimens.)

Claim.—1. The method of extracting a rubber-like gum from the greenwood-plant, which consists in crushing the shells of said plant, steeping the same in water, withdrawing the water and subjecting the material to steam, expressing the liquid, partially evaporating the liquid withdrawn, and dissolving the gum therefrom by a rubber solvent, substantially as described.

2. The method of extracting a rubber-like gum from the greenwood-plant, which consists in crushing the shells of said plant, steeping the crushed material in water and withdrawing the liquid from the shells, evaporating the bulk of the water and replacing the same by a solvent of rubber, and distilling the solvent and its contained material to produce a gum similar in every respect to caoutchouc.

697,959. TOY. JOHN FLEMING, Chicago, Ill. Filed Sept. 12, 1901. Serial No. 73,147. (No model.)



Claim.—1. A toy comprising a shallow box provided with sockets extended in a row around at the margin of its cover, steps adapted to slide and open the sockets and two groups of transversely-arranged levers mounted within the box and connected with the steps, the arrangement of the levers and steps relatively to the row of sockets being as specified.

2. A toy comprising a shallow box provided with registering holes in its top and bottom extended in a row around at the margin, steps adapted to work in said holes, and two groups of transversely-arranged and individually-operative levers mounted on filars located in different places within the box, each group of levers being connected with a portion of the steps arranged at opposite ends of the group as specified.

3. A toy comprising a shallow box provided with sockets extended in a row at the margin of its cover, steps adapted to slide and open the sockets, two groups of transversely-arranged levers mounted within the box and connected with the steps, the arrangement of the levers and steps relatively to the row of sockets being as shown, and means for limiting the movement so as to prevent the projection of the steps above the upper surface of the cover as specified.

DESIGNS.

85,858. WRITING-PEN-HOLDER. JAMES A. WOOLLEY, Brooklyn, Tex. Filed Mar. 14, 1902. Serial No. 68,570. Term of patent 7 years.



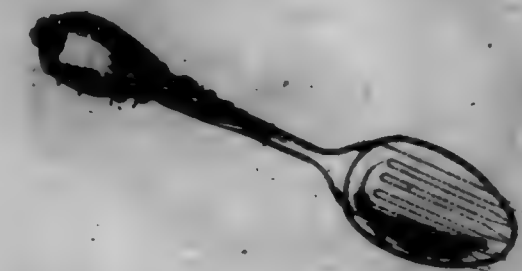
Claim.—The design for a handle of a spoon, fork or similar article, as herein shown and described.

85,859. HANDLE FOR SPOON, FORK OR SIMILAR ARTICLE. WILLIAM G. CORRIAN, Providence, R. I., assignor to Corrian Manufacturing Company, Providence, R. I. Filed Mar. 24, 1902. Serial No. 68,816. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork or similar article, as herein shown and described.

85,860. HANDLE FOR SPOON, FORK OR SIMILAR ARTICLE. ROBERT MAYNARD, Taunton, Mass., assignor to Reed & Barton Corporation, Taunton, Mass., a Corporation of Massachusetts. Filed Mar. 21, 1902. Serial No. 68,826. Term of patent 14 years.



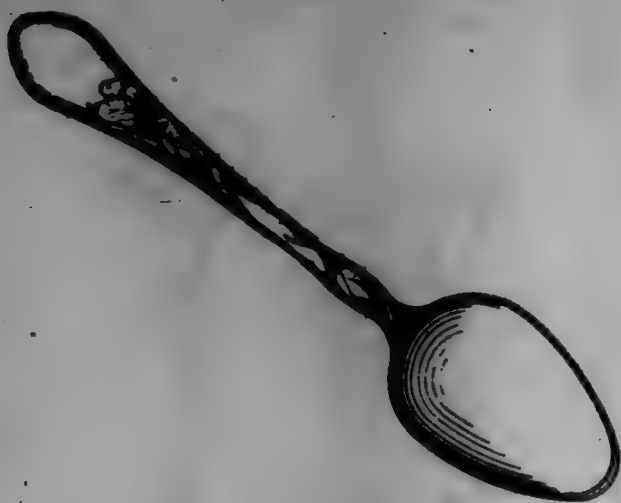
Claim.—The design for a handle for spoon, fork or similar article, substantially as shown and described.

85,861. HANDLE FOR SPOON, FORK OR SIMILAR ARTICLE. ROBERT MAYNARD, Taunton, Mass., assignor to Reed & Barton Corporation, Taunton, Mass., a Corporation of Massachusetts. Filed Mar. 21, 1902. Serial No. 68,826. Term of patent 14 years.



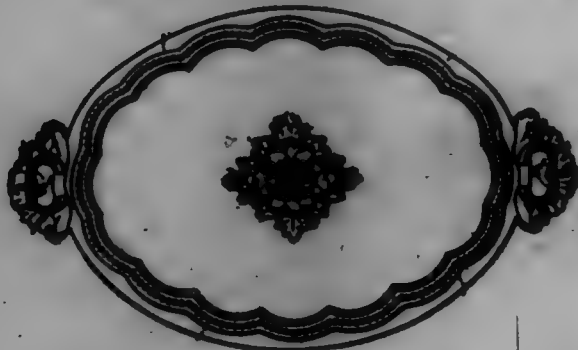
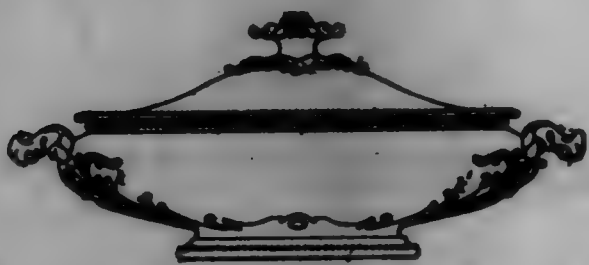
Claim.—The design for a handle for spoon, fork or similar article, substantially as shown and described.

85,862. HANDLE FOR SPOONS OR SIMILAR ARTICLES. ROBERT H. H. BURR, Bridgeport, Conn. Filed Mar. 5, 1902. Serial No. 84,972. Term of patent 7 years.



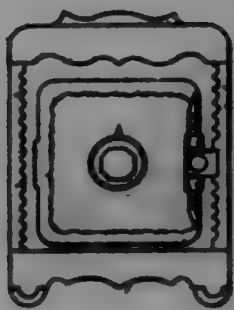
Claim.—The design for a handle for a spoon or similar article, substantially as described and shown.

85,863. VEGETABLE-DISH. ROBERT LEVIN JENNISON, Hanley, England. Filed Feb. 12, 1902. Serial No. 85,008. Term of patent 24 years.



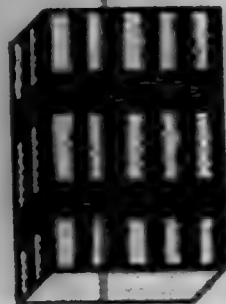
Claim.—The design for a vegetable-dish, substantially as herein shown and described.

85,864. TOY BANK. JOHN W. BULLMAN, Mount Joy, Pa. Filed Mar. 26, 1902. Serial No. 85,816. Term of patent 7 years.



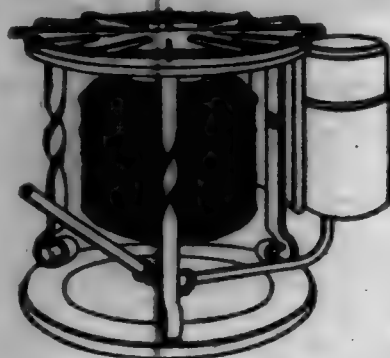
Claim.—The design for a toy bank, as herein shown and described.

85,865. CIGARETTE-BOX. GEORGE F. BULLER, New York, N. Y. Filed Mar. 1, 1902. Serial No. 77,416. Term of patent 14 years.



Claim.—The design for a cigarette-box as herein shown and described.

85,866. OIL-STOVE. WILLIAM E. JEAVER, Cleveland, Ohio. Filed Dec. 20, 1901. Serial No. 87,044. Term of patent 7 years.



Claim.—The design for an oil-stove, substantially as shown and described.

85,867. COOKING STOVE OR RANGE. JOHN J. JEAVER, Buffalo, N. Y., assignor to Jervis & Company, Buffalo, N. Y., a Corporation of New York. Filed Feb. 12, 1902. Serial No. 84,908. Term of patent 7 years.



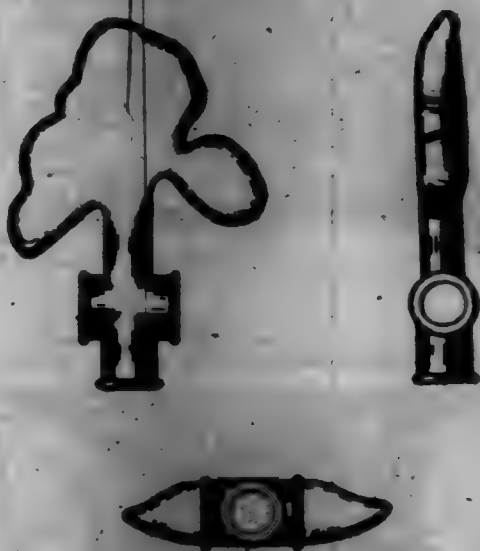
Claim.—The design for a range or cooking-stove, substantially as shown and described.

85,868. CART-BODY. JAMES G. HENNINGSON, Philadelphia, Pa. Filed Oct. 14, 1901. Serial No. 73,994. Term of patent 7 years.



Claim.—The design for a cart-body, as herein shown and described.

85,869. CONNECTING-Piece FOR BEDSTEAD. JAMES H. DUFFY, Buffalo, N. Y. Filed Feb. 17, 1902. Serial No. 94,968. Term of patent 24 years.



Claim.—The design for a connecting-piece for bedsteads substantially as shown and described.

85,870. SEWING-MACHINE CABINET. WILLIAM FENNER, Rockford, Ill., assignor to East Rockford Mould Company, Rockford, Ill. Filed Mar. 20, 1902. Serial No. 99,314. Term of patent 24 years.

85,870.



Claim.—The design for a sewing-machine cabinet, substantially as herein shown and described.

85,871. PIANO-PLAYER CASE. HENRIET E. SHARP, Bridgeport, Conn. Filed Mar. 20, 1902. Serial No. 99,314. Term of patent 7 years.



Claim.—The design for a piano-player case, as herein shown and described.

85,872. CASES FOR VENDING-MACHINES. WILLIAM C. HENDON, Detroit, Mich., assignor to Ellsworth & Bryant, Detroit, Mich. Filed Feb. 1, 1902. Serial No. 62,503. Term of patent 7 years.



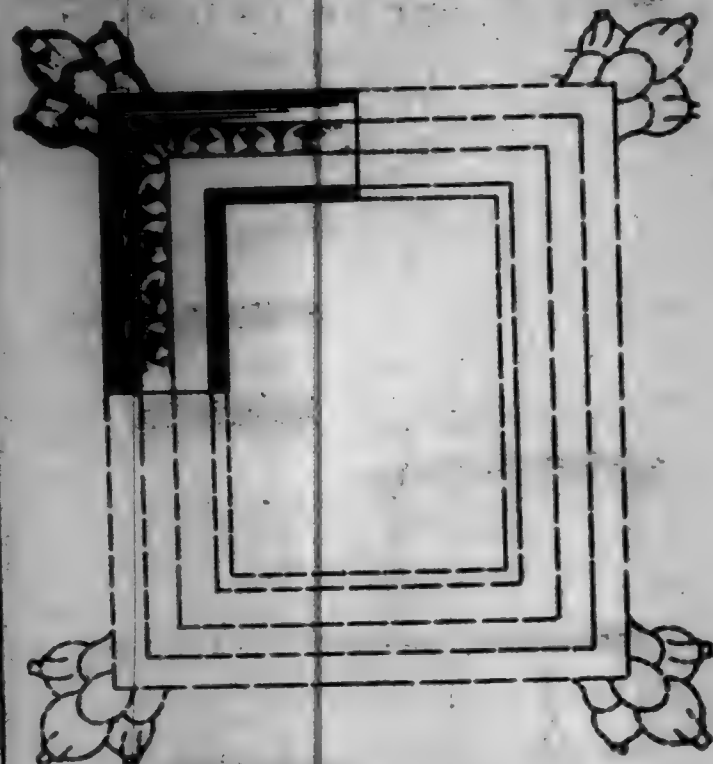
Claim.—The design for a casing for vending-machines, substantially as herein shown and described.

85,873. BORN-SUPPORTING ARM FOR TALKING-MACHINES. LOUIS P. VALERIE, New York, N. Y. Filed Mar. 19, 1902. Serial No. 62,504. Term of patent 7 years.



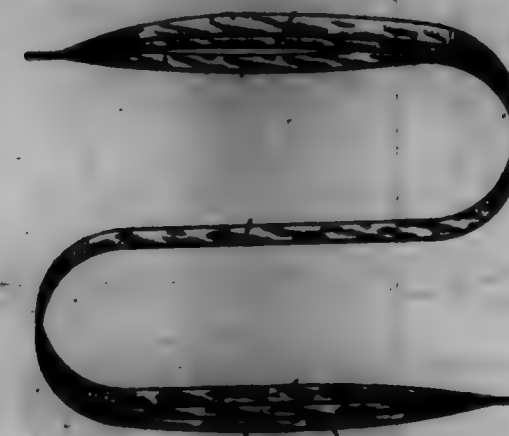
Claim.—The design for a born-supporting arm for talking-machines, as herein shown and described.

85,874. CASE FOR TALKING-MACHINES. LOUIS P. VALERIE, New York, N. Y. Filed Mar. 19, 1902. Serial No. 62,505. Term of patent 7 years.



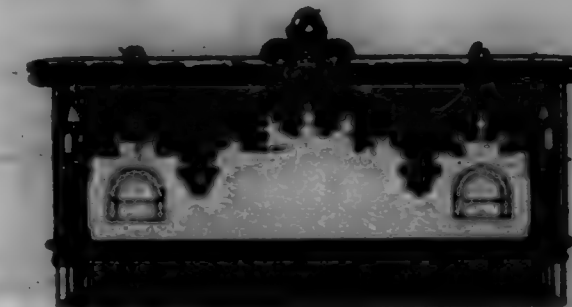
Claim.—The design for a case for talking-machines, as herein shown and described.

85,875. SHOE-LACING. HENRY W. BLAIR, New York, N. Y. Filed Feb. 24, 1902. Serial No. 62,506. Term of patent 7 years.



Claim.—The design for a shoe-lacing, substantially as herein shown and described.

85,876. CASKET-TRIMMING. WILLIAM E. STEVEN, New Haven, Conn., assignor to Stegert & Company, New Haven, Conn., a Corporation of Connecticut. Filed Dec. 15, 1901. Serial No. 62,507. Term of patent 14 years.



Claim.—The design for a casket-trimming, as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 13, 1902.

88,095. DOLLA. HANCOCK & Co., New York, N. Y. Filed Jan. 25, 1901.

MARGUERITE

Essential feature.—The word "MARGUERITE." Used since November 18, 1901.

88,096. SPOONS. J. B. & E. M. KNOWLES Co., Providence, R. I. Filed Jan. 2, 1901.

RED CROSS

Essential feature.—The words "RED CROSS." Used since July 1, 1901.

88,097. COVER AND LAD WRITING-PAPER. FURNICULAR PAPER Co., Ypsilanti, Mich. Filed Nov. 17, 1900.



Essential feature.—The representation of a shield surmounted by a crown and a monogram of the letters "F P C" in the center of the shield. Used since March 1, 1901.

88,098. BRASS-SILVER. LORRY SILVER Co., New York, N. Y. Filed Mar. 6, 1901.

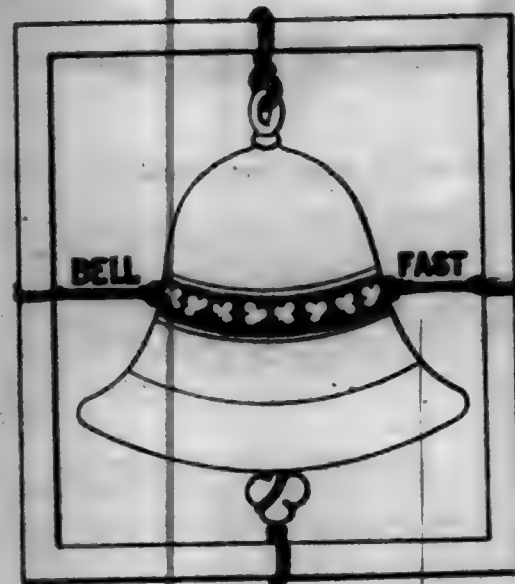
LIBERTY



Essential feature.—The word "LIBERTY" in connection with a head bearing a torch. Used since February 6, 1901.

88,099. WRITING-UTENSILS. ALFRED HENNINGSEN AND COMPANY, New York, N. Y. Filed Sept. 11, 1900.

88,099.



Essential feature.—A rectangular frame having the representation of a bell ornamented by a band of shamrocks held fast therein, and the words "BELL FAST" in connection therewith. Used since August 25, 1901.

88,100. CERTAIN HANDED FABRICS. GEORGE WALKER, New York, N. Y. Filed Jan. 24, 1901.



ROUGH RIDER

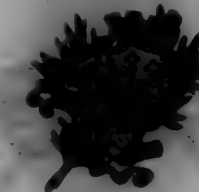
Essential feature.—The representation of a mounted cowboy in the uniform of the rough-rider regiment of the late Spanish-American war and the words "ROUGH RIDER." Used since January 1, 1902.

April 15, 1902

U. S. PATENT OFFICE.

657

88,101. CERTAIN HANDED DRY GOODS. FRANK CHAMBER, New York, N. Y. Filed Mar. 15, 1901.



Essential feature.—The representation of a crown, a shield displaying a gallery and fleur-de-lis, and a palm branch. Used since July 1, 1900.

88,102. CERTAIN HANDED DRY GOODS. JAMES HANCOCK, New York, N. Y. Filed Jan. 27, 1901.



Essential feature.—The representation of a griffin having a dragon-like body and tail and the wings, legs, feet, and back of a lion, the feet of the griffin appearing as grasping a palm-leaf branch and the said representation appearing on a background inclosed by an ornamental circle or border. Used since 1900.

88,108. SHIRTING AND DRILL. WILLIAM BROWN, New York, N. Y. Filed Feb. 21, 1901.



Essential feature.—The representation of the head and neck of a Chinese dragon surrounded by a vast quantity of hair, which forms a thick mass, with two short curved horns extending upward from the top of the head and a long tail or antenna depending from each side. Used since November 25, 1901.

88,104. SHIRTING AND DRILLING. THE LORRY SILVER Co., New York, N. Y. Filed Mar. 4, 1901.



Essential feature.—The representation of an opium with its young. Used since January, 1901.

88,105. SHIRTING AND DRILLING. THE LORRY SILVER Co., New York, N. Y. Filed Mar. 4, 1901.



Essential feature.—The representation of a dog leading a horse. Used since January, 1901.

88,106. SHIRTING, SHIRTING, AND DRILL. EDWARD L. BROWN, New York, N. Y. Filed Feb. 7, 1901.



Essential feature.—The representation of a figure holding a staff or pole. Used since September, 1900.

88,107. **CORDUROY BROWN-KINDEN** Mrs. J. CORDUROY & Co.,
San Francisco, Cal. Filed Mar. 6, 1902.



Essential feature.—The word "THE IDEAL." Used since 1892.

88,108. **READY-MADE CLOTHING FOR MEN AND BOYS** THE
COLUMBIAN, JOHN P. FINE CO., Cleveland, Ohio. Filed Mar. 14, 1902.



Essential feature.—The representation of a shield upon which ap-
pears the word "CLOTHES" and the representation of a lion, said
shield being surrounded by suitably ornamented scrolls or scrolls. Used
since October 15, 1901.

88,109. **LADIES, MEN, AND CHILDREN'S BOOTS AND SHOES**
G. P. FINE & Co., Rochester, N. Y. Filed Mar. 16, 1902.



Essential feature.—The words "LIBERTY BELLS." Used since
February 6, 1902.

88,110. **SHOES AND BOOTS** CHAMBERLAIN SHOE MFG. CO., Cham-
berburg, Pa. Filed Mar. 15, 1902.

ECLECTIC

Essential feature.—The word "ECLECTIC." Used since Feb-
ruary 1, 1902.

88,111. **CERTAIN NAMED CROCHERS** Mrs. E. HOGAN & Co.,
Baltimore, Md. Filed Feb. 4, 1902.



Essential feature.—The word "ORIOLE" and the pictorial repre-
sentation of the bird of that name upon a leafy branch. Used since May
10, 1900.

88,112. **CONDENSED MILK** HENRIETTA MILK CONDENSED CO.
Highland, N. Y. Filed Aug. 4, 1901.

SUCCESS

Essential feature.—The word "SUCCESS." Used since August
9, 1900.

88,113. **CERTAIN NAMED DAIRY PRODUCTS** ADAMS DAIRY CO.
New York, N. Y. Filed July 25, 1901.

TIP TOP

Essential feature.—The words "TIP TOP." Used since January,
1902.

88,114. **CORSET** HENRIETTA FASHION & Co., New York,
N. Y. Filed Feb. 1, 1902.



Essential feature.—The conventional representation of the sun bear-
ing human features, the rays being lanceolate, and the whole enclosed in
a rectangular frame filled in with wavy lines. Used since November,
1876.

88,115. **FRUIT AND HONEY** WHELAN & HARRIS, Boston, Mass.
Filed Mar. 18, 1902.



Essential feature.—The representation of a heart and the letters
"W" and "H." Used since February 21, 1902.

88,116. **CECIL** JOHN BUCHANAN AND COMPANY, Louisville, Ky.
Filed Mar. 12, 1902.

SENOJ

Essential feature.—The word "SENOJ." Used since April, 1900.

88,117. **MEDICAL WATER** THE AMERICAN DRUG CO., Atlanta,
Ga. Filed Feb. 24, 1902.

ABILENA

Essential feature.—The word "ABILENA." Used since April 25
1901.

88,118. **SPRING-WATER** GEORGE J. GARDNER, Lowell, Mass. Filed
Feb. 17, 1902.

EI-AZHAR

Essential feature.—The compound word "EI-AZHAR." Used
since July, 1900.

88,119. **CHARITABLE** BUCHANAN & COMPANY, New York, N. Y.
Filed Feb. 27, 1902.

ANGLO-EGYPTIAN

Essential feature.—The compound word "ANGLO-EGYPTIAN."
Used since October, 1901.

88,120. **CHERRY-CURE** THE NEW YORK VINEGAR MANUFACTUR-
ING CO., New York, N. Y. Filed Feb. 15, 1902.

YA-MA

Essential feature.—The compound word "YA-MA." Used since
January 1, 1902.

88,121. **WASHING COMPOUND** FINEST GENERAL CO., New
York, N. Y. Filed Mar. 10, 1902.

NEXT-TO

Essential feature.—The compound word "NEXT-TO." Used
since February 24, 1902.

88,122. **TRIPLE SOAP, LAUNDRY SOAP, DRY SOAP, SOAP-POW-
DER, AND DETERGENTS** LEVIN BROTHERS, London, Port Sunlight,
England. Filed Mar. 12, 1902.

PLANTOL

Essential feature.—The word "PLANTOL." Used since August
21, 1901.

88,123. **PERFUME** WHELAN & HARRIS, St. Louis, Mo.
Filed Mar. 14, 1902.

FLORESSENCE

Essential feature.—The word "FLORESSENCE." Used since
February 21, 1902.

88,124. **DEPILATORY** HENRI WHELAN & HARRIS, London, England.
Filed Feb. 12, 1902.

DRASETA



QUEEN OF HAIR REMEDIES

Essential feature.—The words "DRASETA" and "QUEEN OF
HAIR REMEDIES" and the representation of a queen's crown. Used
since January 8, 1902.

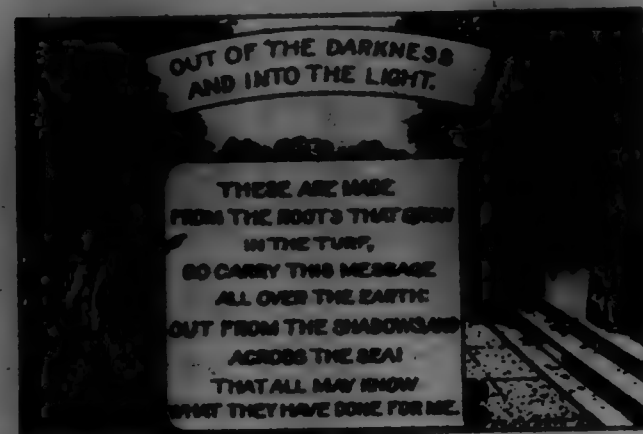
88,125. **MEDICAL TABLETS FOR RESPIRATION, COUGH, AND
ALLIED AFFECTIONS** RICHARD G. HARRIS, Milwaukee, Wis. Filed Oct.
21, 1901.

R

Essential feature.—The letter "R." Used since October 10, 1901.

88,126. **RESCUES IN CAPSULE FORM FOR THE TREATMENT OF
VARIETIES OF DYSPEPSIA** RICHARD G. HARRIS, Columbus, Ohio.
Filed Feb. 14, 1902.

88,126.



Essential feature.—The representation of an Indian walking through a forest, with his left hand extended, of a woman standing on a porch of a dwelling, with her right hand extended in the act of releasing a bird, a curved banner extending across the upper central portion of the trade-mark, on which is inscribed: "OUT OF DARKNESS AND INTO THE LIGHT," and a scroll occupying the central and lower portion of the trade-mark, on which is inscribed: "THESE ARE MADE FROM THE ROOTS THAT GROW IN THE TURF, SO CARRY THIS MESSAGE ALL OVER THE EARTH: OUT FROM THE SHADOWS AND ACROSS THE SEA! THAT ALL MAY KNOW WHAT THEY HAVE DONE FOR ME." Used since March 1, 1892.

88,127. REMEDIES FOR CURING BRUISES, CALLUSES, AND WARTS. JOHN JAY LITTLE, Milwaukee, Wis. Filed Feb. 3, 1902.



Essential feature.—The word "OMEGA," the representation of the Greek letter "omega," and the human foot. Used since January 10, 1901.

88,128. REMEDIES FOR DISEASES OF THE LUNGS AND THROAT. O'ROURKE AND HOWLEY, Little Falls, N. Y. Filed Mar. 15, 1902.

SAR-NAC

Essential feature.—The compound word "SAR-NAC." Used since February 1, 1902.

88,129. ALTERNATIVE COMPOUND. ALLEN H. SCHULZ, New York, N. Y. Filed Mar. 11, 1902.

MODOMERCURO

Essential feature.—The word "MODOMERCURO." Used since October 10, 1901.

88,130. VARNISHES. FRANK HAPPEL, Cincinnati, Ohio. Filed Feb. 18, 1902.

Jet-E-Nam

Essential feature.—The compound word "JET-E-NAM." Used since October, 1899.

88,131. LIQUID GUM-RESIN. HENRY CHANDLER AND HANCOCK-TURNER COMPANY, Kansas City, Mo. Filed Mar. 20, 1902.

Nic-Sul

Essential feature.—The compound word "NIC-SUL." Used since January 1, 1902.

88,132. PAINT AND WHITE LEAD. HANNAH BROTHERS WHITE LEAD COMPANY, East St. Louis, Ill. Filed Feb. 19, 1902.



Essential feature.—An annular red stripe produced in or applied to a keg or pail containing paint or white lead. Used since April 1, 1901.

88,133. ROOF-PAINTS OR PAINTS FOR METAL AND COMPOSITION ROOFING. DAYTON FIRE ROOFING CO., Dayton, Ohio. Filed Mar. 14, 1902.

EGYPTIA

Essential feature.—The word "EGYPTIA." Used since January, 1897.

88,134. ASPHALTUM. GEORGE ANGELO CO., Philadelphia, Pa., and Los Angeles, Cal. Filed Mar. 12, 1902.

OBISPO

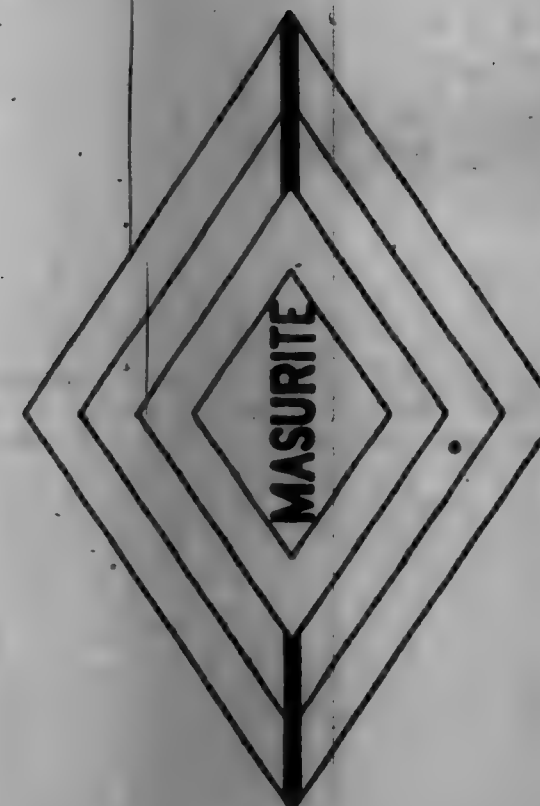
Essential feature.—The word "OBISPO." Used since August 17, 1900.

88,135. CEMENT. LUTHER FURNACE CEMENT CO., East Orange, N. J. Filed Apr. 20, 1902.



Essential feature.—The word "OBISPO" and the representation of an Indian known as "Opowaw." Used since March 1, 1901.

88,136. EXPLOSION. SAFETY RETORTS COMPANY, New York, N. Y. Filed Feb. 1, 1902.



Essential feature.—The word "MASURITE" enclosed in a diamond, which diamond is itself enclosed in three larger diamonds. Used since February 1, 1902.

88,137. CERTAIN KINDS EXPLOSION, POWER, AND ELECTRIC BATTERIES. LAFAYETTE POWER COMPANY, New York, N. Y. Filed Nov. 14, 1901.

88,137



Essential feature.—The representation of a wreath and the representation of a flag on the field enclosed by the wreath. Used since January 1, 1902.

88,138. FIRE-EXTINGUISHING COMPOUND AND FIRE-EXTINGUISHING IN POWDER FORM. CONSUMERS A. BARNES, Bay City, Mich. Filed Mar. 4, 1902.

AJAX

Essential feature.—The word "AJAX." Used since February 12, 1902.

88,139. CARPET-CLEANING IMPLEMENTS AND APPLIANCES. BARNES HARDWARE COMPANY, St. Louis, Mo. Filed Feb. 12, 1902.

KARPET KING

Essential feature.—The words "KARPET KING." Used since March, 1902.

88,140. MALS FOR ONE-OPERATED MACHINES. EDWARD T. BERNARD, Richmond, Va. Filed Mar. 20, 1901.

I-DO
—
U-DO

Essential feature.—The compound word "I-DO-U-DO." Used since March 1, 1902.

88,141. SEWING-MACHINES AND ATTACHMENTS. WILLIAM ALLEN CHURCH, New York, N. Y. Filed Dec. 20, 1902.

IONA

Essential feature.—The word "IONA." Used since September 12, 1902.

88,142. CHAIN-BLOCK. THE YALE & TOWNE MFG. CO., Stamford and Braintree, Conn.; New York, N. Y.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill. and San Francisco, Cal. Filed Mar. 6, 1902.

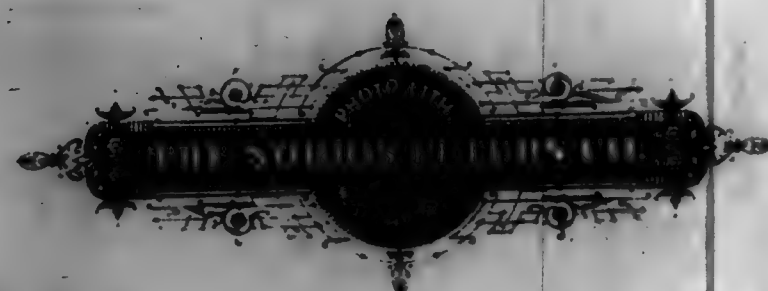
DUPLEX

Essential feature.—The word "DUPLEX." Used since January, 1897.

88,143. VENEER-BLOCK. FRANKLIN F. WHEAT, New York, N. Y. Filed Jan. 1, 1902.

BARWEST

Essential feature.—The word "BARWEST." Used since July 1, 1901.



LABELS

REGISTERED APRIL 18, 1902.

9,079.—Title: "ANTISEPTIC HEALTH FABRIC." (For Fabric.) JOHN S. GIVENS, New York, N. Y. Filed March 25, 1902.

9,080.—Title: "EL PAGADO." (For Cigars.) A. C. HANCOCK & CO., Chicago, Ill. Filed March 24, 1902.

9,081.—Title: "LA FLOR DE LUM MARTINEZ." (For Cigars.) THE MARTINEZ & HANCOCK CO., New York, N. Y. Filed March 24, 1902.

9,082.—Title: "NONE SUCH FURNITURE & FLOOR POLISH." (For Furniture and Floor Polish.) GEORGE W. SARGENT, Philadelphia, N. J. Filed November 25, 1901.

9,083.—Title: "SNYDER'S ALL FOOD EMULSION." (For a Medicine.) MARGARET ELIZABETH SNYDER, Brooklyn, N. Y. Filed February 25, 1902.

9,084.—Title: "SWORDS GREAT TONIC AND SYSTEM RENOVATOR." (For a Medicine.) SWORDS MEDICINE CO., Philadelphia, Penn. Filed March 24, 1902.

PRINTS

REGISTERED APRIL 18, 1902.

489.—Title: "SPRING CLOTHING AND APPAREL." (For Clothing.) W. G. BORN, Chicago, Ill. Filed March 26, 1902.

490.—Title: "DREXEL BOX." (For Overcoats.) KUN, NATHAN & FISCHER CO., Chicago, Ill. Filed March 24, 1902.

491.—Title: "THE HANSFIELD." (For Overcoats.) KUN, NATHAN & FISCHER CO., Chicago, Ill. Filed March 24, 1902.

492.—Title: "THE HARVARD SACK." (For Sack-Covers.) KUN, NATHAN & FISCHER CO., Chicago, Ill. Filed March 24, 1902.

493.—Title: "THE KENMORE SACK." (For Sack-Covers.) KUN, NATHAN & FISCHER CO., Chicago, Ill. Filed March 24, 1902.

494.—Title: "KEDMAN'S ABSORPTION FOOD SACHET." (For an Absorption Food-Sachet.) KEDMAN & CO., Philadelphia, Pa. Filed March 19, 1902.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SWIHART v. MAULDIN.

Decided November 25, 1897.

1. INTERFERENCE—REDUCTION TO PRACTICE—DECISION COMPLETE,
BUT UNSATISFACTORY.

Where twelve complete scales embodying every feature of the interference issue were made and shipped to customers for test in practical use and they were all returned as unsatisfactory, *Held* not a reduction to practice of the invention.

2. SAME—SAME—CONSTRUCTION OF DEVICE NOT SUFFICIENT UN-
LESS SATISFACTORY.

The mere construction of a device embodying the elements of the issue cannot be accepted as a reduction to practice unless that device proves to satisfactory in use as to demonstrate the practicability of the invention.

3. SAME—SAME—DEFECTS CORRED BY MECHANICAL SKILL.

The fact that an unsuccessful device could have been made successful by mere mechanical skill does not make that device constitute a reduction to practice, since until made operative it does not demonstrate the practicability of the invention any more than would drawings or a model.

4. SAME—SAME—MACHINE AS A WHOLE NOT SUCCESSFUL.

Where the mechanism of the claim operates successfully, it is not necessary that all parts of the machine in which it is used shall be mechanically perfect; but where the mechanism claimed is the part which proves defective *Held* not a reduction to practice.

APPEAL FROM EXAMINERS-IN-CHIEF.

SPRING-BALANCE SCALES.

Application of John H. Swihart filed November 1, 1897, No. 657,126. Application of James L. Mauldin filed May 3, 1897, No. 634,864.

Messrs. Thurston & Bates and Mr. H. H. Bliss for Swihart.

Mr. Ira C. Kochne and Messrs. Church & Church for Mauldin.

ALLEN, Commissioner:

This is an appeal by Swihart from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Mauldin upon the following issue:

1. In a spring-balance scale, the combination of a spring-suspended runner having, on its lower end, means for suspending the load, with a fixed dash-pot cylinder, its plunger, and a plunger-rod which is flexibly connected at one end with the runner and at the other end with the plunger.

2. In a spring-balance scale, the combination of a cylindrical scale-rod having a hook at its lower end, and a spring-suspended runner which extends out through said hole and has on its lower end means for suspending the load, with a pneumatic cylinder closed at one end and open at the other, and having at its closed end and external wings which are secured to the cylindrical scale-rod, a plunger movable in said cylinder, and a plunger-rod which is flexibly connected at one end with the plunger and at the other end with the runner.

9900—3—11

It seems that the novelty in this issue resides in the dash-pot provided with the flexibly-connected plunger-rod, the purpose and effect of these elements being to prevent shock and to bring the scale to rest quickly. In allowing the claim upon an *ex parte* appeal the Examiners-in-Chief held that there was no invention, broadly, in using a dash-pot in a scale of this kind for the purpose in view, but that the use of flexible connections for the plunger-rod overcame the practical difficulty met in applying a dash-pot to that use and rendered the claim patentably novel. Dash-pots of various kinds are concededly old for analogous purposes.

Swihart, although the later by six months to file his application, claims the earlier date of conception and reduction to practice. He alleges in his statement conception in November, 1896, and reduction to practice the latter part of December 1896. It is not contended, however, that the evidence in his behalf proves reduction to practice earlier than February, 1897. It is claimed that a dozen machines embodying the invention were then completed, shipped to customers, and put in use. No other machines embodying the invention seem to have been made until July or August, 1897. His application was filed November 1, 1897.

Mauldin claims to have conceived the invention early in 1897 and to have reduced it to practice in March or April of that year. His application was filed May 3, 1897. May 3 is the earliest date which can be accorded him for a reduction to practice, although there seems to be no doubt that about or shortly after that time he built a successful machine embodying the invention.

It is clear that if Swihart did build his machines in February, 1897, as alleged, and they constituted a reduction to practice of the invention he must prevail, since that was prior to Mauldin's alleged date of conception.

The Examiners-in-Chief were of the opinion from the evidence that Swihart made the machines, as alleged, in February; but the majority concluded that they were unsatisfactory and constituted nothing more than abandoned experiments. They further decided that Swihart was not thereafter exercising diligence when Mauldin entered the field and that therefore, although the first to conceive, he could not be regarded as the first inventor, since he was the last to reduce to practice.

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The evidence that the machines were actually built in February, 1897, is far from satisfactory and convincing; but even admitting that the facts are precisely as contended by Swihart it is believed that the majority of the Examiners-in-Chief were right in their conclusion that the machines amounted to nothing more than abandoned experiments. The scales are said to have been shipped to customers for the purpose of testing their practicability by actual use, (Hoyt, Q. 52,) and it is admitted that they were every one returned as unsatisfactory. According to the testimony they embodied every feature of the counts of this interference; but it is well settled that the mere construction of a device embodying the elements of the issue cannot be accepted as a reduction to practice unless that device proves so satisfactory in use as to demonstrate the practicability of the invention. This is the purpose of the legal requirement for a reduction to practice. When the scales were returned, Swihart did not question the fact that they would not work satisfactorily, but dismantled them, and when he had discovered a different kind of plunger for his dash-pot reconstructed them with this new plunger and again sent them out for use.

The reason alleged for the failure of the first scales to work properly is that there was too much friction between the plunger and tube of the dash-pot. The plungers of those scales were made of hard rubber, and after they were returned Swihart learned indirectly from one Leganke that graphite could be used in making the plungers and would operate with less friction. He thereupon introduced this feature into his scales and found that they were then satisfactory; but this was after Mauldin had obtained the same information from Leganke and had successfully reduced the invention to practice.

The issue in this case includes the plunger, but contains no limitation as to the material of which it is made, and for this reason the dissenting member of the board of Examiners-in-Chief regards the use of the rubber plunger as a reduction to practice. Graphite plungers were old prior to Swihart's invention, although he did not know of them, and it is therefore argued that the fact that the rubber plungers were not satisfactory is not fatal to his claim to a reduction to practice, since any one skilled in the art could have cured the defect by the substitution of the well-known graphite for the rubber. It is said that the device was not inoperative and could have been rendered satisfactory in operation by mere mechanical skill. It seems probable, however, that the device was in fact inoperative as thus construed, in that it would not weigh correctly, and there is certainly no proof that it would weigh correctly. The evidence all indicates that it would not.

It was not demonstrated that a plunger and flexible connections as a part of a dash-pot used in scales would operate practically and prove satisfactory until a device which proved satisfactory had actually been made. The argument that a mechanic skilled in the art could have constructed

a practical device without the exercise of invention after seeing Swihart's first machines is not pertinent, since it could be made with equal force in regard to a mere model, or even drawings. It is well settled that a model or drawings, however complete, cannot be accepted as a reduction to practice, although any mechanic could from them make a successful machine. (*McCormick v. Cleal*, 88 O. G., 1514; *Hunter v. Stikeman*, 85 O. G., 610.) This is true also of an unsuccessful machine. (*Glidden v. Noble*, 71 O. G., 411.)

The unsuccessful machines in the present case did not demonstrate the fact that the invention would be a practical success any more than drawings or a model would have demonstrated that fact. We know now that a successful machine can be made and how it must be done; but Swihart did not know it when those machines were returned.

A case of this kind is to be distinguished from such a case as was considered by the court in *National Cash Register Co. v. Lamson Co.*, (67 O. G., 680; C. D., 1894, 283.) In that case the mechanism of the claim was made and operated successfully, and the court held that it was not of consequence that other parts of the machine not involved in the claim were not mechanically perfect and that the machine as a whole did not operate successfully. In the present case it was the combination of the issue which proved unsatisfactory and not some other part of the machine. The other parts of the machine were the same as in previous devices. A plunger and flexible plunger-rod are essential features of the present issue, and until they proved satisfactory the invention was not complete.

After the alleged shipment of the defective machines in February Swihart seems to have done nothing in regard to the invention for some months and until after Mauldin had entered the field, reduced the invention to practice, and filed his application. The evidence does not show that he was exercising diligence when Mauldin made this invention.

As above stated, the evidence that machines embodying this invention were made and sold as early as February, 1897, is not satisfactory. It consists of oral testimony alone, given between three and four years after the event and in answer to leading questions. Several witnesses testify positively to the fact; but there are contradictions in their testimony which show them to have been mistaken as to material dates and facts in regard to this invention and which therefore make their testimony somewhat unreliable. There are also surrounding circumstances which throw still further doubt upon the matter.

The first form of dash-pot said to have been used by Swihart was a drawn-brass tube with a chamois-skin plunger provided with a rigid stem. The second was substantially the same with a flexible stem. The third was the one said to have been embodied in the twelve scales sold in February, and it consisted of a cast-brass cylinder reamed out perfectly smooth and a plunger made of hard rubber and having a flexible stem. It is said to be impos-

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sible to make a drawn-brass cylinder sufficiently smooth to be used with a hard-rubber plunger. It is material, therefore, to know when Swihart or the National Computing Scale Company, at whose works the scales were made, first made cast-brass cylinders. Evidence on behalf of Mauldin makes it seem probable that it was after Mauldin had made the invention. It is necessary that such cylinders be reamed out, and the evidence shows that the company obtained a reamer the latter part of April, 1897, and there is no evidence that it had a reamer before that time. Hoyt says (Q. 8, p. 151) that there was nothing else at the factory upon which this reamer could be used except the dash-pots. It was not satisfactory, however, since it was too short to properly ream cylinders of the length required, and Swihart's Exhibit Cast Dash-Pot, which is said to be one of the first made and used on the scales, was not reamed by it. This is admitted and is apparent, since it is not of the same size. It is stipulated that a reamer which could have been used to make this exhibit was obtained by the company in June or July, 1897. The testimony of the witness Neuman is to the effect that he used this reamer in making the cylinders, and Swihart admits that Neuman is the man who had charge of making the cylinders. Neuman says that he made them after a visit to Leganke's shop, where he obtained information about the graphite plungers, and this was admittedly after Mauldin had made the invention. Hoyt says (X-Qs. 17 and 18, p. 153) that it is possible that the company may have had other reamers with which the cylinders were made; but there is no proof that they did have them, and this is the only explanation of the alleged making of the cylinders before the proved date on which reamers were obtained. The evidence on this question adduced by Mauldin placed the burden on Swihart of showing clearly that he did have the tools with which to make the cylinders; but he has produced no such proof. It is natural to suppose that after the lapse of time in this case the witnesses may have become confused on the question whether they saw cast cylinders or drawn cylinders when they are relying solely upon memory, and therefore surrounding circumstances of this kind have much weight.

The witness Elliot claims to have seen a dash-pot in Swihart's experimental room while he was working for the company, and he left in February, 1897. He does not know the construction of the plunger, however, or its connection with the stem and never saw the device in use in a scale. He says that the plunger was in the cylinder and that the stem was at an angle to the line of the cylinder, thus intimating that there was a flexible connection between the stem and plunger. This is not satisfactory proof of the fact, however, since the position of the stem may have been due to some other cause.

Several witnesses produced by Mauldin state that they were employed by the National Computing Scale Company at the time the scales are said to have been made and that they did not see a dash-pot

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scales until June or July. This testimony is negative, and therefore not conclusive, but is entitled to some consideration in view of the unsatisfactory character of the positive testimony.

It appears that in May, 1897, Mauldin brought his scale to Hoyt, the president of the National Computing Scale Company, and showed it to him for the purpose of having him to take up the invention. Hoyt refused to do so and claims to have had Swihart show Mauldin the dash-pot scale which he had made as proof that the company already had a similar scale. The scale shown Mauldin then, however, is admittedly one not having the flexible connection for the plunger, although the interview was after the date when it is alleged that the twelve scales embodying that feature were made and sold. Hoyt's explanation is that he did not wish to disclose the whole invention to Mauldin; but this is inconsistent with his announced purpose in making the disclosure. It was not necessary to make any disclosure at all if Hoyt did not wish to give the information, and it seems clear that a partial disclosure could not effect the purpose had in view in making it.

After all that they claim to have done and after having a knowledge of Mauldin's invention Swihart and his assignee did not file an application for a patent for a period of six months. This conduct, taken with the familiarity of Swihart and the officers of the company with patent matters, is peculiarly significant. The application seems to have been an afterthought, and Hoyt can give no explanation of the delay.

Although Swihart may have been the first to conceive the idea of using a dash-pot in a scale, the evidence taken as a whole fails to establish a reduction to practice of the specific matter of the issue until after Mauldin had completed the invention. The decision must therefore be in favor of Mauldin.

The decision of the Examiners-in-Chief is affirmed.

EX PARTE SPRINGBORN.

Decided March 15, 1902.

1. ACTION ON MERITS—RULE 64—PRACTICE.

When the invention can be understood, the case should receive action throughout on its merits. (Rule 64.)

2. CASE—CASE—CASE.

To merely state that there is patentable subject-matter presented in the application is not sufficient under the last clause of Rule 64 to warrant the Examiner in insisting upon formal requirements before the case receives action on its merits. Requirements in matters of form will be insisted upon only in those cases in which the examination on the merits is completed. The case, except for formal matters, must be ready for allowance or for appeal.

ON petition.

SELECTIVE PART-LINE TELEPHONE SYSTEM.

Application of Albert J. Springborn filed June 12, 1901, No. 64,808.

Mr. S. E. Fouts for the applicant.

ALLEN, Commissioner.

This is a petition from the action of the Examiner.

No. 3.]

insisting upon his requirement for further illustration of this invention before acting on the merits of the case.

It is therefore prayed that the Examiner be advised that his requirement for further illustration be not insisted upon and that he be directed to proceed with the examination of the claims on their merits.

Rule 64 provides:

64. Where the specification and claims are such that the invention may be readily understood, the examination of a complete application and the action thereon will be directed throughout to the merits; but in each letter the Examiner shall state or refer to all his objections.

Only in applications found by the Examiner to present patentable subject-matter and in applications on which appeal is taken to the Examiners-in-Chief will requirements in matters of form be insisted on. (See Rules 95 and 184.)

The Examiner bases his action on two grounds—first, that the specification and claims cannot, in his opinion, be readily understood, because the illustration is not sufficiently clear and distinct to enable him to make an intelligent examination on the merits, and, second, that patentable subject-matter is claimed and that certain of the claims (not specified) are allowable, of which fact the petitioner has been officially informed in the Office letters.

The Examiner holds that his first ground is warranted by the provision of the first clause of Rule 64 and that the second ground is warranted by the provision of the last clause of said rule.

With respect to the second ground the Examiner is in error. The statement in the last clause of Rule 64 means that requirements in matters of form will be insisted upon only in those cases in which the examination on the merits is completed. The case, except for the formal matters, must be ready for allowance or for appeal and said appeal must have been taken. To merely state that there is patentable subject-matter presented in the application is not sufficient under the last clause of Rule 64 to warrant the Examiner in insisting upon formal requirements before the case receives action on its merits. When the invention can be understood, the case should receive action throughout on its merits. If it cannot be understood, it is of course impossible to act on the merits. It follows that the practice followed by the Examiner was correct under the first clause of Rule 64 if the disclosure was such that the invention could not be understood.

A careful reading of the specification in connection with the drawing as now filed renders the invention capable of being clearly understood. The drawing is made on a smaller scale than usual; but from a careful study of the same in connection with the description thereof it is apparent that both have been intelligently and carefully prepared.

The invention is a complicated one and cannot of course be readily understood upon a mere inspection of the drawing. The drawing, however, is clear when read in connection with the specification, and the invention can be understood. The condition of this application warrants an action throughout on the merits, and it is so directed.

The petition is granted.

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EX PARTE MORLEY.

Decided March 12, 1901.

1. CITATION OF DECISION OF EXAMINERS-IN-CHIEF—REFERENCE TO ANOTHER PARTY'S APPLICATION.

Where in his answer to an appeal to the Examiners-in-Chief the Primary Examiner refers to a decision by that tribunal in regard to another pending application holding that a similar invention was not patentable, Held that the reference will be canceled from the answer.

2. SAME—SAME—ACCESS TO OTHER CASE DENIED.

An applicant should be fully informed of the reasons for rejection and given an opportunity to meet them, and therefore in the treatment of one case reference should not be made to another case filed by a different party to which the applicant cannot have access.

3. CITATION OF MANUSCRIPT DECISIONS—KNOWLEDGE OF INVENTION NECESSARY.

Manuscript decisions of the Examiners-in-Chief and of the Commissioner may be cited in support of some contention of law if it can be done without disclosing the applicant's invention or making it necessary for the party against whom they are cited to understand the inventions in order to appreciate the pertinence of the decisions to the matter under consideration.

ON petition.

VENTILATED MATERIAL FOR BOOT AND SHOE UPPIERS, ETC., AND METHOD OF MAKING THE SAME.

Application of Alfred J. Morley filed April 30, 1901, No. 58,381.

Messrs. Mann & Co. for the applicant.

ALLEN, Commissioner:

This is a petition that the Primary Examiner be directed to cancel from his answer to an appeal taken to the Examiners-in-Chief all reference to another application previously considered by that tribunal on appeal.

The claims in this case were rejected as lacking in patentable novelty in view of certain references cited, and the applicant took an appeal to the Examiners-in-Chief from that rejection. In his answer to that appeal the Examiner, after stating the reasons for the rejection of the claims, said:

In the case of *ex parte Powers*, appeal number 20,885, your honors passed upon this invention, the claim therefor having been rejected upon the state of the art shown in the patents to Evans, to Hughes, and the English patent to Goodyear, herein cited, your honors decided the *Powers* invention to be devoid of patentable novelty, in view of the state of the art cited.

The petitioner objects to this statement for several reasons, the principal one of which and the only one which it is necessary to here consider being that he has no right under the rules of the Office to see the *Powers* application or the decision rendered in regard to it.

It is undoubtedly true that under Rule 15 the petitioner has no right to see the *Powers* application, and in view of this rule the propriety of even the statement that such an application is on file is, to say the least, doubtful. The Examiner's statement in regard to the *Powers* case is of such a nature that the petitioner cannot intelligently answer it in argument without a knowledge of that case. It is necessary for him to know just what *Powers* discloses and claims. If, therefore, that case has any relevancy and can furnish a basis for a decision in this case, it is apparent that its interjection into the case without giving the petitioner an opportunity to intelligently answer it amounts to unfair treatment. It is one of the best-settled principles

of practice that an applicant shall be fully informed of the reasons for rejection and shall have ample opportunity to meet them. The impropriety of the Examiner's reference to the *Powers* case is therefore obvious.

Aside from the practical difficulty raised by Rule 15 to the citation of the actions of the tribunals of the Office in regard to unpatented cases, a correct understanding of which requires a knowledge of the cases, it is clear that a reference to the *Powers* case was not necessary in order to get before the Examiners-in-Chief the real grounds for the rejection of the claims in this case. If they sustain the Examiner's rejection in this case, it will be because they are of the opinion that the references cited anticipate the claims and not because they sustained his action in another case in regard to what he considers a similar invention.

While the decisions of the Examiners-in-Chief are authoritative and binding upon the Examiner, and although the ability to cite them might materially simplify the treatment of subsequent applications covering similar inventions, it is impossible by reason of Rule 15 to take advantage of them in the way attempted by the Examiner in this case.

It is not intended by this decision to hold that a manuscript decision of the Examiners-in-Chief or of the Commissioner cannot be cited in support of some contention of law if it can be done without disclosing the applicant's invention or making it necessary for the party against whom it is cited to understand the invention in order to appreciate the pertinence of the decision to the matter under consideration.

The petition is granted.

REECE & FENWICK.

Decided March 19, 1901.

1. INTERFERENCE—AMENDMENT—ADDITION OF NEW CLAIMS—CONSENT OF PARTIES.

Where before testimony is taken both parties by common consent wish to present certain claims as additional counts of the interference and file amendments embodying those claims, Held that the interference will be remanded to the Primary Examiner to determine if the claims are allowable and should be included in the interference.

2. SAME—SETTLING ALL QUESTIONS AT ONCE.

It is the general policy of the Office to have all questions which may be brought in issue between the parties settled in one interference where possible.

ON motion.

PILING—MACHINE.

Application of George Reece filed June 13, 1900, No. 20,125. Application of Albert D. Fenwick filed March 19, 1900, No. 9,302.

Messrs. Crosby & Gregory for Reece.

Mr. George N. Goodard for Fenwick.

ALLEN, Commissioner:

This case comes up on a motion signed by both parties asking that proceedings be suspended and the interference remanded to the Primary Examiner for the purpose of entering certain claims in each party's application and reforming the interference to include those claims as counts of the issue.

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This interference was declared on February 23, 1901, and the parties have not yet taken testimony or filed preliminary statements. The attorneys, however, after consultation have reached the conclusion that the parties are entitled to claims differing somewhat from the counts of the issue and that the inclusion of them in the interference would conduce to a more complete determination of the question of priority as to the common invention. Each party has therefore presented two new claims which he asks to have substituted for claims in the case before the interference is proceeded with.

These amendments do not come within the provisions of Rule 109, since the claims are not now contained in either application and have not been decided by the Examiner to be allowable. They do not strictly come within any of the rules in relation to the amendment of cases in interference. On the other hand, the reasons for the general rules against the amendment of cases in interference do not apply to the situation presented, where no testimony is taken and both parties are willing and desirous of having the claims considered at this time and made a part of the issue. There can be no question of delay contrary to the interest and wishes of one of the parties, and no confusion in taking testimony can result. These claims could, of course, be presented after the conclusion of the interference, and in so far as the work of the Office is concerned it is not of consequence when the examination of them is made. It is the general policy of the Office to have all questions which may be brought in issue between the parties settled in one interference, and it would seem to be to the interest of the parties and of the Office to have the question whether the proposed claims may constitute an issue in this case settled at this time rather than at the conclusion of the interference.

This case not being specifically provided for in the rules presents a situation properly calling for the exercise of the supervisory authority of the Commissioner. The motion is granted, and the interference is remanded to the Primary Examiner for the consideration of the amendments presented with instructions to reform the issue as requested in case he finds that the proposed claims are allowable to the parties.

EX PARTE COOPER.

Decided March 27, 1901.

SUBSTITUTE DRAWING—REFUSAL TO ADMIT.

Where the drawing in the case shows the invention clearly and properly, Held that a substitute drawing should not be admitted.

ON petition.

ARRANGEMENT OF THE MATTER OF NEWSPAPERS, ETC.

Application of Edwin James Cooper filed July 9, 1900, No. 28,066.

Mr. Cooper pro se.

ALLEN, Commissioner:

This is a petition from the action of the Examiner refusing to permit the substitution of a new drawing for that now in the case.

No. 3.]

It appears that the application is ready for issue. The claims cover a newspaper-page having a longitudinal folding space, while the specification states that while it is sometimes desirable to use both longitudinal and transverse folding spaces, yet the longitudinal space alone is sufficient. The drawing now in the case shows both spaces. Applicant, however, wishes to substitute for this a drawing showing only the longitudinal space.

It is evident that the drawing now on file shows the subject-matter of the allowed claims very clearly and that there would be no misconception as to the scope or meaning of the claims were the patent to issue with this drawing in place of the one now proposed.

On the other hand, if the new drawing were admitted it would necessitate a corresponding revision of the specification, entailing upon the Office much unnecessary work in the examination of the same. Under these circumstances the new drawing should not be admitted. (*Ex parte Pugh*, 96 O. G., 841.)

The petition is denied.

OLDHAM AND PADBURY v. PECK & CLEMENT & RICHARDS.

Decided April 3, 1902.

INTERFERENCE—MOTION—EXAMINER SHOULD DECIDE ALL GROUNDS.

Where a party made a motion to dissolve on all of the grounds mentioned in Rule 123 and the Primary Examiner decided only two of those grounds, *Held* on appeal that the case will be remanded to the Examiner with instructions to decide all grounds alleged.

ON MOTION.

PNEUMATIC TOOLS.

Application of Samuel Oldham and John J. Padbury filed April 12, 1901, No. 55,463. Application of Clarence W. Peck filed January 30, 1901, No. 45,344. Application of John F. Clement filed December 31, 1900, No. 41,636. Application of Charles B. Richards filed December 24, 1900, No. 41,005.

Mr. J. Walter Douglass for Oldham and Padbury.

Mr. Eugene Diven for Peck.

Messrs. Howson & Howson for Clement.

Mr. Wm. Secher for Richards.

ALLEN, Commissioner:

This case comes before the Commissioner upon a motion by Richards to extend the limit of appeal from a decision of the Primary Examiner upon motions to dissolve the above-entitled interference brought by Oldham and Padbury and by Clement.

The motion to dissolve brought by Oldham and Padbury was based upon all of the grounds specified in Rule 123, as follows:

1. That no interference in fact exists.
2. That there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority.
3. That the three issues framed in the interference and each of them are not patentable subject-matter, in view of the prior state of the art; and
4. That Clarence W. Peck, John F. Clement and Charles B. Richards are neither of them entitled to make the claims in

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their respective applications said to be involved in this interference.

Clement's motion to dissolve was based upon the first two of the above-named grounds, and, further, upon the ground—that the applicant Charles B. Richards is not entitled to make the claims constituting the three several clauses of issue in said interference.

The Primary Examiner in his decision upon these motions found that no interference in fact exists between Richards and the other parties—

“... since Richards does not show, as set forth in counts 1 and 2, a valve ‘one face of which is opened to a chamber to which motive fluid under normal pressure is admitted,’ ... nor is there shown a ‘valve being actuated by direct air-pressure at one stroke of the piston,’ as set forth in count 3.”

The Primary Examiner found also that the issues were not anticipated by the prior art. Upon the question of the right of the respective parties named in the motions to make the claims and of irregularity in the declaration he made no decision. Richards then filed an appeal to the Examiners-in-Chief from this decision of the Primary Examiner; but upon motion by Peck this appeal was dismissed, the Examiners-in-Chief holding that they had no jurisdiction, since from a decision upon the question of interference in fact appeal lies directly to the Commissioner, while there is no appeal from a favorable holding upon the patentability of the issue. Richards thereupon brought the present motion to extend the limit of appeal and filed an appeal to the Commissioner from the Examiner's decision on the question of interference in fact.

The action of the Examiner in deciding the motions to dissolve on some of the grounds only was irregular. It is well settled that the Examiner should decide such motions on all the grounds upon which they are based, (*Hinkley v. Barker*, 97 O. G., 2743;) otherwise it might happen, as, in fact, it has happened in the present case, that a party would be deprived of his right to appeal.

It may be contended with some force that Richards has waived any irregularity in the Examiner's action, by which appeal to the Examiners-in-Chief on the question of his right to make the claims has been prevented, by filing an appeal to the Commissioner on the question of interference in fact; but it is clear from the Examiner's decision that the question of interference in fact is so connected with that of Richards' right to make the claims that the consideration of one necessarily involves the other. In view of the fact that the right of the parties to make the claims was one of the grounds upon which the motions to dissolve were based this question should be decided in the regular course by the Examiners-in-Chief before it is brought to the Commissioner.

This interference is therefore remanded to the Primary Examiner, who will decide the motions upon all the grounds upon which they are based in order that appeals may be taken in the regular course.

In view of this holding it is unnecessary to consider the motion to extend the limit of appeal. This motion is accordingly dismissed.

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Connecticut	14	1	North Carolina	1	1
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China	1	1	Scotland	1	1
Colombia	1	1	South African Republic	1	1
Cuba	1	1	Spain	1	1
Denmark	1	1	Sweden	1	1
Egypt	1	1	Switzerland	1	1
England	11	1	Turkey in Asia	1	1
France	11	1	Victoria	1	1
Germany	11	1	Western Australia	1	1
Guatemala	1	1	Total to citizens of foreign countries	71	5
Haiti	1	1			
India	1	1			
Ireland	1	1			
Italy	1	1			

Revision of Trade-Mark Rules.

(Order No. 1,465.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 3, 1902.

Rule 21, subdivision (b.) governing the registration of trade-marks, is hereby amended to read as follows:

(b) A statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used, and if the applicant be a corporation it must set forth under the laws of what State or nation incorporated.

F. I. ALLEN,
Commissioner.

Amendment of Section 4883, Revised Statutes, Relating to the Signing of Letters Patent.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 12, 1902.

By the act approved April 11, 1902, section 4883, Revised Statutes, has been amended to read as follows:

Sec. 4883. All patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Commissioner of Patents, and they shall be recorded, together with the specifications, in the Patent Office in books to be kept for that purpose.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 15, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	<i>In arrears—Under one month.</i>			
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Mar. 27	Apr. 2	180
117	XXXIII. *DESIGNS, TRADE-MARKS, LABELS AND PRINTS, Optics, and Photography.	Mar. 26	Apr. 2	87
140	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Mar. 21	Apr. 1	184
260	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Mar. 21	Mar. 21	359
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Mar. 17	Apr. 2	162
245	I. Tillage, etc., and Fences.	Mar. 17	Apr. 2	170
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 17	Apr. 1	213
297	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Mar. 17	Apr. 1	240
298	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 17	Apr. 1	186
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Mar. 17	Mar. 27	128
196	XXXIII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Mar. 17	Mar. 20	245
29	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Mar. 17	Mar. 24	266
128	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Mar. 17	Mar. 24	189
290	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Mar. 15	Apr. 1	285
24	XXXV. Accoutrements, Bags, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Mar. 15	Apr. 1	297
197	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Mar. 15	Apr. 1	294
292	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Mar. 15	Mar. 31	262
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Mar. 15	Mar. 31	268
	<i>Between one and two months.</i>			
258	X. Carriages and Wagons.	Mar. 14	Apr. 2	115
261	XXXII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Mar. 14	Apr. 1	108
261	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Rescue-Services.	Mar. 10	Apr. 1	227
251	XIII. Metal-Working, Arms and Projectiles, Making, Sorting and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Mar. 12	Mar. 29	128
265	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Mar. 10	Apr. 2	200

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting of- fice action.		No. of applications awaiting action.
		New.	Amended.	
27	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Mar. 10	Mar. 29	218
212	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Mar. 10	Mar. 24	210
126	XXIX. Wood-Working Machines, Coopering and Booding.	Feb. 25	Mar. 14	194
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Feb. 24	Mar. 10	164
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Feb. 15	Mar. 19	229
26	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Feb. 15	Feb. 17	473
<i>Between two and three months.</i>				
21	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Feb. 10	Mar. 1	254
248	XXIII. Steam-Engineering, etc.	Feb. 10	Feb. 7	491
28	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 10	Feb. 4	447
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Feb. 7	Mar. 12	428
145	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Feb. 3	Jan. 21	226
242	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Feb. 1	Feb. 1	424
105	II. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 15	Feb. 17	410

Total number of applications awaiting action.....9,679

Under one month.

* Designs	Mar. 24	Mar. 31	105
† Trade-Marks	Apr. 4	Apr. 7	92
‡ Labels and Prints	Apr. 10	Apr. 11	2

Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, corrected to January 2, 1902, has been published, and copies will be furnished at the price of ten cents each, two five-cent coupons being acceptable in payment therefor.

Registrants are requested to give notice of any errors that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of his professional standing, does so without authority.

Classification of Inventions.

A classification of patented inventions by classes and subclasses, with the number of patents in each subclass, revised to January 1, 1902, has been published in pamphlet form, paper covers. Copies may be obtained for 10 cents each.

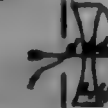
Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

PATENTS

GRANTED APRIL 22, 1902.

697,959. LENS SYSTEM. ROBERT ARNT, Jena, Germany, assignor to The Firm of Carl Zeiss, Jena, Germany. Filed Dec. 22, 1899. Serial No. 728,052. (No model.)



Claim.—In lens systems for producing optical images of wide angle the combination with an aperture-diaphragm of a lens having a surface of revolution, the curvature of which surface gradually varies from the vertex to the margin, and which surface is so distant from the center of the aperture-diaphragm that it is traversed by the oblique pencils at other parts than by the axial pencil, essentially as described.

697,960. METALLIC ENVELOPE-CLOSURE. GEORGE E. ADAMS, New Britain, Conn. Filed May 21, 1891. Serial No. 62,611. (No model.)

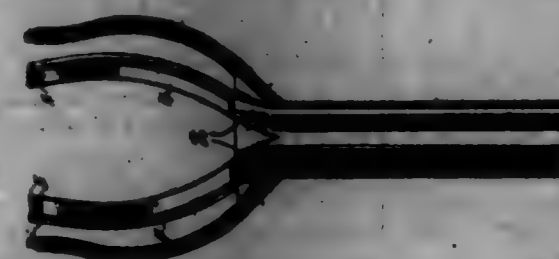


Claim.—1. An improved envelope-fastener consisting of an eyelet having a flange with two prongs formed integral with said flange but located on opposite sides of the eyelet and projecting in opposite directions in the same plane as the flange of the eyelet, said eyelet being adapted to be secured to the body of the envelope under its closing-flap with the prongs lying flat against the outer face of the envelope; substantially as described.

2. An improved envelope-fastener consisting of an eyelet having a flange with two prongs formed integral with said flange but located on opposite sides of the eyelet and projecting in opposite directions, the flange of the eyelet and base of the prongs being cut to reduce the base of the prongs and extend said base within the circumference of the flange, substantially as described.

3. An improved envelope-fastener consisting of an eyelet having a flange with two prongs formed integral with said flange but located on opposite sides of the eyelet and projecting in opposite directions in the same plane as the flange, the base of the prongs extending within the circumference of the flange of the eyelet, whereby when the prongs are bent up they will lie within the circumference of the flange, substantially as described.

697,961. DEVICE FOR APPLYING AND REMOVING ELECTRIC LIGHT BULBS. LEO E. ARNOLD, Philadelphia, Pa. Filed Aug. 2, 1901. Serial No. 71,276. (No model.)



Claim.—1. A device of the character described, comprising an open-ended tubular socket having a plurality of longitudinal incisions formed

in one end thereof and dividing said end into integral spring-fingers which are bowed outwardly to form a cage or basket, a collar or band snugly embracing the base of the fingers on the outside of the socket and the adjacent portion of the socket, and a handle fitted into the other end of the socket.

2. A device of the character described, embodying a plurality of spring-fingers arranged to form a cage or basket, and protective casings embracing the respective fingers and projected beyond the outer ends thereof.

3. A device of the character described, embodying a plurality of spring-fingers arranged to form a cage or basket, and rubber tubular casings snugly fitting the respective fingers and projected beyond the outer ends thereof, each of said projected ends having its sides connected to form a projected buffer.

4. A device of the character described, embodying an open-ended tubular metallic socket, the lower end of which is constructed for engagement with a handle, and the upper end being provided with a plurality of longitudinal incisions to form fingers, which are bowed outwardly and are of arcuate shape to form a cage or basket, an inverted frusto-conical band or collar applied externally to the socket from the lower end thereof and snugly embracing the base of the fingers and the adjacent end portion of the socket, and soldered thereto, and rubber tubular casings snugly embracing the fingers and having their outer ends projected beyond the outer ends of said fingers, the projected end of each casing having its opposite sides mutually connected.

5. A device for applying and removing electric-light bulbs, comprising a handle having one end provided with a plurality of longitudinal outwardly-bowed flat spring-fingers disposed in a circular series to form a cage or basket of substantially the shape of an electric-light bulb, and rubber tubular casings snugly embracing the fingers and having their outer ends projected beyond the free ends of the fingers, the projected end of each casing having its opposite sides mutually connected to cover the outer end of the finger, for the purpose described.

697,962. RAIL-BOND. JORAN M. ANDERSON, Boston, Mass., assignor of one-half to Albert Anderson, Boston, Mass. Filed Feb. 12, 1902. Serial No. 66,278. (No model.)



Claim.—1. In a rail-bond, the combination with a bonding-conductor, of a bond-terminal comprising cooperating members normally separated for the reception of the bonding-conductor and one of which is provided with a locking projection to engage said bonding-conductor when said members are secured in their closed position, substantially as described.

2. In a rail-bond, the combination with a bonding-conductor, of a bond-terminal comprising two members between which said bonding-conductor is secured, one of said members having a flange projecting from one face and a base from its opposite face, and the other member having a locking projection adapted to be engaged by the bonding-conductor and in lock the same against longitudinal movement, substantially as described.

3. In a rail-bond, the combination with a bond-terminal having a base provided with a threaded opening, the threads of which comprise three of unequal length, the longer three extending in the direction of the length of the said opening, of a screw or bolt having a threaded shank, the threads of which are composed of three of unequal length, the longer three extending in the direction of the length of the shank and cooperating with the longer three of the thread in the opening in the base, substantially as and for the purpose specified.

4. A head-terminal for rail-bonds made in a single piece and comprising two members normally open or separated at one end, one of said members having a flange projecting from one face and a beam or projection extended from the opposite face, and the other member having a locking projection or lug on its face adjacent to the first member, substantially as described.

5. In a rail-head, the combination with a head-terminal comprising two members, one of which has a flange projecting from one face and a beam projecting from the other face and provided with an opening having an expanding screw-thread composed of faces of unequal length, and the other member having a locking projection or lug, of a screw or bolt having a shank provided with an expanding screw-thread composed of faces of unequal length which cooperate with the screw-threaded opening in said beam, substantially as described.

697,968. MAGNETO-ELECTRIC GENERATOR. VERNER S. AYER.
Dayton, Ohio. Filed May 2, 1901. Serial No. 53,486. (No model.)



Claim.—1. In a magneto-electric machine the combination of a revolving, multipolar, field-magnet with a stationary ring-armature within which it revolves, said armature consisting of an annular core having internal projections, said projections consisting of one or more plates of permanently-magnetized steel having outwardly-projecting poles of alternating polarity, and a means for laterally moving said field-magnet with reference to the armature, for the purpose of regulation, substantially as set forth.

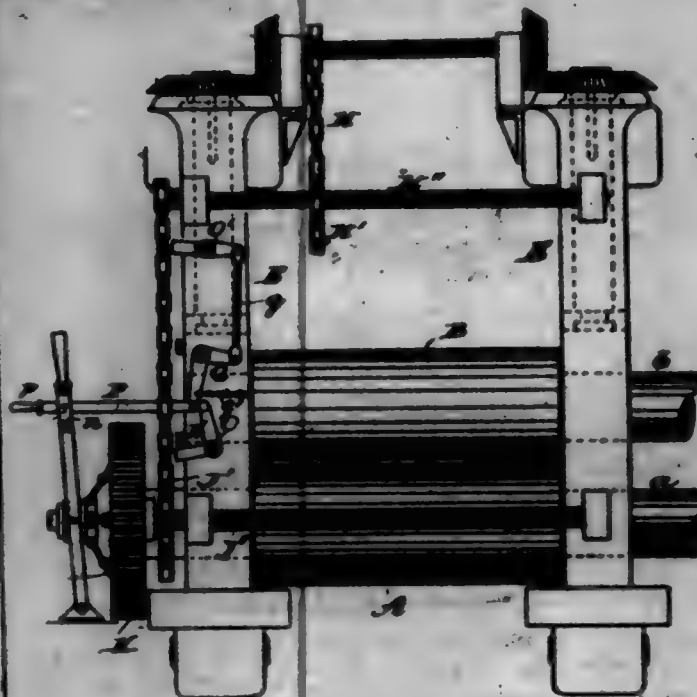
2. In a magneto-electric machine the combination of a revolving, multipolar, field-magnet with a stationary, ring-armature within which it rotates, said armature consisting of an annular core made up of a series of thin laminations, having internally-projecting poles, coils wound between said projections, said field-magnet consisting of a series of disks, or plates, of permanently-magnetized steel, outwardly-projecting poles of alternate polarity, of short length, with reference to the diameter of the disk, a centrifugal governing device for separating the field-magnet from the armature, and a spring for returning said field-magnet to its normal position, substantially as set forth.

697,964. MILL FOR ROLLING ZAPFER'S ROLLER. HUBBARD.
HARRIS, Cleveland, Ohio. Filed Mar. 2, 1900. Renewed Aug. 20, 1901. Serial No. 73,851. (No model.)

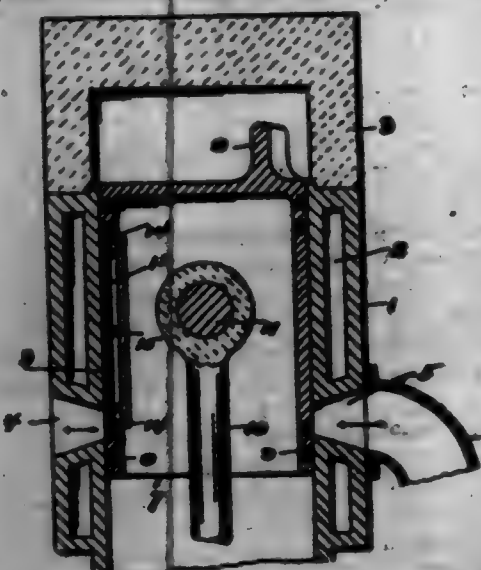
Claim.—1. In a rolling-mill, the combination with a stationary roll, a movable roll, feed-covers for said movable roll, and mechanism connecting said covers to the roll-driving mechanism and constructed to operate said covers to feed the movable roll toward and from the stationary roll in unison with the rotation of the rolls, of a clutch device in said connecting mechanism, adjustable steps connected to travel with the movable roll, and a device for throwing out said clutch device and provided with actuating-triggers in the path of said adjustable steps, substantially as set forth.

2. In a rolling-mill, the combination with a stationary roll and a movable roll, of feed-covers for said movable roll, level-gears connected to rotate said covers, a shaft having bevel-gears engaging said former gears and having a sprocket-wheel, a shaft having two sprocket-wheels, a chain passing around two of said latter wheels and said former wheel, a shaft having a gear loose upon it and engaging a gear upon the stationary-roll shaft and having a sprocket-wheel, a chain passing around said latter wheel and the other of said former wheel, a friction-clutch upon said former shaft and engaging the gear upon the same, a hand-lever engaging said clutch, a bell-crank trigger and a trigger-lever upon the roll-bench, a bell-crank having one arm movably connected to the bell-crank trigger and the other arm connected to the trigger-lever by a link,

a spring for returning the bell-crank to its normal position, a hand-lever pivoted to the bell-crank and bell-crank trigger and having a notch engaging the hand-lever, and two stop-arms pivoted upon the bar of the movable roll and having means for adjusting them and projecting to engage the bell-crank trigger and the trigger-lever at the down and up strokes of the movable roll, substantially as set forth.



697,965. PISTON. EDWIN E. BALDWIN, Braintree, Mass. Filed May 2, 1901. Serial No. 54,591. (No model.)



Claim.—1. The combination with a cylinder having a port therein; of a reciprocating trunk-piston overrunning said port and having a spring-pressed plate mounted in the same side thereof as said port, said plate extending longitudinally of said piston and controlling said port, substantially as described.

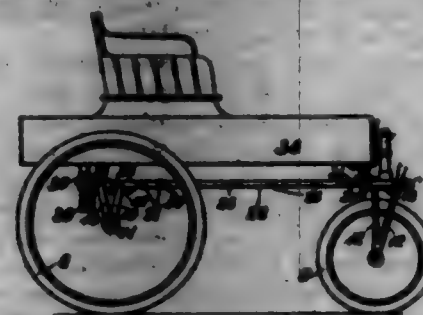
2. The combination with a cylinder having a port therein; of a reciprocating trunk-piston overrunning said port and having a recess extending longitudinally thereof upon the same side as said port; a plate within said recess; and means, as springs, within said recess engaging the said plate for holding the same against the interior of said cylinder, the said plate controlling said port during the reciprocation of said piston, substantially as described.

3. The combination with a cylinder 1 having a port therein; of a reciprocating piston 7 provided with a longitudinal recess 13 upon the same side thereof as said port; a yielding plate 15 within said recess adapted to cover and uncover said port during the reciprocation of said piston; and springs 16 bearing against said plate, all constructed and operating substantially as described.

697,966. VEHICLE FRAME OR RUNNING-GEAR. ARTHUR B. BELL, New York, N. Y., assignor, by direct and mesne assignments, to Hester Vehicle Company. Filed Apr. 6, 1901. Serial No. 54,592. (No model.)

Claim.—1. In a vehicle frame or running-gear, the combination with

a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; and a rear axle and device attached thereto having forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and means for securing the ends of said reaches to said projections respectively.



2. In a vehicle frame or running-gear, the combination with a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; and a rear axle and device attached thereto having forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and bolts passing through said bifurcated ends of said projections and through the ends of said T-irons inserted between the same.

3. In a vehicle frame or running-gear, the combination with a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; and a rear axle and device attached thereto having forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and means for securing the ends of said reaches to said projections respectively, comprising sleeves or bands embracing the contiguous ends of said projections and reaches and bolts passing through said sleeves, bifurcated projections, and ends of the T-irons inserted therein, and bolts passing through said sleeves and the ends of the reaches inserted therein.

4. In a vehicle frame or running-gear, the combination with a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; a duplex rear axle, comprising two middle portions approximately parallel and horizontal for part of their length but bent downward and toward each other at their ends, and end pieces or castings having laterally-projecting axle-spindles adapted to receive wheels; and two-part castings or clamps transversely grooved to receive said duplex axle between them and bolted thereto and provided with forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and means for securing the ends of said reaches to said projections respectively.

5. In a vehicle frame or running-gear, the combination with a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; a duplex rear axle, comprising two middle portions approximately parallel and horizontal for part of their length but bent downward and toward each other at their ends, and end pieces or castings having laterally-projecting axle-spindles adapted to receive wheels; and two-part castings or clamps transversely grooved to receive said duplex axle between them and bolted thereto and provided with forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and bolts passing through said bifurcated ends of said projections and through the ends of the said T-irons inserted between the same.

6. In a vehicle frame or running-gear, the combination with a fifth-wheel comprising an upper and a lower member, the upper member having backwardly-extending bifurcated projections; a duplex rear axle, com-

prising two middle portions approximately parallel and horizontal for part of their length but bent downward and toward each other at their ends, and end pieces or castings having laterally-projecting axle-spindles adapted to receive wheels; and two-part castings or clamps transversely grooved to receive said duplex axle between them and bolted thereto and provided with forwardly-extending bifurcated projections; of reaches, each comprising a T-iron and a rod or bar shorter than said T-iron and provided with a longitudinal channel or recess; the stem or leg of said T-iron at its ends being inserted between the bifurcated ends of the said projections respectively and between its ends being inserted in the channel or recess of the said rod or bar; and means for securing the ends of said reaches to said projections respectively, comprising sleeves or bands embracing the contiguous ends of said projections and reaches and bolts passing through said sleeves, bifurcated projections, and ends of T-irons inserted therein, and bolts passing through said sleeves and the ends of the reaches inserted therein.

7. In a vehicle frame or running-gear, the combination with a duplex rear axle provided with axle-spindles; two-part castings or clamps transversely grooved to receive said duplex axle between them and secured thereto; and a fifth-wheel comprising an upper and a lower member pivotally secured together; of reaches secured to said casting or clamp and to the upper member of said fifth-wheel.

8. In a vehicle frame or running-gear, the combination with a duplex rear axle provided with axle-spindles; two-part castings or clamps transversely grooved to receive said duplex axle between them and secured thereto; and a fifth-wheel comprising an upper and a lower member pivotally secured together said lower member provided with a wheel-fork; of reaches secured to said casting or clamp and to the upper member of said fifth-wheel.

9. In a vehicle frame or running-gear, the combination with a duplex rear axle provided with axle-spindles; a fifth-wheel comprising an upper and a lower member pivotally secured together, the upper member being provided with elevated lateral projections adapted to support a spring secured thereto; and a fork secured to the lower member of said fifth-wheel; of reaches secured to said duplex axle and to the upper member of said fifth-wheel.

10. In a vehicle frame or running-gear the combination with a duplex rear axle provided with axle-spindles; a fifth-wheel comprising an upper and a lower member pivotally secured together, the upper member being provided with elevated lateral projections adapted to support a spring secured thereto; and a fork secured to the lower member of said fifth-wheel; of reaches secured to said duplex axle and to the upper member of said fifth-wheel, comprising a T-iron and a rod or bar having a longitudinal channel or recess.

11. In a vehicle frame or running-gear the combination with a duplex rear axle provided with axle-spindles, said axle having secured thereto two-part castings or clamps having forwardly-extending bifurcated projections; a fifth-wheel comprising an upper and lower member pivotally secured together, the upper member being provided with forwardly-extending bifurcated projections, and elevated lateral projections adapted to support a spring secured thereto; and a fork secured to the lower member of said fifth-wheel; of reaches comprising a T-iron and a rod or bar having a longitudinal channel or recess, the said T-iron being inserted in said channel or recess and projecting ends of the same being inserted in the said bifurcations and there secured.

697,967. WITHDRAWN

697,968. INTERIOR JUNCTION LINE OF STEEL RAIL-ROAD. WILLIAM B. BELL, Brooklyn, N. Y. Filed Aug. 20, 1901. Serial No. 73,852. (No model.)

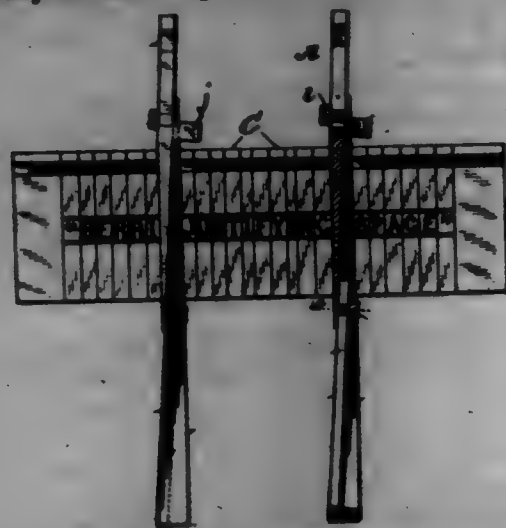
Claim.—1. A space for justifying lines of matrices consisting of two reversible and interchangeable oppositely-bored wedges removably connected together, substantially as described.

2. In a space for justifying lines of matrices, the combination with two oppositely-bored wedges of a device removably connecting said wedges and positioned above or below the line of matrices, substantially as described.

3. In a space for justifying lines of matrices, the combination with two oppositely-bored wedges, of device removably connecting said wedges and positioned above and below the line of matrices, substantially as described.

4. In a space for justifying lines of matrices, the combination of a wedge having a beveled lower face and an outer face which is in one part perpendicular to the matrix-line and in one part parallel to said beveled face, another wedge having a beveled lower face and an outer face perpendicular to the line of matrices, and device removably connecting said wedges and positioned above and below the line of matrices substantially as described.

5. The combination with a matrix-line holder having end pieces which define the length of the justified line, and matrices, of a justifying-space consisting of two reversible and interchangeable oppositely-beveled and removably-connected wedges, substantially as described.



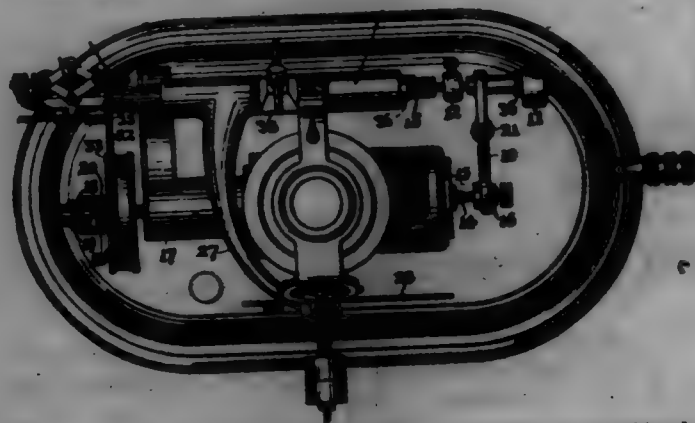
6. The combination with means for distributing and assembling matrices and spaces, of a holder for the line of matrices provided with jaws which determine the length of the line, matrices, and a justifying-space consisting of two reversible and interchangeable oppositely-beveled wedges, and devices removably connecting said wedges and positioned above and below the said holder, substantially as described.

7. A reversible interchangeable wedge constituting a member of a space for justifying lines of matrices and provided with a device for connecting said wedge with a similar reversed wedge above or below the line of matrices, substantially as described.

8. A reversible interchangeable wedge constituting a member of a space for justifying lines of matrices and provided with means for connecting said wedge with another similar wedge above or below the matrix-line and with a surface adapted to be engaged by connecting means on the other wedge, substantially as described.

9. The combination in a justifying-space, of two similar reversible and interchangeable wedges, each wedge having means for connecting with the other wedge above or below the matrix-line and a surface parallel with the meeting faces of said wedges and adapted to be engaged by the connecting means on the other wedge, substantially as described.

697,969. PHOTOGRAPH OR GRAPHOPHONE. CLARENCE BUTTER
New York, N. Y. Filed May 2, 1900. Serial No. 10,281. (No model.)



Claim.—1. In a photograph or like mechanism the combination with the mandrel for carrying the record-cylinder, of a fixed bearing for one end thereof, a movable bearing for the other end, an arm carrying said movable bearing, a post 11, a bearing for said arm in the post 11, a post 12, a second bearing for said arm in the post 12, said latter bearing serving also for the propelling-screw 13, so that the bearing carried by this arm may be swung out of the way of the cylinder in a plane at right angles to the axis of the mandrel, and a spring for holding said movable bearing in engagement with the mandrel, substantially as set forth.

2. In a photograph or like mechanism the combination with the mandrel for carrying the record-cylinder, of a fixed bearing for one end thereof, a movable bearing for the other end, an arm carrying said movable bearing, a post 11, a bearing in said post for said arm, a post 12, a bearing for said arm in the post 12, said latter bearing serving also for the propelling-screw 13, so that the bearing carried by this arm may be swung out of the way of the cylinder in a plane at right angles to the axis of the mandrel, a spring for holding said movable bearing in engagement with the mandrel, said arm being provided with depressions in the side

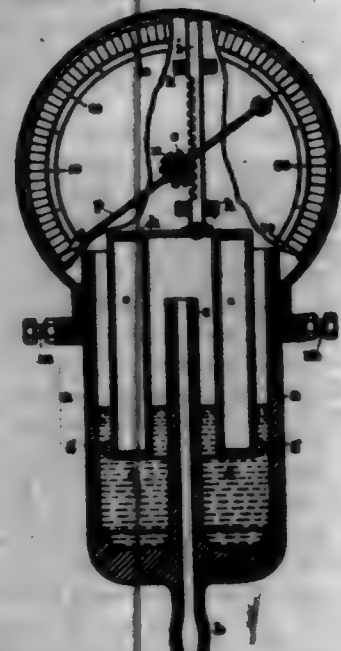
thereof, an abutment on the pedestal to receive said arm, and springs upon said abutment between which the arm rests and which enter the said depressions to hold the arm in place.

3. In a photograph or like mechanism, the combination with the back-rod above, of the speaker-arm formed integrally therewith and projecting forwardly therefrom in an arch over the record-cylinder and then curved to the right and terminated in a rest or support for the recorder or reproducer, a projection arising from said above, a frame carrying the diaphragm and apparatuses movably secured in said projection, an adjusting-pin in the forward end of said frame resting freely upon and unattached to said support, for the purpose set forth.

4. In a photograph or like mechanism the combination with the mandrel of the record-cylinder having a driving-pulley thereon, of a speed-indicator consisting of a ball-governor mechanism hinged to the base of the photograph, a friction-wheel on the arbor carrying the balls of the indicator, a spring for holding said wheel in engagement with the pulley on the mandrel of the record-cylinder, a scale, and a pointer actuated by the sliding sleeve of the ball-governor mechanism, for the purpose set forth.

5. The combination with the diaphragm and apparatuses, of the speaker-arm provided with the back-rod above on its rear end and with a rest upon its forward or free end, the frame carrying the diaphragm and apparatuses and movably secured to the back-rod above, and an adjusting-pin in the forward end of said frame by which said forward end is supported freely upon said rest and unattached thereto.

697,970. DRAFT-GAGE. KARL ROSEBAUM, Als-la-Chapelle, Germany. Filed Feb. 26, 1901. Serial No. 42,991. (No model.)



Claim.—1. A draft-gage comprising a receptacle with a central tube, a double-walled, vertically-guided and vertically freely moving bell provided with a chamber for the reception of the upper mouth of said central tube; a housing secured to said receptacle; a plunger revolvably secured to said housing; a rack secured to the top of said bell for transmitting the vertical motion of it to said plunger; and a pointer carried by said plunger to make the vertical motion of said double-walled bell visible upon a scale.

2. In a draft-gage as described the combination of a receptacle having a central tube and containing a sealing liquid with a double-walled vertically-moving bell containing a chamber normally surrounding the upper mouth of said tube; a housing secured to said receptacle; a plunger revolvably secured to said housing and carrying a pointer to visibly indicate upon a scale the vertical motion of said double-walled bell; a rack secured to the top of said bell and meshing with said plunger and means for guiding said bell and the rack, substantially as specified.

697,971. ENVELOPE. SAMUEL A. BUSHAFER, Erie, Pa. Filed Feb. 1, 1900. Serial No. 10,214. (No model.)

Claim.—1. As a new article of manufacture, a pair of integral envelopes, one of which is wholly inclosed within the other, the outer envelope having a detachable marginal strip, the removal of which will sever the envelopes from each other, and at the same time open the outer envelope and permit the removal of the inner envelope.

2. As a new article of manufacture, a pair of integral envelopes, one of which is wholly inclosed within the other, the folding-line between the two envelopes being midway between two rows of perforations which allow when the envelopes are finished and form a detachable strip, the re-

moval of which severs the envelopes from each other, and at the same time opens the outer envelope and permits the removal of the inner envelope.

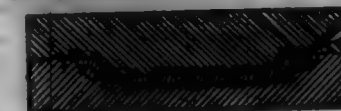


3. As a new article of manufacture, an envelope having an inclosed integral portion, said envelope and inclosure having an integral detachable marginal strip for opening the envelope and for covering the same from said inclosure.

4. An envelope-blank comprising a sheet of paper divided by folding-lines into central portions and marginal flaps for the formation of two complete envelopes, the main folding-line between the two envelope-sections being located midway between two parallel rows of perforations and the removable strip thus formed between the two rows of perforations being so disposed as to form a marginal sealing-flap for one envelope, and a connecting-strip between the two envelope-sections.

5. As a new article of manufacture, an envelope-blank having a central folding-line 5 dividing the blank into two main sections, two parallel rows of perforations 11 and 23 being formed in the blank on opposite sides of the folding-line, thereby to form a detachable strip which may be removed to sever the envelopes without destroying the integrity of the smaller envelope, said blank being so shaped as to form two complete envelopes of different size.

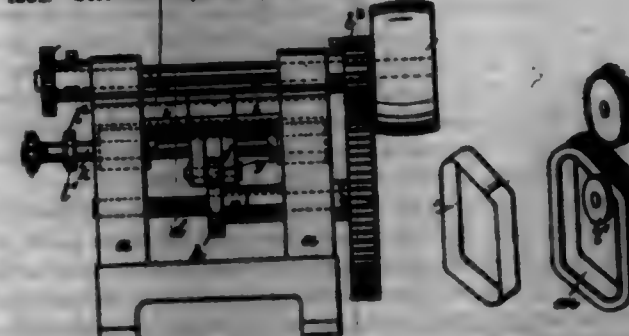
697,972. METHOD OF PRODUCING SOFT-METAL CASTINGS. GEORGE H. BRANSON, Thornton, Mass. Filed Aug. 27, 1901. Serial No. 73,506. (No specimens.)



Claim.—1. The method of producing a casting of soft metal, which consists in impregnating the inner surface of a porous non-metallic mold with a vegetable-fat acid and running in the molten metal.

2. The method of producing a casting of soft metal, which consists in impregnating the inner surface of a porous non-metallic mold with palmitic acid as contained in the substance known as Japan wax, and running in the molten metal.

697,973. CAN-FLANGING MACHINE. JULIUS BRENNEMANN, New York, N. Y., assignor to MAX ARN, New York, N. Y. Filed Aug. 31, 1901. Serial No. 73,516. (No model.)



Claim.—1. A can-flanging machine having a removable work-holding frame, composed of a pair of hinged sections, a catch for closing the frame, and teeth on the periphery of the frame, substantially as specified.

2. In a can-flanging machine, the combination of a flanged can adapted to support the ends of a blank, with a frame embracing the blank, and with a wheel adapted to force the can-body inwardly between the ends and simultaneously rotate the same, substantially as specified.

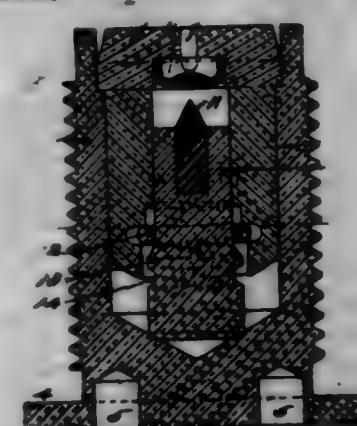
3. A can-flanging machine provided with a flanged sleeve, a removable toothed work-holding frame adapted to be mounted thereon, a gear-wheel, and means for throwing the frame into and out of engagement with said wheel, substantially as specified.

4. A can-flanging machine provided with a shaft, a flanged sleeve mounted thereon, a removable toothed work-holding frame adapted to be mounted upon the sleeve, a gear-wheel, and means for throwing the frame into and out of engagement with said wheel, substantially as specified.

5. A can-flanging machine having a power-shaft, a counter-shaft, an intervening clutch, a cam on the counter-shaft, an arm oscillated by the cam, a shaft movable with the arm, a flanged sleeve rotatable upon the shaft, a work-holding frame adapted to be suspended from the sleeve, and a wheel adapted to engage said frame, substantially as specified.

6. A can-flanging machine having a power-shaft, a counter-shaft, an intervening clutch, a cam on the counter-shaft, a pair of arms oscillated by the cam, means for adjusting the arms, a buffer between the arms, a shaft movable with the arms, a flanged sleeve upon the shaft, a toothed work-holding frame, and a toothed wheel adapted to engage said frame, substantially as specified.

697,974. BASE-PIN FOR EXPLOSIVE PROJECTILES. CLARENCE E. BACCHUS, Windsor, Conn. Filed June 10, 1901. Serial No. 66,121. (No model.)



Claim.—1. A base-pin for a projectile consisting of a hollow body closed at one end by a primer-cap and containing a movable sleeve with an interior groove, a movable plunger with an exterior groove, and a yielding ring arranged to normally prevent the relative longitudinal movement of the plunger and sleeve and to be forced into the two grooves so as to lock the sleeve and plunger together by the backward movement of the sleeve, substantially as specified.

2. A base-pin for projectiles consisting of a hollow body closed at one end by a primer-cap and containing a movable sleeve, a movable plunger having sections of two different diameters with an exterior groove in the section having the larger diameter, and a yielding ring loosely located in a recess in the sleeve about the reduced part of the plunger so as to prevent the forward movement of the plunger until the sleeve is forced backwardly and forces the ring into the groove in the plunger and locks the plunger and sleeve together, substantially as specified.

3. A base-pin for projectiles consisting of a hollow body having a threaded exterior, a flanged head and a primer-cap closing one end, and containing a movable sleeve, a plunger with an exterior groove and a firing-pin, movable in the sleeve, and a yielding ring loosely located in a recess in the sleeve about a reduced part of the plunger so as to prevent the forward movement of the plunger until the sleeve is forced backwardly and forces the ring into the groove in the plunger and locks the plunger and the sleeve together, substantially as specified.

4. A base-pin for projectiles consisting of a hollow body having a threaded exterior, a flanged head, a primer-cap which occupies one end and is held in place by crimping the end of the body over the edge of the cap, said body containing a movable sleeve, a plunger with a firing-pin movable in the sleeve, an exterior groove in the plunger, and a yielding ring loosely located in a recess in the sleeve about a reduced part of the plunger and adapted to be forced into the groove in the plunger and expanded into the recess in the sleeve by the backward movement of the sleeve so as to lock the sleeve and plunger together, substantially as specified.

697,975. FOUNTAIN-PEN. FRANK C. BROWN, Brooklyn, N. Y. Filed Apr. 18, 1901. Serial No. 57,971. (No model.)

Claim.—1. In a fountain-pen, the combination of a feed-bar having two resilient tongues constituting feeds and adapted to receive a pen between them and a resilient brace adapted to bear upon the lower tongue with sufficient force to hold the pen and the two tongues firmly in contact.

2. In a fountain-pen, the combination of a feed-bar provided with two resilient tongues adapted to receive a pen between them and to constitute feeds, and an inclined resilient brace actuated in the feed-bar and adapted to bear firmly against the lower tongue in order to put the tongues under tension.

3. In a fountain-pen, the combination of a feed-bar provided with a plurality of tongues adapted to receive a pen between them in order to form feeds, and a removable resilient brace actuated in the feed-bar, the

aid brace exerting an upward pressure against the lower tongue of the feed.



4. In a fountain-pen, the combination with a feed of a feed-bar provided with a plurality of tongues adapted to receive a pen between them, the lower of said tongues being tilted and a flexible brace bearing against the said tilted tongue in such proximity to the tilt therein as to form with the said tilt a device for maintaining a reserve supply or body of ink.

5. In a fountain-pen, the combination of a longitudinally-movable feed-bar comprising a lower feed, the said lower feed being tilted, and a flexible brace bearing against the said lower feed and in such proximity to the tilt therein as to form with the said lower feed a device for maintaining a reserve supply of ink for the pen.

6. In a fountain-pen, the combination of a barrel which is in open communication with the air at all times, a pen-nib, a tilted under feed for the said pen-nib, a flexible brace bearing against the said under feed adapted to force the said under feed against the pen and to cooperate with the tilt in the under feed to maintain a reserve supply or body of ink in proximity to the pen.

7. In a fountain pen, the combination of a barrel having a contracted nozzle, a longitudinally-movable feed-bar contained within said barrel and furnishing an open communication with the outer air at all times, said feed-bar comprising a plurality of tongues, a pen-nib carried by the feed-bar and cooperating with the tongues, and means for preventing lateral movement of said feed-bar, said means consisting of projections extending from the feed-bar to a sliding engagement with the inner wall of the barrel.

8. In a fountain-pen, the combination of a pen-nib, two superposed feed-tongues on one side of the nib, and a third feed-tongue on the opposite side thereof.

9. In a fountain-pen, the combination of a pen-nib, a plurality of superposed feed-tongues beneath the pen-nib and the feed-tongues above the pen-nib.

10. In a fountain-pen, the combination of a longitudinally-movable feed-bar, a pen-nib carried by said feed-bar, a plurality of feed-tongues beneath said pen-nib and a feed-tongue above the same, said tongues being carried by and movable with the feed-bar and constituting part thereof.

11. In a fountain-pen, the combination of the feed or barrel, with a feed-tongue the inner surface of which is located in engagement with the nib or pen, and another feed-tongue the forward end of which engages the outer surface of the first-named feed-tongue.

12. In a fountain-pen, the combination of the barrel having an interior shoulder, with a feed-bar movable lengthwise of the barrel and provided with a shoulder arranged to engage that of the barrel, and with an end portion extending forwardly from said shoulder and carrying a writing member, the said two shoulders forming a valve-seat and a valve respectively, and means for preventing lateral movement of the feed-bar, said means consisting of projections extending from the feed-bar to a sliding engagement with the inner wall of the barrel.

13. In a fountain-pen, the combination of the feed or barrel with a feed-bar having spaced tongues adapted to receive a pen between them, and a brace carried by the feed-bar and extending to the outer surface of one of the tongues.

14. In a fountain-pen, the combination of the feed or barrel with a feed-bar having spaced tongues adapted to receive a pen between them, and a brace carried by the feed-bar and extending obliquely upward therefrom, the upper end of said brace being in engagement with the outer surface of the lower tongue.

15. The combination of a pen, a pen-carrier provided with a tongue adapted to feed ink to the under side of the pen, and a resilient brace adapted to bear against said tongue with sufficient pressure to hold the pen and tongue together and to hold a body of ink in proximity to the nib of the pen.

16. The combination of a pen and a pen-carrier provided with a plurality of tongues superposed on the same side of the pen which are adapted to feed ink to the pen and to hold a body of ink in proximity to the nib of the pen, the tongues lying adjacent to the pen being tilted.

17. The combination of a pen, a pen-carrier provided with a tongue adapted to feed ink to the under side of the pen, and a resilient brace adapted to bear on said tongue with sufficient pressure to hold the pen and tongue together and to hold a body of ink in proximity to the nib of the pen, said tongue being tilted longitudinally.

697,976. COMPOSITION FOR CLEANING METALS. VALLEY B. BROWN, Woodstock, N. H. Filed Sept. 25, 1901. Serial No. 75,687. (No specimen.)

Claim.—A metal-polishing compound consisting of the following ingredients in substantially the following proportions: calc-tallow, one and one-fourth pounds; gum-sassafras, three ounces; lavender, four ounces; rose linseed-oil, eight ounces; kerosene-oil, fifteen ounces; powdered tripoli, two pounds, and a suitable quantity of perfume.

697,977. PIPE-WRENCH. GEORGE W. BARNES, Brooklyn, N. Y., assignor to J. H. Williams and Company, Brooklyn, N. Y., a Corporation of New York. Filed Jan. 27, 1902. Serial No. 91,503. (No model.)



Claim.—1. A wrench, having, in combination, the body provided with a fixed jaw and a socket, a pivoted movable jaw having a bearing in rear of the pivot, a spring-actuated follower slightly arranged in the socket and contacting with the bearing during the movement of the pivoted jaw, the upper and lower limits of the range of movement of the upper end of said follower being respectively above and below the plane of the pivot, and within the arc described by the bearing during the movement of the jaw.

2. A pipe-wrench, having, in combination, a body terminating at its upper end in a fixed curved jaw, and provided at its rear edge with a longitudinally-arranged socket, a movable curved jaw provided with elongated depending ears taking over the lower jaw and extending down upon the body, a pivot passing through said ears and body, a spring-actuated follower slightly arranged in the socket and bearing at its upper end against the pivoted jaw at a point between the depending ears, the upper and lower limits of the range of movement of said follower being respectively above and below the plane of the pivot.

3. A wrench, having, in combination, a body terminating in a fixed jaw and provided with a socket, a movable jaw pivotally mounted on the body, a pivot therefor, a spring-actuated follower slightly mounted in said socket and having an exposed portion projecting upward therefrom and bearing at its end against the movable jaw in rear of the pivot, and guides for the exposed portion of the follower.

4. A wrench, having, in combination, a body provided with a fixed curved jaw and with a socket, a movable curved jaw pivotally mounted on said body, a pivot therefor, a spring-actuated follower slightly arranged in said socket and bearing at its upper end against the movable jaw in rear of the pivot, and curved guides for said follower located directly in rear of the pivot, with their rear edges concentric with said pivot.

5. A pivoted-jaw pipe-wrench, having, in combination, a body having a fixed jaw, a pivoted jaw on the body, and a spring-actuated follower carried by the body extending above and below the plane of the pivot and engaging the pivoted jaw.

6. A pivoted-jaw pipe-wrench, having, in combination, a body having a fixed jaw, a pivoted jaw on the body, a spring-actuated follower on the body extending above and below the plane of the pivot, and guides for the follower embracing the sides only thereof.

697,978. MACHINE FOR CUTTING BLANKS FROM FABRIC. JAMES A. GARDNER, Brooklyn, N. Y. Filed June 22, 1901. Serial No. 91,498. (No model.)



Claim.—1. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, the movable carriage mounted on said table and carrying clamping members to engage said fabric and said fabric down against said table at each side of the line of severance, and transverse guides for guiding said carriage, combined with a knife for effecting the severance of the fabric on a line intermediate said members and adapted to said members so as to be guided thereby; substantially as set forth.

2. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and said arms being of such length that when turned toward one another and to their lower position said plates will press against said fabric at each side of the line of severance, combined with a knife for covering the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

3. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and said arms being of such length that when turned toward one another and to their lower position said plates will stand on downwardly-converging lines with their lower edges pressing against said fabric at each side of the line of severance, combined with a knife for covering the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

4. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms, and said arms being of such length that when turned toward one another and to their lower position said plates will stand on downwardly-converging lines with their lower edges pressing against said fabric at each side of the line of severance, combined with a knife for covering the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

5. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, and the movable carriage mounted on said table and having the pivoted arms and clamping-plates, said plates being carried at the inner ends of said arms and said arms being of such length that when turned toward one another and to their lower position said plates will stand on downwardly-converging lines with their lower edges pressing against said fabric at each side of the line of severance, combined with a knife for covering the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

said knife having the blade, stock and handle, and said stock having downwardly-converging sides to fit against the facing surfaces of the said plates when the latter are in their lower position; substantially as set forth.

6. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, and the movable carriage mounted on said table and comprising the side bars 35, the standards 36 connected with said bars, the rods 37 connecting said standards, the pivoted arms 40, the bars 41 connecting said arms in pairs, the plates 42 secured to said bars 41, and the knife for detachably holding said bars, plates and arms in their inoperative position, said arms being of such length that when turned toward one another and to their lower position said plates will press against said fabric at each side of the line of severance, combined with a knife for covering the fabric on a line intermediate the adjoining edges of said plates; substantially as set forth.

7. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, the bars at the ends of said table over which the said fabric may be folded into a vertical series of longitudinal lengths, and means for restraining said bars against displacement under the strain of the folded fabric, combined with the movable carriage for said table, the transverse guides for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

8. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, the pins or standards 17, 20, at the ends of said table, and the bars 18, 21, perforated at one end and closed at the other and to engage said pins or standards, said bars serving to determine the length of the folds in said fabric by being confined within the ends of said lengths, combined with the movable carriage for said table, the transverse guides for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

9. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, the pins or standards 17, 20, at the ends of said table, and the bars 18, 21, perforated at one end and closed at the other and to engage said pins or standards, said bars serving to determine the length of the folds in said fabric by being confined within the ends of said lengths, combined with the movable carriage for said table, the transverse guides for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

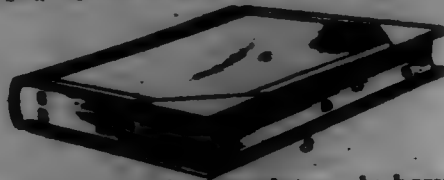
10. In a machine of the character described, the table upon which the fabric to be covered into sections or blanks may be placed, the pins or standards 17, 20, at the ends of said table, and the bars 18, 21, perforated at one end and closed at the other and to engage said pins or standards, said bars serving to determine the length of the folds in said fabric by being confined within the ends of said lengths, combined with the movable carriage for said table, the transverse guides for guiding said carriage longitudinally of said table, clamping means carried by said carriage transversely over and adapted to bind down upon said vertical series of lengths of fabric along the predetermined transverse lines of severance, and a knife for cutting through said series of lengths of fabric along the line of said clamping means; substantially as set forth.

11. In a machine of the character described, the table, means for enabling the folding thereof of the fabric into a vertical series of smooth longitudinal lengths of predetermined extent, movable clamping devices for pressing down and holding the fabric at each side of each predetermined line of severance, and a knife for covering the fabric and adapted to said clamping devices so as to be guided along the line of severance thereby; substantially as set forth.

12. In a machine of the character described, the table, means for enabling the folding thereof of the fabric into a vertical series of smooth longitudinal lengths of predetermined extent, the traveling carriage bearing the clamping-plates 43 for pressing down and holding the fabric at each side of each predetermined line of severance, said plates when in their lower position being on lines converging downward toward one another, combined with the knife for covering the fabric and having the stock whose opposite sides are adapted to the converging faces of said plates so as to be guided thereby; substantially as set forth.

697,979. DOCK. EDWARD P. GALT, Louisville, Ky. Filed June 1, 1901. Serial No. 68,703. (No model.)

Claim.—1. As an improved article of manufacture, a book provided on the surfaces exposed to view with distinguishing markings, especially arranged markings being placed side by side, some of the markings being at right angles to others, whereby one of the marks will always be exposed in an upright position, substantially as described.



2. As an improved article of manufacture, a book provided with distinguishing markings upon one of its edges, the markings being arranged in groups comprising marks inverted with respect to each other, some of the groups being at right angles to others so that one of said marks is always in position to be read, whereby the identity of the book can be readily ascertained, substantially as described.

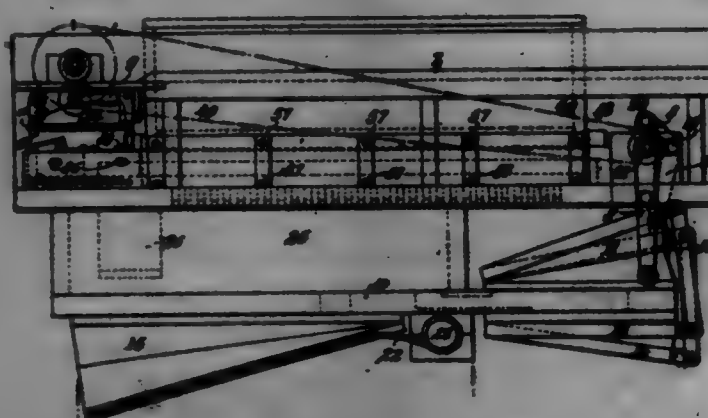
3. As a new article of manufacture, a book provided with distinguishing marks on one of its edges, the said marks being arranged near the opposite corners of the book, and being reversed with respect to each other, and some of said marks being at right angles to others whereby one of said marks will always be exposed in an upright position, substantially as described.

4. A book provided on one of its edges with markings in duplicate sets, one set near one corner of the book and the other set near the opposite corner, each set consisting of two markings reversed in position with relation to each other and the two sets being duplicate in position and character, whereby when the book is laid down spread open one of the marks of the set will be exposed to view in an upright position, substantially as described.

5. A book provided with two sets of markings on its edges, each marking of each set being reversed in position with relation to the other mark of the set, and some of the groups being arranged to read longitudinally of the edge while other groups are arranged to read transversely of the edge, whereby some one of the marks will always be in an upright position, substantially as described.

6. A book provided with distinguishing marks arranged on the edges of its leaves, the marks being arranged in pairs, one of each pair being near one corner of the book while the other one of each pair is near the other corner of the book, and some of the pairs being at right angles to others so that some one of the markings will always be in an upright position as to be easily read, substantially as described.

697,980. AUTOMATIC MUSICAL INSTRUMENT. JULIUS CARPENTIER, Paris, France. Filed Dec. 17, 1900. Serial No. 40,107. (No model.)



Claim.—1. In a musical instrument, the combination of a series of movable parts, means for moving each of said parts from a normal to a displaced position, whereby various positions of said parts relatively to each other may be obtained, a series of sound-producing devices and means controlled by the relative positions of said moving parts for operating the individual sound-producing devices, whereby the latter are individually selected and sounded according to the different permutations of the displaced and unmoved parts.

2. In a musical instrument, a controlling means comprising a series of moving parts arranged approximately parallel to one another, and each movable from a normal to a displaced position, and having differently-spaced operative portions, whereby said operative portions shall be put into different operative relations as different groups of said parts are displaced, and sound-producing devices in operative relation to said controlling means, whereby the latter are individually selected and sounded according to the different permutations of the displaced and unmoved parts.

3. In a musical instrument, a controlling means comprising a series of moving parts arranged approximately parallel to one another, and each

movable from a normal to a displaced position, and having differently-spaced operative portions, whereby said operative portions shall be brought into alignment as different groups of said parts are displaced, and sound-producing devices in operative relation to said controlling means, whereby the latter are individually selected and sounded according to the different operative portions are brought into alignment by the movement of different groups of said parts.

4. In a musical instrument, the combination with a series of sound-producing devices and a means for generating air-pressure, of a transmitting or controlling mechanism connected to said means, comprising a plurality of plates having passages formed through them, said passages being disposed at different intervals in different plates, and means for moving groups of said plates to positions in which their passages may successively establish communication between said pressure-generating means and the individual sound-producing devices.

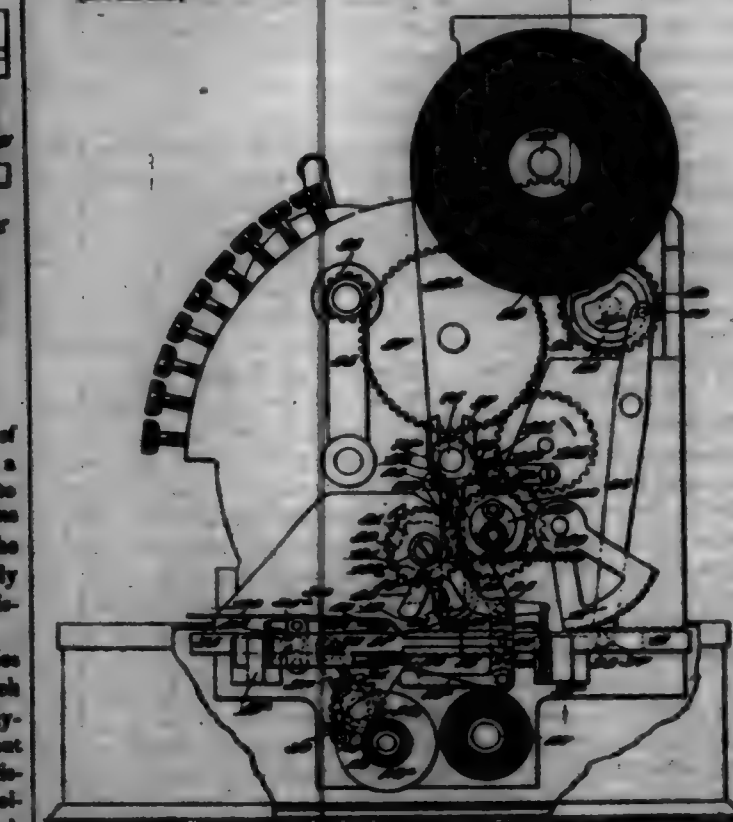
5. In a musical instrument, the combination with a series of sound-producing devices, and a means for generating air-pressure, of a transmitting or controlling mechanism connected to one side in such means, and at its other side to said devices separately, and comprising a plurality of plates, each movable from a normal to a displaced position, and having passages formed through it, said passages being differently spaced in the different plates so that by the movements of different groups of said plates from their normal to their displaced positions a connecting-passages is formed across said plates from said means to each of said sound-producing devices separately, and means for so moving groups of said plates.

6. In a musical instrument, the combination with a series of sound-producing devices, means for producing a flow of air through said devices, and an actuating mechanism for each of said devices adapted to connect it with said means, of a transmitting or controlling mechanism comprising a plurality of registers having passages formed through them, differently spaced in the different registers so that by moving said registers singly or in groups communication is cut off from all of the sound-producing devices except the single one which it is desired to actuate, and means for so moving said registers.

7. In an automatic musical instrument, the combination of a traveling sheet, a feed-roll for said sheet, means for depressing said roll to stop the feed of said sheet, and a series of fingers each adapted to be engaged by a part moving with said roll when the latter is depressed, whereby to disengage said fingers from said sheet when the latter is stopped.

8. In an automatic musical instrument, a means for controlling the air-pressure in two connected compartments, comprising a weighted valve, a piston connected to said valve, and a cylinder in which said piston moves.

697,981. CASH-REGISTER. THOMAS CANNON, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 17, 1900. Serial No. 27,104. (No model.)



Claim.—1. In a cash-register, the combination with a series of operating-segments arranged to be moved different distances and carrying

just, a series of nested sleeves supporting said arms and printing device connected to said sleeves.

3. In a cash-register, the combination with a series of operating-segments, of a series of dotted arms engaged by projections on said segments, nested sleeves operated by said arms, said segments carried by said sleeves, rack-bars meshing with said latter segments and carrying printing-types and printing device cooperating with said types.

4. In a cash-register, the combination with a series of operating-segments, of a series of dotted arms engaged by projections on said segments, nested sleeves operated by said arms, rack-segments carried by said sleeves, rack-bars meshing with said rack-segments and carrying types upon their upper and lower edges, and plates cooperating with the respective ends of types.

5. In a cash-register, the combination with a series of operating-segments, of a series of dotted arms cooperating therewith, a series of nested sleeves supporting said arms, rack-segments carried by said sleeves, a series of rack-bars meshing with said segments and carrying types upon their upper and lower edges, plates cooperating with the ends of types for respectively printing a detail-strip and a check and means for throwing the check-plates out of operative position at will.

6. In a cash-register, the combination with a series of operating-segments carrying anti-friction-rollers, of a series of dotted arms into which said rollers project, a series of nested sleeves supporting said arms, a series of rack-segments carried by said sleeves, a series of rack-bars meshing with said segments, and carrying types, a plate, and means for throwing said plate into and out of operative position.

7. In a cash-register, the combination with a series of operating-segments, of a series of dotted arms cooperating therewith, a series of nested sleeves supporting said arms, a series of rack-segments mounted on said sleeves, type-bars operated by said rack-segments, a slide carrying locking-arms, plates arranged to operate the locking-arms, a lever for moving the slide, and a cam connected to the movable parts of the machine for operating said lever.

8. In a cash-register the combination with a driving-shaft, of driven members arranged to be uncoupled from the driving-shaft by the keys, type-carriers, means connecting the carriers to the driven members, strip-feeding devices, a slide operating a knife and a cam on the driving-shaft for operating said slide.

9. In a cash-register, the combination with operating devices, of a printing mechanism comprising a series of types, locking-arms, a slide for operating said arms, plates for forcing said arms into contact with the types, means connected to the movable parts of the machine for operating said slide, a detail-strip feed-roller operated from said slide, means for operating the plates, and device for rendering one of the plates inoperative.

10. In a cash-register, the combination with a series of keys, of a driving member, driven rack members, device for coupling said segments to the driving member arranged to be tripped by the operated keys, anti-friction-rollers mounted on the rack-segments, pivoted arms having cam-ends into which said rollers project, type-carriers and nested sleeves connecting said arms and carriers.

11. In a cash-register, the combination with a series of keys, of a driving member, driven rack members, arranged to be uncoupled from the driving member by the keys, anti-friction-rollers mounted on the rack members, a series of nested sleeves, arms mounted on said sleeves and formed with cam-ends for the reception of the anti-friction-rollers, type-carriers and means connecting said sleeves and carriers.

12. In a cash-register, the combination with a series of keys, of a driving member, driven rack members arranged to be uncoupled from the driving member by the keys, pivoted dotted arms engaging projections on said rack members, type-carriers, and means connecting said arms and carriers.

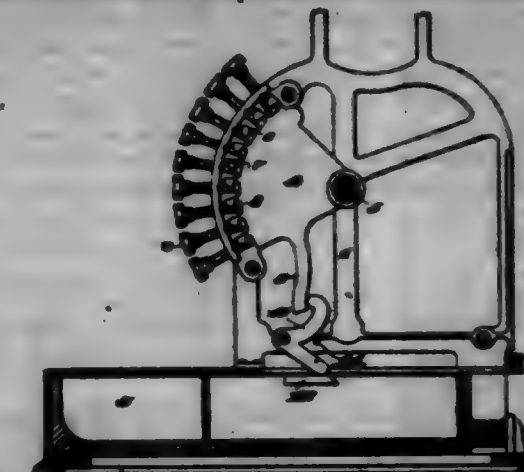
13. In a cash-register, the combination with a series of keys, of a series of rack-segments, movable means mounted on said segments and arranged to engage an operated key to arrest the segment, a series of dotted arms, projections on the segments extending into the slots of said arms, a series of type-carriers and means connecting the dotted arms and carriers.

697,982. CASH-REGISTER. JAMES P. GRAY, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 3, 1900. Serial No. 7,125. (No model.)

Claim.—1. In a cash-register, the combination with a series of keys, of a detail having locking-notches for the same, a cash-drawer, and means for holding the detail so that its notches are out of alignment with the keys when the drawer is closed and in such alignment when the drawer is open.

2. In a cash-register, the combination with a series of keys provided with pins, of a detail having locking-notches for said pins, a cash-drawer,

and means intermediate the cash-drawer and detail whereby when the drawer is closed the locking-notches are held out of alignment with the pins but when the drawer is opened are moved into such alignment.



3. In a cash-register, the combination with a movable detail formed with locking-notches, of a series of keys radially mounted in respect to said detail so that when operated they become seated in said notches and exert a pressure directly toward the point of support of said detail and are thus locked against operation and means for moving the detail.

4. In a cash-register, the combination with a pivoted detail having a series of locking-notches, of a series of radially-arranged keys adapted when operated to become seated in said notches and exert a pressure toward the pivot of the detail, a cash-drawer and means intermediate the drawer and detail for adjusting the latter to bring the notches into the paths of the keys when the drawer is opened.

5. In a cash-register, the combination with a series of keys provided with laterally-projecting pins, of a pivoted detail having bevel projections formed with locking-notches and arranged to be engaged by said pins, a cash-drawer, and means intermediate the cash-drawer and detail whereby when the drawer is closed the locking-notches are held out of alignment with the pins but when the drawer is opened are moved into such alignment.

6. In a cash-register, the combination with a series of keys, of a detail having key-locking notches and a pendulum arm, and means operated by the cash-drawer and engaging said arm to move the detail so that the notches are out of locking position when the drawer is closed and in locking position when the drawer is open.

7. In a cash-register, the combination with a series of keys, of a detail arranged to be engaged by the keys and formed with retaining-notches and key-locking notches, the latter normally out of the paths of the keys, a cash-drawer and means intermediate said drawer and detail whereby when the drawer is opened the detail is moved to bring the locking-notches into the paths of the keys to lock the latter.

8. In a cash-register the combination with a series of keys, of a detail having key-locking notches which are normally out of the paths of the keys, a cash-drawer, a pivoted lever arranged to be operated by said cash-drawer and means intermediate said lever and the detail whereby the latter is operated to bring the notches into the paths of the keys to lock the same.

9. In a cash-register, the combination with a series of keys of a detail therefor having locking-notches which are normally out of the paths of the keys and also a pendulum arm, a cash-drawer, a pivoted lever engaging said arm, a pivoted lever arranged to be operated by the cash-drawer and a pivoted link connecting said levers, the construction being such that the notches are brought into the paths of the keys when the cash-drawer is opened.

10. In a cash-register, the combination with a series of keys having laterally-projecting pins, of a pivoted detail having locking-notches which cooperate with said pins, a pendulum arm mounted on said detail, a cash-drawer, a pivoted lever arranged to be engaged by the rear wall of said drawer, a pivoted lever engaging the pendulum arm, and a pivoted link connecting said lever.

11. In a cash-register, the combination with a pivoted detail having radial projections formed with locking-notches, of a series of radially-arranged keys adapted to cooperate with said projections and locking-notches, a cash-drawer and means intermediate said drawer and detail whereby the notches are held in alignment with the keys when the drawer is open.

12. In a cash-register, the combination with a movable detail having bevel-disk projections formed with locking-notches and retaining-notches, of keys having projecting pins which cooperate with said projections and notches and independent means for moving the detail to bring the locking-notches into the paths of said pins and thus prevent the depression of the keys.

13. In a cash-register, the combination with a movable detent formed with bevel-face projections having locking-notches, of a series of keys arranged to engage said projections and then move the detent, and independent means for moving the detent to bring the locking-notches into the path of the keys and then prevent the latter from being depressed.

14. In a cash-register, the combination with a series of keys, of a movable member formed with locking-notches and arranged to be operated by the movement of any key to allow the keys to become latched thereto, and a cash-drawer directly engaging said member to move it and bring the locking-notches into alignment with the keys to prevent the depression of the latter.

15. In a cash-register the combination with a series of keys, of a sliding detent, a series of projections arranged to retain an operated key in depressed position, said detent being given a limited movement whenever a key is depressed, of a cash-drawer and means controlled thereby for moving the detent into position to lock the unoperated keys of the series when the cash-drawer is opened.

16. In a cash-register the combination with a series of keys having lateral projections or pins, of a cooperating detent arranged to retain the operated keys in depressed position, a cash-drawer and means for moving the detent into position to lock the keys when the cash-drawer is opened.

697,988. ARTIFICIAL DENTURE. FRANK H. E. COCHRAN, Canal Winchester, Ohio. Filed Dec 7, 1901. Serial No. 86,061. (No model.)

Claim.—1. An artificial tooth, consisting of a body portion having substantially the shape of the natural tooth for which it is to be substituted and having that portion between the cervical border and the root or gum end of the tooth reduced in diameter, thereby forming at the cervical border an annular shoulder which faces toward the root or gum end of the tooth.

2. An artificial tooth, having substantially the shape of the tooth which it is to replace and provided at its cervical border with an annular shoulder extending entirely around the tooth and facing toward the root or gum end of the tooth, the portion of the tooth between this shoulder and the gum end being reduced in diameter and provided with a recess, as and for the purposes set forth.

3. In a dental bridge, in combination, a bridge consisting of an annular socket-band and means for attaching it to the permanent teeth, and an artificial tooth fitted in and supported by said socket-band, whereby the artificial tooth will be firmly supported all around and have a crown portion of substantially the shape and area of the natural tooth it is to replace.

4. In a dental bridge, the combination of a bridge consisting of an annular socket-band and means for attaching it to the permanent teeth, and an artificial tooth fitted in and extending through said socket-band and shouldered at its cervical border to abut against the edge of said socket-band entirely around it for the purposes set forth.

5. In a dental bridge, the combination of a bridge consisting of an annular socket-band of malleable metal, means for attaching it to the permanent teeth, and an artificial tooth fitted in and extending through said socket-band and shouldered to fit against one of its edges, said artificial tooth being provided with a recess and a portion of the metal socket-band being forced into said recess to lock the tooth in the socket-band.

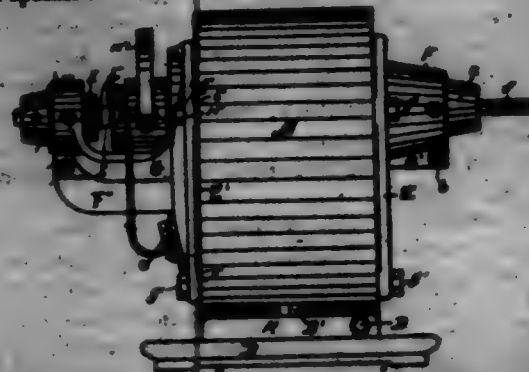
6. In a dental bridge, the combination of a bridge proper consisting of two or more annular socket-bands cased together at their adjoining faces and provided with means for securing them to natural teeth in the mouth, and an artificial tooth fitted in and extending through each of said socket-bands, and means for supporting and locking said tooth in their respective socket-bands for the purposes set forth.

7. In a dental bridge, the combination of a bridge proper consisting of an annular socket-band, means for attaching said band to the adjacent natural teeth, and an artificial tooth having its root or gum end reduced in diameter and fitted in and extending through said band, the shoulder then formed at the cervical border by reducing the diameter of the tooth fitting against the edge of the socket-band all around, and means for fastening the tooth in said socket-band, for the purposes set forth.

697,984. ELECTRIC MOTOR. OLIVER F. GOSLIN and John L. Harvey, Dayton, Ohio. Filed Aug. 20, 1901. Serial No. 78,706. (No model.)

Claim.—1. In an electric motor, a casing comprising a cylindrical yoke having three threaded studs projecting from opposite sides thereof, heads including the sides of said yoke each of which has three openings

corresponding with the positions of the studs on the yoke, the said openings being surrounded on the inner sides of the heads by bosses which enable said heads to fit properly against the sides of the yoke, the openings in said heads and the studs on the yoke enabling said heads to be quickly and accurately placed in proper position on the yoke, substantially as specified.



2. In an electric motor, a motor-casing comprising a cylindrical yoke having three threaded studs projecting from opposite sides thereof, heads E and F each of which has three openings, the positions of which correspond to the positions of said studs, the said openings being surrounded on the inner sides of the heads by bosses for the purpose specified, the head E being provided with an integral cone-shaped clamp-bearing adapted to receive a journal-box, the head F being provided with a bracket projecting therefrom which terminates in a clamp-bearing also adapted to receive a journal-box, substantially as specified.

3. In an electric motor, the combination with a yoke having three screw-threaded studs projecting therefrom, of heads provided with three stud-openings surrounded by bosses on the inner sides of said heads, the said stud-openings being in line with the screw-threaded studs on the yoke, integral clamp-bearings projected from said heads, and journal-bones secured within said clamp-bearings, the said journal-bones having annularly-projected surfaces rounded in cross-section and which portions engage with the interior surfaces of said clamp-bearings, whereby the said journal-bones are permitted to adjust themselves to the proper axial diameter of the main shaft, substantially as specified.

4. In an electric motor, the combination with a yoke having three screw-threaded studs projecting therefrom, heads provided with three stud-openings surrounded by bosses on the inner sides of said heads, the said stud-openings being in line with the screw-threaded studs on the yoke, integral clamp-bearings projected from said heads, and journal-bones secured within said clamp-bearings, the said journal-bones having annularly-projected surfaces rounded in cross-section and which portions engage with the interior surfaces of said clamp-bearings, a rocker-arm clamped to one of said journal-bones, and brush-holders secured to said rocker-arm, all arranged substantially as specified.

5. In an electric motor, the combination with a yoke having an opening in the base thereof of uniform diameter, of a pole-piece having a shank or body portion of uniform diameter throughout and which is adapted to enter said opening in the yoke, the said shank or body portion being provided after the pole-piece has been adjusted to its proper position, and a screw adapted to penetrate laterally the yoke and enter the recess in said pole-piece, substantially as specified.

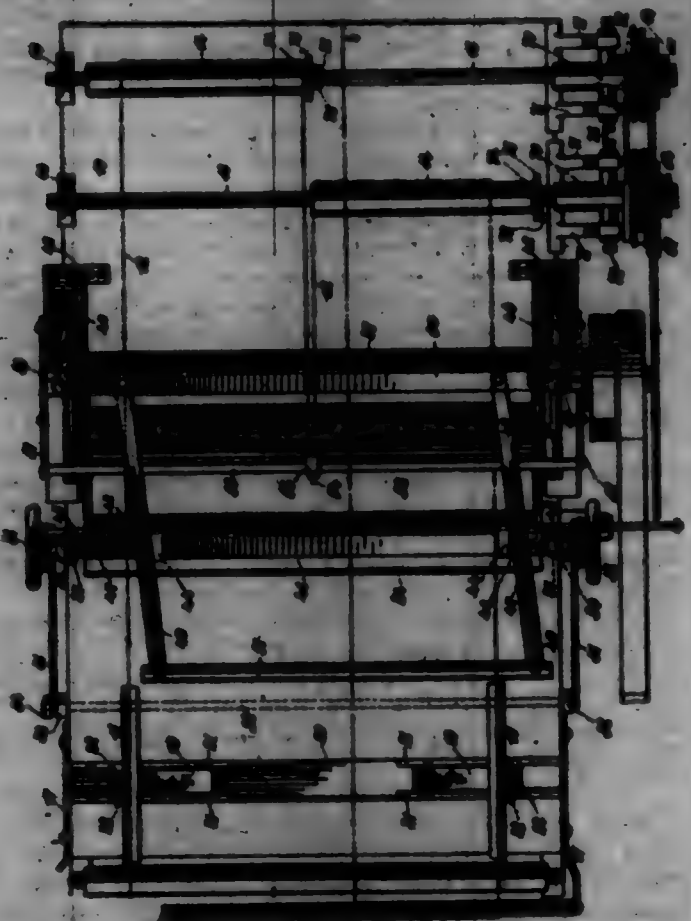
6. In an electric motor, the combination with a motor-yoke, of a single active pole-piece, the shank or body portion thereof being of uniform diameter throughout and adapted to enter an opening of similar diameter in the base of said yoke, means for securing said pole-piece in position after it has been adjusted to its proper position, and heads including the sides of the motor-casing, the pole-piece being entirely housed within the motor-yoke and said heads.

7. In an electric motor, the combination with a yoke, of a base-plate upon which said yoke is mounted, the said base-plate being provided with four guide-surfaces which insure a proper mounting of the yoke thereon, oblong openings in said base-plate, screws penetrating the base of the yoke and passing through said oblong openings, a bar below the base-plate to which said screws are connected, and a horizontal adjusting-screw mounted on the top of the base-plate and adapted to shift the motor-casing to adjust it to proper position, substantially as described.

697,985. MACHINE FOR SLITTING FABRIC. WILLIAM E. COCHRAN, Hyatt, and JAMES A. COCHRAN, Brooklyn, N. Y. Filed June 20, 1901. Serial No. 86,062. (No model.)

Claim.—1. In a machine for slitting a fabric into longitudinal strips, the supporting-table, the feed-roller 26, 27, for drawing the fabric through the machine, and a tension device for engaging and acting on the entire width of the fabric and maintaining a tension on that portion of

the fabric between it, said tension device, and said roller, a free space being provided beneath said portion of the fabric under tension, combined with the knife rigidly held in the path of said fabric intermediate said tension device and said rollers and adapted to engage and slit the fabric as the latter is moved forward against it; substantially as set forth.



2. In a machine for cutting a fabric into longitudinal widths, the supporting-table, the feed-rollers 26, 27, for drawing the fabric through the machine, and a tension device for engaging and acting upon the entire width of fabric and maintaining a tension on that portion of the fabric between it, said tension device, and said rollers, said fabric passing at an angle from said tension device to said rollers with a free space provided beneath the same, combined with a knife rigidly held in the path of said fabric and at an angle thereto intermediate said tension device and said rollers and adapted to engage and slit the fabric as the latter is moved forward against it; substantially as set forth.

3. In a machine for cutting a fabric into longitudinal widths, the supporting-table, the feed-rollers 26, 27, for drawing the fabric through the machine, and a tension device for engaging and acting upon the entire width of fabric and maintaining a tension on that portion of the fabric between it, said tension device, and said rollers, a free space being provided beneath said portion of the fabric under tension, combined with the knife rigidly held in the path of said fabric intermediate said tension device and said rollers and adapted to engage and slit the fabric as the latter is moved forward against it; the transverse bar 28 from which said knife is supported, and means for securing said knife in predetermined positions along said bar in accordance with the widths of fabric to be formed; substantially as set forth.

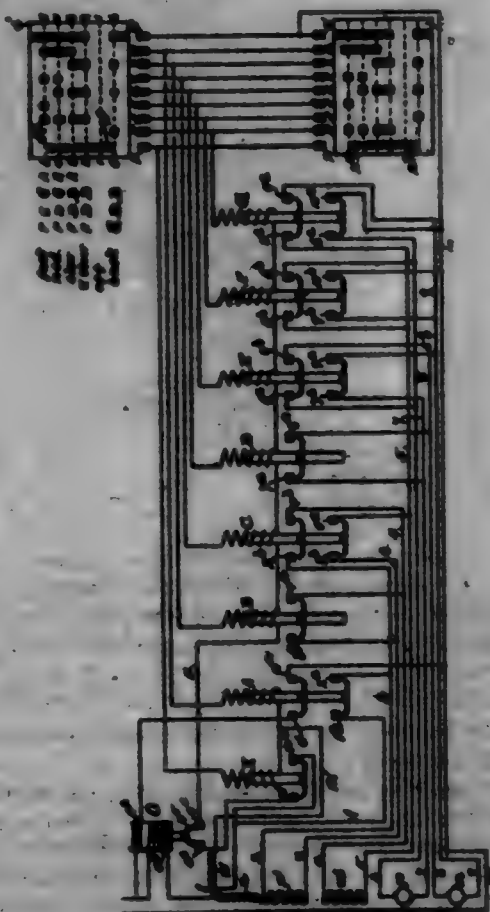
4. In a machine for cutting a fabric into longitudinal widths, the supporting-table, the feed-rollers 26, 27, for drawing the fabric through the machine, and a tension device for engaging and acting upon the entire width of fabric and maintaining a tension on that portion of the fabric between it, said tension device, and said rollers, a free space being provided beneath said portion of the fabric under tension, combined with the knife rigidly held in the path of said fabric intermediate said tension device and said rollers and adapted to engage and slit the fabric as the latter is moved forward against it, the roll to receive and wind up the severed width of fabric, the shaft upon which said roll is detachably mounted, means for rotating said shaft and roll, the swiveling bearing in which one end of said shaft is mounted, and a bearing for detachably holding the other end of said shaft; substantially as set forth.

5. In a machine for cutting a fabric into longitudinal widths, the tension device for acting on the fabric while the latter is fed through the machine, and the feed-rollers 26, 27, to which the fabric passes after leaving the said tension device, combined with the knife adapted to engage and slit the travelling fabric into widths, and the means for raising and permitting the lowering of said roller 27, said means comprising the wedge-bar below and adapted to engage said lever-arm, and the pivoted and laterally-movable frame for engaging and operating said wedge-bar; substantially as set forth.

has adapted to engage the shaft portions of the said roller; and the lever mechanism for operating said wedge-bar; substantially as set forth.

6. In a machine for cutting a fabric into longitudinal widths, the tension device for acting on the fabric while the latter is fed through the machine, and the feed-rollers 26, 27, to which the fabric passes after leaving the said tension device, combined with the knife adapted to engage and slit the travelling fabric into widths, and the means for elevating and permitting the lowering of said roller 27, said means comprising the lever-arm disposed below the ends of the shaft for said roller 27, the wedge-bar below and adapted to engage said lever-arm, and the pivoted and laterally-movable frame for engaging and operating said wedge-bar; substantially as set forth.

697,986. CONTROLLER FOR ELECTRIC VEHICLES. HENRY E. OUTLER, Chicago, Ill. Filed Aug. 24, 1906. Serial No. 736,364. (No model.)



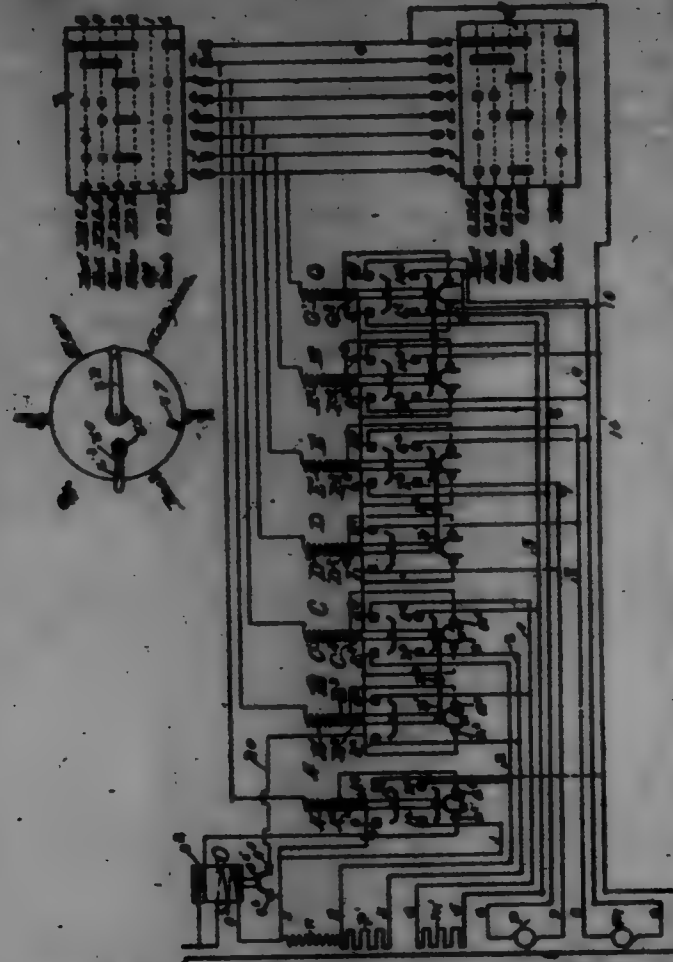
Claim.—1. In a controller, the combination with the several elements of the power-supply to be connected in varying relations, of contacts connected therewith, a plurality of solenoids for controlling the several contacts, a switching device for controlling said solenoids and a master-solenoid for controlling the circuit through said several solenoids, substantially as described.

2. In a controller, the combination with the several elements of the power-supply to be connected in varying relations, of contacts connected therewith, a plurality of solenoids for controlling the several contacts, a switching device for closing circuit through the solenoids as desired and a master-solenoid for decreasing the current through the working solenoids after the same have attracted their cores, substantially as described.

3. In a controller, the combination with the several elements of the power-supply to be connected in varying relations, of contacts connected therewith, a plurality of solenoids for opening and closing circuit through the several contacts, a controller-roller and brushes co-operating therewith to close circuit through the respective solenoids, a master-solenoid and a brush associated therewith and adapted to co-operate with the controller-roller to energize the master-solenoid and de-energize the current through the other solenoids, substantially as described.

4. In a controller, the combination with the several elements of the power-supply to be connected in varying relations, of contacts connected therewith, a plurality of solenoids for opening and closing circuit through the several contacts, a controller-roller and brushes co-operating therewith to close circuit through the respective solenoids, a master-solenoid, a brush connected therewith and contacts on the controller-roller arranged to engage said brush to close circuit through the master-solenoid while the controller is being moved from one position to another and to disengage said brush when the controller-roller occupies one of the positions of rest thereof, substantially as described.

697,987. CONTROLLER FOR ELECTRIC VEHICLES. Ernst H. Outler, Chicago, Ill. Filed Aug. 24, 1938. Serial No. 738,388. (No model.)



Claim.—1. In a controller for electric motors, the combination with the fields and the armatures of a pair of electric motors, of contacts arranged to connect the fields either in series or in parallel relation, contacts arranged to connect the armatures either in series or in parallel relation independently of said fields, a plurality of solenoids for controlling circuit through the several contacts, and a switching device for actuating the solenoids, substantially as described.

2. In a controller for electric motors, the combination with the field and the armatures of a pair of electric motors, of resistances associated with the armatures and the fields, contacts for controlling circuit through said resistances, contacts for connecting the fields in series or parallel, contacts for connecting the armatures in series or parallel independently of said fields, a plurality of solenoids for controlling said contacts, and a switching device for connecting the several solenoids in circuit as desired, substantially as described.

3. In a controller, the combination with a plurality of contacts, of a plurality of solenoids for controlling circuit therethrough, one end of each solenoid being connected with one side of the supply-circuit, a series of brushes one connected with the opposite end of each solenoid, and a contact-plate connected with the opposite side of the supply-circuit and having raised contact-surfaces arranged to engage the respective brushes to close circuit through the several solenoids, substantially as described.

4. In a controller, the combination with the several elements of the source of power supply to be connected in varying relations, of contacts connected therewith, a plurality of solenoids for controlling the circuits through the several contacts, and solenoids being provided with main and auxiliary windings, and a short-circuit normally provided across the auxiliary winding and adapted to be opened when the arc is attracted to thereby connect the auxiliary winding in circuit, substantially as described.

5. In a controller, the combination with the several elements of the source of power-supply to be connected in varying relation, of contacts connected therewith, a plurality of solenoids for controlling the circuits through the several contacts, and an over-ride solenoid for controlling the circuits through the solenoids, substantially as described.

3. In a controller, the combination with the several elements to be connected in varying relations of contacts connected therewith, a plurality of solenoids for controlling the circuits through the several contacts, and an overcoil-solenoid for controlling the circuits through the solenoids, and an overcoil-solenoid being provided with a series winding and a shunt-winding, and a solenoid for controlling the circuit through said shunt-winding, substantially as described.

7. In a controller for electric motors, the combination with a pair of electric motors, and a solenoid for connecting the fields thereof in parallel,

a solenoid for connecting said fields in series, a switching apparatus for closing circuit through the solenoids, and separate means for varying the circuit connection of the armatures of said motors, substantially as described.

3. In a controller for electric motors, the combination with a pair of electric motors, of a solenoid for connecting the fields thereof in parallel, of a solenoid for connecting said fields in series, a connection between the cores of said solenoids whereby but one of said cores can be attracted at a time, and overruling apparatus for closing circuits through the solenoids, substantially as described.

2. In a controller for electromotors, the combination with a pair of motors, of a colenoid for connecting the armatures thereof in series, a solenoid for connecting the armatures in parallel, switching apparatus for closing circuit through said solenoids, and separate means for varying the direct connections of the field of said motors, substantially as described.

10. In a controller for electric motors, the combination with a pair of motors of a solenoid for connecting the armature thereof in series, a solenoid for connecting the armature in parallel, a connection between the cores of said solenoids whereby but one of said cores can be attracted at a time, and switching apparatus for closing circuit through the solenoids, substantially as described.

11. In a controller for electric motors the combination with a pair of electric motors, of a solenoid for connecting the armatures thereof in circuit in one direction, a solenoid for connecting the said armatures in the reversed direction, switching apparatus for closing circuits through the solenoids, and separate means for varying the current arrangement of the field of said motors, substantially as described.

12. In a controller for electric motors, the combination with a pair of electric motors, of a solenoid for connecting the fields thereof in circuit in series, a solenoid for connecting said fields in parallel, switching apparatus for closing circuit through the solenoids, and separate means for varying the circuit arrangement of the armatures of said motors, substantially as described.

13. In a controller for electric motors, the combination with a pair of electric motors, of a solenoid for connecting the fields thereof in parallel, a solenoid for connecting the fields thereof in series, a solenoid for connecting the armatures thereof in parallel, a solenoid for connecting the armatures thereof in series, and switching apparatus for closing circuit through the several solenoids, substantially as described.

14. In a controller for electric motors, the combination with a pair of electric motors, of a solenoid for connecting the fields thereof in parallel, a solenoid for connecting the fields thereof in series, a solenoid for connecting the armatures in circuit in one direction, a solenoid for connecting the armatures in circuit in the opposite direction, and reversing apparatus for changing circuit through said several solenoids, substantially as described.

15. In a controller for electric motor, the combination with a pair of electric motor, of a solenoid for connecting the armature thereof in series, a solenoid for connecting said armatures in parallel, a resistance, a solenoid for connecting said resistance in closed circuit with said armature, and overrunning apparatus for closing circuit through said solenoid solenoids, substantially as described.

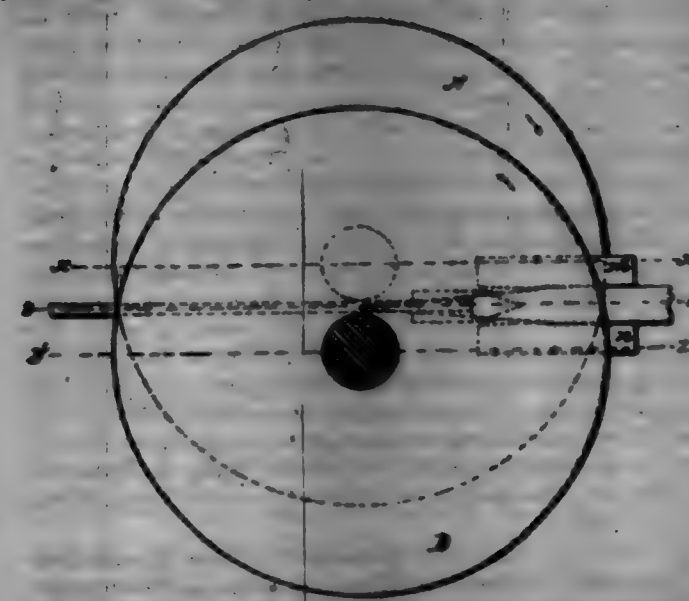
16. In a controller for electric motors, the combination with a pair of electric motors having stator fields, of a solenoid through said stator fields, a solenoid for controlling the crumsters in series, a solenoid for controlling the crumsters in parallel, a resistance, a solenoid for controlling the crumsters in series, and switching apparatus for closing circuit through the several solenoids, substantially as described.

697,988. FINISHING AND SHAPING METALLIC GOODS. LAM-
AND B. DAVIS, Erie, Pa. Filed May 2, 1900. Serial No. 715,204. (No
model.)

Claim.—1. A rolling mechanism comprising two opposed disks or rolls having their axes arranged in different planes $a' a'$ and $a'' a''$, respectively, and also in intersecting planes $a' a'$ and $a' a''$, the contact portions of the opposing faces of said disks or rolls converging toward their axes, the convergences and the shape of said opposing faces being such that the decreasing diameter of the billet between them compensates for the decreasing speed of said faces toward the axes of the disks or rolls, whereby every point in the surface of the billet has the same speed of rotation about the axis of the billet and twisting of the billet by the action of said contact-faces is wholly avoided.

2. A rolling mechanism comprising two opposed disks or rolls having their axes arranged in different planes σ' and σ'' , respectively, and also in intersecting planes σ' and σ'' , the contact portions of the opposing faces of said disks or rolls converging toward their axes, the convergence and the shape of said opposing faces being such that the decreasing diameter of the fillet between them compensates for the decrease

ing speed of said flange toward the axis of the disks or cone, whereby every point in the surface of the billet has the same speed of rotation about the axis of the billet and twisting of the billet by the action of said contact-flange is wholly avoided, and a mandrel located in the line of the pass and between the contacting flange of the disks.



3. A rolling mechanism comprising two opposed disks or rolls having their axes arranged in different planes $s's'$ and $s''s''$, respectively, and also in intersecting planes $s's'$ and $s''s''$, the contact portions of the opposing faces of said disks or rolls converging toward their axes, the convergences and the shape of said opposing faces being such that the decreasing diameter of the billet between them compensates for the decreasing size of said faces toward the axes of the disks or rolls, whereby every point in the surface of the billet has the same speed of rotation about the axes of the billet and twisting of the billet by the action of said contact-faces is wholly avoided, said contact-faces rotating in opposite directions toward said axes, whereby the direction of the pass is from the outer contacting portions of the disk toward said axes.

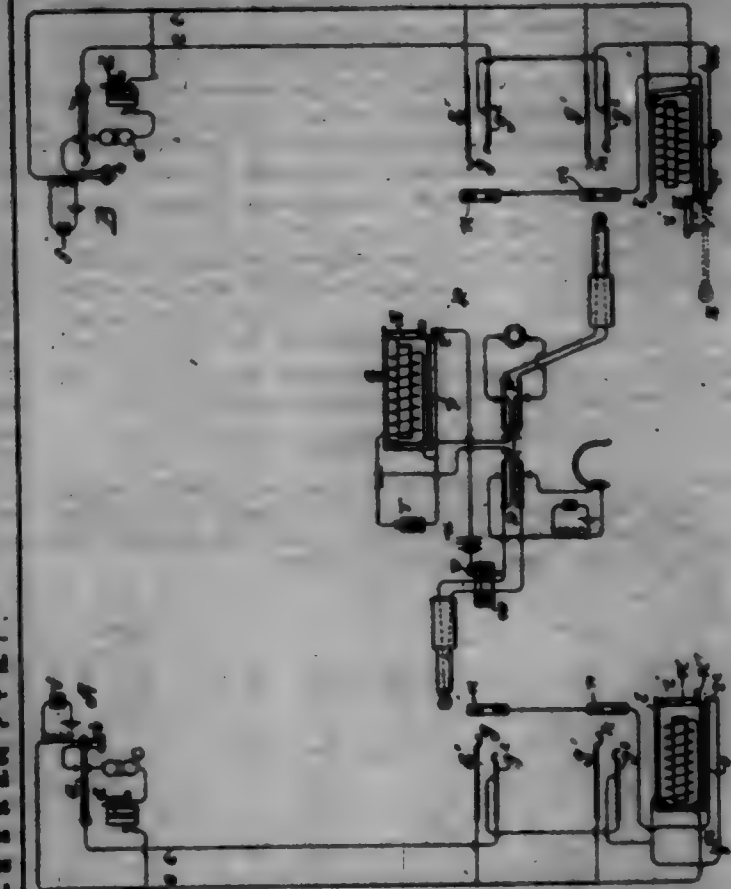
4. A rolling mechanism comprising two opposed disks or rolls having their axes arranged in different planes s and s' , respectively, and also in intersecting planes σ and σ' , the contact portions of said disks or rolls converging toward their axis, the convergences and the shape of said opposing faces being such that the decreasing diameter of the billet between them compensates for the decreasing speed of said faces toward the axis of the disks or rolls, whereby every point in the surface of the billet has the same speed of rotation about the axis of the billet and twisting of the billet by the action of said contact-faces is wholly avoided, said contact-faces rotating in opposite directions toward said axis, whereby the direction of the pass is from the outer contacting portions of the disks toward said axis, and a mandrel located in the line of the pass and between the contacting faces of the disks and pointing away from the axis of the rolls.

8. A rolling mandrel comprising two opposing discs or rolls having their axes arranged in different planes $\alpha \alpha'$ and $\alpha \alpha'$, respectively, and also intersecting planes $\sigma \sigma'$ and $\sigma \sigma'$, the contacting portions of said discs or rolls converging toward the axes, the convergence and the shape of said opposing faces being such that the diametrical diameter of the billet between these components for the decreasing speed of said discs toward the axes of the discs or rolls, whereby every point in the surface of the billet has the same speed of rotation about the axis of the billet and twisting of the billet by the action of said contact faces is wholly avoided, said contact faces rotating in opposite directions toward said axes, whereby the direction of the pass is from the outer contacting portions of the discs toward said axes, said discs also provided with the spreading faces $\beta \beta'$ leading from the narrowest point in the pass toward the center of the discs, in combination with an enlarging mandrel located in the pass between the surfaces $\beta \beta'$ and pointing away from the axes of the rolls.

697,989. TELEPHONE-EXCHANGE SYSTEM. WILLIAM M. DAVIS, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 7, 1922. Serial No. 22,905. (No model.)

Class.—1. In a telephone-exchange system, the combination with a telephone-line extending from a subscriber's station to an exchange, of a line-indicator at the exchange provided with signal-revealing means, means whereby the said line-indicator may be operated to effect a signal, restoring means for restoring the signal-revealing means, means controlled by the signal-revealing means for governing the operation of the restoring means in part, and a combining appliance for connecting the said tele-

phone-line in telephonic communication with another telephone circuit, said switching appliance serving in conjunction with the signal-receiving means to jointly control the operation of the restoring means, substantially as described.



2. The combination with a telephone-line extending from a subscriber's station to an exchange, of a line-indicator having signal-revealing means, means whereby the subscriber may effect the operation of the signal-revealing means, an electromagnet provided with an armature adapted for engagement with the signal-revealing means when the latter is actuated to reveal a signal, a retarding-circuit including the electromagnet provided with two openings, means whereby the signal-revealing means, when actuated, may close one of the said openings, and a switching appliance for connecting the said telephone-line with another telephone-circuit adapted also to close the second opening in the retarding-circuit to return the signal-revealing means, substantially as described.

3. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from subscribers' stations to an exchange, of switching apparatus at the exchange for connecting the said lines, a clearing-out indicator having signal-revealing means connected in the circuit between the subscribers' stations, means for restoring the signal-revealing means, means governed by the signal-revealing means for partially controlling the operation of the restoring means, and means governed by the said switching apparatus acting in co-operation with the means governed by the signal-revealing means to jointly control the operation of the restoring means, substantially as described.

4. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from subscribers' stations to an exchange, of switching apparatus at the exchange for connecting the said lines, a clearing-out indicator having signal-revealing means connected in circuit between the subscribers' stations, an electromagnet provided with an armature adapted for engagement with the signal-revealing means when the latter is operated to reveal a signal, a restoring-screw provided with two openings, means whereby the signal-revealing means when actuated may close one of the said openings, and means governed by the said switching apparatus for closing the remaining opening in the restoring-screw substantially as described.

5. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from subscribers' stations to an exchange, of switching apparatus having a connecting-plug at the exchange for connecting the said lines, a clearing-out indicator having signal-revealing means connected in circuit between the subscribers' stations, an electromagnet provided with an armature adapted to restore the signal-revealing means after the latter is operated to reveal a signal, a restoring-circuit provided with two openings, means whereby the signal-revealing means when actuated may close one of the said openings, and a plug-coat switch operated by the plug when acted to close the remaining opening in the restoring-circuit, substantially as described.

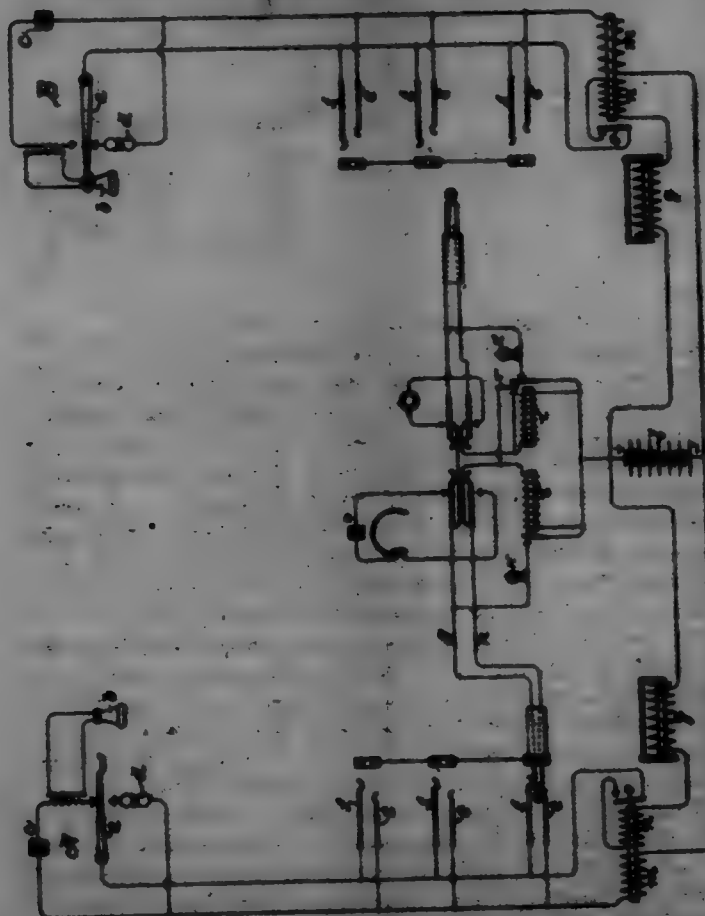
6. In a telephone-exchange system, the combination with subscriber

telephone-line connected for conversation, of an indicator included in series in the telephone circuit, a condenser in shunt of the winding of the indicator, and a magnet-generator at a subscriber's station for propagating signaling-currents, the generator serving to charge the condenser which, upon discharge, serves to operate the indicator, substantially as described.

7. In a telephone-exchange system, the combination with telephone-line, of a switching apparatus for connecting the same for conversation, a clearing-out indicator associated with the telephone-line by the said switching apparatus and included in series with the telephone circuit between the subscriber's station, a magnet-generator at a subscriber's station, and a condenser in shunt of the clearing-out indicator, the generator serving to charge the condenser which, upon discharge, serves to operate the indicator, substantially as described.

8. In a telephone-exchange system, the combination with subscriber/telephone-line connected for conversation, of an indicator, a condenser in shunt of the winding of the indicator, and a magnet-generator at a subscriber's station for propagating signaling-currents, said magnet-generator serving to charge the condenser, which, upon discharge, is adapted to effect the operation of the indicator, substantially as described.

697,990. CLEARING-OUT SIGNALING APPARATUS. WILLIAM H. DAVE, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 11, 1901. Serial No. 49,514. (No model.)



Claim.—1. In a telephone-exchange system, the combination with a telephone-line extending from a subscriber's telephone-station to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, an indicator having its operating electromagnet included in circuit with the said telephone-line and circuitally in a cord-circuit, a source of current, a telephone switch-hook at the subscriber's station adapted when relieved of the influence of the telephone-receiver to close circuit through said battery and magnet of the indicator to correspondingly operate the indicator, and a switch with suitable connections, operated by the electromagnet from its series connection with the cord-circuit and maintaining said magnet in circuit with the said source of current, whereby the signal may be maintained in the condition to which it has been brought while the electromagnet controlling the same is removed from the path of voice-currents, the telephone switch-hook at the subscriber's station, when actuated through the influence of the restored receiver, serving to open the circuit through the electromagnet of the indicator to restore the indicator, substantially as described.

2. In a telephone-exchange system, the combination with a telephone-line extending from a subscriber's telephone-station to an exchange, of cord-connecting apparatus at the exchange, an indicator having its operating-electromagnet included in circuit with the said telephone-line and circuitally in a condenser forming a part of the telephone-circuit, a source of

current, a telephone switch-hook at the subscriber's station adapted when relieved of the influence of the telephone-receiver to close circuit through said battery and magnet of the indicator to correspondingly operate the indicator, and a switch with suitable connections, operated by the electromagnet when thus included in circuit, serving to short the electromagnet from the telephone circuit and maintain the said magnet in circuit with said source of current, whereby the signal may be maintained in the condition to which it has been brought, while the electromagnet controlling the same is removed from the path of voice-currents, the telephone switch-hook at the subscriber's station, when actuated through the influence of the restored receiver, serving to open the circuit through the electromagnet of the indicator to restore the indicator, substantially as described.

3. In a telephone-exchange system, the combination with telephone-line extending from subscriber's stations to an exchange, of cord-connecting apparatus at the exchange, indicators at the exchange having their electromagnets circuitally included serially in the cord-circuit, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator connected therewith, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the cord-circuit and maintaining them in closed circuit, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

4. In a telephone-exchange system, the combination with telephone-line extending from subscriber's stations to an exchange, of cord-connecting apparatus at the exchange, indicators at the exchange having their electromagnets circuitally included serially in the cord-circuit, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a bridge connection between the sides of said telephone-line including a source of current, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator connected therewith and the said source of current, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the cord-circuit and including them in parallel relation with each other in the same bridge with the source of current, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

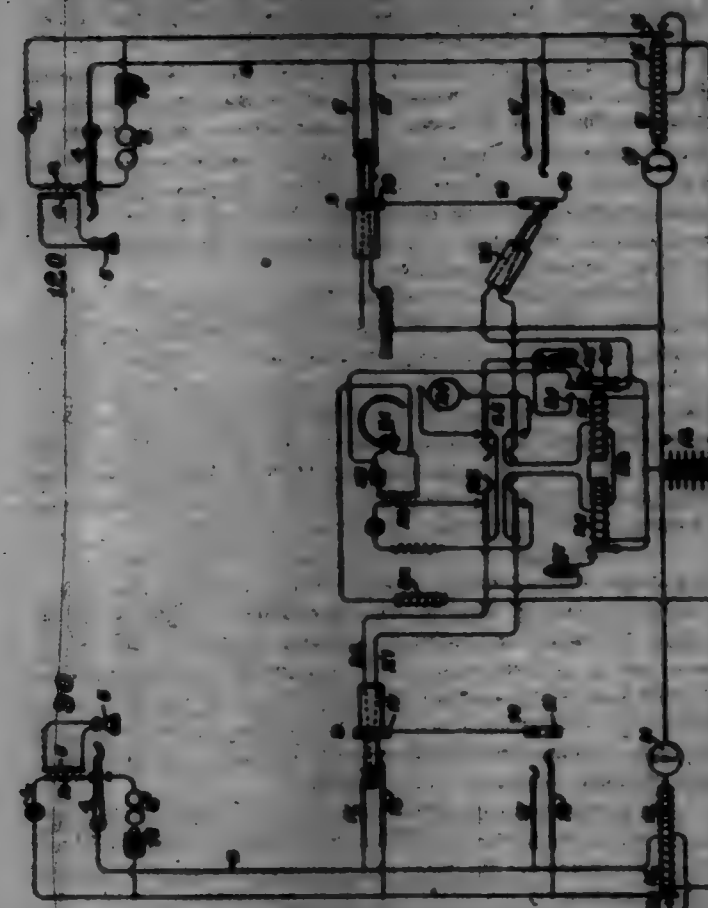
5. In a telephone-exchange system, the combination with telephone-line extending from subscriber's stations to an exchange, of cord-connecting apparatus at the exchange, indicators at the exchange having their electromagnets circuitally included serially in a cord-circuit, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a bridge connection between the sides of said telephone-line including a source of current, the said bridge connection being joined with the normal cord conductor between the said electromagnets, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator connected therewith and the said source of current, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the cord-circuit and including them in parallel relation with each other in the same bridge with the source of current, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

6. In a telephone-exchange system, the combination with telephone-line extending from subscriber's telephone-stations to an exchange, of indicators at the exchange having their electromagnets included serially in the telephone-line uniting the subscribers, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator connected therewith, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the telephone circuit and maintaining them in closed circuit, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

7. In a telephone-exchange system, the combination with telephone-line extending from subscriber's stations to an exchange, of indicators at the exchange having their electromagnets included serially in the telephone circuit between the subscribers, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a bridge connection between the sides of said telephone-line including a source of current, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator connected therewith and the said source of current, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the telephone circuit and including them in the same bridge with the source of current, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

8. In a telephone-exchange system, the combination with telephone-line extending from subscriber's stations to an exchange, of indicators at the exchange having their electromagnets included serially in a side of the telephone circuit between the subscriber's station, one of the said indicators being connected with the calling subscriber and the other with the called subscriber, a bridge connection between the sides of said telephone-line including a source of current, the said bridge connection being joined with the side of the telephone circuit containing the said electromagnets and between the said electromagnets, a telephone switch-hook at each subscriber's station adapted to close circuit through the magnet of the indicator corresponding thereto and the said source of current, and a switch with its connections operated by the called subscriber's indicator-magnet for charging the said magnet from the telephone-circuit and including them in parallel relation with each other in the same bridge with the source of current, whereby the signal may be maintained in the condition in which they have been placed, substantially as described.

697,991. IMPROVED OVERHEAD TELEPHONE-EXCHANGE SYSTEM. WILLIAM H. DAVE, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed June 17, 1901. Serial No. 49,599. (No model.)

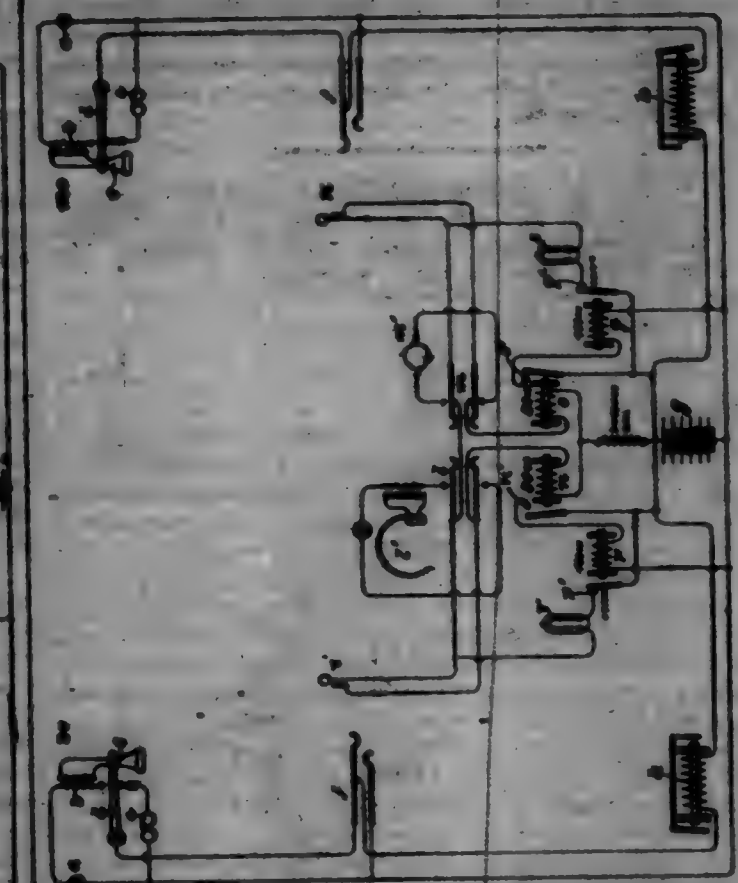


Claim.—1. In a multiple-overhead-telephone-exchange system, the combination with telephone-line extending from subscriber's stations to the line-jacks upon the different boards or sections of a multiple switch-board, of test-thimbles for the said jacks, cord-connecting apparatus at each board or section of the exchange, including a connecting-peg for connecting a calling with a called subscriber, a switch provided with a normal and an alternate contact, a testing-conductor terminating in the normal contact, a test-indicator in circuit with the test-conductor, a test-battery connected at the remaining terminal of the said test-conductor with the alternate contact condition, the terminal of the answering end of the tip-circuit, a connection between the remaining terminal of the test-battery and the above-ends of the cord-circuit, whereby the test-indicator may be connected with the said remaining terminal of the test-battery and circuit through the testing appliance completed upon the application of the connecting-peg to a test-thimble of a busy line, a relay in the conductor extending between the test-battery and the above of the connecting and testing peg, and means controlled by the connecting-peg and the called-subscriber's jack for clearing circuit through the said relay, whereby the said relay may be thrown from its normal test-contact to the alternate contact that is a terminal of the answering-connection of the tip-circuit, whereby the cord-circuit is completed, substantially as described.

2. In a multiple-overhead-telephone-exchange system, the combination with telephone-line extending from subscriber's stations to the line-jacks upon the different boards or sections of a multiple switch-board, of test-thimbles for said jacks, cord-connecting apparatus at each board or section of the exchange, including a connecting-peg for connecting a

calling with a called subscriber, a switch provided with a normal and an alternate contact, a testing-conductor terminating in the normal contact, a test-indicator in circuit with the test-conductor, a test-battery connected at the remaining terminal of the said test-conductor with the alternate contact condition, the terminal of the answering end of the tip-circuit, a connection between the remaining terminal of the test-battery and the above-ends of the cord-circuit whereby the test-indicator may be connected with the said remaining terminal of the test-battery and circuit through the testing appliance completed upon the application of the connecting-peg to a test-thimble of a busy line, and a relay in the conductor extending between the test-battery and the above of the connecting and testing peg, the called-subscriber's telephone-line, in cooperation with its spring-jack and the connecting-peg inserted therein, serving to complete circuit through the relay to disconnect the terminal of the connecting or testing peg portion of the tip-circuit and to complete the cord-circuit, substantially as described.

697,992. TELEPHONE-EXCHANGE SYSTEM. WILLIAM H. DAVE, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 8, 1901. Serial No. 70,555. (No model.)



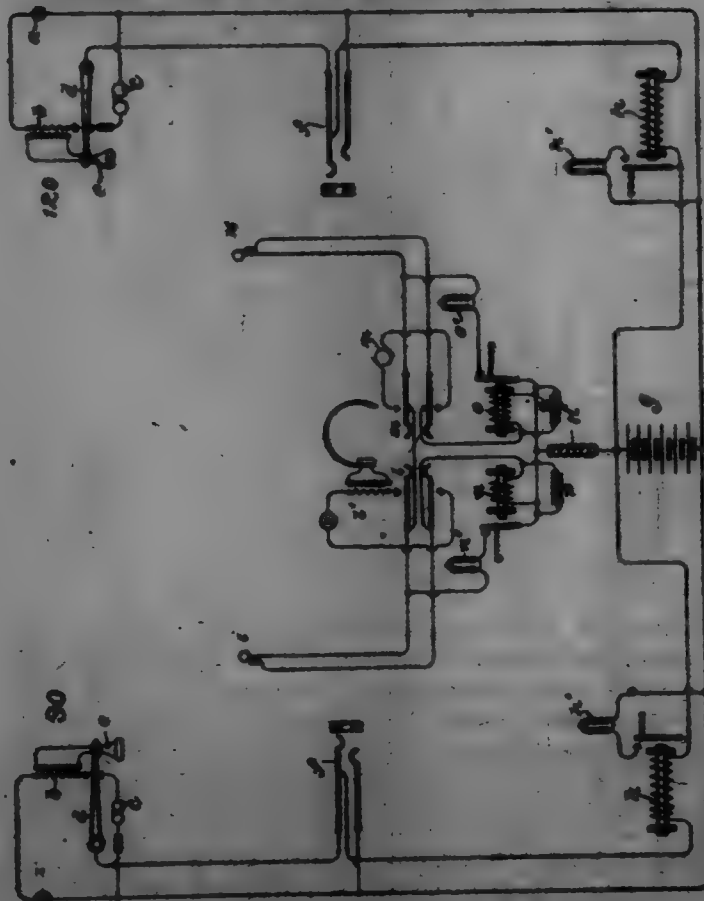
Claim.—1. The combination with telephone-line extending from subscriber's stations to an exchange, of a cord-circuit at the exchange, electromagnets included serially in the cord-circuit, a source of current in circuit with the telephone-line, a bridge connection across the telephone-circuit and in circuit with the said source of current and connected between the windings of the said electromagnets, whereby each electromagnet may be controlled by the corresponding telephone-station independently of the other, the armatures of the said electromagnets being provided with contacts that are engaged by the armatures when said electromagnets are energized, supplemental electromagnets included independently of each other in energizing-circuits, these energizing-circuits including each the armature and contact of the first aforesaid electromagnet, the armatures of the supplemental electromagnets being provided with springs to effect their retraction when the said supplemental electromagnets are deenergized, contacts for the latter armatures engaged thereby when retracted, supervisory signals and circuits for the same including the armatures and contacts of the supplemental electromagnets, substantially as described.

2. The combination with telephone-line extending from subscriber's stations to an exchange, of a cord-circuit at the exchange, electromagnets included serially in the cord-circuit, a source of current in circuit with the telephone-line, a bridge connection across the telephone-circuit and in circuit with the said source of current and connected between the windings of the said electromagnets, whereby each electromagnet may be controlled by the corresponding telephone-station independently of the other, the armatures of the said electromagnets being provided with contacts that are engaged by the armatures when said electromagnets are energized, supplemental electromagnets included independently of each other in energizing-

circuits, these energizing-circuits including each the armature and contact of the first solenoid electromagnet, the armatures of the supplemental electromagnets being provided with springs to effect their retraction when the said supplemental electromagnets are deenergized, contacts for the latter armatures engaged thereby when retracted, supervisory signals and circuits for the same, including the armatures and contacts of the supplemental electromagnets, the circuits including the supervisory or clearing-out indicators being formed in part by the portion of the cord-circuit and line-springs of the spring-jacks, whereby the said supervisory signals are restored or rendered inert when the cord-circuit is disconnected from the telephone lines, substantially as described.

3. The combination with telephone-lines extending from substations to an exchange, of a cord-circuit at the exchange for uniting the telephone-lines, an electromagnet included in the cord-circuit, a contact engaged by the armature of the electromagnet when the said armature is attracted, a supplemental electromagnet included in an energizing-circuit which contains the armature and the contact of the solenoid electromagnet, the armature of the supplemental electromagnet being provided with a spring for retracting the same when the said supplemental magnet is deenergized, a contact engaged by the armature of the supplemental magnet when retracted, a clearing out signal included in a circuit which contains the armature and contact of the supplemental electromagnet, the clearing-out-indicator circuit being composed in part by a portion of the cord-circuit, and a line-spring in circuit therewith, whereby upon a disconnection of the cord-circuit the clearing-out signal is restored or rendered inert, substantially as described.

697,998. TELEPHONE-EXCHANGE SYSTEM. WILLIAM M. DAVE, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 16, 1901. Serial No. 72,264. (No model.)



Claim.—1. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, and a source of current in circuit with the said bridge, substantially as described.

2. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser in shunt of each supervisory magnet, and a source of current in the said bridge, substantially as described.

3. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at

the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, and a source of current in circuit with the said bridge, the said electromagnets being included in the same side of the combined circuit, substantially as described.

4. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, and a source of current in the said bridge, the said electromagnets being included in the same side of the combined circuit, substantially as described.

5. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, a source of current in circuit with the said bridge, and an impedance in the said bridge, substantially as described.

6. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, a source of current in the said bridge, and an impedance in the said bridge, substantially as described.

7. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, a source of current in circuit with the said bridge, the said electromagnets being included in the same side of the combined circuit, and an impedance in the said bridge, substantially as described.

8. In a telephone system, the combination with telephone-lines extending from substations to an exchange, of cord-connecting apparatus at the exchange for uniting subscribers for conversation, a bridge placing the telephone-lines when connected in short-circuit relation, two supervisory signals, each of said telephone-circuits including the operating-magnet of a supervisory signal, a condenser directly in shunt of each supervisory magnet, a source of current in the said bridge, the said electromagnets being included in the same side of the combined circuit, and an impedance in the said bridge, substantially as described.

9. Cord-connecting apparatus, comprising the two strands of a cord-circuit, a bridge, two supervisory relays, one included on each side of said bridge, and a condenser directly in shunt of each relay-winding, substantially as described.

697,994. PROCESS OF MAKING THYMOL. MARCEL DUBOIS, Paris, France. Filed July 20, 1901. Serial No. 69,267. (No specification.)

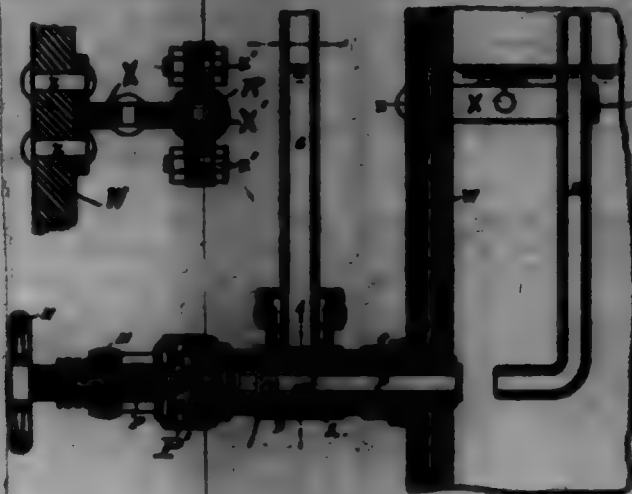
Claim.—1. A process for the manufacture of para-cymene-3-sulfonic acid, which consists in heating during several hours in a digester, at a temperature between 100° centigrade and 170° centigrade, a mixture of 2-bromo-para-cymene 3 or 5 sulfonic acid with ammonia and powdered zinc, substantially as described.

2. The process of manufacturing thymol which consists in making with alkaline hydrazide at temperatures bordering on 300° centigrade para-cymene-3-sulfonic acid, obtained by heating for several hours at a temperature between 100° centigrade and 170° centigrade, a mixture of 2-bromo-para-cymene sulfonic acid with ammonia and powdered zinc, substantially as described.

697,995. WATER-GASE. JOHANN DORN, Szilak-on-the-Pyren, Austria-Hungary. Filed Mar. 16, 1901. Serial No. 51,504. (No model.)

Claim.—1. In combination with a steam-blower, a tube or casing mounted therewith supporting a gas-glass, said casing having openings to said glass and to the outside air, and a movable plug located in said casing and having openings adapted respectively to place the interior of the boiler in communication with said tube or with the outside air and a fixed tube within the boiler having one end extending above the water-level and the other in line with the bore of said plug, substantially as described.

2. In combination with a steam-baker, a tube or casing connected therewith supporting a gage-glass, said casing having openings to said glass and to the outside air, a plug located in said casing and having transverse openings a stationary tube within the boiler having one end extending above the water-level and the other end in line with the lower end of said tubular plug, and a suitable handle whereby said plug may be rotated and also moved longitudinally to cause its lower end to abut against the stationary tube, substantially as described.



697,996. LUBRICANT AND PROCESS OF MAKING SAME.
WILLIAM F. BOWEN, Jersey City, N. J. Filed Sept. 20, 1904. Serial No. 77,164. (No specimens.)

Claim.—1. As a new article of manufacture, a lubricant consisting of particles of a solid lubricant coated with an oil in which it is insoluble and suspended in an enveloping oil with which the coating-oil is not miscible.

2. As a new article of manufacture, a lubricant consisting of particles of graphite coated with oil and suspended in an enveloping oil with which the coating-oil is not miscible.

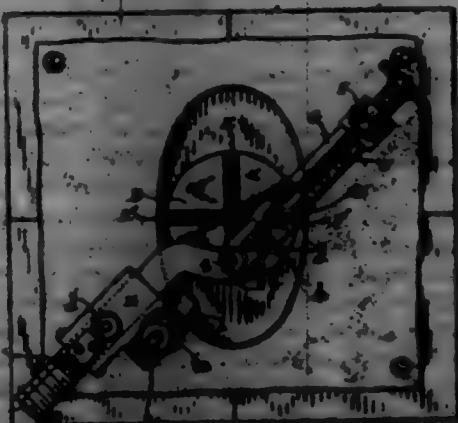
3. As a new article of manufacture, a lubricant consisting of particles of graphite coated with ester-oil, suspended in an enveloping oil with which the ester-oil is not miscible.

4. The process of manufacturing a lubricant consisting of coating particles of a solid lubricant with an oil in which it is not soluble and subsequently placing the particles so coated in an oil with which the coating-oil is not miscible.

5. The process of manufacturing a lubricant consisting of coating particles of graphite with oil and subsequently placing the particles so coated in an oil with which the coating-oil is not miscible.

6. The process of manufacturing a lubricant consisting of coating particles of graphite with ester-oil and subsequently placing the coated particles in an oil with which the ester-oil is not miscible.

697,997. MACHINES FOR CUTTING PICTURE-MATS. PHILIP BARKER, Detroit, Mich. Filed July 12, 1904. Serial No. 67,967. (No model.)



Claim.—1. A machine of the character described, comprising a guide-block in fixed relation to the work-table, guide-grooves formed in said block, intersecting each other at right angles, slides traveling in said grooves, a bar pivotally supported on one of said slides and extending on opposite sides of said block, a slot formed in one arm of said bar, an indicator-slide secured on said arm and connected with the other slide through said slot, means for adjusting said slide in relation to the other slide and a cutter adjustably mounted on the opposite end of said bar, substantially as described.

2. In a machine of the character described, the combination with a work-table, of a guide-block detachably secured thereon, intersecting guide-grooves formed in the top of said block and slides traveling in said grooves, a cross-bar having a slight lateral bend pivotally connected with said slides, means for adjusting one of said slides in relation to the other, a knife-holder slidably secured on the opposite end of said bar, and a vertically-adjustable traveling knife or cutter pivoted in said knife-holder, substantially as described.

3. In a machine of the character described, the combination with the work-table, of an apertured plate let into the table, a vertical centering-pin, a guide-block having pins registering with said apertures, guide-grooves intersecting each other at right angles cut into the top of said block, slides fitting in said grooves, a bar extending across said block and having a laterally-bent portion, said bar being pivotally secured to one of said slides, a longitudinal slot formed in the short arm of said bar, an indicator-slide traveling on said arm, a pin connecting said indicator-slide with the other slide, an adjustable screw loosely pivoted in the outer end of said arm having a screw-thread engagement with said indicator-slide to adjust the slides in relation to each other and a trailing cutter pivoted in a bracket slidably secured upon the long arm of said bar.

4. In a machine for providing picture-mats with elliptical openings, the combination with the cutter-bearing bar having graduations marked thereon, a knife and knife-holder carrying a graduated stop slidably mounted on said bar, whereby one set of graduations may be used for the various thicknesses of mats and suitable means for guiding the knife in the operation of the machine to cause an elliptical or circular cut to be made in the mat-board, all arranged and operating substantially as described.

5. In a machine of the character described, the combination with a work-table, of a guide-block detachably secured thereon, guides intersecting each other at right angles formed on said block, slides traveling in said guides, a bar extending across said block and pivotally connected with one of said slides, a knife-holder slidably secured on one end of said bar and carrying a graduated stop registering with graduations formed on said bar, a slot and graduations formed in the opposite end of said bar, an indicator registering with said graduations and connected with the other one of said slides and means for adjusting said indicator and slide in relation to the other slide.

6. In a machine of the character described, the combination with a guide-block and slides traveling in grooves formed in said block and intersecting each other at right angles, of a bar having a slight lateral bend extending across said block and pivotally secured to one of said slides, a trailing knife and knife-holder adjustably secured on one end of said bar, and an indicator pivotally connected with the other slide, secured on the other end of said bar and means for adjusting the same, the pivot-pin of the slides and the chuck of the traveling knife all being in the same vertical plane, while the cutting-point of the knife is in a plane in rear thereof.

7. In a machine of the character described, a central guide-block having intersecting guide-grooves and slides traveling therein, of a cross-bar pivotally connected with said slides and projecting on opposite sides of the block, a pivoted knife and knife-holder adjustably mounted on one end of said bar and an elongated slot formed in the other end of said bar, an indicator slidably secured on said bar and connected through said slot with one of said slides and an adjusting-screw pivoted in the end of said bar and having a screw-thread engagement with said indicator to adjust the slides in relation to each other.

697,998. MEANS FOR ADJUSTING DYANOS OR MOTORS ON THEIR BED-PLATE. FREDERICK R. DUNNAN, Akron, Ohio. Filed Feb. 24, 1905. Serial No. 68,120. (No model.)



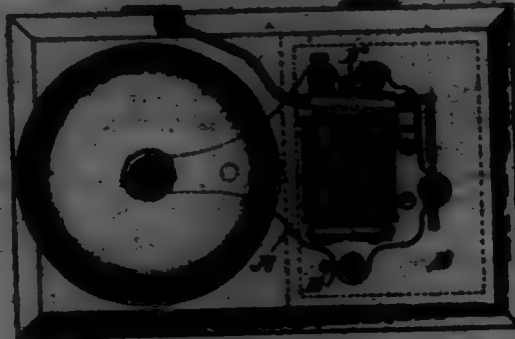
Claim.—1. An improved bed-plate for dynamos and motors having slots dipping from below, bolts with pyramidal heads to retain the dynamos or motors, substantially as shown and for the purpose specified.

2. The combination with a bed-plate for dynamos and motors, having slots with sides dipping outward from above, of bolts for retaining a dynamo or motor thereon having heads adapted to fit the sides of said slots, substantially as shown and described.

697,999. SIGNALING MECHANISM. ARTHUR F. DUNNAN, Boston, Mass. Filed May 21, 1904. Serial No. 68,494. (No model.)

Claim.—1. A portable signaling device comprising a case, a battery therein, a signal supported by said case, an electric circuit connecting said battery and signal, mechanism supported by said case for rendering said circuit effective at regular intervals and for rendering said circuit effective a plurality of times in succession at regular intervals, and device sup-

ported by said case and under the control of the operator for adjusting said mechanism, substantially as described.



2. In a signaling mechanism the combination of a signal, an electric circuit for controlling the operation of said signal, a series of brushes, a contact engaging one of said brushes at intervals, a series of contacts successively engaging another of said brushes at intervals, and means for bringing either of said brushes and the corresponding contacts in circuit, substantially as described.

3. In a signaling mechanism the combination of a signal, an electric circuit for controlling the operation of said signal, a series of brushes, an insulating drum, a contact-plate curved thereby and in said circuit, a projection on said plate arranged to engage one of said brushes, a series of projections on said plate arranged to engage another of said brushes, means for rotating said drum, and a switch for bringing either of said brushes in circuit, substantially as described.

4. In a signaling mechanism the combination of a signal, an electric circuit for controlling the operation of said signal, a series of brushes I, F, P, a switch for bringing any one of said brushes in circuit, an insulating drum K, a contact arranged to engage brush I, and contacts arranged to engage brush F, and a motor for rotating drum K, substantially as described.

698,000. **SLIDING ALARM HORN.** ALBION H. FINE, Hiale, N. Y. Filed Jan. 28, 1902. Serial No. 91,619. (No model.)



Claim.—In a sleigh, runabout, cart and loader, means connecting the runners with the seat-rails, the intermediate means being perpendicular and the outer means oppositely inclined, cross-bars connecting the several runners, means between the runners, runners and cross-bars, side bars clipped to the seat-rails, side springs supported by the side bars, a rear spring attached to the side springs, a rod or bar connecting the front ends of the side springs, a sledge-body supported upon the rear spring and front bar connecting the side springs, shafts, and means connecting the cross-bar of the shafts with the front cross-bar joining the runners, substantially as set forth.

698,001. **IMPROVED ATTACHMENT FOR HORN.** BENJAMIN F. FINE, ALBION, N. Y. Filed May 6, 1901. Serial No. 91,620. (No model.)



Claim.—The herein-described device, consisting of a rod adapted to be engaged by a horn and having a split end and to form jaws to receive and retain the shank of a bell, a sleeve having a tapering channel fitting upon said rod near its split end, cross-threads upon the rod below the sleeve, and a nut upon the cross-threads adapted to contract the lower end of the sleeve to form the sleeve around to compress the split end of the rod upon the shank of the bell.

698,002. **IMPROVED ATTACHMENT FOR HORN.** BENJAMIN F. FINE, ALBION, N. Y. Filed Aug. 21, 1901. Serial No. 91,621. (No model.)

Claim.—1. The combination in a corner-fixture of a projecting post-piece having a plain flat face and a rib or shoulder projecting therefrom in position to engage the side of the rail part and having a beveled projection located in or on said plain face and a rail part having a plain flat face to engage the face of the rib part and a recess to receive the said projection and shoulder to engage the head of the projection and also adapted at the side or edge of its flat face to engage with the rib or shoulder of the post-piece, substantially as set forth.



2. The combination in a corner-fixture of a post-piece having a flat face, a beveled projection projecting from said flat face, a rail part having a flat face to engage the face of the post-piece, a recess to receive the projection and shoulder to engage the head of the projection and a rib or projection at the side of the flat face of the post-piece to engage the side of the rail or frame part, substantially as set forth.

698,003. **TURN OR RAG FRAME CATCH.** ALBION F. FINE, ALBION, N. Y. Filed May 6, 1901. Serial No. 91,622. (No model.)



Claim.—1. In a frame or bag frame, the combination, with a pair of frame-sections, of a holding-rod on one of said frame-sections, and a holding-projection or notch on the other of said frame-sections, said holding-rod comprising a cup-shaped plate, a finger-piece on said plate, a marginal projection on said plate with which said notch is adapted to be brought in holding engagement, a downwardly-projecting member on said holding-rod, extending through an opening in said frame-section, said downwardly-projecting member having a cut-away part 17, a holding-leg on said downwardly-projecting member, bent at a right angle thereto, or approximately so, a spring secured to said frame-section, an arm 11 on said spring having its free end extending into said cut-away part 17, and a spring-tenon 10 in engagement with said leg, and a downwardly-projecting extension on said marginal projection, said extension having a hook-shaped portion extending beneath a part of one of said frame-sections to limit the pivotal movement of said catch, substantially as and for the purposes set forth.

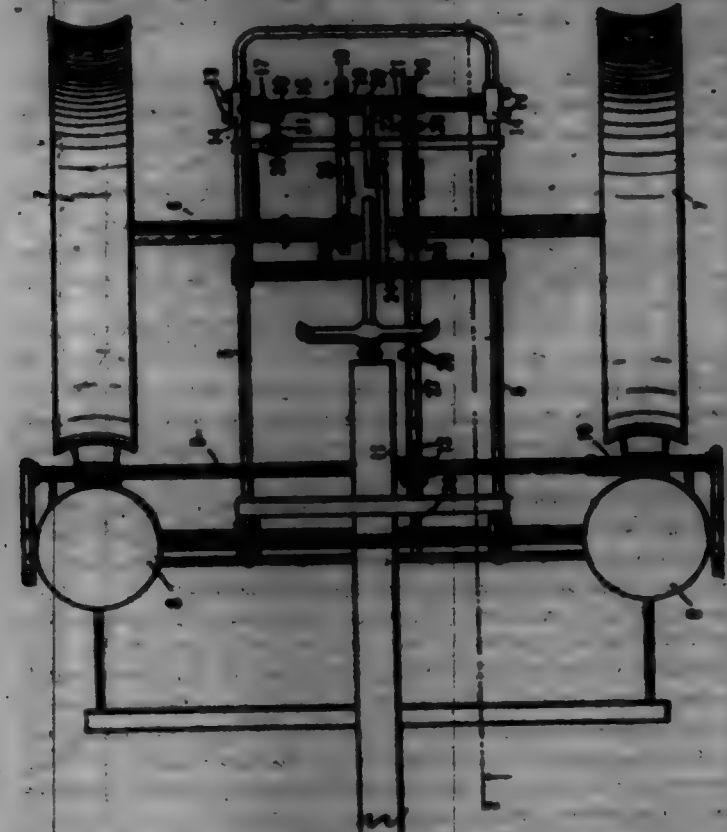
2. In a frame or bag frame, the combination, with a frame-section having a dotted part, of a holding-rod provided with a means of pivotal connection extending through the said dotted part, said downwardly-projecting member having a cut-away part 17, a holding-leg on said downwardly-projecting member, bent at a right angle thereto, or approximately so, a spring secured to said frame-section, a short arm 11 on said spring having its free end extending into said cut-away part 17, a spring-tenon 10 in engagement with the said leg, and a downwardly-projecting extension on said holding-rod having a hook-shaped portion extending beneath a part of one of said frame-sections to limit the pivotal movement of said catch, substantially as and for the purposes set forth.

3. In a frame or bag frame, the combination, with a frame-section having a dotted part, of a holding-rod provided with a means of pivotal connection extending through the said dotted part, a spring secured at one end to the lower portion of said frame-section, an arm 11 on said spring having its free end in engagement with said means of pivotal connection for the oscillation of said holding-rod, a spring-tenon 10 also in engagement with a portion of said means of pivotal connection of the said holding-rod, said a downwardly-projecting extension on said marginal projection, said extension having a hook-shaped portion extending beneath a part of one of said frame-sections to limit the pivotal movement of said catch, substantially as and for the purposes set forth.

4. The herein-described holding-rod for a frame or bag frame, comprising, a cup-shaped plate 12, a finger-piece on said plate, a downwardly-projecting holding member 16 on said cup-shaped plate, an inwardly-extending leg 18 on said member 16, and means on said plate 12 arranged to extend beneath the frame-section to limit the pivotal movement of the catch when in position upon the frame-section, substantially as and for the purposes set forth.

5. The herein-described holding-rod for a frame or bag frame, comprising, a cup-shaped plate 12, a finger-piece on said plate, a downwardly-projecting holding member 16 on said cup-shaped plate, an inwardly-extending leg 18 on said member 16, and a downwardly-projecting extension on said plate 12 having a hook-shaped portion extending beneath a part of the frame-section to limit the pivotal movement of the catch when in position upon the frame-section, substantially as and for the purposes set forth.

698,004. **SHED-PLASTER.** THOMAS J. GAYNE, Indianapolis, Ind., assignor of one-half to THOMAS F. GAYNE and WM. L. LIGHTFOOT, Indianapolis, Ind. Filed July 24, 1901. Serial No. 91,623. (No model.)



Claim.—1. In a shed-plaster, the combination with a dropping mechanism, of a belt provided with means for intermittently operating said dropping mechanism, a wheel rolling upon the ground, driving means between said wheel and belt, means for disconnecting said belt from the driving-wheel, and means for advancing said belt independent of its driving-wheel without disconnecting said belt from the driving-wheel.

2. In a shed-plaster, the combination with the main frame, supporting-wheel, and the axle thereof, of a counter-shaft, operable driving connection between said counter-shaft and axle, means for separating said connection, a rock-shaft forming part of a dropping mechanism, a belt driven by the counter-shaft, means carried by said belt for intermittently engaging and operating the rock-shaft, and means for rotating the counter-shaft independent of the axle without disconnecting the counter-shaft from the axle.

3. In a shed-plaster, the combination with the main frame, supporting-wheel and the axle thereof, of a counter-shaft, operable driving connection between said counter-shaft and axle, means for separating said connection, a rock-shaft forming part of a dropping mechanism, means for adjusting the counter-shaft toward and from the rock-shaft, a belt driven by the counter-shaft, means carried by said belt for intermittently engaging and operating the rock-shaft, and means for rotating the counter-shaft independent of the axle.

4. In a shed-plaster, the combination with a main frame, supporting-wheel, and axle, of a counter-shaft, a wheel mounted upon said counter-shaft and carrying a clutch member, a belt passing over said wheel and the axle, a clutch member applied upon the counter-shaft and normally held in engagement with the other clutch member, a belt driven by said counter-shaft, dropping mechanism, means carried by said belt for intermittently operating the dropping mechanism, a hand-shaft, and a driving connection between said hand-shaft and counter-shaft, substantially as and for the purposes set forth.

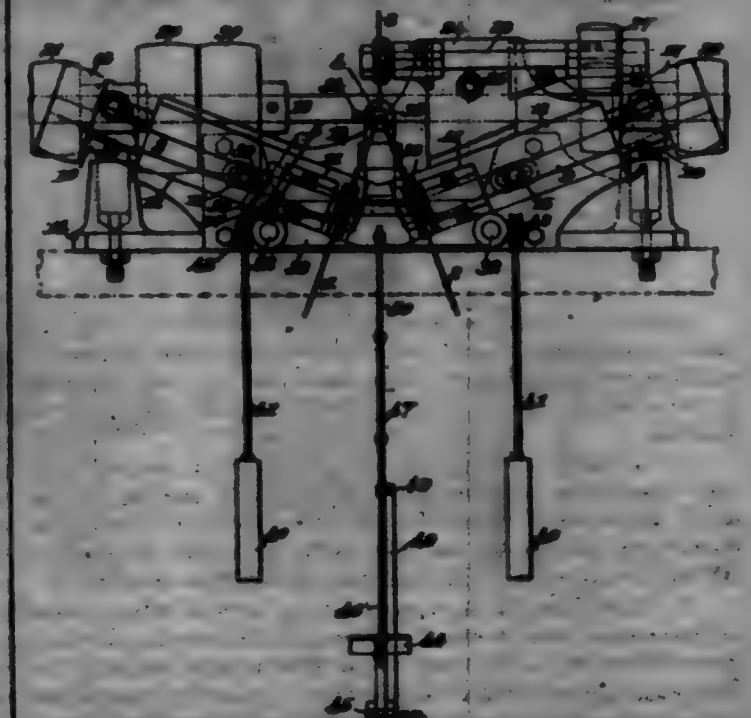
5. In a shed-plaster, the combination with a dropping mechanism, of a wheel rolling on the ground, driving connection between said wheel and dropping mechanism, means for disconnecting said connection between the wheel and dropping mechanism, and means for advancing said connection independent of the wheel but without disconnecting the driving connection.

698,005. **APPAREL-BELT.** WILLIAM SHANNON, New York, N. Y., assignor to S. Schaefer & Son, New York, N. Y., a Firm. Filed Jan. 9, 1902. Serial No. 91,624. (No model.)



Claim.—An apparel-belt provided at each end with a series of parallel transverse slots, removable tongues interwoven through said slots and having enlarged rear ends, and means for connecting the front ends of the tongues, substantially as specified.

698,006. **LAST-MAKING MACHINE.** EDWARD W. GUNN, Lynn, Mass., assignor of one-half to THOMAS W. GUNN, Lynn, Mass. Filed May 14, 1901. Serial No. 91,625. (No model.)



Claim.—1. A last-making machine, having, in combination, a last-support, two arms arranged at an angle to each other to form a V-shaped block from the last and a saw arranged at an angle to one of said arms and extending outside of each angle to cooperate with said arms to separate the last part from the free part of the last, said last-support and arms being relatively movable to bring the last and arms into engagement, and the plane in which said arms are located being parallel to the line of each movement, substantially as described.

2. A last-making machine, having, in combination, a last-support, two arms arranged at an angle to each other to form a V-shaped block from a last, and a saw located at the rear of said arms arranged at an angle to one of said arms and extending outside of each angle to cooperate with said arms to separate the last part from the free part of the last, said last-support and arms being relatively movable to bring the last and arms into engagement and the plane in which said arms are located being parallel to the line of each movement, substantially as described.

3. A last-making machine, having, in combination, two arms arranged at an angle to each other to form a V-shaped block from a last, a saw arranged at an angle to one of said arms and extending outside of each angle to cooperate with said arms to separate the last part from the free part of the last and a last-support provided with grooves to receive the arms, said arms and saw and last-support being relatively movable to bring the last and arms into engagement, and the plane in which said arms are located being parallel to the line of each movement, substantially as described.

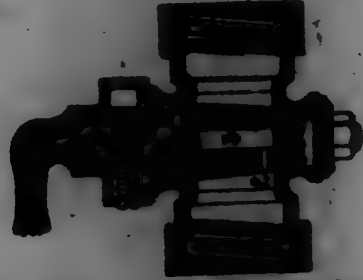
4. A last-making machine, having, in combination, two arms arranged at an angle to each other to form a V-shaped block from a last, a saw arranged at an angle to one of said arms and extending outside of each angle to cooperate with said arms to separate the last part from the free part of the last, a last-supporting member provided with grooves to receive the arms, said arms and saw and last-support being relatively movable to bring the last

and move into engagement, and the means in which said move are located being parallel in the line of such movement, and adjusting means for bringing the move and standard into proper relative position, substantially as described.

3. A last-curing machine, having, in combination, two move arranged at an angle to each other to saw a V-shaped block from a last, means for adjusting said move longitudinally of their axis, a saw arranged at an angle to one of said move and extending outside of such angle to cooperate with said move to separate the heel part from the fore part of the last, means for adjusting said saw transversely to its axis, a last-supporting standard provided with grooves to receive the move, said move and standard being relatively movable to bring the last and move into engagement, and the means in which said move are located being parallel to the line of such movement, and means for adjusting said standard transversely to its axis, substantially as described.

4. A last-curing machine, having, in combination, a last-support, two move arranged at an angle to each other and a saw arranged outside and in a plane intersecting such angle, said support and move being relatively movable past each other and the means of the latter intersecting in the line of such movement, substantially as described.

698,007. PLUG FOR WATER AND STEAM COCK. IRVING H. GARDNER, Cleveland, Ohio. Filed July 21, 1901. Serial No. 70,204. (No model.)



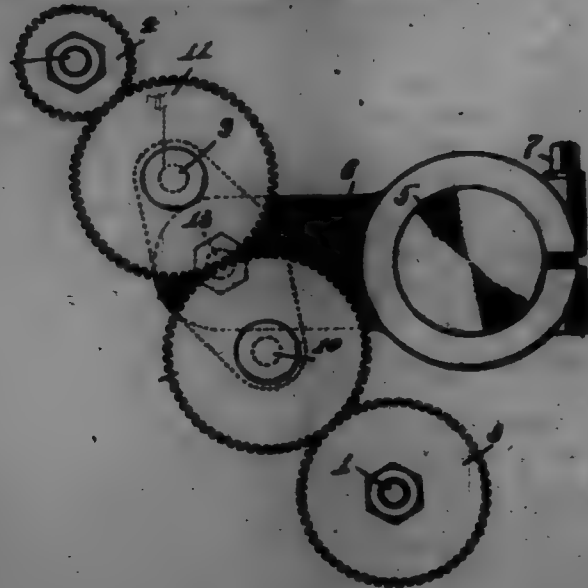
Claim.—1. A plug for steam and water cocks having a cap seat about the top portion thereof and a removable stop within said cap, in combination with a coupling having a seat for said plug and a projection on said coupling in position to be engaged by said stop, substantially as described.

2. In water and steam cocks, a coupling having a seat with a circular upper portion projecting above the body of the coupling and lugs on the top thereof, in combination with a plug having an integral cap about its top controlling the said upper portion of the seat, and a removable stop in said cap to engage said lugs, substantially as described.

3. The coupling having a seat for a plug provided with a circular extension about its top and lugs on the top of said extension, in combination with a plug having a cap integral with its upper portion and including said lugs and circular extension from above, and a removable stop in the cap arranged to engage against said lugs when the plug is rotated, substantially as described.

4. As a new article of manufacture, a plug for water and steam cocks having a tapered barrel and a cap and handle cast integral with its upper portion, said barrel having a fluid-passage through its center and a hole through its cap for the insertion of a stop, substantially as described.

698,008. CHANGE-GEARING. GEORGE W. GRAVER, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn. Filed Jan. 11, 1902. Serial No. 69,377. (No model.)



Claim.—In change-gearing, the combination, substantially as set forth, of two change-gears of a train, means for varying the gap between said two gears, an arm mounted for angular adjustment on an axis parallel with the axis of the change-gears, an arm mounted on the first-mentioned arm and angularly adjustable thereon on an axis parallel with the axis of the change-gears, and intermeshing gears carried by said second arm and adapted to engage the change-gears and fill the variety of gaps therebetween.

698,009. GAS STOVE OR RANGE. GEORGE W. GRAVER, Rochester, N. Y., assignor to John F. Miller, Jr., Port Chester, N. Y. Filed Aug. 1, 1901. Serial No. 70,691. (No model.)



Claim.—1. The combination with a gas-stove having an oven or chamber, and a burner arranged outside of the chamber and having orifices, of a tubular flame-conductor having its open inner end extending one or more of said orifices in the burner and its outer end opening into the oven.

2. The combination with a gas-stove having an oven or chamber, a door therefor, and a burner arranged outside of said chamber and having orifices, of a flame-conductor having its inner end extending in proximity to the burner-orifices and its outer end opening into the oven.

3. In a gas-stove the combination with an oven or chamber open at one side and having a door, and a burner arranged beneath the oven, of a conductor having its inner end extending over a portion of the burner and having its outer end opening into the bottom of the oven within the door-line.

4. In a gas-stove the combination with an oven or chamber, a burner extending beneath the oven, and a conductor having its inner end open and extending over the burner and forming a hood and having its outer end opening into the oven-chamber, of a second burner located in the rear of the first having an extension provided with perforations and opening beneath the hood on the conductor.

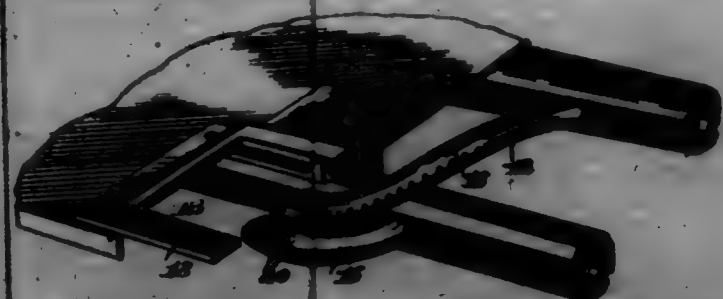
5. In a gas-stove the combination with an oven having a bottom provided with apertures, of forward and rear burners arranged beneath the bottom, doors normally closing the apertures, and connections between the doors whereby they may be operated simultaneously.

6. In a gas-stove the combination with an oven or chamber, and a conductor leading therefrom having its outer end opening into the oven and its lower end open and extending beneath the latter, of a burner having orifices, a tube extending from said burner having a series of orifices in its lower side and provided with an aperture in its upper side opening beneath the conductor and extending around the tube whereby the flame from said aperture may be communicated to the gas emitted from the series of apertures in its lower side.

7. In a gas-stove the combination with an oven or chamber, and a conductor leading therefrom having its outer end opening into the oven and its lower end open and extending beneath the oven-bottom, of a burner having orifices arranged in its lower side and opening into the oven, a second burner arranged in rear of the first, having gas-jet orifices, an extension on said burner having perforations in its lower side arranged in proximity and leading into juxtaposition with the gas-jet orifices and provided with the apertures opening beneath the inner end of the conductor.

8. In a gas-stove the combination with a body having a heating-chamber, and an oven or chamber located above the latter provided with an apertured bottom, and means for closing said aperture, of a burner located beneath the oven-bottom, and a removable heat-reflecting plate arranged in the heating-chamber below the burner.

698,010. BURNER FOR BAKING-OVEN. GEORGE W. GRAVER, Rochester, N. Y., assignor to John F. Miller, Jr., Port Chester, N. Y. Filed Oct. 2, 1901. Serial No. 71,361. (No model.)



Claim.—1. The combination with an oven-chamber open at one side, and a door normally closing said opening, of a gas-burner arranged

exteriorly of the chamber, and an extension of said burner leading into the oven and accessible when the oven-door is opened.

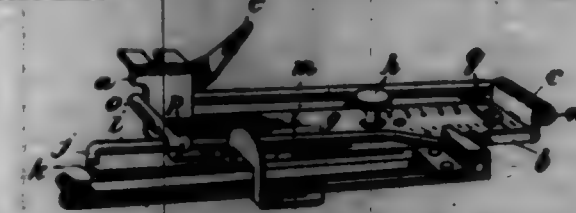
2. The combination with an oven-chamber having a door at one side thereof, of a burner located at one side of the oven, and having an extension thereof leading into the oven.

3. The combination with an oven-chamber having a bottom provided with an aperture, of a burner arranged beneath the oven, and a perforated tubular extension of said burner accessible through the aperture in the oven-bottom.

4. The combination with an oven-chamber having a bottom provided with an aperture, and a closure for said aperture, of a burner arranged beneath the oven, and a perforated tubular extension leading from the burner and having its outer end extending upwardly in proximity to the aperture in the oven-bottom and provided with a series of gas-jet orifices.

5. The combination with an oven-chamber having a bottom provided with an aperture, and a closure therefor, of separate gas-burners arranged beneath the oven, separate supplemental burners attached to each burner having their outer ends arranged in proximity beneath the aperture in the oven-bottom.

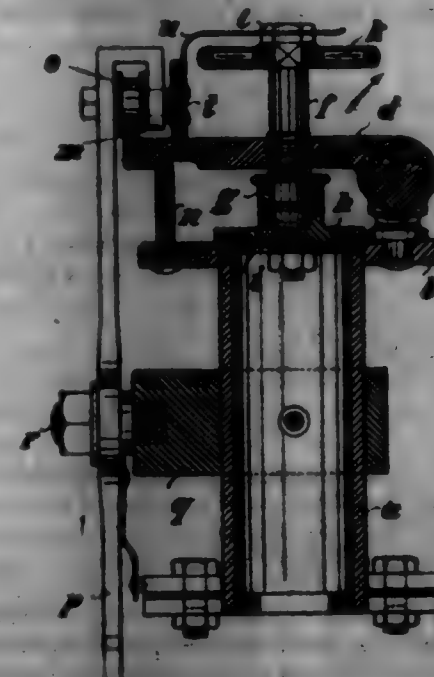
698,011. TUCK-CREASER FOR SEWING-MACHINES. JOHN H. GARDNER, New Haven, Conn. Filed June 1, 1901. Serial No. 69,794. (No model.)



Claim.—1. In a sewing-machine tuck-creaser, the combination with means for attaching the tuck-creaser to a sewing-machine, of creasing device comprising a vibrating creasing arm or lever, an operating-lever, a transmitting-lever consisting of a rod or wire arranged to be engaged by said operating-lever and having right-angular bends at its opposite ends one of which serves to pivot said lever and the other of which engages the said creasing arm or lever, and a spring, independent of said transmitting-lever, for lifting the latter after it has been depressed, said transmitting-lever being engaged between its ends by the said operating-lever.

2. In a sewing-machine tuck-creaser, the combination with the frame thereof comprising the pressure-foot a having a laterally-extending arm or plate b provided at its end with an ear c, of an operating-lever d pivoted to a part of the shaft of said pressure-foot, creasing device comprising a creasing arm or lever e, extending lengthwise the attachment, and a co-operating lip or part, a transmitting-lever f actuated by said lever c and having at its rear end a right-angular bend or arm g pivotally mounted in the said ear c and having at its forward end a right-angular bend or arm h overlying the said creasing arm or lever e, and a spring i for lifting the transmitting-lever after it has been depressed.

698,012. AIR-ESCAPE VALVE. AUGUST GRAVER, Cologne, Germany. Filed Sept. 12, 1901. Serial No. 73,942. (No model.)



Claim.—An air-escape valve for operating the air-brakes of a car or train from the rear-end, the distinguishing feature of which is that the valve-cap or cylinder-head A is fastened to a lever d by means of a threaded spindle f and through which the cap or cylinder-head A is held in place at the end of the cylinder c so that the main lever p through its roller e bears upon the way n.

698,013. COOLING-TOWER. WILLIAM H. A. HARRIS and RALPH L. LAPHAM, Charleston, S. C. Filed Oct. 15, 1901. Serial No. 72,722. (No model.)



Claim.—1. A cooling-tower having cooling-coils in the base thereof, means to evaporate water in the upper portion of the tower, and to discharge cooled water onto said coils, and a deflector above the latter, to prevent air heated by said coils from passing into the upper, evaporating portion of said tower, substantially as described.

2. A cooling-tower having means to evaporate water in the upper portion thereof, cooling-coils in the base thereof, means to apply the water cooled in the evaporating-portion of the tower to the coils and a deflector above the said coils to prevent heated air from passing into the upper, evaporating portion of the tower, substantially as described.

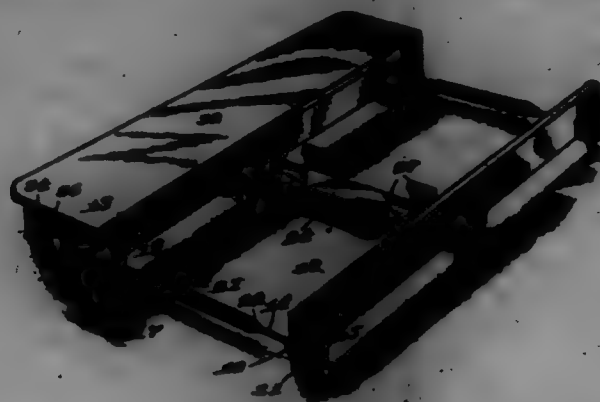
3. A cooling-tower to which air is admitted, having means to shower water downwardly in the upper portion thereof, a series of descending steps to retard the descent of the water and promote the evaporation thereof, means to collect the cooled water discharged from the steps, cooling-coils in the base of the tower, means to discharge the cooled water onto the coils, and a deflector above the coils to prevent heated air from passing into the upper, evaporating portion of the tower, substantially as described.

4. A cooling-tower to which air is admitted, having means to shower water downwardly in the upper portion thereof, a series of descending steps to retard the descent of the water and promote the evaporation thereof, cooling-coils in the base of the tower, a deflector above the coils to prevent heated air from passing into the upper evaporating portion of the tower, and means to discharge the cooled water from the steps onto the coils, substantially as described.

698,014. LOCKED BOOK-HOLDER AND ARM-REST. WILLIAM F. HARRIS, New Haven, Conn. Filed May 1, 1901. Serial No. 69,222. (No model.)

Claim.—1. An improved book-holder comprising in combination a frame, a flat strip 24 rotatably mounted in the frame, spring-plates 27 adjustably secured to the under surface of the strip 24 and capable of engaging and yieldingly supporting the back of the book between them, for the purpose stated.

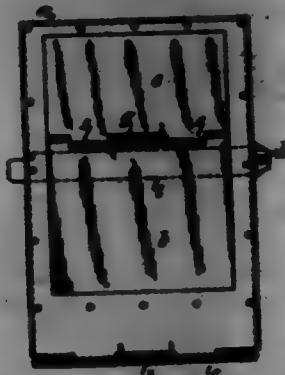
2. An improved book-holder, comprising in combination a frame, a strip rockingly mounted in the frame, means for detachably securing the back of the book to said strip, and rollers mounted in said frame on opposite sides of the strip to engage and support the sides of the book, for the purpose stated.



3. An improved book-holder, comprising in combination a frame, a flat strip rockingly mounted in said frame, means for applying friction to the said strip so that its rocking movement is resisted, clamping devices fixed to the said strip to engage the back of a book and firmly hold it in position adjacent to the strip, and means for supporting the sides of the book having its back resting on said strip for the purpose stated.

4. An improved book-holder comprising a frame having two vertical, parallel end pieces, means for adjusting these end pieces to and from each other, a flat strip rockingly mounted between said end pieces, clamps on said strip to engage and support the back of a book between them, and means for supporting the sides of a book having its back resting between said clamps for the purpose stated.

698,015. PHOTOGRAPH-PRINTING FRAME. FRIEDRICH EISEN, Berlin, Germany. Filed Dec. 4, 1901. Serial No. 84,948. (No model.)



Claim.—In a photograph-printing frame, the combination with the frame *a*, of a two-part back *b* and *c*, a hinge *e* connecting the two parts of the back, a hinge *f* connecting the back with the frame, a spring *h* adapted to press the back against the frame, and a spring *g* adapted to press the hinged part of the back separately against the frame, for the purpose as described.

698,016. CYAND-TANK. JAMES J. HERVEY, Randolph, Cal. Filed Nov. 28, 1901. Serial No. 85,495. (No model.)

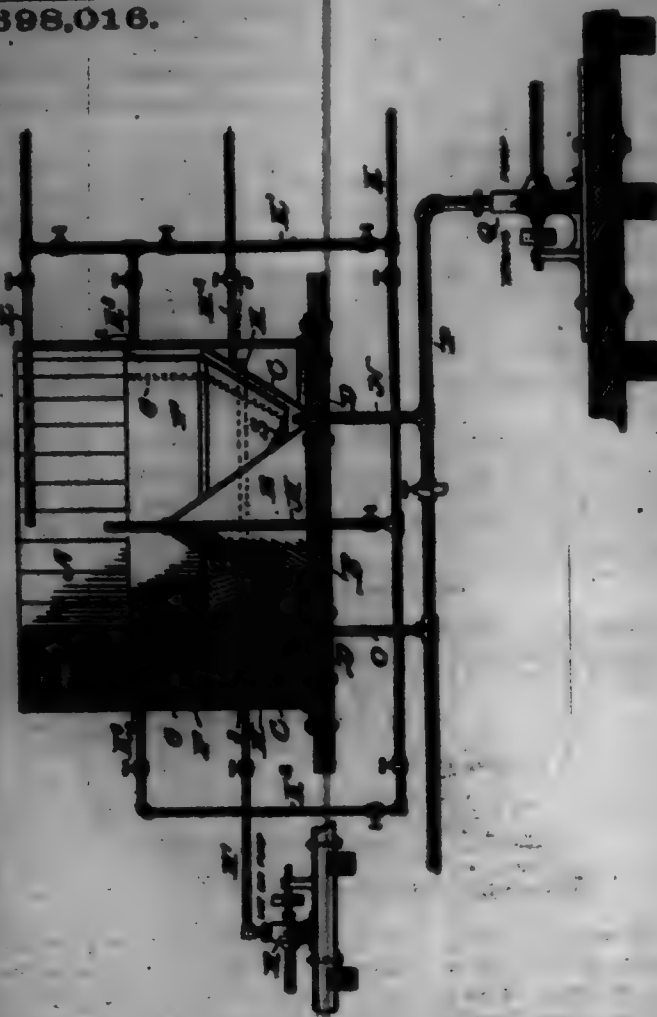
Claim.—1. A tank having an annular lining open at the bottom, said lining having air and water pipes leading thereto, substantially as described.

2. A cyand-tank having an annular lining open at the bottom said lining being divided into a series of compartments, each compartment having an air and a water tank communicating therewith, substantially as described.

3. A cyand-tank having a tapering bottom and the central cone arranged in connection with the said tapering bottom, the annular lining arranged upon the interior of the tank and having air and water pipes connected thereto, and the charging and discharging pipes leading to and from the bottom of the tank, substantially as described.

4. Cyand-tank having a tapering bottom and a central cone arranged in connection with the bottom, an annular lining arranged in the tank and open at its lower end, a filtering-cone connecting the lower end of the lining and the central cone, the air and water pipes, the charging and discharging pipes, and the filtering means connected with said pipes, substantially as set forth.

698,016.

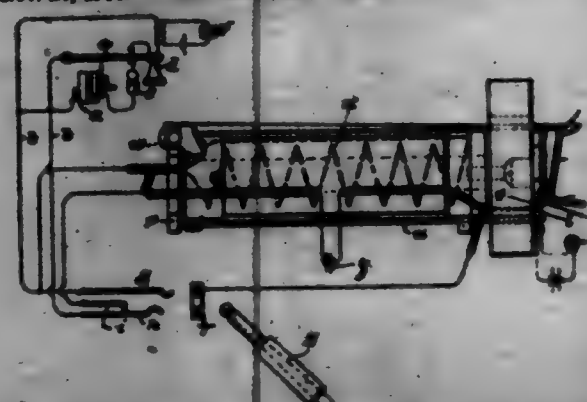


698,017. GAS-HEATER. FRANK C. HODGKINS, Brooklyn, N. Y. Filed Aug. 16, 1901. Serial No. 71,602. (No model.)



Claim.—A gas-heater, consisting of a cylindrical casing provided with air-inlet openings, a rim secured to the lower edge of said casing and provided with an inwardly-projecting flange, transverse bracing attached to said flange, a burner supported on said bracing, means for supplying gas to said burner, and a top ring attached to the upper part of the casing and provided with radial outlet-grooves and raised ribs between said grooves, substantially as set forth.

698,018. ANSWER-REPLY. GUYMON E. HODGKINS and GUYMON E. HODGKINS, Chicago, Ill., assignors to the Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 27, 1901. Serial No. 77,595. (No model.)



Claim.—1. In an answerer, the combination with the operating-magnet thereof, of a shutter, means controlled by the magnet for releasing the shutter, means including the shutter for coupling said electromagnet, and means operated by the electromagnet for returning the shutter, substantially as described.

2. In an answerer, the combination with the shutter thereof, of means for releasing the same, an electromagnet having its armature adapted to attract the shutter, and means including the shutter for coupling

the electromagnet to effect an attraction of the armature and thereby the restoration of the shutter, substantially as described.

3. In an answerer, the combination with the shutter thereof, of means for releasing the same, an electromagnet having its armature adapted to attract the shutter, and means for coupling the electromagnet to effect an attraction of the armature, and thereby the restoration of the shutter, the said releasing means being also operated by the said electromagnet, substantially as described.

4. In an answerer, the combination with the shutter thereof, of a retaining-lever for holding the shutter in its normal idle position, an electromagnet having its armature adapted to attract the shutter, and means for coupling the electromagnet to effect an attraction of the armature and thereby the restoration of the shutter, the retaining-lever being articulated to the armature and having a limited lost motion with respect to the armature, substantially as described.

5. In an answerer, the combination with the shutter thereof, provided with an extension *a*, of a retaining-lever for holding the shutter in its normal idle position, an electromagnet, a push-rod intervening between the armature of the electromagnet and the said extension *a*, and means for coupling the electromagnet to effect the attraction of the push-rod and the restoration of the answerer-shutter through the engagement of the push-rod with the extension, the retaining-lever being articulated to the armature and having a limited lost motion with respect to the armature, substantially as described.

6. The combination with an electromagnet provided with a shutter and means for returning the shutter in a normal position, the armature of the electromagnet serving to effect the operation of the said means, a circuit for coupling the said electromagnet to effect the operation of the said shutter-releasing means and thereby the release of the shutter, the said armature being adapted to attract the shutter upon the release of the latter, a second circuit normally provided with two openings also for coupling said electromagnet, means whereby the shutter in falling may close one of the said openings, and means whereby the second opening of the returning-circuit may be closed to thereby effect the operation of the armature and the restoration of the shutter, substantially as described.

7. The combination with the shutter of an answerer, of means for effecting the release of the shutter, an electromagnet whose armature is adapted to attract the shutter when the latter is released, a returning-circuit adapted to include the said electromagnet and provided with two openings, means whereby the shutter in being released may close one of the said openings, and means for closing the remaining opening, whereby the said armature may be attracted to effect the restoration of the shutter, substantially as described.

8. The combination with the shutter of an answerer, of means for effecting the release of the shutter, an electromagnet whose armature is adapted to attract the shutter when the latter is released, a returning-circuit adapted to include the said electromagnet and provided with two openings, means whereby the shutter in being released may close one of the said openings, and means for closing the remaining opening, whereby the said armature may be attracted to effect the restoration of the shutter, the same armature also having operative connection with the shutter-releasing means, whereby it may act in the double capacity of effecting the release of the shutter, and its restoration, substantially as described.

9. The combination with a signal-revealing means, of means for actuating the signal-revealing means, an electromagnet for effecting the restoration of the signal-revealing means, a returning-circuit including the electromagnet and provided with two openings, means whereby the signal-revealing means may close one of the said openings when the signal-revealing means is operated to reveal the signal, and means for closing the second opening of the said circuit, substantially as described.

10. The combination with a signal-revealing means, of means for actuating the same to effect a signal, means for returning the signal-revealing means, manually-operated means for controlling the operation of the returning means in part, and means controlled by the signal-revealing means serving in conjunction with the manually-operated means to jointly govern the returning means, substantially as described.

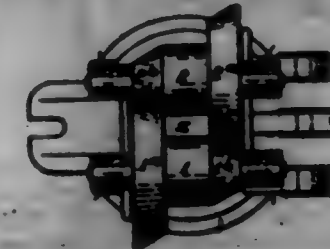
11. The combination with signal-revealing means, of means for actuating the same to effect a signal, means for returning the signal-revealing means, controllable means for controlling the operation of the returning means in part, and means controlled by the signal-revealing means serving in conjunction with the controllable means to jointly govern the returning means, substantially as described.

12. The combination with an electromagnet provided with a shutter and means for returning the shutter in a normal position, the armature of the electromagnet serving to effect the operation of the said means, a circuit for coupling the said electromagnet to effect the operation of the said shutter-releasing means and thereby the release of the shutter, the said armature being adapted to attract the shutter upon the release of the latter, a second circuit having two openings also for coupling the said electromagnet, whereby the said armature may again

be attracted to effect the restoration of the shutter, means whereby the shutter when falling may close one of the said openings, and means for closing the remaining opening to close the second circuit, substantially as described.

13. A signal provided with a single coupling-coil adapted to effect the presentation thereof, signal-revealing means, and means whereby the said coil may be operated to effect the operation of the signal-revealing means, substantially as described.

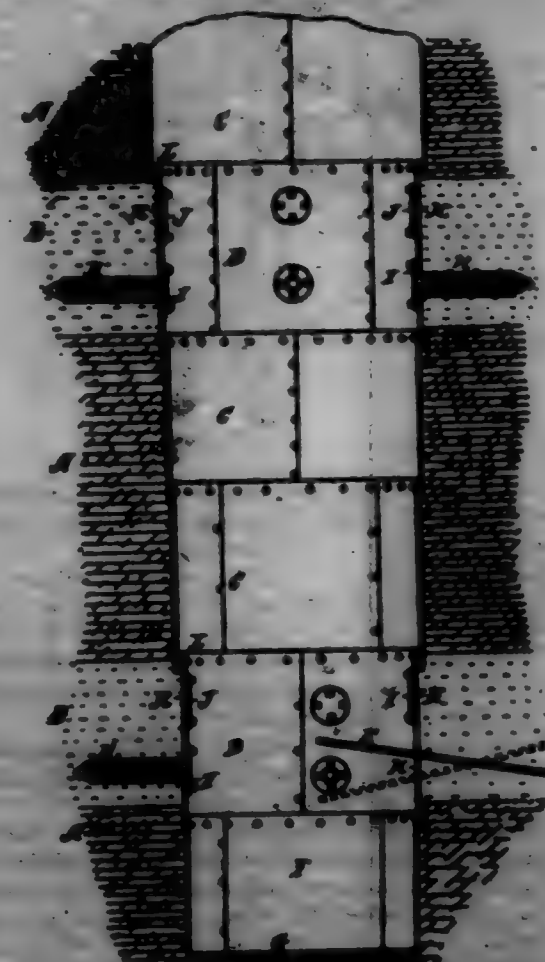
698,019. DIE FOR DIE-MACHINING. CLAUDE HOLLEY, Albany, N. Y., assignor to Chambers Brothers Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Nov. 12, 1901. Serial No. 84,948. (No model.)



Claim.—1. In a roller-die for brick-machining, the combination of two rollers having the beveled flanges at alternate ends only, and the correspondingly-beveled and portions opposed to said flanges respectively, the inner sides of said flanges flaring with the body of the rollers, the die-opening, substantially as set forth.

2. In a roller-die for brick-machining, the combination of the two independently-rotatable rollers having the beveled flanges at alternate ends only, and the correspondingly-beveled and portions opposed to said flanges respectively, said rollers being adapted to be rotated by the bar of clay in passing between them, and the inner sides of said flanges flaring with the body of the rollers the die-opening, substantially as set forth for the purpose set forth.

698,020. METHOD OF MAKING WELLS. JAMES C. BOWMAN, Penn. Pa. Filed Sept. 2, 1901. Serial No. 74,948. (No model.)



Claim.—1. The method of making wells which consists in cementing the well, forming a tubular impervious casing for the well as the cementing progresses, opening up holes in that part of the casing that passes through water-bearing strata, preventing seepage through the holes in the casing and causing the strata to be sealed.

2. The method of making wells which consists in cementing the well, forming a tubular impervious casing for the well as the cementing

progress, opening up holes in that part of the casing that passes through water-bearing strata, stirring the strata adjacent to the holes, protruding strainers through the holes in the casing and covering the strainers to the casing.

698,021. NORMS-DETACHER. FRANK H. EMM, Resend, Ga. Filed July 26, 1901. Serial No. 69,731. (No model.)



Claim.—In combination, a singletree having a truss-rod at each end, truss-pins for holding the trusses on the respective truss-locks, a throw-off lever pivoted at each end of the singletree, the forward end of each lever being bifurcated and having its two arms embrace the singletree proper, one arm above and the other beneath the singletree, both arms lying just inside of the shoulder at the end of the singletree, both said arms being curved forward and inward from a point opposite the truss-locks, and means for withdrawing the truss-pins and operating the throw-off levers, for the purpose set forth.

698,022. ELECTRIC MARRIAGE-MACHINE. EDWARD J. JACOBSON, Boston, Mass., assignor, by mesne assignments, to Thor H. Hoffman, Boston, Mass. Filed Sept. 12, 1900. Serial No. 730,314. (No model.)



Claim.—1. A massage instrument comprising an intermittently-acting percussive impact member, and a guard for limiting the approach of said instrument to the body under treatment.

2. A massage instrument comprising a vibrating percussive implement, and a guard for limiting the impact of the same on the subject under treatment.

3. A massage instrument comprising an electrically-actuated impact-vibrator, and mechanical means continuously under the control of the operator for governing the vibration thereof.

4. A massage implement comprising an electrically-actuated impact-vibrator connected with an electric circuit, and an electrically-actuated member in proximity to the vibrator.

5. A massage mechanism comprising a casing adapted for conventional handling, an electromagnetically-actuated vibrator contained within the casing and having a percussive portion extending outside the casing, and a mechanical controller for said vibrator working through an opening in the casing.

6. A massage mechanism comprising an electromagnetically-actuated guard-frame, and a percussive implement working in said frame.

7. A massage mechanism comprising an electromagnetically-actuated vibrator and a pair of electromagnets the cores of which are extended to form a frame for the vibrator.

8. A massage implement comprising tubular electromagnets with cores respectively mounted therein, means for adjusting the cores longitudinally, and a frame connected with said cores.

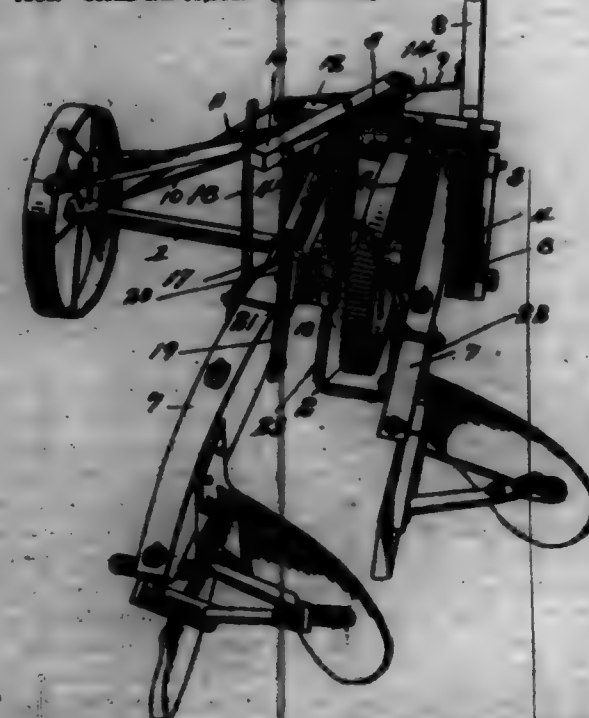
9. A massage mechanism comprising a casing, an electromagnetically-actuated vibrator contained therein and having a percussive arm extending therefrom, an electromagnet mounted on the casing, and a frame, adjustable with relation to the percussive arm electrically connected with said magnet.

10. A massage mechanism comprising a casing, an electromagnetically-actuated percussive implement mounted therein and having a portion extending therefrom, arms mounted for longitudinal adjustment on the casing and carrying a frame which partially embraces the outer portion of the percussive implement, and means for adjusting the arms.

11. The combination with the casing 6 having the handle 5 and the open end, of the plate 7 for closing the end and having the ears 8 and the stud 9, the screw 10 secured in the stud 9 and insulated therefrom, the post 12 on said screw, the block 15 pivotally supported in the ears 8 and having the armature 16 furnished with the springs 17 and 18 and the arm 19, the magnet-frame comprising the plate 21 and arms 20 20, the magnets secured to said plate, and the controller-rod 24 reciprocal in a bearing in the plate 21, bearing on the spring 18 and having the button 25 working in an opening in the casing.

12. The combination with the casing 6, the frame 26 mounted thereon and provided with the screw-threaded sleeve 28, and the magnets 27 27 in said frame, of the screw 29 29 reciprocal in said magnets and having the bent-up arm 31 31 connected by the strip 32, the cross-plate 33 secured to the rear ends of the screw 29 29, and the adjusting-screws 34 rotatable in said cross-plate and engaging the screw-threaded sleeve 28, as and for the purpose described.

698,023. FLOW. ALAN KAP, High Road, Niam. Filed Oct. 20, 1901. Serial No. 69,898. (No model.)



Claim.—1. In a plow, the combination of wheels, an axle, a frame carried by the axle, one of the wheels mounted within the frame, a frame mounted upon both sides of the wheel within the frame, a gang-coupling located in rear of the axle connecting the plow-gangs to permit independent vertical movement thereof, and a lock-lever for diverting the plows.

2. In a plow, the combination of plow-beams, a frame, an axle and wheels mounted in the frame, whereby the lower wheel runs between the plow-beams, and a gang-coupling for the plow-beams located in rear of the axle permitting independent vertical movement of each of the plows.

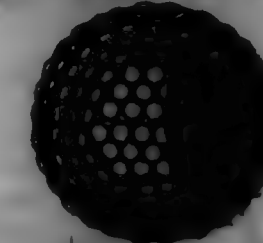
3. In a wheel-plow, the combination of two plows, a coupling directly connecting the two beams of the plow-gangs, said coupling comprising vertical bearings which permit the independent rise and fall of each plow-beam.

4. A gang-plow coupling comprising two members, each provided with clips for securing the plow-beam thereto and each provided with lower projecting members having vertical sliding bearings, whereby one member of the coupling may have a vertical movement with respect to the other.

698,024. GOLF-BALL. RICHARD KIRCHMANN, Boston, Mass., assignor to The Kongsbak Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 98,619. (No model.)

Claim.—1. A playing-ball comprising a spherical body consisting of rubber threads under tension, a fabric covering upon said body, and a gutta-percha shell upon said fabric covering.

2. A playing-ball comprising a sphere which consists of tensioned soft rubber, a shell consisting entirely of gutta-percha lined with fabric and including said sphere.



3. A playing-ball comprising a sphere which consists of tensioned soft rubber, and a shell consisting entirely of gutta-percha lined with fabric and including said sphere and holding said sphere under compression.

4. A playing-ball comprising a spherical body consisting of tensioned rubber threads, and a fabric-lined shell of gutta-percha compressed upon said spherical body.

5. A playing-ball comprising a spherical body consisting of tensioned rubber threads and a fabric-lined shell of gutta-percha compressed upon said spherical body, said shell consisting of segments of gutta-percha and fabric which are united at their edges.

6. A playing-ball consisting of a spherical body of soft rubber under tension, a fabric covering thereon, and segments of gutta-percha welded at their edges and compressed upon said spherical body.

7. A playing-ball comprising a soft-rubber spherical core enclosed in an envelope of fabric, and an outer including covering of gutta-percha compressed upon the ball.

698,025. TELEPHONE-BOOTH. CHARLES L. KIRK, Indianapolis, Ind. Filed Jan. 26, 1901. Serial No. 65,109. (No model.)



Claim.—1. A telephone-booth the walls of which are formed of a series of casings spaced from each other and having a continuous unbroken air-space between the casings, and distance-bars arranged between the casings at each side of said air-space, whereby the spaces at each side of the air-space are divided into a series of independent air-cells.

2. A telephone-booth the walls of which are formed of a series of casings spaced from each other and having a continuous unbroken air-space between the casings, the space formed by the casings at each side of said air-space being divided into a series of air-cells, a pair of inner doors arranged at one side of the booth, a pair of outer doors spaced from said inner doors, and connections between the inner and outer doors for simultaneously moving the doors in opposite directions.

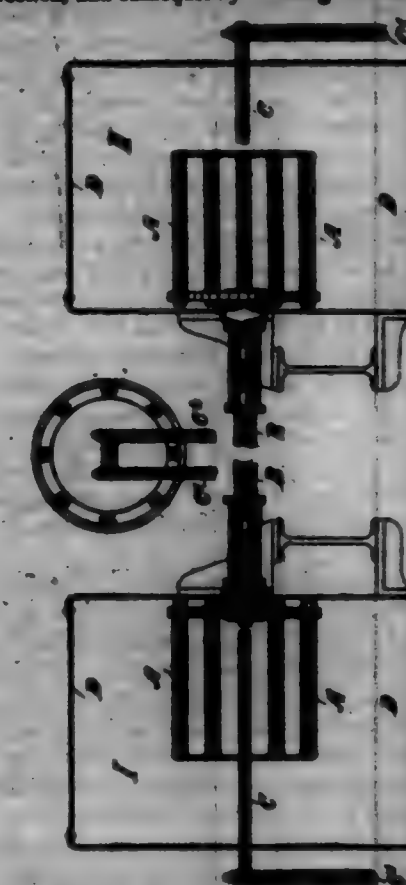
3. In a telephone-booth, the combination with the doorway thereof, of the inner and outer doors arranged in pairs, and means for connecting said doors, whereby one of the pairs is adapted to simultaneously swing in opposite directions to the opening pair.

4. In a telephone-booth, the combination with the doorway thereof, of inner and outer doors arranged in pairs and each comprising inner and outer casings formed of sound-deadening material, and means for connecting said doors, whereby one of the pairs is adapted to simultaneously swing in opposite directions to the opening pair.

5. In a telephone-booth, the combination with a series of casings spaced from each other in form the walls of the booth and having a continuous unbroken air-space between the casings, of a window-cash arranged in the inner casings and provided with a light, and a window-cash arranged in the outer casings and also provided with a light, said outer cash extending over the centrally-arranged air-space and being provided with a series of vent-openings for connecting the air-space intermediate the window-cashes with the centrally-arranged air-space.

698,026. PROCESS OF KNEEDING. WILLIAM KRAMER, Berlin, Germany, assignor to The Firm of J. & H. Kramers, Berlin, Germany. Filed Apr. 2, 1907. Serial No. 98,621. (No specimen.)

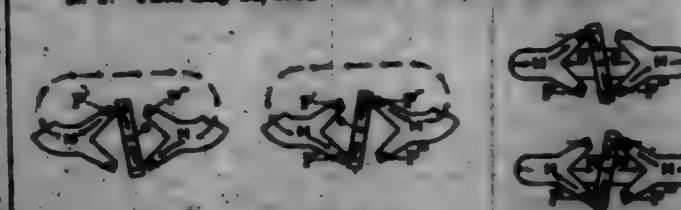
Claim.—1. The method herein described of kneading cotton fiber which consists in loosely supporting the fibers and imparting each a swift rotary movement thereto during the process of kneading and washing as will prevent the longitudinal shrinkage of the material while causing the kneading liquid to pass through the fiber from the interior thereof in one direction, and subsequently washing the fiber during rotation.



2. The method herein described of kneading cotton fiber, which consists in loosely supporting the fibers to be treated, imparting a swift rotary movement to the fibers that will overcome the tendency to shrink while forcing the kneading liquid in one direction through the supported fibers during each rotary movement, and subsequently forcing the washing liquid through the fibers in the same direction during each rotary movement.

3. The within-described improvement in kneading cotton which consists in subjecting the material to the action of centrifugal power of each degree that it will overcome the centrifugal carry of the liquid employed, substantially as set forth.

698,027. POLARIZED MAGNET. BROWN & KRAFT, Syracuse, N. Y. Filed May 26, 1901. Serial No. 68,312. (No model.)



Claim.—1. A polarized magnetic device comprising a magnet having its two ends branched or forked each into a pair of magnetic poles of the same polarity but each of said poles being of opposite polarity, all four poles so formed lying in the same plane and each of said poles forming, or marking, opposite sides of a rectangular therein; a second magnet having two poles of opposite polarity, each of which is located at or near one extremity thereof and between a positive and a negative pole of those of said first magnet forming said rectangles; an axle passing through the geometrical center of said rectangles and perpendicular to the plane thereof upon which said axle one of said magnets is pivotally mounted; and means to control the magnetic condition of one of said magnets.

2. A polarized magnetic device comprising a magnet having its two ends branched or forked each into a pair of magnetic poles of the same polarity but each of said poles being of opposite polarity, all four poles so formed lying in the same plane and each of said poles forming, or marking, opposite sides of a quadrilateral figure therein; a second magnet having two poles of opposite polarity each of which is located at or near one extremity thereof and between a positive and a negative pole of those of said first magnet forming said quadrilateral figure; an axle passing through the center of gravity of said quadrilateral figure and perpendicular to the plane thereof; and means to control the magnetic condition of one of said magnets.

similar to the plane thereof upon which one of said magnets is pivotally mounted; and means to control the magnetic induction of one of said magnets.

2. A polarized magnetic device comprising an electromagnet having its two ends branched or forked each into a pair of magnetic poles of the same polarity but each of said pairs being of opposite polarity, all four poles so formed lying in the same plane and each of said pairs forming or marking opposite sides of a rectangular figure therein; a permanent magnet having two poles of opposite polarity each of which is located at or near one extremity and between a positive and a negative pole of these of said electromagnet forming said rectangle; an axis passing through the geometrical center of said rectangle and perpendicular to the plane thereof upon which said permanent magnet is pivotally mounted; and means to control the magnetic induction of said electromagnet.

3. A polarized magnetic device comprising an electromagnet having its two ends branched or forked each into a pair of magnetic poles of the same polarity but each of said pairs being of opposite polarity, all four poles so formed lying in the same plane and each of said pairs forming or marking opposite sides of a quadrilateral figure therein; a permanent magnet having two poles of opposite polarity each of which is located at or near one extremity and between a positive and a negative pole of these of said electromagnet forming said quadrilateral figure; an axis passing through the center of gravity of said quadrilateral figure and perpendicular to the plane thereof upon which said permanent magnet is pivotally mounted; and means to control the magnetic induction of said electromagnet.

4. A polarized magnetic device comprising two magnets, one at least of which is subject to the direct influence of a magnetizing-cell adapted to reverse its polarity, the first of said magnets having its extremities branched or forked each into two magnetic poles all lying in the same plane and marking the corners of a rectangle therein, the second magnet having two poles of opposite polarity located each at or near an extremity thereof, and between a positive and a negative pole of these of said first magnet outlining said rectangle; an axis passing through the geometrical center of said rectangle and perpendicular to the plane thereof upon which one of said magnets is pivotally mounted and adapted to swing in such a manner as to place its magnetic lines in continuation with those of the other magnet thus forming through both magnets from end to end a single continuous magnetic circuit whose direction in either magnet is unchanged by a reversal in the other.

5. A polarized magnetic device comprising an electromagnet having its two ends forked each into two branches of equal magnetic resistance, terminating in a pair of magnetic poles of the same polarity, but each of said pairs being of opposite polarity, all four poles so formed lying in the same plane and each of said pairs forming or marking opposite sides of a quadrilateral figure therein; a permanent magnet having two poles of opposite polarity each of which is located at or near one extremity and between a positive and a negative pole of these of said electromagnet forming said quadrilateral figure; an axis passing through the center of gravity of said quadrilateral figure and perpendicular to the plane thereof upon which one of said magnets is pivotally mounted; and means to control the magnetic induction of said electromagnet.

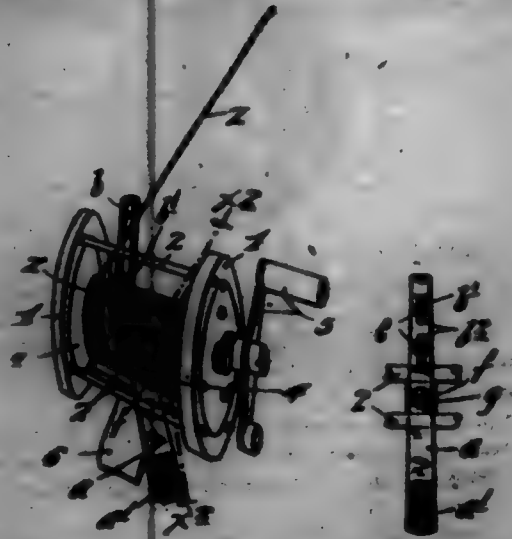
6. A polarized magnetic device comprising two magnets, one at least of which is subject to the direct influence of a magnetizing-cell adapted to reverse its polarity, the first of said magnets having its extremities divided each into two branches of equal magnetic resistance, each branch terminating in a magnetic pole and all poles so formed lying in the same plane and marking the corners of a rectangle therein, the second magnet having two poles of opposite polarity located each at or near an extremity thereof and between a positive and a negative pole of these of said first magnet outlining said rectangle; an axis passing through the geometrical center of said rectangle and perpendicular to the plane thereof upon which one of said magnets is pivotally mounted and adapted to swing in such a manner as to place its magnetic lines in continuation with those of the other magnet thus forming through both magnets from end to end a single continuous magnetic circuit whose direction in either magnet is unchanged by a reversal in the other.

698,098. TWIN RAY-PULP PULP SEPARATING. ROBERT KRAFFT, Karlsruhe, Germany. Filed May 6, 1904. Serial No. 69,394. (No apparatus.)

Claim.—As a new article of manufacture, a machine consisting of an inner and outer layer and an intermediate layer of pulp composed of a mixture of finely-ground turf, glycerine, starch, paper-pulp and a small percentage of an antiseptic, such as carbolic acid, substantially as described.

698,099. LIFE-GUARD FOR FIRE-ENGINE. HARRY KIMMER and EDWARD J. HOFFMAN, Minneapolis, Minn.; said Kimmer assignor to said Hoffman. Filed Aug. 1, 1905. Serial No. 79,479. (No model.)

Claim.—1. A life-guard for use comprising a pivoted lever having a thumb or finger piece and a line-guide, through the latter of which the line is passed, substantially as described.



2. A life-guard for use, comprising a lever pivoted at its intermediate portion to a suitable support and provided at one end with a thumb-piece and at its other end with a guide-loop, through which loop the line is passed, substantially as described.

3. A life-guard for use, comprising a lever pivoted at its intermediate portion and provided at one end with a thumb-piece and at its other end with an adjustable guide-loop through which the loop-line is passed, substantially as described.

4. A life-guard for use, comprising the lever pivoted to a suitable support at *f* and provided at one end with a thumb-piece *a'* and at its other end with the guide-loop *b*, having the stem *b'* adjustably secured to the body of said lever *a* by one or more screws *c*, substantially as described.

698,080. WINDOW-WASHING APPARATUS. EDWARD C. LAYTON, Duluth, Minn., assignor, by direct and remote assignments, to Layton's Safety Window Cleaner Company, Minneapolis, Minn., a Corporation. Filed July 17, 1906. Serial No. 59,948. (No model.)

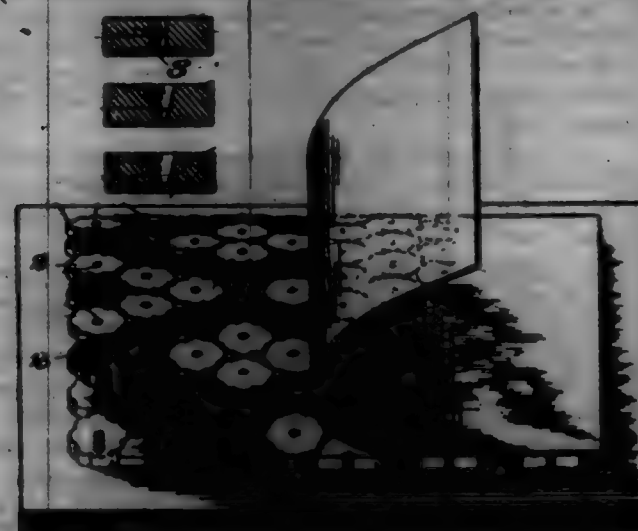


Claim.—1. In a window-washer, the combination of a horizontal tube adapted to be rigidly secured between the sides of the window-frame, of a carriage mounted to slide on said tube, a block pivoted to said carriage, a horizontal tube or bar mounted in said pivoted block, a vertical standard carried by the horizontal tube or bar, and washing device carried by the vertical standard, substantially as described.

2. In a window-washer, the combination of a vertically-arranged hollow standard, a pulley mounted at the upper end thereof, a block slidably secured on the outside of the standard and carrying a window brush or cleaner which always remains outside of the standard, an elastic cord loosely secured at or near the lower end of the standard and extending upwardly therefrom along said standard and passed over the pulley and secured to the under side of the block for automatically raising said block and the brush or cleaner carried thereby each time they are drawn downwardly by the operator, and an indicator cord secured to the under side of the block and extending to a suitable point within easy reach of the operator for drawing the block downward on the standard, substantially as described.

698,081. THE. EDWARD J. LAYTON, Duluth, Minn., assignor to Layton's Safety Window Cleaner Company, a Corporation of New York. Filed Nov. 25, 1904. Serial No. 61,625. (No model.)

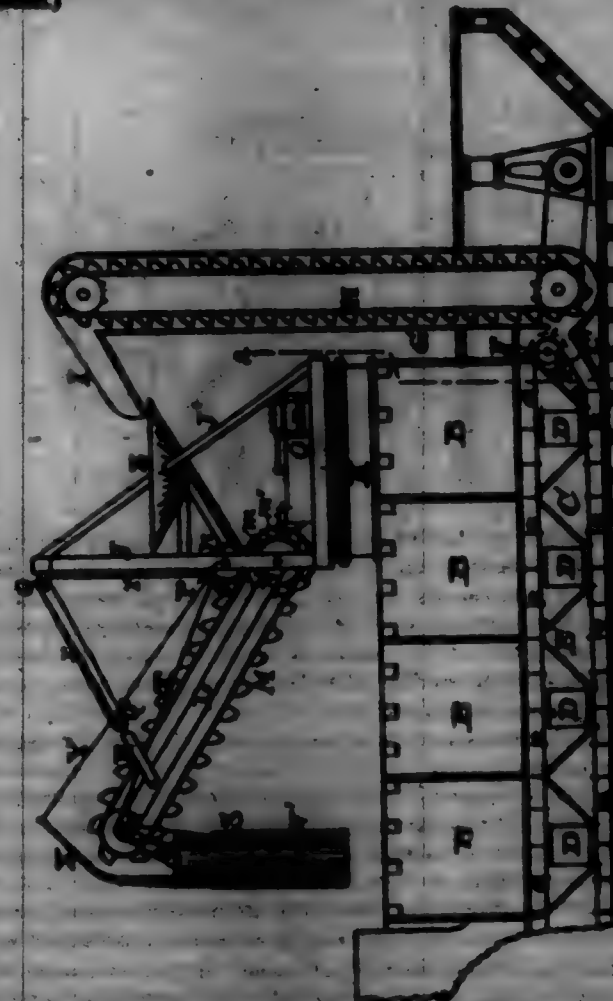
Claim.—1. An open-center tile having a concave under surface.
2. An open-center tile provided with a corrugated periphery.



3. A tile cut away centrally to form an opening of varying diameter and having a concave under surface.

4. A tile cut away centrally to form a through-opening and provided with a corrugated periphery, the under surface of said tile being concave.

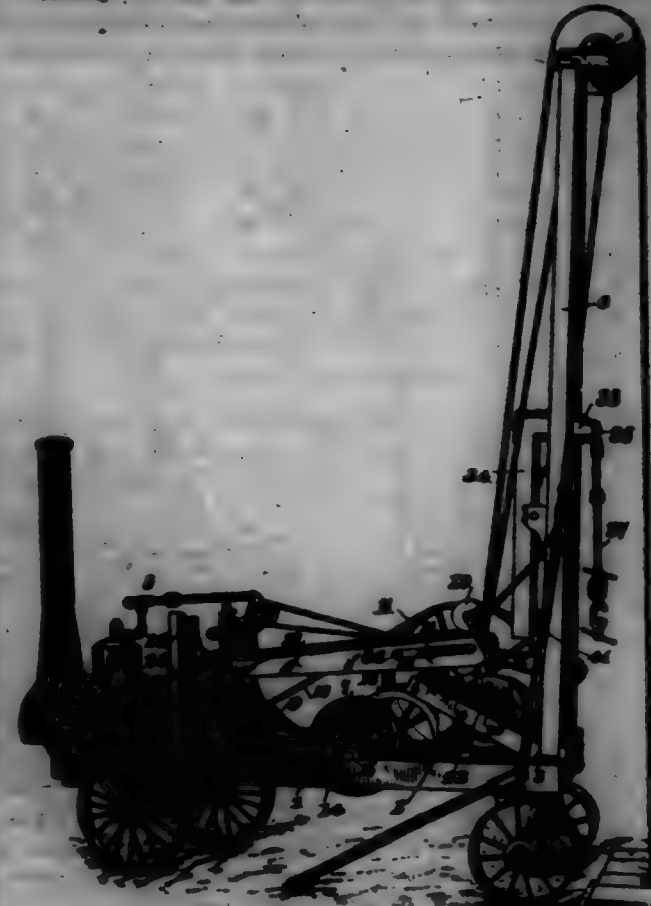
698,082. FEEDING AND CONVEYING MACHINE. THOMAS LEAH, Cleveland, Ohio. Filed Jan. 27, 1908. Serial No. 61,647. (No model.)



Claim.—1. In a feeding and conveying machine, a reversible device, a traveling adjustable conveyor supported and carried by the device, a receiving-hopper mounted on the frame of the device, and an adjustable telescopic spout attached to the end of the conveyor-belt, and means for opening the same, in combination, substantially as and for the purpose set forth.

2. In a feeding and conveying machine, a reversible device, a traveling adjustable conveyor supported and carried by the device, a receiving-hopper mounted on the frame of the device, in combination with and supported on a vessel having fluid compartments, a tunnel in the bottom of said compartments, a hinged coupling-conveyor in said tunnel, down to the sides of the compartments for delivering their contents into said tunnel, and a vertical inclined conveyor connected with said tunnel, and a discharging spout on the top of said vertical conveyor for transferring material into the receiving-hopper on the device, substantially as described.

698,083. STEAM-POWER WELL-DRILLING MACHINE. GEORGE B. LECHE, Elm, Ohio. Filed June 17, 1906. Serial No. 79,866. (No model.)



Claim.—1. In a well-drilling machine, the combination with a supporting-frame including longitudinal ribs, and a derrick-mast, of inclined beams mounted with their forward ends at the base of the mast and having their rear ends raised above the ribs, a drive-shaft mounted upon the frame at the foot of the mast and carrying a drive-pulley and a drill-rotating crank, a sand-drum mounted between the drive-shaft and the foot of the mast, with its axis in a plane below the axis of the drive-shaft, said sand-drum being adapted for movement into and out of operative relation to the drive-shaft to receive motion therefrom, a bull-wheel mounted upon the ribs in the rear of the drive-shaft and adapted for bodily movement into and out of operative relation thereto, whereby the drive-shaft will have the functions of operating the adjacent sand-drum and bull-wheel, and of operating the drill-rope, the bull-wheel shaft lying below the drive-shaft, and a power-shaft mounted upon the frame in the rear of and below the drive-shaft, and having a belt connecting with the drive-shaft, whereby the drive will be in the direction of the bull-wheel shaft to maintain operable connection therewith.

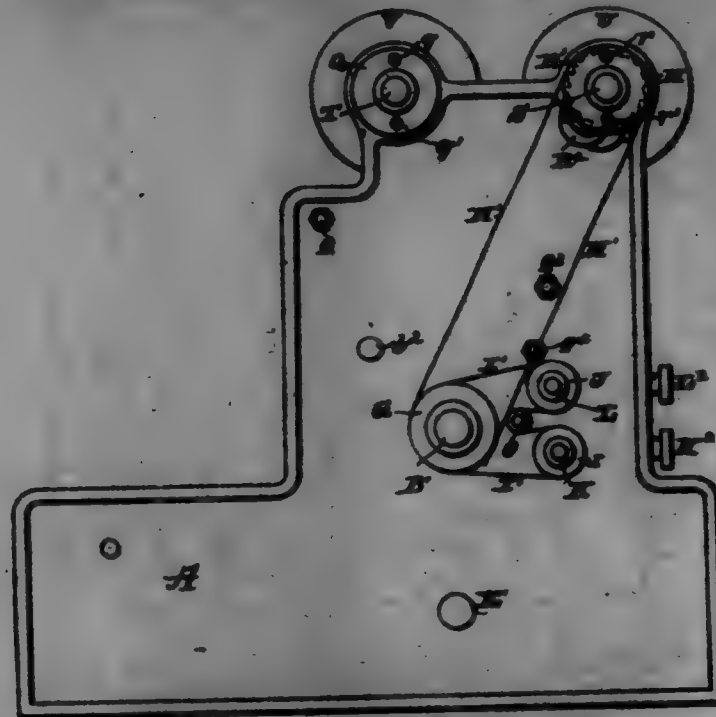
2. In a well-drilling machine, a frame having a mast, a walking-beam pivotally mounted on the mast and adapted when closed to be turned to a vertical position, a driven shaft having a crank, a connection, including a pinion, to communicate power to said walking-beam from said crank, said pinion being adapted to be attached to and disconnected from the wrist of said crank, a standard on said frame, a spanning pivot supported by said standard and disposed transversely with reference to the frame and at one side thereof, a spreading-lever mounted on said spanning pivot, for lateral movement thereon and having at its lower end a pulley 20, mounted and shiftable laterally on said spanning pivot, with said spreading-lever, the latter having at its outer end a slot 30 adapted for the reception of the wrist of said crank, whereby said spreading-lever may be operated by or unclipped from said crank, and when unclipped therefrom may be free to drop its outer end to the ground, said spreading-lever having a cleave 50 at its outer end, substantially as described.

698,084. MACHINE FOR IMPROVING AND PRINTING. GEORGE B. LECHE, Elm, Ohio. Filed Jan. 10, 1907. Serial No. 61,648. (No model.)

Claim.—1. In an improving and printing machine, the combination with a die, of two rollers, a polishing-rod wound on said rollers and adapted to bear between its ends on said die, means for moving said die in one direction, and means for intermittently moving the polishing-rod and means for automatically rotating one of said rollers to cause the polishing-rod to be wound thereon, substantially as set forth.

2. In a rotary embossing and printing machine, the combination with two cylindrical rotary-carriers, a curved segmental die removably secured

to one of said segmental carriers, and a removable counter-die carried by the other segmental carrier, of an ink-roller, an elastic ink-roller for said die, a polishing-paper means for moving over and in contact with said carrier die, rollers on which said polishing-paper is wound, and means for automatically rotating one of said rollers, substantially as set forth.



3. In an embossing and printing machine, the combination with the embossing and printing die, of a polishing-strip, and vibratory means for drawing a limited and predetermined quantity thereof across the said die, and an automatic take-up for keeping the strip taut.

4. In an embossing-machine, the combination with a die-carrier and a die, of a polishing-strip and means operated automatically by the die-carrier for drawing a limited and predetermined quantity of said polishing-strip across the die.

5. The combination with a reversible die-carrier and a die, of a polishing-paper strip, means for causing said strip to make contact with and move across the die, a gripping device, device intermediate of the die-carrier and gripping device for operating the latter to draw a predetermined amount of polishing-paper across the die, and means for adjusting said intermediate device for regulating the amount of strip to be drawn across the die at each operation of said intermediate device, substantially as set forth.

698,085. ATTACHMENT FOR GRACKER, RESCUE, OR CAKE MACHINES. BAKER, W. HANSEN, Mason, Ga. Filed Dec. 15, 1901. Serial No. 24,009. (No model.)



Claim.—1. An attachment for blanch, cake or cracker machines consisting of a frame having means for applying oil or grease to the face of roller of the machine, and means for subsequently depositing a pulverulent material on the oiled or greased face of the roller.

2. In combination with a compression-roller, of a blanch, cake or cracker machine, of a frame having a chamber which is adapted to receive an absorbent material which is saturated with oil and means for depositing pulverulent material upon the oiled surface of the roller.

3. In a dough-preparing machine, the combination with a roller, means for applying oil to the surface of the roller, means for subsequently

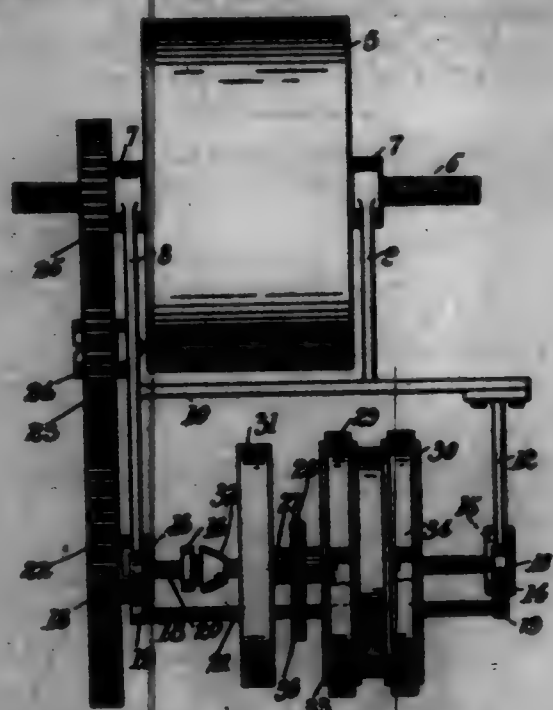
dusting the roller with a pulverulent material which is placed on the dough so that the oil will be apparent, for the purpose set forth.

4. In a dough-preparing machine, the combination with one of the compression-rollers thereof of means for applying an oleaginous substance to the surface of the roll, a vertically-vibrated hopper for applying a pulverulent material thereon upon the oiled surface of the roll, for the purpose set forth.

5. In combination with a compression-roll of a cracker, blanch or cake forming machine, of a frame having a compartment which is open to the roll, a scraper, and a vertically-vibrated hopper, substantially as shown.

6. An attachment for cracker, blanch or cake forming machine, consisting of a frame having a chamber which is open to a compression-roller of the machine, a scraper, a hopper maintained to be susceptible of a vertical movement in the frame, a drive carried by the hopper, camshafts with which the hopper contacts, a rock-shaft having arms which engage the hopper, means for rocking the shaft, and springs to effect a quick return of the hopper, substantially as shown and for the purpose set forth.

698,086. MOTOR-VEHICLE. CHARLES L. MAYNOR, Saratoga Springs, N. Y. Filed May 21, 1901. Serial No. 61,904. (No model.)



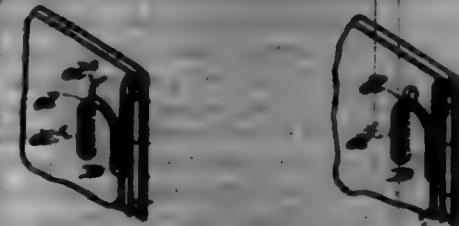
Claim.—1. The combination with a motor and its casing, of the motor-shaft, bearings carried by the motor-casing concentric with the shaft, a hanger including spaced arms swingingly mounted upon the bearings, a drive-shaft mounted in the hanger and operatively connected with the motor-shaft, a driving member upon the drive-shaft, and means connected with the hanger for holding the power-shaft in constant speed relation with an axle to be driven.

2. The combination with a motor and its shaft, of a hanger swingingly mounted concentric with the shaft, a drive-shaft mounted in the hanger and having a drive member, a brake-drum connected with the drive member, projections upon the hanger extending beyond the brake drum, and brake mechanism mounted in the projections in operative relation to the drum.

3. The combination with a motor and its shaft, of a hanger mounted concentric with the shaft for swinging movement, a drive-shaft mounted in the hanger and operatively connected with the motor-shaft, a drive-sprocket mounted upon the drive-shaft, clutch mechanism for throwing the sprocket into and out of operative relation to the drive-shaft, a chain engaged with the sprocket, a chain-tightener carried by the hanger in operative relation to the chain, brake mechanism for the sprocket carried by the hanger, and means connected with the hanger for holding the drive-shaft in speed relation to an axle to be driven.

4. The combination with a motor and its shaft, of a hanger comprising spaced vertical arms 6 and 9 each having forwardly and rearwardly extending arms 10 and 11, of a drive-shaft 12 mounted in the hanger and operatively connected to the motor-shaft, a driving-sprocket 20 mounted on the drive-shaft, a clutch-disk 21 loosely mounted on the drive-shaft, a sliding clutch carried by said shaft and adapted to engage with the disk, brake-drum carried by the drive-shaft, hand-brake members 22 and 23 having one end fixedly secured to a portion of the hanger-frame, and adjustable spacing-bars connecting the hanger-frame to the driving-shaft of the vehicle, substantially as specified.

698,087. SUPPORTING MEANS FOR GARMENTS. CHARLES W. HENRY, Chicago, Ill. Filed Oct. 2, 1901. Serial No. 73,897. (No model.)



Claim.—1. A garment-support comprising in combination with the strengthening-web and the inner-lining fabric of a waistband, a relatively thin U-shaped hook, upwardly-extending parallel arms extending above the top of the hook portion and terminating in rearwardly-directed sharp points, said hook and arms being passed upwardly through the lining fabric and between said lining fabric and strengthening-web and having the extremities thereof permanently attached to the strengthening-web at points above the hook.

2. The combination with the waistband of a garment comprising an inner web of canvas and an inner lining of fabric of a relatively thin hook having rounded wearing-surfaces and comprising an arm adapted to be passed through and concealed between the lining fabric and canvas and permanently attached to the canvas web without cutting either fabric and the attachment with the canvas being above the hook.

3. In a pair of trousers, the combination with the waistband comprising a strengthening-web and an inner lining of a relatively thin hook having upwardly-directed thin pointed arms, said arms being passed through the lining fabric and pushed upwardly behind the same and permanently secured on the strengthening-web, said hooks being located on the inner side of and on each side of the garment.

698,088. SWITCHBOARD APPARATUS. WILLIAM MEYER, Chicago, Ill., assignor to the Greengard-Carlson Telephone Manufacturing Company, Chicago, Ill., a corporation of Illinois. Filed Oct. 16, 1901. Serial No. 73,195. (No model.)



Claim.—1. The combination with a bank of incandescent lamps, of a framework for mounting said lamps, a cover-plate for said lamps, provided with apertures registering with the said lamps, said apertures in said cover-plate, and means for removably securing said cover-plate to said framework, substantially as described.

2. The combination with a bank of incandescent lamps, of a framework for mounting said lamps, contact-springs provided in said framework, a cover-plate for said lamps provided with apertures registering with the said lamps, said apertures in said cover-plate, and means for removably securing said cover-plate to said framework, substantially as described.

3. The combination with a bank of incandescent lamps, of a framework for mounting said lamps, contact-springs provided in said framework, a cover-plate for said lamps provided with apertures registering with the said lamps, said apertures in said cover-plate, and spring-clamps for securing said cover-plate to said framework, substantially as described.

4. The combination with a bank of lamps, of a framework wherein said lamps may be mounted, springs for effecting electrical contact with said lamps, the framework for said lamps comprising a front plate provided with holes wherein the lamps may be mounted at one end, a cover-plate provided with apertures registering with said holes, said apertures having inclined surfaces, said apertures being provided with a spring for impinging against said inclined surfaces, and spring-clamps for removably securing said cover-plate to said framework, substantially as described.

5. The combination with a bank of lamps, of a framework wherein said lamps may be mounted, springs for effecting electrical contact with said lamps, the framework for said lamps comprising a front plate provided with holes wherein the lamps may be secured at one end, a cover-plate provided with apertures registering with said holes, said apertures having inclined surfaces, said apertures being provided with a spring for impinging against said inclined surfaces, and spring-clamps for removably securing said cover-plate to said framework, substantially as described.

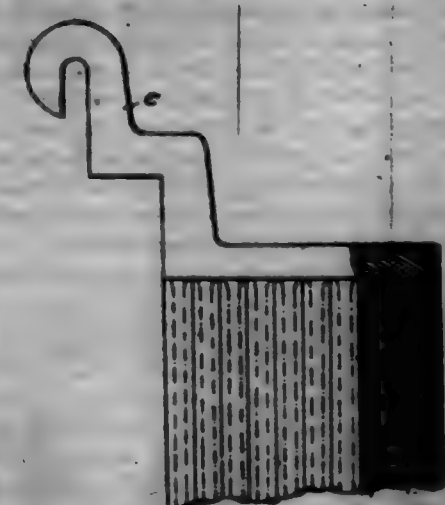
6. The combination with a bank of lamps, of a framework wherein said lamps may be mounted, springs for effecting electrical contact with said lamps, the framework for said lamps comprising a front plate pro-

vided with holes wherein the lamps may be secured at one end, a cover-plate provided with apertures registering with said holes, said apertures having inclined surfaces, said apertures being provided with a spring for impinging against said inclined surfaces, a spring for holding the apertures in place, and spring-clamps for removably securing said cover-plate to said framework, substantially as described.

7. A cover-plate for mounting lamps in front of a bank of lamps, comprising a plate provided with apertures having inclined surfaces, said apertures being provided in said apertures impinging against said inclined surfaces, a spring for securing the apertures in place within the strip, and spring-clamps provided upon said strip, substantially as described.

8. A cover-plate for mounting lamps in front of a bank of lamps, comprising a plate provided with apertures having inclined surfaces, said apertures being provided in said apertures, and spring-clamps provided upon said strip, substantially as described.

698,089. PROCESS OF MAKING PLATES FOR STORAGE BATTERIES. ARTHUR MEYER, Paris, France. Filed Dec. 2, 1900. Serial No. 20,000. (No specimen.)



Claim.—1. The process of producing electrodes for storage batteries consisting in forcing a disintegrated active mass through a die-plate to form the mass into hollow sticks or tubes, placing these hollow sticks or tubes in a suitable mold, running metal into the mold which conducts the metal into the bases of the hollow sticks or tubes, that portion of the metal remaining in the mold constituting a frame integral with the metal cores received in the bases of the hollow sticks or tubes.

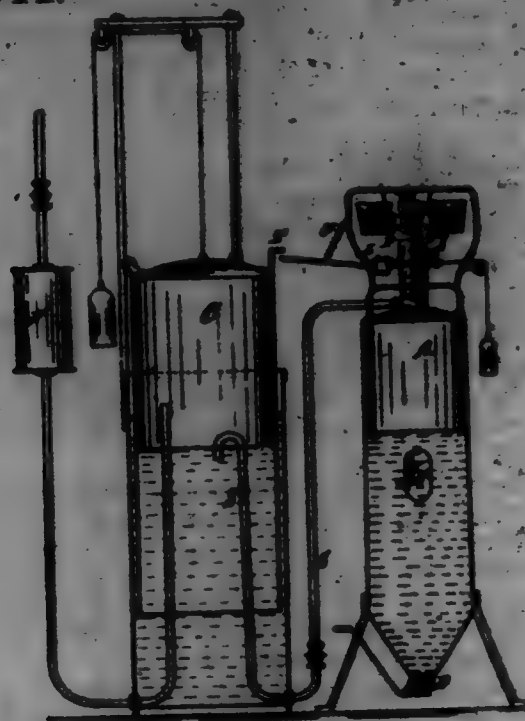
2. The process of producing electrodes for storage batteries consisting in forcing an active disintegrated mass through a die-plate from which it emerges in the form of hollow sticks or tubes of suitable contour, placing the hollow sticks or tubes in any desirable position with relation to one another, running field metal into the bases of the hollow sticks or tubes to form cores therefor, the field metal remaining outside of the bases of the hollow sticks and connected with the cores thereof formed into a frame integral with the cores in the bases of the hollow sticks or tubes.

3. The improved process of manufacturing electrodes for storage batteries which consists in forcing a disintegrated active mass through a suitable die-plate to produce sticks, coating the sticks with a chemical compound containing a pulverulent material and subsequently dissolving the pulverulent material whereby the necessary porosity is given the stick.

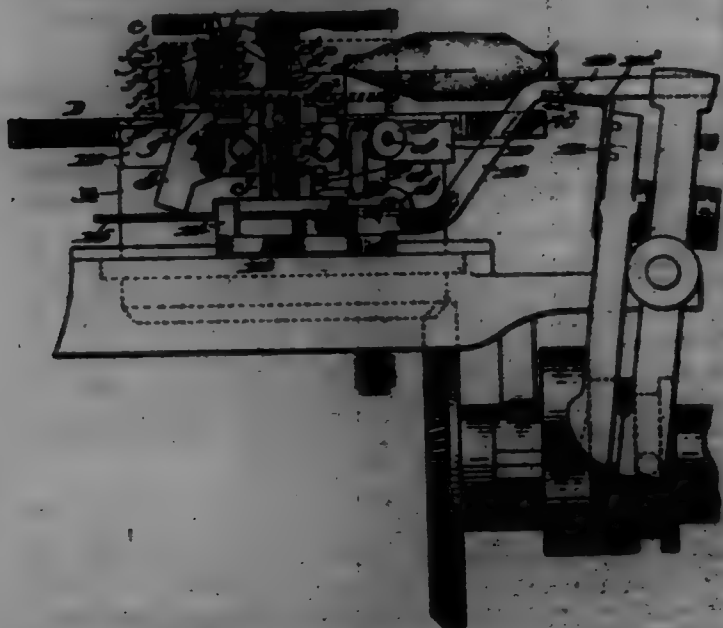
4. The improved process of producing electrodes for storage batteries consisting in forcing a disintegrated active mass through a die-plate from which it emerges in the form of hollow sticks or tubes, placing the hollow sticks or tubes in a mold running field metal into the mold, the metal being permitted to enter the bases of the hollow sticks or tubes to form cores therefor, the metal remaining in the mold connected to the cores of the hollow sticks or tubes being formed into a frame integral with the cores, coating the plates thus formed with varnish and subsequently giving the varnish the necessary porosity whereby the field may gain access to the active material.

5. A method or process of producing electrodes for storage batteries, consisting, first, in forcing a disintegrated active mass through means from which it emerges in the form of hollow sticks or tubes of suitable contour, second, in placing such sticks or tubes in a suitable mold in any desired design, third, in running any suitable metal into the bases of the hollow sticks or tubes to form cores therefor, the metal remaining in the mold having the form of a frame which is integral with the cores of the hollow sticks or tubes, fourth, in coating the plates with any suitable non-conducting covering and fifth, in giving each coating only, the necessary porosity.

698,044.



698,045. KNITTING-MACHINE. JAMES J. O'BRIEN, Boston, Mass.
Filed Oct. 4, 1900. Serial No. 32,310. (No model.)



Claim.—1. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder of a reinforcing-thread guide outside of said cylinder to contain a reinforcing-thread and deliver it to the needles and the fabric, of a take-up located below the top of the needles and acting on said reinforcing-thread when the latter is being knitted across after course into the fabric.

2. In a knitting-machine, the combination with a series of needles and a cam-cylinder capable of being rotated and reciprocated, a reinforcing-thread guide outside of said cylinder, means to put the delivery end of said thread-guide automatically in position to deliver its thread to the needles to be knitted into the fabric with the usual main thread during reciprocating knitting, of means to automatically turn the delivery end of the thread-guide for the reinforcing-thread into position in which said thread-guide will hold its thread in the needles to be taken and knitted with the main thread, said thread-guide in its inoperative position, however, permitting the reinforcing-thread to be drawn through it as the knitting progresses, thus leaving the reinforcing-thread always connected with the fabric, thereby avoiding kinks and other irregularities which result in breaking off the thread and damaging the work, and a take-up adjacent the reinforcing-thread guide to act upon the part of said reinforcing-thread passing through said guide and take-up being below the knitting-line.

3. In a circular-knitting machine adapted for circular and reciprocating knitting, a cam-cylinder, means to retain a cap or bobbin of reinforcing-thread, a reinforcing-thread guide to present said thread to the needles in knitting, means for changing the position of said reinforcing-thread guide with relation to the main-thread guide at alternate strokes to

thereby enable said reinforcing-thread guide to deliver its thread to the needles throughout reciprocating knitting.

4. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder, of a controller, and a reinforcing-thread guide having a spring-operated pin and cooperating with said controller, the latter effecting a change of position of the thread-guide between successive strokes in reciprocating knitting that said thread-guide may deliver its thread continuously to the needles throughout reciprocating knitting.

5. In a circular-knitting machine adapted for circular and reciprocating knitting, a cam-cylinder having a support for the reinforcing-thread, a reinforcing-thread guide movable with said cam-cylinder, means to turn said thread-guide toward the main-thread guide during each alternate stroke of reciprocating knitting, and a take-up acting on said reinforcing-thread.

6. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder, and a reinforcing-thread guide to contain a reinforcing-thread and to deliver it to the fabric being knitted together with the main thread, of a tension device acting upon said reinforcing-thread, and a take-up contained on said thread between said tension device and the delivery end of said thread-guide.

7. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder of a slide connected frictionally therewith and movable independently thereof and containing a main-thread guide, of a reinforcing-thread guide movable with said slide and containing a reinforcing-thread, and a take-up located below the knitting-line also movable with said slide and cam-cylinder, said take-up acting continuously on the reinforcing-thread.

8. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder of a slide connected frictionally therewith, of a reinforcing-thread guide movable with said slide and containing a reinforcing-thread, which is guided and delivered direct to the needles, a take-up also movable with said slide and acting continuously on the reinforcing-thread, and means to guide the take-up in its movements due to the stick in said reinforcing-thread.

9. In a circular-knitting machine adapted for circular and for reciprocating knitting, a series of needles, a cam-cylinder, a main-thread guide, and a reinforcing-thread guide partaking of the movements of the cam-cylinder in circular and in reciprocating knitting, a take-up cooperating with the reinforcing-thread, and means to cause said reinforcing-thread to be put into its operative position during a part of each course of knitting while the cam-cylinder is being moved in the direction of circular knitting and to change its position on reverse movement thereof.

10. In a circular-knitting machine adapted for circular and reciprocating knitting, the combination with the cam-cylinder having a reinforcing-thread guide outside of said cylinder to contain a reinforcing-thread, of means to move said thread-guide that it may deliver its thread to the needles when the fabric is to be thickened, and put said reinforcing-thread guide in its inoperative position when it is desired to omit the reinforcing-thread, said thread-guide holding the thread unbroken between itself and the fabric, and a take-up acting as a weight on the reinforcing-thread and occupying a position below the knitting-point.

698,046. ELECTRIC LAMP. HENRY J. LAMP, New York, N. Y. Filed Nov. 14, 1897. Renewed Mar. 14, 1900. Serial No. 32,311. (No model.)

Claim.—1. A feeding mechanism comprising a solenoid and core, a pair of relative clutch members, brackets rigidly secured to the core for supporting the same, said clutch members having lateral movement relatively to said brackets, an abutment carried by the brackets for one of said clutch members, the other of said clutch members being adapted to have lateral movement, a pressure adapted to act on the last-mentioned clutch member and means for regulating the action of said pressure upon said clutch member, substantially as described.

2. A feeding mechanism comprising a solenoid and core, a pair of relative clutch members, brackets rigidly carried by the core to support said clutch members so they may have lateral movement, an abutment carried by the brackets for one of said members, a pressure to act on the other of said clutch members, and means for regulating the action of said pressure upon said member, substantially as described.

3. A feeding mechanism comprising a solenoid and core, brackets rigidly carried by the core, a pair of grooved relative clutch members supported by the brackets, an abutment carried by the core for one of said members, one of said clutch members held from lateral movement, being adapted to have lateral movement, a lever to act upon said movable member, said lever having a spring-actuated arm, and an abutment for said arm, substantially as described.

4. A feeding mechanism comprising a bar, brackets depending therefrom, relative clutch members journaled on said brackets, one of said members

been adapted to have lateral movement, a lever pivotedly carried by one of said brackets to act on said movable clutch member, and an abutment for said lever, substantially as described.



5. A feeding mechanism comprising a bar, brackets depending therefrom, relative grooved clutch members journaled on said brackets, to have lateral movement relatively thereto, an abutment for one of said clutch members, the other clutch member being adapted to have lateral movement, a pressure to act upon said movable clutch member, said pressure having a spring-actuated arm, and an abutment for said arm, substantially as described.

6. The combination of a pair of solenoids and their cores with a bar carried by said cores, a pair of clutch members carried by said bar, one of said clutch members being adapted to have lateral movement, a pressure to act upon said movable clutch member, to move bodily toward a carbon, an independent abutment for the pressure, and means for regulating the pressure of said pressure upon said clutch member, substantially as described.

7. The combination of a pair of solenoids and their cores with a bar carried by said cores, a pair of grooved relative clutch members carried by said bar, an abutment for one of said clutch members, the other clutch member being adapted to have lateral movement bodily toward a carbon, a lever to act on said movable clutch member, said lever having a spring-actuated arm, and an abutment independent of the core for said arm, substantially as described.

8. A feeding mechanism comprising a pair of brackets having laterally-extending slots or openings, means for supporting said brackets, a pair of clutch members having supports located in said slots or openings to travel laterally therein, an abutment for one of said clutch members, a pressure to act with the other clutch member, and an abutment to act with said pressure, substantially as described.

9. A feeding mechanism comprising a bar 10, a pair of brackets depending therefrom, said brackets having laterally-extending slots or openings, a pair of relative clutch members having their pivots journaled in said slots or openings, an abutment for one of said clutch members, a pressure to act upon the other clutch member, and an abutment for the said pressure, substantially as described.

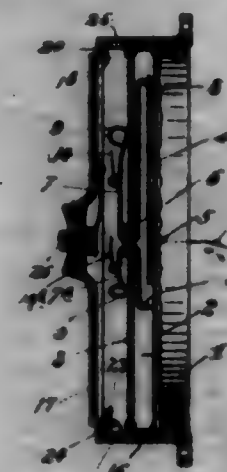
10. The combination of a cover for a globe having an opening for the passage of a carbon, and a tube having openings in opposite sides, with a clutch device comprising a pair of clutch members that are adapted to engage later said opening in the tube to act upon the carbon, one of said clutch members being laterally movable, a pressure to act with said movable clutch member, means for supporting said clutch members, and an abutment for said pressure, substantially as described.

11. The combination with a pair of solenoids and their cores, and carbon-feeding devices connected with said cores, of a yoke connected with said cores, said yoke having a spring-operated lever acting on said yoke against the weight of the cores and feeding devices, substantially as described.

12. The combination with a pair of solenoids and their cores, and carbon-feeding devices connected with said cores, of a yoke connected with said cores, and a spring-operated lever extending beneath said yoke and adapted to act thereon, and a dash-pot connected with said lever, substantially as described.

13. In an auto-tung the combination of a frame, a pair of solenoids carried thereby, cores for said solenoids, carbon-feeding devices connected with said cores, a yoke also connected with said cores, a support carried by said frame, a spring-operated lever pivoted to said support and extending beneath said yoke to act thereon, and a dash-pot carried by said frame and connected with said lever, substantially as described.

698,047. FIRE-ALARM. JOHN A. GLASS, Minneapolis, Minn.
Filed Jan. 15, 1901. Serial No. 62,322. (No model.)



Claim.—1. A device of the character described involving a dial having a dial and a crystal spaced apart, the latter outward of the former, in combination with a vibrating pointer having a spindle which projects axially through said dial, an adjustable electrode mounted to oscillate in the space between said dial and crystal and provided with a stem which works outward through said crystal approximately at the axis thereof, and a finger-piece secured to the outwardly-projected end of the stem of said electrode, and an electric circuit including said pointer and said electrode and involving an element which is actuated by the closing of the circuit between said pointer and electrode, substantially as described.

2. A device of the character described involving a dial and a crystal spaced apart, the latter outward of the former, in combination with a vibrating pointer having a spindle which projects axially through said dial a pair of independently-movable electrodes cooperating with said pointer and working in the space between said dial and said crystal and provided with stem portions which work outward through said crystal at other points on, but approximately at the axis of, said crystal, finger-pieces on the outer ends of the stems of said electrodes and an electric circuit including said pointer and said two electrodes and involving one or more elements which are actuated by the closing of the circuit between said pointer and either of said electrodes, substantially as described.

3. The combination with the case 1, dial 2, crystal 3 and thermally-actuated pointer 4, of the insulating-plate 5 extending through the central portion of said crystal 3, the electrodes 7, 7', pivoted in said plate 5, provided at their inner ends with contact-fingers 8 and at their outer ends with the crystal-engaging spring-coilings 9, a pair of balls, circuit connections from said balls to said pointer, and independent circuit connections from said balls to the said two electrodes, substantially as described.

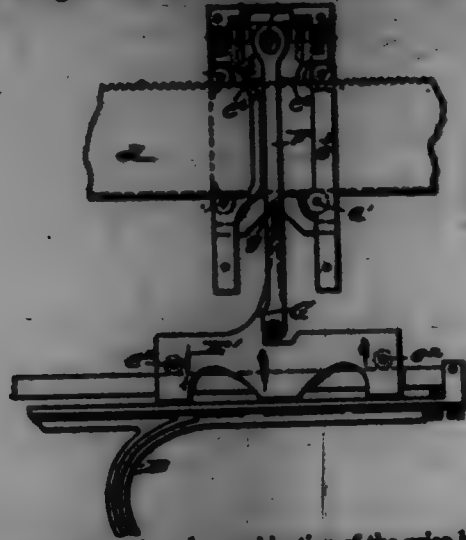
698,048. SHUTTLE-BLOCK. PHILIP S. GANNON, Detroit, Mich. Filed Nov. 17, 1900. Serial No. 62,323. (No model.)

Claim.—1. In computing-mechanism of the class described, the combination of the price-beam and connecting-block relatively movable and a part with which the connecting-block cooperates at its lower extremity, said connecting-block consisting of the lower member, the upper frame, the links, and the movable block provided with means for engaging the beam, said links arranged to lift the movable block, substantially as described.

2. In computing-mechanism of the class described, the connecting-block consisting of the lower member, the frame, the movable member arranged to engage the beam and links connecting the lower member and the movable member and arranged to support the load from the lower member in weighing and to lift the movable member out of engagement with the beam to put the block in condition to be moved, substantially as described.

3. In said construction, the head-block and beam relatively mov-

able and a part with which the connecting-block cooperates at its lower extremity, said head-block including in its construction a frame having a slidable engagement with the beam and a movable member located above the frame and beam and arranged to fit down into engagement with the beam, by the weight of the head and the links engaged with said movable member and arranged to lift the same, substantially as described.



4. In said construction, the combination of the prior-beam provided with notches upon its upper edge and a head-block consisting of a frame having a slidable engagement with the beam, the movable member above the frame provided with centering-points, and the links having pivotal engagement with the movable member whereby the centering-points of said movable member are forced into engagement at the weighing-point with the beam when the head is thrown upon the links, substantially as described.

5. In said construction, the beam and head-block relatively movable, said head-block provided with a pair of rollers above the beam and a pair of rollers below the beam, the links and an element below the head-block capable of vertical movement and provided with an upstanding finger arranged to engage with the head-block between the lower pair of rollers, substantially as described.

6. In said construction, the beam, the connecting-block and the standing frame B, said connecting-block consisting of the head-block having two points of contact on the under side of the beam, the links and a member having a slidable engagement with the frame B provided with an upstanding finger arranged to engage the head-block between the two points of contact with the beam, substantially as described.

7. In said construction the beam and head-block relatively movable said head-block having two points of contact on the under side of the beam the links and a lower member provided with an upstanding finger arranged to engage the head-block between the two points of contact with the beam, substantially as described.

8. In said construction, the combination of the prior-beam, the head-block, the links, the frame B and a movable member on the upper edge of the frame provided with a finger arranged to engage with the head-block to cause said movable member and head-block to be moved together one by the other, substantially as described.

9. The head-block provided with a movable block arranged to engage the beam at two points, links suspended from said movable block to support the head and for lifting said block independent of the frame of the head-block to clear all points of engagement with the beam, substantially as described.

10. The head-block provided with a movable block arranged to engage the beam at two points, links suspended from said movable block to support the head and lift the block, and means for guiding the movable block to cause it to clear all points of engagement with the beam, substantially as described.

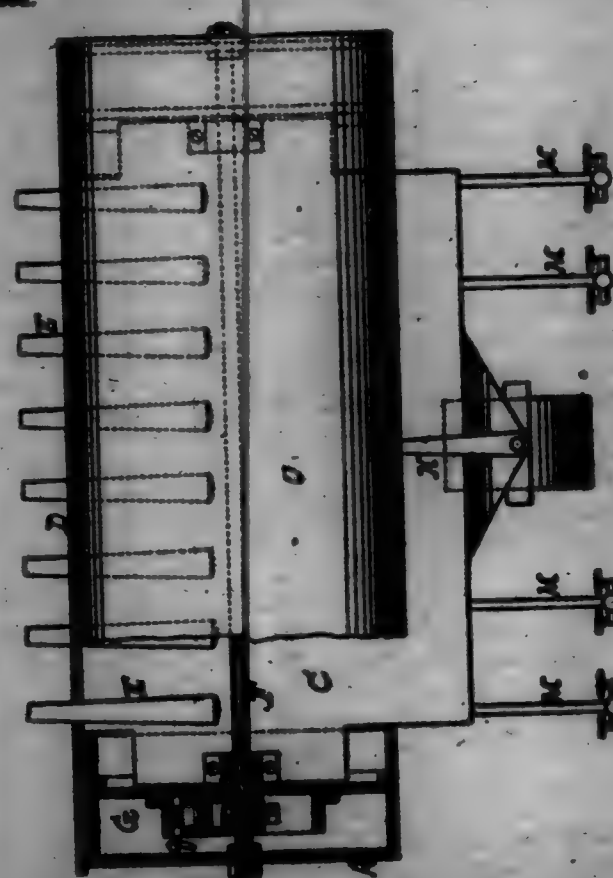
698,049. GUY-CARRIAGE. HENRY F. GUY, New York, N. Y. Filed May 21, 1898. Serial No. 961,200. (No model.)

Claim.—1. The combination in a gun-carriage of a pair of hollow wheels which have their distal ends closed and their tires or tracks mutually extended, with a riding-platform having lateral extensions within the wheels and a posterior extension between the wheels for the attachment of a third wheel.

2. In a gun-carriage, the combination of a pair of hollow wheels, which have their distal ends closed and their tires or tracks mutually extended, a connecting-rod, and a platform with lateral extensions within the wheels and a posterior extension between the wheels for the attachment of a third wheel substantially as described.

3. In a gun-carriage, the combination of a pair of hollow wheels which have their distal ends closed and their tires or tracks mutually extended, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

4. In a gun-carriage, the combination of a pair of hollow wheels which have their distal ends closed and their tires or tracks mutually extended, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.



4. In a gun-carriage, the combination of a pair of hollow wheels which have their distal ends closed and their tires or tracks mutually extended, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

5. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

6. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

7. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

8. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

9. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

10. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

11. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

12. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

13. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

14. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

15. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

16. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

17. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

18. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

19. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

20. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

21. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

22. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

23. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

24. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

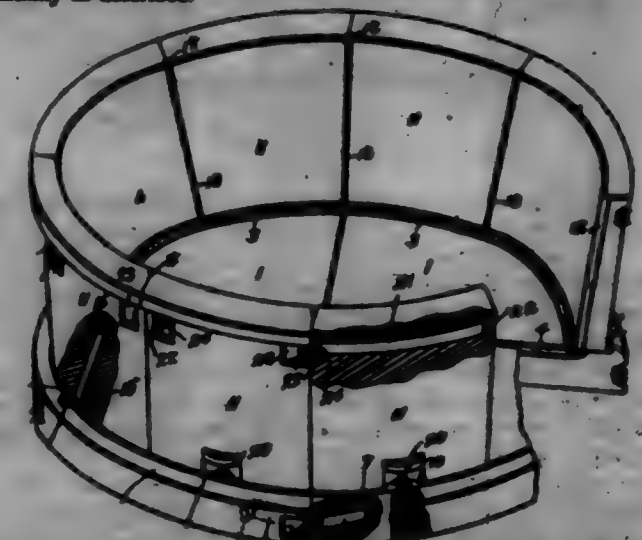
25. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

26. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

27. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

28. In a gun-carriage, the combination of a pair of hollow wheels having their distal ends closed and their tires or tracks mutually extended for motor and man protection, an electrical or other motor protectively arranged within said wheel or wheels, a connecting-rod, a platform supported by said rods and having lateral extensions within the hollow of the wheels a posterior extension between the wheels for the attachment of a third wheel and an anterior extension between the wheels for the attachment of a third wheel, substantially as described.

metallic connecting elements and covering the said sections together, substantially as described.



2. In a tank, a bottom formed of separable sections having an upstanding flange, a wall composed of separable sections, the base of which are seated on the bottom, within the flange thereof, straps secured to the upper portions of said side sections and having their respective ends bolted together, and straps secured to said side sections and having their lower ends bolted, bearing on and bolted to the bottom, substantially as described.

3. A tank having a plurality of sections, straps embedded in them, and bolts connecting said straps together at the joints between the sections, whereby the latter are separable, substantially as described.

4. A tank having a plurality of sections, each embedded in the material of one of the wall-sections, and bolts connecting the ends of the hoop-sections together at the joints between the wall-sections, substantially as described.

5. A tank having separable wall-sections, and sectional hoop-sections embedded and covered therein, said hoop-sections having their ends bolted together and adapted to be engaged by means for clamping the wall-sections together, substantially as described.

6. In a tank, the combination of separable sections formed of latently plastic material, metallic connecting elements formed and embedded in said sections, the latter having recesses exposing the ends of said metallic connecting elements, and bolts engaging the exposed ends of said metallic connecting elements and securing the said sections together, substantially as described.

698,051. COMBINATION CRIB-BUSH AND MOP. PHILIP F. HAYES, New York, N. Y. Filed Jan. 17, 1900. Serial No. 961,200. (No model.)



Claim.—1. In a combined crib-bush and mop, the combination with a brush body or body, of a mop-piece secured to its lower front portion and projecting outwardly therefrom, a chest or piece secured to the upper surface of the said body and having at one of its ends an opening, and at its other end a series of openings, and a series of openings at the ends of the chest and the upper surface of the chest and resting at its lower edge on the upper surface of the mop-piece, substantially as described.

2. In a combined crib-bush and mop, the combination with a brush body or body, of a mop-piece secured longitudinally to its front lower portion and projecting outwardly therefrom, and having an opening near each of its ends, a reinforcing strip or piece secured to the lower surface of the mop-piece, a supporting-rod located on the lower surface of the mop-piece and having its ends upturned through the openings in said piece, a chest or piece secured to the upper surface of the brush-body and having at one of its ends an opening, and at its other end a series of openings, a spring secured to the front surface of the chest and connected at its ends to the supporting-rod for the mop-piece, and a reservoir-rod secured in the ends of the brush-body and to the upper surface of the chest and having its lower edge in contact with the mop-piece, substantially as described.

698,050. SEWING-MACHINE. BERNARD E. PLATTEN, Chicago, Ill. Filed Jan. 1, 1900. Serial No. 961,200. (No model.)

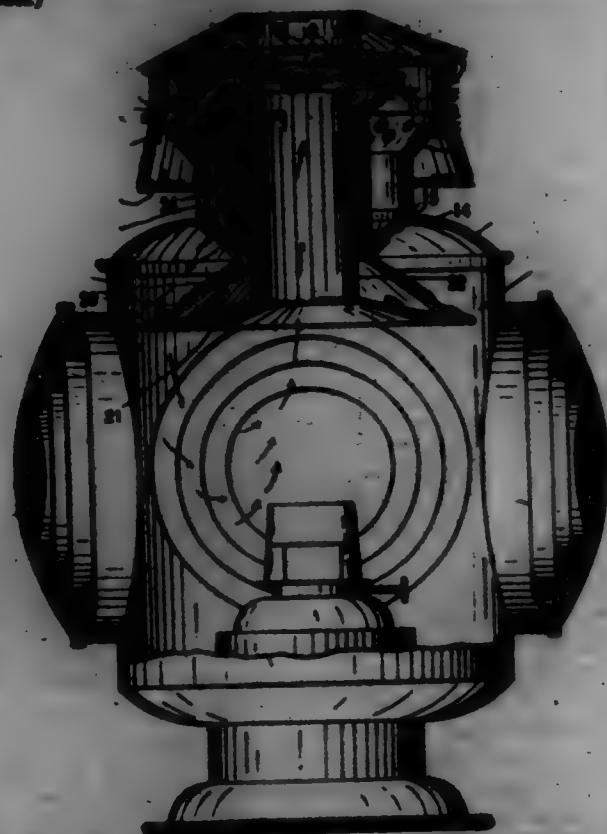
Claim.—1. A tank having a plurality of sections, metallic connecting elements embedded in said sections, the latter having recesses exposing the ends of said metallic connecting elements and projecting over said recesses, and bolts engaging the exposed ends of the

698,052. GUIDING ATTACHMENT FOR DOORS. WASHINGTON
E. C. FLAGG, Seattle, Wash. Filed May 22, 1901. Serial No. 68,998.
(No model.)



Claim.—1. The combination with a swinging door or the like and jamb; of means to guide the rear edge of said door relatively to the jamb.
2. The combination with a door or the like and its jamb, of a guiding device having its members located on the jamb and rear edge of the door and cooperating with each other to direct said edge relatively to the jamb and prevent binding.
3. The combination with a door or the like and jamb; of a guide comprising a base fixed to the back stile of the door and carrying a rearwardly-projecting nose and a recess in the jamb arranged to receive and coast with said nose.
4. The combination with a door or the like and jamb; of a guide comprising a base fixed to the rear edge of said door and having a rearwardly-projecting nose, a recess in said jamb arranged to receive said guide and a way in the nose cooperating with said recess to direct said door edge relatively to the jamb.
5. The combination with a door or the like and the jamb; of a guide comprising a base fixed to the rear edge of said door, an antifriction-roller carried thereby and forming a rearwardly-projecting nose, a recess in said jamb arranged to receive the nose and a way in said recess having opposite bearing-surfaces cooperating with said roller to direct said door edge relatively to the jamb.
6. The combination with a door or the like and jamb, of a guide formed with a base adapted for attachment to the rear edge of a door or the like having brackets, a vertically-disposed roller axially supported thereby, and a substantially L-shaped way adapted for attachment to the jamb and formed with an aperture in one flange and projecting bearing-surfaces at opposite edges thereof adapted for cooperative association with said roller to direct said door edge during primary opening and final closing movement thereof.

698,053. VENTILATING-JACK FOR LANTERNS. ABRAHAM P. FRANK, Indianapolis, Ind. Filed May 2, 1901. Serial No. 68,410. (No model.)



Claim.—1. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having a series of openings leading therein near its upper end and openings leading from its lower end and inside the cover, a shell of less diameter than the body mounted therein and leading upwardly there-through, a second open-ended shell mounted within the first shell and extending therethrough, an annular plate or bell closing the lower end of the annular space between the two shells, openings leading to the interior of the first shell near its lower end, and an annular impervious plate connecting the upper end of the main body to the first shell.

2. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having a series of openings leading therein near its upper end and openings leading from its lower end, a shell protecting the upper openings, a shell of less diameter than the body mounted therein and leading upwardly there-through and shell having openings leading to its interior near the lower end, a second open-ended shell mounted within the first shell and extending therethrough, an annular plate or bell closing the lower end of the annular space between the two shells, and an annular impervious plate connecting the upper end of the main body to the first shell.

3. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having a series of openings leading therein near its upper end and openings leading from its lower end, an open-ended shell of less diameter than the body mounted therein and leading upwardly there-through, an impervious annular plate separating the upper end of the main body with the open-ended shell, a perforated cylindrical shell carried by the upper end of the main body, a bell mounted in said shell and extending over the internal shell, and a ventilating-cap covering the end of the perforated shell.

4. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having a series of openings leading therein near its upper end and openings leading from its lower end, a shell of less diameter than the body mounted therein and leading upwardly there-through, an annular plate or bell closing the lower end of the annular space between the two shells, an annular impervious plate connecting the upper end of the main body to the first shell, a perforated cylindrical shell carried by the upper end of the main body, a bell mounted in said shell and extending over the internal shell, and a ventilating-cap covering the end of the perforated shell.

5. In a jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having openings leading therein near its upper end and openings leading from the lower end, a shell of less diameter than the main body mounted in said body, a deflecting-ledge mounted to the lower end of said shell and having perforations extending therethrough, a bell supported by the lower end of said flange, a second shell of less diameter than the first shell mounted in said first shell and secured at its lower end to said bell, an impervious annular plate closing the upper end of the main body, a perforated shell mounted above said plate, a ventilating-cap covering said perforated shell, and a bell arranged above the upper ends of first and second shells.

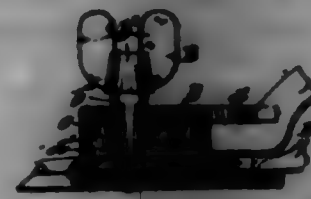
6. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having an outwardly-flared upper end and a shell flaring upper end and being perforated with a series of openings, and a series of openings leading from the lower end of the tubular main body inside the cover, a shell of less diameter than the body mounted therein and leading upwardly there-through, a second open-ended shell mounted within the first shell and extending therethrough, an annular plate or bell closing the lower end of the annular space between the two shells, openings leading to the interior of the first shell near its lower end, and an annular impervious plate connecting the upper end of the main body to the first shell.

7. In a ventilating-jack for lanterns, the combination with a cover adapted to close the upper end of a lantern-body, of a tubular main body having a series of openings leading therein near its upper end, the said openings being formed in an outwardly-flaring flange forming the upper end of the tubular main body, and the said main body having a series of openings leading from its lower end and inside the cover, an open-ended shell of less diameter than the body mounted therein and leading upwardly there-through, an impervious annular plate connecting the upper flaring end of the main body with the open-ended shell, a perforated cylindrical shell carried by the upper end of the main body, a bell mounted in said shell and extending over the internal shell, a ventilating-cap covering the end of the perforated shell, and a depending guard secured at its upper end to the upper end of the flaring portion of the main body and extending downward as to overhang the openings through said flaring end of the main body, substantially as described.

698,054. HAIR-CLIPPER. CHARLES H. REHMAN, Haverhill, N. Y. Filed Aug. 10, 1901. Serial No. 71,568. (No model.)

Claim.—1. A hair-clipper, consisting of a lower comb-plate, an upper comb-plate, a cap-plate, said upper comb-plate being guided between the lower comb-plate and cap-plate, and clamping-covers passing through the cap-plate and upper comb-plate into the lower comb-plate, said clamping-covers being provided with coiled chains engaging tapering holes in

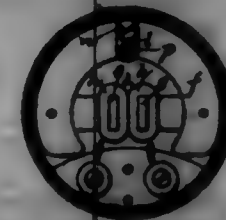
the cap-plate, and lower threaded ends engaging threaded openings in the lower comb-plate, substantially as set forth.



2. A hair-clipper, consisting of a lower comb-plate provided with threaded holes, an upper comb-plate guided on said lower comb-plate and provided with elongated slots, a cap-plate provided with tapering holes in alignment with the threaded holes of the bottom plate, and clamping-covers, the cheeks of which are coiledly tapering and threaded at their lower cylindrical ends, so as to fit into the tapering openings of the cap-plate and threaded openings of the lower comb-plate, substantially as set forth.

3. A hair-clipper, consisting of a lower comb-plate, an upper comb-plate, means for reciprocating the same on the lower comb-plate, a cap-plate bearing on the upper comb-plate, and provided with openings, and clamping-covers passing through said cap-plate and clamping on their lower ends into the lower comb-plate, said openings and the cheeks of said covers having a gradual taper extending through said cap-plate, substantially as set forth.

698,055. TELEPHONE INSTRUMENT. BARRY H. REYER, Chicago, Ill., assignor to the Western Electric Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 1, 1901. Serial No. 68,928. (No model.)



Claim.—1. In a telephone, the combination with a telephone-casing, of a diaphragm rotatably secured upon the casing, and manually-operated means located within the casing and operable from the exterior thereof, whereby the adjustment of the diaphragm may be locked, substantially as described.

2. In a telephone, the combination with the casing thereof, of a diaphragm having threaded engagement with its mounting or support, a locking-cam block having engagement with one of the parts having the said threaded engagement, and an eccentrically-mounted cam-pin to force the cam-block into and out of engagement with one of the said portions having threaded engagement, substantially as described.

3. In a telephone, the combination with the casing thereof, of a diaphragm having threaded engagement with its mounting or support, a locking-cam block having engagement with one of the parts having the said threaded engagement, and an eccentrically-mounted cam-pin to force the cam-block into and out of engagement with one of the said portions having threaded engagement, the said pin being provided with means extending through the casing of the instrument to secure its operation from without the instrument-casing, substantially as described.

4. In a telephone, the combination with the casing thereof, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, and manually-operated means within the casing for locking the two parts together after one has been rotated upon the other to secure the desired adjustment of the diaphragm, the said means being accessible from the exterior of the casing, substantially as described.

5. In a telephone, the combination with the casing thereof, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, a cam-block within the casing, an eccentric cam-pin also within the casing and accessible from the exterior thereof and having engagement with the said cam-block, and means provided upon one of the portions of the casing and adapted for engagement with the said cam-block, the said casing being provided with a slot between the said cam whereby the cam-block is engaging the said slot and secure binding engagement of the casing upon each side of the slot and secure binding engagement between the threaded portions of the casing, substantially as described.

6. In a telephone, the combination with the casing thereof, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, and cam mechanism within the casing for locking the two parts together after one has been rotated upon the other to secure the desired adjustment of the diaphragm, the said cam mechanism being accessible from the exterior of the casing, substantially as described.

698,056. SHIRT-HOLDER. VALERIE F. REYER, Minneapolis, Minn. Filed Aug. 20, 1901. Serial No. 73,028. (No model.)



Claim.—A shirt-supporter comprising the flexible cord 2 provided at one end with the snap-hook 3 of such size that it may be snapped around said cord 2, the ring 4 at the other end of said cord 2 chains 10 attached to said ring 4, the ring 9 connecting the free ends of said chain, the spring-champ 5 connected to said ring 9 and provided at the free ends of its prongs with the head 6 with pads 7, and the hook 8 sliding on the prongs of said clamp to close the jaws of the same, substantially as described.

698,057. CAN HOLDER OR JACKET FOR CAN-CAPPING MACHINES. GEORGE H. REHMAN and GEORGE G. MILLER, Burlington, Ohio. Filed Aug. 20, 1901. Serial No. 73,029. (No model.)



Claim.—1. An attachment for can-capping machines consisting of a can holder or jacket in the form of a hollow body having an external shape and size corresponding to that of the largest can of a type to be fed to the machine and capable of snugly receiving a smaller can, the interior of the body corresponding in shape thereto, and the top of the body having an opening to expose the top of a can contained therein to the capping apparatus of the machine.

2. A can jacket or holder for can-capping machines, embodying a hollow body having an open end for the reception of a can, and to expose the cap and throat, the external diameter of the holder or jacket being equal to the largest standard size of can, and its inner diameter corresponding to that of a smaller size of can.

3. A can jacket or holder for can-capping machines, embodying a hollow body having an open end for the reception of a can, and to expose the cap and throat, the external diameter of the holder or jacket being equal to the largest standard size of can, and its inner diameter corresponding to that of a smaller size of can, and a can-support within the jacket and located above the bottom thereof.

4. A can jacket or holder for can-capping machines, comprising a hollow open-ended body having an external diameter equal to that of the largest standard size of can, and its internal diameter being equal to a smaller size of can, and a plurality of laterally-directed projections carried by the inner side of the holder and slightly above the lower open end thereof to provide means for supporting a can within the jacket or holder.

5. A can jacket or holder for can-capping machines, comprising an outer shell, an inner shell, opposite rims or bands connecting corresponding ends of the shells, and an inner can-support adjacent to the lower end of the body.

698,058. MILL AND BOLSTER CONSTRUCTION FOR STEEL CARB. RALPH V. BARR, Johnstown, Pa. Filed Jan. 24, 1902. Serial No. 73,198. (No model.)

Claim.—1. In mill and bolster construction for steel carb, the com-

bination of a center sill reduced in height at the ends to that of the draft-sill by cutting away the bottom for a sufficient distance to clear the truck. draft-sills abutting at their rear ends against the ends of the center sill, a center diaphragm secured between the draft and center sills at their juncture, a body-bolter secured at its inner ends to said draft and center sills, and top and bottom connection-plugs tying the whole together.



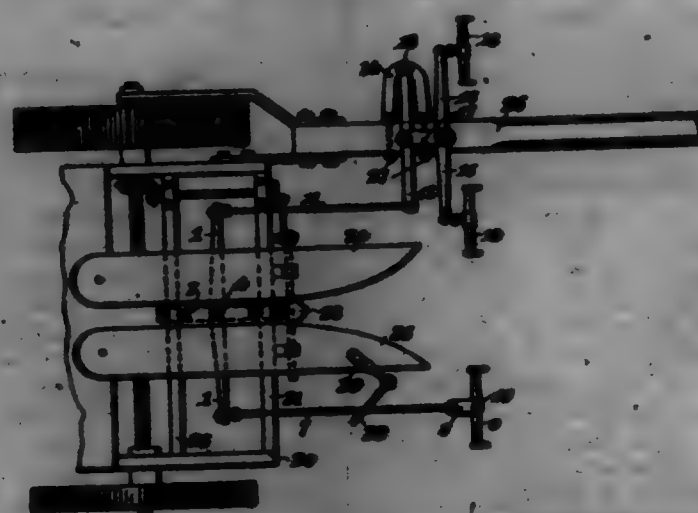
2. Is a steel car, draft-sill composed of two Z-shaped bars having their upper horizontal flanges turned inward, and a center sill composed of two channels having their flanges turned toward each other and their bottoms cut away at the ends to reduce their height to that of the draft-sills, the ends of the draft and center sills being spliced above the trucks.

3. Is a steel car, draft-sill composed of two Z-shaped bars having their upper horizontal flanges turned inward, a center sill composed of two channels having their flanges turned toward each other and their bottoms cut away at their ends to reduce their height to that of the draft-sills, the ends of the draft and center sills being spliced above the trucks, and a body-bolter having its inner ends secured to the draft and center sills on each side of their point of juncture.

4. Is a steel car, draft-sill composed of two Z-shaped bars having their upper horizontal flanges turned inward, a center sill composed of two channels having their flanges turned toward each other and their bottoms cut away at the ends to reduce their height to that of the draft-sills, the ends of the draft and center sills being spliced above the trucks, and a center diaphragm composed of two channel-irons back to back and pressed apart at the center to receive the king-pin and secured to the draft and center sills on each side of the point of juncture.

5. Is a steel car, draft-sill composed of two Z-shaped bars having their upper horizontal flanges turned inward, a center sill composed of two channels having their flanges turned toward each other and their bottoms cut away at the ends to reduce their height to that of the draft-sills, the ends of the draft and center sills being spliced above the trucks, a body-bolter having its inner ends secured to the draft and center sills on each side of their point of juncture, and a center diaphragm composed of two channel-irons back to back and pressed apart at the center to receive the king-pin and secured to the draft and center sills on each side of their point of juncture.

698,059. DRAFT-EQUALIZER. WILLIAM SHULTZ, Aptington, Iowa. Filed Jan. 20, 1905. Serial No. 91,912. (No model.)



Claim.—1. In a draft-equalizing apparatus, the combination of an intermediately-fabricated draw-bar, the fabricum of which forms the point of application of the draft to a vehicle, a draft connection applied to one end of the draw-bar, a doubletree connected to the other end of the draw-bar and otherwise independent of the first-mentioned draft connection, and an equalizing device included in the connection between the doubletree and the draw-bar and forming the sole support for the doubletree.

2. In a draft-equalizing apparatus, the combination of an intermediately-fabricated draw-bar, the fabricum of which forms the point of application of the draft to a vehicle, a doubletree applied to one end of the draw-bar, a doubletree connected to the other end of the draw-bar and

otherwise independent of the doubletree, and an equalizing device included in the connection between the doubletree and the draw-bar and comprising a fabricum equalizing-bar having its free end connected to the adjacent end of the draw-bar, the doubletree being connected to an intermediate portion of the equalizing-bar, the latter forming the sole support for the doubletree.

3. The combination with a harvesting-machine, having a draft-pole located at one side thereof, of a draw-bar fabricated intermediately in rear of and centrally with respect to the cutting apparatus of the machine, a draft connection applied to one end of the draw-bar, an over-bar pivoted upon the draft-pole, a connection between the free end of the over-bar and the other end of the draw-bar, and a doubletree connected to an intermediate portion of the over-bar.

4. The combination with a harvesting-machine, having a draft-pole located at one side thereof, of a draw-bar fabricated intermediately in rear of and centrally with respect to the cutting apparatus of the machine, an outwardly-directed bracket carried by the pole, an over-bar pivoted at its outer end to the bracket and projected inwardly and transversely across the pole, a connection between the free end of the over-bar and the adjacent end of the draw-bar, a doubletree pivotedly connected to an intermediate portion of the over-bar, and a draft connection applied to the opposite end of the draw-bar, the said draft connection and the doubletree being located at opposite sides of the cutting apparatus of the machine, and the doubletree being projected at opposite sides of the pole.

5. The combination with a harvesting-machine, having a pair of over-bars located in rear of the cutting apparatus thereof, and a draft-pole located at one side of the machine, of a bracket extending between the two over-bars and located centrally in rear of the cutting apparatus, a draw-bar fabricated intermediately upon the bracket, a bracket carried by and projected laterally outward from the pole, an over-bar pivoted to the bracket and projected transversely inward across the pole, a connection between the free end of the over-bar and the adjacent end of the draw-bar, a doubletree connected to the intermediate portion of the over-bar and projected equally at opposite sides of the pole, and a draft connection applied to the opposite end of the draw-bar, said draft connection and the doubletree being located at opposite sides of the cutting apparatus.

6. In a draft-equalizing apparatus, the combination of an intermediately-fabricated draw-bar, a draft connection applied to one end thereof, an equalizing-bar fabricated at one end and having its free end connected to the other end of the draw-bar, and a doubletree connected to an intermediate portion of the over-bar.

7. In a draft-equalizing apparatus, the combination of a bracket comprising top and bottom members having lateral connections, a draw-bar fabricated intermediately between the members of the bracket, a draft connection applied to one end of the draw-bar, a shorter draft connection applied to the opposite end of the draw-bar, an over-bar having one end connected to the forward end of the latter draft connection and projected laterally outward therefrom, a supporting-bracket having the outer end of the over-bar pivoted thereto, and a doubletree pivotedly connected to the central portion of the over-bar.

8. In combination with a harvester, of a draw-bar fabricated in rear of the cutting apparatus thereof, and draft connections for the opposite ends of the draw-bar, said draft connections being arranged so as to lie on opposite sides of the cutting apparatus, and each of the draft connections having means for attaching the draft-animals thereto, one of the draft connections being mounted on the pole or tongue.

9. The combination with a harvester, of a draw-bar fabricated in rear of the cutting apparatus, and draft connections for the opposite ends of the draw-bar, said draft connections being arranged so as to lie on opposite sides of the cutting apparatus, and each of the draft connections having means for attaching the draft-animals thereto, one of the draft connections being mounted on the pole or tongue and having an equalizing device included therein.

10. The combination with a harvester, of a draw-bar fabricated in rear of the cutting apparatus thereof, and draft connections for the opposite ends of the draw-bar, said draft connections being arranged so as to lie on opposite sides of the cutting apparatus, and each of the draft connections having means for attaching the draft-animals thereto, one of the draft connections being mounted on the pole or tongue of the harvester and including a pivotal equalizing-bar, a doubletree connected thereto, and a connection between the pivotal equalizing-bar and the adjacent end of the draw-bar.

698,060. SUPPORTING-FRAME FOR THE CONSTRUCTION OF OPEN CYLINDRICAL CRATES. FRANK SUMNER, Chicago, Ill. Filed Sept. 8, 1905. Serial No. 29,167. (No model.)

Claim.—1. A device for the construction of open cylindrical crates comprising substantially end rings, longitudinal bars connecting the same

and inwardly-extending pins upon said longitudinal members adapted to position and secure the hoops of the crate in proper position relative to the longitudinal members thereof; substantially as described.



2. An apparatus for the construction of open cylindrical crates comprising substantially a frame of end rings connected by longitudinal bars, one of which may open for the removal of the crate and a bar adapted to extend longitudinally through the rings and to support said frame during the construction of the crate; substantially as described.

698,061. BARANA-SHIPPING CASE. FRANK SUMNER, Chicago, Ill. Filed Oct. 2, 1905. Serial No. 29,214. (No model.)



Claim.—1. The combination with a surrounding crate and a case hung within the same, having a circumferential seam and an intersecting longitudinal seam, of a cord passing inward on one side of the longitudinal seam, outward on the other side of the longitudinal seam about the crate, inward again on the other side of the circumferential seam, thence across the longitudinal seam and outward on the same side on the circumferential seam and secured to the crate so that the cord engages and supports all four corners of the case about the intersecting seams; substantially as described.

2. In a shipping-case, the combination with a surrounding crate, of a case hung within the same consisting of a cylindrical portion and a conical portion formed from a conical piece of material by moving the portions of the straight edge on opposite sides of the middle together, and the straight edge to the one end of the cylindrical portion; substantially as described.

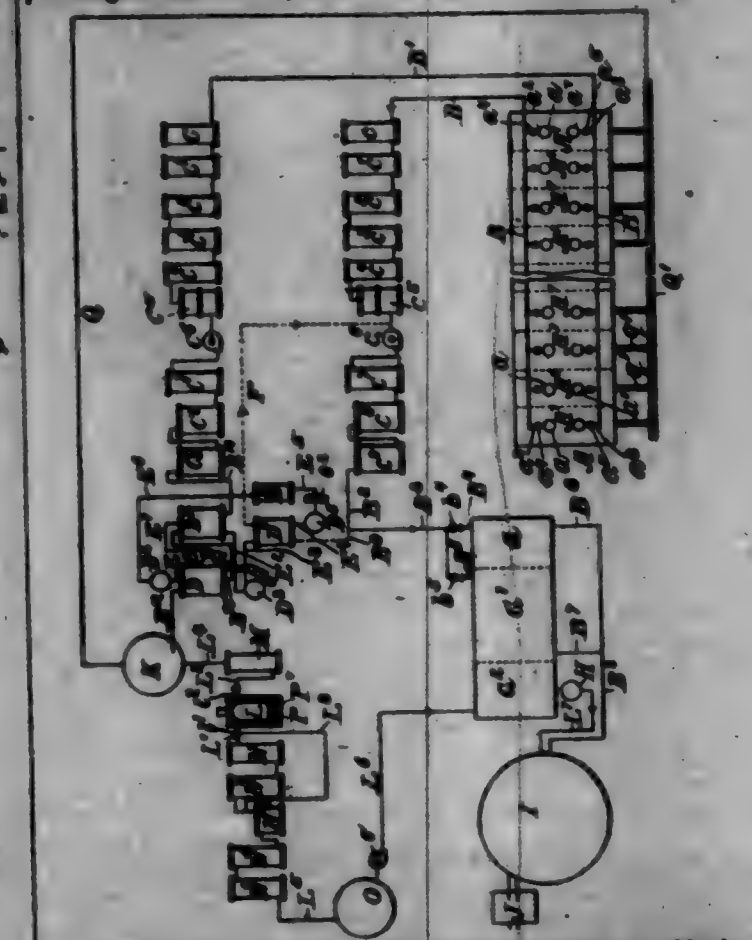
3. In a banana-shipping case, the combination with a suitable crate, composed of longitudinal slats and connecting-hoops, of a case hung in said crate and securely fastened in place out of contact therewith, an outer bottom, X, fastened to the lower hoop and an outer covering suitably secured to the outside of the case, and insulating said case; substantially as described.

4. In a banana-shipping case, the combination with a suitable crate, composed of longitudinal slats and connecting-hoops, of a case hung within the said crate and securely fastened in place out of contact therewith, an outer bottom, X, fastened to the lower hoop and an outer covering suitably secured to the top and bottom hoops of the crate and insulating said case; substantially as described.

698,062. METHOD OF MANUFACTURING GAS. FRANK SUMNER, W. C. SUMNER, New York, N. Y., assignors to the United Coke & Gas Company, Charleston, W. Va., and Philadelphia, Pa., a Corporation of West Virginia. Filed Aug. 22, 1905. Serial No. 29,266. (No model.)

Claim.—1. The method of manufacturing gas which consists in subjecting carbonaceous material to dry distillation, separating the gas thus produced into two portions, extracting the illuminants from one divided portion and mixing said illuminants with the other portion in order to enrich it, treating another body of carbonaceous material to produce water-gas and mixing said water-gas with the enriched portion of the gas produced by distillation in order to increase its volume and diminish its percentage of carbonaceous impurities.

2. The method of manufacturing gas which consists in subjecting carbonaceous material to dry distillation, separating the gas thus produced into two portions, extracting the illuminants from one divided portion and mixing said illuminants with the other portion in order to enrich it, treating another body of carbonaceous material to produce water-gas and mixing said water-gas with the enriched portion of the gas produced by distillation in order to increase its volume and diminish its percentage of carbonaceous impurities.

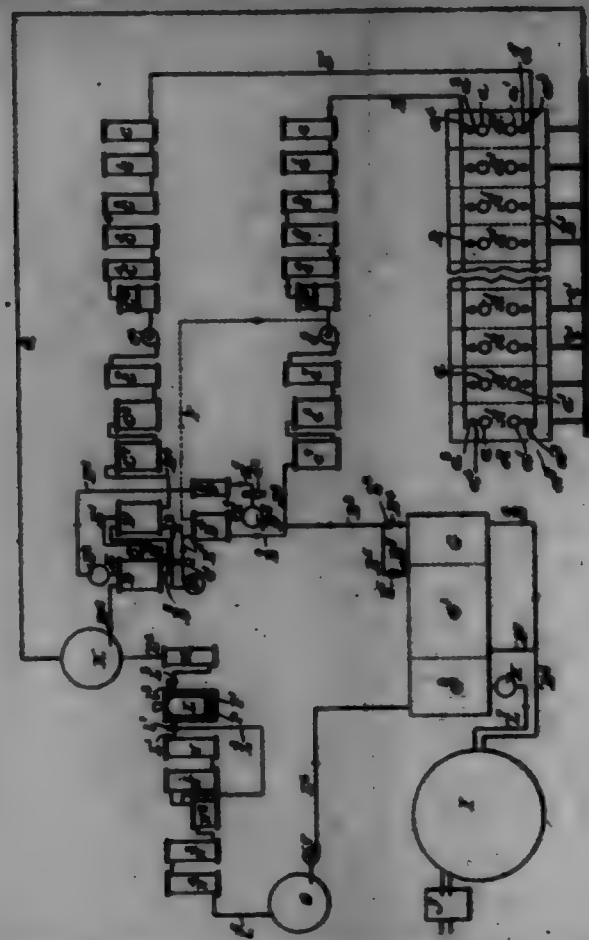


3. The method of manufacturing gas which consists in subjecting carbonaceous material to dry distillation, separating the gas thus produced into two portions, extracting the illuminants from one divided portion and mixing said illuminants with the other portion in order to enrich it, treating another body of carbonaceous material alternately with blasts of air and steam to produce producer and water gas, mixing said water-gas with the enriched portion of the gas produced by distillation in order to increase its volume and diminish its percentage of carbonaceous impurities, mixing the producer-gas with a portion of the gas robbed of its illuminants and using said last-mentioned gases for the distillation of the carbonaceous material.

4. The method of manufacturing gas which consists in subjecting carbonaceous material to dry distillation to drive off its gases, separating the richer and poorer gases produced, treating the poorer portion of gas to extract its contained illuminants, mixing said extracted illuminants with the richer division of the gas to enrich it, treating another body of carbonaceous material for the manufacture of water-gas and mixing said water-gas with the enriched gas to increase its volume and diminish its percentage of contained carbonaceous compounds.

5. The method of manufacturing gas which consists in subjecting carbonaceous material to dry distillation to drive off its gases, separating the richer and poorer gases produced, treating the poorer portion of gas to extract its contained illuminants, mixing said extracted illuminants with the richer division of the gas to enrich it, treating another body of carbonaceous material with alternate blasts of air and steam for the manufacture of producer and water gas, mixing said water-gas with the enriched gas to increase its volume and diminish its percentage of contained carbonaceous compounds, mixing the producer-gas with the poorer division of the gas distilled, and using said last-mentioned mixture for the distillation of the carbonaceous material.

898,068. PLANT FOR MANUFACTURING GAS. FRANK W. C. SHAW, New York, N. Y., assignor to the United Gas & Oil Company, Charleston, W. Va., and Philadelphia, Pa., a Corporation of West Virginia. Filed Aug. 20, 1907. Serial No. 59,896. (No model.)



Claim.—1. A plant for manufacturing gas having in combination a series of externally-heated gas-retorts having gas-furnaces for heating them, two conduits, each connected to receive gas from one or more of the retorts, a connection from one of said conduits to the gas-furnaces and a connection from the other conduit to a gas-reservoir, a water-gas generator adapted to produce alternately water and producer gas, connections from said generator to the two conduits leading from the retorts and means as valves whereby the water-gas is directed into the reservoir and the producer-gas into the gas-furnaces.

2. A plant for manufacturing gas having in combination two or more externally-heated gas-retorts, two conduits, each connected to receive gas from one or more of the retorts, an apparatus for extracting illuminants connected to treat the gas passing through one of said conduits and to deliver the extracted illuminants to the other conduit, a water-gas generator and connections from said generator to the conduit carrying the enriched gas.

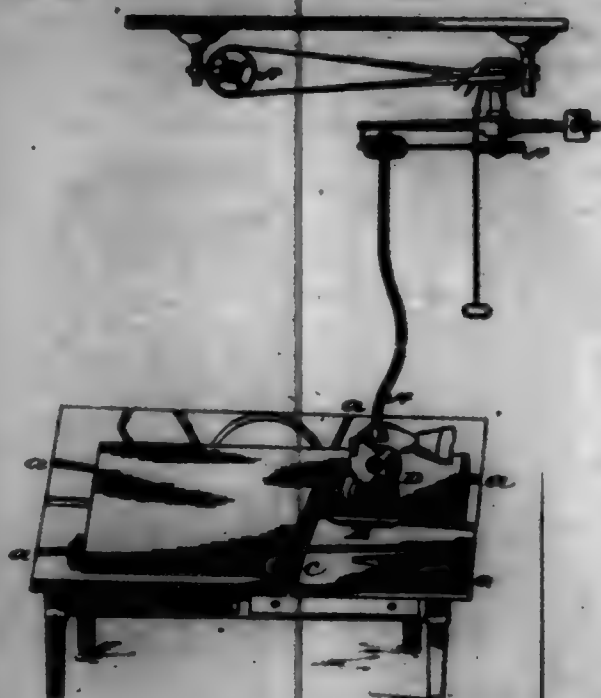
3. A plant for manufacturing gas having in combination two or more externally-heated gas-retorts having gas-furnaces for heating them, two conduits, each connected to receive gas from one or more of the retorts, an apparatus for extracting illuminants connected to treat the gas passing through one of said conduits and to deliver the extracted illuminants to the other conduit, a reservoir arranged to receive the gas treated for the extraction of illuminants, a water-gas generator adapted to produce alternately water and producer gas, connections from said generator to the producer-gas reservoir and to the enriched-gas conduit and valves for directing the gas through either connection at will.

4. A plant for manufacturing gas having in combination a series of closed externally-heated gas-retorts, two conduits leading from said retorts and means for connecting said conduits with each retort at will, apparatus for extracting illuminants from gas arranged to connect with one conduit so as to treat the gas passing through it and to connect with the other conduit to deliver the extracted illuminants therein in admixture with the gas passing through it and a water-gas generator connected to deliver water-gas into the conduit containing the enriched gas.

5. A plant for manufacturing gas having in combination a series of closed externally-heated gas-retorts, two conduits leading from said retorts and means for connecting said conduits with each retort at will, apparatus for extracting illuminants from gas arranged to connect with one conduit so as to treat the gas passing through it and to connect with the other conduit to deliver the extracted illuminants therein in admixture with the gas passing through it, a water-gas generator, a carbureting plant, and connections from the water-gas generator to the conduit containing the enriched gas both direct and through the carbureting plant.

6. A plant for manufacturing gas having in combination a series of closed externally-heated gas-retorts provided with gas-furnaces for heating them, two conduits for the gas produced in the retorts, means for connecting each retort with either conduit at will, apparatus for extracting illuminants from gas connected to treat the gas passing through one conduit and to deliver the extracted illuminants into the gas in the other conduit, a reservoir arranged to receive the gas robbed of its illuminants and connected to deliver gas to the gas-furnaces heating the retorts, a generator adapted to produce alternately water and producer gas, a connection from said generator to the rich-gas conduit, a second connection from said generator to the poor-gas reservoir and valves whereby the said connections can be opened or closed at will.

898,064. CUTTING MACHINES AND CUTTING-TABLE AND PATTERNS THEREFOR. GEORGE BURT, Amsterdam, N. Y., and BERNARD B. WYTHE, Chicago, Ill. Filed Mar. 12, 1901. Serial No. 61,893. (No model.)



Claim.—1. A cutting device having a base suitably supporting a cutter, and separate guiding legs or trunnions projecting downwardly from said base, and constructed to slide freely in curved grooves or channels, substantially as described.

2. A cutting-table or pattern having grooves or channels, in combination with a cutting device having separate guiding legs or trunnions constructed to slide freely in said curved grooves or channels, whereby the cutting can be guided in said grooves and follow a curved pattern, substantially as described.

3. A cutting-table or pattern having grooves or channels therein and means for locating the position of the fabric over said grooves, in combination with a cutter having separate guiding legs or trunnions constructed to slide freely in said curved grooves or channels, substantially as described.

4. A cutting-table or pattern having guiding grooves or channels representing different-sized garments, in combination with a cutter having separate guiding legs or trunnions constructed to slide freely in said curved grooves or channels, substantially as described.

5. A cutting-table or pattern having grooves or channels for guiding a cutter, and sliding indexes establishing the edge of the garments, substantially as described.

6. A cutting-table or pattern having grooves or channels therein for guiding a cutter, and indexes for locating the position of the fabric adapted to rest above said grooves or channels, in combination with a cutter arranged to coast with said grooves or channels, substantially as described.

898,065. DUST-BEATER. STEVE J. SMITH, Buffalo, N. Y. Filed July 8, 1907. Serial No. 62,991. (No model.)

Claim.—1. A dust-beater, having a beater-head comprising a frame and interwoven wire coils within the space bounded by said frame, said coils being supported on the latter, substantially as set forth.

2. A dust-beater, having a beater-head comprising a circular frame and concentric interwoven coils held within and supported by said frame, substantially as set forth.

3. A dust-beater, having a beater-head comprising a frame, a wire extending therefrom to the center thereof and having a ring or eye at its inner end, a series of concentric interwoven wire coils arranged within

the circular frame and having its outer coil secured to said frame, and its inner coil secured to said ring or eye, substantially as set forth.



4. The combination of the circular wire frame having outwardly-projecting continuations or extensions, a center wire extending from the center of the circular frame to a point beyond the same and having an eye or ring at its inner end and arranged concentrically with the circular frame, said outwardly-projecting continuations or extensions being twisted around said center wire and thereby forming the shank of the beater, a series of concentric interwoven wire coils arranged within the circular frame and supported by the same and the eye or ring on the center wire, and a handle secured to the wire forming the shank, substantially as set forth.

5. The combination of the circular wire frame having outwardly-projecting continuations or extensions, a center wire extending from the center of the circular frame to a point beyond the same and having an eye or ring formed at its inner end, said outwardly-projecting continuations or extensions being held to the center wire at or near said circular frame and having inwardly-projecting ends, and with the center wire forming the shank of the beater, wire connections between said eye or ring and the circular frame, a handle having a center longitudinal bore to receive the end of the center wire and longitudinal grooves having radial holes at their lower ends to receive the ends of the said extensions, and a ferrule secured to the inner end of the handle for holding the wires forming the shank therein, substantially as set forth.

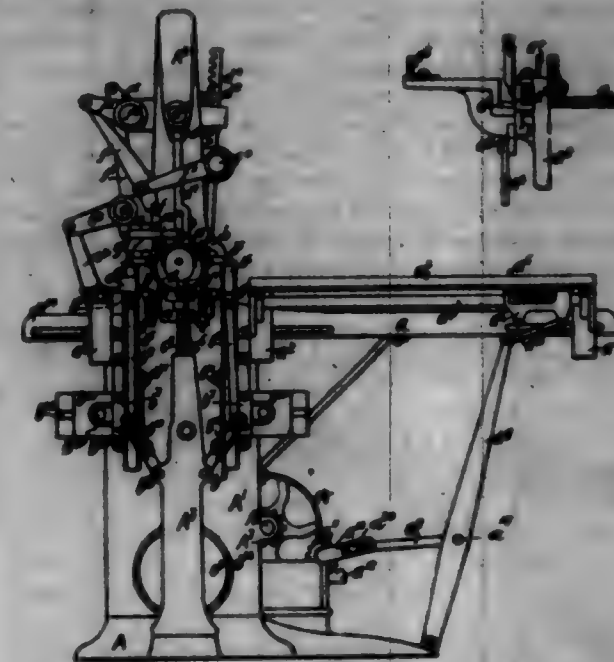
898,066. SIDE-SEAMING MACHINE. CHARLES W. BARNER, Lancaster, N. H., assignor, by mesne assignments, to American Gun Company, Jersey City, N. J., a Corporation of New Jersey. Filed Feb. 15, 1901. Serial No. 43,999. (No model.)

Claim.—1. In a side-seaming machine the guide-plates d^1 carrying guide-rolls d^2 and provided with projecting ribs engaging transverse slots d^3 in the column A' and capable of lateral adjustment by means of said slots and bolts d^4 passing through the same, substantially as described.

2. In a side-seaming machine having a cam-forming mandrel b with a die-blank c loosely mounted therein and resting upon pins d , means for raising said knife-die and holding the same firmly in position during the formation of the seam, consisting of curved-rolls e mounted in a sliding beam f , and supporting said pins d , links g connecting said beam f with cam h attached to the rock-shaft i , segment-gear j also attached to said rock-shaft and engaged by rack k operated by the cam-roll l and cam m substantially as described.

3. In a side-seaming machine having a cam-forming mandrel b and wings d for wrapping a body-blank around said mandrel, means for holding said body-blank firmly against said mandrel during the formation of the seam, consisting of the bar e across d adapted to lift said bar

and mounted on sliding beam f links g connecting said beam f with cam h attached to rock-shaft i , segment-gear j also attached to said rock-shaft and engaged by rack k operated by cam-roll l and cam m substantially as described.



4. In a side-seaming machine having a die d^1 adapted to cooperate with a die c in forming a locked seam, means for regulating the alignment of said die d^1 with said die c consisting of parallel links d^2 pivoted to opposite ends of the link d^3 carrying said die d^1 and also at the opposite ends of said links d^2 to arms e attached to the rock-shaft i , one of said arms e having an adjustable eccentric-pin f working in a slot in the end of the corresponding link d^2 , by the adjustment of which eccentric-pin the distance between that end of the die d^1 and the die c is increased or diminished, substantially as described.

5. In a side-seaming machine having a toggle-die f adapted to cooperate with a knife-die c in forming a locked seam, means for regulating the alignment of said die f with said die c , consisting of parallel links f^1 pivoted at one end to the side of the frame f by which the die f is carried and connected at the other with the eccentric-shaft f^2 , in combination with the eccentric-shaft f^2 having at one end the adjustable eccentric f^3 , one of said links f^1 embracing the main body of said shaft and the other eccentric f^3 , by the adjustment of which eccentric the corresponding end of the die f is made to approach or recede from the die c and means for adjusting the relative positions of the frame f to the links f^1 to conform to changes of adjustment of each eccentric substantially as described.

6. In a side-seaming machine having a toggle-die f adapted to cooperate with a knife-die c in forming a locked seam, means for regulating the distance between said dies consisting of an eccentric-shaft f^2 inserted in a socket in the frame of the machine and capable of rotation and adjustment therein, the projecting portion of said shaft being eccentric to the portion in said socket, in combination with parallel links f^1 pivoted at one end to the frame f by which the die f is carried, the other end of said links being connected with the projecting portion of said eccentric-shaft f^2 substantially as described.

898,067. BASKET-PACKER. FRANKLIN E. SMITH, Wright, Cal. Filed Nov. 13, 1901. Serial No. 63,957. (No model.)



Claim.—1. A basket-packer, comprising a bottom having abutment flanges fixed in part, the remaining part being adjustable, to engage the bottom from that part only.

2. A basket-pusher, comprising a bottom having circumferential flanges fixed in part, the remaining part being adjustable, to expose the bottom from that part only, and means for locking said adjustable part in an upright position.

3. A basket-pusher comprising a bottom having circumferential low flanges, the flange on one side being adjustable to expose the bottom from that side, and a separate frame about said bottom having circumferential taller flanges, one of which, corresponding to the adjustable flange of the bottom, is also adjustable to expose the bottom from the same side.

4. A basket-pusher comprising a bottom having circumferential low flanges, the flange on one side being adjustable to expose the bottom from that side, a separate frame about said bottom having circumferential taller flanges, one of which, corresponding to the adjustable flange of the bottom, is also adjustable to expose the bottom from the same side, and means for locking both adjustable flanges in an upright position.

698,068. CHECK-LINE BUCKLE. DAVID G. P. SMEL, Louisville, Tex. Filed Jan. 24, 1902. Serial No. 91,112. (No model.)



Claim.—1. In a connector for branching lines, a buckle comprising a plate, loops at the ends of the plate and projected from one side thereof, a strap projected from the same side of the plate as the loops and cut inward therefrom, and an eye midway of the ends of the plate and projected from the opposite side thereof, and a clip pivotally connected to a side of the buckle by means of the said eye and adapted to swing from one end to the other of the buckle and toward and from the said buckle in either of its positions, substantially as specified.

2. In a connector for branching lines, a buckle comprising a plate and end loops, a second plate having an intermediate portion crimped to provide an eye, a strap connecting the two plates and projected from the same side of the buckle as the end loops and located inward therefrom a short distance, a clip, and a link pivotally connecting the clip with the eye of the buckle, substantially as set forth.

698,069. RAILWAY-TORPEDO. LEWIS G. BRUCE, Porton, Ohio. Filed Jan. 12, 1902. Serial No. 90,272. (No model.)



Claim.—1. A railway-torpedo having a holder closely embracing a portion of said torpedo and provided with parallel hooked arms projecting beyond the same, and spring holding devices carried by said arms.

2. A railway-torpedo having a holder projecting beyond the same and having parallel hooked arms, and spring arms pivotally mounted on said holder and having roll-engaging portions, as set forth.

3. A railway-torpedo comprising a torpedo, a holder secured thereto, a staff-engaging means on the torpedo, and spring-arms with hooks on the holder, as set forth.

4. The combination with a torpedo, of a cap thereon, a holder partially embracing said cap, spring-arms pivotally mounted on said arms, and staff-engaging means retained between the body of the torpedo and said cap, as set forth.

5. The combination with a railway-torpedo, of a cap thereon, staff-engaging means held between the torpedo and cap, and a holder retained by said cap, as set forth.

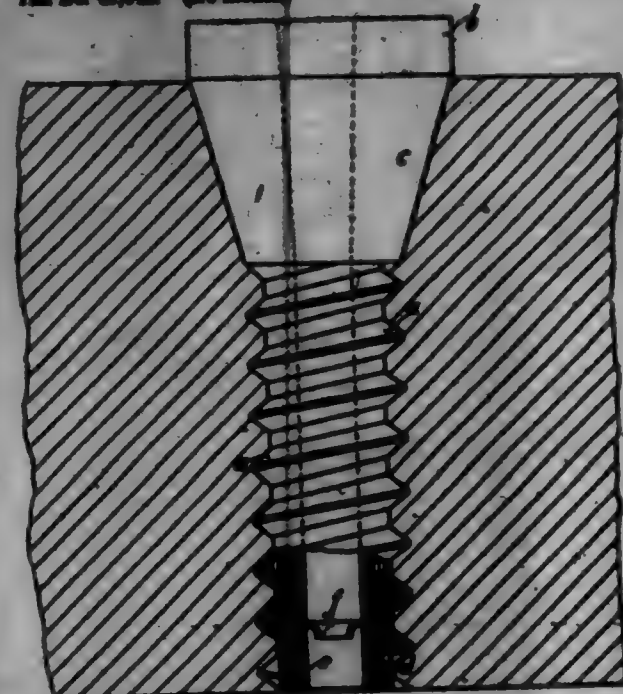
6. The combination with a torpedo and a cap, of staff-engaging means held between said torpedo and cap, a holder held by the cap and spring-arms on the holder and having spring-hooks, as set forth.

7. A railway-torpedo having a body portion, a cap, a holder retained between the body portion and cap with arms projecting beyond the torpedo and spring-arms on the holder having hooks to engage opposite sides of the rail, as set forth.

8. A torpedo comprising a torpedo proper, a cap portion embracing the same and cut away, a holder held between the cap and body and pro-

jecting through said cut-away portion, and spring-arms pivotally mounted on said holder and hooked at one end on the holder, as set forth.

698,070. WOOD PEG OR FASTENER FOR WOODEN RAILWAY-SLEEPERS OR TIMBER. FRANK STAM, Hursburg, Germany, assignor to Leo Stam, Hursburg, Germany. Filed Feb. 16, 1901. Serial No. 62,942. (No model.)



Claim.—1. A form of construction of the wood peg such as described which consists in the lower end being covered by a cap of fitted threads in order to protect it against moisture arising from the ground, substantially as heretofore described and shown.

2. A form of construction of the wood peg such as described which consists in the lower part of the closing-cap, which lower part projects into the longitudinal boring of the wood peg, being formed at its upper end into a funnel *f* which on the one hand prevents the rising of moisture from the ground, and on the other hand allows rain or snow water, which penetrates from above, to run away, substantially as heretofore described and shown.

698,071. APPARATUS FOR ROLLING CAR-AXLES. CHARLES STEINHA, Dapunta, Pa. Filed Mar. 4, 1902. Renewed Aug. 24, 1901. Serial No. 72,172. (No model.)



Claim.—The combination with the housing and a pair of lower rolls journaled therein, said rolls tapering from their center toward each end and carrying rollers at the end of the taper, of an eccentric roll having a flat face and of relatively greater diameter than the lower rolls, said eccentric roll being journaled in the housing above the dividing-line of the lower rolls and being tapered from its center toward each end, and segmental collars secured on said eccentric roll, said collars having one end terminating at the flat face of the roll, as and for the purpose specified.

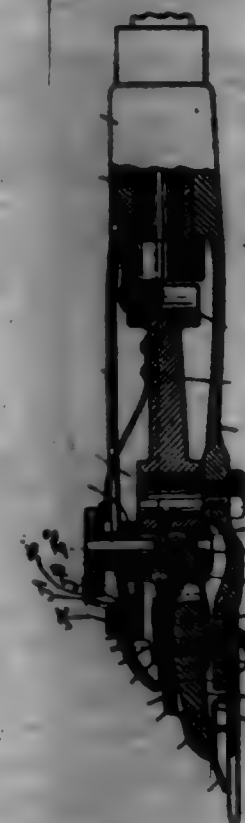
698,072. PAVING-FLAG. JOSEF STEINMANN, Vienna, Austria-Hungary. Filed Oct. 1, 1900. Renewed Sept. 27, 1901. Serial No. 72,204. (No model.)

Claim.—1. Paving-flag, composed of a layer of concrete firmly connected by means of a strong pressure with an upper layer formed of a mixture of natural asphalt-cum, sulfur, carb-meal, iron oxide and granulated porphyry or any other kind of hard homogeneous stone, substantially as set forth.

2. The process of making the improved paving-flag, which consists in mixing natural asphalt-cum in a cold state with finely-divided sulfur, carb-meal iron oxide and granulated porphyry or other similar stone, heat-

ing the mixture to a temperature of 140° Celsius, maintaining the mixture at a temperature of 120° Celsius, then pouring the material into suitable molds containing a layer of maintained concrete, and finally submitting the molded flag to a strong pressure, the above materials being employed in about the proportions stated, substantially as set forth.

698,073. CLIPPER OR SHEARING-TOOL. JOHN E. SEWARD, Chicago, Ill. Filed Aug. 20, 1901. Serial No. 73,177. (No model.)



Claim.—1. In a clipper or shearing-tool, in combination with the vibrating cutter a main operating-lever and means for actuating it; a cleave or roller pivoted to said main operating-lever, and a secondary lever journaled in said cleave or roller and adapted to oscillate therein about the longitudinal axis thereof, and engaging and vibrating the cutter.

2. In a clipper or shearing-tool, in combination with the vibrating cutter a main operating-lever and means for actuating it; a secondary lever actuated by said main operating-lever, having pivotal connections therewith and a limited range of oscillation about a longitudinal axis, and of vertical movement with respect to said main operating-lever; the latter having a recess at its forward part with parallel vertical sides, and a bushing-plate having corresponding parallel vertical sides fitting closely between the vertical sides of said recess, said secondary lever being journaled and adapted to oscillate about the longitudinal axis of its stem in said bushing-plate.

3. In a clipper or shearing-tool, in combination with a vibrating cutter, the main operating-lever and means for actuating it; a secondary lever having pivotal connections with said main lever, with limited freedom of oscillation about a longitudinal axis, and of vertical movement in respect to said main lever, said secondary lever bearing on the vibrating cutter and constituting the medium by which the main lever actuates said cutter; a bushing-plate carried by the main operating-lever and having vertical movement with respect thereto, and restrained with respect to transverse movement; the secondary lever having a cylindrical stem journaled in the bushing-plate and adapted to oscillate therein; and a screw operating between said main lever and said secondary lever to adjust the secondary lever in vertical plane about its pivotal connection to the main operating-lever.

4. In a clipper or shearing-tool, in combination with the one or body having at the forward end the comb or fixed cutter, the vibrating cutter, the main operating-lever and means for actuating it; a secondary lever which at its forward end bears upon the vibrating cutter toward the opposite end of the latter; a supplemental finger pivoted at its rear end to said secondary lever, and at its forward end bearing upon the vibrating cutter intermediate the ends of the latter, and being forward of its pivotal connection to the secondary lever pivoted also to the main operating-lever, and having at its last-mentioned pivot limited freedom of oscillation about a longitudinal axis, and a bushing-plate on the stem of said secondary lever in which the latter is adapted to oscillate, said bushing-plate being mounted in the main operating-lever with capacity for vertical movement but restrained against lateral movement with respect to

said oscillating lever; and an adjusting-screw operating between the rear portion of said secondary lever and the operating-lever, to press the forward end of the secondary lever on the vibrating cutter.

5. In a clipper or shearing-tool, in combination with a cutter-operating lever, having an upwardly-facing bearing-surface, a plate against which said surface is pressed, having an aperture, and the oil holder and strainer, *M*, in said aperture having a flange at the upper end to retain the oil-straining material, and a shoulder, *M'*, stopping it on the plate.

6. In a clipper or shearing-tool, in combination with the cutter the main operating-lever and means for actuating it; a secondary lever actuated by said main operating-lever, and having a cylindrical stem; a bushing-plate on each stem, lodged in the main operating-lever and having capacity for vertical movement, but restrained against lateral movement in respect thereto; a pivot-pin extending through said bushing-plate and through said secondary lever and secured in the operating-lever, and connecting said three parts together; the aperture for said pin through the bushing-plate and through the secondary lever being vertically elongated to afford limited range of vertical movement and of oscillation about the axis of its stem to said secondary lever.

7. In a clipper or shearing-tool, an operating-lever and a secondary lever pivotally connected thereto, arranged at its forward end to bear upon the cutter; said operating-lever having a vertical threaded aperture back of the pivot of the secondary lever thereto and an opening into said threaded aperture at the forward side, the rear end of the secondary lever extending through said opening; a screw extending in said threaded aperture, and having at an intermediate point of its threaded extent a circumferential or annular groove which corresponds in position, when the screw is in operative relation with the other parts, with the opening in the forward side of said threaded aperture, the rear end of the secondary lever taking through said opening and engaging in the annular groove of the screw; whereby the latter serves to elevate the rear end of the lever to cause it to press at the forward end on the cutter.

698,074. MEAT-TENDER. EDWARD STONE, Ontario, Wis. Filed May 22, 1901. Serial No. 61,160. (No model.)



Claim.—1. A meat-tender comprising a base provided with a step, a reciprocating platform mounted on the base and provided with opposite step projections for limiting the movement of the platform, one of the step projections being movable and arranged to swing clear of the base to permit the platform to be detached, and a mangling member located above and cooperating with the platform and adapted to reciprocate the same, substantially as described.

2. A meat-tender, comprising a base, an intermediate fixed step device carried thereby, a reciprocating platform mounted upon the base, and provided with opposite step projections for contact with the fixed step device, one of the step projections being adjustable in clear of the fixed step device, and a swinging mangling member cooperating with the platform.

3. A meat-tender, comprising a base having an open top, and an intermediate cross-bar below the open top, a reciprocating platform mounted upon the top of the base, and provided with a pendant step projection extending below the top of the cross-bar to engage therewith at one end of the platform, and a laterally-swinging step-pin screw from the opposite undermost portion of the platform to engage the cross-bar at the opposite end of the platform and capable of being swung out of alignment with the cross-bar and a swinging mangling member cooperating with the top of the platform.

4. A meat-tender, comprising a base having an open top, a pair of rollers mounted transversely between the sides of the base and below the top thereof, the intermediate portions of the rollers being reduced, a cross-bar extending between the sides of the base and lying between the rollers, the intermediate portion of the top of the cross-bar being projected above the reduced portion of the rollers, a reciprocating platform mounted upon the enlarged portions of the rollers, and opposite pendant step projections carried by the platform, the lower ends of the projections lying below the top of the cross-bar and above the reduced portions of the rollers, whereby the cross-bar forms a fixed step for engagement by the step projections.

5. A meat-tender, comprising a base having an open top, and opposite inwardly-directed longitudinal flanges antifriction-rollers mounted transversely within the base and below the flanges, a reciprocating platform, having a pair of pendant longitudinal flanges resting upon the marginal edges of the terminal enlargements of the rollers, and provided in their outer sides with longitudinal grooves receiving the flanges of the base, and a swinging mangling member cooperating with the top of the platform.

6. A meat-tender comprising a base, a reciprocating platform mounted thereon, a standard rising from the base and provided with a tubular pivot extending over the platform, a mangling member mounted on the pivot and cooperating with the platform and having a tilting movement on the said pivot, out of line with its normal movement and a coiled spring housed within the tubular pivot and connecting the mangling member with its bearing, substantially as described.

7. A meat-tender, comprising a base, a reciprocating platform mounted thereon, a standard rising from the base and provided with a lateral pivot-rod overhanging the platform and provided with a longitudinal bore, there being an annular shoulder within the bore, a rocking mangling member cooperating with the platform and rotatably mounted upon the pivot-rod, a handle for the mangling member, an outwardly-movable belt passed through the bore of the pivot-rod and the mangling member, a coiled spring encircling the belt within the pivot-rod and bearing in opposite directions against the head of the belt and the shoulder within the bore of the pivot-rod, and a stop device upon the opposite end of the belt and lying against the mangling member, whereby the latter is capable of being laterally tilted upon its pivotal support.

8. In a meat-tender, the combination with a rotatable mangling member having a tapered pivotal opening, of a support therefor, having an externally-tapered pivot-pin to fit the tapered opening of the mangling member, the pin being provided with a longitudinal bore, and an inner marginal shoulder therein, a headed bolt passed through the pin and the mangling member with the head slidably received within the bore, a coiled spring about the bolt and bearing in opposite directions against the head thereof and the marginal shoulder within the pivot-pin, and a fastening applied to the opposite end of the bolt, whereby the mangling member may be tilted upon its pivotal support.

9. A meat-tender comprising a base, a standard having a pivot, a rocking mangling member mounted on the pivot and capable of tilting laterally, means for yieldingly engaging the mangling member, and a reciprocating platform located beneath the same, substantially as described.

698,075. **NECK-YOKER** JOHN H. STROCK, Weston, Pa. Filed Sept. 10, 1901. Serial No. 74,978. (No model.)



Claim.—1. The combination with a pole-tip having a flattened bulbous head, of a neck-yoker provided with means for securing it to said pole-tip, said means comprising a hollow body part having an opening adapted to receive between its walls the flat sides of the pole-tip, said opening being defined by opposite external flanges extending from end to end of the opening.

2. As a part of a neck-yoker, a socket member consisting of a hollow body part, conical and piece, and web, constituting walls of the body part and extending across the conical and piece.

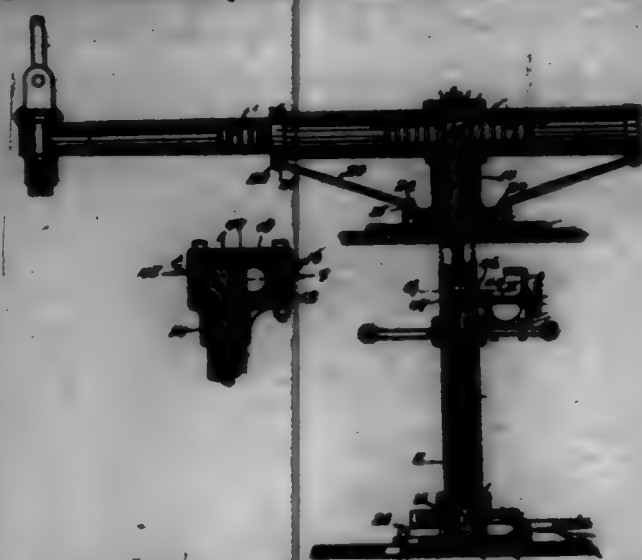
3. As a part of a neck-yoker, a socket member consisting of a body part, conical and piece, web, and a flange extending from web to the other.

698,076. **ADJUSTABLE TROLLEY-SUPPORTER** THOMAS E. STROCK, Indianapolis, Ind. Filed Aug. 31, 1901. Serial No. 75,940. (No model.)

Claim.—1. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a current-conveyor and a horizontally-extending extensible arm pivoted to swing in a horizontal plane, and means on the free end of said arm whereby said current-conveyor is pivotally supported and maintained in position to contact with said side conductor.

2. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a current-conveyor, an extensible horizontally-extending arm pivoted to swing in a horizontal plane whereby said current-conveyor is supported and maintained in position to contact with said side conductor.

3. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a current-conveyor, and a horizontally-extending extensible arm pivotally mounted to swing in a horizontal plane, and situated at or near the forward end of the vehicle, and means on the free end of said arm whereby said current-conveyor is pivotally supported and maintained in position to contact with said side conductor.



4. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of the track, of a current-conveyor, a vertically-extending rotatable shaft, an arm extending horizontally from said vertical shaft and whereby said current-conveyor is supported and maintained in position to contact with said side conductor.

5. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a current-conveyor, a vertically-extending rotatable shaft, an extensible arm extending horizontally from the top end of said rotatable shaft, whereby said current-conveyor is supported and maintained in position to contact with said side conductor, and means for swinging and extending said arm and for locking same in position.

6. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a current-conveyor, a vertically-extending rotatable shaft, an extensible arm extending horizontally from the top end of said rotatable shaft whereby said current-conveyor is supported and maintained in position to contact with said side conductor, and independent means for swinging and extending said arm and for locking the same in position.

7. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured at or near the top end of said vertical shaft, and a current-conveying means pivotally mounted on the free end of said extensible arm.

8. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured at or near the top end of said vertical shaft, a current-conveying means pivotally mounted on the free end of said arm, and means for locking said arm in position.

9. The combination with a railroad-track, an electrically-propelled vehicle on said track and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured at or near the top end of said vertical shaft, a current-conveying means pivotally mounted on the free end of said arm, and independent means for extending said arm and for swinging the same into position.

10. The combination with a railroad-track, an electrically-propelled vehicle on said track and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured at or near the top end of said vertical shaft, a current-conveying means pivotally mounted on the free end of said arm, independent means for extending and swinging said arm and independent means for locking said swinging means and said arm extending means.

11. The combination with a railroad-track, an electrically-propelled vehicle on said track and a current-conductor situated at one side of and above the plane of the track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured to said vertical shaft at or near the top end thereof, a current-conveying means pivotally mounted

on the free end of said arm, independently-operated means situated on said vertical shaft for extending said arm and swinging the same, and independent means for locking said swinging and said extending means.

12. The combination with a railroad-track, an electrically-propelled vehicle on said track and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured to said vertical shaft at or near the top end thereof, a stop or floor bearing in which the bottom end of said vertical shaft is journaled and an upper bearing at or near the top end of said vertical shaft whereby the latter is steadied and held in vertical position.

13. The combination with a railroad-track, an electrically-propelled vehicle on said track, and a current-conductor situated at one side of and above the plane of said track, of a vertically-extending rotatable shaft, a horizontally-extending extensible arm rigidly secured to said vertical shaft at or near the top end thereof, means extending from the free end of said shaft to said vertical shaft, and an arm telescoping into said sleeve substantially as and for the purpose set forth.

14. The combination with a current-conductor and a current-conveyor, of a vertically-extending tubular shaft, a secondary vertically-extending shaft located in said tubular shaft, a horizontally-extending sleeve secured to said tubular shaft at or near the top end thereof, an extensible arm adapted to telescope into said sleeve, driving means connecting said arm and said interior shaft, and means extending from the interior of said tubular shaft whereby said interior vertical shaft is turned to traverse said arm.

15. The combination with a current-conductor and a current-conveyor of a vertically-extending tubular shaft, a secondary vertically-extending shaft located in said tubular shaft, a horizontally-extending sleeve secured to said tubular shaft at or near the top end thereof, an extensible arm adapted to telescope into said sleeve, a rack on one side of said arm, a pinion on said vertical shaft, and means extending from the interior of said tubular shaft to the exterior thereof for turning said interior shaft to manipulate the said extensible arm.

698,077. **HOLDING-BOARD** OLIVER C. SWINE, Watertown, N. Y. Filed Apr. 2, 1902. Serial No. 671,105. (No model.)



Claim.—1. The combination with a molding-board provided with a groove in its lower face, of a substantially U-shaped hook having one end or branch journaled in the molding-board and its opposite end or branch movable into and out of the groove, substantially as and for the purpose described.

2. The combination with a molding-board provided with a groove in its lower face, of a plate secured to the edge of the board in proximity to the groove, and a substantially U-shaped hook having one end or branch journaled in the plate and its opposite end or branch movable into and out of the groove, substantially as and for the purpose specified.

3. The combination with a molding-board, of a plate secured to the edge of the board and formed with a journal-opening, and a groove leading from said journal-opening and extending through the plate from front to rear, and a movable substantially U-shaped hook having one end or branch movable into engagement with a suitable support, and its opposite end or branch arranged in the journal-opening of the plate and provided with a shoulder normally engaged with the inner face of the plate and movable through said groove, substantially as and for the purpose set forth.

698,078. **HYDRAULIC** HENRY C. THOMAS, Boston, Mass. Filed Mar. 20, 1901. Serial No. 68,310. (No model.)



Claim.—1. In an eye-glass, in combination with the usual nose-guard, bow, lens, and holding-clamp, a washer F, having the angular perforation f placed vertically between and held rigidly by the projecting arm of the holding-clamp against the edge of the lens, and a holding-screw G having its termination g adapted to fit said perforation f to prevent said holding-screw G from turning; substantially as described.

2. In an eye-glass, in combination with the nose-guard, bow, lens, and usual holding-clamp, a spring-clamp having the part F angularly perforated at f, and having also the spring-arm e perforated at d', and a holding-screw G having its termination g adapted to fit the perforation f to prevent said holding-screw G from turning; substantially as described.

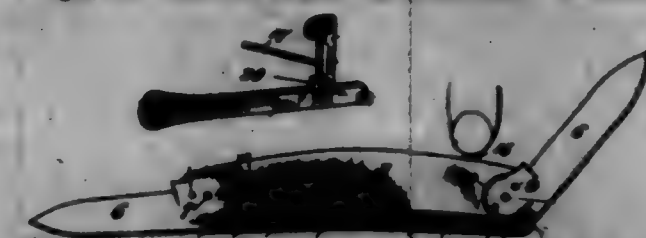
3. In an eye-glass, in combination with the usual nose-guard, bow, lens, and holding-clamp, a spring-clamp H, composed of the part F angularly perforated at f, and having also the extensions f' and the spring-arm e perforated at d', and the screw G having its termination g adapted to fit the perforation f to prevent said holding-screw G from turning; substantially as described.

698,079. **SALICYLATE OF SALTETYL GUININ**, Dr. HENNING THOMAS, Frankfurt-on-the-Main, Germany, assignor to Vereinigte Chemisch-Fabrikanten Rummel & Co., Carlshausen mit Dornschütz Hofung, Frankfurt-on-the-Main, Germany. Filed Jan. 4, 1902. Serial No. 68,481. (No specimens.)

Claim.—1. The herein-described new products prepared from one molecule of salicylic acid and one molecule of a salicylo-acid ester of di-phenyl alkylamine forming tasteless white crystals, insoluble in water, ether and ligroin but readily soluble in benzene, chloroform and hot alcohol.

2. The herein-described new product prepared from one molecule of salicylic acid and one molecule of salicylo-acid ester of quinin forming tasteless white crystals melting at 183° to 185° centrifugally insoluble in water, ether and ligroin, but readily soluble in benzene, chloroform and hot alcohol.

698,080. **SELF-OPENING POCKET-KNIFE** HENRY TILMAN, Be- light, Ark. Filed Nov. 12, 1901. Serial No. 68,048. (No model.)



Claim.—1. In a self-opening knife, the combination with a handle, and a back-spring having a chamber therein, of a covering for said chamber, a blade pivoted to the handle, a retractile spring located in the chamber of the back rib and anchored thereto and having the other end connected to the heel of the blade, and means for locking the blade.

2. In a self-opening knife, the combination with a handle, of a blade pivoted thereto, a spring locking-catch adapted to engage and lock the blade, and a spring-actuated unlatching-wedge adapted to engage against the locking-catch and withdraw it from engagement with the blade.

3. In a self-opening knife, the combination with a handle, of a blade pivoted thereto, a spring locking-catch adapted to engage and lock the blade, and a spring-actuated unlatching-slide having a slot and wedge, and a pin in the slot connected to the handle, said slide being disposed at an angle to the length of the locking-catch and the wedge being adapted to wipe against the locking-catch and withdraw it from engagement with the blade.

4. In a self-opening knife, the combination with a handle, of a spring-actuated blade pivoted thereto, provided with aperture in its heel arranged at opposite radial points, a spring carrying a pin on its free end to engage in said aperture and lock the blade in either closed or open position, and a slidable wedge to engage behind said spring to withdraw the pin from engagement.

5. A self-opening knife comprising a handle, a blade pivoted thereto having its heel provided with a locking-aperture, a back-spring, a retractile spring having one end secured to the back-spring and the other end secured to the back of the blade-heel, a spring carrying a pin on its free end to engage in the aperture in the heel of the blade and lock the blade closed, and a slide to engage the spring and withdraw the pin, whereby the retractile spring starts in force and opens the blade.

698,081. **HILLARDS-PILOW** WHEAT TUNNICLIFFE, Pasadena, Cal. Filed Dec. 28, 1901. Serial No. 68,078. (No model.)

Claim.—1. In a pillow, the combination with a frame comprising side beams, of reversible pillowcases disposed below the frame, means for effecting the relative endwise movement of the side beams, and means operated by the movement of the side beams for effecting the reversal of the individual cases.

2. In a pillow, the combination with a frame comprising side beams, of reversible pillowcases disposed below the frame, a reversing-lever for effecting the relative endwise adjustment of the side beams, and means

operated by the movement of the side beams for reversing the individual shares.



3. In a plow, the combination with a frame, of a plurality of reversible shares carried by the frame, and a reversing-lever arranged to simultaneously effect the adjustment of the frame members and the reversal of the several shares.

4. In a plow, the combination with a frame composed of pivotally-connected longitudinal and transverse frame members, of means for changing the relative positions of said members, means for locking the members in the positions to which they are moved, and reversible plows carried by certain of the members and operatively connected to certain other members, to effect the reversal of said plows when the frame members are adjusted.

5. In a plow, the combination with longitudinal frame members provided with rotary shares or standards, and shares carried thereby, of means for shifting said longitudinal frame members in opposite directions, and means for rotating the shares or standards through each relative movement.

6. In a plow, the combination with a frame comprising adjustable members, of rotary standards mounted in the frame, shares carried by the standards, and a reversing-lever operatively connected to the frame members and standards to adjust the members and rotate the standards simultaneously.

7. In a plow, the combination with a frame comprising side beams, of land-wheels carried by said beams, reversible plowshares disposed below the beams, means for effecting the relative and/or adjustment of the side beams to advance either of the land-wheels, and means for effecting the individual reversal of the shares.

8. In a plow, the combination with a frame comprising a pair of side beams, land-wheels carried by the side beams, and means for shifting the side beams longitudinally to effect the advance of one of the land-wheels, of rotary shares disposed below the frame, and means for automatically reversing the shares when the side beams are relatively adjusted.

9. In a plow, the combination with a frame comprising relatively adjustable side beams, and land-wheels movable independently of the beams, of reversible plowshares disposed below the frame, means for raising and lowering the land-wheels to effect the raising and lowering of the shares, means for effecting the relative adjustment of the side beams, and means for reversing the shares.

10. In a plow, the combination with a frame comprising a pair of relatively movable side beams, and connecting members, of land-wheels independently movable with the side beams, rotary standards carried by the side beams, shares mounted on the standards to effect the elevation and depression of the shares, and means for locking said parts in their adjusted positions.

11. In a plow, the combination with a frame comprising longitudinal and transverse frame members having pivotal connection, of plowshares disposed below the longitudinal frame members, and a reversing-lever connected to one of the transverse frame members and constituting means for effecting the adjustment of the frame.

12. In a plow, the combination with a frame comprising side beams, and transverse frame members pivotally connected to the side beams, of a reversing-lever extending from one of the transverse frame members and constituting means for adjusting the frame, rotary standards mounted in the side beams and provided with plowshares, and means for effecting a connection between a frame member and a standard to rotate the latter through the movement of said transverse member.

13. In a plow, the combination with a frame comprising side beams, and transverse frame members pivotally connected thereto, of rotary standards mounted in the side beams and provided with crank-arms, plowshares mounted in the standards, and means operatively connecting the crank-arms with a transverse frame member, whereby the standards will be rotated when said transverse member is shifted with respect to the side beams.

14. In a plow, the combination with side beams, and transverse frame members pivotally connected thereto and provided with arms, of

rotary standards mounted in the side beams and having crank-arms operatively connected with the arms of a transverse member, and shares mounted on the standards.

15. In a plow, the combination with side beams, and transverse members pivotally connected thereto, of rotary standards mounted in the side beams and provided with shares, a crank-arm mounted on each of the standards, arms projecting from the opposite ends of the transverse members and engaging the crank-arms of the standards, and a reversing-lever secured to the transverse member and extended rearwardly.

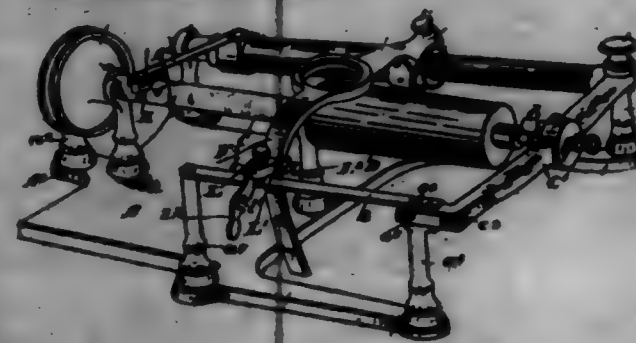
16. In a plow, the combination with side beams, and transverse frame members, of rotary standards mounted in the side beams, shares carried by the standards, means for effecting the rotation of the standards through the relative movement of the side beams, a reversing-lever extended rearwardly from one of the transverse frame members, and a hook-carried by another of the transverse frame members for the retention of the reversing-lever.

17. In a plow, the combination with a frame comprising side beams, and transverse members pivotally connected to the side beams, of shares disposed below the side beams, a draft-link pivotally connected at its opposite ends to the side beams, and a draw-bar detachably connected to the draft-link.

18. In a plow, the combination with side beams, transverse frame members, and shares, of means for adjusting the relative positions of the said members, a draft-link pivotally connected at its opposite ends to the side beams, a draw-bar detachably connected at its rear end to the draft-link, and an adjustable draft-lever disposed in advance of the draft-link and serving as a guide for the draw-bar.

19. In a plow, the combination with a standard provided with a shoulder, and a share, of a pair of bolts passed through the standard and share and provided with reduced portions, a heel-plate provided with key-slots for the reception of the bolts, and a wedge disposed between one end of the heel-plate and the shoulder of the standard.

698,083. PHOTOGRAPH. CHARLES W. VERNE, Toronto, Canada, assignor of one-half to Matthew Greenwell Fletcher Hamby, Toronto, Canada, and Margaret Hamby, Ottawa, Canada. Filed Oct. 21, 1901. Serial No. 79,686. (No model.)



Claim.—1. The combination with the frame, the arbor suitably journaled therein, the side rod forming one side of the frame, the sleeve longitudinally adjustable thereon, the recorder-arm secured at one end to the sleeve and suitably supported at the opposite end on the frame, the feed-arm suitably secured to the sleeve and provided with a nut having an arc-shaped recess threaded up as to engage with the screw-threaded end of the arbor and said nut being centrally pivoted in the end of the arm and spring-held as and for the purpose specified.

2. The combination with the arbor threaded at one end and suitably journaled in the frame, the cylinder suitably secured to the arbor, the longitudinal side rod, the sleeve fitting thereon and provided with radially-disposed notches, the recorder-arm secured to the sleeve, the feed-arm secured to the sleeve at one end, the nut secured to the opposite end of the feed-arm and meshing with the threaded end of the arbor, the spring on the recorder-arm provided with an end pin designed to engage one or other of the two notches in the sleeve as and for the purpose specified.

3. The combination with the arbor, suitably journaled, and the cylinder fitting thereon, of the recorder-arm pivotally held at one end and provided with an arc-shaped end, concentric to the pivoted end, the side bar of the frame, the bracket secured on the concentric end and the nut-screw extending through the bracket and resting on the side bar of the frame as and for the purpose specified.

4. The combination of the arbor, suitably journaled and the cylinder fitting thereon, of the recorder-arm pivotally held at one end and provided with an arc-shaped end concentric to the pivoted end, the side bar of the frame, the bracket secured on the concentric end and the nut-screw extending through the bracket and resting on the side bar of the frame and the handle pivoted on the end of the bracket and provided with a

notch designed to engage with the bar and locking the arm, as is to slide in the raised position as and for the purpose specified.

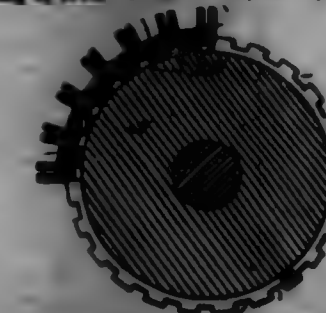
698,085. RADIATOR ATTACHMENT. JAMES R. WARD, St. Louis, Mo. Original application filed Oct. 14, 1900. Serial No. 79,688. Divided and this application filed Aug. 12, 1901. Serial No. 71,704. (No model.)



Claim.—1. A radiator attachment comprising a casing having a suitable inlet-opening, an inner tube depending from the top of the casing, an outlet-opening at the base of the inner tube, an outlet-pipe in communication with said outlet-opening, a cap or flange surrounding the tube and adapted to rest over the opening at the base of the casing, a tubular stem open at both ends carried by the flange and located within the tube and spaced therefrom, thereby affording communication by the passage thus formed, between the radiator and the outlet-pipe, substantially as set forth.

2. A radiator attachment comprising a casing having a suitable inlet-opening, a screw-cap covering the top of the casing, an inner tube depending from the center of the cap, an outlet-opening at the base of the casing located below the tube, an outlet-pipe in communication with said outlet-opening, a cap or flange surrounding the tube and adapted to rest over the opening at the base of the casing, a tubular stem open at both ends carried by the flange and located within the tube, and spaced therefrom, thereby affording communication by the passage thus formed, between the radiator and the outlet-pipe, substantially as set forth.

698,084. KNIVING-ENGINE. SALAMON E. WARD, Appleton, Wis. Filed May 1, 1901. Serial No. 80,005. (No model.)



Claim.—1. In a kniving-engine, a rot provided with a series of smaller ribs having continuous sliding recesses, of less depth than said ribs, a series of blades set in said recesses, each of said blades having its outer edge grooved or roughened, and a wood filling between each pair of adjacent blades.

2. A bar for kniving-engines, composed of two blades securely united in each other, one of said blades having a recess provided in its opposing side whereby to afford a filling-groove between the blades.

3. A bar for kniving-engines composed of two members securely united, one of said members being thicker than the other and having a recess provided in its opposing side.

4. A bar for kniving-engines, composed of two blades securely united to each other to form a compound bar and operated throughout their length and for a portion of their width by a groove having parallel side walls.

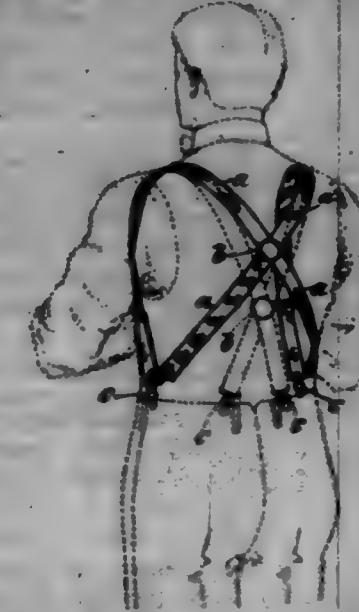
5. A bar for kniving-engines, composed of a number of members securely united to each other to form a compound bar, one or more of said members having a portion of its body removed whereby to provide cutting surfaces or blades and a filling-groove having parallel side walls between adjacent members.

6. A bar for kniving-engines, composed of a number of members, one or more of said members being recessed, whereby when the members are placed side by side to provide cutting surfaces or blades and a filling-groove between the blades.

7. A bar for kniving-engines, composed of a number of members securely united to each other to form a compound bar and operated throughout their length and for a portion of their width by a rectangular recess formed in one or more of said members.

8. A bar for kniving-engines having its outer sides grooved or roughened, as and for the purpose described.

698,085. SUSPENDER. ALFRED E. WARDER and EDWARD BALMER, Chicago, Ill. Filed Sept. 14, 1901. Serial No. 79,687. (No model.)



Claim.—1. The combination is a pair of suspenders, of the webbing as a crossing at the back, the adjustable ring through which the webbing passes at the place of crossing, the metallic loop-fasteners *c*, adapted to fit the trousers-bottom, the loops or openings of said fasteners being keyhole-shaped, the two arms of the loops being held from spreading by clips, and buttons *c* provided upon the clips of the front loops, to which buttons the rear loops are adapted to be buttoned, whereby the suspenders may be worn to support the trousers either at the front and back, or by buttoning the rear loops to the special buttons *c*, to support the trousers from the front loops only, said front loops being fastened at the sides of the trousers, substantially as and for the purpose specified.

2. A suspender comprising straps *a* as a crossing at the back, and having buttons at the end adapted to fit the trousers-bottom, and a special button *c* provided on the fasteners at the corresponding ends of both straps, the fasteners at the other ends being adapted to fasten either to the buttons of the trousers or to the special buttons *c* on the first-mentioned fasteners, whereby the suspenders may be worn to support the trousers either at the front and back or at the sides only, as set forth.

698,086. WRANCH. SAMUEL W. WARDWELL, Providence, R. I., and HENRY H. BAKER, Attleboro, Mass., assignors to Montague Wrench Co., Attleboro, Mass., a Corporation of Maine. Filed Aug. 20, 1901. Serial No. 79,689. (No model.)



Claim.—1. A wrench having a body comprising head portions, a handle, and jaw-guides intermediate said head and handle, all formed from one piece of sheet metal, and a movable jaw arranged between the head and handle on said guides, substantially as described.

2. A wrench having a body comprising head portions, a handle, and jaw-guides intermediate said head and handle, all formed from one piece of sheet metal, a movable jaw arranged between the head and handle on said guides, and a hardened jaw mounted between said head portions, substantially as described.

3. The combination is a wrench with a fixed jaw, a movable jaw, and a nut for moving the jaw, of a thread-bar to connect the movable jaw and the nut having a split end, a recess of substantially dovetail form in the edge of the movable jaw, and a wedge-shaped projection of the split end of the thread-bar extending into the recess and against which the split end of the thread-bar can be driven to effect its junction with the jaw, as described.

4. The combination is a wrench having a nut, and a jaw to be moved therefrom with a recess in its edge, of a wedge-shaped projection of the jaw extending into the recess, and a thread-bar to connect the nut and the jaw having a split end adapted to be forced upon said projection to effect a junction of the jaw and thread-bar, substantially as described.

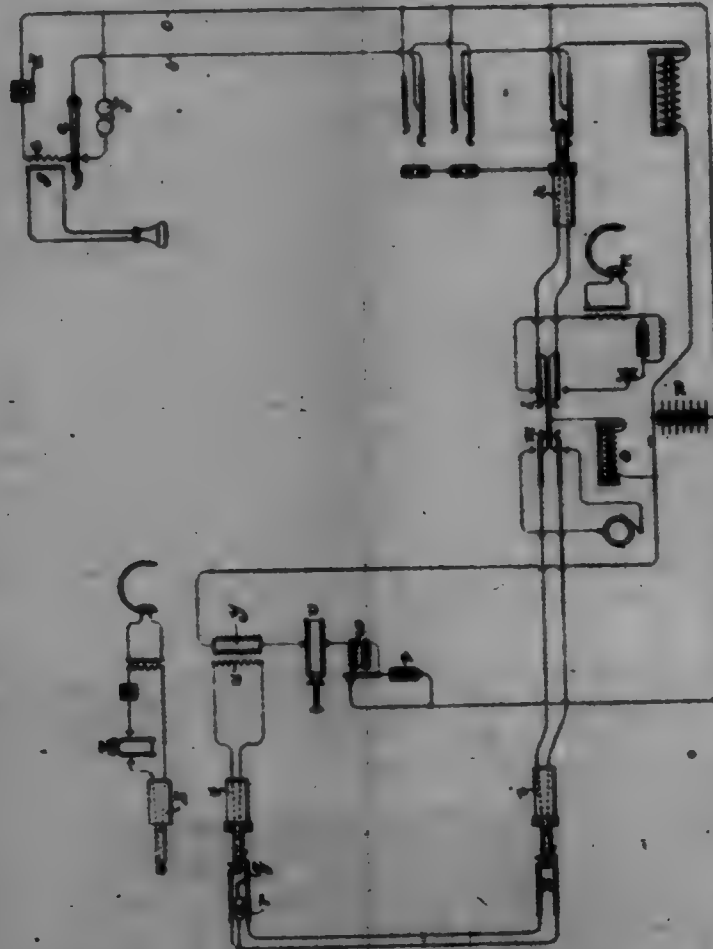
5. The combination is a wrench, of a body comprising a handle por-

sides for the head and guides for a movable jaw intermediate the handle and the head, a hardened jaw inserted between the sides of the head and secured by rivets, and a removable jaw adjustable to and from the fixed jaw.

6. The combination is a wrench with a body formed from a single piece of sheet metal comprising a handle, sides for the head, and guides for a movable jaw intermediate the handle and the head, a hardened jaw inserted between the sides of the head and secured by rivets, a jaw movable in the guides and adjustable in position by a nut mounted in the handle, and a thread-bar engaging the nut and having a split end to enter a recess in the movable jaw to engage the split end of the thread-bar, substantially as described.

7. The combination is a wrench, with a fixed jaw, a movable jaw, and a nut for moving the jaw, of a substantially dovetail-shaped recess in the edge of the jaw, a wedge-shaped projection of the jaw extending into the recess, and a thread-bar having a split end, adapted to be entered into said recess and after having been so entered to be then thrust against said projection and opened to substantially fill the recess, for the purpose and in the manner substantially as described.

698,087. TELEPHONE-EXCHANGE SYSTEM. HARRY E. WIDMER, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 28, 1901. Serial No. 48,714. (No model.)

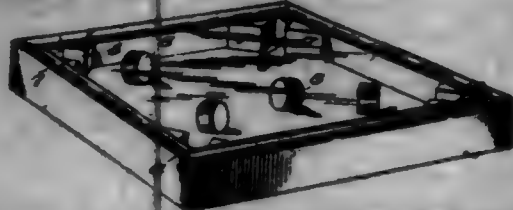


Claim.—1. In a common-battery telephone-exchange system, the combination with a subscriber's line extending from the station to an exchange, the said station being provided with a telephone receiver and transmitter, of a common battery at the exchange connected with the said telephone-line and serving to supply the transmitter at the subscriber's station with current, a subsidiary circuit including the said common battery, means for creating in the said subsidiary circuit a signaling-current that is adapted to operate the diaphragm of the receiver at the subscriber's station to produce a calling-signal, and means for directing this current over the telephone-line, substantially as described.

2. In a common-battery telephone-exchange system, the combination with a subscriber's line extending from a station to an exchange, the said station being provided with a telephone receiver and transmitter, of a common battery at the exchange connected with the said telephone-line and serving to supply the transmitter at the subscriber's station with current, a local subsidiary circuit including the said common battery, means for creating in the said subsidiary circuit a signaling-current, a primary coil included in the subsidiary circuit, a secondary coil for the said primary, a trunk-line extending between a chief operator and the switching operator, a jack and plug for connecting the secondary coil with the said trunk-line at the chief-operator's desk, a jack at the switching-operator's desk also connected with the said trunk-line, and an operator's cord-circuit at the switching-operator's desk for connecting the said jack with the jack of the said subscriber, whereby the signaling-current created in the said subsidiary local circuit is passed over the trunk-line through the switching-operator's cord-circuit to the station to operate the diaphragm of the receiver at the said station if the receiver is off its hook, substantially as described.

3. In a common-battery telephone-exchange system, the combination with a subscriber's line extending from a station to an exchange, the said station being provided with a telephone receiver and transmitter, of a common battery at the exchange connected with the said telephone-line and serving to supply the transmitter at the subscriber's station with current, a local subsidiary circuit including the said common battery, means for creating a signaling-current in the said subsidiary circuit, a primary coil included in the subsidiary circuit, a secondary coil for the said primary, a trunk-line extending between a chief operator and the switching operator, a jack and plug for connecting the secondary coil with the said trunk-line at the chief-operator's desk, a jack at the switching-operator's desk also connected with the said trunk-line, and an operator's cord-circuit at the switching-operator's desk for connecting the said jack with the jack of the said subscriber, whereby the signaling-current created in the said subsidiary local circuit is passed over the trunk-line through the switching-operator's cord-circuit to the station to operate the diaphragm of the receiver at the said station if the receiver is off its hook, substantially as described.

698,088. POCKET GAME. JAMES E. WILSON, Baraboo, Wis. Filed Aug. 27, 1901. Serial No. 78,488. (No model.)



Claim.—1. A game comprising an inclined playing-field having goals at opposite points, and cylindrical playing-pieces each having one axis of movement only.

2. A game comprising an inclined playing-field with sides, a bottom and a transparent top, and having goals at opposite points therein, and cylindrical playing-pieces each having a single axis of rotation and a major diameter slightly greater than the distance between the said bottom and transparent top.

3. A game comprising a playing-field formed by a bottom, surrounding sides and a transparent top, and having goals at opposite points therein provided with pockets, and cylindrical playing-pieces having a single axis of rotation and the axis of each slightly less in length than the width of the said pockets.

4. A game having an inclined playing-field comprising a bottom, surrounding sides and a transparent top, and provided with goals at opposite points having pockets, and cylindrical playing-pieces having a single axis of rotation and each having its major diameter and length of axis slightly greater than the distance between the bottom and said top and the width of the pockets of the goals respectively.

5. A game consisting of an angular box comprising a bottom, surrounding sides and a transparent top, goals located in the angles of the box and having pockets therein with opposite parallel walls, and cylindrical playing-pieces, each of the playing-pieces having a single axis of rotation and the length of its axis slightly less than the distance between the walls of the pockets.

6. A game having a playing-field with goals, and cylindrical playing-pieces each having a single axis of rotation and adapted to enter said goals.

7. A game consisting of an inclined field comprising a bottom, surrounding sides and a transparent top, the playing-field being angular in contour and having goals arranged in the angles thereof, said goals being provided with pockets, and playing-pieces of cylindrical form each having a major diameter slightly greater than the distance between the bottom and top of the field and an axis slightly less in length than the width of the pockets.

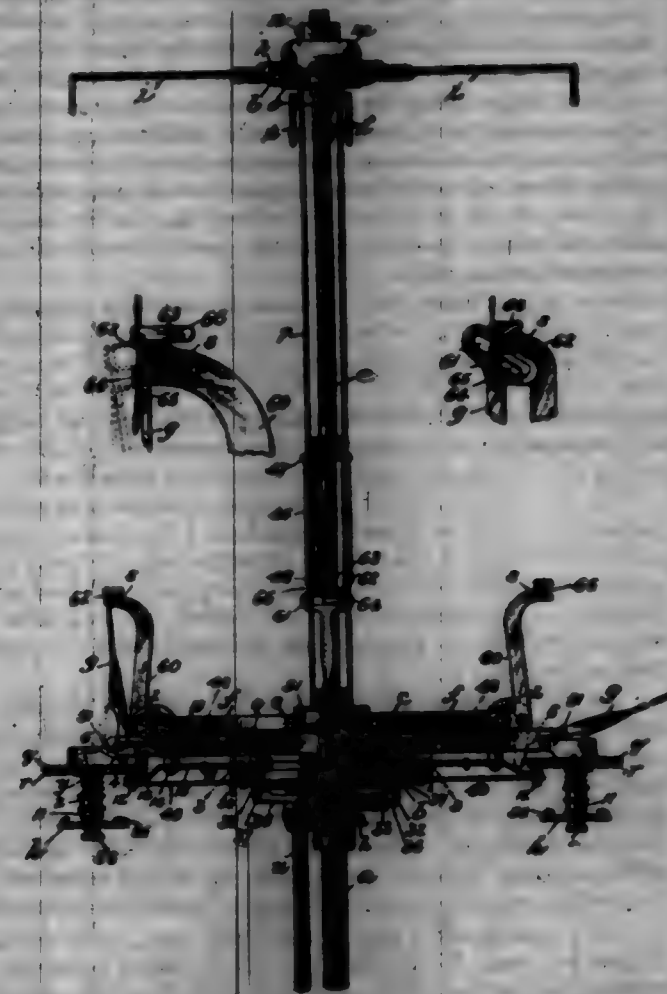
8. A game comprising a playing-field having goals with pockets formed with outwardly and downwardly inclined bottoms, and cylindrical playing-pieces each having a single axis of rotation and the axis less in length than the width of the said pockets.

9. A game comprising a playing-field having goals, and cylindrical playing-pieces each having a single axis of rotation and adapted to enter the goals, the axis of the playing-pieces being less in length than the width of the goals.

698,089. STOP-MOTION FOR KNITTING-MACHINE. FRANK WILSON, Baraboo, Wis. Filed Dec. 2, 1900. Serial No. 36,372. (No model.)

Claim.—1. In combination in a stop-motion, a sweep, a feeder, means for entering the thread controlled by the operation of either the sweep or the feeder and connections controlled by the operation of the covering means for stopping the machine, substantially as described.

2. In combination, a stop-motion head having transmitting device, a standard supporting the head, controlling means supported on the stop-motion head to engage the thread and having a connection with the transmitting device extending substantially radially inward toward the standard, a sweep radially arranged at the top of the standard and a connection therefrom extending downwardly to operate the transmitting device through the said radial connection, substantially as described.



3. In combination, a stop-motion head having transmitting device, a standard carrying said head, a controlling device arranged on the head to engage the thread, an inwardly-extending substantially radial connection from said controlling device to the transmitting device, a sweep arranged above the stop-motion head at the top of the standard and an operating connection leading therefrom downwardly along the standard and thence radially outward, substantially as described.

4. In combination, the standard, a stop-motion head thereon having transmitting device, a sweep above the stop-motion head on the standard, a feeder supported substantially in the same horizontal plane with the stop-motion head, a detent arranged to be operated by the feeder, radial connections from the detent to the transmitting device of the stop-motion head, and a rod extending down from the sweep to operate the detent, substantially as described.

5. In combination, a standard, a stop-motion head supported thereon and having rotating arms, a feeder and a hook-catcher arranged adjacent to each other at the outer ends of said rotating arms, a plurality of sweeps arranged at a point above the stop-motion head and on the standard, said sweeps radiating from the standard, transmitting device carried by the stop-motion head and connections by which the sweeps and the feeders will operate said transmitting device, substantially as described.

6. In combination, a standard, a stop-motion head thereon having transmitting device, a plurality of feeders disposed at radial points about and supported on the stop-motion head, a plurality of sweeps supported at the upper end of the standard above the stop-motion head and radially arranged in respect to the standard, connections from said sweeps extending down to the transmitting device of the stop-motion head, said transmitting devices being also controlled by the feeders, and said feeders being in the path of the yarn from the bobbin to the overhead sweep, substantially as described.

7. In combination, a sweep, a stop-motion head supporting transmitting device, and a hook-catcher pivotally supported by the head and adjustable thereon about its pivot, substantially as described.

8. In combination, a stop-motion head having a plurality of arms, stop-motion connections, and a plurality of hook-catchers on being arranged at the outer end of each arm and adjustable independently of each other, substantially as described.

9. In combination in a stop-motion for knitting-machine, a sweep, a standard carrying said sweep radially at or near its upper end, a stop-motion head supported on the standard at some distance below the sweep, covering device for the yarn supported from said head, a hook-catcher also supported on said head, transmitting device carried by the head, and a connection between the covering means and said transmitting device extending radially in relation to the standard, substantially as described.

10. In combination in a stop-motion for knitting-machine, a standard, a sweep arranged at the upper end of the same, a stop-motion head arranged on the standard at a point some distance below the sweep, covering means for the yarn supported on the head, a feeder arranged radially in respect to the standard also supported on the head and transmitting device carried by the head and connections from both the overhead sweep and the radially-arranged feeder to the transmitting device whereby the latter are rendered operative by the movement of either the sweep or feeder, substantially as described.

11. In combination in a stop-motion for knitting-machine, a sweep, a feeder, transmitting device comprising a trip which includes covering means and connections whereby either the sweep or the feeder can independently operate said trip, substantially as described.

12. In combination in a stop-motion, transmitting device comprising main trip mechanism, having a tripping-spring, a supplemental trip controlling the same, and a feeder and sweep arranged to operate said supplemental trip, said feeder being located adjacent to and operating the supplemental trip directly while the sweep operates the same through intermediate connections, substantially as described.

13. In combination in a stop-motion for knitting-machine, a standard, power-transmitting connection, a tripping-spring connected thereto, a detent or trip for holding the spring against action, a sweep located at the upper end of the standard, and the vertically-movable rod with crank connections to the detent or trip, and said rod extending down from the overhead sweep, substantially as described.

14. In combination in a stop-motion, the power-transmitting device, a spring for operating them, connections leading from the spring comprising an arm 4, a slide-rod, a ball-crank between the arm 4 and slide-rod, a detent or trip for holding the arm 4, and detent means for controlling the detent, substantially as described.

15. In combination in a stop-motion, detent means, the arm 31, the ball-crank lever for operating the same, the radial rod for operating the ball-crank lever, a holding-ring 30, a spring connected with the ring and held under restraint thereby, a detent for holding the ring, said detent being arranged to be operated by the rotation of the arm, substantially as described.

16. In combination in a stop-motion, detent means, a stop-motion head, the arm within the head, trip connections to be operated thereby and means for operating the arm controlled by the detent, said means comprising the sliding rod and the ball-crank lever, said ball-crank lever being pivoted within the head, substantially as described.

17. In combination, the covering means, the tripping mechanism, to be operated by the covering means, the connection between them comprising a sliding rod for imparting the movement of the covering means to the tripping mechanism, and detent means controlling the covering means, substantially as described.

18. In combination, the covering means, the tripping mechanism, to be operated by the covering means, the connection between them comprising the slide-rod and the levers operated thereby and detent means controlling the covering means, substantially as described.

19. In combination, in a stop-motion, a plurality of detent means, a plurality of radially-sliding rods controlled thereby, ball-crank at the inner ends of said sliding rods, rotary arms having pins to be engaged by said levers, a main-spring 35, a ring to which said spring is connected, means for holding the ring arranged to be operated by the rotation of the arms and connections leading from the spring, substantially as described.

20. In combination in a stop-motion for knitting-machine, a fixed and a movable shear-blade, said fixed blade having a notch therein, a detent engaging said notch, and arranged to hold the movable blade, a spring connected with the movable blade, to operate it when released and a connection extending from the movable blade to operate the stopping device, substantially as described.

21. In combination in a stop-motion for knitting-machine, means for covering the thread, detent means arranged to control the operation of the covering means, and automatically-operating means to reset the covering means to normal position, substantially as described.

22. In combination in a stop-motion for knitting-machine, the device having the movable blade, with a spring for operating it, controlling means for the device, detent means controlling the same, power-transmitting device controlled through the operation of the detent means and connections therefrom to the device for resetting the same, substantially as described.

23. In combination, in a stop-motion, the device, a spring for operating it, substantially as described.

ing the same, detector means arranged to control the spring, connections operated by the spring when released including a trip mechanism, a spring released by said trip, connections operated by said spring leading to the stopping device and connections operated by said spring for resetting the same, substantially as described.

24. In combination, the same, a spring for operating the same, detector means controlling the spring, connections operated by the release of the spring and simultaneously with the closing of the shears and means operated in the final movement of said connections for resetting the same, substantially as described.

25. In combination, the same, a spring for operating the same, detector means for controlling the action of the spring, connections including a trip mechanism actuated by said spring, a mainspring released by said connections, a ring 36 operated by said spring and an arm 40 on said ring for returning the shears to their open condition, substantially as described.

26. In combination in a stop-motion for knitting-machine, a finger-finger, connections controlled by the said finger for stopping the machine and means for returning the finger to normal position consisting of the rock-shaft and operating means therefor, substantially as described.

27. In combination in a stop-motion for knitting-machine, a finger-finger, trip connections controlled thereby, a spring controlled by said trip connections and connections between the spring and the finger-finger for returning the same to normal position, substantially as described.

28. In combination in a stop-motion for knitting-machine, a finger-finger, trip connections controlled thereby, a spring controlled by said trip connections and connections between the spring and the finger-finger for returning the same to normal position, said connections including a ring 36 surrounding the trip mechanism and a connection between the same and the finger, substantially as described.

29. In combination, the standard, a stop-motion head thereon, a sweep above the stop-motion head on the standard, a finger supported substantially in the same horizontal plane with the stop-motion head, a detector arranged to be operated by the finger-finger directly, connections controlled by the detector, and connections extending from the sweep to the detector including the rod 7 extending along the standard and the radial connections from the lever and end of the rod to the detector, substantially as described.

30. In combination, the guide having the fingers and the finger having the end in the form of a closed loop through which one of the fingers projects, substantially as described.

31. In combination, the guide having one finger and a laterally open curved finger and the finger of loop form adapted to receive the curved finger through its opening substantially as described.

32. In combination, a guide having the two fingers projecting mouth or openings at angles to each other and a finger having an opening to receive one of the fingers, substantially as described.

33. In combination with the driving means, let-off connections, means on a moving part of the machine for operating the let-off connections and means carried by a moving part of the machine for resetting the let-off connections, substantially as described.

34. In combination, a let-off arm, a retaining device for the driving connection, operating means on a moving part of the machine, connections for operating the retaining device, normally out of the path of the said operating means, said connections being controlled by the let-off arm whereby when the let-off arm is operated the connection will be in line with the operating means, and means for resetting the connection, said means being carried by a moving part of the machine, substantially as described.

35. In combination, the let-off arm, the lever 36, a spring for pressing the lever upwardly, said lever being controlled by the let-off arm, the pin on a moving part of the machine for operating the lever, the retaining device for the driving connection, means connecting the lever with the retaining device, a cam on the moving part of the machine for forcing the lever down against the tension of the spring and out of line with the pin and means for resetting the connection when released from the pin, substantially as described.

36. In combination, the let-off arm, the vertically-movable rod controlled thereby, the lever connected with the rod to move vertically therewith and to have turning movement, the ring connected with the lever, a spring for forcing the lever upwardly, a retaining device for the driving connection, a pin on a moving part of the machine to engage the lever when raised, a cam for forcing the lever down out of contact with the pin and a spring for returning the ring and lever to normal position and thus resetting the retaining device when the lever is forced down by the cam.

37. In combination in a stop-motion, a plurality of sweeps, tripping mechanism controlled thereby and connections between the sweeps and the tripping mechanism comprising a plurality of rods 7, extending parallel and adjacent to the standard-springs 45 for applying tension to the rods and a collar 47 for adjusting the springs, said collar being supported

on the standard and being common to the several rods, substantially as described.

38. In combination, the covering means, a detent for holding the same ready to act, a feeler, and a sweep, said feeler and sweep being arranged to operate the detent, said connections for operating the stopping device, substantially as described.

39. In combination with a knitting-machine, a stop-motion comprising a support extending above the machine, the sweep arranged at the upper end of the said support, covering means arranged low down in relation to said sweep and at an intermediate point on said support, the thread being led first through the covering means then through the sweep and thence to the needles, the position of the covering means in relation to the sweep being such that the loose end of the thread must travel upwardly a considerable distance before pulling through the sweep, transmitting device and positively-operating connections between the covering means and said device, said connections being independent of the thread and actuated positively by the movement of the covering means, substantially as described.

40. In combination, the knitting-head, a standard extending upwardly and centrally in relation to said knitting-head, a stop-motion head on said standard, tripping mechanism forming part of said stop-motion head, covering means for the yarn, an arm reflecting from the stop-motion head to support the covering means, said covering means acting as the primary means for operating the tripping mechanism and connections leading from the tripping mechanism, substantially as described.

41. In combination with a knitting-head, a standard arranged above and centrally in relation to said knitting-head, a stop-motion head supported on the standard and having a centrally-arranged tripping mechanism, a supplemental tripping mechanism arranged on said head out beyond the central tripping mechanism and controlling the said central trip and a feeler said sweep controlling the said supplemental trip, substantially as described.

42. In combination with a knitting-head, a standard arranged centrally above the same, a stop-motion head supported thereon having transmitting connections arranged centrally, a trip mechanism arranged on the head out beyond the transmitting connections, a sweep, a connection extending radially of the head for controlling the tripping mechanism from the sweep, a feeler also controlling the tripping mechanism and a connection extending in a radial plane between the tripping mechanism and the centrally-arranged transmitting connections, substantially as described.

43. In combination, a plurality of covering means, one for each bobbin, detector means for controlling the covering means, and means connecting the covering means with the tripping device, substantially as described.

44. In combination, the central standard, the stop-motion head thereon, a tripping device, a sweep, connections between the sweep and the tripping device extending vertically and thence in a radial plane, a connection between the tripping device and stop-motion head extending in a radial plane and a vertical connection along the standard from the stop-motion head to the let-off connections, substantially as described.

45. In combination in a stop-motion, the main tripping mechanism having a spring, a supplemental tripping mechanism having a comparatively weak spring and including covering means, controlling means for the supplemental trip, connections between the supplemental trip and the main trip, said connections including means for increasing the power from the weaker to the stronger spring, substantially as described.

46. In combination in a stop-motion, the main tripping mechanism having a relatively stronger spring, a supplemental tripping mechanism having a comparatively weak spring, controlling means for the supplemental trip, connections between the supplemental trip and the main trip, said connections including means for increasing the leverage from the weaker to the stronger spring, and means whereby the stronger tripping-spring will reset the supplemental tripping mechanism and its weaker spring, substantially as described.

47. In combination in a stop-motion, the main tripping mechanism, a supplemental tripping mechanism arranged to operate the main trip, detector means controlling the supplemental trip, said main trip resetting upon the supplemental trip to reset the same, substantially as described.

48. In combination in a stop-motion, the covering means, the connections controlled by the operation of the covering means, with means whereby said connections when opened act to reset the covering means, substantially as described.

49. In combination in a stop-motion, tripping mechanism including covering means, main trip mechanism controlled by the operation of the covering means, said main tripping mechanism resetting upon the covering means to reset the same, substantially as described.

50. A knut-socket consisting of a plate having a series of spaced guides therein of different size, said plate being adjustable about its own axis, substantially as described.

51. In combination in a stop-motion for knitting-machine, a main and supplemental trip mechanism, detector means controlling the supplemental trip means whereby the main trip mechanism is controlled by the supplemental trip mechanism automatically, substantially as described.

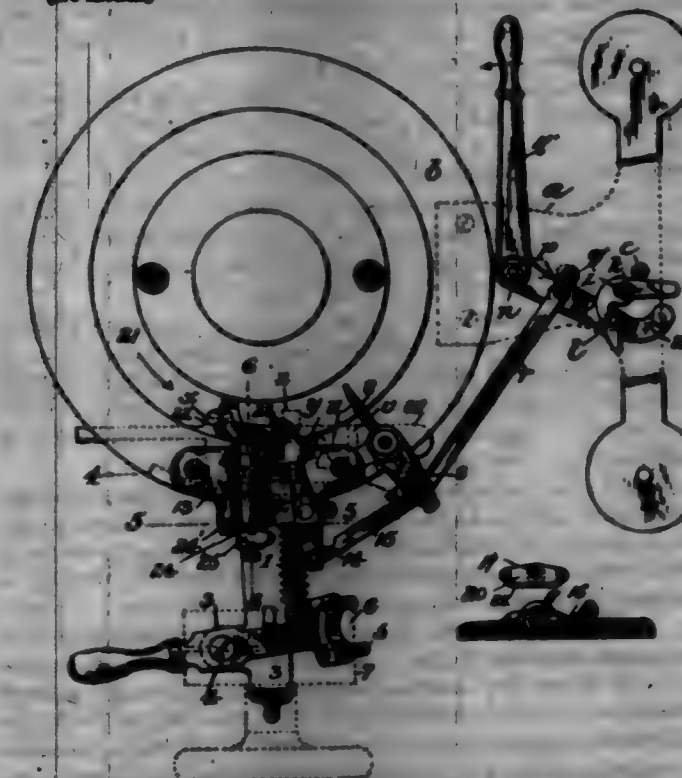
52. In combination, the driving means, let-off connections, means for operating the let-off connections and means carried by a moving part of the machine for resetting the let-off connections, substantially as described.

53. In combination, the guide and feeler, one of said parts being of loop form and the other part having fingers at angles to each other, one of which projects into the loop, substantially as described.

54. In combination in a stop-motion tripping mechanism including detector means, detector means controlling the same and means for resetting the tripping mechanism automatically to be held by the said detent means, substantially as described.

55. In combination in a stop-motion, detector means controlled by the thread on its way to the feeding-point, tripping mechanism controlled by the detector means and means for resetting the tripping mechanism automatically, substantially as described.

698,090. STOP-MOTION FOR KNITTING-MACHINE. FRANK WILSON, Harrisburg, Pa. Filed Apr. 24, 1901. Serial No. 87,208. (No model.)



Claim.—1. In combination, the bobbin-stand adapted to be fixed to the machine comprising the standard and post extending up from the base of said stand, the stop-motion head supported by the standard, a sweep, the block for the sweep supported on the said standard and post, the lever and trigger below the base-plate, connections from the lever to the machine and means for operating the trigger from the stop-motion head, said means consisting of the rock-shaft extending down through the base-plate of the stand, substantially as described.

2. In combination, a bobbin-stand comprising a base-plate and a standard, said base-plate having means for supporting the bobbin, a stop-motion head supported on the standard, power-spring and trip mechanism carried by the base-plate and connections thereto from the stop-motion head, the said base-plate being adapted to be attached to the knitting-machine, substantially as described.

3. In combination, a lever, a spring for applying power thereon, a stop-motion head, a trigger attached to said lever, a rock-shaft with means for holding the lever, said trigger being arranged to be reset by the return movement of the lever after operating, and stop-motion connections leading to the trigger and arranged to be reset thereby, substantially as described.

4. In combination, a power-spring, a hand-lever connected therewith, a stop-motion head, a rotary stop-motion shaft extending from said head, a trigger attached to said rotary shaft to control the hand-lever, a part of said hand-lever being adapted to engage the trigger to reset the rotary shaft and to swing the trigger into locking connection with the hand-lever, substantially as described.

5. In combination, the stop-motion-controlling device, the trigger device, a hand-lever and power-spring comprised in the connection be-

tween them, a trigger for controlling the hand-lever and connected with the stop-motion-controlling device, said trigger and stop-motion-controlling device adapted to be reset by said hand-lever, substantially as described.

6. In combination in a stop-motion, controlling device, connections leading therefrom comprising a lever and a trigger, trigger device connected with the lever, said lever being arranged to give a positive resetting movement to the trigger, substantially as described.

7. In combination, stop-motion-controlling device, a lever, a power-spring and a trigger connected with the controlling device, said trigger having a tailpiece to be engaged by a part of the lever in resetting, substantially as described.

8. In combination, the stop-motion-controlling device, a connection leading therefrom including the trigger having the tailpiece, the member controlled by said trigger and arranged to reset the same by engaging the tailpiece and connections leading from said member to the trigger device, substantially as described.

9. In combination, a stop-motion head, a bobbin-stand having a standard supporting the same and having a base, a hand-operated member, a trigger carried by the said base, connections between the trigger and stop-motion head, said trigger and connections being arranged to be reset by the operation of the hand-operated member, substantially as described.

10. In combination, the trigger device, the rock-shaft for controlling the same, the finger on the rock-shaft to be operated when a knut or branch occurs at the needles, a spring for holding said rock-shaft in normal position, a stronger spring, connections between the same and the rock-shaft to turn the latter against the power of its spring and stop-motion device controlling the stronger spring, substantially as described.

11. In combination, the trigger device, stop-motion device for controlling the same arranged to be operated by the rotary movement of the machine, a spring for returning said device to normal position, a stronger spring with connecting means between the same and the said stop-motion device, and acting against the said weaker spring to operate the trigger device, and a second set of stop-motion device for controlling the said stronger spring, the said connecting means having a hinge-joint by which the first set of stop-motion device can be operated independently while the stronger spring is held inactive, substantially as described.

12. In combination, the trigger device, the rock-shaft controlling the same, the finger carried by the rock-shaft and arranged to be operated when a knut or branch occurs at the needles, the arm connected to the rock-shaft, a spring for returning the rock-shaft in normal position, a lever or arm, a stronger spring connected with said lever, a connection between the lever and the arm allowing the said arm to act independently of the lever, and stop-motion device controlling the lever, substantially as described.

13. In combination with a knitting-machine having a rotary head with a horizontal flange, a fixed base-ring flush with the upper surface of the flange and a brake device supported on the fixed ring and arranged to engage the upper surface of the said flange, substantially as described.

14. In combination, the rotary head having a horizontal flange, the fixed ring having its upper face flush with that of the flange and a brake device comprising a base secured to said fixed ring, a brake-chose arranged to engage a part of the rotary head and means carried by the base for operating the chose, substantially as described.

15. In combination, in a stop-motion for knitting-machine, a brake-chose, a rotary shaft, on counter-pin on the shaft to operate the chose, a base-plate in which the shaft is journaled, a spring within said base-plate controlling the shaft for operating the chose, and controlling means for the shaft, substantially as described.

16. In combination in a stop-motion for knitting-machine a brake-chose, a rotary shaft, on counter-pin to operate the chose, a base-plate in which the shaft is journaled, a spring within said base-plate for operating the chose, and controlling means for the chose, and means for adjusting the tension of the spring consisting of the ratchet base on the shaft to which the spring is attached and a detent for holding the ratchet, substantially as described.

17. In combination with the base-ring, the brake comprising a shaft, a base-plate in which the same is journaled secured to said base-ring, a latch-pin on the shaft, a catch-lever arranged to engage the latch-pin, said lever being pivoted to the base-plate and means for controlling the lever, all of said parts overlying the base-ring, substantially as described.

18. In combination, the brake-chose, the shaft carrying the same, the latch-pin on the shaft, the catch-lever for engaging the pin having a bracket end and connections for operating the lever, said connections including a base part which will permit the catch-lever to yield, substantially as described.

19. In combination, the knitting-head, the bobbin, comprising the catch for holding it inactive, trigger device, a rock-shaft with means operated thereby to control the trigger device, the spring for applying tension to said rock-shaft, stop-motion device connected to the rock-shaft

and a connection between the rock-shaft and the catch-lever, said catch-lever being held in operative position by the said spring, substantially as described.

20. In combination, the shipper connection, stop-motion, connections controlling the same, a spring for returning said stop-motion connections to normal position, a brake device including a catch to hold the brake inactive and a positive connection from the catch to the stop-motion device whereby said catch will be moved automatically to position to keep the brake off when the stop-motion device are returned to normal position, substantially as described.

21. In combination, the shipper connection, the rock-shaft with means operated thereby for controlling said connections, the spring, the arm *a* on the rock-shaft, the lever *m*, a power-spring connected therewith, a trigger for holding the said lever, a dotted link connection between the lever *m* and the arm *a*, the stop-motion finger connected with the arm *a*, the brake device, the catch therefor and the connection between the said catch and the arm *a*, substantially as described.

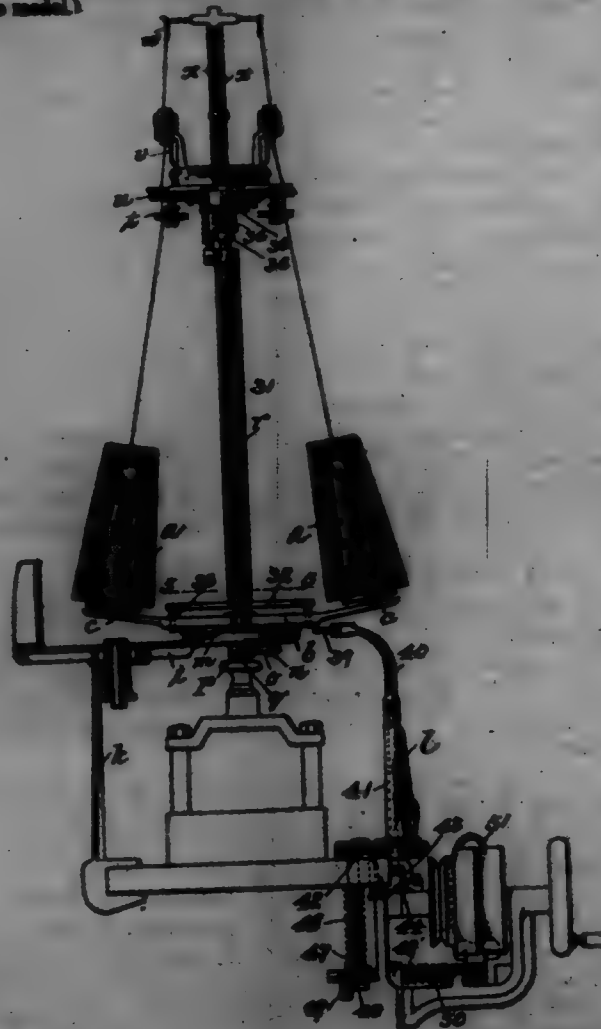
22. A thread-gage for stop-motions of knitting-machines consisting of an adjustable disk having different-sized holes therein and a guard-rod held at one end at the center of the disk extending thence adjacent to the opening thereof and having an elongated terminal extension, substantially as described.

23. In combination is a thread-gage, a disk having holes and adjustable axially and a guard-rod attached at one end at the center of the disk and extending thence adjacent to one of the holes, substantially as described.

24. In combination is a stop-motion, a power member, a trigger controlling the same, stop-motion connections thereto from the power member, said trigger device connected thereto from the power member, said power member being adapted to rest the trigger and the controlling device, substantially as described.

25. In combination is a stop-motion, controlling device, connections leading therefrom comprising a lever and a trigger, shipper device connected with the lever, said lever being arranged to give a positive resetting movement to the trigger, substantially as described.

698,091. STOP-MOTION FOR KNITTING-MACHINES. FRANK WILGERS, Harrisburg, Pa. Filed Apr. 24, 1901. Serial No. 57,369. (No model.)



Claim.—1. In combination is a stop-motion, the movable clear-blade, a lever operated thereby, trip mechanism released by the movement of the lever and means whereby the lever is reset upon by the trip mechanism to reset the clear-blade automatically by the movement of said lever, substantially as described.

2. In combination, the clear-blade trip mechanism, a supplemental trip mechanism, a connection between them whereby the supplemental trip mechanism will operate the main trip, said main trip resetting through the same connection to reset the supplemental trip, substantially as described.

3. In combination, the movable clear-blade, the tripping-spring therefor, a lever in direct engagement with part of said clear-blade, connections controlled by said lever and means whereby the lever is given a reverse movement to thereby reset the clear-blade, substantially as described.

4. In combination, the catch-lever, connections leading to the shipper device held by said catch-lever, a detent for holding the catch-lever, a swinging lever for operating the detent with means for operating the swinging lever and means for automatically resetting the swinging lever, substantially as described.

5. In combination, the connection leading to the shipper device, the arm *23* for controlling the same, the spring for applying a tension to said arm, the casing, the pivoted catch-lever within the casing engaging a part on the arm *23*, a detent within the casing engaging the said catch-lever with means for operating the detent consisting of a swinging lever pivoted within the casing and detector mechanism controlling the swinging lever, substantially as described.

6. In combination is a stop-motion, connections leading to the shipper device, a catch-lever for holding said connections, a casing in which the catch-lever is pivoted, a swinging lever having an arm thereof projecting outside the casing and means for operating the said arm, and a detent for the catch-lever, said swinging lever being arranged to operate the detent, the said catch-lever, swinging lever and detent being pivoted within the casing, substantially as described.

7. In combination, the stop-motion head, tripping mechanism carried by the head including a swinging lever, a supplemental trip for operating the main trip and resetting means for the supplemental trip comprising a lever arranged within the head, substantially as described.

8. In combination, the stop-motion head, tripping mechanism carried by the head, a supplemental trip for operating the main trip and resetting means for the supplemental trip comprising the pivoted lever *30* arranged within the head, substantially as described.

9. In combination is a stop-motion, tripping mechanism comprising a catch-lever *10* having a shoulder, means controlled thereby including the pin *21* carried by said means and held by said shoulder, a detent for said catch-lever, means controlling the detent, said catch-lever having a part to be engaged by the pin to be reset thereby, substantially as described.

10. In combination is a stop-motion head, the connection leading to the shipper device, the catch-lever controlling said connections, a detent for holding the catch-lever, a swinging lever for operating the detent and a resetting-lever operated by the said connections for resetting the swinging lever, substantially as described.

11. In combination is a tripping mechanism for stop-motions, a detent, a lever controlled thereby, a member controlling the connections leading to the shipper device and a shoulder on the lever arranged at an inclination to a radial line from the pivot of the lever along which line the said member is adapted to move approximately, substantially as described.

12. In combination is a tripping mechanism for stop-motions, a detent, a lever having a long arm bearing thereon and having an arm with a shoulder thereon comparatively close to its pivot, a member to engage said shoulder and arranged to move along a line substantially radial away from said pivot when released from the shoulder, connections leading to the shipper device controlled by said member, the said shoulder being arranged at an inclination to the radial line from said pivot, substantially as described.

13. In combination, is a tripping mechanism for stop-motions, a swinging lever *14*, connections controlled thereby and a resetting device for said lever moving along a path inclined to the longitudinal axis of the lever, substantially as described.

14. In combination, the swinging lever *14* of the trip mechanism, connections controlled thereby and a lever *30* pivoted to one side of the swinging lever and having a part to reset the lever, said part moving in a direction longitudinally of the lever, substantially as described.

15. In combination is a tripping mechanism for stop-motions, a swinging lever *14*, connections controlled thereby, said lever having a cam-surface thereon and a resetting-roller movable in a direction longitudinally of the lever to contact with said cam-surface, substantially as described.

16. In combination is a stop-motion, the rotary bobbin-stand, a stop-motion head carried thereby, a series of pins carried by the stand and revolving therewith, means for controlling the position of the series of pins, said means being in turn controlled by the stop-motion head and connections to the shipper device operated by the pins, substantially as described.

17. In combination with a knitting-head, shipper connection, a rotary bobbin-stand, stop-motion-controlling device carried by the said

stand, a standard supporting the stop-motion-controlling device above the knitting-head and arranged axially in relation to said head and a connection from the stop-motion-controlling device to the shipper connection comprising a rod arranged axially of and extending along the standard, the stop-motion-controlling device also being arranged axially in relation to the standard, substantially as described.

18. In combination, the rotary bobbin-stand, stop-motion-controlling device carried thereby, shipper connections and transmitting connections between the controlling device and the shipper connections comprising the vertically-movable stem arranged axially in support to the rotary bobbin-stand, substantially as described.

19. In combination, the rotary bobbin-stand, stop-motion-controlling device carried thereby, shipper connections, a centrally-arranged tripper-foot vertically movable, and means for holding the foot normally up against the stop-motion-controlling device, said tripper-foot when in its lower position serving to operate the shipper connections, substantially as described.

20. In combination, the rotary bobbin-stand, a standard extending up therefrom, the stop-motion-controlling device, the shipper connections, the centrally-arranged tripper-foot having the pins guided in the bobbin-stand and having a hollow stem extending up around the standard, and means for normally holding said stem up operated by said controlling device, substantially as described.

21. In combination, the stop-motion head, a standard supporting the same, a lever *23* pivoted beneath the stop-motion head under spring tension and controlled by the stop-motion device, the vertically-movable connection extending along the supporting-standard of the stop-motion head, the catch for holding the same up controlled by the said lever *23*, and means leading to the shipper device controlled by the falling of the said connection, substantially as described.

22. In combination, the shipper connection, a rotary bobbin-stand comprising a standard, stop-motion-controlling device supported by the standard and a hollow stem surrounding the standard, said stem being vertically movable controlled by the stop-motion device at its upper end and controlling the shipper connection at its lower end, substantially as described.

23. In combination with a rotary knitting-head, a rotary bobbin-stand supported independently of the rotary parts of said head and above the same, means for retaining said stand and stop-motion device carried by the stand, substantially as described.

24. In combination with a rotary knitting-head, a rotary bobbin-stand and a rotary stop-motion mechanism supported independently of and axially above the said head and means for resetting said stand and stop-motion mechanism, substantially as described.

25. In combination with a rotary knitting-head, a rotary bobbin-stand and a rotary stop-motion mechanism, means for supporting the stand and stop-motion mechanism independently of the head and above the same and means for driving the bobbin-stand and stop-motion mechanism from the rotary head, substantially as described.

26. In combination with a rotary knitting-head, a rotary bobbin-stand, stop-motion mechanism, means for supporting the stand and stop-motion mechanism independently of the head and a loose connection for driving the stand and stop-motion mechanism from the head, substantially as described.

27. In combination, with a rotary knitting-head, a rotary bobbin-stand above the head, stop-motion mechanism, means for supporting the stand and stop-motion mechanism independently of the knitting-head, said supporting means having an opening through which the thread passes from the bobbin to the knitting-head, substantially as described.

28. In combination with the rotary head of a knitting-machine, a rotating stop-motion, means for supporting the same independently of the head, means for rotating the stop-motion and shipper connections operated by said stop-motion, substantially as described.

29. In combination, the rotary knitting-head, a rotary bobbin-stand and stop-motion mechanism above the same and a loose connection between the spindle of the knitting-head and the stand and stop-motion mechanism, substantially as described.

30. In combination, the rotary knitting-head, a ring-shaped support arranged concentric with the axis of the knitting-head and a bobbin-stand with stop-motion mechanism arranged to rotate on said ring-shaped support, substantially as described.

31. In combination, the rotary knitting-head, a support above the said head and a bobbin-stand having a ring rotative on the said support to rotate, means for driving the bobbin-stand and stop-motion mechanism carried by the bobbin-stand, substantially as described.

32. In combination, the bobbin-stand supported to rotate, rotary stop-motion mechanism carried by the stand, the rotary knitting-head, and the pin-and-fork connection between the spindle of the knitting-head and the bobbin-stand, substantially as described.

33. In combination is a stop-motion, a sweep having an open-

mouthed bent portion, to rest on the pivot-pin and having a tailpiece and a rod engaging the tailpiece, substantially as described.

34. In combination is a stop-motion, a sweep having an upwardly-bent portion leaving a downwardly-directed opening to receive the pivot, and a dotted blank in which the sweep is pivoted, said blank having a guard above the bent part of the sweep, substantially as described.

35. In combination, the sweep, the standard, the rods extending down alongside the standard, the transmitting connections controlled by said rods and springs for applying a tension to the rods and means for adjusting the tension of said springs independently, said means being carried by the standard, substantially as described.

36. In combination, a stop-motion head, a standard extending up therefrom, a sweep at the upper part of said standard, a finger-dog supported on the head, tripping mechanism supported by the head, a detent for controlling the tripping mechanism and a sweep-rod extending down from the sweep, said sweep-rod and finger-dog being arranged to operate the detent directly and in the same direction, substantially as described.

37. In combination, the rotary stop-motion head, the finger pivoted to fall opposite to the direction of rotation and a stop for holding the finger against the influence of centrifugal force, substantially as described.

38. In combination, the rotary stop-motion head, the finger pivoted to fall opposite to the direction of rotation and a stop for holding the finger against the influence of centrifugal force, the guide, said stop being on the guide, substantially as described.

39. In combination is a stop-motion, a knot-catcher comprising the two plates arranged one over the other with a space between them and having slots diverging from the thread-gage whereby the mouth of said slots are located at different points along the edge of the said plates, the said thread-gage being formed at the junction of the slots, substantially as described.

40. In combination, the rotary bobbin-stand, stop-motion-controlling device carried thereby, shipper connections, the vertically-movable connections leading from the controlling device and the tripper-foot carried by the bobbin-stand, said tripper-foot being arranged concentric with the axis of rotation and having a plurality of pins disposed at different points about said axis, substantially as described.

41. In combination is a stop-motion, a main trip mechanism, means for controlling the same, a casing including the said main trip mechanism and a resetting device within said casing, substantially as described.

42. In combination is a stop-motion, a casing, a catch-lever, a detent for holding said catch-lever, connections controlled by the catch-lever, a swinging lever and a resetting-lever, the said catch-lever, detent, swinging lever and resetting-lever all being pivoted within the casing, substantially as described.

43. In combination with a rotary knitting-head, stop-motion mechanism arranged above the head, supporting means for said stop motion mechanism independent of the knitting-head, and means for driving the stop-motion mechanism from the head, substantially as described.

44. In combination with a knitting-head, a ring-shaped support above the same, a stop-motion mechanism supported on said ring-shaped support and a loose connection from the knitting-head to the stop-motion mechanism, substantially as described.

45. In combination with a rotary knitting-head, stop-motion mechanism arranged to rotate and supported independently of and axially above the said head and means for rotating the said mechanism, substantially as described.

46. In combination with a rotary knitting-head, a stop-motion, means for supporting the stop-motion independently of the knitting-head, carrying a ring-shaped support above the said head and means for rotating the stop-motion, substantially as described.

47. In combination with a rotary knitting-head, stop-motion mechanism above the head including rotary parts, means for supporting the said rotary parts independently of the head and a loose connection for driving the rotary stop-motion parts from the head, substantially as described.

48. In combination, a rotary knitting-head, stop-motion-controlling device above the same, a rotary support for said device, means for rotating the same independently of the rotary knitting-head, shipper connections and a connection leading thence from the stop-motion-controlling device arranged axially above the knitting-head, substantially as described.

49. In combination, a rotary bobbin-stand, rotary stop-motion means carried thereby, a loose connection from said rotary bobbin-stand to the knitting-head, and means for supporting the rotary bobbin-stand independently of the knitting-head, substantially as described.

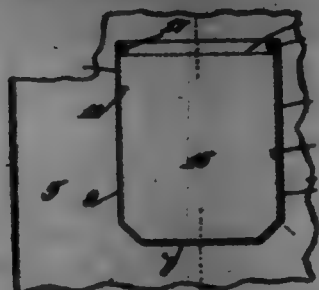
50. In combination, the stop-motion head, an axial standard for supporting the same above the knitting-head and a connection leading from the stop-motion head consisting of the rod extending along the standard, both the standard and the rod being arranged axially in relation to the knitting-head, substantially as described.

61. In combination, stop-motion-controlling device, a standard extending axially above the leading-head and supporting the said stop-motion device and a connection leading from the stop-motion head and comprising a vertically-movable rod arranged axially of the leading-head and extending longitudinally of the standard, substantially as described.

62. In combination, stop-motion-controlling device, a rotary hobble-stand, a standard, stop-motion-controlling device at the upper end of the standard, and a vertically-movable rod controlled at its upper end by said device and having a series of pins at its lower end to operate the stop-motion connections, said pins being disposed at points at equal radial distances from the standard and to drop into the plane of the stop-motion connections, substantially as described.

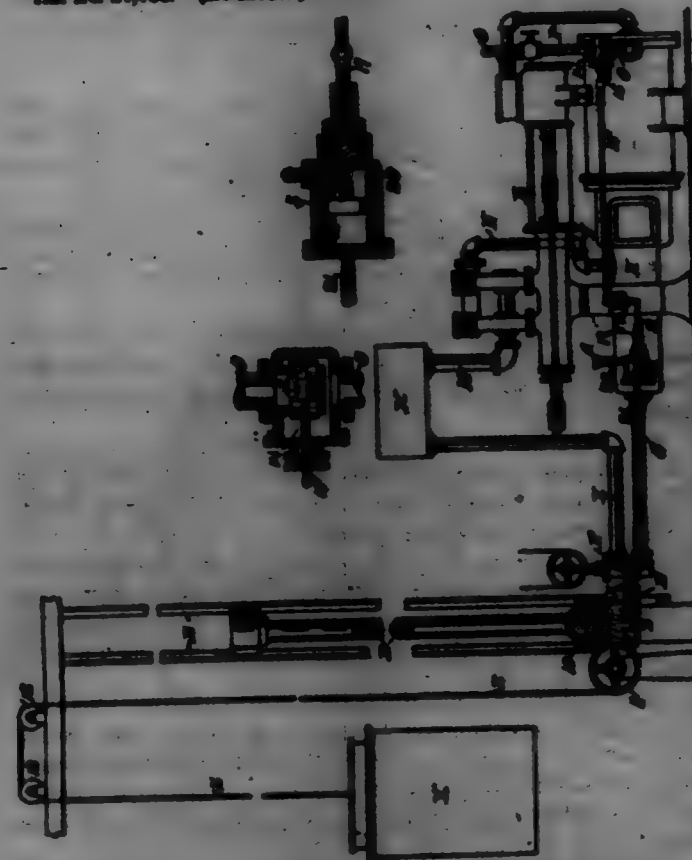
63. In combination is a rotary stop-motion, a pivoted finger and a guide having a stop to hold said finger against the action of centrifugal force, substantially as described.

698,092. SAFETY WATCH-POCKET. ROBERT C. WELCH, Montreal, Canada. Filed May 29, 1901. Serial No. 68,448. (No model.)



Claim.—A safety watch-pocket closed at its top and bottom and partly closed on both side edges thereof, said pocket provided on its inner edge with a small opening adapted for the passage of a watch chain or guard, and also provided at its outer side edge with a larger opening arranged to permit of the ready introduction or withdrawal, by hand, of a watch into or from the pocket, substantially as and for the purposes set forth.

698,098. HYDRAULIC OR SIMILAR POWER APPARATUS. CHARLES C. WORTHINGTON, Danforth, E. J. Filed Aug. 20, 1906. Serial No. 57,792. (No model.)



Claim.—1. The combination with a hydraulic or similar cylinder and apparatus for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid in the cylinder and in the apparatus during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of the fluid in the apparatus during the exhaust of fluid from said cylinder, mechanism controlled by the movement of said piston for controlling the supply of power to said apparatus, and adjustable means for sliding the pressure on one side of the piston, substantially as described.

2. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a pump for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, and mechanism controlled by the movement of said piston for controlling the supply of power to said pump, substantially as described.

3. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a pump for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, mechanism controlled by the movement of said piston for controlling the supply of power to said pump, and adjustable means for sliding the pressure on one side of the piston, substantially as described.

4. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, and a valve actuated by the movement of said piston for controlling the supply of steam to said pump, substantially as described.

5. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, a valve actuated by the movement of said piston for controlling the supply of steam to said pump, and adjustable means for sliding the pressure on one side of the piston, substantially as described.

6. The combination with a hydraulic or similar cylinder and apparatus for forcing fluid into the cylinder, of a piston subjected on opposite sides to the pressure of the fluid in the cylinder and in the apparatus during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of the fluid in the apparatus during the exhaust of fluid from said cylinder, and mechanism controlled by the movement of said piston for controlling the supply of power to said apparatus, substantially as described.

7. The combination with a hydraulic or similar cylinder and apparatus for forcing fluid into the cylinder, of a differential piston subjected on opposite sides to the pressure of the fluid in the cylinder and in the apparatus during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of the fluid in the apparatus during the exhaust of fluid from said cylinder, and mechanism controlled by the movement of said piston for controlling the supply of power to said apparatus, substantially as described.

8. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a steam-accumulator between the pump and cylinder controlling the supply of steam to the pump by its piston, a piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, and a valve actuated by the movement of said piston for controlling the supply of steam to said accumulator, substantially as described.

9. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a steam-accumulator between the pump and cylinder controlling the supply of steam to the pump by its piston, a differential piston subjected on opposite sides to the pressure of the fluid on the cylinder and pump sides of the valve during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid on the pump side during the exhaust of fluid from said cylinder, and a valve actuated by the movement of said piston for controlling the supply of steam to said accumulator, substantially as described.

10. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a steam-accumulator between the pump and cylinder controlling the supply of steam to the pump by its piston, a piston subjected on opposite sides to the pressure of the fluid on the cylinder side of the valve and in the accumulator during the admission of fluid to the hydraulic cylinder and on both sides to

the pressure of fluid in the accumulator during the exhaust of fluid from said cylinder, and a valve actuated by the movement of said piston for controlling the supply of steam to said accumulator, substantially as described.

11. The combination with a hydraulic or similar cylinder and its valve for controlling the supply and exhaust of fluid for said cylinder, and a steam-pump for forcing fluid into the cylinder, of a steam-accumulator between the pump and cylinder controlling the supply of steam to the pump by its piston, a differential piston subjected on opposite sides to the pressure of the fluid on the cylinder side of the valve and in the accumulator during the admission of fluid to the hydraulic cylinder and on both sides to the pressure of fluid in the accumulator during the exhaust of fluid from said cylinder, and a valve actuated by the movement of said piston for controlling the supply of steam to said accumulator, substantially as described.

12. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder 20 on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism during the admission of fluid to said cylinder and with the supply side of the valve mechanism by both pipes during the exhaust of fluid from the cylinder, a power apparatus controlled by the movement of said piston, and adjustable valve 6 on said pipe 22, substantially as described.

13. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism during the admission of fluid to said cylinder and with the supply side of the valve mechanism by both pipes during the exhaust of fluid from the cylinder, a power apparatus controlled by the movement of said piston, and a spring or equivalent device tending to move the piston in one direction, substantially as described.

14. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism, a power apparatus controlled by the movement of said piston, and means for applying a constant adjustable pressure to said piston tending to move it in one direction, substantially as described.

15. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism, a power apparatus controlled by the movement of said piston, a spring or equivalent device tending to move the piston in one direction, and lever 17 between piston 4 and the power apparatus provided with one or more arms 28 for applying adjustable pressure tending to move the piston in one direction, substantially as described.

16. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism during the admission of fluid to said cylinder and with the supply side of the valve mechanism by both pipes during the exhaust of fluid from the cylinder, pump 1, valve 6 controlling the supply of steam to said pump, and connection between piston 4 and valve 6 for controlling the valve by the piston, substantially as described.

17. The combination with a hydraulic or similar cylinder and its valve mechanism, of cylinder 20 and piston 4, pump 1, steam-accumulator 11, means for controlling the passage of steam to the pump by the position of the accumulator-piston, valve 6 controlling the supply of steam to the accumulator and pump, pipes 21, 22 connecting cylinder 20 on opposite sides of the piston with the hydraulic cylinder and accumulator during the admission of fluid to said cylinder and with the accumulator by both pipes during the exhaust of fluid from the cylinder, and connection between piston 4 and valve 6 for controlling the valve by the piston, substantially as described.

18. The combination with a hydraulic or similar cylinder, of cylinder 20 and piston 4, pipes 21, 22 connecting said cylinder on opposite sides of the piston with the fluid-spaces on opposite sides of the valve mechanism, pump 1, steam-accumulator 11, means for controlling the passage of steam to the pump by the position of the accumulator-piston, valve 6 controlling the supply of steam to the accumulator and pump, pipes 22 connecting cylinder 20 on one side of the piston with the accumulator, pipe 21 connecting with cylinder 20 on the opposite side of the piston, and a valve-chamber and valve for the hydraulic cylinder arranged to connect pipe 21 with the hydraulic cylinder on the admission of fluid and when the cylinder-valve is closed and to connect pipe 21 with the accumulator on the exhaust, and connection between piston 4 and valve 6 for controlling the valve 6 by the piston, substantially as described.

698,094. BELT-DRIVE REVERSER. THOMAS WILKINSON, West-
minster, and JOHN HARRIS, Croydon, Surrey, England. Filed Dec.
9, 1901. Serial No. 58,821. (No model.)



Claim.—1. The combination of the pair of cylinders a, c the pair of cylinders b, d the pistons e fitting these cylinders the rods f coupling the pistons in each pair of cylinders, means for admitting air or fluid under pressure continuously to the space between the pistons in each pair, a valve-chamber, two small cylinders at opposite ends of this chamber, pistons fitting these small cylinders, a rod coupling the pistons together, valve mechanism operated by the movement of the pistons in these small cylinders by which air or fluid is alternately admitted to the rear end of the cylinder a and to escape from rear end of b or to enter the rear end of b and escape from a, a pipe passing from the rear end of one of the small cylinders to some point at the side of the small cylinder c and another similar pipe passing from the rear end of the other small cylinder to the side of the small cylinder d.

2. The combination of the pair of cylinders a, c the pair of cylinders b, d, the pistons e fitting these cylinders the rods f coupling the pistons in each pair of cylinders, means for admitting air or fluid under pressure continuously to the space between the pistons in each pair whereby owing to the difference in area between the pistons the pistons are normally driven back into their cylinders, means for admitting air or fluid under pressure to the rear end of the larger cylinder of one pair to drive forward the pistons of that pair while at the same time air or fluid is allowed to escape from the rear end of the larger cylinder of the other pair and the pistons of this pair allowed to make their backward stroke.

3. The combination of two parallel pairs of cylinders each pair consisting of a cylinder closed at its rear end and a smaller cylinder projecting from its front end and opening into it, the pistons of these cylinders, rods connecting the pistons of each pair, means for admitting fluid under pressure continuously to the space between the pistons of each pair, a port in the side of each small cylinder past which the piston of that cylinder travels to and fro alternately opening that port to the outer air and to fluid under pressure in the space between the pistons, pipes leading from these ports to two small cylinders, the pistons of these cylinders simultaneously moved to and fro at the time when one of the above ports is opened to the air and the other to fluid under pressure, and valve mechanism operated by the to-and-fro movement of these pistons to alternately admit fluid under pressure to the rear end of the larger cylinder of one pair and then to the other and simultaneously allow it to escape from the rear end of the larger cylinder which is not having fluid under pressure applied to it.

4. The combination of two parallel pairs of cylinders each pair consisting of a cylinder closed at its rear end and a smaller cylinder projecting from its front end and opening into it, the pistons of these cylinders, rods connecting the pistons of each pair, means for admitting fluid under pressure continuously to the space between the pistons of each pair, and means for alternately admitting fluid under pressure to the rear end of the larger cylinder of one pair of cylinders and then to the other and simultaneously allowing it to escape from the rear end of the larger cylinder which is not having fluid under pressure applied to it.

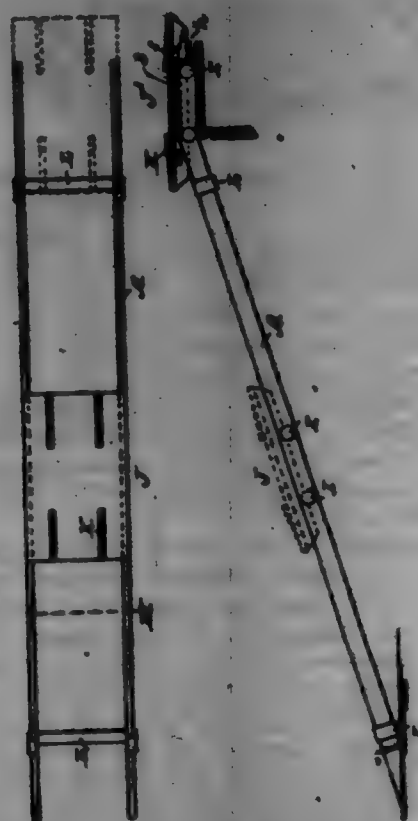
5. The combination of two parallel pairs of cylinders each pair consisting of a cylinder closed at its rear end and a smaller cylinder projecting from its front end and opening into it, the pistons of these cylinders, rods connecting the pistons of each pair, means for admitting fluid under pressure continuously to the space between the pistons of each pair, two swinging plate-arms, rods connecting these arms to the two pairs of pistons and means for alternately admitting fluid under pressure to the rear end of the larger cylinder of one pair of cylinders and then to the other and simultaneously allowing it to escape from the rear end of the larger cylinder which is not having fluid under pressure applied to it.

698,095. SKID. BENJAMIN H. ALPHE, Louisville, Ky., assignor
to the Alvey-Pergason Co., Louisville, Ky., a Corporation of Kentucky.
Filed Mar. 12, 1901. Serial No. 58,840. (No model.)

Claim.—1. In a skid the combination with the track having two pairs of lateral wheels, of the side plates or skids adapted to be upwardly inclined to a wagon or other point of delivery and formed with lateral channels in which said wheels are held from any movement lateral to the track, the said channels having a head at the upper end whereby the upper pair of wheels is positively deflected below the normal path of travel and relative to the rear pair to bring the track to a delivery position, substantially as set forth.

2. In a skid the combination with the track having two pairs of la-

oval wheels, of the side plates or ribs A adapted to be upwardly inclined to a wagon or other point of delivery and having the wheel-supporting surfaces 2 and the overhanging walls 3 at an angle to the surface 2.



3. In a side the combination with the truck having two pairs of lateral wheels, of two U-beams constituting sides A arranged with their channels opposite each other to receive said wheels, said beams being bent to form overhanging walls 3 at an angle to the supporting-surfaces 2.

4. In a side the combination with the supporting or inclined portion, of a truck fitted to travel thereon and brake-chains carried by the truck and bearing laterally against said inclined portion, said chains having their engaging portions nearly in line with but a little back of their pivots so as to substantially act upon the retrograde movement of the truck.

5. In a side the combination with the supporting or inclined portion, of a truck fitted to travel thereon, brake-chains pivoted on the truck and bearing laterally against said inclined portion, a spring for holding said chains in contact with said inclined portion, and means for releasing said chains.

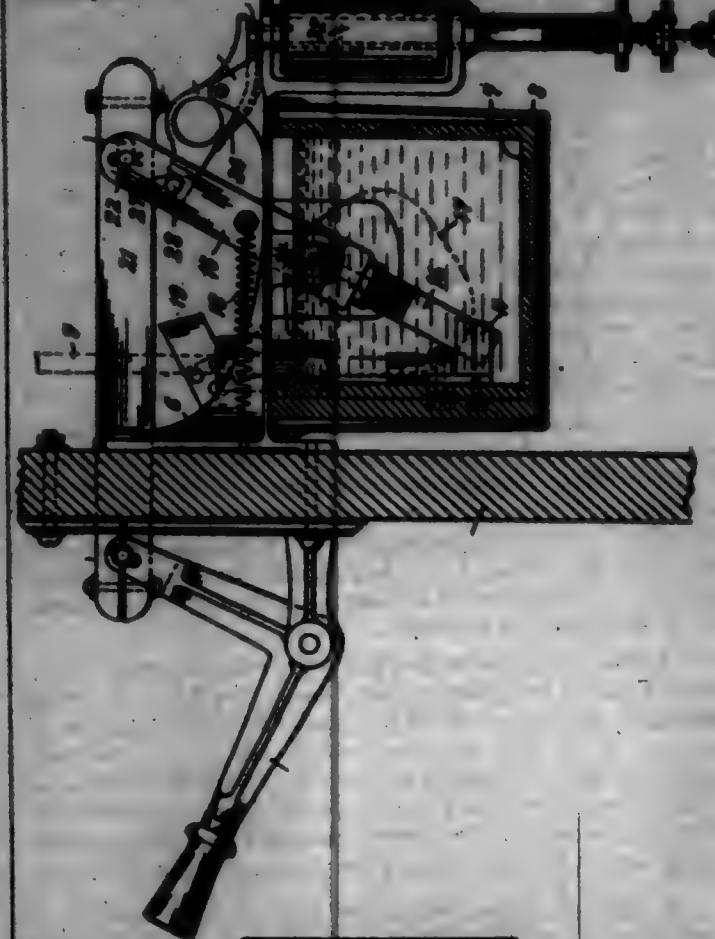
698,096. CIRCUIT-BREAKER. HENRY P. BALL, New York, N. Y., assignor to General Insulator and Light Company, of New York, a Corporation. Filed May 21, 1901. Serial No. 61,516. (No model.)

Claim.—1. In an automatic circuit-breaker, the combination of a switchboard, a hand-lever on the front of the switchboard, a bracket on the back of the switchboard, an oil-can, circuit-terminals in the oil-can, an oscillating lever, a bridge-piece carried by the lever and adapted to coast with the circuit-terminals, a resilient device for normally holding the circuit open between the bridge-piece and the circuit-terminals, a link interposed between the hand-lever and the oscillating lever and provided with a slot near its rear end, a pin located in said slot and pivotally connecting said oscillating lever to said link, an electromagnet, a latch device adapted to coast with said oscillating lever, and a device carried by the link which, when the hand-lever is depressed, will act to release the latch from its engagement with the oscillating lever and permit the circuit-breaker to open.

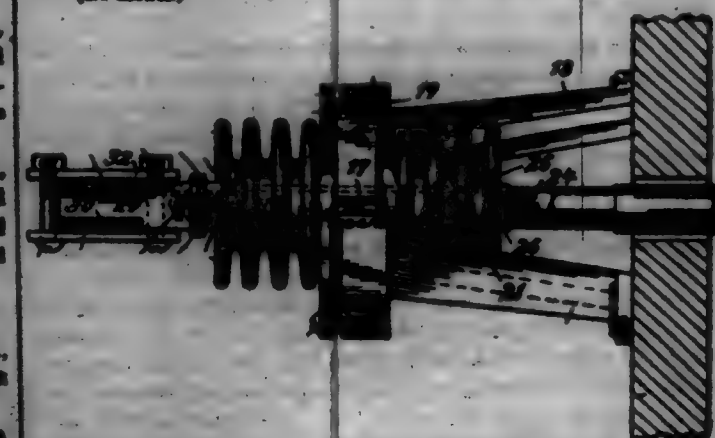
2. In an automatic circuit-breaker, the combination of a hand-lever, an oscillating lever carrying a bridge-piece, a spring device adapted to exert tension upon the oscillating lever, a link between said hand-lever and said oscillating lever provided with an elongated slot at its rear end, a pin located in said slot and pivotally connecting said oscillating lever with said link, an electromagnet, a latch device which coacts with said oscillating lever, and a device carried by the link which, when the hand-lever is depressed, will actuate the latch to release the oscillating lever.

3. In an automatic circuit-breaker, the combination of a bracket on the rear of a switchboard, an oil-can carried by said bracket, partitions in said oil-can, circuit-terminals carrying spring-contacts located in said oil-can, an oscillating lever, a bridge-piece carried by said lever, and an insulating-disk carried by said lever, which coacts with said partitions in said oil-can.

698,096.



698,097. ELECTRICAL INSULATOR. HENRY P. BALL, New York, N. Y., assignor to General Insulator and Light Company, of New York, a Corporation. Filed Aug. 31, 1901. Serial No. 73,980. (No model.)



Claim.—1. An insulator, comprising a body portion having the shape of a long cylinder with parallel grooves in its surface, and a supporting-flange of greater diameter.

2. An insulator comprising a body portion having the shape of a long corrugated cylinder, and a supporting-flange of greater diameter.

3. The combination with an insulator, consisting of a corrugated body portion and a supporting-flange, of means for securing said insulator upon a switchboard, floor, slab, or other similar body.

4. The combination with an insulator, consisting of a corrugated body portion and a supporting-flange, a support for said insulator, a rod traversing said insulator, and a clamping device on the end of said rod.

698,098. CARPET-SWEEPER. JONATHAN BARNES, RICHARD W. KINTON, and WILLIAM H. KINTON, Asbury, England. Filed Dec. 23, 1901. Serial No. 57,808. (No model.)

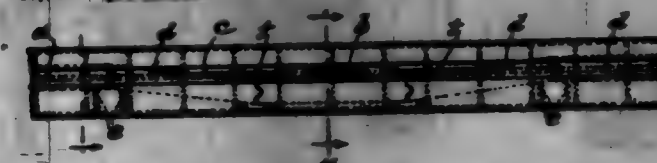


Claim.—1. In a carpet-sweeper, a socket to receive the handle, constructed with an aperture at one side, a clamping-plate fitted into the aperture, and a screw to clamp the plate in position and clamp the end of the handle, substantially as described.

2. The combination with a carpet-sweeper of a socket A to receive the handle B, provided with an aperture O at one side of a clamping-plate

D, a screwing-rod on one edge of the clamping-plate, and a screw E at the other edge passing through a lug in the said plate and into a hole in the socket, substantially as described.

698,099. ELECTRICAL RAILROAD TRACTION APPARATUS. ANDREW A. BURNER, Chicago, Ill. Filed July 12, 1901. Serial No. 61,518. (No model.)

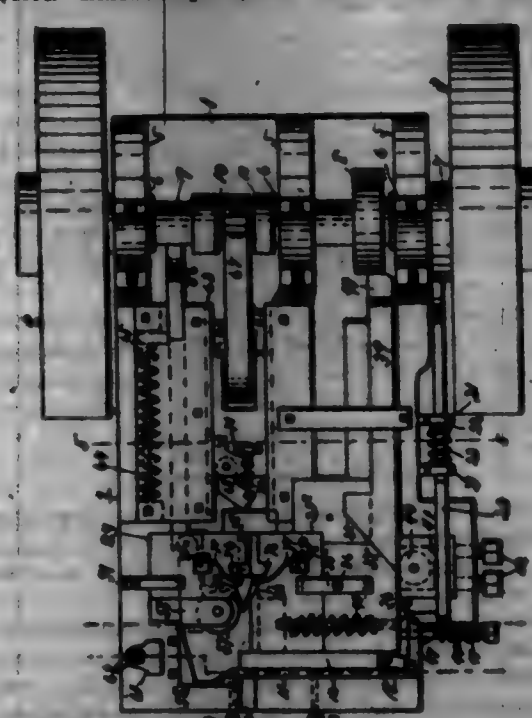


Claim.—1. The combination in electric railroad traction apparatus of a laterally-movable non-conducting protector d or covering formed of a block or strip of wood or other suitable non-conducting material with an electric conductor f lying close to the surface of the railroad rail substantially as described.

2. The combination in electric railroad traction apparatus of an electrical collector b together with a laterally-movable non-conducting protector d or covering formed of a block or strip of wood or other suitable non-conducting material with an electric conductor f lying close to the surface of the railroad rail substantially as described.

3. The combination in electric railroad traction apparatus of a protective covering for the working conductor consisting of a series of short lengths of wood or other non-conducting material having their ends interlocked and adapted for lateral movement in combination with a conductor arranged near the surface of the railroad-bed.

698,100. SPIKE-MACHINE. HERMAN H. BRIDGER, Pittsburg, Pa., assignor to two-thirds to John Wolterbecker, Pittsburg, Pa. Filed Oct. 2, 1900. Renewed Sept. 27, 1901. Serial No. 76,780. (No model.)



Claim.—1. In a spike-machine, a bed-plate having its top provided with recesses formed therein having integral side walls and intermediate vertical walls combined with spike-forming mechanism upon said plate between the walls therein and so arranged that the strain upon the die in forming the spike will fall upon the side walls, and means for simultaneously moving a blank laterally and longitudinally.

2. In a spike-machine, a bed-plate, a stationary and laterally-movable die thereon, a reciprocating point-forming mechanism, a header-block provided with a forming-die arranged to bend the head of the spike laterally, and means for moving the blank simultaneously laterally and longitudinally.

3. In a spike-machine, a bed-plate, a stationary and a movable die thereon, a header, point-forming mechanism, and means for moving a blank simultaneously laterally and longitudinally within the dies after it has been covered from a bar of material.

4. In a spike-machine, a bed-plate, a stationary and a movable die thereon, a header, point-forming mechanism, means for moving a blank simultaneously laterally and longitudinally, and means for adjusting each of the said parts independently of the other.

5. In a spike-machine, a bed-plate, means thereon for covering a

blank from a bar of material, a movable stop for determining the length of the blank, and means for moving the blank simultaneously laterally and longitudinally within the dies as the stop is moved to the rear.

6. In a spike-machine, a bed-plate provided with side and end walls, the end wall being recessed, a perforated cutting-blade secured to the end wall, a reciprocating blade arranged to move longitudinally against the stationary blade, a reciprocating rod at the side of the machine, and a spring mounted on said rod for returning it and the reciprocating blade to their normal positions.

7. In a spike-machine, a bed-plate provided with side and end walls, the end wall being recessed, cutting mechanism adjacent to said recess, a stationary die bearing against one of the side walls, a die-holder bearing against the other wall, a die in said holder, a block mounted in said wall and provided with a roller and a wedge-shaped plunger adapted to be forced longitudinally between the roller and the die-holder.

8. In a spike-machine, a bed-plate provided with side and end walls, the end wall being recessed, cutting mechanism adjacent to said recess, a stationary die bearing against one of the walls, a die-holder against the other wall, a die in said holder, and a wedge-shaped plunger, a removable point-forming block mounted in said die, the forward edge of which is adapted to be provided with notches, whereby the point of the spike may be provided upon its rear face with serrations.

9. In a spike-machine, a bed-plate provided with side and end walls, stationary die at one side of the plate, a die-block at the other side, a die in the block, the lower edge of which is slotted, a forming-block in said slot, a rod secured to said forming-block and projecting through the die-block, a spring on said rod, and means for forcing the die-block and the die toward the stationary die.

10. In a spike-machine, a bed-plate provided with side and end walls, cutting mechanism adjacent to the end wall, a stationary die bearing against one of the side walls, a block seated in the opposite side wall and provided with a roller, a screw through the side wall for engaging with said block, a die-block adjacent to said wall, a die in the block, and a wedge-shaped plunger adapted to be forced between the die-block and the roller.

11. In a spike-machine, a bed-plate provided with side walls, a stationary die-block resting against one of the walls, an adjustable roller-block mounted in the other wall, a die-block adjacent to said roller-block, a bolt through the side wall with its inner end secured in the die-block, a spring upon said bolt for normally forcing the die-block outward, and a wedge-shaped plunger adapted to be forced between the roller-block and the die-block.

12. In a spike-machine, a bed-plate provided with side walls, a stationary and a movable die mounted between said walls, grippers in said die adapted to be moved longitudinally thereof, and means for moving the movable die toward the stationary die.

13. In a spike-machine, a bed-plate provided with side walls, a stationary and a movable die between said walls, spring-actuated grippers mounted in said die to be moved longitudinally thereof, and means for simultaneously operating the grippers and moving the movable die toward the stationary die.

14. In a spike-machine, a bed-plate provided with side walls, a stationary and a movable die between said walls, the inner face of each of which is provided with an inclined wall recess, inclined grippers in said recesses, and adapted to be moved longitudinally of the die, means for limiting the movement of the grippers, and means for forcing the movable die toward the stationary die.

15. In a spike-machine, a bed-plate, dies mounted thereon, grippers in said dies arranged to be moved longitudinally thereof, a spring connected with each gripper, the outer end of which rests upon a fulcrum and an adjusting-screw upon each side of the fulcrum in position to engage with said spring.

16. In a spike-machine, a bed-plate provided with side walls, a stationary and a movable die between said walls, the stationary die being grooved longitudinally upon its outer edge, a link mounted in said groove, provided with point-forming means at one end, a forming-block in position to engage with the head of said link, and means for moving the link longitudinally, and for operating the movable die.

17. In a spike-machine, a bed-plate provided with side walls, a movable and a stationary die, the outer edge of the movable die being grooved longitudinally, a substantially L-shaped link mounted in said groove, the point of which is adapted to form the point of the spike, a forming-block in position to be engaged by the head of said link, and means for operating the movable die.

18. In a spike-machine, a bed-plate, dies mounted thereon, and a recessed header-block, movable toward and from the dies, and provided with a laterally-movable head-forming die, said die being angled and pivotally secured at one end within said recess.

19. In a spike-machine, a bed-plate, dies mounted thereon, a header-

black, the forward end of which is provided with a spring-supported, laterally-movable, hand-forming die.

20. In a spitz-machine, a bed-plate, die mounted thereon, a reciprocating header-block, an angled hand-forming die pivotally secured to said block at one end, the free end of which is recessed, a spring seated longitudinally within the block and in engagement with the die, and means for adjusting the tension of said spring.

21. In a spitz-machine, a bed-plate, die mounted thereon, a recessed die-block, a hand-forming die pivotally secured to the block at one end, and having its free end extended laterally in position to be forced against the head of the block, and a spring for normally forcing the free end of said die away from the block.

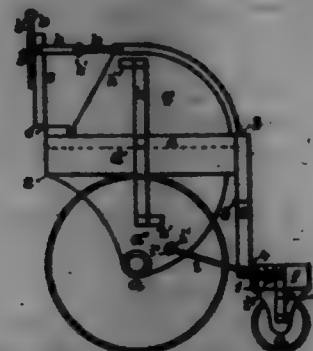
22. In a spitz-machine, a bed-plate, die thereon, a slotted header-block, a hand-forming die and a bar in said slot, a rod secured to the free end of the die and projecting through the bar, a spring upon the rod between the die and the bar, and slotted plates mounted upon the top and bottom of the header-block in position to engage with the bar and adjust the tension of the spring.

23. In a spitz-machine, a bed-plate, a stationary and a movable die thereon, a header-block at one end of the die, and cutting mechanism at the other, and means for simultaneously moving the blank through the dies longitudinally, and moving the movable die laterally, and withdrawing the header-block.

24. In a spitz-machine, a bed-plate the top of which is recessed and provided with integrally-formed side walls and spitz-forming mechanism upon the plate between the walls and so arranged that the strain upon the die in forming the spitz will fall upon the side walls, in combination with means for adjusting the die.

25. In a spitz-machine, a bed-plate, a stationary and laterally-movable die thereon, point-forming mechanism, a header and gripper adjustably secured in the walls of the die for moving the blank within the same.

698,101. FOLDING CARRIAGE. HENRIE BERNHARDT, New York, N. Y. Filed June 20, 1900. Renewed Jan. 20, 1902. Serial No. 91,748. (No model.)

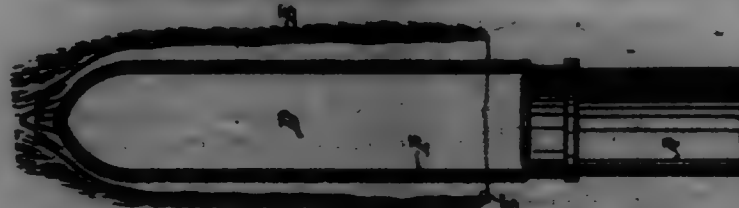


Claim.—1. In folding carriages the combination of a full-board, a foot-rest and front-wheel brackets secured thereto, the full-board, together with the foot-rest, front-wheel brackets and front wheels attached thereto, capable of being folded inwardly and upwardly substantially in the manner and for the purpose set forth and shown.

2. In folding carriages—in combination with a full-board—a foot-rest and front-wheel brackets, secured thereto and capable of being folded inwardly and upwardly—slides and brackets having the rear wheels attached thereto by means of which the rear wheels may be adjusted longitudinally with the rest of the carriage, and the whole compactly folded, substantially in the manner and for the purpose set forth and shown.

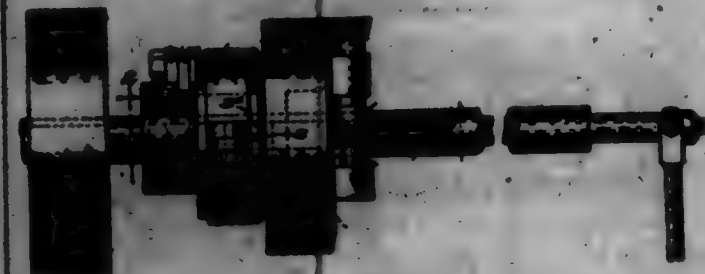
3. The slide or wheel-brackets attached thereto, wheels attached to said brackets, and means for engaging said slide to prevent lateral motion thereof; all combined, arranged and operated substantially as shown and for the purpose described.

698,102. PROCESS OF MANUFACTURING IMPREGNATED MOUTH-PIECES. HARTLEY. GEORGE DUNHAM, Berlin, Germany. Filed June 20, 1901. Serial No. 91,546. (No specimens.)



Claim.—A process of manufacturing impregnated mouth-pieces, consisting in exposing the impregnated mouth to a flame, produced around the outer surface of a sleeve-body, corresponding in form and also to the desired form of the mouth, substantially as set forth.

698,103. SPEED-CHANGER. ERIC OBERHOLSER, Lynn, Mass., assignor of one-half to John W. A. Lumbard, Lynn, Mass. Filed Sept. 20, 1901. Serial No. 75,000. (No model.)



Claim.—1. A speed-changer comprising a rotary shaft, an eccentric carried thereby and held against rotation thereon and a second eccentric carried by said shaft and rotatable with relation thereto for changing the radial position of the first eccentric, and means for positively rotating said second eccentric.

2. A speed-changer comprising a rotary shaft, an eccentric carried thereby and non-rotatable thereon, a second eccentric carried by said shaft and rotatable thereon in engagement with said first eccentric, and a rack-and-pinion device for positively rotating said second eccentric, and means for operating said rack-and-pinion device independently of the rotation of said shaft.

3. A speed-changer comprising a rotary shaft, an eccentric rotatably mounted on said shaft, a second eccentric mounted on said first eccentric and within which said first eccentric is independently movable, an eccentric-strap mounted on said second eccentric, means connected therewith for transmitting motion, and means for positively moving said first eccentric independently of said shaft.

4. A speed-changer comprising a rotary shaft, two eccentrics mounted on one on the other and carried by said shaft, and means for rotating the inner eccentric independently of said shaft and of the other eccentric, said means including a gear carried by said shaft and connected with said inner eccentric and a rack and pinion for driving said gear, said rack being movable longitudinally of said shaft.

5. A speed-changer comprising a rotary shaft, two eccentrics mounted on one on the other and carried by said shaft, means permitting the outer eccentric to move outwardly and inwardly with relation to said shaft and requiring the shaft and said outer eccentric to rotate in unison, and means for rotating the inner eccentric independently of said shaft and of the other eccentric, said means including a gear carried by said shaft and connected with said inner eccentric and a rack and pinion for driving said gear, said rack being movable longitudinally of said shaft.

6. A speed-changer comprising a rotary shaft, two eccentrics mounted on one on the other and carried by said shaft, an arm extending from the outer eccentric, a hub and arm fixed on said shaft adjacent thereto, and a link connecting said two arms, and means for rotating the inner eccentric independently of said shaft and of the other eccentric.

698,104. MACHINE FOR CUTTING PREPARED SHEETS FOR AUTOMATIC MUSICAL INSTRUMENTS. NEWELL CLARK, Chicago, Ill. Filed May 2, 1900. Renewed Aug. 21, 1901. Serial No. 79,021. (No model.)

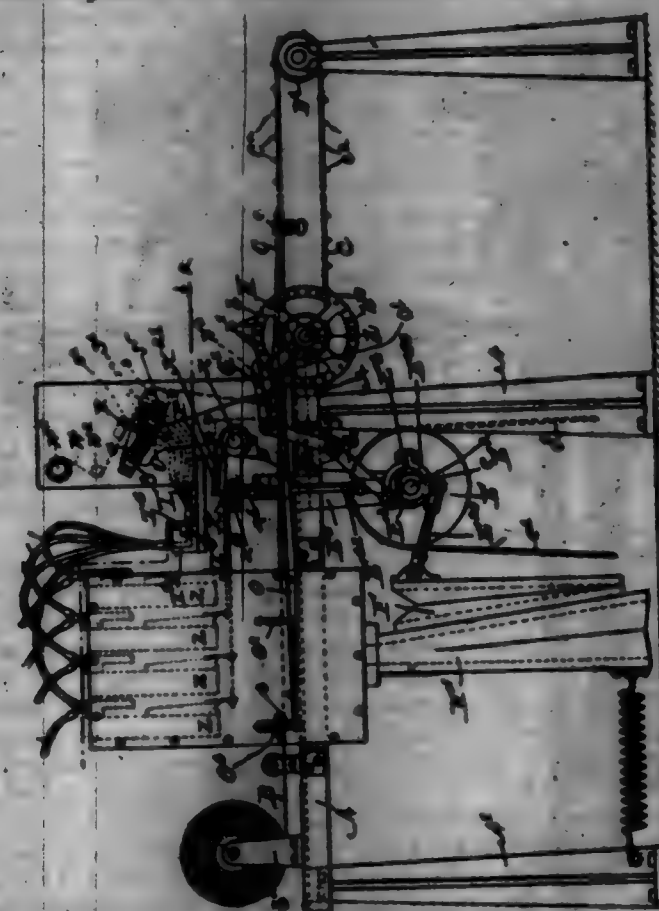
Claim.—1. In a music-perforating machine, an assembly of punches corresponding to longitudinal lines on which perforations are to be made; a carrier for the punches, and mechanism for actuating each carrier; punch-collectors, one for each punch, and means for actuating each collector; conductors corresponding to the notes, and a support for the terminals of each conductor; and a master-piece traveling over the terminals on each support and acting upon the terminals to control the notes.

2. In a music-perforating machine, an assembly of punches corresponding to longitudinal lines on which perforations are to be made; a carrier for the punches, and mechanism for actuating each carrier; punch-collectors, one for each punch, and means for actuating each collector; conductors from the notes and a terminal-support to which they lead; a master-piece traveling over the terminal-support acting upon the terminals to control the notes, each terminal-support being adjustable relatively to the master-piece in the direction of the travel of the latter.

3. In a music-perforating machine, an assembly of punches corresponding to all longitudinal lines on which perforations are to be made; a carrier for the punches and mechanism for actuating each carrier; punch-collectors, one for each punch, and means for actuating each collector; conductors from the notes and a terminal-support to which they lead; a master-piece traveling over the terminal-support acting upon the terminals to control the notes, each terminal-support being adjustable relatively to the master-piece in the direction of the travel of the latter.

4. In a music-perforating machine, an assembly of punches corresponding to all longitudinal lines on which perforations are to be made; a carrier for the punches and mechanism for actuating each carrier; punch-

collector, one for each punch, and mechanism for actuating the punch-collector; ducts from the pneumatic, and a mouthpiece-board to which they lead; a master-piece traveling over the mouthpiece-board for controlling the pneumatic, each mouthpiece-board being adjustable relatively to the master-piece in the line of travel thereof.



5. In combination with the punches and means for feeding the paper past them, the punch-collector and means which actuate them; conductors for the motive fluid and terminals for each conductor; a master-piece and suitable means for giving it travel, and fingers on the terminals respectively protruding against the master-piece and adapted to enter the apertures therein.

6. In combination with the punches and means for feeding the paper past them, the punch-collector and master-pneumatic which actuate them, and primary pneumatic which control the master-pneumatic; the mouthpiece-board and ducts therefrom to the primary pneumatic respectively automatically opening valves which close the mouths of each duct, and fingers carried by the valves and protruding against the master-piece, whereby the master-piece both the valves closed, each finger being adapted to enter the apertures in the master-piece to permit the valves to open.

7. In a perforating-machine which is controlled by a master-piece, the perforating-punches and devices which control their selection and action comprising motive-fluid conductors having terminals which are controlled by the master-piece; a two-part transposing-board, the conductors extending to one of said parts from the punch-controlling mechanism and to the other of said parts from the master-piece-controlled terminals, said conductors in said transposing-board members being all equally spaced and those of one member being adapted to register with those of the other, one member being movable with respect to the other to shift the registration of the conductors.

8. In a pneumatically-controlled perforating-machine, a two-part transposing-board; the primary pneumatic and ducts therefrom to one member of said board; a master-piece and a mouthpiece-board over which it travels, and ducts from the other member of the transposing-board to each mouthpiece-board, the ducts in said transposing-board members being all equally spaced, and those of one member being adapted to register with those of the other, one member being movable longitudinally with respect to the other to shift the registration of the ducts.

9. In a music-perforating machine, an assembly of punches corresponding to all longitudinal lines on which perforations are to be made, the carrier for the punches and mechanism for actuating it; a punch-collector for each punch, and device for actuating the punch-collector; the master-piece and connections therefrom to the punch-collector-actuating device respectively, adapted to bring said device into action upon the depression of corresponding keys of the manual respectively, and a master-piece-indicator mounted by the feeding and punch-actuating mechanism, whereby the operator may manipulate the manual in time with the feeding and punch-actuating movements of the machine.

10. In a music-perforating machine, in combination with the punches, and mechanism for actuating them, the punch-collector mechanism; a master-piece which controls the punch-collector mechanism; and a feeding device for each master-piece, the master-piece having lateral rows of feed-apertures and the feeding device having corresponding rows of tapered feed-pins, which at the base are of the full size of the feed-apertures of the master-piece; the apertures and pins being equally spaced on the master-piece and feed device respectively.

11. In a music-perforating machine, in combination with the punches and mechanism for actuating them, the punch-collector mechanism operated step by step synchronously with the punching mechanism, the master-piece being wider than the paper and provided with lateral rows of equally-spaced feed-apertures beyond the margins of the paper, the feeding device consisting of a belt wider than the paper and provided with lateral rows of taper-pointed feed-teeth spaced equally with the apertures of the master-piece, the paper and master-piece being both clamped to the feed-belt and simultaneously actuated thereby, the feed-teeth of the belt being adapted to enter and at their base to fill the apertures in the master-piece.

12. In a music-perforating machine, a master-piece provided with apertures having their dimensions in the direction of travel of the master-piece multiples of a certain minimum distance, plus a certain excess which is small relatively to said distance.

13. In a perforating-machine, the master-piece provided with apertures which control the action of the machine, whose dimensions in the direction of travel of the master-piece are multiples of a certain minimum distance plus a certain excess which is small relatively to said minimum distance, in combination with fingers adapted to enter the apertures, having their diameter, or dimension in the line of the master-piece travel, somewhat greater than said excess.

698,105. SUMMARY GOLD-SAVING DEVICE. LEO D. GRAM, San Francisco, Cal., assignor, by mesne assignments, to Robt. Harris Mining Company, San Francisco, Cal., a Corporation of California. Filed Apr. 14, 1902. Serial No. 12,519. (No model.)



Claim.—1. A submarine mining-machine, comprising an elongated open-ended sluice-box adapted to be dragged along a subaqueous bottom, means for operating the box, expelling means within the box, and wheels at the respective ends of the box, the forward wheels carrying a counter-weight higher plane than the rear wheels, substantially as described.

2. In a device for dredging, washing and expelling subaqueous material, the combination with an open trough, of a series of rollers arranged transversely therein, the rollers spaced within the trough above the rollers, a carrier carried by the trough for expelling the material during the movement of the trough and of means by which the trough is propelled.

698,106. BOX. STEVEN BALDWIN, Baltimore, Md. Filed July 18, 1901. Serial No. 68,468. (No model.)



Claim.—1. In a truss-down box, the combination of a collapsible body, and one or more foldable keepers therein; with a closure-wall having a latch portion suitably joined thereto and adapted precedent to use to rest in the plane thereof; said latch portion being also adapted to be disposed at an angle to the closure-wall, and arranged to enter between the walls of the body and spring into engagement with the keeper or keepers thereof.

2. In a box, the combination of a body having an interior keeper, and a closure-wall formed of pasteboard and having an angularly-disposed, integral latch at its edge adjacent to the keeper; the said latch being arranged to enter between the walls of the body and spring into engagement with the keeper thereof, substantially as specified.

3. In a box, the combination of a body having an interior keeper, the inner edge of which is inclined or beveled, and a closure-wall formed of pasteboard and having an angularly-disposed, integral latch at its edge adjacent to the keeper; the said latch being arranged to enter between the walls of the body, and spring into engagement with the beveled portion of the keeper, substantially as specified.

4. In a box, the combination of a body having interior keepers at two of its corners, and a closure-wall having an angularly-disposed, integral latch at its edge adjacent to the keepers; the said latch being arranged to enter between the walls of the body and having end portions adapted to engage the keepers thereof when the latch is released, substantially as specified.

5. In a box, the combination of a collapsible body, and one or more foldable keepers therein, with a closure-wall having a latch or latches arranged to enter the body and engage the keeper or keepers thereof, substantially as specified.

6. In a box, the combination of a collapsible body, and foldable keepers arranged therein and provided with beveled inner portions, with a closure-wall having an integral angularly-disposed latch arranged to enter between walls of the body and provided with end portions which it is adapted to carry into engagement with the beveled portions of the keepers, substantially as specified.

7. In a box, the combination of a collapsible body, formed of pasteboard, keepers disposed within the body at corners thereof, and arranged whereby they are adapted to be folded when the body is collapsed, and extend from the walls of the body when the same is opened, and a closure-wall also formed of pasteboard and having an inwardly-directed, integral latch, the ends of which are arranged to engage the keepers of the body, substantially as specified.

8. In a box, the combination of a collapsible body, the foldable keepers arranged in said body at the corners thereof, and the bottom and cover having integral, inwardly-directed latches, the ends of which are arranged to enter between walls of the body and engage with the foldable keepers thereof, substantially as specified.

698,107. AUTOMATIC RAPID-FIRE GUN. VICTOR P. DE KNIGHT, Washington, D. C. assignor, by direct and mesne assignments, to the Victor P. De Knight Gun Company, Washington, D. C., a Corporation of Delaware. Filed July 29, 1900. Renewed Oct. 29, 1900. Serial No. 34,598. (No model.)

Claim.—1. In a gun-operated rapid-fire gun, the combination of a receiver having a screw-threaded bore on its forward end, a barrel projecting from the receiver and supported thereby, a gas-conduit communicating with said barrel in the rear of its muzzle and extending back to the receiver, a water-jacket embracing said conduit and barrel and having a flanged inner end abutting the bore on the receiver, and a coupling-collar taking over the flange of the jacket and engaging the screw-thread of said bore.

2. In a gun-operated rapid-fire gun, the combination with the receiver, the barrel and the gas-conduit, of a water-jacket embracing said conduit and barrel and detachably coupled to the receiver and having lugs which engage opposite sides of the gas-conduit to hold the jacket from turning in either direction.

3. In a gun-operated rapid-fire gun, a gas-conduit communicating with the barrel at the forward part of the same and extending rearwardly therefrom, a cylinder compounded with said conduit, a perforated plug closing the rear end of the cylinder, a piston in said cylinder, and leading mechanism actuated by said piston.

4. In a gun-operated rapid-fire gun, the combination of a barrel having a screw-threaded socket on one side and a port through the bottom of said socket, a gas-conduit in the form of a pipe having a transversely-

apertured and interiorly-screw-threaded head, a plug screwing into said head and into the socket of the barrel and having a bore communicating with the port in the bottom of said socket and also having a part to register with the pipe-bore, a cylinder compounded with said pipe, a piston in said cylinder, and leading mechanism actuated by said piston.



5. In a gun-operated rapid-fire gun, the combination of a barrel having a screw-threaded socket on one side and a port through the bottom of said socket, a gas-conduit in the form of a pipe having a transversely-apertured and interiorly-screw-threaded head, a plug screwing into said head and into the socket of the barrel and also having a part to register with the pipe-bore, a valve or stopper in the form of a screw entered through one side of the pipe-head and having an end portion protruding into the bore of the plug, a cylinder compounded with the said pipe, a piston in said cylinder, and leading mechanism actuated by said piston.

6. In a rapid-fire gun, the combination of a reciprocating actuator having a laterally-projecting cam-lug tapering as it extends forward, a horizontally-vibratory lever arranged laterally beyond the said cam-lug and having a roller to coast therewith in effecting outward movement of the lever under forward movement of the actuator, and a cartridge-feeding slide coupled to said lever and equipped with dogs adapted to successively engage cartridges carried in a belt which passes through the receiver of the gun, provision existing by virtue of which the lever and slide are actuated when the actuator moves rearwardly, substantially as described.

7. In a rapid-fire gun, the combination of a reciprocating actuator having a laterally-projecting cam-lug tapering as it extends forward, a horizontally-vibratory lever arranged laterally beyond the said cam-lug and having a roller to coast therewith in effecting outward movement of the lever under forward movement of the actuator, and a cartridge-feeding slide coupled to said lever and equipped with dogs adapted to successively engage cartridges carried in a belt which passes through the receiver of the gun, together with a spring arranged to retract the lever and slide upon rearward movement of the actuator.

8. In a rapid-fire gun, a receiver having openings in opposite sides and a passage-way between said openings, one of the latter being of sufficient width to pass a cartridge crosswise and the other being of less width and the receiver having internal shoulders at opposite sides of the passage-way for the cartridge to abut, an upward-pointing pin standing out from the face of one of said shoulders, means for feeding a cartridge against the shoulders and under said pin, and means for removing the cartridge lengthwise from its position against the shoulders.

9. In a rapid-fire gun, the combination of a receiver, a reciprocating actuator therein having a cam-piece on one side and a roller on the opposite side running along a wall of the receiver, and cartridge-feeding device cooperating with said cam-piece to advance a belt of cartridges step by step under retraction of the said actuator.

10. In a rapid-fire gun, the combination of a reciprocating actuator carrying a pair of extractor-fingers transversely disposed relative thereto, spring-pressed toward each other, movable in a plane substantially at right angles to the plane of movement of the actuator, and having oppositely-inclined confronting side faces adapted to encounter a cartridge-head in the feed-throat under one direction of movement of the actuator, longitudinal edges of said fingers snapping past the flange of the cartridge and extracting the latter from the throat upon the reverse movement of said actuator; and means for feeding cartridges into the throat.

11. In a rapid-fire gun, the combination of a reciprocating actuator carrying a pair of extractor-fingers spring-pressed toward each other and having oppositely-inclined confronting faces adapted to encounter a cartridge-head in the feed-throat under one direction of movement of the actuator, said fingers snapping by the flange of the cartridge and extracting the latter from the throat upon the reverse movement of said actuator, and having lugs on their rear edges to hold the cartridge down; and means for feeding cartridges into the throat.

12. In a rapid-fire gun, the combination of a receiver having a cartridge-belt passage extending transversely through its front portion and a throat to receive the cartridges one by one, an upward-pointing guard-pin standing out toward the entrance to the throat at one side of the throat and holding a cartridge in proper position therein, a reciprocating actuator having means for extracting the cartridge from the belt, and means for feeding the cartridges into the throat.

13. In a rapid-fire gun, the combination of a receiver having a feed-throat, means for feeding cartridges crosswise into said throat, a reciprocating actuator having a block recessed in its side and across its top, fingers pivoted in the side recess and having depending portions with oppositely-inclined confronting faces, and a spring in the top recess of the block bearing upon the upper ends of the fingers and pressing their depending portions toward each other, the confronting faces of the latter adapted to encounter the flanged head of the cartridge in the throat where by the fingers are spread apart and snap over the flange of the cartridge, substantially as and for the purpose described.

14. In a rapid-fire gun, the combination of a receiver having a throat for cartridges, a reciprocating actuator having means for extracting the cartridge from said throat, a cartridge-depressing and pointing arm normally standing on an upward inclination and beneath which arm the cartridge is carried by the extracting means, and means carried by the reciprocating actuator for depressing said arm upon the advance of the actuator, substantially as and for the purpose described.

15. In a rapid-fire gun, the combination of a receiver having a throat for cartridges, a reciprocating actuator having means for extracting the cartridge from said throat, a cartridge-depressing and pointing arm normally standing on an upward inclination and beneath which arm the cartridge is carried by the extracting means, said arm having an upstanding lug, and a laterally-movable spring-pressed wiper on the reciprocating actuator positioned to encounter said lug with one side edge in the rearward stroke of the actuator and to thereby displace and to encounter the lug with its forward end in the advance of the actuator thereby depressing the arm, substantially as and for the purpose described.

16. In a rapid-fire gun, the combination of a receiver having a cartridge-throat at its forward part, a reciprocating actuator having means for extracting a cartridge from the throat, a breech-block engaged with said actuator so as to be retracted thereby and grooved in its upper side at the throat, a cartridge-depressing and pointing arm pivoted to a stationary support and having a heel-piece engaging the breech-block whereby when the latter is advanced the arm is held in an upward-inclined position where the cartridge can pass under it, and when the breech-block is retracted said arm may drop by reason of the groove in the breech-block receiving the heel-piece of the arm; and means carried by the actuator for throwing down the said arm, substantially as and for the purpose described.

17. In a rapid-fire gun, the combination of a receiver having a feed-throat at its forward part, a reciprocating actuator having spring-pressed fingers to catch a cartridge in said throat, a pivoted arm standing normally in an upward-inclined position where the said spring-fingers will pass on either side of it when the actuator moves rearwardly, and means carried by the actuator for depressing said arm when said actuator advances and the cartridge has been delivered under the arm.

18. In a rapid-fire gun, the combination of a receiver having a throat for cartridges, a reciprocating actuator having means for extracting the cartridge from said throat, a cartridge-depressing and pointing arm normally standing on an upward inclination and beneath which arm the cartridge is carried by the extracting means, means carried by the reciprocating actuator for depressing said arm upon the advance of the actuator, a lower cartridge-pointing arm or lever, and means for elevating the latter to receive the ball end of the cartridge.

19. In a rapid-fire gun, the combination of a receiver having a throat for cartridges, a reciprocating actuator having means for extracting the

cartridge from said throat, a cartridge-depressing and pointing arm normally standing on an upward inclination and beneath which arm the cartridge is carried by the extracting means, means carried by the reciprocating actuator for depressing said arm upon the advance of the actuator, a lower cartridge-pointing arm or lever, and a breech-block engaged with the actuator so as to be retracted thereby and grooved in the under side to receive the heel of said lower cartridge-pointing lever, the forward end of said groove opening on the backward movement of the breech-block to tilt the said lever to position for receiving the ball end of the cartridge, substantially as and for the purpose described.

20. In a rapid-fire gun, the combination of a receiver having a cartridge-throat at its forward part, a reciprocating actuator having means for extracting a cartridge from the throat, a breech-block engaged with said actuator so as to be retracted thereby and grooved in its upper and lower sides, upper and lower cartridge-pointing arms having heels for engagement with said grooves respectively, the breech-block in its forward position holding the lower arm depressed, and the upper arm elevated so that the cartridge can pass under it, and means carried by the actuator for depressing the upper arm on the forward stroke of the actuator, an accompanying forward movement of the breech-block causing the front end of its lower groove to elevate the cartridge-receiving end of the lower arm.

21. In a rapid-fire gun, the combination of a receiver having a feed-throat at its forward part, a reciprocating actuator having means for extracting cartridges one by one from said throat, a breech-block engaged with the actuator so as to be retracted thereby, means for delivering the cartridge in front of the said breech-block, a guide or pointing-lever to receive the ball end of the cartridge when so delivered, and means for shifting said lever, substantially as described.

22. In a rapid-fire gun, the combination of a receiver having a feed-throat at its forward part, a reciprocating actuator having means for extracting cartridges one by one from said throat, a breech-block engaged with the actuator so as to be retracted thereby, and grooved in its under side, means for delivering the cartridge in front of said breech-block, and a pointing-lever having a heel to receive the ball end of the cartridge when so delivered and having a heel to enter the groove in the under side of the breech-block, the forward end of said groove opening to tilt the lever and bring its heel up into position for receiving the ball end of the cartridge.

23. In a rapid-fire gun, the combination of a receiver having a discharge-opening in one side, a grooved breech-block repressing in said receiver and past said opening, spring-pressed extractor-fingers in grooves of said breech-block, one located in a lower plane than the other, and having a cam projection, an abutment in the receiver for said cam projection to encounter, and an ejector on the receiver and projecting into a groove in the breech-block where the extracted shell will encounter it upon being disengaged from the catch having the cam projection.

24. In a rapid-fire gun, the combination of a receiver having a chamber running back from the barrel and a discharge-opening in one side of the chamber, a breech-block in said chamber, spring-pressed extractor-fingers carried by the breech-block, one located in a lower plane than the other, means for tripping that one of said catches, an ejector abutment for the cartridge to encounter upon disengagement from said catch, and means for repressing the breech-block.

25. In a rapid-fire gun, the combination of a reciprocating breech-block, arranged to be moved backward by force resulting from a discharge, a spring arranged to impel said breech-block forward, a firing-pin in the breech-block, a hammer carried by the breech-block and spring-actuated into engagement with the firing-pin, a lever arranged to engage said hammer and hold it while the breech-block moves forward, a latch arranged to lock the breech-block in its forward position, means for automatically displacing said latch, and trigger mechanism for tripping the lever and establishing a connection between the latter and the latch, substantially as described.

26. In a rapid-fire gun, a reciprocating structure adapted to be actuated in one direction by force resulting from a discharge and in the opposite direction by spring-pressure, said structure comprising a member receiving the direct impact of the returning force and having abutment-pieces and a cam-piece, a breech-block having a part extending between the said abutment-pieces, a sufficient space being provided to permit movement of the said member having the abutment-pieces independent of the breech-block, a firing-pin in the breech-block, and a hammer carried by the latter and spring-actuated toward the firing-pin; in combination with a lever adapted to engage said hammer and hold it while the breech-block advances, a latch arranged to lock the breech-block in its forward position and adapted to be displaced by the cam-piece on the first-mentioned member of the reciprocating structure, and trigger mechanism for tripping the lever and establishing a connection between the same and the latch, substantially as described.

27. In a gun-operated gun, the combination of a reciprocating actuator, a breech-block engaged therewith, a spring-pressed hammer carried

by the breech-block, a locking-piece in the form of an automatic catch operating independently of the actuator-reciprocating means and adapted to hold the breech-block against the breech end of the gun-barrel; a cam, and connections between the locking-piece and cam whereby the latter is tripped by the movement of the former into locking position.

28. In a gas-operated gun, the combination of a reciprocating actuator, a breech-block engaged therewith, a spring-pressed hammer carried by the breech-block, a locking-piece in the form of a spring-pressed catch for holding the latter against the breech end of the gun-barrel, a cam, and connections between the locking-piece and cam whereby the latter is tripped by the movement of the former into locking position.

29. In a gas-operated gun, the combination of a reciprocating actuator, a breech-block engaged therewith, a spring-pressed hammer carried by the breech-block, a locking-piece for holding the latter against the breech end of the gun-barrel, a cam, and trigger mechanism establishing a connection between the lock and cam whereby the latter is tripped by movement of the former into locking position.

30. In a gas-operated gun, the combination of a breech-block, a spring-pressed hammer carried thereby, a locking-lever spring-pressed to locking engagement with the breech-block and having a heel a cam pivoted concentrically with said lock-lever and having a heel confronting that of the latter, said cam being pressed to hammer-engaging position by a spring inferior to that which actuates the locking-lever, a filter-piece or wedge between said confronting heels, manipulative means connected with said wedge, a reciprocating actuator engaged with the breech-block but movable a distance independently thereof and having a projection to act against the cam protuberance of the locking-lever, substantially as and for the purpose described.

31. In a gas-operated gun, the combination of a breech-block, a spring-pressed hammer carried thereby, a locking-lever spring-pressed to locking engagement with the breech-block and having a heel, and a cam protuberance, a cam pivoted concentrically with said lock-lever and having a heel confronting that of the latter, said cam being pressed to hammer-engaging position by a spring inferior to that which actuates the locking-lever, a filter-piece or wedge between said confronting heels, manipulative means connected with said wedge, and a reciprocating actuator engaged with the breech-block but movable a distance independently thereof and having a projection to act against the cam protuberance of the locking-lever, substantially as and for the purpose described.

32. In an automatic rapid-fire gun, a reciprocating actuator having a bifurcated arm, and a slide-rod having a head and a head to abut the front side of the bifurcated arm and a cross-piece to abut the rear side of said bifurcated arm when the rod is turned, substantially as described.

33. In a rapid-fire gun, the combination of a receiver having a transverse passage for a belt of cartridges and a throat to receive the cartridges one by one, while in the belt, a feed-slide having dogs arranged to move a cartridge into the throat by opening against a cartridge further removed from the throat, means for reciprocating the slide, and means for extracting from the belt the cartridge in the throat.

34. In a rapid-fire gun, the combination of a reciprocating actuator having a bifurcated arm, a manipulative slide-rod extending through said bifurcation and having a head to encounter one side of the arm, said rod also having a cross-piece of dimensions to pass through the bifurcation under one adjustment of the rod and to take over the side of the bifurcation opposite that which the head abuts, when the rod is turned to another adjustment; and cartridge feeding, loading, firing and extracting means in operative connection with the actuator.

35. In a rapid-fire machine-gun, the receiver having the longitudinally-disposed ribs or guides on opposite sides thereof, in combination with the interspersed reciprocating bar bearing against said guides and having bifurcated portions embracing the same; said bar having a forward extension and cam portions thereon for engaging and actuating the feed-slide-actuating lever, and also provided with means for actuating the cartridge-depressing arm, the breech-block lock, and breech-block, and with means for extracting a cartridge from the cartridge-belt when the actuator means forward, substantially as described.

698,108. **SAFETY DEVICE FOR PISTOL-BATTERY.** LAURENCE B. BROWN, Minneapolis, Minn. Filed Dec. 14, 1906. Serial No. 58,888. (No model.)

Claim.—1. In a switch, the combination, with the movable points, of a filling-piece secured to the outer side of one of said points, and means independent of said point for limiting the lateral movement of the other point, substantially as described.

2. In a switch, the combination, with the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, of a filling-piece secured to the outside of one point and adapted to receive and support the flange of the wheel, and means independent of said point for limiting the lateral movement of the other point, whereby the wheels on that side of the track are kept in position upon the rail, for the purpose set forth.

3. The combination, with the stock-rail, and the rail of the main and the side tracks, of the movable points, one of said movable points being provided with a filling-piece secured to its outer side and rigid means independent of said point for limiting the lateral movement of the other point, and means for guiding the wheels back onto the main track, for the purpose set forth.



4. The combination, with the rail of the main and side tracks, of the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, and means permitting one of said points to be forced laterally toward the other point upon the passage of a train when the switch is partially open, for the purpose set forth.

5. The combination, with the rail of the main and side tracks, of the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open, or in a neutral position, means limiting the forward lateral movement of one of said points, and means permitting an inward or lateral flexing of the other point, for the purpose set forth.

6. The combination, with the rail 2, of the movable point 10 provided with the axle 22, carrying the plunger 23, and the stop-collar 26 for the purpose set forth.

7. The combination, with the rail 2, of the movable point 10, provided with the axle 22 having the hook 25, and the plunger 23, for the purpose set forth.

8. The combination, with the rail 2, of the movable point 10, provided with the axle 22, having a suitable hook 25, and the dotted plate 29 provided with the lip 30, for the purpose set forth.

9. The combination, with the movable point 10, of the cylinder 16, provided with the spring 17, the follower 18 and the bell or rod 19 extending through said follower and spring and connecting with the point 10, said spring being adapted to move said point away from the rail of the main track or out of side-track position, substantially as described.

10. The combination, with the movable points and the right hand-rail, of the dotted bridge-rod connecting said points, for the purpose set forth.

11. The combination, with the rail of the main and side tracks, of a movable switch-point adapted, when brought against one of the main rails, to connect said rail with the adjacent side-track rail and means, connected with said point and adapted to normally hold said point out of contact with said main rail and in a neutral position, for the purpose set forth.

12. The combination, with the rail of the main and side tracks of the movable switch-point and means for holding the side-track point out of engagement with the main-track rail and in a neutral position.

13. The combination, with the stock-rail 3 and 4, of the movable

points 10 and 11 and means for holding the point 10 normally out of engagement with the stock-rail 3 and in a neutral position, for the purpose set forth.

14. The combination, with the stock-rail 3 and 4 of the movable points 10 and 11 and a spring device connected with the point 10, and adapted to hold said point normally out of engagement with the stock-rail 3 and in a neutral position, for the purpose set forth.

698,109. **EXHAUSTING APPARATUS.** BERNARD FROSTEN. Paris, France. Filed Feb. 2, 1906. Serial No. 604,963. (No model.)



Claim.—1. In an apparatus for use as described, the combination with a closed receptacle adapted to contain chlorinated and alkaline water, and an inner closed vessel adapted to contain disinfecting solution, of an extension containing two passages one communicating with the inner and the other with the outer receptacle, a rotatable plug having two lugs adapted to cooperate with said passages as described, a tubular extension having two branches which communicate at one end with the said passages and which merge at the opposite end into a single branch of the said tubular extension, and a diffusing or spraying device in communication with the said single branch of the tubular extension.

2. In an apparatus for use as described, the combination with an outer hermetically-closable receptacle and an inner closed receptacle, of an extension F having passages J, K, the cock L, the tubular extension comprising the branches I, M, N, the casing O, flexible extension R, and a spraying device connected with the latter extension, all as and for the purpose specified.

698,110. **WHEEL FOR ROLLER-SKATES.** ALFRED L. FAY. New York, N. Y. Filed Feb. 27, 1908. Serial No. 64,807. (No model.)

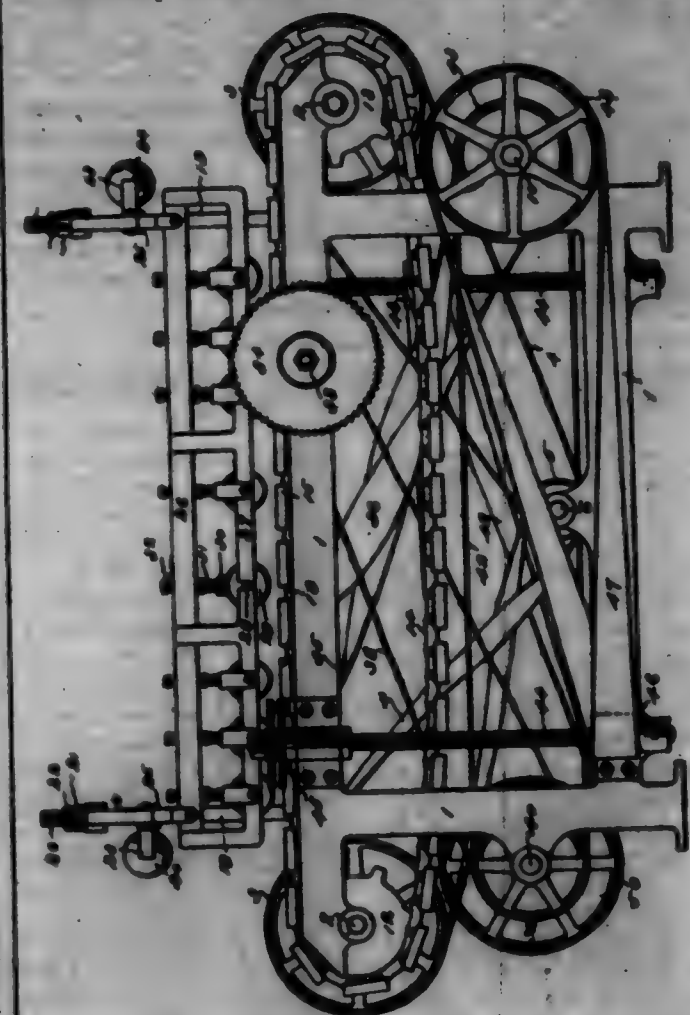


Claim.—1. The combination with a wheel or roller provided with a central opening, the outer ends of which are beveled, of an elastic sleeve fitted in said opening, key-pieces fitting in said elastic sleeve and having their outer ends beveled to correspond with the beveled ends of the opening in said roller and a metallic sleeve or cylinder extending through said key-pieces and adapted to lock the several parts in their proper relative positions, substantially as described.

2. The combination with a wooden roller provided with a peripheral groove and with a central opening, the ends of the latter being beveled, of a rubber sleeve fitted in said central opening, metallic key-pieces, the

body of each of which is cylindrical in form and the outer end beveled, whereby said rubber sleeve is secured, its entire length is tightly bound between said key-pieces and the wall of said central opening, and a metallic sleeve or bearing extending through said key-pieces and having its ends beveled slightly apart, whereby the several parts are firmly locked in their proper relative positions, substantially as described.

698,111. **MACHINE FOR EDGING AND MATCHING LUMBER.** HENRY A. GALT, Hartford, Conn., assignor to George W. Galt, Hartford, Conn. Filed Dec. 18, 1906. Serial No. 58,574. (No model.)



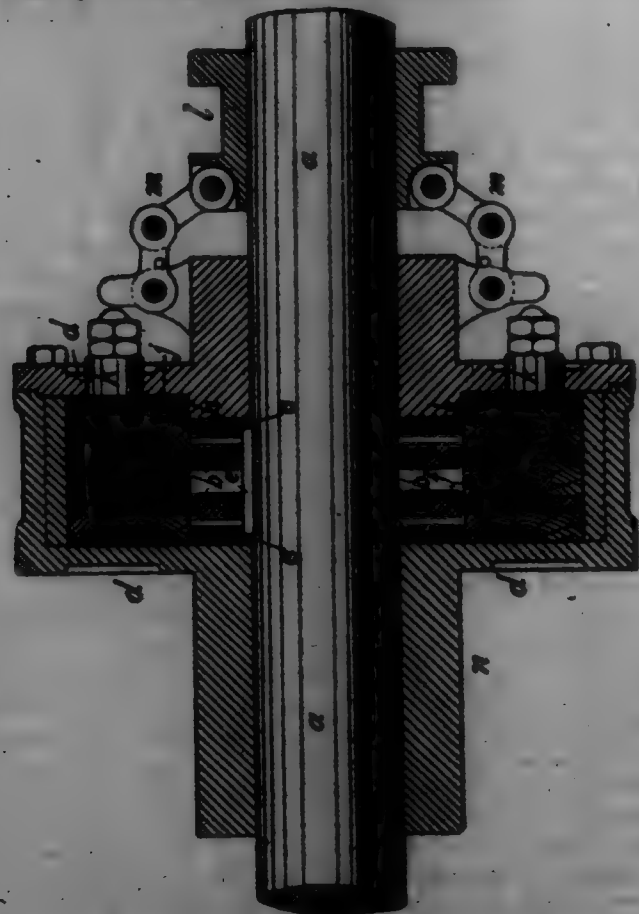
Claim.—1. A machine for edging and matching lumber consisting of a frame, a shaft supported horizontally near each end of the frame, means for rotating the shafts, two sprocket-wheels mounted upon each shaft, one of which wheels is fixed and the other is loose upon its shaft, an endless chain passing from shaft to shaft and connecting the fixed wheel on one shaft with the loose wheel on the other shaft, a lumber-feeding table connected with each of the oppositely-moving endless chains, a horizontal arbor supported by the frame near each end, means for rotating each horizontal arbor, a vertically-rotatable saw extending above and below the plane of the movable tables mounted upon diagonally opposite ends of each horizontal arbor outside of the frame, means for rotating each vertical arbor, a horizontally-rotatable cutter-head mounted upon the upper end of each vertical arbor and extending above the plane of the movable tables on diagonally opposite sides of the frame, and yielding means for holding the lumber down while each supporting-table carries it to a vertically-rotating saw and horizontally-rotating cutter-head, substantially as specified.

2. A machine for edging and matching lumber consisting of a frame, a shaft supported horizontally near each end of the frame, means for rotating the shafts, two sprocket-wheels mounted upon each shaft, one of which wheels is fixed and the other is loose upon its shaft, an endless chain passing from shaft to shaft and connecting the fixed wheel on one shaft with the loose wheel on the other shaft, a lumber-feeding table connected with each of the oppositely-moving endless chains, a horizontal arbor supported by the frame near each end, means for rotating each horizontal arbor, a vertically-rotatable saw extending above and below the plane of the movable tables mounted upon diagonally opposite ends of each horizontal arbor outside of the frame, means for rotating each vertical arbor, a horizontally-rotatable cutter-head mounted upon the upper end of each vertical arbor and extending above the plane of the movable tables on diagonally opposite sides of the frame, rolls loosely held by supports

above the table, and weighted levers for depressing the rolls and holding the lumber down while each supporting-table carries it to a vertically-rotating saw and horizontally-rotating outer-head, substantially as specified.

3. A machine for engaging and matching lumber consisting of a frame, a shaft supported horizontally near each end of the frame, means for rotating the shafts, two sprocket-wheels mounted upon each shaft, one of which wheels is fixed and the other is loose upon its shaft, an endless chain passing from shaft to shaft and connecting the fixed wheel on one shaft with the loose wheel on the other shaft, a lumber-feeding table connected with each of the oppositely-moving endless chains, a horizontal arbor supported by the frame near each end, means for rotating each horizontal arbor, a vertically-rotatable saw extending above and below the plane of the movable tables mounted upon diagonally opposite ends of each horizontal arbor outside of the frame, a vertical arbor near each end on opposite sides outside of the frame, means for rotating each vertical arbor, a horizontally-rotatable outer-head mounted upon the upper end of each vertical arbor and extending above the plane of the movable tables on diagonally opposite sides of the frame, rolls loosely held by supports above the table, springs for depressing the rolls, and weighted levers for depressing the springs, and holding the lumber down while each supporting-table carries it to a vertically-rotating saw and horizontally-rotating outer-head, substantially as specified.

698,112. FRITTON-GLAYTON. JAMES HALL, Radcliffe, England.
Filed Sept. 19, 1901. Serial No. 74,947. (No model.)

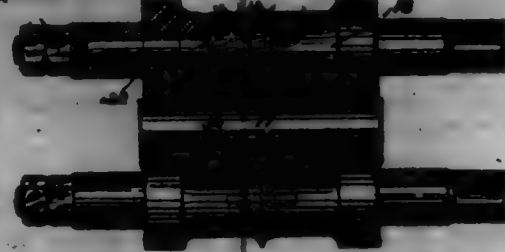


Claim.—In a friction clutch or coupling the combination with the shaft *a* and shaft *d* loose thereon of the fixed hub *p* firmly keyed to the shaft *a*; the disk *b* formed with correspondingly-grooved central openings to slide longitudinally thereon; the friction-disk *f* with projections *g* to engage corresponding recesses in the shaft *d* and arranged alternately with the disk *b* the ring *j*; the screw *s* to force the ring *f* against the disk *b* and *f* to bring them into frictional contact, the lever-wheel *u* and nut *v* to reciprocate the screw *s* the collar *y* to secure them in position the spindle *t* and lever-wheel *u* to gear with the lever-wheel *u*, the levers *c* with internal teeth *2* engaging similar teeth on the spindle *t* to rotate it; the nut *3* to hold the levers *c* in position, the connecting-rods *r* and sliding sleeve *l* to actuate the levers *c* substantially as described.

698,118. COUPLING-WELDING ROLL. RAYMOND H. HALL, McKeenport, Pa., assignor to National Tube Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed Aug. 30, 1901. Serial No. 73,884. (No model.)

Claim.—1. A roll for forming pipe-couplings and similar articles provided with a plurality of working faces each corresponding to a finished coupling and an annular projection or projections intermediate the working faces for dividing the blank and finishing the end faces of the couplings, said roll having each end flange and the contiguous working faces formed in one piece, and the remaining working faces and annular ribs or projections formed in separate sections interposed between the end sections, means for rotating said sections together, and pins passing through the annular ribs-sections and having their ends seated in the working-face sections in lock said sections together.

separate from the other parts of the roll, and means for securing said sections together.

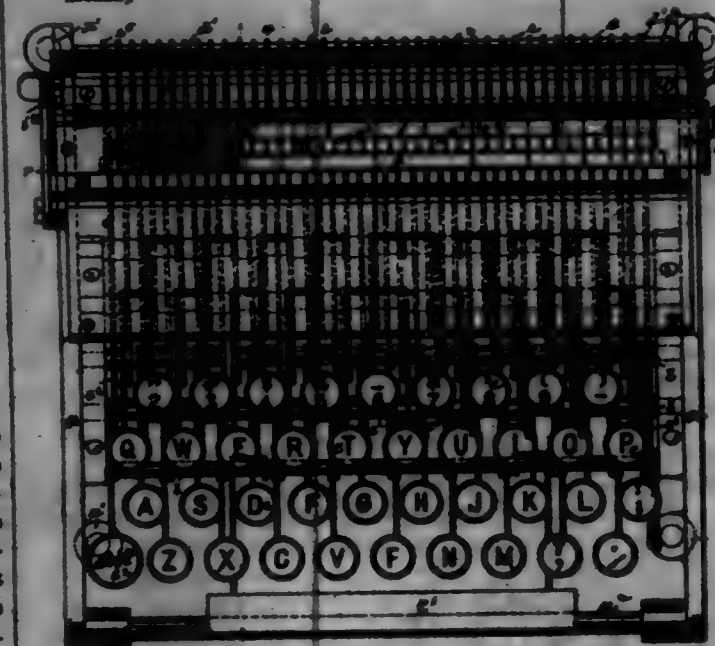


2. A roll for forming pipe-couplings and similar articles, provided with a plurality of working faces each corresponding to a finished coupling and an annular projection or projections intermediate the working faces for dividing the blank and finishing the end faces of the couplings, said roll having each end flange and the contiguous working faces formed in one piece, and the remaining working faces and annular ribs or projections formed in separate sections interposed between the end sections, and means for locking said sections together.

3. A roll for forming pipe-couplings and similar articles, provided with a plurality of working faces each corresponding to a finished coupling and an annular projection or projections intermediate the working faces for dividing the blank and finishing the end faces of the couplings, said roll having one end flange and the contiguous working faces formed in one section which has integral therewith a wobble and an axial core or projection, the other end flange and its contiguous working faces being formed as a sleeve adapted to surround the axial projection or core, and the annular projection being formed on a separate ring which is interposed between the end sections, and means for locking said parts together.

4. A roll for forming pipe-couplings and similar articles, provided with a plurality of working faces each corresponding to a finished coupling and an annular projection or projections intermediate the working faces for separating the blank and finishing the end faces of the couplings, said roll having each end flange and the contiguous working faces formed in one section and the remaining working faces and annular projection or projections formed in separate sections interposed between the end sections, means for securing said sections together, and pins passing through the annular ribs-sections and having their ends seated in the working-face sections in lock said sections together.

698,114. MACHINE FOR TRACKING TYPE-WRITING. FRANK REEZE, New York, N. Y. Filed July 16, 1901. Serial No. 67,708. (No model.)



Claim.—1. In a machine for tracking type-writing, the combination of a series of keys with a series of sign-carriers operatively connected thereto, and with a sign-sheet adapted to receive each carrier, substantially as specified.

2. In a machine for tracking type-writing, the combination of a series of keys with a series of sign-carriers operatively connected thereto, and with a sign-sheet adapted to receive each carrier, and simultaneously raise the keys, substantially as specified.

3. In a machine for tracking type-writing the combination of a series of keys with sign-carriers operatively connected thereto, a movable perforated sign-sheet adapted to receive each carrier, and signs displayed upon the carrier, substantially as specified.

4. In a machine for tracking type-writing the combination of a series of keys with sign-carriers operatively connected thereto, a movable perforated sign-sheet adapted to receive each carrier, and signs displayed upon the carrier, substantially as specified.

ries of keys with sign-carriers operatively connected thereto, a movable perforated sign-sheet adapted to receive each carrier, signs upon the carrier, and a shield that partly conceals each sign, substantially as specified.

5. In a machine for tracking type-writing the combination of a series of keys with a series of sign-carriers operatively connected thereto, a sign-sheet adapted to receive the signs, and with means for feeding each sign-sheet, substantially as specified.

6. In a machine for tracking type-writing, the combination of a series of sign-carriers with a sign-sheet adapted to receive the signs, means for feeding the sign-sheet, and a shield that partly conceals the signs, substantially as specified.

7. In a machine for tracking type-writing the combination of a series of sign-carriers with a sign-sheet adapted to receive the signs, means for feeding the sign-sheet, a shield adapted to partly conceal the signs, and a chamber for covering up the signs within or beyond the shield, substantially as specified.

8. In a machine for tracking type-writing, the combination of a cylindrical perforated sign-sheet with a series of sign-carriers adapted to be actuated by said sheet and with keys operatively connected in said sign-carriers, substantially as specified.

9. In a machine for tracking type-writing, the combination of a series of sign-carriers with keys operatively connected thereto and a cylindrical perforated sign-sheet adapted to receive the sign-carriers, substantially as specified.

10. In a machine for tracking type-writing the combination of a series of key-operated sign-carriers with an oscillating frame and a cylindrical sign-sheet carried by such frame and adapted to receive the sign-carriers, substantially as specified.

11. In a machine for tracking type-writing, the combination of a series of key-operated sign-carriers with a reel, means for rotating said reel, and a cylindrical sign-sheet removably secured to said reel, substantially as specified.

12. In a machine for tracking type-writing, the combination of a series of key-operated sign-carriers with a reel, means for rotating said reel, a cylindrical sign-sheet secured to said reel, and a stop for limiting the rotation of said reel, substantially as specified.

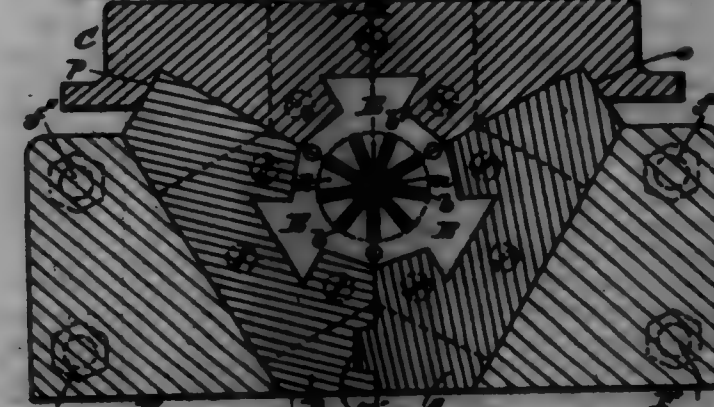
13. In a machine for tracking type-writing, the combination of a series of sign-carriers with a pair of telescopic perforated sign-sheets and means for changing the relative positions of said sheets, substantially as specified.

14. In a machine for tracking type-writing, the combination of a series of key-operated sign-carriers with a reel, a pair of telescopic cylindrical sign-sheets mounted upon said reel, means for changing the relative position of the sign-sheets, means for rotating the reel and means for limiting said rotation, substantially as specified.

15. In a machine for tracking type-writing, the combination of a pair of perforated telescopic sign-sheets with a series of sign-carriers adapted to be actuated thereby so as to raise or lower the signs on said carrier, substantially as specified.

16. In a machine for tracking type-writing, the combination of a series of key-operated sign-carriers with an oscillating frame, a rotatable sign-sheet supported thereby, and a stop-bar for limiting the movement of the sign-carriers when said sign-carriers are raised, substantially as specified.

698,115. MOLD FOR THE MANUFACTURE OF CELLULAR CUSHION-TIRES FOR WHEELS OF RAILROAD OR OTHER VEHICLES. CHARLES REED, Wrentham, R. I. Filed Sept. 11, 1901. Serial No. 73,080. (No model.)



Claim.—1. The improved mold for the manufacture of cellular cushion-tires, consisting of a plurality of longitudinal blocks, a set comprising a plurality of matrix-pieces mounted movably on and supported by each of said blocks, means for holding the matrix-pieces in their companion block, and means for holding said blocks together, substantially as described.

2. The improved mold for the manufacture of cellular cushion-tires, consisting of a plurality of grooved longitudinal blocks, a set comprising a plurality of matrix-pieces mounted on each of said blocks and movable in the groove thereof, means for holding the matrix-pieces adjustably in their companion block, and means for holding said blocks together, substantially as specified.

3. The improved mold for the manufacture of cellular cushion-tires, consisting of a plurality of supporting-blocks each of which has a longitudinal dovetailed mortise, a set comprising a plurality of matrix-pieces each of which has a dovetailed tenon engageable and movable in said mortise, means for holding the matrix-pieces in adjusted position in the mortise of their companion blocks, respectively, and means for holding said supporting-blocks together, substantially as described.

4. The improved mold for the manufacture of cellular cushion-tires, consisting of a plurality of supporting-blocks each of which has a longitudinal dovetailed mortise, a set comprising a plurality of matrix-pieces each of which has a dovetailed tenon engageable and movable in said mortise, a holding-plate on the ends of each supporting-block secured thereto, and means for holding said supporting-block together, substantially as shown.

5. The improved mold for the manufacture of cellular cushion-tires, consisting of three supporting-blocks each of which has a central, longitudinally-extending, dovetailed mortise, one of which blocks has a longitudinal projecting key and another of which blocks has a longitudinal groove with which said key is engageable and the third of which blocks fits over and embraces the tops of said first and second blocks, a set for each of said blocks comprising a plurality of matrix-pieces each of which has a dovetailed tenon engageable with the mortise of the companion block and a plate closing each end of each of said mortises, substantially as set forth.

6. The improved mold for the manufacture of cellular cushion-tires, consisting of three supporting-blocks each of which has a central longitudinally-extending, dovetailed mortise, one of which blocks has a longitudinal projecting key, the second of which blocks has a longitudinal groove with which said key is engageable and the third of which blocks fits over and embraces the tops of said first and second blocks, a set for each of said blocks comprising a plurality of matrix-pieces each of which has a dovetailed tenon engageable with the mortise of the companion block, a plate closing each end of each of said mortises, and a frame adapted to receive and hold the first and second of said supporting-blocks, together with means for clamping said frame to the two blocks just above, substantially as described.

7. In a mold for the manufacture of cellular cushion-tires, the combination of a mold-section having a longitudinal groove, a plurality of matrix-pieces adjustably mounted and held in said longitudinal groove and each having an upper concave end formed in the arc of a circle of a certain radius, and a plurality of other matrix-pieces adjustably mounted and held in said longitudinal groove and each having an upper concave end formed in an arc of a circle of a radius less than that of the arc first mentioned and also having radial slots extending from the last-mentioned concave end, said matrix-pieces respectively of this first set alternating with and in contact with said matrix-pieces, respectively, of the second set, substantially as and for the purpose specified.

8. In a mold for the manufacture of cellular cushion-tires, the combination of three mold-sections, each having a longitudinal groove, a set for each of said mold-sections comprising a plurality of matrix-pieces adjustably mounted and held in said longitudinal groove and each having a concave end formed in the arc of a circle one hundred and twenty degrees in extent and of a certain radius, and a set for each of said mold-sections comprising a plurality of matrix-pieces adjustably mounted and held in said longitudinal groove and each having a concave end formed in the arc of a circle one hundred and twenty degrees in extent and having a radius less than that of the arc first mentioned and also having radial slots extending from the last-mentioned concave end, said matrix-pieces of the first set alternating with and in contact with said matrix-pieces, respectively, of the second set, and means for holding said mold-sections in operative contact, substantially as specified.

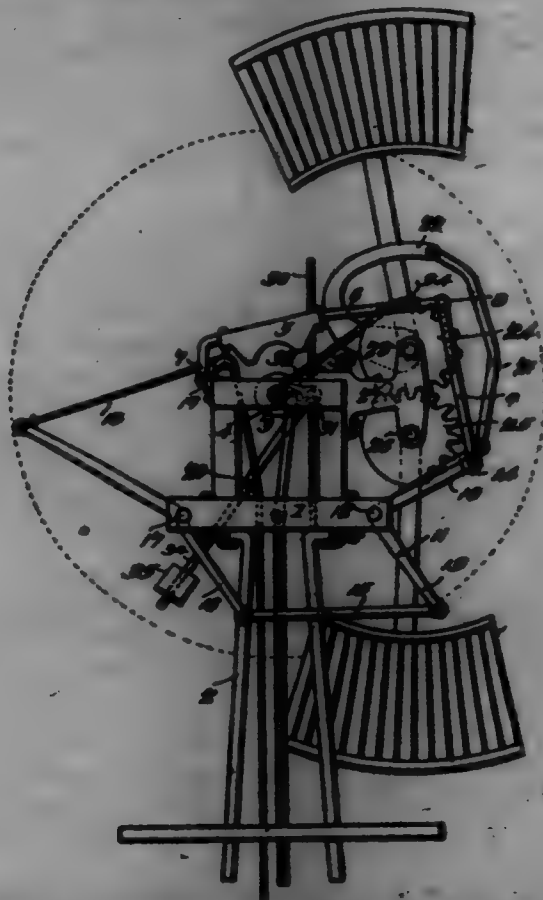
9. In a mold for the manufacture of cellular cushion-tires, a matrix composed of detachable and adjustable plates extending in juxtaposition vertically in planes at right angles to the axial plane of the mold, the inner edges of said plates and the surfaces of said plates contiguous to said edges constituting the molding-surfaces of the matrix, substantially as described.

10. In a mold for the manufacture of cellular cushion-tires, a matrix composed of two sets of detachable and adjustable plates extending in planes at right angles with the axial plane of the mold, one set of said plates having when assembled a central circular aperture of a certain diameter and the other set of said plates having when assembled a central circular aperture of a less diameter from which extend radial slots, said sets being arranged with one of the plates of the first set in alternation with

and in contact with one of the plates of the second sort is a series the entire length of the mold, substantially as specified.

11. The improved mold for the manufacture of cellular cushion-tires herein described, consisting of the combination of the supporting-blocks A, B and C each having angular faces as shown and fitting together on their contiguous faces, each of which blocks has an inwardly-flaring longitudinal groove opening into a dovetailed mortise, a spline connection between the blocks A and B, the frame F having the screw-clamping ends J and adapted to fasten the blocks A and B together, a set of matrix-plates D for each of the blocks A, B and C and each having a dovetailed tenon, engageable with the mortise of its companion block and each having a concave end in an arc comprising one-third of a circle of a certain diameter, a set of matrix-plates E for each of the blocks A, B and C and each having a dovetailed tenon engageable with the mortise of its companion block and each having a concave end in an arc comprising one-third of a circle of a less diameter than the first-named circle, said matrix-plates D, respectively, being in contact with said matrix-plates E, respectively, and holding-plates closing the ends of said mortises, respectively, all arranged substantially as shown and for the purpose specified.

698,116. WINDMILL. ERIC C. RUT, Wrentham, N. D. Filed Jan. 20, 1902. Serial No. 59,332. (No model.)



Claim.—1. In a windmill, the combination of a rotary frame, a main vane carried by the rotary frame and capable of partial rotation to turn it from a vertical to a horizontal position, a pair of supplemental vanes arranged normally in an upright position and adapted to swing therefrom to approximately a horizontal position to form a vane at an angle to the main vane for turning the wind-wheel out of the wind, gear-meshing with each other and connected with the supplemental vanes, and connections between the supplemental vanes and the main vane, substantially as and for the purpose described.

2. In a windmill, the combination of a rotary frame, a wind-wheel shaft provided with a brake-wheel, a main vane having a horizontal shaft mounted on the frame and provided with a short arm, a supplemental vane arranged normally in an upright position and adapted to swing to an approximately horizontal position at an angle to the main vane, and connected with the said arm, whereby the main vane will be partially rotated when the supplemental vane is actuated, a brake-lever having a shoe arranged to engage the brake-wheel, and means for oscillating the brake-lever simultaneously with the supplemental vane, substantially as described.

3. In a windmill, the combination of a rotary frame, a wind-wheel shaft having a brake-wheel, a main vane journaled on the frame and capable of partial rotation, supplemental vanes, gears connected with the supplemental vanes and meshing with each other to cause the said supplemental vanes to oscillate in unison, means for connecting the supplemental vanes with the main vane, an arm connected with the supplemental vane, a bell-crank lever having diverging arms, one of the arms being

connected with the said arm, a brake-lever connected with the other diverging arm, and an operating-lever connected with the bell-crank lever, substantially as described.

4. In a windmill, the combination of a rotary frame, a main vane movably mounted on the frame to arrange it in an effective position and to carry it to an ineffective position, supplemental vanes mounted on the frame and normally extending upward and downward therefrom and capable of swinging simultaneously in opposite directions and adapted to be arranged approximately in a horizontal position to form a vane at an angle to the main vane, and means for connecting the main vane with the supplemental vanes, whereby the main vane will be arranged in an ineffective position when the supplemental vanes are in substantially a horizontal position, substantially as described.

698,117. PAPER BOX. ARTHUR C. JORDAN, Annapolis, Va. Filed Aug. 9, 1901. Serial No. 71,542. (No model.)



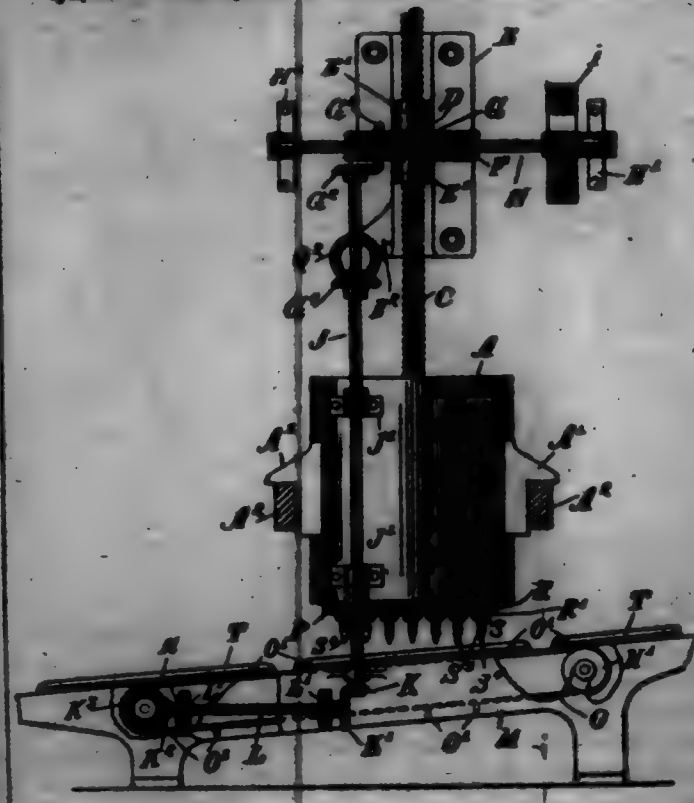
Claim.—The herein-described paper-box body having lips G struck and extending upwardly from its bottom at points adjacent to its ends, and also having its sides provided with projecting corner-flaps B to bear against the inner sides of its ends, and the said ends provided with reinforcement-flaps E of a die to fold inwardly on the inner sides of the ends and corner-flaps and extend to the bottom so as to entirely cover said ends and corner-flaps and secure the same in place, and further having the locking-flaps H arranged on and parallel to the bottom and divided by creases from the flaps E, and provided, in turn, with the transverse creases I resting in a dead-center, as and for the purpose set forth.

698,118. MANUFACTURE OF PAST-FIBER PULP. AUGUST KALHARR, Budapest, Austria-Hungary. Filed Aug. 17, 1901. Serial No. 73,572. (No specimens.)

Claim.—1. A process for the manufacture by mechanical agencies of past-fiber pulp for use in the production of paper, millboard and the like, consisting in washing and opening the raw material, in subjecting it to intermittent compressions removing it from the apparatus and allowing it to settle and in again subjecting it to intermittent compressions, substantially as described.

2. A process for the manufacture by mechanical agencies of past-fiber pulp, for use in the production of paper, millboard and the like, consisting in washing and opening the raw material, in subjecting it to intermittent compressions, removing it from the apparatus and allowing it to settle and in again subjecting it to intermittent compressions, under high air-pressure, substantially as described.

698,119. APPARATUS FOR TWISTING MAGADONOL. EDWARD E. KLEMMER, New York, N. Y., assignor to Frederick Danesi, Brooklyn, N. Y. Filed Apr. 2, 1901. Serial No. 54,107. (No model.)



Claim.—1. An apparatus for twisting material comprising a press provided with a plurality of apertures through which the dough may be forced, a vertical plunger for pressing the dough through the said apertures, rotary twisting devices mounted adjacent the said apertures and in communication therewith and opening laterally outwardly whereby in their rotary movement to impart a spiral or twisted form to the said material as it leaves the press.

2. An apparatus for twisting material comprising a press provided with a plurality of apertures through which the dough may be forced, a vertical plunger for pressing the dough through the said apertures, rotary twisting devices mounted adjacent the said apertures and in communication therewith and opening laterally outwardly whereby in their rotary movement to impart a spiral or twisted form to the said material as it leaves the press, and means connected with the said rotary twisting devices and with the operative mechanism of the press to impart motion simultaneously to the said vertical plunger and the said twisting devices.

3. An apparatus for twisting material, comprising a press provided with a plurality of apertures through which the dough is forced, devices mounted adjacent to said apertures for imparting a spiral or twisted form to the material as it passes therethrough, a conveyor mounted beneath the said twisting devices to receive the twisted material therefrom, and devices for imparting motion simultaneously to the operative mechanism of the press to the several twisting devices, and in the conveyor, whereby they operate in suitable relative speeds.

4. In an apparatus for twisting material, a twisting-die formed with a central bore adapted to receive the material therethrough, and opening laterally outwardly, the said die being adapted to rotate, whereby to impart a spiral or twisted form to the material.

5. In an apparatus for twisting material, a twisting-die formed with a central bore, adapted to receive the material therethrough, and opening laterally outwardly near the center of the die, and provided with a finger or projection at one side of said opening whereby to deflect the material as it leaves the die.

6. In an apparatus for twisting material, a twisting-die formed with a central bore adapted to receive the material therethrough and opening laterally outwardly, the said die being adapted to rotate, whereby to impart a spiral form to the material, and the lower end of the said die being adapted to the opening thereof being tapered or conical in form.

7. An apparatus for twisting material comprising a press provided with an aperture through which the dough is forced, a rotary twisting-die mounted in operative relation to the said aperture and formed with a central bore adapted to receive the material therethrough, and opening laterally outwardly and provided with a depending shaft beneath the said opening and being adapted to rotate whereby to impart a spiral or twisted form to the material.

8. An apparatus for twisting material, comprising a press formed with a central aperture therein, a gear-wheel mounted beneath the said aperture and revolvable around it, a twisting-die connected with the said gear-wheel and provided with a central bore communicating with the aperture of the press, and wider than the lower end thereof, and opening laterally of the said twisting-die, the said die being formed with a tapered or conical end beneath the said opening; and means for imparting motion to the said gear-wheel.

9. An apparatus for twisting material, comprising a press provided with a plurality of conical apertures through which the dough is forced, twisting devices mounted beneath the said apertures and provided with central bores wider than the lower ends of the said apertures and opening laterally of the twisting-die, and means for imparting to the material a spiral or twisted form as it leaves the said openings.

10. An apparatus for twisting material, comprising a press provided with a plurality of apertures through which the dough is forced, rotary twisting devices mounted beneath the said apertures and provided with central bores communicating with said apertures and opening laterally of the said die, gear-wheels connected with and surrounding said die and revolvable around the apertures, and a gear-wheel engaging and operating the gears of the said twisting devices.

11. An apparatus for twisting material, comprising a press provided with a plurality of apertures through which the dough is forced, rotary twisting devices mounted beneath the said apertures and formed with central bores communicating with said apertures and opening laterally of the said die, gear-wheels connected with and surrounding the twisting devices and revolvable around the apertures, a gear-wheel meshing with and operating the gears of the said twisting devices, a conveyor or apron beneath the said die, and means for simultaneously operating the last-named gear-wheel, the operative mechanism of the press, and the said apron.

12. An apparatus for twisting material, comprising a press provided with a plurality of apertures through which the dough is forced, rotary twisting devices mounted beneath the said apertures and formed with central bores communicating with said apertures and opening later-

ally of the said die, gear-wheels connected with and surrounding the twisting devices and revolvable around the apertures, a gear-wheel meshing with and operating the gears of the said twisting devices, a conveyor or apron supported beneath the twisting devices in an inclined position, descending in the direction of its movement, and means for imparting to the material a spiral or twisted form as it leaves the said openings.

13. An apparatus for twisting material, comprising a press provided with a plurality of apertures through which the dough is forced, rotary twisting devices mounted beneath the said apertures and formed with central bores communicating with said apertures and opening laterally of said die, gear-wheels connected with and surrounding the twisting devices and revolvable around the apertures, a gear-wheel meshing with and operating the gears of the said twisting devices, a conveyor or apron mounted beneath the said twisting device in an inclined position descending in the direction of its movement, trays detachably connected with the said apron, means upon the apron for catching the trays and carrying them in an inclined position beneath the twisting device, and means for simultaneously imparting motion to the gear-wheel which operates said twisting device, to the operative mechanism of the press, and to the said apron.

14. An apparatus for twisting material, comprising a press formed of a cylinder provided in its bottom with a plurality of conical apertures through which the dough is forced, and a screw-plunger, a shaft for operating the same, means connecting the said shaft and the screw-plunger whereby to operate the same, a vertical shaft connected with the said plunger-operating shaft and provided near its lower end with a spur-gear, a parallel vertical shaft geared in connection therewith and provided with a parallel spur-gear, a plurality of smaller gears revolvable mounted beneath the apertures of the press and provided with depending yokes, the said gear-wheels being geared together in connection with the spur-gears of the vertical shaft, a plurality of twisting-dies inserted into the said yokes and formed with central bores communicating with the said apertures and opening laterally outwardly near the center of the die and wider than the lower ends of the said apertures, the said twisting-dies being provided with tapered or conical ends, a conveyor or apron mounted beneath the said twisting-dies in an inclined position, descending in the direction of movement, trays detachably connected with the said apron, devices upon the said apron for catching the said trays and carrying them in an inclined position beneath the die, means for rotating the said apron, and means connected with one of the vertical shafts for operating the said rotating means.

15. In a material-press, the combination with a cylinder provided with a plurality of apertures therein and means for forcing the dough therethrough, of an inclined conveyor or apron mounted beneath the said cylinder and provided with means for rotating the same, trays detachably connected with the said apron and devices upon the said apron for catching the said trays and carrying them in an inclined position beneath the die.

16. In a material-press, the combination with a cylinder having an aperture therein and means for forcing the dough therethrough, of a rotary twisting-die mounted beneath the said aperture and communicating therewith, the upper portion of the said die which is in communication with the aperture being externally closed and provided with a central bore which extends partially through the said die and opens laterally at the bottom of said bore, the said die being provided with a depending shaft beneath the said aperture.

17. In a material-press, the combination with a cylinder having an aperture therein and means for forcing the dough therethrough, of a rotary twisting-die mounted beneath the said aperture and communicating therewith, the upper portion of the said die which is in communication with the aperture being externally closed and provided with a central bore which extends partially through the said die and opens laterally at the bottom of said bore, and a tapered or conical shaft or lower end depending from the die beneath the said opening.

18. In a material-press, the combination with a cylinder having an aperture therein and means for forcing the dough therethrough, of a rotary twisting-die mounted beneath the said aperture and communicating therewith, the upper portion of the said die which is in communication with the aperture being externally closed and provided with a central bore which extends partially through the said die and opens laterally at the bottom of said bore, and a tapered or conical shaft or lower end depending from the die beneath the said opening, and means for imparting rotary motion to the said die whereby when the dough is forced therethrough and outwardly through the lateral aperture it will be wound around the tapered or conical lower end and given a spiral form.

698,120. KITCHEN STOVE. EDWARD W. LEASE, Boston, Wm. Leach, assignor of leasehold to William A. Horton, Boston, Wm. Filed May 2, 1901. Serial No. 54,407. (No model.)

Claim.—1. A kitchen utensil consisting of a suitable handle and a curved spring-blade attached at one end to the handle with its back toward the handle, and having a spiral edge capable of yielding backward toward the handle gradually from its free toward its fixed end, substantially as described.

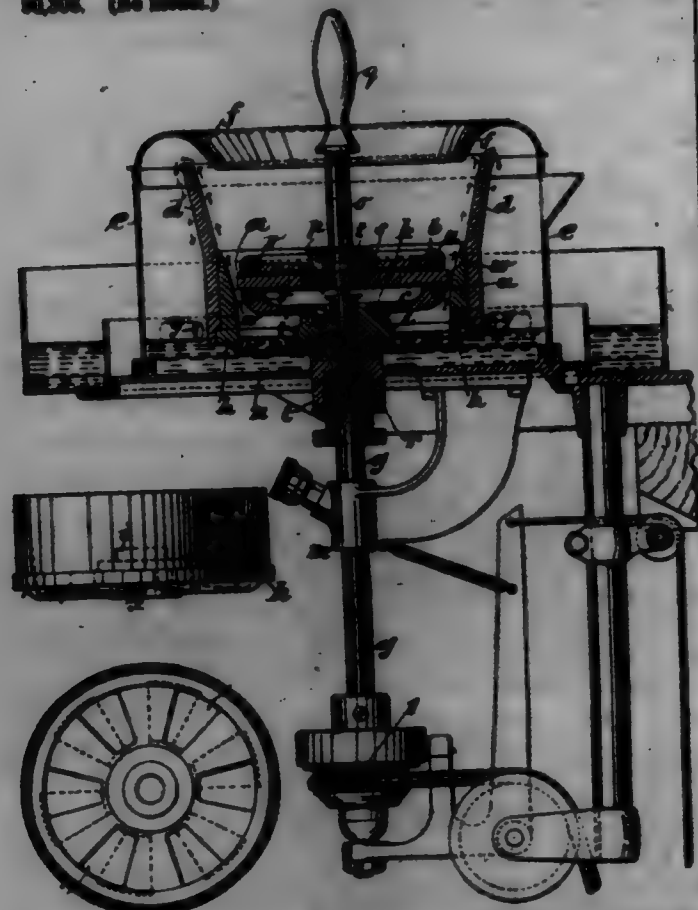


2. A kitchen utensil consisting of a suitable handle and a rotatable spiral spring-blade attached at one end to the handle with its back toward the handle, and having a spiral edge capable of yielding axially from its free end gradually toward its fixed end, substantially as described.

3. A kitchen utensil consisting of a suitable handle and a curved spring-blade adapted to be attached at one end to the handle and having a spiral edge capable of yielding backward toward the handle, said handle and blade having studs and openings which are arranged to be engaged with each other by the compression and expansion of the blade, substantially as described.

4. A kitchen utensil consisting of a rotatable spiral spring-blade and a handle having a flanged socket-plate in which the back of the blade is detachably fitted, the blade and handle being provided with interlocking studs and openings, substantially as described.

698,121. APPARATUS FOR HARDENING ROTARY CUTTERS. HENRY LINDSEY, Milner, England. Filed Jan. 14, 1902. Serial No. 90,306. (No model.)



Claim.—1. In apparatus for hardening rotary cutters, a vertically-mounted shaft, a vessel and two disks on the same, an annular space between the interior of the said vessel and the periphery of the said disks, and means for rotating the said shaft, the said disks being adapted to receive between them the cutter to be hardened and to rotate with the said shaft and vessel and the said space forming a passage for the hardening liquid, all combined substantially as and for the purpose set forth.

2. In an apparatus for hardening rotary cutters, a vertically-mounted shaft, a vessel and two cutter-holding disks on the same, a second vessel surrounding the first-named vessel, buckets in the bottom of the latter

and an annular space between the periphery of the said disks and the interior of the said first vessel and means for rotating the said shaft, the said second vessel holding the hardening liquid and the said buckets raising and circulating it from the latter through the said annular space against the teeth or cutting edges of the cutter to be hardened, all combined substantially as and for the purpose set forth.

3. In an apparatus for hardening rotary cutters, a vertically-mounted shaft, a vessel and two cutter-holding disks on the same, an annular space between the interior of the said vessel and the periphery of the said disks, a removable spindle in the said shaft carrying the cutter to be hardened and means for rotating the said shaft, the lower of the said disks supporting and the upper one resting upon the said cutter, all combined substantially as and for the purpose set forth.

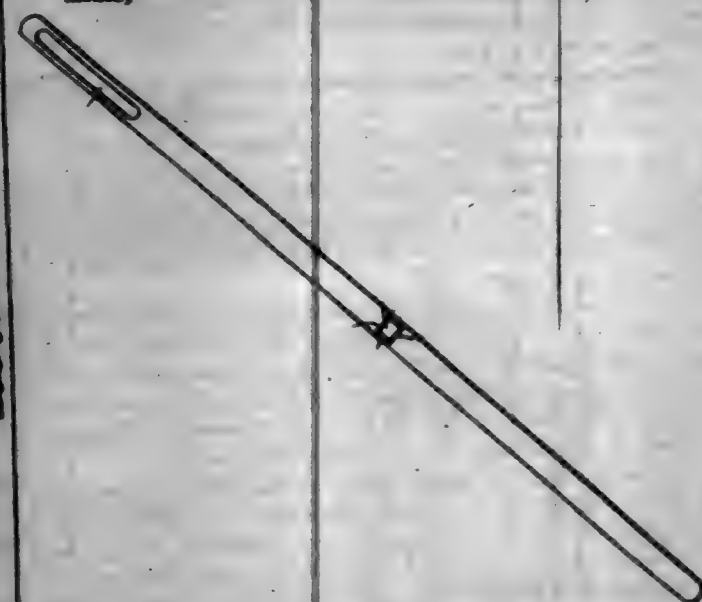
698,122. COMBINED PENCIL-HOLDER AND SHARPENER. CLIFTON C. LOVISOY, Providence, R. I. Filed July 22, 1900. Serial No. 24,512. (No model.)



Claim.—1. In a device of the class described the combination with a tubular member adapted to receive a pencil in one end and a rubber eraser in the other, and having an opening formed in its side, of a pencil-sharpener secured in said tube opposite the opening therein, blocks fitted in the ends of the opening and engaging the end of the sharpener in hold the latter in place, and a rotatable cover having an opening corresponding in position and shape to the opening in the tube, said cover adapted when rotated to close the opening in the tube and conceal the sharpener.

2. As an improved article of manufacture the combination of a tubular member adapted to receive a pencil in one end and a rubber eraser in the other, said member having a longitudinal opening formed in its side and a raised band near one end, a file secured in the tube opposite the opening therein, blocks closing the end of the opening and engaging the end of the file to hold the latter in place and a rotatable cover mounted on the tube between the raised band and the eraser, to prevent its longitudinal movement, said cover having an opening corresponding to the opening in the tube to permit access to the file, substantially as specified.

698,123. WARP-STOP-MOTION DETECTOR. EDWARD MANNETT, Hopkinton, Mass., assignor to Draper Company, Hopkinton, Mass., a Corporation of Maine. Filed Dec. 2, 1901. Serial No. 25,122. (No model.)



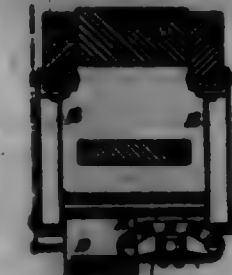
Claim.—1. As a new article of manufacture, a detector-heddle for looms, made of an elongated, narrow strip of sheet metal having a longitudinal slot and a warp-receiving opening, and transverse, rounded wear members of greater thickness than the strip, secured in place at the top and bottom of the warp-receiving opening, to present convex bearing-surfaces for the warp and laterally extended beyond the flat faces of the heddle.

2. As a new article of manufacture, a warp-stop-motion detector made of an elongated, narrow strip of sheet metal having a substantially rectangular warp-receiving opening, and wear members substantially round in cross-section and having dotted ends, let into the said opening at the top and bottom thereof to present convex bearing-surfaces for the warp, the dotted ends embracing the sides of the opening.

3. As a new article of manufacture, a warp-stop-motion detector made of an elongated, narrow strip of sheet metal having a substantially rectangular warp-receiving opening, and means secured within said warp-

receiving opening to present convex bearing-surfaces for the warp, said means projecting beyond the flat faces of the detector, substantially as and for the purpose set forth.

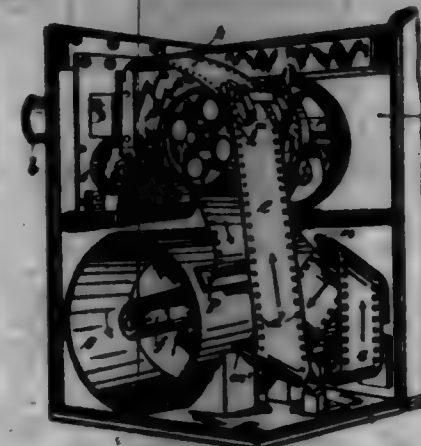
698,124. CONTACT APPARATUS FOR ELECTRIC RAILWAYS. ALVAN MARBLE, Rochester, Pa. Filed Jan. 12, 1901. Serial No. 62,294. (No model.)



Claim.—1. In an electric-railway system, a contact device consisting of a contact-shoe, pivoted links at the respective ends of said shoe, and a flexible spring in the respective ends of which said links are pivoted, substantially as described.

2. A contact-shoe for electric railways, consisting of a contact-plate, a yielding spring, and links connecting the ends of the spring with the contact-plate, substantially as described.

698,125. TAKING-UP APPARATUS FOR KINETOGRAPHES. O. KAR HENRIKSEN, Berlin, Germany. Filed May 15, 1901. Serial No. 60,604. (No model.)



Claim.—1. In an apparatus of the character described, the combination with the supply and take-up rolls arranged side by side as described, of guides *a'*, arranged diagonally and a film adapted to travel from the supply-roll over the said guides the guide *a'* being so arranged that the film after passing over the same will be coincident with a vertical plane passing through the objective as set forth.

2. In an apparatus of the character described, the combination with the supply and take-up rolls arranged side by side, of guides *a'*, arranged diagonally, a film adapted to travel from the supply-roll over the said guides, the guide *a'* being so arranged that the film after passing over the same will be coincident with a vertical plane passing through the objective, and a casing surrounding the rolls and being provided with slots for the passage of the film.

3. In an apparatus of the character described, the combination with the supply and take-up rolls arranged side by side, of guides *a'* arranged diagonally, a guide-roller *c*, the drum *b* provided with pins, and a drum *d*, all adapted for cooperation as set forth.

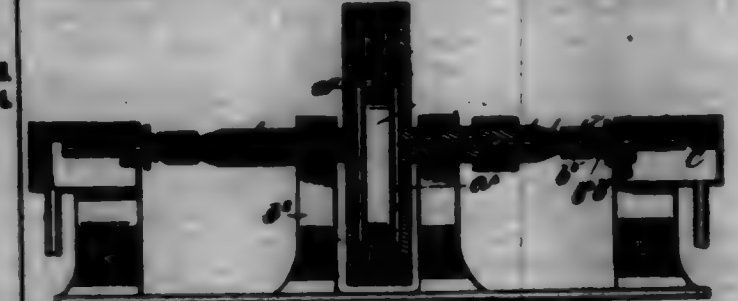
698,126. GRINDING OR POLISHING MACHINES. JAMES H. HANCOCK, New York, N. Y., assignor to the White Outing Company, New York, N. Y., a Corporation of New Jersey. Filed June 1, 1901. Serial No. 62,297. (No model.)

Claim.—1. An apparatus for grinding or polishing articles, comprising a movable body, means for moving the body, and means for refrigerating the same, the refrigerant not being in direct contact with the exterior of the body, substantially as described.

2. An apparatus for grinding or polishing articles, comprising a movable body carrying an abrading-surface, means for giving motion to the body, and means for refrigerating the same, the refrigerant not being in direct contact with the exterior of the body, substantially as described.

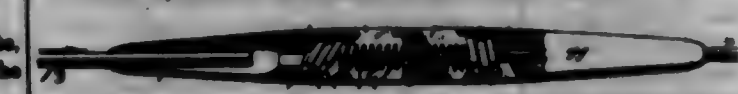
3. An apparatus for grinding or polishing articles, means for preventing generation of heat therein consisting of a refrigerant in direct contact with the abrading-surface of the body, substantially as described.

4. An apparatus for grinding or polishing articles, comprising a movable body, and means for refrigerating the same internally, substantially as described.



5. An apparatus for grinding or polishing articles, comprising a movable body, and means for refrigerating the same internally and externally substantially as described.

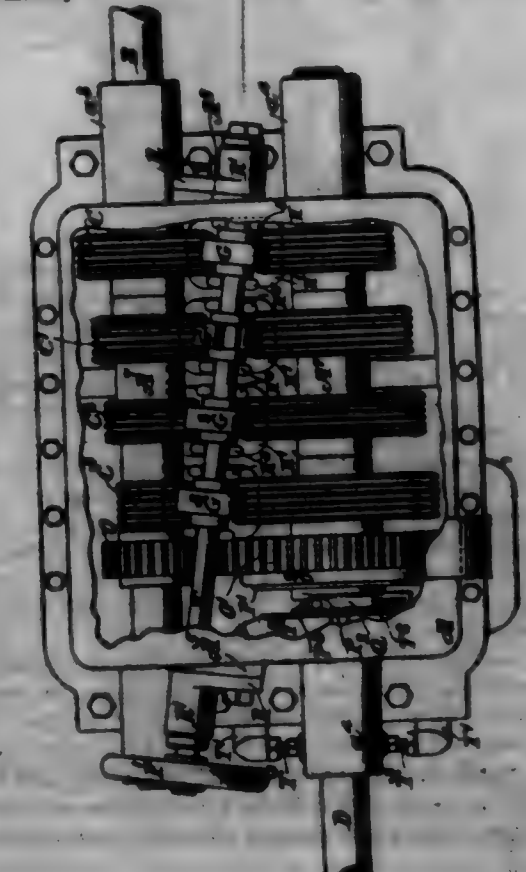
698,127. WIRE-COUPLING. GEORGE L. MITCHELL, Cincinnati, Ohio, assignor of one-half to James H. Olson, Cincinnati, Ohio. Filed June 12, 1901. Serial No. 64,224. (No model.)



Claim.—1. A wire-coupling consisting of a sleeve having centrally-located holes at each end and each intended to receive a wire, a chamber at the inner end of each hole, the end wall of which forms a shoulder or abutment around each inner end, a plurality of locking-plates in each chamber and spacing-washers to separate them to permit each of the former to act independently, all being perforated and aligned to permit the projecting end of the inserted wire to enter and pass through them for engagement which latter is with the locking-plates only, the surface of the enlarged base of the washers being recessed to prevent any engagement thereof.

2. A wire-coupling consisting of a sleeve having centrally-located holes at each end and each intended to receive a wire, a chamber at the inner end of each hole, the end wall of which forms a shoulder or abutment around each inner end, a plurality of perforated locking-plates adapted to receive and hold the projecting end of the inserted wire, spacing-washers between these locking-plates to permit them to act each independently, they having also perforations, but of larger size than those in the locking-plates, the perforations in all these latter and in the washers being aligned to permit a wire end to enter, and a spring to hold them in proper position and alignment previous to the entrance of the wire.

698,128. DIFFERENTIAL AND REVERSING GEAR. JAMES H. MITCHELL, Philadelphia, Pa. Filed Oct. 22, 1900. Serial No. 22,515. (No model.)

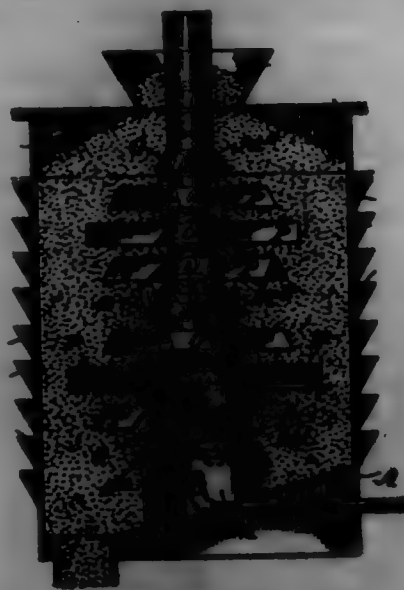


Claim.—1. A device for transmitting rotary motion with varying speeds and directions having in combination two shafts, a series of power-transmitting devices arranged to couple said shafts and each coupling device to transmit its power at a different speed but in the same direction, means for connecting and disconnecting each of said devices, an additional power-transmitting device arranged to couple the shafts so as to rotate the driven shaft in the reverse direction to that in which it is driven by the series of shafts, a friction-brake, connected clutch and brake cones, as F F', and means for shifting said cones to connect the reversing device or apply the brake.

2. A device for transmitting rotary motion with varying speeds and directions having in combination two shafts, a series of frictional power-transmitting devices arranged to couple said shafts and each coupling device to transmit its power at a different speed but in the same direction, means for connecting and disconnecting each of said devices, an additional power-transmitting device arranged to couple the shafts so as to rotate the driven shaft in the reverse direction to that in which it is driven by the series of frictional power-transmitting devices, a friction-brake, connected clutch and brake cones, as F F', and means for shifting said cones to connect the reversing device or apply the brake.

3. A device for transmitting rotary motion with varying speeds and directions having in combination two shafts, a series of frictional power-transmitting devices arranged to couple said shafts and each coupling device to transmit its power at a different speed but in the same direction, means for connecting and disconnecting each of said devices, an additional power-transmitting device arranged to couple the shafts so as to rotate the driven shaft in the reverse direction to that in which it is driven by the series of frictional power-transmitting devices, a friction-brake, connected clutch and brake cones, as F F', and means for shifting said cones to connect the reversing device or apply the brake.

698,129. STORAGE-TANK. HENRY R. HINE, New York, N. Y., assignor to the American Sugar Refining Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 12, 1900. Serial No. 36,663. (No model.)



Claim.—1. A storage-tank, comprising a perforated casing, a perforated ventilating-pipe located within the tank, and a series of conical rings surrounding said pipe and superposed one upon the other.

2. A storage-tank, comprising a perforated casing, a perforated ventilating-pipe located within the tank, and a series of conical rings having radial wings projecting therefrom and surrounding said pipe and superposed one upon the other.

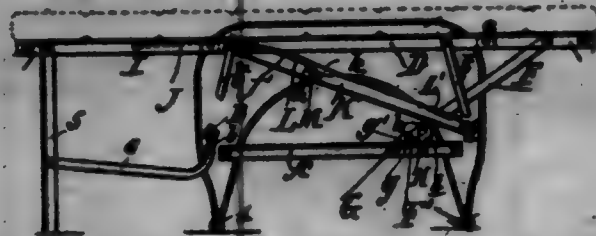
3. A storage-tank, comprising a perforated casing, a perforated ventilating-pipe within the tank, a series of ventilating-rings provided with wings superposed one upon the other and around said pipe and having said wings opened as regards each other and the interior of the tank.

4. A storage-tank, comprising a perforated casing, and a perforated ventilating-pipe formed of sections of decreasing diameter from the bottom upward and located within the tank.

5. A storage-tank, comprising a perforated casing, a perforated ventilating-pipe formed of sections of decreasing diameter from the bottom upward, and a series of ventilating-rings superposed one upon the other and surrounding said pipe.

6. A storage-tank, comprising a perforated casing, a top having a feed-opening, an inclined bottom having a delivery-pipe, and a perforated ventilating-pipe of decreasing diameter from the bottom upward within the tank.

698,180. SOFA-BEDSTEAD. ROBERT C. O'NEIL, New York, N. Y., assignor to Patrick R. Hickey, New York, N. Y. Filed Feb. 26, 1901. Serial No. 48,948. (No model.)

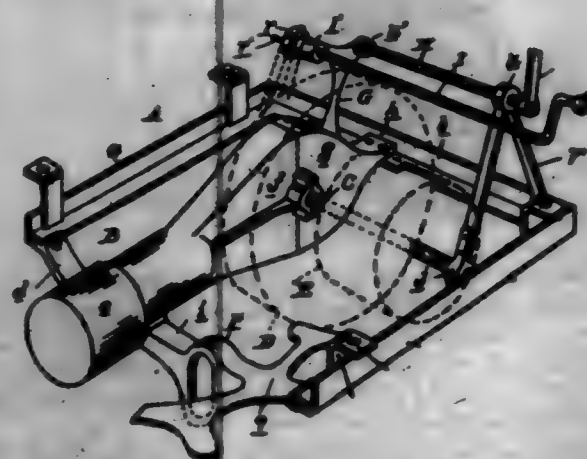


Claim.—1. In a sofa-bedstead, the combination, with a main frame embodying side bars and end uprights, and a pivoted extension attached thereto, of an approximately U-shaped support extending from said extension and embodying a horizontal part and extended arm, and a rail secured to each end upright and having respectively a stop for engaging the said support and a pawl for automatically throwing the support, substantially as shown and described.

2. In a sofa-bedstead, the combination, with a main frame embodying side bars and end uprights, and a pivoted extension attached thereto, of a U-shaped support pivoted to the said extension and having a longitudinal part, and a rail having a stop for engaging the support and a pawl for automatically throwing the support, and a wire rod and spring for maintaining frictional contact with the parts to keep them in position, and folding legs, substantially as shown and described.

3. In a sofa-bedstead, the combination, with a main frame embodying side bars and end uprights, and a pivoted extension attached thereto, of a U-shaped support pivoted to the said extension and having a longitudinal part, and a rail with a recess therein for engaging the support and a pawl for automatically throwing the support, and a wire rod and spring for maintaining frictional contact with the parts to keep them in position, and folding legs, substantially as shown and described.

698,181. MOTOR-VEHICLE. RALPH B. CLIM, Detroit, Mich. Filed Oct. 14, 1901. Serial No. 78,951. (No model.)



Claim.—1. In a motor-vehicle, the combination of a rigid motor-supporting frame, the motor-shaft journaled thereon, a bracket secured to the frame, a counter-shaft journaled therein and extending to the side of the frame, a crank for actuating said counter-shaft, and a gear connection from the counter-shaft comprising a clutch permitting the rotation of the motor-shaft independent of the counter-shaft or through the medium of said counter-shaft.

2. In a motor-vehicle, the combination with the body, of a supporting-frame therefor comprising side bars extending in adjacency to the sides of said body and secured thereto, cross-bars connecting said side bars and a motor extending longitudinally intermediate said side bars and rigidly connected to said cross-bars.

3. In a motor-vehicle, the combination with the body, of an angular supporting-frame therefor having parallel side bars extending in adjacency to and connected with the sides of said body, a motor-extending extending longitudinally across said frame and rigidly secured thereto, a motor-shaft extending transversely across said frame and a journal-bearing for said shaft secured to one of the side bars of said frame; the space between said bearing and casing being adapted to receive the fly-wheel and transmission-gearing.

4. In a motor-vehicle, the combination of a horizontally-arranged substantially rectangular frame, a motor-extending extending longitudinally across and rigidly secured in said frame, a frame extending upwardly from said horizontal frame, a motor-controlling shaft journaled therein, a body including said motor and frame and having its sides supported upon and in adjacency to the sides of said horizontal frame and an operating-

handle for said motor-controlling shaft extending without said body into proximity to the operator's seat.

5. In a motor-vehicle, the combination of a rigid motor-frame, the motor-shaft journaled thereon, a spring connection between the frame and motor, a drive-shaft from the motor-shaft in the drive-axis, a counter-shaft journaled on the motor-frame, and extending to the side thereof, an operating-crank for said shaft, and a drive connection between the counter-shaft and the motor-shaft permitting the rotation of the motor-shaft independently of the counter-shaft or through the medium of said counter-shaft.

6. In a motor-vehicle, the combination with a motor-frame, and its motor, of a yieldingly-supported body, a starting mechanism connected with the motor-shaft and comprising a counter-shaft extending to the side of the body, a bearing for the counter-shaft rigid on the motor-frame, and a crank on the counter-shaft at the side of the body.

7. In a motor-vehicle, the combination of a body, a rigid frame, the motor secured thereto, the motor-shaft, a starting-shaft journaled fixedly on said frame, a gear connection from the starting-shaft to the motor-shaft, and a permanently-attached crank for the starting-shaft projecting into proximity to the seat at the side of the body, and a clutch which permits the operation of the engine without turning the crank, but which permits the starting of the motor by rotating the crank.

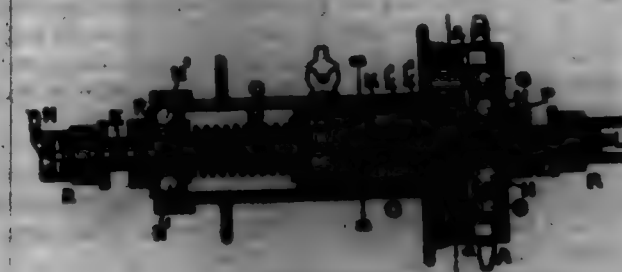
8. In a motor-vehicle, the combination with a motor, a frame upon which said motor is rigidly mounted and a body yieldingly supported on said frame, of a flexible starting-shaft having one end journaled in said frame and connected with said motor, upon one side of the vehicle, the opposite end of said shaft extending to the opposite side of the vehicle and out through a bearing in the side of the body and a hand-crank upon the free end of said shaft.

9. In a motor-vehicle, the combination with the motor, a frame upon which said motor is rigidly mounted and a body yieldingly supported upon said frame, of a flexible starting-shaft having one end journaled in said frame and connected with said motor, upon one side of the vehicle, the opposite end of said shaft extending to the opposite side of the vehicle and out through a bearing in the side of the body and a hand-crank upon the free end of said shaft.

10. A motor-frame comprising a U-shaped horizontal frame formed of angle-bar, a bar connecting the free ends of said frame and having a depressed portion intermediate its ends with a motor-supporting middle thereon, a motor comprising an engine having its cylinder rigidly secured to said middle and a rigid crank-axle extending to the opposite side of the frame and rigidly secured thereto.

11. In a motor-vehicle, the combination of a frame supporting the motor, its shaft and a transmission-gearing, brackets on the frame and shafts journaled in said brackets, a drive connection from one of said shafts to the motor-shaft for starting the motor, said connection including a clutch, and a connection from the other shaft to the transmission-gearing.

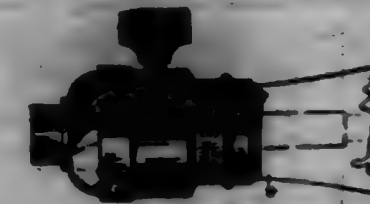
698,182. TWO-SPEED DRIVING-GEAR FOR CYCLES. WILLIAM H. PALMER, Birmingham, England. Filed May 7, 1902. Serial No. 15,781. (No model.)



Claim.—1. In a two-speed driving-gear for cycles an inner drive K' placed inside the sliding toothed drive K to act as a buffer against the cross-bar I and a buffer-spring on placed thereon in combination with the hollow sliding drive K, the inner pinion D, the hub a, pinions B, sprocket-wheel A, hollow spindle H, operating-rod L and cross-bar I inside the spindle, the spring M in the spindle, the chain H attached to the rod L, the retaining-rod R with rounded edges on the end of the spindle to prevent of the free movement of the chain H substantially as described.

2. In a two-speed driving-gear for cycles, an inner drive K' placed inside the sliding toothed drive K to act as a buffer against the cross-bar I, a buffer-spring on placed thereon in combination with the hollow sliding drive K, the inner pinion D, the hub a, pinions B, sprocket-wheel A, hollow spindle H, operating-rod L, and cross-bar I inside the spindle, the spring M on the spindle, the chain H attached to the rod L, the flexible band F connected to the chain, the operating-lever O attached to the frame, the motor O' and the catch c to retain the lever in position substantially as described.

698,188. INCANDESCENT-LAMP SOCKET. WILLIAM E. FURBER, Watertown, Conn., assignor to the Watertown Mfg. Co., Watertown, Conn., a Corporation. Filed Apr. 9, 1901. Serial No. 65,989. (No model.)



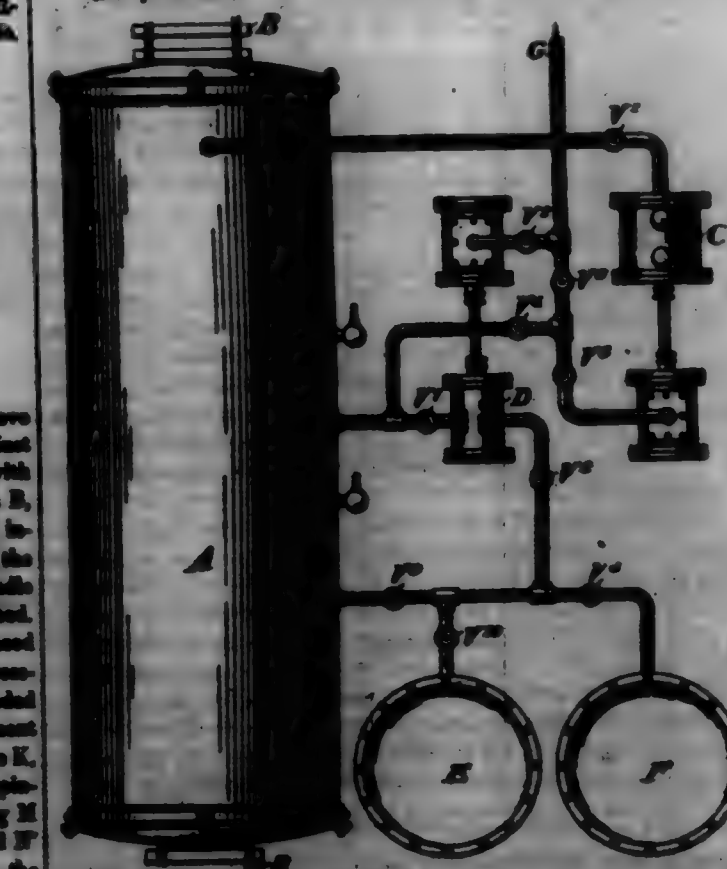
Claim.—1. In a lamp-socket, the combination with a non-conducting plug formed with a chamber, of a spring located within and secured to the floor of the said chamber, a contact-plate secured to the plug at the open end thereof so as to close the said chamber, and formed with a central opening and a lateral opening and with key-bearings, a contact-bracket secured to the inside of the plug, entering the said opening and carrying a terminal screw, and also carrying a threaded stud which extends through the said central opening and provides for the attachment of a lamp a portion of which impinges against the outer face of the said plate; and a key having bearing in the bearings of said contact-plate.

2. In a lamp-socket, the combination with a non-conducting plug having a chamber, of a spring located within and secured to the floor of the chamber, a bracket secured to the outside of the plug, carrying a terminal screw and connected with the said spring, a contact-plate secured to the plug over the open end thereof and formed with a central opening and a lateral opening and with key-bearings, a contact-bracket secured to the outside of the plug and carrying the other terminal screw and also carrying a threaded stud which extends through the said central opening and provides for the application of the lamp which impinges against the outer surface of the said plate, and a key having bearing in the said plate and provided with a contact-piece which, when the key is properly turned, makes a connection between the said spring and the said contact-plate.

3. A key for incandescent-lamp sockets consisting of one or more pieces of non-conducting material and provided with a transversely-arranged contact-piece opposite points of which are brought into play for closing the circuit through the socket, the said contact-piece being entirely insulated from the body of the key.

4. A key for incandescent-lamp sockets, consisting of one or more pieces of non-conducting material, and provided with a transversely-arranged contact-pin the opposite ends of which are brought into play for closing a circuit through the socket when the key is turned a quarter-turn.

698,184. PROCESS OF DRYING REDWOOD LUMBER. EDWIN B. PERLHUIS, Berkeley, Cal. Filed July 17, 1901. Serial No. 63,066. (No specimens.)



Claim.—The process of drying redwood lumber by application under a mechanically-induced pressure of air and gases saturated with wa-

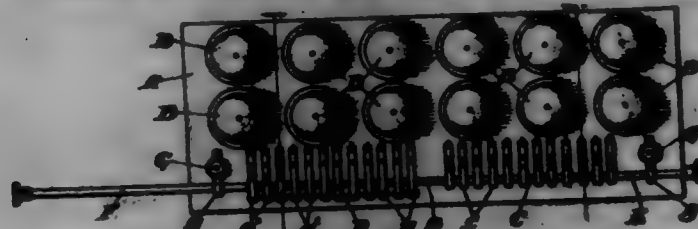
ter-vapor, followed by exhaustion of gases, air, vapor and up by a mechanically-induced vacuum and the subsequent filling of the vacuum in the wood with carbonic-acid gas, substantially as herein described.

698,185. BOTTLE. RICHARD W. FOLGER, New Haven, Conn. Filed Nov. 22, 1901. Serial No. 23,287. (No model.)



Claim.—A bottle formed with a neck-receiving pocket and an opening in said pocket through the side of the bottle, a coin in said pocket the edges of the pocket overlapping the edges of the coin, and an annular space around the pocket between it and the interior face of the bottle, substantially as described.

698,186. SERIES-MULTIPLE SWITCH. ALBERT A. FORTY, Evanston, Ill. Filed Feb. 24, 1902. Serial No. 99,108. (No model.)



Claim.—1. A series-multiple switch comprising a plurality of connections separately bridged between pairs of switch members, the corresponding members of the several pairs being arranged in sets, and a movable switch member for each set arranged to be connected with a circuit-terminal, said movable members constituting means for connecting up any desired number of said connections either in series or multiple as desired, substantially as described.

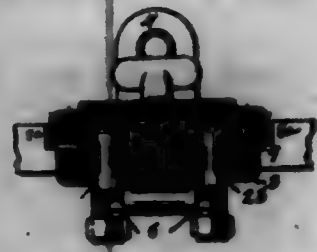
2. A series-multiple switch comprising a plurality of connections separately bridged between pairs of switch-fingers, the corresponding fingers of the several pairs being arranged in sets, contacts upon which the switch-fingers of one set normally rest, the contact for each finger being connected in a circuit to the switch-finger of the opposite set and next succeeding pair, and movable switch members for each set arranged for connection with the circuit-terminals and movable across the switch-fingers to make contact therewith and open the circuit-circuits, substantially as described.

3. A series-multiple switch comprising a plurality of separate connections, a corresponding number of fingers forming one set of switches, a corresponding number of fingers forming another set of switches, each connection being bridged across one pair of said fingers, a contact 'c' for each of the fingers of one set normally engaged thereby, means connecting the contacts 'c' with one of the fingers, a, and switch-bars E and F connected with the circuit-terminals and sliding across the respective sets of fingers to make successive contact with the several fingers thereof, the engagement of the bar F with each spring-finger d serving to separate the finger from its contact 'c', substantially as described.

698,187. BICYCLE HANDLE-BAR. JAMES T. FORTY, Detroit, Mich. Filed Mar. 10, 1901. Serial No. 61,328. (No model.)

Claim.—1. In combination with the head of a bicycle steering-post

provided with a cavity and with two journal-pins secured to the head and projecting through said cavity, a pair of handle-bars, each of which is provided on its inner end with arched racks, and with an annular row of teeth, a pair of plates adapted to engage over the journal-pins and one of which is provided with a double set of annular teeth adapted to engage with the notches between the teeth on the handle-bars, and means for securing the plates to the post-head with one of said plates engaging in the cavity, both of said plates being removable from the post-head, and reversible with respect to the post-head, substantially as described.



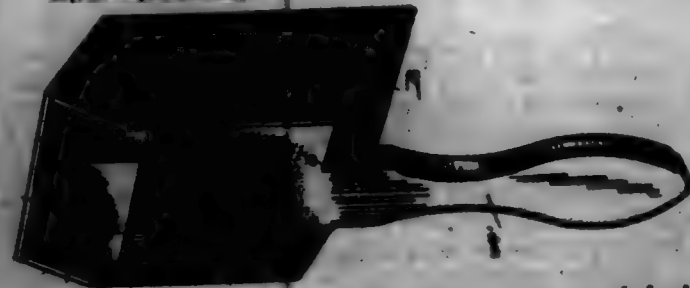
2. In combination with the head of a steering-post for bicycles, which is provided with a pair of journal-pins, handle-bars provided with arched racks, the handle-bars being adapted to engage over the journal-pins, and the arched racks being adapted to mesh together, a pair of plates adapted to engage over the journal-pins, said plates being removable and reversible with respect to the post-head, and arranged to engage on each side of the intermeshing ends of the handle-bars, a cam pressure-lever having fulcrum engagement with the journal-pins, and compressing engagement with one of said plates, substantially as described.

3. In combination with the head of a steering-post for bicycles which is provided with a pair of journal-pins, handle-bars provided with arched racks, the handle-bars being adapted to engage over the journal-pins and the arched racks adapted to mesh together, a pair of plates both of which are removable and reversible with respect to the post-head, and which are adapted to engage over the journal-pins arranged to engage on each side of the intermeshing ends of the handle-bars, a cam pressure-lever having a fulcrum engagement with the journal-pins and compressing engagement with one of said plates and an adjusting-screw arranged in the post-head to engage on the side of said plates opposite the cam, substantially as described.

4. In combination with the head of a steering-post for bicycles which is provided with a pair of journal-pins, handle-bars adapted to engage over the journal-pins provided with arched racks and with holding-teeth, a pair of plates removable from the post-head and reversible with respect thereto adapted to engage over the journal-pins and arranged to engage on each side of the ends of the handle-bars, one of said plates being provided with teeth adapted to engage in the notches between the teeth on the handle-bars, springs interposed between the plates, and means for forcing the plates into engagement with the handle-bars against the pressure of said springs, substantially as described.

5. In combination with a bicycle steering-post provided with a head and with journal-pins projecting therefrom, a reversible handle-bar connection therewith, comprising a pair of plates arranged to engage the handle-bar ends between them and to be themselves engaged and held with either plate contiguous to the post-head, one of said plates being provided with teeth adapted to engage in the notches between teeth on the handle-bars, substantially as described.

698,188. SCRAPER. ADOLF EMM, New York, N. Y., assignor to Dora Bitch, New York, N. Y. Filed June 20, 1901. Serial No. 99,211. (No model.)



Claim.—1. In a device of the nature indicated, a receptacle having walls, a handle integral with one of said walls, and a scraping member, substantially as described.

2. In a device of the nature indicated, a receptacle-wall having a reduced handle integral therewith and extending therefrom, a bottom having a cut-away portion fitting about said handle, and a scraping member, substantially as described.

3. In a device of the nature indicated, a receptacle having walls upon all sides and the top and bottom, the front wall being of less height than the distance between said top and bottom, whereby an opening is

left at the upper forward corner, and a scraping member projecting beyond said opening, substantially as described.

4. In a device of the nature indicated, a receptacle, a handle therefor, and a scraping member having lateral adjustment with relation to said handle, substantially as described.

5. In a device of the nature indicated, a receptacle having an opening leading thereto, the wall of said receptacle adjacent said opening having a slot therein, a scraping member fitting in said slot but of less width than said opening, whereby said scraping member can be adjusted laterally in said slot, and a handle upon said receptacle, substantially as described.

6. A scraping member for devices of the nature indicated, comprising an extension, means for attaching said extension to a receptacle, and a scraping-blade upon said extension and at an angle thereto, substantially as described.

7. A scraping member for devices of the nature indicated, comprising a body portion adapted to be secured to a receptacle, an angular extension upon said body portion, and a scraping-blade upon said extension and at an angle thereto, substantially as described.

698,189. MECHANISM FOR TRIMMING SLATS. JOSEPH EMMA, Jr., Hoboken, Ind., assignor to Harscoite Woodwork Company, Chicago, Ill., a Corporation. Filed July 20, 1901. Serial No. 79,679. (No model.)



Claim.—1. In a slat-trimming machine, the combination with the cutter-knife and with a support for the slat, of means for automatically delivering the slat in lateral direction into the path of the cutter-knife, and means for withdrawing the slat laterally from said knife.

2. In a slat-trimming machine, the combination with the cutter-knife and a support for the slat, of a pusher mechanism adapted to engage the edges of the slat and force them into the path of the cutter-knife and ejector mechanism adapted to discharge the slat laterally from the machine.

3. In a slat-trimming machine, the combination with the cutter-knife and a support for the slat, of a rack arranged in front of the knife for supporting a stack of slats, an opening at the bottom of said rack to permit the lowermost slat to be moved laterally into the path of the cutter-knife, pusher mechanism for advancing the slat laterally into the path of the cutter-knife and ejector mechanism for discharging the slat from the machine.

4. In a slat-trimming machine, the combination with the cutter-knife and with a suitable support for the slat, of pusher mechanism for advancing the slat laterally into the path of the knife and ejector mechanism

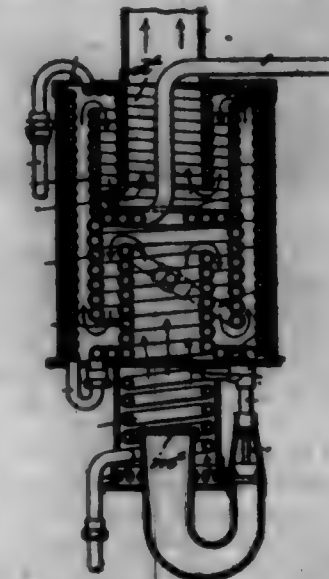
having points or hooks adapted to engage the bottoms of the slats and discharge them from the machine.

5. In a slat-trimming machine, the combination with the cutter-knife and with a suitable support for the slat, of pusher mechanism for advancing the slat laterally into the path of the knife, ejector mechanism for discharging the trimmed slat, and a spring for actuating the pusher mechanism in delivering the slat into the path of the knife.

6. In a slat-trimming machine, the combination with the cutter-knife and with a suitable support for the slat, of pusher mechanism for advancing the slat laterally into the path of the knife, a spring for moving said pusher mechanism to effect the delivery of the slat to the action of the knife, means for actuating said knife, ejector mechanism for discharging the trimmed slat and a lost-motion connection for actuating said ejector mechanism.

7. In a slat-trimming machine, the combination with the cutter-knife and with a suitable support for the slat, of pusher for advancing the slat laterally into the path of the knife, rock-arm for actuating said pusher, ejectors connected with said pusher for discharging the trimmed slat, spring mechanism for moving said pusher to cause the delivery of the slat to the path of the cutter-knife and means for moving said pusher and ejectors in opposite direction in order to withdraw the slat.

698,140. BOILER. JEAN A. REY and JEAN M. R. REY, Paris, France. Filed Nov. 6, 1901. Serial No. 81,314. (No model.)



Claim.—1. A steam generator or boiler, comprising a casing, a number of worms through which the liquid travels continuously, said worms arranged in a double series of tubular worms located above and below a central flat worm, the series above the central flat worm being concentrically arranged with respect to each other and the casing and the lower series being concentrically arranged with respect to each other and the casing and the double series being arranged so as to form a continuous flow for the passage of the hot gases entering the base of the casing, said flow continuing the gases alternately around surfaces of both series of concentric worms and of the central flat worm, in combination with a source of heat located below the lowermost worms.

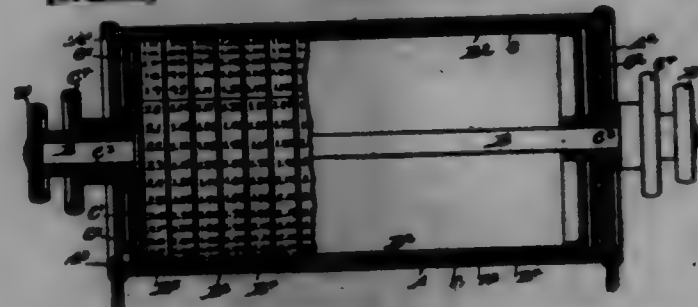
2. A steam generator or boiler, comprising a casing, a flat worm located below the roof of the casing, a flat worm located above the base of the casing, a central flat worm located intermediate of the roof of the casing, a series of concentrically-arranged tubular worms located between the central flat worm and the roof of the casing, a similar series of tubular worms located below the central flat worm, all of said worms being detachably connected together to form a continuous passage for the water and steam, and all the worms arranged to form a continuous flow in the passage of hot gases entering the base of the casing, said flow conducting the gases to the interior and exterior surfaces of all the tubular worms and to the exposed surfaces of all the flat worms, in combination with a source of heat located directly below the lowermost tubular worm and an outlet located directly above the uppermost tubular worm.

3. A steam generator or boiler, comprising a casing, a flat worm located centrally within the casing, a series of tubular worms arranged concentrically with the wall of the casing and with each other located above the central flat worm, a second series of similarly-arranged tubular worms located below the central flat worm and having their pipes larger in diameter than the pipes of the upper series, a water-inlet pipe discharging into the upper series of tubular worms, a steam-outlet pipe leading from the lower series of tubular worms and traversing the central flat worm, and the innermost tubular worm of the upper series, detachable couplings connecting all the worms together to form a continuous passage for the water

and steam through the worms, in combination with a source of heat located below the lower series of tubular worms and an effluvia located above the upper series of worms, the worms being arranged to form a continuous passage for the gas from the burner around all the worms and into the effluvia.

4. A steam generator or boiler, comprising a casing, a double series of tubular and concentric worms arranged within the casing, a central flat worm above which a series of tubular worms is arranged and below which the other series of worms is located, the pipes of the worms above the central flat worm being of smaller diameter than the other worms, a source of heat located below the lower worms and a water-inlet pipe leading to the upper worms, said worms arranged so that the heat first traverses the space between the lower tubular worms and under the flat worm and then traverses the space between the upper tubular worms and over the flat worm, and a series of couplings connecting the various worms together to form a continuous passage for the water and steam through the worms.

698,141. CALCULATOR. GEORGE ROBERT, Passaic, N. J., assignor to the Carlin Manufacturing Company, Carlin, N. J., a Corporation of New Jersey. Filed Aug. 8, 1901. Serial No. 71,297. (No model.)



Claim.—1. In an instrument of the character set forth, the combination of a fixed casing, a drum revolvable within the same, and a cylindrical shutter revolvably interposed between the two and having spirally-arranged slots, and connections from said drum and shutter respectively to the exterior of said casing whereby said drum and shutter may be revolved independently of and relatively to each other in either direction, as set forth.

2. In an instrument of the character described, the combination of a cylindrical drum, a casing having an opening through which portions of said drum may be exposed, and a cylindrical shutter inclosing said drum and inclosed with the latter in said casing, the said shutter having a series of slots arranged to register but one at a time with said opening and expose the desired portion of the drum and conceal the remainder and an additional practically continuous slot, and means for rotating said drum and shutter within the casing, substantially as described.

3. In an instrument of the character set forth, the combination of a drum, a casing having a continuous longitudinal opening through which a portion of said drum may be exposed, and a shutter mounted to revolve in said casing and over said drum and having openings adapted to register but one at a time with said opening in the casing to expose the coincident portion of the drum and having provision for practically continuous exposure of a circumferential portion of the drum, substantially as described.

4. In an instrument of the character set forth, the combination of a cylindrical drum, a casing having an opening through which a portion of said drum may be exposed, a cylindrical shutter inclosing said drum and inclosed with the latter in said casing, means for rotating said drum and shutter independently within said casing, the said shutter having a series of slots adapted to register but one at a time with said opening and expose the desired portion of the drum and conceal the remainder, and an additional practically continuous slot, and means for holding said shutter against rotation when desired, substantially as described.

5. In an instrument of the character set forth, the combination of a cylindrical drum, a casing having an opening through which the desired portion of said drum may be exposed, a cylindrical shutter inclosing said drum and inclosed with the latter in said casing, said shutter having a series of slots adapted to register but one at a time with said opening and expose the desired portion of the drum and an additional practically continuous slot for exposing another portion of the drum, means for rotating said drum and shutter independently, means for holding said shutter against rotation when desired, and means for limiting such rotation in either direction, as set forth.

6. In an instrument of the character set forth, a casing having a longitudinally-extending opening and a cylindrical drum, in combination with a cylindrical shutter inclosing said drum and inclosed with the latter in said casing, the said shutter having a slot matching to a circumferential portion of said drum and a series of spirally-arranged slots but one

slot coinciding with the longitudinal opening at a time and each matching to the desired portion of the drum, the said slots adapted to register with said opening and allow an element of computation on said drum and the result of the desired computation to be read adjacent to the element of computation on said casing, all substantially as herein specified.

7. In an instrument of the character set forth, a casing, a drum inclosed therein, a series of circumferential ridges on said drum, and a series of relatively independent figure-bearing strips secured in the grooves between said ridges and protected by the latter, marks on said ridges and corresponding marks on said strips to aid in properly locating said strips on said drum, and means for rotating said drum within said casing and exposing said figures to sight in an opening therein, all combined substantially as herein specified.

8. The casing A having the opening a and end plates A' A', shutter C having heads C' C' and tubular extensions C'' passing through said end plates, and the circumferential slot c' and spirally-arranged slots c, the shaft B passing through said extensions, the drum D on said shaft and inclosed in said shutter, and means for rotating the latter and said drum, all combined substantially as herein specified.

9. The combination of casing A having the opening a and end plates A' A', shutter C and its heads C' C' inclosed in said casing, said shutter having the circumferential slot c' and slots c, the latter being spirally arranged so that only one of the same will be exposed at a time through the casing-opening, the others being masked by said casing, drum D inclosed within said shutter, and means for rotating said drum and shutter independently, one of said shutter-heads having a series of recesses, and means on the adjacent end plate to engage frictionally with said recesses, substantially as specified.

10. The casing A having the opening a and end plates A' A', shutter C having the circumferential slot c' and spirally-arranged slots c and heads C' C' inclosed in said casing, drum D inclosed in said shutter, and means for rotating said drum and shutter independently, in combination with a series of recesses c' in one of said heads, a spring D on the adjacent end plate carrying a pin D' extending through said end plate and adapted to engage frictionally with said recesses, and means as the lever D' and wedge-block D'' thereon for withdrawing said pin when desired, all substantially as herein specified.

11. The casing A having the opening a and end plates A' A', shutter C having the circumferential slot c' and spirally-arranged slots c and heads C' C' inclosed in said casing, drum D inclosed in said shutter, and means for rotating said drum and shutter independently, in combination with a flange C' on one of said heads, and a stop A' set in the adjacent end plate and carrying with said flange to limit the movement of said shutter, all substantially as herein specified.

698,142. BUTTERHOLE-CUTTER. GEORGE W. L. ROBERT, Seattle, Wash., assignor by direct and mesne assignments to Stephen H. Long, Seattle, Wash. Filed June 12, 1901. Serial No. 64,269. (No model.)



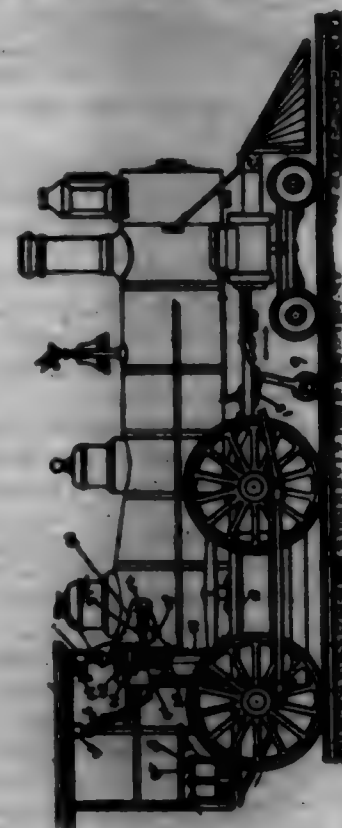
Claim.—1. In a butterhole-cutter, the combination with the pivotally-connected handles and the jaws, of a blade having a straight cutting edge and a cutting edge with a straight portion terminating in an eye and disposed oppositely to each other, means to secure said blade to one of the said jaws so that either of the said cutting edges may be moved into and retained in operative position, and a dis-closure having a plurality of faces rotatably mounted permanently upon the other jaw, means to lock the said dis-closure to any one position, and the clasp-gaging means.

2. In a butterhole-cutter, the combination with the pivotally-connected handles and jaws, of a blade having a straight cutting edge and a cutting edge with a straight portion terminating in an eye and disposed oppositely to each other, means to secure said blade to one of the said jaws so that either of the said cutting edges may be moved into and retained in operative position, and a dis-closure having a plurality of faces rotatably mounted permanently upon the other jaw.

698,143. RAILWAY ELECTRIC SIGNAL AND SAFETY APPARATUS. WILLIAM E. RAYMOND, Denver, Colo., assignor of one-half to Abraham V. Tiller, Omaha, Colo. Filed Oct. 12, 1900. Serial No. 32,880. (No model.)

Claim.—1. The combination with air-brake mechanism, a throttle-valve on the engine, and a hand-lever for controlling said valve, the said lever being normally locked when the throttle-valve is open, of a

cylinder mounted on the engine, a piston located therein, a connection between said piston and the hand-lever for unlatching the lever and actuating the same to close the throttle-valve when the piston is actuated, an electromagnet mounted on the engine, a conduit connecting the train-brake pipe with the cylinder, a normally closed valve located in said conduit, a connection between said valve and the magnet whereby the valve is opened as the magnet is energized, allowing the air to pass to the cylinder and actuate the piston, whereby the lever is unlatched and operated to close the throttle-valve, the cylinder being provided with a port so located as to allow the air to escape after actuating the piston, whereby the necessary reduction is effected for setting the brakes.



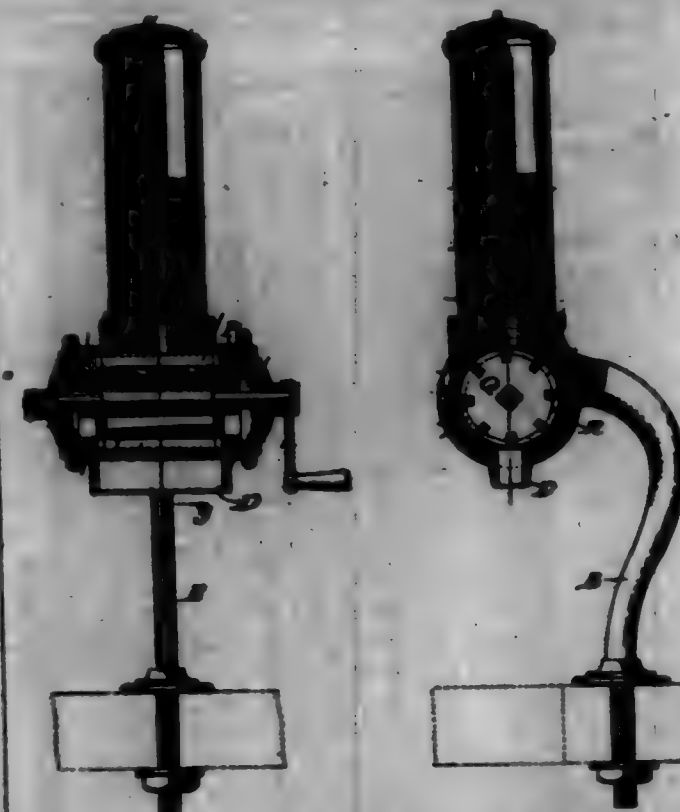
2. The combination with a source of electricity carried by the train, of an electromagnet located on the engine and connected with said source, means located on the road-bed and connected with the magnet for energizing the same when trains have approached within a predetermined distance, a hand-lever for closing the throttle-valve on the engine, said lever having a removable device normally locking the lever in the adjusted position when the throttle-valve is open, a cylinder located on the engine, a piston in the cylinder, a rod connected with the piston, arranged to engage the hand-lever locking device, and furnished to unlock the same when the piston is actuated, a conduit leading from a source of compressed air, to the cylinder, a normally closed valve located in said conduit, a connection between the valve and the electromagnet whereby as the latter is energized the valve is opened allowing the air to pass to the cylinder whereby the piston is actuated and the hand-lever operated to close the throttle-valve.

3. The combination with air-brake mechanism, of an electromagnet carried by the train, and provided with a movable core surrounded by the magnet-wire, a normally closed valve connected with the train-brake pipe and provided with a protruding stem, a port connected with the core of the magnet and provided with an offset arranged to engage the valve-stem and depress the latter to open the valve when the magnet is energized, a source of electricity carried by the train and with which the magnet is connected, and means located on the road-bed and connected with the electric source, for closing the circuit when the trains have approached within a predetermined distance, whereby the magnet is energized, the valve opened and the air allowed to escape, causing the necessary reduction of pressure to apply the brakes.

4. The combination with an electric source carried by the train, and means located on the road-bed and connected with said source for closing the circuit when two trains have approached within predetermined limits, and air-brake mechanism, of a hand-lever provided with a movable dog normally locking the lever when the throttle-valve is open, a cylinder, a piston located therein, a rod connected with the piston and provided with an offset arranged to raise and unlatch the dog when the piston is actuated, and then actuate the lever to close the throttle-valve, a conduit leading from the train-brake pipe to the cylinder, a normally closed valve located in said conduit, and provided with a protruding stem, an electromagnet provided with a movable core, a rod connected with said core and provided with an offset and a reduced portion, a spring normally holding

the reduced portion of the rod in a position engaging the valve-stem, whereby the valve remains closed, the arrangement being such that when the magnet is energized, the rod is actuated to bring its offset in contact with the stem whereby the latter is depressed and the valve opened, allowing the air to pass to the cylinder and actuate the piston, and unlatch and operate the hand-lever, the cylinder being provided with a port allowing the air to escape after the piston has been actuated, whereby the necessary reduction of pressure is effected to apply the brakes.

698,144. SOAP-GRANULATOR. JOHN BURROWS, Philadelphia, Pa., assignor, by mesne assignments, to Ralph W. Cunningham, New York, N. Y. Filed May 4, 1901. Serial No. 52,572. (No model.)



Claim.—1. In a soap-granulator, a horizontally-disposed cylindrical-shaped body portion and support for the same, a revolvable cylindrical-shaped granulating member within the body portion having at its periphery knives extending longitudinally of the member and provided with outwardly-extending teeth at the periphery of the member, caps applied to the ends of the body portion and having a part thereof curving as end abutments to retain the granulating member in position, and a tube opening into the body portion and adapted to contain soap to be granulated by contact with said knives, substantially as described.

2. In a soap-granulator, a body portion and a support for the same, a revolvable granulating member consisting of knives extending longitudinally of the axis of the member and provided with outwardly-extending teeth, the teeth of one blade inclining in the opposite direction to the teeth of another blade, and a tube opening into the body portion and adapted to contain soap to be granulated by contact with the teeth of the knives, substantially as described.

3. In a soap-granulator, a body portion, a revolvable granulating member consisting of knives extending longitudinally of the axis of the member and set at an angle to its axis, and means for receiving soap to be granulated by the knives, substantially as described.

4. In a soap-granulator, a body portion, a revolvable granulating member consisting of knives extending longitudinally of the axis of the member and provided with outwardly-extending teeth, the teeth of one knife being staggered in relation to the teeth of another knife, and means for receiving soap to be granulated by the teeth of the knives, substantially as described.

5. In a soap-granulator, a body portion, a revolvable granulating member consisting of toothed knives extending longitudinally of the axis of the member and set at an angle to its axis, the teeth of one knife being staggered in relation to the teeth of another knife, and means for receiving soap to be granulated by the toothed knives, substantially as described.

6. In a soap-granulator, a body portion and support for the same, a shaft provided with plates revolvably supported in said body portion, toothed blades extending from one plate to the other and supported by the plates, said blades being arranged at an angle to the axis of said shaft and the teeth of one blade being staggered in relation to the teeth of another blade, a tube adapted to receive soap to be granulated by the toothed blades.

and a follower in the tube to press the soap against the blades, substantially as described.

7. In a soap-granulator, a tube adapted to receive the soap to be granulated, knives for granulating the soap, and a rod passing centrally through the tube and adapted to serve as a guide for the soap, substantially as described.

8. In a soap-granulator, a tube adapted to receive the soap to be granulated, knives for granulating the soap, a constantly-apertured weight in the tube, and a rod passing centrally through the tube and weight and having a head adapted to serve as a guide for the soap and to prevent the weight from passing from off the lower end of the rod, substantially as described.

698,145. SMOKE-ABATING DEVICE. FRED E. SELLMAN, JR.
Loda, Mo. Filed Aug. 17, 1901. Serial No. 72,386. (No model.)



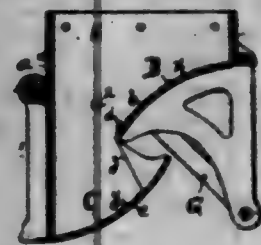
Claim.—1. The combination with an air-inlet leading to a distributing-chamber, of passages connecting said distributing-chamber with chambers behind the bridge-wall, perforated tiles forming the roof of said last-mentioned chambers, tube-tiles supported by said roof, the bases of said tube-tiles registering with the perforations in the roof, lateral openings in the tube-tiles, and closures for the upper ends of said tube-tiles, substantially as described.

2. The combination with a distributing-chamber opening to atmosphere, of passages leading from said distributing-chamber into a plurality of chambers located immediately behind the bridge-wall, said plurality of chambers having gradually-restricted inlet-openings, hollow tube-tiles arranged in rows above said chambers, the tubes of one row being staggered with respect to those of the next adjacent row, all of said tubes being provided with lateral openings, and closures for the upper ends of the tubes, substantially as described.

3. The combination with an air-inlet, of a heating-chamber connected therewith and having discharge-openings in its upper portion, said heating-chamber being arranged under the draft-flue and rearwardly of the bridge-wall, rows of tubes connected with the discharge-openings in said chamber and traversing the smoke-flue, said tubes having lateral openings for the discharge of heated air, and tiles provided with caps for receiving and closing the upper ends of said tubes, substantially as described.

698,146. GATE FOR BROTHERS OR CHUTME. AUGUSTUS SMITH,
New York, N. Y. Filed Jan. 31, 1902. Serial No. 99,616. (No model.)

Claim.—1. The combination of the discharge-spout of a hopper or chute with two pivoted gate-valves, having their adjacent edges spaced apart but overlapping when the valves are closed, as and for the purpose described.



2. The combination of the discharge-spout of a hopper or chute with two gate-valves pivoted one below and the other above its gate-flap, the adjacent edges of the gates being spaced apart when the valves are closed, as and for the purpose described.

3. The combination of the discharge-spout of a hopper or chute with two pivoted valves, having curved gates to lie across the spout with their edges overlapping, but spaced apart when the valves are closed, substantially as described.

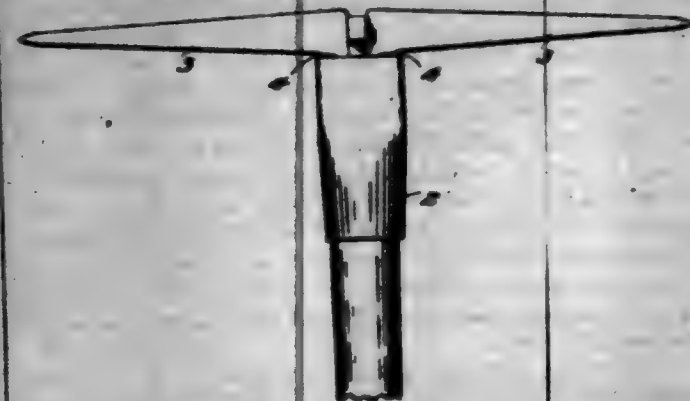
4. The combination of the discharge-spout of a hopper or chute with two valves consisting of gates and side arms, by which they are pivoted, said gates being adapted when closed to lie across the spout with their edges overlapping but spaced apart, and by their joint action close the spout, substantially as described.

5. The combination of the discharge-spout of a hopper or chute with two gate-valves, one pivoted above and the other pivoted below its gate-flap, the latter of the two valves being pivoted to stay in either its open or closed position by gravity.

6. The combination of the discharge-spout of a hopper or chute with two gate-valves, one pivoted below and the other pivoted above its gate-flap, and means for locking the latter of the two valves in its open or closed position.

7. The combination of the discharge-spout of a hopper or chute with two valves, consisting of gates and side arms by which they are pivoted, said gates being adapted, when closed, to lie across the spout with their adjacent edges spaced apart, but by their joint action closing the spout, substantially as described.

698,147. PICK. EDWARD A. SMITH, Fowler, Colo., assignor to F. W. Nash and R. H. Sprague, Denver, Colo. Filed Aug. 14, 1906. Serial No. 77,098. (No model.)



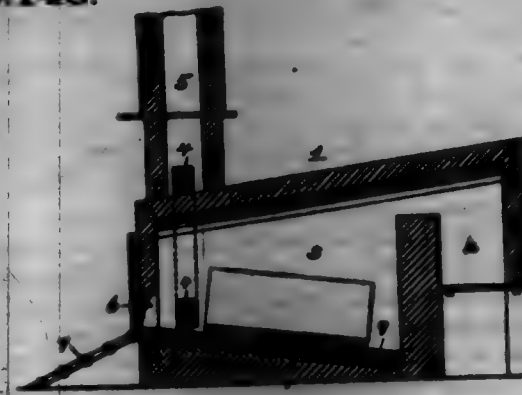
Claim.—1. The combination with a pick-eye having a polygonal opening and transverse ribs on the interior and walls of said opening, of pick-points having shanks polygonal in cross-section adapted to said opening and formed with grooves to engage said ribs, and a wedge driven into said opening between said shanks and spreading them apart and holding the grooves of the shanks locked to the ribs of the opening, substantially as set forth.

2. The combination of a pick-eye having an opening polygonal in cross-section, pick-points having shanks polygonal in cross-section adapted to enter said opening, the pick-point shanks and the adjacent wall of the eye being respectively provided with corresponding locking recesses and projections, and a wedge-shaped locking-key inserted in said opening between said shanks.

698,148. BOTTOM FOR HEAT-HEATING FURNACE. FREDERICK P. BERRY, Pittsburgh, Pa. Filed Jan. 26, 1906. Serial No. 84,548. (No model.)

Claim.—A bottom for heat-heating furnace formed of a loose mass of hard-burned non-combustible balls or approximately spherical bodies, providing interstitial passages and a support for the plates upon the higher portions of the balls, substantially as set forth.

698,148.



698,149. CUFF-HOLDER. ELMER GUNDEKER, Brooklyn, N. Y.
Filed June 23, 1901. Serial No. 66,573. (No model.)



Claim.—1. The combination is a cuff-holder, of a rod provided with a device for fastening into a cuff-buttonhole, and a clamp attached to said rod and consisting of a base-plate provided with a head and an arched spring-plate pivoted on said rod and adapted to snap over said head substantially as described.

2. The combination is a cuff-holder, of a base-plate A, a head a thereon, an arched clamp B pivoted on said plate A, a curved end d thereof adapted to snap over said head a, a rod d fixed in said plate A and constituting the pivot of said clamp B, and a device on the end of said rod d adapted to be secured in a buttonhole of the cuff, substantially as described.

698,150. PROCESS OF PURIFYING SUGAR AND SOLUTIONS THEREOF. CLARENCE A. SCHWENK and CHARLES A. KENN, New York, N. Y., assignors to Federal Refining Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 14, 1901. Serial No. 82,196. (No specimens.)

Claim.—1. In the method of cleaning sugar from its impurities, the step which consists in mixing with the impure sugar a sulfonated fluid cleaning agent, substantially as described.

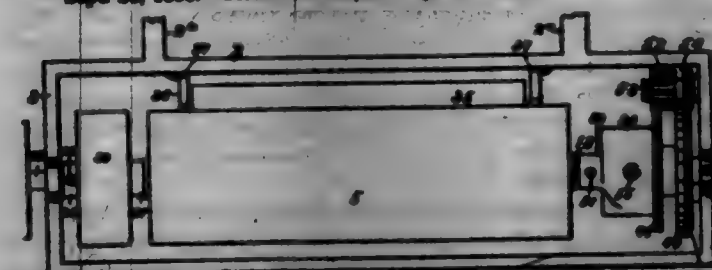
2. In the method of cleaning sugar from its impurities, the step which consists in mixing with the impure sugar a sulfonated body, substantially as described.

3. In the method of cleaning sugar from its impurities, the step which consists in mixing with the impure sugar a sulfonated acid body, substantially as described.

4. In the method of cleaning sugar from its impurities, the step which consists in mixing with the impure sugar a sulfonated derivative of a resinous body, substantially as described.

5. The method of cleaning sugar from its impurities, consisting in mixing with the impure sugar a sulfonated body, substantially as described, and then separating the sulfonated body and impurities carried by it, from the sugar, substantially as described.

698,151. TYPE-WRITING MACHINE. BERNARD C. BERNETT,
Humboldt, N. J., assignor to Jacob Faber, New York, N. Y. Filed Sept. 26, 1906. Serial No. 731,941. (No model.)



Claim.—1. In a type-writing machine, the combination of a line-space wheel, a check therefor, a cylindrical platen rotatable independently of the line-space wheel, a brake constructed to prevent backlash between the platen and the line-space wheel, a main paper-feed roller bearing against the platen, and a thumb-wheel, as 30, provided with means for turning both the platen and the said main feed-roller independently of the line-space wheel, without releasing said brake against the opposition thereof, the rotation of the platen being in the same direction as the rotation of said thumb-wheel.

2. In a type-writing machine, the combination of a line-space rubber-wheel, a spring-check constructed to ride over the teeth thereof, a cylindrical platen rotatable independently of the line-space wheel, a master-brake arranged between the line-space wheel and the platen, whereby either the line-space wheel may be actuated by the platen or the platen may be actuated by the line-space wheel, and a thumb-wheel, as 30, provided with means for turning the platen relatively to the line-space wheel, without releasing said master-brake and against the opposition thereof, and without turning the line-space wheel.

3. In a type-writing machine, the combination of a line-space wheel, a check therefor, a cylindrical platen rotatable independently of the line-space wheel, a brake constructed to prevent backlash between the platen and the line-space wheel, and a thumb-wheel, as 30, arranged concentrically with the platen and provided with means for turning the platen relatively to the line-space wheel without releasing said brake and against the opposition thereof, said thumb-wheel 30 being constructed to turn during each operation in the same direction as the platen, but at greater speed.

4. In a type-writing machine, the combination of a platen-frame, a shaft mounted therein, a cylindrical platen and a line-space wheel mounted upon said shaft, a thumb-wheel, as 34, fixed upon the shaft, said platen being rotatable independently of the line-space wheel, a brake constructed to prevent backlash between the platen and the line-space wheel, and a thumb-wheel, as 30, also mounted upon the shaft and rotatable relatively to the platen and provided with means for turning the platen relatively to the line-space wheel without releasing said brake and against the opposition thereof, the rotation of the platen being in the same direction as the rotation of said thumb-wheel.

5. In a type-writing machine, the combination of a line-space wheel, a cylindrical platen, a shaft therefor, an axially-arranged platen-cleave mounted to rotate upon the shaft, means for connecting the line-space wheel to the shaft, a planet-wheel arranged upon said cleave, a wheel fixed upon said shaft and meshing with said planet-wheel, and a manually-operated wheel engaging said planet-wheel.

6. In a type-writing machine, the combination of a line-space wheel, a cylindrical platen, a shaft therefor, an axially-arranged platen-cleave mounted to rotate upon the shaft, means for connecting the line-space wheel to the shaft, a planet-wheel arranged upon said cleave, a wheel secured upon said shaft and meshing with said planet-wheel, a manually-operated wheel engaging said planet-wheel, and a brake for opposing the rotation of said cleave upon said shaft.

7. In a type-writing machine, the combination of a line-space wheel, a check therefor, a cylindrical platen, an intermediate-arranged differential gearing for turning the platen with reference to the line-space wheel, a brake constructed to prevent backlash between the platen and the line-space wheel, and a thumb-wheel, as 30, operatively connected to said differential gearing.

8. In a type-writing machine, the combination of a line-space wheel, a check therefor, a cylindrical platen, a train of three wheels operatively connected to the line-space wheel and the platen and constructed to vary the relative circumferential positions of the line-space wheel and the platen, a brake constructed to prevent backlash between the platen and the line-space wheel, and a thumb-wheel, as 30, for operating said train without releasing said brake and against the opposition thereof.

9. In a type-writing machine, the combination of a line-space wheel, a cylindrical platen, a train of three wheels for rotating the platen without moving the line-space wheel, and a thumb-wheel, as 30, for operating said train.

10. In a type-writing machine, the combination of a line-space wheel, a check-spring therefor, a cylindrical platen, a train of three wheels arranged intermediate the line-space wheel and the platen, one wheel of said train of three wheels being a planet-wheel and meshing with both of the other wheels in said train, and a thumb-wheel, as 30, for operating said train, the construction and arrangement being such that during the operation of thumb-wheel 30, the line-space wheel remains stationary.

11. In a type-writing machine, the combination of a cylindrical platen connected with a wheel, as 24, a line-space wheel connected with a wheel, as 26, which engages said platen-wheel, and a manually-operated wheel, as 22, which also engages said platen-wheel.

12. In a type-writing machine, the combination of a platen, a gear-wheel as 24 connected thereto, a line-space wheel, a gear-wheel as 25 connected to said line-space wheel and in mesh with said wheel 24, and a manually-actuated wheel as 23 also in mesh with said wheel 24.

13. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a check therefor, a planet-wheel, as 24, means for connecting said planet-wheel to the platen, a wheel, as 26, connecting said planet-wheel to the line-space wheel, a brake constructed to prevent backlash between the platen and the line-space wheel, and a thumb-wheel, as 30, constructed to cause a movement of the planet-wheel relatively to the line-space wheel without releasing said brake and against the opposition thereof.

tion thereof, so as to vary the relative circumferential positions of the platen and line-space wheel.

14. In a type-writing machine, the combination of a cylindrical platen connected with a planet-wheel, as 24, a line-space wheel connected with a wheel, as 25, of larger diameter than the planet-wheel and in engagement therewith, and a manually-operated centrally-arranged wheel, as 23, engaging the planet-wheel and constructed to rotate the latter and cause it to swing around the platen-axis in consequence of its said engagement with the wheel 25.

15. In a type-writing machine, as a means for adjusting the paper, the combination of a cylindrical platen, a concentric line-space wheel, and a train of three gear-wheels having axes parallel with the platen-axis and constructed to rotate the platen relatively to the line-space wheel.

16. In a type-writing machine, as a means for adjusting the paper, the combination of a cylindrical platen, a concentric line-space wheel, a train of three gear-wheels having axes parallel with the platen-axis and constructed to turn the platen relatively to the line-space wheel, and a thumb-wheel secured to one of said gear-wheels.

17. In a type-writing machine, as a means for adjusting the paper, the combination of a cylindrical platen, a concentric line-space wheel, a train of gear-wheels having axes parallel with the platen-axis and constructed to turn the platen relatively to the line-space wheel, and a thumb-wheel secured to one of said gear-wheels, the rotation of the platen being in the same direction as the rotation of said thumb-wheel.

18. In a type-writing machine, as a means for adjusting the paper, while the line-space wheel is stationary, the combination of a cylindrical platen connected with a toothed wheel, a line-space wheel connected with a toothed wheel, a third toothed wheel constructed to cause a movement of the platen toothed wheel relatively to the line-space toothed wheel, and a thumb-wheel for actuating the said third toothed wheel, the rotation of the platen being in the same direction as the rotation of said thumb-wheel.

19. In a type-writing machine, the combination of a line-space wheel connected with a toothed wheel, a cylindrical platen connected with a planet-wheel in mesh with said toothed wheel, a centrally-arranged pinion arranged in mesh with said planet-wheel, and a thumb-wheel for operating the said centrally-arranged pinion.

20. In a type-writing machine, the combination of a line-space wheel connected with a crown gear-wheel, a cylindrical platen connected with a planet-wheel arranged within said crown-wheel and in mesh with the teeth thereof, a centrally-arranged pinion in mesh with the teeth of the planet-wheel, and a thumb-wheel for operating the pinion.

21. In a type-writing machine, the combination with a cylindrical platen, of a concentric actuator 14, a planet-wheel 24 secured thereto, a crown-wheel 25 including said planet-wheel and in mesh therewith and rotatably connected to a line-space wheel, and a drum 30 including the crown-wheel and provided with a central pinion 23 in mesh with the planet-wheel 24.

22. The combination of two concentrically-arranged toothed wheels of substantially equal diameter, one wheel having more teeth than the other and the teeth in each wheel being evenly spaced, and a pinion constructed to be rotated by one of the wheels and also arranged in mesh with the other wheel, so that upon the rotation of either of said concentric wheels the other thereof is caused to rotate at a different angular speed.

23. The combination of two concentrically-arranged wheels, a relatively fixed pinion in engagement with both wheels and constructed to be rotated by one thereof, and to cause the other thereof to rotate at a different angular speed, and means called into action at the relative rotation of said concentrically-arranged wheels for causing them to have a relative lateral movement.

24. In a type-writing machine, the combination of a platen-frame, a line-space wheel, a platen mounted concentrically with said line-space wheel, and a rotary device mounted upon the platen-frame and connected to the line-space wheel and to the platen, and constructed to produce automatically a variation in the relative circumferential positions of the platen and the line-space wheel.

25. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel mounted concentrically with said platen, and a train of wheels constructed to vary the relative circumferential positions of the line-space wheel and the platen, all of said platen, line-space wheel and train of wheels having parallel axes.

26. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel mounted concentrically with said platen, and a train of three wheels, one of said three wheels being mounted upon the platen-frame, constructed to vary the relative circumferential positions of the line-space wheel and the platen.

27. In a type-writing machine, the combination of a platen-frame, a platen, a line-space wheel, and a wheel operated by and arranged concentrically of the line-space wheel and operatively connected to the platen,

and constructed to cause the platen to turn through aliquot parts of a revolution at corresponding movements of the line-space wheel through aliquot parts of a revolution.

28. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a wheel operatively connected to the platen, all of said wheels and the platen being concentrically arranged, and a pinion as 52, mounted upon a relatively fixed axis and connecting the wheels so as to cause the platen-wheel and the platen to rotate at different speeds from the line-space wheel.

29. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a toothed wheel secured thereto, a companion toothed wheel concentric therewith, and means for connecting the said toothed wheels in a manner to cause the platen to rotate at a speed unequal to that of the line-space wheel.

30. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a toothed wheel operatively secured to the platen, a companion toothed wheel secured to the line-space wheel, all of said wheels being concentric with the platen and the said toothed wheels being of substantially equal diameter and provided with unequal numbers of teeth, and a pinion mounted upon a relatively fixed axis and arranged in mesh with both said companion wheels, whereby the platen is caused to rotate at a speed unequal to that of the line-space wheel.

31. In a type-writing machine, the combination of a line-space wheel, a platen, a wheel, as 47, operatively connected to the platen, a pinion constructed to connect said wheel to the line-space wheel so as to cause the platen to rotate at a different speed from that of the line-space wheel, and means for frictionally opposing the relative rotation of the platen and the line-space wheel.

32. In a type-writing machine, the combination of a platen-frame, a platen, a line-space wheel, a wheel operated by and arranged concentrically of the line-space wheel and operatively connected to the platen, and constructed to cause the platen to turn through aliquot parts of a revolution at corresponding movements of the line-space wheel through aliquot parts of a revolution, and a frictional device arranged between the line-space wheel and the platen and constructed to oppose the movement of the platen-wheel and platen relatively to the line-space wheel.

33. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a toothed wheel secured thereto, a companion toothed wheel concentric therewith, means for connecting the said toothed wheels in a manner to cause the platen to rotate at a speed unequal to that of the line-space wheel, and automatically-operating means for reciprocating the platen and/or relatively to the platen-frame.

34. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a toothed wheel connected to the platen, a companion toothed wheel connected to the line-space wheel, all of said wheels being concentric with the platen and the said toothed wheels being of substantially equal diameter and provided with unequal numbers of teeth, a pinion arranged in mesh with both said companion wheels, so that the platen is caused to rotate at a speed unequal to that of the line-space wheel, and automatically-operating means for reciprocating the platen and/or relatively to the platen-frame.

35. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, means for preventing lateral movement of the line-space wheel relatively to the platen-frame, a cam connected to the line-space wheel, a platen arranged concentrically with the line-space wheel and constructed to rotate relatively thereto, and means connected to the platen for engaging the cam so as to effect simultaneously an endwise reciprocation of the platen relatively to the line-space wheel.

36. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein and having a hub provided with a cam, means for preventing lateral movement of the line-space wheel relatively to the platen-frame, a platen arranged concentrically with the line-space wheel and constructed to rotate relatively thereto, a drum operatively connected to the platen and including said cam-hub, and means arranged upon the drum for engaging the cam, so that during the relative rotation of the platen and line-space wheel the platen is reciprocated endwise within the platen-frame.

37. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein and having a cam, as 58, means for preventing lateral movement of the line-space wheel relatively to the platen-frame, a platen mounted in the platen-frame concentrically with the line-space wheel, a drum, as 48, operatively connected to the platen and concentric therewith and including said cam, a wheel, as 47, secured to the open end of the drum and adjacent to the line-space wheel, a pinion, as 52, connecting the wheel 47 with the line-space wheel so as to cause variation in their angular speeds, and means arranged upon the drum for engaging the cam so as to reciprocate the platen endwise during the relative rotary movements of the platen and the line-space wheel.

38. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein and having a hub provided with a cam, means for preventing lateral movement of the line-space wheel relatively to the platen-frame, a shaft mounted in the platen-frame concentrically with the line-space wheel, a cylindrical platen mounted upon the shaft, a drum rigidly secured to the shaft and including said hub and provided with means for engaging said cam, and means for automatically effecting a relative rotation of the platen-shaft and the line-space wheel.

39. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a rotary device mounted concentrically with the platen and provided with a peripheral cam-groove, a rotary tabular device mounted concentrically with and including said cammed device, one of said devices being connected to the platen and the other thereof being fixed against endwise motion relatively to the platen-frame, and means for effecting automatically a relative rotation of the said devices.

40. In a type-writing machine, the combination of a platen-frame, a line-space wheel, a platen, means for imparting a relative rotary movement to the line-space wheel and platen, a cam secured to the line-space wheel, and means secured to the platen for engaging the cam, the construction and arrangement being such that upon relative rotation of the line-space wheel and platen the latter is moved endwise relatively to the platen-frame.

41. In a type-writing machine, the combination of a platen-frame, a rotary device, as 41, provided with a cam, a shaft including said cam device and provided with means for engaging the cam, whereby a relative lateral movement is caused by a relative rotary movement between the cam device and the shaft, a platen-cover, as 8, rotatably connected to one of said rotary devices, means for preventing lateral movement of the other of said rotary devices and means for imparting a relative rotary movement to said rotary device.

42. In a type-writing machine, the combination with a platen-frame, of a platen-cover, as 8, a shaft connected thereto, a line-space wheel, a cam fixed upon said line-space wheel and arranged within said shaft, and means operated by said cam and connected to the platen-cover for reciprocating the latter endwise relatively to the platen-frame.

43. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, means for securing the line-space wheel against lateral movement relatively to the platen-frame, a shaft arranged concentrically with said line-space wheel, a platen mounted upon the shaft, and means for reciprocating the platen and shaft endwise relatively to the platen-frame.

44. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, means for securing the line-space wheel against lateral movement relatively to the platen-frame, a platen mounted upon the shaft, and means for reciprocating the platen and shaft endwise relatively to the platen-frame.

45. In a type-writing machine, the combination of a platen-frame, a platen, line-spacing device, a platen-shaft and means for reciprocating the platen and the shaft endwise relatively to the platen-frame during the operation of the line-spacing device.

46. In a type-writing machine, the combination of a platen-frame, a platen, a wheel, as 47, operatively connected thereto, a line-space wheel, a pinion mounted upon the platen-frame and operatively connecting the line-space wheel to the wheel 47, and means for automatically reciprocating the platen and wheel 47 endwise relatively to the line-space wheel, the platen being constructed to remain constantly in mesh with the wheel 47.

47. In a type-writing machine, the combination of a platen-frame, a platen, a wheel, as 47, operatively connected thereto, a line-space wheel, a pinion mounted upon the platen-frame and operatively connecting the line-space wheel to the wheel 47, and means for automatically reciprocating the platen and wheel 47 endwise relatively to the line-space wheel, the platen being elongated so as to remain constantly in mesh with the wheel 47.

48. In a type-writing machine, the combination of a platen-frame, a platen, a wheel, as 47, operatively connected thereto, a line-space wheel, a wheel, as 48, rigidly connected thereto, the line-space wheel being arranged between the wheels 46 and 47, a platen mounted upon the platen-frame and connecting the wheels 46 and 47 so as to cause the relative rotation thereof, and means for automatically reciprocating the platen and wheel 47 relatively to the line-space wheel, said platen having a peripheral groove opposite the line-space wheel, and being elongated so as to remain constantly in mesh with the wheel 47.

49. In a type-writing machine, the combination of a platen-frame, a hubbing, as 45, secured to an end bar 4 thereof, a line-space wheel having a central bore and constructed to turn in said hubbing but to be held thereby against lateral motion, a shaft journaled at one end in said bore, a cylindrical platen mounted upon the shaft, and means for reciprocating the shaft and platen endwise relatively to the line-space wheel.

50. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel arranged at one end of the platen, devices arranged at the other end of the platen for adjusting at will the relative circumferential positions of the line-space wheel and platen, a thumb-wheel for actuating said adjusting device, and a brake for preventing backlash between the line-space wheel and the platen.

51. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel and platen-sweeping device arranged at one end of the platen, adjusting devices arranged at the other end of the platen for altering at will the relative circumferential positions of the line-space wheel and platen, and a thumb-wheel for actuating said adjusting device.

52. In a type-writing machine, the combination with a platen-frame, a platen, and a line-spacing mechanism, including a line-space wheel having uniformly-spaced teeth and arranged concentrically with the platen, and also including means for turning the platen through an aliquot part of a complete revolution of each portion of the line-spacing mechanism, of means for turning the platen at will without reference to the line-spacing mechanism, so as to effect an independent adjustment of the paper upon the platen.

53. In a type-writing machine, the combination of a platen-frame, a platen, a line-space wheel arranged concentrically with the platen and having evenly-spaced teeth, means for effecting automatically relative rotary movements of the platen and the line-space wheel, and means for turning the platen at will relatively to the line-space wheel, so as to adjust the paper carried thereon.

54. In a type-writing machine, the combination with a cylindrical platen and a line-space wheel of an intermediately-arranged finger-wheel rotatable relatively to the platen, means controlled by said finger-wheel for turning the platen relatively to the line-space wheel, and means for causing an automatic relative rotation of the platen and line-space wheel at the operation of the latter.

55. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel connected thereto by means of adjusting device, and a finger-wheel, the construction and arrangement being such that at the operation of said line-space wheel the platen rotates automatically relatively to the line-space wheel, and also such that said finger-wheel may be operated to cause an independent rotary movement of the platen in either direction relatively to the line-space wheel.

56. In a type-writing machine, the combination of a cylindrical platen, a line-space wheel, a finger-wheel for rotating the platen and line-space wheel simultaneously, means for causing an automatic relative rotation between the line-space wheel and the platen at each simultaneous rotation, a finger-wheel rotatable relatively to the platen, and means controlled by the last-mentioned finger-wheel for rotating the platen relatively to the line-space wheel.

57. In a type-writing machine, the combination of a platen-frame, a cylindrical platen, a line-space wheel, a finger-wheel arranged at each end of the platen-frame for rotating the platen and line-space wheel simultaneously, means for causing an automatic relative rotation between the line-space wheel and the platen at each simultaneous rotation, a third finger-wheel, and means controlled by said third finger-wheel for turning the platen at will relatively to the line-space wheel so as to effect an adjustment of the paper carried by the platen.

58. In a type-writing machine, the combination of a platen, a line-space wheel, and toothed gearing positively connecting the line-space wheel to the platen, said gearing being constructed and arranged so that at the rotation of the line-space wheel the platen rotates relatively thereto, and also so that the platen may at will be rotated by said gearing independently of the line-space wheel, in order to effect an adjustment of the paper.

59. In a type-writing machine, the combination of a platen-frame, a platen, a line-space wheel, means for automatically reciprocating the platen in lateral-space direction relatively to the platen-frame, and means for turning the platen at will relatively to the line-space wheel.

60. In a type-writing machine, the combination of a platen-frame, a platen, a line-space wheel having evenly-spaced teeth, means for effecting automatically relative rotary movements of the platen and the line-space wheel, means for automatically reciprocating the platen endwise relatively to the platen-frame, and means for turning the platen at will relatively to the line-space wheel, so as to adjust the paper carried thereon.

61. In a type-writing machine, the combination with a platen and a line-space wheel, of two trains of differential gearing, each train constructed to cause relative rotation of the platen and the line-space wheel, one train constructed to be manually operated for adjusting the paper carried upon the platen, and the other train being constructed to operate automatically.

62. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, and a platen connected to the line-

space wheel by two trains of gears, one train being constructed to operate automatically at the line-spacing operation and the other train being manually operable for effecting an adjustment of the paper carried by the platen.

63. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, a relatively rotatable platen, and two brakes, as 57 and 51, arranged in series between the platen and the line-space wheel.

64. In a type-writing machine, the combination of a platen-frame, a line-space wheel mounted therein, and a platen connected to the line-space wheel by two trains of gears arranged in series, each train being provided with a brake for preventing backlash between the line-space wheel and the platen.

65. In a type-writing machine, the combination of a platen frame, a line-space wheel mounted therein, and a platen connected to the line-space wheel by two trains of gears, one train being constructed to operate automatically at the line-spacing operation and the other train being manually operable for effecting an adjustment of the paper carried by the platen, each train being provided with a brake for preventing backlash between the line-space wheel and the platen.

66. In a type-writing machine, the combination of a metallic platen-tube, a roller tubular sheath therefor, insulating-plugs arranged in the ends of the metallic tube, retaining-curves seated in the metallic tube and engaging the plugs, and suitable central supports for the plugs.

67. In a type-writing machine, the combination of a metallic platen-tube, a roller tubular sheath therefor, insulating-plugs arranged in the ends of the metallic tube, retaining-curves seated in the metallic tube and engaging the plugs, metallic bushings arranged centrally in said plugs, and a shaft upon which said bushings are supported.

68. In a type-writing machine, the combination of a metallic platen-tube, a roller tubular sheath therefor, insulating-plugs arranged in the ends of the metallic tube, retaining-curves seated in the metallic tube and engaging the plugs, metallic bushings arranged centrally in said plugs, and a shaft upon which said bushings are supported.

69. In a type-writing machine, the combination of a cylindrical platen, an insulating-plug therefor firmly secured to a central sleeve, said sleeve being arranged upon a shaft, and means for causing the sleeve to rotate either together with the shaft or independently thereof.

70. In a type-writing machine, the combination of a cylindrical platen, an insulating-plug therefor firmly secured to a central sleeve, said sleeve being arranged upon a shaft and frictionally engaged thereto, and means for rotating the sleeve at will in opposition to said friction.

71. In a type-writing machine, the combination of a line-space wheel, a cylindrical platen-body, an insulating-plug at each end thereof, a central sleeve secured in one of said plugs, said sleeve being mounted upon a shaft and said shaft being connected to the line-space wheel, a planet-wheel arranged upon said sleeve, a wheel secured upon said shaft and meshing with said planet-wheel, and a manually-operated wheel for operating said planet-wheel.

72. In a type-writing machine, the combination of a line-space wheel, a cylindrical platen-body, an insulating-plug at each end thereof, a central sleeve secured in one of said plugs, said sleeve being mounted upon a shaft and said shaft being connected to the line-space wheel, a planet-wheel arranged upon said sleeve, a wheel secured upon said shaft and meshing with said planet-wheel, a manually-operated wheel for turning said planet-wheel, and a brake for opposing the rotation of said sleeve upon said shaft.

73. In a type-writing machine, the combination of a cylindrical platen, a platen-frame, wheel 46, wheel 47 connected to the platen, a rotary device connecting said wheels and operated by wheel 46, and means for reciprocating wheel 47, together with the platen, toward and away from wheel 46.

74. In a type-writing machine, the combination of a cylindrical platen, a platen-frame, wheel 46, wheel 47, an elongated pin in mesh with wheel 47 and operated by wheel 46, and means for reciprocating wheel 47, together with the platen, toward and away from wheel 46.

75. In a type-writing machine, the combination of a platen, a toothed wheel connected thereto, a line-space wheel, a toothed wheel connected to the line-space wheel, one of said toothed wheels having more teeth than the other, and a platen meshing with both of said toothed wheels.

76. In a type-writing machine, the combination with a platen, of a line-space wheel connected thereto by a differential gearing; said differential gearing including two connected toothed wheels having different numbers of teeth, one of said toothed wheels being connected to the platen and the other of said toothed wheels being connected to the line-space wheel, and means for causing one of said toothed wheels to creep relatively to the other wheel so as to alter the relative relative positions of the line-space wheel and platen.

698,152. CHAR-CUTTER AND MATCH-SAFETY. JAMES F. TAYLOR, Fort Worth, Tex. Filed Dec. 11, 1901. Serial No. 95,000. (No model.)



Claim.—1. A match-cut and cigar-cutter comprising a suitable box, a plate forming a part of the front wall of said box and projecting within said box and supported against the back wall of said box, a blade passing through said plate and supported thereon for shifting matches and cutting cigars, said plate having an opening for inserting cigars and said blade being flush with said plate and having a cutting edge adapted to pass under said plate and across said opening, and a tongue integral with said blade for operating the same.

2. A match-cut and cigar-cutter comprising a box having a match-receptacle therein, a plate forming a part of the front wall of said box and projecting through said box to and against the back wall thereof, a blade passing through said plate and having parts of each of the flat surfaces thereof flush with said plate, the upper part of said blade forming a match-shifter and the lower part thereof forming a cigar-cutter, said plate having an opening for inserting the tips of cigars and said blade having a cutting edge adapted to cross said opening, and means for operating said blade.

3. A match-cut and cigar-cutter comprising a box having a match-receptacle therein, a plate forming a part of the front wall of said box and projecting within said box, a spring-pressed blade passing through and supported on said plate, the upper part of said blade forming a match-shifter and the lower part having an edge for cutting cigar-tips, said plate being flush with said blade and having an opening across which said cutting edge moves when said blade is operated, a set-screw for securing said blade in a position flush with said plate projecting through a slot in said blade and secured into said plate, and a tongue for operating said blade projecting through a slot in said plate.

4. A match-cut and cigar-cutter comprising a box having a match-receptacle therein and having suitable openings through which only one match can be taken at one time, a plate forming a part of the front wall of said box and projecting in and supported against the back wall thereof, a blade having the upper part thereof notched for shifting matches and having a cutting edge adapted to pass across an opening in said plate, said blade having parts of its surface flush with parts of the surface of said plate, and means for securing said blade consisting of a lag integral with said plate, a set-pin projecting through a slot in said plate and riveted in said blade, a spring attached to said lag and to said set-pin for holding said blade in its normal position, and a tongue integral with said blade.

5. A match-cut and cigar-cutter comprising a box having a match-receptacle therein and having suitable openings for permitting the taking out of one match at one time, a plate forming a part of the front wall of said box and projecting at an angle through and to the back wall of said box, a blade having a cutting edge adapted to pass across an opening in the outer part of said plate, said blade passing through said plate and the upper part thereof forming a match-shifter, and means for operating said blade, said plate and said blade forming the bottom of the match-receptacle and said blade being narrower than said plate whereby the match-heads will not come in contact with said blade while being shifted.

6. A match-cut and cigar-cutter comprising a box having a match-receptacle therein and having suitable openings for permitting the taking

out of one match at a time, a plate forming a part of the front wall of said box and projecting at an angle through and to the back wall of said box, a blade having a cutting edge adapted to pass across an opening in the wall part of said plate, said blade passing through said plate whereby the part of said blade having said cutting edge passes under said plate and flush therewith and the other part of said blade passes above said plate and flush therewith, the part of said blade above said plate being adapted to shift matches and being narrower than said plate whereby the match-heads will not come in contact with any friction-surfaces while being shifted.

698,158. CULTIVATOR. THOMAS R. TERRY, Jamestown, N. Y. Filed Feb. 14, 1902. Serial No. 94,001. (No model.)



Claim.—1. In a cultivator having a central beam and laterally-adjustable side beams, means for adjusting said side beams including a spring-supported handle and connections between the same and the side beams whereby the latter are actuated by the movement of the handle.

2. In a cultivator having a central beam and laterally-adjustable side beams, means for adjusting said side beams comprising a spring-supported handle, hinged connections between the side and central beams, and a lever mechanism between the handle and the side beams for adjusting the latter by the movement of the former.

3. In a machine of the character described, the combination of laterally-movable spring-pressed side beams, a vertically-movable handle, and connections between the handle and beams for moving the latter transversely when the handle is moved vertically.

4. In a machine of the character described, the combination with laterally spring-supported, normally elevated side beams, of a movable handle and means interposed between the handle and beams for moving the latter laterally by power derived from the former.

5. In a cultivator the combination with a central beam and pivotally-mounted side beams, of a movable handle, a spring-support therefor tending to normally elevate the same, hinged connections between the side and central beams, a slide on the central beam and connections between the slide and the said hinged connections, and a lever mechanism between the handle and the slide whereby the depression of the handle operates the lever connections and slide and moves the side beams outwardly.

6. In a cultivator, the combination of the central beam and the laterally-movable side beams, hinged connections between the beams, a slide on the central beam and links connecting the same with the hinged connections, a vertically-movable handle having a yoke, a pin passing from the central beam into the yoke, a spring compressing the pin and bearing upwardly against the yoke, to normally elevate the handle, a bell-crank lever having one part connected to the yoke, a toothed bar connected to another part of said lever, and a second lever fulcrumed between its ends, having one end connected to said slide and the opposite portion engaged by said toothed bar whereby the movement of the handle is transmitted to the side beam to expand the latter.

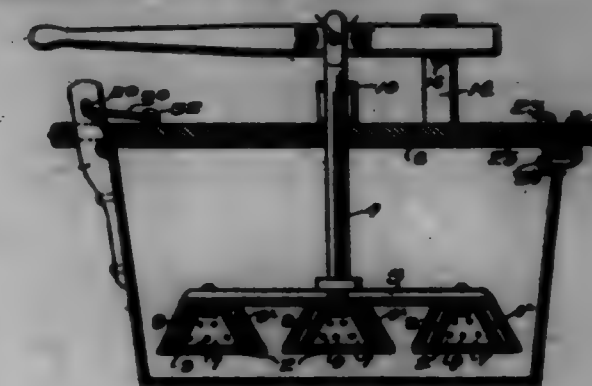
7. In a cultivator, the central and side beams, in combination with wide hinged plates between the beams, said plates standing on edge and provided with sockets to receive the hinged-plates, and caps removably fitting the sockets.

698,154. WASHING-MACHINE. ABRAHAM S. THOMAS, Worcester, Mass. Filed Dec. 22, 1901. Serial No. 94,002. (No model.)

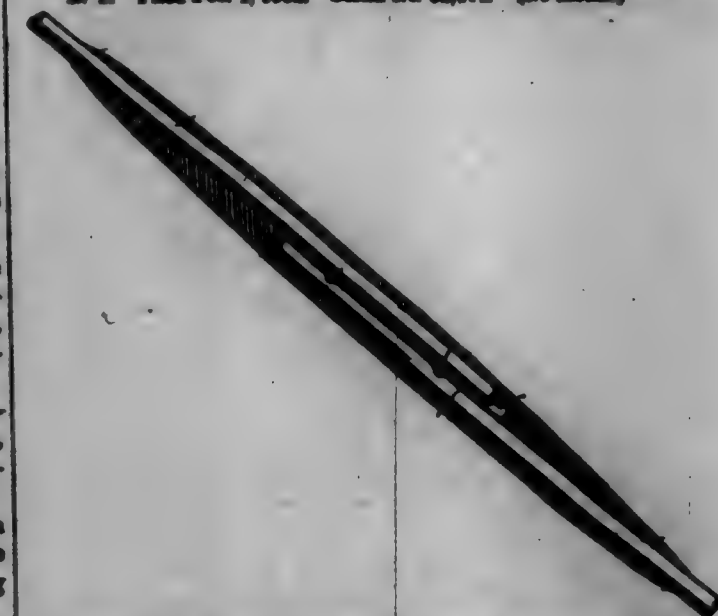
Claim.—1. In a washing-machine, the combination of a receptacle provided with an aperture, a support, an L-shaped arm depending from the support and extending through the aperture of the receptacle from the exterior thereof, a rotating device passing through the support and detachably engaging the inner end of the arm and causing the support to the tub, said support being adapted to be swung backward and upward, and washing mechanism mounted on the support, substantially as described.

2. In a washing-machine, the combination of a receptacle provided with an aperture, a support arranged upon the receptacle, arms depending from the support and extending inward through the aperture from the exterior thereof, means for engaging the terminals of the arms for producing

venting the same from being withdrawn from the aperture, and washing mechanism mounted on the support, substantially as described.



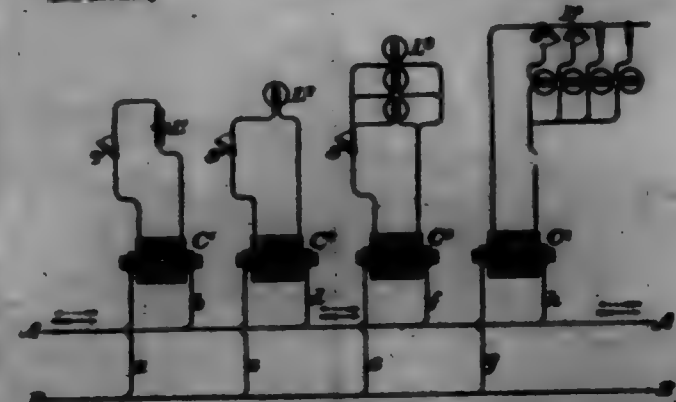
698,155. COUPLING FOR WIRES. ROLLAND THOMPSON, New York, N. Y., assignor of one-fourth to Wesley S. Thompson, New York, N. Y. Filed Feb. 1, 1902. Serial No. 93,171. (No model.)



Claim.—1. A coupler for wires comprising a single coupling-bar, provided with a loop at each end and extending inwardly approximately two-thirds the length of the coupler, said bars being parallel with each other and slightly separated to provide a well, and one or more tapering cut-overs between the lapped portions of the wires, as set forth.

2. The combination with wires, of a coupling-bar having therein holes at opposite ends, each of which extends into the bar slightly to one side of the axial line, and having a wall between them, and one or more tapering cut-overs between the lapped ends of the wires passing through the separating-wall, as set forth.

698,156. SYSTEM OF ELECTRIC DISTRIBUTION. BLANK THOMAS, Lynn, Mass., assignor to the Thomson-Houston Electric Company, a Corporation of Connecticut. Filed Nov. 2, 1901. Serial No. 101,600. (No model.)



Claim.—1. In a system of electric distribution, a series of secondary circuits of induction coils supplying arc-lights or other devices, the primary coils of which induction coils are multiple-arc branches of a single primary circuit, or set of main A, B, through which alternating or reversed currents are flowing, as described.

2. In a system of electric distribution, a set of main A, B, supplied by alternating currents, or alternating electrical impulses, rendering said main alternately positive and negative with respect to each other, in

combination with branch circuits taken from said main at convenient points, and finally carried through the primary wind or coils of a set or series of induction-coils, the secondaries of which are connected to electric lamps, or other apparatus, for utilizing the impulses generated in said secondaries by induction from the said primary.

3. In a system of electric distribution, the combination with the high-potential main through which alternating or reversed currents are flowing, of electric converters or reducers connected in multiple between said main, and inductance lamps or other transmitting devices supplied from said reducers with currents of lower tension and greater quantity than those circulating in the main circuit-coil of the converter.

698,157. PHOTOGRAPHIC FILM ROLL AND ROLL-HOLDER.
JOHN E. TUNNICLIFFE, Manchester, England. Filed Mar. 20, 1900. Serial No. 1,468. (No model.)



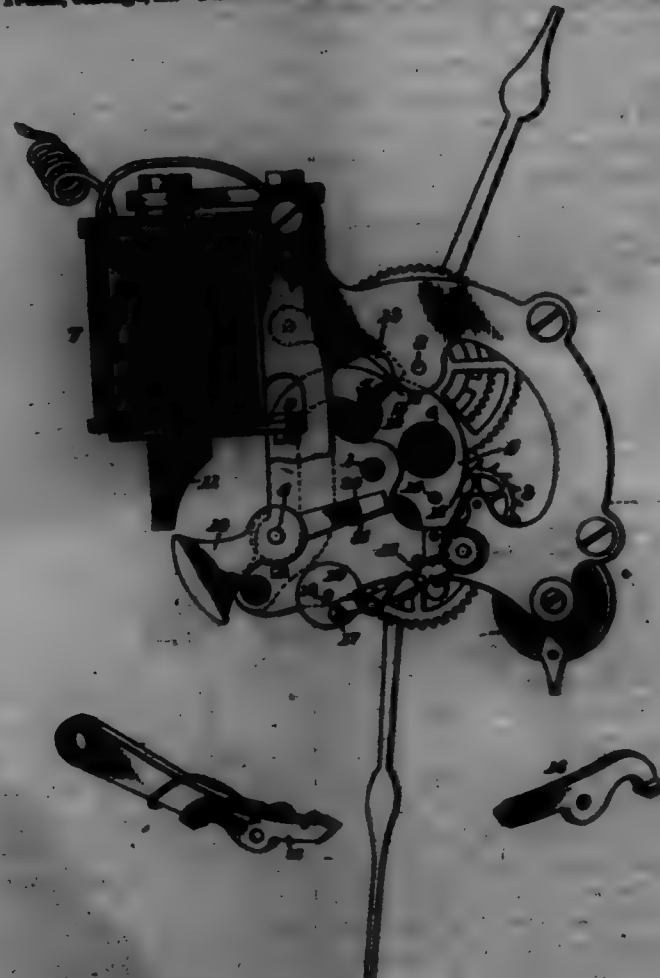
Claim.—1. A holder for photographic film comprising in its construction a reel of two D-shaped pieces of sheet metal, having the flat sides placed and secured together, in combination with a sheet-metal supporting-frame with ends provided with slots, into which the open ends are fitted free to rotate therein, substantially as described.

2. A reel for photographic film comprising in its construction two D-shaped pieces of sheet metal with their flat sides placed face to face, and two flanges by which they are secured together substantially as described.

3. In a holder for photographic film, the combination with a metallic frame or holder stamped from sheet metal, and provided with up-turned ends of a sheet-metal reel provided with longitudinal slots and fitted into apertures in the ends of the holder, so as to rotate therein, substantially as described.

4. A photographic-film holder comprising in its construction, the holder B provided with stiffening-grooves, the up-turned ends b provided with apertures and stiffening-grooves, and the reel A formed of two D-shaped pieces of sheet metal, the ends d of which are fitted into the apertures in the holder ends b and provided with longitudinal slots D' between the two parts, substantially as described.

698,158. ELECTRIC CLOCK-WINDING MECHANISM. ALBERT TRUMB, Chicago, Ill. Filed Jan. 27, 1901. Serial No. 65,404. (No model.)



Claim.—1. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, a contact-stud carried by said counter-shaft, a flexible contact adapted to have electrical engagement with said contact-stud, and means moving in unison with the armature of the winding mechanism for pushing the flexible contact away from each electrical contact with the contact-stud, substantially as set forth.

2. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, a contact-stud carried by said counter-shaft, a flexible contact adapted to have electrical engagement with said contact-stud, and an arm moving with the armature of the winding mechanism and adapted to push the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

3. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, an insulating-stud and a contact-stud carried by said counter-shaft, a flexible contact adapted to have engagement with said stud, and means moving in unison with the armature of the winding mechanism for pushing the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

4. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, an insulating-stud and a contact-stud carried by said counter-shaft, a flexible contact adapted to have engagement with said stud, and an arm moving with the armature of the winding mechanism and adapted to push the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

5. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, a contact-stud carried by said counter-shaft, a flexible contact, the same comprising a vibratory spring-arm and a pivoted spring-finger on the free end of said arm, adapted to have electrical engagement with said contact-stud, and means moving in unison with the armature of the winding mechanism for pushing the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

6. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, a contact-stud carried by said counter-shaft, a flexible contact, the same comprising a vibratory spring-arm and a pivoted spring-finger on the free end of said arm, adapted to have engagement with said contact-stud, and an arm moving with the armature of the winding mechanism and adapted to push the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

7. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, an insulating-stud and a contact-stud carried by said counter-shaft, a flexible contact, the same comprising a vibratory spring-arm and a pivoted spring-finger on the free end of said arm, adapted to have engagement with said stud, and means moving in unison with the armature of the winding mechanism for pushing the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

8. In an electromagnetic clock-winding mechanism of the character herein described, the combination with the intermittent winding mechanism, the main shaft, a counter-shaft geared with and receiving increased movement from the main shaft, an insulating-stud and a contact-stud carried by said counter-shaft, a flexible contact, the same comprising a vibratory spring-arm and a pivoted spring-finger on the free end of said arm, adapted to have engagement with said stud, and an arm moving with the armature of the winding mechanism and adapted to push the flexible contact away from its electrical contact with the contact-stud, substantially as set forth.

698,159. UNIVERSAL JOINT. ABRAHAM VANHORN, Hartford, Conn. Filed Mar. 12, 1901. Serial No. 51,908. (No model.)

Claim.—1. In a connection the two bifurcated shafts, the four transverse shafts removably but non-rotatably secured thereto, and an intermediate block having four transverse shaft bearing-sockets, all substantially as described and for the purposes set forth.

2. In combination the two bifurcated shafts, a transverse shaft removably but non-rotatably secured to each fork, an intermediate block having sockets adapted to the shape of the transverse shafts, and also adapted to move back and forth thereon.

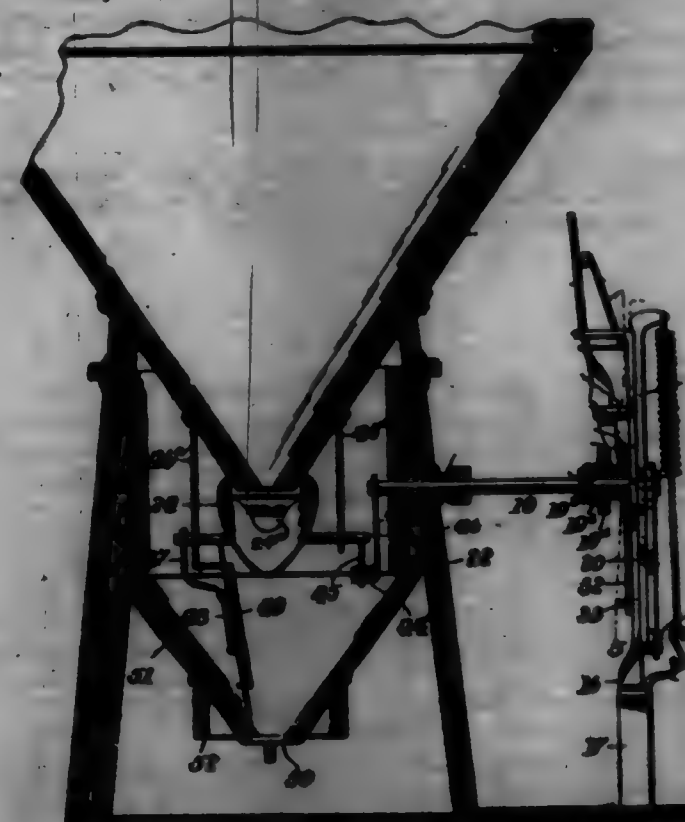


3. In combination the bifurcated shafts, a transverse shaft removably attached to each fork, interlocking parts on each transverse shaft and the fork to which it is attached, and an intermediate block having sockets adapted to receive the transverse shafts, substantially as described.

4. In combination the two bifurcated shafts, a transverse shaft secured to each fork thereof by means of a screw, projections on the transverse shafts adapted to enter recesses in the fork, an intermediate block having sockets adapted to the shape of the transverse shafts and arranged to connect said shafts, substantially as described.

5. In combination the two bifurcated shafts, the transverse shafts in the form of transverse cones removably secured to the said forks, an intermediate block having conical sockets adapted to receive and work on said transverse shafts, the parts being so arranged that the apices of the conical transverse shafts meet at substantially the center of the intermediate block, substantially as described.

698,160. ACETYLENE-GAS GENERATOR. GEORGE F. WATSON, Chicago, Ill. Filed Sept. 4, 1901. Serial No. 74,576. (No model.)



Claim.—1. In a carbide-feeding apparatus for acetylene-gas generators, in combination, a carbide-receptacle above the generator, an opening therein through which the carbide is adapted to fall, a tilting cup below the opening discharging from each side alternately into the generator, and means connected with the bell of the generator to cause the cup to tilt according to the rise and fall of the bell.

2. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle above the generator, an opening therein through which the carbide is adapted to fall, a tilting cup below the opening having two compartments one of which is adapted to discharge carbide into the generator when the cup is tilted in one direction and the other when tilted in the other direction, and means connected with the bell of the generator to cause the cup to tilt according to the rise and fall of the bell.

3. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle, an opening therein through which carbide is adapted to fall, a tilting cup below the opening having two compartments discharging alternately into the generator, a rock-shaft adapted to cause the cup to tilt, and means connected with the bell of the generator to rock the shaft.

4. In an acetylene-gas apparatus, in combination, a generator, a carbide-supply receptacle, an intermediate feeding device therefrom which

carbide is adapted to be delivered into the generator, a normally closed valve between the feeding device and the generator and means to automatically open the valve simultaneously with the delivery of the carbide.

5. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle having an opening through which carbide is adapted to be discharged, a tilting cup below the opening, a funnel below the tilting cup adapted to receive the carbide discharged therefrom, a normally closed valve at the lower end of the funnel, means to automatically open the valve at the fall of the carbide, and means connected with the bell of the generator to operate the tilting cup.

6. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle, a feed-opening therein, a spring-actuated tilting cup below the opening, having a plurality of compartments, each alternately filling from the supply-receptacle and discharging into the generator, and means connected to the bell of the generator to cause the spring to tilt the cup according to the rise and fall of the gasometer-bell.

7. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle, an opening therein through which carbide is adapted to fall, a tilting cup below the opening adapted to discharge carbide into the generator, a rock-shaft adapted to cause the cup to tilt, means connected to the rock-shaft to operate the same by the rise and fall of the gasometer-bell, and means to disconnect the rock-shaft from said means and to operate the rock-shaft otherwise.

8. In an acetylene-gas apparatus, in combination, a generator, a gasometer, a carbide-supply receptacle, a feeding device therefrom, a funnel below the feeding device through which the carbide is adapted to fall into the generator, a valve at the mouth of the funnel, a rock-shaft extending into the funnel, means to rock the shaft according to the rise and fall of the gasometer-bell, and means connected with the shaft to operate the valve.

698,161. COMBINED POKER AND LIFT-LIFTER. HARRY WATSON, Chicago, Ill. Filed July 14, 1901. Serial No. 65,405. (No model.)



Claim.—1. In a combined poker and stove-lid lifter, the combination with the poker-rod and its handle, of a sliding sleeve mounted on said rod and held against axial movement thereon, said sleeve being provided with a stove-lid lifting-blade, a stop upon the rod to limit the outward movement of the sleeve, and a catch upon the handle to hold the sleeve in retracted position, substantially as described.

2. In a combined poker and stove-lid lifter, the combination with a poker-rod provided at one end with a handle and having the other side of its opposite end beveled, a sleeve slidably mounted on the rod and held against axial movement thereon and provided with a stove-lid lifting-blade and a pin, a stop upon the rod to limit the outward movement of the sleeve to hold the blade in proper relative position to the beveled surface of the rod, and a spring-catch upon the handle to engage said pin to hold the sleeve retracted, substantially as described.

698,162. **PLIERS AND GRIPPING-TOOL.** HERMAN S. WHELAN, New York, N. Y. Filed May 11, 1901. Serial No. 90,578. (No model.)



Claim.—1. In parallel pliers, increased primary levers and crossed secondary levers, working in conjunction with each other, all equipped to close the jaws upon the closing of the hand-levers, substantially as set forth.

2. Parallel pliers with increased primary and crossed secondary levers engaged with jaw-carrying members suspended within the said primary and secondary levers, all equipped with means and seating with said means to produce parallel movements of the said members toward each other or away from each other, relatively, upon the respective closing or opening of the hand-levers, substantially as set forth.

3. In parallel pliers, one of primary and secondary levers, one of which is moved while the other is increased, jaw-carrying members suspended within each lever parallel to each other, by means of pins, slots in the said members through which connection is made between the said secondary levers at one extremity and in pivotal connection at the other extremity by means of the said pins, the said secondary levers joined by a fulcrum-pin, all arranged for simultaneous action and to give the members a parallel motion, one toward the other as the primary levers are pressed together, substantially as set forth.

4. In parallel pliers, increased primary levers, each lever independent of its companion by direct connection, working in conjunction with crossed secondary levers, their lower extremities connected by pins through slots carried in the primary levers and in jaw-carrying members and their upper extremities pivotally pivoted to each other, in pairs, and to the said members, the primary levers connected to the said members by their upper extremities and imparting motion to the said members and secondary levers by means of slots, all arranged to force the jaws carried on the said members toward each other upon the closing of the primary levers, and to keep them in parallel position at all times, substantially as set forth.

5. In parallel pliers, levers attached to jaw-carrying members, wire-grips attached to the said members on their faces and extending beyond the plane of the levers, substantially as set forth.

6. In parallel pliers, levers engaged with jaw-carrying members equipped with gripping-jaws carried in sets mounted upon the faces of the said members, and extending outwardly therefrom beyond the plane of the said levers, all equipped to insure parallel movements of the said members and jaws, substantially as set forth.

7. In parallel pliers, jaw-carrying members equipped with a plurality of parallel-moving jaws, the auxiliary jaws extending beyond the plane of levers connected to the said members, so as to give an unobstructed opening for the introduction of a wire or other substance into the said auxiliary jaws, all equipped to insure the parallel movement of the several sets of jaws, substantially as set forth.

698,163. **PROCESS OF REFINING SPELTER.** CHARLES WHELAN, New York, N. Y. Filed Apr. 20, 1901. Serial No. 87,917. (No specimens.)

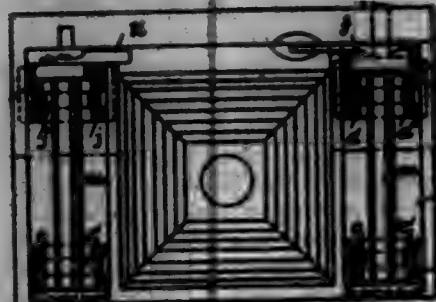
Claim.—1. The process of refining spelter which consists in treating the melted spelter with phosphorus.

2. The process of refining spelter which consists in treating the melted spelter with phosphorus and with magnesium.

3. The process of refining spelter which consists in treating the melted spelter with boron, phosphorus and magnesium.

698,164. **PHOTOGRAPHIC CAMERA.** JOHN WHELAN and ALFRED WHELAN, Manchester, England. Filed Feb. 1, 1902. Serial No. 92,128. (No model.)

Claim.—1. In photographic camera having two chambers one for the reception of a spool with the film on which the pictures are intended to be taken, and one for the spool on which the film is wound after the picture has been taken the mechanism by which the spools can be placed in said chambers, retained therein, opened and removed therefrom, consisting of semicircular rods *d*, *e* and *f* in combination with spools with disks at their ends which have one or more projections on or near their edges, substantially as and for the purpose hereinafter described.



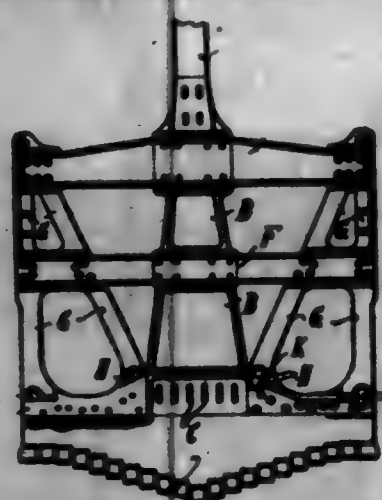
2. A film-carrying spool for a camera having flat disks on its ends and a projection at the outer edge of the disks, in combination with a rotatable disk, adapted to bear against said flat end to rotate it, substantially as described.

3. A photographic camera having a spool with disks at its ends and semicircular rods in which the disks are adapted to be placed and means for rotating the spool, substantially as described.

4. A photographic camera having a spool with disks at its ends, semicircular rods in which the disks are adapted to be placed and register in the rods, substantially as described.

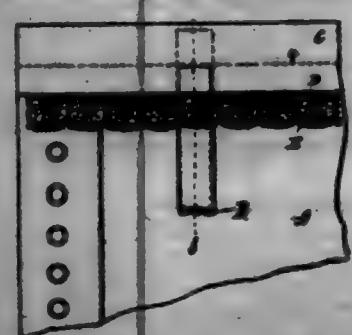
5. A photographic camera having a spool with disks, semicircular rods, rotatable disks in the rods, means to rotate them, and a spring means for holding said rotatable disks against the spool ends, substantially as described.

698,165. **APPARATUS FOR BORING SHAFTS.** EDWARD ABE, Aachen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Nov. 26, 1901. Serial No. 93,496. (No model.)



Claim.—In an apparatus for boring shafts, the combination of a shaft or beam, a footpiece rigidly secured to said shaft and provided with trapezoidal, side stays of triangular construction resting with their bases upon said footpiece and secured thereto, and cross-pieces rigidly connected with said shaft and with said stays, substantially as described.

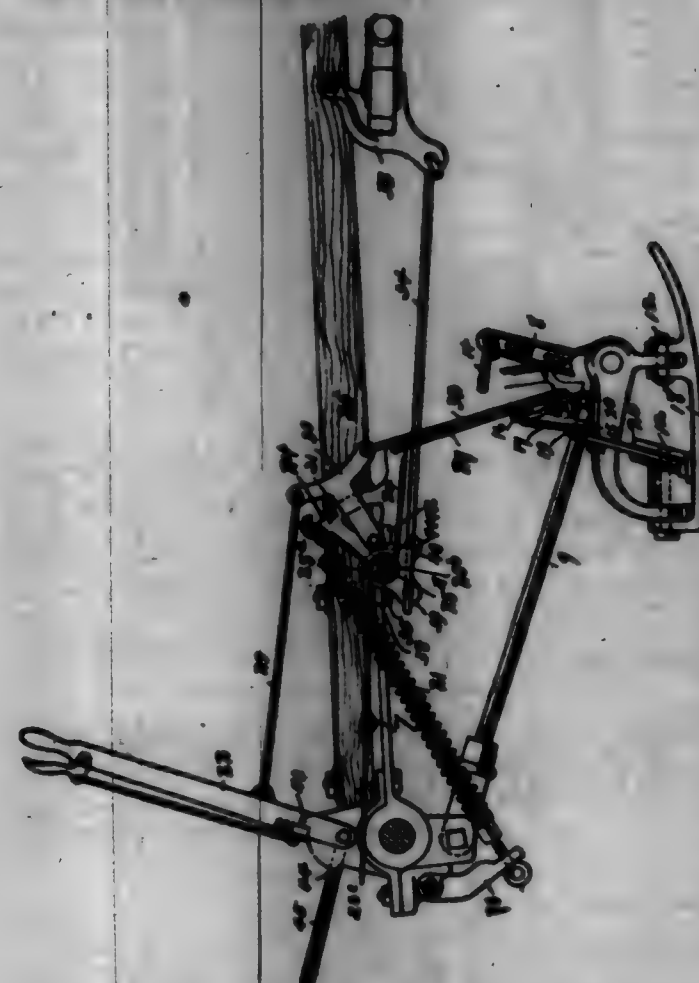
698,166. **CORSET.** JAMES C. ANDREWS, Springfield, Mass., assignor to the Bay State Corset Co., Springfield, Mass., a Corporation. Filed Sept. 14, 1901. Serial No. 78,465. (No model.)



Claim.—The combination is a corset having vertically-arranged stanchions extending nearly to the upper edge thereof, of a binding-strip secured to the upper edge of the corset by a line of stitches above the ap-

per ends of said stanchions, said binding-strip formed with a flap extending downward on the face of the corset over the upper ends of said stanchions, and an ornamental strip secured to the corset between the binding-strip and the face thereof, substantially as described.

698,167. **BOWEN.** JOHN F. ATTLEY, Chicago, Ill. Filed Dec. 11, 1900. Serial No. 730,916. (No model.)



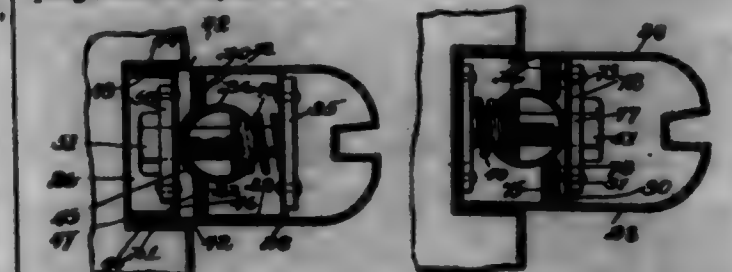
Claim.—1. In a mower, the combination with the main frame, finger-beam and coupling-bar, of means for exerting a constant lifting tendency on the finger-beam, said means comprising a lifting-spring connected to the frame, a bell-crank pivotally mounted on the coupling-bar, a connection between one arm of the bell-crank and the spring, and a connection between the other arm of the bell-crank and the finger-beam, and a lifting-lever connected to that arm of the bell-crank to which the lifting-spring is connected, but at a point further from the pivot of the bell-crank, said lifting-lever being normally inactive, but adapted when operated, to exert with the spring in lifting the beam, but with a greater leverage, substantially as described.

2. In a mower, the combination with a main frame and finger-beam hinged thereto, of a quadrant pivoted on the main frame, a spring flexibly connected to the main frame and to said quadrant, a bell-crank lever pivoted on the finger-beam coupling, a link connecting the quadrant and one arm of the bell-crank, and a link connecting the other arm of the bell-crank and the finger-beam, a lifting-lever pivoted on the main frame, a double-armed lever pivoted on the quadrant and connected between the double-armed lever and the lifting-lever and between the double-armed lever and the bell-crank, the latter connection being to the same arm to which the spring is connected but further from the pivot of the bell-crank, and a stop for limiting the double-armed lever to the quadrant whereby the spring has a tendency to lift the outer end of the finger-beam, while the lever is normally inactive but exerts with the spring to lift the beam clear of the ground, substantially as described.

3. In a mower, the combination with the main frame, of a flexing finger-beam hinged thereto, spring connections between the main frame and the finger-beam, the spring whereof is connected directly with the frame and exerts a constant tendency to lift the beam, a lever pivoted on the main frame and forming an element of the said spring connection and to which the spring is directly connected, a draft-rigging and a non-elastic connection directly joining the draft-rigging and said pivoted lever whereby the power of the draft-animals is applied directly to the lifting of the finger-beam, substantially as described.

698,168. **WINDOW-LAMP.** PAUL RABENAU, San Francisco, Cal. Filed Oct. 22, 1901. Serial No. 90,904. (No model.)

Claim.—1. The combination with a sash, of shoes at the side edges thereof, pivots supporting the sash in said shoes, a retaining device for normally holding said sash and shoes in alignment, consisting of a tube, springs normally holding said tube in operative position, and means limiting the extent to which said tube may move under the action of said springs, substantially as described.



2. The combination with a sash, of shoes adapted to fit against the stile thereof, pivots connecting said shoes and stile, whereby the sash may swing to an angular position with reference to said shoes, a retaining device between one of said stiles and the shoe adjacent thereto, said retaining device consisting of a tube carried by one of said members, as the stile, and adapted to project to engage the other of said members, as the shoe, to hold said members in alignment, springs for holding said tube normally in operative position, and means limiting the extent to which said tube may project, substantially as described.

3. The combination with a sash, of shoes adapted to fit against the stile thereof, pivots connecting said stile to said shoes, a retaining device carried in one of said members, as the stile, and adapted normally to hold said members in alignment, a slot through which said retaining device is adapted to project to engage the other member, and springs for projecting said retaining device through said slot, substantially as described.

4. The combination with a sash, of shoes adapted to fit against the stile thereof, pivots connecting said stile to said shoes, a retaining device carried in one of said members, as the stile, and adapted normally to hold said members in alignment, a slot through which said retaining device is adapted to project to engage the other member, said retaining device having a convex surface adapted to project through said slot, and springs for projecting said retaining device through said slot, substantially as described.

5. The combination with a sash, of shoes adapted to fit against the stile thereof, pivots connecting said stile to said shoes, a tubular retaining device carried in one of said members, as the stile, and adapted normally to hold said members in alignment, a slot through which said retaining device is adapted to project to engage the other member, and springs for projecting said retaining device through said slot, substantially as described.

6. The combination of a stile for window-casings, having internal edges spaced apart forming a narrow passage or slot, a tubular retaining device mounted in said slot, the diameter of said retaining device being somewhat greater than the width of said slot, means for yieldingly holding said retaining device in said slot, and a shoe pivoted to said slot and having a recess adapted to receive the projecting portion of said retaining device, substantially as described.

7. The combination of a stile having a narrow slot, a retaining device having a convex portion adapted to project through said slot, means for yieldingly holding said retaining device in said slot, and a shoe having a recess adapted to receive the projecting portion of said retaining device, substantially as described.

8. The combination of a stile, a shoe adapted to fit against said stile and pivotally connected thereto, a retaining device carried in one of said members and adapted to project through a suitable slot in said member, to engage the other member and hold said members in alignment, and means for yieldingly holding said retaining device in said slot, substantially as described.

9. The combination of a stile having internal edges 20, forming slots 21, a box 22 having internal edges 23 adapted to fit into said slots 21, a tube 24 carried by said box 22, said tube being adapted to project between the internal edges of the stile, springs for holding said tube 24 in operative position, a shoe pivotally connected to said stile, said shoe having a recess 45 adapted to receive the projecting portion of said tube 24 when the shoe and stile are in alignment, and means for attaching the shoe to the depending flange of the window-frame, substantially as described.

10. The combination of a stile having internal edges 20 forming grooves 21, a box 22 having internal edges 23 adapted to fit into said grooves 21, a tube 24 carried by said box 22, said tube being adapted to project between the internal edges of the stile, springs for holding said tube 24 in operative position, a shoe pivotally connected to said stile, said shoe having a recess 45 adapted to receive the projecting portion of said tube 24 when the shoe and stile are in alignment, a plate 46 having flanges

47, and grooves 44 in said shoe adapted to receive nut 48, and substantially as described.

11. The combination of a shoe, a stile pivotally secured thereto, means for normally holding said shoe and stile in alignment, and a catch carried by said shoe and adapted to engage the window-frame, to prevent upward movement of said shoe while the parts are being assembled, substantially as described.

12. The combination of a shoe, a stile pivotally secured thereto, means for normally holding said shoe and stile in alignment, a hook carried by said shoe and adapted to engage the window-frame, to prevent upward movement of said shoe while the parts are being assembled, and a spring for normally holding said hook out of operative position, substantially as described.

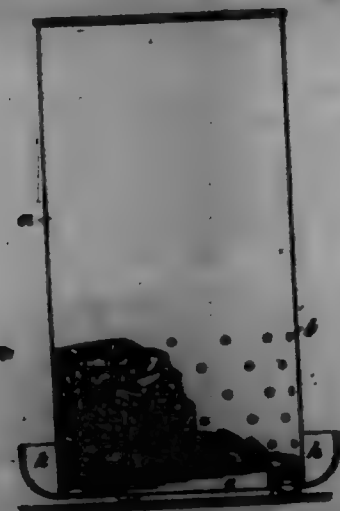
13. A stile for window-cases having a narrow slot, a spring-pressed strip having a portion adapted to project through said slot, the extreme width of said strip being greater than that of said slot, and means for yieldingly holding said strip in said slot, substantially as described.

14. The combination with a pivoted case and parts to which the case is pivoted, of a spring-pressed strip carried in one of said members, so the stile, said member which carries the said strip being provided with a recess to receive the same, which recess has a slot through which the strip is adapted to project to engage the other member, substantially as described.

15. A stile for window-cases having internal edges spaced apart to form a narrow passage or slot, in combination with a spring-pressed strip located in said stile, the said strip being somewhat wider than the slot and adapted to project through the same, substantially as described.

16. The combination with a stile having internal edges 30, forming slots 31, a box 32 having internal edges 33, adapted to fit into said slots 31, and a spring-pressed strip located within said box, said strip being wider than the slot and being adapted to project through said slot between the internal edges of the stile, substantially as described.

698,169. METAL CAN OR RECEPTACLE FOR PACKING SOAP OR OTHER SOLUBLE MATERIALS. FRANKLIN L. BARTON, Birmingham, England. Filed Aug. 9, 1901. Serial No. 71,408. (No model.)



Claim.—1. A can having perforated sides and an opening within one end of its body and a cover which has a recessed portion to fit within said opening and the margin of which projects around and beyond the exterior of the body in the form of a nose, substantially as herein described.

2. A can having perforated sides and having within one end of its body an opening the edge of which is turned inward in the form of a recessed socket and the margin of which projects around and beyond the exterior of the body in the form of a nose, substantially as herein described.

698,170. HOT-AIR FURNACE. WILLIAM E. BROS. FRANKLIN, Pa. Filed July 5, 1901. Serial No. 67,102. (No model.)

Claim.—1. A hot-air furnace comprising a casing having on one side of the same a fire-pot and on the opposite side an exit for the products of combustion, a plurality of vertically-disposed hot-air tubes carried by top and bottom plates, a dome or top for the reception of the heated air, and a perforated bulk or heat-retaining plate located within the casing and positioned near the opening for the exit of the products of combustion from the fire-pot, substantially as shown.

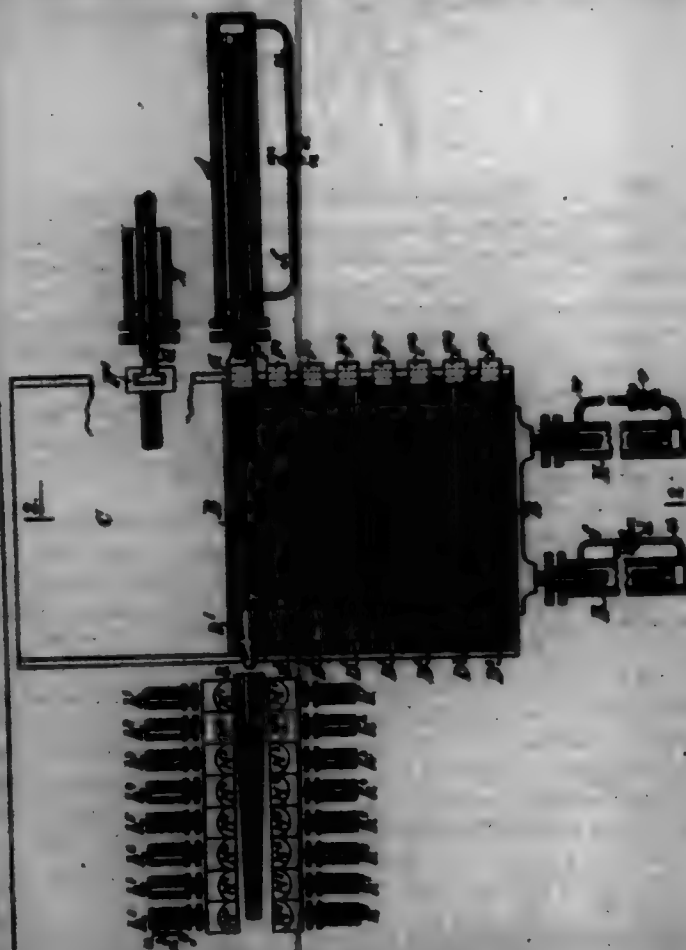
2. In a hot-air furnace the combination with a casing having on one side a fire-pot and opposite thereto an opening for the exit of the products of combustion said casing containing a plurality of hot-air tubes, a heat-retaining plate located within the casing and provided with numerous

apertures the combined area of said apertures exceeding the area of the opening for the products of combustion, substantially as shown.



3. In a hot-air furnace, the combination of a casing which is rectangular in cross-section, rectangular plates having attached thereto hot-air tubes, a dome or top for the reception of the heated air carried by the upper rectangular plate, an apertured heat-retaining plate positioned between the tubes and extending from the bottom to the top wall of the rectangular casing, an opening for the escape of the products of combustion located near the lower portion of the furnace and a fire-pot which opens into the casing on the opposite side from the escape-opening, substantially as shown.

698,171. APPARATUS FOR MANUFACTURING CHEMICAL TUBES. ERIC BORN, Düsseldorf, Germany. Filed June 2, 1901. Serial No. 68,748. (No model.)



Claim.—1. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, and means for holding said strips, substantially as and for the purpose described.

2. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, checks

for holding said strips, and means for approaching said checks, substantially as and for the purpose described.

3. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, checks for holding said strips, means for approaching said checks being articulated in their supports, substantially as and for the purpose described.

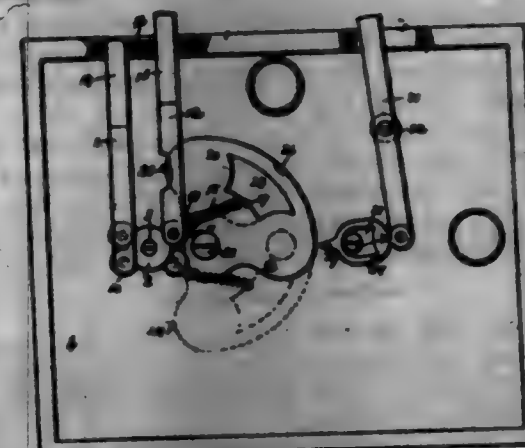
4. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, checks for holding said strips, said checks consisting each of two parts between which the edges of the strips are clamped, and means for automatically tightening the said parts of the checks, substantially as and for the purpose described.

5. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, checks for holding said strips, means for automatically drawing said strips through the checks, substantially as and for the purpose described.

6. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, checks for holding said strips, means for automatically approaching said checks, substantially as and for the purpose described.

7. In a machine for manufacturing conical tubes from tapering strips the combination with mandrels of different diameters, of a slide carrying said mandrels, means for axially moving said mandrels, means for moving said slide at right angles to the movement of the mandrels, means for holding said strips, means for automatically drawing said strips through the checks, and a rack connected with said means and acting upon a pinion operating a right and left hand screw by means of which the two slides carrying the checks are moved toward or away from each other, substantially as and for the purpose described.

698,172. PHOTOGRAPHIC SHUTTER. GAIL BUSHMAN, New Haven, Conn., assignor to E. & H. T. Anthony & Co., New York, N. Y., a Corporation of New York. Filed Apr. 8, 1901. Serial No. 68,604. (No model.)



Claim.—1. In a photographic shutter, the combination with a pivoted shutter-leaf, of a shutter-leaf located adjacent to the inner edge thereof, a spring connecting the said leaf with the adjacent end of the shutter-leaf, and push-buttons connected with the opposite ends of the shutter-leaf which operate to shift the draft of the spring to opposite sides of the pivot of the leaf so as to swing the leaf in one direction or the other and set one of the push-buttons.

2. In a photographic shutter, the combination with a shutter-leaf, of a shutter-leaf located adjacent to the inner edge thereof, a spring having its outer end connected with the shutter-leaf, and its inner end connected with the adjacent end of the shutter-leaf, and push-buttons connected with the opposite ends of the shutter-leaf and standing at right angles to a line passing through the longitudinal axis of the shutter when the same is in its intermediate or semi-opening position, through the pivot of the shutter-leaf and through the inner opening in the shutter-leaf.

3. In a photographic shutter, the combination with a shutter-leaf, of means for operating the same for instantaneous exposures, a swinging time-exposure stop located adjacent to the outer edge of the said leaf, and means for carrying the said stop and moving it into the path of the said edge of the leaf for engagement therewith in making time exposures.

4. In a photographic shutter, the combination with a pivoted shutter-leaf, of means for operating the same for instantaneous exposures, a swinging time-exposure stop located adjacent to the outer edge of the said leaf, and having a central opening, means located in the said opening for limiting the swinging movement of the said stop, and means for carrying the said stop and moving it into and out of the path of the said shutter-leaf.

5. In a photographic shutter, the combination with a pivoted shutter-leaf, of means for operating the same for instantaneous exposures, a swinging time-exposure stop located adjacent to the outer edge of the said leaf, and a time-exposure lever having the said stop pivotally attached to its inner end and having its outer end projected through the camera-box, the said stop being moved into or out of the path of the outer edge of the shutter by means of the said time-exposure lever.

6. In a photographic shutter, the combination with a shutter-leaf, of means for operating the same for instantaneous exposures, a swinging time-exposure stop located adjacent to the outer edge of the shutter, and formed with a tongue extending with the said edge of the shutter, and also formed with a central opening, means entering the said opening for limiting the movement of the stop in either direction, and a time-exposure lever to which the stop is pivotally attached, and by which the stop is brought into or out of the path of the edge of the leaf the movement of which in either direction it stops, according to the way in which its tongue is engaged with the leaf.

698,173. CAMERA. GAIL BUSHMAN, New Haven, Conn., assignor to E. & H. T. Anthony & Co., New York, N. Y., a Corporation of New York. Filed Apr. 9, 1901. Serial No. 68,605. (No model.)



Claim.—1. In a film-carrier, the combination with a centrally-arranged body, of a film-support applied to the front of the said body, a top plate secured to the top of the said body and projecting at its ends beyond the same, journals mounted in the projecting ends of the said plate for connection with the upper ends of the sprockets, sliding journal-carrying plates corresponding to the projecting ends of the top plate and having sliding connection through their inner ends with the lower portion of the said body, and springs connecting the said sliding plates with the body for maintaining the plates in their normal or speed-supporting position.

2. In a film-carrier, the combination with a centrally-arranged hollow body, of a film-support applied to the front thereof, a top plate secured to the top of said body and projecting at its ends beyond the same, journals mounted in the projecting ends of the said top plate for connection with the upper ends of the sprockets, and two sliding journal-carrying plates corresponding to the projecting ends of the top plate and having yielding sliding connection with the lower end of the body.

3. In a film-carrier for cameras, the combination with a body, of journals for the upper ends of the sprockets, and two sliding journal-carrying plates having arms entering recesses in the body and guiding the sliding movement of the plates, and springs connected with the said arms for maintaining the plates in their normal speed-supporting position.

4. In a film-carrier, the combination with a body formed with recesses and spring-chambers, of a top plate secured to the upper end of the said body and carrying journals for the upper ends of the sprockets, sliding journal-carrying plates formed with arms adapted to enter the said recesses, and springs located in the said spring-chambers and connected with the body and with the said arms, and maintaining the said plates in their normal speed-supporting position.

5. In a film-carrier, the combination with a centrally-arranged flanged body, of a film-support applied to the front thereof, a top plate secured to the top of the said body and projecting at its ends beyond the same and beyond the ends of the film-support, a guide-strip located at the lower edge of the film-support and projecting beyond the ends thereof, anti-friction rollers mounted in the forward corners of the top plate and in the ends of the said guide-strip and located adjacent to the ends of the film-support, journals mounted in the projecting ends of the said top plate

for connection with the upper ends of the spokes, and journals connected with the lower portion of the said body for receiving the lower ends of the spokes.

6. In a film-carrier, the combination with a box provided at its rear end with a hinged door, of a rotary bay permanently mounted in the said door and having a stem projecting beyond the inner face thereof, and a film-carrier adapted to be introduced into the camera-box and removed therefrom through the said door and provided with a journal for the take-up spool, the said journal being formed with a socket which receives the said stem of the bay when the door of the camera is closed, whereby the closing of the said door connects the bay with the said spool and the opening of the said door disconnects the bay from the said spool.

7. In a camera, the combination with a combined guiding and light-enclosing trough secured to the inner face of the rear end of the camera-box, of a film-carrier, the body of which is formed with grooves for receiving the forwardly-projecting flanges of the said guiding and light-enclosing trough, whereby the film-carrier is guided in being introduced into and removed from the box, and whereby light is excluded from the box.

698,174. FLUID-CLEANER. DAVID BUTY, Louisville, Ky. Filed July 26, 1901. Serial No. 78,104. (No model.)

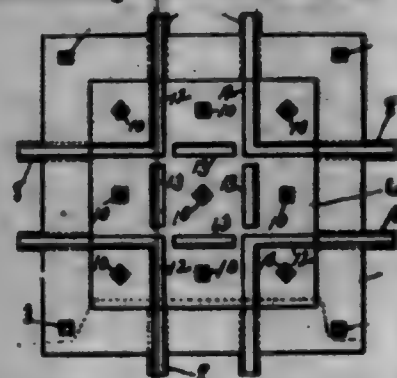


Claim.—1. A fluid-cleaning device comprising in combination, an upwardly-curved discharge nozzle or pipe having one of its ends adapted to be temporarily secured within the end of the line, a steam-nozzle located within the discharge end of the pipe and adapted to create a partial vacuum at the end of the line, a rod passing through the wall of said tube and of a length greater than that of the line to be cleaned, and a rotatable sealing-wheel mounted on said rod and having vanes adapted to be revolved by the current of air induced through the line, substantially as specified.

2. A fluid-cleaning device, comprising a curved discharge-pipe having an annular end adapted to fit within the end of the line and a nozzle-shaped discharge end, a steam-supply pipe, a discharge-nozzle communicating therewith and situated within the discharge-pipe, a counterbalancing-weight connected to said steam-pipe, a shaft or axle 14 extending through the casing of the discharge-pipe into the line to be cleaned, a pair of vanes wheel mounted on said axle and adapted to be revolved by a current of air passing through the tube and tapering guiding-plates clamped to said axle on opposite sides of the pair of vanes, substantially as specified.

698,175. RAILWAY-CROSSING. WILLIAM H. COOPER, Knoxville, Tenn., assignor to Oscar R. Galloway, Port Worth, Tex. Filed Feb. 17, 1902. Serial No. 94,697. (No model.)

Claim.—1. A crossing for railways comprising a yielding plate flush with the ends of rails abutting thereagainst and having elevated portions or ribs thereon for forming continuations of the rails.



2. A railway-crossing comprising a yielding plate flush with the ends of rails abutting thereagainst and having ribs thereon for forming continuations for rails and a suitable foundation for said yielding plate.

3. A railway-crossing comprising a yielding plate flush with the ends of rails abutting thereagainst and a bed-casting forming a foundation for said plate and a support for the ends of said rails.

4. A railway-crossing comprising a bed-plate having elevated portions or ribs thereon for forming continuations for rails abutting thereagainst, a bed-casting having a cavity therein for said bed-plate, a plurality of spiral springs between said bed-plate and said bed-casting, and bolts running through said springs and through said bed-casting and said bed-plate for securing said plate in said casting.

5. A railway-crossing comprising a yielding plate flush with the ends of rails abutting thereagainst and a bed-casting having a cavity therein for said bed-plate and forming a foundation therefor and forming a support for rails abutting against said plate.

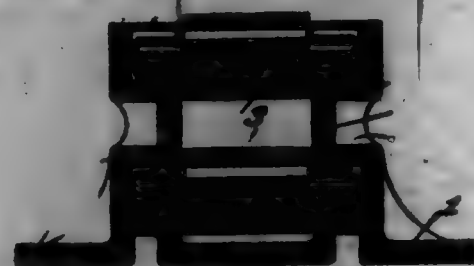
6. A railway-crossing comprising a yielding plate flush with the ends of rails abutting thereagainst and having elevated portions or ribs for forming continuations for said rails, a bed-casting having a cavity therein for said bed-plate and constituting a foundation therefor, and a stone foundation for said bed-casting.

7. A railway-crossing comprising a yielding plate having continuations for rails abutting thereagainst, a bed-casting having a cavity therein for said plate, and a stone or cement foundation for said bed-casting, said bed-casting having holes therethrough for draining water out of the crossing and said foundation having grooves for conducting the water away from said holes.

8. A railway-crossing comprising a yielding plate having continuations thereon for rails abutting thereagainst and a bed-casting having a cavity therein for said plate and having grooves therein for rails abutting against said plate.

9. A railway-crossing comprising a yielding plate having continuations thereon for rails abutting thereagainst, a bed-casting having a cavity therein for said plate and having grooves therein for rails abutting against said plate, a stone or cement foundation for said bed-casting, and means for securing said bed-casting to said foundation.

698,176. RIDE BEARING FOR RAILWAY CARS. FREDERICK R. GOSWELL, St. Louis, Mo., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 23, 1902. Serial No. 94,698. (No model.)



Claim.—1. In a ride bearing for cars, the combination with supports formed with endless grooves in their inner faces, and an endless chain of rollers whose axles are received in said grooves, whereby said rollers are supported wholly by their axles; substantially as described.

2. In a ride bearing for cars, the combination with walls formed with endless grooves in their inner faces, of an endless chain of rollers formed with axles of smaller diameter than the body portion of the rollers, said axles being received in said grooves for supporting the rollers in position, whereby the circumferential speed of the rollers exceeds their horizontal displacement; substantially as described.

3. In a ride bearing for cars, the combination with a casting formed with upwardly-extending walls having grooves in their inner faces, of an

endless chain of rollers whose axles are received in said grooves, said axles wholly supporting the rollers in position, and removable plates which form the top walls of the upper portion of said grooves; substantially as described.

698,177. FINGER. WILLIAM H. CRAFT, Salisbury, N. H. Filed Oct. 21, 1901. Serial No. 78,698. (No model.)



Claim.—1. A portable fence made up of sections having end posts of angle-iron and hooks secured to the end post of one section and engaging the end post of the next adjacent section, each of said hooks having an overhanging portion adjacent to the outer edge of the flange of the post it engages, and a heel adjacent to the angle of the post it engages, substantially as described.

2. A portable fence made up of sections having end posts of angle-iron, and hooks secured to the end post of one section and engaging the end post of the next adjacent section, each of said hooks having an overhanging portion disposed adjacent to the outer edge of the flange of the post carrying it, and a heel adjacent to the angle of said post, substantially as described.

3. A portable fence made up of sections having end posts of angle-iron, and hooks secured to one of the end posts of each section and engaging the end post of the next adjacent section, said hooks having overhanging portions adjacent to the edges of the flanges of adjacent posts and heels adjacent to the angles of said adjacent posts, substantially as described.

4. A portable fence made up of sections having end posts of angle-iron, a corner-post of angle-iron, and hooks for securing the end flanges of the adjacent end sections to the flanges of the corner-post, substantially as described.

5. A portable fence made up of sections having end posts of angle-iron, a corner-post of angle-iron, and hooks secured to the end posts of the adjacent end sections and engaging the corner-post, said hooks having overhanging portions adjacent to the angles of the posts carrying them, and heels adjacent to the angle of the corner-post, substantially as described.

698,178. DRAFT ATTACHMENT FOR DOUBLETRENS. JOHN DAVIS, Piquette, Ohio. Filed Aug. 20, 1901. Serial No. 73,867. (No model.)



Claim.—1. In an improved draft attachment for connecting the doubletrens to the doubletrens, the frame having an open apartment provided with flanges, and formed at its forward and rear ends with a slot; the draw-bar provided with an eye or ring, and formed with the bearing-shoulders; the coil-spring adapted to rest around said draw-bar, and in said open apartment; the circular bearing-plate or washer, formed with a raised portion or collar adapted to fit inside of and support said spring, and also formed with a cavity or recess; and a retaining-pin; all substantially as and for the purpose described.

2. The combination is an improved draft attachment for connecting the doubletrens to the doubletrens; of the rectangular frame having straps for "hooking" the ends of the doubletrens, the rear one being provided with the strap-chain eye, an open apartment formed by said frame and provided with flanges and formed at its forward and rear ends with a slot, the forward slot being much larger than rear slot, so as to permit of any lateral play; the draw-bar adapted to rest in the slot in said frame, and formed with the eye or ring having shoulders adapted to bear against said frame, also the coiled portion provided with a pin-opening; the coil-spring adapted to bear against said flanges and rest around said draw-bar in said open apartment; the circular bearing-plate or washer having the inclined slot for the draw-bar, and formed with the raised portion or collar adapted to fit in said spring, and also provided with a cavity or recess; and the retaining-pin adapted to pass through the opening in said draw-bar and rest in said cavity or recess in said collar; all substantially as and for the purpose described.

698,179. RAIL-ROAD. FRED H. DARRIS and HERMAN W. WYMAN, Worcester, Mass., assignors to American Steel & Wire Company, Worcester, Mass., a Corporation of New Jersey. Filed Dec. 18, 1901. Serial No. 87,512. (No model.)



Claim.—1. A rail-head, comprising two copper terminals or ends, each having a recess in its top or outer surface, and wire strands forming the body portion and extending in said recess, and secured therein by pressure, substantially as shown and described.

2. A rail-head, comprising a body portion, and terminals or ends having their heads roughened, or provided with a series of projections or extensions, and recesses or depressions, substantially as shown and described.

3. A rail-head, comprising a body portion, and terminals or ends having their heads studded with projections, substantially as shown and described.

4. A rail-head, comprising two terminals or ends, each having a recess in its head or outer surface, and wire strands forming the body portion and extending in said recess, and the head or exposed surface of the terminals and of the wire strands, where they extend in the recess in the terminals, roughened, or studded with projections, substantially as shown and described.

698,180. RAIL-ROAD. JOHN T. DEVERE, Greenville, W. Va., assignor of two-thirds to HARRIS L. MORRISON, Greenville, W. Va., and JOHN C. MORRISON and THOMAS R. BULLINGTON, Charleston, W. Va. Filed Jan. 2, 1902. Serial No. 89,948. (No model.)



Claim.—1. The combination, with the end portions of two rails, a fish-plate, and connecting-bolts; of a tapering sleeve split on one side and provided with a projecting flange at its larger end, said sleeve being inserted in one of the bolt-holes and clamped upon one of the said bolts by the pressure of the said fish-plate, and a conductor secured in the said projecting flange, substantially as set forth.

2. The combination, with the end portions of two rails, a fish-plate, and connecting-bolts; of a pair of tapering sleeves each split upon one side and provided with a projecting flange at its larger end, said sleeves being inserted in the bolt-holes and clamped upon the said bolts by the pressure of the said fish-plate, and a conductor coupling the flanges of the said pair of sleeves, substantially as set forth.

3. The combination, with the end portions of two rails, a fish-plate, and connecting-bolts; of a pair of oval and tapering sleeves each split upon one side where narrowest and provided with a projecting flange at its larger end, said sleeves being inserted in the bolt-holes and clamped upon the said bolts by the pressure of the said fish-plate, and a conductor coupling the flanges of the said pair of sleeves, substantially as set forth.

698,181. MUYLS-BRAKE. ALPHRED DUNN, Port Arger, Pa., assignor of one-third to LOUISIANA W. MORRIS, Charleston, Pa. Filed Dec. 4, 1901. Serial No. 81,120. (No model.)

Claim.—1. The combination is a back-pulling brake, of a rear-wheel hub having an internal braking-surface, a fixed polygonal shaft, a

non-rotatable brake-block mounted on said shaft, means for adjusting said brake-block longitudinally of the shaft, a cam-faced collar for moving said brake-block into operative position, a sprocket-wheel, and two concentrically-disposed clutching devices arranged in the same vertical plane, said clutches being interposed respectively between the cam-faced collar and the sprocket-wheel and between the rear-wheel hub and the sprocket-wheel, and adapted for operation in opposite direction.



2. The combination in a back-pedaling brake, of the hub having an inner braking-surface, a polygonal shaft rigidly secured to the frame of the machine, a non-rotatable brake-block mounted for longitudinal movement thereon, a collar adjustably secured in one end of the block and having an end cam, a second cam-faced collar adapted to coast therewith and having a clutch-face, a clutch-ring arranged concentrically with said end collar and carried by the hub, and a sprocket-wheel adapted to be engaged by one of said clutch-faces when traveling in a forward direction, and by the other of said clutch-faces when traveling in a reverse direction, said clutch-faces and the sprocket-wheel teeth being arranged in the same vertical plane, substantially as specified.

3. The combination in a back-pedaling brake, of a rear-wheel hub having an abruptly-terminating internal friction-surface, a longitudinally-movable brake-block adapted to engage said friction-surface, the smaller end of said brake-block being extended slightly beyond the smaller end of the hub friction-surface when the friction-surface of the brake-block and hub are in contact, thereby to avoid uneven wear, a rigid shaft carrying said brake-block, and means for effecting a longitudinal movement of said brake-block, substantially as specified.

4. The combination in a back-pedaling brake, of the rear-wheel hub having an inner braking-surface, a polygonal shaft, a collar having a circular periphery and provided with a central opening conforming to the shaft, an arm secured to or forming part of the collar and adapted to be secured to a fixed portion of the frame of the machine, a brake-block mounted on the shaft and longitudinally movable thereon, a cam-faced collar adjustably secured to said brake-block, a second cam-faced collar revolvable on the shaft-locking collar and provided with a peripheral clutch-face, a ring secured to or formed integral with the hub and also having a peripheral clutch-face, and a sprocket-wheel having an annular groove in its inner face for the reception of said ring, said sprocket-wheel being adapted to engage with either of said clutch-faces, substantially as specified.

5. The combination in a back-pedaling brake, of the hub having an inner braking-surface, a shaft, a non-rotatable brake-block longitudinally movable thereon, a shaft-locking collar having an outer flange, an arm secured to the collar and engaging a fixed portion of the frame of the machine, a cam-faced collar mounted on said locking-collar and provided with a peripheral clutch-face, a ring carried by the hub and also having a peripheral clutch-face, a sprocket-wheel having an annular groove for the reception of said ring and confined in position by the flange of the locking-collar, said sprocket-wheel being adapted to engage with one of said clutch-faces when traveling in a forward direction, and with the opposite clutch-face when traveling in reverse direction, substantially as specified.

6. The combination in a back-pedaling brake, of a shaft of square or polygonal form in cross-section, a disk secured to said shaft and having a peripheral ball-race, a hub also having a ball-race, bearing-balls for the support of the hub, the inner face of said hub being provided with a braking-surface, a brake-block longitudinally movable on the shaft, a compression-spring normally holding said brake-block in inoperative position, a cam-faced collar adjustably secured in the larger end of the brake-block, a shaft-locking collar having a circular periphery and provided with an enlarged annular end flange, an arm projecting laterally from the flange and having ears for securing the same to a fixed portion of the bicycle-frame, a cam-faced collar mounted on the shaft-locking collar and adapted to coast with the cam-collar of the brake-block, there being on the periphery of said second cam-faced collar, a clutching-face, a bearing-ring secured to or formed integral with the hub, a ball-bearing disposed be-

tween said ring and the second cam-faced collar, the peripheral surface of said ring being provided with a clutching-face, and a sprocket-wheel having in its inner face an annular groove for the reception of said ring, and confined in position by the enlarged annular flange of the shaft-locking collar, substantially as specified.

698,182. HOPPER-BOTTOM FOR MIXERS OR THE LIKE. CUMMINGS T. BRADY, Chicago, Ill. Filed June 7, 1901. Serial No. 68,887. (No model.)



Claim.—1. In a hopper, the combination with the sides thereof, of a tilting bottom comprising a plurality of parallel sections concentrically journaled in and extending through the opposite sides of the hopper, a crank secured to each of said sections outside of the hopper, and means for simultaneously swinging said sections into and out of alignment, substantially as described.

2. In a hopper, the combination with the sides thereof, of a tilting bottom comprising a plurality of parallel sections, rods journaled in the opposite sides of the hopper to which said sections are concentrically secured, a crank on an end of each of the said rods, and means connected to the cranks on said rods for simultaneously swinging all of the sections in the same direction into and out of alignment, substantially as described.

3. In combination with a hopper or receptacle and suitable supports therefor, a tilting bottom comprising a plurality of parallel sections concentrically pivoted in the sides of the receptacle, wear-plates on the inner side of the walls of the receptacle through which the pivots of the sections extend, a crank secured to each of said sections outside of the hopper, and means for simultaneously swinging said sections into and out of alignment.

4. In combination with a hopper or receptacle and suitable supports therefor, a tilting bottom comprising a plurality of parallel sections adapted to normally occupy a horizontal plane, a pivot-rod for an end of each section, a crank on each pivot-rod, means in communication with all of the cranks for simultaneously swinging in the same direction all of the sections into and out of alignment, and a stop for limiting the movement of the said means, substantially as described.

5. In combination with a hopper or receptacle and suitable supports therefor, a tilting bottom comprising a plurality of parallel sections, pivots for said sections, a crank extending outwardly from each section, a shifting rod pivoted to all of the cranks, a pivoted operating-rod, having a slot therein, and a projection fixed to said shifting rod and slidably engaging the slot in the operating-rod.

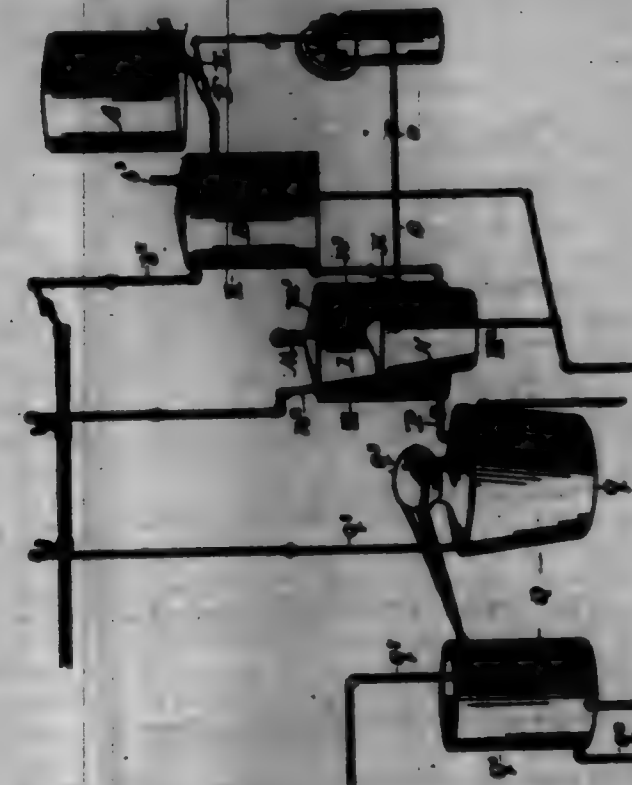
6. In combination with a hopper or receptacle and suitable supports therefor, a tilting bottom comprising a series of pivoted parallel sections adapted to normally occupy a horizontal plane, a crank on each section, a shifting rod connected to all of the cranks, a pivoted operating-lever connected to the shifting rod, means for limiting successive movement of the operating-rod and a catch adapted to engage one of the cranks to lock the operating-lever in normal position, substantially as described.

7. In a hopper, the combination with the sides thereof, of a tilting bottom comprising a series of concentrically-pivoted parallel sections, a crank on each section outside of the hopper, a pivoted operating-lever, means connecting said lever to the crank on each section, and a latching device pivoted to the operating-lever for retaining the same in position through engagement with one of said sections to maintain the sections in alignment, substantially as described.

698,183. APPARATUS FOR REFINING, AGING, BLENDEDING, AND PURIFYING ALCOHOLIC LIQUORS. JAMES F. DUFFY, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 71,008. (No model.)

Claim.—1. In an apparatus of the class described, the combination with a supply-tank, of a heating-tank arranged at a lower level, an air-compressor, a supply-pipe leading from the supply-tank to the heating-

tant, a pipe leading from the air-compressor to the supply-pipe and entering the same at an acute angle in the direction of flow in said supply-pipe, a coil within the heating-tank connected with the supply-tank, means for heating the interior of said heating-tank, an atomizing-tank, an atomizer therein connected with the heating-tank and means for ejecting a current of impregnated air upon the liquor as it emerges from the atomizer, substantially as described.



2. In an apparatus of the class described, the combination with an atomizing-tank, of an atomizer therein provided with means for supplying it with a flow of mingled air and liquor and a nozzle directed toward the spray of the atomizer and provided with means for supplying it with a flow of air impregnated with a volatile substance, substantially as described.

3. In an apparatus of the class described, the combination with an atomizing-tank, of an atomizer therein, a heating-tank, a supply-tank and air-compressor, connecting-pipes leading the liquor from the supply-tank, injecting air into the same, passing in the form of a coil through the heating-tank and leading to the atomizer, means for heating the interior of said heating-tank, a heated receptacle containing a volatile reagent, an air-pipe supplying air to said heated receptacle and a pipe leading therefrom and discharging into the spray of the atomizer, substantially as described.

4. In an apparatus of the class described, the combination of a supply-tank, a heating-tank at a lower level and connected therewith by a suitable connection, an air-injector in said connection, an air-compressor, connected in said injector and adapted to inject a current of air into the liquor, a heated coil within the heating-tank joined to the connection with the supply-tank, a suitable atomizing-tank, an atomizer therein connected with said coil, a heated receptacle containing a volatile reagent, a connection between said receptacle and the atomizing-tank, means for forcing compressed air into said heated receptacle, suitable distilling apparatus and connections between said atomizing-tank and said distilling apparatus, substantially as described.

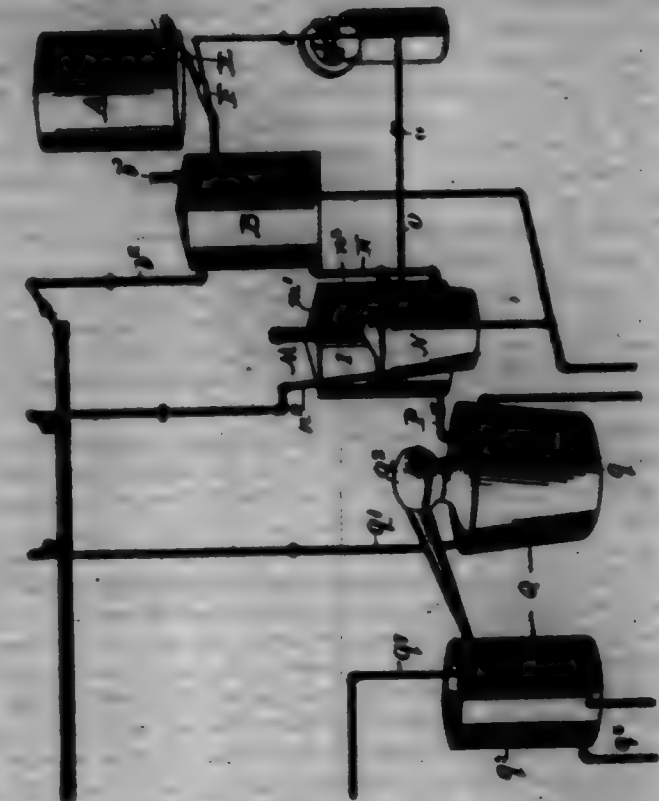
698,184. METHOD OF REFINING, AGING, BLENDEDING, AND PURIFYING ALCOHOLIC LIQUORS. JAMES F. DUFFY, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 71,009. (No specimens.)

Claim.—1. In a process for the treating of liquors, the following steps in the order mentioned, to wit: the mingling therewith of air under pressure, the heating of the mixture, the addition thereto of a volatile reagent and the distillation of the products, substantially as described.

2. In a process for the treating of liquors, the following steps: first, the mingling with the liquor, of air under pressure; second, the heating of the mixture; third, the standing of the heated mixture; fourth, the impregnating of air with a volatile reagent, and fifth, the mingling of the impregnated air with the atomized heated mixture, substantially as described.

3. In a process for the treating of liquors, first, the mingling with said liquor, of air under pressure; second, the heating of the mixture thus formed; third, the standing of the heated mixture; fourth, the impregnating of air with a volatile reagent; fifth, the mingling of the impreg-

nated air and the atomized mixture; sixth, the distilling of the product, substantially as described.



4. In a process for the treating of liquors, the standing of the liquor and the mingling of a volatile reagent with said liquor, while the latter are in the form of a spray, substantially as described.

698,185. CABLE-SUSPENDING HANGER. RALPH DE PUECO, Cleveland, Ohio, assignor of one-half to WILLIAM T. BORTON, Sr., Cleveland, Ohio. Filed Mar. 18, 1902. Serial No. 98,488. (No model.)



Claim.—1. A cable-suspending hanger comprising a piece of sheet metal which is bent into the shape required to form two hooks which are arranged, at the top and bottom, respectively, of the hanger, and having the following: a lower hook *d* arranged mouth up and forming a bearing for the cable or cables to be suspended by the hanger and formed entirely by the sheet-metal piece and having the dimensions required to render it capable of being bent completely around and thereby controlling the said cable or cables, and an upper hook *c* arranged mouth down and formed by a cross-forming piece of wire embraced by an end portion of the sheet-metal piece, substantially as and for the purpose set forth.

2. A cable-suspending hanger comprising a piece of sheet metal which is bent into the shape required to form two hooks which are arranged at the top and bottom, respectively, of the hanger, and having the following: a lower hook *d* arranged mouth up and forming a bearing for the cable or cables to be suspended by the hanger and formed entirely by the sheet-metal piece and having the dimensions required to render it capable of being bent completely around and thereby controlling the said cable or cables, and an upper hook *c* arranged mouth down and formed by a cross-forming piece of wire embraced by an end portion of the sheet-metal piece and extending beyond the said end portion of the sheet-metal piece at the free end of the said upper hook, substantially as and for the purpose set forth.

3. A cable-suspending hanger having the following: an upper hook *c* arranged mouth down, a lower hook *d* arranged mouth up and formed entirely by a sheet-metal piece which is plate and long enough to render it capable of being bent completely around and thereby controlling the cable or cables to be suspended by the hanger, and a web *f* joining the two hooks together and widest at its end which is contiguous to the lower hook and at the said end extending laterally beyond opposite sides of the

upper hook, and the free end of the lower hook being slotted longitudinally from the free extremity of the said hook inwardly so as to form two arms which are long enough to render them capable of straddling opposite ends, respectively, of the abovedescribed portion of the web when the said hook, upon the application of the hanger, is bent around and thereby caused to completely enclose the abovesaid cable or cables, substantially as and for the purpose set forth.

4. A cable-suspending hanger having the following: an upper hook arranged mouth down, a lower hook arranged mouth up and formed entirely by a sheet-metal piece which is pliable and long enough to render it capable of being completely bent around and thereby enclosing the cable or cables to be suspended by the hanger, and an upright web joining the two hooks together and widest at its lower end and at the said end extending laterally beyond opposite sides of the upper hook, and the free end of the lower hook being slotted centrally and longitudinally from the free extremity of the said hook inwardly so as to form two arms which are long enough to render them capable of straddling opposite ends, respectively, of the abovesaid lower and wider portion of the web when the said hook, upon the application of the hanger, is bent around and thereby caused to completely enclose the abovesaid cable or cables, substantially as and for the purpose set forth.

5. The combination, with a supporting-cable, and a cable or cables to be suspended from the supporting-cable, of a hanger comprising the following: an upper portion hung upon the supporting-cable and formed by a sheet-metal piece, a web joining the upper and lower portions of the hanger together and widest at its lower end and at the said end extending laterally beyond opposite sides of the upper portion of the hanger, and the abovesaid lower portion of the hanger being slotted to form two arms which straddle opposite ends, respectively, of the abovesaid wider portion of the web, substantially as and for the purpose set forth.

6. The combination, with a supporting-cable, and a cable or cables to be suspended from the supporting-cable, of a hanger comprising the following: an upper portion hung upon the supporting-cable, a lower portion affording bearing to the suspended cable or cables and formed entirely by a sheet-metal piece, a web joining the upper and lower portions of the hanger together and widest at its lower end and at the said end extending laterally beyond opposite sides of the upper portion of the hanger, and the abovesaid lower portion of the hanger being slotted to form two arms which straddle opposite ends, respectively, of the abovesaid wider portion of the web, substantially as and for the purpose set forth.

7. The combination, with a supporting-cable, and a cable or cables to be suspended from the supporting-cable, of a hanger comprising the following: an upper portion hung upon the supporting-cable, a lower portion affording bearing to the suspended cable or cables and formed entirely by a sheet-metal piece, an upright web joining the said upper and lower portions of the hanger together and widest at its lower end and at the said end extending laterally beyond opposite sides of the upper portion of the hanger, and the abovesaid lower portion of the hanger being slotted centrally and longitudinally to form two arms which straddle opposite ends, respectively, of the abovesaid lower and wider portion of the web and are bent over and closely against both sides of the web, substantially as and for the purpose set forth.

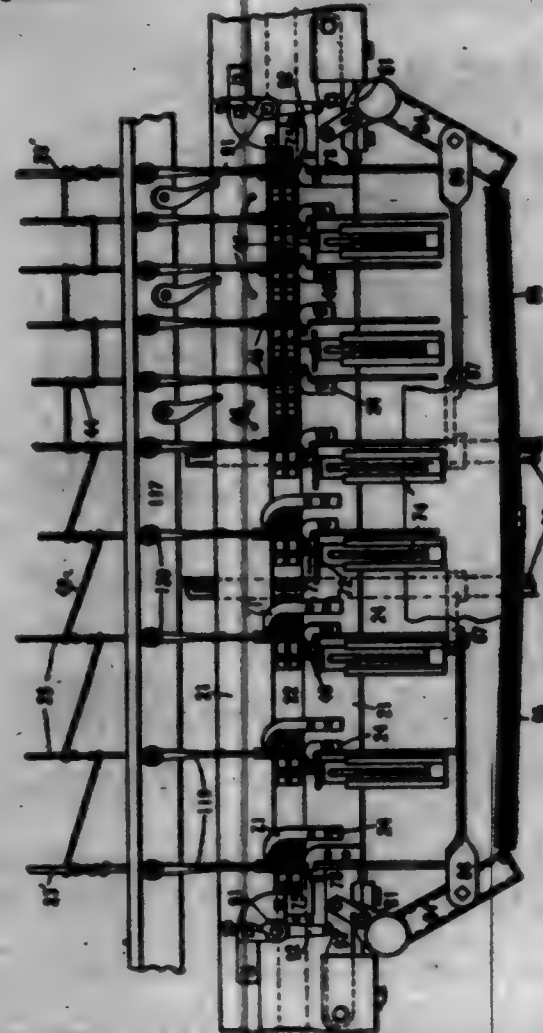
8. The combination, with a supporting-cable, and a cable or cables to be suspended from the supporting-cable, of a hanger comprising the following: an upper portion hung upon the supporting-cable, a lower portion affording bearing to the suspended cable or cables, a web between the said portions of the hanger and widest at its lower end and at the said end extending laterally beyond opposite sides of the upper portion of the hanger, and the abovesaid lower portion of the hanger having two arms which straddle opposite ends, respectively, of the abovesaid lower and wider portion of the web and are bent over and closely against both sides of the said end portion of the web, substantially as and for the purpose set forth.

698,186. WIRE-FENCE MACHINE. JOHN W. DWIGGINS and LAURENCE SWANK, Anderson, Ind., assignors to the Dwiggins Wire Fence Company, Anderson, Ind., a Corporation of Indiana. Filed Oct. 24, 1901. Serial No. 70,048. (No model.)

Claim.—1. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, means for distributing a stay-wire transversely of the series of running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, and means for attaching the said portions of the stay-wire to the running-wires.

2. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, means for distributing a stay-wire transversely of the series of running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, and means for twisting said parallel portions of the stay-wire about the adjacent running-wires.

3. In a wire-fence machine, the combination of means for intermittently feeding a series of running-wires therethrough, means for distributing a stay-wire transversely of the series of running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, and means for attaching said portions of the stay-wire to the running-wires.



4. In a wire-fence machine, the combination of means for intermittently feeding a series of running-wires therethrough, means for distributing a stay-wire transversely of the series of running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, and means for twisting said substantially parallel portions of the stay-wire about the adjacent running-wires.

5. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, means for arranging a stay-wire transversely of the running-wires, the stay-wire having single portions substantially parallel with and adjacent the running-wires, and means for twisting said substantially parallel portions of the stay-wire about the running-wires.

6. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, means for arranging a stay-wire transversely of the running-wires, the stay-wire having single portions substantially parallel with and adjacent the running-wires, and means for attaching said substantially parallel portions of the stay-wire to the running-wires.

7. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, means for distributing a substantially endless stay-wire transversely of the running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, means for cutting the said wire to the desired length, means for clamping the ends of the stay-wire so formed, and means for twisting the substantially parallel portions of the stay-wire about the adjacent running-wires.

8. In a wire-fence machine, the combination of means for feeding a series of running-wires therethrough, of means for distributing a substantially endless stay-wire transversely of the running-wires with single portions of the stay-wire adjacent and substantially parallel with the running-wires, means for cutting the said wire to the desired length, means for clamping the ends of the stay-wire so formed, and means for moving the substantially parallel portions of the stay-wire to the running-wires.

9. In a wire-fence machine, the combination of means for feeding a series of wires therethrough, of a needle-carriage, means for reciprocating said carriage transversely of the running-wires, a needle carried by said carriage and adapted to carry a stay-wire, means for reciprocating said needle transversely of the line of movement of the carriage during

such movement whereby a substantially endless stay-wire may be distributed by said needle transversely of the running-wires with portions thereof adjacent and substantially parallel with the running-wires, means for cutting the distributed portion of the stay-wire to the desired length, means for clamping the ends of the several portions of the stay-wire, and means for twisting the substantially parallel portions of the stay-wire about the adjacent running-wires.

10. In a wire-fence machine, the combination of a stay-wire-receiving table, means for feeding a series of running-wires across said table, a series of pins arranged adjacent the running-wires and projecting above the table, means for distributing a stay-wire around the said pins and transversely of the running-wires whereby portions of the stay-wire will be adjacent and substantially parallel with the running-wires, means for engaging and twisting said substantially parallel portions of the stay-wire about the running-wires, and means for withdrawing the pins from the stay-wire.

11. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, of a needle-carriage, means for reciprocating said carriage transversely across the series of running-wires, a swinging needle journaled in said carriage so as to swing in a plane substantially parallel with the line of running-wires and adapted to receive a stay-wire, and means for swinging said needle during the movement of the carriage, whereby a stay-wire may be distributed in a zigzag line transversely of the running-wires.

12. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, of a needle-carriage, means for reciprocating said carriage transversely across the series of running-wires, a swinging needle journaled in said carriage so as to swing in a plane substantially parallel with the series of running-wires and adapted to receive a stay-wire, a pair of oppositely-arranged cranks carried by the needle-shaft, and two groups of cams each group of cams being arranged to engage one only of the cranks whereby each crank and its set of cams will operate to reciprocate the needle during the travel of the carriage in one direction.

13. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, a needle-carriage, means for reciprocating said carriage transversely across the series of running-wires, a swinging needle journaled in said carriage so as to swing in a plane substantially parallel with the running-wires and adapted to receive a stay-wire, a pair of oppositely-arranged cranks carried by the needle-shaft in the line of the carriage, and two groups of cams each adapted to engage and throw one of the cranks, the arrangement of cams being such that only the trailing crank will operate to oscillate the needle during either direction of travel of the carriage.

14. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, of means for laying a stay-wire adjacent the running-wires, a series of twisting-gears, means for normally withdrawing said twisting-gears out of the line of movement of the running-wires, means for projecting said twisting-gears into engagement with the running-wires and stay-wire, and means for rotating said gears after their projection.

15. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, of a stay-wire-distributing needle, and means for reciprocating said needle both transversely and longitudinally with relation to the running-wires.

16. In a wire-fence machine, the combination with means for feeding a series of running-wires therethrough, of a stay-wire-distributing needle, and means for moving said needle adjacent the running-wires both transversely and longitudinally.

17. In a wire-fence machine, the combination of a stay-wire-distributing needle, means for reciprocating the same across the running-wires, means for cutting the stay-wire, means for clamping the ends of said stay-wire, and means for reversing the direction of the free end of the stay-wire supply before it returns the clamping means.

18. In a wire-fence machine, the combination of a stay-wire-distributing needle, means for reciprocating the needle across the running-wires, means for cutting the stay-wire, means for clamping the ends thereof, a trip-lever 22, a finger 26 carried thereby, a pawl carried by the needle and adapted to deflect the trip-lever during the movement of said needle in one direction, and means for returning the trip-lever to its initial position, the arrangement being such that the finger 26 will be brought into engagement with the free end of the stay-wire supply and reverse its direction for a reversal of motion of the needle.

19. In a wire-fence machine, the combination of a stay-wire-distributing needle, means for reciprocating said needle across the running-wires, means for cutting the stay-wire, means for clamping the ends thereof, a trip-lever 22, a finger 26 carried thereby, a pawl carried by the needle and adapted to deflect the trip-lever during the movement of said needle in one direction, and means for returning the trip-lever to its initial position, the arrangement being such that the finger 26 will be brought into engagement with the free end of the stay-wire supply and reverse its direction for a reversal of motion of the needle.

20. In a wire-fence machine, means for positively clamping each running-wire and feeding uniform lengths thereof therethrough, whereby

all the running-wires of a given length of completed fencing will be of uniform length.

21. In a wire-fence machine, a feeding-drum for the running-wires, consisting in part of means for positively clamping each running-wire at successive points and moving the same through a uniform distance.

22. In a wire-fence machine, a feeding-drum consisting of a series of heads each adapted to receive one of the running-wires, means carried by each head for clamping and twisting its running-wire, and means for simultaneously advancing all of said heads through a uniform peripheral distance.

23. In a wire-fence machine, a feed-head adapted to receive a running-wire, a series of lugs projecting from the periphery thereof, a series of levers arranged to cooperate with said lugs, means for rotating said head, and means for swinging each lever toward and from its lug, whereby a running-wire may be automatically clamped and twisted between the lugs and levers, uniformly fed through the machine, and released from the feeder, substantially as shown and described.

24. In a wire-fence machine, a feeding-drum for the running-wires, consisting of a series of heads, one for each running-wire, means for adjusting the effective diameter of each of said heads, means carried by each of said heads for positively clamping its running-wire, and means for rotating the entire drum, whereby uniform lengths of all running-wires will be fed through the machine independent of the relative size of said wires.

25. In a wire-fence machine, a feeding-drum for the running-wires, consisting of a series of connected heads, one for each running-wire, a series of lugs projecting from the periphery of each head, a series of levers carried by each head and arranged one adjacent each lug, means for swinging each lever into and away from juxtaposition with its lug so as to clamp the running-wire and twist it transversely, a series of fingers projecting from the periphery of each drum, means for adjusting said fingers toward and from the periphery so as to vary the effective diameter of each head, and means for rotating the head, substantially as and for the purpose set forth.

26. In a wire-fence machine, the combination with wire feeding and guiding mechanism, of twisting mechanism consisting of a plurality of dotted twisting-gears, a rack meshing with all of said gears, means for projecting said gears intermittently into the twisting position, and means for giving the rack a half-rotation for each projection of the twisting-gears into twisting position.

27. In a wire-fence machine, the combination with wire feeding and guiding mechanism, of twisting mechanism consisting of a plurality of dotted twisting-gears, means for projecting said gears intermittently into twisting position, and means for rotating said gears.

28. In a wire-fence machine, the combination with wire feeding and guiding mechanism, of twisting mechanism consisting of a plurality of dotted twisting-gears, means for projecting said gears intermittently into twisting position, and means for rotating said gears in opposite directions for alternate projections of said gears into twisting position.

29. In a wire-fence machine, the combination of a stay-wire-receiving table, means for feeding a series of running-wires across said table, a series of stay-wire pins projected above said table, a stay-wire-distributing needle, means for moving said needle both transversely and longitudinally of the running-wires so as to distribute the stay-wire around the stay-wire pins and transversely of the running-wires with portions adjacent and substantially parallel with the running-wires, a series of sliding guards mounted adjacent some of the stay-wire pins and each carrying a pin adapted to lie normally adjacent a stay-wire pin and above the position to be occupied by the distributed stay-wire, the arrangement being such that the needle operates to retract the guard-pin from its normal position at the time of the distribution of the stay-wire around the adjacent stay-wire pin.

30. In a wire-fence machine, the combination with means for feeding a plurality of running-wires therethrough, of means for attaching thereto a transverse stay-wire having portions adjacent and substantially parallel with the running-wires, each means consisting of a plurality of twisting-gears, means for causing said gears to engage the running-wires and stay-wire so as to twist the substantially parallel portions of the stay-wire about the running-wires, and guards arranged to engage the stay-wire adjacent the running-wires and regulate the length of the twist.

31. In a wire-fence machine, the combination with means for feeding a plurality of running-wires therethrough, a plurality of twisting-gears, means for causing said gears to engage the running-wires and those portions of a transverse stay-wire which lie adjacent and substantially parallel to the running-wires so as to twist such portions around the running-wires, a guide for each running-wire, a plurality of fingers, and means for moving said fingers into opposition to the guides so as to engage the stay-wire and regulate the length of twist upon the running-wires.

32. In a wire-fence machine, the combination with a stay-wire-receiving table, of means for feeding a plurality of running-wires across said table, a plurality of stay-wire pins projecting above said table, adjacent

the running-wires, a plurality of guides one for each running-wire, a plurality of fingers, means for bringing said fingers adjacent the running-wires each in opposition to one of the guides, twisting mechanism adapted to engage portions of a stay-wire and wrap them upon the running-wires, and means for withdrawing the stay-wire pins, substantially as described.

33. In a wire-fence machine, the combination with a stay-wire-receiving table, of means for feeding a plurality of running-wires across said table, a plurality of stay-wire pins projecting above said table adjacent the running-wires, a plurality of guides one for each running-wire, each adjustable longitudinally of its wire, a plurality of adjustable fingers, means for bringing said fingers adjacent the running-wires each in opposition to one of the guides, twisting mechanism adapted to engage portions of a stay-wire and wrap them upon the running-wires, and means for withdrawing the stay-wire pins, substantially as described.

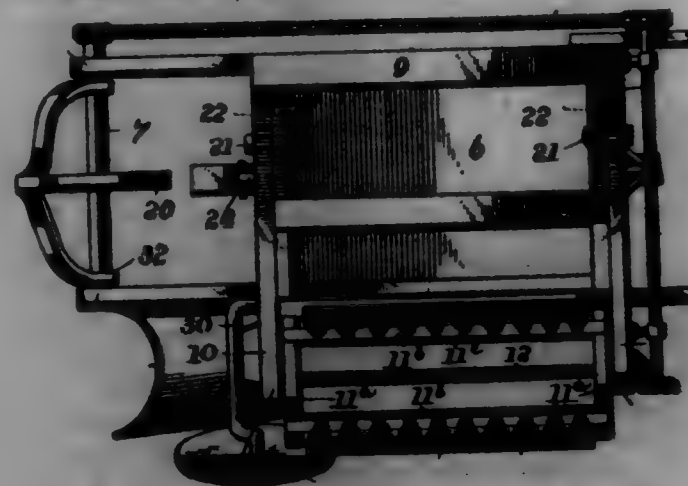
34. In a wire-fence machine, the combination of a stay-wire-distributing needle, means for reciprocating the needle across the running-wires, means for cutting the stay-wire, means for clamping the ends of the stay-wire, and means for engaging the fresh end of the stay-wire supply and reversing the direction thereof before it releases the clamping means.

35. In a wire-fence machine, the combination with a stay-wire-applying means, of means for positively clamping each running-wire after the stay-wire has been applied, and means for moving said clamping means whereby all of the running-wires of a given length of completed fencing will be of uniform length.

36. In a wire-fence machine, the combination with a stay-wire-applying means, of means for positively engaging and kinking each running-wire after the stay-wires have been applied, and means for moving said clamping and kinking means to feed the running-wires through the machine.

37. In a wire-fence machine, the combination with means for applying stay-wires, means for positively clamping the running-wires after the stay-wires have been applied, and means for intermittently moving said clamping means whereby uniform lengths of running-wires are intermittently drawn through the machine.

698,187. INSECT-DESTROYING MACHINE. CHARLES V. DYER and WILLIAM S. WILLIAMS, CORP., INC. Filed Aug. 26, 1901. Serial No. 73,305. (No model.)



Claim.—1. In a machine of the character described, in combination, a box, a revolving brush, an arched axle to open a row of plants, a wheel upon the outer end thereof, and a head adapted to gather the plants to the brush.

2. In a machine of the character described, in combination, a vertically-adjustable box, a laterally-adjustable revolving brush, and a head adapted to gather plants to the brush.

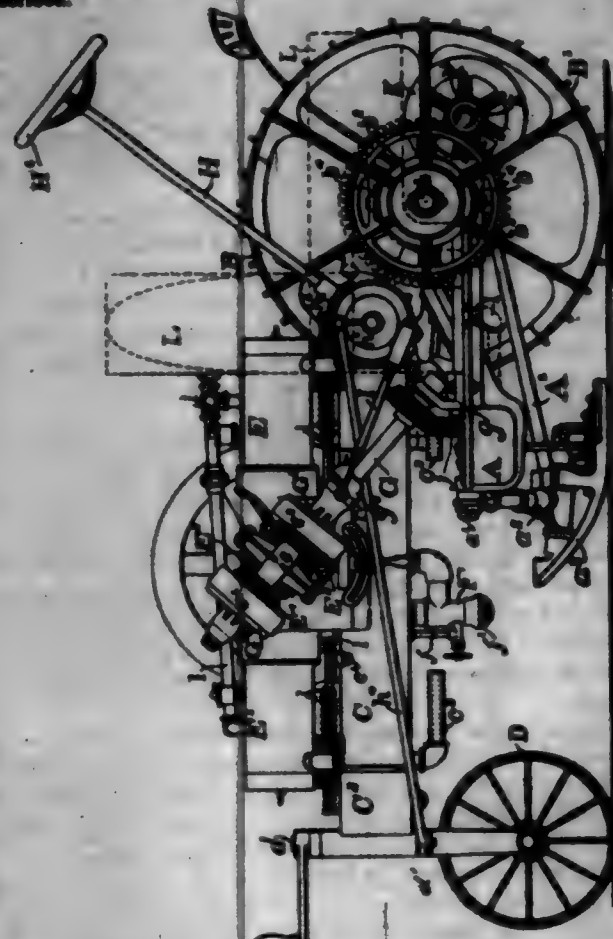
3. In a machine of the character described, in combination, a box, a supporting-runner thereunder, means to adjust the box vertically upon the runner, a laterally-adjustable frame supported on the box, and a revolving brush mounted in the frame.

4. In a machine of the character described, in combination, a box, a supporting-runner thereunder, means to adjust the box vertically relative to the runner, a laterally-adjustable frame supported on the box, a revolving brush mounted in the frame, a head adapted to gather the plants for the brush, an arched axle adapted to open a row of plants and a wheel upon the outer end of the axle.

698,188. AUTOMOBILE MOWING-MACHINE. GEORGE E. BLAIR and JOHN F. STURGEON, CHICAGO, ILL. Filed Jan. 11, 1901. Serial No. 42,385. (No model.)

Claim.—1. In a mowing or other machine adapted to perform work

while being self-propelled over the ground, a rotatable shaft, as J, connecting mechanism adapted to operate the parts required to perform the said work while passing over the ground, said shaft connected to the traction-wheel by gearing adapted to permit the traction-wheel to operate independently when either is under restraint caused by the steering mechanism, a motor for said shaft, and means between the motor and shaft to cause the driving action of the motor upon said shaft to be either forward or backward, all combined with the steering mechanism substantially as described.



2. In a mowing or other machine adapted to perform work while being self-propelled over the ground, a rotatable shaft, as J, connecting mechanism adapted to operate the parts required to perform the said work while passing over the ground, said shaft connected to the traction-wheel by differential gearing adapted to permit the traction-wheel to operate independently when either is under restraint caused by the steering mechanism, motor for said shaft, and means between the motor and shaft to cause the driving action of the motor upon the shaft to be forward or backward, all combined with the steering mechanism substantially as described.

3. In a mowing or other machine adapted to perform work while being self-propelled over the ground, a rotatable shaft, as J, connecting mechanism adapted to operate the parts required to perform the said work while passing over the ground, said shaft connected to the traction-wheel by differential mechanism, and a clatching mechanism interposed between the said shaft J and the differential mechanism whereby the propelling force may be disconnected from the traction-wheel, all combined substantially as described.

4. In a mowing or other machine adapted to perform work while being self-propelled over the ground, a rotatable shaft, as J, said shaft connected by suitable gearing to the traction-wheel and also adapted, by suitable connecting mechanism, to perform work while so traveling over the ground, the combination therewith of a motor suitably geared to said shaft whereby the motive power of said motor, through the instrumentality of said shaft, is transmitted, in part to the traction-wheel and in part to that portion of the mowing-machine adapted to perform the labor required while passing over the ground, the said mechanism for transmitting motion from the motor to the said shaft consisting essentially of means for converting the single action of the motor into either a forward or backward drive, substantially as described.

5. In a mowing or other machine adapted to perform work while being self-propelled over the ground, a rotatable shaft, as J, said shaft connected by suitable gearing to the traction-wheel and also adapted, by suitable connecting mechanism, to perform work while so traveling over the ground, the combination therewith of a motor suitably geared to said shaft whereby the motive power of said motor, through the instrumentality of said shaft, is transmitted, in part to the traction-wheel and in part to that portion of the mowing-machine adapted to perform the labor

required while passing over the ground, the said mechanism for transmitting motion from the motor to the said shaft consisting essentially of a reversibly-acting clatching mechanism, said clatching mechanism consisting of a gear on the motor-shaft, a shaft, as G, suitably geared to the shaft from which power is distributed to various working parts of the machine, said having the loosely-moving gears F and F' thereon, and the friction-clutches G' and G'' for locking either of the said gears to the said shaft at will, substantially as described.

6. In an automobile moving or other machine main supporting and traction wheels, framework for the working parts carried thereon, a supplemental supporting wheel, or wheels, as D, a shaft connecting the parts in which said wheels are supported, said shaft forming at the same time the bed of the engine and fuel-reservoir, substantially as described.

7. In an automobile moving or other machine main supporting and traction wheels, framework for the working parts carried thereon, a supplemental supporting wheel, or wheels, as D, a shaft connecting the parts in which said wheels are supported, said shaft consisting of a tube forming an oil-reservoir and exhaust chamber, or chamber, and ending during the ends of the tube and constituting the ends of the exhaust-chamber, substantially as described.

8. In an automobile moving or other machine main supporting and traction wheels, framework for the working parts carried thereon, a supplemental supporting wheel, or wheels, as D, a shaft connecting the parts in which said wheels are supported, said shaft consisting of a tube forming an oil-reservoir and exhaust chamber, or chamber, and ending during the ends of the tube and constituting the ends of the exhaust-chamber, substantially as described.

9. In a moving or other machine adapted to perform work while being self-propelled over the ground, the combination of the main supporting and traction wheels, a framework for the working parts carried thereon, a supplemental supporting wheel or wheels, a shaft connecting the parts, said shaft during the ends of the tube and constituting the connection between the tube and the parts in which the wheels are supported, and driving-partitions in said tube forming a fuel-reservoir and exhaust-chamber, said tube also constituting the bed of the engine.

10. In a moving or other machine adapted to perform work while being self-propelled over the ground, the combination of a shaft, as J, having a gear connection with the traction-wheel, an engine for driving the shaft J, a reversing-gear in the train of gears between the engine and the traction-wheel, a lever controlling said reversing-gear, a guiding-wheel, and a connection between said wheel and the lever whereby the latter may also control the wheel.

11. In a moving or other machine adapted to perform work while being self-propelled over the ground, the combination of a shaft, as J, having a gear connection with the traction-wheel, an engine for driving the shaft J, a reversing-gear between the engine-shaft and the shaft J, an oscillating lever controlling said reversing-gear, a guiding-wheel, a gear K having a wrist-pin connected by rod K' with the guiding-wheel, and a plain P on the reversing-lever in mesh with the gear K, whereby the oscillation of the lever controls the reversing-gear, and the axial rotation of the lever controls the guiding-wheel.

12. In a moving-machine adapted to perform work while being self-propelled over the ground, the combination with a one-way engine, the outer crank-shaft, a reversing-gear connection between said shaft and the engine, and a driving-gear connection between the shaft and the traction-wheel.

13. In a moving-machine adapted to perform work while being self-propelled over the ground, the combination with a one-way engine, the outer crank-shaft, a reversing-gear connection between said shaft and the engine, a counter-shaft in rear of the axle, a bevel-wheel gearing with a plain on the rear end of the crank-shaft and having a spur-plain P' right thereon, a driving-gear P' operated by said plain, bevel-wheels U, V, connected respectively to the two traction-wheels, and links U', V', connecting the bevel-wheels to the driving-gear.

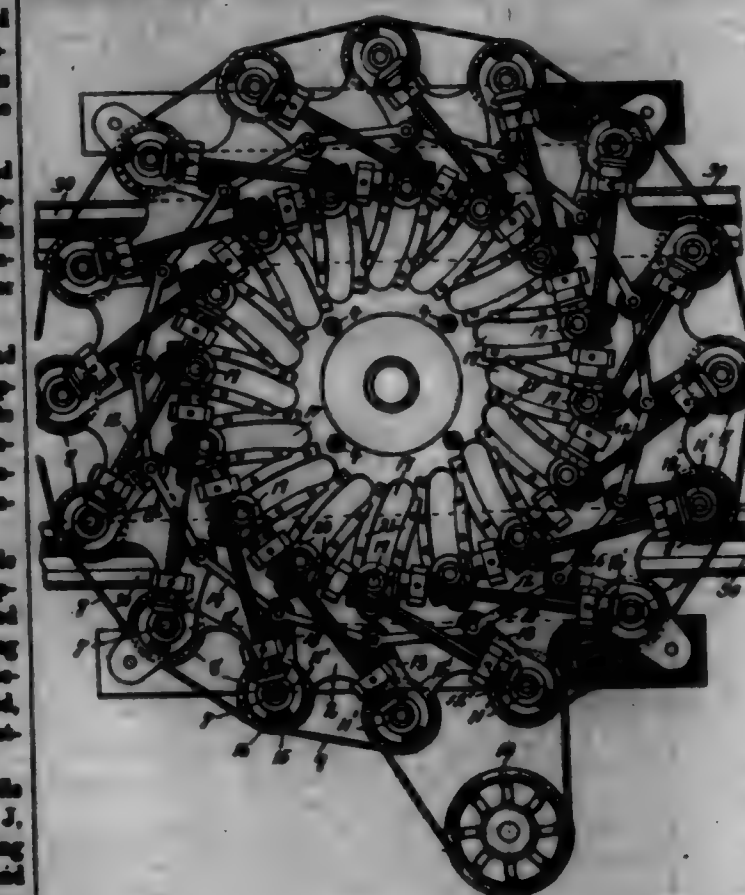
14. In a moving-machine adapted to perform work while being self-propelled over the ground, the combination of the cutting apparatus, the outer crank-shaft, an engine, having a gear connection with a driving-plain J on the front end of the shaft, and a wheel J' on the rear end of the shaft for communicating power from the shaft.

15. In a moving-machine adapted to perform work while being self-propelled over the ground, the combination of the main frame having a tongue-crank, an axle and traction-wheel carried by said frame, an engine-bed fitting in said crank at its rear end, a supporting-wheel for the front end of the bed, and gearing between the engine and traction-wheel.

698,189. MACHINE FOR DRILLING INVERT-HOLES IN METAL. LEO WHEEL-FILLER, CHICAGO, ILL. Filed May 29, 1901. Serial No. 41,147. (No model.)

Claim.—1. The combination of a frame formed with a circular series of correspondingly-curved guiding-slides, drills journaled in bearings

in said slide, shafts journaled at one end in said bearings and geared to the drills, a circular series of individually-rotatable bearings mounted on the frame outside of the circular series of slides, the shafts being also journaled in said latter bearings, an arm projecting from each of the individually-rotatable bearings, and links connecting the arms of adjacent bearings throughout the circular series, whereby all of said bearings and the shafts journaled therein may be adjusted simultaneously, substantially as shown and described.



2. The combination of a circular series of drills, a corresponding series of shafts disposed at right angles to the drills, the shafts being geared at their inner ends to the drills, a circular series of bearings for the outer ends of said shafts, and means for axially moving said bearings simultaneously for the purpose of so moving said shafts as to either increase or diminish the diameter of the circle of said drills, substantially as shown and described.

3. The combination of a circular series of drills, a corresponding series of shafts extending at right angles to the drills, said shafts being geared at their inner ends to the drills, bearings common to said shafts and drills for constantly maintaining them in proper relation, a circular series of rotatable bearings for the outer ends of said shafts, and means for axially turning said rotatable bearings, substantially as shown and described.

4. The combination of a circular series of drills, a corresponding series of shafts extending at right angles thereto, the drills being geared to the inner end of said shafts and adjustable therewith, a circular series of bearings for the outer ends of the shafts, an arm projecting from each of said bearings, and links connecting all of said arms, whereby all of the bearings may be turned on their axes uniformly for the purpose of increasing or diminishing the diameter of the circle of said drills through the medium of said shafts, substantially as shown and described.

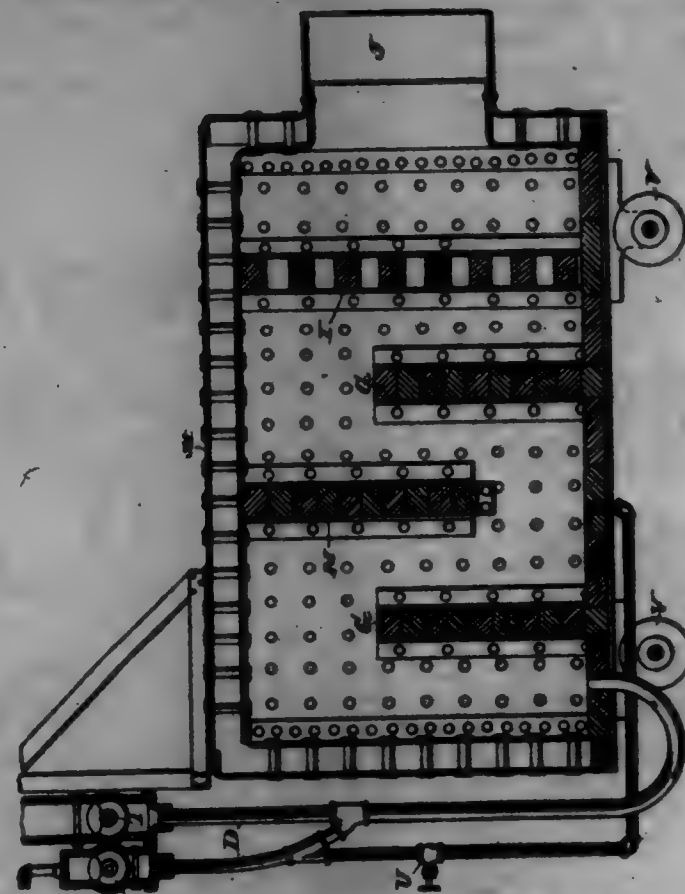
5. The combination of a circular series of radially-adjustable drills, actuating mechanism for each drill having permanent operative engagement therewith, a circular series of individually-rotating supports—one for each of said actuating mechanism, whereby the latter and the drills are adapted to swing in a common plane, and means for turning all said supports simultaneously, substantially as shown and described.

6. The combination of a series of horizontally-swinging drills, the centers upon which the drills swing being arranged in a circle, and adjusting mechanism common to the swinging centers of all the drills, substantially as shown and described.

7. The combination of a frame formed with a circular series of correspondingly-curved slides, bearings fitting the slides and adjustable therein, drills mounted in the bearings, and mechanism for radially adjusting all of said bearings, simultaneously, substantially as shown and described.

8. The combination of vertically-disposed drills, a vertically-fixed horizontally-movable carriage beneath the drills, and work-supports on the carriage and vertically adjustable independently of each other, whereby work on one support may be raised and operated upon independently of the other support, substantially as shown and described.

698,190. FINE-FUEL FURNACE. WILLIAM H. FISHER, Chicago, Ill. Filed June 4, 1902. Serial No. 18,861. (No model.)



Claim.—1. The combination with a fine-fuel furnace, of means for supplying thereto in suspension and in rapid succession measured charges of air and fuel combined, substantially as described.

2. The combination with a fine-fuel furnace, of means for supplying thereto in suspension successive charges of air and fuel combined, said means comprising a chamber between the furnace and the source of fuel supply, within which chamber the air and fuel are combined, substantially as described.

3. The combination with a fine-fuel furnace of means for supplying thereto air and fuel in successive measured charges, said means being adjustable so as to vary the quantity of air and fuel contained in each charge, substantially as described.

4. The combination with a fine-fuel furnace, of a series of valves for supplying fuel supply pipes, a series of valves for supplying air supply pipes, each of said valves connecting their respective sources of supply with the furnace, and means for causing the supply-pipes of each series to operate successively and intermittently, substantially as described.

5. In a fine-fuel furnace, the combination with a combustion chamber, of means for feeding the blasts of fine fuel upwardly to a zone of combustion therein and in rapid succession, substantially as described.

6. The combination with a fine-fuel furnace, a fuel-hopper and an air-chest, of series of valves for supplying fuel and air to the furnace through said series of pipes simultaneously or successively but intermittently, substantially as described.

7. The combination with a hermetically-sealed fine-fuel furnace provided with a tortuous combustion-chamber and a contracted discharge-opening, of means for supplying a mixture of air and fuel to said furnace in a series of jets operating successively or simultaneously but intermittently, substantially as described.

8. The combination with a hermetically-sealed fine-fuel furnace, having a tortuous combustion-chamber and a contracted discharge-opening, of series of valves for fuel supply pipes connected at intervals with said furnace, the valves in said pipes being adapted to operate successively or alternately but intermittently, substantially as described.

9. The combination with a hermetically-sealed fine-fuel furnace having a tortuous combustion-chamber and a contracted discharge-opening, of an air-chest and a fuel-hopper respectively connected with the furnace at intervals, the supply of air and fuel being simultaneous through each connection, and all said connections operating simultaneously or successively but intermittently, substantially as described.

10. In a fine-fuel furnace, means for supplying a fluid fuel element thereto, said means comprising a series of pipes connecting said furnace with a source of supply, and a corresponding series of successively and intermittently operating valves for controlling the admission of said fluid fuel element to said pipes from said source of supply, substantially as described.

11. In a fine-fuel furnace, means for supplying a fluid fuel element thereto, said means comprising a series of pipes connecting said furnace with a source of supply, and a corresponding series of intermittently-operating valves for controlling the admission of said fluid fuel element from said source of supply to said pipes, said valves being arranged to operate either simultaneously or successively, all substantially as described.

12. The combination with a fine-fuel furnace, of a fuel and air feeding mechanism comprising a fine-fuel hopper, a series of pipes connecting the same with the furnace, a corresponding series of feed-chambers, a corresponding series of adjustable intermittently-operating valves controlling ports connecting said chambers with the hopper and with the pipes, a slide-valve for simultaneously controlling the ports leading from the hopper to the feed-chambers, and means for supplying air in measured charges to the feed-pipes, substantially as described.

13. The combination with a fine-fuel furnace, of a fuel and air feeding mechanism comprising a fine-fuel hopper, a series of pipes connecting the same with the furnace, a corresponding series of feed-chambers, a corresponding series of adjustable intermittently-operating valves controlling ports connecting said chambers with the hopper and with the pipes, a slide-valve for simultaneously controlling the ports leading from the hopper to the feed-chambers, an air-chest, a series of pipes corresponding in number with the fuel-pipes and connecting said chest with the furnace, and a series of adjustable intermittently-operating valves located in said chest and controlling the discharge-ports leading therefrom to the air-pipes, substantially as described.

14. The combination with a fine-fuel furnace, of a fuel and air feeding mechanism comprising a fine-fuel hopper, a series of pipes connecting the same with the furnace, a corresponding series of feed-chambers, a corresponding series of adjustable valves controlling ports connecting said chambers with the hopper and with the pipes, a slide-valve for simultaneously controlling the ports leading from the hopper to the feed-chambers, an air-chest, a series of pipes corresponding in number with the fuel-pipes and connecting said chest with the furnace, a series of adjustable valves located in said chest and controlling the discharge-ports leading therefrom to the air-pipes, and a slide-valve for controlling the ports leading from the air-chest to the air-pipes, substantially as described.

15. The combination with a fine-fuel furnace, of a fuel and air feeding mechanism comprising a fine-fuel hopper, a series of pipes connecting the same with the furnace, a corresponding series of feed-chambers, a corresponding series of adjustable valves controlling ports connecting said chambers with the hopper and with the pipes, a slide-valve for simultaneously controlling the ports leading from the hopper to the feed-chambers, an air-chest, a series of pipes corresponding in number with the fuel-pipes and connecting said chest with the furnace, a series of adjustable valves located in said chest and controlling the discharge-ports leading therefrom to the air-pipes, a slide-valve for controlling the ports leading from the air-chest to the air-pipes, and a gear connection between the series of fuel-valves and the series of air-valves, substantially as described.

16. In a fine-fuel furnace, the combination with a combustion-chamber, of means for supplying intermittent rapidly-ascending and upwardly-directed blasts of fine fuel to a zone of combustion therein, substantially as described.

17. In a fine-fuel furnace, the combination with a combustion-chamber, of a plurality of tuyeres therein, and means for supplying rapidly-ascending intermittent and upwardly-directed blasts of fine fuel in suspension alternately through adjacent tuyeres to a zone of combustion in said combustion-chamber, substantially as described.

18. In a fine-fuel furnace, the combination with a combustion-chamber, of a tuyere arranged adjacent to the bottom thereof to direct blasts of fuel in an upward direction to a zone of combustion in said combustion-chamber, and means for supplying rapidly-ascending intermittent blasts of fine fuel in suspension, through said tuyere to said zone of combustion, substantially as described.

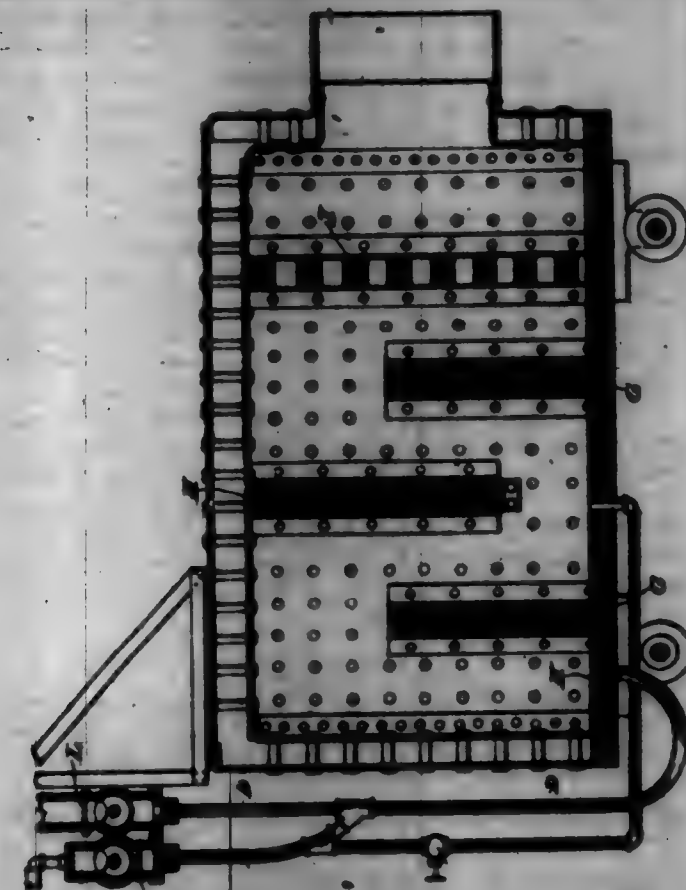
698,191. FINE-FUEL COMBUSTION. WILLIAM H. FISHER, Chicago, Ill. Filed July 31, 1901. Serial No. 78,347. (No specimen.)

Claim.—1. The process of burning fine fuel which comprises measuring a charge of fine fuel and a charge of a fluid fuel element and in forcing said measured charges simultaneously and in suspension upward into a zone of combustion, substantially as described.

2. The process of combustion which comprises supplying a zone of combustion with rapidly-ascending fuel charges in suspension, each charge consisting of a measured quantity of fine fuel and a correspondingly measured and proportioned quantity of a fluid fuel element, substantially as described.

3. The process of combustion which comprises supplying a zone of combustion within a closed combustion-chamber, with measured and relatively proportioned quantities of fine fuel and of fluid fuel element in suspension in rapidly-ascending interrupted blasts, substantially as described.

4. The process of combustion which comprises supplying a zone of combustion within a closed combustion-chamber with successive measured charges of fine fuel and a fluid fuel element in suspension and combined in relatively proportioned quantities, substantially as described.



5. The process of combustion which comprises the introduction into a supply-pipe of a measured charge of fine fuel, together with a measured and correspondingly-proportioned charge of fluid fuel element, and in then supplying said combination of fine fuel and fluid fuel element in suspension from said supply-pipe to a zone of combustion in a closed combustion-chamber in interrupted blasts, substantially as described.

6. The process of combustion which comprises supplying a zone of combustion in a closed combustion-chamber with measured charges of fine fuel, and measured and correspondingly-proportioned charges of fluid fuel element and in intimately intermixing said fuel elements, and the gases within said combustion-chamber by means of interrupted and conflicting blasts, substantially as described.

7. The process of combustion which comprises the combustion of fine fuel in suspension within a combustion-chamber and the introduction into said combustion-chamber, during the process of combustion, of interrupted and interfering blasts, substantially as described for the purposes described.

8. The process of combustion which comprises supplying fine fuel to a zone of combustion within a combustion-chamber and promoting the combustion of said fine fuel in suspension, and the intermixture of the combustible gases and other fuel elements within said combustion-chamber, by the introduction into said chamber of interrupted and interfering blasts, substantially as described.

9. The process of combustion which comprises the combustion of fine fuel in suspension, in a closed combustion-chamber, and the production within said combustion-chamber, during the process of combustion, of an agitating and mixing action by the introduction into said combustion-chamber of interrupting and interfering blasts, substantially as described for the purposes described.

10. The process of combustion which comprises the introduction of fine fuel to a zone of combustion and the promotion of the intimate intermixture of said fine fuel, in suspension, with a fluid fuel element by the use of upwardly-directed, interrupted blasts, substantially as described.

11. The process of combustion which comprises the introduction of fine fuel to a zone of combustion and the promotion of the intimate intermixture of said fine fuel in suspension with a fluid fuel element by means of upwardly-directed and alternately-acting interrupted blasts, substantially as described.

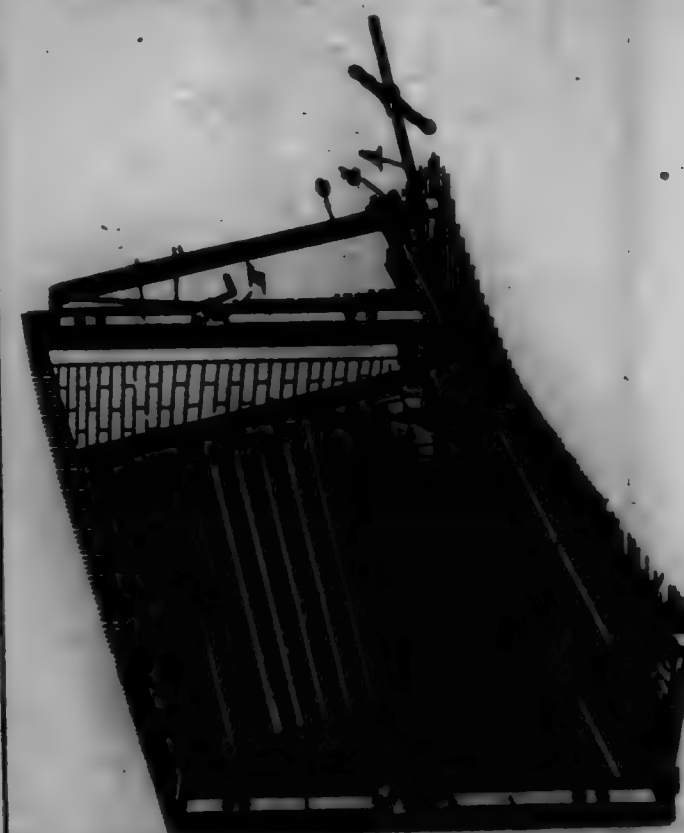
698,192. WHISTLE-CLIP. WILLIAM FISHER, Pittsburgh, Pa. Assignor of one-half to Andrew Fisher, Pittsburgh, Pa. Filed Nov. 24, 1901. Serial No. 62,600. (No model.)

Claim.—A whistle-clip, comprising two members hinged together at their rear ends and having interlocking portions at their front ends to

form a link, and a bolt for securing the interlocking ends together, said bolt being in the rear of the bearing-surfaces of the eye, substantially as set forth.



698,193. BELL-TUBE CLEANER. WILLIAM H. FISHER and John T. Hall, Pittsburgh, Pa. Assignors to the Union Bell-Tube Cleaner Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Jan. 17, 1902. Serial No. 700,622. (No model.)



Claim.—1. In mechanism of the class described, the combination of the transverse bar or rail, means for vertically adjusting the same, the laterally-adjustable slide carried by said bar or rail, the bracket having the cylindrical downward extension and the upward extension, the clamp upon said slide engaging said downward extension, the outer rotary drive journal in said bracket, the inner concentric endwise-removable drive rotatably connected to said first-named drive, means for causing said inner drive from endwise movement, the feed-rod engaging said inner drive, the rotary engine carried by said bracket, the shaft of said engine, having a journal-bearing in said upward extension, and carrying a gear-wheel meshing with the gear-wheel upon said outer drive, substantially as specified.

2. In mechanism of the class described, the combination of the transverse bar or rail, means for vertically adjusting the same, the laterally-adjustable slide carried by said bar or rail, the bracket upon said slide, having a transversely split cylindrical bearing, and the endwise-removable enlargement connecting the rotation of said bearing, the rotary drive journal at opposite ends thereof in said bearing, the gear-wheel mounted centrally of said drive in the space separating the sections of said bearing and partly locked by said enlargement, the feed-rod engaging said inner drive, the rotary engine carried by said bracket, the shaft of said engine carrying a gear-wheel meshing with said first-named gear-wheel, and the guard-strip secured at one end thereof to the upper portion of said enlargement, curved around the gear-wheel upon the engine-shaft, thence partly around the gear-wheel upon said drive, and covered to the lower portion of said enlargement, substantially as specified.

3. In mechanism of the class described, a transverse bar or rail, a laterally-adjustable slide mounted upon said bar or rail, a bracket upon said slide, and having a cylindrical downward extension at one end portion thereof, clamped to said slide and rotatable therein to allow said bracket to be turned, a rotary drive having bearings in the opposite end portion of said bracket, the intermediate portion of said bracket resting and turning upon the upper surface of said slide, a feed-rod actuated by said drive, and a rotary engine mounted upon said bracket, and geared to said drive, substantially as specified.

4. In mechanism of the class described, a transverse bar or rail, a laterally-adjustable slide carried by said bar or rail, a bracket upon said slide having a bearing at one end portion thereof, an outer rotary drive

Journal in said bearing, an inner endwise-removable sleeve rotatably engaged by said first-mentioned sleeve, a clamp upon said bracket and engaging the outer end of said inner sleeve, a feed-rod actuated by said inner sleeve, and a rotary engine carried by said bracket, and geared to said outer sleeve, substantially as specified.

698,194. BREAKDOWN GUN. WILLIAM E. GATE, Worcester, Mass., assignor to himself and Benjamin P. Greene, Worcester, Mass. Filed Apr. 6, 1902. Serial No. 11,783. (No model.)



Claim.—1. In a breakdown gun, the combination of the gun-frame, a barrel having a lag pivoted in the gun-frame, and an ejector mechanism comprising a spring-pressed ejector-belt, an operating-lever pivoted in the barrel-lag in front of the hinge-pin to engage the gun-frame at the rear of the pivot of said lever when the gun is opened, a pusher actuated by the lever to impart a positive motion to the ejector-belt, and a detent for the ejector-belt arranged to be released by the pusher, substantially as described.

2. In a breakdown gun, the combination of the gun-frame, a barrel having a barrel-lag fitting therein, a hinge-pin pivotedly connecting said parts, and an ejector mechanism comprising a spring-pressed ejector-belt, an operating mechanism for the ejector-belt mounted in a longitudinal slot in the barrel-lag, and comprising an operating-lever pivoted in front of the hinge-pin in position to engage the gun-frame at the rear of its pivot when the gun is open, a pivoted swinging piece or pusher, the rear end of the actuating-lever being coacted in said pusher, and a spring-detent, the pusher being arranged to first engage and impart a positive motion to the ejector-belt, and to then release the spring-detent, permitting the ejector-belt to fly back to the end of its travel when the gun is substantially wide opened, substantially as described.

3. In a breakdown gun, the combination of a gun-frame, a barrel pivotedly mounted at the forward end of the gun-frame, locking connections for holding the barrel in its normal position, a trigger controlling the action of the gun, a trigger-spring, and connections for diminishing the tension of the trigger-spring when the gun is unlocked or opened, substantially as described.

4. In a breakdown gun, the combination of a gun-frame, a barrel pivotedly connected to the forward end of the gun-frame, and an action comprising a longitudinally-movable spring-pressed firing-pin, a trigger therefor, a safety-catch mounted at one side of the trigger for locking the same when desired, and a substantially bell-crank-shaped cocking-lever having one leg thereof extending forward to be operated by the barrel-lag, and the other leg thereof engaging and operating both the firing-pin and safety-catch, substantially as described.

5. In a gun, the combination of the gun-frame, a barrel pivotedly mounted at the forward end thereof, a locking-bolt for holding the parts in their normal or closed position, a trigger controlling the action of the gun, a locking-bolt spring engaging one side of a leg on the locking-bolt, and a trigger-spring engaging the opposite side of said leg, substantially as described.

6. In a gun, the combination of the gun-frame, a barrel pivotedly mounted at the forward end thereof, a longitudinally-movable spring-pressed firing-pin mounted in the gun-frame, a trigger having a catch-section for directly engaging the firing-pin, a cocking-lever for forcing back the firing-pin, a locking-bolt for holding the gun in its shot or normal position, a locking-bolt spring engaging one side of a leg on the locking-bolt, and a trigger-spring engaging the opposite side of said leg, said parts being arranged so that the tension of the trigger-spring will be diminished whenever the gun is unlocked or opened, substantially as described.

7. In a shell-extracting mechanism for breakdown guns, the combination of an ejector-belt, a pivoted pusher or starter lever therefor, and connections for actuating the starter-lever when the gun is opened to impart a positive initial motion to the ejector-belt, the upper end of the starter-lever engaging a shoulder at the rear of a recess in the under side of the ejector-belt, so that said starter-lever will always be in position to be moved forward when the gun is closed and cannot engage with or interfere with the ejector-belt spring, substantially as described.

8. In a gun, the combination of a longitudinally-movable spring-pressed firing pin or bolt, a trigger having a catch or detent section for engaging a notch in the firing-pin, and a safety-catch pivoted at one side of the trigger in position to engage a pin or leg in the side thereof, said parts being arranged so that the firing-pin will hold the trigger in its retracted or pulled-back position after the gun is fired, and will prevent said trigger from being thrown forward in position to be engaged by the safety-catch, substantially as described.

698,195. SHEARS. WILLIAM C. KENNEDY, Thawville, Pa., assignor to one-half to Steven P. Cole, Pittsburgh, Pa. Filed July 6, 1901. Renewed Mar. 18, 1902. Serial No. 98,721. (No model.)



Claim.—1. A shears comprising a cutting member having a handle provided with a pivoting-plate and an extension beyond the pivot in the plane of said plate, a blade provided with a recess parallel with the edge thereof to receive said extension and a pivoting-ear adapted to fit upon the outer face of said plate, and a pivot passing through said ear and plate, substantially as specified.

2. A shears comprising opposite cutting members each having a handle portion provided with a pivoting-plate and a beveled extension in the plane thereof, a cutting-blade for each member provided with an undercut recess to receive said extension and a pivoting-ear to fit upon the outer face of said plate, and a pivoting device passing through the ears and plates of both members of the shears to hold the blades against longitudinal movement and to clamp the members of the shears into contact with each other, substantially as specified.

698,196. CULTIVATOR. ROBERT W. HENRY, Germantown, Ind. Filed Oct. 18, 1901. Serial No. 78,575. (No model.)

Claim.—1. In a cultivator, the combination with the draft-frame; of the inverted-U-shaped balls 12 suspended therefrom; devices swivelled on the lower ends of said balls; cultivator-frames loosely coupled to the devices; and loose connections between the cultivator-frames.

2. In a cultivator, the combination with the draft-frame; of the inverted-U-shaped balls suspended therefrom; devices swivelled on the lower ends of said balls; cultivator-frames coupled loosely to the devices; and inverted-U-shaped coupling arches or yokes connecting said cultivator-frames.

3. In a cultivator, the combination with a gang of cultivator-frames; and a draft-frame common thereto; of a plate loosely mounted upon each cultivator-frame; and inverted-U-shaped couplings loosely connecting the adjacent ends of each two plates for lateral and vertical movements.

4. In a cultivator, the combination with a gang of cultivator-frames; and a draft-frame common to all; of a plate mounted upon each cultivator-frame and provided with intermediate and end slots; bolts passed through the intermediate slots; and the arched couplings having their ends loosely connected with the end openings or slots for lateral and vertical movements.

5. In a cultivator comprising a series of gangs, and in combination therewith, a pair of bars loosely connected for vertical and lateral movements to the beams of two adjacent gangs; and means for adjustably connecting the meeting ends of said bars.



6. In a cultivator as described, and in combination therewith, a pair of bars adjustably connected at their outer ends to the two intermediate cultivator-frames and adjustably connected at their inner ends to each other; and arches loosely connecting the two outer cultivator-frames in series.

7. In a cultivator, the combination with the framework, of pairs of gangs or cultivator-frames; draft-balls loosely suspended from the framework and having one of the gangs connected to each of their terminals; arches loosely connecting in series these gangs connected to each ball; and an adjustable connection between the inner gangs of the series.

8. In a cultivator, the combination with the framework; of pairs of gangs or cultivators; opposite adjustable draft-balls loosely suspended from the framework, and having one of the gangs connected to each of their terminals; arches adjustably and loosely connecting in series these gangs connected to each ball; and a pair of adjustably-connected bars loosely connected at their outer ends to the inner gang of said series.

698,197. ADJUSTABLE TROLLEY-SUPPORTER. THOMAS R. STURDY and EDWARD HILL, Indianapolis, Ind. Filed July 6, 1901. Serial No. 61,690. (No model.)

Claim.—1. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated on one side and above the plane of said track, a current-conveyor and an extendible arm pivotedly mounted on the top of said vehicle, said extendible arm extending outwardly and horizontally therefrom to support the said current-conveyor and maintain the same in contact with the conductor, and means for extending said arm.

2. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated at one side of and above the plane of the track, a telescoping arm pivotedly mounted on the top of said vehicle, and a current-conveyor mounted on the free end of said arm.

3. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated at one side of and above the plane of said track, a telescoping arm pivotedly mounted on the top of said vehicle, a current-conveyor mounted on the free end of said arm and means for locking said telescoping arm in a fixed position.

4. The combination with an electrically-propelled vehicle of a horizontally-extending swinging extendible arm, a current-conveyor mounted on the free end of said arm, and means situated at one end of the vehicle whereby the position of the said swinging-arm may be changed and whereby said arm may be locked in position.

5. The combination with an electrically-propelled vehicle and a current-conveyor, of a horizontally-extending swinging extendible arm pivotedly mounted on the top of said vehicle, and independent means for swinging said arm and for actuating or telescoping the same.

6. The combination with an electrically-propelled vehicle and a current-conveyor, of a horizontally-extending swinging extendible arm pivotedly mounted on the top of said vehicle, an extendible arm telescoping in said sleeve, and independent means for rotating said sleeve in a horizontal plane and for extending said telescoping arm.

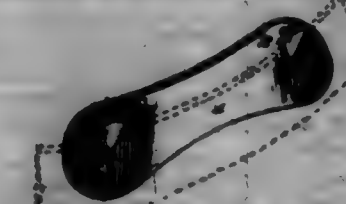
7. The combination with an electrically-propelled vehicle and a current-conveyor, of a horizontally-extending sleeve pivotedly mounted on the top of said vehicle, an extendible arm telescoping in said sleeve, and independent means for rotating said sleeve in a horizontal plane and for extending said telescoping arm.



8. The combination with an electrically-propelled vehicle and a current-conveyor, of a sleeve-supporting table pivotedly mounted on the top of said vehicle, a horizontally-extending sleeve secured on said pivotal table, an extendible arm telescoping in said sleeve, and a pivot on the free end of said arm wherein said current-conveyor is pivoted, and independent means for rotating said supporting-table and for extending said telescoping arm.

9. The combination with an electrically-propelled vehicle and a current-conveyor, of a sleeve-supporting table, a depending central pivotal stem integral on said table and having a central vertical bore, a horizontally-extending sleeve secured on said table, an extendible arm telescoping into said sleeve, a rack on the side of said extendible arm, a vertically-extending shaft adapted to turn in the central bore of said stem, a pinion on the upper end of said shaft, a rack-pinion adapted to engage said rack and said shaft-pinion simultaneously, and means for rotating said table and for operating said central shaft, substantially as set forth.

698,198. TROUSERS-SUPPORTER. GEORGE E. HILL, Scranton, Pa. Filed Sept. 11, 1901. Serial No. 78,800. (No model.)



Claim.—1. A trousers-supporter consisting of two thin hard plates of suitable material shaped to conform to the anatomy of a person at the hips so as to fit snugly and rest thereon, said plates being applied to the inside of a pair of trousers at about the waist-line, substantially as described.

2. A trousers-supporter consisting of two thin hard plates of suitable material curved to conform to the anatomy of a person at the hips so as

to snugly and rest thereon, said plates being removably applied to the inside of a pair of trousers at about the waist-line, substantially as described.

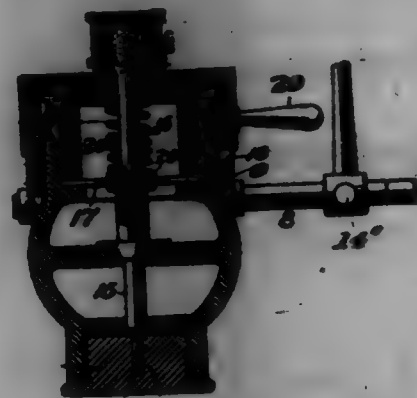
3. The combination with a pair of trousers of a pair of plates applied to the inside thereof at or near the waist-line so that when said trousers are in position on the wearer the plates will rest upon and be supported by the hips, said plates being made of the shape and size to conform to the anatomy of the body at those points, and said plates being provided with hooked projections which extend through the trousers from the inside and project from said trousers as to the inside the upper edge of a belt beneath the same, substantially as described.

4. As a product of manufacture a supporting-plate for a pair of trousers constructed from a single piece of hard material and shaped to conform to the anatomy of a person at the hips, the said plate being thickened on its lower edge and provided with means for attaching it to the inside of a pair of trousers, substantially as described.

5. As a product of manufacture, a supporting-plate for a pair of trousers constructed from a single piece of this hard material, and shaped to conform to the anatomy of a person at the hips, the said plate being thickened at its lower edge and covered on its face which extends next to the inner surface of a pair of trousers when applied thereto, substantially as described.

6. As a new article of manufacture, a supporting-plate for a pair of trousers, constructed from a single piece of this hard material and shaped to conform substantially to the anatomy of a person at the hips, the said plate being thickened at its forward end and also at its lower edge, substantially as described.

698,199. AUTOMATIC CUT-OFF FOR GAS-SHOVER. EDGAR C. HILLMAN, Newport News, Va. Filed Oct. 27, 1903. Serial No. 34,921. (No model.)



Claim.—1. In a gas-shower, the combination with a valve for controlling the gas-supply, of a hand-operated device for partially opening the valve to burn a taper flame, and a supplemental device connected to said hand-operated device and operating through a lever to open the valve further when a larger flame is required, said supplemental device being adapted to be actuated by placing a vessel on the stove.

2. In a gas-shower, the combination with a valve for controlling the gas-supply, of a hand-operated device for partially opening the valve to burn a taper flame, and a supplemental device connected to said valve to open it further when a larger flame is required, said supplemental device being located normally below the stove-top, and being connected with the hand-operated device so that when the latter is operated to light the taper flame, the supplemental device will be raised above the stove-top in position to be operated by placing a vessel thereon.

3. In a gas-shower, the combination with a valve for controlling the gas-supply, of an automatic device for opening the valve by placing a vessel on the stove, said device being normally out of operative position, and a hand-operated device for setting the automatic device into operative position, said hand-operated device being connected to the supply-valve as to partially open the same before setting the automatic device.

4. In a gas-shower, the combination with a valve for controlling the gas-supply, of a taper-flame device, and a full-flame device, said devices being connected to the supply-valve, and being also connected together, so that the actuation of the taper-flame device will set the full-flame device into operative position.

5. In a gas-shower, the combination with a supply-valve, a device for partially opening the valve by hand to burn a taper flame, and a supplemental device actuated by a vessel placed on the stove to open the valve further when a larger flame is required, said hand device acting to open the valve to a limited extent in the first part of its movement, and the further movement of said device operating to lift the supplemental device into operative position without further opening the valve.

6. In a gas-shower, the combination with a supply-valve, of a device to operate said valve by hand, and an automatic device to open the valve

further by a vessel placed on the stove, said hand device having a preliminary movement to open the valve partially to burn a taper flame, and a connection between the hand device and the automatic device, whereby the continued movement of the hand device after lighting the taper flame lifts the automatic device into operative position without further opening the valve.

7. A valve mechanism for gas-stoves, comprising a reciprocating supply-valve, a casing therefor, an actuator, means co-operating with the actuator and the valve-stem for partially opening the valve, automatic mechanism co-operating with the actuator to further or fully open the valve and means for disengaging said mechanism and said actuator, whereby the valve may be closed independently of said automatic mechanism.

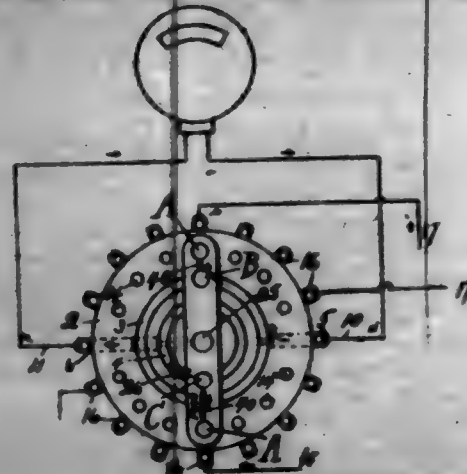
8. A valve mechanism for gas-stoves, comprising a reciprocating valve, a casing therefor, an actuator co-operating with the valve-stem, a cam-rod on said actuator, a rock-lever co-operating with said cam-rod, a rod attached to said lever, and means for rendering inoperative said lever and said cam-rod whereby the valve may be closed and remain closed independently of said rock-lever and its connections.

9. A valve mechanism for gas-stoves, comprising a reciprocating valve, a casing therefor, an actuator, a nut on the valve-stem, co-operating means on said nut and said actuator to partially open the valve, a cam-rod on said actuator, a rock-lever co-operating with said cam-rod, a rod attached to said lever and means for rendering inoperative said lever and said cam-rod, whereby the valve may be closed independently of said lever and its connections.

10. A valve mechanism for gas-stoves, comprising a non-rotary, reciprocating valve, a casing therefor, a cap on said casing co-operating with the valve-stem, cam-rod on said cap, a rocking lever pivoted to said casing, and engaging said cam-rod, a rod attached to said rock-lever, and adapted to be engaged by a handle on the stove-top to further or fully open the valve, and means for rendering inoperative said lever and said cam-rod, whereby the valve may be closed independently of said rock-lever.

11. A valve mechanism for gas-stoves comprising a non-rotary reciprocating valve, a casing therefor, a cap on said casing, a nut secured to the valve-stem, co-operating means on said nut and said cap to partially open the valve, a cam-rod on said cap, a rock-lever pivoted to said casing and engaging said cam-rod, a rod attached to said rock-lever, and adapted to be engaged by a handle on the stove-top to further or fully open the valve and means for rendering inoperative said lever and said cam-rod, whereby the valve may be closed independently of said rock-lever and its connections.

698,200. VOLTMETER-SWITCH. JAMES I. KIRBY, Syracuse, N. Y. Filed Jan. 11, 1903. Serial No. 35,255. (No model.)



Claim.—1. In a voltmeter-switch, the combination with an insulating-base, of a series of contact-terminals arranged thereon in pairs to be connected to the respective lines to be tested, a pair of terminals adapted to be connected to the opposite poles of the voltmeter, an insulating member movably supported on the base, contacts arranged on said member in pairs, connections between the two contacts of each pair, one of each pair being adapted to remain continuously in contact with one voltmeter-terminal, the other adapted to make connection successively with the line-terminals as the insulating member is moved over the base.

2. In a voltmeter-switch, the combination with an insulating-base, of a series of contact-terminals arranged thereon in pairs to be connected to the respective lines to be tested, a pair of terminals adapted to be connected to the opposite poles of the voltmeter, an insulating member journaled on the base, contacts arranged on said member in pairs, connections between the two contacts of each pair, one of each pair being adapted to remain continuously in contact with one voltmeter-terminal, the other adapted to make connection successively with the line-terminals as the insulating member is rotated.

3. In a voltmeter-switch, the combination with a base of insulating material, of two metallic rings thereon adapted to be connected to the opposite poles of the voltmeter, an annular series of terminals thereon arranged in pairs to be connected to the respective lines to be tested, an insulating member journaled on the base, contacts arranged on said member in pairs, and connections between the two contacts of each pair, one of each pair being adapted to remain continuously in contact with one ring, the other adapted to make connection successively with the line-terminals as the insulating member is rotated.

4. In a voltmeter-switch, the combination with a base of insulating material, of two metallic rings arranged concentrically on the rear surface of the base, an annular series of contact-terminals on the base arranged in pairs around the rings, binding-posts connected to said terminals for the attachment of the line-wires, two binding-posts connected to the respective rings for the voltmeter-wires, an insulating member journaled on said base concentrically with the rings, a handle to turn the arm, contact-shells, forming plunger-contacts, arranged in pairs on the ends of said arm, connections between the plunger-contacts of each pair, plungers arranged in said shells and having tips extending outwardly through holes in their bases, and springs arranged in said shells and bearing on the plungers to maintain the tips in contact with the contact-terminals on the base, the outer tips of each pair being adapted to make contact with the contact-terminals of the respective lines as the arm is rotated and the inner tips on each arm being adapted to remain in permanent contact, one with the inner ring, the other with the outer.

5. In a voltmeter-switch, the combination with a base of insulating material, of two metallic rings of different diameters arranged concentrically on the rear surface of the base, two binding-posts connected to the respective rings to receive the wires from the opposite poles of the voltmeter, an annular series of contact-terminals on the base, arranged in pairs around the rings, binding-posts for said contact-terminals to receive the opposite wires of the lines to be tested, an insulating member journaled on the base, contacts arranged on said member in pairs and connections between the two contacts of each pair, one of each pair being adapted to remain continuously in contact with one voltmeter-post, the other adapted to make connection successively with the line-terminals as the insulating member is rotated.

6. In a voltmeter-switch, a base of insulating material, a series of metallic contact-terminals arranged in a ring on the rear face of the base, binding-posts connected to the respective contact-terminals for the line-wires, said terminals and binding-posts being arranged diametrically opposite in pairs, two metallic rings or voltmeter-terminals let into the rear face of the base, flush therewith and arranged concentrically within the ring of contact-terminals, one ring within the other, binding-posts for the voltmeter-wires connected one with each ring, an internally-shouldered sleeve having an integral shoulder to engage with the disk, a tabular Shank engaging with the sleeve, a dial on the outer end of the Shank inscribed with the numbers corresponding to the lines to be tested, a shaft having a threaded lower end extending through said sleeve and Shank, a handle on the inner end of the dial, a pointer on the handle, to indicate numbers on the dial, a rotating arm of insulating material fitted to the inner end of said shaft, four plunger-contacts carried on said arm and arranged in pairs, one pair adjacent to each end of the arm, the contacts of each pair being connected by a line and one of each pair adapted to remain in continuous connection with one voltmeter-post, the other adapted to make connection with the line-terminals as the arm is rotated.

7. In a voltmeter-switch, a disk-shaped base of insulating material, a series of metallic contact-terminals arranged in a ring on the rear face of the base and lying flush therewith, binding-posts connected to said respective contact-points and extending outwardly around the edge of the disk for the line-wires, said terminals and binding-posts being arranged diametrically opposite in pairs and being equal in number to the lines to be tested, two metallic rings or voltmeter-terminals let into the rear face of the base and lying flush therewith and arranged concentrically within the ring of contact-terminals, one ring within the other, binding-posts on the edge of the disk for the voltmeter-wires connected one with each ring, an internally-shouldered sleeve having an integral shoulder to engage with the disk, a tabular Shank engaging with the sleeve, a dial on the outer end of the Shank inscribed with numbers on its outer face corresponding to the lines to be tested, said sleeve and Shank extending through said sleeve and Shank, an integral plate and handle on the outer end of the shaft, a pointer on the plate, one on the inner end of the shaft to secure the parts adjustably in position, a rotating arm of insulating material fitted to the inner end of said shaft and secured thereon by one of the shaft, four plunger-contacts carried on said arm and arranged in pairs, one pair adjacent to each end of the arm, the contacts of each pair being connected by a line and one of each pair adapted to remain in continuous connection with one voltmeter-post, the other adapted to make connection with the line-terminals as the arm is rotated.

8. In a voltmeter-switch, a disk-shaped base of insulating material, a series of metallic contact-terminals arranged in a ring on the rear face of the base and lying flush therewith, binding-posts connected to the respective contact-terminals and extending outwardly around the edge of the disk for the line-wires, said terminals and binding-posts being arranged diametrically opposite in pairs and being equal in number to the lines to be tested, two metallic rings or voltmeter-terminals arranged on the rear face of the base, and concentrically within the circle of contact-terminals, one ring within the other, binding-posts on the edge of the disk for the voltmeter-wires connected one with each ring, an internally-shouldered sleeve having an integral shoulder to engage with the disk, a tabular Shank engaging with the sleeve, a dial on the outer end of the Shank inscribed with numbers on its outer face corresponding to the lines to be tested, a shaft having a threaded lower end extending through said sleeve and Shank, an integral plate and handle on the outer end of the shaft, a pointer on the plate, one on the inner end of the shaft to secure the parts adjustably in position, a rotating arm of insulating material fitted to the inner end of said shaft and secured thereon by the shaft or nut, four plunger-contacts carried on said arm and arranged in pairs, one pair adjacent to each end of the arm, the contacts of each pair being connected by a line and one of each pair adapted to remain in continuous connection with one ring, the other adapted to make connection with the line-terminals as the arm is rotated, said plunger-contacts being composed each of two shells engaging with each other and arranged to extend through the arm forming a pocket, of a plunger arranged in said pocket with its contact-tip extending outwardly through a hole in the bottom of one shell end of a spring engaging with the plunger to force the tip outwardly against the contact-terminals substantially as described and shown.

698,201. FRAME FOR DOOR, WINDOW, &c. JOHN R. WILSON, Pittsburgh, Pa. Filed May 10, 1901. Serial No. 35,355. (No model.)



Claim.—1. The combination of the wall and frame, and a yielding strip located between the same.

2. The combination of the wall and frame, and a yielding strip formed of hair located between the same.

3. The combination of the wall and frame, and a yielding strip formed of cuttle-bone located between the same.

4. The combination of the wall and frame, a yielding strip formed of cuttle-bone adapted to engage with said wall, and a tape on said strip adapted to engage with said frame.

5. The combination of the wall having an opening therein, a frame, a yielding strip formed of cuttle-bone adapted to engage with the inside face of said opening, and a tape secured to said strip and adapted to engage with the inside face of said frame.

6. The combination of the wall having an opening therein, a frame, a yielding strip formed of cuttle-bone located within the space formed by the opening in the wall and frame and adapted to engage with the inside face of said opening, and a tape attached to said strip and adapted to engage with the inside face of said frame.

7. The combination of the wall having an opening therein, a frame, a yielding strip formed of filled cuttle-bone located within the space formed by the opening in the wall and frame and adapted to engage with the inside face of said opening, and a paper tape attached to said strip and adapted to engage with the inside face of said frame.

8. As a new article of manufacture, a strip formed of yielding material adapted for insertion between the stile of a door or window frame and the wall, and a tape secured to one side of said strip.

9. As a new article of manufacture, a yielding strip formed of hair adapted for insertion between the stile of a door or window frame and the wall, and a tape secured to one side of said strip.

10. As a new article of manufacture, a yielding strip formed of cuttle-bone adapted for insertion between the stile of a door or window frame and the wall, and a tape secured to one side of said strip.

11. As a new article of manufacture, a yielding strip formed of filled cuttle-bone adapted for insertion between the stile of a door or window frame and the wall, and a tape secured to one side of said strip.

12. As a new article of manufacture, a strip adapted for insertion between the stile of a door or window frame and the wall formed of a yielding material, and a tape secured to one side of said strip and of less width than the same.

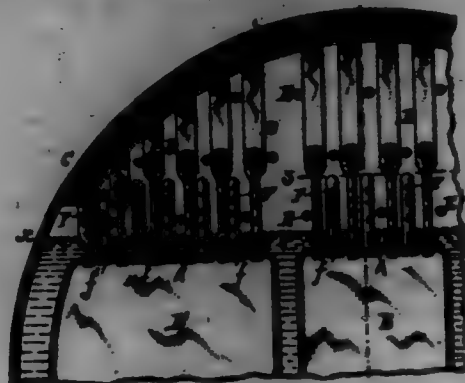
13. As a new article of manufacture, a yielding strip adapted for insertion between the stile of a door or window frame and the wall formed of hair, and a tape secured to one side of said strip and of less width than the same.

14. As a new article of manufacture, a yielding strip adapted for insertion between the stile of a door or window frame and the wall formed of cattle-hair, and a tape secured to one side of said strip and of less width than the same.

15. As a new article of manufacture, a yielding strip adapted for insertion between the stile of a door or window frame and the wall formed of felted cattle-hair, and a tape secured to one side of said strip and of less width than the same.

16. As a new article of manufacture, a yielding strip adapted for insertion between the stile of a door or window frame and the wall formed of felted cattle-hair, and a tape secured to one side of said strip by stitches, said tape being of less width than the strip.

698,202. STRAIN-SUPPLEMENT. JAMES HUGHES, Glasgow, Scotland. Filed Oct. 31, 1901. Serial No. 22,022. (No model.)



Claim.—1. The combination of the combustion-chamber of a steam-boiler, with superheating-pockets projecting from the top of the combustion-chamber up into the steam-space of the boiler, substantially as described.

2. The combination of the combustion-chamber of a steam-boiler with superheating-pockets fitted to the top plates of the combustion-chamber, and open at their lower ends to said combustion-chamber and closed at their upper ends, which project into the steam-space of the boiler.

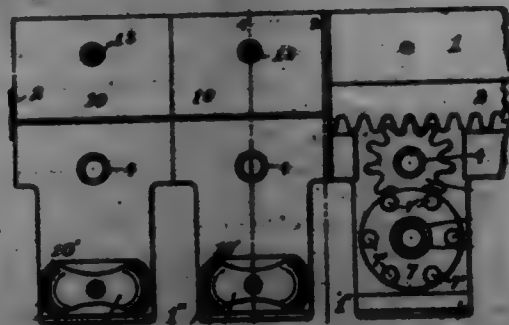
3. The combination of the combustion-chamber of a steam-boiler with superheating-tubes fitted to the top plates of the combustion-chamber, and projecting at their upper ends into the steam-space, said tubes being closed at their upper ends, but open at their lower ends to the combustion-chamber.

4. The combination of the combustion-chamber of a steam-boiler with superheating-pockets fitted to the top plates of the combustion-chamber and forming grater-stays therefor, substantially as described.

5. The combination of the combustion-chamber of a steam-boiler, with superheating-tubes fitted to the top plates of the combustion-chamber and projecting into the steam-space of the boiler with spacing-pieces between the tubes of a row, as and for the purpose described.

6. The combination of the combustion-chamber of a steam-boiler with superheating-tubes fitted to the top plates of the combustion-chamber, and projecting into the steam-space of the boiler, with spacing-pieces between the tubes of a row and a strap embracing the tubes, substantially as described.

698,208. SWIVEL-LOCK. GEORGE F. HUGHES and JAMES T. GIB, Worcester, Mass., assignors to Crompton & Knowles Lock Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 11, 1901. Serial No. 22,422. (No model.)



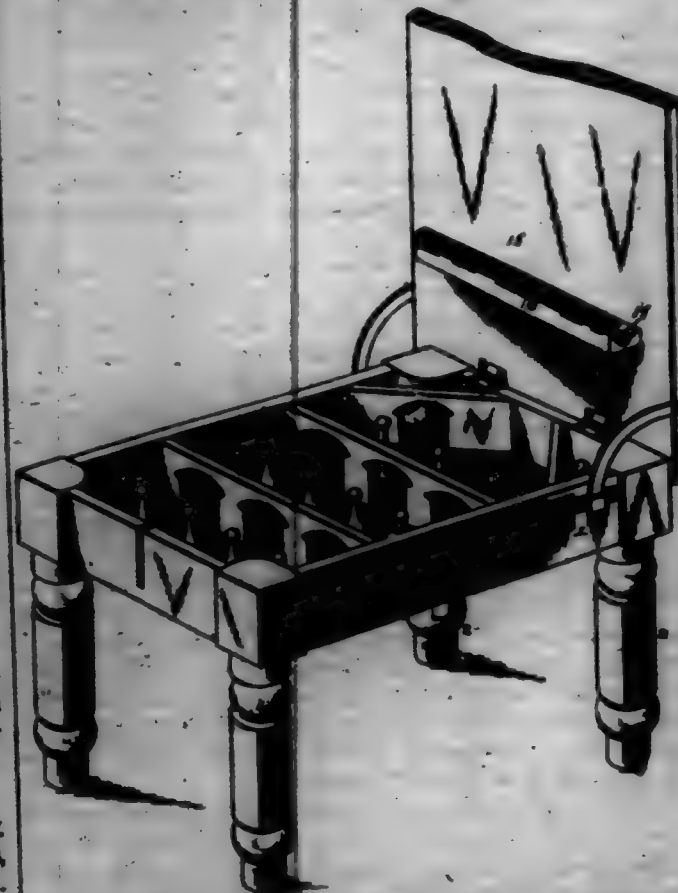
Claim.—1. In a swivel-chamber motion, in which the swivel-chamber have a reciprocating motion in a horizontal plane, the combination with a rack, a disk carrying a series of pins extending at right angles from the face thereof to engage a toothed segment or rack on the inner end of a swivel-chamber, and mechanism intermediate the rack and disk, to rotate the disk by the movement of the rack, of said swivel-chamber, having a toothed segment, or rack on its inner end, substantially as shown and described.

2. In a swivel-chamber motion, in which the swivel-chamber have a reciprocating motion in a horizontal plane, the combination with a rack, a disk carrying a series of pins to engage a toothed segment or rack on the inner end of a swivel-chamber, and mechanism intermediate the rack and disk to rotate the disk by the movement of the rack, of said swivel-chamber having a toothed segment or rack on its inner end, comprising two longer and tooth, an intermediate shorter tooth, and two recesses between the teeth, substantially as shown and described.

3. In a swivel-chamber motion, in which the swivel-chamber have a reciprocating motion in a horizontal plane, the combination with a rack, a pinion meshing therewith, a second pinion meshing with the first-mentioned pinion, a disk connected with the second-mentioned pinion and carrying a series of pins extending at right angles from the face thereof to engage a toothed segment or rack on the inner end of a swivel-chamber, of said swivel-chamber having a toothed segment or rack on its inner end, substantially as shown and described.

4. In a swivel-chamber motion, in which the swivel-chamber have a reciprocating motion in a horizontal plane, the combination with a rack, a pinion meshing therewith, a second pinion meshing with the first-mentioned pinion, a disk connected with the second-mentioned pinion and carrying a series of pins to engage a toothed segment or rack on the inner end of a swivel-chamber, of said swivel-chamber having a toothed segment or rack on its inner end, comprising two longer and tooth, an intermediate shorter tooth, and two recesses between the teeth, substantially as shown and described.

698,204. BLACKBOARD. OTTO LANGE, Jansburg, N. J. Filed Jan. 20, 1902. Serial No. 2,204. (No model.)



Claim.—The combination of a hinged lid or cover having its under side treated to form a blackboard, and a chalk-holding slot fixed to the under side of the cover or lid and having a groove in its face which is uppermost when the cover is erect, said groove being branched within the slot to form an overhanging portion at the front of the groove to retain the chalk in the groove when the cover is closed, substantially as described.

698,205. LADY'S SKIRT. GEORGE LANGE, Chicago, Ill. Filed Feb. 2, 1902. Serial No. 22,204. (No model.)

Claim.—1. As an improved article of manufacture, a skirt comprising a skirt-body and a flounce or ruffle therefor, and means detachably securing the latter to the former comprising a strip of open-work heading secured around the skirt-body, a strip of open-work heading secured around the upper margin of the flounce, and a cord laced through said heading-strips and locking them together, substantially as described.

2. As an improved article of manufacture, a skirt comprising a skirt-body, a flounce or ruffle to be applied to the lower portion thereof, and means detachably uniting said flounce to the skirt-body comprising a strip of open-work heading attached around the outside of the skirt-body, a

similar strip of heading attached around the upper margin of the flounce, and a cord laced through said heading-strips locking them together, substantially as described.



3. As an improved article of manufacture, a skirt comprising a skirt-body having a task formed therearound, and a flounce or ruffle therefor, a strip of open-work heading attached to the skirt-body beneath said task, a similar strip of heading attached to the upper margin of the flounce, and a cord laced through said heading-strips and thus detachably securing the flounce to the skirt-body, substantially as described.

4. As an improved article of manufacture, a skirt comprising a skirt-body having a task formed therearound and a slit or buttonhole formed therethrough beneath the task, and a flounce or ruffle therefor, a strip of open-work heading attached along its upper margin to the skirt-body beneath the task thereof, a similar strip of heading attached along its lower margin to the upper margin of the flounce, and an interlocking cord laced through said heading-strips and having its meeting ends passed through said slit and tied therebehind, substantially as described.

698,206. RAILROAD-CROSSING. CHARLES LILLIENBERG, Chicago, Ill. Filed June 23, 1901. Serial No. 60,202. (No model.)

Claim.—1. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of horizontally-movable shifting-wedges for raising each pair of cross-rails, connections between each wedge of one pair and the adjacent wedges of the other pair, means for simultaneously operating said wedges to form a continuous track in either direction, substantially as described.

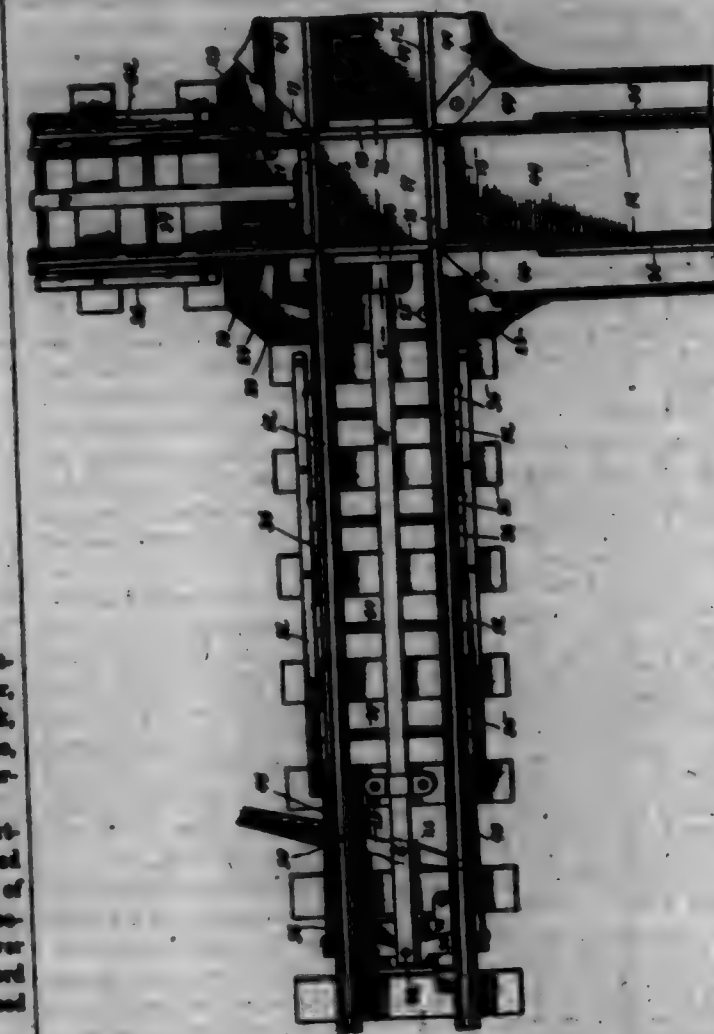
2. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of horizontally-movable shifting-wedges for raising each pair of cross-rails and mechanism for simultaneously actuating said wedges to form a continuous track in either direction, substantially as described.

3. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of horizontally-movable shifting-wedges for raising each pair of cross-rails, connections between each wedge of one pair and the adjacent wedges of the other pair and means for simultaneously operating said wedges to form a continuous track in either direction, substantially as described.

4. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of horizontally-movable shifting-wedges for raising each pair of cross-rails, ball-and-socket levers connecting each wedge of one pair with the adjacent wedges of the other pair and operating-rods connected to said wedges, whereby as one pair of wedges is advanced, the other pair is withdrawn and a continuous track formed in one or the other direction, substantially as described.

5. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, a pair of oppositely-disposed shifting-wedges for rais-

ing each pair of cross-rails mounted to slide horizontally upon said base-plate and having flat upper bearing-surfaces for supporting said cross-rails in the raised position, connections between each wedge of one pair and the adjacent wedges of the other pair and means for simultaneously operating said wedges to form a continuous track in either direction, substantially as described.



6. In a railroad-crossing, the combination with a base-plate therefor and with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of shifting-wedges for raising each pair of cross-rails, connections between each wedge of one pair and the adjacent wedges of the other pair, means for simultaneously operating said wedges to form a continuous track in either direction, laterally-projecting flanges on said cross-rails and means for engaging said flanges to limit their movement in an upward direction, substantially as described.

7. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an actuating-shifter for raising each one of said cross-rails, connections between each pair of adjacent shifters and means for operating said shifters to form a continuous track in either direction, substantially as described.

8. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an actuating-shifter for each one of said cross-rails, connections between each pair of adjacent shifters and operating-rods connected to each of said shifters, whereby any one of the same may be operated to form a continuous track in one or the other direction, substantially as described.

9. In a railroad-crossing, the combination with a base-plate therefor and with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rails for connecting the main rails of each track, an oppositely-disposed pair of reciprocating shifters for raising each pair of cross-rails, ball-and-socket levers connecting each shifter of one pair with the adjacent shifters of the other pair and mechanism for simultaneously moving one pair of shifters inwardly and the opposite pair outwardly to form a continuous track in one or the other direction, substantially as described.

10. In a railroad-crossing, the combination with the shutting main rails of the intersecting tracks, of an oppositely-disposed pair of movable cross-rails for connecting the main rails of each track, an oppositely-dis-

posed pair of horizontally-movable chifters for raising each pair of cross-rolls, notches in the sides of said chifters, bell-crank levers for connecting each adjacent pair of chifters mounted to swing in a horizontal plane and arranged to operatively engage said notches and operating means connected to one of said chifters, whereby a continuous track may be formed in either direction, substantially as described.

11. In a railroad-crowding, the combination with a base-plate therefor and with the shunting main rails of the intersecting tracks, of an oppositely-disposed pair of vertically-movable cross-rolls for connecting the main rails of each track, of an oppositely-disposed pair of wedges mounted to slide upon said base-plate for raising each pair of cross-rolls and having flat upper bearing-surfaces for supporting said cross-rolls in the raised position, circular notches in the sides of said wedges, studs on said base-plate, bell-crank levers for connecting each pair of adjacent wedges mounted to swing on said studs and having circular-headed ends for engaging said notches, operating-rods connected to each one of said wedges by any one of which said wedges may be shifted to form a continuous track in either direction, substantially as described.

12. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of tie-rods for connecting said main rails arranged slightly out of line therewith, oppositely-disposed pairs of vertically-movable cross-rolls adjacent said tie-rods and in line with said main rails, oppositely-disposed pairs of reciprocating chifters for raising said cross-rolls, connections between each pair of adjacent chifters and means for operating said chifters, whereby as one pair is advanced, the other is withdrawn to form a continuous track in one or the other direction, substantially as described.

13. In a railroad-crowding, the combination with a base-plate therefor and with the shunting main rails of the intersecting tracks, of abutments on said base-plate to which the ends of the main rails are attached, tie-rods connecting said main rails and arranged slightly out of line therewith, oppositely-disposed pairs of vertically-movable cross-rolls arranged adjacent said tie-rods and in line with said main rails, oppositely-disposed pairs of shifting-wedges for raising said cross-rolls mounted to slide upon said base-plate, bell-crank levers connecting each pair of adjacent wedges and means for simultaneously operating said wedges to form a continuous track in one or the other direction, substantially as described.

14. In a railroad-crowding, the combination with a base-plate therefor and with the shunting main rails of the intersecting tracks, of tie-rods connecting the ends of said main rails arranged slightly out of line therewith and having flanged openings, a center guide-plate, oppositely-disposed pairs of vertically-movable cross-rolls arranged intermediate said guide-plate and said tie-rods and in line with said main rails, oppositely-disposed pairs of shifting-wedges for raising said cross-rolls, connections between each pair of adjacent wedges and operating means for said wedges, whereby a continuous track may be formed in either direction, substantially as described.

15. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of oppositely-disposed pairs of vertically-movable continuous cross-rolls for connecting said main rails and mechanism arranged to be automatically operated by a train approaching in any direction to move said cross-rolls to form a continuous track in that direction, substantially as described.

16. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of oppositely-disposed pairs of cross-rolls for connecting said main rails, oppositely-disposed pairs of reciprocating chifters for raising said cross-rolls, connections between each pair of adjacent chifters, operating-rods connected to each chifter and device connected to said operating-rods and arranged adjacent the main rails of the intersecting tracks on each side of the crowding in position to be engaged by the wheels of an approaching train, whereby said cross-rolls will be automatically shifted to form a continuous track, substantially as described.

17. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of oppositely-disposed pairs of vertically-movable cross-rolls for connecting the main rails of each track, oppositely-disposed pairs of horizontally-reciprocating chifters for raising said cross-rolls, bell-crank levers connecting each pair of adjacent chifters, horizontal operating-rods connected to each chifter, rocking bars arranged adjacent the main rails on each side of the crowding in position to be engaged by the wheels of an approaching train and connections between said rocking bars and said operating-rods, substantially as described.

18. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of oppositely-disposed pairs of vertically-movable cross-rolls for connecting the main rails of each track, oppositely-disposed pairs of shifting-wedges for raising said cross-rolls, bell-crank levers connecting each pair of adjacent wedges, operating-rods connected to each of said wedges, interlocking pivoted levers engaging the ends of said operating-rods, rocking bars arranged adjacent the main rails of each track on each side of the crowding in position to be engaged by the wheels of an approaching train, rock-arms wherein said bars are mounted and

connecting-links between said bars and said pivoted levers, substantially as described.

19. In a railroad-crowding, the combination with the shunting main rails of the intersecting tracks, of oppositely-disposed pairs of vertically-movable cross-rolls arranged to connect the main rails of each track, oppositely-disposed pairs of reciprocating shifting-wedges for raising said cross-rolls, bell-crank levers connecting each pair of adjacent wedges, operating-rods connected to each of said wedges and a shifting-lever connected to one or more of said operating-rods, whereby a continuous track may be formed in either direction, substantially as described.

20. In a railroad-crowding, the combination with the main rails of the movable cross-rolls, means for shifting said cross-rolls to form a continuous track in either direction, a horizontal operating-rod for said means extending between said main rails, supporting-bar fixed in place outside of said main rails carrying clamped cross-plates between them, rock-arms carried by said clamps between said supporting-bar and said main rails, horizontal rocking bars positioned between said rock-arms and said rails and having laterally-projecting studs engaging the free ends of said rock-arms and connections between said rocking bars and said operating-rod, substantially as described.

698,907. PROCESS OF CLEARING WOOL. BILLS MARSHALL, Providence, R. I. Filed Dec. 27, 1900. Serial No. 41,395. (No opposi-tions.)

Claim.—1. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of water or suitable aqueous solutions and then to the action of a suitable acid or acid saline solution, for the purpose set forth.

2. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of water or suitable aqueous solutions, then treating the wool with an aqueous acid or acid saline solution and then removing the said acid or acid saline solution, substantially as described.

3. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of water or suitable aqueous solutions, then treating the wool with an aqueous acid or acid saline solution, then neutralizing said solution and then rinsing the wool, substantially as described.

4. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of water or suitable aqueous solutions, then treating the wool with an aqueous acid or acid saline solution, then removing the bulk of said solution, then neutralizing the residual acid solution and then rinsing the wool, substantially as described.

5. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of water or suitable aqueous solutions, then treating the wool with an aqueous acid or acid saline solution, and then removing said acid or acid saline solution, substantially as described.

6. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of said solvent, the process which consists in subjecting the wool to the action of a suitable acid or acid saline solution, for the purpose set forth.

7. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of the said solvent, the process which consists in subjecting the wool to the action of a suitable acid or acid saline solution and then removing the said acid or acid saline solution from the wool, substantially as described.

8. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of the said solvent, the process which consists in subjecting the wool to the action of a suitable acid or acid saline solution, then treating the wool with a neutralizing solution, then washing the wool, substantially as described.

9. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of the said solvent, the process which consists in subjecting the wool to the action of a suitable acid or acid saline solution, then treating the wool with a neutralizing solution, then washing the wool, substantially as described.

10. In the art of treating wool which has been subjected to the action of a volatile solvent and which wool still retains some of the said solvent, the process which consists in subjecting the wool to the action of a suitable acid or acid saline solution, then removing the bulk of said solution, then neutralizing the residual acid or acid saline solution and then rinsing the wool, substantially as described.

698,908. PROCESS OF CLEARING WOOL. BILLS MARSHALL, Providence, R. I. Filed Feb. 20, 1901. Serial No. 41,114. (No opposi-tions.)

Claim.—1. In the art of cleaning wool with volatile fat-solvents the improvement which consists in bringing in contact with the solution or solution obtained in any part of the apparatus an agent or agents which will prevent or correct the formation of an emulsion with the water present, substantially as described.

2. In the art of cleaning wool with volatile fat-solvents the improvement which consists in treating the solvent on the wool for the purpose of removing the same with an agent or agents which will prevent or correct the formation of an emulsion with any water present and which will not substantially decompose the natural crimp of the wool substantially as described.

3. In the art of cleaning wool with volatile fat-solvents the improvement which consists in treating the residual solvent on the wool for the purpose of removing the same with an agent or agents which will prevent or correct the formation of an emulsion with any water present and which will not substantially decompose the natural crimp of the wool, substantially as described.

698,909. PROCESS OF DEGREASING WOOL. BILLS MARSHALL, Providence, R. I. Filed Mar. 1, 1901. Serial No. 41,495. (No opposi-tions.)

Claim.—1. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then treating the wool with an aqueous solution of an agent which will transform or decompose the potash soaps of the wool, then subjecting the wool to the action of an agent to remove the transformed soaps, chemicals or fatty acids not free by the decomposition of the potash soaps, substantially as described.

2. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent, then treating the wool with an aqueous solution of an agent which will transform or decompose the potash soaps of the wool, then subjecting the wool to the action of an agent to remove the transformed soaps, chemicals or fatty acids not free by the decomposition of the potash soaps, substantially as described.

3. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then treating the wool with an aqueous solution of an agent which will transform or decompose the potash soaps of the wool, then removing the bulk of the solution from the wool, then subjecting the wool to the action of an agent to remove the transformed soaps, chemicals or fatty acids not free by the decomposition of the potash soaps, substantially as described.

4. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then treating the wool with an aqueous solution of an agent which will transform or decompose the potash soaps of the wool, then removing the bulk of the solution from the wool, then removing the last traces of solvent from the wool, then subjecting the wool to the action of an agent to remove the transformed soaps, chemicals or fatty acids not free by the decomposition of the potash soaps, substantially as described.

5. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent, then treating the wool with an aqueous solution of an agent which will transform or decompose the potash soaps of the wool, then removing the last traces of solvent from the wool, then subjecting the wool to the action of an agent to remove the transformed soaps, chemicals or fatty acids not free by the decomposition of the potash soaps, substantially as described.

6. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the residual solvent and the bulk of the potash compounds with water or other suitable aqueous solution which will not decompose the potash soaps, then treating the wool with an aqueous solution of an agent which will transform or decompose the residual potash compounds, then removing the last traces of solvent from the wool, then removing the transformed soaps, chemicals or precipitated fatty acids from the wool, substantially as described.

7. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent, then removing the residual solvent and the bulk of the potash compounds with water or other suitable aqueous solution which will not decompose the potash soaps, then treating the wool with an aqueous solution of an agent which will transform or decompose the residual potash compounds, then removing the last traces of solvent from the wool, then removing the transformed soaps, chemicals or precipitated fatty acids from the wool, substantially as described.

8. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the residual solvent

and the bulk of the potash compounds with water or other suitable aqueous solution which will not decompose the potash soaps, then removing the bulk of the solution from the wool, then treating the wool with an aqueous solution of an agent which will transform or decompose the residual potash compounds, then removing the last traces of solvent from the wool, then removing the transformed soaps, chemicals or precipitated fatty acids from the wool, substantially as described.

9. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent, then removing the residual solvent and the bulk of the potash compounds with water or other suitable aqueous solution which will not decompose the potash soaps, then removing the bulk of the solution from the wool, then treating the wool with an aqueous solution of an agent which will transform or decompose the residual potash compounds, then removing the last traces of solvent from the wool, then removing the transformed soaps, chemicals or precipitated fatty acids from the wool, substantially as described.

10. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the solvent and simultaneously transforming or decomposing the potash compounds on the wool, then removing from the wool the products resulting from this transformation or decomposition, substantially as described.

11. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the solvent and simultaneously transforming or decomposing the potash compounds on the wool, then removing the last traces of solvent from the wool, then removing from the wool the products from the transformation or decomposition of the potash compounds, substantially as described.

12. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the solvent by an agent which will decompose the soaps present on the wool, then treating the wool with a volatile fat-solvent to remove the fatty acids therefrom, substantially as described.

13. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the solvent by an agent which will decompose the potash soaps present on the wool, then removing the bulk of the decomposing agent, then treating the wool with a volatile fat-solvent to remove the fatty acids therefrom, substantially as described.

14. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the solvent by an agent which will decompose the soaps present on the wool, then treating the wool with a volatile fat-solvent to remove the fatty acids therefrom, then removing this latter solvent, substantially as described.

15. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent from the wool, then treating the wool with an aqueous solution of an agent to decompose the potash soaps present on the wool, then removing the fatty acids by a volatile fat-solvent, substantially as described.

16. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent from the wool, then treating the wool with an aqueous solution of an agent to decompose the potash soaps present on the wool, then removing the bulk of the decomposing solution, then removing the fatty acids by a volatile solvent, substantially as described.

17. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent from the wool, then treating the wool with an aqueous solution of an agent to decompose the potash soaps present on the wool, then removing the fatty acids by a volatile fat-solvent, then removing the latter solvent from the wool, then neutralizing or rinsing the wool or both, substantially as described.

18. In the art of cleaning wool, the process which consists in extracting the wool-fat by volatile solvent, then removing the bulk of the solvent from the wool, then treating the wool with an aqueous solution of an agent to decompose the potash soaps present on the wool, then removing the bulk of the decomposing solution, then removing the fatty acids by a volatile fat-solvent, then removing the latter solvent from the wool, then neutralizing or rinsing the wool or both, and then washing the wool.

698,910. PROCESS OF CLEARING WOOL. BILLS MARSHALL, Providence, R. I. Filed Mar. 1, 1901. Serial No. 41,496. (No opposi-tions.)

Claim.—1. In the art of cleaning wool the process which consists in subjecting the wool to the action of an agent to remove the potash soaps, then treating the wool from the bulk of the solvent liquid, then rinsing the wool with water, then treating the wool from the bulk of the

adhering water, then extracting the fat from the wool by a volatile solvent and then removing the solvent from the wool.

2. In the art of cleaning wool the process which consists in subjecting the wool to the action of an agent to remove the potash soaps, then treating the wool from the bulk of the adhering liquid, then treating the wool with a suitable acid, saline, or acid saline solution, then treating the wool from the bulk of the adhering liquid, then treating the wool without previous drying with a volatile solvent to remove the fat therefrom and then removing the solvent from the wool.

3. In the art of cleaning wool containing potash compounds, the process which consists in subjecting the wool to the action of an agent which will decompose or transform the potash soaps present, then removing the bulk of the adhering liquid from the wool, then extracting the fat from the wool without previous drying by a volatile solvent and then removing the solvent from the wool.

4. In the art of cleaning wool the process which consists in treating the wool with a solution of an agent which will deposit the fatty acids of the potash soaps on the fiber, then removing the bulk of the adhering liquid, then extracting the fat with a volatile solvent and then removing the solvent from the wool.

5. In the art of cleaning wool the process which consists in treating the wool with a solution of a suitable salt or acid or of both together, then removing the bulk of the adhering liquid, then subjecting the wool to the action of a volatile solvent and then removing the solvent from the wool.

698,211. PROCESS OF CLEANING WOOL WITH VOLATILE SOLVENTS. HILLS HARRISON, Providence, R. I. Filed Oct. 24, 1901. Serial No. 98,322. (No specimens.)

Claim.—1. In the art of cleaning wool with volatile fat-solvents the process which consists in first removing the bulk of the potash compounds from the wool, then impregnating the wool with the solution of an agent which will prevent emulsification of the water, potash compounds present and the volatile solvent subsequently introduced and then extracting the fat from the wool by means of a volatile fat-solvent.

2. In the art of cleaning wool with volatile fat-solvents the process which consists in first impregnating the wool with the solution of an agent which will prevent emulsification of the water, potash compounds present and the volatile solvent subsequently introduced, then extracting the fat from the wool by means of a volatile fat-solvent and then removing the volatile solvent from the wool.

3. In the art of cleaning wool with volatile fat-solvents the process which consists in first impregnating the wool with the solution of an agent which will prevent emulsification of the water, potash compounds present and the volatile solvent subsequently introduced, then extracting the fat from the wool by means of a volatile fat-solvent and then removing the volatile solvent from the wool.

4. In the art of cleaning wool with volatile fat-solvents the process which consists in first impregnating the wool with the solution of an agent which will prevent emulsification of the water, potash compounds present and the volatile solvent subsequently introduced, then extracting the fat from the wool by means of a volatile fat-solvent, then removing the bulk of the solvent from the wool and then eliminating the residual solvent.

5. In the art of cleaning wool with volatile fat-solvents the process which consists in extracting the grease with a volatile fat-solvent and then removing the residual solvent from the wool, both steps being performed in the presence of an agent which will prevent emulsification.

6. In the art of cleaning wool with volatile fat-solvents the process which consists in extracting the grease with a volatile fat-solvent in the presence of an agent which will prevent emulsification and then removing the residual solvent from the wool.

7. In the art of cleaning wool with volatile fat-solvents the process which consists in removing the residual solvent from the wool in the presence of a suitable acid, salt or acid salt which will prevent the solvent from clinging to the fiber and water present.

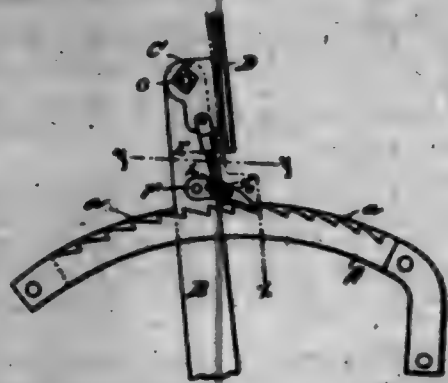
8. In the art of cleaning wool with volatile fat-solvents the process which consists in removing the residual solvent from the wool in the presence of a suitable agent or agents whereby the solvent is prevented from clinging to the fiber and water present.

9. In the art of cleaning wool with volatile fat-solvents the process which consists in first depositing the wool and then displacing the depositing agent with a volatile fat-solvent immiscible with the depositing agent.

10. In the art of cleaning wool with volatile fat-solvents, the process which consists in first depositing the wool, then displacing the depositing agent with a volatile fat-solvent immiscible with the depositing agent and then removing the volatile solvent from the wool.

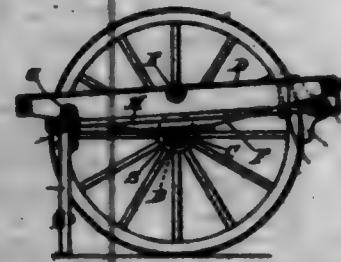
11. In the art of cleaning wool with volatile fat-solvents, the process which consists in first depositing the wool, then displacing the depositing agent with a volatile fat-solvent immiscible with the depositing agent, then removing the bulk of the solvent from the wool and then eliminating the residual solvent.

698,212. ADJUSTABLE RATCHET DEVICE. CHARLES A. HILLMAN, Reading, Pa. Filed Feb. 11, 1902. Serial No. 92,494. (No model.)



Claim.—In an adjustable ratchet device, a toothed frame A having an elongated opening, an operating arm B extending through said opening, a pawl pivoted to said arm and adapted to engage the teeth on said frame, a shoe C, a foot-plate D formed on said shoe, said shoe pivoted to the free end of said arm, depending rod E, and a pin F secured to said rod E and adapted to engage a slot in said pawl, substantially as set forth.

698,213. WAGON TRUCK. JOHN A. McHARRY, Chicago, Ill. Filed Jan. 22, 1902. Serial No. 91,741. (No model.)



Claim.—1. A truck, consisting of wheel, a body portion, a folding supporting-frame at one end of the body portion, a brake-beam and brake-shoes at the other end, a bar disposed to said brake-beam, and an eccentric connection between said bar and the folding frame, whereby when the latter is folded the bar is moved and the brakes set or freed as the case may be.

2. A truck, consisting of wheel, a body portion mounted thereon, a supporting-frame at one end thereof, a bar whereby such supporting-frame is pivoted to the truck, an eccentric loop in said bar, a rod connected therewith, a brake-beam and brake-shoes at the other end of the truck, and a connection from the same to said bar, so that when the supporting-frame is lowered the brake-shoes are set and when the supporting-frame is folded up out of position the brake-shoes are freed from the wheel.

3. A truck, consisting of wheel, a body portion, a folding supporting-frame at one end of the body portion, a brake-beam and brake-shoes at the other end, a bar connected to said brake-beam, an eccentric connection between said bar and the folding frame, whereby when the latter is folded the bar is moved and the brakes set or freed as the case may be, and a locking device to lock the supporting-frame down in its supporting position.

4. A truck, consisting of wheel, a body portion mounted thereon, a supporting-frame at one end thereof, a bar whereby such supporting-frame is pivoted to the truck, an eccentric loop in said bar, a rod connected therewith, a brake-beam and brake-shoes at the other end of the truck, a connection from the same to said bar, so that when the supporting-frame is lowered the brake-shoes are set and when the supporting-frame is folded up out of position the brake-shoes are freed from the wheel, and a locking device to lock the supporting-frame down in its supporting position.

5. A truck, consisting of wheel, a body portion, a folding supporting-frame at one end of the body portion, a brake-beam and brake-shoes at the other end, a bar connected to said brake-beam, an eccentric connection between said bar and the folding frame, whereby when the latter is folded the bar is moved and the brakes set or freed as the case may be, and a locking device to lock the supporting-frame up in its idle position.

6. A truck, consisting of wheel, a body portion mounted thereon, a supporting-frame at one end thereof, a bar whereby such supporting-frame is pivoted to the truck, an eccentric loop in said bar, a rod connected therewith, a brake-beam and brake-shoes at the other end of the truck, a connection from the same to said bar, so that when the supporting-frame is lowered the brake-shoes are set and when the supporting-frame is folded up out of position the brake-shoes are freed from the wheel, and a locking device to lock the supporting-frame up in its idle position.

7. A truck comprising wheel, a framework mounted on said wheel, a supporting frame attached to said framework and adapted to be folded

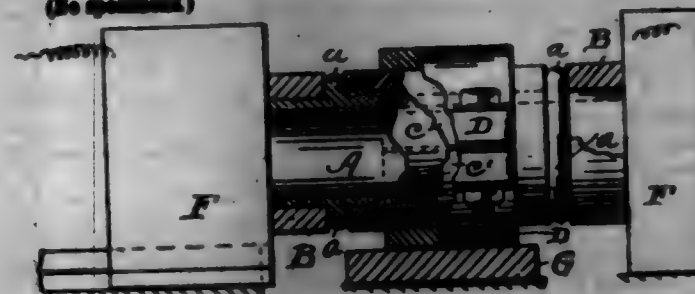
down into a vertical position to engage the ground and to hold the framework from rotating on or with the wheel, and brake-shoes on the framework and connected with the supporting-frame so that when the latter is moved into position to support the framework the brake-shoes are correspondingly moved to engage the wheel.

8. A truck comprising wheel, a frame supported on said wheel, a supporting-frame attached to said framework on one side of said wheel, brake-shoes attached to said framework on the opposite side of said wheel and a connection from the supporting-frame to said brake-shoes whereby when the framework is moved into position the brake-shoes are correspondingly operated.

9. A truck comprising wheel, a framework mounted on said wheel, a supporting-frame pivoted to said framework so as to fold thereon or project therefrom and engage the ground, brake-shoes supported on the framework and a connection from the brake-shoes to the supporting-frame so that when the latter is folded into position to support the framework the brake-shoes are correspondingly operated to engage the wheel.

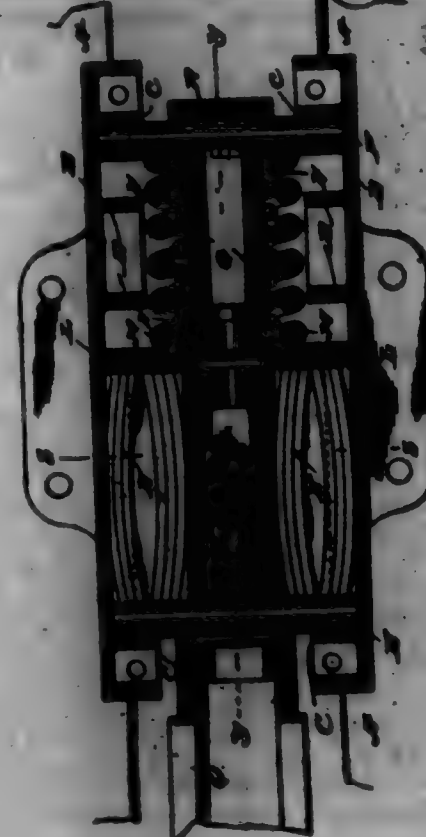
10. A truck, comprising a pair of wheels, a framework pivotally mounted thereon, a folding frame attached to the framework and adapted to fold down so as to engage the ground and with the wheels support the framework in a substantially horizontal position, brake-shoes adapted to engage the wheels when the supporting-frame is in engagement with the ground, and connections from the brake-shoes to such supporting-frame, so that when the latter is operated the former are set.

698,214. PROCESS OF FLANGING METALLIC TUBES. NORMAN McKEOWN, Cleveland, Ohio. Filed July 12, 1901. Serial No. 67,699. (No specimens.)



Claim.—The described process of flanging metallic tubes, which consists in fitting upon the tube two or more collars, leaving uncovered between them enough of the tube to form the flange or flanges; in passing an electric current through said tube and wire whereby the uncovered parts of said tube are heated to a welding heat, and in applying outward pressure upon said tube and said collars whereby the uncovered parts of the tube are thrown outward and the flange is pressed into shape and the meeting faces of the metal welded together between said collars.

698,215. FRETWORK DRAFT-RIGGING APPLIANCE. THOMAS L. McKIM, Boston, Pa. Filed Feb. 6, 1902. Serial No. 92,399. (No model.)



Claim.—1. In combination with the bearings secured to the draft-timbers, and end and intermediate followers located therein, laterally-compressible spring-plates, adapted to move bodily in a longitudinal direction, means for compressing said spring-plates and causing frictional contact with the bearings, and springs interposed between the intermediate and the rear-end follower, substantially as and for the purpose set forth.

2. In combination with the bearings secured to the draft-timbers, end and intermediate followers located therein, and laterally-compressible and longitudinally-movable spring-plates, means for compressing the laterally-located spring-plates, axially-arranged coil-springs between the intermediate follower, and the rear-end follower, and means for moving the end followers, substantially as and for the purpose set forth.

3. In combination with the bearings secured to the draft-timbers and end and intermediate followers located therein, laterally-compressible spring-plates mounted in closed-bottomed laterally-movable supporting-bases having their adjacent vertical faces beveled rearwardly, carry-bars secured to the bearings and supporting the bases, and a longitudinally-movable push-bar formed with a beveled forward terminal for spreading the bases, and means for reciprocating the push-bar, and spring-supporting bases, substantially as and for the purpose set forth.

4. In a draft-rigging such as described and provided with laterally-compressible spring-plates supported in movable bases, and longitudinally-compressible coil-springs; a forward and movable partition or follower, and followers intermediate of the spring-plates and coil-springs, a rear-end follower having a central stem for supporting the coil-springs, and having its forward terminal adapted to spread apart the spring-plate-supporting bases, substantially as hereinbefore set forth.

5. In a draft-rigging such as described, the laterally and longitudinally-movable spring-plate-supporting bases, open on one end, top and on one side, and having the rear end closed to constitute an intermediate follower, substantially as and for the purpose set forth.

6. In a draft-rigging such as described and embodying longitudinally-movable and followers, and intermediate follower and laterally-movable spring-supporting bases between the forward and follower, and the intermediate follower, flat spring-plates located within the supporting-bases and having their ends abutting respectively against the said followers, and constituting braces between said followers, and coil-springs between the rear-end follower and the intermediate follower, substantially as and for the purpose set forth.

7. In a draft-rigging such as described, the rear-end follower F formed with an axial stem G, and separable wedge-block I, connected by a removable bolt or pin H, substantially as hereinbefore set forth.

8. In combination with the bearings secured to the draft-timbers, end and intermediate followers and yokes located therein, and coil-springs between the intermediate and a rear-end follower having a central stem terminating in a wedge-shaped head; laterally-movable bases having inclined adjacent faces located each side of the wedge-shaped head of the follower-stem, and adapted to receive and compress friction-producing springs, substantially as hereinbefore set forth.

698,216. HINGE. WAMMAL P. NEWMAN, Watertown, Mass. Filed June 22, 1901. Serial No. 65,699. (No model.)



Claim.—1. A hinge comprised of a vertically-sliding plate and two leaves, the upper leaf provided with a wing substantially as and for the purposes specified.

2. A hinge comprised of a vertically-sliding plate and two leaves, each leaf provided with a wing substantially as and for the purposes specified.

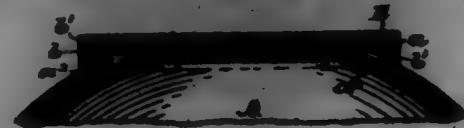
3. A hinge having an automatically-locking plate and comprised of two leaves projecting from a tubular part and a projecting bar formed on upper leaf of hinge extending on its inner face from tubular part for opening said plate, substantially as shown and described.

4. A hinge having two leaves projecting from tubular parts, a hub

leg-plate and means for operating same and a projecting bar formed on lower leaf of hinge and extending from the tube upon inner face of the lower leaf, substantially as shown and described.

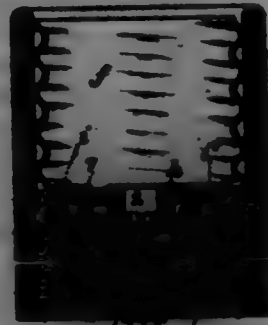
5. A hinge comprised of two leaves, each of which is provided with a socket and projections or wings extending upon and across their inner face, and the lower hinge having a recess, a pin having a knob and being vertically movable in said recess and lower socket to engage the upper socket, and a spiral spring to support said pin, substantially as shown and described.

698,217. SANITARY TRAP. ALBERT E. NEWTON, Providence, R. I. Filed Mar. 1, 1900. Serial No. 4,390. (No model.)



Claim.—In a sanitary trap, the combination with the body of the vessel the annular lip *a* and the neck *c*, of the hard-metal ring *B* the groove *d*, the ribs *e* and the seats *f* on the ring, the metal of the neck extending into the seats and the recess between the ribs, whereby the ring is secured to the vessel, as described.

698,218. ELECTRIC-LAMP SOCKET. HERBERT FORD, New York, N. Y., assignor to the Jordan-Bitner Electric Company, New York, N. Y., a Corporation of New York. Filed Jan. 16, 1901. Serial No. 29,864. (No model.)



Claim.—1. The combination with a cap and base of insulating material, and means for receiving electric conductors between the same and a clamping device for holding the same thereto, of a screw-socket within the cap of insulating material, a central metal plate, metallic sleeves connected respectively to said parts and extending through perforations in the lower portion of the cap and pointed devices passing through said sleeves and adapted to penetrate the covering of the electric conductors to contact with the wires therein, substantially as set forth.

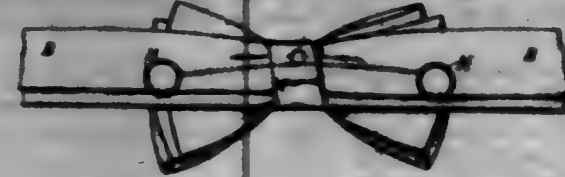
2. The combination with a cap and base of insulating material, and means for receiving electric conductors between the same and a clamping device for holding the same thereto, of a screw-socket within the cap of insulating material, a central metal plate, metallic sleeves connected respectively to said parts and extending through perforations in the lower portion of the cap and pointed devices passing through said sleeves and adapted to penetrate the covering of the electric conductors to contact with the wires therein, and clamping screws or bolts at points through the lower portion of the cap intermediate to the aforesaid devices and by which the said screw-socket is firmly held to the cap of insulating material, substantially as set forth.

3. The combination with the cap and base of insulating material, and means for receiving electric conductors between the same and a clamping device for holding the same thereto, of a screw-socket *f* within the cap of insulating material and a screw-sleeve *10* connected therewith and passing through a perforation in the base of the cap, a central metal plate *A* and a screw-sleeve *11* connected therewith and also passing through a perforation in the base of the cap, and screws *12* with sharp points on their advancing ends movable through the screw-sleeves *10* and *11* and adapted to penetrate the insulating-covering of the conductors held between the cap and the base, the points making metallic and electrical contact with the wires of the conductors, substantially as set forth.

4. The combination with the cap and base of insulating material, and means for receiving electric conductors between the same and a clamping device for holding the same thereto, of a screw-socket *f* within the cap of insulating material and a screw-sleeve *10* connected therewith and passing through a perforation in the base of the cap, a central metal plate *A* and a screw-sleeve *11* connected therewith and also passing through a perforation in the base of the cap, and screws *12* with sharp points on their advancing ends movable through the screw-sleeves *10* and *11* and adapted to penetrate the insulating-covering of the conductors held be-

tween the cap and the base, the points making metallic and electrical contact with the wires of the conductors, the outer ends of the screw-sleeves *10* and *11* being spread or flared into the recesses receiving the conductors for the purpose of securely fastening the screw-sleeves to the lower portion of the cap, substantially as set forth.

698,219. HOOKED-BANDS. SAMUEL E. PALMER, New York, N. Y. Filed Nov. 16, 1900. Serial No. 28,807. (No model.)



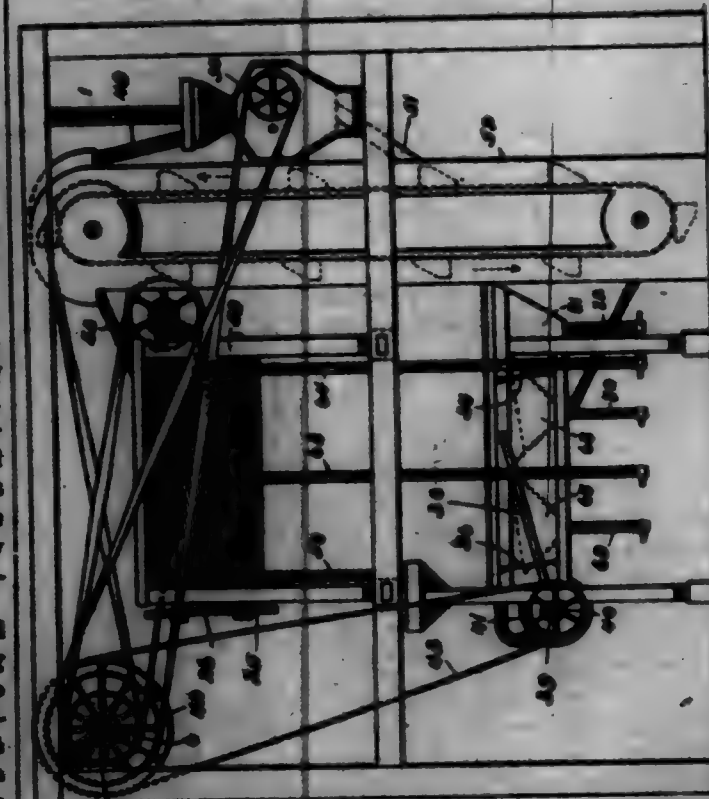
Claim.—A fastener for a socket having a band encircling the neck, having means at its center for securing it in the socket, spring gripping devices at its ends engaging the band and secured thereto, and adapted to engage a collar and hold said band tightly against the said collar, substantially as shown and described.

698,220. GRASSHOPPER-BLACK SULPHUR DYE AND METHOD OF MAKING SAME. AUGUST FRIEDMAN, Brugg, Switzerland, assignor to the Firm of Chemische Fabrik Brugg A. G., formerly Dr. Baumgarten & Co., Brugg, Switzerland. Filed Sept. 6, 1901. Serial No. 74,866. (No specimens.)

Claim.—1. The described process for the manufacture of grasshopper-black, colored, directly-dyeing dyestuff for cotton, by heating a pentachloro sulfonate with sulfuric acid.

2. As a new article of manufacture, the described grasshopper-black, colored dyestuff, derived from a pentachloro sulfonate, which dye is recommended cotton, is a bath containing alkali, sodium carbonate and common salt, in grasshopper-black shades fast to light.

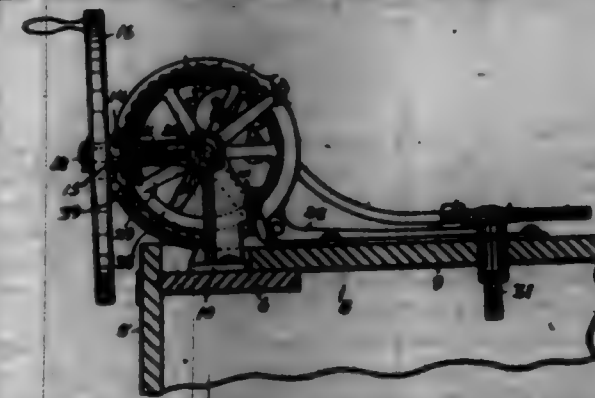
698,221. FLOUR-MILL. GEORGE F. LAMBERT, Boston, Mass. Filed Sept. 20, 1901. Serial No. 75,907. (No model.)



Claim.—1. An apparatus of the character described, comprising a primary grinding-mill, a primary belt, a conveyor for delivering the ground material from the grinding-mill to the belt, a delivery-spout for the belt material, a primary screening apparatus having means for dividing the screened product into different grades and having spouts for delivering the same, a secondary grinding-mill, a conveyor for delivering the unscreened material to said secondary mill, a secondary belt having means for separating the still further reduced material into different grades, means for delivering the reduced material from the secondary grinding-mill to the secondary belt, a secondary screening apparatus having means for separating the material into different grades and having spouts for delivering said grades of material separately, and means for delivering the unsifted material from the secondary belt to the said secondary screening apparatus.

2. An apparatus of the character described, comprising a primary grinding-mill, a primary belt, a conveyor for delivering the ground material from the grinding-mill to the belt, a delivery-spout for the belt material, a primary screening apparatus having means for dividing the screened product into different grades and having spouts for delivering the same, a secondary grinding-mill, a conveyor for delivering the unscreened material to said secondary mill, a secondary belt consisting of a reel having its holding-cloth divided into a plurality of sections differing as to the fineness of their meshes, means for delivering the reduced material from the secondary grinding-mill to the secondary belt, a plurality of compartments below the sections of said reel, means for separately delivering the material from the said compartments, means for delivering the unscreened material from the secondary belt, and a secondary screening apparatus consisting of a casing having a plurality of independent compartments with outlets therefrom, and a reciprocating screen arranged to receive the unscreened material from the secondary belt, and having sections of fine-mesh material of different textures, covering all but the final compartment and adapted to deliver the unscreened material to said final compartment.

698,222. WASHING-MACHINE. BERTON FORD, Port Wayne, Ind. Filed Nov. 2, 1900. Serial No. 26,811. (Model.)



Claim.—1. The combination of the said vessel, a lid therefor, an agitator-shaft mounted in said lid and provided with a pinion, a bracket attached to the top of the said vessel, a frame pivoted to said bracket and attached to the lid to form a hinge therefor, and gearing carried by said frame for actuating the agitator-shaft.

2. The combination of the said vessel, a lid therefor, an agitator-shaft mounted in said lid and provided with a pinion, a bracket attached to the top of the vessel, a frame pivoted to said bracket and attached to the lid to form a hinge therefor, and gearing carried by said frame for actuating the agitator-shaft, with a locking-piece provided with a handle and pivoted to an ear on the bracket and having its engaging portion in- cluding upward and curved to form a cam, a curved plate attached to the neck to form a shield, catches formed on both ends of the plate adapted to engage the locking-piece, the lower one engaging first the upper part of said cam, and adapted to be forced backward by the operation of the cam.

698,223. SASH-OVERHAUL BOX. LOUIS FRIEDMAN, Philadelphia, Pa. Filed Mar. 11, 1901. Serial No. 68,006. (No model.)



Claim.—The combination of the expandable rod *1*, bracket-extensions *7* secured to each end of said rod, the inner ends of said brackets being bent inwardly and backwardly in the rear of the rod, outwardly-extending points *6*, formed on the ends of said brackets, and auxiliary points *11* formed on each end of the rod, whereby said rod can be attached either to the edges of the sash or to the window-frame, substantially as described.

698,224. CASTER. SAMUEL E. PALMER, New York, N. Y. Filed Feb. 2, 1901. Serial No. 68,380. (No model.)

Claim.—1. In a caster, a ball having a socket therein and a plate, one end of the plate resting in and bearing against the lower end of the socket as and for the purpose set forth.

2. In a caster, a ball having a socket therein, a bearing-plate at the inner end of the socket, a plate of less diameter than the diameter of the socket, one end of which is in contact with the bearing-plate and means for holding the plate in the socket.

3. In a caster, a ball having a socket therein, the upper end of the socket being of larger diameter than the lower end, a plate in the socket the lower end of which bears against the inner end of the socket, anti-

friction-balls in the enlarged part of the socket and surrounding the plate, a flange on the plate, a plate fastened to the ball having an opening therein of larger diameter than the diameter of the plate and through which the plate passes, said plate being adapted to bear against the flange to hold the plate in the socket.



4. In a caster, a ball having a socket therein, a plate in the socket of smaller diameter than the diameter of the socket, one end of the plate resting against the inner end of the socket and supporting the weight brought on the center, the parts being so arranged that this end of the plate will be in front of the vertical axis of the ball when the center is in use and that there may be a free or "wobbly" movement of the plate in its socket.

5. In combination, a leg of a piece of furniture having a socket therein, a ball also having a socket therein, a plate inserted in each socket, one end of the plate being rigidly secured in one of the sockets and the other end of the plate moving free in the other socket as and for the purpose set forth.

6. In combination, a leg of a piece of furniture, having a socket therein, a ball also having a socket therein, a plate inserted in each socket one end of the plate being secured in one of the sockets and the other end of the plate resting against the inner end of the other socket, which is tapered and of greater diameter than the diameter of the plate, so that the end of the plate which rests against the end of the socket will support the weight brought upon the center and when the center is in motion that end of the plate will be in advance of the vertical axis of the ball and the ball will be permitted to have a "wobbly" motion.

7. In combination, a leg of a piece of furniture having a socket therein, a vertical plate having one end inserted in the socket, a ball directly under the leg of the furniture having a vertical socket therein of greater diameter than the diameter of the plate, the lower end of the plate inserted in the said socket, the lower end bearing directly against the inner end of the socket and supporting the weight brought on the leg of the furniture, means for holding the ball and plate together but to permit the ball to have a free or "wobbly" motion about the plate as and for the purpose set forth.

698,225. INCANDESCENT GAS-LAMP. ALVIN B. RUSSELL, Chicago, Ill. Filed July 1, 1901. Serial No. 68,708. (No model.)



Claim.—1. In an incandescent lamp, in combination, a Bunsen tube; a mantle-supporting shell; and a spring in said shell, mounted above the upper end of the tube, for supporting the shell with relation to the tube.

2. In an incandescent lamp, in combination, a Bunsen tube; a central coil-spring mounted on its base above said tube; and a mantle-supporting shell surrounding said central spring, and resting upon the smaller end of said central spring.

3. In an incandescent lamp, in combination, a Bunsen tube; a central coil-spring mounted on its base above said tube; and a mantle-supporting shell surrounding said central spring, said shell having within its upper portion an arm resting upon the smaller end of said central spring, for supporting said shell.

4. In an incandescent lamp, in combination, a lamp-gallery; a Bunsen tube; a mantle-supporting shell; and a spring extending from a point

above the upper end of said Benson tube, which spring supports said mantle-supporting shell with relation to said tube.

5. In an incandescent lamp, in combination, a lamp-gallery; a Benson tube; a spring-supporting tube telescoping with said Benson tube; a mantle-supporting shell; and a coil-spring seated in the upper end of said spring-supporting tube, for supporting the mantle-supporting shell.

6. In an incandescent lamp, in combination, a lamp-gallery; a Benson tube; a spring-supporting tube telescoping with said Benson tube; a spring mounted in said spring-supporting tube; and a mantle-supporting shell having means for mounting said shell on said spring.

7. In an incandescent lamp, in combination, a lamp-gallery; a Benson tube; a spring-supporting tube telescoping with said Benson tube; a conical coil-spring mounted in said spring-supporting tube; a mantle-supporting shell having means for supporting said shell upon said spring; and means for attaching the mantle to said shell.

8. In a means for supporting incandescent mantles, in combination, a coil-spring; a guide-rod; a mantle-supporting shell having means for supporting said shell upon said spring; and means for attaching the mantle to said shell.

9. In a means for supporting incandescent mantles, in combination, a coil-spring; a guide-rod extending centrally through said spring; and a mantle-supporting shell having means for supporting said shell upon said spring and guiding it upon said guide-rod.

10. In a means for supporting incandescent mantles, in combination, a conical coil-spring; a guide-rod extending centrally of said spring; and a mantle-supporting shell having an arm within the upper portion of said shell, for supporting said shell upon said spring and for guiding it upon said guide-rod.

11. In an incandescent lamp, in combination, a spring-supporting tube; a conical coil-spring supported by said tube; a guide-rod extending centrally of said spring; a mantle-supporting shell having an arm within the upper portion of said shell, for supporting said shell upon said spring and for guiding it upon said guide-rod; and means for attaching the mantle to said shell.

698,226. PICKING-UP APPLIANCE FOR BALLS EDWARD R. ROBERTS, Claughton, near Birmingham, England. Filed Jan. 14, 1902. Serial No. 29,640. (No model.)



Claim.—1. A device for the purpose specified, comprising a skeleton receptacle having a flat bottom formed of spaced and substantially parallel connectors of flexible material, extending across from side to side and strained, substantially as set forth.

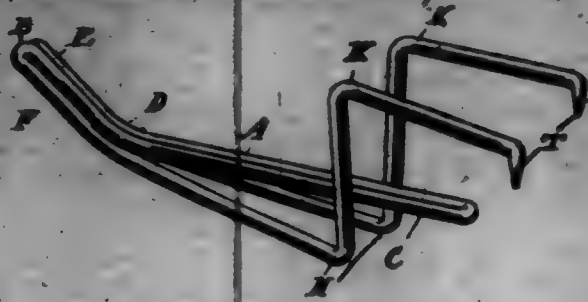
2. A device for the purpose specified, comprising a receptacle having a skeleton frame with open sides and bottom, and connectors of flexible material strained across said sides and bottom in straight lines, the contiguous connectors being parallel with each other, substantially as set forth.

3. Is an appliance for picking up balls, the combination of a pair of open frames of any suitable shape, placed one above the other at a suitable distance apart, corner-pieces adapted to fasten said frames together at a suitable distance apart, and made so as to enclose outward, and elastic or flexible strips or cords at sides and bottom of said frames forming a grid-like structure between which the balls can be slipped through, substantially as described.

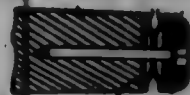
698,227. SHELF-HOOK. CHARLES A. SCHRAMM, San Diego, Cal. Filed Nov. 20, 1901. Serial No. 23,145. (No model.)

Claim.—A shelf-hook made of a single piece of wire having its ends pointed and turned downward and spaced apart, said wire being bent at right angles at points T and designed to engage over the edge of a shelf, with the horizontal portions of the wire, intermediate the points T and the downwardly-bent ends, adapted to rest upon the upper surface of a shelf, and the vertical portion of the wire to bear against the edge of the shelf, said wire being bent upon itself at its longitudinal center, forming

a flexible tongue C, the sections of the wire forming the tongue being in contact with each other, and having a vertical play between the portions of the wire which are designed to engage the edges of a shelf, the sections of the wire at the base of the flexible tongue being bent at an inclination to form a hook, which is reinforced by bending the two sections of the wire upon themselves underneath the hook, the base of said tongue having a bearing against the portions of the wire underneath said hook at points H, substantially as shown and described.



698,228. CHAIR-TIP. GEORGE C. SCOTT, Boston, Mass. Filed July 2, 1901. Serial No. 27,422. (No model.)



Claim.—1. A chair-tip comprising an apertured yielding washer engaging the lower end of the chair-leg, and an apertured facing-block counterbored on the under face thereof and engaging the washer, the aperture in the facing-block registering with that of the washer and having a nail passed through said registering apertures to engage in the chair-leg with the head of the nail received in said counterbored portion of the facing-block, substantially as described.

2. A chair-tip comprising outwardly-bulged apertured spring-washers, and an apertured facing-block, the washers being interposed between the chair-leg and the facing-block with means passing through the facing-block and washers and engaging in the chair-leg, substantially as described.

3. A chair-tip comprising outwardly-bulged apertured spring-washers and an apertured facing-block with the bulged portions of the washers contacting with one another and having their opposite faces contacting with the facing-block and the chair-leg with means for securing the washers and facing-block to the chair-leg, substantially as described.

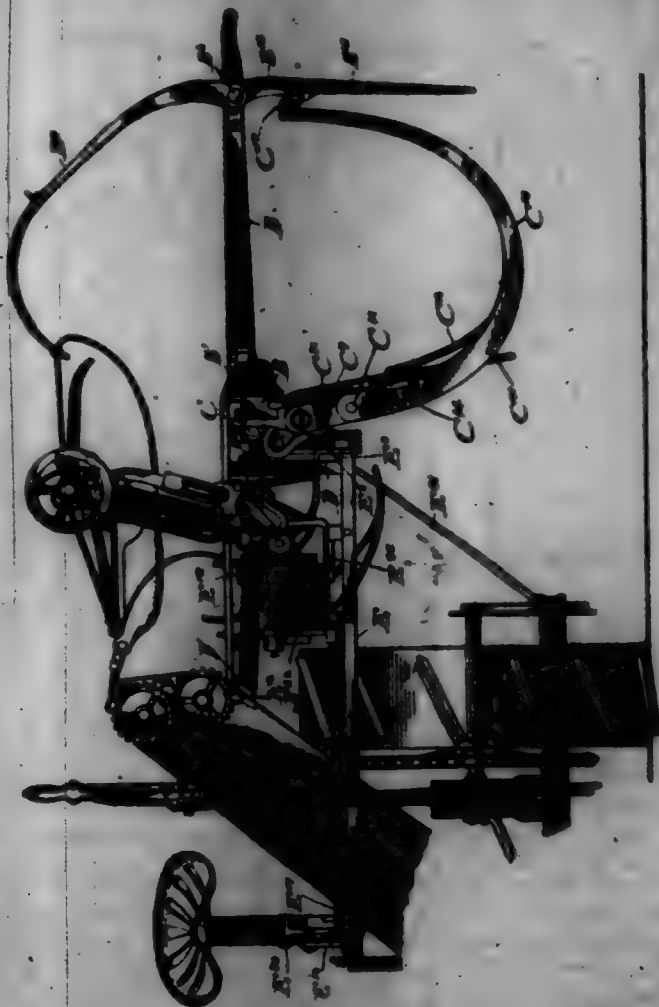
698,229. PRESS FOR BALING HAY, COTTON, &c. JAMES T. SCOTT, Buffalo, Ala. Filed Dec. 21, 1901. Serial No. 26,927. (No model.)



Claim.—In combination, a baling-chamber, a follower adapted to move therein, a stem composed of spaced parallel bars attached to the

follower, a turn-post passed through the space formed between the said parallel bars, ropes or cords attached at one end to the turn-post and adapted to wind reversely thereon and having their opposite ends attached, respectively, to the follower and the outer end of the follower-stem, upper and lower cross-bars having the stem of the follower passed between them, a catch at the outer end of the stem to engage one of the said cross-bars, a sweep applied to the turn-post, and a pinion for connecting the stem with the sweep when dumping the charges and disconnected from the sweep when pressing the bale, substantially as set forth.

698,280. GRAIN-SHOCKING ATTACHMENT FOR HARVESTING-MACHINES. LOUIS I. SPARKS, Chicago, Ill., administrator of George H. Sparkling, deceased, assignor to McCormick Harvesting Machine Company, Chicago, Ill. Filed Feb. 27, 1901. Serial No. 69,886 (No model.)



Class.—1. A shocking attachment for self-binding harvesters having, in combination, a main frame, a shaft secured near the center thereof and at a right angle thereto for pivotally supporting the shocker on the harvester-frame, a bundle-receiving cradle hinged to swing transversely to the movement of the shocker; a frame projecting transversely from the main frame across the cradle, a rock-shaft, mounted on the outer side of said frame parallel with the main supporting-frame, and carrying compressing and holding arms, means for rocking said shaft and arms, means for swinging the cradle on its hinges so as to deposit the shock on the ground, and means for rocking the cradle horizontally out of the way of the shock.

2. A shocking attachment for self-binding harvesters having, in combination, a main frame, a shaft secured near the center thereof and at a right angle thereto for pivotally supporting the shocker on the harvester-frame, a bundle-receiving cradle hinged so as to swing transversely to the movement of the shocker, knottin device mounted on the main frame, a frame projecting transversely from the main frame across the cradle, a rock-shaft mounted in the outer side of said frame, parallel with the main supporting-frame and carrying a needle-arm for passing the binding-cord to the knottin device, means for rocking the needle-shaft, means for swinging the cradle on its hinges so as to deposit the shock on the ground, and means for rocking the cradle horizontally out of the way of the shock.

3. In combination with a self-binding harvester, a shocking-cradle lying parallel with and beneath the binder-deck, when in its receiving position, said cradle being pivoted so as to tilt forwardly and downwardly to a substantially vertical position to deposit the shock, and being also pivoted to swing rearwardly and forwardly toward the side of the harvester out of the way of the shock as the machine advances.

4. In combination with a self-binding harvester, a shocking-cradle pivoted to tilt in a vertical plane parallel with the outer edge of the binder-table, and swing rearwardly and toward the binder-deck, the handle-receiving portion of the cradle being divided transversely so that the rear portion will pass above the binder-deck and the front portion below the same.

5. A shocking attachment for self-binding harvesters comprising, in combination, a main frame, a shaft secured near the center thereof and at a right angle thereto for pivotally supporting the shocker on the harvester-frame, a bundle-receiving cradle hinged to swing in a plane transverse to the main frame, a frame projecting transversely from the main frame across the cradle, an arm depending from said frame, and a similar arm depending from the main frame to support and guide the shock when the shocker is tilted to its discharging position.

6. A shocking attachment for self-binding harvesters having, in combination, a main frame, a shaft secured near the center thereof and at a right angle thereto for pivotally supporting the shocker on the harvester-frame, a bundle-receiving cradle hinged to swing transversely to the movement of the shocker, a frame projecting from the main frame across the cradle, a shaft mounted on the outer side of said frame, parallel to the main frame, a hook or latch secured to said shaft and adapted to engage the outer edge of the shocking-cradle, means for rocking the shaft and hook, means for swinging the cradle, and means for tilting the main frame.

7. A shocker-cradle consisting of two side bars, two bow-shaped end bars pivoted at a distance from each other to said side bars, intermediate bow-shaped rods also pivoted to the side bars, links connecting the rods to the end bars, and springs resisting the swinging of the bow-shaped bars and rods on their pivots.

8. A shocker-cradle consisting of two side bars, two bow-shaped end bars pivoted at a distance from each other to said side bars, a curved rod secured to one end bar and extending through an opening in one of the side bars, a coil-spring mounted on the curved rod and bearing at one end on an abutment of the curved rod and at the other on said side bar, a similar curved rod mounted on the other side bar and passing through an opening in the other bow-shaped end bar, a coil-spring on said rod bearing at one end against the end bar and at the other against an abutment on the curved rod, and a series of bow-shaped rods pivoted at their ends in the two side bars of the cradle and linked to the end bars.

9. In combination with a harvester having an adjustable binder, a tilting shocker, an adjustable shock-binder on said shocker, and means for adjusting the binders simultaneously in any position of the shocker.

10. The combination with a harvester having an adjustable binder, a tilting shocker, an adjustable shock-binder on said shocker, a loosely-rotating gear concentric with the shocker-pivot, and two rack-bars meshing with and free to swing about said gear, one of said bars being connected with the harvester-binder, and the other with the shock-binder.

11. In a shocker for self-binding harvesters, a main frame swinging about a pivot on the harvester and carrying the bundle-receiving cradle, a shock-binder mounted on said main frame, a segmental rack secured to the harvester-frame concentric with the pivot of the shocker, and a knottin driving-shaft mounted in bearings on the main shocker-frame and having a gear which meshes with the segmental rack.

12. In a shocker for self-binding harvesters, a main frame swinging about a pivot on the harvester and carrying the bundle-receiving cradle, a shock-binder frame mounted on said main frame, a needle-shaft on the outer side of the binder-frame, a crank-shaft in bearings on the main shocker-frame, a curved bracket on the harvester-frame concentric with the shocker-pivot and provided with a cam-slot having a straight portion and a curved end portion, said cam-slot engaging a crank on the crank-shaft, and means connecting the crank-shaft with the needle-shaft.

13. In a shocker for self-binding harvesters, a main frame swinging about a pivot on the harvester, a bundle-receiving cradle hinged to said main frame, a curved bracket on the harvester-frame concentric with the pivot of the shocker and provided with a cam-slot formed with a straight portion and a curved end portion, a rock-shaft mounted in bearings on the main shocker-frame and carrying a crank which engages the cam-slot, and connections between the rock-shaft and the bundle-receiving cradle for swinging the same.

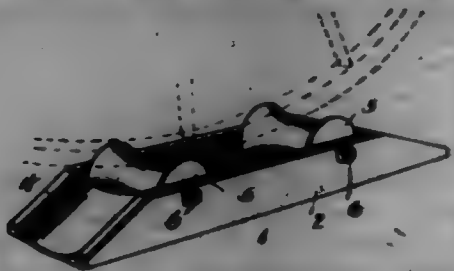
14. In a shocker for self-binding harvesters, a main frame swinging about a pivot on the harvester, a shock-binder thereon, a bundle-receiving cradle hinged to said main frame, a curved bracket on the harvester-frame, concentric with the pivot of the shocker and provided with a cam-slot formed with a straight portion and a curved portion at each end, a tubular rock-shaft mounted in bearings on the main shocker-frame and carrying a crank which travels in the straight portion and one of the curved end portions, connections between the tubular crank-shaft and the shocker-cradle, a second crank-shaft carried at one end in the tubular crank-shaft and at the other in a bearing on the main shocker-frame, a crank on said shaft traveling in the straight portion and the second curved

portion of the cam-shaft, and connections between the second crank-shaft and the needle-shaft of the check-binder.

15. In a checker for self-binding harvesters, a main frame swinging about a pivot on the harvester, a U-shaped check-binder frame having one arm sliding on the checker-frame, a knotting mechanism carried on said arm, a knotted-shaft mounted on the checker-frame having a gear at one end and a groove-and-splice connection with the knotted-wheel, a segmental rack on the harvester-frame engaging the gear on the knotted-shaft, a tubular crank-shaft mounted on the checker-frame, a second crank-shaft having one end secured within the tubular shaft and the other is a bearing on the checker-frame, a crank connected for rotation to said shaft but sliding longitudinally thereon, the hub of said crank being held by a bearing-sleeve on the sliding binder-frame, a needle-shaft on the outer arm of the sliding binder-frame, a pinion connecting the crank on the last-mentioned crank-shaft with a crank on the needle-shaft, a curved bracket on the harvester-frame, concentric with the pivot of the checker and provided with a cam-disk formed with a straight portion and two curved end portions, cranks on the tubular shaft and the second crank-shaft which travel in the cam-disk, a handle-receiving cradle hinged to the main checker-frame, and connections between the tubular crank-shaft and the cradle for swinging the same.

16. A check-binder having a main frame, carrying the necessary shafts and gearing for operating the check-binder and other parts, and swinging in a plane parallel with the outer edge of the binder-table, in combination with a harvester binder-table projecting over the checker-frame to protect the gearing thereon, and having at its rear outer edge a hinged portion which turns up out of the way as the rear end of the checker-frame rises.

698,281. WASHING-JACK. CHARLES SHANNAN, Youngstown, Ohio. Filed Dec. 7, 1899. Serial No. 58,922. (No model.)



Claim.—1. A washing-jack for vehicle-wheels comprising a portable base constructed to rest flat upon the ground or floor, rolling supports carried by the base and arranged to hold a wheel thereon in a plane elevated above the ground-level, and guides carried by the base and arranged to direct the wheel on and off the supports.

2. A washing-jack for vehicle-wheels comprising a base having oppositely-located inclined wheel-guides, and rolling supports for sustaining thereon the wheel, said supports being arranged in the interval between the opposite guides, and adapted to support the wheel in a plane above the ground-level.

3. A washing-jack for vehicle-wheels comprising a base constructed to rest flat upon the ground or floor, and a pair of wheel-supporting rollers held by the base in a plane elevated from the ground or floor and arranged in spaced parallel relation in the same horizontal plane.

4. A washing-jack for vehicle-wheels comprising a base-frame provided at the opposite ends thereof with wheel-guides having inclined grooved runways, and a pair of peripherally-grooved wheel-supporting rollers mounted in the base-frame between the opposite guides, said rollers being disposed in spaced parallel relation and in the same horizontal plane.

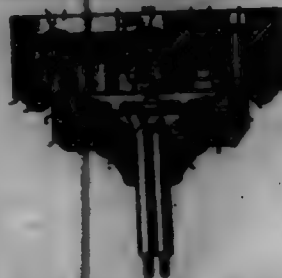
698,282. STEAM-PROPELLED ROAD-VEHICLE. STEVEN J. STRAIN, London, England. Filed Oct. 26, 1899. Serial No. 59,209. (No model.)

Claim.—In a steam-propelled road-vehicle, the combination with the front axle connected by springs to the frame so that it can rock and slide vertically, of a boiler arranged over the said axle, a shaft, a pair of horizontal engines in communication with the boiler and having their piston-rods connected to cranks at right angles to one another on said shaft, a pair of pinions of different diameters mounted on said shaft, a counter-shaft, a pair of wheels mounted on the counter-shaft and adapted to be suitably engaged by the said pinions, a sprocket-pinion mounted on said counter-shaft, a differential gear connecting the two parts of the hip axle of the vehicle, a sprocket-wheel on said gear, connections between said sprocket-pinion and said sprocket-wheel, springs attached to the frame of the vehicle and adapted to slide under it, bearings carried by the springs for the hip axle, a bearing on the counter-shaft, and a roller-rod for connecting the springs to the bearing on the counter-shaft.

698,283



698,283. RECTIFIER. WILLIAM T. THOMAS, Philadelphia, Pa. Filed Dec. 26, 1899. Serial No. 57,978. (No model.)



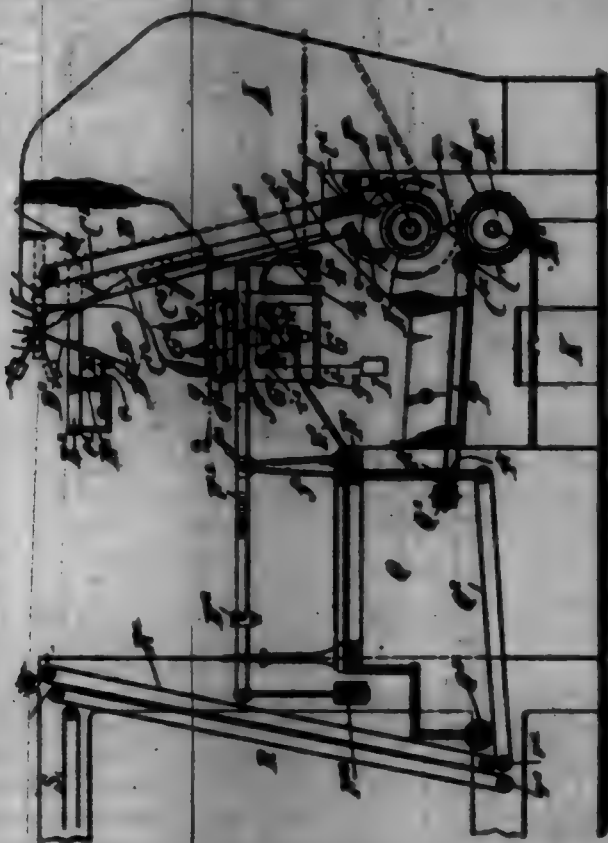
Claim.—1. In a rectifier, in combination, a cap having an aperture for branch wires for drop lights or the like, terminals carried on said cap, with which said branch wires are respectively in circuit, a base block having terminals adapted to make contact with the terminals of the cap plate, three grooves or channels formed in said base block and adapted to receive line wires, two of said grooves having contact devices adapted to make electrical connection with wires passing through said grooves, said contact devices being in circuit with the respective terminals of the base block.

2. In a rectifier, in combination, a cap having an aperture for branch wires for drop lights or the like, terminals carried on said cap, with which said branch wires are respectively in circuit, a base block having terminals adapted to make contact with the terminals of the cap plate, three grooves formed in said base block and adapted to receive three line wires (the central and one of the side grooves having each a contact device adapted to make electrical connection with a wire passing through the groove in which said contact device is situated, said contact devices being in circuit with the respective terminals of the base block.

3. In a rectifier, in combination, a cap having an aperture for branch wires for a drop light or the like, terminals carried on said cap with which said branch wires are respectively in circuit, a base block having terminals situated respectively on its opposite edge portions and adapted to make electrical connection with the terminals of the cap plate, three grooves or channels formed in said base block and adapted to receive three line wires, a contact device arranged in one of the side grooves and in circuit with one of the terminals of the base block, a second contact device located in the central groove, a conducting plate mounted on the rear portion of the block, and conducting connections uniting the contact device in the central groove, and the second of the terminals of the base plate, with said conducting plate, substantially as set forth.

698,284. AUTOMATIC FEEDING AND WINDING MECHANISM. FRANK C. WARD, New York, N. Y. Filed July 17, 1899. Serial No. 58,995. (No model.)

Claim.—1. The combination, with the feeding means, a stream-deflector, constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, weighing mechanism, and means for operating the deflector to deflect the stream back to the feeding means, of a catch or detent for engaging the discharge portion of the weighing mechanism, a timed controlling device, means operated by the same for automatically releasing said catch, and a deflector-returning device actuated by the timed controlling device immediately after the release of the said catch and the return of the weighing mechanism to normal position, substantially as set forth.



2. The combination, with the feeding means, a stream-deflector constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, and weighing mechanism, of means for locking the deflector in feeding position, means for automatically unlocking the same upon obtaining the predetermined weight, a catch for engaging the discharge portion of the weighing mechanism, a timed controlling device, means operated by the same for automatically releasing said catch, and a deflector-returning device actuated by the timed controlling device immediately after the release of the said catch and the return of the weighing mechanism to normal position, substantially as set forth.

3. The combination, with the feeding means, a stream-deflector constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, weighing mechanism, and means for operating the deflector in one direction, of a catch for supporting the discharge portion of the weighing mechanism, a timed controlling device, means for changing the rate of speed of said controlling device, means operated by the timed controlling device for automatically releasing said catch, and a deflector-returning device independent of said catch and catch-releasing means, the same being actuated by the timed controlling device immediately after the release of said catch and the return of the weighing mechanism to normal position, substantially as set forth.

4. The combination, with weighing mechanism, of feeding means, a pivoted hanging deflector constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, a counterweight for moving the deflector to material-returning position, and automatic means absolutely independent of the weighing mechanism for returning the deflector to material-feeding position immediately after the return of the weighing mechanism to normal position, substantially as set forth.

5. The combination with weighing mechanism, comprising a weighing-basket, adjustable in size, of a deflector adjustable in length relatively to the normal position of the weighing-basket, and means for feeding material, said deflector being arranged between the discharge portion of the feeding means and the weighing-basket, substantially as set forth.

6. The combination with suitable weighing mechanism, of means for feeding material, and a deflector adjustable in length and arranged in the space through which the material normally passes to the scale pan or basket of the weighing mechanism, substantially as set forth.

7. The combination, with weighing mechanism comprising a scale-beam and a suspended basket or weigh-box, of material-feeding means,

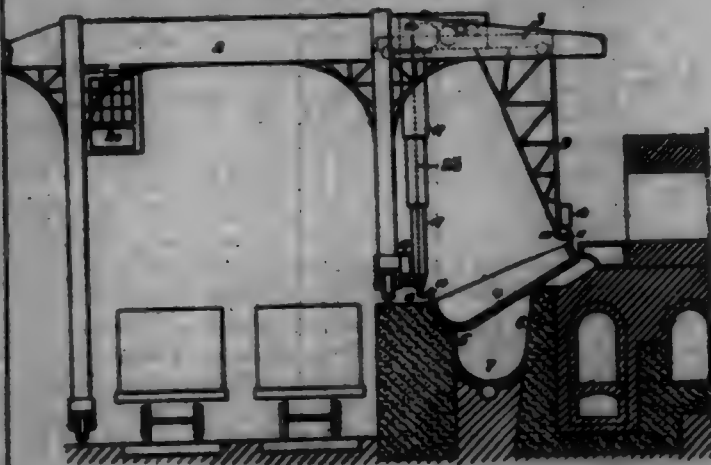
a movable deflector constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, means, entirely dependent of any positive influence of but controlled by the weighing mechanism, for shifting said deflector to deflect, by one movement, the entire supply-stream from said basket and weighing mechanism being free from any retarding action of said shifting means, means for restraining the tendency of said shifting means and maintaining the deflector in full discharge position during the weighing, means suitably connected with the weighing mechanism for releasing the deflector from said deflector-restraining means, and means, independent of said shifting means and entirely independent of any influence of the weighing mechanism, for automatically and positively moving the deflector back to material-feeding position at regular predetermined intervals of time, substantially as set forth.

8. The combination, with weighing mechanism, of feeding means, a movable deflector constructed and arranged to prevent accumulation of material behind the same when in non-feeding position, means for positively locking the deflector in full material-feeding position, means for automatically releasing the deflector therefrom on obtaining the weight set, means for instantaneously shifting said deflector to full material-returning position, and means for positively and automatically moving the deflector back to locked position at regular and predetermined intervals of time immediately after the return of the weighing mechanism to normal position, substantially as set forth.

9. The combination, with power-driven mechanism, material-feeding means, and means for interrupting the feed of material, of weighing mechanism provided with a movable discharge portion, a catch engaging said discharge portion, a conveyor driven from said power-driven mechanism and onto which the material is dropped from the basket, an electromagnetic circuit, a circuit-closer, and a rotary tappet for striking the movable member of the circuit-closer, said tappet being timed relatively to the conveyor for causing it to close the circuit and thereby discharge said catch at the expiration of a predetermined period of time, substantially as set forth.

10. The combination with the feeding means, a gravitating deflector and weighing mechanism, of means for locking said deflector in feeding position, means for automatically unlocking the same, a source of electricity, an electromagnet, the armature of which is provided with a catch for engaging the discharge portion of the weighing mechanism, a circuit-closer, line connection between the source of electricity, magnet and circuit-closer, a timed controlling device for closing the circuit through said circuit-closer, and a deflector-returning device actuated by the timed device after the breaking of the circuit, substantially as set forth.

698,285. CRANE-LOADING APPARATUS. SAMUEL T. WILLIAMS, CHARLES E. WILLIAMS, JOHN W. SHAVER, and THOMAS R. HERRMAN, Cleveland, Ohio, assignors to the Williams Shaver Engineering Company, Cleveland, Ohio, a Corporation of Ohio. Filed Mar. 12, 1901. Serial No. 61,088. (No model.)



Claim.—1. The combination with a crane structure, of a trolley adapted to run thereon, depending and transversely-rigid lifting and supporting device carried by said trolley, a loading-pan, and supports to hold the pan in position under the crane structure, so that it can be engaged and lifted by the supporting and lifting device, substantially as described.

2. The combination of a travelling crane, a trolley thereon having transversely-rigid depending supporting and lifting device, a loading-pan, supporting means for fixedly supporting the pan in an inclined position under the lifting device, said lifting device adapted to lift the pan from its support and tilt it so as to dump its contents, substantially as described.

3. The combination of a crane with a trolley having transversely-

rigid depending hangers provided with means for engaging a pan, and means for operating one set of said hangers so as to raise the pan from its support, substantially as specified.

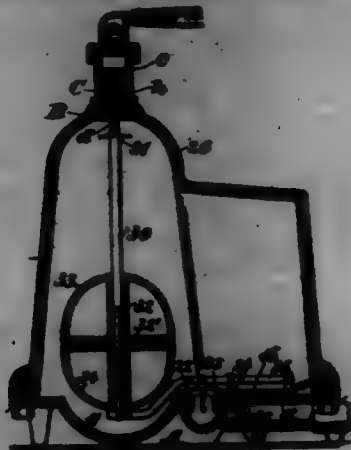
4. The combination of a crane with a trolley having transversely-rigid depending hangers provided with means for engaging a pan, and means for operating one set of said hangers so as to raise the pan from its support, and then tilt the same, substantially as specified.

5. The combination of a traveling crane with a trolley having depending hangers provided with means for engaging a pan, and electrically-controlled locking devices for said engaging means, substantially as specified.

6. The combination of a traveling crane, with a trolley having depending hangers for engaging a pan, the hangers for one end of the pan being rigid and those for the other end capable of being raised and lowered, substantially as specified.

7. The combination of a traveling crane, with a trolley having depending hangers for engaging a pan, one set of said hangers being rigid and the other comprising hoisting-tackle with telescopic movement, substantially as specified.

698,286. HYDRAULIC AIR-COMPRESSOR. JOSEPH WYMAN, Oultsburg, N. J. Filed Dec. 12, 1891. Serial No. 85,443. (No model.)



Claim.—1. The combination with a shell having water inlet and outlet openings a lever pivoted within the shell, two valves controlling the said openings and connected with said lever and a vertical rod connected at its lower end with the said lever and provided with vertically-sliding seats the lower seat having a limited upward movement on the rod to raise it, of air-delivery and air-vent in the upper end of the shell and a valve covering the air-vent raised by the direct action of the upper seat substantially as shown and described.

2. In a hydraulic air-compressor the combination with shell provided with water inlet and outlet openings a lever pivoted within the shell, valves attached to said lever and controlling said openings, a vertical rod pivotally connected at its lower end to said lever and seats movable up and down upon said rod of a valve-tube provided with air-delivery and air-vent, a nipple forming a continuation of the delivery-channel, a flexible apertured jacket covering the nipple, a valve controlling the air-vent, said valve having a hollow stem adapted to slide over the upper end of the seat-rod and capable of being operated by contact with the upper side of said seats substantially as shown and described.

3. In a hydraulic air-compressor a shell provided with water inlet and outlet openings, a lever pivoted within the shell, valves attached to said lever and controlling said openings, a vertical rod pivoted to one end of the valve-lever, and seats movable up and down upon said rod in combination with a valve-tube provided with air-delivery and air-vent a nipple forming a continuation of the delivery-channel, a flexible apertured jacket covering the nipple a hinged cap surrounding and a valve controlling the air-vent with a hollow stem adapted to slide over the seat-rod and capable of closing the delivery-outlet by contact with the upper end of said seats substantially as shown and described.

698,287. ELECTRIC VAPOR-LIGHTER. BURTUS E. WILSON, Chicago, Ill. Filed Dec. 20, 1891. Serial No. 85,673. (No model.)

Claim.—1. A lighting device, comprising a fluid-reservoir, a sheath tube, means for supporting said reservoir and tube in their proper relative position, a torch removably telescoped in the sheath-tube, means for supplying the fluid contents of the reservoir to the sheath-tube in a usable quantity, and the electric connections for automatically igniting the torch as it is being withdrawn from its normal position, substantially as set forth.

2. In a lighting device of the kind described, the combination with a fluid-reservoir, of a torch sheath-tube, the capillary conductor connecting the reservoir and sheath-tube, the torch-tube adapted to be removably

inserted in the sheath-tube, the torch-wire held normally out of contact with the torch-tube but momentarily engaging the same on its outward movement, the companion torch-wire, and means for bringing the sparking end thereof in contact with the torch and close the circuit; substantially as set forth.



3. In a lighting device of the kind described, the combination with a sheath-tube, having a saturated inflammable substance in the closed end thereof and provided with openings adjacent to its outer end, of a torch-tube, having an ignitable end and adapted to be removably inserted in the sheath-tube, and means for automatically lighting the torch each time that it is withdrawn from its normal position substantially as set forth.

4. In a lighting device of the kind described, the combination with a sheath-tube having a beveled shoulder and secured in a stationary position, of a lighting-torch, provided near its inner end with an annular groove and having a removable telescopic engagement with the sheath-tube, a hinge part, the positive circuit-wire having an insulated connection with the movable member of said hinge and extending therefrom to and around the sheath-tube in position to engage the annular groove in the torch when the latter is partly withdrawn, the negative circuit-wire secured to and moving with the movable member of the hinge part in closing the circuit and igniting the torch, and means for releasing the positive wire from its engagement with the torch at the proper time, substantially as set forth.

5. In a lighting device of the kind described, the combination with a fluid-reservoir, of a sheath-tube, secured in a stationary position, a wick-tube having one end inserted in the reservoir and the other end opening into the closed end of the sheath-tube, the capillary conductor running through the wick-tube, a torch removably extending into the closed bottom end of the sheath-tube, the electric connections, and means for closing the circuit in lighting the torch by the action of withdrawing the same, substantially as set forth.

6. A lighting device of the kind described, comprising a tank plate, a fluid-reservoir, a sheath-tube, a tube and wick conducting the fluid contents of the reservoir into the closed bottom end of the sheath-tube, a lighting-torch, removably inserted in the sheath-tube, the insulating case, the electric circuit connections and means actuated by the withdrawal of the lighting-torch in closing and breaking the circuit at the proper time, substantially as set forth.

698,288. SKIRT-PROTECTOR. WILLIAM F. WYMAN, Schuylkill, Wis., assignor to Aaron H. Weber, Schuylkill, Wis. Filed Nov. 9, 1890. Serial No. 736,308. (No specimens.)

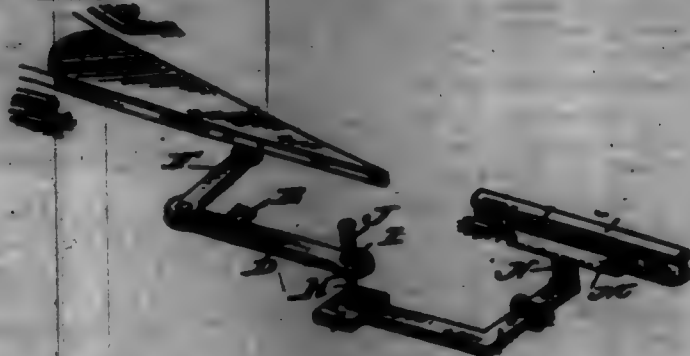


Claim.—1. A skirt-facing goods consisting of a strip turned over on itself and stitched at the fold through both thicknesses to form a ridge, the free edge being turned over to enclose the ridge and attached to the body of the strip.

2. A skirt-folding goods including a strip provided with a ridge in its body portion, the free edge beyond the ridge being folded over said ridge and secured to the body of the strip.

3. A skirt-folding goods including a strip turned over on itself and stitched at the fold through both thicknesses to form a ridge, the free edge being turned over and stitched to the body of the strip to imitate the ridge, and a cord-stitch in said ridge.

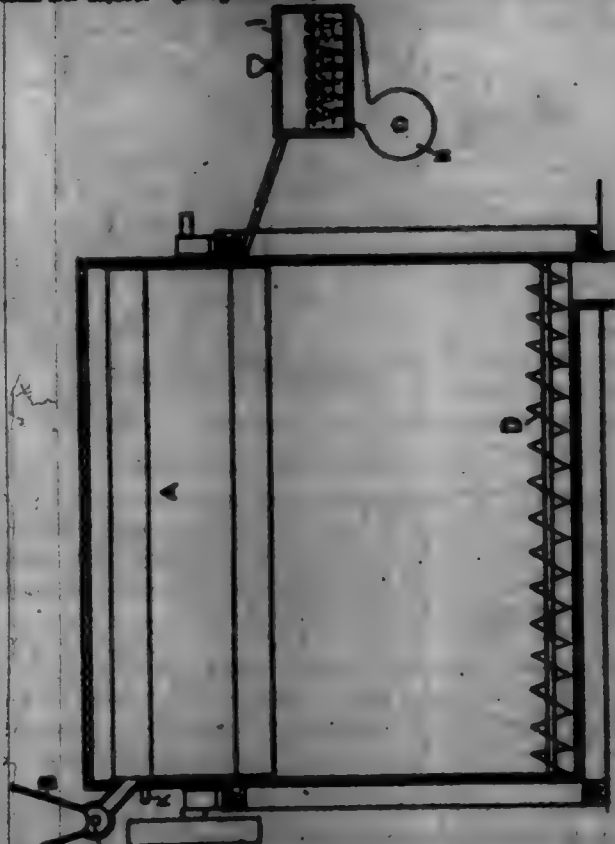
698,989. TRAMWAY-SWITCH. JOHN E. V. VORSE and RALPH W. RANK, Akron, Ohio. Filed May 29, 1901. Serial No. 62,371. (No model.)



Claim.—1. The combination with track-rails and a switch-tongue, of a trip-head adapted to be actuated by the wheels of a passing vehicle, a horizontally-movable pivoted lever for shifting said switch-tongue, a vertically-movable pin carried by the free end of said lever, an angular lever hinged to the trip-head and provided with a laterally-extending head to receive the lower end of the trip-pin, whereby when said trip-head is depressed, the trip-pin will be elevated to be within the path of movement of suitable mechanism carried by the vehicle for shifting said switch-tongue, substantially as set forth.

2. The combination with the track-rails and the switch-tongue, of a trip-head adapted to be actuated by the wheels of a passing vehicle, a horizontally-movable pivoted lever having an aperture in one end, a stud depending from the switch-tongue, a link pivotally connecting one end of said lever to the said stud, a pin mounted to slide vertically in the aperture at the opposite end of said lever, and an angular lever hinged to the trip-head and provided with a laterally-extending head to receive the lower end of the trip-pin, whereby when said trip-head is depressed, the trip-pin will be elevated to be within the path of movement of suitable mechanism carried by the vehicle for shifting said switch-tongue.

698,940. PROCESS OF AGING AND BLEACHING FLOUR. JOHN ARTHUR and SYDNEY ARTHUR, Belfast, Ireland. Filed Feb. 6, 1901. Serial No. 48,138. (No specimens.)



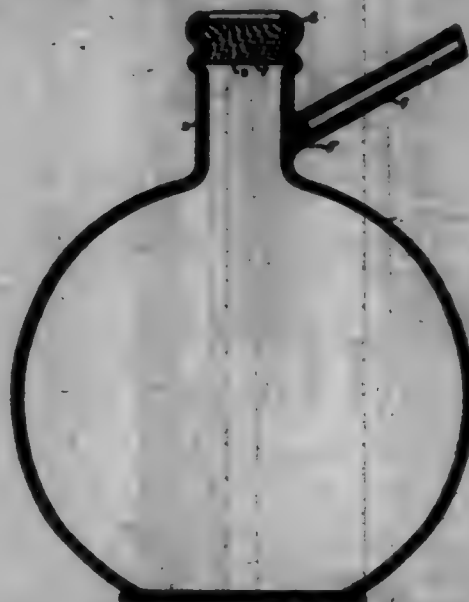
Claim.—1. The improvement in the process of aging and bleaching flour, which consists in passing chemically inactive gaseous material

through a liquid existing medium capable of being slowly volatilized by said inactive gaseous material, and bringing the resulting gaseous mixture into intimate contact with the flour, substantially as described.

2. The improvement in the process of aging and bleaching flour, which consists in passing the same in a state of fine division through an atmosphere containing a small regulated quantity of gaseous nitric acid.

3. The improvement in the process of aging and bleaching flour, which consists in bringing air into contact with nitric acid, whereby it takes up a minute quantity of the latter, and bringing this gaseous mixture into intimate contact with the flour, substantially as described.

698,941. NON-REFILLABLE BOTTLE. THOMAS E. RALSTON, Elizabeth, N. J. Filed Sept. 11, 1901. Serial No. 78,061. (No model.)



Claim.—1. A bottle having a neck, a disk of penetrable material cut into said neck when the bottle is formed and before it is filled, the neck being left unobstructed below the disk, and sealing material covering the disk, said material being applied after the bottle is filled.

2. A bottle having a neck, an asbestos diaphragm cut into the neck when the bottle is formed and before it is filled, the neck being unobstructed below the diaphragm so that the bottle may be filled through the latter, an inward curvature in the neck above the diaphragm, and sealing material between the diaphragm and curvature, for the purpose specified.

3. A bottle having a neck, a thin diaphragm of asbestos having a strengthening-rim on its outer edge cut into the neck when the bottle is formed and before it is filled, means for filling the bottle with the diaphragm in position, and means for sealing over the diaphragm to close the bottle.

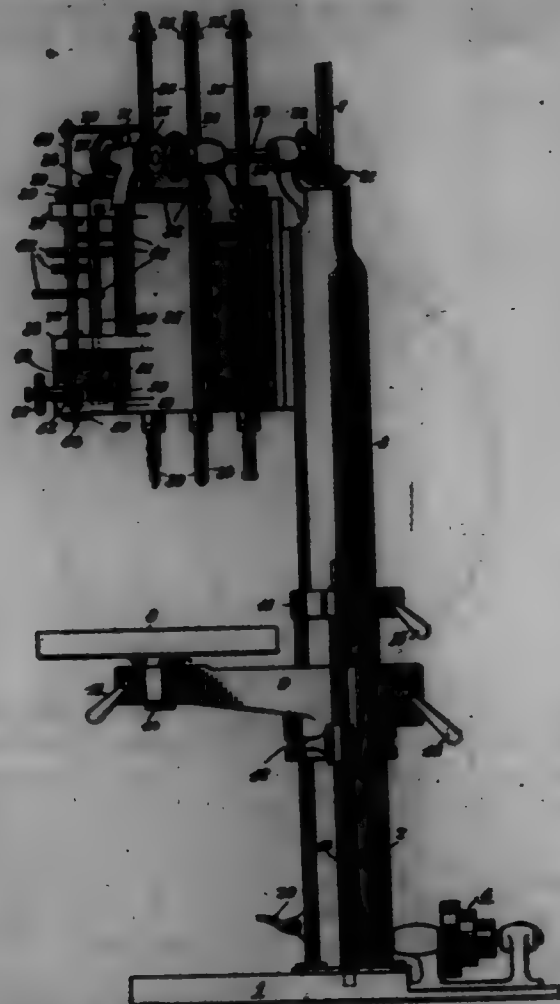
698,942. DRILLING-MACHINE. SAMUEL J. BAKER, Springfield, Vt. Filed Aug. 17, 1901. Serial No. 72,200. (No model.)

Claim.—1. In a drilling-machine, the frame comprising a base-plate, a hollow column secured thereto, and a second hollow column telescopically arranged with reference to the first, a suitably-actuated main shaft located within the hollow column, and a screw-threaded shaft similarly located and in engagement with the upper column, together with means for gearing the screw-threaded shaft to the main shaft.

2. In a drilling-machine, the combination with the frame comprising a base, a hollow column secured thereto and a second hollow column telescopically arranged with respect to the first, and provided with means for raising and lowering it, of a main shaft located within the two hollow columns, stepped at its lower end in said base, passing through the upper end of the upper sliding column and there provided with a tapered transmitting-gear, and means for rotating the main shaft, substantially as described.

3. The combination with the cylindrical casing or holder, having an opening at one side, and feed-gearing exterior to the casing or holder with one of its gears at said opening, of a cylindrical turret mounted in said casing and provided therethrough with a circularly-arranged series of longitudinal bores, each opening laterally out through the outer side of the turret to register with the single opening in the casing, a series of spindles extending through said bores and provided adjacent to the side openings thereof with feed-nuts, adapted to be engaged by the feed-gear at the casing-opening, driving-gears splined to the spindles at the top of the turret, driving-gearing with which any of the spindle-gears may mesh for continuous rotation and means for normally holding the spindles raised; substantially as described.

4. A drilling-machine comprising a telescopic column or standard, a main drive-shaft extending up through the standard and provided with a transmitting-gear splined thereon above the upper member of the column, a cylindrical turret holder or casing mounted on the said upper column member and provided with a lateral opening through one side, feed-gearing mounted on the turret-holder with one of its gears adjacent to said opening, a cylindrical turret mounted in said holder and having a series of lateral openings leading from said bore to register with the opening in the turret-holder, spring-actuated spindles in the said bore, feed-racks mounted loosely on the spindles within said bore and exposed through the lateral openings for operation by the said feed-gearing when brought into register therewith; substantially as described.



5. The combination with the cylindrical turret-holder having an opening through one side, feed-gearing mounted adjacent to said opening, a cylindrical turret mounted in the holder, and having a circularly-arranged series of bore, each having a lateral opening to register with the opening in the turret-holder, a series of spindles mounted in said bore and having feed-racks at the lateral openings for engagement with said feed-gear when brought into register therewith, drive-gears splined on the spindles at the top of the turret, a main drive-shaft, a common driving-gear mounted on top of the holder for engagement with any one of the spindles-gears, and gearing mounted on the holder and connecting said common driving-gear to the main drive-shaft; substantially as described.

6. A turret-drill comprising, a cylindrical holder or casing, a cylindrical turret mounted to turn therein, and provided with a series of drill-spindles extending through it and each provided at the top of the turret with a splined drive-gear, feed-gearing mounted at the side of the turret-holder and adapted to engage each spindle to feed the same when brought into register therewith, a common drive-gear mounted on top of the holder for operating the spindles as their drive-gears are brought into mesh therewith, a main drive-shaft, gearing connecting said main shaft with said common gear, a vertically-disposed feed-operating shaft also geared at its upper end to said common gear, means for operatively connecting the lower end of the vertical shaft to said feed-gearing for driving the same automatically and means for operating the feed-gearing by hand; substantially as described.

7. The rotatable turret, a series of spindles mounted therein, each of the said spindles having a rack connected thereto, and means for imparting rotary motion to any selected spindle, in combination with a movable box carrying a pinion for engagement with the rack and also a worm-gear geared to the pinion, together with a worm mounted so as to engage with the worm-gear when the box is in its operative position, and means for operating the worm.

8. The rotatable turret, a series of spindles mounted therein, each of said spindles having a rack connected thereto, and means for imparting

rotary motion to any selected spindle, in combination with a movable box carrying a pinion for engagement with the rack and also gearing connected to the said pinion, together with means for manually operating the said gearing when the box is in its operative position.

9. The rotatable turret, a series of spindles mounted therein, each of the said spindles having a rack connected thereto, and means for imparting rotary motion to any selected spindle, in combination with a movable box carrying a pinion for engagement with the rack and also a worm-gear geared to the pinion, together with a worm mounted so as to engage with the worm-gear when the box is in its operative position, and means for operating the worm.

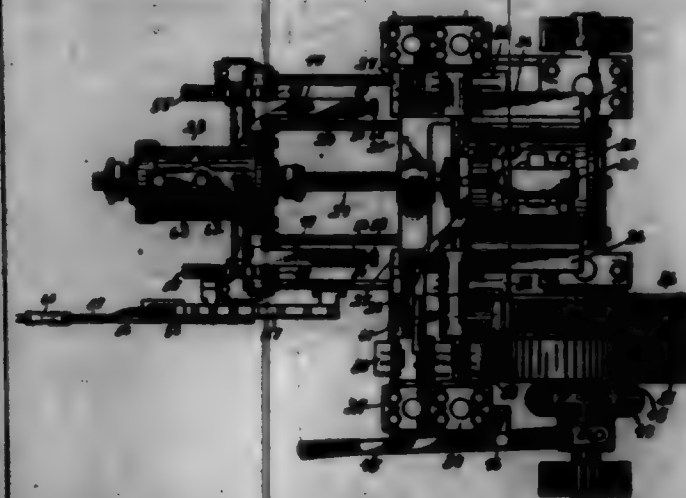
10. The rotatable turret, a series of spindles mounted therein, each of the said spindles having a rack connected thereto, and means for imparting rotary motion to the selected spindle, in combination with a movable box, a pinion carried thereby for engagement with the rack, and a worm-gear also carried in the box and geared to the pinion, together with a pivoted bracket, and a rotatably-actuated worm mounted in said bracket whereby the worm may be caused to engage the worm-gear when the movable box is in its operative position.

11. In a drilling-machine, the combination with a spindle, of means comprising a tubular worm which may be manually operated for feeding the spindle, together with a constantly-actuated shaft passing freely through the worm and normally not connected thereto, but provided with a clutch whereby the manual feed of the spindle may be changed to an automatic feed.

12. In a drilling-machine, the combination with a spindle and its feed-gearing, of a tubular worm for operating said gearing, a hand-wheel connected to said worm and provided at one side with a clutch-connection, a constantly-actuated shaft passing through the worm and provided with a clutch member at one end and means for engaging the clutch member with that on the hand-wheel; substantially as described.

13. In a drilling-machine, the combination of a spindle, and means for imparting a rotary motion thereto, with gearing mounted in a movable box for imparting an automatic feed to the spindle, an actuating member normally engaging the said gearing when the box is in its operative position, a pivoted bracket carrying the said member, and a catch for maintaining the bracket in position, a rod connected to the catch, a spring pressing upon the rod, and a pivoted lever attached at the other end of the rod, together with a stop attached to the spindle whereby in the descent of the spindle the bracket and member carried thereby may be released from operative position.

698,243. STRAIN NET-WORKS FOR SAWMILLS. ROBERT F. BARKER and HENRY CURRY, Martinsburg, W. Va. Filed June 24, 1901. Serial No. 66,993. (No model.)



Claim.—1. In a sawmill net-work, in combination, an engine, a pair of intermeshing roller-shafts, means for imparting motion from the engine to the roller-shafts, a set-shaft, a pair of co-acting ratchet-wheels driven from the roller-shafts, a circular pawl-carrier concentric with each of the ratchet-wheels, and a plurality of pawls mounted upon each of the carriers and engaging the companion ratchet-wheel.

2. In a sawmill net-work, in combination, an engine, a pair of intermeshing roller-shafts, a set-shaft, a ratchet-wheel, a clutch for coupling the ratchet-wheel with the set-shaft, a pair of oppositely-driven pawl-carriers, and pawls mounted on the carriers and engaging the ratchet-wheel.

3. In a sawmill net-work, in combination, a set-shaft, a pair of co-acting roller-shafts, an engine, gearing for imparting motion from the engine to the roller-shafts, and pawl-and-ratchet mechanism for communicating motion to the set-shaft.

4. In a sawmill net-work, in combination, an engine, a pair of in-

termeshing roller-shafts, rack-and-pinion connection between the engine and one of the shafts, a set-shaft, a ratchet-wheel mounted thereon, two sets of pawls engaging the ratchet-wheel, and operative connection between each roller-shaft and one set of the pawls.

5. In a sawmill net-work, in combination, a set-shaft, a pair of roller-shafts, a segmental gear fixed on one of said shafts, a rack-bar for driving the segmental gear, means for reciprocating the rack-bar, a segment fixed to the other shaft and driven by the segmental gear whereby the said shafts are rotated in opposite directions, a pair of pawl-carriers, connection between the pawl-carriers and the roller-shafts, a ratchet-wheel for communicating motion to the set-shaft, and pawls mounted on the carriers and engaging the ratchet-wheel.

6. In a sawmill net-work, in combination, an engine, a set-shaft, means for transmitting motion from the engine to the set-shaft, and a step-block pivoted in the path of a moving part of the engine and which is provided with a plurality of adjustable abutments.

7. In a sawmill net-work, in combination, an engine, a set-shaft, connection between the engine and the set-shaft, a pivoted step-block for the engine, and a plurality of radially-adjustable abutments projecting from the face of the block.

8. In a sawmill net-work, in combination, a reciprocating engine, a cross-head carried by the piston thereof, a set-shaft, means for transmitting motion from the engine to the set-shaft, a pivoted cam-shaped step-block provided with a series of steps and engaging between the path of the cross-head, and an adjustable abutment located on each step.

9. In a sawmill net-work, in combination, an engine, a pair of intermeshing co-acting roller-shafts, connection between the engine and one of the shafts, a set-shaft, and pawl-and-ratchet mechanism for driving the set-shaft intermittently forward.

10. In a sawmill net-work, in combination, an engine, a pair of intermeshing co-acting roller-shafts, connection between the engine and one of the shafts, a set-shaft, a pawl-and-ratchet mechanism actuated by the roller-shafts for driving the set-shaft intermittently forward, and a clutch for coupling the pawl-and-ratchet mechanism with the set-shaft.

11. In a sawmill net-work, in combination, a set-shaft, an engine, a pair of intermeshing co-acting roller-shafts, means for imparting motion from the engine to the roller-shafts, a pair of pawl-carriers, connection between the pawl-carriers and the roller-shafts, a ratchet-wheel for communicating motion to the set-shaft, and pawls mounted on the carriers and engaging the ratchet-wheel.

12. In a sawmill net-work, in combination, a set-shaft, a pair of co-acting roller-shafts, an engine, means for imparting motion from the engine to the roller-shafts, and pawl-and-ratchet connection between the roller-shafts and the set-shaft.

13. In a sawmill net-work, in combination, an engine, a set-shaft, means for transmitting motion from the engine to the set-shaft, a step-block pivoted in the path of a moving part of the engine and the face of which is concentric to its pivot, a plurality of radially-adjustable abutments projecting from the face of the step-block, and means for rotating the speed of the engine.

698,244. COMPENSATION OF GENERATORS OR MOTORS. FRANK S. BAIN, Stamford University, Cal., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Aug. 20, 1901. Serial No. 73,515. (No model.)

Claim.—1. In a system of distribution the combination of an alternating-current generator, an exciter therefor, a compensator energized by the alternating current in the main-generator circuit leading to the translating device and energizing in part the field-magnet of the exciter.

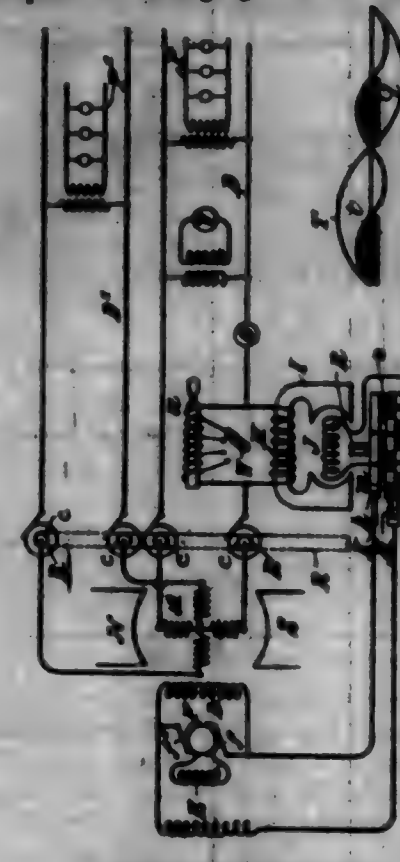
2. In a system of distribution the combination of an alternating-current generator, an exciter therefor, and a compensator energized by the alternating current in the main-generator circuit leading to the translating device, said compensator being in series with the armature and field-coil of the exciter.

3. In a system of distribution by alternating currents, a compensator consisting of a field-magnet energized by the alternating current in the main leading to the translating device, an armature rotating relatively thereto, synchronously with the main generator and a rectifying-commutator, said compensator supplying current to the field-magnet of an exciter for the main generator.

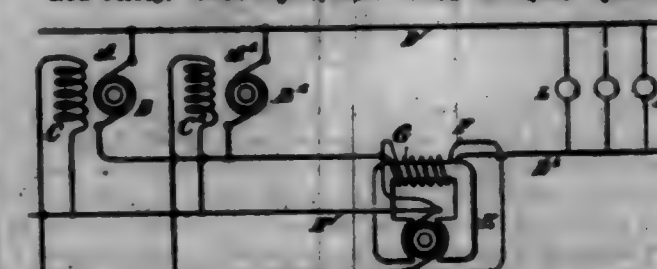
4. In a system of distribution by alternating currents, a compensator consisting of a field-magnet energized by alternating currents in the main leading from the main generator to the translating device, an armature rotating relatively thereto, synchronously with the main generator and a rectifying-commutator, having the conducting-segments corresponding to one-half of each period removed.

5. In a system of distribution by alternating currents, a compensator consisting of a field-magnet energized by the alternating current in the main leading to the translating device, an armature rotating relatively

thereto, synchronously with the main generator and a rectifying-commutator, having the conducting-segments corresponding to one-half of each period and means for automatically changing the brushes thereof when they are not upon the conducting-segments of the commutator.



698,245. MEANS FOR COMPENSATING GENERATORS OR MOTORS. FRANK S. BAIN, Stamford University, Cal., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Sept. 5, 1901. Serial No. 74,574. (No model.)



Claim.—1. In a system of distribution, the combination of a plurality of dynamo-electric machines having but one energizing-winding on each of their field-magnets, and an auxiliary dynamo-electric machine in series with the field-magnet windings and having an energizing-coil in series with the armature-circuits of the main dynamo-electric machines.

2. In a system of distribution, the combination of a plurality of generators in multiple are having their energizing-coils in multiple are and an auxiliary generator having a field-magnet coil in series with the load on the system and supplying energy to the energizing-coils of the main generators.

698,246. APPARATUS FOR ROASTING COFFEE. ROBERT BENTLEY, London, England. Filed July 22, 1901. Serial No. 68,315. (No model.)

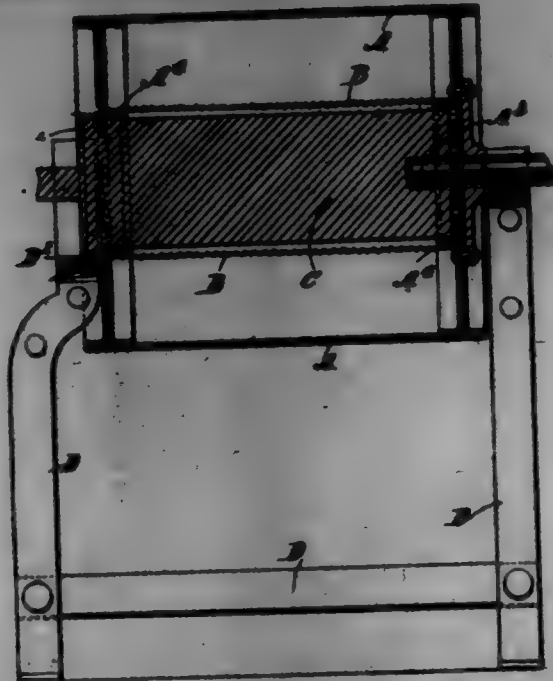
Claim.—1. In an apparatus for roasting, drying and similar purposes the combination with a rotatable chamber of a heated belt removably arranged within the chamber and a perforated casing enclosing the belt so as to form the purpose specified.

2. In an apparatus for roasting, drying and similar purposes the combination with a chamber of a removable heating-belt disposed within the chamber, a perforated casing placed between the belt and the material under treatment, a door in the chamber and means for rotating the apparatus.

3. In an apparatus for roasting, drying and similar purposes, the combination with a chamber of a heated belt disposed within the chamber, a perforated casing between the belt and the material under treatment, a door in the chamber, a hollow extension on one end of the chamber for the reception of the belt and an inwardly-extending projection on the other end of the chamber to support the belt substantially as described.

4. In an apparatus for roasting, drying and similar purposes the combination with a chamber of a heated belt disposed within the chamber, a

perforated casing between the belt and the material under treatment, a door in the chamber, a hollow journal on one end of the chamber for the reception of the belt, an inwardly-extending projection on the other end of the chamber to support the belt and a radial arm within the chamber substantially as and for the purpose described.



5. In an apparatus for roasting, drying and similar purposes the combination with a chamber of a heated belt disposed therein, a perforated casing placed between the belt and the material under treatment, a radial arm on the inner casing, a door in the outer casing and means for rotating the chamber.

698,247. **PARTNER FOR KIDS OF CORD**, Dr. **MOORE BARNARD** and **RAYMOND T. VINE**, Buffalo, N. Y. Filed Dec. 27, 1901. Serial No. 57,468. (No model.)



Claim.—A clip for temporarily binding the end of a round cord, consisting of a narrow strip of flexible, non-resilient material adapted to be bent in approximately U form around the cord, crosswise of its strands, and having its ends pointed and bent inwardly toward the crotch of the clip for penetrating the strands of the cord and provided between its pointed ends and its crotch with inwardly-projecting barbs arranged to penetrate opposite sides of the cord substantially as set forth.

698,248. **MAST-FURNACE**, **EMIL BERNHARD**, Kladno, Austria-Hungary, assignor to the **Wellman-Sever Engineering Company**, Cleveland, Ohio, a Corporation of Ohio. Filed May 1, 1900. Serial No. 714,598. (No model.)

Claim.—1. A blast-furnace having a feed bell or cone and a vertically-movable hopper above the cone, said hopper having a normally closed top and being provided with an external coil whereby its vertical movement is permitted without causing escape of gas.

2. A blast-furnace having a hopper with a valve in the top of the cone, a feeding-bogie, and supports therefor in combination with a single means for successively raising said valve and discharging the contents of said feed-bogie.

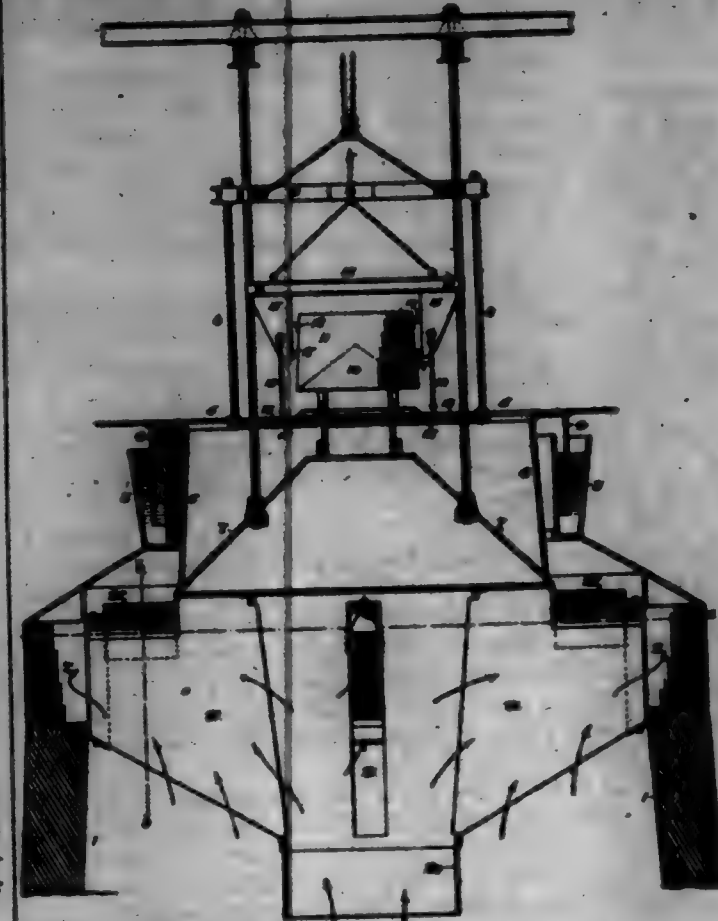
3. A blast-furnace having a feed-hopper with a vertically-movable valve in the top of the cone, a feed-bogie, supports therefor, a shell or mantle on said bogie, and a lifting bar or frame connected to the hopper-valve and having portions for engaging and lifting the shell of the feed-bogie after the valve has been lifted to a certain extent.

4. A blast-furnace having at its upper portion an outer gas-discharge chamber, a central hollow gas-receiving chamber and hollow arms open at the bottom and connecting said central gas-receiving chamber with the outer gas-chamber whereby the gases can escape both through the central chamber and through the hollow arms.

5. A blast-furnace having at the top a feed bell or cone and below the cone a central structure with radiating arms extending downwardly beyond said feed-bell, and curved arm-plates for protecting said depending portions of the arms.

6. A blast-furnace having at the top an outer gas-discharge chamber and a central gas-chamber, hollow arms providing communication between said central gas-chamber and outer gas-chamber, and passages lead-

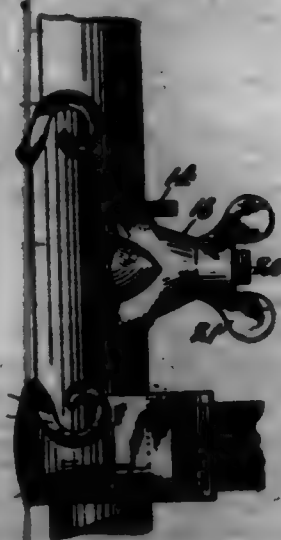
ing from the combustion-chamber of the furnace into the outer gas-chamber independently of said arms.



7. A blast-furnace having at the upper portion a discharge-chamber, hollow arms communicating therewith and extending inwardly into the upper portion of the furnace, said hollow arms being open at the bottom throughout their extent so as to receive gas from the material in the furnace.

8. A blast-furnace having a stationary feed-bell in the upper portion, a central gas-collecting chamber below said feed-bell, and terminating in the upper portion of the furnace, an outer gas-discharge chamber and hollow arms leading from said central gas-collecting chamber to the outer discharge-chamber.

698,249. **SHOULDER**, **EDWIN R. BARNARD**, Chicago, Ill. Filed June 27, 1901. Serial No. 51,517. (No model.)



Claim.—1. In a bolted, in combination, a pillar, a side rail, a hook formed on the rail for engaging the pillar, a clamping member pivoted to the rail for engaging the pillar in opposition to the hook, a draw-bolt pivotedly secured to the rail between the end thereof and the point of attachment of the clamping member, and a nut running on the bolt for bearing upon the back of the clamping member.

2. In a bolted, in combination, a pillar, a side rail, a hook formed on the rail for engaging the pillar, a clamping member pivoted to the rail for engaging the pillar in opposition to the hook and having its cheek slotted, a draw-bolt pivotedly secured to the rail between the end thereof and the point of attachment of the clamping member and passing through the slot of the clamping member, and a nut on the outer end of the bolt.

3. In a bolted, in combination, a pillar, a side rail, a hook formed on the rail for engaging the pillar, a clamping member pivoted to the rail for engaging the pillar in opposition to the hook, a draw member pivoted to the side rail intermediate of its end and the pivot of the clamping member, and a threaded part coacting with the draw member to force the clamping member to the pillar.

4. In a metal bedstead, in combination, an end frame having pillars and a cross-rail, a block forming the means of attachment of the cross-rail to the pillar, each block controlling the post and having its upper edge scalloped or corrugated, a side rail, a hook attached to the side rail for engaging the pillar and having its edge scalloped or corrugated to correspond with the scallops or corrugations of the block, and means for clamping the hook to the rail.

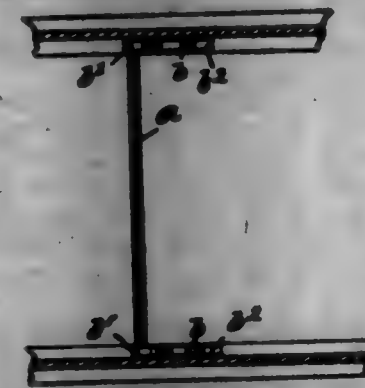
698,250. **RAIL-ROAD**, **GEORGE R. BARNARD**, Tacoma, Wash. Filed Jan. 12, 1902. Serial No. 50,694. (No model.)



Claim.—1. A rail-head consisting of a laminated strip formed to present a pair of flat feet and an extendible intermediate portion, and composed of a number of superimposed independent strips, the end portions of all of which are completely coated with solder, one of the outside strips being made longer than the other strips having its end portions turned up over and upon the other end portions, and a ribbon of solder attached to one side of each flat foot, substantially as described.

2. A rail-head consisting of a laminated strip formed to present a pair of flat feet and an extendible intermediate portion and a ribbon of solder attached at one end to one side of each flat foot, substantially as described.

698,251. **CROSS-ROAD FOR RAILS**, **GEORGE R. BARNARD**, Tacoma, Wash. Filed Jan. 30, 1902. Serial No. 51,508. (No model.)



Claim.—1. A cross-road consisting of a cross-wire and a laterally-projecting strip attached thereto at both ends, substantially as described.

2. A cross-road consisting of a cross-wire, and a laminated strip attached thereto at both ends, substantially as described.

3. A cross-road consisting of a cross-wire having a laminated strip attached thereto at both ends and projecting laterally therefrom, substantially as described.

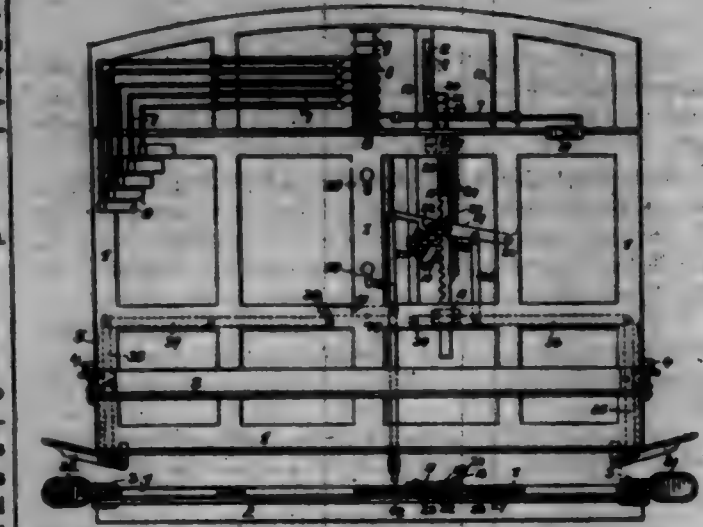
4. A cross-road consisting of a cross-wire having a laminated strip attached thereto at both ends and provided at its extremity with a flat foot, substantially as described.

5. A cross-road consisting of a cross-wire having a laminated strip attached thereto at both ends and projecting laterally therefrom and provided with an extendible intermediate portion, substantially as described.

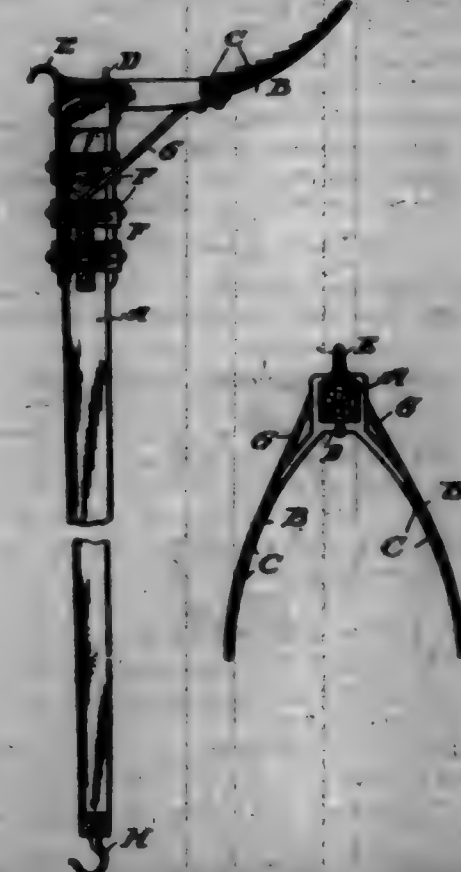
698,252. **HYDRO-LEAF TURNER**, **ABRAHAM BERNHARD**, Utrecht, Netherlands. Filed Jan. 3, 1902. Serial No. 51,507. (No model.)

Claim.—In a waste-leaf turner the combination of a supporting frame, a vertically-adjustable rest for the waste-leaves, spring-actuated leaf-turning arms pivoted at the top of the frame and adjustable to the length of the leaves, clamps at the free ends of said arms for attaching said leaves, spring-actuated hook-levers for securing said arms in position when turned over against the action of their spring, a vertically-movable upwardly-spring-pressed rack-bar guided on the rear side of said frame, a horizontal arm at the top of said rack-bar engaging the free ends of said hook-levers for releasing the turning-arms when moved downwardly, a projection at the front of said rack for actuating said horizontal arm in releasing the turning-arms by pressing them downwardly free from the rack, a piston working with said rack-bar, a ratchet connected to said piston, a pawl engaging said ratchet, an upwardly-spring-pressed arm pivoted to the frame and carrying said pawl, a catch on said rack-bar, a

projection on said frame engaging said catch for moving the rack-bar in position when operated, two finger-pieces respectively pivoted to the right and left corners of the frame and two sets of levers each transmitting the limited motion of one operated finger-piece to the pawl, ratchet piston and rack for the purpose of releasing the leaf-turning arms one by one, substantially as described.



698,253. **MACHINE FOR MOVING BOULDERS**, Dr. **PETER BOUQUET**, Waterville, Cal. Filed Feb. 4, 1901. Serial No. 45,086. (No model.)



Claim.—1. The combination of the shaft or handle-bar A and arms or claws B B with upward notched-teeth C C C on their forward surfaces, and spillo D, and hook E, all substantially as shown and described.

2. The form and combination of the shaft or handle-bar A and arms or claws B B with upward notched-teeth C C C on their forward surfaces and spillo D, and hook E, for the use and purpose of moving rocks, boulders and other heavy compact substances, substantially as shown and described.

698,254. **METHOD OF OBTAINING THERAPEUTIC FROM CELLULOSE SOLUTIONS**, **ERNEST BARNARD**, Rochester, N. Y., and **MAX FREEMAN** and **JEROME URBAN**, Ansonia, Conn. Filed Apr. 22, 1901. Serial No. 50,695. (No specimens.)

Claim.—1. A method of obtaining therapeutics from solutions of cellulose by expressing the cellulose solution into sulfuric-acid solution containing from thirty to sixty-five per cent. of real acid.

2. A thread produced from a cellulose solution expressed into a sulfuric-acid solution containing from thirty to sixty-five per cent. of real acid.

698,255. ART OF COLOR-PRINTING. CLARENCE P. BROWNE, Washburn, N. Y. Filed Oct. 26, 1901. Serial No. 12,147. (No model.)



Claim.—1. A plate for printing having annular walls formed thereon as guides for drilling registry-holes, the center space or well formed by said walls being of the diameter of the drill used in boring the registry-holes.

2. A series of plates for color-printing, each of which plates has annular walls formed thereon during the production of the plate as set forth and in identical positions on the remaining plates of the series, said walls forming walls to receive and guide the drill used in boring the registry-holes.

3. The combination with a bed for printing-presses having ways formed in the surface thereof, of registry-pins mounted in the ways and adjustable to different places on the surface of the bed, for the purpose set forth.

4. A bed for printing-presses having slots or channels formed therein and slides adjustable longitudinally in said channels and registry-pins mounted in said slides as set forth for the purpose set forth.

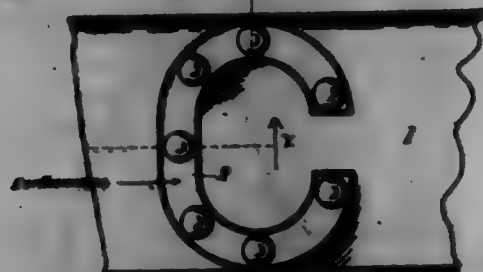
5. A bed for printing-presses having channels formed therein, slides fitted to said channels, registry-pins carried by said slides, and means for fixing the slides in adjusted position.

6. A bed for printing-presses having undercut channels formed therein with narrow openings in the face of the bed, slides fitted to said channels and fitting-shims flush with the surface of the bed, pins carried by said slides and projecting above the surface of the bed.

7. A bed for printing-presses for use in color-printing having slots formed radially therein, slides adjustable longitudinally in said slots and registry-pins carried on the inner ends of said slides.

8. A supplemental bed for use in color-printing having slots formed radially therein, slides adjustable longitudinally in said slots, registry-pins for a plate in one pair of opposing slides, and pins for sheet-registry in another pair of opposing slides, substantially as set forth.

698,256. ILLUMINATED SIGN. GUY D. CHAPMAN AND CLYDE R. GUNN, Akron, Ohio. Filed Jan. 20, 1902. Serial No. 91,996. (No model.)



Claim.—1. The combination in a letter for signs, of a body portion, and depending sockets for the reception of incandescent electric lights made integral with said body portion.

2. The combination in a letter for signs of a non-conducting body portion provided on its outer face with a groove and depending sockets for the reception of incandescent electric lamps made integral with said body portion.

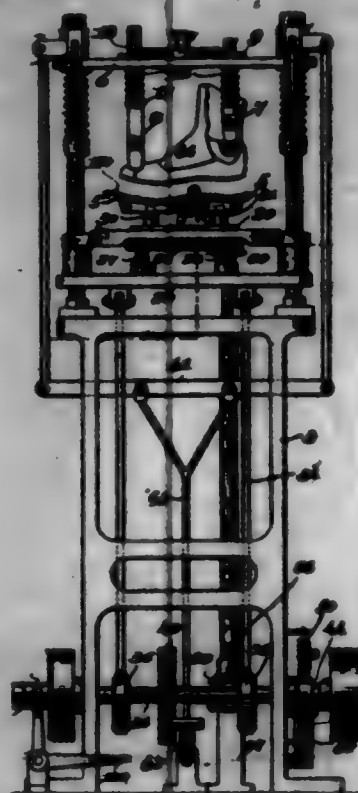
3. The combination in a letter for signs, of a main body portion, and extended sockets for incandescent electric lamps integral with said main body portion, said sockets being smaller in diameter at the place of junction with said main body portion.

698,257. SOLE LAYING AND BOUNDING MACHINE. WALTER H. CLARK, North Marshfield, Mass. Filed Nov. 26, 1900. Serial No. 12,148. (No model.)

Claim.—1. In a machine of the class described, a yieldingly-mounted jack to support a luted shoe, a rigidly-mounted former, said former having a contour substantially the same as the sole of a shoe, and having one face shaped to fit the bottom of the last, and means to move one of said parts relative to the other, whereby the sole may be molded between the luted shoe and former, combined with sole-rounding mechanism to round the sole while clamped between the former and luted shoe.

2. In a machine of the class described, a yieldingly-mounted jack to support a luted shoe, a rigidly-mounted former having one face shaped to fit the bottom of the last, means to move the jack to bring the last in

contact with the former, means to subsequently move the former against the luted shoe on the yielding jack, whereby a sole placed between the former and luted shoe may be molded to the shape of the last combined with sole-rounding mechanism to round the sole while clamped between the former and the shoe.



3. In a machine of the class described, a yieldingly-mounted jack to hold a last, a support, a former rigidly carried thereby, means to clamp a sole-blank between the shoe on the last and the former, the said former being detachably mounted on the support, whereby either right or left soles may be molded and laid.

4. In a machine of the class described, a yieldingly-mounted jack to hold the last, a support, a former rigidly carried thereby but detachably therefrom, whereby either right or left formers may be used, said formers having one face shaped to fit the bottom of the last, means to move the jack to bring the last in contact with the former, and means to subsequently move the former against the last and the yielding jack, whereby a sole placed between the former and last may be molded to the shape of the last.

5. In a machine of the class described, a cross-head, guideways therefor, a jack yieldingly carried by said cross-head and adapted to support a last, a former, means to lower the cross-head to bring the shoe on the last in contact with the former, means to lock the cross-head in its lowered position, and means to raise the former against the last on the yielding jack, whereby a sole may be molded between the former and shoe, and at the same time attached to the shoe.

6. In a machine of the class described, a yieldingly-mounted jack to hold a last, a rigidly-mounted former having one face shaped to fit the bottom of the last, means for forcing the former against the last, said means including a shaft, an eccentric thereon, connections between the eccentric and former, clutch mechanism to rotate the shaft and means to automatically disengage said clutch mechanism, when the former has reached the upward limit of its movement.

7. In a machine of the class described, a non-rotatable jack to support a last, a former having one face adapted to fit the bottom of the last, means to clamp a sole-blank between said former and last, and sole-rounding mechanism to round the sole while between the former and last, rounding mechanism including a knife mounted for turning-movement.

8. In a machine of the class described, a non-rotatable yieldingly-mounted jack to support a last, a former having one face adapted to fit the bottom of the last, means to clamp a sole-blank between said former and last, and sole-rounding mechanism to round the sole while between the former and last.

9. In a machine of the class described, a jack adapted to support a luted shoe, a former, means to clamp a sole-blank between the former and luted shoe, and sole-rounding mechanism, said mechanism being guided by the last, and having a knife supported for turning movement.

10. In a machine of the class described, a jack to support a last, a former, means to clamp a sole between the former and last, a cutting mechanism, means to carry the same around the shoe, and means controlled by the last for guiding said cutting mechanism whereby the sole is rounded to the shape of the last.

11. In a machine of the class described, a jack to support a last

shoe, a former, means to clamp sole-blanks between the former and last, a carriage supporting a knife, means to propel the carriage around the sole, and means controlled by the last to guide the knife, whereby the sole is rounded to the shape of the last.

12. In a machine of the class described, a jack to support a luted shoe, a former, means to clamp sole-blanks between the former and last, a carriage supporting a knife, means to propel the carriage around the sole, and means controlled by the last to guide the knife, the said knife having a turning movement relative to the carriage.

13. In a machine of the class described, a jack to support a last, a former, a carriage, a guideway therefor extending around the shoe, a slide on the carriage, a knife on said slide, and means controlled by the last to guide the knife.

14. In a machine of the class described, a jack forming a support for the last, a former, means to clamp a sole-blank between the last and former, a carriage, a slide carried thereby and supporting a knife, a guide on the slide adapted to contact with the shoe on the last, means to propel the carriage around the shoe, whereby the knife rounds the sole to the shape of the last.

15. In a machine of the class described, a jack, forming a support for the last, a former, means for clamping a sole-blank between the former and shoe on the last, a carriage, a slide carried thereby and supporting a knife, a guide on the slide, means to propel the carriage around the shoe, and means to maintain the contact of the guide with the shoe on the last, whereby the knife rounds the sole to the shape of the last.

16. In a machine of the class described, a jack forming a support for the last, a former, means for clamping a sole-blank between the former and shoe on the last, a carriage, a slide carried thereby, a knife supported for turning movement on the slide, means to propel the carriage around the shoe, and means to maintain the contact of the guide with the shoe on the last, whereby the sole is rounded to the shape of the last.

17. In a machine of the class described, a jack to support a last, a former having one face shaped to fit the bottom of the last, means to clamp and mold a sole-blank between the former and the shoe on the last, a carriage, a slide mounted thereon for movement at right angles to the direction of movement of the carriage, a knife on the slide, means to propel the carriage around the shoe, and means controlled by the last to guide the knife, whereby the sole is rounded to the shape of the last.

18. In a machine of the class described, a jack to support a last, a former having one face shaped to fit the bottom of the last, means to clamp and mold a sole-blank between the former and the shoe on the last, a carriage, a guideway therefor extending around the shoe, a slide mounted on the carriage for movement at right angles to the direction of movement of the carriage, said slide carrying a support for the under side of the sole, and a knife for rounding the sole, means to propel the carriage around the shoe, and means governed by the last controlling the movement of the slide, whereby the sole is rounded to the shape of the last.

19. In a machine of the class described, a jack to support a last, a former, means to clamp and mold a sole-blank between the former and shoe on the last, a carriage, a guideway therefor, a slide on the carriage, and means for movement at right angles to the direction of movement of the carriage, said slide carrying a sole-rounding knife and a guide-wheel adapted to contact with the shoe on the last, means to propel the carriage around the shoe, and means to preserve the contact of the guide-wheel with the shoe, whereby the sole is rounded to the shape of the last.

20. In a machine of the class described, a jack supporting a last, a former, means to clamp and mold a sole-blank between the former and the shoe on the last, a carriage, a slide carried thereby and mounted to move at right angles to the direction of movement of said carriage, said slide carrying a support for the under side of the sole, a pivotally-mounted guide-wheel adapted to rest on top of the sole and contact with the shoe on the last, means to propel the carriage around the shoe, and means to preserve the contact of the guide-wheel with the shoe, whereby the sole is rounded to the shape of the last.

21. In a machine of the class described, a jack forming a support for the last, a former, means to clamp and mold a sole-blank between the former and the shoe on the last, a carriage, said carriage having mounted thereon a support for the under side of the sole, a knife, and a guide adapted to rest on the top of the sole, and bear against the shoe on the last, means to propel the carriage around the shoe, and means to maintain the contact of the guide with the shoe, whereby the sole is rounded to the shape of the last.

22. In a machine of the class described, a jack supporting a last, a former, means to clamp a sole-blank between the former and last, sole-rounding mechanism, said mechanism being guided by the last, and sole-channelling mechanism.

23. In a machine of the class described, a jack supporting a last, a former, means to clamp a sole-blank between the former and last, sole-rounding mechanism, said mechanism being guided by the last, and sole-channelling mechanism.

24. In a machine of the class described, a jack supporting a last, a former, means to clamp a sole-blank between the former and the shoe on the last, a carriage supporting sole rounding and channelling knives, means

to propel the carriage around the sole, and means controlled by the last to guide said knives.

25. In a machine of the class described, a jack supporting a last, a former, means to clamp a sole-blank between the former and the shoe on the last, a carriage supporting sole rounding and channelling knives, means to propel the carriage around the sole, and means controlled by the last to guide said knives, each of said knives having a turning movement, whereby they may be adapted to the curvature of the sole.

26. In a machine of the class described, a jack supporting a last, a former, means to clamp the sole between the former and the shoe on the last, a carriage supporting a sole-rounding knife, and a channelling-knife, said channelling-knife being adjustable, means to propel the carriage around the sole, and means controlled by the last to guide the said knives.

27. In a machine of the class described, a jack supporting the last, a former, means to clamp a sole-blank between the former and the shoe on the last, a carriage, a guide therefor extending around the sole, a slide on the carriage, sole rounding and channelling knives mounted on the slide, and means to propel the carriage around the shoe, and means controlled by the last to guide the knives.

28. In a machine of the class described, a jack supporting the last, a former, means to clamp a sole-blank between the former and the shoe on the last, a carriage, a guide therefor extending around the sole, a slide on the carriage, sole rounding and channelling knives mounted on the slide, and means to propel the carriage around the shoe, and means controlled by the last to guide the knives.

29. In a machine of the class described, a jack supporting the last, a former, means to clamp a sole-blank between the former and the shoe on the last, a carriage, a slide carried thereby, a sole-rounding knife and a channelling-knife mounted on the slide, a guide also mounted on the slide and adapted to contact with the shoe on the last, means to propel the carriage around the shoe, and means to maintain the constant contact of the guide with the shoe on the last.

30. In a machine of the class described, a jack supporting a last, a former, means to clamp a sole-blank between the former and the shoe on the last and the former, the said former being detachably mounted on the support, whereby either right or left formers may be used, a cutting mechanism contained by said support, said cutting mechanism including a knife, means to move the cutting mechanism around the sole, and means controlled by the last to guide the knife whereby the sole is rounded to the shape of the last.

31. In a machine of the class described, a jack to support a last, a support, a former detachably carried thereby, whereby either right or left formers may be used, means to clamp a sole-blank between the shoe on the last and the former, a carriage mounted on the support and guided thereby, a slide on the carriage movable at right angles to the direction of movement of the carriage, said slide carrying a knife and a guiding means adapted to contact with the shoe on the last, means to move the carriage around the shoe, and means to preserve the contact of the guiding means with the shoe whereby the sole is rounded to the shape of the last.

32. In a machine of the class described, a jack supporting a last, a support, a former detachably carried thereby, whereby either right or left formers may be used, means to clamp a sole-blank between the shoe on the last and the former, sole-rounding mechanism mounted on said support and including a knife, means to move said knife around the sole, sole-channelling mechanism operated in unison with the sole-rounding mechanism, and means controlled by the last to guide both the sole-rounding and sole-channelling mechanisms, whereby the sole is rounded to the shape of the last.

33. In a machine of the class described, a jack supporting the last, a support, a former detachably carried thereby, whereby either right or left formers may be used, means to clamp a sole-blank between the shoe on the last and the former, a carriage mounted on the support and guided thereby, a sole-rounding knife and an adjustable channelling-knife each knife yieldably mounted on said carriage, a guide on the carriage and adapted to contact with the shoe on the last, means to move the carriage around the shoe, and means to preserve the contact of the guide with the shoe, whereby the sole is rounded to the shape of the last.

34. In a machine of the class described, a jack to support a luted shoe, a former, a carriage, a guideway therefor extending around the shoe, and means controlled by the last to guide the carriage, whereby the sole is rounded to the shape of the last.

a knife yieldably mounted on said carriage, means to move the carriage around the shoe, and means controlled by the last to guide the knife.

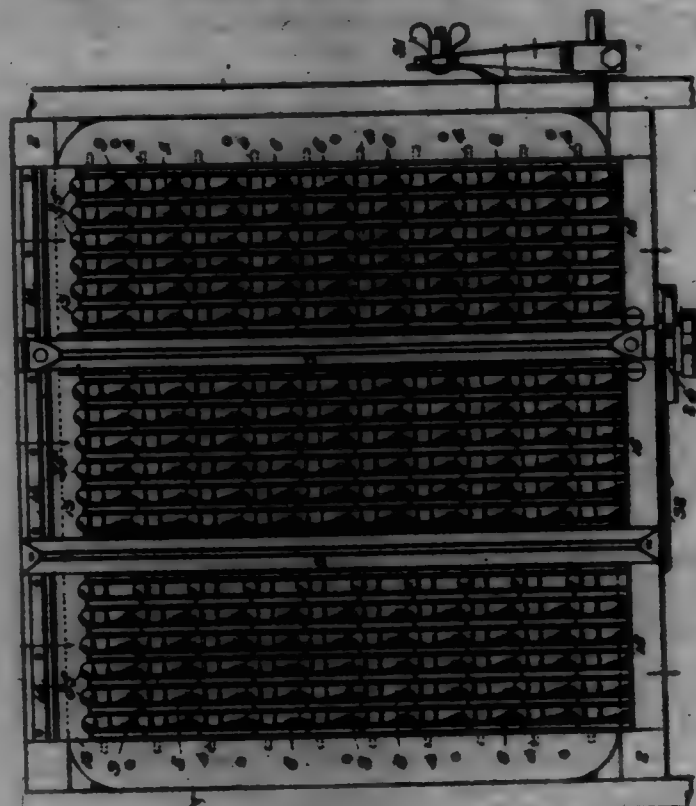
25. In a machine of the class described, a non-rotatable jack to support a luted shoe, rounding mechanism including a carriage, a rounding-knife yieldably supported thereon, means to propel the carriage around the shoe, and means controlled by the last to guide the knife, whereby the sole is rounded to the shape of the last.

26. In a machine of the class described, a non-rotatable jack to support a luted shoe, channeling mechanism including a carriage, a channeling-knife yieldably supported thereon, means to propel the carriage around the shoe, and means controlled by the last to guide the knife.

27. In a machine of the class described, a non-rotatable jack to support a luted shoe, rounding and channeling mechanisms including a rounding-knife and a channeling-knife, and means controlled by the last to guide each of said knives.

28. In a machine of the class described, a non-rotatable jack to support a luted shoe, rounding and channeling mechanisms including a carriage, a rounding-knife and a channeling-knife yieldably supported thereon, means to propel the carriage around the shoe, and means controlled by the last to guide the said knives.

698,258. GRAIN-CLEANING SCREEN. CHASLES CLARK, Webster City, Iowa. Filed May 11, 1901. Serial No. 98,819. (No model.)



Claim.—1. In a grain-separating screen and in combination with a frame, and a screening-surface of slats pivotally mounted, each slat having transverse ridges and channels terminating in a scalloped overhanging edge, each channel having a depression 10 in the underhanging part of the slat and a flat transverse surface 20 interrupting said channel and joining the upper edge of said depression, for the purpose stated.

2. In a grain-separating screen and in combination with a frame, a screening-surface composed of a plurality of pivotally-mounted adjustable slats in parallel transverse lapping relation in separate sections, each slat having ridges and between them channels in the line of the flow over the screen and terminating in a scalloped overhanging edge, the channels having a width greater than that of the ridges and terminating in depressions or cavities in its underhanging part and transverse ridges forming a flat surface in each channel between the scalloped edge and the cavities for the purpose stated.

3. In a grain-separating screen and in combination with a frame, a screening-surface composed of a plurality of pivotally-mounted adjustable slats in parallel transverse lapping relation in separate sections, each slat overhanging the next adjacent slat and formed with transverse ridges and between them channels which terminate in half-circles at the overhanging edge and in alignment with the flow over the screen, the channels forming chutes beneath the half-circles at the edge of each slat, whereby the grain is free to have a movement toward and over the forward and toward and over the forward edges of each slat for the purpose stated.

4. In a grain-separating screen and in combination with a frame, a screening-surface composed of a plurality of pivotally-mounted adjustable slats in parallel transverse relation in separate sections, each slat over-

hanging the next adjacent slat and formed with ridges and channels in the line of the flow over the screen, terminating in a scalloped edge, a fixed plate for each screen-section along its receiving and having a fingered edge corresponding to the ridges and channels of the slats and having a ridge or raised corrugation back of and parallel with its fingered edge, for the purpose stated.

5. In a grain-separating screen and in combination with a frame, and a screening-surface, the fingered plate, placed at the receiving end frame-bar having a convex corrugation immediately of and rising from its width, said bar being constructed at both sides of said corrugation for the purpose stated.

6. In a grain-separating screen and in combination with a frame, a plurality of pivotally-mounted adjustable slats in parallel transverse relation in separate sections, each slat overhanging the next adjacent slat and formed with transverse ridges and channels terminating in a scalloped or fingered edge and in alignment from the receiving to the delivering end of the screen, a fixed plate for each screen-section along its receiving end having a fingered edge corresponding to the ridges and channels of the slats and a ridge or raised corrugation back of and parallel with its fingered edge, and the slat at the delivering end of the screen overhanging the frame-bar and terminating in an unbroken or straight edge.

7. In a grain-separating screen and in combination with a frame, a plurality of pivotally-mounted adjustable slats in parallel relation in separate sections, each slat overhanging the next adjacent slat, means rigidly connecting the pivot-mounting of each slat, a bar freely suspended by said means, curved and horizontally connecting one end of the suspended bar with the frame, a nut on said screw-rod for adjusting the suspended bar for adjusting the relative relation of the overhanging parts of the slats to each other and means connecting the suspended bar and the frame whereby the adjustment of said bar is automatically caused to indicate by said means the relation of the slats to each other and thereby the size of the openings between their overhanging edges.

8. In a grain-separating screen and in combination with a frame, a plurality of pivotally-mounted adjustable slats in parallel relation in separate sections, each slat overhanging the next adjacent slat, means rigidly connecting the pivot-mounting of each slat, a bar freely suspended by said means, means for adjusting said bar to adjust the relative relation of the overhanging parts of the slats to each other, a rock-rod mounted on the frame having a tapered end engaging the end of the suspended bar, a scale-plate external of the frame and a pointer-arm on the rock-rod arranged to indicate by the rocking of the rod and said scale, the relation which the adjustment of the suspended bar will automatically cause to be given to the slats whereby to show the size of the openings between the overhanging edges of the slats.

9. In a grain-separating screen and in combination with a frame, a screening-surface composed of a plurality of pivotally-mounted adjustable slats, formed with transverse ridges and channels terminating in a scalloped edge, the slat at the delivering end of the screen overhanging the frame-bar and terminating in an unbroken or straight edge, a fixed plate on the frame at the receiving end of the screen having a fingered edge corresponding to the scalloped edge of the slats.

10. A screening-surface composed of a plurality of pivotally-mounted adjustable slats formed with transverse ridges and channels terminating in a scalloped edge, the slat at the delivering end of the screen overhanging the frame-bar and terminating in an unbroken or straight edge, a plate fixed on the bar at the receiving end of the screen having a fingered edge corresponding to the scalloped edge overhanging said frame-bar and having a ridge or raised corrugation back of a parallel with its fingered edge.

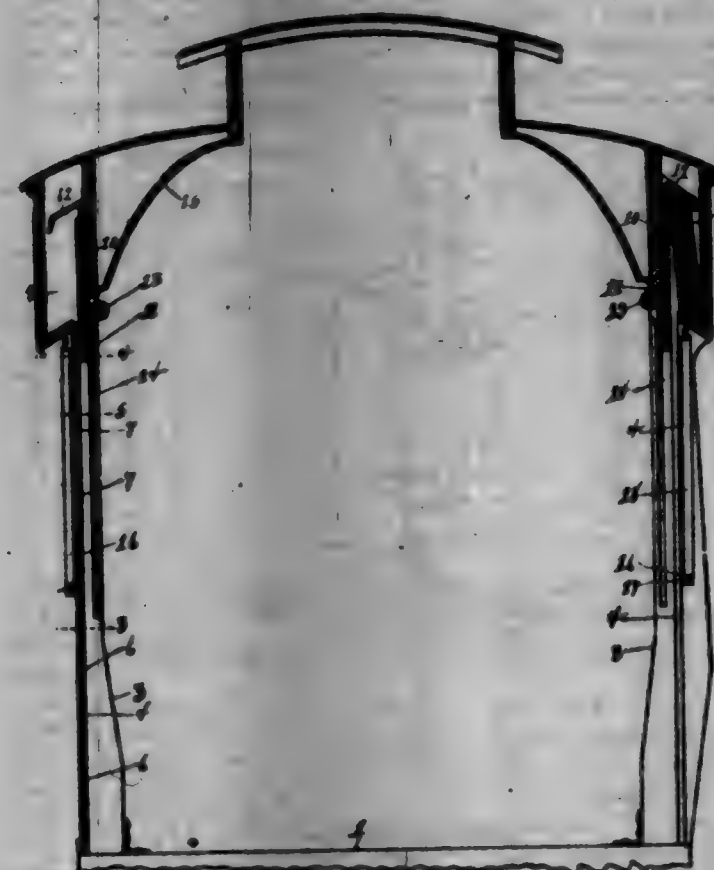
11. In a grain-separating screen and in combination with the screen-frame and metal slats arranged therein in separate sections, a pivot-forming rod for each slat, each of said slats having its edge doubled under in a lap having its edge bent over the said rod and soldered thereto, and means for adjusting said slats.

698,259. CONVERTIBLE CAR. HENRY W. COVINE, Webster City, N. Y. Filed Jan. 7, 1902. Serial No. 98,722. (No model.)

Claim.—1. In a convertible car, the combination with the car-body, having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket having an outwardly and downwardly inclined bottom communicating with said groove; of a plurality of panels movable along said groove and adapted to rest therein one upon another, said panels having contiguous edge portions inclined downwardly toward the side adjacent said pocket whereby the upper panel can be lifted by means of a lower panel and deflected into said pocket, substantially as described.

2. In a convertible car, the combination with the car-body, having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket communicating with said groove; of a panel movable along said groove and capable of deflection into said pocket and adapted to rest therein, substantially as described.

and a yielding keeper for retaining the panel in the pocket, substantially as described.



3. In a convertible car, the combination with the car-body having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket having an outwardly and downwardly inclined bottom and adapted to receive a plurality of panels, side by side; of a plurality of panels movable along grooves in said members and adapted to be supported side by side in said pocket, substantially as described.

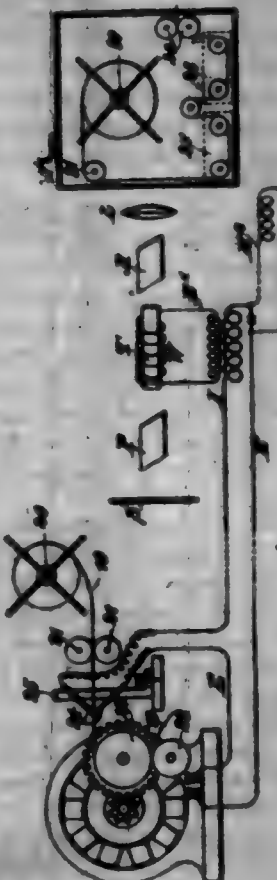
4. In a convertible car, the combination with a car-body having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket communicating with said groove and adapted to receive a plurality of panels side by side; of a plurality of panels movable along said groove and adapted to rest therein one upon another, said panels having contiguous edge portions inclined downwardly toward the side adjacent said pocket whereby the upper panel can be lifted by means of a lower panel and deflected into said pocket, substantially as described.

5. In a convertible car, the combination with the car-body having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket having an outwardly and downwardly inclined bottom communicating with said groove and adapted to receive a plurality of panels side by side; of a plurality of panels movable along said groove and adapted to rest therein one upon another, said panels having contiguous edge portions inclined similarly to the inclined bottom of said pocket, and a yielding keeper for retaining the panels side by side in the pocket, substantially as described.

6. In a convertible car, the combination with the car-body having members adjacent a side opening each provided with a sideways-groove and at the upper end with a laterally-extended pocket communicating with said groove and adapted to receive a plurality of panels side by side; of a plurality of panels movable along said groove and adapted to rest therein one upon another, said panels having contiguous edge portions inclined similarly to the inclined bottom of said pocket, and a yielding keeper for retaining the panels side by side in the pocket, substantially as described.

7. In a convertible car, the combination with the car-body having members adjacent a side opening each provided with a sideways-groove, and at the upper end with a laterally-extended pocket having an outwardly and downwardly inclined bottom communicating with said groove and adapted to receive a plurality of panels side by side; of a plurality of panels movable along said groove and adapted to rest therein one upon another, said panels having contiguous edge portions inclined similarly to the inclined bottom of said pocket, and a yielding keeper for retaining the panels side by side in the pocket, substantially as described.

698,260. ART OF TRANSMITTING INTELLIGENCE. ALBERT C. GARDNER, Hanover, N. H., and GEORGE C. BERRY, Port Haven, Va., assignors to the Grebe-Spicer Intelligence Transmission Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 9, 1901. Serial No. 911,578. (No model.)



Claim.—1. The herein-described improvement in automatic telegraphy consisting in improving the characters of a code upon an alternating electric current, gradually rising and falling in strength, by adjusting the makes and breaks of circuit to the difference in phase between the impressed electromotive-force wave and the resultant current-wave so as to open the circuit at times when the current is naturally zero and to close the circuit at times when the current would have been zero had it been allowed to flow uninterruptedly and then to transmit or suppress determinate units of the current in definite order or succession in accordance with each code, and making at the receiving end of the line a visual record showing each pulse transmitted or suppressed, as and for the purpose described.

2. In a transmitting apparatus for code telegraphy, the combination substantially as described, of means for generating an electromotive force gradually rising and falling in value, as described, a transmitter opening synchronously therewith and having a proposed tape or sheet and transmitting-dials adjusted, as described, with reference to the difference in phase between the impressed electromotive-force wave and the resultant current-wave so as to cause the circuit to be opened and closed when the current is naturally zero, as described, and a receiving instrument adapted to make a visual record of the individual pulses transmitted and suppressed.

3. In a transmitter for telegraphy, the combination with an alternating-current generator producing an electromotive force gradually rising and falling in value, as described, and the electric circuit traversed by alternating electric current flowing from said generator, of circuit-controlling device operated synchronously with said generator and comprising a tape or sheet in the working circuit over which said alternating current flows and spaced or adjusted as described with reference to the difference in phase between the impressed electromotive-force wave and the resultant current-wave so as to open the circuit at or about the time the current flowing over said circuit is naturally zero and to close the circuit at times when the current would have been zero had it been allowed to flow without interruption.

4. The combination, substantially as described, in a transmitter for code telegraphy, of a dynamo-generator and a transmitting instrument operated synchronously with said generator and having a transmitting-dial and perforated tape or sheet organized and spaced or adjusted as described with reference to the difference in phase between the impressed electromotive-force wave and the resultant current-wave so as to stop the flow of the alternating current over the circuit at instants when the current is zero and to cause the flow to be resumed at instants when the current would be naturally zero had its flow not been interrupted, and a

resolving instrument adapted to record individual cycles of the current, as and for the purpose described.

5. In a system of telegraphy, the combination with means for generating a varying electromotive force of sine-wave form, of a prepared tape adapted to suppress and transmit definite or predetermined pulses of the varying current produced by said electromotive force by makes and breaks of circuit adjusted with reference to the difference in phase between the varying electromotive-force wave and the resultant current-wave as to interrupt and reestablish circuit when the current is naturally zero, as described, and a receiving apparatus adapted to make a record of the individual pulses so as to show the order and relation of the transmitted and suppressed pulses.

6. The combination with an electric generator developing an alternating electromotive force gradually rising and falling in value, of a transmitting-cylinder and a perforated tape movable at a speed synchronous with that of the generator for controlling the flow of currents developed by said electromotive force over a circuit, said perforations being so arranged and the cylinder so adjusted with reference to the difference in phase between the alternating electromotive-force wave and resultant current-wave that complete cycles will be transmitted or suppressed by makes and breaks of circuit at instants when the current is naturally zero as set forth, and a receiver adapted to respond to each pulsation, as and for the purpose described.

7. The combination with a continuously-operating alternating generator of electromotive force gradually rising and falling in value, of means for controlling the circuit adjusted as described with reference to the difference in phase between the alternating electromotive-force wave and the resultant current-wave so as to transmit individual cycles of the current either positive or negative, beginning and ending at instants when the current is naturally zero as described, and in any order or succession, and a recording apparatus responsive to the individual cycles whether of the same or of the opposite polarity successively.

8. The combination with an alternating electromotive-force generator developing an electromotive force gradually rising and falling in value and the electric circuit connected thereto, of a circuit-breaking tape or sheet and transmitting-cylinder in said circuit spaced and adjusted, as described, with reference to the difference in phase between the alternating electromotive-force wave and the resultant current-wave so as to open the circuit when the current is naturally zero, and to close the circuit when the current would have been zero had it been allowed to flow without interruption.

9. The combination with an alternating electromotive-force generator developing an electromotive force gradually rising and falling in value, of circuit making and breaking appliances operating synchronously therewith and comprising a perforated tape or sheet and electrical contacts adapted to meet through the perforations, said appliances being so arranged and adjusted with reference to the difference in phase between the alternating electromotive-force wave and its resultant current-wave that complete determinate cycles beginning and ending at the time of zero current, as described, will be caused to flow over the circuit.

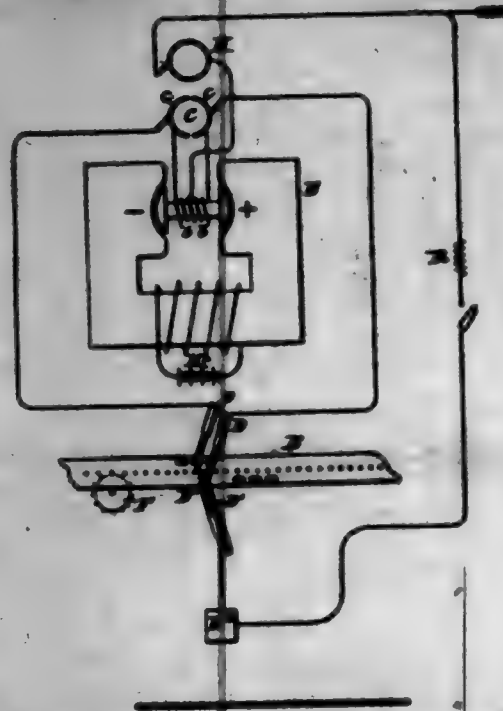
10. The combination in a telegraph of a dynamo-generator of alternating electromotive force of sine-wave or approximately sine-wave form, transmitting apparatus organized and adjusted with reference to the difference in phase between the alternating electromotive-force wave and the resultant current-wave so as to cause determinate cycles of current in any desired order or relation to flow over the circuit beginning and ending when the current is naturally zero, as described, and a receiving apparatus adapted to record the cycles of current individually.

11. The combination with means for producing an alternating electromotive force and means for suppressing a definite cycle or cycles thereof, organized or adjusted with reference to the difference in phase between the impressed electromotive-force wave and the resultant current-wave so as to cause a cycle or cycles of current to flow beginning and ending when the current is naturally zero, of a recorder of the alternations comprising means for producing a beam of polarized light and for rotating said beam by the action of the alternating current, and means for photographing the successive spots of light corresponding to the successive cycles of said current.

698,261. SUMMARIO-CABLE TELEGRAPHY. ALBERT C. OSBORN, Inventor, I. H. and GEORGE O. SPURR, U. S. Army, assignors to the Osborn-Spurrr Intelligence Transmission Company, Cleveland, Ohio, a Corporation of Ohio. Filed Oct. 25, 1902. Removed Oct. 4, 1903. Serial No. 77,708. (No model.)

Claim.—The heretofore-described improvement in cable telegraphy which consists in transmitting the signaling waves or pulses by impressing upon the cable distinct pulses of electromotive force varying in number or order of succession and changing gradually and continuously from zero through a maximum to zero and adjusting the instants of make and break in the transmitter to the difference in phase between the impressed electromotive-force wave and the resultant waves or pulses of current.

1. The heretofore-described improvement in cable telegraphy which consists in transmitting the signaling waves or pulses by impressing upon the cable distinct pulses of electromotive force varying in number or order of succession and changing gradually and continuously from zero through a maximum to zero and adjusting the instants of make and break in the transmitter to the difference in phase between the impressed electromotive-force wave and the resultant waves or pulses of current.



698,262. BRAKE. WALTER A. CROWDER, Chicago, Ill. Filed July 15, 1901. Serial No. 64,704. (No model.)



Claim.—1. The combination with a revolvable shaft, of a drum secured thereto, a brake-band applied thereto, a dotted link to which the ends of said brake-bands are attached, a lever, a pin through which engages the dot in said link and stops which limit the movement of said link circumferentially of said brake-drum, substantially as described.

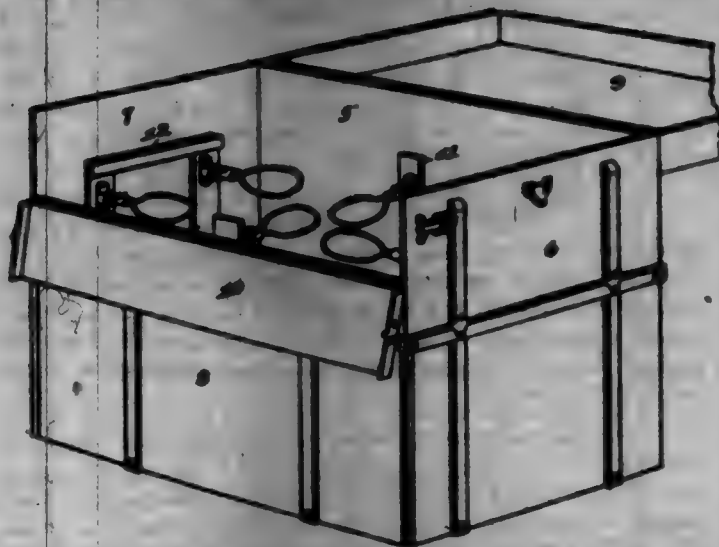
2. The combination with a revolvable shaft, of a drum secured thereto, a brake-band applied to said drum, a dotted link to which the ends of said brake-band are attached, the dot in said link comprising symmetrical inclined sections, a lever, a pin secured therein which engages the dot in said link, a pin or saddle on which said link runs when in normal adjustment and stops adapted to limit the movement of said link circumferentially of said brake-drum, substantially as described.

3. The combination with a revolvable shaft, of a drum secured thereto, a brake-band applied to said drum, a dotted link to which the ends of said brake-band are attached, the dot in said link comprising inclined sections, a lever and a pin through which engages the dot in said link, substantially as described.

4. The combination with a revolvable shaft, of a drum secured thereto, a brake-band applied to said drum, a dotted link to which the ends of said brake-band are attached, a lever, a pin through which engages the dot in said link and a fixed plate which extends over the brake-drum beneath said link, substantially as described.

5. The combination with a revolvable shaft, of a drum secured thereto, a brake-band applied to said drum, a dotted link to which the ends of said brake-band are attached, a lever, a pin through which engages the dot in said link, a fixed plate which extends over the brake-drum beneath said link, flanges on said plate which extend upwardly on opposite sides of said link and shoulder on said flanges which extend forwardly beyond the sides of said link, substantially as described.

698,268. HAT-TRUNK. ANDREW J. CURRY, St. Louis, Mo., assignor of one-half to Nicholas J. McVey, St. Louis, Mo. Filed Jan. 20, 1902. Serial No. 61,697. (No model.)



Claim.—1. In a hat-trunk, a hat-support mounted to swing upwardly, and a stop in position to engage the hat-brim and keep them from sliding when the hat-support is swung upwardly, substantially as specified.

2. In a hat-trunk, a suitable trunk or box; posts rigidly secured in the trunk or box, the upper ends of said posts being on a level, and serving as supports for a tray; hat-supports hinged to said posts and adapted to swing upwardly; stops in position to engage the hat-brim, and keep them from sliding when the hat-supports are swung upwardly; and means of securing said hat-supports and holding them in their upright position, substantially as specified.

3. In a hat-trunk, the brackets 14 rigidly mounted; the hat-support 15 hinged to the bracket by a pin 16 inserted through the ears 17 of the bracket, and through the head 18 of the hat-support; the flange 19 connecting the upward edges of the ears 17 and serving as a stop; the arm 20 extending backwardly from the head 18 to engage the stop and allow the hat-support to swing upwardly and limit its downward motion to a horizontal position, said hat-support 15 being a wire loop adapted to encircle the crown of the hat, and support the brim; and the leg 22 extending upwardly from the head 18 and the spring 23 extending forwardly and upwardly from the flange 19 to engage the leg 22 and hold the hat-support in its upright position, substantially as specified.

698,264. HERNIAL TRUSS. GEORGE W. DUNN, Philadelphia, Pa. Filed Apr. 15, 1901. Serial No. 64,102. (No model.)

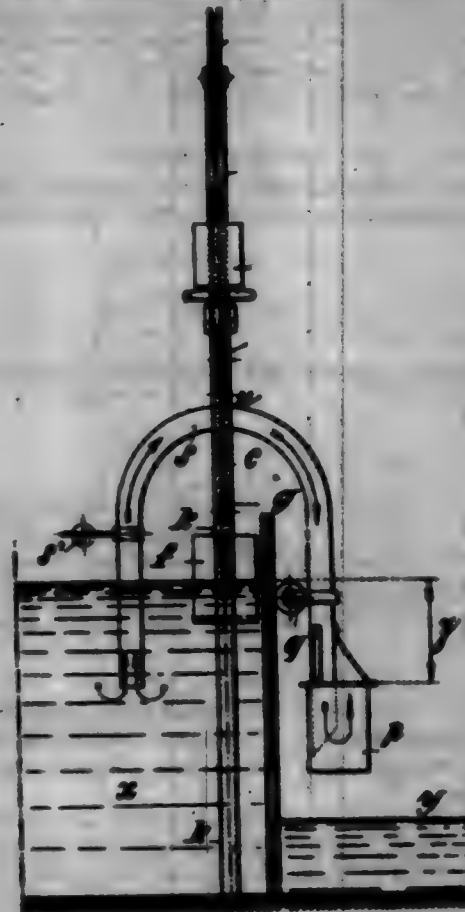


Claim.—In a truss, the combination of a spring-band having a pivot or arbor thereon, with a lever having an arm oblique to said arbor, said lever being pivoted on said arbor, a forwardly-extending pad fixed on said oblique arm, a link pivotally connected to said lever, and a spring having one end fixed to said band and the other end pivotally connected to said link, substantially as specified.

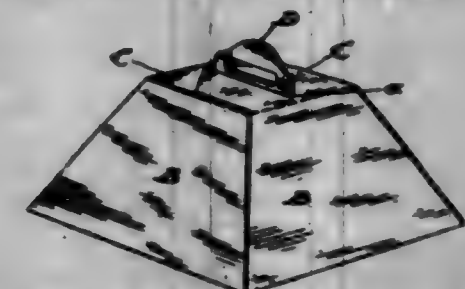
698,265. DEVICE FOR SUPPLYING LIQUIDS. CHARLES E. L. DUNHAM, Paris, France. Filed Feb. 25, 1902. Serial No. 66,989. (No model.)

Claim.—An automatic supply-regulator for liquids at a variable level, characterized by a siphon fixed at the lower extremity of a curve, the upper extremity of which is attached to a cable passing over a pulley to the other end of which is fixed a counterweight partially balancing the weight of the siphon; the curve supporting the siphon being displaced by means

of a rot and hand-wheel, a graduated scale over which passes an index fixed to the curve, indicating for each position of the siphon the volume of the corresponding supply, as above specified.



698,266. FOLDING BOX. DAVID BELLAMY, Toronto, Canada. Filed May 14, 1901. Serial No. 60,200. (No model.)



Claim.—1. A folding box shaped as the frustum of a pyramid and comprising a rectangular bottom; trapezoidal sides hinged to the base; lid-flaps hinged to the upper edges of the sides so that they may be overlapped to form the top of the box; and handle-flaps secured to two opposite lid-flaps, the other two lid-flaps having slots formed therein through which the said handle-flaps may be passed, substantially as described.

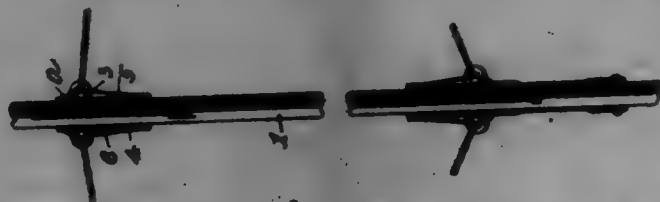
2. A blank to form a box shaped as the frustum of a pyramid which consists of a sheet of stiff material cut and creased to form a central rectangle A; trapezoids B at each side of the central rectangle; slitted flaps C at each side of two opposite trapezoids B; and flaps D at the outer ends of the remaining two trapezoids arranged to be projected through the slots in the first-mentioned flaps, substantially as described.

3. A blank to form a box shaped as the frustum of a pyramid which consists of a sheet of stiff material cut and creased to form a central rectangle A, similar regular trapezoids B at each side of the central rectangle; slitted flaps C at each side of two opposite trapezoids, the inner end of each flap forming the same angle with the side of the trapezoid as the said side does with the side of the central rectangle and the outer end being substantially parallel to the inner end; flaps D at the outer ends of the trapezoids not greater in size than spaces formed with the ends of the trapezoids as base and arranged to be projected through the slots in said flaps C, substantially as described.

4. A folding box shaped as the frustum of a pyramid and comprising a rectangular bottom; trapezoidal sides hinged to the base; side flaps hinged to the sides of two opposite trapezoidal sides the inner end of the side flaps being adapted to rest on the bottom of the box; lid-flaps hinged to the upper edges of the sides so that they may be overlapped to form the top of the box; and handle-flaps secured to two opposite lid-flaps, the other two lid-flaps having slots formed therein through which the said handle-flaps may be passed, substantially as described.

5. A folding box shaped as the frustum of a pyramid and comprising a rectangular bottom; trapezoidal sides hinged to the base; lid-flaps hinged to the upper edges of the sides so that they may be overlapped to form the top of the box; handle-flaps secured to one or more of the said lid-flaps, the remaining lid-flaps having slots formed therein through which the said handle-flaps may be passed; and pieces of tough flexible material pasted to the handle-flaps and a portion of the lid-flaps, substantially as described.

698,267. UMBRELLA-BOX AND STRETCHER-JOINT. SAMUEL J. EVANS, Remond, Va. Filed Jan. 24, 1902. Serial No. 91,004. (No model.)



Claim.—In combination, the ribs, a notch having a series of notches through which the ribs pass and spring parts to retain the ribs in the notch, said parts consisting of flat springs having their terminal edges extending across the said notches from one side to the other and in the plane through which the ribs must pass when being removed, substantially as described.

698,268. PROCESS OF MAKING CEMENT. OTTO FRIED, Wurzburg, Germany, assignor to C. A. Kappeler and Wilhelm Schilling, Munich, Germany. Filed Nov. 14, 1900. Serial No. 737,973. (No specimens.)

Claim.—The process of manufacturing white cement, consisting in the admixture of lime and clay as free as possible from iron, together with feldspar, in about the proportions stated, and burning the resultant mass to the verge of fusing, that is to say, beyond the sintering limit.

698,269. RAILWAY SIGNAL APPARATUS. LAURENT GARNIER, Paris, France. Filed Nov. 3, 1900. Serial No. 24,374. (No model.)



Claim.—1. The combination, with a railway-locomotive, of two alarm devices, a source of electricity, two circuit-breakers mounted respectively in corresponding positions on opposite sides of the locomotive, each circuit-breaker comprising a plurality of fixed and swinging blades, contact-pieces adapted to be engaged by certain of said swinging blades, contact-pieces connecting one of said swinging blades of each circuit-breaker with one of said alarm devices and the source of electricity, and contact-pieces connecting the other of said swinging blades in circuit with the other alarm device, substantially as set forth.

2. The combination, with a railway-locomotive, of a circuit-breaker consisting of a plurality of fixed and swinging blades and connected tripping devices located one at each end of the block and comprising each a horizontal shaft and two sets of tripping-arms mounted rotatably on each shaft, each set comprising two arms arranged at right angles, operating-rods, one for each tripping device, connected each with one of said sets of arms, a chain connecting said operating-rods, and cross-arms projecting each from an arm of one of said sets into the path of an arm of the adjacent set, substantially as set forth.

3. In a railway signal apparatus, a forked circuit-breaker adapted to be carried on the locomotive and provided with outer fixed blades and an intermediate fixed stop-blade, a series of hinged blades, one of which is adapted to swing in one direction and the others in the opposite direction, certain of said blades being limited in movement by said stop-blade, contact devices on some of said hinged blades, and contact devices on the locomotive adapted to cooperate with said contact devices of the blades, substantially as set forth.

4. In a railway signal apparatus, a forked circuit-breaker adapted to be carried on the locomotive and provided with a fixed depending stop-blade, hinged blades adapted to swing in one direction, a hinged blade adapted to swing in the opposite direction, contact-coillets on two of said first-named swinging blades, and contact-pins on the locomotive adapted to engage said coillets, signal devices on the locomotive, a source of electricity, and conducting-wires connecting said signal devices, source of electricity and said contact coillets and pins, substantially as set forth.

5. In a railway signal apparatus, the combination with a circuit-breaker consisting of a plurality of fixed and hinged depending blades, and contact devices on the locomotive adapted to cooperate with certain of said hinged blades, of a tripping device consisting of a horizontal spindle, two sets of tripping-arms arranged rotatably thereon and composed each of two tripping-arms, the arms of each device being arranged one after the other lengthwise of the shaft, in positions corresponding to the hinged and fixed blades, an operating-rod connected with one of said sets, and a cross-arm extending from an arm of said set into the path of an arm of the adjacent set, substantially as set forth.

6. In a railway signal apparatus, the combination, with a circuit-breaker consisting of a plurality of fixed and hinged depending blades and contact devices on the locomotive adapted to cooperate with certain of said hinged blades, of a tripping device consisting of a horizontal spindle, two sets of tripping-arms arranged rotatably thereon and composed each of two tripping-arms, the arms of each device being arranged one after the other lengthwise of the shaft, in positions corresponding to the hinged and fixed blades, an operating-rod connected with one of said sets, and a cross-arm extending from an arm of said set into the path of an arm of the adjacent set, substantially as set forth.

7. In a railway signal apparatus, the combination of two oppositely-arranged tripping devices, consisting each of two sets of angularly-arranged tripping-arms, operating-rods, one for one set of each device, connected therewith, cross-arms extending from said sets at the inner side, each into the path of the adjacent set, guide-pulleys between said tripping devices, a chain passing over said pulleys and connecting said operating-rods, chains connected one with each rod and extending therefrom in opposite directions to the connecting-chains, pulleys over which said chains are guided, and weights on said chains, substantially as set forth.

8. In a railway signal apparatus, the combination of a forked circuit-breaker adapted to be carried upon the locomotive and comprising a depending fixed stop-blade, a series of hinged blades, one of which is adapted to swing in one direction and the others in the opposite direction, certain of said blades being limited in movement by said stop-blade, contact-coillets on certain of said blades, contact-pins on the locomotive, adapted to engage the contact-coillets of the blades, alarm devices on the locomotive, controlled by said circuit-breaker, and two oppositely-arranged connected tripping devices comprising each a horizontal spindle, two sets of tripping-arms mounted rotatably thereon, and operating-rods, one for one set of each device, connected therewith, the tripping-arms of said devices being arranged at different distances from the rail in the path of said fixed and swinging blades and adapted to cooperate with the same, substantially as set forth.

698,270. HERALD TRUSS. WILLIAM H. GARNER, Philadelphia, Pa., assignor, by mesne assignments, to J. Edward Lee Company, Conshohocken, Pa., a Corporation of Pennsylvania. Filed Aug. 14, 1900. Serial No. 24,918. (No model.)

Claim.—The herein-described spring-truss, comprising an elastic band B, a pad secured to one end thereof, a spring extending from said pad for a certain distance around the outside of said elastic band, a covering-strip holding said spring to the outside of said band, both spring and covering-strip being of less width than the elastic band, so and for the purpose set forth.

698,270.



698,271. IMPACT-ENGINE. FREDERICK CARPENTIER, St. Johnsbury, Vt. Filed Feb. 12, 1901. Serial No. 67,122. (No model.)



Claim.—1. In a pneumatic hammer, a cylinder, an impact-piston therein, a sleeve detachably secured to one end of the cylinder, said sleeve having a recess formed in one side of the ends at right angles to the cylinder and out of line of the same, a chambered valve-block arranged in said recess and communicating directly with the cylinder, and a fluid-actuated piston-valve arranged within said block, substantially as described.

2. In a pneumatic hammer, a cylinder, an impact-piston, a handle portion having a sleeve by which it is detachably secured to the cylinder, said sleeve having a recess formed in one side of the same at right angles to and out of line of the cylinder, a chambered valve-block arranged in said recess having a differentially-arranged valve-chamber formed therein, and a fluid-actuated and differentially-arranged piston-valve arranged in said valve-chamber, substantially as described.

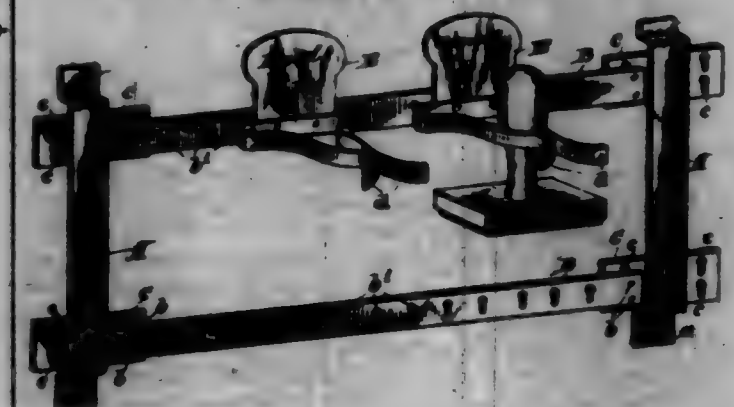
3. In a pneumatic engine, the combination of a cylinder, a piston movable within said cylinder, a valve controlling the inlet and outlet of the motive fluid to and from the cylinder, said cylinder being provided with a longitudinal opening leading from the valve for the initial passage of the motive fluid, substantially as set forth for the purpose set forth.

4. In a pneumatic hammer, the combination of a cylinder, a piston movable within said cylinder, a valve-block located wholly outside of the cylinder, a differentially-arranged piston-valve located within said valve-block, said valve adapted to move in a line at right angles to and out of line of the cylinder, said cylinder having passages of reduced area communicating with passages of the same area within the valve-block, whereby the motive fluid may be conveyed to the ends of the piston-valve to hold the same in the different positions, said valve being moved by the initial pressure of the motive fluid.

5. In a pneumatic hammer, the combination of a cylinder, a piston movable within said cylinder, a valve-block located wholly outside of the cylinder, a valve arranged within said valve-block and adapted to move at right angles to and out of line of the cylinder, said cylinder having a series of passages of reduced area, and said valve-block having similar passages communicating therewith, the passages of the cylinder opening into the opposite ends of the same, substantially as set forth for the purpose set forth.

6. In a pneumatic hammer, a cylinder, an impact-piston, a handle portion having a sleeve by which it is detachably secured to the cylinder, and cushioning means interposed between said cylinder and the handle portion.

698,272. RACK FOR HAND-STAMPS. FRANK W. GLOVER, Chicago, Ill., assignor, to Charles L. Bedford, Chicago, Ill. Filed June 17, 1901. Serial No. 94,002. (No model.)



Claim.—1. A rack for hand-stamps and like articles comprising a rack-frame consisting of vertical and horizontal bars and means for detachably connecting the horizontal with the vertical bars comprising attaching-pieces secured to the rear faces of the vertical bars and projecting beyond the side margins of the same, said pieces having bayhole-slots in their parts which project at the sides of the vertical bars and the horizontal bars being adapted to overlap the outer faces of said attaching-pieces and being provided with headed studs adapted to engage the said bayhole-slots in the attaching-pieces.

2. A rack for hand-stamps and like articles comprising upright and horizontal bars and means for securing the horizontal to the upright bars comprising attaching-pieces secured to the upright bars and projecting beyond the side margins of the same at both sides thereof, said pieces being provided with a plurality of bayhole-slots in their parts which project beyond said upright bars and the horizontal bars provided with headed studs adapted to engage said bayhole-slots.

3. A rack for hand-stamps and like articles comprising a horizontal supporting-bar, provided with bayhole-slots, supports for said bar adapted for attachment to a wall or vertical surface and constructed to hold the bar at a distance from said wall or vertical surface and a clasp consisting of two spring-arms and a transverse base portion, said transverse base portion being provided with headed studs adapted to engage adjacent bayhole-slots in the said bar.

4. A rack for hand-stamps and like articles comprising a horizontal supporting-bar provided with bayhole-slots, supports for said bar adapted for attachment to a wall or vertical surface and constructed to hold said bar at a distance from said wall or vertical surface and a clasp consisting of two spring-arms and a connecting base portion, said base portion being provided with two headed studs adapted to engage two adjacent bayhole-slots in the supporting-bar, said headed studs having elastic or resilient connection with the clasp so as to produce spring-pressed engagement of the heads of the studs with the supporting-bar.

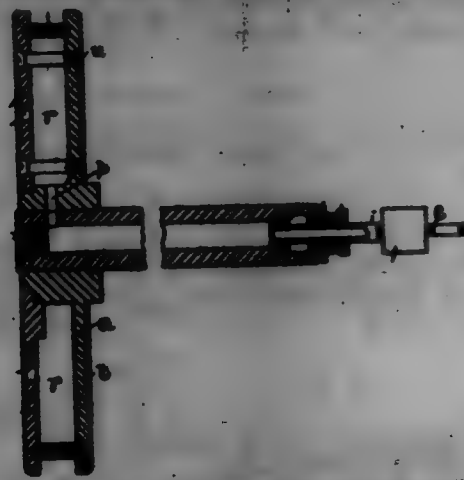
5. A rack for hand-stamps and like articles comprising a horizontal supporting-bar provided with bayhole-slots, supports for said bar adapted for attachment to a wall or vertical surface and supports being adapted to hold the bar at a distance from said wall or vertical surface and a clasp consisting of a piece of spring metal bent to form two spring-arms and a transverse base portion, said base portion being provided with two headed studs and being outwardly bent or curved in its central part.

6. A rack for hand-stamps or like articles comprising a supporting-bar provided with a plurality of bayhole-slots arranged side by side and having counter-sunk recesses in its rear face at the narrower ends of said bayhole-slots, and a clasp consisting of two spring-arms and a connecting or base portion, said base portion having two headed studs having elastic or resilient connection with the clasp.

7. A rack for hand-stamps and like articles comprising a bar having a plurality of bayhole-slots, a clasp provided with headed studs adapted for engagement with the slots of said bar, and a tag provided with holes

for the said shaft, and adapted to be placed and held between the shaft and the bar.

698,273. WIRE-DRAWING. WILLIAM J. GLOVER, St. Helena, England. Filed June 12, 1901. Serial No. 64,398. (No model.)



Claim.—1. In a wire-drawing machine, a drawing-roll constructed in the form of a hollow drum having a closed periphery and means for introducing cooling fluid to the hollow of said drum and discharging it therefrom without its coming in contact with the wire to be drawn, substantially as described.

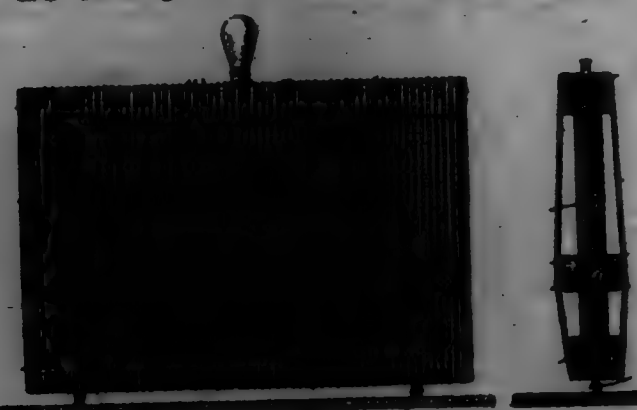
2. In the drawing-roll of a wire-drawing machine, the combination of a base, a side disk forming part of and projecting from said base, a steel rim let into an annular cavity in the side of said disk, a facing-disk forming with said side disk and rim a peripherally-closed drum, and means for admitting a cooling fluid to the interior of said drum without said fluid coming in contact with the wire to be drawn, substantially as described.

3. In a wire-drawing machine the drawing-roll of which are formed as hollow peripherally-closed drums, an arrangement for conveying a cooling fluid to the interior of said drums which consists of a hollow shaft, means of communication between said shaft and the interior of the hollow drum mounted thereon, and a stationary pipe passing through a gland into the interior of said shaft, whereby a cooling fluid may be introduced into said shaft while it is in rotation, substantially as described.

4. In a wire-drawing machine, the drawing-roll of which are formed as hollow peripherally-closed drums, an arrangement for conveying a cooling fluid to the interior of said drums which consists of a hollow shaft, means of communication between said hollow shaft and the interior of the hollow drum mounted thereon, a stationary supply-pipe inserted in the end of said hollow shaft, a collar within said shaft at the end of said supply-pipe, whereby rotation of the hollow shaft about the supply-pipe is permitted, and leakage of the cooling fluid is prevented, substantially as described.

5. In a wire-drawing machine, the drawing-roll of which are formed as hollow peripherally-closed drums, an arrangement for circulating a cooling fluid in said drums, which consists of a hollow shaft, passages communicating between said hollow shaft and the interior of said hollow drums, and means for permitting the outflow of said fluid from said drums without said fluid coming in contact with the wire to be drawn, substantially as described.

698,274. ELECTRIC FLY-TRAP. HOWEN E. GANNON, Providence, R. I. Filed Aug. 20, 1901. Serial No. 72,604. (No model.)



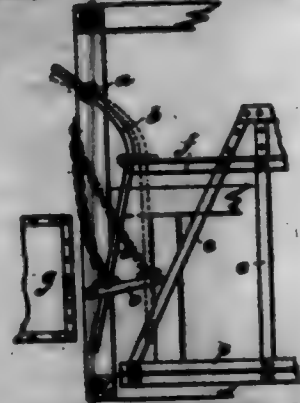
Claim.—1. An electric insect-killer, comprising a frame of insulating material and having a support for a belt, and positive and negative wires connected with a source of electric energy, and wound around the said frame to form grids on both the front and rear of the frame, the grids including the belt, substantially as shown and described.

2. An electric insect-killer, comprising a frame of insulating material and having a support for a belt, positive and negative wires connected with a source of electric energy, and wound around the said frame to form grids on both the front and rear of the frame, the grids including the belt, and a shelf suspended from the said frame and having positive and negative wires connected with the wires of the frame, as set forth.

3. An electric insect-killer, comprising a frame of insulating material and having a support for a belt, positive and negative wires connected with a source of electric energy, and wound around the said frame to form grids on both the front and rear of the frame, the grids including the belt, a shelf, means for suspending it from the said frame, and positive and negative wires wound around said shelf and connected by the said suspension means with the wires of the said frame, as set forth.

4. An electric insect-killer, comprising a frame of insulating material and consisting of a center plate, top and bottom caps, strips intermediate of the said caps and extending along the front and rear of the center plate to form supports for a belt, and positive and negative wires connected with a source of electric energy, and wound around the said caps and stretched over said strips to form grids on both the front and rear of the frame, the grids including the belt, substantially as shown and described.

698,275. SELF-CLOSING DOOR FOR MINES. FRIEDRICH OTT, Riedelshausen, Germany. Filed June 14, 1901. Serial No. 64,600. (No model.)



Claim.—A gate for mine-shafts consisting of a curved inverted-U-shaped bar, pivot-bolts connecting the same near its upper end to the timbers of the mine-level adjacent to said shaft, guides on the sides of said level, a flat-bar connecting the lower ends of said U-bar, a cross-rod supported upon said timbers above said flat-bar, chains connecting said rod and flat-bar, substantially as described.

698,276. LOCOMOTIVE-ENGINE. CHRISTIAN KAMMER, Berlin, Germany. Filed Dec. 15, 1901. Serial No. 85,006. (No model.)



Claim.—1. A compound locomotive provided at each side near the forward end thereof with a pair of cylinders arranged tandem but laterally of a direct line joining their longitudinal axis.

2. A compound locomotive-engine, provided with a pair of cylinders at each side near the forward end thereof and arranged tandem but laterally of a direct line joining their longitudinal axis, a pair of crank-pins carried by the drive-wheel of the locomotive and set at an angle of one hundred and eighty degrees to each other, suitable connections between the crank-pins and the cylinders, and means for connecting the cylinders to each other for the purpose of taking up strains set up in the cylinders in opposite directions.

698,277. BOYCE-SUPPORT. CHARLES HANCOCK, New York, N. Y. Filed Jan. 3, 1902. Serial No. 87,067. (No model.)



Claim.—1. A support comprising base-pieces pivoted to one another and each made to double or fold, and jaws pivoted or swinging on the base-pieces.

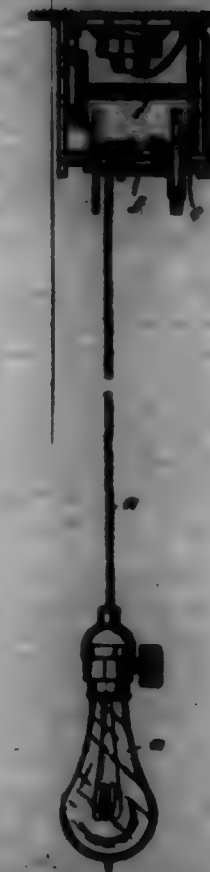
2. A support comprising base-pieces each piece composed of pivoted sections adapted to double or fold to one another, said pivot being made to also pivotally enter the several pieces to enable the latter to be swung relatively to one another, and a clamp or jaws carried by the base-pieces.

3. A support comprising a base and jaws pivoted to the base, said jaws being adapted to clamp a wheel rim or tire and provided with a neck or neck-section adapted to clamp a spoke.

4. A support comprising a base and jaws pivoted to the base, said jaws being adapted to clamp a wheel rim or tire and provided with a neck or neck-section adapted to clamp a spoke, and means for locking the jaws and neck about a rim and spoke.

5. A support comprising a base and jaws pivoted to the base, said jaws being adapted to clamp a wheel rim or tire and provided with a neck or neck-section adapted to clamp a spoke, and a lock for the jaws consisting of a split and threaded ring adapted to be passed about a spoke and secured to the closed neck-section.

698,278. LAMP-HANGER. HENRY J. HARRISON, Jamaica, Alaska. Filed May 13, 1901. Serial No. 63,599. (No model.)



Claim.—A lamp-hanger, comprising a frame having two depending parts, a shaft mounted to turn in said parts, the shaft extending between them, a spring actuating the shaft, a drum mounted to turn in the depending parts of the frame below the shaft, gearing connecting the drum with the shaft, two smaller concentric drums integral to one end of the drum concentric with the axis thereof, contact-fingers fastened to the adjacent depending part of the frame and bearing respectively on said smaller concentric drums, electrical conductors leading to the contact-fingers, electrical conductors wound on the drum and having connection respectively with the contact-fingers, and means working with the drum to control its movement.

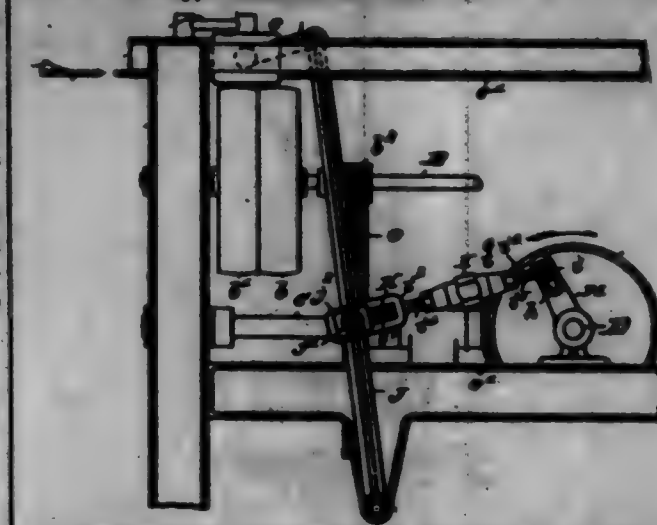
698,279. FILM-STRIP MOUNTING FOR LOOM. LEONARD E. HARTLEY, THOMAS E. HARRIS, and JOHN EDWARDS, Lowell, Mass. Filed Dec. 11, 1901. Serial No. 85,007. (No model.)

Claim.—1. In a film-strip motion picture camera, the combination of the film-strip, the film-strip intermediate mechanism connecting said slide and slide and a yielding device arranged between said slide and said slide and adapted to permit the retracting of said slide without stopping said film.

2. In a film-strip motion picture camera, the combination of the film-strip, provided with a crank, a film-strip lever, a link connecting said crank and said lever, the lever-slide immediately operated by said lever, and a yielding device, arranged between said crank and said slide to permit the forward movement of said slide to be arrested before said crank has attained its greatest forward throw.

3. In a film-strip motion picture camera, the combination of the film-strip, provided with a crank, a film-strip lever, a link, pivoted at

one end to said crank and at the other end provided with a longitudinal slot, a block, arranged to slide in said slot, and to turn on a stud with which said lever is provided, a spring, normally to hold said block at the end of said slot furthest from said crank, the lever-slide and connecting means between said lever-slide and said lever.



4. In a film-strip motion picture camera, the combination of the film-strip, provided with a crank, a film-strip lever, a link, pivoted at one end to said crank and at the other end provided with a longitudinal slot, a block, arranged to slide in said slot, a spring, arranged in said slot between said block and the end of said slot nearest said crank, a stud projecting from said lever and adapted to turn in a hole with which said block is provided, the lever-slide and connecting means between said lever-slide and said lever.

698,280. MATRIX-BAND RETAINER. ARTHUR J. REIMER, San Francisco, Cal. Filed Sept. 22, 1901. Serial No. 78,218. (No model.)



Claim.—The matrix-band retainer comprising two bands, the parallel guides passing through perforations in one of said bands and guiding the movement of the bands toward each other, means for so moving said bands to and from each other, and the matrix-band having at each end two perforations through which the guides pass, substantially as described.

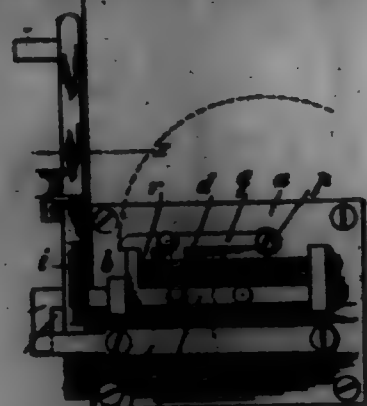
698,281. BELLING HEATH. ALFRED HEATH, Boston, France. Filed Sept. 1, 1901. Serial No. 78,217. (No model.)



Claim.—In a roller-skate the combination with a frame, a driving-wheel having a pulley on its hub, a foot-pedal pivoted at its forward end to the frame, a connecting-rod pivoted to the pedal, a gear-wheel journaled in the frame and having a mesh with the pulley of its rim, a crank-pin thereon engaging a hole in the connecting-rod, a lever pivoted to the frame, an intermediate gear-wheel journaled at the two ends of said lever,

a spring normally pressing the lever down and the gear out of engagement, and a part-arm rigid with the pivoted lever having a tooth to engage the notch in the rim of the crank gear-wheel and hold the gear out of engagement, and the first-pedal fixed in a horizontal position, substantially as described.

698,983. FASTENING FOR DOORS OR SHUT LIKE. JAMES H. MOYER, Ashland, Vermont. Filed July 27, 1904. Serial No. 79,922. (No model.)



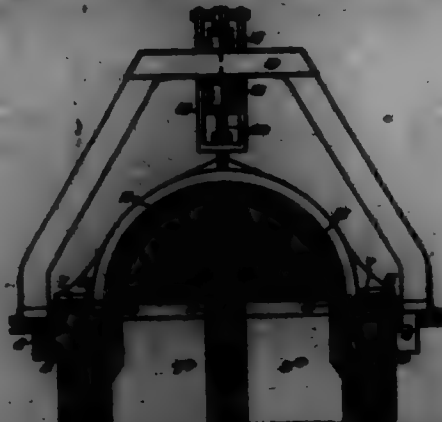
Claim.—1. In a fastening for doors and shut like the combination of a latch-lever provided with a projection at its free end and adapted to be hinged to the side frame of the door, a catch adapted to hold the lever in a vertical position and to permit its release, a stop-plate secured to a plate adapted to be attached to the door or shut like, a bolt adapted to slide in guides mounted on said plate and adapted to being moved into its closed position to form in combination with the end of said stop-plate an eye including said latch-lever and a catch for holding the bolt in locked position, substantially as set forth.

2. In a fastening for doors and shut like the combination of a latch-lever provided with projection at its free end and adapted to be hinged to the door-frame, a catch adapted to hold said lever in a vertical position and to permit its release, a stop-plate secured to a plate adapted to be attached to the door, a bolt adapted to slide in guides mounted on said plate and to form in combination with the end of said stop-plate an eye including said latch-lever, and a spring normally pressing said bolt into its locked position, substantially as set forth.

3. In a fastening for doors and shut like the combination of a latch-lever, provided with projection at its free end and adapted to be hinged to the door-frame, a catch adapted to hold said lever in a vertical position and to permit its release, a stop-plate secured to a plate adapted to be attached to the door, a bolt adapted to slide in guides mounted on said plate and to form in combination with the end of said stop-plate an eye including said latch-lever, a spring normally pressing said bolt into its locked position, and a catch adapted to keep said bolt in either its locking or open position, substantially as set forth.

4. A fastening device, comprising a swinging latch-lever, a spring-pressed bolt having a lateral projection at its free end, a stop-plate adapted to form with the bolt an eye to receive the latch-lever, and a locking device for said bolt, substantially as specified.

698,988. REVERSING-VALVE FOR REGENERATIVE GAS-FURNACES. HARRY EVATT and JOHN McNEIL, Cleveland, Ohio, assignors to the Wellman-Burner Engineering Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 19, 1904. Serial No. 68,576. (No model.)



Claim.—1. A reversing-valve for regenerative gas-furnaces consisting of a box-like casing, a lining of refractory material for said casing, a transverse partition dividing the casing into two chambers, and blocks extending from one side of the casing to the partition, said partition together with the blocks and refractory lining being supported on plates extend-

ing along the edges and across the bottom of the casing, substantially as described.

2. A box-like casing having its lower side open, a horizontal plate fixed to the lower edge of the casing extending on both sides of the lining of the walls of the casing, and a refractory lining for the casing carried on the inwardly-projecting part of said plate, the outwardly-extending portion of the plate having a downwardly-extending annular flange outside the lining of the walls of the casing, substantially as specified.

3. A reversing-valve for regenerative gas-furnaces consisting of a conical-shaped casing having a partition dividing it into two chambers and open on its lower face, the edges of the openings of the chambers in said face having downwardly-projecting flanges, and a plate extending around the outside of the casing also having a downwardly-projecting flange, said flange extending downwardly to a greater length than the first-mentioned flange, substantially as specified.

4. A reversing-valve for regenerative gas-furnaces consisting of a casing divided by a transverse partition into two chambers, said chambers being open on their lower face, the edges of each opening being surrounded by a downwardly-projecting flange, a plate extending in an approximately horizontal plane and fixed to the lower portion of the casing, said plate also having a downwardly-projecting flange outside of the first flange, said second flange being deeper in form and projecting down to a level below the lower edge of the first flange, substantially as specified.

5. The combination of a box structure for regenerative gas-furnaces provided with four fine openings, a casing-pit surrounding said openings and extending between the same, a reversing-valve having a transverse partition dividing it into two chambers open on their lower face, with downwardly-projecting flanges extending around said openings, and a plate fixed to the valve having a second flange extending around the casing, said flange being constructed to enter the said casing-pit, substantially as specified.

6. The combination of a box structure having four fine openings into it, a casing-pit extending around said fine openings, and casing-pits of relatively less depth extending around each fine-opening, with a reversing-valve provided with two chambers open on their lower face, the openings from said chambers being provided with downwardly-projecting flanges constructed to enter the shallow casing-pits and a plate extending around the valve provided with a downwardly-extending flange of greater length than those surrounding the openings of the chambers, said flange being constructed to enter the outer casing-pit, substantially as specified.

7. A reversing-valve for regenerative gas-furnaces, the same consisting of a casing, a framework for said casing, means on the framework supported to the casing for raising the same and a cylinder also carried on the casing having grooves in its interior and a pin on the means connecting the raising means with the casing, constructed to engage said grooves, whereby the casing is given a partial revolution as it is raised or lowered, together with means for causing the pin to traverse the grooves in but a single direction substantially as specified.

8. A reversing-valve for regenerative gas-furnaces, the same consisting of a casing, a framework for the same, supporting means for raising said casing at will, a rod connecting the casing to the said means, two members consisting of a pin and a body having grooves, one of said members being attached to said rod and the other member being carried by the framework and engaging the first member, said members serving to partially revolve the casing as it is raised or lowered, together with means for causing the pin to move through the grooves in a constant direction, substantially as described.

698,984. WATER-POWER. THOMAS E. HYDE and ALLEN B. BROWN, Youngstown, Ohio. Filed Nov. 20, 1904. Serial No. 64,096. (No model.)

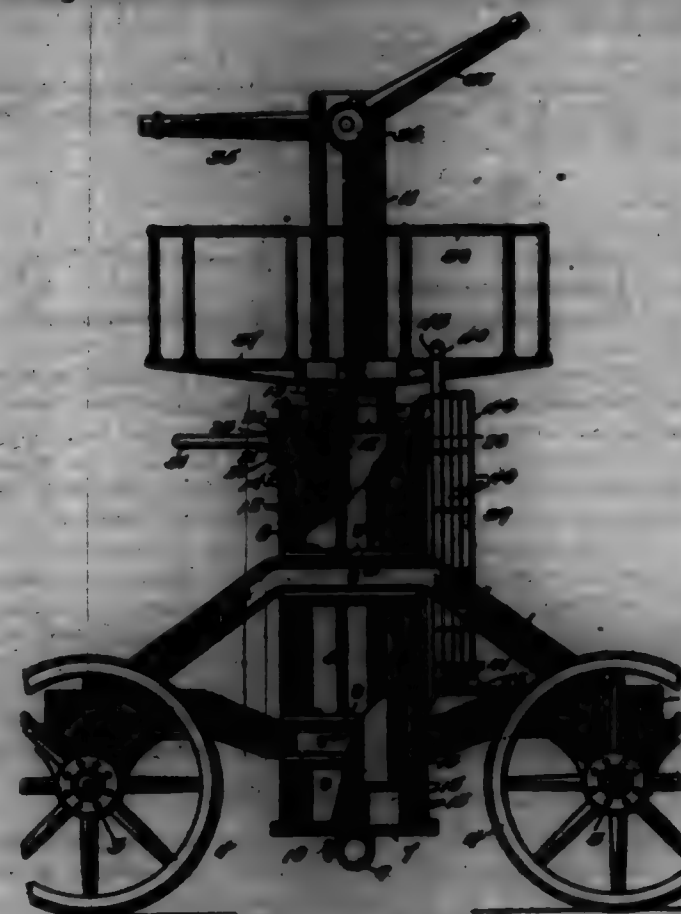
Claim.—1. In a water-tower, a telescopic stand-pipe having a plurality of lockable sections, and one releasing device supported in a fixed location and having locking means common to all of the lockable telescoping sections for effecting a locking thereof when needed, and also providing for the release of the sections one at a time and successively.

2. In a water-tower, a telescopic stand-pipe having lockable telescoping sections, and a single releasing device supported in a fixed location and having locking means common to, and cooperating in a similar manner with, all of said lockable sections.

3. In a water-tower, a telescopic stand-pipe having a stationary base-section and other telescoping lockable sections, and one releasing device carried solely by the base-section and having locking means, common to all of the lockable sections, for effecting the individual locking and releasing thereof.

4. In a water-tower, the telescopic stand-pipe having a base-section and other telescoping lockable sections, and one releasing device mounted upon the upper end of the base-section and having locking means com-

mon to all of the lockable sections for effecting the individual locking and releasing thereof.



5. In a water-tower, a telescopic stand-pipe having lockable telescoping sections each provided with a holding member, and one releasing device comprising a fixed location and having locking means common to, and cooperating in a similar manner with, the holding members of all of said lockable sections.

6. In a water-tower, a telescopic stand-pipe having lockable telescoping sections provided with similar holding members overlying one another when the sections are nested or collapsed, and a single releasing device mounted to operate in a fixed plane and having locking means cooperating in a similar manner with the holding members of the several sections to effect a locking of the sections when needed, and also for the release thereof one at a time and successively.

7. In a water-tower, a telescopic stand-pipe having telescoping sections provided with lug-flanges, and a single releasing device having a corresponding and complementary flange.

8. In a water-tower, a telescopic stand-pipe, having telescoping sections provided at their upper ends with outward flanges having spaced lugs, and a single releasing device having a corresponding and complementary flange.

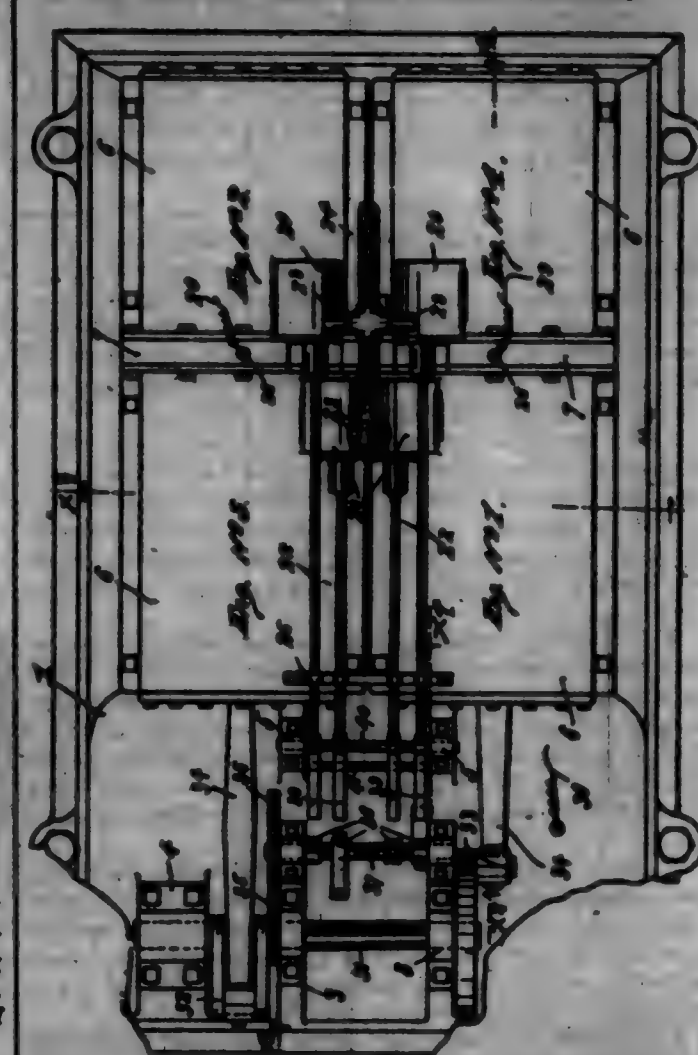
9. In a water-tower, a telescopic stand-pipe having sections provided at their upper ends with outward flanges having spaced lugs, the outer diameter of the flanges of the different sections being the same, and a single releasing device rotatably supported and having an internal flange overhanging those of the telescoping sections and also provided with a series of spaced lugs.

10. In a water-tower, a telescopic stand-pipe having a base-section and other sections, the latter being provided at their upper ends with outward flanges having spaced lugs, said lugs on the adjacent flanges being alternately rotated, and a single releasing device consisting of a sleeve rotatably supported on the base-section and having an internal flange also provided with a series of spaced lugs.

11. In a water-tower, a telescopic stand-pipe comprising a plurality of telescoping pipe-sections, said sections being provided with cooperating complementary locking and releasing steps, and all excepting the lowermost or base section being provided with an exterior plate-packing including a packing-ring and a detachable binding-ring.

12. In a water-tower, a telescopic stand-pipe comprising a series of telescoping sections, common means for locking all of the telescoping sections, excepting the lowermost one, in their nested position, and also for successively releasing the individual sections one at a time, said lowermost section being a valve-bearing section, and the section next succeeding the same carrying a working platform, and an extension-holder whose base-section is connected with the supporting-frame of the tower and whose top section is connected with said working platform, said extension-holder being extended and collapsed simultaneously with the stand-pipe, substantially as set forth.

698,985. EXPLOSION-ENGINE. MARSH E. RYLAND, Peoria, Ill. Filed May 14, 1904. Serial No. 68,934. (No model.)



Claim.—In an explosion-engine of the four-cycle type, the combination with two tandem cylinders having intermediate abutments, of a pair of cooperating tandem pistons the heads of which work in said cylinders on opposite sides of the cooperating abutments and the stems of which work through said abutments, intake-valves and exhaust-valves opening, respectively, into and from said cylinders, between said abutments and said piston-heads, a crank-shaft having cranks at one end and at right angles in advance of the other and connected one to each of said tandem pistons, and a one-to-two valve-gear for operating said four exhaust-valves in succession involving a series of four rotary tappets driven from said crank-shaft and set slowly degrees apart, whereby an explosion is obtained for each half-revolution of the crank-shaft and for each stroke of the pistons, substantially as described.

698,986. TAP TAP. JAMES A. IRVIN, Philadelphia, Pa. Filed May 12, 1904. Serial No. 68,986. (No model.)



Claim.—1. In a tap tap, the combination with an outer casing, of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing; a recess in the interior bottom wall of said casing; and an adjustable bearing-plate fixed in said recess and provided with a stop-bearing for said spindle, substantially as set forth.

2. In a tap tap, the combination with the outer casing, of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing; a recess in the interior bottom wall of said casing; a bearing-plate fixed in said recess in engagement with the inner extremity of said spindle; and a screw entered through said casing, within said recess, in adjustable relation with said bearing-plate, substantially as set forth.

3. In a tap tap, the combination with the outer casing A, of the bal-

two-wheel B, arranged to rotate within said casing independently thereof; the spindle D, fixed in said wheel and extending exterior to said casing; the corrugations C, upon the extremity of said spindle exterior to said casing and arranged to cooperate with a driving-rod leaped thereon; the screw A', in the bottom of said casing; the plate E, fitted in said casing and provided with the stop-bearing A, for said spindle D; the bearing-housing G, surrounding said spindle at the top of said casing; and the flange C, upon said housing exterior to said casing, substantially as set forth.

4. In a toy top, the combination with an outer casing; of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing, in rotatable relation with the latter; corrugations upon the extremity of said spindle, exterior to said casing, arranged to cooperate with a driving-rod leaped thereon; a bearing-housing surrounding said spindle at the top of said casing; and a metal flange at the top of said casing, arranged to receive the wear of the driving-rod, substantially as set forth.

5. In a toy top, the combination with an outer casing; of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing in rotatable relation with the latter; and a series of corrugations upon said spindle exterior to said casing, terminating short of the end of said spindle and arranged to engage a driving-rod leaped upon the latter, substantially as set forth.

6. In a toy top, the combination with an outer casing; of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing in rotatable relation with the latter; a series of corrugations upon the free extremity of said spindle exterior to said casing and arranged to engage a driving-rod leaped thereon; and a bearing-plate in the bottom of said casing in engagement with the inner extremity of said spindle, substantially as set forth.

7. In a toy top, the combination with an outer casing; of a balance-wheel arranged to rotate within said casing independently thereof; a spindle fixed in said wheel and extending exterior to said casing, in rotatable relation with the latter; and a series of corrugations upon the free extremity of said spindle exterior to said casing, arranged to engage a driving-rod leaped thereon, substantially as set forth.

8. In a toy top, the combination with the outer casing; of a balance-wheel arranged to rotate within said casing; a spindle fixed in said wheel and extending exterior to said casing; a bearing-housing seated in the upper part of said casing; a bearing-plate in the bottom of said casing in engagement with the inner extremity of said spindle; and a cut-away exterior through said casing in adjustable relation with said bearing-plate, substantially as set forth.

898,987. ROSS-LOCK FOR VEHICLES. ARLEY H. JOHNSON.
Belle Center, Ohio. Filed Dec. 25, 1901. Serial No. 67,610. (No model.)



Claim.—1. In combination with a hub-rod, a plate attached thereto, and having a projecting end provided with an opening, a clamping member moved to an anchoring device and having arms to receive the projecting end of the plate between them, said arms having openings to register with that in the plate, and a locking device to engage said registering openings and secure said plate to said clamp, substantially as described.

2. The combination with a hub-rod of a plate having perforations therein and an aperture at one end thereof, means for attaching said plate to said rod, and a clamp having a loop for engaging a rod, and apertured arms connected with said loop and adapted to engage said plate on opposite sides thereof, and means for locking said plate and arms together.

3. A sub-locking device comprising a plate having longitudinally-located perforations disposed along the opposite sides thereof and provided with an aperture at one end thereof, and a clamping member in the form of a plate fitted upon itself at its center thereby forming a loop for en-

gaging a rod, the end of said plate extending in the same direction in parallel planes and provided with means for attaching them to said perforated plate.

898,988. WRINGING. LAVATHEN W. JOHNSON, JEROME, ARIZ. assignor to David Center and Chas. E. Hothorn, Jerome, Ariz. Filed May 25, 1901. Serial No. 68,981. (No model.)



Claim.—1. The improved wring comprising a shaft having a fixed jaw, and provided with opposite side channels, and two laterally opposite sets, or rows, of teeth on its upper and under sides, the latter being flat intermediate of each set of teeth, and the slidable jaw having side pivots, and interior teeth located at diagonally opposite points, and a curved spring arranged within the slot as shown and described.

2. The improved wring comprising a shaft having a fixed jaw, and provided with opposite side channels, and two laterally opposite sets or rows of teeth on its upper and under sides, the latter being flat intermediate of each set of teeth, and the slidable jaw having side pivots and interior teeth located at diagonally opposite points, and an interior projection located at about the middle of its length, which projection is adapted to bear and slide upon the smooth portion of the shaft intermediate of the upper rows of teeth, and a curved plate-spring arranged as described.

898,989. HIRE-LIFT FOR SHOES. JAMES J. JOHNS, NEW YORK, N. Y. Filed Dec. 4, 1900. Renewed Jan. 10, 1908. Serial No. 69,000. (No model.)



Claim.—1. As a new article of manufacture, a heel-lift for boots and shoes comprising a layer of rubber having a flat tread-surface and the opposite surface provided with a marginal recess and a layer or strip of leather of hesshoe form fitting the said marginal recess and connected thereto at the flat opposing surfaces and edges, substantially as set forth.

2. As a new article of manufacture, a heel-lift for boots and shoes comprising a layer of rubber having a flat tread-surface and the opposite surface provided with a marginal recess, and a layer or strip of leather of hesshoe form fitting the said marginal recess and connected thereto, substantially as set forth.

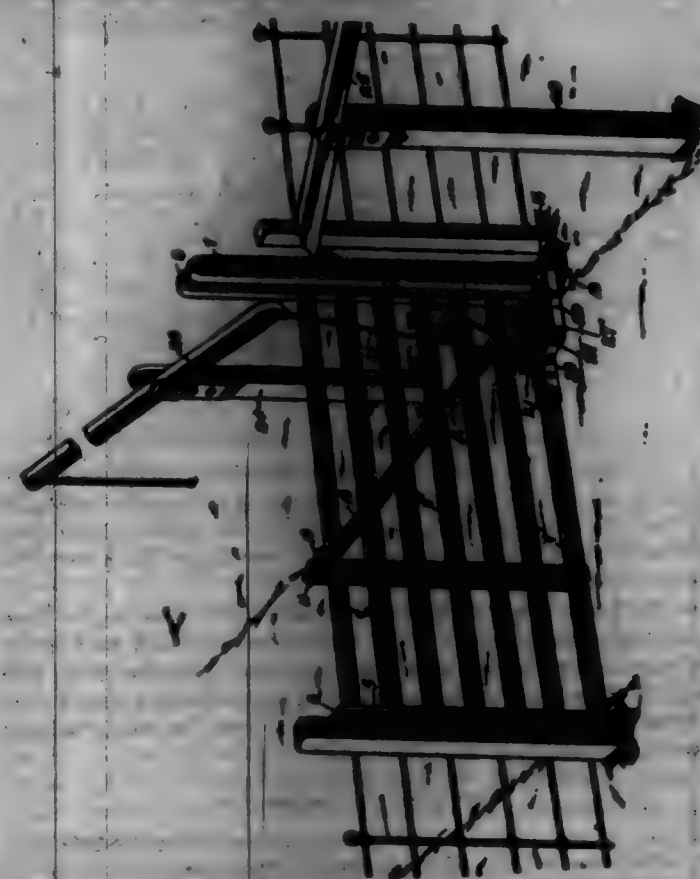
898,990. FINE WATER HEATER. BENJAMIN F. KENNY, BROOKLYN, N. Y. Filed Jan. 24, 1902. Serial No. 81,126. (No model.)



Claim.—1. In a feed-water heater, a shell, a tube-sheet bolted to said shell, said parts being arranged to form a steam-chamber, the bolts serving to maintain a steam-tight joint, tubes connected with said tube-sheet, a cutting-chamber, a flange depending from the tube-sheet, said flange being bolted to the cutting-chamber, and said bolts serving to maintain a water-tight joint and being independent of the other bolts, and a plurality of chambers between said cutting-chamber and the tube-sheet connected respectively with the tubes and cutting-chamber.

2. In a feed-water heater, a shell having an external annular flange at its base, a tube-sheet bolted to said shell to form a steam-joint, and the bolts serving to maintain a steam-tight joint, tubes inserted by the shell for the circulation of water and steam into said tube-sheet, and the latter having a series of depending walls, and a cutting-chamber bolted to said last-mentioned flange, and the bolts serving to maintain a water-tight joint, and said cutting-chamber having a top arranged to fit against the lower edges of the depending flange and the walls of the tube-sheet.

898,991. GATE. WILLIAM E. KENNY, BROOKLYN, N. Y. Filed Oct. 25, 1900. Serial No. 64,322. (No model.)



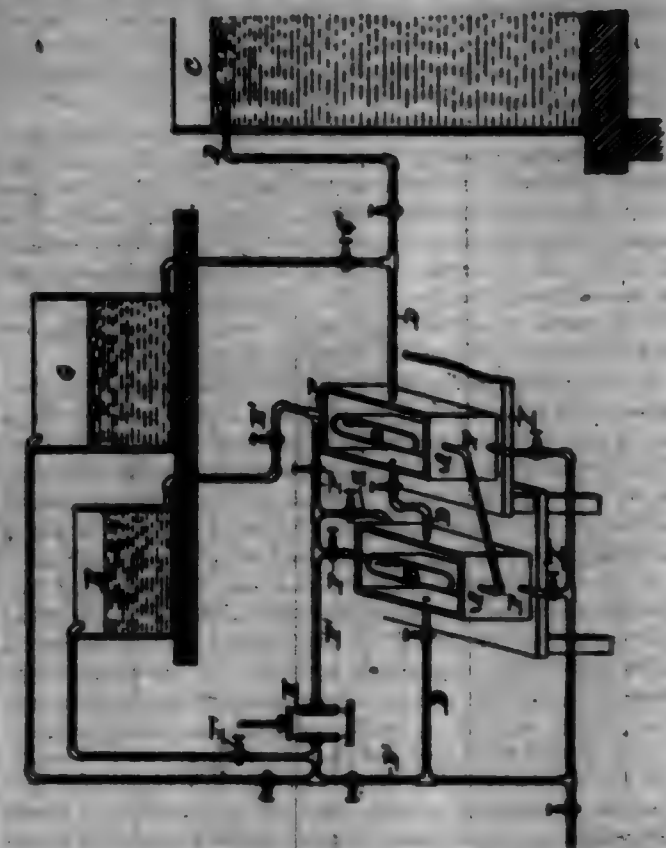
Claim.—A gate comprising and uprights having horizontal rails connected thereto, additional uprights connected to all of the rails adjacent to one end of the gate, a pair of levers disposed one at each side of the rails and extending from the upper ends of the last-mentioned uprights downwardly and rearwardly to the lower end of the upright at the rear end of the gate and connected to all of the rails, short uprights connected to the bottom rail of the gate and resting with their upper ends against the under faces of the levers, said levers pivoted to the short uprights and sliding means connected to the levers, said gate being pivoted at the lower end of the rear upright thereof, for movement in a vertical plane.

898,992. TRAPING OF RECOVERING METALS. EDWARD B. KEMMEL, NEW YORK, N. Y. Filed July 2, 1902. Serial No. 82,912. (No specimens.)

Claim.—1. The process of separating and recovering metals from solutions containing them, which consists in flowing over a mass of fragmental carbon which serves as a cathode, a dilute solution of potassium cyanide containing metals in solution, and at the same time subjecting said dilute solution to the action of an electric current having sufficient empyrege and electromotive force of at least five volts, the metals being carbon immersed in a solution of caustic alkali which is separated from the cathode solution by a porous diaphragm.

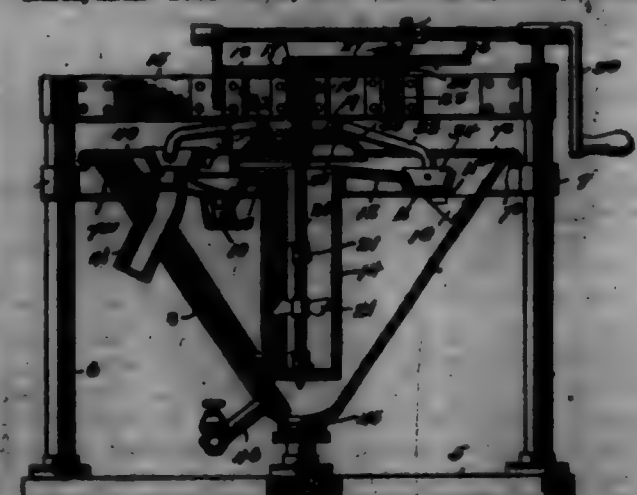
2. The process of separating and recovering metals from dilute solutions of cyanide containing them which consists in flowing said solutions over and through a fragmental mass of carbon presenting a large surface area, and which carbon mass serves as cathode, a plate or plates of carbon serving as anode, subjecting said flowing solution to the action of an electric current having an electromotive force of five volts or more, and

stopping the flow of dilute solution and flowing over and through the fragmental carbon mass a stronger solution of potassium cyanide and at the same time subjecting the deposited metal to the action of a reversed electric current, not exceeding electromotive force of five volts using the carbon mass as anode and a plate of metal for the cathode.



3. The process of separating and recovering metals from dilute solutions containing them which consists in flowing said solutions over and through a fragmental mass of carbon presenting a large surface area, and which carbon mass serves as a cathode, a plate of carbon immersed in solution of potassium or sodium hydroxide serving as anode, which solution of potassium or sodium hydroxide is separated from the cathode solution by a porous diaphragm, whereby cyanogen set free by an electric current is reconverted to alkali cyanide, subjecting said flowing solution to the action of the electric current having an electromotive force of five volts strength or more until stopping the flow of dilute solution and flowing over and through the fragmental carbon mass a stronger solution of potassium cyanide and then subjecting the deposited metal to the action of a reversed electric current not exceeding an electromotive force of five volts, using the carbon mass as anode and a plate of metal for the cathode.

898,993. ORGANOGRAPHY. CHAS. E. KEMMEL, PORT HAVEN, N. Y. Filed Dec. 12, 1901. Serial No. 69,000. (No model.)



Claim.—1. An organography comprising in its construction an open tank having a cutting-draw with a generally imperforate bottom located within its upper portion, means also within the tank for circulating water and tailings from the lower part of the tank to said trough, and means for moving the tailings which lodge in said trough along the bottom thereof, a tailings-trough from the trough extending through the outer side of the tank, whereby gold or other heavy material will remain at the bottom of the tank while the tailings will be elevated into the trough, and into

stationally and continuously removed therefrom while the water overflows from the trough into the tank, as set forth.

2. An ore-separator comprising in its construction a tank having a vertical flume or cylinder located therein and open at the top and bottom, a circular settling-trough surrounding the upper end of the flume below the upper edge of the tank and adapted to receive water and tailings discharged at the upper end of the flume and to return water to the tank by overflow, means for elevating water through said flume, the said trough being provided with a debris-opening, and means for moving debris around the trough to the opening.

3. An ore-separator comprising in its construction an inverted-cone-shaped tank having a vertical flume or cylinder located therein and open at the top and bottom, a circular settling-trough surrounding the upper end of the flume below the upper edge of the tank and adapted to receive water and tailings discharged at the upper end of the flume and to return water to the tank by overflow, means for elevating water through said flume, the said trough being provided with a debris-opening, and means for moving debris around the trough to said opening, means being provided for removing gold from the bottom of the tank.

4. An ore-separator comprising an inverted-cone-shaped tank having brackets 10 projecting inwardly therefrom, a circular settling-trough resting on said brackets, a vertical cylinder or flume located centrally and having a circular plate or disk connecting its upper end with the trough, means for elevating water within the flume, and scraper-blades movable in said trough, said trough having provision for the discharge of mining debris therefrom and for returning the water to the tank by overflow.

5. An ore-separator comprising an inverted-cone-shaped tank having brackets 10 projecting inwardly therefrom, a circular trough resting on said brackets, a vertical cylinder or flume located centrally and having a circular plate or disk connecting its upper end with the trough, means for elevating water within the flume, scraper-blades movable in said trough, said trough being raised at one portion and having an opening in its bottom, and a chute or spout leading from said opening outside of the tank.

6. An ore-separator comprising an inverted-cone-shaped tank having brackets 10 projecting inwardly therefrom, a circular trough resting on said brackets, a vertical cylinder or flume located centrally and having a circular plate or disk connecting its upper end with the trough, means for elevating water within the flume, a rotatable disk or plate above the flume and means for rotating it, outwardly-projecting arms pivoted to said disk and having scraping-blades pivoted to their outer ends, said trough being raised at one portion and having an opening in its bottom, and a chute or spout leading from said opening outside of the tank.

7. An ore-separator comprising in its construction a tank, a vertical flume or passage mounted centrally in the tank and having a circular trough within the upper portion of the tank and below the upper edge thereof, said trough surrounding and communicating with the upper end of the flume, a shaft having spiral blades mounted in said vertical flume, a disk surrounding said shaft and having arms provided with blades fitting and movable in said trough, said trough being provided with an outlet for tailings, means for rotating the shaft and the scraper-carrying disk, and gearing whereby the shaft rotates at a higher speed than that of the scraper-carrying disk.

698,994. HENRY GO-BOWEN. Broom Elevator, New York, N. Y. Filed Aug. 27, 1901. Serial No. 73,002. (No model.)

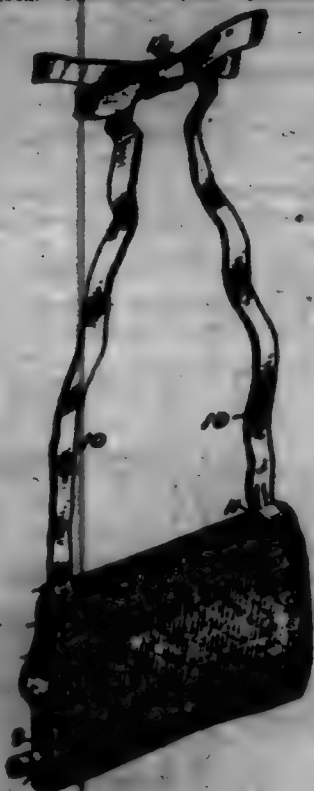


Claim.—1. In a merry-go-round, the combination, with a central support having a beveled gear fixed thereon, and a horizontal frame having radial arms and adapted to revolve on said support, of drive-shafts suspended from said arms and having gears meshing with that on the support, a series of short independent crank-shafts geared with said drive-shafts and supported in bearings attached to the frame-bars, a series of seats, and rods extending the same which are loosely connected with said seats, and propelling-rods provided with pulleys and connected with the short crank-shafts and arranged vertically in front of the seats, substantially as shown and described.

2. In a merry-go-round the combination, with the horizontal rotatable frame, a central support for the latter having a master-gear, a series of drive-shafts hung from the frame and having gears meshing with the master-gear, short crank-shafts geared with the drive-shafts, a series of seats, and supporting-rods therefor, which are loosely connected with the

frame and adapted to swing freely outward, and a series of pairs of propelling-rods having pulleys which are vertically adjustable, the said propelling-rods being loosely connected with the short crank-shafts and adjustable in height secured to the seats as shown and described.

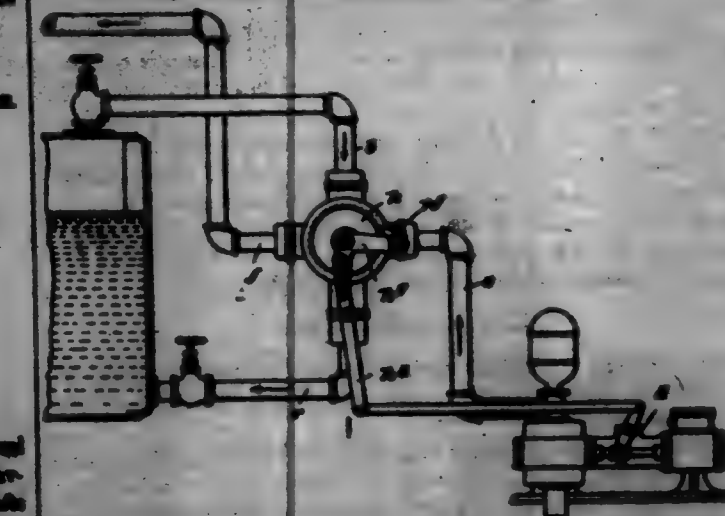
698,995. FINE-BECKER. Broom Elevator, New York, N. Y. Filed Jan. 16, 1902. Serial No. 59,573. (No model.)



Claim.—1. In a broom-elevator, the combination of a rectangular front piece having an ear formed thereon, a rectangular back piece having an ear formed thereon, said rectangular pieces being united along their edges to form a cushion-bag and said ears being united to form a pocket, substantially as described.

2. In a broom-elevator, the combination of a rectangular front piece having an ear formed on one end, a rectangular back piece having an ear formed on one end, said rectangular pieces being united along their edges to form a cushion-bag and turned up and united by a seam to form a pocket-pocket, and said ears being united by a seam to form a double-pocket, substantially as described.

698,996. BOLLES-PHILIP. Broom Elevator, New York, N. Y. Filed May 15, 1901. Serial No. 60,300. (No model.)



Claim.—1. A belt-finder, comprising a casing having orifices respectively in communication with the feed-water supply, the boiler supply and the boiler steam-pressure, an orificed barrel arranged to turn in the casing and to communicate the orifices thereof, and a stationary barrel arranged in the first-mentioned barrel and orificed in conformity with the orifices in the casing.

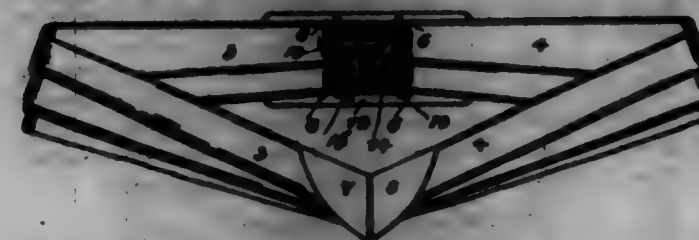
2. A belt-finder, comprising a casing having orifices respectively in communication with the feed-water supply, the boiler supply, and the boiler steam-pressure, an orificed barrel arranged to turn in the casing, and a second orificed barrel stationary within the first-mentioned barrel and having its orifices in conformity with the orifices in the casing, said sec-

ond barrel having partitions forming it into separate compartments, for the purpose specified.

3. A belt-finder, having a casing adapted to communicate with the feed-water supply, the boiler steam-pressure and the boiler-feed, a barrel arranged to turn in the casing and having orifices communicating alternately with the feed-water supply, the boiler-pressure and the boiler-feed, said barrel having the orifices therein arranged spirally around it for the purpose specified, and a second barrel held stationary within the first barrel and having openings communicated by the moving barrel, each opening of the stationary barrel being respectively related to the feed-water supply, the boiler-supply and the boiler steam-pressure.

4. A belt-finder having a casing adapted to communicate with the feed-water supply, the boiler steam-pressure and the boiler-feed, a barrel arranged to turn in the casing, and having orifices communicating alternately with the feed-water supply, the boiler-pressure and the boiler-feed, said barrel having the orifices therein arranged spirally around it for the purpose specified, and a second barrel held stationary within the first barrel, and having openings covered and uncovered by the first barrel, each opening of the second barrel being respectively related to the feed-water supply, the boiler-supply and the boiler steam-pressure, and transverse partitions fastened in the second barrel and between the openings thereof.

698,997. BEE. Broom Elevator, New York, N. Y. Filed Jan. 16, 1902. Serial No. 59,574. (No model.)

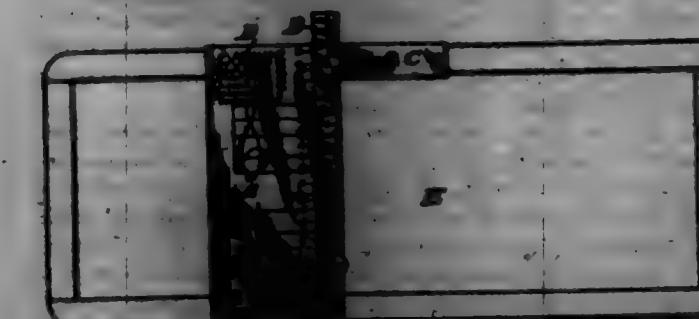


Claim.—1. A belt-body comprising a pair of insular bands having a transverse fulcrum, an elastic portion interposed between said bands, a back piece held in place by and adapted to cover said elastic portion, and a pair of clamps adapted to be secured to the free ends of said bands, the meeting edges of said clamps being disposed at such an angle as to draw the meeting edges of the belt downward, forming a point.

2. A belt-body comprising a pair of insular bands having a transverse fulcrum formed by longitudinal plates or folds, an elastic intermediate portion interposed between said bands, and a pair of clamps adapted to be secured to the free ends of said bands, the meeting edges of said clamps being disposed at such an angle as to draw the meeting ends of the belt downward, forming a point.

3. A belt-body comprising a pair of insular bands having a transverse fulcrum formed by longitudinal plates or folds, an elastic intermediate portion interposed between said bands, a back piece adapted to cover said elastic portion, loops carried by said back piece adapted to cover and guide said elastic portion, and a pair of clamps adapted to be secured to the free ends of said bands, the meeting edges of said clamps being disposed at such an angle as to draw the meeting ends of the belt downward, forming a point.

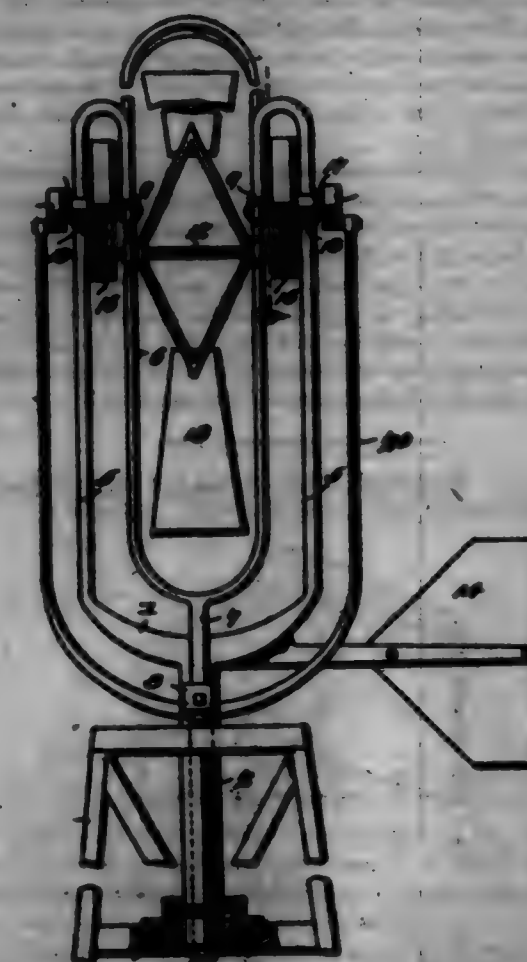
698,998. HUNTS MARKING AND ERASING INSTRUMENT. HUNTS & LORAN, New York, N. Y. Filed May 14, 1901. Serial No. 60,301. (No model.)



Claim.—The sheet having lines and dotted lines alternately drawn on its face, said lines and dotted lines being marked with the same letters and so spaced as to represent the intervals of the distance scale of Gouge and having the extended portions of said lines marked with the same letters and having short marks drawn between the proper lines and dotted lines to represent the sharp and fine tones of the scale, said sheet being provided with a lip-catch having lines drawn across its face and so spaced as to represent the major-key combination of intervals and marked with the symbols representing said intervals, said sheet being provided

also with the same at right angles and marked with the kinds of notes and rests as regards time, said sheet also being provided with a lip-catch D, in combination with the marking-surface and suitable means for holding said marking-surface in position relative to said sheet and admitting relative movement of said surface and sheet past and underneath the face of said sheet substantially as shown and described.

698,999. WINDMILL. GRANT & LOVELL, Boston, Mass. Filed Feb. 8, 1902. Serial No. 59,584. (No model.)



Claim.—1. In a windmill, the combination of a rotary frame, an oscillatory frame mounted on the rotary frame, a wind-wheel concentrically mounted on the oscillatory frame, whereby its weight will resist any oscillatory movement of the same, and gearing arranged on the said frame for communicating motion from the wind-wheel, one of the gears being arranged to partially revolve around the other, substantially as and for the purpose described.

2. In a windmill, the combination of a main frame, an oscillatory frame mounted on the main frame, a wind-wheel concentrically mounted on the oscillatory frame, a gear mounted on the main frame, and a pinion connected with the wind-wheel and carried by the oscillatory frame and meshing with the said gear and adapted also to revolve partially around the main frame, whereby the oscillatory frame will be swung upward and caused to lift the wind-wheel, substantially as described.

3. In a windmill, the combination of a main frame, an oscillatory frame mounted on the main frame, a wind-wheel arranged concentrically on the oscillatory frame, gears mounted on the said frame, the gear of the oscillatory frame being arranged to partially revolve around the other gear, whereby the oscillatory frame will be caused to lift the wind-wheel, and an adjustable weight carried by the oscillatory frame, substantially as and for the purpose described.

4. In a windmill, the combination of a main frame, an oscillatory frame of approximately elliptical shape mounted on the main frame and arranged normally in an upright position and provided with an adjustable weight, a wind-wheel concentrically mounted on the oscillatory frame and arranged below the pivotal point thereof, and gearing connected with the said frame, one of the gears being arranged to revolve partially around the other, substantially as described.

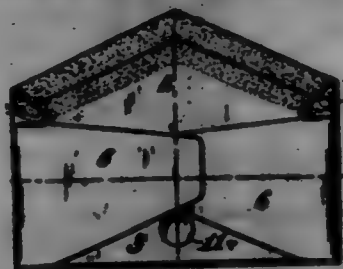
5. In a windmill, the combination of a rotary frame having arms at opposite sides, an oscillatory frame pivotedly connected to the said arms and supported by the same, a wind-wheel concentrically mounted on the oscillatory frame, and gears arranged between the said frame and mounted on the same for communicating motion from the wind-wheel to the device to be operated, one of the gears being arranged to revolve partially around the other, substantially as described.

6. In a windmill, the combination of a frame, an oscillatory frame mounted on the said main frame, a wind-wheel carried by the oscillatory frame and arranged concentrically of the main, pinions located at opposite sides of the oscillatory frame and connected with the wind-wheel, and internal gears mounted on the main frame and supporting and receiving the pinions, the latter being adapted to revolve partially around the internal gears, substantially as described.

7. In a windmill, the combination of an approximately U-shaped main frame having its sides provided with inner depending arms, an oscillatory frame pivotedly connected with the arms and arranged in an upright position, a wind-wheel mounted on the lower portion of the oscillatory frame, short shafts journaled on the sides of the main frame, pinions connected with the wind-wheel and located between the frames, internal gears mounted on the short shafts and receiving the pinions, and eccentric devices arranged at the outer ends of the short shafts, substantially as described.

8. In a windmill, the combination of a rotary frame, having a U-shaped upper portion and provided with a slotted stem, an oscillatory frame arranged within the rotary frame, a wind-wheel concentrically mounted on the oscillatory frame, short shafts mounted on the rotary frame at opposite sides thereof, gearing connecting the short shafts with the wind-wheel, the approximately U-shaped vertically-oscillating frame extending through the slotted stem and designed to be connected with a pump-rod, and eccentric connections between the sides of the reciprocating frame and the short shafts, substantially as described.

698,800. SAFETY-ENVELOP. CHARLES E. HARR, Haddam, Conn. Filed Oct. 28, 1904. Serial No. 73,781. (No model.)



Claim.—1. In a safety-envelop, a front piece and a back piece, the two when the envelop is formed lying in contact and constituting the closure, side flaps for retaining said front and back pieces in position, and a closing-flap upon each of said front and back pieces, said flaps when the envelop is formed lying one against the other and having adhesive material on the face thereof, the outer flap having its sealing-edges projecting beyond the edge of the inner flap, whereby the two gummed flaps are adapted to be maintained together.

2. In a safety-envelop, a front piece and a back piece, the two when the envelop is formed lying in contact and constituting the closure, inner side flaps attached to one piece and adapted to be sealed against the inner side of the other piece, outer side flaps attached to the other piece and adapted to be sealed against the outer side of the first piece, and a closing-flap upon each of said front and back pieces, said flaps when the envelop is formed lying one against the other and having adhesive material on the face thereof, the outer flap having its sealing-edges projecting beyond the edge of the inner flap, whereby the two gummed flaps are adapted to be maintained together.

3. In a safety-envelop, the body portion having an aperture therein for the reception of a sealing medium, an apertured disk underlying and surrounding said aperture, a closing-flap adapted, when closed, to partially overlap said aperture, in combination with a confining-drop for the contents adapted to underlie said aperture and form the base for the reception of the sealing medium.

698,801. SEAL. CHARLES E. HARR, Haddam, Conn. Filed Oct. 28, 1904. Serial No. 73,782. (No model.)

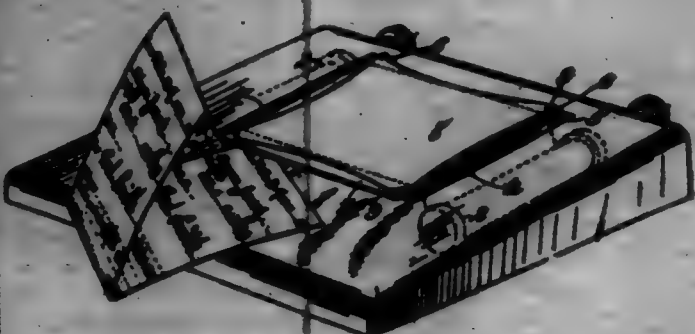
Claim.—1. A seal for envelopes, documents, and the like, consisting of two parts: a top surface of fabric, and a relatively thicker under surface of plastic material.

2. A seal for envelopes, documents, and the like, consisting of two parts: a top surface of fabric, and a relatively thicker under surface of adhesive plastic material.

698,802. MANIPULATING DEVICE. CHARLES E. HARR, Haddam, Conn. Filed Oct. 28, 1904. Serial No. 73,783. (No model.)

Claim.—1. In a manipulating device, a table or support, a web of carbon carried by said support, and

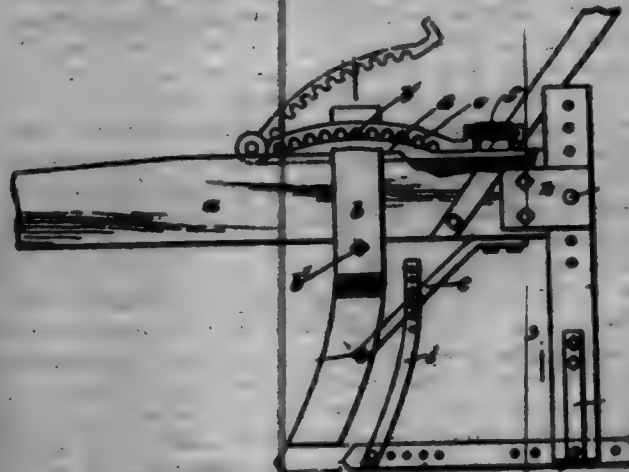
passing over a portion of the surface of said table or support, and a plate lying in the path of travel of one edge of said carbon and over which said edge of the carbon will travel, said plate being raised slightly from the table-surface to permit the passage thereunder and under the carbon of a sheet of paper to be manipulated.



2. In a manipulating device, a casing forming a table, a web of carbon carried by said casing and passing through slots in said casing over a portion of said table, strips attached to said table adjacent to said slots and over which said carbon passes to maintain it slightly above the table throughout its width, and a plate mounted on said strips and lying in the path of travel of one edge of said carbon and over which said edge of the carbon will travel, said strips serving to raise said plate slightly above the table-surface to permit the passage thereunder and under the carbon of a sheet of paper to be manipulated.

3. In a manipulating device, a table or support, a web of carbon carried by said support, and passing over a portion of the surface of said table or support, a sheet of protecting material overlying said carbon where it passes over the table-surface, and means for detachably retaining said sheet in fixed position.

698,803. SHEET-FLOW. JAMES HARRIS, Chicago, Ill. Filed Nov. 2, 1904. Serial No. 73,784. (No model.)



Claim.—1. In a plow, the combination with an intermittently-pivoted stock, of a lock-bar pivoted at one end and adapted to engage intermediate of its ends a part of the stock to lock the stock in position, and means for locking the free end of said lock bar, as set forth.

2. In a plow, the combination with an intermittently-pivoted stock, of a lock-bar over which a part of the stock moves, a lock-bar pivoted at one end to the bed-bar and having a locking engagement with the part of the stock which moves over the bed-bar, and means for securing the free end of the lock-bar in position, as set forth.

3. In a plow, the combination of an intermittently-pivoted stock, and means for adjustably holding the upper end thereof, said means comprising an arc-shaped bed-bar over which a part of the stock moves, a lock-bar pivoted at one end and releasably engaged with said part of the stock, to hold it, and a lock for holding the lock-bar in active position.

4. In a plow, the combination with the beam, of a stock in two parts lying one on each side of the beam and fastened rigidly together, a member carried rigidly on the outer side of the beam to which member the stock is pivoted, and a pivoted locking-bar for engaging a connecting member of the stock to adjustably hold the same.

5. In a plow, the combination of a stock-bar lying under the plow-beam, and a means at each end of the stock-bar for supporting it from the beam and adjusting it vertically, said means being adjustably connected to the stock to permit the stock to be adjusted horizontally.

6. In a plow, the combination of a stock-bar lying horizontally under the beam, means for adjusting the front end of the stock vertically and horizontally, a leg at the rear part of the stock to which the stock is con-

tested to be adjustable horizontally, and a means on the beam for holding the leg and allowing it vertical adjustment.

7. In a plow, the combination with the beam, of a brace attached thereto and projecting downward and forward therefrom, a stock pivotedly attached to the beam and projecting up to the beam, a means on the beam for adjustably holding the stock, a shoe, a link adjustably connected to the front end of the shoe and to the beam, and a leg connecting the rear end of the shoe with the beam.

8. In a plow, the combination with a beam, and an intermittently-pivoted stock carried by the beam, said stock being provided at its upper end above the beam with a cross-pin, of a pivoted locking-bar having a notched under face to engage the cross-pin of the stock, and means for locking the said bar in position.

9. In a plow, the combination with a beam provided with a downwardly and forwardly projecting brace, of a stock pivoted to the beam, said stock being formed of two parts connected together by bolts one on each side of the beam, a bed-bar secured upon the upper face of the beam and having a curved upper face, a locking-bar pivoted to the bed-bar and having a plurality of notches in its under face for engaging one of the connecting-bolts of the stock, and a catch for engaging the free end of the locking-bar to lock it in position.

698,804. FINGER-CROWDER. FREDERICK HARRIS, Troy, N. Y. Filed Sept. 20, 1904. Serial No. 73,785. (No model.)



Claim.—1. A paper-making machine, having a wheel mounted to turn in the cylinder-vat and arranged to cross the fibers in the pulp previous to the latter passing to the cylinder; the said wheel having wings gradually decreasing in height from the middle of the wings to the ends thereof, as set forth.

2. In a paper-making machine, the combination of a vat having a feed-inlet, a cylinder, and a fiber-crossing wheel revolvably mounted in said vat between the cylinder and the feed-inlet, said wheel provided with longitudinally-tapering blades which are arranged to throw pulp fibers in crossing paths within the vat.

3. A paper-making machine, provided with a cylinder-vat and a wheel extending transversely in the vat and mounted to rotate at a higher rate of speed than the cylinder, the wheel being located between the cylinder and the inlet, and the wheel having radial wings diminishing in height from the middle of the wings toward the ends thereof, as set forth.

4. In a paper-making machine, the combination with a vat, and a cylinder, of a fiber-crossing wheel mounted within said vat and revolvable in an opposite direction to, and at greater peripheral speed than said cylinder, said wheel having longitudinally-tapered blades arranged to direct pulp fibers in crossing paths in the vat.

698,805. GUINING DEVICE FOR TROLLEYS. JOHN A. HARRIS, Chicago, Ill. Filed Oct. 28, 1904. Serial No. 73,786. (No model.)



Claim.—1. In a device of the class specified, a supporting frame, a trolley-wheel carried thereby, a guine carried on the axle of the trolley-wheel and having oppositely-projecting legs extending over the edge of the wheel, said legs being spaced for a distance sufficient to permit of the free movement of the counterbalancing-weights between them, and counterbalancing-weights secured to or formed integral with said guine at a point below their pivotal ends.

2. In a device of the class specified, the combination of the oppositely-disposed and connected side plates, a shaft or axle mounted therein, a trolley-wheel journaled on said shaft, guards pivoted on said shaft and

having oppositely-extended leaped portions projecting over and inwardly beyond the rim of the wheel and serving to prevent the wheel from riding up over the rim of said wheel, and counterbalancing-weights secured to or formed integral with said guards at points below the shaft or axle, substantially as specified.

3. In a device of the class specified, the combination of the oppositely-disposed and connected side plates, a shaft or axle mounted therein, a trolley-wheel journaled on said shaft at a point between the side plates, guards mounted on said shaft at a point outside the plates, said guards having oppositely-extended leaped portions projecting over the edges of the trolley-wheel and spaced for a distance greater than the diameter of the trolley-wheel, stops formed on said side plates for limiting the oscillating movement of the guards, and depending counterbalancing-weights secured to or formed integral with said guards at points below the shaft or axle, substantially as specified.

4. In a device of the class specified, a frame comprising oppositely-disposed and connected plates, a shaft carried thereby, a grooved trolley-wheel journaled on said shaft, guards pivoted on the shaft at points outside the plates, said guards having oppositely-extended leaped portions projecting over the edges of the trolley-wheel and spaced for a distance greater than the diameter of the trolley-wheel, a bifurcated arm pivoted between the plates at a point at the rear of the trolley-wheel, a depending leg or finger on said guard or arm, and a stop-pin adapted to support the bifurcated arm in one position and to form a stop for engagement with said leg or finger when the arm is in the opposite position, substantially as specified.

698,806. ACETYLENE-GAS GENERATOR. PAUL F. V. HERRMANN, Jean F. Herr, and Jean Herr, Philadelphia, Pa. Filed July 27, 1904. Serial No. 73,787. (No model.)



Claim.—1. In an acetylene-gas apparatus, a generator adapted to contain water, said generator comprising a charging-chamber and a generating-chamber, a carbide-holder having a hinged lid normally locked to prevent the admission of water to the holder, a hollow rod connected with the holder and projecting through the top of the generator, said rod serving to move the holder into the charging-chamber for charging and into operative position in the generating-chamber, and means operative through said rod for unlatching and raising the lid of the holder.

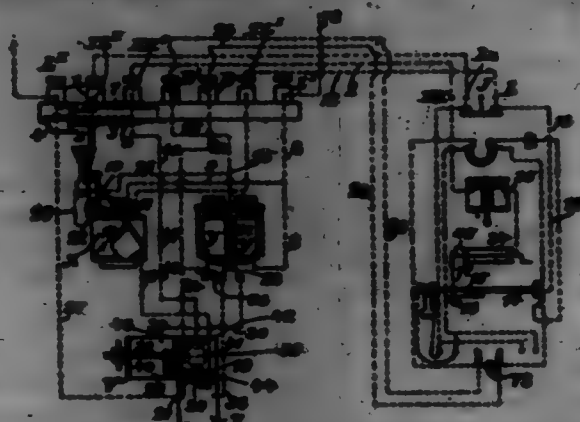
2. In an acetylene-gas apparatus, a generator adapted to contain water and comprising a charging-chamber and a generating-chamber, a carbide-holder having a hinged lid normally locked to prevent the admission of water to the holder, a hollow rod connected with the holder and projecting through the top of the generator, said rod serving to move the holder into the charging-chamber for charging and into operative position in the generating-chamber, and a chain operative through said rod for unlatching and raising the lid of the holder.

3. In an acetylene-gas apparatus, a generator adapted to contain water, a vertical partition dividing said chamber into a charging-chamber and a generating-chamber, a carbide-holder having a lid normally closed to prevent the admission of water, a hollow rod connected with the holder and projecting through the top of the generator, and means operative through said rod for raising the lid of the holder.

698,807. PARTY-LINE TELEPHONE APPARATUS. GEORGE HARRIS, Copenhagen, Denmark. Filed Sept. 20, 1904. Serial No. 73,788. (No model.)

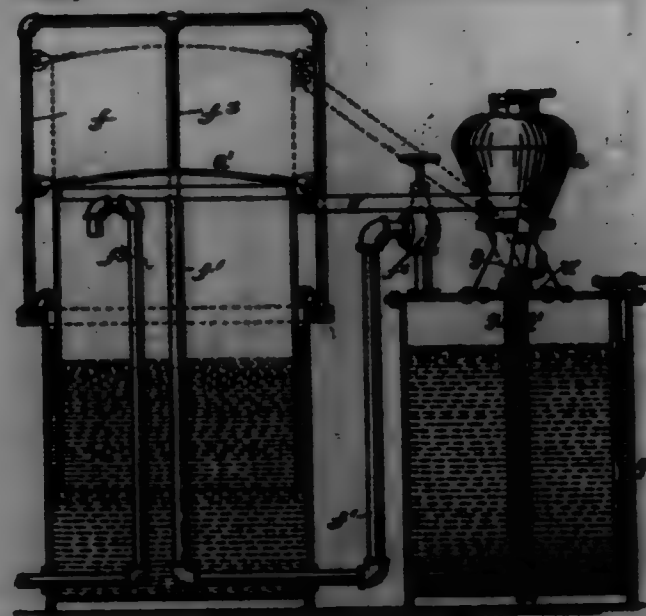
Claim.—1. A party-line telephone apparatus, comprising a com-

log-relays for establishing talking-circuits between the stations, disconnecting-relays for disestablishing said circuits, blocking-relays for cutting out divers stations from said circuits, and auxiliary blocking-relays for cutting other stations into said circuits.



2. A party-line telephone apparatus, comprising connecting-relays for establishing talking-circuits between stations, disconnecting-relays for disestablishing said circuits, blocking-relays for cutting out divers stations from said circuits, auxiliary blocking-relays for cutting said divers other stations into said circuits, and means controllable at will whereby a calling subscriber can simultaneously render his own blocking-relay inactive and give warning to divers stations that the line is busy.

698,808. ACETYLENE-GAS GENERATOR. GEORGE J. HENNINGER, Rockaway Beach, N. Y. Filed Nov. 13, 1906. Serial No. 54,382. (No model.)



Claim.—1. A generating-tank, a hopper communicating therewith by a suitable passage, and a valve for closing said passage and consisting of a segment of a roller, provided with a diamond-shaped opening adapted to register with said passage.

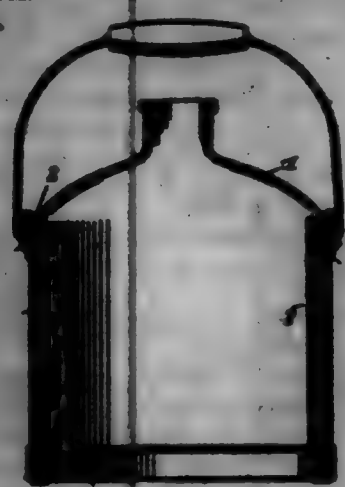
2. A generating-tank provided with an inclined bottom, a hopper communicating with said tank by a suitable passage, a valve for closing said passage and consisting of a segment of a roller, said valve provided with a diamond-shaped opening adapted to register with said passage, and a gas-holder connected to said segment for operating the same.

3. The combination of a part having a feed-opening for the carbide, a pivoted valve having a curved face controlling said feed-opening, said curved face having an opening provided with a tapering end and adapted to register with said feed-opening.

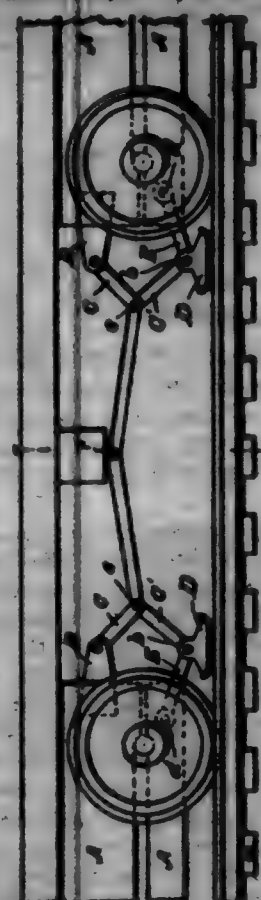
698,809. LIQUID-CONTAINER. HENRY E. HYMAN, Covington, Ky. Filed Jan. 20, 1908. Serial No. 54,494. (No model.)

Claim.—A liquid-container, comprising a vessel, a jacket surrounding the vessel and having its lower end projecting below the bottom of the vessel, a supporting-ring secured to the inner wall of the jacket and adapted to support the vessel at a point above the lower end of the jacket, bands secured to the exterior of the jacket at its upper and lower ends, vertically-disposed strips connecting the said bands, said strips having their lower ends bent under the lower edge of the jacket and the inner supporting-ring and thence upwardly against the inner face of the supporting-ring, thence over the upper edge of the supporting-ring and thence upwardly parallel with the jacket and confined between said jacket and the vessel, substantially as set forth.

698,809.

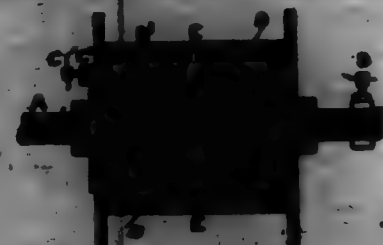


698,810. BRAKE FOR RAILWAY-CARS. WILLIAM E. HEDDER, Belvidere, N. J., assignor of two-thirds to Joseph E. Wilson, Henry E. Harris, Charles E. Harris, and Robert E. Harris, Belvidere, N. J. Filed Feb. 21, 1904. Serial No. 44,260. (No model.)



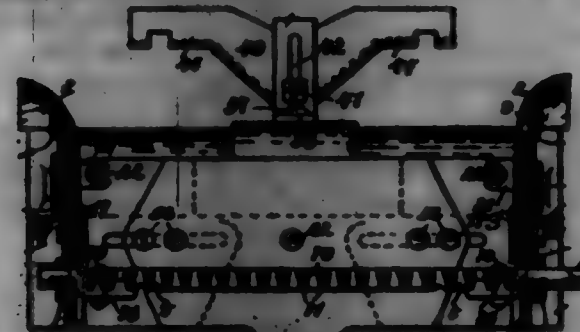
Claim.—In a truck-brake for railway-cars, the shoes, the brake bars or links having a pivotal connection with said shoes, and with the truck-frame, the toggle-levers having a pivotal connection with said shoes, and with the truck-frame, and means for operating said toggles, substantially as specified.

698,811. MAGNETIC SEPARATOR. JOHN E. A. McFARLANE, Dunedin, New Zealand. Filed Dec. 1, 1901. Serial No. 54,599. (No model.)



Claim.—A magnetic separator, a pulley consisting of a core and a shell surrounding the same and integral therewith, a magnetic coil wound upon said core and extending substantially to the inner face of said shell, a shaft extending through said core for supporting and rotating the pulley, suitable electrical connections for said coil, insulated means for driving the pulley in rotation, a belt, supported by said pulley and adapted to receive and separate the material, means for supplying the material to the belt, and means for operating said pulley in a rotary direction and to impart a continuous movement to the pulley while it is rotating.

698,812. ADJUSTABLE FIBER-BOX FOR STOVES. JAMES P. HANLEY, Cambridge, Wash. Filed Feb. 8, 1908. Serial No. 4,682. (No model.)



Claim.—1. In a fiber-box, a back consisting of a main central portion, side portions horizontally adjustable thereon, and top portions having their outer ends vertically adjustable on the side plates and their inner ends vertically and horizontally adjustable on the main central portion, substantially as described.

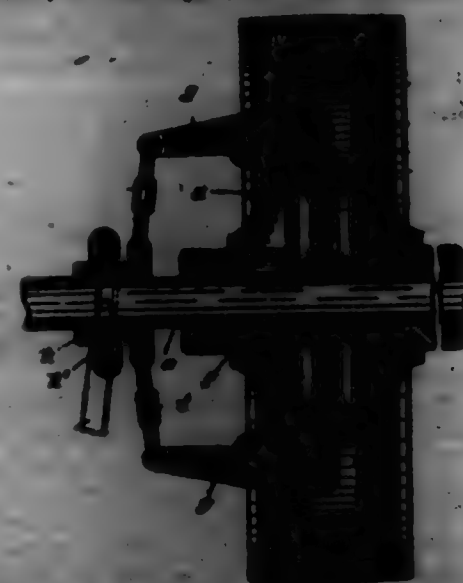
2. In a fiber-box, a back consisting of a main central portion, side portions horizontally adjustable thereon, top portions having their outer ends vertically adjustable on the side plates and a vertically-adjustable clip on said main central portion and carrying a pin adapted to engage horizontal slots in the top portions, whereby the inner free ends of the top portions are vertically and horizontally adjustable on the central portion, substantially as described.

3. In a fiber-box, an end plate comprising a main lower section having a grab-joint, a secondary lower section horizontally adjustable on the main section, a top section between the two lower sections and vertically adjustably connected to the lower main section and a second top member horizontally adjustable on the first top member substantially as described.

4. In a fiber-box, an end plate comprising a main lower section having a grab-joint, a secondary lower section horizontally adjustable on the main section, a top section between the two lower sections and vertically adjustably connected to the lower main section, a second top member horizontally adjustable on the first section, and a pronged leg carried thereby adapted to receive a member carried by the back, substantially as described.

5. In a fiber-box, a front comprising an upper and a lower part interlocking with each other, outwardly-extending ears carried by the ends of said upper section and having vertical slots therein, outwardly-extending ears carried by the lower section and overlapping the ears of the upper section and having a vertically-arranged row of openings, a covering-plate having a series of vertically-arranged openings, a back carried by the outer end of said plate, and securing-bolts passing through the openings in the lower section, the slots in the upper section and through any of the desired openings in the covering-plate, substantially as described.

698,813. GLUTEN-PULLEY. THOMAS J. O'BRIEN and ROBERT L. ALLEN, Cuba, N. Y. Filed May 17, 1901. Serial No. 54,704. (No model.)



Claim.—The combination of the shaft, a clutch-disk fastened thereto and rotated thereby, a pulley having a hollow web receiving the clutch-disk and web having a hub on each side of the disk, the hubs being loosely mounted on the shaft, whereby the entire weight of the pulley is sustained by the shaft, a clutch member carried by the pulley and working with the periphery of the disk, and means for operating the clutch member.

698,814. RAIL-SHOOT CLAMP. PATRICK O'KEEFE and JOHN E. WHELAN, Orange, Mass. Filed Aug. 21, 1901. Serial No. 73,990. (No model.)

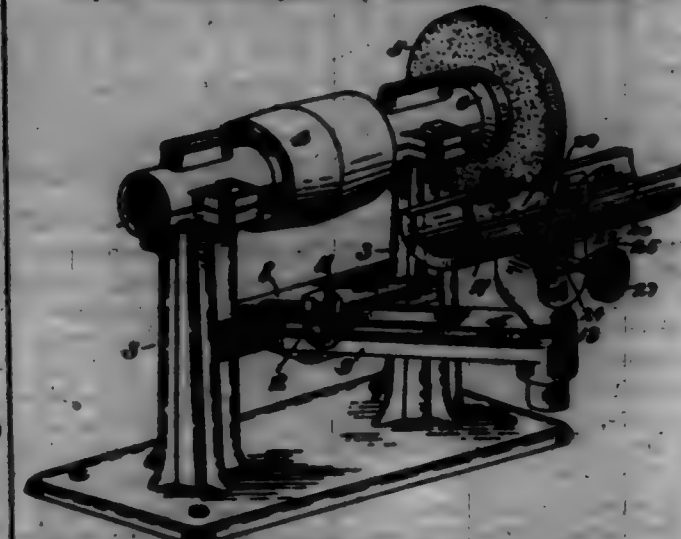


Claim.—1. The combination with a rail, of a block adapted to rest against the web thereof between the head and flange and an angular clamp-plate adapted to embrace said block and base of the rail, and a plate attached to the projecting end of said angular clamp-plate having a bolt passing therethrough to bear upon the rail, substantially as shown and described.

2. The combination with a rail, of a block adapted to fit against the web of said rail between the head and base, an angular clamp-plate adapted to embrace the said block and base of the rail and project beyond said base, a plate having its end projected through the projecting end of the clamp-plate, the opposite end of said plate having an aperture; a bolt adapted to pass through said aperture, and the nut arranged upon the bolt between the plate and head of bolt, substantially as shown and described.

3. The combination with an angular clamp-plate or bar, one end having teeth, the other end having a rectangular-shaped opening, of a clamp member, having a threaded aperture at one end and a shouldered leg at the other end, and a bolt and nut not all arranged substantially as shown and described.

698,815. GRINDING-MACHINE. BLAKE S. SUMNER and HENRY A. PARKER, Milton, Pa., assignors to Samuel J. Osipow and Sam. H. Milton, Pa. Filed Feb. 21, 1908. Serial No. 54,180. (No model.)



Claim.—1. In a grinding device, a cylindrical holder adapted to hold a cylindrical bit during the process of grinding, and a guide for the head of said bit, substantially as described.

2. In a grinding device, a cylindrical holder adapted to support a cylindrical bit having a curved head, during the process of grinding and an adjustable guide for the head of said bit, substantially as described.

3. In a grinding device, a cylindrical bit-holder, a semi-circular rest-bar slidingly mounted in a transverse slot in said holder, a guide-pin mounted in said rest, and means for operating said rest, substantially as described.

4. In a grinding device, the combination with an emery-wheel, of an adjustable arm bearing a clamp, a cylindrical holder provided with a spindle embraced by said clamp, and an adjustable guide mounted on said holder, substantially as described.

698,816. GARMENT-STRETCHER. JAMES FERGUSON, Youngstown, Ohio. Filed Jan. 20, 1908. Serial No. 54,771. (No model.)

Claim.—1. In a trouser-stretcher, the combination with the supporting means for one end of the trousers, of a stretching-clamp comprising a pair of gripping-jaws, a clamp-adjuster carried by one of the jaw members and having means for the clamp-adjuster, substantially as set forth.

2. In a tresser-stretcher, the combination with supporting means for one end of the tresser, of a stretching-clamp comprising a pair of pivotally-connected lever members having gripping-jaws, a clamp-adjuster carried by one of the lever members and co-operating with the other member to effect a closing of both jaws, said clamp-adjuster also constituting the stretching element and holding means for the clamp-adjuster, substantially as set forth.



3. In a tresser-stretcher, the combination with supporting means for one end of the tresser, of a stretching-clamp comprising a pair of lever members pivotally connected and provided with opposed gripping-jaws, and a clamp-adjuster slidably mounted upon one of the lever members co-operating with the other member to effect a closing of the jaws, said clamp-adjuster also constituting a stretcher element and holding means for the clamp-adjuster, substantially as set forth.

4. In a tresser-stretcher, the combination with a base, and a holder for one end of the tresser supported on the base, of the stretching-clamp comprising pivotally-connected lever members having opposed gripping-jaws, and a clamp-adjuster mounted upon one of the lever members and co-operating with the other member to effect a closing of the jaws, said clamp-adjuster also being engaged with the base to hold the tresser stretched, substantially as set forth.

5. In a tresser-stretcher, a supporting-base having a series of locking-notches, a holder supported upon the base and having means for holding one end of the tresser, and a stretching-clamp comprising a pair of lever members pivotally connected and having opposed gripping-jaws at one side of the pivotal point, one of said lever members being provided at the opposite side of the pivotal point with a guide-frame, and the other member being provided with an inclined pressure member or arm extending within the plane of the guide-frame, and a clamp-adjuster in the form of an open link slidably mounted upon said guide-frame and adapted to engage the notches of the base, said adjuster having a barworking against the said pressure-arm of one of the lever members, substantially as set forth.

6. In a tresser-stretcher, the combination with a base and a holder for one end of the tresser, of a stretching-clamp comprising lever members formed of wire bodies pivotally joined, said lever members being formed at one side of their pivot with open gripping-jaws, one of said lever members being further provided at the opposite side of the pivot with an open guide-frame and the other lever member being also further provided with an outwardly-extending angled arm having an inwardly-extended inclined pressure element, and an open link having guide-eyes slidably engaging the said guide-frame and also having a slide-bar co-operating with said pressure element, substantially as set forth.

7. In a tresser-stretcher, the combination of a stretcher-bar having a series of notches, a fixed holder mounted upon the bar and having means for engaging the upper end of a pole of tresser and preventing longitudinal displacement thereof, and a stretching-clamp comprising a pair of pivotally gripping-jaws, and a slidable clamp-adjuster carried by one of the jaw members and co-operating with the series of notches of the stretcher-bar, substantially as set forth.

698,817. TRESSER-STRETCHER. ERIC L. FINE, Toronto, Canada. Filed Nov. 22, 1901. Serial No. 54,121. (No model.)

Claim.—1. In a tresser-stretcher, a movable signal-arm, a lamp showing in the direction from which a train is moving, and spectacle connected with the signal-arm so that they move in front of the lamp in accordance with the position of the signal-arm, in combination with means for receiving the light from the side of the lamp and throwing it in the direction in which the train is moving, and supplemental spectacle movable with the signal-arm to cause the light thrown in the direction of the train's motion to display the same signal as is shown by the light showing in the other direction, substantially as described.

2. In a train-order signal, a movable signal-arm, a lamp showing in the direction from which a train is moving and also laterally, and spectacle connected with the signal-arm so that they move in front of the lamp in accordance with the position of the signal-arm, in combination with means for receiving the light from the side of the lamp and throwing it in the direction in which the train is moving, and supplemental spectacle movable with the signal-arm to cause the light thrown in the direction of the train's motion to display the same signal as is shown by the light showing in the other direction, substantially as described.



3. In a train-order signal, a movable signal-arm, a lamp showing in the direction from which a train is moving and also laterally, and spectacle connected with the signal-arm so that they move in front of the lamp in accordance with the position of the signal-arm, in combination with means for receiving the light from the side of the lamp and throwing it in the direction in which the train is moving, and supplemental spectacle movable with the signal-arm to cause the light thrown in the direction of the train's motion to display the same signal as is shown by the light showing in the other direction, substantially as described.

4. In a train-order signal, a movable signal-arm, a lamp showing in the direction from which a train is moving and also laterally, and spectacle connected with the signal-arm so that they move in front of the lamp in accordance with the position of the signal-arm, in combination with means for receiving the light from the side of the lamp and throwing it in the direction in which the train is moving, and supplemental spectacle movable with the signal-arm to cause the light thrown in the direction of the train's motion to display the same signal as is shown by the light showing in the other direction, substantially as described.

5. In a train-order signal, two movable signal-arms governing lights moving in opposite directions; a lamp adapted to show light in each direction and also to each side; and spectacle connected to the signal-arms so that they move in front of the lamp in accordance with the position of the signal-arms, in combination with means for receiving the light from the sides of the lamp and directing it respectively in opposite directions; and supplemental spectacle movable with the signal-arms so that the light from the side of the lamp thrown in the direction of motion of any given train may be caused to display the same signal as is shown by the main light in the opposite direction, substantially as described.

698,818. TYPE-WRITING MACHINE. WILLIAM P. WHEELER, New York, N. Y. Filed May 29, 1901. Serial No. 54,122. (No model.)

Claim.—1. A movable type-wheel-carrying frame, a gear adapted when operated to impart movement to said type-wheel, a step-arm, a segment connected with the arm, a pin engaging said segment for operating it, and means for arresting the movement of said arm when operated by the segment.

2. A pin, a type-wheel-carrying frame made to swing or rock toward the pin for printing a frame-supporting shaft extended across the machine above the pin, for allowing the wheel to print or strike down onto the pin; a rotary step-arm to which the type-wheel is geared, keys for actuating the wheel, and steps for said arm made separate from the keys substantially as described.

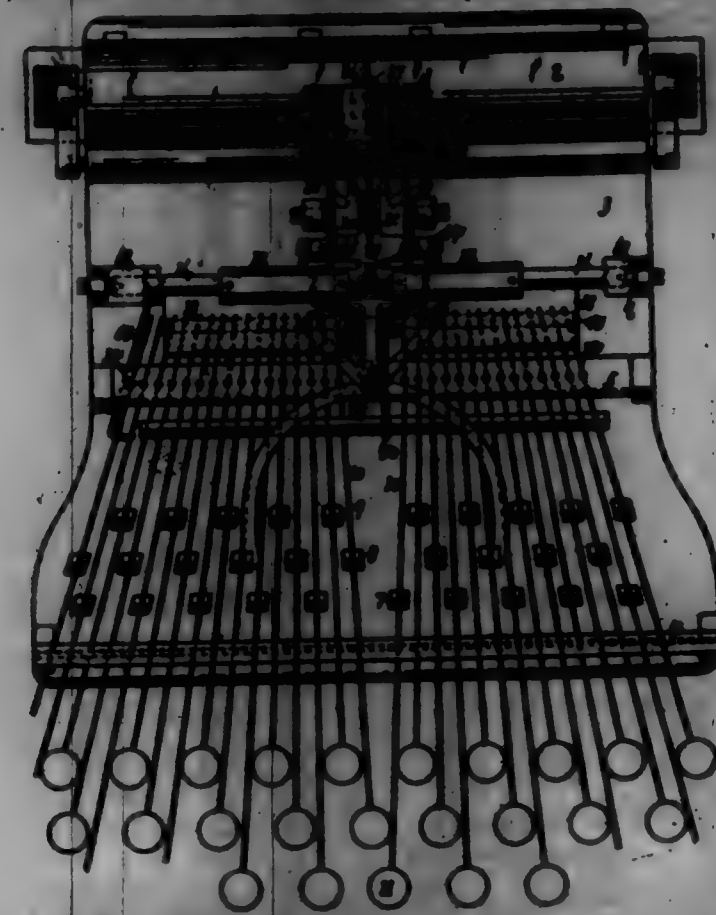
3. A vibrating type-wheel provided with a pin, a longitudinally-adjustable shaft for rotatably supporting the wheel, a step-arm, a segment connected with the step-arm and engaged by said pin, and steps for the said arm, substantially as described.

4. A vibrating type-wheel shaft, a sleeve on the shaft, pin on the sleeve, mechanism substantially as described for engaging one of the pins to rotate the sleeve, a segment provided with a step-arm and engaged by the other pin, and steps for the arm substantially as described.

5. A vibrating frame, a type-wheel shaft carried by the frame, a sleeve on the shaft, pin on the sleeve, mechanism substantially as described for engaging one of the pins to rotate the sleeve, a segment provided with a step-arm and engaged by the other pin, and steps for the arm substantially as described.

6. A vibrating frame, a transverse supporting-shaft for the frame, a type-wheel shaft carried by said frame, a pin carried by said shaft, a segment engaged by the pin and provided with a step-arm, and steps for the arm substantially as described.

7. A vibrating type-wheel having a pin, a transverse shaft for supporting the wheel and pin, a segment provided with a step-arm and mounted independently of the type-wheel and engaged by the pin and steps for the arm substantially as described.



8. A vibrating type-wheel-carrying frame, a step-arm mounted independently of the frame and geared to the wheel, and steps for said arm, substantially as described.

9. A vibrating type-wheel-carrying frame, a step-arm mounted independently of the frame, a gear operating said step-arm and connecting it with the wheel, said gear being braked or cut to remain permanently in mesh and allow the wheel to rock to the pin while the step-arm remains at rest, substantially as described.

10. A vibrating type-wheel frame, a shaft for supporting the said frame, a type-wheel carried by the frame, a rotary step-arm to which said wheel is geared, keys for actuating the wheel and frame, and step-pins made separate from the keys for actuating the arm substantially as described.

11. A type-writing machine provided with a type-wheel, a shoulder-pin and arm for rotating the wheel, and key-actuated lever or bell lever below and linked or joined to the arm for actuating the latter substantially as described.

12. A type-writing machine provided with a type-wheel, arm for rotating the wheel, actuating lever or bell lever below and linked to the arm, and keys for actuating the lever substantially as described.

13. A type-writing machine provided with a type-wheel, arm for rotating the wheel, actuating lever below said arm and linked to the latter, and key-levers having their inner ends made to pass under the actuating-lever to lift the latter substantially as described.

14. A vibrating type-wheel frame and a wheel and pin carried by the frame, combined with a segment having a step-arm, steps for the arm, a link for preventing premature tilting of the frame, and keys for actuating the steps and freeing the link substantially as described.

15. A type-writing machine provided with a vibrating type-wheel frame having a type-wheel and pin, a step-arm geared to the pin, steps for the arm, keys for actuating the steps, arm and lever for rotating the wheel, and a link for preventing premature tilting of the frame, said wheel-actuating lever and link being both engaged by the inner end of the key substantially as described.

16. A type-writing machine provided with a wheel and keys, a driving-arm for the wheel, a step-arm separate from the driving-arm provided with a braked or limited edge and with eyes, combined with pin, said arm being made to engage or lift the eyes to said pin substantially as described.

17. A type-writing machine provided with a wheel and keys, step-pins having a spring or yielding support on the keys, and a step-arm made to ride over or displace the pin and to be locked on the pin or to turn of the latter substantially as described.

18. A type-writing machine provided with a wheel and keys, step-pins actuated by the keys and a step-arm having a level or ladder made to swing clear of and to ride or slide over the pin and an eye or locking portion for the engagement of the pin substantially as described.

19. A type-writing machine provided with a rotary type-wheel and a step-arm for the wheel, combined with pins made to arrest and lock the step-arm against rotation and a toothed disk engaging locking-pawl 45° for holding the wheel against rotation, said step-arm being made to rest normally clear of the pin substantially as described.

698,819. AUTOMATIC CAR-BRAKE. ALBERT W. RICE, Chicago, Ill. Filed July 11, 1901. Serial No. 54,123. (No model.)



Claim.—1. In a device of the class described, the combination with a car having a car-coupling capable of longitudinal movement, of a transverse lever pivoted on the car and designed to be connected at one end with the brake-opening connection, and means for connecting either the inner or outer arm of the lever with the brake mechanism, whereby the parts are arranged either for braking or holding a car or train, substantially as described.

2. In a device of the class described, the combination with a car provided with a car-coupling capable of longitudinal movement, of a transverse lever pivoted between its ends on the car, means for connecting the outer end of the lever with a car-brake, a coupling-pole connected to the car-coupling, the longitudinal bar connected to the inner arm of the transverse lever and detachably connected to the coupling-pole, and a chain connected with the outer arm of the lever and provided with means for detachably engaging the coupling-pole, substantially as described.

3. In a device of the class described, the combination with a car having a car-coupling capable of longitudinal movement, of a brake-rod, a flexible connection extending from the outer end of the brake-rod, a transverse lever pivoted between its ends and connected to the said flexible connection, a coupling-pole connected to the car-coupling and provided with a bracket or bar, a bar pivoted to the inner end of the lever and detachably connected to the bracket or bar of the coupling-pole, and means for detachably connecting the outer end of the lever with the coupling-pole, substantially as described.

698,820. SHOCK-GEAR. ALBERT RUSSELL, Baltimore, Md. Filed Dec. 2, 1901. Serial No. 54,124. (No model.)



Claim.—1. The combination in a shock-arm, of the adjusting plate, one of which is arranged to overlap the other at an angle, said plates being provided with openings for the studs and fastening-ends, the connecting-bracket composed of the main plate and the threaded studs hinged to the main plate at the opposite ends of the latter, the hinge-brackets on the main plate being arranged entirely in advance of the outer surface of the main plate, whereby the latter may rest flat throughout its length against the surface of the glass and the nuts turned on the said studs within the openings in the glass plate, substantially as set forth.

2. A fastening or connecting bracket for shock-arms comprising the main plate, the threaded end at one end of the main plate, and the threaded end hinged to the main plate at the opposite end of the latter, whereby it may be turned into alignment with or at any desired angle to the main plate, substantially as set forth.

3. In a shock-arm the improved fastening or connecting bracket for holding the adjusting plate of the case consisting of the main plate, and the threaded studs hinged at one end to the main plate at the opposite ends of the latter, whereby they may be turned into alignment with or at any desired angle to the main plate, substantially as set forth.

4. A fastening device for glass plates comprising a plate and a stud hinged thereto at the end of said plate whereby the fastening can be applied to connect two plates of glass at any desired angle to each other with the stud extending at a right angle to the plate of the glass plate to be fastened, substantially as set forth.

8. A fastening or connecting bracket for above-mentioned, comprising the main plate, and a threaded section hinged at one end to the main plate at one end of the latter, whereby the said threaded section may be adjusted into alignment with or at an angle to the main plate, substantially as set forth.

698,891. **SOLE.** FRANK BROWNE and WILLIAM J. BROWNE, Fall River, Mass. Filed Aug. 21, 1899. Serial No. 73,595. (No model.)



Claim.—1. An apparatus of the kind described, comprising a jumper, a reversible member connected therewith, and a buffer engaging said reversible member for the purpose of cushioning the upstroke of said jumper.

2. An apparatus of the kind described, comprising a jumper, a reversible roller connected therewith, and a spring-tensioned lever mounted in the path of said roller for cushioning the upstroke of said jumper.

3. An apparatus of the kind described, comprising a jumper, a reversible roller mounted thereon, a lever engaging said roller for the purpose of buffering the upstroke of said jumper, and means for adjusting the position of said lever relative to said jumper.

4. An apparatus of the kind described, comprising a jumper, a reversible member connected therewith, and a lever for engaging said reversible member and thereby buffering the upstroke of said jumper; said lever being made of interchangeable sections.

5. An apparatus of the kind described, comprising a jumper, a reversible member connected therewith, a lever engaging said reversible member for cushioning the upstroke of said jumper, said lever being provided with a curved end for the purpose of modifying the effect of said reversible member upon said lever.

6. An apparatus of the kind described, comprising a jumper, a reversible member connected therewith, a lever for engaging said reversible member and provided with a curved end for modifying the impact of said reversible member upon said lever, and means for adjusting the position of said curved end of said lever relative to the position of said jumper.

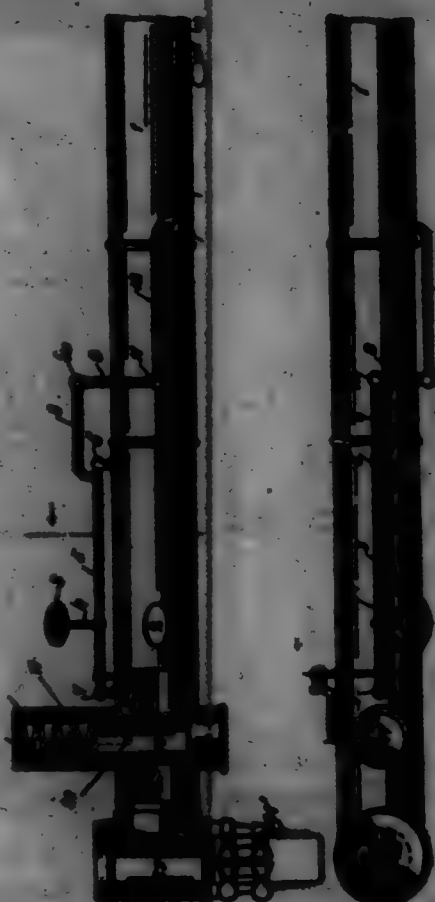
7. An apparatus of the kind described, comprising a jumper, a lever for buffering the upstroke of the same, a normally fixed disk provided with a stop for said lever, and means for causing said disk to be predetermined position, at will.

8. An apparatus of the kind described, comprising a jumper, a lever for buffering the upstroke of the same, a spring for normally cushioning said lever, and means for adjusting said lever relative to said jumper.

9. An apparatus of the kind described, comprising a jumper, a reversible member connected with the same, a lever for cushioning the upstroke of said jumper and provided with a curved end for engaging said reversible member, and means for adjusting said lever in different radial positions.

10. An apparatus of the kind described, comprising a jumper, means for guiding the same in a predetermined path, a reversible member connected with said jumper, a lever provided with a curved end, and means for adjusting said lever to predetermined radial positions, for the purpose of causing said curved end to be engaged at different angles by said reversible member.

698,892. **DOHEN FLUTE.** ROBERT P. DOHEN, Brooklyn, N. Y. Filed Sept. 20, 1899. Serial No. 74,551. (No model.)



Claim.—1. An article of manufacture, a state provided with a blow-hole and with a normally closed end, a rod-head covered upon said state, and means controllable at will for opening said end and closing said blow-hole.

2. An article of manufacture, a state provided with a normally closed cylindrical end and a normally open blow-hole, a rod-head covered upon said state, and means controllable at will for continuously closing said blow-hole and opening said cylindrical end.

3. An article of manufacture, a state provided with a rod-head, and means controllable at will for opening and closing pneumatic communication between said head and said state.

4. An article of manufacture, a state provided with an open end and with a blow-hole, a rod-head detachably covered upon said state, and means controllable at will for continuously opening said blow-hole and closing said open end.

698,893. **WATER-TUBE BELLER.** EDWIN S. BELLER, Pueblo, Colo. Filed Nov. 14, 1899. Serial No. 75,311. (No model.)

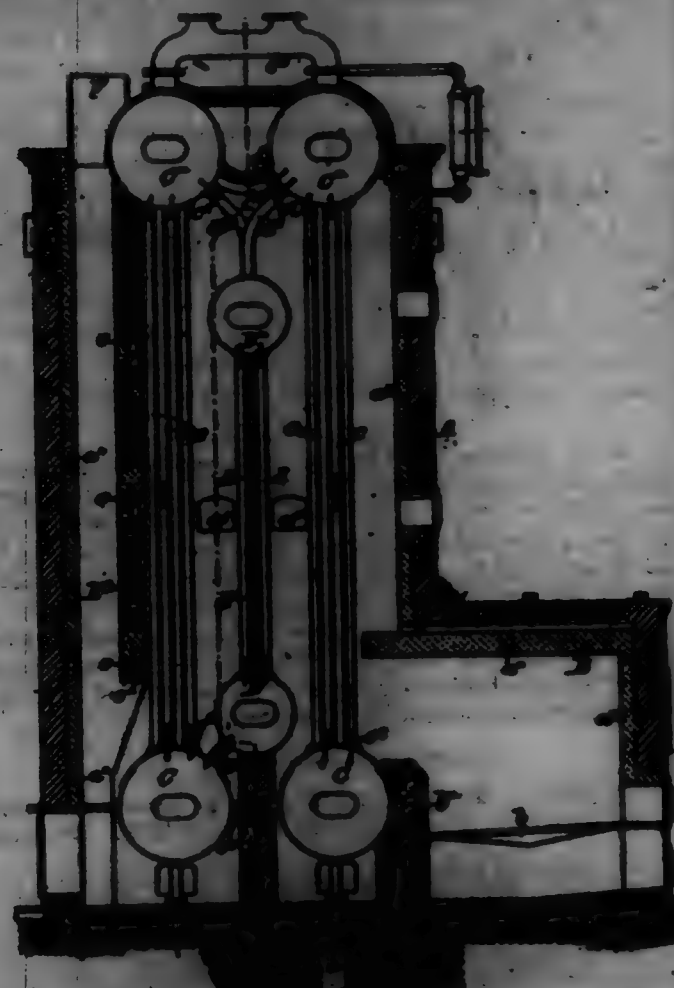
Claim.—1. The combination in a water-tube boiler, of two pairs of main drums having water-tubes extending between them, with a third pair of drums smaller in diameter than the main drums and placed parallel to them, said smaller drums also having tubes whereby they are connected and being above the lower, and below the upper of said main drums, substantially as described.

2. The combination in a water-tube boiler of upper and lower main drums having tubes extending between them, with an auxiliary set of drums lying parallel to the main drums and also having tubes extending between them, said auxiliary set of drums being above the lower and below the upper of the main drums, substantially as described.

3. The combination in a water-tube boiler, of upper and lower main drums having tubes extending between them, with an auxiliary set of drums also having tubes connecting them and placed above the lower and below the upper of the main drums, said auxiliary set of drums being parallel with and connected to the main drums and of less capacity than the same, substantially as described.

4. In a water-tube boiler, the combination of two pairs of main drums, substantially vertical tubes connecting the members of each pair, a pair of auxiliary drums below the upper main drums and above the

lower main drums, said auxiliary drums being parallel to said main drums and also having substantially vertical tubes connecting them together, with a bellows supported by the lower of said auxiliary drums, substantially as described.



5. In a water-tube boiler, the combination of two pairs of main drums, water-tubes connecting the members of each pair, a pair of auxiliary drums between said pairs of main drums, and also having water-tubes connecting them, said auxiliary drums being above the lower and below the upper of the main drums, and a bellows supported by the lower auxiliary drums and extending between the tubes thereof to the upper auxiliary drums, substantially as described.

6. In a water-tube boiler, the combination of two pairs of main drums, water-tubes connecting the members of each pair, a pair of auxiliary drums between said pairs of main drums also having water-tubes connecting them, said auxiliary drums being above the lower and below the upper of the main drums and parallel to the same, and a bellows supported by the lower auxiliary drums and extending between the tubes thereof to the upper auxiliary drums, said auxiliary drums being of a diameter less than the main drums and being connected thereto, substantially as described.

7. In a water-tube boiler the combination of two pairs of main drums, a series of water-tubes of equal length connecting the members of each pair, auxiliary drums parallel to and between said main drums, also having tubes of equal length connecting them, tubes connecting the lower of the auxiliary drums with the lower main drums, and tubes connecting the upper auxiliary drums with the upper main drums, substantially as described.

8. In a water-tube boiler, the combination of a furnace, upper and lower main drums having water-tubes connecting them, auxiliary drums of smaller volume between said main drums and also having tubes connecting them, with means for causing the hot gases from the furnace to rise vertically around the tubes of the first pair of main drums and after passing between the upper main drums and the upper auxiliary drums to flow down between the tubes connecting the lower main drums and the tubes connecting the auxiliary drums, said means freely causing the gases to pass over the lower main drums and to enter a stack connected to the stack, substantially as described.

698,894. **WY.** SAMUEL WYMAN, New York City, N. Y. Filed Oct. 13, 1899. Serial No. 75,355. (No model.)

Claim.—1. In a toy of the character described, the combination of a hollow head having openings for the fingers of the hand, a covering for said head, and a slide connected to said covering and adapted to be reciprocated within said head, substantially as described.

2. In a toy of the character described, the combination of a hollow head having openings for the fingers of the hand, a slide adapted to be moved longitudinally and turned transversely within said head, and a covering attached to said head and said slide, substantially as described.



3. In a toy of the character described, the combination of a hollow head having openings for the fingers of the hand, a slide adapted to be moved within said head, a covering attached to said head and said slide, and a nose and ear projecting through their respective openings in said head and having retaining flanges or bosses and rearward extensions, said rearward extensions adapted to engage recesses or slots within said slide, substantially as described.

4. In a toy of the character described, the combination of a hollow head having openings for the fingers of the hand, a slide adapted to be moved within said head and having eye, tongue and teeth corresponding to their respective openings in the head, a covering attached to said head and to said slide, and a nose and ear projecting through their corresponding openings in said head and having retaining flanges or flanges and a rearward extension, said extensions adapted to engage slots in said slide, substantially as described.

5. In a toy of the character described, the combination of a hollow head having openings for the fingers of the hand, a slide adapted to be moved within said head and having eye, tongue and teeth corresponding to their respective openings in the head, a covering attached to said head and to said slide, and a nose and ear projecting through their corresponding openings in said head and having retaining flanges or flanges and a rearward extension, said extensions adapted to engage slots in said slide, and a link pivoted in a slot in said slide and to the tip of the nose for the purpose of closing the mouth when the slide is moved, substantially as described.

698,895. **SPONGE OR SQUEEZING MACHINE.** HENRY W. BARTON, Philadelphia, Pa. Original application filed July 6, 1899. Serial No. 75,357. Revised and this application filed Mar. 7, 1900. Serial No. 59,175. (No model.)



Claim.—1. A sponge or squeezing holder, comprising a vessel having an external shoulder and an adjacent lip, a cover applied to said shoulder and lip, an inner shoulder, and a tube suspended within the said vessel above its bottom by means of a laterally-projecting flange fitted to and resting upon the inner shoulder, the tube projecting above and below its said flange, substantially as described.

2. A vessel, having a shoulder, a rim or lip, an inner shoulder next to said rim or lip, and a tubular retainer provided with a laterally-projecting notched flange engaging the inner shoulder, the upper edge of the retainer projecting considerably above the rim or lip, and the lower tubular portion of said retainer extending toward the bottom of the vessel, substantially as and for the purpose described.

3. A vessel, having an inner shoulder next to its rim or lip, combined with a tube having a laterally-projecting notched flange resting loosely upon said shoulder, the lower portion of the tube suspended above the bottom of the vessel by said flange and the upper edge of the tube projecting considerably above the mouth of the vessel, substantially as and for the purpose described.

698,896. **BAR OR PASTERIZER FOR SUGAR.** BENJAMIN BURMAN, Boston, Mass. Filed Dec. 21, 1899. Serial No. 59,177. (No model.)



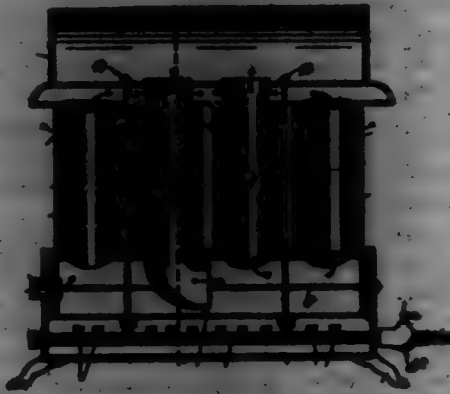
Claim.—1. A bar for sugar comprising a tank, a bar connected to the tank of said tank to be moved therewith, and a ball-bearing guide for said bar, substantially as described.

2. A bar for doors consisting of a lock, a bracket attached to the bolt of said lock, a barrier connected to said bracket to be moved with the bolt, one end of said barrier engaging a hinged keeper, substantially as described.

3. A bar for doors comprising a lock, a barrier connected to the bolt of said lock, to be moved therewith, a ball-bearing guide for the barrier, and means for locking the barrier against movement with the bolt of the lock.

4. A bar for doors comprising a lock, having a bolt to be operated by a knob or a key upon opposite sides of the lock, a barrier connected to said bolt, a ball-bearing guide for said barrier, and loops surrounding the barrier and provided with cut-aways, substantially as described.

698,827. GAS-STOVE. WILLIAM J. BRYAN, Brooklyn, N. Y.
Filed Jan. 8, 1902. Serial No. 93,847. (No model.)



Claim.—1. A gas-stove comprising a hollow base portion, vertically-arranged hollow casings mounted thereon and in communication therewith, a hollow top portion placed on said vertically-arranged hollow casings and provided with a supplemental top portion having front openings, a tubular casing arranged centrally and longitudinally in the base portion and divided by a central transverse partition, and tubular members arranged in said vertically-arranged cylindrical casings, all of which are in communication at their lower ends with the said tubular casing in the base portion and part of which are in communication with the hollow top member and the others of which pass therethrough and are in communication with the supplemental top member, substantially as shown and described.

2. A gas-stove comprising a hollow base portion, vertically-arranged hollow casings mounted thereon and in communication therewith, a hollow top portion placed on said vertically-arranged hollow casings and provided with a supplemental top portion having front openings, a tubular casing arranged centrally and longitudinally in the base portion and divided by a central transverse partition, and tubular members arranged in said vertically-arranged cylindrical casings, all of which are in communication at their lower ends with the said tubular casing in the base portion and part of which are in communication with the hollow top member and the others with the supplemental top member, said base portion being also provided with a burner-tube below said tubular casing, substantially as shown and described.

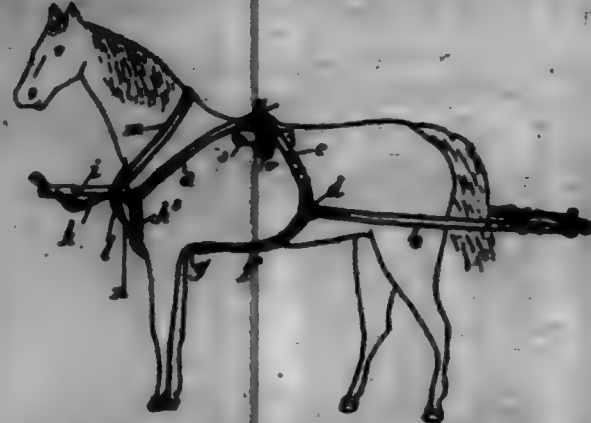
3. A gas-stove comprising a base composed of bottom and top portions, the bottom portion of the base being provided with a gas-burner tube, and the top portion of said base being provided with a horizontally-arranged tubular casing, a plurality of vertically-arranged hollow casings placed on the top base portion and in communication therewith, a horizontal hollow top portion placed on said vertically-arranged hollow casings and provided with a supplemental top portion which is placed thereon and provided with openings, vertically-arranged tubes placed in said vertically-arranged hollow casings, all of which are in communication at their lower ends with the tubular casing in the upper base portion and part of which are in communication with the top portion and others with the supplemental top portion, said tubular casing in the upper base portion being provided with a transverse partition through which one of said tubes passes substantially as shown and described.

698,828. PROCESS OF MAKING INDIGO FROM INDOL. PAUL BERN, Ludwigshafen, Germany, assignor to Badische Anilin & Soda-Fabrik, Ludwigshafen, Germany, a Corporation. Filed Sept. 24, 1901. Serial No. 74,493. (No specimens.)

Claim.—The process of manufacturing indigo which consists in treating indol with alkali-metal-potassium.

698,829. BARKING. GEORGE SCHMIDT, Berlin, Germany.
Filed Apr. 14, 1901. Serial No. 93,194. (No model.)

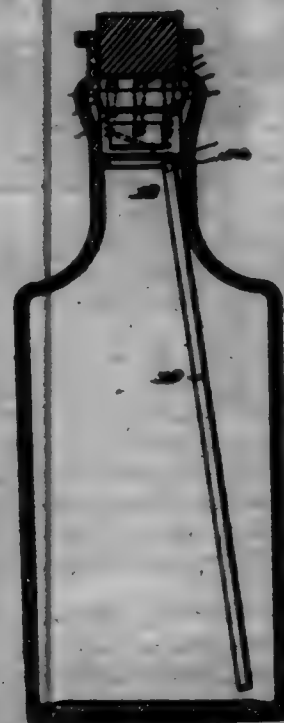
Claim.—1. The combination in a harness, with the saddle having a bow and a projecting pin, and the traces, of a breast-collar having straps crossed over and fixed on the pin on the bow of the saddle and connecting with the traces, substantially as set forth.



2. The combination in a harness, with the saddle having a bow and a projecting pin, and the traces, of a breast-collar having straps crossed over and fixed on the pin on the bow of the saddle and connecting with the traces, a forked strap, the body of which passes under the fore legs and the fork extends upward to the breast-collar, and straps connecting the body of the forked strap to the traces, substantially as set forth.

3. The combination in a harness with a saddle, a breast-collar, connected to the saddle, of straps fixed to the traces and fixed to the saddle, and a forked strap connected in the rear with the traces and by its forks to the breast-collar, substantially as described.

698,880. RUBBER-MAKING MACHINERY. EDWARD S. SHILLER, Columbus, Ohio. Filed July 25, 1901. Serial No. 93,691. (No model.)



Claim.—1. In a non-refillable bottle the combination with the bottle-neck having an internal annular groove or recess and vertical grooves extending above and below said annular groove or recess, of a cap fitted in the bottle-neck and having an open bottom and sides, said open sides communicating with said vertical grooves, a valve controlling the opening in the bottom of the cap, and a cap seated on top of the cap and provided with a peripheral upwardly-convex flange seated beneath the upper wall of the annular groove, substantially as described.

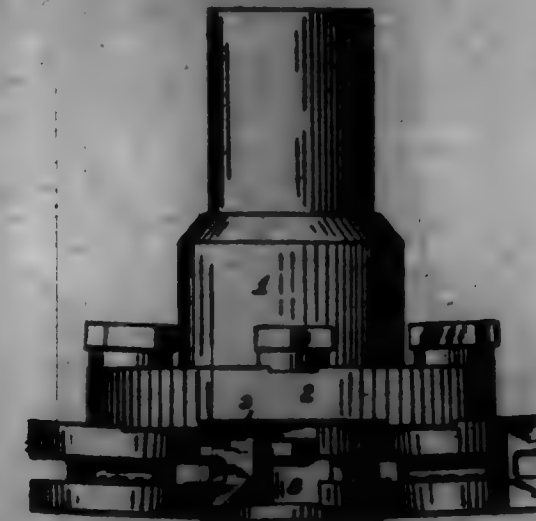
2. In a non-refillable bottle the combination with the neck thereof provided upon its interior with an annular groove or recess, and with an inwardly-projecting flange disposed beneath said recess, of a cap seated upon said flange, and comprising two disks connected together at their opposite sides or edges, the uppermost of said disks being impermeable and the lower one provided with a valve-opening, a valve controlling said opening and a cap seated upon said cap, and provided upon its periphery with an upwardly-convex flange seated in the annular groove or recess, substantially as described.

3. In a non-refillable bottle the combination with the neck thereof, provided upon its interior with an annular groove or recess, and an annular flange disposed beneath said recess, of a flexible member seated upon

said flange, a cap seated upon the member and comprising two disks united at their opposite edges, the uppermost of said disks being impermeable and the lower one provided with a valve-opening, a valve controlling said opening and a cap seated upon said cap and provided with an upwardly-convex flange arranged to engage the upper wall of the annular groove or recess and prevent the withdrawal of the parts, substantially as described.

4. In a non-refillable bottle the combination with the neck thereof provided with a cap formed therein, and with an annular groove or recess formed above the cap, of a cap seated upon said cap, and comprising two disks united at their opposite edges by perpendicular braces, the lower of said disks having a valve-opening, a valve controlling said opening, a cap seated on said cap and having an upwardly-convex flange projecting into said groove or recess, one of said braces having a dent formed therein and communicating at its upper end with a vertical groove formed in the neck of the bottle and extending above and below the annular groove or recess, and a vent-tube connected with the lower end of said dent and extending into the lower portion of the bottle, substantially as described.

698,881. CUTTER-HEAD. GEORGE A. SHAW, Milton, Pa. Filed Dec. 4, 1901. Serial No. 94,091. (No model.)



Claim.—1. The combination with the body of a cutter-head comprising a hub bearing a circular flange, of inclined surfaces constituting bit-edges, formed on one side of said flange with their centers in the same plane of revolution, said bit-edges being arranged diametrically opposite each other in pairs and there being two pairs, the opposed pairs having the same degree of inclination with respect to the plane of revolution, the axis of one pair of diametrically-opposed pairs converging and intersecting the axis of the other pair, the axis of the other pair of opposed pairs diverging and intersecting the axis of the first, and bits mounted in said seats, substantially as described.

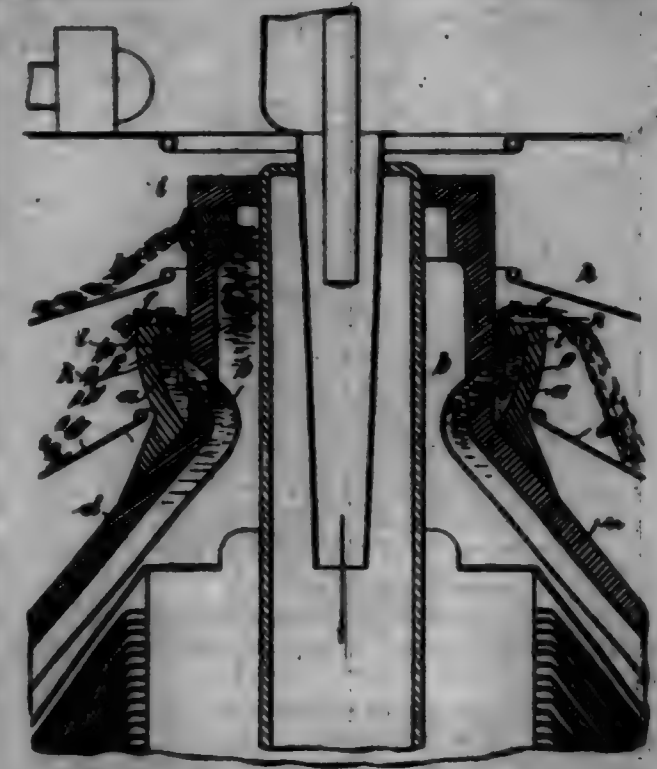
2. The combination with the body of a cutter-head comprising a hub bearing a circular flange, of inclined surfaces constituting bit-edges with their centers lying in the same plane of revolution, said bit-edges being arranged diametrically opposite each other in pairs and there being two pairs, the axis of one pair of diametrically-opposed pairs converging and intersecting the axis of said cutter-head on one side of said flange, and the axis of the other pair diverging and intersecting the axis of said cutter-head on the other side of said flange, a pair of upright frame-arms seated in one pair of opposed seats and intersecting frame-arms seated in the other pair of opposed seats, said bits being secured by bolts fitting said apertures, substantially as described.

3. The combination with the body of a cutter-head comprising a hub bearing a circular flange, of inclined surfaces constituting bit-edges formed on one side of said flange with their centers in the same plane of revolution, said bit-edges being arranged diametrically opposite each other in pairs and there being two pairs, the axis of one pair of diametrically-opposed pairs converging and intersecting the axis of the cutter-head on one side of said flange, the axis of the other pair of opposed pairs diverging and intersecting the axis of the cutter-head on the other side of said flange, and bits mounted in said seats, substantially as described.

698,882. CENTRIFUGAL SEPARATOR. JEREMIAS H. SHAW, Göttingen, Germany. Filed Dec. 12, 1901. Serial No. 93,931. (No model.)

Claim.—1. In a centrifugal separator, the combination of a drum, its outlet-pipe, a chamber surrounding the ends of the pipes having an internal flange over which the liquid separates in a thin sheet, and a perforated body between the extremities of the outlet-pipe and the projecting edge of the said chamber, substantially as set forth for the purpose set forth.

2. In a centrifugal separator, the combination of a drum, its outlet-pipe, a bowl-shaped ring attached to the drum around the outlet of the pipes, having an inwardly and horizontally projecting flange at a distance from the outlet of said pipes, and a perforated ring inside of the first ring between the outlet-pipe and the flange, substantially as set forth for the purpose set forth.



3. In a centrifugal separator, the combination of a drum, its outlet-pipe, a bowl-shaped ring, attached to the drum around the outlet of the pipes, having an inwardly and horizontally projecting flange above the outlet of said pipes, and a perforated ring inside of the first ring and above the outlet-pipe, substantially as set forth for the purpose set forth.

698,883. HAIR-PARTING. ALFRED G. SMITH, Chicago, Wm. Filed Oct. 20, 1900. Serial No. 93,739. (No model.)

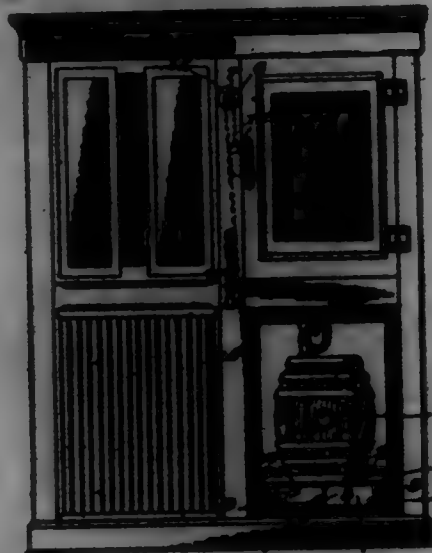


Claim.—A hair-pin comprising a curved tubular head having its ends extending inward toward each other, and said prongs projecting from the ends of the head, the head opening at the head of one of said prongs and closed at the other end, a curved bolt mounted in the head and adapted to project through said opening and extend across the space between the heads of the prongs and to engage a recess in the head of the other prong, the said bolt being adapted to engage a lock of the hair to hold the pin in place, a coil-spring arranged in the closed end of the head and pressing against the inner end of the bolt, to hold it in the locked position, and a thumb-piece connected with the bolt to move the latter against the tension of the spring, the said thumb-piece extending through a slot in the top of the head and being approximately midway between the ends of the head when the bolt is in the locked position.

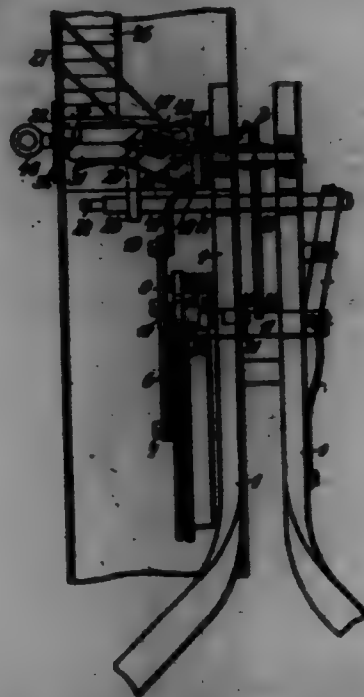
698,884. SPRING-SCALE. JOHN D. SMITH, Boston, Tex. Filed Aug. 18, 1901. Serial No. 73,181. (No model.)

Claim.—The combination with indicating mechanism, a vertically-movable platform for containing a containing vessel, and operative connection between said platform and said indicating mechanism, of a frame

in which said platform is mounted, the same comprising a pair of longitudinal beams, cross-bars arranged in pairs secured, respectively, to the upper and lower sides of said beams at opposite ends thereof, and springs resting upon the lower of said cross-bars, the said platform being located beneath the upper of said cross-bars, and supported upon said springs, so and for the purpose set forth.



698,985. GYM-FRAME SYNCHRONIC APPARATUS. KARL BERGER, Wiesbaden, Germany. Filed Feb. 16, 1901. Serial No. 47,504. (No model.)



Claim.—1. The combination of a swinging gymnastic apparatus, a stopping device for the same, auto-controlled mechanism for controlling the stopping device and a time device connected with the gymnastic apparatus to be driven therefrom for limiting the period of use.

2. The combination of a gymnastic apparatus, a swinging beam, a motor connected with the beam, a slide arranged to lock the motor, a time device connected with the slide and operated by the movement of the gymnastic apparatus to limit the period of use of the apparatus, and auto-controlled means for releasing the slide.

3. The combination of a swing, a motor arranged to move in time therewith, a sliding lock for said motor, auto-controlled mechanism for throwing the lock into active position, and time-controlled mechanism for holding the lock inactive.

4. The combination of a swing, a lock for restraining the movement thereof, said lock being normally active, auto-controlled mechanism for releasing the lock, and device for holding the lock inactive, said device being periodically actuated from the mechanism of the swing.

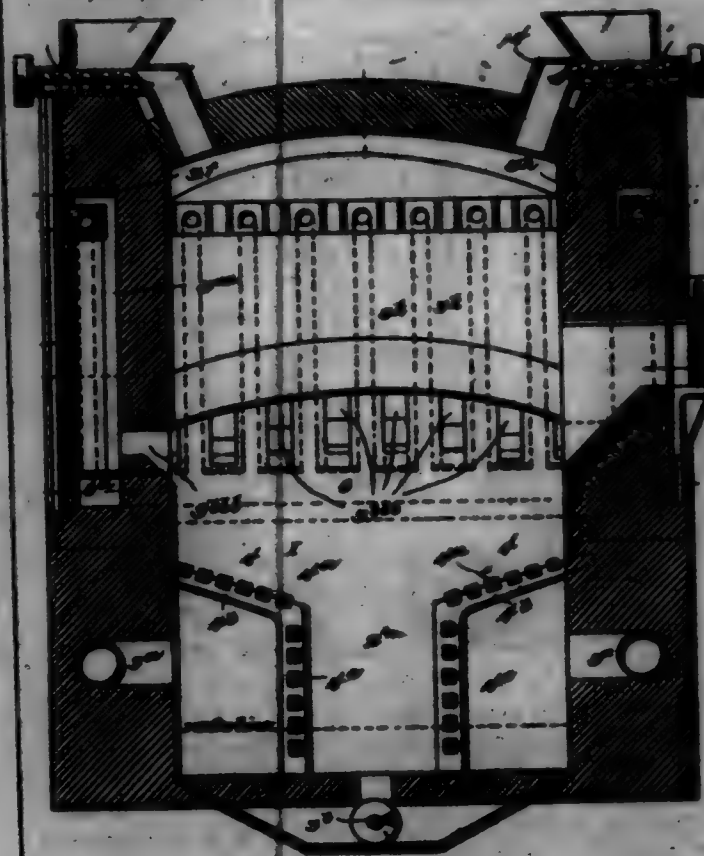
5. The combination of a swing, lock device therefor, said device being normally active, and auto-controlled mechanism for releasing said lock device.

6. The combination of a swing, a sliding lock for restraining the movement thereof, said lock being normally active, auto-controlled device for releasing the lock, and mechanism connected with the swing and driven by the movement thereof, said mechanism serving periodically to return the lock to active position.

7. The combination of a swing, a motor attached thereto, a slide serving to lock the motor, a means pressing the slide normally into active position, auto-controlled mechanism for moving the slide into inactive position, a latch holding the slide temporarily in inactive position, and means driven in time with the movement of the swing, whereby periodically to release said latch.

8. The combination of a swing, a locking device therefor, said device being normally active, auto-controlled mechanism for moving the locking device into inactive position, a latch serving to hold the locking device in inactive position, a cam-wheel actuating the latch periodically to release it, and means including a pawl working on the cam-wheel, said means being in connection with the swing to move in time therewith, whereby to actuate the cam-wheel.

698,986. FURNACE. WILLIAM STEUBELER, Bethlehem, Pa. Filed Aug. 22, 1901. Serial No. 78,999. (No model.)



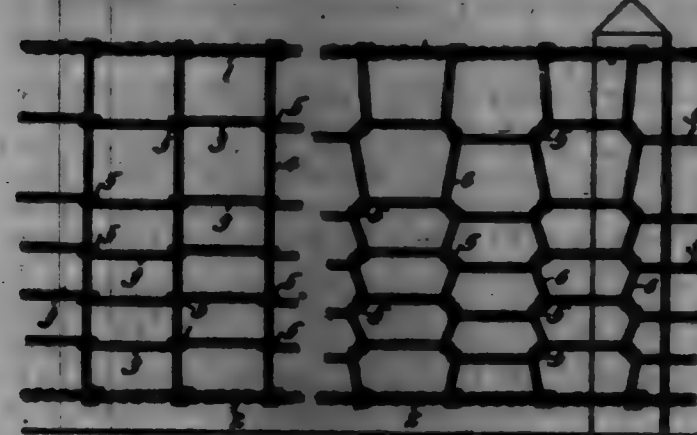
Claim.—1. In a furnace of the character described, air-blast-conducting passages or pipes, and pipes taking gas from the combustion-chamber and adapted to heat the air-blast passing through the first-named passages or pipes, said air-blast, and gas, pipes or passages being arranged in the furnace-walls and delivering into the combustion-chamber, in a plane passing through said chamber, substantially as set forth.

2. In a furnace of the character described, air-pipes comprising upper and lower pipes connecting with an air-supply and connected together by additional pipes, and gas conduits or passages having ports or openings communicating with the combustion-chamber, and surrounding said air-pipes, and said air-pipes and gas-passages delivering at a common point or points, and into said combustion-chamber, all said pipes and passages being arranged in the furnace-walls, substantially as set forth.

3. In a furnace of the character described, air-pipes connecting with an air-supply, comprising upper and lower pipes with intermediate connecting-pipes tubular bodies or sleeves housing said pipes, and gas passages or conduits surrounding said air-pipes and having ports or openings communicating with the combustion-chamber, both said air and gas passages delivering their contents at a common point into said combustion-chamber, all said pipes and passages being arranged in the furnace-walls, substantially as set forth.

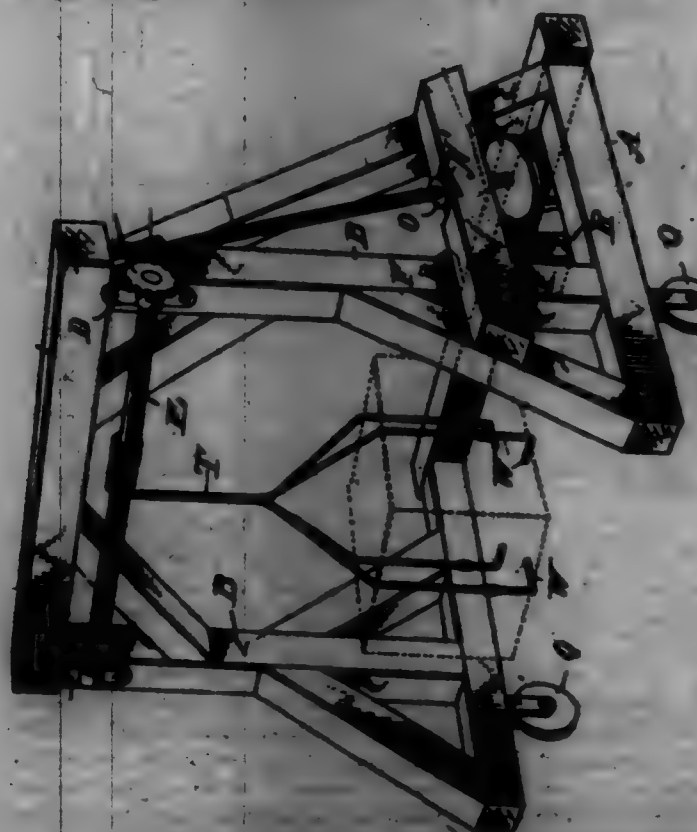
4. In a furnace of the character described, a series of air passages or pipes, connecting with an air-supply, two series thereof comprising upper and lower pipes with intermediate pipes tubular bodies or sleeves housing said pipes, a third series of such pipes connecting with the above said two series and having delivering-ports, and having ports or openings communicating with the combustion-chamber, said air-pipes and said gas conduits or passages delivering their contents at a common point or points, into the combustion-chamber, substantially as set forth.

698,987. PROCESS OF MAKING FENCE FABRIC. JOHN H. STICKER, Lawrence, Kans. Filed Nov. 6, 1901. Serial No. 51,999. (No specimens.)



Claim.—1. The herein-described process of making fence fabric, said process consisting in first forming longitudinal warp-wires with diagonal transverse wires in opposite directions, with the loops all on one side of the vertical plane of the wire, and the portions of the wire between the loops ranging alternately in different horizontal planes, then threading straight lengths of transverse wire through said loops and securing the extremities of said transverse wire, and finally carrying a longitudinal pulling tension on said warp-wire, substantially as specified.

698,988. APPARATUS FOR LIFTING WAGON-BODIES. ANTHONY J. TAYLOR, Des Moines, Mont. Filed Feb. 2, 1902. Serial No. 95,399. (No model.)



Claim.—A device for lifting wagons and other articles, comprising a frame open upon one side, wheels mounted under the ends of said frame, and a leg intermediate the closed longitudinal side of the frame, whereby said frame may be held in a horizontal plane, handles projecting from the edge of said closed side, upright posts mounted on the ends of the frame and suitably braced, a winch journaled on said upright posts, a rope or chain secured to and adapted to wind upon said winch and provided with hooks fastened to the end of said rope or chain, a gear-wheel keyed to the end of the winch, a shaft, a worm-wheel rotating with said shaft and in mesh with said gear-wheel, a hand-wheel for rotating said shaft, a collar or washer fastened to said shaft, a cross-piece fastened to one of said uprights and the frame thereon, the upper end of said cross-piece being notched, the under face of said collar or washer adapted to rest flat against the inclined face of said notched portion as shown and described.

698,989. CASE-PARTITION. JAMES C. SHAW, Chicago, Ill. Filed July 14, 1901. Serial No. 61,999. (No model.)

Claim.—The combination with a window-frame, of a window-cash

moving therein, having a hole passing transversely through one of its side bars, the said cash being recessed on its outer edge at the end of said hole, a bolt passing through said hole, having a threaded outer end and a knob upon its inner end, a shoulder on said bolt, a plate surrounding said hole between said shoulder and said knob and secured to the inner surface of the window-cash, a springing clamping-plate fitting the recess in the outer edge of said cash and a yoke pivoted to said clamping-plate, provided with a threaded perforation which is engaged by the outer end of said bolt, substantially as and for the purpose described.



698,940. TOY. HENRY A. VANHORN COOK, Chicago, Ill., assignor to himself and Anthony H. Vanderhoff, Chicago, Ill. Filed Dec. 17, 1901. Serial No. 94,399. (No model.)



Claim.—1. A toy, comprising two receptacles connected together by side plates, rollers arranged in the receptacles, a carrier consisting of an endless band passing around said rollers and having side arranged at intervals, the said band also passing between the side plates, and toy figures having lateral projections by detachably connecting the figures to the carrier, the said projections being curved to prevent interference with the movements of the animals when running, the rollers, substantially as specified.

2. A toy comprising a curve-like receptacle and a receptacle holding a building, side plates connecting the two receptacles, rollers arranged in the receptacles, a carrier consisting of an endless band engaging around the rollers, the said band having side or openings at intervals along its edges, a toy animal or figure, and a base in which the toy animal or figure is supported, the said base having curved lateral projections to engage in said side or openings, whereby interference with the move-

ments of the animal when rounding the rollers is prevented, substantially as specified.

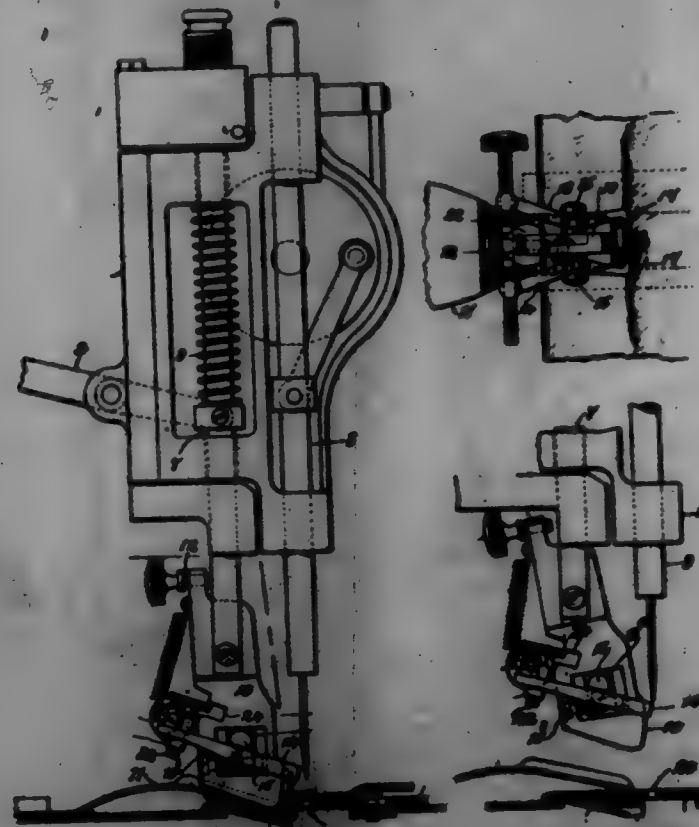
3. A toy, comprising two receptacles connected one with the other, rollers arranged in the receptacles, an endless band engaging around said rollers and having slots or openings arranged at intervals near opposite edges, means for turning one of said rollers, means for preventing lateral movement of the band on the rollers, toy figures, and longitudinally-extending supporting-bases for the figures each having narrow projections at its sides midway between its ends and adapted to removably engage the slots or openings in the band, as specified.

698,841. PROCESS OF TREATING BRINE. GILBERT H. VA, Schweizerbühl, Switzerland. Filed Feb. 18, 1891. Serial No. 62,611. (No specimens.)

Claim.—1. The process of treating brine to obtain crystallized sodium chloride free from gypsum which consists in mixing the brine with slaked lime and ammonium sulfate, passing carbonic acid in the mixture, separating the liquor from the precipitate, evaporating the liquor, separating the crystallized sodium chloride from the mother-lye containing ammonium sulfate and resins, and resins in a subsequent purification to provide the brine with ammonium sulfate, substantially as and for the purpose stated.

2. The process of treating brine to obtain crystallized sodium chloride free from gypsum which consists in mixing the brine with slaked lime, sodium sulfate and ammonium sulfate passing carbonic acid in the mixture, separating the liquor from the precipitate, evaporating the liquor, separating the crystallized sodium chloride from the mother-lye containing ammonium sulfate, and resins, and resins in a subsequent purification to provide the brine with ammonium sulfate substantially as and for the purpose stated.

698,842. BUTTON-SHOWING MACHINE. EDWARD E. WALKER, New York, N. Y., assignor to Alfred Wolf, New York, N. Y. Filed Oct. 18, 1891. Serial No. 73,614. (No model.)



Claim.—1. In a button-showing machine, a needle-bar, means for moving the needle-bar vertically, and means for moving the needle-bar on a horizontal plane to cause a predetermined number of stitches alternately at the inner and outer sides of a button-chuck and then to cause a further horizontal movement to form a buttoning-stitch while the goods remain stationary, substantially as specified.

2. In a button-showing machine, a frame mounted to swing on the machine-arm; a needle-bar carried in the frame, a cam, and a connection between the cam and frame, the cam operating the frame to cause a predetermined number of stitches alternately at the inner and outer sides of a button-chuck, and then to cause a further swinging movement to form a buttoning-stitch, adjustably to the first-named stitches, substantially as specified.

3. A machine for sewing on buttons, comprising a needle-bar, a

swinging frame in which said needle-bar is mounted, means for causing movements of said swinging frame, a bar movable vertically in the swinging frame, a block having pivoted connection with said bar, jaws mounted to swing on said block, a screw-rod for moving said jaws toward and from each other and a spring-yielding pressure-plate operated by said block, substantially as specified.

4. In a machine for sewing on buttons, a needle-bar, means for causing an oscillating movement of the needle-bar, a spring-pressed bar rearward of the needle-bar, a block mounted to swing on said spring-pressed bar, a limiting-arc engaging with the block, jaws mounted on said block to have a vertical swinging movement and to move toward and from each other, and a screw-rod for moving the jaws toward and from each other, substantially as specified.

5. A machine for sewing on buttons, comprising a needle-bar, means for imparting an oscillating motion to said bar, a block arranged rearward of the needle-bar, button-gripping jaws carried by said block, a spring-yielding pressure-plate adapted to be moved downward and held by the block, and an adjustable plate having an opening for the passage of the machine-needle, substantially as specified.

6. A machine for sewing on buttons, comprising a needle-bar, means for imparting an oscillating motion to said needle-bar, a pressure-block rearward of the needle-bar and having a downward and forwardly inclined lower end, a pressure-plate operated by the block, button-gripping jaws mounted on said block so as to swing vertically and toward and from each other, means for adjusting the vertical movement of the jaws, a spring connection between the jaws and the block, and a screw for moving the jaws toward and from each other, substantially as specified.

698,843. GAGE-TIN FOR JOB-PRINTING PRESS. WILLIAM J. WARD, Leominster, Mass., assignor of one-half to Charles C. Eaton, Leominster, Mass. Filed June 6, 1891. Serial No. 68,609. (No model.)



Claim.—1. In a device of the class set forth, the combination of guide-rod for removable application to a plate, a gage-bar adjustably mounted on the said guide-rod, and gage-pins and a side gage adjustably mounted on the said bar, the gage-pins and side gage being pivotally mounted.

2. In a device of the class set forth, the combination of guide-rod for removable application to a plate, a gage-bar having terminal portions freely slidable on the said rods and having clamping-levers pivotally mounted in said terminals to hold the gage-bar in fixed position on the rod, and gage-pins and a side gage adjustably mounted on the said gage-bar and adapted to be moved longitudinally of the latter and also outwardly from and inwardly toward the plate.

3. In a device of the class set forth, the combination of guide-rod for removable application to a plate, a gage-bar adjustably mounted on the said rod, and pivoted gage-pins and a pivoted side gage slidable on the bar and movable outwardly and inwardly toward the same, the pins and side gage having terminal downwardly-bent spurs and horizontal flanges.

4. In a device of the class set forth, the combination of guide-rod for removable application to a plate, a gage-bar adjustably mounted on the said device, and gage-pins and a side gage slidable on the bar and also movable outwardly from and inwardly toward the same.

698,844. PRINTING-FRAME. ALBERT F. WALKER, Bitterroot, Mich., assignor to the Duplex Printing Press Company, Bitterroot, Mich. Filed July 13, 1891. Serial No. 64,993. (No model.)

Claim.—1. The combination of a cylinder and bed, and the bed and cylinder-gearing, one member of each gearing being normally held in place by springs whereby a slight abnormal increase or decrease of speed of movement of the periphery of the cylinder is permitted during impres-

sion by the bodily shifting of one of said members, said spring returning the gearing to proper normal position after impression, substantially as described.



2. The combination of a cylinder and bed, a gear on the cylinder and a rack on the bed or frame meshing with said cylinder-gear, said rack being capable of a slight bodily endwise motion to compensate for slight abnormal increase or decrease of speed of movement of the periphery of the cylinder during impression, and means for returning the rack to normal position thereby compensating for the abnormal movement of the cylinder, substantially as described.

3. The combination of a cylinder and bed, the cylinder-gear, and the two-piece bed-rack meshing continuously therewith; with springs for holding said rack in normal position, but permitting a slight shifting thereof by the cylinder during impressions to compensate for slight overpacking or underpacking of the cylinder and prevent grid or drag on the type, substantially as described.

4. The combination of the cylinder and bed, the cylinder-gear, and a movable bed-rack continuously in mesh with the cylinder-gear and springs at each end of the rack to hold the same in normal position but permit its shifting during impression, substantially as and for the purpose described.

5. The combination of the cylinder, its gear, the bed, and the complete bed-rack having dotted ends and continuously in mesh with the cylinder, guide-pins on the bed or frame engaging the rack-dots, and coil springs interposed between the opposite ends of the rack and legs or steps on the frame for yieldingly holding said rack in position, substantially as described.

698,845. COMPOSITION FOR PREVENTING GROWING PLANTS. JOHN W. WALKER, Windsor, Vt. Filed Nov. 13, 1891. Serial No. 68,608. (No specimens.)

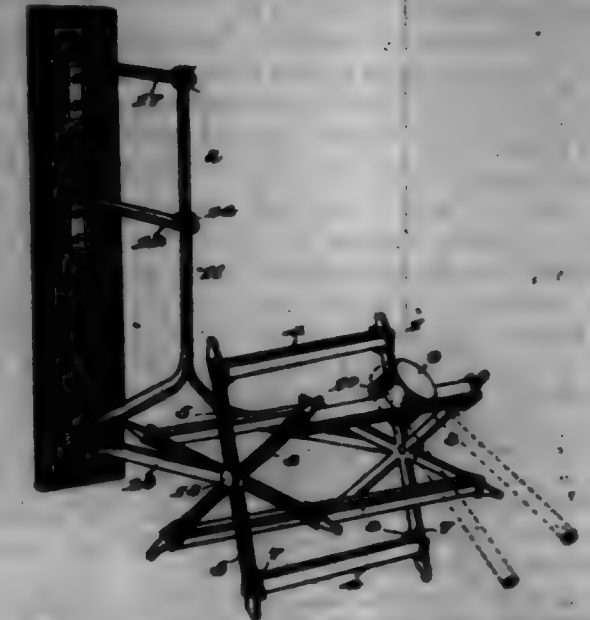
Claim.—1. The herein-described composition of matter, comprising clay one hundred and twenty-eight ounces, common salt one ounce, caustic soda one pint and naphthalene moth-balls, twenty-four.

2. The herein-described composition of matter, comprising ordinary clay, common salt, caustic soda and naphthalene.

698,846. HOOK-BELL. ALBERT E. WOOD, Hartford, Conn. Filed Apr. 13, 1891. Serial No. 64,641. (No model.)

Claim.—1. A reel for storing hose having opposite bands, rings connecting the bands, one of the rings having an intermediate rounded enlargement projected at opposite sides thereof and flush with the outer face of the ring, an unenlarged substantially radial and outwardly-directed hose-engaging projection applied to the outer side of the enlargement and corresponding in cross-sectional size and shape thereto, the length of the projection being greater than the diameter of the hose to be wound upon the reel, and a flange pivoted to the enlargement and entering the hose of the projection, the remaining hose being free from projection,

whereby the hose is prevented from becoming engaged across the inner end of the projection and the entire surface of the reel may be utilized in the winding of hose thereon.



2. The combination with a reel having a substantially horizontal axis, of a support therefor comprising an upright rotatable and outwardly-adjustable member, having at its lower end a laterally-projected yoke-shaped frame straddling the opposite ends of the reel and pivotally supporting the same.

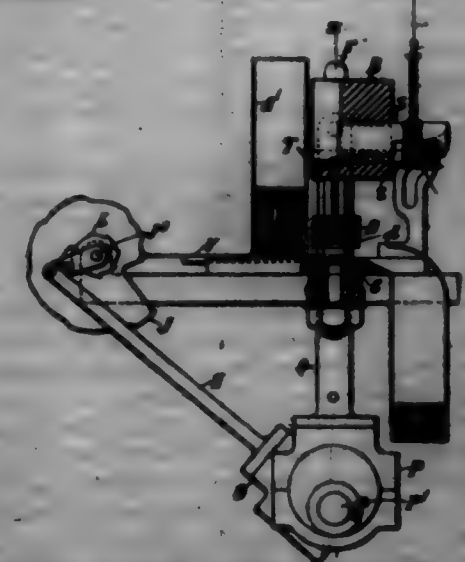
3. A reel rotatable about a horizontal axis, and a frame for supporting the reel, the frame being mounted for rotation about a vertical axis through a complete circle and being vertically adjustable thereby to permit of the reel being raised or lowered as required.

4. A reel comprising two ring-supports each formed with a plurality of arms, rings secured near the extremities of the arms, and a bracket to which the reel is operatively connected, the bracket comprising a yoke connected with the ring-supports, and a reel mounted for rotary movement in suitable brackets.

5. A reel comprising two ring-supports each provided with a plurality of arms and having offset near their extremities, rings connected to the offset, a bracket for supporting the reel, the same comprising a yoke suitably connected with the ring-supports, and a reel mounted for rotary movement in supporting-brackets, the said reel being vertically adjustable in the brackets.

6. A reel comprising two ring-supports each formed with a plurality of reinforced arms and provided near their extremities with offset of greater width than the arms, rings secured to the offset, one of the rings carrying a hose-engaging arm or projection, and a reel-supporting bracket comprising a reel mounted for rotary movement and vertical adjustment in suitable supports, the lower portion of the reel being provided with a yoke to straddle the reel and to be connected with the ring-supports in such manner as to permit the reel to freely rotate on its axis.

698,847. JACQUARD-CARD-PUNCHING MACHINE. GEORGE E. HENRY, Bradford, England. Filed June 14, 1891. Serial No. 64,572. (No model.)



Claim.—1. In a card-punching machine, the combination, with a vertically-slidable frame, and a series of punches carried by the said frame,

of a vertically and horizontally slidable bar, a series of slidable bolts arranged side by side in the said frame and operating to couple the said punches to it when moved over the said punches, and a series of electrically-controlled cores for connecting the said bolts with the said bar, substantially as set forth.

2. In a card-punching machine, the combination, with a vertically-slidable frame, and a series of punches carried by the said frame; of a bar arranged in one side of the said frame, guides constraining the said bar to move horizontally and vertically, a series of slidable bolts arranged side by side in the said frame and operating to couple the said punches to it when moved over the said punches, a series of cores arranged in holes in the said bolts and normally coupling them to the said bar, and electric controlling devices for preventing the said cores from moving vertically with the said bar when required, substantially as set forth.

3. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts within said frame, a bar having a movement transverse to said sliding frame, solenoids and cores to respectively connect said bolts and bar, means for reciprocating said sliding frame, a receptacle for the cores to be punched, a pusher-plate for carrying forward the movement and therefore, a stepped cam operating said pusher-plate, and means for rotating said stepped cam for progressively moving the card forward to punch the respective rows of holes; and a corresponding electric selecting apparatus for energizing said cores, substantially as described.

4. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts within said frame, a bar having a movement transverse to said sliding frame, solenoids and two cores for each solenoid, one of said cores serving to respectively connect said bolts and bar; and a corresponding electric selecting apparatus for energizing said cores, substantially as described.

5. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts within said frame, a bar having a movement transverse to said sliding frame, a ridge provided on said bar, solenoids on said bar and cores within said solenoids, said cores lying in front of said ridge when the respective solenoids are deenergized for connecting the bolts to the bar; and a corresponding electric selecting apparatus for energizing said cores, substantially as described.

6. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a support for the design, which design is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for effecting relative progressive movements between said terminals and design corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by the said terminals when lying on the conductive parts of said design, substantially as described.

7. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for the said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for effecting relative progressive movements between the terminals and the roller carrying the design, said movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by the said terminals when lying on the conductive parts of said design, substantially as described.

8. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for the said design, which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for effecting relative progressive movements between the terminals and the roller carrying the design, said movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by the said terminals when lying on the conductive parts of said design, and means for partially rotating said roller carrying said terminals to lift said terminals from the design before each progressive movement of the sliding frame, substantially as described.

9. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and

cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for the said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for effecting relative progressive movements between the terminals and the roller carrying the design, said movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by the said terminals when lying on the conductive parts of said design, and means for lifting the terminals off the design before each of said progressive movements, substantially as heretofore described.

10. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for giving to said terminals progressive movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by said terminals when lying on the conductive parts of said design, substantially as described.

11. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, said terminals being carried within a sliding frame, a stepped cam for giving to said sliding frame progressive movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by said terminals when lying on the conductive parts of said design, substantially as described.

12. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, said terminals being carried upon a rod mounted within a sliding frame, a stepped cam for giving to said sliding frame progressive movements corresponding to the number of rows of holes to be punched and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by said terminals when lying on the conductive parts of said design, and means for partially rotating said rod carrying said terminals to lift said terminals from the design before each progressive movement of the sliding frame, substantially as described.

13. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for the said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, said terminals being carried upon a rod mounted within a sliding frame, a stepped cam for giving to said sliding frame progressive movements corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by said terminals when lying on the conductive parts of said design, and means for partially rotating said rod carrying said terminals to lift said terminals from the design before each progressive movement of the sliding frame, substantially as described.

14. In a card-punching machine, in combination, a punching mechanism, the punches of which are respectively controlled by solenoids and cores, and a corresponding electric selecting apparatus for energizing said cores, consisting of a roller for the said design which is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, said terminals being carried upon a rod mounted within a sliding frame, a stepped cam for giving to said sliding frame progressive movements corresponding to the number of rows of holes to be punched, and electric circuits within which

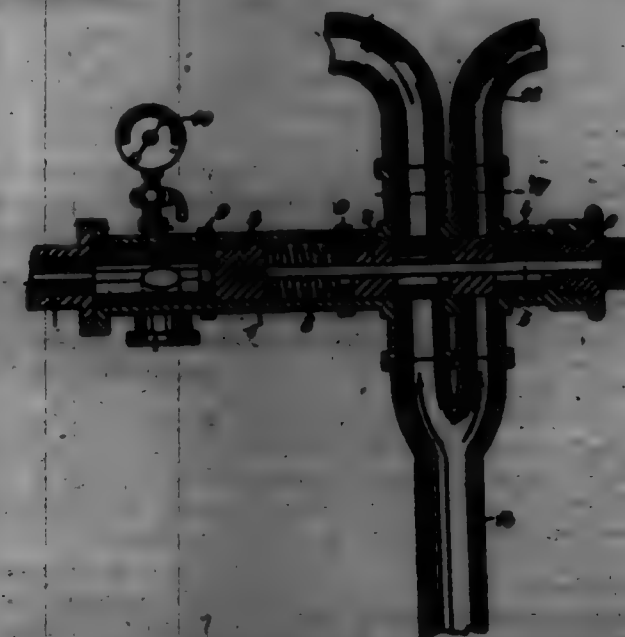
said terminals and cores are respectively connected, said circuits being completed by said terminals when lying on the conductive parts of said design, and means for partially rotating said rod carrying said terminals to lift said terminals from the design before each progressive movement of the sliding frame, and a lever-and-pawl device for rotating said roller after said progressive movements, said device being operated by means of a bar on the rod carrying said terminals, and a spring to return said sliding frame to its first position, substantially as described.

15. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts within said frame, a bar carried by said frame, means for giving to said bar a transverse movement on the movement of said sliding frame, solenoids and cores to respectively connect said bolts and bar; and a corresponding electric selecting apparatus for energizing said cores, consisting of a support for the design, which design is marked out into conducting and non-conducting surfaces, a series of terminals normally lying in contact with said design, said terminals being spaced apart a distance equal to the number of rows of holes to be punched, means for effecting relative progressive movements between said terminals and design corresponding to the number of rows of holes to be punched, and electric circuits within which said terminals and cores are respectively connected, said circuits being completed by the said terminals when lying on the conductive parts of said design, substantially as described.

16. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts in said frame, a bar having a movement transverse to said sliding frame, solenoids and cores to respectively connect said bolts and bar, a main shaft, means connected to said main shaft for reciprocating said sliding frame; and a corresponding electric selecting apparatus for energizing said cores, consisting of a support for the design, said design being marked out into non-conducting and conducting surfaces according to the pattern of the card; terminals in contact with said design, a stepped cam for giving to said terminals progressive movements of a number corresponding to the rows of holes to be punched in the card, and means connected with said main shaft for rotating said cam, substantially as described.

17. In a card-punching machine, in combination, a punching mechanism consisting of a sliding frame, punches and punch-operating bolts in said frame, a bar having a movement transverse to said sliding frame, solenoids and cores to respectively connect said bolts and bar, a main shaft, means connected to said main shaft for reciprocating said sliding frame and for progressively feeding the card under the punches; and a corresponding electric selecting apparatus for energizing said cores, consisting of a support for the design, said design being marked out into non-conducting and conducting surfaces according to the pattern of the card, terminals in contact with said design, a stepped cam for giving to said terminals progressive movements of a number corresponding to the rows of holes to be punched in the card, and means connected with said main shaft for rotating said cam, substantially as described.

698,848. STEAM-EXTRACTOR. GEORGE AUGUSTUS PIERCE, Falmouth, France. Filed Jan. 29, 1902. Serial No. 99,688. (No model.)

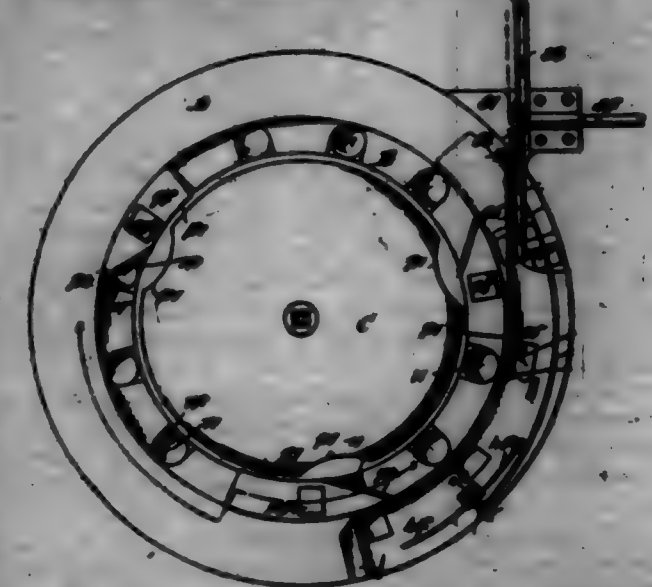


Claim.—1. In a boiler having a steam-escape leading to the atmosphere, a superheater, a pipe connecting it with the water in the boiler, a subintegrator, a pipe connecting it with the superheater, a pipe leading from the subintegrator to the atmosphere and to the steam-chamber in the boiler,

and automatic valves in the subintegrator operated by the pressure of the superheated steam, substantially as described.

2. A steam-extractor comprising a boiler, a superheater, a tube having pipes leading from the superheater and to both the boiler and the atmosphere, three pistons in said tube rigidly connected together, one piston exposed to the action of the superheated steam and the others adapted to close or open the pipes to the boiler and atmosphere, respectively, a cylinder, a pipe leading therefrom to the tube, a pipe leading from the cylinder to the tube and branching to meet the pipes leading to the boiler and atmosphere, respectively, and a spring acting upon the pistons in opposition to the superheated pressure, substantially as described.

698,849. FLANTER. JOHN A. ANDERSON, Kansas, U. S. Filed Aug. 27, 1901. Serial No. 73,492. (No model.)



Claim.—1. In a seed-planting attachment, a base-plate having an outlet for seed, a housing for the base-plate, a seed-dropping plate mounted to revolve between the base and housing, said seed-dropping plate having series of seed-carrying openings arranged to successively register with the outlet of the base-plate, and a mechanism for controlling the registry of the seed-dropping openings with the outlet in the base-plate to effect the delivery of seed, substantially as described.

2. In a seed-planting attachment, a base-plate having an outlet for seed, a housing attached to the base-plate, and a seed-dropping plate mounted to turn between the housing and the base-plate, the said seed-dropping plate having series of seed-carrying openings arranged for registry with the seed-outlet together with a series of feed-openings opposite the seed-carrying openings, said seed-carrying plate being also provided with concentric series of regulating-openings, a pin adjustable to any regulating-opening of the series, a spring-controlled support for the pin, a trip for the pin operated by contact with a point on the housing, dogs arranged to enter the feed-openings, and a rotary actuating device for the dogs, substantially as described.

3. In a seed-planting attachment, a base-plate having an outlet for seed, a housing attached to the base-plate, and a seed-dropping plate mounted to turn between the housing and the base-plate, said seed-dropping plate having series of seed-carrying openings arranged for registry with the seed-outlet, together with a series of feed-openings being in two divisions separated by a central partition, the said seed-carrying plate being also provided with a concentric series of regulating-openings outside of the feed-openings, a spring-controlled arm pivotedly attached to the base-plate, which arm is carried up over the periphery of the base and the seed-carrying plate and over the top of the latter, the upper portion of the said spring-controlled arm being provided with a series of apertures, a pin adapted to enter any one of the said apertures and any one of the regulating-openings in the said series, a member attached to the apertured portion of the said arm and extending within the recessed portion of the housing, a shield located at the outer end of the said member, which shield is capable of covering centrally of the feed-openings, a guide-bar pivotedly attached to the member carrying the shield, which guide-bar is passed through a suitable opening in the said pin, a shaft journaled to a support from the base-plate, and dogs differing in length extended from the said shaft, which dogs are adapted to enter the feed-openings in the seed-dropping plate, one at each side of the partition at the forward ends of the said openings, as and for the purpose described.

4. In a seed-planting attachment, a base-plate, a ring-housing for the said base-plate attached thereto, said housing having an extension at its periphery, a seed-dropping plate mounted to revolve between the base-

plate and the housing, the seed-dropping plate being provided with a circularly-arranged series of seed-receiving openings, a cap on the extension of the ring-housing, and a hinged wiper arranged beneath the cap, said wiper having its blade extending downwardly and diagonally of the seed-dropping plate and in the path of the seed-receiving openings as the said seed-dropping plate is revolved, substantially as described.

5. In a seed-planting attachment, a base-plate, a ring-housing for the said base-plate attached thereto, said housing having effects at its periphery, a seed-dropping plate mounted to revolve between its base-plate and the housing, the seed-dropping plate being provided with a circularly-arranged series of seed-receiving openings, a cap on each of the extensions of the ring-housing, pivoted wipers carried by the said caps, the blades of the wipers being arranged diagonally of the seed-dropping plate and in the path of the seed-receiving openings as the said seed-dropping plate is revolved, chambers formed at the under portion of the said ring-housing, and spring-controlled detents within the said chambers, which detents are arranged to enter the seed-dropping openings as the seed-dropping plate revolves, the wipers serving to remove excess of seed from the seed-carrying openings and the detents serving to prevent the seed-dropping plate from turning in a reverse direction, as set forth.

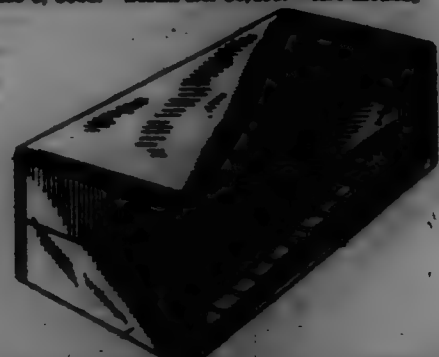
6. In a seed planter the combination with a base-plate having a seed-opening, a ring-housing attached to the base-plate and having extensions at its periphery, and a chamber in its upper face, and a seed-dropping plate having a plurality of seed-openings and arranged between the base-plate and housing, of a cap on each of the extensions of the housing, pivoted wipers carried by the housings beneath the caps and having their blades extending downwardly and diagonally of the seed-plate, and a pivoted and spring-pressed discharge-arm in the chamber of the housing, as set forth.

7. In a seed-planter, the combination with a seed-plate having a plurality of seed-openings, each adapted to receive a single seed, and means for operating said seed-plate, of mechanism for controlling the operation of the seed-plate-opening means to temporarily stop the said seed-plate to permit more or less seed to be delivered to a hill, as set forth.

8. In a seed-planter, the combination with revolvable seed-plate having a plurality of seed-openings, each adapted to receive a single seed, and means for engaging the seed-plate to revolve the same, of a device adapted to be moved between the seed-plate and one of the pivots to prevent the pivot from operating the seed-plate, as set forth.

9. In a seed-planter, the combination with a revolvable seed-plate having a plurality of seed-openings, each adapted to receive a single grain, and an opening at the side of each seed-opening, and pivots for engaging the said openings to revolve the plate, the said pivots engaging a different opening of a plate fitted to slide on the seed-plate over the openings at the side of the seed-openings, and means for controlling the movement of said plate, as set forth.

698,850. ACCOUNT-FILE. WILLIAM E. ANDERSON, Fulton, Mo.
Filed June 6, 1901. Serial No. 69,001. (No model.)

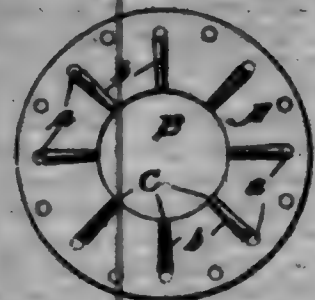


Claim.—1. A file-box open at one side, and having its interior entirely unobstructed, and composed of the two twin hinged sections, having laterally-located corner posts or abutments adapted to completely fill or engage later-extension notches of index-cards, and registering when the box is closed, substantially as specified.

2. The combination with the index-cards, each of which has a corner-notch at the forward or index side thereof, each notches being of the same dimension, and being bounded on one side by the outer edge of the card proper, and on the other side by the latter extension, of the file-box, each box being open at one side, and consisting of the two twin sections having laterally-located corner posts or abutments at each open side, and of a thickness or inner extent equal to the width of the latter extension of the index-card, said posts registering when the box is closed, substantially as specified.

698,851. ROLLER-BEARING. LEONARD F. ANDERSON, Providence, R. I., assignor to Standard & Granite Manufacturing Company, Providence, R. I. Filed Mar. 23, 1901. Serial No. 61,990. (No model.)

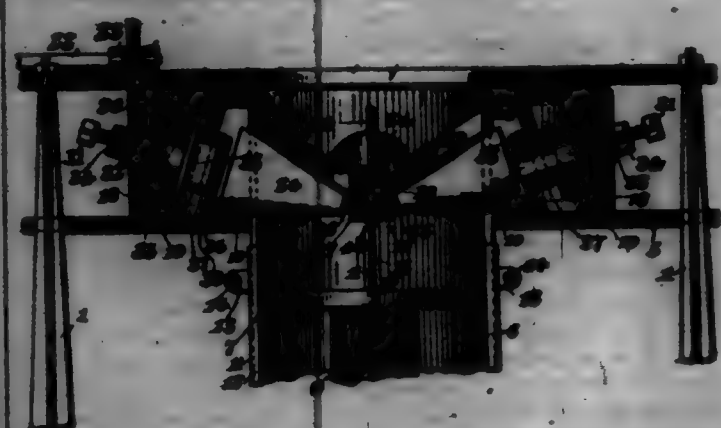
Claim.—1. A roller-bearing comprising a cage having an inner outer periphery and an open center with a plurality of radiating slots opening into said center, rollers fitting in said slots, and means for confining the rollers in the slots, substantially as described.



2. A roller-bearing comprising a cage having radiating slots formed therein, rollers within said slots, said cage having independent plates overlapping the edges of the slots to retain the same in place, substantially as described.

3. A roller-bearing comprising a cage of circular disk form having an open center and inner outer periphery and having radiating slots opening into said center, rollers retained in said slots, and horizontal bearing-plates inserted transversely through the plate at the outer ends of said slots, substantially as described.

698,852. ROLLING-PLATE. JAMES J. ANDERSON, Houston, Tex.
Filed Aug. 4, 1900. Serial No. 26,000. (No model.)



Claim.—1. In a press of the character described, the combination with the follower and a compressing-head arranged directly over said follower, of a circular series of conical rollers supported by said head, means for causing a relative rotation between said follower and said compressing-head, and means actuated by the rotatable element for imparting an independent positive rotation to the individual conical rollers at slightly more than normal speed, substantially as set forth.

2. In a press of the character described, the combination with the follower, of a series of compressing-rollers arranged over said follower, and driving means for imparting an independent positive rotation to said rollers at slightly more than normal speed, substantially as set forth.

3. In a press of the character described, the combination with the follower, of a series of compressing-rollers cooperating with said follower, and means for imparting a positive rotation to said rollers at slightly more than normal speed, substantially as set forth.

4. In a press of the character described, the combination with the rolling-chamber, of a series of conical compressing-rollers cooperating with said chamber, and means for causing an independent positive rotation of said rollers at slightly more than normal speed.

5. In a press of the character described, the combination with the rolling-chamber, of a series of compressing-rollers arranged over said chamber, driving means for imparting an independent positive rotation to said rollers, and separate means for varying the peripheral speed of said rollers, substantially as set forth.

6. In a press of the character described, the combination with the rolling-chamber, of a circular series of conical pressing-rollers cooperating with the chamber, means for imparting a positive rotation to said rollers, and means for causing a variation of the peripheral speed of said rollers within the plane of the rolling-chamber, substantially as set forth.

7. In a press of the character described, the combination with the rolling-chamber, of a roller-carriage, a series of conical rollers supported by said carriage, means for maintaining a relative rotation between the chamber and said carriage, means for imparting an independent positive rotation to the individual rollers, and separate means for causing a variation in the peripheral speed of the rollers within the plane of the rolling-chamber, substantially as set forth.

8. In a press of the character described, the combination of the rolling-

chamber, a series of pressing-rollers, cooperating with said chamber, and means for varying the peripheral speed of said rollers, substantially as set forth.

9. In a press of the character described, the combination of the rolling-chamber, a series of conical pressing-rollers cooperating with said chamber, and means for causing a variation in the peripheral speed of the conical rollers within the plane of the rolling-chamber, substantially as set forth.

10. In a press of the character described, the combination of the rolling-chamber, a horizontal circular series of conical pressing-rollers grouped at the head of the rolling-chamber, and having a projection outside of the plane thereof, and means for varying the extent of the peripheral surface of the rollers within the plane of the rolling-chamber to provide for varying the peripheral speed thereof, substantially as set forth.

11. In a press of the character described, a fixed rolling-chamber, a revolvable roller-carriage arranged at the head of said chamber, a series of conical pressing-rollers carried by said carriage, means for imparting a rotary movement to the carriage, and means actuated by the movement of the revolvable carriage for imparting an independent positive rotation to the individual rollers at slightly more than normal speed, to cause them to compress the crutch formed in advance of the rollers by the compression of the cotton, substantially as set forth.

12. In a press of the character described, the combination of a rolling-chamber, a roller-carriage arranged at the head of the chamber, a series of conical pressing-rollers supported by the carriage and capable of longitudinal movement, adjustable bearing-supports for said rollers to provide for varying the projection thereof within the vertical plane of the rolling-chamber, and means for causing a relative rotation between the rolling-chamber and the carriage, substantially as set forth.

13. In a press of the character described, a fixed rolling-chamber, a revolvable roller-carriage arranged at the head of the chamber, a circular series of conical pressing-rollers grouped within the carriage, adjustable bearing-supports for the rollers to provide for the longitudinal adjustment thereof to vary their projection within the vertical plane of the rolling-chamber, means for rotating the carriage, and separate means for independently rotating the rollers, substantially as set forth.

14. In a press of the character described, the combination of a fixed supporting-frame having a stationary circular rack, a rolling-chamber pivoted from the supporting-frame, a revolvable roller-carriage, and a series of conical rollers supported by the carriage and carrying individual driving-gears meshing with said rack and caused to roll thereon by the movement of the carriage, but at slightly more than normal speed, substantially as set forth.

15. In a press of the character described, the combination of a supporting-frame having a stationary circular rack, a revolvable roller-carriage having an interior pendant bearing-hanger, a series of conical pressing-rollers supported by the carriage and movable therewith, said rollers being provided with inner and outer spindle extremities having bearing-supports, and driving-gears mounted on the outer spindle extremities of the rollers and having hub portions journaled in said pendant bearing-hanger, said driving-gears meshing with the circular rack of the supporting-frame and caused to roll thereon by the movement of the carriage, but at slightly more than normal speed, substantially as set forth.

16. In a press of the character described, the combination of the supporting-frame having a circular rack, a rolling-chamber pivoted from said frame, a revolvable roller-carriage, mounted within the frame, and provided with a central bearing-hub and an outer pendant rim, a series of conical pressing-rollers grouped within the open center of the carriage and having a projection outside of the plane of the rolling-chamber, said rollers having inner and outer spindle extremities, the inner of which have a loose bearing in the central bearing-hub, adjustable bearing-covers mounted in the outer rim of the carriage, and engaging with the outer spindle extremities of the rollers, driving-gears for the individual rollers loosely keyed or splined upon the outer spindle extremities thereof and supported within the carriage, and separate means for rotating the carriage, substantially as set forth.

17. In a press of the character described, the combination with the pressing mechanism and the follower having wire-receiving grooves in the face thereof, of a rolling cylinder or chamber provided with a plurality of longitudinally-disposed de-rotating slots cooperating with the grooves of the follower, removable filling-strips fitting in the slots of the rolling cylinder or chamber, and fastening means for said filling-strips, substantially as set forth.

18. In a press of the character described, the combination with the rolling-chamber, of a compressing-head arranged over said chamber, a circular series of conical rollers supported by said head, means for causing a relative rotation between the rolling-chamber and head, means actuated by the rotatable press member for rotating the rollers at slightly more than normal speed, and means for changing the speed of the rollers.

19. In a press of the character described, the combination with a

follower and a compressing-head in opposed relation, of a circular series of conical rollers supported by the head, means for effecting the relative rotation of the follower and compressing-head, and means for rotating the individual rollers at slightly more than the normal speed, whereby the tendency of the fiber to break up in advance of the rollers is overcome.

698,853. ROLLING-PLATE. JAMES J. ANDERSON, Houston, Tex.
Filed Apr. 17, 1901. Serial No. 64,990. (No model.)



Claim.—1. In a press of the character described, the combination with a rolling-chamber and a compressing-head, of means for effecting the relative rotation of the head and chamber, and means for opposing resistance to the undue drawing of the fiber, of the bale loaded within the chamber, toward the center of the bale from the outer portion thereof.

2. In a press of the character described, the combination with a rolling-chamber and a compressing-head, of means for effecting the relative rotation of the head and chamber, and a compression member carried by the head and bearing against the face of the bale at or adjacent to the outer edge only thereof to prevent the undue drawing of the fiber toward the center of the bale.

3. In a press of the character described, the combination with a follower and a compressing-head including a series of compressing members, of a compression device disposed intermediate of the compressing members and bearing against the face of the bale to prevent undue drawing of the fiber toward the center thereof.

4. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber, a circular series of conical rollers supported by said head and disposed within the plane of the rolling-chamber, means for causing a relative rotation between the rolling-chamber and said compressing-head, and means disposed intermediate of the rollers for opposing resistance to the undue drawing of the fiber toward the center of the bale.

5. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber, a circular series of conical rollers supported by said head, means for causing a relative rotation between the rolling-chamber and said compressing-head, and a compression-ring disposed to bear against the end of the bale at points intermediate of the rollers to oppose a resistance to the undue drawing of the fiber toward the center of the bale.

6. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber, and provided with a compression-ring located above, but within the circumferential plane of, said chamber, a circular series of conical rollers supported by said head and disposed in the vertical plane of the rolling-chamber, the under sides of said rollers being disposed in a plane slightly below the plane of the lower edge of the compression-ring, and means for causing a relative rotation between the rolling-chamber and said compressing-head, whereby the bale will be compressed and undue drawing of the fiber toward the center of the bale will be prevented by the compression-ring.

7. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber and provided with a compression-ring, concentric with but of smaller diameter than the chamber and divided to form a feed-opening, a guard for said feed-opening disposed substantially in the vertical plane of the wall of the rolling-chamber, and a series of conical rollers supported by said head and passed through the compression-ring.

8. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber, and having a pendant inner wall constituting a compression-ring concentric with but of smaller diameter than the rolling-chamber, and a series of compressing rollers supported by the head and passed through the compression-ring.

9. In a press of the character described, the combination with a rolling-chamber, of a compressing-head arranged over said chamber and provided with a pendant inner wall constituting a compression-ring concentric with but of smaller diameter than the rolling-chamber, said wall being divided to form a feed-opening, one side of which is inclined, a guard

plate disposed directly opposite the feed-opening, and a circular series of conical rollers supported by the head and passed through the guard-ring, said rollers being disposed to define a feed-space in line with the opening in the ring.

10. In a press of the character described, the combination with a balling-chamber, of a compressing-head arranged over said chamber and having a pendant inner wall concentric with but of smaller diameter than the chamber, and divided at one side to form a feed-opening, a spring-ring encircling the upper end of the compressing-head, a guard-ring encircling the spring-ring and retained within the head, said guard-ring being provided with a pendant guard-plate arranged opposite the opening in the ring, a series of conical rollers supported by the head, and means for effecting the relative rotation of the head and chamber.

11. In a press of the character described, the combination with a balling-chamber, of a compressing-head arranged over said chamber, a circular series of conical rollers supported by said head and disposed within the plane of the balling-chamber, means for causing a relative rotation between the balling-chamber and the compressing-head, means for positively actuating the rollers, and means disposed intermediate of the rollers for resisting the undue drawing of the fiber toward the center of the bale from the outer portion thereof.

12. In a press of the character described, the combination with a balling-chamber, of a compressing-head provided with a series of conical rollers supported by said head and having mutually-journalled inner and outer spindles, adjustment-curved disposed to shift said rollers longitudinally, and antifriction-balls interposed between the spindles and the adjacent ends of the roller-spindles.

13. In a press of the character described, the combination with a follower, of a compressing-head arranged over said follower, a circular series of conical rollers supported by said head, means for causing a relative rotation between said follower and said compressing-head, and a compressing-ring disposed to bear against the end of the bale at points intermediate of the rollers to oppose a resistance to the undue drawing of the fiber toward the center of the bale.

14. In a press of the character described, the combination with a follower, of a compressing-head arranged over said follower and provided with a compression-ring concentric with but of smaller diameter than the follower and divided to form a feed-opening, and a series of conical rollers supported by said head and passed through the compression-ring.

15. In a press of the character described, the combination with a follower, of a compressing-head arranged over said follower and having a pendant inner wall constituting a compression-ring concentric with but of smaller diameter than the follower, and a series of compressing-rollers supported by the head and passed through the compression-ring.

16. In a press of the character described, the combination with a follower, of a compressing-head arranged over said follower, and composed of a series of conical rollers, said head having a pendant inner wall constituting a compression-ring concentric with but of smaller diameter than the follower, and means for imparting an independent positive rotation to said rollers at slightly more than normal speed.

17. In a press of the character described, the combination with a balling-chamber, and a compressing-head, of means for effecting the relative rotation of the head and chamber, and means located within the chamber for opposing resistance to the undue drawing of the fiber toward the center of the bale from the outer portion thereof.

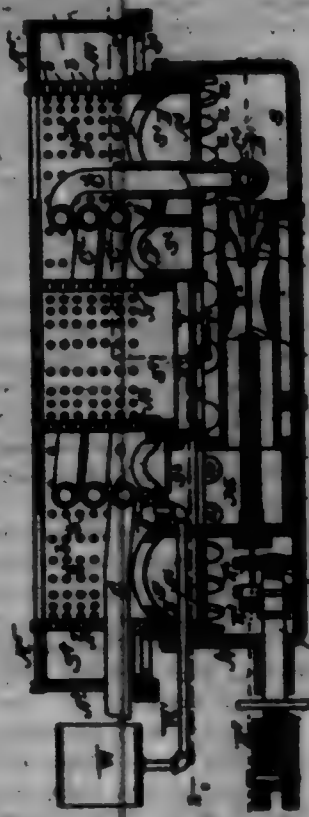
698,854. METHOD OF BURNING OIL. GEORGE I. BARNES, Quincy, Mass., assignor to Republic Auto-Fuel, Power and Burner Company, Portland, Me., and Lynn, Mass., a Corporation of Maine. Filed Aug. 2, 1900. Serial No. 26,712. (No specimens.)

Claim.—1. The method of converting hydrocarbons for fuel, which consists of vaporizing the hydrocarbons or oil under pressure by heat, dividing the supply of vapor into two jets, mixing each jet of vapor with air, additionally mixing, by the expansive force of the oil-vapor, with each jet of mixed vapor and air, a further supply of air proportional to the amount of vapor supplied by each jet, commingling the several jets of mixed vapor and air, and igniting the mixture, substantially as set forth.

2. The described process of converting hydrocarbons for fuel, which consists of vaporizing the hydrocarbons or oil under pressure by heat, dividing the supply of vapor into two jets, mixing each jet of vapor with air, additionally mixing, by the expansive force of the oil-vapor, a further supply of air therewith, feeding said additional air-supply successively in separate quantities to the oil-vapor within the mixing-passages, commingling the several jets of mixed vapor and air, and igniting the mixture, substantially as set forth.

3. The method of converting hydrocarbons for fuel, which consists of vaporizing the hydrocarbons or oil under pressure by heat, dividing the supply of vapor into two jets, mixing each jet of vapor with air, additionally mixing, by the expansive force of the oil-vapor, with each mixed vapor

and air jet, an additional air-supply, feeding progressively each additional air-supply with the increased volume of the vapor-jet, proportional to the amount of vapor supplied by each jet, commingling the several mixed vapor and air jets, and igniting the mixture, substantially as set forth.



698,855. PROCESS OF MAKING AROMATIC ALDEHYDES AND ACIDS. MAX RAUEN, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik, Ludwigshafen, Germany, a Corporation of Baden, Germany. Filed Mar. 16, 1901. Serial No. 51,097. (No specimens.)

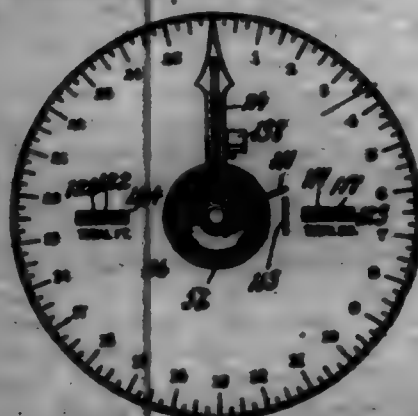
Claim.—1. The process of making aromatic aldehyde and acid which consists in treating a benzoinolone-defined telonic substance with the peracid of a metal of the nickel group, a salt of a metal of the nickel group and a suitable oxidizing agent.

2. The process of making aromatic aldehyde and acid which consists in treating a benzoinolone-defined telonic substance with the peracid of a metal of the nickel group and a salt of a metal of the nickel group.

3. The process of making aromatic aldehyde and acid which consists in treating a benzoinolone-defined telonic substance with the peracid of a metal of the nickel group.

4. The process of making ortho-nitro-benzaldehyde and ortho-nitro-benzoic acid which consists in treating ortho-nitro-telonic with nickel peracid, nickel chloride and sodium hypochlorite.

698,856. INDICATOR. BENJ. V. BARNES, Boston, Mass. Filed Apr. 15, 1901. Serial No. 54,900. (No model.)



Claim.—1. An indicator, correcting means having a predetermined influence in opposite directions to correct said indicator to its fractional divisions, said means being operative throughout the cycle of the indicator, a unidirectional influence-propelling shaft, and a clip connection between said indicator and shaft.

2. A primary indicator, a secondary indicator actuated proportionately thereto, provision for ranging the primary indicator independently of the secondary indicator, and means actuated by the rotating of the primary indicator and having a predetermined influence in opposite directions to correct said secondary indicator to its fractional divisions.

3. A primary indicator having a series of indicating divisions on or between which it indicates, a secondary indicator actuated proportionately to said primary indicator, provision for ranging the primary indicator independently of the secondary indicator, and means actuated by the rotating of the primary indicator for correcting the secondary indicator to the amount of said divisions indicated by the primary indicator.

4. An indicator, and a correcting device therefor comprising a rotary member connected to the indicator and a stationary member, one of which is a wheel having a series of cam divisions and the other a coasting cam-dog adapted to register the cam divisions with itself, and provision for bringing said members into and out of coasting relation.

5. A device for indicating the measurements of a series of articles comprising a shaft whose rotary movements are to be measured, a total indicator provided with a movable indicating member having a clip connection with said shaft, a primary indicator for individual indications provided with a movable indicating member having a clip connection with said shaft whereby it may be returned after an indication, and a correcting device for the total indicator comprising a rotary member connected to the movable total-indicator member, and a stationary member, one of which is a wheel having a series of cam divisions and the other a coasting cam-dog adapted to register the cam divisions with itself, and provision for bringing said members of the correcting device into coasting relation by the return of said movable primary-indicator member.

6. In an indicating device, a unidirectional shaft, an indicating member adapted to measure the rotation of said shaft and having a clip connection therewith permitting it to be reset with respect thereto, and a counter operated by said indicating member and adapted to count the strokes thereof.

698,857. FIFTH-AND-GREENS. GEORGE W. BARN, Boston, Mass., assignor of one-half to John A. Parker, Boston, Mass. Filed Nov. 15, 1901. Serial No. 52,425. (No model.)



Claim.—1. The combination with a piston-rod connection of the character specified, of locking means therefor, comprising laterally-movable members associated with the rod-end members, and means for forcing the movable members to bring the rod-end members into engagement with the ball.

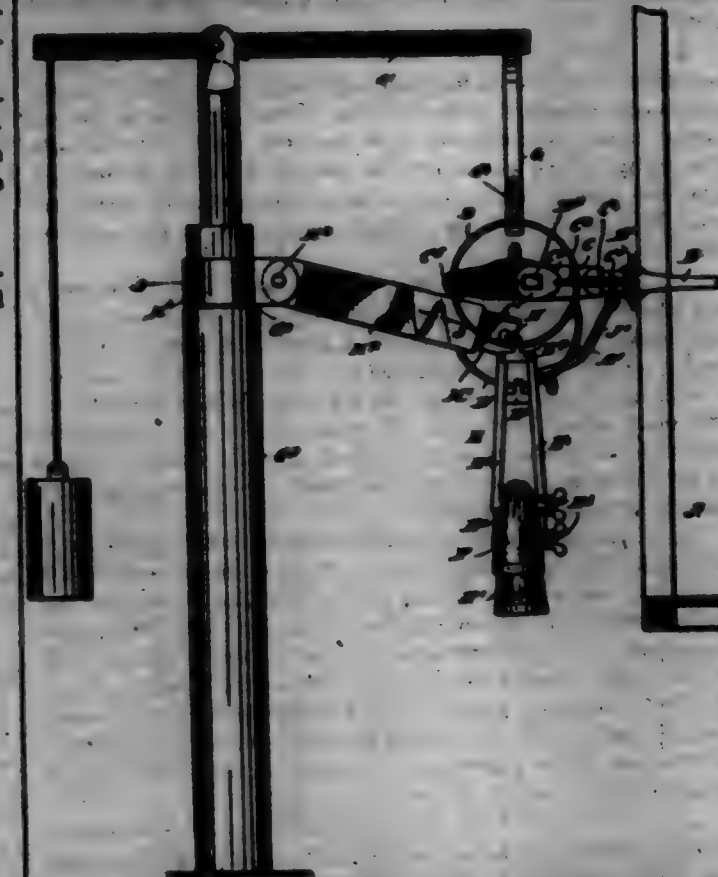
2. The combination with a ball-and-socket piston-rod connection of locking means therefor comprising laterally-movable spring-pressed members associated with the rod-end members, means for returning the movable members to bring the rod-end members into engagement with the ball, and mechanism for locking the said means in adjusted position.

3. The combination with a ball-and-socket piston-rod connection, of locking means therefor comprising two laterally-movable plates carried by the rod-end members, and provided intermediate of their ends with openings, a pivoted dog having a part to engage the openings to effect lateral rotation of the plates, and means for locking the dog in its adjusted position.

4. The combination with a ball-and-socket piston-rod connection, of locking means therefor comprising two laterally-movable plates, each provided with an opening intermediate of its ends, and with means for limiting its range of lateral movement, springs carried by the outer portions of the plates and operating normally to hold the rod-end members separated, a dog provided with a toe for engaging said openings to retract the plates laterally to bring the rod-end members into engagement with the ball, and a collar mounted on the rod-end member and having a detent to engage teeth or cam-faces on the dog, whereby to hold the same in its adjusted position.

5. The combination with a ball-and-socket piston-rod connection, of locking means therefor, comprising two laterally-movable plates each provided intermediate of its ends with an opening and with means for limiting its range of lateral movement, a pivoted dog having a part to engage the openings to effect lateral rotation of the plates, and means for locking the dog in its adjusted position.

698,858. MAIL-BAG DELIVERER AND CATCHER. GEORGE R. BARNES, Princeton Junction, N. J. Filed Nov. 2, 1901. Serial No. 51,098. (No model.)



Claim.—1. In a device of the class described, the combination with a crane having means for suspending a mail-bag at a station, of an arm hinged to swing toward and from the crane and provided with devices for engaging with said bag-suspension means, a car-bag catcher mounted and projecting from one side of the swing-arm and provided with a holding member and with a catch arranged to cooperate with said member.

2. In a device of the class described, the combination with a station-crane having bag-suspension devices, of an arm hinged to swing toward and from the crane, and having means adapted to engage with said station-crane devices, and a car-bag catcher yieldably mounted on said swing-arm and capable of a combined movement relative thereto under the impact of a car-bag, said catcher being movable with the swing-arm and having a holding member, and a catch arranged to cooperate with said member.

3. In a device of the class described, the combination with a station-crane, of a two-part swing-arm, one of the members of said arm being pivoted on the crane, and the other member being slidably fitted to the pivoted member, said slidable member being normally impelled by a spring, and having means adapted for engagement with a station-crane device.

4. A mail-bag deliverer and catcher, comprising an arm on the mail-car, a catcher yieldably mounted on the car-arm, a station mail-pouch support adapted to be engaged by said catcher on the car-arm and to be removed thereby from the station, a spring station-arm held in an active position by said station mail-pouch support, a catcher yieldably held on said station-arm, and a car mail-pouch support carried by the car-arm and adapted to be delivered by the crane to the second-named catcher which is carried by the spring station-arm.

8. A device of the class described, provided with a mail-pouch support comprising a ring, an eye on the ring, arms pivoted on the eye, and a locking device for locking the free ends of the arms together, as set forth.

9. A device of the class described, provided with a mail-pouch support comprising a ring, an eye on the ring, arms pivoted on the eye, and a locking device for locking the free ends of the arms together, the said locking device consisting of a shank on the free end of one of the arms and having an arrow-head, and spring-pressed catches on the free end of the other arm and adapted to engage the said arrow-head, as set forth.

10. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, and a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, as set forth.

11. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, and a catch held in the said slide to receive the ear mail-pouch carrier, as set forth.

12. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, and a catch held in the said slide to receive the ear mail-pouch carrier, the said catch comprising a shank mounted to slide on the pin and having a nose, and a spring-pressed catch operating in conjunction with the said nose, as set forth.

13. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, and a catch held in the said slide to receive the ear mail-pouch carrier, the said catch comprising a shank mounted to slide on the pin and having a nose, a spring-pressed catch operating in conjunction with the said nose, and a cross-bar on the said shank, and carrying a second shank on which the spring-pressed catch is fulcrumed, as set forth.

14. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, a catch held in the said slide to receive the ear mail-pouch carrier, the said catch comprising a shank mounted to slide on the pin and having a nose, a spring-pressed catch operating in conjunction with the said nose, and a cross-bar on the said shank, and carrying a second shank on which the spring-pressed catch is fulcrumed, as set forth.

15. A device of the class described, provided with a station-post, a lever fulcrumed thereon, a ring removably hung on the said lever, a mail-pouch holder suspended on the said ring, an arm fulcrumed on the post, a spring-pressed slide movable in the said arm, a pin on the said slide for engaging the said ring to hold the arm and slide in an operative position, a catch held in the said slide to receive the ear mail-pouch carrier, the said catch comprising a shank mounted to slide on the pin and having a nose, a spring-pressed catch operating in conjunction with the said nose, and a cross-bar on the said shank, and carrying a second shank on which the spring-pressed catch is fulcrumed, and a spring interposed between the cross-bar and slide, as set forth.

16. In a device of the class described, the combination with a movable ear-arm, of a guide-arm projecting therefrom, and a station-bag catcher yieldably mounted on said guide-arm to give backwardly to the impact of a station mail-bag, said catcher having a holder member and a catch cooperating therewith.

17. A device of the class described, having a car-arm, a supporting-arm rigid thereon, a catch on the supporting-arm, a pivoted arm on the said car-arm, and a catch on the pivoted arm, as set forth.

18. In a device of the class described, the combination with a car-arm, of a guide-arm projecting therefrom, a station-bag catcher yieldably mounted on said guide-arm, and means operatively related to said catcher to absorb the shock due to the impact of a bag with the catcher.

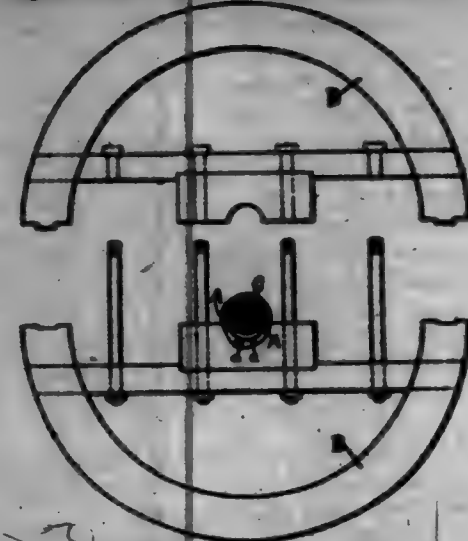
19. In a device of the class described, a bag-catcher comprising a hollow holding member provided with a nose at its extremity, a cross-bar held with said member and provided with a shank that lies adjacent to the member, and a yieldable catch mounted on the shank and opening the space between the shank and the member to cooperate with the nose thereof.

20. In a device of the class described, a bag-catcher having a holding member provided with a laterally-extending nose, a shank adjacent

to said member, and a yieldable catch opening the space between the member and the shank, said catch being mounted on said shank to open inwardly from the nose and adapted to be seated firmly against said nose and to be limited in its closing movement thereby.

21. In a device of the class described, the combination with a station-arm, and a swing-arm thereon, of a pin carried by said arm, a car-bag catcher yieldably mounted on an end portion of said pin and provided with a holding member and a catch, means for limiting the movement of the catcher, and a cushion device opposing the movement of the catcher.

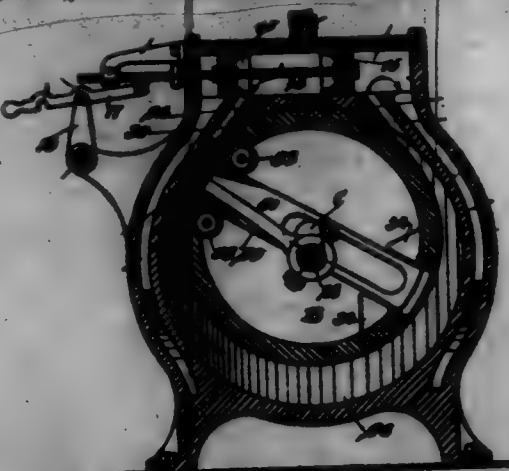
698,859. SPLIT-PULLEY RANGER. JAMES W. BERRY, Tacoma, Wash., assignor to Tacoma Automatic Scales Co., Tacoma, Wash. Filed Aug. 31, 1901. Serial No. 73,908. (No model.)



Claim.—1. The combination with a split pulley of a swinging arm or hook pivotally attached to one side of one half of a split pulley, said arm or hook so formed as to swing over and engage the pulley-shaft and support the half of the split pulley thereon.

2. The combination with a split pulley of a pair of arms or hooks pivotally attached, one on each side of one part of said pulley, said arms so formed as to swing over and engage the pulley-shaft and support the one part of the split pulley thereon while the other part is being held thereby and in place.

698,860. ROTARY ENGINE. ROBERT B. BENT, Bagby, Minn. Filed Jan. 4, 1902. Serial No. 351. (No model.)



Claim.—1. A rotary engine having a cylinder, a piston working therein, a slide-valve controlling the supply of steam to the cylinder, an eccentric driven from the piston, a rock-shaft driven from the eccentric, and a notched arm connected with the valve and adapted adjustably to engage a part of the rock-shaft to be actuated therefrom.

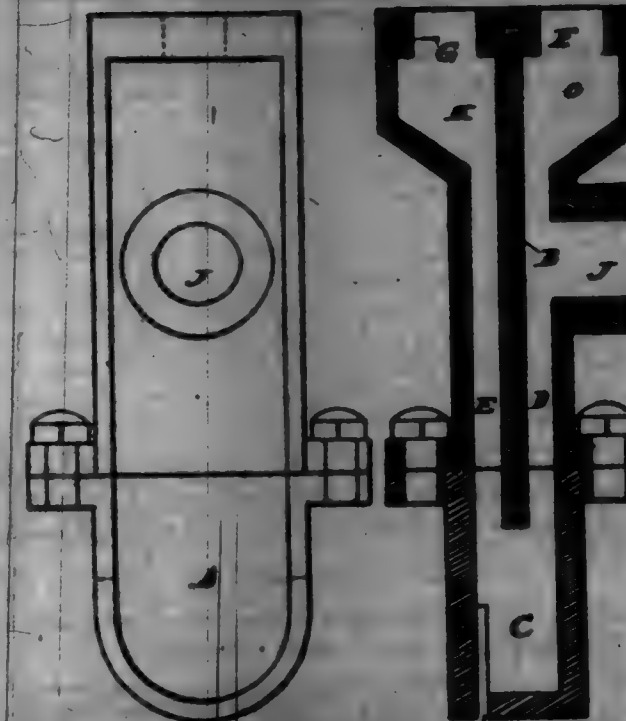
2. A rotary engine, having a cylinder, a piston working therein, a piston-rod mounted in the piston, and working through an opening therein, means connected with the piston-rod to cause the movement thereof, and a hollow roller against which the piston-rod bears, the roller having perforations permitting a lubricant to be expelled from the interior of the roller.

3. A rotary engine having a cylinder divided into a plurality of concentrically-disposed compartments, a piston working in each compartment of the cylinder, the pistons being connected together, a piston-rod for each piston, the piston-rods sliding radially in the pistons, a movement-transmitting means located outside of the engine and connected with the pistons, a stationary crank-shaft passed through the piston-rods, means connecting the piston-rods with said crank-shaft, and valve devices for con-

rolling the passage of steam from one compartment of the cylinder to the other, the cylinder being formed with a passage leading between the compartments, for the purpose specified.

4. The combination of a cylinder, a piston arranged concentrically therein, a piston-rod sliding radially in the piston, a stationary crank-shaft disposed centrally of the piston, an arm journaled on the crank of said shaft, the arm extending to the working end of the piston-rod and having a transverse enlargement mounted to rest in said outer end of the piston-rod, the enlargement of the arm bearing against the interior wall of the cylinder, and a positive connection between the outer end of the piston-rod and the said enlargement and arranged to permit of the rocking movement of the latter, the piston being mounted to turn on the stationary shaft, thereby causing the arm journaled on the crank to move the piston-head, for the purpose specified.

698,861. OIL-BURNER FOR FURNACES. WILLIAM BROWN, San Francisco, Cal. Filed Oct. 14, 1901. Serial No. 73,681. (No model.)



Claim.—1. An oil-burner of the class described for spraying crude oil into furnaces, consisting of a flat rectangular casing provided with an oil-passage and adjacent steam-passage, separated by a partition; a nipple bolted onto the casing in front of the partition, the interior of said nipple forming a chamber, a horizontal floor in said chamber and a slit in the forward end of the nipple in line with the floor of the chamber, substantially as described.

2. In an oil-burner of the class described for spraying crude oil into furnaces, a flat rectangular nipple secured to the front end of the burner; a rectangular chamber in said nipple, a horizontal slit entirely across the front and extending for a distance back along each side of the extremity of the nipple which projects into the furnace, substantially as described.

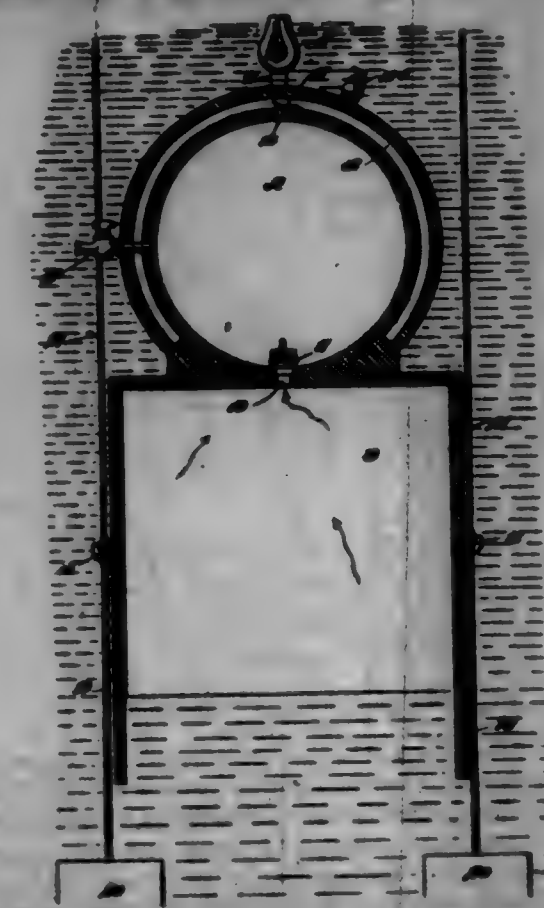
3. In an oil-burner for intermingling steam and oil and spraying them into a furnace, a rectangular chamber in the forward end of the burner or nozzle in front of the partition which separates the oil and steam passages, a horizontal floor in said chamber and a slotted opening in the front end of the nozzle in line with the floor of the chamber, substantially as described.

698,862. MEANS FOR COMPRESSION OF LIQUEFIED GASES. ROBERT BENTLEY, Cambridge, Mass. Filed June 7, 1902. Serial No. 14,881. (No model.)

Claim.—1. Means for compressing and liquefying gas, which consists in a compressing-cylinder open at its bottom, a gas-receiver carried by the upper portion of the cylinder, a communication between the gas-receiver and cylinder, which communication is normally closed by a valve opening inwardly in the receiver, the said receiver being provided with a substantially horizontal chamber between its inner and outer walls in communication with the main chamber, and means for drawing off the compressed gas from the receiver, as set forth.

2. Means for compressing and liquefying gas, which consists in a compressing-cylinder open at its bottom, a gas-receiver carried by the upper portion of the cylinder, a communication between the gas-receiver and cylinder, which communication is normally closed by a valve opening inwardly in the receiver, the said receiver being provided with a substantially horizontal chamber between its inner and outer walls in communication with the main chamber, and means for drawing off the compressed gas from the receiver, as set forth.

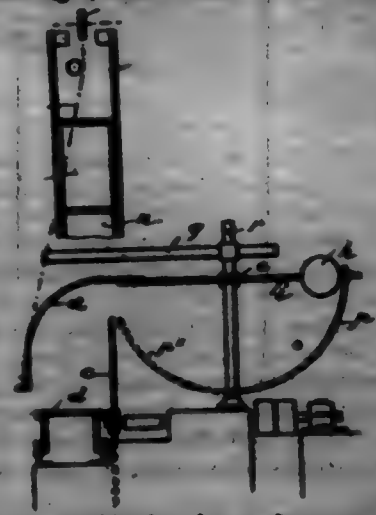
with the main chamber, means for drawing off the compressed air from the receiver, projections from the cylinder, weights suspended from the said projections, and means for manually displacing the weights from the cylinder, the said weights being adapted also to automatically disconnect themselves from the cylinder when the air in the cylinder has been compressed in the receiver, as set forth.



3. A deep-on apparatus for the liquefaction of gases, comprising an open receptacle and two closed receptacles, said open receptacle communicating with one of said closed receptacles by means of a valve, and said closed receptacles communicating with each other by means of another valve, and means for sliding said receptacles into the deep on and raising the same therefrom.

4. A deep-on apparatus for the liquefaction of gases, comprising an open receptacle and a receptacle closed by a valve, said receptacles communicating with each other, detachable weights for sliding said receptacles into the on, and means for disengaging said detachable weights at will.

698,868. SAW-PROTECTING DEVICE. AUGUSTE BURMEISTER, Valreux, France. Filed Aug. 7, 1901. Serial No. 71,582. (No model.)



Claim.—1. The combination of a saw-blade, a saw mounted thereon, a protecting-head pivoted above the saw, a counterbalancing-weight thereon, and a device attached to the head and moved, when the head is raised, into position to prevent the feeding of work to the saw, substantially as described.

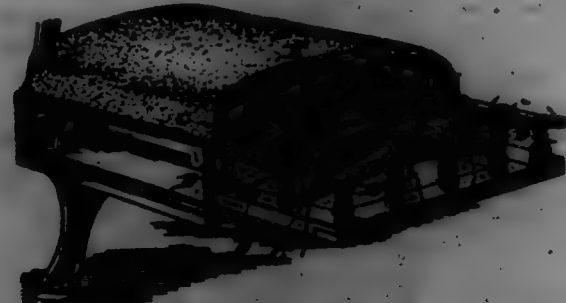
2. The combination of a saw-blade, a saw mounted thereon, a curved head pivoted above the saw, an extension of the head beyond the pivot thereof, a counterweight on said extension, and a curved rod secured to the extension to prevent the feeding of work to the saw when the head is raised, substantially as described.

698,864. APPARATUS FOR DISTRIBUTING HYDROCARBON UNDER PRESSURE TO HYDROCARBON-LAMPS. JAMES C. BRADY, St. Louis, Mo. Filed Apr. 27, 1900. Serial No. 14,915. (No model.)



Claim.—In an apparatus for distributing hydrocarbon to street-lamps, the combination with a plurality of street-lamps the base of one of which constitutes a chest provided with two compartments arranged one above the other, of a hydrocarbon-tank and a fluid-pressure tank arranged in said compartments, the fluid-pressure tank being detachably connected to the hydrocarbon-tank and removable from the chest, a service-pipe leading from the hydrocarbon-tank to the several lamps, and means for conveying fluid-pressure from the pressure-tank to the hydrocarbon-tank in regulated quantities to force the hydrocarbon to the several lamps, substantially as described.

698,865. SPRING-SEAT. JOHN J. BRADLEY, Fallman, Ill. Filed Apr. 12, 1901. Serial No. 55,725. (No model.)



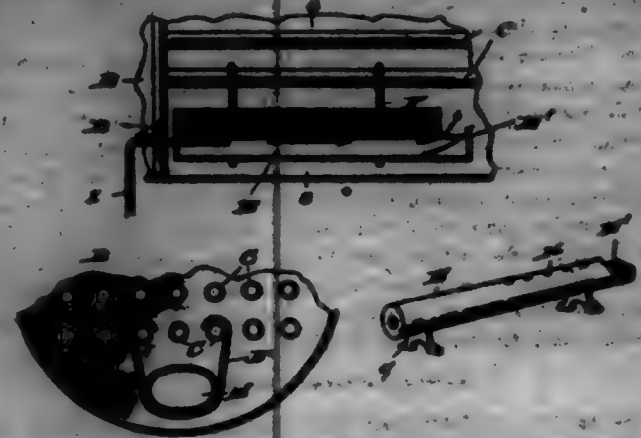
Claim.—1. In a spring-seat, the combination with the main frame, of the lower flat metal springs, the upper flat metal springs, the ends of the upper springs having eyes formed thereon, and the upper frame supported and held in the said eyes, and the springs arranged between the upper and lower flat springs, and connected thereto, substantially as described.

2. A spring-seat comprising a main frame, the lower flat metal springs connected thereto, the upper flat metal springs, the intermediate coil-springs connecting the upper and lower flat springs, the upper springs having eyes at their ends and dovetail-shaped portions adjacent to said ends, the lower flat springs each having a dovetail-shaped portion at its center, and the upper frame, supported in the eyes at the ends of the upper flat springs.

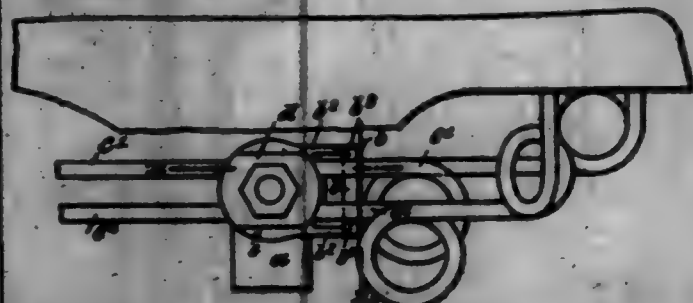
698,866. FIRE-WATER HEATER AND FURNACE. ISAAC BRONK, Pittsburgh, Pa. Filed May 12, 1900. Serial No. 714,818. (No model.)

Claim.—An improved article of manufacture, a water heater and furnace consisting of a cylinder F, open at one end and closed at the other, having a series of perforations H, the hangers F, said hangers being essentially U-shaped and having their upper ends hooked or bent to engage the boiler-ends, and a pipe I leading into the closed end of the cylinder above the bottom, substantially as above and described.

698,868.

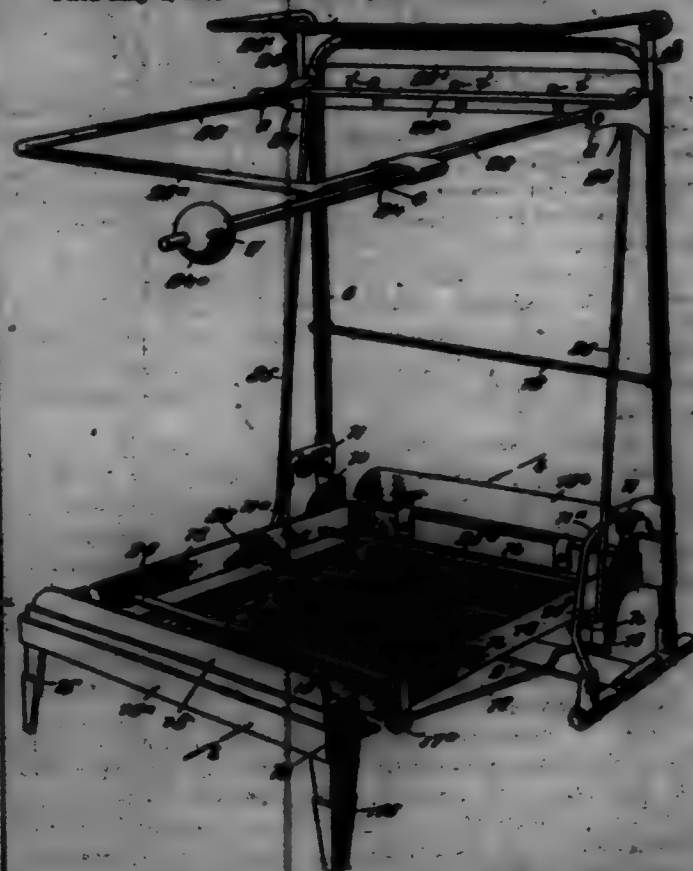


698,867. CYCLE-HANDLE. JOHN E. BROWN and JOHN HARR, Birmingham, England. Filed Nov. 28, 1901. Serial No. 62,451. (No model.)



Claim.—A pillar attachment-clip having washers grooved to receive the flanges of the handle, said washers having resilient extensions also grooved to receive said flanges, and means for holding the washers in place.

698,868. FOLDING BED. CYRIL F. BROWN, Springfield, Mich. Filed May 4, 1901. Serial No. 55,726. (No model.)



Claim.—1. In a folding bed, the combination with a head-frame having feet, a transverse base-plate on said feet, and a bracket-plate extended from the base-plate over its center, of an auxiliary base-plate which is pivoted by one end on the bracket-plate to receive vertical or horizontal adjustment, and a spring-controlled latching device adapted to hold the auxiliary base-plate in upright or lowered position.

2. In a folding bed, the combination with an upright head-frame, of a base, a double-flanged bracket-plate projected from the base proper, an auxiliary base-plate joined upon the flange of the bracket-plate, and a

latching device adapted to hold the auxiliary base-plate upright or in lowered position.

3. In a folding bed, the combination with an upright head-frame, of a base, a bracket-plate having two spaced upright flanges, one of said flanges having a hook-end on one end and a notch in the upper edge spaced from the hook-end, an auxiliary base-plate pivoted at one end between the upright flanges, and a spring-pressed latch-bar pivoted on the auxiliary base-plate and adapted to engage beneath the hook-end when the base-plate is lowered, and enter the notch when said auxiliary base-plate is elevated.

4. In a folding bed, the combination with a head-frame, a fixed base therefor, and an auxiliary base-plate, comprising a U-shaped bar, a bracket-plate projected from the fixed base between sides of the head-frame and whose journal ends of the U-shaped bar are pivoted, and means to hold said U-shaped bar upright or lowered, of a cross-frame, vertically engaged near one end with portions of the head-frame, and a support for the other end of the cross-frame.

5. In a folding bed, the combination with an upright head-frame having two side posts, a bracket-arm extended from each of the side posts, a fixed base for the head-frame, an auxiliary base-plate projected from the fixed base between the side posts of the head-frame, and means for releasably holding the auxiliary base-plate upright or lowered, of a cross-frame pivoted near one end thereof between and upon the bracket-arm, a support at the rear end of the cross-frame having two legs adapted to extend into and rest upon the side posts of the head-frame for its support, when it is lowered, or to be folded up against the lower side thereof when said cross-frame is given an upright position.

6. In a folding bed, the combination with an upright head-frame having feet, two side posts, two bent base-bars on the side posts, arms on the post engaged by upper ends of the base-bars which are offset at lower ends to the feet, a cross-frame pivoted near one end thereof upon the arms of the head-frame, and means for supporting the other end of the cross-frame when it is lowered, of a rectangular counterbalance-frame held to rest on the upper end of the head-frame, and a roller-frame loosely engaging the members of the counterbalance-frame, and having a member extended beneath the cross-frame, so as to contact with the bent base and be guided thereby, and the rocking movement of the cross-frame transmitted to the counterbalance-frame whereby said frame are adapted to fold toward each other or the reverse.

7. In a folding bed, the combination with an upright head-frame, a cross-frame pivoted near one end on the members of the head-frame, and means to support the other end of the cross-frame when it is lowered, of a rectangular counterbalance-frame held to rest on the upper part of the head-frame, a counterbalance-arm on one side of the counterbalance-frame, an adjustable weight-block thereon, and a roller-frame loosely engaging members of the counterbalance-frame and cross-frame for their simultaneous movement toward or from each other.

698,869. COMBINED PICTURE-KIMNOCK AND PHOTOGRAPH. THOMAS F. BROWN, Denver, Colo. Filed Dec. 12, 1901. Serial No. 55,727. (No model.)

Claim.—1. In an apparatus of the class described, the combination with a photograph or similar instrument capable of repeating or reproducing recorded speech or sound, of means for bringing successively into view at predetermined intervals, a series of pictures illustrative of the subject-matter of the repeated record, an electric motor connected with said picture-displaying means, a normally open circuit, a series of electrodes or contacts adjustably mounted on a stationary part of the instrument, located in the motor-circuit and arranged to close the circuit through a moving part of the photograph, substantially as described.

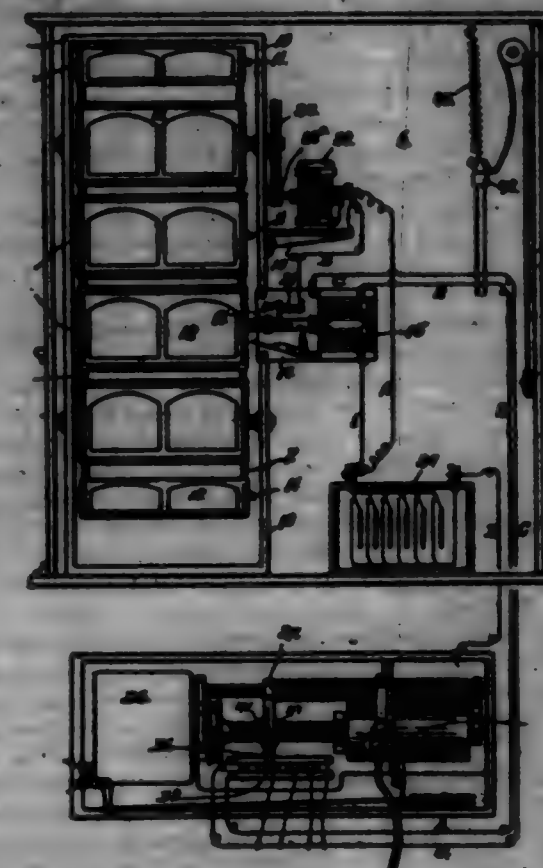
2. In an apparatus of the class described, the combination with a photograph or similar instrument, of means controlled from a traveling arm of the photograph-carriage for successively displaying pictures or views illustrative of the repeated record.

3. In a picture-exhibitor, the combination with a photograph or similar instrument, and a stereoscope, of means controlled from a traveling arm of the photograph-carriage for bringing a series of pictures or views illustrative of the repeated record, successively into position to be viewed through the stereoscope at predetermined intervals, substantially as described.

4. In a picture-exhibitor, the combination with a photograph or similar instrument capable of repeating recorded speech or sound, and a stereoscope arranged in suitable proximity to said instrument, of means controlled from a moving part of the photograph-carriage for successively bringing a series of pictures or views illustrative of the repeated record into position to be viewed through the stereoscope, at predetermined intervals.

5. The combination with a photograph or similar instrument, of a picture-carrier mounted in suitable proximity to the instrument, and means

controlled from the carriage of the instrument for actuating the carrier at predetermined intervals.



6. The combination with a photograph or similar instrument, of a picture-carrier normally locked against movement, means controlled by a moving part of the photograph-carriage for unlocking the carrier, and means also controlled by a moving part of the photograph for actuating the picture-carrier at predetermined intervals.

7. The combination with a photograph or similar instrument, of a normally locked picture-carrier, means controlled from a moving part of the photograph for unlocking the carrier, means also controlled by a moving part of the photograph for actuating the carrier, and means controlled by the moving carrier, for locking the latter against movement when it has traversed a predetermined distance.

8. The combination with a photograph or similar instrument, of a picture-carrier mounted to move in suitable proximity thereto, an electric motor connected to operate said carrier, a normally open motor-circuit, and means mounted on the carriage of the photograph for closing said circuit at predetermined intervals.

9. The combination with a photograph or similar instrument, of a picture-carrier mounted to move in suitable proximity to the instrument, and an electric motor controlled from the photograph-carriage, for actuating the carrier at predetermined intervals.

10. The combination with a photograph or similar instrument, of a picture-carrier, an electric motor connected to operate said carrier, a motor-circuit controlled by a moving part of the photograph, a carrier-locking device, an electromagnet whose structure is connected with said device, and a magnet-circuit arranged to be controlled by a moving part of the photograph.

11. The combination with a photograph or similar instrument, of a picture-carrier mounted in suitable proximity to said instrument, an electric motor connected to operate said carrier, a normally open motor-circuit, an electromagnet arranged when energized to close the motor-circuit, and a magnet-circuit controlled by a moving part of the photograph.

12. The combination with a photograph or similar instrument, of a picture-carrier arranged in suitable proximity thereto, an electric motor connected to operate the carrier, a normally open motor-circuit, and a number of electrodes or contacts adjustably mounted and located to the motor-circuit, and arranged to close the circuit through a moving part of the photograph.

13. The combination with a photograph or similar instrument, of a picture-carrier, an electric motor connected to operate the carrier, a normally open circuit, and a number of electrodes or contacts adjustably mounted and located to the motor-circuit, and arranged to close the circuit through a moving part of the photograph.

14. The combination with a photograph or similar instrument, of a picture-carrier arranged in suitable proximity to the photograph, an electric motor connected to operate said carrier, a normally open motor-circuit, a series of electrodes or contacts adjustably mounted and lying in said circuit, and a part connected to move with a moving part of the photograph.

for successively engaging said electrodes and closing the motor-circuit, substantially as described.

15. The combination with a phonograph or similar instrument, of a picture-carrier mounted in suitable proximity to the phonograph, an electric motor connected to operate said carrier, a normally open motor-circuit, an electromagnet arranged when energized to close the motor-circuit, a magnet-circuit, a part connected with a moving part of the phonograph, and a series of electrodes or contacts lying in the path of said magnet-circuit and arranged to successively close the magnet-circuit.

16. The combination with a phonograph or similar instrument, of a picture-carrier arranged in suitable proximity thereto, an electric motor connected to operate the carrier, a normally open motor-circuit, a carrier-locking device, an electromagnet for operating said device, and a normally open magnet-circuit, the two circuits being arranged to be alternately closed by a moving part of the phonograph.

17. The combination with a phonograph or similar instrument, of a picture-carrier, an electric motor connected to operate the carrier, a motor-circuit, a locking device for the carrier, an electromagnet connected to operate the carrier-locking device, a magnet-circuit, a series of electrodes or contacts located in the motor-circuit, another series of electrodes or contacts located in the magnet-circuit, and means connected with a moving part of the phonograph for alternately and successively engaging the electrodes or contacts of the two circuits whereby the circuits are closed, substantially as described.

18. The combination with a phonograph or similar instrument, of a picture-carrier mounted in suitable proximity to the said instrument, an electric motor connected to operate the carrier, a normally open motor-circuit, a metal strip insulated from the phonograph and lying in the motor-circuit, a series of electrodes or contacts adjustably connected with said strip, and a dental brush connected with a moving part of the phonograph and adapted to successively engage said electrodes or contacts, whereby the circuit is closed at predetermined intervals, substantially as described.

19. The combination with a phonograph or similar instrument, of a picture-carrier, an electric motor connected to operate said carrier, a normally open motor-circuit, a carrier-locking device, an electromagnet for operating said device, a normally open magnet-circuit, two metal strips insulated from the phonograph, a series of electrodes or contacts adjustably connected with each strip, and a part connected with a moving part of the phonograph and adapted to engage both series of contacts or electrodes, whereby the circuits are closed through the moving part of the phonograph, substantially as described.

20. The combination with a phonograph or similar instrument, of an endless carrier mounted in suitable proximity to the instrument, picture-holding frames mounted thereon, an electric motor geared to the carrier in operative relation, and a normally open motor-circuit, arranged to be closed through a moving part of the phonograph-carriage at predetermined intervals.

21. The combination with a phonograph or similar instrument, and a stereoscope, of an endless carrier, mounted in suitable proximity to the phonograph, and in front of the stereoscope at the proper focal distance, an electric motor connected to operate the carrier, and a normally open motor-circuit arranged to be controlled by a moving part of the phonograph-carriage, substantially as described.

22. The combination with a phonograph or similar instrument, of a carrier composed of two endless chains, sprocket-wheels which the chains engage, and a series of picture-holding frames connected with the chains and spanning the space between the same, an electric motor geared to one of the sprocket-wheels to operate the carrier, and a normally open motor-circuit arranged to be closed at predetermined intervals by a moving part of the phonograph-carriage.

23. The combination with a phonograph or similar instrument, of a carrier mounted in suitable proximity thereto and composed of endless chains mounted on sprocket-wheels, an electric motor connected to operate the carrier, a normally open motor-circuit, an electromagnet, a carrier-locking device, comprising a bar, spring-held to project into the path of a part of the carrier whereby the latter is held against movement, the said bar being connected with an armature of the magnet and arranged to be withdrawn out of the path of the moving part of the carrier when the magnet is energized, a device for locking the bar in the withdrawn position, and a trip-lever connected with said device and projecting into the path of the carrier, whereby a part of the carrier engages the trip-lever and releases the spring-held locking-bar at predetermined intervals, substantially as described.

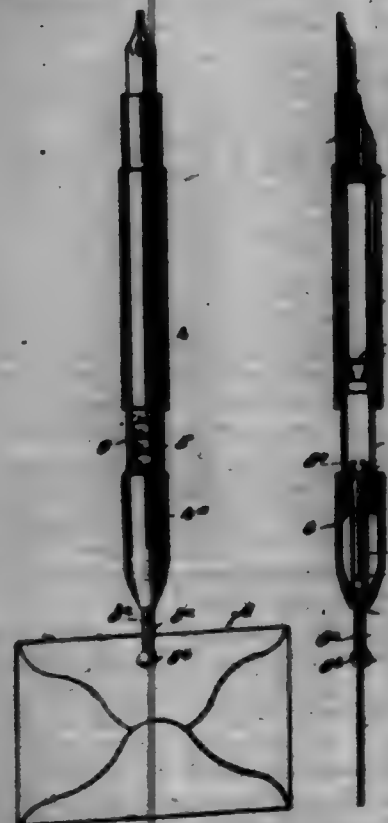
24. The combination with a phonograph or similar instrument, of a picture-carrier, and a motor connected to operate the carrier, said motor being independent of the motor or operating mechanism of the instrument, and controlled from the phonograph-carriage.

25. In an apparatus of the class described, the combination with a phonograph or similar instrument, of a picture-carrier, an electric motor

connected to operate the carrier, said motor being independent of the motor or operating mechanism of the instrument, a motor-circuit, and a number of electrodes mounted on a stationary part of the instrument, located in the motor-circuit, and arranged to close the circuit through an arm of the carriage of the instrument.

26. The combination with a phonograph or similar instrument, of a picture-carrier, an electric motor connected to operate the carrier, said motor being independent of the motor or operating mechanism of the instrument, a series of separated electrodes or contacts mounted on a stationary part of the instrument, and a part traveling with the carriage of the instrument and arranged to successively engage the said electrodes, whereby the motor-circuit is closed at predetermined intervals, substantially as described.

898,870. COMBINED SCALE AND PNEUMOLOG. FREDERICK F. H. BURNER, Louisville, Ky. Filed Sept. 7, 1901. Serial No. 74,048. (No model.)



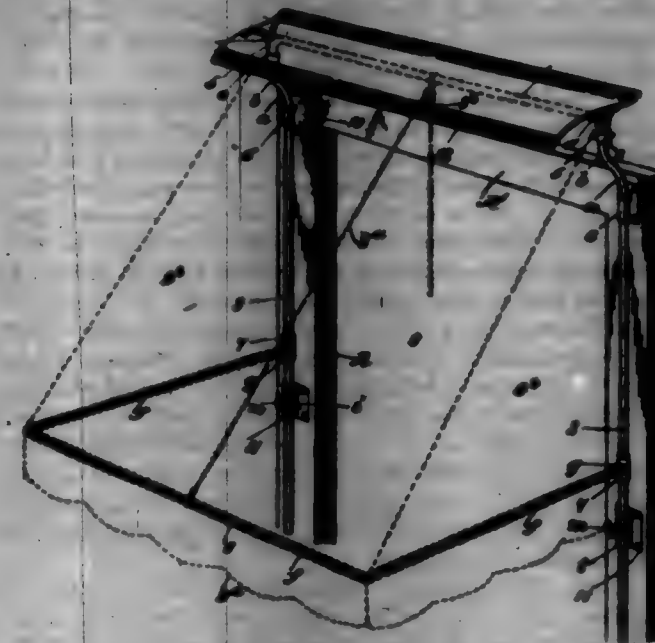
Claim.—1. In a weighing device, the combination with a truncated tubular holder, and a two-part case, one part slidable on the other and having graduation thereon, of a slide-bar supported in one case-portion so as to slide and project from one end of the holder, a spring adapted to support the slide-bar and yield when weight is applied to the projected end of said bar, and means to detachably connect the article to be weighed with the said extended end of the bar.

2. In a weighing device, the combination with a truncated tubular holder, and a two-part telescopic case therein, one part of said case having graduation on it, of a slide-bar, a core-tube through which said bar slides, a spring encircling the core-tube and engaging its ends respectively with a flange on the core-tube and with one section of the case, and means to detachably connect the article to be weighed with an end of the slide-bar.

3. In a weighing device, the combination with a truncated tubular holder adapted to receive a pan at one end, and a two-part telescopic case therein, one section of the case having graduation thereon, of a slide-bar, a core-tube flanged at one end and contracted at the opposite end, a coiled spring encircling the core-tube and engaged at its ends respectively with the flange in the core-tube and with a flange on one section of the case, two resilient flaps formed on one portion of the slide-bar adapted to grip an article to be weighed when said flaps are extended from the holder, and means to hold the slide retracted.

4. In a weighing device, the combination, with a truncated tubular holder adapted to receive a pan at one end, and a two-part telescopic case therein, one section of said case having graduation thereon, of a slide-bar slotted at one end and having tabs extending on the free ends of the slide-bar, a keeper-bar in one section of the case, adapted to receive and detachably hold the fingers, a core-tube through which the slide-bar may reciprocate, said tube having a radial flange at one end, and a coiled spring encircling the core-tube and engaged at its ends respectively with the radial flange and with an internal flange on one end of one case-portion.

898,871. CONTAINER WITHIN FRAMES AND HOOD. WILLIAM A. BURNHART, Louisville, Ky., assignor of one-half to George R. Cooper, Louisville, Ky. Filed Nov. 27, 1901. Serial No. 88,594. (No model.)



Claim.—1. The combination with a removable swing-frame, of brackets removably secured on the frame, and a hood mounted on the brackets.

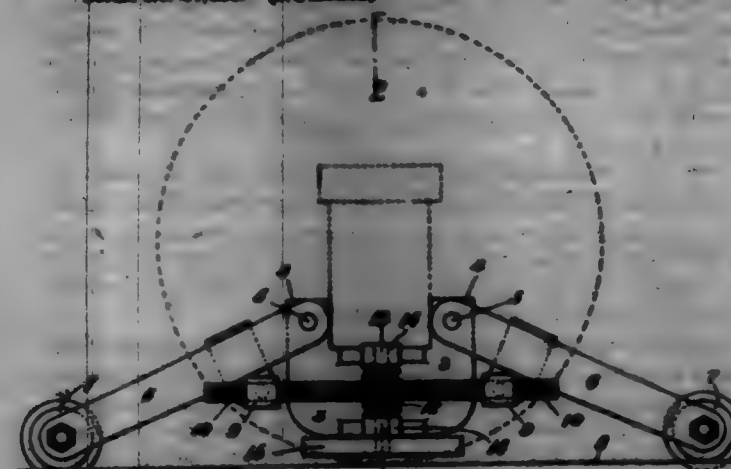
2. The combination with a removable swing-frame, comprising two side bars joined by a top cross-bar, of brackets removably secured on the side bars of the frame, and a hood mounted on the brackets.

3. In an swing-frame, the combination with the side bars of the frame that are joined together by a top cross-bar, of means for removably securing said side bars upon a window-cumment, comprising a slidable cleave mounted upon each side bar, a knob projected from the side of each cleave by an intervening neck, a keeper-plate for each knob secured on the side of the window-cumment, and having a keyhole-slot therein into which the knobs may enter and engage their spacing-necks with edges of the slots, thus adapting the knobs to detachably secure the side bars of the frame on the cumment, and a clamping device for the lower portion of each side bar.

4. An swing-frame, comprising side bars bent outward and upward at their upper ends, a cross-bar integral with said ends, a cleave on each side bar having a knob thereon spaced from the cleave by a neck, a keeper-plate for each knob, having a keyhole-slot therein which may be engaged by the knob and neck, a substantially U-shaped frame-bar hinged on cleaves mounted to slide on the side bars, and a bracket-block for each side bar, having a perforated base, said bases receiving the side bars, and a set-screw for each base, adapted to secure a side bar therein.

5. In a device of the character described, the frame having side bars joined by a spacing cross-bar, brackets mounted on the side bars near the cross-bar, and a plate-like hood secured by its ends on the brackets and extended above the cross-bar.

898,872. LIFTING-JACK FOR CARS. DR. HOWARD B. GRAY, Philadelphia, Pa., assignor of three-fourths to William F. Sheworth, Dr. Wm. Sheworth, and Anna Stark, Philadelphia, Pa. Filed Dec. 27, 1901. Serial No. 87,488. (No model.)



Claim.—1. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, and

and means adapted to be actuated by the car-wheel for drawing the arms inwardly to raise the truck.

2. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, arms secured to the arms, and a threaded shaft engaging the nuts, with means adapted to be actuated by the car-wheel for turning the shaft.

3. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, arms secured to the arms, a threaded shaft engaging the nuts, and gearing for rotating the shaft adapted to be actuated by the car-wheel.

4. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, arms secured to the arms, a threaded shaft engaging the nuts provided with a worm-wheel, and a shaft provided with a worm engaging the worm-wheel, with means for turning the shaft adapted to be actuated by the car-wheel.

5. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, arms secured to the arms, a threaded shaft engaging the nuts, and gearing for rotating the shaft adapted to be actuated by the car-wheel.

6. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, arms secured to the arms, a threaded shaft engaging the nuts provided with a worm-wheel, a worm engaging the worm-wheel and provided with a disk adapted to be turned by contact with the car-wheel, and means for exerting inward pressure of the disk against the car-wheel.

7. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto provided with supporting-wheels, means adapted to be actuated by friction of the car-wheels for moving the arms to raise the truck, and means for exerting inward pressure of such frictionally-actuated means against the car-wheel.

8. Lifting mechanism for cars, consisting of a truck-bearing frame, arms pivoted thereto having bearing-terminals adapted to move along a bearing-bar, arms secured to the arms, a threaded shaft engaging the nuts provided with a worm-wheel, a worm engaging the worm-wheel, and means adapted to make frictional contact with the car-wheel for actuating the worm.

898,873. INCANDESCENT GAS-BURNER. FREDERICK R. CLAYTON, Newark, and GEORGE C. BURGESS, Orange, N. J., assignors of one-third to Augustus Kolbensch, Newark, N. J. Filed Dec. 17, 1901. Serial No. 88,578. (No model.)



Claim.—1. In an incandescent gas-burner, a connection fitted to the gas-supply pipe, and provided with longitudinal cuttings, a valve-seat secured to the upper end of said connection, a needle extend-

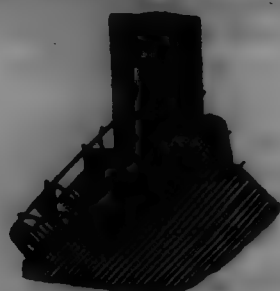
ing longitudinally through the upper portion of said connection, and means fitted within an aperture in the connection, said connection to the needle, for moving said needle toward and from the valve-seat, substantially as described.

2. In a Bunsen gas-burner, a needle-valve comprising an apertured connection, a valve-seat secured to said connection, a needle extending through the upper end of said connection, the lower end of said needle being threaded, and an adjusting-screw seated in an aperture in the connection and fitted to the threaded end of the needle, for operation, substantially as described.

2. In a gas-burner, a connection fitted upon the gas-supply pipe and provided with longitudinal outlet-springs, a valve-seat secured to the upper end of said connection and provided with a control control, a needle fitted to slide centrally in the connection, and a milled adjusting-screw for moving the needle toward and from the valve-seat, substantially as described.

4. In a Deason gas-burner, a connection provided with longitudinal outlet-spouting, a valve-seat covered to the upper end of said connection, a valve-needle extending up through the connection, the lower end of said needle being threaded, an adjusting-nut fitted to the threaded end of said needle and seated in an aperture in the connection, recesses at the sides of the connection to permit access to the nut, and a Deason tube above the connection, substantially as described.

698,874. TOOTH AND RAMP FOR PROSPERATE-LOOSE. RALPH
E. GARR, Ocala, Fla., assignor to the Ocala Foundry and Machine
Works, Ocala, Fla. Filed Nov. 23, 1901. Serial No. 22,702. (No model.)



Claim.—1. As an article of manufacture, a device of the kind described, comprising a base-plate provided with a recess having substantially the shape of a double wedge and also provided with cylindrical apertures merging into said recess, a tooth provided with an enlarged portion having substantially the shape of a double wedge and also provided with cylindrical apertures mating said apertures of said base-plate, and cylindrical parts of resilient material, for detachably engaging all of said apertures.

2. As an article of manufacture, a base-plate having a recess provided with overhanging walls, said walls having oppositely-disposed conical cylindrical apertures diverging from each other, a tooth provided with an enlarged portion having substantially the shape of a double wedge for engaging said recess and also provided with conical cylindrical apertures diverging from each other and engaging said conical cylindrical apertures of said walls, means for securing said base-plate to a leg, and cylindrical posts to be driven into said conical cylindrical apertures.

2. As an article of manufacture, a device of the kind defined, comprising a base-plate provided with an angular band adapted to fit the contour of an angular leg, and also provided with a recess, a raised band extending across said recess adjacent to said band and flush with the bottom of said recess so as to form a continuation of said bottom, a tooth provided with a substantially wedge-shaped portion for engaging said recess, and means for securing said tooth within said recess.

698,875. STOPPER DEVICE FOR STATIONARY WAREHOUSES.
HERMAN E. COLLIER, Denver, Colo. Filed May 12, 1902. Serial No.
59,912. (No model.)



Claim.—1. The combination with a basin having a discharge opening, a stopper for the opening, and a sleeve forming a seat for the stop-

par, of a lever connected with the stopper at its lower extremity, and a fulcrum arm connected with the sleeve and projecting upwards along the interior wall of the basin, and curved to conform to the interior wall of the basin, the lever being fulcrumed at the upper extremity of said arm, the arrangement being such that when the upper arm of the lever is pushed outwardly, the lower arm moved on its fulcrum and its lower end extended to open the stopper or diaphragm.

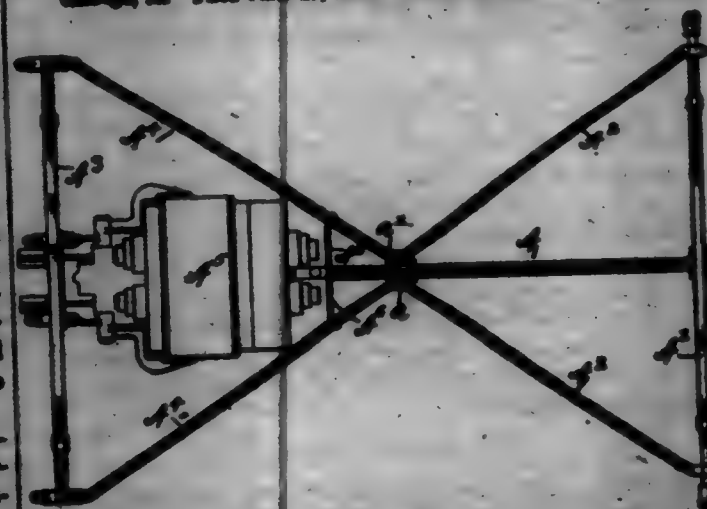
2. The combination with a wassuph, having a discharge-opening, a stopper for the opening and a sleeve forming a seat for the stopper, of an arm connected with the sleeve, extending upwards therefrom and curved to conform to the shape of the inner wall of the wassuph, a lever fulcrumed on said arm one extremity of the lever being connected with the stopper, and a slotted plate hinged at the top of the basin and adapted to receive the upper extremity of the lever, the said plate being shaped to hold the lever in either position of adjustment.

8. The combination with a stationary workbench, a stopper for the discharge-opening, and a device turning a coat for the stopper, of an arm detachably connected with the above and held in place thereby, the said arm projecting upwardly along the bench-wall, a lever fulcrumed on said arm, the lower arm of the lever being connected with the stopper, and a dotted plate through which the upper extremity of the lower passage, said plate being secured to the stationary structure at the top of the basin, projecting interiorly over the edge thereof and fashioned to leak the lever in either position of adjustment.

4. The combination with a stationary workbasin, a stopper for the discharge-opening, and a sleeve forming a seat for the stopper, of a ring surrounding the sleeve and engaged from above by the flange of the sleeve, the said ring being formed with an upwardly-projecting arm, and a lever fulcrumed on said arm and connected with the stopper to operate the latter when the upper arm of the lever is moved.

5. The combination with a stationary washbasin, a stopper for the discharge-opening, and a sleeve forming a seat for the stopper, of an arm detachably connected with the sleeve and held in place thereby, the said arm projecting upwardly along the basin-wall, and a lever fulcrumed on said arm, the lever arm of the lever being connected with the stopper, and the arrangement being such that the stopper is opened and closed by the outward and inward movement of the upper arm of the lever.

698,878. MOTOR-VEHICLE FRAME WALTER A. GROUTEN
Chicago, Ill. Filed June 26, 1901. Serial No. 46,941. (No model.)



Claim.—1. A vehicle gear or underframe comprising front and rear transverse frame members, a reach carried to the front transverse frame member and terminating in front of the rear transverse frame member, trans-rod or struts which connect said rear transverse frame member with the reach at a distance from its rear end and a transverse brace which connects the rear end of said reach with said trans-rod or struts, substantially as described.

2. In a motor vehicle, the combination of front and rear transverse frame members, a cross member secured to the front transverse frame member and terminating in front of the rear transverse frame member, front-side or struts which connect said rear transverse frame member with said cross member and a motor secured to the rear end of the cross member and to the rear transverse frame member, substantially as described.

3. In a motor-vehicle, the combination of front and rear transverse frame members, a rear control to the front transverse frame member and terminating in front of the rear transverse frame member, trans-axle or axle which connect said rear with said rear transverse frame member with said rear and a motor coupled to the rear end of the rear and to the rear transverse frame member, substantially as described.

4. A vehicle gear or underframe comprising front and rear trans-

verse frame member, a reach secured to said front frame member and terminating in front of said rear frame member and trans-rod or struts which connect said reach with said front and rear transverse frame members at points out of line vertically with said reach, substantially as described.

h. A vehicle gear or underframe comprising a rear-axle support, a central shaft which terminates in front of said rear-axle support; diagonal struts or trans-axle which connect said rear-axle support at or adjacent to its end with a head on said shaft, a front axle pivoted to said shaft, and diagonal struts or trans-axle which connect said front axle at or adjacent to its end with a head revolvably secured to said shaft, substantially as described.

2. A vehicle gear or underframe comprising a rear-axle support, a central ranch which terminates in front of said rear-axle support, diagonal struts or trans-axle which connect said rear-axle support at or adjacent to its ends with said ranch, a brace which connects said ranch adjacent to the rear end with said struts or trans-axle, a front axle pivoted to said ranch and diagonal struts or trans-axle which connect said front axle at or adjacent to the ends with a band revolvably secured to said ranch, substantially as described.

698,877. WRENCH. HARRISON BOWEN, Columbia Falls, Mont.
Filed Aug. 2, 1901. Serial No. 71,381. (No model.)



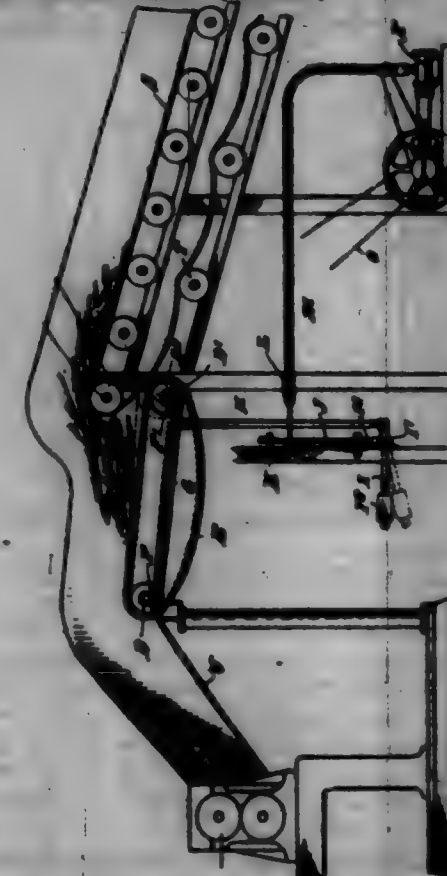
Chin.—Is a wrench, the combination with a chuck provided with work-teeth and a fixed jaw, of a movable jaw mounted to slide upon said chuck and provided with a chamber open at both ends, said movable jaw being provided at its rear end with an apertured-projecting dotted extension, a spindle journaled to the side walls of said chamber at a point within the chamber and having its outer end projecting into the dotted extension and guided thereby, a spring biased within said chamber and surrounded by the walls thereof and exerting its energy to force the spindle toward the chuck, and a worm journaled on said spindle between the dotted extension and the inner open end of the chamber, whereby when the jaw 4 is moved into contact with the jaw 3, both ends of the chamber will be closed to prevent the admission therein of foreign matter or objects, substantially as set forth.

698,878. GUIDE FOR STAMP-OUTING. DAVID C. DUNNAGE.
 Appleton Cent. Co. First Apr. 8, 1901. Serial No. 84,806. (No model.)



Claim.—A guide for battery-stamp stems consisting of a casting secured to the battery-stems above the stamp or line of stamps, and formed with a tapering neck or opening through the casting above each stamp, and with a passage through the front wall of each neck for the lateral admission or removal of the stamp-stem, a notched tapering sleeve or shell fitted around each stem and adapted to fit and cut itself in the neck in the casting, and a key on the sleeve or shell adapted to project through the opening in front of the neck, substantially as described.

698,879. CANE-PRESSING MECHANISM FOR CANE-MILLS.
FRANCISCO BLANCO, Chucho de Pueblo Nuevo, Cuba. Filed Oct. 2,
1901. Serial No. 77,400. (No model.)

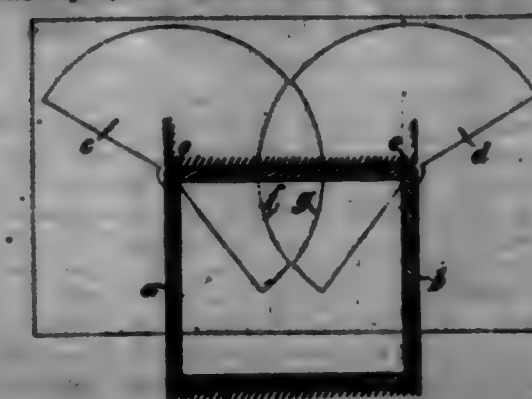


Claim.—1. A feeding device, comprising a first conveyor, means for actuating the same, a movable frame carrying said conveyor and arranged to change its position according to the load resting on the conveyor, a second conveyor arranged to discharge the material on the first conveyor, a driving mechanism connected with the second conveyor, a controlling device for throwing said driving mechanism into or out of action, and an operative connection for governing the position of said controlling device according to the movement of the frame of the first conveyor.

2. The combination of a first conveyor, a movable frame carrying said conveyor, counterbalancing means for governing the position of the frame according to the load resting thereon, means for driving the first conveyor, a second conveyor arranged to discharge the material upon the first conveyor, driving mechanism connected with the second conveyor, a controlling device governing the action of said driving mechanism, and an operative connection from the movable frame to the said controlling device.

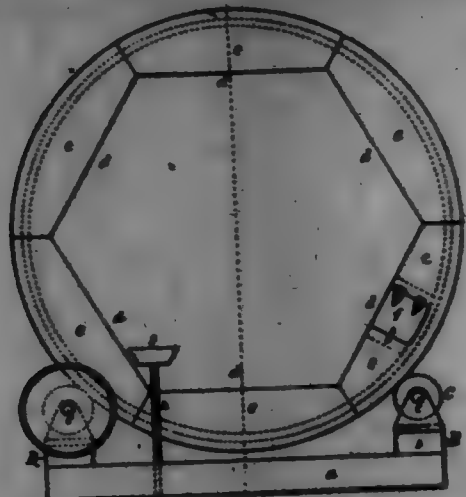
2. The combination of a first conveyor having at one of its ends a shaft journaled in stationary bearings, a conveyor-frame pivotedly hinged on said shaft and provided at its free end with bearings for the shaft at the other end of the conveyor, a second conveyor arranged to discharge material upon the first conveyor, a driving mechanism for the second conveyor, a controlling device governing the action of the said driving mechanism, and an operative connection from the swinging conveyor-frame to the said controlling device.

898,880. DOUBLE DOOR. Otto FRANKZ, Freiburg, Germany.
Filed May 24, 1931. Serial No. 61,745. (No model.)



Obtain.—A pair of doors having a pair of slides one secured to each door which are situated in the same plane and whose width are greater than half the distance between the two doors, the face of each slide being provided with a room for the passage of the face of the other slide, substantially as set forth.

698,881. **THREAD-POWER.** CHARLES R. GALE, Minneapolis, Minn.
Filed Jan. 16, 1898. Serial No. 59,289. (No model.)

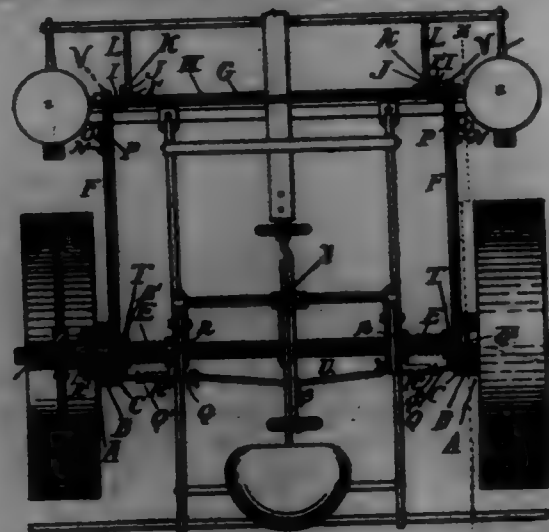


Claim.—1. An animal-tread power, embodying a cylinder, the interior circumferential wall of which constitutes an endless track upon which the animal walks, and the exterior circumferential wall of which constitutes endless frictional contact; horizontal rollers, upon which the said cylinder is mounted and upon which it is rotated, and pillow-blocks within which the said rollers are journaled, the whole constituting a friction-gear wherein the cylinder imparts a rotary movement to the rollers, substantially as shown and described.

2. An animal-tread power, embodying a cylinder within which the animal walks; rollers upon which the said cylinder is mounted, and a frame supporting the said rollers, whereby, when the said cylinder is rotated, a rotary movement will be imparted to the said rollers through frictional contact therewith, substantially as shown and described.

3. In an animal-tread power, the combination of the frame consisting of side and cross-ties, pillow-blocks rigidly affixed to the said frame, bases adjustably affixed to the said pillow-blocks, shafts journaled in the said bases, rollers affixed to the said shafts, and a drum mounted upon the said rollers, the interior of said drum constituting an endless track upon which the animal walks, thereby rotating the same, and transmitting through frictional contact, a rotary movement to the said rollers, substantially as shown and described.

698,882. **CORN-PLASTER.** HARRY L. CHANDLER, Doverport, Iowa. Filed Mar. 25, 1891. Serial No. 62,514. (No model.)



Claim.—1. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, an outer clutch member having teeth cut diagonally and secured around the axle to the hub of a wheel, an inner clutch member having teeth cut diagonally, a sleeve having a peripheral groove and a sprocket-wheel, a bracket having a hollow arm and secured to the sleeve of the inner clutch member and the bracket, a rod extending through the hollow arm of the bracket and having a yoke engaging the peripheral groove of the inner clutch member, the main lever having an arm, a flexible connection between the rod and the arm on the main lever, a runner-frame, an operating-shaft having a sprocket-wheel and carried by the runner-frame, and a sprocket-chain connecting the sprocket-wheels.

2. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, an outer clutch member having teeth cut diagonally and secured around the axle to

the hub of a wheel, an inner clutch member having teeth cut diagonally, a sleeve having a peripheral groove and sprocket-wheel, a bracket having a hollow arm and secured to the wheel-frame, a coil-spring surrounding the axle between the sleeve of the inner clutch member and the bracket, a rod extending through the hollow arm of the bracket and having a yoke engaging the peripheral groove of the inner clutch member and a step to limit the forward movement of the rod, the main lever having an arm, a flexible connection between the rod and the arm on the main lever, a runner-frame, an operating-shaft having a sprocket-wheel and carried by the runner-frame, and a sprocket-chain connecting the sprocket-wheels.

3. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, outer clutch members each having teeth cut diagonally and secured around the axle to the hub of the wheel, inner clutch members each having teeth cut diagonally, a sleeve having a peripheral groove and a sprocket-wheel, brackets each having a hollow arm and secured to the wheel-frame, coil-springs surrounding the axle between the sleeve of the inner clutch members and the brackets, rods extending through the hollow arms of the brackets each having a yoke engaging a peripheral groove of an inner clutch member, the main lever having an arm, a flexible connection between the rods and the arm on the main lever, a runner-frame, an operating-shaft having sprocket-wheels and carried by the runner-frame and sprocket-chains connecting the sprocket-wheels.

4. A corn-plaster comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted, wheels in which the axle is journaled, outer clutch members having slanting teeth and fixed to the wheel, inner clutch members having slanting teeth and peripheral grooves and loosely mounted on the axle, an operating-shaft mounted on the runner-frame, brackets having hollow arms and secured to the wheel-frame, coil-springs surrounding the axle between the inner clutch members and the brackets, rods extending through the hollow arms and having yokes engaging the peripheral grooves of the inner clutch members, the main operating-lever having a depending arm and mounted on the wheel-frame, a flexible connection whereby the rods and the main operating-lever are connected and gearing whereby the inner clutch members are connected with the operating-shaft.

5. The combination of the wheel-frame, a runner-frame, an operating-shaft mounted on the runner-frame, means for rotating the operating-shaft, the leg having a pin and secured to the operating-shaft, the rock-shaft, the arm fixed on the rock-shaft having a head with which the pin engages and a pendulum hook, a spring connecting the hook with the runner-frame, a pendulum arm secured to the rock-shaft, the depending support secured to the runner-frame, the marking-lever provided with a marking-prong and pivoted to the depending support and the link whereby the pendulum arm and the marking-lever are connected.

6. A corn-plaster comprising a wheel-frame and runner-frame connected together, an axle, the outer clutch members, the inner clutch members, having sprocket-wheels and peripheral grooves, springs bearing against the inner clutch members the operating-shaft mounted on the runner-frame, the sprocket-wheel secured on the operating-shaft, a radial arm provided with a pin and secured on the operating-shaft, the rock-shaft, the arm provided with a head and a hook, and secured to the rock-shaft, the pendulum arm secured to the rock-shaft, the spring connected to the hook, and to the runner-frame, a depending support secured to the runner-frame, the marking-lever having a marking-prong and pivoted to the depending support, the link whereby the pendulum arm and the lever are connected, brackets secured to the wheel-frame, rods having forks fitting the peripheral grooves, the main lever, having an arm and mounted on the wheel-frame, and a flexible connection between the rods and the arm of the main lever.

7. A corn-plaster comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted, wheels in which the axle is journaled, outer clutch members having slanting teeth and fixed to the wheel, inner clutch members having slanting teeth and loosely mounted on the axle, an operating-shaft mounted on the runner-frame, means whereby the members of the clutches are placed in and out of gear, gearing whereby the inner clutch members are connected with the operating-shaft, a marker-support depending from the runner-frame, a lever having a marking-prong, at its rear end and fulcrumed to the support, the leg having a pin and secured to the operating-shaft, the rock-shaft located beneath the operating-shaft, the arm mounted on the rock-shaft having a head with which the pin engages and a pendulum hook, a spring whereby the hook is connected with the runner-frame, a pendulum arm secured to the rock-shaft, and the rod whereby the pendulum arm is connected with the front end of the marking-lever.

8. A corn-plaster comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted, wheels in which the axle is journaled, outer clutch members having slanting teeth and fixed to the wheel, inner clutch members having slanting teeth and

loosely mounted on the axle, an operating-shaft mounted on the runner-frame, means whereby the members of the clutches are placed in and out of gear, gearing whereby the inner clutch members are connected with the operating-shaft, a hopper-frame having a leg through which the end of the operating-shaft extends, a hopper having a discharge-opening and a bottom plate having a feed-opening, a feed-plate between the bottom plate and the discharge-opening, gearing whereby the feed-plate is connected with the operating-shaft, a feed-tube, a bell-crank lever, a bolt whereby the bell-crank lever is pivoted to the feed-tube, an upper valve secured to one arm of the bell-crank lever, a lower valve pivoted to the feed-tube, the rock-shaft, means connected with the operating-shaft whereby the rock-shaft is actuated, the bell-crank lever fixed to the bolt of the first-named bell-crank lever, the arm fixed to the rock-shaft, a link whereby the arm on the rock-shaft is connected with one arm of the second-named bell-crank lever, and the link whereby the lower valve is connected with the other arm of the second-named bell-crank lever.

698,888. **ELECTRIC-CIRCUIT-CLOSING DEVICE.** FREDERICK WILDER, Akron, Ohio, assignor of three-fourths to John G. Fisher, Smith & Tish, and Louis A. Wood, Akron, Ohio. Filed June 25, 1899. Serial No. 71,148. (No model.)



Claim.—1. In an electric-circuit-closing device, means to keep the circuit open consisting of a contact-spring and a circuit-closing point to be engaged by said spring, a plunger operatively engaged with said contact-spring, a pair of spring-arms and a part engaged at its ends by said arm and at its middle by said plunger, substantially as described.

2. In an electric-circuit-closing device, a casing and a circuit-closing spring therein and a contact-point for said spring, a plunger supported and adapted to slide in said casing, a set of spring-arms on said casing and a cross-piece engaged in said spring and serving as a bearing for one end of said plunger, substantially as described.

698,884. **DEVICE FOR SEWING-MACHINE.** WILLIAM E. ARMBRIST, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Aug. 1, 1894. Serial No. 78,548. (No model.)



Claim.—1. A needle attachment for sewing-machine, employing an inner guide and an outer casing, and means whereby said guide and casing may be given rotary and longitudinal adjustments, substantially as and for the purpose specified.

2. A needle attachment for sewing-machine, comprising essentially an inner guide and an outer casing spaced apart and rigidly connected, a support therefor, and means whereby said guide and casing may be given a rotary adjustment within said support for turning the binding material equally or unequally on opposite sides of a fabric, and means whereby said guide and casing may be adjusted longitudinally in said support, substantially as described.

3. A needle attachment for sewing-machine, having an inner guide, an outer casing, and a clamp adapted to be secured to the cloth-plate of the sewing-machine, and means whereby the casing may be given rotary and longitudinal adjustments, substantially as and for the purpose specified.

4. A needle attachment for sewing-machine, comprising a casing, a support for said casing, and means whereby the casing may be given a rotary and also a longitudinal adjustment, a case or guide arranged within said casing, and means to fix said case or guide within said casing to portions of its adjustment, substantially as described.

698,885. **WIRE-CLIPPING ELEVATOR-GATE.** GEORGE E. ARMBRIST, Philadelphia, Pa., assignor of one-half to Fairmount Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed June 25, 1892. Serial No. 63,322. (No model.)

Claim.—1. The combination of an elevator-gate, endless chain and

ably mounted and supporting said gate, means for locking the gate, an elevator-car, means carried thereby for releasing the locking mechanism and permitting the closing of the gate by hand said means serving also to engage the chains and return the gate to the closed position as the elevator-car moves away from the floor or landing.



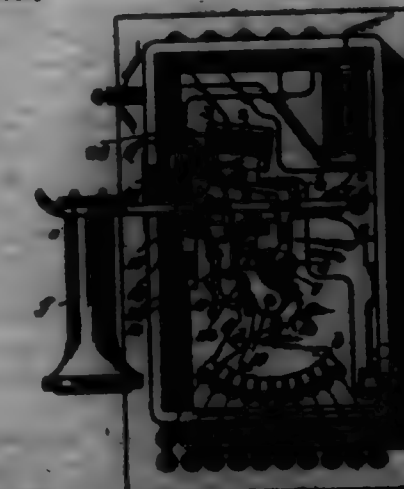
2. The combination of an elevator-gate, endless chain, substantially mounted and supporting said gate, means for locking said gate, projections carried by said chains, an elevator-car, and means carried by said car adapted to release the chain locking mechanism and to engage said projections whereby the chains may be moved to return the gate to its normal position as the elevator-car moves away from the floor or landing.

3. The combination of an elevator-car, a gate for a floor or landing, endless chains suitably mounted and supporting said gate, sprocket-wheels over which said chains pass, a ratchet-wheel carried by one of said sprocket-wheels, a spring-controlled pawl in engagement with said ratchet-wheel, and an arm carried by the elevator-car and adapted to move said pawl out of engagement with the ratchet-wheel, substantially as described.

4. The combination of an elevator-gate, endless chain, substantially mounted and supporting said gate, sprocket-wheels over which said chains pass, a ratchet-wheel carried by one of said sprocket-wheels, a spring-controlled pawl in engagement with said ratchet-wheel, an elevator-car, a cam projection carried by said pawl, and an arm carried by the elevator-car and adapted to engage said cam projection to hold the pawl out of engagement with the ratchet-wheel, substantially as described.

5. The combination of the elevator-gate, endless chain, substantially mounted and supporting said gate, projections on said chains, an elevator-car, yoke-arms carried by said car and arranged to pass on both sides of the chains, said yoke-arms being adjacent to the projections on the chains when the gate is in the raised position, and adapted to engage one set of said projections when the elevator-car moves away from a floor or landing in either direction.

698,886. **SECRET-SERVICE TELEPHONE SYSTEM.** ALBERT E. ARMBRIST, San Francisco, Cal. Filed Jan. 20, 1891. Serial No. 64,548. (No model.)



Claim.—3. Is a telephone system, stations interconnected through individual lines and local circuits, including a line-circuit for each station and a movable contact adapted to connect the primary circuit of the station with the line of a selected station; means controlling the movable contact to hold it normally on the line-circuit of its own station while

the receiver is hung up and to release it for switching when the receiver is taken down; a ringing-circuit common to all the stations connecting one station with another through their respective switching-contacts to form with the interconnecting lines of two stations a metallic circuit including a main battery and a bell and push-button at each station; means controlling the talking or secondary circuit to open and close the same, and itself controlled by the movable contact; and electrically-actuated means in the ringing-circuit between the main battery and the push-button adapted to throw said controlling means out of action when a circuit is completed through the main battery and the circuit of the called station.

2. In a telephone system the combination, with a plurality of stations interconnected through individual line-wires, and switching devices at each station comprising stationary contacts and a movable contact through which the talking-circuit of the station is connected with another selected station; of a ringing-circuit controlling the telephone switch-contacts of the talking or secondary circuit and including a main battery and a push-button at every station, and electrically-actuated means in the ringing-circuit at every station controlling the talking or secondary circuit and means being controlled by the movable contact of the switching device, whereby the primary circuit is broken and held open when the movable contact is moved off the individual line-contact of the station, and is closed when a ringing-circuit can be completed between the two selected stations.

3. In a telephone system containing stations interconnected through local switching devices and line-wires, the combination of means controlling the talking, or secondary, circuit at each station, said means being controlled by the switch device to break or hold open the primary circuit when the switch is moved off its home contact; a ringing-circuit including a main battery and a push-button at each station, by which a circuit is completed through the battery and the bell at the called station; means controlled by the movable contact for breaking said circuit when the movable contact of the station is moved off its line-contact; and means operative electrically from the main battery over the ringing-circuit and line-wires from the calling-station through the called station to throw the controller of the calling-station out of action and restore its talking or secondary circuit to the line for operation.

698,887. DOUBLE-ACTING CYLINDER-PUMP. EMERY R. ANDERSON, Midland, Tex., assignor of one-half to Martin L. Tied, Midland, Tex. Filed Aug. 5, 1891. Serial No. 71,088. (No model.)



Claim.—1. In a double-acting cylinder pump, the combination with the piston-cylinder and the outer casing, said cylinder being provided with radial partitions dividing the casing into induction and suction chambers, transverse partitions closing the opposite ends of said chambers and dividing the upper and lower ends of said chambers respectively into auxiliary suction and induction chambers, an impervious transverse partition in the lower portion of the piston-cylinder, an apertured partition above the impervious partition, a check-valve disposed in the

lower end of the piston-cylinder and arranged to close its lower end, a check-valve arranged to seat on and close the apertured partition, a piston in the piston-cylinder, parts connecting the auxiliary induction-chamber with the piston-cylinder below, and transverse partitions, parts connecting the lower end of the piston-cylinder with the induction-chamber, parts connecting the latter with the piston-cylinder above the piston, parts connecting the piston-cylinder below the piston with the lower end of the suction-chamber, and apertured check-valves controlling the discharge from the upper ends of the piston-cylinder and suction-chamber, substantially as described.

2. In a double-acting cylinder pump, the combination with the piston-cylinder and the outer casing, said cylinder being interiorly provided with longitudinal radial partitions dividing the casing into induction and suction chambers, transverse partitions closing the opposite ends of said chambers and dividing the upper and lower ends of said chambers respectively into auxiliary suction and induction chambers, two valve-enges connected together and removably fitted one above the other in the lower end of the piston-cylinder, the upper end of the lower cage being closed, and the lower end of the upper cage having a valve-opening, a ball seated to the upper end of the upper cage, reciprocating check-valves arranged in said cage, a piston in the piston-cylinder, parts connecting the auxiliary induction-chamber with the piston-cylinder above the closed end of the lower cage, parts connecting the piston-cylinder below said closed end of the lower cage with the induction-chamber, parts connecting the latter with the piston-cylinder above the piston, parts connecting the piston-cylinder above the valve-opening in the upper cage with the suction-chamber, and apertured check-valves controlling the discharge from the upper ends of the piston-cylinder and suction-chamber, substantially as described.

3. In a double-acting cylinder pump, the combination with the piston-cylinder and the outer casing, said cylinder being exteriorly provided with longitudinal radial partitions dividing the casing into induction and suction chambers, transverse partitions closing the opposite ends of said chambers and dividing the upper and lower ends of said chambers respectively into auxiliary suction and induction chambers, two valve-enges connected together and removably fitted one above the other in the lower end of the piston-cylinder, the upper end of the lower cage being closed and the lower end of the upper cage having a valve-opening, a ball seated to the upper end of the upper cage, centrally-perforated apertured check-valves arranged in said cage, guide-rods fixed in the cage and passing through said valves, a piston in the piston-cylinder, parts connecting the auxiliary induction-chamber with the piston-cylinder above the closed end of the lower cage, parts connecting the piston-cylinder below said closed end of the lower cage with the induction-chamber, parts connecting the latter with the piston-cylinder above the piston, parts connecting the piston-cylinder above the valve-opening in the upper cage with the suction-chamber, and apertured check-valves controlling the discharge from the upper ends of the piston-cylinder and suction-chamber, substantially as described.

4. In a double-acting cylinder pump, the combination with the piston-cylinder and the outer casing, said cylinder being provided with longitudinal radial partitions dividing the casing into induction and suction chambers, transverse partitions closing the opposite ends of said chambers and dividing the upper and lower ends of said chambers respectively into auxiliary suction and induction chambers, an impervious transverse partition in the lower portion of the piston-cylinder, an apertured partition above the impervious partition, a check-valve arranged in the lower end of the piston-cylinder and arranged to close its lower end, a check-valve arranged to seat on and close the apertured partition, a piston in the piston-cylinder, parts connecting the auxiliary induction-chamber with the piston-cylinder below, and transverse partitions, parts connecting the lower end of the piston-cylinder with the induction-chamber, parts connecting the latter with the piston-cylinder above the piston, parts connecting the piston-cylinder below the piston with the lower end of the suction-chamber, and apertured check-valves controlling the discharge from the upper ends of the piston-cylinder and suction-chamber, substantially as described.

698,888. ELECTRIC LAMP. JOHN ANDERSON and FRANK GUNN, New York, N. Y., assignors, by direct and mesne assignments, to Stanley Electric Manufacturing Company, a Corporation of New Jersey. Filed May 17, 1891. Serial No. 63,778. (No model.)

Claim.—1. An arc-lamp having the arc surrounded by a transparent or translucent substantially air-tight inclosure provided with an

apertured exit-passage free from obstructions to a natural flow of the gases, whereby a normal outflow of gases and maintained diffusion or exhaust with air is effected.



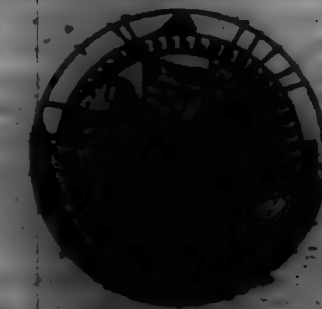
2. An arc-lamp having the arc surrounded by a transparent or translucent substantially air-tight inclosure, provided with an unrestricted passage leading to the atmosphere, said passage being of such diameter and length as will permit the normal outflow of gases without diffusion and prevent the ingress of the atmosphere.

3. An arc-lamp having the arc surrounded by a transparent or translucent substantially air-tight inclosure provided with an elongated passage leading from the interior of the inclosure to the atmosphere and free from obstructions to the natural flow of the gases and leading upward from the point of its connection with the inclosure and thence downward for the purpose set forth.

4. An arc-lamp having the arc surrounded by a transparent or translucent inclosure, a cover-plate for said inclosure, said cover-plate having an orifice for an electrode and another orifice for the escape of gases developed by the arc, and a bent tube connected to the second orifice and affording an unrestricted passage for the said gases.

5. An arc-lamp having the arc surrounded by a transparent or translucent substantially air-tight inclosure, a tube connecting directly with said inclosure affording free communication with the atmosphere and leading downward from its point of connection with the inclosure.

698,889. TUB BARK. CHARLES A. BARK, Chicago, Ill., assignor to Frederick E. Smith, Chicago, Ill. Filed May 9, 1891. Serial No. 63,671. (No model.)



Claim.—1. In a tub bark, in combination, a receptacle, a cover therefor, a carrier for delivering said tub to the receptacle, means for holding the cover, lock-extending means governed by the carrier, and means for holding the lock-extending means against movement when the carrier is retracted.

2. In a tub bark, in combination, a receptacle, a carrier for receiving a tub and depositing it in the receptacle, a rotatable catch-ring for holding the cover to the receptacle, a pawl mechanism for advancing the catch-ring and which is operated by a cam as conveyed by the carrier-plate, and a stop on the carrier-plate for holding the pawl mechanism against movement when the carrier-plate is retracted.

3. In a tub bark, in combination, a receptacle, a cover therefor, a carrier-plate for receiving a tub and depositing it in the receptacle, a rotatable catch-ring for holding the cover to the receptacle, a pawl for advancing the catch-ring, a lever to which the pawl is connected, a cam

on the lever and which is engaged by a cam as conveyed by the carrier-plate in either direction, and a stop, the said lever having an arm which engages the stop to prevent backward movement of the lever.

4. In a tub bark, in combination, a receptacle having an internal annular flange provided with a slot, a non-rotatable cover for the receptacle, a catch-ring carried by the cover and having a projection engaging the flange to lock the cover to the receptacle, a cam-carrier representing across the cover and within the space bounded by the catch-ring and for receiving a cam and depositing it in the receptacle, a pawl engaging the catch-ring, and a lever extending the pawl, the movement of the lever being governed by the cam as conveyed by the cam-carrier.

5. In a tub bark, in combination, a receptacle, a cover, a carrier-plate for receiving a tub and depositing it in the receptacle, a rotatable catch-ring mounted to the cover and having means for locking the cover to the receptacle, a lever, a pawl carried by the lever for rotating the catch-ring, the lever having a cam which is engaged by a cam as conveyed by the carrier-plate for unlocking the cover, and a stop for preventing movement of the lever when the carrier-plate is in its retracted position.

6. In a tub bark, in combination, a receptacle, a cover therefor comprising two members spaced apart and provided with non-engaging cam-apertures, a rotatable catch-ring carried by one of said cover members and having projections engaging the flange to lock the cover to the receptacle, a cam-carrier having a pocket and which represents between the cover members and within the space bounded by the catch-ring, a pawl engaging the catch-ring, a pivoted lever to which the pawl is connected, and a cam projecting from the lever and into the path of the cam carried in the pocket of the cam-carrier.

7. In a tub bark, in combination, a receptacle, a cover therefor comprising two members spaced apart and provided with non-engaging cam-apertures, a rotatable catch-ring carried by one of said cover members and having projections engaging the flange to lock the cover to the receptacle, a carrier-plate having a pocket and carried by the cover member carrying the catch-ring, the said carrier-plate representing between the cover members and within the catch-ring, a pawl engaging the catch-ring, a lever pivoted to the cover member carrying the catch-ring and between the latter and the carrier-plate, a spring-pawl secured to the lever for actuating the catch-ring, and a cam projecting from the lever and into the path of the cam carried in the pocket of the carrier-plate.

698,890. FOLD-UP REINFORCED FOR VEHICLES. THOMAS H. BARK, London, England, assignor of seven-tenths to Charles William Walker, Bradford, Yorkshire, England. Filed July 12, 1891. Serial No. 64,081. (No model.)



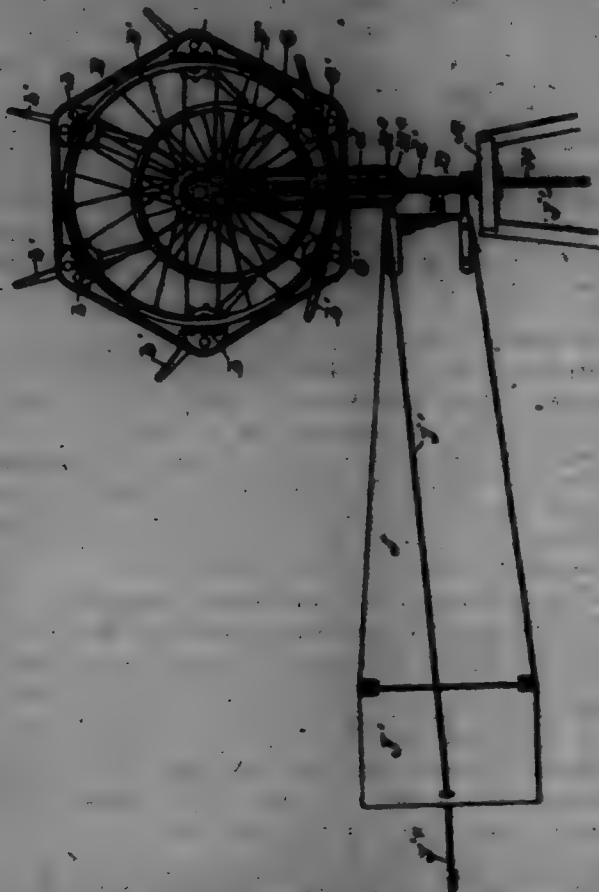
Claim.—1. The combination with a carriage-pole of a backing arm or arms supported by the pole and projecting forward of the animal's collar considerably beyond the plane of the animal's normal draft position and formed with clip-hook ends curving to enable the animal's collar-rings to be easily yoked to and unyoked from the arms and to provide for a wide extent of free travel of the collar-rings along the arms on each side of the animal's normal draft position, so as to enable the animal to run straight and parallel and to cause their wandering or backing action on the vehicle to be effected in places parallel to the pole at whatever distance therefrom they may happen to be when pulled up, as set forth.

2. The combination with a vehicle-pole, of an arm curving as a backing attachment, and a collar-connecting device, the arm being connected to the pole and extending considerably beyond the plane of the animal's normal draft position, and the connecting device having unrestricted free play along the arm to the extent of the animal's liberty of lateral movement on each side of its normal position, so enabling the animal to run straight and parallel with the pole and to cause its backing action on the vehicle to be effected in places parallel with the pole at whatever distance therefrom it may happen to be when pulled up, as set forth.

3. The combination with a vehicle-pole, of an arm connected thereto and extending considerably beyond the plane of the animal's normal draft position, a collar-connecting ring on said arm having unrestricted free play along the arm to the extent of the animal's liberty of lateral movement on each side of its normal position, and a clip-hook at the end of the arm, whereby the animal can be readily yoked and unyoked, as

run straight and parallel with the pole and exert its locking action on the vehicle in a plane parallel with the pole at whatever distance therefrom it may happen to be when pulled up.

698,891. WIND-WHEEL. BENJAMIN GARDNER, Pittsburg, Tex. Filed May 21, 1901. Serial No. 68,698. (No model.)



Claim.—1. A wind-wheel, having the centrally-pivoted fan, the eccentric wheel engaging said fan, and the belt connection for the fan pivots or shafts, substantially as specified.

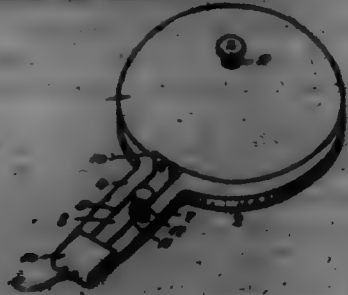
2. A wind-wheel, having the opposite shafts, the eccentric wheel being in crank-bearing in said shaft, the fan-shaft journaled in the peripheral portion of said shaft, and arranged to bear upon the rim of said eccentric wheel, and means for turning said wind-wheel to one side to prevent the fan from or less edgewise to the wind under variations in the force thereof, substantially as specified.

3. In a wind-wheel, the combination with the pivoted fan, the eccentric wheel upon which said fan bears, and the endless belt connecting the shafts of said fan, of means opening in connection with said eccentric wheel and belt for exerting a pull upon said belt at intervals to draw the fan past radial position, substantially as specified.

4. In a wind-wheel, the combination with the pivoted fan, the eccentric wheel, and the sprocket-chain connecting the shafts of said fan, of means carried by said fan, and arranged to take a bearing upon the rim of said eccentric wheel to exert a pull upon said chain at intervals to draw the fan past radial position, substantially as specified.

5. The combination with a wind-wheel having the supporting-frame turning upon a vertical axis, of a vane turning upon the same axis as said frame, the pole of fan pivoted to said vane, the knee or toggle joint connecting said fan, one of said fan having a connection with said vane, and the other said fan having a rope or cable attachment, upon which a weight is suspended, substantially as specified.

698,892. ALARM. ARTHUR R. GOWAN, Richmond, Va., assignor of one-half to HERBERT A. ROSS, Richmond, Va. Filed Nov. 20, 1901. Serial No. 84,194. (No model.)



Claim.—1. In a bell-alarm, the combination of a rotatably-supported bell provided with striking parts, a hammer supported on an elastic arm, a motor-spring for rotating the bell, a detent engaging in a notch in the bell to hold it when wound up, means for holding the detent in the notch, and means for throwing the detent out of the notch to release the bell when the means for holding the detent in engagement with the notch is removed.

2. In a bell-alarm, the combination of a rotatably-supported bell provided with striking parts, means for rotating the bell, an elastically-supported hammer, an arm 6 provided with a detent and 9 engaging the bell to hold it when wound up, a cap 14 to hold the detent 9 in engagement with the bell, and a spring 16 arranged to throw the detent 9 out of engagement with and so release the bell when the cap 14 is removed.

3. In a bell-alarm, the combination of a base-plate, a bell-post, a bell rotatably mounted on the bell-post and provided with striking parts, an elastically-mounted hammer lying in the path of the said striking parts, a spring 12 fixed at one end and 13 attached by its other end to the bell that when it is wound up it will revolve the bell, an arm 8 pivoted to the base-plate and terminating at one end in a detent 9 adapted to engage in a notch in the edge of the bell, removable means for keeping the arm in position, and a spring 16 arranged to throw the detent out of engagement with and so release the bell when the means for keeping the arm in position is removed.

4. In a bell-alarm, the combination of a base-plate, a bell-post, a bell rotatably mounted on the bell-post and provided with striking parts, an elastically-mounted hammer lying in the path of the said striking parts, a spring 12 fixed at one end and 13 attached by its other end to the bell that when it is wound up it will revolve the bell, an arm 8 pivoted to the base-plate and terminating at one end in a detent 9 adapted to engage in a notch in the edge of the bell, removable means for keeping the arm in position, a spring 16 arranged to throw the detent out of engagement with and so release the bell when the means for keeping the arm in position is removed, and a spring 11 to hold the bell in engagement with the detent 9 when the alarm is set.

5. In a bell-alarm, the combination of a rotatably-supported bell provided with projecting striking parts, a hammer adapted to come in contact with the said striking parts as the bell revolves, means for rotating the bell, means for holding the bell, and means for releasing the bell.

698,893. CLOTHES-LINE PINS. WILSON & BAYNE, Chicago, Ill. Filed Feb. 1, 1901. Serial No. 84,195. (No model.)



Claim.—1. In an extension clothes-pin, the combination, with the extension members having means for holding them in sliding engagement with each other, of a vibratory yoke connected with the lower pole member and embracing the upper pole member and a clamp-block movably mounted on the free end of the yoke and arranged to engage the sliding pole member by downward inclination of said yoke.

2. In an extension clothes-pin, the combination, with the extension-pole members provided with means for holding them in sliding engagement with each other, of a spring-yoke carried by the lower pole member and embracing the upper pole member, and a clamp-block carried pivotally by the yoke at its free end and engaging with the upper pole member, said spring-yoke normally having a slight downward inclination toward the clamp-block, substantially as set forth.

3. In an extension clothes-pin, the combination, with the extension-pole members provided with means for holding them in sliding engagement with each other, of a spring-yoke metal yoke having an end of the wire bent inward and entering the lower pole member to give rigid attachment of the yoke thereto, a clamp-block carried pivotally by the yoke at its free end and engaging the outer face of the upper pole member, said rigidly-attached spring-yoke having a slight downward inclination from the point of its attachment whereby the clamp-block is normally pressed against the upper pole member, substantially as described.

698,894. INSULATED-LAMP SOCKET. LAWRENCE P. BROWN, Toledo, Ohio, assignor to THE MILLER COMPANY, Toledo, Ohio. Filed May 6, 1901. Serial No. 84,201. (No model.)

Claim.—1. In an insulated-lamp socket, the combination of an insulating-socket compound of two connecting parts or sections provided in their meeting edges with recesses forming sockets, switch mechanism,

bearing-plates removably mounted in said sockets in the casing and formed with apertures, and confined by the connecting of the parts of the casing together, and a key-spindle projecting through the apertures in the bearing-plates and adapted to turn therein, said spindle being provided at one end with a stop holding it against endwise movement in one direction and at the other end with a key-handle holding it against endwise movement in the reverse direction, substantially as described.



2. In an insulated-lamp socket, the combination of an insulating barrel or casing comprising sections, sections removably mounted in said sockets and confined by the sections of the casing and provided with openings, and a key-spindle coacting with said switch mechanism and extending through the openings in the bearing-plates, said spindle being provided with end stops to retain the bearing-plates thereon and to hold the spindle against independent endwise movement, one of said stops being formed by bending or splicing one of the ends of the spindle, whereby, when said barrel end is bent back to its normal position, the bearing-plates may be slid endwise off the spindle, substantially as described.

3. In an insulated-lamp socket, the combination with an insulating barrel or casing composed of sections, conducting-plates connecting said sections, lamp-contacts, a bearing-plate formed upon one of the said conducting-plates, a pivot-pin connected to said bearing-plate and provided at its free end with a head, a half-switch pivotally mounted upon said pin and provided at its free end with a contact-piece adapted to engage the contact-piece on the other part of the circuit, a spring surrounding said pivot-pin between the head thereof and the switch and acting to hold the switch pressed into contact with the bearing-plate, said spring also being connected with the switch to throw it open, and means for operating the switch, substantially as described.

4. The combination, in a switch or circuit-breaker, of a conductor, a contact-piece, a pivot-pin, a half-switch slidably and pivotally mounted upon said pin and in normal engagement with the conductor and adapted to be swung into and out of engagement with the contact-piece to make and break the circuit, said switch comprising a plate having a body portion and end portions extending at right angles thereto, one forming a pivot-piece and the other a contact-piece, a shoulder being formed by the end of the body adjacent to said pivot-piece, a spring surrounding the pivot-pin and secured at one end and acting upon the pivoted end of the switch to press it into engagement with the conductor, the opposite end of the spring being arranged to bear against said shoulder to throw the switch open, and means for operating the switch, substantially as described.

5. In an insulated-lamp socket, the combination of an insulating barrel or casing composed of sections, the base of the lower section being formed in its upper surface with recesses opening through the edges thereof and disposed upon opposite sides of the center of said base diagonally with relation to each other, and also with a central recess, conducting-plates having right-angularly-bent ends, the lower right-angularly-bent ends being fitted in said side recesses or sockets, fastenings connecting the said right-angularly-bent ends of the conducting-plates to the top and bottom sections of the casing, binding-posts carried by said conducting-plates for attachment of lamp-wires, a lamp-socket secured by the fastening means of the lower right-angularly-bent end of one of the said conducting-plates, a contact-plate fitted in the central recess of the bottom section of the casing and carrying a contact-piece, a fastening device securing said plate to the base-casing section, a second lamp-socket secured to the casing by said latter-mentioned fastening device, a bearing-plate carried by one of said conducting-plates, a pivot-pin connected thereto and provided with a head, a half-switch pivotally mounted upon said pin and adapted to bear against said bearing-plate and to be thrown into and out of engagement with the contact-piece carried by the said central contact-plate, a spring surrounding said pivot-pin and fixed at one end and arranged to press the switch against the bearing-plate, and having its opposite end connected with the switch to throw the same open, and means for operating said switch, substantially as described.

6. The sections 5 and 6, formed with central chambers for the reception of the switch mechanism, and adapted to be connected together to form a continuous insulating-casing, and also provided with diametrically-disposed recesses or pockets having intersecting spindle-channels, and adapted to receive spindle-supporting disks or plates, substantially as set forth for the purpose set forth.

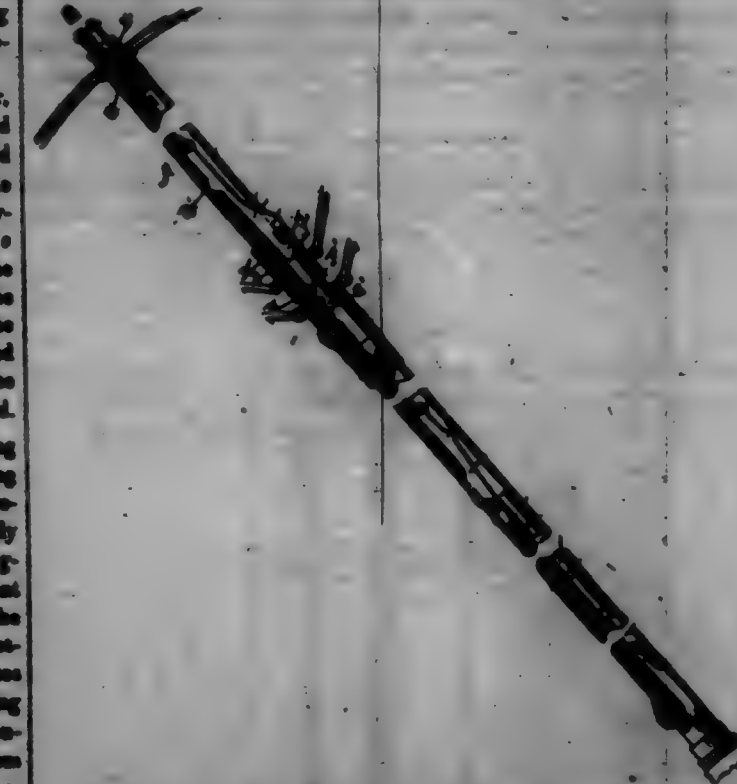
7. In an insulated-lamp socket, the combination of an insulating-casing adapted to receive the switch mechanism and conducting-plates and their connections, the switch pivotally connected at one end with one of the conducting-plates and having its free end of U shape, a contact-plate having one end V-shaped to receive the U-shaped end of the operating switch, a switch-operating spindle and tumbler, and spring mechanism for restoring the switch to its normal position, substantially as set forth.

698,895. SUPPORT FOR PUNCHING-SAWS. GARY W. DUGLEY, Chicago, Ill. Filed Feb. 1, 1901. Serial No. 84,196. (No model.)



Claim.—The combination of a supporting-rod, a cap-shaped hollow body made of a single piece of sheet metal and provided at its upper edge with a flat, horizontal, outwardly-directed, integral attaching-flange and in its bottom with an upwardly-directed, integral, conical flange which forms a vertical, tubular passage for the rope not materially larger than said rope, and the base of which flange outwardly to its line of junction with the bottom of the cap-shaped body, a flat, centrally-located bearing-plate located within the said hollow body and resting on the upwardly-directed edge of said flange, said cord extending upwardly through the passage formed thereby in the bottom of the cap-shaped body and through the bearing-plate and having at its upper end a knot which engages the top surface of said bearing-plate, and said hollow body having an opening in its side wall above said bearing-plate to afford access to said knot.

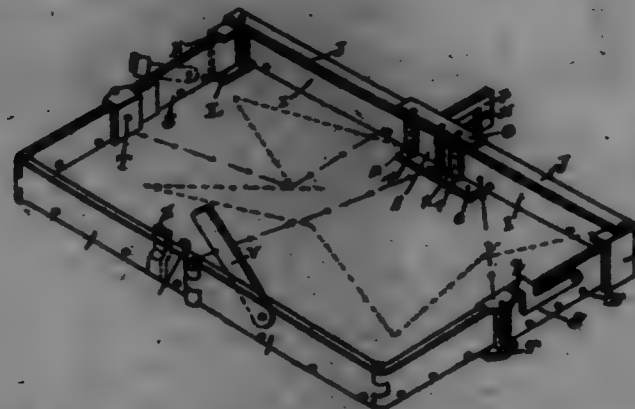
698,896. FOLDING UMBRELLA. JOHN A. BROWN, Minneapolis, Minn., assignor of one-fourth to ROSE A. JOHNSON, Hartford, Conn. Filed Feb. 26, 1901. Serial No. 84,207. (No model.)



Claim.—In a folding umbrella, a rod composed of three jointed sections, each having an end reduced to slip in the end of the adjacent section, short coupling-sections interior of the other sections opposite the joints, a pair of sleeves slidably mounted upon the sections one above the other, the upper one when it is raised being adjacent the joint of the upper and central sections, a wire spring-clip located in the lower section to engage the lower sleeve to hold the same down when the umbrella is closed, another wire spring-clip in the central section to hold the sleeve up when the umbrella is raised, a hooked spring provided with a leg mounted in the middle section to hold one of the couplings in place, and another similar spring mounted in the upper section to hold the upper sleeve in place.

698,897. FOLDING BUTTER LUGGAGE-SKID. JOHN A. BROWN, Minneapolis, Minn., assignor of one-fourth to ROSE A. JOHNSON, Hartford, Conn. Filed Feb. 26, 1901. Serial No. 84,208. (No model.)

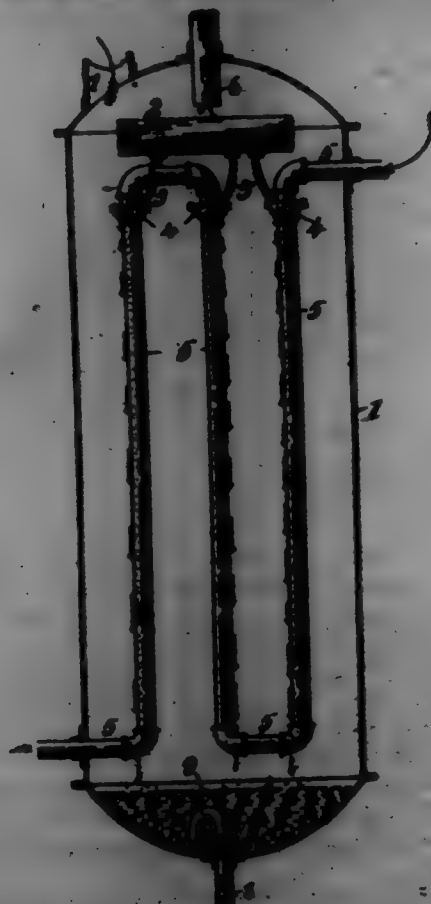
Claim.—1. In a folding or collapsible box consisting of a jointed metal frame having clamping-lugs pivotally attached thereto, the sides, ends and bottom of the box formed from cloth or other flexible material, ends or lugs for attaching the sides, ends and bottom to the frame, an L-shaped hook rigidly attached to said frame, and means for removably attaching the box to a bicycle consisting of a clamp having a forward extension, and an L-shaped recess in said extension to receive the hook, substantially as described.



2. In combination a folding box, a top frame consisting of a centrally-hinged front member, side members hinged to the ends of the front member, and hinged intermediate of their lengths, and a centrally-hinged rear member having the side hinged to its ends, a flexible box connected to the frame, a flanged plate embracing said central portion of the rear member of the frame, an L-shaped hook carried by said plate, a spring-catch carried by said plate and means for connecting the box to a bicycle-frame detachably engaging the hook and held in rigid engagement by the spring-catch.

3. In combination a folding box, a top frame consisting of a centrally-hinged front member, side members hinged to the ends of the front member, and hinged intermediate of their lengths, and a centrally-hinged rear member having the side hinged to its ends, a flexible box connected to the frame, a flanged plate embracing said central portion of the rear member of the frame, an L-shaped hook carried by said plate, consisting of a clamp having a forward extension and an L-shaped recess in said extension to receive the hook.

698,898. APPARATUS FOR SEPARATING SOLVENTS FROM OIL. CLARENCE BURNHAM, DORCHESTER, MASS., assignor to Frank H. Pratt, Dorchester, Mass. Filed Aug. 21, 1901. Serial No. 72,988. (No model.)



Claim.—1. An apparatus for separating oil from an oil-containing solvent, comprising a closed chamber, a vertical pipe in the chamber forming a passage-way for a heating medium, and means for supplying the

combined oil and solvent in a thin film around the outside of the upper part of the pipe.

2. An apparatus for separating oil from an oil-containing solvent, comprising a closed chamber, a coil of pipe disposed vertically in the chamber and forming a passage-way for a heating medium, and means for supplying the combined oil and solvent in a thin film around the outside of the upper part of the pipe.

698,899. METHOD OF MAKING MAGNESIUM-PEROXIDE COMPOUND. FRANK FURBER, Berlin, Germany. Filed Jan. 7, 1902. Serial No. 66,786. (No specimens.)

Claim.—1. The process herein described of producing a compound rich in magnesium peroxide, which consists in forming an aqueous mixture of a soluble salt, a corresponding ammonium salt and sodium peroxide, adding to the mass, after the resulting reaction, a quantity of alcohol, and separating the precipitate from the liquid, substantially as set forth.

2. The process herein described of producing a compound rich in magnesium peroxide, which consists in forming an aqueous mixture of magnesium chloride, ammonium chloride and sodium peroxide, adding to the mass, after the resulting reaction, a quantity of alcohol, and then separating the precipitate from the liquid, substantially as set forth.

3. The process herein described of producing a compound rich in magnesium peroxide, which consists in dissolving in water a soluble magnesium salt, allowing the solution to cool, adding gradually to the solution a mixture of the corresponding ammonium salt and sodium peroxide, allowing the mixture to stand, separating the precipitate from the liquid, drying the precipitate at a low temperature, substantially as set forth.

4. The process herein described of producing a compound rich in magnesium peroxide, which consists in dissolving in water a soluble magnesium salt, allowing the solution to cool, adding gradually to the solution a mixture of the corresponding ammonium salt and sodium peroxide, adding to the mass, after the resulting reaction, a quantity of alcohol, allowing the mixture to stand, separating the precipitate from the liquid, drying the precipitate at a low temperature, substantially as set forth.

5. The process herein described of producing a compound rich in magnesium peroxide, which consists in dissolving in water a soluble magnesium salt, allowing the solution to cool, adding gradually to the solution a mixture of the corresponding ammonium salt and sodium peroxide, adding to the mass, after the resulting reaction, a quantity of alcohol, drying the mixture to stand, separating the precipitate from the liquid, drying the precipitate at a low temperature, grinding the precipitate, mixing the same with water, filtering and washing the product, and repeatedly drying and pulverizing the mass, substantially as set forth.

698,400. VACUUM-PUMP. WILLIAM F. GARDNER, Brooklyn, N.Y., assignor to Smith & Garrison, Brooklyn, N.Y., a firm. Filed Aug. 1, 1901. Serial No. 76,664. (No model.)



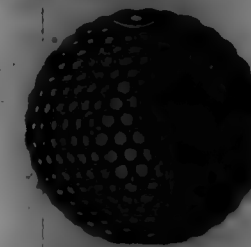
Claim.—1. In a vacuum-pump, two chambers communicating respectively one with each end of the cylinder, an inlet-chamber and a discharge-chamber each common to both ends of the cylinder, and oppositely-located valve-containing diaphragms situated one between one of said two chambers and the inlet and outlet chambers and the other between the other of said chambers and the inlet and outlet chambers, substantially as herein described.

2. In a vacuum-pump, two chambers communicating respectively one with each end of the cylinder, an inlet-chamber and a discharge-chamber each common to both ends of the cylinder and two valve-containing diaphragms situated one between one of said two chambers and the inlet and outlet chambers and the other between the other of said two chambers and the inlet and outlet chambers, said diaphragms having induction communicating respectively at the middle of the length of the cylinder and running outwardly therefrom in opposite directions, substantially as herein described.

3. In a vacuum-pump, a valve-chest in which are two chambers communicating respectively one with each end of the cylinder, a discharge-chamber common to both of said two chambers, and two valve-containing diaphragms arranged one between said discharge-chamber and one of the two first-mentioned chambers and the other between said discharge-chamber and the other of said first-mentioned chambers and having induction in opposite directions, substantially as herein described.

4. In a vacuum-pump, a valve-chest in which are two chambers communicating respectively one with each end of the cylinder, an inlet-chamber common to both of said two chambers, a discharge-chamber common to both of said two chambers, and two oppositely-located valve-containing diaphragms one of said diaphragms separating one of said two chambers from both the inlet and discharge chambers and the other of said diaphragms separating the other of said two chambers from both the inlet and discharge chambers, substantially as herein described.

698,401. GOLF-BALL. BRADLEY KIRKMAN, Boston, Mass., assignor to the Knapton Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 66,715. (No model.)



Claim.—1. A playing-ball comprising a yielding core and a substantial, continuous shell holding said core under compression, and consisting of gutta-percha from which all strains other than those caused by the expansive tendency of said core have been eliminated.

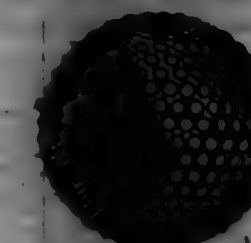
2. A playing-ball comprising a core and a shell thereof, the latter consisting of convolutions of one or more strips of plastic material extending continuously in different directions around said core and being welded together or adhering at their contacting surfaces.

3. A playing-ball comprising a core and a shell thereof, the latter consisting of convolutions of one or more strips of gutta-percha extending continuously in different directions around said core and being welded together at their contacting surfaces.

4. A playing-ball comprising a shell and a yielding core held under compression thereby; said shell consisting of convolutions of one or more strips of gutta-percha extending continuously in different directions around said core and being welded together at their contacting surfaces.

5. A playing-ball comprising a core and a shell thereof, the latter consisting of convolutions of one or more strips of gutta-percha extending continuously in different directions around said core and being welded together at their contacting surfaces; the internal strains of said shell being substantially eliminated.

698,402. GOLF-BALL. BRADLEY KIRKMAN, Boston, Mass., assignor to the Knapton Manufacturing Company, a Corporation of New Jersey. Filed Mar. 21, 1902. Serial No. 102,731. (No model.)



Claim.—1. A playing-ball comprising a core which consists mainly of wide, solid rubber bands wound thereon under tension, and a shell of plastic material upon said core, said shell being lined with fabric.

2. A playing-ball comprising a core which consists mainly of wide, solid rubber bands wound thereon under tension, and a gutta-percha shell upon said core, said shell being lined with fabric.

3. In a playing-ball, the combination of a center plate; with solid rubber bands wound thereon therefrom to form the main part of a core, and a gutta-percha shell holding said core under compression.

4. In a playing-ball, the combination of a center plate; with solid rubber bands wound thereon therefrom to form the main part of a core, and a gutta-percha shell compressed upon said core and provided with a fabric lining.

5. A playing-ball comprising a core and a shell; the said core being formed mainly of wide, solid, thin rubber bands wound thereon under

high tension, and said shell being formed of plastic material lined with fabric and confining said core in reduced bulk.

698,403. STEAM-GENERATOR. CHARLES A. KIRBY, Oswego, N.Y.; Morris W. Kline, administrator of said Charles A. Kirby, deceased, assignor to Steam Carriage Oil Company, Oswego, N.Y., a Corporation of New York. Filed June 3, 1901. Serial No. 65,686. (No model.)



Claim.—1. A steam-generator comprising oppositely-arranged sections having their adjacent edges welded to each other, and a diaphragm loosely supported between the end walls of said sections, at one side of the meeting ends of the sections.

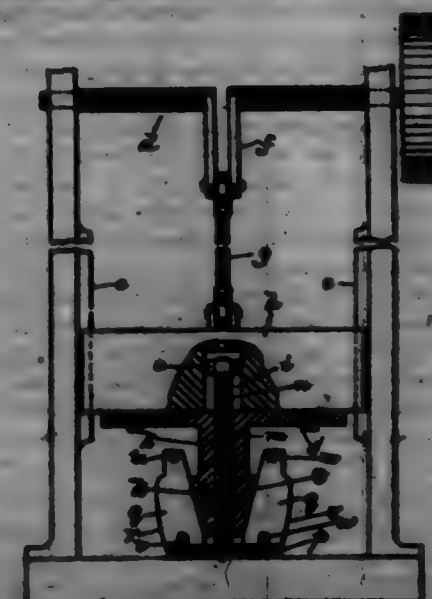
2. A steam-generator comprising oppositely-arranged shells having adjacent ends open and welded to each other and their opposite ends provided with perforated heads, a perforated diaphragm loosely supported in one of the heads at one side of their welded ends and capable of movement independently of the shell, and flues inserted through the apertures of the heads and diaphragm and secured to the heads.

3. A steam-boller having oppositely-perforated heads, in combination with a perforated diaphragm loosely mounted in the boiler and capable of independent rotary motion, means projecting from the sides of the boiler to support the diaphragm and flues inserted through the heads and diaphragm and secured to the heads.

4. A steam-boller having oppositely-perforated heads and studs projecting inwardly from its side walls, in combination with a perforated diaphragm having elongated slots receiving the studs for supporting the diaphragm and permitting the diaphragm to be partially rotated independently of the boiler-shell.

5. A steam-boller comprising oppositely shell-sections having adjacent ends open and welded to each other and provided with perforated heads and studs projecting inwardly from its side walls, a perforated diaphragm within the boiler having an outer flange provided with elongated slots receiving said studs for permitting partial rotation of the diaphragm independently of the boiler-shell.

698,404. MACHINE FOR BULGING SHEET-METAL VESSELS. GEORGE W. KRAFT, Baltimore, Md., assignor to National Bulging & Shaping Co., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 58,668. (No model.)



Claim.—1. In a machine for bulging the sides of sheet-metal vessels having bottoms, the combination of a bed-plate for the vessel to rest on while it is being expanded; a plurality of radial blades all of which together form a substantially circular expandable part with an opening at the center and the outer wall of each blade being curved in the direction of its upper and lower ends; a plate by which said blades are supported

and on which they have a radially-sliding movement, and on which they are carried into and out of the vessel that is to be bulged; a vertically-reciprocating cross-head; and a tapered plug carried by said cross-head and moved in the said central opening of the radial blocks.

2. In a machine for bulging the sides of sheet-metal vessels having bottoms, the combination of a vertically-reciprocating cross-head; a tapered plug rigidly attached to said cross-head; a plurality of radial blocks all of which together form a substantially circular expandable part with a central opening which receives the said tapered plug, all of said blocks being loosely expanded and having a limited up-and-down movement relative to said tapered plug and the outer wall of each block being convex in the direction of its upper and lower ends; a plate by which said blocks are supported and on which they have a radially-sliding movement; and a stationary bed-plate below all of the abovedescribed parts and on which the sheet-metal vessel will rest while the expansion of the radial blocks takes place.

3. In a machine for changing the straight, cylindrical shape of the sides of sheet-metal vessels, such as cans, pots, and analogous vessels, into expanded or bulged shape, the combination of a vertically-reciprocating cross-head; a tapered plug carried by said cross-head; a plurality of radial blocks independent of each other and all of which together form a substantially circular expandable part with a central opening which receives the said tapered plug, the said blocks and said plug having an independent limited up-and-down movement with respect to each other and said blocks also having a radially-sliding movement; a plate by which said blocks are supported and carried into and out of the vessel that is to be expanded; and a bed-plate below all of the abovedescribed parts and on which the sheet-metal vessel will rest while the expansion of the radial blocks takes place.

4. In a machine for bulging the sides of sheet-metal vessels having bottoms, an expanding-die comprising a plurality of radial blocks which together form the circle of the expanding-die and each block provided with an inner inclined wall all of which walls together form an opening in the center of the die, and the outer wall of each block being convex in the direction of its upper and lower ends; a plate adapted to sit within the sheet-metal vessel and rest on the bottom thereof and support the said radial blocks; and a tapered plug in the center opening of the die and in contact with the inner inclined walls of all the blocks, whereby the straight, cylindrical sides of the vessel may be changed to bulged sides without using an exterior die or former.

5. In a machine for bulging the sides of seamless sheet-metal vessels having bottoms, an expanding-die comprising a plurality of radial blocks which together form the circle of the expanding-die with an opening at the center and said blocks provided at their top and bottom with annular channels; compression-springs in said channels and tending to press said radial blocks together; a bed-plate on which the bottom of the sheet-metal vessel may rest while the vessel is being expanded; a plate adapted to sit within the sheet-metal vessel and rest on the bottom thereof and support the said radial blocks so that the latter may slide radially on said plate; and a tapered plug in the center opening of the die and adapted to press said radial blocks apart.

6. In a machine for bulging the sides of sheet-metal vessels having bottoms, the combination of a vertically-reciprocating cross-head provided with a socket; a tapered plug rigidly attached to and depending from said cross-head, and provided with a vertical bore opening into said socket; a pin mounted to slide in said bore with its upper end extending into said socket and provided with a head adapted to limit the downward movement of said pin in said bore; a plate secured to the lower end of said pin; and a plurality of radial blocks supported by and slidable on said plate and grouped around said pin and provided with inner inclined walls engaged by said pin and said blocks also provided with outer walls uniformly convex from top to bottom.

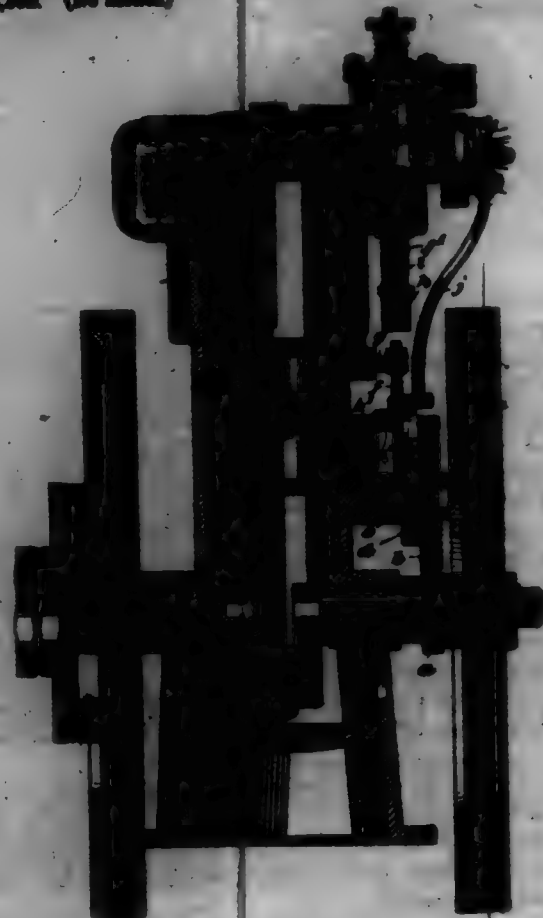
7. In a machine for bulging the sides of sheet-metal vessels having bottoms, the combination of a vertically-reciprocating cross-head provided with a socket; a tapered plug rigidly attached to and depending from said cross-head and provided with a vertical bore opening into said socket; a pin mounted to slide in said bore with its upper end extending into said socket and provided with a head adapted to limit the downward movement of said pin in said bore; a plate rigidly secured to the lower end of said pin; a plurality of radial blocks supported to slide on said plate and grouped around said pin, and provided with inner inclined walls engaged by said pin; and compression-springs acting on the top and also on the bottoms of said radial blocks to press the said blocks together, as set forth.

8. In a machine for bulging the sides of sheet-metal vessels having bottoms, the combination of a vertically-reciprocating cross-head; a tapered plug rigidly attached to said cross-head; a plurality of radial blocks independent of each other and all of which together form an expandable part with a central opening which receives the said tapered plug—each block being provided at its top and also at its bottom with a recess all of

which together form annular channels at the top and bottom of the said expandable part; an endless spiral spring in each of said channels and tending to press said radial blocks together; and a bed-plate on which the bottom of the sheet-metal vessel may rest while the vessel is being expanded.

9. In a machine for bulging the sides of sheet-metal vessels such as cans, pots, and analogous vessels, the combination of a plurality of die-blocks all of which together form a substantially circular expandable part with an opening at the center; a reciprocable support from which said die-blocks are expanded and with respect to which blocks said support has an independent limited up-and-down movement; a plate in contact with the lower ends of all the expanding die-blocks; and a tapered plug movable in the center opening of said die-blocks.

698,408. SPEED-REGULATOR FOR EXPLOSIVE-ENGINE.
JOHN W. LARKIN, Anderson, Ind., assignor to the Bushy Manufacturing Company, Anderson, Ind. Filed June 27, 1901. Serial No. 64,382. (No model.)



Claim.—1. The combination with a gas-engine, of a cam and means for rotating it from the engine-shaft, this cam having sparking and exhaust-enlargements respectively at opposite sides, an exhaust-valve and a two-part inlet for said valve, means for normally closing the valve, an actuation device carried by one part of said inlet and adapted to bear upon said cam and be operated thereby, igniter mechanism, and a trip-rod adapted to operate the cam, said trip-rod being connected to the part of the valve-rod carrying the actuation device, for the purpose set forth.

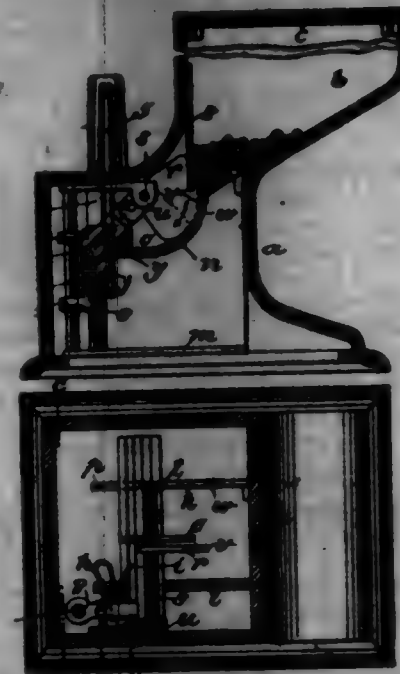
2. In combination with a gas-engine, a cam adapted to receive rotation therefrom and to act both as a sparking and an exhaust cam having sparking and exhaust-enlargements respectively at opposite sides, the sparking enlargement being lower than the exhaust enlargement, an exhaust-valve having a two-part rod, one part being connected directly to the valve and the other part being adapted to be operated by said cam, igniter device, and means for operating them by connection directly with the cam-operated part of the valve-rod, for the purpose set forth.

3. In combination with a gas-engine, a cam adapted to receive both as a sparking and an exhaust cam, having sparking and exhaust-enlargements respectively at opposite sides, means for rotating this cam from the engine, an exhaust-valve having a two-part stem, one part being connected directly to the valve and the other part being operated directly by the cam, igniter mechanism and means for operating it by connection with the cam-operated part of the valve-rod, and speed-regulating device constructed and arranged to hold the cam-operated part of the valve-rod out of engagement with the cam, the exhaust-valve off its seat and the igniter mechanism out of operation upon abnormal speed.

4. In combination with a gas-engine, an igniter mechanism consisting of a stationary electrode, a movable electrode consisting of a rod

shank, extending into the sparking-chamber and provided with a movable contact-arm, an arm rigidly attached to said shank on its outer end, a loose arm mounted on said shank adjacent to the rigid arm, a spring bearing against said rigid arm and normally holding the contacts apart, a spring between said two arms, a stop device engaging the loose arm, and a trip-rod adapted to engage the loose arm and force it toward the rigid arm and thereby bring the contacts together, and means for disengaging said trip-rod from said loose arm.

698,408. MATCH-SAFE. SYLVANUS B. LOCKE, Bridgeport, Conn., assignor of one-half to Martin McVey, Jr., New York, N. Y. Filed Apr. 14, 1901. Serial No. 64,644. (No model.)



Claim.—1. A match-safe comprising a casing, a reservoir for the matches, a drop arranged to tilt a match into position to be withdrawn from the safe, a match-gripping device connected to the drop whereby the withdrawal of the match moves the drop into position to operate on a succeeding match and ignite the match, and means for feeding the matches into position to be operated by the drop, substantially as set forth.

2. A match-safe comprising a suitable casing, means for presenting a match in position to be withdrawn from the safe and a match-gripping device connected to the match-presenting means whereby the withdrawal of a match moves the match-presenting means into position to operate on a succeeding match, substantially as set forth.

3. A match-safe comprising a suitable casing, a reciprocating drop, a fuel mechanism operated by the drop, whereby the matches are fed one by one into position to be filled by the drop and a match-gripping device connected to the drop whereby the withdrawal of a match moves the drop into position to operate on a succeeding match, substantially as set forth.

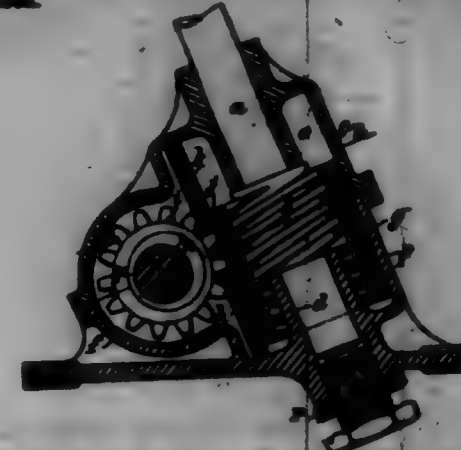
4. A match-safe comprising a suitable casing, a drop having a limited rising-and-falling movement within the casing, means for feeding the matches into position to be engaged by the drop during its falling movement, gripping-jaws connected to the drop, the drop being provided with an offset in position to tilt a match into position between the jaws with one end of the match exposed exterior to the casing, and means for feeding the matches into position to be engaged by the drop, substantially as set forth.

5. A match-safe comprising a suitable casing, a gripping device for engaging the match to be withdrawn, means connected to the gripping device for moving a succeeding match into position to be withdrawn, a feeding device and plates spaced apart forming a support for the matches as they are fed into position to be operated upon, substantially as set forth.

698,407. STEERING-GEAR FOR VEHICLES. FRED L. HALL, and RUDOLPH E. HALL, Auburn, Mass., assignors to the Standard Automobile and Manufacturing Company, Auburn, Mass. Filed Nov. 20, 1901. Serial No. 64,644. (No model.)

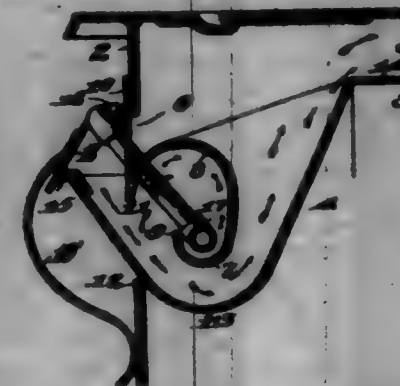
Claim.—1. In a steering-gear for vehicles a steering-spindle provided with a worm-thread, a nut mounted thereon means for driving the nut in a longitudinal non-rotatable direction a longitudinal rack upon the outer surface of the nut a pinion engaging therewith and mounted on a steering-rod and an adjustable thrust-bearing for the steering-spindle substantially as described.

2. In a steering-gear for vehicles a steering-spindle provided with a worm-thread a nut mounted thereon means for driving the nut in a longitudinal non-rotatable direction a longitudinal rack upon the outer surface of the nut a pinion engaging therewith and mounted on a steering-rod, and an adjustable thrust-bearing for the steering-spindle substantially as described.



3. In a steering-gear for vehicles a steering-spindle provided with a worm-thread a nut mounted thereon a longitudinal rack on the outer surface of the nut a pinion engaging therewith and mounted on a steering-rod and washers on said steering-rod bearing against the surface of the nut substantially as set forth for the purpose specified.

698,408. LIQUID-FUEL BURNER. JOHN W. FERRIS, Louisville, Ky., assignor of one-half to John R. Ferris, Louisville, Ky. Filed Oct. 12, 1901. Serial No. 73,614. (No model.)



Claim.—1. In a liquid-fuel burner, the combination with a substantially trough-shaped fuel-tray having an arched and symmetrically-curved overhanging head, of a shield arranged underneath and in front and rear of the said tray, and a damper comprising a flat plate having an inner flange adapted to rest on the front edge of said shield and support the damper, said damper being arranged to partially close the aperture between the shield and head, substantially as described.

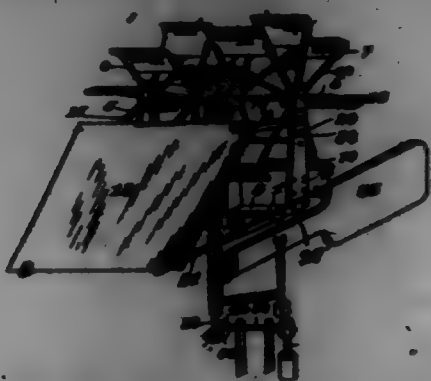
2. In a liquid-fuel burner, the combination with a combined fuel-tray and head consisting of a semi-circular integral casting comprising a lower portion, substantially semi-circular in shape in cross-section and constituting a fuel-tray and an upper portion comprising an arched and symmetrically-curved head, the free end of which extends above and is in front of the free edge of the tray, of means for feeding liquid fuel to said tray, substantially as described.

3. In a liquid-fuel burner, the combination with a combined tray and head consisting of an integral casting, semi-circular in cross-section and having a lower portion, substantially cylindrical in cross-section and constituting a fuel-tray and an upper portion comprising an overhanging arched and symmetrically-curved head, the free end of which terminates at a point in front of and above the free edge of the tray and provided with a vertically-extending portion, substantially as described and for the purpose specified.

698,409. WINDMILL. JOHN FERRIS, Weldon, Iowa, assignor to Henry Ferris, Waukegan, Wis. Filed June 12, 1900. Serial No. 58,798. (No model.)

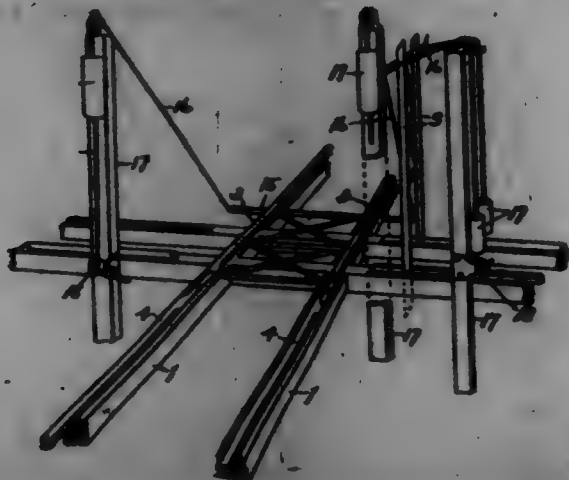
Claim.—1. A windmill consisting of a frame, one or more wind-vanes provided with fins curved at their outer ends, and attached to a shaft pivoted in the frame, and a wind-collector consisting of a flat surface arranged at an inclination in front of the lower portion of the wheel, combined with steps for adjustably connecting the lower portion of the collector with the frame, whereby the angle of the collector to the wheel may be changed; a tail-vane, an eccentric upon the shaft, and a pump-rod connected to the eccentric and operated thereby, substantially as specified.

2. In a windmill the combination with a frame, of one or more wind-wheels journaled in the frame and provided with curved fins, a horizontally and vertically adjustable wind-collector attached to the frame and adapted to deflect the wind against the fins at the upper half of the wheel, a pump-rod and gearing for operating said rod.



3. In a windmill, the combination with a frame, of one or more wind-wheels journaled in the frame, and provided with fins curved at their ends a wind-collector disposed at an angle in front of the lower half of the wheel and connected to the frame by an upper and lower pair of stays, each of which is horizontally and vertically adjustable to regulate respectively the height, inclination and outward and inward movement of the wind-collector, a pump-rod and means for operating said rod.

698,410. RAILWAY-CROSSING. CHARLES F. FANELL, St. Louis, Mo., assignor to Frederick Fannell, Columbia, Mo. Filed June 28, 1898. Serial No. 65,574. (No model.)



Claim.—1. In a railway-crossing, a movable track-section pivoted at one of its ends to the fixed portion of the track, recesses in the free ends of the movable rails, corresponding projections on the ends of the fixed rails adjacent to the recessed ends of said movable rails, said projections and said recessed ends having transverse openings therein which register with one another, when said projections are covered by said recesses, and a locking device for holding said movable rails in engagement with said fixed rails, comprising a pair of reciprocatory bolts mounted in alignment with said transverse openings in the rails, a rock-shaft, cranks thereon, connected to said bolts, and means for turning said rock-shaft; substantially as described.

2. In a railway-crossing, a movable track-section pivoted at one end thereof to the fixed portion of the track, a cross-bar secured to the free end of said movable section, a pair of posts at the sides of the track adjacent to the pivotal connection of said movable section, a pulley secured to the top of each post, a winch mounted on each post, a pair of cables passing over said pulleys respectively, each cable having one of its ends secured to said cross-bar and its opposite end secured to one of said winches, and weights attached to said respective cables for balancing the weight of said movable track-section, whereby said movable section may be raised by operating the winches and when raised will form a gate across the track containing said movable section, substantially as described.

698,411. PROCESS OF MAKING PEBBLED LEATHER. EMERSON PLAMER, Woodhaven, N. Y. Filed Aug. 28, 1898. Serial No. 73,810. (No specimen.)

Claim.—1. The herein-described process of pebbling leather which consists in scouring to a split of leather pebbles of faceted configuration, securing thereto a surface strip of fabric, and bearding the whole.

2. The herein-described process of pebbling leather which consists

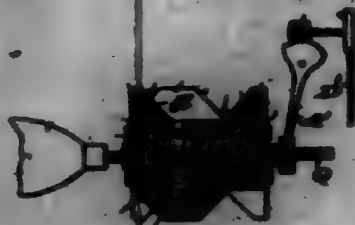
in scouring to a strip of leather pebbles of faceted configuration and of a different leather from the split, securing thereto a surface strip of fabric, and bearding the whole, whereby the grain of the split and the grain of the pebbles are caused to appear through the surface strip.



3. The herein-described process of pebbling leather, which consists in scouring pebbles between two strips of leather, and bearding the whole.

4. The herein-described process of pebbling leather which consists in scouring pebbles of leather between two splits of leather, and bearding the whole.

698,412. ELEVATOR HOISTING MECHANISM. HAROLD BOWYER, Chicago, Ill., assignor to Otto Elevator Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 28, 1898. Serial No. 59,737. (No model.)



Claim.—1. In an elevator, a car, a pulley yieldingly connected thereto, a counterweight also provided with a pulley, an endless cable operating around said pulleys, a differential pulley, said endless cable passing around said differential pulley, means for driving said differential pulley, and an auxiliary connection between said car and counterweight, as and for the purpose set forth.

2. In an elevator, a car, a pulley, springs connecting said car and pulley, a counterweight also carrying a pulley, an endless cable operating around said pulleys, a differential pulley, said endless cable also passing around said differential pulley, means for actuating said differential pulley, and an auxiliary connection between said car and counterweight, as and for the purpose set forth.

3. In an elevator, a car, a pulley connected to said car for movement relative thereto, a counterweight also carrying a pulley, an endless cable operating around said pulleys, a differential driving-pulley for said cable, an auxiliary cable connecting said car and counterweight, and means for actuating said differential pulley, as and for the purpose set forth.

4. In an elevator, a car, a counterweight therefor, and an endless cable connecting said car and counterweight, in combination with a differential driving-pulley for said cable, comprising a central portion and end portions, said central and end portions cooperating to form pulley-grooves, and means for relatively moving said central and end portions to vary the relative effective driving diameters of said pulley-grooves, as and for the purpose set forth.

5. In an elevator, a car, a counterweight, and an endless cable connecting said car and counterweight, in combination with a differential driving-pulley for said cable, comprising a central portion having beveled ends and end portions having cooperating beveled ends, said bevels forming pulley-grooves, and means for relatively shifting said central and end portions to vary the relative effective driving diameters of said grooves, as and for the purpose set forth.

6. In an elevator, a car, a counterweight, and an endless cable connecting the same, in combination with a shaft, a differential driving-pulley mounted thereon, and comprising a central portion and end portions, said end portions being connected to rotate with said shaft but capable of movement longitudinally thereof and relatively to said central portion, said end and central portions cooperating to form pulley-grooves, and means for shifting said end portions longitudinally of the shaft, whereby the rel-

ative diameter of said pulley-grooves are varied, as and for the purpose set forth.

7. In an elevator, a car, a counterweight, pulleys together respectively carried by said car and counterweight, an endless cable operating over said pulleys, an auxiliary cable also connecting said car and counterweight, means for operating one of said cables, and means for distributing the load between said cables, as and for the purpose set forth.

8. In an elevator, a car, a pulley connected thereto, a counterweight also provided with a pulley, one of said pulleys being yieldingly connected, an endless cable operating over said pulleys, means for actuating said cable, and an auxiliary cable connecting said car and counterweight, as and for the purpose set forth.

9. In an elevator, a car, a counterweight, an endless cable connecting said car and counterweight, an auxiliary cable also connecting said car and counterweight, a differential pulley over which said endless cable operates, means for actuating said pulley, and means for distributing the load between said cables, as and for the purpose set forth.

698,418. CAR-COUPLING. THOMAS A. SAVAGE, Carrollton, Mo., assignor, by direct and mesne assignments, to Morris S. Evans and John W. Weaver, Moline, Ill., Daniel Arthaud, Burlington, Iowa, Charles W. Layman, Lomax, Ill., and Adolph Mueller, Dallas, Ill. Filed July 8, 1901. Serial No. 67,597. (No model.)

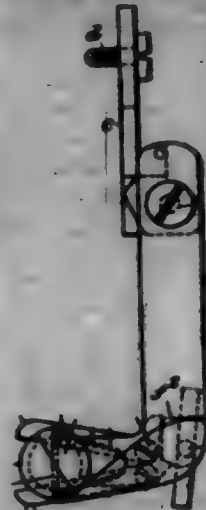


Claim.—1. An automatic car-coupler, consisting of a draw-head having in its front end a recess, one of the side walls of said recess being bifurcated at its front end; a knuckle hinged in said bifurcation; an arm secured to the rear face of said knuckle, and having its rear side beveled down nearly to an edge; a finger extending forward from the free end of said arm, said arm adapted to fit close up against the inner face of one of the side walls of said recess; a lock-block adapted to work in said recess and hinged to the opposite wall, opposite the knuckle, and having in its lower face an inclined recess and a vertical rectangular perforation through its free end; a spiral spring, its lower end resting against the upper face of said lock-block, and its upper end against the lower face of the upper wall of said recess; a stop secured to the opposite wall to which the knuckle is hinged, adapted to arrest the finger of the arm mentioned above; an upper wall provided with a vertical oblong rectangular opening; a plate secured to the lower face of said upper wall and parallel with the front wall of said opening; a coupling-pin provided with a dot, and an enlargement at its lower end, forming an upper and lower shoulder and a perforation through its center; said coupling-pin passing through the perforation in the lock-block and rectangular opening; in the upper wall, its lower end resting in a depression in the lower wall; a bolt passing through said lock-block and the perforation in said coupling-pin; a spiral spring working around said bolt, and holding said coupling-pin against the front wall of said rectangular opening; a trip-lever pivoted in the dot of said coupling-pin, and adapted, when raised, to throw the upper shoulder from under the plate secured to said upper wall, thus permitting said coupling-pin and said lock-block to be raised, and the coupler unlocked, substantially as shown and described and for the purposes set forth.

2. An automatic car-coupler, consisting of a draw-head having in its front end a recess, having two side walls, an upper and lower wall, one of the side walls being bifurcated at its front end; a knuckle hinged in said bifurcation; an arm secured to the rear face of said knuckle, and having its rear side beveled down nearly to an edge; a finger extending forward from the free end of said arm; a lock-block hinged to the side wall opposite the bifurcated wall, and having in its under face an inclined recess, and provided with a vertical rectangular opening through its free end; the lower wall, provided with a recess immediately under said opening; a stop secured to the lower wall, opposite the hinged knuckle, adapted to arrest the finger of said arm; the upper wall, provided with an oblong rectangular opening; a plate secured to the lower face of said upper wall and parallel with the front wall of said opening; a coupling-pin provided with a dot, a shoulder below said dot, an enlargement at its lower end, forming an upper and lower shoulder, and a perforation through its center; said coupling-pin passing through the perforation in the lock-block and the rectangular opening in the upper wall; a bolt passing through said lock-block and the perforation in said pin; a spiral spring working around said bolt and holding said coupling-pin against the front wall of said pin; a trip-lever pivoted in the dot of said coupling-pin, and adapted, when raised, to throw the upper shoulder from under the plate secured to

said upper wall, thus permitting said coupling-pin and said lock-block to be raised, and the coupler unlocked, substantially as shown and described and for the purposes set forth.

698,414. SEWING-MACHINE-THREADER. GAN SHAWAN, Bangalore, Mysore, India, assignor to Kant North-Bow, Bangalore, India. Filed Feb. 27, 1908. Serial No. 68,004. (No model.)



Claim.—1. The combination of a thread-guide divided into two parts and having a conical passage for the thread intermediate said parts, a pair of fingers, and means for pressing the fingers together and separating the parts of the thread-guide.

2. The combination of a thread-guide divided into two parts and having a conical passage for the thread intermediate said parts, arms carrying the parts of the thread-guide, a pivot for one of the arms, a pair of pivoted fingers, a spring normally tending to bring the parts of the thread-guide together, and to separate the fingers, and means for pressing the fingers together and separating the parts of the thread-guide.

3. The combination of a thread-guide divided into two parts and having a conical passage for the thread intermediate said parts, arms carrying the parts of the thread-guide, a pivot for one of the arms, a pair of fingers pivoted to one of the arms, a leg fixed to the other arm, and engaging with the tail ends of the fingers, and a spring normally tending to bring the parts of the thread-guide together, and to separate the fingers.

4. The combination of an L-shaped arm, a clamp to which it is pivoted, a thread-guide, one part of which is fixed to the L-shaped arm, a lever and a pair of fingers pivoted to the L-shaped arm, another part of the thread-guide fixed to the lever, a leg on the lever engaging the tail ends of the fingers, and a spring normally tending to bring the parts of the thread-guide together and to separate the fingers.

5. A needle-threader for sewing-machines comprising a thread-guide divided into two parts, a pair of fingers arranged adjacent to one end of the thread-guide, and means for opening and closing the fingers, and for closing and opening the parts of the thread-guide.

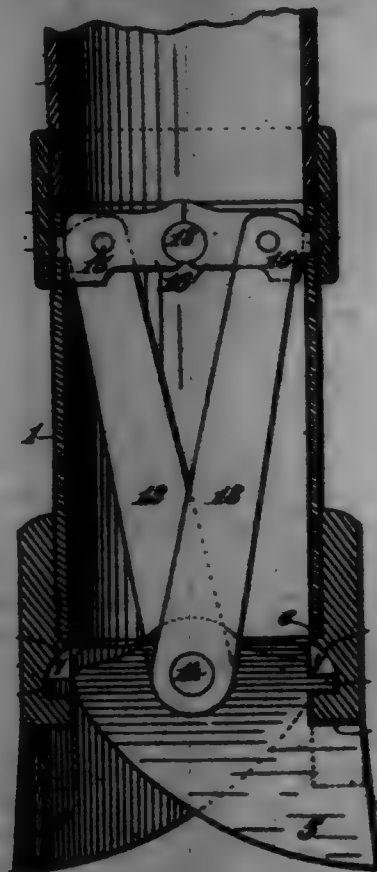
698,415. BIT FOR WELL-DRILLING APPARATUS. JAMES W. BLAIR, Oklahoma, Tex., assignor of two-thirds to J. S. Cullman and H. S. Johnston, Oklahoma, Tex. Filed July 22, 1901. Serial No. 68,389. (No model.)

Claim.—1. In combination, a pipe-section, a chisel carried in the lower end thereof and having a portion of its inner face of the same internal diameter as the pipe-section, removable bits arranged in and provided with integral means engaging with the chisel to prevent the dropping down thereof, means pivotally connected to the top of the bits and arranged within and engaging in the wall of the pipe-section for locking the bits in operative position, and a hinge connected to the upper end of said means and adapted when extended to cause said locking means to engage in the pipe-section and when contracted to release the said locking means so the bits can be removed.

2. In a rotary bit, the combination with a pipe-section, of a chisel suitably connected thereto, a pair of bits arranged in said chisel and adapted to extend therefrom, lateral ears integral with the bits and engaging in the chisel to prevent the dropping down of the bits, brace-rods connected at their lower end to said bits and provided with studs adapted to engage in the pipe-section, and a hinge suitably connected with the upper end of said rods and adapted when extended to cause the studs of the rods to engage in the pipe-section for locking the bits in an operative position and when contracted to release the said studs from their engagement with the pipe-section so that the bits can be removed.

3. The combination with a pipe-section, of a chisel connected to the lower end thereof, a pair of removable bits arranged in the said chisel, a

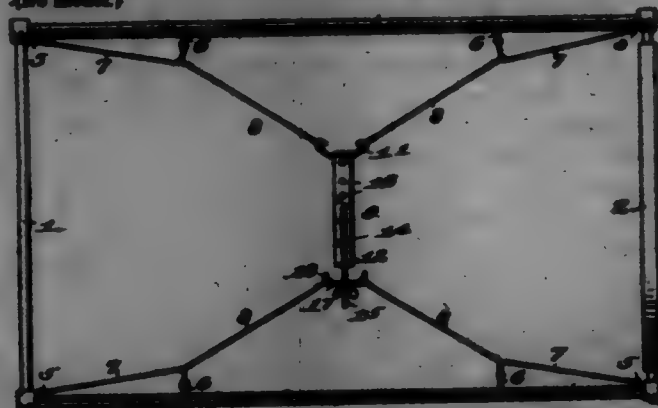
pair of brass-rods connected with the lower end of the bit and engaging in the pipe-section and cooperating with the shoe for locking the bit in an operative position, and means connected to the rods and adapted when extended to cause the said rods to engage with the pipe-section for locking the bit in an operative position and when contracted to release the rods from their engagement with the pipe-section, so that the bit can be removed.



4. A pair of quadrant-shaped bits provided with shoulders and laterally-extending ears, brass-rods pivoted at their lower end to the said bits and provided with studs, a hinge connected to the upper end of the brass-rods, in combination with a brass-shoe adapted to receive the ears of the bits as well as permitting the latter to project therethrough.

5. The combination, with a pipe-section and a shoe connected thereto, of a pair of quadrant-shaped bits provided with shoulders and laterally-extending ears adapted to engage in the shoe for the purpose set forth, a pair of rods, means extending through the lower end of said rods for pivotally connecting the bits thereto as well as together, a hinge adapted to engage in the pipe-section for the purpose set forth, and separate means for connecting the ends of said hinge to the upper end of the said rods.

698,416. BED-BRACE. CHARLES W. SMITH, Piedmont, S. C., assignor of one-half to Samuel Thompson Smith and William F. Hestett, Truroville, Piedmont, S. C. Filed Nov. 13, 1901. Serial No. 28,167. (No model.)



Claim.—1. A bed-brace comprising wires adapted to be connected to the head and foot boards and side rails of a bed, and a tightening device for said wires, consisting of a base-plate having wire-engaging portions thereon extending outwardly at an angle and having a series of openings therein, a rod having a projection thereon adapted to fit within one or the other of said openings, a cross-bar mounted loosely on said rod having wire-engaging portions thereon, and means for moving said cross-bar longitudinally of said rod, the said wires being connected respectively with the wire-engaging portions on said base-plate and said cross-bar.

2. A bed-brace, comprising wires adapted to be connected to the

head and foot boards and side rails of a bed, and a tightening device for said wires consisting of a base-plate having hooks thereon, a series of openings therein, and a perforated flange thereon, a screw-threaded rod extending through said flange and provided with a hook adapted to fit within one or the other of said openings, a cross-bar on said rod having hooks thereon, and a thumb-screw on said rod for moving said cross-bar longitudinally, the said wires being connected respectively with the hooks on said base-plate and with those on said cross-bar.

3. A bed-brace, comprising wires connected respectively to one end and to the adjacent side of the bed at each corner thereof, a centrally-located wire-tightening device, and angularly-arranged wires connected respectively to said wire-tightening device and to the wires at the corners of the bed.

4. A bed-brace, comprising wires connected respectively to one end and to the adjacent side of the bed at each corner thereof, a centrally-located tightening device comprising a base and a part movable longitudinally with respect thereto, angularly-arranged wires connecting said base with the wires at two of the corners of the bed and angularly-arranged wires connecting said longitudinally-movable part with the wires at the other two corners of the bed.

698,417. ELECTRICAL KNIFE-SWITCH. LOUIS J. SMITH, LAWYER, and WILLIAM F. DUNN, Utiex, N. Y., assignors to the Bennett Electric Construction Company, Utiex, N. Y. Filed Nov. 24, 1901. Serial No. 28,705. (No model.)



Claim.—1. A terminal clip for electric switches made from a ribbon blank of sheet-copper, the blank bent near the center of its length to a right angle and one member twisted one-quarter way around to stand centrally with the other member, as set forth.

2. A terminal clip for electric switches made from a ribbon blank of sheet-copper, the blank bent near the center of its length to a right angle and one member twisted one-quarter way around to stand centrally with the other member, as set forth.

3. A terminal clip for electric switches made from a ribbon blank of sheet-copper, the blank bent near the center of its length to a right angle and one member twisted one-quarter way around, and the ends offset as set forth.

4. A terminal clip for electric switches made from a ribbon blank of sheet-copper, the blank bent near the center of its length to a right angle and one member twisted one-quarter way around, and the ends offset, as set forth.

5. A terminal clip for electric switches made from a ribbon blank of sheet-copper folded together and the doubled members bent near the center of their length to a right angle and their ends separated and twisted one-quarter way around, as set forth.

6. A terminal clip for electric switches made from a ribbon blank of sheet-copper folded together and the doubled members bent near the center of their length to a right angle and the members closed from the angle toward the ends to a common, then offset and parallel, and twisted one-quarter way around, as set forth.

7. An electric switch consisting of an insulating-base, terminal clips secured to said base made from a ribbon blank of sheet-copper bent near the center of its length to a right angle and twisted one-quarter way around, the free ends separated and parallel; with a double blade made from a ribbon blank of sheet-copper having a punched central hole with a straight part and enlarged ends, the blank folded through the middle of the said central hole into two parallel blades of the same length and equally spaced apart, secured to a handle by a screw, pivoted to a clip at one end and its inner surfaces adapted to make resilient contact with the outer surfaces of a spring-clip, as set forth.

8. A double blade for an electric switch made from a ribbon blank of sheet-copper, round holes for the wires at each end and a central hole consisting of a straight part with enlarged ends punched therein, the blank folded through the middle of said central hole into two parallel blades of the same length and equally spaced apart the entire length, as set forth.

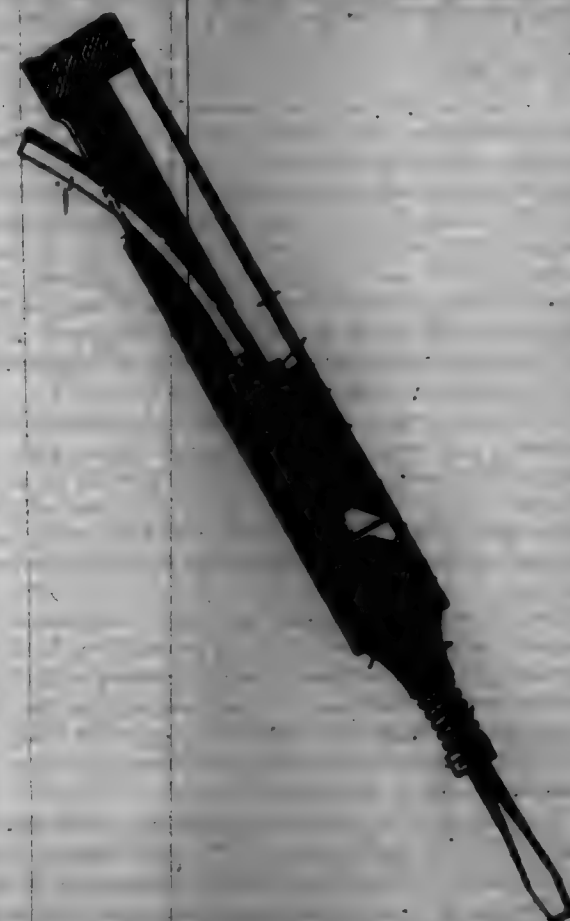
9. An electric switch consisting of an insulating-base, terminal clips secured to said base, made from a ribbon blank of sheet-copper, the blank bent near the center of its length to a right angle and twisted one-quarter way around, with a blade pivoted to one of said blades and adapted to

close upon the other, the blade secured to a handle by a screw or screw, as set forth.

10. An electric switch consisting of an insulating-base, terminal clips secured to said base made from a ribbon blank of sheet-copper which is bent near the center of its length to an angle and twisted one-quarter way around; with a double blade made from a ribbon blank of sheet-copper, having a punched central hole with a straight part and enlarged ends; the blank folded through the middle of the said central hole into two parallel blades of the same length and equally spaced apart the entire length, the said blades pivoted to a clip and adapted to close upon another clip, and secured to a handle by a screw or screw, as set forth.

11. An electric switch consisting of an insulating-base, terminal clips secured to said base made from a ribbon blank of sheet-copper, which is bent near the center of its length to an angle and twisted one-quarter way around; two double blades each made from a ribbon blank of sheet-copper having a punched central hole with a straight part and enlarged ends, the blank folded through the middle of the said hole into two parallel blades of the same length and equally spaced apart the entire length, the said blades pivoted to a clip at one end and adapted to close upon other clips, and secured to an insulating-bar by means of screws at their opposite ends, the said bar provided with a handle, as set forth.

698,418. POWER-DRIVEN TOOL. RUFUS F. BRADON, Greenville, Miss., assignor to the Garden Hollow Plant Grease Company, Greenville, Miss. Filed Jan. 4, 1908. Serial No. 23,322. (No model.)



Claim.—1. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled upon the support, a tool-spindle also journaled upon the support and movable toward and from the driving-shaft, coacting clutch members carried by the shaft and spindle, and a resistance-spring mounted upon the tool-spindle on one side of its clutch member to move said spindle away from the driving-shaft and hold it in engagement with the article operated upon.

2. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled upon the support, a tool-spindle also journaled upon the support and movable toward and from the driving-shaft, coacting clutch members carried by the shaft and spindle, and an exteriorly-located resistance-spring mounted upon the tool-spindle on one side of its clutch member and bearing against the frame, said spring being arranged to move the spindle away from the driving-shaft and hold it in engagement with the article operated upon.

3. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled upon the support, a tool-spindle also journaled upon the support and movable toward and from the driving-shaft, coacting clutch members carried by the shaft and spindle, an exteriorly-located resistance-spring mounted upon the tool-spindle and bearing against the frame, said spring being arranged to move the spindle away from the driving-shaft and hold it in engagement with the article operated upon.

the away from the driving-shaft and hold it in engagement with the article operated upon, and means for adjusting the tension of the spring.

4. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled upon the support, a tool-spindle also journaled and longitudinally movable on the support in alignment with the driving-shaft, said spindle having one end adjacent to and in line with one end of the shaft, coacting clutch members carried by the adjacent ends of the driving-shaft and tool-spindle, and means engaging the tool-spindle and the support to move said spindle away from the driving-shaft.

5. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled on the support, a tool-spindle also journaled and longitudinally movable on the support in alignment with the driving-shaft, said spindle having one end located adjacent to and in line with one end of the shaft, coacting clutch members carried by the adjacent ends of the driving-shaft and tool-spindle, and a coiled spring surrounding the spindle and bearing against the same and the support to move said spindle away from the driving-shaft and maintain it in operative relation to the article operated upon.

6. In an instrument of the class described, the combination with a suitable support, of a driving-shaft journaled on the support, a tool-spindle also journaled and longitudinally movable on the support in alignment with the driving-shaft, said spindle having one end located adjacent to and in line with one end of the shaft, coacting clutch members carried by the adjacent ends of the driving-shaft and tool-spindle, a collar adjustably mounted upon the spindle, and a coiled spring surrounding the spindle and bearing against the collar and the support to move the spindle away from the driving-shaft and maintain said spindle in operative relation to the article operated upon.

7. In an instrument of the class described, the combination with a casing having a handle, of a shaft journaled in the casing, a tool-spindle projecting from the casing and movable toward the shaft, and coacting clutch members carried respectively by the inner ends of the spindle and shaft, said members being located within the casing, the member of the spindle being movable into and out of engagement with the shaft member upon the movement of said spindle.

8. In an instrument of the class described, the combination with a casing having a handle at one end, of a tool-spindle rotatably mounted in the other end of the casing and longitudinally movable therein, power-transmitting means passing through the side of the casing, clutch members secured respectively to the inner end of the tool-spindle and the power-transmitting means, said clutch members being located within the casing and one of said members being movable into and out of engagement with the other, and means for holding the tool-spindle in operative engagement with the article operated upon.

9. In an instrument of the class described, the combination with a casing, of a driving-shaft journaled in the casing, a tool-spindle rotatably and slidably mounted in the casing in alignment with the shaft, the inner ends of said shaft and spindle being located within the casing, coacting clutch members carried by the adjacent inner ends of the shaft and spindle, the clutch member of the spindle being movable into and out of engagement with the shaft member upon the longitudinal reciprocation of said spindle, and adjustable yielding means engaging the spindle to move it outwardly, and maintain it in operative engagement with the article operated upon.

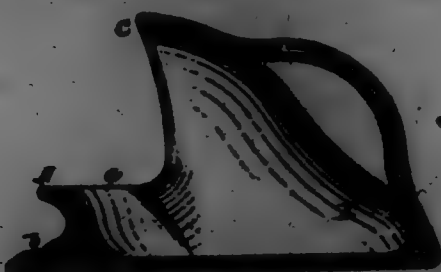
10. In an instrument of the class described, the combination with a casing having a head at one end, of a shaft journaled in the casing and having a clutch member at its inner end, a spindle rotatably and slidably mounted in the head of the casing, a clutch member secured to the inner end of the spindle and having one face coacting with the clutch member of the shaft, and means engaging the exposed end of the spindle to move said spindle away from the driving-shaft and maintain it in operative engagement with the article operated upon.

11. In an instrument of the class described, the combination with a casing having a head at one end, of a shaft journaled in the casing and having a clutch member at its inner end, a spindle rotatably and slidably mounted in the head of the casing, a clutch member secured to the inner end of the spindle and having one face coacting with the clutch member of the shaft, and the other coacting with the inner face of the head as the spindle is moved in one direction or the other to respectively rotate said spindle and hold it against rotation, and a spring located upon the projecting portion of the spindle and bearing against the same and the casing to move the spindle outwardly and maintain it in operative engagement with the article operated upon.

698,419. GRINDING. BRADSHAW EATON, New York, N. Y., assignor to Francis A. Bradshaw, Cambridge, Mass. Filed July 10, 1901. Serial No. 23,323. (No model.)

Claim.—1. A disk-wheel unit, comprising a receptacle for water, a

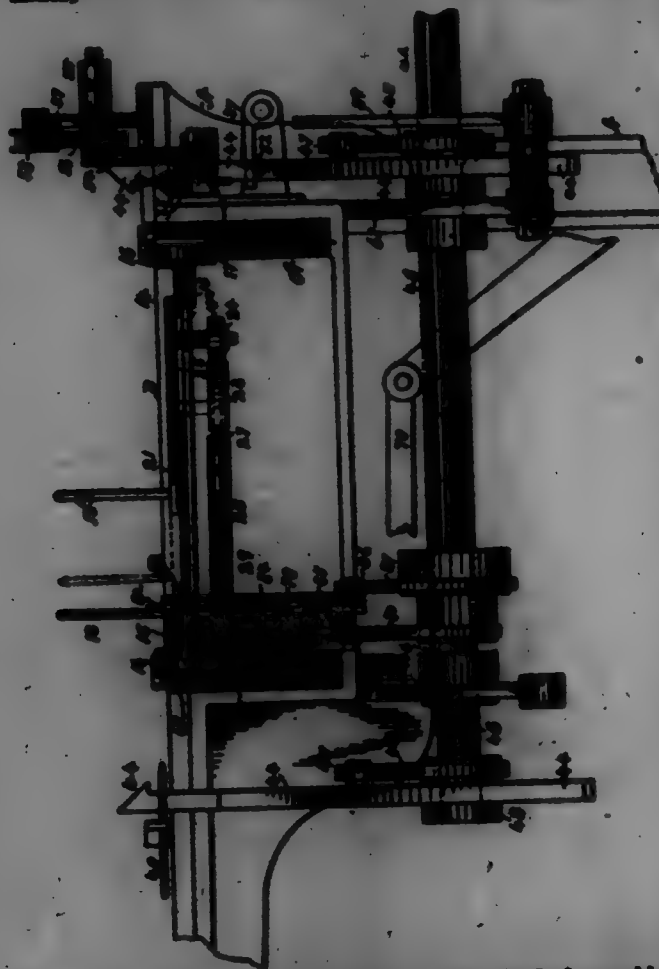
pointed lower lip, and a projecting flange shaped and adapted to come in contact with the buttends of the ear below the said lip, substantially as described.



2. A slot-room wheel, comprising a receptacle for wire, a pointed lower lip, and a projecting flange below the said lip provided with a gutter, substantially as described.

3. A slot-room wheel, comprising a receptacle for wire provided with upwardly-sloping sides, a lower lip drawn inward and forward from the said sloping sides, and coming to a point in front and a projecting flange shaped and adapted to come in contact with the buttends of the ear below the said lip, substantially as described.

398,490. MACHINE FOR APPLYING GATHERING-STRINGS TO BAGS. JAMES W. TAYLOR, Goldsboro, N. C., assignor of three-fourths to George Alexander Howard, Jr., Thomas Hall Holmes, and John Syner, Goldsboro, N. C. Filed Apr. 4, 1901. Serial No. 54,571. (No model.)



Claim.—1. In a machine of the character described, the combination of a bag-clamping device, and a shaft with which it is adapted to swing, of a pinion keyed upon the pivot-shaft, a cam fixed in position relatively to said pinion, a vertically-slidable rack-bar engaging the said pinion, a rotary propelling medium, and means connecting the latter with the said rack-bar, whereby the bag-clamp is swung into vertical position and closed and opened, substantially as shown and described.

2. In a machine of the character described, the combination with a swinging bar having one end connected to a horizontal jaw, of a lever-able bar adapted to slide on the swinging bar and having a corresponding jaw, a spring for returning the movable bar whereby the jaws are held normally opened, means for swinging the bag-clamp as described, and a fixed cam arranged as described and adapted to engage the sliding bar for closing the jaws upon a bag.

3. In a machine of the character described, the combination with an endless traveling bag-carrier composed of a series of plates or sections joined together, of a supporting-frame and rotatable means arranged at the ends thereof for supporting the carrier as specified, and bag support-

ing and stretching device adapted to said sections, one of said devices being movable toward and from the other, and means for shifting such device, substantially as shown and described.

4. In a machine of the character described, the combination of a movable bag-carrier proper, of bag-supporting and stretching pins arranged vertically, one of said pins being movable toward and from the other, and means for automatically shifting the movable pin for stretching and then releasing a bag, substantially as shown and described.

5. In a machine of the character described, the combination with a movable bag-carrier having pins for holding and stretching bags as specified, one of said pins being movable toward and from the other, a cam arranged horizontally and parallel to the carrier, and means connected with the movable pin for engaging said cam, whereby, as the carrier advances, the movable pin is shifted to stretch a bag, substantially as shown and described.

6. In a machine of the character described, the combination with an endless traveling bag-carrier comprising a series of plates or sections joined together, a series of pins of pins carried by the several sections, one of the same being movable toward and from the other, a cam arranged beneath the carrier and adapted to yield to pressure as specified, and movable pins having pendulous portions adapted to engage the cam, substantially as shown and described.

7. In a machine of the character described, the combination with a rotatable supporting-frame, of an endless bag-carrier having a series of plates joined together, bag holding and stretching pins applied to each plate or section, one of said pins being movable and held in a block adapted to slide transversely of a section, an arm or stud pendulous from each sliding block, and a cam arranged beneath the carrier and adapted to engage each stud or arm, substantially as shown and described.

8. In a machine of the character described, the combination with a rotatable supporting-frame, of an endless traveling bag-carrier comprising plates or sections joined together and having a transverse dovetail groove, a fixed pin arranged on each section, a block adapted to slide in the above-said groove and having a vertical pin and a pendulous arm or stud projecting through a transverse slot in the section, a cam arranged horizontally beneath the carrier and having rounded or bent ends, horizontal guides attached to the frame, and projecting toward the cam, supports for said cam which are adapted to slide in said guides, and springs for pushing the cam laterally, whereby the tension is applied to the bags while held by the pins, substantially as shown and described.

9. In a machine of the character described, the combination with an endless traveling bag-carrier, of pins of pins held thereon, one of each pair being movable laterally, means for shifting the movable pin for holding the bag under due tension when required, and a fixed cam adapted to act upon a pendulous portion of the movable pin for shifting them toward the fixed pin, to release tension on the bags, substantially as shown and described.

10. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of a spring-clamp for holding a string, a swinging device adapted to engage the string while so held and draw off a portion of the same, and a vertically-reciprocating device working between the needles and adapted to engage the string while drawn across them and to carry the same down into the eyes of the needles, substantially as shown and described.

11. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of a spring-clamp for holding the string temporarily, of a catch adapted to the said clamp below its mouth, a device for drawing off the string from the said clamp and means for pulling the string downward to cause it to engage the catch and enter the eyes of the needles, substantially as shown and described.

12. In a machine of the character described, the combination with needles adapted to reciprocate horizontally and provided with spring-latches normally closing their eyes, the means for holding a string temporarily, and means for drawing off the same, and a puller adapted to work adjacent to the needles and to engage the string and draw the same down against the pressure of the spring-latches, substantially as shown and described.

13. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of fixed spring-clamps having sliding jaws and arranged vertically, means for automatically opening the said jaws, and a swinging clamp adapted to pass between the fixed clamps and to engage a string held by the latter, the said swinging clamp being itself provided with means for opening its jaws and releasing the string at the proper juncture, substantially as shown and described.

14. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of fixed spring-clamps arranged as described, central pins adapted to move vertically for opening the clamps, means for engaging the lower ends of said pins for the purpose of opening the clamps, and suitable mechanism for drawing off the

string and into the eyes of the needles, substantially as shown and described.

15. In a machine of the character described, the combination with needles adapted to reciprocate horizontally and means for placing a thread in the needles, of fixed spring-clamps, central pins adapted to reciprocate for opening the clamps, tappets arranged below said pins, a rock-shaft whereby the said tappets are moved, a lever-arm applied to the said rock-shaft, and means for rotating the latter for opening the clamps at the required time, substantially as shown and described.

16. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of spring-clamps adapted for holding the string temporarily, means for opening the clamps, a swinging device which engages the string for drawing it off and across the needles as specified, and a vertically-movable device adapted to engage the string and for pulling it into the eyes of the needles, and means for connecting the said movable device with the above-said means for opening the clamps, substantially as shown and described.

17. In a machine of the character described, the combination with fixed string-clamps, of a swinging clamp composed of spring-jaws and a slidable pin adapted to open the latter, the said pin projecting as specified, and the said clamp being adapted to swing between the fixed clamps for closing and drawing off the string, and a fixed projection or bracket upon which the swinging clamp strikes when thrown back to its normal position, whereby the string is drawn across the needles and then released, substantially as shown and described.

18. In a machine of the character described, the combination with a clamp for holding a string temporarily, of a device for drawing off the string across the needles, mechanism for operating such device, and means for pulling the string downward into the eyes of the needles while held between the clamps, substantially as shown and described.

19. In a machine of the character described, the combination with needles adapted to reciprocate horizontally, of a fixed string-clamp, a movable clamp for drawing off the string across the needles, a hook adapted to work adjacent to the needles, a cam for raising the said hook at the proper time, and means for operating the said movable clamp, substantially as shown and described.

20. In a machine of the character described, the combination with means for holding and stretching a bag and means for inserting a string, of a vertically-movable block or device adapted for contact with the base of the bag adjacent to one of the holding devices, whereby said base is drawn or brought into the same horizontal position, for the purpose specified.

21. In a machine of the character described, the combination with a movable bag-carrier having a series of pins of pins for holding and stretching the bags and needles for inserting strings, of a vertically-movable device adapted to project upward through slots in the carrier and have contact with the base of the bags adjacent to the pins where the needles enter, whereby the base of the bags are brought into a like position, substantially as shown and described, for the purpose specified.

22. In a machine of the character described, the combination with needles for inserting string and an endless traveling bag-carrier, comprising a series of plates or sections binged together and provided with openings and with a series of pins of pins for holding the bags, of a vertically-movable block carrying pins of pins, one of each pair being movable laterally, and means for effecting such lateral movement after the said pins have entered the base of the bags, whereby the base are drawn preparatory to the entrance of the needles, substantially as shown and described.

23. In a machine of the character described, the combination with string-carrying needles, a movable bag-carrier and device for holding the bags thereon, of means for projecting upward through the carrier and engaging the base of the bags for drawing them preparatory to entrance of the stringing-needles, substantially as shown and described.

24. In a machine of the character described, the combination with a traveling bag-carrier and needles for inserting string in bags, of a block adapted for contact with the base of bags while held on the carrier, whereby said base are moved in a horizontal plane, fixed points projecting from said block, and movable points arranged alongside the same, substantially as shown and described, whereby the bag-bases are moved and placed for distention simultaneously, as specified.

25. In a machine of the character described, the combination with needles carrying string and the bag-carrier and means for holding bags duly stretched thereon, of two pairs of beam-pleating points, each pair being composed of two separate points which are hinged and formed on their opposite sides as shown, one of the points of each pair being movable laterally, and means for effecting such movement, substantially as shown and described.

26. In a machine of the character described, the combination with a bag-holder and needles for inserting string, of pins of pins placed and distending points, one of each pair being movable laterally, a vertically-

movable bar by which said points are moved, and laterally-slidable blocks held on the vertically-movable bar and carrying the movable points, and means for automatically separating the sliding blocks, substantially as shown and described.

27. In a machine of the character described, the combination with needles for inserting string, and an endless traveling bag-carrier and pins of pins supported thereby, of a vertically-movable part carrying pins of beam-pleating points, one of each pair being movable laterally, slidable blocks arranged horizontally on said movable part, a wedge adapted to enter between said movable blocks for separating them for the purpose of distending the bag-bases, means for raising the movable part and forcing the wedge upward at the right juncture, and means for returning the movable blocks after the base has been distended, substantially as shown and described.

28. In a machine of the character described, the combination with needles for inserting string, and an endless traveling bag-carrier having a series of pins of pins of pins, of a vertically-movable part carrying fixed points for placing the base of the bags, movable points arranged normally in contact with the fixed ones, laterally-movable blocks carrying the movable pins and sliding in the dovetail ways in said movable part, a wedge arranged vertically in a dovetail way and adapted to force the said movable blocks aside, and means for separating the said movable part and the wedge in the order specified.

29. In a machine of the character described, the combination with string-inserting devices and an endless traveling bag-carrier having a series of plates or sections binged together and provided with a notch or groove, of a device adapted for entering such notch or groove for the purpose of locking the individual sections, substantially as shown and described.

30. In a machine of the character described, the combination with an endless traveling bag-carrier having a series of plates or sections which are joined together and provided with pins for daily holding and stretching a bag, and also constructed with a transverse groove or notch, of a locking-bar arranged at the side of the frame horizontally, and adapted to enter such groove or notch, needles arranged adjacent to the locking device, the point of the latter being in advance of them of the needles, whereby said sections are locked preparatory to engagement of the needles with a bag, substantially as shown and described.

31. In a machine of the character described, the combination with an endless traveling bag-carrier having sections or plates provided with a transverse dovetail groove and bag-supporting pins arranged adjacently, of a locking-bar adapted to enter and traverse said groove, needles arranged parallel to the locking-bar and adapted to traverse the sections, and means for operating the said locking device and needles simultaneously, substantially as shown and described.

32. In a machine of the character described, the combination with an endless traveling bag-carrier composed of a series of sections or plates binged together and carrying bag-holding pins, as specified, of means for locking the carrier as a whole, and a device for locking on individual sections thereon, and needles arranged alongside each device and adapted to coast with the pins of the sections when thus locked, substantially as shown and described.

33. In a machine of the character described, the combination with string-inserting devices and a movable bag-carrier, of means for moving the same as a whole and locking the moving agent, and means for locking on individual sections thereof preparatory to the action of the bag-stringing mechanism, substantially as shown and described.

34. In a machine of the character described, the combination with an endless traveling bag-carrier comprising a series of sections binged together and provided with a transverse groove, and bag-holding pins arranged adjacent to said groove, a locking-bar adapted to enter the groove, needles arranged parallel to said bar, and a common head to which the bar and needles are rigidly attached, and a means for imparting due depression to both devices, substantially as shown and described.

35. In a machine of the character described, the combination with the frame having horizontal carriage as specified, of an endless traveling bag-carrier supported in said carriage, a bracket extending laterally from the said frame and provided with a guideway as specified, of a locking device and needles rigidly connected and means for reciprocating them on the said bracket and across the bag-carrier, substantially as shown and described.

36. In a machine of the character described, the combination with the endless traveling bag-carrier composed of the plates or sections which are joined together and each provided with a longitudinal dovetail groove, and a locking device, of a plate 21 which is slidable in said groove and carries a bag-holding pin, means for moving said plate automatically as the bag-carrier advances, fixed pins on said plates or sections, and means for moving the bag-carrier-independently, substantially as shown and described.

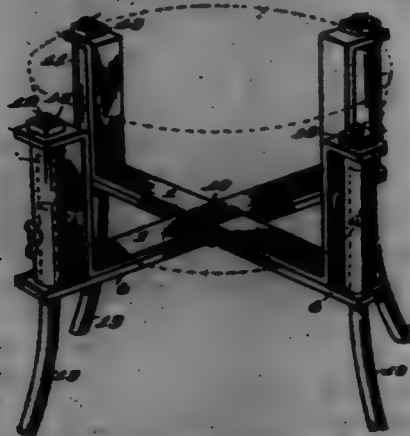
698,491. BRAKE-CHOC MECHANISM. EMORY TRENTHAM, Dayton, Ohio, assignor to the Darnley & Smith Car Company, Dayton, Ohio. Filed Jan. 27, 1905. Serial No. 51,571. (No model.)



Claim.—1. The combination with a wheel, of a brake-choc adapted to engage the periphery thereof and being of differential thickness throughout its length to compensate for the difference between the area in which its opposite ends travel, a brake-head carrying the brake-choc, an oscillating brake-hanger to which the brake-head is rigidly secured and a support for the brake-hanger.

2. The combination with a wheel, of a brake-hanger, a brake-head rigidly secured thereto, a bearing for the brake-hanger and in which the same is rotatably mounted, a suitable support for said bearing, a brake-choc carried by the brake-head and being of differential thickness throughout its length to compensate for the difference between the area in which its opposite ends travel in its movement toward the center of the wheel, and means for applying the brake-choc to the wheel.

698,492. WAREHOUSE STAND OR HOLDER. WILLIAM W. TWILLEY, Dover, Mass., assignor to Albert F. Olney, Dover, Mass. Filed Jan. 9, 1905. Serial No. 50,945. (No model.)

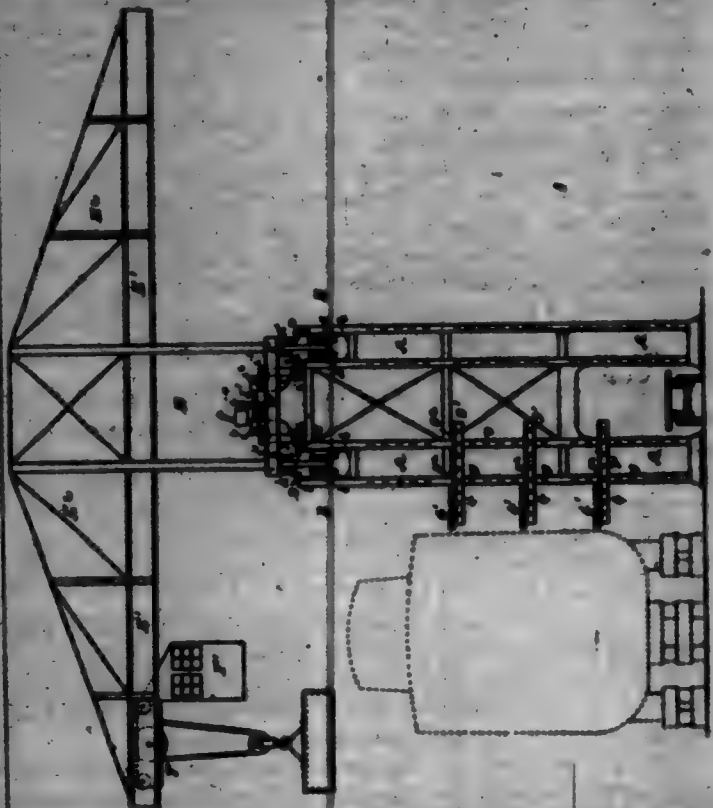


Claim.—1. In a warehouse support or holder, the combination with U-shaped crossed supporting members having lateral extensions and detachably connected together, of bracing detachably connected to the base of the crossed supporting members, said legs detachably held by the lateral extensions of the crossed supporting members and the ends of the bracing.

2. In a warehouse support or holder, the combination with crossed supporting members detachably connected together and having extensions, of legs comprising sleeves detachably connected to said extensions, lower leg portions telescoping in said sleeves, clamping-devices for securing the legs in the sleeves at different heights, and bracing connected to the crossed supporting members which bracing extend in holding the legs in operative position.

3. In a warehouse support or holder, the combination of U-shaped crossed supporting members detachably connected together and having extensions, crossed bracing detachably connected to the U-shaped supporting members and provided with perforations or apertures, and supporting-legs comprising upper sleeve portions having their lower parts located in the apertures of the bracing and their upper parts extending through the lateral extensions of the U-shaped supports, means for securing said sleeves against displacement, lower leg portions telescoping in the sleeves, and clamping devices for securing the lower leg portions to the sleeves at different heights therein.

698,498. CRANE AND SCAFFOLDING. SAMUEL T. WILLIAMS, John W. Weaver, and CHARLES H. WILLIAMS, Cleveland, Ohio. Filed Dec. 17, 1897. Serial No. 60,397. (No model.)



Claim.—1. In a crane-supporting structure, the combination of a scaffolding carrying horizontal girders, a crane supported thereon, said crane being carried on wheels constructed to run between and upon adjacent pairs of said girders, substantially as described.

2. In a crane-supporting structure, the combination of a scaffolding having its upper portion connected by sets of horizontal girders, the girders of each set being vertically over one another and having bracing members extending between them, with a crane supported by said scaffolding having wheels placed to run between the girders of said sets, substantially as described.

3. The combination of a scaffolding, a series of upper rails and a series of lower rails mounted on the scaffolding, tracks having wheels adapted to the space between the two sets of rails, a crane carried by said tracks and having overhanging girders and a trolley adapted to travel on the girders, substantially as described.

4. The combination of a scaffolding, rails thereon, two tracks having wheels adapted to the rails, the base-frame of a crane, and a horizontal pivot-pin securing each track to the base-frame, substantially as described for the purpose set forth.

5. The combination of a scaffolding carrying rails and longitudinal trunks and a substantially horizontal framework having a trunk provided with wheels for supporting each of the corners of said framework, said tracks running on said rails, vertical members carried by the framework and a crane structure supported by said vertical members, gear-wheels carried by the framework, and means for revolving said wheels and thereby causing the framework with its attached parts to move over the scaffolding, substantially as described.

698,494. TELEGRAPH-POLE OR FENCE-POST. IRVING H. WADSWORTH, Union City, Mich., assignor to Frank C. Eaton, Union City, Mich. Filed Aug. 27, 1891. Serial No. 73,499. (No model.)

Claim.—1. The combination with an anchor, of a threaded rod carried by said anchor, a pole or post having in its lower end a base adapted for the reception of said threaded rod, a base-plate through which the rod extends, guys extending from the base-plate to an upper portion of the pole or post, and adjusting-nuts on said threaded rod, said nuts bearing against the upper surface of the base-plate and the bottom of the pole respectively.

2. The combination with an anchor, of a base, a threaded rod carried by the anchor and extending through an opening in the base-plate, a nut on said threaded rod bearing against the upper surface of the base-plate, a pole or post supported by said threaded rod, and guys extending from the base-plate to an upper portion of said pole or post.

3. The combination with a base-plate, of a pole, means for adjusting said pole vertically, and guys passing centrally through openings in the pole and having their lower ends attached to the base-plate.

4. The combination of the base-plate, a pole or post vertically adjustable with respect thereto, and guys having their central portions attached to an upper portion of the pole or post, the lower ends of said guys being arranged on opposite sides of the post and secured to said base-plate.



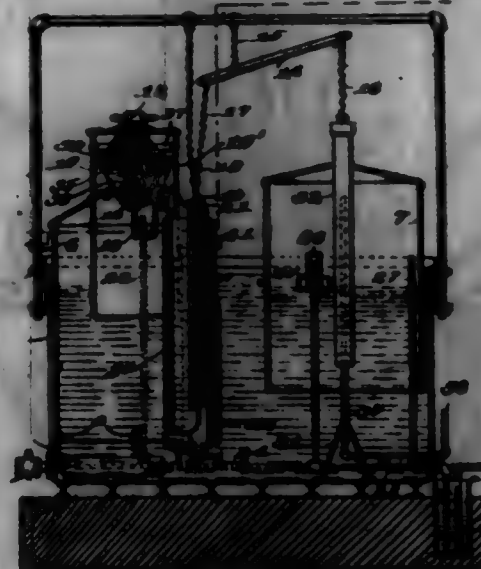
5. The combination with a pole or post, of an upper wire-carrying section adjustable at an angle with respect to said pole or post, and means for locking said wire-carrying section in any position to which it may be adjusted.

6. The combination with a pole or post, of an upper wire-carrying section slanting thereto, a segmentally-shaped plate carried by the pole or post and a locking-bolt secured by the adjustable section and adapted to said plate.

7. The combination, in a device of the class specified, of a cross-arm slanting to the pole or post, a continuous brace secured at its opposite ends to the cross-arm, and means for locking said brace in an adjusted position.

8. In a device of the class specified, a cross-arm centrally slanting to the pole or post, a continuous flexible brace passing through an opening in said pole and having its opposite ends secured in the cross-arm, and a nut-screw for locking said brace in position.

698,495. ACETYLENE-GAS GENERATOR. ARTHUR YANNEY, New Orleans, La., assignor to the Tinsley Generator Co., New Orleans, La. Filed Feb. 6, 1901. Serial No. 65,517. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a tank, a generator and a gasometer in communication with each other and both located in said tank, a carbide-hopper, a feed-controlling device for the hopper, a jacket in said generator, connections between the feed-controlling device and the gasometer, including a substantially U-shaped rod located in part by said jacket, a tube in the jacket projecting through the generator and insulating a part of said rod and a pipe connected with said jacket and having its inlet in said tank.

2. In an acetylene-gas generator, a tank, a generator and a gasometer in communication with each other and both located in said tank, a carbide-hopper, a feed-controlling device for the hopper, a jacket in said generator, connections between the feed-controlling device and the gasometer, including a substantially U-shaped rod located in part by said jacket, a tube in the jacket projecting through the generator and insulating a part of said rod and a pipe connected with said jacket and having its inlet in said tank.

3. In an acetylene-gas generator, a tank, a generator and a gasometer in communication with each other and both located in said tank, a carbide-hopper, a feed-controlling device for the hopper, a jacket in the generator a lever connected with the gasometer, a flexible connection united to the lever and framework respectively, a U-shaped rod located in part by said jacket, a tube in the jacket to receive a branch of said rod and passing through the generator, a pulley connected to said rod and receiving said flexible connection, and means to convey water into said jacket.

4. In an acetylene-gas apparatus, a carbide-containing hopper having a plurality of superposed conical bottoms of decreasing obtuseness toward the lower one, a conical member located by the lower bottom, a flexibly-suspended cone in said hopper, a second cone for operating the flexibly-suspended cone, and means for actuating said second cone.

5. In an acetylene-gas apparatus, a carbide-containing hopper having a plurality of superposed conical bottoms of decreasing obtuseness toward the lower one, a conical member located by the lower bottom, a flexibly-suspended cone in said hopper, a second cone for operating the flexibly-suspended cone, a gasometer, a generator to which said hopper is connected and in communication with said gasometer, and operative connections between said second cone and the generator.

6. In an acetylene-gas apparatus, a hopper having a plurality of angularly-disposed and detachably-connected, superposed bottoms, a conical reinforcing-plate in the lower bottom, a cone flexibly supported in said hopper, a second cone arranged below and adapted to engage the first cone, and means for operating said second cone.

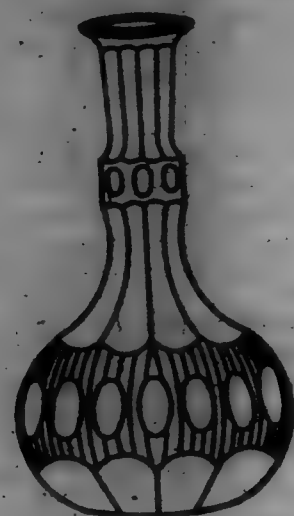
DESIGNS.

35,877. HANDLE FOR SPOON, FORK OR SIMILAR ARTICLES. WILLIAM E. CARROLL, Concord, N. H., assignor to William E. Durgin Company, Concord, N. H. Filed Jan. 27, 1902. Serial No. 91,664. Term of patent 7 years.



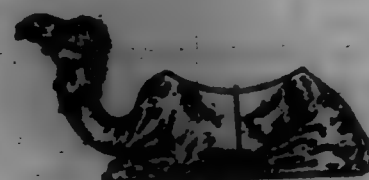
Claim.—The design for a handle for a spoon, fork or similar articles, substantially as shown and described.

85,878. DECANTER. ALBERT FINE, Chicago, Ill. Filed Feb. 17, 1902. Serial No. 94,002. Term of patent 7 years.



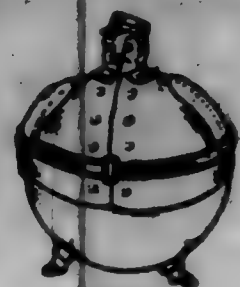
Claim.—The design for a decanter, substantially as herein shown and described.

85,879. RING. FRED J. GARDNER, New York, N. Y., assignor to E. A. GARY COMPANY, New York, N. Y. Filed Mar. 26, 1902. Serial No. 94,041. Term of patent 24 years.



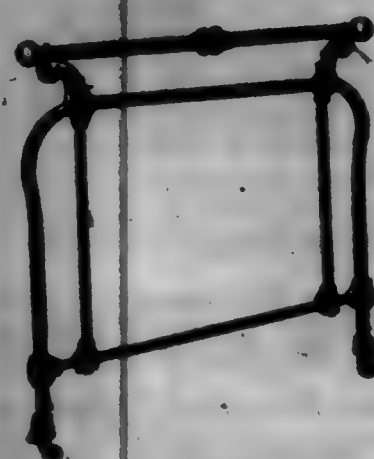
Claim.—The design for a ring, substantially as herein shown and described.

85,880. TOY. GEORGE A. FINE, Detroit, Mich. Filed Mar. 21, 1902. Serial No. 100,002. Term of patent 24 years.



Claim.—The design for a toy, herein shown and described.

85,881. FRAME FOR MOUNTING PICTURES. HENRY RABENHORN, Brooklyn, N. Y., assignor to Royal Metal Furniture Company, Brooklyn, N. Y., a Corporation of New York. Filed Mar. 12, 1902. Serial No. 94,114. Term of patent 7 years.



Claim.—The design for a frame for hanging pictures, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 22, 1902.

88,144. BEER. BREWERY COMPANY, New York, N. Y. Filed Feb. 1, 1902.



JOHN CLARK RIDPATH

Essential feature.—The name "JOHN CLARK RIDPATH," associated with the portrait of said Ridpath. Used since October, 1900.

88,145. ARTIST MATERIALS AND EQUIPMENT. GEORGE WAGNER, Bismarck, Germany. Filed Mar. 22, 1902.

Pelican

Essential feature.—The word "PELICAN." Used since December, 1900.

88,146. IMPROVED PHOTOGRAPHY PAPERS AND PHOTOGRAPH DEVELOPERS. RICHARD BROWN, New York, N. Y. Filed May 21, 1901.

ROTOGRAPH

Essential feature.—The word "ROTOGRAPH." Used since October, 1900.

88,147. CIGARETTES. RICHARD BROWN, New York, N. Y. Filed Mar. 12, 1902.



Essential feature.—The representation of a key in a shoe of open. Used since October 20, 1901.

88,148. WIRELESS ELECTRIC COOKING. RICHARD BROWN, New York, N. Y. Filed Mar. 12, 1902.



Essential feature.—The word "CHENEBROOK MUSEUM" and the representation of a key in a shoe of open. Used since February 4, 1900.

88,149. CIGARETTES. RICHARD BROWN, New York, N. Y. Filed Mar. 12, 1902.

La Beauté

Essential feature.—The word "LA BEAUTÉ." Used since December, 1900.

88,150. CIGARETTES. RICHARD BROWN, New York, N. Y. Filed Mar. 12, 1902.

KORSO

Essential feature.—The word "KORSO." Used since September 21, 1901.

88,151. HOBART. THE KAPPA BETA & DORA HOBART Co., Dec-
den and Knoxville, Ohio. Filed Mar. 6, 1902.



Essential feature.—The representation of the head of an oak sur-
rounded by two concentric bands. Used since June, 1901.

88,152. CARTERS AND WINE-SUPPLIERS. EARL CUTHBERT
New York, N. Y. Filed Mar. 6, 1902.



Essential feature.—The words "THE SUN" and a representation
of the sun. Used since September, 1901.

88,153. CERTAIN NAMED SHOES. J. E. GUN SHOE Co., Atlanta,
Ga. Filed Mar. 12, 1902.



RED SEAL

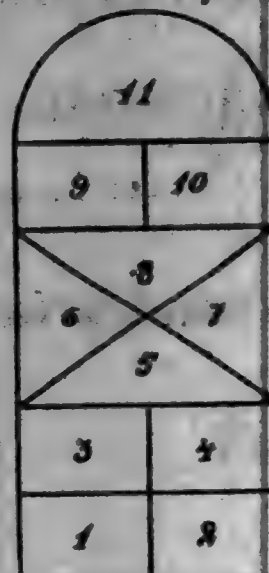
Essential feature.—The representation of a seal colored red or the
words "RED SEAL," singly or jointly. Used since January 1, 1900.

88,154. WOMEN'S, MEN'S, AND CHILDREN'S SHOES. EASTMAN
SHOE MFG. Co., Burlington, N. J. Filed Feb. 17, 1902.



Essential feature.—The word "PEAR" and the representation of a
pear. Used since 1894.

88,155. BOOTS, SHOES, AND SLIPPERS. NEWELL WOODBURY
Beverly, Mass. Filed Oct. 14, 1901.



HOP-SCOTCH



Essential feature.—The compound word "HOP-SCOTCH" and the
representation of the diagram of the game hopscotch. Used since
January 1, 1902.

88,156. BOOTS AND SHOES. LEWIS A. GUNNET, North Abing-
ton, Mass. Filed Mar. 10, 1902.

LONG LIFE.

Essential feature.—The compound word "LONG-LIFE." Used
since January 10, 1901.

88,157. HEEL AND SOLE PROTECTORS FOR BOOTS AND SHOES.
THE GARDNER MFG. Co., Boston, Mass. Filed Mar. 7, 1902.

CIRCLETTE

Essential feature.—The word "CIRCLETTE." Used since July
15, 1902.

88,158. LACIERS. CHARLES E. HEDGECOCK, Chattanooga, Tenn.
Filed Feb. 4, 1902.

Chas. E. Hedgcock

Essential feature.—The facsimile signature of the registrant. Used
since January 6, 1902.

88,159. PUDDING-TARTS AND BAKING PREPARATIONS.
THE E. J. BACCHINI Co., Inc., Boston, Mass. Filed Feb. 21, 1902.

Wonderland

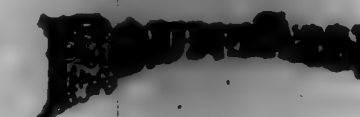
Essential feature.—The word "WONDERLAND." Used since
September 2, 1901.

88,160. PUDDING-TARTS AND BAKING PREPARATIONS.
THE E. J. BACCHINI Co., Inc., Boston, Mass. Filed Feb. 21, 1902.



Essential feature.—The representation of a fairy. Used since Sep-
tember 2, 1901.

88,161. CERTAIN NAMED FOOD PREPARATIONS. BROWN-CARVER
Co., New York, N. Y. Filed Feb. 26, 1902.



Essential feature.—The word "FOUNTAIN." Used since Jan-
uary 2, 1902.

88,162. WHISKY, WINE, MALTED LIQUORS, AND NON-ALCO-
HOLIC BEVERAGES. CLAYTON WHISKY, New York, N. Y. Filed Feb.
26, 1902.



Essential feature.—The words "LITTLE GOOD" and the picture
of a wine-bottle, including the figure of a star in front of a cork. Used
since July, 1900.

88,163. CERTAIN NAMED MEDICAL COMPOUNDS. CHARLES
WHEAT & LANE, Hammond, Ind. Filed Feb. 4, 1902.



Essential feature.—The word "DERMACILIA" in connection with
the representation of a man seated in front of a microscope standing on a
table. Used since May 1, 1900.

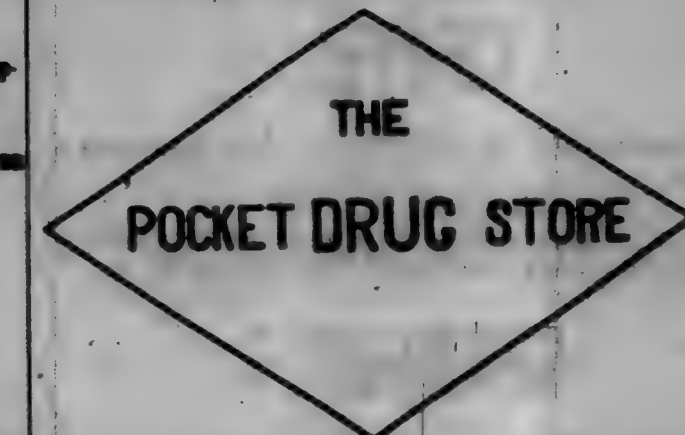
88,164. REMEDY FOR GOUT. FRANK J. KIRKMAN, Baltimore,
Md. Filed Mar. 4, 1902.

88,164.



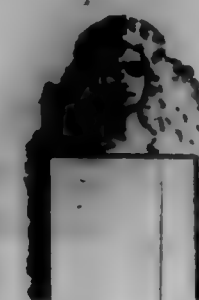
Essential feature.—The portrait of the registrant. Used since Au-
gust 1, 1901.

88,165. REMEDY FOR CERTAIN NAMED DISEASES. DR.
JOHN A. BARNES, Peoria, Ill. Filed Feb. 26, 1902.



Essential feature.—The words "THE POCKET DRUG STORE" and
a diamond shape including figure. Used since January 15, 1902.

88,166. HAIR-REMOVING APPLICATIONS FOR THE HAIR
AND COMPLEXION. MARY T. CHAMBERLAIN, St. Paul, Minn. Filed Mar. 2,
1902.



Essential feature.—The representation of a woman's head with long
hair flowing down, light on one side and dark on the other, and a band
below the head. Used since March 1, 1901.

88,167. CALCULATED OF SOME EARLY BARTER. VERMONT
CHOCOLATE & CO., CHOC. MFG. CO., FRANKFURT-ON-MAIN, GERMANY. Filed Mar. 11, 1902.

DYMAL

Essential feature.—The word "DYMAL." Used since February,
1901.

88,168. LAUNDRY SOAP. HALL'S CITY SOAP WORK, Newmarket,
N. H. Filed Nov. 12, 1901.

HARD
MAPLE

Essential feature.—The words "HARD MAPLE." Used since
March 1, 1900.

88,169. **BLENDING POWDER, AND BLENDING**
POWDER. WILLIAM E. BROWN, Philadelphia, Pa. Filed Dec. 21, 1901.

HOUSEHOLD

Essential feature.—The word "HOUSEHOLD." Used since November, 1901.

88,170. **BLENDING PREPARATION.** T. C. & S. Co., London, India, and London, England. Filed Mar. 22, 1902.

ORITE

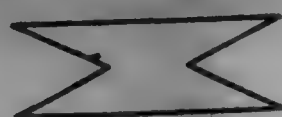
Essential feature.—The word "ORITE." Used since September 11, 1901.

88,171. **STICK, FLASK, AND FLASK BOTTLE-DRINKING PREPARATION.** HENRI L. LLOYD, Detroit, Mich. Filed Mar. 24, 1902.



Essential feature.—The word "BULL DOG" and the representation of the head of a bulldog. Used since November, 1901.

88,172. **VARNISHES, WOOD-FILLERS, WOOD-STAINERS, AND PAINTS.** STANDARD VARNISH WORKS, New York, N. Y. Filed Mar. 21, 1902.



Essential feature.—A polygonal figure having parallel top and bottom lines and retreating angles at its opposite ends. Used since March 14, 1902.

88,173. **RETORTING COAL.** FINE HANCOCK COAL COMPANY, England, Mich. Filed Oct. 4, 1901.



Essential feature.—The representation of a geometric shield on which is two concentric red circles, the space within the inner circle being cross-sectioned by diagonal lines and a plain band with red borders superimposed upon said circles. Used since August 13, 1901.



88,174. **STICK FOR GRASS FOR PRINTING-PRESS.** BARKER BROTHERS & COMPANY, Chicago, Ill. Filed Mar. 9, 1902.

SILVER GLOSS

Essential feature.—The word "SILVER GLOSS." Used since June 1, 1901.

88,175. **FINE AND BEAUTIFUL CUTTING.** THE SILVER GLOSS CO., Kansas, Ohio. Filed Mar. 12, 1902.



Essential feature.—A seal bearing a map of the State of Ohio with segments of bordering States and Lake Erie, the latter forming part of its northern boundary, together with underlying shores of grain. Used since April 1, 1902.

88,176. **ADmiral.** THE ADMIRAL ADmiral CO., Chicago, Ill. Filed Mar. 17, 1902.

ADMIRAL.

Essential feature.—The word "ADMIRAL." Used since December 15, 1902.

88,177. **FORNAGE MATERIALS.** HENRI L. LLOYD, London, England. Filed Mar. 21, 1902.

MORGANITE

Essential feature.—The word "MORGANITE." Used since January, 1902.

88,178. **STOVE, RANGE, HEATER, AND FURNACE.** BARKER BROTHERS & COMPANY, Chicago, Ill. Filed Mar. 9, 1902.

NATIONAL

Essential feature.—The word "NATIONAL." Used since March 1, 1902.

LABELS

REGISTERED APRIL 22, 1902.

8,085.—Title: "CAN'T SHAKE 'EM OFF." (For Eyeglasses.) HARRY H. WATTS, Kansas City, Mo. Filed February 7, 1902.

8,086.—Title: "SHOE MANUFACTURERS' SYNDICATE." (For Shoes.) WALTER BOWLETT, Boston, Mass. Filed March 22, 1902.

8,087.—Title: "BURNHAM'S SOLUBLE IODINE (THE ORIGINAL)." (For Soluble Iodine.) BURNHAM SOLUBLE IODINE CO., Boston, Mass. Filed March 22, 1902.

8,088.—Title: "MARSHALL'S DANDELION TONIC." (For a Medicine.) THOMAS P. MARSHALL, Atlanta, Ga. Filed March 21, 1902.

8,089.—Title: "BIG 4 COUGH AND COLD CURE." (For a Medicine.) J. CLARK BANTA, Pembina, Wis. Filed March 27, 1902.

8,090.—Title: "KELLER BROS. BLOOD PURIFYING REMEDY." (For a Medicine.) KELLER BROS., Newark, N. J. Filed March 2, 1902.

8,091.—Title: "FIG-FIZIC." (For a Laxative.) W. J. RAICHE, Marietta, Wis. Filed March 25, 1902.

8,092.—Title: "THE FAMOUS FILE CURE." (For a File Cure.) B. & W. Co., Fort Wayne, Ind. Filed February 27, 1902.

8,093.—Title: "VERMILION CLUB." (For Whisky.) BENJAMIN J. EUSTICE, Danville, Ill. Filed March 25, 1902.

8,094.—Title: "OLD STYLE LAGER." (For Lager-Beer.) G. HENKLEY BREWERY COMPANY, La Crosse, Wis. Filed March 27, 1902.

8,095.—Title: "ORANGE BREWERY BEER." (For Beer.) MICHAEL WINTER, Orange, N. J. Filed March 21, 1902.

8,096.—Title: "OSBURN'S POMELO PHOSPHATE." (For a Beverage.) FRANK LEE FULLER, Los Angeles, Cal. Filed April 1, 1902.

8,097.—Title: "BLACKBIRD." (For Lithia-Water.) ARLEN E. INGLEWATER, Clinton, Iowa. Filed March 17, 1902.

8,098.—Title: "FAULTLESS." (For Condensed Milk.) THE LACKAWANNA DAIRY CO., Scranton, Pa. Filed March 22, 1902.

8,099.—Title: "LA MOLINDA." (For Cigars.) HUNTER & GAMMEL, Chicago, Ill. Filed March 2, 1902.

8,100.—Title: "HOME INDUSTRY." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed March 20, 1902.

8,101.—Title: "NAILITKA OR GREASE EXTRACTOR." (For a Cleaning Preparation.) THEODORE H. PRINCE, New York, N. Y. Filed February 14, 1902.

8,102.—Title: "MELLIN'S FOOD CHOCOLATE." (For a Food Preparation.) MELLIN'S FOOD COMPANY OF NORTH AMERICA, Portland, Me., and Boston, Mass. Filed March 21, 1902.

PRINTS

REGISTERED APRIL 22, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BYRON WESTON COMPANY.

Decided March 2, 1902.

1. TRADE-MARKS — "DEFIANCE" — ARBITRARY, NOT GEOGRAPHICAL.

The word "Defiance" held registrable as a trade-mark for paper, since its geographical significance due to its use as the name of a town does not overshadow its original meaning of a challenge and take from it its arbitrary significance.

2. SAME — LONG USE — GEOGRAPHICAL SIGNIFICANCE AFTERWARD ACQUIRED.

Where a mark is arbitrary and distinctive when adopted, but has since become prominent geographically as the name of a place, held that in justice the applicant cannot be deprived of his mark unless its geographical significance is so great as to make it certain that it would be understood in that sense by the purchasing public.

On appeal.

TRADE-MARK FOR WRITING-PAPER.

Application for registration filed February 5, 1902, No. 65,062.

Messrs. Sturtevant & Greeley for the appellant.

ALLEN, Commissioner:

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Defiance" as a trade-mark for writing-papers on the ground that it is geographical.

This mark was adopted as a trade-mark by Byron Weston in 1879 and was registered in this Office on April 16, 1878, No. 5,903. His successors in business, who have continued to use the mark, now seek to reregister it, and the principal ground of refusal is that the word has acquired a geographical meaning by use as the name of a place in Ohio. At the time when this mark was adopted and became the property of these parties as a trade-mark Defiance, Ohio, was not a place of importance and was so little known that the use of the word by these parties upon goods made at Dalton, Mass., had no geographical significance to the purchasing public and was understood only in its arbitrary and intended sense, meaning a challenge.

If a party can be deprived of his right to an arbitrary and distinctive mark acquired by actual use by the fact that it has since the date of that use become prominent geographically as the name of a place, it would seem that justice requires that the geographical significance of the word be so

great as to make it certain that it would be understood in that sense by the purchasing public when applied to goods. Doubts should be resolved in favor of the party using the mark.

The word "Defiance" in this case has the arbitrary significance of a challenge, and it is thought that it would be so understood even by that part of the purchasing public having a knowledge of Defiance, Ohio. The goods of these parties are not made at Defiance, Ohio, and that town has no reputation as the place of manufacture of paper. The geographical meaning of the word does not overshadow its original meaning and take from it its arbitrary significance as a trade-mark for paper.

The decision of the Examiner of Trade-Marks is reversed.

IN RE BACON.

Decided April 15, 1902.

INTERFERENCE — PRELIMINARY STATEMENT — SEALED AGAINST INSPECTION WHEN NOT USED.

Where the junior party's statement fails to overcome the filing date of the senior party, the preliminary statement of the senior party should remain sealed and should be placed in the confidential archives of the Office and should not be open to inspection either before or after the grant of the patent.

In the matter of the request of L. S. Bacon for copy of preliminary statement of Edwin S. Votey in interference file of *Whitehead v. Votey*.

ALLEN, Commissioner:

This is a petition by Mr. L. S. Bacon that he be permitted to obtain a copy of a preliminary statement filed by one Votey in the interference *Whitehead v. Votey*, No. 31,149.

In that interference *Whitehead's* preliminary statement failed to overcome Votey's filing date, and under the settled practice of the Office priority of invention was decided in favor of Votey without opening his statement, and under Rule 112 his unopened statement was removed from the interference file. This decision became final, and Votey's patent was issued on March 25, 1902, No. 653,312.

The petitioner contends that Votey's patent having issued, all papers relating to it, including the preliminary statement, should be open to public inspection. This contention is sound in so far as papers which were considered in determining whether or not that patent should be granted are concerned; but the preliminary statement stands

upon a different footing, since it was never opened or considered. No action was based upon that statement, and it was not necessary for Votey to have filed it. In so far as the consideration of his application was concerned it might have been at once returned to Votey unopened, and it would have been except for the general policy of the Office to retain all papers filed. (*Ex parte Baxter*, 56 O. G., 1448.)

In filing his statement Votey may have relied upon the settled practice of the Office, which protects him from publicity in case consideration of his statement is found unnecessary, (*Lindsey v. McDonough*, 55 O. G., 1402,) and therefore it would be unfair to him to change that practice without good reason therefor. No good reason is seen for changing it. There is no more reason for permitting the general public to see the statement after the patent is granted than there is for permitting the opposing party to the interference to see it before the grant. The reason for refusal is that the statement constitutes no part of the proceedings leading to the grant of the patent.

It is held that where the junior party's statement fails to overcome the filing date of the senior party the statement of the senior party should be placed in the confidential archives of the Office and should not be open to inspection either before or after the grant of the patent.

The petition is denied.

EX PARTE FOX AND BARRETT.

Decided April 15, 1902.

1. DIVISION—PARTS OF TYPE-WRITER CARRIAGE.

Division properly required between parts of a type-writer carriage, since it appears that the various devices have acquired a distinct status in the art and are separate subjects of manufacture and sale.

2. SAME—CLASSIFICATION.

The mere fact that inventions would be separately classified in this Office is not in itself sufficient to warrant a requirement for division; but in the present case the classification has followed the lines established by inventors and manufacturers and is evidence of the fact that the devices have acquired such a distinct status in the art as warrants not only such separate classification, but also separate applications for invention included therein.

ON petition.

Application of William R. Fox and Glenn J. Barrett filed December 11, 1901, No. 85,432.

Mr. Fred. L. Chappell for the applicants.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring division between the claims of the above-entitled application.

The claims, in the opinion of the Examiner, cover the following independent inventions: claims 9, 10, and 11, a carriage-feed mechanism; claims 14 to 20, inclusive, a carriage-stop mechanism; claims 24 to 26, inclusive, a line-spacing mechanism; claims 53 to 67, inclusive, and claims 69 to 73, inclusive, a paper-feed mechanism; claims 68, 75, 76, 77, a scale and pointer mechanism. The remaining claims

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relate to parts of the carriage mechanism not separately classified.

The devices covered by the groups of claims enumerated above relate to the carriage of a type-writing machine. The claims of the first group—claims 9, 10, and 11—cover an escapement mechanism, by means of which the carriage is advanced step by step during the printing operation. Those of the second group—claims 14 to 20, inclusive—relate to stop devices, by means of which the advance of the carriage through the operation of the escapement device may be stopped at a predetermined point. The claims of the third group—claims 24 to 26, inclusive—relate to a spacing mechanism, by means of which the proper spacing between the lines is made. This mechanism comprises a ratchet-head mounted on the platen and means for turning the parts as desired. Claims 53 to 67 and 69 to 73, forming the fourth group, cover devices for feeding the paper to the platen and holding it in place thereon. The claims of the fifth group cover indicating devices, by means of which the point at which the printing is to be done may be ascertained. All these devices are connected in some way with the operation of the carriage; but it is clear that the various functions effected by them are independent. For example, the operation of the line-spacing mechanism is not in any way affected by the presence or absence of the carriage-stop mechanism; nor is the carriage-feed dependent upon the scale and pointer. Furthermore, these various devices are separate subjects of invention, as is shown by the numerous patents contained in the subclasses referred to by the Examiner, and it appears that they are to some extent separate subjects of manufacture and sale. Under these circumstances it is well settled that division should be required. (*Ex parte Smith*, 98 O. G., 1971; *ex parte Sturtevant and Sturtevant*, 98 O. G., 1971.)

It is contended by applicant that division should not be required, because this application was filed prior to the establishment of the classification containing the subclasses in which the inventions embraced by this case will be placed. This, however, is not a valid reason for setting aside the requirement. The mere fact that inventions would be separately classified in this Office is not in itself sufficient to warrant a requirement for division; but in the present case the classification has followed the lines established by inventors and manufacturers and is evidence of the fact that the devices have acquired such a distinct status in the art as warrants not only such separate classification, but also separate applications for inventions included therein.

The petition is denied.

BERRY & FITZSIMMONS.

Decided April 15, 1902.

INTERFERENCE—MOTION TO AMEND—BURDEN—APPEAL LIES FIRST TO THE EXAMINER-IN-CHIEF—PRACTICE.

Where a motion is made by one party to an interference to amend his application under the provisions of Rule 109 and the Examiner denies said motion on the ground that the moving party has no right to make the claim, held that said decision involves a question of merits and an appeal therefrom lies in the first instance to the Examiner-in-Chief.

APPEAL ON MOTION.

BOOKING—ORIGINAL.

Application of James D. Berry filed August 5, 1899, No. 723,842. Application of Philip Fitzsimmons filed June 28, 1899, No. 72,189.

Mr. H. A. Toumin and Mr. L. S. Bacon for Berry. Mr. James N. Ramsey for Fitzsimmons.

ALLEN, Commissioner:

This is an appeal by Fitzsimmons from the decision of the Primary Examiner denying his motion brought under the provisions of Rule 109 to amend his application involved in the above-entitled interference by inserting therein two claims corresponding to claims 1 and 2 of the Berry application, which claims have been adjudged to be patentable to Berry.

The Examiner denied the motion on the ground that in his opinion "Fitzsimmons has no right to make the claims presented by this motion," giving as a reason for this opinion that the disclosure in the Fitzsimmons application does not warrant the allowance to Fitzsimmons of the claims in question, and from his denial this appeal is taken.

Rule 109 provides that—

When an application is involved in an interference in part and shows and describes, without claiming a patentable invention, . . . the applicant may . . . file an amendment of his application duly claiming such invention.

It further provides that—

The decision of the Primary Examiner will be binding upon the Examiner of Interference, unless reversed or modified on appeal, as provided in Rule 134.

This latter rule excepts out of the class of appeals which may be taken directly to the Commissioner those—

2. On motions involving the merits of the invention. Decisions on these motions, when appealable, go to the Examiner-in-Chief, in the first instance.

The question of merits is defined under Rule 133, and its application to this case is in that part of said rule which is expressed in the terms—

. . . for want of identity with the invention previously disclosed, or because the circumstances involve a departure from the invention originally presented.

In the present case it is clear that this appeal has been brought to the wrong tribunal, and is for this reason dismissed; but with permission to take an appeal to the Examiner-in-Chief within ten days from the date hereof.

EX PARTE SHONE.

Decided April 15, 1902.

1. PETITION TO COMMISSIONER—QUESTIONS MUST BE TWICE ACTED UPON.

A petition should not be brought until the case has been twice acted upon with reference to the point involved in the petition. (Rule 141.) (*Ex parte Hong*, 97 O. G., 192.)

2. SAME—SAME.

A petition taken to the Commissioner from the first action of an Examiner held to be premature and inadvisable.

3. SAME—SAME—REASONS FOR WITHDRAWING COMMISSIONER MUST BE STATED.

Petitions taken without a request for reconsideration accompanied by a statement of reasons why the objection should be withdrawn which will inform the Examiner of the applicant's position place much unnecessary labor on the Commissioner and cause delay.

ON petition.

ONE-CONTROLLED SHOOTING-GALLERIES.

Application of James W. Shone filed January 9, 1901, No. 43,640.

Mr. Frederick F. Church for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner refusing to enter and consider a certain amendment filed February 12, 1902, to the above-entitled application and holding the application to be abandoned for lack of such proper prosecution as the condition of the case required.

It is therefore prayed:

(a) That the Examiner in charge of said application be advised that the amendment of February 12, 1902, be entered in the case.
(b) That the case be reinstated and an action be had on the merits of the claims in the same manner as if said amendment had been properly entered by the Examiner upon the date of its receipt.

The records show that the Examiner made an action requiring division between certain of the claims on February 12, 1901.

On February 12, 1902, the petitioner filed an amendment which, in his opinion, was responsive to the Office action.

On March 1, 1902, the Examiner informed the petitioner that the amendment was, in his opinion, not fully responsive to the last Office action and refused to enter the same on the ground that such entry would only necessitate another requirement of division. The petitioner was further informed in this letter of March 1, 1902, that—

as more than a year has elapsed since the last preceding Office action without an appropriate action on the part of the applicant, the case is abandoned.

On March 25, 1902, this petition was taken. No request, accompanied by reasons therefor, was made of the Examiner for a reconsideration of his action of March 1, 1902, and consequently no reconsideration by the Examiner of his first action was possible. Rule 145 provides in part as follows:

Upon receiving a petition stating concisely and clearly any proper question which has been twice acted upon by the Examiner, and which does not involve the merits of the invention claimed, . . . an order will be made fixing a time for hearing such petition by the Commissioner.

It is therefore seen that one of the requirements of the rule which warrants the taking of a petition from an action of the Examiner to the Commissioner is that the question for decision must have been twice acted upon by the Examiner. So long as the rule is in force it should be strictly followed. The provisions of the rule are explicitly stated, and they are based upon reason. If the practice permitted a petition to be taken after the first action of an Examiner, not only much unnecessary labor would be placed upon the Commissioner, but also the prosecution of the application before this Office would be unnecessarily delayed. It is as essential that the formal questions on which petitions are taken should be twice acted upon as it is that questions involving the merits should be twice acted upon (section 499 of the Revised Statutes) before appeals from the decisions of the Primary Examiner are taken to the Examiner-in-Chief.

Rule 67 provides for a reconsideration by the Examiner of his action on "preliminary or interme-

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diate" questions; but in order to be entitled to the reconsideration the applicant must under the provisions of Rule 60 "make request therefor in writing, and he must distinctly and specifically point out the supposed error in the Examiner's action." By following this practice many questions can be settled by the Examiner and no petition would be necessary.

In *ex parte Appel*, (84 O. G., 1145.) though the facts were in some respects different, the principle was the same as in this case. In this decision it was stated:

Arguments are presented upon the petition which should have been presented to the Examiner. To expect that they will be here considered is in effect to expect the Commissioner to act upon the case in the first instance. This is not his duty. Proper practice requires that the applicant should, through his attorney, present fully before the Examiner, the reasons why objections made should be withdrawn, and only after the position taken by the applicant is made clear to the Examiner should petition be taken.

As stated in *ex parte Haug*, (97 O. G., 199):

"A petition should not be brought until the case has been twice acted upon with reference to the point involved in the petition. (Rule 145.)"

This petition, being prematurely brought, is dismissed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

THOMSON v. WESTON.

Decided March 1, 1903.

1. INTERFERENCE—PRIORITY—PRIVATE USE OF INVENTION.

Where T. made an electric measuring instrument embodying the invention in controversy in 1894 and placed it in his private experimental room, where it was seen only by employees, but where it was used frequently in making measurements, and T. did not manufacture it or apply for a patent until 1898, after he knew of W.'s patent upon it, Held that W. is entitled to the decision on priority. (*Citing Mason v. Hepburn*.)

2. SAME—DELIBERATE CONCEALMENT OF INVENTION—FORFEITURE OF RIGHTS IN FAVOR OF ONE LATER.

Where a party deliberately conceals his invention after completion without reasonable excuse and is stimulated to make application for a patent only by the publication of a patent to another and later inventor, Held that he has forfeited his rights in favor of the later and more diligent inventor and that the length of the concealment is not material.

3. SAME—SAME—SAME.

By deliberate concealment or suppression of the knowledge of his invention the inventor subordinates his claim, in accordance with the general policy of the law in the promotion of the public interest, to that of another and bona fide inventor who during the period of inaction and concealment shall have given the benefit of the discovery to the public.

4. SAME—EXPERIMENTAL DEVICE—LONG DELAY AFTER TEST AS EVIDENCE.

The circumstances of private and partial test accompanied by long delay thereafter have justly been given great weight as indicating with certainty that the device was experimental merely and not satisfactory.

Mr. Albert G. Davis for the appellant.

Mr. Chas. J. Kintner and Mr. Marcellus Bailey for the appellee.

SHEPARD, J.:

This is an interference proceeding the issue of which was defined in three counts as follows:

1. Two electric measuring instruments attached to a single or common base and having their indicating needles so located with relation to a scale-plate that independent readings may be taken at the same instant.

2. Two electric measuring instruments attached to a single or

common base, in combination with a dial-plate provided with scales for the index-needles of both instruments.

3. Two electric measuring instruments each provided with an index needle operatively connected with the rotary or movable part of its own instrument, said rotary or movable parts being located in the magnetic fields between the opposite ends of a pair of energizing magnets.

The voltmeter, for measuring the electromotive force or pressure of an electric circuit, and the ammeter, for measuring the quantity of passing current in such circuit, were well-known devices at the time of the invention of the issue, but had not been combined in a single instrument.

The terms of counts 1 and 2 are directed to what is known as the duplex instrument, containing both a voltmeter and an ammeter so arranged in relation to each other that their respective index-needles move on the same dial-plate and show their respective measurements at the same time.

This capacity for simultaneous observation of the pressure, or voltage, and of the quantity of passing current, makes the instrument a desirable part of the equipment of an ordinary electric automobile.

Count 3 relates to the employment of the duplex instrument of a pair of magnets common to the moving parts of both measuring devices, instead of separate and independent magnets for each.

The appellee, Weston, holds a patent that was issued March 23, 1898, on an application filed December 7, 1897. Since the date of his invention he has manufactured and put in commercial use a great number of his duplex instruments.

The appellant, Thomson, filed his application June 21, 1898.

The tribunals of the Patent Office all agreed that Weston was clearly entitled to priority of invention as regards counts 1 and 2, and those decisions have been acquiesced in by Thomson. The controversy, therefore, involves count 3 alone.

As to this, the Examiner of Interferences awarded priority to Thomson; but expressed the opinion that he was not entitled to a patent because of his concealment of the invention from the public, and called the attention of the Commissioner thereto under the provisions of Rule 124.

The Examiners-in-Chief—one not taking part in the decision—affirmed the decision, but did not join in the recommendation that patent be denied to Thomson on account of delay and concealment.

The Commissioner of Patents, on appeal, reversed that decision and awarded priority to Weston.

All the tribunals of the Patent Office agree, substantially, that Weston conceived and disclosed the invention of count 3 about November 23, 1896, and reduced it to practice on October 21, 1897.

Thomson alleged conception about the last week of June, 1894, at which time he made sketches, explained the invention to an assistant and instructed him to make an instrument in accordance therewith; that a full-sized working device was made during July and August, 1894, and was, prior to September, tested and calibrated in the instrument-room of the General Electric Company at Lynn, Mass.; and that it has been used since said time for the purpose of testing electrical apparatus.

Thomson is a skilled electrician and inventor of electrical measuring instruments. For these he has eight patents—the first three on applications filed October 26, 1894, and the latest on March 27, 1897.

Testifying as a witness in regard to this invention, he said that he had completed a form of voltmeter called an "astatic voltmeter," in May, 1894; that he undertook to apply this construction to an ammeter in June thereafter; that he then conceived the idea of combining the two in one instrument; that it was in his mind with particular reference to a private lighting plant then in use in his own house and which he proposed to remodel; that he desired to use the instrument to keep informed both in respect of the pressure and the quantity of the current in said plant; that he mentioned it to his assistant, Shand, gave him some instructions and directed the construction of the instrument suggested; that, returning from his vacation, August 6, 1894, he found the instrument completed; that it was a working instrument and was mounted on a switchboard in his model-room and used frequently in making measurements. It appears from the testimony that this model-room is the private workshop of Thomson; that it is not an exhibition-room and that the public are excluded from it; that it is accessible to his assistants, and mechanics employed in the works frequently came into it for tools, etc. It was said also, that while there was a posted notice against admittance, Mr. Thomson was not rigid in its enforcement. It is not made to appear that any one but assistants and mechanical employees ever saw or heard of the instrument, and Thomson could remember no one but his assistant Shand using the instrument. It was not applied to, or used in, the private electric plant before mentioned.

In explanation of his failure to apply for a patent, or to manufacture the instrument, Thomson said that he was engaged in looking after the patenting of a voltmeter and ammeter separately and had a great deal of patent-work on hand; that his attention was not called specially to this instrument as a subject for patent, and being doubtful of its patentability he took no steps to that end until after he had seen the notice of the issue of the patent to Weston; then he wrote to the patent department of the General Electric Company at Schenectady, N. Y., calling attention to the Weston patent issue and referring to his instrument in a general way.

Robert Shand, the assistant before mentioned, corroborated Thomson in the matter of description and order for construction of the machine in the summer of 1894. He said that he had one Charles Silvester, a mechanic, to work on the instrument in June and when made he took it to the instrument-room where it was calibrated under charge of one Holden; that it was then taken to Thomson's private mechanical laboratory, and certain defects were remedied; that it has been in continuous use in that room since about the first of September.

Silvester identified the instrument as the one

worked on by him and that had been kept in a switchboard in Thomson's laboratory and used since September, 1894.

Jameson, another mechanic, testified to the construction of the instrument in the summer of 1894.

On behalf of Weston, a vigorous attack is made upon the sufficiency of this evidence to show conception and reduction to practice, under the burden of proof imposed upon Thomson not only by the prior patent of his rival, but also by his long inaction and delay.

That the instrument, which was produced during the taking of the testimony, was in fact constructed, as claimed, there can be no reasonable doubt. Whatever of doubt there may be, as affecting Thomson's claim, would seem to relate exclusively to the point of actual, successful reduction to practice. The question involves something of matter of opinion as well as of matter of fact. It is this: Whether, considering the failure to bring the instrument into use either in the private plant for which it was originally designed, or in connection with any other practical construction, as well as the delay in applying for a patent by an inventor and a manufacturer engaged in patenting and utilizing, generally, all inventions in this art, the test in the private laboratory of the inventor failed to demonstrate the practical utility of the machine, as then adjusted, and caused it to be regarded and abandoned as an experiment, for the time at least.

It is quite true, as contended by the appellee, that great stress has frequently and justly been laid upon circumstances of private and partial test and long delay thereafter, as indicating, with certainty, nothing more than an unsatisfactory, experimental use, when subsequently brought forward to overcome the patent of a diligent inventor in the same field who has not only given the benefit of his discovery to the public through the Patent Office, but also through manufacture and general introduction into commercial use. (*Treuer v. Brown*, 34 O. G., 311; 14 App. D. C., 24; *Warner v. Smith*, 18 App. D. C., 111, 113; *Appert v. Schmertz*, 36 O. G., 1824; 18 App. D. C., 117, 120; *Fafel v. Stocker*, 34 O. G., 433; 17 App. D. C., 317, 321; *Reichenbach v. Kelly*, 34 O. G., 1185; 17 App. D. C., 333, 344; *Latham v. Armat*, 35 O. G., 332; 17 App. D. C., 345, 353.)

This question—whether the evidence, in the light of all the attendant circumstances, was sufficiently strong to establish, beyond doubt, the fact of actual reduction to practice, under the rule applied in the cases cited, need not now be determined.

The Commissioner expressly waived it and, assuming the fact of reduction to practice, denied priority to Thomson upon another and distinct ground.

Concurring in his conclusion upon that ground, we will follow the course pursued in his decision.

That conclusion is, that Weston, although later than Thomson in conception and reduction to practice, is nevertheless an inventor and entitled, as such, to an award of priority because of the de-

liberate concealment by Thomson, from the public, of all knowledge of his invention and use.

The facts relating to the action of Thomson are fairly summarized by the Commissioner as follows:

After Thomson made his instrument in 1894 he placed it in his model-room, or private laboratory, to which outsiders were not admitted, and this instrument was only seen by the employees who might go into that room, and the knowledge of this instrument and its use in the model-room was confined to Thomson and his assistant, Shand.

The use to which Thomson put this device, whatever it may have been, was in his private model-room. The public was not made acquainted with the instrument or its use and derived no benefit whatever from it. It seems that he did not attach sufficient importance to it to take steps to obtain a patent, and he believed that it was not patentable. He deliberately concealed the invention from the public until another had patented the device and put it into extensive use.

As held by the Commissioner, the foregoing facts bring the case directly within the operation of the doctrine enounced in *Mason v. Hepburn*, (84 O. G., 147; 18 App. D. C., 98.)

In that case it appeared that Mason had conceived the idea of the gun-clip in controversy, had made it and applied it to a completely finished gun, and that the gun had then been put away in the model-room of the Winchester Arms Company, which employed Mason and was entitled to the benefit of his inventions. The gun was probably tested in the shooting-gallery of the company.

Knowledge of these facts was confined to the inventor and a few other employees of the company who had access to the model-room. Further test of the clip, than as stated above, was treated as immaterial; in fact what was done was regarded as answering the substantial requirements of the law in respect of the reduction to practice of such a device.

What was then said of the effect of that action is directly applicable to the facts under consideration in the present case:

Although the construction and adaptation to use of the clip were within the knowledge of several persons, these were all, with Mason himself, employees of the Winchester Repeating Arms Company, for whose benefit the invention was made. They had either been called on to aid in the construction and use, or by the nature of their employment, were necessarily cognizant of it. The invention was therefore as much secreted from the public as if it had been confined to the knowledge of Mason alone. (*Peacock v. Dialogue*, 1 Pet., 1, 19; *Kendall v. Winsor*, 31 How., 323.) The public did not, and was not intended to receive any benefit from it during the seven years that intervened between the construction and the application for the patent. (18 App. D. C., p. 91.)

It is true that the time of concealment in this case was something less than four years as against seven years in that. The mere difference in time, however, is not sufficient to affect the application of the principle, for it is as certain in one case as in the other that the application for the patent was solely stimulated by the publication of the patent granted to another inventor. No substantial or even plausible excuse for Thomson's inaction is disclosed by the testimony.

Again in *Mason v. Hepburn*, after quoting the statement of the "true policy and ends of the patent laws," made in *Kendall v. Winsor*, (31 How., 323, 327,) it was said:

Considering, then, this paramount interest of the public in its bearing upon the question as presented here, we think it impera-

tly demands that a subsequent inventor of a new and useful manufacture or improvement who has diligently pursued his labors to the procurement of a patent in good faith and without any knowledge of the preceding discoveries of another, shall, as against that other, who has deliberately concealed the knowledge of his invention from the public, be regarded as the real inventor and as such entitled to his reward. (Id., p. 98.)

In support of this proposition, many decisions of the courts and of Patent Commissioners were cited. Since then the practice of the Patent Office has been governed by the rule as declared and the principle has been reasserted by us in several decisions. (*Warner v. Smith*, 84 O. G., 311; 13 App. D. C., 111, 115; *Esty v. Newton*, 86 O. G., 799; 14 App. D. C., 50, 53; *in re Mower*, 88 O. G., 191; 15 App. D. C., 144; *McBerty v. Cook*, 90 O. G., 2305; 16 App. D. C., 123, 129; *Fescl v. Stocker*, 94 O. G., 423; 17 App. D. C., 317, 323; *Reichenbach v. Kelly*, 94 O. G., 1185; 17 App. D. C., 333, 343.)

It is true that in the majority of the above cases the decisions went upon another ground, but the principle was involved and was restated, and may be regarded as settled as far as it can be by this court.

What was said in *McBerty v. Cook*, *supra*, and has been referred to on behalf of the appellant, namely, that "the rule will not be extended to any case not coming clearly within it," was not to impair its force but to recall attention to the restricted field of its application.

The particular object of the beneficence of the patent law is the individual who first conceives, and with diligence perfects an invention. And where one has completed the act of invention his right to the reward in the form of a patent becomes complete save in two instances that may be satisfactorily shown to exist. First, he loses the right as against the public in general by a public use for the statutory period. Second, by deliberate concealment or suppression of the knowledge of his invention he subordinates his claim, in accordance with the general policy of the law in the promotion of the public interest, to that of another and bona fide inventor who during the period of inaction and concealment shall have given the benefit of the discovery to the public. Viewed in the light of "the true policy and ends of the patent laws," the latter is the first to invent, and therefore entitled to the reward. As said in *Mason v. Hepburn*:

The true ground of the doctrine, we apprehend, lies in the policy and spirit of the patent laws and in the nature of the equity that arises in favor of him who gives the public the benefit of the knowledge of his invention, who expends his time, labor and money in discovering, perfecting and patenting, in perfect good faith, that which he and all others have been led to believe had never been discovered, by reason of the indifference, supineness or wilful act of one who may, in fact, have discovered it long before.

The concealment of the appellant in this case having been deliberate and without reasonable excuse, the Commissioner was right in awarding priority to his opponent, and his decision will be affirmed. It is so ordered, and that the clerk certify this decision and the proceedings herein to the Commissioner of Patents as provided by law.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2		Nebraska	3	
Alaska Territory	1		Nevada	2	
Arizona Territory	1		New Hampshire	2	
Arkansas	2		New Jersey	2	1
California	11		New Mexico Territory	1	
Colorado	2		New York	70	11
Connecticut	23	2	North Carolina	1	
Delaware	1	1	North Dakota	1	
District of Columbia	2		Ohio	2	3
Florida	2		Oklahoma Territory	2	
Georgia	2		Oregon	1	
Hawaii Territory	1		Pennsylvania	25	2
Idaho	1	1	Rhode Island	2	
Illinois	21	2	South Carolina	1	1
Indian Territory	1		South Dakota	1	
Indiana	20	2	Tennessee	1	
Iowa	14		Texas	6	
Kansas	7		Utah	1	
Kentucky	2		Vermont	1	
Louisiana	4	1	Virginia	2	
Maine	2	1	Washington	6	
Maryland	2	1	West Virginia	2	
Massachusetts	61	7	Wisconsin	12	1
Michigan	22	2	Wyoming	1	
Minnesota	9		U. S. Navy		
Mississippi	1				
Missouri	12		Total to citizens of the United States	686	28
Montana	2				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1		Mexico		
Austria-Hungary	2		Netherlands		
Barbados			Newfoundland		
Belgium	2		New South Wales		
Bermuda			New Zealand	1	
Brasil			Norway	1	
Canada	7		Peru		
Cape Colony			Queensland		
Chile			Russia	1	
China			Scotland	5	
Colombia			South African Republic		
Cuba			Spain	1	
Denmark	2		Sweden	2	1
Egypt			Switzerland	1	
England	17	1	Turkey in Asia		
France	15		Victoria	1	
Germany	22		Western Australia	1	
Guatemala					
Haiti			Total to citizens of foreign countries	79	2
India					
Ireland					
Italy	1				

Change in Classification.

(Order No. 1,462.)

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE,

Washington, D. C., April 17, 1902.

It is directed that subclass III, Magnetic, of class III, Electricity, Division VII, be abolished, the patents therein having been transferred to subclass IIIA, Transmission of power, direct, in class III, Electricity, Motive Power, in Division XXVI.

F. L. ALLEN,

Commissioner.

Revision of Trade-Mark Rules.

(Order No. 1,461.)

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE,

Washington, D. C., April 8, 1902.

Rule 21, subdivision (b), governing the registration of trade marks, is hereby amended to read as follows:

(b) A statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used, and if the applicant be a corporation it must set forth under the laws of what State or nation incorporated.

F. L. ALLEN,

Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 29, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
In arrears—Under one month.				
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152	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Mar. 24	Apr. 9	108
203	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 24	Apr. 8	223
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Mar. 24	Apr. 8	243
208	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 24	Apr. 8	158
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Mar. 24	Apr. 8	179
186	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Mar. 24	Apr. 8	247
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Mar. 24	Apr. 8	260
204	I. Tillage, etc., and Fences.....	Mar. 24	Apr. 7	175
128	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Mar. 24	Apr. 4	135
30	IV. Cranes and Derricks, Bridges, Fire-Food Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Mar. 24	Mar. 24	312
64	XXV. Assemblages, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Mar. 23	Apr. 9	250
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Mar. 23	Apr. 9	219
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Mar. 23	Apr. 7	274
201	XXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Mar. 23	Apr. 1	244
Between one and two months.				
205	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Mar. 21	Apr. 9	220
206	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Mar. 20	Apr. 9	205
201	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Mar. 20	Apr. 5	198
211	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Mar. 19	Apr. 3	283

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting of- fice action.		No. of applications awaiting action.
		New.	Amended	
201	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Mar. 17	Apr. 1	167
37	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Mar. 8	Mar. 26	107
126	XXIX. Wood-Working Machines, Coopering and Roofing.	Mar. 4	Mar. 27	211
120	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Mar. 4	Mar. 18	100
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Feb. 27	Mar. 13	441
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Feb. 26	Mar. 10	221
30	XXVIII. Pneumatic Air and Gas Engines and Pumps.	Feb. 24	Feb. 17	443
<i>Between two and three months.</i>				
240	XVIII. Steam-Engineering, etc.	Feb. 13	Feb. 13	402
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Feb. 10	Mar. 1	576
92	XXI. Textiles, Carding, Kaitting, Spinning, Weaving, etc.	Feb. 10	Feb. 10	426
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Feb. 4	Jan. 14	426
242	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Feb. 3	Feb. 3	426
<i>Between three and four months.</i>				
105	XI. Boots and Shoes, Harness, Hoes and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 15	Feb. 17	412

Total number of applications awaiting action.....10,619

<i>Under one month.</i>			
* Designs	Mar. 21	Apr. 8	102
† Trade-Marks	Apr. 4	Apr. 16	127
‡ Labels and Prints	Apr. 15	Apr. 11	10

Amendment of Section 4833, Revised Statutes, Relating to the Signing of Letters Patent.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., April 12, 1902.

By the act approved April 11, 1902, section 4833, Revised Statutes, has been amended to read as follows:

SEC. 4833. All patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Commissioner of Patents, and they shall be recorded, together with the specifications, in the Patent Office in books to be kept for that purpose.

F. I. ALLEN,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., April 26, 1902.

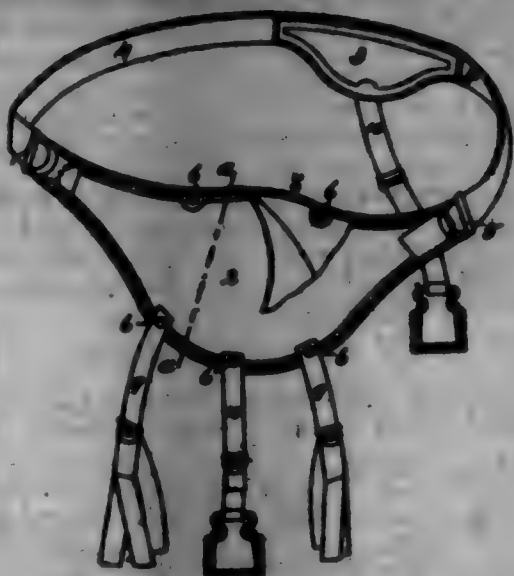
This Office has been advised of the disbarment by the Secretary of the Interior of the following attorney from practice before the Department or any Bureau thereof: John M. Carver, Canton, N. C.

C. M. IRELAND,
Chief Clerk.

PATENTS

GRANTED APRIL 29, 1902.

698,496. ABDOMINAL BANDAGE. EUGENE L. ARDREY, New York, N. Y. Filed Mar. 1, 1901. Serial No. 66,412. (No model.)



Claim.—1. An appliance of the class herein described comprising a protective and supporting member, as 2, composed of a plurality of superimposed layers of flexible material, the front layer thereof being provided with a series of suitably spaced openings; stud-like fasteners projecting outwardly through each one of said openings; a universally-flexible leader loosely interposed between adjoining layers of said member and connectively connecting said stud-like fasteners by being coiled around each of them and upon itself, each of said fasteners being adapted to firmly engage the leader and accordingly resist detachment from said member; and means for retaining said member in position for service at the abdomen of the user.

2. An appliance of the class herein described comprising a protective and supporting member, as 2, composed of a plurality of superimposed layers of flexible material, the front layer thereof being provided with a series of suitably spaced openings; stud-like fasteners projecting outwardly through each one of said openings; a universally-flexible leader loosely interposed between adjoining layers of said member, the said leader connectively connecting said fasteners by being coiled around each of them and upon itself; means for adjustably connecting the ends of said leader and whereby the latter may be adjusted as to length, each of the fasteners being adapted to firmly engage the leader and accordingly resist detachment from said member; and means for retaining said member in position for service at the abdomen of the user.

698,497. GAS-LIGHTER. EDWARD B. ARNOLD, New York, N. Y. Filed July 2, 1901. Serial No. 66,394. (No model.)



Claim.—1. A lighting attachment for gas-burners comprising a body arranged to enclose the burner, an apertured cap at the upper end of said body, the cap and body forming together a shoulder to limit the downward movement of the attachment, and a lighting substance carried by said attachment.

2. A lighting attachment for gas-burners comprising a body arranged to enclose the burner, a spring-tongue arranged at the opposite side to the said body, a cap connected with the upper ends of the body and of the tongue, said cap being apertured for the passage of gas and a lighting substance carried by the attachment.

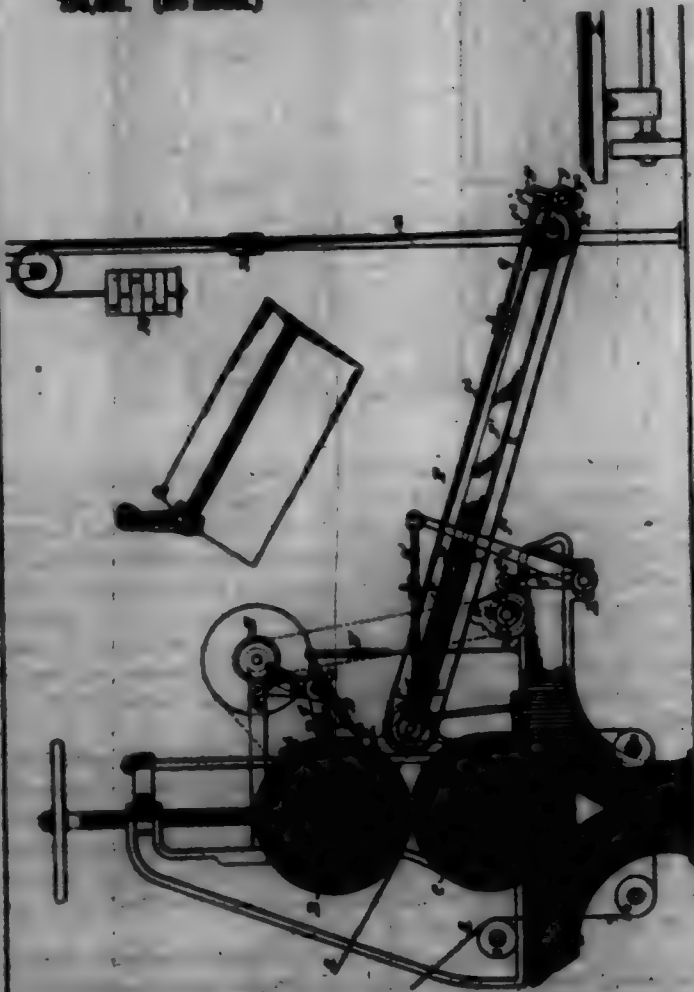
3. In a gas-lighter, the combination of the supporting-body with a spiral having its inner end extended outwardly beyond the cells hang-

wire of the body and fastened thereto, the cells being arranged in front of said end, and a lighting substance carried by the outer end of the spiral.

4. In a gas-lighting attachment for burners the combination of a slitted cap and means for attaching it to the burner with a spiral secured to said cap, a lighting substance carried by the spiral and a stop to limit the movement of that part of the spiral which carries the lighting substance.

5. In a gas-lighter, the combination of the supporting-body having portions bent outwardly to form straps, with a spiral having its inner end extended through said straps and its cells arranged in front of said inner end, and a lighting substance carried by the outer end of the spiral.

698,498. PAPER OR PULP-BOARD MAKING MACHINE. LEONARD ARNOLD, Philadelphia, Pa. Filed Nov. 27, 1900. Serial No. 734,681. (No model.)

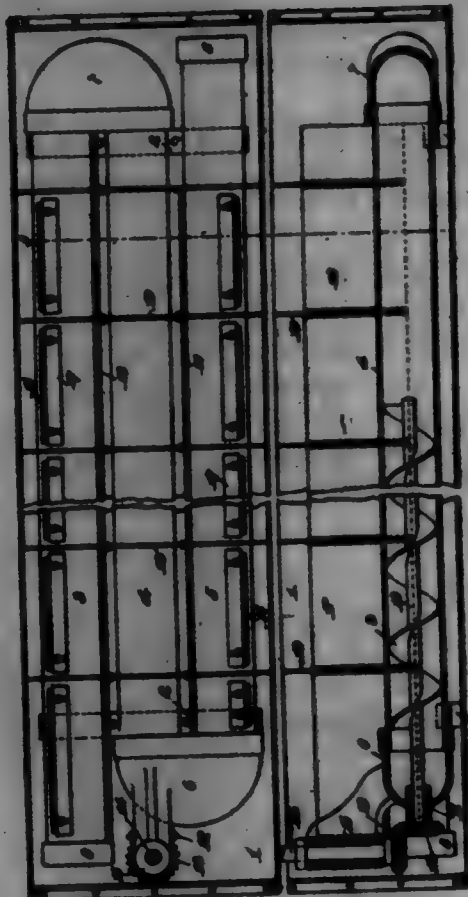


Claim.—1. The combination in a pulp-board or paper making machine, a roll upon which the paper or paper-pulp is laid, a pivoted outer-blade, means for actuating the said outer-blade to throw it toward and from said roll, means for feeding the cut paper or pulp away from the outer-blade, comprising a pivoted frame, a counterbalance for said frame, and a lay-boy pivoted to said frame for transferring the sheets from the same, said lay-boy being so pivoted with the frame that its contact with the deposited sheets will tend to lift the frame and permit a partial raising of the same by the weight of the counterbalance.

2. The combination in a paper or pulp-board making machine, of a roll upon which the pulp is laid, a pivoted outer-blade extending the length of said roll and adapted to cover the pulp laid thereon, an arm carried by said outer-blade a spring connected to said outer-blade and tending to

these it against the roll, a cam contacting with the arm of the outer-blade whereby the latter is held away from the roll, said cam having a depression for the reception of the end of the outer-blade arm thereby permitting movement of said outer-blade at regular intervals, means for feeding the sheet of pulp away from the roll to a frame or feed-table, and a series of lay-bands pivoted to said frame for transferring the sheet therefrom, substantially as described.

698,499. DIPPING-TANK FOR PHOTOGRAPHIC DUPLICATION PROCESS. JONAS W. AYLWORTH, East Orange, and WALTER E. HILLMAN, Orange, N. J., assignors to National Photograph Company, Orange, N. J., a Corporation of New Jersey. Filed May 2, 1901. Serial No. 64,421. (No model.)



Claim.—1. An improved tank for a photographic duplication process, comprising a receptacle or vessel for containing a molten coagulable material, a down-flow-passage in said vessel, an up-flow-passage therein, said passages being connected at the top and bottom, whereby the molten material may flow down the down-flow-passage to and up through the up-flow-passage and across to the down-flow-passage, so that a cross circulation of the material in its upper strata and a reverse circulation of the material in its lower strata will be secured, means for effecting the flow of such material, and means for heating the material, substantially as set forth.

2. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle for containing a molten coagulable material, two vertically-arranged partitions in said vessel forming a down-flow-passage, an up-flow-passage, and a centrally-arranged dipping-space, the down-flow-passage being connected with the up-flow-passage substantially as set forth, means for maintaining a circulation of material in the vessel, and means for heating the material.

3. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle for containing the molten coagulable material, two perforated circulating-pipes in the vessel, means for drawing material downwardly into one of said pipes and for forcing the material upwardly from the other of said pipes, and a connection between said pipes, substantially as set forth.

4. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle for containing the molten coagulable material, two perforated circulating-pipes in the vessel, means for drawing material downwardly into one of said pipes and for forcing the material upwardly from the other of said pipes, a connecting circulating-pipe between the two, and means therein for maintaining circulation, substantially as set forth.

5. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle for containing the molten coagulable material, two perforated circulating-pipes in the vessel, means for drawing

material downwardly into one of said pipes and for forcing the material upwardly from the other of said pipes, a connecting circulating-pipe between the two, and a worm therein for maintaining circulation, substantially as set forth.

6. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle, means for heating the molten material, means for maintaining the molten material in circulation, and even partitions or diaphragms within the tank for guiding the cross circulation of the material, substantially as set forth.

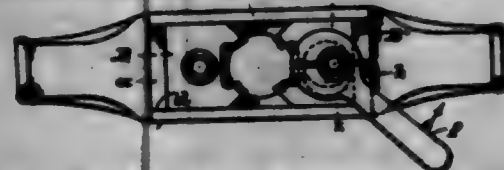
7. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle, means for heating the molten material, means for maintaining the molten material in circulation, even partitions or diaphragms within the tank for guiding the cross circulation of the material, and longitudinal partitions in said vessel or receptacle, substantially as set forth.

8. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle, three connected circulating-pipes therein, the outside pipes being perforated, and means in the middle pipe for maintaining a circulation through the same, substantially as set forth.

9. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle, three connected circulating-pipes therein, the outside pipes being perforated, and a worm in the middle pipe for maintaining a circulation, substantially as set forth.

10. An improved dipping-tank for a photographic duplication process, comprising a vessel or receptacle, three connected circulating-pipes therein, the outside pipes being perforated, means in the middle pipe for maintaining a circulation through the same, and means for adjusting the width of the slots in said pipes, substantially as set forth.

698,480. SCREW-PLATE. WILLIAM J. BAKER, Cleveland, Ohio. Filed Jan. 11, 1901. Serial No. 63,898. (No model.)



Claim.—1. In a screw-plate the combination with the stock; of a die relatively fixed; a complementary die having a reciprocating movement longitudinally of the stock; and a cam mechanism for positively moving said complementary die in both directions, said die in its inner position being automatically held locked against outward movement under pressure, due to the major axis of the cam crossing the point against which the pressure is applied, the movement being limited.

2. In a screw-plate the combination with the stock thereof, of a fixed and a transversely-slotted die, the latter having a reciprocating movement longitudinally of the stock; and a handle-operated eccentric located within a slot of the last-named die, in pivotal connection with a clamping-rod, said eccentric moving said die in both directions and preventing an outward movement of the movable die under pressure when said die is moved to its inner position.

3. In a screw-plate, the combination with the stock; of a die relatively fixed; a complementary die having a reciprocating movement longitudinally of the stock, said die having a transverse slot; and an eccentric extending into said slot and adapted to impart movement to the die in both directions, said slot and eccentric having a relative co-operation to automatically hold said die locked against outward pressure when said die is in its inner position.

698,481. TWYER. SAMUEL E. RICHMOND, Washington, D. C., assignor to Howard Evans, Philadelphia, Pa. Filed Oct. 6, 1900. Re-noved Jan. 27, 1902. Serial No. 91,515. (No model.)



Claim.—1. The combination with the circular frame of a converter, having a plurality of holes therein, of a corresponding number of twyers, one for each hole, said twyers vertically adjustable from their inner ends

as centers whereby an all-around blast of air may be directed at varying angles at a level approximately coincident with the horizontal plane in which the holes are located.

2. The combination with a twyer ring or frame having openings formed therein at intervals and provided with radially-disposed hollow projection adjacent to these openings and a wind-box in communication with and for applying air to the projections, of twyers extending into the openings in the ring or frame, said twyers having hollow bores which open into the sides of the twyers and communicate with the hollow projections, and means for adjusting the twyer.

3. The combination with a frame having openings formed therein, and hollow projections each having a flat face in alignment with one side of each opening, of a twyer extending into each opening and provided with a flat surface adapted to fit the flat surface of the projection, the twyer and the projection having openings therein in communication with each other.

4. The combination with a frame having openings formed therein and hollow projections adjacent to each of said openings one face of each projection flat and in alignment with one of the openings, these flat faces of the projections each provided with an elongated outlet, of a twyer extending into each opening, the hollow bores of the twyers opening into the elongated outlets in the projections, whereby the two are maintained in constant communication regardless of the position of the twyer.

5. The combination with a frame having a plurality of holes therein and hollow projections adjacent to the holes, of twyers having their hollow bores in constant communication with the hollow projections, said twyers each having a segmental slot formed therein and means extending through said slots into the projections for regulating the movement of twyers and covering them in various adjustments.

6. The combination with a wind-box and hollow projections, the latter of which are in communication with said wind-box and provided with curved elongated outlets, of twyers each of which is provided with a segment and a handle, said segments having segmental elongated slots, and bolts or set-screws passing through said slots into the hollow projections for securing the twyers adjustably in position, the curved outlets in these hollow projections maintaining constant communication with the twyers.

698,482. INCANDESCENT GAS-BURNER. JAMES W. BAKER, Bradford, England, assignor of two-thirds to William George Stansfeld, Bradford, England. Filed Sept. 9, 1901. Serial No. 74,005. (No model.)



Claim.—1. In combination in an incandescent gas-burner, the mantle, a rod for supporting the mantle, means for supporting the rod and a centrally-arranged pivot-support having a pivot-point upon which said supporting means rest, substantially as described.

2. In combination in incandescent lamps, a cone-shaped mixing-chamber having its apex upward, a pivot-support within said cone-shaped mixing-chamber and having its pivot-point located at the apex.

3. In an incandescent burner, the mantle, means for directly supporting the mantle, and a pivot-support therefor including a centrally-arranged pivot-point, substantially as described.

4. In an incandescent burner, the mantle, means for directly supporting the mantle and a pivot-support therefor including a centrally-arranged pivot-point with means for holding the same yieldingly, substantially as described.

5. In combination in an incandescent gas-burner, a mantle, a mixing-chamber and a gallery with means for supporting all the said parts

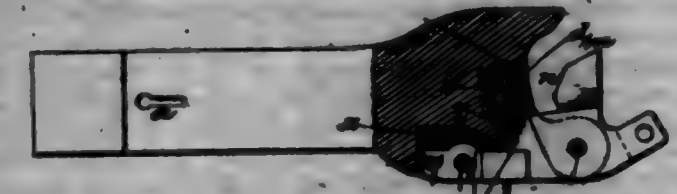
pivotal, said means including a centrally-arranged pivot-point, substantially as described.

6. In combination in an incandescent gas-burner, a mantle, means for supporting the same directly and a pivot-support comprising a rod extending up into the burner, substantially as described.

7. In combination in an incandescent gas-burner, a mantle, means for supporting the same directly and a pivot-support comprising a rod extending up into the burner, said rod being yieldingly supported, substantially as described.

8. In combination, a mantle, a double-coned mixing-chamber, a rod extending up into the mixing-chamber to support the same pivotally, the said mantle being supported by the said mixing-chamber, substantially as described.

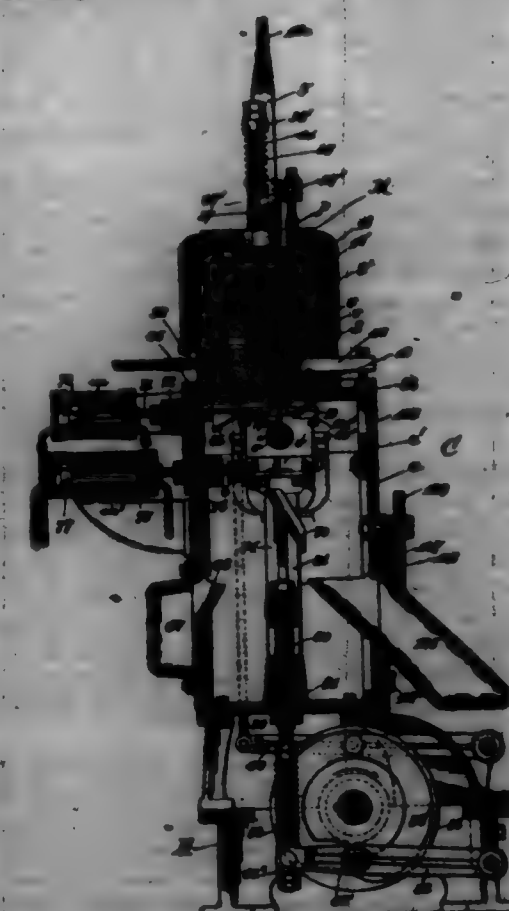
698,483. CAR-COUPLING. DAVID L. BOK, Lebanon, Pa. Filed Feb. 12, 1902. Serial No. 94,266. (No model.)



Claim.—1. A car-coupling having a head provided with a side approximately parallel with the line of draft, a pocket in said side having slanting-shoulders in the sides of the pocket, and a laterally-acting hook having a transverse shoulder, in combination with a laterally-acting latch lying within and pivoted in said pocket with its front end normally engaging the shoulder on the hook, and having lateral extensions engaging said slanting-shoulders.

2. A car-coupling having a pocket in the side of the head provided with slanting-shoulders in the sides and at the rear end of the pocket, and a laterally-acting hook having a transverse shoulder; in combination with a laterally-acting latch having lateral and rearward extensions, lying within and pivoted in said pocket with its front end normally engaging the shoulders on the hook, its lateral extensions engaging the slanting-shoulders in the sides of the pocket, and its rear end engaging the rear wall of said pocket, and an inclined spring engaging the latch.

698,484. CASTING-MACHINE. HENRY L. BOK, Hartford, Conn., assignor to the Vender Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Apr. 28, 1900. Serial No. 12,577. (No model.)



Claim.—1. In a casting-machine, the combination with a mixing-tank, of a valve-chamber having an inlet-opening from the tank and terminating in a vertically-disposed outlet-opening at its extreme lowest

point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; and mechanism for controlling the inlet and outlet openings of the valve-chamber.

2. In a casting-machine, the combination with a melting-tank, of a valve-chamber whose side walls converge upwardly on all sides toward a centrally-disposed inlet-opening at its highest point communicating through an upwardly-extending passage-way with the lower portion of the tank, whereby gases and vapors escaping from the molten metal in the chamber may find free vent to the atmosphere; said valve-chamber also terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; and mechanism for controlling the inlet and outlet openings of the valve-chamber.

3. In a casting-machine, the combination with a melting-tank, of a valve-chamber whose side walls converge upwardly on all sides toward a centrally-disposed inlet-opening at its highest point communicating through an upwardly-extending passage-way with the lower portion of the tank, whereby gases and vapors escaping from the molten metal in the chamber may find free vent to the atmosphere; said valve-chamber also terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; and mechanism for controlling the inlet and outlet openings of the valve-chamber.

4. In a casting-machine, the combination with a melting-tank, of a vertically-disposed valve-chamber having a centrally-located inlet-opening at its highest point communicating through an upwardly-extending passage-way with the tank, whereby gases and vapors escaping from the molten metal may find free vent to the atmosphere, said valve-chamber also terminating in a vertically-disposed outlet-opening at its extreme lowest point toward which the side walls of the chamber converge, whereby the vertical downward flow of metal from the chamber is facilitated and the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; and means for effecting the ejection of molten metal in the valve-chamber through the outlet thereof under a pressure additional to that of its own weight.

5. In a casting-machine, the combination with a melting-tank, of a valve-chamber having an inlet-opening from the tank and terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; and a vertically-disposed valve device in said chamber.

6. In a casting-machine, the combination with a melting-tank, of a valve-chamber having an inlet-opening from the tank and terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; and valves connected to move in unison with each other for controlling the inlet and outlet openings of the chamber.

7. In a casting-machine, the combination with a melting-tank, of a valve-chamber having a centrally-disposed inlet-opening at its highest point communicating through an upwardly-extending passage-way with the tank and also terminating in an outlet-opening at its extreme lowest point having a substantially vertical axis; a well located at one side of the valve-chamber and communicating through a passage-way therewith; a plunger in the well; and mechanism for depressing said plunger below the plane of the upper surface of the passage-way by which it communicates with the valve-chamber and for controlling the inlet and outlet openings of said chamber.

8. In a casting-machine, the combination with a vacuum-chamber, of a mold located therein; a melting-tank on top of the vacuum-chamber; a valve-chamber whose side walls converge upwardly on all sides toward a centrally-disposed inlet-opening which communicates through an upwardly-extending passage-way with the lower portion of the tank, whereby gases and vapors escaping from the molten metal in the chamber may find free vent to the atmosphere; valves for controlling the inflow of molten metal to the chamber and its outflow therefrom; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; a power-

driven device in the machine; and mechanism operatively connected with each device for actuating the valves and the plunger in proper sequence.

9. In a casting-machine, the combination with a vacuum-chamber, of a mold located therein; a melting-tank on top of the vacuum-chamber; a valve-chamber terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; a power-driven device in the machine; and mechanism operatively connected with each device for actuating the valves and the plunger in proper sequence.

10. In a casting-machine, the combination with a mold, of a vacuum-chamber located therein; a melting-tank on top of the vacuum-chamber; a valve-chamber whose side walls converge upwardly on all sides toward a centrally-disposed inlet-opening communicating through an upwardly-extending passage-way with the lower portion of the tank, whereby gases and vapors escaping from the molten metal in the chamber may find free vent to the atmosphere; said valve-chamber also terminating in a vertically-disposed outlet-opening at its extreme lowest point, whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; valves for controlling the inlet and outlet openings of the valve-chamber; a power-driven device in the machine; and mechanism operatively connected with each device for actuating the valves and the plunger in proper sequence.

11. In a casting-machine, the combination with a separable mold, of a vacuum-chamber located therein; a melting-tank on top of the vacuum-chamber; a valve-chamber whose side walls converge upwardly on all sides toward a centrally-disposed inlet-opening communicating through an upwardly-extending passage-way with the lower portion of the tank, whereby gases and vapors escaping from the molten metal in the chamber may find free vent to the atmosphere, said valve-chamber also terminating in a vertically-disposed outlet-opening at its extreme lowest point whereby the head of molten metal rendered effective to augment the velocity with which the metal issues downward from said chamber is equated to the total height of the chamber; a well located at one side of the valve-chamber and communicating therewith below the plane of the inlet-opening from the tank; a plunger in the well; valves for controlling the inlet and outlet openings of the valve-chamber; a power-driven device in the machine; and mechanism operatively connected with each device for actuating the valves and the plunger in proper sequence.

12. In a casting-machine, the combination with a vacuum-chamber, of a separable mold located therein; a melting-tank on top of the vacuum-chamber; a valve-chamber having an inlet-opening at its highest point communicating through an upwardly-extending passage-way with the lower portion of the tank, and also terminating in an outlet-opening at its lowest point; valves for controlling the inlet and outlet openings; a well located at one side of the valve-chamber and communicating therewith; a plunger in the well; a spring for closing the outlet-valve; and means for opening the same.

13. In a casting-machine, the combination with a mold, of a melting-tank; a well communicating with the tank; a plunger in the well for injecting molten metal into the mold; and means for tipping and thereby emptying the tank.

14. In a casting-machine, the combination with a frame, of a removable auxiliary frame supported on the main frame; a mold; a melting-tank supported by the auxiliary frame; a valve-chamber communicating with the interior of the melting-tank and provided with an outlet-opening at its lowest point; a plunger at the side of the valve-chamber for injecting molten metal into the mold; and means for tipping and thereby emptying the tank.

15. In a casting-machine, the combination with a separable vacuum-chamber, of a mold located therein; a bell for removing the movable member of the chamber; mold-filling means supported on the movable member; a melting-tank also located on said movable member; and means for tipping said movable member to empty the tank carried thereon.

16. In a casting-machine, the combination with a main frame, of a mold carried thereby; mold-filling means removable from the main frame and operative for forcing molten metal under high pressure into the mold; a bell pivoted to the mold-filling means; and mechanism for tipping the mold-filling means relatively to said bell.

17. In a casting-machine, the combination with a main frame, of a mold carried thereby; mold-filling means removable from the main frame and operative for forcing molten metal under high pressure into the mold; a bell pivoted to the mold-filling means; and gearing mechanism for tipping the mold-filling means relatively to said bell.

18. In a casting-machine, the combination with a main frame, of a mold carried thereby; mold-filling means removable from the main frame and operative for forcing molten metal under high pressure into the mold; a bell pivoted to the mold-filling means; a gear-arrangement movable in unison with the mold-filling means; a rotatable gear carried by said bell and in mesh with said gear-arrangement; and means for turning and for locking said gear.

19. In a casting-machine, the combination with a vacuum-chamber, a mold located therein; a melting-tank adapted to be filled from its normal position; means for injecting metal into the mold; and means for tipping and thereby emptying the tank.

20. The combination with a separable vacuum-chamber, of a mold located therein; means for clamping the sections of the vacuum-chamber together; a melting-tank; means for injecting metal into the mold located on the movable section of the vacuum-chamber; and means for tipping and thereby emptying the tank.

21. In a casting-machine, the combination with a mold, of a bell; a vacuum-chamber having a removable cover pivoted to said bell; mold-filling means mounted on said cover; and means for tipping said mold-filling means.

22. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; movable and stationary deflectors for directing molten metal and drip material into different paths, one or least of the drip-deflectors being mounted independently of the mold; and means for actuating said independently-mounted deflector.

23. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means for shifting the mold and mold-filling means with relation to each other; a combined drip-receiver and drip-deflector mounted independently of the mold; and means for shifting said drip-deflector between the mold and the mold-filling means upon the withdrawal of the mold from the mold-filling means.

24. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means for shifting the mold and mold-filling means with relation to each other, a drip-deflector, and a combined drip-receiver and drip-deflector movable between the mold and the mold-filling means.

25. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means for shifting the mold and mold-filling means with relation to each other, and an inverted-V-shaped combined drip-receiver and drip-deflector movable between the mold and the mold-filling means.

26. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means for shifting the mold and mold-filling means with relation to each other; a drip-deflector movable between the mold and the mold-filling means; and a removable drip-receiver attached to and removable from the vacuum-chamber.

27. In a casting-machine, the combination with a mold and with mold-filling means, of means for shifting one of said elements toward and from the other; a drip-deflector movable between the mold and the mold-filling means; a second drip-deflector below said first drip-deflector; and a drip-receiver below said second drip-deflector.

28. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means operatively connected to the machine for shifting the mold and mold-filling means with relation to each other; a drip-deflector mounted independently of the mold; means for shifting said deflector between the mold and the mold-filling means upon the separation of the two; and a casting-receiver located below the mold.

29. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means operatively connected to the machine for shifting the mold and mold-filling means with relation to each other; a drip-deflector mounted independently of the mold and having a deflecting-flap inclined in one direction; means for shifting said deflector between the mold and the mold-filling means upon the separation of the two; and a casting-deflector located below the mold and having a deflecting-flap inclined in a different direction.

30. In a casting-machine, the combination with a vacuum-chamber and a separable mold located therein embodying a plurality of mold-sections, of mold-filling means; means operatively connected with the machine for shifting the mold and mold-filling means with relation to each other; mold-operating means for parting the mold-sections; a drip-deflector mounted independently of the mold; means for shifting the deflector between the mold and mold-filling means upon the separation of the two; and a casting-deflector disposed substantially below the mold-filling means.

31. In a casting-machine, the combination with a vacuum-chamber and with a mold located therein, of mold-filling means; means for shifting the mold and mold-filling means with relation to each other; a drip-receiver located at one side of the mold; a casting-receiver located at the other side of the mold; drip-deflecting means mounted independently of

the mold; means for shifting the drip-deflecting means between the mold and the mold-filling means upon the separation of the two; and casting-deflecting means located above the casting-receiver.

32. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold-filling means; means operative from the machine for shifting the mold and mold-filling means with relation to each other; a drip-receiver located at one side of the mold; a casting-receiver located at the other side of the mold; drip-deflecting means movable between the mold and the mold-filling means and located above the drip-receiver; a mold-carrier; and casting-deflecting means supported on the mold-carrier.

33. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of superposed mold-filling means having a discharge-nozzle; means operatively connected to the machine for raising and lowering the mold; a reciprocating drip-deflector mounted independently of the mold; and means for shifting the drip-deflector into a position under the discharge-nozzle.

34. In a casting-machine, the combination with a mold and with superposed mold-filling means having a discharge-nozzle, of a mold-carrier movable toward and from said discharge-nozzle; a drip-receiver movable into position under said discharge-nozzle; and casting-deflecting means supported on the mold-carrier and movable therewith.

35. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of superposed mold-filling means having a discharge-nozzle; means operatively connected to the machine for raising and lowering the mold into and out of contact with the nozzle; a drip-deflector mounted independently of the mold; and power-operated means for shifting the drip-deflector into position under the discharge-nozzle on the lowering of the mold, and for withdrawing the same from between the mold and the nozzle to permit the mold to be raised.

36. In a casting-machine, the combination with a vacuum-chamber having an opening therein, of a mold within said chamber; superposed mold-filling means having a discharge-nozzle; means for raising and lowering the mold; an operating member working in said opening; an abutment packing between the operating member and the walls of said opening; and a drip-receiver controlled by said operating member and movable into position under said discharge-nozzle on the lowering of the mold.

37. In a casting-machine, the combination with a mold and with superposed mold-filling means having a discharge-nozzle, of means for raising and lowering the mold, and a drip-receiver below said discharge-nozzle and having an opening through which the upper portion of the mold is movable.

38. In a casting-machine, the combination with a mold and with superposed mold-filling means having a discharge-nozzle, of means for raising and lowering the mold; a drip-receiver below said discharge-nozzle and having an opening through which the upper portion of the mold is movable; and a drip-deflector movable in said drip-receiver into position under said discharge-nozzle.

39. In a casting-machine, the combination with a mold and with superposed mold-filling means having a discharge-nozzle, of means for raising and lowering the mold; a drip-receiver below said discharge-nozzle and having an opening through which the upper portion of the mold is movable; and an inverted-V-shaped drip-deflector movable in said drip-receiver into position under said discharge-nozzle and having its flaps inclined toward the sides of said drip-receiver.

40. In a casting-machine, the combination with a mold and with superposed mold-filling means having a discharge-nozzle, of means for raising and lowering the mold; a drip-deflector movable into position under said discharge-nozzle; a second drip-deflector located below the first drip-deflector and having an opening through which the upper portion of the mold is movable; and a drip-receiver located below the second drip-deflector.

41. In a casting-machine, the combination with a vacuum-chamber having an opening therein, of a separable mold located within said chamber and having a pair of mold-sections; mold-filling means; mold-operating mechanism; an operating member working in said opening; an air-tight packing between the operating member and the walls of said opening; and a mold-cleaning brush controlled by said operating member and movable between the opened mold-sections.

42. In a casting-machine, the combination with a vacuum-chamber, of mechanism including a mold located therein; mold-filling means; a driving member; a valve controlled in its movements by said driving member; a meter having a piston operatively connected with a member of the mechanism within said vacuum-chamber; and means controlled by said valve for supplying the meter with a motive fluid.

43. In a casting-machine, the combination with a vacuum-chamber, of mechanism including a mold located therein; mold-filling means; a driving member located outside the vacuum-chamber; a piston-valve controlled in its movements by said driving member; a meter having a piston operatively connected with a member of the mechanism within said vacuum-chamber; and means controlled by said valve for supplying the meter with a motive fluid.

vacuum-chamber; and means controlled by said valve for supplying the motor with a motive fluid.

44. In a casting-machine, the combination with a vacuum-chamber, of mechanism including a mold located therein; a driving member located outside the vacuum-chamber; a piston-valve controlled in its movements by said driving member; a motor also located outside the vacuum-chamber and having a piston operatively connected with a member of the mechanism within the vacuum-chamber, said member working through an opening therein; means controlled by said valve for supplying the motor with a motive fluid; and an air-tight packing between said member and the wall of said opening.

45. In a casting-machine, the combination, with a vacuum-chamber having an opening therein, of a mold within said chamber; superposed mold-filling means having a discharge-nozzle; means for raising and lowering the mold; a driving member located outside the vacuum-chamber; a fluid-controlling piston-valve controlled in its movements by said driving member; a fluid-motor also located outside the vacuum-chamber and having a piston; fluid-supplying means connected and communicating with the motor and with the piston-valve; a piston-rod working in said opening in the chamber; an air-tight packing between the piston-rod and the walls of said opening; and a drip-receiver located wholly within said chamber and movable into position under said discharge-nozzle and controlled by said piston-rod.

46. In a casting-machine, the combination, with a vacuum-chamber having an opening therein, of a mold within said chamber; superposed mold-filling means having a discharge-nozzle; means for raising and lowering the mold; a driving member located outside the vacuum-chamber; a fluid-controlling piston-valve controlled in its movements by said driving member; a fluid-motor also located outside the vacuum-chamber and having a piston, and also having a piston-rod working in said opening in the chamber; fluid-supplying means connected and communicating with the motor and with the piston-valve; an air-tight packing between the piston-rod and the walls of said opening; and a drip-receiver located wholly within said chamber and movable into position under said discharge-nozzle and connected with said piston-rod.

47. In a casting-machine, the combination with a vacuum-chamber and a mold located therein, of mold scraping and cleaning mechanism; mold-filling means; driving means; a pair of differentially-operative valves controlled in their movements by the driving means; a pair of fluid-motors having pistons; fluid-supplying means connected and communicating with each motor and with the valve corresponding to each motor; and means connecting the said pistons with the mold scraping and cleaning mechanism for effecting the operation thereof.

48. In a casting-machine, the combination, with a mold embodying a pair of mold-sections, of mold-filling means; mold-separating means for shifting said mold-sections in different directions; and a pair of mold-scrapers mounted respectively on said mold-sections and movable relatively thereto across the cheeks thereof.

49. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and shiftable vacuum-maintaining casting-receiver means for sealing said opening.

50. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining means embodying a casting-receiver and a valve reciprocally effective for sealing said opening.

51. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining means embodying a casting-receiver and a valve movable in unison and reciprocally effective for sealing said opening.

52. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining means embodying a casting-receiver and a shiftable valve reciprocally effective for sealing said opening.

53. In a machine of the class specified, the combination with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining means embodying a shiftable casting-receiver and a valve reciprocally effective for sealing said opening.

54. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining means embodying a casting-receiver and a slide-valve secured thereto and effective reciprocally therewith for sealing said opening.

55. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and a plurality of shiftable vacuum-maintaining casting-receivers separately effective for sealing said opening.

56. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and a pair of shiftable vacuum-maintaining casting-receivers alternately effective for sealing said opening.

57. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and a plurality of shiftable vacuum-maintaining casting-receivers separately effective for sealing said opening.

58. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and a plurality of shiftable vacuum-maintaining casting-receivers movable in unison and separately effective for sealing said opening.

59. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; a pair of shiftable vacuum-maintaining casting-receivers alternately effective for sealing said opening; and means effective reciprocally with said casting-receivers respectively for also sealing said opening.

60. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said opening; mold-filling means; a pair of shiftable vacuum-maintaining casting-receivers alternately effective for sealing said opening; and a cut-off plate connecting said casting-receivers and effective reciprocally with said receivers respectively for also sealing said opening.

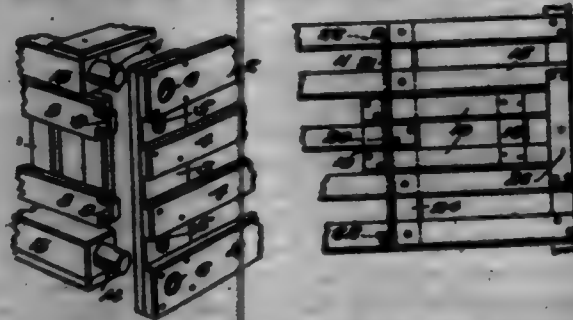
61. In a machine of the class specified, the combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; a pair of connected shiftable vacuum-maintaining casting-receivers separately effective for sealing said opening; and a rack-and-pinion movement for shifting said receivers.

62. In a casting-machine, the combination, with a support, of a molting-tank; an operated member mounted in the molting-tank and adapted to govern the flow of molten metal; an operating member disposed in parallelism with said operated member; and a pivoted connector detachably secured to said operating and operated members respectively and detachable therefrom by a movement in the plane of its oscillation.

63. In a casting-machine, the combination, with a support, of a molting-tank mounted thereon and vertically removable therefrom; a vertically-disposed valve mounted in the molting-tank; a valve-operating member disposed in parallelism with said valve; and a horizontally-disposed pivoted connector detachably secured to the valve and the valve-operating member respectively, and detachable therefrom by swinging it in the plane of its oscillation.

64. In a casting-machine, the combination, with a support, of a molting-tank mounted thereon and vertically removable therefrom; a vertically-disposed valve mounted in the molting-tank; a plunger also mounted in the molting-tank and parallel with said valve; valve-operating and plunger-operating members disposed in parallelism with said valve and plunger; and a pair of horizontally-disposed pivoted connectors detachably connected, the one to the valve and the valve-operating member respectively, and the other to the plunger and the plunger-operating member respectively, and detachable by swinging them in their respective planes of oscillation.

698,485. COLLAPSE CRATE. ERNEST D. BROWN, Delaware, Ohio, assignor of one-half to AUGUST F. MILLER, Delaware, Ohio. Filed Aug. 22, 1901. Serial No. 72,901. (No model.)



Claim.—1. In a device of the class specified, the combination of the top, bottom, side and end portions each formed of a separate section, and arranged in pairs, one pair of sections being provided with a plurality of openings, and the remaining sections having transverse adapted to said openings, the transverse of one pair being longer than those of the opposite pair of sections, the longer transverse being adapted to be entered in their respective openings in advance of the shorter transverse.

2. In a device of the class specified, the combination of the end sections having vertical and horizontal edge bars or strips, there being one set of openings in the vertical bars, and a second set of openings extending through both the vertical and horizontal bars, side sections having at

their ends short tenons adapted to the first set of openings, and top and bottom sections having longitudinal bars or strips provided at their opposite ends with elongated tenons adapted to the second set of openings.

2. In a device of the class specified, a trap or lid adapted to cover an opening in the top of the crate, said trap or lid having an endwise movement to effect its engagement with or disengagement from a slot or keeper in the crate, a spring connected centrally to said trap or lid, the opposite ends of said spring being adapted to guides carried by the crate, said spring acting as a fulcrum for the lid and also tending to retain the same in locked position.

698,486. MALLET. WALTER R. DUNN, Boston, Mass. Filed Dec. 19, 1891. Serial No. 88,482. (No model.)



Claim.—1. In combination, a mallet-head; a handle-shank formed with a flanged part substantially integral therewith and non-rotatable thereon, and secured to said mallet-head by means locking by rotation; said securing means locking by rotation; a locking-dovetail formed with an aperture adapted to receive said flanged part and to prevent said flange from turning therein; and interlocking means between said mallet-head and said locking-dovetail which prevent said locking-dovetail from rotating.

2. In combination, a mallet-head; a handle-shank provided with a flanged part polygonal in outline, substantially integral therewith and non-rotatable thereon, and secured to said mallet-head by means locking by rotation; said securing means which lock by rotation; a locking-dovetail formed with an aperture adapted to receive said flanged part; and a lag-and-socket connection between said mallet-head and said locking-dovetail, to prevent said locking-dovetail from rotating.

3. In combination, a mallet-head made up of separable parts; a securing device for holding the parts of said mallet-head together; a locking-dovetail which engages said securing device and prevents it from turning therein; interlocking means between said mallet-head and said locking-dovetail to prevent said locking-dovetail from rotating; a handle-shank engaged non-rotatably with said locking-dovetail, and secured to said mallet-head by means which lock by rotation; and said securing means which lock by rotation.

4. In combination, a mallet-head made up of separable parts; a nut for holding the parts of said mallet-head together; a nut-lock which engages said nut and prevents it from turning therein; a lag-and-socket connection between said mallet-head and said nut-lock to prevent said nut-lock from rotating; a handle-shank engaged non-rotatably with said nut-lock and secured to said mallet-head by means which lock by rotation; and said securing means which lock by rotation.

5. A mallet-head made up of small, between which is interposed a body portion of wood or other suitable material, said small and body portion being suitably connected to form a separable member; said body portion; a disk provided with a stem; an annular disk secured on said stem; said small and said disk being connected by a lag-and-socket connection.

6. In combination, a pair of small suitably secured together; a body portion of wood or other suitable material interposed between said small; a disk secured to one of said small by a lag-and-socket connection to prevent turning of said small; a handle; and means for connecting said disk to said handle.

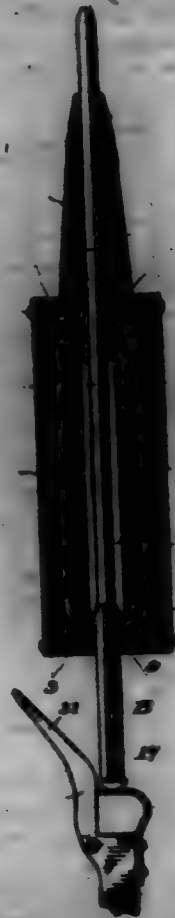
7. A mallet made up of the following instrumentalities, viz: a mallet-head; a handle-shank secured thereto by means which lock by rotation and engaged non-rotatably with a nut-lock; said securing means which lock by rotation; and said nut-lock engaged non-rotatably with said mallet-head.

8. A mallet made up of the following instrumentalities, viz: a mallet-head; a handle-shank yieldingly secured thereto by means which lock by rotation and engaged non-rotatably with a nut-lock; said securing means which lock by rotation; and said nut-lock engaged non-rotatably with said mallet-head.

698,487. MAGNETIC FEELER FOR LOOM. CHARLES P. NEUMAN, New York, N. Y., assignor of one-half to Coleman E. Seber, Louisville, Pa. Filed Aug. 9, 1891. Serial No. 71,501. (No model.)

Claim.—1. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a permanent magnet and a feeler consisting of a magnetizable rod movable in contact with said magnet and extending into the path of the filling-carrier.

2. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet and a feeler consisting of a magnetizable rod movable within the magnet and extending into the path of the filling-carrier.



3. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet having an elongated head projecting beyond the breast-beam of the loom, and a feeler consisting of a magnetizable rod movable within the magnet and extending into the path of the filling-carrier.

4. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet having an elongated tapering head projecting beyond the breast-beam of the loom, and a feeler consisting of a magnetizable rod movable within the magnet and extending into the path of the filling-carrier.

5. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet having an elongated head projecting beyond the breast-beam of the loom, and a feeler consisting of a magnetizable rod movable longitudinally within the magnet and extending into the path of the filling-carrier, the outer end of said head being in contact with and forming a guide for the feeler.

6. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet having an elongated head projecting beyond the breast-beam of the loom, said head having a longitudinal tapering bore, of a feeler consisting of a magnetizable rod movable longitudinally through the magnet and in contact therewith only at the outer end of said tapering bore.

7. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet, a feeler consisting of a magnetizable rod extending through and movable longitudinally within the magnet, said rod being in contact with the magnet at its forward end only, and a magnetizable spring arranged in the path of the rear end of said rod.

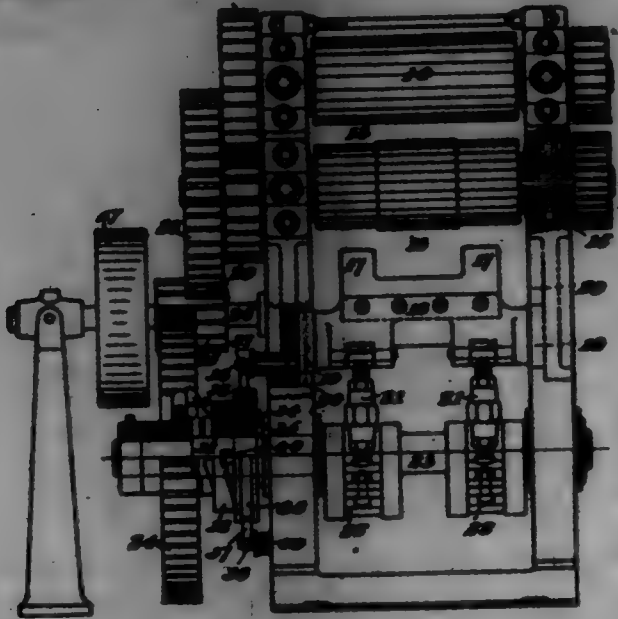
8. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet, a feeler consisting of a magnetizable rod extending through and movable longitudinally within the magnet, said rod being in contact with the magnet at its forward end only and having a head at its rear end and a magnetizable spring in the path of said latter head.

9. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a hollow permanent magnet comprising an annularly-arranged group of magnetized wires, a non-magnetic casing surrounding said wires, a magnetizable head in contact with the wires at one end of the casing, said head having an elongated tubular extension, a non-magnetic head at the opposite end of the casing and a feeler consisting of a magnetizable rod extending through said head.

10. In a loom, the combination with a shuttle having a magnetizable filling-carrier, of a magnetizable feeler, the forward end of which is arranged in the path of said carrier, a magnet arranged to magnetize said

feeler stronger at the forward end than at the rear end, and a magnetic spring arranged in the path of said rear end.

698,488. DOUBLING APPARATUS. CHARLES W. BRAY, Pittsburgh, Pa., assignor to American Tin Plate Company, Orange, N. J., a Corporation of New Jersey. Filed Jan. 2, 1900. Serial No. 98,571. (No model.)



Claim.—1. In doubling apparatus, a pair of grooved rollers, a pusher blade having projecting fingers rigidly secured thereto and arranged to enter the grooves, and mechanism for reciprocating the blade; substantially as described.

2. In doubling apparatus, a pair of grooved rolls, a pair of plain-faced rolls arranged in tandem therewith, a pusher blade having projecting fingers rigidly secured thereto and arranged to enter the recessed portions of the grooved roll, and mechanism for reciprocating the pusher blade; substantially as described.

698,489. SHIFTING MECHANISM FOR STEERING OR OTHER PURPOSES. GEORGE C. BAKER, When, N. Y. Filed Aug. 2, 1891. Serial No. 71,374. (No model.)



Claim.—1. A shifting mechanism of the class described, comprising a rotatable and longitudinally-movable interiorly-threaded sleeve, and a longitudinally-movable shift-rod exteriorly threaded to engage with the interior threads of the sleeve.

2. A shifting mechanism of the class described, comprising a suitable support having threaded bearings, an interiorly-threaded rotatable sleeve, interior threads engaging said threaded bearings, and a longitudinally-movable shift-rod having its threads engaging the interior threads of the sleeve and reversely related to the exterior threads of the latter.

3. A steering mechanism of the class described, comprising a support having threaded bearings, an exteriorly and interiorly threaded sleeve working in said bearings and formed in sections, a differential coupling connecting the sections of said sleeve, and an exteriorly-threaded shift-rod having its threads engaging the interior threads of the sleeve and reversely related to the exterior threads of the latter.

4. A shifting mechanism of the class described, comprising a support having threaded bearings, an exteriorly and interiorly threaded sleeve engaging said bearings and having separate sections provided with adjacent differently-threaded ends, and a coupling-sleeve engaging said differently-threaded ends and combining therewith to form a differential coupling, and a threaded shift-rod engaging the interior threads of the sleeve.

5. A shifting mechanism of the class described, comprising a support having threaded bearings, an exteriorly and interiorly threaded sleeve engaging said bearings, a shift-rod having a threaded portion engaging the interior threads of the sleeve, and an operating device including a rotatable gear having a feathered connection with said sleeve.

698,440. GUN-LOCK. DANIEL BROWN, Cranston, R. I. Filed Feb. 12, 1898. Serial No. 98,734. (No model.)



Claim.—1. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger centrally mounted in said main trigger at a point to the rear of the pivotal mounting of said main trigger and having a curved upper end, a spring adapted to bear downward on the main trigger, a spring provided with means adapted to bear upward against the upper curved end of said set trigger and so to tend to counteract the effect of the main-trigger spring, and means to secure said springs in position, substantially as specified.

2. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger centrally mounted in said main trigger at a point to the rear of the pivotal mounting of said main trigger and having a bent upper end, a spring having a central aperture and also a hole near one end, which spring is adapted to exert a downward pressure upon the main trigger, a spring having a longitudinal slot near one end and provided with means at its opposite end adapted to exert an upward pressure upon the upper bent end of the set trigger, means of securing all said springs in position, a screw passing through the slot of the set-trigger spring and through the said hole in the main-trigger spring into the case or frame of the gun-lock, and a set-screw passing through said case or frame, and loosely through said aperture of the main-trigger spring and bearing against the set-trigger spring, substantially as shown.

3. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger centrally mounted on the main trigger eccentrically thereto and provided with an upper bent end, a spring adapted to exert a downward pressure on the main trigger, a spring adapted to exert an upward pressure on the upper bent end of the set trigger, means for adjusting said set-trigger spring longitudinally, and means for securing all said springs in position, substantially as set forth.

4. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger centrally mounted on the main trigger eccentrically thereto and provided with an upper bent end, a spring adapted to exert a downward pressure on the main trigger, a spring adapted to exert an upward pressure on the upper bent end of the set trigger, means adapted to regulate the tension of said set-trigger spring, and means for securing all said springs in position substantially as described.

5. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with the hammer, a set trigger mounted in the main trigger eccentrically thereto, a spring adapted to exert a downward pressure upon the main trigger and a spring adapted to exert an upward pressure upon the set trigger, substantially as shown.

6. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger mounted upon the main trigger eccentrically thereto and two springs adapted to exert their pressure in directions opposite to each other, one of which springs is adapted to operate on the main trigger and the other of which springs is adapted to operate on the set trigger, substantially as specified.

7. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger mounted upon the main trigger eccentrically thereto, a spring adapted to operate said main trigger provided with a hole near one end and with a series of parallel transverse corrugations of said end, a spring adapted to operate said set trigger having one end curved or bent transversely so as to be engageable with either of the corrugations of the main-trigger spring and provided with a longitudinal slot near said end, and a screw passing through the slot of the set-trigger spring and through the hole in said main-trigger spring into the frame or case of the gun-lock, substantially as described.

8. In a gun-lock, the combination of a pivotally-mounted hammer, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer, a set trigger mounted upon the main trigger concentrically thereto, a spring adapted to operate said main trigger and provided with two holes and with a series of parallel transverse serrations at one end, a spring adapted to operate said set trigger having a longitudinal slot near one end and said end curved or bent transversely so as to be engageable with either of said serrations of the main-trigger spring, a screw passing through the slot of said set-trigger spring and through one of the holes in the main-trigger spring into the case or frame of the gun-lock, and a set-screw passing through said case or frame and loosely through the other hole in the main-trigger spring and bearing against the under side of the set-trigger spring, substantially as specified.

9. In a gun-lock, the combination of a pivotally-mounted hammer having a firing-notch and a safety-notch, a hammer-spring, a pivotally-mounted main trigger engageable with said hammer in either notch thereof, a set trigger centrally mounted on the main trigger concentrically thereto and provided with an upper bent and constituting an enlarged head adapted to counterbalance the opposite end of said set trigger, a spring adapted to exert a downward pressure on the main trigger, a spring adapted to exert an upward pressure on the upper end of the set trigger, and means for securing all said springs in position, substantially as described.

698,441. GRINDING-MILL. JAMES BROWN, Lorain, Ohio. Filed Feb. 5, 1901. Serial No. 61,047. (No model.)



Claim.—1. A grinding-mill, comprising a casing, grinding-heads arranged in said casing, a shaft on which one of the grinding-heads is rigidly mounted, a shaft having a ball at one end engaging a socket in the other head, a clutch-section secured to the said head and having a portion of the socket for the ball formed therein, a clutch-section secured to the shaft, the said clutch-sections having short intermeshing teeth arranged to permit of one clutch-section having a slight rocking motion with reference to the other clutch-section, and a coiled spring surrounding the clutch-sections and bearing at its ends upon said clutch-sections, substantially as specified.

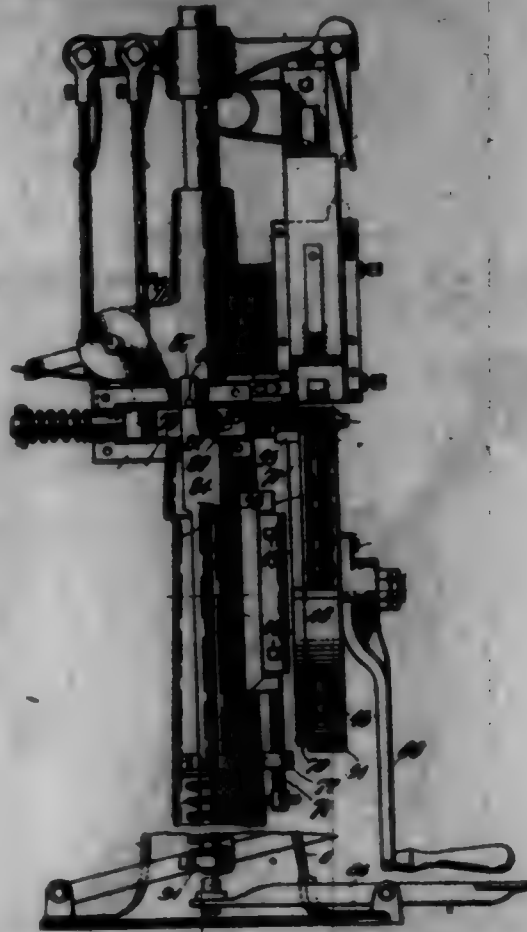
2. A grinding-mill comprising a casing, two grinding-heads arranged in said casing, a shaft with which one of said heads has a universal connection so that it may swing relatively to its shaft, a clutch member attached to the swinging head, a clutch member attached to the shaft and provided with a flange, the said clutch members having intermeshing teeth arranged to permit of one clutch member swinging on the other, and a spring encircling the clutch members and bearing at one end against the clutch member attached to the head and at the other end against the flange of the other clutch member, substantially as specified.

3. In a grinding-mill, a grinding-head, a clutch member secured to the head, a shaft having a ball at one end engaging a socket in the head and in the said clutch member, a clutch member secured to the shaft and meshing with the clutch member on the head, and a spring encircling the clutch members and bearing at its ends thereon, substantially as specified.

698,442. HOOP-FORMING MACHINE. NORMAN E. BROWN, St. Joseph, Mo. Filed Dec. 12, 1900. Serial No. 60,201. (No model.)

Claim.—1. In a hand-operated hoop-forming machine, a rotatable work-support having a hoop-supporting rim, a clamp forming part of the rim and pivotally mounted on said support near the periphery thereof, said clamp having an inwardly-extending arm provided with a stud, an operating-handle having a bifurcated extension for engaging with said stud, whereby on the initial movement of the handle in one direction the clamp will be caused to engage with the end portion of the hoop and then the same against the work-support, and the continued movement of the handle in the same direction will be imparted through the clamping member and the hoop to effect the rotation of said work-support.

2. In a hoop-forming machine, the combination of a rotatable work-support having a peripherally-corrugated portion, a roller having a movement in a plane at right angles to the plane of rotation of the support, a clamp for retaining the joint of a hoop on said support over said corrugated portion and a reinforce applied under said corrugated portion.



3. In a hoop-forming machine, the combination of a rotatable work-support, a horizontally-disposed slidable bar provided with a retracting-spring and also having a vertical movement, the said bar carrying a roller at its front extremity which extends over the support, and means for operating said bar to elevate it and impel it forwardly over the support.

4. In a hoop-forming machine, the combination of a rotatable work-support, and a vertically-movable pressure-roller over the work-support and slidable in a horizontal plane.

5. In a hoop-forming and stapling machine, the combination of a rotatable work-holder having a rear groove and a shoe normally located in said groove and slidable over a portion of the support for detaching the completed hoop.

6. In a hoop-forming and stapling machine, the combination of a work-support, a horizontally-slidable and vertically-movable device carrying a shoe for detaching the work from the support, and means for operating said device.

7. In a hoop-forming and stapling machine, the combination of a work-support capable of being rotated, a vertically-movable longitudinally-slidable device carrying a pressure-roller and a detaching-shoe at its front extremity for respectively holding down the work and detaching the same when completed, and means for operating said device.

8. In a hoop-forming and stapling machine, the combination of a work-support, a vertically-movable and longitudinally-slidable bar carrying a pressure-roller and a shoe adjacent thereto and having a longitudinal slot therein with a roller extending transversely of the same, and a vertically-screwable operating-rod having an upper end-head with a forwardly and downwardly inclined shoulder engaging said roller.

9. In a hoop-forming machine, the combination of a rotatable work-support having rear grooves, and an upwardly-projecting guard at the rear portion of the support having a front flat face and normally held in immovable position in relation to the support, the said guard having an integral cheek at one end in a plane at right angles thereto and which is adjustable in a part of the machine back of the support, the lower portion of the guard extending into rear grooves of the support.

698,443. NAIL-FASTENER. JOHN H. BROWN, St. Paul, Minn. Filed July 26, 1901. Serial No. 60,700. (No model.)

Claim.—A nail-fastener comprising a frame having hair-pins for securing it on the head, extensible bars slidingly inserted in the frame and provided at their ends with pronged heads adapted to take hold of the inner sides of the hat, and a vertically-slidable rock-shaft journaled in the

frame and having one arm projecting from under the hat, and another arm engaging one of the hat-holding bars, and catches in the frame for said arm to engage, substantially as and for the purpose set forth.



698,444. AUGER. JOHN J. DUNN, San Antonio, Tex. Filed Oct. 26, 1900. Serial No. 34,226. (No model.)



Claim.—1. An auger comprising a frame, a sleeve rotatably mounted in the frame, a hollow cross-sectionally-angular chisel carried by the frame and concentric with the sleeve, said sleeve and chisel receiving an auger-bit to project beyond the chisel, a follower engaged with the sleeve and adapted for engagement with an auger-bit therein, a spindle carried by the follower, means for rotating the follower to operate the auger-bit, and means for feeding the bit through the chisel, substantially as described.

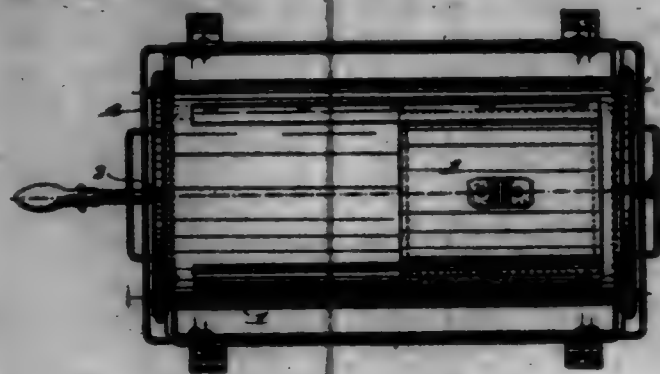
2. A device of the class described, comprising a hollow chisel, a sleeve rotatably connected with the chisel, a bit disposed in the chisel and sleeve and adapted to project through the chisel, a follower in the sleeve for engaging the bit, means for rotating the follower to rotate the bit, and means for adjusting the follower in the sleeve to vary the projection of the bit from the chisel.

3. A device of the class described comprising a frame, a hollow body carried by the frame, a hollow chisel, a sleeve rotatably connected with the frame and chisel, a follower adjustable in the sleeve and adapted to engage a bit disposed within the sleeve and chisel, a spindle carried by the follower, a cross-head in threaded engagement with the spindle, rigid connections between the cross-head and frame, said spindle being adapted for adjustment through the cross-head, to compensate for the adjustment of the follower in the sleeve, and means for rotating the follower to correspondingly move the bit.

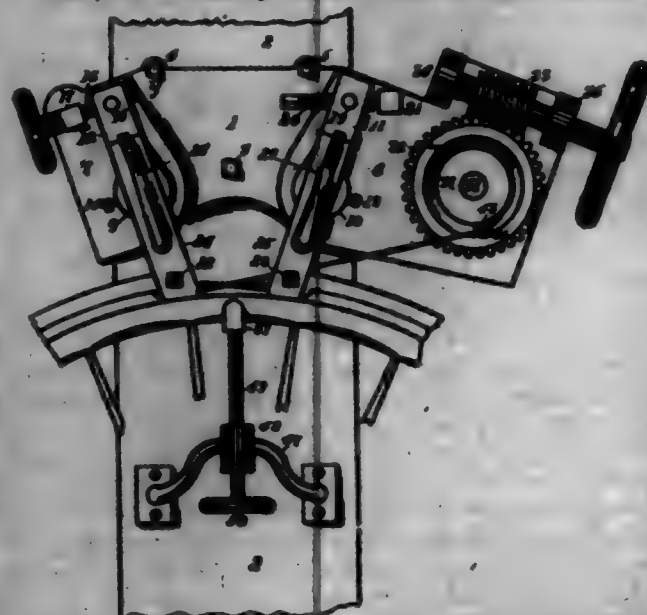
4. An auger comprising a frame carrying a hollow chisel, a sleeve rotatably connected with the chisel and frame, a follower in the sleeve and adapted for engagement with an auger-bit therein, a spindle carried by the follower, a cross-head in threaded engagement with the spindle, latches carried by the cross-head, rigid connections pivoted to the frame and adapted for engagement with the latches to hold the cross-head spaced from the frame, said spindle being adapted for adjustment through the cross-head to compensate for the adjustment of the follower in the sleeve to vary the projection of the bit, and means for rotating the follower to correspondingly move the sleeve and bit, substantially as described.

698,445. APPARATUS FOR TURNING OFF COFFEE. VALENTIN G. BERN, CHICAGO, ILL., and GEORGE BART, BOSTON, MASS. Filed Apr. 26, 1902. Serial No. 27,000. (No model.)

Claim.—In a device of the character described, a casing, the upper portions of the ends of said casing having semicircular openings formed therein, the top of said casing being partly open, bars extending the upper end of said casing and secured to the outer face thereof, the ends of said bars projecting beyond the ends of the casing and having segmental recesses formed in the upper ends thereof, a drum located partly in said semicircular openings and the opening in the top, and plates on said drum extending beyond said casing, said plates having a series of segmental apertures formed therein between the inner and outer circumferences of the end plates, said plates secured in said apertures, studs on the said end plates engaging in the said recesses in the bars, one of said studs formed into a crank, guides on the periphery of said drum, and a door operating in said guides, substantially as described.



698,446. RUBBER-TIRE-CUTTING MACHINE. JAMES A. BROWN, Akron, Ohio, assignor to The Goodyear Tire and Rubber Company, Akron, Ohio. Filed July 31, 1901. Serial No. 79,088. (No model.)



Claim.—1. In a rubber-tire-cutting machine having gripping devices for holding the tire for turning and a winding-drum to draw said wire, and means for turning said drum, of a regulating device to equalize the tension of said wire located between said drum and gripping device consisting of a pivoted lever having its opposite arms arranged to maintain the wire, substantially as shown and described.

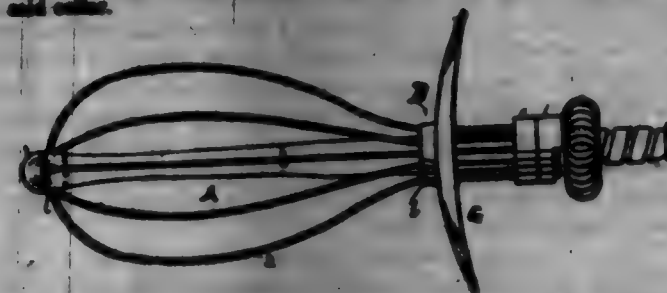
2. An improved rubber-tire-cutting machine consisting of a metallic plate having opposite end brackets with their faces in the same plane and parallel with the face of said plate, with wire-gripping devices pivotally mounted in said brackets, means for rocking said devices on their pivots, a winding-drum provided with clutch mechanism to grasp said wire and a pivoted lever interposed between said drum and gripping devices having opposite arms to support said wire, and a worm-wheel and worm to turn said drum, substantially as shown and described.

698,447. STRIKER. JONAS I. BELL, Kansas City, Mo. Filed June 1, 1901. Serial No. 30,579. (No model.)

Claim.—1. A syringe-stem having a longitudinal groove at its inner end, a series of outwardly-extensible springs connected at their outer ends with the forward end thereof, a slidable collar on said stem with which the inner ends of said springs are connected and a separate non-rotatable slidable collar hinged to said stem and rigidly connected with the collar supporting said springs and a slidable spring clamping device upon said stem, substantially as described.

2. A syringe-stem and a series of outwardly-extensible springs pivotally connected at their forward ends with the forward end of said stem,

a perforate spring clamping-collar through which the springs extend, and a separate non-rotatable slidable collar, and steps on the inner ends of said springs, and means for retaining said steps in the perforations of said collar.



3. A syringe-stem having a longitudinally-grooved inner end and a series of outwardly-extensible springs pivotally connected at their outer ends with the forward end of said stem, a perforate spring clamping-collar on said stem through which the springs extend, separate non-rotatable, slidable collar on said stem, with which the inner ends of said springs are connected and a key upon one of said collars extending within the groove of said stem.

4. A syringe-stem having an externally-curve-threaded inner end, and a longitudinal groove in said end, a series of outwardly-extensible springs pivotally connected at their outer ends with the forward end of said stem, a perforate spring clamping collar on said stem through which said springs extend, a separate slidable collar with which the inner ends of said springs are connected, and a key preventing the rotation of said collar, extending within said longitudinal groove, a nut on the threaded end of said stem and a screw-joint connecting said nut and collar.

5. A syringe-stem having an externally-curve-threaded inner end and a longitudinal groove in said end, a series of outwardly-extensible springs pivotally connected at their outer ends with the forward end of said stem and steps upon their inner ends, a perforate spring clamping, slidable collar on said stem, through which said springs extend, separate, slidable spring holding and binding collars upon said stem in rear of said clamping-collar, one of which is perforated to receive the inner ends of said springs, and provided with depressions in its rear end to receive the steps on said springs, and a key upon the other collar extending within said longitudinal groove, a screw-joint connecting the said spring holding and binding collars and a nut upon the curve-threaded end of said stem and a screw-joint connecting said nut with the binding-collar.

6. In a syringe, a syringe-manipulator having discharge openings, a series of outwardly-extensible springs connected at their outer ends with the forward end of said nozzle, a collar with which the inner ends of said springs are connected having an helical outer surface and a shoulder, and a concave, perforate plate on said collar.

698,448. MACHINE FOR MANUFACTURING EXPANDED SHEET METAL. WILLIAM L. CALDWELL, New York, N. Y., assignor of one-half to GEORGE BULLOCK, Chicago, Ill. Filed Sept. 21, 1900. Renewed Oct. 2, 1901. Serial No. 78,011. (No model.)

Claim.—1. In a machine for the manufacture of expanded sheet metal, the combination of means for cutting or shearing dies in a sheet, independent means for stretching or expanding the sheet, and independent means for cutting or firing the machine of the expanded sheet, substantially as set forth.

2. In a machine for producing expanded sheet metal, the combination of a suitable shearing device adapted to cut the metal sheet, with a suitable expanding device moving with the sheet and acting to stretch or expand the sheet by power applied to the edges only of the sheet, and means for feeding the sheet from the shearing device to the metal-expanding device, substantially as specified.

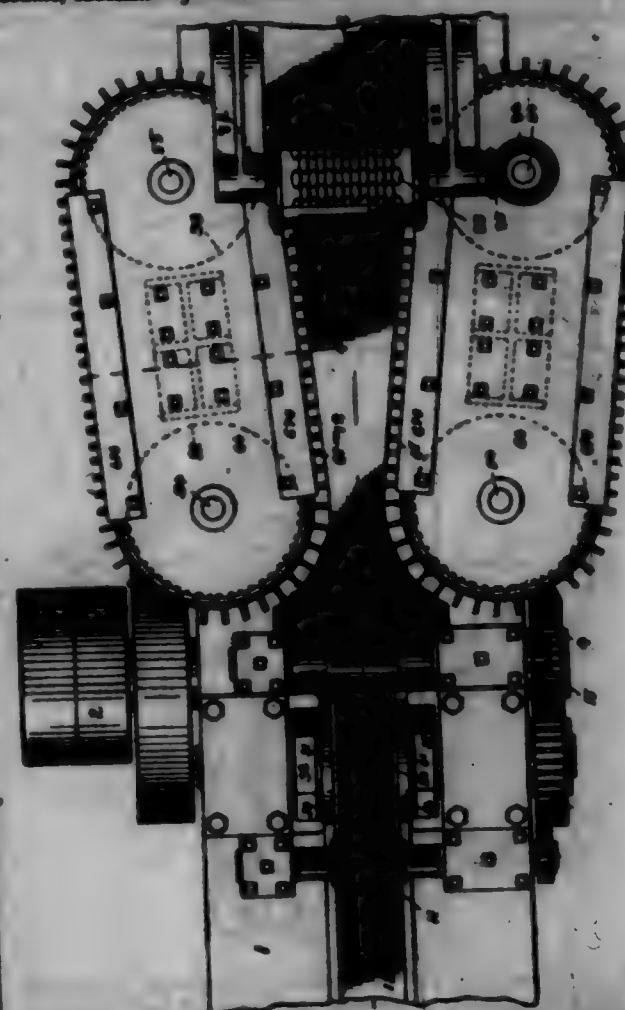
3. In a machine for producing expanded sheet metal, the combination of a suitable shearing device adapted to form transversely-staggered strips of longitudinal dies in a sheet of metal, with a suitable expanding device moving with the sheet as it comes from the shearing device and adapted to engage the edges only of the sheet and to stretch or expand the sheet laterally, substantially as and for the purpose set forth.

4. In a machine for producing expanded sheet metal, the combination of suitable means for forming transversely-staggered series of longitudinal dies in a sheet of metal, with suitable expanding means adapted to engage the edges only of the sheet and to gradually expand it laterally throughout its width as the sheet passes through the expanding means, substantially as set forth.

5. In a machine of the character described, the combination of means for feeding a sheet of metal, with means for engaging the sheet at its edges acting to automatically force them apart and then expand the sheet as it is fed along, substantially as set forth.

6. The combination of suitable means for feeding a sheet of

metal, with automatic means adapted to engage the sheet at its edges only and to gradually expand the sheet laterally as it is fed through the machine, substantially as set forth.



7. The combination of suitable means for feeding a sheet of metal, with means located at the side of the path of the sheet and engaging the edges of the sheet and forcing said edges of the sheet in divergent paths as the sheet is fed along, whereby the sheet will be expanded laterally, as set forth.

8. The combination of suitable means for feeding a sheet of metal in the direction of its length, and means located at the side of and automatically engaging the edges of the sheet and forcing them gradually apart at right angles to the direction of feed, as set forth.

9. In a machine for expanding metal, the combination with means for feeding the sheet longitudinally, of expanding devices located at the sides of the sheet and having lateral movements in directions diverging from the direction in which the sheet is fed, substantially as specified.

10. In a machine for expanding metal, device for expanding sheet metal, with means located at the side of the path of the sheet and moving with the sheet while expanding them, and means for feeding the sheet to such expanding device, substantially as specified.

11. In a machine for expanding metal, device for expanding sheet metal consisting of diverging traveling chains provided with means for taking hold of the edges of the sheet, substantially as specified.

12. The combination with rolls for sliding the sheet, with means independent of the sliding-rolls, for expanding the sheet while it is moving from the rolls, said expanding means being located at the side of the sheet, and moving with it in its said movement, substantially as specified.

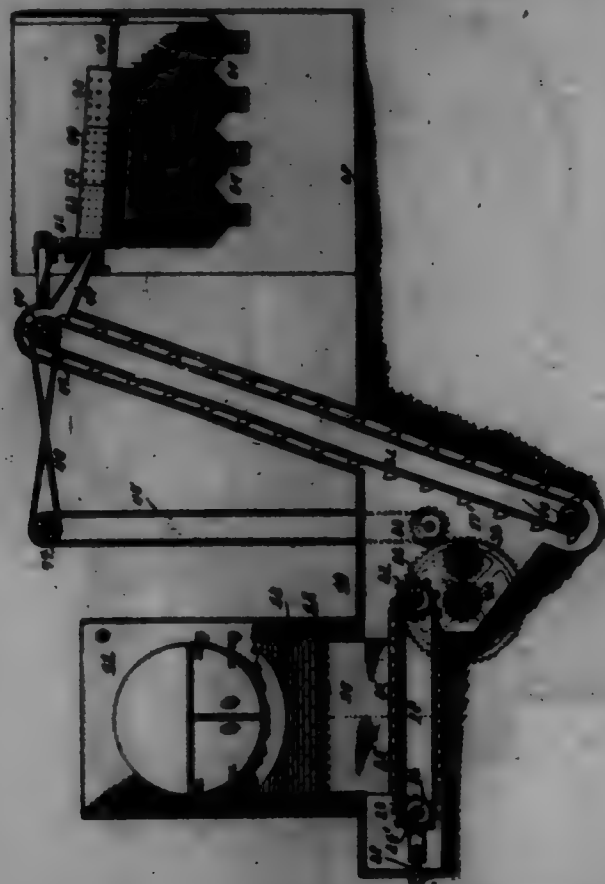
13. The combination with rolls for sliding the sheet, with means independent of the sliding-rolls for expanding the sheet, said expanding means receiving the sheet from the sliding-rolls and acting on it as it moves, and being located at the side of the sheet, substantially as specified.

14. The combination with the setting-rolls having male and female dies for shaping the openings in the sheet uniformly, of means for feeding the expanded sheet to said rolls with the openings in proper register with the dies, substantially as specified.

698,449. AIR-REMOVER FOR ROLLER-FURNACE. DANIEL CAMPBELL, Portville, Canada. Filed Sep. 21, 1900. Serial No. 30,580. (No model.)

Claim.—1. In a roller-furnace, the combination of an air-pit having the converging walls below the grate, an endless conveyor arranged within the air-pit below the plane of the converging walls thereof, means for supporting and driving said conveyor to propel it in a horizontal path,

on sub-plate supported between the upper and lower ends of the conveyor and close to the upper end thereof, and scraper-bars attached to the conveyor and arranged to sweep close to the sub-plate substantially as and for the purposes described.



2. In a boiler-furnace, the combination of an ash-pit having converging walls which are arranged transversely to the line of the boiler-grate, a metallic sub-plate supported below the converging walls of the ash-pit and having the upstanding flanges, an endless conveyor arranged for its upper end to travel over and close to the sub-plate, and also attached to the conveyor and arranged to sweep close to the sub-plate, substantially as described.

3. In a boiler-furnace, the combination of an ash-pit having converging walls which are arranged transversely to the line of the boiler-grate, a metallic sub-plate supported below the converging walls of the ash-pit and consisting of the flanged sections having detachable interlocking engagement one with the other, and an endless conveyor arranged below said sub-plate and having said sub-plate adapted to sweep close to said sub-plate, substantially as and for the purposes described.

4. A boiler-furnace comprising an ash-pit having the downwardly-converging walls and a conveyor-pit at the intersection of said walls, a horizontally-disposed conveyor mechanism operatively arranged within said conveyor-pit, a grate immediately above the conveyor mechanism, and a dead-plate disposed in the plane of the furnace-grate and hinged to drop downward to an inclined position toward one of the walls of the ash-pit and the conveyor mechanism, the space between said dead-plate and the conveyor-pit being unobstructed and permitting the free passage of cinders and ashes which may be raked from the grate directly to the conveyor mechanism, substantially as and for the purposes described.

5. A boiler-furnace comprising an ash-pit having the downwardly-converging walls meeting in a subjacent conveyor-pit, a cinder-crushing mechanism situated externally to the furnace, a horizontally-traveling ash-conveyor mechanism operatively arranged in the conveyor-pit and having its discharge end terminating at said cinder-crushing mechanism, a grate over the conveyor mechanism, and a cinder collector plate disposed in the same plane as the grate and arranged to drop down below the grate and to be inclined toward one of the walls of the ash-pit and the conveyor mechanism therein, whereby the cinders and ashes will be delivered by the collector-plate to the conveyor and by the latter to the crushing mechanism, substantially as described.

6. A boiler-furnace comprising an ash-pit having the downwardly-converging walls meeting in a subjacent conveyor-pit, a sub-chamber situated at a point outside of the limits of the furnace, a cinder-crushing mechanism in said sub-chamber, a horizontally-movable ash-conveyor within said conveyor-pit and arranged to travel across the furnace and to deliver to the cinder-crushing mechanism, a grate over the conveyor mechanism, a cinder-collector plate mounted in the plane of the boiler-grate and adapted to drop below the grate to assume a lowered position

inclined toward the ash-conveyor, and an elevator mechanism taking its lead from the sub-chamber of said ash-pit, substantially as described.

7. A boiler-furnace comprising an ash-pit having the downwardly-converging walls meeting in a subjacent conveyor-pit, a sub-chamber outside of the furnace, a set of intermeshed cinder-crushing rolls situated within said sub-chamber, means for driving one of the rolls of said set of crushing-rolls, a conveyor-driving shaft geared to one of the rolls of the set, and a horizontally-movable ash-conveyor disposed within the conveyor-pit and engaging with the conveyor-driving shaft, said conveyor being movable in a path transversely across the furnace and said set of rolls and the conveyor being driven in series from a common source of power, substantially as described.

8. A boiler-furnace comprising an ash-pit having the downwardly-converging walls meeting in a subjacent conveyor-pit, an endless conveyor having the parallel chains and the cross-flights arranged to move in a horizontal path through the conveyor-pit and transversely across the furnace, a conveyor-driving shaft engaging with said chains, the individually-supported idler-sprockets engaging with the other end of the conveyor-chains, a sub-chamber disposed outside of the furnace, the yokes and screws for adjusting said idler-sprockets and the chains of the endless conveyor individually, a set of cinder-crushing rollers disposed in the sub-chamber and below the drive-shaft of said endless conveyor which has its delivery end overhanging said crushing mechanism, and gear connections between the conveyor drive-shaft and one roller of the crushing mechanism, substantially as described.

9. A boiler-furnace comprising a grate, an ash-conveyor disposed below the grate, a dead-plate hinged in the horizontal plane of the grate and adjustable to a sloping position below the grate and inclined toward the ash-conveyor, a latch mounted on the dead-plate and arranged to engage with the grate to normally retain said dead-plate in the same plane as the grate, and means for operating the latch mechanism, substantially as described.

10. A boiler-furnace comprising a grate, an ash-conveyor disposed below the grate, a hinged dead-plate adjustable to a sloping position below the grate and inclined toward the ash-conveyor, a latch pivoted to the under side of said dead-plate and arranged to engage the grate and to support the dead-plate in the plane thereof, and a handle or lever connected detachably with said latch, as and for the purposes described.

11. A boiler-furnace comprising a grate, an ash-conveyor disposed beneath the grate, a hinged dead-plate adjustable to a sloping position below the grate and inclined toward the ash-conveyor, a latch pivoted to the under side of the dead-plate, a handle attached to the dead-plate and loosely engaging the latch, and a handle or lever connected detachably to the latch, substantially as described.

12. In a boiler-furnace, the combination with a grate, and a boiler-front having an opening or doorway in the horizontal plane of said grate, a dead-plate hinged to the boiler-front in the horizontal plane of the grate and of said opening, a door hinged in a position to close said opening, a latch on said plate, a handle-bar adapted to be thrust through the opening and adjusted to engage with the latch, and an ash-conveyor below the grate, substantially as described.

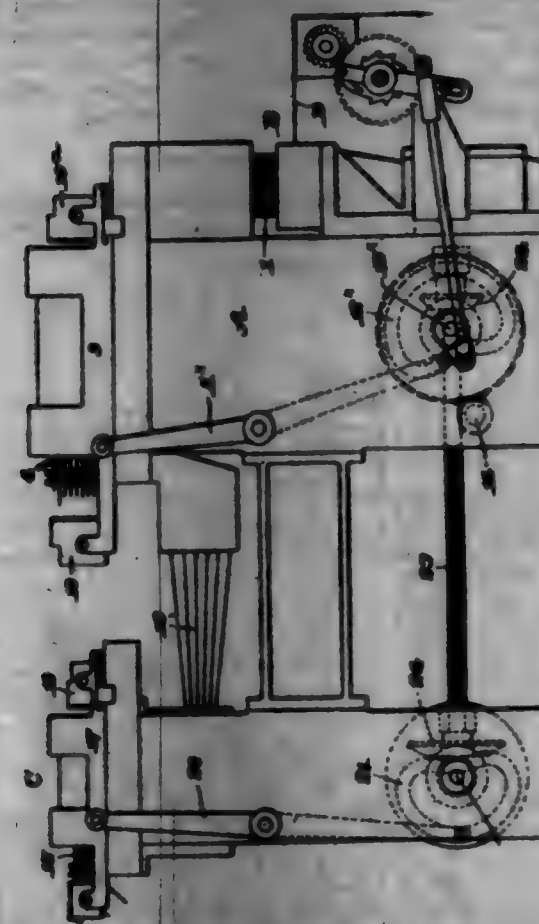
13. In a boiler-furnace, the combination of an ash-pit provided with the downwardly-converging walls, a conveyor arranged to join the converging walls of said ash-pit, a boiler-grate, a horizontal return tube or conduit adjacent to said conveyor-pit and substantially in the same plane therewith, an endless conveyor having its active and return leads disposed in a horizontal plane below the ash-pit and arranged to travel in the conveyor-pit and the return-conduit respectively, and blades carried by the conveyor and active in the conveyor-pit only, substantially as described.

14. In a boiler-furnace, the combination of an ash-pit provided with the downwardly-converging walls, a conveyor-pit which joins said converging walls of the ash-pit below the boiler-grate, a horizontal return-conduit adjacent to said conveyor-pit, an endless conveyor having its active and return leads operatively disposed in the conveyor-pit and the conduit respectively and each lead arranged to pursue a horizontal path, gear elements mounted to turn on vertical axes and containing the conveyor, and scraper on said conveyor, substantially as described.

15. In a boiler-furnace, the combination of an ash-pit provided with the downwardly-converging walls, a conveyor-pit joining the converging walls of said ash-pit below the boiler-grate, a return-conduit adjacent to said conveyor-pit, an endless conveyor having the active and return leads thereof movable in a horizontal path through the conveyor-pit and the conduit respectively, and flights which conform to the conveyor-pit and carried by the conveyor to sweep close to the surface of the grate, substantially as described.

698,450. MECHANISM FOR PRODUCING PATTERNS-GRATE. THOMAS GATTEY, Philadelphia, Pa. Filed Sept. 22, 1901. Serial No. 75,305. (No model.)

Claim.—1. In a machine for producing pattern-grate, the combination with punching mechanism, including punches, and devices whereby the punches are operated in pairs, one punch of a pair being rendered active while the other punch is rendered idle, and vice versa, of punch-actuating mechanism, and connections between the same and said devices.



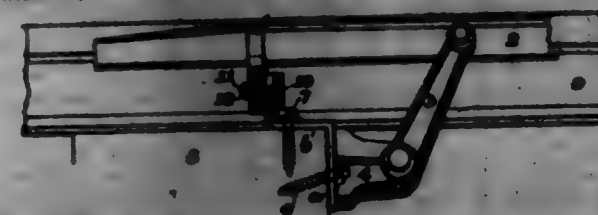
2. In a machine for producing pattern-grate, the combination with punching mechanism, including punches, boys therefor arranged in sets, and means for coupling the boys of the respective sets, of punch-actuating mechanism, and connections between the same and a set of boys.

3. In a machine for producing pattern-grate, the combination with punching mechanism, including punches, boys therefor, operating-rods for said boys, and means for coupling said rods in pairs whereby when one rod of a pair is retracted the other is projected, of punch-actuating mechanism, and connections between the same and one of each pair of said rods.

4. In a machine for producing pattern-grate, the combination with punching mechanism, including punches, boys therefor, operating-rods for said boys, and a flexible coupling for each pair of rods whereby when one rod of a pair is retracted the other is projected, of punch-actuating mechanism, and flexible connections between the same and one of each pair of said rods.

5. In a machine for producing pattern-grate, the combination with punching mechanism, including punches, boys therefor, operating-rods for said boys, said rods being coupled in pairs as described, needles connected with said rods, a reciprocating carriage and means thereon for cutting said needles in normal position, of punch-actuating mechanism including rods, flexible connections between the same and one of each pair of rods first named, needles, connections between the same and the rods of the selecting mechanism, a reciprocating carriage, and an over-head and a cylinder on said carriage adapted to coast with the latter needles.

698,451. IMPROVED BAR CLIP AND NEW. JAMES CHALMERS, Jr., Baltimore, Pa., assignor to The Patent Office and Signal Company, Baltimore, Pa. Filed Oct. 12, 1901. Serial No. 75,175. (No model.)



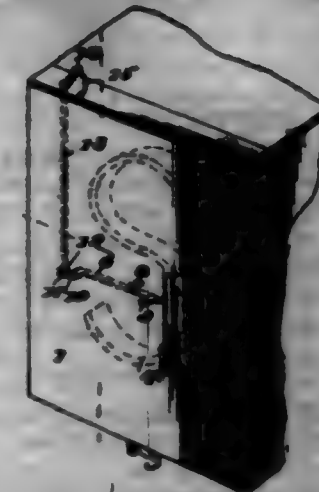
Claim.—1. A clip for supporting detector-bars, having a body formed of two leaves at an angle to each other, having a supporting-bracket extending from the lower leaf, to which bracket the supporting-arm of the detector-bar is to be pivoted, and having apertures or recesses in both or covers by which the clip is to be secured to the railroad-tie.

2. A clip for supporting detector-bars, consisting of leaves formed at an angle to each other for attachment to the tie, and having a bracket for the radial supporting-arm, extending from one leaf, and a detector-bar stop extending from the other leaf.

3. A clip for supporting detector-bars, consisting of leaves formed at an angle to each other for attachment to the tie, a bracket extending from one leaf, a fixed detector-bar stop extending from the other leaf, and a second stop adjustably secured to the fixed stop.

4. A clip for supporting detector-bars, consisting of two leaves formed at an angle to each other for attachment to the tie, a bracket extending from one leaf and a fixed stop from the other, and a second stop adjustably secured to the fixed stop, and serrations or teeth formed on the meeting faces of the fixed and adjustable stops.

698,452. HOLLOW OR DOUBLE WALLED STRUCTURE. ABOLIO DE CLAMNET, Tupaia, Kama, assignor of one-fourth to T. B. Humphreys, Tupaia, Kama. Filed Aug. 20, 1901. Serial No. 75,116. (No model.)



Claim.—1. A hollow wall having S-shaped grooves or cuts in the lower faces of its sides, and a brace of corresponding S shape having its edge portions fitted in the grooves or cuts of the said sides of the wall, substantially as set forth.

2. In combination with a hollow wall adapted to have the air exhausted from its space, indicating mechanism for determining the degree of exhaustion of the air induced within the space of the said wall and controlled by the lateral movement of the sides of the said wall, substantially as set forth.

3. In combination with a hollow wall adapted to have the air exhausted from the space thereof, studs spaced apart and extended inward from the sides of the said wall, a lever pivotedly connected to the inner ends of said studs, and an indicating mechanism actuated by the said lever to determine the degree of exhaustion of the air in the space of the said wall, substantially as described.

4. In combination with a hollow wall adapted to have the air exhausted from the space thereof, studs extended inwardly from the sides of the said wall, a lever pivotedly connected to the inner ends of said studs, and having a toothed segment at its outer end, a shaft provided with a pinion in mesh with the said toothed segment, a pointer applied to said shaft, and a dial for co-operation with the pointer, substantially as set forth.

698,453. REFRIGERATOR. ABOLIO DE CLAMNET, Tupaia, Kama, assignor of one-fourth to T. B. Humphreys, Tupaia, Kama. Filed Aug. 20, 1901. Serial No. 75,111. (No model.)

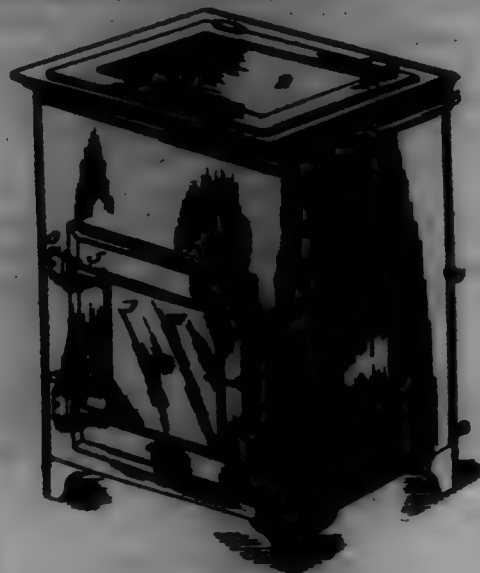
Claim.—1. In a structure having hollow walls from which the air is adapted to be exhausted, a valve-controlled communication between said walls for isolating the same after the vacuum has been created, substantially as and for the purposes set forth.

2. A refrigerator or like structure having hollow walls from which air is adapted to be exhausted by application of a pump to a side or wall of the structure, and valve-controlled communication between the space of the several walls to admit of each being isolated after exhaustion of the air, substantially as set forth.

3. In a structure having a hollow wall and a hollow door, a hinge connection between the door and wall, and hinge members having passages in communication with, respectively, the wall and the door, said passages being normally out of register to interrupt communication between the hollow spaces of the wall and door and adapted to be brought into coincident relation by throwing the door open to the limit of its movement, substantially as set forth.

4. A hollow glass panel or window-light having the air exhausted

therefrom and having a transparent brace attached at its ends to opposite walls of said hollow glass panel, substantially as set forth.



698,454. FILLER COMPOUND FOR TIRES. ABOLFO DE CLAIR-BOU, Tepala, Kans., assignor of one-half to Albrecht Harburg, Tepala, Kans. Filed Nov. 7, 1901. Serial No. 31,490. (No specimens.)

Claim.—1. A composition of matter for filling tires consisting of glue, molasses, water and granulated cork in about the proportions specified.
2. A composition of matter for filling tires consisting of glue, molasses, water, resin and granulated cork in about the proportions specified.

698,455. HEATING GAS-BURNER. HOWARD S. CLARK, Boston, Mass. Filed Mar. 21, 1901. Serial No. 34,169. (No model.)



Claim.—1. The combination with a closed burner-chamber having in its top a series of perforations and in its bottom correspondingly-located smaller perforations, of upwardly-removable open tube-sections each having its lower end seated in the bottom in registry internally with one of the perforations therein and with its upper end portion centrally located in the corresponding larger perforation in the top; whereby the upper perforations become annular passages in the zone of which air from below the chamber is delivered by tubes readily removed and inserted through said upper perforations.

2. The combination with a closed burner-chamber having in its top a series of perforations and in its bottom correspondingly-located smaller perforations each surrounded by an annular projection or boss forming a tube-cocket, of upwardly-removable open tube-sections each seated in one of said cockets and having its upper end portion held central in the corresponding larger perforation above and terminating below the upper end of said perforation.

3. In a burner of the class described, the combination with a cup-like lower member divided into non-communicating compartments each having in its bottom perforations surrounded, respectively, by annular projections forming tube cockets or seats, of an upper member closing all the compartments and provided with perforations larger than those below but registering with them and surrounded by analogous bosses, tube-cockets externally of less diameter than the perforations in the top, removably seated in said cockets, respectively, with their upper end portions lying centrally in the perforations of the top, through which they may be readily removed and replaced, mixing-tubes projecting into said compartments, respectively, a vaporizing-tube passing over the perforations in the top of one compartment, injecting-nozzles supplied from said vaporizing-tube and discharging into the outer ends of the mixing-tubes, respectively, means for controlling the supply of the compartment below the vaporizing-tube, and independent means for controlling the supply to the remainder of the burner.

4. The combination with the boiler shell or aliving, of an upper

burner member downwardly closing the shell and provided with a series of perforations each surrounded by an integrally-formed tubular projection or boss, a cup-like lower member separably connected with the upper member, to form therewith a closed chamber, and provided with perforations registering with those above and each surrounded by a tubular projection or boss counterbored to receive a tube from above, and a series of tubes externally of smaller diameter than the perforations in the upper member, removably seated in the counterbored projections, respectively, and each extending centrally into the corresponding perforation in the upper member and upwardly removable therefrom.

698,456. SUSPENDERS AND TROUSERS CONNECTION. RICHARD T. CLARK, Columbus, Ohio. Filed Feb. 28, 1901. Serial No. 34,781. (No model.)



Claim.—In a suspender and trousers connection, the combination with a trousers-band, of a button-engaging device comprising a single piece of spring-steel bent to a substantially M form, the central portion of said body being bent to a substantially heart shape and comprising adjacent loops, the outer members of said body being adapted to be secured to the inner side of a trousers-band, a suspender-end and a button projecting therefrom and adapted to have its shank passed between the central loop portions of said catch-body, substantially as specified.

698,457. SUSPENDERS AND TROUSERS CONNECTION. RICHARD T. CLARK, Columbus, Ohio. Filed Aug. 15, 1901. Serial No. 37,008. (No model.)



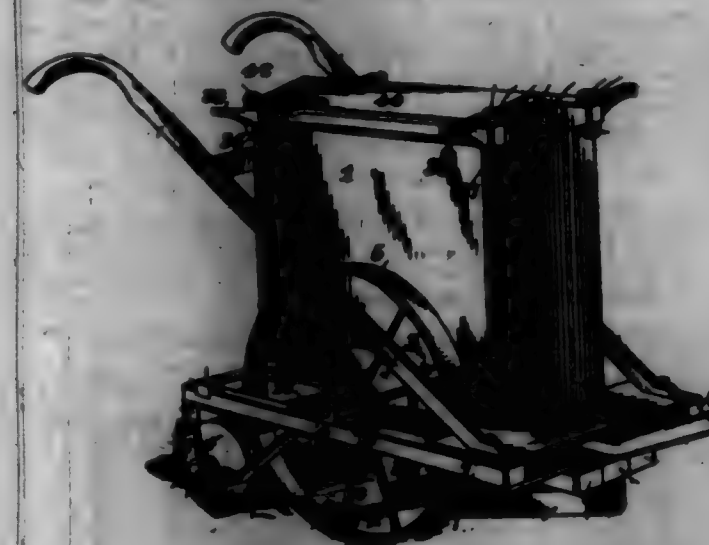
Claim.—In a suspender and trousers connection, the combination with the suspender-end, of button-catching plates having transverse openings adapted to receive the suspender-ends and a tongue 3 projecting rearwardly therefrom, said tongue adapted to be inserted through the longitudinal-opening of said suspender-ends and each of said plates having its lower end portion terminating in a bifurcated hook, substantially as specified.

698,458. MACHINE FOR FOLDING AND ROLLING CLOTH. BRAD COHEN, Philadelphia, Pa. Filed Mar. 5, 1901. Serial No. 35,173. (No model.)



Claim.—In a machine of the class described, the combination of a frame 2, an inclined triangular guide mounted on the frame 2 at one end thereof, the supplemental frame arranged at right angles to the frame 2 and located adjacent to and beneath the triangular guide, the inclined base arranged parallel and extending from a point adjacent to the apex of the triangular guide and located beneath the same, the horizontal arm extending from the lower end of the inclined base at one side of the frame and terminating short of the opposite side, the guide-roller 18 located beneath and in approximately the same vertical plane as the arm and the inclined base, the upper guide-roller 19 arranged in rear of the arm at a point above the guide-roller 18, and the separable winding device adapted to receive a board for the cloth, substantially as described.

698,459. COTTON-SEED PLANTER. ADAM S. OKE, Wilmerville, N. C. Filed July 14, 1901. Serial No. 35,382. (No model.)



Claim.—1. In a planter, the combination with a wheeled frame having a seedbox, of a disc carried to the frame and located in front of the seedbox, the rear portion of the disc having a throat which is open at its top and bottom and is projected beneath the discharge-opening of the seedbox to receive the seed therefrom, an opener carried by the front of the disc and a hollow depressing-gage carried by the rear portion of the disc beneath the throat thereof and in alignment with the opener and having an open top and an open rear end to receive and discharge the seed to the furrow.

2. In a planter, the combination with a wheeled frame having a seedbox, of a disc carried to the frame and located in front of the seedbox, the rear portion of the disc having a throat which is open at its top and bottom and is projected beneath the discharge-opening of the seedbox to receive the seed therefrom, a hollow depressing-gage carried by the rear portion of the disc beneath the throat thereof and having an open top and an open rear end to receive and discharge the seed to the furrow, a cross-bar carried by and projected at opposite sides of the disc, a substantially V-shaped flange embracing the front end of the disc and having its ends connected to the respective ends of the cross-bar, and an opener aligned in front of the depressing-gage and held between the cross-bar and the apex of the flange.

3. In a seed-planter, the combination with a seedbox, and a furrow-opener located in front thereof, of a depressing-gage located in rear of and aligned with the opener, and also aligned below the discharge-opening of the seedbox, and having its top open to receive the seed from the

box and also having its rear end open to deliver the seed to the furrow made by the furrow-opener.

4. In a seed-planter, the combination with a seedbox, and a furrow-opener located in front thereof, of a disc located between the box and the furrow-opener and having a rear throat portion located below the discharge-opening of the box and having its opposite inner walls converged inwardly and downwardly, and a depressing-gage located beneath and in close proximity to the forward portion of the throat and opening the bottom opening thereof as to receive seed therefrom.

5. In a cotton-seed planter, the combination with the seedbox and seed-roller, of a disc having the corners of its front ends diagonally recessed to present inclined shoulders, a V-shaped flange secured against the shoulders, and a cross-bar secured in recesses in the outer side of the disc and to which the outer ends of the flange are secured.

6. In a planter, the combination with the seedbox thereof, and a furrow-opener located in front of the box, of a disc located between the opener and the box and formed by a plurality of longitudinal members, the outer of which have their rear ends extended to form a throat located beneath the discharge-opening of the seedbox, a cross-bar projected at opposite sides of the disc members and forming a connection therebetween, and a substantially V-shaped flange embracing the front end of the disc and having its rear ends connected to the outer ends of the cross-bar.

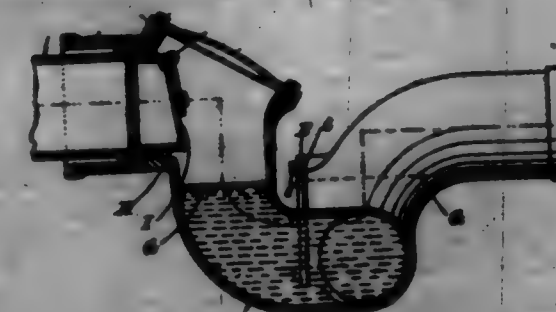
7. In a planter, the combination with a seedbox, of a disc located below and in front of the seedbox and having a throat disposed below the discharge-opening of the seedbox to receive seed therefrom, a cross-bar let into the under side of the disc and projected at opposite sides thereof, a substantially V-shaped flange embracing the front of the disc and secured to the opposite ends of the cross-bar, and a furrow-opener held between the cross-bar and the apex of the flange.

8. In a cotton-seed planter, the combination with a supporting-frame, of spring-arms carrying a roller, a scraper connecting the rear ends of the arms, straps secured to the supporting-frame and having their outer ends formed into steps to coast with the spring-arms to limit vertical movement of the roller in one direction, and vertically-slotted links carried by the steps and loosely embracing the spring-arms to limit vertical movement of the roller in the opposite direction thereof.

9. In a planter, the combination with a supporting-frame, of spring-arms connected at their forward ends to the frame, a coverer carried by the free rear ends of the spring-arms, straps pendant from the frame, and elongated loop-shaped links arising from the straps and loosely embracing the free end portions of the respective spring-arms, the latter being capable of vertical movement within the links, and the lower ends of the straps lying in the paths of the upward movements of the arms and forming steps to limit said movements.

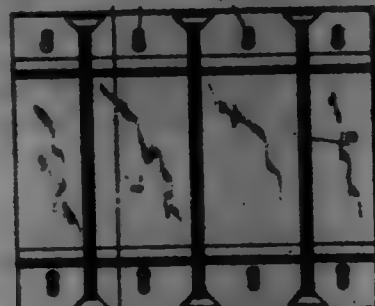
10. In a seed-planter, a disc comprising opposite longitudinal members, which have the lower portions of their ends notched and inclined outwardly and rearwardly, an intermediate member disposed between the opposite side members and terminated short of the rear ends thereof, the spaced rear end portions of the side members forming an open-ended throat, a cross-bar let into the lower edges of the side members and located between the throat and the forward end of the disc, a substantially V-shaped flange fitted to the forward ends of the side members and secured to the outer ends of the cross-bar, a furrow-opener held snugly between the forward end portions of the side members, the vertex of the flange and the intermediate front side of the cross-bar, and a depressing-gage carried by the under side of the disc and in communication with the lower open end of the throat.

698,460. SEWER-TRAP. JAMES CRAWFORD, Boston, Mass. Filed July 15, 1901. Serial No. 35,323. (No model.)



Claim.—The herein-described cover-trap, consisting of a pipe having in one end means for connecting it to the house-drain, a removable cover on said house end portion, a downwardly and laterally projecting trap-pipe leading to the cover end of the trap, the latter being arranged at one side of the house end portion and provided with a removable liquid-sealed cover substantially as set forth for the purpose set forth.

698,461. HEAD-BLOCK OR FOLLOWER. JAMES J. CROWLEY, Logan, Mont. Filed June 20, 1901. Serial No. 64,000. (No model.)

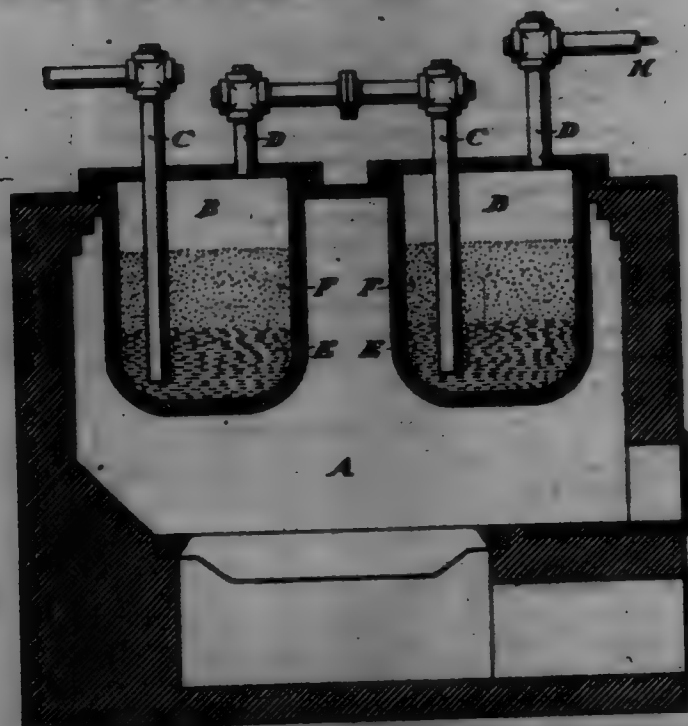


Claim.—1. A head-block or follower comprising a body portion, channelled wear and reinforcing plates embracing the ends of the body portion, channelled bearing-plates embracing the ends of the block and provided with elongated slots, pins passing through said slots and into the block movably connecting the bearing-plates to the block, and springs interposed between the block and bearing-plates to yieldingly hold the same against the walls of the press-chamber.

2. A head-block or follower comprising a body portion, strips upon the sides of the block and spaced to form grooves for the passage of the binding-wire, channelled bearing-plates embracing the ends of the block and strips, and provided with elongated slots, pins passing through said slots and into the block movably connecting the bearing-plates to the block, and springs interposed between the block and bearing-plates to yieldingly hold the same against the walls of the press-chamber.

3. A head-block or follower comprising a body portion formed in its side edges with notches, transverse strips upon the sides of the block and spaced to form grooves for the passage of the binding-wire, channelled wear and reinforcing plates embracing the ends of the block and interposed between the same and strips and provided with openings registering with said notches, channelled bearing-plates embracing the ends of the block and strips and movably mounted upon the block, and springs seated in said notches and projecting through the openings in the reinforcing-plates and bearing against said bearing-plates.

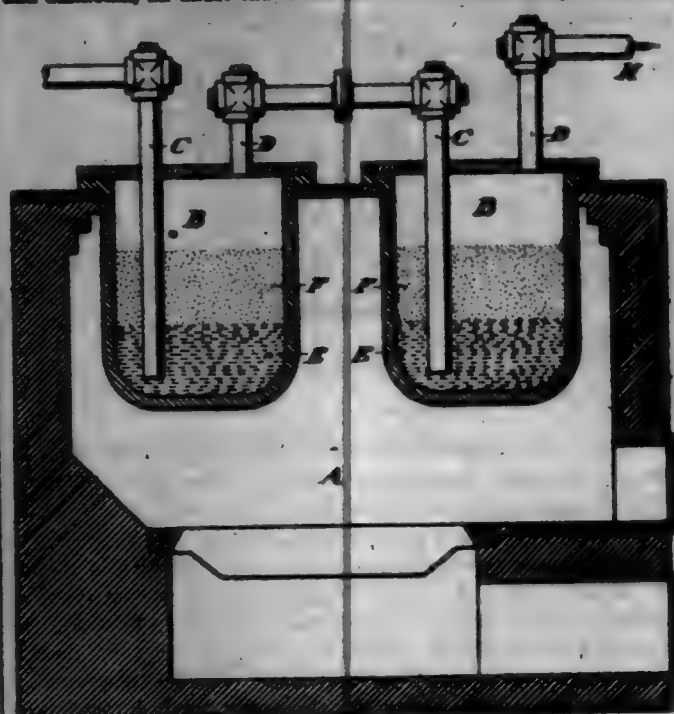
698,462. PROCESS OF MAKING ALKALINE CYANIDE. JAMES D. DARLINS, Philadelphia, Pa., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed May 27, 1901. Serial No. 66,157. (No specimens.)



Claim.—The process of producing pure alkaline cyanide, which consists in subjecting alkaline acid to the action of carbon and nitrogen under the influence of heat, whereby cyanized charcoal is produced; and subjecting this cyanized charcoal to the action of ammonia-gas and alkali metal under the influence of heat, whereby the carbon remaining in the cyanized charcoal is converted into cyanide, substantially as described.

698,463. METHOD OF MAKING CYANIDE. JAMES D. DARLINS, Philadelphia, Pa., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed July 20, 1901. Serial No. 70,004. (No specimens.)

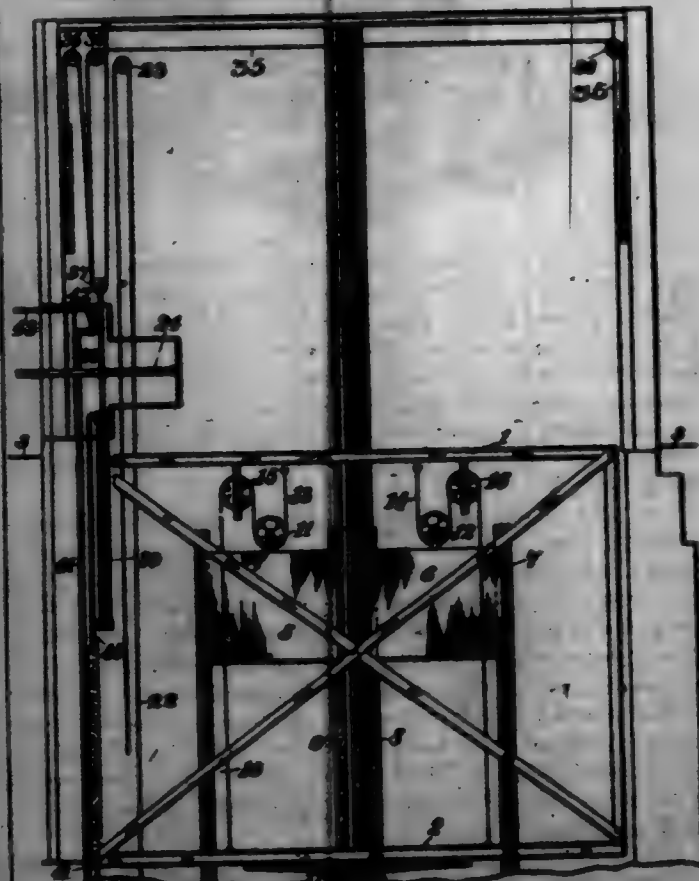
Claim.—The process of producing pure alkaline cyanide, which consists in subjecting carbon and alkaline acid to the action of nitrogen and simultaneously subjecting the excess of carbon to the action of alkali metal and ammonia, all under the influence of heat, substantially as described.



698,464. METHOD OF MAKING ALKALINE CYANIDE. JAMES D. DARLINS, Philadelphia, Pa., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Oct. 6, 1901. Serial No. 77,000. (No specimens.)

Claim.—The process of producing pure alkaline cyanide, which consists in subjecting alkaline acid to the action of carbon and nitrogen under the influence of heat, whereby cyanized charcoal is produced; and subjecting this cyanized charcoal to the action of alkaline acid under the influence of heat, whereby the carbon remaining in the cyanized charcoal is converted into cyanide, substantially as described.

698,465. HOISTING APPARATUS. DAVID E. DARRIN, New York, and WILLIAM E. DOLLAR, Buffalo, N. Y., assignors to Howard Iron Works, a Corporation of New York. Filed Dec. 18, 1900. Renewed Mar. 7, 1902. Serial No. 97,000. (No model.)



Claim.—1. In apparatus of the character described, the combination with the gate or gates, of a controller for the gate-operating mechanism.

Claim.—1. In a device of the character described, a positive member firmly representing an operative device having a known function and provided with a movable element, an operative or active member, and connections between the movable element of the false member and the operative or active member for actuating the latter.

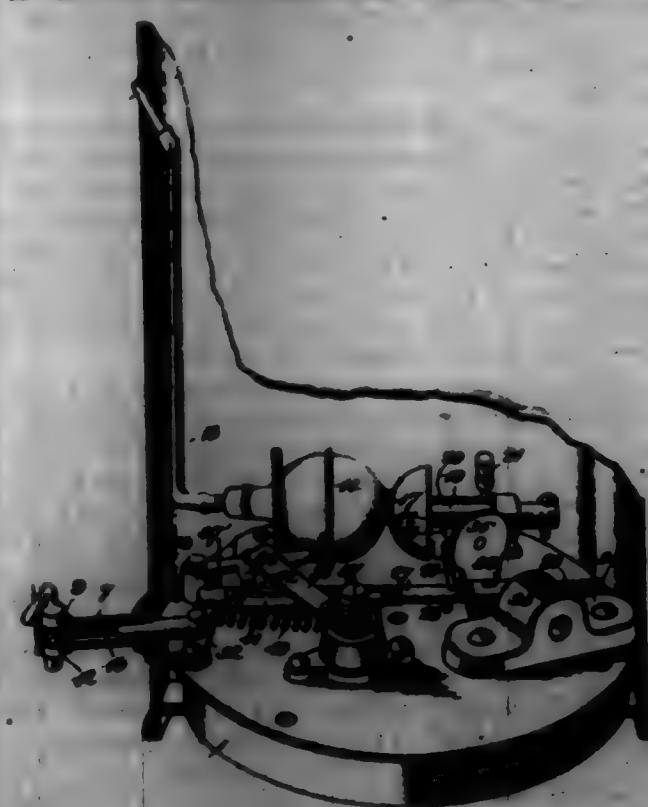
2. A device of the character described comprising a vessel having a false spigot including a movable member, and a separate water-ejecting apparatus operably connected with the movable member for control thereby.

3. The combination with a vessel having a movable member, of means for ejecting water from the vessel and controlled by actuation of the movable member in one direction, and a detouring mechanism controlled by return movement of the movable member.

4. The combination with a vessel having a movable member, of a mechanism disposed to eject water from the vessel, means for holding said mechanism inoperative, means connected with the movable member for releasing the holding means when the movable member is actuated in one direction, and a detouring mechanism operable by return movement of the movable member.

5. The combination of a car, a vertically-moving gate, spring-balls carried thereby and adapted to engage the elevator-shaft, a gate-holding rope connected to said spring-balls and adapted to withdraw the same and raise said gate, a controlling device comprising a controller for the gate-holding mechanism and a controller for the elevator-hoisting mechanism, a spring-bolt in the shaft adapted to engage the elevator-controller when the same is in position of rest, a cam on said gate adapted to engage and withdraw said last-named spring-bolt when the gate is closed, hoisting means for the elevator and the gates, and connections between the same and the elevator and gate-holding rope respectively, substantially as described.

698,466. AUTOMATIC WATER-COOLER FOR INITIATING FUEL-FIRES. ROBERT DE MOULIN and OLIVIER S. DE MOULIN, Greenville, N. C. Filed Mar. 11, 1901. Serial No. 60,007. (No model.)



Claim.—1. A hydrocarbon-oil burner having a combustion-chamber subdivided by a flame-plate forming bottom and top inlet and outlet passages in communication at one end of the chamber, an oil-reservoir in communication with the inlet-passage at the other end of the chamber, and a head guarding said inlet-opening and partially overhanging said reservoir for regulating the lower draft of air through the said inlet-passage, substantially as and for the purpose set forth.

2. A hydrocarbon-oil burner comprising a base having a trough forming the lower portion of a combustion-chamber, a cover closing the trough and forming the upper portion of the combustion-chamber, a partition subdividing said chamber to form upper and lower passages in communication at one end and provided, respectively, at the other end with an inlet and outlet, an oil-pan resting upon the base adjacent to said inlet, and a head or deflector for conducting the induced air and the products of combustion from the oil-pan to said inlet, the said parts being detachably connected, substantially as described.

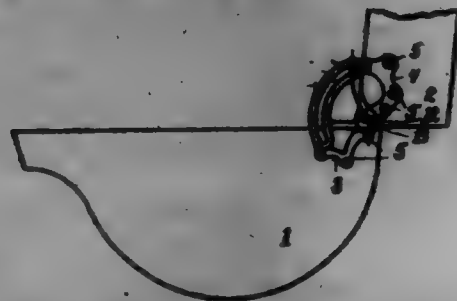
3. A hydrocarbon-oil burner having a combustion-chamber divided by a flame-plate to form inlet and outlet passages located one above the other, said passages being in communication at one end of the chamber and having their inlet and outlet openings located at the opposite end of the chamber, an oil-reservoir, and a head partially overhanging the oil-reservoir for conducting the air and products of combustion therefrom to the inlet-opening of said inlet-passage, substantially as and for the purpose specified.

698,467. OIL-BURNER. BENJAMIN S. DUYER, Lima, Ohio. Filed July 15, 1901. Serial No. 63,000. (No model.)



4. A hydrocarbon-oil burner comprising a base having a trough forming the lower portion of a combustion-chamber, a cover closing the trough and forming the upper portion of the combustion-chamber, and a partition forming a flame-plate and separating said lower and upper portions of the chamber to form inlet and outlet passages, said passages being in communication at one end of the chamber and having their inlet and outlet openings at the opposite end of the chamber, substantially as described.

698,468. HENRY OSWALD BAKER, Cincinnati, Ohio. Filed Sept. 26, 1901. Serial No. 73,691. (No model.)

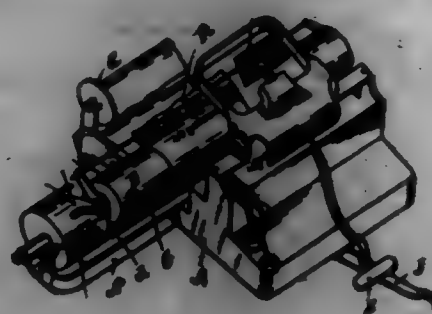


Claim.—1. A hinge comprising two parts or members one of which has two guides and the other a pin or stud adapted to engage with each guide, one of said pins or studs having a lag or keeper adapted to detachably and removably interlock and engage its adjacent guide.

2. A hinge comprising two parts or members, one of which has a guide and the other a corresponding pin or stud having a lag or keeper thereon adapted to engage said guide and hold the parts of the hinge in proper relative position to each other, and means for pivoting the two parts of the hinge together.

3. A hinge comprising in its construction two members adapted to be respectively secured to a box and its cover, the box member being provided with guide-ribs, the one being concentric to the other, and the cover member having guide-pins each provided with a lag or keeper and adapted to be seated in, take over and engage the edges of the respective guide-ribs of the box member.

698,469. ADDRESSING ATTACHMENT FOR TYPE-WRITERS. GEORGE L. DOWNEY, Cincinnati, Ohio. Filed Oct. 1, 1900. Serial No. 31,671. (No model.)



Claim.—1. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device adapted to be engaged by said carriage and held in travel and to automatically space the platen-roll, substantially as specified.

2. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of the carriage travel adapted to be engaged thereby, means on said spacing and indenting device and carriage adapted to automatically space and indent the platen, substantially as specified.

3. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of carriage travel adapted to be engaged thereby to revolve the platen, the said spacing and indenting device having two or more different indentation-steps, said steps adapted to be successively presented to said carriage, substantially as specified.

4. In combination with the carriage of a type-writer, a platen-roll journaled thereon, having an extended axle on the initial end of the carriage travel, a spacing and indenting device located at the initial end of the carriage travel, the said spacing and indenting device having walls with notches of varying depth and pitch and a finger on said extended platen-axle adapted to engage into said notches whereby the initial position of the carriage is determined and the platen revolved, substantially as specified.

5. In combination with the carriage of a type-writer, a platen-roll journaled thereon having an extended axle on the initial end of the carriage travel, a spacing and indenting device having notches of varying depth and pitch, located at the initial end of the carriage travel, a projection on the said extended axle adapted to engage into said notches whereby the initial position of the carriage is determined and the platen revolved, substantially as specified.

6. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of carriage travel having notches formed therein of varying depth in a horizontal plane, and inclined in a vertical plane, a projection on the platen-roll adapted to successively engage into said notches when the carriage is revolved to its initial position, substantially as specified.

7. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a tension device exerting pressure on the carriage to the right, mechanism actuated by the keyboard adapted to feed the carriage from left to right, type arranged in the normal legible position in the machine, a spacing and indenting device, and a shifting-lever on the said carriage adapted to engage said carriage with said spacing and indenting device whereby the platen-roll is automatically spaced and indented, substantially as specified.

8. In combination with the carriage of a type-writer, a tension device exerting pressure on the carriage to the platen-roll journaled on said carriage, mechanism actuated by the keyboard adapted to feed the carriage from left to right, an extended axle at the initial end of the platen-roll, a spacing and indenting device located opposite the said extended axle within the path of carriage travel, the said spacing and indenting device having notches of varying depth and pitch, a finger on the extended platen-axle adapted to engage into said notches whereby the platen-roll is spaced and indented, and type whereby the characters are horizontally printed inversely upon a transcript-sheet, substantially as specified.

9. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of the path of travel of the carriage, a shifting-lever adapted to throw said carriage in engagement with said spacing and indenting device to automatically space and indent the platen-roll, a supplemental frame mounted on the carriage, a supporting and receiving roll journaled in said frame and means for revolving said roll, substantially as specified.

10. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a tension device exerting pressure on the carriage to the right, mechanism actuated by the keyboard adapted to feed the carriage from the left to right, type adapted to be inversely printed upon a transcript-sheet, a supplemental frame mounted on the carriage, a supporting and receiving roll journaled in the frame and a power-transmitter between one of said rolls and the platen-roll, a spacing and indenting device located at the initial end of the carriage travel, a projection on the said platen-roll adapted to engage the spacing and indenting device to revolve the platen-roll and determine its initial position, and means for shifting said carriage toward said spacing and indenting device, substantially as specified.

11. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device at the initial end of carriage travel, a cam provided with notches whose depth determines the indentation of the platen-roll and whose pitch determines the interlineal space, a projection on the platen-roll adapted to engage said cam, and means for shifting the carriage toward the spacing device, substantially as specified.

12. In combination with the carriage of a type-writer a platen-roll journaled thereon, a spacing and indenting device at the initial end of carriage travel having cylindrical walls extended toward the platen-roll, duplicate notches diametrically opposite each other in the peripheral walls of said spacing device whose depth determines the degree of platen indentation, and whose pitch determines the interlineal spacing of said platen-roll, a projection on said platen-roll adapted to simultaneously engage the duplicate notches, and means for shifting said carriage toward the spacing and indenting device, substantially as specified.

13. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of carriage travel having notches of varying depth and pitch, a projection on said platen adapted to engage said notches, means for successively presenting the different notches to said projection, and a lever for shifting said carriage toward the spacing and indenting device, substantially as specified.

14. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of the carriage travel, the said spacing and indenting device having notches of varying depth and pitch presented toward the platen-roll, a finger on said platen-roll adapted to engage into said notches, whereby the platen-roll is rotated and the finger successively presented to a different notch at each revolution, substantially as specified.

15. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of the carriage travel, the said spacing and indenting device having notches of varying depth and pitch presented toward the platen-roll, a finger on said platen-roll adapted to engage into said notches, whereby the platen-roll is rotated and the finger successively presented to a different notch at each revolution, substantially as specified.

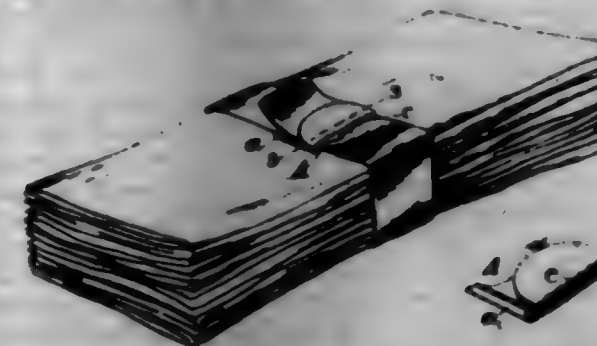
16. In combination with the carriage of a type-writer, a platen-roll journaled thereon, a spacing and indenting device located at the initial end of the carriage travel, the said spacing and indenting device having notches of varying depth and pitch presented toward the platen-roll, a finger on said platen-roll adapted to engage into said notches, whereby the platen-roll is rotated and the finger successively presented to a different notch at each revolution, substantially as specified.

journaled thereon, a tension device exerting pressure on the carriage to the right, mechanism actuated by the keyboard adapted to feed the carriage from the left to right, type adapted to be inversely printed upon a transcript-sheet, a supplemental frame mounted on the carriage, a supporting and receiving roll journaled in the frame and a power-transmitter between one of said rolls and the platen-roll, a spacing and indenting device located at the initial end of the carriage travel, and means for shifting said carriage toward said spacing and indenting device, substantially as specified.

16. In combination with the carriage of a type-writer, a platen journaled thereon, a tension device exerting pressure to the right, mechanism actuated by the keyboard to feed the carriage from left to right, and an automatic indenting device located in the initial end of the carriage travel and actuated thereby, substantially as specified.

17. In combination with the carriage of a type-writer, a platen journaled thereon, a tension device exerting pressure to the right, mechanism actuated by the keyboard to feed the carriage from left to right, means mounted on the carriage for feeding and receiving a transcript-sheet to and from the platen, and an indenting device located in the initial end of the carriage travel and actuated thereby, substantially as specified.

698,470. FASTENING DEVICE. ALVIN L. BRACE, New York, N. Y. Filed Sept. 12, 1901. Serial No. 73,199. (No model.)

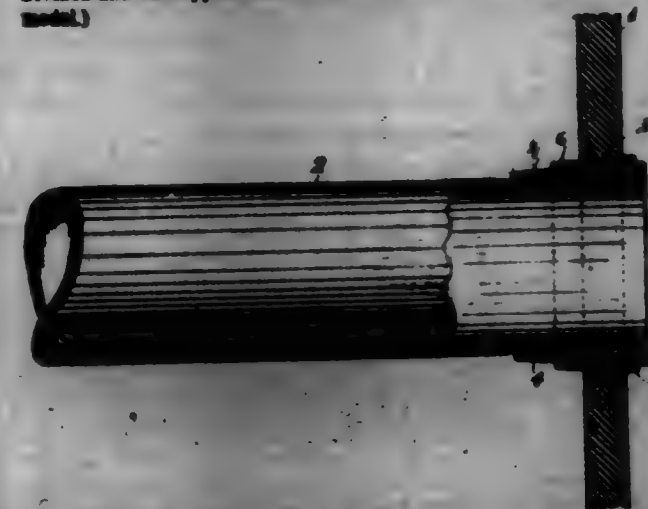


Claim.—1. A device of the character specified comprising an apertured plate of ductile material which is adapted to be bent so substantially the lines of the aperture therein so that the walls of said aperture will constitute binding-jaws.

2. A device of the character specified comprising a plate of ductile metal which has an elongated band-receiving aperture therein, the walls of said aperture being curved and adapted to constitute binding-jaws for securing the band to the plate and means carried by said plate and formed integral therewith for permanently securing the opposite end of the band to said plate.

3. In a device of the character specified, the combination of a clamp formed of a single piece of ductile metal and provided with clamping-ears which are adapted to permanently secure said clamp to one end of a band and having an elongated perforation therein, the walls of which perforation are adapted to form plumping-jaws and a band permanently secured to the clamp by the clamping-ears and its free end adapted to pass through the elongated aperture in said clamp and be secured therein when a portion of the clamp carrying one of the jaws is bent from its initial position.

698,471. DETACHABLE BULLET-FLUE. JULIAN F. BRACE, Troy, N. Y. Original application filed Mar. 26, 1901, Serial No. 32,394. Divided and this application filed Nov. 8, 1901. Serial No. 31,167. (No model.)

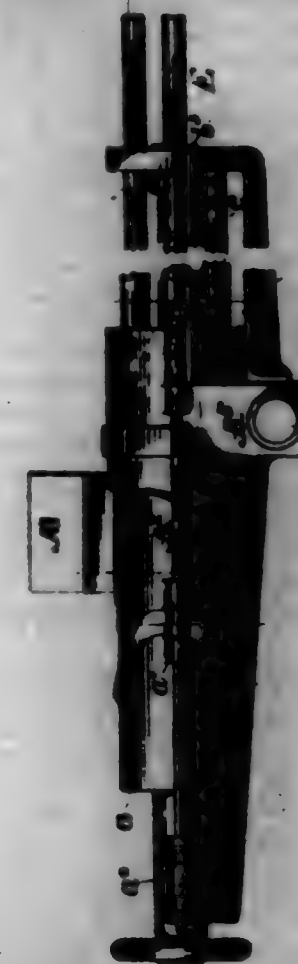


Claim.—1. In a boiler, the combination with a fire-sheet, of a flue having rigidly secured to one end an inwardly-tapering conical sleeve, and a packing ring or bushing of relatively soft material, but of high fluidity,

interposed and pressed between the said sleeve and its seat in the fire-sheet, which packing ring or bushing closely fits said conical sleeve and tapers in the same direction therewith, both at its interior and exterior surfaces, substantially as described.

2. In a boiler, the combination with the fire-sheet 1 having the inwardly-tapered end 2, of the flue 3 having the inwardly-tapered conical sleeve 4 screw-threaded thereon, and the tapered packing ring or bushing 5 of copper, pressed between said sleeve 4 and end 2, said ring or bushing 5 closely fitting said sleeve and tapering in the same direction therewith, both at its exterior and interior surfaces, substantially as described.

698,472. AUTOMATIC GUN. LOUIS L. DIXON, Washington, D. C. Assignor to Wright-Battery Gun and Ammunition Company, New York, N. Y., a Corporation of New Jersey. Filed Aug. 24, 1897. Serial No. 342,298. (No model.)



Claim.—1. In an automatic gun, the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels having rearwardly-extending heads grouped around said spindle and rotating therewith, guides mounted on said spindle and allowing said barrels to move longitudinally relative to said spindle, and interlocking cam-surfaces between said barrels and said gun-casing, whereby as each barrel is fired, the said barrel recoils and rotates said spindle, substantially as described.

2. In an automatic gun, the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels having rearwardly-extending heads grouped around said spindle and rotating therewith, guides mounted on said spindle and allowing said barrels to move longitudinally relative to said spindle, and interlocking cam-surfaces between the exterior of said barrels and the interior of said casing, whereby said barrels cause said spindle to rotate about its axis as each barrel recoils, and means for loading cartridges into said barrels for firing the gun, substantially as described.

3. In an automatic gun, the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels having rearwardly-extending heads grouped around said spindle and rotating therewith, guides mounted on said spindle and allowing said barrels to move longitudinally relative to said spindle, and interlocking cam-surfaces between the exterior of said barrels and the interior of said casing, whereby said barrels are caused to rotate said spindle about its axis as the barrel recoils, and means operated by the rotation of the said barrel about said spindle for feeding the cartridges to and for ejecting the same from the said barrels, and automatically-operated means for firing said cartridges, substantially as described.

4. In an automatic gun, the combination with a group of barrels adapted to rotate about a common axis, and each provided with a rear-

wardly-projecting heel with slots therein, of a breech-block mounted in said heel and legs or projections engaging in said slots, means operated by the check of discharge for rotating said group of barrels about said common axis, and for moving said breech-block in said slots from the open to the closed position and vice versa, means for loading said barrels, a spring-operated firing-pin mounted in each of said breech-blocks, and means for automatically cocking and releasing the same substantially as described.

5. In an automatic gun, the combination with a group of barrels adapted to rotate about a common axis, and each provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, means operated by the check of discharge for rotating said group of barrels about said common axis and for moving said breech-block in said slots from the open to the closed position and vice versa, means also operated by the check of discharge for loading said barrels, a spring-operated firing-pin mounted in each of said breech-blocks, and means for automatically cocking and releasing the same, substantially as described.

6. In an automatic gun, the combination with a group of barrels adapted to rotate about a common axis but to recoil parallel to said axis, and each provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, means operated by the recoil of each barrel for rotating the said group of barrels through a given angle about said common axis, and for moving said breech-block in said slots from the open to the closed position and vice versa, means for loading said barrels, a spring-operated firing-pin mounted in each of said breech-blocks, and means for automatically cocking and releasing the same, substantially as described.

7. In an automatic gun, the combination with a group of barrels adapted to rotate about a common axis but to recoil parallel to said axis, and each provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, means operated by the recoil of each barrel for rotating the said group of barrels through a given angle about said common axis, and for moving said breech-block in said slots from the open to the closed position and vice versa, means operated by the recoil for loading said barrels, a spring-operated firing-pin mounted in each of said breech-blocks, and means for automatically cocking and releasing the same, substantially as described.

8. In an automatic revolving cannon the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels grouped around said spindle and adapted to rotate therewith and also to move longitudinally relative to said spindle, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in each of said breech-blocks, intersecting cam-surfaces provided between said barrels, said breech-block, said firing-pin and said gun-casing, whereby as each barrel is fired, the said barrel recoils and rotates said spindle, and the breech-block is brought from the closed to the open position and the firing-pin is operated, and means for loading cartridges into said barrels, substantially as described.

9. In an automatic revolving cannon the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels grouped around said spindle and adapted to rotate therewith, and also to move longitudinally relative to said spindle, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in each of said breech-blocks, intersecting cam-surfaces provided between said barrels, said breech-block, said firing-pin and said gun-casing, whereby as each barrel is fired, the said barrel recoils and rotates said spindle, the breech-block is brought from the closed to the open position and the firing-pin is operated, and means operated by the rotation of the said barrels about said spindle for feeding the cartridges to and for ejecting the same from the said barrels, substantially as described.

10. In an automatic revolving cannon the combination with a gun-casing, a spindle journaled concentric with said casing, a plurality of barrels grouped around said spindle and adapted to rotate therewith, and also to move longitudinally relative to said spindle, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in each of said breech-blocks, intersecting cam-surfaces provided between said barrels, said breech-block, said firing-pin and said gun-casing, whereby as each barrel is fired, the said barrel recoils and rotates said spindle, the breech-block is brought from the closed to the open position, and the firing-pin is operated, and means operated by the rotation of the said barrels about said spindle for feeding the cartridges to and for ejecting the same from the said barrels, substantially as described.

11. In an automatic revolving cannon, the combination with a gun-casing provided with cam-grooves therein, a spindle journaled concentric

with said casing a plurality of barrels grouped around said spindle and adapted to rotate therewith and also to move longitudinally relative to said spindle, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in each of said breech-blocks, legs on said barrels, on said breech-blocks and on said firing-pins engaging in said cam-grooves in said gun-casing, whereby as each barrel is fired, the said barrel recoils and rotates said spindle and operates said breech-block and said firing-pin, substantially as described.

12. In an automatic revolving cannon, the combination with a gun-casing provided with cam-grooves on the interior thereof, and a spindle journaled in said casing, of a plurality of barrels grouped about said spindle, and adapted to move longitudinally relative thereto, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in said breech-block, legs on the exterior of said barrels, on said breech-blocks and on said firing-pins engaging the cam-grooves in said casing, whereby said barrels cause said spindle to rotate about its axis as the barrel recoils and said breech-block and firing-pin are operated, and means operated by the recoil for loading cartridges into said barrels, substantially as described.

13. In an automatic revolving cannon the combination with a gun-casing provided with journal-bearings and cam-grooves, of a spindle journaled in said bearings, a plurality of barrels grouped around said spindle and adapted to rotate therewith and also to move longitudinally relative to said spindle, each barrel being provided with a rearwardly-projecting heel with slots therein, of a breech-block mounted in said heel with legs or projections engaging in said slots, a spring-operated firing-pin mounted in said breech-block, legs on the exterior of said barrels, on said breech-blocks and on said firing-pins engaging the cam-grooves in said casing, whereby said barrels cause said spindle to rotate about its axis as the barrel recoils and said breech-block and firing-pin are operated, and means operated by the recoil for loading cartridges into said barrels, substantially as described.

14. In an automatic revolving cannon, the combination with a substantially cylindrical shell or casing provided on the inner surface thereof with two cam-grooves of varying pitch, the front cam-groove being essentially V-shaped when developed, and the rear cam-groove having a small part of its length parallel to one of the sides of the V of the front groove and then approaching said side at a slight inclination, with a slight elevation in one portion of the said rear groove, of a spindle journaled in the center of the cylindrical shell, longitudinally-movable barrels grouped about said spindle and each having a rearwardly-extending heel with a longitudinal slot therein and slots transverse to said longitudinal slot, a leg or projection on each of said barrels engaging in the front cam-groove, and a breech-block mounted in rear of the cartridge-chamber, and having legs adapted to engage in said slots, and also a leg adapted to engage in said rear cam-groove, substantially as described.

15. In an automatic revolving cannon, the combination with a substantially cylindrical shell or casing provided on the inner surface thereof with two cam-grooves of varying pitch, the front cam-groove being essentially V-shaped when developed, and the rear cam-groove having a small part of its length parallel to one of the sides of the V of the front groove and then approaching said side at a slight inclination, with a slight elevation in one portion of the said rear groove, and a cam-rod also provided on the interior of the casing, of a spindle journaled in the center of the cylindrical shell, longitudinally-movable barrels grouped about said spindle and each having a rearwardly-extending heel with a longitudinal slot therein and slots transverse to said longitudinal slot, a leg or projection on each of said barrels engaging in the front cam-groove, and a breech-block mounted in rear of the cartridge-chamber, and having legs adapted to engage in said slots, and also a leg adapted to engage in said rear cam-groove, and a spring-operated firing-pin having a cam-rod adapted to engage said cam-rod, substantially as described.

898,478. NARROW-TOOTH FASTENER. JAMES F. DOWDY, Averyville, Ill., assignor to Kingston Flow Company, Peoria, Ill., a Corporation of Illinois. Filed May 4, 1901. Serial No. 54,817. (No model.)



Claim.—1. In a narrow-tooth fastener the combination of the U-bar A forming the support for the narrow-tooth, the tooth B seated on the said bar at right angles to its length, the middle C also in form of a U the same being seated to straddle the tooth, the extension D thereof

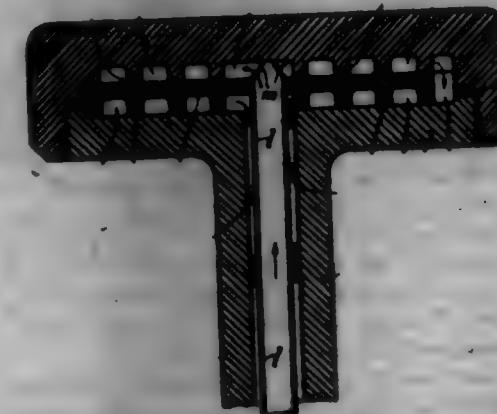
extending into the hollow of the bar A, an aperture in each extremity D, a T-bolt F having its two ends projecting through the bottom of the said bar and each of its upper extremities engaging with the aperture G in the said extremities D, said T-bolt adapted, when its nut is tightened, to draw the middle down to clamp the tooth to the U-bar as set forth.

2. In a narrow-tooth fastener, the combination of the U-bar A, the narrow-tooth B seated therein across the flanks thereof, the middle C seated upon the tooth, the extension D on the middle the same depending within the U-bar, the bolt F projecting through the bottom of said bar, the extension H H on the top of the bolt in the form of a semicircle, apertures G in the extension D for receiving the said extensions H H, the relation of the parts being such that when the bolt is drawn down by means of its nut the extension D will be drawn toward each other by reason of the oppositely-inclined extensions H to tightly lock the tooth B as set forth.

3. In a narrow-tooth fastener, the combination of the U-bar A, the tooth B seated across the flanks of the said bar at right angles thereto, the middle C straddling the said tooth, the extension D of said middle, the same extending into the recess of the U-bar, an aperture in each extremity of the extension D, a T-bolt F passing through the bottom of the U-bar, the upper extremities H thereof lying within the said apertures and arranged whereby when the bolt is tightened the middle will be drawn down and the extensions D thereof brought toward each other as set forth, and the projections G on the middle for preventing the spreading of the flanks of the said U-bar as set forth.

4. A tooth-fastener for harrows comprising a U-shaped support for the tooth, the tooth lying against the support on the extension thereof and at right angles to their length, a middle for straddling the tooth, said middle projecting downward at each side of the tooth, part thereof extending into the hollow of the U-bar and having an aperture in each, a part extending outside of each extremity as shown, a T-bolt located between the extensions of the middle within the U-bar the arms thereof engaging the apertures of the middle extensions substantially as set forth, the bolt portion of said T-bolt passing through the U-bar and held by a nut, the arms of said bolt extending downward at an angle through the apertures of the middle extensions whereby when the bolt is tightened the middle extensions are made to move up the angled extensions and approach each other as described and whereby also, the outside projections of the middle are drawn down outside the U-bar and prevent the spreading of the extensions of the same.

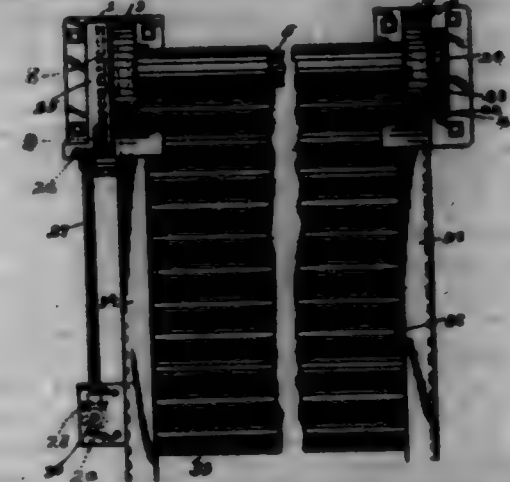
898,474. WATER-COOLED VALVE. HERMANN E. BERN, Wurzburg, Germany, assignor to The Firm of Vereinigte Maschinenfabrik Augsburg and Maschinenbaugesellschaft Murnberg A. G., Wurzburg, Germany. Filed Oct. 25, 1901. Serial No. 79,946. (No model.)



Claim.—1. In a valve, the combination of a hollow body having a spiral groove therein, an intermediate plate closing said groove, said plate having a similar spiral groove in its base, means for closing said similar groove, a part for establishing communication between the two spiral grooves, and means for causing a flow of cooling liquid through the said spiral grooves, substantially as described.

2. In a valve the combination of a hollow body having a spiral groove therein extending from the center to the rim in a plane parallel to the valve-face, an intermediate plate closing said groove, said plate having a spiral groove and having a similar spiral groove in the opposite face, a hollow valve-stem having a smooth face to close the lower spiral groove and adapted to screw into the hollow valve-body, the interior of the hollow stem being in communication with the center of the lower channel, a field-feed pipe within the said hollow stem in communication with the center of the upper spiral channel and a part to establish communication between the outer ends of the said upper and lower channels substantially as described and for the purpose specified.

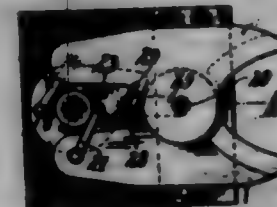
898,475. FIRE-SHUTTER. FREDERICK H. BROWN, Columbus, Ohio, assignor, by mesne assignments, to Edward Black, Plain City, Ohio. Filed Nov. 5, 1900. Serial No. 38,463. (No model.)



Claim.—1. In a fire-shutter, the combination with a spring-actuated roller comprising a journaled cylindrical body 5, bearing-shafts 12 and 13 and a spring having one end connected with said shaft 12 and its remaining end connected with the cylindrical roller, of a toothed wheel 16 on the shaft 12, a pivoted pawl-bar having a finger adapted to project into a tooth-space of the wheel 16 and a detachable connection between the pawl-bar and a fixed part, substantially as specified.

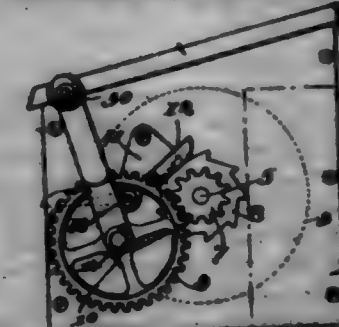
2. In a fire-shutter, the combination with a journaled spring-actuated roller and a sectional fire-shutter adapted to be rolled thereon, said roller comprising a cylindrical body 5, and bearing-shafts and a spring connecting one of said shafts with said roller-body, of a toothed tension-wheel on said spring-shaft, a pivoted pawl adapted to engage said toothed wheel, a bolt connection between said pawl and a fixed part, a spring about the bolt and a flexible nut on said bolt, substantially as specified.

898,476. LASTING-MACHINE. ERNEST H. BERN, Berlin, Germany, assignor to Ernst Berner, Berlin, Germany. Filed Apr. 19, 1901. Serial No. 54,874. (No model.)



Claim.—In a lasting-machine, the combination with the last-holder and the upper-support adjacent thereto, of a horizontally-disposed sliding plate supported upon said upper-support, a pair of horizontally-disposed upper-jaws pivoted to said sliding plate, a cam-disk located beneath the rear ends of said jaws, a cam-groove in said disk, links connecting said disk with the ends of said upper-jaws, and a pin carried by the plate engaging the cam-groove in the disk, substantially as described.

898,477. CLOTHING-LINE REEL. EDWARD I. BURNHAM, Quincy, Mass. Filed Mar. 26, 1901. Serial No. 54,394. (No model.)



Claim.—1. In a clothing-line reel, a bar or housing, a reel mounted on a shaft and located therein, a pin on the outside of the bar and connected to said reel to rotate the same, a slidably-mounted drive-gear constantly in mesh with the pinion, a spring to maintain said gear in its operative position, and a pawl cooperating with the ratchet, said pawl having a leg thereon which is adapted to engage the drive-gear and hold the same out of mesh with the pinion when the pawl is in its operative position.

2. In a clothing-line reel, a bar or housing, a reel mounted on a shaft and located therein, the end of the shaft projecting through the bar or housing, a pinion on the projecting end of the shaft, a ratchet inter-

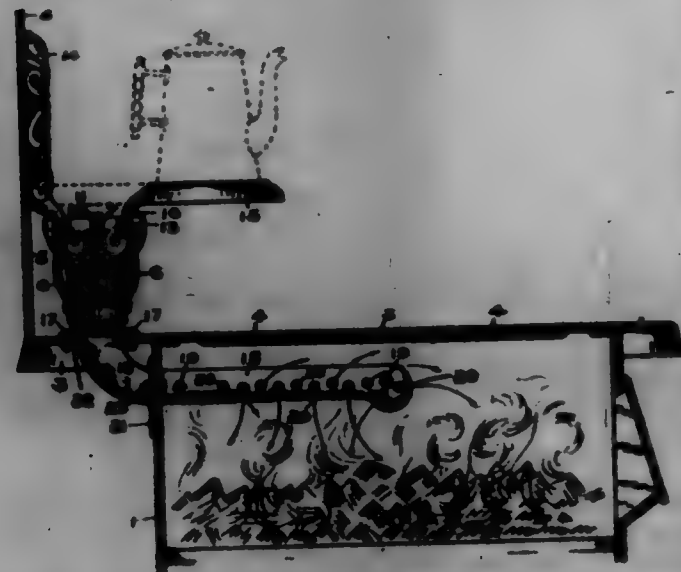
gral throwwith, a slidably-mounted drive-gear normally in mesh with the pinion, a pawl cooperating with the ratchet, said pawl having a lug thereon which when the pawl is in its operative position with respect to the ratchet is adapted to engage the inner face of the drive-gear and hold the same out of mesh with the pinion, and means for automatically throwing the drive-gear into mesh with the pinion when the pawl is drawn into operative position.

3. In an apparatus of the class described, a series of open hooks adapted to support a clothes-line, combined with a clothes-line reel inclosed in a box or housing, a pinion on the outside of the box connected to the reel, a shaft projecting from the side of the box, a drive-gear slidably mounted thereon and normally in mesh with the pinion but adapted to be disconnected therefrom whereby the drive-gear may be thrown out of engagement with the pinion when it is desired to unwind the reel and means to hold said drive-gear in either of its adjusted positions.

4. In apparatus of the class described, a box or housing adapted to be secured to a support and having a hinged cover, a reel inclosed in said box, a pinion on the outside of the box and connected to the reel, a shaft projecting from the outside of the box, a driving-gear slidably mounted upon said shaft and adapted to be made to mesh with or be disconnected from the pinion, means to hold the driving-gear in either of its adjusted positions, combined with a series of open hooks adapted to support a clothes-line, one of said hooks being connected to the support above the box whereby the clothes-line when in place extends through the open upper end of the box up to said last-mentioned open hook and then to another hook of the series.

5. In a clothes-line reel, a box inclosing a reel, a casing on the outside of the box, said casing having an aperture to receive and form a bearing for the end of the shaft of the reel, a combined pinion and ratchet fast on said shaft, a stud integral with the casing, a drive-gear on said stud and meshing with the pinion, a pawl pivoted to the casing and co-operating with the ratchet, and means whereby the drive-gear may be disconnected from or may be made to mesh with the pinion.

698,478. COMBINED HOT BLAST AND SMOKE-CONSUMER. JOHN E. BRILLMAN, Indianapolis, Ind. Filed Dec. 15, 1901. Serial No. 94,181. (No model.)

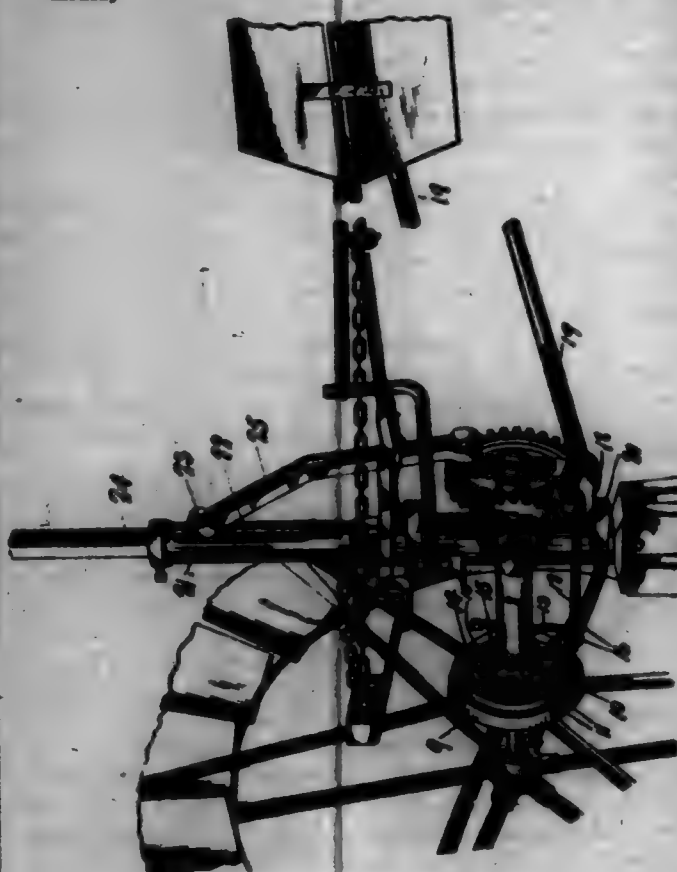


Claim.—1. In a combined hot blast and smoke-consumer for ranges and cooking-stoves, a pipe having a curved end which engages with an ingrain-bowl fixed on the surface of the range, the said bowl forming an ingrain to the pipe which pipe is composed of segments having overlapping edges which are held together by the transverse bolts 19, integral flanges at the point of curvature which flanges form a bearing for the pipe and whereby the said pipe is secured to the range or stove by bolts, secondary flanges at the upper end of the curvature of the pipe which flanges rest against the under side of the range-top, bolts passing vertically through the said flanges, the range-top and feet of the bowl, whereby the parts are securely held together, substantially as shown and for the purposes set forth.

2. In a combined hot blast and smoke-consumer for ranges and cooking-stoves, a pipe fixed to the range which extends into the fire-box thereof, the rear end of the pipe being curved and engaging with a bowl which forms the ingrain for the pipe, a plate carrying slots secured in the upper portion of the bowl, a secondary overlying shifting plate carrying slots which register with the slots in the under plate, the combined plate forming a damper for regulating the inflow of air, integral lugs on the under plate of the damper, each of which carries an aperture, the rear lugs forming a bearing for an ornamental base, while the front lugs pro-

vide a pivotal bearing for a swinging bracket, whereby a means for shifting said bracket over the superheated portion of the range is presented, substantially as shown and for the purposes set forth.

698,479. WINDMILL MECHANISM. MYRON W. ELLIOTT, JR., Beloit, Wis., assignor to Fairbanks, Morse & Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 19, 1901. Serial No. 94,054. (No model.)



Claim.—1. An improvement in windmill mechanism comprising a journal-casting, a wheel-hub constructed to act as a brake-spider, a brake-ring longitudinally movable upon said journal-casting, a lever for moving said brake-ring, a fulcrum-bracket for said lever fixed relative to said journal-casting, and means for imparting movement to said lever when the mill is started, said fulcrum-bracket preventing a rotation of the brake-ring without a strain on said operating means, substantially as described.

2. An improvement in windmill mechanism comprising a journal-casting, a wheel-hub constructed to act as a brake-spider, a brake-wheel longitudinally movable upon said journal-casting and provided with a collar having a slotted opening, a projection upon said journal-casting passing through said slotted opening to prevent rotation of said collar and brake-ring, and means operatively connected to said projection for imparting longitudinal motion to said brake-ring, substantially as described.

3. An improvement in windmill mechanism comprising a pivot-pipe, a pump-rod operating therein, a slot in one side of said pivot-pipe, a pitman for actuating said pump-rod, a connection between said pitman and said pump-rod passing through said slot, and a guide for said pump-rod within said pivot-pipe, said guide being external relatively to the pump-rod, substantially as described.

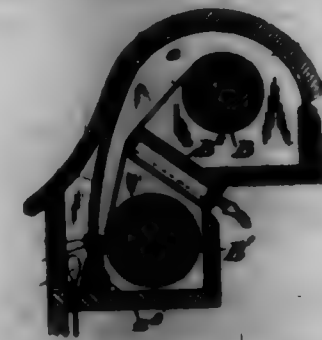
4. An improvement in windmill mechanism comprising a pivot-pipe, a pump-rod operating therein, a slot in one side of said pivot-pipe, a pitman for actuating said pump-rod, a connection between said pitman and said pump-rod passing through said slot, and a guide for said pump-rod within said pivot-pipe formed by bending a portion of the walls of the pipe forward, substantially as described.

698,480. MECHANICAL MUSICAL INSTRUMENT. CHARLES L. BRIDGES, Cranford, N. J., assignor to the Aeolian Co., New York, N. Y., a Corporation of Connecticut. Filed Dec. 2, 1901. Serial No. 94,400. (No model.)

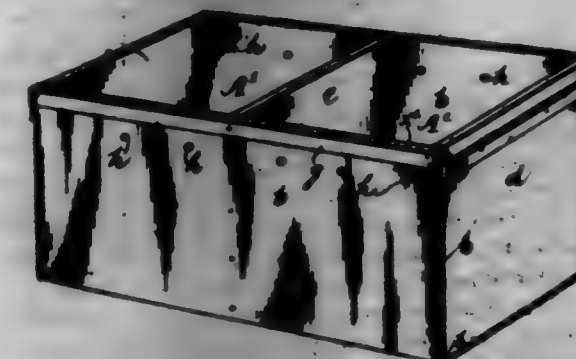
Claim.—1. In a mechanical musical instrument the combination of a casing having a resonator, music-aperture and a trucker-board located in said resonator, a pair of supports also provided in said resonator and extending longitudinally thereof, and a transparent cover having two opposite edges in engagement with said supports and adapted to be slid therealong.

2. In a mechanical musical instrument the combination of a casing having a resonator, music-aperture and a trucker-board located in said resonator, a pair of grooved supports also provided in said resonator and extending longitudinally thereof, a transparent cover having two opposite edges fitting

In the groove of said supports and means for retaining said edges in the said groove.

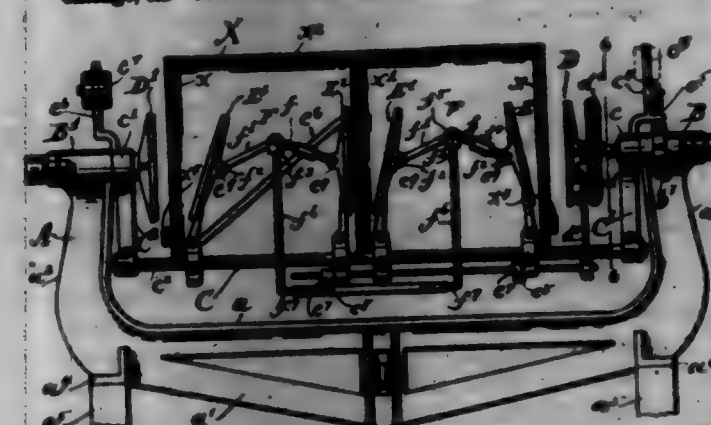


698,481. BOX-ASSEMBLING MACHINE. HANCOCK BISHOP, Chicago, Ill. Filed Sept. 12, 1900. Serial No. 93,741. (No model.)



Claim.—An egg-case having its sides and bottom made of a strip of wood-pulp board scored transversely on the inside to form corners which are preferably smooth externally, the said strip being attached to transverse parts which form the ends of the case and a partition in the case and the box being further provided with external reinforcing-strips that extend continuously around its upper edge, making smooth and perfect corners where they join substantially as set forth.

698,482. BOX-ASSEMBLING MACHINE. HANCOCK BISHOP, Chicago, Ill. Filed Mar. 15, 1901. Serial No. 91,200. (No model.)



Claim.—1. A box-assemblying machine provided with a U-shaped stationary frame having ends on its uprights, a cradle having transverse members in said ends and provided with end clamping-plates, means for adjusting said plates relatively to each other and two series of intermediate clamping-plates, the plates of each series being connected by toggle-levers, as set forth.

2. In a box-assemblying machine, a cradle, means for holding parts of a box on the cradle, a frame for supporting the cradle, the said frame consisting of a horizontal part a, uprights c, c', integral with the part a, and provided at their tops with heads having bearings for transverse members on the cradle, the part a of frame being provided with a pedestal under part c', as set forth.

3. In a box-assemblying machine, an oscillating cradle provided with clamping-plates two pairs of said plates being connected with toggle-joints, said joints being in the axial line of the cradle when the plates are set in a closed position, as set forth.

4. In a box-assemblying machine, a movable cradle provided with means for holding parts of a box, the said cradle consisting of two triangular plates c' c' connected by rods d, and the said end plates being provided with transverse members, as set forth.

5. In a box-assemblying machine, a cradle having a horizontal bed for supporting a box, vertical end plates connected to the bed and having

transverse members which are mounted in a stationary frame, one of said transverse members having a screw-threaded socket in which is mounted a screw for adjusting one of the clamping-plates of the machine, as set forth.

6. In a box-assemblying machine, a cradle, the ends of which have transverse members mounted in the heads of a stationary frame, the said cradle being provided at its ends with projecting arms, one of which carries a counterweight and another a spring-mechanism which engages notches in a segment on one of the heads of the stationary frame, as set forth.

7. In a box-assemblying machine having plates for clamping the ends of the box, plates for clamping a middle partition in the box, and toggle devices for closing said plates, the said devices being connected together with means for throwing them out of their clamping position, as set forth.

8. In a box-assemblying machine, plates for clamping opposite parts of the box with toggle-levers connecting two of the plates so as to set both plates at once, as set forth.

9. In a box-assemblying machine, plates which clamp two opposite parts of a box, the said plates being connected by toggle levers or joints and one of said levers being provided with means for adjusting same, as set forth.

10. In a box-assemblying machine a stationary frame, provided with heads which have bearings for the transverse of a movable cradle, said bearings being provided with end-thrust cups or parts having friction-disks, as set forth.

11. In a box-assemblying machine, sliding brackets on which are mounted plates for clamping the box interiorly, and plates for clamping box exteriorly, one of said exterior plates being movable, and provided with means for disengaging the interior plates from parts of the box when the exterior plate is moved longitudinally.

12. A box-assemblying machine, comprising a stationary frame, a cradle provided with two end parts, having transverse members in the stationary frame, a clamping-plate attached to one of said end parts of cradle, a movable clamping-plate having a screw entering the other end part, a wheel for rotating said screw, intermediate clamping-plates having toggle connections, said plates being mounted on brackets which slide on rods of cradle, and connections for engaging the brackets and moving the intermediate plates after one of the end plates has been released from its clamping position, as set forth.

13. A machine of the class described, having an oscillating cradle, means for retaining cradle in a set position, and a longitudinal pivoted gage provided with means for bringing the gage into a position along the side of cradle, so that the parts of a box placed on the cradle may be aligned, as set forth.

698,483. BRAIN-VALVE FOR CYLINDERS. GEORGE FAITH and THOMAS ROSE, Indiana, Pa. Filed June 1, 1901. Serial No. 93,776. (No model.)



Claim.—1. The combination with a valve-barrel having springs at the opposite ends thereof, of ball-valves in position to strike the springs, and a rod interposed between and in the path of the balls for always causing the displacement of one of the balls from its seat.

2. The combination with a valve-barrel made in sections secured together the ends of the inner section forming valve-seat, and the outer section having longitudinal ribs in their bores and cushion devices at their outer ends, of ball-valves centered between the ribs, a rod independent of these valves and interposed between them and guides for holding the rod loosely centered in the direct longitudinal path of the valves.

3. The combination with a valve-barrel having two valve-seats, of two ball-valves entirely independent of each other, and a rod interposed loosely between the valves, the length of the rod being such that it must be struck with each coating of a ball-valve, and spiral springs located at the outer ends of the barrel.

698,484. NEEDLE-BAR-GUIDING MECHANISM FOR SEWING-MACHINES. WILLIAM FORTY, Baltimore, Md. Filed Nov. 8, 1901. Serial No. 91,800. (No model.)



Claim.—1. In a sewing-machine, the combination with the needle-bar; and the cross-head carried thereby, said cross-head carrying a direct

adjustable gill; of a plate having a race for said gill detachably carried by the face-plate, said race-plate having means preventing a movement of the gill laterally.

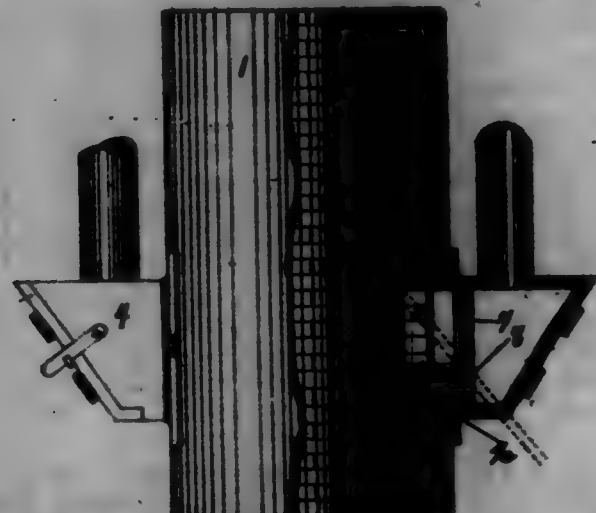
2. In a sewing-machine, the combination with the needle-bar; and the cross-head carried thereby, said cross-head carrying a slitted adjustable gill; of a plate having a race for said gill detachably carried by the face-plate, said plate having a slot of a length to permit of the full longitudinal movement of the gill, whereby lateral movement of the gill will be prevented.

3. In a sewing-machine, the combination with a plate having a gill-race adapted to prevent lateral movement of the gill; of a cross-head having a slitted gill movable longitudinally of the race said gill having means constructed to expand the sides thereof for taking up wear.

4. In a sewing-machine, the combination with a plate having a gill-race adapted to prevent lateral movement of the gill; of a reciprocating cross-head carrying a gill, said gill having a slit; and an adjusting-screw carried by said gill and adapted to expand the sides of said gill to take up wear.

5. In a sewing-machine, a needle-bar; a cross-head carried thereby; a gill carried by the cross-head, said gill being slitted longitudinally; an adjusting-screw carried by the gill and adapted to expand the sides of the gill; and a plate having a gill-race detachably carried by the face-plate, said race extending on opposite sides of the gill.

698,485. TWYER FOR FURNACES. WILLIAM R. FORTER, Union, N. Y. Filed July 26, 1899. Serial No. 24,912. (No model.)



Claim.—1. The combination in a furnace of a tryer-opening having a vertical extent equal at least to the thickness of the furnace-wall at the tryer-opening, a plate for said opening removable without necessitating the removal of other coating parts and having a blast-opening and means for conducting the air to said blast-opening, substantially as set forth.

2. The combination in a furnace of a tryer-opening and its surrounding casing, said opening and casing being not less in vertical extent than the distance from the inner face of the wall of the furnace, to the outer edge of the bottom wall of the casing, a removable plate having a blast-opening, means for conducting the air to said blast-opening and means for opening and closing the casing, substantially as set forth.

3. A furnace having a tryer-opening of a size to permit the introduction of a bar at an acute angle with the axis of the furnace, as set forth, a removable plate for said tryer-opening having a blast-opening therein and a casing surrounding said tryer-opening, substantially as set forth.

4. The combination with a furnace having the large tryer-opening 3 of a tryer-casing 4 surrounding the tryer-opening and having an extended upper wall and a lower or bottom wall shorter than the upper wall, and a door closing the outer end of said tryer-casing, a removable plate closing the tryer-opening and a blast-opening, through said plate, substantially as set forth.

5. The combination with a furnace having a large tryer-opening, of a tryer-plate removable without necessitating the removal of other coating parts, and having a blast-opening of smaller area than that of the tryer-opening, and means for conducting the air-blast to said blast-opening, substantially as set forth.

698,486. LOCK. ARON FRANKMANN, Copenhagen, Denmark. Filed Feb. 12, 1899. Serial No. 25,123. (No model.)

Claim.—1. In a safety-lock a reversible key-box 1 provided with spiral or labyrinthine guideways for a ball 2; a key which is provided with a hook-like bow 3, having guideways and a ball 2 corresponding to those of the key-box, and by engagement with a stop of the key-box turns said

box so as to make the ball 2 roll to the outer throat, and means for pushing the ball inside from said position, a ball released by said ball when pushed inside.



2. In a safety-lock comprising the reversible key-box with labyrinthine guideways, a ball 2 rolling therein, a key having hook-like bow and hook-like bow with the guideways, and a ball 2 rolling therein, and means whereby both balls may be brought to a central position by turning said key, the combination with said parts of a spring-pressed pin 7 playing in the hollow shank of said key and arranged to enter a small hole in the center of the key-box, whereby when said pin is pushed forward the ball 2 in said key-box is pushed back, a spring-ball released by such action, and a door-bolt forced out by said spring-ball when released.

3. In a safety-lock comprising the reversible key-box with labyrinthine guideways, a ball 2 rolling therein, a key having similar guideway, and a ball rolling therein, a spring-pressed ball, and a door-bolt acted upon by said spring-pressed ball when released, the combination with said parts of an angular lever 19 provided with a lock 20 engaging said spring-ball to hold it in a retracted position, and means for pushing the ball 2 in the key-box from a central position against said lever to disengage it and release the spring-ball.

4. In combination with the spring-ball 21 and the engaging latch-lever 19 a pin 20 fastened to said ball and playing in a slot in the catch-box, whereby said ball may be moved back to engagement with the latch-lever.

5. In combination with the spring-ball 21 and engaging latch-lever 19 a manually-operated disengaging-lever 27 pivotedly mounted upon the catch-box and acting at one end upon the hooked end of the latch-lever to disengage it from the spring-ball and release the latter.

6. The combination with the spring-pressed ball, the latch-lever by which it is held, the door-bolt, the ball 2 and its central pocket, of the catch 17, the forced spring 18 and rod or pin 7 movable in the shank of said key.

698,487. TYPE-WRITER. ARTHUR R. FINE, Peabody, N. Y. Filed Dec. 4, 1899. Serial No. 25,026. (No model.)



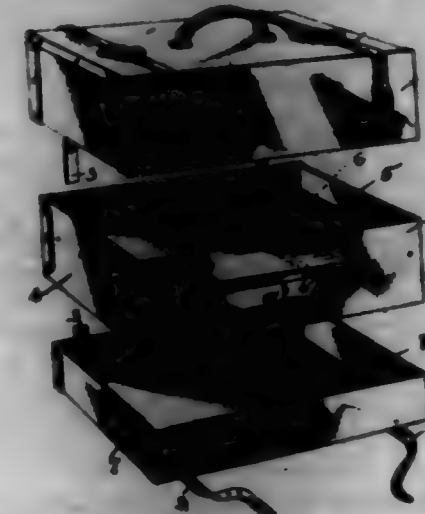
Claim.—The combination with the frame and platen of a typewriter of brackets 4 attached to the frame of the machine and supporting a track 4, a paper-roll carrier 5 with arms removably hooked upon the platen-carrying rod 7 embracing the platen-frame between them as described, the outer central end of said frame having a roller 6 that rides upon the track 4, the paper-roll, supported upon the carrier 5 by journals 6 as shown, and a spring 15 resting upon one of said journals and having a strong initial pressure regulable by means of a screw 16, substantially as herein set forth.

698,488. TELEGRAPH CASE. CHARLES L. GILBERT, Cleveland, Ohio. Filed Feb. 4, 1899. Serial No. 24,897. (No model.)

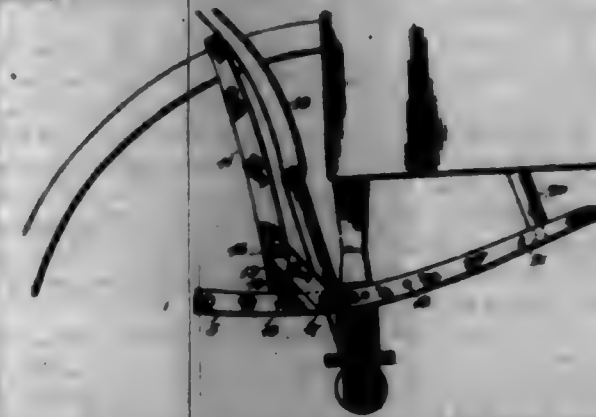
Claim.—1. A telescopic case comprising a frame-like section 4 having a fixed central partition 5, an upper section 1 adapted to receive said section 4 and a lower section 7 adapted to be inserted and inserted within the section 4 beneath the partition thereof and stops for seating said section, substantially as specified.

2. In a telescopic case, the combination with a frame-like section 4 having its upper and lower sides open, a fixed horizontal partition 5

said section and suitable strengthening-strips on the under side of said partition, of an upper section 1 adapted to receive said section 4, a lower box-like section 7 adapted to be inserted within the lower portion of the section 4 and means for seating said sections, substantially as specified.



698,489. SHAFT-SUPPORT FOR VEHICLES. JAMES H. GARDNER, Morris Plains, N. J. Filed May 31, 1901. Serial No. 68,561. (No model.)



Claim.—1. A shaft-support comprising a beam, links pivoted to opposite sides of the beam and adjustable thereon, an upright pivoted to the opposite ends of the links and between them at a point above the lower end of the upright to permit the upright to stand with its lower end upon the beam, and a stop connecting the links above the beam and in the path of rearward movement of the lower end of the upright to limit the forward movement of the upper end of the upright.

2. A shaft-support comprising a beam having a plurality of transverse perforations, links disposed against the sides of the beam and having a pivot-bolt engaged with the perforation and adapted for engagement with the whole number of perforations interchangeably, an upright pivoted between the upper ends of the links at a point above its lower end, said upright being adapted to stand with its lower end upon the beam and a bolt engaged with the links in the path of rearward pivotal movement of the lower end of the upright to form a stop therefor and prevent forward movement of the upper end of the upright.

698,490. TUBULAR BRAKE. JAMES A. GARDNER, New York, N. Y., assignor to Knott's Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Nov. 20, 1901. Serial No. 64,099. (No model.)



Claim.—1. As a new and useful article of manufacture a tubular brake consisting of a braided body, having water or air of a general undulating form running longitudinally thereof and valve edges united by a thread or filament after the manner of a loop-knot.

2. As a new and useful article of manufacture, a tubular brake having valve edges of a general undulating form bound together by a thread substantially as set forth and ribs or vanes of a general undulating form running longitudinally thereof.

3. As a new and useful article of manufacture, a tubular brake consisting of a braided body, having two valve edges of wavy form, the waves of one edge fitting the waves of the other edge, and means for seating said edges substantially as described.

4. As a new and useful article of manufacture, a tubular brake having extending longitudinally thereof wavy edges, the waves of one edge fitting the depressions between the waves of the other edge, and a binder thread entering both edges and binding the said edges together.

698,491. STATION-ANNUNCIATOR FOR RAILWAY-CARS. GEORGE HALL, Peabody, Ohio. Filed Jan. 20, 1902. Serial No. 31,734. (No model.)



Claim.—1. In a station-annunciator for railway-cars, a conductor's indicator having an indicator member for each stopping-point, an operator's annunciator having an annunciating device for each stopping-point, connections between each indicator member and the corresponding annunciating device, means capable of operation from any place in the car for indicating any desired indicator member, and means for actuating the corresponding annunciating device.

2. In a station-annunciator for railway-cars, a conductor's indicator, an operator's annunciator adapted and arranged to annunciate the point designated on the indicator, a pointer on the indicator, and a rod connected with said pointer and disposed within reach, lengthwise of the car, whereby the indicator may be operated from any place within the car.

3. In a station-annunciator for railway-cars, an indicator, a rod which extends through the car and which is adapted and arranged to operate the indicator, an annunciator connected with said indicator, and means, capable of being operated from any part of the car, for causing the annunciator to register the point marked on the indicator.

4. A station-annunciator for railway-cars comprising a conductor's indicator having indicator members corresponding with the stations, an operator's annunciator having electrically-controlled annunciating devices corresponding with said indicator members, open electric connections between each of said indicator members and its corresponding annunciating device, a movable member adapted to designate either of said indicator members and to thereby throw either of said indicator members into electrical connection with its corresponding annunciating device, means for actuating said movable member from any place in the car, a make-and-break device in said electrical connections, and means for actuating said make-and-break device from any place in the car.

698,492. CLAMPING DEVICE FOR FRUIT-JAR LIDS. WALTER V. HARR, Detroit, Mich. Filed Apr. 4, 1901. Serial No. 65,090. (No model.)

Claim.—1. The combination with a pair of levers having inwardly-extending cam, of a body portion pivoted in said cam and having diverging arms terminating in upward cam, and a clamping-rod connected at each end to the ends of the said levers and passed twice through said upward cam and forming a circular loop doubled outside said cam, all substantially as shown and described.

2. The combination with a pair of levers having inwardly-extending

ing arms and end portions 11 with apertures 12, of a body portion pivoted in said cars and having diverging arms terminating in upturned ears substantially in line with said apertures, and a clamping-wire connected at each end to said levers at the ends thereof in said apertures and passed twice through the upturned ears of said arms in different planes and forming a circular loop doubled outside said arms with the portion between said ears of the arms and the ends of the body portion inclined, all substantially as shown and described.



698,498. VEHICLE. ARTHUR HERRMANN, New York, N. Y. Filed Oct. 18, 1901. Serial No. 79,100. (No model.)



Claim.—1. In a vehicle, the combination of the body and an axle, with vertical upright guides connected with the body on each side thereof and through which the axle projects, and springs attached to the body at points in front and rear of the guides and passing through said guides and resting freely on the top of the axle therein, substantially as described.

2. In a vehicle, the combination with the body and an axle, of vertical guides secured to the body and having passages through them in two planes at right angles to each other, the axle passing through and guided by the openings in one plane and springs passing through and guided by the openings in the other plane.

3. In a vehicle, the combination with the body and an axle, of vertical guides secured to the body, each consisting of four uprights placed at the corners of a rectangle and forming a box-like structure through which the axle projects and in which it is guided, the axle being provided with curved surfaces bearing against the inner sides of the outer uprights, respectively.

4. In a vehicle, the combination with the body, and vertical guides carried thereby and consisting of four braces forming an open box-like structure, of semi-elliptical springs passing through the open sides of said guides and having attached thereto a shank engaging with the guides to support and guide the springs, substantially as described.

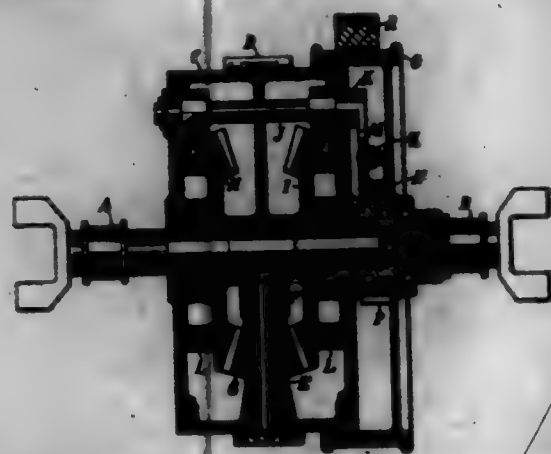
5. In a vehicle, the combination of a body, an axle mounted later to assume an inclined position with respect to the floor of the body, a spring interposed between the body and the axle and resting freely upon the latter and a curved shoe interposed between the spring and the axle affording a rolling motion when the axle assumes an inclined position with respect to the floor of the body and means for maintaining the spring in its working position.

6. In a vehicle, the combination of a body, an axle mounted free to assume an inclined position with respect to the floor of the body, an elliptical or semi-elliptical spring interposed between the body and the axle, resting freely upon the latter and occupying a plane at right angles to the axle and a curved shoe interposed between the spring and axle, affording a rolling motion when the axle assumes an inclined position with respect to the floor of the body.

698,494. BRAKING DEVICE FOR COMPENSATING GEARS. ARTHUR HERRMANN, New York, N. Y. Filed Nov. 12, 1901. Serial No. 82,857. (No model.)

Claim.—1. In a self-propelled vehicle, the combination of a divided shaft, a compensating-gear drum applied thereto, an idler or supplemental wheel loosely mounted on one part of said divided shaft and normally

rotating at substantially the same speed as said drum, and means operated by the development of substantial difference in speed of rotation between said idler and said drum for causing the stoppage of the compensating-gear device carried by said drum, substantially as and for the purposes described.

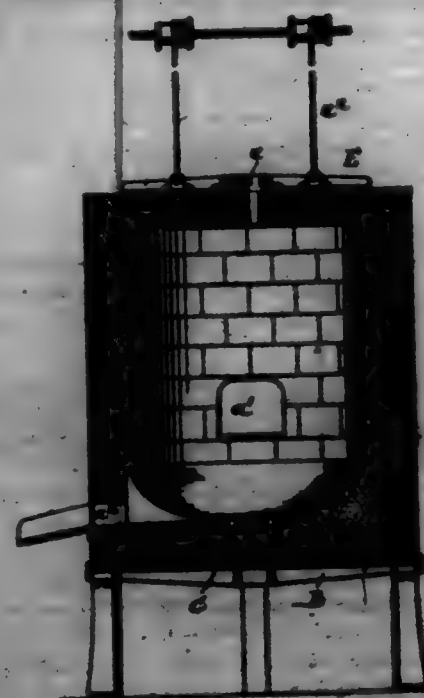


2. The combination of a divided shaft, a compensating gear applied thereto, an idler carried by one part of said divided shaft, a braking device capable of application to one or more of the elements of said gear, and means for applying said braking device, said means being actuated by the development of substantial difference in the speed of rotation between said compensating gear and said idler, substantially as and for the purposes described.

3. In a compensating or differential gear, the combination of a series of gears in planetary relation to each other, a driving-drum in operative relation thereto, a divided shaft upon which said gears are mounted, an idler loosely mounted upon one part of said divided shaft, a rocking spindle carried by said driving-drum, braking devices applied to one or more of the elements of said compensating gear, a rack mounted on said rocking shaft, a pinion carried by the axle of said hub and arranged to intermesh with said rack, and means for developing at will a difference in speed of rotation between said idler and said drum, substantially as and for the purposes described.

4. A braking device for compensating gears of self-propelled vehicles comprising a divided shaft an idler loosely mounted upon one part of said shaft, a pinion carried at the axle of rotation of said idler, a compensating-gear drum, a rocking spindle carried thereby, a segmental rack meshing with said pinion and carried by said spindle, and a brake in operative relation to one or more of the elements of the compensating gear and arranged to be applied by the movement of said rocking shaft, substantially as and for the purposes described.

698,495. FURNACE FOR HEATING OR CHILLING METALS. HERBERT H. HEWITT, Buffalo, N. Y. Filed Oct. 18, 1901. Serial No. 79,904. (No model.)



Claim.—1. A furnace of the character described having a combustion-chamber the wall whereof is perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of said combustion-chamber.

2. A furnace of the character described having a combustion-chamber the wall whereof is perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the combustion-chamber, said cover or diaphragm being provided with an opening of small diameter for the escape of products of combustion.

3. A furnace of the character described having a combustion-chamber perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the combustion-chamber, the diameter of said cover or diaphragm being sufficiently smaller than the interior diameter of the body of the combustion-chamber to permit said cover or diaphragm to be adjusted to any desired point within the combustion-chamber.

4. A furnace of the character described having a combustion-chamber perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the combustion-chamber, said cover or diaphragm being of somewhat smaller diameter than the interior diameter of the combustion-chamber whereby the cover or diaphragm can be adjusted to any desired point within the combustion-chamber and means for raising and lowering said cover or diaphragm.

698,496. ASH OR REFUSE CAN. THOMAS HILL, Jersey City, N. J. Filed Jan. 20, 1901. Serial No. 64,900. (No model.)



Claim.—1. The tapered ash or refuse can of the character adapted for "nesting," having and carrying below its bottom the series of springs forming a spring base-support, said springs being set within the vertical plane of the lower edge of the can so as not to interfere with the "nesting" and being adapted when the cans are nested to contact with the bottom of the next lower can to prevent the can from unduly entering the next lower can and to aid in the separation of the cans, substantially as shown and described.

2. An ash or refuse can having the bottom construction comprising the disk 12 and frame 13 secured together and to the body of the can, said frame 13 having the depressed portion 15 provided with openings 16, combined with the springs 17 fastened at their outer portions, and having their inner free ends projected through the said openings 16; substantially as set forth.

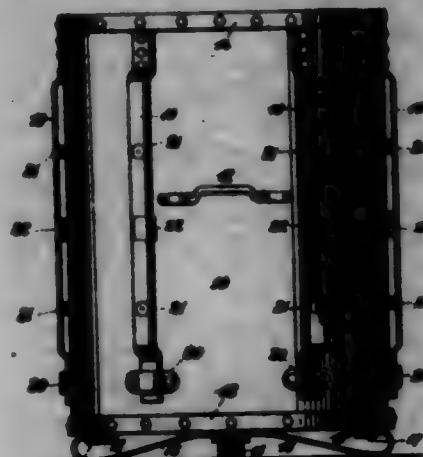
3. The tapered ash or refuse can of the character adapted for "nesting," having at its upper edge the riveted band 18, at the opposite sides of its upper edge adjacent to said band the handles 19, and at convenient intervals along said upper edge the springs 20 to prevent the nested cans from unduly sticking together or rattling, said springs being directly secured to and carried by the can, substantially as shown and described.

4. The ash or refuse can of the character adapted for "nesting," having the springs below and carried by its lower end and affording a yielding support or base for the can, and also having at intervals along its upper edge the springs 20 secured directly to and carried by the can and adapted to prevent the nested cans from sticking together or rattling, said bottom springs, when the cans are nested, being adapted to contact with the bottom of the next lower can to prevent the can from unduly entering the said lower can and to aid in the separation of the cans, substantially as and for the purposes set forth.

698,497. ASH OR REFUSE CAN. THOMAS HILL, Jersey City, N. J. Filed Jan. 20, 1901. Serial No. 64,901. (No model.)

Claim.—1. The ash or refuse can having and carrying below its bottom the series of radial leaf-springs 16 secured fastened at their inner portions to the central portion of the bottom of the can so as to be carried thereby, combined with the series of guides 17 also secured to the bottom of the can, said springs from their inner portions extending downward and outward and then upward and inward through said guides, substantially as shown and for the purposes set forth.

2. An ash or refuse can having the bottom 11 provided with the similar flange 12 by which said bottom may be secured to the can-body, combined with the disk 15 secured to the center of the said bottom, the guides 17 also secured to said bottom, and the springs 18 secured at one end to said disk 15 and at the other end being freely movable within said guides 17, said springs 18 affording a support for the can; substantially as set forth.



3. The ash or refuse can having upon its sides the series of metal springs 10 rigidly secured at one end, combined with the guides 20 also secured to the sides of the can and adapted to receive the other end of said springs; substantially as shown and set forth.

698,498. WRENCH. HARRY DE P. WILLIAMS, Lancaster, N. H., assignor of one-half to Moses A. Hastings, Lancaster, N. H. Filed Feb. 3, 1902. Serial No. 62,804. (No model.)



Claim.—1. A wrench including a fixed and movable jaw between which the article is received, said movable jaw slidable upon the shank of the fixed jaw and having members extending on each side of and parallel with the shank and substantially embracing the fixed jaw.

2. A wrench including a bar and fixed and movable jaws said movable jaw being slidable upon the shank of the fixed jaw and pivotally mounted at its lower portion and having members extending from its upper portion one on each side of the fixed jaw.

3. A wrench including a bar having a fixed jaw, a jaw slidable on the bar, a collar or yoke also slidable on said bar and collar or yoke and slidable jaw being pivotally united at a point in front of the bar, and said movable jaw having a projecting portion extending in the direction of the length of the shank of the fixed jaw and adapted to be engaged by the pipe or rod to rock the movable jaw about its pivot, and a screw parallel with the bar and in the plane of the pivot of the movable jaw, whereby said movable jaw is adjusted toward and from the fixed jaw.

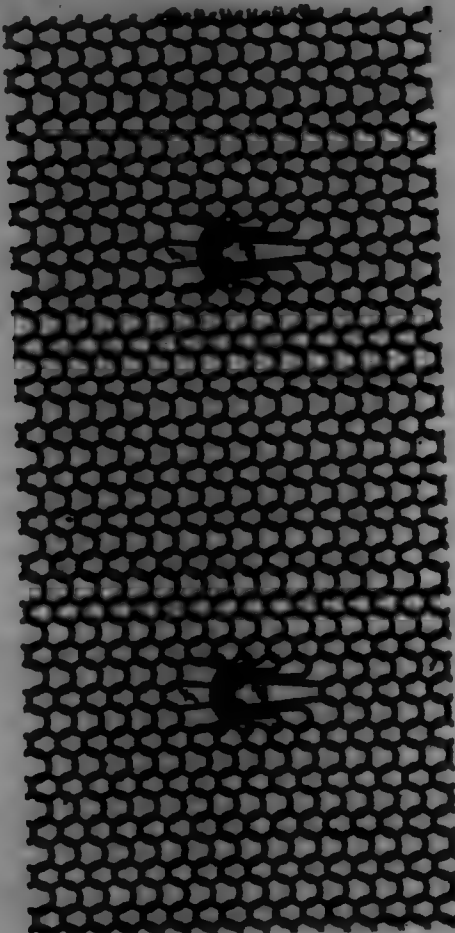
4. A wrench including a bar having a fixed jaw, a jaw slidable on said bar and a collar or yoke also slidable on the bar and pivotally connected with the slidable jaw said slidable jaw having portions extending in the direction of the length of the shank and adapted to be engaged by the pipe or rod to rock the movable jaw about its pivot, and a screw carried by the pivoted jaw and adapted to engage said bar to limit the rocking movement of the jaw.

5. A pipe-wrench consisting of a bar having a handle portion and a fixed jaw, a yoke slidable on the bar and a jaw also slidable on the bar and pivotally connected with said yoke forward of the plane of the front of the bar, an operating-screw parallel with the bar and in the plane of the pivotal axis of the movable jaw, and pins or fingers extending from the movable jaw substantially parallel with the bar and embracing the outside of the latter.

698,499. MANIPULATOR OF FIGURES IN TYPE. FARMER, BENJ. A. WILSON, Allentown, Pa. Filed Mar. 21, 1901. Serial No. 62,805. (No specimens.)

Claim.—1. The method of producing figured lettering, which consists in withholding from action certain predetermined pieces, bearing loops of a thread of one kind, during the lettering of successive columns with thread of another kind, and upon the completion of a predetermined number of these columns, again drawing the inactive needles into operation, whereby the loops which they all carry from the first column are

projected forward into the territory of the succeeding course, substantially as described.



2. The method of producing figured knitting, which consists in withholding from action certain predetermined needles, bearing knitting-loops, during the knitting of a predetermined number of successive courses, and then knitting a course with a thread of a different kind during which the formerly inactive needles are again thrown into action, whereby the loops formed on these needles from the latter thread are drawn back into the territory of the preceding course, substantially as described.

3. The method of producing figured knitting, which consists in withholding from action certain predetermined needles, bearing loops of thread of one kind, during the knitting of successive courses with thread of another kind, and upon the completion of a predetermined number of these courses, again throwing the inactive needles into operation, during the knitting of a succeeding course with the thread of the first kind, whereby the effect of a link or chain figure is produced, substantially as described.

4. The herein-described figured knit fabric, which contains courses of threads of different kinds, having certain of the loops of a course formed of one kind of thread drawn forward over one or more intervening courses of a different kind of thread, and knit into a subsequent course; substantially as described.

5. The herein-described figured knit fabric, which contains courses of threads of different kinds, having certain of the loops of a course drawn forward over one or more intervening courses, and knit into a subsequent course formed of a thread of a different kind from the intervening course or courses; substantially as described.

6. The herein-described figured knit fabric, which contains courses of threads of different kinds, having certain of the loops of a course formed of one kind of thread drawn forward over one or more intervening courses of a different kind of thread and knit into a subsequent course formed of the same kind of thread as the course from which the loops were drawn forward; substantially as described.

7. The herein-described figured knit fabric, which contains courses of threads of different colors, having certain of the loops of a course of a thread of one color drawn over the face of one or more intervening courses of threads of a different color, and knit into a subsequent course; substantially as described.

8. The herein-described knit fabric, which contains courses of threads of different kinds, having certain of the loops of a course of one kind of thread drawn forward over one or more intervening courses of a different kind of thread, and knit into a subsequent course, of which the corresponding loops are drawn backward over one or more of the intervening courses of a different kind of thread and knit into a subsequent course with the forwardly-projecting loops; substantially as described.

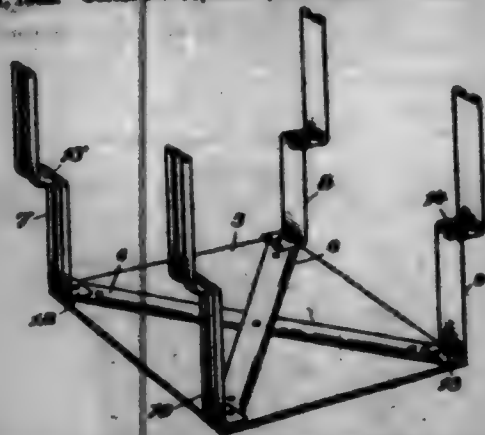
9. The herein-described figured knit fabric, which contains courses of threads of different colors, having certain of the loops of a course formed of one colored thread drawn forward over one or more intervening courses

of a different-colored thread, and knit into a subsequent course, and also having certain loops formed of one colored thread drawn backward over one or more intervening courses of a different-colored thread, and knit into a preceding course; substantially as described.

10. A continuously-knit tubular web, containing courses knit with threads of different colors, and having certain of the loops formed of one color drawn forward over the face of intervening courses of a different color, and interlooped into a subsequent course; substantially as described.

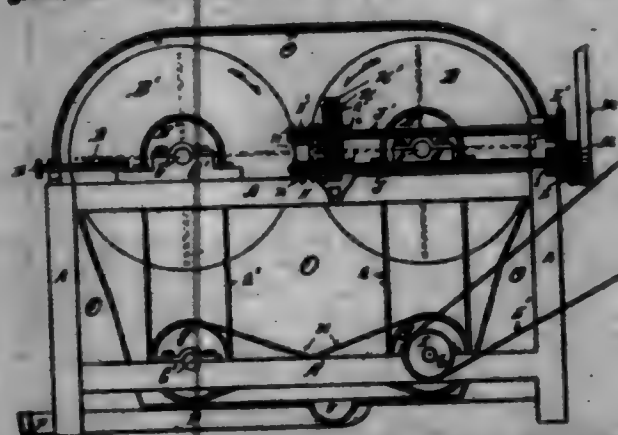
11. A continuously-knit seamless stocking, the tubular portion of which contains courses knit with threads of different colors and having certain of the loops formed of one color drawn forward over the face of intervening courses of a different color, and interlooped into a subsequent course; substantially as described.

698,500. OVER. FRANK F. HOFFMAN, Arlington, N. H. Filed Feb. 11, 1908. Serial No. 92,304. (No model.)



Claim.—A device of the class described comprising a base-plate having diagonal strengthening-ribs and uprights secured upon the ribs at the ends thereof, the upper portions of the uprights at opposite sides of the base-plate being laterally offset in opposite directions at points intermediate of their ends to form supporting-shoulders and guides thereabove.

698,501. SAW-SPINDLING-MACHINE. FRANK HOFFMAN, Milford, Pa. Filed Nov. 11, 1901. Serial No. 51,008. (No model.)



Claim.—1. In a saw-spindling-machine the combination of two main-drums, one of which is adjustable, and mechanism for driving them, the blades at one side of each of said drums, flanged feed-rolls at each side of the machine, a case inclosing said drums and flange, and a spout connected with said case, for carrying off the dust therefrom, substantially as set forth.

2. In a saw-spindling-machine, the combination of two main-drums one of which is mounted on adjustable bearings, the blades at one side of each of said drums, and flanged feed-rolls at each side of the machine, one of which rolls is provided with a yielding bearing, and mechanism for driving said feed-rolls in unison substantially as set forth for the purpose set forth.

3. In a saw-spindling-machine, the combination of main-drums B F, adjustable bearings G for the drum B, flange F and pulleys on the shaft of each drum, driving-pulleys g g' on a cross-shaft H and belt A H, flanged feed-rolls H H' at each side of the machine, shafts and mechanism for driving said feed-rolls, adjustable and yielding bearings j' for the upper of said feed-rolls, a case Q inclosing the main-drums and flange mechanism, and a spout P leading therefrom, substantially as set forth for the purpose set forth.

698,502. CARBON-PILE HEATER. LOW E. BROWN, Chatham, Ohio. Filed May 9, 1901. Serial No. 92,003. (No model.)

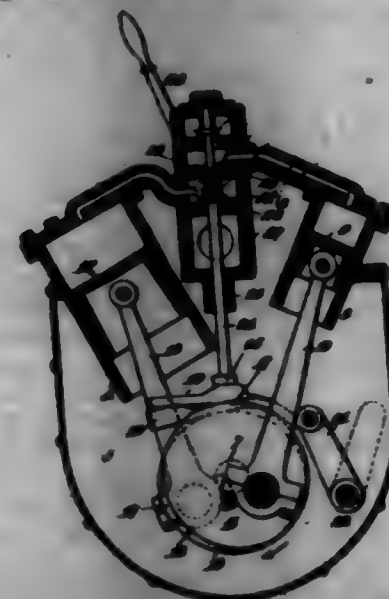
Claim.—1. An article of manufacture consisting of a box-shaped structure of metal having

ing a rear wall and a wall in front thereof and constituting an air-chamber open at the bottom, and the forward of said walls terminated below by an open-top trough extended from side to side and partly blanketing the lower portion of the inclosed chamber, said forward wall having perforations through it whereby the air heated in the chamber between the two walls is discharged forwardly to mingle with the flame that passes along the front of the forward wall, and said structure having other perforations to discharge air rearwardly across the front edge of the trough.



2. An "open-fire" burner for burning between, consisting substantially of two or more open-top feed-troughs disposed one above and behind the other, in combination with side, rear and front walls including an air-chamber open below the troughs and extended upwardly at rear, perforated to discharge air rearwardly across the front edge of each trough and forwardly through the front wall of the vertical rear extension, the sides of the inclosure being extended forward as a curb extending from the outer edge of the lowest trough to or near the top of the vertical rear extension of the air-chamber, substantially as set forth.

698,503. PRESSURE-ENGINE. FREDERICK H. BULL, Brooklyn, N. Y. Filed May 8, 1907. Serial No. 82,323. (No model.)



Claim.—1. In a pressure-engine, the combination with the cylinder, piston, crank-shaft, and connections between the piston and the crank-shaft, of valves for controlling the admission of the operating fluid to and from the cylinder, a pair of oppositely-arranged cams on the crank-shaft, and means for operatively connecting the valves with one of said cams and for simultaneously disconnecting them from the other of said cams, whereby the valves may be operatively connected with either of said cams, substantially as set forth.

2. In a pressure-engine, the combination with the cylinder, piston, crank-shaft, and connections between the piston and crank-shaft, of valves for controlling the admission of the operating fluid to and from the cylinder, a pair of oppositely-arranged cams on the crank-shaft, a pair of valve-operating bars engaging said cams, and means for bringing either of said bars into operative relation with the valves, substantially as set forth.

3. In a pressure-engine, the combination with the cylinder, piston, crank-shaft, and connections between the piston and crank-shaft, of valves for controlling the admission of the operating fluid to and from the cylinder, a pair of oppositely-arranged cams on the crank-shaft, a pair of valve-operating bars engaging said cams, and a pivoted arm connected to said bars for bringing either of them into operative relation with the valves, substantially as set forth.

4. In a pressure engine, the combination with the cylinder, piston, crank-shaft, and connections between said crank-shaft and piston, of a valve-chamber connected to the cylinder, valves in said chamber controlling the admission and exit of the pressure fluid to and from the cylinder, a pair of operating-cams on the crank-shaft, a pair of valve-operating bars having oppositely-disposed wide and narrow portions, and a valve-rod connected to the valves and co-operating with the said bars, substantially as set forth.

5. In a pressure-engine, the combination with the cylinder, piston, crank-shaft, and connections between said crank-shaft and piston, of a valve-chamber connected to the cylinder, valves in said chamber controlling the admission and exit of the pressure fluid to and from the cylinder, a pair of operating-cams on the crank-shaft, a pair of valve-operating bars having oppositely-disposed wide and narrow portions, and a valve-rod connected to the valves and co-operating with the said bars, the valve-operating bars having inclined sections connecting the wide and narrow portions thereof and with which inclined sections the valve-rod co-operates to stop the engine, substantially as set forth.

6. In a pressure-engine, the combination with the cylinder, piston, crank-shaft, and connections between said crank-shaft and piston, of a valve-chamber connected to the cylinder, valves in said chamber controlling the admission and exit of the pressure fluid to and from the cylinder, a pair of operating-cams on the crank-shaft, a pair of valve-operating bars having oppositely-disposed wide and narrow portions, a valve-rod connected to the valves and co-operating with the said bars, and a pivoted arm connected to said bars, substantially as set forth.

7. In a pressure-engine, the combination with the high and low pressure cylinders, the pistons thereof, the crank-shaft, and connections between said pistons and the crank-shaft, of a valve-chamber, an admission-valve for the high-pressure cylinder, exhaust-valves for both cylinders, a valve-rod operating said valves, a pair of cams on the crank-shaft, and means for operating said valves from either of said cams, according to the direction in which the crank-shaft is to be rotated, substantially as set forth.

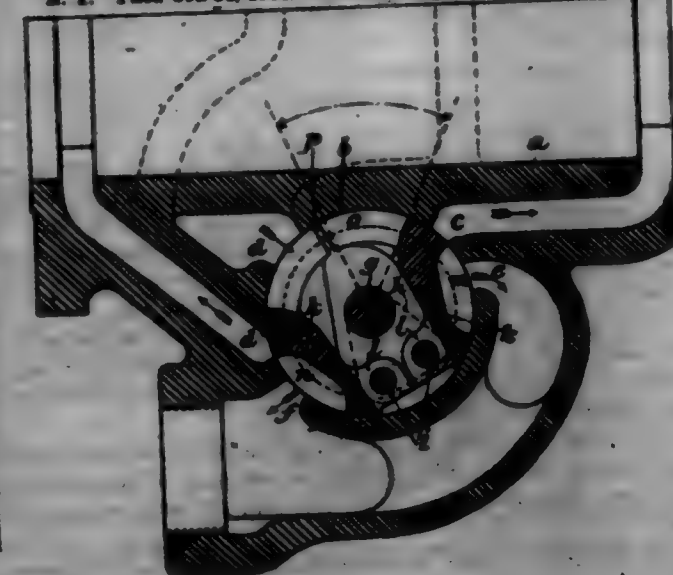
8. In a pressure-engine, the combination with the high and low pressure cylinders, the pistons thereof, the crank-shaft, and connections between said pistons and the crank-shaft, of a valve-chamber, an admission-valve for the high-pressure cylinder, exhaust-valves for both cylinders, a valve-rod operating said valves, a pair of cams on the crank-shaft, and a pair of valve-operating bars co-operating with said cams and connected to said valves, substantially as set forth.

9. In a pressure-engine, the combination with the high and low pressure cylinders, the pistons thereof, the crank-shaft, and connections between said pistons and the crank-shaft, of a valve-chamber, an admission-valve for the high-pressure cylinder, exhaust-valves for both cylinders, a valve-rod operating said valves, a pair of cams on the crank-shaft, a pair of valve-operating bars co-operating with said cams and connected to said valves, and a pivoted arm connected to said bars for operating the latter, substantially as set forth.

10. In a pressure-engine, the combination with the high and low pressure cylinders, the pistons thereof, the crank-shaft, and connections between said pistons and the crank-shaft, of a valve-chamber, an admission-valve for the high-pressure cylinder, exhaust-valves for both cylinders, a valve-rod operating said valves, a pair of cams on the crank-shaft, and a pair of valve-operating bars co-operating with said cams and connected to said valves, said bars having wide and narrow portions and inclined sections connecting said portions, substantially as set forth.

11. In a pressure-engine, the combination with the high and low pressure cylinders, the pistons thereof, the crank-shaft, and connections between said pistons and crank-shaft, of a valve-chamber, a valve-rod reciprocating in said chamber, means for operating said valve-rod, an exhaust-valve for the low-pressure cylinder rigidly carried by the valve-rod, an exhaust-valve for the high-pressure cylinder longitudinally movable on the valve-rod, and a steam-admission valve for the high-pressure cylinder actuated by said valve-rod near the completion of the movement of the latter, substantially as set forth.

698,504. VALVE. CHARLES W. HUNT, West New Brighton, N. Y. Filed Oct. 31, 1901. Serial No. 92,009. (No model.)



Claim.—1. A valve comprising members separated longitudinally for relative movement, means to secure said members together for common movement, and rings placed about said members to receive the outward pressure thereof, substantially as shown and described.

2. A valve comprising a shaft, valve members supported by said shaft for movement toward and from each other in the plane of the axis, and rings placed about said valve members to receive the outward pressure, substantially as shown and described.

3. A valve comprising a shaft, arms on said shaft, rods or pins carried by said arms and valve members mounted upon said rods or pins for movement toward or from each other, substantially as shown and described.

4. The combination of a steam-cylinder, valve-chest and confining valve, cylinder-ports being formed in the valve-chest and asymmetrically disposed, one being near the cylinder and the other remote therefrom, an inlet-rod being formed in the valve-chest near the cylinder and exhaust-ports being formed in the steam-chest respectively near the cylinder-ports, whereby one of said exhaust-ports is near the lowest point of the steam-chest, substantially as shown and described.

698,505. GUARD FOR PIANOS. ALBERT A. HENRY, Chicago, Ill. Filed May 22, 1901. Serial No. 61,546. (No model.)



Claim.—1. A guard for pianos consisting of a frame adapted to enclose the piano substantially at the level of the keyboard, and means for removably supporting said frame in such position upon the piano.

2. A guard for pianos consisting of a frame adapted to enclose the piano substantially at the level of the keyboard and end shields for the ends of the piano, held in place by said frame.

3. A guard for pianos consisting of front and back pieces, and pieces detachably secured to said front and back pieces, locking devices for securing said members together, and means carried by said back piece for supporting the same upon the piano, substantially as described.

4. A guard for pianos consisting of front and back pieces, and pieces detachably secured to said front and back pieces, locking devices for securing said members together, and inwardly-projecting forks carried by said back piece for supporting the same upon the piano, substantially as described.

5. A guard for pianos consisting of a frame adapted to enclose the piano substantially at the level of the keyboard and consisting of a plurality of removably-connected parts.

6. A guard for pianos consisting of a frame adapted to enclose the piano substantially at the level of the keyboard and end shields for said piano removably held in place by said frame.

7. A guard for pianos consisting of a frame adapted to surround the piano substantially at the level of the keyboard and check-shields carried by said frame adapted to cover the check-pieces of the piano.

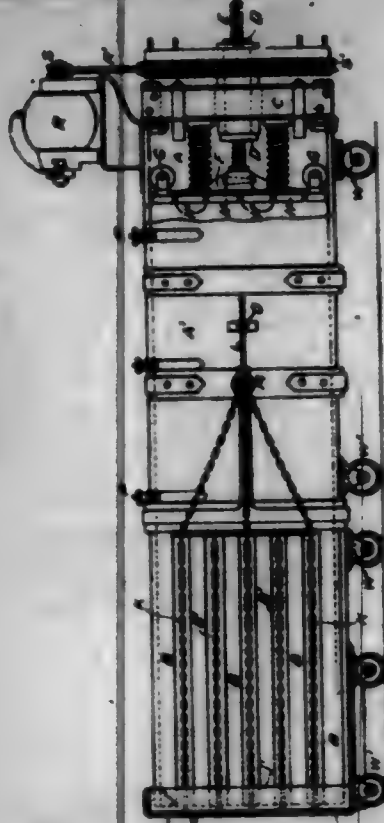
8. A guard for pianos consisting of a frame adapted to surround the piano substantially at the level of the keyboard, and shields for the ends of said piano and check-shields for the check-pieces of said piano, all of the shields being supported by said frame.

9. A guard for pianos consisting of a plurality of detachably-connected members adapted to surround a piano and check-shields supported by certain of said members and removable with said members from the piano.

10. A guard for pianos consisting of a frame adapted to surround

the piano substantially at the level of the keyboard and consisting of front and back pieces and end pieces detachably connected respectively to said front and back pieces and end and check shields carried by said end pieces.

698,506. MECHANISM FOR FEMMING WOOL OR THE LIKE INTO RAGS. ALFRED E. ILLINGWORTH, Addingham, England. Filed Jan. 15, 1902. Serial No. 59,590. (No model.)



Claim.—A receptacle A provided with longitudinal spaced bars B and a press-head F with means of operating same, combined with a movable rigid and J, chains K, with means for securing same, and rods Q passed through the chain-links, substantially as described.

698,507. GAS-SAVING APPLIANCE. SYRIGER J. JENK, Pittsburgh, Pa. Filed Dec. 26, 1901. Serial No. 57,312. (No model.)



Claim.—1. In a gas-burning device, a top plate having a curved opening and a flange thereon having air-inlets at the edge thereof opposite the top plate and waste-product outlets between the air-inlets and the top plate.

2. In a gas-burning device, a top plate having an opening with a broken margin, and a flange on said plate said flange having a reduced portion adapted to enter a stove-top opening and a shoulder, forming a step for the device.

698,508. CARPET-CLEANING RACK. FRANK V. JOHNSON, New-Hag, Ill. Filed May 22, 1901. Serial No. 61,319. (No model.)

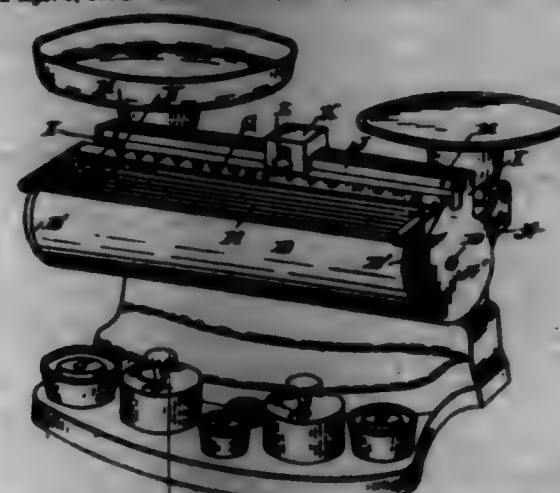


Claim.—1. In a carpet-cleaning rack, the combination of the frame 1, and means of support therefor; cross-pieces 6, pivotally secured by means of supporting-arms 4 to the frame 1; side 8; cross-pieces 14, and the cords 9 and 15 pivotally secured by means of supporting-arms 11 to the frame 1; cords 15; and means for securing the cross-pieces 6 and 14 in any desired position; substantially as shown and set forth.

2. In a carpet-cleaning rack, the combination of the frame 1, provided with loops 10; arms 4, pivotally secured to the frame 1, and provided with the ratchet-bars 9; cross-pieces 6; and cords 8; and means of support for the frame 1; substantially as set forth.

3. In a carpet-cleaning rack, the combination of the frame 1; legs 2, pivotally secured thereto; arms 4, pivotally secured to the frame 1; cross-pieces 6, detachably secured to the arms 4; and arms 11, detachably secured to the frame 1, and supporting the cross-pieces 14; cords 8; and cords 15; substantially as shown and described.

698,509. PRESS-SCALE. LEONARD T. JOHNSON, Brooklyn, N. Y. Filed Apr. 9, 1901. Serial No. 58,000. (No model.)



Claim.—1. In a weighing-scale, the combination with a sliding poise, of a rotary cylinder carrying computations, flexible connections between the poise and opposite ends of the cylinder, said connections being reversely wound about the cylinder and retaining means at the ends of the cylinder for preventing the slipping of the flexible connections therefrom, substantially as described.

2. In a weighing-scale, the combination with the beam, of forwardly-extending arms carried by the ends thereof having caps formed on their outer ends and provided with inclined ends and upwardly-extending legs, a casing mounted at its ends in said caps and formed with a longitudinally-extending right-opening in its upper portion, a cylinder mounted to revolve in said casing and carrying computations, a graduated bar secured to said scale, a track comprising two spaced rails secured to the upwardly-extending legs, a poise slidable on said track and provided with a pointer adapted to coact with the graduations of the bar, pulleys mounted between said rails at the ends of the track, a pulley mounted on one of said arms, and flexible connections between the poise and ends of the cylinder, said connections passing over the pulleys and wound about the cylinder reversely to each other, substantially as described.

3. In a weighing-scale, the combination with a sliding poise, of a rotary member carrying computations, a flexible connection between the poise and the member at points on opposite sides of the center of the latter, means for adjusting the length of the flexible connection between the poise and the respective points of attachment of said connection with the rotary member, and means whereby the same relative length of said connection between the poise and the points of attachment of said flexible connection with the rotary member may be preserved, substantially as described.

4. In a weighing-scale, the combination with a sliding poise, of a rotary member carrying computations, a flexible connection between the poise and points on opposite sides of the center of the rotary member, and means for adjusting said poise relatively to said flexible connection, substantially as described.

5. In a weighing-scale, the combination with a sliding poise, of a rotary member carrying computations, an adjustable member carried by the poise, and a flexible connection between said adjustable member and points on opposite sides of the center of the rotary member, substantially as described.

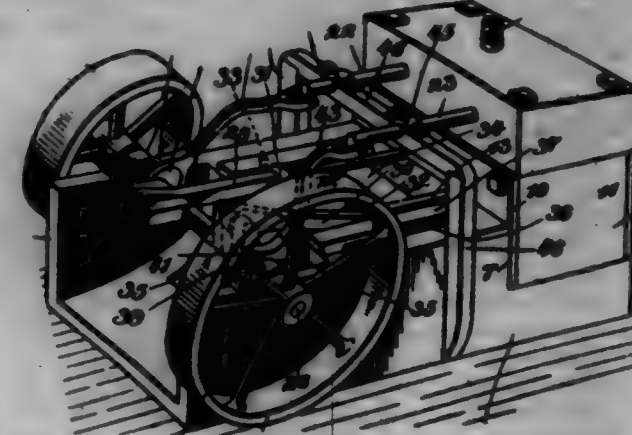
6. In a weighing-scale, the combination with a sliding poise, of a rotary member carrying computations, a block having a dot-and-curve connection with the poise, and a flexible connection between said block and points on opposite sides of the center of the rotary member, substantially as described.

7. In a weighing-scale, the combination with a sliding poise, of a rotary member carrying computations, a block to which the poise is adjustably attached, a flexible connection between said block and points on opposite sides of the center of the rotary member, and means carried by the block for adjusting the cords, substantially as described.

8. In a weighing-scale, two parallel-disposed spaced rails, a poise slidable on said rails and bifurcated to straddle the same, a rotary mem-

ber carrying computations, a block carried by the poise and disposed between the rails, flexible connections between said block and points on opposite sides of the center of the rotary member, and adjusting means carried by said block for effecting the adjustment of said flexible connections, substantially as described.

698,510. STEAM-ENGINE. WILLIAM A. JOHNSON, Emma, W. Va. Filed Aug. 13, 1901. Serial No. 71,964. (No model.)



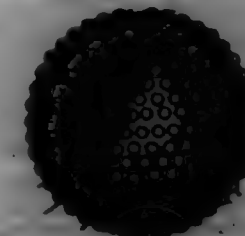
Claim.—A steam-engine comprising a base having a cut-away portion at one end, a block secured in the cut-away portion and having parallel passages therethrough forming cylinders, a plate secured to the front end of the block, a plate secured to the rear end of the block, said plates covering both ends of both passages, a bearing-plate set into the base, vertically-spaced bearing-pieces spaced outwardly from each side of the first-named plate, cross-heads slidably engaged with the bearing-pieces, a crank-shaft mounted upon the base, connections between the cranks of the shaft and the cross-heads, pistons in the cylinders connected with the cross-heads, a steam-chest for the cylinders, separate cut-off mechanisms for the cylinders, and separate connections between the valve mechanisms and the crank-shaft for operating the valve mechanisms.

698,511. STRINGER. FREDERICK E. JOHN, Wakefield, Mass. Filed Sept. 4, 1901. Serial No. 74,394. (No model.)



Claim.—In a syringe, the combination with a bulb, of a cup seated in the mouth thereof having an outlet-opening in the bottom provided with a nozzle, an unobstructed passage between said nozzle and bulb, and one or more inlet-openings in the bottom of said cup also opening into said bulb, by which the liquid discharged from the nozzle is returned to said bulb, and a check-valve for each inlet-opening adapted in its automatic operation by the contraction and expansion of the bulb, substantially as described.

698,512. GOLF-BALL. BRADSHAW KIRKPATRICK, Boston, Mass., assignor to the Kongsbak Manufacturing Company, a Corporation of New Jersey. Filed Mar. 13, 1902. Serial No. 54,976. (No model.)



Claim.—1. A playing-ball comprising a casing consisting of a pair of overlapping sections, each section consisting of fabric and colloidal.

2. A playing-ball comprising a casing consisting wholly of a single layer of celluloid and lined with fabric, and a yielding sphere upon which said casing is cemented.

3. A playing-ball comprising a yielding filling and hemispherical cover-segments consisting wholly of plastic material and lined with fabric cemented upon said filling.

4. A playing-ball comprising welded hemispheres of gutta-percha upon which are cemented and compressed telescoping hemispheres of fabric and celluloid.

5. A playing-ball comprising a core, and hemispheres of gutta-percha welded thereon, and telescoping hemispheres composed of fabric and celluloid cemented and compressed upon said gutta-percha.

6. A playing-ball comprising a sphere of soft rubber; hemispheres of gutta-percha welded or joined upon said sphere; and telescoping hemispheres of fabric and celluloid cemented and compressed upon said gutta-percha.

7. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelope thereon; an outer sphere of gutta-percha upon said envelope; and a telescoping covering composed of celluloid and fabric and cemented and compressed upon said outer sphere.

8. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelope thereon; hemispheres of gutta-percha welded or joined upon said envelope; and a cover consisting of telescoping hemispheres of compressed fabric and celluloid cemented and compressed upon said gutta-percha.

9. A playing-ball comprising a sphere of gutta-percha; a spherical soft-rubber envelope thereon; hemispheres of gutta-percha welded or joined upon said sphere; and a covering consisting of telescoping hemispheres composed of fabric and celluloid secured upon said gutta-percha; said gutta-percha and celluloid holding said core under compression.

10. A playing-ball comprising a thin celluloid and fabric cover made in telescoping segments.

11. A playing-ball comprising a thin celluloid and fabric cover made in telescoping hemispherical segments which are compressed upon the ball.

12. A playing-ball comprising a sphere of soft rubber, and a shell of gutta-percha thereon, said shell to be covered with a material compounded of at least one layer of fabric and at least one layer of celluloid, said material being formed in telescoping hemispherical segments and compressed upon the ball.

13. A playing-ball comprising a solid core of gutta-percha covered by a sphere of soft rubber, and a shell of gutta-percha thereon, said shell being covered with a material compounded of at least one layer of fabric and at least one layer of celluloid, said material being cemented and the celluloid permeating the fabric; and said cover being made in telescoping segments and compressed upon the ball.

14. A playing-ball comprising a yielding filling and a shell, the latter including lap-jointed sections of fabric and plastic material, and said filling being held under compression by said shell.

15. An elastic playing-ball comprising a shell having lap-jointed sections of fabric and celluloid, and a filling of yielding material held under compression by said shell.

698,518. GOLF-BALL. BRADEN KEMPWELL, Boston, Mass., assignor to the Kampsell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 99,999. (No model.)



Claim.—1. A ball consisting of a shell having apertures, and a filling secured thereto by the penetration of said filling into said apertures.

2. A ball consisting of a shell of plastic material having apertures, and a filling having integral ribs entering said apertures.

3. A ball consisting of a shell of celluloid, having apertures, and a filling interlocked therewith.

4. A ball consisting of a shell and a filling, said shell consisting of welded segments, each having apertures penetrated by parts of the filling.

5. A ball consisting of a shell, and a filling of gutta-percha interlocked therewith.

6. A ball comprising a sphere and a shell of plastic material and fabric keyed thereon.

7. A ball consisting of a filling of plastic material compressed by a shell which is formed of plastic material and fabric and is provided with openings into which the material of the filling is forced.

8. A ball consisting of a filling of gutta-percha interlocked with a shell, consisting of welded segments of celluloid and fabric and having openings which are engaged by ribs upon said filling.

9. A ball consisting of a springy sphere and a shell of plastic material, one of said elements having perforations and the other having ribs engaging therewith.

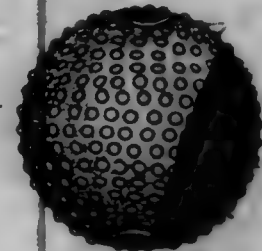
10. A ball consisting of a sphere of springy material and a shell of celluloid and fabric compressed and keyed thereon.

11. A ball consisting of a shell made of celluloid and a fabric, and a sphere of gutta-percha upon which said shell is keyed.

12. A ball consisting of a shell of celluloid lined with fabric, and a sphere upon which said shell is keyed.

13. A ball comprising two spheres, one having perforations and the other having ribs which interlock with said openings.

698,514. GOLF-BALL. BRADEN KEMPWELL, Boston, Mass., assignor to the Kampsell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 99,717. (No model.)



Claim.—1. In a playing-ball, a shell made up of layers of gutta-percha, one of said layers being formed of jointed spherical segments, and another of said layers reinforcing the joint.

2. In a playing-ball, a shell comprising a plurality of layers of gutta-percha, one of said layers being formed of jointed or welded hemispherical segments, and another of said layers reinforcing the joint.

3. In a playing-ball, a shell comprising two layers of gutta-percha, each consisting of jointed spherical segments, the joint or seam in one layer running crosswise of the joint or seam in the other layer.

4. In a playing-ball, a shell comprising an inner and outer layer, both made of gutta-percha, and each consisting of a plurality of welded segments, each of said layers reinforcing the joint of the other.

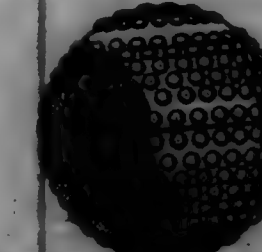
5. In a playing-ball, the combination with a core of soft rubber, of a shell of gutta-percha comprising at least one layer made up of jointed segments and reinforced at the joint by another layer, said shell holding said core under compression.

6. In a playing-ball, the combination of a yielding core of soft rubber, and a shell of gutta-percha holding said core under compression, said shell comprising a plurality of layers, each of said layers consisting of segments welded together and the joint in one of said layers running crosswise of the joint in the other.

7. In a playing-ball, a shell of gutta-percha made up of layers, one of said layers being formed of jointed spherical segments and another of said layers reinforcing the joint, and a yielding core of soft rubber held under compression by said shell.

8. In a playing-ball, a shell of gutta-percha, comprising two layers, each consisting of jointed spherical segments, the joint or seam in one layer running crosswise of the joint or seam in the other layer, and a yielding core of soft rubber held under compression by said shell.

698,515. GOLF-BALL. BRADEN KEMPWELL, Boston, Mass., assignor to the Kampsell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 99,991. (No model.)



Claim.—1. A playing-ball comprising a hard sphere and undivided segments of soft rubber drawn together upon said sphere so that their edges meet, said edges being caught together.

2. A playing-ball comprising a hard sphere and undivided segments of soft rubber drawn together upon said sphere and cemented together at their edges.

3. A playing-ball comprising a hard sphere and undivided segments of soft rubber drawn together upon said sphere and cemented thereon, and also cemented together at their edges.

4. A playing-ball comprising a hard sphere of gutta-percha and undivided hemispheres of highly-vulcanized soft rubber cemented to said sphere and drawn together thereon until their edges meet, said edges being cemented together.

5. A playing-ball comprising a sphere, undivided segments of elastic material drawn together upon said sphere, so that their edges meet, and a shell of relatively harder material upon said segments.

6. A playing-ball comprising a hard sphere, undivided segments of soft rubber drawn together upon said sphere and having their edges caught together, and a shell of plastic material upon said segments.

7. A playing-ball comprising a sphere of gutta-percha, undivided thick segments of soft rubber cemented upon said sphere and drawn together thereon and having their edges caught together, and a shell of celluloid upon said segments.

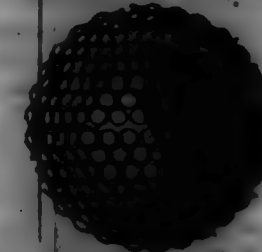
8. A playing-ball comprising a hard sphere, undivided segments of soft rubber drawn together upon said sphere and having their edges joined, and a shell of plastic material holding said segments under compression.

9. A playing-ball comprising a sphere of hard, springy material, undivided hemispherical segments of soft rubber drawn together upon said sphere, and a shell consisting of welded hemispherical segments of celluloid holding said soft rubber under compression.

10. A playing-ball comprising a core and undivided hemispherical segments of elastic material drawn together upon said core and caught at their edges, forming a ball whose diameter is less than that of said segments in their original or unextended condition.

11. A ball comprising a core and undivided hemispherical segments of soft rubber drawn together upon said core and caught at their edges and cemented to said core, forming a ball whose diameter is less than that of said segments in their original or unextended condition, and a shell of harder material upon said segments.

698,516. PLAYING-BALL. BRADEN KEMPWELL, Boston, Mass., assignor to the Kampsell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 99,992. (No model.)



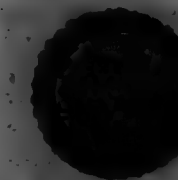
Claim.—1. A playing-ball having a core and a shell thereon, said shell consisting of fabric and plastic material and having internal ribs or teeth which engage said core.

2. A playing-ball having a sphere of gutta-percha and a casing of celluloid thereon; said casing having internal ribs which penetrate the gutta-percha.

3. A playing-ball having a sphere of gutta-percha and a casing of celluloid and fabric thereon; said casing having internal ribs which penetrate the gutta-percha.

4. A playing-ball comprising a rubber sphere, gutta-percha sphere thereon, and a casing upon said gutta-percha sphere; said casing consisting of celluloid and fabric and having internal ribs which penetrate said gutta-percha, and both said gutta-percha and said celluloid being compressed upon said rubber sphere.

698,517. PLAYING-BALL. BRADEN KEMPWELL, Boston, Mass., assignor to the Kampsell Manufacturing Company, a Corporation of New Jersey. Original application filed Mar. 15, 1902. Serial No. 99,993. Divided and this application filed Mar. 24, 1902. Serial No. 99,994. (No model.)



Claim.—A playing-ball consisting of a solid sphere of compressed gutta-percha whose internal strains have been substantially eliminated.

698,518. ADJUSTABLE ROOF OR COVER FOR TRAIN-CARS. FRANKLIN KEMMERER, Lehigh, England. Filed Jan. 21, 1902. Serial No. 99,997. (No model.)

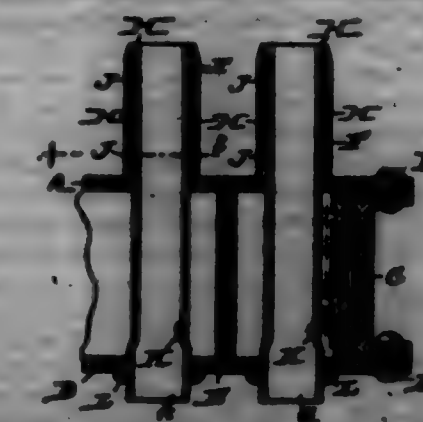


Claim.—1. An adjustable cover or roof for the outside ends of train-cars, consisting of two or more arched standards carried by the car-body, a series of waterproof shutters adapted to be guided at their ends in or on the said standards, and to be lowered into a stowed position one behind the other alongside a side board or panel forming the permanent side to the top deck of the car-body, means for making a rain-proof joint at the junction of the shutters and fastening devices for causing the shutters to one another when in their elevated position, substantially as described.

2. In an adjustable cover or roof for the outside ends of train-cars, in combination, a permanent side or panel on each side of the upper deck of the car-body, two or more arched standards carried by the car-body extending transversely across same, a series of movable waterproof shutters and a series of movable flexible waterproof shutters, adapted to be guided at their ends in or on the said standards so that they rest on each other in their extended form and can be lowered into a stowed position one behind the other alongside the said permanent side, means for making a rain-proof joint at the junction of the shutters and waterproof shutters one with another, and fastening devices for causing the shutters to one another when in their elevated position, substantially as described.

3. In combination with a car-body, standards extending up from the body, a permanent side board at the lower part of the said standards, a box or pocket alongside the permanent side board, a removable panel having windows and adapted to fit on the permanent side board, and a flexible cover adapted to fit removably on the removable panel, the said removable cover and panel being adapted to be stowed side by side on edge within the said box, substantially as described.

698,519. GAS-BURNING HEATER. ALEXANDER W. KING, Boston, Mass. Filed June 3, 1902. Serial No. 100,001. (No model.)

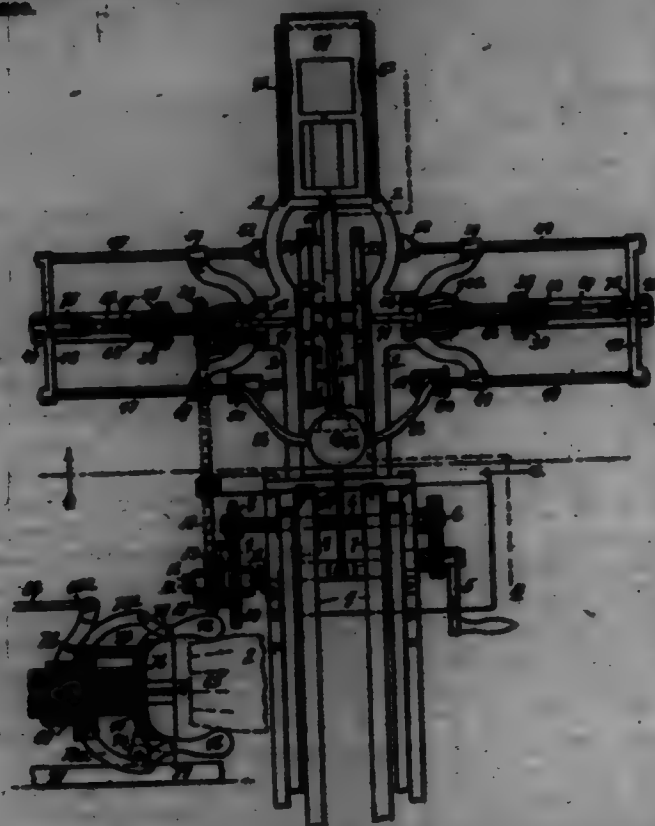


Claim.—1. The described heater comprising the gas-burning chamber and a multiplicity of closely-set annular burners of uniform height, each consisting of the concentric tubes F and G erected respectively in its particular position in the upper and lower plates of the chamber, each tube G being threaded at its top, rising through the chamber common to all, and mechanically held central within the corresponding tube F, the outermost of such tubes extending terminally over the other, and one being adjustable vertically, relatively to the other, to vary the annular discharge, substantially as set forth.

2. The improved heater consisting of the chamber A B C, and a multiplicity of uniform annular burners, comprising the series of tubes F deflected laterally at top and cut in particular in the top plate A, and the series of tubes G, beveled and mechanically held at top concentric with the tubes F and threaded in the bottom plate B, each tube G being separately adjustable vertically to vary the area of the annular gas-orifice at the top of each burner, said construction producing a single heater having a great number of distinct and separately-adjustable conical flames, grouped for use as one, substantially as set forth.

698,520. GAS BAKING AND WRAPPING MACHINE. FRED H. KRAFF and CHARLES W. BLACKWELL, Chicago, Ill. Filed May 12, 1902. Received Mar. 10, 1902. Serial No. 99,995. (No model.)

Claim.—1. In a label-folding machine the combination of a carrier adapted to support the can with the label projecting from the ends thereof, means for imparting movement to said carrier, means for applying an adhesive to the ends of the can, means for folding the projecting ends of the label onto the can and compressing said folded ends securely in place.



2. In a label-folding machine, the combination of a carrier adapted to carry the labeled can, reciprocating non-rotative hands carrying movable fingers adapted to engage and fold the projecting ends of the label onto the ends of the can and means for imparting movement to said hands.

3. In a label wrapping or folding machine, the combination of a movable carrier adapted to receive the labeled can, reciprocating hands with which the can in the carrier are brought into alignment, a series of fingers pivoted to said hands adapted to embrace the projecting ends of the label, means for reciprocating said hands and means for actuating said fingers to fold the ends of the label onto the ends of the can.

4. In a label-folding machine, the combination of a carrier adapted to receive the labeled can, means for applying adhesive to the ends of the can, reciprocating hands with which the ends of the can are brought into alignment after the adhesive is deposited thereon, movable fingers in said hands adapted to engage and fold the projecting ends of the label and carry said folded ends into contact with the adhesive on the can and means for reciprocating said hands and imparting a movement to said fingers.

5. The combination of a movable carrier, adapted to receive the labeled can, means for folding the projecting ends of the label onto the ends of the can, reciprocating compressors, with which the ends of the labeled can are brought into alignment, said compressors comprising rubber or elastic cups adapted to engage the margins of the folded ends of the label and a central block within said cups adapted to be brought forcibly into contact with the label's folded ends.

6. In a labeler and wrapper, the combination with the label-applying mechanism of the label folding or wrapping mechanism, the label-applying mechanism having a continuous movement, the wrapping or folding mechanism adapted to have intermittent movement, means connecting the label-applying mechanism with the wrapping or folding mechanism adapted to be actuated by the passage of the can from the label-applying mechanism to impart an intermittent movement to said wrapping or folding mechanism.

7. In a label-wrapping machine, the combination of a rotary carriage adapted to contain the labeled can, reciprocating rolls on each side of said carrier carrying adhesive-applying, label-folding and label-compressing devices, means for reciprocating said devices simultaneously, means for rotating the carriage intermittently to bring each can in succession into alignment with said operative devices and means for arresting the movement of said carriage while said operative devices are in action.

8. The combination of the label folding or wrapping mechanism, the continuously operating labeling mechanism, gear connecting the label-folding mechanism with the labeling mechanism, said gear being normally at rest, a lever adapted to throw said gearing into action and lever extending into the path of the rolling can whereby the passage of each

can through the labeler imparts a movement to the label-folding mechanism.

9. A label-folder comprising reciprocating hands carrying pivoted fingers adapted to embrace the projecting ends of the label, said fingers being mounted to describe a circle in said hands their free ends being adapted to swing inwardly into channels in the hand's center, a sliding collar on the stem of said hands, pivoted bars connecting said collar with said fingers and means for sliding said collar to impart a movement to the fingers, substantially as specified.

10. In a label-folding machine, the combination with the operative parts and movable carriage, of the reciprocating hands, each hand having a series of pivoted fingers flexibly set in a circle, whose free ends embrace the projecting ends of the label on the can, curved bars pivoted to the rear ends of said fingers and to a collar mounted to slide upon the stem of said hands, said collar being adapted to move with said hands and to have a movement independent thereof.

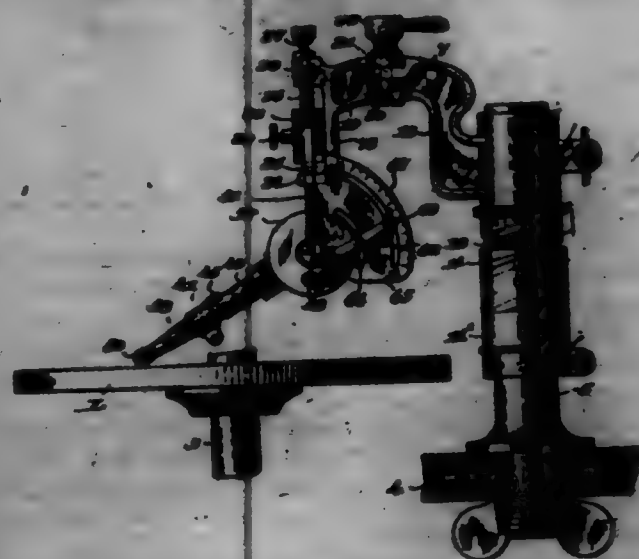
11. The combination with the label folding and compressing mechanism, of the glue-containing cylinder adapted to be brought into contact with the ends of the can, movable pistons in said cylinder, spring-actuated valves seated in the pistons of said cylinder having projecting stems which extend through the end of the cylinder whereby the valves are mounted when the cylinder are brought into contact with the ends of the can.

12. In a label-folding machine, the combination of the reciprocating adhesive applicator, folding-hands and label-compressor adapted to be reciprocated in unison, a carriage located between said reciprocating parts and adapted to contain a plurality of cans and support said cans with their ends in alignment with said reciprocating parts, means for operating said parts to cause them to act upon the plurality of cans simultaneously and means for moving said carriage to bring each can in succession into position to receive the operation of said parts.

13. In a label-folding machine, the combination with the label folding and compressing means of a carriage rotating about a central axis having a series of rollers in its periphery adapted to receive the cans and means for adjusting said rollers radially of said carriage.

14. In a label-folding machine, the combination with the adhesive-applying, label folding and compressing mechanism of the movable members for imparting a reciprocation to said mechanism, pivoted angle-levers for imparting movement to said members, a cross-head adapted to reciprocate vertically, and carry horizontally-adjustable couplings mounted on said cross-head, said couplings being movably attached to the end of said lever.

698,521. APPARATUS FOR CUTTING AND POLISHING PAPER. GEORGE STUBBS. FREDERICK B. KIMM, Boston, Mass. Filed Jan. 21, 1901. Renewed Oct. 20, 1901. Serial No. 28,631. (No model.)



Claim.—1. In an apparatus of the class described, an overhanging arm or support, a stick-holder suspended therefrom and pivoted thereto for movement about both a horizontal and a vertical axis, said stick-holder having means to hold the stick from turning.

2. In an apparatus of the class described, an arm or support, a head-block pivoted thereto to move about a vertical axis, a stick-holder pivoted to said head-block for movement about a horizontal axis, said horizontal axis being in line with and vertically underneath the pivotal support of the head-block, said stick-holder having means for supporting a stick, and means to position the stick angularly about its axis.

3. In an apparatus of the class described, a stick-holder pivoted to move about both a vertical and a horizontal axis, said stick-holder having a socket adapted to receive the end of a stick, a thumb screw to the stick intermediate its ends, said thumb screw having means to interlock with

the stick-holder whereby the stick may be positioned angularly about its axis.

4. In an apparatus of the class described, an arm or support, a vertically-adjustable head-block pivoted thereto for movement about a horizontal axis, a stick-holder pivoted to said head-block to move about a horizontal axis, said horizontal axis being in line with and vertically beneath the pivotal support of the head-block, said stick-holder having a socket adapted to receive the end of a stick, and means to position the stick angularly about its axis.

5. In an apparatus of the class described, a vertically-adjustable arm or support, a vertically-adjustable stick-holder pivoted thereto for movement about both a vertical and a horizontal axis, said stick-holder having a socket adapted to receive the end of a stick, a thumb screw to the stick intermediate its ends and said thumb screw having means to interlock the arm with the stick-holder.

6. In an apparatus of the class described a stick-holder pivoted to move about both a vertical and a horizontal axis, and having a socket adapted to receive the end of a stick, a thumb screw to the stick intermediate its ends one of said parts having a series of radial recesses, and the other of said parts having a projection to engage said recesses, whereby the stick may be turned axially and held in any adjusted position to grind the facets.

7. In an apparatus of the class described, a stick-holder pivoted to move about both a vertical and a horizontal axis, and having a socket adapted to receive the end of a stick, a thumb screw to the stick intermediate its ends, said thumb screw having a series of radial recesses, an adjustable projection on the stick-holder to engage said recesses when the stick is inserted in the stick-holder, whereby the stick may be turned about its axis, and held in any adjusted position.

8. In an apparatus of the class described, a stick-holder pivoted to move about both a vertical and a horizontal axis, and having a socket adapted to receive the end of a stick, a two-part sleeve adjustably secured to the stick intermediate its ends, one of the parts of said sleeve being adjustable about the axis of the stick relative to the other, and having at one end a series of radial recesses, a projection on said stick-holder to engage said recesses, whereby the stick-holder may be turned about its axis and held in any adjusted position.

9. In an apparatus of the class described, a vertically-adjustable stick-holder pivoted to move about both a vertical and a horizontal axis, said stick-holder having a socket adapted to receive the end of a stick, a sleeve or thumb screw secured to the stick intermediate its ends, said thumb screw having at one end a series of radial recesses, a projection on said stick-holder to be engaged by said recesses, whereby by turning the stick about its longitudinal axis the facets are positioned, and by the vertical adjustment of the stick-holder the facets may be made at different angles to the axis of the stick.

10. In an apparatus of the class described, an approximately horizontal arm mounted for swinging movement about a vertical axis, said arm being jointed intermediate its ends and having a stick-holder pivoted thereto for movement about both a vertical and a horizontal axis, said stick-holder having means to angularly position the stick about its axis.

11. In an apparatus of the class described, a post or standard, an arm vertically adjustable thereon, said arm having a hub secured over said post, an extensible collar upon which the hub rests, a stop-collar on the post supporting the extensible collar, combined with a stick-holder pivoted to the end of the arm for movement about both a vertical and a horizontal axis.

12. In an apparatus of the class described, a post, a stop-collar thereon, a sleeve secured to said stop-collar and having interior screw-threads, a rotatable bushing having exterior screw-threads engaging those of the sleeve, and an arm having a hub secured over said post and resting on said bushing, combined with a stick-holder pivotally mounted on said arm, the construction being such that by turning the bushing the height of the arm may be adjusted.

13. In an apparatus of the class described, a post or standard, an arm having a hub secured over said post, a rotatable bushing on the post upon which said hub rests, said bushing having a sleeve screw-threads thereon, whereby the said bushing may be made extensible, an adjustable stop-collar on the post upon which the sleeve rests, the extensible bushing providing means for controlling the height of the arm, combined with a stick-holder pivoted to the arm to move about a vertical and horizontal axis, said stick-holder having means to receive the end of a stick and to position the stick angularly about its axis.

14. In an apparatus of the class described, a vertically-adjustable arm or support, a head-block pivoted to the end thereof to move about a vertical axis, a stick-holder pivoted to said head-block to move about a horizontal axis, said stick-holder having a socket to receive the end of the stick, and having means to position the stick angularly about its axis to form the various facets.

15. In an apparatus of the class described, an arm or support, a head-

block pivoted to said arm to move about a vertical axis, said head-block having depending arms, a stick-holder pivoted to the said depending arms of the head-block to move about a horizontal axis, said stick-holder having a socket to receive the end of a stick, and having means to position the stick angularly about its axis to grind various different facets, said head-block having an adjustable stop-arm, and said stick-holder having a pin adapted to engage said arm to limit the downward movement of the stick.

16. In an apparatus of the class described, a stick-holder mounted for movement about both a vertical and a horizontal axis, said stick-holder having a socket provided with an adjustable socket-plate which is adapted to receive the end of a stick, said socket-plate having means to angularly position the stick about its axis, and a mark on the stick-holder cooperating with the socket-plate whereby the correct angular position of the socket-plate in the stick-holder may be determined.

17. In an apparatus of the class described, a stick-holder mounted for movement about both a horizontal and a vertical axis, said stick-holder having a socket provided with an adjustable socket-plate which is adapted to receive the end of a stick, a sleeve or thumb screw on said stick, said sleeve and socket-plate having engaging means to position the stick angularly about its axis, and means to determine the correct angular position of the socket-plate in the stick-holder.

18. In an apparatus of the class described, an arm or support, a head-block pivoted thereto to move about a vertical axis and having depending arms, a stick-holder pivoted to said depending arms to move about a horizontal axis, said stick-holder having means to hold a stick and position it angularly about its axis, said head-block having an adjustable stop-arm pivoted thereto and a scale with which said arm cooperates, and a stop-pin on the stick-holder adapted to engage said arm and limit the downward movement of the stick.

19. In an apparatus of the class described, an arm or support, a stick-holder pivoted thereto to move about both a vertical and a horizontal axis, said stick-holder having a socket adapted to receive the end of a stick, the vertical and horizontal axis of the stick-holder intersecting each other and the point of intersection being on the axial line of the socket whereby the stick supported in the socket may be swung in any direction about a fixed center of motion.

20. In an apparatus of the class described, an overhanging arm or support, a stick-holder suspended therefrom and pivoted thereto for movement about both a horizontal and a vertical axis, said stick-holder having means to hold the stick from turning, and stop devices to limit the movement of the holder about its horizontal axis.

21. A stick adapted to carry a stone at one end, and tapered at its other end, said stick presenting between its ends a series of notches, the number of notches in the series corresponding with the number of facets to be cut in one round of cuts, a pivoted stick-holder having a tapered socket to receive the tapered end of the stick, and a portion extending with said notches to restrain the rotation of the stick about its axis while a facet is being ground, said socket receiving and containing the stick yet permitting said stick to be freely withdrawn therefrom after the stone has been cut, and another like stick may be inserted in the socket.

22. A stick having one end tapered and adapted to carry a stone at its other end, a pivoted stick-holder having a tapered socket to receive the tapered end of the stick, one of said parts having a series of notches and the other a projection adapted to cooperate therewith, said notches and projection being situated between the ends of the stick and serving to hold the stick from turning during the grinding of the facets, the construction being such that the stick may be freely withdrawn from its socket after the stone has been cut, and another like stick inserted in said socket.

23. A stick having one end tapered and adapted to carry a stone at its other end, a pivoted stick-holder having a tapered socket to receive said tapered end of the stick, said stick and stick-holder having interlocking devices situated between the ends of the stick, said interlocking devices serving to hold the stick from turning during the grinding of the various facets on the stone, the construction being such that the stick may be freely withdrawn from the socket after the stone has been cut, and another like stick inserted in said socket.

24. A stick-holder having a socket-plate to receive the tapered end of a stick, and means whereby the socket-plate may be turned about its longitudinal axis in the stick, to thereby provide for increasing the number of facets which may be cut on the stone carried at the end of the stick.

698,522. DRIVING-GEAR FOR VEHICLES. RUSSELL W. KISS. 1201, Detroit, Mich. Filed Feb. 15, 1904. Serial No. 42,351. (No model.)

Claim.—1. In a vehicle running-gear, a swinging arm provided with pin in axial alignment, one of which engages the end of the axle, and the other of which engages an arm riding from the axle, a splined

on the working arm parallel with the vertical arm and adapted to engage the hub of the wheel, substantially as described.

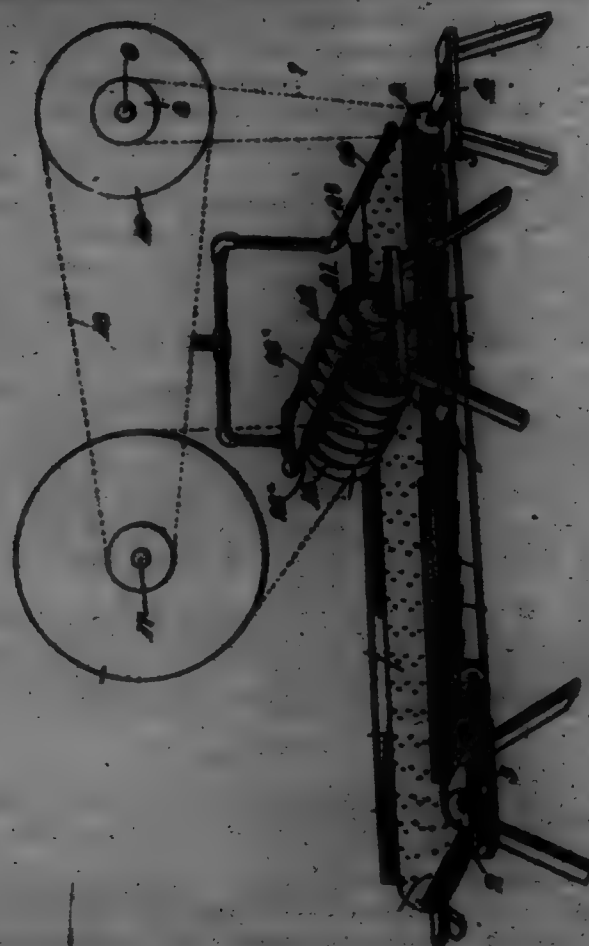


2. The combination of an axle, a wheel having a hollow hub, said axle extending into the hollow of said hub to a point in a vertical plane through the point of contact of said wheel with the ground, a standard rising from said axle a distance from the end of the axle and extending approximately at the top to a point in said vertical plane, and a hub rod pivoted at the end of the axle and extending inward, then upward, then outward, and pivoted at the end of said standard, and a hub-plate secured to said hub rod, substantially as described.

3. In the running-gear of a vehicle, in combination with a front axle, a swinging arm arranged to support the wheel-hub and provided with pins in axial alignment on which it turns, one of said pins being inside the hub and the other outside the rim of the hub, substantially as described.

4. In combination with the front axle, an arm secured to the end thereof by a vertical pin, a brace supporting the upper end of said arm, a spindle carried by said arm, having its inner end carried by said arm and arranged to swing with said arm to an angle with the longitudinal axis of the axle, substantially as described.

698,593. MACHINE FOR LAMINATING OR HEATING MATERIAL. JOHN W. KOLBART and ALBERT J. FRANK, Chicago, Ill. Filed July 12, 1906. Serial No. 54,085. (No model.)



Claim.—1. In a machine for the purpose described, the combination of a traveling hub or carrier, a series of rotary rollers arranged across said hub and under the edge of each of which enters the hub projects and means for supporting the upper end of the hub on each side of said series of rollers immediately adjacent thereto, said upper end of the hub being unsupported and dependent directly under said rollers, substantially as set forth.

2. In a machine for the purpose described the combination of a traveling hub or carrier and two series of rotary rollers arranged thereover and the rollers of one series staggered with reference to those of the other series, substantially as set forth.

3. In a machine for the purpose described, the combination of a traveling hub or carrier, a series of rotary rollers arranged thereover and normally slightly above the plane of the upper end thereof so as not to touch the hub, and means for supporting the hub immediately contiguous to each side of said rollers, said hub being unsupported and dependent directly under said rollers, substantially as set forth.

698,594. BRAKE-BAND. JOHN A. LAMER, Hammond, Ind., assignor to the Standard Railway Appliance Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 15, 1908. Serial No. 63,504. (No model.)

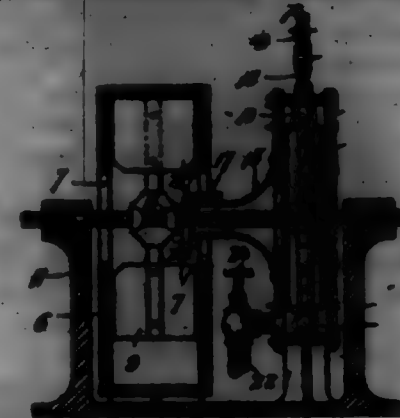


Claim.—1. A metallic brake-band comprising the combination with a compression and tension member having a web provided with flanges at the edge thereof, of a fulcrum-post composed of two halves disposed on opposite sides of said members out of contact with each other and forming an interposed central slot thereby and having notches engaging said flanges, and means for securing the said parts together and in position upon the said compression and tension members, substantially as described.

2. A metallic brake-band comprising the combination with a compression and tension member having flanges, of a fulcrum-post composed of two halves disposed on opposite sides of said members out of contact with each other, and forming an interposed central slot thereby, said halves being displaced of each other, and having notches engaging said flanges, and means for securing the said parts together and in position upon the said compression and tension members, substantially as described.

3. A brake-band comprising a main member provided with a web and flange, an anchor-block 4 mounted on the upper side of said web and adjacent to the forward flange thereof, a wheel-guard 5 connected to said anchor-block, a bolt 7 extending said block to the web of the main member and engaging said guard at right angles so as to secure the same against movement relative to the anchor-block and without contact with the flange, said anchor-block having a notch 10 therein engaging the flange of the main member, substantially as and for the purpose described.

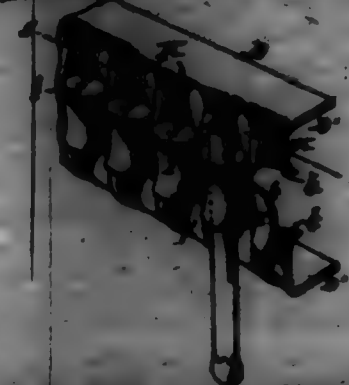
698,595. BLAST DEVICE FOR FURNACE. GARY T. LAMER, Rush City, Minn. Filed June 3, 1906. Serial No. 61,047. (No model.)



Claim.—1. The combination with a furnace, of a fan having a fan-case with a blast-tube delivering to said furnace, below the grate thereof, an impact-wheel on the fan-shaft, a cone including said impact-wheel and provided with a discharge-passage delivering into the fan-case, and exhaust-supply pipe having a discharge nozzle or end terminating in a position to discharge a jet of steam against the blades of said impact-wheel, substantially as described.

2. The combination with a furnace, of a fan having a fan-case with a blast-tube delivering into said furnace, below the grate thereof, an impact-wheel on the fan-shaft, a cone including said impact-wheel and provided with two valves discharge-passages, one of which delivers steam within and the other without the said fan-case, and a valve steam-supply pipe provided with a nozzle or discharge and terminating in a position to discharge a jet of steam into the blades of said impact-wheel, substantially as described.

698,596. INVERTER-MAN FOR HAY-STACKING. EDWARD H. LOCKMAN, JR., Harky, Pa., assignor to Hiram H. Gorman, Martin B. Harky, and Harry E. Harky, Philadelphia, Pa., trading as P. C. Gorman & Company, Philadelphia, Pa. Filed Feb. 24, 1908. Serial No. 64,085. (No model.)



Claim.—1. A conveyor for a match-machine consisting of longitudinal slatted connecting-bars and a series of transverse bars secured to the ends and consisting of slatted slat metal having a series of loops forced up from the face of the metal to form a support for the match-stick on one side and a series of guiding-edges on the face of the bars above and below the loops to form guiding-supports for the match-sticks on the other side.

2. A conveyor for a match-machine consisting of longitudinal connecting-bars and a series of transverse bars secured to the ends and consisting of slatted slat metal having a series of loops forced up from the face of the metal, to form a support for the match-stick on one side, and a series of guiding-edges on the face of the bars above and below the loops to form guiding-supports for the match-sticks on the other side, and in which the edges of the loops and the edges of the face metal back of the loops and bounding the two longitudinal guiding-supports are forced outward or away from the match held by said loops and guiding-supports.

3. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and having their edges facing outward as at C.

4. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and having their edges facing outward as at C.

5. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength, and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and the metal of the body back of the loops forced outwardly in a backward direction as at A.

6. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and the metal of the body above and below the looped portions inwardly grooved as at E, to guide the match-stick.

7. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and the metal of the body above and below the looped portions inwardly grooved as at E to guide the match-stick and having their adjacent edges forced outwardly backward as at A.

8. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and further provided on their ends with slots D in the face, combined with notches fitting said slots and having projections for supporting the flange portions of the bar.

9. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength, and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and further provided on their ends with slots D in the face, combined with notches fitting said slots and having projections for supporting the flange portions of the bar.

10. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body and further provided on their ends with slots D in the face, in combination with carrier-bars fitting said slots, and a spring connecting the carrier-bars and holding one of the supporting-bars in position.

11. A match-stick-supporting bar for a conveyor consisting of sheet metal having a bent flange for strength and having its body formed with a series of outwardly-projecting looped portions pressed outwardly from the body, and having the ends made with notches for receiving the teeth of driving sprocket-wheels.

12. A match-stick-supporting bar for a conveyor consisting of a slatted-bar the intermediate body of which is provided with rounded projecting portions I forming apertures J, bounded on one side by said projecting portions and on the other by the body of the bar, and in which the body is grooved in alignment with the apertures to properly guide the match-stick.

13. In a conveyor for a match-machine, a section comprising the match-bars B having loops O, combined with supporting-bars for the matches, having flanges D projecting loops I and slots d into which the match-bars fit and in which the flanges D rest against the loops O of the said match-bars.

14. In a conveyor for a match-machine, a section comprising the match-bars B having loops O, combined with supporting-bars for the matches having flanges D projecting loops I and slots d into which the match-bars fit and in which the flanges D rest against the loops O of the said match-bars, and a spring G pressing against one of the supporting-bars and looped over the loops O of the match-bars for holding them in the slots d of the supporting-bars.

698,597. DEVICE FOR CLEANING LAMPS, GLASSES, OR KALEIDOSCOPES. ERNEST K. HART, Austria-Hungary. Filed May 12, 1906. Serial No. 54,034. (No model.)



April 29, 1903.

Claim.—A device for cleaning lamp-chimneys and other similar hollow bodies, characterized by a handle *a* to one end of which are attached two flat leaf-springs *b* provided with readily-movable plates *f*, fixed with pins *d* of elastic material.

688,598. JOHN W. GRAHAM, JR. AND ELEVATOR. JOHN GRAHAM and FRANK L. KAY, Attys., St. Paul, Minn., 7, 1901. Serial No. 94,381. (No model.)



Claim.—1. In agricultural machines, a tilting support, means for locking and releasing the tilting support, and a hinged platform at one end of the tilting support and held in an open position by the said locking and releasing device of the tilting support, as set forth.

2. In agricultural machines, a dumping-support, means for locking and releasing the dumping-support, a hinged platform, hinged to the dumping-support, a conveyor located beneath the hinged platform, and an elevator connected with the conveyor.

3. In agricultural machines, a dumping-support, means for locking and releasing the dumping-support, a hinged platform at one end of the dumping-support, hinged to the support, a conveyor located beneath the hinged platform, an elevator connected with the conveyor, and a slide opening at the rear portion of the conveyor at a point beneath the hinged platform, for the purpose of regulating the supply of material to the conveyor, as specified.

4. In agricultural machines, a hinged platform, a support therefor, hinged to the support, which hinged support is adapted to be raised and lowered by the hinged platform, a conveyor beneath the hinged platform, and a slide opening in the conveyor beneath the hinged platform, as specified.

5. In agricultural machines, a hinged platform, a support therefor, hinged to the support, which hinged support is adapted to be raised and lowered by the hinged platform, a conveyor beneath the hinged platform, a device against which the hinged platform rests when opened, and an elevator connected with the conveyor and adapted to be raised and lowered by the hinged platform, as specified.

6. In agricultural machines, a hinged platform, a support therefor, hinged to the support, and adapted to be raised and lowered by the hinged platform, a conveyor beneath the hinged platform, which is arranged to engage with the under face of the hinged platform, a conveyor located below the hinged platform, an elevator connected with the conveyor, and a slide opening in the conveyor, having movement beneath the hinged platform, for the purpose set forth.

7. In agricultural machines, a tilting support, means normally held in locking engagement with the tilting support, means for opening said means to move them out of engagement with said support, and a hinged platform at one end of the tilting support and engaged by the means for opening the same for holding the platform raised at the time the same are disengaged from the tilting support, as set forth.

8. In agricultural machines, a fixed platform, dumping bars or rolls

pivotedly carried by the fixed platform, a tension-controlled shaft provided with crank-arms having normal locking and supporting engagement with the dumping-bars, a second platform located adjacent to the dumping-platform, a support to which the second platform is hinged, hinged to said supports and arranged to normally rest flat thereon below the hinged platform, projections from the hinged platform adapted for engagement with the under face of the hinged platform to raise the same when the hinged platform is raised, and a conveyor located beneath the hinged platform, for the purpose specified.

9. In agricultural machines, a tilting support, a shaft provided with arms normally held in engagement with said support, a rod connected with said shaft for operating it, and provided with a projection, and a hinged platform at one end of the tilting support and provided with a stop adapted to be engaged by the projection on the operating-rod, as set forth.

10. In agricultural machines, a platform, dumping-bars mounted in the platform, a crank-shaft, the crank-arms of which are adapted to engage the ends of the said bars, a spring connected with an arm of the crank-shaft, an operating-rod connected with the crank-shaft and passing through a guide, said rod being provided with a handle at its end and with a projection between its ends, and a hinged platform at one end of the main platform and provided with a stop adapted to be engaged by the projection of the operating-rod, as set forth.

11. In agricultural machines, a platform having longitudinal openings therein extending from end to end, crank-plates secured to the platform at opposite sides of the central portion of said openings, dumping-bars located in the said openings, a shaft connected to each dumping-bar, extending from the center downward to its end, the central portion of each shaft being provided with flanges at its ends, and transverse extensions from the side portions of the said shafts, and adapted for bearing upon the crank-plates, as set forth.

12. In agricultural machines, a platform having longitudinal openings therein extending from end to end, crank-plates secured to the platform at opposite sides of the central portion of said openings, dumping-bars located in the said openings, a shaft connected to each dumping-bar, extending from the center downward to its end, the central portion of each shaft being provided with flanges at its ends, transverse extensions from the side portions of the said shafts, being adapted for bearing upon the crank-plates, a crank-shaft located beneath said platform at one end, the crank-arms of which shaft are adapted for locking and supporting engagement with the ends of the dumping-bars, a tension device for the said shaft, and means for turning the said shaft against the resistance of the tension device, as set forth.

13. In an agricultural machine, a frame, tracks secured to said frame, a conveyor having extensions from its sides adapted to rest upon the said tracks, a hinged platform located above the conveyor, hinged to the frame between the hinged platform and the conveyor, which hinged platform is adapted to drop by gravity, and means substantially as described, for raising the said hinged platform when the hinged platform is elevated, for the purpose described.

14. An agricultural machine, comprising a tilting support, a hinged platform at one end of the tilting support, hinged to the support, a platform hinged to the fixed support carrying the hinged platform and at right angle to the said hinged platform, a conveyor arranged below the hinged platform and at right angle to the tilting support, and an elevator connected with the conveyor, as set forth.

15. An agricultural machine, comprising a tilting support, a hinged platform at one end of the tilting support, hinged to the support, a platform hinged to the fixed support carrying the hinged platform and at right angle to the said hinged platform, a conveyor arranged below the hinged platform and at right angle to the tilting support, and an elevator connected with the conveyor, as set forth.

16. An agricultural machine, comprising a stationary platform, a tilting bar mounted in the platform, means for locking and releasing the tilting bar, a hinged platform at one end of the stationary platform, and held open by the tilting bar locking and releasing means, hinged to the hinged platform, a conveyor below the hinged platform, a device against which the hinged platform rests when opened, and an elevator connected with the conveyor and adapted to be raised and lowered by the hinged platform, as set forth.

17. An agricultural machine, comprising a stationary platform, a tilting bar mounted in the platform, means for locking and releasing the tilting bar, a hinged platform at one end of the stationary platform, and held open by the tilting bar locking and releasing means, hinged to the hinged platform, a conveyor below the hinged platform, a device against which the hinged platform rests when opened, and an elevator connected with the conveyor and adapted to be raised and lowered by the hinged platform, as set forth.

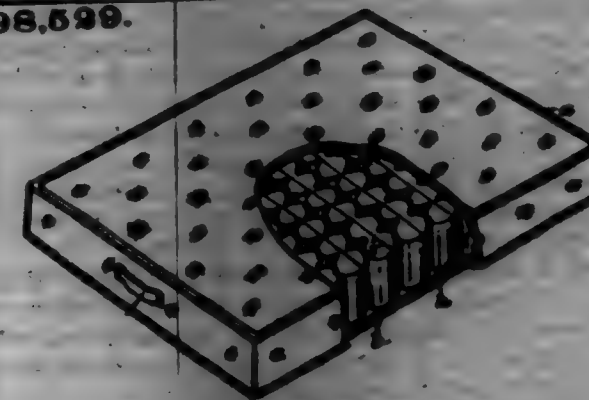
688,599. MATTHEW JAMES HARRISON, Ryegate, Canada. Filed June 28, 1901. Serial No. 94,714. (No model.)

Claim.—A mattress consisting of a series of interconnected springs instead of a solid casing, corresponding springs in any two series being disposed side by side, another series disposed in the space formed by said first-named springs, each smaller spring being linked to one of said first-named springs, and means for connecting said pairs of springs with each other, substantially as described.

April 29, 1903.

U. S. PATENT OFFICE.

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688,599.

688,580. AUTOMATIC VALVE. FREDERICK E. HARRIS, Syracuse, N. Y. Filed June 24, 1901. Serial No. 94,791. (No model.)



Claim.—1. The combination with a valve, of a valve-chamber having two curved-shouldered fittings, a two-part fluid cushion, one part connected to the valve and movable therewith, and a transverse pin fitting between said cushion of the valve-chamber and rigidly secured to the lower member of the fluid cushion, substantially as specified.

2. The combination with a valve, of a valve-chamber having two curved-shouldered fittings, a two-part fluid cushion having an inner or piston member connected to the valve-chamber and having an outer or cylinder member provided with a screw-threaded cap at its upper end, said cap also forming a support or holder for the valve, substantially as specified.

3. The combination with a valve-chamber and valve, of a two-part, double-acting fluid cushion immersed in and its interior communicating with the fluid under pressure within said chamber, said fluid cushion having an outer fitted cylinder member and an inner inverted-cup-shaped piston member provided with a minute opening or vent in its upper end, substantially as specified.

4. The combination with a valve-chamber and valve, of a fluid-cushion cylinder member *D*, having opposite ends *d'* extending from its middle portion to its upper end, an inner piston member provided with a transverse pin secured to the valve-chamber, substantially as specified.

5. The combination with a valve-chamber and valve, of a fluid-cushion cylinder member *D*, having opposite ends *d'* extending from its middle portion to its upper end, and an inner piston member provided with a transverse pin secured to the valve-chamber, said outer cylinder *D* having a removable screw-threaded cap forming also a holder for the valve, substantially as specified.

6. The combination with a valve-chamber and valve, of a fluid-cushion cylinder member *D*, having opposite ends *d'* extending from its middle portion to its upper end, an inner piston member provided with a transverse pin secured to the valve-chamber, said outer cylinder *D* having a removable screw-threaded cap forming also a holder for the valve, and provided with screw-threads for connection with the valve-rod, substantially as specified.

7. The combination with a valve and valve-chamber, of a valve-rod, a knob for reciprocating the valve-rod furnished with a flange telescoping on the valve-chamber, and a lock-bolt and key, substantially as specified.

8. The combination with a valve, of a valve-chamber having two curved-shouldered fittings, a double-acting two-part fluid cushion, connected one part to the valve-chamber and one part to the valve, and a valve-rod fitted in the lower fitting of the valve-chamber, substantially as specified.

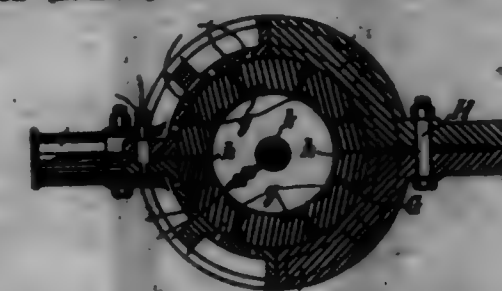
9. The combination with a valve, of a valve-chamber having two curved-shouldered fittings, a double-acting two-part fluid cushion, connected one part to the valve-chamber and one part to the valve, and a valve-rod fitted in the lower fitting of the valve-chamber, substantially as specified.

10. The combination with a valve and valve-chamber, of a valve-chamber

having two curved-shouldered fittings, a transverse pin between the meeting ends of the cushion, a fluid-cushion piston secured to said pin, a reciprocating fluid-cushion cylinder having longitudinal slots to receive said pin, a removable screw-threaded cap closing its upper end and to receive said valve and to receive the threaded end of the valve-rod, said valve-chamber being provided with an integral collar or shoulder to hold the valve in place on said cap, substantially as specified.

11. The combination with a valve and valve-chamber, having two curved-shouldered fittings, and provided with a valve-chamber, a contracted outlet-channel, a delivery-chamber, a drainage-chamber and a drainage-channel terminating in said delivery-chamber adjacent to and at the mouth of said contracted outlet-channel, and a screw-plug closing said drainage-chamber, and provided with a spring-chamber and spring to act against the valve-rod, substantially as specified.

688,581. CASTING ROLL OR ROLLING CIRCULAR DOCK. SAMUEL HENRIKSON, Chicago, Ill. Filed Mar. 14, 1901. Serial No. 91,992. (No model.)



Claim.—1. A flask composed of two sections, a transverse on each section, internal longitudinal bars secured in each section, mold-retaining diaphragms having free ends conforming to the molding-surfaces secured to each longitudinal bar, an end plate at each end of each section provided with a half-bearing, two end plates cooperating to form an end bearing, and a core or other rod held in the bearings thus formed, substantially as described.

2. A flask composed of two sections, internal longitudinal bars secured in each section, mold-retaining diaphragms having free ends conforming to and protruding the surface of the mold, end plates at each end of each section provided with a half-bearing and one of the end plates of each section provided with a cut-away portion for the runner-opening, and a core or other rod adapted to be held in the bearings formed by the cooperation of the end plates, substantially as described.

3. The combination with a casting-pit, a bearing on each side thereof of end hinged covers for closing the same, of a pipe-flask composed of two longitudinal sections, a half-transverse on each side of each section, and plates one of which is provided with a screw-bearing, means for supporting the flask in a vertical position in the pit, and brackets vertically hinged to a wall of the pit and arranged to be swung laterally under the ends of the flask after it has been rotated to maintain it in horizontal position, substantially as described.

4. The combination with a casting-pit, of a pipe-flask comprising two longitudinal sections having vents, means to rotatably support said flask in the pit, internal bars in each section and diaphragms secured to said bars to hold the mold in the flask, and end plates on each end of each section and provided with bearings to support a core and to center a former-board during the filling of the flask, substantially as described.

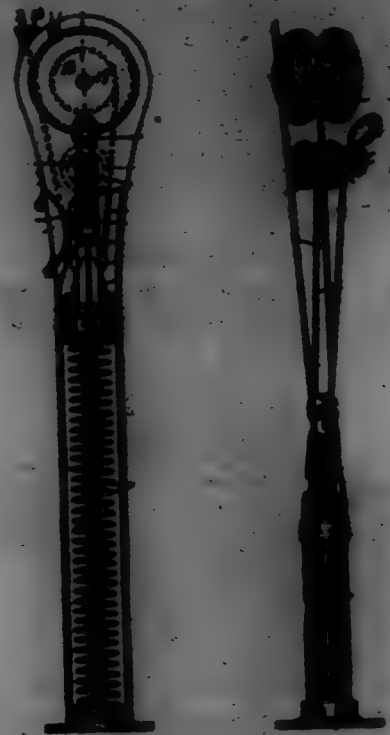
5. The combination with a casting-pit, and a flask rotatable in the casting-pit and comprising two halves, each provided with longitudinal bars *G* and diaphragms *g*, an end plate on each half of the flask provided with a half-bearing cooperating when the flask is set up to form a central bearing at each end; of a shaft extending through the flask and the central bearings at the ends, a former-board rigidly connected to the shaft and means for rotating the shaft and former-board, substantially as described.

6. The combination with a casting-pit, of a flask rotatable therein comprising two halves, provided with lines of vents, longitudinal bars secured to the flask between the lines of vents, and diaphragms secured at one end to the longitudinal bars and having free ends bent at an angle and conforming to the molding-surfaces, an end plate on each end of each half-flask provided with a half-bearing cooperating when set up, to form a central bearing to centrally support a suitable core.

688,582. TRAILER-CONTROLLER. PERCY B. HILLIOT, Buffalo, N. Y., assignor to Automatic Trailer Controller and Controller Company, Syracuse, N. Y., a Corporation of New York. Filed Mar. 24, 1901. Serial No. 92,993. (No model.)

Claim.—1. A trailer-controller comprising a support, an extensible spring having its lower end fixed to the support from end-to-end movement and its other end movable vertically, means connected to the free end of

the spring for extending and tensioning the same vertically, a catch mounted on said free end of the spring for interlocking with a portion of the support and holding the spring tensioned, and an opening-cord or its equivalent connected to the catch whereby the sudden tensioning of the cord operates to release the catch and spring for the purpose specified.



2. A trolley-controller comprising a support, an extendible spring having its lower end pivoted to the support and fixed from endwise movement and its other end movable, means connected to the upper end of the spring for tensioning the same, a catch mounted on the free end of the spring and adapted to interlock with the support for holding the spring tensioned, and an opening-cord or its equivalent connected to the catch and to the trolley-arm whereby the sudden tensioning of the cord operates to release the catch and spring for the purpose specified.

3. A trolley-controller comprising a support, a spring having its lower end fixed from endwise movement and its other end adapted to be extended or tensioned vertically, means for extending the spring, a catch mounted on the free end of the spring and arranged to automatically interlock with a portion of the support when the spring is tensioned, a cleave connected to the catch, and a cord connected to the support and cleave and adapted to be connected to the trolley-arm, said catch and spring being released by the sudden tensioning of the cord for the purpose specified.

4. The combination with a support, a trolley-arm-opening cord or its equivalent, and a take-up device for the cord, of a spring fixed at one end from endwise movement and having its other end extendible vertically and provided with a spring-extended catch for engaging the support and holding the spring tensioned, said catch being released by the cord as and for the purpose specified, and means for extending or tensioning the former spring.

5. The combination with a support and an automatic take-up device for the trolley-arm-opening cord, a spring having one end pivoted on the support and its other end extendible and provided with independent cleaves one being engaged by the trolley-arm-opening cord, a flexible member connected to the other cleave for tensioning the spring, and a catch connected to the former cleave for engaging the support and holding the spring in its tensioned position, said former cleave being movable by the cord for releasing the catch and spring.

6. The combination with a support, a trolley-arm-opening cord or its equivalent, and a spring having one end fixed from endwise movement and its other end extendible and provided with a cleave, a take-up drum mounted on the support, a flexible member connected to the take-up cord to the cleave whereby the spring may be tensioned, and a catch for holding the spring tensioned, said catch being connected to the opening-cord of the trolley-arm for the purpose specified.

7. The combination with a support having its opposite ends provided with bearings, one being adjustable toward and away from the other, a cleave having a hook connected with one of the bearings, a take-up drum mounted on the bearings and provided with a centrifugally-actuated pawl adapted to engage the teeth of the hook as described, and a trolley-arm-opening cord connected to the drum.

8. The combination with a support and a take-up device for the trolley-arm-opening cord, a cord connected to the support, a spring

having its lower end fixed from endwise movement to the support, and its upper end extendible and provided with a catch for engaging the support and holding the spring tensioned, a second take-up drum between the spring and former drum, and flexible means connected to the second drum and to the upper end of the spring for tensioning the spring.

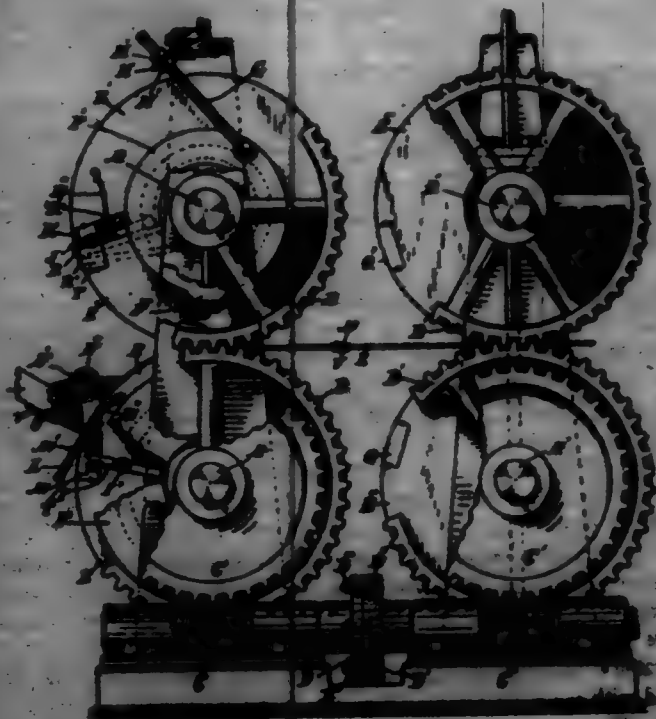
9. In a trolley-controller, the combination with a support having separated bearings, one being adjustable toward and away from the other, a spring-extended take-up drum adjustably mounted on said bearings, and a trolley-arm-opening cord connected to the drum.

10. In a trolley-controller, the combination of a support having separated walls one being provided with a ball-bearing and the other being removable and provided with an adjustable cone-bearing, and a variable spring-extended take-up drum mounted on the bearings and having one end of a trolley-arm-opening cord connected thereto.

11. The combination with an inclining one or frame having lower engaging shoulder, an extendible spring within the frame and having its lower end fixed thereto from endwise movement and its upper end provided with a catch adapted to engage the shoulder when the spring is extended, means connected to the upper end of the spring for tensioning the same, and a take-up device supported in the frame and connected to the opening-cord of the trolley-arm, said cord being connected to the catch for effecting the release of the spring and the spring curving to draw the cord downwardly.

12. In a trolley-controller the combination of an inclining one or frame having an engaging shoulder, an extendible spring having one end fixed from endwise movement to a pivot and its other end movable and provided with a catch for engaging said shoulder and holding the spring tensioned, independent cleaves connected to the upper end of the spring and movable therewith, one of the cleaves being movable vertically independently of the spring, independent take-up drums mounted on the frame, a cord or its equivalent engaged with the lower free end of the cleave connected to the catch and having one end connected to one of the drums and its other end adapted to be connected to the trolley-arm, and a second cord or its equivalent engaged with the lower free end of the other cleave and having one end connected to the other drum and its other end provided with a handle for the purpose set forth.

698,588. WIRE-FENCE MACHINE. ARTHUR C. HALL, Boston, and GEORGE E. LAM, Boston, Mass. Filed Dec. 12, 1904. Serial No. 58,700. (No model.)



Claim.—1. In combination with means for holding round wire, oppositely-moving frames adapted to pass at the respective sides of one of said wires, grippers moving transversely to the movement of the frames, and means for operating the frames and grippers, substantially as described.

2. In combination with means for holding round wire, an oppositely-moving frame, horizontally-acting grippers, a downwardly-acting former and means for operating the frames and grippers, substantially as described.

3. The combination of spring-extended pressure to hold round wire and a staple-shaped fastener, an oppositely-acting reciprocating frame, horizontally-acting grippers, a downwardly-acting reciprocating former, and means to operate the frames and grippers, substantially as described.

4. In combination with means for holding round wire and a staple-shaped fastener, a former moving at each side of one of said wires to bend the ends of the staple in one direction, grippers moving toward and

other to cross the ends of the fastener, a former acting oppositely to the first-mentioned former to bend the ends of the staple in the other direction, and means for operating said frames and grippers, substantially as described.

5. The combination of a pair of rolls, means for rotating the rolls simultaneously, a spring-extended pressure in one of the rolls, radially-acting and oppositely-acting frames in the respective rolls, transversely-acting grippers mounted on the rolls, and non-rotating cams to operate the frames and grippers, substantially as described.

6. The combination of a pair of rolls having circumferential and transverse grooves to engage round wire, radially-acting frames on the respective rolls adapted to operate in succession and in opposite directions, a pair of transversely-acting grippers pivoted on one of said rolls and operating intermittently of the frames, and means adapted to operate the frames and grippers, substantially as described.

7. The combination of a pair of rolls having circumferential and transverse grooves to engage round wire, spring-extended pressure in the upper roll to engage the wire and a fastener-blank, a radially-acting former in the lower roll, grippers pivoted on the upper roll, a radially-acting former in the upper roll, non-rotative cams to operate the frames and grippers, and means for adjusting and holding the same, substantially as described.

8. The combination of a pair of rolls adapted to engage round wire, frames and grippers for bending the fasteners mounted on said rolls, non-rotative cams for operating said frames and grippers, means for supplying fasteners to the rolls, a second pair of rolls, finishing-dies in the last-mentioned rolls, and means for synchronizing the rotation of the respective pairs of rolls, substantially as described.

9. In combination with a pair of rolls adapted to engage round wire, a detachable block in one of said rolls, and reciprocating frames and pressure extending through said block, and retained in place thereby, substantially as described.

10. The combination of a pair of rolls having fastener-forming means attached, a second pair of rolls having finishing-dies attached, worm-gearing to drive each separate pair of rolls, separate shafts to operate the respective worm-gears, a collar on one shaft having an annular T-slot, a collar on the other shaft having openings, and bolts passing through the openings in said collar and having heads adjustably engaging the T-slot in the other collar, substantially as described.

11. The combination of a pair of rolls having circumferential and transverse grooves, spring-extended pressure in the upper roll to engage the wire and a fastener, radially-acting frames in the lower roll having outwardly-projecting studs, non-rotating cams engaging the studs, means for adjusting said cams, grippers pivoted on the upper roll, radially-acting slides in said roll and having outwardly-projecting studs, rods connecting the slides and grippers, non-rotative cams engaging the studs, means for adjusting said cams, a radially-acting former in the upper roll and having a bifurcated outer end and laterally-projecting studs, and projections on the last-mentioned cam to engage the said studs, substantially as described.

12. The combination of a pair of rolls having circumferential grooves to engage a longitudinal wire, a hook on the lower roll to engage a transverse wire, a die to convey staple-shaped fasteners, a shaft near the die, a spur-wheel on the shaft and engaging the fastener, a ratchet-wheel on said shaft, a reciprocating pawl engaging said wheel, and a cam to operate the pawl, substantially as described.

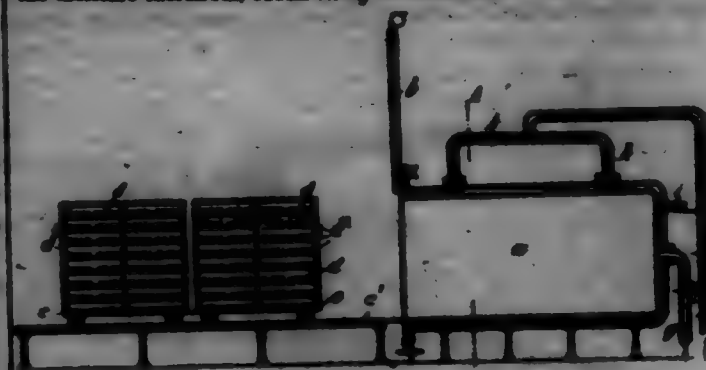
13. The combination of a pair of rolls, reciprocating frames and grippers mounted on said rolls, non-rotating and adjustable cams to operate the frames and grippers, rolls pivoted to the same at one end, and extending through fixed plates at the other ends, and adjusting-screws on said rolls, whereby the same are adjusted, substantially as described.

14. In a wire-fence machine the following means for feeding and attaching a fastener: a spring-extended pressure to hold the fastener-blank, a reciprocating former to bend the ends of the blank laterally in one direction, another reciprocating former to bend the ends of said fastener laterally in the opposite direction, a pair of grippers to cross the ends of the fastener after the first bending and before the second bending, a pair of finishing-dies to finish the ends of the fastener and finish drawing the fastener, and means for operating the frames, grippers, and dies, substantially as described.

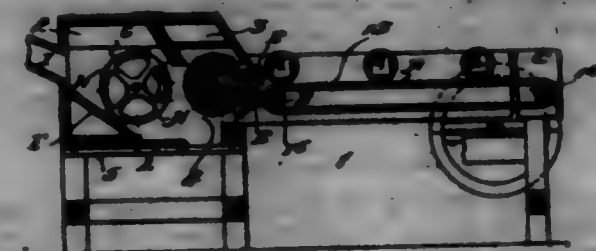
698,584. PROCESS OF MANUFACTURING GLASS. LOUIS A. HARRIS, Park, France. Filed June 10, 1900. Serial No. 23,812. (No model.)

Claim.—The hot-blast method of treating glass consisting in first treating the glass, pressing and heat spreading on the same upon supporting-plates, third, subjecting it to a vacuum in a drawing temper-

ture, and finally raising the temperature to draw the glass and compress the surface thereon, substantially as described.

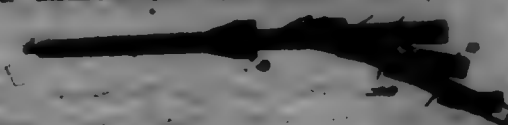


698,585. COTTON-FLICKEER FOR FORMING MATTRESS-BATS. JOHN W. HERRMAN, San Antonio, Tex., assignor, by direct and mesne assignments, to the Tennessee Pat. Manufacturing Company, West Nashville, Tenn. Filed Apr. 25, 1906. Serial No. 573,002. (No model.)



Claim.—In a machine of the class described, the combination of an endless traveling feed-apron, rollers thereon extending therewith to form and feed a bat, an inclining casing having a feed-opening on one side, a delivery-opening on the opposite side provided with a spout, an air-inlet bottom opening and an inclined board between said air-inlet opening and said delivery-opening, feed-rollers to which the bat is delivered and located in said feed-opening, a picker-roller coacting with said feed-rollers to draw the bat therefrom, disengage the bat and draw the fibers therefrom, and a reversible blast-cylinder disposed in operative relation to the picker-roller, on the side thereof opposite the feed-rollers and over the said inclined board, said blast-cylinder having peripheral straightening-blades to draw the fibers from the picker-roller and beat the same on and along the inclined board, and create a blast to carry said beaten and straightened fibers through said discharge-spout, substantially as described.

698,586. SAWBOW. JOHN E. HURLEY, Oak, Ark. Filed Oct. 2, 1904. Serial No. 77,908. (No model.)



Claim.—1. In a sawbow, the combination with a beam having a recess in one side thereof of a beveled strip secured to the beam and having a recess therein adapted to register with the recess in the beam; a cleave; a shaft thereto having grooves in opposite sides thereof adapted to receive the walls of the recesses.

2. In a sawbow, the combination with a beam, of strips secured one to the other and to the beam, means formed between the extending flange of the strips and beam, studs having grooves in the side thereof and engaging the walls of the recesses, cleaves to the studs, and beam.

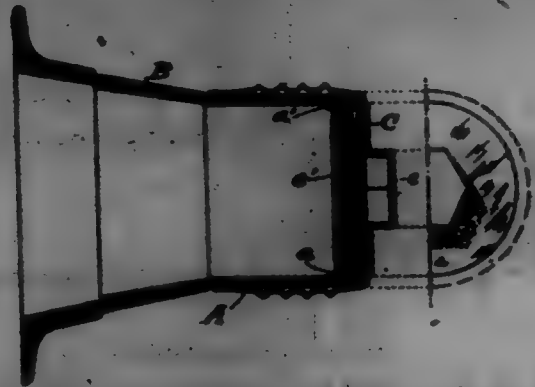
3. In a sawbow, the combination with a beam, of a standard extending upward therefrom, a horizontal cross-bar to the standard, handles secured to the beam and to the beam, a series of strips secured one to the other, said strips being attached to one side of the beam, apertures formed between the extending flange of the strips and beam, a cleave in each aperture, said cleave having grooves in its side engaging the walls of the apertures, a cleave to each stud, and means connecting the studs and strips and beam.

698,587. METAL SHELL-BAND LAMP. JAMES HERRICK, JR., and LOUIS C. HERRICK, Cincinnati, Ohio. Filed Oct. 25, 1901. Serial No. 59,000. (No model.)

Claim.—1. A shell-metal shell-band provided with an internal supporting-spring having forward therein a spiral thread extending from its outer end and to its inner free end, substantially as set forth and for the purpose specified.

2. The combination with a shell-metal band, of a detachable shell-

metal shell-band adapted to be driven thereon, an internal threaded resilient flange upon the outer end of said sheet-metal shell-band and a dent and mud cap adapted to be received therein, substantially as set forth.

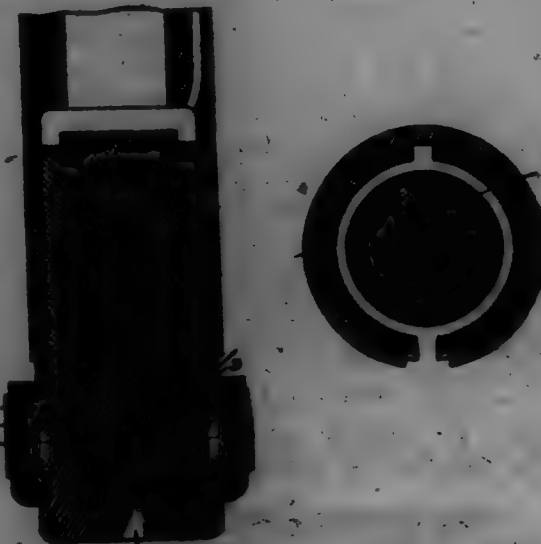


2. A sheet-metal shell-band formed with a series of pyramidal knobs upon the outer circumference of the band, substantially as set forth.

4. A threaded cap having a knurled edge, the outer surface of the cap bulging outwardly toward the center and a circular row of pyramidal knobs arranged around said bulged portion and between the same and the knurled edge, substantially as set forth.

5. A sheet-metal shell-band having a threaded portion in combination with a cap having threads adapted to engage therewith and a nut formed integral with said cap for turning the same.

698,588. CLAMP FOR PNEUMATIC HAMMERS. ALBERT G. HENRY, East St. Louis, Ill., assignor to Standard Railway Equipment Company, a Corporation of Illinois. Filed May 17, 1901. Serial No. 92,004. (No model.)



Claim.—1. A clamp for pneumatic hammers comprising clamping-jaws and a resilient split ring controlling them, said jaws being adapted to be mounted upon a pneumatic hammer, substantially as described.

2. A clamp for pneumatic hammers comprising two semicircular clamping-jaws and a spring controlling them, said clamp being adapted to be mounted upon a pneumatic hammer, and shoulders on their inner faces adapted to interlock with devices provided thereon on the shank of a tool in said hammer, substantially as described.

3. The combination with a pneumatic hammer having a circumferential groove at its front end, and a tool fitting in the front end of said hammer and having a circumferential rib overlapping the end of said groove, of a clamp comprising semicircular clamping-jaws having flanges fitting in said groove and having shoulders interlocking with said rib, substantially as described.

4. The combination with a pneumatic hammer having a circumferential groove at its front end, and a tool fitting in the front end of said hammer and having a circumferential rib overlapping the end of said groove, of a clamp comprising semicircular clamping-jaws having flanges fitting in said groove and having shoulders interlocking with said rib, the distance between the front end of the cylinder and the shoulder of the clamping-jaws being greater than the width of the interlocking rib of the tool, whereby said tool is free to move longitudinally, substantially as described.

5. The combination with a pneumatic hammer having a circumferential groove at its front end, and a tool fitting in the front end of said hammer and having a circumferential rib overlapping the end of said groove, of a clamp comprising semicircular clamping-jaws having flanges fitting in said groove and having shoulders interlocking with said rib, the

edges of the shoulders of the clamping-jaws being beveled, substantially as described.

698,589. ROTARY ENGINE, WATER-METER OR PUMP. THOMAS C. MCGRAW, Philadelphia, Pa. Filed May 20, 1901. Serial No. 92,005. (No model.)



Claim.—1. In a rotary engine, motor or pump, a casing or cylinder, a plurality of shafts rotatably mounted therein, a plurality of pumping units mounted on said shafts, each of said units consisting of one or more rotary pistons, each provided with a single vane and one or more abutment-pieces, each provided with a single gap, the vanes and gaps of said different units being so located that the vanes on one shaft shall be opposite the gaps on the other shaft so that said units will not cause pumping at the same instant.

2. In a rotary engine, motor or pump, the combination of a casing having a section-opening in its lower portion, a channel extending longitudinally in the lower portion of said casing, piston-chambers located above said channel, ports extending upwardly from the ends of said channel to said chambers, a plurality of shafts passing through said piston-chambers, and a plurality of units mounted on said shafts between said ports, each of said units consisting of a rotary piston provided with a vane and an abutment-piece having a gap, and each of the half-units being placed in longitudinal juxtaposition, but at a varying angle on each shaft and the pistons on one shaft being arranged opposite the gaps upon the other shaft and in each relative position that the vanes shall mesh with the gaps on the opposite members as the shafts rotate, whereby each pair of opposing members constitutes a pumping unit, whereby said units will not be at the inspirative point at the same instant.

3. In a rotary engine, motor or pump, the combination of a casing having a section-opening in its lower portion, a channel extending longitudinally in the lower portion of said casing, ports extending upwardly from the ends of said channel, piston-chambers located above the lower channel, a plurality of shafts passing through said piston-chambers, a discharge-outlet for said casing, and a plurality of half-units mounted on each of said shafts, each of said units consisting of a rotary piston with a vane, and a rotary abutment-piece with a gap, each of said half-units being placed in longitudinal juxtaposition but at a receding angle on each shaft and the pistons on one shaft arranged opposite the gaps of the members on the other shaft and in each relative position that the vanes shall mesh with the gaps on the opposing members as the shafts rotate, whereby each pair of opposing members constitutes a pumping unit, whereby water is forced from said ports toward said discharge-outlet and the vanes and gaps of the different units will not cause pumping at the same instant, whereby the water instead of passing in the next unit at a slight angle is carried substantially one-half way around the shaft before meeting the preceding vane.

4. In a rotary engine, motor or pump, a casing or cylinder, a plurality of shafts rotatably mounted therein, a plurality of independent units mounted on said shafts, each of said units consisting of a rotary piston having a single vane detachably connected thereto and an abutment-piece provided with a single gap, said vanes and gaps being so located with respect to each other with the pistons on one shaft arranged opposite the gaps of the opposing members on the other shaft and in each relative position that the vanes shall mesh with the gaps on the opposing members as the shafts rotate whereby each pair of opposing members constitutes a pumping unit, so that they will not be at the inspirative point at the same instant.

5. In a rotary engine, motor or pump, a cylinder, a plurality of shafts rotatably mounted therein, each of said shafts being provided with pumping units having abutments with gaps cast roughly therein, the outer peripheries of said abutments and the spaces alternating between said abutments being finished and vanes detachably secured in position on the finished portions between said abutments, the pistons on one shaft being arranged opposite the gaps of the members on the other shaft in each relative position that the vanes shall mesh with the gaps as the shafts rotate whereby each pair of opposing members form a pumping unit.

6. In a rotary engine, motor or pump, a plurality of shafts having pumping units thereon, said units consisting of abutments having gaps cast therein, the outer peripheries of said abutments being turned or finished and the alternating spaces between said abutments being also finished, the spaces between said abutments being provided with vanes detachably secured therein, said vanes and gaps being arranged so that each gap when not in mesh with the corresponding vane will serve as a passage through which the next preceding pumping unit in the series shall deliver and adapted to meet, whereby the pumping action of each group of units will not cease at the same instant.

7. In a rotary engine, motor or pump, a cylinder or casing, a plurality of shafts rotatably mounted therein, and a plurality of pumping members on each of said shafts, consisting of rotary pistons, and disks on each shaft alternately between the pistons, said pistons and disks being provided respectively with a vane and a gap permitting each vane to carry the water through the gap substantially one-half way around the shaft before meeting the next adjacent vane.

8. In a rotary engine, motor or pump, a cylinder or casing, a plurality of shafts rotatably mounted therein, and a plurality of pumping members on each shaft, consisting of rotary pistons, and disks on each shaft alternately between the pistons, said pistons and disks being provided respectively with a vane and a gap permitting each vane to carry the water through the gap substantially one-half way around the shaft before meeting the next adjacent vane, said vanes being disposed in series in moving from whereby leakage past one vane is prevented by the next succeeding vane.

9. In a rotary engine, motor or pump, the combination with a casing, of a plurality of shafts rotatably mounted therein, a series of alternating vane-pieces and disks provided each with a gap upon each shaft, the pistons on one shaft being arranged opposite the disks upon the other shaft and in each relative position that the vanes shall mesh with the gaps in the disks as the shafts rotate, whereby each pair of opposing pistons and disks constitutes a pumping unit, supply and discharge passages communicating with the casing, the former arranged to deliver fluid to the first pumping unit and the latter arranged to receive it from the last pumping unit, the gap in each disk serving, when not in mesh with the corresponding vane, as a passage through which the next preceding pumping unit in the series shall deliver.

698,540. AUTOMATIC SELF-CLOSING FIRE-DOOR. GEORGE H. MCGRAW, New York, N. Y. Filed Apr. 5, 1901. Serial No. 91,516. (No model.)

Claim.—1. In combination with a door adapted when released to close automatically, a latch adapted to secure the door and normally held open; a hand-pull; a connection between the latch and the hand-pull for releasing the door; a projection upon this connection; and a sliding hand-operated member having a projection coacting with the projection on the connection and adapted to engage and operate said releasing connection.

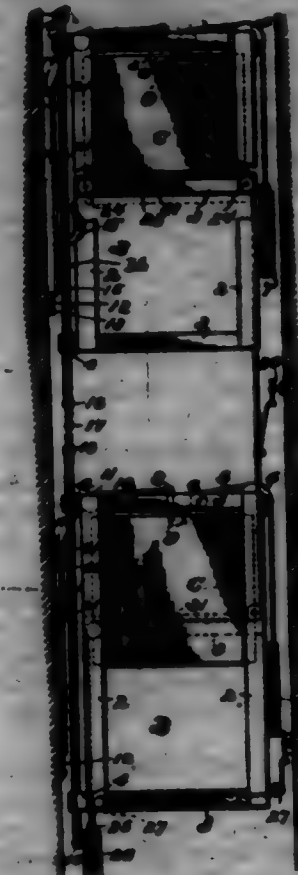
2. In combination with an opening into a shaft and a self-closing door therein, a gravity-latch for normally holding the door open; a pulley mounted convenient to said opening; a fireproof cord secured to said latch and extending over said pulley; a projection on said cord; a ball-crank lever having one arm secured to the other end of said cord and mounted in said shaft; a hand-pull secured to the outer end of said ball-crank lever and conveniently located outside said shaft; and hand-operated means having an eye lowered by said cord and adapted to engage the projection thereon to operate the latch.

3. A series of self-closing doors, gravity-latches for normally holding said doors open; fireproof cords attached to each of said latches and extending over one of said pulleys; a hand-pull secured to each cord; a fireproof cord secured to each door and extending over another of said pulleys and having its end secured to a counterweight; a sliding member extending alongside said openings from the upper to the lower end thereof, said member provided with eyes adapted when said member is lowered to engage the hand-pull cords; and a wire having a weight at one end and extending horizontally across said openings and having its upper end connected to said sliding member and adapted to hold said sliding member in its highest position, said wire having tubular links in its horizontal portion.

4. The combination with a shaft, of ways alongside the openings into said shaft; doors sliding in said ways; means for normally holding said doors open; hand-operated means for releasing each of said holding means; hand-operated means for simultaneously releasing all of said holding means; and hand-operated means for releasing said doors through the hand-operated releasing means.

5. The combination with a series of doors, one above the other and adapted when released to close automatically, releasing means for each door; hand-operated means for operating said doors; and hand-operated means for operating all of the doors simultaneously through the hand-operated releasing means.

6. A series of self-closing doors; gravity-latches for normally holding said doors open; pulleys mounted at points convenient to the openings for said doors; a fireproof cord attached to each of said latches and extending over one of said pulleys and to a suitable point; a ball-crank lever suitably mounted near said point and having one arm attached to said cord; a hand-pull secured to the other arm of said ball-crank lever and located within the building; and hand-operated means operative upon said cord.



7. A series of self-closing doors; automatic gravity-latches for normally holding said doors open; pulleys mounted near said openings; a fireproof cord attached to each of said latches and extending over one of said pulleys; a hand-pull secured to the free end of each of said cords, a sliding member extending alongside said openings from the upper to the lower end of said openings, said member provided with eyes adapted when said member is lowered to engage protruberances on said cords; and a wire having a weight at one end and extending horizontally across said openings and having its upper end connected to said sliding member and adapted normally to hold said sliding member in its highest position, said wire having tubular links in its horizontal portion.

8. A series of self-closing doors; automatic gravity-latches for normally holding said doors open; pulleys mounted near said openings; a fireproof cord attached to each of said latches and extending over one of said pulleys; a hand-pull secured to each cord; a fireproof cord secured to each door and extending over another of said pulleys and having its end secured to a counterweight; a sliding member extending alongside said openings from the upper to the lower end thereof, said member provided with eyes adapted when said member is lowered to engage the hand-pull cords; and a wire having a weight at one end and extending horizontally across said openings and having its upper end connected to said sliding member and adapted to hold said sliding member in its highest position, said wire having tubular links in its horizontal portion.

9. The combination with a shaft, of ways alongside the openings into said shaft; doors sliding in said ways and effective to close by their own gravity; means for normally holding each of said doors open; hand-operated means for separately releasing each of said holding means; and hand-operated means for simultaneously releasing all of said holding means.

10. The combination with a shaft, of ways alongside the openings in said shaft; doors sliding in said ways; means for normally holding said doors open; hand-operated means for releasing each of said holding means; hand-operated means for simultaneously releasing all of said holding means; and hand-operated means for releasing said doors through the hand-operated releasing means.

11. The combination with a shaft, of fireproof ways alongside said openings into said shaft; fireproof doors sliding in said ways and adapted when closed to overlap the sides of said openings; fireproof means for normally holding said doors open; hand-operated fireproof means for separately releasing each of said holding means; hand-operated means for releasing all of said holding means at once through said hand-operated releasing means.

locking means; and hand-operated means operative upon said hand-operated means.

12. The combination with a shaft, of frequent ways alongside the openings into said shaft; frequent doors sliding in said ways; frequent means for normally holding said doors open; separate hand-operated means for releasing each of said holding means; and facilities means for operating all of said holding means at once through said releasing means.

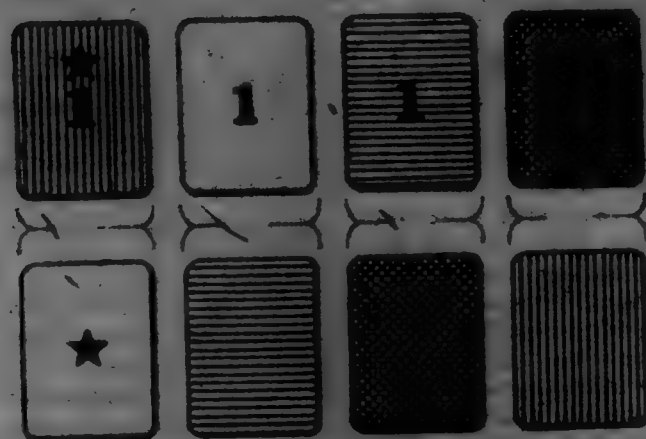
13. The combination with a shaft having openings; of frequent ways alongside the openings into said shaft; frequent doors sliding in said ways and adapted when closed to overlap the sides of said openings; frequent latch supporting means near said doors; frequent gravity-latches, pivoted to said supporting means above said doors, for normally holding said doors open; a hand-pull inside the building for releasing each of said latches; frequent connections between each of said latches and its respective hand-pull; and inflexible connections for operating all of the latches through the hand-pull connections thereto simultaneously in one of two.

14. The combination, with a light, air or heat shaft having openings therein, of frequent ways located inside the shaft alongside the openings; frequent doors sliding in the ways and adapted to overlap the openings on all sides when closed; cross-pieces connecting the top and bottom of the ways on opposite sides of the openings and having one of their ends turned back on itself; counterweights connected with the doors; latches for normally holding the doors open; hand-pulls connected with the latches; a member alongside each opening sliding in the eyes formed in the ends of the cross-pieces, said member connected with the hand-pull and adapted to operate the same when lowered all of said members being connected together; and hand-operated means for lowering said sliding members.

15. In combination with a sliding door adapted when released to shift automatically; means adapted to move said door in its normal position; manually-operative means for releasing said moving means to permit the door to shift; and means embodying a plurality of heat-actuated devices for operating said releasing means through the action of any one of said devices.

16. The combination with a series of doors adapted when released to shift automatically; releasing means for each door; hand-operated means for operating said means; and hand-operated means for operating all of the doors simultaneously through the hand-operated releasing means.

698,541. INDEX-CARD FOR DUPLICATE WHIST. CHARLES W. HUNT, Philadelphia, Pa. Filed Apr. 5, 1899. Serial No. 64,628. (No model.)



Claim.—1. A set of colored index-cards for separating the four white-hands of a pack of playing-cards in the game of duplicate whist, comprising an index-card for each player, the faces and backs being so colored that the face of each card has the same color as the back of another whereby the hands of the respective players are indicated for the original play and shifted to the opponents for the duplicate play, substantially as described.

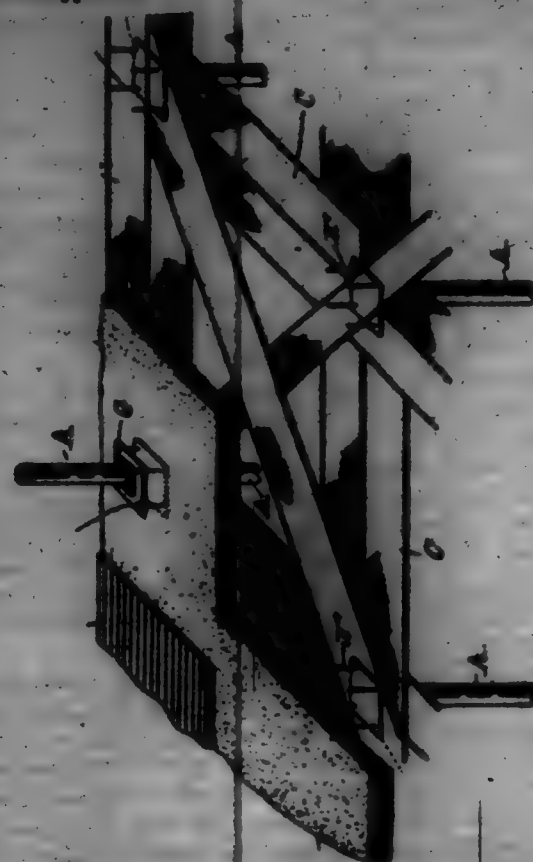
2. In combination a series of sets of colored index-cards for duplicate whist comprising four index-cards for each pack of playing-cards used, with an appropriate character on the face of each index-card to identify the pack to which it belongs and an appropriate character on the face and back of one of the four index-cards of each set to indicate the lead, substantially as described.

698,542. FLOORING FOR BUILDINGS. GEORGE W. BENNETT, Worcester, Mass. Filed Nov. 23, 1899. Serial No. 65,570. (No model.)

Claim.—1. The combination of separated posts or supports, and a flooring consisting of a panel of concrete having metallic network inlaid therein, said metallic network comprising strips of wire network, extending directly from wall to wall, and diagonal strips of wire-network extending from wall to wall at angles with the first-mentioned strips of wire-network.

2. A flooring resting on separated supports, and consisting of con-

crete with metallic network inlaid therein, said metallic network comprising strips of wire network, extending directly from wall to wall, and diagonal strips of wire-network extending from wall to wall at angles with the first-mentioned strips of wire-network.



3. A flooring resting on separated posts, and consisting of metallic network formed by strips of wire-netting laid from post to post to cross each other in web-beam fashion, and concrete inlaid in the metallic network.

4. A flooring resting on separated posts, and consisting of metallic network formed by strips of wire-netting laid from post to post, and on the diagonals of the spaces defined by the posts, and concrete inlaid in the metallic network.

5. A flooring resting on separated supports, consisting of concrete having a metallic network inlaid in the bottom layer thereof, with the body portion of said concrete of lighter material than the bottom layer thereof.

698,543. FLOORING FOR BUILDINGS. GEORGE W. BENNETT, Worcester, Mass. Filed Dec. 23, 1899. Serial No. 65,571. (No model.)



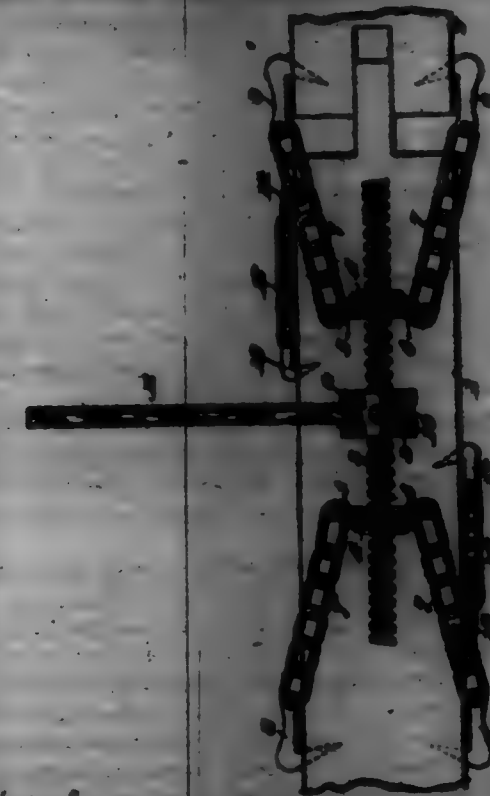
Claim.—1. The combination of walls or other longitudinal supports, and a flooring consisting of a panel of concrete having metallic network inlaid therein, said metallic network comprising strips of wire network, extending directly from wall to wall, and diagonal strips of wire-network extending from wall to wall at angles with the first-mentioned strips of wire-network.

2. The combination of walls or other longitudinal supports, and a flooring consisting of a panel of concrete having a metallic network in-

closed in its bottom layer, said metallic network comprising strips of wire-netting arranged crosswise with respect to each other.

3. The combination of walls or other longitudinal supports, and a flooring consisting of a panel of concrete having a metallic network comprising strips of wire-netting extending directly from wall to wall, and laid side by side substantially into contact with each other, with diagonal or bridging strips of wire-netting crossing the first-mentioned strips of wire network at angles therein, the body portion of said concrete being of lighter material than the bottom layer thereof.

698,544. GRAPPLE. JOHN W. BROWN, Boston, Mass. Filed Sept. 24, 1899. Serial No. 71,599. (No model.)



Claim.—1. A device of the character described comprising a rod having right and left hand screw-threads, one having openings in their edges mounted upon the ends of said rod, chains secured in the openings in said rods, hooks in the free ends of said chains, and means for rotating said rod.

2. The combination with a rod having right and left hand screw-threads and a drum secured centrally thereon, of nuts having openings in their edges mounted upon the ends of said rod, chains secured in the openings of said nuts, hooks at the free ends of said chains, and means for preventing the twisting of said chains.

3. The combination with a rod having right and left hand screw-threads and a drum secured centrally thereon, of nuts having openings in their edges mounted upon the ends of said rod, chains secured in the openings of said nuts, hooks at the free ends of said chains, and means for preventing the twisting of said chains consisting of a short chain having hooks at its ends adapted to engage the hooks and the screw-threads.

698,545. HOISTING. ROBERT CHASE, and BENJAMIN WILSON, New York, N. Y. Filed Dec. 23, 1899. Serial No. 65,572. (No model.)



Claim.—1. A hoist provided with a pulley made up of a number of layers, each layer consisting of a sheet of wire mesh having its open spaces filled with an elastic compound containing finely-divided abrasive material.

2. A hoist provided with a pulley made up of a number of layers, each layer consisting of a sheet of wire mesh having its open spaces filled with an elastic compound containing finely-divided abrasive material, some of the wires of the mesh being arranged perpendicularly to the working surface of the pulley.

698,546. GRAIN-CARRIER. ROBERT H. OVERLY, Summit Station, Ohio. Filed Sept. 20, 1899. Serial No. 71,598. (No model.)



Claim.—In a grain-carrier, the combination with a horizontal carrier-frame, a horizontal carrier-belt mounted upon rollers in said horizontal frame and having transverse carrier-plates, an inclined carrier-frame section extending from said horizontal frame, upper and lower rollers being mounted on rollers therein and carrying transverse carrier-plates, of a guard-strip having one end fixed to the horizontal frame, said strip extending as described over the carrier-plates of the horizontal carrier-frame and between the parallel spaces of the inclined frame, the outer end of said strip being curved over and in close proximity to the lower outer belt-carrying roller of said inclined frame, substantially as specified.

698,547. MAIL-SHEDDING APPARATUS. GEORGE A. OWEN, Springfield, Mass. Original application filed Mar. 23, 1899, Serial No. 705,004. Divided and this application filed Apr. 20, 1900. Serial No. 67,080. (No model.)



Claim.—1. In a mail service in a building, a downwardly-extending mailing-chute and a portable receptacle removably supported thereunder provided with the spring-pawl 63, the clutch-door 77 horizontally movable between the mouth of the chute and the top of the receptacle having the spring 74 applied thereto, and having portions thereof engaged by said pawl in the placing of the receptacle beneath the chute, for the purpose set forth.

2. In combination, the mailing-chute having at its lower end the plate or support 62 provided with the depending opposite edge portion 64, the plate 65 secured against and under said portion 64 and provided with the opening 66 and the grooves 67, 67', and the slot extension 67'',

the chest-door *f* hinged to slide between said parts 68 and 69 provided with the recesses 72, the spring 74, and the portable receptacle and means for removably supporting it under said part 68, said receptacle being provided with the pawls 68 arranged to operate substantially as described.

2. The combination with a mailing-chute, of a portable receptacle, and means on which the latter is removably supported under the chute, said receptacle having in the upper opening thereof the hinged cover *g* provided with tumblers-cochets 80 and spring-pressed tumblers 82 therein, the corresponding series of tumblers-cochets provided in the upper marginal portion of the receptacle having tumblers therein and a tumbler-adjusting device provided on the support for the said receptacle subject in which the locking devices are brought on the replacement of the receptacle under the chute.

4. The combination with the supporting part *c*, of the portable receptacle provided with the tumblers-cochets 77 and the tumblers 78, and provided with the recess 87 and a plunger-like forcing device therein, the hinged cover *g* provided with the tumblers-cochets 80, and the spring-pressed tumblers 82, and having the lower-legs 88 and the stationary part 84 comprising the tumblers-operating words, substantially as described.

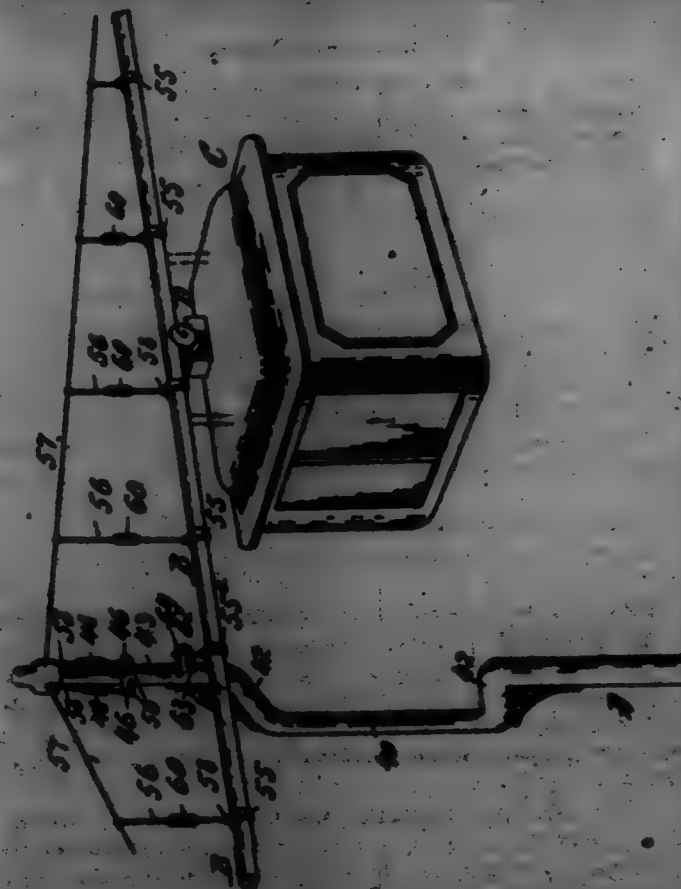
5. The combination with a mailing-chute and a receptacle-support thereunder, of the receptacle having the hinged cover and automatic locking and unlatching devices substantially as described, the elevating-spring for the cover and the cover-opening device consisting of the leg 88 on the cover and the double-plungers 86, 86, and intermediate spring 90 in a socket in the marginal portion of the cover, as shown.

6. The combination with a mailing-chute, of a portable receptacle removably supported thereunder, having a discharging-mouth, and a closing-door therefor, locking device between each door and the wall of the receptacle consisting of tumbler-cochets in the door and in the wall adjacent thereto, with slots in said wall leading to said cochets, and an opening-spring for the door.

7. The portable receptacle having the entrance-opening and a discharging-mouth, a cover hinged in the entrance-opening, automatic locking and unlatching means for said cover, the closing-door *A* having tumbler-cochets, the wall of the receptacle adjacent said door also having cochets with openings from without leading thereto, and the spring-pressed tumblers 86, substantially as described.

8. The combination with the chest letter-box having a receiving-opening and a series of projections 80 adjacent thereto, of the portable receptacle having the delivery-mouth provided with a hinged door there-within, and locking device between the door and adjacent receptacle-wall comprising tumblers and cochets therefor in both the wall and door, and apertures leading from the exterior of the receptacle-wall through which said projections 80 may enter, substantially as and for the purpose set forth.

698,548: TRACK-SUPPORTING APPARATUS. GEORGE A. OWEN, Springfield, Mass. Filed June 24, 1901. Serial No. 68,744. (No model.)



Claim.—1. In a track-supporting apparatus, of the character indicated herein, a post having an offset portion 40, and thereabove a post extension, combined with a trackway, having its position adjusted on upper part of the said offset portion 40, whereby the conveyor to run suspended from the trackway may pass unobstructedly through the space while said offset portion of the post, longitudinal flutings support on, leading from post to post, and depending connection between the latter and the track.

2. The post having in the upper extension thereof cheeks 48 mounted to freely turn and provided with legs 46, of the longitudinal cables, and portions of which are passed around the cheeks, and have connections with turnbuckles which are also connected with the said post-legs.

3. The post having in the upper extension portion thereof, recesses 44 and double cheeks mounted and freely rotatable therein, and provided with the legs 46, of the cables 57, the end portions of which are passed around the cheeks in opposite directions, the trackway having supporting-eyes at its top and turnbuckles comprised in depending connections between intermediate parts of the longitudinal cables, and said track-supporting eyes and the turnbuckles 48, 48, having connections with the extremities of the longitudinal cables, and the post-legs 46, 46.

4. The post *A* having the double bands 42, 42, and intermediate offset portion 40, and the upper post extension 45 provided near the upper band 42 with the regularly-extended leg 62, combined with the longitudinal cables supported from the upper portions of the post, and having depending track-supporting connections, and cross-roads confined in, and depending below, the legs 62, and having supporting connection with the track, serving to steady the latter adjacent the post.

5. The trackway of tubular form having an underneath median clew-way, and having a connected top eye, and the post having from their upward extension, the longitudinal cables and the depending track-supporting connections 54, the lower ends of which are connected with each of the eyes at the top of the track.

6. The trackway of tubular form having an underneath median clew-way, and having an embracing clip 56, provided at its top with an eye, of the post having upward post extension, the longitudinal cables and depending track-supporting connections 54, the lower ends of which are connected with each of the eyes provided at the top of the track.

7. Track-suspension-cylinders, and the track constructed as follows: the post *A* having the offset portion 40 and the upward post extension having in its upper extremity the recess 44, therebelow the opposite legs 46, and also the legs 62, the double cheeks 48, 48, in the recess, the longitudinal cable 57, and portions of which are passed around the cheeks, the double rods 47, 47, depending and united by turnbuckles, one of each rod having connection with the end of the cable, and the other having a coupling engagement with a post-leg 46, and the trackway having the clip 56, provided with the eye 58, the depending connections 54 having connections with said eyes, and supported by the longitudinal cables, and immediately provided with turnbuckles, rods 56 having supporting connections with the post-legs 62, and depending therebelow, and having a supporting and steadying connection with the portion of the track adjacent the post, substantially as described.

698,549. GEORGE A. OWEN. HARTMAN, Pat. Aug. 21, 1901. Serial No. 68,745. (No model.)

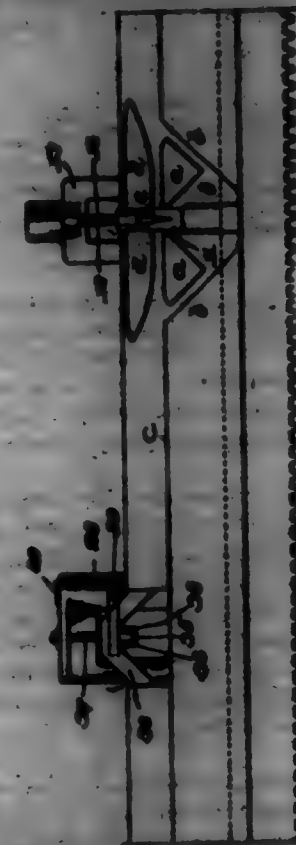
Claim.—1. In a circular-hitting machine, the combination of the needle-cylinder, the needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, the hitting-arms, including offset-arms, a switch-arm, and means operated by the oscillations of the cam-cylinder for rendering said switch-arm active and inactive at a point or points centrally of the finishing-needle, or substantially as, together with picking mechanism for the finishing-needle, and means for rendering said mechanism idle and active at predetermined intervals.

2. In a circular-hitting machine, the combination of the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, the hitting-arms, including offset-arms, a switch-arm, and means operated by the oscillations of the cam-cylinder for rendering said switch-arm active and inactive at a point or points centrally of the finishing-needle, or substantially as, together with picking mechanism for the finishing-needle, and means for rendering said mechanism idle and active at predetermined intervals.

3. In a circular-hitting machine, the combination of the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, the hitting-arms, including offset-arms, a switch-arm, and means operated by the oscillations of the cam-cylinder for rendering said switch-arm active and inactive at a point or points centrally of the finishing-needle, or substantially as.

4. In a circular-hitting machine, the combination of the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, the hitting-arms, including offset-arms, a switch-arm, and means operated by the oscillations of the cam-cylinder for rendering said switch-arm active and inactive at a point or points centrally of the finishing-needle, or substantially as.

lary cam-cylinder, and the hitting-arms, of a vertically-movable support, a switch-arm thereon, and means for automatically raising and lowering said support to move the switch-arm above and between said hitting-arms at a point or points centrally of the finishing-needle, together with picking mechanism for the finishing-needle, and means for rendering said mechanism idle and active at predetermined intervals.



5. In a circular-hitting machine, the combination with the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, and the hitting-arms, of a vertically-movable support, a switch-arm thereon, and means for automatically raising and lowering said support to move the switch-arm above and between said hitting-arms at a point or points centrally of the finishing-needle, together with picking mechanism for the finishing-needle, and means for rendering said mechanism idle and active at predetermined intervals.

6. In a circular-hitting machine, the combination with the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, and the hitting-arms, of a vertically-movable support, a switch-arm thereon, and means for automatically raising and lowering said support to move the switch-arm above and between said hitting-arms at a point or points centrally of the finishing-needle, or substantially as.

7. In a circular-hitting machine, the combination with the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, and the hitting-arms, of a vertically-movable support, a switch-arm thereon adapted to be set between and above said hitting-arms at a point or points centrally of the finishing-needle, or substantially as, means for normally depressing said support, means for raising the same, a latch device for maintaining said slide elevated, and means for tripping said device to release the slide.

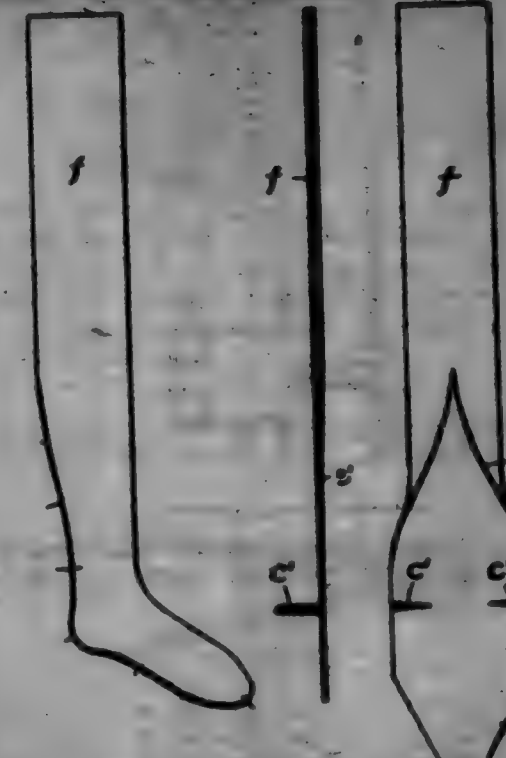
8. In a circular-hitting machine, the combination with the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, and the hitting-arms, of a vertically-movable support, a switch-arm thereon adapted to be set between and above said hitting-arms at a point or points centrally of the finishing-needle, or substantially as, means for normally depressing said support, a cam movable in proximity to the rotary path of the support, means on the support to engage said cam and effect the elevation of the support, a latch device for maintaining said support elevated, and means for tripping said device to release the support.

9. In a circular-hitting machine, the combination with the cam-cylinder and the hitting-arms, of a vertically-movable slide, a switch-arm thereon movable between or above said hitting-arms as desired, means for normally depressing said slide, a cam-lower movable in proximity to the rotary path of the slide, means on the cam-cylinder for engaging said lower from side to side according to the stroke of said cylinder, means on the slide to engage said cam and effect the elevation of the slide, a latch device for maintaining said slide elevated, and means for tripping said device to release the slide.

10. In a circular-hitting machine, the combination of the needle-cylinder, its needle, including finishing-needle, the rotatable and oscillatory cam-cylinder, the hitting-arms, including offset-arms, a switch-arm, means for automatically rendering said switch-arm active and inactive at a point or points centrally of the finishing-needle, or substantially as, picking mechanism for the finishing-needle, and means for rendering said mechanism idle and active at predetermined intervals.

11. In a circular-hitting machine, the combination with the cam-cylinder and its hitting-arms, including the offset-arms, of a vertically-movable support, a switch-arm thereon, means for maintaining said switch-arm yieldingly in a centrally-depending position.

698,550. GEORGE A. OWEN. HARTMAN, Pat. Aug. 21, 1901. Serial No. 68,746. (No model.)



Claim.—1. A finished stocking the upper part of the leg of which is seamless, while the finished or cuff portion, together with the ankle, heel, foot and toe parts, are formed longitudinally of the stocking, substantially as described.

2. A blank for finished hosiery, comprising a seamless tubular part and a lower flat part, the latter being so shaped that when it is folded and its edges secured or connected, the finished portion of a stocking-leg, together with the ankle, heel, foot and toe portions, will be formed, substantially as described.

698,551. DRAFT-SEWING. BERNARD PATTERSON, Cleveland, Ohio. Filed Jan. 2, 1901. Serial No. 61,819. (No model.)

Claim.—1. In a draft-sewing, the combination of a pair of draft-drawers, a pair of center dills above and secured to said drawers, a filling-drawbar between and secured to said dills, a pair of draft-plates secured to said draft-drawers, means connected with said plates to lead into said dills and filling-drawbar, whereby longitudinal displacement of said plates relatively to said dills and filling-drawbar is prevented, the following-plates, springs, yokes and draw-bar.

2. In a draft-sewing, the combination of a pair of draft-drawers, a pair of center dills above and secured to said drawers, a filling-drawbar between and secured to said dills, a pair of draft-plates secured to said draft-drawers and engaging transversely said dills and filling-drawbar, the following-plates, springs, yokes and draw-bar.

3. In a draft-sewing, the combination of draft-drawers, center-dills, a filling-drawbar between said dills and draft-drawers, said plates provided with means to lead into the draft-drawers, dills and filling-drawbar, whereby longitudinal displacement of said plates is prevented relatively thereto, the following-plates, springs, yokes and draw-bar, substantially as described.

4. In a draft-sewing, the combination of draft-drawers, center-dills, a filling-drawbar between said dills and draft-plates, the latter provided with transverse depressions upon their upper surfaces and lugs located in said depressions, said lugs engaging said dills and filling-drawbar.

5. In a draft-sewing, the combination of draft-drawers, center-dills, a filling-drawbar between said dills, and draft-plates, the latter provided with transverse depressions upon their upper surfaces and lugs located in said depressions, said lugs engaging said draft-drawers, dills and filling-drawbar.

698,551.



2. In a device of the class described, the combination of a plurality of valves, each having a movable valve member, and a diaphragm having all of said valve members mounted on one side thereof, said diaphragm being operated by the pressure of steam from a boiler to control the flow through the valves.



3. In a device of the class described, the combination of a steam-supply pipe, a fuel-supply pipe, a diaphragm, a valve having a valve-seat communicating with the steam-supply pipe and mounted upon one side of the diaphragm, a second valve having a valve-seat communicating with the fuel-supply pipe and mounted upon the same side of the diaphragm and means admitting steam to the opposite side of the diaphragm.

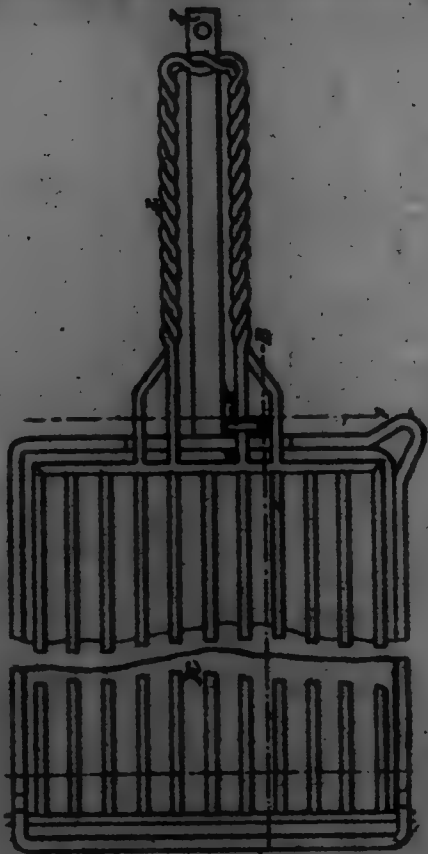
4. In a device of the class described, the combination of a casing having a compartment, a steam-supply pipe, a fuel-supply pipe, a diaphragm secured within the compartment, a valve having a movable member communicating with the fuel-supply pipe and secured to the diaphragm, a second valve having a movable member communicating with the fuel-supply pipe and secured on that side of the diaphragm upon which the steam-supply-valve member is mounted, said movable member of the steam-supply valve being provided with an opening communicating with the other side of the diaphragm to move the valve members simultaneously.

5. In a burner for hydrocarbon liquids, the combination with a compartment of an elastic diaphragm extending through said compartment, a liquid-supply pipe having a valve and a valve-seat, the latter being mounted on said disk, a steam-pipe having a valve and a valve-seat, the latter being mounted on said disk and adapted to admit steam to the space under said disk, valve-stems connected with said valves, and a steam-discharge pipe adapted to receive steam with said fluid, substantially as set forth and described.

6. The combination of a casing, a diaphragm mounted within the casing and adapted to be moved by steam-pressure, and a plurality of valves also mounted within the casing, each valve having a movable member secured to the diaphragm.

7. The combination of a casing, a diaphragm mounted within the casing and adapted to be moved by steam-pressure, a steam-supply valve and a fuel-supply valve both of which are mounted within the casing, and a movable valve-seat for each of said valves, secured to the diaphragm.

698,552. GRID OR BOILER. JAMES I. FRANK, Perth, Western Australia, Australia. Filed Mar. 8, 1929. Serial No. 7,857. (No model.)



Claim.—A boiler comprising a grid having a handle and having extensions from its body to form seats, a receptacle to be placed below the grid and having recesses to receive the said extensions, and having a handle, the two handles being so placed as to be in substantial alignment when the members are assembled, and means for holding the members in their assembled relation.

698,553. INJECTOR-BURNER. WILLIAM FLETCHER WHITTIER, Cal. Filed Dec. 14, 1929. Serial No. 59,597. (No model.)

Claim.—1. In a device of the class described, the combination of a plurality of valves, each having a movable member, and means having all of said valve members mounted on one side thereof, said means being operated by the pressure of steam from a boiler to control the flow through the valves.

698,554. AXLE-GAGE. JAMES A. BURNHAM, Woburn, Ind. Filed Oct. 4, 1929. Serial No. 77,929. (No model.)



Claim.—1. In an axle-gage, the combination, with a tubular bar having a longitudinal slot, a contact-piece at one end, and a bracket at the other end; of a rocking beam pivoted to the said bracket and provided with a forked contact-piece at each end, a graduated plate on the said bar, an indicator-rod pivoted to the said rocking beam and projecting into the said tubular bar, and a pointer secured to the said indicator-rod and slidable over the said graduated plate, substantially as set forth.

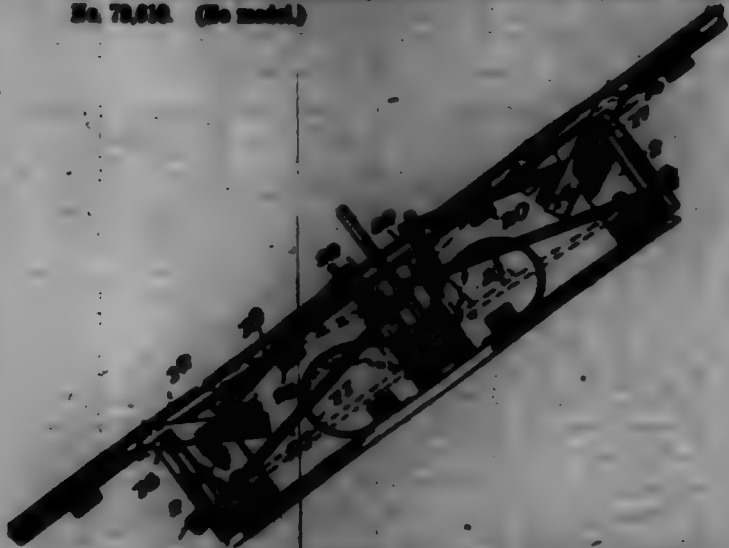
2. In an axle-gage, the combination, with a tubular bar having a longitudinal slot, a contact-piece at one end, and a bracket at the other end; of a rocking beam pivoted to the said bracket and provided with a forked contact-piece at each end and an arm which projects upwardly from its outer end, a graduated plate on the said bar, an indicator-rod pivoted to the said arm and projecting into the said tubular bar, and a pointer secured to the said indicator-rod and slidable over the said graduated plate, substantially as set forth.

698,555. GREEN SULFUR DYE AND PROCESS OF MAKING SAME. CHRISTOPHER J. VAN, Zurich, Switzerland, assignor to Anilin-Color and Extract Works, formerly John E. Gutz, Zurich, Switzerland. Filed Feb. 5, 1929. Serial No. 52,712. (Specimens.)

Claim.—1. The production of a new green color dyestuff by making the salt-acid of dimethyl-para-amido-para-xylylenediamine, obtainable from dimethyl-para-amidodiphenylamine and normal acids, with polyacids of alkali in presence of water, substantially as described.

2. As a new article of manufacture the green color dyestuff derived from the salt-acid of dimethyl-para-amido-para-xylylenediamine, which forms a dark powder, soluble in water with a dark-violet color, scarcely soluble in alcohol, insoluble in ether and benzene, the watery solution being precipitated by addition of acids in light brown floccs, which are insoluble in ammonia and in sodium-carbonate solution, soluble in concentrated sulfuric acid with blackish-brown color, turning slowly to a grayish-violet shade—the coloring-matter, dyeing premeditated cotton fast green shades, substantially as described.

698,556. AUTOMATIC RAILWAY-GATE. THOMAS R. BROWN and EDWARD G. BURKMAN, Muskegon, Iowa. Filed Oct. 20, 1901. Serial No. 78,616. (No model.)



Claim.—An automatic gate of the character specified, a suitable frame, a movable gate-section mounted on said frame, in combination with tread-rolls 12 and suitable supporting devices intermediate said tread-plate and gate embodying yokes, supporting said tread-rolls, a pivoted gate-controller, and a gate-controlling lever having pivotal connection with said controller whereby the gate will be depressed when said plate is depressed by the wheels of the moving train, and means to restore the gate to a normally elevated position after the train is past, all combined substantially as specified and for the purpose set forth.

698,557. BALL-BEARING. CHARLES E. BARNES, Chicago, Ill. Filed Sept. 17, 1900. Serial No. 20,377. (No model.)



W. D. G.—57

Claim.—1. The combination in a ball-bearing for axle, of the cup, the ball-ring, the cone, the balls and a loose split ring for holding the balls in the cup when the cup and cone are separated, each ring being located in the axial opening between the cup and cone, substantially as specified.

2. The combination with the balls, cone and cup of a ball-bearing of a ball-ring fast in the cup, and a loose split spring-ring for retaining the balls located inside the balls and in the axial opening between the cup and cone, substantially as specified.

698,558. TRAVELING-CASE. HENRY W. BARNHART, New York, N. Y. Filed May 11, 1901. Serial No. 81,716. (No model.)



Claim.—A traveling-case comprising a body open at the top, a cover hinged thereto and open at the top and at the bottom, clasp at the lower part of said cover, trays cut within the cover upon the said clasp, said trays being open at the top, and sliding lids arranged above the said trays to pull out at opposite sides of the cover, and each of a proper size to close one of the said trays.

698,559. SPEED-VEHICLE. CHARLES BOWLER, Buffalo, N. Y. Filed Sept. 2, 1901. Serial No. 81,717. (No model.)



Claim.—An arched axle for vehicles comprising two members having downwardly-converging ends, each end end being formed with recesses, each recess being relatively wide at the ends of the axle, and tapering to a point a considerable distance above each end, spindle-holders provided with eye portions and radially-extending prongs, each prong being adapted to fit snugly in the said recesses, reinforcing-plans secured to the converging ends of the axle for further strengthening the same, and rivets extending through the reinforcing-plans, the axle members and the radiating prongs for binding all such parts rigidly together, substantially as described.

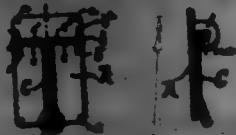
698,560. DOGS HARNESS. WILLIAM T. BURN, Newark, Ohio. Filed June 7, 1901. Serial No. 68,004. (No model.)



Claim.—In a harness, the combination of a plated nose-band having the terminals reduced and one formed with a loop through which the other is adjustably threaded, the extremity or terminal which is passed through the loop being continued into a halter-cape and parts of the band also continued upwardly to form cheek and crown portions, a connecting device for the nose-band terminals to form an adjustable chin-strap, a separable throat-latch continued into a crown portion which is attached at opposite sides to the crown portion continued from the cheek portions by means of clips, the said double crown-bearing parts being free between

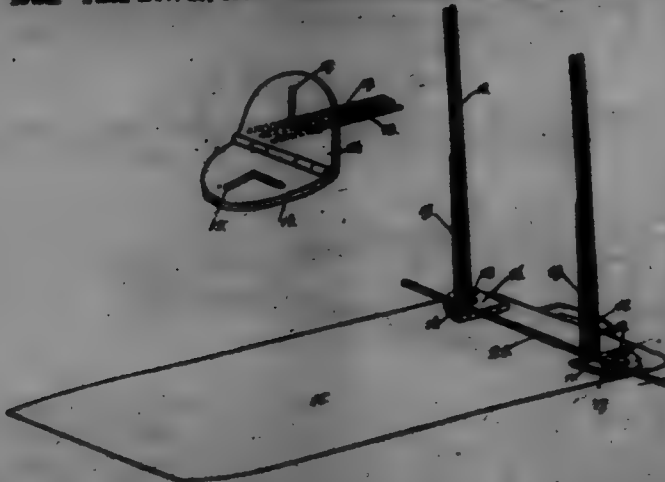
the opposite side attached portion thereof, and a brow-rope secured at opposite sides to the crown portion extended from the throat-latch below the points of attachment of the said latter portion to the crown portion extended upwardly from the nose-band, said brow-rope being passed between the strands of the cheek portions.

698,561. HOOKED-BAND FASTENER. ALVIN B. SHUMAKER, Reading, Pa. Filed Dec. 22, 1901. Serial No. 57,547. (No model.)



Claim.—An article of the class described consisting of a body-plate provided with a series of perforations near its edges, and ears projecting from said plate, said ears being arranged at an angle to and inclined toward each other and provided with apertures, a spring-clip formed of wire bent upon itself, the forward end of said clip being bent slightly upward, and the free ends bent away from each other to form arms, said arms being journaled in the apertures in the ears, and teeth on said arms.

698,562. FOLDING DEVICE. HUGH J. SUMMER, Howton, Iowa. Filed Nov. 15, 1901. Serial No. 58,300. (No model.)



Claim.—1. In a device of the class described, the combination of a base, two pairs of upright guides at the corners of one end of the base and adjustable to and from each other, and a rod capable of passing between the guide-rods of each pair.

2. In a device of the class described, the combination of a base, two plates detachably secured to the corners of one end portion of the base and two upright guides fixed to each plate, and a rod passed between each pair of upright guides and to extend at right angles to the longitudinal axis of the base.

3. In a device of the class described, the combination of a base, two plates detachably and adjustably connected with the corners of one end portion of the base, a pair of upright guides connected with each plate and capable of folding on top of the base to a position resting against the base, a rod to pass between the pairs of guide-rods when they are in their upright position, for the purposes stated.

4. In a device of the class described, the combination of a flat base tapered from a maximum at its front end to a thin edge at its rear end, a handle at the front edge of the base, bolts passed upwardly through the corners of the front end portion of the base, two plates 14 each having a plate 16 hinged thereto, said plates being provided with L-shaped slots as set forth, nuts 15 for the bolts 12, two guide-rods 13 on each of the plates 16, and a rod 20 arranged and combined in the manner set forth and for the purposes stated.

698,563. CULTIVATOR. WILLIAM G. SUTY, Rockwell, Minn. Filed Oct. 14, 1901. Serial No. 71,800. (No model.)

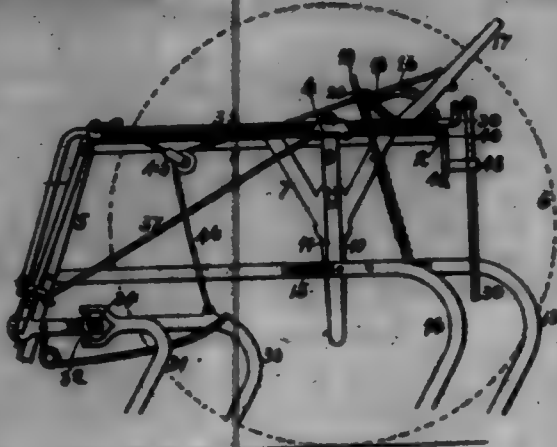
Claim.—1. In a cultivator, the combination of a main frame, a drag-bar capable of a vertical movement only and a stationary loop extending from the main frame, the drag-bar guided in the loop.

2. In a cultivator, the combination of a main frame, a drag-bar, a lifting-lever having a crank portion, a rod having a connection with the drag-bar, the upper end of the rod having a lengthwise slot and a cap embracing the crank portion and adjustably connected with the slotted portion of the rod.

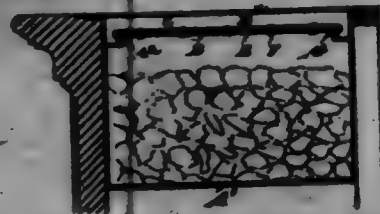
3. In a cultivator, the combination of a main frame, two loops supported by the main frame, a yoke having its horizontal portions guided in the loops and a roller located over each horizontal portion of the yoke.

4. In a cultivator, the combination of a main frame, front drag-bar

capable of a bodily movement transverse of the cultivator, foot-levers for raising the drag-bars and guides for the foot-levers preventing lateral movement of the foot-levers.



698,564. ICE-BOX COVER. THOMAS F. BROWN, New York, N. Y. Filed Sept. 4, 1901. Serial No. 74,370. (No model.)



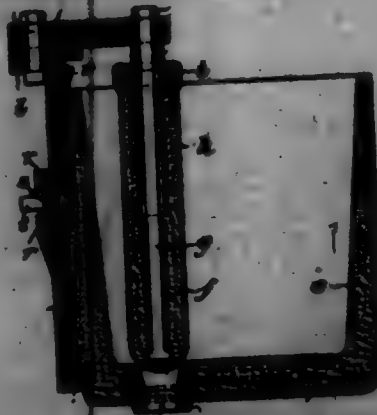
Claim.—1. The ice-box cover described, comprising a sheet of metal forming the body, a sheet of asbestos on the under face thereof, and a covering sheet of woven fabric applied on the under face of said asbestos sheet, the latter and said fabric held in position by folding the edges of the metal upon them and securely clamping both, all combined substantially as specified.

2. The ice-box cover described, comprising a sheet of metal forming the body, a sheet of asbestos on the under face thereof, and a covering sheet of woven fabric applied on the under face of said asbestos sheet, the latter and said fabric held in position by folding the edges of the metal upon them and securely clamping both, and rivets extending through said fabric, asbestos, and metal to hold said fabric and asbestos sheets closely adjacent to said metal sheet throughout the whole area, all combined substantially as specified.

3. The metal sheet C, asbestos sheet D, and fabric sheet E superposed upon each other, the fold G along the margins of said metal sheet, serving to hold the edges of said asbestos and fabric sheets, and the flange G' formed by bending downward the edges of said metal sheet, all combined and arranged to serve with a bar ice-box, substantially as herein specified.

4. The metal sheet C, asbestos sheet D, and fabric sheet E superposed upon each other, the fold G along the margins of said metal sheet, serving to hold the edges of said asbestos and fabric sheets, the flange G' formed by bending downward the edges of said metal sheet, and the rivets F serving to hold said asbestos and fabric sheets to said metal sheet throughout the whole area, all combined and arranged to serve with a bar ice-box, substantially as herein specified.

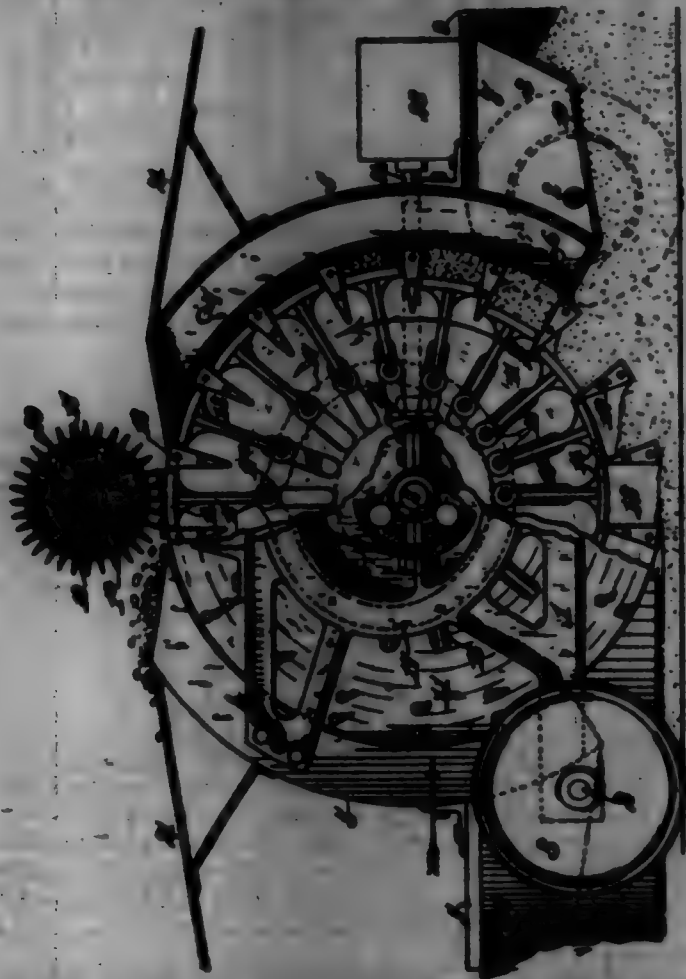
698,565. BOTTOM-POURING LADLE. CLIFTON W. SUMMER, Bellevue, Pa., assignor to Pennsylvania Car Wheel Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Mar. 10, 1901. Serial No. 51,818. (No model.)



Claim.—A bottom-pouring ladle, having a plug, a yoke from which it is rigidly suspended, an operating-slide to which the yoke is rigidly

applied, a guideway for said slide having an inwardly-inclined projection arranged above the balls and next the slide, and means to reciprocate the slide, substantially as described.

698,566. SNOW-COMPRESSING MACHINE. EDWARD SHENKOFF, Richmond, Va. Filed Feb. 28, 1901. Serial No. 65,401. (No model.)



Claim.—1. In a snow-compressing machine the combination with a stationary thrust-resisting element, of means for presenting snow in front of the same, mechanism for moving said snow-presenting means across the face of the thrust-resisting element, a plunger, and means for actuating the same to compress the snow against said element, substantially as described.

2. In a snow-compressing machine the combination with a stationary thrust-resisting element, of means for presenting snow in front of the same, a plurality of plungers, and means for actuating the same to compress the snow against said element, substantially as described.

3. In a snow-compressing machine the combination with a stationary thrust-resisting element, of a rotating carrier for presenting snow in front of said element, a series of rotating plungers, and means for actuating the same to compress the snow against said element, substantially as described.

4. In a snow-compressing machine the combination with a thrust-resisting element, of a rotating device provided with chambers for gathering snow and presenting it in front of said element, a series of plungers arranged to work in said chambers, and means for actuating said plungers to compress the snow against said element, substantially as described.

5. In a snow-compressing machine the combination with a thrust-resisting element, of a rotating device provided with chambers for gathering snow and conveying it across the face of said element, a series of plungers arranged to work in said chambers, and means for actuating said plungers to progressively compress the snow against said element in its transit thereover, substantially as described.

6. In a snow-compressing machine the combination with a thrust-resisting element, of a rotating device provided with chambers for gathering and carrying snow across the face of said element, plungers carried by said rotating device and arranged to work in said chambers, and means for actuating said plungers to compress the snow against the face of the thrust-resisting element, substantially as described.

7. In a snow-compressing machine the combination with a frame provided with cam-ribs, and a thrust-resisting element, of a rotating device provided with chambers for gathering snow and carrying it across the face of said element, plungers carried by said rotating device arranged to work in said chambers and having means engaging the cam-ribs whereby said plungers are actuated to compress the snow against the face of the thrust-resisting element, substantially as described.

8. In a snow-compressing machine the combination with a frame provided with cam-ribs, and a thrust-resisting element, of a rotating device provided with peripheral chambers for gathering snow and carrying it across the face of said element, and provided also with radial slots, a series of plungers arranged to work in said chambers, and cross-arms on which said plungers are mounted, said cross-arms engaging the cam-ribs and adapted to move in said slots, substantially as described.

9. In a snow-compressing machine the combination with a frame provided with cam-ribs, and a thrust-resisting element, of a rotating drum-like structure comprising end plates, a series of partitions extending between the said plates and forming a series of peripheral snow gathering and carrying chambers, said plates provided with radial slots, and a series of plungers arranged to work in said peripheral chambers and mounted on cross-arms which engage the cam-ribs, substantially as described.

10. In a snow-compressing machine the combination with thrust-resisting elements, of a rotating carrier mounted between said elements and adapted to convey the snow across the face thereof, of a series of plungers carried by said rotating device, and means for actuating the same to compress the snow, substantially as described.

11. In a snow-compressing machine the combination with thrust-resisting elements, of a rotating device mounted between said elements and provided with snow gathering and carrying chambers, of a series of plungers arranged to work in said chambers, and means for actuating the plungers to compress the snow, substantially as described.

12. The combination with a frame provided with snow guides and levers, of a thrust-resisting element, a rotating snow gathering and carrying device for presenting the snow in front of said element, plungers, and means for actuating said plungers to compress the snow against said element, substantially as described.

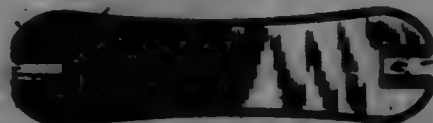
13. The combination of snow-compressing mechanism and a snow-disintegrator, substantially as described.

14. The combination with a rotating snow-compressing mechanism, of a rotating snow-disintegrator, substantially as described.

15. The combination with snow-compressing mechanism comprising a thrust-resisting element, a rotating snow-carrying device, and plungers for compressing the snow, of a rotating snow-disintegrator, substantially as described.

16. The combination in a snow-compressing machine of a thrust-resisting element, a rotating device provided with snow gathering and carrying chambers, a series of plungers arranged to work in said chambers, means for actuating said plungers, and a rotating snow-disintegrator, substantially as described.

698,567. IMPLEMENT FOR STRIPPING INSULATION FROM WIRE. CLARENCE C. SMITH, Perth Amboy, N. J. Filed June 22, 1901. Serial No. 65,098. (No model.)



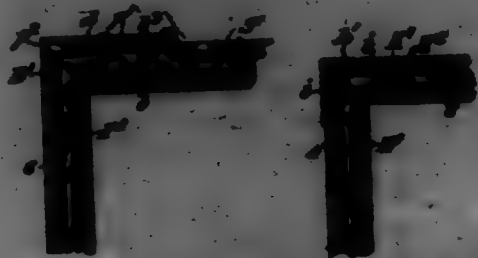
Claim.—1. As an article of manufacture, an implement comprising a pair of opposed jaws having a space between them adapted to receive an insulated wire and provided with a cutting edge adapted to cover insulation from each wire, said implement having an abutment at the inner portion of said space against which the wire may abut, the implement being adapted to push the insulation from the wire when the latter is drawn between the jaws, substantially as described.

2. An implement of the character described, comprising a body having a pair of jaws provided with a space between them, the inner edges of the jaws at said space being beveled on converging lines providing substantially parallel cutting edges on one face of the body, said body having a flat face contiguous to the cutting edges on the side opposite the beveled edges, the cutting edges being adapted to cover insulation when an insulated wire is pushed into said space, and the flat face of the body being adapted to bear against the end of the covered insulation to push the same from the wire when the latter is drawn through said space, substantially as described.

698,568. COLLAPSIBLE BOX. ADOLFUS GRUBER, Vienna, Austria-Hungary. Filed Mar. 29, 1901. Serial No. 65,561. (No model.)

Claim.—1. In a collapsible box, the combination with the side and end walls; of locking-hooks A pivoted to the inner face of said end walls, and metal levers K secured to the like faces of the side walls in position to be engaged by said hooks, the latter and their levers recessed in the end and side walls respectively so as to be flush with their inner faces and so positioned that when the hooks are in engagement with their levers the upper faces of the former will be flush with the like faces of the end and side walls, and a lid having bearing on said cover-

ing said hooks and keepers when applied and fastened to the box, substantially as and for the purpose set forth.



2. In a collapsible box, the combination with the side walls having locking-hooks H' and the end walls having keepers K' engaged by said hooks, of fastening devices for detachably securing the said end walls to the said side walls, for the purpose set forth.

3. In a collapsible box, the combination with the side walls having locking-hooks H' and corner angle-braces i lapping over the ends of said hooks, of the end walls having keepers K' engaged by said hooks, and fastening devices for detachably securing said end walls to said side walls, for the purpose set forth.

4. The combination with a box the end walls of which are provided with the lock-outs P' flush with the upper face of said walls, of the barrel provided with a recess P' and a bearing-plate p' projecting over said recess and provided with a hole for the passage of a seal cord or wire and with a counterbore hole in line with the bore of the aforesaid lock-out for the reception of a fastening-bolt B', and a disk pivoted to said plate and adapted to cover the bolt-head, said disk provided with a finger-notch adapted to be brought into register with said bolt-head and with a hole for the aforesaid seal cord or wire, so located that when the disk is turned to cover the bolt-head the seal-cord hole in said disk will register with the like hole in the aforesaid plate p' over recess P', substantially as and for the purpose set forth.

698,569. GRINDING-CAN. FLAVIN J. SUMNER, Newark, N. J. Filed June 17, 1901. Serial No. 94,881. (No model.)



Claim.—1. In a grinding-can, the combination, with an outer vessel provided with a bottom, of a cup depending from the bottom and provided with a sight-window, a flange suspended from the bottom of the cup, and a cylindrical inner cooling vessel secured to the said bottom over the cup and provided with small holes in its side wall adjacent to the said bottom, substantially as set forth.

2. In a grinding-can, the combination, with an outer vessel provided with a bottom, of a cylindrical cup depending from the bottom and provided with a sight-window, a flange suspended from the bottom of the cup, and a straight cylindrical inner cooling vessel of larger diameter than the said cup, said inner vessel being permanently secured to the said bottom around and over the cup and provided with small holes in its vertical side wall adjacent to the said bottom, substantially as set forth.

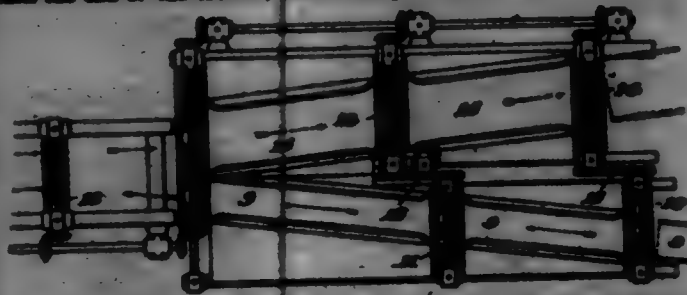
698,570. ROLLING-MILL FEED-TABLE. HOWE E. SHAW, Fred dock, Pa. Filed Dec. 2, 1901. Serial No. 94,894. (No model.)

Claim.—1. In rolling-mill feed-tables, a Y-shaped switch, and mechanism for feeding the metal forwardly through one leg of the switch and back through the other leg; substantially as described.

2. A rolling-mill feed-table having a Y-shaped switch, and a deflector arranged to shift the end of the section and cause it to enter the other leg of the Y on its return movement; substantially as described.

3. In rolling-mill feed-tables, a Y-shaped switch, positively-driven

feed-rollers in each leg of the switch, and a deflecting device arranged to shift the end of the section; substantially as described.



4. In rolling-mill feed-tables, a table having positively-driven feed mechanism, a Y-shaped switch between it and two sets of rolls, and a deflector in the rear of the Y-shaped switch; substantially as described.

5. In rolling-mill feed-tables a Y-shaped switch, one leg of which lies in a different plane from that of the other leg; and mechanism for feeding the metal forwardly to one leg of the switch and back through the other leg; substantially as described.

698,571. FASTENING DEVICE. CHARLES E. SMITH, New Britain, Conn., assignor to the North & Judd Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Feb. 12, 1902. Serial No. 94,712. (No model.)



Claim.—1. In a fastening device in combination, a pair of hook members one of said members providing two oppositely-arranged hooks having free ends and lying in the same plane, the width of the entrance-passages between said hooks being less than the width of the holding-pocket within said hooks, the other member carrying two hooks lying in different planes from the plane of the fastening device and from each other, the said hooks being offset and inclined at an angle to produce an opening-wedge.

2. In a fastening device in combination, a pair of hook members each of said members being provided with a pair of free-ended hooks, each of the hook-bills on one member being located in substantially the same plane relatively to the shank portion thereof, the width of the entrance-passages between said hooks being less than the width of the holding-pocket within said hooks, the other of said members being provided with a pair of hook-bills projecting laterally out of the plane common to the hook-shanks and inclining away from each other to form an opening-wedge to the other member.

3. A fastening device comprising two hook members adapted to connect with each other, one of said members having shanks, tending to spring toward each other, curved outwardly and the ends bent back, the width of the entrance-passages between said hooks being less than the width of the holding-pocket within said hooks, the other of said members having shanks provided with free-ended bills, curved outwardly and the ends bent up and offset from the common plane of said shanks, so as to make it necessary to separate the ends of said first member when disengaging the two.

4. A fastening device comprising a pair of hook members adapted to connect with each other, one of said members having shanks curved outwardly and the ends bent back, the width of the entrance-passages between said hooks being less than the width of the holding-pocket within said hooks, the other of said members having shanks whose ends are bent upwardly and outwardly, the two members being so proportioned that the ends of the first member are caused to be sprung outwardly when drawing the two members together and then will spring back to securely lock the two together, the ends of each pair of hooks being free.

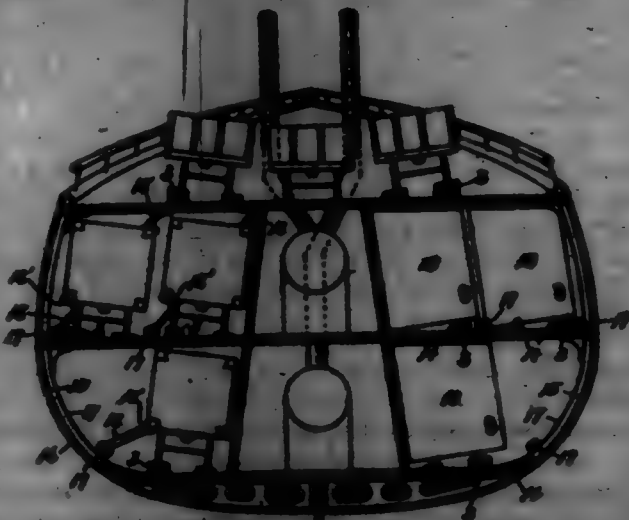
698,572. BRICKLAYER-HOOP HOLDER. WILLIAM F. SMITH, Parsons, Kan. Filed Apr. 12, 1901. Serial No. 94,912. (No model.)

Claim.—An emboldery-hoop holder comprising a clamp for engaging a chair, a table or the like, said clamp having a socket formed in one corner thereof and two notches cut into the opposite respective walls of said socket, a bolt-hole in the bottom of said socket, a bolt extending through said hole, a nut on said bolt, a tubular rod extending through the eye of said bolt and pressed thereby into said notches, a plug mounted in one end of said rod and having a tapered transverse opening through its head, a tapering shank fitting within said opening, and a clamp secured to said shank, substantially as described.

698,572.



698,578. MARINE RAILROAD-CAR TRANSPORT. WILLIAM W. SMITH, Kansas City, Mo. Filed May 10, 1901. Serial No. 98,578. (No model.)



Claim.—1. A sea-going railroad-car transport having curved decks, car-tracks thereon, the outer rails of said tracks being higher than the inner rails, and jack-screw braces for holding the cars stationary and heaving the vessel, substantially as described.

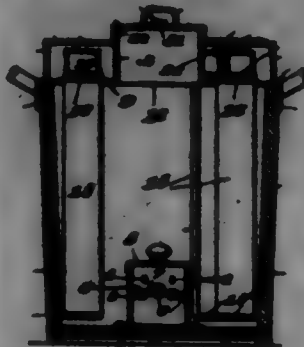
2. In a sea-going railroad-car transport having curved and sloping sides and bottom, and a plurality of decks for cars having inclined car-tracks thereon, the combination of a door at the stern of the vessel, hinged at the middle deck and level therewith when lowered, car-tracks on said door leading to the tracks on the middle deck, elevators for transferring cars from deck to deck, jack-screw braces for holding the cars in position and bracing braces for the frame of the vessel, and bulkheads having doors therein for passage of cars; substantially as described.

3. In a sea-going railroad-car transport, the combination, with two adjacent decks, of a car-track upon the lower deck, adapted to carry cars, a stringer adjacent and parallel to said track, a jack-screw brace 18' secured to said stringer, and a supplemental brace 19' secured to and depending obliquely from the upper deck; said braces forming, with cars, a continuous strut for the decks, substantially as described.

4. In a sea-going railway-car transport, having a plurality of decks, car-tracks secured to said decks, admitting ingress and egress of the cars to and from the transport; and braces forming with the cars, continuous struts for the decks, substantially as described.

698,574. ICE-CREAM FREEZER. WILLIAM A. SMITH, Mayville, Ky., assignor of one-half to George W. Selzer, Mayville, Ky. Filed July 17, 1900. Serial No. 124,000. (No model.)

Claim.—1. In an ice-cream freezer, the combination of a tub or receptacle for containing a freezing mixture, means for containing cream in said tub or receptacle and a fanigater arranged at the lower part of the tub or receptacle and adapted to discharge vapors or fumes to the freezing mixture contained therein, substantially as set forth.



2. In an ice-cream freezer the combination of a tub or receptacle for containing a freezing mixture, a cover-plate arranged over said tub and provided with means for supporting a plurality of molds within the tub, handles upon said molds and an auxiliary cover or shield carried by said cover-plate and arranged to house the upper ends of the molds, substantially as set forth.

3. In an ice-cream freezer the combination of a tub for containing a freezing mixture, a cover-plate arranged over the tub and provided with means for supporting a plurality of molds within the tub and auxiliary cover or shield carried by the cover-plate and arranged to house the upper ends of the molds, said shield having an opening for the removal of the molds and being capable of movement on the cover-plate to bring said opening in position over either of the molds, and means to close said opening in the shield, substantially as set forth.

4. In an ice-cream freezer, the combination of a tub for containing a freezing mixture, a plate arranged across the top of the tub and formed with a central opening affording access to said tub, a plurality of molds carried by the plate in annular series about said central opening and depending within the tub, and a fanigater arranged centrally with respect to said series of molds and near the bottom of the tub and adapted to discharge gas or vapors to the freezing mixture within the tub, substantially as set forth.

5. In an ice-cream freezer the combination of a tub for containing a freezing mixture, a plate arranged across the top of the tub and formed with a central opening affording access to said tub, a plurality of molds carried by said plate in annular series about said central opening and depending within the tub and an auxiliary cover or shield mounted to turn in said plate and arranged to house the upper ends of the molds, said shield having an opening for the removal of the molds, substantially as set forth.

6. In an ice-cream freezer the combination of a tub for containing a freezing mixture, a plate arranged across the top of the tub and formed with a central opening affording access to the tub, a plurality of molds carried by the plate in annular series about said central opening and depending within the tub, a fanigater arranged to supply vapors or fumes to the freezing mixture in the tub, and a cover for the central opening in the plate and provided with a vent for the escape of vapors or fumes from the tub, substantially as set forth.

7. In an ice-cream freezer, the combination of a tub for containing a freezing mixture, a plate arranged across the tub, and a series of molds carried by the plate and depending within said tub, said molds being formed with wedge-shaped lower ends, substantially as set forth.

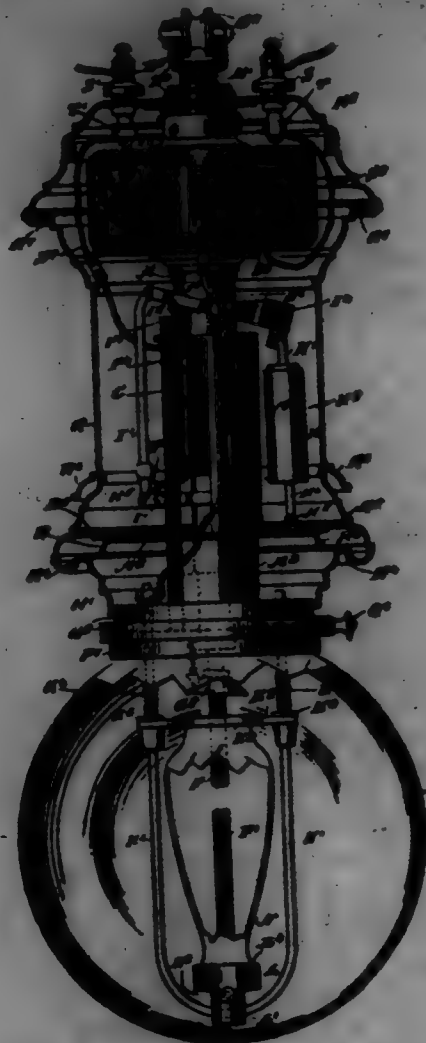
8. In an ice-cream freezer, the combination of a tub, means for containing cream in the tub, and a fanigater consisting of a shell secured to the bottom of the tub and having vents in its side walls, a removable cover for said shell, and a perforated diaphragm supported within the shell, substantially as set forth.

9. In an ice-cream freezer, the combination of a tub, a cover-plate arranged across the top thereof and formed with a central opening and an upwardly-extending flange surrounding said opening, a series of molds carried by the cover-plate, a handle upon each mold and an auxiliary cover or shield having a marginal depending flange adapted to rest on the cover-plate and also formed with a central opening for the passage of the upwardly-extending flange of the cover-plate, said shield being arranged to house the upper ends of the molds, substantially as set forth.

698,575. ELECTRIC-ARC LAMP. PHILIP H. F. SMITH, Mount Vernon, N. Y., assignor of one-half to Jacob Burden, Mount Vernon, N. Y. Filed June 6, 1901. Serial No. 98,210. (No model.)

Claim.—1. An arc-lamp provided with a cathode, a carrier for carrying the cathode and the case of said cathode, a clutch between the carrier and said cathode, an external dash-pot connected with said carrier

and removable weights for the dash-pot, for increasing or decreasing the resistance of the dash-pot to the movement of the solenoid-core, as set forth.



2. An arc-lamp having a supporting-tube formed with an integral flange, a casing having an inner flange adapted to rest on said tube-flange, to separate the heat-developing part of the lamp from the actuating device for the carbon-feed of the lamp, and legs on said inner flange for engaging said tube-flange, as set forth.

3. An arc-lamp having a supporting-tube provided with top and bottom bearings, and a carrier for the solenoid-core and mounted to slide in said bearings, the upper end of the carrier being reduced to form a pin engaging the upper bearing, the said lower bearing having a flexible lining for engaging the outside of the tubular-carrier, as set forth.

4. An arc-lamp having a central supporting-tube formed with a pocket for the solenoid-magnet, a flange integral with the tube for supporting the casing, and a second integral flange for supporting the lever-carbon holder, as set forth.

5. An arc-lamp having a central supporting-tube formed with a pocket for the solenoid-magnet, a flange integral with the tube for supporting the casing, a second integral flange for supporting the lever-carbon holder, and a bearing on the tube for supporting the resistance-coil, as set forth.

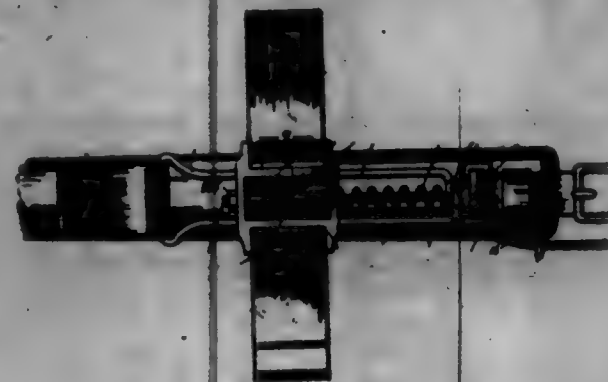
698,576. THILL-COUPLER. GEORGE F. WYATT, Seattle, Wash., assignor of one-half to S. H. Harris, Port Jervis, N. Y. Filed Nov. 22, 1901. Serial No. 55,222. (No model.)



Claim.—1. In a device of the class described, the combination of an axle-clip having an upright leg, tapering toward its top, the coupling-iron provided at its back with a tapered recess and having the side walls thereof ground to receive the leg, whereby the latter is wedged in the coupling-iron, means carried by the coupling-iron for engaging the bottom of the leg, and a third-iron pivotally connected with the coupling-iron, substantially as described.

2. In a device of the class described, the combination of an axle-clip having an upright leg, a coupling-iron provided with a recess extending upward from its bottom and receiving the leg, said coupling-iron being provided with ears, a third-iron pivotally mounted between the ears, and the combined actuator and locking spring composed of sides or arms interposed between the third-iron and the coupling-iron, and a depending stem forming a handle and provided with a rearwardly-extending loop engaging the bottom of the leg, substantially as described.

698,577. HORN-DETACHER. EDWARD S. STARR, Milwaukee, Wis. Filed Apr. 12, 1901. Serial No. 55,795. (No model.)



Claim.—1. A horn-detacher comprising a sleeve formed in sections adapted to embrace a thill, a hitch-plate having means whereby it is connected to the harness, a hinge-pin connecting the inner sides of the sections together and to the hitch-plate, a keeper-pin connecting the outer sides of the sections together, and means for withdrawing the keeper-pin.

2. A horn-detacher comprising a sleeve formed in sections adapted to embrace a thill, a hitch-plate having means whereby it is connected to the harness and provided with parallel ears projecting toward the sleeve, a hinge-pin extending through the ears and connecting the inner sides of the sections together, a keeper-pin connecting the outer sides of the sections together, and means for withdrawing the keeper-pin.

3. A horn-detacher comprising a sleeve formed in sections adapted to embrace a thill, a hitch-plate formed with top and bottom loops for the reception of the hook-head, and girth-staps respectively, and with parallel ears projecting toward the sleeve, a hinge-pin extending through the ears and connecting the inner sides of the sections together, a keeper-pin connecting the outer sides of the sections together, and means for withdrawing the keeper-pin.

4. A horn-detacher comprising a sleeve adapted to embrace a thill, a hitch-plate hinged to the sleeve, and having means whereby it is connected to the harness, and a spring-controlled loop adapted to slide on the hitch-plate, and adapted to be connected with the breast-stap.

5. A horn-detacher comprising a sleeve adapted to embrace a thill, a hitch-plate hinged to the sleeve, and provided with ears having notches, a slide-loop having its side bars in engagement with the notched ears, and adapted to be connected to the breast-stap, and a cushioning-spring interposed between one end of the slide-loop and the hitch-plate.

6. A horn-detacher comprising a sleeve adapted to embrace a thill, a hitch-plate having means whereby it is connected to the harness, a slide-loop having ears and mounted on the hitch-plate and having means whereby it is connected with the breast-stap, a hinge-pin passed through the ears of the slide-loop and connecting the hitch-plate with the sleeve, a cushioning-spring extending the hinge-pin and interposed between the ears and the hitch-plate and a detachable keeper-pin.

698,578. HALL-CURLER. HERMAN R. H. SWINER and DANIEL J. L. SWINER, Red Bank, Pa. Filed Apr. 27, 1902. Serial No. 57,735. (No model.)



Claim.—1. A hall-curler comprising a knob, having one or more rods attached thereto and a spring member attached to said knob, arranged substantially parallel to the rod or rods said spring member being adapted to fit over the top edge of a lamp-chimney and hold the rod adjacent to the flame, substantially as shown and described.

2. A hall-curler comprising a knob having an annular shoulder attached at one point, a rod or rods attached to the knob, and a spring member attached to the knob, above the shoulder, said member resting in the notch projecting below the knob, and resting substantially parallel to the rod or rods, for the purpose described.

698,579. FILLING-REPLENISHING LOOM. WALLACE I. STEPHENS, Milford, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 29, 1901. Serial No. 54,945. (No model.)



Claim.—1. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a feeder to intermittently engage the filling in the shuttle, and an actuating device, governed by or through the feeder, to actuate said controlling means, presence of filling in the shuttle acting through the feeder to prevent, and predetermined exhaustion of the filling permitting, movement of the actuating device by the filling-carrier to actuate the controlling means.

2. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a feeder to intermittently engage the filling in the shuttle, and an actuating device for said controlling means, carried by and normally movable with the feeder, presence of filling in the shuttle acting to move the feeder and actuating device in unison, and predetermined exhaustion of the filling effecting movement of the actuating device by the filling-carrier to thereby actuate the controlling means.

3. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a feeder to intermittently engage the filling in the shuttle, and an actuating device for said means, carried by and limitedly movable relatively to the feeder, presence of filling in the shuttle preventing, and predetermined exhaustion of the filling effecting, initial movement of the actuating device by the filling-carrier to thereby actuate the controlling means.

4. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a yieldingly-contained feeder to engage and to intermittently engage the filling in the shuttle, and an actuating device for said controlling means, carried by and limitedly movable relatively to the feeder, presence of filling in the shuttle effecting simultaneous movement, and predetermined exhaustion of filling effecting relative movement of said feeder and actuating device by the filling-carrier, to thereby actuate the controlling means.

5. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a yieldingly-contained feeder having a bifurcated end to intermittently engage the filling in the shuttle, and an actuating device for said controlling means, carried by and relatively movable on the feeder, and having a filling-engaging member between the parts of the bifurcated end of the feeder, presence of filling in the shuttle preventing, and predetermined exhaustion of the filling permitting, movement of the actuating device by or through the filling-carrier relatively to the feeder, to thereby effect the operation of the controlling means.

6. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor including a detent, a feeder to intermittently engage the filling in the shuttle, and an actuating device governed by or through the feeder, to operate the detent, presence of filling in the shuttle acting through the feeder to prevent, and predetermined exhaustion of the filling permitting, initial movement of the actuating device by the filling-carrier, to thereby operate the detent.

7. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, including a detent, a yieldingly-contained feeder, to intermittently engage the filling in the shuttle, and an actuating device for the detent, mounted on and limitedly movable relatively to the feeder, presence of filling in the shuttle acting through the feeder to prevent, and predetermined exhaustion of the filling permitting, movement of the actuating device by or through the filling-carrier relatively to the feeder, to thereby operate the detent.

8. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, an actuating device for said means, mounted on and movable relatively to the feeder, and a feeder to cooperate with the filling in the shuttle and maintain the actuating device inoperative until predetermined exhaustion of the filling, the actuating device at such time being moved by or through the filling-carrier relatively to the feeder into position to effect the actuation of the controlling means.

9. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a feeder yieldingly contained in position to intermittently engage and to be moved by the filling in the shuttle until exhaustion thereof to a predetermined extent, and a normally inoperative actuating device for said means, slightly mounted on the feeder and movable by or through the filling-carrier into position to effect the actuation of the controlling means, upon predetermined filling exhaustion.

10. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a feeder to intermittently cooperate with the filling in the shuttle until predetermined exhaustion of the filling, and an actuating device movable mounted on the feeder to engage and transmit the movement of the filling-carrier primarily to said controlling means, by or through movement of the actuating device relatively to the feeder, to effect actuation of the controlling means upon predetermined filling exhaustion.

11. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor including a detent, a yieldingly-contained feeder to intermittently engage the filling in the shuttle, an actuating device mounted on and longitudinally movable relatively to the feeder, said device including a spring-operated stud, and means to normally maintain it inoperative, presence of filling in the shuttle preventing release of the stud, and predetermined exhaustion of the filling acting by or through the filling-carrier to operate the stud and effect the actuation of the controlling means.

12. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, a longitudinally-movable, yieldingly-contained feeder movable on alternate pins by and until predetermined exhaustion of the filling in the shuttle, and an actuating device for said means, movable with and also relatively to the feeder, the feeder and said device moving in unison until predetermined exhaustion of the filling permits movement of the actuating device relatively to the feeder, by or through the filling-carrier, to effect actuation of the controlling means.

13. In a loom, a shuttle adapted to contain a filling-carrier, filling-replenishing mechanism, controlling means therefor, including a detent and a latch normally maintained inoperative thereby, a yieldingly-contained feeder to engage and to be moved by the filling in the shuttle on alternate pins, until predetermined filling exhaustion, and an actuating device slightly mounted on the feeder and having a spring-controlled stud normally out of the path of the detent, movement of the actuating device by the filling-carrier relatively to the feeder upon predetermined exhaustion of the filling releasing the stud to enter the path of the detent and to thereafter move the detent to release the latch.

14. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to contain a filling-carrier and having a slot in its side wall, a yieldingly-contained feeder, and an actuating device mounted on and movable relatively to the feeder, the feeder and the inner end of said device intermittently entering the slot to engage the filling in the shuttle, to be moved in unison thereby until predetermined filling exhaustion, predetermined exhaustion of the filling permitting movement of the actuating device relatively to the feeder, by or through the filling-carrier, to thereby render said device operative to effect the actuation of the controlling means.

15. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle having a slotted side wall and adapted to contain a filling-carrier having an annular enlargement on its barrel, a yieldingly-contained, longitudinally-movable feeder adapted to enter the slot and engage the filling at one side of said annular enlargement, and an actuating device mounted on and movable longitudinally upon the feeder, said device comprising an actuator extended rearwardly adjacent the inner end of the feeder, to enter the slot in the shuttle, a spring-controlled stud on the feeder and extended through an elongated slot in the outer end of the said actuator, and a latch on said stud, normally engaged by the actuator to maintain the stud inoperative, exhaustion of the filling to cause the annular enlargement and pivot movement thereby of the actuator relatively to the feeder releasing the latch of the stud, the latter moving into operative position to thereafter effect the actuation of the controlling means.

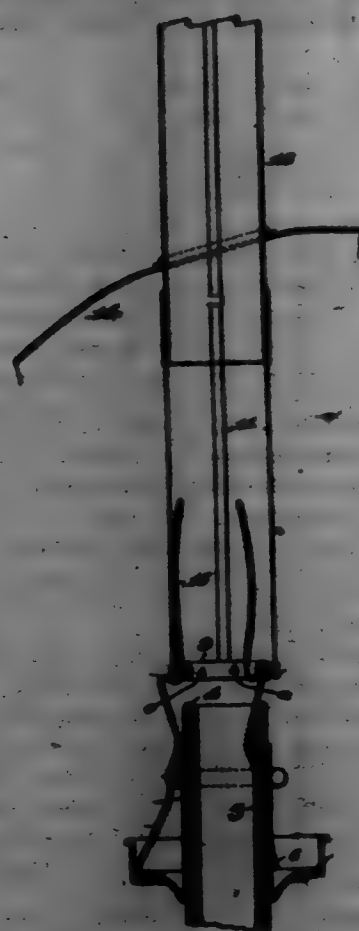
16. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle having a slotted side wall and adapted to contain a filling-carrier having an annular enlargement on its barrel, a bifurcated feeder having a tubular body, an actuator extended between the bifurcated portions of the feeder and slightly supported in the tubular body thereof, a spring-controlled stud transversely movable in said body and extended through an elongated slot in the said annular enlargement, a latch on the stud, to normally engage a part of and to be maintained inoperative by said actuator, the latter having a releasing-notch adjacent the latch, a fixed support for and in which the feeder is longitudinally movable, said support

part having a slot therein for the steel, a controlling-spring for the steel, and a device on said support to return the steel to its operative position, pressure of filling in the elastic preventing, and predetermined exhaustion of the filling preventing, relative movement of the steel and actuator, in thereby release the steel and operatively position the same and to thereafter effect the operation of the controlling means by longitudinal movement of the operatively-positioned steel in the dotted support.

17. In a feeder-loom, a tubular support having a longitudinal slot, a feeder longitudinally movable in said support, a feeder-spring, an actuator mounted on and slidable in the feeder and having a transverse, elongated, upright slot and a notch at the lower end thereof, a steel mounted in the feeder and extended through the slot in the actuator, a spring to lift the steel and bring its upper end above the top of the longitudinally-slotted support, a latch on the lower end of the steel, and a spring between the actuator and feeder, tending to move them oppositely, the latch normally engaging a portion of the actuator adjacent the notch therein, movement of the actuator relatively to the feeder acting to release the steel, combined with filling-replenishing mechanism, and controlling means therefor, actuated by movement of the released steel in the longitudinal slot of the support.

18. In a loom, a shuttle adapted to contain a filling-carrier having an annular enlargement on its barrel, filling-replenishing mechanism, controlling means therefor, including a device, an actuating device to operate the latter, and a feeder; the feeder and actuating device being arranged to cooperate with the filling in the shuttle and to simultaneously moved thereby until exhaustion of the filling to an extent sufficient to permit engagement and movement of the actuating device by said annular enlargement prior to filling-induced movement of the feeder, to thereby actuate the controlling means.

698,580. STUDENT'S LAMP. ARNOLD P. STUBBS, Oswego, N. Y. Filed Jan. 16, 1900. Serial No. 1,891. (No model.)



Claim.—1. The combination with a central-draft burner, of a contracting-ring supported above the wick thereof, and a main chimney supported above the wick and with its lower end surrounding the contracting-ring, substantially as set forth.

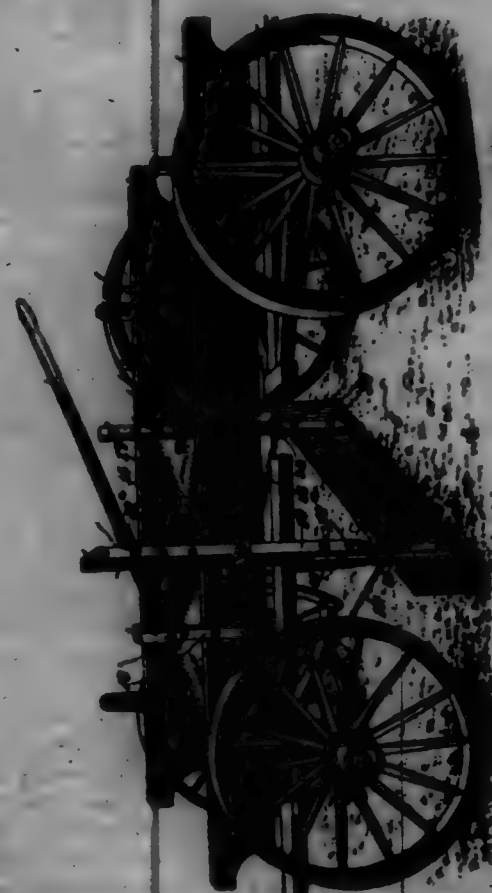
2. The combination with a central-draft burner, of a series of supporting-legs maintained by said burner, a contracting-ring carried by said supporting-legs above the wick, and a main chimney carried by said supporting-legs above the wick with its lower end surrounding said contracting-ring, substantially as set forth.

3. The combination with a central-draft burner, of a series of supporting-legs carried by said burner, shoulders formed on said legs, a contracting-ring carried by said legs above the wick, and a main chimney supported by said shoulders above the wick with its lower end surrounding said contracting-ring, substantially as set forth.

4. The combination with a central-draft burner, of a plurality of supporting-legs carried by said burner, an elastic ring carried by said legs and engaging the outside of the burner, a contracting-ring carried by said legs and located above the wick, and a main chimney carried by said legs above the wick with its lower end surrounding said contracting-ring, substantially as set forth.

5. The combination with a central-draft burner, of a series of supporting-legs carried by said burner, a contracting-ring carried by said legs above the wick, a main chimney carried by said legs above the wick with its lower end surrounding said contracting-ring, and elastic extensions of said legs engaging the interior of said chimney, substantially as set forth.

698,581. ROAD-GRADER. BERNARD SCHMIDT, Ontario, Canada. Filed Dec. 18, 1901. Serial No. 86,003. (No model.)



Claim.—1. In a road-grader, the combination of a scraper adapted to be arranged diagonally across the line of a running-gear, a post attached to each end of the scraper, means for connecting one post to a running-gear, an adjusting-lever and means for connecting the other post to said running-gear, the said draft-chain attached to one post, a side draft-chain attached to the other post, and a cross draft-chain, substantially as described.

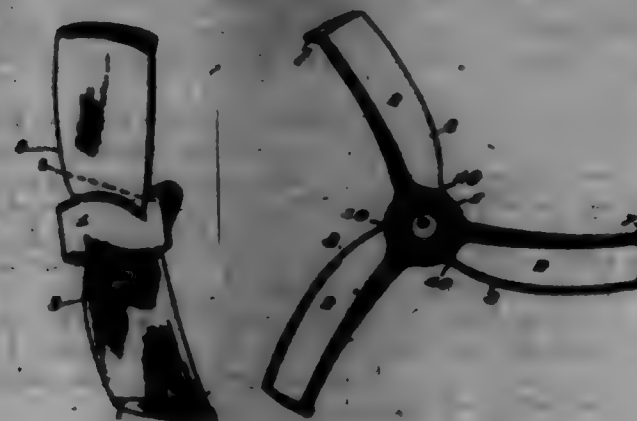
2. In a road-grader, the combination of a scraper adapted to be arranged diagonally across the line of the vehicle, a short metallic bar secured to the scraper near one end, a slotted and web-formed post fastened to said bar, a keeper in which said slotted post is slidably confined, a pivot arranged to engage with the web on said post, and a lever connected with said post and supported by an independent fulcrum-post, substantially as described.

3. In a road-grader, the combination of a scraper adapted to be arranged diagonally across the line of a running-gear, a post attached to the scraper near one end and provided with a rack, another post attached to the scraper near its other end, keepers adapted to be secured to the running-gear and loosely receiving said posts, means for adjustably fastening one of the keepers and one of the posts together, a pivot arranged to engage with the rack on the other post, a lever connected to the last-named post, a main draft-chain connected to the forward end of the scraper, a side draft-chain connected to the rear portion of the scraper, and a cross draft-chain attached to the scraper and to suitable means whereby it may be connected with the running-gear, substantially as described.

698,582. PROPELLER-WHEEL. EDWARD K. STUBBS, West Superior, Wis. Filed Dec. 18, 1901. Serial No. 86,770. (No model.)

Claim.—1. A propeller-wheel, comprising a hub, blades radiating therefrom and each set upon an angle with relation to the longitudinal axis of the hub, each of the blades gradually increasing in width from its line of juncture with said hub for a comparatively short distance, and

from thence to the outer end being substantially of uniform width and curving laterally rearwardly and having its front face convex, the rear face of the blade being substantially flat, and the blade being comparatively thick near its base and tapering to its outer end, substantially as described.

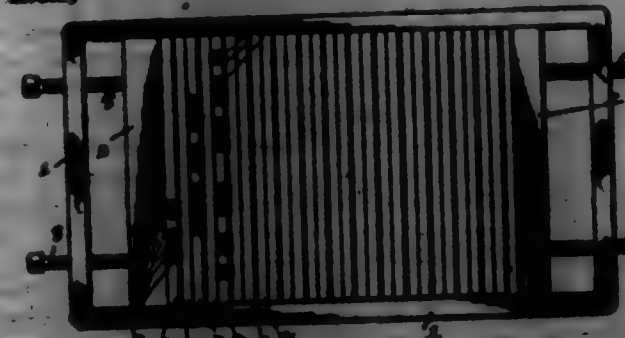


2. A propeller-wheel, comprising a hub, blades radiating therefrom and set upon an angle with relation to the longitudinal axis of the hub, each of the blades gradually increasing in width from its line of juncture with said hub for a comparatively short distance, and from thence to the outer end being substantially of uniform width and curving laterally rearwardly and having its front face convex as to its thickness, width and length, the rear face of the blade being substantially flat as to its thickness and width, and the blade being comparatively thick near its base and tapering on its forward face to its outer end, substantially as described.

3. A propeller-wheel, comprising a suitable hub, blades radiating therefrom and disposed at an angle to the radial axis of the hub, the edges of each blade curving outwardly from their juncture with the hub to a suitable distance, and thence extending in a substantially straight line to its outer end, all the blades being disposed slightly rearwardly, and a laterally-extending flange carried at the outer end of each of said blades, and extending transversely for the full width thereof, each of said flanges having its outer face rounded and its under face beveled so as to produce a comparatively sharp edge approximately continuous with the edges of the respective blades, substantially as described.

4. A propeller-wheel comprising a hub and blades radiating therefrom, each of which blades is set at a non-spiral angle to the longitudinal axis of said hub, each of which blades has a broad and thick junction with said hub, diminishing in thickness from the center of the blade at the hub toward its edges, each of said blades being bent rearwardly and uniformly throughout its width at a transverse line drawn at any desired distance intermediate the hub and the end of the blade, each blade being provided with a terminal flange extending rearwardly at its outer end, each of said blades increasing in width from its junction with said hub to a transverse line at a suitable distance from said hub, thence maintaining a uniform width to the outer extremity of the blade, substantially as described.

698,583. PRINTING DEVICE. EDWARD K. STUBBS and FRANK A. HAY, Columbus, Ohio. Filed Feb. 4, 1901. Serial No. 86,800. (No model.)



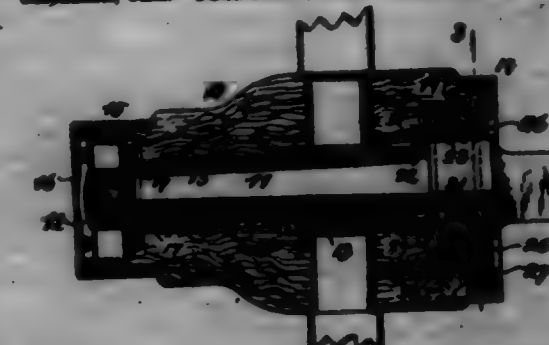
Claim.—In a printing device, the combination with a frame or frame 1, clamping-bars or followers 2 arranged to slide between the side arms of said frame and end-arms curving in rounded openings in the end of the frame, of type-clamping bars arranged in pairs between said followers, each pair comprising adjustably-connected bars 3 and 4 and angular type-bodies adapted to have their vertical ends clamped between said bars and their upper horizontal ends bearing on said bars 3, substantially as specified.

698,584. CURVE-PROPELLER. EDWARD K. STUBBS, West Bay City, Mich. Filed Jan. 23, 1902. Serial No. 89,110. (No model.)

Claim.—A propeller for vessels comprising in combination a series of helical blades of greater length than the diameter of the propeller; a hub integral with said blades; an axial hole through said hub, the outer portion of the length of said hole being adapted to fit the propeller-shaft; the remaining portion of said hole being enlarged from the middle of the hub toward its forward end, to form a conical recess; openings through the conical shell of the hub; and cramping-bars across said openings; together with a conical rearwardly-extending bearing secured to the vessel and fitting the conical recess of the hub, said bearing having an axial shaft-opening, all arranged substantially as and for the purposes set forth.



698,585. RUB AND AXLE BEARING. ANDREW J. TINKER, Cincinnati, Ohio. Filed Dec. 9, 1901. Serial No. 86,100. (No model.)



Claim.—1. In a hub and axle bearing, the combination of a non-rotary axle-journal, a rotary hub fitted thereto with its bore enlarged at its inner end to form a recess between axle and hub, a washer occupying this recess, being at the same time with its inner side in contact with the axle which it surrounds, a band having a tendency to contract surrounding this washer which later is provided with a cut disposed in a manner to permit it to yield to the pressure imparted by such contraction and means to hold this washer to the hub so as to cause the same to rotate therewith.

2. In a hub and axle bearing, the combination of a non-rotary axle-journal, a rotary hub fitted thereto with its bore enlarged at its inner end to form a recess between axle and hub, a washer occupying this recess, being at the same time with its inner side in contact with the axle which it surrounds, a band having a tendency to contract surrounding this washer which later is provided with a cut disposed in a manner to permit it to yield to the pressure imparted by such contraction and an annular plate to close the recess at the inner end of the hub to confine the washer therein.

3. In a hub and axle bearing, the combination of a hub having the bore of the hub, the same being enlarged at one end to form a recess, a washer surrounding the axle, an elastic ring surrounding this washer, both occupying the recess mentioned, both being open with a space between their separated ends to permit contraction, a pin 23 projecting into the recess of the hub engaging an opening in the washer to cause the same to rotate with the hub and an annular plate 26 affixed to the edge of the enlarged part of the hub to close the recess therein.

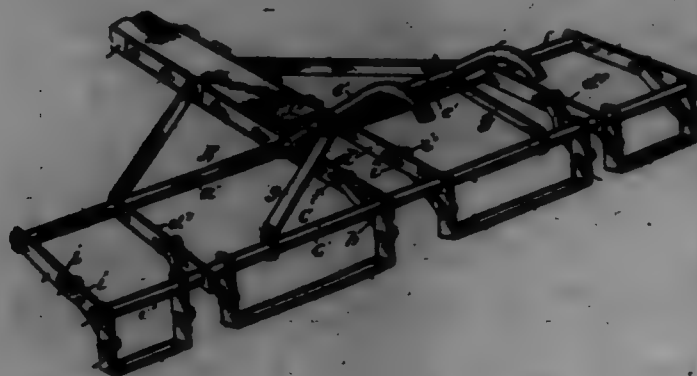
4. In a hub and axle bearing, the combination of a rotary hub having its bearing at its outer end and a recess at its inner end, a non-rotary axle having an enlargement at the inner end of the journal thereof and within the recess of the hub, an open washer mounted on this enlarged part of the axle and a ring having contracting properties surrounding this washer and both occupying the recess at the inner end of the hub.

5. In a hub and axle bearing, the combination of a non-rotary axle-journal, a rotary hub fitted thereto with its bore enlarged at its inner end to form a recess between axle and hub, a washer occupying this recess, being at the same time with its inner side in contact with the axle which it surrounds, a band having a tendency to contract surrounding this washer which later is provided with a cut disposed in a manner to permit it to yield to the pressure imparted by such contraction and packing of yielding material between the washer and the band to prevent escape of lubricant through the open end of the washer.

6. In a hub and axle bearing, the combination of a non-rotary axle-

Journal, a rotary hub fitted thereto with its bore enlarged at its inner end to form thereat a recess between axle and hub, a washer occupying this recess, being at the same time with its inner side in contact with the axle which it surrounds thereat, a band having a tendency to contract surrounding this washer, which latter is provided with a cut disposed in a manner to permit it to yield to the pressure imparted by such contraction and packing in the cut of the washer to prevent escape of lubricant there-through.

698,586. CULTIVATOR AND WHEED-CUTTER. JOHN H. FUGER, JR., Lima, Cal. Filed Jan. 22, 1902. Serial No. 91,548. (No model.)



Claim.—1. In a machine of the class described, the combination of a beam, blades secured to the beam each blade having a flat outer portion, arms extending from the outer portion and secured to the beam, and brace-arms for the blades.

2. In a machine of the class described, the combination of a beam, U-shaped blades secured to the beam each having a flat outer portion, and brace-arms adjustably connecting the blades to the frame whereby the outer portions may assume various degrees of inclination.

3. In a machine of the class described, the combination of a forward beam, a rear beam secured to the forward beam by bars, U-shaped blades depending from the rear beam, opening-closures on the beams securing the bars and blades in position, and on the threaded ends of the beams, and brace-arms adjustably connecting the blades to the bars.

4. In a machine of the class described, the combination of a beam, blades secured thereto, each consisting of a flat outer portion beveled at its upper side to provide a cutting edge, and arms extending from the ends of the outer portion said arms being beveled at their lower ends and provided at their upper ends with means for connection with the beam.

698,587. PRINTING-BLOCK FOR OIL-CLOTH-PRINTING MACHINE. EDWARD F. TETTER, Camden, N. J. Filed May 20, 1901. Serial No. 68,199. (No model.)



Claim.—1. In a printing-block, a metallic pen-shaped framework, longitudinally-inclined ribs formed with said framework and upon the interior of the same, plastic substance filling the interior of the framework, said plastic substance adapted to harden and to hold in the framework by the inclined ribs, and means for securing the printing-block to the framework of the press, substantially as described and for the purpose specified.

2. In combination with a printing-block consisting of a metallic framework, vertical side walls formed with said framework, inclined end walls formed with said framework, a bottom to which the side walls are secured said bottom and walls forming a pen-shaped receptacle, a plastic substance filling the receptacle formed by the pen-shaped framework, said plastic substance adapted to harden, means arranged upon the interior of the framework to retain the hardened substance in position, and means for securing the block to the supporting framework, substantially as described and for the purpose specified.

3. In combination with a printing-block of the character described, longitudinal ribs formed upon the back of the block, holes formed through said ribs, screw-ends, heads formed upon the lower ends of said screw-ends and adapted to pass through the holes in the ribs, yokes through which the upper ends of the screw-ends are adapted to pass, the ends of said yokes adapted to rest upon the upper surface of the frame of the machine, said frame being adapted to the ribs upon the printing-block against the under surface of the frame, substantially as described.

698,588. SKEWED-BELDER. JAMES ULL, Wisconsin Veteran Home, Wis. Filed Jan. 7, 1901. Renewed Mar. 27, 1902. Serial No. 101,324. (No model.)



Claim.—A skewed-belder, formed from a single length of spring-wire, which is folded intermediate of its ends into substantially U shape, the bend being bent back to lie in a plane at one side of the plane of the opposite intermediate side portion of the wire and form a button-embroidering loop, the opposite ends of the wire being bent back upon the same side with the loop, lying at opposite sides of the closed portion thereof, and forming collar-engaging springs located between the planes of the loop and the intermediate side portions of the wire, and a body-plate lying between the intermediate side portions of the wire, and having its opposite ends folded upon said intermediate wire portions, and provided with intermediate means for connection with a needle.

698,589. SELF-CLOSING WINDOW. BENJAMIN VAN BORDEN and HENRY C. SMITH, Boston, Mass. Filed Jan. 12, 1902. Serial No. 1,261. (No model.)



Claim.—1. The combination of a window-casing, a window-cash movable in said casing, its balancing-weight, an auxiliary weight and a bracket supporting the auxiliary weight, detachably held at one end to a support and detachably secured at its other end by flexible sides, which weight upon the release of the bracket is adapted to compensate with the balancing weight or weights of the cash in overbalance it or them and cause it or them to close the cash and hold the cash closed.

2. The combination of a window-casing, its balancing-weight, an auxiliary weight, and a bracket in the weight-pocket supporting the auxiliary weight, adapted to become released by means here and provided with means for engaging, when released, the cord or chain of a balancing-weight, as and for the purpose set forth.

3. The combination of the window-casing, the window, its balancing-weight contained in the pocket of the window-casing, an auxiliary weight in a pocket of the casing, and a bracket supporting the auxiliary weight, detachably held in the pocket by means extending without the pocket and there detachably held by flexible sides, as and for the purpose set forth.

4. The combination of a window-casing, a lower cash and an upper cash movable therein, balancing-weights contained in the pockets of the casing, cords or chains connecting said weights with the lower window-cash, means for releasing in case of undue heat in the vicinity of the cash one or more of said weights from said lower window-cash, whereby the window-cash may then overbalance the remaining weight or weights and, if raised, close automatically, balancing-weights contained in the pockets of the casing, cords or chains connecting said weights with the upper win-

low-cash and an auxiliary weight or weights normally inactive, and detachably held by means detachable by means here, which weight or weights, when released, combine with the weights of the upper cash and serve with them to close said cash, if open, and to hold it closed.

698,590. CASTING-MACHINE. CURTIS H. VERNER, Hartford, Conn. Filed Nov. 27, 1900. Serial No. 758,202. (No model.)



Claim.—1. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-nozzle through which molten metal is discharged; a shiftable mold; means for advancing the mold to a position when a casting is to be made in which it contacts with the nozzle and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the space extending from the valve to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a power-driven device in the machine; and means operatively connected with said device for actuating said valve to first admit molten metal under pressure to the exhausted mold, and then to shut off all communication of the metal therewith.

2. In a casting-machine, the combination with a plunger for subjecting a mass of molten metal to pressure, of an outlet-nozzle through which molten metal is discharged; a shiftable mold; means for advancing the mold to its casting position and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the space extending from the valve to the bottom of the mold-space proper, and through and into which the molten metal passes during its flow; a power-driven device in the machine; and means operatively connected with said device for actuating said valve, and immediately afterward actuating the plunger, and then closing the valve after the mold has been filled.

3. In a casting-machine, the combination with a melting-tank and a plunger, of an outlet-nozzle through which molten metal is discharged; a shiftable mold; means for advancing the mold to its casting position and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the space extending from the valve to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a shaft; means on said shaft, one for holding the plunger in an inoperative position, and another for opening said valve; and springs for effecting the operation of the plunger and the valve when released from their respective means.

4. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-nozzle through which molten metal is discharged; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to a position when a casting is to be made in which it contacts with the nozzle and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the space extending from the valve to the bottom of the mold-space proper, and through and into which the molten metal passes during its flow; a power-driven device in the machine; and means operatively connected with said device for actuating said valve to first admit molten metal under pressure to the exhausted mold, and then to shut off all communication of the metal therewith.

5. In a casting-machine, the combination with means for subjecting a mass of molten metal to pressure greater than atmospheric, of a shiftable mold; a vacuum-chamber in which the mold is located; a stuffing-box in a wall of the vacuum-chamber; a mold-extender extending through the stuffing-box; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the vacuum-chamber, and thereby exhausting the space extending from the valve to the bottom of the mold-space proper; a power-driven device in the machine; and means operatively connected with said device for actuating said valve to first admit molten metal under pressure to the exhausted mold, and then to shut off all communication of the metal therewith.

6. In a casting-machine, the combination with means for subjecting a mass of molten metal to pressure greater than atmospheric, of a shiftable mold; a vacuum-chamber in which the mold is located; a stuffing-box in a wall of the vacuum-chamber; a mold-extender extending through the stuffing-box; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the vacuum-chamber, and thereby exhausting the space extending from the valve to the bottom of the mold-space proper; a power-driven device in the machine; and means operatively connected with said device for actuating said valve to first admit molten metal under pressure to the exhausted mold, and then to shut off all communication of the metal therewith.

7. In a casting-machine, the combination with a melting-tank and an outlet-nozzle through which molten metal is discharged, of a well communicating with the melting-tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for simultaneously closing communication between the well and the melting-tank, and opening the passage through the nozzle and vice versa; a shiftable mold; means for advancing the mold to its casting position and for withdrawing it therefrom; means for exhausting the space extending from the valve part controlling the passage through the nozzle, to the bottom of the mold-space; a power-driven device in the machine; and means operatively connected with said device for actuating the plunger and the valve device in proper order.

8. In a casting-machine, the combination with a melting-tank and an outlet-nozzle through which molten metal is discharged, of a well communicating with the melting-tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for simultaneously closing communication between the well and the melting-tank, and opening the passage through the nozzle and vice versa; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to its casting position and for withdrawing it therefrom; means for exhausting the vacuum-chamber, and thereby exhausting the space extending from the valve part controlling the passage through the nozzle to the bottom of the mold-space; a power-driven device in the machine; and means operatively connected with said device for actuating the plunger and valve device in proper order.

9. In a casting-machine, the combination with a melting-tank and an outlet-nozzle through which molten metal is discharged, of a well communicating with the melting-tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for simultaneously closing communication between the well and the melting-tank, and opening the passage through the nozzle and vice versa; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to its casting position and for withdrawing it therefrom; means for exhausting the vacuum-chamber, and thereby exhausting the space extending from the valve part controlling the passage through the nozzle, to the bottom of the mold-space; a shaft; and springs and means operatively connected with said shaft for controlling the movements of said plunger and said valve device.

10. In a casting-machine, the combination of a plunger for subjecting a mass of molten metal to pressure; a mold, forming a closed mold-space for the injection of molten metal when in its casting position; a valve independent of the mold for controlling the entrance of molten metal to the mold; means for exhausting the closed mold-space extending from the valve to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a casting-compressor independent of the plunger and operating in unison with said valve; a power-driven device in the machine; and means operatively connected with said device for actuating the plunger and opening and closing the valve in proper order.

11. In a casting-machine, the combination with a melting-tank and an outlet-nozzle through which molten metal is discharged, of a well communicating with the melting-tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for simultaneously closing communication between the well and the melting-tank and opening the passage through the nozzle and vice versa; a mold; means for exhausting the space extending from the valve part controlling the passage through the nozzle to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a casting-compressor independent of said plunger and operating in unison with said valve; a power-driven device in the machine; and means operatively connected with said device for actuating the plunger and opening and closing the valve in proper order.

12. In a casting-machine, the combination with a melting-tank and an outlet-nozzle through which molten metal is discharged, of a well communicating with the melting-tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for simultaneously closing communication between the well and the melting-tank and opening the passage through the nozzle and vice versa; a mold; means for exhausting the space extending from the valve part controlling the passage through the nozzle to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a casting-compressor independent of said plunger and operating in unison with said valve; a power-driven device in the machine; and means operatively connected with said device for actuating the plunger and opening and closing the valve in proper order.

eratively connected with such device for actuating the plunger and the valve device in proper order.

12. The combination with a making-tank and an outlet-duct through which molten metal is discharged, of a well communicating with the making-tank; a plunger for subjecting molten metal therein to pressure; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to its casting position and for withdrawing it therefrom; a valve for controlling the entrance of molten metal from the well to the mold; a casting-compressor forming an extension of said valve; means for actuating the plunger; means for actuating the valve to close the same and maintain through the casting-compressor a pressure on the molten metal injected into the mold; a power-driven device in the machine; and means operatively connected with such device for causing the actuation in proper order of said means for actuating the plunger and said means for actuating the valve.

13. In a casting-machine, the combination with a making-tank, a well communicating therewith and a plunger for subjecting molten metal therein to pressure, of a shiftable mold; a vacuum-chamber in which the mold is located; an actuator extending through a wall of the vacuum-chamber for actuating the mold; a valve for controlling the entrance of molten metal from the well to the mold; a casting-compressor forming an extension of said valve and terminating when the valve is in its closed position in the plane of the front face of the mold; means for actuating the plunger; means for actuating the valve to close the same and maintain through the casting-compressor a pressure on the molten metal injected into the mold; a power-driven device in the machine; and means operatively connected with such device for causing the actuation in proper order of said means for actuating the plunger and said means for actuating the valve.

14. In a casting-machine, the combination with a mold, of vacuum-producing means; means for filling the mold as soon as a vacuum is produced with molten metal practically instantaneously whereby a high pressure is exerted upon the molten metal and every point in the walls of the mold-space at the moment the mold is filled, a compressor and a compressor-actuator having means for causing a gradually-decreasing force upon the metal in the mold.

15. In a casting-machine, the combination with a mold, of vacuum producing and maintaining means; means for filling the mold as soon as a vacuum is produced practically instantaneously whereby a high pressure is exerted upon the molten metal and every point in the walls of the mold at the moment said mold is filled, and a spring-actuated compressor having means for causing a gradually-decreasing force upon the metal in the mold.

16. In a casting-machine, the combination with a mold and with vacuum-creating means, of mold-filling means; a spring for operating said mold-filling means; a casting-compressor operative on the filling of the mold; a spring for operating said casting-compressor; quick-lift-off means operative momentarily and suddenly to release such springs; and automatic mechanical means for operating the same.

17. In a casting-machine, the combination with a mold and means for raising and axially reciprocating the mold, of means for exhausting the mold and means for filling the exhausted mold with molten metal practically instantaneously, whereby a high pressure is exerted upon the molten metal and every point in the walls of the mold-space at the moment the mold is filled.

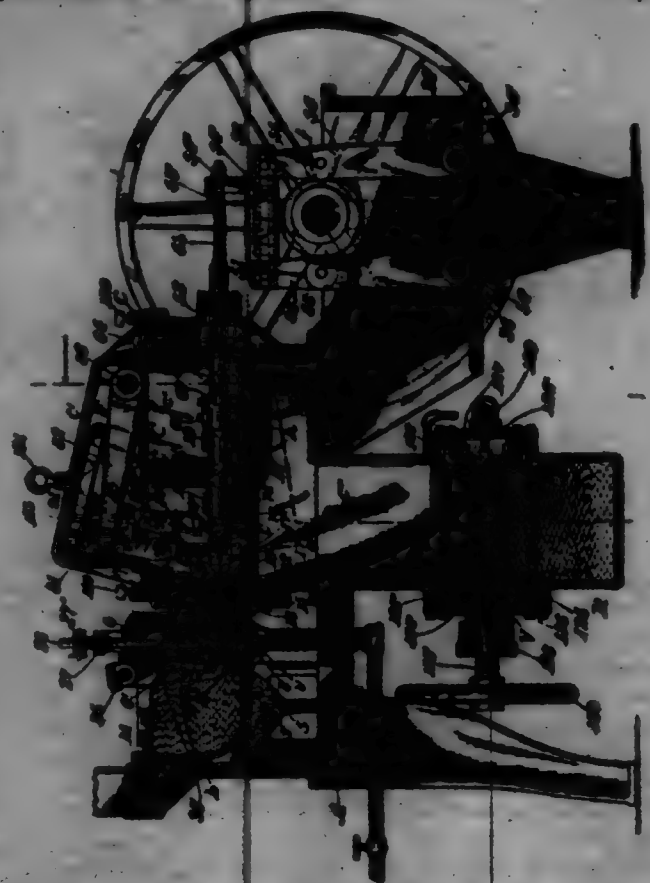
18. In a casting-machine, the combination with means for creating a pressure greater than atmospheric upon a mass of molten metal, of a valve-controlled outlet-duct through which molten metal is ejected; a vacuum-chamber into which said metal opens; a mold mounted in said vacuum-chamber to reciprocate toward and away from the outlet-duct; and an exhaust-pipe for exhausting the space of the vacuum-chamber forward of the mold and to which the mold is open when withdrawn from contact with the outlet-duct.

19. In a casting-machine, the combination with means for creating a pressure greater than atmospheric upon a mass of molten metal, of a valve-controlled outlet-duct through which molten metal is ejected; a vacuum-chamber into which said metal opens; a mold mounted in said vacuum-chamber to reciprocate toward and away from the outlet-duct; an exhaust-pipe for exhausting the space of the vacuum-chamber forward of the mold and to which the mold is open when withdrawn from contact with the outlet-duct; and a mold-actuator extending through a stuffing-box in a wall of the vacuum-chamber.

698,592. CASTING-MACHINE. CHAS. E. VERNER, Hartford, Conn. Filed Feb. 14, 1906. Serial No. 5,504. (No model.)

Claim.—1. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-duct through which molten metal is discharged; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to a position when a casting is to be made in which

it contacts with the nozzle, and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting said vacuum-chamber and thereby exhausting the space extending from the valve to the bottom of the mold-space proper and through and into which the molten metal passes during its flow; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing the mold, thereby causing same to assume a casting position; then actuating the valve to admit molten metal under pressure to the exhausted mold and subsequently shut off all communication of the metal therewith, and finally actuating the means for withdrawing the mold, thereby withdrawing the mold from its casting position.



2. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than that of atmospheric, of a shiftable mold; a vacuum-chamber in which the mold is located; a stuffing-box in a wall of the vacuum-chamber; a mold-actuator extending through the stuffing-box; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the vacuum-chamber and thereby exhausting the space extending from the valve to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the mold-actuator, thereby causing the mold to assume a casting position; then actuating the valve to admit molten metal under pressure to the exhausted mold, and subsequently shut off all communication of the metal therewith, and finally again actuating the mold-actuator to withdraw the mold from its casting position.

3. In a casting-machine the combination with a making-tank and an outlet-duct through which molten metal is discharged, of a well communicating with said tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for discontinuously closing communication between the well and the making-tank and opening the passage through the nozzle, and vice versa; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to its casting position and for withdrawing it therefrom; means for exhausting the vacuum-chamber and thereby exhausting the space extending from the valve part controlling the passage through the nozzle, to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing and withdrawing the mold, the plunger and the valve device in proper order.

4. In a casting-machine, the combination with a making-tank and an outlet-duct through which molten metal is discharged, of a well communicating with said tank; a plunger for subjecting molten metal therein to pressure; a valve device embodying a pair of valve parts for discontinuously closing communication between the well and the making-tank, and opening the passage through the nozzle, and vice versa; a shiftable mold; a vacuum-chamber in which the mold is located; means for advancing the mold to a position when a casting is to be made, in which it contacts with the nozzle, and for withdrawing it therefrom; means for ex-

hausting the vacuum-chamber and thereby exhausting the space extending from the valve part controlling the passage through the nozzle, to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing and withdrawing the mold, the plunger and the valve device in proper order.

5. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-duct through which molten metal is discharged; a shiftable mold embodying a plurality of mold-sections movable in different directions; a vacuum-chamber in which the mold is located; means for advancing the mold to a position, when a casting is to be made, in which it contacts with the nozzle, and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting said vacuum-chamber and thereby exhausting the space extending to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing the mold, thereby causing the mold to assume a casting position; then actuating the valve to admit molten metal under pressure to the exhausted mold, and subsequently shut off all communication of the metal therewith; then actuating the means for withdrawing the mold thereby withdrawing the mold from its casting position, and for finally separating the mold-sections one from another.

6. In a casting-machine, the combination with a making-tank, and an outlet-duct through which molten metal is discharged, of means for subjecting a mass of molten metal to a pressure greater than atmospheric; a shiftable mold; a vacuum-chamber in which the mold is located; a stuffing-box in the wall of the vacuum-chamber; a mold-actuator extending through the stuffing-box; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the vacuum-chamber and thereby exhausting the space extending from the valve to the bottom of the mold-space; a main shaft; and a series of cams operatively connected to the shaft and with the means for subjecting the molten metal to pressure, the mold-actuator and the metal-controlling valve, and which actuate the same in the following order, namely: first the mold-actuator to shift the mold into its casting position, then the metal-controlling valve, and the means for subjecting the metal to pressure to admit molten metal under pressure to the exhausted mold, and again and finally the mold-actuator to withdraw the mold from its casting position.

7. In a casting-machine, the combination with a making-tank, and an outlet-duct through which molten metal is discharged, of means for subjecting a mass of molten metal to a pressure greater than atmospheric; a shiftable mold embodying a plurality of mold-sections movable in different directions; a vacuum-chamber in which the mold is located; a stuffing-box in the wall of the vacuum-chamber; a mold-actuator extending through the stuffing-box; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting the vacuum-chamber and thereby exhausting the space extending from the valve to the bottom of the mold-space; a main shaft; and a series of cams operatively connected to the shaft and with the means for subjecting the molten metal to pressure, the mold-actuator and the metal-controlling valve, and which operate the same in the following order, namely: first the mold-actuator to shift the mold into its casting position, then the metal-controlling valve and the means for subjecting the metal to pressure to admit molten metal under pressure to the exhausted mold, and again and finally the mold-actuator to withdraw the mold from its casting position and separate the sections thereof one from the other.

8. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than that of atmospheric, of an outlet-duct through which molten metal is discharged; a shiftable mold embodying a pair of side sections movable in different directions; a vacuum-chamber in which the mold is located; means for advancing the mold to a position, when a casting is to be made, in which it contacts with the nozzle, and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting said vacuum-chamber and thereby exhausting the space extending to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing the mold, thereby causing the same to assume a casting position; then actuating the valve to admit molten metal under pressure to the exhausted mold, and subsequently shut off all communication of the metal therewith; then actuating the means for withdrawing the mold, thereby withdrawing the mold from its casting position, and for finally separating the said side sections of the mold one from another.

9. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-duct through which molten metal is discharged; a shiftable mold embodying an end section and a pair of side sections movable in different directions; a vacuum-chamber in which the mold is located; means for advancing the mold to a position, when a casting is to be made, in which

it contacts with the discharge-nozzle, and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting said vacuum-chamber, and thereby exhausting the space extending to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing the mold, thereby causing the same to assume a casting position; then actuating the valve to admit molten metal under pressure to the exhausted mold, and subsequently shut off all communication of the metal therewith; then actuating the means for withdrawing the mold, thereby withdrawing the mold from its casting position, and for finally separating the side and the end sections of the mold one from another.

10. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, of an outlet-duct through which molten metal is discharged; a shiftable mold embodying a main casting-forming section and a pair of sprue-forming sections movable relatively to said main section; a vacuum-chamber in which the mold is located; means for advancing the mold to a position, when a casting is to be made, in which it contacts with the nozzle, and for withdrawing it therefrom; a valve independent of the mold for controlling the entrance of molten metal thereto; means for exhausting said vacuum-chamber and thereby exhausting the space extending to the bottom of the mold-space; a power-driven device in the machine, and mechanism operatively connected with such device for actuating the means for advancing the mold, thereby causing the same to assume a casting position; then actuating the valve to admit molten metal under pressure to the casting-mold, and subsequently shut off all communication of the metal therewith; then actuating the means for withdrawing the mold, thereby withdrawing the mold from its casting position, and for finally separating the casting-forming and sprue-forming sections of the mold one from the other.

11. In a casting-machine, the combination with a mold embodying a shiftable main mold-section; a pair of side sections movable in different directions transversely to the line of the shifting movement of the main mold-section, and an auxiliary mold-section movable relatively to and in the line of movement of the main mold-section, of mold-filling means comprising an outlet-duct for supplying molten metal to the mold; and means for shifting the side sections and the auxiliary sections relatively to the main mold-section.

12. In a casting-machine, the combination with a mold embodying a shiftable main mold-section, a pair of side sections movable in different directions transversely to the line of shifting movement of the main mold-section, and an auxiliary mold-section movable relatively to and in the line of movement of the main mold-section, of mold-filling means comprising an outlet-duct for supplying molten metal to the mold; and means for reciprocating said side sections in opposite directions, and said main and auxiliary mold-sections in the same direction at predetermined times.

13. In a casting-machine, the combination with a mold embodying a pair of relatively movable main mold-sections, a pair of side sections movable in different directions transversely to the line of relative movement of the main mold-sections, and an auxiliary mold-section movable relatively to and in the line of relative movement of the main mold-sections, of mold-filling means, comprising an outlet-duct for supplying molten metal to the mold; and means for moving the side sections and the auxiliary section relatively to the main mold-sections.

14. In a casting-machine, the combination with a mold embodying a main mold-section comprising a pair of sections; a pair of side sections movable relatively to the main section and an auxiliary section, of a pair of mold-carriers upon which said side sections are respectively mounted; a second pair of mold-carriers, one supported on the other, and upon which the sections constituting the main mold-section are mounted; a carrier for the auxiliary mold-section; and mechanism for shifting all of said carriers relatively to one another.

15. In a casting-machine, the combination with a separable mold embodying a pair of oppositely-reciprocating side sections and a pair of end sections, of the following instrumentalities successively effective in the order named—viz., mold-filling means, and mold-separating mechanism for reciprocating said side sections in opposite directions and the end sections in different directions in the same direction.

16. In a casting-machine, the combination with a discharge-nozzle and a mold embodying a pair of oppositely-movable sprue-forming mold-sections and a main mold-section transversely to which the sprue-forming sections are movable, of mold-filling means; means for withdrawing the mold from contact with the discharge-nozzle; means for separating the sprue-forming mold-sections; a sprue-separating device movable between the separated sprue-forming sections for parting the sprue from the casting in the main mold-section; a power-driven device in the machine; and mechanism operable therefrom and operatively connected with the sprue-

separating device for actuating the sprue-separating device independently of the movement of the mold.

17. In a casting-machine, the combination with a discharge-nozzle, and a mold embodying a pair of oppositely-movable sprue-forming mold-sections and a main mold-section transversely to which the sprue-forming sections are movable, of mold-filling means; means for withdrawing the mold from contact with the discharge-nozzle; means for separating the sprue-forming mold-sections; a sprue-separating device movable between the separated sprue-forming sections for parting the sprue from the casting in the main mold-section; means for separating the casting from the main mold-section; a power-driven device in the machine; and mechanism operable therefrom and operatively connected with the sprue-separating device, and the means for separating the casting from the main mold-section for actuating the same independently of the movement of the mold.

18. In a casting-machine, the combination with a discharge-nozzle and a mold embodying a pair of sprue-forming mold-sections and a pair of main mold-sections for forming the body of the casting and transversely to which main sections said sprue-forming sections are movable, of mold-filling means; means for withdrawing the mold from contact with the discharge-nozzle; means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue from the casting; means for separating the casting from the main mold-sections; a power-driven device in the machine; and mechanism operable therefrom and operatively connected with the sprue-separating device and the means for separating the casting from the main mold-section for actuating the same independently of the movement of the mold.

19. In a casting-machine, the combination, with a separable mold embodying a pair of sprue-forming mold-sections, a main section, and a core, of the following instrumentalities successively effective in the order named—viz., mold-filling means; mold-separating means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue and the casting; and means for separating the core and the main section of the mold.

20. In a casting-machine, the combination, with a separable mold embodying a pair of sprue-forming mold-sections, a main section, and a core, of the following instrumentalities successively effective in the order named—viz., mold-filling means; mold-separating means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue and the casting; and means for shifting the core relatively to the main section of the mold.

21. In a casting-machine, the combination, with a separable mold embodying a pair of sprue-forming mold-sections, a pair of main sections, and a core, of the following instrumentalities successively effective in the order named—viz., mold-filling means; mold-separating means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue and the casting; means for separating the main sections of the mold; and means for shifting the core relatively to one of said main sections.

22. In a casting-machine, the combination, with a separable mold embodying a pair of sprue-forming mold-sections, a pair of main sections, and a core, of the following instrumentalities successively effective in the order named—viz., mold-filling means; mold-separating means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue and the casting; means for shifting the core and one of the main sections of the mold in unison relatively to the other main section of the mold; and means for shifting the core relatively to said shifted main section of the mold.

23. In a casting-machine, the combination with a mold embodying a pair of sprue-forming mold-sections and a pair of main mold-sections for forming the body of the casting, and transversely to which main sections said sprue-forming sections are movable, of a discharge-nozzle; mold-filling means; means for withdrawing the mold from contact with the discharge-nozzle; means for separating the sprue-forming mold-sections; a sprue-separating device for parting the sprue from the casting and which is movable across the space between the separated sprue-forming sections; means for separating the main sections of the mold; a casting-stripper; a power-driven device in the machine; and mechanism operable therefrom and operatively connected with the casting-stripper and the sprue-separating device for actuating the same independently of the movement of the mold.

24. In a casting-machine, the combination, with a separable mold embodying a pair of sprue-forming mold-sections and a pair of main sections for forming the body of the casting, of the following instrumentalities successively effective in the order named—viz., mold-filling means; mold-separating means for separating the sprue-forming mold-sections; a sprue-separating device movable between the separated sprue-forming mold-sections for parting the sprue and the casting; means for separating the main sections of the mold; and a casting-stripper movable between the separated main sections of the mold.

25. In a casting-machine, the combination with a mold embodying a main mold-section and a pair of sprue-forming mold-sections movable relatively to the main section, of mold-filling means; means for separating the mold-sections; and mold-cleaning means movable across the space between the separated sprue-forming mold-sections.

26. In a casting-machine, the combination with a mold embodying a main mold-section and a pair of sprue-forming mold-sections movable relatively to the main section, of mold-filling means; means for separating the mold-sections; and a mold-cleaning brush movable across the space between the separated sprue-forming mold-sections.

27. In a casting-machine, the combination, with a separable mold embodying a sprue-forming mold-section and also embodying a main section for forming the body of the casting, of mold-filling means; mold-separating means for separating the sprue and the sprue-forming mold-section; a combined brush and sprue separating device for cleaning a mold-section and parting the sprue and the casting; and means for separating the main section of the mold and the body of the casting.

28. In a casting-machine, the combination with a sectional mold embodying a pair of oppositely-movable mold-sections and with mold-filling means, of a shiftable carriage upon which the mold is mounted; means for separating the sections of the mold; and means for coupling the cheeks of said sections, said carriages being movable with the carriage and moving across the cheeks of the mold-sections during their separating movement.

29. In a casting-machine, the combination with a sectional mold embodying a pair of oppositely-movable mold-sections and with mold-filling means, of a carriage upon which the mold is mounted; means for separating the sections of the mold; and means for coupling the cheeks of said sections during their separating movement.

30. In a casting-machine, the combination, with a mold embodying a pair of oppositely-disposed mold-sections, of mold-filling means; mold-separating means for shifting said mold-sections in opposite directions; and a pair of oppositely-disposed mold-scrapers for scraping the cheeks of said mold-sections.

31. In a casting-machine, the combination, with mold-filling means having a discharge-nozzle for supplying molten metal to the mold, of a separable mold embodying a pair of complementary sprue-forming mold-sections movable toward and from each other and also movable toward and from said nozzle to bring the cheeks of said mold-sections into engagement with, and carry them away from, the face of said nozzle, and means for scraping said cheeks of the mold-sections.

32. In a casting-machine, the combination, with mold-filling means having a discharge-nozzle for supplying molten metal to the mold, of a separable mold embodying a pair of complementary sprue-forming mold-sections movable toward and from each other and also movable toward and from said nozzle to bring the cheeks of said mold-sections into engagement with, and carry them away from, the face of said nozzle, and a pair of mold-scrapers effective respectively for scraping said cheeks of the mold-sections.

33. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; means for filling said mold with molten metal and exerting a high pressure upon the latter and every point in the walls of the mold-space at the moment of complete filling of the mold; a plurality of operating members working respectively in said openings; air-tight packings between the operating members and the walls of said openings; a main mold-carrier for one of said mold-sections; a plurality of auxiliary mold-sections supported on the main mold-carrier and each supporting a different mold-section; and connecting means between the respective operating members and the several mold-sections.

34. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; means for filling said mold with molten metal and exerting a high pressure upon the latter and every point in the walls of the mold-space at the moment of complete filling of the mold; a plurality of operating members working respectively in said openings; air-tight packings between the operating members and the walls of said openings; a main mold-carrier for one of said mold-sections; an auxiliary mold-carrier supported on the main mold-carrier and carrying a mold-section; a core-carrier also supported on the main mold-carrier and carrying a core-section; and connections from the respective operating members to the mold-carriers and the core-carrier.

35. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; mold-filling means; a casting-stripper also located within said chamber; a plurality of operating members working respectively in said openings; air-tight packings between the operating members and the walls of the openings;

and connections from the respective operating members to the mold-sections and the casting-stripper.

36. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; mold-filling means; mold-cleaning means and a casting-stripper also located within said chamber; a plurality of operating members working respectively in said openings; air-tight packings between the operating members and the walls of the openings; and connections from the respective operating members to the mold-sections, the mold-cleaning means, and the casting-stripper.

37. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; mold-filling means; a sprue-separating device and a casting-stripper also located within said chamber; a plurality of operating members working respectively in said openings; air-tight packings between the operating members and the walls of the openings; and connections from the respective operating members to the mold-sections, the sprue-separating device, and the casting-stripper.

38. In a casting-machine, the combination, with a vacuum-chamber having a plurality of openings therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; mold-filling means; a plurality of differentially-effective spring-pressed operating members working in said openings and controlling respectively said mold-sections; and air-tight packings between said operating members and the walls of said openings.

39. In a casting-machine, the combination, with a vacuum-chamber having an opening therein, of a separable mold located within said chamber and embodying a plurality of mold-sections; mold-filling means; means for separating the mold-sections; a stripper-operating shaft working in said opening in the chamber; an air-tight packing between said shaft and the walls of said opening; and a casting-stripper located within said chamber and effective on the separation of said mold-sections.

40. In a casting-machine, the combination with an outlet-nozzle, of a mold embodying side sections movable in opposite directions and a main section movable transversely to the direction of movement of the side sections; yielding means for exerting pressure upon the mold and the mold-sections during the filling of the mold; a power-driven device in the machine; cam-follower actuators operatively connected with each device for withdrawing the mold from the outlet-nozzle; and other cam-follower actuators for separating the sections of the mold one from the other independently of the backward movement of the mold from the outlet-nozzle.

41. In a casting-machine, the combination with an outlet-nozzle and a mold embodying a pair of side sections and a main section, of springs for pressing the side sections together; means for pressing the mold yieldingly against the nozzle; a power-driven device in the machine; a cam-follower actuator operatively connected with each device for withdrawing the same from the outlet-nozzle; and other cam-follower actuators for separating the sections of the mold one from the other independently of the backward movement of the mold from the outlet-nozzle.

42. In a casting-machine, the combination, with mold-filling means, of a separable mold embodying a pair of spring-pressed side sections, a pair of spring-pressed and cushion movable transversely to the side sections, and a spring-pressed core also movable transversely to the side sections.

43. In a casting-machine, the combination, with a mold and with mold-filling means, of mechanism for positioning one of said elements relatively to the other, and an electromagnetic safety device effective reciprocally with said positioning mechanism and governed by the position of said elements and operative for preventing filling of the mold when said element is improperly positioned.

44. In a casting-machine, the combination, with an electric circuit having a normally open break, of a separable mold embodying a pair of mold-sections adapted when closed to close said break in the circuit; mold-filling means; mold-cleaning means; and an electromagnetic safety device controlled by said circuit and normally operative for breaking the operation of the mold-filling means.

45. In a casting-machine, the combination, with an electric circuit having two normally open breaks therein, of a separable mold embodying a plurality of mold-sections adapted when closed to close said breaks in the circuit; mold-filling means; mold-cleaning means; and an electromagnetic safety device controlled by said circuit and normally operative for breaking the operation of the mold-filling means.

46. The combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and vacuum-maintaining, casting receiving and discharging means sealing said opening and operative alternately for receiving and discharging castings.

47. The combination, with a vacuum-chamber having an opening, of a mold located within said chamber; mold-filling means; and liquid-

containing, vacuum-maintaining, casting receiving and discharging means forming a liquid seal for said opening and operative alternately for receiving and discharging castings.

48. The combination, with a receptacle and with a vacuum-chamber adapted to communicate therewith, of a mold located within said vacuum-chamber; mold-filling means; and a valve controlling communication between said receptacle and the vacuum-chamber and having a casting-receiving chamber.

49. The combination, with a vacuum-chamber open at its lower end, of a mold located within said chamber; mold-filling means; a receptacle at the open end of said chamber; and a valve controlling communication between said receptacle and the vacuum-chamber and having a casting-receiving chamber normally located under the mold.

50. The combination, with a vacuum-chamber and with an open liquid-containing receptacle communicating therewith, of a mold located within said chamber; mold-filling means; and a valve controlling communication between said receptacle and the vacuum-chamber and having a liquid-containing, casting-receiving chamber.

51. The combination, with a vacuum-chamber having an opening, of a separable mold located within said chamber; mold-filling means; mechanism for opening and closing the mold; and vacuum-maintaining, casting receiving and discharging means sealing said opening and operative alternately for receiving and discharging castings.

52. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; and a casting-receiving valve controlling communication between said discharge-opening and the outside atmosphere.

53. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; and a casting-receiving valve open at one side only and controlling communication between said discharge-opening and the outside atmosphere.

54. The combination, with a vacuum-chamber open at its lower end, of a mold located within said chamber; mold-filling means; and a casting-receiving valve adapted to seal the open end of said chamber and controlling communication therewith.

55. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; and an oscillatory casting-receiving valve controlling communication between said discharge-opening and the outside atmosphere.

56. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; and an oscillatory casting-receiving plug-valve controlling communication between said discharge-opening and the outside atmosphere.

57. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; an oscillatory casting-receiving valve controlling communication between said discharge-opening and the outside atmosphere and having a projecting stem; and an air-tight packing surrounding said stem.

58. The combination, with a vacuum-chamber having a discharge-opening, of a mold located within said chamber; mold-filling means; and an oscillatory casting-receiving valve controlling communication between said discharge-opening and the outside atmosphere; and means for flushing the movements of said valve.

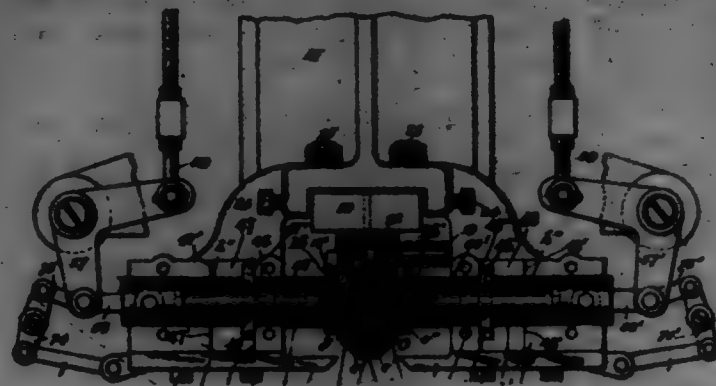
59. In a casting-machine, the combination with a vacuum-chamber having an opening in one of its walls, of a mold located in the vacuum-chamber; mold-filling means embodying a removable discharge-nozzle projecting into said opening in the vacuum-chamber; an annular member secured to the vacuum-chamber over said opening in the wall of the chamber and provided with a retaining-channel adjacent to the edge of the opening; a clamping-ring engaging with the removable nozzle and positively securing the same to the mold-filling means; means for securing said clamping-ring to said annular member; and a heat-insulating packing located in said retaining-channel in the annular member and in contact with the edge of the opening in the wall of the vacuum-chamber to thereby maintain an air-tight joint between the wall of the vacuum-chamber and the said annular member during the expansion and contraction of the parts.

698,592. MOLD MECHANISM. CLARENCE H. VANDER BARTHOLOMEW. Filed May 19, 1899. Serial No. 17,312. (No model.)

Claim.—1. In a casting-machine, the combination with a separable mold, embodying a pair of main dies movable in different directions, and an auxiliary die movable relatively to and in the path of one of said main dies, of a driving-shaft and cam-follower actuators operable therefrom, and operatively connected with the dies whereby the main dies and the auxiliary die are caused to move in proper sequence during the running of the machine.

2. The combination, with a separable mold embodying a pair of main dies movable in different directions and a pair of auxiliary dies movable

relatively to and in the paths of said main die, of mold-filling means and means for shifting first one of said auxiliary dies and then the corresponding main die, and afterward the other auxiliary die and its corresponding main die.



2. In a casting-machine, the combination with a separable and shiftable mold embodying a pair of main casting-forming dies movable in different directions and also embodying an auxiliary die movable relatively to one of said main dies, of mold-filling means for supplying molten metal in the mold, a carriage movable toward and from the mold-filling means, a pair of main die-carriers mounted on and movable relatively in said carriage and respectively supporting said main dies, an auxiliary die-carrier assembled with one of said main die-carriers and supporting the auxiliary die, a driving-shaft, and cam-face actuators operable therefrom for actuating the mold-carriage to advance the same to its casting position and withdraw it therefrom, and independent cam-face actuators for actuating said die-carriers when said carriage has been withdrawn from its casting position and thereby separate the main casting-forming dies and withdraw the auxiliary die.

4. A separable mold embodying a pair of complementary sprue-forming dies at least one of which has a sprue-forming opening therein, said dies also having registering die-receiving openings therein and complementary casting-forming dies seated respectively in said openings, at least one of said casting-forming dies having a die-space therein, and automatic mechanisms for opening said mold by withdrawing first one casting-forming die, then its companion sprue-forming die, and afterward the other casting-forming die, and finally the other sprue-forming die.

5. In a casting-machine, the combination with a separable mold, embodying a pair of main dies and an auxiliary die carried by one of said main dies and movable relatively therein, of a spring and stop-flange for controlling the relative movements of said auxiliary die and the main die upon which it is carried, a driving-shaft, and cam-face actuators operable therefrom for shifting the position of the auxiliary die and thereby effect the movement of the main die by which the auxiliary die is carried.

6. In a casting-machine, the combination with a separable mold, embodying a pair of complementary main dies and a pair of auxiliary dies assembled respectively with said main dies, of main and auxiliary die-carriers for said dies, each pair of die-carriers being movable relatively to each other, springs and stop-flanges for controlling the relative movement of the respective pairs of main die-carriers and auxiliary die-carriers, a driving-shaft and cam-face actuators operable therefrom for positively actuating the auxiliary die-carriers.

7. The combination, with a separable mold embodying a pair of complementary main dies and a pair of auxiliary dies carried respectively by said main dies, of main and auxiliary die-carriers for said respective dies; spring-pressed means for automatically operating corresponding die-carriers; each main die-carrier and its auxiliary die-carrier also having a spring interposed between them.

8. In a casting-machine, the combination, with a mold-filling means having a discharge-opening, of a casting-support separate from the mold and located wholly without the mold-space and disposed in the meeting line of the dies; a separable mold embodying a pair of side dies having a mold-space communicating with said discharge-opening and closable by said support; and means for separating said dies by a movement transverse to such casting-support.

9. In a casting-machine, the combination, with mold-filling means having a discharge-opening, of a casting-support opposite said discharge-opening and located wholly without the mold-space and disposed in the meeting line of the dies; a separable mold embodying a pair of side dies having a mold-space communicating with said discharge-opening and closable by said support; and means for separating said dies by a movement transverse to such casting-support.

10. In a casting-machine, the combination, with mold-filling means having a discharge-opening at one end of the sprue-opening, of a support at the other end of the sprue-opening and located wholly without the mold-space; a separable mold embodying a pair of sprue-forming dies

having sprue-channels one communicating with said discharge-opening and the other closable by said support; and means for separating said dies while the casting is contained by said support.

11. In a casting-machine, the combination, with mold-filling means having a discharge-opening at one end of the sprue-opening, of a pin at the other end of the sprue-opening; a separable mold embodying a pair of sprue-forming side dies having sprue-channels one communicating with said discharge-opening and the other closable by said pin; and means for separating said dies while the casting is contained by said pin.

12. In a casting-machine, the combination, with mold-filling means having a discharge-opening at one end of the sprue-opening, of an adjustable pin at the other end of the sprue-opening; a separable mold embodying a pair of sprue-forming side dies having sprue-channels one communicating with said discharge-opening and the other closable by said pin; and means for separating said dies while the casting is contained by said pin.

13. In a casting-machine, the combination with mold-filling means having a discharge-opening at one end of the sprue-opening, of a centering-pin adjustable transversely to, and less diameter with, said discharge-opening and located at the other end of the sprue-opening; a separable mold embodying a pair of sprue-forming side dies having sprue-channels communicating with opposite sides of the mold-space, one communicating with said discharge-opening and the other closable by said centering-pin; and means for separating said dies while the casting is contained by said centering-pin.

14. In a casting-machine, the combination, with mold-filling means having a discharge-opening at one end of the sprue-opening, of a mold-carriage movable toward and from said discharge-opening; a pin on said carriage and located at the other end of the sprue-opening; a separable mold on said carriage and embodying a pair of sprue-forming side dies having sprue-channels one communicating with said discharge-opening and the other closable by said pin; and means for separating said dies while the casting is contained by said pin.

15. In a casting-machine, the combination, with a mold embodying a pair of dies, of mold-filling means; mold-separating means for shifting said dies in different directions; and a pair of mold-carpers movable relatively to and across the cheeks of said dies.

16. In a casting-machine, the combination, with a mold embodying a pair of dies, of mold-filling means; mold-separating means for shifting said dies in different directions; a pair of mold-carpers movable relatively to and across the cheeks of said dies; and scraper-actuating means for advancing said carpers toward each other during the opening of the dies.

17. In a casting-machine, the combination, with a mold embodying a pair of dies, of mold-filling means; mold-separating means for shifting said dies in different directions; a pair of mold-carpers movable relatively to and across the cheeks of said dies; and scraper-actuating means for advancing said carpers toward each other during the opening of the dies.

18. In a casting-machine, the combination, with a mold embodying a pair of oppositely-disposed dies, of mold-filling means; mold-separating means for shifting said dies in different directions; a pair of oppositely-disposed mold-carpers movable relatively to and across the cheeks of said dies; and scraper-actuating means for advancing said carpers toward each other while the dies are separated.

19. In a casting-machine, the combination, with a mold embodying a pair of sprue-forming dies, of mold-filling means having a discharge-opening; mold-separating means for shifting said dies in different directions; and a pair of mold-carpers movable relatively to and across those cheeks of the dies which coast with the face of said discharge-opening.

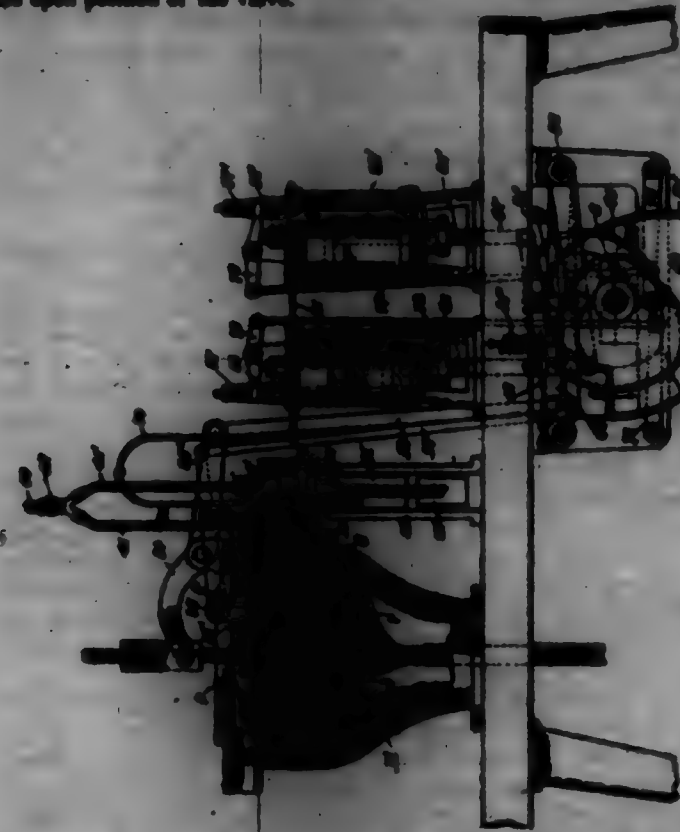
698,598. ARTHUR FURNING GARDNER. CHAS. E. VERNER, Hartford, Conn. Filed May 21, 1906. Serial No. 17,851. (No model.)

Claim.—1. This improvement in the art of making a casting which consists in projecting the molten metal into and against the walls of the mold by a ram-like action produced by first setting in motion a body of molten metal in a direction other than into the mold, and afterward, subsequent to the establishment of such flow, instantly diverting the direction of flow of the entire body of moving metal into the mold, whereby the kinetic energy of the entire mass of moving metal becomes effective to increase the impact of the entering metal.

2. That improvement in the art of making a casting, which consists in first exhausting the mold and in then projecting the molten metal into and against the walls of the exhausted mold by a ram-like action produced by first setting in motion a body of molten metal in a direction other than into the mold, and then, subsequent to the establishment of such flow, instantly diverting the direction of flow of the entire body of moving metal into the mold, whereby the kinetic energy of the entire mass of moving metal becomes effective to increase the impact of the entering metal.

3. That improvement in the art of making a casting which consists in projecting the molten metal into and against the walls of the mold by a ram-like action produced by maintaining a closing pressure upon the

valve which controls the ejection of the molten metal and during this time establishing a movement in a body thereof in a direction other than into the mold, and afterward, subsequent to the establishment of such flow, instantly releasing the pressure on the valve, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold, and in continuing the application of the force by which such movement in the body of metal is accomplished during the open position of the valve.



4. That improvement in the art of making a casting which consists in projecting the molten metal into and against the walls of the mold by a ram-like action produced by maintaining a closing pressure upon the valve which controls the ejection of the molten metal and during this time establishing a movement in a body thereof in a direction other than into the mold, and afterward, subsequent to the establishment of such flow, instantly releasing the pressure on the valve, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold, and in continuing the application of the force by which such movement in the body of metal is accomplished, during the open position of the valve, and in cooling the casting during the setting of the metal.

5. That improvement in the art of making a casting which consists in projecting the molten metal into and against the walls of the mold by a ram-like action produced by maintaining a closing pressure upon the valve which controls the ejection of the molten metal and during this time establishing a movement in a body thereof in a direction other than into the mold, and afterward, subsequent to the establishment of such flow, instantly releasing the pressure on the valve, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold, and in continuing the application of the force by which such movement in the body of metal is accomplished, during the open position of the valve, and also continuing the pressure on the casting and cooling the same during the setting of the metal.

6. That improvement in the art of making a casting which consists in operating the pistons of air-pumps communicating with the mold and opening the valve in the passage-way leading from one pump to the mold, in then closing this valve and opening the valve in the passage-way leading from another air-pump to the mold, in projecting the molten metal into and against the walls of the exhausted mold by a ram-like action produced by first setting in motion a body of molten metal in a direction other than into the mold, and maintaining a pressure during this operation on the valve controlling the injection of molten metal, and finally, after said second-mentioned valve in the passage-way leading to the second pump has been opened, suddenly releasing the pressure on said metal-controlling valve, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold.

7. That improvement in the art of making a casting, which consists in first exhausting the mold, in then projecting the molten metal into and against the walls of the exhausted mold by a ram-like action produced by first setting in motion a body of molten metal in a direction other than into the mold, and after the mold is exhausted and such flow inaugurated, instantly diverting the direction of flow of the entire body of moving

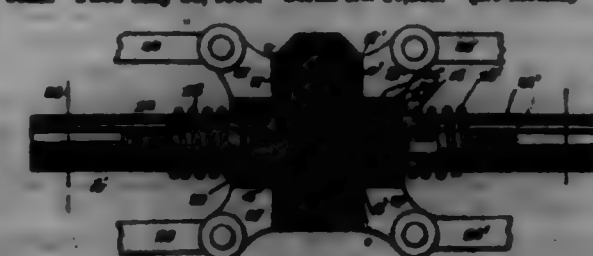
metal into the mold, and in cooling the casting during the setting of the metal.

8. That improvement in the art of making a casting which consists in operating the pistons of air-pumps communicating with the mold and opening the valve in the passage-way leading from one pump to the mold, and then closing this valve and opening the valve in the passage-way leading from another air-pump to the mold, in projecting the molten metal into and against the walls of the exhausted mold by a ram-like action produced by first setting in motion a body of molten metal in a direction other than into the mold and during this operation maintaining a pressure on the valve controlling the injection of molten metal and then suddenly releasing the pressure on said metal-controlling valve after the second-mentioned valve in the passage-way leading to the second pump has been opened, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold and in continuing the application of the force which sets said body of molten metal in motion after said metal-controlling valve has been opened.

9. That improvement in the art of making a casting which consists in operating the pistons of air-pumps communicating with the mold and opening the valve in the passage-way leading from one pump to the mold, in then closing this valve and opening the valve in the passage-way leading from another air-pump in the mold, in setting in motion a body of molten metal in a direction other than into the mold, in maintaining a pressure on the valve controlling the injection of molten metal during this operation, in suddenly releasing the pressure on said metal-controlling valve after the second-mentioned valve in the passage-way leading to the second pump has been opened, thereby permitting the instantaneous diversion of the direction of flow of the entire body of moving metal into the mold, and in continuing a pressure on the casting during the setting of the metal.

10. That improvement in the art of making a casting, which consists in first exhausting the mold, in then projecting the molten metal into and against the walls of the exhausted mold by a ram-like action produced by establishing a movement in a body of molten metal in a direction other than into the mold, and then, after the mold is exhausted and such flow is inaugurated, instantly diverting the direction of flow of the entire body of moving metal into the mold, and in cooling the casting and maintaining a pressure thereon during the setting of the metal.

698,594. HENRY MECHANISM. CHAS. E. VERNER, Hartford, Conn. Filed May 21, 1906. Serial No. 17,860. (No model.)



Claim.—1. In a separable mold, the combination with a pair of complementary main mold-sections, one of which is reciprocatory toward and from the other in a straight line, of an auxiliary mold-section assembled with said reciprocatory main mold-section, a core fixed relatively to said reciprocatory main mold-section and movable therewith relatively to said auxiliary mold-section, and means for moving said auxiliary section, the core-section and the reciprocatory main mold-section as a unit during the first portion of the backward movement of the reciprocatory main mold-section, and for causing the main reciprocatory section and the core to move relatively to the auxiliary section, as the main mold-section moves the end of its backward reciprocation.

2. In a separable mold, the combination with a pair of complementary main mold-sections, one of which is reciprocatory toward and from the other in a straight line, of an auxiliary mold-section assembled with said reciprocatory main mold-section, a core fixed relatively to said reciprocatory main mold-section and movable therewith relatively to said auxiliary mold-section, means for moving the reciprocatory main mold-section, the core and the auxiliary section as a unit, and means for arresting the movement of the auxiliary section during the last portion of the backward movement of the reciprocatory main mold-section, thereby permitting said main section and the core to move relatively to the auxiliary section.

3. In a separable mold, the combination with a pair of oppositely-disposed complementary main mold-sections facing each other and one of which is reciprocatory toward and from the other, of an auxiliary mold-section assembled with said reciprocatory main mold-section, a core fixed relatively to said main mold-section and movable therewith relatively to said auxiliary mold-section, and means for moving said auxiliary mold-section and the core.

4. In a separable mold, the combination, with a pair of oppositely-disposed complementary main mold-sections, of a mold-section removably attached to one of said main mold-sections and to project beyond the face of such attached mold-section when the mold is fully opened; a core-section movable within said auxiliary mold-section; and means for movably supporting all of said mold-sections.

5. In a separable mold, the combination with a pair of complementary main mold-sections, one of which is reciprocatory toward and from the other in a straight line, of an auxiliary mold-section assembled with the reciprocatory main mold-section, a spring interposed between the assembled sections, a core fixed relatively to said reciprocatory main mold-section and movable therewith relatively to said auxiliary mold-section, and means comprising a fixed stop for arresting the movement of the auxiliary section, thereby permitting the other sections to move near the end of the backward movement of the main mold-section.

6. The combination, with a mold-carrier, of an auxiliary mold-section secured to said mold-carrier; a pair of oppositely-disposed complementary main mold-sections, one of which is reciprocatory on said carrier toward and from the other and relatively to said auxiliary mold-section; a second auxiliary mold-section shiftable relatively to one of said other mold-sections; and means for movably supporting the mold-sections and for actuating said reciprocatory main mold-section.

7. The combination, with a mold-carrier, of a tubular auxiliary die secured to said mold-carrier; a pair of oppositely-disposed complementary main mold-sections one of which is reciprocatory on said carrier toward and from the other and relatively to said tubular auxiliary mold-section; a core mounted in said tubular mold-section and fixed to said main mold-section; and means for movably supporting the mold-sections and core and for actuating said reciprocatory main mold-section.

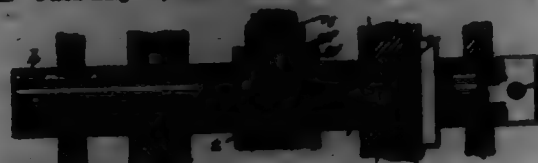
8. The combination, with a mold-carrier, of a tubular auxiliary die secured to said mold-carrier; a pair of oppositely-disposed complementary main mold-sections one of which is reciprocatory on said carrier toward and from the other and relatively to said auxiliary mold-section; a core mounted in said tubular mold-section and fixed to said main mold-section; and means for movably supporting the mold-sections and core and for actuating said reciprocatory main mold-section.

9. The combination, with a mold-carrier, of a tubular auxiliary die secured to said mold-carrier; a pair of oppositely-disposed complementary main mold-sections one of which is reciprocatory on said carrier toward and from the other and relatively to said auxiliary mold-section; a core mounted in said tubular die and fixed to said main mold-section and movable therewith in one direction and then in the opposite direction to strip the casting from the mold; and means for movably supporting the mold-sections and core and for actuating said reciprocatory main mold-section.

10. The combination, with a mold-carrier, of a tubular auxiliary mold-section secured to said mold-carrier; a main mold-section shiftable on said carrier relatively to said auxiliary mold-section; a core mounted in said tubular mold-section and fixed to said main section; and a spring between said mold-carrier and the main mold-section.

11. The combination, with a mold-carrier, of a tubular auxiliary mold-section secured to said mold-carrier; a main mold-section shiftable on said carrier relatively to said auxiliary mold-section; a core mounted in said tubular mold-section and fixed to said main section and movable therewith; a stop for limiting the movement of the mold-carrier in one direction; a spring between the mold-carrier and the main mold-section for shifting said main section and the core in one direction relatively to said auxiliary mold-section; and means for shifting said main mold-section in the opposite direction in opposition to the force of such spring to strip a casting from the mold.

698,595. MOLD MECHANISM. CURTIS E. VERNER, Hartford, Conn. Filed May 22, 1900. Serial No. 17,864. (No model.)



Claim.—1. In a mold, the combination with a mold-section, of a pair of reciprocatory and relatively movable mold-sections; a fixed stop and a coacting face for limiting the movement in one direction of one section of said pair of mold-sections; a separate stop and coacting face for limiting the movement of this section in the opposite direction; means for positively reciprocating this section; and steps and coacting faces for limiting the relative movement of said pair of reciprocatory sections at the close of the movement in both directions of the positively-reciprocated section.

2. In a mold, the combination with a mold-section, of a pair of re-

ciprocatory and relatively movable mold-sections; mold-carriers for supporting said pair of mold-sections; a fixed stop and a coacting face for limiting the movement in one direction of one of said carriers; a separate stop and coacting face for limiting the movement of this carrier in the opposite direction; means for positively reciprocating this carrier; and steps and coacting faces for limiting the relative movement of said carriers at the close of the movement in both directions of the positively-reciprocated carrier.

3. In a mold, the combination, with a mold-section, of a pair of mold-sections being said first mold-section and complementary thereto and co-acting directly with each other; a mold-carrier for movably supporting said first mold-section; a pair of co-operative mold-carriers movable together and also relatively to each other and supporting said pair of mold-sections respectively; means for limiting the movements of one of said pair of mold-carriers; and means for limiting the relative movement of the other mold-carrier of said pair.

4. In a mold, the combination, with a mold-section, of a pair of mold-sections being said first mold-section and complementary thereto and co-acting directly with each other; a mold-carrier for movably supporting said first mold-section; a pair of co-operative mold-carriers one mounted on the other and movable together and also relatively to each other and supporting said pair of mold-sections respectively; means for limiting the movements of one of said pair of mold-carriers; and means for limiting the relative movement of the other mold-carrier of said pair.

5. In a mold, the combination, with a mold-section, of a pair of mold-sections being said first mold-section and complementary thereto and co-acting directly with each other; a mold-carrier for movably supporting said first mold-section; mold-carriers movable relatively to each other and supporting said pair of mold-sections respectively, one of which mold-carriers is tubular and is mounted on the other; means for limiting the movements of one of said pair of mold-carriers; and means for limiting the relative movement of the other mold-carrier of said pair.

6. In a mold, the combination, with a mold-section, of a pair of mold-sections being said first mold-section and complementary thereto and co-acting directly with each other; a mold-carrier for movably supporting said first mold-section; mold-carriers movable relatively to each other and supporting said pair of mold-sections respectively, one of which mold-carriers is tubular and is mounted on the other, and one of which is operative for actuating the other, said operating mold-carrier having a transverse slot; a transverse key carried by the operated mold-carrier and working in said slot in the operating mold-carrier; and means for limiting the movements of said operating mold-carrier.

7. The combination, with a main mold-section and with a core, of an auxiliary mold-section assembled therewith; a tubular main mold-carrier supporting said main mold-section and the core and having a transverse slot; an auxiliary mold-carrier supporting said auxiliary mold-section and mounted to slide in the main mold-carrier and having a transverse key working in said slot in the main mold-carrier; and means for limiting the movements of said auxiliary mold-carrier.

8. A separable mold comprising a pair of complementary main mold-sections one provided with a sprue-forming mold-space and the other with a casting-forming mold-space; an auxiliary mold-section co-operative with one of said main mold-sections; a mold-carrier for movably supporting one of said main mold-sections; and a pair of co-operative mold-carriers movable together and also relatively to each other and supporting the other main mold-section and the auxiliary mold-section.

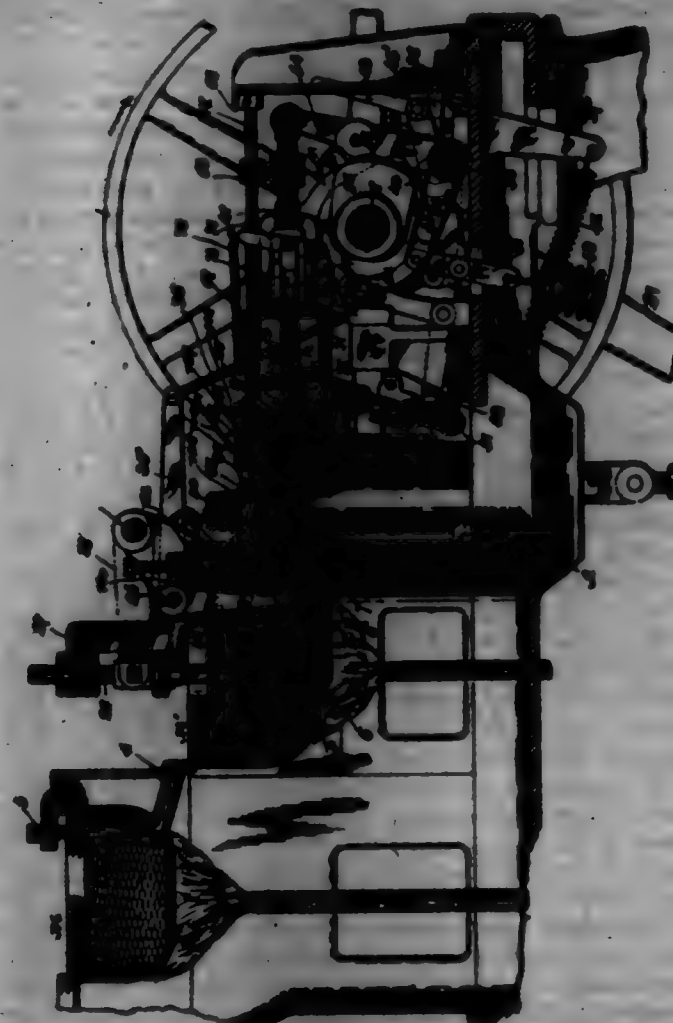
9. A separable mold comprising a pair of complementary mold-sections, one provided with a sprue-forming mold-space and the other with a casting-forming mold-space; a core-section fixed with relation to one of said mold-sections; an auxiliary mold-section movable with relation to the core-section and the mold-section relatively to which the core-section is fixed; mold-section carrier for movably supporting the various mold-sections, the carrier supporting the core-section also supporting the main section relatively to which the core-section is fixed; means for positively reciprocating one of the carriers; and means for limiting the relative movement of said auxiliary section carrier and said core and main section carrier at the close of the movement in both directions of the positively-reciprocated carrier.

10. A separable mold comprising a pair of complementary main mold-sections, one provided with a sprue-forming mold-space and the other with a casting-forming mold-space; a pair of auxiliary mold-sections co-operative with one of said main mold-sections; and a pair of co-operative mold-carriers adapted to move together and also with relation to each other, one of this pair of co-operative mold-carriers supporting the remaining main mold-section and also one of the auxiliary mold-sections, and the other of said pair of co-operative mold-carriers supporting the other auxiliary mold-section.

11. A separable mold comprising a pair of complementary main mold-sections, one provided with a sprue-forming mold-space, and the other

with a casting-forming mold-space; an auxiliary mold-section and a core-section co-operative with one of said main mold-sections; a mold-carrier for movably supporting one of said main mold-sections; a mold-carrier for movably supporting the other main mold-section and also the core-section; and a carrier supporting the other auxiliary mold-section and movable relatively to said last-mentioned main mold-section, and came said auxiliary mold-section to project beyond the face of the co-operative main and core sections when the mold is open.

698,596. CASTING-MACHINE. CURTIS E. VERNER, Hartford, Conn. Filed Jan. 22, 1900. Serial No. 2,486. (No model.)



Claim.—1. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, a mold, of a plurality of air-pumps for producing a vacuum therein; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device which first renders one of the air-pumps effective to exhaust the mold, then renders such pump ineffective and a second pump effective to further exhaust the partially-exhausted mold, and finally during the second exhaustion actuates the said valve and thereby admits molten metal under pressure to the mold.

2. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, and a mold, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device, which first actuates the pistons of the air-pumps, and opens the valve in the passage-way leading from one of the air-pump cylinders to the mold, then closes this latter valve and opens the valve in the passage-way leading from the second air-pump cylinder to the mold, and finally, before the piston of the last-mentioned cylinder has reached the end of its stroke, opens said valve controlling the flow of molten metal to the mold.

3. In a casting-machine, the combination with a plunger for subjecting molten metal to pressure, and a mold, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device, which first actuates the pistons of the air-pumps and opens the valve in the passage-way leading from one of the cylinders to the pump, then closes this latter valve and opens the valve in the passage-way leading from a second air-pump cylinder to the mold, then, before the piston of the last-mentioned cylinder has reached the end of its stroke, actuates the plunger and opens the said metal-controlling valve, and finally opens said air-valve and admits air to the mold.

the air-pump cylinders in the mold, then closes this latter valve and opens the valve in the passage-way leading from a second air-pump cylinder, and finally, before the piston of the last-mentioned cylinder has reached the end of its stroke, actuates the plunger and opens said valve controlling the flow of molten metal to the mold.

4. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, a mold, and an air-valve for admitting air to the mold at a predetermined time, of a plurality of air-pumps for producing a vacuum in the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device which first renders one of the air-pumps effective to exhaust the mold, then renders such pump ineffective and a second pump effective to further exhaust the partially-exhausted mold, then during the second exhaustion actuates the said metal-controlling device and admits molten metal to the mold, and finally opens said air-valve and admits air to the mold.

5. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric, a mold, and an air-valve for admitting air to the mold at a predetermined time, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device which first actuates the pistons in the air-pumps and opens the valve in the passage-way leading from one of the air-pump cylinders to the mold, then closes this latter valve and opens the valve in the passage-way leading from a second cylinder to the mold, then, before the piston of the last-mentioned cylinder has reached the end of its stroke, opens the said metal-controlling valve, and finally opens said air-valve and admits air to the mold.

6. In a casting-machine, the combination with a plunger for subjecting molten metal to pressure, a mold, and an air-valve for admitting air to the mold at a predetermined time, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a power-driven device in the machine; and mechanism operatively connected with such device which first renders the pistons of the air-pumps and opens the valve in the passage-way leading from one of the cylinders to the pump, then closes this latter valve and opens the valve in the passage-way leading from a second air-pump cylinder to the mold, then, before the piston of the last-mentioned cylinder has reached the end of its stroke, actuates the plunger and opens the said metal-controlling valve, and finally opens said air-valve and admits air to the valve.

7. In a casting-machine, the combination with a plunger for subjecting molten metal to pressure, and a mold, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance into the exhausted mold of molten metal; a main shaft from which the pistons of said air-pump cylinders are actuated; and a series of cams operatively connected to the shaft, and with said plunger and the valves in the passage-ways leading from the air-pump cylinders, and with said metal-controlling valve, and which actuate the same in the following order during the exhausting movement of the pistons, namely: first the valve in one of said passage-ways to open the same, then this valve and the valve in another of the passage-ways to close the first valve before opening the second, and finally the plunger and the metal-controlling valve to admit molten metal under pressure into the mold.

8. In a casting-machine, the combination with a plunger for subjecting molten metal to pressure, a mold, and an air-valve for admitting air at a predetermined time to the mold, of a plurality of air-pumps communicating with the mold for producing a vacuum therein; valves controlling the passage-ways leading from the air-pump cylinders to the mold; a valve for controlling the entrance to the exhausted mold of molten metal; a main shaft from which the pistons of said air-pump cylinders are actuated; and a series of cams operatively connected to the shaft, and with said plunger and the valves in the passage-ways leading from the air-pump cylinders, and with said metal-controlling valve, and which actuate the same in the following order during the exhausting movement of the pistons, namely: first the valve in one of said passage-ways to open the same, then this valve and a valve in another of the passage-ways to close the first valve before opening the second, then the plunger and the metal-controlling valve to admit molten metal under pressure into the mold, and finally the air-valve to admit air into the mold.

9. In a casting-machine, the combination with a separable mold, of means for first producing a vacuum in the mold; means for next causing the filling of the mold with molten metal; means for afterward admitting air to the mold; means for finally separating the mold; and mechanism for causing the operation of the several means in the order specified.

10. In a casting-machine, the combination with a separable mold, of a plurality of separate means for producing a vacuum; means for causing the filling of the mold with molten metal; means for admitting air to the mold; means for separating the mold; and mechanism operatively connected to the machine for actuating the above means in the following order, to wit: to first render one of said vacuum-producing means effective to exhaust air from the mold, then to connect the partially-exhausted mold with a second vacuum-producing means, then to cause the injection into the mold of molten metal, then to admit air to the mold, and finally to separate the mold.

11. In a casting-machine, the combination with a separable mold, of a plurality of separate means embodying a pair of air-pumps for producing a vacuum; means for causing the filling of the mold with the molten metal; means for admitting air to the mold; means for separating the mold; and mechanism operatively connected to the machine for actuating the above means in the following order, to wit: to first render one of said air-pumps effective to exhaust air from the mold, then to connect the partially-exhausted mold with the other air-pump, then to cause the injection into the mold of molten metal, then to admit air to the mold, and finally to separate the mold.

12. In a casting-machine, the combination with a mold and with mold-filling means, of an air-pump embodying a main poppet-valve controlling communication between the pump-cylinder and the mold, and an auxiliary valve carried by the main valve and controlling communication between the mold and the outer air.

13. In a casting-machine, the combination with a mold and with mold-filling means, of an air-pump; a main valve controlling communication between the pump-cylinder and the mold; an auxiliary valve carried by the main valve and controlling communication between the mold and the outer air; and a valve-actuating mechanism for operating the main and auxiliary valves with relation to each other.

14. In a casting-machine, the combination with a shiftable mold having mold-sections adapted to move toward and away from each other transversely to the plane of their surface of contact and provided with a groove intersecting said surface, of a nozzle through which molten metal is injected into the mold; means for moving the mold into a casting position in contact with said nozzle and for withdrawing it therefrom; mechanism for separating the mold-sections upon the filling of the mold and after its withdrawal from its casting position; an air-pump cylinder and a flexible connection extending between the mold and the air-pump cylinder and communicating with said groove.

15. In a casting-machine, the combination with a mold having mold-sections adapted to move toward and away from each other transversely to their surface of contact and provided with a groove intersecting said surface, of mechanism for separating the mold-sections upon the filling of the mold, a conduit communicating with the groove through which air is exhausted from the mold; a valve for controlling the admission of air to the groove; means for applying a pressure to molten metal in the machine to effect its forcible injection into the exhausted mold; and mechanism for operating said valve to admit air into the mold after the injection of the metal thereto.

16. In a casting-machine, the combination with a discharge-nozzle, and an air-pump cylinder, of a mold shiftable relatively to the cylinder and to the discharge-nozzle; means for guiding the mold, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; a flexible connection extending between the mold and the air-pump cylinder; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, and finally the injection of molten metal into the exhausted mold.

17. In a casting-machine, the combination with a discharge-nozzle, and an air-pump cylinder, of a mold shiftable relatively to the cylinder and to the discharge-nozzle; means for guiding the mold in its movements, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; an air-admission valve; a flexible connection extending between the mold and the air-pump cylinder; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, then the injection of molten metal into the exhausted mold, and finally the admission of air to the mold subsequent to the injection of metal thereto.

18. In a casting-machine, the combination with a discharge-nozzle, and an air-pump cylinder, of a sectional mold shiftable relatively to the cylinder and to the discharge-nozzle; means for guiding the mold, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; a flexible connection extending between the mold and the air-pump cylinder; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, then the

injection of molten metal into the exhausted mold, and finally the withdrawal of the mold from the nozzle, and its separation.

19. In a casting-machine, the combination with a discharge-nozzle, and an air-pump cylinder, of a sectional mold shiftable relatively to the cylinder and to the discharge-nozzle; means for guiding the mold in its movements, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; an air-admission valve; a flexible connection extending between the mold and the air-pump cylinder; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, then the injection of molten metal into the exhausted mold, then the admission of air to the mold subsequent to the injection of metal thereto, and finally the withdrawal of the mold from the nozzle, and its separation.

20. In a casting-machine, the combination with a discharge-nozzle, and a pair of air-pump cylinders, of a sectional mold shiftable relatively to the cylinders and to the discharge-nozzle; means for guiding the mold in its movements, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; an air-admission valve; flexible connections extending between the mold and the air-pump cylinders; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, then the admission of air to the mold subsequent to the injection of metal thereto, and finally the withdrawal of the mold from the nozzle, and its separation.

21. In a casting-machine, the combination with a discharge-nozzle and an air-pump cylinder, of a sectional mold shiftable relatively to said cylinder; means for guiding the mold in its movements and for advancing the same into a casting position in which it contacts with said nozzle and for withdrawing it from such position; an air-admission valve for said cylinder; means for positively operating said valve; means for separating the sections of the mold from each other; and a flexible connection extending between and connecting the air-pump cylinder with the mold.

22. In a casting-machine, the combination with a discharge-nozzle, and an air-pump cylinder, of a sectional mold shiftable relatively to said cylinder; means for guiding the mold in its movements, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; a main valve for admitting air from the mold to the air-pump cylinder; an air-admission valve carried by the main valve for admitting air to the mold before its withdrawal and separation; and a flexible connection extending between and connecting the air-pump cylinder with the mold.

23. In a casting-machine, the combination with a discharge-nozzle, and two air-pump cylinders, of a sectional mold shiftable relatively to said cylinders; means for guiding the mold in its movements, and for advancing the same into a casting position in which it contacts with said nozzle, and for withdrawing it from such position; an air-admission valve; flexible connections extending between and connecting the air-pump cylinders with the mold; and mechanism operatively connected to the machine which first causes the advance of the mold toward the nozzle, then the exhaustion of the mold, then the admission of air to the mold subsequent to the injection of metal thereto, and finally the withdrawal of the mold from the nozzle, and the separation of its sections one from the other.

24. In a casting-machine, the combination with a mold; means for subjecting molten metal to a pressure greater than atmospheric; means for holding the metal and permitting it to flow, in consequence of such pressure, in a direction other than into the mold; and a plurality of air-pumps for producing a vacuum in the mold, of means for shifting the direction of flow of the molten metal; a power-driven device in the machine; and mechanism operatively connected with said device which renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow in the metal and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of the flow, causes the means for shifting the direction of such movement, thereby effecting the diversion of the flow toward and into the mold.

25. In a casting-machine, the combination with a melting-tank and a chamber connected to the tank and normally shut off from communication with the mold, of means for subjecting a mass of molten metal communicating with that in the chamber to a pressure greater than atmospheric and thereby set up a movement in the body of metal in the chamber outward into the tank; means for suddenly opening communication between the chamber and the mold and for simultaneously arresting the flow of metal from the chamber into the tank; a plurality of air-pumps for producing a vacuum in the mold; a power-driven device in the machine; and mechanism operatively connected with said device which renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal in the chamber and the operating-pump subsequently ineffective and a second

pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of such flow, causes the means for opening communication between the chamber and the mold and simultaneously arresting the flow of metal in other directions, thereby diverting the direction of flow toward and into the mold.

26. In a casting-machine, the combination with a melting-tank, a mold and a chamber in normal communication with the tank, of means for subjecting a mass of molten metal communicating with that in the chamber to a pressure greater than atmospheric and thereby set up a movement in the body of metal in the chamber outward into the tank; a valve for closing communication between the chamber and the tank; a valve for controlling the inlet of molten metal to the mold from the chamber; a plurality of air-pumps for producing a vacuum in the mold; a power-driven device in the machine; and mechanism operatively connected with said device which renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal in the chamber, and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of such flow, causes said valve to thereby close communication between the chamber and the tank and simultaneously open communication between the chamber and the mold.

27. In a casting-machine, the combination with a melting-tank; a mold and a chamber in normal communication with the tank, of means for subjecting a mass of molten metal communicating with that in the chamber to a pressure greater than atmospheric and thereby set up a movement in the body of metal in the chamber outward into the tank; a double-action valve for controlling communication between the chamber and the mold and the chamber and the tank; a plurality of air-pumps for producing a vacuum in the mold; a power-driven device in the machine; and mechanism operatively connected with said device which renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal in the chamber, and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of such flow, causes said valve to thereby simultaneously close communication between the chamber and the tank and open communication between the chamber and the mold.

28. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric; means for holding the metal and permitting it to flow in consequence of such pressure in a direction other than into the mold; a nozzle; a shiftable mold; means for shifting the mold toward and away from the nozzle; and a plurality of air-pumps for producing a vacuum in the mold, of means for shifting the direction of flow of the molten metal and diverting the same toward and into the mold; a power-driven device in the machine; and mechanism operatively connected with said device which first actuates the means for shifting the mold toward the nozzle; then renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of the flow, causes the means for shifting the direction thereof, thereby diverting the flow toward and into the mold.

29. In a casting-machine, the combination with a melting-tank; a nozzle; a shiftable mold; a chamber connected to the tank and normally cut off from communication with the mold; means for shifting the mold toward and away from the nozzle; and a plurality of air-pumps, of means for subjecting a mass of molten metal communicating with that in the chamber to a pressure greater than atmospheric and thereby set up a movement of the body of metal in the chamber outward into the tank; means for suddenly opening communication between the chamber and the mold and for simultaneously arresting the flow of metal into the tank; a power-driven device in the machine; and mechanism operatively connected with said device which first actuates the means for shifting the mold toward the nozzle; then renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal in the chamber and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of the flow, causes the means for opening communication between the chamber and the mold and simultaneously arresting the flow of metal into the tank, thereby diverting the flow toward and into the mold.

30. In a casting-machine, the combination with a mold having a passage-way in its body for a chilling liquid; means for subjecting molten metal to a pressure greater than atmospheric; means for holding the metal and permitting it to flow in consequence of such pressure in a direction other than into the mold; and a plurality of air-pumps for producing a vacuum in the mold, of means for shifting the direction of flow of the molten metal; a power-driven device in the machine; and mechanism op-

eratively connected with said device which renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow in the metal and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of the flow, causes the means for shifting the direction of such movement, thereby effecting the diversion of the flow toward and into the mold.

31. In a casting-machine, the combination with means for subjecting a mass of molten metal to a pressure greater than atmospheric; means for holding the metal and permitting it to flow, in consequence of such pressure, in a direction other than into the mold; a nozzle; a shiftable mold having a passage-way in its body for a chilling liquid; means for shifting the mold toward and away from the nozzle; and a plurality of air-pumps for producing a vacuum in the mold, of means for shifting the direction of flow of the molten metal and diverting the same toward and into the mold; a power-driven device in the machine; and mechanism operatively connected with said device which first actuates the means for shifting the mold toward the nozzle; then renders one of the air-pumps effective to partially exhaust the mold, said pressure means effective to establish the flow of the metal and the operating-pump subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold; and then, subsequent to the establishment of the flow, causes the means for shifting the direction thereof, thereby diverting the flow toward and into the mold.

32. In a casting-machine, the combination with a separable mold embodying a part of mold-sections of mold-filling means having a discharge-nozzle operatively connected with the machine for supplying molten metal to the mold; and mechanism operatively connected to the machine for shifting said mold-sections different distances in a common path relatively to each other toward and from said opening and into and out of operative relation with the mold-filling means.

33. In a casting-machine, the combination with a discharge-nozzle; a reciprocating mold embodying mold-sections separable from one another and movable different distances relatively to the discharge-nozzle, of a plurality of air-pumps for producing a vacuum in the mold; means for forcibly injecting molten metal thereto; a power-driven device in the machine; and mechanism operatively connected with said device which first shifts the mold into contact with said discharge-nozzle and closes the mold-sections, then renders one of the air-pumps effective to partially exhaust the mold and subsequently ineffective and a second pump effective to further exhaust the partially-exhausted mold, then renders the means effective for forcibly injecting molten metal into the mold, and finally, shifts the mold out of contact with the discharge-nozzle and separates the mold-sections.

34. In a casting-machine, the combination with a separable mold embodying a pair of mold-sections co-operative for forming a casting, of mold-filling means having a discharge-opening for supplying molten metal to the mold, and power mechanism for shifting said mold-sections different distances in the same direction relatively to each other to effect the opening and closing of the mold.

35. In a casting-machine, the combination with a sectional mold, of a carrier for each mold-section; carrier-actuating mechanism for shifting the carriers and separating the mold-sections from each other; a casting-stripper pivotally connected at different points of its length to one of said sections and to a member relatively to which said sections move when actuated, said stripper being disposed in the plane of movement of the section in which it is pivotally connected and having its pivotal axis extending transversely to the plane of movement of such section, whereby the stripper is caused to swing transversely to the apex of the casting.

36. In a casting-machine, the combination with a nozzle through which molten metal is injected into the mold, of a sectional mold, and mechanism for shifting the mold-sections as a unit away from the nozzle, and then stopping the movement of one mold-section and continuing the movement of another section in the line of retracting movement of the mold.

37. A method of casting a plurality of mold-sections, in combination with a main carrier upon which the mold is mounted, one of the mold-sections being mounted upon said main carrier and being adapted to move relatively thereto; a spring for urging the said relatively movable section into contact with its co-operative section; and a stop for limiting the motion of said relatively movable section at some time before the mold reaches the limit of its retracting movement.

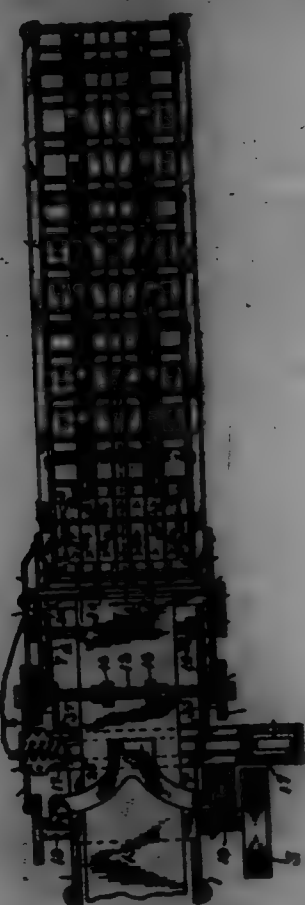
38. A sectional mold in combination with a spring for urging the mold into its casting position; means for retracting it therefrom; a carrier upon which the mold is mounted, springs for urging the various mold-sections into a position in which they contact with each other; a stop for limiting the retracting movement of one of the sections; and means for separating the retracting mold-sections during the further retracting movement of the mold.

39. In a casting-machine, the combination with a separable mold

not with mold-section carriers adapted to be moved different distances in the same direction to close the mold, of a plurality of pressure-exerting means adapted to exert upon the mold-sections different pressures toward the mold-filling means to press the mold firmly in contact with the latter and to press the mold-sections together during the filling of the mold.

46. In a casing-machine, the combination with a movable mold, of mold-filling means comprising a plunger; a mold-carrier for each section; mold-carrier-operating means for closing said mold-sections; a spring-actuated locking-pawl operative for preventing the operation of the plunger until all of said mold-sections are in proper position; and a pawl-releasing device carried by the mold and effective to release the locking-pawl when the mold is in its proper position.

688,597. WRAPPER OR LABEL ASSEMBLING MACHINE. CLARENCE R. VOTAW, Indianapolis, Ind., assignor of one-half to Newton H. Kester, Indianapolis, Ind. Filed July 29, 1904. Serial No. 69,982



Claim.—1. In a machine of the character specified, the combination with a suitable frame, paper-feeding rollers and driving mechanism thereof, of a knife adapted to sever the continuous strip of paper into predetermined lengths and suitable expelling mechanism to receive the individual labels and deliver them into a receptacle according to a desired classification, a plurality of elements and electrical devices all substantially as described and for the purpose set forth.

2. In a machine of the character specified, a suitable frame, paper-feeding rollers and driving mechanism therefor, a sheet-chute and a plurality of stamens cooperating therewith; a knife adapted to sever and strip of paper into individual labels and conveying mechanism designed to pick up and convey each label to the first pair of rolls, and means for delivering the labels into a receptacle designed especially to receive the same, all substantially as specified and for the purpose set forth.

3. In a machine of the character specified, the combination with a suitable frame, of a sound-guiding channel; a direct-terminal carried by said channel, in combination with a stam having a frame fitting said channel, and provided with a metal rivet or the like; a lead magnet in said channel and a contact-head having a plurality of pins forming the other terminal of said circuit and means to cause the registration of an individual pin with its respective rivet whereby a circuit will be closed and said magnet energized, all combined as specified and for the purpose set forth.

4. In a label or wrapper covering machine, the combination with a suitable frame, a plurality of stems, and electrical devices of a paper-cutting blade; means to operate said blade and additional means to engage the individual label formed by the knife and convey the same to a receptacle designed to receive it so and for the purpose set forth.

5. In a label printing and mounting machine, a suitable frame; a plurality of stands; means to feed said strip of paper in engagement with each stand; a local magnet; a conveyor-chain; means to engage

each individual label or wrapper and additional means carried by the stencil-frame adapted to open and close an electric circuit, all combined as and for the purpose set forth.

9. In a wrapper or label printing and inserting machine, a suitable frame; a plurality of stencils of non-conducting material having an electric conducting portion; a guideway for said stencils; a contact-piece carried by said guideway; a movable contact-head having a plurality of circuit-terminals and means to cause the registration of an individual pie with the metallic part of said stencil-frame whereby an electric circuit will be closed and a local signal will be generated all combined substantially as specified and for the purpose set forth.

7. Is a machine of the character specified, a suitable means; paper-folding mechanism; a stencil-plate and a plurality of stencils and means to feed said stencils through said chain, in combination with additional means to press a part of said paper in engagement with an individual stencil; a contact-head having a plurality of circuit-terminals; means carried by the stencils to form an electric connection between said terminals and said contact-plate; suitable means to cover said strip of paper into suitable lengths and label-receiving devices designed to take each individual label and deliver the same within a receptacle especially designed to receive it, all substantially as specified and for the purpose set forth.

8. In a machine of the character specified, the combination with a suitable supporting-frame; of paper feeding and printing mechanism; a knife adapted to cover the paper into individual labels; means to operate said knife; label-carrying device; a plurality of compartments and suitable selecting mechanism cooperating with said label-carrying device adapted to open the door of the receptacle designed to receive a specified label; all combined as specified and for the purpose set forth.

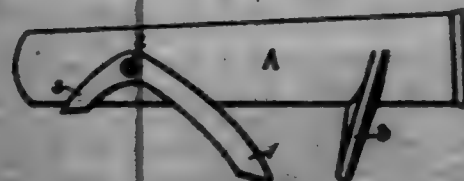
9. In a label or wrapper frame; a plurality of electric coils provided with a door; a series of elements of non-conducting material having a metallic portion; a plurality of pins each forming the other terminal of the electric circuit and means to force an individual pin into engagement with the metal part of the element-frame whereby the circuit will be closed between said pin and said contact-plate and thereby energize said magnet and open a door in case of said receptacles to receive a specified label, all combined substantially as specified and for the purpose set forth.

10. In a machine of the character specified, a stencil-plate having a metallic contact-plate comprising one terminal of an electric circuit and a plurality of pins comprising the other terminals of the circuit, combined with a stencil having a frame of non-conducting material and provided with a metallic part and means to force said pins downward in engagement with said frame whereby one of said pins will be brought into registration with said metallic portion and thereby close one of the electric circuits represented by said pin and thus energize a magnet located therein all as claimed or specified and for the purpose set forth.

11. In a label-sorting machine, a suitable frame; a plurality of receptacles, each having a door, all of which when closed will form the floor of the machine; a plurality of steeple, a contact-plate and pins carried thereby and electrical connections; a plurality of local magnets; means to operatively connect said door with its individual magnet and means to close the circuit of the magnet controlling the door; of the receptacle designed to receive a specified label when said label approaches said door all combined substantially as specified and for the purpose set forth.

12. In a machine of the character specified, the combination with a suitable frame, paper-feeding rollers and driving mechanism thereof, of cooperating mechanism to receive the individual labels and automatically deliver them into a receptacle according to a desired classification, all substantially as specified and for the purpose set forth.

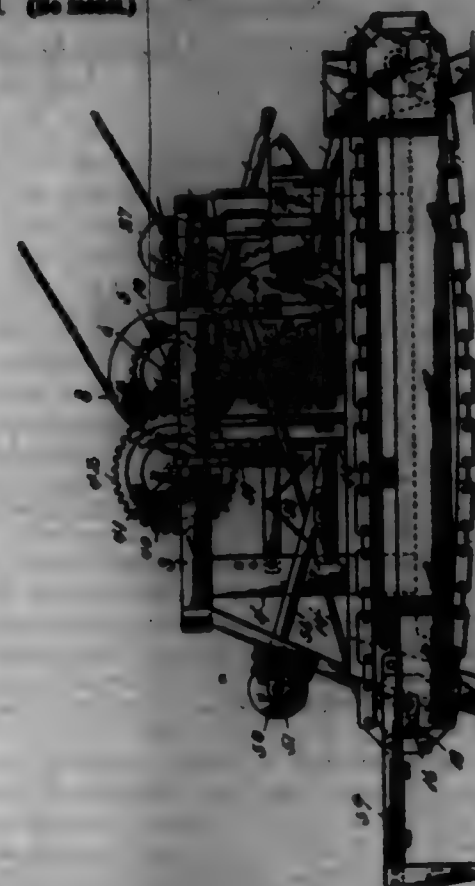
898,598. NEW-YORK-CENTINER GUARD. JOHN F. VRAZAKI.
Council Bluffs, Iowa. Filed June 26, 1901. Serial No. 66,421. (No
model)



Claim.—1. Is a neck-yoke-center guard, the combination with a pole-tip, of a guard comprising two curved hoops having openings at opposite sides near one end, and a pin extending from one of said openings to the other, as and for the purpose set forth.

2. A neck-yoke-collar guard, comprising an approximately oval member bent to conform to a cylinder, in combination with a pole-tip, said member being pivotally secured near one end to said pole-tip, as and for the purpose set forth.

698,599. MACHINE FOR FORMING BRICKS, TILE, etc. WILLIAM R. WAKEFIELD, Mount Union, Pa. Filed Oct. 20, 1901. Serial No. 39,490. (No model.)



Claim.—1. The combination with a suitable gearing, of a hopper arranged adjacent thereto, a plunger reciprocating in said hopper, a conveyor beneath the hopper and meshed thereby, said plunger being adapted to be actuated by the gearing, a second plunger arranged near the first plunger, and a smoothing-travel, adapted to be reciprocated over the top of the mold.

2. The combination with a gearing, of the conveyor arranged beneath the same, molds traveling on said conveyor, a hopper arranged above the same, a plunger working in said hopper adapted to force material into the molds, and a finishing-travel arranged by the gearing adapted to pass over the molds to give a finished appearance to the molded articles.

3. The combination with a horizontally-arranged conveyor and mold carried thereby, of a hopper arranged above the conveyor, means for feeding material from the hopper into the mold, means for packing the material after the mold leaves the hopper, and a spring-pressed laterally-moving device for smoothing off the top of the material within the mold.

4. The combination with the conveyor and mangle carried thereby, of a feed device arranged above the mangle and adapted to fill the same, a resiliently-mounted packing device positioned above the conveyor and adapted to pack the material within the mangle, and an adjustable finishing-trowel arranged adjacent the packing-plunger and adapted to bear upon and underlie over the top edges of the mold.

5. The combination with a conveyor consisting of links, the alternate links of which are provided with cut-out portions, of a mold adapted to be carried by said conveyor, oppositely-disposed lips or projections on the outer walls of said mold and adapted to engage the cut-out portions of the links, means for filling the mold arranged above the conveyor, and a resilient smoothing device adapted to reciprocate and bear upon the top edges of the mold.

6. The combination with a conveyor comprising chains, the alternate links of which are provided with cut-out portions, a mold adapted to be carried by said conveyor, legs or projections on the mold adapted to engage the cut-out portions of the links whereby the mold will be released at the end of the conveyor, and means for packing material within the mold.

7. The combination with a conveyor and a mold carried thereby, of means for packing material into the mold, and a reciprocating spring-pressed finishing-trowel adapted to reciprocate over the top of the mold after the material has been packed therein.

3. The combination with a conveyor and a mold carried thereby, a feed mechanism arranged above the conveyor and adapted to feed material into the mold, a packing-plunger arranged adjacent the feed mechanism and a finishing device arranged adjacent the packing-plunger, and a gearing connected to the feed mechanism, packing-plunger and finishing device.

9. The combination with a conveyor and a removable mold carried thereby, a feeding device above the mold, a packing-plunger arranged adjacent thereto and adjustably supported above the conveyor and the spring-pressed and adjustable finishing device adapted to bear upon the top of the mold and retractable thereon.

10. The combination with a conveyor, of a mold carried thereby, a hopper arranged above the mold, a resiliently-mounted plunger reciprocating in the hopper and adapted to feed material into the mold, means for pushing material into the mold and an adjustable spring-pressed and reciprocating finishing device adapted to bear upon the top of the mold for the purpose described.

11. The combination with a conveyor and a mold carried thereby, of a feed device arranged above the mold and adapted to fill the same, means for packing the material into the mold and an adjustable spring-pressed finishing device adapted to reciprocate and bear upon the top of the mold as it is moved by the conveyor.

12. The combination with a mold, a feed device adapted to empty into the mold and a spring-pressed finishing device adapted to move laterally over the top of the mold, and means for moving the mold from the feed device to the finishing device.

13. The combination with a gearing, of a conveyor, a mold carried thereby, a feed device for the mold, a packing device, a finishing device, and means for throwing the conveyor out of operation with relation to the remaining parts.

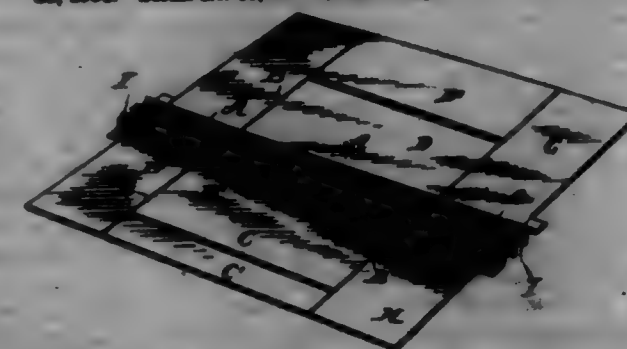
14. The combination with a gearing, of a conveyor, a mold carried thereby, a feed device for the mold, a packing device, a finishing device, and means for throwing the packing device out of operation without affecting the operation of the remaining parts of the machine.

15. The combination with a conveyor and mold carried thereby, a feed device arranged to empty into the mold, a pushing device and a finishing device, supporting-base for the finishing device provided with elongated slots, means on the finishing device for engaging the elongated slots and means for repositioning the finishing device laterally within the slots.

18. The combination with a conveyor and a mold carried thereby, means for depositing material into the mold, means for packing it, a finishing device adapted to move over the mold, supporting-bars provided with elongated slots in which the finishing device is adapted to reciprocate, a bar positioned above the supporting-bars and a spring carried by the last-mentioned bar and bearing upon the supporting-bars.

17. The combination with a conveyor and a mold carried thereby, means for depositing material into the mold, means for packing it, a finishing device adapted to reciprocate over the mold, vertical standards, supporting-bear vertically movable on said standards and supporting the finishing device, an adjustable bar above the supporting-bear, and a spring carried thereby and bearing on the supporting-bear.

698,600. DOCUMENT-ENVELOP. JOHN C. WALLACE, Chicago, Ill., assignor of one-half to John E. Morgan, Chicago, Ill. Filed Nov. 25, 1921. Serial No. 92,557. (No model.)



Chain.—1. The herein-described document-envelop comprising the folded bottom and ends hinged together, the pairs of inner side walls E, H, and F, G, hinged to the folded ends A respectively and the outer side walls C, D hinged to the folded bottom, the outer side wall D having a division line D' substantially as described.

2. The herein-described document-envelope comprising the folded bottom and ends A hinged together, the inner side walls E, H, hinged to one side of the folded ends A respectively and overlapping each other for approximately the full length of the envelope, the inner side walls F, G, hinged to the other side of the folded ends A respectively and similarly overlapping each other, and the outer side walls G, D, hinged to the folded bottom, the latter of which has a hinged closing-flap D'; substantially as described.

2. The herein-described document-envelope comprising: the folded bottom and ends A hinged together, a main side wall hinged to the bottom at one side of the envelope and having a hinged closing-flap, the inner side walls B, H, hinged to the ends A at the opposite side of the envelope, and the outer side wall C hinged to the bottom and provided

with the extension-flap C' folded inward over the top edge of said inner side wall; substantially as described.

6. The herein-described document-envelope comprising the folded bottom and ends A' hinged together, suitable inner side walls hinged to the ends respectively, outer side walls hinged to the bottom, one of which outer side walls has a hinged closing-flap and strengthening-ribs I integral with the upper ends of the folds of the ends A' and folded over upon and secured to each end; substantially as described.

7. The herein-described document-envelope comprising the bottom and ends A, the latter provided in their upper edges with the integral strengthening-ribs I, the inner side walls F, G, at one side of the envelope, the outer side wall D secured thereto, and provided with the hinged closing-flap D', the inner side walls H, I, at the opposite side of the envelope and the outer side wall C secured thereto and provided with the extension-flap C' bent inward over the upper edge of said side walls and secured to the inner flaps thereof; substantially as described.

8. The herein-described blank for a document-envelope comprising a bottom and ends hinged together and provided with a series of plates or hollow folds A extending longitudinally thereof from end to end, the inner side walls E, F, G, H, hinged to the ends respectively, and the outer side walls O, D, hinged to opposite sides of the bottom, and separated from the inner side walls by the transverse cuts B terminating at the folds of the bottom, and said folds having transverse creases F' in line with said cuts and angular creases B' at the inner sides of the transverse creases, and the closing-flap D' hinged to the side wall D; substantially as described.

9. The herein-described blank for a document-envelope, substantially rectangular in shape and comprising the inner side walls E, F, G, H, and the outer side walls O, D, separated therefrom by the cuts B and having the extensions C', D' and the series of longitudinal folds A connecting the side walls of the opposite sides of the blank; substantially as described.

10. The herein-described blank for a document-envelope, substantially rectangular in shape and comprising the inner side walls E, F, G, H, and the outer side walls O, D, separated therefrom by cuts B and having the extensions C' D' and the series of longitudinal folds A connecting the side walls of the opposite sides of the blank; and provided at their extremities with the strips I; substantially as described.

698,601. COMBINATION-TOOL. JAMES WEAVER, Indianapolis, Ind., assignor of one-half to John A. Robbins, Indianapolis, Ind. Filed Nov. 25, 1901. Serial No. 53,812. (No model.)



Claim.—1. In a combination-tool, a base comprising a pair of iron bars held parallel by end blocks, a head having parallel flanges between which said base is removably secured, said head having a sliding jaw, a shaft removably secured to the jaw, a screw having a longitudinal bore in which said shaft is mounted, said screw being held in a threaded portion of the head, a second block having a lever portion making sliding fit between the base of the base and having its upper portion formed into a vise-jaw to mate with the sliding jaw, the lower portion of said block having a projecting portion with top indentations and a pin passing through the base of the base and engaging one of the said indentations to prevent the longitudinal movement of the second block.

2. In a combination-tool, a base comprising a pair of flat iron bars turned edge up and held parallel by end blocks to which the bars are bolted, said bars having a plurality of holes to opposite sides, a head having a pair of parallel flanges between which the base is removably secured, a horizontal plate on said head, a sliding jaw mounted thereon and having lugs to engage the edges of the plate, an extension of the head above the plate having a screw-threaded bore longitudinally of the head, a threaded sleeve covering in said bore said screw having a longitudinal bore and having a head-wheel at one end, a shaft seated in the bore of the sleeve having a removable transverse pin to secure the sliding jaw to the shaft, a block seated between the base of the base having side flanges resting on the base, a projecting portion tapering toward its outer end having top indentations to engage a screw-pin, a screw-pin is a pair of the holes of the base to engage the indentations of said block extension, the upper portion of said block being formed to act as a vise-jaw to mate with the sliding jaw.

3. The combination of a pair of parallel bars, a screw-shaft carried by a fixed member thereof, a screw-shaft carried by said head-block to move a vise-head or a drill longitudinally of said bars, and a tail-block seated between the bars and extending up to form a bearing for the vise or drill and having a projecting portion with top indentations and a pin passing

through said bars and engaging one of said indentations to prevent longitudinal movement of said tail-block.

698,602. PHOTOGRAPHIC REPRODUCER. FRANK WILSON, West Orange, N. J. Filed Feb. 8, 1901. Serial No. 46,176. (No model.)



Claim.—1. In a photographic reproducing device, the combination of a disk-like body, a compensating weight movable vertically with respect to the same, a diaphragm carried by and bodily movable with said weight, an auxiliary lever universally pivoted to the compensating weight, and a reproducing device carried by said lever and connected to the diaphragm, substantially as set forth.

2. In a photographic reproducing device, the combination of a disk-like body, a compensating weight movable vertically with respect to the same, a diaphragm carried by and bodily movable with said weight, an auxiliary lever universally pivoted to the compensating weight, a reproducing device carried by said lever and connected to the diaphragm, and a yoke for limiting the downward movement of said lever, substantially as set forth.

3. In a photographic reproducing device, the combination of a disk-like body having an integral neck, a tube vertically movable in said neck, a compensating weight carried by said tube within the body, a diaphragm carried by and bodily movable with the compensating weight, an auxiliary lever universally pivoted to said compensating weight beneath the diaphragm, and a reproducing device pivoted to said lever and connected to the diaphragm, substantially as set forth.

4. In a photographic reproducing device, the combination of a disk-like body having an integral neck, a tube vertically movable in said neck, a compensating weight carried by said tube within the body, a diaphragm carried by and bodily movable with the compensating weight, an auxiliary lever pivoted to said compensating weight beneath the diaphragm and capable of lateral movement with respect thereto, a reproducing device pivoted to said lever and connected to the diaphragm, an anti-friction-roller interposed between the free end of said lever and the compensating weight, substantially as set forth.

5. In a photographic reproducing device, the combination of a disk-like body having an integral neck, a tube vertically movable in said neck, a compensating weight carried by said tube within the body, a diaphragm carried by and bodily movable with the compensating weight, an auxiliary lever pivoted to said compensating weight beneath the diaphragm and capable of lateral movement with respect thereto, a reproducing device pivoted to said lever and connected to the diaphragm, an anti-friction-roller interposed between the free end of said lever and the compensating weight, and a yoke for limiting the downward and lateral movements of said lever, substantially as set forth.

698,603. BOOK. THOMAS E. WILSON, JR., Philadelphia, Pa. Filed Jan. 12, 1902. Serial No. 50,207. (No model.)



Claim.—1. A book or pamphlet comprising a plurality of main leaves, each consisting of a main portion and an outer foldable section, and a plurality of inner leaves, the length of the main portions of said main leaves being approximately a multiple of the length of said sections and of said inner leaves.

2. A book or pamphlet consisting of a plurality of leaves, each leaf consisting of a main portion and an outer foldable section, the latter being

approximately half the length of the former, and a plurality of inner leaves of approximately the length of said sections.

3. A book or pamphlet comprising a plurality of main leaves, each consisting of a main portion and an outer foldable section, and a plurality of inner leaves, the length of the main portions of the book leaves being approximately a multiple of the length of said sections and of said inner leaves, said main portions of the book leaves being provided with complete pictures, and said sections and inner leaves being provided with interchangeable sections of pictures.

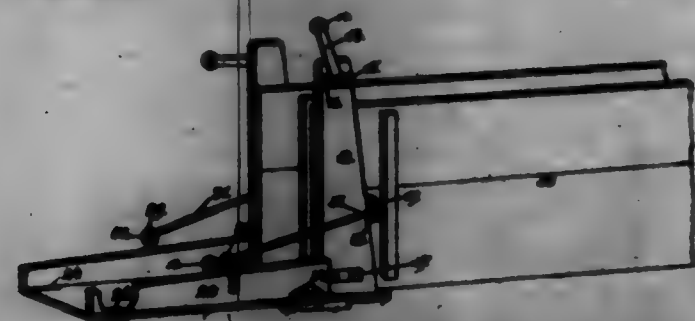
4. A book or pamphlet comprising a plurality of main leaves, each consisting of a main portion and an outer foldable section, and a plurality of inner leaves, the length of the main portions of the book leaves being approximately a multiple of the length of said sections and of said inner leaves, said main portions being provided with pictures, and said sections and inner leaves being provided with sections of pictures interchangeable with each other and with the pictures of the main portions.

5. A book or pamphlet consisting of a plurality of main leaves, each leaf consisting of a main portion and an outer section foldable upon both sides of said main portion, and a plurality of inner leaves foldable upon both sides of said main portion, the length of the main portions of said book leaves being a multiple of the length of said sections and of said inner leaves, said main portions being provided with pictures on opposite sides thereof, and said sections and inner leaves being provided with interchangeable sections of pictures on opposite sides thereof.

6. A book or pamphlet consisting of a plurality of leaves, each leaf consisting of a main portion and an outer foldable section, the latter being approximately half the length of the former, and a plurality of inner leaves of approximately the length of said sections, said main portions being provided with a picture, and said sections and inner leaves being provided with interchangeable sections of pictures.

7. A book or pamphlet consisting of a plurality of leaves, each leaf consisting of a main portion and an outer section, foldable on both sides thereof, said outer section being approximately half the length of said main portion, a plurality of inner leaves approximately the same length as said sections and foldable upon both sides of said main portion, said main portions being provided with pictures on both sides thereof, and said sections and inner leaves being provided with interchangeable sections of pictures on both sides thereof.

698,604. WAGON END-GATE AND SHOVELING-BOARD. DAVID K. WILK, Lake City, Iowa. Filed Sept. 2, 1901. Serial No. 74,727. (No model.)



Claim.—1. The combination with a wagon and an end-gate having openings therein, of two arms fixed to the wagon-box to project rearwardly and having openings in their ends, and two arms pivotally connected with the wagon-box above the first-mentioned arms and also having openings in their ends, slide-bolts or the like on the rear end of the end-gate to pass through the openings in the ends of said arms to lock the end-gate to the wagon-box, and arms pivoted to the end-gate and adjustably connected with the wagon-box, for the purpose stated.

2. The combination with a wagon-box and an end-gate having openings therein, of two arms fixed to the wagon-box near its lower end to project rearwardly beyond the ends of the wagon-box and having openings in their ends, and two arms pivoted to the wagon-box above the first-mentioned arms to swing in a vertical plane and also having openings in their outer ends, and stops to limit the movement of these pivoted arms, slide-bolts secured to the rear surface of the end-gate to pass through the openings in said arms, and arms pivoted to the end-gate and adjustably connected with the wagon-box, for the purpose stated.

3. The combination with a wagon and an end-gate, of two arms fixed to the rear lower corners of the wagon-box and projected rearwardly, two arms pivoted to the rear upper corners of the wagon-box to swing in a vertical plane, means for detachably connecting the end-gate with the lower arms, and means for detachably connecting the end-gate with the upper arms, and two rods pivoted to the sides of the end-gate and adjustably connected with the sides of the wagon-box to be capable of supporting the end-gate in a horizontal position with its lower end engaging the

bottom portion of the wagon-bed and also capable of supporting the end-gate with its upper end in engagement with the pivotal arms on the wagon-bed, and its other end extended straight rearwardly, substantially as and for the purpose stated.

4. The combination with a wagon-box, of a cross-piece projecting rearwardly and laterally, uprights secured in the inner corners of the wagon box, arms pivoted to the upper portions of the uprights having openings in their free ends, stops for limiting the downward movement of these arms, arms fixed to the lower end of the uprights and projected rearwardly and having openings in their rear ends, lugs projecting laterally from the sides of the wagon-box, bolts secured to the wagon-box beneath the said lugs, on end-gates having side plates to overlap the said uprights and also having openings to receive the said bolts, two lugs secured to the rear corners of the end gate, slide-bolts pivoted to said lugs at opposite sides of their distal ends, guides for the slide-bolts, bolts to receive the ends of said lugs, stops secured to the sides of the end-gate designed to pass through the lugs on the wagon-box, arms pivoted to the said stops and having bolts at their ends, said arms being designed to pass through said bolts, and said bolts being designed to engage the lugs to support the end-gate in position for use as a churning-board, and said arms having notches therein to engage the lugs and support the end-gate in its elevated position, substantially as and for the purpose stated.

698,605. CONSTRUCTION OF STRUCTURES SUSTAINING CROSS STRAINS. HENRY WILSON, ALBANY, IOWA. Filed Jan. 24, 1902. Serial No. 51,130. (No model.)



Claim.—As a new article of manufacture, a composite structure of angle-iron and wood, the angle-iron being substantially cross-shaped in cross-section, and tapered endwise, and attached filling-strips of wood secured in the interspaces between the flanges as by rivets passing through the opposite wood strips and through holes in the angle-iron at the junction of its flanges, substantially as and for the purpose set forth.

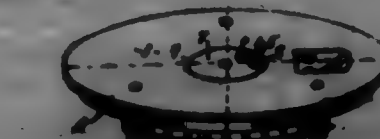
698,606. RAIL-JOINT. CHARLES R. WILSON, Meyersdale, Pa. Filed Jan. 15, 1902. Serial No. 50,590. (No model.)



Claim.—1. In a rail-joint, the combination with the rails, fish-plates carrying a base portion and outwardly-extending flanges having guide-ways formed therein, securing-plates extending through said guide-ways and rails, and means whereby said fish-plates and securing-plates are secured to the cross-ties, substantially as described.

2. In a rail-joint, the combination with the rails, fish-plates carrying outwardly-extending base portions, an outwardly-extending flange secured to said base portion, guide-ways formed in said base portion, securing-plates extending through said guides and through the webs of the rails, means to secure said flanges to the ties, and means to secure said securing-plates to the base and ties, all parts being arranged and operating substantially as described.

698,607. APPARATUS FOR PRODUCING COMBUSTION. LEONARD S. WILK, Geneva, N. Y. Filed Feb. 3, 1901. Serial No. 46,799. (No model.)



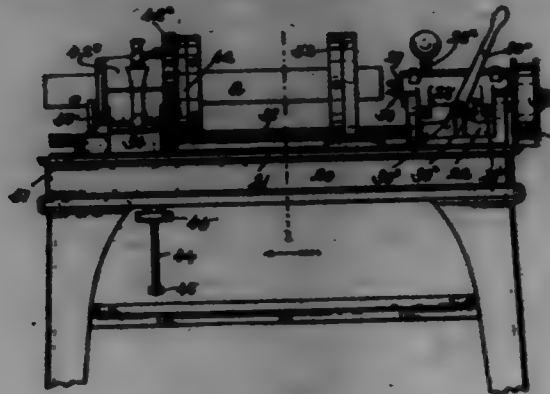
Claim.—1. In combination with a combustion-chamber, an air-heating device having an air-heating chamber provided with inlet and discharge openings and with concentric ribs for forming an air-channel, a second rib extending across the channel, said inlet and outlet openings communicating with the channel at opposite sides of the second rib.

2. In combination with a combustion-chamber, an air-heating chamber having an inner heating wall and separated upper and lower walls formed respectively with inlet and outlet openings, a concentric partition

or rib within the annular wall and provided with an opening in one side, and a transverse rib dividing the space within the annular partition, the spaces at opposite sides of the rib being connected respectively to the inlet and outlet openings for causing the air to travel around the annular rib from the inlet to the outlet openings.

3. An air-heating device comprising a shell having a central plate and air-heating chambers at opposite sides of the plate and communicating with each other, said shell having an inlet-opening in one end leading to one of the chambers and an outlet-opening extending through the opposite end wall of the other chamber for the purpose described.

698,608. CENTERING-MACHINE. LOUIS R. WYATT, New London, Conn. Filed Mar. 7, 1900. Serial No. 708,145. (No model.)



Claim.—1. In combination, drilling mechanism, consisting of a laterally-movable head carrying two or more revolving and sliding spindles, means substantially as specified for sliding said spindles, means for supporting the rod to be centered consisting of a fixed chuck and a revoluble chuck, a swinging support for said revoluble chuck as set forth, and mechanism for simultaneously revolving the said spindles and the said rod.

2. In combination, a machine-bed, a slider mounted on the said bed and formed with lateral extensions 34', sleeves 39 41 located within said extensions, a splined shaft supported within and by the sleeve 39, a work-holding chuck mounted on the slider and formed with an extension 43' that is hinged on the sleeve 41 substantially as specified.

3. In combination, a machine-bed, a slider mounted on the said bed and formed with one or more lateral extensions 34', a sleeve 39 provided with gear 39' and key 40 located within said lateral extension, a splined shaft supported within and by the sleeve 39, a work-holding-chuck bearing 43' mounted on the slider and formed with an extension 43' that is hinged on the said sleeve, and a work-holding chuck revolvably mounted within the chuck-bearing 43' and provided with a gear 43'' which is adapted to coast with the gear 39' substantially as specified.

4. In combination, a machine-bed, a slider mounted on the said bed and formed with one or more lateral extensions 34', a sleeve 39 provided with gear 39' and key 40 located within said lateral extension, a splined shaft supported within and by the sleeve 39, a work-holding-chuck bearing 43' mounted on the slider and formed with an extension 43' that is hinged on the said sleeve, and a work-holding chuck revolvably mounted within the chuck-bearing 43' and provided with a gear 43'' which is adapted to coast with the gear 39' substantially as specified.

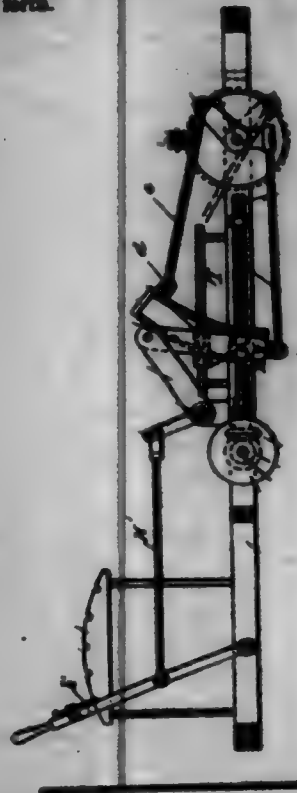
698,609. SPEED-REGULATOR. HERBERT T. WILSON, Rochester, Mass. Filed July 26, 1901. Serial No. 68,609. (No model.)

Claim.—1. The combination, with a driving-shaft provided with a crank, of a slidable cross-head provided with a screw-threaded socket, adjustable link mechanism connecting the said crank and cross-head and permitting the stroke of the cross-head to be varied, an oscillatory screw-threaded shaft operated by the said socket, a beveled toothed wheel secured on the said shaft, a power-shaft, beveled toothed wheels mounted on the said power-shaft and gearing into the said beveled toothed wheel on opposite sides thereof, and clutches between the said beveled toothed wheels and the power-shaft whereby the said power-shaft is revolved continuously, substantially as set forth.

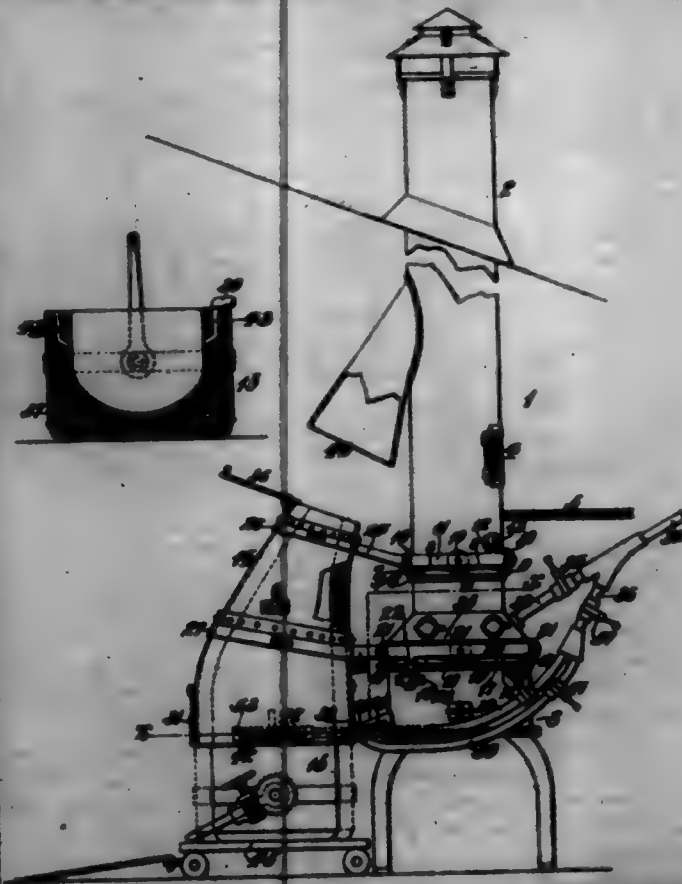
2. The combination, with a driving-shaft provided with two cranks set at an angle to each other, of slidable cross-heads provided with screw-threaded sockets, link mechanisms connecting the said cross-heads and cranks, means for shifting the link mechanisms simultaneously to change the stroke of the cross-heads, oscillatory screw-threaded shafts operated by the said sockets, beveled toothed wheels secured upon the said shafts, a power-shaft, beveled toothed wheels mounted on opposite sides thereof, and clutches between the said pairs of beveled toothed wheels and the power-shaft whereby the said power-shaft is revolved continuously, substantially as set forth.

3. The combination, with a driving-shaft provided with a crank, of a slidable cross-head provided with a screw-threaded socket, a radius-rod

pivoted to the said shaft, a curved link pivoted at one end to the said radius-rod, a connecting-rod between the other end of the said link and the said crank, a block pivoted to the cross-head and engaging with the said link, means for shifting the said link so as to vary the stroke of the cross-head, and an oscillatory screw-threaded shaft operated by the said socket, substantially as set forth.



698,610. APPARATUS FOR MAKING STEEL. GEORGE C. WILSON, Phila. Pa. Filed Oct. 10, 1900. Serial No. 32,265. (No model.)



Claim.—1. The combination of a dome-section, a half-section independent thereof and adapted to coast therewith, and tapers in the half-section which tapers pass downwardly from a point in the upper surface of the half-section through the walls of the said dome-section and then turn and pass in a downward direction through the inner walls of the dome-section whereby the blast of air issuing from said tapers is directed upon the surface to be completed by the metal and toward the center thereof.

2. The combination of a dome-section, a half-section independent thereof and adapted to coast therewith, tapers in said dome-section and half-section, the tapers of said half-section extending downwardly from the upper edges thereof, through the walls of the said dome-section and then turning and passing in a downward direction through the inner walls of

the section and having their lower ends converging inwardly, whereby the blast from the said tapers is directed upon the surface to be completed by the metal and toward the center thereof, and blast-pipes leading to said tapers.

3. The combination of a cupola, a dome-section situated thereon, a half-section adapted to coast with said dome-section, and means for conducting metal from said cupola to said half-section.

4. As an improved article of manufacture, a half-section having therein tapers which pass downwardly from a point in the upper surface of the half-section through the walls thereof and then turn and pass downwardly through the inner walls whereby the blast of air will be directed upon the surface to be completed by the metal and toward the center thereof.

5. As an improved article of manufacture, a half-section having tapers in the walls thereof, projecting downwardly from the top of said section through the walls of the said section and then turning and passing in a downward direction through the inner walls of the section and converging inwardly and being adapted to conduct air into the interior of said section, upon the surface above the space to be occupied by the metal and toward the center thereof.

6. The combination of a cupola, a dome-section situated thereon, and a half-section arranged to coast with said dome-section.

7. The combination of a cupola, tapers thereon, a dome-section, supporting device for the latter, adapted to travel on said tapers, and a half-section arranged to coast with the said dome-section.

8. The combination of a cupola, a stack thereon, a smoke-head connecting with said stack and depending therefrom, a dome-section located below said smoke-head and rotatably mounted on the cupola and adapted to discharge therethrough, and a half-section arranged to coast with said dome-section.

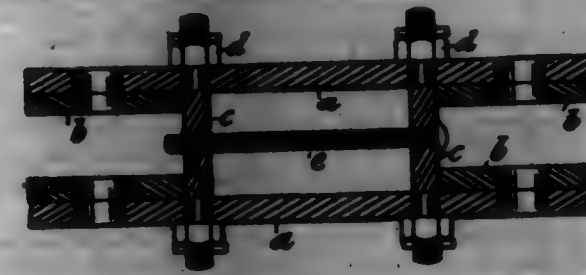
9. The combination of a dome-section, a wind-box located at the lower portion thereof, an adjustable-mounted taper mounted in said section and wind-box, said taper being movable at its outer end from its lower end as a diater, a half-section having tapers therein, and means for conducting a blast to said tapers.

10. The combination of a cupola, a dome-section rotatably mounted thereon, and a half-section arranged to coast therewith.

11. The combination of a cupola, a dome-section movably mounted thereon, a half-section arranged to coast therewith and tapers for said half-section and dome-section.

12. The combination of a cupola, a dome-section movably mounted thereon, a half-section arranged to coast therewith, tapers for said half-section, and a series of adjustable tapers for said dome-section.

698,611. CARRIAGE OR WAGON SPRING. JOHN WILLIAMS, Swanton, England, assignor to John Ross, Swanton, England. Filed May 7, 1901. Serial No. 68,145. (No model.)



Claim.—In bushes for carriages and wagons the combination of the said cheeks a, plates b, distance-plates c, nuts d, and rivet pins or bolts e, constructed and arranged, substantially as described and for the purpose specified.

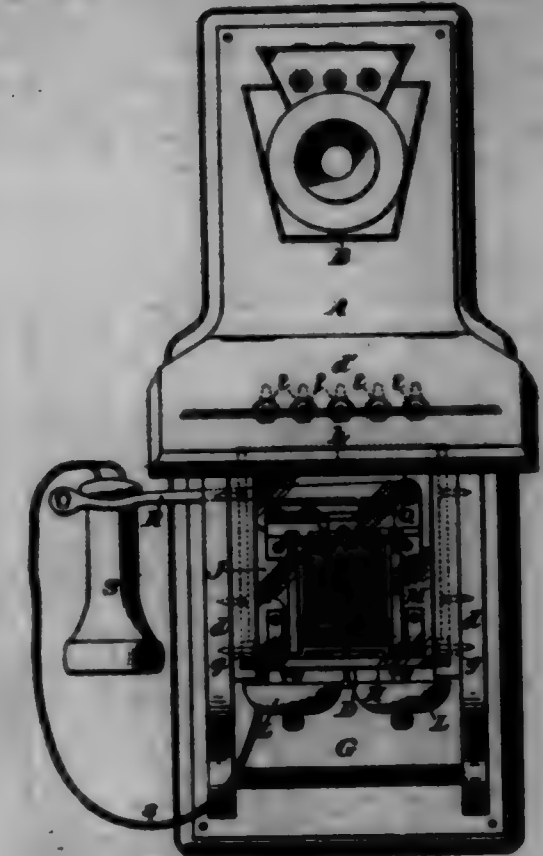
698,612. TELEPHONE WALL SET. CHARLES E. WYNN, Philadelphia, Pa. assignor to the Keytone Telephone Company Philadelphia, Pa., a Corporation of New Jersey. Filed July 20, 1901. Serial No. 68,771. (No model.)

Claim.—1. In a telephonic wall set, a bell-box having a movable lid at the top, fixed sides and a vertically-sliding front held in place by the lid when closed; a horizontally-sliding bottom held in place by the sliding front; and bell and ringing-coils mounted on the sliding bottom, substantially as described.

2. In a telephonic wall set, a bell-box having a movable lid at the top, fixed sides and a vertically-sliding front held in place by the lid when closed; a horizontally-sliding bottom held in place by the sliding front; a switch and a pivoted switch-controlling receiver-hook mounted on the sliding bottom; and a vertical slot reaching to the top of one of the sides through which the receiver-hook projects, substantially as described.

3. In a telephonic wall set, a bell-box having a sliding removable bottom; and a receiver made fast by the receiver-card to the sliding bottom, substantially as described.

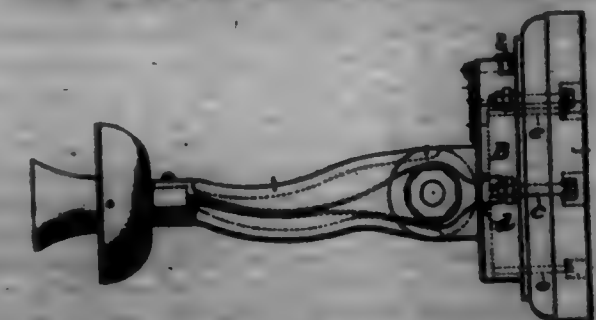
4. In a telephonic wall set, a bell-box having a sliding removable bottom, to which the bell and ringing-coils, switch and receiver-hook, and also the connections of the receiver-card are attached, substantially as described.



5. In a telephonic wall set, a bell-box having a movable lid at the top, fixed sides and a vertically-sliding front held in place by the lid when closed; a horizontally-sliding bottom held in place by the sliding front; and bell, ringing-coils, induction-coil, switch and receiver-hook and receiver-card all made fast to the sliding bottom, substantially as described.

6. In a telephonic wall set, a bell-box having a movable lid at the top, fixed sides and a vertically-sliding front held in place by the lid when closed; a horizontally-sliding bottom held in place by the sliding front; bell and ringing-coils mounted on the sliding bottom; and means, under the control of the inductor, whereby the lid may be locked in place, substantially as described.

698,613. BASE-PLATE FOR TELEPHONE TRANSMITTER. ARTHUR CHAMBERLAIN E. WYNN, Philadelphia, Pa. assignor to the Keytone Telephone Company, Philadelphia, Pa., a Corporation of New Jersey. Filed July 20, 1901. Serial No. 68,772. (No model.)

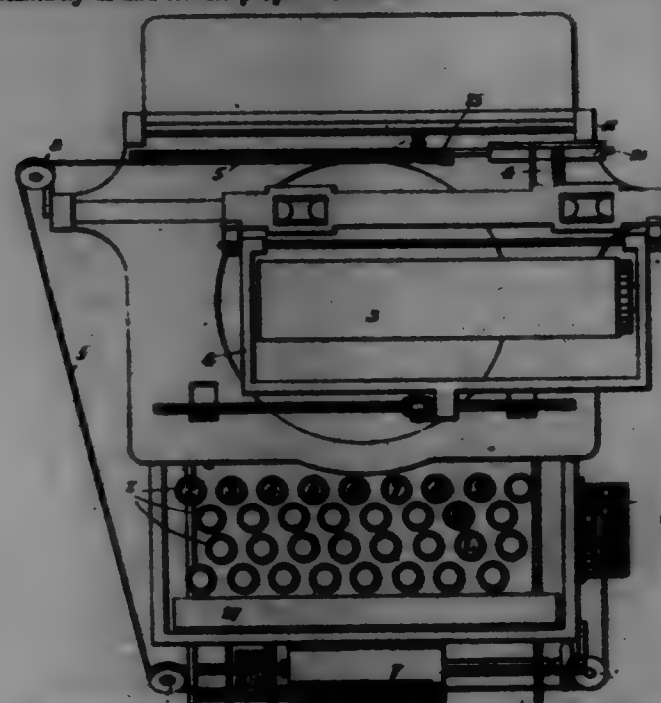


Claim.—1. A transmitter-arm base-plate with a cavity underneath within which the terminal binding-curves are situated; an aperture in the face of the base-plate contiguous to the binding-curves; a covering for said aperture; and a screw by which the covering is secured to the aperture having an irregular head requiring a key to turn it, substantially as described.

2. A transmitter-arm base-plate with a cavity underneath within which the terminal binding-curves are situated; an aperture in the face of the base-plate contiguous to the binding-curves; a covering for said aperture which constitutes a number or instruction card for the transmitter; and means for fixing said covering over the aperture, substantially as described.

698,614. TYPE-WRITING AND ADDRESS MACHINE. JACOB C. WALSH, New York, N. Y. Filed Aug. 10, 1901. Serial No. 72,988. (No model.)

Claim.—1. The combination of a type-writing machine provided with a set of keys and type bearing the usual characters and a spacing-key, a traveling platen adapted to be moved step by step in its forward movement by the operation of each of said keys, a register or adding device adapted to be actuated by the numeral-keys of said set, traveling driving mechanism for said register connected with and operated by the mechanism for shifting the said platen and moving in response therewith, and means for preventing the shifting of the register-driving mechanism in response to the shifting platen when the penultimate or spacing key is operated to penultimate or space a printed number in its numeral order, substantially as and for the purpose set forth.



2. The combination of a register, driving mechanism for actuating said register and adapted to be shifted from one wheel to the other thereof, a series of numeral-keys for positioning and actuating said register-driving mechanism, means for printing the numeral character of each of the said keys as it is operated, spacing or penultimate mechanism for spacing or penultimate a line of printed figures in certain numeral order, and mechanism for holding at rest the register-driving mechanism when the said spacing or penultimate mechanism is actuated, substantially as and for the purpose set forth.

3. The combination of a register, driving mechanism for actuating any one of the register-number wheels and adapted to be shifted from one of said wheels to the other to actuate it, a series of numeral-keys for actuating said register and each connected with and controlling a type bearing its corresponding numeral character, a traveling platen against which said type print, connections between said numeral-keys and said platen for shifting the latter as each character is printed, connections between said shifting platen and said register-driving mechanism so that they are shifted together upon the operation of each key, spacing or penultimate mechanism for spacing or penultimate the line of printed figures in certain numeral order, and means for preventing the register-driving mechanism from shifting with the platen when the spacing or penultimate mechanism is actuated, substantially as and for the purpose set forth.

4. The combination of a register, a suitably-mounted shifting drive-wheel for actuating each of the register-number wheels and adapted to be shifted from one to the other of said wheels, a carriage for said drive-wheel, a series of numeral-keys and a series of corresponding type operated by said respective keys, a shifting platen against which the type set, connections between said platen and the drive-wheel carriage whereby the two may be shifted together upon the operation of each of said numeral-keys, spacing or penultimate mechanism for spacing or penultimate in certain numeral order the figures constituting a printed number and acting to shift the platen at each operation, connections between said platen and register-driving mechanism and means for shortening said connection a distance equal to one step of advance movement of the platen each time said spacing or penultimate mechanism is actuated and for lengthening said connection correspondingly upon the return movement of the platen, each means comprising the following parts, namely, a stationary toothed rack having at least the same number of teeth as the number of character-spaces to the line, a support moving in fixed relation with the shifting platen and provided with a movable toothed rack adapted to move in either direction of its length in the direction in which the platen travels, a suitable connection between said movable rack and the said register-driving mechanism, gearing arranged between the teeth of the two said racks in such relation that upon an advance movement of the platen said movable rack may be advanced likewise in fixed relation therewith a predetermined number of teeth, say three teeth, and then upon the operation of said spacing or penultimate mechanism said movable rack may be retracted automatically the distance of one tooth and so on through the advance movement of said platen but said gearing acting upon the return movement of the platen to automatically move the movable rack in the reverse direction one tooth for every tooth which it retracted said rack in the advance movement of the platen, thereby acting to shorten the connection between said platen and driving mechanism in the advance movement said to correspondingly lengthen it in the return movement, substantially as and for the purpose set forth.

5. The combination of a number-register, shifting driving mechanism for actuating the different members of said register, a series of numeral-keys for positioning and actuating said register-driving mechanism, a type for each of said numeral-keys bearing the character corresponding thereto and actuated by its respective key to print, a shifting platen moved step by step in its advance movement by the operation of each of said keys and against which the type set, spacing or penultimate mechanism for spacing or penultimate in certain numeral order the figures constituting a printed number and acting to shift the platen at each operation, connections between said platen and register-driving mechanism and means for shortening said connection a distance equal to one step of advance movement of the platen each time said spacing or penultimate mechanism is actuated and for lengthening said connection correspondingly upon the return movement of the platen, each means comprising the following parts, namely, a stationary toothed rack having at least the same number of teeth as the number of character-spaces to the line, a support moving in fixed relation with the shifting platen and provided with a movable toothed rack adapted to move in either direction of its length in the direction in which the platen travels, a gear-wheel mounted upon said support and in mesh with the teeth of said stationary rack and trip-disk moving in fixed relation to the said gear-wheel and adapted to lock with the toothed wheel and thereby hold the movable rack fixed while the gear of the stationary rack moves over

said mechanism for shifting the platen one step at each operation, and means for shortening the connection between said platen and register-driving mechanism a distance equal to one step of advance movement of said platen each time said spacing or penultimate mechanism is actuated, substantially as and for the purpose set forth.

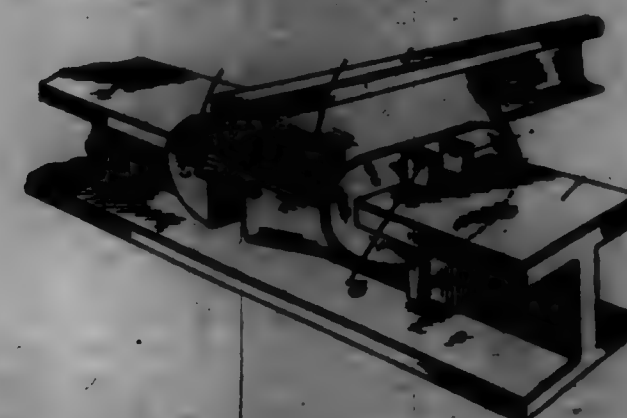
6. The combination of a number-register, shifting driving mechanism for actuating the different members of said register, a series of numeral-keys for positioning and actuating said register-driving mechanism, a type for each of said numeral-keys bearing the character corresponding thereto and actuated by its respective key, a shifting platen against which the type set and means for shifting the platen one step upon the operation of each of said numeral-keys, connections between the shifting platen and the shifting register-driving mechanism whereby the latter is advanced a step each time the platen is shifted a step by the numeral-key, spacing or penultimate mechanism for shifting the platen one step at each operation, and means for shortening the connection between said platen and register-driving mechanism a distance equal to one step of advance movement of said platen each time said spacing or penultimate mechanism is actuated and for lengthening said connection a distance of one step on the return movement of the platen for each step that such connection is shortened in the advance movement of the platen, substantially as and for the purpose set forth.

7. The combination of a number-register, shifting driving mechanism for actuating the different members of said register, a series of numeral-keys for positioning and actuating said register-driving mechanism, a type for each of said numeral-keys having thereon the character corresponding to the key and actuated by its respective key to print, a shifting platen moved step by step in its advance movement by the operation of each of said keys and against which the type set, spacing or penultimate mechanism for spacing or penultimate in certain numeral order the figures constituting a printed number and acting to shift the platen at each operation, connections between said platen and register-driving mechanism and means for shortening said connection a distance equal to one step of advance movement of the platen each time said spacing or penultimate mechanism is actuated and for lengthening said connection correspondingly upon the return movement of the platen, each means comprising the following parts, namely, a stationary toothed rack having at least the same number of teeth as the number of character-spaces to the line, a support moving in fixed relation with the shifting platen and provided with a movable toothed rack adapted to move in either direction of its length in the direction in which the platen travels, a suitable connection between said movable rack and the said register-driving mechanism, gearing arranged between the teeth of the two said racks in such relation that upon an advance movement of the platen said movable rack may be advanced likewise in fixed relation therewith a predetermined number of teeth, say three teeth, and then upon the operation of said spacing or penultimate mechanism said movable rack may be retracted automatically the distance of one tooth and so on through the advance movement of said platen but said gearing acting upon the return movement of the platen to automatically move the movable rack in the reverse direction one tooth for every tooth which it retracted said rack in the advance movement of the platen, thereby acting to shorten the connection between said platen and driving mechanism in the advance movement said to correspondingly lengthen it in the return movement, substantially as and for the purpose set forth.

8. The combination of a number-register, shifting driving mechanism for actuating the different members of said register, a series of numeral-keys for positioning and actuating said register-driving mechanism, a type for each of said numeral-keys having thereon the character corresponding to the key and actuated by its respective key to print, a shifting platen moved step by step in its advance movement by the operation of each of said keys and against which the type set, spacing or penultimate mechanism for spacing or penultimate in certain numeral order the figures constituting a printed number and acting to shift the platen at each operation, connections between said platen and register-driving mechanism and means for shortening said connection a distance equal to one step of advance movement of the platen each time said spacing or penultimate mechanism is actuated and for lengthening said connection correspondingly upon the return movement of the platen, each means comprising the following parts, namely, a stationary toothed rack having at least the same number of teeth as the number of character-spaces to the line, a support moving in fixed relation with the shifting platen and provided with a movable toothed rack adapted to move in either direction of its length in the direction in which the platen travels, a gear-wheel mounted upon said support and in mesh with the teeth of said stationary rack and trip-disk moving in fixed relation to the said gear-wheel and adapted to lock with the toothed wheel and thereby hold the movable rack fixed while the gear of the stationary rack moves over

a predetermined number of teeth thereof, say three teeth, and then to trip and actuate said toothed wheel and thereby move said movable rack in the reverse direction in which its support moves, substantially as and for the purpose set forth.

698,615. RAIL-JUMP. EDWARD KANONIKY, West Lohrweg, Pa. Filed Jan. 6, 1902. Serial No. 65,982. (No model.)



Claim.—1. In a metallic tie and rail-fitter, an I-beam metallic tie receiving the rails on the head thereof, fish-plates secured on their lower flanges and for receiving the rail-bases secured upon the head of the tie and engaging the web thereof, and vertically-extending wedges received in openings provided therefor in the head of the tie and on each side of the web of the tie, the wedges engaging the web of the tie and the outer face of the fish-plates, substantially as described.

2. In a metallic tie and rail-fitter, an I-beam metallic tie receiving the rails on the head thereof, fish-plates secured on the head of the tie and engaging the web, said fish-plates being secured on their inner flanges for receiving the rail-bases, said fish-plates extending beyond the sides of the tie and engaging the upper and lower flanges of the rail-bases, at that point, a series of studs carried by one of the fish-plates and extending into the other fish-plate, and vertically-extending wedges engaging through the head of the tie and abutting against the outer face of the fish-plates, substantially as described.

698,616. LIFTING AND CARRYING DEVICE. JOHN H. BURNHAM, Marysville, Ohio. Filed Aug. 2, 1901. Serial No. 71,804. (No model.)



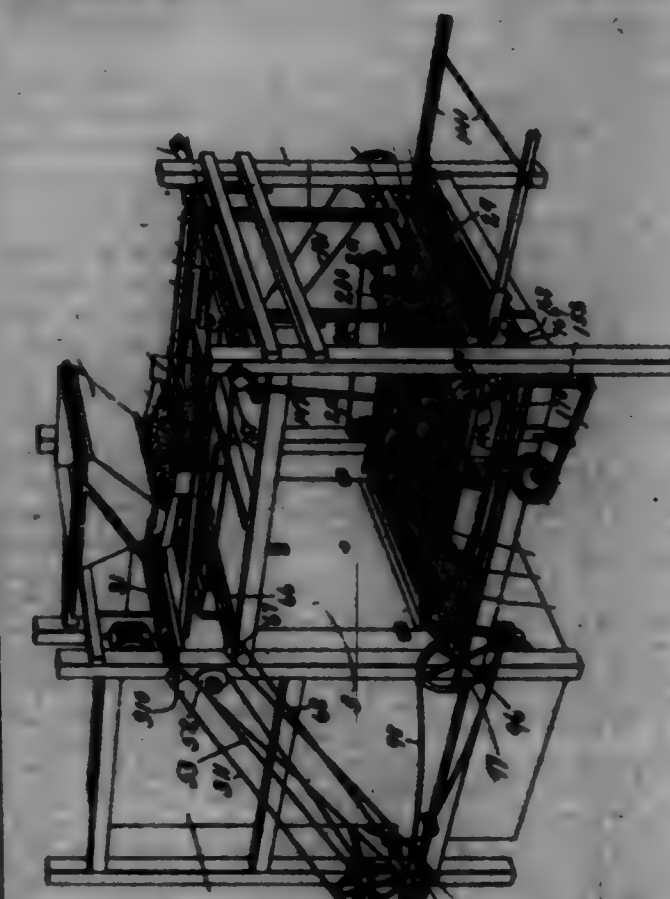
Claim.—1. In a lifting and carrying device, the combination of opposing side frames, comprising pairs of standards 1, connected here 2 jointly connecting said standards as described, a transverse handle-bar 7, spring-wires connecting the latter with the upper ends of said standards and clamping-wires connecting the lower ends of the standards of opposite pairs, substantially as specified.

698,617. DRIER. FREDERICK S. ALLEN, Boston, Mass. Filed Feb. 2, 1901. Serial No. 65,983. (No model.)

Claim.—1. In a drier, a drying-bin, a series of disconnected trays, tray-propelling means within the bin, devices independent of said tray-propelling means and placed therefor for automatically advancing the trays into the bin and withdrawing them therefrom, means to automatically fill the trays approaching the bin, means to automatically discharge the trays leaving the bin, and devices for automatically conducting the trays from the withdrawing and discharging devices to the filling means and advancing device.

2. In a drier, a drying-bin, a series of trays, a device for filling the

trays, and means for conducting the trays at a relatively slow speed while being filled by said device, and at a relatively fast speed from said device into the drying-bin.



3. In a drier, a drying-bin, a series of trays, a device for filling the trays, a carrier for advancing the trays beneath said filling device to be filled, and from said device into the drying-bin, and means for propelling said carrier at a relatively slow speed while the tray is being filled, and at a relatively fast speed while it is being advanced into the drying-bin.

4. In a drier, a drying-bin, a series of trays, a device for filling the trays, a carrier for advancing the trays beneath said filling device to be filled, and from said device into the drying-bin, two driving mechanisms operated at different speeds, clutches for connecting said mechanisms to and disconnecting them from the carrier, and means for alternately operating said clutches.

5. In a drier, a series of trays, a carrier adapted to advance said trays, slow and fast motion carrier-propelling mechanisms, a carrier-propelling shaft, a pawl-and-ratchet clutch adapted to connect the slow-motion mechanism with the shaft, a crown toothed clutch adapted to connect the fast-motion mechanism with the shaft, and means to connect and disconnect the last said clutch.

6. In a drier, a series of trays, a carrier adapted to advance said trays, carrier-propelling mechanism, a clutch adapted to connect said mechanism to and disconnect it from the carrier, a spring adapted to throw the clutch, means to put said spring ineffectively under clutch-throwing stress prior to the throwing of the clutch, and means controlled by the position of the carrier for rendering said spring operative.

7. In a drier, a series of trays, and a tray-filling device comprising a hopper, an inclined distributing-pan below the hopper, means to vibrate the hopper and pan horizontally, and means to vibrate the pan vertically.

8. In a drier, a series of trays, and a tray-filling device comprising a hopper, an inclined distributing-pan below the hopper, means to vibrate the hopper and pan horizontally, means to vibrate the pan vertically, and means for adjusting the lower limit of inclination of the pan to vary the feed.

9. In a drier, a series of trays, a tray-filling device adapted to feed loose or broken material by vibratory agitation of the device, means to intermittently rotate the device, and means to intermittently advance the trays beneath said device during periods coinciding with the periods of agitation of said device.

10. In a drier, a series of disconnected trays, a dumping-frame having provision for receiving a tray from either end, means to automatically propel the trays in one direction into and out of said frame, and automatic mechanism timed with the propelling means to intermittently rotate said frame a half-rotation at a time in one direction.

11. In a drier, a drying-bin, a series of trays, a dumping-frame, a tray-carrying guide beyond said frame, and a carrier adapted to directly propel the trays from the drying-bin into the dumping-frame, and from

and dumping-frame into the guide through the medium of the tray thus propelled.

12. In a drier, a drying-bin, a series of trays, an invertible dumping-frame, intermittently-acting means to lower said frame, an automatic latch independent of said means for locking said frame, and intermittently-acting means for releasing said latch.

13. In a drier, a drying-bin, a series of trays, an invertible dumping-frame, automatically-projected tray-retaining means on said frame, and means actuated by the movement of said frame into tray-receiving position, for retracting said tray-retaining means.

14. In a drier, a drying-bin, a series of trays, a dumping-frame, a tray-receiving guide beyond said frame, and from thence into the guide through the medium of a tray thus propelled, and means to give the tray in the guide a limited additional movement to clear it from the tray in the frame.

15. In a drier, a series of trays, tray-dumping means located at an elevated level, tray-discharging means located at a lower level, means to advance the trays at the two levels, and independent means to elevate the empty trays from the discharging-level to the filling-level.

16. In a drier, a series of trays, a substantially vertical carrier for handling empty trays, means to conduct the trays horizontally toward said carrier, and a swinging tray-frame movable into a substantially horizontal position to receive the trays and into a substantially vertical position to deliver them to the carrier.

17. In a drier, a series of trays, a substantially vertical carrier for handling empty trays, means to conduct the trays horizontally away from said carrier, and a swinging tray-frame movable into a substantially vertical position to receive the trays from the carrier, and into a substantially horizontal position to deliver them to said discharging means.

18. In a drier, a series of trays, a substantially vertical carrier for handling empty trays, and swinging frames at the upper and lower ends of said carrier for delivering the trays to and receiving them from the carrier and changing their posture.

19. In a drier, a series of trays, a substantially vertical carrier for handling empty trays, swinging frames at the upper and lower ends of said carrier for delivering the trays to and receiving them from the carrier and changing their posture, and a connection between said frames whereby they are swung in unison.

20. In a drier, a series of trays, a substantially vertical carrier for handling empty trays, a swinging tray-frame co-operating with said carrier, and movable from a tray-receiving position to a tray-delivering position, automatically-projected tray-retaining means on said frame, and means actuated by the movement of the frame into tray-receiving position, for retracting said tray-retaining means.

21. In a drier, a series of trays having perforated bottoms, means to invert said trays for the purpose of discharging their contents, and a brush arranged to act through the bottoms of the discharged trays to clear them of clinging material.

22. In a drier, means to support a series of trays in a vertical stack, means to cause an uniform downward progression of the stack, and a drying-bin having a stack-compartment including the stack, dry-air inlets to said compartment located at different levels, moist-air outlets therefrom located at different levels and alternating with the inlets, and means to supply heated air simultaneously to the different inlets.

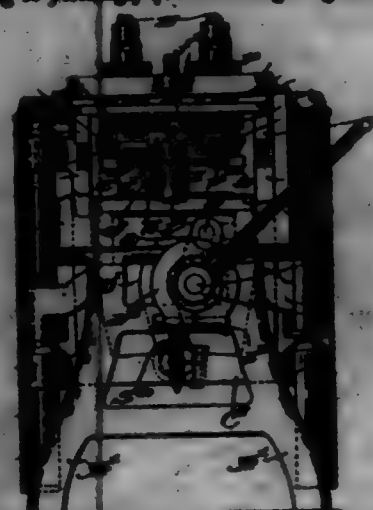
23. In a drier, a drying-bin, means to support and propel a series of trays in the form of a vertical stack in said bin, a middle stack compartment and two side compartments in said bin, passages connecting said middle and side compartments at different vertical locations, means to heat the lower part of the middle compartment, means to exhaust the upper part of said compartment, and a distributing-chamber connecting with the lower and intermediate parts of said middle compartment.

698,618. GRAB-MOLDING APPARATUS. JOHN AMMON, Hopkinton, Mass., assignor to Oliver Company, Boston, Mass., a Corporation of Maine. Filed Oct. 26, 1901. Serial No. 96,417. (No model.)

Claim.—1. In grab-molding apparatus, a fixed stripper-plate having a pattern-opening, a pattern-carrier movable toward and from the stripper-plate, means to effect such movement of the pattern-carrier, a pattern rotatably mounted on the pattern-carrier, and including a spiral gear portion, a lateral finger rigidly connected with the pattern, a fixed director having a pitch-face corresponding to the pitch of the gear, and means to yieldingly press the finger against the pitch-face, movement of the pattern to draw it from the mold casting, by co-operation of the finger and the director, to properly rotate said pattern.

2. In grab-molding apparatus, a fixed stripper-plate having a pattern-opening, a pattern-carrier movable toward and from the stripper-plate and having an upright tubular bearing, means to effect such movement of the pattern-carrier, a pattern having a tubular chuck rotatably mounted in said bearing, a lateral finger secured to the chuck below the

bearing, a fixed director having a pitch-face over which the finger travels, to impart relative movement to the pattern when moved longitudinally, and a spring to yieldingly press the finger against the pitch-face.



3. In grab-molding apparatus, a fixed stripper-plate having a plurality of pattern-openings, a plurality of co-operating and rotatably-mounted patterns bodily movable toward and from the stripper-plate and each having a spiral gear portion, means to effect such bodily movement of the patterns, a common fixed director symmetrically located relatively to the several patterns and having a like number of pitch-faces corresponding to the pitch of the gear portions, and laterally-extended flanges rigidly connected with the several patterns and at their inner ends engaging the several pitch-faces of the said director, whereby movement of the patterns longitudinally will, through the flanges and pitch-faces, rotate the patterns in correspondence with the pitch of the gear portions, to draw the same from the mold.

4. In grab-molding apparatus, a stripper-plate, a co-operating hollow pattern having a side opening, a pattern-plate in which the pattern is rotatably mounted, means to move the pattern-plate toward and from the stripper-plate, a lag-print carrier pivotally mounted within the pattern and having a lag-print thereon to extend through the side opening, the lower end of the carrier being offset from the axis of rotation of the pattern, means co-operating with said offset end to move the carrier to retract the lag-print and to control the offset and relatively to the axis of rotation of the pattern, and means to rotate the pattern, when it is moved longitudinally and bodily by movement of the pattern-plate.

5. In grab-molding apparatus, a stripper-plate, a co-operating hollow pattern, having a side opening, a pattern-plate in which the pattern is rotatably mounted, means to move the pattern-plate toward and from the stripper-plate, a lag-print carrier pivotally mounted within the pattern, and having a lag-print thereon to extend through the side opening, the lower end of the carrier being offset from the axis of rotation of the pattern, means co-operating with the offset end and supported by the pattern-plate to control the lower end of the carrier with the axis of the pattern, and means to rotate the pattern when it is moved longitudinally.

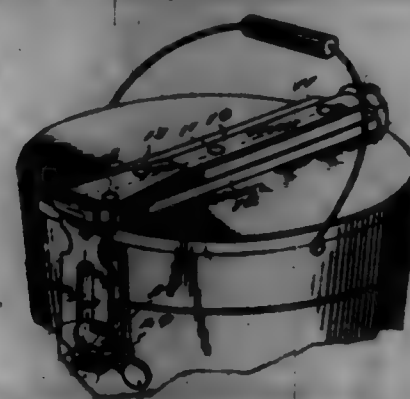
6. In grab-molding apparatus, a fixed stripper-plate, a pattern-plate movable toward and from said plate, means to effect such movement of the pattern-plate, a pattern rotatably mounted on said pattern-plate and having a spiral gear portion and a hollow hub portion provided with a side opening, a lag-print carrier pivotally mounted within the hub portion and laterally offset at its lower end from the axis of rotation of said hub portion, a sliding, manually-operated actuator co-operating with the offset end of the carrier and supported by the pattern-plate, a lag-print on the carrier and adapted to extend laterally through the side opening in the hub portion of the pattern, means to automatically rotate the pattern when moved longitudinally, to thereby draw the spiral gear portion thereof, and means to prevent relative movement of the pattern until the sliding actuator has been moved to retract the lag-print and to also control the offset end of the carrier.

698,619. PACKAGE FASTENER AND SEAL. WALTER S. ARMSTRONG, Bathurst, N.Y. Filed Aug. 12, 1901. Serial No. 71,530. (No model.)

Claim.—1. In a device of the class specified, the combination with a heap, of a staple provided with a locking member to project through the heap and having means disposed within the heap-opening for exerting downward draft upon the heap.

2. In a device of the character specified, a heap having a staple-opening provided at its lower extremity with a laterally-projecting cam-rocker, in combination with a pivoted staple having a locking member to pass through the opening and bear against the heap and a cam to engage the cam-rocker.

3. In a device of the character specified, a heap having its staple-opening provided with a cam-rocker, in combination with a pivoted staple having a cam to engage the rocker, and means for locking the staple against turning.

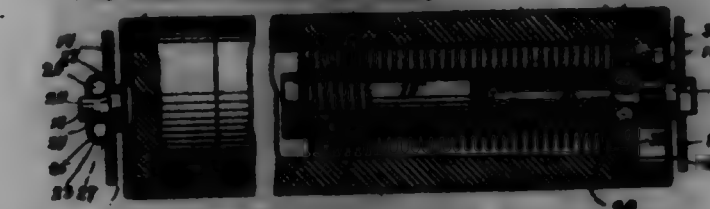


4. The combination with a receptacle carrying a pivoted cam-bearing staple adapted for movement in a plane parallel to that portion of the receptacle with which it is associated, of a cleavage carrying a heap adapted for movement at right angles to the staple, said heap being provided with a slot to straddle the staple and having a cam-rocker therein to engage the cam portion thereof.

5. The combination with a receptacle, of a plate carrying an off-center and a pivoted cam-bearing staple provided with an off-center to align with that of the keeper, and a cover carrying a heap provided with a slot to straddle the staple and having a cam-rocker to engage the cam portion thereof, and fastening means to engage the off-center in the keeper and the staple.

6. The combination with a receptacle of a plate secured to the receptacle and carrying a pivoted cam-bearing staple provided with an off-center, and an off-center keeper, a heap carried by the receptacle-cover and having a slot to straddle the staple and a cam-rocker to engage the cam portion thereof, and a cam-carrying wire to engage the off-center in the keeper and in the staple.

698,620. SHAPE-ROLLER AND BRACKET THEREFOR. CHAS. A. BAKER, Washington, Wm., assignor, by mesne assignments, to Stewart-Hartshorn Company, a Corporation of New Jersey. Filed Feb. 26, 1901. Serial No. 44,000. (No model.)



Claim.—1. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening, a spring-carrying spindle within said cavity having a roller-supporting spur extending freely through said opening, bearing-balls interposed between said end plate and said spur and means for holding said balls in position about said central opening.

2. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening, a spring-carrying spindle within said cavity having a roller-supporting spur extending freely through said opening, bearing-balls interposed between said end plate and said spur, said plate and spur being provided with grooved recesses for said bearing-balls, and means for holding the same in position about the central opening.

3. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening, a spring-carrying spindle within said cavity having a supporting-spur extending through said opening, bearing-balls interposed between said plate and said spur, said plate and spur being provided with grooved recesses for said bearing-balls and means for holding the same in position about the central opening.

4. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening, a spindle within said cavity carrying a spring secured at its inner end to said spindle and at its outer end to the roller, said spindle having a roller-supporting spur extending through said central opening and balls interposed between the end of said spindle and said plate and bearing upon said spur, and means for holding said balls in position about said central opening.

5. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening,

a spring-supporting spindle within said cavity having a roller-supporting spur extending freely through said opening, bearing-balls interposed between said plate and the end of said spindle, and means for holding said balls in position about said central opening.

6. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end having a central opening, a spring-supporting spindle within said cavity having a roller-supporting spur extending freely through said central opening, a flange on the outer end of said spindle having a cup-shaped end flange, and bearing-balls within said cup-shaped flange and held in position thereby against said end plate and about the central opening therein.

7. In spring shade-roller, the combination with a roller having a cavity in one end, of a plate fixed to said end provided with a central opening and having a grooved recess about said opening, a spindle within said cavity carrying a spring secured at its inner end to said spindle, and at its outer end to the roller, said spindle having a roller-supporting spur extending freely through the opening in said plate, a flange on the outer end of said spindle provided with a cup-shaped end flange and bearing-balls within said cup-shaped flange and held in position thereby in engagement with the grooved recess in said end plate.

8. In a fixture for shade-roller, the combination with a roller having a shoulder and fixed to one end thereof, of a bracket for said end adapted to be rigidly held in position and provided with an opening for receiving said end, said bracket being formed of two separate sheet-metal sections having inwardly-extending annular flanges forming the periphery of said opening, an annular depression in the body of one of said sections forming a ball-chamber intermediate said flanges, and bearing-balls in said chamber, said sections being rigidly secured together whereby said bearing-balls will be permanently retained in position between said flanges and about the periphery of said opening.

9. A bracket for shade-roller provided with an opening for receiving the end and end of a roller said bracket being formed of two separate sections having inwardly-extending annular flanges forming the periphery of said opening, bearing-balls retained in position between said flanges about the periphery of said opening and held upon one of said sections for engaging the other section, whereby said parts are secured together.

10. In a spring shade-roller having an end cap-piece, an end plate 17 stamped up from sheet metal and having the outwardly-extending peripheral lugs 20 for engaging the end cap-piece of the roller, the inwardly-extending peripheral lugs 21 for engaging the end of the roller, a central opening and the V-shaped strap-lugs 22, substantially as described.

11. In a shade-roller having an operating-spring, an end plate 17 therefor, stamped up from sheet metal and having the inwardly-extending peripheral lugs 21 for engaging the end of the roller, a central opening and the V-shaped, spring-supporting strap-lugs 22, substantially as described.

698,621. INDEX-FILER. WILLIAM H. BALL, Danversville, Ohio. Filed Dec. 21, 1900. Serial No. 41,716. (No model.)



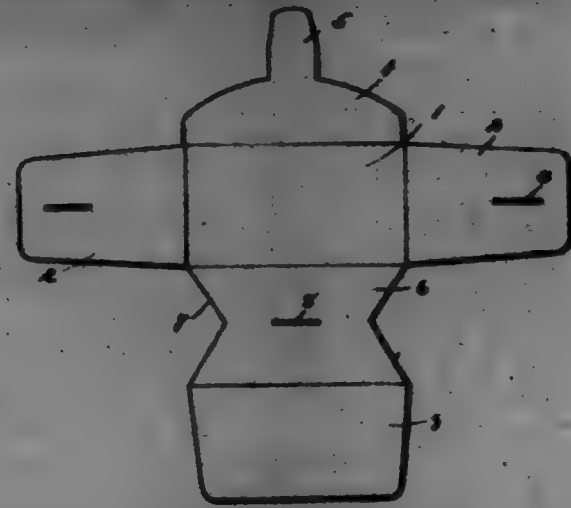
Claim.—1. An index-filer, consisting in combination with the angled rack of the tube, the wire journaled to the rack and having a notch, one end of said wire bent at right angles, a spring secured at one end to the wall of the rack, its free end normally resting in the notch in the wire to hold same with one of its ends in said tube, and also serving as a stop to hold the wire to the rack, as set forth.

2. In combination with the angled rack, the tube, the index-retaining wire bent as above and journaled to the wall of the rack, a spring secured to the outer wall of the rack and its free end bearing yieldingly against said wire, and the inner wall of the rack being recessed to receive one end of the wire as the latter is swung out of the path of the index leaves and sheets as they are placed upon or removed from the file, as set forth.

698,622. BEVEL-LOC. JOHN C. BARKER, Whitebury, N.Y. Filed Sept. 2, 1901. Serial No. 74,097. (No model.)

Claim.—In an envelope, the combination with the body portion, of side flaps having slots formed therein, an upper flap carrying a gummed

tongue, a lower flap having cut-away sides with a slot formed therein, all of said slots registering when the flaps are in their normal position, a second lower flap, said side flaps being first placed in position, the lower flap being then bent to engage the outer face of said side flaps, and said second lower flap being inserted between the inner faces of the side flaps and the body portion of the overlap, and lastly said gummed tongue being inserted through all of said registering slots and engaging the inner faces of the flaps, substantially as described.



698,628. STOVEPIPE. GEORGE S. RABBITT, JR. Filed Jan. 23, 1901. Serial No. 44,988. (No model.)



Claim.—1. As a new article of manufacture, a knock-down pipe-section made of two conical halves, both halves being provided near one edge with the overlapping tongues *d* and one half being provided with the turned-back tongue *f* passing through one of the apertures in the other half formed by clamping out the tongue *d*, all combined and cooperating substantially as and for the purpose described.

2. As a new article of manufacture, a knock-down pipe-section made of two conical halves, means for rigidly securing said halves at one pair of edges, the flattened-S-shaped strip *g* secured to the other edge of one half, and into which the corresponding edge of the other half projects as it can be moved therein; substantially as described.

3. As a new article of manufacture, a knock-down pipe-section made of two conical halves, means for rigidly securing said halves at one pair of edges, the flattened-S-shaped strip *g* secured to the other edge of one half by the turned-back tongue *j* on said edge passing through the aperture *h* in said strip, and into which the corresponding edge of the other half projects so that it can be moved therein; substantially as described.

4. As a new article of manufacture, a knock-down pipe-section made of two conical halves, means for rigidly securing said halves at one pair of edges, the flattened strip *g* secured to the other edge of one half by the turned-back tongue *j* on said edge passing through the aperture *h* in said strip which is provided with the groove *m* into which the corresponding edge of the other half projects so that it can be moved therein, and connections at one end consisting of the turned-back tongue *n* passing through the notch *c*; substantially as and for the purpose described.

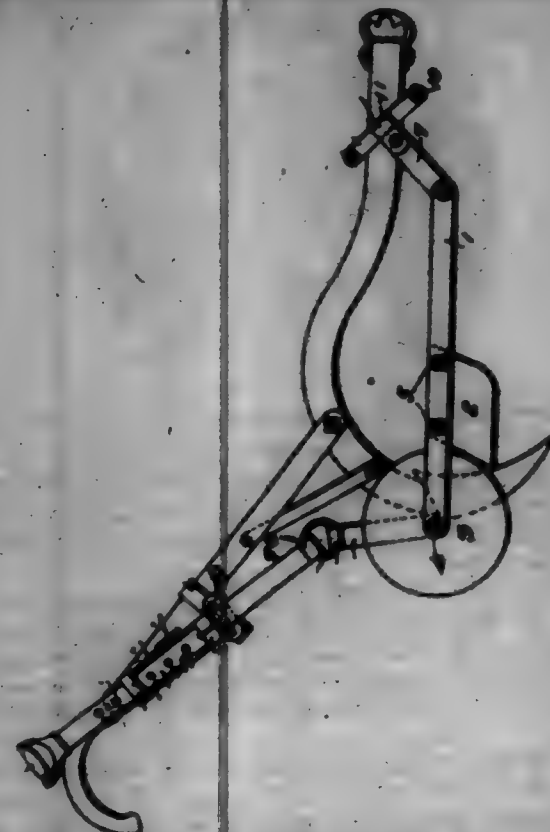
698,624. PLOW-ENDER ATTACHMENT FOR CULTIVATOR-PLOW. JOHN W. BATES, Batesville, Mo. Filed Feb. 10, 1902. Serial No. 94,880. (No model.)

Claim.—1. In a plow-ender of the class described, a fender-wing, a reversible fender-disk in rear thereof and extending below the same and means to carry said wing and disk, substantially as described.

2. In a plow-ender of the class described, the combination of a bar, a fender carried thereby, means to connect the bar to a plow-beam, a guide-bar having means whereby it may be attached to a plow-handle, a longitudinally-adjustable bar carried by said guide-bar and connections between said adjustable bar and the bar which carries the fender, whereby the latter may be adjusted, substantially as described.

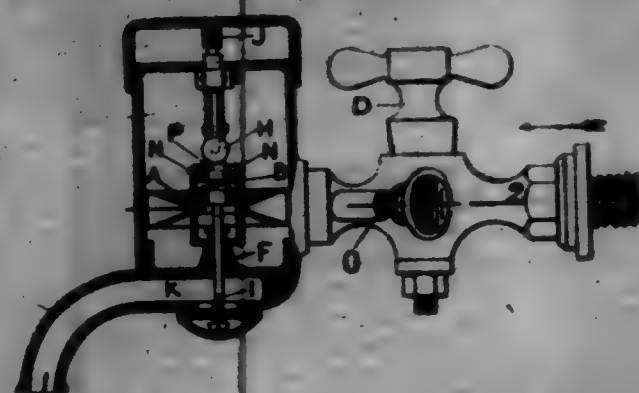
3. In a plow-ender of the class described, the combination of a link and means to attach the same to a plow-beam, a bar carrying a fender element having its front end pivotally connected to the link, a guide-bar having means whereby its rear end may be attached to a plow-handle, a

clip to engage said handle, means to adjustably secure the front end of the guide-bar to said clip, a longitudinally-movable adjusting-bar carried by said guide-bar and a connection between said adjusting-bar and the rear end of the fender-carrying bar, substantially as described.



4. In combination with a fender adapted to be raised and lowered, a guide, a longitudinally-movable adjusting-bar carried by the guide and connected to the fender, a fixed stop, coating adjusting elements with which the adjusting-bar is provided to engage said stop and a spring bearing on said adjusting-bar to normally lock the latter to the stop, substantially as described.

698,625. LIQUID-METER. SEYMOUR BROWNE, Brest-le-Duc, France. Filed Jan. 14, 1902. Serial No. 92,789. (No model.)



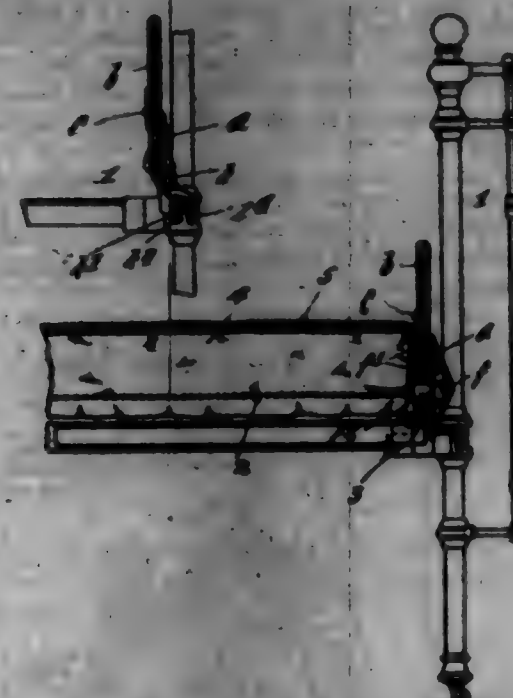
Claim.—1. In a liquid-meter of the turbine class, a turbine, a regulator revolving with the turbine and operating a valve which opens the discharge-orifice in proportion to the quantity delivered and which at rest completely closes this orifice, the putting in motion of the turbine on the opening of the cock being permitted by the compression of air in the turbine-chamber.

2. In a liquid-meter of the turbine class, the combination with a cock of any suitable character of a closed chamber containing the turbine, a centrifugal regulator mounted on and rotating with the turbine-shaft, a valve operated by connection from the regulator, a play or lost motion existing between the compression from the regulator and the valve, an opening forming a seat for the valve and communicating with the delivery-spout, means for regulating the height of the turbine-shaft, a passage delivering the liquid from the outlet of the cock to the turbine tangentially to the latter, and a screw-down rod controlling the cock-outlet, substantially as herein set forth.

698,626. FOLDING FOOTBOARD FOR IRON BEDSTEAD. LAWRENCE E. BROWN, Minneapolis, Minn. Filed May 15, 1901. Serial No. 93,948. (No model.)

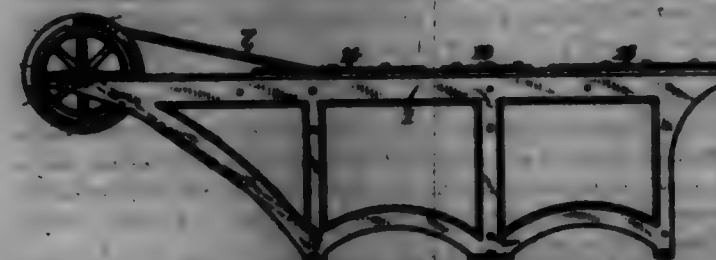
Claim.—1. A detachable footboard for iron bedsteads, comprising

the board-sections *a* and *b*, the hinges *c* connecting the said board-sections, and right brackets secured to said board-section *a* and adapting the same to be rigidly but detachably secured with respect to the bedstead and other parts of the bed, and which board-section *b* is adapted to be folded flat over the foot end of a mattress, substantially as and for the purposes set forth.



2. The combination with a bedstead having a foot-board, of a foot-board comprising board-sections *a* and *b*, hinges connecting said board-sections, and brackets supporting said board-section *a* with respect to the bedstead in a position forward of the foot-board of the said bed, whereby said section *b* may be folded flat on top of the mattress and the bed-clothes may be placed over said board-section and between said relatively fixed board-section *a* and the foot-board of the bed.

698,627. MACHINE FOR CLEANING BRICKS. LAWRENCE E. BROWN, Minneapolis, Minn. Filed June 12, 1901. Serial No. 94,311. (No model.)

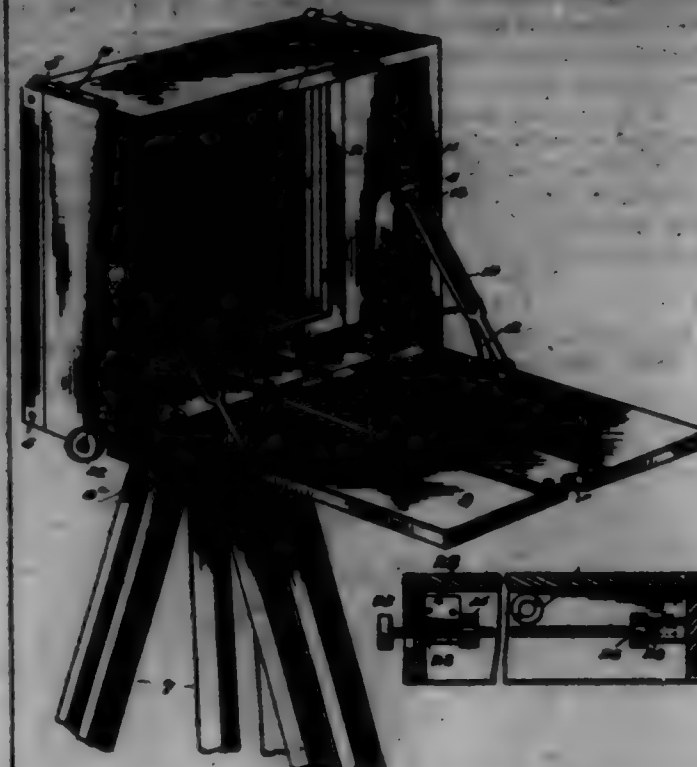


Claim.—1. In a machine for cleaning mortar from bricks, the combination of the bed of the machine having curved therein suitable tracks, the frame resting on said tracks and capable of free movements thereon, the combined outer and scraper bars which cross each other and are supported within and carried by said frame, the gage secured to the top of said bed immediately above said frame, and means for imparting reciprocating movements to said frame, substantially as set forth.

2. In a machine for cleaning mortar from bricks, the combination of the bed having suitable tracks curved therein, the frame resting upon said tracks and capable of free movements thereon, the combined outer and scraper bars which cross each other and are supported within and carried by said frame, the central gage-plate secured on top of said bed and having corresponding legs in its opposite edges, the auxiliary adjustable gage-plates bolted on top of said bed on opposite sides of the central gage and separated from the latter by predetermined spaces, and means for imparting reciprocating movements to said frame, substantially as set forth.

3. In a machine for cleaning mortar from bricks, the combination of the bed of the machine having curved therein on its inside suitable tracks and having journaled at one end a shaft, the power-pulley and crank-wheel carried by said shaft, the frame resting upon said tracks and capable of free movements thereon, the combined outer and scraper bars which cross each other and are supported within and carried by said frame, the plates whose ends are respectively pivoted to said frame and to a crank-plate carried by said wheel, the central gage bolted to the top of said bed and having corresponding legs in its opposite edges, and the adjustable auxiliary gage-plates also bolted to the top of said bed and normally separated from the central gage-plate by predetermined spaces, substantially as and for the purposes set forth.

698,628. CAMERA. EDGAR E. DILLARD, Springfield, Mass. Filed July 15, 1901. Serial No. 94,416. (No model.)



Claim.—1. In a camera, the combination with the camera-casing adapted for attachment to a suitable stand, of a bed for the camera-front pivotally supported from the casing, and a movable member within said casing to which the bed is hinged, whereby said member is extended or retracted the bed will receive a corresponding movement and at the same time change its inclination substantially as and for the purpose set forth.

2. In a camera, the combination with the camera-casing adapted for attachment to a suitable stand, of a swinging bed for the camera-front, and a swinging support within said casing, having a hinge connection with the rear of said bed, substantially as and for the purpose set forth.

3. In a camera, the combination with a camera-casing adapted for attachment to a suitable stand, of a bed for the camera-front, swinging supports to which said bed is pivotally connected, and a swinging support within the casing, having a hinge connection with the said bed, substantially as and for the purpose set forth.

4. In a camera, the combination with the camera-casing adapted for attachment to a suitable stand, of a swinging bed for the camera-front, having a pivotal connection with its swinging supports, a movable supporting member within the casing, to which the bed is hinged, and means for extending and retracting said movable member to swing and tilt the bed, substantially as and for the purpose set forth.

5. In a camera, the combination with the camera-casing adapted for attachment to a suitable stand, of a swinging bed for the camera-front, having a pivotal connection with its swinging supports, a movable supporting member within the casing, to which the bed is hinged, means for extending and retracting said member to swing and tilt the bed, and means for locking said member at any point of its movement, substantially as and for the purpose set forth.

6. In a camera, the combination with the camera-casing adapted for attachment to a suitable stand, of a swinging bed for the camera-front, having a pivotal connection with its swinging supports, a movable supporting member within the casing, to which the bed is hinged, the same carrying one or more rods, and a rotatable shaft having one or more plates for engaging said rods or racks, whereby to extend or retract said member to swing and tilt the bed, substantially as and for the purpose set forth.

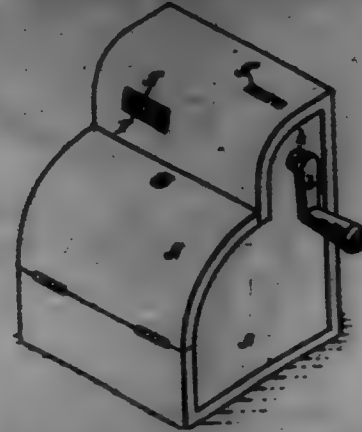
7. In a camera, the combination with a camera-casing adapted for attachment to a suitable stand, of a swinging bed for the camera-front, having a pivotal connection with its swinging supports, a movable supporting member within the casing, to which the bed is hinged, the same carrying one or more rods, a rotatable shaft mounted to slide longitudinally, and having one or more plates for engagement with said rods or racks whereby to extend or retract said member to swing and tilt the bed, and a locking-plate secured to the casing having an edge arranged to enter between the teeth of one of said plates when the shaft is slid in one direction, substantially as and for the purpose set forth.

8. In a camera, the combination with a camera-casing, adapted for attachment to a suitable stand, of a swinging bed for the camera-front, having a pivotal connection with its swinging supports, a movable supporting member within the casing, to which the bed is hinged, the same carrying

prong a cross-piece in proximity to the bottom of the casing and carried by swinging supports, and having a convex under surface on which is provided one or more racks, and a rotatable shaft having one or more pinions for engagement with said rack or racks, whereby to extend or retract the said member to swing and tilt the bed, substantially as and for the purpose set forth.

3. In a camera, the combination with a camera-casing, adapted for attachment to a suitable stand, a falling front having a link connection with the casing, a movable member within said casing to which said front is hinged, and an extension carried by said front and adapted to close the space intermediate the hinge connection and the bottom of the casing, when covering the front opening thereof, substantially as set forth.

698,699. REVERSE-ENGINEERING MECHANISM. LEO J. DUNN, Sturges, Mich. Filed Feb. 28, 1901. Serial No. 44,731. (No model.)



Claim.—1. In a register mechanism for coins the combination of a suitable casing containing a slot for the introduction of coins; a register within said casing, supported on a suitable shaft supported in a suitable framework, having its lower member-wheel provided with teeth; a cam-plate; a shaft through said plate; a body with a sleeve-like extension supported suitably on said shaft and connected to rotate therewith, containing a longitudinal slot to receive coins; and the said sleeve part containing guiding-grooves; fingers secured to the said framework and adapted to engage said grooves and hold the sleeve in a given position through a predetermined part of its rotation; a spring to return said sleeve to the normal position; and dogs carried by said sleeve to engage the number-wheels when they are moved into engagement by the introduction of a coin and rotated by suitable means, as specified.

2. In a register mechanism for coins the combination of a register, supported on a suitable shaft supported in a suitable framework, having its lower member-wheel provided with teeth; a cam-plate; a shaft through said plate; a body with a sleeve-like extension supported suitably on said shaft and connected to rotate therewith, containing a longitudinal slot to receive coins; and the said sleeve part containing guiding-grooves; fingers secured to the said framework and adapted to engage said grooves and hold the sleeve in a given position through a predetermined part of its rotation; a spring to return said sleeve to the normal position; and dogs carried by said sleeve to engage the number-wheels when they are moved into engagement by the introduction of a coin and rotated by suitable means, as specified.

3. In a register mechanism the combination of a suitable register; a cam-plate; a movable part adjacent to said cam-plate containing a recess to receive a coin; engaging means actuated by said movable part to rotate the register when a coin is introduced; a guiding means to engage said movable part when it is actuated by a coin and hold it in engagement with the register, a predetermined portion of its movement to register the value of the coin, ceasing as specified.

4. In a register mechanism the combination of a suitable register a cam-plate; a movable part adjacent to said cam-plate containing a recess to receive a coin; engaging means actuated by said movable part to rotate the register when a coin is introduced; and means to hold it in engagement with the register, a predetermined portion of its movement to register the value of the coin, ceasing as specified.

5. In a register mechanism the combination of a register; a relatively fixed part and movable part; a recess between the two for the reception of a coin; actuating means on the movable part for the register; guides for the movable part to hold it in actuating connection with the register for periods predetermined by the size of the coin to be registered to register the value of the coin.

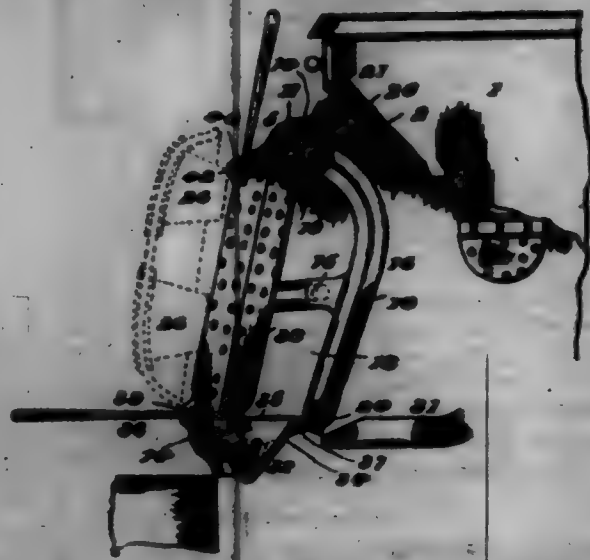
6. In a register mechanism the combination of a register; a relatively fixed part and movable part; a recess between the two for the reception of a coin; actuating means on the movable part for actuating the register for periods predetermined by the size of the coin to be registered to register the value of the coin.

7. In a register mechanism the combination of a register; a central shaft therethrough; a sliding sleeve thereon containing the guiding-grooves *d*, and other *f* with slot *f'* therein; finger *I* and *I'* to engage said grooves; means of actuating said shaft to move it lengthwise and rotate it whereby different degrees of movement of the register are caused, ceasing as specified.

8. In a register mechanism the combination of a register; a central shaft therethrough; a sliding sleeve thereon containing the guiding-grooves *d* and other *f* with slot *f'* therein; finger *I* with projection *I'* thereon to engage said grooves; means of actuating said shaft to move it lengthwise and rotate it whereby the different movements are caused, ceasing as specified.

9. In a register mechanism the combination of a register; an engaging part therefor; a cam-plate *H* having cam *n* and recess *n'*; a movable part *D* opposite containing slot *D'* to receive cam *n* and carry them against the cam-plate whereby the part is actuated a varying predetermined amount to register the coin.

698,680. GRATE. EDWIN E. CAMBER, Newark, N. J. Filed Mar. 4, 1901. Serial No. 44,821. (No model.)



Claim.—1. A stove comprising a casing having an opening in one of its walls, a fire-pot adjacent said opening, and a grate extending from the top to the bottom of and pivotally supported horizontally in said opening in the casing, adapted to be reversed to increase the size of the fire-pot in one position and decrease said fire-pot when turned over in the opposite position, substantially as described.

2. A stove comprising a casing having an opening in one of its walls, a fire-pot, a pivoted and a hooked shaped grate in said opening adapted to increase the capacity of the fire-pot when turned in one position and decrease the capacity of said fire-pot when reversed in a second position, substantially as described.

3. A stove comprising a casing having an opening in one of its walls, a fire-pot, and means pivoted and located in said opening whereby the capacity of the fire-pot may be increased when said means are moved in one position and decreased when said means are turned over on its pivot to present the opposite face to the fire-pot in a second position, substantially as described.

4. A stove comprising a casing having an opening in one of its walls, a fire-pot, a grate in the bottom of said fire-pot, a hooked shape pivoted grate in said opening, said grate being adapted to be turned over and in either position form a continuation of the grate in the bottom of the fire-pot to increase or decrease said fire-pot, substantially as described.

5. A stove comprising a casing having an opening in one of its walls, a fire-pot, a pivoted hooked shape grate in said opening, a frame surrounding said grate, a door fitting said frame, and a bracket adapted to be supported in the space between the grate and the door, substantially as described.

6. A stove comprising a casing having an opening in one of its walls, a fire-pot, a swinging grate located in said opening, a frame surrounding the grate, a door fitting said frame, a bracket adapted to be supported in the space between the grate and the door, and a drip-pen located below said bracket and the line of the fire-pot, substantially as described.

7. A stove comprising a casing having an opening in one of its walls, a fire-pot, a swinging grate located in said opening, a frame surrounding the grate, a door fitting said frame, a loose pivot connection between the door and the frame adapted to permit of the door being brought in alignment with its seat, but spaced therefrom, substantially as described.

8. A stove comprising a casing having an opening in one of its walls, a swinging grate located in said opening means for supporting a bracket

in close proximity to said grate, and a pocket formed at the bottom of said swinging grate to receive a drip-pen, substantially as described.

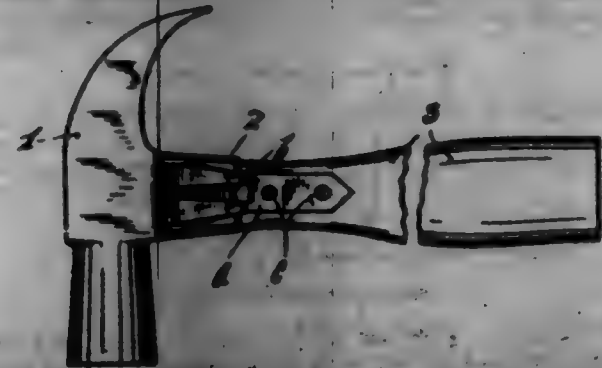
9. A stove comprising a casing having an opening in one of its walls, a grate located in said opening, a door adapted to cover said opening, means-covered trunks or tubes attached to said door, and a dotted plate slidable on the grate and in front of said door windows, substantially as described.

10. A stove comprising a casing having an opening in one of its walls, a frame having flanged ends in said opening, a hooked shape grate pivoted and supported in said frame adapted to be swung to increase or decrease the capacity of the fire-pot, the end flanged walls of said frame forming the end supports for the grate when said grate is turned in either position, substantially as described.

11. In a stove, the combination of a casing having an opening therein, a fire-pot adjacent said opening, a grate horizontally and centrally pivoted in the opening in the casing, and adapted to be turned half-revolution to increase or decrease the fire-pot, and a door hinged to swing vertically to cover the opening, substantially as described.

12. A stove comprising a casing having an opening in one of its walls, a fire-pot, a receiving grate located in said opening, a door, a space being formed between the door and the front of the grate and between the top of the grate and the casing, establishing communication at all times between the space in front of the grate and the fire-pot, substantially as described.

698,681. NAIL-HOLDING ATTACHMENT FOR HAMMERS. EDNA L. CAMBER, Minneapolis, Minn. Filed Aug. 4, 1901. Serial No. 72,008. (No model.)



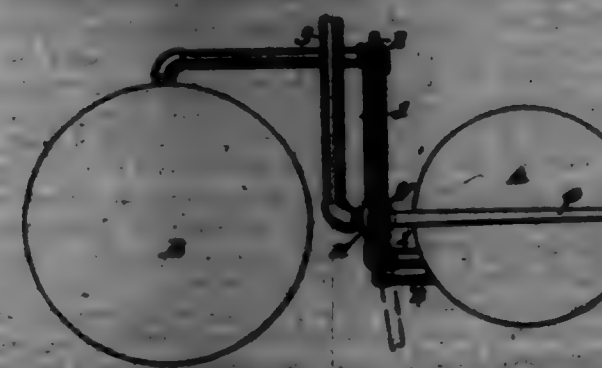
Claim.—1. A nail-holding attachment comprising the flat body *a* with hatched end spring-prongs *b* which prongs *b* overlap said body *a* and are adapted to clamp the head of a nail against said body, substantially as described.

2. A nail-holding attachment composed from a single piece of spring sheet metal and involving the body-strip *a* and hatched end prongs *b*, said body *a* having suitable notches and said prongs *b* overlapping said body *a* and adapted to press the head of the nail against said body-strip, substantially as described.

698,682. PROCESS OF MAKING ENRICHED CHARGE. LEO CAMBER, Lyons, France. Filed July 2, 1901. Serial No. 67,008. (No specimens.)

Claim.—The herein-described process consisting in mixing any-where water with paraffin and water, substantially as described.

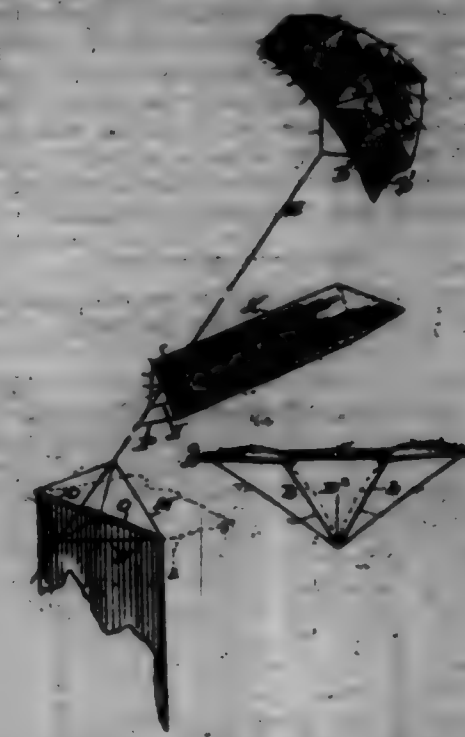
698,683. ACETYLENE-GAS GENERATOR. EDWIN E. CAMBER, East Orange, N. J., assignor to Frank Fuller, trustee, New York, N. Y. Filed Feb. 2, 1901. Serial No. 44,444. (No model.)



Claim.—In acetylene-gas-generating apparatus the combination of a carrier-holder, a removable covering therefor, a water-supply conduit entering the holder, a gas-conduit leading out of the holder, a gas-valve, a single valve-piece common to the said conduits and the vent, and covering means in the form of one or more horizontally-swinging latches

operatively connected with the said valve, whereby displacement of the covering means effects the closure of the water and gas conduits and opening of the vent.

698,684. AEROPLANE. BLAS I. CORTES, Chicago, Ill. Filed July 14, 1901. Serial No. 65,002. (No model.)



Claim.—1. The combination, in an aeroplane, of a plurality of longitudinally-extending parallel sticks, triangular truss, consisting of a forward and a rear truss separated by an open space, cutting each stick, longitudinally-extending wings on the sides of the truss and containing an extension of one of the planes of the truss, a removable stick at right angles to the remaining sticks, each removable stick when in operative position maintaining the wings and the upper plane of the triangular truss in operative position, and a bridle attached to the remaining one of the parallel sticks and holding the remaining plane of the truss in operative position when a cord holding the aeroplane captive in the air is attached thereto; substantially as described.

2. The combination, in an aeroplane, of a plurality of parallel sticks, triangular truss cutting each stick, each truss positioned to obtain an open space between them, wings attached to two of the parallel sticks, means to obtain an upward bulging to the wings, respectively, when each wing are in an operative position, a removable stick at right angles to the parallel sticks and in contact with the ends thereof in the plane of the wings, each removable stick, when in operative position maintaining the wings and the plane of the truss between each wings in operative position, a bridle consisting of a cord attached to the one of the parallel sticks not adjacent to the wings, and a cord to hold the aeroplane captive attached to the bridle, each bridle proportioned to obtain a substantial right angle at the point of attachment thereto of the cord holding the aeroplane captive; substantially as described.

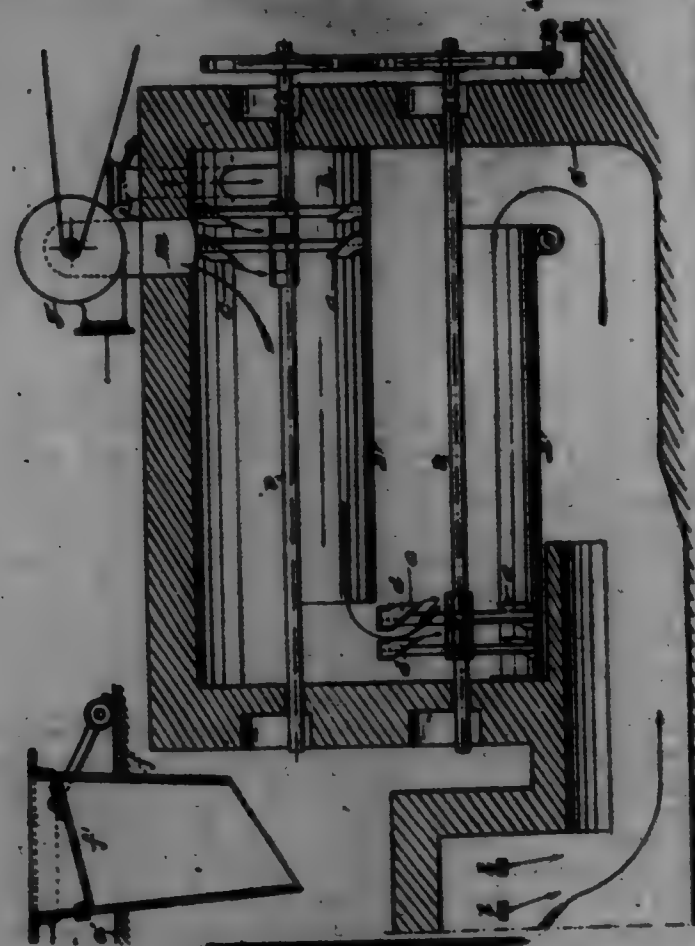
3. The combination, in an aeroplane, of a plurality of parallel sticks, triangular truss cutting each stick, each truss positioned to obtain an open space between them, wings attached to two of the parallel sticks, means to obtain an upward bulging to the wings, respectively, when each wings are in an operative position, cords attached, respectively, to the ends of the two of the parallel sticks to which the wings are attached and extending around the outer edges of the wings, a removable stick at right angles to the parallel sticks and in contact with the ends thereof in the plane of the wings, each removable stick, when in operative position, maintaining the wings and the plane of the truss between each wings in operative position, cords attached to the ends of the removable stick, when the same is in operative position, and to the sticks to which the wings are attached, respectively, and an additional cord attached to the ends of the removable stick and extending to the one of the parallel sticks not attached to the wings, a bridle attached to the last-named one of the parallel sticks, and a cord to hold the aeroplane captive attached to the bridle; substantially as described.

4. The combination in an aeroplane, of a plurality of parallel sticks, triangular truss cutting each stick, each truss positioned in double or open space between them, wings attached to two of the parallel sticks and a bridle attached to the remaining one of each parallel stick, means to hold the wings and the plane of the truss between the wings in an operative position and a cord attached to the bridle to hold the aeroplane.

obtained by the combination of truss and wings, *essence*; substantially as described.

5. The combination, in an aeroplane of a plurality of parallel struts, triangular trusses holding such struts, each truss positioned to sustain an open space between them, wings attached to two of the parallel struts, means to obtain an upward bulging in the wings, respectively, when each wing is in an operative position, a stick at right angles to the parallel struts and in contact with the ends thereof in the plane of the wings, each last-named stick, when in operative position maintaining the wings and the planes of the trusses between the wings in operative position, means to obtain a fallow in the forward part of the rear truss, whereby a fluttering movement in the several planes of the truss is obtained when the aeroplane is in the air, a bridle attached to the end of the parallel struts which is not adjacent to the wings, and a cord to hold the aeroplane operative attached to each bridle; substantially as described.

698,685. DRYING APPARATUS. HENRY DUBOIS, Paris, France.
Filed Feb. 6, 1901. Serial No. 45,191. (No model.)

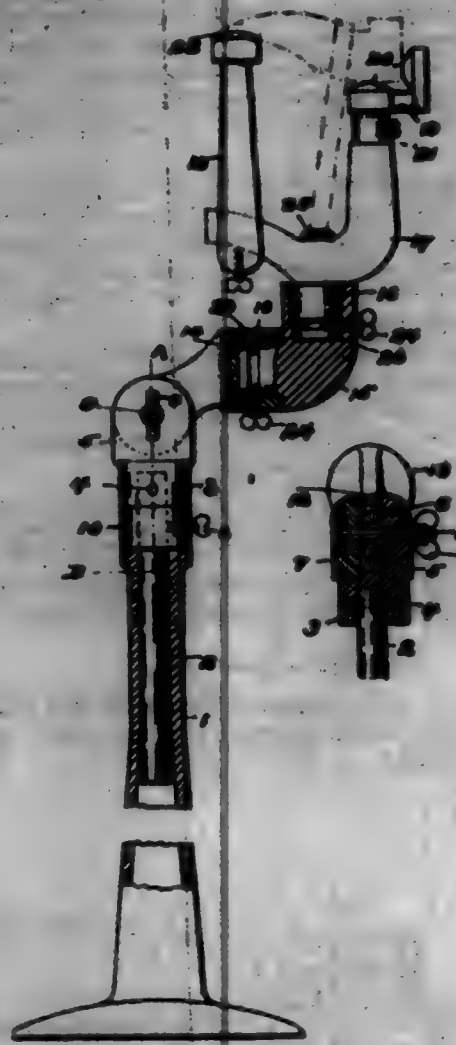


Claim.—In a drying apparatus, the combination, with a rotatable casing having an inlet-opening for the gas and other products of combustion from the furnace, a discharge-opening for said gas, and a supply for the material to be dried, of a plurality of substantially parallel troughs disposed between said openings, said troughs having communication with their adjacent spaces alternately at their opposite ends, a rotary shaft arranged over each trough longitudinally thereof, and agitating baskets or shelves arranged on each shaft at the receiving end of the trough, said shelves or baskets each having side walls, and also a back wall disposed obliquely to the shaft, and an opening arranged adjacent the inner or rearward end of said back wall, substantially as described.

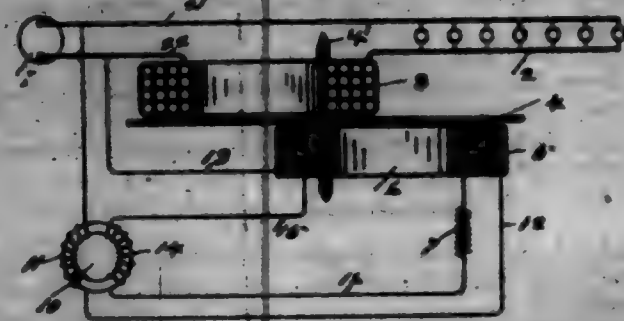
698,686. SHOEMAKER'S JACK. ALEXANDER T. DRAVER, New Haven, Conn., assignor of five-eighths to Charles H. Simmons and H. Henry Lambert, New Haven, Conn. Filed Mar. 28, 1901. Serial No. 52,593. (No model.)

Claim.—In a shoemaker's jack, the combination with the stand 1; of the rod 2 movable vertically therein; of a support-collar 10 adjustably secured upon said rod; a yoke-block 5 fixed to said rod and having a fixed plate 6 and a movable plate 7 connected therewith; a bracket 12 rotatably secured upon a post connected with said fixed plate 6 and clamped against movement between the said plates; an elbow 15 having a socket connection with said bracket, whereby the said elbow may be moved in a circular path about its socket connection; and a jack-plate 17 rotatably secured to said bracket and having suitable toe and heel supports thereon, all constructed and operating substantially as described.

698,686.



698,687. ELECTRIC METER. THOMAS DUNNAN, Port Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Feb. 7, 1902. Serial No. 600,355. (No model.)



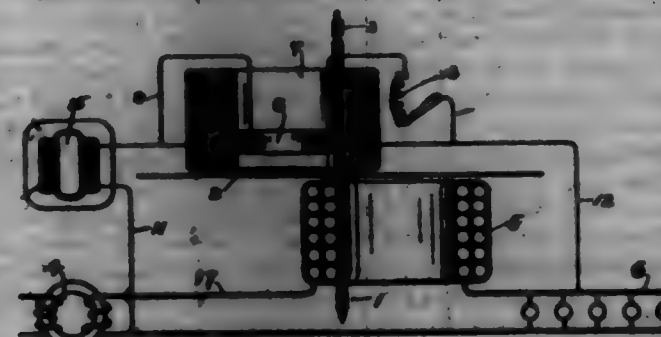
Claim.—1. In an induction meter-meter, the combination with the series field-winding, of an armature in inductive relation therewith, a short field-winding also in inductive relation with said armature, said short field-winding comprising two coils and a transformer, the primary of said transformer being included in series with one of said pressure-coils and connected therewith across the circuit-mains, the secondary of said transformer being closed-circuited through the second pressure-coil, and a centrally-located core about which said pressure-coils are placed and affording the only path of magnetic material for the pressure lines of force to vary the magnetic flux due to said short-coil, threading the armature, an adjustment of said core toward the armature serving to deflect an increased number of lines of force through the armature, substantially as described.

2. In an induction meter-meter, the combination with a series field-winding, of an armature in inductive relation therewith, a short field-winding also in inductive relation with said armature, said short field-winding comprising two coils, a transformer, and means for varying the length of the magnetic circuit of said transformer, the primary of said transformer being included in series with one of said pressure-coils and connected therewith across the circuit-mains, the secondary of said transformer being closed-circuited through the second pressure-coil, and a centrally-located core about which said pressure-coils are placed, affording the only path of magnetic material for the pressure lines of force to vary the magnetic flux due to said short-coil, threading the armature, an adjustment of said core toward the armature serving to deflect an increased number of lines of force through said armature, substantially as described.

3. In an induction meter-meter, the combination with a series field-winding, of an armature in inductive relation therewith, a short field-winding also in inductive relation with said armature, said short field-winding comprising two coils, a transformer, and means for varying the length of said transformer, the primary of said transformer being included in series with one of said pressure-coils and connected therewith across the circuit-mains, the secondary of said transformer being closed-circuited through the second pressure-coil, a centrally-located core about which said pressure-coils are placed, affording the only path of magnetic material for the pressure lines of force, to vary the magnetic flux due to said short-coil, threading the armature, an adjustment of said core toward the armature serving to deflect an increased number of lines of force through said armature, and adjusting mechanism included in said primary and secondary transformer-circuits, substantially as described.

4. In an induction meter-meter, the combination with a series field-winding, of an armature in inductive relation therewith, a short field-winding also in inductive relation with said armature, said short field-winding comprising two coils, a transformer, and means for varying the length of said transformer, the primary of said transformer being included in series with one of said pressure-coils and connected therewith across the circuit-mains, the secondary of said transformer being closed-circuited through the second pressure-coil, a centrally-located core about which said pressure-coils are placed, affording the only path of magnetic material for the pressure lines of force to vary the magnetic flux due to said short-coil, threading the armature, an adjustment of said core toward the armature serving to deflect an increased number of lines of force through said armature, the said core being so proportioned that a large air-gap intervenes between the same and the said coils, and adjusting mechanism included in said primary and secondary transformer-circuits, substantially as described.

698,688. ELECTRIC METER. THOMAS DUNNAN, Port Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Apr. 11, 1902. Serial No. 677,118. (No model.)



Claim.—1. In a meter-meter, the combination with a series field-coil, of an armature in inductive relation therewith, a short field-coil also in inductive relation with said armature, adapted for inclusion with circuit-mains, an auxiliary short-coil reversely included with said mains, and means for deflecting more or less of lines of force of said auxiliary short-coil through said armature, substantially as described.

2. In a meter-meter, the combination with a series field-coil, of an armature in inductive relation therewith, a short field-coil also in inductive relation with said armature, adapted for inclusion with circuit-mains, an auxiliary short-coil reversely included with said mains, the said auxiliary short-coil being included with the mains in a reverse direction, and means for moving said auxiliary short-coil, thereby to vary the magnetic effect of the lines of force of said auxiliary short-coil on the armature, substantially as described.

3. The combination of a series coil; a volt or short coil; an auxiliary coil in multiple to said volt-coil; means for varying the axis of magnetization of said auxiliary coil out of parallelism with the axis of magnetization of the said volt-coil; and a revolvable metallic armature adapted to be actuated by the combined influence of the said series and volt and auxiliary coils.

4. In a meter-meter for alternating currents, a series coil or coils; a volt-coil; an impedance-coil in series with said volt-coil; an auxiliary coil in cooperative relation with said volt-coil; means for connecting said auxiliary coil in multiple to more or less of the convolutions of said volt-coil; and a closed revolvable metallic armature in inductive relation to said co-acting coils.

5. The combination with the pressure field-coil of an induction meter-meter, of a revolvable armature in inductive relation therewith, an adjustable iron core 24 to assist in overcoming the friction of the bearings by attracting intensity through the said armature the magnetic repulsion the electromotive force and produced by the said pressure field-coil, the said iron core having its longitudinal axis parallel with but eccentric to the said pressure field-coil, a second pressure field-coil receiving current independently of the said pressure field-coil, and means for affording said core a lateral adjustment for the purpose described.

6. In an induction meter-meter, a series field-coil, a volt or pressure coil, an auxiliary coil connected around the said pressure-coil, the convolutions of said auxiliary coil being wound in a direction opposite to or opposing the convolutions of said pressure-coil, an impedance-coil in series with said pressure-coil, a revolvable metallic armature in inductive relation to said series, pressure and auxiliary coils, and means for moving the said auxiliary coil thereby to vary the magnetic effect of the lines of force of said auxiliary short-coil on the armature, substantially as described.

7. In a meter-meter, the combination with a series field-coil, of an armature in inductive relation therewith, a short field-coil also in inductive relation with said armature, adapted for inclusion with circuit-mains, an auxiliary short-coil reversely included with said mains, means for deflecting more or less of lines of force of said auxiliary short-coil through said armature, and an impedance-coil in multiple series arrangement with said short-coil, substantially as described.

8. In an induction meter, the combination with series and short coils, of an armature in inductive relation therewith, a core associated with said short-coil for deflecting lines of force through said armature to induce eddy-currents therein for the purpose of overcoming friction of said armature, said core having its longitudinal axis parallel with said coil, and mounted on the side of the armature opposite to the side on which the pressure-coil is located, and means for varying the magnetic relation of said core to said coils, substantially as described.

9. In an electric meter, the combination with a current-winding, of a pressure-winding, an auxiliary pressure field-winding cooperatively associated with the said pressure-winding and included in short of turns of the said pressure-winding and being included therewith in a series-parallel connection with the source of current, means for effecting a relative displacement between the said pressure-windings, and a revolvable armature subjected to the action of said co-acting windings, substantially as described.

10. In an electric meter, the combination with a current-winding, of a pressure-winding, an auxiliary pressure field-winding cooperatively associated with the said pressure-winding and included in short of turns of the said pressure-winding and being included therewith in a series-parallel connection with the source of current, means for effecting a relative displacement between the said pressure-windings, a revolvable armature subjected to the action of said co-acting windings, and a phase-modifier associated with said series-parallel circuit, substantially as described.

11. In an electric meter, the combination with a current-winding, of a pressure-winding, an auxiliary pressure field-winding cooperatively associated with the said pressure-winding and included in short of turns of the said pressure-winding and being included therewith in a series-parallel connection with the source of current, means for effecting a relative displacement between the said pressure-windings, a revolvable armature subjected to the action of said co-acting windings, and a phase-modifier in series with said pressure-windings, substantially as described.

12. In an electric meter, the combination with a current-winding, of a pressure-winding, an auxiliary pressure field-winding cooperatively associated with the said pressure-winding and included in short of turns of the said pressure-winding and being included therewith in a series-parallel connection with the source of current, means for effecting a relative displacement between the said pressure-windings, a revolvable armature subjected to the action of said co-acting windings, and an impedance-coil in series with said pressure-windings.

13. An alternating-current electric meter provided with a current-winding, a pressure field-coil and an auxiliary coil in multiple with the pressure-coil, and adjustable in position with respect to said pressure-coil, substantially as described.

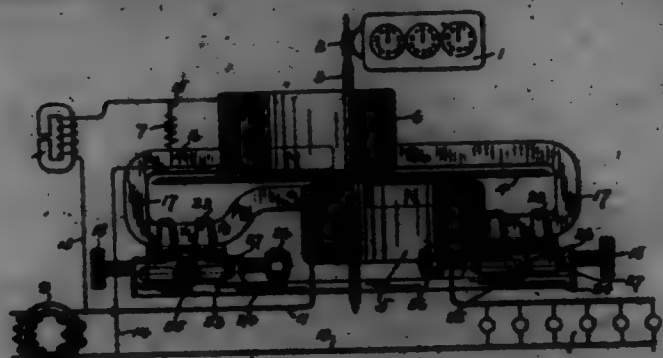
14. An alternating-current electric meter provided with a current-winding and two relatively adjustable pressure field-coils in parallel with each other and in series parallel with a source of current, substantially as described.

698,689. ELECTRIC METER. THOMAS DUNNAN, Port Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Apr. 11, 1902. Serial No. 677,111. (No model.)

Claim.—1. In an electric meter, a rotating device consisting of a pair or plurality of pairs of permanent magnets having the adjacent ends of the poles of each pair arranged in cooperative relation upon the same side of the revolvable disk armature as shown, a revolvable metallic disk armature in inductive relation to said rotating device, and means for adjusting said magnets to vary the density of the flux through said revolvable armature.

2. In a meter, the combination with a current-winding, of a series-

ring element actuated thereby, a retarding element movable with the measuring element, and permanent magnets, the unlike poles of the permanent magnets being opposed, each magnet offering a path for lines of force due to the other, the retarding element being interposed between the poles of each magnet, the unlike opposed poles being upon the same side of the retarding element, the current-winding serving to effect an increase in the magnetization of one permanent magnet corresponding to the decrease in the magnetization of the other permanent magnet effected by said winding, substantially as described.

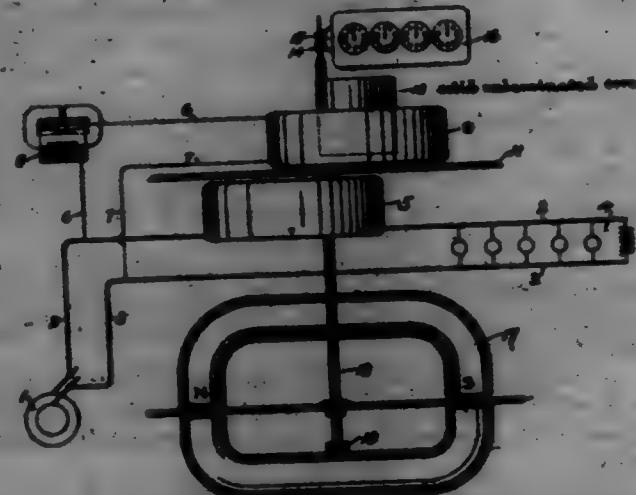


3. In a meter, the combination with a current-winding, of a measuring element actuated thereby, a retarding element movable with the measuring element, permanent magnets, the unlike poles of the permanent magnets being opposed, each magnet offering a path for lines of force due to the other, the retarding element being interposed between the poles of each magnet, the unlike opposed poles being upon the same side of the retarding element, the current-winding serving to effect an increase in the magnetization of one permanent magnet corresponding to the decrease in the magnetization of the other permanent magnet effected by said winding, and means for effecting relative adjustment of the permanent magnets, substantially as described.

4. The combination with two field-coils, of means for modifying the phase of the magnetic field produced by one of them, means in circuit with said last-named coil for further modifying the phase of its magnetic field, and means for changing the number of turns of the last-named coil in action, whereby the relative effect of the two field energizing-coils is changed, substantially as described.

5. The combination with two field-coils, of means in circuit of one of said coils for modifying the phase of its magnetic field, and means for changing the number of turns of the latter coil in action, whereby the relative effect of the two field energizing-coils will be changed, substantially as described.

698,640. ELECTRIC METER. THOMAS DUBOIS, Fort Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed June 20, 1900. Serial No. 694,718. (No model.)



Claim.—1. In a multifrequency induction meter-meter, the combination with energizing-windings receiving current from the generator, of an armature in inductive relation therewith, and of an unexcited core in cooperative relation with one of the said energizing-windings for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

2. In an induction-meter, the combination with a revolvable armature, of a current-winding in inductive relation therewith, a pressure-winding also in inductive relation to said armature, and an unexcited magnetizable core for said pressure-winding for maintaining the magnetism due to the pressure-winding in quadrature with the pressure, substantially as described.

3. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in inductive relation therewith, and an unexcited magnetizable core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

4. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in the form of a revolvable disk in inductive relation therewith, and an unexcited magnetizable core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

5. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in inductive relation therewith, said an unexcited magnetizable core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, the pressure-winding and said unexcited core being located upon the same side of the armature, substantially as described.

6. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in inductive relation therewith, an unexcited magnetizable core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, and an impedance-coil in circuit with the pressure-winding, substantially as described.

7. In an induction meter-meter, the combination with a revolvable armature, of a current-winding in inductive relation therewith, a pressure-winding also in inductive relation to said armature, an unexcited magnetizable core for said pressure-winding for maintaining the magnetism due to the pressure-winding in quadrature with the pressure, and an impedance-coil in series with the pressure-winding, substantially as described.

8. In a multifrequency induction meter-meter, the combination with energizing-windings receiving current from the generator, of an armature in inductive relation therewith, said an unexcited adjustable core in cooperative relation with one of the said energizing-windings for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

9. In an induction-meter, the combination with a revolvable armature, of a current-winding in inductive relation therewith, a pressure-winding also in inductive relation to the said armature, and an unexcited magnetizable core for said pressure-winding for causing the requisite phase adjustment of the magnetism due to the pressure-winding, substantially as described.

10. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in inductive relation therewith, and an adjustable unexcited magnetizable core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

11. In an induction-meter, the combination with a revolvable armature, of a current-winding, a pressure winding in inductive relation to the said armature, and an unexcited magnetizable core for said pressure-winding for causing the requisite phase adjustment of the magnetism due to the pressure-winding, substantially as described.

12. In an induction-meter, the combination with a revolvable armature of a winding, a pressure-winding in inductive relation to the said armature, and an unexcited magnetizable core for said pressure-winding for causing the requisite phase adjustment of the magnetism due to the pressure-winding, substantially as described.

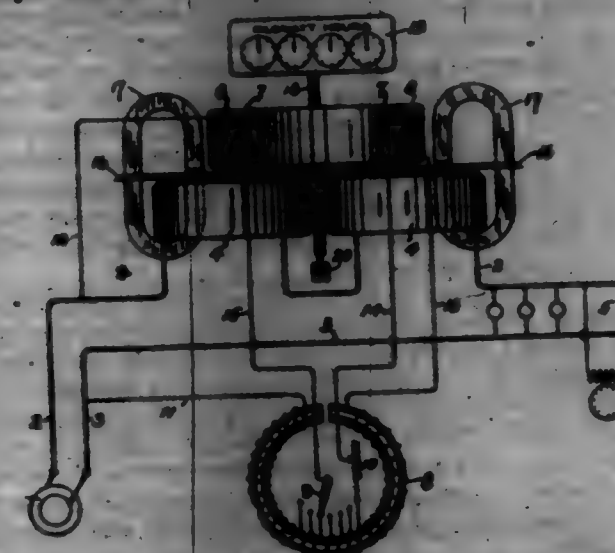
13. In a multifrequency induction meter-meter, the combination with current and pressure energizing windings, of an armature in inductive relation therewith, and an unexcited magnetizable steel core for said pressure-winding for varying the magnetism due to the said coil to compensate for variation of frequency, substantially as described.

698,641. ELECTRIC METER. THOMAS DUBOIS, Fort Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1900. Serial No. 697,999. (No model.)

Claim.—1. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, and a measuring device subjected to the action of the field-windings, substantially as described.

2. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding

being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included in a closed local circuit, the remaining pressure-coil being also included in circuit with the latter portion of the autotransformer, the coils of the pressure-winding being inductively related, and a measuring device subjected to the action of the field-windings, substantially as described.



3. In a system of transmission, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, and an armature in inductive relation to the said pressure-coils, substantially as described.

4. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, a measuring device subjected to the action of the field-windings, and a phase-adjusting device also in circuit with the latter pressure-coil and the said portion of the autotransformer-winding, substantially as described.

5. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils, the coils of the pressure-winding being inductively related, a measuring device subjected to the action of the field-windings, and a phase-adjusting device in circuit with the remaining pressure-coil and the secondary portion of the autotransformer-winding, substantially as described.

6. In a system of transmission, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, an armature in inductive relation to the said pressure-coils, and a phase-adjusting device also in circuit with the latter pressure-coil and the said portion of the autotransformer-winding, substantially as described.

7. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, a measuring device subjected to the action of the field-windings, and a phase-adjusting device also in circuit with the latter pressure-coil and the said portion of the autotransformer-winding, substantially as described.

8. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils, the coils of the pressure-winding being inductively related, a measuring device subjected to the action of the field-windings, and a phase-adjusting device in

circuit with the remaining pressure-coil and the secondary portion of the autotransformer-winding, substantially as described.

9. In a system of transmission, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two inductively-related coils, an autotransformer having its winding included conductively in circuit with one of the pressure-coils and a portion of its winding included conductively in circuit with the remaining pressure-coil, an armature in inductive relation to the said pressure-coils, and a phase-adjusting device also in circuit with the latter pressure-coil and the said portion of the autotransformer-winding, substantially as described.

10. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included in circuit with one of the pressure-coils, and a portion of its winding included conductively in circuit with the remaining pressure-coil, and a measuring element, substantially as described.

11. In a system of alternating-current distribution, the combination with an alternating-current generator of current and pressure field-windings of a meter receiving current from said generator, the latter winding being divided into two coils, an autotransformer having its winding included in circuit with one of the pressure-coils, and a portion of its winding included in circuit with the said pressure-coil, and a measuring element, subjected to the action of the field-windings, substantially as described.

12. In a system of alternating-current distribution, the combination with the source of alternating current of two field-windings of a meter, one of said windings being divided into two coils, of an autotransformer having its winding included conductively in circuit with one of said coils and a portion of its winding included conductively in circuit with the other of said coils, and a measuring device subjected to the action of the field-windings, substantially as described.

13. In a system of alternating-current distribution, the combination with the source of alternating current of two field-windings of a meter, one of said windings being divided into two inductively-related coils, of an autotransformer having its winding included conductively in circuit with one of said coils and a portion of its winding included conductively in circuit with the other of said coils, and a measuring device subjected to the action of the field-windings, substantially as described.

14. In a system of alternating-current distribution, the combination with the source of alternating current of two field-windings of a meter, one of said windings being divided into two inductively-related coils, of an autotransformer having its winding included in circuit with one of said coils, and a portion of its winding included conductively in circuit with the other of said coils, and a measuring device subjected to the action of the field-windings, substantially as described.

15. In a system of alternating-current distribution, the combination with the source of alternating current of two field-windings of a meter, one of said windings being divided into two inductively-related coils, of an autotransformer having its winding included in circuit with one of said coils, and a portion of its winding included in circuit with the remaining coil, and a measuring device subjected to the action of the field-windings, substantially as described.

16. In a meter, the combination with current and pressure field-windings, the pressure field-winding being divided into two coils, of an impedance-winding in circuit with one of said coils, the remaining pressure field-coil being in a closed circuit with a metallically-continuous phase-modifying portion of the impedance-winding, substantially as described.

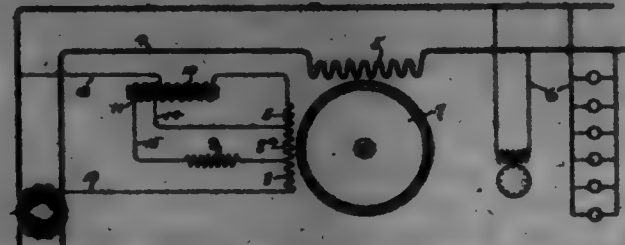
17. In a meter, the combination with current and pressure field-windings, the pressure field-winding being divided into two coils, of an impedance-winding in circuit with one of said coils, the remaining coil being in circuit with a metallically-continuous portion of the impedance-winding, substantially as described.

18. In a phase-modifying circuit, the combination with two field-coils, of an impedance-winding in circuit with one of said coils, a phase-modifying element being included between turns of the impedance-winding, the remaining coil being included in a closed circuit with the said phase-modifying element, substantially as described.

19. In a meter, the combination with current and pressure field-windings, the pressure field-winding being divided into two coils, of an impedance-winding in circuit with one of said coils, a phase-modifying element being included between turns of the impedance-winding, the remaining coil being included in a closed circuit with the said phase-modifying element, substantially as described.

698,642. ELECTRIC METER. THOMAS DUBOIS, Fort Wayne, Ind., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 12, 1900. Serial No. 698,000. (No model.)

Claim.—1. In a meter, the combination with current and pressure windings of an impedance-coil included in series with the pressure-winding and a phase-lagging coil in inductive relation with the aforesaid impedance-coil included in a closed circuit with a portion only of the pressure-winding, substantially as described.



2. In a meter, the combination with field-producing windings of an impedance-coil in series with one of the said windings and a phase-modifying coil included in a closed circuit with a portion only of the latter winding and in inductive relation to the said impedance-coil, substantially as described.

3. In a meter, the combination with current and pressure windings of an impedance-coil included in series with the pressure-winding, and a phase-lagging coil in inductive relation with the aforesaid impedance-coil included in a closed circuit with a portion only of the pressure-winding, substantially as described.

4. In a meter, the combination with field-producing windings of an impedance-coil in series with one of the said windings, and a phase-modifying coil included in a closed circuit with a portion only of the latter winding and in inductive relation to the said impedance-coil, substantially as described.

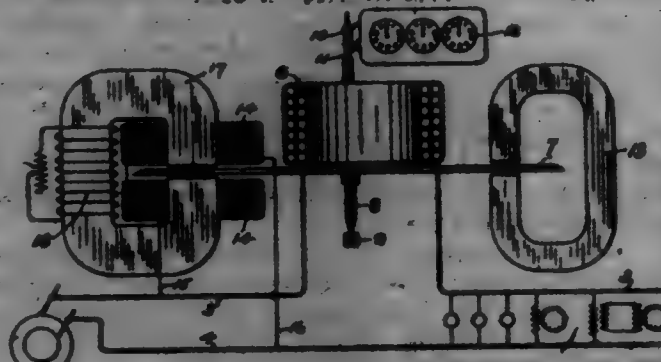
5. In a meter, the combination with current and pressure windings of an impedance-coil included in series with the pressure-winding, and a coil in inductive relation with the impedance-coil included in a closed circuit with the said turns of the pressure-winding, independently of the impedance-coil, substantially as described.

6. In a meter, the combination with field-producing windings of an impedance-coil included in series with the pressure-winding, and a coil in inductive relation with the impedance-coil included in a closed circuit with the said turns, independently of the impedance-coil, substantially as described.

7. In a meter, the combination with current and pressure windings of an impedance-coil included in series with the pressure-winding, and a coil in inductive relation with the impedance-coil included in a closed circuit with the said turns of the pressure-winding, independently of the impedance-coil, substantially as described.

8. In a meter, the combination with field-producing windings of an impedance-coil included in series with the pressure-winding, and a coil in inductive relation with the impedance-coil included in a closed circuit with the said turns, independently of the impedance-coil, substantially as described.

698,648. ELECTRIC METER. THOMAS DUNN, Port Wayne, Ind., assignor to the Thomson & Hubbs Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 24, 1899. Serial No. 698,648. (No model.)



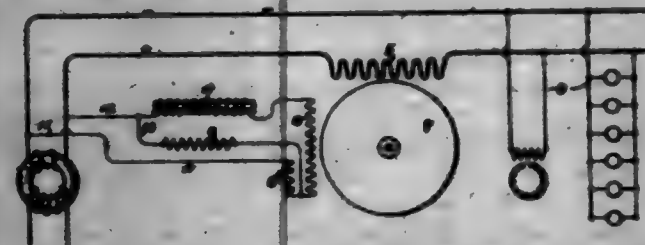
Claim.—1. The combination in an induction meter-motor of a series field-coil; a combined pressure magnetic field and impedance device comprising a laminated iron core with a low-reluctance air-gap and magnetizing-coils mounted upon both sides of said air-gap and upon the adjacent poles of said iron core forming said air-gap; a metallic disk armature revolvable between the poles of and in the air-gap of said iron core; a secondary circuit receiving current by induction from the said combined pressure magnetic field and impedance device; a variable resistance in series with said secondary circuit; a retarding magnetic field governing the revolutions of said armature; and means for registering the revolutions of said armature.

2. The combination in an induction meter-motor, of a combined pressure magnetic field and impedance device provided with magnetizing-coils mounted thereon, a revolvable armature inductively associated with said device, a secondary circuit receiving current by induction from said device, means for varying the current in said secondary circuit, series field-coils also inductively associated with said revolvable armature, the magnetic influence of said series field-coils and said pressure magnetic field-coils acting upon the armature in different areas, substantially as described.

3. The combination in an induction meter-motor, of series field-coils, a combined pressure magnetic field and impedance device, provided with magnetizing-coils mounted thereon, a revolvable armature inductively associated with said device and said series field-coils, a secondary circuit receiving current by induction from said device, a variable resistance in series with said secondary circuit, and a retarding magnetic field governing the revolutions of said armature, the said series field-coils and said combined pressure magnetic field-coils acting upon the armature in different areas, substantially as described.

4. The combination in an induction meter-motor, of series field-coils, a combined pressure magnetic field and impedance device comprising an iron core with a low-reluctance air-gap, provided with magnetizing-coils mounted thereon, a revolvable armature inductively associated with said device and said series field-coils, a secondary circuit receiving current by induction from said device, a variable resistance in series with said secondary circuit, and a retarding magnetic field governing the revolutions of said armature, the said series field-coils and said combined pressure magnetic field-coils acting upon the armature in different areas, substantially as described.

698,644. ELECTRIC METER. THOMAS DUNN, Port Wayne, Ind., assignor to the Thomson & Hubbs Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 14, 1899. Serial No. 698,644. (No model.)



Claim.—1. An electric meter comprising a revolvable armature, series and volt coils for actuating the armature, an impedance-coil connected in series with the volt-coil in a shunt-circuit across the line, and a resistance connected in a parallel shunt-circuit leading around the impedance-coil and connected to the volt-coil between its ends, substantially as described.

2. In an induction meter-motor, the combination of a series coil; a revolvable metallic armature; a volt-coil; an impedance-coil in series with the said volt-coil; a resistance shunted around the said impedance-coil and a portion of the said volt-coil, so as to form; and a portion of the said volt-coil that is traversed by the current flowing through the said impedance-coil and the said resistance, for the purpose described.

3. In an induction meter-motor the combination of a series coil; a revolvable armature; a volt-coil; an impedance-coil; a shunt-circuit including the said impedance-coil and the said volt-coil; a second shunt-circuit including a resistance and a portion of the said volt-coil for obtaining a resultant magnetic field that is in quadrature with the electromotive force at the terminals of the said shunt-circuit.

4. In an induction meter-motor the combination of supply-means; a series coil; a volt-coil having a portion of its convolutions opening the balance of its turns; an impedance-coil in series with the said volt-coil; a resistance in series with a portion of the convolutions of the said volt-coil, the said resistance and said portion of said volt-coil being connected in multiple to the said supply-means; and a revolvable armature in inductive relation to the said series and volt coils.

5. In an induction meter-motor the combination of a series coil; a revolvable metallic armature; a volt-coil; an impedance-coil in series with the said volt-coil; a shunt-circuit including a variable resistance and a portion of the said volt-coil; the said portion of said volt-coil being preferably wound to establish a counter magnetomotive force to the balance of the turns comprising the said volt-coil, as described.

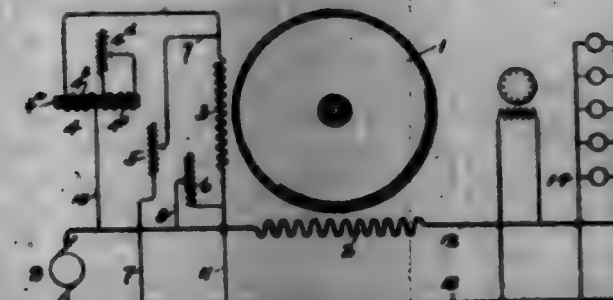
6. In an induction meter-motor the combination of a series coil; a volt-coil of the class described; an impedance-coil in series with said volt-coil; a shunt-circuit comprising and including a variable resistance and a portion of the said volt-coil as described; a revolvable armature in inductive relation to the said series and volt coils; and the herein-described means of varying the number of turns of the said volt-coil employed in series with said variable resistance.

7. In a meter, the combination with an armature, of windings for actuating the same, turns of an impedance-coil connected in series with one of the windings, and a resistance connected at one terminal between the terminals of the winding in shunt with the impedance, whereby turns of the winding are disposed upon each side of the said resistance-terminal, the said resistance being included in a closed circuit with a portion of the latter field-winding and the impedance-winding turns.

8. In a meter, the combination with an armature, of current and pressure windings for actuating the same, turns of an impedance-coil connected in series with one of the windings, and a resistance connected at one terminal between the terminals of the pressure-winding, whereby turns of the pressure-winding are disposed upon each side of the said resistance-terminal, the said resistance being included in a closed circuit with a portion of the pressure-winding and the impedance-winding turns.

9. In a meter, the combination with an armature, of windings for actuating the same, a phase-modifying device connected in series with one of the windings, and a second phase-modifying device connected at one terminal between the terminals of the winding in shunt with the first phase-modifying device, whereby turns of said winding are disposed upon each side of the said terminal of the second phase-modifying device, the latter device being included in a closed circuit with a portion of said field-winding and the first phase-modifying device, substantially as described.

698,645. ELECTRIC METER. THOMAS DUNN, Port Wayne, Ind., assignor to the Thomson & Hubbs Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Feb. 8, 1899. Serial No. 704,751. (No model.)



Claim.—1. The combination with two field-windings of a meter, of means in shunt of one of said windings for adjusting the phase of the magnetism due thereto, a primary ϕ in series with the latter winding, and included therewith across the work-circuit, and a secondary circuit in inductive relation to said primary winding, one terminal of the phase-adjusting means being interposed between the said winding and the primary, while the other terminal of said means is connected with the remaining terminal of the said winding, substantially as described.

2. The combination with two field-windings of a meter, of means in shunt of one of said windings for adjusting the phase of the magnetism due thereto, a primary ϕ in series with the latter winding and placed across the work-circuit, and a secondary circuit in inductive relation to the said primary winding, one terminal of the phase-adjusting means being interposed between the said winding and the primary, while the other terminal of said means is connected with the remaining terminal of the said winding, substantially as described.

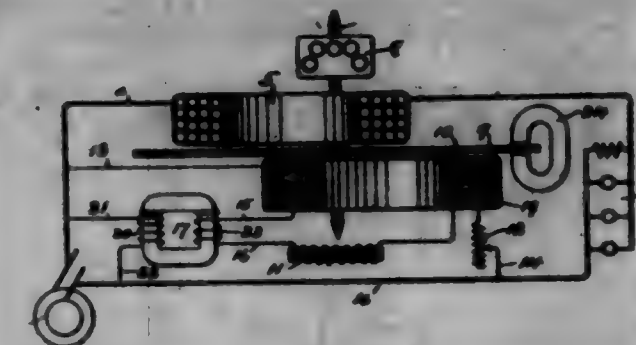
3. The combination with two field-windings of a meter, of means in shunt of one of said windings for adjusting the phase of the magnetism due thereto, a primary ϕ in series with the latter winding and placed across the work-circuit, and a closed secondary circuit in inductive relation to said primary winding, one terminal of the phase-adjusting means being interposed between the said winding and the primary, while the other terminal of said means is connected with the remaining terminal of the said winding, substantially as described.

698,646. ELECTRIC METER. THOMAS DUNN, Port Wayne, Ind., assignor to the Thomson & Hubbs Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Feb. 23, 1899. Serial No. 704,694. (No model.)

Claim.—1. In a system of distribution, the combination with an alternating-current generator, of a meter comprising a revolvable armature, a series field-coil in inductive relation with said armature, and a pressure field-coil for producing a field displaced two hundred and seventy degrees from the pressure, divided into two coils, one of said coils receiving its current from the secondary of a transformer, substantially as described.

2. In an induction meter, the combination of a current-coil, an armature in inductive relation to said current-coil, and a pressure-winding comprising two coils, one of said coils receiving its current from the secondary of a transformer coupled across the circuit-mains thereby to produce a phase difference of two hundred and seventy degrees between the field of said pressure-winding and the pressure, substantially as described.

3. In a system of distribution, comprising transmission-mains and a generator, of a meter adapted for association with said mains, comprising a revolvable armature, a series field-coil in inductive relation therewith, a shunt-winding also in inductive relation to said armature, said shunt-winding being divided into two coils, one of said coils receiving its current directly from the transmission-mains, the second coil receiving its current from the secondary of the transformer included with the transmission-mains and being adapted to produce a stronger field than the first aforesaid coil thereby to secure a phase displacement of two hundred and seventy degrees between the field of said pressure-winding and the improved pressure, substantially as described.



4. In a meter, the combination with current and pressure windings for producing magnetic fields differing in phase, said pressure-winding being divided into two coils, one of said coils receiving its current from the source of supply, of a transformer receiving its current also from said source, the other pressure coil being included in the secondary circuit of said transformer and being adapted to create a stronger magnetism than the first aforesaid pressure-coil, substantially as described.

5. In a meter, the combination with an alternating-current generator, of a meter having current and pressure windings for producing magnetic fields differing in phase, the pressure-winding being divided into two coils, one of said coils being inductively connected with the source of current, of a transformer having its primary inductively connected with the same source of current and its secondary included in a circuit with the other of said coils, said coils being in inductive relation with each other, the last aforesaid coil being adapted to create a stronger magnetic field than the first aforesaid pressure-coil, thereby to secure a phase displacement of two hundred and seventy degrees between the magnetic field due to each pressure-winding and the improved pressure, and an armature for said meter in inductive relation with the meter-windings, substantially as described.

6. In a meter, the combination with a revolvable armature, of a series coil in inductive relation therewith, a shunt-winding also in inductive relation with said armature divided into two coils, one of said coils receiving its current from the secondary of a transformer, said coil being adapted to create a stronger magnetic field than the first aforesaid pressure-coil, substantially as described.

7. In a meter, the combination with a revolvable armature, of a series coil in inductive relation therewith, a pressure-winding comprising two coils, one of said coils being adapted for inclusion with the source of supply, the second pressure-coil being adapted for inclusion with the secondary of a transformer included with the source of supply, the last aforesaid coil being adapted to create a stronger magnetic field than the first aforesaid coil, thereby to secure a phase displacement of two hundred and seventy degrees between the field due to the pressure-winding and the improved pressure, substantially as described.

8. In a meter, the combination with a revolvable armature, of a series coil in inductive relation therewith, a pressure-winding comprising two coils, one of said coils being adapted for inclusion with the source of supply, the second pressure-coil being adapted for inclusion with the secondary of a transformer included with the source of supply, the last aforesaid coil being adapted to create a stronger magnetic field than the first aforesaid coil, thereby to secure a phase displacement of two hundred and seventy degrees between the field due to the pressure-winding and the improved pressure, substantially as described.

9. In a meter, the combination with a revolvable armature, of a series coil in inductive relation therewith, a pressure-winding comprising two coils, one of said coils being adapted for inclusion with the source of supply, the second pressure-coil being adapted for inclusion with the secondary of a transformer included with the source of supply, the last aforesaid coil being adapted to create a stronger magnetic field than the first aforesaid coil, thereby to secure a phase displacement of two hundred and seventy degrees between the field due to the pressure-winding and the improved pressure, substantially as described.

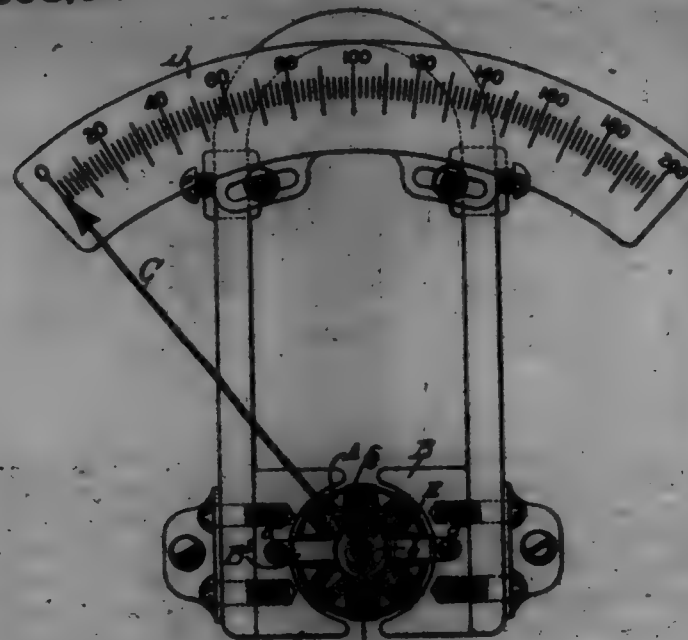
698,647. ELECTRIC METER. THOMAS DUNN, Port Wayne, Ind., assignor to the Thomson & Hubbs Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Apr. 22, 1899. Serial No. 714,912. (No model.)

Claim.—1. An indicating electric meter provided with an armature comprising an outer shell of non-magnetic metal, and an inner lining of magnetic metal, and coils mounted on said armature and connected in the circuit to be measured.

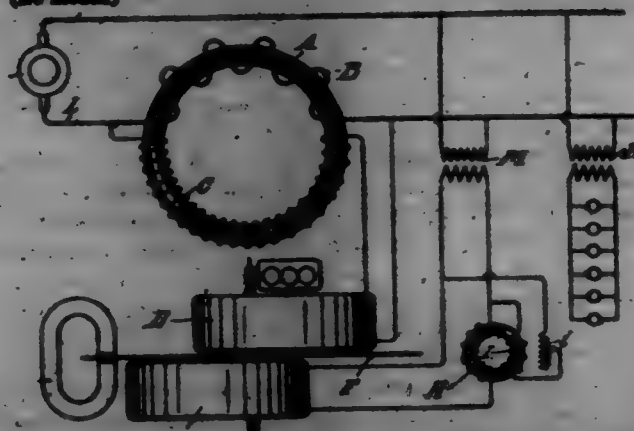
2. In an electric meter, the combination with an armature-winding, of an outer shell of non-magnetic metal fixed with relation to the said winding, and an inner lining of magnetic metal, substantially as described.

3. In an electric meter, the combination with an armature-winding, of an outer shell of non-magnetic metal fixed with relation to the said winding, and an inner body of magnetic metal also fixed with relation to the said winding, substantially as described.

698,647.



698,648. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed May 24, 1906. Serial No. 718,082. (No model.)



Claim.—1. The combination with a main circuit, of a transformer having its primary coil connected in series in said main circuit and its secondary coil connected in shunt to its primary coil, and an energizing coil connected in series in said secondary circuit.

2. The combination with a series transformer having its secondary connected in shunt to its primary coil, of a measuring instrument or meter provided with an energizing coil connected in series in said secondary circuit.

3. The combination with a main circuit of a transformer having its primary coil connected in series in said main circuit and its secondary coil connected in shunt to its primary coil, an energizing coil connected in series in the secondary circuit, and means for adjustingly varying the relative proportions of the shunt and secondary coil.

4. The combination with a main circuit, of a transformer having its primary coil connected in series in said main circuit and its secondary coil connected in shunt to its primary coil, an energizing coil connected in series in the secondary circuit, and means for adjustingly varying the length of the secondary coil.

5. The combination with a primary circuit, of means for producing an induced current from the primary current, means for deriving a shunt-current from said primary current, and a meter or measuring instrument energized by the combined action of said induced and shunt currents.

6. In a system of distribution, the combination with a source of alternating current, of a winding receiving current therefrom, a second winding inductively related to the first and included in a shunt-circuit about the same, and a meter having a winding included in the said shunt, substantially as described.

7. In a system of distribution, the combination with a transformer having its primary of few turns and included entirely in the circuit, and having its secondary of a larger number of turns and included in a shunt-circuit about the primary, of a meter having an energizing-winding included in said shunt in series with the secondary, substantially as described.

8. In a system of distribution, the combination with a transformer having its primary of few turns and included entirely in the circuit, and having its secondary of a larger number of turns and included in a shunt-

circuit of said primary, of a wattmeter having a current field-producing winding included in the shunt-circuit and in series with the secondary, said meter also having a pressure field-winding, substantially as described.

9. In a system of electrical distribution, the combination with a source of alternating current, of a transformer having its primary-winding receiving current from the said source, the secondary of the transformer being included in a shunt-circuit about the said primary, and a meter having a winding included in the said shunt-circuit, substantially as described.

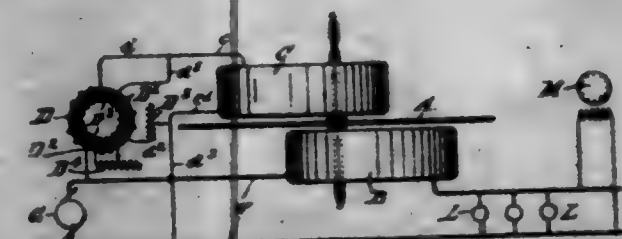
10. The combination with an inducting-coil, of an induced coil in inductive relation therewith included in shunt about the said inducting-coil, and a wattmeter having one of its windings included in the said shunt-circuit, substantially as described.

11. The combination with a transformer having its secondary included in a shunt-circuit about its primary, of a wattmeter having a winding included in the said shunt-circuit, substantially as described.

12. The combination with an inducting-coil, of an induced coil in inductive relation therewith included in shunt about the said inducting-coil, and a wattmeter having its current-winding included in the said shunt-circuit, substantially as described.

13. The combination with a transformer having its secondary included in a shunt-circuit about its primary, of a wattmeter having its current-winding included in the said shunt-circuit, substantially as described.

698,649. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed July 10, 1906. Serial No. 728,585. (No model.)



Claim.—1. An electric meter provided with an armature, series and volt coils inductively actuating the armature, an impedance-coil connected in the shunt-circuit with the volt-coil, and a secondary coil placed in inductive relation to the impedance-coil and having its terminals connected with the terminals of the volt-coil, the said secondary coil being directly connected in multiple with the winding in shunt with the impedance-coil, substantially as described.

2. An electric meter provided with an armature, series and volt coils for inductively actuating the armature, an impedance-coil connected in the shunt-circuit with the volt-coil, a secondary coil placed in inductive relation to the impedance-coil and having its terminals connected with the terminals of the volt-coil, and a closed-circuit adjusting-coil placed in inductive relation to the impedance and secondary coils.

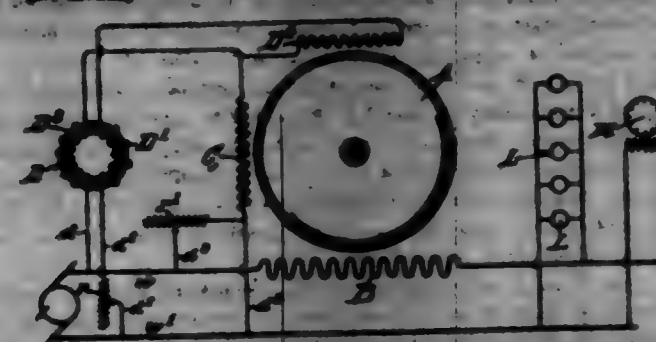
3. An electric meter provided with an armature, series and volt coils inductively actuating the armature, an impedance-coil connected in a shunt-circuit with a volt-coil, a secondary coil placed in inductive relation to the impedance-coil, and having its terminals connected with the terminals of the volt-coil, the secondary coil being connected directly in multiple with the volt-coil in shunt with the impedance-coil, substantially as described.

4. The combination with the work-circuit, of an electric meter provided with an armature A, an energizing-coil B connected in series in said work-circuit, an energizing-coil C connected in shunt across the line, an impedance-coil D inserted in said shunt-circuit, a secondary coil E placed in inductive relation to the impedance-coil D having its terminals connected with the terminals of the coil C, the secondary coil being directly connected in multiple with the energizing-coil in shunt with the impedance-coil, a measuring device F and a magnetic drag G, substantially as described.

5. An electric meter provided with an armature, two windings for effecting the operation of the armature, an impedance-coil connected in series with one of the windings, and a secondary coil placed in inductive relation to the impedance-coil and directly connected in multiple with the field-winding in series with the impedance-coil, substantially as described.

6. An electric meter provided with an armature, series and volt windings for effecting the operation of the armature, an impedance-coil connected in series with the volt-winding and a secondary coil placed in inductive relation to the impedance-coil and having its terminals connected with the terminals of the volt-winding, the secondary coil being directly connected in multiple with the winding in series with the impedance-coil, substantially as described.

698,650. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1906. Serial No. 728,586. (No model.)



Claim.—1. An electric meter provided with an armature, a series coil connected in series in the work-circuit, a volt-coil connected in two shunt-circuits between the main leads of the work-circuit, and impedance-coils inserted in each of said shunt-circuits, substantially as described.

2. An electric meter provided with an armature, a series field-coil connected in series in the work-circuit, a volt field-coil connected in two shunt-circuits between the main leads of the work-circuit, and impedance-coils inserted in each of said shunt-circuits and arranged in inductive relation to each other, substantially as described.

3. An electric meter provided with an armature, a series field-coil connected in series in the work-circuit, a volt field-coil connected in two shunt-circuits between the main leads of the work-circuit, impedance-coils inserted in each of said shunt-circuits, and a starting-coil inserted in one of said shunt-circuits, substantially as described.

4. In a meter, the combination with current and pressure windings, the pressure-windings being subdivided into two coils having a common terminal, an impedance-coil connecting the said common terminal with one side of a distribution-circuit, and a second impedance-coil connecting the remaining terminal of a pressure-coil with the other side of the distribution-circuit while the remaining terminal of the remaining pressure-coil is also connected with the latter side of the distribution-circuit, substantially as described.

5. In a meter, the combination with current and pressure windings, the pressure-windings being subdivided into two coils having a common terminal, an impedance-coil connecting the said common terminal with one side of a distribution-circuit, and a second impedance-coil connecting the remaining terminal of a pressure-coil with the other side of the distribution-circuit while the remaining terminal of the remaining pressure-coil is also connected with the latter side of the distribution-circuit, the impedance-coils being inductively related, substantially as described.

6. In a meter, the combination with current and pressure windings, the pressure-windings being subdivided into two coils having a common terminal, an impedance-coil connecting the said common terminal with one side of a distribution-circuit, a second impedance-coil connecting the remaining terminal of a pressure-coil with the other side of the distribution-circuit while the remaining terminal of the remaining pressure-coil is also connected with the latter side of the distribution-circuit, and a phase-modifying device connected in shunt of the distribution-main, substantially as described.

7. In a meter, the combination with current and pressure windings, the pressure-windings being subdivided into two coils having a common terminal, an impedance-coil connecting the said common terminal with one side of a distribution-circuit, a second impedance-coil connecting the remaining terminal of a pressure-coil with the other side of the distribution-circuit while the remaining terminal of the remaining pressure-coil is also connected with the latter side of the distribution-circuit, the impedance-coils being inductively related, and a phase-modifying device connected in shunt of the distribution-main, substantially as described.

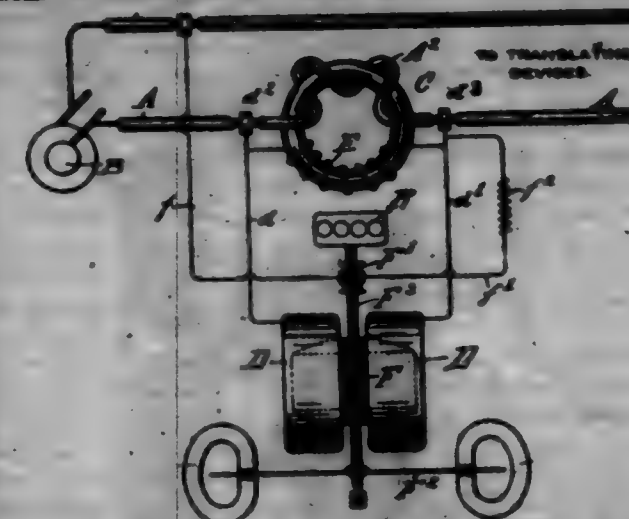
698,651. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 21, 1906. Renewed Oct. 2, 1907. Serial No. 77,592. (No model.)

Claim.—1. The combination with a main circuit, of a transformer having its primary coil connected in series in said main circuit and its secondary coil connected in shunt to its primary coil, and an energizing-coil also connected in shunt to the primary coil and in parallel with the secondary circuit.

2. The combination with a series transformer having its secondary connected in shunt to its primary circuit, of a measuring instrument or meter provided with an energizing-coil connected in shunt to the primary circuit and in parallel with the secondary circuit.

3. The combination with the main circuit, of a transformer having its primary coil connected in series with the main circuit, and its second-

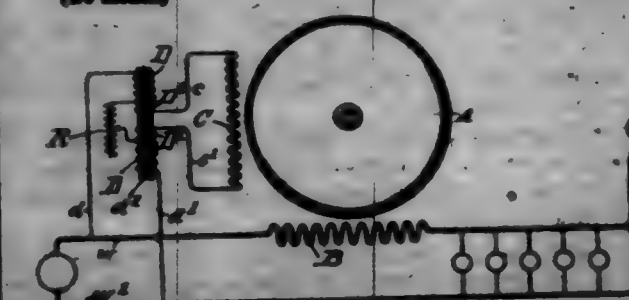
ary coil connected in shunt to its primary coil, an energizing-coil also connected in shunt to the primary coil and in parallel with the secondary coil, and means for adjustingly varying the relative proportions of the shunt circuit.



4. The combination with a series transformer having its secondary connected in shunt to its primary circuit, of a measuring instrument or meter provided with an energizing-coil also connected in shunt to the primary circuit and in parallel with the secondary circuit, and means for adjustingly varying the number of turns in the secondary coil of the transformer.

5. The combination with a series transformer having its secondary connected in shunt to its primary circuit, of a measuring instrument or meter provided with an energizing-coil also connected in shunt to the primary circuit of the transformer and in parallel with the secondary circuit, and means for adjustingly varying the resistance of said secondary circuit.

698,652. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 22, 1906. Serial No. 728,587. (No model.)



Claim.—1. The combination, with the armature, series and volt field-coils, and an impedance-coil in series with the volt field-coil in a shunt-circuit across the line, of a resistance connected in said shunt-circuit in parallel with the field-coil and including the turns of the impedance-coil.

2. The combination, with the armature, series and volt field-coils, and an impedance-coil in series with the volt field-coil in a shunt-circuit across the line, of a resistance connected in said shunt-circuit in parallel with the volt field-coil and forming therewith a shunt circuit including a portion of the turns of the impedance-coil.

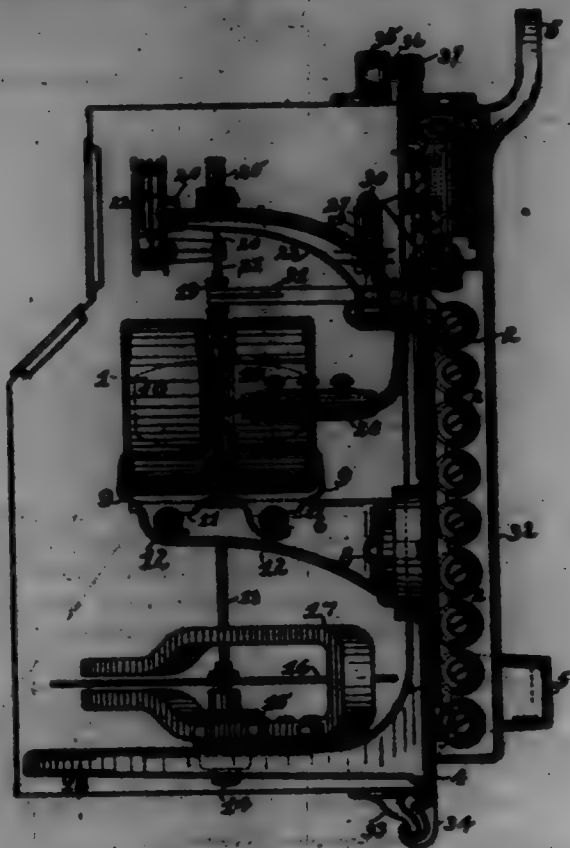
3. The combination, with the armature, series and volt field-coils, and an impedance-coil in series with the volt field-coil in a shunt-circuit across the line, of a resistance connected in said shunt-circuit in parallel with the volt field-coil and forming therewith a shunt circuit including a portion of the turns of the impedance-coil, and means for varying the number of the included turns.

4. The combination, with the armature, series and volt field-coils, and an impedance-coil connected in series with each terminal of the volt field-coil in a shunt-circuit across the line, of a resistance connecting said impedance-coils in parallel with the volt field-coil and including a portion of the turns of each.

5. The combination, with an armature, of field-windings therefor, an impedance-coil in shunt with one of the windings, a resistance in shunt of one of the windings including turns of the impedance-coil and forming therewith a shunt circuit, substantially as described.

698,653. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 22, 1906. Renewed Oct. 2, 1907. Serial No. 77,591. (No model.)

Claims.—1. In a direct-current motor, the combination with the field portion of the motor, of an armature, a frame for supporting the armature and field portion, and means for effecting the universal adjustment of the field portion readily to effect the proper relative disposition of the field portion and armature, substantially as described.



2. In a direct-current motor, the combination with an armature, of a field-coil adjustably and detachably secured in front of the armature, and a frame for the motor for supporting the armature and field-coil, substantially as described.

3. In a direct-current motor, the combination with an armature, of two field-coils, one located in front of the armature and the other to the rear thereof, the rear field-coil being adjustable with relation to the armature, substantially as described.

4. In a direct-current motor, the combination with an armature, of the two field-coils, one located in front of the armature and the other to the rear thereof, the said coils being adjustable with relation to the armature, substantially as described.

5. In a direct-current motor, the combination with an armature, of two field-coils, one located in front of the armature and the other to the rear thereof, the said field-coils being adjustable with relation to the armature and to each other, substantially as described.

6. In a direct-current motor, the combination with an armature, of two field-coils, one located in front of the armature and the other to the rear thereof, the said field-coils being mounted to have swinging adjustment.

7. In a direct-current motor, the combination with an armature, of a horizontally-adjustable field portion thereof, and frame portions for supporting the armature and field portion, substantially as described.

8. In a direct-current motor, the combination with an armature, of a field portion thereof adjustable in a vertical plane, and frame portions for supporting the armature and the field portion, substantially as described.

9. In a direct-current motor, the combination with a frame thereof, of a vertically-adjustable horizontally-extending base secured to the frame, field-coils mounted upon the base, and an armature located between the field-coils, substantially as described.

10. In a direct-current motor, the combination with a frame thereof, of a vertically-adjustable horizontally-extending base secured to the frame, field-coils mounted upon the base, an armature located between the field-coils, and means for supporting the field-coils upon the base, permitting of the horizontal adjustment of the field-coils upon the base, substantially as described.

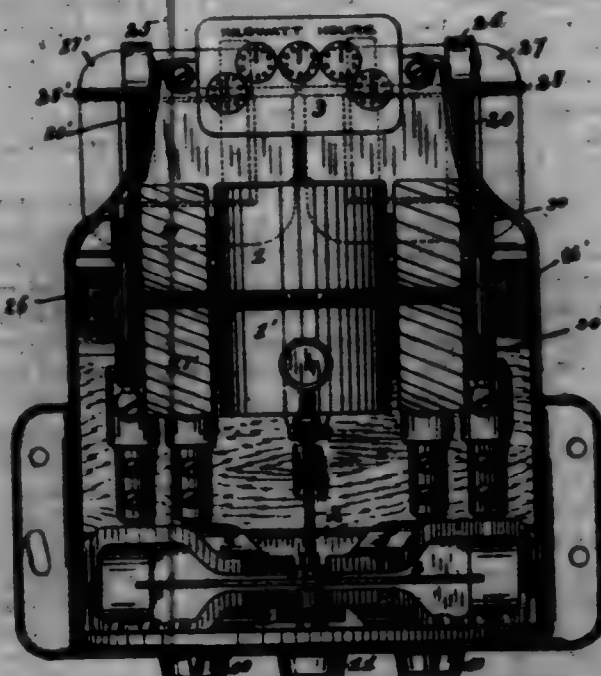
11. The combination with the vertical back portion of the frame of a motor, of a support 23 projecting forwardly therefrom, a base 18 also projecting forward from the vertical back portion of the frame, a bearing carried by the base, an armature spindle or shaft journaled at its lower end in said bearing, an armature upon the spindle, a commutator disk provided upon the said spindle, an upper bearing for the spindle carried by the support 23 intermediate between the forward and rear ends of the support, and a counting-train engaging the spindle and mounted above the

commutator upon the forward end of the support 23 in front of the upper bearing for the spindle, substantially as described.

12. In a direct-current motor, the combination with an armature mounted to rotate in a horizontal plane, of a commutator therefor, two horizontally-disposed commutator-brushes each spirally formed at one end and adapted to engage the commutator at the other end, vertically-disposed spindles 26, to which the brushes are secured at their spiral ends, vertical brush-holders 27 provided with bases for receiving the said spindles, the spindles being rotatable in said bases, whereby the adjustment of the brushes may readily be effected, and clamping-screws 29 passed through the sides of the brush-holders transversely and curving to engage the spindles 26 to cause the same in the position in which they have been rotated, substantially as described.

13. In a direct-current motor, the combination with an armature mounted to rotate in a horizontal plane, of a commutator therefor, two horizontally-disposed commutator-brushes, each spirally formed at one end and adapted to engage the commutator at the other end, vertically-disposed spindles 26 to which the brushes are secured at their spiral ends, vertical brush-holders 27 provided with elongated bases for receiving the said spindles, the spindles being rotatable and movable vertically in said bases, whereby the rotary and vertical adjustment of the brushes may readily be effected, and clamping-screws 29 passing through the sides of the brush-holders transversely and curving to engage the spindles 26 to secure the same in the position to which they have been rotated and vertically placed, substantially as described.

698,654. ALTERNATING-CURRENT METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Aug. 26, 1899. Serial No. 724,694. (No model.)

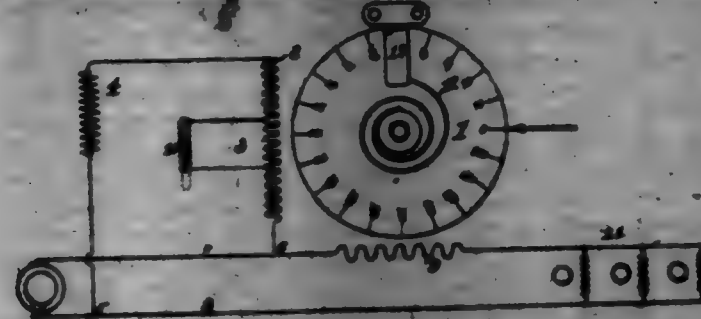


Claims.—1. In a voltmeter for polyphase circuits, the combination with a plurality of rotatable armatures mounted upon a common shaft, of series coils, one in inductive relation with each of said armatures, each series coil being adapted for induction with an independent electric circuit; a shunt-coil across the main circuit, in inductive relation with each armature, a second shunt-coil also in inductive relation with each of said armatures and each of the shunt-coils, the second shunt-coils receiving current from the shunt-coils associated therewith by induction, means for regulating the degree of induction, a variable resistance inserted with each of said second shunt-coils, whereby the magnetic effect due to the shunt-coils are caused to differ in phase ninety degrees from the impressed pressure of the respective circuits, a single counting-train operated by the said shaft, a rotating-disk mounted upon said shaft, said single initial starting-coil 31 associated with one of the said armatures to compensate for friction and other losses, said single initial starting-coil operating in a dual capacity to compensate for the said losses of each of said armatures.

698,655. ALTERNATING-CURRENT MOTOR-METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 12, 1899. Renewed Oct. 14, 1901. Serial No. 73,655. (No model.)

Claims.—1. In a device of the class described, the combination with an armature of a series and a shunt coil in inductive relation therewith,

and means for creating a counter electromotive force in said shunt-coil whereby the magnetic effect of said shunt-winding is advanced in phase to uniformly with that of the impressed electromotive force of the circuit, said armature moving proportionally to the magnetic field due to the said field and shunt-coils, substantially as described.



2. In a device of the class described, the combination with an armature of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding and a subsidiary circuit in shunt to said shunt-winding and including adjustable means for producing a counter electromotive force in said shunt-winding, said armature moving proportionally to the magnetic field due to the said field and shunt windings, substantially as described.

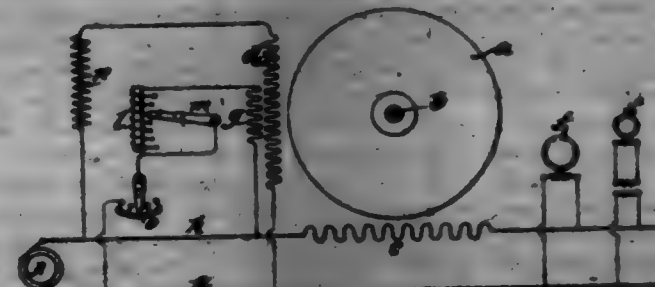
3. In a device of the class described, the combination with an armature of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding, a subsidiary circuit in shunt to said shunt-winding, and adjustable means for inducting more or less of said shunt-winding in said subsidiary circuit, said armature moving proportionally to the magnetic field due to the said field and shunt windings, substantially as described.

4. In an induction motor-meter, the combination with a rotatable armature of a series and a shunt winding in inductive relation therewith, a resistance-coil in series with said shunt-winding, a subsidiary circuit in shunt to said shunt-winding, adjustable means for producing a counter electromotive force in said shunt-winding, a rotating device associated with said armature and means for indicating the movement of said armature, said armature moving proportionally to the magnetic field due to the said field and shunt windings.

5. In a device of the class described, the combination with an armature, of a series and a shunt coil in inductive relation therewith, means for creating a counter electromotive force in said shunt-coil whereby the magnetic effect of said shunt-winding is advanced in phase to uniformly with that of the impressed electromotive force of the circuit, and means for indicating the magnetic effect of the lag of the current behind said electromotive force, substantially as described.

6. In a device of the class described, the combination with an armature of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding, a subsidiary circuit in shunt to said shunt-winding and including adjustable means for producing a counter electromotive force in said shunt-winding, and means for indicating the magnetic effect of the lag of the current behind said electromotive force, substantially as described.

698,656. INDUCTION MOTOR-METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 12, 1899. Renewed Dec. 12, 1901. Serial No. 64,656. (No model.)



Claims.—1. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, a resistance-coil in series with the said shunt-winding, and an auxiliary circuit adapted to modify the magnetic effect of said shunt-winding whereby the magnetism of said shunt-winding may be brought into uniformity with the phase of the impressed electromotive force of the circuit.

2. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, and an auxiliary winding adapted to modify the magnetic effect of

said shunt-winding and to bring it in phase with the impressed electromotive force of the circuit, substantially as described.

3. In a device of the class described, the combination with an armature, of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding, and an auxiliary winding adapted to modify the magnetic effect of said shunt-winding and to bring it in phase with the impressed electromotive force in the circuit, substantially as described.

4. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding, an auxiliary shunt-coil, an impedance-coil in said auxiliary shunt-coil, and a shunt-winding also in said auxiliary circuit and adapted to modify the magnetic effect of said main shunt-winding and to bring it in phase with the impressed electromotive force of the circuit, substantially as described.

5. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, an auxiliary shunt-winding adapted to carry current in opposition to said main shunt-winding, and means for adjusting the combined magnetic effects of the two shunt-windings whereby the resultant magnetic effect thereof upon the rotatable element is brought in phase with the impressed electromotive force of the circuit, substantially as described.

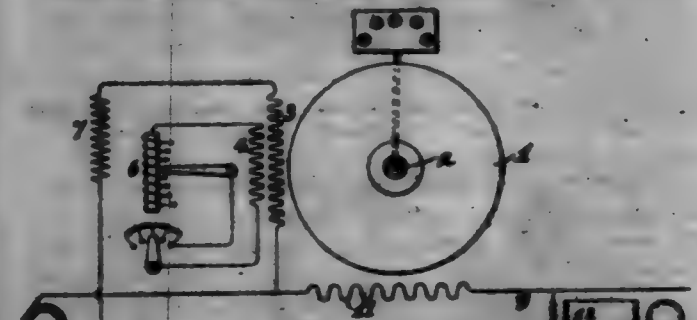
6. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with said shunt-winding, an auxiliary shunt-winding carrying current in opposition to that in said main shunt-winding, and an adjustable impedance-coil in series with said auxiliary shunt-winding whereby the combined magnetic effects of the main and auxiliary shunt-windings may be brought in phase with the impressed electromotive force of the circuit, substantially as described.

7. In a device of the class described, the combination with a rotatable element, of a series and a shunt winding in inductive relation therewith, a non-inductive resistance in series with the said shunt-winding, an auxiliary shunt-winding adapted to carry current in opposition to that in said main shunt-winding, an adjustable impedance-coil, and an adjustable non-inductive resistance in series with said auxiliary shunt-winding whereby the combined magnetic effects of the main and auxiliary shunt-windings may be brought in phase with the impressed electromotive force of the circuit, substantially as described.

8. In an induction motor-meter of the class described, the combination with the armature a, the series winding c, shunt-winding d, of the non-inductive resistance e in shunt with said shunt-winding d, the auxiliary shunt-winding g, carrying current in opposition to that in winding d, and an adjustable impedance-coil f, whereby the magnetic field due to the pressure-winding is maintained in phase with the pressure, substantially as described.

9. In an induction motor-meter of the class described, the combination with the armature a, the series winding c, the shunt-winding d, of the non-inductive resistance e in shunt with said shunt-winding d, the auxiliary shunt-winding g, carrying current in opposition to that in winding d, an adjustable impedance-coil f, and the adjustable resistance e, whereby the magnetic field due to the pressure-winding is maintained in phase with the pressure, substantially as described.

698,657. INDUCTION MOTOR-METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 12, 1899. Renewed Dec. 12, 1901. Serial No. 64,657. (No model.)



Claims.—1. In a device of the class described, the combination with an armature, of a series and a shunt winding in inductive relation therewith, a secondary circuit in inductive relation with said armature and also with said shunt-winding, and means for producing a resultant magnetism of said shunt-winding in phase with the impressed electromotive force of the circuit, substantially as described.

2. In a device of the class described, the combination with a rotatable element, of a series and a shunt-winding in inductive relation therewith,

with, a resistance-coil in series with said shunt-winding, a secondary circuit including a winding, and means for producing therein electromotive force whereby a magnetic field is produced in phase with the electromotive force of the main circuit, substantially as described.

3. In a device of the class described, the combination with a reversible structure, of a series and a shunt winding in inductive relation therewith, a resistance-coil in series with said shunt-winding, a secondary circuit receiving current from the circuit including said shunt-winding, and means for producing and maintaining a magnetic field in phase with the impressed electromotive force of the main circuit, substantially as described.

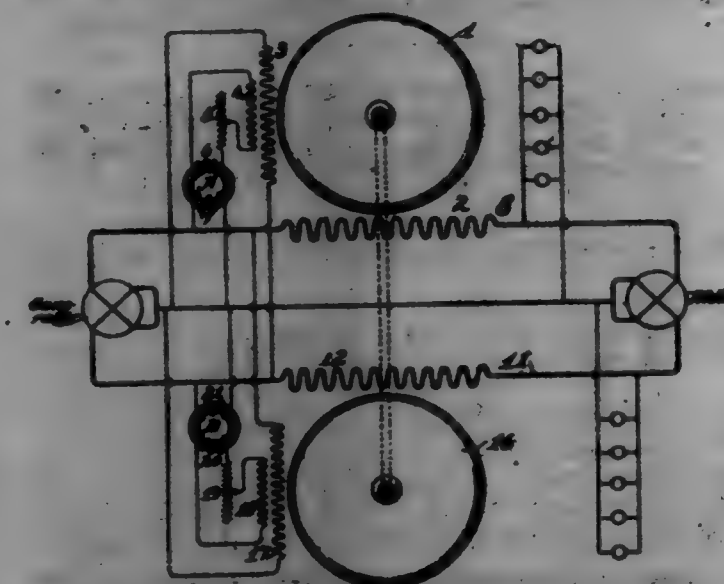
4. In an induction motor-meter, the combination with a reversible structure, of a series and a shunt winding in inductive relation therewith, a resistance-coil in series with said shunt-winding, a secondary circuit receiving current by induction from the circuit including said shunt-winding, and an impedance-coil in said secondary circuit whereby the phase of the magnetism of the shunt field-winding is maintained in phase with the impressed electromotive force of the circuit, substantially as described.

5. In a device of the class described, the combination with a reversible structure, of a series and a shunt winding in inductive relation therewith, a secondary circuit receiving current by induction from the circuit including said shunt-winding, a winding in said secondary circuit also in inductive relation with said structure, and means for carrying and maintaining the magnetism of said shunt field-winding in phase with the impressed electromotive force of the main circuit and for exerting upon the movable element a torque varying as the sine of the angle of lag of current of the main circuit behind its impressed electromotive force, substantially as described.

6. In an induction motor-meter, the combination with an armature, of a series and a shunt winding in inductive relation therewith, a resistance-coil in series with said shunt-winding, a secondary circuit receiving its current by induction, a winding included in said secondary circuit and in inductive relation with said shunt-winding, means for adjusting the phase of the current in said secondary circuit to bring the resultant magnetism of the pressure-winding into phase with the impressed electromotive force of the circuit, means for exerting upon the movable element a torque varying as the sine of the angle of lag of current behind the electromotive force, and means for indicating the variation of said torque, substantially as described.

7. The combination in an induction motor-meter, with a reversible structure 1, of a series winding 11, the shunt-winding 2, the non-inductive resistance 7 in circuit with said shunt-winding 2, the secondary winding 4, whereby the field due to the pressure-winding is maintained in phase with the pressure, the adjustable impedance-coil 6, and the adjustable resistance 5 in series with said secondary winding 4, substantially as and for the purpose specified.

698,658. MOTOR-METER. THOMAS BROWN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 25, 1898. Renewed Jan. 6, 1902. Serial No. 24,425. (No model.)



Claim.—1. In a polyphase-current induction motor-meter, the combination with two motor members, each comprising series and pressure windings for receiving current from the circuit, and each having an armature in inductive relation with the said windings, of transformers having their primaries connected in parallel in circuits including said series windings, and auxiliary pressure-windings in the secondary circuits of said transformers adapted to modify the magnetism of the said pressure-wind-

ings to bring the same into quadrature with the impressed electromotive force of the circuit including said series winding, a pressure-winding of one motor member receiving current from the circuit supplying current to the current-winding of the other motor member, substantially as described.

2. In a polyphase-current induction motor-meter, the combination with two or more armatures coupled together, of a current and a pressure-winding in inductive relation with each of said armatures, each pressure-winding receiving current from the circuit applying the current-winding associated with the other pressure-winding, the current in each pressure-winding lagging beyond ninety degrees with relation to the pressure in the circuit including its associated current-winding, and a second pressure-winding associated with each of the abovesaid pressure-windings and carrying current lagging less than ninety degrees with relation to the pressure in the circuit including its associated current-winding, whereby the magnetism due to said pressure-windings is brought in quadrature with the electromotive force of the circuit including said current-winding, substantially as described.

3. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, transformers having their primaries connected in parallel in the circuit including said current-windings, a second pressure-winding in the secondary circuit of each of said transformers and adjusting resistance in series with said last-named windings, whereby the magnitude of the current in said secondary circuits may be modified and the magnetism of the pressure-windings be brought in quadrature with the impressed electromotive force of the circuit including said current-coil, a pressure-winding of one motor member receiving current from the circuit supplying current to the current-winding of the other motor member, substantially as described.

4. In a polyphase-current induction motor-meter, the combination with two motive sets of windings each comprising a current and a pressure winding each pressure-winding receiving current from the circuit applying the current-winding associated with the other pressure-winding, the current in each pressure-winding lagging beyond ninety degrees with relation to the pressure in the circuit including its associated current-winding, and a second winding associated with each of said pressure-windings and carrying current lagging less than ninety degrees with relation to the pressure in the circuit including its associated current-winding, whereby the magnetism due to said pressure-windings is brought in quadrature with the electromotive force of the circuit including said current-winding, and a movable element subjected to the action of said motive sets of windings, substantially as described.

5. In a polyphase-current induction motor-meter, the combination with two motive sets of windings each comprising a current and a pressure winding, each pressure-winding receiving current from the circuit applying the current-winding associated with the other pressure winding, the current in each pressure-winding lagging beyond ninety degrees with relation to the pressure in the circuit including its associated current-winding, and a second winding associated with each of said pressure-windings and carrying current lagging less than ninety degrees with relation to the pressure in the circuit including its associated current-winding, and means included in series with each of said second pressure-windings for adjusting the magnetism due thereto, whereby the magnetism due to said pressure-windings is brought in quadrature with the electromotive force of the circuit including said current-winding, and a movable element subjected to the action of said motive sets of windings, substantially as described.

6. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit carrying a current with a phase ninety degrees behind that of the circuit including the current-winding, a transformer having its primary connected in shunt of a circuit including the current-winding, and a winding in circuit with the secondary of said transformer and adapted to maintain the magnetism of the pressure-winding in quadrature with the electromotive force of the circuit including the current-winding, substantially as described.

7. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit carrying a current with a phase ninety degrees behind that of the circuit including the current-winding, a transformer having its primary connected in shunt of a circuit including the current-winding, and a winding in circuit with the secondary of said transformer and adapted to maintain the magnetism of the pressure-winding in quadrature with the electromotive force of the circuit including the current-winding, substantially as described.

8. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit carrying a current with a phase ninety degrees behind that of the circuit including the current-winding, and a transformer having its primary connected in shunt of a circuit including the current-winding, and a winding in circuit with the secondary of said transformer and adapted to maintain the magnetism of the pressure-winding in quadrature with the electromotive force of the circuit including the current-winding, substantially as described.

former having its primary connected in shunt of a circuit including the current-winding, and a winding and an adjustable resistance in shunt with the secondary of said transformer and adapted to maintain the magnetism of the pressure-winding in quadrature with the electromotive force of the circuit including the current-winding, substantially as described.

9. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including the current-winding, and means extending to the pressure-winding circuit for carrying and maintaining a lag of ninety degrees between the magnetism of the pressure-winding and the electromotive force of the circuit including the current-coil, substantially as described.

10. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including the current-winding, a transformer having its primary connected in shunt of a circuit including the current-winding, and a winding in the circuit with the secondary of the said transformer and associated with the said pressure-winding, whereby the resultant magnetism of pressure-winding is maintained in quadrature with the electromotive force of the circuit including the current-winding, substantially as described.

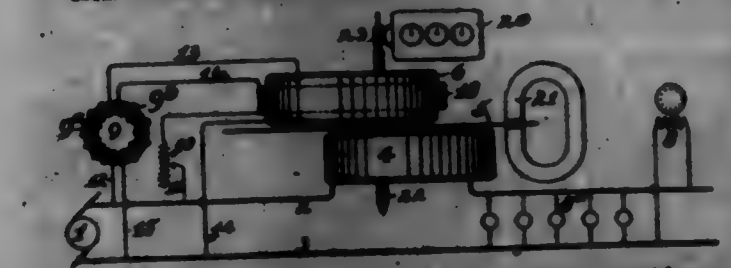
11. In a polyphase-current meter, the combination with two motor members, each having current and pressure windings for association with the circuit, of transformers having their primaries connected in parallel in circuits including said current-windings, and auxiliary pressure-windings in the secondary circuits of said transformers adapted to secure the desired modification of the phase of the magnetism due to the pressure-windings, the said pressure-windings receiving current from circuits respectively different from those supplying their associated auxiliary pressure-windings, substantially as described.

12. In a device of the class described, the combination with current-windings, of pressure-windings each included in a circuit different from that including the corresponding current-winding, means extending to the pressure-winding circuits for carrying and maintaining the desired phase relation between the magnetism of the pressure-winding and the electromotive force of the circuit including the corresponding current-winding, and a movable element subject to the action of said windings, substantially as described.

13. In a device of the class described, the combination with current-windings, of pressure-windings, each included in a circuit different from that including the corresponding current-winding, a transformer associated with each pressure-winding, the primary of each transformer receiving current from the circuit including the current-winding corresponding to the pressure-winding associated with the transformer, and a secondary pressure-winding in each secondary transformer-circuit each of the first abovesaid pressure-windings being operatively associated with a secondary pressure-winding whereby the desired modification of the phase of the magnetism due to the pressure-windings may be secured, substantially as described.

14. In a meter, the combination with current and pressure windings thereof, a transformer, and an auxiliary pressure-winding operatively associated with the abovesaid pressure-winding to modify the phase of the magnetism due thereto and receiving current from the secondary of said transformer, the first abovesaid pressure-winding receiving current from a circuit different from that supplying current to the primary of said transformer, substantially as described.

698,659. MOTOR-METER. THOMAS BROWN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 25, 1898. Renewed Jan. 6, 1902. Serial No. 24,426. (No model.)



Claim.—1. In an induction motor-meter the combination with an armature of the current-winding in inductive relation therewith, a pressure-winding of relatively high self-induction also in inductive relation with said armature, a second pressure-winding associated with said first pressure-winding but having relatively small self-induction, the connections of the said two pressure-windings with the circuit being reversed, an impedance-coil having two windings, one of relatively large number of turns

connected in series with said first pressure-coil, and the other of a less number of turns connected in shunt with said second pressure-coil and an adjustable resistance also in shunt with said second pressure-coil, substantially as and for the purpose specified.

2. In an induction motor-meter, the combination with the armature, of a current-winding in inductive relation therewith, two pressure-windings having reversed connections also in inductive relation with said armature, and an impedance-coil having two windings each included in circuit with one of said pressure-windings independently of the other, whereby the magnetism representing the electromotive force may be maintained in quadrature with the electromotive force, substantially as described.

3. In a device of the class described, the combination with an armature of a current-winding in inductive relation therewith, a pressure-winding having large self-induction also in inductive relation with said armature, a second pressure-winding having relatively small self-induction, said pressure-windings having their connections reversed, and an impedance-coil having two windings each included in circuit with one of said pressure-windings independently of the other, whereby the magnetism representing the electromotive force may be maintained in quadrature with the electromotive force, substantially as described.

4. In an induction motor-meter, the combination with an armature of the current-winding in inductive relation therewith, a pressure-winding also in inductive relation with said armature, a second pressure-winding having small self-induction with relation to said first pressure-winding and having its connections reversed in direction to that of the first pressure-winding, an impedance-coil having windings each in circuit with a pressure-winding independently of the other, and an adjustable resistance in circuit with said second pressure-winding whereby the magnetism of the pressure-winding is maintained in quadrature with the electromotive force of the circuit including the series winding.

5. In an induction motor-meter the combination with an armature, of a current and two pressure windings in inductive relation therewith, an impedance-coil having interacting windings each included in circuit with a pressure-winding independently of the other and a means included in circuit with one of said pressure-windings, whereby the magnetism of the pressure-field may be maintained in quadrature with the electromotive force of the working circuit, substantially as described.

6. In a device of the class described, the combination with the reversible structure 5 of the current-coil 4 in inductive relation therewith, pressure-coil 6 connected in shunt with the main circuit also in inductive relation therewith, a secondary pressure-coil 18 associated with said pressure-coil 6 and having in connection with the main circuit reversed with respect to those of the first pressure-coil, the impedance-coil 9 having the windings 9' and 9'' connected in circuit respectively with the pressure-coils 6 and 18, the adjustable resistance 10 connected in circuit with said pressure-coil 18, the retarding-magnet 21 in inductive relation with the armature, and the counting-train 20, adapted to be operated by said reversible structure, substantially as and for the purpose set forth.

7. In an induction motor-meter, the combination with the armature of a current-winding in inductive relation therewith, two pressure-windings also in inductive relation therewith and two interacting impedance-windings receiving current independently of each other, each pressure-winding being operatively associated with an impedance-winding whereby the desired phase relation between the field due to said pressure-windings and the impressed electromotive force is secured, substantially as described.

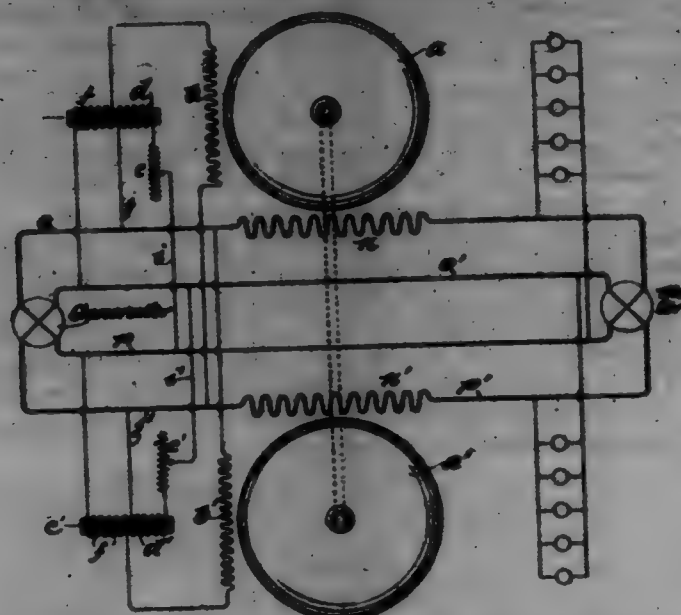
8. In an induction motor-meter, the combination with the armature of a current-winding in inductive relation therewith, two pressure-windings having relatively large and small self-induction also in inductive relation therewith and two interacting impedance-windings receiving current independently of each other, each pressure-winding being operatively associated with an impedance-winding whereby the desired phase relation between the field due to said pressure-windings and the impressed electromotive force is secured, substantially as described.

9. In a meter, the combination with a current-winding, of two pressure-windings, and two interacting impedance-windings receiving current independently of each other each pressure-winding being operatively associated with an impedance-winding, whereby the desired phase relation between the field due to said pressure-windings and the impressed electromotive force is secured, substantially as described.

10. A meter having current and pressure field-windings, in combination with interacting impedance-windings receiving current independently of each other and operatively associated with the pressure field portion of the meter, whereby the desired phase relation between the pressure-field and the impressed electromotive force may be secured, substantially as described.

11. In an alternating-current motor-meter, the combination with a current field-winding, of two pressure field-windings and an impedance-coil having interacting windings, each included in circuit with a pressure-winding of the meter independently of the other, substantially as described.

698,660. POLYPHASE MOTOR-METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 28, 1899. Renewed Nov. 18, 1901. Serial No. 55,692. (No model.)



Claim.—1. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including said series winding, an impedance-cell in circuit with said pressure-winding, and means for securing and maintaining a lag of ninety degrees between the magnetism of said pressure-winding and the impressed electromotive force of the circuit including the current-winding, substantially as described.

2. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit carrying a current lagging in phase ninety degrees behind the electromotive force of the circuit including the series winding, an impedance-cell in circuit with said pressure-winding, and means for securing and maintaining a lag of ninety degrees between the magnetism of said pressure-winding and the electromotive force of the circuit including the current-winding, substantially as described.

3. In a polyphase-current induction meter-meter, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including the current-winding, and means for producing a counter electromotive force in the circuit including said pressure-winding whereby the magnetic effect of said winding is maintained in quadrature with the impressed electromotive force of the circuit including said current-winding, substantially as described.

4. In a polyphase induction meter-meter, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including the current-winding, an impedance-cell in circuit with said pressure-winding, an auxiliary circuit in shunt with said current-winding and adapted to produce a counter electromotive force in the circuit of said pressure-winding, a winding on the core of said impedance-cell and included in said auxiliary circuit, and means for adjusting the phase of said auxiliary circuit, whereby the magnetic effect of said pressure-winding is maintained in quadrature with the impressed electromotive force of the circuit including said current-winding, substantially as described.

5. In a device of the class described, the combination with two or more armatures coupled together, of a current and a pressure winding in inductive relation with each of said armatures, said pressure-winding being connected with a circuit different from that including said current-winding, an impedance-cell in circuit with said pressure-winding, and means for securing and maintaining a displacement of ninety degrees between the magnetism of said pressure-winding and the impressed electromotive force of the circuit including the current-winding, substantially as described.

6. In a polyphase-current meter, the combination with two sets of motor-windings each including current and pressure windings, the pressure-winding of each set receiving current from the circuit applying the current-winding of the other set, and two inducting impedance-windings associated with each pressure-winding, one receiving current from the system of distribution, and the other electrically associated with its pressure-winding, the latter pressure-winding also receiving current independent-

only of the inducting impedance-windings, substantially as described.

7. In a polyphase-current meter, the combination with two sets of motor-windings each including current and pressure windings, the pressure-winding of each member receiving current from a different circuit than that including its associated current-winding, and two inducting impedance-windings associated with each pressure-winding, one receiving current from the circuit including the associated current-winding and the other in series with its associated pressure-winding, substantially as described.

8. In a polyphase meter, the combination with current and pressure windings, and inducting impedance-windings receiving current independent of each other from different circuits one being electrically associated with the pressure-winding, substantially as described.

9. In a polyphase meter, the combination with current and pressure windings, and inducting impedance-windings receiving current independent of each other from different circuits one being included in series with the pressure-winding, substantially as described.

698,661. MOTOR-METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 28, 1899. Renewed Nov. 18, 1901. Serial No. 55,619. (No model.)



Claim.—1. In a direct-current motor-meter, the combination with a hollow armature having windings, of a commutator having its segments connected with the said windings, a core of magnetic material extending within the armature, a field-winding, and a measuring device operated by the armature, substantially as described.

2. In a direct-current motor, the combination with a hollow rotatable armature having windings, of a commutator having its segments connected with the said windings, means for establishing and maintaining a field comprising two members, namely: a field-winding and a magnetic core for increasing the magnetic density of the field in which the armature is disposed, one of the said members being located within the interior of the armature, and a measuring device operated by the armature, substantially as described.

3. In a direct-current motor, the combination with a hollow rotatable armature having windings, of a commutator having its segments connected with the said windings, a stationary-mounted core of magnetic material extending within the armature, a field-winding, and a measuring device operated by the armature, substantially as described.

4. In a direct-current motor, the combination with a hollow rotatable armature having windings, of a commutator having its segments connected with the said windings, means for establishing and maintaining a field comprising two members, namely: a fixed field-winding and a fixed magnetic core for increasing the magnetic density of the field in which the armature is included, one of the said members being located within the interior of the armature, and a measuring device operated by the armature, substantially as described.

5. In a direct-current motor-meter, the combination with a rotatable

armature having windings and provided with a hollow interior, of a stationary core of magnetic material extending within the interior of the armature, a field-winding upon the exterior of the armature, and a measuring device operated by the armature, substantially as described.

6. In a direct-current motor-meter, the combination with a hollow rotatable armature provided with windings adapted for inclusion across the working conductors, of a commutator therefor, brushes for engagement with the commutator, a stationary core extending within the armature, a field-winding upon the exterior of the armature adapted for inclusion in series with the working circuit, and a measuring device operated by the armature, substantially as described.

7. In a direct-current motor-meter, the combination with a hollow rotatable armature provided with windings adapted for inclusion across the working conductors, of a commutator therefor, brushes for engagement with the commutator, a stationary magnetic core projecting within the interior of the armature, a field-winding upon the exterior of the armature adapted for inclusion in shunt with the working conductors, a core for the series field-winding embracing the armature, and a measuring device operated by the armature, substantially as described.

8. In a direct-current motor-meter, the combination with a rotatable armature in the form of a hollow cylinder provided with windings adapted for inclusion in a bridge conductor across the working conductors, of a commutator for the armature, commutator-brushes for engagement with the commutator, a stationary magnetic core projecting within the interior of the armature, a field-winding upon the exterior of the armature adapted for inclusion in shunt with the working conductors, a core for the series field-winding embracing the armature, and a measuring device operated by the armature, substantially as described.

9. In a direct-current motor-meter, the combination with a rotatable armature in the form of a hollow cylinder provided with windings adapted for inclusion in a bridge conductor across the working conductors, of a commutator for the armature, commutator-brushes for engagement with the commutator, a stationary magnetic core projecting within the interior of the armature, a field-winding upon the exterior of the armature adapted for inclusion in shunt with the working conductors, a core for the series field-winding embracing the armature, and a measuring device operated by the armature, substantially as described.

10. An armature for direct-current motor, comprising a fixed or corrugated support, and armature-windings maintained in position by the corrugations in the support, substantially as described.

11. An armature for direct-current motor, comprising a corrugated cylindrical support, and windings adapted to be maintained in place upon the said support by the corrugations therein, substantially as described.

12. An armature for direct-current motor, comprising a corrugated cylindrical support, and windings adapted to be maintained in place upon the said support by the corrugations therein, the lower portion of the cylindrical support being provided with a rim for supporting the lower ends of the armature-coils, substantially as described.

13. An armature for direct-current motor, comprising a corrugated support, and armature-coils separately formed and maintained in place by the corrugations in the said support, substantially as described.

14. An armature for direct-current motor, comprising a corrugated cylindrical support and armature-coils, separately formed, and secured in place by their engagement with the corrugations in the said support, substantially as described.

15. An armature for direct-current motor, comprising a corrugated cylindrical support having an outwardly-extending flange, or rim, surrounding the same, and armature-coils, separately formed, secured in place by their engagements with the corrugations in the support and resting at their lower ends upon the said rim, substantially as described.

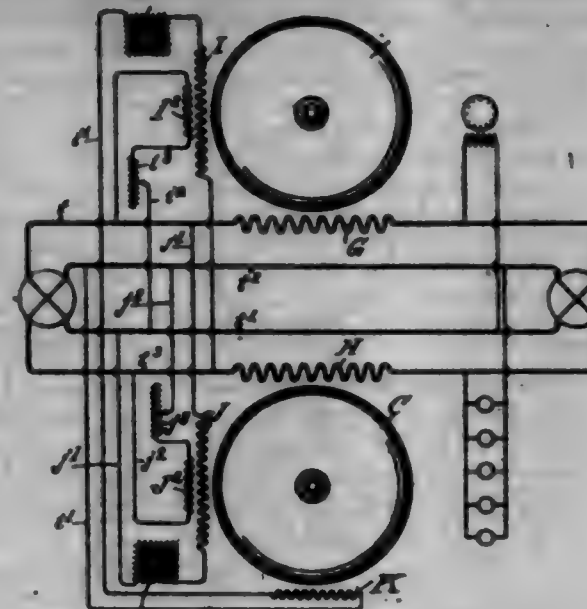
16. In a direct-current wattmeter, the combination with a series field-winding, of an armature having its coils arranged to form a hollow cylinder, a commutator connected with the coils of the armature, commutator-brushes for the commutator for including the armature in bridge between the main of a working circuit, and a measuring device operated by the armature, substantially as described.

17. In a direct-current wattmeter, the combination with a field-winding adapted for inclusion in series with the working circuit, of a rotatable armature whose coils are arranged to form a hollow cylinder disposed within the field created by the series field-winding, a commutator for the armature, commutator-brushes for including the armature in the bridge across the working conductors, and a measuring device operated by the armature, substantially as described.

18. As a new article of manufacture, a commutator-brush for direct-current motor, spirally formed at the end that is to be secured, and curved throughout a portion of its length, substantially as described.

19. As a new article of manufacture, a commutator-brush for direct-current motor, constructed of strip metal, spirally formed at the end that is to be secured, and curved throughout a portion of its length, substantially as described.

698,662. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 28, 1899. Renewed Nov. 18, 1901. Serial No. 55,618. (No model.)



Claim.—1. An electric meter for two-phase systems comprising a pair of rotatable armatures, series and volt coils for both armatures, the series coils of the two armatures being connected in the separate circuits of the system, and the volt-coils in each case being connected between the leads of that circuit in which the other field-coils are connected, subsidiary volt-coils applied to the main volt-coils of each armature and connected in shunt between the leads of the circuit in which the series coils of that armature are connected, and means for registering the armature rotation.

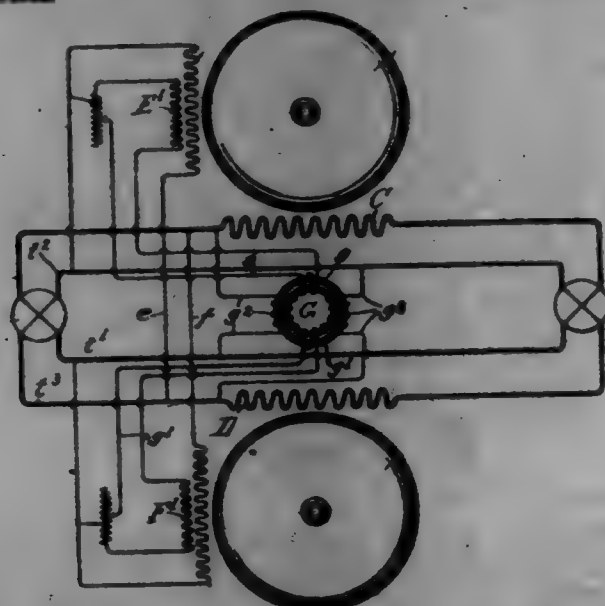
2. An electric meter for two-phase systems comprising a pair of armatures secured upon a common spindle, series coils connected in series in one of the circuits and mounted in inductive relation to one of the armatures, other series coils connected in series in the other circuit and mounted in inductive relation to the other armature, volt-coils mounted in inductive relation to the first armature and connected in a shunt between the leads of that circuit in which the series coils of the second armature are connected, volt-coils mounted in inductive relation to the second armature and connected in shunt between the leads of that circuit in which the field-coils of the first armature are connected, subsidiary volt-coils mounted in inductive relation to the main volt-coils of each armature, and subsidiary coils for each armature being connected in shunt between the leads of the circuit in which the series coils of that armature are connected, and a registering mechanism operatively connected with said spindle.

3. An electric meter comprising a pair of rotatable armatures, series and volt coils for both armatures, and means for registering the armature rotation, the series coils of the two armatures being connected in the separate circuits of the system and the volt-coils of each armature being connected in shunt between the leads of the circuit in which the series coils of the other armature are connected, and a compensating-coil adjustably mounted in proximity to one armature and connected in the shunt-circuit with the volt-coils of the other armature.

4. An electric meter for two-phase systems comprising a pair of armatures secured upon a common spindle, series coils connected in series in one of the circuits and mounted in inductive relation to one of the armatures, other series coils connected in series in the other circuit and mounted in inductive relation to the other armature, volt-coils mounted in inductive relation to the first armature and connected in a shunt between the leads of that circuit in which the series coils of the second armature are connected, volt-coils mounted in inductive relation to the second armature and connected in shunt between the leads of that circuit in which the field-coils of the first armature are connected, subsidiary volt-coils mounted in inductive relation to the main volt-coils of each armature, and subsidiary coils for each armature being connected in shunt between the leads of the circuit in which the series coils of that armature are connected, and a compensating-coil adjustably mounted in proximity to one armature and connected in the shunt-circuit with the volt-coils of the other armature, and a registering mechanism operatively connected with said spindle.

698,663. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 28, 1899. Renewed Oct. 28, 1901. Serial No. 55,521. (No model.)

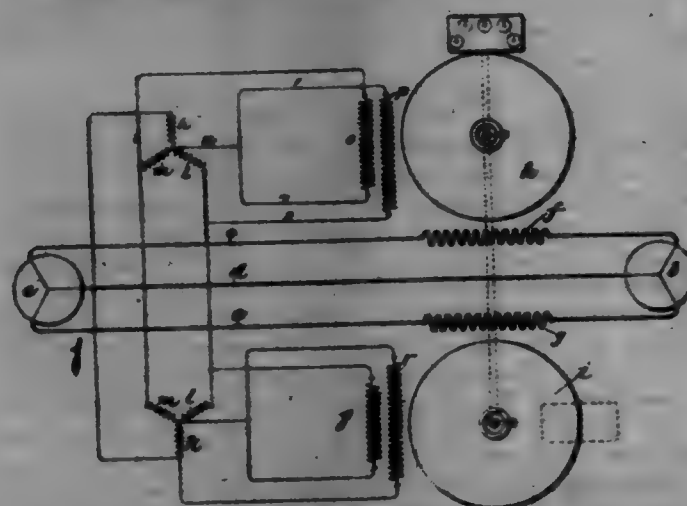
Claim.—1. In an electric motor for two-phase system, comprising a pair of reversible armatures, series and volt coils for both armatures, the series coils of the two armatures being connected in the separate circuits of the system, and the volt-coil of each armature being connected between the leads of that circuit in which the field-coil of the other armature is connected, and subsidiary volt-coils applied to the main volt-coils and energized by secondary currents induced by primary circuits connected between the leads of both of the main circuits of the system, substantially as described.



2. An electric motor for two-phase system, comprising a pair of reversible armatures, series and volt coils for both armatures, the series coils of the two armatures being connected in separate circuits of the system and the volt-coil of each armature being connected between the leads of that circuit in which the field-coil of the other armature is connected, and subsidiary volt-coils applied to the main volt-coils and connected in the secondary circuits of a transformer having primary circuits connected in shunt between the leads of both of the main circuits of the system, substantially as described.

3. An electric motor for two-phase system, comprising a pair of reversible armatures, series and volt coils for both armatures, the series coils of the two armatures being connected in the separate circuits of the system, and the volt-coil of each armature being connected between the leads of that circuit in which the field-coil of the other armature is connected, subsidiary volt-coils applied to the main volt-coils and connected in the secondary circuits of a transformer having primary circuits connected in shunt between the leads of both of the main circuits of the system, and adjustable resistances connected in circuit with said subsidiary coils, substantially as described.

698,664. MOTOR-METER. THOMAS DUBOIS, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Oct. 11, 1900. Renewed Jan. 9, 1902. Serial No. 98,495. (No model.)



Claim.—1. In an induction motor-meter, the combination with a movable element, of a series and a pressure field-winding in inductive relation therewith, and an artificial neutral resistance adapted for interposition between the mains of the circuit connected with said pressure field-winding, independently of the latter winding and adapted in cooperation with the said pressure field-winding to maintain the magnetic

field thereof in quadrature with the electromotive force of the circuit including said series winding, substantially as described.

2. In a motor-meter the combination with current and pressure windings for effecting the movement of the movable element of the meter, of an artificial neutral resistance adapted for interposition between the mains of the circuit independently of said pressure-winding, and in cooperation with said pressure-winding serving to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, substantially as described.

3. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance connected directly between the sides of the system independently of the pressure-winding and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, substantially as described.

4. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance having three branches interposed between the sides of the three branches of the system independently of the pressure-winding and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, substantially as described.

5. In a motor-meter, the combination with current and pressure windings for effecting the movement of the movable element of the meter, of an artificial neutral resistance adapted for interposition between the mains of the circuit independently of said pressure-winding, and in cooperation with said pressure-winding serving to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, and an armature in inductive relation with said pressure and current windings, substantially as described.

6. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance connected directly between the sides of the system independently of the pressure-winding and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, and an armature in inductive relation with said pressure and current windings, substantially as described.

7. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance having three branches interposed between the sides of the three branches of the system independently of the pressure-winding, and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, and an armature in inductive relation with said pressure and current windings, substantially as described.

8. In a motor-meter, the combination with current and pressure windings for effecting the movement of the movable element of the meter, of an artificial neutral resistance adapted for interposition between the mains of the circuit independently of said pressure-winding, and in cooperation with said pressure-winding serving to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, said pressure-winding receiving its current through said resistance, substantially as described.

9. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance connected directly between the sides of the system independently of the pressure-winding and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, said pressure-winding receiving its current through said resistance, substantially as described.

10. The combination with a three-phase system of alternating-current distribution, of a motor-meter having current and pressure windings, and an artificial neutral resistance having three branches interposed between the sides of the three branches of the system independently of the pressure-winding and cooperating with the pressure-winding to maintain the desired phase relation between the pressure-field and the electromotive force of the working circuit, said pressure-winding receiving its current through said resistance substantially as described.

11. In a three-phase meter, the combination with current and pressure windings, the latter being divided into two inductively-related coils, of a star-connected resistance receiving current independently of the pressure-winding, each coil of which is connected across a branch of the star-connected resistance, substantially as described.

12. In a three-phase meter, the combination with a movable element, of a current field-winding in inductive relation therewith, a pressure-coil also in inductive relation therewith, a second pressure-coil also in inductive relation with said movable element and adapted to have its phase re-

lative lie between the impressed electromotive force of the circuit including the current-winding and that of the current in said first pressure-coil, and a star-connected artificial resistance receiving current from the work-shunt independently of the pressure-winding, each pressure-coil being connected across a branch of the said artificial resistance, substantially as described.

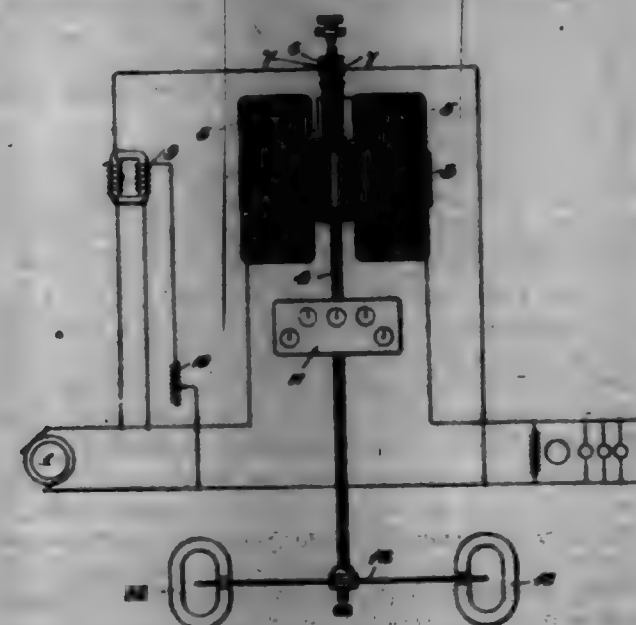
13. In a three-phase meter, the combination with current and pressure windings, the latter being divided into two coils, of a star-connected resistance receiving current independently of the pressure-winding, each coil of which is connected across a branch of the star-connected resistance, substantially as described.

14. In a motor-meter, the combination with current and pressure windings, the pressure-winding being divided into two inductively-related coils included in circuit with each other, of phase-modifying resistance having branches in parallel with said pressure-coils, substantially as described.

15. In a three-phase meter, the combination with current and pressure windings, the latter being divided into two inductively-related coils, of a star-connected resistance receiving current independently of the pressure-winding, each coil of which is connected across a branch of the star-connected resistance, substantially as described.

16. In a motor-meter, the combination with current and pressure windings, the pressure-winding being divided into coils in circuit with each other, of phase-modifying resistance having branches in parallel with said pressure-coils, substantially as described.

698,665. ALTERNATING CURRENT METER. THOMAS DUBOIS, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 4, 1900. Renewed Dec. 14, 1901. Serial No. 98,496. (No model.)



Claim.—1. In an alternating-current commutated meter-meter, the combination with a movable measuring element, of means for exerting thereon a torque varying substantially as the sine of the angle of lag between the current and pressure, a portion of said means comprising a movable armature for actuating said element and having a field-producing winding adapted for inclusion in circuit, and a commutator for including said winding, substantially as described.

2. In an alternating-current commutated meter-meter, the combination with a pressure-winding provided with means for maintaining the magnetism due thereto substantially in quadrature with the pressure, a current-winding for producing a second field, and a commutator for conveying current to one of said windings, substantially as described.

3. In an alternating-current meter-meter, the combination with a movable measuring element, of means for exerting thereon a torque varying substantially as the sine of the angle of lag between the current and pressure, a portion of said means comprising a movable armature for actuating said element and having a field-producing winding for inclusion in circuit, substantially as described.

4. In an alternating-current meter-meter, the combination with means for exerting and maintaining a field substantially in quadrature with the pressure, of means for exerting and maintaining a second field substantially in phase with the current, one of said means comprising a movable armature having a field-producing winding, substantially as described.

5. In an alternating-current commutated meter-meter, the combination with means for exerting and maintaining a field substantially in quadrature with the pressure, of means for exerting and maintaining a second field substantially in phase with the current, one of said means comprising

ing a movable armature having a field-producing winding, and a commutator for including the armature in circuit, substantially as described.

6. In an alternating-current meter-meter, the combination with a current-winding, of a pressure-winding provided with means for maintaining the field due thereto substantially in quadrature with the pressure, and a movable measuring element, one of the said windings being movable to actuate said element, substantially as described.

7. In an alternating-current commutated meter-meter, the combination with a current-winding, of a pressure-winding provided with means for maintaining the field due thereto substantially in quadrature with the pressure, a movable measuring element, one of the said windings being movable to actuate said element, and a commutator for including the latter winding in circuit, substantially as described.

8. In an alternating-current meter-meter, the combination with a movable measuring element, of means for exerting thereon a torque only when the current is out of phase with the pressure, a portion of said means comprising a movable field-winding capable of actuating said element, substantially as described.

9. In an alternating-current commutated meter-meter, the combination with a movable measuring element, of means for exerting thereon a torque only when the current is out of phase with the pressure, a part of said means comprising a movable winding for actuating said element, and a commutator for including the winding in circuit, substantially as described.

10. In an alternating-current meter-meter, the combination with a movable measuring element, of means for subjecting said element to the magnetic effect of two currents from a single circuit, means for maintaining one of said currents in quadrature with the pressure, a part of the first aforesaid means comprising a movable field-winding capable of actuating said element, substantially as described.

11. In an alternating-current commutated meter-meter, the combination with a movable measuring element, of means for subjecting said element to the magnetic effect of two currents from a single circuit, means for maintaining one of said currents in quadrature with the pressure, a part of the first aforesaid means comprising a movable field-winding capable of actuating said element, and a commutator for including said winding in circuit, substantially as described.

12. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and shunt windings for producing magnetic fields, means for causing said fields to be substantially in phase with each other when the current and pressure are in quadrature, and for varying the phase between the fields as the phase between the current and pressure varies, one of said field-windings being movable, and a movable element actuated by the movable winding and subjected to the action of the fields, substantially as described.

13. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and shunt windings for producing magnetic fields, means for causing said fields to be substantially in phase with each other when the current and pressure are in quadrature and for varying the phase between the fields as the phase between the current and pressure varies, one of said field-windings being movable, a movable element actuated by the movable winding and subjected to the action of the fields, and a commutator for including one of said windings in circuit, substantially as described.

14. In a system of alternating-current distribution, the combination with a source of alternating current, of series and shunt windings receiving current therefrom, one of the said windings being movable, a movable element subjected to the action of said movable winding, and means for maintaining the phase of the magnetism due to said shunt-winding substantially in quadrature with the pressure, substantially as described.

15. In a system of alternating-current distribution, the combination with a source of alternating current, of series and shunt windings in inductive relation with each other and receiving current therefrom, one of the said windings being movable, a movable element subjected to the action of said movable winding, and means for maintaining the phase of the magnetism due to said shunt-winding substantially in quadrature with the pressure, substantially as described.

16. In a system of alternating-current distribution, the combination with a source of alternating current, of series and shunt windings receiving current therefrom, the shunt-winding being movable, a movable element subjected to the action of said movable winding, means for maintaining the phase of the magnetism due to said shunt-winding substantially in quadrature with the pressure, and a commutator for including the shunt-winding in circuit, substantially as described.

17. In a system of alternating-current distribution, the combination with a source of alternating current, of series and shunt windings in inductive relation with each other and receiving current therefrom, the said shunt-winding being movable, a movable element subjected to the action of said movable winding, means for maintaining the phase of the magnetism due to said shunt-winding substantially in quadrature with the

pressure, and a commutator for including the short-winding in circuit, substantially as described.

18. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and short windings receiving current therefrom, the short-winding being movable and constituting an armature, a measuring or indicating element actuated by the short-winding, and a phase-modifier or reactance, for maintaining the phase of the current due to the short-winding substantially in quadrature with the pressure, substantially as described.

19. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and short windings receiving current therefrom, the short-winding being movable and constituting an armature, a measuring or indicating element actuated by the short-winding, inductance 8 in circuit with the armature, and adjusting means for modifying the action of the inductance to maintain the magnitude due to the short-winding in quadrature with the pressure, substantially as described.

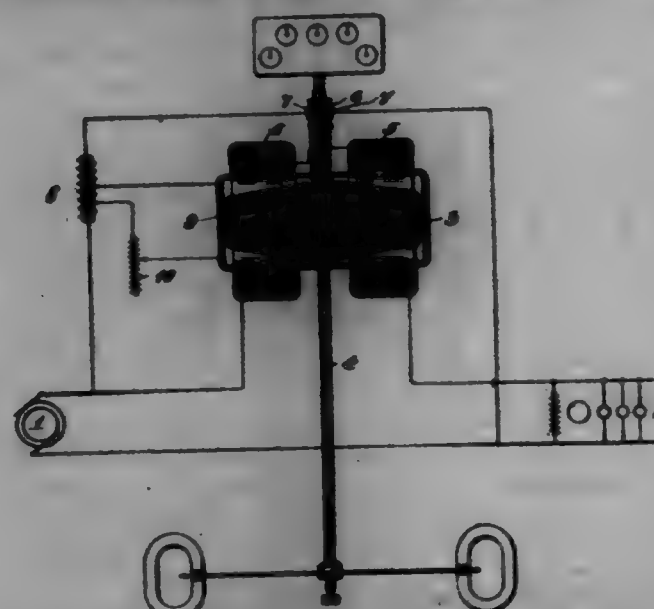
20. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and short windings receiving current therefrom, the short-winding being movable and constituting an armature, a measuring or indicating element actuated by the short-winding, inductance 8 in circuit with the armature, and a second inductance 9 to modify action of inductance 8 to maintain the phase of field due to the short-winding substantially in quadrature with the pressure, substantially as described.

21. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and short windings receiving current therefrom, the short-winding being movable and constituting an armature, a measuring or indicating element actuated by the short-winding, inductance 8 in circuit with the armature, a second inductance 9 to modify action of inductance 8 to maintain the phase of field due to the short-winding substantially in quadrature with the pressure, and adjusting resistance 10 in circuit with the inductance 9, substantially as described.

22. In a system of alternating-current distribution, the combination with an alternating-current generator, of series and short windings receiving current therefrom, the short-winding being movable and constituting an armature, a measuring or indicating element actuated by the short-winding, inductance 8 in circuit with the armature, a second inductance 9 to modify action of inductance 8 to maintain the phase of field due to the short-winding substantially in quadrature with the pressure, an adjusting resistance 10 in circuit with the inductance 9, and a commutator for including the short-winding in circuit, substantially as described.

23. In an alternating-current meter, the combination with two field-windings, one of which is movable, of means for maintaining the field due to one of said windings in quadrature with the pressure, substantially as described.

698,666. ALTERNATING-CURRENT METER. THOMAS DUNNAN, Chicago, Ill., assigner to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 4, 1899. Renewed Dec. 10, 1901. Serial No. 94,664. (No model.)



Claim.—1. In an alternating-current meter, the combination with a reversible armature having a field-producing winding, of a second winding in cooperative relation therewith for producing a resultant magnetic field in quadrature with the pressure, substantially as described.

2. In an alternating-current meter the combination, with a reversible armature having a field-producing winding, of a second stationary winding in cooperative relation therewith for producing a resultant magnetic field in quadrature with the pressure, substantially as described.

3. In an alternating-current meter, the combination with a reversible armature having a field-producing winding, of a second winding in cooperative relation therewith for producing a resultant magnetic field in quadrature with the pressure, and a stationary field-winding associated with the armature, substantially as described.

4. In an alternating-current meter, the combination with a reversible armature having a field-producing winding, of a second stationary winding in cooperative relation therewith for producing a resultant magnetic field in quadrature with the pressure, and a stationary field-winding associated with the armature, substantially as described.

5. In an alternating-current meter, the combination with a pressure-winding, of a second field-winding, one of the said windings being reversible, means for independently supplying current to the said windings from an external source and a phase-modifying winding in cooperative relation with the pressure-winding, substantially as described.

6. In an alternating-current meter, the combination with a pressure-winding, of a second field-winding, one of the said windings being reversible, means for independently supplying current to the said windings from an external source and a phase-modifying winding in cooperative relation with the pressure-winding, substantially as described.

7. In an alternating-current meter, the combination with two field-windings, one of which is movable, of a phase-modifying winding in cooperative relation with one of said field-windings adapted to maintain the phase of the field due thereto substantially in quadrature with the pressure, substantially as described.

8. In an alternating-current meter, the combination with two field-windings, one of which is movable, of a phase-modifying winding in cooperative relation with one of said field-windings adapted to maintain the phase of the field due thereto substantially in quadrature with the pressure, and a commutator for supplying current to the movable winding, substantially as described.

9. In an alternating-current meter, the combination with pressure and ampere field-windings, one of which is movable, of a phase-modifying winding in cooperative relation with the pressure-winding and adapted to maintain the resultant magnetic field due to the latter winding substantially in quadrature with the pressure, substantially as described.

10. In an alternating-current meter, the combination with pressure and ampere field-windings, one of which is movable, of a phase-modifying winding in cooperative relation with the pressure-winding and adapted to maintain the resultant magnetic field due to the latter winding substantially in quadrature with the pressure, and a commutator for including the movable winding in circuit, substantially as described.

11. In an alternating-current meter, the combination with pressure and ampere field-windings, the pressure-winding being reversible, of a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the phase of the resultant magnetic field due to the pressure-winding substantially in quadrature with the pressure, substantially as described.

12. In an alternating-current meter, the combination with pressure and ampere field-windings, the pressure-winding being reversible, of a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the phase of the resultant magnetic field due to the pressure-winding substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

13. In an alternating-current meter, the combination with pressure and ampere field-windings, the pressure-winding being reversible, of a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the phase of the resultant magnetic field due to the pressure-winding substantially in quadrature with the pressure, and adjusting means for determining the current in the phase-modifying winding, substantially as described.

14. In an alternating-current meter, the combination with pressure and ampere field-windings, the pressure-winding being reversible, of a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the phase of the resultant magnetic field due to the pressure-winding substantially in quadrature with the pressure, a commutator for including the pressure-winding in circuit, and adjusting means for determining the current in the phase-modifying winding, substantially as described.

15. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

16. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

17. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

18. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

substantially in quadrature with the pressure, substantially as described.

19. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

20. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source, and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, the phase-modifying winding and the ampere field-winding being at right angles to prevent mutual induction, substantially as described.

21. In a system of distribution, the combination with an alternating-current generator, of pressure and ampere windings in circuit therewith, the pressure-winding being movable to have it curve by its motion to measure the wattless component of the current, of a phase-modifying winding supplied with current also from said source and being in cooperative relation with the pressure-winding to produce and maintain a field substantially in quadrature with the pressure, and a commutator for including the pressure-winding in circuit, the phase-modifying winding and the ampere field-winding being at right angles to prevent mutual induction, substantially as described.

22. In a system of alternating-current distribution, the combination with an alternating-current generator, of a reversible pressure-winding for measuring by its motion the wattless component of alternating current, inductance in circuit with said winding, a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the resultant field due thereto substantially in quadrature with the pressure, and an ampere-winding cooperating with the pressure-winding to produce a torque varying as the sine of the angle of lag between the current and pressure, substantially as described.

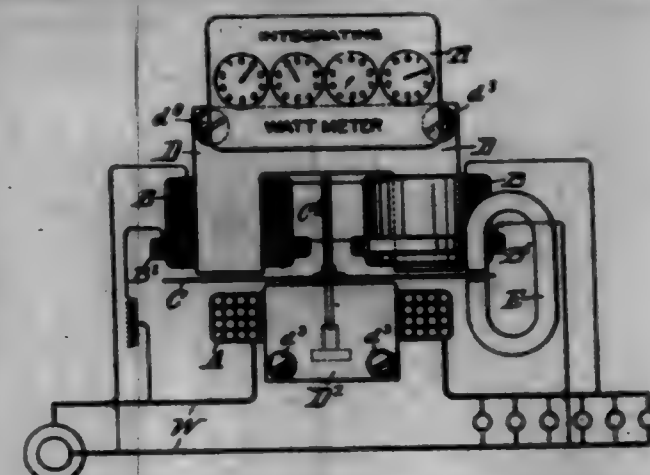
23. In a system of alternating-current distribution, the combination with an alternating-current generator, of a reversible pressure-winding for measuring by its motion the wattless component of alternating current, inductance in circuit with said winding, a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the resultant field due thereto substantially in quadrature with the pressure, an ampere-winding cooperating with the pressure-winding to produce a torque varying as the sine of the angle of lag between the current and pressure, and adjusting means for determining the current in the phase-modifying winding, substantially as described.

24. In a system of alternating-current distribution, the combination with an alternating-current generator, of a reversible pressure-winding for measuring by its motion the wattless component of alternating current, inductance in circuit with said winding, a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the resultant field due thereto substantially in quadrature with the pressure, an ampere-winding cooperating with the pressure-winding to produce a torque varying as the sine of the angle of lag between the current and pressure, and a commutator for including the pressure-winding in circuit, substantially as described.

25. In a system of alternating-current distribution, the combination with an alternating-current generator, of a reversible pressure-winding for measuring by its motion the wattless component of alternating current, inductance in circuit with said winding, a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the resultant field due thereto substantially in quadrature with the pressure, an ampere-winding cooperating with the pressure-winding to produce a torque varying as the sine of the angle of lag between the current and pressure, adjusting means for determining the current in the phase-modifying winding, and a commutator for including the pressure-winding in circuit, substantially as described.

26. In a system of alternating-current distribution, the combination with an alternating-current generator, of a reversible pressure-winding for measuring by its motion the wattless component of alternating current, inductance in circuit with said winding, a phase-modifying winding in cooperative relation with the pressure-winding for maintaining the resultant field due thereto substantially in quadrature with the pressure, an ampere-winding cooperating with the pressure-winding to produce a torque varying as the sine of the angle of lag between the current and pressure, and adjusting means for determining the current in the phase-modifying winding, substantially as described.

698,667. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assigner to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 10, 1899. Renewed Jan. 6, 1902. Serial No. 94,664. (No model.)

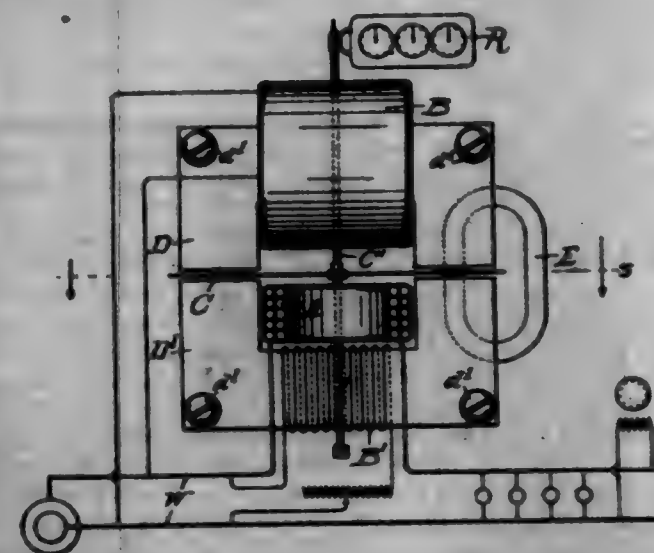


Claim.—1. An electric meter provided with a rotary armature, a series field-coil mounted adjacent to the structure upon a rectangular magnetic core, and a pair of volt field-coils mounted upon the opposite side of the armature upon the pole of a U-shaped magnetic core, substantially as described.

2. An electric meter provided with the series coil A, volt-coils B, and armature C mounted on a spindle C' geared to a registering mechanism R, U-shaped laminated core D having volt-coils mounted on its pole, and a laminated core D' upon which the series coil A is mounted, said core being formed of laminations d' and d'' of which the laminations d' are of the shape and size of the space between the poles of the laminations d'' and can be struck without waste from the latter, substantially as described.

3. An electric meter, comprising a disk armature C mounted on a spindle C' connected with a registering mechanism, volt-coils B and auxiliary volt-coils B' mounted above the armature upon the downwardly-projecting pole of a U-shaped laminated core D, and series coil A mounted beneath the armature upon the upwardly-projecting laminated core D', substantially as described.

698,668. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assigner to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 10, 1899. Serial No. 726,498. (No model.)

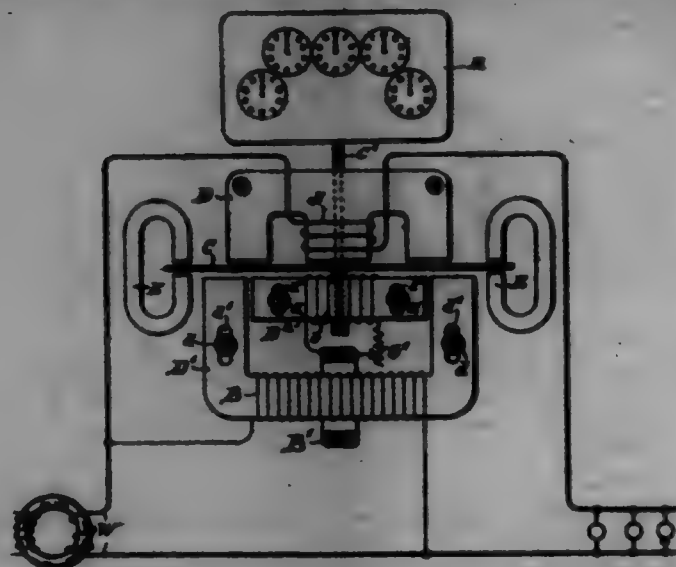


Claim.—An electric meter comprising the disk armature C, laminated cores D and D' arranged symmetrically upon the opposite side of the armature with their poles in proximity thereto, volt field-coil B wound on one core, auxiliary volt-coil B' wound on the other core, and series field-coil A, mounted concentrically to the pole of the core, substantially as described.

698,669. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assigner to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 10, 1899. Serial No. 727,498. (No model.)

Claim.—1. An electric meter comprising a rotary armature, three-pole magnetic core D mounted on one side of the armature with its pole

terminating in proximity thereto, U-shaped magnetic core mounted on the opposite side of the armature with its poles terminating in proximity thereto, third core D' extending longitudinally between the poles of the U-shaped core, and coils mounted on said cores, substantially as described.



2. An electric motor comprising a rotary armature, series and volt coils for actuating said armature, a magnetic core upon which the volt-coil is mounted, an auxiliary core arranged with its poles in proximity to the main core, a coil mounted on said auxiliary core, and an auxiliary volt-coil mounted in inductive relation to the main volt-coil and connected in a closed circuit with the winding on the auxiliary core, substantially as described.

3. An electric motor comprising a rotary armature, series coil A and volt-coil B, U-shaped core D' upon which the volt-coil is mounted, core D'' extending between the poles of the core D', one or both of said cores being adjustably mounted, coil C mounted upon the core D', and coil B' mounted in inductive relation to the coil B and connected in a closed circuit with the coil C, substantially as described.

4. In a motor, the combination with the coils thereof for producing magnetic fields differing in phase, of a core for one of said coils formed in two portions having magnetic reluctance between the same, a coil B' on one of the core portions, and a coil B in circuit with said coil B' upon the other core portion, substantially as described.

5. In a motor, the combination with the coils thereof for producing magnetic fields differing in phase, of a core for one of said coils formed in two portions having magnetic reluctance between the same, one of said core portions containing the latter coil, a coil B' upon said core portion, and a coil B in circuit with said coil B' upon the other core portion, substantially as described.

6. In a motor, the combination with the coils thereof for producing magnetic fields differing in phase, of a core for one of said coils formed in two portions having magnetic reluctance between the same, one of said core portions containing the latter coil, a coil B' upon said core portion, a coil B in circuit with said coil B' upon the other core portion, and a phase-modifier V in circuit with the coils B', A, substantially as described.

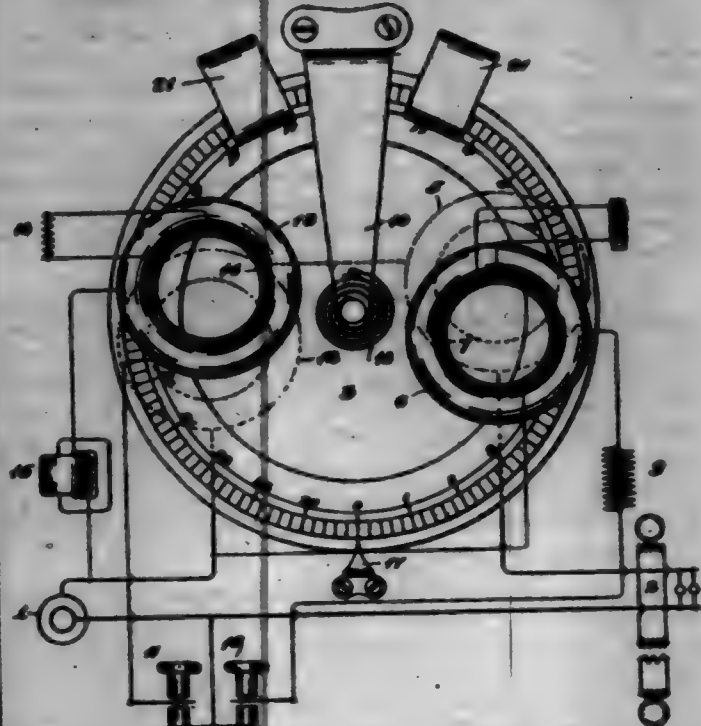
7. In a motor, the combination with the coils thereof for producing magnetic fields differing in phase, of a core for one of said coils formed in two portions having magnetic reluctance between the same, one of said core portions containing the latter coil, a coil B' upon said core portion, a coil B in circuit with said coil B' upon the other core portion, and a phase-modifier V in circuit with the coils B', A, substantially as described.

8. In a motor, the combination with the coils thereof for producing magnetic fields differing in phase, of a core for one of said coils formed in two portions having magnetic reluctance between the same, one of said core portions containing the latter coil, a coil B' upon said core portion, a winding B in circuit with said coil B' upon the other core portion, and a phase-modifying resistance V in circuit with the coils B', A, substantially as described.

9. A motor provided with two windings for producing magnetic fields differing in phase, one of said windings being divided into two field-coils, of a secondary coil in inductive relation with one of the field-coils, which field-coil then constitutes a primary inducing winding, the second field-coil being included in a closed circuit with, and supplied by, current from said secondary coil, substantially as described.

698,670. ALTERNATING-CURRENT METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 15, 1906. Renewed Dec. 16, 1907. Serial No. 58,697. (No model.)

Claim.—1. In an alternating-current meter, the combination with a measuring element, of electromagnetic torque-producing means adapted in cooperation with said measuring element, to measure the "true" watts in an alternating-current circuit, a second electromagnetic torque-producing means adapted, in cooperation with said measuring element, to measure the wattless component in an alternating-current circuit, and means for bringing a torque-producing means into and out of operative association with the measuring element, substantially as described.



2. In an alternating-current meter, the combination with a measuring element, of electromagnetic torque-producing means adapted in cooperation with said measuring element, to measure the "true" watts in an alternating-current circuit, a second electromagnetic torque-producing means adapted, in cooperation with said measuring element, to measure the wattless component in an alternating-current circuit, and means for bringing each torque-producing means into and out of operative association with the measuring element, substantially as described.

3. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element and electromagnetic means receiving current from said generator for exerting two torques upon the movable element, one capable of causing movement of said element proportional to the "true" watts, and the other, movement of said element proportional to the magnetizing component of the alternating current, and means whereby said element may be subjected to either one only of said torques, substantially as described.

4. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element, electromagnetic means receiving current from said generator for exerting two torques upon said element respectively proportional to the "true" watts and the magnetizing component, and means whereby said element may be subjected to one only of said torques, substantially as described.

5. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element, electromagnetic means receiving current from said generator for exerting two torques upon said element respectively proportional to the "true" watts and the magnetizing component, and means whereby said element may be subjected to either of said torques, substantially as described.

6. In an alternating-current meter, the combination with means for producing two pressure-fields substantially in quadrature with each other, of means for producing a third field by, and varying in phase with, the current, and a movable measuring element, the latter field in cooperation with one of the pressure-fields serving to actuate said measuring element to determine the "true" watts and in cooperation with the other field to move said element to determine the magnetizing component, and means whereby said element may be subjected to the action of either one only of said torques, substantially as described.

7. In an alternating-current meter, the combination with means for producing two pressure-fields substantially in quadrature with each other, of means for producing a third field by, and varying in phase with the current, a movable measuring element, and means whereby said measuring element may be subjected to the action of the current-field and one pressure-field only, substantially as described.

8. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for producing torques

upon the measuring element proportional to the "true" watts and to the magnetizing component, and means for limiting the measuring element to the action of one of the torques, substantially as described.

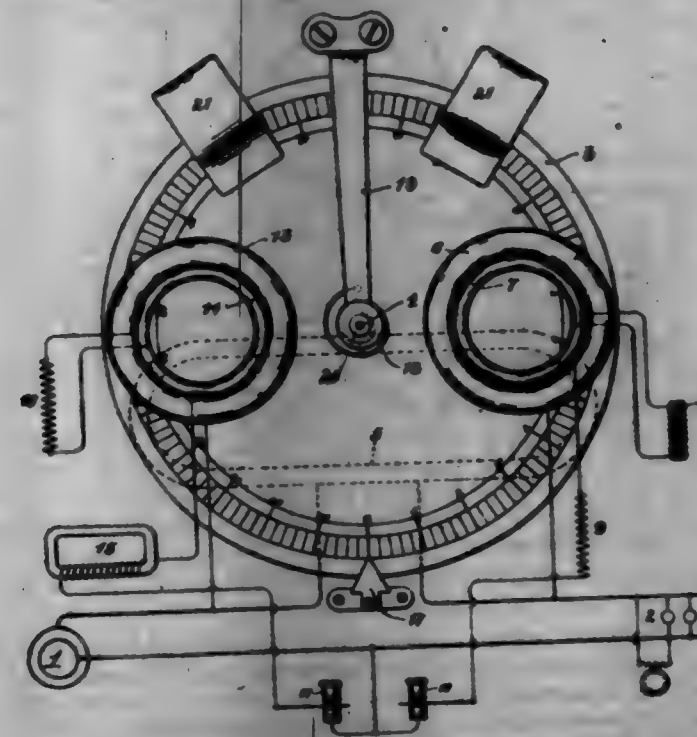
9. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for producing torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and means for permitting said element to be subjected to either torque alone, substantially as described.

10. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for producing torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and switching means adapted to control the continuity of circuit connections for limiting the measuring element to the action of one of the torques, substantially as described.

11. In an alternating-current meter, the combination with a measuring element, of two sets of windings each comprising a current and pressure winding for producing torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and switching means adapted to control the continuity of circuit connections for limiting the measuring element to the action of one of the torques, substantially as described.

12. In an alternating-current meter, the combination with a measuring element, of means for producing torques proportional to the true watts and to the magnetizing component, and means for limiting the measuring element to the action of one of said torques, substantially as described.

698,671. ALTERNATING-CURRENT METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 15, 1906. Renewed Dec. 16, 1907. Serial No. 58,698. (No model.)



Claim.—1. In an alternating-current meter, the combination with a measuring element, of pressure-windings, a current-coil common to both pressure-windings, said windings serving to produce torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and means for limiting the measuring element to the action of one of the torques, substantially as described.

2. In an alternating-current meter, the combination with a measuring element, of pressure-windings, a current-coil common to both pressure-windings, said windings serving to produce torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and means for permitting said element to be subjected to either torque alone, substantially as described.

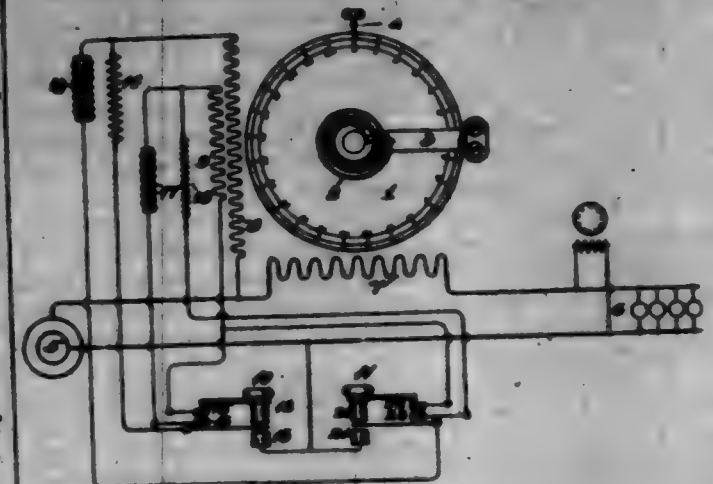
3. In an alternating-current meter, the combination with a measuring element, of pressure-windings, a current-coil common to said pressure-windings, said windings serving to cause torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and switching mechanism for rendering a pressure-winding inoperative, substantially as described.

4. In an alternating-current meter, the combination with a measuring element, of pressure-windings, a current-coil common to said pressure-windings, said windings serving to cause torques upon the measuring element proportional to the "true" watts and to the magnetizing component

and switching mechanism for rendering either pressure-winding inoperative, substantially as described.

5. In an alternating-current meter, the combination with a measuring element, of pressure-windings, a current-coil common to said pressure-windings, said windings serving to cause torques upon the measuring element proportional to the "true" watts and to the magnetizing component, and switching mechanism adapted to open a pressure-winding circuit, substantially as described.

698,672. ALTERNATING-CURRENT METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 15, 1906. Renewed Jan. 2, 1908. Serial No. 58,699. (No model.)



Claim.—1. In an alternating-current meter, the combination with a measuring element, of a current-winding, a pressure-winding, a means adapted to cooperate with the pressure-winding to produce a resultant magnetic field which with the current-field serves to exert a torque upon said measuring element proportional to the "true" watts, and a second means adapted to cooperate with the same pressure-winding to produce a resultant field which with the current-field serves to exert torque upon said measuring element proportional to the magnetizing component, substantially as described.

2. In an alternating-current meter, the combination with a measuring element, of a current-winding, a pressure-winding, means adapted to cooperate with the pressure-winding to produce a resultant magnetic field which with the current-field serves to move the measuring element proportionally to the "true" watts, a second means adapted to cooperate with the same pressure-winding to produce a resultant magnetic field which with the current-field serves to move said measuring element proportionally to the wattless component, and means for associating either of the abovesaid means with said pressure-winding independently of the other, substantially as described.

3. In an alternating-current meter, the combination with a measuring element, of means for exerting torques proportional to the "true" watts, and means for exerting torque upon said element proportional to the magnetizing component, a single pressure-winding being common to, and comprising a portion of, both of said means, substantially as described.

4. In an alternating-current meter, the combination with a measuring element, of means for moving the same proportionally to the "true" watts, second means for moving the measuring element proportional to the wattless component, a single pressure-winding being common to both of said means, and means for associating either of the abovesaid means with said pressure-winding independently of the other, substantially as described.

5. In an alternating-current meter, the combination with a movable measuring element, of a pressure field-winding, a phase-modifying means for bringing the field of the said pressure-winding in phase with the pressure, and a second phase-modifying means for bringing the field thereof in quadrature with the pressure, substantially as described.

6. In an alternating-current meter, the combination with a movable measuring element, of a pressure field-winding, a phase-modifying means for bringing the field of the said pressure-winding in phase with the pressure, a second phase-modifying means for bringing the field of said pressure-winding in quadrature with the pressure, and switching apparatus for bringing either of said means in cooperative relation with the pressure-winding independently of the other, substantially as described.

7. In an alternating-current meter, the combination with a movable measuring element, of a pressure field-winding, a phase-modifying means for bringing the field of the said pressure-winding in phase with the pressure, a second phase-modifying means for bringing the field of said pressure-winding in quadrature with the pressure, and switching apparatus for bringing either of said means in cooperative relation with the pressure-winding independently of the other, substantially as described.

sure-winding in quadrature with the pressure, a current-winding for producing a field varying in phase with the current, and switching apparatus for bringing either of the said means in cooperative relation with the pressure-winding independently of the other, substantially as described.

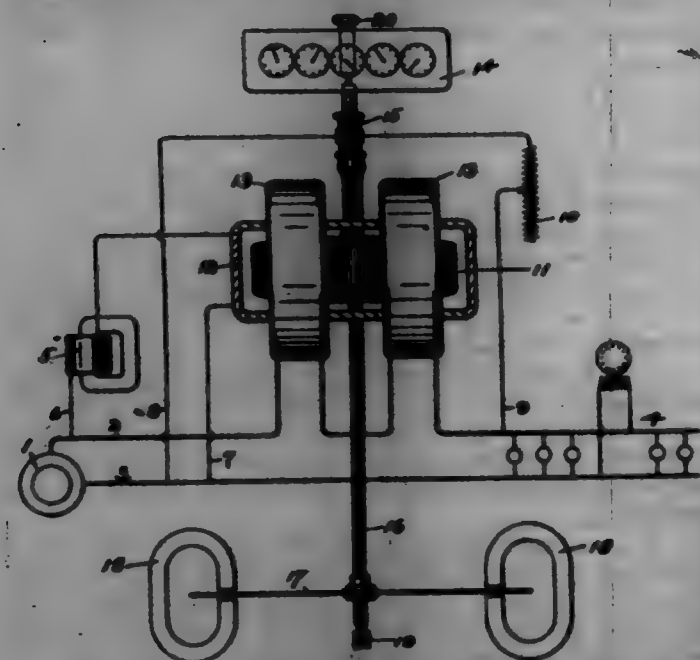
8. In an alternating-current meter, the combination with a measuring element, of a current field-winding for producing a field varying in phase with the current, a pressure field-winding, an auxiliary circuit, resistance, and switching apparatus for including resistance in circuit with the pressure-winding and at the same time including resistance in said auxiliary circuit, or for including resistance in circuit with the pressure-winding and at the same time including resistance in the auxiliary circuit, substantially as described.

9. In an alternating-current meter, the combination with a movable measuring element, of a current-winding, a pressure-winding, phase-modifying means adapted in cooperation with said current and pressure windings to exert a torque upon the measuring element proportional to the "true" watts, second phase-modifying means adapted in cooperation with said current and pressure winding to exert a torque upon the measuring element proportional to the magnetizing component, and switching apparatus for associating either of said phase-modifying means with said pressure-winding, substantially as described.

10. In an alternating-current meter, the combination with a movable element, of a field-winding, two magnetic phase-modifying means of different electrical character for modifying the phase of magnetism due to said field-winding, and means whereby one phase-modifying means may be associated with said field-winding independently of the other, substantially as described.

11. In an alternating-current meter, the combination with a movable element, of a field-winding, two magnetic phase-modifying means of different electrical character for modifying the phase of magnetism due to said field-winding, and means for independently associating each phase-modifying means with, and disconnecting it from, the field-winding, substantially as described.

698,678. ELECTRIC METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 27, 1906. Serial No. 736,966. (No model.)



Claim.—1. In a commutated motor-meter, a series field-coil, a short-wound armature, a magnetizing-coil that is magnetically coaxial with said armature, and means for integrating the revolutions of said armature.

2. In a motor-meter of the class described, a series field coil or coils, a movable armature, a magnetizing-coil that is magnetically coaxial with said armature and at right angles to the magnetic axis of said series field coil or coils, and means for integrating the revolutions of said armature.

3. In a motor-meter of the class described, a series field-coil, a short-wound reversible armature, a commutator for said armature, a magnetizing coil or coils having the same magnetic axis as said armature, the magnetic axis of both the armature and magnetizing coil or coils at an angle to the magnetic axis of said series field-coil, a magneto-electric damping device, and means for integrating the revolutions of said armature.

4. In an energy meter of the class described, a series field-coil, a reversible armature, means for conducting current into said armature from the source of pressure, a non-inductive resistance in series with the armature, a magnetizing-coil receiving current from the same source of pressure as said armature, the current of the magnetizing-coil having a different time-

period from the current traversing said armature, and means for lagging the current traversing the magnetizing-coil.

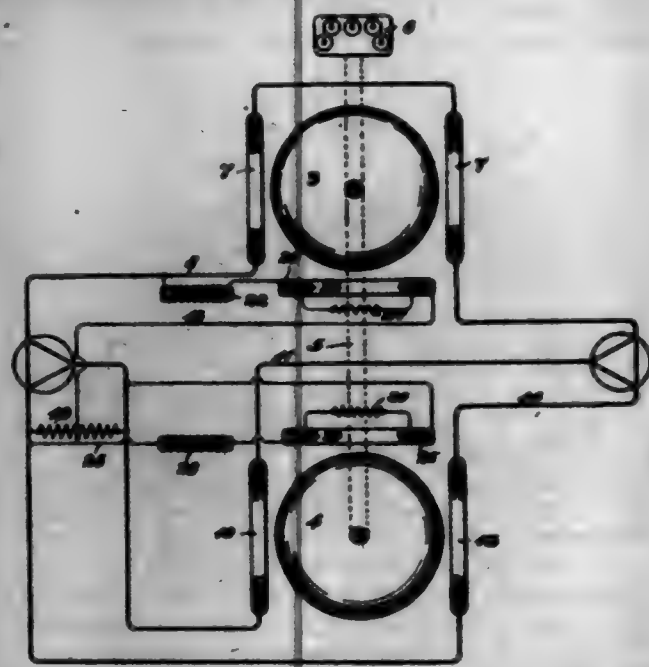
5. In a motor for measuring alternating currents, a series field-coil, a short-wound armature, a non-inductive resistance in series with said armature, a magnetizing-coil in cooperative relation with said armature, an impedance-coil in series with said magnetizing-coil, the magnetic axis of the series field and magnetizing coils being at right angles, a contact device for conducting current to the armature, a magneto-electric damping device, and an integrating mechanism responding to the revolutions of the armature.

6. The combination with a motor for alternating currents of a series field-coil, a short-wound armature having its magnetic or polar axis at an angle to the polar axis of said series field-coil, a magnetizing-coil that is magnetically coaxial with said armature, and means for lagging the current traversing said magnetizing-coil.

7. In a commutated motor-meter, the combination with a commutated short-wound armature, of a field-winding, and a phase-modifying winding in inductive relation with said armature, substantially as described.

8. In a commutated motor-meter, the combination with a commutated short-wound armature, of a field-winding, and a phase-modifying winding in inductive relation with said armature, and connected in parallel therewith in the work-circuit, substantially as described.

698,674. ALTERNATING-CURRENT METER. THOMAS DUNBAR, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 24, 1906. Serial No. 736,178. (No model.)



Claim.—1. In a three-phase system of alternating-current distribution, the combination with a current-winding supplied with current from one of the transmission-conductors, of a second current field-winding supplied with current from the remaining transmission-conductors, a pressure-winding associated with each of said current-windings, a measuring element subjected to the action of the fields due to the said windings, and means associated with the circuits including the pressure-windings for maintaining the fields due to the pressure-windings substantially in quadrature with the pressure upon the circuits including the same, substantially as described.

2. In a polyphase system of electrical distribution, the combination with a source of polyphase alternating current, of transmission-conductors for conveying polyphase currents, a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-winding producing a field proportional to the resultant of two pressures impressed on said transmission-conductors, the said two windings serving conjointly to exert torque upon an armature, a second current-winding producing a field proportional to the resultant of two currents of displaced phase traversing said transmission-conductors, a second pressure-winding producing a field proportional to the pressure of one of the circuits impressed on said transmission-conductors, the last two abovesaid coacting windings serving together to exert torque upon an armature, and a measuring element subject to the action of the said torque, substantially as described.

3. In a polyphase system of electrical distribution, the combination with a source of polyphase alternating current, of transmission-conductors for conveying polyphase currents, a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-wind-

ing producing a field proportional to the resultant of two distinct pressures impressed on said transmission-conductors, a second current-winding producing a field proportional to the resultant of two out-of-phase currents traversing two separate transmission-conductors, a second pressure-winding producing a field proportional to the pressure of a circuit impressed on said transmission-conductors, a measuring element inductively associated with said field-windings to measure the power of the system, and means for maintaining the fields due to the pressure-windings in quadrature with the pressures impressed on their respective circuits, substantially as described.

4. In a system of alternating-electric-current distribution, the combination with a source of three-phase alternating current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains, a compensator 19 between the remaining two mains, a conductor 18 receiving current from said compensator and the first abovesaid transmission-main, a second field-winding receiving its current from said conductor, and an armature subject to said fields, the said fields by their conjoint action serving to exert torque upon said armature, substantially as described.

5. In a system of alternating-electric-current distribution, the combination with a source of three-phase alternating current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains, a compensator 19 between the remaining two mains, a conductor 18 receiving current from said compensator and the first abovesaid transmission-main, a second field-winding receiving its current from said conductor, a motive element inductively acted upon by the fields due to the field-windings, and means for adjusting the phase relation of said fields, substantially as described.

6. In a system of alternating-electric-current distribution, the combination with a source of three-phase alternating current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of said mains, a compensator between the remaining two mains, a conductor extending between an intermediate portion of said compensator and the first abovesaid transmission-main, a second field-winding receiving its current from said conductor, and a motive element subjected to the action of said fields, substantially as described.

7. In a system of alternating-electric-current distribution, the combination with a source of three-phase alternating current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of said mains, a compensator between the remaining two mains, a conductor extending between an intermediate portion of said compensator and the first abovesaid transmission-main, a second field-winding receiving its current from said conductor, a motive element inductively acted upon by the fields due to the field-windings, and means for adjusting the phase relation of the fields, substantially as described.

8. In a system of alternating-current distribution, the combination with two conductors, of means for supplying the same with alternating currents differing in phase, a current field-winding supplied with current from each of said mains and serving to produce a field which is proportional to the resultant of the currents in said mains, a pressure field-winding serving to create a second field proportional to the pressure between said conductors, a movable element inductively acted upon by the fields due to the field-windings, and means for adjusting the phase relation of the fields, substantially as described.

9. In a system of alternating-current distribution, the combination with a source of three-phase current in circuit with the mains of the system, of a current field-winding supplied with out-of-phase currents from two of the mains and serving to produce a field proportional to the resultant of the currents in the latter mains, a pressure field-winding serving to create a field proportional to the pressure between the latter two windings, a movable element inductively acted upon by the fields due to the field-windings, and means for adjusting the phase relation of the fields, substantially as described.

10. In a system of current distribution, the combination with a source of three-phase current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains of the system, a pressure field-winding adapted to create a pressure field proportional to the resultant of the pressures between the latter main and each of the other mains of the system, a second current-winding receiving current from each of the remaining mains of the system and serving to create a field proportional to the resultant of the currents in the latter mains, a second pressure-winding for creating a field proportional to the pressure between the latter main, and a measuring element subjected to the action of said fields to measure the power of the system, substantially as described.

11. In a system of electrical distribution, the combination with a source of three-phase current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains of the system, a pressure field-winding adapted to create a pressure field proportional to the resultant of the pressures between the latter

main and each of the other mains of the system, a second current-winding receiving current from each of the remaining mains of the system and serving to create a field proportional to the resultant of the currents in the latter mains, a second pressure-winding for creating a field proportional to the pressure between the latter main, an armature associated with the first two field-windings, and a second armature subjected to the second two field-windings to measure the power of the system, substantially as described.

12. In a system of electrical distribution, the combination with a source of three-phase current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains of the system, a pressure field-winding adapted to create a pressure field proportional to the resultant of the pressures between the latter main and each of the other mains of the system, a second current-winding receiving current from each of the remaining mains of the system and serving to create a field proportional to the resultant of the currents in the latter mains, a second pressure-winding for creating a field proportional to the pressure between the latter main, an armature associated with the first two field-windings, a second armature subjected to the second two field-windings to measure the power of the system, and a measuring element, said armature cooperating with the measuring element to measure the power in the system, substantially as described.

13. In a system of electrical distribution, the combination with a source of three-phase current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains of the system, a pressure field-winding adapted to create a pressure field proportional to the resultant of the pressures between the latter main and each of the other mains of the system, a second current-winding receiving current from each of the remaining mains of the system and serving to create a field proportional to the resultant of the currents in the latter mains, a second pressure-winding for creating a field proportional to the pressure between the latter main, a measuring element inductively acted upon by said fields, and means for adjusting the phase relation of the fields, substantially as described.

14. In a system of electrical distribution, the combination with a source of three-phase current in circuit with the three transmission-mains of the system, of a current field-winding receiving current from one of the mains of the system, a pressure field-winding adapted to create a pressure field proportional to the resultant of the pressures between the latter main and each of the other mains of the system, a second current-winding receiving current from each of the remaining mains of the system and serving to create a field proportional to the resultant of the currents in the latter mains, a second pressure-winding for creating a field proportional to the pressure between the latter main, an armature being inductively associated with the said field-windings, a second armature subjected to the second two field-windings to measure the power of the system, a measuring element, said armature being inductively associated with said field-windings to measure the power of the system, and means for adjusting the phase relation of the fields, substantially as described.

15. In a polyphase system of electrical distribution, the combination with a source of polyphase alternating current, of a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-winding producing a field proportional to and displaced substantially ninety degrees from the resultant of two pressures of the system, said windings serving conjointly to exert torque upon an armature, a second current-winding producing a field proportional to the resultant of two currents of the system, a second pressure-winding producing a field displaced substantially ninety degrees from the pressure of one circuit of the system, said pressure-winding receiving its current from the two mains of the system including the coils of the last abovesaid current-winding, and a measuring element subject to the action of said fields to measure the power of the system, substantially as described.

16. In a polyphase system of electrical distribution, the combination with a source of polyphase current, of a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-winding producing a field proportional to the resultant of two pressures of the system cooperatively associated with said current-winding, an armature subject to the torque created by the conjoint action of said fields, a second current-winding producing an effective field proportional to the resultant of two currents of the system, a second pressure-winding producing a field proportional to the pressure of one circuit of the system, the said second pressure-winding receiving its current from the mains including coils of the last abovesaid current-winding, and a second armature subject to the torque produced by the conjoint action of said latter fields, substantially as described.

17. In a three-phase system of electrical distribution, the combination with a source of three-phase alternating current, of a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-winding producing a field proportional to the resultant of two pressures of the system cooperatively associated with said current-

winding, a second current-winding producing a field proportional to the resultant of two currents of the system, a second pressure-winding producing a field proportional to the pressure between the two remaining transmission-conductors of the system associated with said second current-winding, the said second pressure-winding receiving its current from the main including the coils of the second current-winding and a measuring element subject to the torque produced by the first ohmic out of field and also to the torque of the last ohmic out of field, substantially as described.

18. In a three-phase system of electrical distribution, the combination with a source of three-phase current, of a motor-motor having two armatures, a current field-winding supplied with current from one of the transmission-conductors associated with one of said armatures, a second current field-winding supplied with current from the remaining transmission-conductors associated with the second armature, and a pressure-winding associated with each of said current-windings, the pressure-winding associated with the last ohmic out of field-winding receiving its current from the two transmission-conductors of the system including the coils of the said second current field-winding, substantially as described.

19. In a polyphase system of alternating-current distribution, the combination with a source of three-phase current in circuit with the main of the system, of a compensator connected between two of the mains, a pressure-winding cooperatively associated with said current-winding receiving its current from a conductor extending between an intermediate portion of said compensator and a transmission-main, means for maintaining the field due to the pressure-winding substantially in quadrature with the pressure impressed on its circuit, and a measuring element subject to the action of said field, substantially as described.

20. In a system of alternating-current distribution, the combination with a source of three-phase current in circuit with the main of the system, of a current field-winding supplied with out-of-phase currents from two of the mains and serving to produce a field proportional to the resultant of the currents in the latter mains, a pressure field-winding serving to create a field proportional to the pressure between the latter two windings, a movable element subject to the conjoint action of said windings, and means for maintaining the field due to the pressure-winding in quadrature with the pressure impressed on the terminals of the pressure-circuit, substantially as described.

21. In a system of polyphase-alternating-current distribution, the combination with a source of current connected to transmission-mains, of a current field-winding receiving current from one main of said system, a pressure-winding receiving its current from said main and associated mains, thereby to create a field proportional to the resultant of two pressures of the system, and an armature subject to the conjoint action of said field, substantially as described.

22. In a polyphase system of electrical distribution, the combination with a source of polyphase current, of a current-winding producing a field proportional to the current in one transmission-conductor, a pressure-winding producing a field proportional to the resultant of two pressures of the system cooperatively associated with said current-winding, an armature subject to the torque created by the conjoint action of said field, a second current-winding producing an effective field proportional to the resultant of two currents of the system, a second pressure-winding producing a field proportional to the pressure of one circuit of the system, the said second pressure-winding receiving its current from the transmission-conductors including the coils of the second ohmic out of field-winding, a second armature subject to the torque produced by the conjoint action of said field, and a single measuring element actuated by both of said armatures, substantially as described.

23. In a system of polyphase-alternating-current distribution, the combination with a source of current connected to transmission-mains, of a current field-winding receiving current from one main of said system, a pressure-winding receiving its current from said main and associated mains, thereby to create a field proportional to the resultant of two pressures of the system, an armature subject to the conjoint action of said field, and means for maintaining the field due to the pressure-winding in quadrature with the pressure impressed on the terminals of the pressure-circuit, substantially as described.

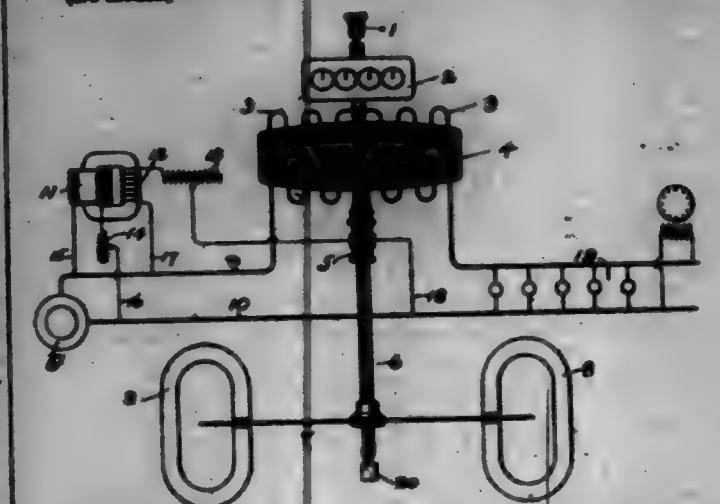
24. In an induction-motor for three-phase circuits, a main current-winding comprising a plurality of sections suitably connected to the three-phase mains, a shunt-winding connected across points, the potential between which is in phase with the resultant of the currents in the sections of the main current-winding on non-inductive load, and means for causing the magnetic field due to the shunt-winding to be displaced by substantially ninety degrees from electrostatic force impressed upon the shunt-circuit.

25. In an induction-motor for three-phase circuits, a main current-winding comprising a plurality of coils each connected in circuit with one of the three-phase mains, a shunt-winding connected between two of the mains, and means for causing the field due to the shunt-winding to be displaced by substantially ninety degrees from the electrostatic force impressed upon the shunt-circuit.

placed by substantially ninety degrees from the electrostatic force impressed upon the shunt-circuit.

26. In an induction-motor for three-phase circuits, a main current-winding comprising two coils each connected in circuit with one of the three-phase mains, a shunt-winding connected between the mains in which the series coils are included, and means for causing the field due to the shunt-winding to be displaced by substantially ninety degrees from the electrostatic force impressed on the shunt-circuit.

698,675. ELECTRIC METER. THOMAS DUNN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 27, 1898. Serial No. 734,267. (No model.)



Claim.—1. In an alternating-current meter a series coil, a shunt-wound armature, a phase-changing coil in series with said armature, and extraneous means associated with said phase-changing coil for bringing the field due to said armature in phase with the circuit-pressure, substantially as described.

2. In an alternating-current meter a series coil, a shunt-wound armature representing the electrostatic force, a phase-changing coil in circuit with said shunt-wound element and extraneous means associated with said phase-changing coil for varying the phase relation of the circuit including said phase-changing coil and said shunt-wound armature, and bringing the field due to the shunt-wound element in phase with the circuit-pressure, substantially as described.

3. In an alternating-current meter, a series coil, a shunt-wound armature representing the pressure-receiving current from the circuit-mains, a non-inductive resistance in series with said armature, a phase-changing coil in series with the said armature and the non-inductive resistance, an inducing-coil in cooperative relation with the phase-changing coil, and means associated with the circuit including the phase-changing coil and the armature for bringing the field due to the armature in phase with the circuit-pressure, substantially as described.

4. In an alternating-current meter a series coil, a shunt-wound armature; means connected with the circuit-mains for conducting current through the windings of said armature; a phase-changing coil in series with said armature; a non-inductive resistance in series with the armature and phase-changing coil; and an inducing-coil in inductive relation to the phase-changing coil also connected with the circuit-mains; and a variable resistance in series with said inducing-coil.

5. In an alternating-current meter a series coil, a shunt-wound armature metallically connected to and receiving current from the circuit-mains; a commutator for said armature; a non-inductive resistance in series with said armature; a phase-changing coil also receiving current from the circuit-mains in cooperative relation with the shunt-wound armature and non-inductive resistance serving to bring the field due to the armature in phase with the pressure; and means for retarding the revolutions of said armature.

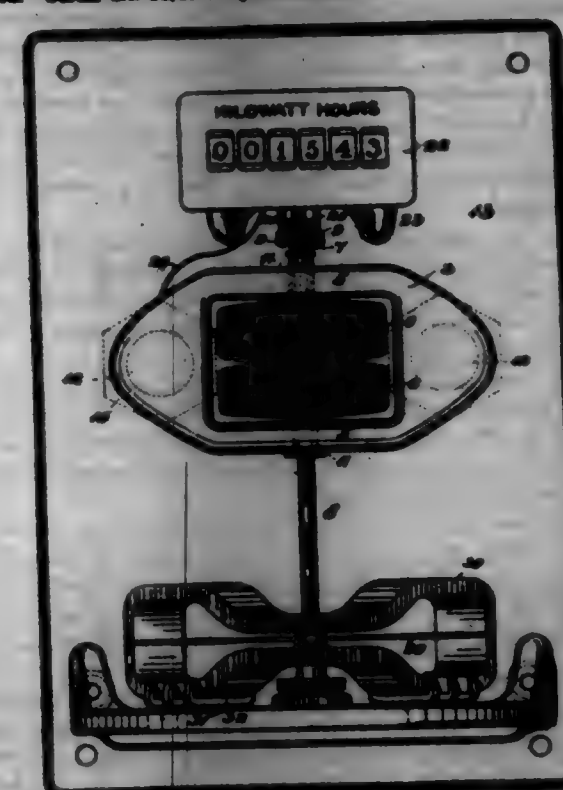
6. In an alternate-current electric meter a series coil, a shunt-armature winding, the magnetism of which varies as the pressure in volts; said armature receiving its current conductively from the circuit-mains; a resistance in series with said shunt or armature winding; a phase-changing coil in cooperative relation with the shunt or armature winding; an inducing-coil also receiving current conductively from the said circuit-mains in inductive relation with the phase-changing coil; a variable resistance in series with the inducing-coil; and an integrating mechanism.

7. In an alternating-current electric meter a series coil, a revolvable shunt-wound armature, a transformer comprising a primary or inducing coil, a secondary or phase-changing coil, the primary connected to the source of pressure and the secondary connected in series with the shunt-wound armature and a variable resistance in series with the primary or

inducing coil, and serving to cause the magnetism due to the armature in phase with the pressure, said armature also receiving current conductively from the source of pressure substantially as described.

8. In an alternating-current meter, the combination with a shunt-wound armature, said armature being adapted for connection with circuit-mains, of an electromagnetic phase-changing device associated extraneously with the armature-circuit, for bringing the effective magnetism due to said armature-circuit in phase with the circuit-pressure, substantially as described.

698,676. ELECTRIC METER. THOMAS DUNN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1899. Renewed Jan. 2, 1902. Serial No. 84,457. (No model.)



Claim.—1. In a meter, the combination with a current-conductor having parallel paths and adapted for inclusion in series with a main conductor, of an armature adapted for interposition between the sides of the circuit, the said armature being disposed between the said parallel paths, the armature being provided with two adjacent windings free of a current-field portion between them and so related that current will pass through the same in opposite directions, substantially as described.

2. In a meter, the combination with a closed conductor 2, of terminal points 12, 12, securing the conductor in place and connected with opposite sides thereof, whereby parallel paths are afforded for current passing through the conductor, and an armature induced by the conductor, the armature having two adjacent windings free of a current-field portion between them and so relatively arranged that current will pass through the same in opposite directions, said windings being adapted for inclusion in bridge between the sides of the distributing-circuit, substantially as described.

3. In a meter, the combination with a current-conductor having parallel paths and adapted for inclusion in series with a main conductor, of an armature adapted for interposition between the sides of the circuit, said armature being disposed between the said parallel conductors, the armature being provided with two adjacent windings free of a current-field portion between them, a commutator common to the said windings, and means for effecting connection between the said windings and the sides of the distributing-circuit, substantially as described.

4. In a meter, the combination with a current-conductor having parallel paths and adapted for inclusion in series with a main conductor, of an armature adapted for interposition between the sides of the circuit, said armature being disposed between the said parallel conductors, the armature being provided with two adjacent windings free of a current-field portion between them, a commutator common to the said windings, and commutator brushes engaging the commutator for including the said windings between the sides of the distributing-circuit, substantially as described.

5. In a meter, the combination with a current-conductor having parallel paths and adapted for inclusion in series with a main conductor, of an armature adapted for interposition between the sides of the circuit, said armature being disposed between the said parallel conductors, the armature being provided with two adjacent windings free of a current-field portion between them, a collector common to the said windings, and

means for effecting connection between the said windings and the sides of the distributing-circuit, the windings of the armature being so relatively disposed that current will flow through the same in opposite directions, substantially as described.

6. In a meter, the combination with a current-conductor having parallel paths and adapted for inclusion in series with a main conductor, of an armature adapted for interposition between the sides of the circuit, said armature being provided with two adjacent windings free of a current-field portion between them, a commutator common to the said windings, and commutator brushes engaging the commutator for including the said windings between the sides of the distributing-circuit, the windings of the armature being so relatively disposed that current will flow through the same in opposite directions, substantially as described.

7. In a meter, the combination with the rotatable retarding element thereof, of a permanent magnet cooperating therewith to check the speed of rotation of the movable member of the meter, and a portion of magnetic material in movable contact with the pole of said magnet for short-circuiting lines of force threading the magnet away from the retarding element and confining them to the closed magnetic circuit including the permanent magnet, substantially as described.

8. In a meter, the combination with the rotatable retarding element thereof, of two permanent magnets for retarding the rotation of the movable member of the meter included in a closed magnetic circuit to short-circuit lines of force threading the magnets, to reduce the number of lines of force threading the rotatable element, substantially as described.

9. In a meter, the combination with the rotatable retarding element thereof, of two permanent magnets therefor, having direct contact with each other to short-circuit lines of force threading the magnets to reduce the number of lines of force threading the disk, substantially as described.

10. In a meter, the combination with the rotatable retarding element thereof, of two permanent magnets therefor, having direct contact with each other to short-circuit lines of force threading the magnets to reduce the number of lines of force, and means for adjusting the said magnets with relation to the said rotatable retarding element, without removing the magnets from contact with each other, substantially as described.

11. In a meter, the combination with the rotatable retarding element thereof, of two permanent magnets therefor, having direct contact with each other to short-circuit lines of force threading the magnets to reduce the number of lines of force threading the disk, and a support for the magnets provided with parallel guiding-slots and clamping-curves passing through the guiding-slots for securing the magnets in place, whereby the magnets may be adjusted with relation to the rotatable retarding element without being removed from contact with each other, substantially as described.

12. In a meter, the combination with a rotatable armature adapted to be supplied with current through its coils from a distributing-circuit, of an adjustable magnet cooperating therewith for correcting the movement of the armature, substantially as described.

13. In a meter, the combination with a rotatable armature adapted to be supplied with current through its coils from a distributing-circuit, of magnetic means cooperating therewith to correct the movement thereof, the said magnetic means being adjustable, whereby a pole of either sign may be presented to the armature, substantially as described.

14. In an electric meter, the combination with a rotatable armature having a winding adapted to receive current from a distributing-circuit, of a rotatable-adjustable magnetic device for correcting the movement of the armature, substantially as described.

15. In a meter, the combination with an armature provided with two windings or sets of coils, of a pair of magnets each cooperating with an armature-winding, whereby error in the movement of the armature may be corrected, substantially as described.

16. In a meter, the combination with an armature provided with windings through which current is adapted to flow in opposite directions, of a pair of magnets presenting unlike poles to the said windings, substantially as described.

17. In a meter, the combination with an armature provided with windings, through which current is adapted to flow in opposite directions, of a pair of magnets presenting unlike poles to the said windings, the said windings being rotatably mounted, whereby the poles presented to the armature-windings may be reversed, substantially as described.

18. In a meter, the combination with the rotatable armature thereof, adapted to receive current from a distributing-circuit, of an electromagnetic device having a winding included in circuit with the said armature, the said magnet serving to create poles of unlike sign, the said magnet serving to correct error in the movement of the armature, substantially as described.

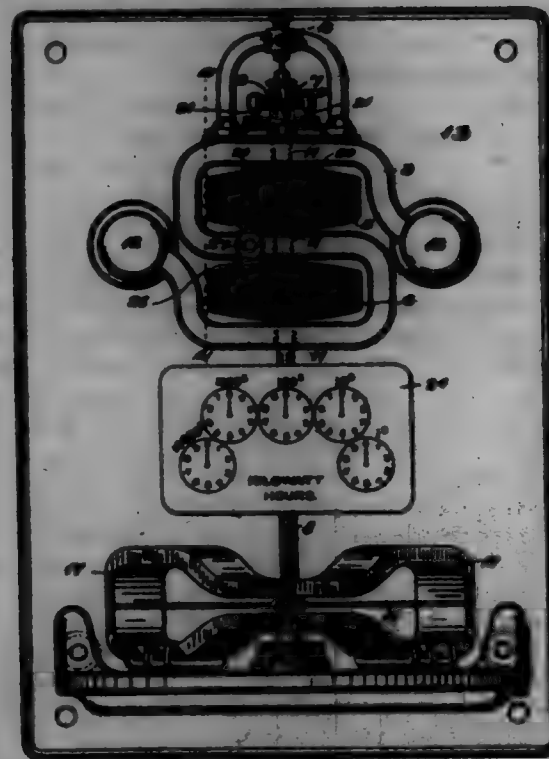
19. In a meter, the combination with the rotatable armature thereof, adapted to receive current from a distributing-circuit, of an electromagnetic

notio device having a winding included in circuit with the said armature, the said magnet serving to create poles of unlike sign, the said magnet serving to correct error in the movement of the armature, the magnet being rotatable, whereby a pole of either sign may be presented to the armature, substantially as described.

20. In a meter, the combination with a rotatable armature adapted to be supplied with current through its coils from a distribution-circuit, of a magnetic device cooperating therewith for correcting the movement of the armature, and means for reversing the polarity of the magnet as it is presented to the armature, substantially as described.

21. In a meter, the combination with its rotatable retarding element thereof, of a permanent magnet cooperating therewith in circuit the speed of rotation of the movable member of the meter, and a portion of magnetic material opened in portions of both poles of the permanent magnet and conveying lines of force from one pole of said magnet to the other, whereby lines of force threading the magnet are short-circuited away from the retarding element and confined to the magnetic circuit comprising the magnet and the said portion of magnetic material, substantially as described.

698,677. ELECTRIC METER. THOMAS DUGAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1900. Renewed Dec. 15, 1901. Serial No. 95,000. (No model.)



Claim.—1. In a wattmeter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, and means for connecting said windings in bridge between the sides of the circuit in which the current is being measured, substantially as described.

2. In a meter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, the windings of the said armature being connected to have current flow through the same in opposite directions, substantially as described.

3. In a meter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, and a collecting device common to the windings of the armature, substantially as described.

4. In a meter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, and a commutator common to the windings of the armature, substantially as described.

5. In a meter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, the windings of the said armature being connected to have current flow through the same in opposite directions, and a collector common to the windings of the armature, substantially as described.

6. In a meter, the combination with an S-shaped field-conductor, of an armature having windings induced by the convolutions of said conductor, the windings of the said armature being connected to have current flow through the same in opposite directions, a commutator common to the windings of the armature, and commutator-brushes for connecting the armature in circuit, substantially as described.

7. In a wattmeter, the combination with a rigid S-shaped field-con-

ductor, of an armature having two windings, each convolution of the field-conductor including a winding, a commutator for the armature, and commutator-brushes for engaging the commutator and including the windings in bridge between the sides of a transmission-circuit, substantially as described.

8. In a wattmeter, the combination with a rigid S-shaped field-conductor, of an armature having two windings, each convolution of the field-conductor including a winding, a commutator for the armature common to the armature-windings, and commutator-brushes for engaging the commutator and including the windings in bridge between the sides of a transmission-circuit, substantially as described.

9. In a wattmeter, the combination with a rigid S-shaped field-conductor, of an armature having two windings, each convolution of the field-conductor including a winding, a commutator common to the windings of the armature and commutator-brushes engaging the commutator for including the armature between the sides of the transmission-circuit, said windings being arranged to have current flow through each in a direction opposite to that flowing in the other, substantially as described.

10. In a meter, the combination with an armature adapted to receive current from a distribution-circuit, of a magnetic corrective device, and means for adjusting the same toward or from the armature, substantially as described.

11. In a meter, the combination with the armature thereof, adapted to receive current from a distribution-circuit, of a magnetic corrective device cooperating with the armature, said corrective device being mounted to rotate about an axis transverse to the axis of rotation of the armature, substantially as described.

12. In a meter, the combination with the armature thereof, formed in two windings or sets of coils, of a single magnetic corrective device having two poles each opposed to a winding of the armature, and means for changing the polarity of the said corrective device with respect to the armature, substantially as described.

13. In a meter, the combination with the armature thereof, formed in two windings or sets of coils, of a single magnetic corrective device having two poles each opposed to a winding of the armature, said corrective device being rotatably mounted to change the polarity of the poles of the corrective device presented to the armature-windings, substantially as described.

14. In a meter, the combination with an armature adapted to receive current from a distribution-circuit and having two windings or sets of coils, of a single magnetic corrective device having two poles each opposed to a winding of the meter, substantially as described.

15. In a meter, the combination with an armature adapted to receive current from a distribution-circuit and having two windings or sets of coils, of a single magnetic corrective device having two poles each opposed to a winding of the meter, the said windings being connected to have current flow through each in a direction opposite to that flowing through the other, substantially as described.

16. In a meter, the combination with a rigid field-conductor, of an armature arranged within the influence of the field-conductor and rotatable journals for the armature, one supported by the rigid conductor, substantially as described.

698,678. ELECTRIC METER. THOMAS DUGAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1900. Renewed Jan. 2, 1902. Serial No. 95,000. (No model.)

Claim.—1. The combination with a commutated motor-meter, of a by-path for the commutator of the meter which includes capacity, and adjusting inductance to partially neutralize the capacity, substantially as described.

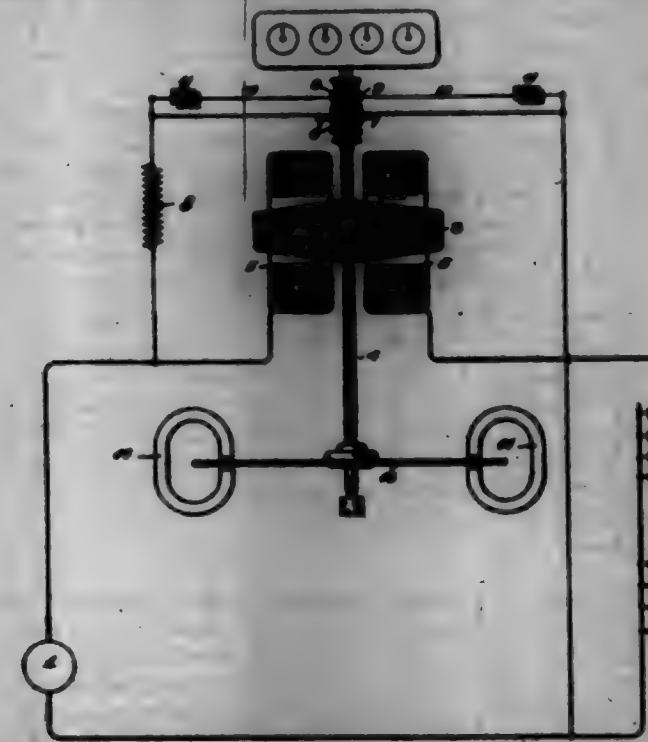
2. The combination with a motor-meter provided with collector and brush terminals for conveying current to the rotatable member of the meter, of a by-path for said terminals including capacity, and adjusting inductance to partially neutralize the capacity, substantially as described.

3. The combination with a commutated motor-meter including a main brush for contact with the commutator, of a brush supplementing the main brush and included in a by-path about the same, said by-path including capacity, and adjusting inductance to partially neutralize the capacity, substantially as described.

4. In a system of electrical distribution, the combination with a source of current-supplying transmitting device, of a motor-meter having a reversible armature included between the main conductors, a commutator for the armature, main commutator-brushes for engaging the commutator and supplying current to the armature, supplemental commutator-brushes also engaging the commutator and including capacity in circuit therewith, and adjusting inductance to partially neutralize the capacity, substantially as described.

5. In a system of electrical distribution, the combination with a source of current-supplying transmitting device, of a motor-meter having a reversible

ble armature included between the main conductors, a commutator for the armature, main commutator-brushes for engaging the commutator and supplying current to the armature, supplemental commutator-brushes also engaging the commutator, each supplemental brush being included in a by-path about a main brush, and two condensers one in circuit with each supplemental brush, adjusting inductance being included in circuit with each condenser to partially neutralize the capacity, substantially as described.



6. In a system of electrical distribution, the combination with a source of current-supplying transmitting device, of a motor-meter having a reversible armature included between the main conductors, a commutator for the armature, main commutator-brushes for engaging the commutator and supplying current to the armature, supplemental commutator-brushes also engaging the commutator, each supplemental brush being included in a by-path about a main brush, and two condensers, one in circuit with each supplemental brush, each main commutator-brush and the brush supplementing the same simultaneously engaging the same commutator-segment, adjusting inductance being included in circuit with each condenser to partially neutralize the capacity, substantially as described.

7. The combination with a commutated motor-meter, provided with two main brushes for engagement with the commutator, of two additional brushes each supplementing a main brush and included in a by-path, having capacity, about the same, said by-path also including adjusting inductance, substantially as described.

8. The combination with a commutated motor-meter including a main brush for contact with the commutator, of a brush supplementing the main brush and engaging the same commutator, the said brushes being connected at their free ends through capacity, substantially as described.

9. The combination with a commutated motor-meter provided with two main brushes engaging the same commutator, of two additional brushes, each supplementing a main brush, each main brush being united at its free end with the free end of its supplemental brush through capacity, substantially as described.

10. The combination with a commutated motor-meter, of main and supplemental brushes therefor, the latter bearing with greater pressure upon the commutator than the former, capacity being included in circuit with said main and supplemental brushes, substantially as described.

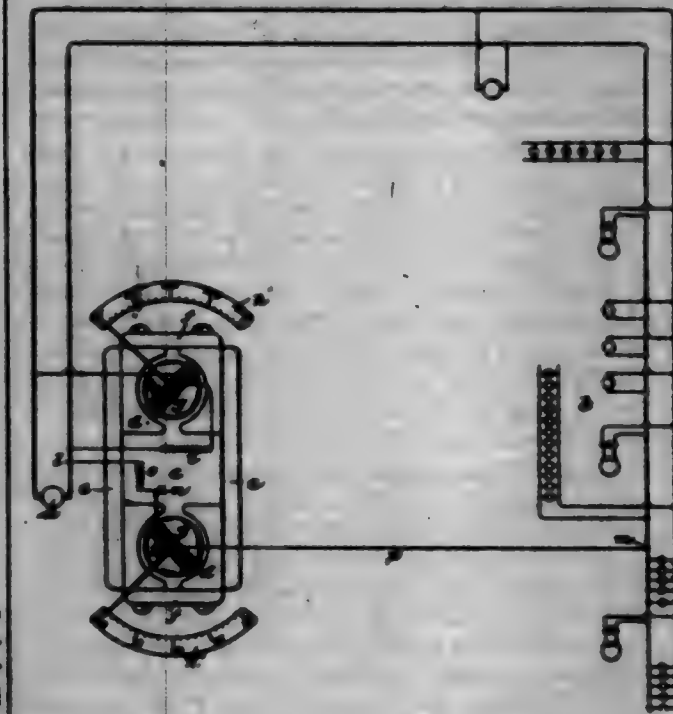
11. The combination with a commutated motor-meter, of main brushes for conveying current thereto, supplemental brushes bearing with greater pressure, upon the same commutator, than the main brushes, each main brush and its supplemental brush engaging the same segment of the commutator, and a condenser connected directly between each main brush and its supplemental brush, substantially as described.

12. The combination with a commutated motor-meter, of main brushes for conveying current thereto, supplemental brushes bearing with greater pressure, upon the same commutator, than the main brushes, and a condenser connected directly between each main brush and its supplemental brush, substantially as described.

13. The combination with a commutated motor-meter, of a wide main brush serving in part to convey current to the meter, and a supplemental brush of smaller width than the main brush and bearing with greater pressure upon the commutator, capacity being included in circuit with said main and supplemental brushes, substantially as described.

14. The combination with a commutated motor-meter, of a wide main brush serving in part to convey current to the meter, and a supplemental brush of smaller width than the main brush and bearing with greater pressure upon the commutator, capacity being included in circuit with said main and supplemental brushes, said main and supplemental brushes engaging the same segment of the commutator, substantially as described.

698,679. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUGAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1900. Renewed Dec. 15, 1901. Serial No. 95,000. (No model.)



Claim.—1. In a system of electrical distribution, the combination with a generator supplying current to a transmission-circuit, of a measuring apparatus having a voltmeter-winding connected across the generator-terminals, and a second pressure-winding connected between a point of the transmission-circuit and a second and distant point of the transmission-circuit where the pressure is to be determined to determine the $e r$ drop, whereby the pressure at distant points of the transmission-circuit may be readily determined, substantially as described.

2. In a system of electrical distribution, the combination with a generator supplying current to a transmission-circuit, of a measuring apparatus having a voltmeter-winding connected across the generator-terminals, a second pressure-winding connected between a point of the transmission-circuit and a second and distant point of the transmission-circuit where the pressure is to be determined to determine the $e r$ drop, whereby the pressure at distant points of the transmission-circuit may be readily determined, and a separate measuring element for and compensating with each of said windings, substantially as described.

3. In a system of electrical distribution, the combination with a generator supplying current to a transmission-circuit, of a measuring apparatus having a voltmeter-winding connected across the generator-terminals, a second pressure-winding connected between a point of the transmission-circuit and a second and distant point of the transmission-circuit where the pressure is to be determined, to determine the $e r$ drop, whereby the pressure at distant points of the transmission-circuit may be readily determined, and a switch for opening and closing the circuit through the second winding, substantially as described.

4. In a system of electrical distribution, the combination with a generator supplying current to a transmission-circuit, of a measuring apparatus having a voltmeter-winding connected across the generator-terminals, a second pressure-winding connected between a point of the transmission-circuit and a second and distant point of the transmission-circuit where the pressure is to be determined, to determine the $e r$ drop, whereby the pressure at distant points of the transmission-circuit may be readily determined, a separate measuring element for, and compensating with, each of said windings, and a switch for opening and closing the circuit through the second winding, substantially as described.

5. In a system of electrical distribution, the combination with a generator supplying current to a transmission-circuit, of a measuring apparatus having a voltmeter-winding connected across the generator-terminals,

between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to the said windings opposing each other, substantially as described.

6. In a system of electrical distribution, the combination with a generator, of a transmission-circuit, a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to the said windings opposing each other, a pointer movable with the windings, and a scale upon which the pointer may indicate measurements, substantially as described.

7. In a system of electrical distribution, the combination with a generator, of a metallic transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, substantially as described.

8. In a system of electrical distribution, the combination with a generator, of a metallic transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, substantially as described.

9. In a system of electrical distribution, the combination with a generator, of a metallic transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to the said windings opposing each other, substantially as described.

10. In a system of electrical distribution, the combination with a generator, of a metallic transmission-circuit, a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between points of the circuit having unlike differences of potential, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to said windings opposing each other, a pointer movable with the windings, and a scale upon which the pointer may indicate measurements, substantially as described.

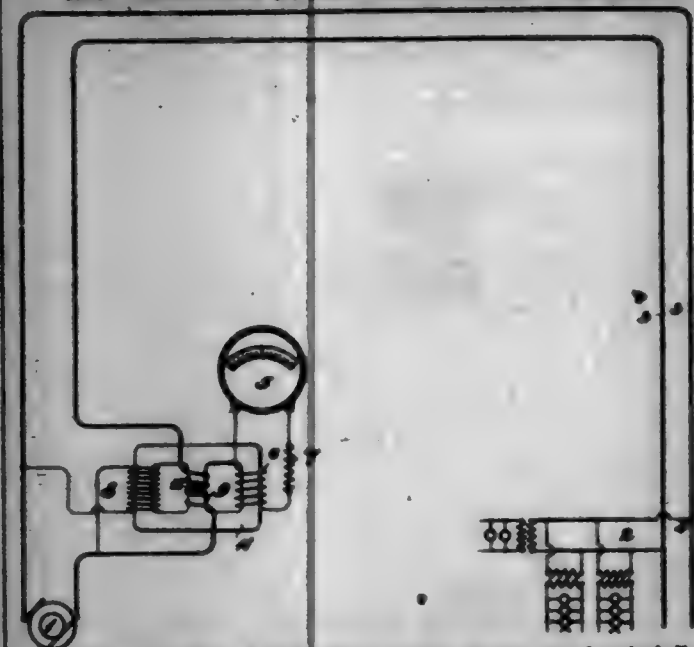
11. In a system of electrical distribution, the combination with a generator, of a transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between a point of the circuit near the generator and a second, distant point of the transmission-circuit, the latter winding being interposed between the sides of the circuit, substantially as described.

12. In a system of electrical distribution, the combination with a generator, of a transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between a point of the circuit near the generator and a second, distant point of the transmission-circuit, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, substantially as described.

13. In a system of electrical distribution, the combination with a generator, of a transmission-circuit, and a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between a point of the circuit near the generator and a second, distant point of the transmission-circuit, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to said windings opposing each other, substantially as described.

14. In a system of electrical distribution, the combination with a generator, of a transmission-circuit, a voltmeter having one winding interposed between the generator-terminals and a second winding interposed between a point of the circuit near the generator and a second, distant point of the transmission-circuit, the latter winding being interposed between the sides of the circuit, each circuit of the motor including a movable coil, said coils being mechanically coupled to jointly effect a single measurement, the torques due to the said windings opposing each other, a pointer movable with the windings, and a scale upon which the pointer may indicate measurements, substantially as described.

698,686. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1900. Renewed Dec. 16, 1901. Serial No. 88,990. (No model.)



Claim.—1. In an alternating-current system of electrical distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a pressure-winding interposed between the sides of the circuit, a current-winding, a third winding in inductive relation with the two aforesaid windings, the current-winding serving to divert lines of force due to the pressure-winding from the said third winding into a path parallel with the main path of the pressure lines of force and a voltmeter supplied with current from the said third winding, substantially as described.

2. In a system of alternating-current distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a transformer having three windings, one a pressure-winding interposed between the generator-terminals, the second a current-winding, and the third constituting the secondary of the transformer, the current-winding serving to divert lines of force due to the pressure-winding from the said third winding into a path parallel with the main path of the pressure lines of force and a voltmeter receiving current from the secondary winding, substantially as described.

3. In a system of electrical distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a transformer having three windings and a three-legged core, each of the legs of the core having one of the windings disposed about the same, one of the said windings being a pressure-winding interposed between the sides of the distribution-circuit, the second a current-winding, and the third the secondary of the transformer, the leg of the transformer about which the current-winding is disposed having reluctance to prevent too great a flow of lines of force due to the pressure-winding through this portion of the transformer-core, and a voltmeter receiving current from the secondary of the transformer, substantially as described.

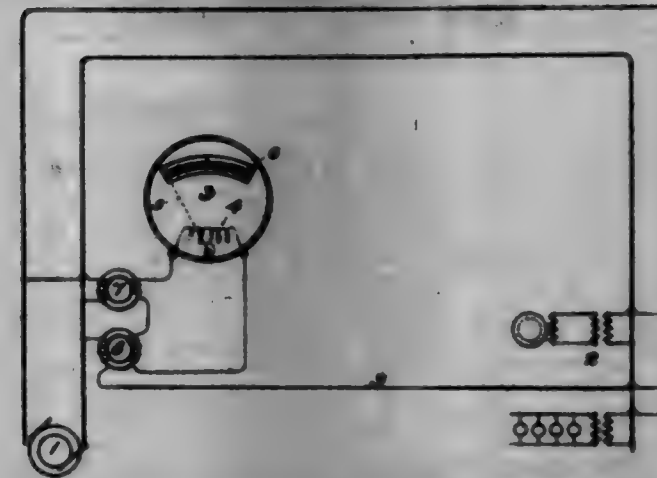
4. In a system of alternating-current distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a transformer having three windings and a three-legged core, each of the legs of the core having one of the windings disposed about the same, one of the said windings being a pressure-winding interposed between the sides of the distribution-circuit, the second a current-winding and the third the secondary of the transformer, the leg of the transformer about which the current-winding is disposed having reluctance to prevent too great a flow of lines of force due to the pressure-winding through this portion of the transformer-core, and a voltmeter receiving current from the secondary of the transformer, substantially as described.

5. In an alternating-current system of electrical distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a pressure-winding interposed between the sides of the circuit, a current-winding, a third winding in inductive relation with the pressure-winding, the current-winding serving to divert lines of force due to the pressure-winding from the said third winding into a path parallel with the main path of the pressure lines of force, and a voltmeter supplied with current from the said third winding, substantially as described.

6. In a system of alternating-current distribution, the combination with an alternating-current generator supplying a distribution-circuit, of a transformer having three windings and a three-legged core, each of the legs of the core having one of the windings disposed about the same, one of the said windings being a pressure-winding interposed between the sides of the distribution-circuit, the second a current-winding and the third the secondary of the transformer, the leg of the transformer about which the current-winding is disposed having an air-gap winding transversely through the same to prevent too great a flow of lines of force due to the

pressure-winding through this portion of the transformer-core, and a voltmeter receiving current from the secondary of the transformer, substantially as described.

698,687. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 2, 1900. Renewed Jan. 6, 1902. Serial No. 88,991. (No model.)



Claim.—1. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having a primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected in bridge of the distributing-mains, one of the connections of the latter winding being near the generator and the other being at a point of the transmission-circuit distant from the generator, and a voltmeter, the secondary coils of the transformers being included in series with each other and with the voltmeter-winding, the secondary coils of the transformers being arranged to have the electromotive forces generated therein opposed to each other, substantially as described.

2. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having its primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected in bridge of the distributing-mains, one of the connections of the latter winding being near the generator and the other being at a point of the transmission-circuit distant from the generator, and a voltmeter, the secondary coils of the transformers being included in series with each other and with the voltmeter-winding, substantially as described.

3. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having a primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected between distant points of the transmission system, and a voltmeter, the secondary coils of the transformers being included in series with each other and with the voltmeter-winding, substantially as described.

4. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having a primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected between a point of the transmission-circuit near the generator and a second, distant point of the transmission-circuit, and a voltmeter, the secondary coils of the transformers being included in series with each other and with the voltmeter-winding, substantially as described.

5. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having its primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected in bridge of the distributing-mains, one of the connections of the latter winding being near the generator and the other being at a point of the transmission-circuit distant from the generator, and a voltmeter, the secondary coils of the transformers being arranged to have the electromotive forces generated therein opposed to each other, substantially as described.

6. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having its primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected in bridge of the distributing-mains, one of the connections of the latter winding being near the generator and the other being at a point of the transmission-circuit distant from the generator, and a voltmeter, the secondary coils of the transformers being arranged to have the electromotive forces generated therein opposed to each other, substantially as described.

7. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having a primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected between distant points of the transmission system, and a voltmeter, the secondary coils of the transformers supplying current to the voltmeter-winding, substantially as described.

8. In a system of alternating-current distribution, the combination with an alternating-current generator, of two transformers, one having a primary winding connected in bridge of the distributing-mains at the generator, and the other having its primary winding connected between a point of the transmission-circuit near the generator, and a second, distant point of the transmission-circuit, and a voltmeter, the secondary coils of the transformers supplying current to the voltmeter-winding, substantially as described.

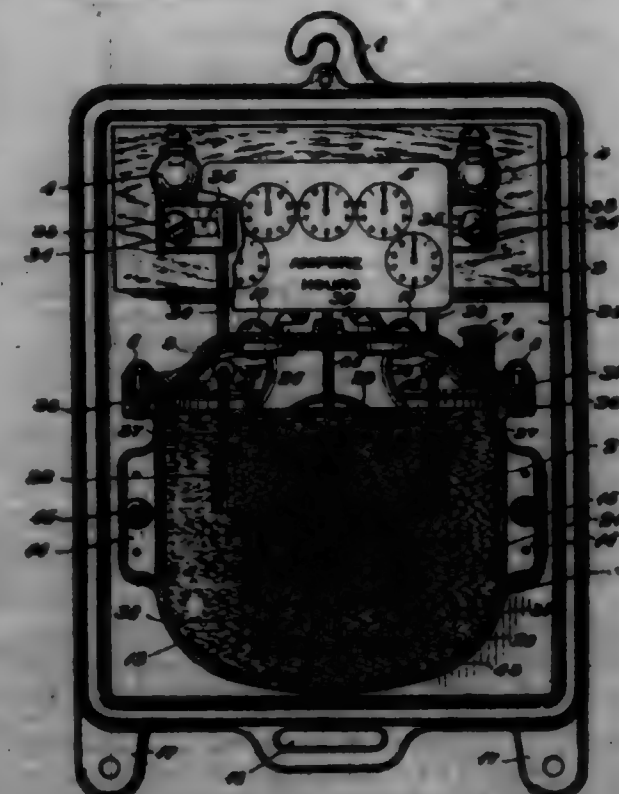
9. In a system of electrical distribution, the combination with a generator supplying the transmission-circuit, of a voltmeter having an operating-winding, and means for subjecting the voltmeter-winding to pressure between the generator-terminals and pressure between a point of the transmission-circuit near the generator and a distant point of the transmission-circuit, substantially as described.

10. In a system of electrical distribution, the combination with a generator supplying the transmission-circuit, of a voltmeter having an operating-winding, and means for subjecting the voltmeter-winding to pressure between the generator-terminals and pressure between distant points of the distribution-circuit, substantially as described.

11. In a system of electrical distribution, the combination with a generator supplying the transmission-circuit, of a voltmeter having an operating-winding, means for subjecting the voltmeter-winding to pressure between the generator-terminals and pressure between a point of the transmission-circuit near the generator and a distant point of the transmission-circuit, and means whereby the said electromotive forces are opposed to produce a resultant electromotive force proportional to the pressure at the distant point to which the said meter-winding is subject, substantially as described.

12. In a system of electrical distribution, the combination with a generator supplying the transmission-circuit, of a voltmeter having an operating-winding, means for subjecting the voltmeter-winding to pressure between the generator-terminals and pressure between distant points of the distribution-circuit, and means whereby the said electromotive forces are opposed to produce a resultant electromotive force proportional to the pressure at the distant point to which the said meter-winding is subject, substantially as described.

698,688. INDUCTION MOTOR-METER. THOMAS DUNN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Jan. 20, 1900. Serial No. 2,101. (No model.)

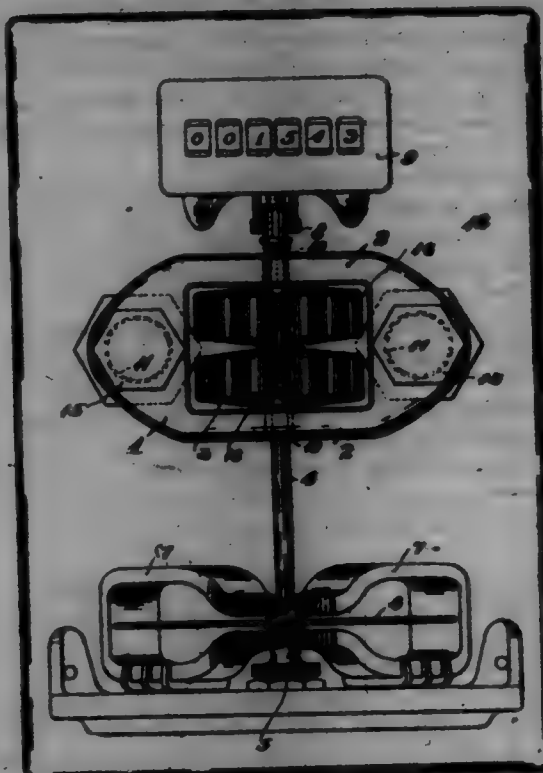


Claim.—1. In a motor of the class described, the combination with a support for all the moving parts of the motor, of lead-arms from the motor-shaft, clamps adapted to clamp said lead-arms and to be loosened

and moved away therefrom, and binding-posts to which said clamps are attached, substantially as described.

2. In a meter of the class described, the combination with the frame 21, of the limiting-strip 3 secured thereto, receptacle 19 also attached to said frame, a lid 9 for said receptacle, coil, armature and registering-strip carried by said lid, binding-posts supported upon said limiting-strip for connecting the meter with the circuit-conductor, and means for detachably connecting the wire leading to the meter-coils with said binding-posts, substantially as described.

698,689. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Mar. 2, 1900. Serial No. 7,908. (No model.)



Claim.—1. The combination with an armature provided with core-heads relatively rotatable and movable longitudinally with relation to each other, of armature-wire disposed about the said core-heads, electrically-continuous portions of the armature-winding at the core-heads being displaced laterally, substantially as described.

2. The combination with an armature provided with core-heads relatively rotatable and movable longitudinally with relation to each other, of an armature-wire disposed about the said core-heads, electrically-continuous portions of the armature-winding at the core-heads being displaced laterally, substantially one hundred and eighty degrees, substantially as described.

3. The combination with an armature provided with core-heads relatively rotatable and movable longitudinally with relation to each other, of armature-wire disposed about the said core-heads, electrically-continuous portions of the armature-winding at the core-heads being displaced laterally, substantially one hundred and eighty degrees, and a commutator for conveying current to the armature, substantially as described.

4. The combination with an armature-winding, of a mounting therefor, permitting relative rotation between the ends of said winding, substantially as described.

5. The combination with an armature-winding, of a mounting therefor, permitting relative longitudinal movement of the ends of the armature-winding, substantially as described.

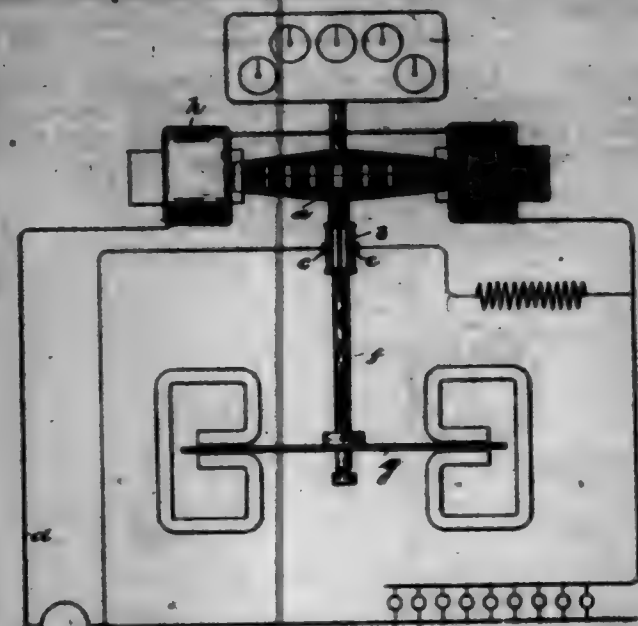
6. The combination with an armature-winding, of a mounting therefor, permitting relative rotation between portions of said winding, substantially as described.

698,690. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Mar. 2, 1900. Serial No. 7,904. (No model.)

Claim.—1. In a system of distribution, the combination with a source of direct current, of a wattmeter having current and pressure windings receiving current from said source, and a core of commutated magnetizable material for the current-winding, substantially as described.

2. In a system of distribution, the combination with a source of direct current, of a wattmeter having current and pressure windings receiv-

ing current from said source, and a core of commutated magnetizable material for the pressure-winding, substantially as described.



3. In a system of distribution, the combination with a source of direct current, of a wattmeter having current and pressure windings receiving current from said source, and a core of commutated magnetizable material for each of said windings, substantially as described.

4. In an electric meter, the combination with the movable winding thereof, of a commutated core of magnetizable material for said winding, and means for determining the measurement of the meter, substantially as described.

5. In an electric meter, the combination with current and pressure windings, the pressure-winding constituting the armature-winding of the meter of a commutator for conveying the current to the pressure-winding, a core of commutated magnetizable material for said armature-winding, and means for determining the measurement of the meter, substantially as described.

6. In an electric meter, the combination with current and pressure windings, the pressure-winding constituting the armature-winding of the meter of a commutator for conveying the current to the pressure-winding, a core of commutated magnetizable material for the current-winding, and means for determining the measurement of the meter, substantially as described.

7. In an electric meter, the combination with current and pressure windings, the pressure-winding constituting the armature-winding of the meter of a commutator for conveying the current to the pressure-winding, a core of commutated magnetizable material for each of said windings, and means for determining the measurement of the meter, substantially as described.

8. In a wattmeter, the combination with current and pressure windings, of a commutated magnetizable core for the current-winding, substantially as described.

9. In a wattmeter, the combination with current and pressure windings, of a commutated magnetizable core for the pressure-winding, substantially as described.

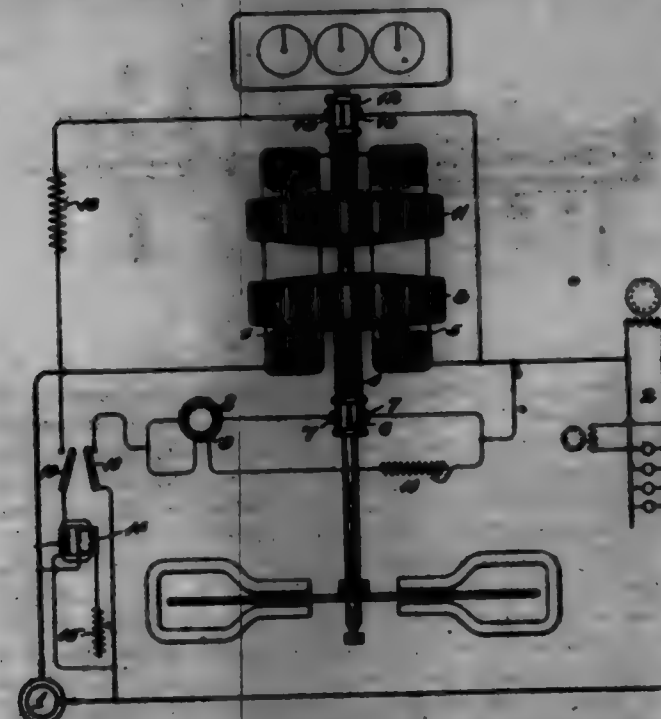
10. In a wattmeter, the combination with current and pressure windings, of a commutated core of magnetizable material for each of said windings, substantially as described.

698,691. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Mar. 2, 1900. Serial No. 7,906. (No model.)

Claim.—1. In an alternating-current meter, the combination with a measuring element, of windings for causing an extension of said measuring element, said extension being proportional to the true watts and to the magnetizing component, a portion of said windings being carried by said measuring element, and means for limiting the action of the said windings to cause an extension of the said measuring element proportional to the true watts or to the magnetizing component, substantially as described.

2. In an alternating-current meter, the combination with a measuring element, of two sets of windings, each comprising a current and a pressure winding for causing an extension of the measuring element said extension being proportional to the true watts and to the magnetizing component, a portion of said windings being carried by said measuring element, and switching means adapted to control the continuity of circuit connections for limiting the measuring element to the action of one of the windings, substantially as described.

3. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for causing an extension of the said measuring element said extension being proportional to the true watts and to the magnetizing component, a portion of said windings being carried by said measuring element, and switching means adapted to control the continuity of circuit connections for limiting the extension of said measuring element proportional to either the true watts or to the magnetizing component, substantially as described.



4. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for producing torque upon the measuring element proportional to the true watts and to the magnetizing component, a portion of said windings being carried by said measuring element, and means for permitting said element to be subjected to either torque alone, substantially as described.

5. In an alternating-current meter, the combination with a measuring element, of pressure and current field-windings for producing torque upon the measuring element proportional to the true watts and to the magnetizing component, a portion of said windings being carried by said measuring element, and means for limiting the measuring element to the action of one of the torques, substantially as described.

6. In an alternating-current meter, the combination with means for producing two pressure fields substantially in quadrature with each other, of means for producing a third field varying in phase with the current, a movable measuring element carrying a portion of the windings of the meter, and means whereby said measuring element may be subjected to the action of the current field and one pressure field only, substantially as described.

7. In an alternating-current meter, the combination with means for producing two pressure fields substantially in quadrature with each other, of means for producing a third field varying in phase with the current, a movable measuring element supporting the windings for causing the pressure fields, and means whereby said measuring element may be subjected to the action of the current field and one pressure field only, substantially as described.

8. In an alternating-current meter, the combination with means for producing two pressure fields substantially in quadrature with each other, of means for producing a third field varying in phase with the current, a movable measuring element, said measuring element carrying the windings for producing the pressure fields, the latter field in cooperation with one of the pressure fields serving to extend said measuring element to determine the true watts and in cooperation with the other field to move said element to determine the magnetizing component, and means whereby said element may be subjected to the action of either one only of said torques, substantially as described.

9. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element, electromagnetic means receiving current from said generator for causing two torques upon said element respectively proportional to the true watts and the magnetizing component, a portion of said electromagnetic means being carried by said movable element, and means whereby said element may be subjected to either of said torques, substantially as described.

10. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element, electromagnetic means receiving current from said generator for causing two torques

upon said element respectively proportional to the true watts and the magnetizing component, a portion of said electromagnetic means being carried by said movable element, and means whereby said element may be subjected to one only of said torques, substantially as described.

11. In a system of alternating-current distribution, the combination with an alternating-current generator, of a movable element, and electromagnetic means receiving current from said generator for causing two torques upon the movable element, one of said torques being capable of causing movement of said element proportional to the true watts, and the other, movement of said element proportional to the magnetizing component of the alternating current, and means whereby said element may be subjected to either one only of said torques, substantially as described.

12. In an alternating-current meter, the combination with a measuring element, of electromagnetic means adapted in cooperation with said measuring element to measure the true watts in an alternating-current circuit, a second electromagnetic torque-producing means adapted, in cooperation with said measuring element, to measure the wattless component in an alternating-current circuit, a portion of said electromagnetic means being carried by said measuring element, and means for bringing the torque-producing means into and out of effective association with the measuring element, substantially as described.

13. In an alternating-current meter, the combination with a measuring element, of an electromagnetic torque-producing means adapted, in cooperation with said measuring element, to measure the true watts in an alternating-current circuit, a second electromagnetic torque-producing means adapted, in cooperation with said measuring element, to measure the wattless component in an alternating-current circuit, a portion of said electromagnetic means being carried by said measuring element, and means for bringing each torque-producing means into and out of effective association with said measuring element, substantially as described.

14. In a meter for alternating-current circuits provided with relatively movable members in combination, means for producing a torque between said members proportional to the real watts of the current flowing in said circuit, means for producing between said members a second torque proportional to the wattless component of said current, and means whereby the meter may be subject to one of said torques alone, substantially as described.

15. In a meter for alternating-current circuits in combination, a series winding or windings, a plurality of short-windings inductively related thereto, means for causing a current to flow in one of said short-windings in phase with the electromotive force of the circuit, means for causing a current to flow in another of said windings in quadrature with said electromotive force, and means permitting the flow of current through one of the said short-windings alone, substantially as described.

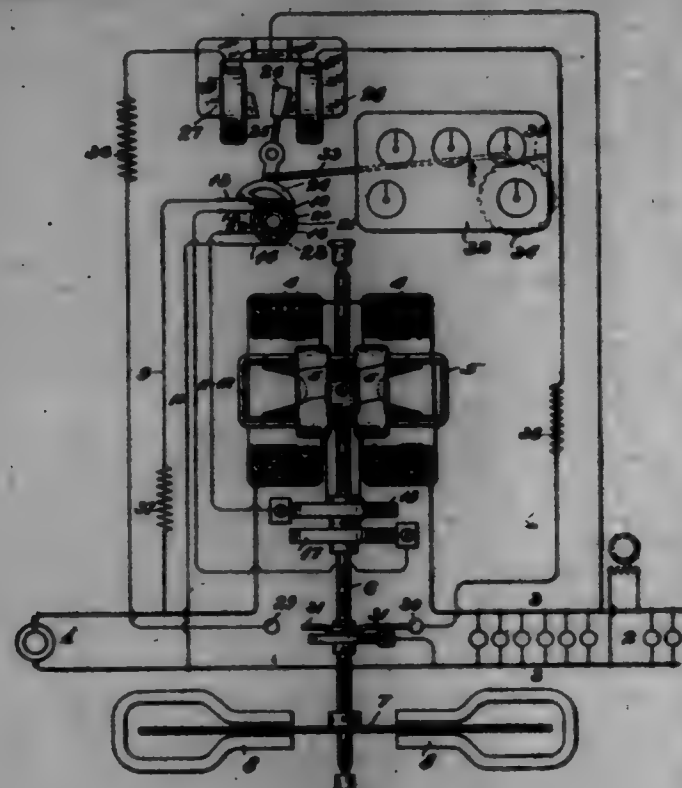
16. In a meter for alternating-current circuits in combination, a series winding or windings, a plurality of short-windings inductively related thereto, means for causing a current to flow in one of said short-windings in phase with the electromotive force of the circuit, means for causing a current to flow in another of said windings in quadrature with said electromotive force, means for permitting the flow of current through one of the said short-windings alone, and a common support for the short-windings, movable with respect to said series winding or windings, substantially as described.

698,692. ELECTRICAL MEASURING INSTRUMENT. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Mar. 2, 1900. Serial No. 7,905. (No model.)

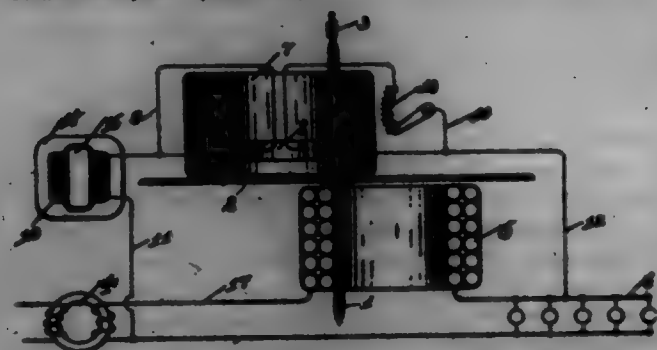
Claim.—1. In an oscillating meter, the combination with the movable element thereof, of an oscillating circuit-changing switch for changing circuit connections of the meter, a segmental gear, an electromagnetic device for controlling the operation of said circuit-changing switch provided with an armature carrying the said segmental gear, a measuring device actuated by said armature, a piston carried by the circuit-changing switch in engagement with the said segmental gear, and means controlled by the oscillating member of the meter for governing the operation of the said electromagnetic device, substantially as described.

2. In an oscillating meter, the combination with the movable element thereof, of an oscillating circuit-changing switch for changing circuit connections of the meter comprising four segmental contacts and four brushes engaging the same, two of the said brushes being positioned in contact with two contact-segments, the remaining brushes being adapted to make contact alternately with each of the remaining contact-segments, the latter segments being electrically connected each with one of the abutment segments, a pivotally-mounted armature for actuating said circuit-changing switch, and a measuring device actuated thereby, substantially as described.

3. In an oscillating motor, the combination with the movable element thereof, of an oscillating circuit-changing switch for changing the circuit connections of the motor, an electromagnetic device for controlling the operation of said circuit-changing switch, a suitably-mounted armature provided with means for operatively engaging the said oscillatory circuit-changing switch, a measuring device actuated by said armature, and means controlled by said oscillating member of the motor for governing the operation of the said electromagnetic device, substantially as described.



698,698. ELECTRIC METER. THOMAS DUNNAN, Chicago, Ill., assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Original application filed Apr. 11, 1900. Serial No. 677,119. Divided and this application filed Mar. 1, 1901. Serial No. 69,304. (No model.)



Claim.—1. The method of producing a magnetic field to quadrature with the line or impressed electromotive force, which consists in lagging a derived current, dividing said current and producing thereby two independent magnetic fields, and combining said magnetic fields to form a resultant magnetic field of the required phase relation, substantially as described.

2. The method of producing motion and regulating the same, which consists in producing a field proportional to the current, producing two out-of-phase fields by two pressure-windings receiving current independently of each other, subjecting a movable armature to the action of the said fields and effecting a relative adjustment between the windings producing said out-of-phase fields, substantially as described.

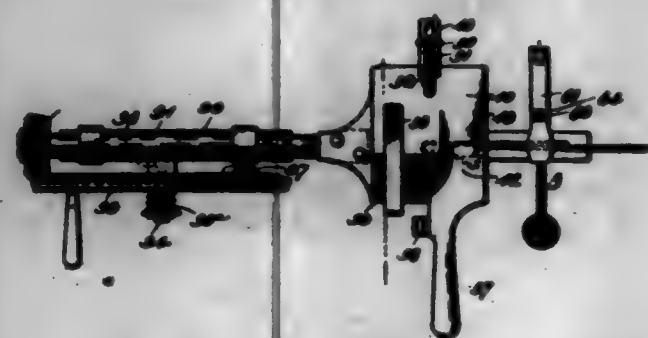
698,694. ZINC OXALATE COMPOUND. ARTHUR BARNHART and ROBERT BARNHART, Hartford, Germany, assignors to Farbwerke of Höchst a. M., New York, N. Y., a Corporation of New York. Filed Oct. 20, 1901. Serial No. 69,422. (No specimens.)

Claim.—1. The herein-described new pharmaceutical product derived from gallic acid and zinc compounds being, when dry and pulverized, amorphous yellowish-colored powder soluble in water with a yellowish color, and insoluble in ether, in benzene and in chloroform, substantially as described.

2. The herein-described specific derivative of gallic acid containing

zinc, obtainable from gallic acid and zinc chloride, being, when dry and pulverized, a yellowish-white powder readily soluble in water, soluble in dilute alcohol and dilute acetic acid and being insoluble in ether, benzene and chloroform, substantially as described.

698,695. BALD-TIE MACHINE. RICHARD J. BAY, Two Rivers, Wis. Filed Oct. 31, 1901. Serial No. 69,606. (No model.)



Claim.—1. In a machine for making bald-ties, the combination of the revolving shaft, a lower jaw carried thereby, an upper clamping-jaw movable with respect to the lower jaw, shaping-plates carried by each of said jaws and adapted to engage with and entirely surround the partly-formed knot, and a vice or clamp adapted to hold the ends of the wire during the rotations of the clamping-jaws, substantially as specified.

2. In a machine for making bald-ties, the combination with a revolving shaft, of a clamping-jaw secured to said shaft, an upper clamping-jaw movable with respect to the lower jaw, a spring for closing said jaws, shaping-plates carried by each of said jaws and adapted to engage with and entirely surround the partly-formed knot, and a vice or clamp adapted to hold the ends of the wire during the rotations of the clamping-jaws.

3. In a machine for making wire bald-ties, the combination of the revolving shaft, a clamping-jaw secured thereto, an upper movable jaw, shaping-plates carried by each of said jaws, an operating-lever pivoted to the lower jaw and operatively connected to the upper jaw, a spring extending between said lever and the lower jaw and tending to close the jaws, and a vice or clamp adapted to hold the ends of the wire during the twisting operation.

4. In a machine for making wire bald-ties, the combination of the revolving shaft, a clamping-jaw secured thereto, an upper movable jaw, shaping-plates carried by each of said jaws, one of said plates being provided with a guiding-tongue and the other with a receiving socket or slot for said tongue, and a vice or clamp for holding the ends of the wire during the twisting operation.

5. In a machine for making wire bald-ties, the combination of the revolving shaft, a lower clamping-jaw secured thereto, an upper movable jaw, means for moving said jaws to open or closed position, a stationary inclined clamping-finger carried by the lower jaw and adapted to engage the inclined face of the upper jaw, and a vice or clamp for holding the ends of the wire during the twisting operation.

6. In a machine for making wire bald-ties, the combination of the revolving shaft, a lower clamping-jaw secured thereto, an upper movable jaw, a fixed handle carried by the upper jaw, a lever pivoted to the lower jaw and having a handle portion in proximity to the stationary handle, a spring-catch carried by one of said handles and adapted to engage with the opposite handle, means for operatively connecting the lever to the upper jaw, a spring carried by said lever and adapted to move said upper jaw to closed position, and a vice or clamp for holding the ends of the wire during the twisting operation.

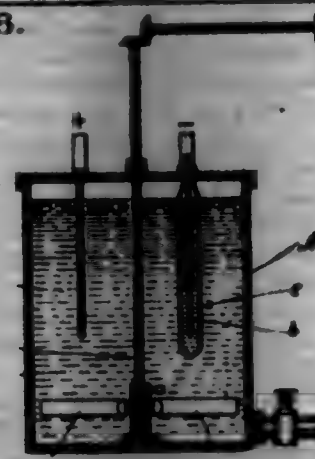
7. In a machine for making wire bald-ties, the combination of the revolving shaft, a lower clamping-jaw secured thereto, an upper movable jaw, a plate-spring carried by the lower jaw and in operative contact with the top of the upper jaw, means for opening and closing said jaws, and a vice or clamp for holding the ends of the wire during the twisting operation.

698,696. PROCESS OF MAKING PARI-GREEN. EDWARD FRANKLIN, Hingham Falls, N. Y. Filed Aug. 17, 1901. Serial No. 73,045. (No specimens.)

Claim.—1. The process of making pari-green, which consists in electrolyzing with a copper anode a solution of an acetate and arsenious acid.

2. The process of making pari-green, which consists in passing an electric current through a solution of an acetate and arsenious acid with a copper anode and with the cathode immersed in a solution of acetate and isolated to prevent the cathode products mixing with the arsenious acid of the electrolyte.

698,696.



698,697. WATER-TUBE BOILER. STUART E. FREEMAN, St. Louis, Mo. Filed Apr. 30, 1900. Serial No. 14,931. (No model.)



Claim.—1. In a water-tube boiler, the combination of a pair of heads, water-supply and steam pipes each having connection to both of said heads, field-tubes and circulating-tubes connected in independent sets to said heads, and a superheater-coil connected to said steam-pipe and arranged above said circulating and field tubes, substantially as described.

2. In a boiler for water-tube boilers, the combination of two sections provided with interior ribs, a partition-plate located between said sections, and stud-bolts inserted into said ribs by which the sections are bound together, substantially as described.

698,698. IGNITION MATERIAL FOR MATCHES. ROBERT E. A. GARR, Rainbow, Germany. Filed Dec. 31, 1900. Serial No. 69,932. (No specimens.)

Claim.—1. An ignition material composed of a salt of a polybasic acid and a substance which readily yields oxygen, substantially as described.

2. An ignition material composed of a salt of tetrabasic acid and a substance which readily yields oxygen, substantially as described.

698,699. TRACTION DRIVER. PAUL L. GOWLA, Seattle, Wash., assignor to the Gould Traction Car Company, Seattle, Wash., a Corporation of Washington. Filed Apr. 16, 1901. Serial No. 69,944. (No model.)

Claim.—1. In a device of the nature indicated; the combination with a platform; of a plurality of movable legs, laterally-projecting bear-

ing-blocks on said legs, and upper and lower bearing-surfaces longitudinally the platform respectively cooperating with said blocks to support respective legs for advancement on the platform and the platform for progressive movement on a supporting set of said legs.



2. In a device of the nature indicated; the combination with a platform; of a plurality of movable legs arranged in sets and having laterally-projecting bearing-surfaces, upper and lower bracket-surfaces longitudinally the platform and mechanism operatively connected with said platform and legs to place and advance said sets of legs successively on said upper surface and to move said platform progressively with said lower surface resting on the bearing-blocks of preceding legs.

3. In a device of the nature indicated; the combination with a platform; of a plurality of movable legs, means cooperatively connecting said platform and legs to support the platform for progressive movement on preceding legs and succeeding legs for advancement on the platform and means to elevate and lower the unsupporting legs from and to the traction-surfaces.

4. In a device of the nature indicated; the combination with a platform; of a plurality of movable legs, bearing-blocks on said legs and brackets on the platform cooperating with said blocks to alternately support the platform for progressive movement on planted legs and unplanted legs for advancement on the platform.

5. In a device of the nature indicated; the combination with a platform; of a plurality of movable legs, laterally-projecting bearing-blocks on said legs and brackets fixed on said platform each having an endless bearing-surface cooperating with a respective block to support the platform for progressive movement on planted legs and unplanted legs for advancement on the platform.

6. In a device of the nature indicated; the combination with a platform having a series of longitudinally-disposed parallel guide-slots adjacent each side edge; of legs movably engaged with said guides, and having laterally-projecting bearing-blocks and the disposed longitudinally said platform connecting the legs in pairs, brackets fixed to said platform having endless bearing-surfaces for said blocks, parallel said guides and endless bolts mounted on said platform in conformity to said bearing-surfaces and operatively connected to respective legs.

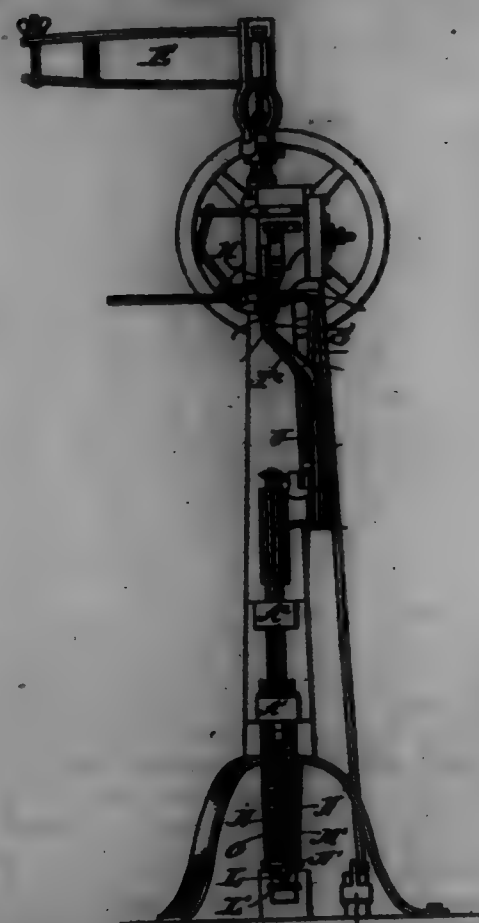
7. In a device of the nature indicated; the combination with a platform having a series of longitudinally-disposed parallel guide-slots adjacent each corner; of legs movably engaged with said guides and having laterally-projecting bearing-blocks and feet disposed longitudinally said platform connecting the legs in pairs, brackets fixed to said platform having upper and lower bearing-surfaces for the blocks, endless flat bolts mounted on said platform parallel said bearing-surfaces and operatively connected to respective legs.

8. In a device of the nature indicated; the combination with a platform having a series of longitudinally-disposed parallel guide-slots adjacent each corner; of legs movably engaged with said guides and having laterally-projecting bearing-blocks and feet disposed parallel said slots and

using the legs in pairs, brackets fixed to said platform having upper and lower bearing-surfaces for the blocks, chains which are mounted at opposite ends of each slot, endless link belts on said wheels operatively connected to respective legs and means to supply motive energy to a wheel of each pair of legs.

2. In a device of the nature indicated the combination of a platform 1 having slots 5, legs 3 movable in the slots connected in pairs, by feet 6 and having bearing-rollers 4 journaled thereon, brackets 5 for said rollers parallel said slots, belts 7 mounted parallel said brackets and connected to the legs and suitable means to drive a belt of each pair of legs.

698,700. PROCESSING-MACHINE. ALBERT GRAYMAN, Detroit, Ill. Assignor to Arthur G. Leonard, trustee, Chicago, Ill. Filed May 28, 1898. Serial No. 598,546. (No model.)



Claim.—1. In a pegging-machine, the combination of a rotating horn carrying an arvil, the said arvil being provided with a slot extending wholly across the face; and means adapted to retain the slot in proper position to the line of pegs, and the feeding of the sheet, notwithstanding the rotation of said horn on its axis in pegging the sheet, substantially as, and for the purposes, set forth.

2. In a pegging-machine, the combination with a rotating horn carrying an arvil, the said arvil being provided with a slot extending wholly across the face; and means adapted to retain the slot in proper position to the line of pegs, and the feeding of the sheet, notwithstanding the rotation of said horn on its axis in pegging the sheet, substantially as, and for the purposes, set forth.

3. The combination of the rotatable horn of a pegging-machine, with the arvil arranged non-coincident with the axis of rotation of the horn, said arvil having a feed movement from one to the other side of and through the axis of the horn, substantially as described.

4. The combination of the rotatable horn of a pegging-machine, with a work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn and means for preventing rotation of the arvil when the horn is turned, substantially as described.

5. The combination of the rotatable horn of a pegging-machine, with a work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn, the non-rotatable but vertically-movable treadle-rod or horn-post passing through said horn, a treadle connected to said treadle-rod, and connections between the arvil and the upper end of said treadle-rod for preventing rotation of the arvil when the horn is turned, substantially as described.

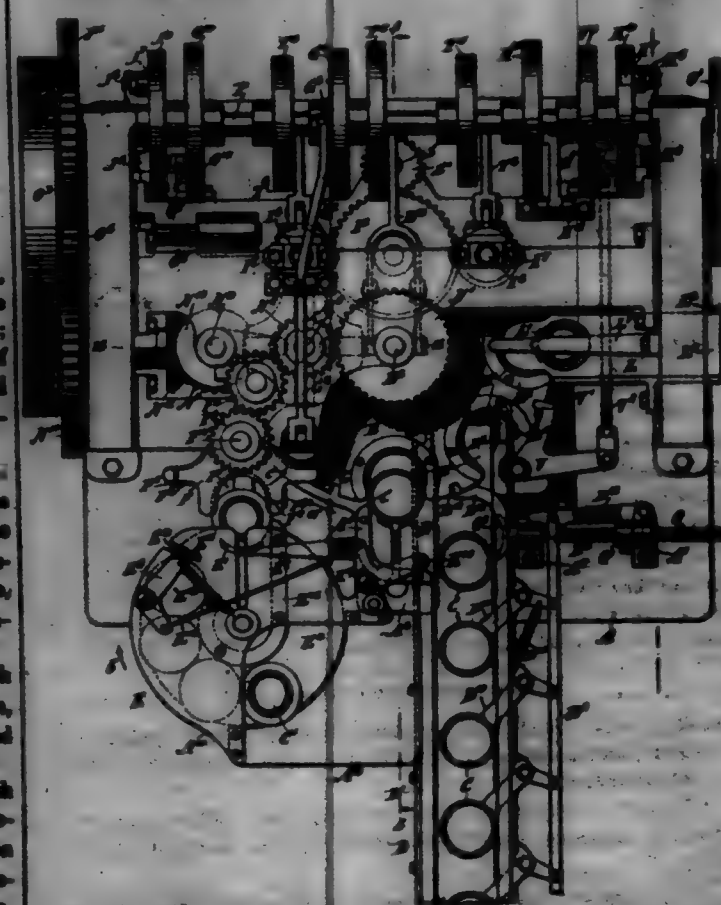
6. The combination of the rotatable horn of a pegging-machine, with a work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn, the non-rotatable but vertically-movable treadle-rod or horn-post passing through said horn, a treadle connected to said treadle-rod, and connections between the arvil and the upper end of said treadle-rod for preventing rotation of the arvil when the horn is turned, substantially as described.

7. The combination of the rotatable horn of a pegging-machine, consisting of the device, the substantially vertical portion, and the inclined portion, with a work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn, the non-rotatable but vertically-movable treadle-rod or horn-post passing through said horn, and connections between said treadle-rod and arvil comprising the gear on the arvil and the end of the treadle-rod, and the rods U and V geared thereto, for preventing the rotation of the arvil when the horn is turned, substantially as shown and described.

8. In a pegging-machine, the combination of a rotatable horn, with the work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn, and peg cutting, driving and feeding mechanism, the arvil of said mechanism being arranged non-coincident with the axis of rotation of said horn, and having a feed movement from one to the other side of the axis of the horn, substantially as described.

9. In a pegging-machine, the combination of the rotatable horn, with the work-supporting arvil pivotally supported in the tip thereof and provided with an arvi-passageway having both the ends of its operative portion non-coincident with the axis of rotation of the horn, means for preventing rotation of the arvil when the horn is turned, and peg cutting, driving and feeding mechanism, the arvil of said mechanism being arranged non-coincident with the axis of rotation of said horn, and having a feed movement from one to the other side of the axis of the horn, substantially as described.

698,701. MACHINE FOR CAPPING AND COMPLETING CANS. HENRY L. GUNTERMAN, Chicago, Wash. Filed Jan. 20, 1900. Serial No. 2,146. (No model.)



Claim.—1. A machine of the class described, comprising an intermittently-rotating and vertically-movable plate for carrying the can bodies and heads, means for engaging and revolving the can bodies and heads in the plate, means for imparting a vertical movement to the plate, and means for crimping and compressing the can-flanges while the can body and head are being rotated, substantially as shown and described.

2. A machine of the class described, comprising an intermittently-rotating and vertically-movable plate for carrying the can bodies and

heads, means for revolving the can body and head in the plate, means for imparting a vertical movement to the plate, and a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges and crimping the same while the body revolves to form a double seam, substantially as described.

3. A machine of the class described, comprising an intermittently-rotating and vertically-movable plate having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the plate, means for engaging the can body and head to revolve the same in said retaining means, means for imparting a vertical movement to the said plate, a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges to crimp the same while the can body and head are being rotated, the said angular groove causing the flanges to turn downward and toward to form a double seam, and a compressing-roller to compress the seam previously formed by the said crimping-roller, substantially as shown and described.

4. A machine of the class described, comprising an intermittently-rotating and vertically-movable plate having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the plate, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, means for imparting a vertical movement to the plate, a crimping-roller for engagement with one of the can-flanges to crimp the same and operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller operating in conjunction with the other clamping and rotating device for engaging and compressing the seam formed by the said crimping-roller, substantially as shown and described.

5. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate having retaining means for holding the body and allowing the same to be revolved in the said means, a can-head-revolving plate having intermittent motion in unison with the said can-revolving plate, and adapted to register therewith to bring a can-head over a can-body, and a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-revolving plate onto the end of the can-body, and a table under the registering portion of the said plates, to sustain the can-body while the can-head is forced upon it by the said plunger, substantially as shown and described.

6. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate having retaining means for holding the body and allowing the same to be revolved in the same means, a can-head-revolving plate having intermittent motion in unison with the said can-revolving plate, and adapted to register therewith to bring a can-head over a can-body, a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-revolving plate onto the end of the can-body, and a table under the registering portion of the said plates, to sustain the can-body while the can-head is forced upon it by the said plunger, substantially as shown and described.

7. A machine of the class described, comprising an intermittently-rotating and vertically-movable can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, means for raising the plate and a crimping-roller for engagement with the flanges of the can body and head, the said crimping-roller having its peripheral surface formed with an angular groove, substantially as shown and described.

8. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, means for raising the plate and a crimping-roller for engagement with the flanges of the can body and head, and means for imparting a reciprocating motion to the said plate in an axial direction, substantially as shown and described.

9. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and means for imparting a reciprocating motion to the said plate in an axial direction, the said means comprising a roller loosely mounted in the shaft, a stop on said shaft with which the roller engages, a lever carrying said roller, and means for crimping the lever, substantially as shown and described.

10. A machine of the class described, comprising an intermittently-

rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, means for raising the plate and means for imparting a yielding pressure on the said crimping-roller, substantially as shown and described.

11. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and a rod held to reciprocate in the said spindle to press the said can-head, substantially as shown and described.

12. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and a rod held to reciprocate in the said spindle to press the said can-head, a roller loosely surrounding the spindle-shaft, a ring mounted to turn loosely in said roller, a bar secured to the rod near the upper end and extending through vertically-disposed slots in the spindle-shaft, the said bar being held in the said ring, a lever carrying said roller, and means for imparting a crimping movement to said lever to impart a periodical reciprocation to the said rod, substantially as shown and described.

13. A machine of the class described, comprising an intermittently-rotating can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revolvable support, a revolvable spindle in alignment with the said support and both in alignment with a plate-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, mechanism for raising the plate, a lever carrying the said crimping-roller, a cam connection for the said lever, and a spring in the said connection, for imparting a yielding pressure on the said lever and its crimping-roller, substantially as shown and described.

14. In a machine of the class described, a receiving-plate, a clamping-ring carried by said plate, and having a seat for the can-head, the said clamping-ring being arranged to hold the assembled can body and head and to permit of turning the same in the clamping-ring, a device for rotating the can body and head for crimping purposes, the said device comprising a revolvable support, a revolvable spindle in alignment with the said support, and held against axial movement, means for raising the plate to bring the top of the can-head against the under surface of the spindle, means for reciprocating the support to move it in contact with the bottom of the can to hold the can-head in contact with the spindle when the plate is returned to its normal or lower position, means for rotating the support and spindle in unison, and a rod slidable in the said spindle and adapted to engage the top of the can-head to push the can-head into its seat in the clamping-ring, on the receding of the support, substantially as shown and described.

15. In a machine of the class described, a device for rotating the assembled can body and head for crimping purposes, the said device comprising a revolvable support, a revolvable spindle in alignment with the said support and held against axial movement, means for reciprocating the said support to cause the same to engage the bottom of the can, and hold the head of the can in contact with the spindle, means for rotating the support and spindle, and a rod slidable in the said spindle and adapted to engage the can-head to move the can body and head out of a clamping position on the receding of the support, a bar secured to the upper end of said rod and extending through slots in the spindle-shaft, a roller loosely surrounding the shaft and connected with the said bar, a lever carrying the said roller, and means for crimping the lever to impart a yielding motion to the said rod, substantially as shown and described.

16. A machine of the class described, comprising an intermittently-rotating and vertically-movable can-body-revolving plate, having notches in its periphery and retaining means for holding a can-body in a notch and for allowing the can-body to be turned in the said notch, means for moving the plate in an axial direction, a device having two rotatable members, one of which is held against axial movement and the other is

mounted to slide axially to clamp the can body and head between the members and rotate the same in the plates, a collar mounted loosely on the lower end of the axially-movable member, a stop on said member for holding the said collar against axial movement on the said member and means connected with the said collar for moving the same to impart a sliding motion to the said member, substantially as shown and described.

17. A machine of the class described, comprising an intermittently-rotatable and axially-movable plate having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the plates, means for moving the plates in an axial direction a device having two rotatable members one of which is held against axial movement and the other is mounted to slide axially to clamp an assembled can body and head between the members and to rotate the same in the plates, a collar mounted loosely on the lower end of the axially-movable member and held against sliding movement thereon, a rock-shaft provided with arms having pins carrying the said collar, means for moving the said rock-shaft to impart an up-and-down sliding motion to the said axially-movable member, and a roller for engaging the edges of the can for crimping and compressing purposes, substantially as shown and described.

18. A machine of the class described, comprising an intermittently-rotating and axially-movable plate having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the plates, means for imparting motion to the plates in an axial direction, a device having two rotatable members, one of which is mounted to slide axially to clamp the assembled can body and head between the members and to rotate the same in the plates, means for imparting a sliding motion to the said axially-movable member, and an axially-movable member in the non-axially-movable member, for moving the can body and head out of a clamping position, substantially as shown and described.

19. A machine of the class described, comprising a plate or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can-body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, and a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, substantially as shown and described.

20. A machine of the class described, comprising a plate or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, and means, substantially as described, for holding the said crimping-roller and the said compression-roller with a yielding pressure against the flanges and seam, as set forth.

21. A machine of the class described, comprising a plate or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, and means for imparting intermittent rotary motion to the said plate or carrier, to bring a crimped can from one of the said devices to the other, substantially as shown and described.

22. A machine of the class described, comprising a plate or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, means for imparting an intermittent rotary motion to the said plate or carrier, to bring a crimped can from one of the said devices to the other, and a locking device and means for operating the same and locking the said plate in position during the period of rest, substantially as shown and described.

23. A machine of the class described, provided with a plate having peripheral notches, and retaining devices in the said notches to hold a can-body in position in the notch, each of the said retaining devices consisting of an open clamping-ring secured to the plate at the notch, and a spring-pressed clamping bolt or bolt displace in the ring, the latter having its round ends flush with the opposed corners of the notch-wall, substantially as shown and described.

24. A machine of the class described, provided with a plate having peripheral notches, and retaining devices in the said notches to hold a can-body in position in the notch, the said retaining devices each comprising an open clamping-ring secured to the plate at the notch, and having a segmental recess formed in its upper part to receive the can-head, and a groove in the lower portion at its inner face, slidable and spring-pressed clamping-bolt arranged in the upper portion of said ring and projecting into said segmental recess, and a spring held in said groove and projecting on each side of the clamping-ring to engage the surface of the can-body, substantially as shown and described.

25. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining device, means for intermittently rotating the said plate and in unison with the movement of the said retaining parts of the said feeding device, and a conveying mechanism for carrying the can-bodies to the said feeding device, said conveying device having retaining members operating in unison with the feeding device, to allow a can-body at a time to pass to the feeding device, substantially as shown and described.

26. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining device, means for intermittently rotating the said plate and in unison with the movement of the said retaining parts of the said feeding device, and an ejecting device operating in unison with the said feeding device, to eject a finished can at a time from the said plate while the latter is at rest, substantially as shown and described.

27. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining device, means for intermittently rotating the said plate and in unison with the movement of the said retaining parts of the said feeding device, a can-head-feeding device, a can-head-receiving plate for bringing a can-head over a can-body in the said can-body-receiving plate, and a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving plate, the said pusher operating in unison with the said feeding device, substantially as shown and described.

28. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining device, means for intermittently rotating the said plate and in unison with the movement of the said retaining parts of the said feeding device, a can-head-feeding device, a can-head-receiving plate for bringing a can-head over a can-body in the said can-body-receiving plate, a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving plate, the said pusher operating in unison with the said feeding device, and an ejecting device for removing a finished can from the said plate and operating in unison with the said feeding device and the said pusher, substantially as shown and described.

29. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining device, means for intermittently rotating the said plate and in unison with the movement of the said retaining parts of the said feeding device, a can-head-feeding device, a can-head-receiving plate for bringing a can-head over a can-body in the said can-body-receiving plate, a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving plate, the said pusher operating in unison with the said feeding device, a retaining and releasing device for the heads on the said can-head-feeding device and controlled by the can-bodies on passing from the conveying device to the can-body-feeding device, substantially as shown and described.

30. A machine of the class described, having a can-head-feeding device, a can-head-receiving plate, and feeding device comprising a revolving disk upon which the can-heads are placed, a stopping and releasing device for holding the can-head temporarily stationary while the disk revolves, and a pushing-head for pushing a released head into the said plate, substantially as shown and described.

31. A machine of the class described, having a can-head-feeding device, a can-head-receiving plate, and feeding device comprising a revolving disk upon which the can-heads are placed, a stopping and releasing device for holding the can-head temporarily stationary while the disk revolves, and a pushing-head for pushing a released head into the said plate, the latter being provided with retaining devices for holding the can-heads in place, substantially as shown and described.

32. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, and an automatically-actuated lever having a pin normally projecting into

the path of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, substantially as shown and described.

33. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, an automatically-actuated lever having a pin normally projecting into the path of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, and means for imparting a swinging motion to the said lever, to release the heads and allow the same to travel with the disk, substantially as shown and described.

34. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, an automatically-actuated lever having a pin normally projecting into the path of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, and means for imparting a swinging motion to the said lever, to release the heads and allow the same to travel with the disk, and a head over the said disk, to hold the heads from accidental displacement thereon, substantially as shown and described.

35. A machine of the class described having a can-body-receiving plate, a shaft carrying said plate and provided with a gear-wheel at its upper end, and a mechanism for imparting an intermittent rotary motion to the said plate, the said mechanism comprising a second shaft carrying a pin at its upper end in mesh with the gear-wheel on the plate-shaft, a detent-wheel carried on the lower end of said second shaft and having radial recesses in its under side and peripheral notches, a third shaft mounted to rotate and provided with an arm having a friction-roller for engagement with the said notches, means for rotating said third shaft, a disk having a segmental notch and rotating in unison with the said arm, the peripheral surface of the disk being adapted to mesh with the said detent-wheel notches, substantially as shown and described.

36. A machine of the class described, having a roller for crimping or compressing purposes, a lever on which the roller is journaled, a link connected at one end with the lever, a casing into which the other end of the link extends, a spring surrounding said link within the casing, a lever pivotedly connected with the casing, and a cam for swinging the lever, substantially as shown and described.

37. In a machine of the class described, a roller for crimping or compressing purposes, a lever on which the roller is journaled, a casing, a link pivotedly connected with said lever and extending into the casing, the link having a head arranged within the casing, a spring coiled around said link within the casing, a lever pivotedly connected with the casing, and means for swinging the latter lever, substantially as shown and described.

38. In a machine of the class described, having a roller for crimping or compressing purposes, a lever on which the roller is journaled, means for imparting a swinging motion to the said lever, a bearing for the fulcrum of the lever, the said bearing being adjustably mounted, and an arm on said bearing carrying a stop-rod for limiting the swinging motion of said lever, substantially as shown and described.

39. In a machine of the class described, a roller for crimping or compressing purposes, a lever on which the roller is journaled means for imparting a swinging motion to said lever, a vertically-disposed pin forming the fulcrum for said lever, a bearing in which said pin is adjustably held, means for adjusting said bearing, and means for limiting the swinging motion of the lever, as set forth.

40. A machine of the class described, comprising an intermittently-rotating plate having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the plates, the said retaining means comprising an open clamping-ring secured to the plate, and having a segmental recess formed in its upper part to receive the can-head, the said clamping-ring being provided with a groove in the lower portion at the inner face, and spring-pressed clamping means extending in the recess and groove to engage the head and body of the can, means for engaging the can body and head to revolve the same in said retaining means, and a crimping-roller for engagement with the can-flanges to crimp the same while the said head and body are being rotated, substantially as shown and described.

41. A machine of the class described, comprising an intermittently-rotating plate having peripheral notches, and retaining means for holding the can-bodies and can-heads in position in said notches, and for allowing the same to be revolved in the notches, the said retaining means comprising an open clamping-ring secured to the plate at each notch and having a segmental recess in its upper part to receive the can-head, and provided with a groove in the lower portion at the inner face, and spring-pressed clamping means in said ring for engaging the head and body of the can, means for engaging the can body and head to revolve the same in said retaining means, and a compression-roller for engaging and compressing the seam of the can, to render the latter air-tight, substantially as shown and described.

42. A machine of the class described, comprising a plate or carrier for carrying the assembled can-body and can-head, a feeding device for

automatically feeding the can-bodies successively to the said plate, means for intermittently rotating the plates, an ejecting device operating in unison with the feeding device to eject a finished can at a time from the plate while the latter is at rest, and means for actuating the ejecting device, substantially as shown and described.

43. A machine of the class described, comprising a plate or carrier for carrying the assembled can-body and can-head, a feeding device for successively feeding the can-bodies successively to the said plate, means for intermittently rotating the said plate, a crimping device for engagement with the flanges of the can body and head, an ejecting device operating in unison with the feeding device to eject a finished can at a time from the said plate while the latter is at rest, and means for moving the ejecting device, substantially as shown and described.

44. A machine of the class described, comprising a plate or carrier for carrying the assembled can-body and can-head, a shaft carrying said plate and mounted to rotate and also to move vertically in its bearings, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head to crimp the said flanges, the said crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, means for imparting an up-and-down motion to the shaft carrying the plate and an ejecting device for ejecting the finished can from the said plate, substantially as shown and described.

45. A machine of the class described, comprising a plate for carrying the can bodies and heads thereon, a shaft carrying said plate, and mounted to rotate and also to move vertically in its bearings, means for revolving the can body and head in the plates, a crimping-roller for engaging the can-flanges and crimping the same while the body revolves, and means for imparting an up-and-down motion to the shaft carrying the plate, substantially as shown and described.

46. A machine of the class described, comprising a plate or carrier for carrying the assembled can-body and can-head, means for imparting an intermittent rotary motion to the plate, and means for locking the plate in position during the period of rest, the said means comprising a bell-crank lever fulcrumed on the frame of the machine one end of the bell-crank lever being provided with a leg adapted to engage a notch in the peripheral surface of the plate, a second lever fulcrumed on the machine-frame and connected at its lower end by a link with the bell-crank lever, and a shaft mounted to turn and provided with a disk having a cam-groove in its face engaged by the upper end of said second lever for revolving the latter, substantially as shown and described.

47. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, and a feeding mechanism for automatically feeding the can-bodies successively to the said retaining device, the said feeding mechanism being provided with a conveyor-frame having an endless conveyor-belt for the can-bodies, a bracket fitted to slide on a vertically-disposed post supported on the machine-frame, and in which the lower end of the conveyor-frame is hung, means for adjusting the bracket up or down on the post to bring the top run of the conveyor-belt to a proper level relative to the height of the can-body and the position of the plate, devices for interrupting the forward movement of the can-bodies on the belt, and for releasing the can-bodies, and means for pushing the can-bodies into the retaining devices of the plate, substantially as shown and described.

48. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, an endless conveyor-belt for the can-bodies, a table located adjacent to the conveyor-belt, a pusher-rod having a head for engaging and pushing the can-bodies successively from the conveyor-belt upon said table and a pusher-head for pushing the can-bodies from said table into the retaining devices of the plate, substantially as shown and described.

49. A machine of the class described, comprising a can-body-receiving plate having retaining devices for the can-bodies, means for intermittently rotating said plate, a conveying mechanism having an endless belt for carrying the can-bodies, levers normally in engagement with the can-bodies to interrupt their forward movement, a pusher-rod having a head for engaging the can-bodies successively to push them from the conveyor-belt, mechanism for actuating said pusher-rod, and a connection between said mechanism and the said levers whereby the said levers are moved out of engagement with the can-bodies so that the latter can move forward with the belt on which they rest, and a pushing-head for pushing the can-bodies into the retaining devices of the plate, after they have been pushed from the conveyor-belt, substantially as shown and described.

50. In a machine of the class described, a can-body-receiving plate having retaining devices for the can-bodies, means for intermittently rotating the said plate, a pusher-head for feeding the can-bodies successively to the said retaining device, a can-head-feeding device, a can-head-receiving plate for bringing a can-head over a can-body in the said can-body-receiving plate, substantially as shown and described.

body-receiving plates, a pusher-head for pushing the can-head successively from the can-head-feeding device onto the can-head-receiving plates, a guideway for conveying the can to one side of the machine, a pusher-head for pushing a finished can from the can-body-receiving plates, upon said guideway, and connections between the said pusher-heads whereby they are operated in unison, substantially as shown and described.

51. In a machine of the class described, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same, the said devices each comprising a revoluble spindle for engaging a can-head and a revoluble support for engaging the bottom of a can, the said supports having axial movement, means for rotating the said supports and spindles in unison while permitting of the axial movement of the supports, and means for imparting a reciprocating movement to the said supports, a crimping-roller operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller operating in conjunction with the other clamping and rotating device, substantially as shown and described.

52. In a machine of the class described, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same, the said devices each comprising a revoluble spindle, and a revoluble support for engaging an assembled can body and head to rotate the same, the said supports each comprising a shaft mounted to turn and to slide, and a head on said support, a gear-wheel on each of said shafts and meshing with an intermediate gear-wheel of greater width than the gear-wheels on the shafts, so that the latter gear-wheels can move vertically with their shafts without moving out of mesh with the intermediate gear-wheel, means for imparting a sliding motion to the said supports, and means for rotating the intermediate gear-wheel, substantially as shown and described.

53. A machine of the class described, provided with a platen for carrying the can bodies and heads thereon and an ejecting device for moving the finished can from the platen, the said ejecting device comprising a slide mounted to move in a guideway on the frame of the machine, a post carried by said slide, a head on the upper end of the post and adapted to engage a finished can, and means for imparting a sliding motion to said slide, substantially as shown and described.

54. A machine of the class described, provided with a platen having retaining devices for the cans, means for intermittently rotating the platen, a pusher-head for feeding the cans into the retaining devices of the platen, means for crimping and compressing the flanges of the can body and head while in the retaining device, a pusher-head for ejecting the finished can from the platen, and means for operating said pusher-heads in unison, substantially as shown and described.

55. A machine of the class described, provided with a platen having retaining devices for the cans, means for rotating said platen intermittently, a mechanism for feeding the assembled can bodies and heads to the retaining device and having a pusher-head for pushing the cans into the retaining device, means for crimping and compressing the flanges of the can body and head while in the retaining device, a pusher-head for ejecting a finished can from the platen and operating in unison with the first-mentioned pusher-head, and means for locking the platen while in a state of rest, substantially as shown and described.

56. A machine of the class described, provided with a platen having retaining devices for the cans, means for rotating said platen intermittently, a feeding mechanism for the cans having a pusher-head for pushing the cans into the retaining devices of the platen, a pusher-head for ejecting the finished can from the platen when in a state of rest, a bell-crank lever connected with said pusher-heads to operate the same in unison, and means for actuating the said lever, substantially as shown and described.

57. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, devices for engaging and revolving a can body and head in the platen for crimping or compressing purposes, one of said devices engaging the top of the can-head and having a depending canular flange, adapted to enter a recess or depression in the can-head to form an abutment during the crimping or compressing operation and means for pushing the can-head out of engagement with said flange, substantially as shown and described.

58. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen for carrying the can bodies and heads thereon, means for revolving the can body and head in the platen, the said means consisting of a revoluble support arranged to engage the bottom of the can, and a revoluble spindle for engaging the can-head, the said spindle having a flange adapted to enter a recess in the can-head to serve as an abutment during the crimping operation, means for raising and lowering the platen and a crimping-roller for engaging and crimping the can-flanges while the body revolves, substantially as shown and described.

59. A machine of the class described, comprising an intermittently-

rotating and vertically-movable platen for carrying the can bodies and heads thereon, and for allowing the same to be revolved in the platen, a revoluble support arranged to engage the bottom of the can, a revoluble spindle for engaging the can-head and having a flange adapted to enter a recess in the can-head to serve as an abutment during the compressing of the can, means for moving the said platen vertically and a compressing-roller for engaging and compressing the seam of the can, to render the latter air-tight, substantially as shown and described.

60. A machine of the class described, comprising an intermittently-rotating platen having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the platen, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same in the platen, the said devices each comprising a revoluble spindle for engaging the can-head and having a flange adapted to enter a recess in the top of the can-head to serve as an abutment, and a support for engaging the bottom of the can and mounted to turn and to slide, a gear-wheel on each of said supports and meshing with an intermediate gear-wheel, the gear-wheels being arranged to permit of the vertical movement of the supports without disengagement of said gear-wheels, means for rotating the intermediate gear-wheel, means for imparting a sliding motion to the supports, a crimping-roller for the can-flanges operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller for compressing the seam, and operating in conjunction with the other clamping and rotating device, substantially as shown and described.

61. A machine of the class described, comprising a can-body-receiving platen, having retaining means for holding a can-body, and for allowing the can-body to be turned in the platen, a revoluble support, a revoluble spindle in alignment with the support and arranged to engage a can body and head at the bottom and top and revolve the same, the said revoluble spindle having a depending flange adapted to enter a recess in the can, and serving as an abutment during the crimping operation, a crimping-roller for engagement with the flanges of the can-body and head, and a rod held in reciprocity in the said spindle to press the said can-head out of engagement with the flange of the spindle substantially as shown and described.

62. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, means for raising and lowering the platen, a device for clamping the can bodies and heads and for revolving the same, the said device when raised carrying the can bodies and heads into position to be clamped by said device, and when lowered exposing the flanges of the can body and head for crimping purposes, a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges and crimping the same while the body revolves, and an abutment forming a part of the clamping and revolving device, and acting in conjunction with the crimping-roller, substantially as shown and described.

63. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, means for raising and lowering the platen, a device for clamping the can bodies and heads after the platen is raised and for revolving the same, the said platen when lowered or in its normal position exposing the flanges of the can body and head for compressing purposes, a compressing-roller having a straight peripheral face for engaging and compressing the seam of the can, and an abutment forming a part of the said clamping and revolving device and acting in conjunction with the compressing-roller, substantially as shown and described.

64. A machine of the class described, comprising an intermittently-rotatable and vertically-movable can-body-receiving platen provided with means for the flanges of the can body and head, a revoluble spindle held against axial movement and provided with a head at its lower end and having a flange adapted to enter a groove in the can-head when the platen is raised, a revoluble and vertically-movable support for the bottom of the can to hold the can in position against the spindle, means for revolving said support and spindle, a roller adapted to engage the can-flanges when the platen recedes, and means for pushing the can from the flange of the spindle and into the can in the platen when the support recedes, substantially as shown and described.

65. A machine of the class described, comprising an intermittently-rotatable and vertically-movable can-body-receiving platen, having notches in its periphery and a clamping device for holding a can-body in a notch and for allowing the said can-body to be turned in the notch, the said clamping device having a recess forming a seat for the flanges of the can body and head, means for imparting a vertical reciprocating motion to the platen in an axial direction, a revoluble support, a revoluble spindle in alignment with the support and both in alignment with a platen-notch to engage the can body and head at the bottom and top and revolve the same, the said spindle being provided with a head having a depending flange arranged to enter a recess in the top of the can-head when the platen is raised, to serve as an abutment, means for rotating the support

and spindle in unison a roller for engagement with the flange of the can body and head after the platen is lowered and means for moving the can-head out of engagement with the flange of the spindle substantially as shown and described.

66. In a machine of the class described, a platen having a seat for the can-flanges, a device for rotating the assembled can body and head in the platen, and comprising a revoluble support having vertical movement, a revoluble spindle in alignment with the support and held against vertical movement, the said spindle being provided with means for engaging the top of the can-head to form an abutment during the crimping operation, and means for moving the can-head out of engagement with the spindle on the receding of the support, and into the seat in the platen, substantially as shown and described.

67. In a machine of the class described, a platen, a device for rotating the assembled can body and head in the platen, and comprising a revoluble support having axial movement, a revoluble spindle in alignment with the said support and held against axial movement, the said spindle being provided with a depending flange for engaging a recess in the top of the can-head, means for rotating the support and spindle, and a rod slidable in the said spindle and adapted to engage the can-head to move the latter out of engagement with the flange of the spindle and into a seat in the platen on the receding of the support, substantially as shown and described.

68. A machine of the class described, comprising an intermittently-revolving can-body-receiving platen, having a clamping-ring for retaining and holding the body and allowing the same to be revolved in the clamping-ring, the said ring having a recess in its upper portion forming a seat for the flange of the can-body, a can-head-receiving platen having intermittent motion in unison with the said can-body-receiving platen and adapted to engage the can-head, to bring a can-head over a can-body, and a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-receiving platen onto the end of the can-body, the recess in the clamping-ring receiving the flange of the can-head and centering the can-head when the latter is pressed out of the platen, substantially as shown and described.

69. A machine of the class described, comprising a can-body-receiving platen or carrier, having retaining devices for the can-bodies, means for feeding the can-bodies successively to the retaining device of the platen, means for intermittently rotating the platen, a can-head-receiving platen rotating in unison with the can-body-receiving platen, and arranged to bring a can-head over a can-body, mechanism for feeding the can-heads to said can-head-receiving platen, a reciprocating plunger for pressing a can-head out of the can-head-receiving platen onto the end of the can-body, means for revolving the can body and head in said can-body-receiving platen, and means for crimping and compressing the flanges of the can body and head, substantially as shown and described.

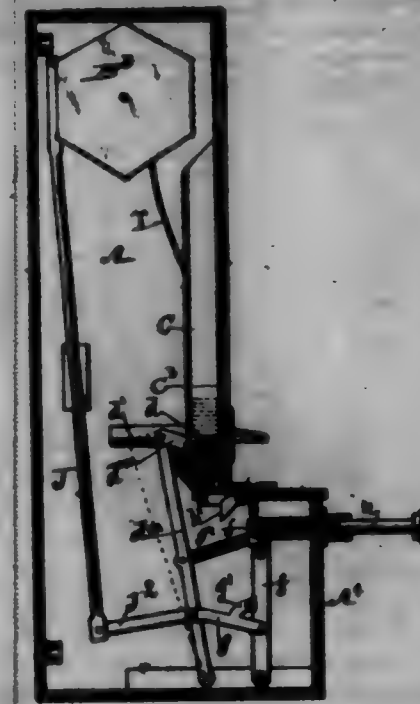
70. A machine of the class described, comprising an intermittently-rotatable platen or carrier for carrying the assembled can-body and can-head, the said platen having a limited vertical movement, means for rotating the platen intermittently, a plurality of devices for successively engaging the can body and head to clamp and rotate the same, a crimping device for engaging the flanges of the can body and head to crimp the said flanges, the crimping device operating in conjunction with one of the said clamping and rotating devices, a compressing device operating in conjunction with the other clamping and rotating device to compress the seam previously formed by the said crimping device, mechanism for imparting a limited vertical movement to the platen, and means for actuating said mechanism, the said clamping and compressing devices being controlled from the said means, substantially as shown and described.

71. A machine of the class described, comprising a platen for carrying the can bodies and heads, means for imparting motion to the platen in an axial direction, means for clamping the can bodies and heads, when the platen is moved in one direction, and for revolving the same, the platen when moved in the opposite direction exposing the flanges for crimping or compressing purposes, substantially as shown and described.

698,703. **IMPROVEMENTS IN COLLING MACHINES.** ARMA C. GUNTER, Des Moines, Iowa. Filed Oct. 2, 1898. Serial No. 25,165. (No model.)

Claim.—1. In a coin-controlled machine, a frame pivoted at its lower end and provided with parallel sides at its top and coinciding vertical slots in the parallel sides of its top for receiving and retaining a coin, a spring-actuated pin mounted in horizontal position to engage a coin, placed in said slot, a pawl pivoted above the top of the pivoted frame for engaging and removing the coin from the said slot in the pivoted frame as the frame and pin resume their normal positions, a chamber for merchandise above the pivoted frame and pivoted pawl, a slidable bottom for said chamber, means for connecting the slidable bottom with said pivoted frame and means for connecting the pivoted frame with a rotatable card-carrier located above the said chamber for merchandise, arranged and combined to operate in the manner set forth for the purpose stated.

frame, arranged and combined to operate in the manner set forth for the purpose stated.



2. In a coin-controlled machine, a frame pivoted at its lower end and provided with parallel sides at its top and coinciding vertical slots in the parallel sides of its top for receiving and retaining a coin, a spring-actuated pin mounted in horizontal position to engage a coin, placed in said slot, a pawl pivoted above the top of the pivoted frame for engaging and removing the coin from the said slot in the pivoted frame as the frame and pin resume their normal positions, a chamber for merchandise above the pivoted frame and pivoted pawl, a slidable bottom for said chamber, means for connecting the slidable bottom with said pivoted frame and means for connecting the pivoted frame with a rotatable card-carrier located above the said chamber for merchandise, arranged and combined to operate in the manner set forth for the purpose stated.

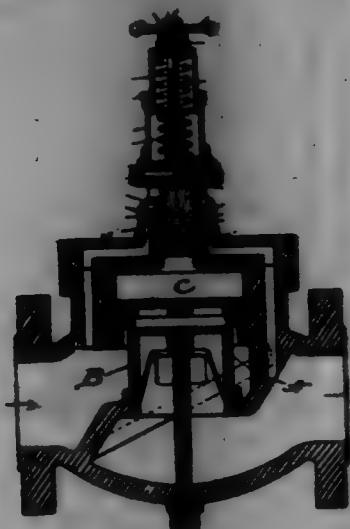
3. In a coin-controlled machine for advertising and selling merchandise, a case having a slot to admit a coin, a frame having a slot in its top to receive a coin pivoted in the case, a spring-actuated pin to engage a coin in the slot of said pivoted frame, a chamber for articles of merchandise above the said slot in the case, a slidable bottom in the chamber, a lever connected with the slidable bottom at its top end, a coiled spring connected with the said pivoted frame and the lever and means for conveying hand-pressure to a coin in the top of said pivoted frame, a pawl pivoted to the case for removing the coin from the frame having a slot in its top to receive a coin, a rotatable card-carrier mounted above the chamber for merchandise, a ratchet-wheel on the axle of the card-carrier, a lever having a pawl at its top to engage the ratchet-wheel and a link at its bottom connecting it with the lever that is connected with the sliding bottom, all arranged and combined to be jointly and simultaneously operated in the manner set forth for the purpose stated, by pressure upon the coin.

4. A machine for advertising and selling merchandise comprising a case having a forward extension at its front and lower portion, a chamber for merchandise inside of its front wall and above the forward extension, a slidable bottom in said chamber, a spring-actuated frame pivoted in the forward extension, a slot in the top of the extension to admit and direct a coin into a coinciding slot in the top of said pivoted frame, a lever pivoted in the bottom of the case and connected with the slidable bottom of the chamber, a spring-actuated pin mounted in the front of the forward extension of the case to engage a coin in the top of said pivoted frame, a pawl pivoted to the top of said extension to pull the coin from the slot in the top of said pivoted frame, a rotatable card-holder mounted in the top of the case, a ratchet-wheel on the shaft of the card-holder, a lever fulcrumed to the inside of the case and provided with a pawl at its top to engage the ratchet-wheel and connected with the lever that is attached to the pivoted frame that has a slot in its top for holding a coin, a window in front of the case in alignment with the card-holder, all arranged and combined to simultaneously operate the slidable bottom of the chamber for merchandise, and the rotatable card-holder for advertising the merchandise by pressure upon a coin placed in the machine and transmitted to said slidable bottom and said rotatable card-holder by said plurality of levers.

698,708. **FEEDING-MECHANISM.** GEORGE WILLIAM FRIEDLAND, Phila. Pa. Filed May 21, 1898. Serial No. 25,166. (No model.)

Claim.—1. In combination with a main valve controlling the main

passage, said valve being normally closed by the pressure, a double-acting balanced valve controlling the inlet and outlet from the pressure-chamber above the main valve, a spring for exerting a constant pressure in the balanced valve and means for automatically actuating said valve against the pressure of the spring / on the decrease of pressure to allow the main valve to open, substantially as described.



2. In combination with a main valve controlling the main passage normally closed by the pressure, a valve controlling the inlet and exit of pressure, a spring set to operate at a predetermined pressure to cause the opening of the main valve, and manually-operating means adapted to be actuated to effect the temporary closing of the main valve without interfering with the predetermined tension of the spring, substantially as described.

3. In combination with a main valve controlling the main passage normally closed by the pressure, a balanced double-acting valve under spring tension controlling the inlet and exit of pressure to said main valve, a spring set at a certain tension for causing the actuation of said controlling-valve, to close the same and to permit the opening of the main valve at a predetermined pressure on the low-pressure side and manually-operated means for effecting the temporary closing of the main valve through the action of the controlling-valve without interfering with the tension of the main spring, substantially as described.

698,704. METHOD OF MAKING HYDROCHLORIC ACID. EDWARD HART, Boston, Pa., assignor to General Chemical Company, New York, N. Y., a Corporation of New York. Filed Nov. 5, 1901. Serial No. 51,171. (No specimens.)



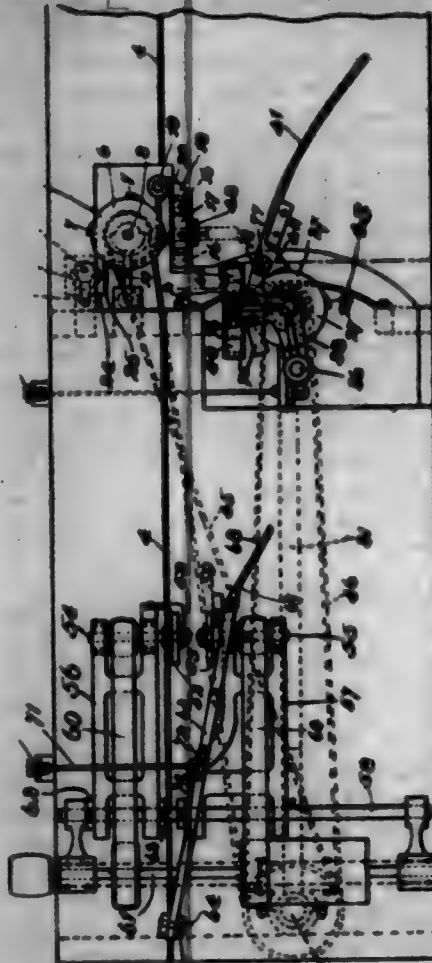
Claim.—1. The herein-described process of manufacturing hydrochloric acid, which consists in heating sodium-pyrosulphate and sodium chloride in the presence of water.

2. The herein-described process of producing hydrochloric acid which consists in causing to react upon each other at a temperature below red heat, sodium pyrosulphate, sodium chloride, and water in substantially the proportion of two equivalents of sodium chloride, one equivalent of water and one equivalent of sodium pyrosulphate.

3. The herein-described improvement in the manufacture of hydrochloric acid which consists in subjecting a mixture of sodium pyrosulphate, sodium chloride and water to a temperature increasing gradually from one portion of the mixture to another, then coming the gas liberated to pass over the nearly-finished salt cake which results from the reaction together with the hydrochloric acid.

4. The herein-described improvement in the manufacture of hydrochloric acid which consists in heating a mixture of sodium chloride and sodium pyrosulphate, and continuing to heat the mixture to a temperature below red heat in the presence of water or steam, to cause the production of hydrochloric acid and salt cake or sodium sulfate.

698,705. TONGUING-AND-GROOVING MACHINE. HENRY A. BELL, Wilton, N. H. Filed Nov. 1, 1901. Serial No. 50,790. (No model.)



Claim.—1. In a machine of the character specified, a work-supporting table, a cutter-head, a shaft therefor, a vertically-movable support for said shaft and cutter-head, whereby the cutter-head may be adjusted vertically, and a rider connected with the shaft-support and arranged to be supported by the upper surface of a board on said table, whereby the height of the cutter-head is determined by the upper surface of the board.

2. In a machine of the character specified, a work-supporting table having a fixed edge guide, a swinging frame pivoted below the table, a cutter-head having a shaft journaled in bearings on the swinging end of the frame and movable toward and from the said guide, said shaft being vertically movable, a rider arranged to bear on the top surface of a board, and connections between the rider and shaft, whereby the height of the cutter-head is determined by the upper surface of the board.

3. A machine of the character specified, comprising a work-supporting table having a fixed edge guide, two cutter-heads, a horizontally-movable support for the bearings of one cutter-head yieldingly pressed toward said guide, vertically-movable supports for the shafts of the two cutter-heads, riders arranged to bear on the top surface of a board, and connections between said riders and the shaft-supports, whereby the height of the cutter-heads is determined by the upper surface of the board.

4. A machine of the character specified, comprising a work-supporting table having a fixed edge guide, a vertically-movable bearing-cutter held against lateral movement and located over said table, a vertically and horizontally movable cutter located over the table and movable toward and from the guide, and a proportional adjusting device actuated by the width of a board to adjust the horizontally-movable cutter.

5. A machine of the character specified, comprising a work-supporting table having a fixed edge guide, two pivoted frames located over the table and movable toward and from the same, one frame being horizontally movable and the other confined against horizontal movement, a proportional adjusting-lever pivoted at one end to the table and having at the other end a board-engaging shoulder, the lever being engaged at an intermediate point with the horizontally-movable frame.

698,706. WRINGER. EDGAR DOWLEY, Seattle, Wash. Filed July 1, 1901. Serial No. 50,908. (No model.)

Claim.—1. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto, having a curved surface, a movable L-shaped jaw with the stem disposed on said crowing and a yoke pivoted to the shaft on a line radial said surface at comparatively short radius, embracing said stem and adapted to swing and clamp the same to the crowing, and means for yieldingly holding the fulcrum of the yoke in its adjusted position.

2. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto, a transversely-disposed T-shaped die with the head parallel said surface, a movable L-shaped jaw with the stem disposed on said crowing, a yoke adjustably pivoted to said die, embracing said stem and adapted to swing and clamp the same to the crowing and means to yieldingly secure the pivot of said yoke in adjusted position in the die, and lifting-springs between said shaft and die.



3. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto and a transversely-disposed T-shaped die with the head parallel said surface, a movable L-shaped jaw with the stem disposed on said crowing, a yoke adjustably pivoted to said die embracing said stem and adapted to swing and clamp the same to the crowing and a U-shaped spring disposed in the crowing and means for yieldingly holding the fulcrum of the yoke in its adjusted position.

4. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto and a transversely-disposed T-shaped die with the head parallel said surface, a movable L-shaped jaw with the stem disposed on said crowing, a yoke adjustably pivoted to said die embracing said stem and adapted to swing and clamp the same to the crowing and a U-shaped spring disposed in the crowing and means for yieldingly holding the fulcrum of the yoke in its adjusted position.

5. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto having a curved surface and a transversely-disposed T-shaped die with the head substantially parallel said surface, a movable L-shaped jaw having teeth formed in the stem adapted to normally interlock with the teeth on said crowing, a yoke adjustably pivoted in said die embracing said stem and adapted to swing and hold the same to the crowing and a U-shaped spring disposed in the head of said die with one stem yieldingly holding the pivot of said yoke normally in the stem of the die.

6. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto having a curved surface and a transversely-disposed T-shaped die with the head substantially parallel said surface, a movable L-shaped jaw having teeth formed in the stem adapted to normally interlock with the teeth on said crowing, a yoke adjustably pivoted in said die embracing said stem and adapted to swing and hold the same to the crowing and a U-shaped spring disposed in the head of said die with one stem yieldingly holding the pivot of said yoke normally in the stem of said die.

7. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto having a curved surface and a transversely-disposed T-shaped die with the head substantially parallel said surface, a movable L-shaped jaw having teeth formed in the stem adapted to normally interlock with the teeth on said crowing, a yoke adjustably pivoted in said die embracing said stem and adapted to swing and hold the same to the crowing and a U-shaped spring disposed in the head of said die with one stem yieldingly holding the pivot of said yoke normally in the stem of said die.

8. In a wringer of the nature indicated, a shaft having a jaw on one end and a crowing on one side edge adjacent thereto having a curved surface and a transversely-disposed T-shaped die with the head substantially parallel said surface, a movable L-shaped jaw having teeth formed in the stem adapted to normally interlock with the teeth on said crowing, a yoke adjustably pivoted in said die embracing said stem and adapted to swing and hold the same to the crowing and a U-shaped spring disposed in the head of said die with one stem yieldingly holding the pivot of said yoke normally in the stem of said die and a spring at one end of the crowing connected to the shaft and pressing upon said stem, and adapted to raise and yieldingly support said movable jaw when the yoke is adjusted outwardly.

698,707. METHOD OF MAKING HOLLOW BALLS. ALLEN JENNISON, Ottumwa, Iowa. Filed Sept. 25, 1900. Serial No. 75,504. (No model.)

Claim.—1. The process of making hollow metal bearing-balls, which consists in forming a cup, closing the edge of the cup to form a sphere, and subjecting the same to increasing rolling pressure on its various axes, thereby truing and condensing the surface of said sphere.

2. The process of making hollow metal bearing-balls, which consists in forming a cup having an irregular edge, closing the edge of the cup to form a sphere, and subjecting the same to increasing rolling pressure on its various axes, thereby truing and condensing the surface of said sphere.

3. The method of making a hollow metal ball consisting of shaping a piece of metal of suitable size into a cup, then closing the edge of the cup to form a hollow sphere, and finally subjecting said hollow sphere to pressure on its various axes.

4. The process of making hollow metal bearing-balls, which consists of shaping a metal blank into a cup, closing the edge of the cup to form a sphere and subjecting the same to a gradually-increasing rolling pressure on its various axes as set forth.

5. The process of making hollow metal bearing-balls, which consists of shaping a sheet-metal blank into a cup, closing the edge of the cup to form a sphere, and subjecting the same to a gradually-increasing rolling pressure on its various axes.

6. The process of making hollow metal bearing-balls, which consists of shaping a metal blank into a cup having an irregular edge, closing the edge of the cup to form a sphere, and subjecting the same to a gradually-increasing rolling pressure on its various axes.

7. The process of making hollow metal bearing-balls, which consists of shaping a sheet-metal blank into a cup having an irregular edge, closing the edge of the cup to form a sphere, and subjecting the same to a gradually-increasing rolling pressure on its various axes.

8. The process of making hollow metal bearing-balls, which consists of shaping a metal blank into a cup, approximating the edge of the cup, to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition as set forth.

9. The process of making hollow metal bearing-balls, which consists of shaping a sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of said sphere into a hardened, polished condition.

10. The process of making hollow metal bearing-balls, which consists of shaping a metal blank into a cup having an irregular edge, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of said sphere into a hardened, polished condition.

11. The process of making hollow metal bearing-balls, which consists of shaping a sheet-metal blank into a cup having an irregular edge, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of said sphere into a hardened, polished condition.

12. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

13. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

14. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

15. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

16. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

17. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

18. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

19. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

20. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

21. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

22. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

23. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

24. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

25. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

26. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

27. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

28. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

29. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

30. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

31. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

32. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

33. The process of making hollow metal bearing-balls, which consists of shaping a square sheet-metal blank into a cup, approximating the edge of the cup to form a sphere, and subjecting the sphere repeatedly to gradually-increasing rolling pressure on its various axes, thereby pressing, swelling and condensing the surface of the same into a hardened, polished condition.

698,708. FIRE-POT FOR STOVE. WILLIAM J. KEMP, Detroit, Mich., assignor to the Michigan Stove Company, Detroit, Mich. Filed Feb. 28, 1901. Serial No. 45,772. (No model.)



Claim.—1. In a fire-pot, the combination of an upper and lower section provided with cooperating flanges extending outwardly from the walls thereof, said flanges formed to space the walls of the upper section from those of the lower section and to provide between them and the mid walls an annular air-space leading into the fire-pot, the walls of the lower section being bent outward to form a groove extending from the upper to the lower edge of said lower section and a plate adapted to form a continuation of the wall of said lower section and to cover said groove so as to form an inclined air-passage opening at its upper end into said air-space and opening at its lower end to the air below the fire-pot.

2. In a fire-pot, the combination of an upper and lower section provided with cooperating flanges extending outwardly from the walls thereof, said flanges formed to space the walls of the upper section from those of the lower section and to provide between them and the mid walls an annular air-space leading into the fire-pot, the walls of the lower section being bent outward to form a groove extending from the upper to the lower edge of said lower section and a plate adapted to form a continuation of the wall of said lower section and to cover said groove so as to form an inclined air-passage opening at its upper end into said air-space and opening at its lower end to the air below the fire-pot, the outwardly-extending flange of the upper section being provided with a dome forming an enlargement of said annular air-space above said air-passage.

698,709. RECIPROCATING KEY-WEATHER ATTACHMENT FOR DRILL. HOWARD W. KELLEY, Trenton, N. J. Filed Aug. 21, 1901. Serial No. 72,784. (No model.)



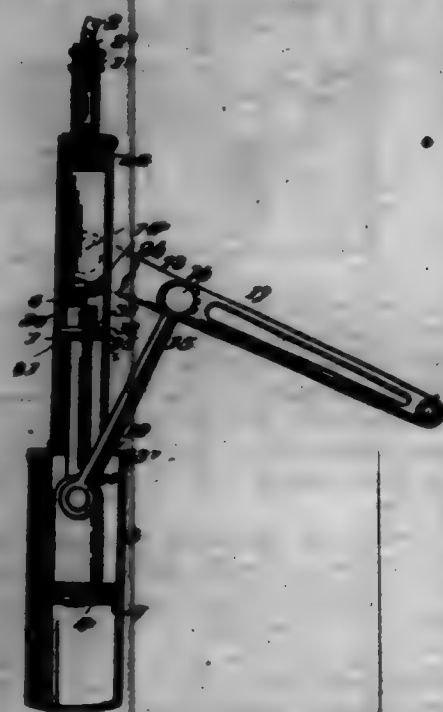
Claim.—1. A reciprocating key-weather attachment for drills, comprising a hanger adapted to be removably attached to a reciprocable part of a hand drill, a tool-holder carried by said hanger, a transverse slot in said tool-holder, a cutting-tool or chisel mounted in said slot adapted to project from said tool-holder for cutting a key-way, and means also carried by said hanger for advancing said cutting-tool, said means including a step-by-step mechanism actuated by the reciprocation of the hanger relatively to a stationary part of the drill.

2. A reciprocating key-weather attachment for drills, comprising a hanger adapted to be removably attached to the reciprocable drill-shaft support, a hollow tool-holder secured rigidly to the outer end of said hanger and provided at its free end with a transverse slot, a cutting-tool movable in said slot and provided with an inclined upper surface, a threaded plunger rotatable in said holder and cooperating with said inclined surface of the cutting-tool for feeding the latter, a ratchet mechanism also mounted on said hanger for rotating said plunger, and means carried by said hanger for drawing into contact with a stationary part of the drill upon each reciprocation of the hanger for operating said ratchet.

3. A reciprocating key-weather attachment for drills, comprising a hanger adapted to be removably attached to the reciprocable drill-shaft support, said hanger on its lower end having a hollow threaded bore, a cap mounted thereon and having a threaded opening in line with said hollow bore, a tool-holder mounted at one end in said threaded opening and at its other end carrying a radially-moving cutting-tool or chisel, a rotary plunger fitting within said tool-holder, said plunger and said tool-holder

having cooperating screw-threads for feeding the plunger, and said tool having an inclined feeding-surface for cooperating with the plunger, a ratchet-drove mounted in said hollow bore above said tool-holder, the latter being connected to rotate with said drive and mechanism for operating said ratchet-drove step by step as the drill-shaft support is reciprocated.

698,710. AIR PUMP. GEORGE W. KILLGUS, Hartford, Conn. Filed Feb. 12, 1901. Serial No. 47,108. (No model.)



Claim.—1. In an air-pump, the two cylinders of unequal diameter, the smaller one being mounted end to end upon the other and at one side of its center, a piston in each cylinder having a hollow rigid connection with that in the other whereby the cylinders may communicate, and mechanism for moving the pistons mounted upon the side of the smaller cylinder and connected through the end of the larger cylinder to its piston.

2. In an air-pump, two cylinders mounted endwise one upon the other, two rigidly-connected pistons, one in each cylinder, an arm connected to a cylinder on its exterior to rotate about its support thereon, a rod pivotedly connected to the piston of the other cylinder and to said arm, and an extension fixed to the arm for rotating it and the piston end of the rod about the exterior pivot-support of the arm.

3. In an air-pump, two cylinders mounted endwise one upon the other, two rigidly-connected pistons one in each cylinder, an arm connected to the exterior of a cylinder to rotate about its support thereon, a rod pivotedly connected to the piston of the other cylinder and to said arm, a piston-extending arm extension to rotate the arm and rod about the pivot-support of the arm, said arm, arm extension and rod being adapted to be held adjacent the cylinders and lengthwise thereof when at rest.

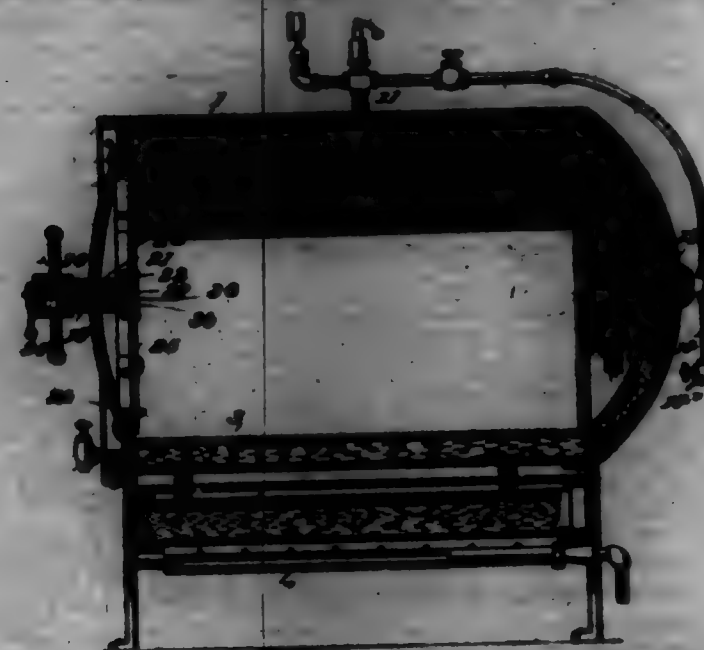
4. In an air-pump, two cylinders mounted endwise one upon the other, two rigidly-connected pistons one in each cylinder, an arm connected to the exterior of a cylinder to rotate about its support thereon, a rod pivotedly connected to the piston of the other cylinder and to said arm, a piston-extending arm extension to rotate the arm and rod about the pivot-support of the arm, said arm, arm extension and rod being adapted to be held adjacent the cylinders and lengthwise thereof, and said arm extension being detachable.

5. The pump comprising two lengthwise-connected cylinders of unequal size, the smaller being mounted concentrically on the larger, a piston in each cylinder, a port tube connecting said pistons, and a device for simultaneously operating said pistons comprising a member passing through the end of the larger cylinder adjacent the connected end of the smaller and connected to the piston of the larger cylinder.

6. The pump comprising two lengthwise-connected cylinders of unequal size, the smaller being mounted concentrically on the larger, a piston in each cylinder, a port tube connecting said pistons, and a device for simultaneously operating said pistons comprising a member passing through the end of the larger cylinder adjacent the connected end of the smaller and connected to the piston of the larger cylinder, said tube having a check-valve.

7. The pump comprising two lengthwise-communicating cylinders of unequal size, the smaller being mounted concentrically on the larger, pistons, one in each cylinder, and means for operating the pistons comprising a member passing through the end of the larger cylinder.

698,711. STERILIZING APPARATUS. GEORGE W. KILLGUS, Hartford, Conn. Filed Apr. 18, 1901. Serial No. 55,478. (No model.)



Claim.—1. In an apparatus for sterilizing, a sterilizing-chamber having walls including a steam and water chamber, a water-holder communicating with the latter chamber, tubes whereby said chamber and holder communicate, a heater for heating water in the holder and generating steam.

2. In an apparatus for sterilizing, a sterilizing-chamber surrounded by a steam-chamber, a condenser whereby the latter chamber may communicate with the former, and a cock for opening and closing the condenser whereby said condenser may be put in communication with the atmosphere, and a deflecting-cap directed over the outlet of the condenser into the sterilizing-chamber.

3. In a sterilizing apparatus, a sterilizing-chamber induced by a shell, an outer shell surrounding said chamber and providing a steam-jacket therefor, and a heat flanged ring closing the space between the shells and extended inwardly beyond the inner shell to provide for the attachment of a door by parts bearing on opposite sides of said inward extension and within the inner shell, said ring having its outer part bent parallel with and contiguous the outer shell and having its flange parallel with and contiguous the inner shell and both shells fixed to the ring.

4. In a sterilizing apparatus, a sterilizing-chamber induced by a shell, an outer shell surrounding said chamber and providing a steam-jacket therefor, and a heat flanged ring closing the space between the shells and extended inwardly beyond the inner shell to provide for the attachment of a door by parts bearing on opposite sides of said inward extension and within the inner shell, said ring having its outer part bent parallel with and contiguous the outer shell and having its flange parallel with and contiguous the inner shell and both shells fixed to the ring, said extension having a suitable circular projection to engage the door near its periphery.

698,712. WEATHER-STRIP. HENRY E. KIMM, Detroit, Mich., assignor to the Chamberlain Metal Weather Strip Co., Detroit, Mich. Filed Oct. 28, 1901. Serial No. 52,175. (No model.)



Claim.—1. The combination of the upper and lower meeting-ends of meeting casings, a U-shaped strip attached to the lower edge of the upper casing, a flanged strip attached to the lower and opposite edge of the upper rail of the lower casing and adapted to be inserted in the U-groove formed in the strip attached to the lower rail of the upper casing on closing the casing, the outer and projecting flange of the U-shaped strip attached to the upper rail being adapted to meet the wood of the outer side of the upper rail of the lower casing behind the metal strip attached thereto, substantially as described.

2. The combination of the upper and lower meeting-ends of meeting casings, a recess cut in the vertical surface of the lower edge of the lower rail of the upper casing, a U-shaped strip of metal attached in said recess to said lower rail of the upper casing and having a shorter lip projecting outwardly and upwardly therefrom, a rabbet or groove cut in the vertical face and lower edge of the upper rail of the lower casing, a flanged strip of metal fixedly attached in said groove and adapted to be inserted in the angle formed in the strip of metal attached to the opposite casing, substantially as described.

698,713. APPLIANCE FOR ASSISTING THE HEARING. PAUL A. KLAUS, Melbourne, Victoria, Australia. Filed Oct. 2, 1901. Serial No. 77,817. (No model.)



Claim.—1. An appliance comprising handle, arm pivoted thereto, enlarged shells or lobes at the extremities of the arm formed to fit upon the ears of wearer and means for doubling back the arm near the shells substantially as and for the purposes described.

2. An appliance comprising handle, arm pivoted thereto and formed in two portions hinged together and having grooves in and above it with screw-pins for making the rods rigid or releasing same to double back, enlarged shells or lobes, at the extremities of the arm, of basin form with recessed-out portion to fit the ears of wearer and with turned-over edge at the recessed portion substantially as and for the purposes described.

3. An appliance comprising arms pivoted together at the center and carrying at the extremities enlarged shells or lobes formed with recessed-out portion to fit upon the ears of wearer and having light spring connection at either side of the recess and means comprising hooked bar, for additionally holding the appliance in position substantially as and for the purposes described.

698,714. BOTTLE-LOCK. WILHELM KLAS, Magdeburg, Germany. Filed Nov. 12, 1901. Serial No. 52,011. (No model.)



Claim.—The combination with a frame of a bicycle, a brake-rod provided with a brake, a ring or collar secured to said brake-rod, a lock-casing clamped to the frame of a fork pivoted to said lock-casing adapted to embrace the brake-rod and engage the collar thereon, spring-tensioning means within said casing adapted to engage the shoulder on the rear end of the fork and hold the fork in locked position and the engage the rear end of said fork and hold it in unlocked position, substantially as set forth.

698,715. LOOS-EXTERMINATOR. JOHN KIMM, Canyon, Tex. Filed July 28, 1901. Serial No. 55,597. (No model.)



Claim.—An implement for exterminating locs and extracting plants by the root, the same consisting of a straight flat blade having a slot at its lower end, and having the slot portion sharpened to an edge, a flat chisel extended from the blade at an inclination and fastened to a side of the handle, and transversely-angled extensions projected laterally from the chisel at a point between its ends to form foot-rests and a fulcrum for the implement to turn upon, said chisel, blade and chisel being integrally formed, substantially as set forth.

698,716. BEE-BOTTLE AND LOCK-CHAL BOTTLE. WILLIAM T. KIMMEL, Brooklyn, N. Y. Filed Mar. 2, 1901. Serial No. 52,011. (No model.)

Claim.—1. In a non-refillable and lock-closing bottle, the combination of a bottle-neck, X, having a ledge or shoulder, X', formed thereon, with the separate pyramidal valve-cap, 1, seated in the lower part of

mid bulge or chamber, X, the external sealing-flange, 2, and packing, 3, having radial, oblique orifices or passages, 4, the conical valve-tube, 5, inserted at the bottom end and housed within the separate pyramidal valve-socket, 1, a float-valve, 6, having a pendant tapered guiding-stem, 6, and disk head, 7, and resting over it the hollow ball-weight, 8, partially filled with mercury, placed within the pyramidal valve-socket, 1, substantially as shown and specified.



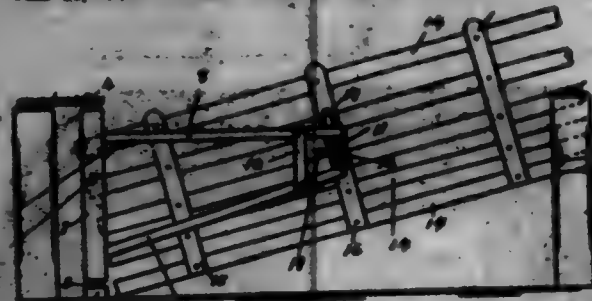
2. In a non-refillable and leak-proof bottle, the combination of a bottle-neck, X, having a bulge or chamber, X', formed therein with the separate pyramidal valve-socket, 1, with all its mechanical parts within and the separate tubular throat-piece, 9, slid within the bottle-neck, X, and placed over the pyramidal socket, 1, making no contact between the two, said separated tubular throat-piece, 9, having the closed diaphragm, 10, and liquid and air orifices or passages, 11, the conical flange shoulder-ring, 11, and packing, 10, below the said flange shoulder-ring, to prevent the ingress of liquids into the conical space, 22, formed between the tubular throat-piece, 9, and bottle-neck, X, the corrugated flexible or elastic leak-proof ring disk, 14, encircling said tubular throat-piece and abutting against the flange shoulder-ring, 11, and housed within the diametrically-enlarged conical groove, 17, with its expanded, corrugated rim, by means of the blunted or split flange collar-cap, 15, having the flange, 16, and conical recess or depressed shoulder-flange, 20, the coupling-pin, 23, and the vertical longitudinal head-openings, 12 and 13, for the vertical longitudinal flange-heads, 12 and 13, to be housed in surrounding the tubular throat-piece below the reinforced top flange, 18, substantially as shown and specified.

3. In a non-refillable and leak-proof bottle, the combination of the tubular throat-piece, 9, surrounded with the compressing and retarding, flexible or elastic corrugated leak-proof ring disk, 14, permanently housed within the diametrically-enlarged conical groove, 17, when expanded, with the blunted collar-cap, 15, surrounding the tubular throat-piece below the reinforced top flange, 18, provided with coupling-pin, 23, holding the knotted loop ends, 25, of the tag, 24, concealed and effectively secure from displacement or removal, substantially as described.

4. In a non-refillable and leak-proof bottle, having in its neck, X, the bulge or chamber, X', in its base, the inserted separate non-refillable pyramidal valve-socket, 1, with all its mechanical parts held within inserted in its neck, X, the tubular throat-piece, 9, actuated by the flexible or elastic leak-proof ring disk, 14, housed and expanded within the diametrically-enlarged groove, and the reinforced top flange, in combination with the blunted or split collar-cap, 15, provided with the conical recess or depressed flange, 20, having the vertical longitudinal flange-openings, 12 and 13, housing the vertical longitudinal flange-heads, 12 and 13, the coupling-pin, 23, and the securely-looped tag or tablet, 24, held within, thereby not disturbing, removing or destroying any of the non-refillable and leak-proof integral parts of this device when uncorking or opening the bottle for the pouring out of the liquid, substantially as shown and described.

5. In a non-refillable and leak-proof bottle, the combination of a bottle-neck, X, having the diametrically-enlarged conical groove, 17, with the tubular throat-piece, 9, provided with a closed diaphragm, 10, and liquid and air orifices, 11, the shoulder-flange ring, 11, encircled with the compressing and retarding flexible or elastic corrugated leak-proof ring disk, 14, permanently housed within the said conical groove, 17, when expanded, substantially as specified and shown.

698,717. FARM-GATE. JOHN H. LAMBERT, Port Wayne, Ind., assignor of one-half to Thomas L. Lamson, Port Wayne, Ind. Filed Jan. 14, 1902. Serial No. 98,944. (No model.)

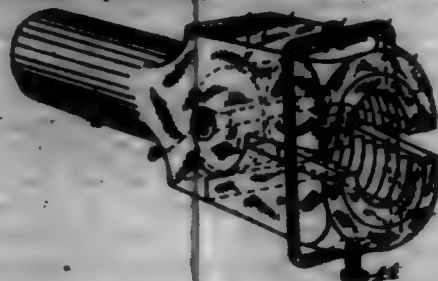


Claim.—1. The combination in a farm-gate of a pivoted hanger; a block pivotally mounted in the free end of the said hanger; a horizontal pivot-pin fixed in said block, and provided with a removable thumb-screw to permit the ready removal of the gate-body without displacing the said pivoted block or pivot-pin; and a gate-body slotted as described midway of its ends, and pivotally mounted on said pivot-pin, and adapted for both a vertical adjustment and a tilting movement thereon.

2. In a farm-gate a pivoted hanger-frame; means for adjusting the said hanger when out of plumb as described; an upright block pivotally mounted in the free end of said hanger; a horizontal pivot-pin for the gate-body arranged in the said block midway of its ends; and a gate-body having a vertical slot midway of its ends by means of which it is pivotally mounted on the said pin and is thereby adapted for both a vertical adjustment and a tilting movement thereon.

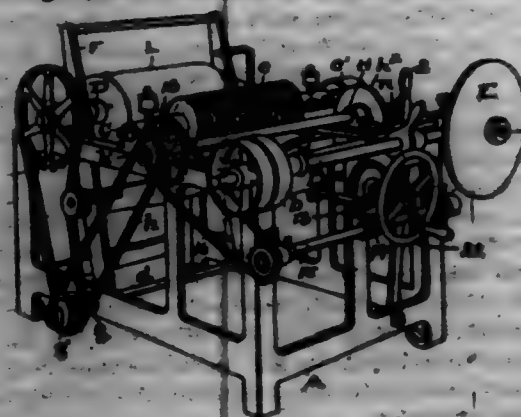
3. The combination in a gate of a pivoted hanger; a block pivotally mounted in the free end of said hanger; a horizontal pivot-pin for the gate-body passing through said block; a gate-body having a vertical slot midway of its ends, and adapted to receive the said pin, whereby the said gate is pivotally supported on the said pin and is adapted for both a vertical adjustment and a tilting movement thereon; and means for supporting the gate-body at the uppermost limit of its vertical adjustment.

698,718. HYDRA-COUP. WILLIAM C. LEAH, Seattle, Wash., assignor of one-half to John H. Leach, Seattle, Wash. Filed Oct. 22, 1902. Serial No. 28,504. (No model.)



Claim.—A device of the nature indicated, comprising a head having an integral chuck and a jaw with a longitudinally-convex face, a recess in the head and ribs longitudinally of the face of the jaw, a second jaw having its face formed like the first said jaw and having a circular lip fitting snugly in the said recess and shoulder abutting against the edge of the mouth thereof, a piston concentric with said lip and the recess, a clamp for each jaw-face consisting of a cast-steel body slidably fitting the said concave and grooved to receive the ribs and having screw-threads in the gripping-surfaces, a screw-clamp comprising an open rectangular frame embracing both jaws and hinged to the first said jaw and having a set-screw impinging the back of the second jaw.

698,719. MACHINE FOR CUTTING WOOD PILES. GEORGE E. LE CLAIR, Myra, Ohio, assignor to John W. Voelkening, Myra, Ohio. Filed Aug. 28, 1901. Serial No. 72,828. (No model.)



Claim.—1. In wood-floor-cutting machines, a gang of saws and a shaft with fixed bearings supporting the saws, in combination with a leg-supporting frame pivoted at its bottom in the main frame, and mechanism engaging said leg-supporting frame and adapted to move it back and forth, said mechanism comprising a yoke pivoted to said leg-supporting frame and a rotatable shaft in fixed bearings operatively engaging said yoke, substantially as described.

2. The main frame and the saws supported therein, in combination with the pivoted leg-frame and the spindle for the leg, a yoke pivoted on said leg-frame and an operating-shaft running through a cut fixed loosely in said frame, said shaft being rotatably supported at its ends, substantially as described.

3. The main frame and the set of saws, in combination with the pivoted leg-frame, a yoke pivoted on said leg-frame and a screw engaged in said yoke to carry the leg-frame toward and from the saws, power mechanism to rotate said screw and a clutch to engage and disengage said mechanism, substantially as described.

4. The main frame and the series of saws thereon, in combination with the pivoted leg-frame, a yoke pivoted on said frame about its middle and means connected therewith to adjust the leg-frame back and forth, leg-supporting spindles in the leg-frame above the main frame, power-driven mechanism connected with one of said spindles to rotate the leg and means to graduate the speed of said mechanism, substantially as described.

5. The pivoted leg-supporting frame and the yoke connected therewith, a screw-shaft operatively engaged in said frame to feed the leg, a clutch controlling the operation of said shaft, and means to disengage the clutch arranged to be actuated by said yoke, substantially as described.

6. In a wood-floor-cutting machine, a set of saws, a pivoted leg-supporting frame and a yoke connected therewith, in combination with a screw-shaft engaged in said yoke, power mechanism for rotating the shaft comprising a clutch applied on said shaft, push mechanism adapted to be engaged by said yoke and connected with said clutch to disengage the same, and a handle on said shaft to rotate the same for cutting the said leg-frame, substantially as described.

698,720. PUMP-BARRIER. JOHN H. LEACH, Seattle, Ind., assignor of one-half to George L. Leach, Seattle, Ind. Filed Jan. 14, 1902. Serial No. 98,945. (No model.)



Claim.—1. A pump-barrier having a pivoted arm projecting beyond the fulcrum thereof and adapted to be attached to a pump-rod or plunger, whereby the handle and pivoted arm may be oscillated independently of each other, and means to lock the arm to the handle to adapt the same to be operated thereby, substantially as described.

2. A pump-barrier having an arm slidably jointed thereto and adapted to be attached to a pump-rod or plunger, and a dog to connect the pump-handle and arm, and adapt the latter to be operated by the former, substantially as described.

3. The combination of a pump-barrier and an arm pivoted thereto, the one of said pivot and the fulcrum of the handle being coincident, the opposing ends of the handle and arm being adapted to abut against each other and means to lock the handle to the arm, substantially as described.

698,721. PUMP-ROD COUPLING. JOHN H. LEACH, Seattle, Ind., assignor of one-third to George L. Leach, Seattle, Ind. Filed Feb. 6, 1902. Serial No. 98,946. (No model.)



Claim.—1. In a pump-rod coupling, including a slide adapted to be connected to a plunger-rod, and a pump-rod, said slide and pump-rod having openings adapted to register with each other, a spring-pressed link-arm pivotally mounted on the slide, a coupling-pin pivotally connected to the link-arm and adapted to enter the slide and pump-rod openings when the same register, and an operating-lever, pivoted to the link-arm and bearing at one end against the slide, said link-arm having steps to limit the play of said lever, substantially as described.

2. In a pump-rod coupling, including a slide adapted to be connected to a plunger-rod and a pump-rod, said slide and pump-rod having pin-openings adapted to register with each other, a bearing-frame secured and adjustable on the slide, a spring-pressed link carried by said adjustable bearing-frame, a coupling-pin carried by the link and adapted to enter the slide and pump-rod openings when the same register with each other and means to operate said link and lock the same with the coupling-pin in engaged or disengaged position, substantially as described.

3. In a pump-rod coupling, including a slide adapted to be connected to a plunger-rod and a pump-rod, said slide and pump-rod having pin-openings adapted to register with each other, a frame secured and adjustable on the slide, a spring-pressed link carried by the frame, a coupling-pin connected to the link and adapted to enter the slide and pump-rod openings when the same register with each other, and an operating-lever pivoted to the link and bearing at one end against the slide, said link having steps to limit the play of said lever, substantially as described.

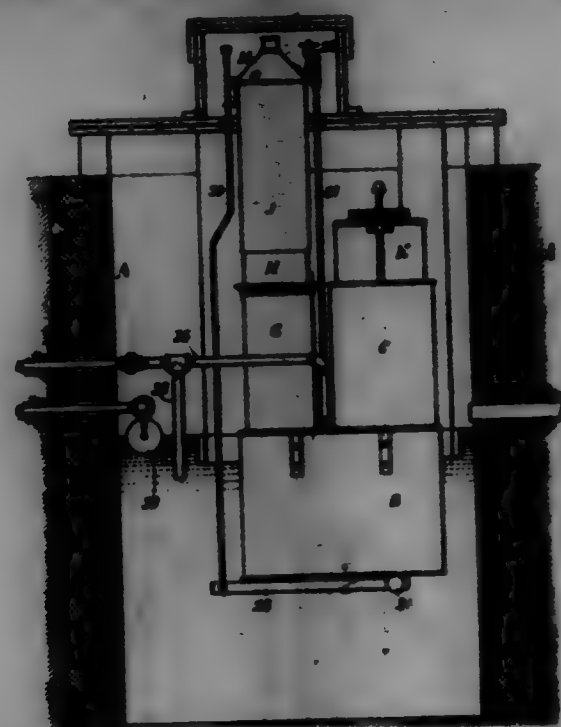
4. In a pump-rod coupling, including a slide adapted to be connected to a pump-rod and a plunger-rod, and having a pin-opening to register with an opening in the pump-rod, a link having a coupling-pin to enter said opening, means to lock said link with the pin in engaged or disengaged position, and a bearing for said link, said bearing being attached to and adjustable on the slide, substantially as described.

5. As a new article of manufacture, a bearing-frame having means whereby it may be attached to and adjusted on the slide of a pump-rod coupling, a link pivoted to and carried by said bearing-frame, a coupling-pin carried by said link, a spring coacting with said link of normally engage said coupling-pin with the opening of the slide and pump-rod, and an operating-lever pivoted to said link to bear against the slide and coact with the slide, link and spring to lock the link with its coupling-pin in engaged or disengaged position, substantially as described.

698,722. SHUTTLE-ROD OPERATOR. FRANK E. WHEELER, Philadelphia, and FRANK E. WHEELER, Dumbarton, N. Y. Filed Jan. 2, 1902. Serial No. 98,947. (No model.)

Claim.—1. In a shuttle-rod operator of the class described, the combination

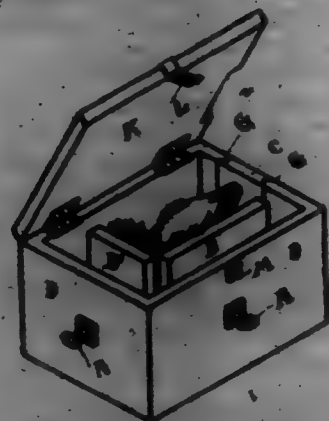
with an inverted bell connected to gasometer and gasometer, a water-cistern for receiving acid, and means controlled by the position of the gasometer for automatically delivering acid into said bell, of means for receiving and expelling acid within said bell and for discharging the charge therefrom into acid cistern.



2. In an apparatus of the class described, the combination with an elongated acid-holder, a carbide-holder, a gas-generating chamber and a gasometer, of a water-cistern, having means for automatically maintaining a predetermined level of water therein, means controlled by said gasometer for automatically delivering acid into said gas-generating-chamber, and means for receiving and holding acid carbide within said chamber while being elided, and for discharging the residue into the cistern.

3. An apparatus of the class described, adapted for outdoor and subterranean installation, comprising in combination a cistern; a carbide-holder; a gas-generating chamber submerged in the water of the cistern; a gasometer connected therewith; means controlled by the gasometer for automatically feeding carbide into said chamber; and means for receiving and holding such carbide within said chamber and beneath the water-level while being elided, and for discharging the residue thereof into the cistern.

698,728. VERMIF-EXTERMINATOR. MELVIN J. HARTMAN and GEORGE E. ARNOLD, Edinboro, Pa. Filed Feb. 12, 1902. Serial No. 98,708. (No model.)



Claim.—1. The combination with a receptacle having a slit in one end thereof; of an elastic covering for said slit having a hand-receiving aperture therein.

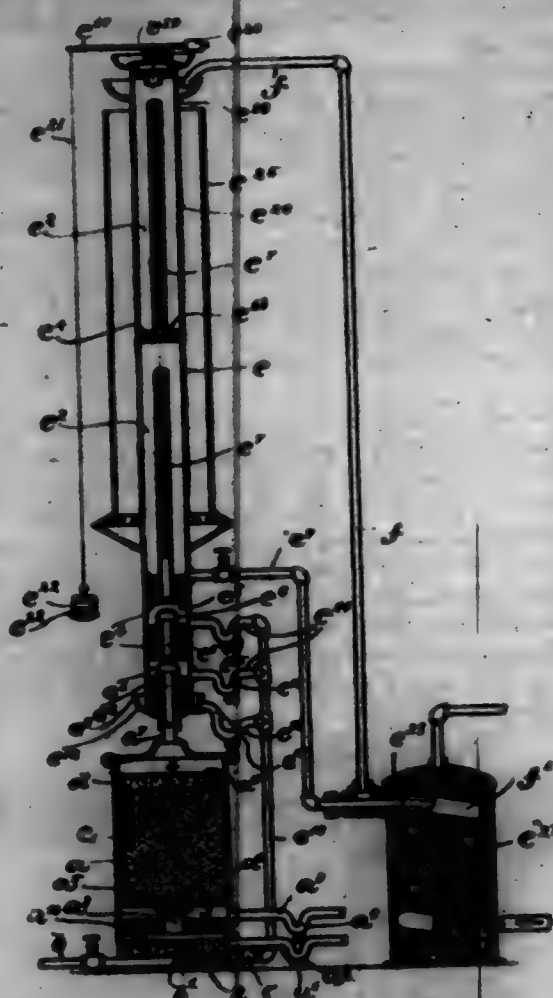
2. The combination with a receptacle having a slit in one end; of a slide in said slit and having a slit therein, and an elastic covering for the slit in the slide, said covering having a hand-receiving aperture.

3. The combination with a receptacle having a slit in one end; of a slide mounted in said slit and having a slit therein, a flexible covering for the slit in the slide and having an aperture therein adjustable to the neck of a foot.

4. The combination with a receptacle having a slit in one end; of a reversible, slotted slide in said slit, and an elastic covering for the slit in the slide, said covering having a hand-receiving aperture.

5. The combination with a receptacle; of holding-strings adjustably

698,724. APPARATUS FOR DISTILLING WATER. EDWARD E. HURST, Boston, Mass., assignor, by mesne assignments, to the Portable Water Still Company, Boston, Mass., a Corporation of Maine. Filed Dec. 31, 1901. Serial No. 798,514. (No model.)



Claim.—1. An apparatus of the character specified, comprising an elongated vertical casing having means for applying a film of water to the outside thereof and outside of the casing being exposed to the atmosphere to permit evaporation of said film, said casing being partitioned to form a plurality of chambers one above another, a vertical perforated pipe in each of said chambers, means for applying steam to the lower perforated pipe, means whereby steam from the lower pipe that is not condensed in the lower chamber may pass into and through the upper perforated pipe into the upper chamber, means for permitting the escape of water of condensation from the upper chamber into the lower one, and means for drawing off water of condensation from the lower chamber.

2. In an apparatus of the character specified, the filter and means for applying steam thereto, the vertical casing divided into upper chamber *a* and lower chamber *b*, a connection between the filter and the lower chamber *b*, both of said chambers *a* and *b* being connected and each formed to insure the passage of steam through a body of water, the chamber *a* each having a vertical perforated pipe *c* within it, said chambers *a* being connected together and a connection being formed between the lower pipe *c* and the upper chamber *b*, means for applying water to the outside of the casing *a*, and means for permitting the escape of steam from the upper end of the upper chamber *a*.

698,725. COOLING-TIRE. ELMER T. MYERS, Colorado Springs, Colo. Filed July 15, 1901. Serial No. 98,541. (No model.)

Claim.—1. The combination with an outer porous vessel, a metallic receptacle of less diameter than said vessel mounted in the latter, and a lid or cover for the receptacle comprising a pan and a porous plate thereover, the latter having a tubular grip in communication therewith to serve as a water-filling means therefor.

2. The combination with an outer porous vessel, a metallic receptacle of less diameter than said vessel mounted in the latter, the bottom of the vessel being elevated above its support and the bottom of the receptacle being held above the bottom of the vessel, water being introduced

between the receptacle and vessel, a lid or cover for the receptacle comprising a water-pan and a porous plate removably attached thereto and having an annular tubular member rising therefrom to serve as a grip and means for supplying water to the pan, and means for supplying fresh air to the receptacle and cooling the air before entering the latter.



3. The combination of an outer porous vessel, a metallic receptacle of less diameter than said vessel and mounted in the latter, the bottom of the vessel being provided with legs, and the bottom of the receptacle being elevated above the bottom of the vessel, water being introduced in the interspace between the receptacle and vessel, and a lid or cover for the receptacle comprising a water-pan and a porous plate removably attached thereto and having an annular tubular member rising therefrom to serve as a grip and as a means for supplying water to the pan.

698,726. VEHICLE-TIRE. WILLIAM MCANALD, New York, N. Y. Filed Jan. 15, 1901. Renewed Oct. 5, 1901. Serial No. 73,009. (No model.)



Claim.—1. The combination with a wheel-rim having grooves in the sides, of the metallic plates secured to the wheel-rim and having inwardly-projecting ribs or bands adjacent to their inner and outer ends, the wooden tire having grooves in its sides, said grooves being of a width greater than the width of the ribs or bands, the interspace between the rim and tire, and the cavity-bands passing through the plates, and also through the wooden tire, substantially as described.

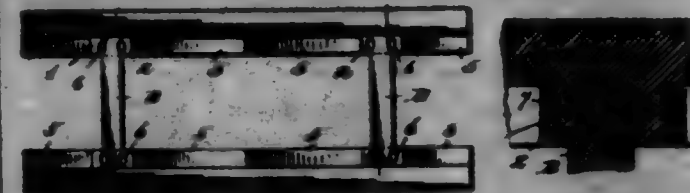
2. A wheel-tire composed of wood made in sections turned with the end grain and having a central strip or ring also of wood, the grain of which extends in a direction different to the grain of the wooden tire, substantially as shown and described.

3. The combination with a wheel-rim grooved as described, of a wooden tire having a reinforcing central portion and also grooved upon the sides, the metallic plates having inwardly-projecting ribs or bands, the interspace between the wheel-rim and wooden tire, the groove or bands for fastening the plates to the wheel-rim, and the cavity-bands passing through the plates adjacent to their outer ends, the wooden tire being bored out to permit the tire to yield upon the hub, substantially as shown and described.

698,727. ARTIFICIAL BUILDING-STONE. JAMES A. McANALD, Edinboro, Pa. Filed Aug. 22, 1901. Serial No. 71,988. (No model.)

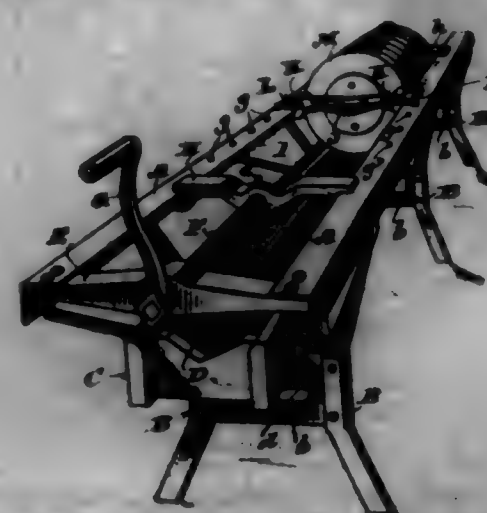
Claim.—1. An artificial building-stone comprising oppositely-

arranged side pieces formed with vertical ways or grooves, and grooves in the walls of the ways, partitions having their ends formed in fit in the ways or grooves and having vertical grooves coincident with them of the walls of the ways in the side pieces, and a binder of cement in the grooves.



2. An artificial building-stone comprising oppositely-disposed side pieces formed with vertical ways or grooves, and grooves in the walls of the ways, and strengthening-ribs on the inner face of the side pieces, partitions having their ends formed to loosely engage in the ways of the side pieces and formed with vertical grooves coincident with the grooves in the walls of said ways, and a cement binder in the registering grooves of the partitions and ways.

698,728. CHASSIS-PRESS. MARSHALL McANALD, Edinboro, Pa., Wm. Filed Dec. 20, 1901. Serial No. 98,907. (No model.)



Claim.—1. In a chassis-press of the type specified, a stationary nut, a screw engaging the nut, a slide in connection with the screw, racks coupled together by the slide, guide-supports for the racks, a follower-block carrier provided with latches engageable with said racks, and means for holding the carrier in adjusted position on disengagement of the latches from the aforementioned racks.

2. In a chassis-press of the type specified, an adjustable head-block, a stationary nut, a screw engaging the nut, a slide in connection with the screw, racks coupled together by the slide, guide-supports for the racks, a follower-block carrier provided with latches engageable with said racks, and means for holding the carrier in adjusted position on disengagement of the latches from the aforementioned racks.

3. In a chassis-press of the type specified, a vertically-adjustable trough, a follower-block carrier, screw-controlled slide-racks, carrier-latches engageable with racks, and means for holding the carrier in adjusted position on disengagement of said latches from the racks.

4. In a chassis-press of the type specified, upper frame-beams, a trough and supporting-standards for the beams and trough, a head-block hasting connected to said beams, a rear bar coupling the aforementioned beams, a bar-engaging screw, a slide in connection with the screw, racks coupled together by the slide, guide-supports for the racks, a follower-block carrier provided with latches engageable with said racks, and means for holding the carrier in adjusted position on disengagement of the latches from the aforementioned racks.

5. In a chassis-press of the type specified, upper frame-beams, standards in connection with the beams, a trough having depending claps for which or the trough itself transverse webs of the standards serve as rests, a head-block hasting connected to said beams, a rear bar coupling the aforementioned beams, a bar-engaging screw, a slide in connection with the screw, racks coupled together by the slide, guide-supports for the racks, a follower-block carrier provided with latches engageable with said racks, and means for holding the carrier in adjusted position on disengagement of the latches from the aforementioned racks.

6. In a chassis-press of the type specified, a stationary nut, a screw engaging the nut, a slide in connection with the screw, racks coupled together by the slide, guide-supports for the racks, a follower-block carrier provided with latches engageable with said racks, means in connection with the carrier, and stops arranged to co-operate with the detents or means

for holding said carrier in adjusted position on disengagement of the latch from the said rack.

698,729. MOTOR-VEHICLE. PATRICK J. McHARR, Keywest, Fla. Filed Sept. 21, 1901. Serial No. 70,000. (No model.)



Claim.—1. In a road-vehicle, the combination with the rear wheel and a platform disposed between the wheels, of rotary suspension means connected to the wheels and resiliently connected to the platform in advance of the axle of the rear wheel.

2. In a road-vehicle, a frame, a platform disposed within the frame, standards on the opposite sides of the platform, shafts journaled in the standards, sprocket-wheels on both ends of the shafts, the rear wheel, sprockets on the rear wheel, chains connecting the sprockets, and means for driving the sprockets.

3. In a road-vehicle, the combination with the rear wheel, and a platform, of sprocket-wheels secured to the rear wheel having standards secured to the platform in advance of the axle of the wheel, resiliently-supported bearing-bones in the said housing, shafts mounted in the bones, sprockets on the outer ends of the shafts, and a chain connecting the sprockets to the sprockets on the rear wheel, whereby the platform is resiliently supported.

4. In a road-vehicle, the combination with the rear wheel and a platform, of sprocket-wheels secured to the rear wheel, resiliently-supported bearings on the platform, shafts in the bearings, sprocket-wheels on the outer ends of the shafts, chains connecting the said sprockets, whereby the platform is resiliently supported, and means to rotate the said shafts and propel the vehicle.

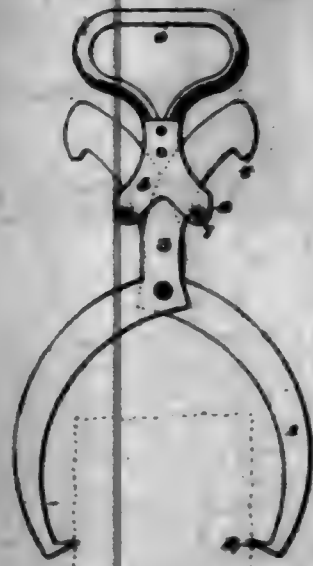
5. In a motor-vehicle, the combination with the rear wheel, of a rectangular vertical frame carried by the wheel, and a resiliently-supported vehicle-body carried by the frame.

6. In a motor-vehicle, the combination with the rear wheel, of a rectangular vertical frame carried by the wheel, a vehicle-body in the frame, suspension-springs between the top of the body and the top of the frame, and cushion-springs under the body and on the lower bar of the frame.

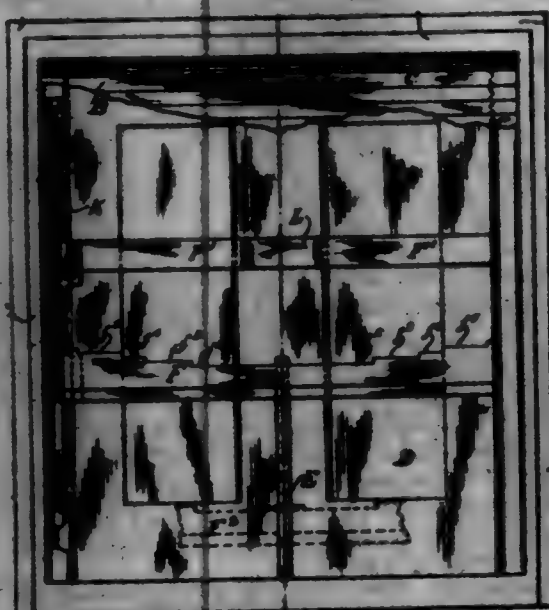
7. In a motor-vehicle, the combination of a vertical rectangular frame having wheel-axles projecting from its side bars, rear wheels mounted thereon, a vehicle-body resiliently supported within and by the frame, sprocket-wheels secured to the rear wheels, a platform resiliently connected to the lower bar of the frame, standards on the platform, resiliently-supported bearing-bones, sprocket-wheels on the outer ends of the shafts, chains connecting the sprocket-wheels and supporting-platform, motor mechanism, and operating means between the motor and the resiliently-mounted shafts to rotate them.

698,780. MOTOR-VEHICLE. JAMES A. McHARR, Keywest, Fla. Filed Mar. 10, 1901. Serial No. 61,101. (No model.)

Claim.—As a new article of manufacture, two long members of flat sheet metal having tapered gripping-points formed integral with the gripping ends of said long members, outwardly-extending segmental extensions formed integral with the long members above the point of pivot, the ends of said extensions being widened to form downwardly-extending legs, the inner edges of which legs are at acute angles to the outer edges of said segmental extensions, and a keeper comprising two flat plates each substantially in the shape of an inverted Y, and said plates having a space between their outer inner surfaces, a handle secured between the upwardly-extending legs of the inverted Y plates, a roller between said plates on each downwardly-extending arm thereof for spacing the same apart, and a pin passing through each of said rollers and plates and having a head formed thereon abutting against the outer faces of each of said downwardly-extending arms for moving said rollers in position, said rollers bearing against the outer edges of each of said segmental extensions throughout every movement thereof and engaging said inner edges of said downwardly-extending legs for limiting the movement of said long members substantially as described.



698,781. NEGATIVE-PLATE HOLDER FOR CAMERAS. EDWARD H. HARRIS, Chicago, Ill. Filed Feb. 2, 1902. Serial No. 88,181. (No model.)



Claim.—1. In a negative-plate holder the combination of a frame, bars arranged to move laterally in the frame, geared racks secured to the ends of the bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, and springs attached at one end and respectively to the ends of one of the bars and at the other end to the frame, with the other end of each spring attached to the frame; substantially as described.

2. In a negative-plate holder the combination of a frame, U-shaped bars arranged to move laterally in the frame, geared racks secured to the ends of the bars to move longitudinally in the U-shaped bars, a plurality of gear-wheels

only mounted between adjacent racks to engage with the teeth of each rack and washers rotatably mounted on the pivots of the gear-wheels to maintain the geared racks in place; substantially as described.

3. In a negative-plate holder the combination of a frame, U-shaped bars attached to the inner sides of the frame, cross-bars arranged to move laterally in the frame, geared racks secured to the ends of the cross-bars each geared rack arranged to slide longitudinally in the U-shaped bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, washers rotatably mounted on the pivots of the gear-wheels to maintain the geared racks in place, springs attached at one end, respectively, to the ends of one of the bars and an attachment at the other end to the frame, the cross-bars respectively provided with grooves on adjacent sides; substantially as described.

4. In a negative-plate holder the combination of a frame, plate-holding bars arranged to move laterally in the frame, geared racks secured to the ends of the bars and a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, each plate-holding bar respectively provided with grooves on the inner side thereof, each groove triangular in cross-section with the front face thereof substantially vertical when the plate-holder is in an upright position; substantially as described.

5. In a negative-plate holder the combination of a frame, plate-holding bars arranged to move laterally in the frame, geared racks secured to the ends of the bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, and springs attached at one end respectively to the ends of one of the bars and at the other end to the frame, each plate-holding bar respectively provided with grooves on the inner side thereof, each groove triangular in cross-section with the front face thereof substantially vertical when the plate-holder is in an upright position; substantially as described.

6. In a negative-plate holder the combination of a frame, plate-holding bars arranged to move laterally in the frame, one of each bar provided with steps arranged in pairs at equal distances from the center of the bar, each step respectively provided with grooves on the inner side thereof, each groove triangular in cross-section with the front face thereof substantially vertical when the plate-holder is in an upright position and the other bar provided with a recess on its front face and with a groove on its inner side, each groove corresponding in cross-section with the first-named groove, geared racks secured to the ends of the bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, and springs attached at one end respectively to the ends of one of the bars and at the other end to the frame, each plate-holding bar movable in opposite directions; substantially as described.

7. In a negative-plate holder the combination of a frame, plate-holding bars arranged to move laterally in the frame, one of each bar provided with steps arranged in pairs at equal distances from the center of the bar, each step respectively provided with grooves on the inner side thereof, each groove triangular in cross-section with the front face thereof substantially vertical when the plate-holder is in an upright position and the other bar provided with a recess on its front face and with a groove on its inner side, each groove corresponding in cross-section with the first-named groove, geared racks secured to the ends of the bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, and springs attached at one end respectively to the ends of one of the bars and at the other end to the frame, a link, a rib in the inner face of the link, each rib provided with holes and a pin removably fitting each hole; substantially as described.

8. In a negative-plate holder the combination of a frame, plate-holding bars arranged to move laterally in the frame, one of each bar provided with steps arranged in pairs at equal distances from the center of the bar, each step respectively provided with grooves on the inner side thereof, each groove triangular in cross-section with the front face thereof substantially vertical when the plate-holder is in an upright position and the other bar provided with a recess on its front face and with a groove on its inner side, each groove corresponding in cross-section with the first-named groove, U-shaped bars attached to the inner face of the sides of the frame, geared racks secured to the ends of the bars to slide longitudinally in the U-shaped bars, a plurality of gear-wheels pivoted between adjacent racks to engage with the teeth of each rack, washers rotatably mounted on the pivots of the gear-wheels to hold the racks in place, and spring attached at one end respectively to the ends of one of the bars and at the other end to the frame; substantially as described.

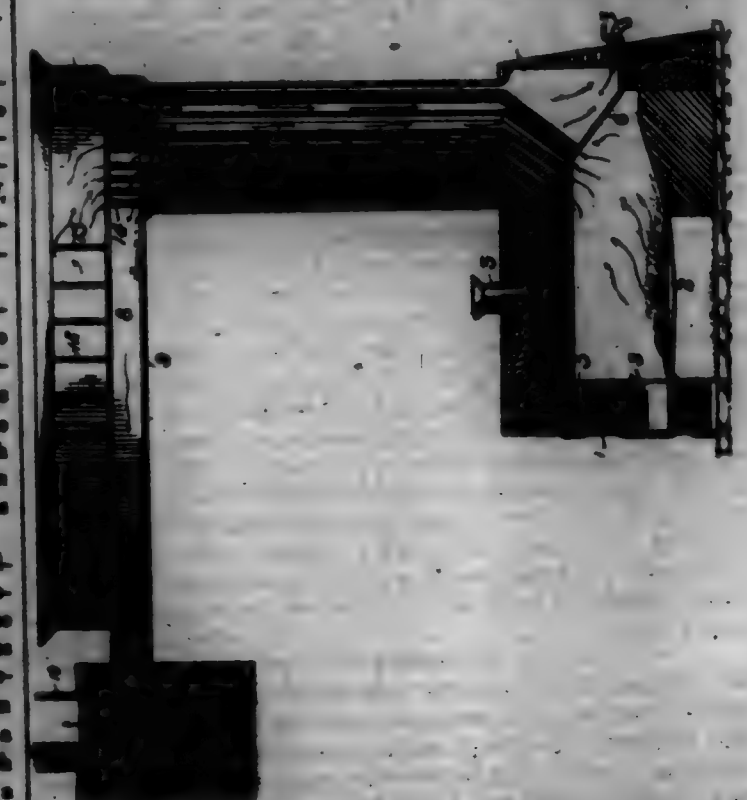
698,782. SEWING MACHINE. ALBERT A. HARRIS, Boston, Wis. Filed May 23, 1901. Serial No. 61,170. (No model.)

Claim.—A tool of the class described comprising a tubular handle, a reciprocating punch-rod extending through the handle and beyond both ends thereof, a retaining spring seated within the handle and co-

acting with the stem, a punch-needle having a socket member detachably engaging one end of the punch-rod, and a cap detachably fitting one end of the handle over the end of the stem opposite the punch-needle.



698,783. EVAPORATING APPARATUS. GRANT H. WILSON, Mansfield, La. Filed July 13, 1901. Serial No. 60,948. (No model.)



Claim.—1. The combination with a furnace; of a boiler, an inclined bottom therein forming a wall of the combustion-chamber of the furnace, an evaporating-pan, a flue extending therefrom, a flue extending through the boiler and adapted to convey the products of combustion from the furnace to the flue of the pan, tubes connecting the pan with the interior of the boiler, and a valve outlet from the boiler.

2. The combination with a furnace, of a boiler, an inclined bottom therein forming one of the walls of the combustion-chamber of the furnace, an evaporating-pan, a flue thereunder having an outlet, flue extending longitudinally through the boiler and adapted to conduct the products of combustion from the furnace to the flue of the pan, closely arranged cross-strips in the pan, a dam, tubes connecting the pan with the interior of the boiler, whereby juice is permitted to flow into said boiler and surround the flue therein, and a valve outlet from the boiler at the lowest point thereof.

3. The combination with a furnace; of a boiler forming one wall of the combustion-chamber of the furnace, an evaporating-pan, a flue thereunder, means for conducting the products of combustion from the furnace to the flue under the pan, tubes connecting the interior of the boiler with the evaporating-pan whereby juice is permitted to flow into said boiler from the pan, said tubes and boiler being heated by the products of combustion, and an outlet from the boiler.

698,784. FUP-CRACKER. HENRY H. GRAMMERS, Baltimore, Md. Filed Jan. 24, 1902. Serial No. 61,111. (No model.)



Claim.—1. In a nut-cracker, the combination of a pair of handles or levers pivoted to the outer ends thereof, a spring working in cooperation with said handles or levers and serving to normally spread the same apart, and means, carried by the link, for causing the said spring to act equally upon both of said handles or levers.

2. In a nut-cracker, a pair of handles or levers; a link pivoted to

mounted to the outer ends thereof; a spring embracing said link and having its free ends bearing on the handles and normally holding the same apart; and means for causing said spring to act equally upon both of said arms.

3. In a nut-cracker, the combination of a pair of handles or levers, each of said handles having a cross-slot formed therein near its outer end; a link pivotally connected to the outer ends of said handles or levers; a spring having its ends seated in said cross slots or recesses; and means, carried by the link, for causing said spring to act equally upon both of said handles.

4. In a nut-cracker, the combination of a pair of handles or levers, each of said handles having a curved slot or recess F formed upon its inner face near its outer end; a link pivotally connected to the outer ends of said handles; and a spring having its free ends extending into said curved recesses, substantially as and for the purpose described.

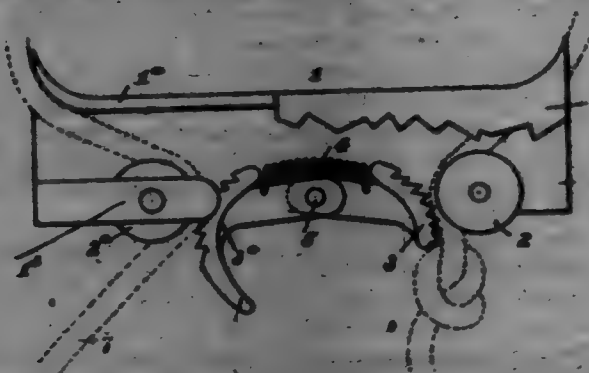
5. In a nut-cracker, the combination of a pair of handles or levers; a link pivotally connected to the outer ends thereof, each of said handles being provided with a curved slot or recess extending transversely thereof and in approximate alignment with the inner or lower edge of the link; and a spring for normally holding the levers apart, the free ends of said spring being seated in said curved recesses.

6. In a nut-cracker, the combination of a pair of handles or levers; a link pivotally connected to the outer ends thereof, each of said levers being provided with a curved cross groove or channel F in approximate alignment with the inner or lower edge of the link; and a spring embracing said link and having its free ends seated in the said curved grooves or channels adjacent to the face of the link, substantially as described.

7. In a nut-cracker, the combination of a pair of handles or levers, each provided with a cross groove or channel near its outer end; a link pivotally connected to the outer ends of said handles or levers, said link being formed with a recess or depression in its outer face; and a spring embracing said link and having its free ends seated in the cross grooves or channels in the handles, and likewise having a portion of its body extending through said depression or notch formed in the link, substantially as described.

8. In a nut-cracker, the combination of a pair of handles or levers each provided with a cross groove or channel near its outer end; a link pivotally connected to the outer ends of said handles or levers, said link being provided with a recess G having straight side walls; and a spring comprising a head I, loops K, and loops passing through the notch or recess formed in the link, and diverging arms J, the ends of the arms extending into the cross grooves or channels formed in the handles or levers, substantially as described.

698,785. **SHOCK-COMPRESSOR.** SAMUEL EAST, Fremont township, Madison county, Ohio. Filed Dec. 7, 1901. Serial No. 38,067. (No model.)



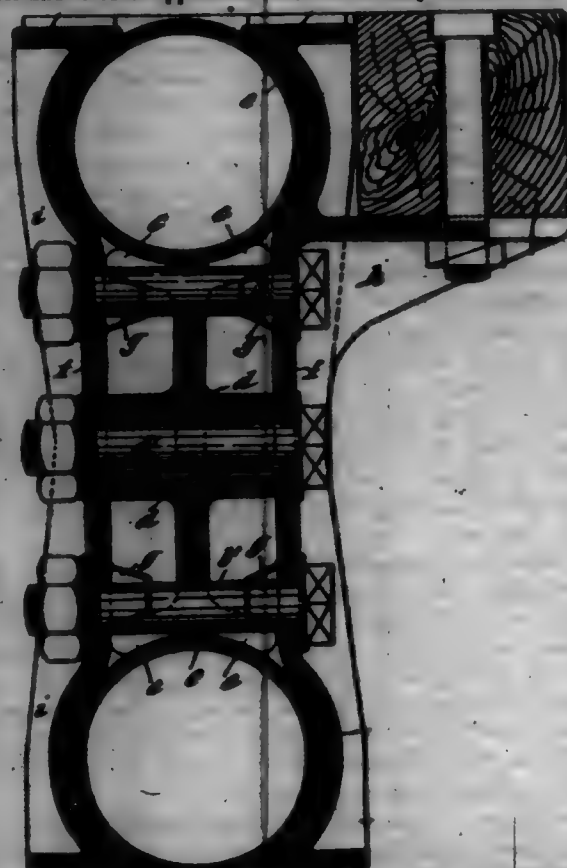
Claim.—1. A shock-compressor comprising a frame, two pulleys journaled therein having their active faces turned toward the pulleys, two clamps fabricated therein, combined with a spring connecting the clamps and arranged to draw the active faces of the clamps toward the pulleys, substantially as described.

2. A shock-compressor comprising in combination a frame, two abutments therein over which the ends of a rope are adapted to pass, two clamps independent of said abutments having their active faces turned away from each other and toward said abutments and arranged to clamp the ends of the rope against said abutments, and a spring for yieldingly drawing said clamps toward the abutments to hold the ends of the rope, substantially as described.

698,786. **RAILWAY-VEHICLE FRAME OF THE LIKE.** GEORGE REYNOLDS, Brussels, Belgium, assignor to Societe Anonyme des Wagons Tubulaires, Brussels, Belgium. Filed Dec. 18, 1901. Serial No. 38,571. (No model.)

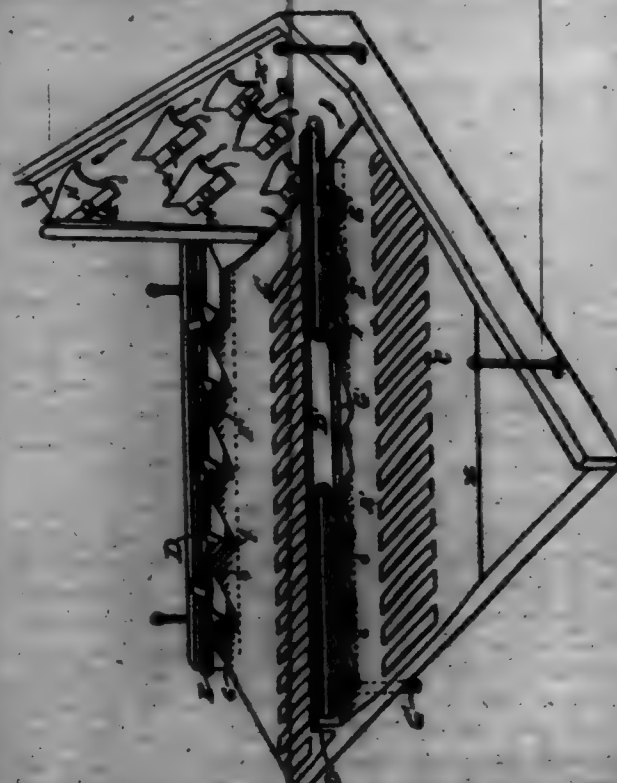
Claim.—1. In combination with the upper and lower frame members, a support or strut interposed between the same, and clamping said

pieces embracing said frame members, with means for securing said plates together and to said support or strut, substantially as described.



2. In combination, with the upper and lower tubular frame members, an interposed strut or support having ends against which said frame members rest, side clamping-plates embracing said frame members, and bolts passing through said strut and connecting said plates, substantially as described.

698,787. **CONCENTRATOR.** MARK B. ROBINSON, Kingston, Ark. Filed Dec. 27, 1900. Serial No. 41,302. (No model.)



Claim.—1. In a concentrator, the combination of a concentrating-table having along one side a concave trough and superposed water-supply pipe, and having along another portion a line of riffler, extending transversely and tapering in the direction of their length to form central portions of greater thickness than the ends whereby the material at the ends of the riffler is agitated with greater effect than the material at the thickest center, and a deflection-plate extending in line with the trough and below the water-supply pipe, said plate being a series of independent and gradual curves.

2. A concentrator-table having an inclined extension at one end, by which the pulp is fed said extension having a series of deflection said de-

flexion disposed substantially in line with the floor and having one portion fitted to the extension and a second portion made trough-like and capable of spreading the stream over the extension and causing it to carry the lighter portion of material a greater distance along the inclined extension than the heavier portion.

2. The combination with an inclined concentrating-table, of a series of deflection plates at the head end thereof said deflection plates being in line with the floor and having one portion fitted to the table and another portion made trough-like and extending in the direction of the flow of pulp, and means whereby the deflection plates may be adjusted to different angles to suit the character of pulp acted on, and the flow of water.

3. The combination in a concentrator of a concentrating-table A; a series of rows of transversely-placed riffler running from the head of the table to the foot thereof, the said riffler being thick in the center and decreasing in thickness therefrom to the ends thereof; a series of deflection plates rising from the table in gradual curved lines, and extending from the head to the foot of the table; water-supply pipes disposed above said deflection plates and having properly-spaced apertures therein adapted to direct a jet of water on the middle portion of the deflection plates; a concave trough below said pipe and adjacent to the deflection plates to carry off the concentrate.

4. The combination in a concentrator of a concentrating-table A, divided into two parts by the partition-rib D, extending centrally from the head to the foot thereof; a row of transversely-placed riffler on either side of said partition-rib extending from the head to the foot, this at the ends and thick in the middle; deflection plates F extending from the head to the foot, and rising above the table in gradual curved lines; water-supply pipes G, disposed above said deflection plates and having discharge-apertures spaced apart, adapted to direct a jet of water onto the deflection plates, the troughs H below the surface of the table, said troughs adapted to receive and carry off the concentrate; and the inclined portion B at the head of said table and connecting therewith, the said extension being provided with a plurality of deflection plates H, arranged to spread the pulp over the concentrating-table.

5. In a concentrator the combination with a water-supply and a table, of a series of deflection plates along the side of the table and beneath the supply-pipe, and consisting of plates extending above the table and curved in the direction of their length.

698,788. **ELEVATOR.** ALFRED E. BOWEN, Chicago, Ill. Filed Oct. 10, 1901. Serial No. 78,128. (No model.)



Claim.—1. In an elevator, in combination, an electric motor, electric circuit, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, and a hand-brake comprising a lever pivoted to the car with hand-brake connections within the drum, substantially as described.

2. In an elevator, in combination, an electric motor, electric circuit, a brake comprising a broken electric circuit, with three or more separated contact-strips interposed in the broken circuit, an angular block pivoted to the car with contact-strips in pairs projecting from its angle sides, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, substantially as described.

3. In an elevator, in combination, vertical guides, screw-rolls, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, an electric motor with the car, electric circuit, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts for the purpose set forth.

4. In an elevator, in combination vertical guides, screw-rolls, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, an electric motor with the car, electric circuit, a controller comprising a broken line-circuit, three or more contact-strips interposed in the broken circuit, an angular block pivoted to the car with contact-strips in pairs projecting from its angle sides for closing the motor, substantially as described.

5. In an elevator, in combination, vertical guides, screw-rolls, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, the counter-weighted car having ball-bearing connections with the drum, an electric motor with the car, electric circuit, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, for the purpose set forth.

6. In an elevator, in combination, vertical guides, screw-rolls comprising a series of studs with anti-friction-rollers thereon, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, an electric motor with the car, electric circuit, a controller comprising a broken line-circuit, with three or more separated contact-strips interposed in the broken circuit and an angular block pivoted to the car with contact-strips in pairs projecting from its angle sides, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, substantially as described.

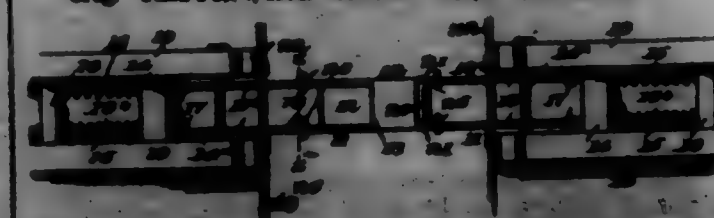
7. In an elevator, in combination, vertical guides, screw-rolls comprising a series of studs with anti-friction-rollers thereon, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, an electric motor with the car, electric circuit, a controller comprising a broken line-circuit, with three or more separated contact-strips interposed in the broken circuit and an angular block pivoted to the car with contact-strips in pairs projecting from its angle sides, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, and a hand-brake comprising a lever pivoted to the car with hand-brake connections within the drum, substantially as described.

8. In an elevator, in combination, vertical guides, screw-rolls comprising a series of studs with anti-friction-rollers thereon, a drum-arrange mounted in the shaft, a rope of anti-friction-balls bearing on the drum, the car between the guides and bearing on the balls, an electric motor with the car, electric circuit, a controller comprising a broken line-circuit, with three or more separated contact-strips interposed in the broken circuit and an angular block pivoted to the car with contact-strips in pairs projecting from its angle sides, a brake comprising an electric magnet suspended on one end of a lever pivoted to the car, a stationary structure near-by, a brake-shoe on the other end of said lever, a cam-shoe on the revolving motor parts, and a hand-brake comprising a lever pivoted to the car with hand-brake connections within the drum, substantially as described.

698,789. **METHOD OF EXTRACTING METALS FROM THEIR OXIDE STATE.** JOHN BERNARD and JOHN LAMAR, Stockholm, Sweden, assignors to Albin Janki, Stockholm, Sweden. Filed Dec. 11, 1901. Serial No. 68,944. (Specimen.)

Claim.—A process for producing isotropic or other bodies which are hard, do not fall into pieces at a high temperature and are suitable for reduction, consisting in mixing pulverized acid ores, carbon, hydrocarbon and an organic nitrogen compound or compounds, pressing the mixture to bodies of suitable shape and finally heating said bodies to 900° to 1000° centigrade.

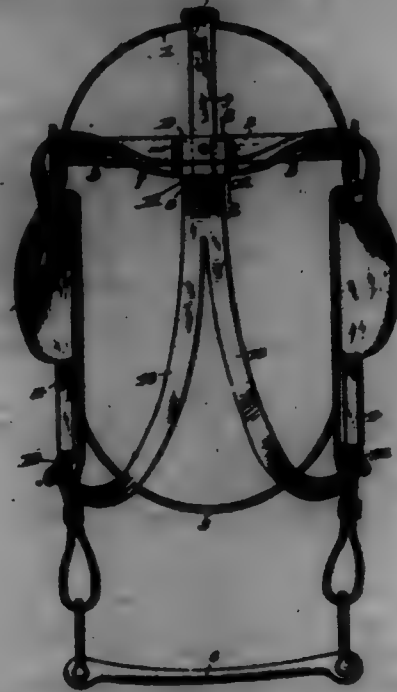
698,790. **CAR-COUPLING.** ROBERT H. ROBINSON, Marion, Oreg. Filed Feb. 7, 1901. Serial No. 45,398. (No model.)



Claim.—1. In a car-coupler, the combination with a draw-bar comprising a plurality of draft-ends, each of said ends consisting of joined sections, one section of each end being elastically and yieldingly connected to the car, of a coupling-head secured to the other section, a rock-shaft mounted upon the car and provided with a plurality of offsetting arms, and sliding connections between the arms and the outer sections of the draw-bar.

2. In a car-coupler, the combination with longitudinally-disposed spaced guide-bearings rigidly secured to the under side of the car, of a stationary transverse supporting-beam located between the guide-bearings, a plurality of draft-ends passing through said transverse beams, said ends

Claim.—1. In a bridge, the combination with a crown-strap and chest-strap, of a brow-band formed with a central loop, a cross-brace having a central loop, and a crown-billet depending from the center of the crown-strap and passed through the loops in the brow-band and cross-brace-strap, said billet being provided with shoulders against which the looped portion of the cross-strap contacts, and fastening means passed through the loop of the brow-band and the billet.



2. In a bridge, the combination with a crown-strap, and chest-strap having washers attached thereto, of a brow-band formed with a central loop, a cross-brace-strap terminally secured to the upper portion of the washers and also having a central loop, and a crown-billet depending from the center of the crown-strap and passed through the loops in the brow-band and cross-brace-strap, the said billet immediately below the cross-brace-strap being broadened to provide opposite shoulders against which the lower edge of the looped portion of cross-strap contacts and is thereby drawn close against the lower edge of the brow-band, and fastening means passed through the loop of the brow-band and the portion of the billet engaged thereby.

698,748. SULFUR CANDLE. CHARLES H. SHAW, Brooklyn, N. Y., assignor to Robert H. Thompson, New York, N. Y. Filed May 10, 1901. Serial No. 98,612. (No model.)



Claim.—1. A sulfur candle having in its upper surface a cavity and a wick arranged with one side surrounded by the solid mass of sulfur, but the other side open to or only slightly separated from said cavity.

2. A sulfur candle having in its upper surface a central cavity, and a wick arranged with its outer side surrounded by the solid mass of sulfur but the inner side open to or only slightly separated from said cavity.

3. The combination of a container having circumferential grooves and a sulfur candle having horizontally-extended surfaces which fit in said grooves.

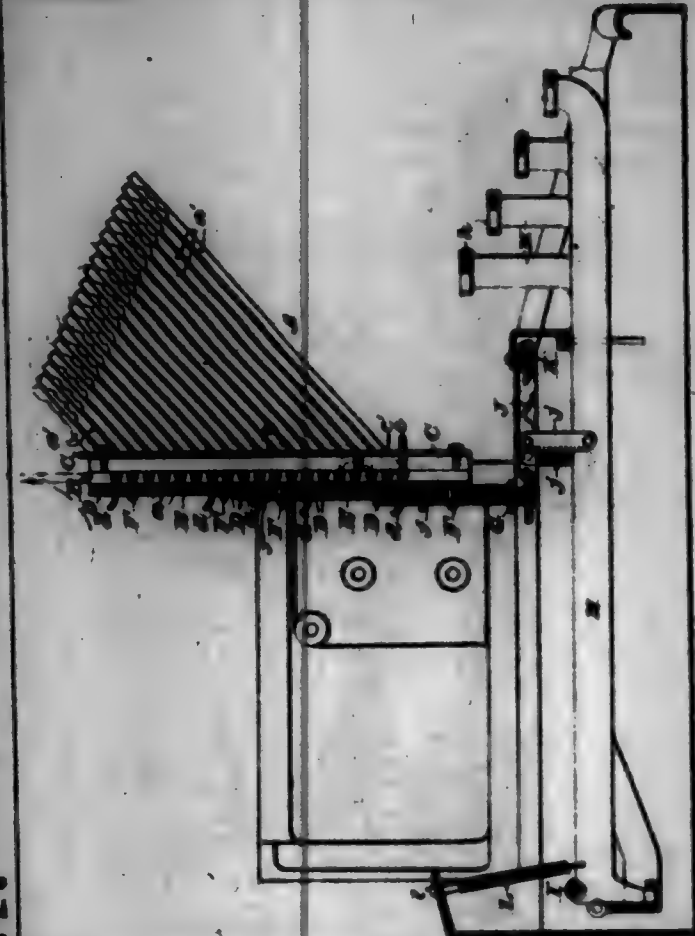
4. The combination of a container, a sulfur candle therein, and means provided in a wall of the container which engage with the candle for holding the candle in the container.

5. The combination of a container serving as a mold, sulfur cast in said container to form a candle, and means provided in the container which is engaged by the sulfur of the candle to prevent the sulfur from leaving the container after the sulfur has set.

698,749. TYPE-WRITING MACHINE. LOUIS BRULIN, Milwaukee, Wis., assignor to C. Latham Stokes Typewriter Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed May 10, 1901. Serial No. 98,577. (No model.)

Claim.—1. In a type-writing machine the combination of a series of angular type-bars having pivot-arms which are capable of turning and moving endwise, each of said arms being provided on opposite sides with fingers, a fixed guide-plate having a series of angular slots with which the fingers on one side of said arms engage, and slides having oblique

slots engaging the fingers on the opposite side of said arms, substantially as described.



2. In a type-writing machine the combination of a series of angular type-bars having pivot-arms capable of turning and moving endwise and provided with fingers, a guide-plate having a series of angular slots engaging fingers on said arms, and a series of slides arranged in planes at different distances from said arms and provided with oblique slots engaging fingers on said arms, substantially as described.

3. In a type-writing machine the combination of a series of angular type-bars having pivot-arms capable of turning and moving endwise and provided with fingers, a fixed plate or frame parallel with said pivot-arms, and overlapping slides detachably connected with said plate in different planes and provided with cam-slots engaging said fingers, substantially as described.

4. In a type-writing machine the combination of angular type-bars having pivot-arms capable of turning and moving endwise and provided with fingers, a fixed plate or frame parallel with said arms and having openings through which said fingers project, and slides having oblique slots which engage said fingers and detachably connected with said plate and guided by turn-bushes which engage longitudinal slots in said slides, substantially as described.

5. In a type-writing machine the combination of angular type-bars having pivot-arms capable of turning and moving endwise and provided on opposite sides with fingers, a front plate having angular slots engaging the fingers on one side of said arms, a back plate having openings through which the fingers on the opposite side of said arms project, and slides arranged in different planes on the rear side of said back plate and having oblique slots engaging with the rearwardly-projecting fingers of said arms, substantially as described.

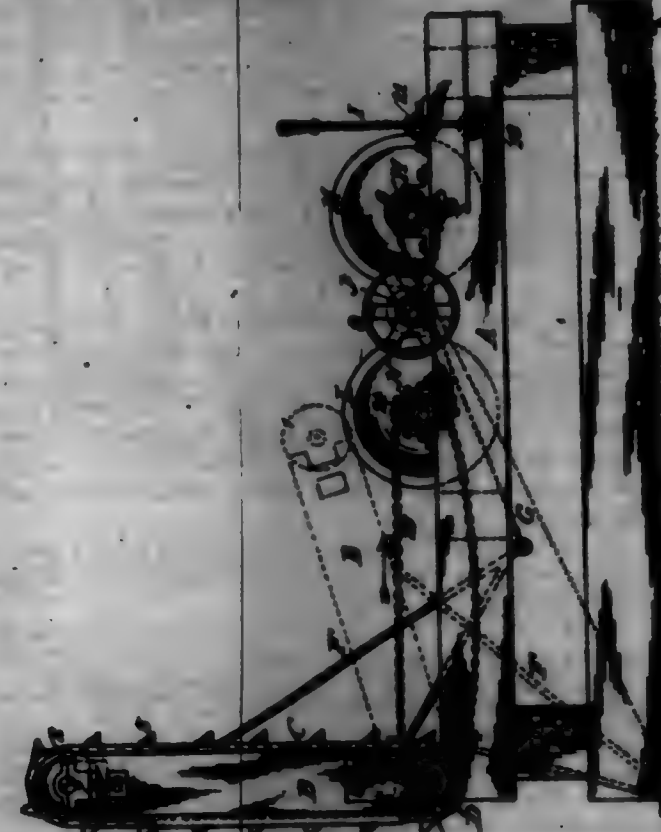
6. In a type-writing machine the combination of a series of angular type-bars having type-arms of different lengths and pivot-arms capable of turning and moving endwise and provided on opposite sides with fingers, a guide-plate arranged in front of and parallel with said arms and having angular slots engaging with the forwardly-projecting fingers, a back plate arranged behind and parallel with said arms and having openings through which the rearwardly-projecting fingers thereof project, and slides detachably connected with said back plate and held and guided in different parallel planes by shouldered turn-bushes pivoted in said back plate and engaging longitudinal slots in said slides, which are also provided with oblique slots engaging the rearwardly-projecting fingers of said pivot-arms, substantially as described.

7. In a type-writing machine the combination of angular type-bars having type-arms of different lengths and pivot-arms capable of turning and moving endwise and provided with forwardly-projecting fingers, a guide-plate having angular slots, the horizontal portions of which are directly opposite said pivot-arms, whose fingers engage therewith, and means for turning each pivot-arm and moving it endwise to produce an

impression on the plates of the character with which the corresponding type-arm is provided, substantially as described.

8. In a type-writing machine the combination of angular type-bars having type-arms of different lengths and pivot-arms capable of turning and moving endwise and provided with fingers, slides arranged at different distances from said pivot-arms and having oblique slots engaging with said fingers, key-levers and auxiliary levers connected with said slides and at different distances from their fulcrums with said key-levers, substantially as described.

698,750. LOG-TURNING. JOHN J. SCHUMER, Palo Alto, Cal., assignor of one-half to J. H. Henry, San Jose, Cal. Filed Dec. 12, 1901. Serial No. 98,695. (No model.)



Claim.—1. A log-turning apparatus comprising a tilting frame, carrying a toothed chain, a constantly-rotating gear-pulley, a pair of pulleys in proximity thereto, connections from one of said pulleys to the tilting frame, connections from the other pulley to the toothed chain, a single operating-lever, and independent connections from said lever for causing said pulleys to engage with said gear-pulley.

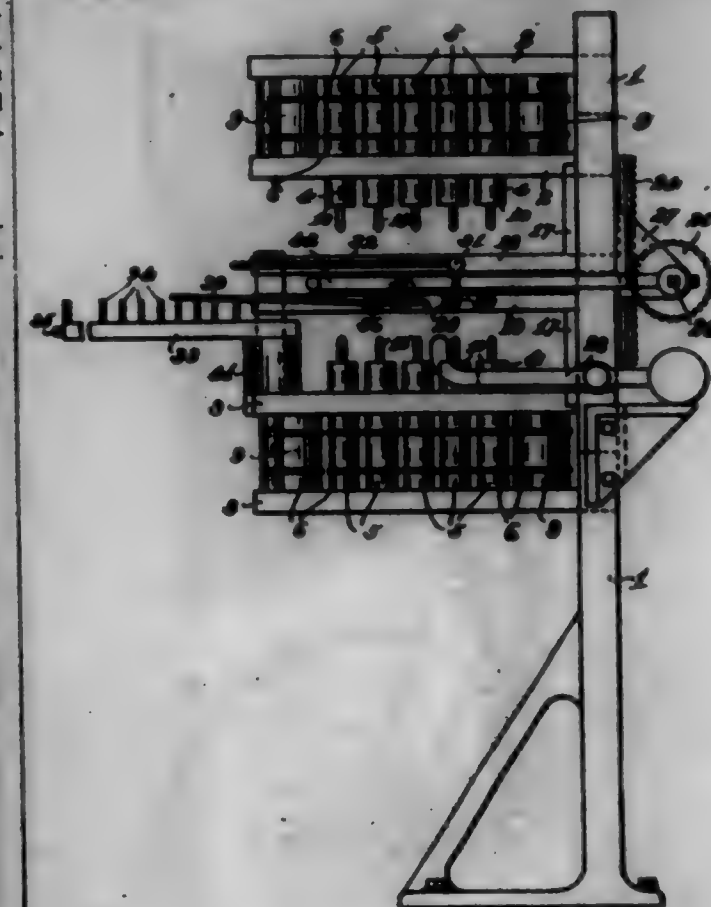
2. A log-turning apparatus comprising a tilting frame, carrying a toothed chain, a constantly-rotating pulley, a pair of pulleys in proximity thereto, connections from one of said pulleys to the tilting frame, connections from the other pulley to the toothed chain, a single operating-lever, a rock-shaft, to which said lever is pivoted, connected to one of said pair of pulleys, a rod, to which said lever is pivoted, connected to the other of said pulleys, said lever acting as a crank to turn the rock-shaft, and as a lever fulcrumed to the rock-shaft for operating the said rod.

698,751. BRACK-BLANK AND CHAFF-IRON HOLDER. ALMA P. SMITH, JR., Brooklyn, Mass., assignor to Boston Roller Chaff Iron Company, Boston, Mass., a Corporation of West Virginia. Filed Nov. 14, 1901. Serial No. 98,216. (No model.)



Claim.—An article of manufacture, a carriage part having a conical central portion comprising a lower-body and roller-supporting arm projecting laterally therefrom, and two transverse members and portions projecting in opposite directions from said conical central portion, substantially as described and for the purposes specified.

698,752. MACHINE FOR TURNING GASTER-WHEELS. ARTHUR SMITH, Chicago, Ill. Filed Dec. 2, 1901. Serial No. 98,696. (No model.)



Claim.—1. In a machine of the kind specified, the combination with the frame, right bearing-plates carried thereby, and spindles carrying outer-hubs journaled in said bearing-plates, of clamping-plates movably mounted on said frame and movable toward and away from said bearing-plates, openings in said clamping-plates through which said outer-hubs pass to act on a block carried between said clamping-plates, and devices for engaging said block through said openings in one of said clamping-plates to receive and hold the pieces cut out of said block by said outer-hubs.

2. In a machine of the kind specified, the combination with two sets of bearing-plates, each having a plurality of spindles journaled therein, and outer-hubs on said spindles adapted to cut on opposite sides of a block of wood or other material, of clamping-plates between said bearing-plates adapted to carry said block, openings in said plates through which said outer-hubs pass, devices engaging said block through said openings to receive and hold the pieces cut out of said block, and means for imparting relative motion to said clamping-plates and said bearing-plates toward and away from each other.

3. In a machine of the kind specified, the combination with two sets of bearing-plates, a plurality of spindles journaled therein, and outer-hubs on said spindles adapted to operate on opposite sides of a block of wood or other material to be cut, of clamping-plates between which the block is adapted to be held, openings in said plates through which said outer-hubs pass, a plate carrying pins adapted to pass through said openings in one of said plates to engage the partially-cut pieces, means for holding said plate in place, and means for moving said clamping-plate toward and away from said bearing-plates.

4. In a machine of the kind specified, the combination with two sets of bearing-plates, spindles journaled therein, and outer-hubs on said spindles, of clamping-plates between which the block to be cut is clamped, openings in said plates for the passage of said outer-hubs, and spring-actuated pins mounted in one of said clamping-plates between the openings therein, adapted to bear upon the block with a yielding pressure, whereby irregularities in the surface of the block are prevented from decreasing the clamping action of said plates, substantially as described.

5. In a machine of the kind specified, the combination with two bearing-plates and a series of spindles journaled therein, of a pulley on each of said spindles between said plates, each of said pulleys being provided with circumferential flanges between its ends dividing the face of same into three parts, of three belts trained over each of said pulleys, two of said belts engaging the end portions of the face of each of said pulleys on one side, and the other of said belts engaging the middle portion of said pulley on the opposite side, whereby said pulleys are turned by said belts on the bearings of said spindles will be contained.

698,753. MOTOR-VEHICLE. GEORGE W. SMITH, Martins, Mo.
Filed Aug. 24, 1901. Serial No. 73,463. (No model.)



Claim.—1. In a motor-vehicle, the combination with a stationary axle-frame, of a rear axle secured thereto, a movable axle-frame having a pivotal connection with the rear axle, a rotational axle-shaft mounted on each frame, said axles being connected by compensating gearing, and a driving-shaft mounted longitudinally of the rear axle and geared at its opposite ends to the axle-shafts.

2. In a motor-vehicle, the combination with a stationary axle-frame, of a rear axle secured thereto, a movable axle-frame having a pivotal connection with the rear axle, a rotational axle-shaft mounted on each frame, said axles being connected by compensating gearing, and a rotational driving-shaft mounted longitudinally of the rear axle and geared at its opposite ends to the axle-shafts, the axles of said driving-shaft being connected by compensating gearing.

3. In a motor-vehicle, the combination with a stationary axle-frame, of a rear axle secured thereto, a bracket fastened to the free end of the rear axle, a movable axle-frame having a pivotal connection with the bracket, an axle-shaft mounted on each frame, and a driving-shaft mounted longitudinally of the rear axle and having gear connections with the axle-shafts.

4. In a motor-vehicle, the combination with a stationary axle-frame, of a rear axle secured thereto, a bracket fastened to the free end of the rear axle and depending below the same, a movable axle-frame having a pivotal connection with the bracket, an axle-shaft mounted on each frame, and a driving-shaft mounted longitudinally of the rear axle and having a gear connection with the axle-shafts.

5. In a motor-vehicle, the combination with a stationary axle-frame, of a rear axle secured thereto, a bracket fastened to the free end of the rear axle and having projecting arms, an axle-frame pivoted to the arms, an axle-shaft journaled upon the pivoted frame and comprising sections connected by compensating gearing, an axle-shaft journaled upon the arms of the bracket and carrying a gear-wheel that meshes with the compensating gearing, and a driving-shaft having a gear connection with the axle-shafts.

6. In a motor-vehicle, the combination with an axle-frame, of a rear axle comprising bars secured to the frame, said bars being arranged in convergent relation toward their free ends, a journal-box connecting the convergent ends of the bars, a driving-shaft journaled in said box, an axle-frame pivoted to the free end of the rear axle, an axle journaled in the frame, and gear connections between the driving-shaft and the axle.

7. In a motor-vehicle, the combination with an axle-frame, of an axle-shaft journaled on the frame, a rear axle comprising bars secured to the frame and arranged in convergent relation toward their free ends, a journal-box connecting the convergent ends of the bars, a driving-shaft journaled in said box and geared to the axle-shaft, an axle-frame pivoted to the free end of the rear axle, an axle journaled in the frame, and gear connections between the driving-shaft and the axle, said connections being concentric with the pivot-axis of the frame.

8. In a motor-vehicle, the combination with an axle-frame, of an axle-shaft journaled on the frame, a rear axle comprising spaced bars secured to the frame, a journal-box connecting the free ends of the bars, a bracket secured to the axle-box, an axle-frame pivoted to the bracket, an axle-shaft journaled on the pivoted frame, a driving-shaft mounted in the journal-box of the rear axle, and gear connections between the driving-shaft and the axle-shafts of both frames.

9. In a motor-vehicle, the combination with a pair of axle-frames, of a rear axle connecting the frames, axles journaled upon the frames, a driving-shaft journaled upon the rear axle, compensating gearing located upon the driving-shaft, one of the gears thereof being secured to the shaft, the other being loosely mounted on said shaft, a master-wheel also loosely mounted to the driving-shaft and carrying pinions meshing with the gears and loose wheels, said master-wheel having teeth on its periphery, and a gear-wheel fastened to the loosely-mounted gear and having an operative connection with one of the axles.

10. In a motor-vehicle, the combination with an axle-frame comprising aligned casing-sections, of an axle-shaft journaled in the aligned casing-sections, a sleeve rotatably mounted on the axle-shaft and located in one of the casing-sections, wheels secured to the sleeve and shaft, and compensating gearing connecting the sleeve and shaft.

11. In a motor-vehicle, the combination with an axle-frame comprising aligned sections, spaced apart and connected by a transverse, of an axle-shaft rotatably mounted in the aligned casing-sections, a sleeve journaled upon the axle-shaft, said sleeve being located in one of the casing-sections and projecting beyond both ends thereof, a wheel secured to the outer projecting end of the sleeve, compensating gearing connecting the inner projecting end of the sleeve and the shaft, and a wheel secured to the outer end of said shaft.

12. In a vehicle, a front axle-frame, a rear axle-frame, a rear axle rigidly secured to the rear axle-frame, a bracket swivelled upon the rear axle, the front axle being pivoted to the bracket.

13. In a vehicle, a front and rear axle, a rear axle secured to one axle-frame and a bracket having journals located in angular relation, one of said journals being swivelled upon the rear axle, the other axle-frame being pivoted in the other journal.

14. In a motor-vehicle, the combination with a rear axle, of a driving-shaft journaled longitudinally thereon, an axle-frame having a swivelled connection with the rear axle to permit of its upright swinging movement, an axle journaled upon the frame, and connections between the axle and the driving-shaft.

15. In a motor-vehicle, the combination with a rear axle, of a driving-shaft journaled longitudinally thereon, a bracket swivelled upon the rear axle, an axle-frame pivoted to the bracket, an axle journaled upon the frame, and a stub-shaft mounted on the bracket and connecting the axle and driving-shaft.

16. In a motor-vehicle, the combination with a rear axle having spaced journal-boxes, of a bracket having journals swivelled in the boxes, a driving-shaft passing through the journals of the bracket, an axle-frame pivoted upon the bracket, an axle journaled on the frame, and a stub-shaft rotatably mounted on the bracket and connecting the axle and driving-shaft.

698,754. STATION-INDICATOR. WILLIAM SMITH, Ruston, La., assignor of one-half to Peyton Opel Robinson, Ruston, La. Filed Dec. 18, 1901. Serial No. 68,788. (No model.)

Claim.—1. In a station-indicator, a roller, a ratchet fast on the shaft thereof, a sprocket-wheel having a flange, a casing on said flange, and a spring-actuated pawl in said casing having beveled side and an operating-lever and pointer, as set forth.

2. In a station-indicator, a roller, a ratchet fast thereon, a sprocket loose on said shaft, a drum fast with the sprocket, a pawl-casing, a spring-actuated pawl carried by the sprocket and engaging the ratchet, said pawl being reversibly mounted in its casing, and an operating-lever reversibly connected with said drum, as and for the purpose specified.

3. The combination with the roller and its shaft and a ratchet fast on said shaft, of a sprocket and drum loose on the said shaft, a reversible pawl carried by the sprocket to engage the ratchet, a pointer carried by the pawl and a casing for the pawl having a projecting flange provided with notches, as and for the purpose specified.

4. In a station-indicator, a casing having a chamber at its upper end, a curved operating means embodying a sprocket-wheel, a ratchet and a pawl carried by the sprocket and engaging the ratchet and a gear and its actuating device, a cord connecting the same with the curved operating mechanism, and passed through said chamber and a spring within said chamber connected with the said cord to return the parts to their normal position, a pointer carried by said pawl, and a casing for the pawl having a notched flange, as set forth.

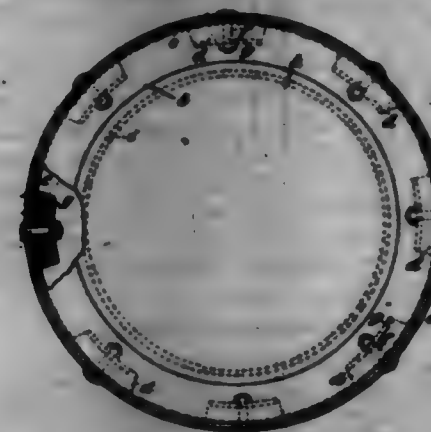
and position, a pointer carried by said pawl, and a casing for the pawl having a notched flange, as set forth.



5. The combination with the curved operating mechanism, of a cord connected therewith, a bell-crank lever connected with said cord, a bell, a hammer-arm and an arm pivotedly connected therewith having an outwardly-projecting spring and an inclined outer face to be engaged by the bell-crank lever, as set forth.

6. The combination with a bell, a hammer-arm, an arm pivoted thereto, and a spring acting upon said arm, of a bell-crank lever having one end to engage said arm near the pivotal connection of the two, curved operating mechanism, and a connection between the same and the bell-crank lever, as and for the purpose specified.

698,755. VEHICLE OR POT FOR GATHERING FISHES FROM THROWN OFF SWIMMING-MACHINES. GEORGE BRUNDA, Baltimore, Germany. Filed Sept. 2, 1902. Serial No. 20,304. (No model.)

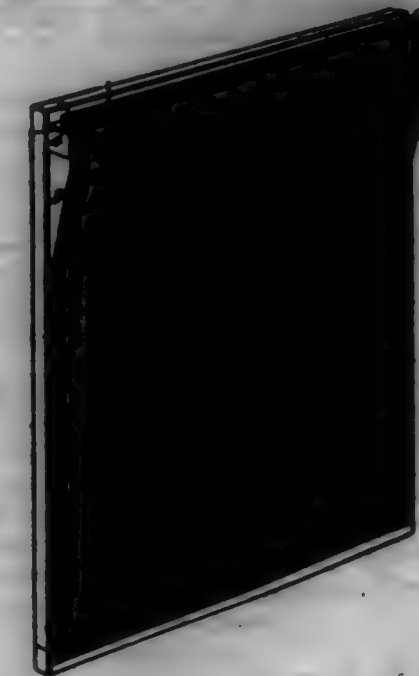


Claim.—1. In combination, the rim having an upwardly-struck bottom forming a double angular edge, a reinforcing-band in said edge, a plurality of elastic pieces having their upper edges resting against the upwardly-struck bottom and their lower edges projecting below the edge of the rim, clamping-pieces clamping against the inner faces of the elastic pieces and being for clamping the same to the rim, substantially as described.

2. A spinning-pot or the like having an upwardly-struck bottom with an open center, a downwardly-struck flange at the edge of said open center and a closing-disk having an inwardly and downwardly bent flange designed to abut against the inclined flange surrounding the open center, substantially as described.

3. A spinning-pot or the like having an upwardly-struck bottom with an open center, a downwardly-struck flange at the edge of said open center, a closing-disk having a correspondingly-struck flange resting upon the first-mentioned inclined flange, said closing-disk being removable, substantially as described.

698,756. FLY-SCREEN. ARTHUR L. GOSCHENSKY, South Springs, Ind. Ter. Filed Nov. 22, 1901. Serial No. 24,321. (No model.)



Claim.—1. In a screen, the combination with a screen-frame, and a sheet of screen material, of triangular blocks interposed between the frame and the screen material, and a horizontal bar arranged above the blocks and provided along its front face with transverse recesses forming fly-catches, the front of said recesses being covered with screen material, substantially as described.

2. In a screen, the combination with a screen-frame, and a sheet of screen material, of triangular blocks interposed between the screen material and the frame, a horizontal bar arranged above the blocks and provided along its front face with transverse recesses forming fly-catches and covered at the front with the wire-gauze, and the flanges arranged at the upper ends of the recesses and adapted to prevent the return of flies, substantially as described.

3. In a screen, the combination with a screen-frame, and a sheet of screen material, of blocks interposed between the screen material and the frame, a horizontal bar arranged above the blocks and provided along its front face with transverse recesses forming fly-catches, said recesses being covered at the front by screen material, and the latter being extended above the transverse bar to form a flange, and a strip of screen material extending upward from the bar at the inner sides of the recesses, substantially as described.

4. In a device of the class described, a horizontal bar designed to be applied to an ordinary window-screen and provided at its front face with transverse tapering recesses forming fly-catches, said recesses being covered at the front by the screen material when the bar is in position, and an inner strip secured to the outer edge of the horizontal bar and having a projecting flange to cooperate with the screen material of a screen, substantially as described.

698,757. SELF-HEATING GAS-BURNER. BRIAN S. SWANER, Worcester, Ohio. Filed Apr. 20, 1901. Serial No. 54,671. (No model.)



Claim.—1. In a hollow end-iron, having a burner-tube longitudinally within it, opening outwardly, the independently-removable gas-conducting apparatus comprising a fluid-conductor, and a valve-regulated gas-conducting pipe leading therefrom to the open end of said burner-tube, and means for adjustably and removably securing said apparatus in position independently of said burner-tube and connection, substantially as set forth and for the purpose specified.

2. The combination with a hollow end-iron, having a burner-tube extending longitudinally therein, opening outwardly through, and rigidly connected with the rear wall of said end-iron; of a capenable gas-conducting apparatus adjustably therein, having a gas-conducting pipe adapted

by bands therein, to hang removably suspended in case thereof, upon and over the opposite ends of said iron-body; and a removable cover, fitted to inclose said body, and rest upon, and removably fasten said pipe therein by bearings on said cover, substantially as shown and described and for the purpose specified.

3. In a hollow end-iron, having a burner-tube lengthwise within it, opening rearwardly, the independently-removable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-pipe leading therefrom to the mouth of said burner-tube—said pipe bent and shaped to hang upon and over, and extending beyond the opposite ends of said end-iron respectively, said ends provided with seats as a saddle to receive the downwardly-bent portions of said pipe fitted thereto, and removably held said apparatus in position to convey gas through and from said pipe directly into said burner-tube, substantially as shown and described and for the purpose specified.

4. The combination with a hollow end-iron, having a burner-tube extending lengthwise therein, opening outwardly; of the independently-removable gas-generating apparatus—comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the open end of said burner-tube—said pipe bent and shaped to hang upon and over, and extending beyond the opposite ends of said end-iron respectively, said ends provided with seats as a saddle, to receive the downwardly-bent portions of said pipe fitted thereto; and a projecting catch or brace at the rear end of said iron, adapted to engage the lower end of said apparatus, to adjustably and removably hold the same in position to convey gas from said pipe directly into the open end of said burner-tube, substantially as set forth, and for the purpose specified.

5. The combination with a hollow end-iron, having a burner-tube extending lengthwise therein, opening outwardly; of the independently-removable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the mouth of said burner-tube—said pipe having bands adapted to hang upon and over the opposite ends of said iron-body, said ends provided with seats as a saddle, to receive the downwardly-bent portions of said pipe fitted thereto; and a projecting catch or brace, to adjustably engage the lower end of said apparatus; and a removable cover detachably secured upon the body of said end-iron, having a bearing at each end adapted to rest upon and removably fasten said apparatus for operation, substantially as set forth, and for the purpose specified.

6. The combination with a hollow end-iron having a burner-tube extending lengthwise therein, and a gas-generating apparatus connected therewith; of means for ventilation and combustion comprising ingross air-vents along, at or near the upper part of the respective sides of said end-iron body, and egress-vents for the gases of combustion through, and along, at or near the longitudinal center of the cover of said end-iron, a shield B, attached, with intervening open space, above said cover; and a handle, H, above said shield, substantially as set forth, and for the purpose specified.

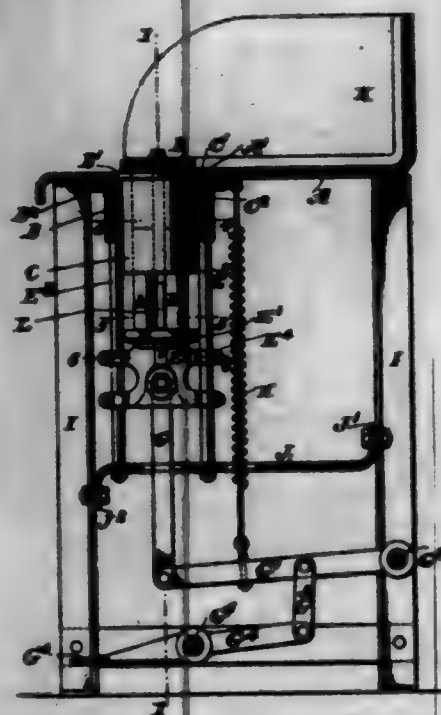
7. The combination with a hollow end-iron, having a burner-tube extending lengthwise therein, and ingross air-vents along, at or near the upper part of the sides thereof; of the separable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the mouth of said burner-tube by suitable bands in said pipe, and by said bands removably secured in position separate and separable from said burner-tube and connections; and a removable cover for said iron-body, provided with egress-vents therein for the escape of the gases of combustion, along at or near the longitudinal center of said cover; a shield above said cover adapted in form therewith a flue for draft outwardly from said egress-vents, and a handle above said shield, substantially as set forth, and for the purpose specified.

8. The combination with a hollow end-iron, having a burner-tube extending lengthwise therein, opening through, and suitably connected with the rear end of said iron-body, and separate from the gas-generating pipe and connections—said body having air-vents at each side thereof at or near the top, and provided with runs slanting downwardly toward each other at each end, as a saddle; of the independently-removable gas-generating apparatus—comprising a fluid-reservoir and gas-conducting pipe with valve, leading therefrom in bands adapted to fit and hang in said saddle, and terminating with a small orifice; an external brace or support for said pipe at the rear end of said body; and a removable cover with handle thereon, fitted to rest upon and removably fasten down said gas-conducting pipe, and having air-vents therein, substantially as shown and described, and for the purpose specified.

698,758. CORE-MAKING MACHINE. RALPH E. THOMAS and FRED CLARK, Alhambra, Pa. Filed Aug. 14, 1900. Serial No. 94,944. (No model.)

Claim.—1. In a core-making machine, a core-box open at top to receive

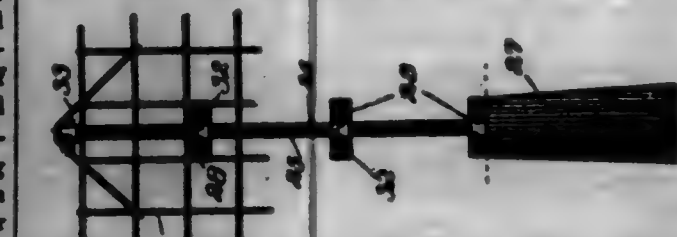
molten sand and discharge cores, in combination with a cover adjustable over the top of the core-box, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top thereof, a stop regulating the lowermost position of the plunger or plungers in the core-box, a stop for limiting the upward movement of the plunger or plungers in pressing the cores said stop being removable when the cores are complete, and means for moving the plunger or plungers upward in the core-box to press the sand into cores and, after the removal of the sand and removable stop, to expel said cores.



2. In a core-making machine, a core-box open at top to receive sand and discharge cores, in combination with a cover adjustable over the top of the core-box, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top thereof, an adjustable stop regulating the lowermost position of the plunger or plungers in the core-box, a stop for limiting the upward movement of the plunger or plungers in pressing the cores said stop being removable when the cores are complete, and means for moving the plunger or plungers upward in the core-box to press the sand into cores and, after the removal of the cover and removable stop, to expel said cores.

3. In a core-making machine, a table, as A, for holding loose sand having an opening, as A', in combination with a core-box receiving banking B secured to the table and adapted to support a core-box with its top edge flush with the table, a core-box, as C, open at top to receive sand and discharge cores, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top edge thereof, a stop regulating the lowermost position of the plungers in the core-box, means for moving the plungers in the core-box, a removable top for limiting the upward movement of the plungers when compressing the sand, a sliding cover for the core-box and means for covering it on top of the same during compression.

698,759. FENCE-POST. LOUIS A. THOMSON and ADA L. DANIEL, Oak City, Ind. Filed June 14, 1901. Serial No. 64,555. (No model.)



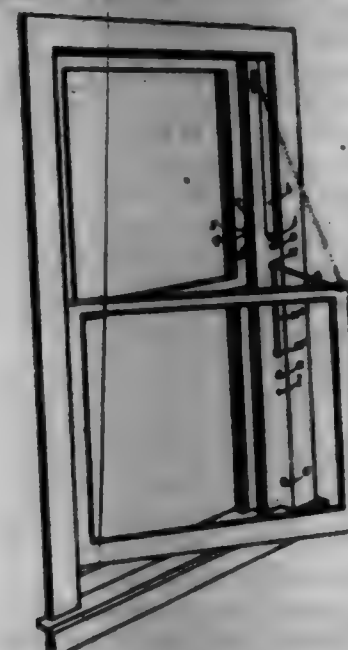
Claim.—1. A fence-post comprising main upright having a base, a second upright pivotally connected to the first upright for movement in the same plane therewith and out of contact with the first upright, said second upright having patches therein to receive fence-wires and being slidably connected with the first upright to permit of adjustment thereof vertically to hold the fence-wires at different elevations, means for holding the second upright at different points of traveling movement, and means for holding the uprights in mutual contact.

2. A fence-post comprising a main upright having a base, a second

upright movably connected with the first upright to permit of engagement of fence-wires between the uprights, and U-shaped clamps engaged in pairs around both members, said clamps having each terminal clamping-jaws for clamping stay-wires of the fence against the cooperating clamp, and retaining-bolts engaged through each pair of clamps between the terminal jaws and the uprights.

3. A fence-post comprising a fixed upright having a block slidably mounted thereon and having means for holding it against sliding movement, said block having also spaced perforated ears, a second upright pivoted at its lower end between the ears for movement in the same plane with the first upright, and means for holding the uprights in mutual contact.

698,760. WINDOW-OPENER. JAMES H. TAYLOR, Alhambra, Cal. Filed Sept. 12, 1900. Serial No. 20,990. (No model.)



Claim.—In a window-opener a brace made with a fork at one end to receive a window-cord and an eye at the other to receive a pin or screw, said eye loosely counterbored and pivoted in a window-jamb immediately behind the window-head, a pocket formed in said jamb to receive said brace, substantially as shown and described and for the purpose set forth.

698,761. PROCESS OF PRODUCING CAMPHOR. EATHELMER TAYLOR, Newark, N. J., assignor, by mesne assignments, to the Portcharter Chemical Company, a Corporation of New York. Filed Aug. 6, 1901. Serial No. 34,696. (Specimens.)

Claim.—1. The process of producing campher, which consists in acting on turpentine with oxalic acid at a suitable temperature.

2. The process of producing campher, which consists in heating anhydrous turpentine with anhydrous oxalic acid.

3. The process of producing campher, which consists in acting on turpentine with oxalic acid, producing bursol and campher, and then oxidizing the bursol to convert it into campher.

4. The process of producing campher, which consists in acting on turpentine with oxalic acid, acting on the resulting mixture with lime, and distilling to separate the bursol and campher, and oxidizing the bursol to convert it into campher.

5. The compound, playl formula, resulting from the action of oxalic acid on turpentine, and having the following structural formula:



said compound having a boiling-point at six hundred and eighty millimeters vacuum, of 100° to 105° centigrade, solidifying below—17° centigrade—decomposed on heating into bursol and carbon monoxide, and decomposed on heating with caustic alkali solution into hydrocarbons and a ferrous.

698,762. WINDOW BRACKET OR STOP. IRVING TOW, South Norwalk, Conn. Filed Oct. 4, 1901. Serial No. 77,693. (No model.)

Claim.—1. In a window stop or bracket, the combination with a window, of means for engaging a window-frame and the lower rail of a

cash, and effective to support the lower ends of said stanchions; means for engaging the upper rail of the cash and effective to support the upper ends of the stanchions; and a stop carried by said stanchions.



2. In a window stop or bracket, the combination with stanchions of means for engaging a window-frame and the lower rail of a cash, and effective to support the lower ends of said stanchions; of means for engaging the upper rail of the cash and effective to support the upper ends of the stanchions; and a stop adjustable on said stanchions.

3. In a window stop or bracket, the combination with stanchions adapted to be supported by a cash; of a stop carried by said stanchions on each side of said cash.

4. In a window stop or bracket, the combination with a stanchion adapted to be automatically clamped upon and supported by a cash; of a stop carried by the stanchion.

5. In a window stop or bracket, the combination with upright stanchions supporting a stop, of a bracket carried by the lower portions thereof and provided with a stop-face to bear against the under side of a cash-rail; another bracket carried near the upper end of said stanchion and provided with a clamp embodying a dog pivoted to swing toward the stanchion and bear against one side of a rail the stop-face to bear against the other side of said rail, a weighted arm projecting from the dog for normally and automatically swinging the dog away from said stanchion, said dog normally clamping against the rail when the latter raises the weighted arm.

6. In a window stop or bracket, the combination of stanchions, means for supporting said stanchions upon a window-cash; of a stop carried by said stanchions on the side of said cash opposite to that on which the stanchions are supported.

7. In a window-bracket, the combination of stanchions; a frame secured thereto; a stop-face carried by the frame, and adapted to bear against one side of a cash-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means effective to automatically swing said dog.

8. In a window-bracket, the combination of stanchions; a frame secured thereto; a stop-face carried by the frame, and adapted to bear against one side of a cash-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means effective to normally and automatically swing said dog away from said stop-face and upon the entry of the cash-rail between said dog and stop-face to swing said dog toward said rail.

9. In a window-bracket, the combination of stanchions; a frame adjustably secured thereto; an adjustable stop-face carried by the frame, and adapted to bear against one side of a cash-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means effective to automatically swing said dog.

10. In a window-bracket, the combination of stanchions; a frame secured thereto; an adjustable stop-face carried by the frame, and adapted to bear against one side of a cash-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means effective to normally and automatically swing said dog away from said stop-face and upon the entry of the cash-rail between said dog and stop-face to swing said dog toward said rail.

11. In a window-bracket, the combination of stanchions; a frame secured thereto; a stop-face carried by the frame, and adapted to bear against one side of a cash-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means, said stop-face, and to bear against the other side of said rail; and means,

comprising a weighted arm, effective to normally and automatically swing said dog away from said stop-face and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail.

12. In a window-bracket, the combination of stanchions; a frame secured thereto; an adjustable stop-face carried by the frame, and adapted to bear against one side of a mesh-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means, comprising a weighted arm, effective to normally and automatically swing said dog away from said stop-face and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; and a stop supported by the stanchions.

13. In a window-bracket, the combination of stanchions; a frame secured thereto; an adjustable stop-face carried by the frame, and adapted to bear against one side of a mesh-rail; a dog pivoted to swing toward and from said stop-face, and to bear against the other side of said rail; and means, comprising a weighted arm, effective to normally and automatically swing said dog away from said stop-face and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; and a stop adjustably supported by the stanchions.

14. In a window-bracket, the combination of stanchions; frames secured to the top thereof; a stop-face carried by each frame and adapted to bear against one side of a mesh-rail; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the bottoms of said stanchions and comprising portions effective to engage the side and bottom of the lower rail of a mesh; and a portion effective to engage the stop on the lower portion of a window-frame.

15. In a window-bracket, the combination of stanchions; frames secured to the top thereof; a stop-face carried by each frame and adapted to bear against one side of a mesh-rail; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the bottoms of said stanchions and comprising portions effective to engage the side and bottom of the lower rail of a mesh; and a portion effective to engage the stop on the lower portion of a window-frame; and a stop carried by said stanchions.

16. In a window-bracket, the combination of stanchions; frames secured to the top thereof; an adjustable stop-face carried by each frame and adapted to bear against one side of the upper rail of a mesh; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means comprising a weighted arm effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the lower ends of each stanchion and comprising means for adjustably securing said bracket thereto, a portion effective to engage the side and bottom of the lower rail of a mesh, a portion effective to engage the stop on the lower portion of a window-frame, and a ledge effective to support the stanchions; and a stop carried by each stanchion.

17. In a window-bracket, the combination of stanchions; frames secured to the top thereof; an adjustable stop-face carried by each frame and adapted to bear against one side of the upper rail of a mesh; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means comprising a weighted arm effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the lower ends of each stanchion and comprising means for adjustably securing said bracket thereto, a portion effective to engage the side and bottom of the lower rail of a mesh, a portion effective to engage the stop on the lower portion of a window-frame and a ledge effective to support the stanchions; and a stop adjustably carried by each stanchion.

18. In a window-bracket, the combination of stanchions; frames secured to the top thereof; an adjustable stop-face carried by each frame and adapted to bear against one side of the upper rail of a mesh; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means comprising a weighted arm effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the lower ends of each stanchion and comprising means for adjustably securing said bracket thereto, a portion effective to engage the side and bottom of the lower rail of a mesh, a portion effective to engage the stop on the lower portion of a window-frame; and a stop carried by said stanchions on the side of the window-frame on which said stanchions are supported.

19. In a window-bracket, the combination of stanchions; frames se-

secured to the top thereof; an adjustable stop-face carried by each frame and adapted to bear against one side of the upper rail of a mesh; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means comprising a weighted arm effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the lower ends of each stanchion and comprising means for adjustably securing said bracket thereto, a portion effective to engage the side and bottom of the lower rail of a mesh, a portion effective to engage the stop on the lower portion of a window-frame; a stop carried by said stanchions on the side of the window-frame on which said stanchions are supported, and a swinging stop supported by said stanchions on the opposite side of the mesh.

20. In a window-bracket, the combination of stanchions; frames secured to the top thereof; an adjustable stop-face carried by each frame and adapted to bear against one side of the upper rail of a mesh; a dog pivoted to swing toward and from said stop-face and to bear against the other side of said rail; means comprising a weighted arm effective to normally and automatically swing said dog away from said stop-face, and upon the entry of the mesh-rail between said dog and stop-face to swing said dog toward said rail; brackets secured to the lower ends of each stanchion and comprising means for adjustably securing said bracket thereto, a portion effective to engage the side and bottom of the lower rail of a mesh, a portion effective to engage the stop on the lower portion of a window-frame; a stop carried by said stanchions on the side of the window-frame on which said stanchions are supported; and a pair of stops swingingly supported by said stanchions, one above said mesh and the other on the opposite side from said stanchions.

21. In a window-bracket, the combination with stanchions carrying a stop, of self-clamping means for supporting said stanchions on the mesh.

22. In a window-bracket, the combination with stanchions carrying stops, of self-clamping means for supporting said stanchions on the mesh, said means comprising a stop-face carried by a frame and adapted to bear against one side of the top rail; a dog pivoted to swing from said stop-face and to automatically clamp against the other side of said top rail, and means bearing on the side and under side of the lower rail of the mesh.

23. In a window-bracket, the combination with stanchions carrying stops, of self-clamping means for supporting said stanchions on the mesh, said means comprising a stop-face carried by a frame and adapted to bear against one side of the top rail; a dog pivoted to swing from said stop-face and to automatically clamp against the other side of said top rail, and means bearing on the side and under side of the lower rail of the mesh.

24. In a window-bracket, the combination of stanchions carrying a stop; means for supporting said stanchions upon the upper rail of a window-frame; means for supporting the lower portion of said stanchions and comprising a bracket embodying a portion effective to engage the side and bottom of the lower rail of a window-frame, and a portion effective to engage the stop on the lower portion of a window-frame.

25. In a window-bracket, the combination of stanchions carrying a stop; means for supporting said stanchions upon the upper rail of a window-frame; means for supporting the lower portion of said stanchions and comprising a bracket embodying a portion effective to engage the side and bottom of the lower rail of a window-frame and a portion effective to engage the stop on the lower portion of a window-frame; and a ledge effective to support the stanchions.

26. A bracket comprising a clamp for securing the same to a stanchion; portions to engage the side and bottom of the lower rail of a window-frame; and a portion to engage the stop on the lower portion of a window-frame.

27. A bracket comprising a clamp for securing the same to a stanchion; portions to engage the side and bottom of the lower rail of a window-frame; a portion to engage the stop on the lower portion of a window-frame; and a ledge to support said stanchion.

28. In a window-bracket, the combination of a stanchion; means for clamping said stanchion upon the upper rail of a window-frame, and means for engaging the lower portion of the mesh, the organization being such that the engagement with the lower portion of the mesh is effective to maintain the clamping device in engagement with the upper rail.

29. In a window attachment the combination of a stanchion, means at the upper end to catch the upper rail of a window, means for supporting a lower portion of said stanchion comprising a bracket and body, and a portion effective to engage the mesh bracket to the lower rail of the mesh.

30. The combination with upright stanchions adapted to be supported upon window-frame, of automatic means for engaging and clamping the upper ends of said stanchions to the top rail of the mesh, and means for supporting the lower portion of said stanchions upon the mesh.

31. In a window-bracket, the combination with an upright stanchion, of means carried by the lower portion of said stanchion for engaging the window-frame on the under side of the lower rail of the mesh, means for automatically engaging and clamping upon the upper rail of said mesh and

effective to support the upper end of said stanchion, said means being adjustable upon the stanchion.

32. A window-bracket comprising a stop, supporting means for said stop, means for engaging and clamping the same automatically to the upper rail of a mesh, and means for maintaining the same adjacent to the lower rail thereof.

33. In a bracket the combination of a stanchion supporting means for the upper end of said stanchion embodying an automatic clamp for engaging the rail, means for supporting the lower portion of said stanchion and embodying a bracket effective when in position to secure and lock the clamping means.

34. A window attachment comprising a supporting means having an automatic clamp to catch over the upper rail of a window-frame; means for maintaining the supporting means adjacent to the lower rail thereof; and a stop carried by the supporting means.

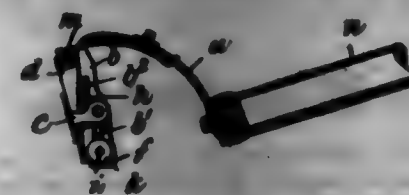
35. A window attachment comprising a supporting means having an automatic clamp to catch over the upper rail of a window-frame, and means to catch the under side of the lower rail thereof, and a pair of stops carried by the supporting means.

36. A window attachment comprising a supporting means; means for catching the same upon the upper rail of a mesh; means for catching the same upon the lower rail thereof; and a swinging stop carried by the supporting means.

37. A window attachment, comprising a supporting means; means for catching it upon the upper rail of a mesh; means for catching the lower rail thereof for maintaining the same adjacent to the mesh and for maintaining the device upon the side of the mesh upon which said supporting means is located, and one of which stops swings from each support side of the mesh to the side of the mesh remote therefrom.

38. A window-bracket embodying means effective to engage the top rail of a mesh; means adapted to slide under and engage the lower rail thereof and thereby effective to lock the top-rail-engaging means upon the mesh; and means effective to hold the lower-rail-engaging means in place.

698,768. SAFETY-CLAMP. JAMES TUCKER, Worcester, Mass. Filed Feb. 27, 1902. Serial No. 25,908. (No model.)



Claim.—In a safety-clamp, the combination with a frame, as a, provided with arms, as b, having slots b' and b'', of a mesh or guard c provided with ears f, and arms g, the latter having outwardly bent legs h to enter the slots b' and b'', and extend over i passing through the slots b' and b'' and tapped in the mesh c.

698,764. FRUSTRING-SAW. GEORGE E. TYLER, Panama, Cal. Filed Aug. 13, 1901. Serial No. 71,908. (No model.)



Claim.—1. A pruning-saw comprising a handle having its head and grip slotted, reinforcing-plates secured on each side of the slotted portion of the handle and under the butt thereof, a reinforcing-plate secured to the head and having its front portion slotted and its upper portion undotted to constitute a stop, and a saw pivotally mounted between the slotted portion of the head and engaging the stop when in operative position,

the saw being designed to close in between the slotted portion of the grip to permit of the implement being carried on the person of the user, substantially as described.

2. A pruning-saw comprising a curved handle having its head and grip slotted, reinforcing-plates secured on each side of the slotted portion of the handle and under the butt thereof, a reinforcing-plate secured to the head and having its front portion slotted and its upper portion undotted to constitute a stop, and a curved saw pivotally mounted between the slotted portion of the head and engaging the stop when in operative position, the saw being designed to close in between the slotted portion of the grip, substantially as described.

698,765. PIPE-WRENCH. ALFRED WUNDERMAN, St. City, Pa. Assignor to GE. Wolf Supply Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Feb. 5, 1902. Serial No. 25,909. (No model.)

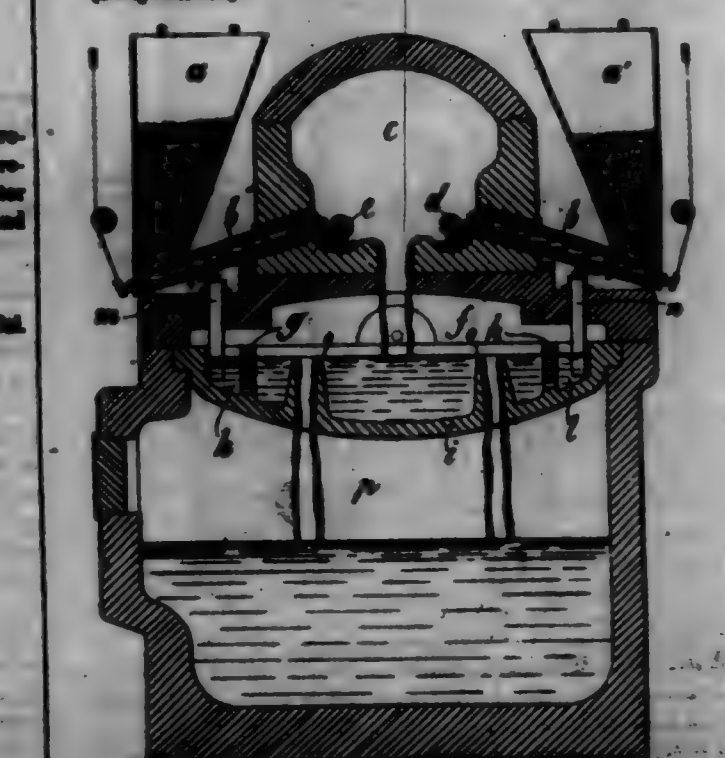


Claim.—1. A pipe-tongs jaw having a bit or die-block pocket, constructed to substantially surround the bit or die-block, and a spring-detent arranged at the mouth of said pocket, substantially as and for the purposes specified.

2. A pipe-tongs jaw having a bit or die-block pocket constructed to substantially surround the bit or die-block, and a leaf-spring detent or keeper arranged at the mouth of said pocket, substantially as specified.

3. A pipe-tongs jaw having a bit or die-block pocket, a leaf-spring detent or keeper arranged at the mouth of said pocket, and a clearance-slot which communicates with the mouth of the leaf-spring detent, substantially as and for the purposes specified.

698,766. PROCESS OF MANUFACTURING GLASS. ALFRED VOLLMER, Brunswick, Germany. Filed Sept. 27, 1900. Serial No. 21,211. (No specimens.)



Claim.—A process of manufacturing glass by electrical heating which consists in first melting the raw materials in the electric arc and then passing on electric current through the crude molten glass each current being sufficiently strong to heat the molten glass to a temperature at which entrapped gas-bubbles can readily escape from it, substantially as described.

698,767. GUM-MAKING MACHINE. GEORGE E. WILSON, and EDWARD J. BARNES, Chicago, Ill. Filed Dec. 5, 1901. Serial No. 84,798. (No model.)

Claim.—In a gum-making machine in combination, a cylindrical casing in open communication with a hopper, a die attached to the outlet of

angle to the slots when the parts are in operative position and adapted to be brought in alignment with the slots to assemble the parts, and means for actuating the movable member, substantially as described.

3. A snap-ringer comprising stationary and movable members, a shaft journaled on one of the members, parallel flanges mounted on the other member, one of the flanges being provided with a bearing-opening and the other flange having a bearing-socket, an arm having pivots arranged in the bearing-opening and in the bearing-socket, said arm projecting between the flanges when the parts are in operative position, and having a cut-away portion adapted to be arranged adjacent to the flange having the bearing-socket, whereby the parts may be readily assembled, and means for connecting the arm with the shaft, substantially as described.

4. A snap-ringer comprising stationary and movable members hinged together, the movable member being provided at opposite sides with parallel flanges arranged in pairs, one of the flanges being provided with an opening and the other having a bearing-socket, ball-crank arms provided with oppositely-disposed pivots arranged in the openings and sockets of the flanges, a rock-shaft journaled on the stationary member, and links connecting the ball-crank arms with the rock-shaft, substantially as described.

698,774. MATCH-SAFE. STEPHEN L. WHITEHEAD, Boston, Va. Filed Jan. 27, 1902. Serial No. 91,404. (No model.)

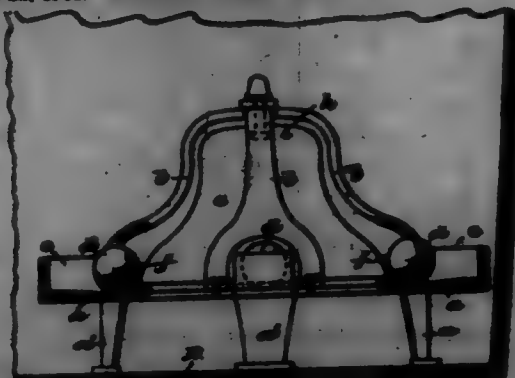


Claim.—1. In a match-safe having an inclined chute, a curved pick-up and delivery-arm, a lever for operating said arm, and a detacher located in the path of the free end of the said arm, substantially as set forth.

2. In a match-safe, a spring pivoted arm for picking up and delivering the matches, a detacher located in the path of the free end of the said arm, and means for operating the arm, substantially as specified.

3. In a match-safe having a delivery-slot, an inclined chute, a detacher, and a pivoted spring-arm having a coil intermediate of its ends and adapted to pick up a match and deliver the same upon the inclined chute, substantially as set forth.

698,775. AUTOMOBILE LOW-WATER ALARM FOR AUTOMOBILES. TANKER GEORGE R. WHITNEY, Boston, Mass., assignor to Whitney Motor Wagon Company, Elkhart, Ind., a Corporation of Indiana. Filed June 22, 1901. Serial No. 65,576. (No model.)



Claim.—1. In a motor-vehicle a low-water audible-alarm device arranged within a water vessel.

2. In a motor-vehicle a low-water audible-alarm device contained in the water-tank thereof and normally, wholly or partially submerged in the water contained in said water-tank.

3. A low-water alarm for motor-vehicles consisting of a sounding member normally submerged in the water and means to strike the same.

4. In a motor-vehicle, a low-water alarm consisting of a continuously-operating alarm device arranged within the tank, the contained water when partially or wholly submerging the said device operating to prevent its audible sounding.

5. In a motor-vehicle a low-water alarm device consisting of a bell, gong or other vibratory member and one or more gravity-actuated switches therefor, the whole being partially or wholly submerged within the water-tank.

6. A low-water alarm for motor-vehicles comprising a bell, gong or other vibratory member and one or more rolling strikers all arranged within the water-tank and to be partially or wholly submerged in the water therein.

7. In a motor-vehicle an audible low-water alarm consisting of a submerged bell, gong or other vibratory member, one or more strikers therefor, and resilient holders interposed between said strikers and said bell, gong or member and normally holding said strikers out of operative contact therewith.

8. In a motor-vehicle an audible low-water alarm consisting of a submerged bell, gong or other vibratory member, one or more strikers therefor, and means to hold the said strikers out of contact with the said bell, gong or member, the said strikers in their striking movements overcoming said holding means temporarily in delivering the blow upon the bell.

9. In a motor-vehicle an audible low-water alarm device containing a submerged bell, gong or other cup-shaped member having its crown upturned, with means to permit the escape of air from within the same.

10. In a motor-vehicle an audible low-water alarm device containing a submerged bell, gong or other cup-shaped member, the same being perforated to permit escape of contained air.

698,776. FRUIT BOX OR BASKET. GEORGE R. WHITNEY, Toronto, Canada. Filed Dec. 11, 1901. Serial No. 85,682. (No model.)

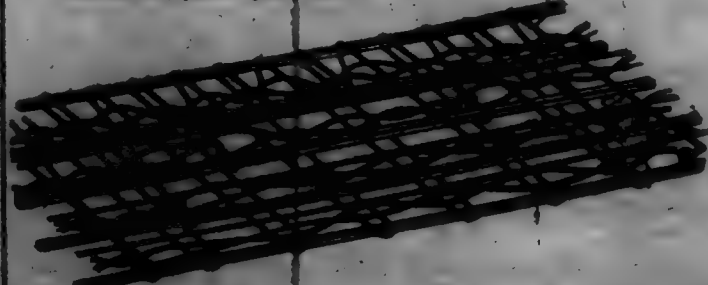


Claim.—1. A fruit-box comprising the bottom and two opposite sides having central vertical slots and the two remaining sides having tongues narrowed at the outer end and provided with hooks designed to be inserted through the slots, so as to hold the sides in a substantially upright position and form pockets on the outside one on each side of the slots and an independent cover provided with end flaps and side depending tongues fitting into said pockets on each side of the slots as and for the purpose specified.

2. In an article such as described, the combination with the basket and the cover thereof and the narrow ball having wide flattened ends, of one formed with a narrow central opening and centrally secured to the tops of the sides and provided with depending portions, said depending portions being designed to be bent inward to hold said ball in position, substantially as described.

3. A fruit-box comprising the bottom and two opposite sides having central vertical slots and the two remaining sides having tongues narrowed at the outer end and provided with hooks designed to be inserted through the slots, so as to hold the sides in a substantially upright position and the one formed with a central opening and suitably secured to the tops of the sides and provided with depending portions and the ball extending through the openings in the sides and provided with flattened ends designed to be held in position by each depending portion as and for the purpose specified.

698,777. WOVEN ELASTIC FABRIC AND METHOD OF MAKING SAME. ALFRED H. EDELMAN, Boston, Mass. Filed July 1, 1901. Serial No. 66,005. (No model.)



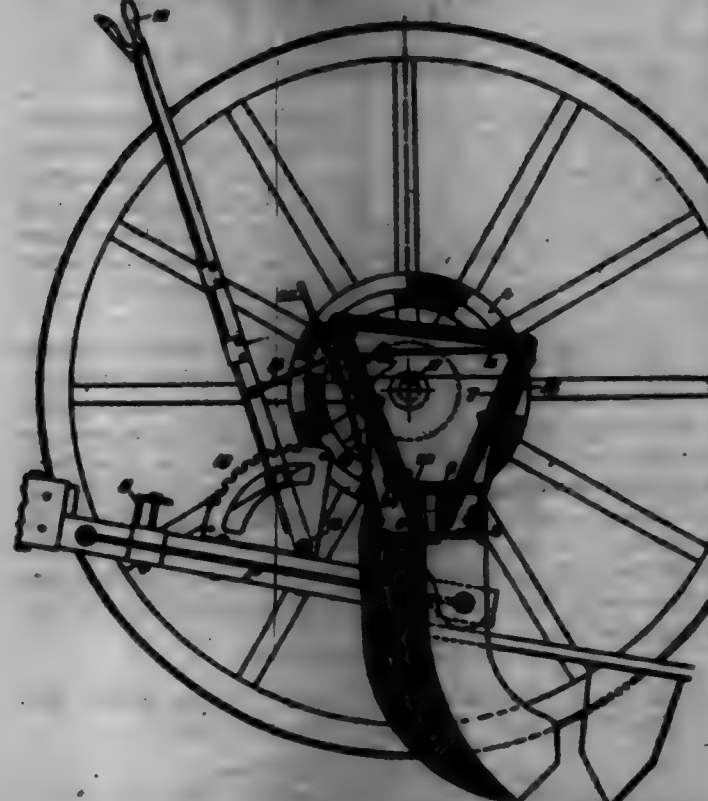
Claim.—1. An elastic fabric presenting at intervals straight parallel selvages, and at intervals cleaved and concaved selvages, to thereby prevent cracks in the fabric.

2. An elastic fabric composed of elastic warp, a binder-warp, and filling, the filling at predetermined points in the weaving extending lat-

partially through the fabric in the direction of its width to thereby provide for a wrack in the fabric when the elastic warp is released from tension.

3. The herein described method of weaving elastic fabric which consists in stretching the elastic warp, forming sheds in the binder-warp between said elastic warp, and inserting the filling at intervals through the sheds of a portion only of the binder-warp-thread, returning the filling about elastic warp-threads intermediate the warp-threads constituting the selvages of the fabric, the contraction of the elastic warp causing that edge of the fabric through which the filling does not extend to the selvage-warp, to present a concaved appearance.

698,778. SHEDDING AND FLANNING MACHINES. BENJAMIN B. BISHOPMAN, Buenos Ayres, Argentina. Filed May 4, 1901. Serial No. 66,764. (No model.)

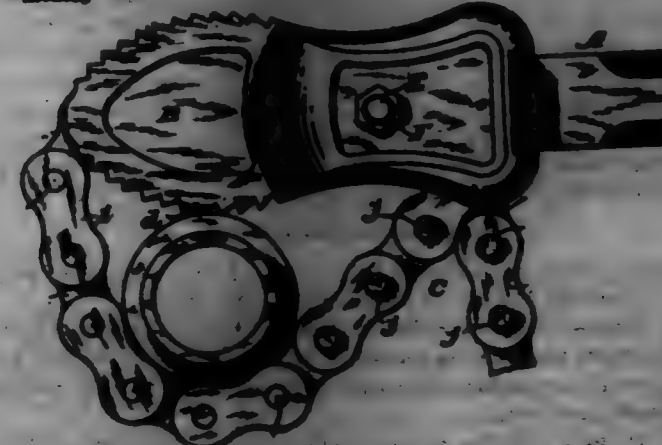


Claim.—1. In combination, the draft-beam, a member pivoted thereto, shown rigidly connected to the member to tilt therewith and means for tilting the member in relation to the beam, substantially as described.

2. In combination, the draft-beam, a member pivoted thereto, shown rigidly connected to the member to tilt therewith and means for tilting the member in relation to the beam, said means comprising a lever pivoted to the beam, a segment on the beam for holding the lever in any desired position, and a strap connecting the lever with the member, substantially as described.

3. In combination, a member, a feed-slide therein, a block carried by said feed-slide and adjustable from the upper to the lower side thereof, said block being also adjusted in a direction longitudinally of the slide and a wheel carrying two rows of teeth, said teeth operating transversely of the end of the feed-slide and being located at the end of the member, substantially as described.

698,779. CHAIN WRENCH. GEORGE ANDERSON, JR., Brooklyn, N. Y., assignor to J. E. Williams and Company, Brooklyn, N. Y., a Corporation of New York. Filed July 22, 1901. Serial No. 66,514. (No model.)



Claim.—1. A chain wrench having, in combination, a handle with chain-carrying recesses in the opposite faces; a head with opposite grip-faces in line with the faces of the handle, said head being composed of two like sections which at their bases embrace the end of said handle at the sides, said head-sections being recessed and shouldered on their facing surfaces to fit the end of the handle, the outer ends of said head-sections meeting beyond the end of the handle so as to provide substantially continuous gripping-surfaces on each face; means for securing the head-sections to the handle; a chain pivotally connected near their common apex with pin-receiving recesses closed at their ends but communicating with an open-mouthed slot extending to the apex of the head; means for securing the head-sections to the handle; a pivot-pin located in said pin-receiving recesses, and retained in place by the assembly of the head-sections to the handle; a screwable flat chain pivotally connected to the said pivot-pin and symmetrically disposed with reference to a longitudinal plane extending medially through the handle and the grip-faces, said chain having laterally-projecting locking-pieces; and locking provisions on said head-sections near the base thereof and on both faces of the wrench, said locking provisions cooperating with said chain-studs, and being constructed so as to prevent the chain becoming accidentally detached when in use.

2. A chain wrench having, in combination, a handle; a head with opposite grip-faces, said head being composed of two sections which at their bases embrace the end of said handle at the sides, the outer ends of said head-sections meeting beyond the end of the handle so as to provide substantially continuous gripping-surfaces on each face; means for securing the head-sections to the handle; a chain pivotally connected at the apex of said head; and locking provisions for said chain near the base of said head.

3. A chain wrench having, in combination, a handle; a head composed of two sections which at their bases embrace the end of said handle at the sides, the outer ends of said head-sections meeting beyond the end of the handle, and said sections being formed near their common apex with pin-receiving recesses closed at their ends but communicating with an open-mouthed slot extending to the apex of the head; means for securing the head-sections to the handle; a pivot-pin located in said pin-receiving recesses, and retained in place by the assembly of the head-sections to the handle; a chain pivotally connected to the said pivot-pin; and locking provisions for said chain near the base of said head.

4. A chain wrench having, in combination, a handle; a head composed of two sections which at their bases embrace the end of said handle at the sides, the outer ends of said head-sections meeting beyond the end of the handle, and said sections being formed near their common apex with pin-receiving recesses closed at their ends but communicating with an open-mouthed slot extending to the apex of the head; means for securing the head-sections to the handle; a pivot-pin located in said pin-receiving recesses, and retained in place by the assembly of the head-sections to the handle; a chain pivotally connected to the said pivot-pin; and locking provisions for said chain near the base of said head.

5. A chain wrench having, in combination, a handle; a head with opposite grip-faces in line with faces of the handle, said head being composed of two sections which at their bases embrace the end of said handle at the sides, said head-sections being recessed and shouldered on their facing surfaces to fit the end of the handle, the outer ends of said head-sections meeting beyond the end of the handle so as to provide substantially continuous gripping-surfaces on each face; means for securing the head-sections to the handle; a pivotally-connected chain; and locking provisions for the chain.

6. A chain wrench having, in combination, a handle; a head composed of two sections which at their bases embrace the end of said handle at the sides, the outer ends of said head-sections meeting beyond the end of the handle; means for securing the head-sections to the handle; a pivotally-connected chain; and locking provisions for said chain.

7. A chain wrench having, in combination, a handle; a head with opposite grip-faces extending across the plane of the handle, each grip-face extending on both sides of a plane passing centrally and longitudinally through the handle, said head comprising a section which at its base ends upon the end of said handle at its side, the outer end of said head-section extending beyond the end of and in line with the handle; means for securing the head to the handle; a pivotally-connected chain opposed in said head and having, when in use, a fixed definite pivotal point; and locking provisions for said chain.

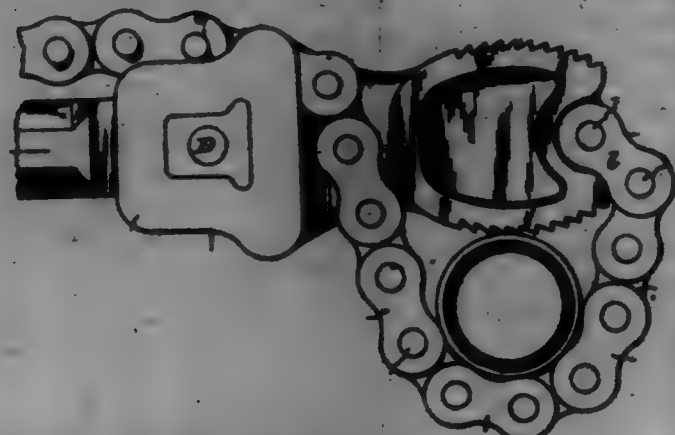
8. A convertible chain wrench having, in combination, a handle, a two-part detachable united head with opposite grip-faces extending across the plane of the handle, means for securing said head to said handle, and a chain, said head being constructed with pin-receiving recesses near its apex and also near its base, adapted to receive and maintain in fixed definite position a pivot-pin for the attachment of the chain, said recesses being accessible for the reception of the pivot-pin and the chain when the head-sections are detached from the handle, and said pivot-pin and chain being retained in place by the assembly of the handle and head.

sections, and said chain and head being opposed to each other so that when in use they embrace squarely between them the article to be turned.

9. A convertible chain wrench having, in combination, a handle, a control head with opposite grip-faces extending across the plane of the handle and a chain, said wrench being constructed with means near the open end and also near the base of the head to receive and retain in fixed definite position a pivot-pin for the attachment of the chain, said chain and head being opposed to each other so that when in use they embrace squarely between them the article to be turned.

10. A chain wrench having, in combination, a handle, a head, locking provisions on opposite faces of the wrench, and a reversible chain, adapted to engage with the locking provision on either face, said chain being pivotally connected to the head so as to swing over the head in both directions by means of a pivot having a fixed definite constant location at one side of a longitudinal plane passing through the apex of the head and midway between the said locking provisions on opposite faces of the wrench, whereby fine adjustment of the chain is opened.

698,780. CHAIN PIPE-WRENCH. GEORGE ANDERSON, JR., Brooklyn, N. Y., assignor to J. H. Williams and Company, Brooklyn, N. Y., a Corporation of New York. Filed July 27, 1901. Serial No. 68,910. (No model.)



Claim.—1. A chain pipe-wrench having a handle, a head, the head and the handle being so related to each other as to leave an open-sided chain-receiving passage between said head and handle, a chain attached to the head and adapted to be passed through said passage, and locks behind said passage to engage said chain.

2. A chain pipe-wrench having, in combination, a handle, a head, a chain-receiving passage, a chain pivotally connected to the head at or near its apex and adapted to be passed through said passage, and locks to engage said chain behind said passage.

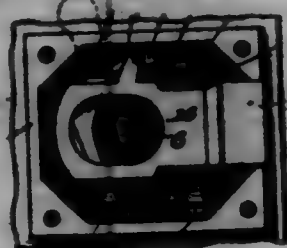
3. A chain pipe-wrench having, in combination, a handle, a head secured to one side of said handle and having opposite grip-faces substantially in line with the faces of the handle, said head extending beyond the end of the handle so as to provide an open-sided chain-receiving passage, locks on both faces of the wrench behind said passage, and a reversible flat chain pivotally connected to the head at or near the apex and adapted to be passed through said passage in either direction and locked by one end of said chain, or to be locked on either face of the wrench without being passed through said passage.

4. A chain pipe-wrench having, in combination, a handle, a head secured to one side of said handle and having opposite grip-faces substantially in line with the faces of the handle, said head extending beyond the end of the handle so as to provide an open-sided chain-receiving passage, locks on both faces of the wrench, and a reversible flat chain pivotally connected to the head at or near the apex and adapted to be passed through said passage in either direction and locked by one end of said chain, or to be locked on either face of the wrench without being passed through said passage.

5. A chain pipe-wrench having, in combination, a handle, a head secured to one side of said handle and having opposite grip-faces substantially in line with the faces of the handle, said head extending beyond the end of the handle so as to provide an open-sided chain-receiving passage, locks on both faces of the wrench, and a reversible chain pivotally connected to the head at or near the apex and adapted to be passed through said passage in either direction and locked by one end of said chain, or to be locked on either face of the wrench without being passed through said passage.

698,781. PERMUTATION-LOCK. JOHN W. ANDERSON and GEORGE H. ANDERSON, Weymouth, Pa., assignors to the Kayless Lock Company, Lehigh, Pa., a Corporation of Delaware. Filed Apr. 8, 1901. Serial No. 68,101. (No model.)

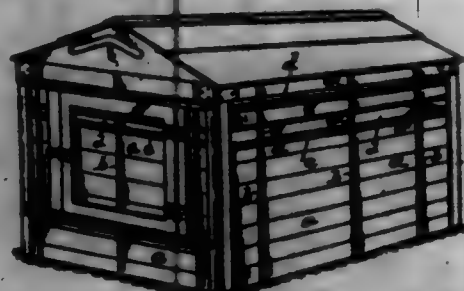
Claim.—1. In a permutation-lock, the combination with a suitable lock-case; a spindle mounted therein; a reciprocating bolt provided with a yoke-shaped slot through which the spindle projects; a bifurcated plate straddling the spindle and adapted to engage the bolt; a face on said plate, a flange projecting laterally from one arm of the plate to engage a projection of the casing, a plurality of notched disk-shaped tumblers on the spindle designed to engage the face when the notches align; and means carried by the spindle for retracting said bolt when the combination is moved.



2. In a permutation-lock, the combination with a case; of a spindle mounted therein; a plurality of notched tumblers mounted on said spindle and adapted to align with each other; a sliding bolt in the case having a slot through which a spindle projects; a laterally-projecting arm on said bolt; a bifurcated plate straddling the spindle; a leg or projection on said plate for engagement with the arm; a face carried by the plate and adapted to engage the notches in the tumblers whereby the bolt can be retracted by a partial rotation of said tumblers.

3. In a permutation-lock, the combination with a case; of a spindle mounted therein; a plurality of notched tumblers mounted on said spindle and adapted to align with each other; a sliding bolt in the case having a slot through which a spindle projects; a laterally-projecting arm on said bolt; a bifurcated plate straddling the spindle; a leg or projection on said plate for engagement with the arm; a face carried by the plate; and adapted to engage the notches in the tumblers whereby the bolt can be retracted by a partial rotation of said tumblers; and means for withdrawing said lever from engagement with the notches comprising a laterally-projecting foot on the plate and a pin projecting from the casing to engage said foot.

698,782. ANIMAL CRATE. RICHARD E. BAKER, Detroit, Mich. Filed May 18, 1900. Serial No. 717,342. (No model.)



Claim.—1. An article of manufacture, comprising an animal-crate having a wall of horizontal slats placed edge to edge forming a solid bottom, or lower portion of said wall, but spaced at the top to form horizontal ventilating openings, straight transverse wires passing the exterior of said slats, metal guards embracing the edges and extending into the sides of the slats bordering said ventilating openings, binding-wires embracing said slats and wound around said transverse wires between the spaced slats so as to become interposed between the metal guards for confining said guards to said slats and maintaining the slats properly spaced.

2. An article of manufacture comprising an animal-crate, having a wall of slats placed edge to edge to form a solid portion at the bottom of said wall but spaced at the top of the wall to form ventilating openings, transverse struts crossing said slats, metal guards embracing the edges and extending into the sides of the slats bordering the ventilating openings, binding-strands embracing said slats and said metal guards to bind them together, spacing members interposed between the metal guards at the ventilating openings to confine the guards in position and to properly space the slats to form said openings.

698,783. CULTIVATOR. JOHN R. BALDWIN, Detroit, Mich. Filed Feb. 26, 1901. Serial No. 68,004. (No model.)

Claim.—1. In a cultivator, the combination of the main frame, rocking supports therefor at the rear and forward portions thereof respectively, and means for simultaneously rocking said supports to vary the position of the frame thereon.

2. In a cultivator, the combination with the main frame, of the

rocked axle pivoted to the rear thereof, the plow and the beams therefor, a rocking support for the forward frame and extending from the latter to the plow-beams and movable in unison with the rocked axle, and means for shifting the frame.

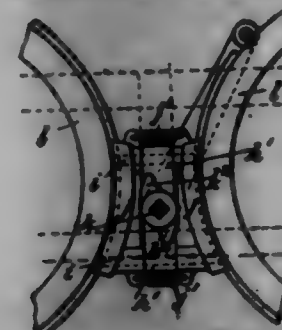


3. In a cultivator, the combination with the main frame, of the rocked axle pivoted to the rear thereof, the plow and plow-beams, an arched supporting-frame pivoted to the forward frame and end to the forward ends of the beams, and means for rocking the axle and arched frame simultaneously.

4. In a cultivator, the combination with the frame, of the wheeled axle pivoted thereto, an arched lever fixedly secured to the axle, means for locking said lever in different positions of adjustment, the plow, and connections between said plow and the lever.

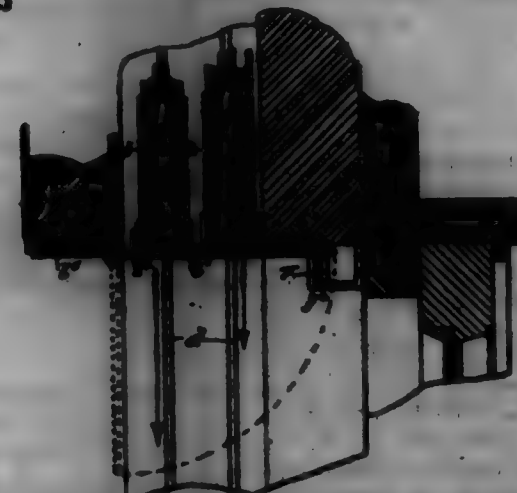
5. In a cultivator, the combination with the frame, of the wheeled axle pivoted thereto, an arched lever fixedly secured at its ends to the axle, gear-segments secured to said lever, labels carried by the standard adapted to engage the segments, the plow, and links connecting the plow and standards.

698,784. CAR-BRAKE. ARTHUR BALON, Elizabeth, N. J. Filed Nov. 1, 1901. Serial No. 68,781. (No model.)



Claim.—A car-brake provided with a bearing, an upper and a lower pin received thereby and projecting with their ends beyond the bearing, spring-influenced perforated brake-choes adapted to slide upon the projecting ends of the pins, and an eccentric that engages the brake-choes intermediate the pins, substantially as specified.

698,785. AUTOMATIC FIREPROOF DOOR. DR. CHARLES A. BALDWIN, Montreal, Canada. Filed June 28, 1901. Serial No. 68,000. (No model.)



Claim.—1. In an automatic fireproof door, the combination with a frame having two independent sets of guide-grooves, of a plurality of door-sections slidably mounted in each of said sets of guide-grooves, a plate mounted upon the lower edge of each of the inner door-sections, each of said plates overlapping the lower edge of the adjacent outer door-section, a locking-bolt secured to each of the innermost door-sections and projecting inwardly therefrom, a bracket mounted upon a

substantially portion of the framework and adapted to receive each of the said locking-bolts, and a face mounted in said bracket and adapted to retain the locking-bolts in their normal position, substantially as shown and described.

2. In an automatic fireproof closing device, the combination with a frame, door-sections slidably mounted in said frame, a flange plate, and a hinged lever having its end supported by said flange plate and adapted to retain the said door-sections in their raised position, whereby the raising of the said plate will release said door-sections, substantially as shown and described.

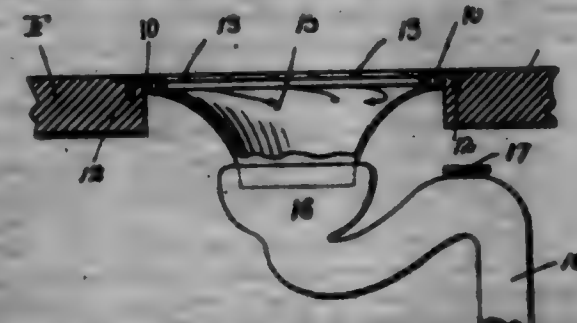
3. In an automatic fireproof closing device the combination with a window frame and sashes, of an auxiliary frame applied to said window-frame, door-sections slidably mounted in said auxiliary frame, a flange plate, and a hinged lever having its end supported by said flange plate and adapted to retain the said door-sections in their raised position, whereby the raising of the said plate will release said door-sections and form a dead-air chamber between said door-sections and said window-sashes, substantially as shown and described.

4. In an automatic fireproof closing device, the combination with a frame provided with suitable guide-grooves, door-sections slidably mounted in said frame, a plate adjustably mounted upon each of said door-sections, and a projecting leg integral with said plate and adapted to engage and slide in said guide-grooves, substantially as shown and described.

5. In an automatic fireproof closing device, the combination with a frame provided with suitable guide-grooves, door-sections slidably mounted in said frame, a plate adjustably mounted upon each of said sections, a projecting hollow leg integral with said plate and adapted to engage and slide in said guide-grooves, and friction-rollers mounted in said leg, substantially as shown and described.

6. In an automatic fireproof closing device, the combination with a frame, of a door-section slidably mounted in said frame, having a groove in its upper edge, a perforated plate removably clamped upon the upper edge of said door-section and over said groove, a wire rope having its lower end passed through the perforation in said plate and clamped with in said groove, substantially as shown and described.

698,786. SANITARY SPUTTOOK. HAROLD J. BRADSHAW and HAROLD J. TRIMMER, Worcester, Mass.; said Bradshaw assignor to said Trimmer. Filed Aug. 8, 1901. Serial No. 71,308. (No model.)



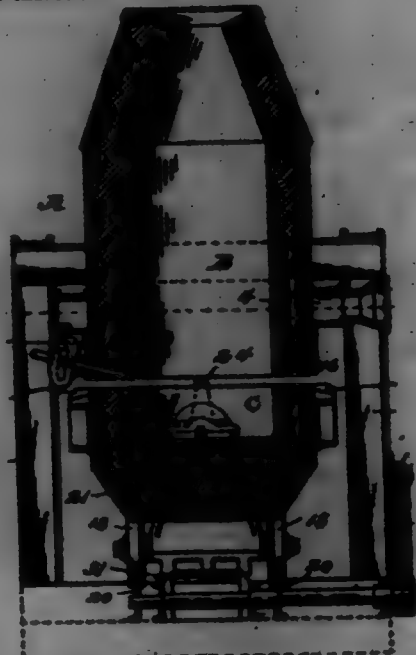
Claim.—1. As an article of manufacture, a sputtook comprising a floor-plate having an annular distributing-groove on its under side, a water-pipe connected substantially tangentially to the distributing-groove, and a sheet-metal body portion secured to the floor-plate so as to have a narrow discharge-opening between the sheet-metal body portion and the inner edge of the distributing-groove, whereby a spiral discharge of water will be caused over the entire inner surface of the body portion from its upper edge downward.

2. As an article of manufacture, a sputtook comprising a floor-plate 10 adapted to be set into and covered by a grate 12 in place in a floor, and having a supporting-ledge 11 for detachably receiving a grating 13, and having on its under side an annular distributing-groove, a supply-pipe 14 connected to the distributing-groove, and a sheet-metal body portion secured to the floor-plate so as to have a narrow discharge-opening between the body portion and the inner edge of the distributing-groove, so that the entire inner surface of the body portion from its upper edge down will be flushed by the discharge of water from the distributing-groove, and a fitting 16 connected with the lower end of the body portion, and having a return-bend forming a trap, substantially as described.

698,787. WHEEL-CONVERTER. SAMUEL K. SUMMERS, Washington, D. C., assignor to Howard Evans, Philadelphia, Pa. Filed July 31, 1900. Serial No. 55,694. (No model.)

Claim.—1. A converter comprising a stationary shaft, and a movable ball, the ball adapted to enclose the shaft, and the shaft having a series of tryons extending around it, their lower ends extend-

ing no lower than the upper end of the ladle whereby the blast of air issuing from the tuyere is directed upon the surface of the metal and toward the center thereof.



2. A converter comprising a stack and ladle, one stationary and the other movable, the ladle adapted to contain the molten metal and the stack having a plurality of tuyeres therein which extend around it at a point at or near its lower end and no lower than the upper edge of the ladle, said tuyeres vertically adjustable and constructed and adapted to be locked in any of their various adjustments.

3. A converter comprising a stack and ladle, one of which is movable with respect to the other, the stack having tuyeres located at its lower end, which tuyeres extend around the converter and are locked so lower than the upper edge of the ladle, said tuyeres being movable at their outer ends from their inner ends as centers and provided with means for locking them in the different adjustments.

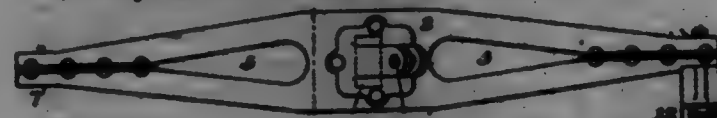
4. A converter comprising a stack and ladle, one being stationary and the other movable, the ladle adapted to contain molten metal and the stack having a series of tuyeres extending entirely around it at a point at or near its lower end, the stack also provided at its lower end with openings for the removal of slag therefrom, the inner ends of the tuyeres and the slag-openings being in approximately the same horizontal plane.

5. A converter comprising a stack and ladle detachably connected together, a wind-supply and a series of tuyeres in communication with said wind-supply and extending around the converter with their discharge ends at a level approximately coincident with the joint formed between the stack and ladle.

6. The combination with the stack, of a truck carrying a ladle which latter forms the complement of the stack when in contact therewith, the truck having a centrally-located socket on its lower surface, a block below the socket, said block having curved ways on its lower lateral surfaces, a shaft having a cone, said cone carrying antifriction-rollers adapted to turn in contact with the curved ways on said block, a worm-engagement on the shaft and a worm engaging said segment for rotating the shaft whereby to raise or lower the ladle of the converter.

7. The combination with the stack of a converter, of a truck having a ladle thereon, the truck having a centrally-located socket on its lower surface, a vertically-sliding block centrally located beneath the truck and in alignment with the socket when the truck is in position to be raised and lowered, and a rock-shaft having cone mechanism thereon constructed and adapted to raise and lower the block whereby to control the position of the truck.

698,788. BRAKE-BEAM. ARTHUR B. BELLON, Pittsburgh, Pa. Filed Sept. 27, 1901. Serial No. 76,702. (No model.)



Claim.—1. A brake-beam consisting of a flanged shape having parts of its web cut and bent outwardly to form flanges; substantially as described.

2. A brake-beam consisting of a rolled channel having openings cut between the center and its ends, and web portions cut and bent outwardly between the openings and the ends, the outwardly-bent portions forming flanges which are riveted together in pairs; substantially as described.

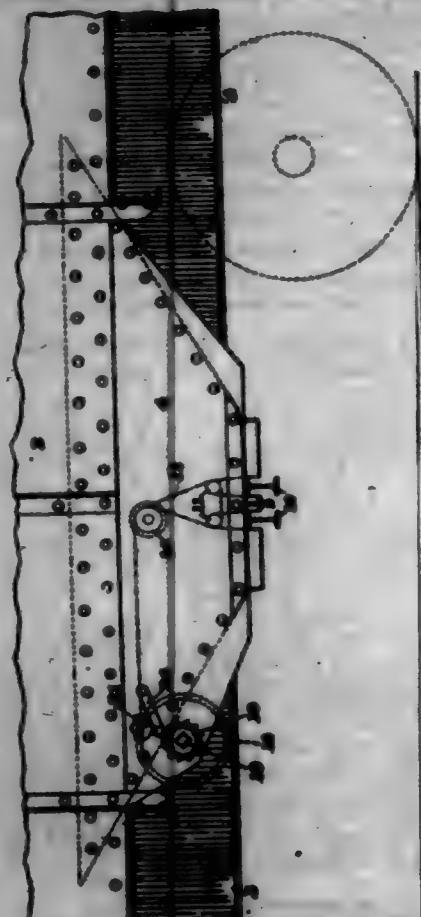
3. A channel-section having openings formed at each side of the center and web portions cut and bent in a direction opposite to the channel-flanges, forming flanges which are riveted together; substantially as described.

4. A brake-beam formed of a rolled section, the central portion being of the original width of the rolled section and containing a slot or hole, the ends of the beam being made narrower than the original width of the section, and a brake-rod, fulcrum or support arranged to receive a lever-bar extending through said hole; substantially as described.

5. A channel having intermediate parts of its web bent outwardly in a direction opposite to that of the channel-flanges, said bent portions being riveted together; substantially as described.

6. A brake-beam consisting of a channel having openings on opposite sides in its web, and web portions between said openings and its ends which are bent outwardly in a direction opposite to that of the channel-flanges, and brake-rod carriers secured by bolts extending through the channel-flanges; substantially as described.

698,789. CAR-DOOR MECHANISM. ARTHUR B. BELLON, Pittsburgh, Pa. Filed Dec. 28, 1901. Serial No. 80,022. (No model.)



Claim.—1. The combination with a car, having a longitudinal center rail, of twin doors arranged in pairs on each side of the rail and arranged to swing downwardly and outwardly, guides for the doors, a flexible loop extending between the guides, and a connection for raising and lowering the loop; substantially as described.

2. A car having two pairs of doors arranged on each side of the longitudinal rail, connecting bars or beams secured to corresponding doors of each pair, guides secured to the connecting-bars between the flange of the center rail, and an equalizing flexible loop extending through the guides; substantially as described.

3. A car having a pair of doors, upwardly-projecting guides symmetrically arranged on said doors, a chain loop having its opposite legs extending through said guides, and a flexible connection leading from the loop to a winding-drum; substantially as described.

698,790. LINING FOR BARRELS OR SIMILAR RECEPTACLES. FRANK L. BLANCHARD, New York, N. Y., assignor to the Arrol Safety Bag Company, New York, N. Y., a Corporation of New York. Filed June 12, 1902. Serial No. 20,897. (No model.)

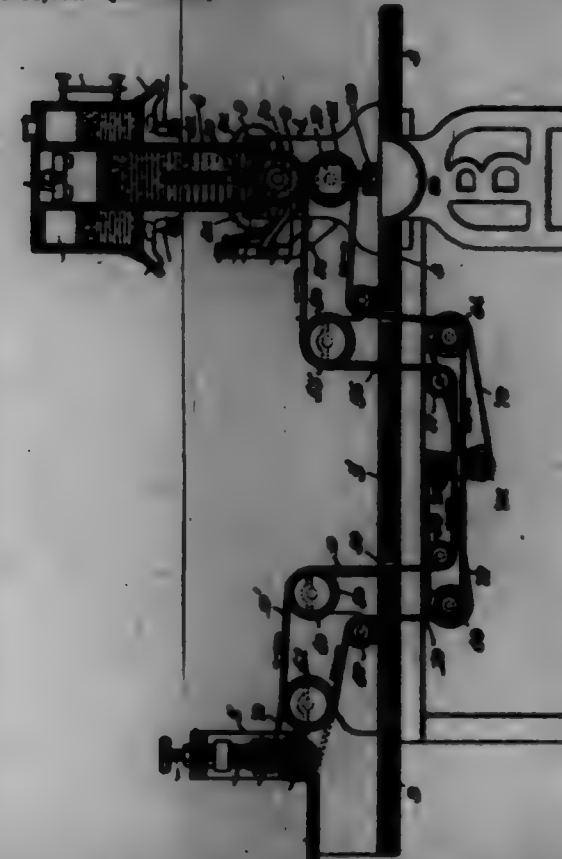
Claim.—1. An expansible lining for barrels and similar receptacles, made of paper, and rendered elastic by crinkling or corrugating, and consisting of a body, and of a bottom united with the body by a curved seam which is substantially coincident with the contour of the bottom corner of the barrel to form a closed lining having a flat bottom.

2. As a new article of manufacture, a collapsible, elastic lining for barrels and similar receptacles, made of paper rendered elastic by crinkling or corrugating, and consisting of a body and of a flat closed bottom united with the body by a heavily-curved seam, which is substantially coincident with the contour of the bottom corner of the barrel or receptacle.

ling or corrugating, and consisting of a body and of a flat closed bottom united with the body by a heavily-curved seam, which is substantially coincident with the contour of the bottom corner of the barrel or receptacle.



698,791. GLASS-MACHINE. JOHN BROWN, Norwood, Mass., assignor to Louis C. Smith, Norwood, Mass. Filed Apr. 1, 1901. Serial No. 68,777. (No model.)



Claim.—1. In an apparatus of the class described, a support, a glass-receptacle detachably carried thereby, a hot-water jacket surrounding said receptacle, a distributing-roll, and a plurality of spreading-rolls mounted for rotation in said support, said rolls being independent of the glass-receptacle and forming the bottom thereof when said receptacle is in its operative position, a pair of pressure-rolls, an endless feed-roller having its free ends adjacent the distributing-roll, means to operate said pressure-rolls and feed-roller in unison, said rollers operating to feed sheets of material past said distributing-roll and also to feed the glass sheets and the backing to which they are to be applied to the said pressure-rolls, and a plurality of rigid clearing-fingers engaging the delivery side of said distributing-roll, and springs to yieldingly hold said fingers in contact with the said roll.

2. In an apparatus of the class described, a support, a glass-receptacle detachably carried thereby, a hot-water jacket surrounding said receptacle, a distributing-roll, and a plurality of spreading-rolls mounted for rotation in said support, said rolls being independent of the glass-receptacle and forming the bottom thereof when said receptacle is in its operative position, an endless feed-roller for feeding sheets of paper past said distributing-roll, means for driving said roller a series of pivotally-mounted clearing-fingers engaging the delivery side of said delivery-roll, springs to yieldingly hold said fingers in contact with the roll, and a substantially U-shaped scraper in said receptacle and bearing on the top of the distributing-roll, the upwardly-extended arm of said scraper being adjustably secured to the opposite side of the receptacle.

3. In an apparatus of the class described, a glass-receptacle, a hot-water jacket surrounding the same, a distributing and spreading roll forming the bottom of said receptacle, means to drive said roll, a pair of pressure-rolls, and an endless feed-roller adapted to feed sheets of material past said distributing-roll, and to feed the glass sheet and the backing to which it is to be applied to the pressure-rolls.

4. In an apparatus of the class described, a glass-receptacle, a water-jacket surrounding the same, burners located beneath said jacket, said jacket having wings pivoted to its lower edge, said wings operating to protect the flame of the burner, a distributing-roll and spreading-rolls forming the bottom of said receptacle, means to drive said rolls, and means to feed sheets of material to said distributing-roll.

5. In an apparatus of the class described, a glass-receptacle, an annular water-jacket surrounding the same, burners extending around the glass-receptacle and located beneath said jacket, wings pivoted to the lower edge of said jacket and protecting the burner, glass-distributing means, and means to feed the sheets of material to said glass-distributing means.

6. In an apparatus of the class described, a frame comprising a suitable platform having standards at one end, a glass-receptacle mounted on said standards, a distributing-roll and spreading-rolls rotatably mounted in said standards and forming the bottom of said glass-receptacle, a pair of pressure-rolls rotatably mounted at the other end of said platform, and a feed-roller adapted to feed sheets of material past the distributing-roll, and to feed the glass sheet, and the backing to which it is to be applied, to the pressure-rolls, said rollers being carried beneath the central portion of the platform, whereby the said central portion is accessible.

7. In an apparatus of the class described, a support, a distributing-roll, and spreading-rolls mounted for rotation therein, a glass-receptacle detachably carried on said support, said distributing and spreading rolls forming the bottom of said receptacle but being independent thereof, an annular hot-water jacket surrounding said receptacle, pressure-rolls, an endless feed-roller having the free ends thereof closely adjacent to the surface of the distributing-roll, said rollers operating to feed sheets of material past the distributing-roll, and the glass sheet and the backing to which they are to be applied to the pressure-rolls.

8. In an apparatus of the class described, a platform, a glass-distributing device at the side of said platform, a pair of pressure-rolls detachably mounted at the other end of said platform, and a feed-roller adapted to feed sheets of material past the glass-distributing device, and to feed the glass sheet and the backing to which it is to be applied to the pressure-rolls, said rollers being carried beneath the central portion of the platform, whereby the said central portion is accessible.

9. In an apparatus of the class described, a platform, a glass-distributing device at the side of said platform, a pair of pressure-rolls detachably mounted at the other end of said platform, and a feed-roller adapted to feed sheets of material past the glass-distributing device, and to feed the glass sheet and the backing to which it is to be applied to the pressure-rolls, said rollers being carried beneath the central portion of the platform, whereby the said central portion is accessible, combined with brushes for cleaning the feed-roller, said brushes being located beneath the central portion of the platform.

698,792. ARO-LIGHT HANGER-BEARD. IRVAN H. BUCK and WILLIAM H. SCHUPP, Baltimore, Md. Filed June 15, 1901. Serial No. 64,718. (No model.)



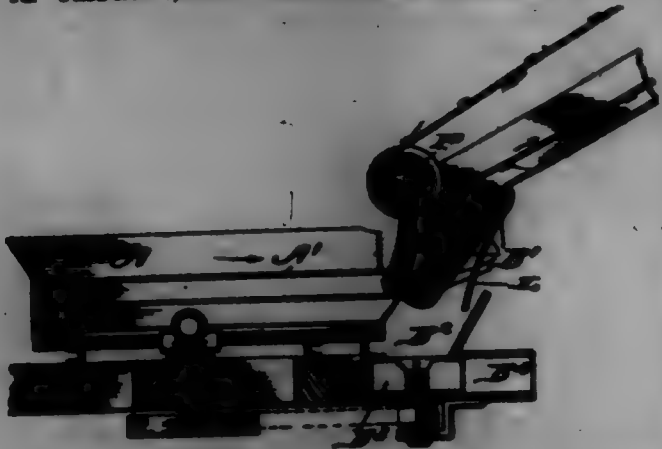
Claim.—1. An aro-light hanger-beard comprising a pair of counterbalance-levers, binding-posts on which the counterbalance-levers are pivoted and with which they are electrically connected, depending means whereby a lamp is supported by the counterbalance-levers, and electrically-connected contacts arranged in the paths of movement of the longer arms of the counterbalance-levers.

2. An aro-light hanger-beard comprising a pair of counterbalance-levers, circuit-wires, binding-posts on which the counterbalance-levers are pivoted and connected with the circuit-wires and electrically connected with the counterbalance-levers and contacts arranged in the paths of movement of the longer arms of the counterbalance-levers and with which the binding-posts are also electrically connected, and lamp-suspending means connected with the shorter arms of the counterbalance-levers in such a

manner as to normally hold the longer arms of the latter out of engagement with the contacts.

3. An arm-light hanger-board comprising circuit-wires, oppositely-located binding-posts for circuit-wires, oppositely-located counterbalance-levers fulcrumed on the binding-posts and electrically associated therewith, contacts arranged in the paths of movement of the longer arms of the counterbalance-levers when relieved of the weight of the lamp, short circuit-wires connecting the contacts with the binding-posts, and lamp-hanger rods connected with the shorter arms of the counterbalance-levers in such a manner as to hold the longer arms of the latter out of engagement with the contacts when the weight of the lamp is supported thereon.

698,798. STRAW-STACKER. JOHN E. BUCKWALTER, Kinston, Pa. Filed Nov. 9, 1901. Serial No. 81,714. (No model.)



Claim.—1. A straw-stacker, comprising in combination the elevator or conveyor and the idle rolls arranged at the lower end of said conveyor and between which the chaff is adapted to fall, substantially as set forth.

2. A straw-stacker, comprising in combination a conveyor or elevator, the rollers arranged at the lower end thereof, and the blower arranged beneath the rollers for the purpose described.

3. In a straw-stacker, the combination with the conveyor, of the rollers arranged at the bottom thereof, the endless belt for delivering the straw to the said rollers, a conveyor, and a rotary blower arranged beneath the rollers for the purpose described.

4. In a straw-stacker, a conveyor, comprising the upper and lower sections, the upper section telescoping upon the lower section, the sides of said upper section having guideways and rack-teeth, guide-rollers, pinions and operating mechanism carried by the lower section, as and for the purpose described.

698,794. CHAIN WRENCH. GEORGE W. BURNETT, Brooklyn, N. Y., assignor to J. H. Williams and Company, Brooklyn, N. Y., a Corporation of New York. Filed July 12, 1901. Serial No. 66,185. (No model.)



Claim.—1. A chain wrench having, in combination, a handle having a cylindrical section at one end separated from the rest of the handle by a shoulder and a screw-threaded end at the outer end of said cylindrical section; a central head composed of a single piece having opposite continuous grip-faces with projecting chain-retaining shoulders at the side edges, said grip-faces extending across the plane of the handle, said head having a cylindrical socket terminating near the apex of the head in a screw-threaded recess, said socket and recess receiving the cylindrical section and screw-threaded end of the handle; a swivel-block turning on the cylindrical section of said handle between the base of the head and the shoulder of the handle, said swivel-block having on one side a chain connection and on the other side of the handle locking provisions; and a flat chain having locking-stops, said chain being pivoted to said swivel-block on one side and being adapted to be carried over the head in cooperation with the grip-faces thereof and to be locked to said swivel-block

locking provisions on the other side of the handle, said head and chain being so related that the article operated upon is grasped squarely between the chain and one grip-face of the head, and the chain comes in contact with the other grip-face.

2. A chain wrench having, in combination, a handle; a central head having opposite continuous grip-faces extending across the plane of the handle; a swivel-block turning on said handle at the base of the head, said swivel-block having on one side a chain connection and on the other side of the handle locking provisions; and a chain pivoted to said swivel-block on one side and being adapted to be carried over the head in cooperation with the grip-faces thereof and to be locked to said swivel-block locking provisions on the other side of the handle, said head and chain being so related that the article operated upon is grasped squarely between the chain and one grip-face of the head, and the chain comes in contact with the other grip-face.

3. A chain wrench having, in combination, a handle; a central head having opposite continuous grip-faces extending across the plane of the handle; a swivel-block turning on said handle at the base of the head, said swivel-block having on one side a chain connection and on the other side of the handle locking provisions; and a chain pivoted to said swivel-block on one side and being adapted to be carried over the head and to be locked to said swivel-block locking provisions on the other side of the handle, said head and chain being so related that the article operated upon is grasped squarely between the chain and one grip-face of the head, and the chain comes in contact with the other grip-face.

4. A chain wrench having, in combination, a handle; a central head having opposite continuous grip-faces extending across the plane of the handle; and a swiveled chain adapted to be carried from one side over the head and to be locked on the other side, said head and chain being so related that the article operated upon is grasped squarely between the chain and one grip-face of the head, and the chain comes in contact with the other grip-face.

5. A chain wrench having, in combination, a handle; a central head having opposite continuous grip-faces extending across the plane of the handle and having projecting chain-retaining shoulders at the side edges; a swivel-block turning at the base of the head, said swivel-block having on one side a chain connection and on the other side of the handle locking provisions; and a chain pivoted to said swivel-block on one side and being adapted to be carried over the head between the projecting shoulders thereof and to be locked to said swivel-block locking provisions on the other side of the handle, said head and chain being so related that the article operated upon is grasped squarely between the chain and one grip-face of the head, and the chain comes in contact with the other grip-face.

698,795. CURTAIN-BRACKET. HENRY L. BURN, Boston, Chs. Filed Oct. 12, 1901. Serial No. 70,126. (No model.)

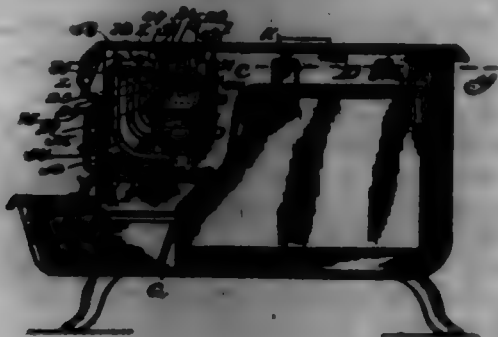


Claim.—1. A curtain-pole bracket comprising a support adapted for attachment to a window or door, arms projecting from the support

and rigidly associated therewith, a rotatable upright adjustably connected with the arm, a curtain-pole secured to the lower portion of the said upright, a plurality of uprights associated with the curtain-pole, and brace-rods rigidly connected with the series of uprights, substantially as described.

2. A curtain-pole bracket comprising a support adapted for attachment to a window or door, arms projecting from the support and rigidly associated therewith, a rotatable upright adjustably connected with the arm, a curtain-pole secured to the lower portion of the said upright, a plurality of uprights associated with the curtain-pole and progressively increasing in height from the free end of the pole toward the rotatable upright, and a pair of brace-rods rigidly connected with the whole series of uprights, the lower one of which occupies a plane parallel with the curtain-pole and the other at an angle with relation thereto.

98,796. STOVE OR RANGE. EDWIN R. CAMMERS, Newark, N. J.
Filed Feb. 4, 1897. Serial No. 681,904. (No model.)



Claim.—1. In a stove, the combination with the sides thereof provided with integral inwardly-extending flanges, and a removable air-dust having a sectional shoe-frame at its lower end, said shoe-frame supporting a perforated tip or tips, substantially as set forth.

2. In a stove, the combination with the sides of the stove, provided with integral inwardly-extending flanges which conform to the configuration of an air-dust supported by said flanges, and an air-dust made in sections said air-dust supporting in its lower portion one or a series of removable tips, substantially as described.

3. In a stove, the combination with the sides, of a fuel-magazine therebetween, integral inwardly-extending flanges projecting within the fuel-magazine and from said stove sides, a removable sectional air-dust supported thereby, and adjustable means in the lower portion of the air-dust for supporting a removable tip or tips, substantially as set forth.

4. In a stove, the combination with the sides of the stove, of a sectional air-dust therebetween open at the ends, said sides being open opposite to said ends, and supports or seats on said sides arranged around said openings which support and lock said dust, substantially as described.

5. In a stove, the combination with the sides of the stove having openings therein, of an air-dust therebetween opposite to said openings and supported or seated on said sides, and a stove-top having depending flanges lying against the upper edges of said sides of the dust, substantially as described.

6. In a stove, the combination with the sides of the stove having openings therein, of an air-dust therebetween opposite to said openings, and supported on said sides, and having shoulders at its upper edges, and a stove-top having depending flanges forming a joint with said shoulders, substantially as described.

7. In a stove, the combination with the sides of the stove, of an air-dust therebetween, said sides being each provided with two flanges, one extending around the bottom of said dust and outside the same, and the other inside the dust and below the upper portion of the same, said dust being supported at each end on said flanges, substantially as described.

8. In a stove, the combination with a pendant air-dust, the ends of the dust having air-inlets, and a damper located within said air-dust below the air-inlets, substantially as described.

9. In a stove, the combination with a pendant air-dust, extending transversely of the stove, a damper located across said air-dust, consisting of a stationary dotted motion, supported by the air-dust, and a movable dotted section located on top of the stationary section, capable of transverse movement by a handle from the outside of the stove, substantially as described.

10. In a stove, the combination of a stove-top plate having air inlets or perforations, an air-dust extending downwardly from said top plate below said air-inlets, and a drip water or liquid conduit disposed within the dust to catch water passing through said air-inlets and conduct the same to the inside of the stove, substantially as described.

11. In a stove, the combination of the air-dust open at the bottom, tip or tips removably secured in a shoe-frame locked in the side walls of

the air-dust, and located in or across the openings, substantially as described.

12. In a stove, the combination with a perforated pendant air-dust, a perforated corrugated shield located on the front side of said air-dust the ridges of the corrugated shield having ledges which overhang the perforations, and air-chambers formed between the front wall of the air-dust and the opposed corrugations of the shield, substantially as described.

13. A pendant air-dust provided with a modified shoe detachably-secured thereto for supporting one or more tips, substantially as described.

14. In a stove, the combination with the sides thereof, a pendant air-dust composed of sections, and a detachable sectional shoe with tips secured thereto, substantially as set forth.

15. In a stove, the combination of the air-dust open at the bottom and the shoe-sections inserted in or across said openings, and removably secured in said dust, said sections having projections extending within said dust, whereby said sections may be united, substantially as described.

16. In a stove, the combination of the air-dust open at the bottom, and the shoe-sections inserted in or across said openings, and removably secured in said air-dust, said sections being provided with the inwardly and upwardly apertured lugs 11, 12, for uniting the same, substantially as described.

17. In a stove, the combination of the air-dust open at the bottom, and the shoe inserted in or across said opening, said shoe having a pivotal or trunnion engagement with one side of the dust, and a positive detachable connection with the opposite side, substantially as described.

18. In a stove, the combination of the air-dust open at the bottom, and the shoe inserted in or across said opening, said dust and shoe having the sections 14 and half-trunnions 15 registering with each other at one side, and a positive detachable connection at the opposite side, substantially as described.

19. In a stove, the air-dust comprising two sections, the front section having a cut-away portion at the bottom, a longitudinal strip, and a hole above said strip, in combination with a shoe inserted in or across said cut-away portion and secured to said strip, and a shield covering said hole, substantially as described.

20. A detachable shield for a pendant air-dust, having a series of vertically-arranged perforated corrugations the ridges of said corrugated shield having ledges which overhang the perforations said shield being attached in the air-dust by a bolt projecting from the latter through a perforation in the shield, and locked thereto by suitable means, substantially as described.

21. In a stove, the combination of an air-dust, a ribbed shield therefor, and a shoe carried at the bottom of said dust, said shoe having ribs continuous with the ribs of the shield, substantially as described.

22. In a stove, the combination of an air-dust, a shoe therefor, and a tip held in said shoe, said shoe having ribs extending substantially flush with the front face of said tip, substantially as described.

23. In a stove, the combination of an air-dust, a removable shoe held thereto, and a removable tip held within said shoe, substantially as described.

24. In a stove, the combination of an air-dust, a sectional removable shoe held thereto, and a plurality of removable shoe-tips held between the sections of the shoe, substantially as described.

25. In a stove the combination of an air-dust, flanged shoe-sections held to said dust, and a shoe-tip supported by the flanges of the shoe-sections, substantially as described.

26. In a stove, the combination of an air-dust, shoe-sections held to said dust having terminal registering projections and recesses for distancing said shoe-sections, and a shoe-tip held between said sections, substantially as described.

27. In a stove, the combination of an air-dust, a shoe held to said dust having a front grooved flange, and a shoe-tip supported by said flange, and having grooves registering with the grooves of the flange, substantially as described.

28. In a stove, the combination with an air-dust, of a hollow perforated shoe-tip of fire-brick, or the like refractory material, secured on the lower edge of said dust and having a flange projecting forwardly under said dust to protect the same from the action of the heat, substantially as described.

29. In a stove, the combination with an air-dust open at the bottom, of a plurality of hollow perforated shoe-tips arranged side by side and having air-chambers formed between each other when placed within said dust substantially as described.

30. In a stove, the combination with an air-dust, of a plurality of hollow perforated shoe-tips supported on the bottom of said dust, side by side, having registering grooves on their contiguous faces, substantially as described.

31. In a stove, the combination with an air-dust of a hollow perforated shoe-tip having front and rear flanges to support the same within

the duct, and adjustable means secured to the duct for supporting said cheo-tips, substantially as described.

32. In a stove, the combination with an air-duct, of a plurality of cheo-tips arranged side by side therein, each having overhanging flanges at the sides, engaging the flanges of adjoining tips to form fixed thereunder, substantially as described.

33. In a stove, the combination of a fuel-bed, a top plate, and an air-duct extending downward from the top plate to a short distance from the fuel-bed, to form a contracted neck or fuel-passage, the contraction of said neck being proportioned to the character of fuel used, whereby different varieties of fuel can be used, substantially as described.

34. In a stove, the combination with a depending air-duct supported at the sides of the stove, means in the front of the stove for regulating the draft, a damper arranged in the side plates inside the fuel-chamber, air-passages or ducts in side plates inside the fuel-chamber, said air-passages leading from near the top of the chamber down and curved into the ends of the air-duct, substantially as described.

35. In a stove, the combination with the sides thereof, an air-duct made in two sections, two flanges for supporting said duct projecting from and formed with said sides one of said supports extending from near the top, down and then up and terminating at a point a greater distance from the top than the opposite side, the other support starting between the upper ends of the former support and extending toward the rear below the upper end of the rear portion of said former support, substantially as described.

36. In a stove, the combination with the sides thereof, supports projecting from said sides, the shape of which conforms to the configuration of an air-duct supported thereby, a sectional air-duct seated or supported therein, the upper ends of said sections being so bent as to form a reduced neck when placed together, the lower central portion of each section being cut out, and a cheo carrying a tip or tips located in the space in the bottom of the air-duct, substantially as described.

37. In a stove, the combination with the sides, of supports integral therewith for supporting a removable air-duct, means for supporting a frame in the lower portion of the air-duct, and said frame supporting one or more tips, substantially as described.

38. The combination with a fuel-magazine of a stove divided by a removable sectional air-duct, of a sectional frame in the lower portion of said air-duct, means for locking the same to said air-duct, and perforated cheo-tips locked and supported therein, said tips having grooves which register with grooves in the frame forming air-passages when said tips and frame are placed together, substantially as set forth.

39. A frame for supporting tips at the lower portion of a removable air-duct made in two sections, means for locking the parts of said frame together, and means for locking cheo tip or tips therein, substantially as described.

40. In a stove, the combination with an air-duct, composed of sections and open at the bottom, the front section being of skeleton formation, a shield secured to the front section, and means for supporting said air-duct, substantially as described.

41. In a stove, the combination with an air-duct composed of sections and open at the bottom, the front section being of skeleton formation, a shield secured to the front section, and means projecting from the stove sides for supporting and locking the duct-sections in a fixed position, substantially as described.

42. In a stove, the combination with an air-duct composed of sections and open at the bottom, the front section being of skeleton formation, a shield secured to the front section, a cheo-frame supported in said open bottom, one or a plurality of cheo-tips detachably secured to said cheo-frame, and means for supporting and locking the duct-sections in a fixed position, substantially as described.

43. In a stove, the combination with an air-duct composed of sections and open at the bottom, the front section being of skeleton formation, a shield secured to the front section, a separable cheo-frame having internal flanges at the lower end supported in said open bottom of the air-duct, one or a plurality of cheo-tips having overhanging flanges at the upper ends said flanges resting on the internal flanges at the lower end of the cheo-frame, and means for supporting and locking the air-duct sections in a fixed position, substantially as described.

44. In a stove, the combination with the fuel-magazine, a separable air-duct open at its bottom and supported in said fuel-magazine, one or a series of perforated cheo-tips supported in the open end of the air-duct, means for supplying air to said air-duct, and means on the sides of the fuel-magazine for supplying air to the sides of the fuel, said means comprising a shield having a series of interrupted downwardly-extending and rearwardly-curved ribs leading to the air-duct, substantially as described.

45. In a stove, the combination with the sides of the stove provided with inwardly-extending flanges, and a removable sectional air-duct located between said sides, the air-duct sections being locked together and

supported by the flanges projecting from the stove sides, substantially as described.

46. In a stove, the combination with the sides of the stove provided with inwardly-extending flanges, a removable sectional air-duct located between said sides, the air-duct sections being locked together and supported by the flanges projecting from the stove sides, a detachable cheo-supporting frame locked to the open end of the air-duct, and a series of detachable cheo-tips supported in said cheo-frame, substantially as described.

47. In a stove, the combination with a fuel-magazine, of a partition or air-duct therein, and a shield secured to said air-duct or partition, said shield being provided with a series of perforations vertically arranged, and ledges or overhanging flanges projecting over said perforations, substantially as described.

48. In a stove, the combination with a fuel-magazine, of a partition or air-duct therein, a vertically-ribbed shield secured to said air-duct or partition, said ribs being provided with a series of perforations, and ledges or overhanging flanges projecting over said perforations, substantially as described.

49. In a stove, an air-duct, a shield attached to said air-duct, corrugations in said shield, and corrugations having perforations and ledges or flanges overhanging said perforations.

50. In a stove, the combination with an air-duct, open at the bottom and made in two sections, means having depending spaced-apart projections secured in the open bottom for distributing air to the fuel, means for supporting said air-duct, and a corrugated shield attached to the air-duct, substantially as described.

51. In a stove, the combination with an air-duct open at the bottom, a loosely-fitting tip secured in said open bottom forming air-ducts between the duct and tip, and a perforated shield attached to said air-duct the shield being so positioned as to form an air-chamber between said shield and air-duct, substantially as described.

52. In a stove, the combination of an air-duct, a plurality of tips each comprising a reduced covering and a depending end, said depending ends adapted to form spaces or notches between each other when secured to the air-duct, substantially as described.

53. In a stove, the combination with an air-duct, and a plurality of tips each comprising a reduced covering and a depending end, said depending ends adapted to form spaces between each other when secured to the air-duct, and a series of openings communicating with the air-duct being formed in the meeting ends of the tips, substantially as described.

54. In a stove, the combination with a pendant air-duct supported by the stove sides, means for supplying air to the ends of said duct, and a plurality of removable means in the lower end of said duct whereby air-ducts are formed therebetween for distributing air to the fuel, substantially as described.

55. In a stove, the combination with an air-duct means for supporting said duct, means for supplying air to the ends of said duct, a plurality of perforated tips supported in the lower end of said duct and means in said duct for regulating the exit of air through the perforations in said tips, substantially as described.

56. In a stove, the combination with an air-duct made in sections, a perforated corrugated shield attached to the front section, forming air-passages between the duct and said shield, a removable cheo-frame in the lower end of said duct, a plurality of spaced-apart tips removably secured in said cheo-frame forming air-ducts between said tips, and means in the air-duct for regulating the admission of air, substantially as described.

57. In a stove, the combination with a fuel-magazine, an air-duct, means for introducing air to said duct, means for introducing air to the fuel-magazine, means removably secured in the lower end of the air-duct for supporting a plurality of removable spaced-apart tips and means in the air-duct for regulating the supply of air to the fuel-magazine, substantially as described.

58. In a stove, the combination with a fuel-magazine, an air-duct open at the bottom, said air-duct comprising a frame, a perforated shield removably secured to said frame, a cheo-frame hinged in the bottom of said duct, and a series of tips removably secured in said frame, substantially as described.

59. In a stove, the combination with a fuel-magazine, an air-duct, means for supporting said duct, and means hinged in the lower portion of said duct for distributing air to the fuel, substantially as described.

60. In a stove, the combination with a fuel-magazine, an air-duct, means for supporting said duct, a cheo-frame hinged in the lower portion of said duct, and a plurality of tips removably secured in the cheo-frame, substantially as described.

61. In a stove, the combination with a fuel-magazine, an air-duct open at the bottom, a sectional cheo-frame hinged in said open end and having a series of notches and projections, a plurality of tips locked in said sectional frame each tip having a series of notches, and a shield pro-

vided with ribs secured to the air-duct the ribs being in alignment with the ribs on the cheo-frame, and the notches in the tips and cheo-frame being in continuity with each other to form air-ducts, substantially as described.

62. In a stove, the combination with an air-duct made in sections, a perforated corrugated shield attached to the front section, forming air-passages between the duct and said shield, a removable cheo-frame in the lower end of said duct, a plurality of spaced-apart cheo-tips removably secured in said cheo-frame forming air-ducts between said tips, and means for regulating the admission of air, substantially as described.

63. In a stove, the combination with a fuel-magazine, an air-duct, means for introducing air to said duct, means for introducing air to the fuel-magazine, means removably secured in the lower end of the air-duct for supporting a plurality of removable spaced-apart tips and means for regulating the supply of air to the fuel-magazine, substantially as described.

64. In a stove, the combination with the sides of the stove provided with integral inwardly-extending flanges, and a sectional air-duct located between said sides, said air-duct being supported and locked together by the integral flanges projecting from the stove sides, substantially as described.

65. In a stove, the combination with the sides of the stove provided with integral inwardly-extending flanges, and a removable air-duct having a sectional cheo-frame at its lower end, and removable means secured within said frame for distributing heated air, substantially as described.

66. In a stove, the combination with the sides of the stove provided with integral inwardly-extending flanges and a removable air-duct having a removable cheo-frame at its lower end, and removable means secured within said frame for distributing heated air, substantially as described.

67. In a stove, the combination with a fuel-magazine, an air-duct open at the bottom, said air-duct comprising a frame, a perforated shield removably secured to said frame, a cheo-frame hinged in the bottom of said duct, and a series of tips having air-passages between each other and removably secured in said frame, substantially as described.

68. In a stove, the combination with a fuel-magazine, an air-duct open at the bottom, means for introducing air to said duct, means for introducing air to the fuel-magazine, means secured in the lower end of the air-duct for supporting a plurality of removable spaced-apart tips, and means for regulating the supply of air to the fuel-magazine, substantially as described.

69. In a stove, the combination with the sides of the stove provided with integral inwardly-extending flanges, a removable air-duct having a cheo-frame at its lower end, and removable means within said frame for distributing air, said means having a plurality of depending portions which form a series of spaces for the free circulation of the air, substantially as described.

70. In a stove, the combination with the sides of the stove provided with integral inwardly-extending flanges, a removable air-duct having a cheo-frame at its lower end, and a plurality of tips having spaces between each other which communicate with the air-duct for the exit of air, substantially as described.

71. In a stove, the combination with an air-duct, open at the bottom and made in two sections, means for supporting said air-duct, a plurality of devices secured in the open bottom for distributing air to the fuel, said devices being spaced apart at the upper covering ends to form air-ducts, and a shield attached to the air-duct, substantially as described.

72. The combination with an air-duct made in two sections and supports projecting from the stove sides, the supports locking and holding said sections of the air-duct together, substantially as described.

73. In a stove, the combination with a pendant air-duct open at the bottom, tips removably secured in a cheo-frame locked to the duct, substantially as described.

74. In a stove, the combination with an air-duct, a tip or tips on the lower end of said duct, each of said tips having a flange projecting forwardly under said duct to prevent the same from the action of the heat, substantially as described.

75. In a stove, the combination with a fuel-magazine, an air-duct, means for introducing air to said duct, means for introducing air to the fuel-magazine, means removably secured to the lower end of the air-duct for supporting a plurality of removable spaced-apart tips, and means for regulating the exit of air from the duct to the fuel-magazine, substantially as described.

76. In a stove, the combination with the sides of the stove, flanges projecting inwardly from said sides and a removable air-duct having a sectional cheo-frame at its lower end, and removable means secured within said frame for distributing heated air, substantially as described.

77. In a stove, the combination with a fuel-magazine, an air-duct supported therein, said air-duct being made in sections, supports projecting from the sides of the stove, said supports locking and holding the sections together, and a plurality of tips supported at the lower end of the sectional air-duct.

78. In a stove, the combination with an air-duct made in two sections, and supports projecting from the stove sides, the supports locking and holding said sections of the air-duct.

698,797. HEATING-STOVE. EDWIN R. GARDNER, Newark, N. J.
Filed May 12, 1900. Serial No. 716,886. (No model.)



Claim.—1. A stove comprising a casing, a fire-pot, said fire-pot having a series of openings in the lower portion which communicate with a space or chamber formed between the casing and the fire-pot, through which the products of combustion pass, an exit-flue communicating with said space or chamber pipes or tubes depending within and arranged around the fire-pot for delivering currents of air through the fuel to the exit-flue, and castings or tubes for introducing individual currents of air around the under side of the fuel, substantially as described.

2. A stove comprising a casing, a fire-pot, a pipe or tube loosely suspended and directed toward said fire-pot, and means for loosely supporting said pipe or tube comprising a bar in the tube-support, a bar in the top of the tube, and a connecting-link between said bars substantially as described.

3. In a heating-stove, the combination with the fire-pot, air-duct openings to supply air at various angles downwardly above the fuel-bed, a hot-air chamber surrounding said fire-pot, a damper operating over said openings, an exit-flue communicating with the air-chamber at the upper end thereof, an air-heating chamber, a series of loosely-hung pipes or tubes depending from said latter air-heating chamber toward the fuel-chamber adapted to deliver heated air downwardly through the fuel under the influence of the draft, and castings or tubes for introducing individual currents of heated air in the hot-air chamber and around below the fuel, substantially as described.

4. In a heating-stove, the combination with the fire-pot surrounded by an air-chamber, an exit-flue communicating with the air-chamber at the upper end, openings in said fire-pot which communicate with said air-chamber for delivering heated air to the body of fuel from the under side, castings or tubes for introducing hot air to the air-chamber, downwardly and at an angle, and depending pipes or tubes for delivering air downwardly through the bed of fuel, the air delivered through the pipes meeting the hot air coming from the castings or tubes under the fuel which mixes with and increases the convection gases under the influence of the draft of the stove, as set forth.

5. In a heating-stove, the combination with the fire-pot, a chamber surrounding said fire-pot, an exit-flue communicating with said chamber, the lower portion of said fire-pot having a series of openings, means for directing hot air through said openings to and through the body of fuel, a hot-air chamber, and a series of depending tubes communicating with said chamber, said tubes delivering heated air above and through the fuel to meet and mix with the air delivered through the openings in the lower portion of the fire-pot, said mixed air-currents being drawn through the openings in the lower portion of the fire-pot to the exit-flue, substantially as described.

6. In a heating-stove, the combination with the fire-pot made in sections, the upper section being tapered toward the top on its inner side and opened at both ends, and the lower section being provided with openings, an air-chamber formed between said fire-pot and the casing, means for supplying air to said air-chamber, an air-duct flue communicating with said chamber, and a series of pipes for delivering currents of air downwardly through the fuel from the top, under the influence of the main draft, substantially as described.

7. In a heating-stove, the combination with a fire-pot composed of an upper section having a series of tapering grooves, the latter being deepest at the top, and a lower section having a series of openings, an

air-heating chamber surrounding said fire-pot and provided with an exit-flue, a plurality of depending tubes adapted to deliver currents of heated air above and through the bed of the fuel, and a damper for regulating the admission of air to the fire-pot, substantially as described.

8. A heating-stove comprising a fire-pot made of a lower section provided with a series of openings, and an upper section having its inner wall tapering and provided with a series of corrugations, an air-heating chamber surrounding said fire-pot, an exit-flue communicating with said air-heating chamber, and means for delivering a plurality of air-currents through the fuel from the top, substantially as described.

9. A heating-stove comprising a fire-pot made up of a lower section having a series of openings, and an upper section having its inner wall tapering and provided with a series of horizontal corrugations, in combination with an air-heating chamber surrounding said fire-pot, an exit-flue communicating with said air-heating chamber, and means for delivering a plurality of air-currents through the fuel from the top, substantially as described.

10. In a stove, the combination with a fire-pot composed of an upper section which is of tapering formation internally, the widest portion being at the bottom, and a lower section having a series of openings, an air-heating chamber surrounding the fire-pot and communicating with said pot through the openings in the lower section, means for delivering air above the bed of the fuel, means for delivering air to the air-heating chamber, said latter volume of air meeting the volume of air delivered above the fuel as the same is diffused by the conical formation of the upper section of the fire-pot, substantially as described.

11. A stove comprising a casing, a fire-pot, and means for delivering heated air to said fire-pot, said means consisting of a frame open at the front and provided with a window, an opening in the under side of said frame, and a groove in the casing leading to said opening to direct air thereto, substantially as described.

12. A stove comprising a casing, a fire-pot, and means for delivering heated air to said fire-pot, said means consisting of a frame having an opening in its under side, and a groove in the casing leading to said opening to direct air thereto, substantially as described.

13. In a stove, the combination with the casing, a grate, a fire-pot composed of a lower section made up of a series of radially-disposed and spaced-apart partitions, and an upper section seated on said lower section, means for supplying air through the spaces between the partitions, and means for delivering air above and in the fire-pot, substantially as described.

14. In a stove, the combination with the casing, a grate, a fire-pot composed of a lower section made up of a series of radially-disposed and spaced-apart partitions, and an upper section supported by said lower section, the internal wall of said upper section having a series of vertical grooves the latter being larger at the upper end of said section, means for supplying air through the spaces between the partitions, and means for delivering air above and in the fire-pot, substantially as described.

15. In a stove, the combination with the casing, a grate, a series of vertically-spaced partitions above the grate, said partitions extending out therefrom into an air-chamber forming air channels or passages, and a fire-pot section mounted on the upper end of said partitions, the interior wall of said section being tapered and provided with a series of grooves, said grooves increasing in size from the bottom to the top of said section, substantially as described.

16. In a stove, the combination with the stove structure, a grate, a fire-pot composed of a lower section made up of a series of vertically-spaced partitions above the grate, an upper section mounted on said partitions the inner wall of which is conical and provided with a series of vertical grooves, an air-chamber surrounding said fire-pot, hollow trunks or passages communicating with the air-chamber, the outer side of each housing or trunk having a perforation for introducing heated air to the air-chamber, from whence it passes through the spaces between the vertical partitions to the body of fuel, an air-chamber located in the stove structure and above the fuel-magazine, a series of pipes or tubes depending from said air-chamber to and within the fire-pot, a series of trunks or tubes in the stove sides communicating with the fire-pot, and dampers for controlling the admission of air to the depending tubes, and the trunks or tubes in the side of the stove, substantially as described.

17. In a stove the combination with the casing, a grate, a fire-pot composed of two sections, the lower section being made of a series of spaced-apart partitions above the grate, and the upper section mounted on said partitions, and an air-chamber with means for introducing air thereto, the partitions forming the lower portion of the fire-pot projecting into the air-chamber forming the passages or channels for the air to be delivered to the fuel, substantially as described.

18. A stove comprising a casing, a grate, a fire-pot composed of two sections, the lower section being made up of a series of vertical partitions above said grate, each formed in the upper ends of the vertical partitions,

the upper section having its interior smaller at the top than at the bottom, said section being mounted in and supported by the caps in the upper ends of the vertical partitions, an air-heating chamber, the partitions extending out and within said chamber, and means for supplying said chamber with air, substantially as described.

19. In a stove, the combination with a fire-pot having a series of openings at its lower portion, a chamber surrounding said fire-pot, means for introducing air to said chamber, a series of tubes arranged to deliver individual currents of air to the top of the fuel at an angle, a flue, an air-heating chamber, a tube communicating with said air-heating chamber to direct currents of heated air downwardly to the top of the fuel, substantially as described.

20. In a heating-stove, the combination with an air-chamber, a fire-pot, air-opening in the lower portion of said fire-pot, a frame or flange mounted within said casing which communicates with said air-chamber, the fire-pot being in communication therewith through the opening in its lower portion, the frame having openings located in the under side thereof, and an inclined baffle channel or surface on the stove-casing located under said openings, substantially as described.

21. In a heating-stove, the combination with a stove-casing, a fire-pot having openings in the lower portion thereof, a corrugated section formed in the upper part thereof, a series of dampened tubes or trunks arranged in the casing and above the fire-pot, and a series of openings being arranged in the lower part of the casing to deliver heated air to said fire-pot to communicate with the air delivered thereto through the tubes, substantially as described.

22. In a heating-stove, the combination with a casing, a fire-pot, which tapers internally toward the top and is provided with openings at the bottom, an air-chamber surrounding said fire-pot, means for introducing air thereto, an air-chamber, tubes communicating with said chamber for delivering air downwardly into the fire-pot, and a series of trunks or tubes located in the casing and adapted to introduce air to the fire-pot independently of the tubes communicating with the air-chamber, substantially as described.

23. In a heating-stove, the combination with a casing, a fire-pot which tapers toward the top and is provided internally with vertically-arranged grooves, a space being formed between said fire-pot and the casing, an exit-flue communicating with said space, and means for introducing currents of heated air through the fuel from the top under the influence of the draft, substantially as described.

24. In a downward-stove, the combination of a support for fuel, a series of air-supply tubes arranged contiguous with the front and side walls of the same to direct jets of air downwardly through the fuel, and a series of air-tubes arranged intermediate of the tubes at the side walls for delivering air downwardly through the fuel, substantially as described.

25. In a downward-stove, the combination of a support for fuel, an exit-flue, a series of supply-tubes arranged contiguous with the front and side walls of the same to direct jets of air downwardly through the fuel, a series of air-tubes arranged intermediate of the tubes at the side walls for delivering air downwardly through the fuel, and a plurality of passages located near the bottom of the stove, and communicating with the exit-flue, substantially as described.

26. In a stove, the combination with a fire-pot, a flue, which communicates with the fire-pot at the lower end, an air-heating chamber which is supplied with air direct from the atmosphere, and a series of tubes communicating with said air-heating chamber for directing currents of heated air downwardly through the fuel from the top which mixes and ignites the gases coming under the influence of the main draft, substantially as described.

27. In a stove, the combination with a fire-pot, a flue, an air-heating chamber, a series of tubes communicating with said air-heating chamber for directing individual currents of heated air downwardly through the fuel from the top, a separate series of tubes arranged at an angle to direct individual air-currents to the top of the fuel under the influence of the main draft, and means for controlling the admission of air to said tubes, substantially as described.

28. In a stove, the combination with a fire-pot, an air-heating chamber, a series of tubes communicating with said air-heating chamber for directing currents of heated air downwardly through the fuel from the top under the influence of the main draft, an air-heating chamber surrounding said fire-pot, a flue communicating with said air-heating chamber at the lower end, and castings or tubes for introducing individual currents of air at various angles to the lower portion of the fire-pot to mix with the heated air delivered thereto by the aforesaid tubes, substantially as described.

29. In a stove, the combination with a fire-pot, an air-heating chamber, a series of tubes communicating with said air-heating chamber for directing currents of heated air downwardly through the fuel from the top under the influence of the main draft, an air-heating chamber surrounding said fire-pot, a flue communicating with said air-heating chamber

ber, and castings or tubes for introducing individual currents of heated air at various angles to the air-heating chamber and thence to the lower portion of the fire-pot to mix with the heated air delivered thereto by the aforesaid tubes, substantially as described.

30. In a stove, the combination with a fire-pot, having openings in its lower portion, an air-heating chamber, tubes communicating with said air-heating chamber for directing currents of heated air downwardly through the fuel from the top, an air-heating chamber surrounding said fire-pot and communicating with the latter, a plurality of means for introducing heated air to said chamber, and means for delivering heated air to said plurality of air-introducing means, substantially as described.

31. In a stove, the combination with a fire-pot, which is open at the bottom and of tapering formation internally, the narrowest portion being at the top, said internally-tapering portion having a series of grooves, an air-heating chamber surrounding said fire-pot, means for introducing heated air to said chamber, an exit-flue communicating with said chamber, and a plurality of tubes for directing air-currents downwardly through the fuel from the top under the influence of the draft, substantially as described.

698,798. STOVE. ROBERT E. GARDNER, Inventor, E. J. Fild May 13, 1899. Serial No. 717,446. (No model.)



Claim.—1. In a stove, the combination with a pendant air-dust open at the bottom, shields secured to the front and rear of said air-dust, and removable means within the bottom of said dust for distributing heated air, substantially as described.

2. In a stove, the combination with a pendant air-dust, shields secured to said dust, removable heat-distributors secured within the lower end of said dust, a fuel-magazine, air-heating pipes, said pipes communicating with the air-dust and the atmosphere, and means for regulating the admission of air to said pipes, substantially as shown and described.

3. In a stove, the combination with a fuel-magazine, a pendant air-dust, right-angled air-heating pipes within the fuel-magazine, the horizontal portion of said pipes entering the air-dust at the upper end of the latter and the vertical portion of said pipes communicating with the atmosphere, and means for regulating the admission of air to said pipes, substantially as shown and described.

4. In a stove, the combination with a pendant air-dust, open at the lower end, of detachable shields on the front and rear of said air-dust, removable flaps secured within the lower end of said dust, and air-inlet pipes entering the air-dust through the shields, substantially as shown and described.

5. In a stove, the combination with a fuel-magazine a pendant air-dust located within said fuel-magazine, shields on each side of said air-dust, and air-heating distributor or distributors removably secured within the lower open end of the air-dust, substantially as shown and for the purpose set forth.

6. In a stove, the combination with a fuel-magazine, a pendant air-dust located within said fuel-magazine, air-inlet pipes entering each end of said air-dust, said air-inlet pipes being located across the upper part and extending downwardly within the fuel-magazine, to a point above the grate, and means for regulating the admission of air to said pipes, substantially as shown and for the purpose set forth.

7. In a stove, the combination with a fuel-magazine, an air-dust, pipes located in said fuel-magazine, said pipes communicating with the atmosphere for supplying air to said air-dust, a flue out in from the sides of the stove to form an air-heating chamber, said flue having air-exits communicating with the fuel-magazine, and means for regulating the supply of air to said chamber, substantially as shown and described.

8. In a stove, the combination with a fuel-magazine, a pendant air-dust, means for supplying said air-dust with air at both ends, a perforated lining in said fuel-magazine cut in from the stove sides to form an air-heating chamber, and means for regulating the admission of air entering at

the ends of the air-dust, and the air-heating chamber, substantially as shown and described.

9. A pendant air-dust, and an air-distributor consisting of a main body portion, and a reduced portion, the latter portion fitting in said air-dust, and air-spaces being formed between said dust, and the reduced portion of the air-distributor for the escape of the air from the dust, substantially as described.

10. A pendant air-dust, and an air-distributor consisting of a main body portion, and a reduced upper portion, the latter portion fitting in said air-dust air-spaces being formed between said dust, and the reduced portion of the air-distributor, substantially as described.

11. A pendant air-dust, and an air-distributor consisting of a main body portion having a series of horizontal grooves and a reduced upper portion having a series of vertical grooves which form a continuation of the horizontal grooves in the main body portion, said upper portion fitting within said air-dust, substantially as shown and for the purpose set forth.

12. A pendant air-dust, and an air-distributor consisting of a main body portion, provided with a series of horizontal and vertical grooves, a reduced upper portion which fits within said air-dust, said portion having a series of vertical grooves which form a continuation of the horizontal grooves formed in the main body portion, and a tapering bottom, said tapering bottom forming one part of an arch, which latter is formed when two or more distributors are placed side by side, substantially as shown and described.

13. A shield for a pendant air-dust, consisting of a perforated corrugated main body portion, said corrugations gradually tapering to a straight edge and an internal flange at the bottom, the inner edge of said flange being horizontally corrugated, substantially as shown and for the purpose set forth.

14. In a stove or range, the combination with a pendant air-dust, an air-deflector and baffle-plates arranged within said air-dust, and means for directing a current of air to the air-dust, substantially as shown and for the purpose set forth.

15. The combination with a pendant air-dust, and means for breaking air in said dust, said means comprising a series of spaced-apart perforated plates, and a hood or cover supported a slight distance above the upper ends of said plates, said hood overhanging the outermost plate, substantially as described.

16. In a stove, the combination with a fuel-magazine, a perforated pendant air-dust, means secured within the lower end of said air-dust for distributing the air, and a fuel-heating plate entering said magazine, said plate being provided with air-inlet pipes, substantially as shown and described.

17. In a stove, the combination with an air-dust, a fuel-magazine, a housing having an inner and outer bottom, the former having a perforation near its outer end, said housing being formed at one side and at a point behind the air-dust, a frame carrying a sheet of wire in the outer end of said housing, and a flue communicating with the sheet, and supplying air around the inner face of the wire, substantially as shown and described.

18. In a stove, the combination with a fuel-magazine, a pendant air-dust located within said fuel-magazine, air-inlet pipes or pipes located within said fuel-magazine, the upper ends of said pipes communicating with the upper end of the air-dust and the lower ends of said pipes communicating with the atmosphere at a point near the grate, means for regulating the supply of air to the air-dust, and a plurality of air-distributors having exits formed at their meeting ends in the air-dust for distributing air, substantially as described.

19. In a stove, the combination with a fuel-magazine, a perforated air-dust having removable air-distributors secured within the lower end of said air-dust, pipes located in said fuel-magazine, said pipes communicating with the atmosphere at a point above the grate for supplying heated air to said dust, air-heating chambers located adjacent the magazine, said chambers having exits which communicate with the fuel-magazine, and means for regulating the supply of air thereto, substantially as described.

20. In a stove, the combination with an air-dust, and a plurality of air-distributors comprising covering ends and depending ends, said depending ends adapted to form arches between each other when secured to the air-dust, substantially as described.

21. In a stove, the combination with an air-dust, and a plurality of air-distributors, comprising covering ends and depending ends, said depending ends adapted to form arches between each other when secured to the air-dust, and a series of openings being arranged at right angles to each other in the meeting faces of said air-distributors, substantially as described.

22. In a stove, the combination with a fuel-magazine, a pendant air-dust, said dust comprising depending perforated plates, perforated shields provided with a series of ribs and attached to said plates, air-distributors removably secured between the lower ends of the plates, and ribs on said

distributors which form continuations of the ribs on said shield, substantially as described.

26. In a stove, the combination with a fuel-magazine, a pendant air-dust, and air-dust comprising depending plates, corrugated shields attached to said plates perforations being formed in said corrugations, an air-distributor removably connected between the lower ends of said plates and being provided with air-exits and ribs, said ribs being in alignment with and forming a continuation of the corrugations, substantially as described.

27. A shield for a pendant air-dust, corrugated in cross-section and having at its lower end a right-angled internal flange, and means co-operating with said internal end to form air-distribution, substantially as described.

28. In a stove, the combination with a pendant air-dust, means secured in the lower end of said dust for distributing heated air, and a corrugated shield having an internal corrugated right-angled flange at its lower end, said corrugations forming air-exits with the means for distributing heated air, substantially as described.

29. In a stove, the combination with a fuel-magazine, an air-dust having a plurality of apertures or notches at its lower end, means for supplying air between said apertures, air-heating chambers having air-exits adjacent the fuel-magazine, means for supplying air to said chambers, a fuel-heating duct, and air-heating pipes entering the magazine through the fuel-heating duct, substantially as described.

30. In a stove, the combination with a fuel-dust, means in said dust for admitting air, a fire-pot, a front grate, and a front door, a space being formed at the top of the grate forming communication between the fire-pot and the space between the front door and the grate, substantially as described.

31. In a stove, the combination with a fuel-dust, means in said dust for admitting air, a fire-pot, a pendant air-dust, a front grate, and a front door, a space being formed at the top of the grate forming communication between the fire-pot and the space between the front door and the grate, substantially as described.

32. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust, air-heating chambers having air-exits on the side of the fuel-magazine, a removable fuel-heating duct entering said magazine, and means in said duct for introducing air to the fuel-magazine, substantially as described.

33. In a stove, the combination with a pendant air-dust, open at the bottom, a plurality of removable air-distributors secured in said open bottom, and having air-exits at their meeting edges, baffle-plates in said dust, and means for introducing air to the dust.

34. In a stove, the combination with a fuel-magazine, a pendant air-dust open at the bottom, distributors provided with air-exits secured in said open bottom, shields secured to the dust, baffle-plates in said dust, and a pipe or pipes passing through said fuel-magazine to supply air to said air-dust, substantially as described.

35. In a stove, the combination with a fuel-magazine and fire-pot, a pendant air-dust, a vertical grate, open at the top, a door covering said grate, and a fuel-chute having air-inlet pipes entering the fuel-magazine above the upper end of the grate, substantially as described.

36. In a stove, the combination with a fuel-magazine, an air-dust, air-distributors in the lower end of said air-dust, means for supplying air to both ends of the air-dust, air-heating chambers having air-tubes for introducing heated air to said fuel-magazine, means for regulating the supply of air thereto, a fuel-supply chute having air-inlet pipes entering the fuel-magazine, and means for introducing heated air to the fuel-magazine behind the air-dust, substantially as described.

37. In a stove, the combination with an air-dust, a fuel-magazine, and means for introducing heated air to the fuel-magazine, said means comprising a housing having a false bottom provided with an opening which communicates with the interior of said housing, and a flue communicating with the space between the housing and the false bottom for the admission of air, substantially as described.

38. In a stove, the combination with a fuel-magazine, an air-dust comprising depending plates and air-distributors between the lower ends of said plates, means for delivering air to the fuel in the fuel-magazine from the air-dust, and a pipe or pipes passing through the magazine for supplying air to said air-dust from the atmosphere, said pipe or pipes each having a flaring end where it enters the air-dust, and means for regulating the admission of air thereto, substantially as described.

39. In a stove, the combination with a fuel-magazine, an air-dust comprising depending perforated plates, air-distributors, a perforated shield secured to said depending plates, baffle-plates between said depending plates and shield, baffle-plates between the depending plates, and a pipe or pipes passing through the magazine for supplying air to said air-dust, substantially as described.

40. In a stove, the combination with a fuel-magazine, means for introducing air thereto, said means comprising a flue located to heat air in its passage therethrough, a protrusion or flange in proximity to said

flue, said housing having an opening which communicates with said flue, a sheet of transparent material in the housing and adjacent the opening therein, all for the purpose of supplying air to the fuel-magazine and preventing soot accumulating on the transparent material, substantially as described.

41. A pendant air-dust, open at the bottom, means for supplying air to said air-dust, and an air-distributor consisting of a pendant end, and a securing end, angular grooves in the distributor at a point where said distributor enters the air-dust, substantially as described.

42. An air-dust open at the bottom, a plurality of spaced-apart removable air-distributors having air-exits at their meeting edges and secured within the air-dust, and a sectional shield secured to said air-dust, substantially as described.

43. A pendant air-dust, and a series of air-distributors each consisting of a body portion which tapers at its lower end and is provided with horizontal and vertical grooves, a securing upper end portion which fits within said air-dust, said portions having a series of vertical grooves which form a continuation of the grooves in the body portion, said tapering ends forming spaces between said distributors when two or more of the same are placed in the air-dust, substantially as described.

44. In a stove, the combination with a fuel-magazine, a pendant air-dust, pipes in said magazine which communicate with the atmosphere and the air-dust to supply heated air to said air-dust, a perforated lining in said fuel-magazine set in from the stove sides to form an air-heating chamber, and means for regulating the admission of air entering the air-dust and the air-heating chamber, substantially as described.

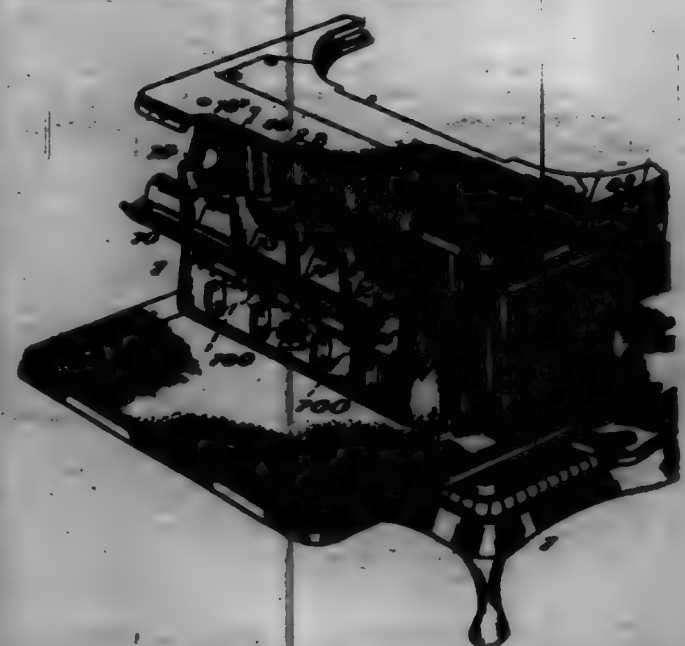
45. In a stove, the combination with a fuel-magazine, a pendant air-dust, means for supplying said air-dust with heated air, a perforated lining in said fuel-magazine set in from the stove sides to form an air-heating chamber, and means for regulating the admission of air entering at the ends of the air-dust and the air-heating chamber, substantially as described.

46. A pendant air-dust, and a plurality of solid air-distributors having notches at their meeting edges to form air-exits, said distributors consisting of a main portion, and a reduced upper portion, the latter portion fitting in said air-dust, substantially as described.

47. In a stove, the combination with a pendant air-dust, an air-distributor and baffle-plates arranged within said air-dust, and means for directing currents of heated air to the air-dust, substantially as described.

48. In a stove, the combination with a fuel-magazine, a pendant air-dust open at the bottom, air-distributors provided with air-exits at their outer edges and secured in said open bottom, shields secured to the air-dust, baffle-plates in said air-dust, and means in the magazine for supplying heated air to the air-dust, substantially as described.

698,799. STOVE. EDWIN E. GARDNER, NEWARK, N. J. Filed Dec. 14, 1899. Serial No. 742,112. (No model.)



Claim.—1. In a stove, the combination with a fuel-magazine, a pendant partition therein, an air-dust, air-heating chambers in the stove structure, and superheaters located in said fuel-magazine in front of the pendant partition, said superheaters communicating with said air-heating chambers, the superheaters having outlets for delivering heated air through the body of the fuel in the magazine under the influence of the main draft.

2. In a downward-stove, the combination of a fuel-magazine, a pendant partition therein, an air-dust, means located in said fuel-magazine in front of the pendant partition for heating air, means for supplying air to

said means for heating air, and tubes extending downwardly from the means for heating air from a plane above the level of the bed of fuel and adapted to direct currents of heated air toward the bed of fuel for its combustion, all constructed for the purpose of conducting the heated air and the products of combustion downwardly through the fuel under the influence of the draft.

3. In a downward-stove, the combination of a fuel-magazine, a pendant partition therein, an air-dust, means located in said fuel-magazine in front of the pendant partition for heating air, and tapered tubes extending from the means for heating air from a plane above the level of the bed of fuel, and adapted to deliver heated air currents toward the bed of fuel for its combustion, all constructed for the purpose of conducting currents of heated air, and the products of combustion downwardly through the fuel under the influence of the draft.

4. In a stove, the combination with a fuel-magazine, a pendant air-dust, an air-dust, air-heating chambers formed in the stove structure means for regulating the supply of air to said chambers, superheaters located in said fuel-magazine in front of the pendant air-dust, said superheaters communicating with said air-heating chambers, and tapered tubes depending from said superheaters, for delivering heated air to and through the fuel-magazine, under the influence of the main draft.

5. In a stove, the combination with a fuel-magazine, air-heating chambers located in the stove structure, superheaters located in said fuel-magazine, said superheaters communicating with said air-heating chambers, and a series of tapered tubes depending from said superheaters, the ends of said tubes which are located near the center being larger than the tubes near the side walls of said stove, to uniformly supply heated air to the fuel-magazine.

6. In a stove, the combination with a fuel-magazine, air-heating chambers located in the stove structure, superheaters located in said fuel-magazine, said superheaters communicating with said air-heating chambers, and a series of tapered tubes depending from said superheaters, the ends of said tubes which are located near the center, being larger than the tubes near the side walls of said stove, to uniformly supply heated air to the fuel-magazine.

7. In a stove, the combination with a fuel-magazine, a pendant air-dust therein, an air-dust, an air-heating chamber located in the stove structure, a superheater located in front of the pendant air-dust and in said fuel-magazine which communicates with the air-heating chamber, and means connected to said superheater for delivering a uniform supply of heated air to and through the fuel-magazine under the influence of the main draft.

8. In a stove, the combination with a fuel-magazine, an air-heating chamber, adapted to receive air at both ends, and tapered tubes depending from said chamber into said magazine, the ends of said tubes which are nearest the center of the stove being greater in diameter than the end tubes, substantially as shown and described.

9. In a stove, the combination with a fuel-magazine, of a blinged fuel-door covering the fuel-opening of said magazine, air-heating chambers formed between the walls of the fuel-magazine and the stove sides, a superheater attached to said fuel-door, said superheater adapted to register with said air-heating chambers when the fuel-door is closed, and means on the superheater for uniformly introducing currents of heated air to the fuel.

10. In a stove, the combination with a fuel-magazine, a fuel-door, an air-dust in said magazine, said air-dust being provided with air-exits for delivering currents of heated air to the fuel, a superheater suspended from the top of the stove and into the magazine, a series of tubes depending from said superheater, a closed superheater attached to said fuel-door, tubes projecting from said superheater, means communicating with the superheaters for supplying heated air, and means for simultaneously and uniformly regulating the supply of air to the chambers which supply heated air to the air-dust and the superheaters.

11. In a stove, the combination with a fuel-magazine, an air-dust in said magazine, a superheater, and a series of tubes arranged side by side and depending from said superheater, the end-openings of said tubes nearest the supply opening or openings of the superheater, being smaller than the ends of the tubes furthest from said supply, to equalize and uniformly supply currents of heated air to and through the fuel-magazine.

12. In a downward-stove, the combination with a fuel-magazine, an air-heating chamber, and a plurality of tapering tubes depending from said air-heating chamber, said tubes being arranged to deliver currents of heated air toward the fuel, the end-openings of said tubes varying in size, these nearest the supply to the air-heating chamber being the smallest, all constructed for the purpose of conducting uniform currents of heated air downwardly through the fuel under the influence of the draft.

13. In a stove, the combination with a fuel-magazine, an air-dust supported therein, said air-dust being made in sections, means projecting from the sides of the stove for supporting said sectional dust, and a plu-

rality of spaced-apart tips supported at the lower end of the sectional air-dust.

14. In a stove, the combination with a fuel-magazine, an air-dust supported therein, said air-dust being made in two sections, supports projecting from the sides of the stove, said supports locking and holding the sections together, and a plurality of sectional tips supported at the lower end of the sectional air-dust.

15. In a stove, the combination with a fuel-magazine, an air-dust supported therein, said air-dust being made in sections, means for supporting said sections, and a plurality of spaced-apart sectional tips supported at the lower end of the sectional air-dust.

16. In a stove, the combination with a fuel-magazine, an air-dust supported therein, said air-dust being made in sections, means for supporting said sections, and a series of spaced-apart and hollow perforated sectional tips supported at the lower end of the sectional dust.

17. In a stove, the combination with a fuel-magazine, a sectional removable air-dust, and a sectional removable tip or tips located in the lower end of said sectional dust.

18. In a stove, the combination with sides thereof, said sides having a cut-out portion and a series of air-inlets above said cut-out portion, a fuel-magazine having a series of perforations adjacent the cut-away portions in the stove sides, and perforated panels placed on the sides of the stove covering the cut-away portions and the air-inlets, said panels having perforations on the inner sides for forming air-heating chambers for applying the perforations in the fuel-magazine and the air-inlets in the stove sides.

19. In a stove, the combination with a fuel-magazine having a series of openings in its walls, means for delivering air to various points in the fuel-magazine, a panel fitting over the perforations in the fuel-magazine having its upper portion perforated and having a cavity on its inner side and a partition for dividing said cavity into two chambers so that air is furnished independently through the perforations in the fuel-magazine and through the said means for delivering air to various points therein.

20. In a stove, the combination with a fuel-magazine, an air-dust therein, means for jolting heated air to the front of the fuel-chamber, means for delivering currents of heated air to the fuel in rear of said air-dust, said means consisting of a plurality of two provided with notched flanges, one of said flanges overlapping the flange on the next succeeding bar, air-heating chambers arranged in the front and rear of said flanges and means for directing heated air to said chambers to communicate with the air in the fuel-chambers delivered from the air-dust and the jolting means.

21. A sectional air-dust for a stove made in two sections, flanges projecting from the sides of said stove, said sections being locked together and sealed in end by said flanges, legs at the lower end of the sections, and a baffle-plate located between the upper ends of the sections.

22. In a stove, the combination with a fuel-magazine, an air-heating chamber, a superheater having depending tubes and a rearwardly-extending flange, means for supporting said superheater at its ends, an air-dust having a forwardly-projecting flange, said flange being supported on the rearwardly-extending flange of the superheater and means for supporting said air-dust.

23. In a stove, the combination with an air-superheater provided with a rearwardly-extending flange, an air-dust having a forwardly-projecting flange, said flange being supported on the rearwardly-extending flange of the superheater, and integral supports projecting from the stove sides for supporting said air-dust.

24. In a stove, the combination with an air-superheater provided with a rearwardly-extending flange, an air-dust made in two sections, one of said sections having a forwardly-projecting flange, said flange being supported on the rearwardly-extending flange of the superheater, and supports projecting from the stove sides for supporting said air-dust.

25. The combination with an air-dust for a stove, a burner plate or shield, and supports projecting from the stove sides, the air-dust and the shield being held in fixed relation to each other by being seated in said supports.

26. The combination with an air-dust having a perforated body portion, a burner plate or shield, a grate or perforated plate inserted between said perforated body portion and said burner plate or shield, said means at the lower meeting ends of the dust and shield for distributing heated air.

27. In a stove, the combination with a fuel-magazine, a series of heated-air-introducing tubes, a corresponding series of heated-air-introducing tubes arranged at an angle and approximately between the above-said series of tubes, a series of air-introducing tubes below the line of the bed of the fuel, and means for regulating the supply of air introduced through said tubes.

28. In a stove, the combination with a sectional air-dust made in two sections, means for locking said sections together, and sectional tips

supported in the lower open end of said air-dust, said tip-section being slightly spaced apart for the exit of air.

29. In a stove, the combination with a perforated air-dust, perforated shield on said air-dust, means for supporting the air-dust and shield, a series of bell-shaped tubes in the air-dust, a gasket interposed in the space formed between the air-dust and one of the shields, and a plurality of sectional tips supported in the lower end of the air-dust, said tips having air-exits.

30. In a stove, the combination with a perforated air-dust made in two sections, supports projecting from the stove sides, said supports locking and holding said sections of the air-dust, and shields secured to the front and rear of said dust.

31. In a stove, the combination with a fuel-magazine, an air-dust, tip or tips being secured to said dust, each of said tips being made in sections, means for opening said sections, and means for locking said sections together.

32. A hollow tip made in sections, said sections having notches in their edges, legs projecting from one section and adapted to enter a cut in the opposite section to form spaces between said sections, and means for locking said sections together.

33. In a stove, the combination with a fuel-magazine, a fuel-door, an air-heating chamber covered to said fuel-door, means for supplying air to said chamber, and tubes depending from the chamber into said magazine, the exits of said tubes which are nearest the means for supplying air to the air-heating chamber being of smaller area than those remote from said supply.

34. In a stove, the combination with a fuel-magazine, of a bi-ported fuel-door covering the fuel-opening of said magazine, an air-heating chamber, a superheater attached to said fuel-door, said superheater adapted to register with said air-heating chamber when the fuel-door is closed, and means on the superheater for uniformly introducing currents of heated air to the fuel.

35. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust therein, an air-heating chamber, a superheater in said fuel-magazine, said superheater communicating with said air-heating chamber, and means attached to the superheater for delivering currents of heated air to and through the fuel in the magazine under the influence of the main draft.

36. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust therein, an air-heating chamber, a superheater in said fuel-magazine, said superheater communicating with said air-heating chamber, and means attached to the superheater for delivering uniform currents of heated air to and through the fuel in the magazine under the influence of the main draft.

37. In a stove, the combination with a fuel-magazine, a pendant perforated partition, an air-heating chamber, a superheater in said fuel-magazine, said superheater communicating with said air-heating chamber, and a series of tubes depending from the superheater, the openings of the tubes nearest the supply of the superheater being smaller than the exits of the tubes remote from said supply, all for the purpose of delivering uniformly-heated air to and through the fuel under the influence of the main draft.

38. In a stove, the combination with a fuel-magazine, a pendant partition in said magazine, a superheater depending from the top of the stove and into the magazine, a series of tubes depending from said superheater, a second superheater attached to the stove at an angle to the above-said superheater, tubes projecting from said angularly-disposed superheater, means communicating with the superheater for supplying heated air, and means for regulating the admission of air to the superheater.

39. In a stove, the combination with a fuel-magazine, a pendant partition in said magazine, a superheater depending from the top of the stove and into the magazine, a series of tapered tubes depending from said superheater, a second superheater attached to the stove at an angle to the above-said superheater, tapered tubes projecting from said angularly-disposed superheater, means communicating with the superheater for supplying heated air, and means for regulating the admission of air to the superheater.

40. In a stove, the combination with a fuel-magazine, an air-dust supported therein, means for supporting said dust, and a plurality of speed-apart sectional tips in the lower end of said dust.

41. In a stove, the combination with a fuel-magazine, an air-dust supported therein, means for supporting said dust, and a plurality of speed-apart sectional tips in the lower end of said dust, having air-exits or notches formed between and in the edges of said sections facing the tip.

42. In a stove, the combination with a fuel-magazine, a pendant partition in said magazine, air-heating chambers, superheaters, two sets of tapered tubes communicating with said superheaters, one of said sets of tubes being arranged at an angle to the other, thus connecting the superheaters with the air-heating chambers, said tubes being provided

to deliver heated air to and through the bed of the fuel from the top, and means for delivering heated-air currents below the bed of the fuel.

43. In a stove, the combination with a fuel-magazine, a pendant partition therein, means for delivering a plurality of uniform currents of heated air to and through the fuel from the top, a series of tubes for delivering heated air below and through the bed of the fuel, and means for regulating the supply of air.

44. In a stove, the combination with a fuel-magazine, a pendant partition therein, means for delivering a plurality of heated-air currents to and through the fuel from the top, and a plurality of air-heating chambers having air-exits in rear of the pendant partition, said chambers being adapted to deliver currents of heated air to and through the fuel from the front and below the bed of the fuel.

45. In a stove the combination with a fuel-magazine, a pendant partition therein, means for delivering a plurality of heated-air currents to and through the fuel from the top, a plurality of air-heating chambers having air-exits on the side of the stove, and a plurality of tubes for delivering currents of heated air to and through the fuel from the front and below the bed of the fuel.

46. In a stove, the combination with a fuel-magazine, a pendant partition therein, means for delivering a plurality of heated-air currents to and through the fuel from the top, a plurality of air-heating chambers having air-exits in rear of the pendant partition, air-heating chambers having air-exits on the side of the stove, and a plurality of tubes for delivering currents of heated air to and through the fuel from the front and below the bed of the fuel.

47. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust, speed-apart perforated tips in the lower end of said dust, an air-heating chamber, a flue or flues connecting said air-heating chamber and the air-dust, a second air-heating chamber and superheater, and means connected to said superheater for delivering a plurality of uniform currents of heated air to and through the fuel.

48. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust, speed-apart perforated tips in the lower end of said dust, an air-heating chamber, a flue or flues connecting said air-heating chamber and the air-dust, a second air-heating chamber and superheater, and a plurality of tubes connected to said superheater, the tubes nearest the supply to the superheater being smaller than those remote therefrom for delivering uniform currents of heated air to and through the fuel.

49. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust, speed-apart perforated tips in the lower end of said dust, an air-heating chamber, a flue or flues connecting said air-heating chamber and the air-dust, a second air-heating chamber and superheater, and a plurality of tapered tubes connected to said superheater, the tubes nearest the supply to the superheater being smaller than those remote therefrom, for delivering uniform currents of heated air to and through the fuel.

50. In a stove, the combination with a fuel-magazine, a pendant perforated air-dust, speed-apart perforated tips in the lower end of said dust, an air-heating chamber, a flue or flues connecting said air-heating chamber and the air-dust, an air-heating chamber and superheater depending from the stove-top, an additional air-heating chamber and superheater, the latter being arranged at an angle to the superheater nearest to the stove-top, tapered tubes projecting from the superheater, the tubes nearest the supply of air of one of the superheaters being smaller than those remote therefrom for delivering uniform currents of heated air to and through the fuel from the top, and a plurality of air-heating chambers having air-exits in rear of the air-dust for delivering currents of heated air to the rear of the fuel.

51. In a stove, the combination with a fuel-magazine, a flue, air-heating chambers, a superheater having air-exits, the air-heating chamber and superheater communicating, said superheater being positioned in the fuel-magazine to direct currents of heated air through the fuel-bed under the influence of the draft.

52. In a stove, the combination with a fuel-magazine, a flue, air-heating chambers, a superheater located in said fuel-magazine, thus connecting the air-heating chambers and the superheater, and a series of tubes projecting from said superheater, the exits of the tubes nearest the flue connecting the air-heating chambers being smaller than those remote therefrom.

53. In a stove, the combination with a fuel-magazine, an air-dust open at its lower end, tips secured within said lower open end of the dust, means for supplying heated air to said dust, of a fuel-door covering the fuel-opening of said magazine, air-heating chambers, a superheater attached to said fuel-door, flues connecting said air-heating chambers and said superheater when the fuel-door is closed, and means on the superheater for uniformly introducing currents of heated air to the fuel.

54. In a stove, the combination with a fuel-magazine, an air-dust in said magazine, covering the fuel-opening of said magazine, an air-dust in said magazine, said air-dust being provided with air-exits for delivering currents of heated air to the fuel, a superheater in said magazine, a series of tubes pro-

jecting from said superheater into the magazine, a second superheater attached to said fuel-door, tubes projecting from said superheater, means communicating with the superheater for supplying heated air thereto, and means for regulating the supply of air.

55. In a stove, the combination with a fuel-magazine, a flue, an air-dust, means in the lower end of said dust for distributing currents of heated air, air-heating chambers within said magazine, tubes projecting from said air-heating chambers being arranged at an angle to and at a point between a companion set of tubes projecting from a second air-heating chamber, said tubes projecting from said air-heating chambers being positioned to direct currents of heated air through the body of the fuel to the flue under the influence of the main draft.

56. In a stove, the combination with a fuel-magazine, a flue, an air-dust, means in the stove structure for applying heated air to said air-dust, and speed-apart tips in the lower end of said air-dust.

57. In a stove, the combination with a fuel-magazine, a flue, an air-heating chamber, a superheater communicating with said air-heating chamber, tubes projecting from the superheater into the fuel-magazine to direct currents of superheated air through the body of the fuel, an air-dust, an air-heating chamber which communicates with said air-dust, and means in the lower end of said dust for distributing currents of heated air to the body of the fuel.

58. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, an air-dust in said magazine, an air-heating chamber, said chamber communicating with said air-dust, means secured within the lower end of the dust for distributing currents of heated air to the fuel, and a series of tapered tubes, constructed and arranged to deliver currents of air toward the bed of fuel whereby said latter currents of air, together with the heated-air currents delivered to the fuel from the means within the lower end of the air-dust, are drawn through the body of fuel under the influence of the draft.

59. In a stove, the combination with a fuel-magazine, air-heating chambers, a superheater, said superheater communicating with the air-heating chambers, a series of tubes projecting from said superheater, a second superheater, said second superheater communicating with the said air-heating chambers, tubes projecting from the second superheater and arranged at an angle to and approximately between the above-said series of tubes, a series of air-introducing tubes below the flue of the bed of the fuel, and means for regulating the supply of air introduced through said tubes.

60. In a stove, the combination with a fuel-magazine, a perforated air-dust, a flue, air-introducing tubes located above the bed of the fuel and adapted to direct currents of heated air through the body of the fuel, and a series of tubes below the bed of the fuel for introducing currents of heated air through the body of the fuel to mix therein with the currents of air introduced through the tubes from above.

61. In a down-draft-stove, the combination with a fuel-magazine, an air-dust in said fuel-magazine, air-heating chambers, a superheater, said superheater being in communication with the air-heating chambers, means for directing currents of superheated air from the superheater down upon or toward the top of the bed of the fuel and in front of the air-dust whereby said currents of superheated air are drawn through the fuel under the influence of the draft.

62. In a down-draft-stove, the combination with a fuel-magazine, an air-dust in said magazine, an air-dust in rear of said air-dust, air-heating chambers, a superheater arranged in front of the air-dust and communicating with said air-heating chambers, tubes projecting from said superheater toward the bed of fuel, and adapted to direct currents of heated air toward the bed of fuel for its combustion, said heated-air currents being drawn through the body of fuel from the top under the influence of the draft.

63. In a down-draft-stove, the combination with a fuel-magazine, an air-dust in said fuel-magazine, an air-dust in rear of said air-dust, air-heating chambers, a superheater which communicates with said air-heating chambers, means for uniformly and continuously delivering currents of superheated air from the superheater toward the top of the fuel-bed and in front of the air-dust, said superheated currents of air being drawn through the body of fuel under the influence of the draft.

64. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, and a series of tubes arranged below the plane of the top of the bed of fuel and adapted to direct a series of individual currents of air toward the bed of fuel, said currents of air being drawn through the body of fuel under the influence of the draft.

65. In a stove, the combination with a fuel-magazine, an air-dust, a series of tubes located below the top of the bed of the fuel to direct a series of individual currents of air through the body of the fuel and a series of air-heating chambers provided with exits for introducing a plurality of heated-air currents to the fuel to mix therein, with the individual cur-

rents delivered from the tubes, the air-currents being drawn through the fuel under the influence of the draft.

66. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, and a series of tapered tubes arranged below the plane of the top of the bed of fuel, and adapted to direct a series of individual currents of air toward the bed of fuel, said currents of air being drawn through the body of fuel under the influence of the draft.

67. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, an air-dust in said magazine, means for delivering currents of superheated air toward the top of the bed of fuel in front of the air-dust, said currents of superheated air being drawn through the body of fuel under the influence of the draft.

68. In a stove, the combination with a fuel-magazine, a flue, an air-dust therein, air-heating chambers, a superheater, a series of tubes projecting from said superheater into the fuel-magazine, said superheater communicating with the air-heating chambers, a second superheater, means for delivering currents of superheated air to the fuel from said second superheater, the air-currents being drawn through the body of the fuel under the influence of the main draft.

69. In a stove, the combination with a fuel-magazine, air-heating chambers formed in the stove structure, superheaters communicating with said air-heating chambers, tubes projecting from said superheaters into the fuel-magazine for delivering currents of superheated air above the bed of the fuel, a series of tubes below the bed of the fuel for directing currents of heated air through the body of the fuel, and a series of air-heating chambers having a plurality of exits for introducing currents of heated air through the body of the fuel, said latter air-currents together with the air-currents introduced through the tubes located below the fuel-bed being drawn through the fuel-bed under the influence of the main draft.

70. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, an air-heating chamber, a superheater communicating with said air-heating chamber, a series of tubes extending from said superheater and arranged to deliver currents of superheated air toward the bed of fuel, said superheated-air currents being drawn through the body of fuel under the influence of the draft.

71. In a down-draft-stove, the combination with a fuel-magazine, a flue, means for supplying individual currents of heated air to all sides of said magazine, and means for delivering a plurality of individual currents of heated air through the fuel from the top, all of said currents being drawn through the body of the fuel under the influence of the main draft.

72. In a stove, the combination with a fuel-magazine, a flue, means for heating air, a superheater, and a double series of tubes arranged intermediate each other for delivering individual currents of heated air through the flue from the top.

73. In a down-draft-stove, the combination with a fuel-magazine, an air-dust, an air-heating chamber, a series of tubes extending from said air-heating chamber, and arranged to deliver currents of heated air toward the bed of fuel, said heated-air currents being drawn through the bed of fuel under the influence of the draft.

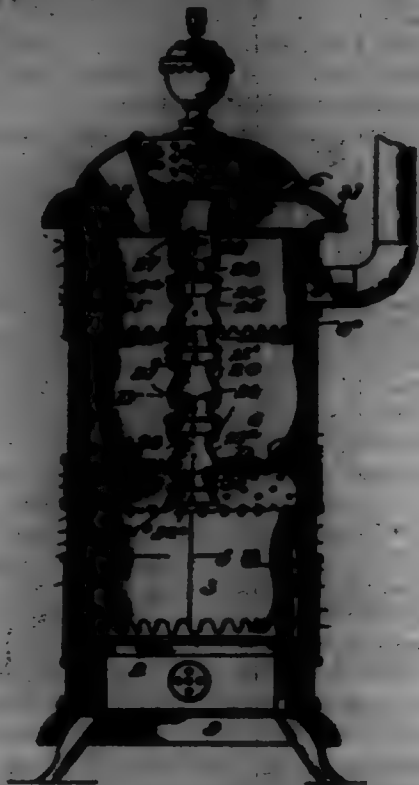
74. In a down-draft-stove, the combination with a fuel-magazine, an air-dust communicating with the magazine near the bottom of the latter, an air-heating chamber, means for directing currents of heated air from said air-heating chamber toward the top of the bed of fuel, and means arranged below the plane of the top of the bed of fuel for delivering currents of heated air toward the fuel-bed, the currents of heated air which are delivered above the fuel-bed from the air-heating chamber, and the heated-air currents delivered toward the fuel-bed below the plane of the top, being drawn through the body of fuel under the influence of the draft.

698,800. STOVE. EDWIN H. GARDNER, Inventor, R. I. Filed Dec. 24, 1906. Serial No. 48,888. (No model.)

Claim.—1. In a stove, the combination of a fire-pot having an overhanging perforated portion, an air-dust, an air-heating chamber arranged to receive said fire-pot, means for regulating the admission of air to said air-heating chamber, a series of tubes entering the side walls of the fire-pot, each of said tubes having a window in its outer end and an opening in its inner side, heated air entering said tubes to be delivered to the body of the fuel from the sides thereof, heated air also being delivered downwardly to the top of the fuel-bed through the perforated overhanging portion of the fire-pot from the air-heating chamber; and means for delivering currents of heated air through the fuel from below, said air-currents being drawn in under the influence of the main draft, substantially as described.

2. In a stove, the combination with a fire-pot, an air-dust, an air-heating chamber surrounding said fire-pot, a series of tubes communicating with the air-heating chamber and the fire-pot for introducing heated air to the fuel-body from the sides thereof, an air-heating chamber above the fire-pot, and a portable sectional tube provided with air-exits at the meeting edges of said sections of the tube, said tube communicating with said

latter air-heating chamber to deliver air downwardly toward the fuel-bed in currents at various heights and angles to mix with the gases escaping to the flue, substantially as described.



3. In a stove, the combination of a fire-pot, an air-heating chamber, an exit-flue, an air-heating chamber surrounding said fire-pot, means for introducing air into said chamber, one or more tubes which enter the fire-pot, each tube having a perforation in its under side which communicates with the air-heating chamber, and means for introducing currents of heated air downwardly and at different levels toward the bed of the fuel which mixes with the gases escaping to the flue, substantially as described.

4. A stove comprising a casing, a fire-pot, means for introducing air to said fire-pot, an exit-flue, and a depending sectional tube provided with air-exits at the meeting ends of each section, said tube being located wholly above the top of the bed of the fuel and formed to deliver currents of air at different levels and angles to mix and ignite the gases escaping to the flue, substantially as described.

5. A stove comprising a casing, a fire-pot and a tube made in sections and loosely joined together, each section having a notched internal flange at its lower end and a notched turned-out flange at its upper end forming air-inlets, said flanges also forming the supports between the sections, substantially as described.

6. In a stove, the combination of a fire-pot made in two or more sections which overlap, said overlapping sections being provided with air-inlets, means for securing said sections together, and an air-heating chamber surrounding said fire-pot, for introducing air through said inlets, and means for introducing heated air downwardly toward the top of the fuel in the fire-pot, substantially as set forth.

7. In a stove, the combination of a fire-pot made in sections, means for securing said sections together, an air-heating chamber for delivering heated air above the bed of the fuel, means for introducing air to said chamber, an exit-flue, a covered air-heating chamber and a sectional tube communicating with said latter chamber, the meeting edges of said sections having exits to introduce currents of heated air downwardly and at different levels toward the fuel-bed, to mix and ignite the gases escaping to the flue, substantially as described.

8. A stove comprising a casing, a fire-pot made in sections, said sections overlapping and being provided with air-inlets, a passage being formed between the casing and fire-pot, regulating means for supplying air to said passage, a series of tubes entering the fire-pot, and a depending sectional tube provided with air-exits for delivering air to the top of the fuel, substantially as described.

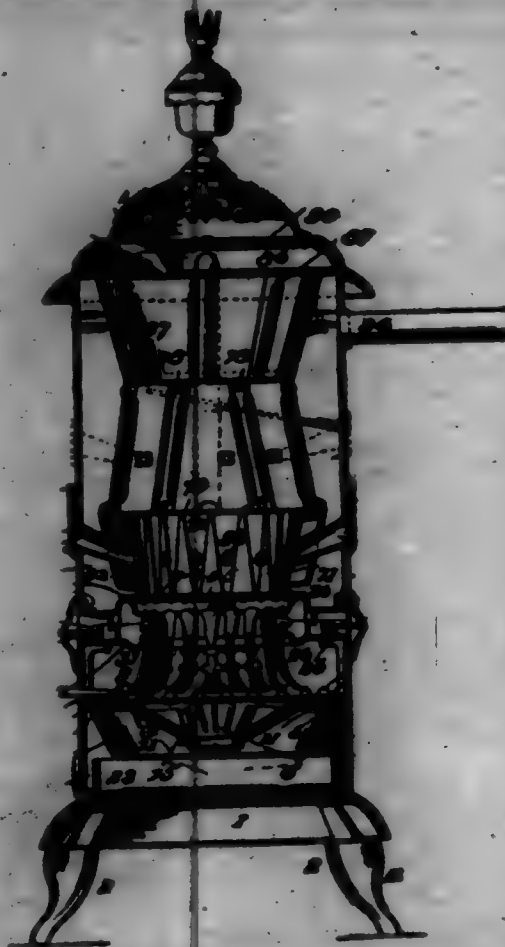
9. A stove comprising a casing, a fire-pot, a perforated air-heating chamber surrounding said fire-pot, an overhanging upper ledge surrounding the chamber to deflect the air-currents to the top of the bed of the fuel, a series of tubes entering the fire-pot which communicate with said air-heating chamber, a second air-heating chamber, and a depending sectional tube communicating with said latter chamber, said tube having air-exits at the meeting ends of the sections to introduce currents of heated air downwardly at different levels toward the fuel-bed, substantially as described.

10. A stove comprising a casing, a fire-pot, a space being formed between said fire-pot and the casing, a portable sectional tube to supply

air at different levels above the bed of the fuel, an air-heating chamber above the fire-pot, an air-heating space being formed above said air-heating chamber, said space supplying air to the fire-pot and means for introducing air thereto, as set forth.

11. A stove comprising a casing, a fire-pot, an air-heating chamber in the stove structure, a depending sectional air introducing tube located wholly above the fuel-bed and communicating with said air-heating chamber, said sections having air-exits at the joints thereof, and means for flexibly joining the sections together, all for the purpose of delivering heated air currents above the fuel-bed at different angles and levels, substantially as described.

698,801. HEATING-STOVE. EDWIN R. VANCE, Newark, N. J.
Filed Mar. 5, 1901. Serial No. 49,512. (No model.)



Claim.—1. In a stove, the combination with a fire-pot, a grate, and means provided with individual openings for supporting the fire-pot, said fire-pot being constructed in sections, the lower section being made up of a series of pendant portable bars having means projecting from each bar which fit into one of the individual openings in the supporting means, substantially as set forth.

2. A stove comprising a casing, a grate, a fire-pot, said fire-pot being constructed in sections, the lower section being made up of a series of pendant portable weighted bars, and means provided with individual openings for supporting said bars, a hook on the rear of each bar which is adapted to fit in one of the individual openings of the support, and a flange on each bar below said hook to fit under a flange of the support, the lower weighted end of the bars fitting the lower flange of the bars in position substantially as set forth.

3. A stove comprising a casing, a grate, a fire-pot, said fire-pot being partly constructed of a series of portable pendant bars, a leg on each bar, a flange below said leg, a support provided with individual openings to accommodate said legs, said support being formed in said support for the flange of the bars, substantially as set forth.

4. A stove comprising a casing, a grate, a fire-pot, said fire-pot being partly constructed of a series of portable bars, means for supporting said bars, said means comprising a hook member and a flange below said member, and a supporting-ring said ring being provided with openings forming seats for the hook members and a bearing surface or support for the lower flange on the bars, substantially as set forth.

5. A stove comprising a casing, a grate, a fire-pot, said fire-pot being partly constructed of a series of portable bars, a support for said bars, and means on each bar which engage with the support whereby said portable bars have to be swung in or reeled toward the center of the stove and then lifted up, to disengage them for removal from which position they can be removed, substantially as set forth.

6. A stove comprising a casing, a grate, a fire-pot, said fire-pot be-

ing partly constructed of a series of pendant portable bars, and a support on which the bars are hung, each bar being provided with means wholly at the upper portion for engaging the support, and being held in position thereby by its free lower, weighted end, substantially as set forth.

7. A fire-pot constructed in sections, the lower section being made up of a series of pendant portable bars, means for supporting the bars, each bar being provided wholly at its upper portion with a device for engaging the means on which the bars are supported said device being held in locked proper position to the support by the weighted lower free end of said bars, substantially as set forth.

8. A stove comprising a casing, a grate, a fire-pot, said fire-pot being constructed in sections, the lower section being made up of a series of portable bars, an air-heating chamber surrounding said pot and said lower section of the fire-pot having openings which communicate with the air-heating chamber, means for supplying air to said air-heating chamber, and means on each pendant bar and the wall of the air-heating chamber for supporting said bars, substantially as set forth.

9. A stove comprising a casing, a grate, a fire-pot, the lower end of said fire-pot being composed of a series of pendant portable bars, an air-heating chamber surrounding the fire-pot, means on the air-heating chamber for supporting said bars, and means for supplying air to and distributing air from said chamber, substantially as set forth.

10. A stove comprising a casing, a grate, a fire-pot, the lower end of said fire-pot being composed of a series of pendant portable bars, an air-heating chamber having a series of exit-openings therein which surround the fire-pot, said air-heating chamber being made in sections and supporting the portable bars, and means for supplying air to said chamber, substantially as set forth.

11. A stove comprising a casing, a grate, a fire-pot, said fire-pot having its lower portion composed of a series of pendant portable bars, an air-heating chamber made in sections and surrounding said bars, each of said sections having coincident openings forming nests for the pendant bars and a series of air-exit openings, and means for supplying air to said chamber, substantially as set forth.

12. A stove comprising a casing, a fire-pot, a space being formed between said fire-pot and casing, a grate, and a series of combined air-introducers and air-exit openings communicating with said fire-pot at a point where the fuel becomes incandescent, said introducers communicating with the atmosphere and extending across the above-said space for heating the incoming air, substantially as and for the purpose specified.

13. A stove comprising a casing, a grate, a fire-pot, a series of combined air-introducers and air-exit openings communicating with the fire-pot at a point where the fuel becomes incandescent, double door having one of its panels of solid opaque formation and its other panel covered with a transparent material whereby the air-introducers may be either shut off entirely or the condition of the fuel may be exposed.

14. A stove comprising a casing, a grate, means for supporting said grate, a fire-pot constructed in sections the lower section of said fire-pot being made up of pendant portable bars, means for independently supporting said bars, an air-heating chamber having a series of air-exits surrounding the portable bars, a plate or flange on said chamber adapted to deflect the air-currents coming from the air-heating chamber through the air-exits toward the bed of the fuel, and means for supplying air to the air-chamber, substantially as set forth.

15. A stove comprising a casing, a grate, a fire-pot, the lower portion of said fire-pot being constructed of a series of pendant portable bars, an air-heating chamber surrounding said lower portion of the fire-pot, said air-heating chamber being made up of sections having exit-perforations and extensions, the extensions of the sections when placed together forming tubes for the introduction of air, and means for holding the portable bars, said means being provided with openings, and a series of legs below said openings on the lower section, substantially as set forth.

16. A stove comprising a casing, a grate, a fire-pot, said fire-pot being constructed in two sections the upper section being grooved vertically the grooves tapering from the top toward the bottom and the lower section being made up of a series of pendant portable bars, means for supporting the upper section, and means for supporting the pendant portable bars, substantially as set forth.

17. A stove comprising a casing, a grate, a fire-pot, said fire-pot being partly constructed of a series of pendant portable bars, each bar being weighted at the lower end, and means supporting said bars wholly at the upper portion, the lower ends of said bars being free when in place, substantially as set forth.

18. A stove comprising a casing, a grate, a fire-pot, said fire-pot composed of an upper member and a lower member made up of portable bars, a support intermediate the upper and lower members on which the upper member rests and, to which the bars forming the lower member hang, the lower free ends of the bars being free, a space being formed between the fire-pot and casing which communicates with the fire-pot through slots formed intermediate the bars, and a flue communicating with said space, substantially as set forth.

19. A stove comprising a casing a fire-pot having spaced pendant portable bars at the lower portion, a perforated air-heating chamber surrounding the upper ends of the bars and to which said bars are attached, radial flues opening to the atmosphere to supply air to said chamber, baffle-plates in one or more of said flues, a space being formed between the fire-pot and casing which communicates with said fire-pot at the lower end, a flue communicating with said space and means for delivering air downwardly through the flue, substantially as described.

20. A stove comprising a casing, a fire-pot made up of sections, an air-heating chamber interposed between said sections of the fire-pot, portable bars supported on said air-heating chamber which form the lower section of the fire-pot, a separate member seated on the air-heating chamber to support the upper section of the fire-pot, means for introducing air to the flue through the walls of the upper section, a space being formed between the fire-pot and casing and a flue communicating with said space, substantially as set forth.

21. A fire-pot comprising a series of portable pendant bars, each bar having outwardly-projecting means at its upper portion to fasten it in position, the lower ends being free, an air-heating chamber, means for supplying air to said chamber, individual openings in the lower wall of said chamber in which fit the outwardly-projecting means of the bars to fasten them in position, said openings being larger than the outwardly-projecting means of the bars forming air-exits, substantially as set forth.

22. A fire-pot comprising pendant portable bars, a support for the bars, said support being provided with a series of openings and a flange under said openings, and projections on each bar which coast with said openings and flanges when the parts are assembled, the projections being spaced in such relation to the support that the bars have to be moved in and up to be released, substantially as set forth.

23. A fire-pot comprising a support having openings, a flange on said support which is located under said openings, a series of, portable bars, each bar having a hook-shaped leg and a flange which is parallel with and is located under said leg, the upper end of said bar overhanging the leg while the lower end is free, substantially as set forth.

24. A fire-pot comprising upper and lower sections, the lower section being made up of a series of portable bars, an air-heating chamber intermediate the fire-pot sections which supports the fire-pot, means for supplying air to said chamber, a series of exits being formed in said chamber to deliver air to the fuel at different angles and levels, and a second series of exits being formed in the air-heating chamber for delivering currents of air to the escaping gases outside of the portable bars, substantially as set forth.

25. A fire-pot, comprising upper and lower sections, and an air-heating chamber interposed between and supporting said sections, means for supplying air to said air-heating chamber, a plurality of angularly-arranged exits being formed to introduce heated air at the juncture of the upper section of the fire-pot and the air-heating chamber, and a series of vertical exits being formed below said exits and outside the lower section to introduce heated-air currents to meet and mix with the escaping gases, substantially as described.

26. A fire-pot comprising upper and lower sections, the latter having a series of slots at the lower portion, an air-heating chamber, means for supplying air to said chamber, a series of exits being formed in the air-chamber to introduce currents of heated air to the fuel at different angles and levels, and two sets of exits being formed in the lower portion of the air-heating chamber to deliver currents of heated air downwardly and outside the lower section of the fire-pot to meet and mix with the escaping products of combustion, substantially as set forth.

27. A portable section for a fire-pot consisting of a head, the lower end of which is turned out, a hook-shaped leg also projecting outwardly from said head and above the outward end thereof, and a depending rounded portion extending from the head and provided with ribs and notches to form air-exits when two or more of said sections are assembled.

688,809. STOVE. EDWIN R. GANSON, Inventor, E. J. Fitch, Attor. 3, 1901. Serial No. 48,619. (No model.)

Claim.—1. A stove comprising a casing, a fire-pot, a magazine, and an independent packing connection where said is adapted to be varied at either edge when fitting it to overlap the shutting ends of said fire-pot and magazine substantially as described.

2. A stove comprising a casing, a fire-pot, a fuel-magazine having a depending overhanging lip projecting into said fire-pot, and an independent packing connection where said is adapted to be varied at either edge when fitting the shutting ends of the fire-pot and the fuel-magazine, substantially as described.

3. A stove comprising a casing, a fire-pot, a fuel-magazine, and a hinged independent packing connection where said is adapted to be varied at either edge when fitting the shutting ends of said fire-pot and fuel-magazine, substantially as described.

4. A stove comprising a casing, a fire-pot, a fuel-magazine, and a depending overhanging lip projecting into said fire-pot, and an independent packing connection between said fire-pot and the fuel-magazine, substantially as described.



5. A stove comprising a casing, a fire-pot, a fuel-magazine, an air-heating chamber interposed between the fuel-magazine and the fire-pot, said chamber having an upwardly-projecting flange or seat which forms a rest for the fuel-magazine, and an independent connection where said is adapted to be varied at either edge when fitting it to said fuel-magazine and the flange or seat on the air-heating chamber, substantially as described.

6. A stove comprising a casing, a fire-pot, a fuel-magazine, a supporting-ring in the upper end of said casing adapted to support the fuel-magazine, and an independent connection where said is adapted to be varied at either edge when fitting it to the fire-pot and the fuel-magazine, substantially as described.

7. A stove comprising a casing, a fuel-magazine, a fire-pot, one or more tubes for introducing air to the fuel in the fire-pot, means for supporting the tubes, movable air-heating chambers formed above the upper ends of the tubes and above the means for supporting said tubes, and plates connecting said chambers for covering the tubes when the chambers are moved, substantially as described.

8. A stove comprising a casing, a fuel-magazine, a fire-pot, one or more tubes for introducing air to the fuel in the fire-pot, means for supporting the tubes, and independent air-heating chambers formed above the upper end of each of the tubes and above the means for supporting said tubes, substantially as described.

9. A stove comprising a casing, a fuel-magazine, a fire-pot, a support fitted to the upper end of the casing and adapted to support the fuel-magazine, a top for said casing and magazine, one or more pipes or tubes depending from said top, and upwardly-extending flanges above said tubes to form air-heating chambers, substantially as described.

10. A stove comprising a casing, a fuel-magazine, a fire-pot, a support seated in the upper end of the casing having formed therein a stepped seat, one or more depending tubes, a support for holding said tubes, said support which is seated in the casing supporting both the fuel-magazine and the support from which the tubes depend, substantially as described.

11. A stove comprising a casing, a fuel-magazine, a fire-pot, a support seated in the upper end of the casing having formed therein a stepped seat, one or more depending tubes, a support for holding said tubes, a base having openings therein and surrounded by upwardly-extending flanges, which form continuations of the depending tube or tubes, and a stove-top composed of a lid portion and an outer portion surrounding said lid por-

tion, said latter portion having depending flanges adapted to abut with the upwardly-projecting flanges on the base, substantially as described.

12. A stove comprising a casing, a fuel-magazine, a fire-pot, one or more pipes or tubes adapted to deliver air to the fuel in the fire-pot, means for supporting said tubes, independent auxiliary air-heating chambers above and for each of said tubes, said chambers being formed above the upper open end of the tubes and above the support therefor, substantially as described.

13. In a stove, the combination of a fire-pot, one or more tubes adapted to deliver air to the fuel in the fire-pot, means for supporting said tubes with air, a cover over said means for supporting the tubes, auxiliary chambers located above the open ends of said tubes, said chambers being formed by flanges projecting above the means for supporting the tubes, and flanges projecting from the cover, substantially as described.

14. In a stove, the combination of a fire-pot, one or more tubes adapted to deliver air to the fuel in the fire-pot, a cover, supports for the tubes and movable auxiliary air-heating chambers located above and for each of the tubes for heating the air before entering said tubes, substantially as described.

15. In a stove, the combination of a fire-pot, a magazine, means for supporting the magazine, one or more tubes adapted to deliver air to the fuel in the fire-pot, a support for the tubes which is seated on the upper end of the magazine, and means for regulating the admission of air to the tubes, substantially as described.

16. A stove comprising a casing, a fire-pot having an upwardly-projecting flange, a magazine, and an independent packing connection where said is adapted to be varied at either edge when fitting it to the ends of the fire-pot and fuel-magazine, said packing connection being seated on the upwardly-projecting flange of said fire-pot, substantially as described.

17. A stove comprising a casing, a top, a fuel-magazine having a flange at its upper end, a fire-pot, a support mounted in the upper end of the casing having a seat formed at its inner edge, the flange of the magazine fitting the seat formed in the support thereby surrounding the magazine, a ring seated on the upper part of the magazine, a finishing-ring seated on the support on which the top rests, substantially as described.

18. A tube or tubes for the purpose specified, a support for the same, and means heated above the support to prevent the heat rising therefrom deflecting air entering said tubes, said means opening vertically to the atmosphere, substantially as described.

19. A downward-stove, comprising a casing, a fuel-magazine, a fire-pot, a support, tubes hung in the support, a cover, and independent auxiliary air-heating chambers located between the outer ends of the tubes and the cover, substantially as described.

20. A casing for a stove, and a top provided with flanges which extend from the upper and lower sides, the lower flange fitting the casing, an opening being formed for a fuel-door and a flange surrounding the same, a fuel-door, and a cover adapted to fit the flange on the upper side of the top of the stove and the flange surrounding the fuel-opening, substantially as described.

21. A stove comprising a casing, a stove-top having an opening surrounded by a flange, a fuel-magazine provided with a flange which fits the flange of the top, a fire-pot, and independent means connecting the magazine and fire-pot, where said is adapted to be varied at either edge when the magazine and fire-pot are placed in position, substantially as described.

698,808. STOVE. EDWIN R. GARDNER, Newark, N. J. Filed Mar. 4, 1901. Serial No. 48,324. (No model.)



Claim.—1. A stove comprising a casing, a fuel-chamber, a main exit-flue, a series of tubes for introducing jets of air through the fuel under the influence of the draft, a plurality of auxiliary flues communicating with each other at one end, and at their opposite ends with the main exit-flue, a damper in said flue to cut off the main exit-flue from the fuel-chamber to direct the products of combustion passing to the exit-flue through the plurality of auxiliary flues, an air-heating chamber interposed between the casing and the plurality of auxiliary flues, and flues connecting said chamber and the tubes as described.

2. A stove comprising a casing, a fuel-chamber, a main exit-flue, a series of tubes arranged to deliver jets of air below the bed of the fuel, a plurality of auxiliary flues communicating with each other at one end, and at their opposite ends with the main exit-flue, a damper in said flue to cut off the main exit-flue from the combustion-chamber to direct the products of combustion passing to the exit-flue through the plurality of auxiliary flues, a hot-air-supply chamber in proximity to the main exit-flue and the plurality of auxiliary flues, and means connected to said hot-air-chamber for supplying jets of heated air to the fuel-chamber, substantially as described.

3. A stove comprising a casing, a fuel-chamber, a main exit-flue, a plurality of auxiliary flues communicating with each other at one end, and at their opposite ends with the main exit-flue, a damper in said flue to cut off the main exit-flue from communication with the fuel-chamber to direct the products of combustion passing to the exit-flue through the plurality of auxiliary flues, a hot-air-supply chamber in proximity to the main exit-flue and the plurality of auxiliary flues, means connected to said hot-air-chamber for supplying a series of currents of heated air to the fuel-chamber in various places, and means also connected to the air-heating chamber for delivering jets of heated air to the fuel substantially as set forth.

4. A stove comprising a casing, a fuel-chamber, a main exit-flue, a hot-air-supply chamber, a superheater having perforated protuberances within the fuel-chamber, a hot-air-chamber communicating with said superheater, and flues connecting the hot-air-supply chamber and the hot-air-chamber communicating with the superheater, substantially as described.

5. A stove comprising a casing, a fuel-chamber, a pendant air-dust, a main exit-flue, a hot-air-supply chamber, flues connecting the hot-air-supply chamber and the air-dust, a superheater having perforated protuberances within the fuel-chamber, a hot-air-chamber communicating with said superheater, and flues connecting the hot-air-supply chamber and the hot-air-chamber communicating with the superheater, substantially as described.

6. A stove comprising a casing, a fuel-chamber, a pendant air-dust, a main exit-flue, a hot-air-supply chamber, flues connecting the hot-air-supply chamber and the air-dust, perforated hollow flanges in said fuel-chamber, flues connecting said hollow portions of said flanges with the hot-air-supply chamber, a superheater having perforated protuberances within the fuel-chamber, a hot-air-chamber communicating with said chamber, and flues connecting the hot-air-supply chamber and the hot-air-chamber communicating with the superheater, substantially as described.

7. A stove comprising a casing, a fuel-chamber, having a hollow lining, a pendant partition, a main exit-flue, a superheater having perforated protuberances, a damper in said superheater a hot-air-supply chamber, a damper for regulating the admission of air thereto, and pipes or flues leading from said chamber and communicating respectively with the air-dust, superheater and hollow lining, substantially as set forth.

8. A stove comprising a casing, a fuel-chamber, having a hollow lining, a pendant air-dust, provided with means for delivering currents of heated air to the fuel, a main exit-flue, a superheater having perforated protuberances, a hot-air-supply chamber located in the rear of the casing, and pipes or flues leading from said chamber and communicating respectively with the air-dust, superheater and hollow lining, a damper in the hot-air-supply chamber, and a damper in the superheater for independently controlling the air introduced through the perforated protuberances, substantially as set forth.

9. A stove comprising a casing, a fuel-chamber, a pendant air-dust, a main exit-flue, a plurality of auxiliary flues communicating with said exit-flue, a communicating-chamber at the bottom of said exit-flue with which said auxiliary flues communicate, a damper adapted to shut off direct communication between the central auxiliary flue and the main flue, to direct the products of combustion passing to the chimney to traverse the plurality of auxiliary flues, in combination with an air-heating chamber interposed between the casing and the flues and means co-operating therewith for delivering through the fuel-bed currents of heated air from the air-heating chamber, said air-currents being drawn through said fuel, under the influence of the draft.

10. A stove comprising a casing, a fuel-chamber, a pendant air-dust, a main exit-flue, a damper means coacting with said damper whereby the products of combustion are deflected and expanded and again brought together before said products of combustion leave the stove, in combination

with an air-heating chamber interposed between the casing and the flues, and means co-operating therewith for delivering through the fuel-bed currents of heated air from the air-heating chamber, said air-currents being drawn through said fuel under the influence of the draft.

11. A stove comprising a casing, a fuel-chamber, having a perforated hollow lining, a pendant air-dust, a main exit-flue, superheater, perforated hollow protuberances, a damper in said superheater, an air-heating supply-chamber, pipes or flues connecting said chamber with the hollow lining, the superheater and the air-dust, a plurality of auxiliary flues communicating with said main flue, a communicating-chamber at the bottom of said auxiliary flues, and a damper for cutting off the central auxiliary flue from direct communication with the main flue, substantially as described.

12. A stove comprising a casing, a fuel-magazine, an air-dust having openings in one of its walls, removable means in the lower end of said dust for distributing air to the fuel-magazine, said air-distributing means having flanges projecting beyond the air-dust, a shield supported at its lower end by said flanges on the means for distributing air, and hook-shaped lugs projecting from said shield and adapted to engage the openings in the air-dust, whereby said shield is prevented from being laterally displaced, except by an upward movement of the same, substantially as described.

13. A stove, comprising a casing, a fuel-magazine, a curved air-dust, a curved flue in rear of the same, an air-heating chamber positioned to be heated as the products pass through said flue, and means communicating with said chamber for delivering currents of heated air to the fuel.

14. A stove comprising a casing, a fuel-magazine, a chamber above the fuel, an air-dust, a flue in rear of the same for the escape of the products of combustion, said flue also connecting with the fuel-magazine, an air-heating chamber positioned to be heated as the products pass through said flue, and means communicating with said chamber for delivering two sets of currents of heated air to the fuel, one set of said currents of air being delivered to the air-chamber and thence to and through the fuel from the top, while the other set of air-currents are delivered to the air-dust and thence through the fuel from below the top.

698,804. HEATING-STOVE. EDWIN R. GARDNER, Newark, N. J. Filed Mar. 14, 1901. Serial No. 51,177. (No model.)



Claim.—1. A stove comprising a casing, a fire-pot, a magazine, said fire-pot having a series of pendant bars and lugs, flanges projecting from the casing for supporting said lugs, means for introducing air to a space between the magazine and fire-pot at a point where the products of combustion leave said fire-pot, and a hollow plate in said space having a damper therein for controlling the volume of heat, substantially as set forth for the purpose set forth.

2. A stove comprising a casing, a fire-pot, having a series of slots, a magazine, means for supporting the fire-pot and magazine, an air-heating chamber having air-exits formed between the fire-pot and magazine, means for supplying air to said chamber, means for introducing air to the space formed between the fire-pot and casing, an exit-flue communicating with said space at the upper end, and means for controlling the volume of heat.

3. A stove comprising a casing, a fire-pot having a series of depending bars and having a series of corresponding slots between said bars, a magazine, an air-heating chamber having air-exits between the fire-pot and magazine, means for supplying air to said chamber, means for supplying the space formed between the fire-pot and casing with air, an exit-flue communicating with said space, tubes for introducing air to the body of fuel from the sides, and tubes for delivering currents of air downwardly through the fuel.

4. A stove, comprising a casing, a fire-pot, having a series of depend-

ing base and having spaces formed therebetween, legs projecting from the fire-pot, flanges for supporting said legs, an exit-flue communicating with the space formed between the fire-pot and casing, tubes adapted to deliver air downwardly through the fuel, and means communicating at the upper end with the magazine, and at the lower end with the fire-pot below the top of the bed of the fuel, whereby air may be supplied to the fire-pot from the top if the fuel becomes packed.

5. A stove comprising a casing, a fire-pot provided with a surrounding air-heating chamber, a space being formed between the fire-pot, magazine and casing, an exit-flue communicating with said space, a baffle-plate in the space which inclines upwardly toward the front and provided with an opening and a damper, and means for delivering currents of air downwardly through the fuel under the influence of the draft.

898,805: STOVE-LINING. EDWIN R. GARDNER, Newark, N. J.
Original application filed Dec. 14, 1902, Serial No. 746,313. Divided and this application filed Mar. 14, 1904. Serial No. 61,490. (No model.)



Claim.—1. A fire-pot lining comprising a series of portable sections, each section having a leg on one side and a notch on its opposite side, and an outwardly-projecting flange on each side one of which is wider than the other, the leg of one section fitting the notch of the adjoining section, and the widest flange of one section overlapping the narrow flange of the adjoining section thereby locking and positioning the sections together when assembled.

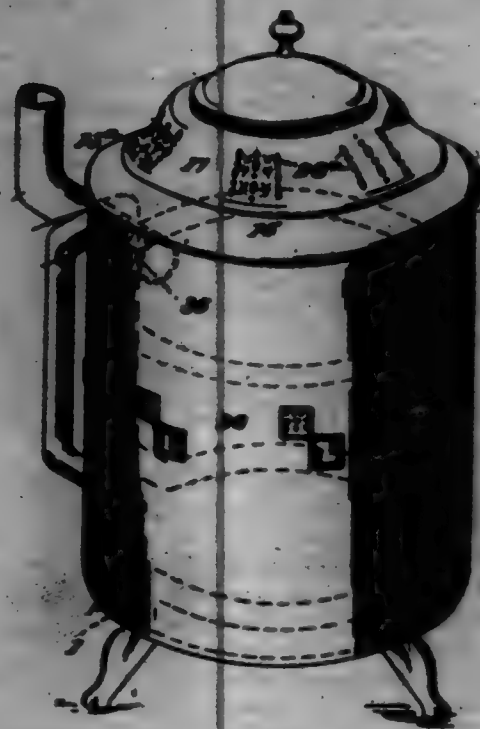
2. A fire-pot lining comprising a series of portable sections, each section having a front portion and a base spaced from each other, said base having its edges notched, one side of said base extending beyond the line of the edge of the front portion and adapted to overlap the base of an adjoining section, the notches in the base registering to form air-channels, whereby air may be introduced to the fire-pot, means for spacing apart the front portions of the adjoining sections, and means for securing the sections together.

3. A fire-pot lining comprising a series of portable sections, each section having a front portion and a base, means connecting the front portion and base, the front portion, the base and the means connecting the same form, with adjoining sections, when assembled air-chambers, and a head which is slightly wider than the front portion whereby a space is formed between two adjoining sections below the head to form exits for air to pass to the fire-pot, air-heating chambers communicating with said space, and means for holding the sections together.

4. A section for a fire-pot lining, comprising a front portion, a base, and a web connecting the front portion and base, said base being provided with notches along its side edges adapted to be brought into alignment with notches of adjacent sections of a fire-pot, said section also comprising means for spacing it from adjacent sections and from the fire-pot, whereby air may be heated and introduced into the combustion-chamber through the spaces formed between adjacent sections when assembled.

5. A fire-pot lining, comprising portable sections, having a front portion, a base having its edges notched, and a web connecting the front portion and base, air-heating chambers being formed between the sections when placed side by side, means for spacing the sections, to form exits from said chambers, and air-heating chambers also being formed between the fire-pot and portable sections, said air-heating chambers communicating through the notches in the base with the adjacent air-heating chambers formed between the adjoining sections.

898,806. HEATING-STOVE. EDWIN R. GARDNER, Newark, N. J.
Filed July 11, 1901. Serial No. 67,982. (No model.)



Claim.—1. A downdraft-stove comprising a casing, a fire-pot, an air-heating chamber or chambers arranged at the top of the stove to receive the ascending heated air surrounding the stove, means for directing the air to said chamber or chambers, and means communicating with said chamber for delivering said heated air downwardly in individual currents to the fuel from which the gases are generated, said heated air being drawn through the fuel under the influence of the draft.

2. A stove comprising a casing, a fire-pot, an air-heating chamber in proximity to the fire-pot, auxiliary air-heating chambers, means connecting the chamber in proximity to the fire-pot and the auxiliary air-heating chambers, a second set of auxiliary chambers, and tubes depending therefrom toward the bed of the fuel to direct currents of heated air therethrough.

3. A stove comprising a casing, a fire-pot, an air-heating chamber in proximity to said fire-pot, auxiliary air-heating chambers, a deflector adapted to deflect the ascending heated air surrounding the stove to said chambers and toward the fuel to direct currents of heated air through the fuel-bed.

4. A stove comprising a casing, a fire-pot, a space being formed between said casing and fire-pot, a flue communicating with the aforesaid space, an air-heating chamber in proximity to said fire-pot, auxiliary air-heating chambers, ducts connecting said latter air-heating chambers and the air-heating chamber in proximity to the fire-pot, said ducts being located between the casing and the fire-pot in the path of the gases coming to the exit-flue.

5. A stove comprising a casing, a fire-pot, a flue, an air-heating chamber arranged to deliver currents of heated air to the fuel, two sets of auxiliary air-heating chambers, means for supplying one set of auxiliary air-heating chambers with the ascending heated air which surrounds the stove, tubes depending from said chambers to deliver currents of air through the fuel from the top, the second set of auxiliary chambers being supplied with air from the top, and ducts connecting said latter auxiliary air-heating chambers with the said air-heating chamber which surrounds the fire-pot.

6. A heating-stove comprising a casing, a fire-pot, a flue, a perforated air-heating chamber in proximity to and surrounding the fire-pot, two sets of auxiliary air-heating chambers in the stove-top, deflector arranged to deliver air to one end of said chambers, means connected to said chamber for delivering heated-air currents downwardly through the fuel, the second set of auxiliary chambers being supplied with air from the top, and ducts connecting said latter chambers with the air-heating chamber heated in proximity to the fire-pot.

7. A stove, comprising a casing, a fire-pot, a main flue, air-heating chambers arranged to receive the ascending heat surrounding the stove, a space being formed between the fire-pot and drum, a drum, an auxiliary flue in said space, said flue being connected at both ends with the main exit-flue, and a damper adapted to direct the escaping gases either to the main flue or the auxiliary flue.

8. A downdraft-stove, a drum comprising a casing, a fire-pot, a main exit-flue, air-heating chamber or chambers arranged to receive the ascending heat surrounding the stove, a space being formed between the casing and the drum, an auxiliary flue in said space one end of said flue being

positioned to receive the escaping products of combustion and its opposite end in communication with the main-exit-flue, and a damper adapted to direct the escaping gases either to the main flue or the auxiliary flue.

9. A downdraft-stove comprising a casing, a fire-pot, air-heating chamber or chambers arranged at or near the top of the stove to receive the ascending heated air surrounding the stove, means for deflecting said ascending heated air to said chamber or chambers, and tubes extending from said chamber or chambers for delivering heated air downwardly in individual currents to the fuel, from which the gases are generated, said heated air being drawn through the fuel under the influence of the draft.

10. A downdraft-stove comprising a casing, a fire-pot, air-heating chamber or chambers arranged at the top of the stove to receive the ascending heated air surrounding the stove, an air-heating chamber in proximity to the fire-pot, means of communication between said chamber or chambers and the air-heating chamber surrounding said fire-pot, whereby currents of heated air are delivered to the fuel, said currents of air being drawn through the bed of fuel under the influence of the draft.

11. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, air-heating chamber or chambers arranged at or near the top of the stove to receive the ascending heated air which surrounds the stove, means for deflecting the said heated air to the chamber, and tubes extending from said chamber or chambers for delivering heated air to the fuel, said heated air being drawn through the fuel under the influence of the draft.

12. In a downdraft-stove, the combination with a casing, a fire-pot, air-heating chamber arranged to receive the ascending heat surrounding the stove, an air-heating chamber surrounding the fire-pot, means connecting the chamber which receives the ascending heated air and the chamber which surrounds the fire-pot, whereby the ascending heat is preheated and delivered to the fuel, said air being drawn through the fuel under the influence of the draft, a drum, and an exit-flue located between the casing, and drum, whereby the ascending air is heated.

13. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, air-heating chamber adapted to receive the ascending heated air which surrounds the stove, said air being delivered to the fuel through openings in the chamber, and drawn through the fuel-bed under the influence of the draft, a drum, a chamber, flues connecting said chamber, and a space between the fire-pot and casing, and means for directing the escaping gases through the said flues and chamber, or direct through the exit-flue.

14. In a stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber having openings surrounding the fire-pot and adapted to deliver air to the fuel, means for deflecting the ascending heated air which surrounds the stove to the air-heating chamber in the fire-pot, means for delivering heated air to the fuel from the top, and a series of tubes for delivering a plurality of air-currents to the fuel intermediate the air-currents delivered from the top and the currents of air delivered from the air-heating chamber in the fire-pot.

15. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber having openings surrounding the fire-pot, and adapted to deliver air to the fuel, means for deflecting the ascending heated air which surrounds the stove to the air-heating chamber in the fire-pot, means for delivering heated air to the fuel from the top, and a series of tubes for delivering a plurality of air-currents to the fuel intermediate the air-currents delivered from the top, and the currents of air delivered from the air-heating chamber in the fire-pot, all of said currents of air being drawn through the fuel under the influence of the draft.

16. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber arranged to deliver currents of heated air to the fuel, two sets of auxiliary air-heating chambers, means for supplying one set of auxiliary air-heating chambers with heated air, tubes depending from said chambers to deliver currents of air to the fuel, the second set of auxiliary chambers communicating direct with the atmosphere, ducts connecting said second set of auxiliary chambers with the first-named air-heating chamber, the two sets of currents of air delivered to the fuel from the latter chamber, and from the tubes, being drawn through the fuel under the influence of the draft.

17. In a downdraft-stove the combination with a casing, a fire-pot, an exit-flue, a plurality of air-heating chambers arranged at or near the top of the stove to receive the ascending heated air which surrounds the stove, means arranged adjacent the fire-pot for preheating the air and delivering said air to the fuel and means communicating with said chambers and the means for preheating the air, the heated air being drawn through the fuel under the influence of the draft.

18. In a downdraft-stove, comprising a fire-pot, an air-heating chamber from which heated air is delivered to the fuel, auxiliary air-heating chambers, means connecting the air-heating chamber and the auxiliary air-heating chambers, a second set of auxiliary chambers, having openings through which currents of heated air are directed to the fuel, said latter currents of heated air and the air delivered to the fuel from the first-

named air-heating chamber being drawn through the fuel under the influence of the draft.

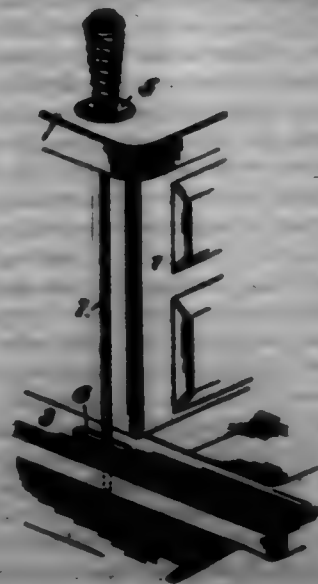
19. In a downdraft-stove, the combination with a casing, a fire-pot, auxiliary air-heating chambers at or near the top of the stove, means for gathering and deflecting into the auxiliary chambers the ascending heated air which surrounds the stove, an air-heating chamber having a series of openings to deliver heated-air currents to the fuel, means connecting the latter air-heating chamber and the auxiliary air-heating chambers, the air-currents from the air-heating chamber being drawn through the fuel under the influence of the draft.

20. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, auxiliary air-heating chambers at or near the top of the stove, an air-heating chamber surrounding the fire-pot and having a series of exit-openings to direct currents of air to the fuel, and ducts connecting the auxiliary air-heating chambers and the air-heating chamber which surrounds the fire-pot, said ducts being heated to be heated by the heat in the fire-pot, the heated-air currents delivered to the fuel being drawn through the fuel-bed under the influence of the draft.

21. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, air-heating chambers arranged to receive the ascending heated air surrounding the stove, means communicating with the said air-heating chambers for delivering heated-air currents to the fuel, and a series of tubes communicating with the atmosphere for delivering a plurality of air-currents to the fuel independent of the heated-air currents delivered from the air-heating chambers, all of said currents of air being drawn through the fuel under the influence of the draft.

22. In a downdraft-stove, the combination with a casing, a fire-pot, a space being formed between the casing and the fire-pot, an exit-flue communicating with said space, a drum spaced from the casing, tubes entering the fire-pot and communicating with the atmosphere, the air entering said tubes being heated by the ascending heated air in the space formed between the drum and the casing, and the space between the fire-pot, and casing, air-heating chambers arranged to receive the ascending heated air which surrounds the stove means communicating with said air-heating chambers for delivering currents of preheated air to the fuel, all of the aforesaid currents of heated air being drawn through the fuel under the influence of the draft.

698,807. POKER-SUPPORT. EDWIN R. GANNON, Newark, N. J.
Original application filed Feb. 4, 1897, Serial No. 681,804. Divided and this application filed Nov. 19, 1901. Serial No. 62,948. (No model.)



Claim.—1. A means for supporting a poker on a stove, comprising an upper flange provided with a counterbore perforation, and a lower flange having an opening therein approximately under the perforation in the upper flange to form a guide for the lower end of the poker, substantially as shown and described.

2. A means for supporting a poker on a stove, comprising an upper flange provided with a counterbore perforation, and a lower flange having a guide therein to receive the lower end of the poker, substantially as shown and described.

3. A means for supporting a poker on a stove, comprising an upper flange provided with a bevel perforation, and a lower flange having an opening therein which is larger than the opening in the upper flange, substantially as shown and described.

4. A means for supporting a poker on a stove, comprising an upper flange provided with a bevel perforation, and a lower flange having an elongated opening therein approximately under the bevel perforation in the upper flange, substantially as shown and described.

10. A means for supporting a poker on a stove, comprising an upper flange provided with a perforation, and a lower flange having a perforation which is larger than the perforation in the upper flange to form a guide for the lower end of the poker, substantially as described.

698,808. MECHANISM FOR OPERATING DAMPERS. EDWIN R. GARDNER, Troy, N. Y. Original application filed Mar. 5, 1891, Serial No. 69,810. Divided and this application filed Jan. 12, 1902. Serial No. 59,592. (No model.)



Claim.—1. In a down-draft-stove, the combination with a casing, a fire-pot having an opening at or near its upper end, and a gravity-damper normally covering said opening, an exit-space being formed between the fire-pot and casing, an exit-flue, a feed-door and a connection between said door and the damper, whereby the damper is uncovered when the feed-door is raised, and communication formed direct with the exit-flue and the fire-pot, said damper closing by gravity when the feed-door is closed, substantially as described.

2. A device for the purpose described, comprising a damper adapted to be swung upwardly, a hinged door, and means connecting the door and damper whereby said damper is opened when the door is opened, and closes by gravity when the door is closed, substantially as described.

3. In a stove, the combination with a casing, a cover, a damper having legs, bearings which are open adjacent the cover, said legs being confined by the cover, a feed-door, and means connecting the feed-door and damper, whereby the two are simultaneously operated.

4. In a down-draft-stove, the combination with a casing, a top, a feed-door in said top, a fire-pot having an opening at or near its upper end, a damper normally covering said opening, means connecting the damper and feed door, and a swinging cap, said cap contacting with the feed-door to open the damper, substantially as described.

5. A horizontal swinging member, a door opening at an angle thereto, in combination with a damper, and a connection between the damper and said door whereby the damper is operated when the horizontal swinging member is operated, substantially as described.

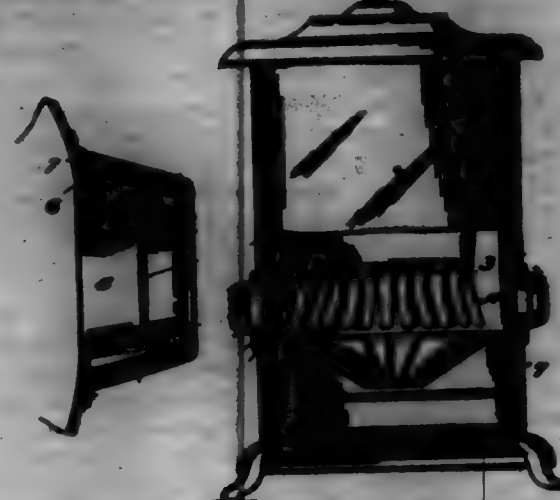
6. A horizontal swinging member, a door opening at an angle thereto, in combination with a hinged damper, and a chain connecting the damper and said door, whereby the damper is elevated when the horizontal swinging member is operated, substantially as described.

7. In a down-draft-stove, the combination with a casing, a fire-pot having an opening at or near the top, bearings which are open at the top, a damper provided with legs which are seated in said bearings, a top, said top confining the legs of the damper in the bearings, a door in the top, and a connection between the door and damper, whereby the damper and door are simultaneously operated, substantially as described.

8. In a down-draft-stove, the combination with a casing, a fire-pot having an opening, a damper covering said opening, an exit-space being formed between the fire-pot and casing, an exit-flue communicating with said exit-space, a feed-door, and a connection between said door and the damper, said connection being a chain, whereby the damper uncovers the opening in the fire-pot when the feed-door is opened, and may be seated independent of the feed-door, substantially as described.

698,809. AIR-INTRODUCER FOR STOVE. EDWIN R. GARDNER, Troy, N. Y. Original application filed Mar. 5, 1891, Serial No. 69,811. Divided and this application filed Jan. 14, 1902. Serial No. 59,593. (No model.)

Claim.—1. In a stove the combination with a casing having one or more openings, a fire-pot, an air-introducer or introducers registering with the opening or openings in the casing each introducer comprising a frame which is open at its receiving and exit ends, a jacket surrounding said frame forming a passage intermediate the two, said passage communicating with the interior of the frame at or near the receiving end of the latter, and at its opposite end with the atmosphere.



2. The combination with a stove-casing having an opening, and an air-introducer registering with said opening, said introducer comprising a frame which is open at its receiving and exit ends, a jacket surrounding the frame, a passage being formed intermediate the frame and the jacket, openings for admitting air to the passage, openings located at the opposite end of the frame for admitting air from the passage to the interior of the frame, and means in the frame for breaking the air, substantially as described.

3. The combination with a stove-casing having an opening therein, an air-introducer registering with said opening, said introducer comprising an open frame having a plurality of notches at one end, means in the frame for breaking air, said means being displaced from either end of the open frame, a jacket surrounding the frame, a space being formed intermediate the frame and the jacket, and a plurality of air-inlets formed in the jacket at or near the base thereof to introduce air to the space, substantially as described.

4. The combination with a stove-casing having an opening therein, an air-introducer registering with said opening, said introducer comprising an open frame having a plurality of notches at one end, means in the frame for breaking air, said means being displaced from either end of the open frame, a jacket surrounding the frame, a space being formed intermediate the frame and the jacket, and a series of notches in the jacket to admit air at or near the end of the space opposite to that of the notches in the open frame, substantially as described.

5. The combination with a stove-casing having one or a plurality of openings, air-introducers registering with the openings, each introducer comprising an open frame registering with one of the openings in the casing, a flange on the frame which is on the inner side of the casing, means for covering the flange in position, a jacket surrounding the frame, a space being formed between the two, openings being formed for the introduction of air to the space, at or near one end, and openings being formed at or near the opposite end of the space, for the introduction of air from said space to the interior of the frame, substantially as described.

6. The combination with a stove-casing having a plurality of openings, air-introducers registering with the openings, each introducer comprising an open frame which registers with one of the openings in the casing, a flange on the frame which is located on the inner side of the casing, means for spacing the flange from the casing, means for covering the flange in position, a jacket surrounding the frame, a space being formed between the jacket and frame, openings communicating with the space for the introduction of air thereto.

7. An air-introducer comprising an open frame, a jacket surrounding the frame, a removable cover on the jacket, means for covering the jacket in position, a space being formed intermediate the frame and jacket, openings being formed in the jacket to admit air to said space at or near one end thereof, said space communicating at or near its opposite end with the interior of the open frame, and means in the interior of, and displaced from either end of the frame to break the air, substantially as described.

8. An air-introducer comprising a frame open at its receiving and exit ends and tapering toward its receiving end, means in the frame for breaking air, a jacket larger than the frame and surrounding the latter, forming a space intermediate the frame and the jacket, said space communicating with the atmosphere at one end and the interior of the frame at the opposite end, substantially as described.

9. The combination with a stove-casing having openings therein, air-introducers registering with the openings, a flange extending from each introducer and placed on the inside of the casing, a space being formed intermediate the flange and casing, a lock for fastening said flange, legs extending from the lock which embrace the flange, and a nut being formed to position the lock, substantially as described.

10. An air-introducer comprising an open frame, having a plurality of notches at its outer end, a piece of sheet-metal mounted in the interior of the frame, a transparent cover fitted over the outer end of the frame, a jacket surrounding the frame, a series of inlets being formed at the inner end of the jacket, and a space being formed intermediate the jacket and casing whereby air is introduced to the passage, thence to the interior of the frame, substantially as described.

11. In a down-draft-stove, the combination with a fire-pot, a casing having a plurality of openings adjacent the fire-pot, a space being formed intermediate the fire-pot and casing, air-introducers registering with the openings, each introducer comprising an open frame, a jacket surrounding the frame, a space being formed intermediate the two, means for introducing air to the space, openings being formed between the space and the interior of the open frame, and means for breaking the air, whereby a plurality of finely-divided heated-air currents are delivered to the products of combustion in the latter lower the fire-pot, substantially as described.

12. The combination with a stove-casing having an opening therein, an air-introducer registering with said opening, said introducer comprising an open frame having air-inlets at or near one end, means in the frame for breaking air, a jacket surrounding the frame, a space being formed intermediate the frame and the jacket, and a plurality of air-inlets formed in the jacket at or near the opposite end of the space, substantially as described.

13. The combination with a stove-casing having an opening therein, an air-introducer comprising a frame having a passage therein, inlets being formed for admitting air to said passage, an exit-opening being formed for the escape of air into the interior of the frame, a flange extending from the introducer and being located within the casing and a space being formed intermediate the flange and casing, substantially as described.

698,810. HEATING-STOVE. EDWIN R. GARDNER, Troy, N. Y. Original application filed Mar. 5, 1891, Serial No. 69,812. Divided and this application filed Jan. 22, 1902. Serial No. 59,594. (No model.)



Claim.—1. A down-draft-stove comprising a casing, a fire-pot provided with a series of air-pockets, detachable covers for said pockets having slots whereby fuel is prevented falling into the pockets and the free ingress and egress of the air to the fuel is not retarded, and means for covering the covers in position, substantially as described.

2. A down-draft-stove comprising a casing, a fire-pot provided with

a series of air-pockets, detachable covers for said pockets which are open at the lower ends, whereby the ingress and egress of air to the fuel is permitted, and means for covering the covers in position, substantially as described.

3. A down-draft-stove comprising a casing, a fire-pot having a series of pockets, covers for said pockets which are raised at their lower ends, seats for the raised ends, and means for locking the covers in position, whereby the admission of air to the fuel is not retarded, substantially as described.

4. A down-draft-stove comprising a casing, a fire-pot, means for introducing currents of preheated air downwardly to the fuel in the fire-pot, said air being drawn through the fuel under the influence of the draft, a plurality of air-pockets in the fire-pot, a space being formed intermediate the fire-pot and casing which communicates with the lower end of the fire-pot, an exit-flue communicating with the space at or near the top of the latter and a damper in the upper part of the fire-pot at or near the exit-flue, substantially as described.

5. In a down-draft-stove, the combination with a casing, a fire-pot which is provided with a plurality of air-pockets, detachable covers for said air-pockets, a series of air-introducers in the fire-pot below said pockets and at a point where the fuel is inaccessibly, substantially as described.

6. In a down-draft-stove, the combination with a casing, a fire-pot which is provided with one or more air-pockets, air-introducers located above the bed of the fuel, and a series of air-introducers in the fire-pot at a point below the top of the bed of the fuel where the latter is inaccessible, substantially as described.

7. In a down-draft-stove, the combination with a casing, a fire-pot which is provided with a series of air-pockets, a damper at or near the top of the fire-pot, detachable covers for the pockets, product portable bars having cut-spaces therebetween forming the bottom of the fire-pot, a space being formed intermediate the fire-pot and casing which communicates with the fire-pot through the spaces between the product portable bars and an exit-flue communicating with the space at or near the top, substantially as described.

8. In a down-draft-stove, the combination with a casing, a fire-pot made in sections, the lower section being constructed of product portable bars, means for independently supporting said bars, an air-heating chamber having a series of air-cuts surrounding the portable bars, a plate or flange adapted to deflect the air-currents coming from the air-heating chamber toward the bed of fuel, means for supplying air to the air-heating chamber, the upper section of the fire-pot resting on the plate or flange and being provided with a series of air-pockets, and means at or near the top of the stove for introducing currents of heated air, substantially as described.

9. A down-draft-stove comprising a casing, a fire-pot made in sections, the lower section being made up of product portable bars, a space being formed between the casing and fire-pot, an air-heating chamber surrounding the portable bars, a plate or flange which supports the upper section of the fire-pot, pockets being formed in said upper section, a damper above the air-pockets, means for introducing currents of heated air above the bed of the fuel, and an exit-flue communicating with the space at or near the top, substantially as described.

10. In a down-draft-stove, the combination with a casing, a fire-pot having a series of openings at its lower end, a space being formed intermediate the fire-pot and casing, a damper at or near the top of the fire-pot, an exit-flue communicating with the space at or near the top, means for introducing individual currents of heated air downwardly to the fuel, and means for introducing currents of air into the inaccessibly mass of fuel from the sides, said air being drawn through the fuel under the influence of the draft, substantially as described.

11. In a down-draft-stove, the combination with a casing, a fire-pot having a series of openings at its lower end which communicates with an exit-space formed intermediate the fire-pot and casing, a perforated air-heating chamber forming a part of the fire-pot structure, a water-jacket surrounding the outside of the fire-pot, said water-jacket being above and in close relation to the air-chamber, an exit-flue communicating with the space at or near the top thereof, and means for introducing currents of heated air to the top of the fuel, said air-currents being drawn through the fuel under the influence of the draft.

12. In a down-draft-stove, the combination with a casing, a fire-pot, having a series of slots at the bottom which communicates with a space intermediate the fire-pot and casing, an air-heating chamber having air-cuts surrounding the fire-pot, means for introducing air to said chamber, means for deflecting heated currents of air coming from the chamber toward the center of the fuel, and means for introducing currents of heated air above the fuel, all of said air-currents being drawn through the fuel under the influence of the draft, substantially as described.

13. In a down-draft-stove, the combination with a casing, a fire-pot having a series of openings at its lower end which communicates with a space intermediate the casing and fire-pot, an air-heating chamber in the

space, said chamber having a series of air-exits to introduce heated air to the fuel, means for introducing air to the air-heating chamber, and means for introducing currents of heated air above the fuel, all of said air-currents being drawn through the fuel under the influence of the draft.

14. In a downdraft-stove, the combination with a casing, a fire-pot having a series of openings at the bottom which communicate with a space intermediate the casing and fire-pot, an exit-flue communicating with said space, an air-heating chamber having air-exits surrounding the fire-pot, means for supporting the air-heating chamber in the space, the lower wall of said chamber forming a portion of the fire-pot, means for introducing air to the air-heating chamber, and means for introducing currents of heated air above the fuel, the air-currents being drawn through the fuel under the influence of the draft, substantially as described.

15. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber surrounding the fire-pot which has a series of air-exits, means for introducing air to said chamber, means for introducing air in individual currents to the body of the fuel, and means for delivering individual currents of heated air at different levels to the top of the bed of the fuel, all of said air-currents being drawn through the fuel under the influence of the draft, substantially as described.

16. In a downdraft-stove, the combination with a casing, a fire-pot having a series of openings at its lower and which communicate with a space formed intermediate the casing and fire-pot, an exit-flue, an air-heating chamber mounted in said space, means for supplying air to the chamber, and a series of exit-openings being formed in the chamber at different angles and of different sizes to deliver air-currents at various points to the fuel at varying angles and proportions, said air-currents being drawn through the fuel under the influence of the draft, substantially as described.

17. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber having air-exits surrounding the fire-pot, an air-heating chamber, ducts connecting with said air-heating chamber to deliver heated air above the fuel, and means permitting the passage of the heated air should the mass of fuel become packed, substantially as described.

18. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, means for introducing individual currents of air to the top of the fuel, means for introducing individual currents of air to the fuel below the top thereof, a passage or passages being formed on the interior of the fire-pot to permit the air to pass on the outside of the fuel, openings being formed for the escape of the air from the passage or passages to the fuel, said air together with the individual currents being drawn down through the fuel under the influence of the draft, substantially as described.

19. In a downdraft-stove, the combination with a casing, a fire-pot having a series of openings at the lower and which communicate with a space formed intermediate the casing and fire-pot, a flue communicating with said space, an air-heating chamber surrounding the fire-pot, a series of air-exits being formed therein to introduce air to the fuel, means for introducing air to the fuel from the top, and means for introducing finely-divided air-currents to the products of combustion when the latter leave the fire-pot to enter the space, all of the air-currents being drawn through the fuel under the influence of the draft, substantially as described.

20. In a downdraft-stove, the combination with a fire-pot, means for introducing currents of heated air to the top of the fuel, means for introducing heated air to the sides of the fuel, means for introducing heated air intermediate the two aforesaid means, and a series of air-pockets in the fire-pot, substantially as described.

21. In a downdraft-stove, the combination with a casing, a fire-pot, made in sections, the lower section being constructed of pendant portable bars, means for independently supporting said bars, an air-heating chamber having a series of air-exits surrounding the portable bars, means for deflecting part of the air-currents coming from the air-heating chamber toward the bed of fuel, means for supplying air to the air-heating chamber, the upper section of the fire-pot resting on the means for deflecting a part of the air, air-pockets, and means at or near the top of the stove for introducing currents of heated air, substantially as described.

22. In a downdraft-stove, the combination with a casing, a fire-pot having a series of openings at the lower and which communicate with a space formed intermediate the casing and fire-pot, an air-heating chamber in the fire-pot, having a series of air-openings to introduce heated air to the fuel, means for introducing individual currents of heated air to the top of the fuel, means for introducing currents of heated air intermediate the means for delivering air to the top of the fuel and the series of openings at the lower end of the fire-pot, the air-currents being drawn through the fuel under the influence of the draft, and means for introducing finely-divided air-currents to the products of combustion after the latter leave the fire-pot.

23. In a downdraft-stove, the combination with a casing, a fire-pot, which is provided with one or more air-pockets, air-introducers heated

above the air-pockets and the bed of fuel and adjacent the walls of the fire-pot, and a series of air-introducers in the fire-pot at a point below the top of the bed of the fuel where the latter is incandescent.

24. In a downdraft-stove, the combination with a casing, a fire-pot, having a series of openings which communicate with an exit-space formed intermediate the fire-pot and casing, a perforated air-heating chamber forming a part of the fire-pot structure, a water-jacket located in said exit-space and above the air-heating chamber, an exit-flue communicating with the space above the water-jacket, and means for introducing currents of air toward the fuel, said air-currents being drawn through the fuel under the influence of the draft.

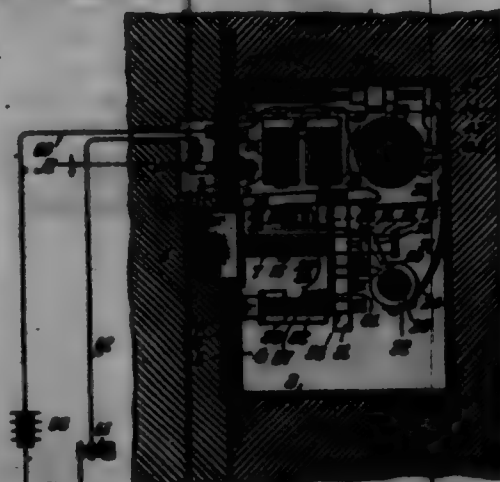
25. In a downdraft-stove, the combination with a casing, a fire-pot, having a series of openings at the bottom which communicate with a space intermediate the fire-pot and casing, an air-heating chamber having air-exits in the fire-pot, said chamber being adjacent the fire-pot, means for introducing air to said chamber, means for introducing individual currents of heated air above the fuel, all of said currents being drawn through the fuel under the influence of the draft, substantially as described.

26. In a downdraft-stove, the combination with a casing, a fire-pot, an exit-flue, an air-heating chamber adjacent the fire-pot, said chamber having a series of air-exits, means for introducing air to said chamber, means for introducing air in individual currents to the body of the fuel, means for delivering heated air-currents to the fuel at different levels, all of the air-currents being drawn through the fuel under the influence of the draft, and a plurality of air-pockets in the fire-pot, substantially as described.

27. In a downdraft-stove, the combination with a fire-pot having openings at its lower and which communicate with a space formed intermediate the casing and fire-pot, an exit-flue, an air-heating chamber adjacent the fire-pot, means for supplying air to the chamber, a series of exit-openings being formed in the chamber at different angles and of different sizes to deliver air-currents at varying angles and proportions, said air-currents being drawn through the fuel under the influence of the draft, substantially as described.

28. In a downdraft-stove, the combination with a casing, a fire-pot having grooves therein and being provided with openings which communicate with a space formed intermediate the casing and fire-pot, a plurality of air-pockets above the grooves which communicate therewith, an exit-flue and means for introducing air above the fuel, said air being drawn through the fuel under the influence of the draft, substantially as described.

698,811. LOCK, HENRY G. CARLSON, New York, N. Y., assignor to Carleton Electric Company, New York, N. Y., a Corporation of New York. Filed March 14, 1901. Serial No. 61,988. (No model.)

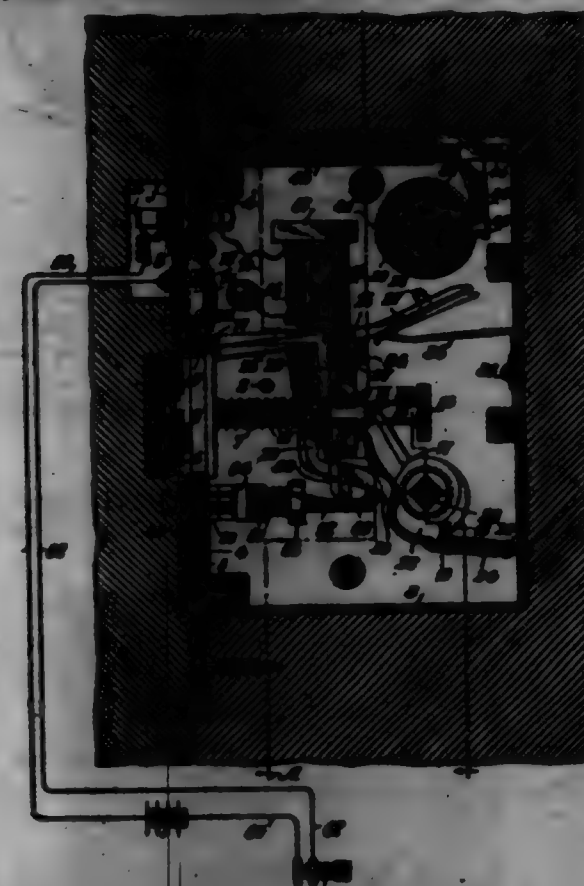


Claim.—The combination with an electrical lock of an electromagnet having one terminal electrically connected to an insulated point in the face-plate, the second terminal of said magnet being electrically connected to the lock-case and face-plate; a movable electrical contact on the strike-plate, registering with said insulated contact, to complete one side of the circuit, and two or more movable contacts in the lock-case, electrically connected in parallel or multiple to engage the strike-plate and complete the second side of said circuit with a metal guide-plate upon the outside of the opening, to prevent interference with said contacts.

698,812. LOCK, HENRY G. CARLSON, New York, N. Y., Filed Apr. 17, 1901. Serial No. 62,182. (No model.)

Claim.—1. In a lock, the combination with the movable engaging part, of a locking member therefor, consisting of a three-armed lever, supported on a pivot, and a separate actuating device for each arm of said lever.

2. In a lock, the combination with the movable engaging part, of a locking member therefor, consisting of a pivotally-supported lever having three arms, one forming an armature for an electromagnet, the second forming an engaging-point for a key-operated cam and the third forming an engaging-point for a knob-operated cam; an electromagnet, a key-operated device and a knob-operated cam for actuating said lever.



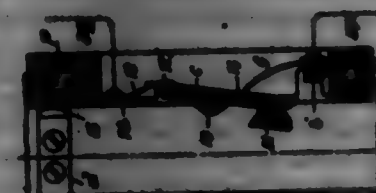
3. In a lock, the combination with the movable engaging part, of a locking member therefor, means for shifting said locking member consisting of two oppositely-rotatable cams, a spindle-cam or opening in each cam to receive a spindle entering from opposite directions, respectively, opening-inlets and a wall or partition separating the openings or spindle-cams.

4. In a lock, the combination with the movable engaging part, of a locking member therefor, consisting of a multiple-armed lever, a knob-edge support therefor, and a transverse engaging with the casing of the lock.

5. In a lock, the combination with the movable engaging part, of a locking member therefor, consisting of a multiple-armed lever, a knob-edge bearing or support therefor with a pair of lugs and a pair of transverse lugs at right angles to each other to prevent displacement.

6. In a lock, the combination with the movable engaging part, of a locking member therefor, consisting of a lever having a plurality of arms or engaging-points and a knob-edge support or bearing for said lever fixed upon the lock-casing.

698,818. MANTON ALARM AND PATENTING DEVICE. HENRY G. CARLSON, New York, N. Y., Filed Apr. 23, 1901. Serial No. 67,665. (No model.)

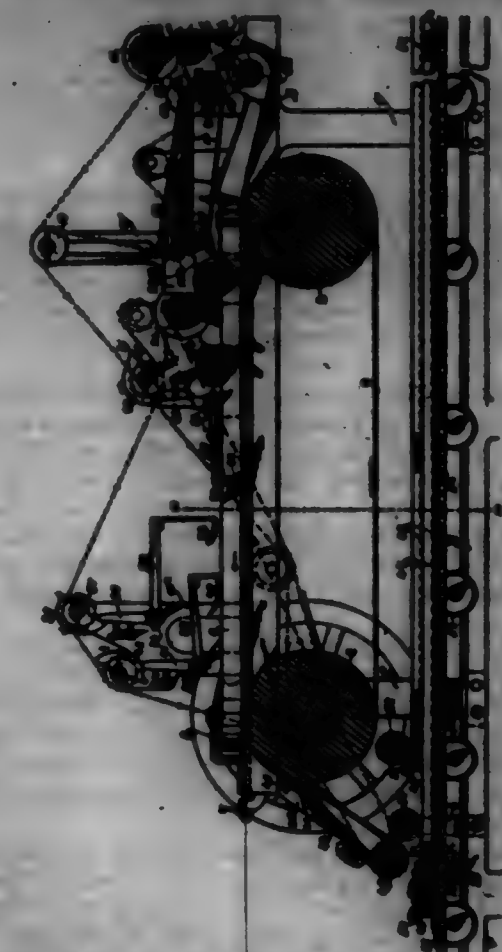


Claim.—The combination of a sliding frame, a casing for said frame, a lever in said casing pivoted at one end, an auto-angled hook on the opposite end, a catch for said hook fixed on said frame, a cam-like projection on said lever between said pivot and hook, in the path of said catch, a drum-cam operated by said lever, an electrical circuit and an indicator in said circuit.

698,814. DOUGH-MANIPULATING AND SHAPE-FORMING MACHINE. HENRY G. CARLSON and EDWARD E. HENRY, San Francisco, Cal., Filed July 2, 1901. Serial No. 67,976. (No model.)

Claim.—1. An apparatus for forming leaves of bread from dough, consisting of means for folding the edges of a sheet of dough upon the main portion, means for compressing the folded portion and cutting them with the main sheet, means for folding the front edge of the sheet upon

back, means for compressing the fold thus made upon the main portion, means for covering the sheet to the proper length, means for again folding the dough upon itself, and means for compressing the fold thus made, and means for producing a final fold and compression to form the loaf.



2. An apparatus for forming bread from dough consisting of rolls between which the dough is reduced to a sheet, an endless traveling belt and a guide intermediate between it and the rolls whereby the dough is transferred upon said belt, rolls journaled upon each side of the belt and revolvable laterally so as to fold the edges of the sheet of dough over upon the main portion, and rolls between which the folded sheet is passed whereby it is compressed.

3. In an apparatus for the manufacture of loaves from dough, means for reducing the dough to a flat sheet, an endless traveling belt upon which said sheet is delivered, rolls journaled parallel with and overlapping the edges of the sheet, and revolvable laterally, said rolls being actuated and rotating in diameter from the receiving to the discharge and whereby the edges of the sheet of dough are folded over upon the main body.

4. In an apparatus for the manufacture of loaves from dough, means for reducing the dough to a flat sheet, means for folding the edges of said sheet upon the central portion, means for again reducing the folded parts to a flat sheet, an endless traveling belt upon which said sheet is delivered, a reciprocating plate against which the end of the moving sheet contacts, and by which it is folded backwardly upon the main portion, and a vertically-movable plate by which said fold is pressed down upon the main portion.

5. In an apparatus for the manufacture of loaves from dough, means for reducing the dough to a flat sheet, and means for folding the edges of said sheet and pressing them upon the main body, a horizontal endless traveling belt upon which the sheet of dough is delivered, vertical endless traveling belts disposed upon each side of the main belt between which the edges of the sheet are carried, and vertically-reciprocating plates located above the horizontal belt whereby the sheet is folded and the fold is successively compressed together.

6. In an apparatus for the manufacture of loaves from dough, mechanism by which a sheet is formed from the dough, mechanism by which the edges are folded laterally and compressed upon the main portion, a horizontally-moving endless belt and vertical side belts between which the sheet of dough passes, a vertically-reciprocating folding plate located above the horizontal belt, said plate carrying an extension by which the fold is compressed upon the main portion, and a cutter by which the sheet is cut into regular lengths.

7. In an apparatus for forming loaves from dough, mechanism by which the dough is formed into a continuous sheet of equal width and thickness, an endless traveling horizontal belt and vertical side belts by which the sheet is guided, a reciprocating folding and compressing plate

and cutter for covering the sheet into lengths, and a cam by which said plate is actuated in unison with the movements of the belt.

8. In an apparatus for the manufacture of leaves from dough, mechanism by which the dough is reduced to a continuous sheet of equal width and thickness, an endless traveling belt upon which the sheet is delivered, side guiding-belts acting in unison therewith, a reciprocating folding, compressing and cutting plate, a lever-arm upon which it is carried and a cam by which it is actuated, and supplemental folding and compressing plates with actuating-cams, said cams and plates being operated in unison with each other and the movements of the belt.

9. In an apparatus for the manufacture of leaves from dough, mechanism by which the dough is formed into an endless sheet of equal width and thickness, an endless traveling belt upon which the sheet is delivered and guides upon the sides thereof, means for folding the sheet, compressing the folds and cutting the sheet into approximately equal lengths, and means for discharging the finished leaves from the end of the traveling belt.

10. In an apparatus for the manufacture of leaves from dough, mechanism by which the dough is formed into a continuous sheet of equal width and thickness, an endless traveling horizontal belt upon which the sheet is delivered, means movable in relation to said belt whereby the sheet is folded upon itself and the folds compressed to form a leaf, vertically-disposed endless belts traveling upon each side of the main carrying-belt to act as guides, means for separating said guide-belts at the end of their travel whereby the leaves are released from and pass over and allowed to be discharged.

11. In an apparatus for the manufacture of leaves from dough, mechanism by which the dough is formed into a continuous sheet of equal width and thickness, mechanism by which it is folded, the folds compressed to form a leaf, and the dough covered into lengths of approximately equal size, a discharge over which the finished leaves are delivered and slideable receiving trays or boards, with means for moving them so that the leaves are received successively upon the boards.

12. In an apparatus for the manufacture of leaves from dough, mechanism by which the leaves are formed and delivered from the apparatus, receiving trays or boards, supporting-rollers and an endless traveling chain with lugs by which the trays are moved, guides by which their line of travel is maintained, cloth-rolls mounted upon the front of each board, and means by which the cloth is unrolled as the boards advance to form a surface for the reception of the leaves.

13. In an apparatus for the manufacture of leaves from dough, mechanism by which the leaves are formed from the sheet and delivered from the end of the apparatus, receiving trays or boards with means for moving them in the line of delivery, cloth-rolls attached to the front of each board, standards upon each side having channels into which the shafts of the cloth-rolls are carried by the movement of the board whereby the cloth is unrolled to form a surface for the reception of the leaves.

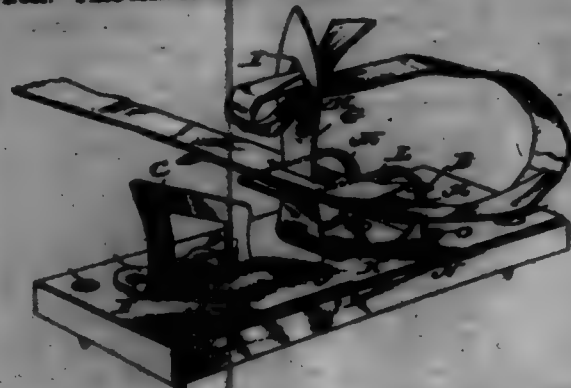
14. In an apparatus for the manufacture of leaves from dough, boards or trays upon which the finished leaves are delivered, means by which said boards are caused to advance in unison with the delivery, cloth-rolls having the ends attached to the front of the board, elastic standards located upon each side having bearings into which the shafts of the cloth-rolls are carried, and within which they revolve during the passage of the board, and lugs upon each side of the rear of the board whereby the standards are operated, and the shaft of the unrolled roll allowed to pass out with the board.

15. In an apparatus for the manufacture of leaves from dough, mechanism by which the leaves are formed, movable trays or boards upon which the leaves are delivered, cloth-rolls connected with each of the boards to form a surface for the reception of the leaves, and a mechanism by which the cloth is raised into folds between the contiguous leaves.

16. In an apparatus for the manufacture of leaves from dough, trays or boards and mechanism by which they are moved in the line of delivery of the finished leaves, said trays having cloth-rolls connected therewith, and means for unrolling the cloth to form a surface for the reception of the leaves, clamps upon each side of the boards and mechanism by which they are caused to raise the edges of the cloth and mechanism by which they are advanced more rapidly than the movement of the trays whereby the cloth is lifted into folds after the deposit of each leaf and between it and the next.

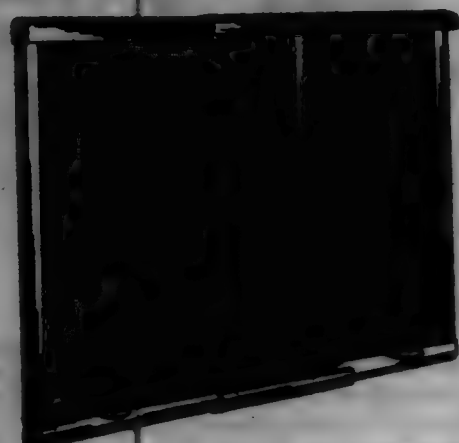
17. In an apparatus for the manufacture of leaves from dough, boards or trays upon which the completed leaves are delivered, cloth-rolls connected with the boards to provide a surface for the reception of the leaves, a shaft journaled beneath the trays, having arms upon its ends, spring-pressed lever-clamps carried by said arms and means for advancing said clamps so as to grip the edges of the cloth at each revolution of the shaft whereby the cloth is lifted into folds between one leaf and the succeeding one, and means for disengaging the clamps after the fold has been formed to allow the shaft to continue its revolution.

698,815. CARPET-RAG LOOPER. THOMAS A. CLARK, LANSING, MICH. Filed Mar. 22, 1901. Serial No. 88,664. (No model.)



Claim.—A carpet-rag looper comprising a base, a blade carried thereby formed with a pointed upper end and slotted below said point, and a U-shaped support secured to the base having the legs thereof extending at each edge of the blade and formed with convolutions, and having its doubled end extending beyond the free end of the blade, substantially as described.

698,816. SCREEN. WILLIAM E. CONRAD, JR., DELPHI, OHIO, ASSIGNOR OF TWO-THIRDS TO JOHN A. BROWN, DEANDER, IND. Filed June 17, 1901. Serial No. 84,918. (No model.)



Claim.—1. A screen comprising a wire-netting and sheet-metal strips bent longitudinally to clamp the side edges and the top and bottom thereof, the top and bottom strips being again bent and inclosing the ends of the side strips.

2. A screen comprising wire-netting, a sheet-metal frame, each member of which is bent to clamp an edge of the wire-netting and a lift or pull having a part inserted between the folds of a member of the frame and clamped in place thereby.

3. In a window-screen, the combination with two members, each comprising a sheet-metal frame clamped to the edges of the wire-netting, of guides clamped with the netting to the top and bottom strips of one of said members and embracing the top and bottom strips of the other member and a lift clamped to the bottom strip of each member.

698,817. GLASS-BLOWING MACHINE. EMERY J. CULBERT, Toledo, Ohio. Filed Apr. 12, 1904. Serial No. 677,412. (No model.)

Claim.—1. In a glass-blowing machine, a sectional mold and a movable support therefor, a support for a detachable blowpipe, means for intermittently moving the mold and blowpipe supports, and means for blowing the article while the mold and blowpipe supports are stationary.

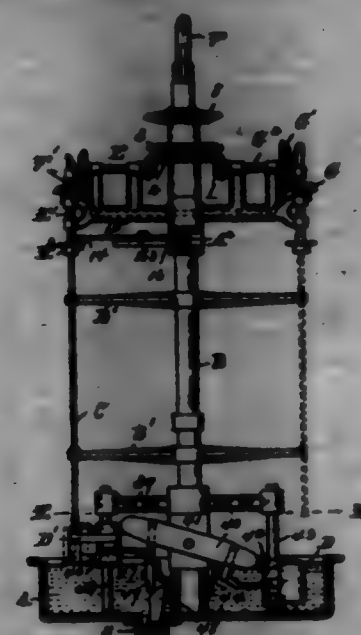
2. In a glass-blowing machine, comprising a mold, and a traveling support for the blowpipe, means at a point in the travel of said support where it is held, stationary, a connection at that point for supplying the blowpipe with air under pressure for blowing, and means for moving the blowpipe away from the blowing connection.

3. In a glass-blowing machine, a traveling frame having a support for the blowpipe, a mold and a source of air-supply for the blowpipe, a motor for operating said frame which is stopped at the blowpipe-support reaches the blowing-point and mechanism under the control of the operator for starting the travel of the machine after each stoppage.

4. In a glass-blowing machine, a traveling frame having a mold, a support for the blowpipe and an air-supply connection therefor, a motor for intermittently moving the frame, and stopping it with the mold at the blowing-point, mechanism under the control of the operator for starting said frame after each stoppage and means at the stopping-point for closing the mold.

5. In a glass-blowing machine, an intermittently-traveling frame

carrying the blowpipe and the mold, means under the control of the operator for closing the mold and effecting the blowing while the frame remains at its stopping-point and for causing the frame to move a predetermined distance and to stop.



6. In a glass-blowing machine, the combination with the mold, of a lever joining the mold, a tank, and means for rotating the lever and rocking it upon its fulcrum, to lower the mold into and raise it out of the tank, and to move it to and from the point at which the blowpipe is inserted.

7. In a glass-blowing machine, a pair of molds, a tank vertical guide upon which the molds move, a lever to the ends of which the molds are connected, and means for rocking the lever and rotating it to move the molds around its fulcrum and raise and lower them in relation to the tank.

8. In a glass-blowing machine, an air chamber or duct connecting with the article to be blown, means for blowing the article by reducing the size of the connecting chamber or duct and means for automatically determining and maintaining the maximum pressure to which the air is compressed.

9. In a glass-blowing machine, the combination of a movable support for the blowpipe, means for rotating the blowpipe and means for causing the blowpipe-support to travel, of a single actuating device adapted to be connected alternately with the blowpipe-rotating device and the device for moving the blowpipe-support.

10. In a glass-blowing machine, the combination of the blowpipe-support, the blowpipe-actuating device for rotating the blowpipe and a motor adapted to be connected with said actuating means after the blowpipe is in its support under the control of the operator.

11. In a glass-blowing machine, the combination of the upright shaft B carrying the blowpipe-supporting arm, a blowpipe-coupler carried thereon, a motor for rotating the blowpipe-coupler, and means under the control of the operator for connecting the motor with said coupler to rotate the same.

12. In a glass-blowing machine, the combination of the vertical standard B carrying the blowpipe-support, a coupler for the blowpipe connecting it with the source of air-supply through a duct carried by said shaft, a gear connection for rotating the coupler, a gear connection for rotating the shaft and a drive-gear adapted to be alternately connected with the blowpipe-actuating device and the drive mechanism for the shaft.

13. In a glass-blowing machine, the combination with the mold the blowpipe, a support for the blowpipe, the air-supply device for the blowpipe, means for producing a relative rotation between the article and the mold, and means under the control of the operator for setting into operation the rotating device and for automatically stopping the same at the end of a predetermined time.

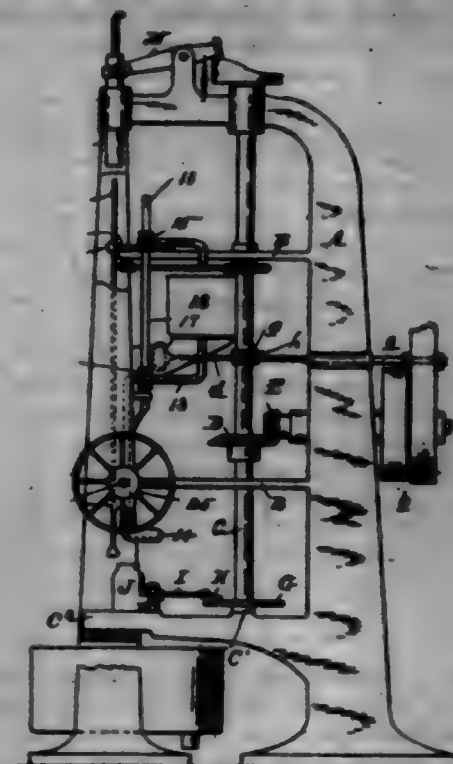
14. In a glass-blowing machine, the combination of the mold, the blowpipe-support, means for effecting a relative rotation movement between the article in its blown and the mold, a motor and means under the control of the operator for setting it in operation which after the mold is closed will supply air for the blowing and effect the rotation mentioned for a predetermined time.

15. In a glass-blowing machine, the combination of the sectional mold, a support for the blowpipe at the point where the mold remains stationary, means for supplying air under pressure at said point, a motor to cause the mold to travel intermittently to open the same and a motor, under the control of the operator for effecting the blowing and after the blowing to cause the mold to travel away from the blowing-point to open the mold and wet the same.

16. In a glass-blowing machine, the combination of the traveling coupler B, means for automatically lifting the coupler at the blowing-point, means under the control of the operator for effecting the coupling with the blowpipe.

17. In a glass-blowing machine, the combination of the vertically-reciprocating coupler for connecting the air-supply pipe to the blowpipe and means for raising and lowering said coupler, consisting of the inclined head 14 upon which the coupler is adapted to be lifted and supported, and means for withdrawing said support beneath the coupler, substantially as described.

698,818. GLASS-BLOWING MACHINE. LEMUEL H. CULBERT, Toledo, Ohio, assignor to the Toledo Glass Co., Toledo, Ohio, a Corporation of Ohio. Filed Apr. 28, 1904. Serial No. 678,722. (No model.)



Claim.—1. In a glass-blowing machine, a sectional mold, opening in a horizontal plane, a movable cam for opening and closing the mold in each operation and for positively holding it open at the close of the operation, means under the control of an operator for starting the cam, and automatic means for stopping it.

2. In a glass-blowing machine, in which there are employed a mold and a detachable blowpipe, sprinkling device for the mold comprising a storage-reservoir, means for supplying water thereto started by the location of the blowpipe in its support and means for stopping the supply upon the withdrawal of the blowpipe.

3. In a glass-blowing machine, the combination of a blowpipe supported in operative relation to the mold, of an air-supply for delivering air under pressure to the article to be blown arranged in proximity to the mouth of the blowpipe, and means for varying the pressure of air in the article to be blown after each operation by varying the distance of said air-supply from the blowpipe during the blowing period.

4. In a glass-blowing machine, comprising the blowpipe supported in operative relation to the mold, of a nozzle arranged in proximity to the blowpipe and connected with a source of air-supply and automatic means for raising and lowering said nozzle to change its proximity to the blowpipe during each blowing period.

5. In a glass-blowing machine comprising a mold and a blowpipe supported in operative relation thereto, a source of air-supply under pressure having its discharge adjustably supported in proximity to the mouth of the blowpipe, of automatic mechanism for varying the distance between said air-supplying means and the blowpipe during the blowing period to change the pressure in the article to be blown.

6. In a glass-blowing machine the combination with a sectional mold, a support for the blowpipe and a sliding air-supply nozzle arranged in line, a vertical shaft extending in the machine beside said parts, a drive connection at the bottom from said shaft to the mold and at the top from said shaft to the air-supply nozzle, and an intermediate drive connection from said shaft to the blowpipe-support, with means for rotating said blowpipe in its support.

698,819. RUBBER-ROLLING. WILLIAM CONNELLEY, Toledo, Ohio. Filed May 6, 1904. Serial No. 68,911. (No model.)

Claim.—1. In a rod-coupling, the combination of a tubular sleeve of uniform bore, having an exterior reduced portion at one end forming an end shoulder for engaging an elevator, and a longitudinal slot extending from end to end along one side, cutting through the wall of the sleeve, and provided with a plurality of pairs of ears integral with the sleeve projecting laterally at intervals along the sleeve, the ears of each pair being on opposite sides of the slot, a compression-bolt through each pair of ears, and a stop within the orifice of the sleeve, projecting from one side of the interior wall, adapted to limit the distance that a rod may be introduced into the sleeve from each end respectively.



2. In a rod-coupling, the combination of a tubular sleeve, having a central and an end reduced portion forming shoulders for engaging an elevator, and a longitudinal slot extending from end to end of the sleeve and through the wall of the sleeve along one side, and provided with a plurality of pairs of ears integral with the sleeve, on each side of the central reduced portion, projecting laterally at intervals along the slot, the ears of each pair being on opposite sides of the slot, a compression-bolt through each pair of ears; a stop projecting radially within the orifice of the sleeve, adapted to limit the distance that a rod may be introduced into the sleeve from each end respectively.

3. In a rod-coupling, the combination of a tubular sleeve, having a central and an end reduced portion forming shoulders for engaging an elevator, and a longitudinal slot extending from end to end of the sleeve and through the wall of the sleeve along one side, and provided with a plurality of pairs of ears integral with the sleeve, on each side of the central reduced portion, projecting laterally at intervals along the slot, the ears of each pair being on opposite sides of the slot; a compression-bolt through each pair of ears; a stop projecting radially within the orifice of the sleeve, adapted to limit the distance that a rod may be introduced into the sleeve from each end respectively; and an annular groove in the inner wall of the sleeve, adjacent to the abutting face of each stop.

698,820. **THOMAS PUGH.** **ROBERT GERRARD, ROBERT, H. J.** assignor to J. A. Sayre & Co., Newark, N. J., a firm. Filed Feb. 28, 1901. Serial No. 66,646.



Claim.—A combination punch-punch; comprising a punch-carrying member, with its pivoted and bifurcated; having formed upon one branch thereof a sheet-edge-perforating punch; and upon the other branch a sheet-edge-perforating punch; and a die-carrying member, having two dies and slots, adapted to correspond with the radius of and to articulate with the two punches of the punch-carrying member, substantially as shown and described, and for the purpose set forth.

698,821. **WILLIAM F. HUBBARD FOR LOOMER.** **ARTHUR S. OWAN** and **BENJAMIN F. HUBBARD, Worcester, Mass.** assignors to **Shawmut & Knapp Loom Works, Worcester, Mass.** a Corporation of Massachusetts. Filed Nov. 7, 1901. Serial No. 51,460. (No model.)

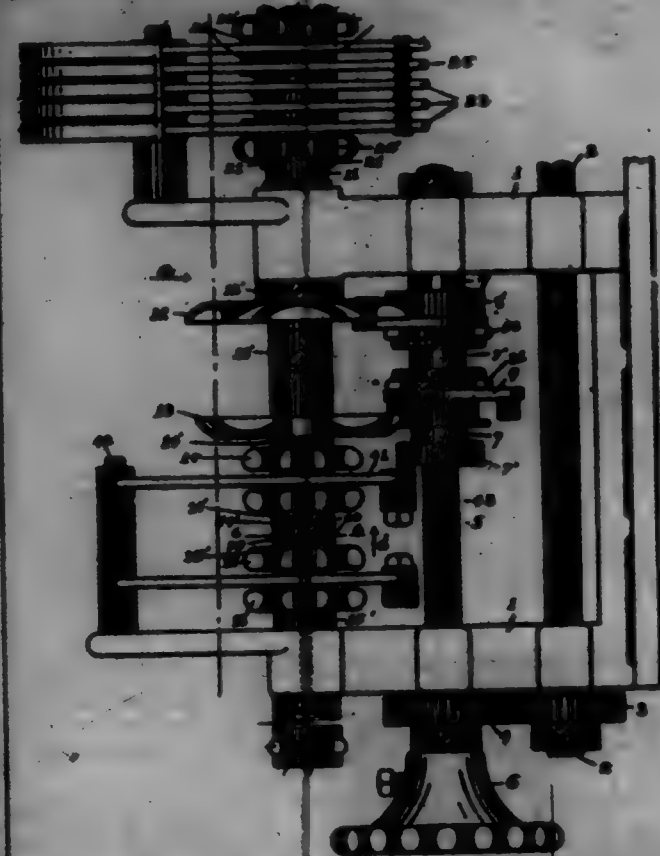
Claim.—1. In a loom of the class described, a box-pattern chain-cylinder, and two multiplier-pattern chain-cylinders, all on the same shaft, mechanism for operating the box-pattern chain-cylinder, and the multiplier-pattern chain-cylinder, and mechanism, intermediate the box-pattern chain-cylinder and the multiplier-pattern chain-cylinder, substantially as shown and described.

2. In a loom of the class described, a box-pattern chain-cylinder, and two multiplier-pattern chain-cylinders, all on the same shaft, mechanism for operating the box-pattern chain-cylinder, and the multiplier-pattern chain-cylinder, and mechanism, intermediate the box-pattern chain-cylinder and a sliding bar, which engages with the hubs of the multiplier-pattern chain-cylinders, substantially as shown and described.

3. In a loom of the class described, the combination with the box-pattern chain-cylinder, of two multiplier-pattern chain-cylinders on the same shaft with the box-pattern chain-cylinder, substantially as shown and described.

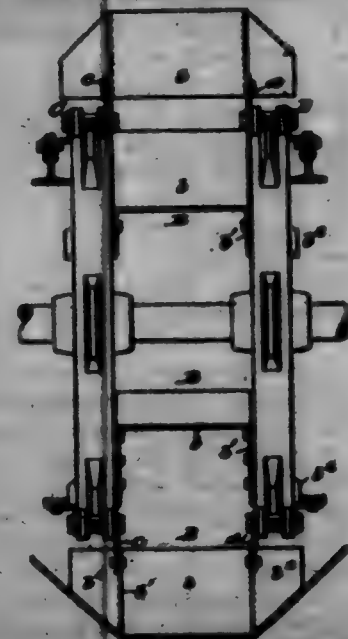
4. In a loom of the class described, the combination with the box-

pattern chain-cylinder, of two multiplier-pattern chain-cylinders on the same shaft with the box-pattern chain-cylinder, and mechanism intermediate the box-pattern chain-cylinder and the two multiplier-pattern chain-cylinders, substantially as shown and described.



5. In a loom of the class described, the box-pattern chain-cylinder, and two multiplier-pattern chain-cylinders on the same shaft with the box-pattern chain-cylinder, mechanism intermediate the two multiplier-pattern chain-cylinders and the box-pattern chain-cylinder, a pattern-carrier on the box-pattern chain-cylinder, having three different diameters of pattern-carriers, an indicator-lever for said different-diameter surfaces, and connections, intermediate said lever and the multiplier-pattern chain-cylinder, to control the operation of said cylinder, substantially as shown and described.

698,822. **CONVEYER.** **GEORGE W. CHAM, Germantown, Pa.** Filed Sept. 9, 1901. Serial No. 74,712. (No model.)



Claim.—1. In a conveyor, the combination with a chain, of a U-shaped flight extending therewith, the side members of said flight lying substantially parallel with said chain, substantially as described.

2. In a conveyor, the combination with a chain, of U-shaped flights extending therewith, the members of said flight lying substantially parallel with said chain, the outer edges of said flights conforming generally to the shape of said chain, substantially as described.

3. In a conveyor, the combination with a chain having inclined sides, of U-shaped flights extending with said chain and curved by chains, the members of said flight lying substantially parallel with said chain, substantially as described.

4. In a conveyor, the combination with a chain, of chains, and a flight comprising a main operative portion at right angles to said chain and sides arranged in a plane substantially parallel with said chain and connected with said chain, substantially as described.

5. In a conveyor, the combination with a chain, of chains and a flight comprising a main operative portion at right angles to said chain and sides lying substantially parallel with the plane of said chain and secured to said chain, the outer edges of said flights conforming generally to the shape of said chain, substantially as described.

6. In a conveyor, the combination with a chain, of chains and a flight comprising a main operative portion at right angles to said chain and sides lying substantially parallel with the plane of said chain and secured to said chain, the outer edges of said flights conforming generally to the shape of said chain, substantially as described.

7. In a conveyor, the combination with a chain, of chains and a flight comprising a main operative portion at right angles to said chain, sides curved to said chain and outwardly-projecting ends, substantially as described.

8. In a conveyor, the combination with a chain having inclined sides, of chains and a flight comprising a main operative portion at right angles to said chain, sides curved to said chain and outwardly-projecting ends, having beveled under edges with the hub of the sides of said chain, substantially as described.

9. An integral U-shaped conveyor-flight having a main operative portion and sides at an angle thereto, and means for securing said sides to driving-chains so as to dispose said flight in a plane substantially parallel with the plane of the chain passing therewith, substantially as described.

10. An integral U-shaped conveyor-flight and means for securing the sides thereof directly to driving-chains, so as to dispose said flight in a plane substantially parallel with the plane of the chain passing therewith, substantially as described.

11. A conveyor-flight comprising a main operative portion, sides substantially at right angles thereto and outwardly-projecting ends, substantially as described.

12. A conveyor-flight comprising a main operative portion, sides substantially at right angles thereto and outwardly-projecting ends, substantially parallel with said main portion, as set forth.

13. A conveyor-flight comprising a main operative portion, sides substantially at right angles thereto and outwardly-projecting ends, having beveled under edges, substantially as described.

14. A conveyor-flight comprising a main operative portion, sides substantially at right angles thereto and outwardly-projecting ends, substantially parallel with said main portion, and having beveled under edges, substantially as described.

15. An integral conveyor-flight comprising a main operative portion, sides substantially at right angles thereto, means for attaching said sides to driving-chains and outwardly-projecting ends, substantially parallel with said main portion, as set forth.

698,828. **THEY-BROOKER.** **JOHN W. BULLMAN, Chicago, Ill.** assignor to International Time Recording Company, Washington, D. C., a Corporation of New Jersey. Filed Oct. 10, 1901. Serial No. 70,804. (No model.)

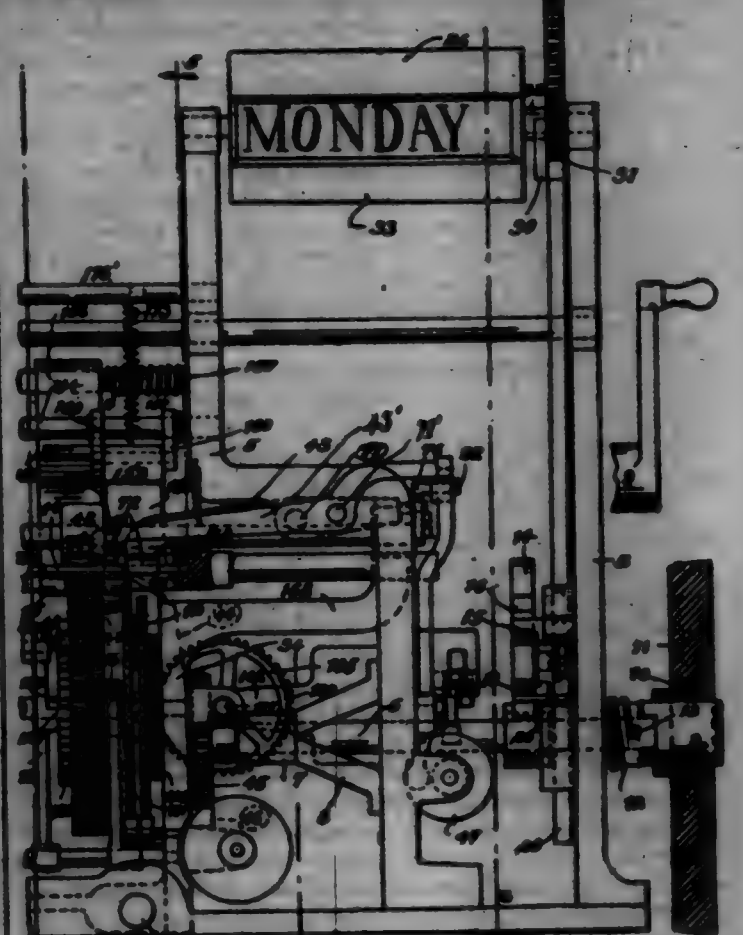
Claim.—1. In combination, a manually-adjustable printing-form automatically operated by a clock-movement and recording mechanism adapted to be operated manually for taking impressions from said printing-form, and means for compelling a properly-correlated operation of said mechanism comprising a manually-reversible automatic shutter mechanism adapted to render the recording mechanism functionally inoperative at the end of a predetermined interval and a clock-operated controller arranged to control the manual restoration of said shutter mechanism.

2. In combination, mechanism operated automatically by a clock-movement and mechanism operable manually and means for compelling a properly-correlated operation of said mechanism comprising manually-reversible means operating automatically to render the manually-operable mechanism functionally inoperative at the end of a predetermined interval and a clock-controlled synchronous automatic disabling mechanism.

3. In combination, mechanism operated automatically by a clock-movement and mechanism operable manually and means for compelling a properly-correlated operation of said mechanism comprising manually-reversible means operating automatically to render the manually-operable mechanism functionally inoperative at the end of a predetermined interval and a clock-controlled synchronous disabling mechanism.

4. In a time-recorder, the combination of a clock-actuated printing-form, a card-carrier, means for moving the printing-form manually relatively to the card-carrier, a shutter mechanism automatically operating to prevent registration at the end of a given interval of time, and inter-connections between said shutter mechanism and manually-reversible printing-form, whereby the adjustment of the printing-form to the proper printing position effects the opening of the shutter mechanism.

5. In a time-recorder or analogous machine, a mechanism for controlling a shutter or the like, comprising a clock-actuated rotary element having a stepped outer rim of shoulders, a pawl mounted upon a carrier adapted to be advanced step by step and adapted to engage the shoulders of said rotary element to shift the latter, and operative connections between the rotary element and the shutter whereby the shifting of the former operates the shutter.



6. In a time-recorder or analogous machine, means for controlling registration upon said machine comprising a shutter mechanism, a clock mechanism automatically operating said shutter mechanism, a co-operating mechanism adapted to be actuated manually and operative connections between said co-operating mechanism and said shutter mechanism, whereby the actuating of the former operates the latter.

7. In a time-recorder or the like, the combination of a shutter mechanism, a clock mechanism actuating said shutter mechanism automatically, a clock-actuated element for controlling one of the operations of said shutter, a synchronizing mechanism whereby said controlling element is moved by the clock mechanism and means for opening said shutter mechanism manually through the medium of said controller.

8. In a time-recorder or the like, a clock mechanism, a shutter mechanism operated to close automatically at the end of a predetermined interval, a shutter-controlling element, a synchronizing mechanism whereby said controlling element is moved regularly with the clock-movement, a manually-operable member arranged to act upon said shutter-controlling element to operate the shutter mechanism through said controlling element, said shutter-controlling element being arranged to receive relatively from the manually-operable element regularly in proportion to the period of time elapsed between operations, and a co-operating instrumentally connected with and adapted to be actuated by the advance of the manually-operated element.

9. In a time-recorder or the like, a clock mechanism, a shutter mechanism operated to close automatically at the end of a predetermined interval, a rotary shutter-controlling element, a synchronizing mechanism whereby said controlling element is rotated regularly with the clock-movement, a manually-operable member arranged to act upon the shutter-controlling element to operate the shutter mechanism through said controlling element, said shutter-controlling element being provided with a spirally-arranged part adapted for engagement by the manually-operable element, and extending outwardly around said element, whereby the regular rotation of said element causes said spirally-arranged part to receive from the manually-operable element continuously and a complete revolution to thrust and repeat this operation during each cycle of movement of said rotary element.

10. In a time-recorder or the like, a clock mechanism, a shutter mechanism operated to close automatically at the end of a predetermined interval, a rotary shutter-controlling element, a synchronizing mechanism whereby said controlling element is rotated regularly with the clock-

movement, a manually-operable member arranged to act upon the shutter-controlling element to operate the shutter mechanism through said shutter-controlling element, said shutter-controlling element being provided with a spirally-arranged part adapted for engagement by the manually-operable element, and extending entirely around said element, whereby the regular rotation of said element causes said spirally-arranged part to rotate from the manually-operable element continuously until a complete revolution is formed and repeats this operation during each cycle of movement of said rotary element, and a reciprocating mechanism operatively connected with said manually-operable element and adapted to be actuated by the manual operation of the latter to operate the shutter.

11. In a time-recorder or analogous machine, means for controlling registrations upon said machine, comprising a shutter mechanism, a clock mechanism arranged to operate said shutter mechanism automatically, a rotary shutter-controlling element having a cylindrical portion provided with a spirally-arranged series of shoulders controlling said cylindrical portion, a synchronizing mechanism whereby said shutter-controlling element is stepped forward regularly with the clock-movement, a manually-operable pawl arranged to traverse said shutter-controlling element in a direction transversely to its direction of rotary movement, means for stepping forward said pawl step by step, a printing-form movably mounted upon ways and operative connections between said manually-operable pawl and said printing-form whereby the printing-form is moved synchronously with the movement of the pawl and to a corresponding extent.

12. In a time-recorder or analogous machine, means for controlling registrations upon said machine, comprising a shutter mechanism, a clock mechanism arranged to operate said shutter mechanism automatically, a rotary shutter-controlling element having a cylindrical portion provided with a spirally-arranged series of shoulders controlling said cylindrical portion, a synchronizing mechanism whereby said shutter-controlling element is stepped forward regularly with the clock-movement, a manually-operable pawl arranged to traverse said shutter-controlling element in a direction transversely to its direction of rotary movement, means for stepping forward said pawl step by step, a printing-form movably mounted upon ways and operative connections between said manually-operable pawl and said printing-form whereby the printing-form is moved synchronously with the movement of the pawl and to a corresponding extent, and a step arranged to positively limit the advance movement of the pawl beyond that step which affects the operation of the shutter.

13. In a time-recorder, or like, a clock mechanism, a shutter mechanism, operated to close automatically at the end of a predetermined interval, a rotary shutter-controlling element, synchronizing mechanism whereby said shutter-controlling element is rotated regularly with the clock-movement, a manually-operable member arranged to act upon the shutter-controlling element to open the shutter mechanism through movement imparted to said shutter-controlling element, said shutter-controlling element being provided with a spirally-arranged part adapted for engagement by the manually-operable element, so disposed relatively to the direction of movement of said manually-operable element as to rotate therefrom during the rotation of the shutter-controlling element, a printing-form movably mounted upon ways, operative connections between said printing-form and said manually-operable element whereby the printing-form is moved with the manually-operable element, and a ratchet mechanism arranged to control the operation of said manually-operable element, said ratchet mechanism being arranged to prevent return movement of the manually-operable element until a complete cycle of movement has been performed.

14. In a time-recorder or the like, a clock mechanism operated to close automatically at the end of a predetermined interval, a rotary shutter-controlling element, synchronizing mechanism whereby said shutter-controlling element is rotated regularly with the clock-movement, a manually-operable element, and a ratchet mechanism arranged to control the operation of said manually-operable element, comprising a notched segment, a reversible pawl arranged to act upon said segment, and a reversing mechanism arranged to reverse said pawl at the end of the throw of the segment in each direction.

15. In a time-recorder, the combination of a clock mechanism; a shutter mechanism operated by said clock mechanism to close automatically at the end of a predetermined interval, a rotary shutter-controlling element provided with a cylindrical portion controlled by a series of shoulders arranged spirally thereon, said shutter-controlling element being mounted to reciprocate endwise or in the direction of its axis of rotation, a ratchet-bar arranged to reciprocate parallel therewith, and a pawl carried by said ratchet-bar and adapted to engage said shutter-controlling element, a crank-shaft provided with a gear operatively engaging said ratchet-bar, a printing-form movably mounted upon ways and carrying a rack, gear connection between said shaft and the rack of said printing-form, a shiftable member operatively connected with said shutter mechanism and adapted to be engaged by the advance movement of the shutter-controlling element and adapted to open the shutter, synchronizing mechanism connecting said

shutter element and said clock-movement whereby said element is rotated regularly and synchronizing mechanism connecting said printing-form with said clock-movement.

16. In a time-recorder, the combination with the main frame of a clock-movement, a printing-form carriage mounted to reciprocate upon ways upon said main frame, a set of printing-forms mounted upon said carriage, driving connections between said clock-movement and printing-forms, and a card-receiver mounted to reciprocate in a direction transversely to the direction of movement of the printing-form carriage upon its ways, said printing-form carriage being provided with laterally-disposed upstanding arms, the upper ends of which extend at opposite sides of the card-receiver, a balance-shaft supported upon said arms above the card-receiver and a printing-hammer operatively mounted upon said shaft, substantially as described.

17. In a time-recorder, the combination with the printing-forms, of a throat or recording-passages arranged to extend adjacent to said printing-forms and means for controlling the insertion of the recording instrument comprising a shutter-bar pivotally mounted between its ends and having one end arranged to oscillate across said throat, a shutter-actuating bar mounted to reciprocate in a direction transversely to the shutter-bar, provided with an inclined cam-disk operatively connected with the latter, an inclined cam projection upon said shutter-actuating bar and a clock-actuated plunger arranged to act upon said inclined cam projection to shift the bar as the plunger is reciprocated and a small-cam connected with the clock-movement and operating to reciprocate the plunger at regular intervals.

18. In a time-recorder, the combination with the printing-forms, of a throat or recording-passages arranged to extend adjacent to said printing-forms and means for controlling the insertion of the recording instrument comprising a shutter-bar pivotally mounted between its ends and having one end arranged to oscillate across said throat, a shutter-actuating bar mounted to reciprocate in a direction transversely to the shutter-bar, provided with an inclined cam-disk operatively connected with the latter, an inclined cam projection upon said shutter-actuating bar and a clock-actuated plunger arranged to act upon said inclined cam projection to shift the bar as the plunger is reciprocated and a small-cam connected with the clock-movement, and operating to reciprocate the plunger at regular intervals, said plunger being provided with a cam-engaging wiper pivotally connected with a cam-block forming part of the plunger and held positively against pivotal movement during the advance movement of the plunger but free to oscillate in the opposite direction during the return movement of the plunger whereby the engaging end of the wiper is caused to travel around the cam projection, substantially as described.

19. In a time-recorder, the combination with the main frame and a clock mechanism mounted thereon, of a set of printing-forms mounted to reciprocate upon ways upon said main frame, driving connections between said printing-forms and the clock-movement, manually-operable means for adjusting said printing-forms along said ways and means for controlling the adjustment of the printing-forms and recording upon the machine, comprising a rotary controller provided with a spirally-arranged surface adapted for engagement by an actuating member, operative connections between said controller and the clock-movement whereby the controller is moved regularly and proportionately to the length of time elapsed, means for manually shifting said controller bodily in the direction of its axis of rotation, a shutter-bar pivotally mounted to oscillate across the throat of the recording aperture, a shutter-actuating pawl mounted to reciprocate in a direction transversely to the shutter-bar and provided with an inclined cam with which the shutter-bar is operatively connected, a second inclined cam upon said shutter-actuating bar, a reciprocating plunger arranged to act upon said second cam, operative connections between said plunger and the clock-movement whereby the plunger is reciprocated at regular intervals to close the shutter and a lever pivoted between its ends and arranged to be actuated upon one end by the rotary controller during the bodily movement of the latter, and operatively connected with the shutter-actuating bar at its opposite end, whereby the extent of adjustment of the printing-forms upon their ways is controlled by said rotary controller and the shutter is opened automatically during the adjustment of the printing-forms and is automatically closed by the clock-movement at the end of a predetermined interval, substantially as described.

20. In combination, a tripping-dog mounted to move upon ways, and means for actuating said dog for different positions of arrangement along said ways, comprising a tripping-bar having a series of engaging shoulders arranged to extend substantially parallel with the direction of bodily movement of the dog and mounted to move bodily through an arc to approach and recede from the dog, whereby the dog is engaged during the approach of the bar and released during its retreat.

21. In combination, a pivoted tripping-dog mounted to move upon ways, and means for actuating said dog for different positions of arrangement along said ways comprising a tripping-bar provided with a series of engaging shoulders arranged to extend in a direction substantially parallel

with the direction of the bodily movement of the dog, and parallel supporting-links pivotally supporting said tripping-bar at spaced points whereby the latter is maintained in parallel relation with the ways while moved bodily through an arc to approach and recede from the dog.

22. In combination, a pivoted tripping-dog mounted to move upon ways and means for actuating said dog for different positions of arrangement along said ways comprising a tripping-bar provided with a series of engaging shoulders arranged to extend in a direction substantially parallel with the direction of the bodily movement of the dog, and parallel supporting-links pivotally supporting said tripping-bar at spaced points whereby the latter is maintained in parallel relation with the ways while moved bodily through an arc to approach and recede from the dog, and a spring arranged to act upon said bar to cause it to complete the latter part of its functional movement, whereby the tripping-bar is withdrawn from the dog promptly after it passes the "dead-center" position of the supporting-links, substantially as described.

23. In combination, a pivoted tripping-dog mounted to move upon ways and means for actuating said dog for different positions of arrangement along the ways, comprising a tripping-bar having a series of engaging shoulders extending substantially parallel with the ways, parallel links supporting said bar to cause it to move bodily through an arc while maintained parallel with the ways and means for imparting bodily movement to the tripping bar comprising an arm pivotally mounted at one end and having its intermediate portion arranged to extend between projections upon the tripping-bar, that part of the arm which works through the said projections being curved, substantially as and for the purpose set forth.

24. In combination, a pivoted tripping-dog mounted to move upon ways and means for actuating said dog for different positions of arrangement along the ways, comprising a tripping-bar having a series of engaging shoulders substantially parallel with the ways, parallel links supporting said bar to cause it to move bodily through an arc while maintained parallel with the ways and means for imparting bodily movement to the tripping-bar comprising an arm pivotally mounted at one end and having its intermediate portion arranged to extend between projections upon the tripping-bar, that part of the arm which works through the said projections being curved, a spring-pushed impression-hammer operatively engaged to move with said tripping-dog, a printing-form upon which the impression-hammer operates and a recording instrument adapted to be inserted between the printing-form and impression-hammer and having a part adapted to engage and actuate the pivoted tripping-bar-actuating arm.

25. In combination, a pivoted tripping-dog mounted to move upon ways and means for actuating said dog for different positions of arrangement along the ways, comprising a tripping-bar having a series of engaging shoulders substantially parallel with the ways, parallel links supporting said bar to cause it to move bodily through an arc while maintained parallel with the ways and means for imparting bodily movement to the tripping-bar comprising an arm pivotally mounted at one end and having its intermediate portion arranged to extend between projections upon the tripping-bar, that part of the arm which works through the said projections being curved, a spring-pushed impression-hammer operatively engaged to move with said tripping-dog, a printing-form upon which the impression-hammer operates and a recording instrument adapted to be inserted between the printing-form and impression-hammer and having a part adapted to engage and actuate the pivoted tripping-bar-actuating arm.

26. In combination with a card-holder, adapted for use in registering upon a recording-machine, a penetrating device mounted thereon, provided with a part arranged to be engaged by a relatively fixed part of the machine to force the penetrating device into a card held within said holder during a registering operation.

27. In combination with a card-holder of the character described, a penetrating device mounted thereon, provided with a part adapted to be engaged by a relatively fixed part of the machine to force the penetrating device into a card held within said holder during the recording operation and a spring acting upon said penetrating device to hold the penetrating portion thereof normally retracted.

28. In a recording-machine, the combination with the machine-frame and a card-holder adapted for insertion within a recording throat or passage in said frame, of a dog pivoted adjacent to said throat, provided at its engaging end with a plurality of teeth adapted for engagement with the card-holder and means for holding said dog yieldingly in position to project into the path of the card-holder, substantially as and for the purpose set forth.

698,824. BROOKE, CHARLES E. BROOKE, Wellington, New Zealand. Filed May 9, 1901. Serial No. 54,111. (No model.)

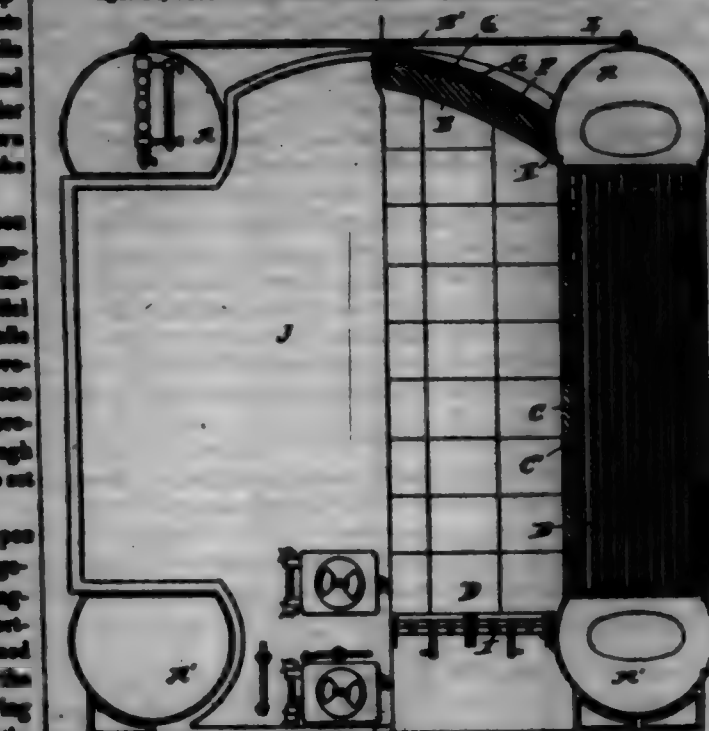


Claim.—1. In brush-fittings, a chamber-walled recess curved to the back of the brush and provided with an opening in the edge thereof, and a pair of arms hinged behind the recess and which are adapted to lie one on each side thereof, the front ends of which are joined together by means of a plate with pins being adapted to partially close the opening in the edge of the recess, as herein specified.

2. In brush-fittings, the combination with the back of a brush

provided with a chamber-walled recess with an opening in the edge thereof, of a pin one end of which when in closed position is curved downward toward the back of the brush and the end portion of said downwardly-curved part then curved upward into a chamber loop, said loop being fitted edgewise into said recess.

698,825. MILLER, EDWARD F. MILLER, Woodbridge, N. J. Filed Apr. 18, 1899. Serial No. 712,571. (No model.)



Claim.—1. The combination in a vertical water-tube boiler of one or more oblong sections, composed of one upper and one lower drum connected by water-tubes, and an open furnace or combustion-chamber on one or both sides of said section and extending the length of said section and an outside casing at each end of said furnace or combustion-chamber and extending over the ends of said section, and in line with the said outside casing at one end of the said section, and in line with the tubes and an including wall extending from the outside casing containing the draft-outlet at the end of the said section part of the way to the other outside casing at the other end of the said section and closing communication to the tubes that lie back of the said wall and between the draft-outlet in the outside casing at the end of the said section, except through the tubes that are located in the opposite end of the said section from the draft-outlet and between the including wall and the opposite outside casing, all substantially as shown and described and for the purpose set forth.

2. In a vertical water-tube boiler the combination of a casing and upper and lower drums, water-tubes connecting the said drums, a combustion-chamber, a smoke-outlet in the casing near the lower drum in line with the water-tubes, a second outlet of smaller diameter located near the upper drum and a wall extending from the side of the casing containing the outlet, forwardly toward the opposite side of the boiler a part of the way; said wall closing communication between the combustion-chamber and the space containing the water-tubes on the other side of said wall, except at the end of said wall.

3. In a boiler-furnace the combination of cast-iron casing J, a lining therefor comprising asbestos felt F, bricks H, the arch-section K, provided with a tongue-and-groove connection, legs K upon which said section rests, bricks G resting upon the section H and the tie-rods L.

4. The combination in a vertical water-tube boiler of one or more oblong sections composed of one drum above another connected by water-tubes, a furnace or combustion-chamber on one or both sides of said section, an outside casing extending across the ends of said furnace or combustion-chamber and across the end of said section or sections, and a draft-outlet in one of said outside casings at one end of the said section and in line with the tubes and an including wall G extending from the outside casing containing the draft-outlet part of the way to the other outside casing and closing communication to the tubes that lie back of the said wall, except at the end of said wall, and a steam-outlet P in the top of the upper drum at the draft-outlet end of the said section, all substantially as shown and described and for the purpose set forth.

5. The combination in a vertical water-tube boiler of one or more oblong sections composed of one drum above another connected by water-tubes, a furnace or combustion-chamber on one or both sides of said section, an outside casing extending across the ends of said furnace or combustion-chamber and around said section and across the end of said

sections, said outside casing being composed of sections J, special brick H, draft-exits M, N' located in said outside casing at one end of said section and in line with tubes and steam-exit P in top of upper drum at same end and an insulating wall O extending from the outside casing at the same end part of the way to the opposite end of furnace or combustion-chamber to the other outside casing, substantially as shown and described and for the purpose set forth.

6. The combination is a vertical water-tube boiler of an oblong section composed of one drum above another and connected by water-tubes, the upper drum having no other means of support except the water-tubes on which it rests, said water-tubes forming the heating-surfaces of the boiler, a furnace or combustion-chamber on one or both sides of said section, a draft-exit at one end of said section and the tubes next to the draft-exit being cut off from the heat from the furnace or combustion-chamber except through the tubes open to the furnace or combustion-chamber.

7. The combination is a vertical water-tube boiler of three or more oblong sections composed of one drum above another connected by water-tubes, the upper drum having no other means of support except the water-tubes on which it rests which form the heating-surfaces of the boiler, and furnace or combustion-chamber between the said sections, and a draft-exit at one end of each of said sections and the tubes next to the draft-exits being cut off from the heat of the furnace or combustion-chamber except through the tubes open to the furnace or combustion-chamber.

698,896. DRAFT-EQUALIZER. WILLIAM S. BERRY, Ayrville, Pa. Filed Feb. 4, 1902. Serial No. 68,092. (No model.)



Claim.—1. In a draft-equalizer, the combination of a pair of levers having toothed segments concentric with their respective fulcrums, an interposed rocker having teeth meshing with the teeth of the levers, and a suitable frame supporting the fulcrums of the levers and rocker, substantially as described.

2. In a draft-equalizer, the combination of a pair of differential levers having toothed segments concentric with their respective fulcrums, an interposed rocker having teeth meshing with the teeth of the levers, a frame supporting the fulcrums of the levers and rocker, and a coiled spring connected at one end to one of the levers and at the other end to the rocker, substantially as described.

3. In a draft-equalizer, the combination of a pair of differential levers arranged in line with each other, a frame supporting the fulcrums of the levers, said frame being provided with a series of perforations arranged parallel with said levers, means interposed between the levers for transmitting movement from one to the other, said transmitting means being supported by the frame, and a link mounted upon the fulcrum of one of the levers and adapted to be connected to the frame, or to the plow, or other machine, substantially as described.

4. In a draft-equalizer, the combination of a pair of differential levers, means interposed between them for transmitting movement from one

to the other, a suitable frame supporting the fulcrums of the levers and means for locking the levers and holding them against relative movement, substantially as described.

5. In a draft-equalizer, the combination of a pair of differential levers, a rocker interposed between them for transmitting movement from one to the other, said levers and rocker having intermeshing teeth, a frame supporting the fulcrums of the levers and rocker, said frame and rocker being provided with perforations adapted to register, and a pin adapted to be inserted in said perforations for locking the rocker and thereby holding the levers in line with each other, substantially as described.

698,897. CONTROLLER FOR ELEVATORS. FRANK E. FARRITT, St. Louis, Mo., assignor to Leo Burtch, St. Louis, Mo. Filed Sept. 8, 1901. Serial No. 74,822. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a plurality of doors, of an electric circuit controlled by each individual door, said circuit being closed upon the opening of a door, a motor in said circuit, and controlling device for the elevator with which said motor cooperates; substantially as described.

2. In an apparatus of the character indicated, the combination with an elevator-car, power mechanism thereby having a controller, and a door, of an electric circuit controlled by said door, a motor in said circuit, and means whereby said motor controls said controller; substantially as described.

3. In an apparatus of the character described, the combination with controlling mechanism for the car, of a motor normally out of operative connection with said controlling mechanism, and device for effectively engaging said motor with said controlling mechanism for reversing the same; substantially as described.

4. The combination with controlling mechanism of an elevator-car, of a motor for driving said mechanism to bring the car to a condition of rest, and means for disengaging said motor from said mechanism when the car is brought to rest; substantially as described.

5. The combination with controlling device of an elevator-car, of a motor, device for causing said motor to reversely drive said controlling mechanism, and a switch in the motor-circuit which is operated by the elevator-door; substantially as described.

6. The combination with controlling mechanism which is in line and operable when the car is at a landing and the door open, of means for reversing said mechanism should the actuating device be thrown to start the car away from the floor before the door is closed; substantially as described.

7. In an apparatus of the character described, a car-controlling mechanism thereby, a manually-operable device for actuating said controlling mechanism, a motor independent of the car-moving mechanism, and means for engaging the motor with the controlling mechanism when the car moves away from a landing and the door is open; substantially as described.

8. The combination with a car and its controlling mechanism, of a door, an electric circuit controlled by said door, a motor designed to cooperate with said controlling mechanism and reverse the same when the car leaves a landing and the door is open, and means for engaging the motor with said controlling mechanism; substantially as described.

9. The combination with the controlling mechanism of an elevator-car, of a motor for driving the same, a pole-changer in the motor-circuit, and means for throwing said pole-changer into pole-changing position whenever the car changes its direction of travel; substantially as described.

10. The combination with the controlling mechanism of an elevator-car, of a motor for driving the same, a door-switch in the motor-circuit, and a switch for completing the circuit whenever the actuating device of the controlling mechanism are moved to their full limit; substantially as described.

11. The combination with an elevator-car, power mechanism thereby, and a door, of means for permitting only a limited movement of said car away from the landing while said door is open; substantially as described.

12. The combination with an elevator-car, power mechanism thereby, and a door, of means for permitting only a relatively slow limited movement of said car away from the landing while said door is open; substantially as described.

13. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of means for permitting only a limited movement of said controller while said door is open; substantially as described.

14. The combination with an elevator-car, power mechanism thereby, and a door, of means for automatically arresting the movement of said car should it travel a limited distance while said door is open; substantially as described.

15. The combination with an elevator-car, power mechanism thereby, and a door, of means for automatically reversing the movement of said car should it travel a limited distance while the said door is open; substantially as described.

16. The combination with an elevator-car, power mechanism thereby, and a door, of means whereby the car is placed under the control of the operator while it is at a landing adjacent said door and for a limited distance beyond said landing, and means for automatically arresting the travel of said car should it travel beyond said limited distance while the door is open; substantially as described.

17. The combination with an elevator-car, and power mechanism thereby, of a controller for said power mechanism, a door, and means for automatically operating said controller, said means being rendered inoperative while the door is closed but operative when the door is open; substantially as described.

18. The combination with an elevator-car, and power mechanism thereby, of a controller for said power mechanism, a door, and means for automatically operating said controller, said means being rendered inoperative while the door is closed and also inoperative to stop the travel of the car while the door is open and the car is within a limited distance of its landing, but said means being rendered operative while the door is open and after the car has traveled said limited distance; substantially as described.

19. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of a motor, and means for causing said motor to automatically control said controller at desired intervals of travel of the car; substantially as described.

20. The combination with an elevator-car, power mechanism thereby, and a door, of a motor, and means for causing said motor to control said car while the door is open; substantially as described.

21. The combination with an elevator-car, power mechanism thereby, and a door, of a motor, and means for causing said motor to control the movement of said car should it travel beyond a limited distance while said door is open; substantially as described.

22. The combination with an elevator-car, power mechanism thereby, and a door, of a motor, and means for causing said motor to control the movement of said car should it travel for a limited distance while the door is open, but to be inoperative with respect to said controlling action upon said car while the door is closed and while the car is in said limited distance and the door is open; substantially as described.

23. The combination with an elevator-car, power mechanism thereby, and a door, of a motor, and means for causing said motor to control the travel of the car while the door is open and to prevent the travel of the car should it move beyond a limited distance while the door is open; substantially as described.

24. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of a motor, and means for causing said motor to reverse the said controller should the car travel beyond a limited distance while the door is open; substantially as described.

25. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of a motor, and means for causing said motor to limit the effective setting of said controller while the door is open and to cause said motor to reverse said controller should the car travel beyond a limited distance while the door is open; substantially as described.

26. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for automatically returning said controller in a position to produce only a limited speed should said controller be moved beyond said position; substantially as described.

27. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of a motor, and means for causing said motor to return said controller to a position to effect only a limited speed should said controller be moved beyond said position while the door is open; substantially as described.

28. The combination with an elevator-car, power mechanism thereby, a controller for said power mechanism, and a door, of means for permitting full control of said controller by the operator while the door is closed but only limited control of said controller by the operator while the door is open; substantially as described.

29. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of a motor, means for engaging said motor, and means for operatively connecting said motor with said controller to cause said controller to operate the power mechanism in a direction tending to bring the car to rest; substantially as described.

30. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of a motor, means for periodically engaging said motor, and means for operatively connecting said motor with said controller to cause said controller to operate the power mechanism in a direction tending to bring the car to rest; substantially as described.

31. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, means for engaging said motor, gearing between said motor and said controller, and means for connecting and disconnecting said gearing; substantially as described.

32. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, a worm driven by said motor, a segmented gear operatively connected to said controller, and means for connecting and disconnecting said worm and gear with relation to each other; substantially as described.

33. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a controller-shaft, a gear thereon, a motor, a shaft driven thereby, a gear upon said motor-driven shaft adapted to operatively engage said gear upon said controller-shaft, means for normally supporting said gear out of operative engagement, and means for throwing said gear into operative engagement; substantially as described.

34. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a controller-shaft, a gear thereon, a motor, a shaft driven thereby, a gear upon said motor-driven shaft adapted to operatively engage said gear upon said controller-shaft, means for yieldingly supporting said gear out of operative engagement, and means for throwing said gear into operative engagement; substantially as described.

35. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a controller-shaft, a gear thereon, an extended power-driven shaft, a gear on said power-driven shaft adapted to operatively engage said gear upon said controller-shaft, and a suitably-supported movable frame in which the free end of said power-driven shaft is journaled; substantially as described.

36. The combination with an elevator-car, power mechanism thereby, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a controller-shaft, a gear thereon, an extended power-driven shaft, a gear on said power-driven shaft adapted

to operatively engage said gear upon said controller-shaft, a suitably-supported movable frame in which the free end of said power-driven shaft is journaled, and a spring normally holding said frame in position to hold said gears out of operative engagement; substantially as described.

37. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a controller-shaft, a gear thereon, a motor, an extended armature-shaft, a gear on said armature-shaft adapted to operatively engage said gear upon said controller-shaft, and a suitably-supported movable frame in which the free end of said armature-shaft is journaled; substantially as described.

38. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, means for automatically throwing said motor and said controller into operative engagement, and means for automatically throwing said motor and said controller out of operative engagement; substantially as described.

39. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, gear connected to said motor and said controller, means for automatically causing operative engagement of said gears, and means for automatically throwing said gears out of operative engagement; substantially as described.

40. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a motor normally out of operative engagement with said controller, means for automatically throwing said motor and controller into operative engagement when the said door is open, and means for throwing said motor and controller out of operative engagement when the door is closed; substantially as described.

41. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a normally de-energized motor, means for operatively connecting said motor and said controller, and means for automatically energizing said motor when the door is open; substantially as described.

42. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a motor normally de-energized and out of operative engagement with said controller, and means for automatically energizing said motor and throwing the same into operative engagement with said controller when said door is open; substantially as described.

43. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a motor normally out of operative connection with said controller, means for automatically throwing said motor into operative connection with said controller should the travel of the car exceed predetermined limits when the door is open; substantially as described.

44. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, gear connected to said motor and said controller, means for operatively connecting said gears, and means whereby the continued movement of said gears when connected causes the connection between said gears to be broken; substantially as described.

45. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, gearing between said motor and said controller, means for holding said gears in operative connection, means for disconnecting said gears by their continued movement, and means whereby the gear in connection with said controller can at times be moved to an extent corresponding to the full movement of said controller without affecting said disconnection but at other times will, by a movement not greater than said full movement of said controller, effect said disconnection; substantially as described.

46. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, gearing between said motor and said controller, means for holding said gears in operative connection, said parts being normally so related that movement of the gear in connection with said controller through a distance equal to the full throw of said controller fails to effect said disconnection, and means for altering the relation between said controller and its said gear whereby movement of said gear through a distance not greater than the full throw of said controller effects said disconnection; substantially as described.

47. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a controller-shaft, a motor, a gear operable by said motor, a gear loosely mounted on said

controller-shaft, means for holding said gear in operative connection, an arm upon said shaft adapted to be engaged by said gear when the latter is moved, and means upon said controller-shaft for breaking said connection in the movement of said gear, said gear having a limited amount of movement independent of said arm; substantially as described.

48. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable thereby, a controller-shaft, a gear loosely mounted thereon and having side members, means for holding said gear in operative connection, means upon said controller-shaft for breaking said connection during its movement, and an arm upon said controller-shaft and having a part extending between said side members of the gear, there being play between said side members and said part upon said arm; substantially as described.

49. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable thereby, a controller-shaft, a gear loosely supported upon said shaft, means for holding said gear in operative connection, means upon said gear carried by said shaft for causing said connection to be broken, a stop upon said shaft adapted to be engaged by said gear supported upon said shaft, and means for yieldingly holding said gear out of engagement with said stop; substantially as described.

50. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable thereby, a controller-shaft, a gear loosely supported upon said shaft and having side legs, means for holding said gear in operative connection, means upon said gear supported by said shaft for causing said connection to be broken, a stop upon said shaft and extending between the legs of said gear, plungers engaging opposite sides of said stop and extending respectively through openings in said gear-legs, and springs about said plungers and bearing between their inner ends and said respective gear-legs, whereby said legs are yieldingly held out of engagement with said stop; substantially as described.

51. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, means for operatively connecting said motor and said controller, and means for rendering said motor inoperative with relation to said controller when the latter has been moved a predetermined distance by the action of the former; substantially as described.

52. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, means for operatively connecting said motor and said controller, and means whereby the continued action of said motor serves to render the same inoperative with relation to said controller when said controller has been moved a predetermined distance by the action of said motor; substantially as described.

53. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for operatively connecting said gears, and means whereby said controller-gear for causing said gear to be thrown out of connection by the movement of said controller-gear; substantially as described.

54. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for operatively connecting said gears, and a cam carried by said controller-gear for causing said gear to be thrown out of connection by the movement of said controller-gear; substantially as described.

55. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for operatively connecting said gears, and means adjustably supported by said controller-gear for causing said gear to be thrown out of connection by the movement of said controller-gear; substantially as described.

56. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for yieldingly holding said gear out of connection with each other, a member adapted to engage a part connected to one of said gears and bring said gear into connection with said other gear against the action of said yielding means, and means for throwing said member out of position to effect said connection; substantially as described.

57. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for yieldingly holding said gear out of connection with each other, a member adapted to engage a part connected to one of said gears and bring said gear into connection with said other gear against the action of said yielding means, and means for throwing said member out of position to effect said connection by the continued action of said gear; substantially as described.

58. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for yieldingly holding said gear out of connection with each other, a member adapted to engage a part connected to one of said gears and bring said gear into connection with said other gear against the action of said yielding means, and a cam carried by said controller-gear and, in the continued movement of said gear, adapted to engage said member and throw the same out of position to effect said connection of said gears; substantially as described.

59. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable by said motor, a gear connected to said controller, means for yieldingly holding said gear out of connection with each other, a back adapted to engage a part connected to one of said gears and bring said gear into connection with said other gear, and means acting in synchronism with said gear for throwing said back out of engagement with said gear; substantially as described.

60. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable thereby, a gear connected to said controller, means for holding said gear out of connection with each other, a member having engagement with one of said gears, and means for moving said member for bringing said gear into connection with each other; substantially as described.

61. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, a gear operable thereby, a gear connected to said controller, means for holding said gear out of connection with each other, an armature having connection with one of said gears, and a magnet for moving said armature to connect said gears; substantially as described.

62. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of means for causing said controller to operate the power mechanism in a direction tending to bring the car to rest, said means including a motor, a gear operable thereby, a gear connected to said controller, means for holding said gear out of connection with each other, an armature having connection with one of said gears, a magnet for moving said armature to connect said gears, and means for yieldingly holding said armature from said magnet; substantially as described.

63. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a gear operable thereby, a gear connected to said controller, means for yieldingly holding said motor-gear out of connection with said controller-gear, a magnet, an armature, means for yieldingly holding said armature away from said magnet, a back movably supported upon said armature, means for yieldingly holding said back in said engaging position, and a back upon said controller-gear adapted during the movement of said gear to move said back out of its said engagement; substantially as described.

64. The combination with an elevator-car, a power mechanism for use therewith, a single clutch controlling said power mechanism, and a plurality of doors, of means for operating said clutch by each of said several doors; substantially as described.

65. The combination with an elevator-car, a power mechanism for use therewith, and a shaft, of connection between said shaft and said power mechanism for controlling the latter by the rocking of the former, and means for operating said shaft by the movement of said door; substantially as described.

66. The combination with an elevator-car, a power mechanism for use therewith, and a shaft, of connection between said shaft and said power mechanism for controlling the latter by the rocking of the former, means for operating said shaft in one direction by the opening of said door, and means for reversely rocking said shaft as said door is closed; substantially as described.

67. The combination with an elevator-car, a power mechanism for use therewith, and a shaft, of connection between said shaft and said power mechanism for controlling the latter by the rocking of the former, a projection upon said shaft in the path of movement of said door whereby said shaft is rocked by the opening movement of said door, and a spring for rocking said shaft in the opposite direction when said door is closed; substantially as described.

68. The combination with an elevator-car, a power mechanism for use therewith, a single clutch controlling said power mechanism, a single movable member operatively connected to said clutch, and a plurality of doors, of means for operating said movable member by each of said several doors; substantially as described.

69. In an elevator mechanism or the like, a power mechanism, a clutch controlling the same, a plurality of independently-operable clutch-actuator sections, means for operating said clutch by the movement of any of said several sections; substantially as described.

70. In an elevator mechanism or the like, a power mechanism, a single clutch controlling the same, a plurality of independently-operable clutch-actuator sections, means for operating said clutch by the movement of any of said several sections; substantially as described.

71. In an elevator mechanism or the like, a power mechanism, a clutch controlling the same, a plurality of independently-operable clutch-actuator sections, and a common connector between said clutch and said sections and engaged by parts upon each of said sections, said engaged portion of said connector being movable with relation to one of said sections when engaged and moved by another thereof; substantially as described.

72. In an elevator mechanism or the like, a power mechanism, a clutch controlling the same, a plurality of independently-operable clutch-actuator sections, flanges upon said shaft-sections and provided with registering concentric slots, and a common connector between said clutch and said shaft-sections and having a member extending said slots, whereby the movement of one of said sections said member is engaged and moved but during said movement of said section said member plays in said slot of another of said sections; substantially as described.

73. In an elevator mechanism or the like, a power mechanism, a clutch-actuator, a suitably-supported perforated lag, a sliding rod extending through said lag, a clutch member upon said rod, a spring between said clutch member and said lag, a connection between said rod and said actuator, and means for moving said actuator against the action of said spring; substantially as described.

74. In an elevator mechanism or the like, a power mechanism, a clutch controlling the same and including a movable cross-band carrying contact members, a rod upon which said cross-band is carried, a suitably-supported perforated lag through which said rod is slidable, a spring between said cross-band and said lag, a movable clutch-actuator, and connection between said rod and said clutch-actuator; substantially as described.

75. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor for operating said controller, and a clutch in the circuit of said motor and operable by said controller; substantially as described.

76. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a relatively fixed terminal in said circuit, a controller-shaft, an arm carried thereby, and a terminal carried by said arm and adapted to cooperate with said relatively fixed terminal; substantially as described.

77. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a suitably-supported spring-pressed pivoted arm carrying a terminal of said motor-circuit, and a terminal of said circuit movable by said controller and adapted to contact with said first-mentioned terminal; substantially as described.

78. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, a normally open motor-circuit, and means for completing said circuit by the movement of said controller in either direction; substantially as described.

79. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor, and a motor-circuit including clutch members, one of which comprises two electrically-connected terminals while said other clutch member comprises a third terminal intermediate said other terminals, one of said clutch members being connected to and movable by said controller; substantially as described.

80. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, and means whereby upon reversal of movement of said car said motor is caused to operate to effect reversal of movement of said mechanism; substantially as described.

81. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, and means for reversing the movement of said motor upon reversal of movement of said car; substantially as described.

82. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, and means controlled by the movement of said car for automatically changing the direction of current through said motor; substantially as described.

83. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, a reversible shaft, connection between

said shaft and said car whereby the direction of rotation of the former is determined by the direction of movement of the latter, and means operated by said shaft for causing said motor to operate to effect reversal of said operative mechanism upon reversal of rotation of said shaft; substantially as described.

84. The combination with an elevator-car, power mechanism therefor, a rotatable shaft, and cables connected to said car and engaging said shaft, of a controller for said power mechanism, and means for causing reversal of said controller upon reversal of rotation of said shaft; substantially as described.

85. The combination with an elevator-car, power mechanism therefor, a rotatable shaft, and cables connected to said car and engaging said shaft, of a controller for said power mechanism, a motor for said controller, and means for causing said motor to operate to reverse said controller upon reversal of rotation of said shaft; substantially as described.

86. The combination with an elevator-car, power mechanism therefor, a rotatable shaft, and cables connected to said car and engaging said shaft, of a controller for said power mechanism, a motor for said controller, and means for causing reversal of movement of said motor upon reversal of rotation of said shaft; substantially as described.

87. The combination with an elevator-car, power mechanism therefor, and an operative mechanism requiring reversal of movement, of a motor for said operative mechanism, two open circuits including said motor, each of said circuits being adapted to direct current through said motor in a different direction, a member adapted to cooperate with the terminals of either of said circuits to complete said circuit, and means for causing contact between said member and the terminals of a different one of said circuits upon reversal of movement of said car; substantially as described.

88. The combination with an elevator-car, power mechanism therefor, and an operative mechanism requiring reversal of movement, of a motor for said operative mechanism, two open circuits including said motor, each of said circuits being adapted to direct current through said motor in a different direction, a member adapted to cooperate with the terminals of either of said circuits to complete said circuit, and means for shifting said member from the terminals of one of said circuits to those of the other thereof upon reversal of movement of said car; substantially as described.

89. The combination with an elevator-car, power mechanism therefor, and an operative mechanism requiring reversal of movement, of a motor for said operative mechanism, two open circuits including said motor each of said circuits being adapted to direct current through said motor in a different direction, a member having two terminals in connection with a source of electricity, and means whereby upon the reversal of movement of said car the terminals of said member are caused to contact with the terminals of a different circuit from the circuit-terminals with which they were in contact prior to said reversal of movement; substantially as described.

90. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, a rotatable shaft, connection between said car and said shaft whereby said shaft is caused to rotate by the movement of said car, the direction of rotation of said shaft being determined by the direction of movement of said car, and means whereby the direction of current to said motor is controlled by the rotation of said shaft; substantially as described.

91. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, a rotatable shaft, hoisting-cables connected to said car and passing over said shaft, and means whereby the direction of current to said motor is controlled by the rotation of said shaft; substantially as described.

92. The combination with an elevator-car, and power mechanism therefor, of operative mechanism requiring reversal of movement, a motor for said operative mechanism, a rotatable shaft, connection between said shaft and said car whereby the direction of rotation of the former is determined by the direction of movement of the latter, means for the motor, which circuits when completed send current through said motor in different directions, terminals for said motor-circuits, and a member adapted to engage either one of said circuit-terminals to complete the respective circuit, one of said elements (said circuit-terminals or said member) being carried by said shaft, and the other said element being in position to be engaged by said shaft-carried element; substantially as described.

93. In an elevator mechanism or the like, a rotatable shaft, means for rotating said shaft in reverse direction, operative mechanism, a motor therefor, an arm yieldingly engaged with said shaft to have its position changed by reversal of movement of said shaft, means for arresting the movement of said arm, and means carried by said arm for controlling the current to said motor; substantially as described.

94. In an elevator mechanism or the like, a rotatable shaft, means for rotating said shaft in reverse direction, operative mechanism, a motor therefor, an arm carrying means for controlling the current to said

motor, means for arresting the movement of said arm, and a spring holding said arm in yielding engagement with said shaft whereby the position of said arm is changed by reversal of movement of said shaft; substantially as described.

95. The combination with an elevator-car, and power mechanism therefor, of operative mechanism, and means for causing said mechanism to be engaged at points determined by the travel of said car; substantially as described.

96. The combination with an elevator-car, power mechanism therefor, and a landing to which said car travels, of an operative mechanism, and means for automatically engaging said mechanism when said car is substantially at said landing; substantially as described.

97. In an elevator mechanism or the like, a car, an interrupted series of contact-sections located along the path of travel of said car, a contact member carried by said car and having means for holding the same upon said contact-sections, an electric circuit including said contact-sections and said contact member, and an operative mechanism in said circuit, whereby said operative mechanism can be energized at intervals controlled by the movement of said car; substantially as described.

98. In an elevator mechanism or the like, a car, a track for a contact member and having live and dead sections, a contact member carried by said car and having means for holding the same upon said track, an electric circuit including said live track-sections and said contact member, and an operative mechanism in said circuit; substantially as described.

99. The combination with an elevator-car, power mechanism therefor, and an operative mechanism whose movement is designed to be reversed, of a motor for said operative mechanism, an electric circuit including said motor, and means for reversing the direction of the current through said motor; substantially as described.

100. The combination with an elevator-car, power mechanism therefor, and an operative mechanism whose movement is designed to be reversed, of a motor for said operative mechanism, an electric circuit including said motor, means for reversing the polarity of the field-magnet constant, and means for reversing the polarity of the armature of said magnet; substantially as described.

101. The combination with an elevator-car, and power mechanism therefor, of an operative mechanism requiring reversal of movement upon reversal of movement of said car, a motor for said operative mechanism, and means for changing the direction of current through said motor at every change of direction of travel of said car; substantially as described.

102. The combination with an elevator-car, power mechanism therefor, and a door, of mechanism for controlling said car, an electric circuit including said mechanism, a switch in said circuit, connection between said door and said switch whereby the latter is operable by the former, and a second switch in said circuit, said second switch being operated by a movement incident to travel of said car; substantially as described.

103. The combination with an elevator-car, power mechanism therefor, and a door, of a controller for said power mechanism, a motor for said controller, an electric circuit including said motor, a switch in said circuit and operable by the movement of said door, said motor-circuit being also controlled by said controller and by the movement of said car; substantially as described.

104. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a track having a dead section, a contact member carried by said car and engaging said track, an electric circuit including said track and contact member, an electric circuit including a switch operable by said controller, and a motor for said controller included in both of said circuits; substantially as described.

105. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a track having a dead section, a contact member carried by said car and engaging said track, said dead section of track being so located that the said contact member engages the same when the car is at a landing, an electric circuit including said track and contact member, an electric circuit including a switch operable by said controller, a motor for said controller in both said circuits, a switch controlling both of said circuits, and connections between said latter-mentioned switch and said door for opening the former by the movement of the latter; substantially as described.

106. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of an electric circuit, a door-switch in said circuit, a motor in said circuit, means for holding said motor and said controller out of operative engagement, and a magnet in said circuit for bringing said motor and said controller into operative engagement; substantially as described.

107. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of an electric circuit, a door-switch in said circuit, a controller-switch in said circuit, a motor in said circuit, means for holding said motor and said controller out of operative engagement, and a magnet in said circuit for bringing said mo-

tor and said controller into operative engagement; substantially as described.

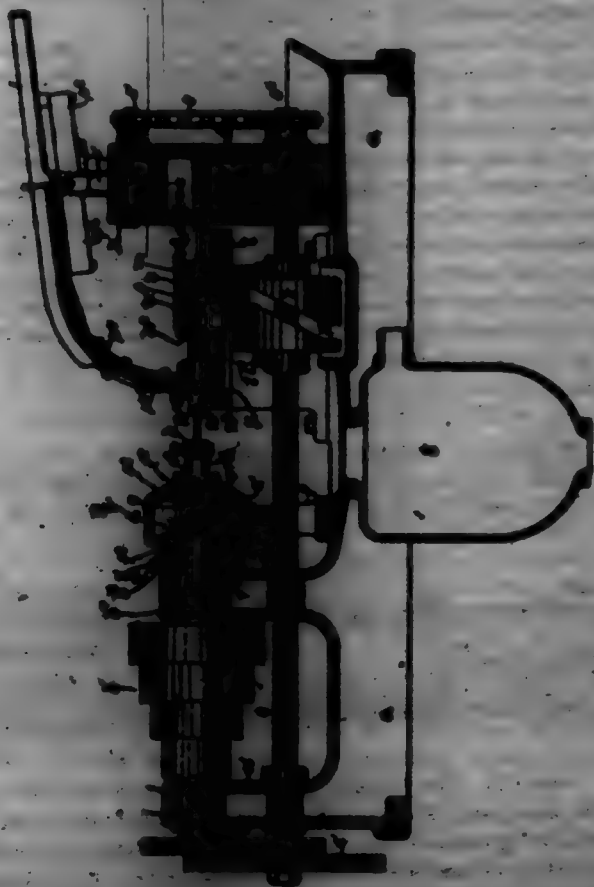
108. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a track having a dead section, a contact member carried by said car and engaging said track, said dead section being so located that it is engaged by said contact member when said car is at a landing, an electric circuit including said track and contact member, a controller-switch, an electric circuit including said controller-switch, a motor for said controller and included in both of said circuits, means for holding said motor out of operative connection with said controller, a magnet in both of said circuits for bringing said motor and said controller into operative connection, and a door-switch in both of said circuits; substantially as described.

109. The combination with an elevator-car, power mechanism therefor, a controller for said power mechanism, and a door, of a track having a dead section, a contact member carried by said car and engaging said track, said dead section being so located that it is engaged by said contact member when said car is at a landing, an electric circuit including said track and contact member, a controller-switch, an electric circuit including said controller-switch, a motor for said controller and included in both of said circuits, means for holding said motor out of operative connection with said controller, a magnet in both of said circuits for bringing said motor and controller into operative connection, a door-switch in both of said circuits, a pole-changer controlling both of said motor-circuits, said means for operating said pole-changer by the movement of said car; substantially as described.

110. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor for operating said controller, and means for rendering said motor operative with relation to said controller upon movement of said controller; substantially as described.

111. The combination with an elevator-car, power mechanism therefor, and a controller for said power mechanism, of a motor for operating said controller, and means for rendering said motor operative with relation to said controller upon movement of said controller, said controller being permitted a limited movement without so rendering the said motor operative; substantially as described.

698,898. NUT-TAPPING MACHINE. THOMAS FINEY, Cleveland, Ohio. Filed Mar. 24, 1903. Serial No. 19,995. (No model.)



Claim.—1. In a nut-tapping machine, a frame, a tap, means for imparting rotary movement to said tap, a slide, a cam arranged to positively operate said slide in an intermittent backward and forward direction, in line with said tap, a nut holding and feeding carriage, operated independently of said slide and arranged to move in the path thereof, means substantially as described for holding the nut on said carriage while being tapped, means substantially as described for drawing the nut from said tap

and a spring mounted on said slide and arranged to exert a pressure upon said carriage when said slide is advanced toward the tap, substantially as described and for the purpose set forth.

2. In a nut-tapping machine, a tap, means for imparting rotary movement to the same, a work-carriage adapted to slide in a suitable support, a sliding bar located in juxtaposition to said work-carriage, a spring located in said sliding bar having one of its ends abutting against the end of said bar and its other end abutting against a lug projecting from the work-carriage, and means for intermittently reciprocating said sliding bar forward and backward, substantially as described and for the purpose set forth.

3. In a nut-tapping machine, a frame, a tap, a driving-spindle for operating said tap, a work-carriage mounted on said frame and adapted to slide thereon, a coiled spring having one end connected to said work-carriage and the other end connected to the frame in the rear of said carriage, a lug depending from said work-carriage, a shaft mounted beneath said driving-spindle, gear-wheels operatively connecting said shaft and said driving-spindle, a cam keyed to said shaft below said work-carriage, a slide between said work-carriage and said cam and operatively connected with said cam, and an elastic medium forming an operative connection between the said slide and the said work-carriage.

4. In a nut-tapping machine, a tap-carrying spindle, suitably-operated driving mechanism for imparting a rotary movement to said spindle, suitably-operated mechanism for reversing the rotary movement of said spindle, a work-carriage adapted to feed the nut onto the tap and draw it off from the tap, and means for operating said work-carriage, comprising a cam rotatably mounted below said work-carriage, a slide located between said work-carriage and said cam and operatively connected with said cam, and an elastic medium forming an operative connection between the slide and the said work-carriage.

5. In a nut-tapping machine, a frame, a tap, a driving-spindle for operating said tap, a work-carriage mounted on said frame and adapted to slide horizontally thereon, a coiled spring having one end connected to said work-carriage, and the other end connected to the said frame in the rear of said work-carriage, and a positively-driven slide operatively connected to said work-carriage by means of a yielding connection located between said carriage and said slide, substantially as described and for the purpose set forth.

6. In a nut-tapping machine, the combination with a work-carriage of a device for supplying blanks to said work-carriage, comprising a receptacle secured to springs mounted upon a support located in proximity to said work-carriage, a discharge-conduit leading from said receptacle to said work-carriage, the mouth of said discharge-conduit being located so as to be closed by the upper surface of the work-carriage except when the work-carriage is in its furthest back position, an opening formed in the side of said discharge-conduit, a slide normally closing said opening, a toothed wheel mounted in proximity to said receptacle, means for rotating said toothed wheel, and a lug depending from said receptacle and adapted to engage the teeth of said wheel, substantially as described and for the purpose set forth.

698,899. MACHINE FOR BORING BRUSH-BLOCKS AND CUTTING IN THE BRISTLES. CARL E. FLEMMING, Schönbühl, Germany. Filed June 24, 1904. Serial No. 61,572. (No model.)

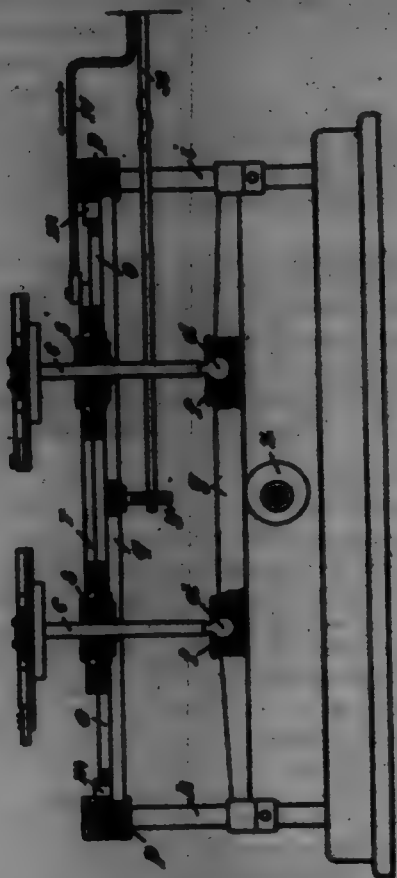
Claim.—1. In a machine for boring brush-blocks and cutting in the bristles, the combination with the work-tables *a b*, of rods *c* supporting said tables, ball-joints *d f* supporting said rods, slides *g r* taking around the said rods and being adapted to be moved one rectilinearly to the other, and means for thus operating said slides, substantially as described.

2. In a machine for boring brush-blocks and cutting in the bristles, the combination with the work-tables *a b*, of rods *c* supporting said tables, ball-joints *d f* supporting said rods, a traverse *g* carrying said ball-joints, slides *g r* taking around the said rods and being adapted to be moved one rectilinearly to the other in a horizontal direction, means for thus operating said slides, and other means for lifting or lowering said traverse, substantially as described.

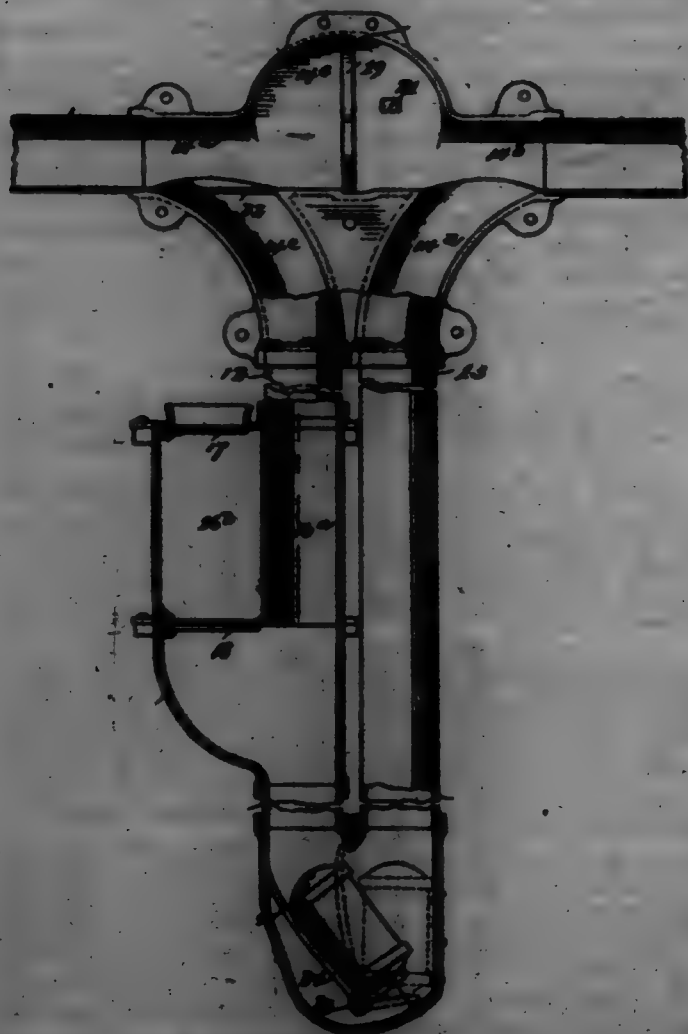
3. In a machine for boring brush-blocks and cutting in the bristles, the combination with the work-tables *a b*, of rods *c* supporting said tables, ball-joints *d f* supporting said rods, slides *g r* taking around the said rods and being adapted to be moved one rectilinearly to the other, ball-joints *e* inserted between the rods and said slides, and means for displacing the latter independently from one another in a horizontal direction, substantially as described.

4. In a machine for boring brush-blocks and cutting in the bristles, the combination with the work-tables *a b*, of rods *c* supporting said tables, ball-joints *d f* supporting said rods, slides *g r* taking around the said rods and being adapted to be moved one rectilinearly to the other, pairs of parallel bars *e p p* supporting said slides, vertical standards *h i h i* supporting said bars, and dovetailed elbow-joints connecting said standards

with the said bars, and means for displacing the said slides upon said pairs of parallel bars, substantially and for the purpose as described.



698,880. PNEUMATIC DISPATCH TUBE. EDWARD A. FORTY, Chicago, Ill. Filed Feb. 14, 1902. Serial No. 94,164. (No model.)



Claim.—1. In a pneumatic-tube system, the combination with an overhead main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of a looped branch connected with and depending from said main-line tube at a local sending-station, a valve at the junction

of said main tube and branch normally deflecting the current through the latter but permitting the uninterrupted travel of through-carriers past the junction, and a sending-terminal located in said looped branch, substantially as described.

2. In a pneumatic-tube system, the combination with an overhead main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of a looped branch connected with and depending from said main-line tube at a local sending-station, a valve at the junction of said main tube and branch normally deflecting the current through the latter but permitting the uninterrupted travel of through-carriers past the junction, and a double-trapped sending-terminal located in that branch of the loop through which the current descends, substantially as described.

3. In a pneumatic-tube system, the combination with a main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of a branch tube communicating with said main-line tube, a sending-terminal in said branch tube, and means located in said branch tube for turning the carrier and for each while on route through the latter, substantially as described.

4. In a pneumatic-tube system, the combination with an overhead main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of a looped branch connected with and depending from said main-line tube at a local sending-station, said branch comprising two parallel tubes lying close together and connected at their lower ends by a pocket, a valve at the junction of said main tube and branch normally deflecting the current through the tubes and pocket of the latter but permitting the uninterrupted travel of through-carriers past the junction, a sending-terminal located in that branch of the loop through which the current descends, and means located in said pocket serving, upon the descent of the carrier, to automatically transfer the carrier laterally into line with the outgoing branch of the loop, substantially as described.

5. In a pneumatic-tube system, the combination with an overhead main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of a looped branch connected with and depending from said main-line tube at a local sending-station, said branch comprising two parallel tubes lying close together and connected at their lower ends by a pocket, a valve at the junction of said main tube and branch normally deflecting the current through the tubes and pocket of the latter but permitting the uninterrupted travel of through-carriers past the junction, a sending-terminal located in that branch of the loop through which the current descends, and a rocker pivoted in the bottom of the loop adapted to receive the descending carrier and to be tilted by the impact thereof to bodily transfer the carrier laterally into line with the outgoing branch of the loop, substantially as described.

6. In a pneumatic-tube system, the combination with an overhead main-line tube adapted to transmit carriers from an outlying station to the cash-desk, of an air-tight casing interposed in said main tube above a local sending-station, said casing having a horizontal passage-way therethrough in line with the main tube, and a pair of oppositely-curved depending passage-ways communicating at their upper ends with said horizontal passage-way, a looped branch containing a sending-terminal and connected to and communicating with the depending curved passage-ways of the casing, and a current-deflecting valve consisting of a plate pivotally mounted between the side walls of the casing above the path of carrier therethrough and having unequal areas exposed to the effect of the current on opposite sides of its pivotal axis, substantially as described.

698,881. COUPLING FOR CABLE-DRIVEN. GEORGE E. GARDNER, Providence, R. I., assignor to Gardner Manufacturing Company, Providence, R. I. Filed Jan. 2, 1902. Serial No. 97,967. (No model.)



Claim.—1. The combination with a tubular constrictor or similar article, of a tubular dowel, openings in the cylindrical wall of the dowel, clamps having radial movement in the openings, and spring-pressed cams acting on the clamps to hold them against the wall of the socket, as described.

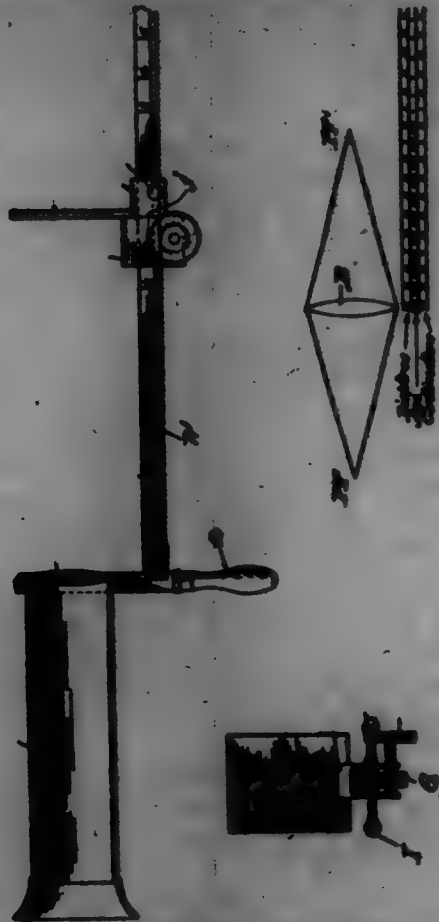
2. In a coupling, the combination with a socket and the article to be secured in the socket, of a tubular dowel, longitudinal slots in the cylindrical wall of the dowel, disks in the opposite ends of the dowel, a central post, cam-rings on the post, a coiled spring bearing on the cam-disks, and radially-moving clamps operated by the spring-pressed cam-rings to bear on the wall of the socket, as described.

11. In a curving-machine, the combination of test-holder, a beam supporting the test-holder, a speed beam, vertical guides for the first beam fixed to the speed beam, means for lifting the first beam relatively to the second, and means for raising the second beam.

22. In a carving-machine, the combination of tool-holders arranged in pairs, two slides each carrying one tool-holder of each pair, means for simultaneously moving the slides in opposite directions, means for simultaneously inclining the tool-holders of each pair toward or away from each other, a table supporting the slides, a pivot for the table, means for turning the table about its pivot, a beam supporting the pivot, a second

beam, counterbalanced lever pivoted to the second beam and supporting the first, a pawl carried by one of the levers, a rack with which the pawl engages, and means for lowering the rack.

698,883. OPTOMETER. FRANK A. HART, Evanston, Ill. Filed July 24, 1901. Serial No. 60,798. (No model.)



Claim.—1. An optometer having, in combination, a lens, a distance-piece, a graduated beam, a target mounted to slide upon the beam, a slide also mounted to slide upon the beam, and controllable means for fixing the slide on the beam, said slide having a surface adapted to indicate upon the beam the graduation corresponding with the face of the target, substantially as described.

2. An optometer having, in combination, a lens, a distance-piece, a graduated beam, a target mounted to slide upon the beam, and a slide also mounted upon the beam, said slide having a surface adapted to be brought to the plane of the face of the target, substantially as described.

3. An optometer having, in combination, a lens of known refracting power, a distance-piece for holding the eye at one principal focus of the lens, a beam graduated to show units of refraction of said lens and with its zero-point at the other principal focus of the lens, a target mounted to slide on said beam, and a slide also mounted on the beam, said slide having means for indicating upon the beam the graduation corresponding with the face of the target, substantially as described.

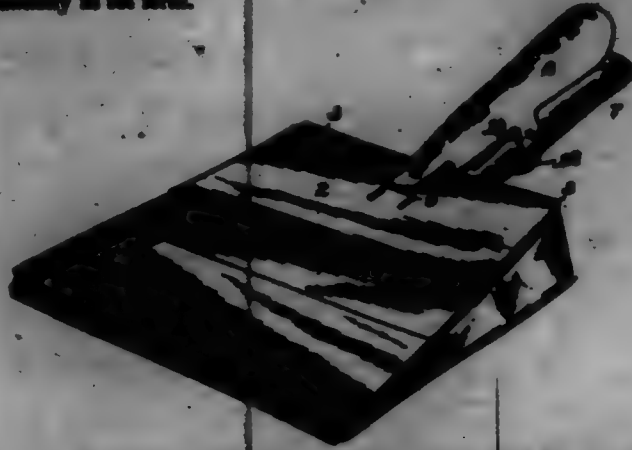
4. An optometer having, in combination, a lens of known refracting power, a distance-piece equal to the focal length of the lens, a beam graduated to show units of refraction, the graduation falling opposite the principal focus of the lens being marked zero (0) and the other graduations being numbered in both directions from zero, a target mounted to slide on the beam, and a slide also mounted on the beam, said slide having means for indicating upon the beam the graduation corresponding with the face of the target, substantially as described.

698,884. DUST-PAN. WILLIAM L. HARRIS, Chicago, Ill., assignor of three-fourths to George H. R. French, George H. French, and Adin T. Howard, Chicago, Ill. Filed Dec. 25, 1901. Serial No. 57,148. (No model.)

Claim.—1. In a dust-pan of the character herein described, the combination of a pan-body, a hinged cover forming a dust-chamber at the rear of the same, a fixed handle member secured to the dust-pan body, and a movable handle member pivoted midway its length to the fixed handle member and operatively connected to the hinged cover at a point forward of the hinge connection of said cover to the body of the dust-pan, substantially as set forth.

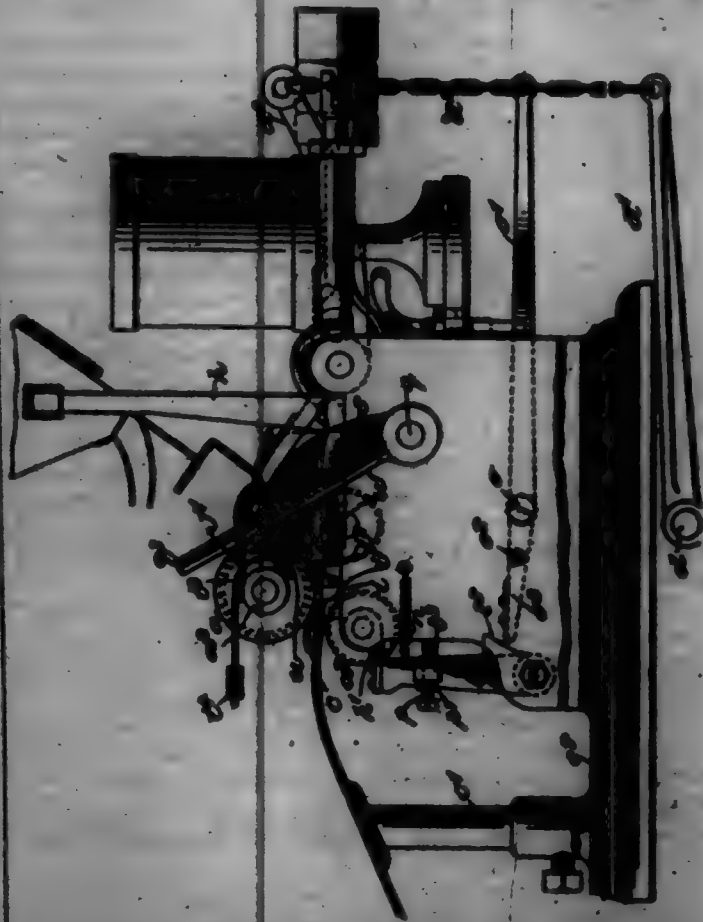
2. In a dust-pan of the character herein described, the combination of a pan-body, a hinged cover forming a dust-chamber at the rear of the same, a fixed handle member secured to the dust-pan body, a movable

handle member pivoted midway its length to the fixed handle member and operatively connected to the hinged cover at a point forward of the hinge connection of said cover to the body of the dust-pan, and a spring-lever forming the pivotal connection between said handle members, substantially as set forth.



3. In a dust-pan of the character herein described, the combination of a pan-body, a hinged cover forming a dust-chamber at the rear of the same, a fixed handle member secured to the dust-pan body, a movable handle member pivoted midway of its length to the fixed handle member and operatively connected to the hinged cover at a point forward of the hinge connection of said cover to the body of the dust-pan, pendant pivot-cars on the movable handle member, and a spring-lever forming the pivotal connection between the handle members, substantially as set forth.

698,885. CIGAR-BUNCH-WRAPPING MACHINE. FLORENCE L. HARRISON, New York, N. Y., assignor to George L. McAlpin, New York, N. Y. Filed Feb. 27, 1901. Serial No. 58,000. (No model.)



Claim.—1. The combination with a cigar-bunch-wrapping mechanism, of a feed-hopper located in position to present the bunches to be wrapped within convenient reach of the operator, the said feed-hopper being provided with resilient discharge-jaws, substantially as set forth.

2. The combination with a cigar-bunch-wrapping mechanism including the group of rollers and wraps for lifting one of the rollers to receive a bunch to be wrapped, of a feed-hopper provided with a discharge-opening at the front in position to present a bunch within convenient reach of the operator, the said feed-hopper being provided with an actuating mechanism and means in connection with the roller-lifting means for operating said actuating mechanism as the roller is lifted to receive the bunch, substantially as set forth.

3. The combination with the cigar-bunch-wrapping mechanism, of a feed-hopper having resilient discharge-jaws, an actuating mechanism for

presenting bunches in the jaws in position to be removed and means for operating the agitating mechanism as the wrapping mechanism is operated to receive the bunch, substantially as set forth.

4. The combination with a cigar-bunch-wrapping mechanism, of a feed-hopper provided with resilient jaws for retaining the bunches in position to be grasped by the operator, a reciprocating riddle-plate within the hopper for agitating the bunches and means for operating the plate, substantially as set forth.

5. The combination with a cigar-bunch-wrapping machine, of a hopper removably secured to the machine and provided with an agitating mechanism and means in connection with the machine for operating the agitating mechanism, the agitating mechanism being arranged to move into and out of the path of the said operating means as the hopper is adjusted and removed, substantially as set forth.

6. The combination with the wrapping mechanism and means for lifting one of the rollers out of wrapping position of a movable bearing-piece for the tip of the bunch and means for operating the movable bearing-piece simultaneously with the lifting of the roller, substantially as set forth.

7. The combination with the wrapping mechanism and means for swinging the top roller away from the remaining rollers, of a swinging bearing-piece for the tip of the bunch and a weighted arm having a sliding-connection with the swinging roller-support for operating the said bearing-piece simultaneously with the movement of the roller, substantially as set forth.

8. The combination with the rolling mechanism, of a rocking support for one of the lower rollers, a retracting-spring for holding the said support in its normal position and an operating-lever arranged to operate the swinging support when moving in one direction and pass itself along the said support when moving in the opposite direction, substantially as set forth.

9. The combination with the rolling mechanism and means for swinging an upper roller upwardly out of position to receive a bunch, of a rocking support for one of the lower rollers, the said support having a substantially upright normal position, a spring for holding the rocking support in its normal position, a cut-away for regulating the rocking movement of the support and hence the roller and means for rocking the said support and hence the roller at the completion of the rolling operation, substantially as set forth.

10. The combination with the rolling mechanism, of an upper roller mounted to swing upwardly out of rolling position, a lower roller mounted to swing forwardly out of rolling position, a foot-treadle and means engaged with the foot-treadle for simultaneously operating the said upper and lower rollers, substantially as set forth.

11. The combination with the wrapping mechanism, of trimming-knives and means for moving them bodily in a direction lengthwise of the bunch to be trimmed, substantially as set forth.

12. The combination with the wrapping mechanism, of trimming-knives and means for simultaneously moving them bodily in a direction lengthwise of the bunch and transversely toward the bunch, substantially as set forth.

13. The combination with the wrapping mechanism, of trimming-knives arranged to move bodily in a direction lengthwise of the bunch and of a compression-spring in position to engage a bulb-blade to press it against its companion blade, substantially as set forth.

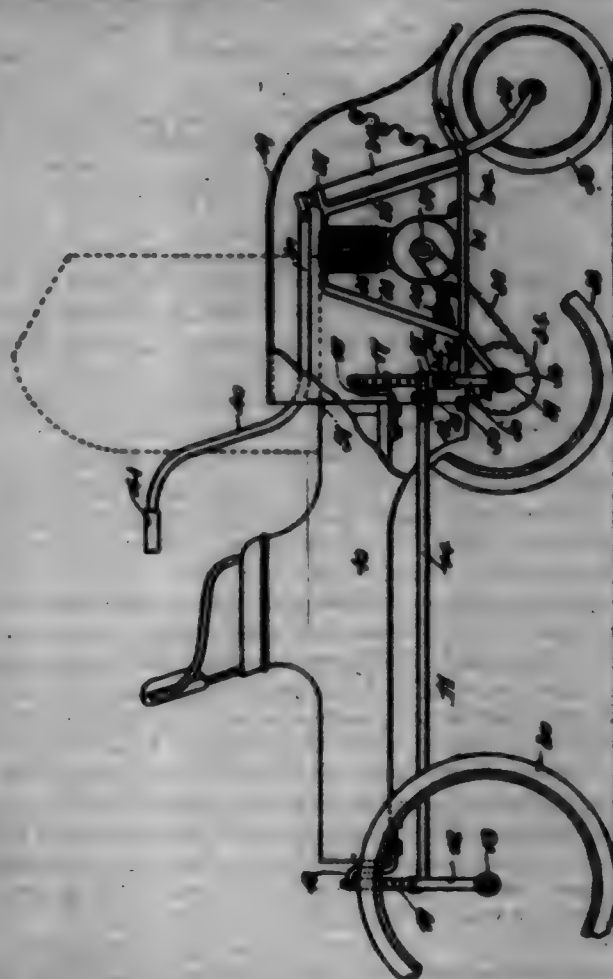
698,886. MOTOR-VEHICLE. WALLACE L. HUNT, Boston, Mass.
Filed July 27, 1901. Serial No. 69,886. (No model.)

Claim.—1. In a motor-vehicle, a main frame, a steering-frame, and a connecting-frame, a vertical pivotal bolt attaching said main frame to said connecting-frame, a horizontal pivotal bolt attaching said connecting-frame to said steering-frame, a pair of wheels arranged to rotate upon axle-bearings fast to said main frame, a rotary axle arranged to rotate in bearings fast to said steering-frame, a pair of wheels fast to said rotary axle, and a steering-wheel arranged to rotate in bearings in a swivel-frame, said swivel-frame arranged to swivel in bearings upon said steering-frame.

2. In a motor-vehicle, a main frame, a steering-frame, and a connecting-frame, a vertical pivotal bolt attaching said main frame to said connecting-frame, a horizontal pivotal bolt attaching said connecting-frame to said steering-frame, a pair of wheels arranged to rotate upon axle-bearings fast to said main frame, a rotary axle arranged to rotate in bearings fast to said steering-frame, a pair of wheels fast to said rotary axle, and a steering-wheel arranged to rotate in bearings in a swivel-frame, said swivel-frame arranged to swivel in bearings upon said steering-frame, in combination with a motor fast to said steering-frame and operatively connected to said rotary axle.

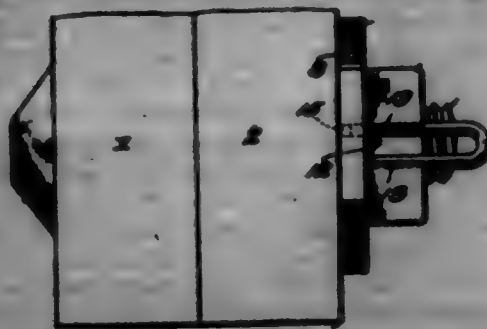
3. In a motor-vehicle, a main frame, a body supported thereon, a steering-frame pivotally connected to said main frame in such a manner that said frames may assume varying angles with relation to each other

in a horizontal and in a vertical plane, a motor supported upon said steering-frame, and a hood attached to said body and forming a covering for said motor and steering-frame.



4. In a motor-vehicle, a main frame, a body supported thereon, a steering-frame pivotally connected to said main frame in such a manner that said frames may assume varying angles with relation to each other in a horizontal and in a vertical plane, a motor supported upon said steering-frame, and a hood having a flexible front attached to said body and forming a covering for said motor and steering-frame.

698,887. MUT-LOCK. GEORGE A. HAY and JOHN J. FURMAN, Shamokin, Pa. Filed Jan. 15, 1902. Serial No. 69,814. (No model.)



Claim.—1. A nut-lock comprising a washer, a nut provided with a recess having overhanging walls, and a locking device associated with the washer and having spring-arms adapted to engage the said walls.

2. A nut-lock comprising a washer provided with a plurality of openings, a nut provided with a recess having overhanging walls, and a locking device having a part to interlock with the openings of the washer and with resilient members to engage the said recess.

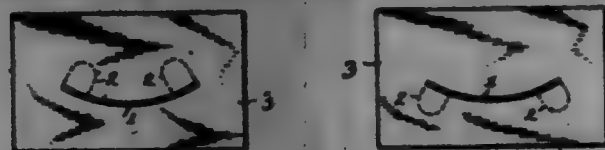
3. A nut-lock comprising a washer provided with a plurality of openings communicating with a circumferentially-arranged channel in the lock thereof, a nut provided with a recess having overhanging walls, and a two-membered locking device adapted to engage with the said walls, one of the said members being provided with a toe to interlock with one of the openings in the washer and to project within the said channel.

4. A nut-lock comprising a washer provided with means for holding it against rotation and with a plurality of radially-disposed slots, a nut provided in one of its faces with a recess having overhanging walls, and a locking device having a toe to project within one of the openings and resilient locking members to engage the said walls.

5. A nut-lock comprising a washer provided with means for holding it against rotation and with a plurality of radially-disposed openings

communicating with a circumferentially-arranged channel in its tank; a nut provided in one of its faces with a means having overhanging walls, and a locking device having a toe to project through one of the openings and to lie in the channel and resilient arms to engage the walls of the said room.

698,888. TUTORIAL DEVICE. JAMES A. LAMER, New York, N. Y., assignor to American Lithographic Company, a Corporation of New York. Filed Feb. 8, 1902. Serial No. 38,398. (No model.)



Claim.—1. In a device of the character described, the combination with a base-section, of an upright section, said upright section being curved so as to maintain an upright position, said sections being connected together so as to retain the upright section in its curved form.

2. In a device of the character described, the combination with a base-section, of an upright section, said upright section being curved so as to maintain an upright position, and connections between said sections, said connections consisting of tongues and slots so arranged as to retain the upright section in its curved form.

3. In a device of the character described, the combination with a base-section, of an upright section, said upright section being curved so as to maintain an upright position, and connections between said sections, said connections consisting of tongues on the upright section and slots in the base-section, the slots being so disposed that when the tongues are inserted therein the upright section will be retained in its curved form.

4. In a device of the character described, the combination with a base-section, of an upright section, said upright section being connected at or near the opposite ends of its lower edge to the base-section at points on the latter which are nearer together than are the points of connection on the upright section, whereby the upright section is flared so as to maintain an upright position and is retained in its flared condition.

5. In a device of the character described, the combination with a base-section, of an upright section, said upright section having depending tongues at or near the opposite ends of its lower edge and said base-section having slots which are nearer together than are the tongues on the upright section, whereby the upright section when connected to the base-section is flared so as to maintain an upright position.

6. In a device of the character described, the combination with a base-section, of an upright section, said upright section being curved circumferentially and provided at its lower end with radially-projecting tongues connected to said base-section.

7. In a device of the character described, the combination with a base-section, of an upright section, said upright section being curved circumferentially and provided at its lower end with radially-projecting tongues connected to said base-section.

698,889. BLAST-FURNACE-FILLING APPARATUS. JULIAN KIMMERT, Pittsburgh, Pa. Filed Apr. 19, 1901. Serial No. 64,093. (No model.)

Claim.—1. A blast-furnace having an inclined track leading to its top, with an overhanging cantilever portion, a bell, and bell-operating mechanism supported on said cantilever; substantially as described.

2. A blast-furnace having an inclined track leading to its top, with an overhanging cantilever, a plurality of bells and bell-operating cylinders mounted upon the overhanging cantilever extension and connected to the bell, at least one of the cylinders being above and in line with the axis of the bell; substantially as described.

3. A blast-furnace having a charging bell and hopper, and a cylinder arranged to raise and lower the bell and connected thereto, said cylinder having at one movement a stroke of sufficient length to lift the bell above the blast-furnace top for replacing it; substantially as described.

4. A blast-furnace having a charging bell and hopper, and a motive cylinder above and in line with the axis of the bell and connected thereto, said cylinder having at one movement a stroke of sufficient length to lift the bell entirely above the top of the furnace; substantially as described.

5. A blast-furnace having a charging bell and hopper, a motive cylinder above the bell and containing a plunger carrying at its upper end connections leading downwardly to the bell, a valve-controlled source of non-freezing liquid under pressure leading to the cylinder, and a casing including the plunger and the upper part of its connection; substantially as described.

6. A blast-furnace having a charging-out, a motive cylinder connected thereto, said cylinder having a plunger, an oil-pocket at the head

of the cylinder, a cross-head carried on the plunger and a rod extending from the cross-head down through the pocket and connected to the bell; substantially as described.



7. A blast-furnace having a bell, and a motive cylinder having a plunger connected to said bell, said cylinder having a stationary casing or cover extending upwardly from its head and containing a cross-head with rods extending down to the cylinder connection; substantially as described.

8. A blast-furnace having a bell-operating cylinder containing a plunger, an annular liquid-receiving pocket surrounding its head portion, and a stationary casing surrounding the pocket and arranged to induce the plunger in its movement; substantially as described.

9. A blast-furnace having a bell-operating cylinder provided with packing, and having a liquid-pocket arranged to receive the liquid from the packing, and a drip-pipe leading from the pocket down to near the ground-level; substantially as described.

10. A blast-furnace having a bell-operating cylinder provided with a liquid-receiving room around its head, a plunger within the cylinder, and a hollow post in the room through which extends a rod connected to the plunger; substantially as described.

11. A blast-furnace having a bell-operating hydraulic cylinder provided with a cross-head secured to the plunger, rods depending from the cross-head, guide-channels through which the rods extend, and means for adjusting the cylinder laterally and changing its adjusted position; substantially as described.

12. A blast-furnace having a main bell and hopper, and a supplemental bell and hopper, a motive cylinder operating each bell, and means for connecting both bells to one of said cylinders; substantially as described.

13. A blast-furnace having a main bell and hopper and a supplemental bell and hopper, motive cylinders having cross-head connections with said bells, and detachable locking devices for securing the cross-heads together; substantially as described.

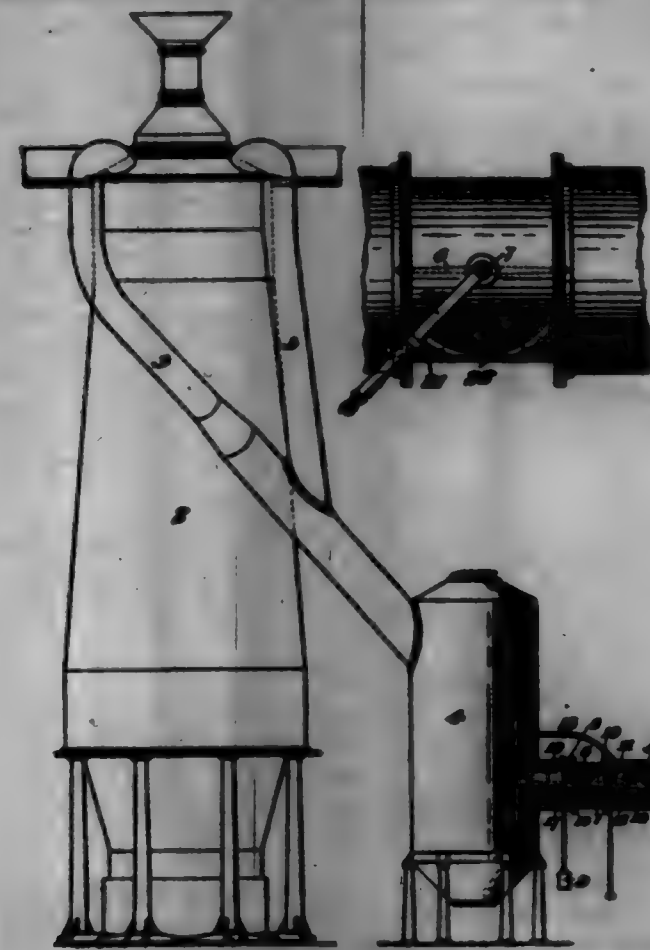
698,840. METHOD OF OPERATING BLAST-FURNACE. JULIAN KIMMERT, Pittsburgh, Pa. Filed May 3, 1901. Serial No. 68,099. (No model.)

Claim.—1. The method of preventing the discharge of coke after a dip, in a blast-furnace, consisting in reducing the area of the gas-escape when the charge in the furnace is hanging; substantially as described.

2. The method of operating a blast-furnace, consisting in reducing the area of the gas-escape when the pressure increases in the furnace; substantially as described.

3. The method of controlling a blast-furnace and preventing accidental discharge, consisting in throttling down the outlet and shutting back the gas-pressure when a dip occurs; substantially as described.

698,840.



698,841. CONTROLLER. GEORGE J. KLINE, Washington, D. C. Filed July 2, 1901. Serial No. 68,801. (No model.)



Claim.—1. A controller for governing the application of power, comprising means for communicating motion, a hollow rod connected to the same, means passed transversely through said rod for locking the same, means carried by said rod designed to engage said locking means, and a key extending longitudinally of said rod, and carried thereby inside the same and projecting from the upper end thereof and movable longitudinally for releasing the engagement of said lock-engaging means, substantially as described.

2. A controller for governing the application of power, comprising a lever for applying and shutting off said power, a handle at the upper end of said lever adapted to be grasped for operating the same, means passed transversely through said lever for locking the same, means carried by said rod designed to engage said locking means and a key projecting from within and carried by said handle and movable longitudinally thereof for releasing the engagement of said lock-engaging means, whereby said key is in position to manually fall beneath the thumb of the operator's hand, when the said handle is grasped, substantially as described.

3. A controller for governing the application of power, comprising a pivoted hollow rod, means for automatically locking said rod against movement, a lock-plate passed through said rod and designed to be engaged by said locking means within said rod, and means projecting from within the upper end of said rod for controlling said locking means substantially as described.

4. A controller for governing the application of power, comprising a pivot-pin for imparting motion, a hollow rod connected to said pin

locking means passed transversely through said rod, means carried within said rod for automatically engaging said locking means, and a key for operating said engaging means, substantially as described.

5. A controller for governing the application of power, comprising a pivot-pin for imparting motion, a hollow rod secured to said pin, a belt carried within said rod, a locking-plate passed through said rod and belt, means for holding said belt in contact with said locking-plate, whereby said rod will be locked against movement, and means for forcing said belt out of contact with said locking-plate, substantially as described.

6. A controller for governing the application of power, comprising means for imparting motion, a hollow rod carrying said means, a belt carried within said rod, a locking-plate passed through said rod and belt, means for automatically holding said belt in contact with said locking-plate, means for locking said belt against movement, and means for automatically releasing the same, substantially as described.

7. A controller for governing the application of power, comprising in its construction means for imparting motion, a hollow rod secured to said means, a belt carried within said rod, a locking-plate passed through said rod and belt, means for automatically maintaining said belt in contact with said locking-plate, a spring-pressed belt threaded into the upper end of said first-mentioned belt, said hollow rod being provided with a horizontal and a vertical slot situated near the top of said rod, a key carried by said spring-pressed belt adapted to operate in said slot, the upper end of the spring-pressed belt being of polygonal shape, a key provided with an aperture in its end adapted to register with said polygonal end, and a key carried by said key, the said hollow rod being provided with a vertical slot-opening at the upper end of said rod, a horizontal slot communicating therewith and another vertical slot leading downward from the inner end of the horizontal slot, the key of said key being adapted to be guided by said last-mentioned slot, substantially as described.

8. A controller for governing the application of power, comprising means for communicating motion, a hollow rod carrying the same, a belt within said rod, a lock-plate provided with a notch and passed through said rod and belt, means for normally holding said belt in engagement with said notch, a key for disengaging the same, means for retaining said key in engagement with said belt when the belt is not fully within said notch, and means for partially filling said notch for preventing the disengagement of said key from said belt, substantially as described.

9. A controller for governing the application of power, comprising a lever, means for imparting motion therefrom, a notched locking-plate engaged by said lever, a key for disengaging said lever from said plate, means for retaining said key in engagement with said lever until the same is brought into engagement with the notch of said lever, and an automatically-controlled pin adapted to partially fill said notch for preventing the disengagement of said key from said lever, substantially as described.

10. A controller for governing the application of power, comprising a lever, a notched locking-plate adapted to be engaged thereby, means for releasing such engagement, means retaining said releasing means in engagement with said lever until the said lever is brought fully into engagement with the notch of said locking-plate, and means for partially filling said notch for preventing disengagement of said releasing means from said lever, comprising a spring carried by said locking-plate, a pin held by said spring normally with its inner end within the notch of said plate, and means for locking said pin against the pressure of said spring, with its inner end free of said notch, substantially as described.

11. A controller for governing the application of power, comprising a lever, a notched locking-plate adapted to be engaged thereby, means for releasing such engagement, means for retaining said releasing means in engagement with said lever until the said lever is brought fully into engagement with the notch of said locking-plate, and means for partially filling said notch for preventing disengagement of said releasing means from said lever, comprising a housing carried by said locking-plate, a spring within said housing, a dotted head at the outer end of said housing, a pin extending longitudinally of said housing and pressed by said spring, whereby the inner end is normally held within the notch of said locking-plate, means for removing the inner end of said pin from said notch against the pressure of said spring, and a key adapted to move in the slot of said housing-head, and to engage the outer end thereof, when the said pin is partially rotated, for maintaining said pin with its inner end free of said notch, substantially as described.

12. A controller for governing the application of power, comprising a pivoted hollow rod, a belt movable within the same for locking said rod against movement, a detachable key inserted in the upper end of said rod and contacting with said belt for controlling the operation thereof, and means for preventing the removal of said key, substantially as described.

13. A controller for governing the application of power, comprising a pivoted hollow rod, a belt longitudinally movable within the same, a locking-plate passed transversely through said rod and belt, and means for causing said belt to engage said locking-plate for locking said rod against movement, substantially as described.

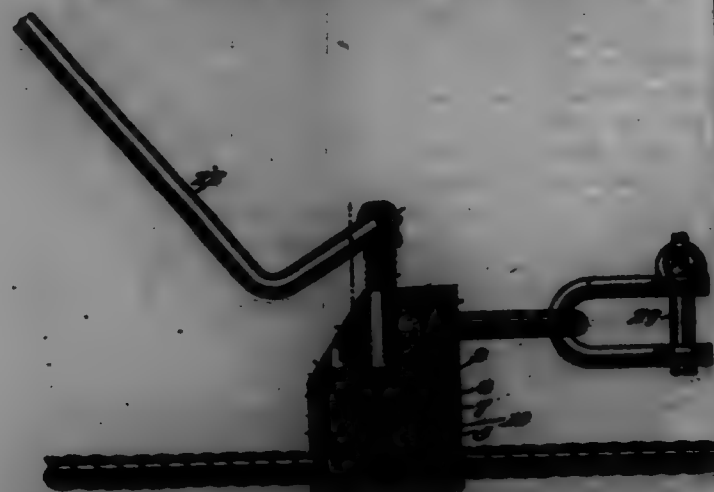
14. A controller for governing the application of power, comprising a pivoted, hollow lever, having a longitudinal, shouldered slot in its wall, means for locking said lever against movement, a key movable longitudinally within said lever at the upper end thereof for controlling said locking means, means carried by said key designed to engage the said shouldered slot for locking the key against removal, and means for permitting the removal of said key, substantially as described.

15. A controller for governing the application of power, comprising means for communicating motion, a rod connected thereto, a bolt movable within said rod for substantially locking the same against movement, means for preventing the unlatching of said bolt, a key projecting from the upper end of said rod for releasing the bolt, and means on said key engaging said rod for preventing the removal of the key, substantially as described.

16. A controller for governing the application of power, comprising a hollow rod for imparting motion, locking means passed transversely through said rod, means movable longitudinally within said rod for substantially engaging said locking means, and a key detachably engaging said rod and containing with said engaging means for operating the same, substantially as described.

17. A controller for governing the application of power, comprising a hollow rod, locking means passed through said rod, a bolt movable longitudinally within said rod, a spring inclosed by said rod pressing said bolt normally retaining the same in engagement with said locking means, and means detachably carried by said rod for moving said bolt against the pressure of said spring, substantially as described.

698,842. GABLE-GRIFF. JOHN HEDGECOCK and THOMAS BELL, Executors, Pa. Filed Oct. 12, 1891. Serial No. 74,176. (No model.)



Claim.—1. In a cable-grip, the combination with the body portion thereof having vertical slots therein, a screw-threaded shoulder, a stationary jaw having at its lower end a curved hook, a movable jaw connected to the cable having a concave lower surface and an elongated slotted upper surface, a detachable plate secured to the movable jaw over the slotted plate, a screw-bolt passing with screw-threads of the shoulder and with the detachable plate, and a head at the lower end of said bolt seated in said elongated slot, substantially as specified.

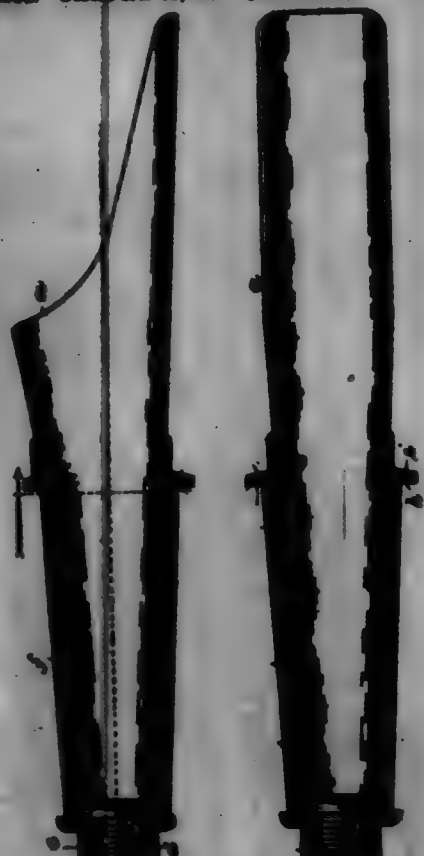
2. In a cable-grip, the combination with the body portion thereof having vertical slots therein, a screw-threaded shoulder at the upper end of the body portion, a stationary jaw secured to the shoulder having vertical slots and a curved hooked end, of a movable jaw connected to the cable of the stationary jaw and having a concave lower surface and an elongated slotted upper surface, a detachable plate secured to the movable jaw over the elongated slot, a screw-bolt passing with the screw-threads of the shoulder and with said detachable plate and means at the lower end of said screw-bolt seated in and adapted to operate in the said elongated slot, a coupling device connected to said shoulder and a lever connected to said screw-bolt to operate the movable jaw, substantially as specified.

698,843. RAILROAD-SPIKE. WILLIAM C. HARRIS, Clinton, Mich. Assignor of one-third to Jacob W. Harris, Aberdeen, Wash. Filed July 22, 1891. Serial No. 74,177. (No model.)



Claim.—A railway-spike having a laterally-projecting head, a pyramidal point, a neck rectangular in cross-section and twisted in a helix, and a neck shoulder in cross-section and tapering into the head.

698,844. WAGON-SKEIN. ALFRED L. MOORE, Melrose, N. H. Filed Sept. 11, 1891. Serial No. 74,178. (No model.)

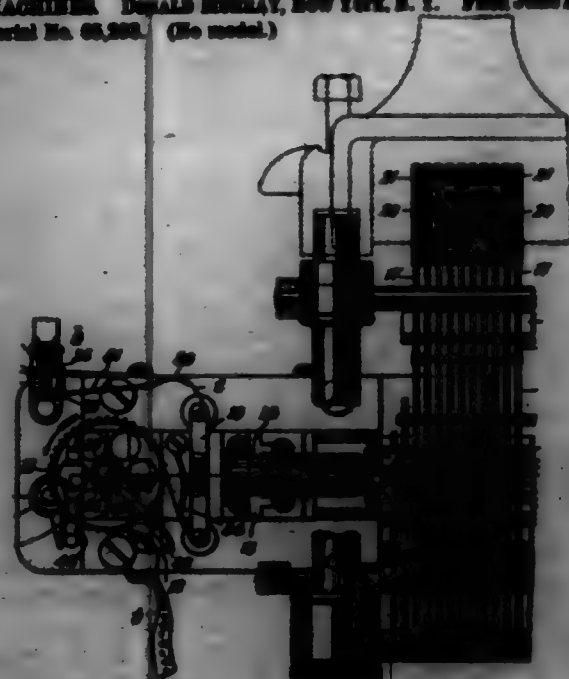


Claim.—1. In a wagon-skein, the combination of a hollow body portion adapted to be mounted upon an axle, a cylindrical sleeve adapted to form a wheel-bearing removably and non-rotatably mounted thereon and provided with an annular flange upon its inner end for forming an end bearing, an extended screw-threaded end upon the body portion of the skein, and a nut mounted thereon and provided with an annular shoulder for forming opposite the shoulder formed by the flange on end bearing, substantially as described.

2. In a wagon-skein, the combination of a body portion adapted to be mounted upon an axle, a cylindrical sleeve removably and non-rotatably mounted upon said body portion, an annular flange integral with said sleeve, and means for connecting the annular flange to the shoulder on the body portion, substantially as described.

3. In a wagon-skein, the combination of a body portion adapted to be mounted upon an axle and provided with an annular shoulder and an extended screw-threaded end, a threaded nut mounted upon the threaded end of said body portion and provided with an annular shoulder, a removable steel sleeve non-rotatably mounted upon the body portion between the shoulder and the nut, an integral annular flange upon one end of the sleeve, and means for connecting the annular flange to the shoulder, substantially as described.

698,845. ACTUATING MECHANISM FOR KEY-OPERATED MACHINERY. DONALD MURRAY, New York, N. Y. Filed June 20, 1891. Serial No. 68,598. (No model.)



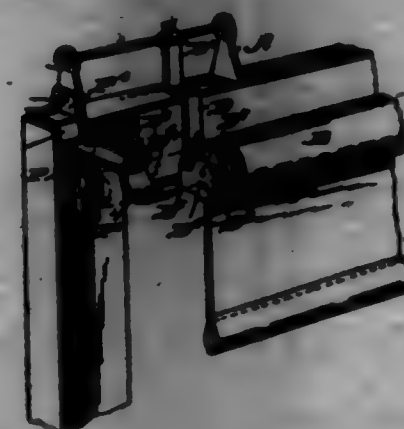
Claim.—1. The combination in actuating mechanism for key-operated machines of a perforated tape, a sprocket-wheel for advancing said tape, a suitable die-plate, a friction device consisting of a pair of spring-pressed plates between which the tape passes and a lever making yielding contact with said tape at a point between said friction device and wheel.

2. The combination in actuating mechanism for key-operated machines of a perforated controlling-tape, a sprocket-wheel for advancing the tape, a suitable die-plate, a friction device to restrain the tape and a spring-pressed lever to hold the tape taut.

3. The combination in the described mechanism of a sprocket-wheel, a perforated tape, and a yielding clutch device in position to underdrive the tape and vary its position on the wheel.

4. The combination in an actuating mechanism for key-operated machines of a perforated controlling-tape, a sprocket-wheel, a die-plate, and means for stopping the tape along the space between two successive perforations consisting of a radial arm on the wheel-shaft and a cap on said arm in position to underdrive the tape.

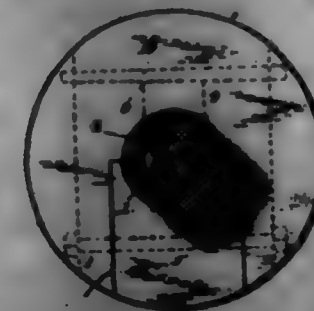
698,846. CURTAIN AND DRAPEY BEACON. DANIEL MCCARTHY and WILLIAM E. MCCARTHY, North Adams, Mass. Filed Nov. 14, 1891. Serial No. 68,599. (No model.)



Claim.—1. In a device of the kind described, the combination with the supporting-bracket, of the rod connecting said bracket, the depending longer-bracket having a dove at its upper end, its lower end being projected forwardly and having round and polygonal openings, and the pole-support-attached to the end bracket and having its outer end curved to receive the drapery-pole, substantially as described.

2. The combination with the supporting-bracket, of the rod connecting said bracket, the depending longer-bracket having a dove at its upper end and an apertured supporting-arm at its lower end, shoulders intermediate its ends, and the pole-support curved at its outer end to receive the pole and connected to the end bracket at its inner end, substantially as shown and described.

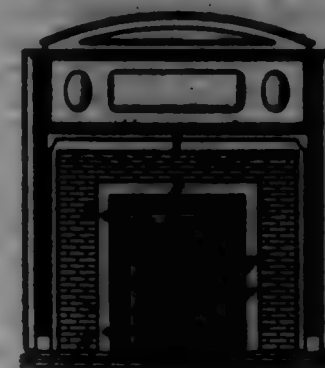
698,847. TAPPEY. WALLACE McNEAL and ALBERT McNEAL, Chicago, Ill., and CHARLES D. TROSBACH, Orem Valley, Cal. Filed Jan. 21, 1891. Serial No. 68,600. (No model.)



Claim.—1. A tappet comprising a body having a longitudinal bore and a longitudinal slot extending throughout the length thereof, a clamping member adapted to shut into said slot, means extending transversely through said clamping member and upper-body for removably securing said member to said body, and means for latching said body to a shaft.

2. A tappet comprising a body having a longitudinal bore and a slot extending throughout the length thereof, a clamping member adapted to shut into said slot, screw-bolts extending through said clamping member and tappet-body, said body having a recess disposed therein diametrically opposite said slot, a key-blank disposed in said recess, and keys adapted to extend through said body and clamp said blank to a stem or shaft.

698,848. FIRE-SCREEN GATE. JAMES W. McLENNAN, St. Louis, Mo.; Leo A. McLENNAN, administrator of said James W. McLENNAN, deceased. Filed June 22, 1891. Serial No. 68,601. (No model.)



Claim.—1. The combination, in a fire-screen gate, of a fire-frame having hinged members A A, and lock-catch v, affixed to the back side of the frame at the fire edge, a fire-screen mounted on arm and elbow hinged A B, to be united to the hinged members on the frame, the arm v v and elbow g g affixed to said hinges on indented rim for the passage of hinge-arms, and the lock F affixed to the screen to cooperate with the lock-catch on the frame, all substantially as set forth.

2. A fire-screen gate comprising a catch and a hinged screen having an indentation, a lock-plate therein, a lock having a knob carrying a pin and push-button, a hollow handle affixed to the knob, spring members and a stop member, movable within said handle and having a rod and tumblers to be operated by said push-button, said spring members cooperating with the catch above mentioned; all substantially as shown.

698,849. SCRAPER FOR FLOORS. DR. CLOVIS GUILLIOTTE, Lowell, Mass. Filed Sept. 14, 1891. Serial No. 74,179. (No model.)



Claim.—1. A tool of the character stated comprising a working member, clamping members formed to confine the said working member, a handle, and connections between the clamping members and the handle, said connections including a socket and a filling-piece therefor, and having provision for rigidly securing the clamping members and the blade to the handle at various angles.

2. A tool of the character stated comprising a working member, clamping members formed to confine the said working member, an expandable socket connected with the clamping members and adapted when expanded to lock the clamping members and working member together, and a handle having an expandable socket-filling piece on which the socket is adapted to turn to give the working member various angular adjustments, and means for expanding said filling-piece and socket.

3. A tool of the character stated comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamp members to grasp the blade.

4. A tool of the character stated comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamp members to grasp the blade, the said socket and filling-piece being formed to permit a relative adjustment of the socket-parts and clamp members relatively to each other, whereby the clamp members and the blade held thereby may be caused to the handle at different angles.

5. A tool of the character stated comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle composed of two independently-movable members terminating in a two-part adjustable filling-piece located between said socket parts and connectedly connected, so that the filling-piece may

be elongated by a given adjustment of the handle members and caused to engage the clamping members with the blade.

6. A tool of the character stated, comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamping members to grasp the blade, said blade being rotatably adjustable between the clamping members to present either of its edges to the surface to be scraped.

7. A tool of the character stated, comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamping members to grasp the blade, one of said clamping members having a guard formed to project over one edge of the blade.

8. A tool of the character stated, comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamping members to grasp the blade, said blade having a hand held adapted to detachably engage one of its edges.

9. A tool of the character stated, comprising an acting member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member while the other part is attached to the other clamping member, a handle composed of two independently-movable members terminating in a two-part adjustable filling-piece located between said socket parts and concentrically connected, so that the filling-piece may be elongated by a given adjustment of the handle members and caused to engage the clamping members with the blade, and means for locking the handle members together to maintain the filling-piece in its elongated adjustment.

10. A tool of the character stated, comprising an acting member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle composed of two independently-movable members terminating in a two-part adjustable filling-piece located between said socket parts and concentrically connected, so that the filling-piece may be elongated by a given adjustment of the handle members and caused to engage the clamping members with the blade, one member of the handle having a projection and the other member a recess adapted to engage said projection to lock the handle members together.

11. A tool of the character stated, comprising a blade, outer and inner clamping members bearing on opposite sides of the blade, the inner member having a member of a two-part socket, a loop attached to the other clamping member and forming a complementary part of said two-part socket, a handle composed of two independently-movable members terminating in loops located in said loop and concentrically connected, said loops projecting into the said socket and forming an adjustable filling-piece between the parts of the socket, said filling-piece being elongated by a given adjustment of the handle members, and caused to engage the clamping members with the blade.

12. A tool of the character stated, comprising a blade, outer and inner clamping members bearing on opposite sides of the blade, the inner member having a member of a two-part adjustable socket, a belt passing through said members and blade and engaged at one end with the outer member and having at the other end a loop forming a complementary part of said two-part socket, a handle composed of two independently-movable members terminating in loops located in said loop and concentrically connected, said loops projecting into the said socket and forming an adjustable filling-piece between the parts of the socket, said filling-piece being elongated by a given adjustment of the handle members and caused to engage the clamping members with the blade.

13. A tool of the character stated, comprising a working member, such as a blade, outer and inner clamping members bearing on opposite sides of the blade, a two-part adjustable socket, one part of which is attached to one clamping member, while the other part is attached to the other clamping member, a handle having a two-part adjustable filling-piece located between said socket parts, and means for extending said filling-piece to cause it to elongate the two-part socket and thereby cause the clamping members to grasp the blade, the said tool having means for locking the handle members together to maintain the filling-piece in its elongated adjustment.

ing-piece to cause it to elongate the two-part socket and thereby cause the clamping members to grasp the blade, the said tool having means for holding a brush.

698,850. ARTIFICIAL FUEL. WILLIAM R. FRANK, Vineyard Haven, Mass. Filed Sept. 26, 1901. Serial No. 74,590. (No specimen.)
Claim.—A compound to be used in connection with fire-wood and consisting of arsenic, salt, lime vitriol, charcoal, sulfur and copper in the proportions set forth.

698,851. GATE. EDWARD PHILLIPS, Newport, Ark. Filed May 22, 1901. Serial No. 81,599. (No model.)



Claim.—The combination is a gate structure, of the spaced post members 4, 5, provided with sliding slots at their upper portions, a follower-block 19 guided in said slots and extending longitudinally beyond the outer sides of the post members, the ends of the follower-block being transversely extended beyond the adjacent walls of the slots to prevent endwise movement of the follower-block, transversely-disposed bars 22, arranged one on each side of the spaced posts and secured thereto, two-part levers extending from a point near the base of the post to the outer ends of the bars 22, securing-bolts uniting the ends of the bars and levers, levers 25 and 26 pivoted on said securing-bolts and having their inner ends projecting within the slots of the post members, links extending from the inner ends of said levers to a central eye or loop on the follower-block, gate-supporting rollers 8 and 9 carried by one of the post members, and a gate-structure comprising a substantially rectangular main-gate section adapted to close the gateway-opening and an inner braced angular portion extending beyond the spaced posts and carrying partly to counterbalance the weight of the main-gate section, said gate being supported by the lower roller 8 and being guided by the upper roller 9, an additional roller 14 journaled at the extreme inner end of the extended portion and adapted for travel in contact with the under side of the top rail of the fixed frame, and a connecting-bar 3 pivotally connected at one end to the under side of the follower-block and at the opposite end to the upper central portion of the main-gate structure, substantially as specified.

698,852. SLIDING DOOR. GEORGE A. FRANK, New Britain, Conn., assignor to F. & F. Quinn, New Britain, Conn., a Corporation of Connecticut. Filed Jan. 16, 1902. Serial No. 69,890. (No model.)

Claim.—1. An improvement in sliding doors, comprising a pair of doors, a rack carried by each of said doors, a swinging connection therefor, and a barrel-shaped pinion meshing with said racks whereby the motion of one is transmitted to the other, and a carrying device for said pinion.

2. An improvement in sliding doors, comprising a pair of doors, a pivoted rack carried by each of said doors, and a pinion meshing with said racks whereby the motion of one is transmitted to the other, and a carrying device for said pinion.

3. An improvement in sliding doors, comprising a pair of doors, a rack carried by each of said doors, and a pinion meshing with said racks whereby the motion of one is transmitted to the other, and a carrying device for said pinion, said carrying device being slidably mounted and having lateral movement relatively to the line of movement of said racks.

4. An improvement in sliding doors, comprising a pair of doors, a rack carried by each of said doors, and a pinion meshing with said racks whereby the motion of one is transmitted to the other, and a carrying device for said pinion, said carrying device including a cage slidably movable in a bracket and means carried by said cage to hold its ends in mesh with said pinion.

5. An improvement in sliding doors, comprising a pair of doors, a rack carried by each of said doors, and a pinion meshing with said racks

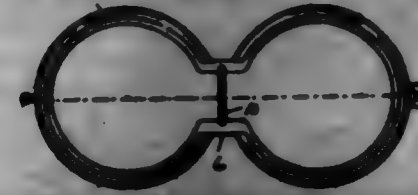
whereby the motion of one is transmitted to the other, and a carrying device for said pinion, said carrying device including a cage slidably movable in a bracket and rollers carried by said cage to hold the racks in mesh with said pinion.



6. An improvement in sliding doors and the like comprising a pair of doors, a U-shaped rack attached to each of said doors and a pinion for mutual engagement with said racks.

7. An improvement in sliding doors and the like comprising a pair of doors, a U-shaped rack attached to each of said doors and a barrel-shaped pinion for mutual engagement with said racks.

698,853. STEEL-ROD-POLE. EMERY C. FROST, New York, N. Y. Filed Dec. 12, 1900. Serial No. 69,891. (No model.)



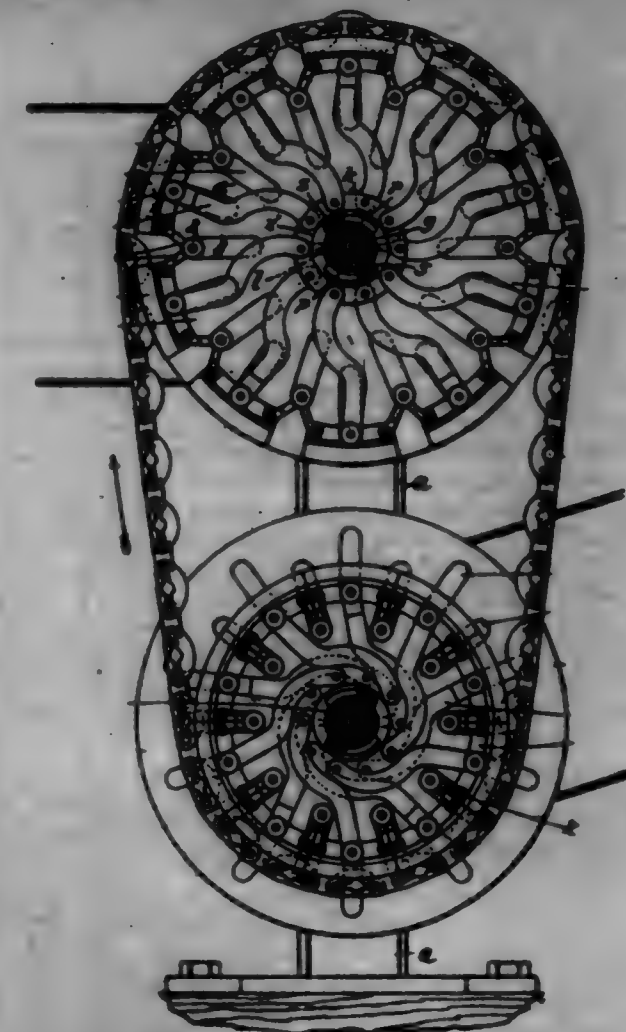
Claim.—1. An eye-glass-polishing device, consisting of a case composed of two flexible separate divider side members integrally united by a narrow central joining portion to form a hinge, said members being provided with a rim, and at the edges thereof opposite the hinge with fastening devices, and flexible pulleys similar in form to the side members of the case and of less dimensions than the said side members and adapted to fit in said case, said pulleys being secured at the narrow central portion to the hinged portion of the side members of the case, substantially as shown, and described.

2. An eye-glass-polishing device consisting of a casing composed of two separate divider divider members of flexible material united at one edge to form a hinge and each of which is provided with a rim and flexible pulleys similar in form to the side members of the casing and of less dimensions adapted to fit in said casing, said pulleys being secured at one side and being also secured at the point of their connection to the hinged portion of the case, said hinged members of the case being provided at their free edges with catches, substantially as shown and described.

698,854. EXTENSIBLE FULCRUM. JOHN C. FRANK, Hartford, Conn., assignor of one-half to Arthur L. Foster, Hartford, Conn. Filed Mar. 16, 1901. Serial No. 81,599. (No model.)

Claim.—1. The combination of two plates of a sliding and a fixed pulley of the class described, one on each of said shafts, and a driving connection between them; said shafts comprising a hub fixed on the shaft, smaller side plates one on each side of said hub, loose on the shaft, and interlocking means between the hub and the plates, whereby the latter may rotate independently of the hub and shaft; arms between the

plates pivoted by their inner ends on the hub and their outer ends having a sliding engagement with the plates; peripheral segments on the outer ends of said arms, also located between the plates; spiral springs engaging by one end each of said plates, and by the opposite ends secured to the shaft; means for adjustably separating said shafts and for rotating one of them, substantially as described.



2. In an extensible and contractible pulley, a shaft, a wheel-hub fixed thereon, smaller plates constituting the sides of the wheel located on said shaft, one each side of said hub, and loose on the shaft, interlocking means between said hub and plates whereby the latter may rotate relative to the shaft and hub; arms between the plates pivoted to said hub and having a sliding engagement with the plates, V-shaped peripheral segments on said arms and a lining in said segments, such as leather, and means for securing said lining; a spiral spring on each side of said pulley and engaging one plate of the latter by one end and secured to the shaft by the opposite end, and means for rotating the shaft, substantially as described.

3. In an extensible and contractible pulley or wheel, a shaft, a wheel-hub fixed thereon, smaller plates constituting the sides of the wheel located on said shaft on each side of, and close to said hub and loose on said shaft, arms between said plates pivoted to said hub by one end, said latter end being curved to conform substantially to the hub, radial grooves in the inner surfaces of said plates with which the opposite ends of said arms engage, and peripheral segments on said arms, a spiral spring, one of whose ends is in engagement with one of said plates, and whose opposite end is in engagement with a member secured to said shaft, whereby the movement of said plates rotating on the shaft will compress said spring, substantially as described.

698,855. NEEDLE-THREADER. GEORGE FRANK, Aachen, Germany. Filed Nov. 12, 1901. Serial No. 82,167. (No model.)



Claim.—1. The combination, in a needle-threader of the class described, of a body portion having a substantially L-shaped opening at or near one end in which the upper wall of the body is lower than the body of the threader.

2. The combination, in a needle-threader of the class described, of a

head, a body portion having a substantially L-shaped opening at one end and in which the upper wall of the head is lower than the body portion.

2. A needle-threader of the class described, consisting of a body piece or bar of rectangular cross-section, having a substantially L-shaped opening at one end, in which the opening is placed at right angles to the longer axis of the bar, and the opening extends along said axis toward the nearer end.

698,856. PLASTIC COMPOUND AND METHOD OF MANUFACTURING SAME. LEONARD M. RABOCHIN, Newark, N. J., assignor of three-fifths to Samuel C. Bruno and Lawrence F. Bruno, Brooklyn, N. Y. Filed Sept. 5, 1901. Serial No. 74,464. (No specimens.)

Claim.—1. The plastic compound herein described, composed of a waste product from the manufacture of varnish, japan and shellac and known as varnish residue, powdered peat and old rubber material, substantially as set forth.

2. The plastic compound herein described and composed of waste product from the manufacture of varnish, japan and shellac and known as varnish residue, about twenty-five per cent. of powdered peat and about twenty per cent. of old rubber material, substantially as set forth.

3. The method of manufacturing the plastic compound herein specified, consisting in taking a given quantity of a waste product from the manufacture of varnish, japan and shellac, and known as varnish residue, heating the same hot and draining the same through a cloth or similar material for the removal of foreign substances, adding thereto in a heated condition a given quantity of powdered peat, stirring or mixing the same into a homogeneous mass, adding thereto a given quantity of old rubber material dissolved in naphtha, allowing the said composition to dry out, then breaking up and grinding the same to a fine consistency for other use in heating and molding to form, substantially as set forth.

698,857. ELEVATOR. JAMES RICE, Chicago, Ill., assignor of two-thirds to William H. Rice and William I. Rice, Chicago, Ill. Filed Mar. 28, 1901. Serial No. 65,778. (No model.)



Claim.—1. The combination of a liquid-containing chamber, a propeller therein, means for operating the same in said chamber and means mechanically connecting said propeller with the object to be elevated for imparting its propelling force thereto, substantially as set forth.

2. The combination of a liquid-containing chamber, a piston therein, a piston-rod connected to said piston, means located on one side of the piston and connected with said piston-rod for forcing the liquid in a direction away from the piston and thereby reacting on said rod, means for relieving the pressure on the other side of said piston, and means for operatively connecting said piston-rod with the object to be lifted, substantially as set forth.

3. The combination of a liquid-containing chamber, a propeller therein having blades, a piston having a piston-rod operatively related to said propeller and also located in said chamber, means for revolving said propeller and means for connecting said piston-rod to the object to be elevated, substantially as set forth.

4. The combination of a liquid-containing chamber, a piston having a rod therein, a by-pass around said piston, a valve for controlling said by-pass, a propeller in said chamber operatively related to said piston-rod, and means operatively relating said piston-rod to the object to be elevated, substantially as set forth.

5. The combination of a liquid-containing chamber, a valve piston having a rod therein, a by-pass around said piston, means for controlling said by-pass, a propeller operatively related to said piston-rod and having operative connection therewith with the object to be elevated and means for operating said propeller, substantially as set forth.

6. The combination of a liquid-containing chamber, a piston therein operatively related to the object to be elevated, a by-pass around said piston, a valve for controlling said by-pass, a propeller operatively related to the object to be elevated, an electric motor for operating said propeller, a magnet for controlling said valve, a switch for closing the circuit through either said motor or magnet and means for operating said switch, substantially as set forth.

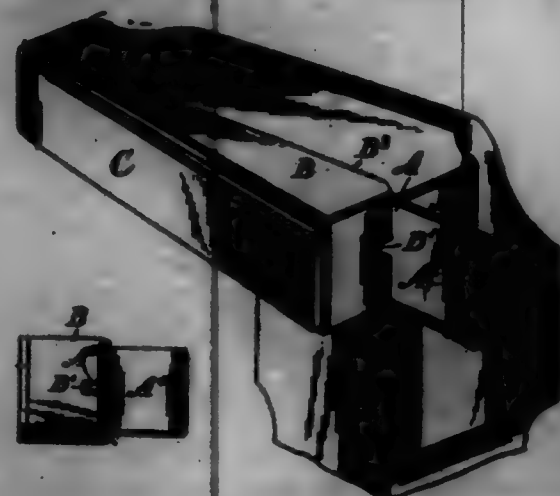
7. The combination of a liquid-containing chamber, a propeller and a piston in said chamber, a motor for operating said propeller movable bodily therewith, a by-pass for permitting the water or liquid in said chamber to pass said piston and means for controlling said by-pass, substantially as set forth.

8. The combination of a liquid-containing chamber, a piston and a propeller therein, a piston-rod passing through said piston and connected to said propeller, and a motor for rotating said rod, substantially as set forth.

9. The combination of a liquid-containing chamber, a piston located in said chamber, a piston-rod connected to said piston, a propeller on said piston-rod located within said chamber, a truck, a motor mounted on said truck and operatively connected with the rod rotating said piston-rod, a shaft operatively connected with said truck, a fixed shaft and a cable passing around said shafts, substantially as set forth.

10. The combination of a liquid-containing chamber and a propeller having propelling blades or paddles located therein, one of said parts (the chamber and propeller) being movable with relation to the other by the propelling action of said blades or paddles, and means for connecting said movable part with the object to be lifted, substantially as set forth.

698,858. VISE ATTACHMENT. SAMUEL S. RICE, Ltd., E. Y. Filed July 25, 1901. Serial No. 65,657. (No model.)



Claim.—1. A vise attachment comprising a base-plate having a straight face, a sliding wedge having a straight face in contact with said plate and an opposite inclined face supported upon said plate for longitudinal movement in a straight path; substantially as specified.

2. A vise attachment comprising a base-plate, a sliding wedge supported upon said plate for longitudinal movement, and a spring-plate upon the outer face of said wedge; substantially as specified.

3. A vise attachment comprising a base-plate, a sliding wedge supported upon said plate for longitudinal movement, a spring-plate upon the outer face of said wedge, and means carried by said clamping-plate for securing the attachment to a vice-jaw; substantially as specified.

4. A vise attachment comprising a base-plate having a stop-pin at one end thereof, a sliding wedge carried by said plate and provided with a groove or way to receive said pin, a spring-plate secured to said base-plate and lying upon the outer face of said wedge, and means for connecting the base-plate to a vice-jaw; substantially as specified.

5. A vise attachment comprising a base-plate having a stop-pin at one end thereof, a sliding wedge carried by said plate and provided

with a groove or way to receive said pin, a spring-plate secured to said base-plate and lying upon the outer face of said wedge, a hooked portion provided at one end of said base-plate, and a clamping-jaw secured to said base-plate and provided with a hooked portion to engage a vice-jaw; substantially as specified.

6. In a vice attachment having a hooked portion at one end and a stop-pin at the opposite end, a clamping-plate provided with a hooked portion at one end and adjustably secured to said base-plate, a sliding wedge having a straight face to engage said base-plate and a groove or way therein to receive said stop-pin, opposite edge flanges extending from said wedge over the edge of the base-plate, and a spring-plate secured at one end to the base-plate and adjustably to fit in contact with the inclined face of said wedge; substantially as specified.

698,859. STYLOGRAPHIC PEN. WILLIAM W. RABOCHIN, Newark, N. J., assignor of one-half to Frederick D. Bennett, Freshford, N. J. Filed Oct. 2, 1901. Serial No. 71,771. (No model.)



Claim.—1. The combination in a stylographic pen, of an ink-reservoir, a weighted longitudinally-movable needle, and a hollow head in which said weighted needle moves adapted to close the lower end of said reservoir and provided with an air-passage having substantially right-angled bends which connects the interior of the head with the outer atmosphere at a point between the ends of the weighted portion of said needle, substantially as described.

2. The combination in a stylographic pen, of an ink-reservoir, a hollow head adapted to close the lower end of said reservoir, a hollow tip on said head provided with a capillary bore for the needle and with an air-passage having sharp-angled bends which connects the interior of said tip with atmosphere, and a weighted needle longitudinally movable in said head, substantially as described.

3. The combination in a stylographic pen, of an ink-reservoir, and a hollow head adapted to close the lower end of said reservoir and consisting of a sleeve having a side orifice which is adapted to establish communication between the said reservoir and the interior of said head, a hollow coupling, and a hollow tip having a capillary bore for the needle and a sharply-angled air-passage connecting the interior of said head with atmosphere, substantially as described.

4. In a stylographic pen, the ink-reservoir *a*, at the lower end of which is the hollow tip *b* provided with a capillary bore *c* for the needle and with groove *d* the outer groove *e* which connects with said groove *f* and the diametrically opposite hole *g* which connects the groove *c* with the interior of said tip *b*, substantially as described.

5. In a stylographic pen, the ink-reservoir *a*, the coupling *f* which is adapted to close the lower end of said reservoir, the sleeve *b* fitted into the upper end of said coupling *f* and provided with the slot *h* which connects the said ink-reservoir with the interior of said sleeve *b* and coupling *f*, and the hollow tip *c* which is fitted into the lower end of said coupling *f* and is provided with a capillary tube or bore *g* for the needle and with the groove *d* the outer groove *e* connecting with said groove *f* and the diametrically opposite hole *g* connecting said groove *c* with the interior of said tip *c*, substantially as described.

6. In a stylographic pen, the combination with the ink-reservoir and weighted needle, of the hollow tip *c* which is provided with a capillary tube or bore for the needle, a conically-ended chamber for the weight of the needle and a sharply-angled air-passage which connects the interior of said tip *c* with atmosphere at a point between the ends of the weighted portion of said needle, substantially as described.

7. The combination in a stylographic pen of an ink-reservoir, a hollow head adapted to close the lower end of said reservoir, a weighted needle longitudinally movable in said head, a chamber in said head having its lower end so shaped as to guide the needle-point into the capillary bore and to prevent the weight on said needle from quite reaching the bottom of said chamber, and an air-passage in said head, substantially as described.

8. The combination in a stylographic pen, of an ink-reservoir, a hollow head adapted to close the lower end of said reservoir, an air-passage

in said head from atmosphere to a chamber in said head, and a weighted needle movable in said head and with its weight on said needle so limited that the lower end of the weight thereof shall always be below the outlet of said air-passage, substantially as described.

9. The combination in a stylographic pen, of an ink-reservoir which is without an internal air-tube, a hollow head adapted to close the lower end of said reservoir and having a weighted needle longitudinally movable therein, and said head consisting of a sleeve having a side orifice which is adapted to establish communication between the said reservoir and the interior of said head, a hollow coupling, and a hollow tip having a capillary bore or tube for said needle, and a sharply-angled air-passage connecting the interior of said head with atmosphere and having the outlet thereof always above the lower end of the weight on said needle, and a chamber in said tip so shaped as to curve both to guide the needle into the capillary bore and to prevent the weight on said needle from quite reaching the bottom of said chamber, substantially as described.

10. The combination in a stylographic pen, of an ink-reservoir, a head-section at one end of the reservoir, a tube in said section cut away at the side and communicating with atmosphere, and a weighted needle movable in said section, substantially as described.

11. The combination in a stylographic pen, of an ink-reservoir, a head-section at one end of said reservoir, a channel connecting said reservoir with atmosphere, a tube in said section cut away at the side, and a weighted needle movable in said section, substantially as described.

12. In a stylographic pen, the combination of the sleeve *j* provided with the stem *i* and the slot *m*, and a needle provided with a weight vertically movable in said sleeve *j*, substantially as described.

698,860. TIRE. LOUIS B. SARKIS, Philadelphia, Pa. Filed Sept. 15, 1901. Serial No. 70,482. (No model.)



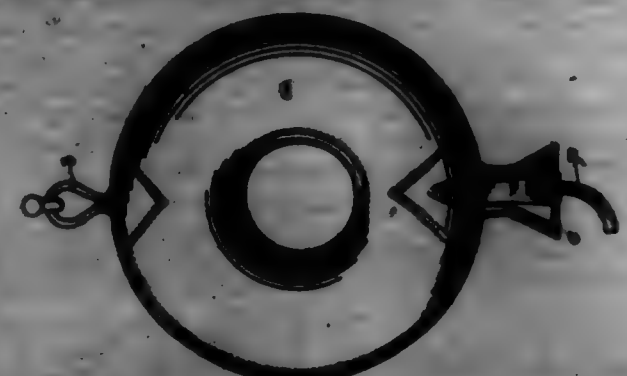
Claim.—1. A tire having a tread provided with a base and shoulder, upon which shoulder rests a piece of rigid material, portions of which run through the tire at the shoulders and are vulcanized in the mass comprising the tire, and a channelled plate adapted to receive said base and having its side portions engage said plate.

2. In a tire having a tread provided with a base and side shoulder and a channelled plate adapted to receive said base and provided with internal flanges which engage said shoulder, a piece of rigid material embedded in the tread and resting against said shoulder, the side portions of said channelled plate engaging said piece at said shoulder.

3. A tire consisting of a tread provided with a base and side shoulder, a channelled plate receiving said base and having internal flanges on the sides thereof, and a sheet frame of rigid material in said base resting against said shoulder and being engaged by said flanges.

4. A tire consisting of a tread provided with a base and side shoulder, a channelled plate receiving said base and having internal flanges on the sides thereof, a sheet frame of rigid material in said base resting against said shoulder and being engaged by said flanges, and a channelled rim receiving said plate and having the latter firmly connected therewith.

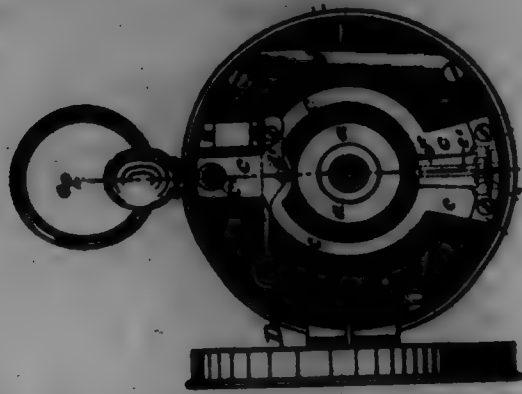
698,861. CORRUGATED CORRUG, WATER-SAIL, AND FOUNTAIN-STRIKER. JOHN P. GILMAN, Brooklyn, N. Y., assignor to Parker, Sherman & Gilman, New York, N. Y., a Corporation of New York. Filed Mar. 20, 1901. Serial No. 65,595. (No model.)



Claim.—1. A valve device for the purpose described, comprising a tubular plug, a hollow valve-carrying stem arranged to move in the plug and to control the passage of liquid therethrough, the outer end or ends of said stem being immediately adjacent to the outer end of the plug and substantially flush therewith so that a flexible pipe may be slipped over the adjacent outer ends of the plug and the stem, so as to cover the joint between said ends and prevent leakage.

3. The combination with a bag or receptacle having an outlet, a tubular stopper-plug in said outlet, a hollow valve-carrying stem arranged to move in the plug and to control the passage of liquid there-through, the outer end or nozzle of said stem being immediately adjacent to the outer end of the plug and substantially flush therewith, and a flexible pipe extending over the adjacent outer ends of the plug and of the stem, and covering the joint between said ends to prevent leakage.

698,862. WATCHMAN'S TIME-DETECTOR. JAMES SCHLIMMER, Schwabingen, Germany. Filed Nov. 25, 1901. Serial No. 65,666. (No model.)



Claim.—1. In a watchman's time-detector, the combination of a rotatable time-dial, with a marking-plate, having matrices provided thereon and capable of lateral movement, a key co-operating means carried by said marking-plate, and marking-bugs co-operating with said means and having marking-types on their end faces, substantially as set forth.

2. In a watchman's time-detector, the combination of a marking-plate adapted to have lateral movement and having matrices provided thereon, with marking-bugs provided with means for laterally moving said marking-plate and co-operating with said matrices, substantially as set forth.

3. In a watchman's time-detector, the combination of a rotatable time-dial, with a laterally-movable marking-plate arranged at one side thereof and having matrices provided thereon, a keyhole, a key co-operating means arranged in line with said keyhole and carried by said marking-plate, and marking-bugs adapted to engage said means and to impress said time-dial from the side opposite to said marking-plate, substantially as set forth.

4. In a watchman's time-detector, the combination of a marking-plate capable of lateral movement and having matrices provided on the center line thereof and at each side of said center line, with a roller carried by said marking-plate, and a marking-bug, having a side rib with an inclined surface, adapted to engage with said roller for moving said marking-plate, and having a marking-type on the end face thereof, substantially as set forth.

5. A watchman's time-detector, comprising a graduated time-dial rotated by a clock-movement, a push-down-lever, a spring for holding said push-down-lever in central position, a marking-plate provided with matrices mounted on the free or swinging end of said lever, a roller mounted on said lever in line with the center of the marking-plate and keyhole, and a plurality of bugs provided with projections or ribs on the sides and marking-types on the end faces, substantially as set forth.

6. A watchman's time-detector, comprising a graduated rotary time-dial, a spring-controlled push-down-lever suspended at one end and having an enlarged opening at the free opposite end, a marking-plate provided with matrices mounted on the free end of said lever, a roller supported in front of said plate on the free end of the lever, and a plurality of bugs provided with side projections or ribs of greater or lesser lengths and marking-types on their end faces, substantially as set forth.

698,868. VALVE-GEAR. OSCAR SCHMID and HOWARD A. FRANK, Columbus, Ohio. Filed June 1, 1901. Serial No. 65,707. (No model.)



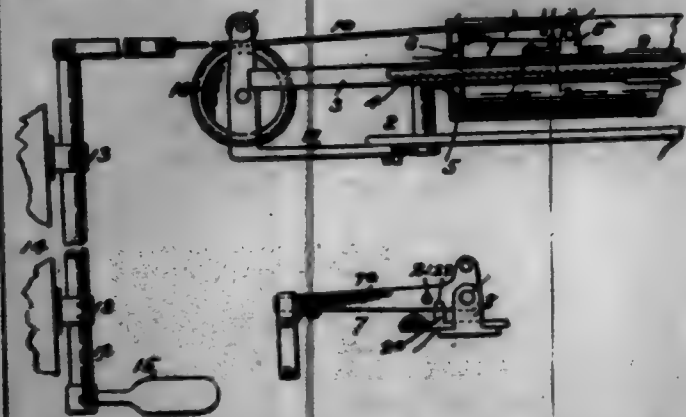
Claim.—1. The combination with the steam-cylinder, of a piston working therein, said piston being hollow at each end and solid at the

center, a rod passed transversely through the piston and working through the sides of the cylinder, said rod or bar being operatively connected to the valve-stem, substantially as shown and described.

2. In a valve-gear, the combination with the cylinder and steam-chest, of the piston hollow at each end and solid at the center, the rod or bar passing through the solid portion of the piston and working in slots produced in the sides of the cylinder, the rod-chest, piston and operating arm for connecting the transverse rod or bar with the valve-stem, substantially as shown and described.

3. The combination with the cylinder closed longitudinally, of the piston hollow at each end and solid at the center, the transverse rod or bar passing through the solid portion of the piston and working in the slots of the cylinder, the piston-rod connected to the ends of the said transverse bar or rod by means of a yoke, the valve-stem, rod-chest, arm and piston, said arm being connected to the end of the transverse rod or bar whereby as the piston is reciprocated the valve is operated, substantially as described.

698,864. TYPE-WRITING MACHINE. HOWARD A. SHAFER, Hamroth, Pa. Filed Dec. 7, 1901. Serial No. 65,902. (No model.)



Claim.—1. In a carriage-return mechanism, the combination with a carriage, of a revolvable plate bearing a ratchet, a bell-crank lever mounted on said carriage and carrying a pawl pivoted to one arm thereof and limited to engage said ratchet, a bell attached to the other arm of said lever, and means constructed to be actuated by one face of the operator to pull said bell in opposite said lever to return said carriage, substantially as described.

2. In a carriage-return mechanism, the combination with a carriage, of a revolvable plate bearing a ratchet-wheel, a bell-crank lever mounted on said carriage and bearing a pawl on one arm limited to engage said ratchet, a bell connected to the other arm, a rod-chest connected to said bell, and an arm on said rod-chest positioned to be engaged by one face of the operator to actuate said bell to turn said plate and return the carriage, substantially as described.

3. In a carriage-return mechanism, the combination with a carriage, of a revolvable plate bearing a ratchet, a bell-crank lever mounted on said carriage and bearing on one arm a pawl limited to engage said ratchet, a bell connected to the other arm of said lever, a screw mounted on the frame of the machine and limited to engage said bell to hold it in line, and means for pulling said bell to return said carriage, substantially as described.

4. In a carriage-return mechanism, the combination with a carriage, of a revolvable plate bearing a ratchet, a bell-crank lever bearing a pawl pivoted to one arm thereof and engaging said ratchet, an adjustable stop mounted to engage said lever to control the throw thereof, and means connected to the other arm of said lever to operate it to revolve said plate and return said carriage, substantially as described.

5. In a carriage-return mechanism, the combination with a carriage carrying a revolvable plate provided with a ratchet, of a chair having two arms, a bell-crank lever pivoted on a plate and bearing projections, a pawl carried by said bell-crank lever, a stop adjustably mounted between said arms in position to engage one of said projections to regulate the throw of said lever and means for actuating said lever to operate said plate, substantially as described.

698,865. SUPPORT FOR HAMMOCK. OLAMBERT SMITH and JAMES L. HODGES, Philadelphia, Pa. Filed Apr. 8, 1901. Serial No. 64,908. (No model.)

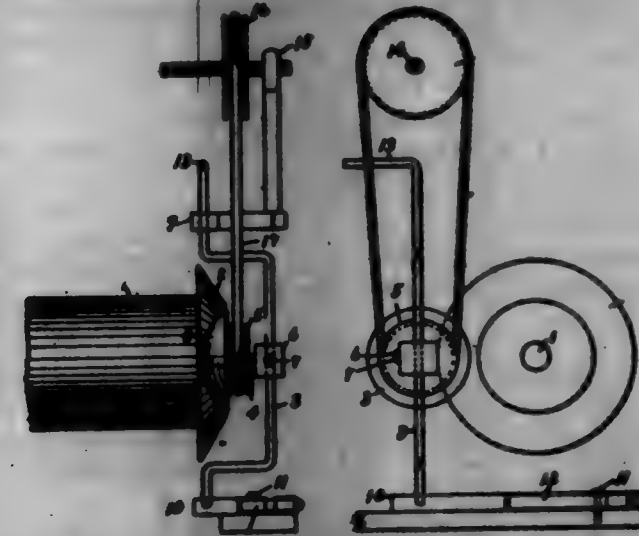
Claim.—1. A plate, an outwardly-projecting base thereon, said base being open in front and rear and having a shoulder on its inner face around the front opening, a washer in said base seated on said shoulder, a hook, and an eye carrying the lower end having contracted flange which pass through said front opening of the base and through said washer and are

spread at the rear opening within said base, said base being integral with said plate.



2. In a support of the character stated, a plate, means for securing the same in position, an outwardly-projecting base on said plate, the same being open in front and rear, a hook in front of said base, an eye by which said hook is suspended, said eye being provided with flange which occupy said base and are partly contracted and partly spread apart, and a washer which is seated on the inner face of the wall of the front opening of said base and embraces the contracted portion of said flange.

698,866. VARIABLE-SPEED MECHANISM. JOHN A. SMITH, Baltimore, Md., assignor to Smith Lyrphane Company, a Corporation of West Virginia. Filed Apr. 22, 1901. Serial No. 65,957. (No model.)



Claim.—1. In a variable-speed mechanism, the combination with a revolvable body, of a ratchet-arm; a curved disk carried by said ratchet-arm and impinging against the revolvable body; a secondary shaft; means connecting the said disk and secondary shaft; and a lever to rock the said ratchet-arm to change the point of contact between the revolvable body and curved disk to vary the speed of the secondary shaft, substantially as and for the purpose set forth.

2. In a variable-speed mechanism, the combination with a revolvable body, of a ratchet-arm; a shaft vertically adjustable on said arm; a curved disk mounted on said shaft and impinging against the revolvable body; means to keep the said disk in contact with the revolvable body; a pulley carried by said disk; a secondary shaft; means connecting the said pulley and secondary shaft; and a lever to rock the said ratchet-arm to change the point of contact of the said disk with the revolvable body to vary the speed of the secondary shaft, substantially as and for the purpose described.

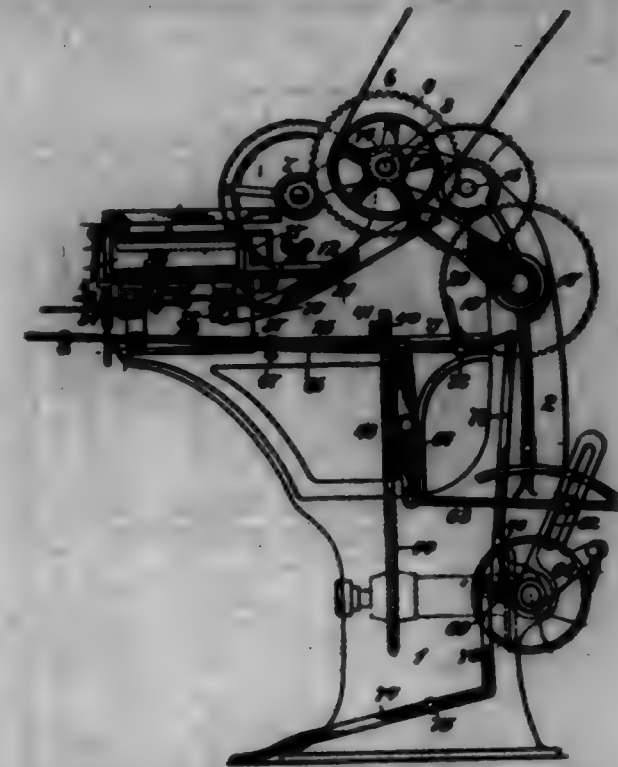
698,867. CONFIDEMENT-OUTTER. HYMAN A. SMITH, New York, N. Y., assignor to International Machine Co., New York, N. Y. Filed Dec. 16, 1900. Serial No. 65,975. (No model.)

Claim.—1. In a machine of the character herein specified, the combination with the reciprocable table and means for reciprocating the same, of the automatic material-feeding mechanism constructed as set forth; means for automatically regulating the amount of feed, and for automatically holding and stopping the feed, substantially as shown and described.

2. In a machine of the character herein specified, the combination with the reciprocable table and feeding mechanism carried thereby, of an actuating-shaft beneath the table, a sprocket loosely mounted upon said shaft, and operating mechanism connected to said sprocket, substantially as shown and described.

3. The combination with the reciprocable table and means for re-

ciprocating the same, of a holding-block adapted and arranged to be depressed by contact with a feed shaft beneath which it passes on the table reciprocates, substantially as shown and described.



4. The combination with the material-feeding mechanism, of a movable bar upon the material-carrying table engaging with said feeding mechanism, and connections between said bar and a ratchet-wheel which actuates the feeding mechanism.

698,868. TIE-TIGHTENER. JOHN E. SCOTT, Oakville, Ind. Filed June 20, 1901. Serial No. 65,955. (No model.)



Claim.—1. A tie-tightener, comprising a base, a screw-threaded standard rising therefrom, a sleeve mounted upon the standard, a rim-engaging head carried by the outer end of the sleeve, a polygonal wrench-head upon the sleeve, and a wrench, having a circular opening slidably and rotatably embracing the sleeve, and an enlarged polygonal wrench-head to detachably embrace the wrench-head.

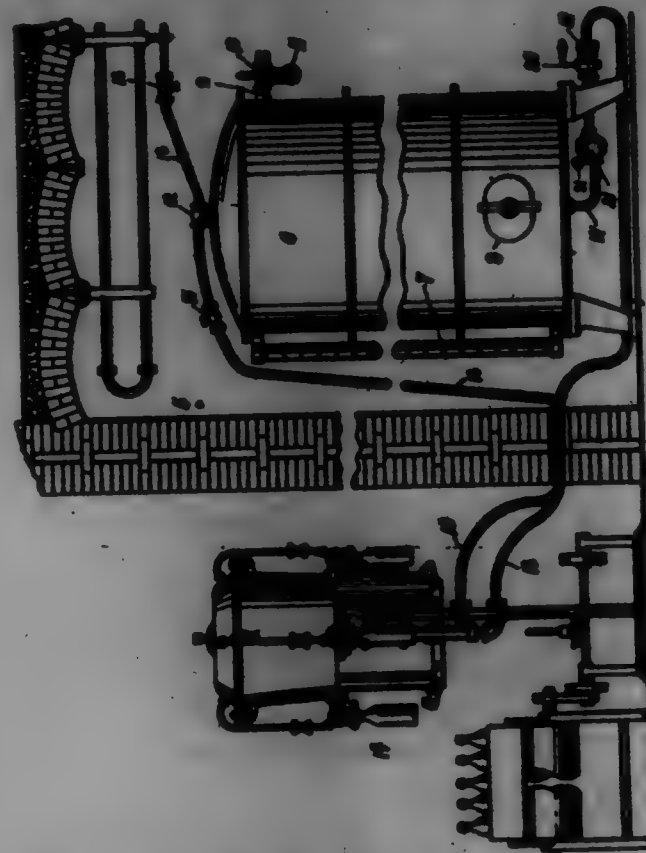
2. A tie-tightener, comprising a base, a screw-threaded standard rising therefrom, an end-wise-adjustable sleeve mounted upon the standard, and provided at its outer end with a rim-engaging head, the inner end of the sleeve having a polygonal wrench-head, and a wrench, having a handle and an opening for the reception of the sleeve, one end of the opening being circular to rotatably and slidably embrace the sleeve, and the opposite end of the opening being enlarged and made polygonal to form a wrench-head for the detachable reception of the wrench-head.

3. A tie-tightener, comprising a two-part base, of which the lower part is bridge-shaped and provided with opposite intermediate transversely and downwardly inclined side portions, there being a detachable connection between the base members, a screw-threaded standard rising from the upper base-member, and an end-wise-adjustable sleeve rotatably mounted upon the standard, and having its outer end provided with a revolved rim-engaging head.

4. A tie-tightener, comprising a two-part base, opposite detachable side-plates thereon, each of which consists of a rotatable stem mounted

upon the lower base-section, and a crank-arm to overlap the adjacent portion of the upper base-section, the edge of the latter having a recess for the reception of the adjacent stem, a screw-threaded standard rising from the upper base-section, and an internally-screw-threaded sleeve mounted upon the standard, and provided at its outer end with a rim-engaging head.

688,869. REER-STOCKING APPARATUS. CHARLES SWANER, Jersey City, N. J. Filed Sept. 4, 1901. Serial No. 74,688. (No model.)



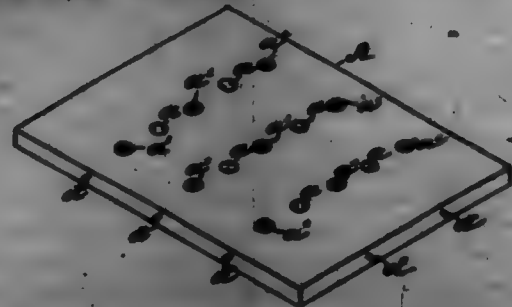
Claim.—1. A bear or other vat provided with a suitable inlet and a discharge-pipe provided with a discharge flange or valve and a seal and check-valve located between the discharge flange and valve and the vat, substantially as shown and described.

2. A bear or other vat provided with an air-inlet in the top thereof, a suitable inlet for bear or other liquids, a discharge-pipe at the bottom thereof provided with a valve, and a seal and check-valve placed between said discharge-pipe valve and the vat, substantially as shown and described.

3. A bear or other vat provided with an air-inlet in the top thereof, a suitable inlet for bear or other liquids, a discharge-pipe at the bottom thereof provided with a valve, and a seal and check-valve placed between said discharge-pipe valve and the vat, said air-inlet and said discharge-pipe being also provided with pipes which are in connection with a hot-steam-heating machine, substantially as shown and described.

4. A discharge-pipe for bear and other vats, provided with a discharge-valve, and a seal and check-valve placed between the discharge-valve and the end of the pipe which communicates with the vat, substantially as shown and described.

688,870. MANUFACTURE OF TUPED FABRICS. CHRISTIAN S. S. STONE, WILMINGTON, Pa., assignor of one-half to John Knechtel, WILMINGTON, Pa. Filed Mar. 11, 1900. Renewed Sept. 4, 1901. Serial No. 74,688. (No model.)



Claim.—1. An awl-base for use in making tuped fabrics by hand, said base having a plurality of clamping-awls set removably in its upper face in rows, substantially as and for the purpose set forth.

2. An awl-base having a substantially level upper surface of at-

least one end and said surface provided with holes arranged in rows to receive the awls, in combination with clamping-awls set removably in each of said holes as and in the desired cutting-points, substantially as set forth.

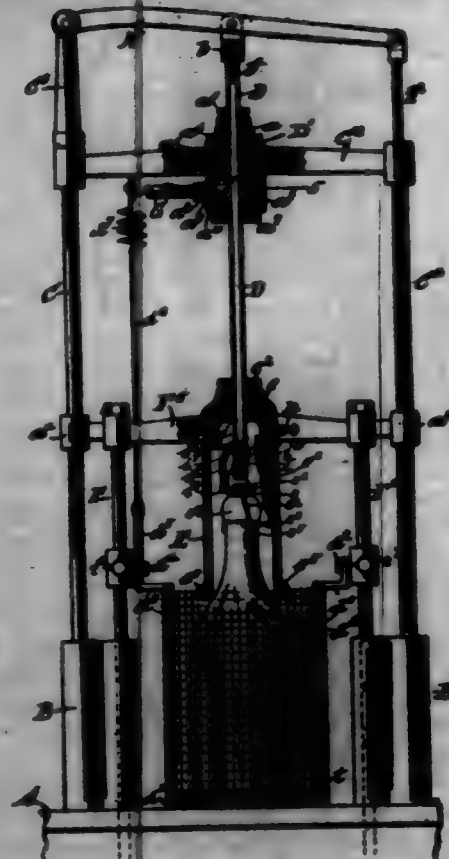
3. An awl-base for use in making tuped fabrics by hand, of the size and contour of the fabric to be made, said base having a plurality of counterbored holes or sockets in its upper face and at the cutting-points, and having removable clamping-awls, secured removably in said holes, each of said awls having an annular concavity in its upper face, substantially as set forth.

4. An awl-base for use in making tuped fabrics by hand, of substantially the size and contour of the fabric to be made, said base having cut in its upper face a plurality of awl-sockets or holes arranged in rows, removable awls set in each hole as correspond to the cutting-points, and pins or bolts of, set in the edge of said base at the ends of the rows of holes, substantially as set forth.

5. A device for making upholstery composed of a base and a plurality of detachable awls, adapted to clamp tub-bottom chairs.

6. A device for making upholstery composed of a flat base and a plurality of disk-like awls set detachably in the same and adapted to clamp the chairs of tub-bottoms.

688,871. BOTTLE-FILLING MACHINE. LOUIS SCHMIDT and CHARLES W. WILLIAMS, New York, N. Y., assignors to the Century Stopping Company, New York, N. Y., a Corporation of New York. Filed Jan. 18, 1902. Serial No. 90,904. (No model.)



Claim.—1. In a bottle-filling machine, the combination, with a rest for the bottle to be filled, of a vertically-movable stock above said rest, means for operating said stock, a stopper-gripper pivoted to said stock at the lower portion of the same, a discharge-nozzle carried by said gripper and arranged to discharge into the bottle when the gripper is in laterally-shifted position, and means for applying the liquid to be bottled to said discharge-nozzle, substantially as set forth.

2. In a bottle-filling machine, the combination, with a rest for the bottle to be filled, of a housing adapted to inclose the upper portion of the bottle, means for moving said housing in vertical direction, a vertically-movable stock having its lower portion located within the housing, means for operating said stock, a stopper-gripper pivoted to said stock within the housing, a discharge-nozzle carried by said gripper and arranged to discharge into the bottle when the gripper is in laterally-shifted position, and means for applying the liquid to be bottled to said discharge-nozzle, substantially as set forth.

3. In a bottle-filling machine, the combination, with a rest for the bottle to be filled, of a housing located above the rest and adapted to inclose the upper portion of the bottle, means for moving said housing in vertical direction, a tubular vertically-movable stock having its lower portion located within the housing, means for applying the liquid to be bottled to said tubular stock, means for operating said stock, a spring-act-

uated stopper-gripper pivoted to the stock within the housing, a discharge-nozzle carried by said gripper and arranged to discharge into the bottle when the gripper is in laterally-shifted position, and a flexible tube connecting said tubular stock with the discharge-nozzle, substantially as set forth.

4. In a bottle-filling machine, the combination, with a tubular vertically-movable stock, of a laterally-shiftable stopper-gripper pivoted to the same at its lower portion, a discharge-nozzle carried by said gripper and arranged to discharge into the bottle when the gripper is in laterally-shifted position, and a flexible tube connecting said discharge-nozzle and the stock, substantially as set forth.

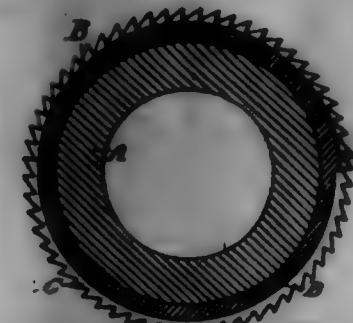
5. In a bottle-filling machine, the combination, with a tubular vertically-movable stock, of a laterally-shiftable stopper-gripper pivoted to and adapted to abut against the same at its lower portion, a discharge-nozzle carried by said gripper and arranged to discharge into the bottle when the gripper is in laterally-shifted position, and a flexible tube connecting said discharge-nozzle and stock, substantially as set forth.

6. In a bottle-filling machine, the combination, with a vertically-movable stock, of a laterally-shiftable stopper-gripper pivoted to the same at its lower portion and comprising a body portion or chuck and a horizontal claw extending at an angle from the lower end of the chuck and having a stopper-receiving means arranged at an angle to the direction of movement of the gripper, and a discharge-nozzle carried by said claw and arranged to discharge into the bottle when the gripper is in laterally-shifted position, substantially as set forth.

7. In a bottle-filling machine, the combination of a stationary cross-bar, a rest for the bottle to be filled, vertically-movable slide-rod, means for actuating the same, a cross-frame pivoted to said slide-rod and adapted to abut when in lowered position against said rest, a screen on said cross-frame, an arm extending from said cross-frame, a rod connecting said arm with the cross-bar, and a spring-coil in said rod, substantially as set forth.

8. In a bottle-filling machine, the combination of a stationary cross-bar, vertically-movable slide-rod, means for actuating the same, a cross-head connecting said slide-rod, a housing supported on said cross-head, a screen-frame pivoted to said slide-rod, a screen on said screen-frame, said screen-frame being so pivoted as to swing the screen in downward direction beyond said housing, an arm extending from said screen-frame, and a rod connecting said arm with said cross-bar, substantially as set forth.

688,872. GARNET-CYLINDER. EDWIN J. VANCE, Philadelphia, Pa., assignor to the Philadelphia Textile Machinery Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Jan. 28, 1902. Serial No. 90,904. (No model.)



Claim.—1. As a new article of manufacture, a garnet-cylinder having a cylindrical body, a shell of dentile and relatively soft material cast thereon, said shell having a continuous spiral groove from end to end, and having a continuous toothed strip wound in said groove, the ridges between successive convolutions of said strip being spread and in engagement with said strip, substantially as described.

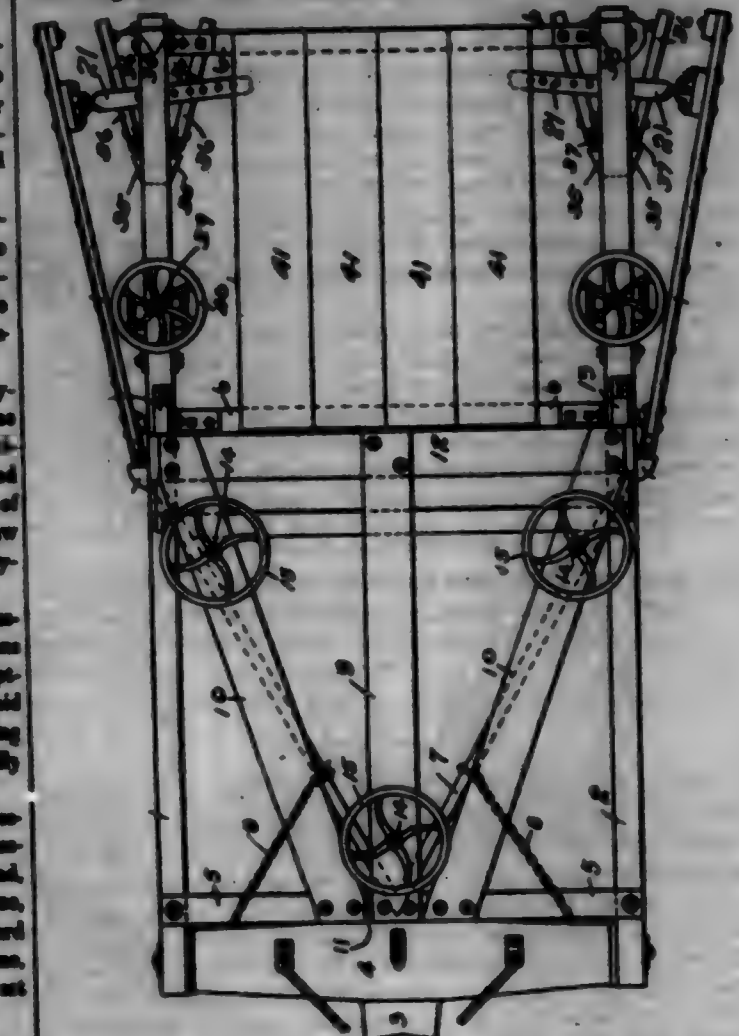
2. As a new article of manufacture, a garnet-cylinder consisting of a supporting-cylinder, a shell of material having a relatively low melting-point surrounding the same, a continuous toothed metallic strip wound in a continuous groove in the surface of said shell, the inner edge of said strip being greater in section than the outer edge thereof, the material of said shell being spread so as to overlap the inner portion of said strip thereby retaining it in position, substantially as described.

688,873. SHOW-FLY. CHARLES L. TOLAN, San Diego, Cal. Filed Jan. 7, 1902. Serial No. 90,717. (No model.)

Claim.—1. The combination, with a suitable runner having a substantially-adjustable runner-section, of a rotating-wheel carried upon said adjustable section, and means for raising or depressing said adjustable runner-section, substantially as described.

2. The combination, with a suitable runner comprising a fixed sec-

tion, a vertically-adjustable section, of a rotating-wheel carried by said adjustable section and means for raising or depressing said adjustable section and thereby carrying the edge of the rotating-wheel above or below the lower edge of the other runner-section, substantially as described.



3. The combination, with a runner having a pivotally-supported and vertically-adjustable section, a rotating-wheel fixed thereon and means for lifting said adjustable section and thereby raising or lowering the cutting edge of said rotating-wheel, substantially as described.

4. The combination, with a sled-runner provided with a movable runner-section, of means for pivotally connecting the rear portion of said movable runner-section to said runner, means for raising or lowering the forward portion of said movable runner-section, and a rotating-wheel secured upon said movable runner-section, substantially as described.

5. The combination, with sled-runners provided in their forward portions with elongated openings, of a V-shaped plow arranged between said runners and adapted to discharge snow and ice laterally through said openings, means for vertically adjusting said plow, the vertically-movable runner-sections adjustably connected to said runners at the rear portions thereof and the rotating-wheel arranged upon said adjustable runner-sections, substantially as described.

6. The combination, with sled-runners provided at the forward portion, with elongated openings and at their rear portions with vertically-adjustable runner-sections, the V-shaped plow arranged between the forward portions of said runners, between said elongated openings, adjustable wings secured to the runners in the rear of said openings and in front of said adjustable runner-sections rotating-wheels secured upon said adjustable sections and means for raising or lowering said adjustable runner-sections, substantially as described.

688,874. FIVE-ROCK SHUT-OFF. JAMES E. TOWNS, New York, N. Y., assignor to T. & F. Curtis, New York, N. Y., a Corporation of Connecticut. Filed Jan. 7, 1902. Serial No. 90,718. (No model.)



Claim.—1. In a device of the character described, a frame, guide thereon, a pair of jaws each carried thereby and on said guide, a transverse passage in said frame forming a space between said jaws to readily

receive a hose-pipe, and means to operate said jaws to move them toward or away from each other.

2. In an apparatus of the character described, a frame composed of a pair of sections, guideways between said sections, blocks movable in said guideways, a transverse passage through said frame-sections and between the facing edges of said blocks, whereby the hose may be readily placed between the blocks, and means to move the blocks toward or away from each other, substantially as and for the purpose specified.

3. In a device of the character described, a frame, reciprocating blocks carried thereby, means to prevent the lateral or vertical displacement of said blocks, operating-handles pivotally attached to the frame, and means of connection between said handles and said blocks whereby the movement of the frame is transmitted to the latter, and a passage-way for hose or the like through said frame between the detached or facing edges of said blocks.

4. In an apparatus of the character described, a frame composed of a plurality of sections, guideways therein to receive reciprocating blocks the facing edges of said blocks being provided with jaws, a passage-way through said frame and between the facing edges of said blocks, operating devices comprising handles pivoted to the frame, cranks carried by said handles adjacent the pivotal connection, and links between said blocks and said cranks, substantially as and for the purpose described.

698,875. COMBINED WAIST-HOLDER AND SKIRT-SUPPORTER. FRANK W. TURNER, Hildford, Conn., assignor of one-half to John L. Boston, Lynn, Mass. Filed May 1, 1901. Serial No. 66,318. (No model.)



Claim.—A combined waist-holder and skirt-supporter comprising a belt having a pocket formed therein, a plate embedded within the pocket and provided with a plurality of double hooks, each double hook comprising a body portion having a point extended upwardly from the lower end of the body portion through the outer face of the belt for engaging the skirt and another point extended downwardly from the upper end of the body portion through the inner face of the belt for engaging the waist, one of the points of the hook being bent snugly into engagement with the plate at the base of the point to prevent the hook from turning and a tongue struck from the plate engaging the body portion of the hook to a point adjacent to the base of the other point to prevent the hook from shifting longitudinally, substantially as set forth.

698,876. BOLSTER FOR RAILWAY-CARS. CORNELIUS VAN DER BEEK, New York, N. Y. Filed Oct. 4, 1901. Serial No. 77,949. (No model.)



Claim.—1. A bolster for railway-cars, comprising a transverse member having an upper compression member with flanges, and a lower tension member with flanges, said members having their flanges placed side by side at the ends of the transverse member, and there secured together by means which pass through both beams, and filling-pieces at each end of the bolster, in the space between the beams.

2. A bolster for railway-cars, comprising a transverse member having an upper compression member with flanges and a lower tension member with flanges, said beams having their flanges placed side by side at the ends of the transverse member, and filling-pieces at each end of the bolster, in the space between the beams, and means for securing the beams and filling-pieces together.

3. A bolster for railway-cars, comprising a transverse member having an upper compression member with flanges, and a lower tension member with flanges, said beams having their flanges placed side by side at the ends of the transverse member, filling-pieces at each end of the bolster, in the space between the beams, and securing means passing through the flanges of the beams and through the filling-pieces.

4. A bolster for railway-cars, comprising upper and lower channel-beams, having their flanges overlapping at the ends of the bolster, and a filling-piece at each end of the bolster, in combination with a transversely-extending bolt at each end of the bolster, which bolt passes through the sides of both flanges and through the filling-piece.

5. A bolster for railway-cars, comprising upper and lower channel-beams, having their flanges placed side by side at the ends of the bolster, in combination with spring-coils, one near either end of the bolster, and wash provided with extensions which fit against the flanges of one of said channel-beams, and secured in position by bolts which pass through the extensions of the spring-coils and through the several flanges of the beams.

6. A bolster for railway-cars, comprising an upper channel-beam having its flanges downwardly disposed, a lower channel-beam having its flanges upwardly disposed, said beams being fitted together and having their flanges overlapping at the ends of the beams, and filling-pieces in the space between the beams at the ends of the bolster, in combination with means for securing the filling-pieces and the flanges of said beams together.

7. A bolster for railway-cars, comprising an upper channel-beam having its flanges downwardly disposed, a lower channel-beam having its flanges upwardly disposed, the said beams fitting together and having their flanges overlapping at the ends of the beams, and filling-pieces in the space between the beams at the ends of the bolster, in combination with a transversely-extending bolt passing through the filling-pieces and through all of the flanges of both beams.

8. A bolster for railway-cars, comprising an upper channel-beam having its flanges downwardly disposed, a lower channel-beam having its flanges upwardly disposed, said beams fitting together and having their flanges overlapping at the ends of the beams, and filling-pieces in the space between the beams at the ends of the bolster, in combination with securing means at each end of the bolster, comprising a transversely-extending bolt passing through the filling-pieces and through all the flanges of both beams, and a vertically-extended bolt passing through the webs of both beams and through the filling-piece.

698,877. APPARATUS FOR LEACHING TANBARK. GEORGE C. VANDER, Salem, Mass., assignor, by mesne assignments, to Virginia Machine Company, Boston, Mass., a Corporation of West Virginia. Filed Aug. 4, 1902. Serial No. 67,000. (No model.)



Claim.—1. In a leaching apparatus, a rotatable drum having a partition-wall forming a leaching-chamber and a liquor-chamber, and provided with a liquid-inlet for the leaching-chamber and with a plurality of separate outlets located within the leaching-chamber near the circumferential wall of the drum to move with the same and pass below the body of material being leached for the passage of extract or percolated liquor from said leaching-chamber into said liquor-chamber, strainers for said outlets affixed to the drum to pass below the said body of material, and means within the leaching-chamber to fill a portion of the material to be leached, substantially as described.

2. In a leaching apparatus, a rotatable drum having a partition-wall forming a leaching-chamber and a liquor-chamber, and provided with a liquid-inlet for said leaching-chamber, and with a plurality of separate outlets located within the leaching-chamber near the circumferential wall of the drum to move with the same and pass below the body of material being leached for the passage of extract or percolated liquor from said leaching-chamber into said liquor-chamber, strainers for said outlets affixed to the drum to pass below the said body of material, means within the leaching-chamber to fill a portion of the material to be leached, and a heating apparatus within said leaching-chamber, substantially as described.

3. In a leaching apparatus, a rotatable drum to contain the material to be leached, provided with a liquid-inlet, and with a liquid-outlet passage having side walls projecting inwardly from the inner circumference

of the drum and having a discharge-opening for the extract from said passage, and a strainer covering said outlet-passage, substantially as described.

4. In a leaching apparatus, a rotatable drum to contain the material to be leached, provided with its inner circumference with an outlet-passage for the extract liquor extended longitudinally of the drum and provided with an inlet for the extract from the drum and with a discharge-opening for the extract from said passage, a strainer covering the said inlet, and means within the drum for filling a portion of the material to be leached, substantially as described.

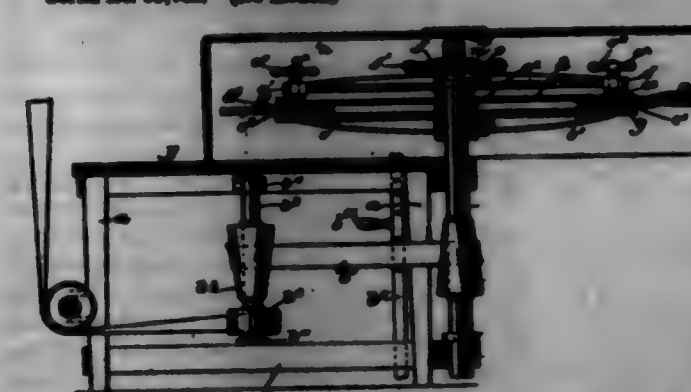
5. In a leaching apparatus, a rotatable drum provided with a partition-wall forming a leaching-chamber and a liquor-chamber, and having an outlet-passage for the extract from the leaching-chamber into the liquor-chamber, extended longitudinally of said drum within said leaching-chamber, a strainer for said outlet-passage, and a liquor-outlet for said liquor-chamber, substantially as described.

6. In a leaching apparatus, a rotatable drum having a partition-wall forming a leaching-chamber and a liquor-chamber, and provided with a liquid-inlet for the leaching-chamber, and with an outlet for the extract liquor into the liquor-chamber near the circumference of the drum, and a heating apparatus within the leaching-chamber attached to the drum to revolve therewith and comprising a steam-inlet pipe β^1 , a fitting β^2 , pipes β^3 , β^4 connected to said fitting and extended in substantially opposite directions toward the circumference of the drum, branch pipes β^5 , β^6 , β^7 , β^8 extended substantially at right angles near the opposite ends of the leaching-chamber, pipes β^9 , β^{10} extended longitudinally of the drum and connecting said branch pipes together, the pipe β^9 connecting the branch pipes β^5 , β^6 , to the pipe β^7 , and the outlet-pipe β^{10} connected to the said fitting, substantially as described.

7. In a leaching apparatus, a rotatable drum to contain the material to be leached, provided with a liquid-inlet and with a liquid-outlet passage for the extract having side walls projecting inwardly from the inner circumference of the drum and having a discharge-opening for the extract, and a strainer for said outlet-passage composed of a series of bars or disks, substantially as described.

8. In a leaching apparatus, a rotatable drum to contain the material to be leached, provided with a liquid-inlet and with a plurality of separate outlets for the extract liquor located within the said drum to pass below the mass or body of material being leached and provided with discharge-openings for the extract from said passages, strainers covering said outlets, and means within the drum to fill a portion of the material to be leached, substantially as described.

698,878. CENTRIFUGAL BRUSH-EXPPELLING MACHINE FOR BRUSHES. GEORGE A. VANDER, Lexington, Mass. Filed Feb. 12, 1902. Serial No. 67,700. (No model.)



Claim.—1. A centrifugal brush-expelling machine for brushes comprising a rotatable brush-carrier provided with brush-attaching means and operating means for said carrier.

2. A centrifugal brush-expelling machine for brushes comprising opposed brush-clamping members, a shaft to rotate the same, means to operate said shaft, and clamping means to press said clamping members one toward the other.

3. A centrifugal brush-expelling machine comprising a brush-carrying shaft and means to rotate it, a plurality of clamping members arranged on said shaft and adapted to hold between them a plurality of brushes, and a clamping device mounted on said shaft to press said clamping members one toward the other, to clamp between them said brushes.

4. A centrifugal brush-expelling machine comprising a plurality of clamping members adapted to receive and hold between them a plurality of brushes with means for individually clamping and releasing individual brushes, and means to rotate said clamping members.

5. A centrifugal brush-expelling machine comprising a plurality of clamping members adapted to receive and hold between them a plurality of brushes with means for moving said clamping members one bodily toward the other for simultaneously clamping and releasing said brushes, and means to rotate said clamping members.

word the other for simultaneously clamping and releasing said brushes, and means to rotate said clamping members.

6. In a machine of the class described a shaft, a table-like clamping member arranged thereon, an opposed segmental member, with means for moving the latter bodily toward the former.

7. In a machine of the class described a shaft, a table-like clamping member arranged thereon, an opposed segmental member, with means for moving the latter bodily toward the former, and means for moving the segments of said segmental member one toward and from the said table-like member one independent of another.

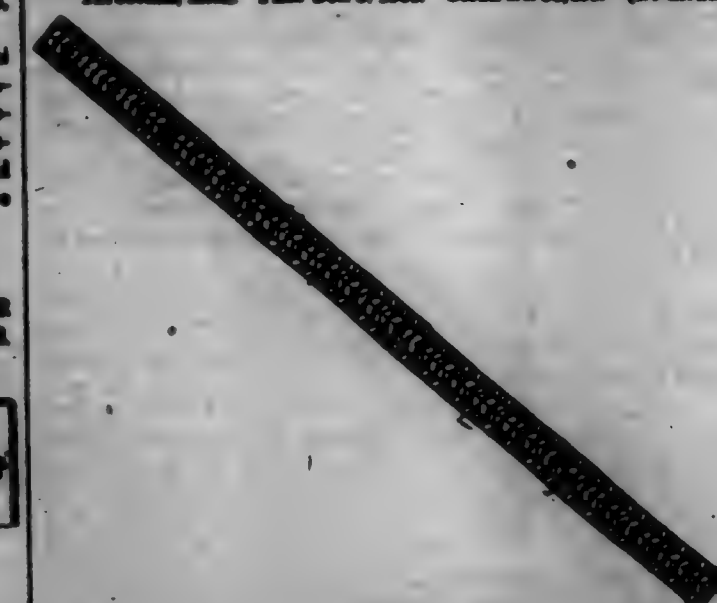
8. In a machine of the class described, a table-like clamping member, an opposed segmental member, the latter, means to move the latter and said segmental member toward said table-clamping member and means carried by the several arms of said spider member to act upon the segments of said segmental member.

9. A centrifugal brush-expelling machine comprising opposed members adapted to receive between them a brush or brushes to be acted upon, said members being provided with yielding flaps to engage the brush or brushes, and means to press said members one toward the other to clamp said brush or brushes between them.

10. A centrifugal brush-expelling machine comprising brush-rotating means and variable-speed driving mechanism therefor, whereby to vary the centrifugal action to accommodate the brush or brushes acted upon.

11. A centrifugal brush-expelling machine comprising a plurality of rotatable clamping members adapted to receive between them a brush or brushes to be acted upon, said members having raised clamping edges and yielding clamping-flaps adjacent said raised edges to engage the said brush or brushes, and means to move said members one toward the other.

698,879. SHEPPING CORD OR TAPE. EDWARD E. WARREN, Throsvick, Mich., assignor to the Warren Featherstone Company, Throsvick, Mich. Filed Dec. 2, 1902. Serial No. 34,430. (No model.)



Claim.—1. In a stiffening material, a strand comprising a series of quills denuded of their plumage, the plumage end of each quill of the series being inserted and cemented into the hollow end of the next succeeding quill.

2. In a stiffening material, a strand comprising a series of quills denuded of their plumage, the plumage end of each quill of the series being inserted and cemented into the hollow end of the next succeeding quill and a suitable wrapping-thread around the whole.

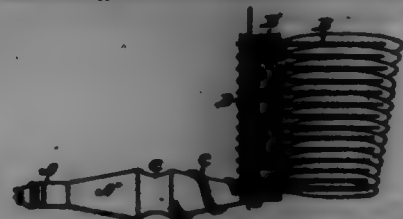
3. In a stiffening material, a strand comprising a series of quills denuded of their plumage, the plumage end of each quill of the series being inserted into the hollow end of the next succeeding quill and a suitable wrapping-thread around the whole.

4. In a stiffening material, a strand comprising a series of quills denuded of their plumage, the plumage end of each quill of the series being inserted into the hollow end of the next succeeding quill and a suitable wrapping-thread around the whole.

5. In a stiffening material, a strand comprising a series of quills denuded of their plumage, the plumage end of each quill of the series being inserted into the hollow end of the next succeeding quill of the series, the strands being retained together by a suitable wrapping-thread, as specified.

698,880. FEATHER SOUTER. EDWARD E. WARREN and ALBERT A. ANDERSON, Throsvick, Mich. Filed Feb. 20, 1903. Serial No. 42,041. (No model.)

Claim.—1. In a feather duster, the combination of a handle with an elongated head having a spiral rib thereon; a web of feathers, the bottom of which are woven in a fabric, the feathers being shorter at the inner end of the web, the web being wound on the spiral from the inner end out; and a retaining means to retain the web, as specified.



2. In a feather duster, the combination of handle with an elongated head having a spiral rib thereon; a web of feathers, the feathers being shorter at the inner end of the web, the web being wound on the spiral from the inner end out; and a retaining-wire wound onto the web to retain it in position, as specified.

688,881. FOUNTAIN-PEN. LEON R. WATKINS, Brooklyn, N. Y.; Frank D. Waterman executor of said Leon R. Waterman, deceased. Filed Feb. 1, 1904. Serial No. 577,678. (No model.)



Claim.—1. A feed-bar F provided with an air duct or channel D.
2. A feed-bar F provided with an air duct or channel D, and the automatic ink-valve or ink-opening O, in combination.
3. A feed-bar F of a fountain-pen, provided with an air duct or channel D and a capillary fissure or fissures S.
4. A feed-bar F of a fountain-pen, provided with an air duct or channel D, a capillary fissure, or fissures, S, and, in combination, an air-inlet opening O communicating with the air-duct D and located at its forward end.
5. The feed-bar of a fountain-pen, provided with an air duct or channel D, the sub-reservoir E, a capillary fissure, or fissures, S, and, in combination, an air-inlet opening O communicating with the air-duct D and located at its forward end.
6. The feed-bar of a fountain-pen, provided with an air duct or channel D, a sub-reservoir E, a capillary fissure, or fissures, S, and, in combination, an air-inlet opening O communicating with the air-duct D and located at its forward end, and made in and through the pen F.
7. The feed-bar of a fountain-pen, provided with an air duct or channel D, a sub-reservoir E, a capillary fissure, or fissures, S, and an air-inlet opening communicating with the air-duct D and located at its forward end, in combination with the main reservoir R.
8. The feed-bar of a fountain-pen, provided with an air duct or channel D, a sub-reservoir E, a capillary fissure or fissures S and an air-inlet opening O communicating with the air-duct, in combination with the main reservoir R, and with the conical nozzle N seated in a conical chamber in the forward end of the fountain or holder, forming an elastic conical joint between them.
9. The feed-bar of a fountain-pen, provided with an air duct or channel D, a capillary fissure, or fissures, S, a writing-pen P, and, in combination, an air-inlet opening O therein communicating with the air-duct D and located at its forward end.
10. A feed-bar F of a fountain-pen, provided with an air-duct D, a sub-reservoir E, a capillary fissure, or fissures S, a writing-pen P, and an air-inlet opening O communicating with the air-duct D, in and with which the ink conducted to the sub-reservoir E by the fissure, or fissures, S, can automatically be shut or open the ink-opening to the air by a valve-like action.
11. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of the lower or forward end of the main ink-reservoir, with a capillary fissure, or fissures, connecting the two reservoirs, with an air-inlet opening communicating with the air-duct at its forward end and also with a secondary reservoir at its rear end.
12. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with an ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, with a capillary fissure, or fissures, connecting the two reservoirs, and also in combination with an air-inlet and ink-valve opening located and communicating with the air-duct at its forward end.

the lower side of the lower or forward end of the reservoir, with a capillary fissure, or fissures, connecting the two reservoirs, and also in combination with an air-inlet opening communicating with the air-duct and located at its forward end.

13. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of the lower or forward end of the main reservoir, with a capillary fissure, or fissures, connecting the two reservoirs, with an air-inlet opening communicating with the air-duct at its forward end and also with a secondary reservoir at its rear end.

14. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with an ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, with a capillary fissure, or fissures, connecting the two reservoirs, and also in combination with an air-inlet and ink-valve opening located and communicating with the air-duct at its forward end.

15. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, with a capillary fissure, or fissures, connecting the two reservoirs, in combination with an air-inlet and ink-valve opening located and communicating with the air-duct at its forward end, and also with the sub-reservoir at its rear end.

16. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, and also with a capillary fissure, or fissures, connecting the sub-ink-reservoir with the main ink-reservoir only at the lower side of the lower or forward end of the main reservoir.

17. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, and also with a capillary fissure or fissures, connecting the sub-ink-reservoir with the main ink-reservoir only at the lower side of the lower or forward end of the main reservoir, in combination with the writing-pen provided with an air-inlet opening.

18. The feed-bar of a fountain-pen, provided with an air duct or channel communicating at its forward end with a sub-ink-reservoir located under the writing-pen and at the other end with the main ink-reservoir only at the lower side of its lower or forward end, with a capillary fissure, or fissures, connecting the sub-ink-reservoir with the main ink-reservoir at the lower side of its lower or forward end, and, also, in combination with an air-inlet and ink-valve opening located and communicating with the air-duct at its forward end and also with the sub-reservoir at its rear end.

19. In a feed-bar provided with a fissure or fissures for conducting the ink from the main reservoir to the writing-pen, an air-duct for conducting air to the reservoir, provided with means for increasing or diminishing the size of the air-duct at will.

20. In a feed-bar provided with a fissure or fissures for conducting the ink from the main reservoir to the writing-pen, an air-duct for conducting air to the reservoir, provided with means for increasing or diminishing the size of the air-duct at will, consisting of an adjustable device A.

21. In a feed-bar provided with a fissure or fissures for conducting the ink from the main reservoir to the writing-pen, an air-duct for conducting air to the reservoir, provided with means for increasing or diminishing the size of the air-duct at will, consisting of an adjustable device A for increasing and diminishing the area of the outlet-opening at the rear end of the feed-bar.

22. In a feed-bar provided with a fissure or fissures for conducting the ink from the main reservoir to the writing-pen, an air-duct for conducting air to the reservoir, provided with means for increasing or diminishing the size of the air-duct at will, consisting of an adjustable device A for increasing and diminishing the area of the outlet-opening at the rear end of the feed-bar, in combination with an air-inlet opening at the forward end of the air-duct.

23. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary.

24. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary at its outer end by contact.

25. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary at both ends by contact.

26. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary at both ends by contact, in combination with a feed-bar provided with an air duct or channel communicating at its forward end with an air-inlet opening and at its rear end with the main reservoir at the lower side of the lower or forward end of the same.

27. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary at both ends by contact, in combination with a feed-bar provided with an air duct or channel communicating at its forward end with an air-inlet opening and at its rear end with the main reservoir at the lower side of the lower or forward end of the same, and provided at its front end with an air-inlet opening accessible to the ink in the sub-reservoir for automatic valve action in opening and closing the air-duct.

28. The fountain or reservoir of a fountain-pen provided with a conical chamber at and near its open end, the mouth of which is thin and elastic, and the nozzle of a fountain-pen the rear end of which is externally conical in form and the extreme end of which is thin and elastic, making between these conical surfaces an elastic joint that is non-capillary at both ends by contact, in combination with a feed-bar provided with an air duct or channel communicating at its forward end with an air-inlet opening and at its rear end with the main reservoir at the lower side of the lower or forward end of the same and also with a capillary fissure or fissures connecting with the main reservoir and with the writing-pen.

29. A feed-bar of a fountain-pen provided with an air-duct and one or more capillary fissures fitting and filling the interior chamber in the rear end of the nozzle and expanding the same to form, by contact, an elastic non-capillary joint with the conical chamber in the front end of the reservoir in which it is seated.

30. In a fountain-pen and in combination, three elastic non-capillary joints, by contact, one between the cap and the fountain, another between the fountain and the nozzle, and still another between the nozzle and the feed-bar.

31. An elastic non-capillary joint between the rear end of the thin nozzle of a fountain-pen and the adjacent surface of the fountain, formed by elastic contact within the air of narrow threads.

32. In a fountain-pen, a nozzle in the form of three truncated female cones in combination with four surfaces in the form of male cones, forming three air and ink joints, one between the feed-bar and the nozzle, another between the nozzle and the fountain, and still another between the holder and the cap, substantially as shown and described.

33. A feed-bar provided with a surface in the form of a male cone inserted in a seat in the form of a truncated female cone provided in the rear end of the nozzle, in combination with a nozzle provided with a surface in the form of a truncated male cone inserted in a seat in the form of a truncated female cone provided in the forward end of the fountain, and also with a fountain provided on its front end with a truncated male cone inserted in a seat in the form of a truncated female cone provided in the open end of the cap.

34. A feed-bar provided with a surface in the form of a male cone inserted in a seat in the form of a truncated female cone provided in the rear end of the nozzle, in combination with a nozzle provided with a surface in the form of a truncated male cone inserted in a seat in the form of a truncated female cone provided in the forward end of the fountain, and also with a fountain provided on its front end with a truncated male cone inserted in a seat in the form of a truncated female cone provided in the open end of the cap, the open end of the cap being provided with a sheet truncated male cone on its exterior surface.

35. In the feed-bar of a fountain-pen, provided with an air-duct, a movable piston adjustable for increasing or diminishing the diameter of the air-duct and controlling the air movement into the reservoir.

36. In the feed-bar of a fountain-pen, provided with an air-duct, a movable piston arranged to diminish the size of the air-duct when moved toward the forward end of the feed-bar and to increase the size of the air-duct when moved to the opposite direction.

37. In a feed-bar of a fountain-pen, provided with an air-duct and one or more capillary fissures, a movable piston for increasing or diminishing the size of the air-duct and controlling the amount of air inflow.

38. A feed-bar of a fountain-pen in combination with an adjustable part A for increasing or diminishing the air-supply to the reservoir of a fountain-pen.

39. A non-capillary joint by contact, formed between a hollow elastic conical plug composed of hard rubber or other equivalent material and a conical cut in the top of a receptacle for fluids.

40. In a receptacle for fluids provided with an inwardly-tapering mouth related to an outwardly-tapering hollow plug or nozzle composed of hard rubber or other equivalent material, a non-capillary joint formed between the inner edge of the nozzle and a corresponding surface of the mouth of the receptacle.

41. In a receptacle for fluids provided with an inwardly-tapering mouth related to an outwardly-tapering hollow plug or nozzle composed of hard rubber or other equivalent material, a non-capillary joint formed between the inner edge of the nozzle and a corresponding surface of the mouth of the receptacle by the elastic resistance of the corresponding part of the inner member.

42. In the mouth of a receptacle for fluids, a conical chamber or nest and a conical hollow plug composed of hard rubber or other equivalent material forming a non-capillary joint between the lower end of the conical nest in the receptacle and the elastic inner end of the hollow plug.

688,882. SAFETY FOUNTAIN-PEN. LEON R. WATKINS, Brooklyn, N. Y.; Frank D. Waterman executor of said Leon R. Waterman, deceased. Filed May 14, 1904. Serial No. 580,681. (No model.)



Claim.—1. In a fountain-pen, a reservoir, a nozzle adapted to fit within the reservoir, and a cap adapted to fit either end of the nozzle and form a non-capillary joint therewith.

2. In a fountain-pen, a safety-cap provided with a chamber adapted to fit and form a non-capillary joint with the outer surface of either end of the nozzle, and a barrel or reservoir, in combination with the outside cap of the barrel or reservoir, in the chamber of which the safety-cap and the nozzle are receivable, and also in combination with the nozzle.

3. In a fountain-pen, a safety cap or cover provided with a chamber, and a barrel or reservoir, in combination with a nozzle, with either exposed end of which it may form a non-capillary joint, and also in combination with a reservoir or barrel cap, with the outer closed end and surface of which it is capable of forming a union or holding joint.

4. In a fountain-pen, a safety cap or cover provided with a chamber, and a barrel or reservoir, in combination with a nozzle, with either exposed end of which it may form a non-capillary joint, and also adapted, when removed and placed with its closed end inward, to form a non-capillary closure-joint within the mouth of the reservoir or barrel.

5. In a fountain-pen, a safety cap or cover in combination with a nozzle, with the rear end of which it forms a non-capillary joint, and also in combination with a barrel or reservoir, with which, and on its outer side, it also and at the same time forms a non-capillary joint-closure within the mouth of the barrel or reservoir.

6. In a fountain-pen, a safety reversible cap-plug receivable for use as a cap for the nozzle and a closing device for the fountain or holder, in combination with the nozzle and the fountain, the cap forming a non-capillary joint-closure within the chamber in the mouth of the fountain on and by the outside of its closed end, and with the nozzle on and by the inside surface of the chamber in the mouth of the cap.

7. In a fountain-pen, a hollow tapered reversible cap and plug the inner end of which is closed, in combination with a fountain and a nozzle, the plug forming on its outer surface a non-capillary closure-joint with the chamber-surface in the mouth of the fountain for closing the same, and also a non-capillary joint with the outside of the nozzle at either end of the same.

8. In a fountain-pen, a nozzle, a barrel and a safety-cap and hollow plug, in combination, the nozzle being externally conical at both ends, each end thereof being adapted to form a progressive non-capillary closure-joint with the mouth of the barrel, and also adapted to form a progressive non-capillary closure-joint at either end with the cap.

9. In a fountain-pen, a double-ended nozzle, a barrel and a cap or cover, in combination, the double-ended nozzle being adapted to form, at either end, a progressive non-capillary closure-joint with the open end and mouth of the barrel, and the cap or cover adapted to fit and form a progressive non-capillary closure-joint with and open either end of the double-ended nozzle, the cap also being adapted to form a progressive non-capillary closure-joint with the same chamber in the mouth of the barrel.

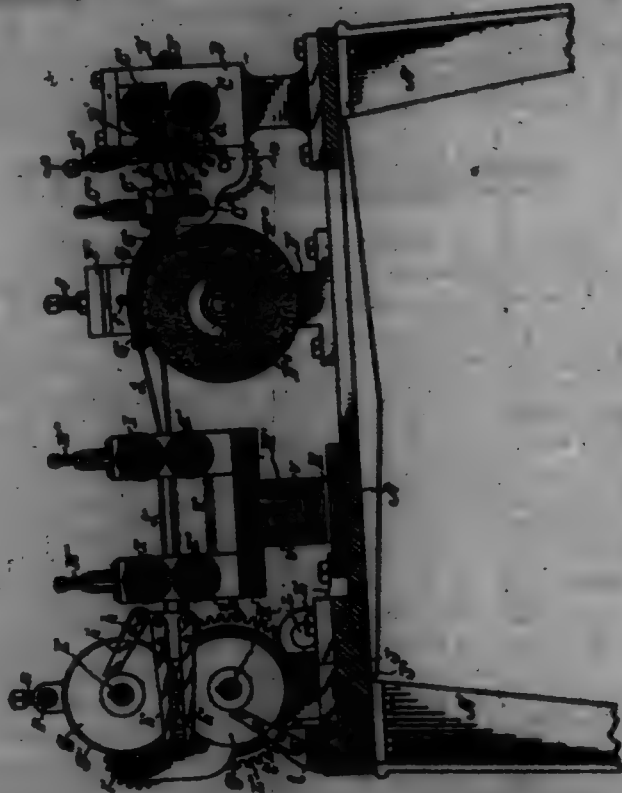
10. In a fountain-pen, a double-ended nozzle, a barrel and a cap or cover, in combination, the double-ended nozzle being adapted to form,

at either end, a progressive non-capillary closure-joint with the open end and mouth of the barrel, and the cap or cover adapted to fit and form a progressive non-capillary closure-joint with and upon either end of the double-ended nozzle, the cap also being adapted to form a progressive non-capillary closure-joint with the same chamber in the mouth of the barrel, and hermetically seal the mouth of the barrel.

11. In a fountain-pen, a reversible cap and a reversible externally-tapered hollow plug, an externally-tapered nozzle, and a barrel of a fountain-pen, in combination, the reversible cap and reversible hollow plug being adapted to form a progressive non-capillary closure-joint with the nozzle and also with the mouth of the barrel, and to hermetically seal and close the mouth of the barrel.

12. In a fountain-pen, a cap, a nozzle and a reservoir or barrel, in combination, the cap covering and protecting the writing-pen, hermetically closing the mouth of the reservoir or barrel, and forming a non-capillary and a union joint with the nozzle.

698,883. MACHINE FOR PREPARING QUILL SUBSTANCE.
WILLIAM WHELAN, Inventor, by Edgar A. Whelan, New York, N. Y. Filed Apr. 20, 1901. Serial No. 44,613. (No model.)



Claim.—1. In a machine of the class described, the combination of a suitable base; a bracket B thereon; a pair of feed-rolls supported by said bracket; a throat-piece E' through which the quills are introduced; a knife for splitting the quills supported back of said feed-rolls; guide-tubes F, F' to receive the halves of the split quill and turn the same with the pith downward; a pair of feed-rolls to carry the divided quill forward; an emery or other grinding wheel supported on a bracket F; a guide and shield over the top of the same with a removable steel pin G' for bringing the pith side of the divided quills into close contact with the grinding-wheel; a delivery-tube from the said shield; feed-rolls beyond the same; and slitting-disks intermeshing with each other to receive the quill beyond the feed-rolls and slit it into fiber, all coacting substantially as described, for the purpose specified.

2. In a machine of the class described, the combination of feed-rolls with a splitting-knife beyond the same; guides for turning the divided quill so that the pith side of each part will be in the same direction; feed-rolls for carrying the quill forward; a grinding-wheel with suitable guides in proximity thereto for removing the pith from said quills; a discharge-tube from the said grinding-wheel; slitting-disks beyond the same; and suitable feed-rolls for delivering the quill to the slitting-disks, coacting for the purpose specified.

3. In a machine of the class described, the combination of feed-rolls; a splitting-knife in proximity thereto; guides for receiving the halves of the quills, one of which at least, is spiral in formation to turn the parts of the quills so that the pith side will face in the same direction; feed-rolls for carrying the divided quills forward; a grinding-wheel beyond the last-named feed-rolls for grinding the pith from said quills coacting as specified.

4. The combination of a pair of feed-rolls; a block D in proximity to said feed-rolls having a throat across the same; a knife supported on

said block D; a cap-block D' with a throat d' therethrough to fit upon and retain the knife in position, coacting for the purpose specified.

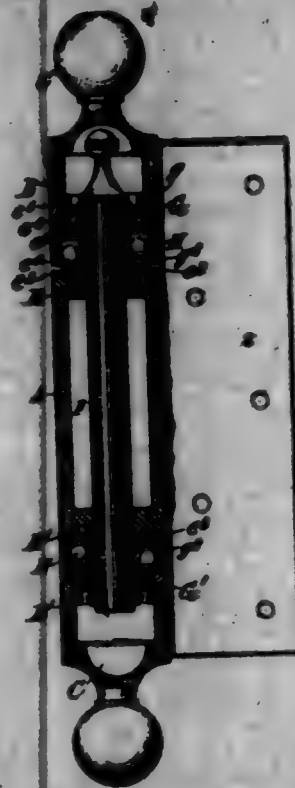
5. The combination of the grinding-wheel; a shield or guide fitting loosely over the same and a projecting portion coming into close proximity to the wheel whereby quills coming in contact with the same will have the pith quickly removed without injury to the quill and the quill will be passed on over the same.

6. In a machine of the class described, the combination of a grinding-wheel F' on a suitable support; a guide or shield G over the same having a removable pin G' in close proximity to the wheel, for the purpose specified.

7. In a machine of the class described, the combination of parallel shafts; disks g, g, on said shafts intermeshing with each other; heavy disks g' to each side; and roller-guides for holding the disks g' in proper relation to cause the slitting-disks to be properly spaced without changing the same separately, coacting for the purpose specified.

8. In a machine of the class described, the combination of parallel shafts; disks g, g, on said shafts intermeshing with each other; heavy disks g' to each side; and guides for holding the disks g' in proper relation to cause the slitting-disks to be properly spaced without changing the same separately coacting for the purpose specified.

698,884. HINGE. GEORGE A. WHELAN, New York, N. Y. Filed Apr. 12, 1902. Serial No. 12,028. (No model.)



Claim.—1. In a hinge, the combination of a pair of knuckles, a cup or female track on one knuckle, a cone or male track on the other, said tracks being continuously inclined in one direction for more than a semi-circumference, and antifriction devices extending for more than a semi-circumference between said tracks.

2. In a hinge, the combination of an intermediate knuckle, a pair of outer knuckles, and inclined bearings between said intermediate knuckle and said outer knuckles, said bearings being inclined in opposite directions.

3. In a hinge, the combination of an intermediate knuckle, a pair of outer knuckles, and inclined antifriction-bearings between said intermediate knuckle and said outer knuckles, said bearings being inclined in opposite directions.

4. In a hinge, in combination, a knuckle having a shoulder, a bearing member having a cone projecting beyond said shoulder and a detachable stop on said cone adapted to hold said member in said knuckle.

5. In a hinge, in combination, a pair of leaves, a pair of knuckles on one of the leaves and an intermediate knuckle on the other, and a pair of bearings spirally inclined in opposite directions, between the inside faces of the pair of knuckles of one leaf and the adjacent faces of the intermediate knuckle of the other leaf, with a clearance between said pair of knuckles and said intermediate knuckle to allow the bearings to turn a suitable distance, one of the leaves being shorter than the other by an amount equal to the clearance in the bearings when the hinge is closed, whereby the two leaves will always be flush at one end when the hinge is either end up.

6. In a hinge, the combination of a pair of knuckles, an inclined bearing between said knuckles, and a pair of flaps on the adjacent ends

of said knuckles, said faces adapted to approach each other during the closing movement and to come together immediately before the closed position is reached, thereby forming a frictional stop.

7. In a hinge, the combination of a pair of knuckles, an inclined bearing between said knuckles, and a frictional stop between said knuckles and adapted to act during the closing movement of said hinge and immediately before the closed position is reached.

8. In a hinge, the combination of a pair of knuckles, a pair of bearing members therefor, one of said bearing members being detachable from its knuckle, and means for detachably attaching said members to each other.

9. In a hinge, the combination of a bearing member G having a shoulder g, a corresponding bearing member H having a core c' projecting beyond said shoulder g and having a circumferential groove c' on said core, and a spring-ring c' fitting said groove and holding said member H in said member G.

10. In a hinge, the combination of a pair of knuckles, ball tracks inclined continuously in one direction for more than a semicircumference at adjacent ends of said knuckles, and balls extending for more than a semicircumference between said tracks.

11. In a hinge, the combination of a pair of knuckles, bearings between said knuckles having tracks inclined continuously in one direction and making substantially a complete revolution, and antifriction devices between said tracks and extending over substantially the entire length thereof.

12. In a hinge, the combination of a knuckle, a bearing member at the end of said knuckle having a level face and a track member carried by said bearing member and having an inclined face.

13. In a hinge, the combination of a bearing member, a knuckle, and a corresponding projection and recess on said bearing member and knuckle, whereby said parts are detachable and attachable in a fixed relative position.

14. In a hinge, the combination of a hollow bearing member, a hollow knuckle, a corresponding rib and groove on said bearing member and knuckle, whereby said parts are attachable in a fixed relative position, and a pin passing through said parts whereby said parts are held together.

15. In a hinge, the combination of a pair of knuckles, a bearing member fixed in one of said knuckles, a second bearing member detachable from the other of said knuckles, and means for attaching said detachable bearing member to its knuckle.

16. In a hinge, the combination of a pair of knuckles, a bearing member fixed in one of said knuckles, a second bearing member detachable from the other of said knuckles, and means for attaching said detachable bearing member to its knuckle, so that said detachable bearing member will, when attached, be in a determined position relatively to said fixed bearing member.

17. In a hinge, the combination of a pair of knuckles, a bearing member fixed in one of said knuckles, its bearing-face being abruptly inclined at one point, a second bearing member detachable from the other of said knuckles and having a corresponding abrupt incline, and means for attaching said detachable bearing member to its knuckle so that said abrupt inclines will be approximately opposite each other in the closed position of said hinge.

18. In a hinge, the combination of a pair of knuckles, a bearing member fixed in one of said knuckles, a second bearing member detachable from the other of said knuckles, means for attaching said detachable member relatively to said first member and means for attaching said detachable member to its knuckle.

19. In a hinge, the combination of a pair of end knuckles, an intermediate knuckle, bearing members fixed in said end knuckles, corresponding bearing members detachable from said intermediate knuckle, means for attaching said detachable members relatively to their corresponding fixed members, and means for attaching said intermediate knuckle to said detachable members.

20. In a hinge, the combination of a pair of end knuckles B B', an intermediate knuckle A, fixed bearing members G and G' in said end knuckles, detachable bearing members E and E', means for placing said knuckle A and said members E and E' in a determined relative position, and a pin F passing through said intermediate knuckle and said detachable bearing members and holding the same together.

21. In a hinge, a pair of knuckles, a bearing between said knuckles consisting of a race for antifriction devices, the upper and lower tracks of said race being practically parallel and spirally inclined continuously for more than half of their circumference, and for the remaining distance consisting of an abrupt incline connecting the ends of the spiral, and antifriction devices in said race and extending for more than a semicircumference around the same.

22. In a hinge, a pair of leaves, knuckles on said leaves, and a pair of spirally-inclined bearings of equal pitch between adjacent pairs of

said knuckles, said bearings being inclined in the same direction and adapted to rotate reciprocally, one closing when the other opens, and vice versa, thereby taking up all lost motion.

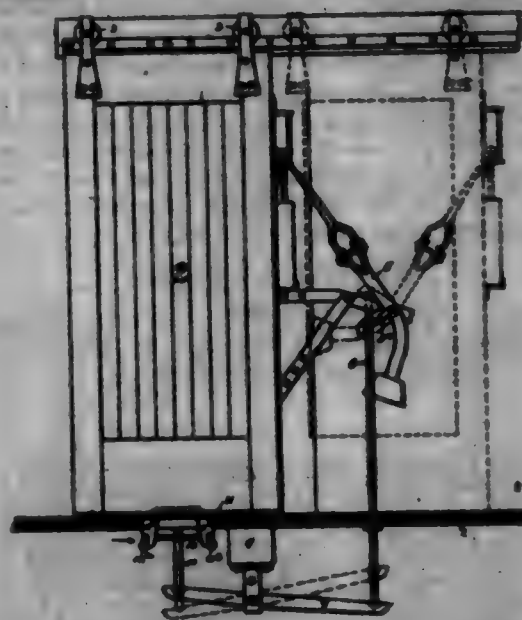
23. In a hinge, the combination of a pair of knuckles, an inclined bearing between said knuckles, and corresponding recesses and projections c, p, on the adjacent faces of said knuckles, said projections adapted to rest in said recesses in the closed position and to resist the initial opening movement.

24. In a hinge, the combination of a bearing member having a plane face, an opposite inclined face, and a rib c on said plane face extending under the lowest point of said inclined face whereby said member is strengthened at its thinnest point.

25. In a hinge, the combination of a bearing member, a knuckle, a corresponding rib and groove on said bearing member and knuckle, and a leaf on said knuckle adapted to be attached to a door, said rib being advanced less than a quarter of a revolution beyond the line of said leaf.

26. In a hinge, the combination of a pair of spirally-inclined antifriction-bearings, the points at which said bearings are under load being on substantially opposite sides of said bearings, whereby substantially every point in the circumference of the axis of the hinge is under load at all times in one or the other of the bearings.

698,885. AUTOMATICALLY-OPERATING DOOR. JOHN H. WHITAKER, Inventor, Iowa. Filed Feb. 5, 1891. Serial No. 41,972. (No Model.)



Claim.—1. In an automatically-operating door, the combination of a door, a horizontal rail, means for suspending said door from the rail, an angular pivoted arm composed of three members, its upper member loosely connected with the rear of the door, its lower member provided with a weight, its third and shorter member extending laterally at right angles to the upper member, a vertical rod whose upper end is loosely connected with said shorter member, said rod extending through and some distance below the floor, a lever-arm supported and fulcrumed in a bearing underneath the floor, one end of said lever-arm loosely connected with the lower end of the vertical rod, a post whose lower end is connected with the other end of the lever-arm, a tread plate or button slightly raised above the floor and engaging the post for the purpose stated.

2. In an automatically-operating door, the combination of a horizontal rail, a door mounted thereon, guide-rods secured to the rear edge of the door, a roller between said guide-rods, an angular pivoted arm composed of three members, its lower member provided with a weight, its upper member connected with the roller, its third and shorter member extending at right angles to the upper member, a vertical rod whose upper end is loosely connected with said shorter member, said rod extending through and some distance below the floor, a lever-arm supported and fulcrumed in a bearing underneath the floor, one end of said lever-arm loosely connected with the lower end of the vertical rod, an upright post to whose lower end the other end of the lever-arm is loosely connected, a guide-plate having two downwardly-projecting notched ears, a tread-button adapted to move vertically in said guide-plate and provided with similar notched ears, a connecting-plate with four hook-shaped corners, each hook adapted to rest in the notched ears of the guide-plate and tread-button; the tread-button provided with a central socket on its under side to receive the upper end of the upright post for the purpose stated and substantially as described.

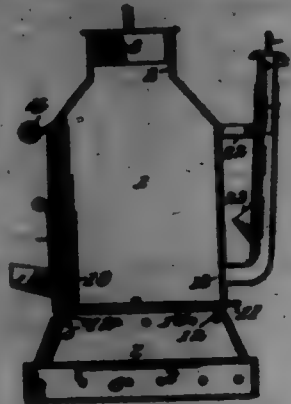
3. A tread-button having a central socket on its under side and provided at one edge with two downwardly-projecting notched ears, a guide-

2. The combination with the pawl-and-ratchet device, and the starting and reversing lever of a motor vehicle or car, of a lever mounted adjacent to the pawl and having means for controlling the position and move-

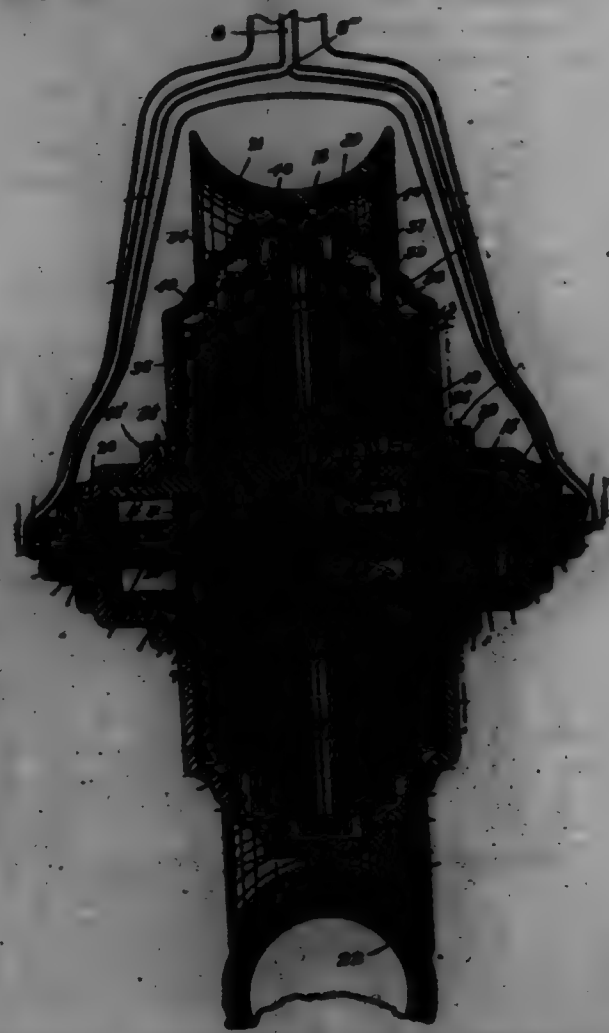
Clavin.—A pack of cards, having the letters of the alphabet severally marked on their backs, and the pictures or names of the Presidents severally marked corresponding in succession to the respective letters of the alphabet on their faces, substantially as specified.

It is a sliding-iron bracket, a casing having tool-receiving openings formed therein, a draft-pipe leading from the casing, and a tool-holder supported by the draft-pipe, said tool-holder comprising a ring member and a collar, said ring member being connected with the draft-pipe and with the casing and securing the upper end of the draft-pipe against displacement.

3. In a soldering-iron heater, a casing having fuel-receiving openings formed therein, a draft-pipe leading from the casing, and a fuel-burner, said burner comprising a nozzle supported solely by the draft-pipe and a ring member connected with the draft-pipe and with the casing.



698,895. CONTINUOUS-COMBUSTION THERMIST. MICHAEL B. B. MINNEAPOLIS, MINN. Filed Oct. 6, 1903. Serial No. 32,320. (No model.)

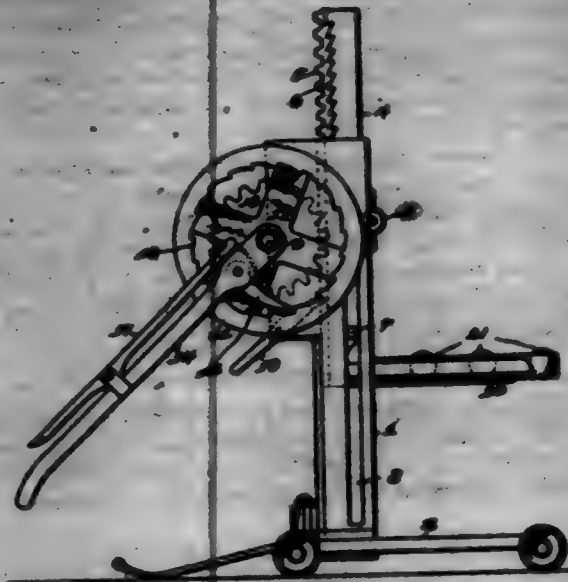


Claim.—1. The combination with a rotatable member carrying means for transmitting power, of a second reversely-rotatable member freely rotatable with reference thereto, a pump for supplying motive fluid carried and actuated by said second member and serving as a sole base of reaction therefor, each member having alternately-arranged plates carrying propelling-blades, the plates of the one member being interposed between those of the other.

2. In a rotary engine, the combination with a fixed hollow spindle, of a pair of reversely-rotatable members mounted on said spindle, the one embracing the other, said members having alternately-arranged propelling-plates with cooperating propelling-blades, a pair of pumps having pistons working within the hub of the inner member, means for sliding said pistons on said spindle under the rotary movement of the said inner rotary member, means for supplying motive fluid to the ends of said spindle, and from thence to the pumps, and means for transmitting power from the outer rotary member, substantially as described.

698,896. LIFTING-JACK OR ELEVATOR. CHARLES E. BROWN. St. Louis, Mo. Filed Nov. 10, 1901. Serial No. 22,500. (No model.)

Claim.—1. A lifting-truck comprising a suitable base mounted on wheels; a frame extending upwardly from the base; a platform mounted to move up and down in said frame; a gear-rack carried by said platform for moving the same; a ratchet-rack carried by said platform for supporting the same; a shaft mounted in said frame; a gear on said shaft and operating said rack; a ratchet and lever for operating said gear; and a pawl to engage said ratchet-rack and hold it from sliding downwardly, substantially as specified.



2. A lifting-truck comprising a suitable base; a frame extending upwardly from the base; a platform to move up and down in said frame; rollers forming the floor of said platform; a gear-rack carried by said platform; a ratchet-rack carried by said platform; a shaft mounted in said frame; a gear on said shaft for operating said rack; a ratchet and lever for operating said gear; and a pawl engaging said ratchet-rack to hold it from sliding downwardly, substantially as specified.

3. A lifting-truck comprising a suitable base; a frame extending upwardly from the base; a platform mounted to move up and down in said frame; a gear-rack carried by said platform; a shaft mounted in said frame; a gear on said shaft for operating said rack; a ratchet and lever for operating said gear; and a pawl to engage said ratchet-rack and hold the rack from sliding downwardly; and means of releasing said pawl as required to lower the platform, substantially as specified.

698,897. WITHDRAWN.

698,898. REFRIGERATOR. WILLIAM BROWN, and JULIA BROWN, Philadelphia, Pa. Filed Nov. 7, 1901. Serial No. 21,302. (No model.)

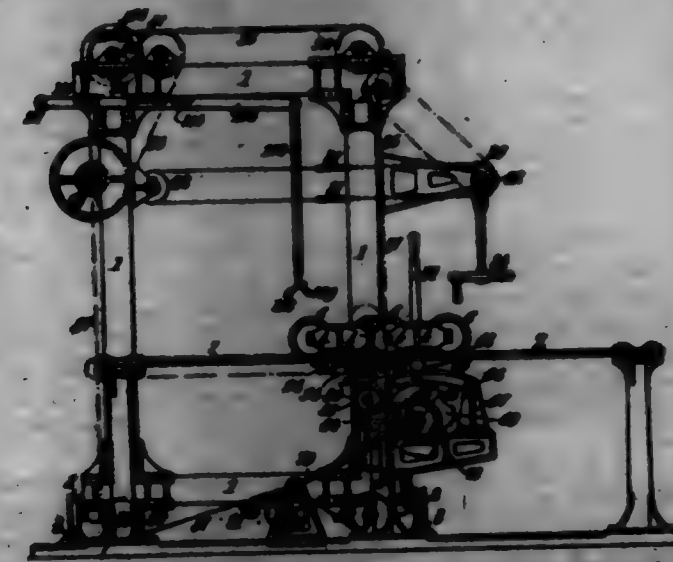


Claim.—1. A submerger adapted to supply at will either a single vapor or a mixture of vapors from different wells and provided with a central air-tube which is also the main support, a series of submerging-balls, a series of branch air-tubes which serve as their means of suspension and are provided with shut-off valves and a series of cold radial rods or bars extending from the said central tube to the individual submerging-balls substantially as set forth.

2. A submerger provided with a series of independent submerging-balls, a series of rigid cold suspending-tubes bending down in them to the supply of compressed air and a central air-tube extending continuously up through the submerging-tubes to the said suspending-tubes, the said tubes extending to below and support the said balls and permitting one or more of them to be brought into action at the same time as preferred, substantially as set forth.

3. A submerger provided with a series of isolated submerging-balls, means of supplying air to them individually from above and said radial rods or bars extending to a central support, the said means of supplying air, also extending to support and brace the said balls, substantially as set forth.

698,899. APPARATUS FOR THE MANUFACTURE OF KNITTING CARPETS. FERNAND BOUTER, Paris, France. Filed July 27, 1900. Serial No. 22,004. (No model.)



Claim.—1. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric.

2. In a knit-stitch loom for the mechanical manufacture of knit-stitch carpets, a pair of carriages, a series of spring-closed needle-clips supported on each carriage, said clips having tails for opening them, a longitudinal bar placed above each clip-supporting carriage and pivoted at the two ends of the carriages and adapted to press on the tails of all the clips for releasing the needles, and means for covering this movement for the two carriages, the gripping operation of one being effected while the releasing operation of the other is taking place and at the moment when the needles are in the ground-warps.

3. In a knit-stitch loom for the mechanical manufacture of knit-stitch carpets, a pair of carriages, a series of spring-closed needle-clips supported on each carriage, a longitudinal bar adapted to open the clips of each carriage, a lever pivoted at an intermediate point, each of the ends of the said lever engaging one of the bars which actuate the clips, and pedals for swinging said lever in opposite directions, whereby when said carriages approach one another the needles may be gripped by one and released by the other.

4. In a loom for the mechanical manufacture of knit-stitch carpets the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, a bar having two rows of closely-approximated holes, the said bar serving to guide the needles, and means whereby it may be caused to rise or descend at intervals between two rows of holes in order to prevent the needles in their return movement to the middle of the two warp-threads forming the stitch, from placing the length of pile-thread already engaged between the two ground warp-threads.

5. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, a bar having two rows of closely-approximated holes, the said bar serving to guide the needles, means whereby it may be caused to rise or descend at intervals between two rows of holes in order to prevent the needles in their return movement to the middle of the two warp-threads forming the stitch, from placing the length of pile-thread already engaged between the two ground warp-threads, a counter-shaft guiding the pile warp-threads below the passage of the needles, and means whereby it may be caused to rotate, together with said perforated bar, when the leading of the stitch upon the face of the fabric takes place.

6. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, and a vertically-moving bar, an endless chain for operating said bar, gearing for driving said chain, and a hand-wheel controlling said gearing.

7. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, and a mechanism designed to slightly stretch the ground-warps on the opening of the shed for the purpose of facilitating the passage of the needles.

8. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, and a clip for lifting the needle-threads for the purpose of giving a slight tension to the said threads by lifting the warps above the needles when the second length of yarn passes through the middle of the stitch.

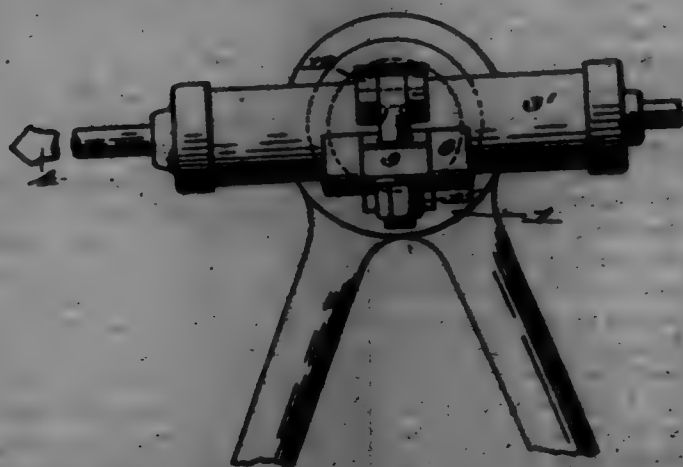
9. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, and a safety-bar carried by the front carriage for bringing down the needle-threads below the needles for the purpose of preventing the latter from leaving the clips when tension is placed upon the stitch formed.

10. In a loom for the mechanical manufacture of knit-stitch carpets, the combination of needles for the passage of the pile-threads of the carpet between the threads forming the ground-warps, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, a beam-carrying frame having a lateral movement, a jointed lever, and a cam guiding the frame.

11. In a loom for the mechanical manufacture of knit-stitch carpets,

the combination of needles for the passage of the pile-threads of the cap between the threads forming the ground-warp, said needles having two points, clips by means of which said needles are successively conducted from the front toward the back and from the back toward the front through the warps, carriages upon which said clips are mounted, a fixed frame over which said carriages move, the frame which carries the ground warp-threads being moved successively the space of two threads or two intervals according to the path which the needle is to take with relation to the fabric, a bar having two rows of exactly-spaced holes, the said bar serving to guide the needles, means whereby it may be caused to rise or descend at intervals between two rows of holes in order to prevent the needles in their return movement to the middle of the two warp-threads forming the stitch, from piercing the length of pile-thread already engaged between the two ground warp-threads, a counter-shaft guiding the pile warp-threads below the passage of the needles, means whereby it may be caused to rotate, together with said perforated bar, when the locking of the stitch upon the face of the fabric takes place, a main shaft, a ratchet and pawl actuated by the workman for operating said shaft at every operation or stage in the formation of the stitch, and cam on said shaft arranged to actuate said perforated bar and counter-shaft.

698,900. CLAMP FOR ROCK-DRILLS. FRANK E. BROWN, Unga, Alaska. Filed July 13, 1901. Serial No. 64,754. (No model.)



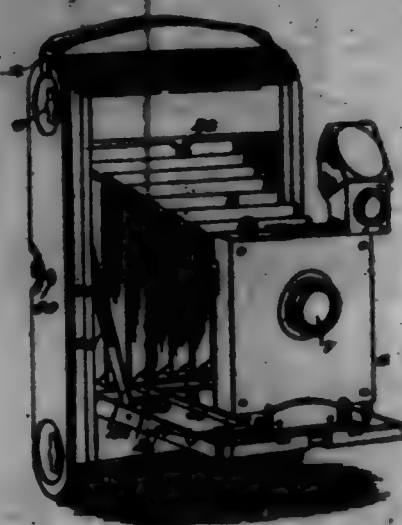
Claim.—1. In a clamp for rock-drills, the combination with a stand or support having a frame-central pivot, of a clamp comprising two oppositely-disposed conical-jaws adapted to embrace the barrel of the drill-bit, one of said jaws being provided with a substantially U-shaped base and the other jaw being provided with a base arranged to slide between the sides of said U-shaped base, each of said bases on their inner edges being provided with arc-shaped dovetailed grooves, the said bases embracing the pivot on the stand, and means carried by the ends of the jaws for adjustably drawing the latter and said bases together, substantially as described.

2. In a clamp for rock-drills, the combination with a stand or support having a laterally-projecting pivot, of a clamp comprising two oppositely-disposed conical-jaws adapted to embrace the barrel of the drill, one of said jaws being provided with a substantially U-shaped base and the other jaw being provided with a base arranged to slide between the sides of said U-shaped base, each of said bases on their inner edges being shaped to correspond to the shape of the said pivot and to embrace and clamp the latter, a screw pivoted at one end to one end of one of said jaws and loosely passing through the corresponding end of the other jaw, and a nut screwed over the end of said screw for drawing the jaws and bases together, substantially as described.

3. In a clamp for rock-drills, the combination with a stand or support having a frame-central pivot, of a clamp comprising two oppositely-disposed conical-jaws adapted to embrace the barrel of the drill-bit, one of said jaws being provided with a substantially U-shaped base and the other jaw being provided with a base arranged to slide between the sides of said U-shaped base, each of said bases upon their inner edges being provided with arc-shaped dovetailed grooves, a screw pivoted at one end to one end of one of said jaws and loosely passing through the corresponding end of the other jaw, and a nut screwed over the end of said screw for drawing the jaws and bases together, said bases embracing the pivot on the stand, substantially as described and for the purpose specified.

698,901. PHOTOGRAPHIC CAMERA. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Filed July 26, 1901. Serial No. 64,755. (No model.)

Claim.—1. In a camera, the combination with the casing having film-chambers at opposite ends, and a central chamber between them, having the way at the bottom, of a door for closing the central chamber and hinged near one of the film-chambers, and on a center parallel with the axis thereof and the hinged supporting-leg upon the outer side of the door.



2. In a camera, the combination with the casing having the film-chambers at top and bottom, and a central chamber between them, having a way-plate at the bottom, of a door hinged at the lower edge of the central chamber on a center parallel with the axis of the film-chamber and having a way thereon, two adjustable legs or supports mounted on the door one movable from the lower face thereof, and the other from one of the sides, a lens-support movable on the ways, and a bellows connected thereto.

3. In a camera, the combination with the casing having the film-chambers at top and bottom and a central chamber between them having a way at the bottom, of a door hinged at the lower edge of the central chamber on a center parallel with the axis of the film-chamber and having a way thereon, the supporting-leg pivoted upon the door and extendible beneath the same, the supporting-leg sliding upon the door and extendible laterally thereof, the lens-support movable on the ways, and the bellows connected thereto.

4. In a camera, the combination with the casing having the film-chambers at top and bottom, and a central chamber between them having a way at the bottom, of a door hinged to the lower edge of the central chamber on a line parallel with that of the film-chamber having a way thereon, the supporting-leg near the outer portion of the door sliding laterally thereof, and movable below the edge when the camera is on its side, and a lens-support movable upon the ways, and a bellows connected thereto.

5. In a camera, the combination with the casing having the film-chambers at top and bottom, and a central chamber between them having a way at the bottom, of a door hinged to the lower edge of the central chamber on an axis parallel with that of the film-chamber having the way thereon, the folding supporting-leg hinged to the outer side of the door, and means for holding it extended at an angle to the door or parallel therewith, a lens-support movable on the ways, and a bellows connected thereto.

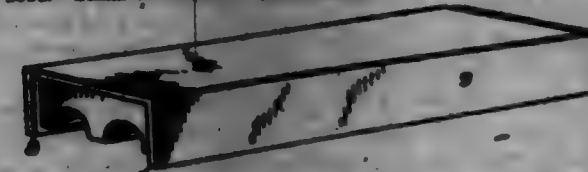
6. In a camera, the combination with the casing having the film-chambers at top and bottom, and the central chamber between them having the track-plate therein, the hinged door adapted to close the central chamber having the track-plate thereon, the lens-support movable on the track-plate, and the bellows connected thereto, said support and bellows being adapted to fold within the central chamber, of the plates at the top of the camera-casing having the loops, the handle attached to the loops, and speed-controlling devices on the plates and extending into the upper film-chamber.

7. In a camera, the combination with the casing having the central chamber provided with the way at the bottom, of the door hinged to the lower edge of the chamber and movable on the hinge to cover the chamber, ways on the door, the lens-support movable on the ways, and the bellows connected thereto the supporting-legs pivoted to the door having the longitudinal slots and provided with recesses at the ends of said slots, and the springs secured to the hinge, and the pins in the casing operating in the slots and engaged by the springs on the hinge to lock the door in extended position.

8. In a camera, the combination with the casing having the central chamber, the way therein, the door hinged to the edge of the chamber having the way thereon, and the lens-support movable on the ways, of the notched supporting-leg sliding transversely of the door near the outer

portion thereof, and the spring engaging said notches to hold the legs extended.

698,902. CUSHION. CHAMBERLAIN BROS. & CO. Ltd., London, W. Filed Dec. 8, 1901. Serial No. 64,756. (No model.)



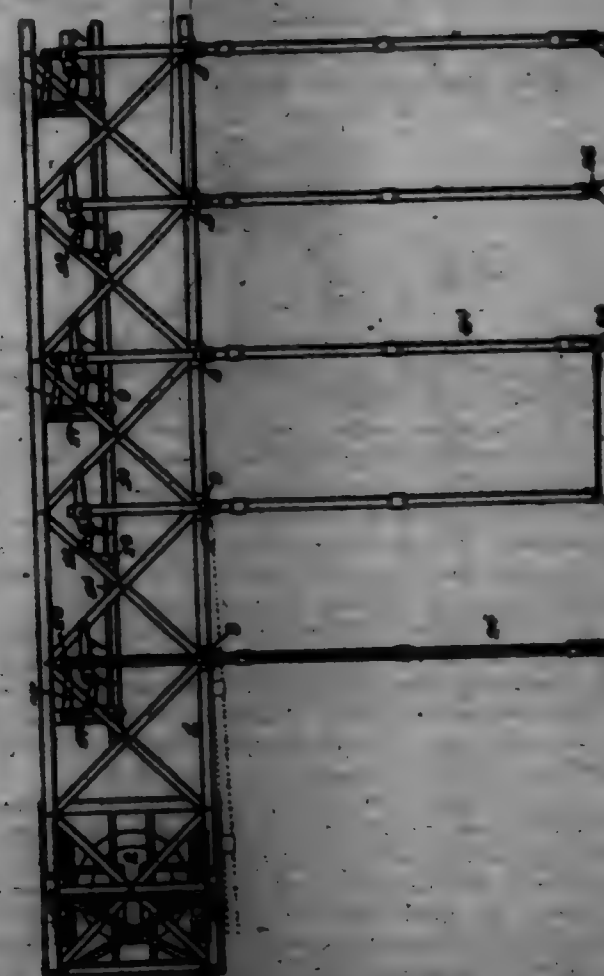
Claim.—1. A self-contained cushion made of sections composed of a single material and provided with cable-receiving grooves and end and side flanges, and each section being a complete integral body having sufficient superficial area, strength and weight to be self-supporting and to retain alignment of the sections independent of any external device; substantially as specified.

2. A cushion-section made of concrete, having its ends cut away at diagonal corners and provided with semicircular grooves in its top and bottom faces, substantially as specified.

3. A cushion-section made of concrete and having on its one end and side, flanges 2, and upon one of its faces semicircular grooves 3, in combination with two additional sections also made of concrete and having a transverse effect in each end, and semicircular grooves upon opposite sides; substantially as specified.

4. A cushion-section made of concrete and having on its one end and side, flanges 2, and upon one of its faces semicircular grooves 3, in combination with two additional sections also made of concrete and having a transverse effect in each end, and semicircular grooves upon opposite sides of said additional sections, said additional sections being also provided with marginal recesses 7 in which said side flanges 2 are located, there being a space for contact between said side flanges and the walls of the said recesses, substantially as specified.

698,903. RUBBER MACHINERY AND STARTING MACHINE. JOHN F. GARR, St. Louis, Mo. Filed Dec. 4, 1901. Serial No. 64,757. (No model.)



Claim.—1. A starting-machine having a main frame, a series of projecting hinged shafts, automatically-released front bearings for said shafts, and means for folding said shafts against the said frame, substantially as specified.

2. A starting-machine, consisting of a frame, a plurality of shafts formed by side bearings, said side bearings being hinged to the frame, and means for folding the same, substantially as specified.

3. A starting-machine, consisting of a suitable frame, a plurality of side bearings hinged to and projecting from said frame, means for folding said bearings, front bearings carried by the side bearings, a locking mechanism carried by the side bearings for holding the front bearings, and means for automatically releasing the same, substantially as specified.

4. A device of the class described, comprising a series of frames forming shafts, said frames padded and hinged to a frame, means for locking the frames in a rigid position, a locking mechanism and front bearings carried by the frames, means for releasing the front bearings, and means for releasing the frames for moving or folding the same, substantially as specified.

5. A starting-machine of the class described, consisting of a frame mounted upon tracks, a plurality of frames forming shafts pivotally connected to and projecting from said frame, a locking mechanism mounted in the frame for locking the shafts, front bearings carried by the shafts, a locking mechanism for retaining the front bearings across the shafts, and means for simultaneously releasing all the front bearings, substantially as specified.

698,904. BUSHING-PAD. HENRY CHAMBERLAIN, Brooklyn, N. Y. Filed May 2, 1901. Serial No. 64,758. (No model.)



Claim.—1. A pad for bushings, comprising a central body portion adapted to fill the shoe, a top portion of leather which overlaps the central body portion of the pad and the shoe, the body portion of the pad being also provided centrally with a cushion which is covered by the top portion of the pad, said top portion of the pad and said body portion and the central cushion being perforated, substantially as shown and described.

2. A bushing-pad composed of rubber or similar material and adapted to fill the shoe and provided with a top portion of leather which overlaps the pad and the shoe, the body portion of the pad being also provided with detachable self-holders and collars, substantially as shown and described.

3. A bushing-pad comprising a body portion which is adapted to fill the shoe, a top portion which overlaps the body portion and the shoe, a central cushion which is also covered by the top portion, said body portion being provided in the top thereof with a groove around said cushion, and said top and body portions with perforations which communicate with said groove, substantially as shown and described.

4. A bushing-pad comprising a body portion which is adapted to fill the shoe, a top portion which overlaps the body portion and the shoe, a central cushion which is also covered by the top portion, said body portion being provided in the top thereof with a groove around said cushion, and said top and body portions with perforations which communicate with said groove, the said pad being also provided just within the shoe with perforations substantially as shown and described.

5. A bushing-pad comprising a body portion which is adapted to fill the shoe, a top portion which overlaps the body portion and the shoe, a central cushion which is also covered by the top portion, said body portion being provided in the top thereof with a groove around said cushion, and said top and body portions with perforations which communicate with said groove, the said pad being also provided just within the shoe with perforations, and the top portion of the shoe and the central cushion being also perforated, substantially as shown and described.

6. A bushing-pad provided with elastic and detachable self-holders on which are on thereinto, and collars detachably secured in said holders, substantially as shown and described.

7. A bushing-pad composed of top and bottom portions, the bottom portion being provided with a groove in the top thereof and both of said portions being provided with perforations or openings which communicate with said groove, substantially as shown and described.

698,905. VALVE FOR FRICTIONLESS MACHINERY. EDWARD CLARK, Chicago, Ill. Filed July 12, 1901. Serial No. 64,759. (No model.)

Claim.—1. A valve for pneumatic medical instruments comprising a button of non-yielding material having a centrally-arranged opening therethrough, a stem of less diameter than the smallest diameter of said opening passing loosely through the latter, a valve-seat of yielding material on one face of the button, and means acting upon opposite sides of the valve for preventing any appreciable longitudinal movement thereof relatively to the stem, the arrangement being such that the valve may have a universal angular movement on the stem, for the purpose specified.



2. A valve for pneumatic medical instruments comprising a centrally-apertured button of non-yielding material, a stem of less diameter than said aperture passing freely therethrough, a valve-seat of yielding material on one face of the button, and a flexible connection between said valve-seat and button, the arrangement being such that the valve will have a universal angular movement on the stem.

3. A valve for pneumatic medical instruments comprising a centrally-apertured button of non-yielding material, a stem of less diameter than said aperture passing freely therethrough, a valve-seat of yielding material on one face of the button, and a flexible cover including the valve-seat and having a connection with the button.

4. A valve for pneumatic medical instruments comprising a stem, a valve-body loosely mounted on the stem and universally movable angularly relatively to the stem, and means carried by the stem and acting upon opposite faces of the valve to prevent the latter from moving longitudinally on the stem, for the purpose specified.

5. A valve for pneumatic medical instruments comprising a piston, a valve-body mounted loosely on the stem and universally movable angularly relatively to the stem, a flexible valve-seat disposed on one face of the valve-body, and means carried by the stem and acting upon opposite sides of the valve-body for preventing the latter from moving longitudinally on the stem, substantially as specified.

6. In a pneumatic medical instrument, the combination with a primary pneumatic valve movable wall is flexibly attached to its support, of a valve-stem secured to said movable wall, a valve loosely mounted on the stem and universally movable angularly relatively to the stem, and means carried by the stem acting upon opposite sides of the valve to prevent the latter from moving longitudinally on the stem, the arrangement being such that the valve is free to rock on its stem when it engages the valve-seat, without sliding over whatever point of its face first strikes the seat, whereby the entire face of the valve is squarely seated.

7. A valve for pneumatic medical instruments comprising a button of non-yielding material provided centrally on one side with a counter-disk and centrally perforated, a screw of less diameter than said perforation passing through the latter, the head of the screw being seated in the said counter-disk, means for yieldingly connecting the button to the screw so that it will be capable of moving freely thereon in an angular direction relatively to the stem, and means for preventing the button from moving longitudinally on the stem, substantially as described.

8. A valve for pneumatic medical instruments, comprising a valve-stem, a button mounted on the stem and freely movable in an angular direction relatively thereto, a yielding disk disposed on the face of the button, and a flexible strip extending over the face of the disk and attached to the button for holding the disk in place, substantially as described.

9. A valve for pneumatic medical instruments, comprising a valve-stem, a button mounted on the stem and freely movable in an angular direction relatively thereto, a yielding disk disposed on the face of the button, and a flexible cover extending over the face of the disk and the sides of the button, and a washer secured upon the screw against said cover, substantially as described.

10. A valve for pneumatic medical instruments, comprising a valve-stem, a button mounted on the stem and freely movable in an angular direction relatively thereto, a yielding disk disposed on the face of the button, and a flexible cover extending over the face of the disk and the sides of the button, and a washer secured upon the screw against said cover, substantially as described.

11. A valve for pneumatic medical instruments, comprising an adjusting-screw, a rigid button provided centrally with a perforation larger than the screw through which the latter passes whereby the button is freely movable on the screw in an angular direction relatively to the latter, a yielding disk disposed on the face of the button, a flexible cover extending over the face and sides of the disk and attached to the sides of the button, and a washer secured upon the screw against said cover, substantially as described.

12. A valve for pneumatic medical instruments, comprising an adjusting-screw, a wooden button provided centrally with a perforation larger than the screw through which the latter passes whereby the button is freely movable on the screw in an angular direction relatively to the latter, a yielding disk disposed on the face of the button, a flexible cover extending over the face and sides of the disk and attached to the sides of the button, and a relatively small washer secured upon the screw against the leather cover, substantially as described.

13. A valve for pneumatic medical instruments, comprising a cylindrical wooden button provided centrally on one side with a counter-disk and centrally perforated, a disk disposed on the other side of the button, a thin leather cover extending over the face and sides of the disk and connected to the sides of the button, a screw of less diameter than the said perforation and passing through the latter, the disk and the cover, whereby the valve is freely movable on the screw in an angular direction relatively to the latter, and a relatively small leather washer secured upon the screw against the said cover, the head of the screw being seated in the said counter-disk, substantially as described.

14. A valve for pneumatic medical instruments, comprising a valve-stem, a button yieldingly connected to the stem and freely movable in an angular direction relatively thereto, said button being cushioned on its opposite faces, substantially as described.

698,906. NON-DEPRESSIBLE BOTTLE. FRANK H. COTTER, Boston, Pa. Filed Jan. 11, 1902. Serial No. 95,857. (No model.)



Claim.—1. In combination with a bottle provided with a shoulder in its neck and two oppositely-arranged grooves or channels in said shoulder, of a stopper fitting therein and having a spring-actuated pivoted lever or bar upon its lower edge to engage the shoulder.

2. In combination with a bottle having an inclined projection in the neck thereof and two oppositely-arranged grooves or channels in said projection, of a stopper thereto consisting of an inverted truncated conical body adapted to fit in the inclined projection of the neck, and a spring-actuated pivoted bar or lock carried upon the lower end of the body and adapted to engage the under side of the inclined projection.

3. In combination with a bottle having a neck provided with an inclined projection and two oppositely-arranged channels or grooves, of a stopper comprising a truncated conical body, a pair of oppositely-arranged legs formed integral with the body and adapted to fit in the grooves of the neck, and a spring-actuated lock mounted upon the lower end of the body adapted to hold the body in place in the neck.

4. In combination with a bottle having an inclined projection provided with two oppositely-arranged channels or grooves, of a stopper comprising a truncated conical body, two oppositely-arranged wings or legs formed integral with the body and adapted to fit in the channels of the neck, a bar or arm pivoted to the lower end of the body adapted to be in line with the legs when the stopper is being inserted, and a spring adapted to operate said lock to throw it out of line with the legs when the stopper is inserted.

698,907. BOTTLE-CLOSURE. JAMES BAKER, Aberdeen, Scotland. Filed June 25, 1901. Serial No. 95,904. (No model.)

Claim.—1. A bottle closure or stopper, having a cap-plate provided on the inside with a hollow central plug provided adjacent to the bottom with an annular groove topped by an outwardly-extending annular flange,

a washer of elastic material located in the annular groove, and means co-acting with the outwardly-extending annular flange for locking the stopper in position in the bottle, substantially as shown and described.

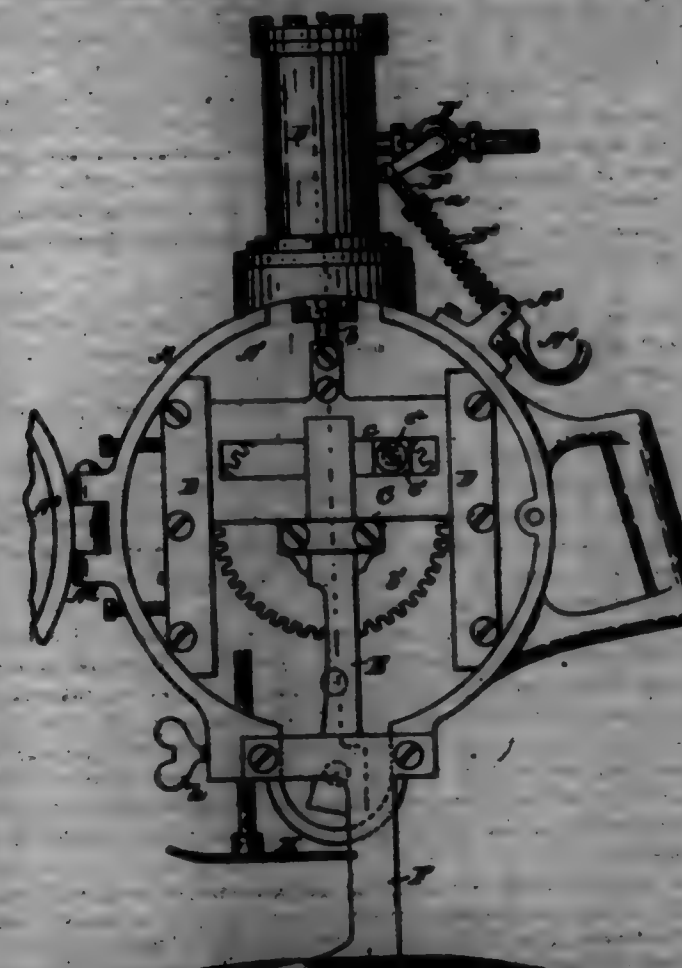


2. A bottle closure or stopper, having a cap-plate provided on the inside with a hollow central plug provided adjacent to the bottom with an annular groove topped by an outwardly-extending annular flange, a washer of elastic material located in the annular groove, a covering of flexible protective material for the washer, and means co-acting with the outwardly-extending annular flange for locking the stopper in position in the bottle, substantially as shown and described.

3. In a bottle closure, the combination with a bottle provided adjacent to the neck-cribs with two legs extending from the bottle-neck on opposite sides provided with square bases and an oppositely-arranged sloping surface curving gradually toward and merging into the bottle-neck at the upper end, and perforations having formed in and through the side of the bottle-neck adjacent to the legs, of a stopper provided at the inner end with an annular ring of elastic packing material, a flange located above the ring of elastic packing material, and a spring-hall with inwardly-turned ends, which ends are adapted to pass through the perforations and into the neck-cribs above the flange of the stopper so as to hold the same in place, substantially as shown and described.

4. A bottle closure or stopper having an outer top cap-plate adapted to shut upon the outer end of the bottle-cribs, an annular flange extending inward from the cap-plate and adapted to fit snugly into the bottle-cribs, a central plug extending forward from the cap having an annular groove at the inner end, a ring of elastic packing material carried by the groove, and means for securing the stopper in place in the bottle, substantially as shown and described.

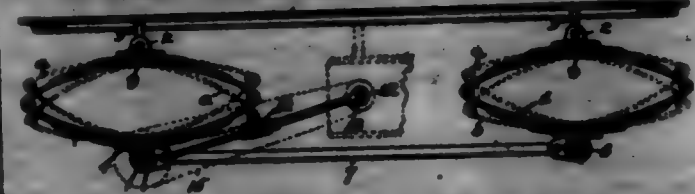
698,908. CLOTH-CUTTING MACHINE. FRANK BAKER, Boston, Mass. Filed Sept. 7, 1901. Serial No. 94,642. (No model.)



Claim.—In a cloth-cutting machine a cylinder, a piston, a cross-head attached to said piston, said cross-head being provided with means for connecting a knife thereto to reciprocate therewith, said cross-head being

provided with a slot, in combination with a rotary gear carrying a cam-pin adapted to reciprocate in said slot, and said casing being provided with a bearing for a rotary shaft, in combination with means connecting said rotary shaft with said gear whereby said machine may be rendered convertible from a rotary cutting-machine to a reciprocating cutting-machine, as described.

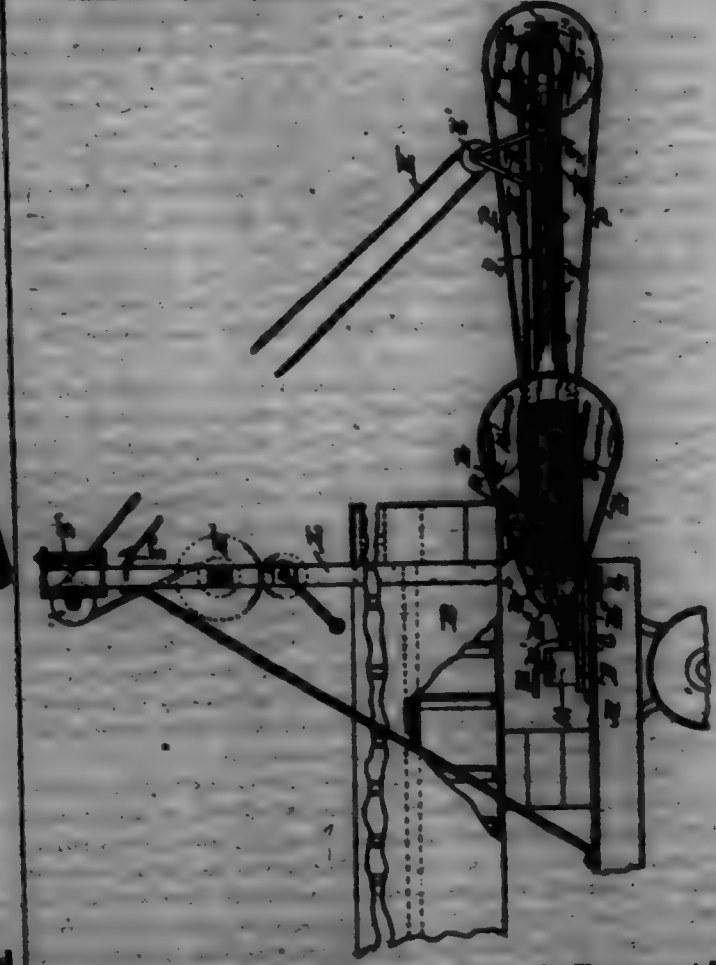
698,909. AUTOMOBILE. GEORGE F. DUNN, St. Louis, Mo., assignor of one-half to St. Louis Motor Carriage Co., St. Louis, Mo. Filed Oct. 10, 1900. Serial No. 23,614. (No model.)



Claim.—1. In a motor-vehicle, a plurality of springs; hinge-blocks fixed to the upper sides of the springs; hinge-brackets connected to the hinge-blocks; a frame or bed connected to the hinge-brackets; bearing-blocks connected to the lower sides of the springs; axle rotatably mounted in said bearing-blocks; rockers connecting the forward bearing-blocks to the corresponding rear bearing-blocks, said rockers being pivotally mounted; hinge-collars mounted upon the rear axle; a crank-shaft mounted upon the frame; a crank-rod connecting the hinge-collars to the crank-shaft; a sprocket-wheel upon the rear axle; a sprocket-wheel upon the crank-shaft; and a chain connecting the sprocket-wheel on the crank-shaft with the sprocket-wheel on the rear axle, so that the sprocket-chain is loosened or tightened, substantially as specified.

2. In a motor-vehicle, a running-gear having the forward axle and rear axle rigidly connected by hinged rockers; springs pivotally mounted upon said axle; hinges extending forwardly from said springs; a wagon-bed connected to said hinges; a crank-shaft mounted in the frame or wagon-bed; a sprocket-wheel upon said crank-shaft; a sprocket-wheel upon the rear axle; a chain connecting said sprocket-wheels; and an adjustable or turntable connection between the running-gear and the bed as required to move the running-gear forwardly or backwardly in a body relative to the bed, so as to tighten or loosen the sprocket-chain, substantially as specified.

698,910. CONVEYER ATTACHMENT FOR MIXING-MACHINES OR THE LIKE. GEORGE T. DRAKE, Chicago, Ill. Filed June 7, 1901. Serial No. 95,929. (No model.)



Claim.—1. In combination with a mixer or the like, a turn-table thereon, brackets on the turn-table, side bars pivoted to said brackets, a

rotatable shaft extending through and constituting a pivotal connection between said side bars and brackets, a roller mounted at the end of said side bars, a corresponding roller mounted in the brackets beneath the discharging end of the mixer and beyond the pivotal points of the side bars, a conveyor-belt passing over said rollers, means for communicating power to said rotatable shaft, and driving instrumentalities for operating said belt from said rotatable shaft, substantially as described.

2. In combination with a mixer, a conveyor comprising a suitable support, brackets on said support, a roller mounted in said brackets, a supporting-frame, a roller mounted at the free end of said frame, a conveyor-belt passing around the two rollers, and a rotatable shaft extending through and constituting a pivotal connection between the supporting-frame and the brackets located at a point intermediate the rollers, and driving mechanism for operating the belt from said rotatable shaft, substantially as described.

3. In combination with a mixer, a conveyor comprising a suitable support, brackets on said support, a roller mounted in said brackets, side bars, a roller mounted at the end of said side bars, a belt passing around both rollers, a pivotal connection between the side bars and the brackets comprising projecting studs on the side bars, and spindles on the brackets in which the studs are adapted to rotatably engage, substantially as described.

4. The combination with a mixer, of a turn-table mounted thereon beneath the discharging end thereof, brackets secured to and extending outwardly from said turn-table, a conveyor-frame pivotally supported by said brackets, a conveyor-belt guided upon said frame, a motor mounted upon said turn-table intermediate of said brackets, and power connections between said motor and conveyor-belt whereby the latter is driven.

5. The combination with a mixer, of a turn-table mounted thereon beneath the discharging end thereof, brackets secured to and projecting outwardly from said turn-table and adapted to be shifted therewith, a conveyor-frame pivotally secured to said brackets, guide-rollers in said brackets and said frame, an endless conveyor-belt passing around said rollers, and a motor operatively connected to said conveyor-belt and mounted upon the turn-table so as to be shifted therewith.

6. In combination with a mixer or the like, a conveyor projecting outwardly therefrom, means for permitting a lateral swinging movement thereof, means for permitting a vertical swinging movement thereof, means for raising and lowering the conveyor comprising a rope communicating with the outer end thereof, vertical standards on the mixer-frame, means supported by said standards for operating said rope, and a pair of vertical guides and a horizontal guide supported by said standards between which the rope passes to preserve a proper alignment between said operating-rope and its operating means irrespective of the lateral movement of the conveyor, substantially as described.

7. In a device of the character described, the combination with a suitable support, of side bars pivotally connected to said support, guide-rollers journaled in said support and in the outer ends of said side bars respectively, a rotatable shaft passing through said side bars and said support and constituting the pivotal connection between said bars and support, a conveyor-belt passing around said rollers, sprocket-wheels on one end of said shaft and the corresponding end of the roller journaled in the outer end of said side bars, a sprocket-chain connecting said sprocket-wheels, means for imparting a proper tension to the conveyor-belt and to the sprocket-chain comprising journal-bases for the roller slightly mounted in the ends of the side bars, means for adjusting said bases, and means for communicating power to said rotatable shaft, substantially as described.

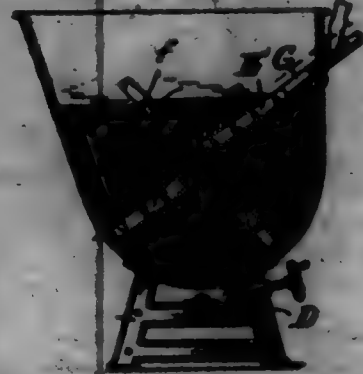
8. In combination with a mixer or the like, a turn-table mounted thereon, brackets on said turn-table, a supporting-frame secured to said brackets, rollers in the supporting-frame and brackets respectively, a conveyor-belt passing around said rollers, means for operating said conveyor-belt, and a funnel-shaped hopper supported upon the brackets above the belt and adapted to receive the discharge from the mixer, substantially as described.

9. In combination with a mixer or the like, a turn-table mounted thereon, brackets extending from said turn-table, a supporting-frame pivotally connected to said brackets, rollers in the supporting-frame and brackets respectively, a conveyor-belt passing around said rollers, a motor on the turn-table adapted to be shifted therewith, and gearing instrumentalities in communication with the motor and one of the belt-rollers cooperating to operate the belt, substantially as described.

10. In combination with a mixer or the like, a turn-table mounted thereon, brackets on said turn-table, a supporting-frame pivotally connected to said brackets, rollers in said brackets and supporting-frame respectively, a motor mounted on the turn-table and adapted to be shifted therewith, means for establishing communication between said motor and the outer belt-roller comprising a shaft passing through the pivotal points of the supporting-frame and the brackets, sprocket-wheels at the opposite ends of said shaft, a sprocket-wheel on the outer belt-roller, a chain passing

over said last-mentioned sprocket-wheel and one of the sprocket-wheels on the shaft, and a chain passing over the sprocket-wheel at the opposite end of the shaft and in operative connection with the motor, all substantially as shown and described.

698,911. DOUGLAS MIXER AND CONVEYER. EMERY A. DOL, JR., Charleston, S. C. Filed Aug. 29, 1891. Serial No. 73,097. (No model.)



Claim.—1. In a dough mixer and kneader, the combination of a hopper or receptacle, a stationary hollow member therein having openings for the escape of air, and a revolving hollow member therein also having openings for the escape of air and adapted to move past the stationary member, whereby air is sucked into the dough and kneaded therein substantially as described.

2. In a dough mixer and kneader, the combination of a series of hollow members having openings for the escape of air, and a corresponding series of hollow members having openings for the escape of air and adapted to alternate with and work between the first series of members, whereby cavities are alternately formed and closed in the dough and air sucked therein through the hollow members for the purpose and substantially as described.

3. In a dough mixer and kneader, the combination of a series of hollow members, and another series of hollow members adapted to work between and intermediate the first series of members, all said members having openings for the escape of air for the purpose and substantially as described.

4. In a dough mixer and kneader, the combination of a hopper, a stationary series of parallel horizontally-arranged hollow members therein having openings for escape of air, and a movable series of hollow parallel members therein having openings for escape of air adapted to work between and intermediate the first series of members, and means for supplying air, *do.*, to said members, substantially as described.

5. In a dough mixer and kneader, the combination of a hopper, a series of parallel hollow members stationary mounted therein, and a second series of correspondingly-arranged hollow members rotatably mounted in the hopper, the members of one series being arranged to work intermediate the members of the first series, and all having openings for escape of air, with means for rotating the second series of members, substantially as described.

6. In a dough mixer and kneader, the combination of a hopper, a rotatable shaft, hollow arms thereon provided with projecting hollow fingers having openings for the escape of air, and non-rotatable hollow arms provided with hollow fingers having openings for the escape of air cooperating with the rotating arms and fingers, for the purpose and substantially as described.

7. In a dough mixer and kneader, the combination of a hopper, a stationary series of hollow arms provided with parallel hollow fingers, and a series of movable hollow arms provided with hollow fingers adapted to coast with the non-rotating fingers, said arms and fingers having openings for the escape of air, and means for rotating said movable arms and fingers, substantially as described.

8. In a dough mixer and kneader, the combination of a hopper, a hollow shaft therein, a sleeve on said shaft within the hopper provided with radially-projecting hollow arms communicating with the hollow shaft, and parallel series of fingers projecting from said arms, with rotary bases on said shaft comprising hollow radial arms communicating with the shaft and provided with series of hollow parallel fingers adapted to alternate with and pass between the fingers on the first-mentioned arm, said arms and fingers having openings for the escape of air, substantially as described.

9. In a dough mixer and kneader, the combination of a hopper, a feed pipe or nozzle attached thereto, a rotary shaft passing axially through the hopper, a hub or sleeve on said shaft provided with oppositely radially-projecting tubular arms having series of tubular fingers projecting horizontally therefrom, and a hub keyed on the shaft provided with radial tubular arms from which spring horizontally-disposed series of tubular

for fingers adapted to pass between the fingers on the stationary arm, said arms and fingers communicating and having openings for the escape of air, substantially as described.

10. In a dough mixer and kneader, the combination of a hopper, a rotatable shaft, a series of rotating hollow arms thereon provided with projecting hollow triangular fingers having openings for the escape of air, and a series of non-rotatable hollow arms provided with triangular hollow fingers having openings for the escape of air cooperating with the rotating arms and fingers, for the purpose and substantially as described.

11. In a dough mixer and kneader, the combination of a hopper, a stationary series of hollow arms provided with parallel triangular hollow fingers, and a second series of rotating hollow arms provided with triangular hollow fingers adapted to coast with the non-rotating fingers, said fingers having openings for the escape of air in their bases, means for rotating the second series of arms, and means for supplying air, *do.*, to said arms and fingers, substantially as described.

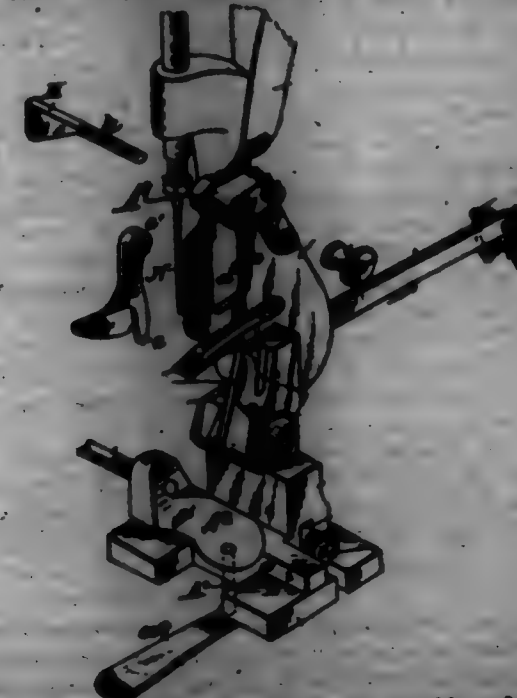
12. In a dough mixer and kneader, the combination of a hopper, a series of parallel horizontally-arranged hollow fingers stationary mounted therein, and a second series of correspondingly horizontally-arranged hollow fingers rotatably mounted in the hopper, the fingers of one series being arranged to work intermediate the fingers of the first series, said arms and fingers being composed of two castings each triangular in cross-section, substantially as described.

13. In a dough mixer and kneader, the combination of a hopper, a feed pipe or nozzle in one side thereof, a rotary shaft passing axially through the hopper, a stationary hub or sleeve loosely mounted on said shaft provided with oppositely radially-projecting tubular arms having series of tubular fingers projecting horizontally therefrom, one of said arms communicating with said nozzle, with a hub keyed on the shaft provided with radial tubular arms from which spring horizontally-disposed series of tubular fingers adapted to pass between the fingers on the stationary arm, all said arms and fingers communicating through their hubs, substantially as and for the purpose set forth.

14. In a dough mixer and kneader, a hollow stirring member composed of two hollow or channelled castings fitted one within the other, so as to leave an air-channel therebetween, substantially as and for the purpose set forth.

15. In a dough mixer and kneader, the combination of a hopper or receptacle, with a hollow stirring member composed of an arm provided with a series of parallel fingers, said arms and fingers being angular in section and composed of two hollow or channelled castings fitted one within the other, substantially as and for the purpose described.

698,912. TRIMMING ATTACHMENT FOR SEWING-MACHINE. BENJAMIN F. DURAND, Paris, France, assignor to The Union Special Sewing Machine Co., Chicago, Ill., a Corporation of Illinois. Filed Apr. 12, 1901. Serial No. 55,000. (No model.)



Claim.—1. The combination with a sewing-machine, of a bracket in sliding connection at its lower and upper ends respectively with the bed-plate and head, means for adjusting the bracket toward and from the needle, means for securing the bracket to the bed when adjusted, and a trimming mechanism mounted on the bracket and operatively connected with a moving part of the sewing-machine, substantially as described.

2. The combination with a sewing-machine, having a feeding mechanism including a feed-roller, of a bracket in sliding connection with the

bed-plate and provided with means for adjusting it laterally toward and from the needle, a pair of toggle-like trimming-jaws mounted on the bracket, and a link connection between one of the jaws and the feed-roller of the machine to operate the trimming-jaws, and permit adjustment of the bracket, substantially as described.

3. The combination with a sewing-machine, of a bracket in sliding connection with the bed-plate and provided with means for adjusting it laterally toward and from the needle, a pair of toggle-like trimming-jaws mounted on the bracket, and a link pivoted to one of said jaws, and having a pivotal and sliding connection with the feed-roller of the sewing-machine, substantially as described.

4. The combination with a sewing-machine, including a feed-roller at the rear, provided with an arm having a forked upper end, of a bracket in sliding connection with the bed-plate and machine-head as at *a*, means for adjusting the bracket laterally toward and from the needle, toggle-like trimming-jaws mounted on the bracket, and a link pivoted at its forward end to one jaw and at its rear end provided with a pivot-pin turning and sliding in said forked feed-roller arm, substantially as described.

698,913. CULTIVATOR. WILLIAM C. SWANER, Astoria, Ore. Filed Jan. 15, 1891. Serial No. 49,295. (No model.)



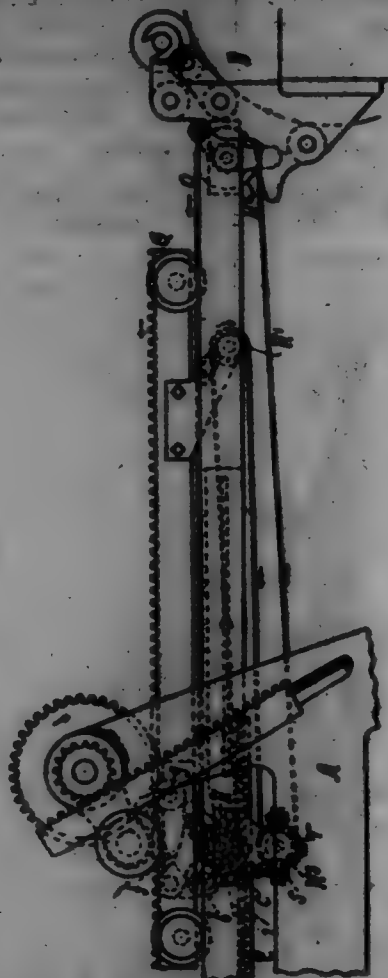
Claim.—1. In combination with the triangular frame of the walking-cultivator, the draft appliance at the apex of the frame, the cultivator-shovels applied to the sides of the frame, the supporting-wheels at the rear end of each side of the frame, and the steering-wheel located at the rear end of the frame and arranged intermediate of the supporting-wheels, and consisting of a peripherally-sharpened rotary disk, and a hand-operated tiller connected rigidly to the steering-wheel frame and extending rearwardly therefrom.

2. In a cultivator, the combination with a triangular frame, cultivator-shovels located at opposite sides of the frame and flukes carried by the frame and disposed at the outer sides of the shovels and in close proximity to the ground, of a steering-wheel located at the rear end of the frame and having a sharpened periphery designed to enter the ground, means for shifting the position of the steering-wheel to guide the cultivator without necessity for tilting the latter, and supporting devices for the cultivator-frame, said devices being located at the rear end of the frame and at opposite sides of the steering-wheel, to prevent the tilting of the cultivator-frame, whereby the flukes are prevented from entering the ground, and the steering-wheel is prevented from penetrating the ground to more than a predetermined depth.

3. In a cultivator, the combination with a triangular frame, cultivator-shovels carried at the opposite sides thereof, and flukes carried to the opposite sides of the cultivator-frame in advance of the shovels, and extending obliquely beyond the outer sides of the shovels and in close

proximity to the ground, of a steering-wheel located at the center of the rear end of the frame to guide the cultivator without necessitating tilting of the latter, said steering-wheel having a sharpened periphery designed to enter the ground, vertically-disposed cheeks located in the opposite sides of the rear end of the frame, supporting-wheels carried by said cheeks to prevent the tilting of the frame, and the penetration of the ground by the fender, said supporting-wheels also serving to limit the penetration of the ground by the steering-wheel, and means for shifting the steering-wheel to effect the steering of the cultivator.

698,914. **GRASS-DRIVING APPARATUS.** GEORGE F. FISHER, New London, Conn. Filed Apr. 19, 1901. Serial No. 94,692. (No model.)



Claim.—1. A delivery apparatus for printing-machines comprising a reciprocating tape-carriage and tape-roller, and a pressure-roller made to act on a tape-roller to one side of the tape line so as to cause a sheet having the tape-roller to reverse or curve about said roller substantially as described.

2. A delivery apparatus for printing-machines comprising a reciprocating tape-carriage and tape-roller, a pressure-roller made to act on the tape, a reverser, and a brake or friction appliance made to engage one of the rollers for checking the movement of the tape substantially as described.

3. A delivery apparatus comprising a reciprocating tape-carriage and tape-roller, a pressure-roller made movable toward and from the tape, a reverser or curler, and a support or bracket for the pressure-roller and reverser carried by said carriage substantially as described.

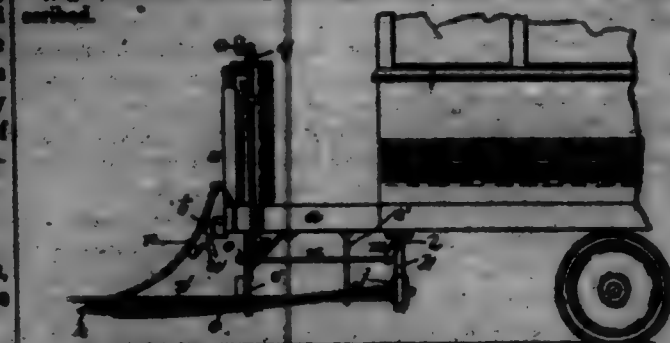
4. A delivery apparatus comprising a reciprocating tape-carriage provided with tape-roller and tape, a ratchet-and-gear connection for one of the rollers to give increased speed to the tape during the forward travel of the carriage, and a sheet-reverser substantially as described.

698,915. **CAR-FENDER.** WILLARD F. FINE, Boston, Mass. Filed July 15, 1900. Serial No. 23,398. (No model.)

Claim.—1. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and slidable thereon to and from a position beneath the car-platform; latching means normally holding the front of the fender elevated; and means for releasing said latching means, substantially as described.

2. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and slidable thereon to and from a position beneath the car-platform; latching means normally holding the front of the fender elevated; and a fender extending forwardly beyond the fender and being inwardly movable relative thereto, said fender engaged with the support arm, substantially as described.

3. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and slidable thereon to and from a position beneath the car-platform; latching means normally holding the front of the fender elevated; and comprising a weighted swinging arm depending from the car-platform and having a catch; and means for releasing said latching means.



4. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and slidable thereon to and from a position beneath the car-platform; latching means normally holding the front of the fender elevated; and comprising a weighted swinging arm depending from the car-platform and having a catch; and a fender extending forwardly beyond the fender and being inwardly movable relative thereto, said fender engaged with the support arm, substantially as described.

5. A car-fender pivotally engaged with its support at the rear, a latch for holding it in raised position, and means for releasing the latch by the operation thereof of the power-controller.

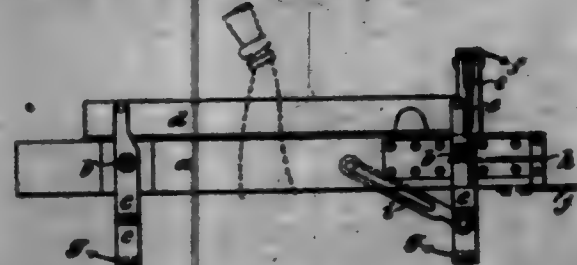
6. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and slidable thereon to and from a position beneath the car-platform; latching means normally holding the front of the fender elevated; and means operated by the power-controller for releasing said latching means, substantially as described.

7. A car-fender pivotally engaged with its support at the rear, a latch for holding it in raised position, and means for releasing the latch by the operation thereof of the power-controller; said means comprising a vertical rock-shaft having an arm at its upper end extending in the path of the controller-handle, and suitable connection between said shaft and the latch, substantially as described.

8. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports and having a rearward projection; a weighted arm having a catch to engage said projection and hold the forward part of the fender elevated; a vertical shaft extending through the car-platform and alongside the controller and having an arm at the upper end projecting into the path of the controller-handle and a crank-arm at its lower end; and a rod connecting said crank-arm with the weighted arm, substantially as and for the purpose described.

9. The combination with a car-platform and supports thereunder, of a fender pivotally engaged with said supports; a latch for holding the fender normally elevated; a fender projecting in front of the fender and movable relatively thereto, said fender engaging the latch; and means connected with the latch and cooperating with the controller, substantially as described.

698,916. **BREAD-CUTTER.** AUGUST FIEBIGER, Remer, Germany. Filed Dec. 5, 1901. Serial No. 94,947. (No model.)



Claim.—In a bread-cutter, the combination with a base-plate having at one end a slot A, of feet c having three upwardly-extending elongations, shaft b connecting said feet, a ledge d connecting two of said elongations, and a knife or blade attached to the third elongation, all the movable parts thus constructed being adapted to be turned so as to bring the blade opposite, and into, said slot, as set forth.

698,917. **BANDAL.** JAMES F. PATT, Chicago, Ill., assignor of one-half to John Keller, Chicago, Ill. Filed Nov. 15, 1901. Serial No. 95,704. (No model.)

Claim.—1. In a model designed to be secured to the bottom of a boat or ship, in combination, a cable and a heel portion of wood connected by an insulating portion, the cable portion comprising a plurality of articulated sections, a wire passing through the sections and secured at its ends to the cable-sections adjacent to the insulating portion a two-rod, and a clamp for securing the model in place.



2. In a model, in combination, a cable and a heel portion of wood connected by an insulating portion, the cable portion comprising a plurality of sections one end of each section having a curved transverse groove which receives the rounded end of the adjacent section, a wire passing through the sections and connecting them to the insulating portion, and a clamp for securing the model to a ship.

698,918. **MACHINE FOR DRIVING LEATHER.** ERNEST FISHER, Cincinnati, Germany. Filed Sept. 24, 1901. Serial No. 75,234. (No model.)



Claim.—1. In a machine for driving leather, the combination, with a ring-shaped knife, of a feed-roller, a shaft supporting the same, a second shaft connected at an angle with the first, a sleeve connected at an angle with the bearing of said second shaft, adjusting means connected with said second shaft, and adjusting means connected with said sleeve, substantially as set forth.

2. In a machine for driving leather, the combination, with a ring-shaped knife and a feed-roller, of a guide-plate, and means for adjusting said guide-plate horizontally or obliquely to said feed-roller, substantially as set forth.

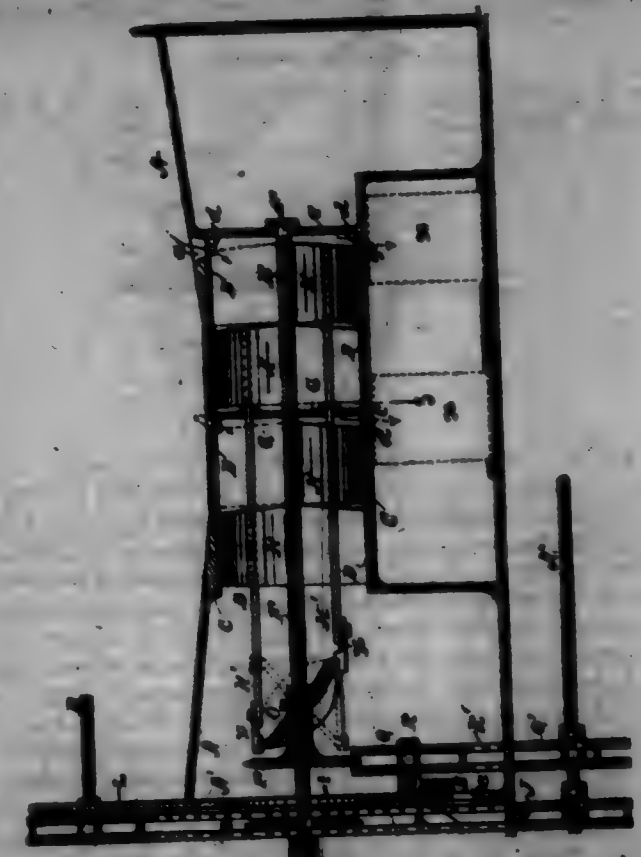
3. In a machine for driving leather, the combination, with an annular driving-knife and means for rotating the same, of a feed-roller provided on an adjustable shaft, a horizontally-arranged guide-plate, means for adjusting said guide-plate in inclined position to said driving-knife, and means for adjusting said feed-roller in parallel position with said guide-plate, substantially as set forth.

4. In a machine for driving leather, the combination, with an annular driving-knife provided with a central spindle, of a driving-shaft having a central socket for said spindle, a threaded sleeve fixed on said driving-shaft, a screw-nut for engaging said threaded sleeve, and a wedge-bar for rotating said screw-nut to impart longitudinal motion to said shaft and driving-knife, substantially as set forth.

698,919. **SKIN-FILLING MACHINE.** LEONARD S. FRIEDMAN, Boston, Ill. Filed June 12, 1901. Serial No. 95,000. (No model.)

Claim.—1. The improved skin-filling machine, comprising a hopper

provided with a discharge-orifice, a fixed cylinder having a coincident opening and a discharge-orifice at the lower side, a rotatable cylinder arranged within the fixed cylinder, and provided with a transverse partition or diaphragm, pistons arranged slidably on opposite sides of the partition, and means for rotating the cylinder containing the pistons and for reciprocating said pistons in opposite directions alternately with each rotation, substantially as shown and described.



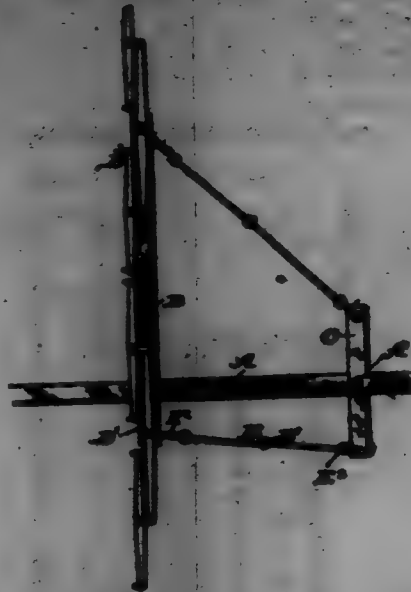
2. The improved skin-filling machine, comprising a hopper, a fixed cylinder provided with coincident orifices, a rotatable cylinder arranged in the fixed cylinder and provided with diametrically opposite induction and discharge orifices adapted to be brought into coincidence with the orifices of the fixed cylinder, a horizontal partition arranged in the rotatable cylinder, a rotatable shaft arranged concentrically in the rotatable cylinder, pistons arranged on opposite sides of the partition, a rotatable cam for imparting simultaneous reciprocation to the two pistons in opposite directions, and means for rotating the said shaft and cam, alternately, substantially as shown and described.

3. The improved skin-filling machine, comprising a hopper and a fixed cylinder with two sets of orifices as specified, a rotatable cylinder having two sets of orifices for reception and discharge of the feed article, said orifices being arranged diametrically opposite and adapted to be brought into coincidence with the discharge-orifices of the hopper and fixed cylinder, a longitudinal, central partition arranged in the rotatable cylinder and dividing the same into two compartments, a pair of pistons arranged in the two opposite sets of compartments, those of each pair being on opposite sides of the said partition and duly spaced apart, and means for reciprocating the two sets of pistons simultaneously, but in opposite directions, and for rotating the cylinder with the contained partitions and pistons, the reciprocation and rotation being alternate and both intermittent, substantially as shown and described.

4. In a skin-filling machine, the combination, with a fixed cylinder, of a rotatable cylinder arranged therein, and two semi-cylindrical pistons arranged in said rotatable cylinder, means for reciprocating said pistons, a shaft for rotating the cylinder and its contained pistons, a fixed frame having a removable bar constituting a bearing for said shaft and extending across an opening in said frame, which opening is aligned with the rotatable cylinder and has a greater diameter than the latter, whereby the rotatable cylinder and its attachments may be removed bodily through said opening, substantially as shown and described.

5. In a skin-filling machine, the combination, with a rotatable hopper and a fixed cylinder communicating therewith, of a rotatable cylinder arranged in said fixed cylinder, a shaft for imparting rotation thereto, pistons adapted to slide in the rotatable cylinder, a cam, a sprocket-wheel for rotating the said cam, gearing adapted for rotating said sprocket-wheel and cam alternately, a vertically-adjustable support for each piston and shaft, and the frame or casing having an end opening adapted to permit removal bodily of the rotatable cylinder and its connections, substantially as shown and described.

698,990. DRAFT-SQUAVER. THOMAS F. FOLEY and JAMES J. FOLEY, Dayton, Ohio. Filed Aug. 21, 1901. Serial No. 73,773. (No model.)



Claim.—1. The draft-squaver herein described, consisting of the beam pivoted between its ends, the main beam made longer than the rear beam and arranged at one end in line with the corresponding end of the rear beam and projecting at its other end laterally beyond the corresponding end of the rear beam, the connecting-rod between the said main and rear beams at their ends, one of said connecting-rods extending parallel with the line of draft, and the other connecting-rod extending oblique to the line of draft, and the bearing connected to the main beam relatively near to the end thereof, which is in line with the corresponding end of the rear beam and constructed and adapted to slide along the tongue of the slider, substantially as and for the purposes set forth.

2. In a draft-squaver, the combination substantially as described of the slider-tongue, the rear beam pivoted between its ends thereto, the main beam arranged at one end in line with the corresponding end of the rear beam and extending at its other end laterally beyond the other end of the rear beam, the box on the outer side of the main beam near one end thereof and embracing the slider-tongue whereby the main beam can slide along said tongue, and connections between the ends of the main and rear beams, substantially as set forth.

3. In a draft-squaver, the combination of the slider-tongue, the rear beam pivoted midway between its ends to the slider-tongue, the main beam held to and slidable along the slider-tongue at a point near one end of its end, and devices connecting the ends of the main and rear beams, substantially as set forth.

4. The draft-squaver herein described, comprising the main beam provided near one end with the box and arranged to embrace and slide along the slider-tongue, the rear beam made shorter than the main beam and pivoted between its ends to the slider-tongue at a point in line with the center of the box of the main beam, the rod connections composed of joined sections and secured at their rear ends to the rear beam, and the device connecting the front ends of the rod connections with the main beam, substantially as set forth.

5. A draft-squaver comprising the main beam provided at a point relatively near one end with a box arranged to embrace and slide along the tongue, the rear beam made shorter than the main beam and pivoted between its ends to the tongue at a point approximately in line with the center of the box of the main beam, the rod connections between the main and rear beams at one end thereof and approximately in line with the line of draft, and the opposite rod connection connecting the other ends of the main and rear beams, and arranged obliquely to the line of draft, substantially as set forth.

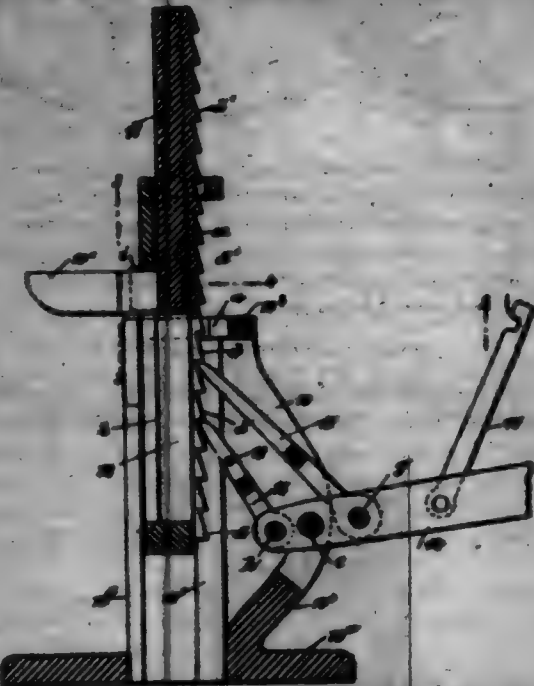
698,991. BOOK-BINDER. WILLIAM FOLEY, Cincinnati, Ohio. Filed Feb. 17, 1902. Serial No. 94,909. (No model.)



Claim.—In a book, the combination with the stitched signatures and lay-cords thereof, of the stitching-thread formed with a double loop

around the lay-cords at each end of each signature and the intermediate thread drawn through the side of the signature, and looped around the intermediate lay-cord, substantially as shown and described.

698,992. LIFTING-JACK. FRED H. FORD, Jacksonville, Fla., assignor of one-half to John H. Hill, Jacksonville, Fla. Filed Aug. 20, 1901. Serial No. 73,774. (No model.)



Claim.—1. In a lifting-jack, the combination with a frame, of upright posts slidable one in the other, a lever pivoted on the frame, and two pawls carried by the lever and adapted to engage with teeth on the posts for their elevation, substantially as shown and described.

2. In a lifting-jack, the combination with a frame, two posts vertically slidable on the frame one within the other, teeth on said posts, a lever pivoted on the frame adjacent to one end of the lever, a pawl pivoted on the lever at one side of the pivot of said lever, and a shorter pawl pivoted on the lever at the opposite end thereof, said pawls engaging the teeth of the posts.

3. In a lifting-jack, the combination with a frame, of two posts one slidable in the other, a series of teeth on each post, a long pawl, and a shorter pawl respectively pivoted at opposite sides of the lever-pivot, the teeth of the pawls engaging separated teeth on the posts one pawl descending while the other pawl pushes upon a tooth of a post.

4. In a lifting-jack, the combination with a frame, of two posts one slidable in a slot of the other post, a foot-piece projected from one of the posts near its lower end, a series of teeth on each post, a lever pivoted near one end thereof between the sides of the frame, a long pawl pivoted on the lever outside of the frame, another shorter pawl pivoted on the lever at the end that is nearest to the posts, the pawls having engagement with the teeth of the posts but simultaneously moving in opposite directions.

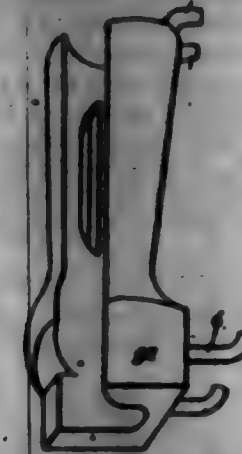
5. In a lifting-jack, the combination with a frame, of two posts one post slidable in the other, a foot-piece extended outwardly from the post that is located in the wider post, a series of downwardly-hooking teeth on the front face of each post, a lever pivoted near one end thereof between the sides of the frame, a long pawl pivoted on the lever inclining upward and toward the teeth of the posts for engagement therewith, a shorter pawl pivoted on the inner end of the lever and at the opposite side of the lever-pivot from that occupied by the pivot of the long pawl, on one pivoted on the lever and having a hook on the free end, and a pin projected at one side of the shorter pawl, whereon the hook of the arm may engage.

6. In a lifting-jack, the combination with a frame, two posts slidable one in the other, and together in the frame, two detent-dogs on one post adapted to engage in notches on the other post near the lower end thereof, and teeth on each of the posts, of a lever pivoted on the frame, adjacent to one end of the lever, a pawl pivoted on the lever at one side of the pivot of said lever, and a shorter pawl pivoted on the lever at the opposite end thereof, the first pawl that is longest engaging the teeth of the posts above the shorter pawl, one pawl acting as a detent while the other pawl is pushing when actuated by the vibration of the lever.

7. In a device of the character described, the combination with a frame, of two lifting-jacks, one sliding in the other, and both posts sliding in the frame, spring-pressed dogs on one post adapted to interlock with shoulders on the other post when it is fully elevated, and means to de-

rate one post to its limit on the other post and then raise both posts together, said means being adapted to releasably secure one post or both posts at a desired elevation on the frame.

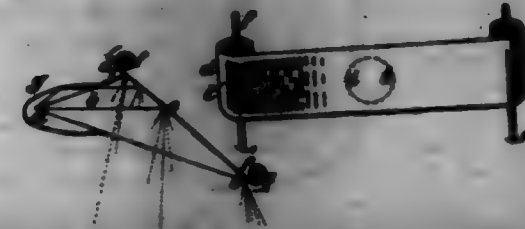
698,993. BEER-TAPPING DEVICE. FREDERICK FORD, Brooklyn, N. Y., assignor of one-half to Joseph Ford, Brooklyn, N. Y. Filed Jan. 8, 1902. Serial No. 93,993. (No model.)



Claim.—1. A beer-tapping hammer or mallet which is oblong in form and provided in one side thereof with a longitudinal opening, one of the side walls of said opening being extended and curved in the direction of the other, said hammer or mallet being also provided at one end with projecting members forming a vane, substantially as shown and described.

2. A beer-tapping hammer or mallet which is oblong in form and provided in one side thereof with a longitudinal opening, one of the side walls of said opening being extended and curved in the direction of the other, said hammer or mallet being also provided at one end with projecting members forming a vane, and at the opposite end with projecting lifting hooks or members, substantially as shown and described.

698,994. STAGE ILLUMINATION WITH INDEPENDENT LIGHT. HENRI FORTUIT, Vienna, Italy. Filed Apr. 12, 1901. Serial No. 94,999. (No model.)



Claim.—1. In a stage-illumination apparatus, a movable reflector-screen having a diversely-colored surface, and means for directing rays of light directly onto said colored surface, and the latter serving to direct colored rays onto a desired object.

2. In a stage-illumination apparatus, a reflector-screen having a diversely-colored, translucent surface, a source of light, a reflector arranged to receive the light-rays and to project the same directly onto said colored surface, and the latter serving to direct colored rays onto a desired object.

698,995. AXLE-GRINDER. HARRY POWELL, Cranford, Ind. Filed Aug. 24, 1901. Serial No. 73,115. (No model.)



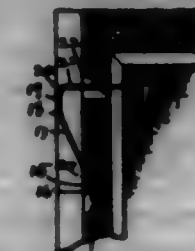
Claim.—1. An axle-grinder, comprising a tapering body portion of cross-shaped cross-sectional form, and means at the wide end of the shaft removably to hold it against the outer side of the axle-spindle.

2. An axle-grinder, comprising a body portion or shaft proper, an enlarged head at the inner end thereof, a chuck projecting forward longitudinally from the head, for the purpose specified, and side-extensions

best upward and inward from the front of the head to form the chuck lying around the axle.

3. An axle-grinder, comprising a body portion or shaft proper, a lateral flange at its inner end, a head carried on the outer edge of the flange, a chuck carried by the head and projecting inward therefrom for the purpose specified, and side-extensions from the ends of said flange, the extensions being bent upward and inward to form an chuck lying around the axle.

698,996. WINDOW-CURTAIN. RUFUS S. FOWLER, Worcester, Mass., assignor to White A. Dodge and Louis H. Dodge, Kansas, N. H. Filed Dec. 24, 1900. Serial No. 93,994. (No model.)



Claim.—1. The combination with the frame of a window-curtain provided with a slot 16 in its side having a curved bottom, of a yielding latch consisting of a piece of wire provided with a bearing-surface 19 adapted to bear against the window-curtain, an oblique elastic section 17, and a section 18 curved to fit the curved bottom of the slot 16, said curved section being pressed into and pinched between the sides of said slot, whereby said latch is rigidly attached to said frame, substantially as described.

2. The combination with the frame or window-curtain having a slot in its side, of a yielding latch consisting of a piece of wire provided with a section 19 adapted to bear against the window-curtain, an oblique elastic section 17, a curved section 18 entering said slot and being pinched between its sides, whereby said latch is firmly attached to said frame and held from rocking therein, and a bent prong at the end of said curved section entering the frame, whereby said latch is held from longitudinal movement, substantially as described.

3. The combination with the frame of a window-curtain having a slot in its side of a yielding latch formed from a single piece of wire and having a section 18 curved in the arc of a circle with said curved section pinched between the side walls of said slot, whereby said latch is firmly attached to said frame, a section 17 extending obliquely from the frame, a section 19 parallel with the side of the frame and forming a bearing-surface and a stem 21 at right angle to said bearing-surface, substantially as described.

698,997. MUD-PLASTER. ANDREW GALE, Chicago, Ill. Filed July 31, 1901. Serial No. 73,999. (No model.)



Claim.—1. In a mud-plaster or analogous machine, a marker-arm connected at its inner end to a suitable part of the machine by a universal joint and free to be moved in any direction on said joint, a revolute carried by said arm, means preventing rearward movement of the marker-arm when it is brought to operative position, handles on the machine, and means on the handles in engagement with which the marker-arm is adapted to be moved to hold the same in an elevated position.

2. In a mud-plaster or analogous machine, the combination with the frame of the machine, of a marker-arm connected to an intermediate part of the frame by a universal joint and adapted to rest at a point between its ends upon one side or the other of the frame, said arm being free to be moved in any direction upon the universal joint, a revolute carried by said arm, projecting stops one at each side of the frame in front of which the arm is adapted to be engaged when resting on the frame to prevent rearward movement thereof when brought into either of its two operative positions, handles projecting upwardly from the frame, and means on the handles with which the rod is adapted to be engaged to hold the same in an elevated position.

698,998. PLASTER. THOMAS H. GALLAGHER, Old Orchard, Me., assignor to Gault-Gallagher Iron & Steel Company, St. Louis, Mo., a Corporation. Filed Oct. 24, 1901. Serial No. 73,998. (No model.)

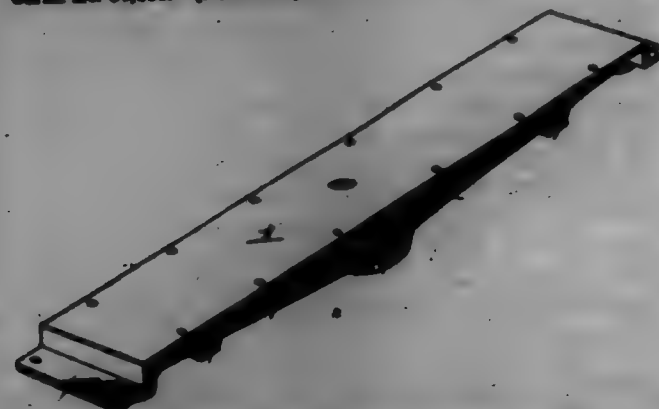
Claim.—1. A plaster, consisting of a top, side flanges, a central

flange and spring-ends uniting the bottom of the flange at the ends of the bolster, all cast integral, substantially as set forth.



2. A bolster, consisting of a top, side flange, a central flange, spring-ends uniting the bottom of the flange together at the ends of the bolster, a king-bolt post, and a web connecting the post to the side flange of the bolster, all cast integral, substantially as set forth.

698,989. BODY-BOLSTER FOR RAILWAY-CARS. THOMAS H. GALLAGHER, Old Orchard, Mo., assignor to Smith-Gallagher Iron & Steel Company, St. Louis, Mo., a Corporation. Filed Dec. 20, 1901. Serial No. 57,060. (No model.)



Claim.—1. A body-bolster for railway-cars, consisting of a top, outer vertical rib and an intermediate rib depending from the top, and side bearings uniting the ribs at their lower edges, substantially as described.

2. A body-bolster for railway-cars consisting of a top, outer and intermediate ribs depending from the top, and outer and side bearings uniting the ribs at their lower edges, substantially as described.

3. A body-bolster for railway-cars consisting of a top, two outer vertical ribs depending from the top, and central intermediate vertical ribs depending from the top, and integral side and outer bearings connecting all three of said ribs together at their lower edges, substantially as set forth.

4. A body-bolster for railway-cars consisting of a top, vertical ribs depending from the top and forming the sides of the bolster, a center bearing uniting the ribs at their lower edges, a king-bolt post uniting the center bearing with the top of the bolster, and a web connecting the king-bolt post with the outer vertical ribs, substantially as set forth.

698,980. WHEELBARROW. EDWARD A. GARVER and DONALD V. STROT, Chicago, Ill. Filed Sept. 6, 1901. Serial No. 74,519. (No model.)



Claim.—1. A wheelbarrow-frame comprising combined upper side and handle bars, combined lower side bars and supporting-legs, a wheel, front and rear tray-supporting side braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs and connecting-braces secured to the forward ends of the said combined upper side and handle bars and to the forward ends of the combined lower side bars and supporting-legs, substantially as set forth.

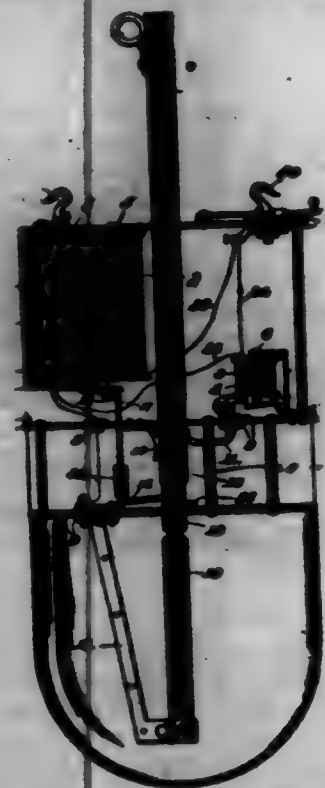
2. A wheelbarrow-frame comprising combined upper side and handle bars, combined lower side bars and supporting-legs, cross-braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs for spacing them apart and

side braces secured to the said combined upper side and handle bars and combined lower side bars and supporting-legs, substantially as set forth.

3. A wheelbarrow-frame comprising combined upper side and handle bars, combined lower side bars and supporting-legs, cross-braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs and side braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs, substantially as set forth.

4. A wheelbarrow-frame comprising combined upper side and handle bars, combined lower side bars and supporting-legs, cross-braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs, front and rear side braces adjustably secured to the combined upper side and handle bars and to the combined lower side bars and supporting-legs and connecting-braces secured to the forward ends of the combined upper side and handle bars and the combined lower side bars and supporting-legs, substantially as set forth.

698,981. ELECTRIC-ARC LAMP. CLARE CLARK, Bridgeport, Ohio. Filed Jan. 12, 1902. Serial No. 1,264. (No model.)



Claim.—In an electric-arc lamp, the combination of a series coil having a fine-wire coil 5 wound within it, a lever, a soft-iron core mounted on said lever and movable within said fine-wire coil, a friction-clutch, a toggle-arm pivoted to one end of said lever and supporting said friction-clutch, said fine-wire coil being adapted to demagnetize said soft-iron core when the arc becomes too long, permitting said clutch to free itself from the upper carbon and allowing the lamp to feed automatically, and an adjusting-screw 17 for regulating the magnetic linkage, substantially as and for the purposes set forth and described.

698,982. GLASS-MAKING FURNACE. EARL GOSSE, Junot, Belgium. Filed Aug. 6, 1901. Serial No. 71,000. (No model.)



Claim.—In a glass-making furnace, the combination with a tank adapted to be revolved and carry pots containing the material to be melted, refined and cooled, of means for forming a high-temperature zone in one portion of the furnace for melting and refining the material contained in the pots, means for forming a low-temperature zone in the other portion of the furnace for cooling the melted and refined material, and means to permit of access to the furnace for removing the pots after the material has been melted, cooled and refined, and for the replacing of the pots containing the material to be operated upon.

698,988. PACKAGE-CARRIER. OVID H. GOULA, Montreal, Canada. Filed July 22, 1901. Serial No. 60,968. (No model.)



Claim.—1. A package-carrier comprising a pair of carriers proper alternating toward and from one another, stationary means whereby a package is fed to one of said carriers proper when it is at its extreme position away from the other carrier proper, means stationary relatively to said first-mentioned carrier proper whereby said package is shifted from said first-mentioned carrier proper to said other carrier proper when they are adjacent to one another, and means stationary relatively to said other carrier proper whereby said package is discharged from said other carrier proper when it is at its extreme position away from said first-mentioned carrier proper, means for controlling the speed of the carriers proper in their movement, for the purposes set forth.

2. A package-carrier comprising a pair of carriers proper alternating toward and from one another, stationary means whereby a package is automatically fed to one of said carriers proper when it is at its extreme position away from the other carrier proper, means stationary relatively to said first-mentioned carrier proper whereby said package is automatically shifted from said first-mentioned carrier proper to said other carrier proper when they are adjacent to one another and means stationary relatively to said other carrier proper whereby said package is automatically discharged from said other carrier proper when it is at its extreme position away from said first-mentioned carrier proper, for the purposes set forth.

3. A package-carrier comprising a pair of carriers proper alternating toward and from one another, stationary means whereby a package is fed to one of said carriers proper when it is at its extreme position away from the other carrier proper, means stationary relatively to said first-mentioned carrier proper whereby said package is shifted from said first-mentioned carrier proper to said other carrier proper when they are adjacent to one another, means stationary relatively to said other carrier proper whereby said package is discharged from said other carrier proper when it is at its extreme position away from said first-mentioned carrier proper, and means for automatically counting and registering the number of the packages so carried, for the purposes set forth.

4. A package-carrier comprising a pair of carriers proper alternating toward and from one another, stationary means whereby a package is automatically fed to one of said carriers proper when it is at its extreme position away from the other carrier proper, means stationary relatively to said first-mentioned carrier proper whereby said package is automatically shifted from said first-mentioned carrier proper to said other carrier proper when they are adjacent to one another, means stationary relatively to said other carrier proper whereby said package is discharged from said other carrier proper when it is at its extreme position away from said first-mentioned carrier proper and means for automatically counting and registering the number of the packages so carried, for the purposes set forth.

5. A package-carrier consisting of a pair of carriers proper hung

upon one another and movable vertically simultaneously respectively toward and from a common level; stationary means whereby a package is fed to the uppermost of said carriers proper when they have moved away from their common level; means stationary relatively to said first-mentioned carrier proper whereby said package is shifted to the other carrier proper when said carriers are at their common level; and means stationary relatively to said other carrier proper whereby said package is discharged from said last-mentioned carrier proper when at its lowest level, substantially as described and for the purposes set forth.

6. A package-carrier consisting of a pair of carriers proper hung upon one another and movable vertically simultaneously respectively toward and from a common level; stationary means whereby a package is fed to the uppermost of said carriers proper when they have moved away from their common level; means stationary relatively to said first-mentioned carrier proper whereby said package is shifted to the other carrier proper when said carriers are at their common level; means stationary relatively to said other carrier proper whereby said package is shifted from said last-mentioned carrier proper when at its lowest level; and means for counting and registering the number of packages discharged, substantially as described and for the purposes set forth.

7. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein and having an opening about midway of the height of said shaft; a pair of carriers proper hung upon one another and vertically slidable in the divided portions of said shaft; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means to at intervals move said stop; means whereby a package is automatically moved from one to the other of said carriers proper; and means whereby the package thus moved is discharged from the carrier proper to which it is then moved, substantially as described and for the purposes set forth.

8. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper hung upon one another and vertically slidable in the divided portions of said shaft; sprocket-wheels mounted above the divided portions of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheels; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means to at intervals move said stop; means whereby a package is automatically moved from one to the other of said carriers proper; and means whereby the package thus moved is discharged from the carrier proper to which it is then moved, substantially as described and for the purposes set forth.

9. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; sprocket-wheels mounted above the divided portions of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheels; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; means whereby a package is automatically moved from one to the other of said carriers proper; and means whereby the package thus moved is discharged from the carrier proper to which it is then moved, substantially as described and for the purposes set forth.

10. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; sprocket-wheels mounted above the divided portions of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheels; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; means whereby a package is automatically moved from one to the other of said carriers proper; and means whereby the package thus moved is discharged from the carrier proper to which it is then moved, substantially as described and for the purposes set forth.

11. A package-carrier consisting of a vertical shaft having a discharge-opening in one of its lower ends; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft;

sprocket-wheel mounted above the divided portion of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheel; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; means whereby a package is automatically moved from one to the other of said carriers proper; means whereby the package thus moved is discharged from the carrier proper to which it is thus moved; and means for counting and registering the number of the packages discharged, substantially as described and for the purpose set forth.

12. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; and each having an inclined platform; a sprocket-wheel mounted above the divided portion of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheel; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; substantially as described and for the purpose set forth.

13. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; and each having an inclined platform; a sprocket-wheel mounted above the divided portion of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheel; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; and means for counting and registering the number of the packages discharged, substantially as described and for the purpose set forth.

14. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; a sprocket-wheel mounted above the divided portion of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheel; a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means whereby a package is automatically moved from one to the other of said carriers proper; and means whereby the package thus moved is discharged from the carrier proper to which it is thus moved; a yielding platform adjacent to said discharge-opening; a counting and registering device; and an operative connection between said yielding platform and said counting and registering device, substantially as described and for the purpose set forth.

15. A package-carrier consisting of a vertical shaft having a discharge-opening in one side of its lower end; a vertical partition dividing said shaft longitudinally and parallel to the side having said opening therein, and having an opening about midway of the height of said shaft; a pair of carriers proper vertically slidable in the divided portions of said shaft; and each having an inclined platform; a sprocket-wheel mounted above the divided portion of said shaft one in vertical line with each carrier proper; a chain connected at its ends to said carriers proper and hung over said sprocket-wheel; a brake for controlling the movement of said chain, a runway located at the top of the shaft and leading to the side thereof opposite to that in which the discharge-opening is out; a movable stop extending across said runway; means for causing said carriers to at intervals move said stop; a yielding platform adjacent to said discharge-opening; a counting and registering device; and an operative connection between said yielding platform and said counting and registering device, substantially as described and for the purpose set forth.

698,984. **TYRAN CONNECTION.** JAMES R. GUNTER; Inventor. Filed Feb. 27, 1902. Serial No. 55,567. (No model.)

Claim.—1. In a piano connection, the combination with the piano-red, of plates attached to the sides of the piano-red and projecting beyond the end thereof, said plates having caps at their free ends and in the rear of said caps provided with hyaline-dots, there being inclined

flats on the outer sides of the plates and surrounding the circular portions of said hyaline-dots, and a locking-bar having tongues spaced apart, said tongues being adapted to ride upon the inclined surfaces and thereby move the plates toward each other, together with means for holding the locking-bar adjusted.



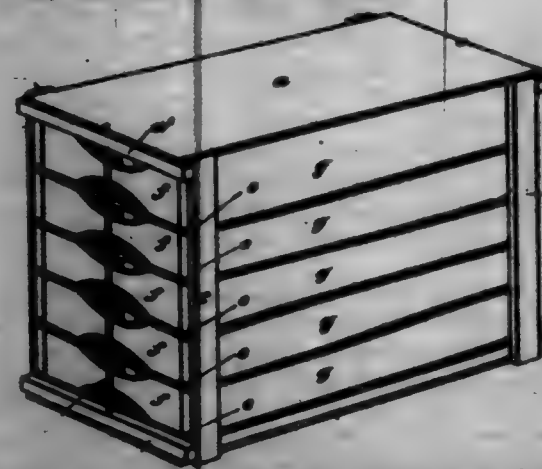
2. In a piano connection, the combination with the piano-red, of plates attached to the sides of the piano-red and projecting beyond the end thereof, one of the plates being hinged at its inner end and both provided with caps at their outer ends and in the rear of said caps with openings having a surrounding inclined surface, a locking-bar having tongues spaced apart and adapted to ride upon the inclined surfaces of the plates, and means for holding the locking-bar.

3. In a piano connection, the combination with the piano-red, of plates attached to the sides of the piano-red and projecting beyond the end thereof, one of the plates being hinged at its inner end and provided with short pins engaging corresponding holes in the piano-red, caps at the free ends of said plates, each plate having a hyaline-dot and on its outer side an inclined surface surrounding the circular portion of the hyaline-dot, and a locking-bar mounted in the hyaline-dot and provided with tongues spaced apart and adapted to ride upon the inclined surfaces and bring the caps toward each other, together with means for holding the locking-bar.

4. In a piano connection, the combination with the piano-red, of plates attached to the sides of the piano-red and provided with caps and with openings having corresponding inclined surfaces on the outer sides of the plates, a locking-bar mounted in the openings and provided with tongues adapted to ride upon the inclined surfaces and move the caps toward each other, a ratchet-wheel on the locking-bar, a pawl carried by one of the plates and engaging said ratchet-wheel, and a handle formed on or attached to the end of the locking-bar, substantially as shown and described.

5. In a piano connection, the combination with the piano-red, of plates attached to the sides of said piano-red, one of the plates being hinged at its inner end, caps at the outer end of the plates, there being inclined surfaces surrounding openings in the plates, a locking-bar mounted in said openings, tongues of the locking-bar adapted to ride upon the inclined surfaces, a ratchet-wheel on the locking-bar, a pawl adapted to engage the ratchet-wheel, and a handle or lever connected to one end of the locking-bar, substantially as shown and for the purpose set forth.

698,985. **BOX-CRATE.** RAIN J. HANSEN; Inventor. Filed Oct. 25, 1901. Serial No. 55,570. (No model.)



Claim.—1. A crate, having a rigid framing made up of top and bottom sections connected together by corner-posts and side rails arranged horizontally with spaces between them, and drawers mounted in the framing, each drawer comprising side and end walls and a bottom, the side edges of which are projected beyond the side walls to enter the spaces between the rails, whereby to guide the drawers in their movement into and out of the frame and to hold the drawers properly spaced therein.

2. A crate, having a rigid framing made up of top and bottom sections connected together by corner-posts and side rails arranged horizontally with spaces between them, drawers mounted in the framing, each drawer comprising side and end walls and a bottom, the side edges of which are projected beyond the side walls to enter the spaces between the rails, whereby to guide the drawers in their movement into and out of the frame and to hold the drawers properly spaced therein, and a lock-rod removably fitted in the frame, said rod extending vertically in front of the drawers to hold them in place.

3. A crate, comprising a framing having an open end, drawers removably fitted in the framing, and a lock-rod removably mounted in openings in the top and bottom of the frame directly in front of the drawers to hold them in place, said lock-rod extending vertically from the top to the bottom of the frame.

4. A crate, comprising a framing having an open end and rigidly connected top and bottom sections, reinforcing-plates fastened respectively to said sections at the adjacent or inner ends thereof, drawers fitted in the frame, and a lock-rod passed through openings in the top section of the frame and in the reinforcing-plates thereof and extending downward into an opening in the reinforcing-plate of the bottom section of the frame, said lock-rod passing directly in front of the drawers, to hold them in place.

5. A crate, having a rigid framing, comprising side rails arranged horizontally with spaces between them, and drawers mounted in the framing, each drawer comprising side and end walls and a bottom, the side edges of which bottom are projected beyond the side walls to enter the spaces between the rails, whereby to support the drawers and guide them in their movement into and out of the frame and to hold the drawers properly spaced therein.

698,986. **SAW-HANDLE CLAMP.** JOHN A. HALL; Inventor. Filed Aug. 22, 1901. Serial No. 55,568. (No model.)



Claim.—1. A saw-handle clamp, comprising two jaws, a bolt rotatably connecting said jaws, a cam-lever adapted to draw opposed ends of the jaws toward each other, and a handle-bar clamped between the jaws.

2. A saw-handle clamp, comprising two jaws, a bolt rotatably connecting said jaws, a cam-lever projecting from the outer side of one jaw, a cam-lever pivoted on the bolt and adapted to press the cam-lever when rotated toward it, and a handle-bar clamped between the jaws.

3. A saw-handle clamp, comprising two jaws adapted to receive the stub end of a saw-blade between inner faces of their forward ends, studs on one of said jaws that may pass through perforations in the stub end, a bolt rotatably connecting said jaws, a cam-lever projected from the outer side of one jaw, a cam-lever pivoted on the bolt and adapted to press the cam-lever when rotated toward it, and a handle-bar clamped in grooves apertures formed in the jaws and extended upright therefrom.

698,987. **CLIP FOR FLOWS OR THE LIKE.** BROWN HALL; Inventor. Filed May 1, 1901. Serial No. 55,569. (No model.)

Claim.—1. In a clip, a clasp, and an over-ear hook having jaws embracing the clasp, said jaws having interior ribs to bear on the clasp and limit the lateral swing of the hook.

2. In a clip, a clasp having a vertically-disposed series of bulb-holes and a rib in front of said bulb-holes, and an over-ear hook having jaws with inner projections to bear on the clasp-rib, whereby its lateral swing is limited.

3. The combination of the clasp having the strengthening-rib 8, and the hook having jaws 6 grooved at 7 to receive said rib.

4. The hook having jaws with interior ribs 12 separating the openings 9 and 10, and the clasp having a front bar provided with a rib 11, the relative movement of the hook being limited by the contact of the rib 11 with other rib 12.

5. The hook having jaws with interior ribs 12 separating the openings 9 and 10, and the clasp having a front bar provided with a rib 11, the relative movement of the hook being limited by the contact of the rib 11 with other rib 12, and the outer ribs 13 of said front bar situated in the path of the jaw-tips and cooperating to stop the lateral movement of the hook.

6. A clasp pivoted to a pivot-beam, a rotatable clasp-rotating rod having a screw-thread connection with a nut loosely supported by the beam, and a nut loosely supported by the clasp and retained by the rod to rotate the clasp.

7. A pivot-beam, a clasp pivoted thereto, a nut loosely supported by the beam, a nut rotatably supported by the clasp, and a clasp-rotating rod having right and left hand screw-threads engaging respectively the two nuts.

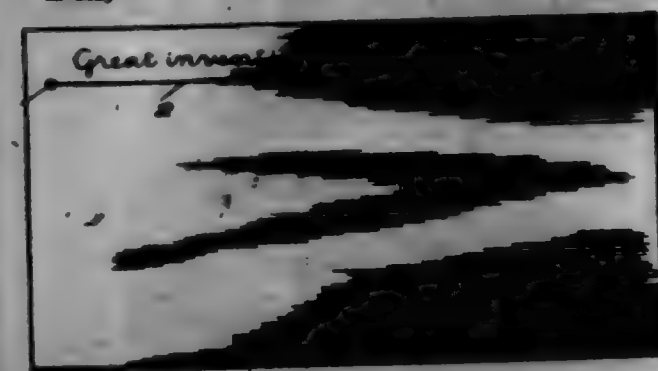
8. A pivot-beam, a clasp pivoted thereto, a nut loosely supported

by the beam, a nut rotatably supported by the clasp, and a rod having (similar screw-threads engaging each of the nuts and adapted to rotate the clasp.



9. A pivot-beam, a clasp pivoted thereto, a nut loosely supported by the beam, a nut rotatably supported by the clasp, a clasp-rotating rod having right and left hand screw-threads engaging respectively the two nuts, and the handle, said rod comprising parts 15 and 17 connected by the universal joint 16 situated between the beam-supported nut and the handle.

698,988. **MEANS FOR TEACHING WRITING.** PARKER S. HALL; Inventor. Filed Nov. 23, 1901. Serial No. 55,569. (No model.)



Claim.—In the means for teaching writing, a sheet provided with the copy and having a slit parallel with and adjacent to the copy and having circular openings at the ends of the slit, and a practice-sheet to be moved through the slit, substantially as set forth.

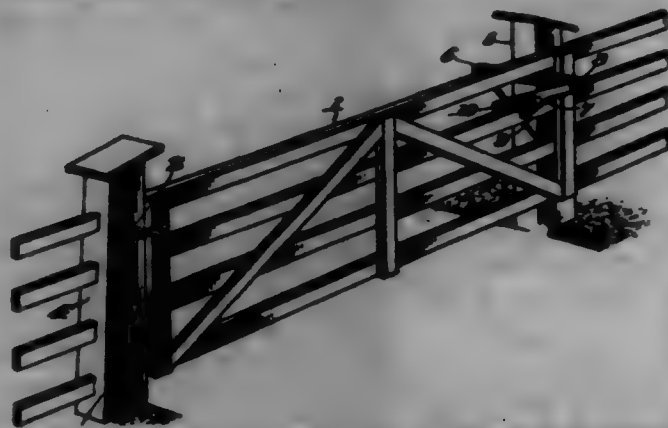
698,989. **BOOK CLIPPING AND BINDER DEVICE.** JAMES L. HALL; Inventor. Filed Apr. 4, 1901. Serial No. 55,561. (No model.)

Claim.—The combination with a revolving door adapted to move only in a horizontal plane and provided with a mortise at its lower edge; of a slotted casing within said mortise, a spring-pressed plunger within the casing, a roller carried by said plunger, a plate mounted below the door, an oppositely-located trackway upon the plate having notches therein, a corner-plate secured to the door, and a plate depending from said corner-plate and adapted to bear in a contact in the plate of the trackway, said trackway being adapted to gradually move the roller and plunger toward and compress their spring during the opening of the door.

698,989.



698,940. LATCH. THOMAS C. HAMILTON, Bates Creek, Ohio. Filed June 28, 1901. Serial No. 66,577. (No model.)



Claim.—The combination with a hinged gate having horizontal rails, of a post, a horizontal strip secured thereto, and extending from opposite sides thereof, a bolted end to the strip, a brace connecting the opposite end to the post, said strip being adapted to project through the closed gate at a point between its ends and partly support the same, a latch pivotally mounted upon the strip adjacent to the bolted end thereof, an inclined face thereon, an end to the latch adapted to automatically engage one of the rails of the gate when closed, and a handle extending longitudinally from the end of the latch and adapted to project through the gate and limit the downward movement of the latch.

698,941. ROYAL-WHEEL HUB. LEON C. HANNA, Tampa, Fla. Filed Feb. 6, 1901. Serial No. 66,194. (No model.)



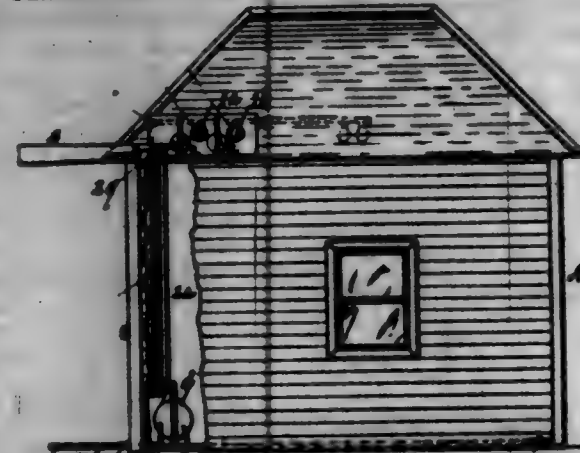
Claim.—1. The combination with a hub having spoke-flanges spaced inwardly from the ends thereof, the hub adjacent to the outer face of one of the flanges being threaded, a sprocket secured onto said threads and lying against the flange, said sprocket having a rabbet at its inner edge, a clamping-rod engaged with the threads of the hub and disposed in the rabbet to clamp the sprocket, said sprocket having also an annular flange on its outer face, and an axle disposed in the hub and having bearings between it and the hub, said axle having a cap at one end and disposed over the end of the hub and having a rotating flange disposed against the outer face of the sprocket and the inner face of its flange.

2. The combination with a hub having spoke-flanges, one of said flanges having studs on its outer face, of a sprocket engaged with the hub and having recesses which receive the studs, an axle disposed through the hub and having a cap including one end of the hub and having a flange at its edge lying against the sprocket, said cap being adapted to receive a fork side, a clamping-rod engaged with the cap for clamping

the fork side against the flange, and bearings between the axle and hub, one of said bearings lying within the enclosure of the cap.

3. The combination with a hub of an axle passed therethrough and having a cap including one end of the hub, said cap being adapted to receive a fork side and having means for clamping it thereon, said cap also having a bearing inserted thereby, a sleeve disposed on the axle and terminating short of the end thereof opposite to the cap, a bearing between the hub and sleeve, and a clamping-rod on the axle beyond the sleeve and adapted to clamp a fork side against the end of the sleeve.

698,942. SIGNAL-STATION. JOHN W. HARRISON, Detroit, Mich. Filed Mar. 12, 1901. Serial No. 66,902. (No model.)



Claim.—1. In combination with a station-building having two entrances, and a floor in two sections, each of which is independently movable, a casing on each floor-section arranged to enclose a person within the station to the section to which he first enters, and a signaling apparatus connected with each of said sections and adapted to be actuated by the movement thereof, one of said signaling apparatus being adapted to signal a train coming in one direction, and the other to signal a train coming in the other direction.

2. In combination with a station-building provided with a floor in two sections, each of which is independently movable, a signaling apparatus connected with each of said sections and adapted to be actuated by the movement of the section with which it is connected, one of said signaling apparatus being adapted to signal a train coming in one direction, and the other to signal a train coming in the other direction.

3. In combination with a station-building provided with two entrances and a floor in two sections arranged so that a person entering by one entrance shall step upon one section and another person entering by the other entrance shall step upon the other section and actuate it, a signaling apparatus connected with each of said sections and adapted to be actuated by the movement thereof, one of said signaling apparatus being adapted to signal a train coming in one direction, and the other to signal a train coming in the other direction.

4. In combination with a station-building provided with a floor in two sections, each of which is independently movable, a signal upon each end of said building facing toward the direction from which the trains come, and a mechanism connected with each of said signals and with each of said sections such that the movement of one of said sections shall operate one of said signals and the movement of the other section shall operate the other of said signals.

698,943. UTENSIL FOR DISPLAY OF GOODS. CLARENCE E. HARRIS, Pittsburg, Pa., assignor to H. J. Harris Company, Allegheny, Pa., a Partnership. Filed May 24, 1901. Serial No. 61,708. (No model.)



Claim.—1. A portable stand for the display of articles of food, &c., having in combination a water-containing vessel, a vessel or receptacle having two or more compartments and secured in position within the

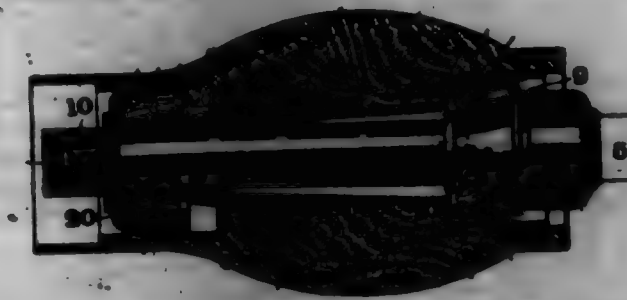
water vessel, independent covers for said compartments, a carrying-handle and a lamp a seat secured to the outer vessel, substantially as set forth.

2. A portable stand for the display of articles of food, &c., having in combination a water-containing vessel, a vessel or receptacle secured within and forming a tight joint with the water vessel and having two or more compartments, independent covers for said compartments, a carrying-handle secured to the inner vessel, a filling-spout connected to the water vessel and a lamp a seat secured to the outer vessel, substantially as set forth.

3. A portable stand for the display of articles of food, &c., having in combination a water-containing vessel, a vessel or receptacle detachably secured within and sealing the water vessel and having two or more compartments, independent covers for said compartments, a carrying-handle secured to the inner vessel and a lamp a seat secured to the outer vessel, substantially as set forth.

4. A portable stand for the display of articles of food, &c., having in combination a water vessel having a filling-spout, a vessel or stand secured in and sealing the water vessel, one or more partitions arranged transversely of the inner vessel, covers hinged to said partitions and provided along their hinged edges with flanges adapted to bear against the partitions when the covers are closed, substantially as set forth.

698,944. ROLLER-BEARING. FREDERICK HENNINGSEN and EMERALD HENNINGSEN, Baltimore, Md. Filed May 27, 1901. Serial No. 66,964. (No model.)



Claim.—1. In a roller-bearing, the combination with an axle, of a hub, and two independent sets of conical rolls surrounding said axle, one set being arranged at each end of the hub and both sets of rolls being inclined in the same direction.

2. In a roller-bearing, the combination with an axle, of a sleeve surrounding said axle, a set of conical rolls arranged at one end of said sleeve between said axle and sleeve, and a set of conical rolls at the other end of said sleeve and surrounding said sleeve.

3. In a roller-bearing, the combination with an axle, of a sleeve surrounding said axle, a set of conical rolls arranged between said axle and sleeve at the inner end thereof, and a set of conical rolls arranged outside of said sleeve at the outer end thereof.

4. In a roller-bearing, the combination with an axle, of a sleeve surrounding said axle, a set of conical rolls arranged at one end of said sleeve between said axle and sleeve, a removable cap carried by said axle at the other end of said sleeve and surrounding the same, and a set of conical rolls between said removable cap and sleeve.

5. In a roller-bearing, the combination with an axle, of a sleeve surrounding said axle, and having an enlarged portion at one end of said sleeve, a set of conical rolls arranged within said enlarged portion and around said axle, a second set of conical rolls surrounding the opposite end of said sleeve, and a removable cap surrounding said second set of rolls.

698,945. BRACKET. WILLIAM E. HENRY, New Britain, Conn., assignor to P. & F. Curtis, New Britain, Conn., a Corporation of Connecticut. Filed Jan. 4, 1902. Serial No. 66,090. (No model.)

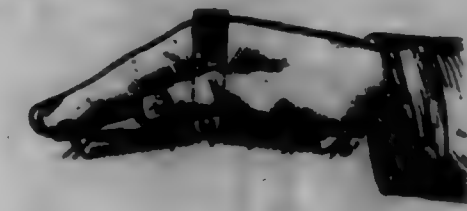


Claim.—1. A bracket comprising a top and back, and a web connecting said top and back, said web being of a single thickness of metal, said top and back being of a double thickness of metal, said parts being connected integrally.

2. A bracket comprising a web, an extension above said web and an extension below said web, each of said extensions being integral with said web portion and doubled upon themselves twice to produce the top

of the bracket and a back for the bracket, both the top and back being of double thickness.

698,946. CURRYCOMB. CHARLES E. HENNINGSEN, Larry, Va. Filed Mar. 4, 1902. Serial No. 66,908. (No model.)



Claim.—1. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, substantially as described.

2. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, and springs for restoring these wings to a normal flat plane after having been deflected substantially as described.

3. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, springs for restoring these wings to a normal flat plane after having been deflected, and a loop or receiver for the head arranged upon the back of the currycomb to give a purchase for compressing the wings inwardly against the springs substantially as described.

4. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, combined with two cleaner-grids arranged to turn about the same axis substantially as described.

5. A currycomb made in two sections hinged together in the middle line upon an axle at right angles to the rows of teeth, each of said sections having an attached set of cleaner-grids arranged to lie beneath the teeth of the opposite section substantially as described.

6. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, and two sets of cleaner-grids attached, one to each currycomb-section, and wound about the axle so as to act also as springs for controlling the movement of the currycomb-sections substantially as described.

7. A currycomb made in two sections hinged together in the middle upon an axle at right angles to the rows of teeth, two sets of cleaner-grids attached to the said sections and arranged to turn about the same axle, and thumb-pieces attached to the hinged sections to permit their convenient deflection in cleaning substantially as described.

698,947. JOURNAL BEARING. HENNINGSEN E. HENRY, Baltimore, Md. Filed Dec. 18, 1901. Serial No. 66,000. (No model.)



Claim.—1. A bay or wedge for a bar-axle bearing having its under surface formed with a seat and a bearing-plate of a different kind or quality of metal rigidly fixed in said seat and having its under surface formed with a spherical concavity adapted to receive a convex on the top of the axle-rod.

2. A bar-axle bearing, comprising a beam convex upon its upper surface in combination with a bay or wedge having its under surface formed with a concaved seat and a convex-concave bearing-plate of a different kind or quality of metal rigidly held in said seat, the under surface of said bearing-plate receiving the convex on the top of said beam.

3. A bar-axle bearing, comprising a journal-rod convex upon its upper surface in combination with a bay or wedge formed with a concaved seat or recess and a convex-concave bearing-plate of a different kind or quality of metal rigidly fixed in said seat or recess, the edges of said bearing-plate being engaged by the overhanging portion of the bay or wedge.

4. A bay or wedge for a bar-axle bearing formed of iron and having its under side provided with a concaved recess, and a convex-concave bearing-plate of a different kind or quality of metal having a polished lower surface and rigidly fixed in the seat of said bay or wedge.

698,948. APPARATUS FOR MAKING PAILS FROM PULP. ALBERT D. REYL, Saginaw, Mich. Filed June 21, 1901. Serial No. 68,646. (No model.)



Claim.—1. In an apparatus for manufacturing pails and other vessels from pulp, the combination of an inner and outer former, and means for imparting a rotary movement to one of said formers.

2. In an apparatus for pressing pulp and other vessels from pulp, the combination of inner and outer formers, the outer former being provided with a slit-metal lining or covering, and means for imparting a rotary movement to said outer former.

3. In an apparatus for pressing pulp and other vessels from pulp, the combination of inner and outer mold members or formers, said outer member being provided with a slit-metal lining or covering.

4. In an apparatus for pressing pulp and other vessels from pulp, an inside former or member provided with a slit-metal covering or lining, an outside member and means for rotating said members.

5. The combination of an inner and an outer mold member or former, means for imparting a rotary movement to one of said formers, means for permitting the introduction of pulp into the space between said formers, a valve for controlling the flow of pulp to said space, and mechanism for operating said valve.

6. The combination of a casing, a piston therein, an outer former supported by said piston, an inner former of lesser diameter, a casing upon which said inner former is supported, a cushioning device for regulating the descent of said inner former and means for raising said inner former and the pressed pulp, whereby the latter can be readily removed.

7. The combination of an outer casing, a piston therein, racks on the inside of said piston, toothed segments adapted to mesh with said racks, an inner and an outer former and device operated by said segments and racks for completing the formation of the pail.

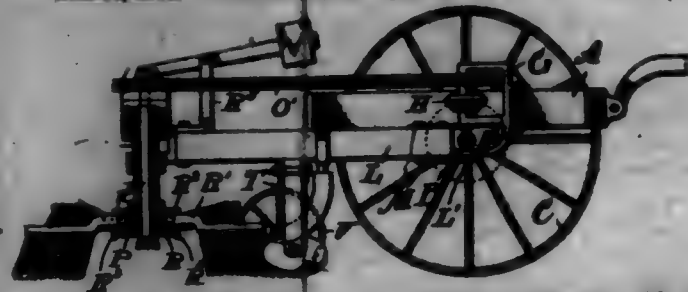
8. In an apparatus for making pails, an inner mold, means for locking the latter in its lower position, an outer mold, means for raising the latter, a plurality of pivotal heads, a plate adapted to mesh with said heads, a series of slides located above the inner or upper mold, and means for raising the latter prior to disengaging the pulp therefrom.

9. In an apparatus for making pails, an inner mold adapted to receive pulp, a valve opening therein, a lower or outer mold, a piston supporting the latter, a casing supporting said inner mold, a cushioning device for the upper part of said casing, and means for locking said casing in its upper and lower positions.

10. In an apparatus for making pails, a cylinder, a piston therein, means for raising said piston, an outer mold carried by said piston, a plate located transversely of said piston for catching water drained from the pulp, a stationary pipe extending lengthwise of said cylinder, segments on said pipe, racks carried by said piston and meshing with said segments,

a plunger in said pipe, a plate carried by said plunger, a series of pivotal heads surrounding said plate, means for moving said heads laterally during compression of the pulp, an inner mold, a casing supporting the latter, means for raising said casing, and means for locking the latter in its upper and lower positions.

698,949. STREET-SWEEPER. WILLIAM HENRY, Boston, Mass. Filed Dec. 14, 1901. Serial No. 68,645. (No model.)



Claim.—1. A street-sweeper, comprising in combination with the truck, the shaft and driving-wheel, a swinging beam pivotedly mounted on the truck, a rotary sweeper journaled at the end of said beam, and having geared connection with the driving-shaft, a standard on said swinging beam, and counterbalanced pivoted lever mounted on said standard, and designed to allow the brushes to conform to a pavement, as set forth.

2. A street-sweeper, comprising in combination with the truck, the driving-shaft and wheels, a swinging beam pivoted to the truck, a hollow shaft journaled at the end of said beam and having geared connection with the driving-shaft for rotating same, plates carried by said shaft, pivotal brush-arms mounted between said plates, a solid shaft passing through said hollow shaft, a stationary cam horizontally mounted on the lower end of said solid shaft, integral pins on said brush-arms which contact with the periphery of said cam, and a counterbalanced lever mounted on said swinging beam and having pivotal connection with said solid shaft, as set forth.

3. In a street-sweeper, a truck-driving axle and wheels, a swinging beam pivotedly connected to said truck, a hollow shaft carried at the free swinging end of said beam, a ratchet-wheel rotating with said hollow shaft and geared connection between the same and the driving-axle, recessed plates mounted upon and rotating with said hollow shaft, a series of brush-arms held between said plates adapted to lift vertically, a stationary cam-wheel, against which each arm is adapted to contact and be raised thereby, as it rotates, a shaft mounted within the hollow shaft, and to which inner shaft said cam-wheel is secured, a weighted lever hinged on a standard rising from the swinging beam and pivoted to the upper end of said cam-wheel-carrying shaft and guide mechanism for regulating the distance at which it is desired to have the rotary brush held with relation to a work.

4. In combination with the truck, the driving-axle and wheels, a swinging beam pivoted to the truck, a vertically-rotating shaft mounted on the outer end of the swinging beam, brushes carried by said shaft, geared connections with the main axle, for driving said shaft, a guide-wheel and pivotal link connections between same and the frame, and with the swinging beam, and a coil-spring connected at one end to the truck, and its other end to said beam as shown and described.

698,950. RAILWAY-SWITCH. NORMAN E. HILL, East Hampton, Conn. Filed Dec. 12, 1901. Serial No. 68,662. (No model.)



Claim.—1. In a bicycle-bell, the combination with a gong, of a striker, a loosely-mounted balance-wheel by which the striker is carried, and means for imparting an initial rotary impulse to the balance-wheel, including a coupling device which permits the balance-wheel to continue to rotate independently of the said means after it has once been started rotating.

2. In a bell, the combination with a gong, of a striker, a loosely-mounted balance-wheel upon which the striker is mounted, a piston carried by the balance-wheel, a loose gear-wheel meshing into the said piston,

a ratchet-wheel, a pawl carried by the loose gear-wheel and meshing with the said ratchet-wheel, and means for positively rotating the ratchet-wheel, whereby its rotary movement is communicated through the pawl to the gear-wheel, and hence to the balance-wheel, which, when once started in rotation, keeps on rotating until its inertia is spent.

3. In a bicycle-bell, the combination with a gong, of a striker, a loosely-mounted balance-wheel carrying the said striker, a piston carried by the said balance-wheel, a loose gear-wheel meshing into the said piston, a ratchet-wheel, a pawl for coupling the said gear-wheel and the ratchet-wheel together, a shaft upon which the ratchet-wheel is mounted, a piston carried by the said shaft, and a rack meshing into the said piston last mentioned.

4. In a bicycle-bell, the combination with a central frame or body, of two studs connected therewith, gongs applied to the said studs, balance-wheels loosely mounted on the respective studs on opposite sides of the said frame, an operating-lever connected with the frame, and operating mechanism between the said lever and balance-wheels, whereby they are given an initial rotary impulse and then emancipated from the said operating-lever, and left free to spend their initial rotary impulse.

698,951. BUTYROL-BELL. NORMAN E. HILL, East Hampton, Conn. Filed Mar. 24, 1902. Serial No. 68,761. (No model.)



Claim.—1. In a bicycle-bell, the combination with a gong, of a striker, a balance-wheel by which the striker is carried, a pawl carried by the balance-wheel, a ratchet-wheel engaged by the said pawl and having its axis co-axial with the axis of the balance-wheel, and means for positively rotating the said ratchet-wheel which is free to turn independently of the balance-wheel in the opposite direction from the direction in which the same turns.

2. In a bicycle-bell, the combination with a gong, of a striker therefor, a balance-wheel by which the striker is carried, a pawl mounted upon the balance-wheel, a ratchet-wheel engaged by the said pawl, a hub on which the balance-wheel is loosely mounted and to which the said ratchet-wheel is fixed, a piston also connected with the said hub and ratchet-wheel which latter operates through the pawl to rotate the balance-wheel which continues to rotate after the ratchet-wheel has been operated and until its inertia is spent.

3. In a bell, the combination with a gong, of a striker, a balance-wheel carrying the said striker, a pawl also carried by the said balance-wheel, a ratchet-wheel meshing with the said pawl, a hub passing through the balance-wheel which is free to turn upon it and upon the outer end of which the said ratchet-wheel is fixed, a piston located upon the inner end of the said hub, a post upon which the said hub rotates, a wheel meshing into the said piston, a piston carried by the said wheel, and a spring-controlled operating-lever formed with a rack engaging with the piston last mentioned, whereby the balance-wheel is positively actuated in rapid rotation by means of the said lever and allowed to continue its rotation, until its inertia is spent, by the dragging of the said pawl over the said ratchet-wheel.

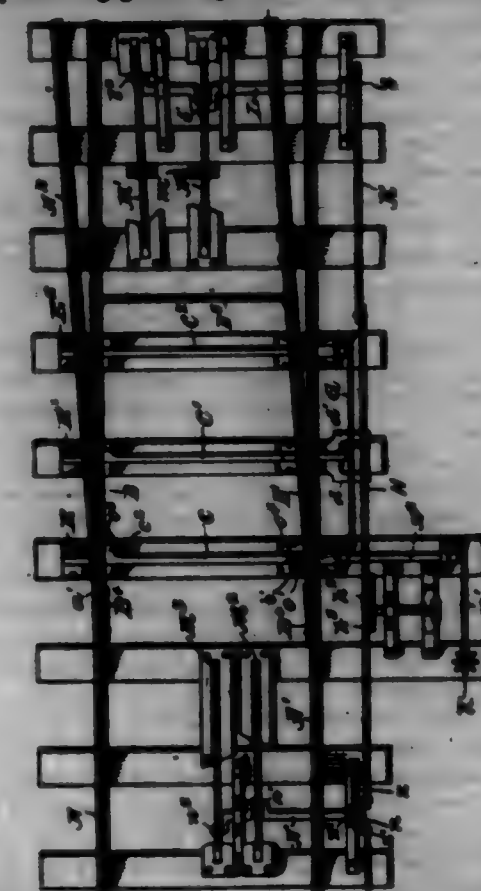
698,952. RAILWAY-SWITCH. WILLIAM W. BUTTERFIELD and FRANK W. FOWLER, West Lafayette, Ind., assignors to Electric and Steam Railway Supply Co., Lafayette, Ind. Filed Aug. 12, 1901. Serial No. 71,817. (No model.)

Claim.—1. In a railway-switch, the combination with vertically-movable switch-points, rack-shafts for elevating and depressing said switch-points, cranks upon the ends of said rack-shafts, and a rod connecting said cranks; of a rod connected to one of said cranks, and a link for preventing the movement of said cranks except through the reciprocation of said rod, substantially as described.

2. In a railway-switch, the combination with vertically-movable switch-points, and rack-shafts supporting said switch-points; of a reciprocating rod connected to said rack-shafts, a lag upon said rod, and levers or dogs adapted to engage said lag, substantially as described.

3. In a railway-switch, the combination with vertically-movable switch-points, rack-shafts for elevating and depressing said switch-points, and cranks upon the ends of said rack-shafts; of a rod connected to one

of the cranks upon said rack-shafts, a lag carried by said rod, and levers or dogs adapted to engage said lag, substantially as described.



4. In a railway-switch, the combination with vertically-movable switch-points, rack-shafts for elevating and depressing said switch-points, cranks upon the ends of said rack-shafts, and a rod connecting said cranks together; of a rod having an elongated slot adapted to engage one of said cranks, a lag carried by said rod, and levers or dogs adapted to engage said lag, and lock the switch, substantially as described.

5. In a railway-switch, the combination with vertically-movable switch-points, rack-shafts adapted to elevate and depress said switch-points, cranks upon the ends of said rack-shafts, and chains supporting the said racks, in which said rack-shafts are journaled; of a rod connected to said cranks, a lag carried by said rod and levers or dogs supported upon one of said chains, adapted to engage said lag when the switch is either open or closed, substantially as described.

6. In a railway-switch, the combination with vertically-movable switch-points, rack-shafts, lags carried by said rack-shafts for elevating and depressing said switch-points, and cranks upon said rack-shafts, connected together by a rod; of a rod connected to one of said cranks; a pair of rollers or stops secured upon said rod, and a crank adapted to reciprocate said rod through said rollers or stops, substantially as described.

7. In a railway-switch, the combination with the switch-points, and means for raising and lowering said switch-points; of a rod connected to said mechanism, a rack-shaft carrying an operating-lever, rollers upon said rod, and a crank-arm upon said rack-shaft, adapted to reciprocate said rod through said rollers, substantially as described.

8. In a railway-switch, the combination with the switch-points, and means for raising and lowering said switch-points; of a rod connected to said mechanism, a rack-shaft carrying an operating-lever, rollers upon said rod, a crank-arm upon said rack-shaft, adapted to reciprocate said rod through said rollers, and means for locking said rack-shaft against rotation, substantially as described.

9. In a railway-switch, the combination with switch-points, and means including a rod, for operating said switch-points; of a rack-shaft supported in bearings between the ties, an operating-lever carried by said rack-shaft, a crank-arm upon the opposite end of said rack-shaft, dogs upon said rod with which said crank-arm is adapted to engage, a slot in said bearing, and biased plates adapted to cover said slot upon each side of said operating-lever, locking the same against operation, substantially as described.

10. In a railway-switch, the combination with switch-points, and mechanism including a rod for operating said switch-points; of a double crank connected to one end of said rod, a rod connecting said double crank to an indicator, and an alarm or other device adapted to sound when the switch is opened or closed, substantially as described.

11. In a railway-switch, the combination with the switch-points, and mechanism including a rod for operating said switch-points; of a double crank connected to one end of said rod, a rod connecting said double crank to a second double crank, adapted to be located in a station,

and an operating-lever adapted to engage steps upon one of said wires, to reciprocate said rod, substantially as described.

12. In a railway-switch, the combination with the switch-points, and mechanism including a rod for operating said switch-points; of a double crank connected to one end of said rod, wire connecting said double crank to a second double crank, adapted to be located in a station, an operating-lever adapted to engage steps upon one of said wires, to reciprocate said rod, and an indicator carried by said double crank, substantially as described.

13. In a railway-switch, the combination with vertically-movable switch-points, and rock-shafts supporting said switch-points; of a reciprocating rod connected to said rock-shafts, a lag upon said rod, latches or dogs adapted to engage said lag, and steps adapted to limit the movement of said latches, substantially as described.

14. In a railway-switch, the combination with vertically-movable switch-points, and rock-shafts supporting said switch-points, adapted to elevate and depress said switch-points; of a reciprocating rod connected to said rock-shafts, a lag upon said rod, latches or dogs adapted to engage said lag, a spring tending to draw said latches together, and steps adapted to limit the movement of said latches, substantially as described.

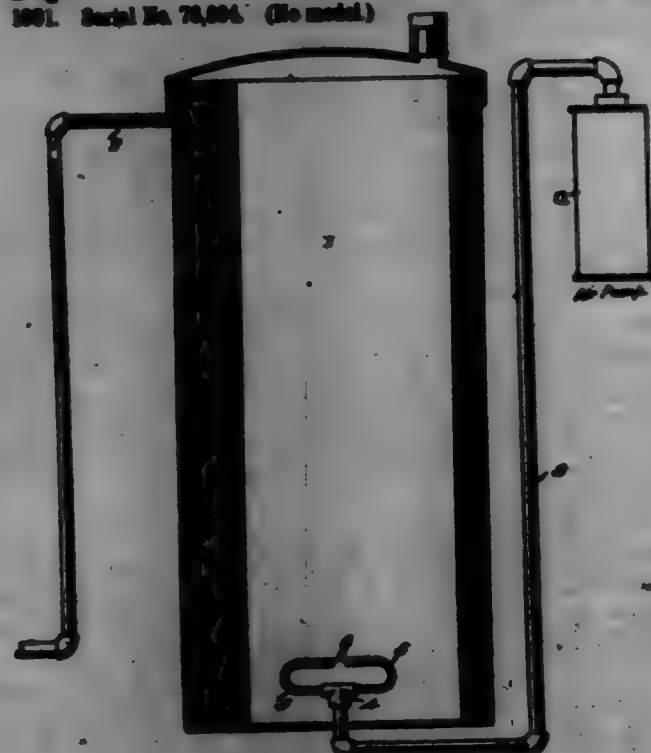
15. In a railway-switch, the combination with the switch-points, and mechanism including a rod for operating said switch-points; of a double crank connected to one end of said rod, wire connecting said double crank to a second double crank, adapted to be located in a station, an operating-lever adapted to engage steps upon one of said wires, to reciprocate said rod, and means for locking said operating-lever against operation, substantially as described.

16. In a railway-switch, the combination with the switch-points, and mechanism including a rod for operating said switch-points; of a double crank connected to one end of said rod, wire connecting said double crank to a second double crank, adapted to be located in a station, an operating-lever adapted to engage steps upon one of said wires, to reciprocate said rod, and means for locking said operating-lever against operation, substantially as described.

17. A switch-point for railway-switches, comprising a rail having its free end bent at an angle, and the gage side of this bent portion cut away to form a straight line with the remaining portion of the rail, deep enough to allow the wheel-flanges to pass.

18. A switch-point for railway-switches, comprising a rail having narrow flanges at its pivoted end, these flanges disappearing at the free end of the switch-point, and the free end of the switch-point being composed of a solid tapering rectangular section, said rectangular portion being bent off from the remaining portion of the switch at an angle as to fit against the side of the adjacent main rail, the gage side of the bent rectangular portion of the rail being cut away in a straight line with the gage side of the remaining portion of the rail, the portion below this cut-away portion being left intact.

698,958. GARDNER. GEORGE W. HARRIS, Broken Bow, Neb., assignor of one-third to J. R. Dean, Broken Bow, Neb. Filed Sept. 26, 1901. Serial No. 78,004. (No model.)



Claim.—In a carburetor, a tank for liquid hydrocarbon, a service-pipe leading therefrom at an elevated point, in combination with means to compress air, and a pipe to discharge the compressed air into said tank in the body of the liquid hydrocarbon therein, said pipe having oppositely-disposed jet-tips of reduced capacity to discharge compressed air in jets which impinge against each other and in the liquid hydrocarbon, for the purpose set forth, substantially as described.

698,954. CAR-FENDER. CLARENCE F. BAKER, Milwaukee, Wis. Filed Oct. 21, 1901. Serial No. 88,097. (No model.)



Claim.—1. In a car-fender, the combination with a suitable frame comprising longitudinal and transverse strips, and having friction-wheels secured thereto and adapted to travel upon the tracks, of a front transverse shaft having a series of independent separate rollers mounted thereon, and carrying wheels fast on said shaft and connected to said friction-wheels so as to revolve in the opposite direction to the revolution of said friction-wheels, and the said front shaft being adapted, by its backward revolution, to carry objects with which it comes in contact up and over upon the frame of the fender, the said rollers on the front shaft being separated by, and rising to a higher plane than, the front ends of the said longitudinal strips.

2. In a car-fender, the combination with a suitable frame comprising longitudinal and transverse strips, and having friction-wheels secured thereto and adapted to travel upon the tracks, of a front transverse shaft, wheels fast on said shaft and supported above said tracks, and cross-geared to said friction-wheels so as to revolve in opposite directions thereto, and a series of independent separate rollers of yielding material mounted on the said front transverse shaft, the said longitudinal strips of the fender-frame alternating with the said rollers, and the front ends of said strips being curved around the said front shaft.

3. The combination with a car-platform provided with hangers on its upper side, and an opening therethrough in front of said hangers, of a fender-frame, having side bars hinged to said hangers, and projecting in front of said platform, and having their front ends guided by a transverse shaft pivotally secured thereto, said shaft carrying wheels fast on its outer ends; a rear transverse shaft, pivotally secured to said side bars, and carrying friction-wheels adapted to travel on the tracks, and geared to the wheels on the ends of the said front transverse shaft, the wheels on the two transverse shafts being adapted to revolve in opposite directions; a series of independent separate rollers on the front transverse shaft; and a rod, hinged to the fender-frame and passing through the said opening in the platform, said rod being provided with a catch for supporting the fender-frame in a raised position when not in use.

698,955. BRIDGE FOR MUSICAL INSTRUMENTS. EDWARD E. JAMESON, London, England. Filed Nov. 28, 1901. Serial No. 83,602. (No model.)



Claim.—1. A bridge for supporting the strings of a musical instrument composed of a string-support resting on a bell-mouthed pier.

2. A bridge for the strings of a musical instrument having a plurality of bell-mouthed supports, and a tie-bar of low-conductivity connecting and supporting said bell-mouthed supports.

3. A bridge for the strings of a musical instrument composed of a plurality of tie-bars of low conductivity of vibration affixed to a series of hollow bell-mouthed feet supporting the strings of the said instrument.

4. In a stringed musical instrument a bridge supported upon a bell-shaped base including between its walls and the vibratory surface of the instrument a volume of air.

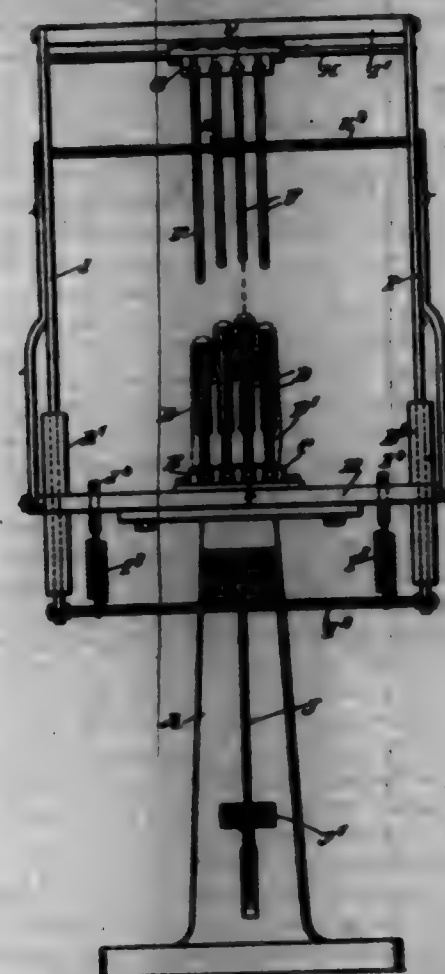
5. In a musical instrument provided with vibratory strings, a bridge composed of a string-support, a connecting-neck, and a bell-shaped hollow support.

6. In a stringed-musical-instrument bridge a plurality of string-supporting supports, connecting-necks and bell-shaped hollow air-including

feet and a tie-rod connecting said bell-shaped feet at adjusted distance apart.

7. Is a stringed-musical-instrument bridge the combination of a plurality of string-retainers, a corresponding number of connecting-necks and attached bell-shaped hollow feet and a plurality of tie-rods holding said feet in adjusted position.

698,956. GARMENT-TURNING APPARATUS. WILLIAM G. JARVIS, Delaware, Ohio. Filed Dec. 26, 1901. Serial No. 87,328. (No model.)



Claim.—1. A machine of the class described, comprising a tubular member for supporting the article, a plunger mounted to swing and to reciprocate and adapted when reciprocated to pass into the tubular member, and means for swinging the plunger horizontally when it moves into its uppermost position, as set forth.

2. A machine of the class described, comprising a plurality of tubular members in alignment with each other and spaced apart, plungers adapted to be passed into the said members, as set forth.

3. A machine of the class described, comprising a table, a plurality of tubular members supported vertically on said table, a corresponding number of plungers for engaging the tubular members, a plunger-frame carrying the plungers and provided with side arms mounted to slide in bearings carried by the table, cross-rods connecting the side arms of the frame at top and bottom, springs connected with the bottom cross-rod and screw-rods carrying in the table and connected with said springs for adjusting the tension of the table, as set forth.

4. A machine of the class described, comprising a plurality of tubular members in alignment with each other and spaced apart to receive the reversed fingers of a glove or like article, a corresponding number of plungers adapted to be passed into the said members to continuously reverse the fingers of the glove or like article, a cross-head carrying the said plungers, means for moving the cross-head up and down to engage the plungers with the tubular members, and means for turning the cross-head to swing the plungers into the rearward position at the time the cross-head is in the uppermost position, as set forth.

5. A machine of the class described, comprising a fixed socket, tubular members removably secured therein, plungers for engaging the said tubular members, a cross-head removably carrying the said plungers, a plunger-frame in which the cross-head is mounted to swing, the said plunger-frame being mounted to reciprocate, means for imparting reciprocating motion to the said plunger-frame and means for swinging the cross-head, as set forth.

6. A machine of the class described, comprising a fixed socket, tubular members removably secured therein, plungers for engaging the said

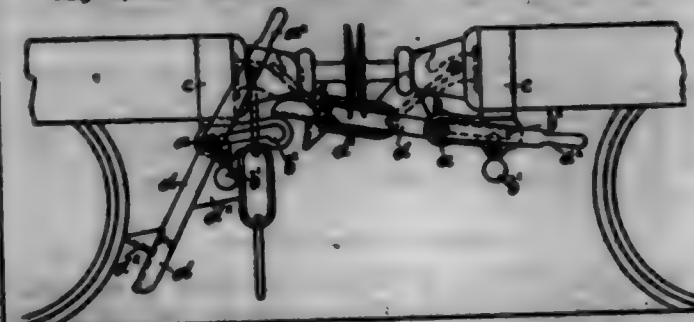
tubular members, a cross-head removably carrying the said plungers, a plunger-frame in which the cross-head is mounted to swing, the said plunger-frame being mounted to reciprocate, means for imparting reciprocating motion to the said plunger-frame, and a device for imparting a rearward-swinging motion to the said cross-head and plungers at the time the plunger-frame moves into the uppermost position, as set forth.

7. A machine of the class described, comprising a tubular member, a plunger for engaging the tubular member, a cross-head carrying the plunger, a plunger-frame mounted to reciprocate and in which the cross-head is mounted to swing, means for reciprocating the plunger-frame, and means for swinging the cross-head, comprising cam-arms pivoted to a fixed support and provided with cam-grooves engaged by friction-rollers on the plunger-frame, and a connection between said cam-arms and end of said plungers, as set forth.

8. A machine of the class described, comprising a table, a plurality of tubular members in alignment with each other and spaced apart, plungers adapted to be passed into the said members, a cross-head carrying the said plungers, a plunger-frame in which the cross-head is mounted to swing, means for swinging the cross-head, springs for normally holding the plunger-frame in the uppermost position, and a link connecting the lower part of the plunger-frame with a treadle, as set forth.

9. A machine of the class described, comprising a table, tubular members carried thereby, plungers for engaging the tubular members, a cross-head carrying the said plungers, a plunger-frame mounted to reciprocate and in which the cross-head is mounted to swing, means for reciprocating the plunger-frame, cam-arms pivoted at their lower ends to a fixed support and provided with cam-grooves engaged by friction-rollers on the side of the plunger-frame, a shaft journaled in the upper ends of the cam-arms, a link carried by said shaft, and pairs of friction-rollers held on said link and engaging end of said plungers, as set forth.

698,957. APPARATUS FOR COUPLING OR UNCOUPLING RAILWAY ROLLING-STOCK. JAMES FENNER, CHART, England. Filed July 12, 1901. Serial No. 88,970. (No model.)



Claim.—1. Apparatus for coupling railway-cars comprising a pivoted chain-linker, a slotted guide in which it is mounted, projections on the upper part of the linker, and an operating-handle whereby, on the continued movement of the handle the links are first raised, the projections are forced against the car-body and the pivoted chain-linker and chain are forced outward in the slotted guide.

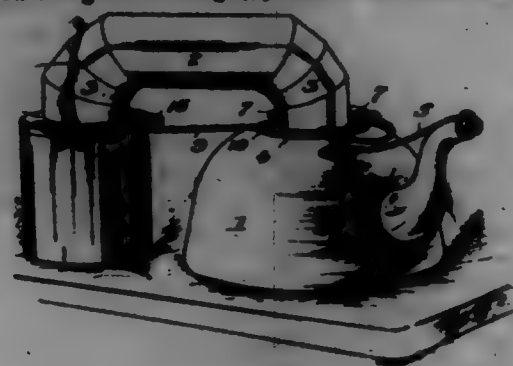
2. Apparatus for coupling railway-cars comprising a pivoted chain-linker, a slotted guide in which it is mounted, projections on the upper part of the linker, and an operating-handle whereby, on the continued movement of the handle the links are first raised, the projections are forced against the car-body and the pivoted chain-linker and chain are forced outward in the slotted guide, in combination with a projection on the lower side of the linker adapted to be acted on by the back of the approaching car, to throw the linker backward in its slotted guide and drop the extended link over the back, substantially as described.

3. Apparatus for coupling railway-cars comprising a pivoted linker, an operating-shaft for the linker, a slotted guide therefor on each side of the car and a recessed outer end to the slides and means for first raising the linker and then advancing it on the rotation of the shaft so that the shaft occupies a position in the forward end of the guide and is retained there by the recess, as set forth for the purpose described.

4. Apparatus for coupling railway-cars comprising a pivoted linker, an operating-shaft for the linker, a slotted guide therefor on each side of the car and a recessed outer end to the slides and means for first raising the linker and then advancing it on the rotation of the shaft so that the shaft occupies a position in the forward end of the guide and is retained there by the recess, in combination with a projection on the under side of the linker adapted to be acted on by the back of an approaching car to throw the linker back out of the recess and permit the linker to fall onto the back, substantially as described.

698,958. INTELLIGENT APPARATUS. BENJA JAMESON, Peabody, Cal. Filed Aug. 29, 1901. Serial No. 78,005. (No model.)

Claim.—1. In an apparatus for distillation, the combination with a condenser, of a pipe extending out laterally therefrom, means for detachably connecting one end of the pipe to the condenser, and an arm detachably connecting the overhanging portion of the pipe to the condenser.



2. In an apparatus for distillation, the combination with a condenser having an ear, of a pipe extending out laterally therefrom, means for detachably connecting one end of the pipe to the condenser, and an arm connected to the overhanging portion of the pipe and provided with a projection which is adapted for engagement with the ear.

3. In an apparatus for distillation, the combination with a condenser, of a pipe extending out laterally therefrom, and a pivoted ball detachably connecting the overhanging portion of the pipe to the condenser.

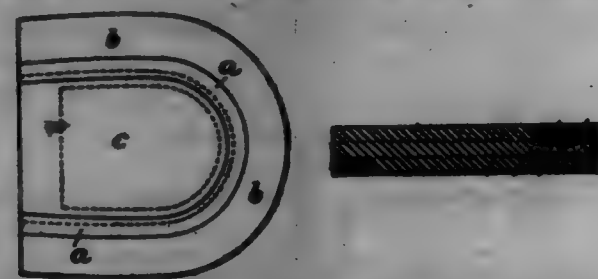
4. In an apparatus for distillation, the combination with a condenser, of a pipe adapted for connection thereto, a pin on the pipe, and a ball pivoted to the condenser and adapted to engage the pin.

5. In an apparatus for distillation, the combination with a condenser, of a pipe extending out laterally therefrom, a ball pivoted to the condenser, a pin on the pipe with which the ball is adapted to engage, and an arm on the overhanging portion of the pipe adapted for detachable engagement with the condenser.

6. In an apparatus for distillation, the combination with a condenser, of a pipe connected thereto and extending out laterally therefrom, and a distilling vessel suspended in mid-air from the overhanging end of the pipe.

7. The combination with a tea-bottle, of a condenser, an overhanging pipe connected to the condenser and having a collar on its overhanging portion, turn-buttons on the collar having hooks adapted to engage the margin of the opening in the bottle, an arm connecting the collar with the condenser, and a stopper for the spout of the tea-bottle which is attached to the collar.

698,959. HEBEL-LIFT FOR BOOTS OR SHOES. James J. Jones, New York, N.Y. Filed Mar. 27, 1900. Serial No. 10,242. (No model.)



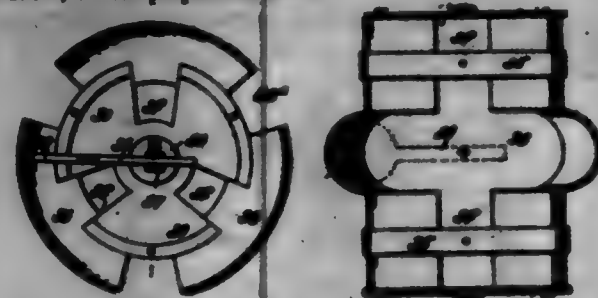
Claim.—1. As a new article of manufacture, a composite heel-lift for boots and shoes, comprising a block or form of rubber having a continuous wall completely inclosing an open center, the inner surface of said wall being of irregular or offset outline, and a filling-block of a material different from and of corresponding thickness with the block of rubber, the edge of the filling-block being of irregular outline and fitting the open center within the wall of the block of rubber and extending with the wall thereof, substantially as set forth.

2. As a new article of manufacture, a composite heel-lift for boots and shoes, comprising a block of rubber having a wall completely inclosing an open center, the inner surface of said wall being provided with an undercut recess, and a filling-block of leather corresponding in thickness with the said rubber block, fitting the open center thereof and having a peripheral rib which fits the inner wall of the rubber block, substantially as specified.

698,960. PULVERIZER. James R. Jones, Jackson, Miss. Filed Aug. 27, 1901. Serial No. 78,027. (No model.)

Claim.—1. In agricultural implements, a pulverizer, consisting of hub-sections mounted to revolve upon a shaft, each hub-section comprising a hub and spaced segmental members attached to the outer face of the hub, means, substantially as described, for connecting the hub-sections, and a paddle carried by the said shaft and extending within the arched portion of the pulverizer, for the purpose set forth.

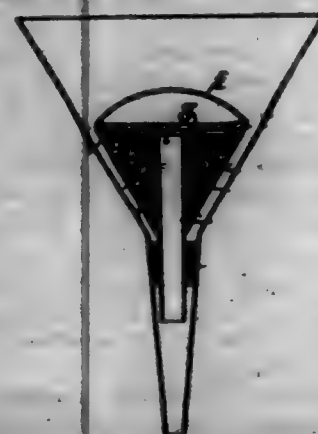
2. In agricultural implements, a pulverizer consisting of opposing hub-sections, each hub-section comprising a hub and segmental members connected with the outer face of the hub, an arched section intervening between the hub-sections, the arched section having openings therein, a fixed shaft on which the hub-sections are mounted to turn, and a paddle carried by the said shaft and extending within the arched portion of the pulverizer, for the purpose set forth.



3. In agricultural implements, the combination, with opposing hub-sections, each hub-section comprising a hub and segmental plates attached to the outer face of the hub, spaces intervening between the opposing ends of the segmental plates, means, substantially as described, for connecting the hub-sections, and a fixed shaft on which the hub-sections are mounted to turn, of plates which enter the spaces between the segmental members of the hub-sections, each plate being provided with an arched member at right angles to the plate, which arched members are located between the opposing edges of the hub-sections, and a paddle carried to the said shaft, entering the arched members of the plates and conforming to the contour of the said arched members, as and for the purpose specified.

4. In agricultural implements, a pulverizer consisting of opposing hub-sections, each section comprising a hub, and segmental members secured to the outer face of the hub, spaces intervening between the opposing ends of the said segmental members, a fixed shaft upon which the hub-sections turn, plates closing the periphery of the outer ends of the hub-sections, fastening devices passed through the closing-plates and through the segmental members of the hub-sections, longitudinal plates which enter and fill the openings intervening between the segmental members of the hub-sections, each longitudinal plate being provided with an arched central member, extending transversely of the plate, the arched members of the longitudinal plates being located between the hub-sections, the arched members of the longitudinal plates being as constructed that spaces intervene between them, which spaces are in communication with the interior of the pulverizer, a fixed shaft on which the hub-sections revolve, and a paddle carried to the said shaft, extending and loosely fitting in the arched members of the longitudinal plates, for the purpose set forth.

698,961. STRAINER. William Jones, London, Eng. Filed Sept. 25, 1901. Serial No. 76,174. (No model.)



Claim.—1. The combination with a funnel, of a hollow strainer therein having an imperforate upper portion, a perforated diaphragm between the perforate and imperforate portions of the strainer and a tube passing through said diaphragm and connecting the space above it with the spout of the funnel and making a tight connection with said spout.

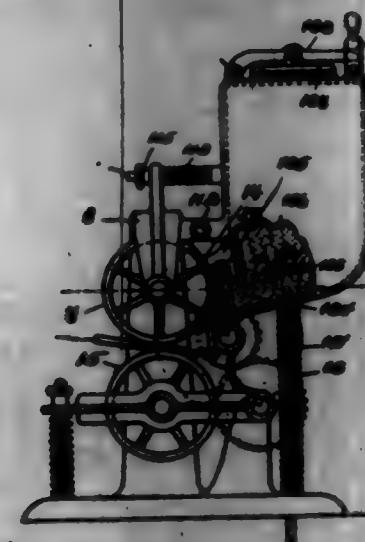
2. The combination with a funnel, of a hollow strainer therein having an imperforate upper portion, a perforated diaphragm between the perforate and imperforate portions of the strainer, a tube passing through said diaphragm and connecting the space above it with the spout of the funnel and a stopper surrounding said tube for making a tight joint with the spout.

3. The combination with a funnel of a conical strainer therein having an imperforate cap on its upper end, a perforated diaphragm below said cap and a tube passing through said diaphragm and connecting the space above it with the spout of the funnel and making a tight connection therewith.

4. The combination with a funnel of a conical strainer therein having an arched or convex imperforate cap, a perforated diaphragm at the top of the conical portion of the strainer and below said cap, a tube leading from said diaphragm and connecting the space above it with the spout of the funnel and a stopper surrounding said tube for forming a tight joint with the spout.

5. The combination with a funnel of a conical strainer therein having an arched or convex imperforate cap, a perforated diaphragm between the conical portion of the strainer and the cap forming an upper and a lower chamber, a tube leading from the upper chamber through the diaphragm and the lower chamber and into the spout of the funnel, a stopper surrounding said tube for forming a tight joint with the spout and filtering material filling the lower chamber.

698,962. ORIENTING-MACHINE. GEORGE JULIAN, Boston, Mass. Assignor, by mesne assignments, to Julian Manufacturing Company, Boston, Mass., a Corporation. Filed Mar. 23, 1901. Serial No. 69,190. (No model.)



Claim.—1. A cementing-machine comprising a cement-applying roll having pockets in its periphery, a bed-roll which supports the work under the applying-roll, a cement-preparator adapted to hold a body of cement against one side of the applying-roll above its cement-applying portion, a wiper which bears against the periphery of the applying-roll between the body of cement and the said applying portion, and means for adjusting said wiper relatively to the periphery of the applying-roll.

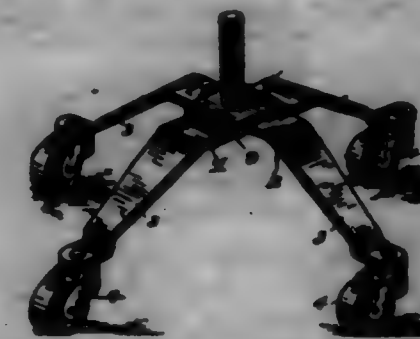
2. A cementing-machine comprising a cement-applying roll having pockets in its periphery, a bed-roll which supports the work under the applying-roll, a cement-preparator having end portions bearing against the ends of the applying-roll, and a bottom portion or wiper extending along the periphery of the applying-roll and in wiping or rubbing contact therewith, between the body of cement and the said applying portion.

3. A cementing-machine comprising a cement-applying roll having pockets in its periphery, a bed-roll which supports the work under the applying-roll and is pressed yieldingly toward the applying-roll, a cement-preparator having end portions bearing against the ends of the applying-roll and a wiper bearing against the periphery of the applying-roll between the body of cement and the said applying portion, and means for adjusting said wiper relatively to the periphery of the applying-roll.

4. A cementing-machine comprising a cement-applying roll having pockets in its periphery, a bed-roll which supports the work under the applying-roll and is pressed yieldingly toward the applying-roll, a cement-preparator having end portions bearing against the ends of the applying-roll and a wiper bearing against the periphery of the applying-roll between the body of cement and the said applying portion, said preparator being pivoted above the said wiper, so that the latter is adapted to swing edgewise toward the applying-roll, and means for exerting pressure on said preparator in the direction required to press the said wiper against the periphery of the applying-roll.

5. A cementing-machine comprising a cement-applying roll having pockets in its periphery, a bed-roll which supports the work under the applying-roll and is pressed yieldingly toward the latter, a cement-preparator adapted to hold a body of cement against one side of the applying-roll above its cement-applying portion, and having a wiper which bears against the periphery of the applying-roll between the body of cement and the said applying portion, and a reservoir adapted to supply cement to the preparator, said reservoir having an outlet extending into said body of cement, and being practically air-tight above said outlet, whereby the flow of cement to the preparator is automatically checked by the rise of cement in the latter.

698,963. FURNITURE-CASTER. JOHN W. KEMMER, Cecil, Ga. Filed Nov. 14, 1901. Serial No. 82,708. (No model.)

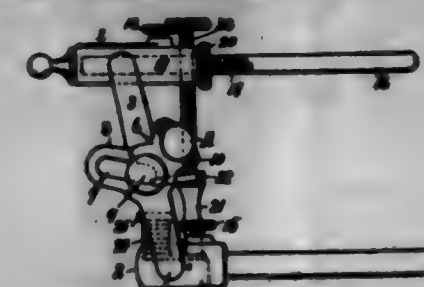


Claim.—1. A caster comprising an X-shaped spring-frame the arms of which are free to vibrate and provided with center-wheels at their free ends, substantially as specified.

2. In a caster, the combination of a pair of resilient metallic strips curved to form an X-shaped frame, a cross connecting the strips at the point of crossing, and center-wheels mounted upon the ends of the strips which form the radial arms of the frame, substantially in the manner set forth.

3. A caster comprising, in combination, an X-shaped frame formed of a pair of curved spring-metal strips having an interlocking engagement at the point of crossing, the free ends of the strips forming independently-yieldable radial arms, a center-wheel mounted on each arm, a stem passing through the crossed portion of the strips, and means for clamping the stem and strips together, substantially as set forth.

698,964. DENTAL ARTICULATOR. MATTHEW H. KINN, Detroit, Mich. Assignor to the Kinn Dental Manufacturing Company. Filed Nov. 18, 1901. Serial No. 69,661. (Model.)



Claim.—1. In an articulator the combination of the jaw members, a hinge uniting the jaw members, means forming a part of the hinge structure for allowing a direct lateral movement of one or both of the jaw members independently of the hinge movement whereby a jaw member may be moved laterally coincident with the articulatory movement thereof.

2. In an articulator, the combination of the jaw members hinged together to articulate and means for allowing a direct lateral movement of either of said members in a plane parallel with its companion member.

3. In an articulator, the combination of the jaw members, a hinge uniting said jaw members, a slotted plate rotatably seated in the members of one of the jaws the plates of the hinge uniting said jaws passing through the slots in said plates and means for adjusting said plates to change the angle of said slots.

4. In an articulator, the combination of the jaw members, a hinge uniting said jaw members, said hinge affording a lateral movement of the jaw member as well as an articulation thereof, slotted plates rotatably seated in the members of one of the jaws, the plates of the hinge passing through the slots of said slotted plates and entering the opposite jaw members, said plates lying in said slots, means for adjusting said slotted plates and for locking them when adjusted.

5. In an articulator, the combination of the jaw members hinged together, said jaw members having detachable bows adapted to carry the teeth, the upper bow having a thread upon one end thereof and an adjustable nut screwed onto said threaded portion adapted to engage the jaw member for the purpose of adjusting the bow and maintaining said adjustment when the bow is removed.

6. In an articulator, the combination of the jaw members hinged together, an inclined plane supported from the lower jaw member, an adjusting-screw carried by the upper jaw member adapted to engage the surface of said inclined plane.

7. In an articulator the combination of the jaw members, a hinge uniting the jaw members, means for allowing a direct lateral movement of a jaw member in a plane parallel with its companion member independently of the hinge movement whereby a combined lateral and articulatory movement is obtained, and means for automatically returning the movable parts to their normal position.

8. In an articulator the combination of the movable members adapted to carry the teeth, a hinge uniting said members constructed to afford a lateral and an articulatory movement, means for adjusting said hinge to allow the teeth to articulate and occlude in the lateral movement to accommodate any curve of the jaw.

9. In an articulator the combination of the movable members adapted to carry the teeth, a hinge uniting said members, said hinge being constructed to allow a lateral and a longitudinal reciprocation of a hinge member as well as an articulatory movement thereof, and means for automatically restoring the parts to their normal position after a longitudinal or lateral movement.

10. In an articulator the combination of the jaw members united by a hinge having a normal axis of oscillation, means for allowing a movement of the plates of the hinge away from said normal axis in a plane diametrical thereto, and means for changing the plane of travel of said plates in a direction concentric with said normal axis.

11. In an articulator the combination of the jaw members, a hinge uniting said members, said hinge affording a lateral and an articulatory movement of a jaw member, the plates of the hinge having sockets in their ends and the springs fixed to one of the members of the jaw and entering freely the sockets of said plates.

698,965. CONNECTION OF STRIKERS TO MOTOR-VEHICLES FOR MECHANICALLY OPERATING ELECTRIC SWITCHES. WILLIAM KUNHAM, London, England. Filed Aug. 28, 1901. Serial No. 12,042. (No model.)



Claim.—1. In a device for operating electric switches, the combination with a practically horizontal member having a downwardly-extending striking-arm at one end thereof to rest upon the tappet mechanism, of a vertical pivot-pin upon which the other end of the horizontal member is freely mounted, and means for connecting the said pivot-pin to the axle-box of the car-wheel axle, substantially as set forth.

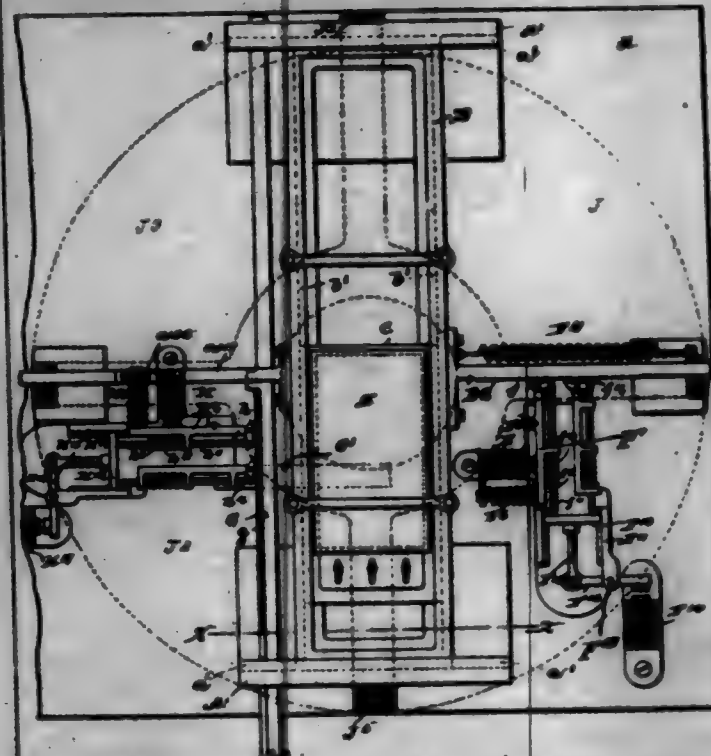
2. In a device for operating electric switches, the combination with a downwardly-extending striker to rest upon the tappet mechanism, of a practically horizontal arm upon one end of which the striker is carried, and a vertical pivot-pin supported from the axle-box of the car-wheel axle, upon which pivot-pin the other end of the horizontal arm is mounted so that the said arm is free to turn in a horizontal plane, and whereby the striker can freely follow the curves of the track-rail, substantially as set forth.

3. In a device for operating electric switches, the combination with a downwardly-extending striker to rest upon the tappet mechanism, of a practically horizontal arm upon one end of which the striker is carried, a vertical pivot-pin supported from the axle-box of the car-wheel axle, upon which vertical pivot-pin the other end of the horizontal arm is mounted, so that the said arm is free to turn in a horizontal plane, and means by the striker can freely follow the curves of the track-rail, and means

for elastically maintaining the acting end of the striker in a working position in the direction of its action substantially as set forth.

4. In a device for operating electric switches, the combination with a downwardly-extending striker, to rest upon the tappet mechanism, of a practically horizontal arm upon one end of which the striker is carried, a frame connected to the motor-vehicle, vertical guides in the frame and sliding axle-boxes in the guides to carry the wheel-axle, so that the frame may move vertically upon the axle-boxes, a vertical pivot-pin supported from the axle-box of the car-wheel axle, upon which pivot-pin the striker-carrying arm is mounted so that the said arm is free to turn in a horizontal plane, and means for elastically maintaining the acting end of the striker in a working position in the direction of its action substantially as set forth.

698,966. MACHINE FOR PRODUCING MATRICES FOR STYLOTYPE-PLATES. EDWIN LIND, Philadelphia, Pa. Filed Nov. 20, 1901. Serial No. 809,440. (No model.)



Claim.—1. In a machine of the class described, a writing-machine, a printing-machine provided with a plurality of fonts of type of different faces, and electromagnetic devices for actuating the type-arms of said printing-machine, said electromagnetic devices being in circuit with suitable connections controlled by the keyboard of the writing-machine.

2. In a machine of the class described, a writing-machine, a printing-machine provided with a plurality of fonts of type of different faces, electromagnetic devices for actuating the type-arms of said printing-machine, a separate circuit for the electromagnetic devices of each type-font, and means for controlling each of said circuits.

3. A printing-machine provided with a plurality of fonts of type of different faces, each font being operated by an independent system of electromagnetic devices controlled by a type-writer circuit, and a switch for throwing into operation any font desired, in combination with a type-writer located in said circuit for operating any one of said fonts.

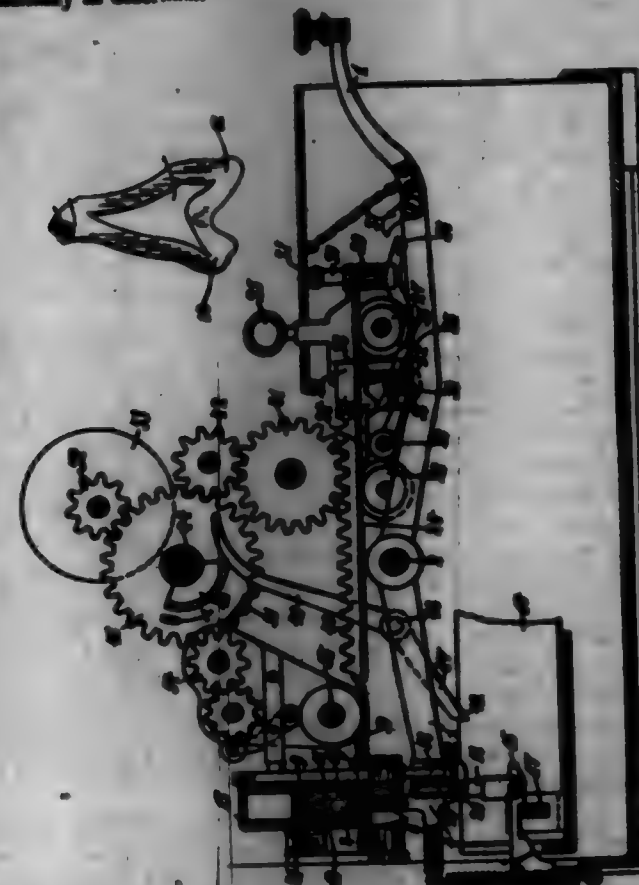
4. A printing-machine provided with a plurality of fonts of type of different faces, each font being operated by an independent system of electromagnetic devices controlled by a type-writer circuit, a switch for throwing into operation any font desired, and electromagnetic devices for controlling the movements of the carriage of the machine, in combination with a type-writer located in said circuit for operating any one of said fonts.

698,967. CASE-REGISTER. WILLIAM KUNHAM and FRANK FLEMM, Munich, Germany, assignors to the Maschinenfabrik Hermann Döring & Co., Munich, Germany. Filed June 2, 1900. Serial No. 12,060. (No model.)

Claim.—1. In a cash-register apparatus, the combination of a registering mechanism, an indicating mechanism, a cash-drawer, an operating-lever, means controlled thereby for releasing the registering device, means for keeping the drawer locked until the amount of cash is indicated by the indicator, and means for releasing said drawer-locking means carried by said actuating-lever, substantially as described.

2. In a cash-register apparatus, the combination of a registering mechanism, an indicator, and a cash-drawer, an actuating-lever, means

controlled thereby for operating the registering mechanism, means for locking the drawer, means for preventing the release thereof when indicating the amount of cash by the indicator, and means for releasing the cash-drawer on a subsequent further depression of the actuating-lever, substantially as described.



3. In a cash-register apparatus, the combination with an indicating mechanism of an operating-lever, means controlled thereby for operating the indicating mechanism, means for locking the operating-lever against a full downward stroke at one operation, and means for releasing said lever for moving the remainder of the stroke after the indicating mechanism has been reset by the first portion of the stroke of said lever, substantially as described.

4. In a cash-register apparatus, the combination with an operating-lever of a piston for registering the movement of said lever, having a heart-shaped groove, and a fixed pin on the frame of the register for engaging the latter so as to limit the movement of the piston, substantially as described.

5. In a cash-register apparatus, the combination with a cash-drawer and an operating-lever, of a piston having an approximately heart-shaped groove and a fixed pin on the frame of the register engaging the said groove, a hook for locking the cash-drawer, a pin-and-dot connection between the operating-lever and the said hook for permitting a partial movement of the lever without releasing the hook, substantially as described.

6. In a cash-register apparatus the combination with indicating device and an operating-lever, of catches for locking the indicating device, means for disengaging the catches, a shaft having an arm provided with an articulated part and a finger on the operating-lever cooperating with the articulated part, whereby said arm will be actuated when the lever is moved in one direction, but not when reversed, substantially as described.

7. In a cash-register apparatus the combination with indicating device and an operating-lever, of a piston having a heart-shaped groove, and a fixed pin engaging the latter, catches for locking indicating device, means for disengaging the catches comprising a shaft having an arm provided with an articulated part, and a finger on the operating-lever cooperating with the articulated part, substantially as described.

8. In a cash-register apparatus the combination with indicating device, a cash-drawer and an operating-lever, of a piston having a heart-shaped groove, and a pin engaging the latter, a hook for locking the drawer, a pin-and-dot connection between the operating-lever and the hook for locking the drawer, catches for locking the indicating device, means for disengaging the catches and actuated upon by the operating-lever, a shaft having an arm provided with an articulated part, and a finger on the operating-lever cooperating with the articulated part, substantially as described.

9. In a cash-register apparatus, the combination of an indicating mechanism, a registering mechanism, an operating-lever, a spring-actuated bell-crank lever normally retaining the registering mechanism and the indicating mechanism in an uncoupled condition, and a spring-con-

trolled catch projecting laterally from the operating-lever and designed to strike one arm of the bell-crank lever for moving said bell-crank lever for effecting the coupling of the said mechanisms, substantially as described.

10. In a cash-register apparatus, the combination with an indicating device, an actuating-lever, and a cash-drawer having a catch in one edge thereof, of means engaging said catch for locking the drawer, a second locking means, means for releasing both locks, and means controlled by said actuating-lever for setting the indicating device before the release of said locks, substantially as described.

11. In a cash-register apparatus, the combination with a slightly-mounted registering mechanism, an indicating mechanism, and an operating-lever, of an articulated catch carried thereby, means coupling said registering and indicating mechanisms, and means for shifting the registering mechanism for uncoupling said parts, comprising a bell-crank lever adapted to be actuated by said articulated catch, and a bar pivotally connecting said bell-crank lever with the registering mechanism, substantially as described.

12. In a cash-register apparatus, the combination with an actuating-lever, and an indicating mechanism, of slides provided with teeth on their upper edges for operating said indicating mechanism, locking-teeth on the under edges of said slides, hooks engaging the said locking-teeth, a shaft mounted and laterally shiftable in the angle of the hooks, a lever carried by said shaft, by which it may be caused to disengage said hooks from said locking-teeth, and means on the actuating-lever for engaging the said shaft-lever, substantially as described.

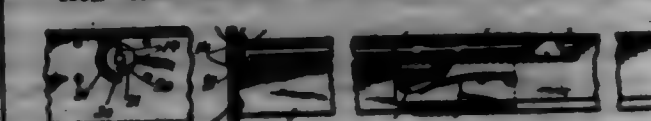
698,968. FILE FOR MILES. FRANK E. KRAE, Chicago, Ill., assignor to R. L. Krag, Chicago, Ill. Filed Jan. 22, 1900. Serial No. 1,201. (No model.)



Claim.—1. In a temporary binder, in combination, a plate 10 having post-receiving apertures, a plurality of posts 12 fixed in said plate and having lateral notches adjacent to their ends; a plate 11 having apertures for receiving the posts 12, a plurality of posts 13 fixed in the plate 11 and entering the apertures of the plate 10; a plate 14 in sliding engagement with the plate 11, and having apertures to receive the posts 12, and a spring for controlling this plate so as to draw its solid portions into engagement with the notches of said posts, substantially as described and for the purpose specified.

2. In a file for bills and the like, in combination, a pair of plates; a plurality of posts fixed in each plate and adapted to engage apertures in the other plate; a jointed cover for inclosing the above-named members and to which one of said plates is secured; and a clamp for detachably engaging the cover with the plate not so secured.

698,969. LOCK FOR LOOSE-LEAF BINDERS. FRANK E. KRAE, Chicago, Ill., assignor to R. L. Krag, New York, N. Y. Filed July 2, 1900. Serial No. 63,200. (No model.)

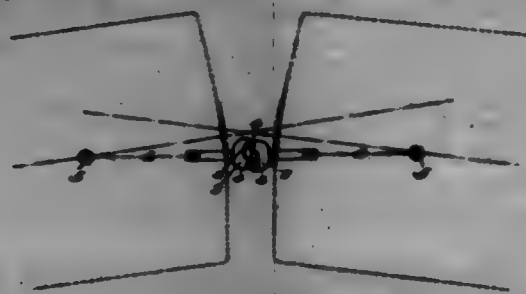


Claim.—1. In a loose-leaf binder, in combination, a pair of binding-plates one of which is provided with an aperture having a way offset therefrom, leaf-retainers fixed to the binding-plates, an oscillating toothed rod carried by the apertured binding-plate and having its end projecting into the said aperture, a finger extending from the rod and playing in the said way, a housing-plate secured to the other binding-plate and which receives the toothed rod, a spring-pressed pawl pivoted within the housing-plate and engaging the toothed rod, and a projection at the end of the rod and which is moved into the path of the pawl when the rod is oscillated.

2. In a loose-leaf binder, in combination, a pair of binding-plates one of which is provided with an aperture having a curved way offset therefrom, telescoping leaf-retainers fixed to the binding-plates, a plate secured to the apertured binding-plate and having an opening extending with the said aperture, an oscillating toothed rod journaled in the opening of the plate and having its end projecting into the aperture of the binding-plate, a nut secured on the end of the rod, a finger on the nut

playing in the said curved way, a pin in the path of the finger, a curved housing-plate secured to the other binding-plate for receiving the toothed rod, and a spring-pressed pawl pivoted within the housing-plate and engaging the tooth of the rod.

698,970. GAR-COUTLING. HARRY T. KRAMER, Cleveland, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 21, 1891. Serial No. 72,126. (No model.)



Claim.—1. A coupler having a coupler-head and knuckle, the front walls of the head and knuckle being substantially parallel when the knuckle is closed, and the coupler-head being connected with the ear by a pivotal connection substantially coincident with the center of motion of the ear-truck.

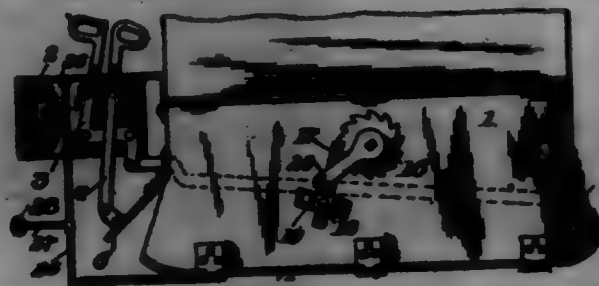
2. A coupler having a coupler-head and knuckle, the front walls of the head and knuckle being substantially parallel when the knuckle is closed; and the coupler being pivotally connected with the ear at a point back of the position of the end sill.

3. A coupler having a coupler-head and knuckle, the front walls of the head and knuckle being substantially parallel when the knuckle is closed, and substantially at right angles to the line of draft of the coupler, and the coupler being connected pivotally with the ear.

4. The combination of couplers having coupler-heads and pivoted knuckles shaped to interlock substantially inflexibly together, said couplers being connected pivotally to their respective ears at points substantially coincident with the center of motion of the ear-trucks.

5. The combination of couplers having coupler-heads and pivoted knuckles shaped to interlock substantially inflexibly together, said couplers being connected pivotally to their respective ears at points back of the position of the end sill.

698,971. DROP-BUTTON FOR AIR-PUMP. JOHN A. KRAMER, Bismarck, N. D. Filed Jan. 12, 1892. Serial No. 96,268. (No model.)

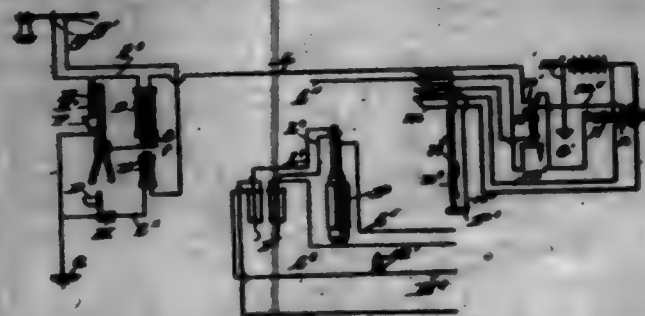


Claim.—1. In an air-box of a locomotive, the combination of drop-downs forming the bottom thereof, one of said doors carrying a platform integral therewith and underlapping the other door, an operating-shaft, chains connected to said operating-shaft and said doors, means to operate said door and the operating-shaft, and means independent of the said chains for preventing the accidental releasing of the said door, substantially as described.

2. In an air-box for locomotives and the like, the combination of drop-downs hinged to the sides of said box forming the bottom thereof, a plate carried by one of said doors underlapping the other door, an operating-shaft carrying a crank-handle, chains connecting said shaft and doors, and inwardly-inclined plates secured to the inner sides of said box near the bottom and above the hinges thereof, said plates being inclined at an angle, substantially as described.

3. In an air-box for locomotives and the like, the combination of drop-downs hinged to the sides of said box forming the bottom thereof, a plate carried by one of said doors underlapping the other door, an operating-shaft carrying a crank-handle, arms secured on the operating-shaft to which the chains are attached, plates secured to the inner sides of said box near the bottom thereof, said plates being inclined at an angle, aatchet-wheel carried by said operating-shaft, and a locking-pawl, a bar extending from the doors, a rod pivoted to a platform, said rod supporting said bar and means for releasing the same, all parts being arranged and operating substantially as shown and described.

698,972. APPARATUS FOR TELEPHONE TALK-LINE. THOMAS A. LANE, Chicago, Ill., assignor to East Continental Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed June 12, 1892. Serial No. 68,913. (No model.)



Claim.—1. In a system of communication, the combination with a signal-circuit, of means operated by a talk-piece controlling said circuit, a local circuit, means in said local circuit controlling the transfer of the talk-piece from its operative engagement with said means, and means for making and breaking said local circuit, substantially as described.

2. In a telephone system, the combination with a telephone instrument, of means operated by a talk-piece for controlling a signal at a central station, a local circuit, means in said local circuit controlling the transfer of the talk-piece from its operative engagement with said means, and means for making and breaking said local circuit, substantially as described.

3. In an apparatus of the character described, the combination with a plurality of chutes, of means for controlling the passage of an article into a predetermined one of said chutes, an arm rigidly secured to said means, a pivoted armature normally in alignment with said arm, a rail-rod connection between said armature and said arm, and a plurality of magnets for actuating said armature, and an independent circuit for energizing each of said magnets.

4. In an apparatus of the character described, the combination with a plurality of chutes, of a main chute communicating therewith, a switch for connecting one of said communicating chutes with the main chute, an arm rigidly secured to said switch, an armature for operating said switch, a spring-rod interposed between said armature and said arm, and magnets secured on opposite sides of said armature, and an independent circuit for each of said magnets.

5. In a telephone instrument, the combination with a plurality of chutes, of means for controlling the passage of a talk-piece into a predetermined one of said chutes, a plurality of magnets for actuating said means, a local circuit at the instrument for energizing one of said magnets, a circuit for energizing the other of said magnets, and means for controlling each of said circuits, substantially as described.

6. In a telephone instrument, the combination with a plurality of chutes, of means for controlling the passage of a talk-piece into a predetermined one of said chutes, a plurality of magnets for actuating said means, a local circuit at the instrument for energizing one of said magnets, a controller for said circuit operated by the telephone-receiver support, an independent circuit for energizing the other of said magnets, and means for controlling said independent circuit, substantially as described.

7. In a telephone instrument, the combination with a plurality of chutes, of means for controlling the passage of a talk-piece into a predetermined one of said chutes, a plurality of magnets for actuating said means, a local circuit at the instrument for energizing one of said magnets, a controller for said circuit operated by the telephone-receiver support, a second controller for said circuit operated by the talk-piece, an independent circuit for energizing the other of said magnets, and means for controlling said independent circuit, substantially as described.

8. In a telephone instrument, the combination with a plurality of chutes, of means for controlling the passage of a talk-piece into a predetermined one of said chutes, a plurality of magnets for actuating said means, a local circuit at the instrument for energizing one of said magnets, contacts in said circuit adapted to be closed by the telephone-receiver when engaging its support, other contacts in said circuit adapted to be closed by the talk-piece, and means for energizing the other of said magnets, substantially as described.

9. In combination with an apparatus of the character described having an opening adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, and means local to the apparatus for energizing the said electrically-actuated means.

10. In combination with an apparatus having an opening adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, means located at the apparatus for controlling the said electrically-actuated means, and other means for transferring the talk-piece to a position inaccessible to the public, substantially as described.

11. In combination with a telephone instrument adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, a circuit actuating said electrical means, and contacts for closing said circuit operated by the telephone-receiver support, substantially as described.

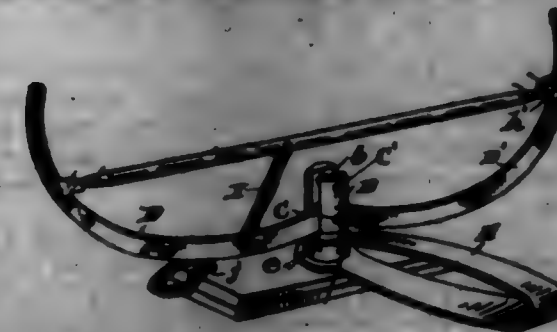
12. In combination with a telephone instrument adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, a circuit including said electrical means, means normally closed by the telephone-receiver engaging its support, and a controller in said circuit adapted to be operated by the talk-piece to completely close said circuit and thereby actuate said electrical means, substantially as described.

13. In combination with a telephone instrument adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, a circuit including said electrical means, a circuit-controller operated by the talk-piece to close said circuit and thereby actuate the electrical means, and means for making and breaking said circuit, substantially as described.

14. In combination with a telephone instrument adapted to receive a talk-piece, of electrically-actuated means for transferring the talk-piece to a freely-accessible position, a circuit including said electrical means, a plurality of circuit-controllers located at said instrument for closing said circuit through both of which the current passes to actuate said electrical means, substantially as described.

15. In a telephone system, the combination with a telephone instrument adapted to receive a talk-piece, of a switch controlling the transfer of the talk-piece to a freely-accessible position or to a position inaccessible to the public, a plurality of magnets for actuating said switch, an independent circuit for energizing each of said magnets, means whereby the user of the telephone may control the circuit energizing the magnets for transferring the talk-piece to a freely-accessible position, and means whereby the operator at central may control the circuit for energizing the magnets to transfer the talk-piece to a position inaccessible to the public, substantially as described.

698,973. ANIMAL-TRAP. HERMAN LARSEN, WILMINGTON, Conn. Filed Dec. 22, 1891. Serial No. 87,578. (No model.)



Claim.—1. A trap of the character described, comprising a base normally upwardly spring-pressed arms, a trigger for holding said arms apart, and said arms having rounded trigger-curves, substantially as described.

2. A trap of the character described, comprising a base, normally upwardly spring-pressed arms, an outwardly-extending stud carried by the opposite side of each arm and a trigger resting between said studs, substantially as described.

3. A trap of the character described, comprising a base, normally upwardly spring-pressed arms, an outwardly-extending stud carried by the opposite side of each arm, and a trigger between said arms and having tapered ends engaging said studs, substantially as described.

4. A trap of the character described, comprising a base, normally upwardly spring-pressed arms, an outwardly-extending horizontal rounded stud carried by the opposite side of each arm, and a trigger resting between said studs, substantially as described.

5. A trap of the character described, comprising a base, arms pivoted thereto and normally upwardly spring-pressed, an outwardly-extending horizontal rounded stud carried by the opposite side of each arm, and a trigger having tapered ends resting on and supported between said studs, substantially as described.

6. A trap of the character described, comprising a base, a stud carried thereby and having a vertical slot therein, arms or jaws pivoted side by side in the lower end of said slot, a spring surrounding the stud, and normally forcing the arms upward, a pin transverse said slot between the arms, an outwardly-extending horizontal rounded stud carried by the opposite side of each arm, and a trigger having tapered ends resting on and supported between said studs, substantially as described.

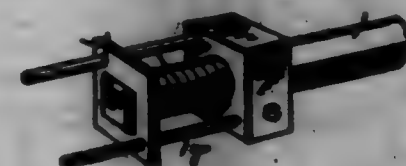
7. A trap of the character described, comprising a base, a stud carried thereby and having a vertical slot therein, arms or jaws pivoted side by side in the lower end of said slot, a spring surrounding the stud and

normally forcing the arms upward, a pin transverse the slot between the arms, an outwardly-extending horizontal rounded stud carried by opposite sides of said arms, and a trigger having tapered ends resting on and supported between said studs, substantially as described.

8. A trap of the character described, comprising a base, a stud carried thereby and having a vertical slot therein, jaws within said slot side by side, a pin passing transversely through said stud and arms, a V-shaped spring having its ends surrounding said stud, and one end normally forcing the arms upward, a pin transverse the slot between the arms, an outwardly-extending horizontal rounded stud carried by the opposite side of each arm, and a trigger having tapered ends resting on and supported between said arms, substantially as described.

9. A trap of the character described, comprising a base, arms pivoted thereto and normally upwardly spring-pressed, a trigger between said arms, and said arms having horizontally-projecting trigger-curves, substantially as described.

698,974. BUT-LOCK. LOUIS LEBLANC and SAMUEL FURST, HILLSBORO, Pa. Filed Dec. 12, 1891. Serial No. 68,368. (No model.)



Claim.—1. The combination with a bolt having a square end, and a nut having oppositely-arranged rods passed therethrough and rigidly secured to said nut with the free ends of the rods extending beyond said square end of the bolt, and a locking device comprising in its entirety an entirely-removable plate adapted to receive said square end of the bolt and to have the said free ends of the rods pass therethrough, said plate being engaged on said rods and moved horizontally to engage said square end of the bolt, substantially as described.

2. The combination with a bolt having a square end, and a nut, of rods passing through openings in the nut and having their free ends extending beyond the square end of the bolt, and a locking device comprising in its entirety a removable plate having a square central aperture to receive said square end of the bolt, and a series of smaller apertures located between the said central aperture and the edges of the plate, said smaller apertures adapted to receive the free ends of the said rods, whereby the plate can be slid thereon and have its central aperture brought into engagement with the bolt's square end.

698,975. ASHTYLENE-GAS GENERATOR. THOMAS H. LEWIS, London, England. Filed June 4, 1892. Serial No. 15,988. (No model.)



Claim.—1. In a cartridge for use in an acetylene or similar lamp, the combination with an inclosing case, of a corrugated or plaited strip of absorbent material arranged on the bottom thereof in such manner as to serve as a yielding confining and dividing frame to support the charge upon the upper side and yield as said charge increases in bulk with decomposition, and means located on the under side of the strip for extracting said strip with hydrating fluid.

2. In a cartridge for use in an acetylene or similar lamp, the combination with an inclosing case of a corrugated or plaited strip of absorbent material arranged therein in such manner as to serve as a yielding confining and dividing frame to support the charge on one side, a central non-conducting rod to keep the lower ends of the corrugations or plaites from contact, and means whereby said rod may be exposed to the current of a hydrating fluid, to absorb and conduct moisture therefrom to the contacting surfaces of the charge resting on its plate.

3. In a cartridge for use in an acetylene or similar lamp the combination with a non-conducting casing having a recess formed in its bottom wall, and an opening through the floor of said recess, of an absorbent pad set within said recess.

4. In a cartridge for use in an acetylene or similar lamp, the combination with a non-conducting casing having a recess formed in its bottom wall, an opening through the floor of said recess, and a ledge or shoulder near the top of the casing, of an absorbent pad set within said recess, a tilted metal plate fitting snugly into said shoulder and a corrugated or plaited strip of absorbent material dividing said casing to support the charge upon its upper side and having its ends passed through the slit in said plate.

5. In a cartridge for use in an acetylene or similar lamp, the combination with a non-conducting case having a recess formed in its bottom wall, an opening *f* through the floor of said recess, and a ledge or shoulder *f'* near the top of the recess, of an absorbent pad set within said recess, a cork ring overlapping the edge of said pad and the ledge, a perforated metal plate covering said ring, and a plated or corrugated strip of absorbent material dividing said casing to support the charge therein and having its ends passed through said perforated plate and in contact with the absorbent pad.

698,976. SLAVE FOR PROTECTING INSULATOR-PIN. FRANK H. LORR, Victor, N. Y. Filed Nov. 11, 1901. Serial No. 51,914. (No model.)



Claim.—1. A slave for an insulator-pin, constructed of porcelain or similar material, having a flange at the bottom extending out to a point beyond the point at which the base of the insulator would intersect the cross-arm in case the insulator-base was extended.

2. An insulator-slave constructed of porcelain or similar material having a flange at its lower end and adapted to rest upon the cross-arm and extending beyond a point upon the cross-arm which would be in vertical alignment with the base of the insulator.

3. A slave for an insulator constructed of porcelain or similar material, having a flange at the bottom adapted to rest upon the cross-arm and having the sides which rest upon the upper face of the cross-arm extended beyond the point upon the cross-arm in vertical alignment with the base of the insulator and having the sides of said flange depressed for the purpose of forming a head to protect the edges of the cross-arm from the elements.

4. A slave for an insulator constructed of porcelain or similar material, having a flange at the bottom adapted to rest upon the cross-arm and having the sides which rest upon the upper face of the cross-arm extended beyond the point upon the cross-arm in vertical alignment with the base of the insulator and having the sides of said flange depressed for the purpose of forming a head to protect the edges of the cross-arm from the elements.

5. A slave for an insulator constructed of porcelain or similar material, having a flange at the bottom adapted to rest upon the cross-arm and having the sides which rest upon the upper face of the cross-arm extended beyond the point upon the cross-arm in vertical alignment with the base of the insulator and having the sides of said flange depressed for the purpose of forming a head to protect the edges of the cross-arm from the elements, the lower edge of said depressed portion being semicircular for the purpose specified.

6. A slave for an insulator-pin constructed of porcelain or other insulating material surrounding the pin at the point where said pin meets the cross-arm and out of contact with the insulator and bolt which secures the pin to the cross-arm.

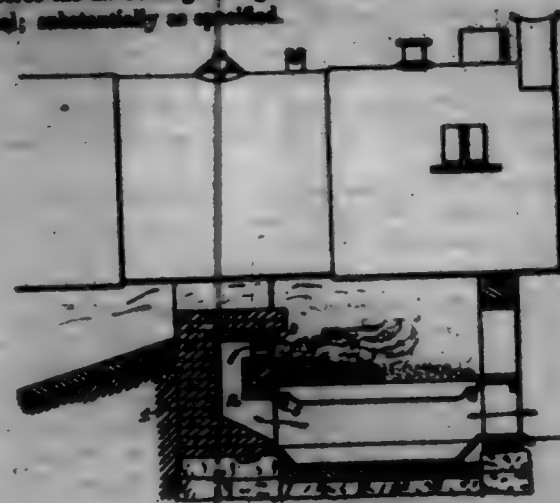
7. A slave for an insulator-pin constructed of porcelain or other insulating material surrounding the pin at the point where said pin meets the cross-arm, said slave being enlarged at its lower end and out of contact with the insulator and bolt which secures the pin to the cross-arm.

8. A slave for an insulator-pin constructed of porcelain or other insulating material surrounding the pin at the point where said pin meets the cross-arm, said slave increasing in size as it approaches its lower end and out of contact with the insulator and bolt which secures the pin to the cross-arm.

698,977. BRICKLAYS DOLLAR-FURNACE. JOHN G. LORR and JOHN LORR, St. Louis, Mo. Filed Dec. 4, 1901. Serial No. 54,998. (No model.)

Claim.—In a brick-furnace, the bridge-wall 1 built with a plurality of air-passages 2 leading from the sub-pit backwardly below the grate, then upwardly to a point some distance above the grate and then forwardly to the fire-box, then leaving the solid wall 5 back of and above the grate to support the fuel and to discharge the air which passes through the bridge-wall above the fuel and not through the fuel, the lower ends of the air-passages 2 being formed rectangular in lying the brick and

the pillars 6 between said air-passages serving to support the solid wall 5; the casing 4 placed upon the solid wall 5 and supporting the upper portion of the bridge-wall, said casing having longitudinally-extending slots forming air-passages 3 and said upper portion of the bridge-wall projecting forwardly a slight distance over the casing and over the fuel so as to force the air coming through the bridge-wall to pass forwardly over the fuel; substantially as specified.



698,978. TROLLEY-WHEEL. GEORGE LORR, Norwalk, Ohio, assignor to William R. Mowery and Stephen Shortt, Baltimore, Ohio. Filed Sept. 7, 1901. Serial No. 74,048. (No model.)



Claim.—1. A trolley-wheel having a body portion provided with a central base and a peripheral groove, a bushing secured in said base having reduced ends providing shoulders, flanges having central openings mounted on said bushing over the shoulders, and sets adapted to fit the ends of said bushing and bear against the shoulders and sides of the flanges, as set forth.

2. A trolley-wheel having a body portion provided with a central base and a peripheral groove, seats or depressions in the sides thereof surrounding said base, a bushing secured in said base having reduced ends providing shoulders, removable flanges mounted on said bushing and having projections on their inner sides adapted to be seated in the seats or depressions in the body portion, and means adapted to fit the ends of said bushing and bear against the shoulders and sides of the flanges, as set forth.

3. A trolley-wheel having a body portion provided with a central base and a peripheral groove, and provided on each side thereof with a projection, a bushing secured in said base having reduced ends providing shoulders, flanges having central openings and provided on their inner sides with circular grooves adapted to receive the projections on the sides of the body portion, and means adapted to fit the ends of said bushing and bear against the shoulders and sides of the flanges, as set forth.

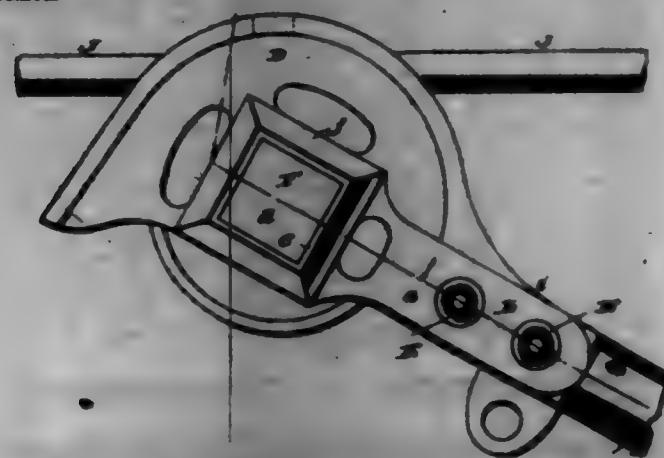
4. A trolley-wheel having a body portion provided with a central base and a peripheral groove, circular seats or depressions in the sides thereof surrounding said base, a bushing secured in said base having reduced ends providing shoulders, removable flanges having circular projections and grooves on their inner sides, circular seats or depressions on their outer sides, and means adapted to fit on the ends of said bushing and bear against the shoulders and sides of said flanges, as set forth.

698,979. TROLLEY-ARM HEAD. FRANK J. LORR, Inventor, N. Y. Filed Aug. 31, 1901. Serial No. 74,049. (No model.)

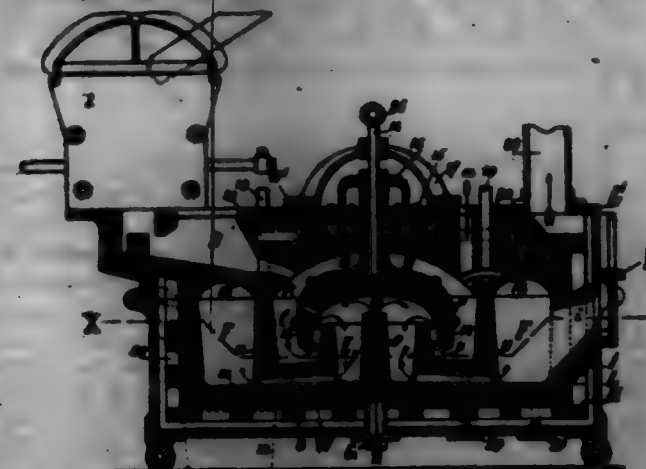
Claim.—1. A trolley-arm head comprising yoke and guard-flanges, which later on their upper sides are concentric with the wheel-flange and have continuations extending rearwardly and downwardly to a point below the bottom of the groove of the wheel, said continuations being longitudinally disposed from a point in vertical line with the axis of the wheel rearward when said wheel and head are in operative position, as set forth.

2. A trolley-arm head comprising a yoke and guard-flanges there-

on, said flanges on their upper sides being concentric with the wheel-flange and having continuations extending rearwardly and downwardly to a point below the bottom of the groove of the wheel, said continuations being longitudinally disposed from a point in vertical line with the axis of the wheel when said wheel and head are in operative position, said flanges being provided upon their inner faces in vertical line with the axis of the wheel with tubular protuberances, as set forth for the purpose specified.



698,980. APPARATUS FOR THE MANUFACTURE OF GLASS. ST. JULIAN LORR, Aachen, Germany. Filed Dec. 20, 1900. Serial No. 74,100. (No model.)



Claim.—1. In a glass-furnace, provided with an annular space to contain the liquid mass, the combination therewith of an inverted-bell-shaped stirrer and mixer having its edge in said annular space, and means for vertically reciprocating the bell and rotating it on its vertical axis, substantially as described.

2. In a furnace of the character described, the annular space *C*, having inner walls 7 surrounding a space *E*, in combination with the inverted-bell-shaped stirrer *D* having its lower edge in said space *C* and below the top of the walls 7, whereby the mass admitted to space *C* is compelled to pass under the edge of the bell *D* in order to escape over walls 7, substantially as described.

3. In a furnace of the character described provided with annular space *C* having inner walls 7 including space *E*, the combination of the bell-shaped stirrer *D* inverted with its edge in space *C* below the top of the wall 7, and a central pipe 9 in communication with a gas-supply and discharging under the bell-shaped stirrer, substantially as described.

4. In a furnace of the character described, a stirrer or mixer consisting of a rotatable rod or support, a perforated metal plate secured to its lower end, and an inverted bell of clay formed on said plate, the clay on the opposite sides of the plate being held together through the openings in the plate, substantially as described.

698,981. BRICKLAYS FURNACE FOR MAKING GLASS. ST. JULIAN LORR, Aachen, Germany. Filed Dec. 20, 1900. Serial No. 74,101. (No model.)

Claim.—1. In an electric smelting-furnace, the combination of a smelting-chamber having a longitudinal discharge-opening and a single negative electrode longitudinally arranged in said discharge-opening with a plurality of transversely-arranged positive electrodes in the same horizontal plane on each side of the negative, substantially as described.

2. In an electric smelting-furnace, the combination with a hopper-shaped smelting-chamber having a longitudinal bottom opening, and provided with vertically-extended corrugations in the lower surface of its side walls, of a single horizontal electrode lying longitudinally in the said

opening, and a plurality of transverse electrodes in the same horizontal plane ending near the longitudinal electrode and located in the vertical planes of the grooves of the corrugated sides, substantially as described.

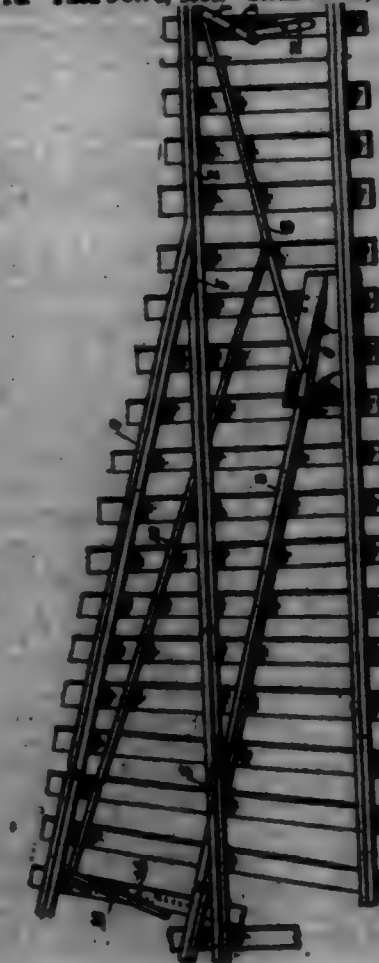


3. In an electric smelting-furnace, the combination of a smelting-chamber having a longitudinal discharge-opening and a single negative electrode arranged longitudinally in said discharge-opening, with a plurality of transversely-arranged positive electrodes in the same horizontal plane on each side of the negative electrode, the negative electrode being prism-shaped in cross-section and presenting opposite sharp corners toward the positive electrodes, substantially as described.

4. In an electric smelting-furnace, the combination of a smelting-chamber having a longitudinal discharge-opening and a single negative electrode longitudinally arranged in said discharge-opening, with a plurality of transversely-arranged positive electrodes in the same horizontal plane on each side of the negative electrode, the negative electrode being bored longitudinally and transversely for the passage of air and gas, substantially as described.

5. In an electric smelting-furnace, the combination of a smelting-chamber having a longitudinal discharge-opening and a single negative electrode longitudinally arranged in said discharge-opening, with a plurality of transversely-arranged positive electrodes in the same horizontal plane on each side of the negative electrode, the negative electrode being bored longitudinally, having one end of the said bore closed, and there being provided side outlets from the bore, whereby gas and air may be passed through, substantially as described.

698,982. SWITCH-THROWING DEVICE. FANN LUTHER, Allegheny, Pa. Filed Nov. 8, 1901. Serial No. 51,945. (No model.)



Claim.—1. In combination with a pivoted switch-tongue, a throwing-rod pivoted thereto, a pivoted lever to which the outer end of said throwing-rod is connected, a like lever pivoted to the first-mentioned lever whereby when the latter is actuated the switch-tongue is moved away from the main track, a throwing-rod pivoted to the first-mentioned throwing-rod, and a lever to which the outer end of said second-named throwing-rod is attached for returning the switch-tongue to its normal position, substantially as described.

2. In a switch, the combination with the main rail and the side rail, of a switch-tongue pivoted to a saddle-plate, a throwing-rod pivoted to said switch-tongue, a pivoted lever to which the outer end of said throwing-rod is connected, a throwing-rod connected to the first-mentioned throwing-rod, and a pivoted lever to which the said second-named throwing-rod is connected, substantially as described.

698,983. TANK-HEATER. MATTHEW LYDER, Maitland, Mo.
Filed Sept. 4, 1901. Serial No. 74,890. (No model.)



Claim.—1. A tank-heater comprising a water-jacket forming the top, sides and one end wall of a combustion-chamber, a front wall completing the same, a door formed therein, a grate within said chamber, and a flue of approximately the width of the combustion-chamber leading from the bottom of said chamber for conducting the products of combustion therefrom, substantially as described.

2. In a tank-heater, the combination with a tank, of a water-jacket beneath the same, means for permitting communication between the interior of said jacket and said tank, the said jacket forming the rear, top and side walls of a combustion-chamber, a front wall and base completing the same, a grate within said chamber, a door formed in the said front wall for the introduction of fuel to said grate, means carried by said door for regulating the supply of atmosphere to the combustion-chamber, and a flue of approximately the width of the combustion-chamber penetrating said base, near the rear end thereof and adapted to conduct the products of combustion therefrom, the structure being such that air admitted through said regulator is directed downwardly through said grate and out through said flue, substantially as described.

698,984. COIN-CONTROLLED VENDING-MACHINE. FRED LYDER, Johnston, N. Y. Filed June 1, 1901. Serial No. 66,714. (No model.)

Claim.—1. In a vending-machine, a plurality of receptacles for goods to be sold, a discharging device for each receptacle, a coin-receiver for each discharging device, electrically-operated means controlled by a coin for releasing the discharging device, chute leading to said receiver, a coin-chute common to all the first-named chutes, and a swinging hopper under the control of the operator for directing a coin from the coin-chute to any one of the first-named chutes, substantially as specified.

2. In a vending-machine, a series of compartments, a discharging device for each compartment adapted when released to discharge an article therefrom, a coin-receiving device for each discharger, a chute leading into each receiver, an electrically-operated device for releasing the discharger, a contact shovable in the receiver and having connection with said electric device, a chute extended from each receiver, a coin-chute having an opening at the front of the machine, and means under the control of the operator for directing a coin from said coin-chute into any one of the first-named chutes substantially as specified.

3. In a coin-controlled vending-machine, a receiver for a coin, having two communicating channels, contact and stop legs movable in said channels, contact-points adjacent to the receiver, and electrical connections closed by the coin for releasing a discharging device, substantially as specified.

4. In a coin-controlled vending-machine, a compartment or receptacle for goods, a discharging device for the goods, comprising a lever, means for moving said lever in discharging direction, an electromagnet carried by the lever, an armature carried by the lever and having swing-

ing connection therewith, a latch for engaging with a notch in the armature, and contact-points adapted to be closed by a coin for closing the circuit through the electromagnet, substantially as specified.



5. In a vending-machine, a series of compartments, a discharging device for each compartment, a coin-receiving device for each discharger, a chute leading into each receiver, a coin-chute having an opening at the front of the machine, and means under the control of the operator for directing a coin from said coin-chute into any one of the first-named chutes.

6. In a coin-controlled vending-machine, a series of receptacles for articles to be sold, the said receptacles being independent one of another, a coin-receiver for each receptacle, a discharging device for each receptacle, the said discharging device having an electromagnet for causing its release, the circuit through the magnet being closed by a coin in the receiver, chute leading to the receiver, a coin-chute, a hopper for receiving the coins from the coin-chute, a shaft on which said hopper is mounted, whereby it may be moved to discharge a coin into any of the first-named chutes, a crank on said shaft having a handle portion extended through an arc slot in the machine-casing, and a returning device for the shaft, substantially as specified.

7. In a coin-controlled vending-machine, a plurality of compartments or receptacles for articles to be sold, a discharging device for each receptacle, a shaft for each of the discharging devices, a coin-receiver for each of the receptacles, a leg mounted to slide in each receiver, the said leg being moved by connections with the shaft, draw-bar having connection with the shaft, the said draw-bar having hook ends, a bar on which the draw-bar slides and which is designed to be engaged by said hook ends, an upwardly-extended lever to which the bar is attached, and a push-rod for moving said bar in one direction, substantially as specified.

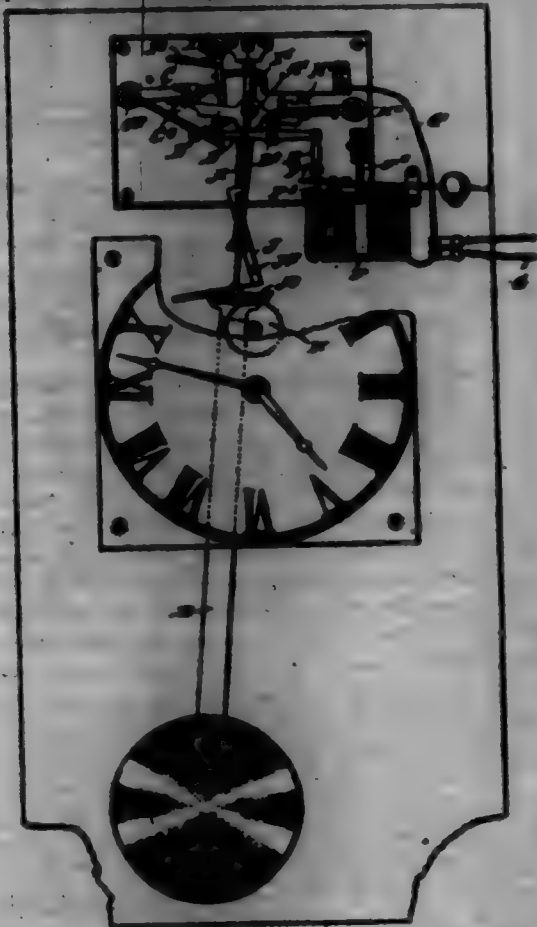
8. In a vending-machine, a series of compartments, a discharging device for each compartment, a coin-receiving device for each discharger, a chute leading into each receiver, a coin-chute having an opening at the front of the machine, a hopper for receiving the coins from the coin-chute, a shaft on which said hopper is mounted, whereby the hopper may be moved to discharge a coin into any one of the first-named chutes, and means for holding the shaft in the desired position, substantially as specified.

9. In a coin-controlled vending-machine, a compartment or receptacle for goods, a discharging device for the goods comprising a lever, a spring for moving the lever in the discharging direction, an electromagnet mounted on said lever, an armature, an arm carrying said armature and pivoted to the discharging-lever, means for engaging said arm to hold the discharging-lever in inactive position, a coin-receiver, and contact-points adapted to be engaged by a coin to close the circuit through the electromagnet, substantially as specified.

10. In a vending-machine, a plurality of receptacles for goods to be sold, a discharging-lever for each receptacle, a shaft for each of the discharging-levers and provided with an arm, a coin-receiver for each of the receptacles, a stop-leg for the coin mounted to slide in each receiver, connection between said stop-legs and the respective arms on the shafts of the levers, draw-bars connected with said arms and having hook ends,

a bar on which the draw-bars slide and adapted to be engaged by the hook ends, a lever to which the bar is attached, and a push-rod for moving said lever in one direction or out forth.

698,985. ELECTRIC CLOCK. EARL HYMAN, Jersey City, N. J., assignor of one-half to John M. A. Milligan, Jersey City, N. J. Filed July 15, 1901. Serial No. 62,955. (No model.)



Claim.—1. An electric clock having a pendulum, a pendulum-crutch provided with cross-arms, a weighted arm for striking one of the cross-arms to give an impulse to the pendulum in one direction, and an electrical device for raising the weighted arm, said electrical device comprising a circuit, an electromagnet in said circuit, a circuit-closer for said circuit and controlled by the other arm of the pendulum-crutch, and means connected with the armature-lever of the said electromagnet, for imparting an upward movement to said weighted arm when the pendulum-crutch closes the circuit, as set forth.

2. An electric clock having a weighted arm for imparting movement to the pendulum in one direction, an electrical device controlled by the pendulum and arranged to return the weighted arm to an inactive position, and a retaining device controlled from the pendulum, for temporarily holding the weighted arm in a raised position, said retaining device comprising a spring-pressed arm having a lag adapted to be engaged by the free end of said weighted arm, and means on said crutch for periodically imparting a swinging motion to said spring-pressed arm, to move the lag out of engagement with said weighted arm, as set forth.

3. In an electric clock, the combination with a pendulum crutch or fork provided with oppositely-arranged arms, of a pivoted and weighted arm adapted to strike one of the arms of the pendulum crutch or fork, a locking device for holding the weighted arm raised, means controlled by the crutch or fork for releasing the locking device to allow the weighted arm to fall, an electromagnet, means operated by the armature of the magnet for swinging the weighted arm upward into engagement with the locking device, and a circuit-closer controlled by the other arm of the pendulum crutch or fork, as set forth.

4. In an electric clock, the combination with a pendulum crutch or fork provided with oppositely-arranged arms, of a pivoted and weighted arm adapted to strike one arm of the pendulum crutch or fork, an electromagnet, a circuit-closer controlled by the other arm of the pendulum-crutch, a pivoted lever having one end connected with the armature of the electromagnet and its other end operatively connected with the weighted arm, a locking device for holding the weighted arm raised, and means for operating the locking device to release the weighted arm, as set forth.

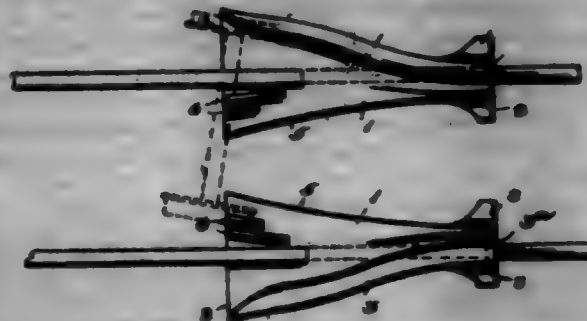
5. In an electric clock, the combination with a pendulum crutch or fork provided with oppositely-arranged arms, of a pivoted and weighted arm adapted to strike one arm of the pendulum crutch or fork and provided with an angular extension, an electromagnet, a circuit-closer con-

trolled by the other arm of the pendulum crutch or fork, a pivoted lever, having one end connected with the armature of the magnet and its other end engaging the extension of the weighted arm, a pivoted and spring-pressed arm provided with a lag with which the weighted arm engages when raised, and means for swinging the spring-pressed arm against the action of its spring from the pendulum crutch or fork, as set forth.

6. In an electric clock, the combination with a pendulum crutch or fork provided with oppositely-arranged arms and with an extension at its upper end, of a pivoted and weighted lever adapted to strike one of the arms of the pendulum crutch or fork and provided with an angular extension, an electromagnet, a circuit-closer controlled by the other arm of the pendulum crutch or fork, a pivoted lever having one end engaging the angular extension of the weighted lever, a link connecting the other end of the lever with the armature of the magnet, and a pivoted and spring-pressed arm provided with a lag with which the weighted arm engages when raised, and with an angular extension extending into the path of the extension of the pendulum crutch or fork, as set forth.

7. In an electric clock, the combination with a pendulum crutch or fork provided with oppositely-arranged arms, one of which is provided with a lateral projection, of a pivoted and weighted lever adapted to strike one arm of the pendulum crutch or fork, an electromagnet, means for swinging the weighted arm in an upward position, means for holding the weighted arm raised, means controlled from the pendulum crutch or fork for releasing the weighted arm, a pivoted arm provided with an upwardly-projecting contact-point adapted to be engaged by the projection on the arm of the pendulum crutch or fork, a contact-plate above the contact of the said arm, and an electric circuit, as set forth.

698,986. CAR-REPLACER. ALBERT J. HANSEN, Sweden, Pa. Filed Oct. 18, 1901. Serial No. 73,155. (No model.)



Claim.—1. In a device of the character described, a frog having a continuous lateral head or tread extending inwardly toward one end, also inclining upwardly and forwardly at its opposite end, said head being straight the remainder of its length, and said frog having its upper surface inclined downwardly toward its longitudinal center, substantially as set forth.

2. In a device of the character described, a frog having a rail-receiving slot in its under side, and having a continuous lateral head or tread extending inwardly toward one end, also inclining upwardly and forwardly at its opposite end, said head being straight the remainder of its length, and terminating at one end in the plane of said slot, and said frog having its upper surface inclined downwardly toward its longitudinal center, substantially as set forth.

3. In a device of the character described, a frog having a continuous lateral head or tread extending inwardly toward one end, also inclining upwardly and forwardly at its opposite end, said head being straight the remainder of its length, said frog also having an opposite lateral edge portion also extending inwardly toward the first-referred-to end of the frog, the upper surface of said frog being inclined downwardly toward its longitudinal center, substantially as set forth.

4. In a device of the character described, a frog having a continuous lateral head or tread extending inwardly toward one end, also inclining upwardly and forwardly at its opposite end, said head being straight the remainder of its length, said frog also having an opposite lateral edge extending inwardly and forwardly toward the first-referred-to end of the frog, the upper surface of said frog being inclined downwardly toward the longitudinal center thereof also longitudinally, substantially as set forth.

5. In a device of the character described, a frog having a continuous lateral head or tread extending inwardly toward one end, also inclining upwardly and forwardly at its opposite end, said head being straight the remainder of its length, said frog also having an opposite lateral edge also extending inwardly toward the first-referred-to end of the frog, and having an upper surface inclined transversely downwardly toward its longitudinal center, also longitudinally, and additional treads or ribs arranged upon said upper surface, as or near the rear end, substantially as set forth.

6. In a device of the character described, a frog having a continuous lateral head or tread extending inwardly toward one end, also inclining

upwardly and forwardly at its opposite end, said head being straight the remainder of its length, said frog having a rail-receiving slot and an opposite lateral edge also extending inwardly toward the first-referred-to end of the frog, and having an upper surface inclined transversely downwardly toward its longitudinal center, and longitudinally, said additional track or rib arranged upon said upper surface, at or near the rear end, substantially as set forth.

698,987. HOLDER FOR DUST-PANS, BROOMS, AND DUST-BRUSHES. JOHN H. MILLER, Crestline, Kans. Filed Feb. 12, 1902. Serial No. 94,787. (No model.)



Claim.—1. A holder for dust-pans, brooms, dust-brushes or the like, comprising a wire rod bent to form two spaced spring-coils and depending members extended from said coils, portions of said members being bent in opposite directions and having a hook formed on each free end.

2. A holder for dust-pans, brooms and dust-brushes, comprising a back board, and a holder device consisting of a single wire rod, bent at the center into a loop having side members which merge into two oppositely-curved spring-coils, depending members extended from the coils, aligned horizontal members, bent oppositely, on the lower ends of the depending members, hooks turned outward and upward on the horizontal members at their free ends, and means for securing the holder device upon the back board.

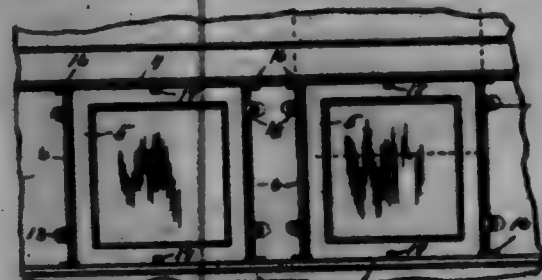
698,988. VENTILATOR FOR FIRE-SURFACES OF RANGES. ARTHUR E. HENK, Brooklyn, N. Y. Filed May 12, 1901. Serial No. 60,332. (No model.)



Claim.—1. A ventilator for the fire-surfaces of stoves and ranges, consisting of a base-section open at its top and bottom and having an opening at one end, doors normally closing said opening, apertures at the opposite end and above the other, and a shelf below each aperture, the shelves being adapted to support one end of a broiler and the apertures to receive a pin at the said end of the broiler and which is of a length to permit the broiler to be rotated after it is moved from the shelf, and an arched cover for the base, said cover being provided with a series of apertures on each side of its longitudinal center and downwardly-curved heads secured to said cover over said apertures, the lower portions of which heads are open though otherwise closed, as described.

2. The combination, with a base-section open at its top and bottom and provided at one end with an opening, doors normally closing said opening, the opposite end of the base being provided with interior shelves one above the other and an aperture above each shelf, and a broiler adapted to rest at its hinged end upon one of the shelves and provided with a pin at said hinged end adapted to enter either one of the said apertures and of a length to allow the broiler to be rotated after its end is moved from the shelf, the handle of the broiler being adapted to extend through the opening normally closed by the doors, of an arched cover-section provided with a series of openings in its upper portion on each side of its longitudinal center, and downwardly-curved heads extending over the said openings at the exterior of the body of the cover-section, which heads are open at their lower portions though otherwise closed, and means for removably supporting the cover-section on the base-section, as set forth.

698,989. CAR-WINDOW. ALEXANDER HOFFER, Chiklawa, Pa. Filed July 25, 1901. Serial No. 68,662. (No model.)



Claim.—1. The combination of a casing, an outwardly-movable window therein, and window-securing device mounted in the casing at opposite sides of the window between the upper and lower ends of the latter and adapted to overlap the outer face of the window, whereby the window may be released at either vertical edge with the securing device at the opposite edge serving as a hinge, substantially as shown and described.

2. The combination of a casing, an outwardly-movable window therein having its opposite vertical edges rounded, movable securing devices on the outer side of the casing at opposite sides of the window and adapted to overlap the said rounded vertical edges thereof, whereby the window may be released and moved outward at either vertical edge with its opposite rounded edge and the securing devices overlapping the same and coacting to form a hinge, substantially as shown and described.

3. The combination of a casing, an outwardly-movable window therein having its opposite vertical edges rounded, rotatable heads concentrically mounted on the outer side of the casing at opposite sides of the window and adapted to overlap the said rounded vertical edges thereof, whereby the window may be released and moved outward at either vertical edge with its opposite rounded edge and the heads overlapping the same coacting to form a hinge, substantially as shown and described.

4. The combination of a casing, an outwardly-movable window fitted therein, shafts mounted transversely in the casing at opposite sides of the window, an operative connection between shafts at each side of the window whereby they are caused to turn together, and window-securing devices mounted on the shafts and operated thereby, substantially as shown and described.

5. The combination of a casing, an outwardly-movable window fitted therein, two window-securing devices operatively mounted in the casing at each side of the window, and a connection between said devices, whereby they are caused to operate together, substantially as shown and described.

6. The combination of a casing having a window-opening, an outwardly-projecting horizontal ledge both above and below the opening, an outwardly-movable window fitted in the opening, and securing devices operatively mounted in the casing and adapted to overlap the vertical edges thereof, substantially as shown and described.

7. The combination of a casing, a mesh, metallic strips secured to the vertical edges of the mesh, said strips having outward projections, and locking devices adapted to removably engage the strip projections, substantially as shown and described.

8. The combination of a casing, the window-mesh, metallic strips secured to the vertical side edges of the mesh, the outer edges of said strips having outwardly-rounded projections and locking devices mounted in the casing and adapted to removably engage the rounded portions of the metallic strips, substantially as shown and described.

9. The combination of a casing, a window-mesh T-shaped metallic strips secured to the opposite vertical edges of the mesh, the outwardly-projecting head portions of said strips being rounded, and heads concentrically mounted in the casing and adapted normally to overlap said rounded strip-heads, substantially as shown and described.

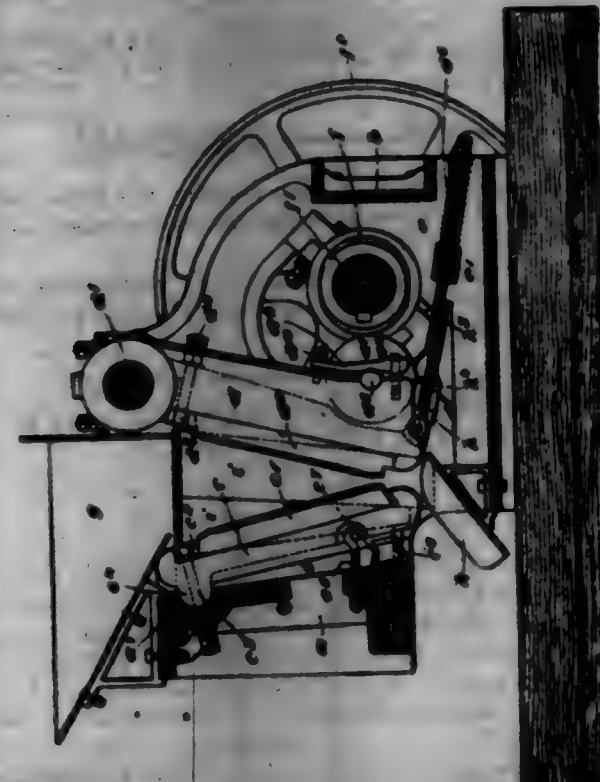
10. The combination of a casing, an outwardly-movable window fitted therein, the shafts mounted transversely in the casing, the shafts on each side of the casing being operatively connected for causing the same to turn in unison, window-securing devices carried by the shafts, and a spring for maintaining said devices normally in operative position, substantially as shown and described.

698,990. CRUMPER. ALEXANDER G. HOFFER, Tyngs, Pa. Filed Feb. 28, 1902. Serial No. 61,678. (No model.)

Claim.—1. A crumpler having a frame, a stationary jaw, a removable wear-plate fitted therein, a clamp holding the wear-plate in position, and a belt engaging the clamp and passing into operation with the frame of the machine to hold the clamp and the jaw both rigidly in place.

2. A crumpler having a frame, a stationary jaw provided at its upper portion with a lateral projection set into a cavity in the frame, a belt

passing through said projection of the jaw and engaging the jaw and frame to hold the former in position, said belt being capable of slight sliding movement in the frame to allow the jaw to swing, and a fastenable spacer set against the lower portion of the jaw, for the purpose specified.



3. A crumpler, comprising a frame, divergently-movable jaws swinging on a common axis, division-plates hung from said axis and abutment between the jaws, means for moving the jaws, and means connected to the frame and division-plates to hold the plates stationary.

4. A crumpler having a frame, a stationary jaw, means for holding the upper end of the jaw on the frame, each means permitting the jaw a slight swinging movement, and a fastenable spacer set between the lower part of the jaw and the frame.

698,991. CHAIN-WHEEL. FRANK L. MOORE, Trumbull, N. Y. Filed Apr. 12, 1901. Serial No. 55,977. (No model.)



Claim.—1. A chain-wheel having grooves extending transversely across the entire periphery of the wheel thereby having sprocket-teeth extending from side to side of the wheel, said teeth having guiding-flanges at their ends whereby the chain may be retained on the teeth.

2. A chain-wheel having a groove about its periphery having projecting ridges at the sides thereof and transverse channels extending from side to side of the wheel and sunk below the bottom of said groove thereby having teeth with outwardly-extending projections at their ends substantially as set forth.

698,992. CLOTHING-LINE FASTENER. JOHN B. MILLER, New York, N. Y. Filed July 25, 1901. Serial No. 68,595. (No model.)



Claim.—1. A grip or line-fastener comprising a handle having a shoulder and a loop and a catch, and a line having one end secured to the loop and the other end engaged by the catch and passed through the loop, the free end of the line being passed between each other end and the shoulder substantially as described.

2. A grip or line-fastener comprising a handle having a shoulder and an adjustable line-engaging loop and a catch portion, said shoulder and catch portion being adapted for engagement by an end of the line and said loop and catch being adjustable within the shoulder-portion.

3. A grip or line-fastener comprising a shoulder-portion with an adjustable line-engaging loop and catch portion, said shoulder-portion being

perforated for allowing the line to be passed therethrough and through the loop substantially as described.

698,993. TRANSPORTABLE DEVICE FOR DRAWING CONSTANT QUANTITIES OF LIQUIDS OF VARYING DENSITY. AUGUST HENNINGSEN, Berlin, Germany. Filed July 2, 1901. Serial No. 64,896. (No model.)

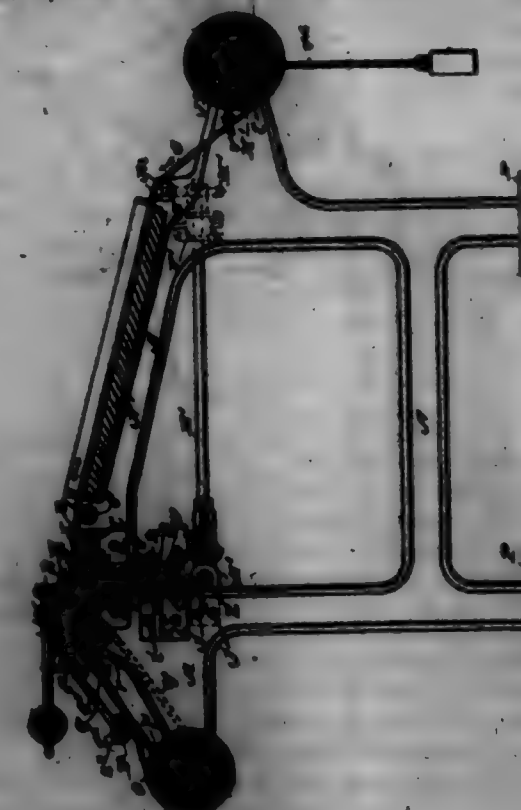


Claim.—1. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of a float guided in the liquid-containing vessel, a siphon provided at one end of said float, means in said float for counterbalancing the siphon, and interchangeable caps for said siphon, substantially as set forth.

2. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of guide-rods arranged in said liquid-containing vessel, a float guided by the same, a siphon provided at one end of said float, interchangeable caps for said siphon, counterbalancing-weights provided in said float, and means for balancing said float, substantially as set forth.

3. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of a float arranged in said liquid-containing vessel, upright rods for guiding the same, guide-arms on opposite sides of said float for engaging said guide-rods, a siphon having one arm extending through said float at one end thereof, the outer arm of said siphon being arranged anteriorly of said liquid-containing vessel, interchangeable caps provided for the outer end of the siphon, means for counterbalancing the weight of the siphon, and a slidable weight for balancing said float, substantially as set forth.

698,994. MEANS FOR CUTTING CLOTH, LEATHER, &c. ROBERT E. HENNINGSEN and GEORGE A. BARNES, Boston, England. Filed Oct. 12, 1901. Serial No. 72,764. (No model.)



Claim.—1. In a machine of the class described, a spindle having cutting means, a table over which the material travels, a disk plate for receiving said table, threaded spindles depending from said table, internally-threaded gears for receiving said spindles, means for holding the gears against motion in the direction of the lengths of said spindles, a second series of gears meshing with the other gears, and means for operating said second series of gears in unison.

2. In a machine of the class described, a spindle having adjustable cutters, a table having depending threaded spindles, internally-threaded, bevel-gears for receiving said spindles, a second set of bevel-gears meshing with the first-mentioned bevel-gears, a shaft carrying said second series of bevel-gears, said shaft having a gear, a second shaft having a gear meshing with said last-mentioned gear, a manually-operable device on said second shaft, and means for holding the first-mentioned bevel-gears against movement in the direction of the lengths of said threaded spindles.

3. In a machine of the class described, a batch-roller, a receiving-roller, a spindle between said rollers, having cutting means, and a lever carrying a weight-receiving trough arranged to bear against the material as it passes from one roller onto the other.

698,995. DAMPER. ROGER H. HUGHART, Des Moines, Iowa. Filed July 12, 1901. Serial No. 61,595. (No model.)



Claim.—1. In a stovepipe-damper, a ring provided with an inwardly-projecting head and a slot in line with said head in the ring, in combination with a strip adapted to fit said slot and project within the inner periphery of the ring, the lower edges of the strip and the said head forming shoulders for the meeting edges of two pipe-sections, and bracing formed in the said ring and strip for a damper.

2. In a stovepipe-damper, a ring provided with an inwardly-projecting head extending substantially half-way around the ring and a slot in line with said head in the other half of the ring, in combination with a substantially semi-circular strip adapted to fit said slot and project within the inner periphery of the ring to form the complement of the said head, the ring and strip being constructed as to form bearings for a damper.

698,996. CULTIVATOR. JAMES A. McHUGH, Mount Lebanon, W. Va. Filed Feb. 7, 1902. Serial No. 64,002. (No model.)



Claim.—1. In combination, a draft-beam having a longitudinal slot and the portion at the lower side of the slot widened laterally, a swing-beam pivotedly mounted in the said slot and provided at its ends with cultivator-shovels, and means for holding the swing-beam in the required position, substantially as set forth.

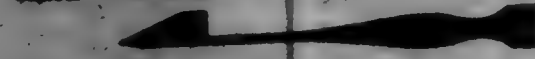
2. In combination, a draft-beam, a cross-bar, a swing-beam provided with cultivator-shovels, and catches for securing the swing-beam to either end of the cross-bar, substantially as set forth.

3. In combination, a draft-beam, a cross-bar, a swing-beam provided with cultivator-shovels and having its outer end bent, and catches applied to the ends of the cross-bar to engage with the bent ends of the swing-beam to hold it in an adjusted position, substantially as set forth.

4. A cultivator comprising a draft-beam, front and rear cross-bars, handles supported by means of the cross-bars, a swing-beam pivoted to

the draft-beam and provided with cultivator-shovels, and catches at the ends of the rear cross-bar to engage with either end of the swing-beam for holding it in the required position, substantially as specified.

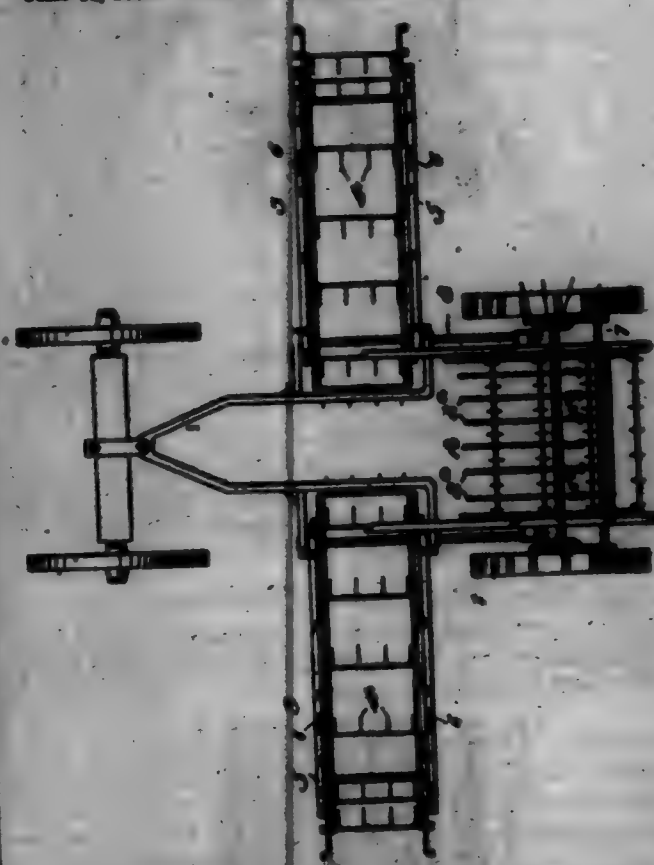
698,997. DENTAL INSTRUMENT. JAMES W. McCORMACK, Germantown, Pa. Filed Feb. 2, 1901. Renewed Dec. 17, 1901. Serial No. 64,001. (No model.)



Claim.—1. An amalgam-cutter consisting of a dental instrument having a piece of silver mounted thereon, and a silver-amalgam tooling on said piece of silver, as set forth.

2. An amalgam-cutter consisting of a dental instrument having a beveled piece of silver mounted thereon, and a silver-amalgam coating on said piece of silver, as set forth.

698,998. HAY-LOADER. WILLIAM HOLLAND, Seattle, Wa. Filed June 11, 1901. Serial No. 61,511. (No model.)



Claim.—1. In a hay-loader, the combination of an elevator comprising an endless belt of rubber-teeth mounted upon a suitable carrying-frame, inclined guide-bars supported from said frame, and stationary teeth secured to and near the lower ends of said guide-bars, and resting upon the surface of the ground at their free ends, substantially as set forth.

2. In a hay-loader, the combination of an elevator comprising an endless belt of rubber-teeth mounted upon a suitable carrying-frame, inclined guide-bars supported from said frame, stationary rubber-teeth secured to and near the lower ends of said guide-bars, and resting upon the surface of the ground at their free ends, and an endless belt of teeth adapted to move at right angles to the line of travel of the first-mentioned belt of rubber-teeth, substantially as set forth.

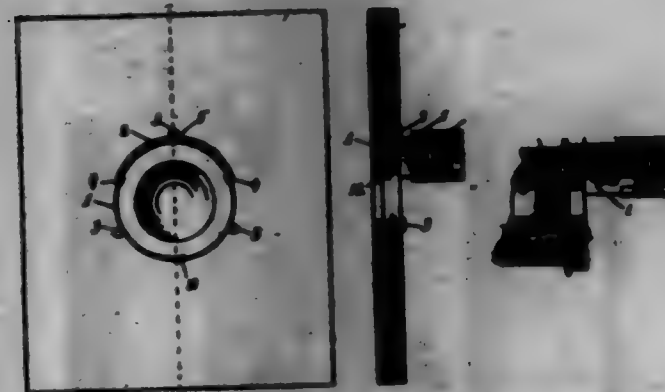
3. In a machine of the character described, the combination of an elevator comprising a belt of rubber-teeth mounted upon a suitable carrying-frame, and a belt of rubber-teeth adapted to move at right angles to the line of travel of said elevator, the latter belt of rubber-teeth being suspended laterally from the frame of said elevator, substantially as set forth.

4. In a machine of the character described, the combination of an elevator comprising a belt of rubber-teeth mounted upon a suitable carrying-frame, belts of rubber-teeth adapted to move at right angles to the line of travel of said elevator, with their carrying-frames suspended laterally from the carrying-frame of said elevator and stationary rubber-teeth fixed to the lower ends of said guide-bars, substantially as set forth.

5. In a machine of the character described, the combination of an elevator comprising a belt of rubber-teeth, guide-bars supported from the carrying-frame of said belt of rubber-teeth, stationary rubber-teeth fixed to the lower ends of said guide-bars, belts of rubber-teeth adapted to move at right angles to the line of travel of said elevator, with their carrying-

frames arranged laterally of the first-mentioned frame, the lower ends of said last-mentioned frames being supported directly from the first-mentioned frame and the outer ends of said last-mentioned frames having red connection with the first-mentioned frame, substantially as set forth.

698,999. SHADE FOR PHOTOGRAPHIC LENS. FRANK W. NICHOLSON, Jackson, Mich. Filed Feb. 15, 1901. Serial No. 61,479. (No model.)



Claim.—1. A lens-shade for camera consisting of a single piece of yielding material including depending arms whereby the shade may be sprung into engagement therewith, and each of said arms being provided with an offsetting projection adapted to bear against the camera.

2. A lens-shade for camera consisting of a single piece of yielding material including depending arms whereby the shade may be sprung into engagement therewith, and each of the said arms provided with an offsetting projection adapted to bear against the camera, one of said arms arranged to overlap the other at its free end and when the shade is in operative position.

3. A lens-shade consisting of a plate provided with yielding extensions for engagement with a camera or the like; a second plate detachably and slidably mounted upon the first-mentioned plate.

4. A lens-shade consisting of a plate having yielding extensions for engagement with a camera or the like; a second plate disposed upon the first-mentioned plate; grooves upon the edges of one plate adapted to receive the edges of the other plate whereby one of the plates may have a sliding movement with relation to the other; and means for limiting the sliding movement of the sliding plate.

5. A lens-shade consisting of a plate provided with yielding extensions for engagement with a camera or the like; a second plate slidably and detachably mounted upon the first-mentioned plate; and means for limiting the sliding movement of the second plate.

6. A lens-shade consisting of a single piece of metal bent in the form of an arc of a circle having yielding extensions adapted to engage a camera or the like; a second curved plate bent to form the arc of a circle and detachably and slidably mounted upon the first-mentioned plate.

7. A new article of manufacture, a lens-shade provided with spring members whereby the shade may be sprung into engagement with the lens-holder of a camera or the like, the shade having an extension adjustable longitudinally thereon.

8. A new article of manufacture, a lens-shade provided with gripping members for detachably securing the shade to a camera or the like, the shade provided with an adjustable sliding extension.

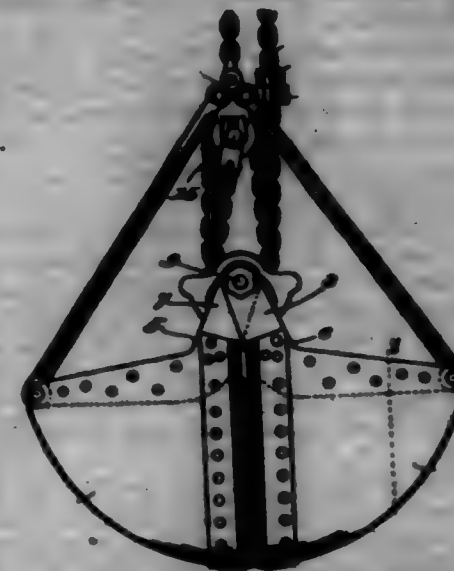
9. In a device of the class described, a photographic lens-shade consisting of a curved plate of a shape similar to a section of a hollow cylinder, having arms adapted to engage the lens, support, and having lugs to bear against said support; a second plate of a shape similar to said first-mentioned plate, grooves at the edges of one plate adapted to receive the edges of the other plate, and for said other plate to engage therewith, and to slide forward and backward thereon; a tongue upon one plate in spring contact with the other plate, and adapted to engage an opening in said other plate; a scale upon one plate to indicate the position of said other plate with reference thereto.

10. In a device of the class described, a shade for photographic or other lenses consisting of a curved plate of a shape similar to a section of a hollow cylinder, having arms adapted to engage the lens, support, and having lugs to bear against said support; a second plate of a shape similar to said first-mentioned plate, grooves at the edges of one plate adapted to receive the edges of the other plate, and for said other plate to engage therewith, and to slide forward and backward thereon; a tongue upon one plate in spring contact with the other plate, and adapted to engage an opening in said other plate; a scale upon one plate to indicate the position of said other plate with reference thereto.

699,000. HOISTING-BUCKET. ALBERT E. BROWN, Cambridge, and JAMES BROWN, Boston, Mass., assignors to BROWN & BROWN HOISTING COMPANY, Cambridge, Mass. Filed Dec. 2, 1901. Serial No. 61,505. (No model.)

Claim.—1. In a hoisting-bucket, two bucket-eyes, a plurality of chains carried thereby, a head carrying one or more sheaves, an open-

ing and closing chain passing about said sheaves, and an arm rigid with the head and to which the end of the said chain is attached, said arm extending radially from the axial line of the sheaves in the head and being substantially in alignment with that portion of the chain connected thereto.



2. In a hoisting-bucket, a head carrying one or more sheaves, an opening and closing chain passing about said sheaves and an arm rigid with the head and to which the end of the opening and closing chain is attached, said arm extending radially from the axial line of the sheaves and being substantially in alignment with that portion of the chain connected thereto.

3. In a hoisting-bucket, two bucket-eyes, a series of sheaves carried thereby, a head having an arm rigidly secured thereto, and an opening and closing chain passing around the sheaves on the bucket-eyes and having the end thereof secured to the said arm, said arm being in line with that portion of the chain connected thereto and substantially vertically over the last sheave of the series.

4. In a hoisting-bucket, a head having an arm integral therewith and projecting therefrom to which the end of the opening and closing chain is attached, said arm being attached in the plane of the side of the head and being inclined to the vertical whereby the pull upon the opening and closing chain is in the direction of the length of the arm, and curves to maintain the head in a vertical position.

5. A hoisting-bucket comprising two bucket-eyes, a head, connections between the head and eyes, and an opening and closing chain, said head having a laterally-extended guide-eye provided with a chain-receiving opening and a leader, detachably secured to said guide-eye, said leader having an aperture to fit the chain.

6. A hoisting-bucket comprising two bucket-eyes, a head, connections between the head and eyes, and an opening and closing chain, said head having rigid therewith an offset guide-eye through which the said chain passes, a leader surrounding the chain and detachably secured to the guide-eye, and a downwardly-extended arm to which one end of said chain is secured, said arm also being rigid with the head and being in the plane of the end thereof.

7. A hoisting-bucket comprising two bucket-eyes pivotally connected together, a head, links connecting the head and eyes, and an opening and closing chain, said head having an offset guide-eye provided with a detachable leader through which the said chain passes, and an integral downwardly-extended arm to which one end of the chain is attached, said arm being inclined to the vertical whereby the pull on the chain curves to maintain said head in a vertical position.

8. In a hoisting-bucket, a head having an offset guide-eye adapted to receive the opening and closing chain, and a one-piece leader surrounding the chain and detachably secured to said guide-eye, said leader serving to protect the guide-eye from wear.

9. In a hoisting-bucket, a head having an offset guide-eye, provided with an aperture adapted to receive the opening and closing chain, said aperture being larger than said chain, and a detachable leader attached to the guide-eye and having an aperture adapted to fit the chain, whereby the leader prevents the chain from twisting and protects the guide-eye from wear.

10. A hoisting-bucket comprising two pivotally-connected bucket-eyes, a head, links pivotally connecting said head and bucket-eyes, and an opening and closing chain, sheaves carried by said head and over which said chain passes, a pin supporting said sheaves and projecting at its ends beyond the end faces of said head, and projecting lugs on said head which partially enclose said projecting ends of the pin, whereby the said pin ends are protected from injury from blows.

11. In a hoisting-basket, a head for supporting the sheaves over which the opening and closing chain runs, a pivot-pin on which said sheaves turn, said pivot-pin having an off-set at one end, and means to convey the oil to the portion on which the sheaves bear, and said head having projecting legs situated at either side of said off-set, whereby said off-set is protected against injury.

12. In a hoisting-basket, a head for supporting the sheaves over which the opening and closing chain runs, a pivot-pin on which said sheaves turn, said pivot-pin having a laterally-disposed off-set at one end, and means to convey the oil to the portion on which the sheaves bear, said head having projecting legs situated at either side of said off-set, whereby said off-set is protected against injury.

13. In a hoisting-basket, two basket-segments pivoted together, a head and links connecting the head and basket-segments, each segment comprising a bottom and two side pieces, and a tie member, said tie member having an inwardly-disposed offset portion at each end, a leg projecting from said offset to which the link is pivoted, and arms for securing said tie member to the side pieces, the leg on the offset portion coming substantially flush with the outside edge of said tie member, whereby the pivoted connections of said legs and links do not project outside of the basket-segments.

14. In a hoisting-basket, two basket-segments, a rod or shaft on which said segments are pivotally mounted, a head, links connecting said head and basket-segments, sheaves carried by said shaft, an opening and closing chain connected to said head and passing around said sheaves, and a weight secured on said rod, said weight having a cut-away portion in which said sheaves operate, and enlarged bosses at either side of said cut-away portion, said bosses being approximately the size of the sheaves.

15. In a hoisting-basket, two basket-segments, a rod or shaft on which said segments are pivotally mounted, a head, links connecting said head and basket-segments, sheaves carried by said shaft, an opening and closing chain connected to said head and passing around said sheaves, and a weight secured on said rod, said weight having a cut-away portion in which said sheaves operate, and enlarged bosses at either side of said cut-away portion, said bosses being approximately the size of the sheaves, and all members or passages contained in said bosses.

16. In a hoisting-basket, two basket-segments, arms secured to the upper portions of said segments and having at their inner ends upwardly-disposed offset, a pivot-shaft extending through said offset ends of the arms whereby the two basket-segments are pivotally connected together, sheaves supported on said shaft, a head having an offset guide-eye, an opening and closing chain connected to said head and passing through the eye and over said sheaves, and a leader detachably secured to the mid eye, said leader having an aperture to fit the chain.

17. In a hoisting-basket, two pivotally-connected basket-segments having overlapping lips, a head, links pivotally connecting the head with the basket-segments, a hoisting-chain connected in the head and passing around the pivotal point between the basket-segments, the said head having a laterally-disposed guide-eye through which the chain passes, and a leader surrounding said chain and detachably secured to said guide-eye, said leader having an aperture to fit the chain.

18. In a hoisting-basket, two basket-segments, arms connected to the upper sides of each segment and having upwardly-disposed portions, the arms of one segment being pivotally connected to the arms of the other segment, and each segment having a jaw running completely around the inner edge thereof, the ends of said jaws overlapping and being secured to the upwardly-disposed portions of said arms.

19. A basket-segment, having its sides and bottom connected by a curved portion of progressively-increased radius from the back of the segment to the mouth thereof.

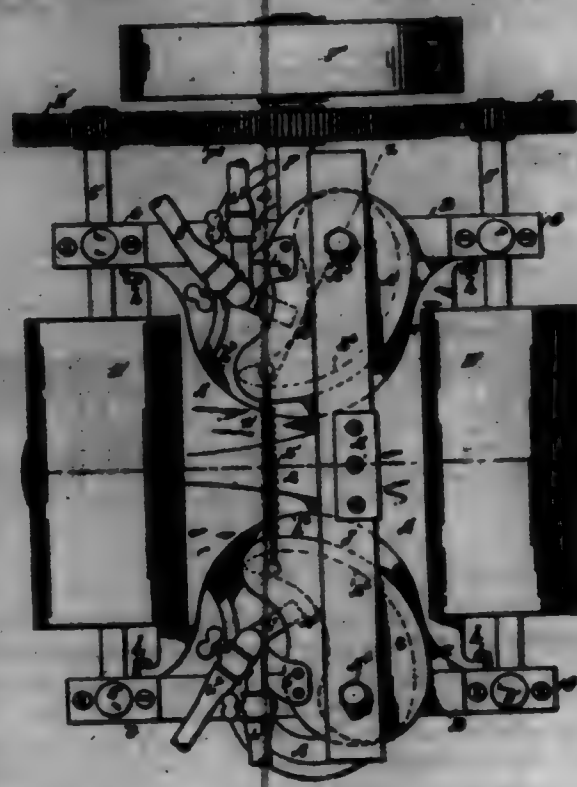
20. A basket-segment having its sides and bottom connected by a curved portion of progressively-increased radius from the back of the segment to the mouth thereof, and having a thickened jaw running completely around the mouth on the outside of its shell.

21. A basket-segment having arms connected to the upper sides thereof, each arm having an upwardly-disposed portion provided with a hooked aperture, for connecting said segment to a pivot-shaft, the said segment having a thickened hooked jaw extending vertically around the mouth thereof and on the outside of its shell, the sides and bottom segments of said basket being connected by a curved portion of progressively-increased radius from the back of the segment to the mouth thereof.

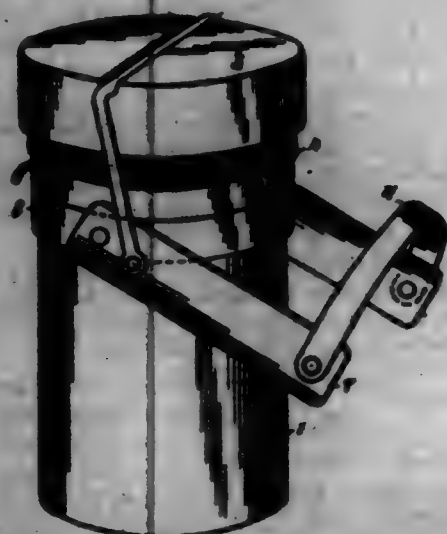
699,001. HOISTING MACHINE. GEORGE R. HENRI, Detroit, Mich. Filed Sept. 26, 1901. Serial No. 74,908. (No model.)

Claim.—In an edge-loading machine, the combination of one edge-loader, means for holding them in position and preventing their partial rotation against the resistance of a spring, a platform upon which the articles to be loaded are carried, means for forcing the articles between the

ends, and an elastic tongue M to assist in holding the articles in position and to afford a guide therefor, substantially as described.



699,002. CAGE. EDGAR A. HENRI, Utica, N. Y. Filed June 4, 1901. Serial No. 69,674. (No model.)



Claim.—1. A cage having its upper or open end tapered inward, a cover having a flange tapered outward, the space between the tapered end and the flange being equal from the top to the bottom of the flange, and a packing string or cord adapted to wind around the tapered portion of the body and having one end extended outward whereby the cord may be drawn out to release the cover, substantially as specified.

2. A cage, a cover therefor, a collar for extending around the end, side plates of spring material transversely curved and pivotally connected to said collar, a yoke pivoted to the lower ends of the side plates and adapted to be turned over the bottom of the cage, substantially as specified.

3. A cage, a cover therefor, a collar for engaging around the end, the said collar having one of its ends free and extended underneath the body portion of the cage, side plates pivoted to said collar, a yoke pivoted to the side plates and adapted to engage with the cover, and a ball of spring material attached to the lower ends of the side plates, substantially as specified.

699,003. CENTRIFUGAL MACHINE. STAP GILMAN, Utica, N. Y. Filed Sept. 24, 1901. Serial No. 74,904. (No model.)

Claim.—1. The combination with a drum, having a tubular center and a bearing-piece therein provided with a recessed seat in its under side, of an upright driving-shaft extending up into said center, said shaft being of less diameter than the bore in said center and said drum being free to move laterally in all directions with respect to said shaft, and a single separate intermediate part between a nut on the shaft and the recessed seat in said bearing-piece, said intermediate part being free to move laterally in all directions with respect to the lateral movements of the drum.

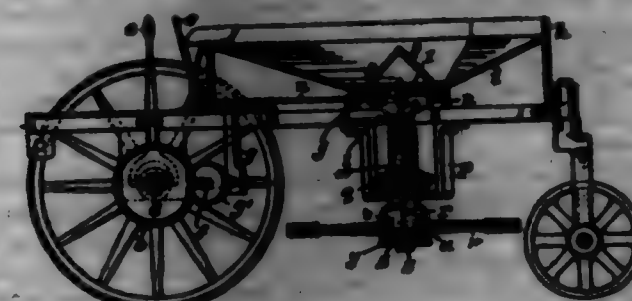
2. The combination with a drum, having a tubular center and a bearing-piece therein, of an upright driving-shaft extending up into said center, said shaft being of less diameter than the bore in said center and said drum being free to move laterally in all directions with respect to said shaft, a single intermediate block between a flat nut on the shaft and a nut in the bearing-piece, said block being flat on its under side or face and free to move laterally in all directions with respect to the lateral movement of the drum.



3. The combination with a drum, having a tubular center and a bearing-piece with a concave seat, of a shaft having a less diameter than the bore of the center and extending into said bore, and having a flat nut at its upper end, and the intermediate block 3, having a flat under side where it rests on the shaft, and a rounded upper surface fitting the seat in the bearing-piece.

4. The combination with an upright, rotatable shaft, a single intermediate piece mounted on a bearing on said shaft and movable independently of the latter, and a drum supported centrally on said intermediate piece and movable laterally in all directions about said shaft, the latter rotating the drum through the medium of the said intermediate supporting-piece, substantially as set forth.

699,004. SAND-WHEELING MACHINE. CHARLES F. O'NEIL, Paterson, N. J. Filed Dec. 21, 1901. Serial No. 77,045. (No model.)



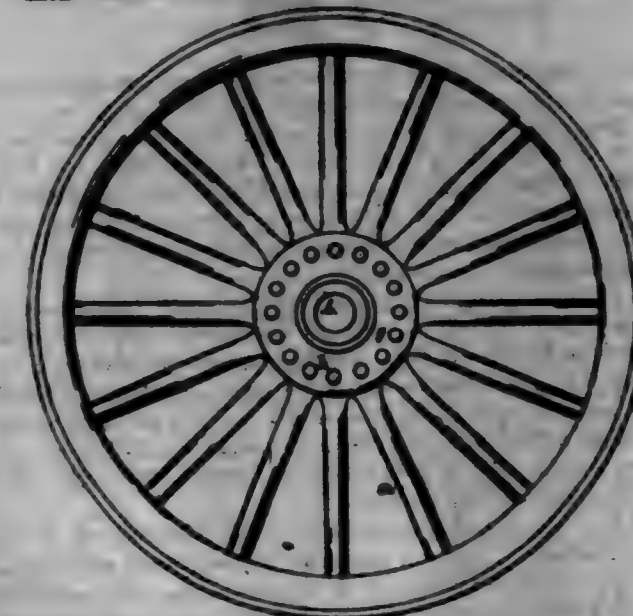
Claim.—1. In combination, with a vehicle-frame, a hopper arranged on said frame and having a discharge-opening in the lower portion thereof, the lower walls of said hopper being inclined toward said opening, a rotary receptacle arranged under said opening, a stationary flange interposed between the hopper and said receptacle and projecting into them at its ends, means for securing said receptacle detachably to the frame, and means for rotating said receptacle, substantially as described.

2. In a distributing mechanism for standing-machines, the combination of a vehicle-frame, a rotary box or chamber, means for supporting said box or chamber in the frame, a removable plug having its top or inner end of conical form constituting the lower wall of said chamber, and discharge-openings projecting laterally from said box or chamber immediately above said plug, substantially as described.

3. The combination of a vehicle-frame, a hopper arranged on said frame and having an opening in its bottom portion, the bottom walls of said hopper being inclined toward said opening, a pyramidal guard arranged over said opening and spaced from said hopper at its sides thereof, a rotary receptacle arranged in said frame under said opening and having lateral discharge-openings, a shaft rotatable with said receptacle and projecting up into said hopper, a bracket carried by said shaft at spaced points substantially throughout the length of said shaft, and means for rotating said receptacle, substantially as described.

4. The combination of a vehicle-frame, a hopper arranged on said frame and having an opening in its bottom portion, a rotary receptacle arranged in said frame under the opening of the hopper and having lateral discharge-openings, a sleeve surrounding said receptacle, a flange interposed between said sleeve and the hopper and projecting into said sleeve and the opening in said hopper, a shaft rotatable with said receptacle and projecting up into the hopper through said sleeve and flange, and laterally-projecting members for said receptacle communicating with the openings therein, substantially as described.

699,005. VEHICLE-WHEEL. GEORGE E. STUART, London, Mich. Filed Oct. 2, 1901. Serial No. 77,041. (No model.)



Claim.—1. A vehicle-hub, constructed with an outwardly-projecting annular head forming an interior annular lubricating-chamber in the inner wall of the hub, said wall flared outwardly adjacent to said chamber to increase the capacity of the chamber.

2. A vehicle-hub constructed with an outwardly-projecting flange intermediate of the ends thereof and with an outwardly-projecting head, said hub having in combination therewith a laterally-movable outwardly-projecting band intermediate of the ends thereof resting on said head and spokes having their inner ends engaged between said flange and said hub.

3. A vehicle-hub constructed with a stationary outwardly-projecting flange intermediate of the ends thereof and with an outwardly-projecting head said hub having in combination therewith a laterally-movable outwardly-projecting band intermediate of the ends thereof resting upon said head, and spokes having their inner ends engaged between said flange and said head, and both ending said flange and head whereby the movable band may be tightened against the inner ends of the spokes to take up any looseness in the engagement of the spokes with the hub.

4. A vehicle-hub constructed with a stationary outwardly-projecting flange intermediate of the ends thereof, and with an outwardly-projecting head intermediate of the ends of the hub, a movable outwardly-projecting band resting upon said head, spokes having their inner ends engaged between said head and said flange, and both passed through said flange and head, whereby the movable band may be tightened against the adjacent ends of the spokes.

5. A vehicle-hub constructed with a stationary flange intermediate of the ends thereof, and with an outwardly-projecting head, said hub having in combination therewith a movable band intermediate of the ends thereof resting upon said head, spokes, wedge-shaped at their inner ends, engaged between said flange and head, both passed through each of said spokes and through said flange and head, and ends upon said head whereby the movable band may be tightened against said spokes, said head forming an interior lubricating-chamber.

699,006. CARTING-FLANK. CHARLES A. PALMER, Chicago, Ill. Filed June 8, 1900. Serial No. 19,115. (No model.)

Claim.—1. A carting-flank of the class described, comprising three separate sections, to wit, a cope having a substantially flat parting face and a drag fitting said cope, comprising two separable sections having curved abutting inner walls shaped to conform to the curved outline of the model, substantially as described.

2. A carting-flank of the class described, comprising three separate sections, to wit, a cope having a substantially flat parting face and a drag fitting said cope, comprising two separable sections having curved abutting inner walls depressed or cut away below the plane of the parting

face and shaped to conform to the curved outline of the model, substantially as described.



3. A casting-flask for undercut models or patterns, consisting of three sections, to wit, a cope *C* having a substantially flat parting face and a drag fitting said cope comprising two sections *A* and *B*, the outer and inner walls of the section *B* having the general form of concentric arcs of circles and the section *A* having an outer wall conforming substantially to the adjacent portion of the cope, said section *A* removably fitting upon section *B*, whereby a parting is secured conforming to said curved inner walls, substantially as described.

4. A dental casting-flask comprising three separable flask-sections, of which the cope *C* is separable from the other sections along a horizontal plane, and sections *A* and *B* for receiving the sectional sand mold, are separable from each other substantially at right angles with said plane, along a curved line conforming to the exterior outline of the dental model, said sections *A* and *B* being provided with a supporting-wall for the sectional sand mold, conforming likewise to the exterior outline of the dental model, substantially as described.

5. In a casting-flask, the combination with flask-section *C*, of sections *A* and *B* wherein a sectional sand mold may be formed, said sections fitting upon section *C* substantially in a horizontal plane, the sections *A* and *B* being separable and fitting snugly together substantially along the curved outline of the model from which the casting is to be made, which outline is marked by a curved supporting-wall, and means for removably securing the flask-sections in their relative positions, substantially as described.

6. In a flask for casting dies from undercut dental models, the combination with a cope *C* adapted to receive the cast bearing the dental model, of a ring or section *A* and a flange *B* wherein the sectional sand mold is formed, the said latter sections being laterally shaped to fit together along a curved line conforming substantially to the exterior outline of the dental model, and means for removably securing the flask-sections together, substantially as described.

7. A dental casting-flask consisting of three sections, to wit, a cope *C* substantially in the form of a cone having a flat parting face, and a drag having a flat parting face and consisting of two sections *A* and *B*, the outer and inner walls of the section *B* having the general form of concentric arcs of circles and the section *A* having an outer wall substantially conforming to the adjacent portion of the cope *C* and an inner wall fitting in the concavity of section *B*, substantially as described.

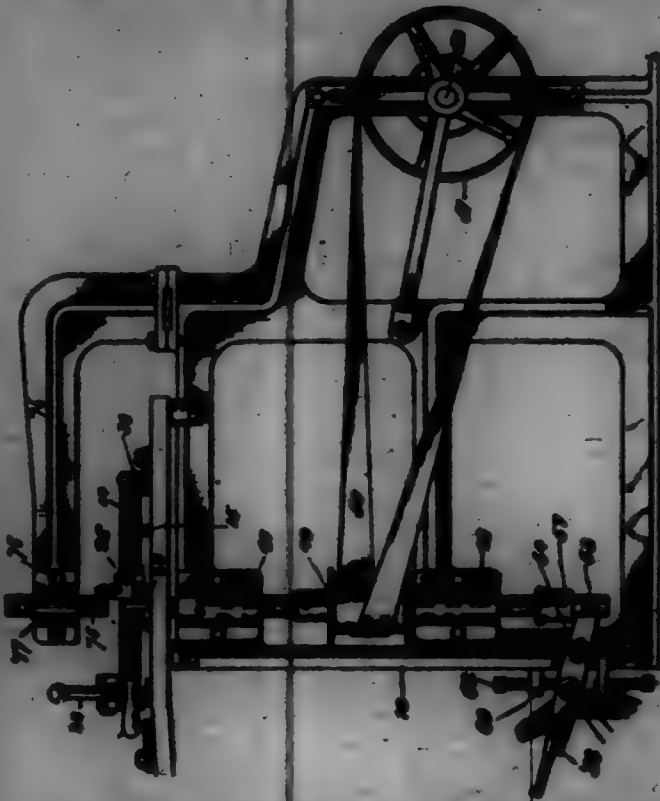
8. In a dental casting-flask, the combination with a cope *C* wherein the cast bearing the dental model is adapted to be disposed and the metal die may be cast, of a ring *A*, the forward portion of which is shaped to conform substantially to the exterior outline of the dental model *D*, a flange *B* fitting thereon, whereby a parting-line is insured which admits of the use of a two-section sand mold in parts *A* and *B*, and means for removably securing the flask-sections together, substantially as described.

699,007. CLAMP FOR DRAPERY-FRAME. JAMES J. PARK, St. Louis, Mo. Filed June 2, 1901. Serial No. 62,222. (No model.)



Claim.—In combination with a frame for supporting drapery over windows, doors and the like, a series of clamps, one for each side of said frame and of equal length therewith and adapted to be placed over the drapery and the sides of the frame and turned to stretch the drapery, the adjacent ends of the clamps being beveled in order to form square corners and perfectly close joints to conceal the drapery when in position, substantially as specified.

699,008. MACHINE FOR MORTISING WINDOW-FRAMES. FRANK V. FILLARD, Windsorpark, Fla., assignor to the Smith and Phillips Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 7, 1900. Serial No. 26,707. (No model.)



Claim.—1. The combination in a machine for mortising the sides of window-frames, of the adjustable cutter for cutting both the pulley-opening and the flange-space, a fast-lever effecting the adjustment of the cutter by a downward movement, a movable stop arresting the lever when it has descended far enough for the cutting of the flange-space and releasable by the operator's foot, and a second stop arresting the lever when it has descended far enough for the cutting of the pulley-opening, substantially as specified.

2. The combination in a machine for mortising the sides of window-frames, of a vertical-moving cutter acting to cut both the pulley-opening and the flange-space, a fast-lever for raising the cutter to its work and by which the operator retains it in action, a regulating-latch pivoted to the lever and acting to arrest it in an intermediate position, said latch being releasable by the foot, and means for arresting the lever when it reaches its lowest position, substantially as specified.

3. The combination in a machine for mortising the sides of window-frames of a vertically-movable cutter adapted to cut both the pulley-opening and the flange-space, a fast-lever, and a regulating-latch attached to the lever where it may be operated by the same foot which actuates the lever, said latch allowing the lever two operative positions, substantially as specified.

4. The combination with a vertically-movable cutter adapted to cut both the pulley-opening and the flange-space in the side, of the table, a side-supporting frame movable laterally on the table and having a guide entering the parting-strip groove of the side, and means for moving the side lengthwise while the cutting is being done, substantially as specified.

5. The combination with the vertically-movable cutter, of the table, the side-supporting frame having a guide adapted to enter the parting-strip groove of the side, a movable gage for positioning the end of the side, and means for actuating said gage in imparting longitudinal movement to the side, substantially as specified.

6. The combination with the vertically-movable cutter adapted to cut both the pulley-opening and the flange-space in the side, a frame for supporting the side and having a guide entering the longitudinal groove of the side and also made movable on the table to shift the side laterally, a gage for positioning the side lengthwise, and means for moving the side lengthwise on the frame, substantially as specified.

7. The combination in a machine for mortising the sides of window-frames, of a vertically-movable cutter adapted to cut both the pulley-opening and the flange-space, a table, a guide supported from the table and fitting the parting-strip groove of the side and permitting endwise movement of the side, and means for moving the side endwise a determined distance while the cutter is forming the flange-space and a low distance while the cutter is forming the pulley-opening, substantially as specified.

8. The combination in a machine for mortising the sides of window-frames, of a vertically-movable cutter acting to cut both the pulley-opening and the flange-space, a table on which the side may be positioned horizontally, a guide on the table fitting the parting-strip groove of the

and permitting endwise movement thereof and a hand-lever for moving the stile longitudinally while cutting, said lever having means for determining the extent of movement when cutting the spaces and means for determining the extent of movement when cutting the openings, substantially as specified.

9. The combination with means for cutting the mortises, of a support for the stile having a guiding-rib adapted to enter the longitudinal groove of the stile and to permit longitudinal movement of the stile while the cutting is under way, and a device for so moving the stile predetermined distances, substantially as specified.

10. The combination with means for cutting the mortises, of a support for the stile having a guiding-rib adapted to enter the longitudinal groove of the stile and to permit longitudinal movement of the stile while the cutting is under way, and a device for so moving the stile predetermined distances acting to move it a less distance while the pulley-opening is being cut than while the flange-openings are being cut, substantially as specified.

11. In a machine for mortising window-frame stiles, a table and a laterally-adjustable frame supporting the stile, and having a sliding dovetail connection with the table, in combination with locking means consisting of the block 29 engaging the table-groove, the pin bearing upon the bottom of the dovetail groove and the eccentric having its bearings in said block, substantially as specified.

12. The combination with the movable frame and the stationary support therefor, the former having a dovetail tongue and the latter a dovetail groove receiving the tongue, of means for locking it in position consisting of an eccentric and a support therefor mounted on the frame, a detachable pin operated by the eccentric, a stationary surface against which said pin is forced by the eccentric, and the leather 70 interposed between the eccentric and pin, substantially as specified.

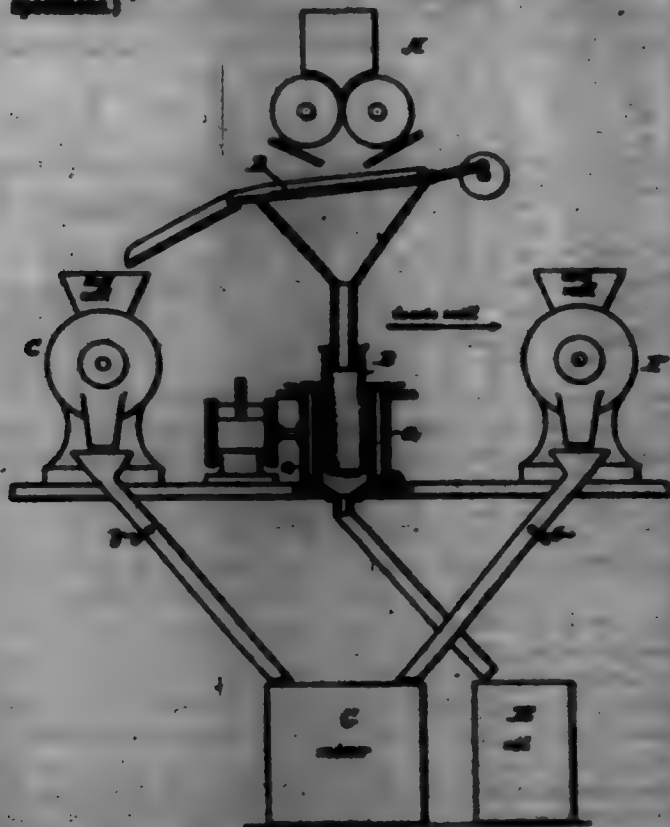
699,009. PROCESS OF PRECIPITATING COPPER FROM WATER. AMOS J. FOLGERSON, Whitehall, Mont., assignor of two-thirds to Joseph Hinch and Albert C. Dygart, Butte, Mont. Filed Jan. 10, 1902. Serial No. 69,177. (No specimens.)

Claim.—1. The herein-described process for the treatment of copper-water, which consists in adding to such water before it enters the pipes of the pumping system, a precipitant solution containing an excess of alkali.

2. The herein-described process of treating copper-water, which consists in adding to such water a precipitant solution containing an excess of alkali, forcing the water containing the precipitant in suspension through pipes, and subsequently separating the precipitate.

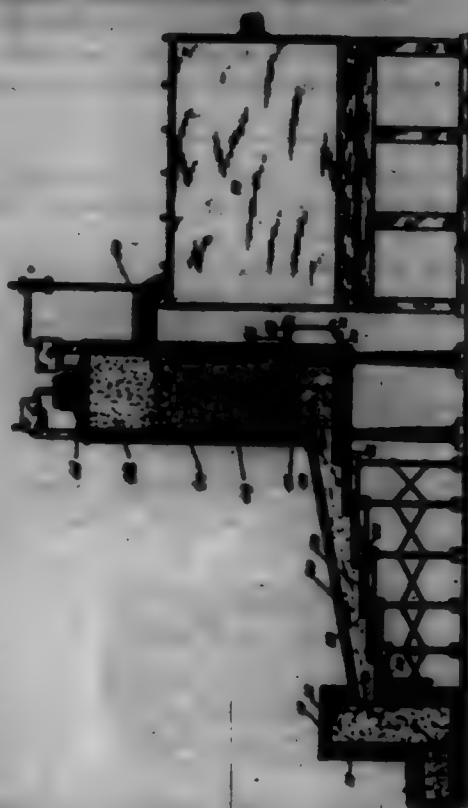
3. The herein-described process of treating copper-water, which consists in adding to such water before it enters the pipes of the pumping system, a precipitant solution containing a calcium salt and an excess of calcium hydrate.

699,010. MANUFACTURE OF SEED PRODUCTS. FREDERICK B. POTT, Augusta, Ga. Filed Apr. 4, 1901. Serial No. 64,304. (No specimens.)



Claim.—In the manufacture of seed products, first treating seeds in their natural dry condition to separate the hulls and husks, then heating and pressing the husks to extract the oil, and grinding the cake to form a meal and combining the same with a meal formed from the hulls, substantially as set forth.

699,011. APPARATUS FOR THE MANUFACTURE OF CONCENTRATED SULFURIC ACID. WILLIAM R. GORDON, Florida, Cal. Filed July 2, 1900. Serial No. 728,699. (No model.)



Claim.—1. In an apparatus for obtaining sulfuric acid, the combination of a kiln for burning sulfur, a reaction device and a flue extending from said kiln to said reaction device, said flue having a series of steps over which the acid flows from the reaction device in continuous contact with the gases passing from the furnace to said device.

2. In an apparatus for obtaining sulfuric acid, the combination of a kiln for burning sulfur, a reaction device having an opening at one side near its bottom, a flue extending from said kiln to said reaction device and communicating therewith through said opening, said flue having a series of steps over which the acid flows in continuous contact with the gases passing from the furnace to the reaction device, and a ledge at said opening over which the acid flows from the reaction device into said flue.

3. In an apparatus for making concentrated sulfuric acid, the combination of a sulfur-kiln, a reaction device having an opening at one side near its bottom, a flue extending from said kiln to said reaction device and communicating therewith through said opening, a ledge at said opening over which the acid flows from the reaction device into said flue, said flue curving to expose the acid to the heating and concentrating action of the sulfur-fumes, and means for regulating the depth of the liquid at the bottom of the reaction device so as to secure a uniform flow of liquid through the flue.

4. In an apparatus for making concentrated sulfuric acid, the combination of a burner-kiln, a reaction device, and a flue between said kiln and reaction device comprising separable sections of non-conducting material, the bottom of said flue being in the form of a series of steps over which the acid from the reaction device is adapted to flow for exposure to the sulfur-fumes whereby concentration is effected.

5. In an apparatus for making concentrated sulfuric acid, the combination of a burner-kiln, a reaction device, and a flue between said kiln and reaction device, the bottom of said flue being in the form of a series of steps over which the acid from the reaction device is adapted to flow, each of said steps being in the form of a slab provided with upwardly-extending flanges at the back and sides thereof, and a downwardly-extending lip at the front edge thereof for delivering the stream of acid to the next step.

6. In an apparatus for making concentrated sulfuric acid, the combination of a burner-kiln, a reaction device, a flue between said kiln and reaction device, the bottom of said flue being in the form of a series of steps each of which is composed of a slab provided with upwardly-extending flanges at the back and sides thereof, and a downwardly-extending lip at the front edge thereof, said lip overlapping the upwardly-extending flange at the back of the next adjacent step.

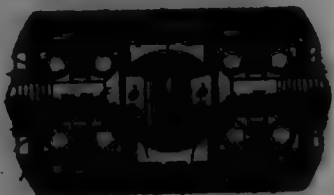
7. In an apparatus for making concentrated sulfuric acid, the combination of a sulfur-kiln, a reaction device, a concentrating-flue disposed between the sulfur-kiln and reaction device and adapted to convey the sulfur-fumes from the kiln to the reaction device and to expose the acid from said reaction device to the heat of said fumes, said flue being provided with a slot near said kiln, and a receptacle connected with said slot for receiving the acid delivered therethrough.

8. In an apparatus for making concentrated sulfuric acid, the combination of a sulfur-kiln, a reaction device, and a concentrating-flue disposed between the sulfur-kiln and reaction device and adapted to convey the sulfur-fumes from the kiln to the reaction device, said flue being composed of non-conducting material and having a step-shaped bottom for exposing the acid in a continuous sheet to the concentrating action of said fumes.

699,012. PROCESS OF OBTAINING TIN BY ELECTROLYSIS. BENNETT GUINTELL, Argentan, France. Filed Apr. 24, 1900. Serial No. 14,188. (No specimens.)

Claim.—The process of separating tin electrolytically from tin-scraps, which consists in suspending the scrap, as the anode, in a bath composed of an aqueous solution of nitrate of tin to which have been added chlorid of ammonium and chlorid of tin, suspending a suitable cathode in the bath, and finally passing the electric current through the anode, bath and cathode, substantially as described.

699,018. MECHANISM FOR CONVERTING MOTION. JOHN M. RABHOFF, Chicago, Ill. Filed July 2, 1900. Renewed Apr. 3, 1901. Serial No. 84,881. (No model.)



Claim.—1. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing or contact with a cone-shaped or tapered peripheral face or wall to engage the side face or wall of the spiral groove, and an adjustable journal-bearing for carrying each journal or stem, entered into the head on opposite sides and transversely of the shaft, substantially as described.

2. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing face or contact with a cone-shaped or tapered peripheral face or wall and of a less diameter than the width of the spiral groove for engagement with the side face or wall of the spiral groove on opposite sides of the contact or bearing and an adjustable journal-bearing for carrying each journal or stem entered into the head on opposite sides and transversely of the shaft, substantially as described.

3. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing face or contact with a cone-shaped or tapered peripheral face or wall of less diameter than the width of the spiral groove and of a less depth than the depth of the spiral groove for engaging the side face or wall of the spiral groove on the opposite sides of the bearing or contact with a clearance-space between the bottom of the groove and the end face of the bearing or contact and an adjustable journal-bearing for carrying each journal or stem entered into the head on opposite sides and transversely of the shaft, substantially as described.

4. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof, each journal or stem having a bearing or contact with a cone-shaped or tapered peripheral face or wall to engage the side face or wall of the spiral groove, a fixed cone and an adjustable cone on each journal or stem, an adjustable sleeve for each journal or stem into which the journal or stem is entered, and balls between the face of the cones on the journal or stem and the face of the sleeve, substantially as described.

5. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or

flues, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing face or contact with a cone-shaped or tapered peripheral face or wall to engage the side face or wall of the spiral groove, an adjustable sleeve for each journal or stem, a flange on the interior wall of the sleeve, a fixed cone and an adjustable cone on the journal or stem, and balls between the fixed cone and the sleeve-flange and between the adjustable cone and the sleeve-flange, substantially as described.

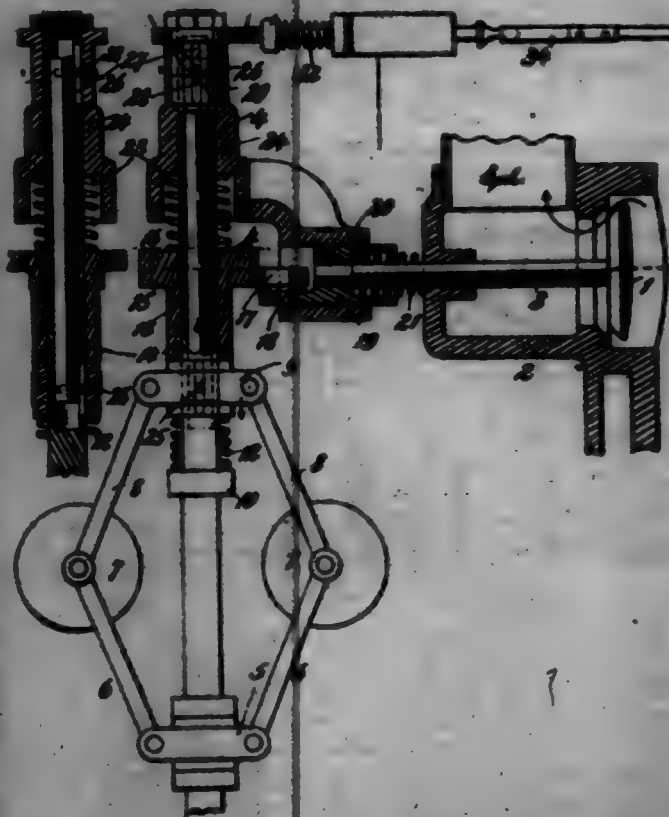
6. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing or contact face with a cone-shaped or tapered peripheral face or wall to engage the side face or wall of the spiral groove, an adjustable sleeve for each journal or stem entered into the head on opposite sides and transversely of the shaft, a cone on the journal or stem and balls between the cone and the face of the sleeve, substantially as described.

7. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove, a head mounted on the shaft and endwise movable thereon, journals or stems rotatably mounted in the head on opposite sides thereof each journal or stem having a bearing or contact face to engage with the spiral groove of the shaft, an adjustable sleeve for each journal or stem, cones on the journals or stems, and balls for the cones around the journals or stems, substantially as described.

8. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove with tapered or inclined side walls or flues, a head mounted on the shaft and endwise movable thereon, a journal or stem rotatably mounted in the head and having a bearing or contact with a cone-shaped or tapered peripheral face or wall to engage the side face or wall of the spiral groove, and an adjustable journal-bearing carrying the journal or stem and entered into the head transversely of the shaft, substantially as described.

9. In a mechanism for converting motion, the combination of a shaft having in its body a spiral groove, a head mounted on the shaft and endwise movable thereon, a journal or stem rotatably mounted in the head and having a bearing or contact with a peripheral end face or wall to engage the spiral groove, a fixed cone and an adjustable cone on the journal or stem, an adjustable sleeve for the journal or stem and into which the journal or stem is entered, and balls between the face of the cones on the journal or stem and the face of the sleeve, substantially as described.

699,014. GOVERNOR FOR EXPLOSIVE-ENGINE. JOHN V. RAY, Jr., Ridgewood Park, N. Y., assignor, by mesne assignments, to William O. Worth, Chicago, Ill., William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battle Creek, Mich. Filed Aug. 20, 1900. Renewed Nov. 2, 1900. Serial No. 26,201. (No model.)



Claim.—1. In a governor for gas-engines, the combination with a tubular governor-rod, of a rod within the same, centrifugally-acting means

connected with the inner rod, a sparking device, and a cam that actuates the spark and is engaged by the aforesaid inner rod for the purpose of shifting said cam, substantially as described.

2. In a governor for gas-engines, the combination with a tubular rod, of a rod within the same, centrifugally-acting means carried by the tubular rod and connected with the inner rod, a sparking device, a rotary actuating cam therefor, said cam being shiftable by connection with the aforesaid inner rod, and the exhaust-valve and the cam arranged in connection therewith.

3. In a governor for gas-engines, the combination with the tubular governor-rod, the links, the balls, the movable collar, the rod located in said tubular rod, the pin engaging with said collar, the pin at the opposite end of said rod passing through a slot in said rod, the rotatable sleeve having a spiral slot with which said last-mentioned pin engages, the cam on said sleeve, and the spring-actuated electrode, substantially as described.

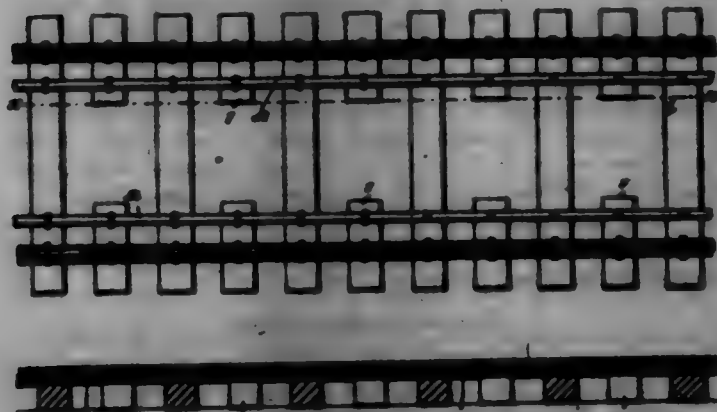
4. In an engine-governor, the combination with a tubular governor-rod, of a rod within the same, governor means connected with the inner rod, a sparking device, and a cam engaged by the aforesaid inner rod, all arranged to operate so that the spark will be produced at the proper point in the length of the stroke of the piston, substantially as described.

5. In a governor for gas-engines, the combination with the tubular governor-rod, of the centrifugally-acting governor device, the movable collar, the rod within the tubular rod, said inner rod having a pin engaging the movable collar, the sparking device, a rotary cam for operating the spark, said cam being on a slotted sleeve engaged by another pin on the inner rod, all substantially as described.

6. In an engine of the class described, a cylinder, a valve for controlling the supply of fuel for said cylinder, an igniter for said charge of fuel, a speed-responsive device driven by said engine, an internal and external shaft, the internal shaft connected to the governor and adapted to be reciprocated thereby, a device on the external shaft for operating the igniter, and a dog or the like, connected to the internal shaft and extending through the hollow shaft, whereby the said device, or a part thereof may be rotated, when the said internal shaft is reciprocated, substantially as set forth.

7. An internal-combustion motor having a hollow cam-shaft, a spark-actuating cam loosely mounted thereon, a cam-controlling rod within the hollow shaft, centrifugal weights adapted to actuate the rod as the shaft revolves and means for connecting the rod and spark-cam.

699,015. RAILROAD-TIE. ERIC C. BROWN, Washington, D. C.
Filed Jan. 14, 1902. Serial No. 39,699. (No model.)



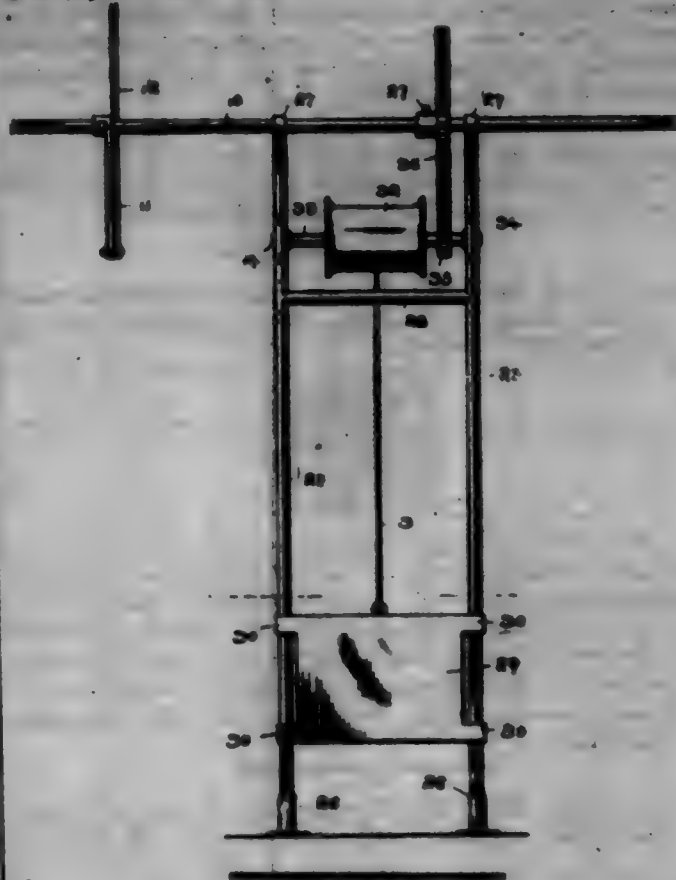
Claim.—1. In means for securing railroad-ties in a road-bed, the combination of bearing-blocks placed between adjacent ties, independent means for securing said bearing-blocks against longitudinal or lateral displacement, and rails secured to said ties and bearing-blocks, substantially as set forth.

2. In means for securing railway-ties in a road-bed, the combination of bearing-blocks placed between adjacent ties, metal strips or bars secured to and connecting said bearing-blocks and ties, and rails secured to said ties and bearing-blocks, substantially as set forth.

699,016. VENTILATOR. ROBERT E. BROWN, Paducah, Ky.
Filed July 29, 1901. Serial No. 69,119. (No model.)

Claim.—In ventilators, the combination with an overhead main shaft having a spur gear-wheel thereon; of parallel vertical guides having bearings at their upper ends in which the shaft is journaled, a horizontal shaft journaled in bearings on the guides beneath the said main shaft, a spur-pinion on said lower shaft meshing with the said spur gear-wheel, a drum fixed on said lower shaft, a weight slidably mounted on the said guides, a flexible connection between the said drum and weight, and means for rocking the said main shaft.

699,016.



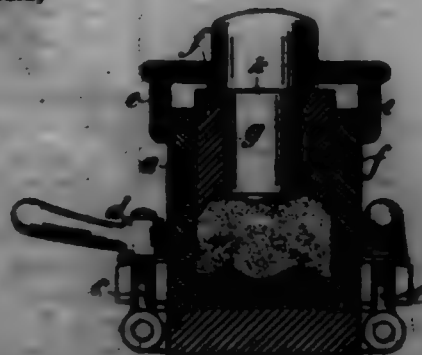
699,017. WRENCH. WILLIAM RICHMOND, High, Ill., assignor to Henry B. Weatherill, High, Ill. Filed Nov. 16, 1901. Serial No. 39,699. (No model.)



Claim.—1. In a wrench, the combination with a casing open at its forward end and having rearwardly-extending parallel walls, of jaws adapted to be automatically spread apart, a follower extending from wall to wall of the casing and having a rearwardly-extending control, threaded portion, and means for actuating said follower.

2. In a wrench, the combination of a casing having its upper and lower walls parallel in its forward portion, and converging in its rearward portion, of jaws adapted to be automatically spread apart, a follower to engage the outer angles of the inner ends of said jaws, and adapted to have its edges in bearing contact with the inner face of the walls of the casing and to seat itself, valve-like, in the converging portion of the casing when the jaws are fully spread apart, and means for actuating said follower.

699,018. APPARATUS FOR FORMING PLATES. ANDRUS SANDVIG, Lillehammer, Norway. Filed Nov. 12, 1900. Serial No. 39,671. (No model.)



Claim.—1. A mold having a die therein, two cooperating parts movable toward the die, one of the parts movable simultaneously with and also independently of the other and a yielding molding material between the cooperating parts and die, substantially as set forth.

2. A mold having a die therein, a cooperating sleeve and plunger movable toward the die, said plunger movable with and also independently of said sleeve and a yielding molding material between the plunger and die, substantially as described.

3. A mold comprising a casing and a detachable base-plate, a die therein, a cooperating sleeve and plunger movable toward the die, means to lock the sleeve against motion out of the casing, said plunger movable with and also independently of said sleeve and a yielding molding material above the die, substantially as described.

4. A mold, a die therein, a sleeve movable toward the die and a plunger movable with respect to the sleeve, whereby any one of a series of plungers is capable of being substituted for the first one, and a yielding molding material above the die, substantially as set forth.

699,019. MANUFACTURE OF LACE REPRESENTING HOGS WORK. **BERNARD B. BARNUM**, Paris, France. Filed May 21, 1901. Serial No. 61,306. (Specimens.)



Claim.—The herein-described method of making lace having a mosaic effect, consisting in forming flat surfaces grouped into a suitable design having the appearance of a mosaic by passing material through the mesh of the fabric with the threads of the mesh interposed between each of the flat surfaces, and then edging said design by a line of flat surfaces, the threads of the mesh separating said surfaces from one another thereby forming a flat edging surface to throw the mosaic effect of the design into prominence.

699,020. HUT-LOCK FOR VEHICLE AXLES. **OSWALD SHAWVER**, Canton, Ohio. Filed Oct. 7, 1901. Serial No. 71,999. (No model.)



Claim.—The combination of a vehicle axle having mounted thereon a chain having a narrow-threaded portion, a nut located upon the narrow-threaded portion of the chain, a bolt provided with an apertured head and head located beyond the end of the axle and chain, an angular frame having pivotally attached thereto a head, said head provided with a pin adapted to engage the apertured head of the bolt, and an arm pivoted to the head of the pin and provided with an angled flange at its free end, all arranged substantially as and for the purpose specified.

699,021. LOADING-DRAW. **OSWALD SHAWVER**, Canton, Ohio. Filed Aug. 29, 1901. Serial No. 73,794. (No model.)



Claim.—1. A loading-draw, provided with separate and independent freely-movable or loosely-mounted anti-friction devices exposed at one

of its sides or faces for direct engagement and movement in one direction by the material being raised, and individual means for locking or retaining each of the anti-friction devices against reverse movement by said material; substantially as described.

2. A loading-draw provided with freely-rotating or loosely-mounted anti-friction rollers, exposed at one of its faces or sides for direct engagement and rotation in one direction by the material being raised, and means for preventing reverse rotation of the rollers by the opposite movement of the material; substantially as described.

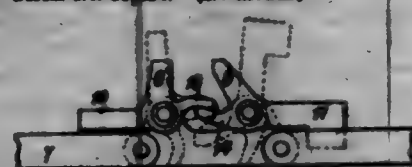
3. A loading-draw, provided with a series of recesses and anti-friction rollers mounted loosely in said recesses and projecting thereabove for direct engagement and rotation in one direction by the material being raised, and means for preventing reverse rotation of the rollers by said material; substantially as described.

4. A loading-draw provided with a series of recesses and elongated journal-bearing slots, in combination with anti-friction-rolls arranged within and projecting beyond the recesses and journaled in the elongated bearings, the recesses and slots being so arranged that the rollers in their rear positions will bear against the inner surfaces of the recesses.

5. A loading-draw provided with a series of recesses and elongated downwardly-inclined journal-bearing slots, in combination with anti-friction-rolls arranged within and projecting beyond the recesses, the recesses and slots being so arranged that the rollers in their rear positions will bear against the inner surfaces of the recesses.

6. A reversible loading-draw, provided with oppositely-projecting heads at one end, loosely-mounted rollers projecting above one face or side of the beam for direct engagement and rotation in one direction by the material being raised, and means for preventing reverse rotation of the rollers by the said material; substantially as described.

699,022. DOWNHAUL FOR MINES. **CARL L. R. SUMNER**, Wilkes-Barre, Pa., assignor of one-half to John Jones & Company, Incorporated, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Feb. 19, 1902. Serial No. 92,857. (No model.)



Claim.—1. A downhaul for use, having in combination, a chain having oppositely-oveling dogs, a car provided with a flange-plate or projection and track portions having opposite inclinations whereby the car is caused to move faster than the chain and then checked, substantially as set forth.

2. A downhaul for use, having in combination, a chain having oppositely-oveling dogs, a car provided with a flange-plate or projection, a track having a downwardly-inclined portion adapted to impart to the car a speed greater than that of the chain and means for reducing the speed of the car below that of the chain, substantially as set forth.

3. A downhaul for use, having in combination, a chain, oppositely-oveling dogs mounted on the chain, said dogs being provided with overlapping flanges, substantially as set forth.

699,023. DOWNHAUL FOR MINES. **CARL L. R. SUMNER**, Wilkes-Barre, Pa., assignor of one-half to John Jones & Company, Incorporated, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Feb. 19, 1902. Serial No. 92,858. (No model.)

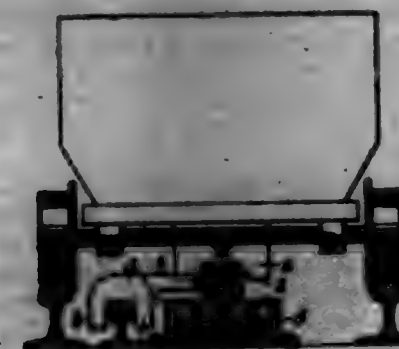


Claim.—A downhaul having in combination of a chain pair of oppositely-oveling dogs pivotally mounted on the chain and provided with weights for holding the adjacent or inner ends of each pair in operative position, a depressing-plate arranged parallel with the line of movement of the chain, and a lateral extension from the front dog of each pair adapted to engage and be shifted by said plate, substantially as set forth.

699,024. BRAKE FOR UPRAULS FOR MINES. **CARL L. R. SUMNER**, Wilkes-Barre, Pa., assignor of one-half to John Jones & Company, Incorporated, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Feb. 19, 1902. Serial No. 92,859. (No model.)

Claim.—1. An uphaul for use having in combination a chain, a rail parallel with the line of movement of the chain, an arm having one

end connected to the chain and means on the opposite end of the arm operative on a rearward movement of the chain to grip the rail, substantially as set forth.

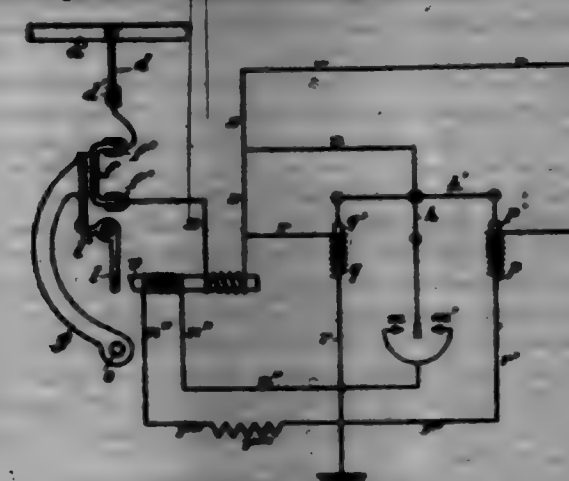


2. An uphaul for use having in combination a chain, a rail parallel with the line of movement of the chain, and an arm pivotally mounted on the chain and provided at its outer end with fingers projecting down on opposite sides of the rail, substantially as set forth.

3. An uphaul for use having in combination a chain, a rail parallel with the line of movement of the chain, an arm pivotally mounted on the chain and provided at its outer end with fingers projecting down on opposite sides of the rail, and means for holding the fingers from engagement with the rail during the forward movement of the chain, substantially as set forth.

4. An uphaul for use having in combination a chain, a rail parallel with the line of movement of the chain, an arm pivotally mounted on the chain and provided at its outer end with fingers projecting down on opposite sides of the rail and a spring for pushing the outer end of the arm in the direction of movement of the chain, substantially as set forth.

699,025. AUTOMATIC DEVICE FOR THE SAFE OPERATION OF ELECTRIC CONDUCTORS WITH OR WITHOUT GUARD-WIRES. **ROBERT E. SHERRILL** and **OSWALD SHAWVER**, Canton, Ohio. Filed Aug. 21, 1901. Serial No. 71,992. (No model.)



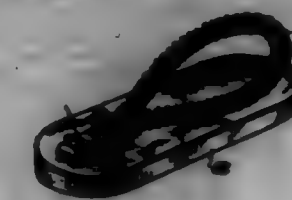
Claim.—1. In an automatically-operated device for electric circuits, the combination with the main feeder, and main circuit-conductor, and an automatic switch adapted to open and close the circuit through said feeder; of a controlling device consisting of a pair of stationary coils, connected in circuit with said feeder and conductor, respectively, a balancing-arm pivoted above said coils, and plungers or cores extending from the ends of said arm adapted to reduplicate within said coils, a swinging arm carried by said balancing-arm, a contact carried by said arm, in circuit with said main feeder, and contacts adapted to close the circuit with said swinging-arm contact, whereby when said circuit is closed said automatic switch is thrown open, substantially as described.

2. In a controlling device for electric circuits, the combination with a pair of stationary coils, adapted to be independently connected in the circuit, and a pair of stationary contact-points electrically connected together; of a balancing-arm pivoted above said coils, plungers upon each end of said arm, adapted to reduplicate within said coils, a swinging arm carried by said balancing-arm, and a contact carried by said arm also connected in the circuit, and adapted to close the circuit with said stationary contacts, substantially as described.

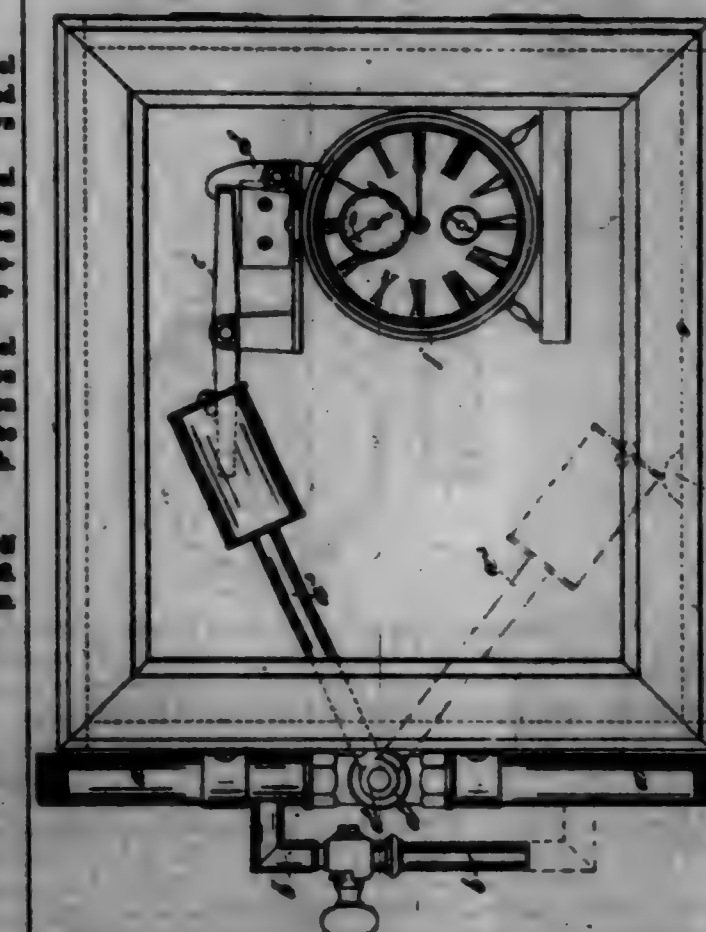
699,026. CLEANER FOR SHAKING-SIEVES. **FRANK L. SHAWVER**, Wilkes-Barre, Pa. Filed Jan. 24, 1901. Serial No. 65,126. (No model.)

Claim.—A shaking-cloth cleaner adapted to be carried by a flange-plate support beneath and parallel with the cloth, consisting of a base and a spring-wire will last into the form of a loop and having its ends connected

to the base, said coil projecting rearward at an upward incline from its line of attachment to the base.



699,027. TIME-LAMPFLIGHTER. **OSWALD SHAWVER** and **HARRY E. PALMER**, New York, N. Y.; and **Palmer** assignor to said Shawver. Filed Sept. 11, 1900. Serial No. 29,697. (No model.)



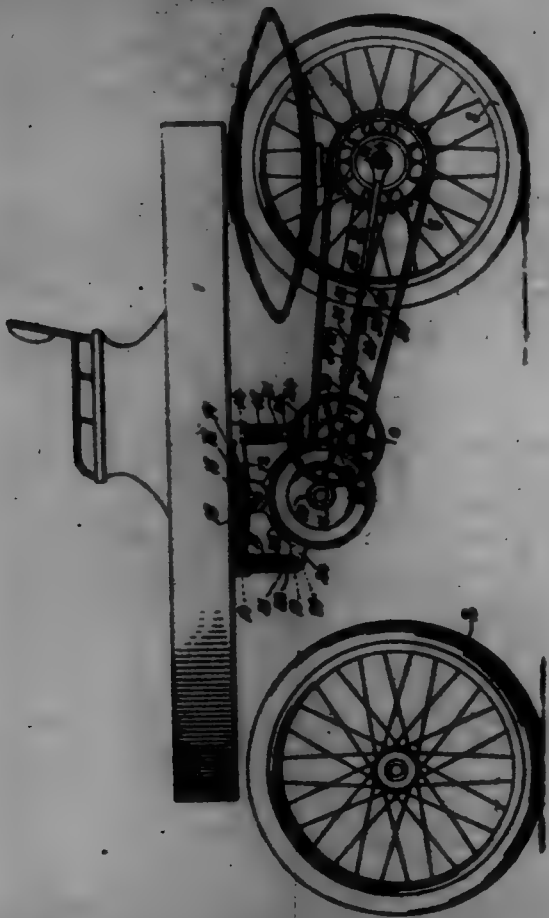
Claim.—1. In means for automatically turning gas on or off at predetermined times, the combination of a main gas-pipe, a cock on said pipe, a falling lever attached to the plug of the cock on the main gas-pipe, a weight on the outer end of said lever, a pin carried by said weight, a double-ended supporting-lever, one end of which sets to support the weighted end of the falling lever by means of said pin, a bracket to which the double-ended supporting-lever is pivoted, a base-plate carrying the said bracket, a clock-casing to which the base-plate is fastened, a double-armed catch-lever, one end of which sets to hold the other end of said double-ended supporting-lever, another bracket carried by the said base-plate, to which said double-armed lever is pivoted, a cam or striker to act upon the other end of the catch-lever so as to release the double-ended supporting-lever, and a winding upon which said cam or striker is mounted, substantially as herein set forth.

2. In an apparatus for turning gas on or off at predetermined times, the combination of the gas-cock *a*, the lever *b* mounted thereon for automatically closing or opening said cock, the weight *c* on said lever and the pin *d* projecting therefrom, the double-ended supporting-lever *e*, the double-armed catch-lever *f* detaining said supporting-lever, the bracket *g*, *h* to which said lever *e* and *f* are pivoted, the base-plate *i* carrying said bracket *g*, *h*, the clock-casing *j* to which said base-plate is attached, and the striker *k* mounted on the winding-cum of an alarm-clock movement of common form for releasing said catch-lever *f* to release the supporting-lever *e*, substantially as set forth.

699,028. AUTOMOBILE. **ALFRED L. SHAWVER** and **HARRY E. PALMER**, New York, N. Y.; and **Palmer** assignor to said Shawver. Filed Dec. 4, 1901. Serial No. 94,699. (No model.)

Claim.—1. An automobile, comprising a wheeled vehicle provided with depending legs, an electric motor suspended from said legs and mounted free to swing, gearing connecting said motor to a wheel of said vehicle, a longitudinal brace connecting said motor with some rigid part of said

vehicle, and provided with a movable joint for shortening the same, and a thumb-screw for normally holding said movable joint in a predetermined position.



2. An automobile, comprising a wheeled vehicle provided with depending legs having apertures, a horizontal bar extending into said apertures, blocks of rubber located in said apertures above and below said horizontal bar for supporting the same and allowing a limited springy motion thereof, a motor suspended from said bar, and means for connecting said motor with a revoluble member of said vehicle.

3. An automobile, comprising a wheeled vehicle provided with depending legs, an electric motor suspended from said legs and mounted free to swing, four additional legs attached to said motor, bolts attached to said legs, on which are mounted rubber buffers, said bolts being adjustable at the four corners to enable said rubber buffers to be tightened and adjusted at will, said bolts passing through said buffers and up into the frame from which the motor is hinged, thereby giving the motor a limited spring horizontal motion.

4. An automobile, comprising a vehicle provided with a longitudinal frame rigid therewith, a motor pivoted centrally to the said frame and provided with oppositely-disposed groups of legs, and oppositely-disposed groups of buffers engaging the opposite ends of said frame and also engaging said legs on said motor.

5. An automobile, comprising a wheeled vehicle having a rigid frame provided with legs, a motor pivoted centrally upon said frame and provided with oppositely-disposed legs mating said legs upon said frame, and buffers normally connecting said legs upon said frame with said legs upon said motor.

6. An automobile, comprising a vehicle having a frame provided with holes, a motor pivoted upon said frame and provided with legs, longitudinal members swivelled in said holes, and buffers connecting said frame with said legs upon said motor.

7. An automobile, comprising a vehicle having a frame provided with holes, a motor pivoted upon said frame and provided with legs, longitudinal members swivelled in said holes and provided with screw-threads, buffers surrounding said longitudinal members, and adjusting-nuts engaging said screw-threads for governing the tension of said buffers.

8. An automobile, comprising a vehicle having a frame provided with holes, a motor pivotally mounted upon said frame and provided with cup-shaped legs, longitudinal members swivelled in said holes and extending loosely into said cup-shaped legs, said longitudinal members being threaded, cylindrical cushions of resilient material adjacent to said longitudinal members, and adjustable nuts upon said longitudinal members for tensioning said cushions, the arrangement being such that the swinging of said motor causes said longitudinal members to reciprocate through said holes in said frame.

9. An automobile, comprising a wheeled vehicle provided with a frame, a motor pivotally connected to said frame and normally free to

swing, buffers for cushioning the swinging motions of said motor, and a brace of variable length for governing the position of the motor relatively to said vehicle.

10. An automobile, comprising a wheeled vehicle provided with a frame, a motor pivotally connected to said frame and normally free to swing, buffers for cushioning the swinging motions of said motor, means controllable at will, for adjusting said buffers relatively to said motor, and a brace of variable length for governing the position of said motor relatively to said vehicle.

11. An automobile, comprising a wheeled vehicle provided with a frame, a motor suspended from said frame and provided with legs, said motor being normally free to swing, buffers connected with said frame and said legs and disposed upon opposite sides of said motor for cushioning the same when swung in either direction, and a brace of variable length for governing the tension of said motor relatively to said vehicle.

12. An automobile, comprising a wheeled vehicle provided with a frame, a motor suspended from said frame, buffers connected with said motor and said frame and disposed on opposite sides of said motor for cushioning the same when swung in either direction, means controllable at will, for adjusting said buffers, and a brace of variable length for governing the position of said motor relatively to the vehicle.

13. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with a wheel of said vehicle, means for disconnecting said gearing, and buffers for cushioning the swinging motions of said motor.

14. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with a wheel of said vehicle, a longitudinal brace for normally holding said motor in a predetermined position, means for virtually changing the length of said brace to allow the gearing to be disconnected, and buffers for cushioning the swinging motions of said motor.

15. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with the running-gear of the vehicle, mechanism for normally holding said motor in a predetermined position, and buffers located upon opposite sides of said motor to cushion the swinging motion thereof in opposite directions.

16. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing, gearing connecting said motor with a wheel of said vehicle, buffers for cushioning the swinging of said motor, a brace connecting said motor with some rigid part of the vehicle, means for virtually shortening the brace, and means controllable at will, for adjusting said buffers and thereby changing the normal position of said motor relatively to said wheel of said vehicle.

17. An automobile, comprising a wheeled vehicle provided with a storage battery, an electric motor pivotally mounted upon said vehicle, gearing connecting said motor with a wheel of said vehicle, a rigid longitudinal member for normally holding said motor in a predetermined position, buffers disposed upon opposite sides of said motor for cushioning the same in two directions, and screw members for adjusting the normal tension of said buffers.

689,039. CONTROLLER FOR ELECTRIC VEHICLES. ALFRED L. SHIMMUS and HARRY E. PALMER, New York, N. Y.; said Palmer assignor to said Shimmus. Filed Dec. 12, 1901. Serial No. 55,321. (No model)

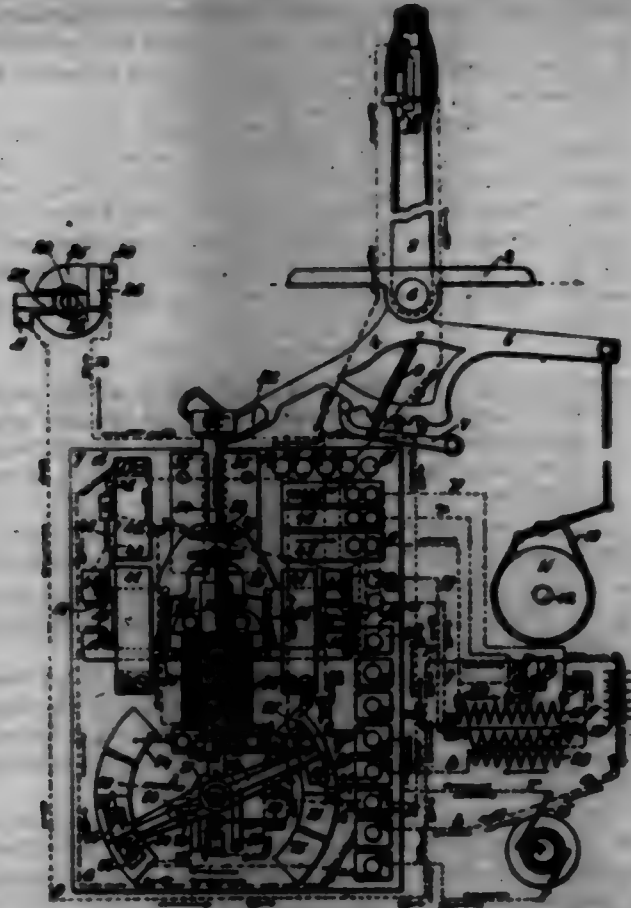
Claim.—1. A controller for electric vehicles, comprising contacts connected with a resistance, a movable electrode for engaging said contacts, and means for forming a short circuit about said contacts at the instant when the said electrode engages said contacts.

2. A controller for electric vehicles, comprising a commutator for reversing the direction of an electric current and actuated by an armature, a lever provided with an armature mating the armature of said commutator; and a current-controlled device for temporarily causing both of said armatures, thereby causing them to adhere together.

3. A controller comprising a series of contacts to be connected with variable resistance, a movable electrode for engaging said contacts, electric connections for said electrode and said resistance, and a movable bridge member flexibly connected with said movable electrode, for the purpose of short-circuiting said stationary contacts at the instant when said movable electrode engages said first-mentioned contacts.

4. A controller comprising an electric circuit for actuating a motor, a movable electrode in said circuit, a plurality of contacts connected in multiple with variable resistance and disposed adjacent to the path of said electrode so as to be successively engaged by said electrode, a contact adjacent to the path of said movable electrode and connected with a short-circuit of comparatively high resistance, the distribution of said con-

facts relatively to the path of said movable member being such that said member in traveling on or to successively engage said contacts connected to said variable resistances, first engages and then disengages the contact connected with the short-circuit, thus speeding the motor in a maximum flash.



5. A controller comprising a commutator for reversing the direction of an electric current, an armature for actuating said commutator, a lever provided with a movable armature mating the armature of said commutator, a current-controlled magnetic device for causing said armature to adhere together so that said commutator may be reversed by the aid of said lever, and means for opening and closing the circuit of said current-controlled device.

6. A controller comprising a commutator for reversing the direction of an electric current, an armature for actuating said commutator, a lever provided with a movable armature mating the armature of said commutator, a solenoid, surrounding both armatures and connected with a circuit for actuating the same, means for opening and closing said circuit, an electrode connected with said lever and movable therewith, contacts disposed adjacent to the path of said movable electrode, resistance electrically connected with said contacts, and means for connecting said electrode, said solenoid and said resistance with a source of electric supply and with a motor to be driven.

7. A controller comprising a commutator for reversing the direction of an electric current, a member for actuating said commutator, a cushion interposed between said member and said commutator, and mechanism controllable at will, for engaging and releasing said member for the purpose of actuating said commutator.

8. A controller comprising a commutator for reversing the direction of an electric current, an armature for actuating said commutator, a cushion interposed between said armature and said commutator, a lever provided with a movable armature, and an electromagnetic device for temporarily exciting both of said armatures, thus causing them to adhere firmly together.

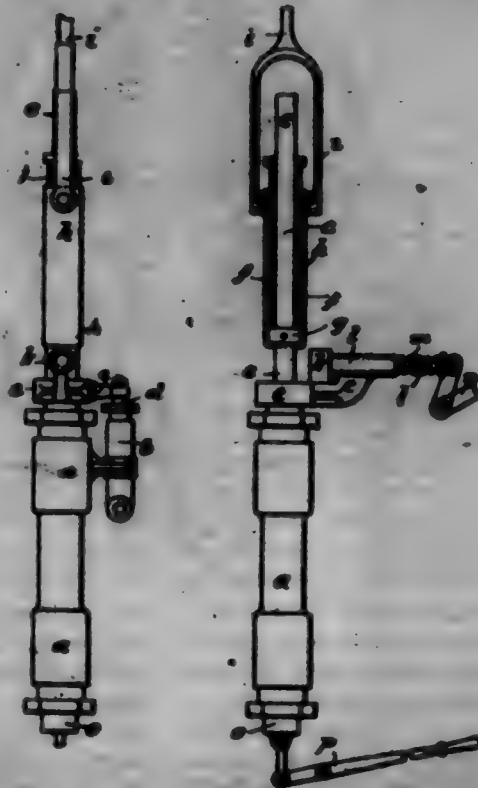
9. A controller comprising a commutator for reversing the direction of an electric current, a cylindrical armature mechanically connected therewith, a controlling-lever provided with a cylindrical armature mating said first-mentioned armature, and a solenoid for temporarily exciting said armatures, thus causing them to adhere together.

10. A controller comprising a commutator for reversing the direction of an electric current, a cylindrical armature mechanically connected therewith, a cushion interposed between said armature and said commutator, a controlling-lever provided with a cylindrical armature mating said first-mentioned armature, and a solenoid for temporarily exciting said armatures, thus causing them to adhere together.

11. A cylindrical armature comprising a movable electrode, stationary contacts to be engaged by the same, an electric circuit connected with said contacts, oppositely-disposed stationary contacts tapping said circuit, and a bridge-electrode caused to said movable electrode by springs and normally held thereby in contact with said movable electrode, the ar-

angement being such that the movement of said movable electrode may cause said bridge-electrode to engage said contacts and disengage said movable electrode at the moment when said movable electrode engages first-mentioned contacts.

899,080. MEANS FOR REGULATING THE SUPPLY OF WATER AND LIQUID FUEL TO STEAM-GENERATORS. JOHN SHERR, Stirling, Scotland. Filed Nov. 20, 1901. Serial No. 93,902. (No Model.)



Claim.—1. The combination with the two pump-cylinders, plungers working in the cylinders and rigidly connected together for simultaneous motion, of a rod for actuating the connected plungers, means for operating this rod, a spring yieldingly interposed between the rod and its operating means for automatically varying the stroke of both pumps, and a locking device for forming a rigid connection between the rod and its operating means to thereby render the spring inoperative; substantially as described.

2. The combination with a pump and its operating-rod having a shoulder or collar, of a sliding sleeve on the said rod and projecting at its inner end under the said collar or shoulder, a helical spring surrounding the rod within the sleeve, bearing at its outer end against a part carried by the sleeve and at its inner end bearing against the collar, and an operating-rod connected to the said sleeve for reciprocating the pump-rod; substantially as described.

3. The combination with the pump and its operating-rod having a collar or shoulder, of a sliding sleeve on the rod and projecting at its inner end under the said collar or shoulder, a helical spring surrounding the rod within the sleeve and bearing on said collar or shoulder, a tubular nut screwed into the outer end of the sleeve to adjust the tension of the spring, and an operating-rod connected to the sleeve for reciprocating the pump-rod; substantially as described.

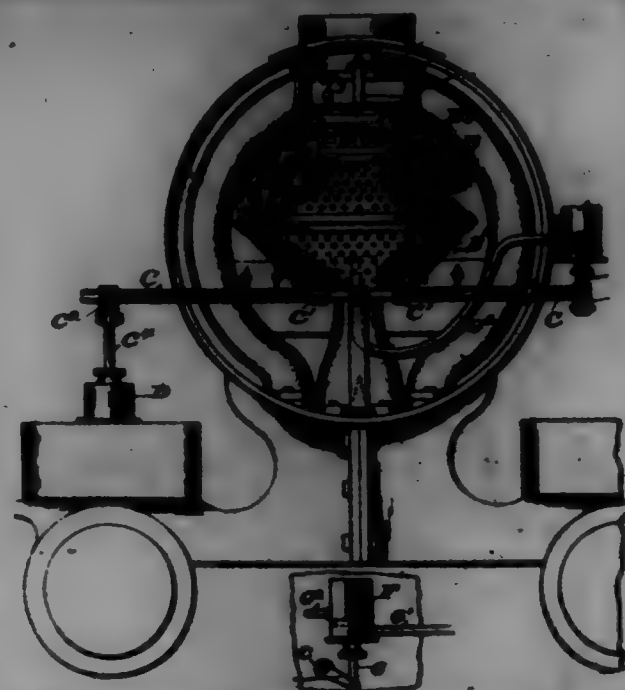
4. The combination with the pump and its operating-rod having a shoulder or collar, a sliding sleeve on the pump-rod with its inner end projecting under the said collar, a connecting-rod for operating the sleeve and a helical spring within the said sleeve and forming a yielding connection between it and the pump-rod, of a shoe piece or block movable under the inner end of said sleeve to render the connection between it and the pump-rod rigid; substantially as described.

5. The combination with the two rigidly-connected pump-cylinders, their rigidly-connected plungers, a rod for actuating both plungers, a spring-embodied sleeve for actuating said pump-rod and means for operating the sleeve, of a bracket on one pump, a sliding rod mounted in said bracket and provided with a shoe at its inner end, and means for operating the shoe-carrying rod to move the shoe into and out of engagement with the sliding sleeve; substantially as described.

899,081. SPARK-ARRESTER. EDWARD J. SMITH, High Springs, Fla. Filed June 15, 1901. Serial No. 94,000. (No Model.)

Claim.—1. A laminative spark-arrester comprising in combination with the stack, an arresting-screen composed of the tapering base and upper sections united at their bases, the cylindrical section extending from

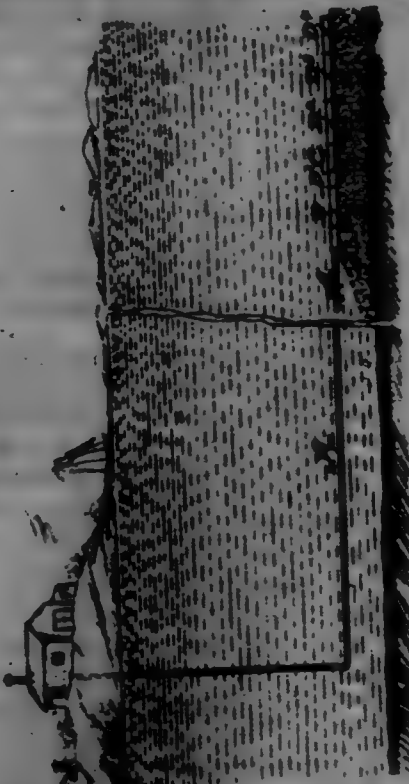
the reduced end of the upper tapered section and registering with and movable into and out of position to shut and guard the lower end of the stack, an operating-shaft having a crank-support for the cranking-arms and an operating-crank, a piston connected with said operating-crank, and the cylinder in which said piston operates, said cylinder being mounted on the locomotive steam-chest substantially as set forth.



2. A spark-arrester for locomotives having a movable screen, device for adjusting the screen to position to guard the stack when the engine is working and device for adjusting the screen to such position when the blower is in operation substantially as set forth.

3. The combination in a locomotive of the smoke-stack, the screen movable into and out of position to guard the stack, a transverse shaft extending across the locomotive adjacent to said screen and provided at its middle with means for operating the screen, and at its opposite ends with crank-arms, a cylinder connected with the blower and having a piston connected with one of the crank-arms of the shaft, and a cylinder having a piston connected with the opposite crank-arm of the shaft, said cylinder being mounted on and in communication with the steam-chest of the locomotive, substantially as set forth.

699,082. WATER SUPPLY AND FILTERING SYSTEM. LLOYD E. SMITH, Portsmouth, Ohio. Filed Nov. 4, 1901. Serial No. 21,341. (No model.)



Claim.—1. The described water supply and filtering apparatus comprising an off-shoot extending to a point of delivery, a reservoir-pipe, a series of pipes pendant from the latter, and a series of lateral pipes buried in a sand-bed at the bottom of a natural body of water, and provided with inlet-openings, as shown and described.

2. The described water supply and filtering apparatus comprising an off-shoot leading to a distributing-station, a reservoir-pipe of greater capacity connected therewith, and laid upon a river sand-bed, a series of pipes pendant from said reservoir-pipe, and a double series of lateral feed and filter pipes arranged at right angles to the reservoir-pipe and attached to each pendant pipe, and having openings which are gradually enlarged in diameter from the inner to the outer ends of said feed-pipes, as shown and described.

3. The described water supply and filtering system comprising a reservoir-pipe having a series of pendant pipes and lateral or branch feed-pipes connected with the latter and extending at right angles and provided with inlet-openings, each intake system being buried at a suitable depth in a sand-deposit in the bed of a natural water-supply, and an off-take-pipe attached to the said reservoir-pipe, but having less diameter, and extending to a distributing-station on the bank, as shown and described.

699,088. PROCESS OF MAKING RESIST-WHITE UNDER INDIGO. ARMAND J. STEINMANN, Ludwigshafen, Germany, assignor to Badische Anilin und Soda-Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Dec. 12, 1901. Serial No. 20,003. (No specimens.)

Claim.—1. Process for the production of resist-white under indigo which consists in printing upon the material to be operated upon a resist containing a thickening agent, glycerin and lead peroxide, drying, dyeing with indigo, and then treating in a bath containing hydrochloric acid all substantially as hereinafter described.

2. Process for the production of resist-white under indigo which consists in printing upon the material to be operated upon a resist containing a thickening agent and lead peroxide, drying, dyeing with indigo, and then treating in a bath containing hydrochloric acid all substantially as hereinafter described.

3. Process for the production of resist-white under indigo which consists in printing lead peroxide upon the material to be operated upon, dyeing with indigo, and then treating with hydrochloric acid all substantially as hereinafter described.

699,084. WAREHOUSE-TROLLEY. ALBERT F. GULIVAN and BENJAMIN S. JACOB, Detroit, Mich.; said Jacob assignor to said Gulivan. Filed July 8, 1901. Serial No. 67,117. (No model.)



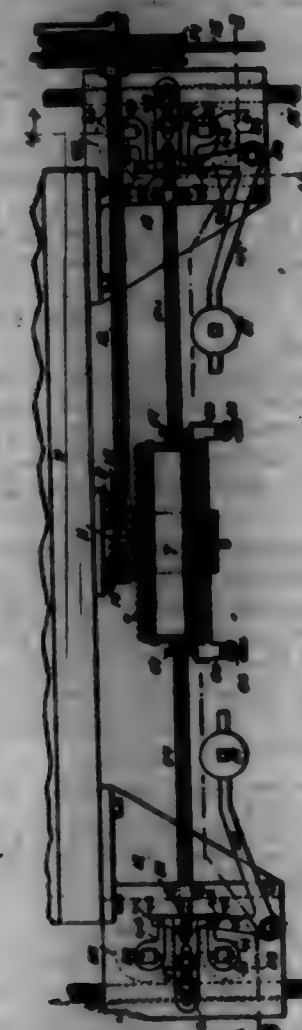
Claim.—1. In combination with a truck-frame, truck-wheels having their axle mounted in fixed bearings, an independently-rotated center-wheel on each side bar near the handle end thereof, and a draft appliance secured to the frame at the center-wheel and thereof and arranged to be folded to allow the truck to be used as a two-wheeled truck, and to be extended to allow the truck to be used as a four-wheeled truck, substantially as described.

2. In combination with a truck-frame, truck-wheels journaled to axles near the front and thereof, combined center-wheels independently mounted to frames near the handle end thereof, a draft appliance slidably secured to the handle end of said frame, and arranged to be extended and used for draft purposes with the truck resting on four wheels, substantially as described.

699,085. SAFETY APPLIANCE. HARRY F. SMITH, Baltimore, Md., assignor to Francis L. Hingwood, New York, N. Y., and Charles W. Schumann, Jr., Orange, N. J. Filed Apr. 18, 1901. Serial No. 64,067. (No model.)

Claim.—1. In a safety appliance, the combination with a car or carrier, of a cylinder, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, and means actuated by the cylinder when its movement exceeds the normal rate for throwing the stopping device into action, substantially as described.

2. In a safety appliance, the combination with a car or carrier, of a cylinder, means operated by the movement of the car for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, and means actuated by the cylinder when its movement exceeds the normal rate for throwing the stopping device into action, substantially as described.



3. In a safety appliance, the combination with a car or carrier, of a cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, and means actuated by the cylinder when its movement exceeds the normal rate for throwing the stopping device into action, substantially as described.

4. In a safety appliance, the combination with a car or carrier, of a cylinder, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally stationary piston in the cylinder, stopping device, means whereby the cylinder causes a movement of the piston when the movement of the cylinder exceeds the normal rate, and means whereby the piston throws the stopping device into action, substantially as described.

5. In a safety appliance, the combination with a car or carrier, of a cylinder, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, a normally stationary piston in the cylinder, means whereby the cylinder causes a movement of the piston when the movement of the cylinder exceeds the normal rate, and means whereby the piston throws the stopping device into action, substantially as described.

6. In a safety appliance, the combination with a car or carrier, of a cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, a normally stationary piston in the cylinder, means whereby the cylinder causes a movement of the piston when the movement of the cylinder exceeds the normal rate, and means whereby the piston throws the stopping device into action, substantially as described.

7. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a piston located in the cylinder, means for permitting the circulation of the liquid from one side of the piston to the other, said means being constructed to allow the passage of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, and means whereby the movement of the piston throws the stopping device into action, substantially as described.

the normal rate, stopping device, and means whereby the movement of the piston throws the stopping device into action, substantially as described.

8. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a piston located in the cylinder, means for permitting the circulation of the liquid from one side of the piston to the other, said means being constructed to allow the passage of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, and means whereby the movement of the piston throws the stopping device into action, substantially as described.

9. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally stationary piston located in the cylinder, a valve-controlled by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, and means whereby the movement of the piston throws the stopping device into action, substantially as described.

10. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, a locking mechanism for rendering the stopping device normally inoperative, and means actuated by the cylinder when its movement exceeds the normal rate for releasing the locking mechanism, substantially as described.

11. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally stationary piston located in the cylinder, means whereby when the movement of the cylinder exceeds its normal rate the piston is moved, stopping device, a locking mechanism for rendering said stopping device normally inoperative, and connections between the piston and the locking device, whereby the movement of the piston releases the locking mechanism and throws the stopping device into operation, substantially as described.

12. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a piston, a valve-controlled by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, locking mechanism therefor for rendering the stopping device normally inoperative, and connections between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

13. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder supported thereon, a shaft also supported thereon, means whereby the movement of the car or carrier causes the rotation of the shaft, connection between the shaft and the cylinder, whereby the rotation of the shaft causes a movement of the cylinder, a piston located in the cylinder, a valve-controlled by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, locking mechanism therefor for rendering the stopping device normally inoperative, and connections between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

14. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, a cable located alongside the path of movement of the car or carrier, a shaft mounted on the car or carrier, a pulley on the shaft around which the cable passes, gearing between the shaft and the cylinder, a piston located in the cylinder, a valve-controlled by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid, whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, locking mechanism therefor for rendering the stopping device normally inoperative, and connections between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

nection between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

15. In a safety appliance, the combination with a car or carrier, of a cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device, locking mechanism including a slide for rendering the stopping device normally inoperative, and means actuated by the movement of the cylinder for moving the slide and releasing the stopping device, substantially as described.

16. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means operated by the movement of the car or carrier for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a piston located in the cylinder, a valve by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device, locking mechanism including a slide for rendering the stopping device normally inoperative, and means actuated by the movement of the piston for moving the slide and releasing the stopping device, substantially as described.

17. In a safety appliance, the combination with a car or carrier, of a cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping device located on each side of the car or carrier, a normally stationary piston located in the cylinder, means actuated by the cylinder when its movement exceeds the normal rate for operating the piston, and connections between the piston and the stopping devices whereby the movement of the piston throws the stopping devices into operation, substantially as described.

18. In a safety appliance, the combination with a car or carrier, of a cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, stopping devices located on each side of the car or carrier, locking mechanism for rendering said stopping devices normally inoperative, a normally stationary piston located in the cylinder, means actuated by the cylinder when its movement exceeds the normal rate for operating the piston, and connections between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

19. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a piston located in the cylinder, a valve by-pass leading from one side of the piston to the other, said by-pass being constructed to allow the circulation of a definite amount of liquid whereby the piston remains stationary when the cylinder is moving at a normal rate but is caused to move when the movement of the cylinder exceeds the normal rate, stopping device located on each side of the car or carrier, locking mechanism for rendering said stopping devices normally inoperative, and connections between the piston and the locking mechanism whereby the movement of the piston releases the locking mechanism, substantially as described.

20. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally stationary piston located in the cylinder, a valve by-pass, two sets of stopping devices, one located on each side of the car or carrier, a locking mechanism for each set of stopping devices, and locking mechanism including a slide, and a connecting-rod extending from each side of the piston to the slide whereby a movement of the piston operates the slide and releases the stopping devices, substantially as described.

21. In a safety appliance, the combination with a car or carrier, of a stopping device, locking mechanism including a slide for holding said device inoperative, means for holding the slide in operative position, and means including a liquid-containing cylinder for operating the slide to release the locking device, substantially as described.

22. In a safety appliance, the combination with a car or carrier, of a stopping device, locking mechanism including a slide for holding said device inoperative, means for holding the slide in operative position, a liquid-containing cylinder mounted on the car or carrier, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally inoperative piston located in said cylinder, connections between the piston and the slide, and means actuated by the cylinder when its movement exceeds the normal rate for moving the piston, substantially as described.

23. In a safety appliance, the combination with a car or carrier, of a stopping device, locking mechanism including a slide for holding said

device inoperative, means for holding the slide in operative position, a liquid-containing cylinder mounted on the car or carrier, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally inoperative piston located in said cylinder, a valve by-pass, connections between the piston and the slide, and means actuated by the cylinder when its movement exceeds the normal rate for moving the piston, substantially as described.

24. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, a shaft also mounted thereon, gearing between the shaft and the cylinder, a cable located alongside the path of movement of the cylinder, a pulley on the shaft around which said cable passes, a normally stationary piston located in said cylinder, a valve by-pass, a set of stopping devices on each side of the car or carrier, said sets including normally inoperative catches, a locking mechanism for each set of stopping devices, each of said locking mechanisms including a slide, counterweighted levers for holding the slides in operative position, a rod connected to the piston and the slides whereby the movement of the piston moves the slides and releases the locking mechanisms, substantially as described.

25. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder, means for giving the cylinder a movement, a normally stationary piston located in the cylinder, a perforated rod extending through the cylinder-head, stopping devices, an indicator-cup, and a pipe connecting the cup with the perforation in the rod, substantially as described.

26. In a safety appliance, the combination with a car or carrier, of a liquid-containing cylinder mounted thereon, means for giving the cylinder a movement corresponding to the rate of movement of the car or carrier, a normally stationary piston located in the cylinder, a perforated rod extending from opposite sides of the piston and passing through the cylinder-head, stopping devices, connections between the rod and the stopping devices, indicator-cups, and pipes connecting the cups with the perforation in the rod, substantially as described.

699,086. SUIZ-SOLIDER. HOTT & TAMM, Canton, Pa., assignors to Alvin H. Lohr and William H. Moore. Filed Mar. 3, 1901. Serial No. 69,504. (No model.)



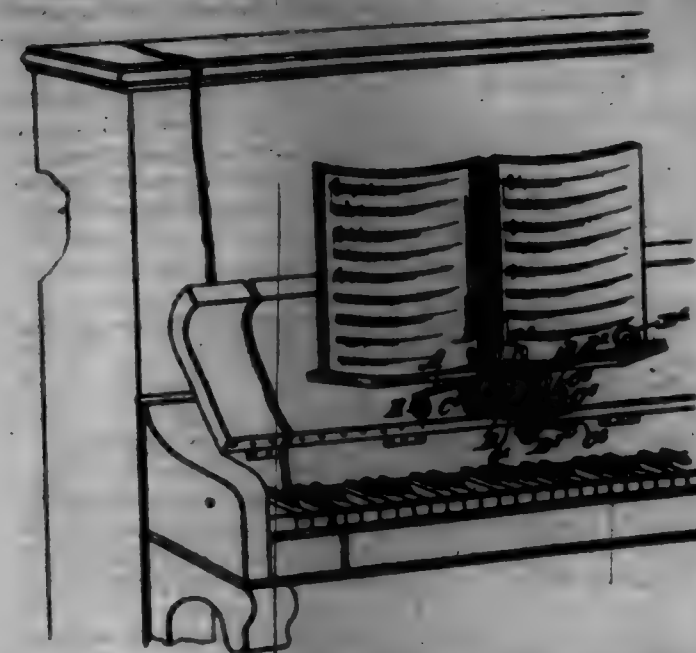
Claim.—1. In combination with parallel sections, a spring having its ends bent at an angle to the body of the same, said ends being normally inclined in relation to each other, means for causing said spring to said sections in such manner that the spring will lie between the same, and means for causing one of said spring ends to each of said sections and for holding the inclined ends in parallel relation to each other, substantially as described.

2. In combination with parallel sections, a spring having its ends bent at an angle to the body of the same, said ends being normally inclined in relation to each other, pockets in said sections for the reception in each of the same of one of said spring ends, and means for holding said spring between said sections and for securing the spring to said sections, substantially as described.

3. In combination with a spring having its ends bent at an angle to the body of the same, said ends being normally inclined in relation to each other, two parallel sections having pockets formed in the upper edge of the same for the reception in each of the same of one of said spring ends, and staples for securing said spring to said sections by attaching to each of the jaws that end of the spring which engages with the opposite jaw, substantially as described.

4. In combination with a spring having its ends bent at an angle to the body of the same, said ends being normally inclined in relation to each other, two parallel sections having pockets formed in the upper edge of the same and the wall of said pockets partly cut away on the inner surface of the sections, said pockets serving for the reception in each of the same of one of said spring ends, and staples for securing said spring to said sections by attaching to each of the jaws that end of the spring which engages with the opposite jaw, substantially as described.

699,087. LEAF-TURNER. JOHN TAYLOR, Leamington, England. Filed Nov. 10, 1891. Serial No. 62,222. (No model.)



Claim.—1. In a leaf-turner or paper-lifter, the combination of a frame, a rack-shaft supported thereon, an arm formed of two pivotally-connected parts secured at one end to the shaft and having an expanding chamber on its free end, a cord, one end of which is secured to the arm intermediate its pivotal joint and the expanding chamber and its other end being secured to the frame at a point above the arm on the same side of the shaft as that in which the arm lies when in its inoperative position, means adapted to be actuated by the operator to rotate the arm in one direction through one-half of a revolution and automatic means to return the arm, substantially as and for the purpose specified.

2. In a leaf-turner or paper-lifter and in combination, a frame, a rack-shaft supported thereon, an arm formed of two pivotally-connected parts, fixed by one end to the shaft and having an expanding chamber on its free end, a cord one end of which is secured to the arm intermediate its pivotal joint and the expanding chamber while its other end is secured to the frame at a point above the arm on the same side of the shaft as that in which the arm lies when in its inoperative position, a bevel-wheel on the shaft gearing with a bevel-wheel supported on the frame, an operating lever or handle fixed on the base of the latter wheel and a spring engaging the handle to return the same to normal position after movement by the operator substantially as specified.

3. In a leaf-turner or paper-lifter and in combination, a frame, a rack-shaft supported thereon, an arm formed of two pivotally-connected parts, fixed by one end to the shaft and having an expanding chamber on its free end, a cord one end of which is secured to the arm intermediate its pivotal joint and the expanding chamber while its other end is secured to the frame at a point above the arm on the same side of the shaft as that in which the arm lies when in its inoperative position, a bevel-wheel on the shaft gearing with a bevel-wheel supported on the frame, an operating lever or handle fixed on the base of the latter wheel, a spring engaging the handle to return the same to normal position after movement by the operator and a leaf-flap catch as F carried on a bevel wheel gearing with a second bevel-wheel carried on the shaft and substantially as specified.

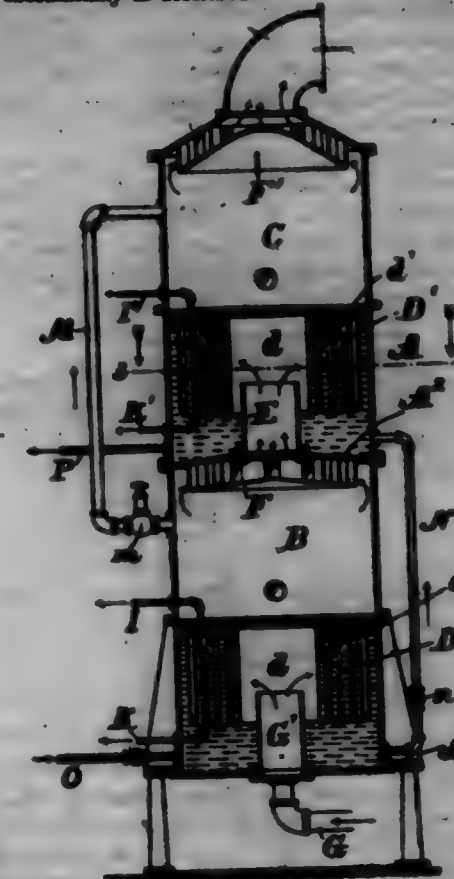
699,088. MULTIPLE EFFLUENT. BERNARD TOWN, New Orleans, La. Filed Apr. 27, 1901. Serial No. 67,512. (No model.)

Claim.—1. In an apparatus of the character described, the combination with an evaporator divided into a plurality of chambers with heating devices in the lower portion of each of said chambers, of a pipe connecting the lower portions of each pair of said chambers, and another pipe connecting the upper portions of each pair of said chambers, means for supplying the liquid to be concentrated to one of said chambers, and means for drawing off the vapor from another of said chambers, substantially as described.

2. A separator for use in an apparatus of the character described, comprising a base-plate and a plurality of hollow-plates *f, f'* and *f''* projecting upward from said base-plate and arranged to form tortuous passages to permit the passage of the vapor therethrough, but to arrest any condensed liquid, the said separator being arranged in the upper portion of the evaporating-chamber, substantially as described.

3. In an apparatus of the character described, the combination with an evaporator divided into a plurality of superimposed chambers, with a heating-drum in the lower portion of each of said chambers, means for

supplying the liquid to be concentrated in the lowest or said chambers, and means for drawing off the vapor from the highest of said chambers, pipes connecting adjacent chambers above and below the liquid, respectively, and a reducing-valve in the pipe connecting the chambers above the liquid, substantially as described.

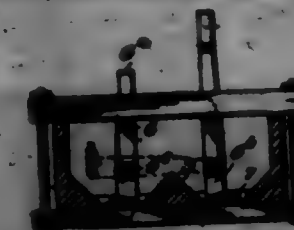


4. In an apparatus of the character described, the combination with an evaporator divided into a pair of chambers with heating devices in the lower portion of each of said chambers, of a pipe connecting the lower portions of each pair of said chambers, and another pipe connecting the upper portions of each pair of said chambers, means for supplying the liquid to be concentrated to the lower one of said chambers, and means for drawing off the vapor from the top of the upper one of said chambers, substantially as described.

5. In an apparatus of the character described, the combination with an evaporator divided into a plurality of chambers with a heating-drum below in the center and provided with a series of water-lugs, located in the lower portion of each of said chambers, and steam or vapor lines opening upward into the hollow central portion of said drums, of pipes connecting said chambers, with a reducing-valve in one of said pipes, means for supplying the liquid to be concentrated to one of said chambers, and means for drawing off the vapor from another of said chambers, substantially as described.

6. In an apparatus of the character described, the combination with an evaporator divided into a plurality of chambers with a heating-drum below in the center and provided with a series of water-lugs, located in the lower portion of each of said chambers, and steam or vapor lines opening upward into the hollow central portion of said drums, means for supplying the liquid to be concentrated to the lowest of said chambers, and means for drawing off the vapor from the highest of said chambers, pipes connecting adjacent chambers above and below the liquid, respectively, and a reducing-valve in the pipe connecting the chambers above the liquid, substantially as described.

699,089. DUMPING DEVICE. BERNARD F. THOMAS, London, Eng. Filed Feb. 5, 1902. Serial No. 68,795. (No model.)



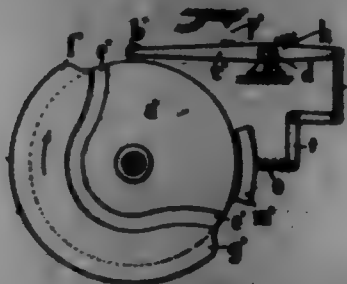
Claim.—1. In a dumping device, the combination with a receptacle having converging walls which form a discharge-outlet, of a plate adapted to open and close said outlet and a bifurcated operating-lever fixed to said plate at opposite sides of its center and provided to suitable supports.

2. In a dumping device, the combination with a receptacle having converging walls which form a discharge-outlet, of a plate adapted to open and close said outlet and a bifurcated operating-lever fixed to said plate at opposite sides of its center and detachably pivoted to suitable supports.

3. In a dumping device, the combination with a receptacle having converging walls which form a discharge-outlet, of a plate adapted to open and close said outlet, a lever pivoted to said plate at opposite sides of its center and pivoted to said brackets.

4. In a dumping device, the combination with a receptacle having converging walls and a triangular central rib which form discharge-outlets, of a plate adapted to open and close said outlets and bifurcated operating-levers fixed to said plate at opposite sides of their centers and pivoted to suitable supports, having the handle of one adapted to pass between the forks of the other.

699,040. SPEED-CONTROLLER. FRANK THIER, Brunswick, Germany. Filed July 1, 1901. Serial No. 66,777. (No model.)



Claim.—1. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever *a* a roller *b* thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount, when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to effect the retardation of the moving part, substantially as described.

2. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path, of a lever *a*, a roller *b* thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to operate a signaling device, substantially as described.

3. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever *a* a roller *b* thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount, when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to effect the retardation of the moving part and to operate a signaling device, substantially as described.

4. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever *a* a roller *b* thereon which passes through said path when the moving part is traveling at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount, when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to operate a signaling device, substantially as described.

5. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever *a* a roller *b* thereon which passes through said path when the moving part is moving at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to move a brake-block into contact with the moving part, substantially as described.

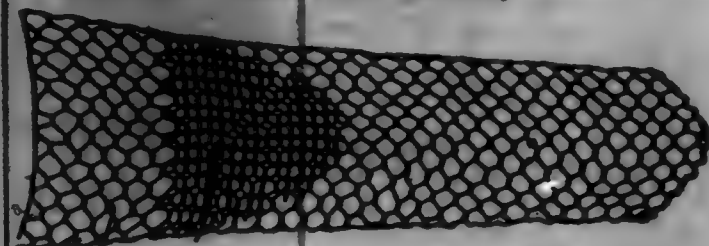
6. In mechanism for controlling rotary or rectilinear motion the combination with a moving part having a grooved path of a lever *a* a roller *b* thereon which passes through said path when the part is traveling at the normal speed, a projection or bridge over each grooved path upon which the roller is caused to mount when the normal speed is exceeded, and means whereby the motion thus imparted to the lever is caused to move a brake-block into contact with the moving part and close an electric signaling-circuit, substantially as described.

7. The combination with a spring body having a curved groove or path and a bridge-piece projecting over said path and having inclined ends,

of a rest-shaft journaled in fixed bearings, a lever projecting therefrom, a roller on said lever, a second lever on the rest-shaft, an elbow-lever, a brake-block on one arm thereof and a spring connected to the second lever of the rest-shaft and the other arm of the elbow-lever, substantially as described.

8. The combination with a moving body having a curved groove or path and a bridge-piece projecting over said path and having inclined ends, of a rest-shaft journaled in fixed bearings, a lever projecting therefrom, a roller on said lever, a second lever on the rest-shaft, an electric signaling-circuit, and a circuit-closer therefor in the path of movement of the second lever, substantially as described.

699,041. TRAP-NET. JOHN C. THOMPSON, Hampton, Ga. Filed Feb. 12, 1902. Serial No. 64,082. (No model.)



Claim.—1. A trap-net for fish, the same consisting of a body portion of wire-netting, bent to form a body portion elliptical in cross-section and having a flaring or bell-shaped entrance, in combination with one or more pringles, within the body portion, substantially as described and for the purpose specified.

2. A trap-net consisting of a body portion of wire-netting devoid of hoops, frames or other strengthening devices, the said body portion being elliptical in cross-section and having a flaring or bell-shaped entrance, in combination with one or more pringles made of wire-netting, said pringles being secured within the body portion and having at their contracted inner ends members or passages normally held closed by the tension of the wire, substantially as described.

699,042. WINDOW-WASHER. JAMES VAIR, Detroit, Mich. Filed May 20, 1901. Serial No. 61,615. (No model.)



Claim.—1. A window-washing apparatus, comprising in its construction a rod, a tube telescoping thereover, means for securing the free ends of said rod and tube against the vertical sides of a window-sash, a rod slidably secured above said tube and arranged parallel therewith, a vertically-arranged rod slidably secured to said parallel rod, a sleeve slidably secured to said vertical rod, a cleaning instrument carried by said sleeve, and means for suspending said cleaning instrument, substantially as described.

2. A window-washing apparatus, comprising a telescoping support, a horizontal rod slidably secured to said support and spaced above the same, a sleeve vertically arranged and slidably carried by the horizontal rod, means for securing the horizontal rod out of its vertical plane, and window-cleaning means carried by said vertical rod, substantially as described.

3. A window-washing apparatus comprising in its construction a longitudinally-adjustable rod adapted to be secured between the vertical sides of a window-sash, a sleeve slidably thereover, a rod spaced therefrom and extending parallel therewith, a sleeve rigidly secured about one end of said parallel rod, a web securing said rigid sleeve to said sliding sleeve, means supporting the free end of said parallel rod above said adjustable rod, a sleeve slidably upon said parallel rod, a vertical rod secured to said last-mentioned sleeve, means carried by said vertical rod for cleaning a window on the outside, a cushion secured to the upper end of said vertical rod, and auxiliary means for supporting said adjustable rod, substantially as described.

4. A window-washer comprising in its construction a rod adapted to be secured between the vertical sides of a window-sash, a rod slidably secured above said first-mentioned rod and extending parallel thereto, a sleeve longitudinally slidably upon said parallel rod, a vertically-arranged rod secured to said sleeve, means carried by said vertical rod for cleaning the outside of a window, and auxiliary means for supporting said vertical rod, comprising a spring pivoted near the lower end thereof, a foot upon the lower end of said spring adapted to normally rest upon said window-sash, a hub threaded through a flange extending from said sleeve, means for securing one end of said hub to said spring, and means for rotating said hub, whereby the pivoted end of said spring may be raised or lowered for tilting said vertical rod laterally, substantially as described.

5. A window-washer comprising in its construction a rod adapted to be supported vertically on the outside of a window, a telescoping support for said rod, a sleeve slidably upon said rod, means for suspending said sleeve, a tube carried by said sleeve, and carrying a cleaning instrument at its upper end, means for supplying water to the lower end of said tube, means for throwing water from said tube against the glass operated upon, a telescoping trough beneath said glass for receiving the drip therefrom, and means for conducting said drip from the trough back to the source of supply, substantially as described.

699,043. APPARATUS FOR THE HYDRAULIC PROPULSION OF SHIPS. LAM TUNG, N. Y. Filed Dec. 20, 1901. Serial No. 67,518. (No model.)



Claim.—1. An apparatus designed to counteract or to utilize the resistance of the water in the propulsion of ships whether navigating on the surface or beneath the surface of the water, and which apparatus consists essentially of a permanent or a removable casing or jacket surrounding the hull of the ship and perforated with a number of slots arranged at a short and symmetrical distance from the longitudinal median plane of the ship, and fitted with a pump or the means for supplying water continuously into the space between the hull and the outer casing; the water being drawn by the pump from a vertical hollow shaft placed in the center of the ship or through any other convenient opening in the ship or through a suction-cumulus projecting from the ship in the manner hereinafter described and for the purpose specified.

2. In combination with the hull of a vessel, a perforated casing surrounding the hull and spaced therefrom, and means for forcing water into the space.

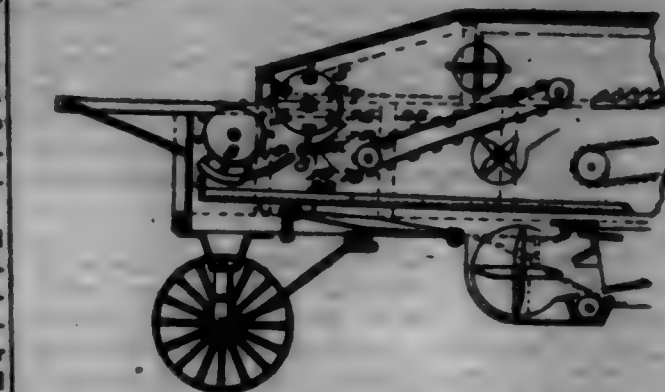
3. In combination with the hull of a vessel, a casing in which the hull is arranged, the said casing having rearwardly-inclined openings, and a pump for supplying water to the casing.

4. In combination with the hull of a vessel, of a perforated casing in which the hull is arranged, a vertical pipe supported in the hull and having water-takes at its lower end, and a pump for discharging water from the pipe into the casing.

699,044. THRESHING-MACHINE. EDWARD J. FRANKLIN, Buffalo, N. Y., assignor to Buffalo Threshing Company, Buffalo, N. Y., a Corporation of New York. Filed Jan. 23, 1901. Serial No. 64,728. (No model.)

Claim.—1. The combination with the threshing-cylinder, the concave thereunder and the rearwardly-extended grate leading from the con-

curve, of the beating-drum mounted on a plane considerably above and in rear of the cylinder in such relation thereto that grain discharged by the latter will strike the lower portion of the drum and be freely deflected downward through the straw, a grate beneath said drum pivoted at one end, means for adjusting the position of said grate, said means extending forwardly of said grate in the line of the discharge of the straw carried by the beater of the drum, and mounted on the pivot-bearings of the grate, and means for adjusting said bearings and regulating the position of the feet, substantially as set forth.



2. The combination with the threshing-cylinder, the concave, the grate extending therefrom, of the beating-drum mounted on a plane considerably above and in rear of the cylinder in such relation thereto that grain discharged by the latter will strike the lower portion of the drum and be deflected downward, a grate located beneath the drum composed of spaced-apart cross-bars and end plates, pivot-bearings for the outer ends of said plates, screw-rods carried by said end plates, and means engaging said rods for locking said end plates in position, substantially as set forth.

3. The combination with the threshing-cylinder, the concave, and the grate leading therefrom, of the beating-drum mounted on a plane considerably above and in rear of the cylinder in such relation thereto that grain discharged by the latter will strike the lower portion of the drum and be deflected downward, a grate beneath the drum having end plates, a cross-rod upon which said end plates are pivoted, means for adjusting the position of said end plates, said means extending from said cross-rod, and means engaging one end of the latter for adjusting the position of the feet, substantially as set forth.

699,045. SAFETY FUSE-BOX. JAMES T. WATSON, Scranton, Pa. Filed July 8, 1901. Serial No. 67,494. (No model.)



Claim.—1. In a safety fuse-box, the combination with an insulating case, a pair of steps connected in the line-circuit mounted therein, an electro-magnet adapted to operate said steps, and a pair of contacts connected in said magnet-circuit carried by said case; of a plurality of separate fuse-holders mounted in said case, conducting-plugs normally in engagement with said steps, and pins electrically connected together, and slidably mounted in said holders, adapted to engage said contacts in said case when the fuse is blown out, substantially as described.

2. In a safety fuse-box, the combination with an insulating case, a pair of steps connected in the line-circuit mounted therein, an electro-magnet adapted to operate said steps, and a pair of contacts connected in said magnet-circuit carried by said case; of a plurality of separate fuse-holders, a fuse within each of said holders, sliding pins each connected to said fuse, insulated ends upon said pins, springs in connection with said insulated ends, electrical connection between said springs, said portions being adapted to complete the magnet-circuit through said contacts in said case, substantially as described.

case when the fuse blows out, and conducting-plates upon the under side of said holders adapted to rest upon said steps, through which the line-current passes to the fuse, whereby when the fuse is blown out, the circuit is completed through the magnet, withdrawing said steps, causing the blown-out fuse-holder to be ejected, allowing the next holder to drop into place, substantially as described.

3. In a safety fuse-box, the combination with an inclosing case, a pair of steps connected in the line-circuit mounted therein, an electromagnet adapted to actuate said steps, and a pair of contacts connected in said magnet-circuit, carried by said case; of a plurality of fuse-holders each independently movable in said case, said holders being adapted to rest upon said steps, fuses carried by said holders, each fuse being adapted to be thrown into the circuit when its holder rests upon said steps, and sliding pins adapted to engage the electrical contacts of said case when the fuse blows out, to complete the circuit through the magnet, causing the case to withdraw the steps, allowing the next fuse-holder to drop into place, substantially as described.

4. In a safety fuse-box, the combination with an inclosing case, a pair of steps connected in the line-circuit mounted therein, an electromagnet adapted to actuate said steps, and a pair of contacts connected in said magnet-circuit, also carried by said case; of a plurality of fuse-holders mounted in said case, plates upon the under side of each said holder, adapted to rest upon said steps, and fuses in connection with said plates, and spring-actuated pins carried by said holders, whereby when said fuse blows out, said pins are sprung into contact with said electrical contacts, closing the magnet-circuit, causing said magnet to withdraw said steps and allow the remaining holder to drop into place, substantially as described.

5. A safety fuse-holder, comprising an insulating-base, conducting-plates upon each end of said base, sliding pins adapted to carry a fuse mounted in said base, in electrical connection with said conducting-plates, insulated couplings carried by said pins, springs normally tending to throw said pins outwardly, and electrical connection between said springs, whereby when said fuse is blown out, said springs are thrown outwardly, substantially as described.

699,046. JAR CLOSURE AND FASTENER. EMERY F. WINE, Oudersport, Pa., assignor, by direct and mesne assignments, of one half to WILLIAM A. WINE and W. H. RICHARDS, Oudersport, Pa. Filed Nov. 8, 1901. Serial No. 11,313. (No model.)



Claim.—1. In combination with a jar or like receptacle having an outer rib or flange at its upper end, a closure for the said receptacle having oppositely-disposed cam portions upon its outer or top side and interlocking means between the receptacle and closure to prevent turning of the latter, a fastener of ball form having bent terminal portions to engage under the aforementioned rib and adapted to have its horizontal portion ride upon the aforementioned cam portions of the closure, substantially as set forth.

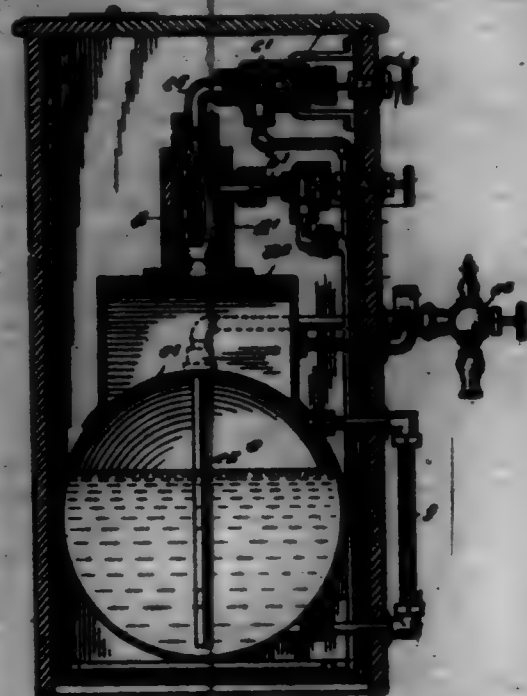
2. In combination, a jar or like receptacle having an outer rib or flange at its upper end and having notches in said flange at diametrically opposite points, a closure having oppositely-disposed cam portions upon its outer or top side, interlocking projections forming a part of the closure and adapted to enter the aforementioned notches when the closure is in place, and a fastener of ball form provided with bent terminals to pass through the notches of the aforementioned rib and adapted to have its horizontal portion ride upon the cam portions of the closure, substantially as specified.

3. In combination, a jar or like receptacle having an outer rib or flange at its upper end and notched at diametrically opposite points, a closure having interlocking projections to enter the said notches of the rib and having a pair of centrally-disposed studs upon its outer or top side and having oppositely-disposed cam portions, and a fastener of ball form having its horizontal portion fitted between the said studs and adapted to have its bent terminals pass through the notches of the aforementioned rib and engage under the latter, substantially as set forth.

699,047. APPARATUS FOR CHARGING AND DISCHARGING LIQUIDS. CHAS. A. WILLIAMS, Worcester, Mass. Filed Apr. 6, 1901. Serial No. 94,981. (No model.)

Claim.—1. An apparatus for carbonating liquids, comprising a casing, a reservoir in the casing, a mixing-chamber mounted on the reservoir communicating directly therewith, a dome mounted on the mixing-chamber and communicating directly therewith, an injector-nozzle leading into

the dome, a gas-supply pipe connected to the nozzle, a valve commanding the gas-supply pipe, a liquid-pipe leading into the dome transversely to the nozzle, and a valve commanding the liquid-pipe.

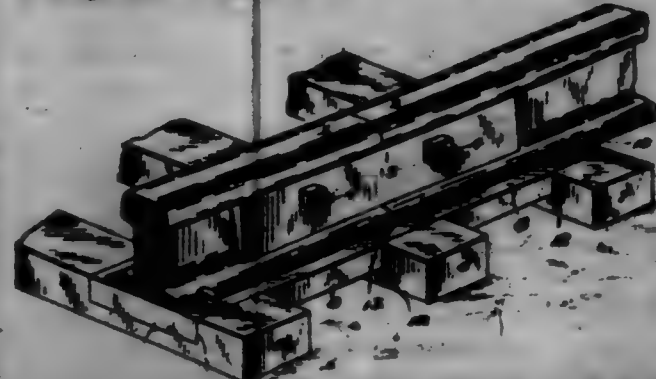


2. An apparatus for carbonating liquids, comprising a casing, a reservoir therein, means extending outside of the casing for withdrawing the liquid therefrom, a mixing-chamber mounted on and directly communicating with the upper part of the reservoir and within the casing, a dome on the mixing-chamber and communicating directly therewith, an injector-nozzle leading into the dome, a gas-supply pipe connected to the nozzle, a valve commanding the gas-pipe, a water-pipe coiled in the casing and leading to the dome transversely of the injector-nozzle, and a valve commanding the water-pipe.

3. An apparatus for carbonating liquids, comprising a reservoir having a perforated top portion, a mixing-chamber mounted on the reservoir at the perforated part thereof, said perforated part of the reservoir constituting the bottom of the mixing-chamber, a dome mounted on the mixing-chamber and communicating directly therewith, an injector-nozzle leading into the dome, a valve-controlled gas-supply communicating with the nozzle, and a valve-controlled liquid-supply communicating with the dome.

4. An apparatus for carbonating liquids, consisting of a casing, a reservoir in the casing and provided with a pipe leading therefrom out through the casing, said pipe being provided with a cock, a mixing-chamber on the top of the reservoir and communicating therewith, a dome on the mixing-chamber, an injector in the dome, a valve-casing in the inclosing casing and connected with the injector, a valve in the casing and having its stem leading out through the inclosing casing, a gas-supply connected with the valve-casing, a second valve-casing in the inclosing casing and connected with the upper part of the dome, a valve in the said casing and having its stem extending out through the inclosing casing, and a water-supply pipe coiled in the inclosing casing and connected with the valve-casing, substantially as described.

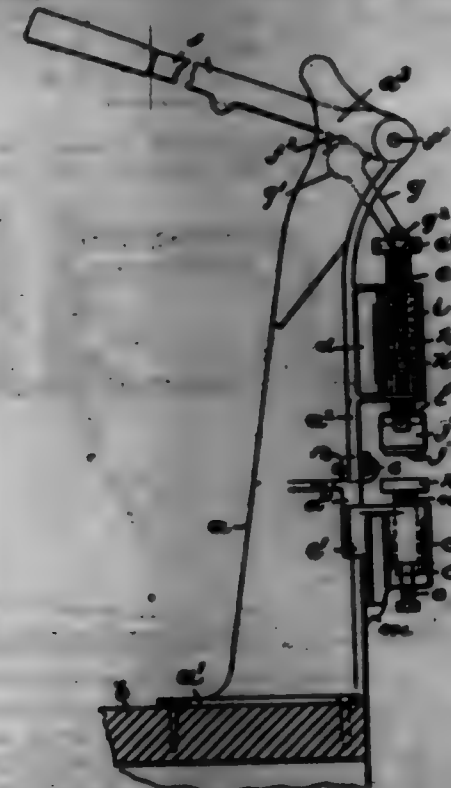
699,048. RAIL CHAIR OR SUPPORT. ELMER H. WILLIAMS, Fitzgerald, Ga. Filed Dec. 12, 1901. Serial No. 94,982. (No model.)



Claim.—The combination with a rail-joint and three or more the having aligned recesses on their upper surfaces, of a chair or support consisting of an oblong plate, the upper and lower surfaces and the sides of which are plane, said plate being seated in the recesses in the ties with its upper surface flush with the upper surface of the ties and of a bracket

greater than the base of the rail, and fastening means for fastening the rail to the chair or support and the chair or support to the tie, substantially as set forth.

699,049. TIP-PRINTING PRESS. JAMES F. WILLIAMS, West Orange, N. J., assignor to the New Man Printing Machine Company, a Corporation of New Jersey. Filed Jan. 26, 1901. Serial No. 94,983. (No model.)



Claim.—1. In a printing or embossing press having a die-bed and a movable die adapted to normally lie away from the die-bed, a stationary lower member comprising a tube located at one side of the path of movement of the die substantially parallel to the face of said die and having gas-perforations in its side next said die, and means for supporting said tube and permitting turning of the same on its longitudinal axis.

2. In a printing or embossing press, having a die-bed and reciprocating die presenting an extended imprinting-surface, a lower member adjacent to the path of movement of said die, between its opposite limits of movement, and comprising a tube having gas-perforations in its side, and supporting means holding said tube but permitting rotation on its longitudinal axis, whereby adjustment may be had to direct the stream of air against the face of the die.

3. In a printing or embossing press having a die-bed and a die adapted to move toward and away from said die-bed, a burner comprising a tube arranged at one side of the path of the die substantially parallel to its face and having a lateral gas-discharge opening, supporting means for said tube adapted to permit it to turn on its longitudinal axis, and means for clamping the tube in any desired position.

4. In a press, the combination of a frame providing a slideway, *d*, with cam *d'*, at one end of said slideway, a plunger *e*, adapted to reciprocate in said slideway, and having a cross-piece *e'*, at the end opposite from the said cam on the slideway, guide-rods *f*, extending between said cam and cross-piece parallel to the plunger and flat at one end to one of said parts and sliding at the other end through the opposite part, and spiral springs on said rods bearing at one end against that part through which the rods slide and ends curving on said rods to form adjustable stops for the other ends of the springs, substantially as set forth.

5. In a press, the combination with a frame providing a vertical front, of an independent die-bed support or bracket adapted at its rear wall to lie against the front of the frame, the contacting surfaces of said frame and bracket having cooperating means for forming a separable connection from which the bracket may be released by moving upward with respect to the frame, substantially as set forth.

6. In a printing or embossing press, the combination with a frame providing at its lateral edges inwardly-bent and upwardly-converging flanges and at its rear having a stop *g*, of a die-bed support or bracket having at its rear a vertical recess or groove adapted to receive the front of the frame and inward side walls to engage the bent flanges of said frame, the lower end of the support being adapted to engage the stop *g*, when said support engages at the side walls of its rear recess the flanges of the frame a die-bed having a stem entering the recess, and an adjusting-screw working through the bottom of the recess to regulate the height of the die-bed, substantially as set forth.

7. In a press, the combination with a frame presenting at its free lateral and upwardly-converging flanges, of a die-bed support or bracket having at its rear a vertical recess or groove adapted to receive the frame and having overhanging side walls to engage the said lateral flanges of the frame, and a stop preventing undue wedging of the support upon its end on the frame, substantially as set forth.

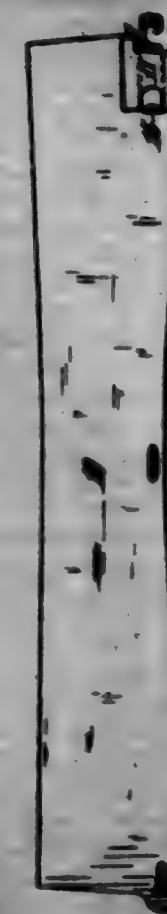
8. The combination with a printing or stamping press having a vertical frame *a*, of a die-bed comprising a lower member held in fixed position close to said frame, an upper member adapted to lie readily upon said lower member and being slidably connected thereto, and arms or extensions at the inner end of said upper member which normally lie on opposite sides of the frame *a*, and which curve to extend the slidable connection of the upper and lower members so that the upper member can be slid out from said frame *a*, beyond the lower member.

9. In a printing or stamping press having a coated die-bed support or bracket, a separable or removable die-bed comprising a lower member having a stem *a*, adapted to enter the said coated support or bracket, and an upper member adapted to lie upon the lower member and slide in its own plane with respect thereto for a limited distance.

10. The herein-described die-bed for a tip-printing press, comprising upper and lower plates or members *c, c'*, forming at their contacting surfaces a close-fitting joint, means upon the lower member for holding it in fixed position beneath the die depending lateral flanges upon the upper member engaging the side edges of the lower member and being extended beyond the end of the upper member to permit said member to be slid entirely off the lower member, stops limiting relative sliding of the members, and spring-clips on the upper member for grasping the article to be printed, substantially as set forth.

11. In a printing or embossing press, having a frame *a*, a die-bed support comprising a lower fixed member of greater width than said frame, and an upper slidable member having its side edges depending over and engaging the edges of the lower member, said side edges being extended rearward beyond the lower member.

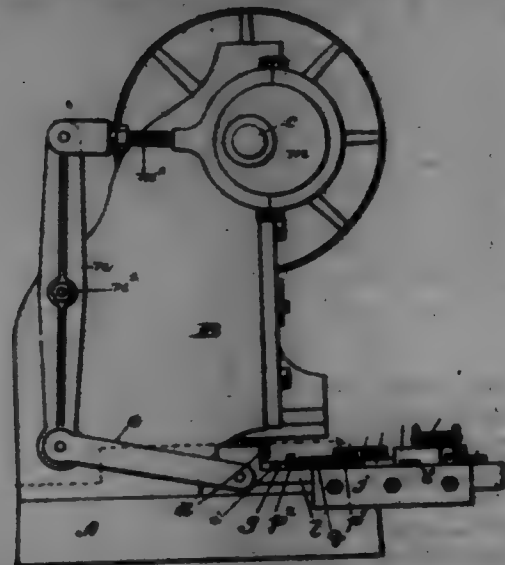
699,050. FASTENER FOR COLLARS. GEORGE H. WILSON, Louisville, Ky. Filed Jan. 11, 1902. Serial No. 94,984. (No model.)



Claim.—1. In a collar-fastener, a strip having a hook at one end and in combination with a collar provided with a loop attached thereto the loop serving to receive said strip, and the end of the collar carrying said loop, being notched.

2. In a collar-fastener, the combination of a collar provided with a loop, and a strip adapted to be slipped through said loop, the inner end of the strip having a bent-over portion adapted to engage the outer face of the loop, and the outer end of the strip having an open hook, said strip being detachably held in place by the bent-over end engaging the loop.

699,051. STAMPING-MACHINE. EDWARD L. WILSON, Baltimore, Md., assignor to Charles Howard Beck, Baltimore, Md. Filed Jan. 21, 1902. Serial No. 99,611. (No model.)



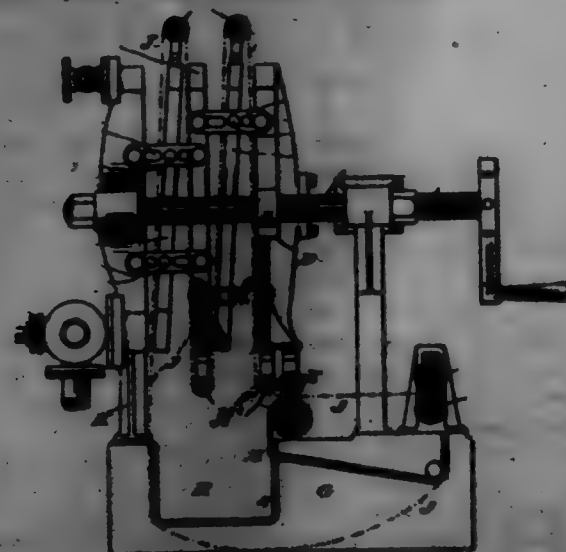
Claim.—1. In a stamping-machine, the combination of a die-punch; a disk-holder mounted to be revolved and provided with a plurality of circumferential notches; a reciprocating slide provided with a wedge; a pawl carried by said slide and adapted to engage the notches on said holder; and a belt spring-pressed into engagement with said notches to lock the disk-holder in a stationary position and arranged to be engaged by the wedge of the slide, whereby to withdraw said belt from the notches against the action of its spring.

2. In a stamping-machine, the combination of a die-punch; a disk-holder mounted to be revolved below said die, said holder having a plurality of circumferential notches; a reciprocating slide; a pawl carried by said slide and adapted to engage the notches on said holder; a belt for engaging said notches to lock the disk-holder in a stationary position, and a wedge-block also carried by said slide for operating said belt.

3. In a stamping-machine, the combination of a die-punch; a disk-holder mounted to be revolved below said punch and provided with a plurality of circumferential notches; a reciprocating slide at the side of said disk-holder; means on said slide for revolving said disk-holder; a wedge-block also on said slide and reciprocating therewith; a belt for locking said disk-holder in a stationary position, said belt having a slot which receives the point end of said wedge-block whereby to withdraw the belt from engagement with the notches in the disk-holder.

4. In a stamping-machine the combination of a revolvable disk-holder having a plurality of circumferential notches; a slide at the side of said disk-holder; a wedge-shaped block on said slide and reciprocating therewith; a belt for locking said disk-holder in a stationary position, said belt extending acrosswise of the said slide and having in its bottom a slot which receives the point end of said wedge-block whereby the belt is drawn from engagement with the notches in the disk-holder, and a spring device for shearing the belt when the wedge-block has been withdrawn from the slot.

699,052. FILTER-PRESS. JOHN WILSON, Glasgow, Scotland. Filed Nov. 1, 1901. Serial No. 99,512. (No model.)

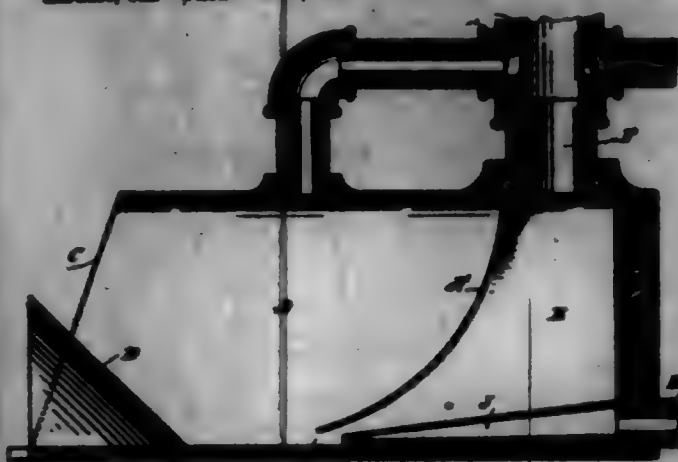


Claim.—1. In a filter-press, the combination with the stationary and the movable plates or followers of the press; of cake-forming frames

interposed between said plates or followers, inclined portions forming the bottoms of said frames, said portions supporting said frames, and means connected to said links adapted to give an angular or slanting position to said frames, when the plates are separated.

2. In a filter-press, the combination with the stationary and movable plates or followers; of cake-forming frames having inclined ends, interposed between said plates, links having holes of unequal lengths, pins carried upon the upper and lower ends of said plates and frames, said pins passing through the holes in said links, said links being so arranged that a slanting or oblique position is given to said frames when said plates are opened.

699,053. HYDROCARBON-BURNER. EDWARD WITTY, San Bernardino, Cal. Filed Oct. 10, 1901. Serial No. 73,901. (No model.)



Claim.—1. In a hydrocarbon-burner, a casing having front and rear chambers communicating with each other at the bottom, the front chamber having an open front end, an air and oil supply leading into the rear chamber at the bottom thereof, and a steam-supply leading into the rear chamber and discharging opposite the opening establishing communication between the said chambers, as set forth.

2. In a hydrocarbon-burner, a casing having the front and rear chambers communicating with each other at the bottom, the front chamber having an open front end, an air and oil supply leading into the rear chamber, an oil-supply vessel, and a steam-supply extending in front of the casing, thence through the oil-supply vessel and provided with a nozzle extending into the rear chamber opposite the opening establishing communication between the chambers, as set forth.

3. A hydrocarbon-burner, comprising a casing divided into two chambers, the front chamber having its front end open, and the rear one provided with a nozzle at its bottom, a steam-nozzle in the rear chamber opposite the front-chamber nozzle, an oil-supply for the rear chamber, an oil-supply for the said rear chamber, a steam-supply connected with the said steam-nozzle and passing through the oil-supply for heating the oil; and means for superheating the steam in the steam-supply previous to its passage through the oil-supply vessel and previous to its entrance into the burner, as set forth.

4. A hydrocarbon-burner, comprising a casing open at one end and having a transverse partition forming an oil and air chamber in the closed end thereof, said chamber being formed with a discharge-nozzle extending toward the open end of the casing at or near the bottom thereof, and a steam-nozzle in the said oil and air chamber and having its outlet close to the said discharge-nozzle of the said chamber, as set forth.

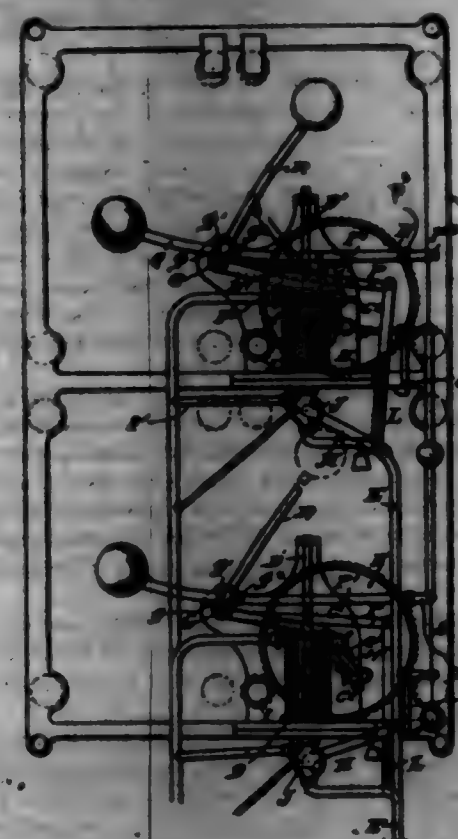
5. A hydrocarbon-burner, comprising a casing open at one end, an oil and air chamber in the closed end of the said casing and formed with a discharge-nozzle extending toward the open end of the casing at or near the bottom thereof, a steam-nozzle in the said oil and air chamber and having its outlet close to the said discharge-nozzle of the said chamber, a pipe opening into the said oil and air chamber, to conduct air and gas into the chamber, and a branch pipe leading from the said first-named pipe, for conducting air and gas into the casing in front of the said chamber, as set forth.

6. A hydrocarbon-burner, comprising a casing open at one end, and having a transverse partition forming an oil and air chamber in the closed end thereof, said chamber being formed with a discharge-nozzle extending toward the open end of the casing at or near the bottom thereof, a steam-nozzle in the said oil and air chamber and having its outlet close to the said discharge-nozzle of the said chamber, and a deflector in the open end of the casing and in advance of the said nozzle, to guide the mixture of air, gas and steam in an upward direction through the open end of the burner-casing, as set forth.

7. A hydrocarbon-burner, comprising a casing open at one end, an oil and air chamber in the closed end of the said casing and formed with a discharge-nozzle extending toward the open end of the casing at or near

the bottom thereof, a steam-nozzle in the said oil and air chamber and having its outlet close to the said discharge-nozzle of the said chamber, a deflector in the open end of the casing and in advance of the said nozzle, to guide the mixture of air, gas and steam in an upward direction through the open end of the burner-casing, and a burner-screen extending over the open end of the said casing, as set forth.

699,054. APPARATUS FOR DISPLAYING ADVERTISEMENTS. ROBERT J. WOOD, Glasgow, Scotland. Filed Apr. 25, 1902. Serial No. 714,282. (No model.)



Claim.—1. An apparatus for displaying advertisements, consisting of a framework, a set or sets of rollers mounted upon the front and back thereof, a series of hydraulic pistons and means engaging the same for rotating said rollers, and means whereby, as one set of rollers has completed its revolution the rotating mechanism is cut off from it and said set of rollers remains stationary, and means connecting the first and last set of rollers whereby the rollers are operated in succession as long as power is applied.

2. An apparatus for displaying advertisements consisting of a framework, a set or sets of rollers mounted upon the front and back thereof, a series of hydraulic pistons, each controlled by the other and lever connected to said pistons for rotating said rollers, whereby, as one set of rollers has completed its revolution, the rotating mechanism is cut off from it and immediately connected to the next set of rollers and means connecting the first and last set of rollers whereby the rollers are operated in succession as long as power is applied.

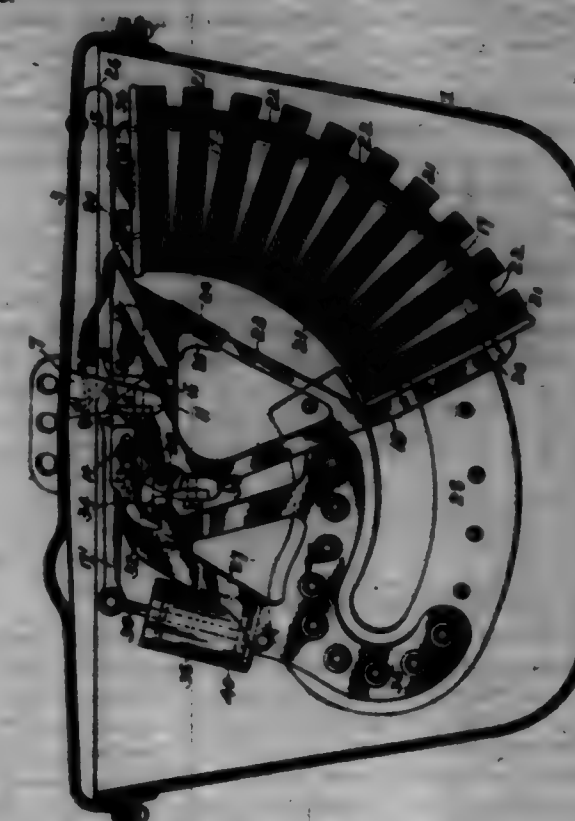
3. An apparatus for displaying advertisements consisting of a framework, a set or sets of rollers mounted upon the front and back thereof, a series of hydraulic pistons mounted above each other, mechanism engaging said pistons for rotating said rollers, means whereby, as one set of rollers has completed its revolution, the rotating mechanism is cut off from it, means for immediately connecting up the next set of rollers with the rotating mechanism until all the rollers have been operated, and means for connecting the first with the last set of rollers whereby the rollers are again rotated in succession as long as power is applied.

4. An apparatus for displaying advertisements consisting of a framework, a set or sets of rollers mounted upon the front and back thereof, hydraulic pistons having connection with each other, levers connected to the rods of said pistons, a valve for each piston-cylinder, connected with the said levers, and a connecting-rod connecting the top and bottom set of rollers whereby the rollers are operated in succession as long as water-power is applied.

699,055. ALTERNATING-CURRENT REGULATORS. THOMAS E. ADAMS, Cleveland, Ohio. Filed Dec. 1, 1901. Serial No. 94,285. (No model.)

Claim.—1. In a regulator, the combination of a solenoid, and means pivotally supporting the relative members of said solenoid with the weight of one part opposed to the weight of the other part.

2. A regulator, comprising an inductive resistance device having its parts relatively arranged to constitute mechanical resistance, one to the other.



3. A regulator, comprising a coil having its frame pivotally supported, and a core pivotally supported by the frame of the coil and adapted to enter the latter.

4. A regulator comprising a lever pivotally supported between its ends, a coil secured in one arm of said lever, and a core pivotally supported by the other arm of the lever and adapted to enter the coil.

5. A regulator, comprising a lever pivotally supported between its ends, a coil carried by one arm of said lever, and a core adapted to enter the coil, said core pivotally supported from the other arm of said lever at a point below the plane of the pivotal support of said lever.

6. The combination in an electric circuit, of transmitting devices included in said circuit, and an inductive-resistance device having its coils included in said circuit, the parts of said inductive resistance so relatively arranged that the mechanical resistance of one part to the pull of the other part will vary in proportion to the choking effect of the other part.

7. In an alternating-current regulator, the combination of a coil, a core to enter the coil, and means for causing one of said parts to exert a mechanical resistance to the pull of the other part commensurate with the choking effect produced in the coil when the resistance of an alternating-current circuit including said coil is varied.

8. In an electric regulator, the combination with a lever pivotally supported between its ends, of a segmental spool secured to one arm of said lever, a coil wound on said spool, and a core pivotally supported by the other arm of the lever and adapted to enter said coil.

9. In an electric regulator, the combination with a lever pivotally supported between its ends, a coil carried by one arm of said lever, a core pivotally supported by the other arm of said lever and adapted to enter said coil, and means for adjusting the fulcrum of said lever.

10. In an electric regulator, the combination with a lever pivoted between its ends, of a coil carried by one arm of said lever, a core pivotally supported by the other arm of the lever and adapted to enter the coil, and a bell-crank bearing against the arm of the lever carrying the coil.

11. In an electric regulator, the combination with a lever pivoted between its ends, a segmental spool secured to one arm of said lever, a series of coils on said spool and electrically connected together, opening-blocks between the coils and a core supported by the other arm of said lever and adapted to enter the coils.

12. In an electric regulator, the combination with levers or supports, a lever, a knife-edge bearing for the lever, secured to said supports, a coil carried by one arm of said lever, a core to enter the coil, a frame secured to said core, and a knife-edge bearing secured to the other arm of the lever, for said frame.

13. In an electric regulator, the combination with a support and a lever, of a plate secured to the support and having a knife-edge bearing for the lever, shoulders at the ends of said knife-edge for preventing lateral displacement of the lever, a coil carried by one arm of the lever, a core to enter the coil, a knife-edge bearing on the other arm of the lever

for supporting said core and means for preventing lateral displacement of the core relatively to its bearing.

14. In an electric regulator, the combination of a lever comprising two plates and a block secured to and supporting said plates, a knife-edge bearing for the block for pivotally supporting the lever, a coil carried by one arm of the lever, a knife-edge bearing secured to the ends of the plates constituting the other arm of the lever, and a core supported by said knife-edge bearing and adapted to enter the coil.

15. In an electric regulator, the combination of a lever comprising two plates and a block separating said plates, a pivotal support for said block means for adjusting the block to change the fulcrum of the lever, a coil carried by one arm of the lever and a core for the coil pivotally supported by the other arm of the lever.

16. In an electric regulator, the combination of a frame or lever having divergent members, a spool secured between said divergent members, a coil on said spool, means for pivotally supporting said frame or lever between the ends of one of its members, a frame or arm pivotally supported by said frame or lever at a point furthest removed from the spool and coil, and a core secured to said frame or arm and adapted to enter the coil.

17. In an electric regulator, the combination with a lever pivotally supported between its ends, of a segmental spool carried by one arm of said lever, a coil on said spool, and a core pivotally supported by the other arm of said lever, said core having two curved members, one to enter the spool and the other to move alongside the coil.

18. In a regulator, the combination of a frame or lever comprising two A-shaped plates and a block separating them, a spool secured at its ends to the convergent members of said plates, a coil on said spool, the cross-bar of said frame being split and connected together by insulating material to open the local circuit of the frame or lever, means engaging said block to pivotally support the frame or lever between its ends, and a core pivotally supported by said lever at a point furthest removed from the coil.

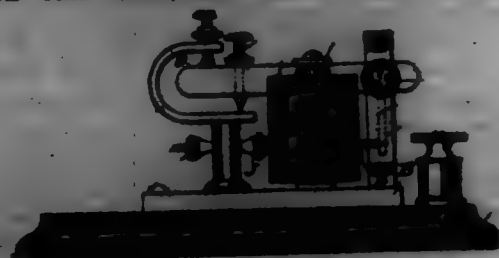
19. In an electric regulator, the combination with a non-magnetic core and a cover therefor, of an inductive-resistance device supported by the cover and depending within the core, and means on the cover for adjusting depending means.

20. In an electric regulator, the combination with a non-magnetic core containing oil, a cover on said core and a water-tight connection between the core and cover, of an inductive-resistance device supported by said cover and immersed in the oil in the core.

21. In an electric regulator, the combination with a core and cover therefor, of a lever pivotally supported between its ends at the center of the cover, a coil carried by one arm of said lever, and a core for the coil supported by the other arm of the lever, said cover having a hole for leading-in wire in close proximity to the pivotal support of said lever.

22. In an electric regulator, the combination with a lever pivotally supported between its ends, of a coil supported by one arm of said lever, a core pivotally supported by the other arm of the lever and adapted to enter said coil, an arm projecting from the lever, a dash-pot cylinder attached to the core, a valve plunger in said cylinder and a plunger-rod attached to said plunger and to the arm projecting from the lever.

699,056. TELEGRAPH-SOUNDER. JOHN A. ALSTON, Lancaster, Pa. Filed June 29, 1891. Serial No. 66,206. (No model.)



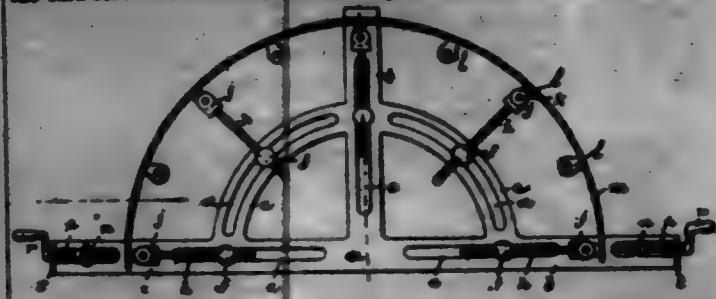
Claim.—1. In a telegraph instrument, the combination of a vibratory arm, a sounding-point located on said arm, a quander, and a spring-yielding back-stop-limiting point on said quander, substantially as specified.

2. In a telegraph instrument, a quander, a vibratory arm carrying a sounding-point, a sleeve of yielding material arranged in an opening in said quander, and a back-stop point for the arm supported in said sleeve, substantially as specified.

699,057. ADJUSTABLE FORM FOR SHIP-BUILDERS. CARL A. AMMERMAN, East Orange, N. J., assignor of one-half to Charles H. Shanger and Jesse R. Shanger. Filed Dec. 2, 1891. Serial No. 64,268. (No model.)

Claim.—1. The combination with the frame *a*, having longitudinally-slotted radiating arms provided with pins adjustable in the slots there-

of, of screws arranged in said pins, and a flexible form loosely connected to said screws, the said form being adapted to be changed in shape when the said screws are turned, substantially as set forth.



2. The combination with a frame having segments with curved slots of a flexible form over which wood may be bent, screws connected to said form and arranged in adjustable bearings, said bearings being arranged in said curved slots and the said form being adapted to be changed in shape by the turning of said screws, substantially as set forth.

3. The combination with a frame having arms integrally connected by a segmental part, said frame being slotted in said segment and arms, adjustable pins or studs arranged in said slots, screws arranged in said pins or studs and having heads arranged in pivoted spiral connections, open for the pivoted spiral connections, arranged on a flexible form and said flexible form, substantially as set forth.

4. The improved form for ship-builders, comprising a frame having radiating arms *a*, *b*, *c*, each of which is longitudinally slotted and carries of which are each at its end provided with a bearing for a damp-screw *p*, said arms being connected by slotted segments *e*, *f*, adjusting-screws *h*, arranged on adjustable studs or pins in the slots of the arms and segments, said studs having means for holding the same in said slots, connections for connecting the said adjusting-screws to the flexible form, and said flexible form, substantially as set forth.

5. The combination with the frame and flexible form of an arm *f*, carrying adjusting-screws loosely attached to said form and a brace connecting the frame and arm to hold the latter in place, substantially as set forth.

6. The combination with the frame and flexible form connected to said frame at one end of a slotted arm *f*, and adjusting-screws connected to said form and arranged in slots adjustably fastened in the slot of said arm, and a brace *g*, for holding said arm in fixed relation to said frame, substantially as set forth.

7. The combination with the frame and flexible form connected at one end to said frame, of an arm *f*, pivoted at one end upon said frame and held rigidly thereto by a brace said arm being provided with adjusting-screws, connected to said form, substantially as set forth.

699,058. ART OF MANUFACTURING BLOW GLASSWARE. JOHN I. ARDREMAN, CHARLES V. ARDREMAN, FRANK J. ARDREMAN, PHILIP E. ARDREMAN, and FREDERICK L. ARDREMAN, Pittsburgh, Pa. Filed Feb. 11, 1892. Serial No. 59,561. (No specimens.)



Claim.—1. The herein-described improvement in the art of forming and finishing hollow glassware, which consists in first forming, by pressure, a suitable blank; second, annealing the blank; third, reheating the annealed blank and finally finishing the article in a suitable mold.

2. The herein-described improvement in the art of forming and finishing glassware, which consists in first producing a blank, having a hollow finished neck and an unfinished bulb or body; then annealing said blank, reheating the annealed blank, and then blowing the body to shape in a suitable blow-mold.

3. The herein-described improvement in the art or process of manufacturing glassware, which consists in first producing a partly-finished blank, annealing said blank, reheating the annealed blank and blowing the body of the same to a finished shape in a suitable mold.

4. The improvement in the art or process of manufacturing glassware, which consists in simultaneously pressing in a mold a number of blanks, and thereby partly finishing the articles to be produced; annealing the blanks; reheating simultaneously a number of the annealed blanks by the local application of gas-jets to the unfinished parts, and finally blowing a number of blanks in a single mold by compressed air.

699,059. OIL-CAN. SAMUEL R. ANNEB, Birmingham, Ala. Filed Dec. 4, 1891. Serial No. 64,269. (No model.)

Claim.—1. The combination with a can or receptacle having a threaded nipple on the side thereof, and a pipe leading from the inner end thereof, and opening adjacent to the bottom of the can or receptacle, of a spout, a screw-cap to which the spout is screwed, said cap adapted to be removably screwed to the nipple, and a packing-gasket interposed between the nipple and cap.



2. The combination with a can or receptacle having a threaded nipple on the side thereof, and a pipe leading from the inner end thereof, and opening adjacent to the bottom of the can or receptacle, of a spout, a screw-cap to which the spout is screwed, said cap adapted to be removably screwed to the nipple, a packing-gasket interposed between the nipple and cap, and a cap loosely connected with the receptacle and adapted to fit over the open end of the spout, and prevent the spout from turning to its depressed position when the cap is in place on its open end.

699,060. RAIL-SOWER. FRANK R. BAW and GEORGE H. WELLS, Chicago, Ill. Filed Dec. 2, 1891. Serial No. 64,271. (No model.)



Claim.—1. A hopper having a centrally-recessed terminal provided with a web, adapted to be spread to expand the terminal into firm engagement with the surrounding metal, and a device within the recess adapted to be forced against the web, substantially as described.

2. A hopper having a terminal with opposite central recesses separated by a web, substantially as described.

3. A hopper having a terminal centrally recessed on both sides and provided with a web, adapted to be spread to expand the terminal into firm engagement with the surrounding metal, and a device within each recess adapted to be forced against the web, substantially as described.

4. A hopper having a terminal with a recess extending partially through and a web, in combination with a plugging device for entry within the recess to engage the web to expand the metal of the web laterally to bring the terminal into firm connection with the surrounding metal, the said plugging device being integral with the terminal, substantially as described.

5. A hopper having a terminal with recesses on opposite sides of the terminal, and a web interposed between the recesses, in combination with plugging devices for entry within the recesses to engage the web and thereby effect lateral distention thereof to bring the hopper-terminal into firm mechanical and electrical connection with the metal surrounding the terminal, substantially as described.

6. A hopper having a terminal with recesses on opposite sides of the terminal, and a web interposed between the recesses, in combination with plugging devices for entry within the recesses to engage the web and thereby effect lateral distention thereof to bring the hopper-terminal into firm mechanical and electrical connection with the metal surrounding the terminal, the said plugging device being integral with the terminal, substantially as described.

7. A hopper having a centrally-recessed terminal provided with a web, adapted to be spread to expand the terminal into firm engagement with the surrounding metal, and a device within the recess adapted to be forced against the web, the web being formed in one piece with the terminal, substantially as described.

8. A hopper having a terminal with opposite central recesses separated by a web formed in one piece with the terminal, substantially as described.

9. A hopper having a terminal with a recess extending partially through and a web, in combination with a plugging device for entry within

the recess to engage the web to expand the metal of the web laterally to bring the terminal into firm connection with the surrounding metal, said web being formed in one piece with the terminal, substantially as described.

10. A hopper having a terminal with a recess extending partially through and a web, in combination with a plugging device for entry within the recess to engage the web to expand the metal of the web laterally to bring the terminal into firm connection with the surrounding metal, the said plugging device being integral with the terminal, said web being formed in one piece with the terminal, substantially as described.

11. A hopper having a terminal with recesses on opposite sides of the terminal, and a web interposed between the recesses, in combination with plugging devices for entry within the recesses to engage the web and thereby effect lateral distention thereof to bring the hopper-terminal into firm mechanical and electrical connection with the metal surrounding the terminal, the said plugging device being integral with the terminal, said web being formed in one piece with the terminal, substantially as described.

699,061. CARTRIDGE. CHARLES A. BARTY, Greenwich, Conn. Filed Feb. 1, 1892. Serial No. 59,513. (No model.)



Claim.—1. In a cartridge, the combination, of a metal cap provided with the usual flange, a cross-piece having its ends projecting into the flange and provided centrally with a nipple having a hole at its outer end, a tube forming the body of the cartridge, and a web having an opening through which the nipple projects, the said web being compressed around the nipple and against the tube to form the inner end of the latter into that portion of the flange unoccupied by the ends of the cross-piece.

2. In a cartridge, the combination, of a metal cap having a solid end wall and peripheral flange, a cross-piece located in the cap with its ends projecting into the flange thereof, and a nipple formed on the central portion of the cross-piece and provided at its outer end with an inwardly-projecting conical portion and flash-hole.

3. In a cartridge, the combination, of the metal cap having a solid end wall and peripheral flange, a cross-piece located in the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece and provided at its outer end with an inwardly-projecting conical portion and flash-hole, and a web having an opening through which the nipple projects, the said web being compressed around the nipple and into the flange, substantially as shown and described.

4. In a cartridge, the combination, of a cap having a peripheral flange, a cross-piece located within the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece and flared at its outer end, and a web having a central opening through which the nipple projects, said web being compressed, substantially as shown and described.

5. In a cartridge, the combination, of a cap having a peripheral flange, a cross-piece located within the cap with its ends projecting into the flange thereof, a nipple formed on the central portion of the cross-piece flared at its outer end and provided with an inwardly-projecting conical portion forming a seat for the primer, a tube forming the body of the cartridge, and a web having a central opening through which the nipple projects, said web being compressed in the cartridge, substantially as shown and for the purpose set forth.

699,062. BARRED-WIRE FENCE. JOHN E. BAW, Boston, Ohio. Filed Dec. 31, 1891. Serial No. 57,595. (No model.)



Claim.—1. The combination with two fence-wires spirally twisted together, of a barb movably attached to said wires and comprising a single piece of wire bent to form two elongated loops which loosely enclose the respective wires whereby said barb is free to oscillate on said wires, the two ends of the barb being bent in opposite directions, substantially as described.

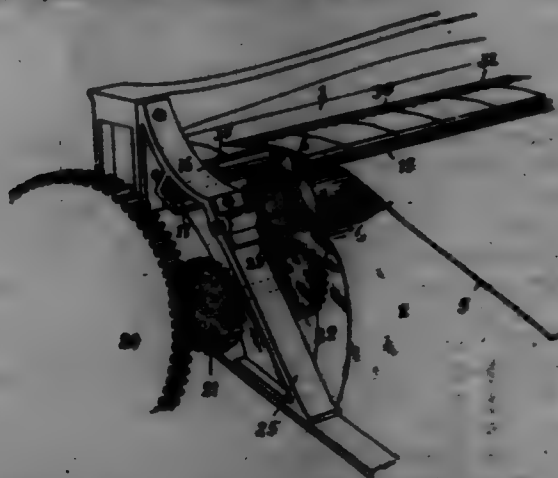
2. The combination with two fence-wires spirally twisted together, of a barb movably attached to said wires and comprising a single piece of wire bent to form two elongated loops which loosely enclose the respective wires whereby said barb is free to oscillate on said wires, said barb-wire being bent to form two parallel members that project between the

two fence-wires, the plane in which said parallel members lie being parallel with the longitudinal axis of the fence-wires, substantially as and for the purpose specified.

3. The combination with two fence-wires spirally twisted together, of a barb movably attached to said wires and comprising a single piece of wire extending between its ends across both the fence-wires and bent to form two elongated loops which loosely encircle the respective wires, the free end of the wire forming each loop passing between the two fence-wires and thence bent at a right angle away from its loop and past the adjacent loop, substantially as described.

4. The combination with two fence-wires spirally twisted together, of a barb movably attached to said wires and comprising a single piece of wire extending between its ends across both the fence-wires and bent to form two elongated loops which loosely encircle the respective wires, the free end of the wire forming each of said loops being passed between the two fence-wires in opposite directions, the free end of each loop being extended past and parallel with the adjacent loop, substantially as described.

699,063. HANGLER. WILLIAM H. BAKER, Boston, Mass. Filed Dec. 20, 1899. Serial No. 62,502. (No model.)



Claim.—1. In combination with a handle of the character described, the take-off attachment comprising the cross-bar, and the plurality of spring-metal plates fixed thereto, each plate being partially split up into several independently-yielding fingers, substantially as described.

2. In a handle, the combination of the rotating cylinder, the lever beneath the same, the endless screw, the rollers supporting the said screw, one of which is just above an end of the frame and another a short distance away from said roller and somewhat below its level, and a bridging plate constructed to contact with the cylinder and deliver the treaded surface therefrom to the screw of the screw between the two last-named rollers, substantially as described.

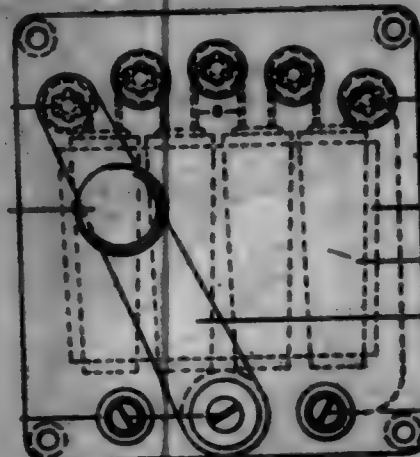
3. In a handle, the combination of the cylinder, the spur-gear rotating the same, the frame supporting said cylinder, the lever beneath said cylinder, the endless screw, the rollers supporting the screw, one of said rollers being located just above an end of one of said frame and another a short distance away and slightly below the level of said roller, the brackets fixed to said frame and rotatably supporting the roller at one end of one of the frame, the short shaft rotatably held by one of said brackets, the spur-gears fixed on the ends of said short shaft, one of which gears meshes with the spur-gear which rotates said cylinder, and a spur-gear rigidly connected with the last-mentioned roller and meshing with the other of the two gears on said short shaft, substantially as described.

699,064. RHODYAT, ELECTRIC HEATER, &c. EMERY F. BALL, Mount Vernon, N. Y., assignor, by mesne assignments, to H. Ward Leonard, Bronxville, N. Y. Filed June 27, 1899. Serial No. 64,610. (No model.)

Claim.—1. As a new manufacture, a unit resistance for a device wherein electric energy is intentionally converted into heat, comprising a supporting-body of mineral insulating material, a conductor embedded therein, and a metal protector for the insulating material adhesively engaging the same, substantially as and for the purpose set forth.

2. As a new manufacture, a unit resistance for a device wherein electric energy is intentionally converted into heat, comprising a supporting-body of vitreous insulating material, a conductor embedded therein, and a metal protector for the insulating material adhesively engaging the same, substantially as and for the purpose set forth.

3. As a new article of manufacture, a unit resistance for a device wherein electric energy is intentionally converted into heat, comprising a layer of mineral insulating material, a conductor embedded therein, a terminal having a larger current-carrying capacity than the conductor, connected to the conductor and having the joint located within the insulating material, a protective and heat-conducting metallic case, and a metallic support adapted to receive a series of said unit resistances with their metallic cases in close mechanical contact therewith.



4. As a new article of manufacture, a unit resistance for a device wherein electric energy is intentionally converted into heat, comprising a layer of vitreous insulating material, a conductor embedded therein, a terminal having a larger current-carrying capacity than the conductor, connected to the conductor and having the joint located within the insulating material, a protective and heat-conducting metallic case, and a metallic support adapted to receive a series of said unit resistances with their metallic cases in close mechanical contact therewith.

5. As a new article of manufacture, a unit resistance for a device wherein electric energy is intentionally converted into heat, comprising a layer of glass, a conductor embedded therein, a terminal having a larger current-carrying capacity than the conductor, connected to the conductor and having the joint located within the layer of glass, a protective and heat-conducting metallic case, and a metallic support adapted to receive a series of said unit resistances with their metallic cases in close mechanical contact therewith.

6. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction and comprising an insulating-core, a conductor embedded in said core, and a metal jacket surrounding the core, substantially as set forth.

7. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction and comprising an insulating-core, a conductor embedded in said core, and a self-metal jacket surrounding the core, substantially as set forth.

8. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction, and comprising a core of mineral insulating material, a conductor embedded in said core, and a protective and heat-conducting metallic case.

9. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction, and comprising a core of vitreous insulating material, a conductor embedded in said core, and a protective and heat-conducting metallic case.

10. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction, and comprising a core of glass, a conductor embedded in said core, and a protective and heat-conducting metallic case.

11. In an apparatus wherein electric energy is intentionally converted into heat, the combination of a heat-absorbing support having a series of tapered openings therein, and a unit resistance engaging each of said openings by friction, and comprising a core of mineral insulating material, a conductor embedded in said core, a terminal having a larger current-carrying capacity than the conductor, connected to the conductor and having the joint located within the core, and a protective and heat-conducting insulating-case.

699,065. DUPLIX WAFER. GEORGE A. BAKER, Kingston, N. Y. Filed June 12, 1899. Serial No. 64,621. (No model.)

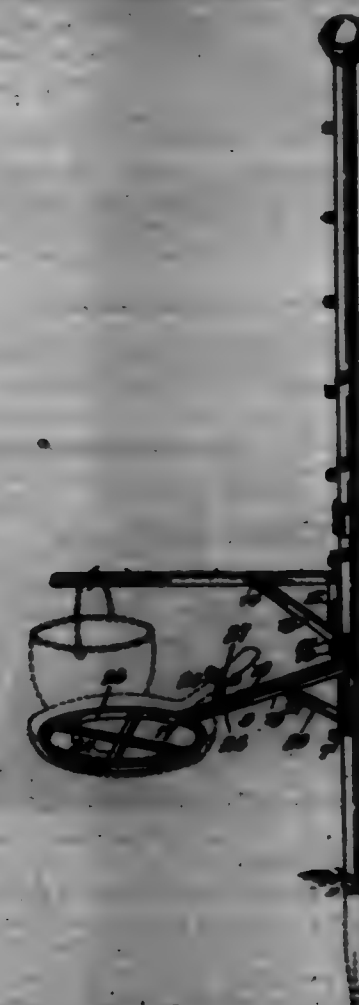
Claim.—1. As an article of manufacture, a composite wafer, built up of separate sheets of material secured together, said wafer having its upper and lower faces provided with coatings of an adhesive, the adhesive between the sheets and coatings of adhesive being stronger than that between the layers.

between the sheets and coatings of adhesive being stronger than that between the layers.



2. As an article of manufacture, a composite wafer built up of separate sheets of material detachably secured together as to be readily pulled apart, the top and bottom sheets of said wafer being coated externally with an adhesive of great strength for permanently securing substances thereto.

699,066. COOKING-CRANE. THOMAS J. RABBITZ, Boston, Mass. Filed June 17, 1899. Serial No. 64,614. (No model.)

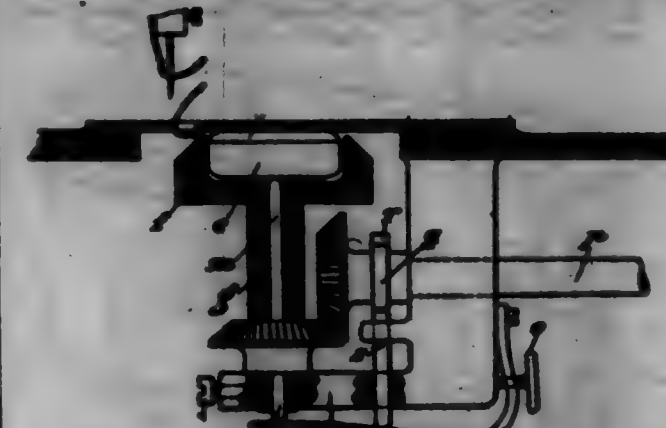


Claim.—1. A cooking-crane comprising a staff and a small-support having swiveling connection with the staff, the support comprising a standard, arm connected therewith and having an enlarged open-work head for supporting a frying-pan and the like, and a rest pivotally connected with the arm and having a notch with which the handle of the usual cage.

2. A cooking-crane comprising a staff, an arm connected at one end to said staff and provided at its other end with a support for a pan, and vertically-adjustable means intermediate the support and the connection for engaging the handle of a vessel carried by the support.

3. A cooking-crane comprising a staff, and a small-support having swiveling connection with the staff, and having an enlarged head for supporting a frying-pan or the like, and a rest pivotally connected with the arm and having a notch with which the handle of the vessel engages.

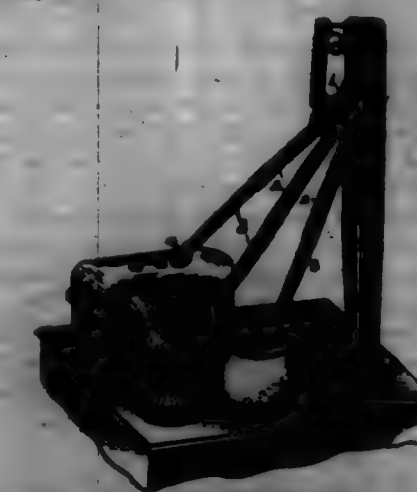
699,067. TENSION MECHANISM FOR THE LOWER THREADS OF SEWING-MACHINES. GUNAR S. RASMUS, Copenhagen, Denmark. Filed Aug. 12, 1899. Serial No. 62,151. (No model.)



Claim.—1. An apparatus for tightening the lower thread of sewing-machines, comprising a rigid arm provided with a fastening, a hollow spindle detachably secured upon said arm by means of said fastening, a catcher revolvably mounted upon said spindle, a rod slidably mounted within said hollow spindle, a revolvable spool-house mounted within said catcher and centrally engaged by said rod, and means for intermittently pressing said rod against said spool-house.

2. An apparatus for tightening the lower thread of sewing-machines, comprising a rigid arm provided with a fastening, a catcher revolvably mounted upon said spindle, a rod slidably mounted within said hollow spindle, a revolvable spool-house mounted within said catcher and centrally engaged by said rod, a spring for pressing said rod into engagement with said spool-house, means controllable at will for adjusting the tension of said spring, and cam mechanism for intermittently actuating said spring.

699,068. VENTILATOR FOR COOKING VESSELS. ALFRED R. BURNETT, Vancouver, Canada. Filed Aug. 20, 1899. Serial No. 62,672. (No model.)



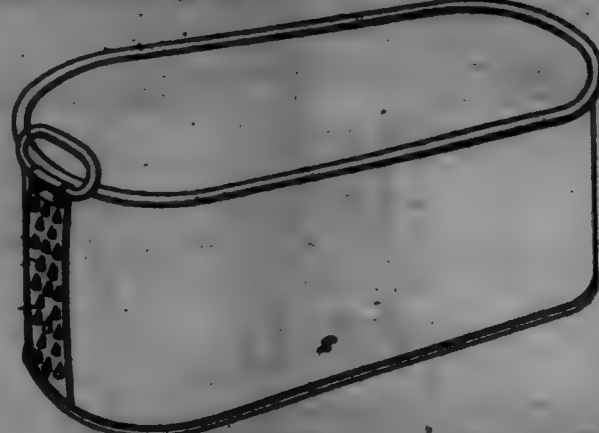
Claim.—1. In a device of the class described, the combination with the lid of a pot or pan of an opening in the top thereof having an upwardly-turned edge; a funnel to rest on the outside of said edge; a length of pipe detachably connected to the funnel; a spile and expanded end on the pipe; a second length within which the last slides; a branched connection attached to the stovepipe; a link connection between the pipe and its branch; a damper within the united part of the branched connection; a spring-clip above the branched connection, substantially as described.

2. In a device of the class described; in combination with a series of tubes, each communicating with an opening in the lid of cooking vessels on a stove, a branched member attached to the stovepipe to which the several pipes are connected; a flared connection between each pipe and its branch; a spring-clip above the branched member to engage each pipe when not in use; and a damper in the united part of the branch member, substantially as described.

3. As an attachment to a cooking-stove, a hollow member having a series of branching outlets attached over an opening in the stovepipe; a damper in the united part of each hollow member; a series of telescopic

pipe, one to each branch; a link connection between each branch and pipe; a split and expanded end on each lower pipe to slide within the upper; notched detents on the lower ends of each lower pipe; funnel-shaped pieces adapted to rest over openings in the post-ride, and pins on the upper ends of each funnel-shaped piece to engage and hold in the detents, substantially as described.

699,069. ATTACHMENT FOR WASHBOILERS. *Dr. ALBERT C. BAKER, Kankakee, Iowa, assignor of one-half to Joseph Starnes, Kankakee, Iowa.* Filed Aug. 28, 1901. Serial No. 73,088. (No model.)



Claim.—An attachment for receptacles consisting of a vertical strip or piece of metal designed to be mounted on the exterior of a receptacle and provided at intervals with rows of horizontal incisions, the metal above the incisions being bowed or bent outward and forming horizontal staves of upwardly-tapered protuberances, said protuberances having horizontal edges or shoulders, whereby the receptacle is prevented from slipping downward on a support and is permitted to be moved upward on the same, substantially as described.

699,070. HYDRALAMP. *WILLIAM E. BLOOMBERG, Southbridge, Mass.* Filed Apr. 20, 1901. Serial No. 57, 957. (No model.)



Claim.—1. In an eye-glass the combination with the nose-pad plate having a slot in the upper end, the bow and the post, of a second plate having one end rigidly secured to the bow and post and having a right-angled extension and having the intermediate guide fitting in the slot of said nose-pad plate and the other end extending from the said right-angled extension and carrying the nose-pad at the other end, as set forth.

2. In an eye-glass, a nose-pad-carrying plate comprising a body portion and the lateral portion having an extension parallel with the body portion and an arm at right angles thereto, and a leg depending from the plate on said lateral portion, as set forth.

3. In an eye-glass a nose-pad-carrying plate comprising a body portion with a leg having a head and a lateral portion having an extension parallel with the body portion and an arm at right angles thereto, and a nose-pad journaled on a shaft held in the end of said arm, as set forth.

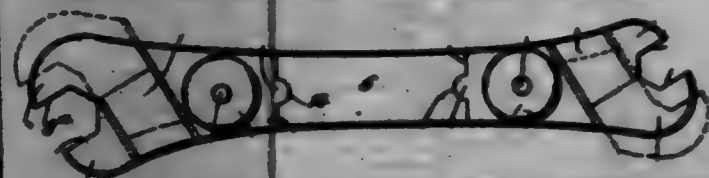
699,071. GARMENT-PASTENING. *HOWARD BONE, Lancaster, Pa.* Filed Sept. 3, 1901. Serial No. 74,088. (No model.)



Claim.—A plate having a plurality of hooks projecting from one edge thereof, and provided with a spring between the hooks, with a spring-tongue in each space and extending through the edge from which said hooks project; and a second plate having a plurality of notched loops or folds constituting eyes, with provided intermediate flat portions and outer end projections in one plane, said intermediate flat portions having the edge ridges or ribs, of said plates adapted to be secured in place, as

shown; with said hooks engaging in said eyes, and said tongues, against said ridges or ribs; all substantially as described and for the purpose hereinbefore set forth.

699,072. ADJUSTABLE WRIST. *FREDERICK W. HANCOCK, New York, N. Y.* Filed Dec. 3, 1901. Serial No. 84,067. (No model.)



Claim.—1. An adjustable wrist, comprising a body having a rigid jaw, an adjustable jaw slightly fitted to the body, clamping-plates engaging with said body and with the adjustable jaw, and means for firmly clamping said plates upon the adjustable jaw.

2. An adjustable wrist, comprising a body having a tang and a rigid jaw, an adjustable jaw having a bifurcated shank which is slidably fitted to the tang, and clamping-plates engaging with said shank of the adjustable jaw and held on the body.

3. An adjustable wrist, comprising a body having a reduced portion and a rigid jaw, an adjustable jaw having a shank which is slidably fitted to the body, and clamping-plates fitted to the reduced portion of the body and engaging with the shank of said adjustable jaw.

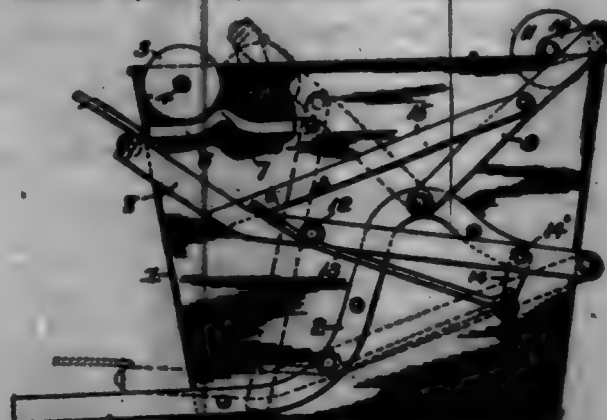
4. An adjustable wrist, comprising a body having a reduced portion and a rigid jaw, an adjustable jaw, and clamping-plates fitted to the reduced portion and having interlocking connection with the body, and also engaging with the adjustable jaw.

5. An adjustable wrist, comprising a body having a rigid jaw, an adjustable jaw provided with a shank which has beveled edges, clamping-plates fitted to the body and engaging the beveled edges of said shank, and means for laterally clamping said plates to the body.

6. An adjustable wrist, comprising a body having a rigid jaw and an undercut guiding edge, an adjustable jaw provided with a shank having beveled edges one of which engages with the guiding edge, clamping-plates fitted to the body and engaging with the other beveled edge of the adjustable jaw-shank, and means for laterally clamping said plates upon said shank.

7. An adjustable wrist, comprising a body having a reduced portion, a tang, and a rigid jaw, an adjustable jaw provided with a shank which embraces the tang, clamping-plates fitted to the body and engaging with said shank of the adjustable jaw, and means for laterally clamping said plates upon the reduced portion of the body and the shank of said jaw.

699,073. HOOF-STRIPPER. *ARTHUR E. BUSHMAN, Cambridge, Mo.* Filed Dec. 20, 1901. Serial No. 84,961. (No model.)



Claim.—1. In a hoof-stripper, the combination with a pair of rollers mounted therein in stationary bearings, of a movable roller-frame, a roller mounted in said movable frame, a treadle, a link connected at one end to the movable roller-frame, and a spring connecting the other end of the link with the treadle and normally bearing on the treadle at its juncture with the link to constitute a stop for the latter.

2. In a hoof-stripper, the combination with a pair of rollers mounted therein, of a movable roller-frame carrying a roller, a treadle, a link connected at one end to the roller-frame, a spring coiled between its ends on a plate carried by the treadle, a leg connected with the link supporting one end of said spring, and the other end of said spring connected to the link.

3. In a hoof-stripper, the combination with an angular pair of strips secured thereto and projecting forwardly beyond the same, of a stationary roller in the forward end of the pair, a roller-frame pivoted on said strips and carrying a roller, a treadle pivoted to said strips, a leg on one of the strips, a plate on the treadle, a link connected at one end to the roller-

frame, and a spring coiled between its ends on said plate and having one end supported by the leg and the other end connected to the link.

699,074. COMBINED POLE-STRAP AND COLLAR-BUCKLE. *ALBERT C. BRYAN, Columbia City, Iowa.* Filed Dec. 14, 1900. Serial No. 58,811. (No model.)



Claim.—As an article of manufacture, a buckle comprising a middle bar and two end bars, all arranged parallel with each other, the middle bar being the longest and being outside of a plate passing through the other two bars, said middle bar being connected with the longer of said end bars by means of arc-shaped members, and connected with the shorter of said end bars by means of members bent three times approximately at right angles, thus forming shoulders for said shorter bar and also forming rounded wear-surfaces adjacent to said shoulders, yet leaving a comparatively wide space tapering by steps and parallel with said shorter bar for facilitating the admission of a strap, a relatively long shoulder-roller mounted upon the longer and bar to engage a wide strap, a relatively short shoulder-roller mounted upon the shorter and bar to engage a narrow strap, and a tongue mounted upon said middle bar and free to engage the longer of said shoulder-rollers.

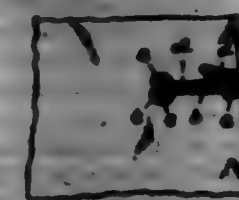
699,075. DRYER. *SHARON CASE, Montgomery, Ind.* Filed Oct. 7, 1901. Serial No. 77,778. (No model.)



Claim.—1. A dryer, comprising a casing, a spring-actuated cover therefor, a bed-plate having downwardly-extended side portions provided with bearings for rollers, and a frame having downwardly-extended side portions for clamping a carbon-sheet, substantially as specified.

2. A dryer comprising a casing, a cover therefor, a bed-plate having downwardly-extended side portions which fit against the inner sides of the side walls of the casing, and a frame having side portions for clamping a carbon-sheet, substantially as specified.

699,076. MASK AND EYE. *EMIL R. CHAFFIN, Watertown, Conn.* Filed June 20, 1901. Serial No. 68,954. (No model.)



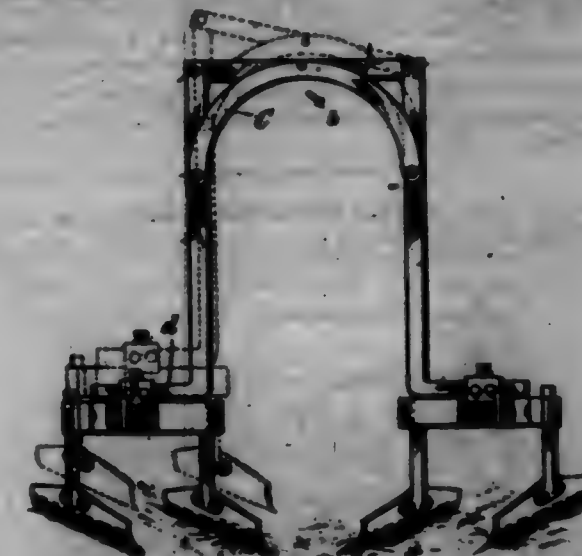
Claim.—1. A mask comprising a hooked portion, a shank portion, eyes on said shank portion, depending throat-pockets formed in both said shank and eye portions.

2. A mask of the class described, the same comprising a hook portion, a shank, eyes secured to said shank, and a depending throat-pocket formed in said eyes for attachment of the mask to a garment.

3. A mask of the class described, the same comprising an engaging hook formed of a double portion of the wire, a double horizontal right shank portion, eyes formed at the end of said shank, one or more depending throat-pockets formed in the shank and eye, and an upwardly-disposed hump formed in said shank beneath the hook and adjacent to said throat-pockets, substantially as shown and described.

699,077. ADJUSTABLE CULTIVATOR-ARM. *GEORGE CHAMBERLAIN, Chicago, Ill.* Filed Jan. 20, 1902. Serial No. 84,888. (No model.)

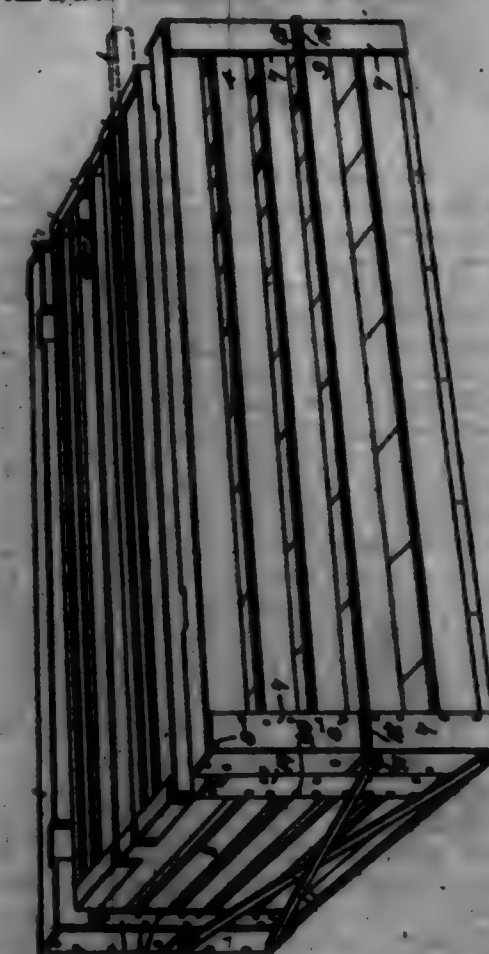
Claim.—1. A twin cultivator-frame, comprising vertical legs, formed at their bottom ends with outward horizontal portions for receiving the cheeks of the shovel-bars, a cross-bar loosely joined to the upper ends of said legs, and another cross-bar loosely connected to the said legs at points below their upper ends substantially as shown and described.



2. A twin cultivator-frame, comprising vertical legs formed at their bottom ends with outward horizontal portions, adjustable clamps secured upon said outward portions, shovel-bars carrying cheeks and held in said clamps, and two loosely-joined bars connected to the tops of the legs for a parallel motion of the legs substantially as described.

3. A twin cultivator-frame having vertical legs, a cross-bar loosely joined to their upper ends, and an upwardly-curved arch-bar having its lower extremities loosely joined to the said legs of the cultivator-frame, said cross-bar and arch-bar having pin-and-hole joints, and a locking-pin extending through the same to lock the parts rigidly together substantially as described.

699,078. FOLDING GRATE. *ROBERT E. CHRISTIE, New York, N. Y.* Filed Jan. 2, 1902. Serial No. 84,888. (No model.)



Claim.—1. A grate comprising a bottom, each hinged thereto and adapted to fold inward thereon, and three-membered sides, the lower member of each being rigidly associated with the bottom and diagonally braced against inward movement, the intermediate members being hinged to the bottom members and held against outward movement in a vertical line, and the upper members being adapted to fold over and interlock with the ends and to constitute the top section.

2. In a crane, ends cut away to provide tenons at their upper edges, in combination with top sections adapted to fold over on the ends and to engage the tenons, the under sides of the ends of the top section being cut away to provide rabbets to interlock with the top portion of the ends and bear against the inner surfaces thereof, substantially as and for the purpose specified.

3. In a crane, the combination with a bottom, of ends hinged thereto, three-membered sides carried by the bottom, and reinforcing cleats carried by the end portions of the sides, and having flanged projections to constitute steps to limit the outward movement of the sides, substantially as described.

699,079. WATER DISTRIBUTION. JOHN COLE, Cleveland Springs, Cal. Filed Oct. 16, 1901. Serial No. 73,726. (No model.)



Claim.—1. The combination with a power-shaft, of a counter-shaft operated thereby, a series of cams on each counter-shaft, a series of pumps having their piston-rods engaged by each cam, means for supplying water to the pumps under pressure, distributing-pipes leading from the several pumps, and check-valves in each pump, one on the inlet and the other on the outlet side of the pump-cylinder, substantially as set forth.

2. The combination with a power-shaft, of a counter-shaft operated thereby, a series of cams on each counter-shaft, a series of pumps having their piston-rods engaged by each cam, a frame for supplying water to the pumps under pressure, distributing-pipes leading from the several pumps, and check-valves in each pump, one on the inlet and the other on the outlet side of the pump-cylinder, substantially as set forth.

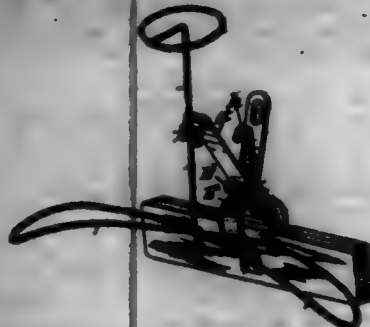
3. The combination with the shaft having a series of disks each disk having double cam-fingers, of a series of pumps, a grooved wheel on the piston-rod of each pump with which each cam-finger is designed to engage to force the piston in one direction, a frame for supplying water under pressure, connections between the frame and the pumps, distributing-pipes leading from the several pumps, and two check-valves in each pump, one between the frame connection and the pump-cylinder and the other between the latter and the distributing-pipe, substantially as set forth.

699,080. BARNETT-HANGER. HANFORD J. COOK, Syracuse, N. Y. Filed May 16, 1901. Serial No. 69,499. (No model.)

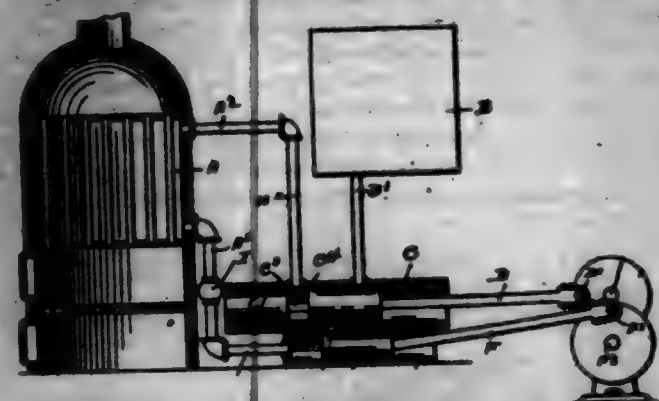
Claim.—1. The combination with the main supporting-arms connected flexibly together intermediate their ends, a clamping-plate fixed to the lower end of one of said arms, and a cooperating clamping-plate pivotally connected to the other of said arms, of a spring-wire coiled around the coupling-pin of the supporting-arms and fastened at its ends to the fixed clamping-plate, and formed with a transverse portion constituting the pivot-pin of the other clamping-plate as set forth and shown.

2. The combination of the forward-leaning main supporting-arms provided on its upper end with a hook, and a supplemental hanger formed in one piece of wire having one end portion bent into a lateral offset and mounted thereby on the offset hook and removable therefrom, the

upper extremity of said portion of the wire bent into the shape of a horizontal ring, the lower end portion of said wire bent into the shape of prolonged loops extending in opposite directions from the vertical portion of the wire substantially as described and shown.



699,081. PUMPING MECHANISM FOR FEEDING WATER TO STEAM-BOILERS. CHARLES CONNOR, Worcester, Mass. Filed July 11, 1900. Renewed Apr. 7, 1902. Serial No. 101,613. (No model.)



Claim.—1. In a water-feeding device for feeding water to a boiler, the combination of means for forcing water into the boiler against pressure, an induced water-receptacle from which water is fed to said forcing mechanism, a pipe leading from said water-receptacle to the boiler at its water-line, a pipe leading from said water-receptacle to a source of water-supply and means for alternately opening and closing said pipes, whereby said forcing mechanism is supplied from the water-supply or from said boiler as determined by the water-level in the boiler, substantially as described.

2. The combination with a boiler, of a pumping-cylinder, a reciprocating piston in said cylinder, a feed-water pipe leading from said cylinder to said boiler, a check-valve in said feed-water pipe, a valve-cylinder placed above said pumping-cylinder and communicating therewith, a pair of connected reciprocating pistons in said valve-cylinder with a space forming a water-receptacle between them, a pipe leading from said valve-cylinder to said boiler, a pipe leading from said valve-cylinder to a source of water-supply, said pipes being arranged to alternately communicate with the water-receptacle between said pistons, substantially as described.

3. The combination with a boiler, of an automatic feed-water mechanism, comprising a pump, a pipe provided with a check-valve leading from said pump to said boiler below its water-line, a water-receptacle independent of said pump, means for periodically connecting said water-receptacle and said pump, a pipe connecting said receptacle and the boiler at the water-line, a pipe connecting said receptacle with a source of water-supply and means for alternately opening and closing said pipes, substantially as described.

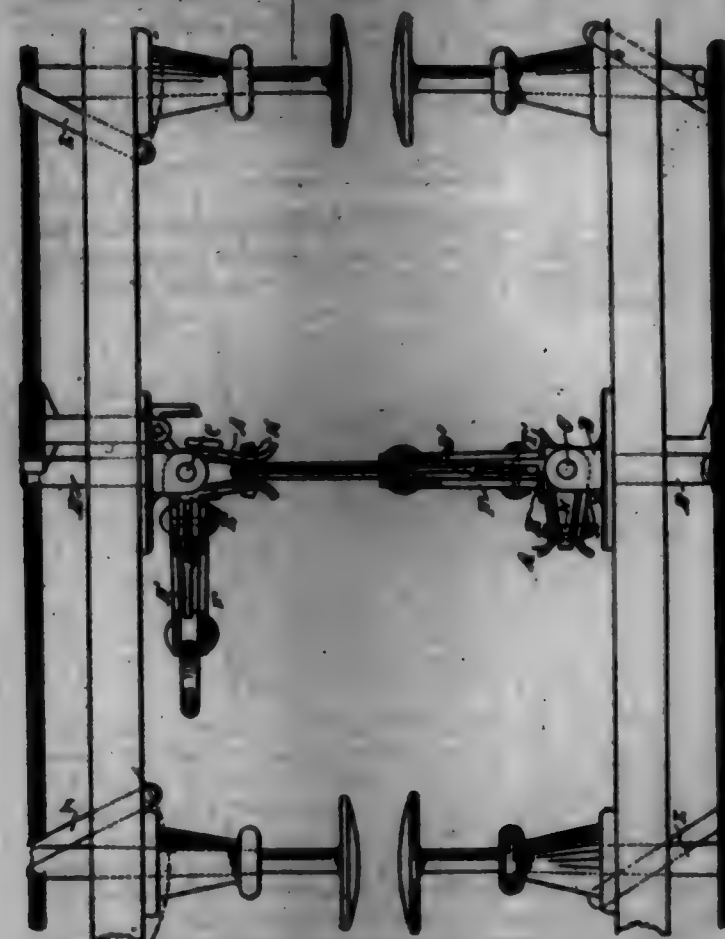
4. The combination of an induced water receptacle, or chamber, means for admitting water, or steam from the boiler to said chamber as determined by the water-level in the boiler, a source of water-supply communicating with said water receptacle, or chamber, means for alternately closing said water receptacle, or chamber, to the boiler and to the water-supply, a pump-cylinder and means for communicating said water receptacle, or chamber, with said pump-cylinder, substantially as described.

699,082. AUTOMATIC CAR-COUPLING. JOHN BARKER, Colverton, Ruttersham, England, assignor to Barker's Patent Automatic Coupling, Limited, Glasgow, Scotland. Filed Nov. 14, 1901. Serial No. 68,568. (No model.)

Claim.—1. In an apparatus for coupling and uncoupling railway carriages, wagons, and similar vehicles automatically, the combination with a draw-head, of a link and a link-engaging element pivoted on a vertical axis, to the draw-head, and a slide-bar connected to and horizontally swinging either the link or the link-engaging element in an operative position.

2. In an apparatus for automatically coupling and uncoupling rail-

way carriages, wagons, and similar vehicles, the combination with a draw-head, a link and a link-engaging element, of a vertical pin carrying the link and link-engaging element, secured to the draw-head, and a slide-bar connected to and moving the pin to swing either the link or link-engaging element horizontally to an operative or inoperative position.



3. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with a draw-head, a link and a link-engaging element, of a vertical pin having secured thereto the link and the link-engaging element, and a slide-bar connected to and swinging horizontally and discontinuously the link and the link-engaging element, one to an operative position, and the other to an inoperative position.

4. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination of a draw-head, of a vertical pin secured in the draw-head, a link member comprising a link, a lever connecting the link and the pin, said link member being secured to the pin, a link-engaging element also secured to the pin, and a slide-bar connected to and moving the pin to swing either the link or link-engaging element horizontally to an operative or inoperative position, and means operated by the movement of the pin to elevate or lower the link of the link member.

5. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with a draw-head, of a pin, a link member and a link-engaging element, secured to the pin, and adapted to swing horizontally, said link member comprising a link, a lever connecting the link and the pin, a toggle-link connected at one end to the link and pivoted to the pin, a weight at the other end of the toggle-link, and a projection heavily mounted on the pin and adapted to engage the weighted end of the toggle-link.

6. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with the draw-head, the link, the jaws provided with pin-openings, and the pin H working in the openings of the pin O upon which the jaws and the link are mounted, means moving the pin O to draw either the link or the jaws to an operative position and means operated to move the pin H within the jaws on the movement of the pin O operating means.

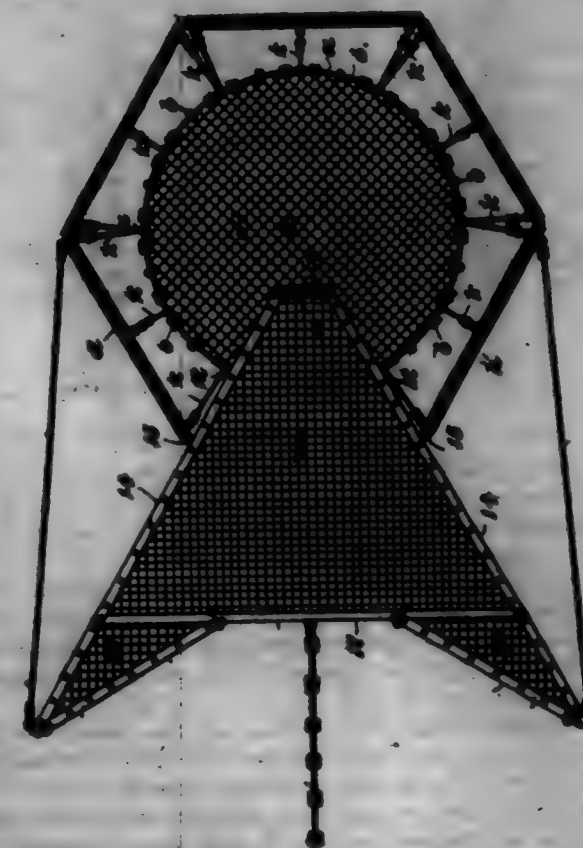
7. The combination of the draw-head provided with pin-openings, the pin O mounted in the openings, the pin H carried by the pin O, the link member secured to the pin O, comprising the link F, a lever connecting the link and the pin, and a toggle-link secured at one end to the link F and connected to the pin; the weight secured to the free end of the toggle-link, the projection heavily mounted on the pin O and adapted to engage with the weighted end of the toggle-link, the jaws provided with openings and secured to the pin O, a pin H working in the openings in the jaws, the lever O carrying the pin H, the cross-bar G, the lever J provided with an eye in which the pin H works when the cross-

bar is moved to operate the pin O, and the extension on the lever J engaging with pin H opening lever O, substantially as described.

699,083. FURTURE-HEALING COMPOSITION. WILLIAM O. DE MAR, Cleveland, Ohio. Filed June 12, 1901. Serial No. 64,321. (No model.)

Claim.—A pasteurized-healing composition consisting of an admixture of water and fishy oils in the proportions substantially as set forth, the same constituting a seal of such nature that the light flakes of oils remain suspended for a prolonged period and do not pass when at rest, all substantially as heretofore described.

699,084. FLOATING SHINE-SHIRT OR WHEE FOR FISHING. JIM S. DILL, Provincetown, Mass., assignor of one-half to Robert A. Hammond, Sandwich, Mass. Filed Aug. 20, 1901. Serial No. 73,076. (No model.)



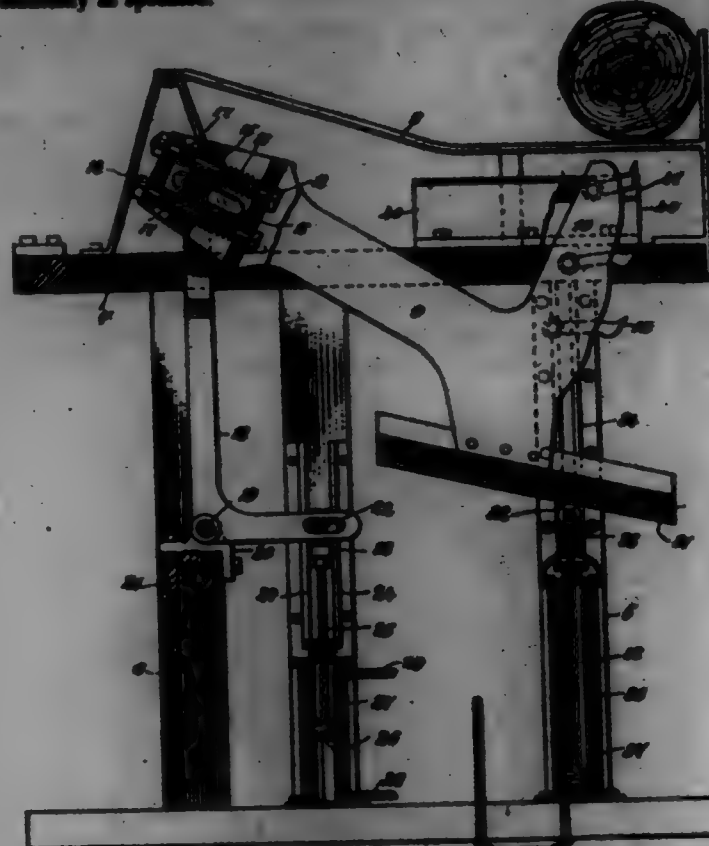
Claim.—1. A floating fish-net comprising a "pond" shaped at its bottom and sides and provided at its upper edge with floats or cork, a V-shaped "heart" entering the point of the pond and having a bottom connecting the lower edges of its side walls, a V-shaped buoyant frame to which the upper edges of the heart are connected, a buoyant, sectional, bladed framework of spars or the like exterior to said pond and flexibly connected to and opened beyond the upper edge thereof, the front ends of the two forward spars or frame-sections being flexibly secured or hinged to the sides of the said V-shaped frame, and the forward ends of the sides of the heart and its frame having inwardly-inclined sections to prevent the return of the fish, substantially as set forth.

2. A floating fish-net comprising a "pond" shaped at its bottom and sides and provided at its upper edge with floats or cork and weighted at its lower edge, a V-shaped "heart" shaped at its bottom, provided at its upper edges of its sides with a V-shaped buoyant frame and weighted at its lower edges, the rear smaller end of the heart entering the pond and the forward ends of the heart having inwardly-inclined walls to prevent return of the fish, a buoyant pond-frame surrounding a series of spars especially connected at their adjacent ends by hooks and eyes, the front end of the forward spars being similarly connected to the sides of the V-shaped frame, cords or ropes covering the upper edge of the pond to said spars as shown at A, guy-ropes connecting the forward end of the V-shaped frame with the sides of the pond-frame, and a floating "lead" connected at its rear end to the middle of the heart to draw the fish to either side thereof and provided with floats at its upper end and weighted at its lower end, substantially as set forth.

699,085. LIFT-WHEEL. GEORGE E. LIZANT, Louisville, La. Filed Oct. 11, 1901. Serial No. 73,597. (No model.)

Claim.—1. In a lift-wheel, a turning-arm, dogs carried in the in-

ward end of said arm, an angle-lever with which the rear end of the arm has swinging and oscillating connection, a piston for rocking said angle-lever, and a piston for moving the forward end of the arm upward, substantially as specified.



2. A leg-turner, comprising an arm having a head provided in its front surface with depressions or recesses, swinging dogs carried by the head and means for causing a vertical swinging motion of said arm, substantially as specified.

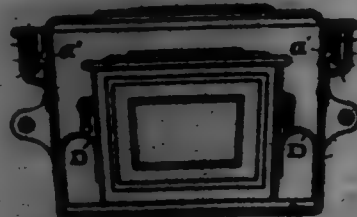
3. A leg-turner, comprising a turning-arm, dogs carried by said arm, a runner secured to said arm at its free end, a cross-head, a roller carried by the cross-head and on which said runner runs, a cylinder, and a piston in said cylinder having connection with the cross-head, substantially as specified.

4. A leg-turner, comprising a turning-arm, dogs carried by the forward end of said arm, an angle-lever pivoted in the frame of the machine, a block arranged to slide in said turning-arm, a connection between said block and the angle-lever, springs arranged in the arm at opposite sides of said block, and means for rocking the angle-lever, substantially as specified.

5. A leg-turner, comprising a frame, a turning-arm mounted to swing in the frame, dogs carried by said arm, a runner or track secured to the lower side of the free end of said arm and arranged at an angle in the length of the arm, a cross-head movable in guideways, a roller mounted in the cross-head and upon which said runner or track runs, rollers carried by the cross-head for engaging with the runner or track above the first-mentioned roller, a cylinder, and a piston in the cylinder having connection with the cross-head, substantially as specified.

6. In a leg-turner, a frame, a turning-arm mounted to swing in the frame, an angle-lever mounted to rock in the frame, a swinging and oscillating connection between the upper portion of said lever and the arm, a cross-head movable in guides and with which the lower member of said angle-lever engages, a cylinder, and a piston in the cylinder connecting with said cross-head, substantially as specified.

699,086. **HYDRAULIC VALVE.** JULIUS C. BROWN, Cleveland, Ohio. Filed July 12, 1901. Serial No. 63,794. (No model.)



Claim.—1. The body of the valve having a channel constructed to hold a sealing material adapted to hermetically seal the cover in said channel, in combination with the cover overlapping said channel and having a flange projecting down into the channel and provided with dogs adapted to lock on said exterior, and sealing material in said channel im-

mersing the said flange and the said exterior and dogs, substantially as described.

2. The body of the valve having a continuous channel in the upper edge of its bottom part constructed to hold a hardening sealing material, in combination with a top part provided with a continuous flange on its bottom in position to fit into said channel, and mechanism for holding the said top and bottom parts together, said mechanism connected with both parts and constructed to interlock when the cover is on and arranged to be confined wholly within said channel, whereby when the sealing material fills the said channel it immovably binds the said mechanism in locked position, substantially as described.

699,087. **PROCESS OF MANUFACTURING GOLF-BALLS.** BRADEN KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1908. Serial No. 67,581. (No model.)



Claim.—1. A process in producing a playing-ball, consisting in including a spherical core in previously-formed segments of plastic material so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed or assembled to compression.

2. A process in producing a playing-ball, consisting in including a spherical core in previously-formed segments of plastic material so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, bringing said layers to a plastic condition by means of heat, subjecting the whole to compression, and maintaining the compression while the shell cools and hardens.

3. A process in producing a playing-ball, consisting in including a spherical core in previously-formed segments of celluloid so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed or assembled to compression.

4. A process in producing a playing-ball, consisting in including a spherical core in previously-formed segments of celluloid so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, bringing said layers to a plastic condition by means of heat, subjecting the whole to compression, and maintaining the compression while the shell cools and hardens.

5. A process in producing a playing-ball, consisting in including a spherical core of springy material in shell layers of plastic material, at least one of said layers being previously formed and consisting of spherical segments, bringing said layers to a plastic condition, subjecting the whole to compression to such an extent as to compress said core, and maintaining the compression while the shell hardens.

6. A process in producing a playing-ball, consisting in including a spherical core consisting at least partially of gutta-percha in previously-formed segments of plastic material so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, subjecting the ball thus formed or assembled to compression to such an extent as to compress said core, and maintaining the compression until the shell hardens.

7. A process in producing a playing-ball, consisting in including a spherical core of gutta-percha in previously-formed segments of plastic material so as to make a shell consisting of a plurality of layers, at least one of said layers consisting of celluloid, and the segments being so placed that the joint in one layer crosses the joint in another layer, bringing said layers to a plastic condition by means of heat, subjecting the whole to compression, and maintaining the compression while the shell cools and hardens.

8. A process in producing a playing-ball, consisting in including a spherical core of gutta-percha in shell layers of celluloid, at least one of said layers being previously formed and consisting of spherical segments, bringing said layers to a plastic condition, subjecting the whole to compression, and maintaining the compression while the shell hardens.

9. A process in producing a playing-ball, consisting in including a spherical core of gutta-percha in previously-formed segments of celluloid so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed or assembled to compression.

10. A process in producing a playing-ball, consisting in including a spherical core of gutta-percha in previously-formed segments of celluloid so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, bringing said layers to a plastic condition by means of heat, subjecting the whole to compression, and maintaining the compression while the shell cools and hardens.

699,088. **PROCESS OF MANUFACTURING GOLF-BALLS.** BRADEN KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1908. Serial No. 67,582. (No model.)



Claim.—1. A process in producing a playing-ball, consisting in including a spherical core of springy material in previously-formed spherical segments of plastic material, heating said segments with a compressing-heat, placing over said coating an outer layer of spherical segments, bringing said layers to a plastic condition, and subjecting the whole to compression.

2. A process in producing a playing-ball, consisting in including a spherical core of springy material in previously-formed spherical segments of plastic material, heating said segments with a compressing-heat, said segments being so placed that the joint in one layer runs crosswise of the joint in the other layer, bringing said layers to a plastic condition, and subjecting the whole to compression.

3. A process in producing a playing-ball, consisting in including a spherical core of springy material in previously-formed spherical segments of celluloid, heating said segments with a layer of green celluloid, allowing said coating to harden so that it can be handled, placing over said coating an outer layer consisting of spherical segments of celluloid, heating said layers, and subjecting the whole to compression.

4. A process in producing a playing-ball, consisting in including a spherical core of springy material in previously-formed spherical segments of celluloid, heating said segments with a layer of green celluloid, allowing said coating to harden so that it can be handled, placing over said coating an outer layer consisting of spherical segments of celluloid, heating said layers, subjecting the whole to compression, and maintaining the compression while the shell cools and hardens.

5. A process in producing a playing-ball, consisting in including a spherical core of springy material in previously-formed spherical segments of celluloid, heating said segments with a layer of green celluloid, allowing said coating to harden so that it can be handled, placing over said coating an outer layer consisting of spherical segments of celluloid, the joint or seam in one layer running crosswise of the joint or seam in the other layer, heating said layers, and subjecting the whole to compression.

6. A process in producing a playing-ball, consisting in forming hemispherical segments of celluloid, placing said segments upon a sphere of gutta-percha, so as to form a plurality of layers, the joint or seam in one layer crossing a joint or seam in another layer, placing an incompletely-cured coating of celluloid between said layers, subjecting the whole to heat and compression to an extent to compress said core, and maintaining the compression while the shell cools and hardens.

699,089. **PLAYING-BALL.** BRADEN KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1908. Serial No. 67,583. (No model.)

Claim.—1. In a playing-ball, the combination of a shell consisting wholly of two layers, one of said layers consisting of fabric and the other thereof being relatively massive and consisting of celluloid in which said fabric is embedded, and a springy core filling said shell.

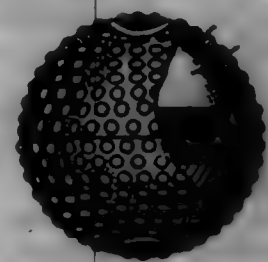
2. A playing-ball comprising a core of solid elastic material and a shell strongly gripping said core; said shell consisting wholly of two layers, one of which one is woven fabric and the other is relatively massive and consists of celluloid, the fabric being embedded in the inner side of the celluloid layer.



3. A playing-ball comprising a sphere of soft rubber and a shell thereon consisting of welded segments; each of said segments consisting wholly of two layers, whereof one is fabric and the other is celluloid, the fabric being embedded in the inner side of the celluloid layer.

4. A playing-ball comprising a sphere of yielding material and a shell holding said sphere under compression, said shell consisting wholly of two layers, whereof the inner consists of woven fabric and the outer consists of a relatively massive layer of celluloid in which said fabric is embedded.

699,090. **GOLF-BALL.** BRADEN KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1908. Serial No. 67,584. (No model.)



Claim.—1. A playing-ball comprising a soft-rubber core, a welded shell composed of hemispherical segments including said core, and a ligament reinforcing said weld.

2. A playing-ball comprising a shell of hemispherical segments of celluloid welded and compressed upon a filling of elastic material, and a ligament internally reinforcing said weld.

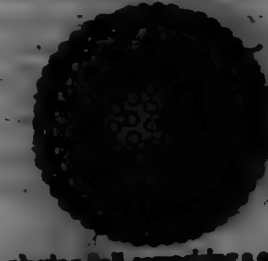
3. A playing-ball comprising a yielding spherical core, a shell composed of hemispherical segments of plastic material welded together and compressed upon said core, and a ligament internally reinforcing the weld.

4. A playing-ball comprising a spherical body, a shell built up from hemispherical segments of plastic material welded together and holding said body under compression, and a ligament reinforcing the weld of the segments and embedded in the material of the shell.

5. A playing-ball comprising a spherical highly-vulcanized rubber core, a shell composed of hemispherical segments of plastic material compressed upon said core, and a fabric ligament embedded in the shell and reinforcing the weld.

6. A playing-ball comprising a welded shell of hemispherical segments of celluloid compressed upon a filling of elastic material, said filling being held under compression by said shell, and a fabric band internally reinforcing the shell at the weld, and embedded in the celluloid.

699,091. **PLAYING-BALL.** BRADEN KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1908. Serial No. 67,585. (No model.)



Claim.—1. A playing-ball comprising a center piece, rubber wound continuously in different directions thereon to form a materially larger sphere, and a thick solid soft-rubber covering tensioned upon said sphere.

2. A playing-ball comprising rubber wound continuously in different directions under tension to form a sphere, and a solid soft-rubber covering

upon said sphere, said envelope consisting of undivided spherical segments drawn over said sphere and caught at their edges.

3. A playing-ball comprising a center piece and a plurality of soft-rubber spheres thereon, one of said spheres including the other, and one of said spheres consisting of solid soft rubber under tension, and the other consisting of rubber wound in different directions under high tension and continuously.

4. A playing-ball comprising a sphere of tensioned rubber threads and undivided segments of soft rubber drawn together upon said sphere and cemented together at their edges.

5. A playing-ball comprising a core, rubber threads wound thereon under tension, and undivided segments of soft rubber drawn together upon said sphere and cemented thereon, and also cemented together at their edges.

6. A playing-ball comprising rubber wound continuously in different directions under tension and forming a sphere, a thick solid soft-rubber envelope upon said sphere, and a shell of harder material upon said envelope.

7. A playing-ball comprising a center piece, rubber wound continuously in different directions thereon and forming a materially larger sphere, a thick solid soft-rubber envelope tensioned upon said sphere, and a shell of hard, plastic material upon said envelope.

8. A playing-ball comprising rubber wound continuously in different directions and under tension and forming a sphere, a solid soft-rubber envelope upon said sphere, said envelope consisting of undivided spherical segments drawn over said sphere and caught at their edges, and a shell of gutta-percha upon said envelope.

9. A playing-ball comprising a center piece and a plurality of soft-rubber spheres thereon, one of said spheres including the other, and one of said spheres consisting of solid soft rubber under tension, and the other consisting of rubber wound in different directions continuously and under high tension, and a shell of hard material holding said rubber spheres under compression.

10. A playing-ball comprising a sphere of tensioned rubber threads, undivided segments of soft rubber drawn together upon said sphere and cemented together at their edges, and a shell of plastic material holding said segments under compression.

11. A playing-ball comprising a core, rubber threads wound thereon and under tension, undivided segments of soft rubber drawn together upon said sphere and cemented thereon, and also cemented together at their edges, and a shell consisting of welded segments of gutta-percha and holding said soft-rubber segments under compression.

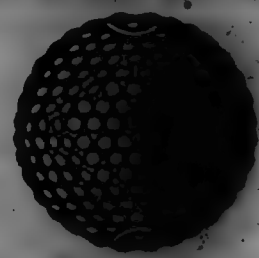
12. A playing-ball consisting of rubber wound continuously in different directions under tension and forming a sphere, a thick solid soft-rubber envelope upon said sphere, and a fabric-lined shell of plastic material upon said envelope.

13. A playing-ball comprising a springy center piece, rubber wound continuously in different directions thereon and under tension, a thick solid soft-rubber envelope tensioned upon said rubber windings, and a shell of fabric-lined plastic material holding said envelope under compression.

14. A playing-ball comprising a plurality of soft-rubber spheres, one sphere including the other, and one of said spheres consisting of solid soft rubber under tension, and the other consisting of rubber wound continuously in different directions and under high tension, and a shell consisting of plastic material and fabric and holding said rubber spheres under compression.

15. A playing-ball comprising a center piece, rubber threads wound continuously in different directions thereon and under tension, undivided segments of soft rubber drawn together upon said sphere and cemented thereon, and also cemented together at their edges, and a fabric-lined gutta-percha shell holding said soft-rubber segments under compression.

699,092. PLAYING-BALL. BRADEN KNEPFAHL, Boston, Mass., assignor to the Kneppell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 21, 1908. Serial No. 100,000. (No model.)



Claim.—1. A playing-ball comprising a center piece, a thick, solid soft-rubber envelope upon said center piece, rubber wound continuously in different directions and under tension upon said envelope, and a shell of hard material upon said wound rubber.

2. A playing-ball comprising a center piece, a thick, solid soft-rub-

ber envelope tensioned upon said center piece, rubber wound continuously in different directions upon said envelope and forming a materially larger sphere, and a shell of hard, plastic material upon said wound rubber.

3. A playing-ball comprising a springy center piece, undivided spherical segments of soft rubber drawn over said center piece and caught at their edges, rubber wound continuously in different directions and under tension upon said segments and forming a materially larger sphere, and a shell of gutta-percha upon said wound rubber.

4. A playing-ball comprising a center piece, undivided segments of soft rubber drawn together upon said center piece and cemented together at their edges, tensioned rubber wound continuously in different directions over said segments and forming a materially larger sphere, and a shell of plastic material holding said wound rubber under compression.

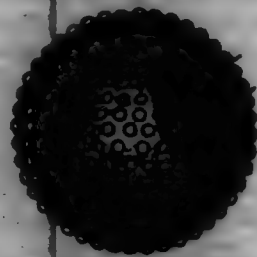
5. A playing-ball comprising a center piece, undivided hemispherical segments of soft rubber drawn together upon said center piece and cemented thereon and also cemented together at their edges, rubber wound thereon continuously in different directions and under tension, and a shell consisting of welded segments of gutta-percha and holding said rubber under compression.

6. A playing-ball comprising a center piece, a solid soft-rubber envelope thereon, rubber wound continuously in different directions and under tension upon said envelope, and a fabric-lined plastic shell upon said wound rubber and holding the latter under compression.

7. A playing-ball comprising a center piece, a solid soft-rubber envelope thereon, rubber wound continuously in different directions and under tension upon said envelope, and a fabric-lined plastic shell upon said wound rubber and holding the latter under compression.

8. A playing-ball comprising a center piece of gutta-percha, undivided hemispherical segments of soft rubber drawn together upon said center piece and cemented thereon and also cemented together at their edges, rubber threads wound continuously in different directions upon said soft-rubber hemispheres and forming a materially larger sphere, and a fabric-lined gutta-percha shell holding said rubber threads under compression.

699,093. GOLF-BALL. BRADEN KNEPFAHL, Boston, Mass., assignor to the Kneppell Manufacturing Company, a Corporation of New Jersey. Filed Apr. 2, 1908. Serial No. 101,000. (No model.)



Claim.—1. A playing-ball comprising a substantial gutta-percha shell lined with fabric and a one-part solid core made of plastic material and powerfully gripped by said shell.

2. A playing-ball comprising a substantial gutta-percha shell lined with fabric and a core of gutta-percha filling said shell.

3. A playing-ball comprising a substantial gutta-percha shell lined with fabric and a one-part solid core of gutta-percha held under permanent compression by said shell.

4. A playing-ball consisting wholly of spheres of gutta-percha and fabric.

5. A playing-ball comprising a fabric-lined gutta-percha shell consisting of welded segments, and a solid sphere consisting entirely of gutta-percha filling said shell and held under compression thereby.

6. A playing-ball consisting of a highly-compacted shell built up from gutta-percha segments and lined with fabric, said segments being welded edge to edge, and a filling consisting of gutta-percha powerfully gripped by said shell.

7. A playing-ball comprising a shell built up of highly condensed or compacted thick fabric-lined hemispherical sections of well-cured gutta-percha, and a one-part core of highly-compacted gutta-percha held under compression by said shell.

8. A playing-ball comprising a highly-compacted substantial fabric-lined gutta-percha shell and a core of highly-compacted gutta-percha powerfully gripped by said shell, the diameter of said sphere being about one-half that of the complete ball.

699,094. PLAYING-BALL. BRADEN KNEPFAHL, Boston, Mass., assignor to the Kneppell Manufacturing Company, a Corporation of New Jersey. Filed Apr. 8, 1908. Serial No. 101,000. (No model.)

Claim.—1. A playing-ball comprising a body or center, and an applied shell or casing constructed of overwound strips of interlaced steel.

2. A playing-ball comprising a body or center, and an applied shell or

casing constructed of overwound interlaced strips of colloid compressed upon said body or center.



3. A playing-ball comprising a body or center of gutta-percha, and an applied shell or casing constructed of overwound strips of interlaced steel.

4. A playing-ball comprising a body or center of gutta-percha, and an applied shell or casing constructed of overwound interlaced strips of colloid compressed upon said body or center.

5. A playing-ball comprising a springy body or center, and an applied shell or casing constructed of overwound strips consisting of colloid and fabric and welded together and holding said center under compression.

6. A playing-ball comprising a springy spherical body or center, and an applied shell or casing constructed of overwound interlaced strips of colloid compressed upon said body or center.

7. A playing-ball comprising a body or center, and an applied shell or casing constructed of overwound strips of colloid lined with woven fabric.

8. A playing-ball comprising a springy body or center, and an applied shell or casing constructed of overwound strips of colloid lined with woven fabric, said strips being welded together, and the whole being compressed upon said center.

9. A playing-ball comprising a hard spherical body or center of gutta-percha, and an applied shell or casing constructed of overwound thin strips of colloid lined with textile fabric.

10. A playing-ball comprising a body or center, and a shell thereon consisting of strips, said strips consisting of colloid and fibrous material, and being wound continuously in different directions and welded together where they cross.

11. A playing-ball comprising a shell which consists of strips of colloid wound continuously in different directions and welded together where crossing; fibrous material being embedded throughout said shell.

12. A playing-ball comprising a core and a shell thereon; said shell consisting of strips of plastic material and fabric; all of said strips being wound continuously in different directions, the plastic material being welded strip to strip, and the fabric strips being embedded in said plastic material.

13. A playing-ball comprising a core and a shell holding said core under compression; said shell consisting of strips of colloid and strips of fabric; all of said strips being wound continuously in different directions, said colloid being welded strip to strip, and the fabric strips being embedded in said colloid.

14. A playing-ball comprising a shell made of plastic material and fibrous material; said plastic material forming a continuous or subcontinuous shell, and said fibrous material extending prominently throughout said shell; and a core within said shell.

15. A playing-ball comprising a core of springy material and a shell holding said core under compression; said shell consisting of colloid, and segments of fibrous material being interspersed throughout the shell and holding tightly upon said core.

16. A playing-ball comprising a springy body or center, and a highly-compacted shell thereon, said shell consisting of strips wound continuously in different directions upon said body and welded where crossing; and said strips being compounded of plastic material and fibrous material.

17. A playing-ball including a sphere consisting of a strip or strips of colloid wound continuously in different directions.

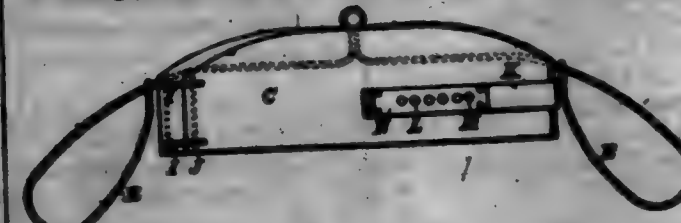
699,095. HERNAL TRUSS. JULIUS G. LE HANE, Greenwich, Ga. Filed Feb. 7, 1908. Serial No. 60,001. (No model.)

Claim.—1. A hernial truss comprising two wires bent to conform to the contour of different parts of the body and to stand free from the surface thereof, binding-posts having duplicate wire-apertures to receive and hold the respective ends of the two wires, hip-pads secured to the said binding-posts, binding-posts adjustably mounted on each wire at the front and intermediate the hip-pads, a hernial pad adjustably secured to the inner end of each intermediate binding-post, and a fastening-strap to enclose the binding-posts of the hip-pads.

2. A hernial truss comprising a wire bent to the contour of the abdomen and hips and to stand free and away from the body with its ends terminating at points above and back of the great trochanter in the hollow of the femur, a plurality of binding-posts each having an aperture to adjustably engage over the wire at each end and a threaded end at the inner end, a clamping-strap let through the head of each binding-post, a hip-pad detachably secured to the threaded end of each binding-post, a binding-post adjustably mounted on the wire intermediate the hip-pads, a screw to clamp the binding-post to the wire, a plate adjustably secured to the inner end of the binding-post, a hernial pad secured to the plate, and a fastening-strap connecting the binding-posts of the hip-pads.



699,096. SUIT-HOLDER. CHARLES S. BARROW, Rochester, N. Y., assignor, by mesne assignments, to Albaugh Bros., Dover and Company, Chicago, Ill. Filed Jan. 14, 1908. Serial No. 63,007. (No model.)



Claim.—1. In a suit-holder, the combination with the back portion provided with the arm-arms at each end, of the movable front pivoted to the back by a swinging hinge at one end, a pin in the other end of said front portion, and a strap secured to the back portion, a metallic flange on the end of said strap having holes to receive said pin, substantially as described.

2. In a suit-holder, the combination with a stationary back portion, a bent wire of one piece secured to said back portion, having loops at each end forming arm-arms, and a loop in its center for supporting the device, a front portion, a pair of single flaps connecting said front and back portions, a flexible strap secured to said back portion, a pin on the front portion, a metallic flange on said strap having holes to engage said pin, and a hook on said flange, substantially as described.

699,097. MILK-COOLER. WILLIAM C. BLAKE, Mansfield, Ohio, assignor to Elizabeth J. Blake. Filed Nov. 20, 1907. Serial No. 57,000. (No model.)

Claim.—1. In a milk-cooling apparatus the combination with an inner and outer receptacle, the inner receptacle to hold milk, the outer receptacle for water, the inner receptacle provided with a perforated dip below the bottom, a cone-shaped central vertical tube secured in the center of the bottom of the inner receptacle, a depression formed in the bottom of the inner receptacle, a threaded sleeve secured in the wall of the

same and in line with the depression, a threaded collar secured on the outside of the water-receptacle, and in line with the threaded sleeve, a stop-cock secured within the collar and adapted to engage with the threads in the sleeve the said cock adapted to draw the milk and cream from the inner receptacle and the water from the outer receptacle, a lid or cover cone-shaped in the center, and provided with a flange covering the water-space between the inner and outer receptacles, the said flange provided with two downwardly-projecting ribs the outer rim adapted to fit over the outer receptacle, the inner rim passing inside of the milk-receptacle, the center of the cover provided with a curb or ring and ring provided with a suitable screw a cover or cap provided with a vent-tube, a transparent gage secured within the wall of the outer receptacle, and one in the wall of the inner receptacle the two placed in line with each other the lid provided with an inlet-pipe the outer receptacle provided with a discharge-pipe near the upper edge the inner and outer receptacles independent of each other, the inner receptacle removable from the outer receptacle, substantially as shown and described.



2. The herein-described milk-cooler comprising an outer receptacle, an inner receptacle of less diameter having a bottom and a perforated rim below said bottom, said bottom having at its edge a depression I, a collar in the rim of the inner receptacle adjacent to and communicating with said depression, a spigot passing through said collar and through the outer receptacle, a central cone-shaped tube rising from the bottom of the inner receptacle, and a cover having flanges and closing the top of the inner and outer vessels and the space between them, all substantially as shown and described and for the purpose specified.

3. The milk-cooler herein shown and described, consisting of the outer receptacle having open top and closed bottom, a discharge-spout near the top, a receptacle within said outer receptacle having a series of openings near its lower edge, a bottom above said openings having a depression at one side, a spigot leading from said depression, of the inner receptacle through the outer receptacle, a central tube rising from the raised bottom of the inner receptacle, a cover having flanges to fit snugly on the inner and outer receptacles, an inlet in said cover having a hinged cap, and a vent-tube in said cover.

699,098. LINK-BELT TIRE. THOMAS M. BYRNE, Atlanta, Ga. Filed July 1, 1901. Serial No. 61,897. (No model.)



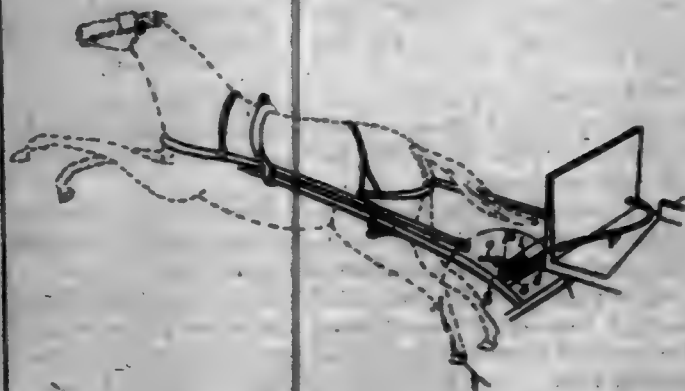
Claim.—1. In a link-belt tire, an outer U-shaped element and an inner element adapted to rest within same and form a dentation, means for securing said elements together and securing the members so formed to each other, said outer elements being joined in their contiguous faces and elastic blocks seated therein.

2. In a link-belt tire, an outer U-shaped element and an inner element adapted to rest therein, means for securing said elements together and the members so formed to each other, said outer elements being chambered in their contiguous faces and elastic blocks seated therein, said elastic blocks extending over and sealing the joints between the lower contacting faces of said elements.

3. In a link-belt tire, an outer U-shaped element and an inner element adapted to rest therein, means for connecting said elements and for connecting the members so formed to each other comprising lugs on one of said elements and perforated metallic links engaging said lugs and extending from one member to the next.

4. In a link-belt tire, an outer U-shaped element and an inner element adapted to rest therein and having a tooth formed on its bottom projecting inwardly, lugs on said inner element axially in the plane of the pitch-line of said tooth, and links engaging the lugs of contiguous pairs of said members and means for securing said elements together to form said members.

699,099. COMBINED TRACE-HOLDER AND DETACHING REIN. WILLIAM D. BORN, Newbury, Tenn., assignor of one-half to W. T. BORN, Newbury, Tenn. Filed Jan. 9, 1908. Serial No. 62,000. (No model.)



Claim.—In combination with a whiffletree, a trace-holder and detaching device, consisting of the plate 1, adapted to be secured to the rear edge of the whiffletree; the projecting portion 1' of said plate extending beyond the end of the whiffletree and terminating in a forked end; the integral, forwardly-extending member 2', engaging the end of the whiffletree and terminating in pivoted cam; the trace-holder 4, hinged to said cam and having its outer end provided with a beveled face; the locking member 5 suitably secured to the rear side of the plate 1, and having its outer end extending beyond the projecting member 1' of the plate 1, and bent to form an eye to engage the pull-strap 7, one part of the bent portion extending at a right angle over the forked end of the member 1', and another part formed into a beveled face, adapted to cooperate with the beveled face of the trace-holder 4; the ball 6 seated in the rear edge of the whiffletree, straddling the members 1 and 5, all arranged as shown and for the purpose specified.

699,100. CASE-REGISTER. THOMAS GARNETT, Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 4, 1906. Serial No. 711,948. (No model.)

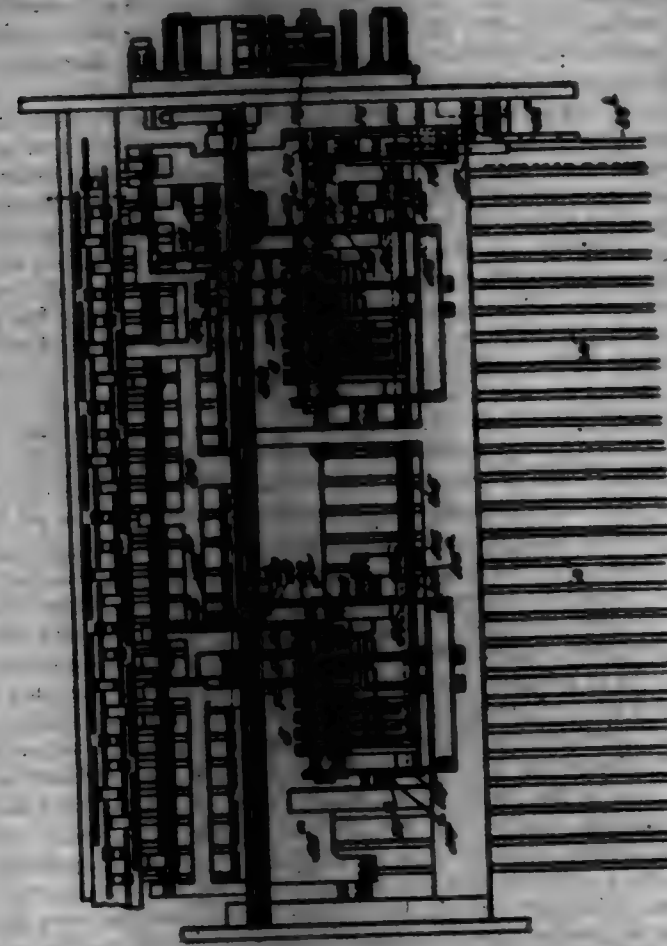
Claim.—1. In a cash-register, the combination with register-operating device, of duplicate counters arranged to be brought into connection with the same, independent throwing devices for the respective counters, a slidable rod for adjusting said throwing devices, an operating-key and a lever arranged to be operated by said key and connected to the slidable rod.

2. In a cash-register, the combination with register-operating device, duplicate counters arranged to be moved into connection with the same, a shifting bar, a lever for operating said bar, a key and a latching means for said lever arranged to be released by said key.

3. In a cash-register, the combination with register-operating device, duplicate counters arranged to be moved into connection with the same, a shifting rod for said counters, a lever for operating said rod, a key for moving said lever and means connected to the movable parts of the machine and arranged to be projected into the path of said lever and thus lock it against operation after the operation of the machine has commenced.

4. In a cash-register, the combination with register-operating device, of duplicate counters arranged to be brought into connection with the same, throwing-levers for said counters, a slidable rod for adjusting

said throwing-levers to operative or inoperative positions, a key for operating said rod, and means connected to said key and engaging said rod.



5. In a cash-register, the combination with register-operating device, of independent counters arranged to be brought into connection with the same, a shifting device for said counters, a special key for operating said device and means connected to the movable parts of the machine for limiting the initial movement of said key but adapted to be moved out of the path of the key to permit the latter to continue its movement.

6. In a cash-register, the combination with register-operating device, independent counters arranged to be brought into connection with said operating device, a shifting device for said counters, a key for operating said device arranged to have a partial initial stroke and to become coupled to the operating device as to be moved thereby through the remainder of its stroke.

7. In a cash-register, the combination with a series of keys, of a register-operating mechanism connected to the same, independent counters arranged to be moved into connection with said operating mechanism, a key-coupler, a shifting device for said counters, and a key for actuating said device arranged to first make a partial stroke by itself and then be coupled and operated with the regular keys.

8. In a cash-register, the combination with register-operating device, of independent counters, a shifting device for the same, a pivoted lever arranged to operate said shifting device and having an inclined slot and a key having a pin projecting into said slot.

9. In a cash-register, the combination with register-operating device, of a plurality of counters arranged to be brought into connection therewith, a shifting device for said counters, a key for operating said shifting device and a stop arranged to limit the initial stroke of said key and connected to the movable parts of the machine as to be moved upon the operation of the latter to permit a full stroke of said key.

10. In a cash-register, the combination with a series of keys, of register-operating device connected to the same, a movable shifter arranged to be operated by any of said keys, duplicate counters arranged to be moved into connection with said register-operating device and a special key for controlling said counters arranged to first make a partial stroke by itself and then be coupled and operated with the regular keys.

11. In a cash-register, the combination with a series of keys, of register-operating device, a key-coupler, a plurality of independent counters arranged to be brought into connection with the register-operating device, a shifting key for said counters, a lever arranged to be operated by said key, a locking-bar mounted on the key-coupler and arranged to either resist the said lever or limit the initial movement of the shifting key accordingly as pressure is applied to said key before or after the movement of the key-coupler.

12. In a cash-register, the combination with register-operating device, of independent counters arranged to be brought into connection

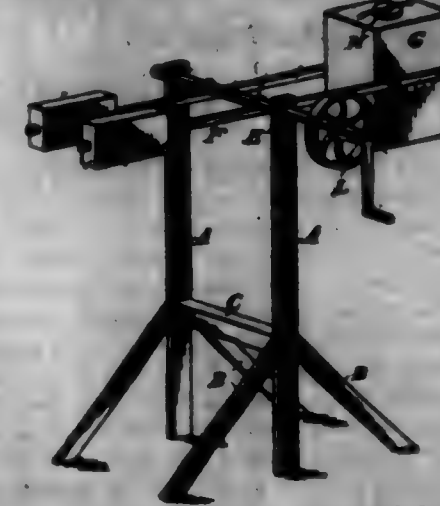
with the same, a shifting device for said counters, a special key for operating the shifting device, a stop for arresting the key after it has made a partial stroke, a link and connection for holding the shifting device in its operated position, and means for allowing the key to be fully operated to trip said link.

13. In a cash-register, the combination with register-operating device, of independent counters arranged to be brought into connection with the same, a shifting device for the same, a pivoted lever for operating the same, a key for operating the lever, means for holding the lever, and a trip for said link mounted on the key.

14. In a cash-register, the combination with register-operating device, of a plurality of independent counters arranged to be thrown into connection with the same, adjusting devices for said counters, a rod for operating said devices carrying a bevel-faced projection, a printing device and operating means connected to said printing device and engaging said bevel-faced projection.

15. In a cash-register, the combination with a registering and printing mechanism, of a plurality of counters, a key for bringing either of said counters into connection with the registering mechanism at will, a slotted lever arranged to be operated by said key, and a special printing device having a projection which enters the slotted lever whereby said device is operated.

699,101. ROTARY CHURN. WILLIAM B. GARDNER, Centerville, Ill. Filed Feb. 2, 1901. Serial No. 61,899. (No model.)



Claim.—In a churn, the combination of a suitable framework, a shaft supported thereby, parallel arms secured to said shaft, a receptacle or churn removably secured to said parallel arms, weights carried by the opposite extended portions of said parallel arms, means to adjust said weights to respectively counterbalance the churn or receptacle and contents and operating mechanism substantially as described.

699,102. STEAM-GENERATING SYSTEM. WILLIAM GUNTER, BAR, Wabash, Pa., assignor of two-thirds to Alexander Hunter and Raymond Hunter, Wabash, Pa. Filed July 4, 1901. Serial No. 67,191. (No model.)



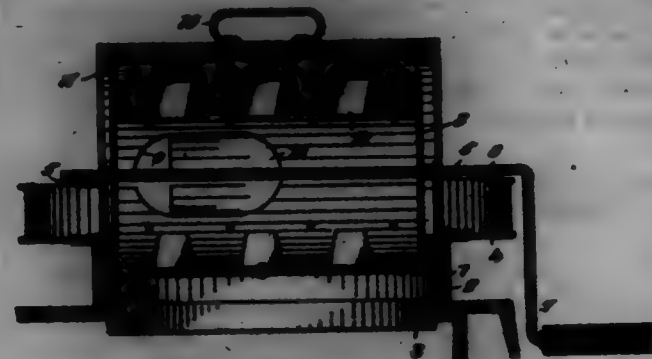
Claim.—1. In a steam-generating system, the combination with a primary generator, a furnace or other source of heat therefor, and a steam-conduit within the said primary generator, of a series of secondary generators each having a steam-conduit therein and in communication with the steam-conduit in the primary generator whereby steam is generated in the secondary generators by the steam supplied from the primary generator, a steam-delivery conduit common to all of the generators, and a water-fuel conduit common to all the generators having a series of depending branches extending into the respective generators and discharging in close proximity to the bottom wall of said generators, substantially as described.

2. In a steam-generating system, the combination with a primary

generator, and means for supplying heat to said primary generator, of a plurality of secondary generators each having a steam-circuit located therein and connected to the primary generator whereby steam is generated to the secondary generators solely by the aid of the steam supplied from the primary generator, a water-feed conduit for supplying water to each of the generators simultaneously, and a steam-delivery conduit common to all the generators, substantially as described.

2. In a steam-generating system, a primary generator supplied with heat from a suitable source, and a plurality of secondary generators each having a water-circuit therein connected to the primary generator, a water-feed conduit connected to each generator so as to supply water to all simultaneously, and a steam-delivery conduit common to all the generators, substantially as described.

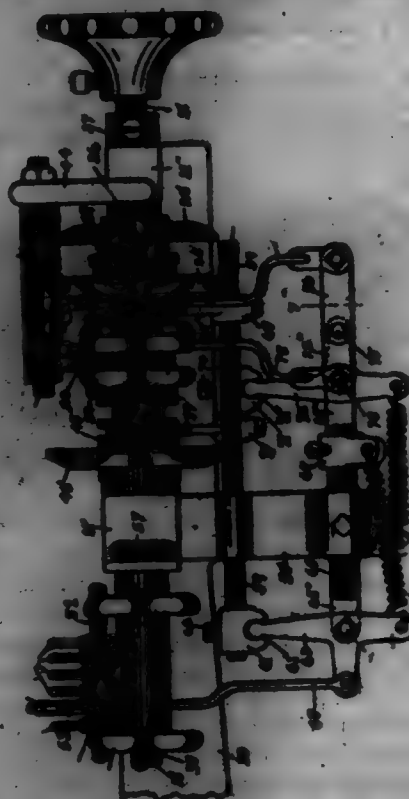
699,103. ROASTER. WILLIAM F. O'NEIL, Dublin, Co. Filed Apr. 10, 1901. Serial No. 66,572. (No model.)



Claim.—1. A roaster, comprising a base adapted to have a portion of it engaged in an opening in a stove-top, a tray-like portion on the base and of larger diameter than the base, standards extended upward from the tray-like portion, a shaft supported in said standards, a rotating-cylinder mounted on the shaft, and agitators in the cylinder, said agitators being arranged in spirally-disposed rows, substantially as specified.

2. A roaster, comprising a cylindrical base having an inwardly-extended flange designed to rest upon the top of a stove or range, and a downwardly-extended flange at the inner edge of the first-named flange, a tray supported on the base and of larger diameter than the base, standards extended upward from the tray, a shaft supported in the standards, and a rotating-cylinder mounted on the shaft, substantially as specified.

699,104. PATTERN MECHANISM FOR LOOM. ARTHUR I. O'NEIL, Worcester, Mass., assignor to O'Neil & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Oct. 21, 1901. Serial No. 66,602. (No model.)



Claim.—1. In pattern mechanism for looms, the combination with the drop-bar-pattern chain-cylinder, and a multiplier-pattern chain-cylinder, and intermediate connecting mechanism, and mechanism for operating

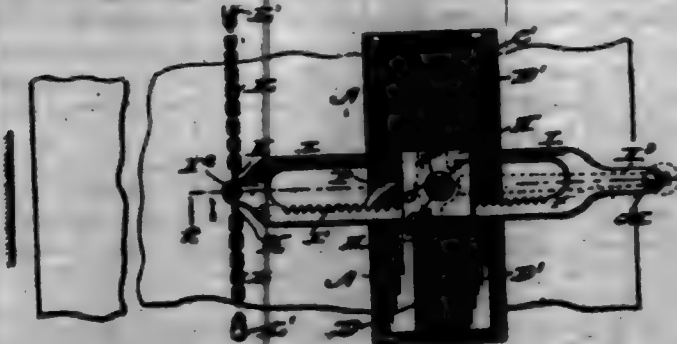
ing said drop-bar-pattern chain-cylinder, and multiplier-pattern chain-cylinder, of a second multiplier-pattern chain-cylinder, and intermediate mechanism connecting said second multiplier-pattern chain-cylinder with the drop-bar-pattern chain-cylinder and the first-mentioned multiplier-pattern chain-cylinder, and mechanism for operating said second multiplier-pattern chain-cylinder, substantially as shown and described.

2. In pattern mechanism for looms, the combination with the drop-bar-pattern chain-cylinder, a pin-wheel and star-wheel mechanism for operating the same, a multiplier-pattern chain-cylinder, and a pin-wheel and star-wheel mechanism for operating the same, and a second multiplier-pattern chain-cylinder, and a pin-wheel and star-wheel mechanism for operating the same, of an indicator-lever for the drop-bar-pattern chain-cylinder, and an indicator-lever for each multiplier-pattern chain-cylinder, and connections intermediate the indicator-lever of the drop-bar-pattern chain-cylinder, and each indicator-lever of the multiplier-pattern chain-cylinders, and pattern-surfaces on the drop-bar-pattern chain-cylinder, by means of which either multiplier-pattern chain-cylinder is put into operation, or out of operation, from the drop-bar-pattern chain-cylinder, by means of which the drop-bar-pattern chain-cylinder is put out of operation, when either multiplier-pattern chain-cylinder is put into operation, and is put into operation when either multiplier-pattern chain-cylinder is put out of operation, substantially as shown and described.

3. In the pattern mechanism of looms, a drop-bar-pattern chain mechanism, a multiplier-pattern chain mechanism, and a second multiplier-pattern chain mechanism, each multiplier-pattern chain mechanism having an indicator-lever connected to a centrally-pivoted lever, the lever of which at either end, will, through intermediate connections, put the drop-bar-pattern chain mechanism out of operation, and the raising of which will put it into operation, substantially as shown and described.

4. In the pattern mechanism of looms, a drop-bar-pattern chain mechanism, a multiplier-pattern chain mechanism, and a second multiplier-pattern chain mechanism, each multiplier-pattern chain mechanism having an indicator-lever connected to a centrally-pivoted lever, the movement of which in one direction will, through intermediate connections, put the drop-bar-pattern chain mechanism out of operation, and the movement in the other direction will put the drop-bar-pattern chain mechanism into operation, substantially as shown and described.

699,105. CARPET-STRETCHER. ALBERT H. DAVIS, Crawfordsville, Ind., assignor of one-half to James R. Barnett, Crawfordsville, Ind. Filed June 1, 1901. Serial No. 66,708. (No model.)



Claim.—1. A carpet-stretcher comprising a block having bars or prongs for engaging the carpet, a rack-frame arranged upon the said block and adapted to be fixed between two points, and means arranged upon the block for moving it both in a transverse and longitudinal direction, substantially as shown and described.

2. In a carpet-stretcher, the combination with a block having prongs or bars upon its lower face, the upper face of said block having a guideway produced therein, said guideway having a rack-bar at one side, a bar sliding in the guideway, pivots carried by the said bar, said pivots being arranged one above the other and independent of each other, a rack-frame arranged upon the block and adapted to move in a direction transverse to the length of the block, and means for operating the said pivots whereby the block can be moved transversely and longitudinally, substantially as described.

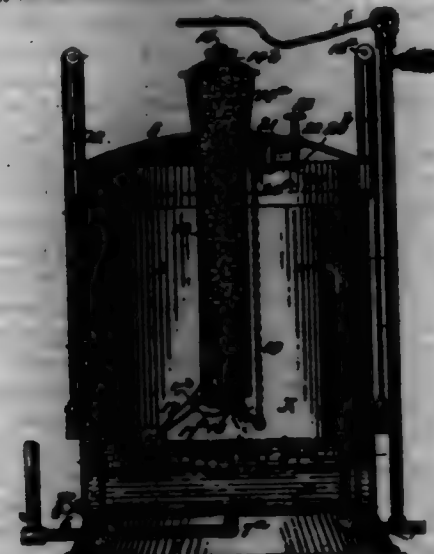
3. In a carpet-stretcher, a block having bars or prongs upon its lower face and the adjustable and guide-covered to the ends of the block, substantially as and for the purpose described.

4. In a carpet-stretcher, the combination with a block having bars or prongs upon its under side and a guideway upon its upper side, said guideway having a rack-bar at one side, a bar sliding in the guideway and provided with pivots, pivots carried by the sliding bar, one above the other, said pivots being independent of each other, a rack-frame sliding across the face of the block, the uppermost of the pivots being adapted to engage the said rack-frame, said rack-frame being provided with

means for securing the same in a fixed position, and a pawl carried by the sliding bar for the purpose of locking the rack-frame, substantially as described.

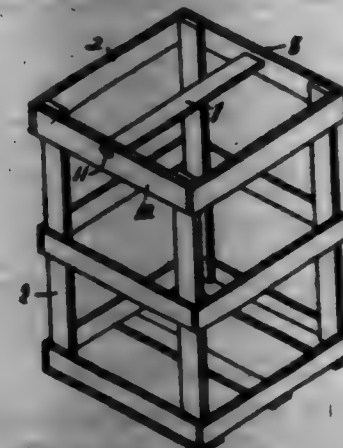
5. In a carpet-stretcher, the combination with a block having bars or prongs upon its under face and a longitudinal guideway having a rack-bar at one side, a sliding bar working in the guideway, a pivot journaled on the sliding bar and adapted to engage the rack-bar of the block, a rack-frame carried by the sliding bar for engagement with the said rack-bar, a rack-frame extending across the face of the block and having a chain attached to one end and a pin at the opposite end, a housing attached to the sliding bar and subdividing the rack-frame, a piston arranged within the housing and rack-frame and adapted for engagement with the said rack-frame, a pawl pivoted to the housing and adapted to engage the rack-frame, and means for rotating the piston whereby the block is moved transversely and longitudinally as set forth.

699,106. ACETYLENE-GAS GENERATOR. OSCAR FALKEN-WALDE, Baltimore, Md., assignor of one-half to Charles F. Standish, Baltimore, Md. Filed Oct. 22, 1901. Serial No. 67,002. (No model.)



Claim.—In a gas-generating means of the character described, the combination with the water-holding tank, the bell or collector movable therein, a water seal for said bell, a carbide-holding magazine carried by the bell, a carbide cut-off controlled by the rise and fall of the bell, and an adjusting means for said cut-off, including a screw-chest, mounted on the bell-top, having an operating-handle outside the bell-top, a lever within said bell, connected with the screw-chest, and a flexible connection joining said lever and the cut-off device, substantially as shown and for the purpose described.

699,107. CRATE-PARTITION. CHARLES W. HILLENBRAND, Kansas City, Kans. Filed Jan. 22, 1902. Serial No. 69,257. (No model.)



Claim.—The combination of a crate having opposite slotted members, the slot 7 in one of said members having a notch 9 at each end thereof, a slot 1 having notches 4 in one end thereof, a transverse opening 5 in the opposite end thereof, and a pair of spring-steel catches, one end of each catch being firmly secured in said slot, and the opposite end of each catch being bent into said opening; the end of said slot provided with said catches being adapted to slide through said slot 7, substantially as described.

699,108. EXTRACTION OF METALS FROM ORES OR THE LIKE. BRYANT HOWE, San Francisco, Cal. Filed July 12, 1901. Serial No. 64,651. (No specimens.)

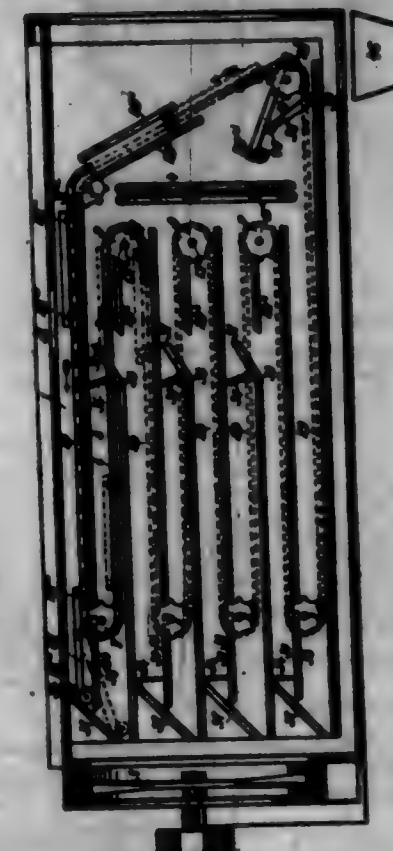
Claim.—1. The process of extracting metals from ores and the like, consisting in leaching the material containing the metal with a solution containing a quantity of free ammonia and a quantity of a cyanid salt.

2. A process of extracting metals from ores, consisting in pulverizing and leaching the ores or materials with a solution in which a cyanid salt and free ammonia are present and adding to the solution an oxidizing agent.

3. The process of extracting metals from ores, consisting in leaching the pulverized material with a solution containing a cyanid compound, a salt of ammonia, and an alkali capable of liberating ammonia from the salt.

4. The process of extracting metals from ores, consisting in leaching the pulverized material with a solution containing free ammonia and a cyanid salt, and afterward recovering the metal by precipitation.

699,109. CARRIER AND DRIVER. LOVELL L. KILHAM, Guilford, Conn., assignor, by direct and mesne assignments, to Federal Glass Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 26, 1901. Serial No. 64,886. (No model.)



Claim.—1. In an apparatus of the class described, endless carrier-balls, trays pivoted off center therein, wheels supporting the balls, tracks for the trays and having switches, and devices automatically tilting the traveling trays at a predetermined phase of the movement of the carrier, substantially as described.

2. In an apparatus of the class described, an endless carrier disposed in part for upward travel, trays pivoted to the carrier, tracks therefor, a shaft having arms arranged to engage the trays, and mechanism rocking the shaft for tilting the trays to automatically discharge their contents, substantially as described.

3. In an apparatus of the class described, an endless carrier disposed in part for upward travel, trays pivoted therein, tracks upon which said trays are moved, a rack-chest having arms arranged to engage and tip said trays in the phase of upward movement of said trays, a reciprocating crank-rod coupled to said shaft, and means operated by the carrier-driving mechanism whereby said rod is actuated, substantially as described.

4. In an apparatus of the class described, an endless traveling carrier, a driving-shaft, a power-transmitting wheel for operating said carrier loosely mounted on said shaft, and mechanism mounted on said shaft and engaging said wheel to rotate the same with said shaft and capable of rotating said wheel independently of said shaft, substantially as described.

5. In an apparatus of the class described, an endless traveling carrier, a driving-shaft, a power-transmitting wheel for operating said carrier loosely mounted on said shaft, a collar rigidly secured to said shaft to rotate therewith, and a gear mounted on said collar having its axis of rotation in a line other than that of said shaft and arranged to operate said wheel, substantially as described.

6. In an apparatus of the class described, an endless carrier, operating means whereby said endless carrier is moved, and independently-adjustable power-transmission devices comprised within said operating

means whereby said endless carrier may be adjusted independently of said operating means as an entirety.

7. In an apparatus of the class described, an endless carrier disposed in a zigzag course, trays coupled to the endless carrier, and tracks arranged to support the moving trays; said tracks being provided with spring-actuated switches operated by the trays and permitting the trays to follow different planes of the carrier.

8. In an apparatus of the class described, an endless carrier disposed partly in a zigzag course and in part having an upward movement, trays coupled to the endless carrier, and means for positively tilting the trays at the upward phase of movement of the carrier while retaining the upper surfaces of the trays upward to discharge the load.

699,110. INKING-ROLL FOR PRINTING-PRESS. JAMES P. HARRIS, Philadelphia, Pa., assignor, by direct and mesne assignments, of two-thirds to John L. Larson and Charles H. Day, Philadelphia, Pa. Filed Aug. 2, 1891. Serial No. 70,766. (No model.)



Claim.—1. In a printing-press, a carriage, an ink-roll shaft carried thereby and having a limited rotary movement relative thereto, an ink-roll rotatably mounted upon the said shaft, concentric rigid with said shaft, and tracks rotatably mounted upon said concentric.

2. In a printing-press, a carriage having a yoke, an ink-roll shaft rotatably mounted in said yoke and having steps or shoulders to limit the rotary movement thereof, an ink-roll rotatably mounted upon said shaft, concentric mounted upon said shaft at the ends of said roll, and tracks rotatably mounted upon said concentric.

3. In a printing-press, a carriage having yokes, an ink-roll shaft rotatably mounted in said yokes and provided with steps to limit the rotation thereof, an ink-roll rotatably mounted upon the said shaft, concentric rigidly secured to said shaft at the ends of said ink-roll, and tracks rotatably mounted upon said concentric.

699,111. COVERED ROLL. JOHN E. BELAVER, Cambridge, Mass., assignor of one-fourth to Charles F. Brown, Reading, Mass. Filed Aug. 20, 1891. Serial No. 72,827. (No model.)



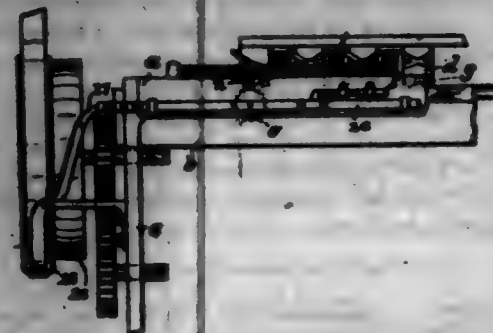
Claim.—1. As an article of manufacture, a cushion composed of an elastic body provided with a plurality of pockets each having an elastic wall integral with said body, a closed bottom and a relatively rigid or inextensible entrance, the said elastic walls having contracted end-engaging portions, the extensibility of which is reduced by the said inextensible entrance, the diameter of said entrance being greater than that of said contracted portions.

2. As an article of manufacture, a cushion composed of an elastic body provided with a plurality of pockets each having an elastic wall and a closed bottom and relatively rigid or inextensible reinforcing material firmly secured to the elastic body and forming entrance of the pockets, the elastic walls of the cushions having contracted end-engaging portions, the extensibility of which is limited by said inextensible material.

3. The combination of a supporting-base, a plurality of pocket-engaging end members attached thereto and projecting therefrom, and a cushion composed of an elastic body provided with a plurality of pockets each having an elastic wall which is integral with said body, a closed bottom and a relatively rigid or inextensible entrance, the said elastic walls having contracted end-engaging portions, the extensibility of which is reduced by the said inextensible entrance, the diameter of said entrance being greater than that of said contracted portions.

699,112. STOP-MOTION FOR RIBBON-LOOMS. WILLIAM F. PAIR, Paterson, N. J., assignor of one-third to Jacob Cohen, Paterson, N. J. Filed Nov. 1, 1891. Serial No. 69,730. (No model.)

Claim.—1. In a loom, the combination of a support, a movable spring-pressed part carried by said support and arranged parallel with the bottom, means for moving said part to the support in its retracted position, said part being also movable laterally with reference to its direction of movement under pressure by the spring to disengage the securing means, and means for moving said part laterally, substantially as described.



2. In a loom, the combination of a movable part of the power-controlling mechanism of the loom arranged parallel with the bottom, the breast-beam, another part adapted to engage said first-named part to retract the same, a spring normally pressing said last-named part toward the first-named part, means for moving said last-named part to the breast-beam in its retracted position, said last-named part being also movable laterally to disengage the securing means, and means for moving said last-named part laterally, substantially as described.

3. In a loom, the combination, with the bottom, a suitable support and a spring-pressed movable part arranged parallel with the bottom and being a part of the power-controlling mechanism of the loom, of a shuttle-driving member mounted on said bottom, means for moving said part to the support in its retracted position, said part being movable laterally with reference to its direction of movement under pressure by the spring to disengage the securing means, cooperative parts, one of said parts being carried by said bottom and adapted to engage the other to move the same, operative connecting means between said first-named cooperative part and said member adapted to move said part out of alignment with the other cooperative part, and operative connecting means also between said other cooperative part and said part of the power-controlling mechanism, substantially as described.

4. In a loom, the combination, with a stationary part of the loom, of the power-controlling mechanism of the loom, a slide-rod mounted in said part and adapted to engage said mechanism to retract the same, a spring normally pressing said slide-rod toward said mechanism, means for moving said slide-rod in its retracted position, said slide-rod being movable laterally to effect its release and permit the spring to move the same, a block movably arranged in said part, pins interposed between said block and said slide-rod, and means for moving said block, substantially as described.

5. In a loom, the combination, with the bottom and with the power-controlling mechanism of the loom comprising a movable part, of the shuttle-driving rack arranged on said bottom, a reciprocating member also mounted on said bottom, and operative connecting means between said rack and said member adapted to transmit the movement of the rack-bar coincidentally to said member, said member being movable into and out of contacting opposition to said part, substantially as described.

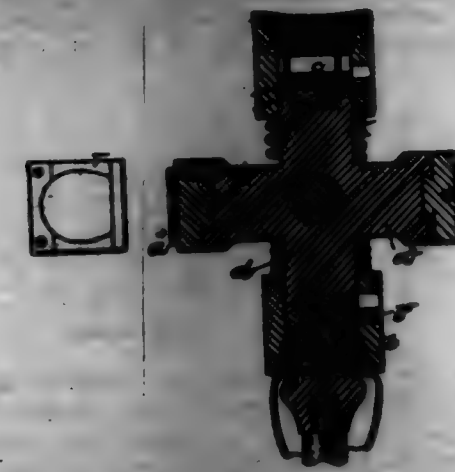
6. In a loom, the combination, with the bottom and with the power-controlling mechanism of the loom comprising a movable part, of the shuttle-driving rack arranged on said bottom, a reciprocating member also mounted on said bottom, and operative connecting means between said rack and said member adapted to transmit the movement of the rack-bar coincidentally to said member and comprising gearing engaging said rack-bar and a connecting-rod between said member and the gearing, said member being movable into and out of contacting opposition to said part, substantially as described.

699,113. REEL-HOLDER FOR REEL-ATTACHING MACHINES. FREDERICK F. RAYMOND, M. Norton, Mass., assignor, by mesne assignments, to the United States Machinery Company, a Corporation of New Jersey. Filed July 12, 1891. Serial No. 69,541. (No model.)

Claim.—1. In a reel-attaching machine the combination of reel-driving devices movable from an overhead receiving to an underneath attaching position, with a reel-holder provided with fixed sides forming a socket to hold the reel and movable with said reel-driving devices from receiving to attaching position and also movable toward and from the reel-driving devices.

2. In a reel-attaching machine, the combination of the reel-driving device with a reel-holder attached thereto and movable lengthwise thereon, said reel-holder being hollow and having a socket at its outer end, of a shape corresponding with the shape of the sides of a reel-blank and

forming a socket to receive and hold the reel-blank in a position removed from the reel-driving device, and a section forming a sleeve having parallel sides, said sleeve being the shape and area in cross-section of said reel-driving device and adapted to slide thereupon, said sections forming a continuation of each other, as and for the purpose set forth.



3. In a reel-attaching machine, a reel-attaching arm or support and a reel-holder adapted to slide telescopically upon it, said holder being hollow and having a socket shaped to receive and support a reel-blank by its edge and a section having sides parallel with those of said arm or support whereby said holder is adapted to hold a reel-blank in a position removed from the end of said arm or support and to permit the movement of the arm or support relatively to the holder and the reel-blank in the act of attaching it.

4. In a reel-attaching machine, a reel-attaching arm having a hollow reel-holder slidably attached to its outer end, said reel-holder having a section forming a sleeve with parallel sides adapted to slide on said arm, and an outer enlarging section shaped to receive the sloping sides of a reel, and limit the entrance of the reel-blank therein, whereby each blank will be held in a predetermined position with relation to the arm during the reel-attaching operation, as set forth.

5. In a reel-attaching machine a plate having a continuous recess of adapted to receive the heads of reels projecting from a reel and serve as a driver therefor, in combination with means for holding the reel during the driving operation.

6. In a reel-attaching machine the plate having a continuous recess of adapted to receive the heads of reels projecting from a reel to be attached, in combination with a removable metal strip held in said recess, and means for holding the reel during the attaching operation, as and for the purpose set forth.

7. In a reel-attaching machine, a rotary head having one or more arms projecting therefrom each carrying at its outer end a reel-driving surface and a reel-holder projecting beyond said reel-driving surface and movable in relation thereto in the manner described, in combination with one or more arms also mounted upon said rotary head and each carrying at its extremity a top-rib-applying device, as and for the purpose set forth.

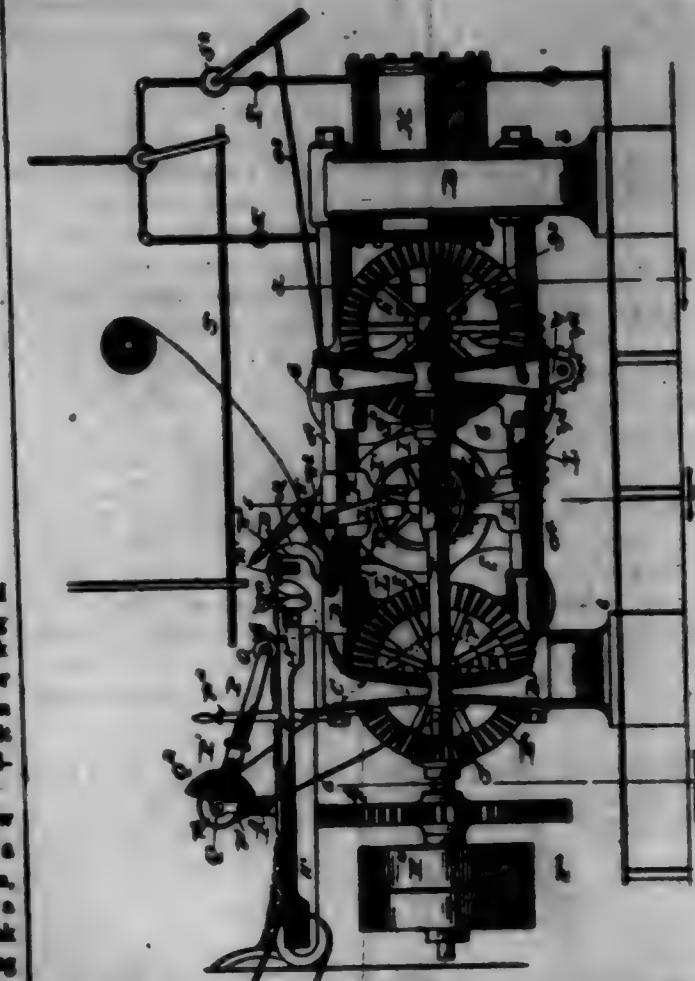
699,114. ROLLER-PRESS. ROBERT BRADSHAW, Paterson, N. J., assignor of one-half to William C. Huff, Paterson, N. J. Filed May 14, 1891. Serial No. 69,633. (No model.)

Claim.—1. In a roller-press, the combination with the pressing-rollers mounted in fixed bearings, the cooperating rollers mounted in movable bearings, means for holding the movable rollers against backward movement with a yielding pressure and means for feeding a hat in said rollers, of heads between which the hat is formed, sliding frames in which said heads are journaled, equalizing-bars connected with the frames for positioning the heads and frames, and links connecting opposite ends of the bars with the fixed and movable roller-frames respectively; substantially as described.

2. In a roller-press, the combination with the pressing-rollers mounted in fixed bearings, the cooperating rollers mounted in movable bearings, means for holding the movable rollers with a yielding pressure and means for feeding a hat to the rollers, of heads between which the hat is formed, sliding frames in which the heads are journaled, hand-wheels having screw-balls for withdrawing said heads from engagement with the hats, equalizing-bars pivotedly connected with the frames, and links connecting opposite ends of said bars with the fixed and movable roller-frames, whereby the ends of the heads is kept coincident with the axis of the hats; substantially as described.

3. In a roller-press for forming cylindrical hats, the combination with the side bars, vertically-extending roller-frames carried by the side bars, and rollers journaled in said roller-frames, of roller-frames connecting the roller-frames and the drive-shafts for the rollers extending through

said frames from one side of the press to the other; substantially as described.



4. In a roller-press for forming cylindrical hats, the combination with the side bars, vertically-extending frames carrying the pressing-rollers supported by the side bars and having yoke-shaped projections extending to one side of said bars, of a drive-shaft journaled in the yoke-shaped projections, pinions on said drive-shaft and gear-wheels for driving the rollers, located on the inner side of the yoke-shaped projections and meshing with said pinions; substantially as described.

5. In a roller-press for forming cylindrical hats, the combination with the main frame, the sliding roller-frame mounted thereon and the rollers journaled in said sliding frame, of the power-cylinder mounted on vertical transverse, and the piston working in said cylinder with a pivotal connection between the piston and sliding frame; substantially as described.

6. In a roller-press for forming cylindrical hats, the combination with the main frame, the sliding roller-frame mounted thereon and having the rollers loosely connected therewith to have a limited oscillation in a vertical plane, and the rollers journaled in said roller-frame, of the power-cylinder mounted on vertical transverse, and the piston working in said cylinder and connected with the said union; substantially as described.

7. In a roller-press adapted to receive a hat directly from the gin, the combination with the pressing-rollers and means for actuating the same, of a reversible accumulator-roll having teeth for picking up and severing the hat and means for rotating said accumulator-roll for winding the hat thereon during the covering of the previously-formed hat and means for elevating and turning said roll and for unlatching the same; whereby the accumulated hat is brought in contact with the moving hat as it is fed from the gin and unrolled thereby and fed to the press.

8. In a roller-press adapted to receive a hat directly from the gin, an accumulator-roll, a frame in which said roll is mounted pivoted on a center at right angles to the axis of the roll, a second frame on which said first frame is pivoted and bearings for supporting said second frame on an axis parallel with the axis of the roll; substantially as described.

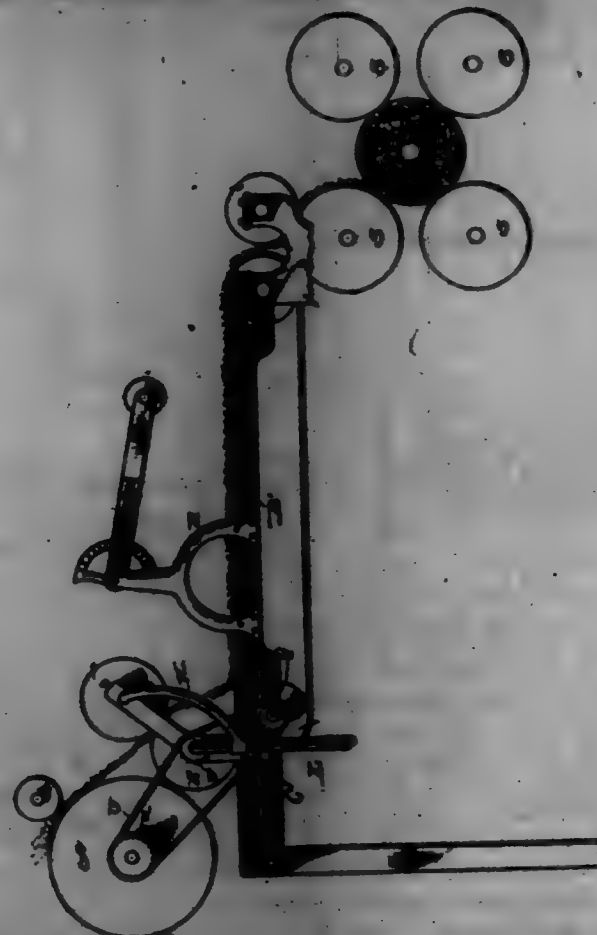
9. In a roller-press adapted to receive a hat directly from the gin, an accumulator-roll, a frame in which said roll is mounted pivoted on a center at right angles to the axis of the roll, a second frame on which said first frame is pivoted, mounted to turn on an axis parallel with the axis of the roll and a reversing mechanism for the roll embodying a pinion connected with the roll-frame and a gear-wheel with which said pinion meshes, whereby the roll may be simultaneously elevated and reversed; substantially as described.

10. In a roller-press for forming cylindrical hats, the combination with the pressing-rollers between which the hats are formed, of a clamp through which the bagging is fed extending parallel with the pressing-rollers interposed between the bagging-supply reel and the hats and in po-

sition to drop a depending end to be caught by the rolls and drawn around the bale; substantially as described.

11. In a roller-press for forming cylindrical bales, the combination with the pressing-rollers and means for rotating the same, of a bagging-chain consisting of jaws between which the bagging is drawn, pivoted arms on which said jaws are mounted and a handle for swinging said arms and jaws whereby the bagging may be lowered into position to be caught by the rollers, and drawn around the bale and the jaws returned to normal position to leave a depending end for the next operation; substantially as described.

699,115. PROCESS OF BAILING COTTON. EDGAR BRAGAN, Florville, Tex., assignor of one-half to Walter C. Bruff, Florville, Tex. Filed Dec. 22, 1901. Serial No. 57,392. (No model.)



Claim.—1. The method of baling cotton which consists in heating the cotton-bat at a point between the gin-condenser and the pressing-roller, expelling said heated bat while incipient to the action of dry air, and finally compressing said bat into bale form.

2. The method of baling cotton which consists in heating the cotton-bat at a point between the gin-condenser and the accumulator-roll, winding said bat on said roll and expelling it to the action of dry air, and feeding said bat to the press-roller to form the interior of the bale.

699,116. DETONATING BOMB-ALARM. WILLIAM E. KEMP, Philadelphia, Pa., assignor of three-fifths to E. Russell Purvis, Philadelphia, Pa. Filed Jan. 14, 1902. Serial No. 58,774. (No model.)



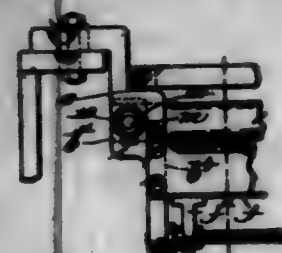
Claim.—1. The combination of a frame, a swiveling cartridge-holder, pivoted at its rear end on which said cartridge-holder turns, a catch upon the frame for holding the cartridge-holder in position for firing the cartridge, and a plunger fitting in a vertical socket in said frame, and directed toward said cartridge substantially as described.

2. The combination of a frame, a swiveling cartridge-holder, pivoted at its rear end on which said cartridge-holder turns, a sliding catch attached to said frame, and having its edges turned over and fitted against the edge of the cartridge-holder, and holding the same in position for firing, and a plunger fitting in a vertical socket in said frame, and directed toward said cartridge substantially as described.

3. The combination of a frame, a swiveling cartridge-holder, a slide attached to said frame and having the edges turned over and fitted against

the sides of said swiveling cartridge-holder, said frame being provided at its lower end with a socket vertical in direction when the frame is suspended, and a plunger movable in said socket, substantially as described.

699,117. WARE-STOP-MOTION MECHANISM. WALLACE I. SEYMOUR, Hingham, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed Dec. 11, 1901. Serial No. 58,685. (No model.)



Claim.—1. In a ware-stop-motion for looms, two opposed fixed brackets each having a vertical slot and a lateral web also provided with a vertical slot, a warp-supporting bar mounted in and vertically adjustable in the bracket-slots, a bolt extended through each end of said bar and the slot of the adjacent web, and a clamping-nut for each bolt, to maintain the bar in vertically-adjusted position.

2. In a ware-stop-motion for looms, two opposed fixed brackets each having a vertical slot and an adjacent lateral web, an inwardly-extended leg on each bracket above the slot, detector-supports having hooked ends and located at the back and front of said legs, a supporting and clamping bolt passed through each leg and on which the detector-supports are hooked, a warp-supporting bar having its ends extended through the bracket-slots, and means to clamp the ends of said bar in vertically-adjusted position on the adjacent webs.

3. In a ware-stop-motion for looms, two opposed fixed brackets each having a vertical slot and an adjacent lateral web, an inwardly-extended leg on each bracket above the slot, detector-supports detachably clamped to said legs at the back and front thereof, a vertically-adjustable warp-supporting bar extended through the bracket-slots, and means to clamp said bar at its ends to the adjacent webs.

699,118. DRIER. RUDOLF SCHMIDT, Berlin, Germany, assignor to Carl Binder, Chicago, Ill. Filed Apr. 17, 1901. Serial No. 58,573. (No model.)

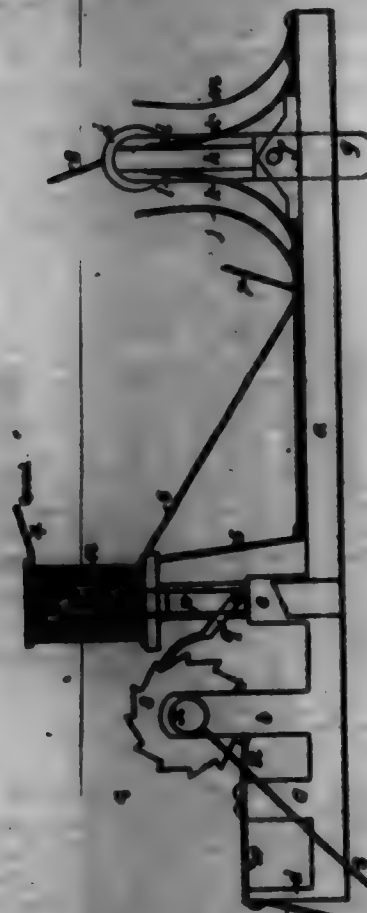


Claim.—1. In a drier, the combination of a drying-chamber, a plurality of hollow, superimposed heating-chelves within said chamber, separately-ducted vertical supply and exhaust pipes extending into the interior of said chamber and without communication with the interior thereof, means of communication between said pipes and said shelves and contained wholly within said chamber, and standards supporting said shelves, substantially as and for the purpose set forth.

2. In a drier, the combination of a horizontally-disposed drying-cylinder, a plurality of horizontally-disposed heating-chelves, separately-ducted vertical supply and exhaust pipes passing into the interior of said

cylinder and having no communication with the interior of said cylinder, and laterally-ducted pipes connecting said shelves with said vertical pipes, substantially as described.

699,119. AUTOMATIC SIGNAL FOR ELECTRIC RAILWAYS. CHARLES E. SMITH, Watertown, Iowa, assignor to Ralph L. Smith, Watertown, Iowa. Filed Jan. 12, 1901. Serial No. 58,687. (No model.)



Claim.—1. A switch mechanism adapted to be moved by a trolley-wheel passing in either direction, two electromagnets, and terminals at opposite sides of the switch respectively in circuit with said magnets; combined with a circuit-breaker comprising two drums mounted on a common shaft and each having a contact-wheel, parts for said wheels actuated by the armatures of said magnets, flat springs also engaging said wheels for preventing retrograde movement, an insulated hub fast on one drum and standing between the two, mechanism whereby the drums are thrown into and out of electrical connection with each other through step-by-step rotation, a source of electrical power in circuit with one drum, and a circuit leading from the other drum through the work to be performed, as and for the purpose set forth.

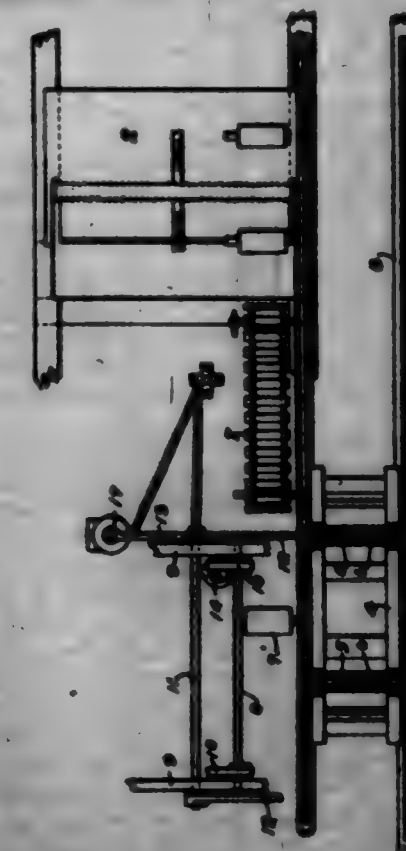
2. A switch adapted to be moved by a trolley-wheel passing in either direction, two electromagnets, terminals at opposite sides of the switch, and electrical connections between them and the magnets; combined with a circuit-breaker comprising two drums mounted on a common shaft and one of them in electrical connection therewith, mechanism whereby said drums are rotated by step-by-step movement by the armatures of said magnets, an insulated hub fast on one drum and standing between the two, a disk between this hub and the other drum, a shoulder connecting the disk with the metallic face of its drum, a stud on the other drum adapted to be engaged by this shoulder, a projecting piece on the last-mentioned drum adapted to contact with the face of the other drum or to rest in an insulated space therein when the shoulder engages the stud, electrical connections between this piece and a source of power, and electrical connections between said stud and the work to be performed, as and for the purpose set forth.

3. A circuit-breaker consisting of a shaft in circuit with the work to be performed, two insulated drums mounted thereon and having metallic faces, one having an insulated space and the other being solid, a piece projecting from the solid face and adapted to rest on said broken face or stand in said space, mechanism for rotating said drums by step-by-step movement, an insulating-hub of smaller diameter than said and secured to the inner end of the drum which has the broken face, a disk at the inner end of this hub in electrical connection with the shaft, a metallic shoulder standing on the periphery of the hub and connecting its face with said disk, an insulating-disk in the inner end of the other drum adapted to be struck by said shoulder when the projecting piece stands on the insulation, a bush bearing on the insulation face of the last-mentioned drum, and electrical connections leading from this bush to a source of energy, as and for the purpose set forth.

4. In a block-signaling system, differently-colored lights at opposite ends of each block, these of one color at one end and being in circuit with those of a different color at the remote end, a switch in circuit with a source of energy and adapted to be moved in either direction by the passing trolley-wheel, and terminals at opposite sides of said switch; combined with a circuit-breaker consisting of two drums mounted on a common shaft and insulated from each other, electrically-operated mechanisms connected with said terminals for rotating said drums independently with a step-by-step movement, means for making and breaking electrical connection between the drums at certain points, positive mechanism for re-establishing this connection after it is broken, connections from a source of power to one drum, and connections from the other drum through one pair of signals to the ground, as and for the purpose set forth.

5. In a block-signaling system, differently-colored lights at opposite ends of each block, these of one color at one end and being in circuit with those of a different color at the remote end, a switch in circuit with a source of energy and adapted to be moved in either direction by the passing trolley-wheel, and terminals at opposite sides of said switch; combined with a circuit-breaker consisting of two drums mounted on a common shaft and insulated from each other, electrically-operated mechanisms connected with said terminals for rotating said drums independently with a step-by-step movement, means for making and breaking electrical connection between the drums at certain points, connections from a source of power to one drum, and connections from the other drum through one pair of signals to the ground, as and for the purpose set forth.

699,120. SHED-ARM FOR DOUBLE-CUTTING BAND-MILLS. EDWIN E. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn. Filed Aug. 20, 1901. Serial No. 73,542. (No model.)



Claim.—1. In a double-cutting band-mill, the combination, with a log-deck, of a carriage spaced therefrom, a lumber-conveyor, log stops and hitches, oscillating bridging means extending across said conveyor normally below its level, a single operating-bar within the control of the conveyor and means governed by the movement of said bar for opening said stops and hitches and bridging means simultaneously, or said bridging means independently of said stops and hitches, substantially as described.

2. In a band-mill, the combination, with the log stops and hitches, of the carriage and its truck spaced therefrom, a lumber-conveyor, oscillating child-arms, cylinders having their pistons connected respectively with said stops and hitches and said child-arms and provided with suitable valves, hams adapted to be actuated by the foot of the conveyor, one of said hams being provided with means for operating the other bar and operative connections provided respectively between said hams and said valves.

3. The combination, with a log-deck, of the carriage spaced therefrom, lumber-conveying rolls provided between said deck and carriage, a

with shaft, arms mounted on said shaft beneath said deck and having their free ends projecting across the space between said deck and carriage and normally below the level of said rolls, leg stops and hitches, cylinders having their pistons connected respectively with said rock-shaft and said leg stops and hitches and provided with suitable valves, here adapted to be actuated by the feet of the carrier, one of said bars being operable by the movement of the other and operative connections provided respectively between said bars and said valves.

4. In a double-cutting hand-mill, the combination, with the leg-deck, of a carriage spaced therefrom, a lumber-conveyor, leg stops and hitches, a rock-shaft, said arms thereon projecting across and normally below the level of said conveyor, a pedal-bar and means controlled by the movement of said bar for simultaneously operating said stops and hitches and rocking said shaft to raise said arms, substantially as described.

5. In a double-cutting hand-mill, the combination, with the leg stops and hitches, of a carriage and its track spaced therefrom, a lumber-conveyor, oscillating child-arms, cylinders having their pistons connected respectively with said stops and hitches and said child-arms, and provided with suitable valves, a pedal-bar within reach of the carrier, a second bar operated by the movement of the first, and operative connections provided respectively between said bars and said valves, substantially as described.

6. In a double-cutting hand-mill, the combination, with the leg-deck, of a carriage and track spaced therefrom, a lumber-conveyor provided between said deck and carriage, bridging means for said conveyor, a cylinder connected with said bridging means and having a suitable valve, a pedal-bar having a leg, a second bar engaged by said leg when said pedal-bar is depressed, a second cylinder connected with said stops and hitches and also having a valve, and operative connections provided between said bars and said valves respectively, substantially as described.

7. In a double-cutting hand-mill, the combination, with a leg-deck, of a carriage and track spaced therefrom, a lumber-conveyor between said deck and carriage, leg stops and hitches, child-arms projecting across said conveyor and normally below its level, means for operating said stops and hitches, independent means for operating said arms, a bar operatively connected with said stop and hitch operating means, and a pedal-bar having means for engaging and actuating said first-named bar when depressed, yielding means for holding and guiding said pedal-bar during its depression, and suitable connections provided between said pedal-bar and said child-arm-operating means, substantially as described.

8. In a double-cutting hand-mill, the combination, with the leg-deck, of a carriage and track spaced therefrom, a lumber-conveyor, oscillating leg stops and hitches, child-arms projecting across said conveyor normally below its level, means for operating said stops and hitches, independent means for operating said arms, a pedal-bar having means for engaging and actuating said first-named bar when depressed, yielding means for holding and guiding said pedal-bar during its depression, and suitable connections provided between said pedal-bar and said child-arm-operating means, substantially as described.

9. In a double-cutting hand-mill, the combination, with a leg-deck, of a carriage spaced therefrom, lumber-conveying rolls provided between said deck and carriage, oscillating child-arms supported beneath said deck and bridging the space between the same and said carriage and normally below the level of said rolls, leg stops and hitches near said child-arms, a pedal-bar, means controlled by the movement of said bar for operating said child-arms and said stops and hitches simultaneously, and means permitting the movement of said bar to cause the operation of said child-arms independently of said stops and hitches, substantially as described.

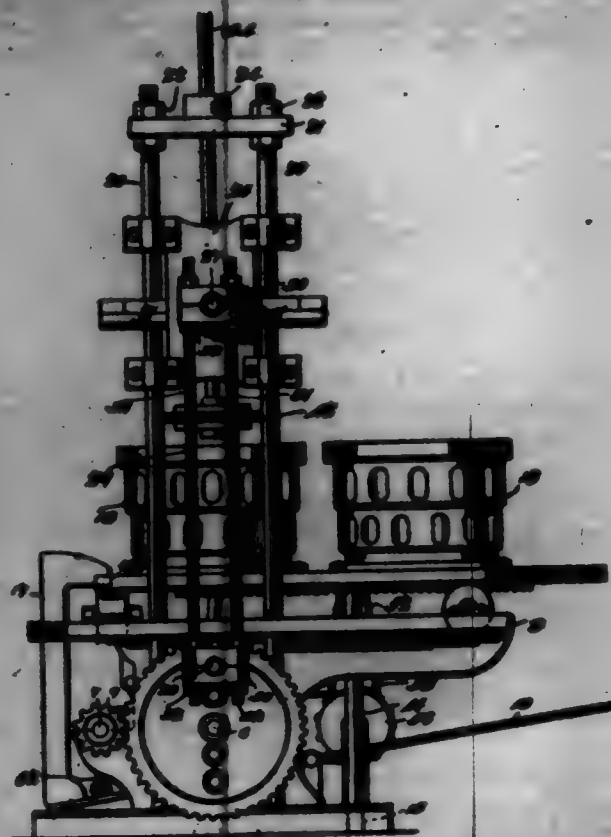
10. The combination, with a leg-deck, of a carriage and track spaced therefrom, lumber-conveying rolls provided between said deck and carriage, oscillating child-arms projecting across the space between said deck and carriage and normally below the level of said rolls, leg stops and hitches provided near said child-arms, means for operating said child-arms, means for operating said leg stops and hitches, and a single operating device for releasing with one movement said child-arms and said stop and hitch operating means to actuate them simultaneously or for releasing with a similar movement, said child-arm-operating means independently of said stop and hitch operating means.

11. The combination, with the leg stops and hitches, of a carriage and its track spaced therefrom, a lumber-conveyor, oscillating child-arms, cylinders having their pistons connected respectively with said stops and hitches and said child-arms and provided with suitable valves, an operating device within reach of the carrier, a second operating device operated by the movement of the first, and suitable connections provided respectively between said operating devices and said valves.

699,121. THOMAS-MACHINE. LEON D. VOSE, Omaha, Neb., assignor to Western Pulp and Paper Manufacturing Company, Omaha, Neb. Filed Oct. 23, 1901. Serial No. 69,590. (No model.)

Claim.—1. In a trucking-machine, the combination with a relatively fixed frame and loop-support, of a reciprocating element movable to and from the frame, a plunger to enter the frame and radially expand the staves of the work, said plunger being movable with and independently of the reciprocating element, and means to release the plunger from the interior of the work, prior to the retraction movement of the reciprocating element, substantially as described.

from the frame, a plunger to enter the frame and radially expand the staves of the work, said plunger being movable with and independently of the reciprocating element, and means to release the plunger from the interior of the work, prior to the retraction movement of the reciprocating element, substantially as described.



2. In a trucking-machine, the combination with a relatively fixed frame and loop-support, of a reciprocating element movable to and from the frame, and having means to engage the upper ends of the staves of the work and limit the outward radial movement thereof, a plunger, carried by the said element, to enter the work and radially expand the staves thereof, and means to release the plunger from the interior of the work prior to the retraction movement of said reciprocating element, substantially as described.

3. In a trucking-machine, the combination with a relatively fixed frame and loop-support, of a reciprocating element movable toward and from the frame, a cap-plate, carried by said reciprocating element, to engage the upper ends of the staves of the work, and having an annular flange to fit around the upper edge of the work, and limit the radially-expansive movement of the staves, and a plunger carried by the said reciprocating element and movable independently thereof, to enter the work and radially expand the staves, substantially as described.

4. In a trucking-machine, the combination of a plunger and a frame and loop-support, the one movable toward and from the other, means to cause the plunger to enter and engage the interior of the work in the frame and loop-support, displacing means to engage and over the outer ends of the staves, and means to release the plunger from the interior of the work prior to the disengagement of the stave-expanding means, substantially as described.

5. In a trucking-machine, the combination of a relatively fixed frame and loop-support, a reciprocating element movable toward and from the frame, a yieldably-mounted cap-plate, carried by the frame, to engage and over the upper ends of the staves and having an annular flange, to limit the expansive radial movement of the staves, and a plunger carried by said reciprocating element, and movable independently thereof, to enter the work, and radially expand the staves, substantially as described.

6. In a trucking-machine, the combination of a frame-carrier, a reversible element, slide-yokes connected thereto and reciprocated thereby, guides for said slide-yokes, a cross-head engaged and operated toward and from the frame by said slide-yokes, lost motion being provided between said slide-yokes and said cross-head, and a plunger carried by and movable independently of said cross-head, substantially as described.

7. In a trucking-machine, the combination of a radially-expandible plunger, and a first loop-support, the one movable toward and from the other, displacing means to engage and over the outer ends of the staves, and means to release the plunger from the interior of the work prior to the disengagement of the stave-expanding means, therefore, substantially as described.

8. In a trucking-machine, the combination of a frame-carrier, a reciprocating element movable toward and from the frame, a plunger operated by said reciprocating element, means to operate said frame-carrier to

bring a frame carried thereby into and out of the path of the plunger, means to operate said reciprocating element, a power element, and means to alternately engage the same with said operating means, substantially as described.

9. In a trucking-machine, the combination of a reversible frame-carrier, a reciprocating element movable toward and from a frame on said carrier, means to rotate said frame-carrier to bring a frame carried thereby into and out of the path of the plunger, means to operate said reciprocating element, a power element and means to lock said frame-carrier against rotation, said power element being automatically alternately engaged with said frame-carrier and reciprocating-element-operating means, by said means for locking said frame-carrier, substantially as described.

699,122. MILLING-MACHINE. DANIEL WARDEN, Boston, Mass., assignor of one-half to John W. Ward, Brooklyn, N. Y. Filed Feb. 21, 1901. Serial No. 69,510. (No model.)



Claim.—1. In a drilling-machine, a duplex drill consisting of inner and outer concentric drill members, in combination with mechanism for simultaneously imparting a reciprocatory movement only to one drill member and a combined rotary and reciprocatory motion to the other drill member.

2. In a drilling-machine, a duplex drill consisting of inner and outer concentric drill members, in combination with mechanism for simultaneously imparting a combined reciprocatory and rotary motion to the inner drill member, and a reciprocatory movement only to the outer drill member.

3. In a drilling-machine, outer and inner concentric drill members, in combination with mechanism for simultaneously imparting rotary motion to the inner drill member and reciprocatory motion only to the outer drill member, the outer drill member having a guide-chamber through which the shaft of the inner drill member passes, and an enlarged jacket in which works the cutting head or bit of the inner drill member.

4. In a drilling-machine, outer and inner concentric drill members, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, said mechanism comprising independent cables connected respectively to the inner and outer drill members, and operating means for said cables.

5. In a drilling-machine, the combination with inner and outer drill members, of a walking-beam operatively connected to both of said members to reciprocate them simultaneously in opposite directions, and means for operating the walking-beam.

6. In a drilling-machine, outer and inner concentric drill members, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, the said mechanism comprising a walking-beam, cables connected with said walking-beam, and also with the drill members, and an operating-chamber for actuating the walking-beam.

7. In a drilling-machine, the outer and inner concentric drill members, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, said mechanism comprising a

walking-beam, means for driving the walking-beam, and cables connected with the drill members and having an adjustable connection with the walking-beam.

8. In a drilling-machine, outer and inner concentric drill members, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, a walking-beam, a driving-chamber for actuating the walking-beam, a drum, a cable wound thereon and connected to one of the drill members, means actuated by the driving-chamber for rotating said drum, and clutch mechanism for throwing the drum-actuating device into and out of operation.

9. In a drilling-machine, outer and inner concentric drill members, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, said mechanism comprising operating-cables connected to the drill members, and a ball connected with the outer drill member to provide for the attachment of one of the cables thereto.

10. In a drilling-machine, outer and inner concentric drill members, and a revolved-head connected to the shaft of the inner drill member, in combination with mechanism for simultaneously imparting motion to the drill members in different directions, said mechanism comprising cables, one of which is connected to the revolved-head on the shaft of the inner member, and the other to a ball on the outer member.

11. In a drilling-machine, the combination with inner and outer drill members, of operating mechanism common to said members for effecting their simultaneous reciprocation in opposite directions to cause said members to strike alternate thrust blows during the drilling operation.

12. In a drilling-machine, the combination with inner and outer drill members, of operating means common to said members for effecting their simultaneous reciprocation in opposite directions and for rotating the inner drill member.

13. In a drill, the combination with inner and outer drill members, of mechanism for rotating the inner drill member only and for effecting the simultaneous reciprocation of the inner and outer drill members in opposite directions, whereby the unsupported walls of the cavity will be broken down by the outer drill member after the inner drill member has been withdrawn from said cavity.

14. In a drilling-machine, the combination with inner and outer drill members, of a walking-beam, a cable connected to the walking-beam at one side of its fulcrum and extended directly to one of the drill members, a cleave located beyond the end of the other drill member, a second cable connected to the walking-beam and passed around the cleave for connection with the last-named drill member, and means for oscillating the walking-beam to effect the simultaneous reciprocation of the drill members in opposite directions.

15. In a drill, the combination with inner and outer drill members, of a walking-beam operatively connected to said drill members to effect their simultaneous reciprocation in opposite directions, and means for imparting a rotary movement to one only of the drill members during the reciprocation thereof.

16. In a drill, the combination with inner and outer drill members, of a walking-beam operatively connected to said drill members to effect the simultaneous reciprocation thereof in opposite directions, and driving mechanism disposed to effect the rotary movement of one only of the drill members and to oscillate the walking-beam.

17. In a drill, the combination with inner and outer drill members, of a walking-beam operatively connected to said members to effect their simultaneous reciprocation in opposite directions, a beveled-pinion mounted on one of said drill members to rotate said member, but having sliding engagement therewith, a driving-shaft geared to said beveled pinion, and mechanism geared to said driving-shaft and operatively connected to the walking-beam to oscillate the latter.

18. In a drill, the combination with inner and outer drill members, of a walking-beam connected to said drill members to effect their simultaneous reciprocation in opposite directions, a driving-shaft, gearing interposed between the driving-shaft and one of the drill members to effect the rotary movement of the latter, a counter-shaft geared to the driving-shaft, and a link concentrically connected to the counter-shaft and having an operative connection with the walking-beam.

699,123. JOINTED GRATE-FRONT AND ROVE. CHARLES F. WILSON, Chattanooga, Ky., assignor, by direct and mesne assignments, to Ohio City Stone Works, Incorporated, Chattanooga, Ky., a Corporation of Kentucky. Filed May 11, 1901. Serial No. 69,591. (No model.)

Claim.—1. In a heater of the character described, the combination with a fire-wall and a back wall defining an intermediate hot-air flue, of a partition disposed in advance of the fire-wall at the lower end thereof and defining an intermediate burner-chamber constituting a continuation of the hot-air flue, a series of burner-tubes located within the burner-chamber and in communication with a source of gas-supply, said burner-cham-

ber being provided with a constricted opening at its upper end through which the burner-tubes extend, whereby the combustion produced at the upper ends of the burner-tubes will induce a circulation of air around the fire-wall, through the hot-air flue, into the burner-chamber, and around the burner-tubes for redelivery at the point of ignition.



2. In a heater of the character described, the combination with a fire-wall and a back wall defining an intermediate hot-air flue, of a partition located in advance of the lower end of the fire-wall to define an intermediate burner-chamber constituting a continuation of the hot-air flue, a series of burner-tubes located within the burner-chamber and extended through a constricted opening at the upper end thereof, a gas-cylinder supporting the burner-tubes and in communication with a source of gas-supply, a mixer located within the burner-chamber at a point above the gas-cylinder and having communication with the tubes and with the interior of the burner-chamber, respectively, whereby the combustion produced at the upper ends of the burner-tubes will induce a recirculation around the fire-wall and through the hot-air flue to the interior of the burner-chamber to cause the heated air to circulate around and heat the gas-cylinder, part of the heated air then passing into the mixing-chamber, and another part passing around the mixing-chamber and around the burner-tubes for redelivery at the point of ignition.

3. A heater of the character described having an open front and provided at its opposite sides with separate non-communicating vertically-disposed cold-air chambers defined between inner and outer walls connected at their front ends by a damper-escape, and at their rear ends by an apertured rear end wall, a fire-wall and a back wall defining an intermediate hot-air flue at the back of the heater, a gas-burner located in front of the fire-wall at the lower end thereof, to effect a circulation around the fire-wall for the purpose specified, and dampers located within the damper-escape to control the circulation of air through the cold-air chambers.

4. A heater of the character described having an open-front combustion-chamber defined between cold-air chambers located at the opposite sides of the heater and having inner and outer walls connected at their front edges by apertured cylindrical damper-escapes, and at their rear ends by apertured rear end walls, a fire-wall and a back wall disposed transversely between the cold-air chamber and defining a hot-air flue at the back of the heater, a gas-burner located in front of the fire-wall at the lower end thereof, to effect a circulation around the fire-wall for the purpose specified, and rotary dampers mounted within the damper-escapes and designed to control the circulation of air through the cold-air chambers.

5. A heater of the character described, having an open-front combustion-chamber defined between cold-air chambers at its opposite sides and a hot-air flue at its back, inner and outer walls defining the cold-air chambers and connected at the front of the heater by damper-escapes, and at the back of the heater by apertured rear end walls, a fire-wall and a back wall located at the back of the heater and constituting the opposite walls of the hot-air flue, a gas-burner located in front of the fire-wall at the lower end thereof, to effect a circulation of air around the fire-wall for the purpose specified, dampers located within the damper-escapes to control the circulation of air through the cold-air chambers, and a removable casing having an open front and designed to inclose the heater to convert the latter into a stove.

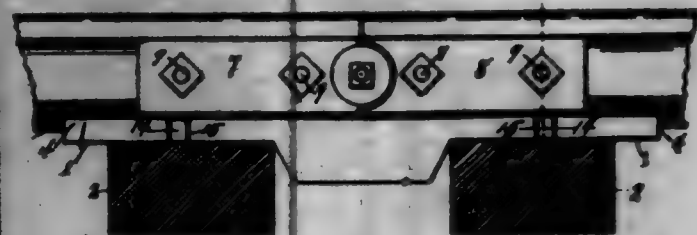
6. In a heater of the character described, the combination with inner and outer side walls defining cold-air chambers at the opposite sides of the heater, of apertured cylindrical damper-escapes located at the front ends of the cold-air chambers and extended above the heater, a fire-wall and a back wall defining an intermediate hot-air flue extending between the rear ends of the cold-air chambers, a gas-burner located in front of the fire-wall at the lower end thereof, a head provided with thinkies fitting over the upper ends of the damper-escapes, and apertured dampers within the damper-escapes.

7. In a heater of the character described the combination with inner and outer side walls defining cold-air chambers located at opposite sides of the heater, of apertured cylindrical damper-escapes disposed at the front

ends of the cold-air chambers and extended above the heater, a fire-wall and a back wall defining a hot-air flue extending between the rear ends of the cold-air chambers, a gas-burner located in front of the fire-wall at the lower end thereof, a head provided with thinkies fitting over the upper ends of the damper-escapes, apertured dampers within the damper-escapes, and a stove-casing detachably retained by the head.

8. In a heater of the character described, the combination with inner and outer side walls defining cold-air chambers at opposite sides of the heater, of apertured cylindrical damper-escapes located at the front ends of the cold-air chambers, apertured rear walls defining the rear ends of said chambers, a head connecting the upper ends of the damper-escapes, cylindrical dampers located within the damper-escapes, damper-actuating devices connected with the dampers and located above the head, a fire-wall extending between the cold-air chambers at the rear ends thereof, and a gas-burner located in front of the fire-wall.

699,134. RAILWAY-RAIL JOINT. IVAN LYON, Troy, N. Y. Filed Sept. 8, 1891. Serial No. 74,959. (No model.)



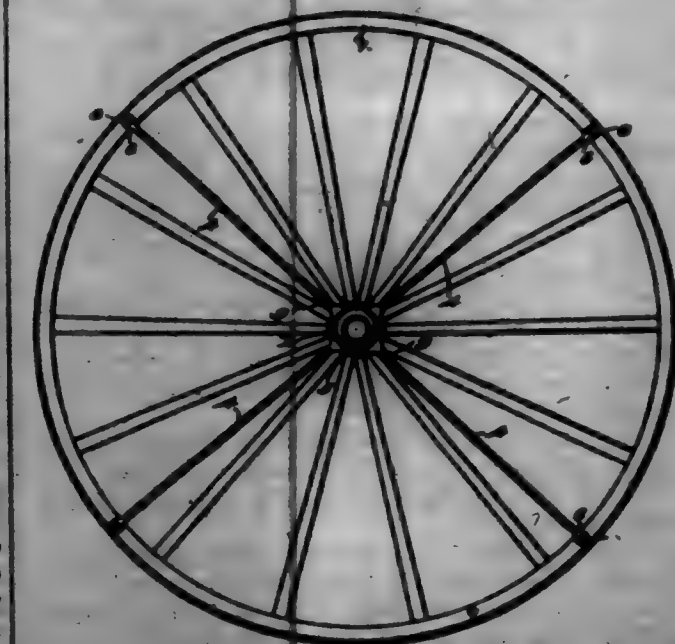
Claim.—1. In a railway-rail joint, the combination with lengthwise adjacent rails, of a splice-plate comprising members secured to the respective rails a member to each and connected by a hinge-joint between endwise contiguous members on one and the same side of the rails, substantially as described.

2. In a railway-rail joint, the combination with lengthwise adjacent rails, of a splice-plate comprising members secured to the respective rails a member to each and connected by a hinge-joint between endwise contiguous members on one and the same side of the rails, said joint comprising a boss on one member and a recess on the other member to receive said boss, substantially as described.

3. In a railway-rail joint, the combination with lengthwise adjacent rails, of a splice-plate comprising members secured to the respective rails a member to each and connected by a hinge-joint between endwise contiguous members on one and the same side of the rails, and a chair to maintain the inner end of each member when the outer portion of its corresponding rail is elevated, substantially as described.

4. In a railway-rail joint, the combination with lengthwise adjacent rails, of a pair of splice-plates each pair comprising members secured to the respective rails a pair of members to each and the members of each connected by a boss in one fitting a recess in the other, and a chair, substantially as described.

699,135. WHEEL ATTACHMENT. THOMAS GIBB, Waterville, N. Y. Filed Oct. 7, 1892. Serial No. 77,572. (No model.)



Claim.—1. An attachment for wheels comprising a hub-band adapted to be applied to a wheel after the latter has been constructed, and the radial bracing-rods extending from the hub-band to the rim of the wheel

and secured to the latter, said bracing-rods also engaging the hub of the wheel and retaining the band thereon, substantially as described.

2. An attachment for wheels comprising a hub-band adapted to be applied to a wheel after the same has been constructed and provided at intervals with sockets, and radial bracing-rods secured at their inner ends in the sockets and provided at their outer ends with clips for engaging the rim of a wheel, substantially as described.

3. An attachment for wheels comprising a hub-band adapted to be applied to a wheel after the same has been constructed and provided with threaded openings extending entirely through it, the bracing-rods having threaded inner ends to screw into the openings of the band and provided at their outer ends with clips approximately U-shaped to conform to the configuration of and form seats for the fully-sections, and fastening devices for securing the clips to the fully-sections, substantially as described.

4. An attachment for wheels comprising a hub-band, provided with threaded openings, the radial bracing-rods having threaded inner ends to engage the threaded openings and provided at their outer ends with clips arranged to receive the fully-sections of a wheel, and transverse fastening devices for securing the clips to the fully-sections, substantially as described.

REISSUES.

11,981. BAKING-POWDER. JOHN A. JON, Syracuse, N. Y., assignor of one-half to D. H. Barrell & Company, Little Falls, N. Y., a firm. Filed Apr. 3, 1898. Serial No. 101,597. Original No. 692,432, dated Feb. 4, 1892.

Claim.—1. The herein-described highly-acid composition of matter consisting of phosphoric acid and caustic, containing phosphoric acid largely in excess of the amount which is contained in acid phosphate of caustic and being dry, non-hygroscopic and soluble in water.

2. The herein-described composition of matter consisting approximately of twenty-four parts, by weight, of phosphoric acid and seventy-six parts of caustic.

3. A baking-powder composed of a carbonate, a filler and the herein-described composition of caustic and phosphoric acid, containing phosphoric acid largely in excess of the amount which is contained in acid phosphate of caustic and being dry, non-hygroscopic and soluble in water.

4. A baking-powder composed of a carbonate, a filler and the herein-described composition of caustic and phosphoric acid, composed approximately of twenty-four parts, by weight, of phosphoric acid and seventy-six parts of caustic.

DESIGNS.

85,889. HANDLE FOR SPOONS OR SIMILAR ARTICLES. BENJ. BELL, St. Louis, Mo. Filed Feb. 17, 1892. Serial No. 84,908. Term of patent 14 years.



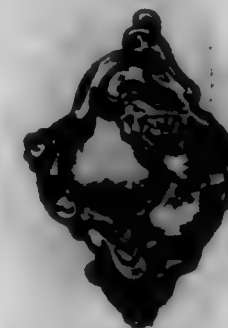
Claim.—The design for the handle of a spoon or similar article substantially as herein shown and described.

85,898. HINDALLION. CHARLES W. PARK, New York, N. Y. Filed Feb. 11, 1892. Serial No. 85,898. Term of patent 7 years.



Claim.—The design of a Hindallion herein shown and described.

85,894. ORNAMENTAL SHIELD. RICHARD A. KELLY, New York, N. Y., assignor to Marcus T. Goldsmith, New York, N. Y. Filed Apr. 3, 1892. Serial No. 101,561. Term of patent 7 years.



Claim.—The design for an ornamental shield, substantially as herein shown and described.

85,895. ORNAMENTAL SHIELD. RICHARD A. KELLY, New York, N. Y., assignor to Marcus T. Goldsmith, New York, N. Y. Filed Apr. 3, 1892. Serial No. 101,562. Term of patent 7 years.



Claim.—The design for an ornamental shield, substantially as herein shown and described.

85,886. FOOT OF TYPE ORNAMENTS. BENJ. HARRIS, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 26, 1892. Serial No. 81,508. Term of patent 14 years.



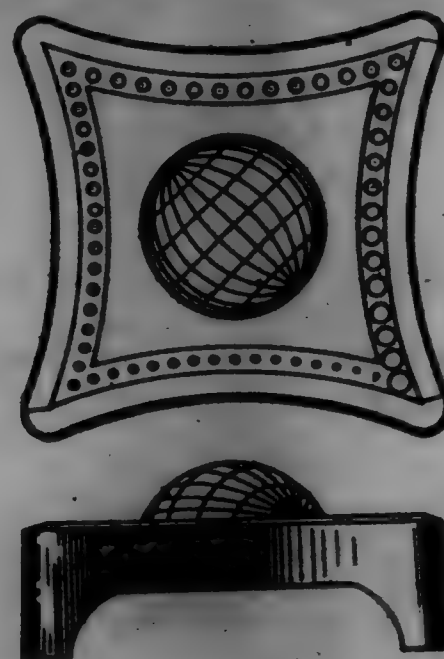
Claim.—The design for a foot of type ornaments, substantially as herein shown and described.

85,887. FOOT OF TYPE ORNAMENTS. BENJ. HARRIS, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 26, 1892. Serial No. 81,509. Term of patent 14 years.



Claim.—The design for a foot of type ornaments, substantially as herein shown and described.

85,988. TOOL-STAND. HANLEY & SMITH, Cleveland, Ohio, assignors to Cleveland Twist Drill Co., Cleveland, Ohio, a firm. Filed Feb. 20, 1902. Serial No. 94,391. Term of patent 14 years.



Claim.—The design for a tool-stand, as herein shown and described.

85,989. ORNAMENTAL BORDER. JOHN E. KATZ, Philadelphia, Pa., assignor to Blue Print Air Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Mar. 12, 1902. Serial No. 94,392. Term of patent 7 years.



Claim.—The design for an ornamental border, as shown and described.

TRADE-MARKS

REGISTERED APRIL 29, 1902.

88,179. MAGAZINE. RICHARD G. SMITH, New York, N. Y. Filed Apr. 1, 1902.

**MUNICIPAL
AFFAIRS**

Essential feature.—The word "MUNICIPAL AFFAIRS." Used since April, 1897.

88,180. CERTAIN MARKED PAPER. GEORGE W. WEAVER, New York, N. Y. Filed Apr. 2, 1902.



Essential feature.—The phrase "THE SPIRIT OF OUR FOREFATHERS" and the representation of hand-arms. Used since March 1, 1902.

88,181. CERTAIN MARKED PAPER. GEORGE W. WEAVER, New York, N. Y. Filed Apr. 2, 1902.



Essential feature.—The compound word "SUMMER-TIME," the representation of a female figure, and flowers emblematic of summer-time. Used since January 1, 1902.

88,182. CERTAIN MARKED PAPER. GEORGE W. WEAVER, New York, N. Y. Filed Apr. 2, 1902.



Essential feature.—The words "TRUE BLUE" and the representation of an Indian fighting scene. Used since March 1, 1902.

88,183. CERTAIN MARKED PAPER. GEORGE W. WEAVER, New York, N. Y. Filed Apr. 2, 1902.



Essential feature.—The words "PLAY FAIR" and the representation of card-players. Used since January 1, 1902.

88,184. CERTAIN HAKED PARRICK. GENERAL WELLS, New York, N. Y. Filed Apr. 3, 1902.



Essential feature.—The word "KNAPSACK" and the representation of a bivouac scene. Used since December 1, 1901.

88,185. CERTAIN HAKED DRY GOOD. BROWN CRAWFORD Co., New York, N. Y. Filed Jan. 20, 1902.



Essential feature.—The representation of a Scotch plaid with a border of Scotch thistle. Used since January 22, 1902.

88,186. REPUCCATED NIGHT-GARMENTS. R. R. R. & Co., Baltimore, Md. Filed Mar. 20, 1902.

MAJAMA

Essential feature.—The word "MAJAMA." Used since February 1, 1902.

88,187. TEXTILE COOLING AND WARMING. THE COOL MAKING, Boston, Mass. Filed Sept. 27, 1901.

EVER

Essential feature.—The word "EVER." Used since April, 1907.

88,188. BROWN-GRAVE, GARMENT-SUPPLIES, AND COLLAR FOUNDATIONS. A. A. DUNN & Co., Boston, Mass. Filed Mar. 13, 1902.

TREKANO

Essential feature.—The word "TREKANO." Used since February 18, 1902.

88,189. BOOKS AND EYES. THE VISION & KLAS Co., Washington, Del., and Chicago, Ill. Filed Mar. 26, 1902.

U PIN IT

Essential feature.—The words "U PIN IT." Used since June 1, 1901.

88,190. SHOWN. C. W. SHAW, Paterson, N. Y. Filed Mar. 4, 1902.



Essential feature.—The words "THE BUFFER" and the representation of a buffer in connection with a couple. Used since February 3, 1902.

88,191. POCKET-BOOK, BAG, BELT, FURBER AND PANTY LEATHERS. ROVELTINE. BARNETT AND POLLOCK, New York, N. Y., and Hoboken, N. J. Filed Jan. 20, 1902.



Essential feature.—The representation of an artisan's square inscribing the letters "R & P" in monogram form. Used since January 2, 1902.

88,192. GOLD-CHEM. DANNETT & RANWELL, New York, N. Y. Filed June 20, 1901.



Essential feature.—The representation of an irregular oblong panel, plate, or shield with a narrowed band or border, having a cross-band at each end, the lower half of the panel, plate, or shield casting a dark shadow, thereby giving to the whole figure the appearance of thickness or depth, the panel, plate, or shield being also surrounded by shading, presenting a cloud-like effect. Used since January 1, 1900.

88,193. GARMENTING. JOHN HADEN, New York, N. Y. Filed Feb. 20, 1902.



Essential feature.—The representation of a crown with the shield-like letter "M," the words "AR-ORPTA-Cio," and the words "SMART ERY." Used since January 24, 1902.

88,194. HAKED CASE AND HAKED WHEAT. THE HAKED Case Co., Lansing, Eastport, Mich. Filed Feb. 6, 1902.

NORKA

Essential feature.—The word "NORKA." Used since January 1, 1902.

88,195. AIR. ADAM SHAWT BROWN COMPANY, Eastport, Pa. Filed Jan. 3, 1902.



Essential feature.—The representation of two personifications of land, a body of water separating the same, the sun rising above the horizon and having rays radiating therefrom, and a wireless-telegraph apparatus upon each personification, the two being connected by a field of electric sparks, upon which appear the words "TWENTIETH CENTURY." Used since December 20, 1901.

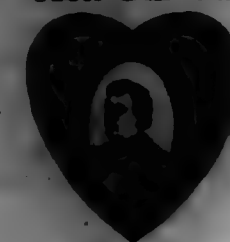
88,196. BATTERY. L. GARDNER & COMPANY, New York, N. Y. Filed Feb. 14, 1902.



Essential feature.—The representation of medallions of George Washington and Christopher Columbus, accompanied by the names of the persons represented. Used since June 1, 1901.

88,197. TOWN AND BLOOD-VITALIZER. GARDNER BROTHERS Co., Eastport, Mich. Filed Dec. 1, 1901.

Ren-Car-Ta



Essential feature.—The word "REN-CAR-TA," the representation of a heart, and the photograph of Dr. Philo Greene in the center of the heart, and the signature of "PHILO GREENE, M. D." underneath the heart. Used since July 1, 1901.

88,198. REMEDY FOR CERTAIN HAKED DERMATIS. GARDNER & BROWN, Lowell, Mass. Filed Dec. 4, 1901.



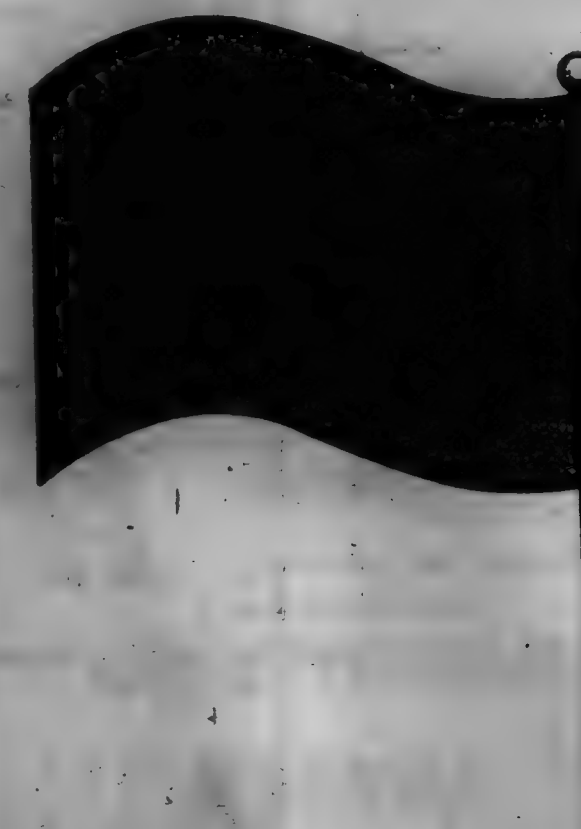
Essential feature.—The words "FATHER JOHN'S" and a bust-portrait, in form of a medallion, of the Rev. John O'Brien, deceased. Used since December, 1900.

88,199. REMEDY FOR CERTAIN HAKED DERMATIS. BROWN & BROWN, Boston, U. S. C. Filed Mar. 20, 1902.

R.P.H.

Essential feature.—The letters "R. P. H." Used since March 20, 1902.

88,200. DIPHTHERIA REMEDY. HARRIS H. FAIRBANKS Co., Inc., Maine. Filed Mar. 24, 1902.



Essential feature.—The representation of a flag and the letters "M F D." Used since July 26, 1907.

88,208. FIREPROOF CEMENTS FOR FURNACES. H. W. JOHNS-
MANVILLE COMPANY, New York, N. Y. Filed Apr. 2, 1902.

Essential feature.—The word "FIBRITE." Used since March 1, 1902.

88,909. SEAL-PRUNING AND SOFT-MENTAL SEALS. EXTENSIVE
SEAL & PRUN COMPANY, New York, N. Y. Filed Mar. 26, 1902.

KEYSTONE

Essential feature—The word "KEYSTONE." Used since July 1, 1927.

88,910. TORJEDOM. Lewis J. Moore, Brewer, Mo. Filed Mar. 29, 1902.



IRONCLAD

88,211. CERTAIN NAMED FISHING-TACKLE. EMERY MILWARD
100, Upper Richmond Road, England. Filed Mar. 12, 1902.

IRON ARM

Essential feature.—The words "IRON ARM." Used since 1880.

88,212. ALUMINUM GAS BURNER TIPS. GAS TIP AND GASKET
Lantern Co., New York, N. Y. Filed Mar. 27, 1908.

Essential feature.—The word "BRILLIANT" and the representation of a gas-burner tip with rays radiating therefrom. Used since January 1, 1902.

88,918. CERTAIN NAMED DEVICES USED IN WIRELESS TELEPHONY AND TELEGRAPHY, FEDERAL WIRELESS TELEPHONE & TELEGRAPH Co., Philadelphia, Pa. Filed Feb. 12, 1902.

AEROGRAF

Essential feature.—The word "ANNOGRAM." Used since Jan-
uary 25, 1902.

88,214. MACHINES FOR APPLYING OR PASTING LABELS.
 JOHN DEERE WAGON & LAMINATE Co., Dubuque, Iowa. Filed Mar.
 28, 1922.

Empire

Essential feature.—The word "EXPENSE." Used since February.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

REGISTERED APRIL 29, 1902.

9,111.—*Title*: "CLUB CAFE FAMILY NECTAR RYE WHISKY." (For Whisky.) JULIUS GROETSCH, New Orleans, La. Filed April 3, 1902.

9,112.—*Title*: "BULL-DOG." (For Cigars.) JOHN W. MERRIAN & Co., New York, N. Y. Filed April 8, 1902.

9,113.—*Title*: "CROWN." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed April 4, 1902.

9,114.—*Title*: "ALPHO OIL." (For a Medicine.) FRANK L. PALMER, Hartford, Conn. Filed April 2, 1902.

9,115.—*Title*: "BETTS HEADACHE AND NEURALGIA CURE." (For a Medicine.) SYLVESTER J. BETTS, Bayonne, N. J. Filed April 7, 1902.

9,116.—*Title*: "DR. DANIELS' COUGH, COLD AND FEVER DROPS." (For a Medicine.) DR. A. C. DANIELS, Inc., Boston, Mass. Filed April 2, 1902.

9,117.—*Title*: "DR. DANIELS' WONDER WORKER LINIMENT." (For Liniment.) DR. A. C. DANIELS, Inc., Boston, Mass. Filed April 3, 1902.

REGISTERED APRIL 29, 1902.

497.—Title: "DOROTHY QUINCY." (For a Medicine.) DR. MILLS MEDICAL CO., Elkhart, Ind. Filed April 2, 1902.

498.—Title: "ALEXANDER." (For a Medicine.) W. W. ALEXANDER & CO., Akron, Ohio. Filed April 2, 1902.

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DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

DAVIS v. SWIFT.

Decided March 27, 1902.

1. INTERFERENCE—DISSOLUTION IN VIEW OF REFERENCES—RE-
JOY—APPEAL OR AMENDMENT.

Where an interference is suspended under Rule 128 and a decision is rendered dissolving the interference in view of newly-discovered references, Held that the parties may appeal to the Examiners-in-Chief within the limit of appeal or may permit the decision to become final and then amend the claims to avoid the references.

2. SAME—APPEAL—AMENDMENT NOT PERMITTED.

Where a party has appealed to the Examiners-in-Chief from a decision dissolving the interference, Held that he cannot amend his claims until that appeal is disposed of either by a decision or by being withdrawn.

ON petition.

PERFORATED MUSIC-SHEETS FOR MECHANICAL MUSICAL INSTRUMENTS.

Application of George H. Davis filed December 15, 1900, No. 40,088. Application of George Swift filed March 9, 1900, No. 8,052.

Mr. William H. Howies and Mr. W. A. Bartlett for Davis.

Mr. E. H. Brown for Swift.

ALLEN, Commissioner:

This case comes before the Commissioner on a petition by Swift that "his application be returned to the Primary Examiner for the purpose of amending his application."

It appears from the record that after the declaration of the above-entitled interference new references were discovered by the Primary Examiner, who then requested suspension of the interference under the provisions of Rule 128 for the purpose of determining the pertinency and effect of these references, upon consideration whereof the Examiner held the issue to be anticipated in the prior art and dissolved the interference, following the practice laid down in *Macey v. Tobey v. Lansing*, (97 O. G., 1172.) A limit of appeal of twenty days was fixed from his decision. On February 24, 1902, before the expiration of this limit of appeal, Swift appealed to the Examiners-in-Chief, and on March 6, 1902, his present petition was filed. In this petition he asks that his application be returned to the Primary Examiner in order that he may amend his application so as to avoid the references and render an appeal to the Examiners-in-Chief unnecessary.

59 O. G.—5—11

After the Examiner in a case of this sort has rendered his decision that the subject-matter of the issue is unpatentable two courses are open to the parties.

First, within the time limit fixed they may appeal to the Examiners-in-Chief, since the Examiner's holding that the matter in issue is unpatentable has somewhat the effect of a final rejection under Rule 68. In this case the interference is not dissolved and both parties may appear and be heard.

If, on the other hand, they allow the time limit to expire without taking such an appeal, the decision of the Examiner becomes final and the interference is dissolved. Thereafter the consideration of the applications is necessarily *ex parte*. The applicants under these circumstances have lost their right to appeal from the dissolution of the interference; but they still have, under the rules, a right to amend the rejected claims, since these claims have not been twice rejected, as is required by Rule 68, in order to bar the right to further amendment.

In the case now under consideration Swift has elected to pursue the first course and has filed an appeal to the Examiners-in-Chief. Under these circumstances the interference is continued, and Swift cannot amend his application. (See Rule 130.)

Having elected to prosecute his case by way of appeal, he cannot amend unless this appeal is withdrawn and the Examiner's decision dissolving the interference allowed to become final.

The petition is denied.

EX PARTE KING.

Decided April 15, 1902.

DIVISION—MACHINE AND ARTICLE—UNNECESSARY DRAWINGS AND DESCRIPTION SHOULD BE CANCELED.

Where division is required between a machine and the article made by it and the claims are limited to the article, Held drawings and description of the machine which are unnecessary to a complete disclosure of the article render the disclosure prolix and should be canceled.

ON petition.

TUBULAR STRAPERS AND BELTS FOR MACHINERY.

Application of John H. King filed May 11, 1901, No. 59,735.

Messrs. Murray & Murray for the applicant.

ALLEN, Commissioner:

This is a petition from the Examiner's require-

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ment to cancel Figures 1 to 5, inclusive, from the drawing and all reference thereto in the specification.

The application as originally filed contained a description and claims covering, respectively, a machine, a process, and a product. The drawing contains nine figures, the first five disclosing the machine and certain of its parts and the last four disclosing the product.

Division was required, and in response thereto the petitioner canceled the claims for the machine and the process, retaining in the application the claims for the product. He has refused, however, to cancel the description of the machine from the specification and the illustration thereof from the drawings.

The Examiner holds that the description of the machine is not essential to a full and complete understanding of the invention claimed and its retention renders the description unnecessarily prolix.

The petitioner argues that—
the statute requires the inventor to give such a full and exact description of his invention in his specification as to enable the public to practice the invention therefrom.

It is stated in the petition as a reason for retaining the description and illustration of the machine in the application—that in Figs. 1 and 5 he has shown the best and only means known to him of making the article.

The statute, section 4888, requires that the description of the invention shall be—

“ . . . in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct . . . and use the same.”

Rule 50 provides that—
the drawing must show every feature of the invention covered by the claim.

It is necessary for the proper expedition of business before the Office and in the interest of clearness that the specification should not be unnecessarily prolix and that the drawing should not include illustrations of inventions other than that covered in the claims. It is clear that the invention claimed can be described in such a manner as to satisfy the requirements of the statute without specifically describing and showing the machine which the petitioner desires to use in the manufacture of the article. Such being the case, the action of the Examiner is correct.

The petition is denied.

EX PARTE HENRY.

Decided April 16, 1902.

1. DRAWINGS—FIGURES COMPLETELY SHOWING THE ARTICLE OF MANUFACTURE CLAIMED AMPLY SUFFICIENT.

It is not necessary to retain in the drawing of an application for a patent on an article a figure to illustrate a process or step in its manufacture when the completed article defined in the claim is clearly shown in another figure and the disclosure is amply sufficient to enable any one skilled in the art to make and construct the same.

2. AMENDMENT—NEW MATTER AFFECTING CLAIM—QUESTION RELATES TO MERITS—APPEAL IN FIRST INSTANCE TO EXAMINER-IN-CHIEF.

Where in the answer to a petition brought on another point the Examiner calls attention to a certain amendment made to the specification and states that if retained in the case he will be compelled to reject the claim which now stands allowed, as

in his opinion the alleged new matter affects the claim, *Held* that as this question relates to the merits of the case and is therefore appealable in the first instance to the Examiner-in-Chief no opinion in regard to it is expressed.

ON petition.

CHECKERING.

Application of Curtis B. Henry filed June 10, 1901, No. 64,089.

Messrs. W. T. Fitz Gerald & Co. for applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring the cancellation from the drawings of original Figure 2.

The records show that the drawings as originally filed contained four figures.

In the specification as originally filed these figures were briefly described as follows:

Fig. 1 is a perspective view showing my invention as applied to use upon an ordinary bridle or harness. Fig. 2 is a detail in perspective illustrating the device separated from the checkrein proper. Fig. 3 shows a modified construction thereof. Fig. 4 illustrates another form of my invention ready for use.

The invention relates to a bifurcated elastic attachment for checkreins.

The form shown in Fig. 4 differs from that shown in Fig. 3 in placing anchoring means on each side of the elastic strap, so arranged as to limit the stretch of the elastic strap and to also act as a safety-catch in case the strap should break. Everything shown in Fig. 3 is included in original Fig. 4.

After several actions a claim was allowed which covers specifically the construction shown in original Fig. 4.

The Examiner is of the opinion that the state of the art prevents the allowance of a claim broad enough to cover both constructions shown in the two figures. The petitioner was required before the application could be passed to issue to cancel Figs. 3 and 4 and the description relating thereto. The petitioner responded by canceling Fig. 3 and requesting the numeral of original Fig. 4 to be changed to read 3. An amendment was also filed canceling the brief description of the figures and inserting the following:

Fig. 1 is a perspective view of my invention as applied to use. Fig. 2 is a detail in perspective illustrating my device partly finished. Fig. 3 illustrates my invention complete ready for use.

It is stated in a paper filed February 1, 1902, that—

“ . . . applicant's desire in retaining Fig. 2 of the drawings is to illustrate a process or step in the manufacture of his invention.”

It is not necessary to retain in the drawing of an application for a patent on an article a figure to illustrate a process or step in its manufacture. The completed article defined in the claim is clearly shown in present Fig. 3, (original 4.) The illustration is amply sufficient to enable any one skilled in the art to make and construct the same.

The form shown in Fig. 2 was originally described as not only a completed form, but as the preferred form. To now describe it as an incomplete device is inconsistent, to say the least. The Examiner's action requiring the cancellation of Fig. 2 from the drawings and the brief description thereof from the specification is clearly correct.

The Examiner has called attention to the fact that he has informed the petitioner that a certain

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amendment to the specification, filed January 11, 1901, contains new matter, and in the event that the petitioner insists on the said amendment he will be compelled to reject the claim which now stands allowed, as in his opinion the alleged new matter affects said claim. As this question relates to the merits of the case and is therefore appealable in the first instance to the Examiner-in-Chief, no opinion in regard to it is now expressed.

The petition is denied.

DECISIONS OF THE U. S. COURTS

Court of Appeals of the District of Columbia.

SILVERMAN v. HENDRICKSON.

Decided March 5, 1902.

1. INTERFERENCE—PRIORITY—DILIGENCE.

Prior conception without prior reduction to practice will not avail unless there has been diligence in the elaboration of the idea looking toward reduction to practice.

2. SAME—CONSTRUCTIVE REDUCTION TO PRACTICE—SUBSTITUTE APPLICATION.

Where H. filed an application for a patent on the invention in controversy on June 9, 1897, and at a later date filed the application here involved as a substitute for that earlier one, *Held* that he is under the well-settled rule entitled to June 9, 1897, for a constructive reduction to practice.

3. SAME—EVIDENCE.

The allegation on behalf of S. that he reduced the invention to practice in the summer of 1897 does not show that he reduced it to practice before June 9.

4. SAME—UNSATISFACTORY EVIDENCE—DISCREDITING CIRCUMSTANCES.

Where the evidence is very unsatisfactory and uncertain, but shows S. to have been active in experimentation on the general lines of this invention in February, 1897, but he then filed an abortive application disclosing this invention and does not allege reduction to practice until the summer of 1897, *Held* that he has not satisfactorily shown conception in February.

Messrs. Church & Church for the appellant.

Messrs. Foster & Freeman for the appellee.

MORRIS, J.:

This is an appeal from a decision of the Commissioner of Patents in an interference case, where in the subject of controversy between the parties is the question of priority of invention of—

a composition consisting of the light cellular substance separated out from the fibers in cornstalk-pith, the same being charged with oil.

This composition the appellant Silverman in his preliminary statement claims to have conceived and explained to others “during the early part of the year 1897,” and he alleges that he made samples embodying the invention “during the summer of 1897,” “and that during the fall of 1897, he used the said invention in the city of Milwaukee, and elsewhere, and has since continued to use the same in various parts of the United States.” These several dates, which are somewhat indefinite, he seeks in his testimony to make more specific.

The appellee Hendrickson alleges in his preliminary statement that he conceived the invention and disclosed it to others about January 1, 1897; that he made no drawing or model of it, but tested the invention about March 1, 1897; that he filed an

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application in the Patent Office for the subject-matter of this invention on June 9, 1897; that the application involved in this interference, which he claims to be a substitute for and continuation of the original application, was filed on August 30, 1897; and—

that he personally never reduced the invention to practice, but that he understands it has been reduced to practice by others interested in said invention, but as to the exact date of such reduction to practice he is not advised.

This alleged reduction to practice appears in the testimony to have been made by employees of the Marden Company of Philadelphia, to which Hendrickson appears to have assigned his rights in the invention.

Silverman's application for a patent bears the date of December 4, 1897, while that of Hendrickson reached the Patent Office on August 30, 1897, and his original application, if it is to be regarded, was filed on June 9, 1897.

The Examiner of Interferences held in favor of the appellant Silverman, the Board of Examiners-in-Chief and the Commissioner of Patents in favor of the appellee Hendrickson. And from the decision of the Commissioner awarding judgment of priority of invention to the latter the present appeal to this court has been prosecuted.

The testimony in this case on both sides is remarkably indefinite and unsatisfactory; but for that very reason, if for no other, we are not disposed to disturb the conclusion reached in it by the Commissioner of Patents. Without analyzing the testimony, which has been sufficiently done by the several tribunals of the Patent Office, we find two or three unquestionable facts and circumstances upon which we can dispose of the case.

The appellee Hendrickson, on June 9, 1897, filed his original application in the case, for which the application now in interference is only a substitute. This original application disclosed the invention in controversy, and must be regarded, according to the usual rule, as a constructive reduction of it to practice. That there never was actual reduction of it to practice by Hendrickson is conceded by him and distinctly stated in his preliminary statement. Nor does it distinctly appear when afterward, if at all, it was actually reduced to practice by his assignee, the Marden Company. This, however, is of no consequence in the present case, since he is entitled to constructive reduction to practice as of the date of June 9, 1897.

Now, the appellant Silverman does not claim in his preliminary statement, and in our opinion does not show in his testimony, anything that can be construed as reduction to practice until, to use his own expression, “during the summer of 1897.” The summer, according to the common understanding, includes the months of June, July and August; and we fail to find anything whatever in the record to show that the appellant effected any reduction of the invention to practice between the first and ninth of June of 1897. This would seem to be decisive of the controversy without any reference to the matter of the time of conception of the idea by either party. For, as we have repeat-

ed, as we have repeat-

edly held, it is the fact of reduction to practice, actual or constructive, or the exercise of due diligence to reach that result, that must determine the right of the inventor; and prior conception, without reduction to practice, unless there has been diligence in the elaboration of the idea looking toward reduction to practice, will not avail. (*Soley v. Hebbard*, 5 D. C. App., 90; *Porter v. Loudon*, 7 App. D. C., 64; *Arnold v. Tyler*, 10 App. D. C., 175; *Carty v. Kellogg*, 7 D. C. App., 549; *Marcel v. Decker*, 13 D. C. App., 562; *Platt v. Shipley*, 11 D. C. App., 574.)

But both the Commissioner of Patents and the Board of Examiners-in-Chief held that Hendrickson was not only the first to reduce the invention to practice constructively by the filing of his application, but that he was likewise the first to have an adequate conception of the invention, which the testimony on his behalf would tend to show occurred as early as January of 1897, while Silverman's conception of it claims no earlier date than the latter part of February, 1897.

It is very true that Silverman seems to have been very active during the months of February and March of 1897 in the way of experimentation. But we fail to see that there was in this any adequate reduction of the invention to practice. With full knowledge of what he was then doing and seeking to do, and with the fact of his experiments fresh in his memory, he filed an abortive application on February 19, which does not disclose the subject-matter of the present interference, and which, it would seem, should have disclosed it, if he had it. It covered broadly a claim for defibred pith of cornstalk to be used for any purpose; and it has no reference to any composition of cornstalk and oil. The claim very plainly was for what was already being done by the Marsden Company under the Marsden patent; and Silverman candidly admits that he was only seeking to do in a better way what the Marsden people had been doing for some time. His efforts seem to have been how best to segregate the pith from the woody fiber which passes through it, and not to effect any composition of the pith with oleaginous material for lubrication or any other purpose. It is inconceivable that, if he then had reduced to practice the invention in controversy, he should, in his application filed on December 4, 1897, have assigned his reduction to practice to the summer of that same year. There would seem to have been but little difference between what he did and the perfected invention; but he must be bound by the limitations which he himself prescribes for his reduction to practice.

The decision of the Commissioner awarding judgment of priority of invention to the appellee Hendrickson, is affirmed.

The clerk of the court will certify this opinion and the proceedings in this cause in this court to the Commissioner of Patents according to law.

Court of Appeals of the District of Columbia.
LOOMIS v. HAUSER.

Decided March 5, 1902.

1. INTERFERENCE—REDUCTION TO PRACTICE—SIMPLE DEVICE—ILLUSTRATIVE MODEL AND PERFECTED DEVICE.

The ticket-holder in controversy is an exceedingly simple invention consisting mainly in the folding of a small piece of paper, and there can scarcely be any practical difference between what is designated as an illustrative model and the perfected device. Held, therefore, that the making of such a holder by Hauser was a reduction to practice.

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2. SAME—SAME—SAME—MORE CONSTRUCTION SUFFICIENT.

Some devices are so simple and their purpose and efficiency so obvious that the complete construction of one of a size and form intended for and capable of practical use may well be regarded as a sufficient reduction to practice without actual use or test in an effort to demonstrate their complete success or probable commercial value. (Citing *Mason v. Hepburn*.)

3. SAME—SAME—LINDEMEYER v. HOFFMAN DISTINGUISHED.

This case distinguished from *Lindemeyer v. Hoffman*, (95 O. G., 888,) wherein the inventor expressly admitted that his device was not fit for practical use.

Mr. R. W. Bishop for the appellant.

Mr. W. A. Redmond for the appellee.

MORRIS, J.:

This is an appeal from the Commissioner of Patents in a case of interference between the appellee George Hauser, who holds a patent for the invention in controversy issued to him on June 19, 1900, and the appellant Eugene O. Loomis, who filed an application on July 6, 1900, for a patent for the same invention.

The invention in question is an improvement in holders for theater and transportation tickets, which is described in two several counts taken from the two several claims of the appellee Hauser's patent, as follows:

1. A ticket-holder consisting of a blank having a flap at one corner thereof adapted to be folded but once over on to and pasted along merely two of its marginal edges to said blank to form an open-ended pocket and said blank being folded on itself, so as to leave the pocket-opening uncovered, to a rectangular shape corresponding to the pocket.
2. A ticket-holder consisting of a blank having a flap at one corner thereof adapted to be folded but once over on to said blank and pasted thereto along merely two of its marginal edges to form an open-ended pocket, and said blank containing spaces for theater diagrams, programs, and advertising matter, and foldable to a rectangular shape corresponding to the pocket.

As already stated, the appellee Hauser holds a patent for the invention, which was issued to him on June 19, 1900, in pursuance of an application filed on April 23, 1900. The appellee Loomis did not file his application until July 6, 1900; and the claims of the patent to Hauser were copied into it for the purpose of procuring the declaration of interference now before us. There is contained in the record a previous application of the appellant Loomis, filed on November 21, 1898, for a patent for a somewhat similar invention, and the proceedings thereon which, on October 12, 1899, resulted in its rejection, in which action the applicant seems to have acquiesced, and to have proceeded no further. In the brief filed in this court on behalf of the appellant it is alleged that, in an amendment to the appellant's specifications in these previous proceedings, the invention in controversy, or something very much like it, is distinctly disclosed. But in the opinions of the several tribunals of the Patent Office there seems to have been no notice taken of this alleged previous disclosure, or of the proceedings upon the appellant's first application. Nor was it necessary perhaps to notice them, inasmuch as all the steps of invention claimed in the present case had been taken by Loomis from July to November of 1898, both inclusive.

In his preliminary statement filed in the present interference Hauser, the appellee, alleged conception of the invention by him and a drawing illustrative of it in May of 1897, and a disclosure of it and reduction to practice in September of 1897.

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The appellant Loomis, in his preliminary statement, alleged conception, disclosure and the making of a model of the invention in July of 1898, and the execution of a drawing and reduction to practice in November of 1898. After testimony taken by both parties tending to support their respective statements, the Examiner of Interferences rendered judgment of priority in favor of the patentee Hauser. This judgment the Board of Examiners-in-Chief reversed; but the Assistant Commissioner, who acted in the place of the Commissioner, reversed the judgment of the Board, sustained the Primary Examiner, and awarded judgment of priority of invention to Hauser. From his decision appeal has been taken to this court by the applicant Loomis.

There seems to be no great contrariety of evidence in the case; and it would appear that both parties are in fact independent inventors, without knowledge on the part of either that the other was in the field. The testimony on behalf of each litigant fairly tends to support his preliminary statement as to what he did; and it shows conclusively that Hauser had a conception of the invention in the year 1897, while the conception of Loomis was of the year 1898. All the tribunals of the Patent Office concur in holding that the patentee Hauser was the first to conceive. They differ only in the fact that the Board of Examiners hold that he was not the first to reduce the invention to practice, and that he was not in the exercise of due diligence when Loomis entered the field of invention, while the Examiner of Interferences and the Commissioner, upon appeal from the Board, held that what Hauser did in 1897 was a reduction to practice, in consequence of which there was no occasion to raise or to decide the question of diligence as between the parties.

It is not seriously, if at all, controverted by the appellant in this court that the appellee was the first to conceive the invention; and we fully concur in the decisions of the Patent Office which unanimously awarded priority to him in that regard. The substantial question between the parties is, whether what the appellee did in the year 1897, before the advent of the appellant in the field of invention, was a reduction to practice.

It is shown that, in September of 1897, the appellee made, or caused to be made, a full-sized ticket-holder, embodying the construction of the device now in issue—in fact, that a couple of dozen of such ticket-holders were made about that time, and were used for one purpose or another by the appellee. And this showing is not sought to be controverted. Now, the invention is an exceedingly simple one, consisting mainly in the folding of a small piece of paper; and there can scarcely be any practical difference between what is designated as an illustrative model and the perfected device. What was said by this court in the case of *Mason v. Hepburn* (18 D. C. App., 86; 84 O. G., 147) is entirely applicable to this invention. There it was said:

Some devices are so simple and their purpose and efficiency so obvious that the complete construction of one of a size and form

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intended for and capable of practical use might well be regarded as a sufficient reduction to practice without actual use or test in an effort to demonstrate their complete success or probable commercial value.

The Board of Examiners-in-Chief, as we think, were led into error by their construction of the case of *Lindemeyer v. Hoffman*, (18 D. C. App., 1; 95 O. G., 888,) which they regarded as determining the same precise point as is here involved. In that case a solitary cap or stopper for bottles was offered in evidence as a reduction to practice; but the designer of it distinctly admitted that this cap itself was not fit for practical use. Necessarily, therefore, it was not a reduction to practice. But in the case before us, it is shown that specimens of ticket-holders actually made were fit for practical use, and were in fact used.

We think that this case is governed by the ruling in the case of *Mason v. Hepburn*, and that there was actual reduction of the invention to practice by the appellee in September of 1897. And in view of this conclusion it is wholly unnecessary to consider the question of diligence on the part of either or both parties.

It may be proper to notice that the testimony of the appellant taken in rebuttal is directed to impugn the credibility of the appellee in reference to statements which he had made implying that he had a patent before his patent had actually been issued. But these statements are easily explainable without impugning of the appellee's veracity. He had made his application for a patent, had probably been informed that the application had been allowed and the patent would be issued; and it was not unnatural that he should regard his rights as thereby protected from infringement.

It follows from what we have said that the decision of the Commissioner of Patents must be affirmed; and that judgment of priority of invention must be awarded to the appellee George Hauser.

The clerk of the court will certify this opinion, and the proceedings in the case in this court, to the Commissioner of Patents, according to law.

DECISION OF SECRETARY OF THE INTERIOR.

IN RE MACONOCHE SOLDERLESS TINNING COMPANY, LIMITED.

1. APPEAL TO THE SECRETARY—JUDICIAL QUESTION—CERTIFICATE OF CORRECTION OF PATENT.

An appeal to the Secretary of the Interior from the decision of the Commissioner of Patents refusing to indorse a certificate of correction upon a patent because of an alleged mistake by the Patent Office dismissed for the reason that the decision was a judicial determination by the Commissioner.

2. SAME—SAME—SAME.

The question whether a certificate of correction shall be indorsed upon a release patent imposes the duty of deciding in the first place whether the release was improperly granted and if so in what the error consists. These are judicial questions not subject to superintendence and direction by the Secretary of the Interior.

DEPARTMENT OF THE INTERIOR,
Washington, April 15, 1902.

SIR: The appeal of the Maconochie Solderless Tinning Company, Limited, through its attorney, No. 5.]

Philip Mauro, Esq., from your decision of January 23, 1902, refusing to correct an alleged error in the grant of Reissued Letters Patent No. 11,935, "Tins for Inclosing Preserved Provisions or Foods and the Like," is dismissed, for the reason that the question involved therein is one which has been judicially determined by the Commissioner of Patents, and in such cases the Secretary of the Interior has no appellate jurisdiction.

I transmit herewith for your information a copy of an opinion of the Assistant Attorney-General of this Department upon the question presented in the appeal above mentioned.

Very respectfully,

E. A. HITCHCOCK,
Secretary.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE ASSISTANT ATTORNEY-GENERAL,
Washington, April 12, 1902.

SIR: By reference of the 3d instant I am asked for an opinion upon the questions presented by the appeal of the Maconochie Solderless Tinning Company, Limited, from the action of the Commissioner of Patents of January 23, 1902, denying the petition of said company asking the correction of an alleged error in the grant of Reissued Letters Patent No. 11,935.

It appears that on August 7, 1900, Letters Patent of the United States, No. 655,448, were issued to Maconochie Brothers in accordance with an assignment of the invention to them by Archibald W. Maconochie, the inventor, dated July 23, 1899, and recorded in the Patent Office August 5, 1899; that on July 11, 1901, an application for reissue of said patent was executed at London, England, by A. W. Maconochie, the written assent of the assignees, Maconochie Brothers, being indorsed on said application, such assignees being at that time the owners of the entire interest in the original patent and invention; that this application was filed in the United States Patent Office at Washington July 23, 1901, accompanied by a certified abstract of the title of the original patent as it appeared of record in the Patent Office at that date and as it actually existed at the date of execution of the reissue application; that in the meantime and on July 18, 1901, while the reissue application was en route to the United States and four days before it was filed in the Patent Office, Maconochie Brothers executed at London an assignment transferring the entire interest in the original patent and invention to the Maconochie Solderless Tinning Company, which assignment was recorded in the Patent Office July 31, 1901; that the reissue application was duly allowed in accordance with the request contained in the application; that after the reissue was granted it was brought to the attention of the Patent Office by a request for correction; that the invention and patent had been assigned to the Maconochie Solderless Tinning Company, Limited, and that the assignment had been recorded in that Office before the grant of the reissue, and it was contended that the reissue patent should have been

granted to the company instead of to Maconochie Brothers.

In denying the petition for correction the Commissioner of Patents says:

The patent was issued in accordance with the request contained in the petition, and upon the record of that application it could not have been issued to any one else than Maconochie Bros. The patent as issued conforms to the record of the application, and therefore there is no foundation in the case for the certification of correction requested. It is true that the patent might properly have been issued to the subsequent assignee, The Maconochie Solderless Tinning Syndicate, Limited, upon proper intervention by it, but in the absence of such intervention, the patent could not properly have been granted to it.

It is contended by the appellant that inasmuch as there was at the time of the reissue on file in the Patent Office evidence of the assignment of the entire interest in said patent from Maconochie Brothers to the Maconochie Solderless Tinning Company, Limited, the reissue should have been in the name of the company in accordance with the well-established practice of that Office; that it was error in view of the record made in the reissue application to make the reissue in the name of Maconochie Brothers; that this error should be corrected in accordance with the provisions of the first paragraph of Rule 170 of the Rules of Practice of the Patent Office, and that the Commissioner of Patents refusing to make such correction the matter is one within the cognizance of the Secretary of the Interior.

The Commissioner of Patents admits that if the fact of the assignment to the company had not been overlooked the reissue would not have been allowed without the company's assent, but contends that the reissue could not on the record before the Patent Office have been legally made to the company; that the error is not one within Rule 170; that if there have been instances in which the Patent Office has made reissues to assignees in the absence of "proper intervention" by such assignees such reissues were not in conformity with law and will not be recognized as precedents, and finally that in any event the Commissioner's action in the premises is judicial and not subject to review by the Secretary of the Interior.

Paragraph 1 of said Rule 170 is as follows:

Whenever a mistake, incurred through the fault of the Office, is clearly disclosed by the records or files of the Office, a certificate, stating the fact and nature of such mistake, signed by the Secretary of the Interior, countersigned by the Commissioner of Patents, and sealed with the seal of the Patent Office, will, at the request of the patentee or his assignee, be indorsed without charge upon the Letters Patent, and recorded in the records of patents, and a printed copy thereof attached to each printed copy of the specification and drawing.

The determination under this rule of the question whether a certificate of correction as therein provided for should be issued under the facts hereinbefore stated of necessity imposes the duty of deciding in the first place whether the reissue was improperly made, and if improperly made the further duty of deciding in what the error consists. I am of opinion that these are judicial questions and as such not subject to the power of superintendence and direction conferred upon the Secretary of the Interior by section 441 of the Revised Statutes. (See *Butterworth v. Hoe*, 112 U. S. 30; also, my opinion of February 20, 1899, in the case of *Pool v. Avery*, 14 Assistant Attorney-General's Opinions, 177.)

I advise that the Secretary of the Interior is without jurisdiction or authority over the matter presented by this appeal.

Very respectfully,

WILLIS VAN DEVANTER,
Assistant Attorney-General.
The Secretary of the Interior.
Approved April 12, 1902.
E. A. HITCHCOCK,
Secretary.

[Vol. 99. No. 5]

THE OFFICIAL GAZETTE

OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 99.—No. 5.

TUESDAY, MAY 6, 1902.

Price—\$5 per year.

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Total issue..... 695

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama.....	2	1	Nebraska.....	5	1
Alaska Territory.....	1	1	Nevada.....	1	1
Arizona Territory.....	1	1	New Hampshire.....	1	1
Arkansas.....	3	1	New Jersey.....	2	3
California.....	14	1	New Mexico Territory.....	1	1
Colorado.....	5	1	New York.....	15	7
Connecticut.....	19	1	North Carolina.....	3	1
Delaware.....	6	1	North Dakota.....	1	1
District of Columbia.....	2	1	Ohio.....	2	6
Florida.....	4	1	Oklahoma Territory.....	1	1
Georgia.....	1	1	Oregon.....	1	1
Hawaii Territory.....	1	1	Pennsylvania.....	1	1
Idaho.....	1	1	Rhode Island.....	1	1
Illinois.....	25	3	South Carolina.....	1	1
Indiana Territory.....	1	1	South Dakota.....	1	1
Indiana.....	15	1	Tennessee.....	3	1
Iowa.....	7	1	Texas.....	8	1
Kansas.....	6	1	Utah.....	1	1
Kentucky.....	3	1	Vermont.....	2	1
Louisiana.....	3	1	Virginia.....	3	1
Maine.....	1	1	Washington.....	3	1
Maryland.....	1	1	West Virginia.....	1	1
Massachusetts.....	25	1	Wisconsin.....	1	1
Michigan.....	24	1	Wyoming.....	1	1
Minnesota.....	7	1	U. S. Navy.....	1	1
Mississippi.....	3	1	Total to citizens of the United States.....	497	96
Missouri.....	19	1			
Montana.....	3	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina.....	1	1	Netherlands.....	1	1
Austria-Hungary.....	4	1	Newfoundland.....	1	1
Barbados.....	1	1	New South Wales.....	1	1
Belgium.....	1	1	New Zealand.....	1	1
Bermuda.....	1	1	Norway.....	1	1
Brazil.....	1	1	Paraguay.....	1	1
Canada.....	4	1	Queensland.....	1	1
Cape Colony.....	1	1	Roumania.....	1	1
Chile.....	1	1	Russia.....	1	1
China.....	1	1	Scotland.....	1	1
Colombia.....	1	1	South African Republic.....	1	1
Cuba.....	1	1	Spain.....	1	1
Denmark.....	1	1	Sweden.....	1	1
England.....	80	1	Switzerland.....	1	1
France.....	4	1	Turkey in Asia.....	1	1
Germany.....	18	1	Victoria.....	1	1
Guatemala.....	1	1	Western Australia.....	1	1
Haiti.....	1	1	Total to citizens of foreign countries.....	25	3
Italy.....	1	1			
Mexico.....	1	1			

Revision of Trade-Mark Rules.

(ORDER NO. 1,405.)

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

Washington, D. C., April 2, 1902.

Rule 21, subdivision (b.) governing the registration of trade marks, is hereby amended to read as follows:

(b) A statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used, and if the applicant be a corporation it must set forth under the laws of what State or nation incorporated.

F. I. ALLEN,
Commissioner.

Amendment of Section 4893, Revised Statutes, Relating to the Signing of Letters Patent.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

Washington, D. C., April 22, 1902.

By the act approved April 11, 1902, section 4893, Revised Statutes, has been amended to read as follows:

SEC. 4893. All patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Commissioner of Patents, and they shall be recorded, together with the specifications, in the Patent Office in books to be kept for that purpose.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition of Close of Business April 30, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting of- fice action.		No. of applications awaiting action.
		New.	Amended.	
<i>In arrears—Under one month.</i>				
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Apr. 10	Apr. 16	311
268	X. Carriages and Wagons.	Apr. 7	Apr. 18	101
146	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Apr. 8	Apr. 15	175
260	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Apr. 5	Apr. 14	428
217	XXXIII. "DRESSERS," TRADE-MARKS, LABELS AND PRINTS, Optics, and Photography.	Apr. 4	Apr. 16	26
266	VI. Chemistry, Explosives, Fortifications, Medicines, Sugar and Salt, Surgery, etc.	Apr. 3	Apr. 15	264
246	I. Tillage, etc., and Fences.	Apr. 1	Apr. 15	180
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Mar. 31	Apr. 16	189
261	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Mar. 31	Apr. 16	168
267	XV. Plastics, Paper-Making, Paving, Outferry, Glass, Fuel, Bread-Making, etc.	Mar. 31	Apr. 15	267
208	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriers, Nuts and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Mar. 31	Apr. 14	243
188	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Mar. 31	Apr. 14	266
137	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Mar. 31	Apr. 8	241
261	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Mar. 31	Apr. 7	181
30	IV. Cranes and Derrick Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Mar. 31	Apr. 1	267
266	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 30	Apr. 16	168
266	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 30	Apr. 15	217
23	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Mar. 30	Apr. 15	108
261	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store Service.	Mar. 30	Apr. 15	265
44	XXXV. Amusements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Mar. 30	Apr. 14	264
<i>Between one and two months.</i>				
266	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Mar. 26	Apr. 15	260
212	XXVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Mar. 24	Apr. 9	268
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Mar. 24	Apr. 8	194

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting of- fice action.		No. of applications awaiting action.
		New.	Amended.	
186	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Mar. 24	Apr. 8	307
27	XXVI. Electricity, Generation, Conductors, Motor Power, Medical and Surgical, and Electric Railways.	Mar. 24	Apr. 2	216
190	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Mar. 7	Mar. 28	437
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Mar. 6	Apr. 1	116
260	VII. Velocipedes, Glitches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Mar. 6	Mar. 26	225
188	XXX. Wood-Working Machines, Coopering and Roofing.	Mar. 4	Apr. 1	223
<i>Between two and three months.</i>				
69	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Feb. 27	May 1	475
245	XXVIII. Steam-Engineering, etc.	Feb. 25	Feb. 12	473
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Feb. 21	Mar. 1	615
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 17	Feb. 17	440
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Thrashing, and Vegetable Cutters and Crushers.	Feb. 10	Feb. 10	426
143	V. Fine Arts, Book-Binding, Harp-vesters, Jewelry, and Music.	Feb. 4	Jan. 30	403
<i>Between three and four months.</i>				
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 17	Mar. 3	434

Total number of applications awaiting action.....10,064

Under one month.

* Designs	Apr. 7	Apr. 15	104
† Trade-Marks	Apr. 9	Apr. 26	119
‡ Labels and Prints	Apr. 24	Apr. 11	17

Amendments to Allowed Applications.

Hereafter all amendments proposed to allowed applications and all petitions and requests relating thereto shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action. (Order 669 amended October 15, 1900.)

Renewal of Forfeited Applications.

Attention is called to section 4, 387, Revised Statutes, relating to the renewal of allowed applications forfeited through failure to pay the final fee within six months from the date of allowance. The law requires the petition for renewal to be signed by the inventor, discoverer, or assignee and that the same be filed in this Office within two years after the allowance of the original application. If the inventor be dead, the petition must be signed by the administrator or executor; if insane, by the guardian, conservator, or legal representative. It will not be accepted if signed by the attorney. (Form 12, page 64, Rules of Practice, should be used.)

PATENTS

GRANTED MAY 6, 1902.

699,126. CLASP. GEORGE R. ADAMS, INVENTOR, E. J. FINE, REV. 26, 1901. Serial No. 55,972. (No model.)



Claim.—1. In a clasp, a body comprising a pair of doubled-over members or plates, one of the members of said body being made with an opening, a flange having an opening and arranged over said member of said body, and a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm normally being seated in the opening of said flange, but when said lever is operated, said clamping-arm being arranged across the space between the mid members of said body, substantially as and for the purposes set forth.

2. In a clasp, a body comprising a pair of doubled-over members or plates, one of said members of said body being made with an opening, a flange having an opening and arranged over said member of said body, a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm normally being seated in the opening of said flange, but when said lever is operated, said clamping-arm being arranged across the space between the mid members of said body, and a spring arranged between the mid members of said body, said spring comprising a pair of members or limbs against one of which the end of the clamping-arm of said lever is brought in operative engagement when said lever is lowered, substantially as and for the purposes set forth.

3. In a clasp, a body comprising a pair of doubled-over members or plates, one of said members of said body being made with an opening, a flange having an opening and arranged over said member of said body, a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm normally being seated in the opening of said flange, but when said lever is operated, said clamping-arm being arranged across the space between the mid members of said body, and a spring arranged between the mid members of said body, said spring comprising a pair of doubled-over members or limbs, and a rib on the upper member or limb of said spring with which the end of the clamping-arm of said lever is brought in operative engagement when said lever is lowered, substantially as and for the purposes set forth.

4. In a clasp, a body comprising a pair of doubled-over members or plates, one of the members of said body being made with an opening, a flange having an opening and arranged over said member of said body, and a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm normally being seated in the opening of said flange, but when said lever is operated, said clamping-arm being arranged across the space between said members of said body, and the free end of the clamping-arm of said lever having a notch for receiving and a spring arranged between the mid members of said body, said spring comprising a pair of doubled-over members or limbs, and a guiding-rib on the upper member or limb of said spring over which the notched or recessed end of the clamping-arm of said lever is seated, when the said lever is turned down, substantially as and for the purposes set forth.

5. In a clasp, a substantially U-shaped body having a member thereof provided with an elongated slot, and another member thereof provided with an inwardly-projecting lug, a flange also provided with a slot arranged over the slotted member of said body, combined with a lever pivotedly connected with the said flange and said slotted member of the said body, a U-shaped spring arranged between the members of said body, one member of said spring being provided with a guiding-rib, and the other member of said spring having a perforation in which said lug of said body is adapted to be seated, and a clamping-arm on said lever having a notch or recess in its end adapted to be seated over said rib when said lever is closed down, and said clamping-arm of said lever being adapted to be seated in the slotted portions of said body portion and said flange, when the lever is raised, substantially as and for the purposes set forth.

6. In a clasp, the combination, with a substantially U-shaped body, one of the members thereof having a slot, and a flange on said U-shaped body having an internal marginal edge by means of which said flange is secured to said body, of a pivotedly-arranged lever, and a substantially U-shaped spring arranged between the members comprising said body, one of the members of said spring being held in a fixed position to one of the members of said body, and the other member of said spring being movable but normally lying back of the internal marginal edge of the flange and in close contact with the under surface of the slotted member of said body, for preventing the free end portion of said spring from contact with the material while being inserted between the members of the spring, and the free end of the movable member of said spring being adapted to be forced below the internal marginal edge of said flange when the lever is manipulated for grasping the inserted material, substantially as and for the purposes set forth.

7. In a clasp, the combination, with a substantially U-shaped body, one of the members thereof having a slot, and a flange on said U-shaped body having an internal marginal edge by means of which said flange is secured to said body, of a pivotedly-arranged lever, and a substantially U-shaped spring arranged between the members comprising said body, one of the members of said spring being held in a fixed position to one of the members of said body, and the other member of said spring being movable but normally lying back of the internal marginal edge of the flange and in close contact with the under surface of the slotted member of said body, and an extension connected with the mid connected flange and body and extending away from the same for the purpose of a finger piece or the attachment thereof of other fastening means, substantially as and for the purposes set forth.

8. In a clasp, a body comprising a pair of doubled-over members or plates, one of said members of said body being made with an opening, a flange having an opening and arranged over said member of said body, and inwardly-turned clamping edges on said flange for securing said flange to said member of said body, a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm in its raised position being seated in the opening in said flange, but when said lever is operated to bring said clamping-arm in its gripping position, said clamping-arm being arranged across the space between the mid members of said body, and a spring arranged between the mid members of said body, said spring comprising a pair of members or limbs against one of which the end of the clamping-arm of said lever is brought in operative engagement when said lever is lowered, substantially as and for the purposes set forth.

9. A clasp consisting of a movable frame, a spring located between the members of said frame, one of the members of said frame having an elongated slot, a guide-rib on said spring, a lever fitted to said frame having a recessed clamping-arm movably arranged in said slot and the recessed part of said clamping-arm being adapted to fit over the said rib on said spring to prevent lateral movement of the spring, and a flange secured to said frame, said flange having a slot and bearings on opposite sides of said slot, and pivotal lugs on said lever arranged in said bearings, substantially as and for the purposes set forth.

ing adapted to be seated in the slotted portions of said body portion and said flange, when the lever is raised, substantially as and for the purposes set forth.

6. In a clasp, the combination, with a substantially U-shaped body, one of the members thereof having a slot, and a flange on said U-shaped body having an internal marginal edge by means of which said flange is secured to said body, of a pivotedly-arranged lever, and a substantially U-shaped spring arranged between the members comprising said body, one of the members of said spring being held in a fixed position to one of the members of said body, and the other member of said spring being movable but normally lying back of the internal marginal edge of the flange and in close contact with the under surface of the slotted member of said body, for preventing the free end portion of said spring from contact with the material while being inserted between the members of the spring, and the free end of the movable member of said spring being adapted to be forced below the internal marginal edge of said flange when the lever is manipulated for grasping the inserted material, substantially as and for the purposes set forth.

7. In a clasp, the combination, with a substantially U-shaped body, one of the members thereof having a slot, and a flange on said U-shaped body having an internal marginal edge by means of which said flange is secured to said body, of a pivotedly-arranged lever, and a substantially U-shaped spring arranged between the members comprising said body, one of the members of said spring being held in a fixed position to one of the members of said body, and the other member of said spring being movable but normally lying back of the internal marginal edge of the flange and in close contact with the under surface of the slotted member of said body, and an extension connected with the mid connected flange and body and extending away from the same for the purpose of a finger piece or the attachment thereof of other fastening means, substantially as and for the purposes set forth.

8. In a clasp, a body comprising a pair of doubled-over members or plates, one of said members of said body being made with an opening, a flange having an opening and arranged over said member of said body, and inwardly-turned clamping edges on said flange for securing said flange to said member of said body, a clamping or holding lever pivotedly connected with said flange, said lever comprising a clamping-arm, said arm in its raised position being seated in the opening in said flange, but when said lever is operated to bring said clamping-arm in its gripping position, said clamping-arm being arranged across the space between the mid members of said body, and a spring arranged between the mid members of said body, said spring comprising a pair of members or limbs against one of which the end of the clamping-arm of said lever is brought in operative engagement when said lever is lowered, substantially as and for the purposes set forth.

9. A clasp consisting of a movable frame, a spring located between the members of said frame, one of the members of said frame having an elongated slot, a guide-rib on said spring, a lever fitted to said frame having a recessed clamping-arm movably arranged in said slot and the recessed part of said clamping-arm being adapted to fit over the said rib on said spring to prevent lateral movement of the spring, and a flange secured to said frame, said flange having a slot and bearings on opposite sides of said slot, and pivotal lugs on said lever arranged in said bearings, substantially as and for the purposes set forth.

699,127. FURNACE FOR ROLLING-MILLS. THOMAS V. ADAMS, Bridgeport, Conn. Filed Apr. 20, 1902. Serial No. 712,764. (No model.)

Claim.—1. A furnace of the character described provided with a combustion-chamber located beneath the work-supporting floor; bricks comprising the floor of said chamber constructed with pockets or recesses

opening into said combustion-chamber; an opening in one of the side walls of the pockets, and pipes communicating therewith and with a gas-supply, for the purpose set forth.

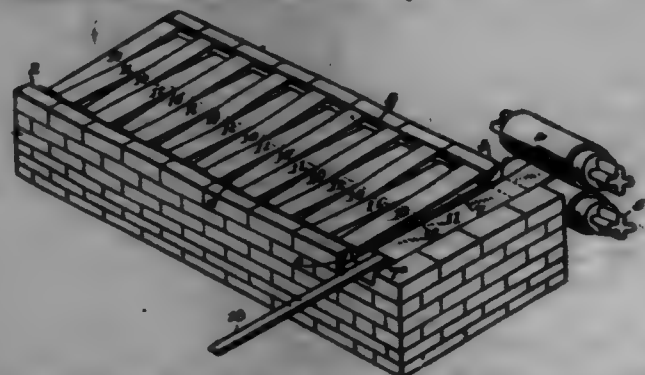


2. A furnace of the character described provided with a combustion-chamber; bricks comprising the floor of said chamber provided with pockets or recesses opening into said combustion-chamber, and having one of their side walls inclined and adapted to deflect flame projected therein and an opening into one of the side walls of the pockets and communicating with a gas-supply, as set forth.

3. A furnace of the character described provided with a combustion-chamber; bricks comprising the floor of said chamber, provided with pockets or recesses opening into said combustion-chamber, and constructed with side openings therein adapted to project flame above the bottoms of said pockets or recesses, for the purpose set forth.

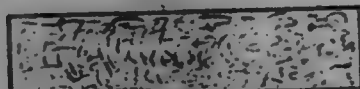
4. The combination, in a furnace of the character described having a combustion-chamber, and floor-bricks thereof having pockets or recesses opening into said chamber, of a gas-receiver and a series of gas-distributing conveyors placed below said floor-bricks, and pipes connecting said conveyors with the pockets of said floor-bricks, for projecting flame into said pockets or recesses, for the purpose set forth.

699,128. METHOD OF FEEDING METAL STRIPS IN FURNACE. THOMAS V. ALLAN, Bridgeport, Conn. Filed Sept. 19, 1901. Serial No. 30,804. (No model.)



Claim.—The method of heating a line of adjacent metal strips, which consists in arranging said strips in a heating-chamber with their abutting edges rounded to prevent overriding, and then advancing said line of strips through said heating-chamber, as set forth.

699,129. METHOD OF ROLLING METAL SHEETS. THOMAS V. ALLAN, Bridgeport, Conn. Filed Feb. 1, 1901. Serial No. 45,098. (No model.)



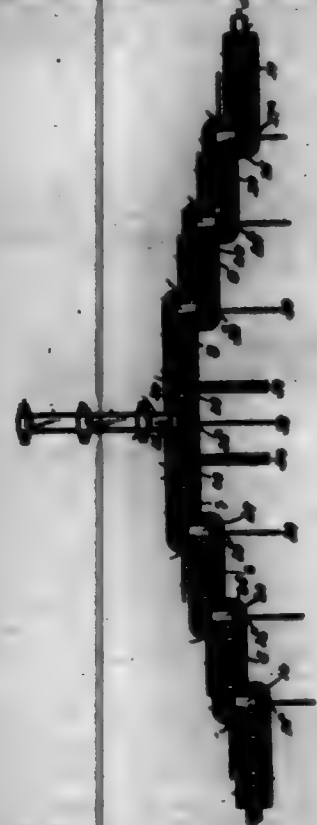
Claim.—1. The method of producing a laminated or treated structure in metal sheets, which consists in reducing this plate to sheets by hot-rolling the plates in packs at right angles to the pack or line of the previous rolling of said plates, as set forth.

2. The method of producing a laminated or treated structure in metal sheets, which consists in reducing plates to sheets by hot-rolling the plates in packs through a series of cross-rollers, whereby the plates comprising the packs are rolled at right angles to a previous rolling in packs, as set forth.

3. The method of reducing hot metal plates to sheets, to produce a laminated or treated structure of the metal in the sheets, which consists in forming the plates into a pack, with the grain of the several plates lying in the same general direction, fastening the plates together along one of their side or edge edges, and rolling the pack across the grain of the plates, as set forth.

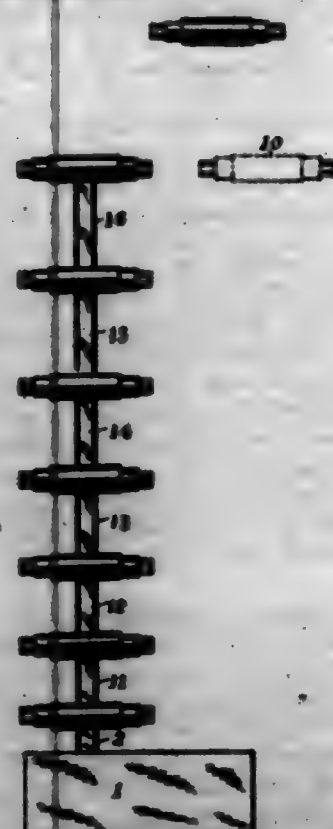
699,130. FURNACE FOR PROGRESSIVELY HEATING METAL PLATES OR PACKS. THOMAS V. ALLAN, Bridgeport, Conn. Filed Feb. 1, 1901. Serial No. 45,091. (No model.)

Claim.—1. A furnace for progressive metal-heating consisting of a double series of heating-chambers and a central heating and delivery chamber intermediate of said series, the several heating-chambers composing the respective series being arranged in a staggered relative position and communicating one with another through transverse and passages and each series with said central chamber substantially as set forth.



2. A furnace for progressive metal-heating composed of a double series of separable and movable heating-chambers relatively arranged in a staggered position and a central heating and delivery chamber intermediate of said series, the several heating-chambers composing the respective series communicating one with another, and each series with the central chamber, and said chambers mounted on ways for purposes of removal, substitution or repair, as set forth.

699,131. METHOD OF HOT-ROLLING METAL SHEETS IN PACKS. THOMAS V. ALLAN, Bridgeport, Conn. Filed Aug. 31, 1901. Serial No. 74,094. (No model.)



Claim.—1. The herein-described continuous method of hot-rolling metal plates in packs to sheets of commercially-accurate gages, which consists in first partially reducing the original packs in a tandem mill, and

second passing said packs directly from said mill through a single pair of auxiliary rolls a sufficient number of times to complete the reduction, as set forth.

2. The herein-described method of hot-rolling metal plates in packs to sheets of commercially-accurate gages, which consists in partially reducing the packs in a tandem mill, removing therefrom such packs as have been damaged or inefficiently rolled when intermediate of any two pairs of rolls in said mill, and passing the same through a single pair of auxiliary rolls a sufficient number of times to complete the reduction whereby a finished product of any desired gage is produced without interfering with the continuous operation of the mill, as set forth.

3. The herein-described method of hot-rolling metal plates in packs to sheets of commercially-accurate gages, which consists in, first, effecting a partial reduction in a tandem mill, and, second, passing said packs through a single pair of auxiliary rolls a sufficient number of times to complete the reduction and at a single heat, as set forth.

699,132. METHOD OF FEEDING AND HEATING METAL PLATES OR PACKS. THOMAS V. ALLAN, Bridgeport, Conn. Filed Sept. 29, 1901. Serial No. 75,095. (No model.)



Claim.—The method of progressively feeding and heating a train of metal plates or packs for reduction which consists in advancing said train in separate sections, each section containing a plurality of plates or packs, by progressively each section the distance completed by one plate or pack, and transferring a plate or pack from the forward end of each section to the rear end of the preceding section, and augmenting the degree of heat in said packs or plates during their period of transit, as set forth.

699,133. CONVEYER AND GUIDE FOR ROLLING-MILLS. THOMAS V. ALLAN, Bridgeport, Conn. Filed Oct. 4, 1901. Serial No. 77,096. (No model.)

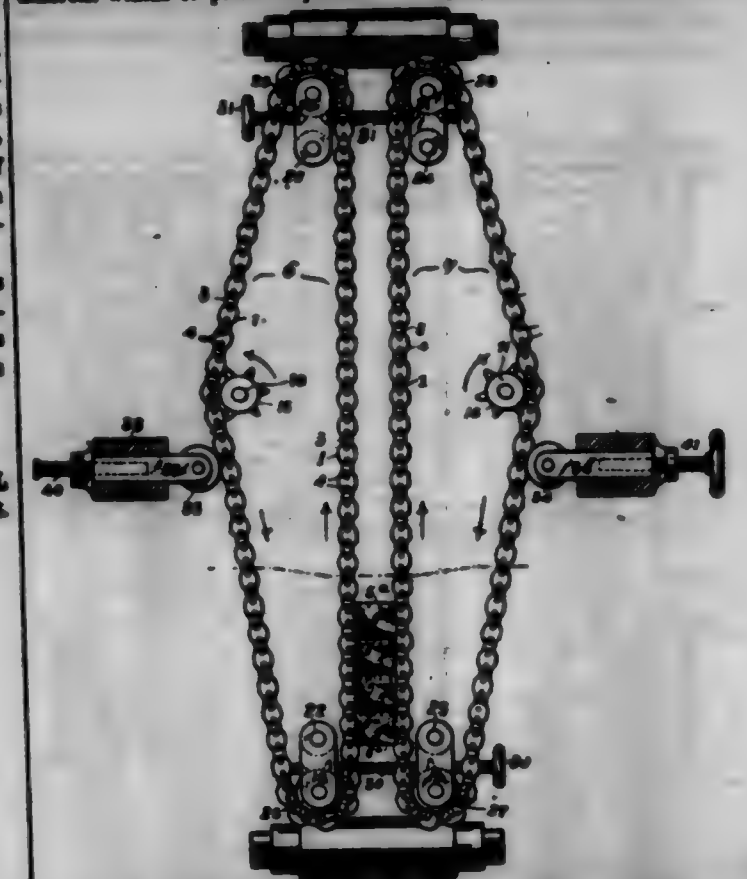
Claim.—1. A conveyer for metal plates or packs consisting of two endless chains cooperating on a horizontal plane and composed of wide and narrow links, the wide links adapted to support the ends of the plates or packs, and the narrow links adapted to act as side guides, for the purpose set forth.

2. A metal-conveyer, consisting of two endless chains operating in unison on a horizontal plane and at the same linear speed and composed of wide and narrow links adapted to both support and guide the metal in transit, for the purpose set forth.

3. A conveyer for metal plates or packs, consisting of two series or systems of endless chains arranged parallel with each other and operated on a horizontal plane and at the same linear speed so as to squarely guide the metal in transit, for the purpose set forth.

4. A conveyer for metal plates or packs, consisting of two series or systems of endless chains arranged parallel with each other on a horizontal plane and to cooperate at the same linear speed, the chains adapted to both support and squarely guide the metal in transit, combined with

means whereby the path of feeding of the metal may be adjusted for different widths of plates or packs, for the purpose set forth.



5. A conveyer for metal plates or packs, consisting of a double series of endless chains arranged parallel with each other and adapted to cooperate at the same linear speed, the chains adapted to both support and squarely guide the metal in transit, combined with means for adjusting the width of the feedway and means for propelling and tightening said chains, substantially as described, for the purpose set forth.

6. A conveyer for metal plates or packs, consisting of a double series of endless chains arranged parallel with each other and adapted to cooperate at the same linear speed, the chains adapted to both support and squarely guide the metal in transit, combined with means for regulating the width of said conveyer, and means for automatically adjusting and maintaining a parallel movement with varying widths of plates or packs, for the purpose set forth.

699,134. ASH-SHUTTER. HENRY H. ASHLEY, Baltimore Falls, Vt. Filed Sept. 12, 1901. Serial No. 78,097. (No model.)



Claim.—In combination, the casing having inlet-opening, the double-binged doors to said inlet-opening, the single weights for automatically closing both doors, and the intermediate chain, lever, link and crank-arms, all substantially as described and for the purpose set forth.

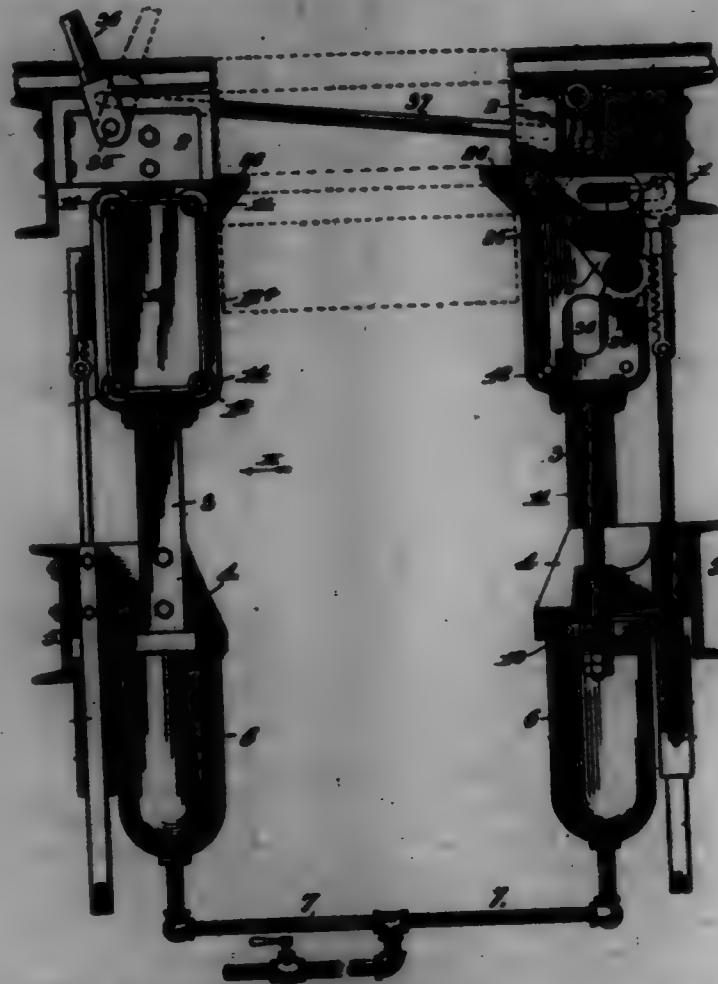
699,135. CHAIR FOR MINING-GAS. JOHN C. BARNES, St. Louis, Mo. Filed May 4, 1901. Serial No. 80,798. (No model.)

Claim.—1. In an apparatus of the class described, the combination of dog-carrying means, dogs swingingly connected to said means, means whereby pressure medium is applied to elevate said dog-carrying means, and means whereby said dogs are moved from downwardly-inclined positions to horizontal positions, substantially as described.

2. In an apparatus of the class described, the combination of dog-carrying means, dogs swingingly connected to said means, means whereby pressure medium is applied to elevate said dog-carrying means, and means whereby said dogs are moved from horizontal positions to downwardly-inclined positions, substantially as described.

3. In an apparatus of the class described, the combination of vertically-movable dog-carrying means, means for moving said dog-carrying means vertically, carious supported by said dog-carrying means, and dogs swingingly mounted on said carious, substantially as described.

4. In an apparatus of the class described, the combination of a pair of vertically-movable housings, a pair of dogs pivoted to said housings, means whereby said housings are elevated, and means whereby said dogs are swung on their pivots, substantially as described.



5. In an apparatus of the class described, the combination of a pair of housings, a pair of dogs pivotally connected to said housings, means whereby pressure medium is applied to elevate said housings, and independent means whereby said dogs are rocked on their pivots to raise and lower them, substantially as described.

6. In an apparatus of the class described, the combination of a pair of housings, a pair of carriers pivoted to said housings, dogs mounted on said carriers, a pair of segments carried by said housings and having link connection with said dog-carriers, and means whereby said segments are rocked to raise and lower said dog-carriers, substantially as described.

7. In an apparatus of the class described, the combination of a pair of vertically-movable housings, means for moving said housings vertically, guide-bars arranged to direct the travel of said housings, dogs carried by said housings, and means for raising and lowering said dogs, substantially as described.

8. In an apparatus of the class described, the combination of a pair of housings, means for raising and lowering said housings, a pair of carriers pivoted to said housings, dogs mounted on said carriers, segments mounted in said housings and provided with link connection to said dog-carriers, rock-bars arranged in engagement with said segments, and means for yieldingly holding said rock-bars, substantially as described.

9. In an apparatus of the class described, the combination of a pair of vertically-movable housings, means for elevating said housings, a pair of dogs, carriers connected to said housings and on which said dogs are mounted, segments rockingly mounted in said housings and having link connection with said dog-carriers, rock-bars arranged in engagement with said segments, vertically-movable rods to which said rock-bars are connected, weights slidably mounted on said rods, and yokes in which said weights are arranged to travel, substantially as described.

10. In an apparatus of the class described, the combination of dog-supporting means, dogs slidably supported by said means, and a vertically-movable suspended yoke whereby said dog-supporting means may be suspended, substantially as described.

11. In an apparatus of the class described, the combination of dog-supporting means, dogs slidably supported by said supporting means, a yoke having hooks at its upper ends and whereby said dog-supporting means may be suspended, and means for moving said hooked ends of the yoke outwardly, substantially as and for the purpose set forth.

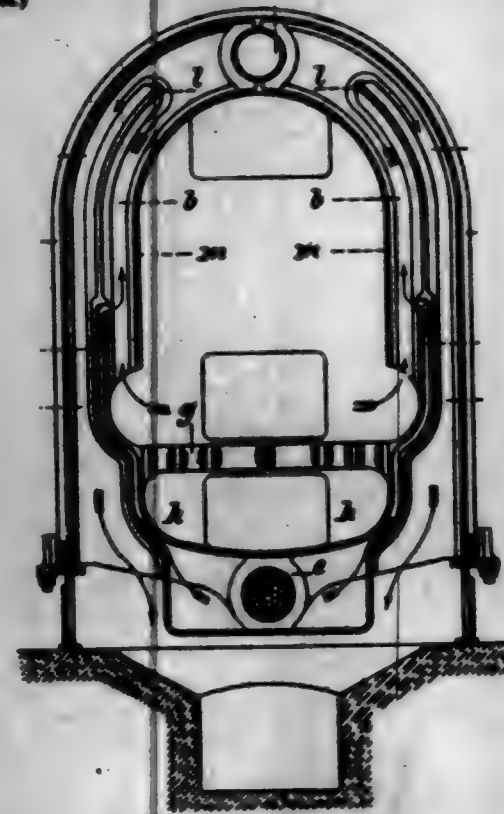
12. In an apparatus of the class described, the combination of dog-supporting means, dogs slidably supported by said supporting means, a yoke whereby said dog-supporting means may be suspended, and a re-

tractable rod having right and left hand screw-threaded ends arranged in the arms of said yoke whereby said arms may be moved outwardly, substantially as and for the purpose set forth.

13. In an apparatus of the class described, the combination of independent dog-supporting means, dogs carried thereby, means for raising and lowering said dog-supporting means, and means whereby said dog-supporting means are caused to travel vertically in unison with each other, substantially as described.

14. In an apparatus of the class described, the combination of dog-supporting means, dogs carried thereby, pressure-receiving cylinders, piston-rods connected to said dog-supporting means and extending through said cylinders, pistons of said rods, rocks carried by said piston-rods at their lower ends, spur-wheels arranged in engagement with said rocks on a pair of shafts by which said spur-wheels are carried, and a third shaft geared to the two first-named shafts, substantially as and for the purpose set forth.

699,186. SECTIONAL HOT-WATER BOILER. RUDOLF F. BUEHNER, Dresden, Germany, assignor to Fliem & Gerlach, Schöneberg, near Berlin, Germany. Filed Jan. 14, 1901. Serial No. 43,144. (No model.)



Claim.—1. A sectional hot-water boiler provided with vertical heating-flues formed by the abutting water-chambers, secondary vertical air-supply channels also formed by the abutting water-chambers which chambers are partly or entirely heated by the combustion-gases and communicate with the heating-flues in such a manner that fresh heated air is supplied to the flues in separate jets adjacent to the point where the gases leave the furnace, substantially as described.

2. A sectional hot-water boiler provided with vertical heating-flues and with channels for a secondary air-supply, such flues and channels being formed by the abutment of the sectional water-chambers, substantially as described.

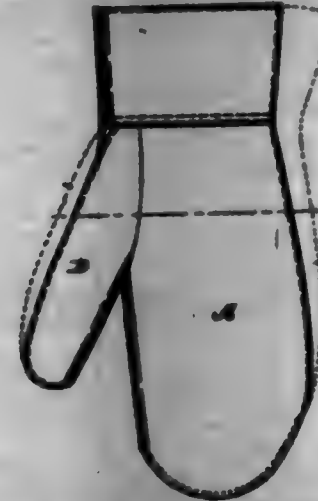
3. A water-boiler composed of abutting sections joined together at the central top and bottom portions to form a boiler, each of which sections is of such form in cross-section as with the abutting section on either side to leave between them on the inner side a vertical flue or passage for the products of combustion located within the boiler or furnace, which vertical flue is in communication at the top with a like descending flue formed in like manner, a smaller flue in communication at its top and with the first flue adjacent to its lower end being formed in like manner between the other two flues for feeding heated air to the first-named flue, substantially as shown and described.

699,187. MITTEN. FREDERICK BRETHER, Morgan Park, Ill. Filed Feb. 3, 1903. Serial No. 94,314. (No model.)

Claim.—1. In a reversing mitten the combination of two substantially similar pieces of substantially the shape which commonly form the palm of a mitten, with a gusset set between them on the edge of the mitten opposite the thumb.

2. In a reversing mitten the combination of two substantially similar pieces of substantially the shape which commonly form the palm of

a mitten, with a gusset set between them on the edge of the mitten opposite the thumb, said gusset of such width as that with either of the other portions, it forms a covering for the back and edge of the hand.



3. In a reversing mitten the combination of two pieces of substantially the same size and shape as the ordinary palm-piece of a mitten, with a thumb placed upon one edge of said two pieces where they are joined together, and a gusset interposed between them at the other edge.

4. In a mitten the combination of two pieces of substantially the same size and shape as the ordinary palm-piece of a mitten, with a thumb placed upon one edge of said two pieces where they are joined together, and a gusset interposed between them at the other edge, said thumb provided with a gusset-piece on its outer edge.

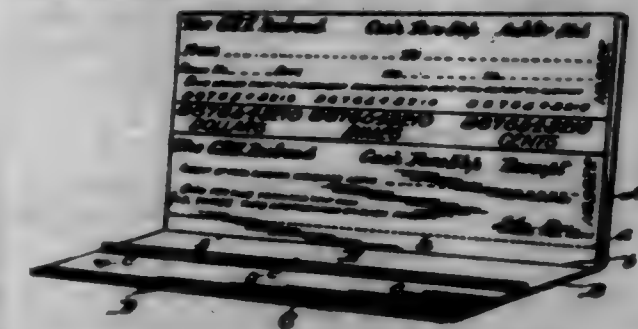
699,188. CULTIVATOR. JOHN A. BURN, Smith Center, Kans. Filed Nov. 24, 1902. Serial No. 37,045. (No model.)



Claim.—In a cultivator, the combination with the draft-beam, of a wheeled axle, diagonally-extending braces secured to the sides of the beam and to said axle and having perforated portions depending from the axle, reversibly-extending arms disposed on opposite sides of the beam and secured at their forward ends to the diagonal braces and at their rear ends to the axle and having depending perforated portions, cross-shafts mounted in the perforated depending portions of the braces and arms, an arched bar secured to the under side of the beam and having the legs thereof at their lower ends bent horizontally, braces secured to the respective sides of the beam and having their lower ends hooked about the horizontal portions of the arched bar, blocks pivotally mounted upon said horizontal

portions between the hooked ends of the braces, a gang of plows pivoted to each of said blocks to swing laterally, a pivoted strap carried by each gang embracing the cross-shafts and having rollers movable thereon, and operating-levers for swinging said cross-shafts to raise and lower the gangs of plows, substantially as described.

699,189. RAILROAD-TICKET. ALLEN I. BLANKHORN, Chicago, Ill. Filed Apr. 23, 1902. Serial No. 13,974. (No model.)



Claim.—1. The herein-described ticket book and cover, comprising the hinged cover A B, the supply of tickets detachably secured to the cover A, and the tearing edge C and gage E attached to the cover B, substantially as described.

2. The herein-described ticket book and cover, comprising the cover A B, the supply of tickets detachably secured to the cover A, and the tearing edge C and gage E secured to the cover B, the latter being of less width than the cover A and supply of tickets so that when closed upon the supply of tickets the latter will project beyond the tearing edge C, substantially as described.

3. The herein-described ticket book and cover, comprising the cover A B, the supply of tickets detachably secured to the cover A, and the sheet-metal tearing edge C secured to the cover B and having its inner edge upturned to form the gage E, substantially as described.

4. The herein-described ticket book and cover, comprising the cover A B, the supply of tickets detachably secured to the cover A, the sheet-metal tearing edge C secured to the cover B and upturned at its inner edge to form the gage E, the cover B being of less width than the supply of tickets and cover A so that when closed upon the tickets the latter will project beyond the tearing edge C, substantially as described.

699,140. ELECTRICAL ANNUATOR. CHARLES E. BARR, Brooklyn, Mass. Filed Sept. 25, 1902. Serial No. 74,045. (No model.)



Claim.—1. The combination in an annunciator, of an electromagnet, an armature, and a hermetically-sealed chamber, a colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window and including a signal-target adapted to be visible when in proximity to said window and to be concealed by the said fluid when away from the window.

2. The combination in an annunciator, of an electromagnet, an armature, and a hermetically-sealed chamber, colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window and including a signal-target adapted to be influenced by the electromagnet to approach and recede from the said window.

3. The combination in an annunciator, of an electromagnet, a self-retracting armature, a hermetically-sealed chamber, colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window and including a signal-target, the said armature operatively connected with the signal-target.

4. The combination in an annunciator, of an iron sheath, an electromagnet, a self-retracting armature, a hermetically-sealed chamber, colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window and including a signal-target, the said armature mechanically and operatively connected with the signal-target.

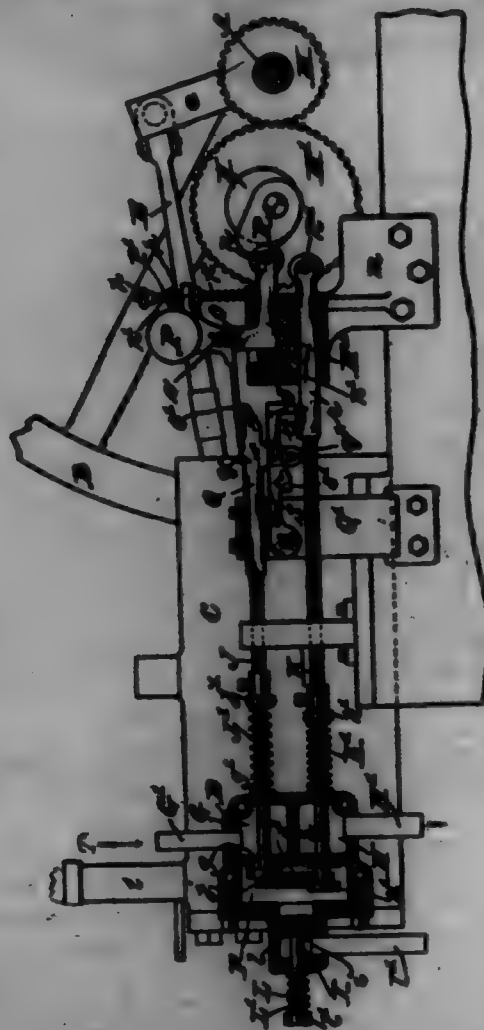
5. The combination in an annunciator, of an iron sheath, an electromagnet, a self-retracting armature, a hermetically-sealed chamber, colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window and including a signal-target, the said armature mechanically and operatively connected with the signal-target.

6. The combination in an annunciator, of an iron sheath, an electromagnet within the said sheath, a self-retracting armature, a hermetically-sealed chamber whose walls consist of a prolongation of said sheath, colored or opaque fluid induced therein, the walls of the chamber provided with a transparent window, and a signal-target within said chamber.

7. The combination in an accumulator, of an electromagnet, an armature, a hermetically-sealed chamber, colored or opaque liquid inclosed therein, the walls of the chamber provided with a transparent window, a signal-target operated by said armature to displace the liquid from the said window and to permit the same to flow between its face and the window.

8. The combination in an accumulator of an iron sheath, an electromagnet in the said sheath, a hermetically-sealed chamber at one end of the said magnet whose walls are prolongations of the sheath, provided with a transparent window and opaque liquid inclosed therein, an armature pivoted to a target in said chamber adapted to displace the liquid between the face of the target and the window and permit the said liquid to flow between the said face and the window.

689,141. **REPAIRER.** JOSEPH BRANTHAAN and PHILIP HENNINGSEN, Brooklyn, N. Y. Filed July 3, 1901. Serial No. 67,369. (No model.)

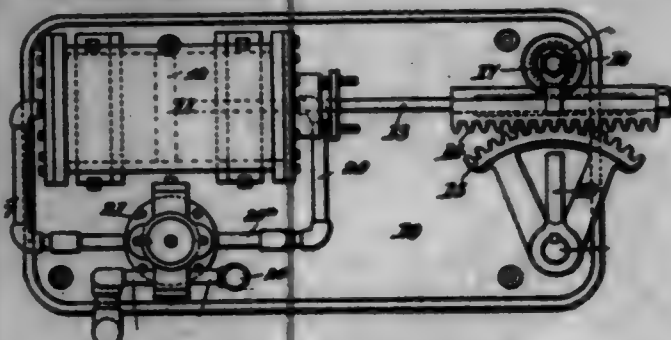


Claim.—1. In a gas-engine, the combination with a cylinder and a piston therein, of an exhaust-valve, means for expelling the gas behind the piston, said exhaust-valve taking place at intervals less frequent than one for every cycle of piston's movement, means for opening the exhaust behind said piston to exhaust the gas after sufficient expansion thereof, an inlet-valve for the explosive mixture, a rod for operating said inlet-valve, an arm for engaging and moving said rod, a governor connected with said arm, a slide carrying the arm and governor and a cam for moving said slide, substantially as herein shown and described.

2. In a gas-engine, the combination with a cylinder and a piston therein, of an exhaust-valve, means for expelling the gas behind the piston, said exhaust-valve taking place at intervals less frequent than one for every cycle of piston's movement, means for opening the exhaust behind said piston to exhaust the gas after sufficient expansion thereof, an inlet-valve for the explosive mixture, a rod to which said valve is attached, a pivoted arm, a slide carrying said inlet and governor, a cam for actuating the slide, a rod carrying the exhaust-valve, a catch engaging said rod and means on the rod of the inlet-valve for operating said catch and a separate cam for operating the exhaust-valve, substantially as herein shown and described.

3. In a gas-engine, the combination with a cylinder and piston, of an exhaust-valve and an inlet-valve, two cams driven from the main shaft, means for actuating the inlet and exhaust valves by said cams, means for locking the exhaust-valve in open position, and means operated in connection with the inlet-valve for unlatching the exhaust-valve, substantially as herein shown and described.

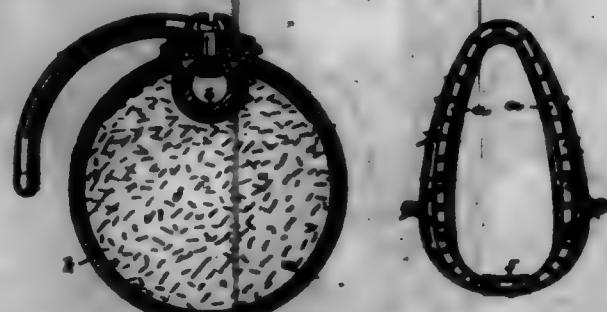
689,142. **HYDRAULIC GOVERNOR FOR WATER-WHEELS.** WILLIAM J. REIDNER, PHOENIX, ARIZ., U. S. Filed Dec. 24, 1900. Serial No. 68,997. (No model.)



Claim.—1. In a water-wheel, a pressure-cylinder, a gate-shaft operatively connected with said cylinder for regulating the water-supply, a valve-cylinder communicating therewith, a longitudinally-movable valve in the valve-cylinder provided with openings to form ports and having its stem slotted longitudinally and perforated transversely of the slot, a casing secured to the stem provided with an angle-slot, a spring-pressed pin within the casing in position to enter the perforation of the stem, a pin projecting through the angular slot for moving the first-mentioned pin, and the governor provided with a perforated stem within the slot of the valve-stem and adapted to be locked against longitudinal movement therein by the spring-pressed pin.

2. In a water-wheel, a pressure-cylinder, a gate-shaft operatively connected with said cylinder for regulating the water-supply, a valve-cylinder communicating therewith, a longitudinally-movable valve-stem therein provided with openings to form ports and having its stem slotted longitudinally and perforated, a bolt through one of said perforations, a link upon each end of the bolt and extending along the slotted portion, the free end of which is provided with an outwardly-extending pin, a support on the head of the valve-cylinder, an arm pivotally secured therein, one end of which is forked and engages with the pin in the ends of the link, a governor, the stem of which fits within the slotted portion of the valve-stem, and means for detachably locking said governor-stem against longitudinal movement in the valve-stem.

689,143. **HOSE-COLLAR.** HOWN L. BROWNE, East Orange, N. J. Filed Oct. 27, 1900. Serial No. 68,981. (No model.)



Claim.—1. In a hose-collar, the combination with frame-sections pivoted together at the top and having means for separable connection at the bottom, of a single pneumatic neck having enlarged ends arranged at the sides of the collar against said sections and a reduced middle portion extending along the hinged upper ends of the sections and held therein, said reduced middle portion permitting free action of the hinged and supporting the depending end portions, and said end portions terminating short of the separable connecting means at the bottom of the collar, substantially as set forth.

2. In a hose-collar having frame-sections pivoted together at the top and separable at the bottom, a single elongated pneumatic neck extending around the upright sides and the top of the collar and being supported at its middle portion to the frame-sections at their point of hinging, the end portions of said neck depending at the sides of the collar and being adapted to cushion the said sections, said end portions terminating short of the point of separation of said sections at the bottom of the collar, substantially as set forth.

3. The improved hose-collar having a frame consisting of tubular sections, a covering inclosing said sections and secured thereto along a longitudinal line at one side, flaps, of soft cushion-like material covered partly around the frame-sections and at the side edges projecting laterally from said sections, and an elongated pneumatic neck within said covering and lying against the said cushion-like flap at the angle formed between the tubular frame-sections and covering, substantially as set forth.

4. In a pneumatic collar, the combination with the frame, and covering fastened outside of said frame, of a cushion-like flap covered partly

around said frame, the opposite edges projecting oppositely and adapted to lie in the angles formed by the frame and cover and a pneumatic neck protected at said angles by said flaps, substantially as set forth.

5. In a pneumatic collar, the combination with the frame, a covering inclosing said frame and being fastened thereto along one side, cushion-like flaps secured to the frame and adapted to enter the angles formed between the covering and frame, and a pneumatic neck, protected at said angles, when inflated, by said flaps, substantially as set forth.

6. In a pneumatic collar, the combination with the frame and covering, of a pneumatic neck within said covering and having air-tight walls, a bag within said neck whose walls permit free passage of air, and cushioning material in said bag, whereby said cushioning material may be removed from the neck in its bag and its shape retained.

7. In a pneumatic collar, the combination of hinged frame-sections, a covering for each section, a right yoke lying beneath the hinged flap, a flap at its middle portion made fast to said yoke and held away from the hinged end at its end portions lying against the adjacent ends of the sections, and a pneumatic neck protected from the hinged flap by said flap, substantially as set forth.

8. In a pneumatic collar, the combination of hinged frame-sections, a tubular covering for each section, a pneumatic neck having its end portions lying within said coverings and its middle portion extending from the inner side thereof, and flaps, of a cushion-like material, one on the outside and one on the inside thereof, substantially as set forth.

9. In a pneumatic collar, the combination of hinged frame-sections, a covering for each section, a pneumatic neck having its end portions lying within said coverings and its middle portion extending across the hinge-joint on the inner side thereof, and flaps, of a cushion-like material, one on the outside and one on the inside thereof, substantially as set forth.

10. In a hose-collar, the combination with tubular side sections threaded at their ends, of a hinge for joining the ends of said sections and comprising members cast from suitable metal and each consisting of a comparatively thin plate having at one end perforated lugs adapted to receive the hinge-pin and at the other end bosses to which the frame-sections may be secured, and a block of wood or other light substance filling the intermediate part of the hinge-leaf flush with the said bosses and lag, substantially as set forth.

11. In a hose-collar, the combination with the frame-sections, of a metal hinge, the leaves of which are turned upward at the forward side edges and provided at the ends with pivotal lugs for the hinge-pin and with bosses to which the frame-sections are secured and blocks of wood or other light substance secured upon the central parts of the upper surfaces of the leaves and lying flush at the top with the said pivotal lugs and bosses, substantially as set forth.

12. In a hose-collar, the combination with sections hinged at the top, of a catch for detachably connecting their lower ends and comprising tubular male and female members secured one to each section and adapted to enter one into the other telescopically, the male member having laterally a pivoted catch-hook and a spring normally holding said catch-hook in latching position, its end being suitably beveled to enter the female member automatically, and said female member having in its side wall an aperture serving the double purpose of providing a stop-shoulder for the catch-hook to engage in latching and a finger-opening for releasing the catch-hook in unlatching, substantially as set forth.

689,144. **MEANS FOR CLEANING SHIP'S HULL.** WALTER E. BUE, Albany, New South Wales, Australia. Filed July 12, 1901. Serial No. 67,948. (No model.)



Claim.—1. In a mechanism for cleaning a ship's hull, the combination of a curved carrier-rod, a rotatable cleaning-cylinder mounted on the

bow of said carrier-rod and provided with external cleaning elements, and means substantially as set forth for adjusting said cleaner-cylinder lengthwise of, and vertically with respect to, a ship's hull.

2. In a mechanism for cleaning a ship's hull, the combination of a carrier-rod provided with a rest, a carriage in which the carrier-rod is slidably fixed, an operating-shaft journaled in the carriage and having a gear element meshing with said rest, and a cleaner-cylinder rotatably mounted on the carrier-rod and provided with external cleaning elements, as and for the purposes set forth.

3. In a mechanism for cleaning a ship's hull, the combination of a vertical longitudinally-curved carrier-rod, an open-ended cleaner-cylinder rotatably mounted on said carrier-rod and provided with an internal propeller and with external brushes, a carriage having means for slidably supporting the same on the outside of a ship's hull, and operative connections between said carriage and the carrier-rod whereby the latter may be raised or lowered and may be adjusted laterally with respect to the hull, substantially as and for the purposes described.

4. In a machine for cleaning a ship's hull, the combination of a cleaner-cylinder open at both ends and provided with an internal propeller and with external spiral brushes, the pitch of said brushes corresponding to the pitch of the propeller, a carrier-rod on which said cleaner-cylinder is rotatably mounted, a carriage, and means for pivotally and adjustably connecting the carriage and the carrier-rod together and permitting said carrier-rod to swing on a horizontal axis and to perform the lateral movement with relation to the hull, substantially as and for the purposes set forth.

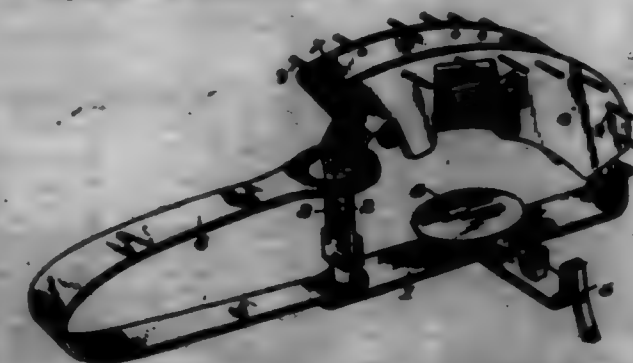
5. In a mechanism for cleaning a ship's hull, the combination of a slide-rod, a carriage mounted on said rod and adapted to be moved thereon, a carrier-rod fitted in said carriage and adjustable vertically therein, and a cleaner-cylinder supported by the carrier-rod, substantially as and for the purposes set forth.

6. In a mechanism for cleaning a ship's hull, the combination of bearing-bars supporting a slide-rod, means for slidably supporting said bearing-bars on the side of a ship's hull, a carriage slidably mounted on said rod, a carrier-rod adjustable in said carriage, and a cleaner-cylinder supported on the carrier-rod, as and for the purposes set forth.

7. In a mechanism for cleaning a ship's hull, the combination of a slide-rod, a carriage, a post having swivelled connection with the carriage and slidably fitted to the slide-rod, a carrier-rod adjustable in said carriage, and a cleaner-cylinder supported on the carrier-rod, substantially as and for the purposes set forth.

8. In a mechanism for cleaning a ship's hull, the combination of a cleaner-cylinder, means for adjustably and loosely preventing said cleaner-cylinder in a submerged condition and in operative relation to a ship's hull, a screw-spindle, a bow-plate connected to the spindle and adapted to fit a ship's bow, an operative connection between the bow-plate and the submerged cylinder, and means for adjusting said spindle and the bow-plate, as and for the purposes described.

689,145. **ANIMAL-TRAP.** JOHN B. BULLER, Bland, Ark. Filed July 13, 1901. Serial No. 68,194. (No model.)

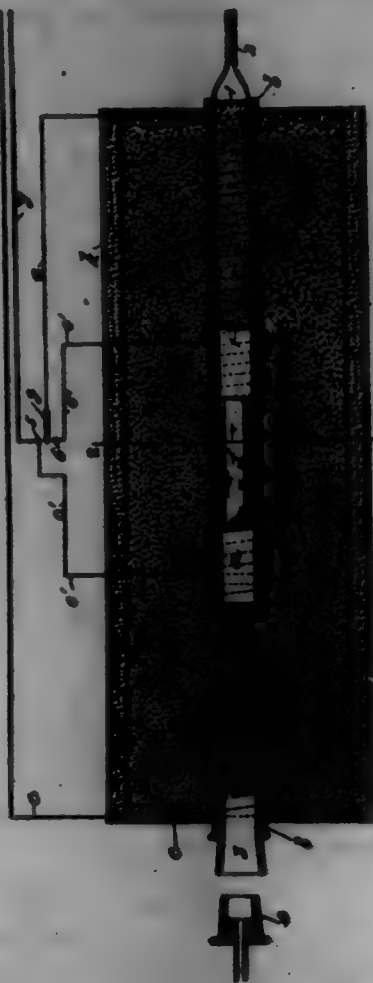


Claim.—An attachment for animal-traps consisting of a guard member for attachment to the jaw and having outwardly-extending teeth or points 9 as and for the purposes specified.

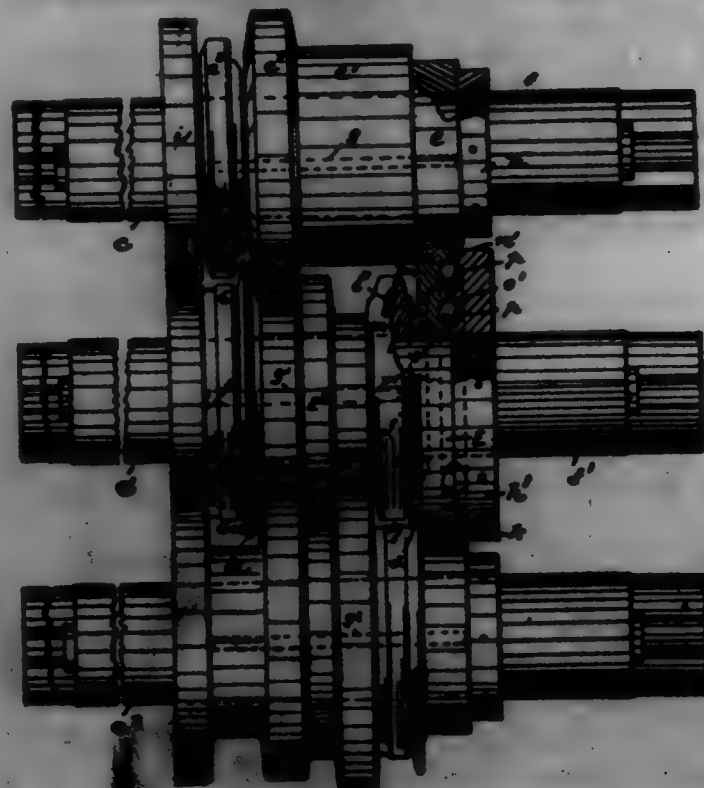
689,146. **ELECTRIC COMBUSTION-FURNACE.** WILLIAM H. GARR, East St. Louis, Ill., assignor to Shultz, Harrison and Howard Iron Company, East St. Louis, Ill. Filed Mar. 3, 1902. Serial No. 68,696. (No model.)

Claim.—In an electric combustion-furnace, the combination with the combustion-tube, and with its inclosing cylinder, of two wires separate from each other, one of the said wires being wound spirally around the end portion of the said cylinder, and the other wire wound spirally around the middle portion of the said cylinder, and means for passing an electric current alternately through the wire around the said end portion

tion, and through both the said wires simultaneously, substantially as described.



699,147. ROLL. EDWARD E. CHARLTON, Milwaukee, Wis., assignor to the Continuous Roll Joint Company of America, a Corporation of New Jersey. Filed June 24, 1901. Serial No. 66,800. (No model.)



Claim.—A roll for rolling metal, having in its periphery an annular pass-groove one side wall of which is formed by a fixed portion of the roll and the other by a loose portion.

2. A roll for rolling metal, said roll presenting an annular peripheral pass-groove, and having an annular fixed flange forming one side wall of said groove and a rotatably loose ring or sleeve forming the other side wall of the groove.

3. A roll for rolling metal, having two peripherally-projecting flanges forming a pass-groove between themselves, one of said flanges being fixed and the other being rotatably loose.

4. A roll for rolling metal, having a fixed annular projection and a rotatably loose ring, said parts having their centers in the same axial line and being adapted to receive metal between themselves.

5. A roll for rolling metal, having at its periphery annular shoulders or projecting walls facing toward each other one of which is fixed and the other rotatably loose with respect to the roll.

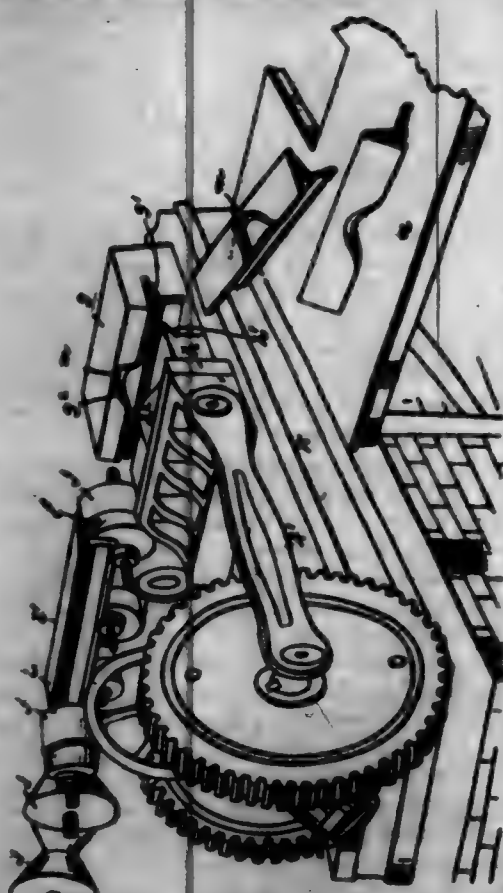
6. A roll for rolling metal, having peripherally-projecting annular shoulders or walls adapted to engage the metal in rolling, one of said shoulders or walls being fixed and the other rotatably loose.

7. A roll, having a pass-groove, one side wall of which is fixed with respect to the body of the roll, a ring or sleeve fitted loosely on the body of said roll and forming the opposite side wall of said pass-groove, and means for preventing longitudinal displacement of said ring or sleeve.

8. A roll, having a rotatable pass-groove disposed at or nearly at right angles to the roll, a loose annular or transverse section of the roll forming one side wall of said pass-groove, and means for preventing displacement of said section longitudinally of the roll.

9. The herein-described roll, comprising a body part presenting an outwardly-projecting annular shoulder and having a spindle *f*, a ring or sleeve *c*, loose on said spindle and forming between itself and the said shoulder a pass-groove, and a holding-rod *h*, secured on said spindle outside the sleeve.

699,148. MEANS FOR FORMING FINE-PLATE. EDWARD E. CHARLTON, Milwaukee, Wis., assignor to the Continuous Roll Joint Company of America, a Corporation of New Jersey. Filed Aug. 10, 1901. Serial No. 71,611. (No model.)



Claim.—1. The herein-described die *g*, *h*, for forming guide *m*, on fish-plates, comprising a female die having at one lateral face a recess or groove *g'*, to receive a fish-plate, the upper overhanging edge of the die being cut away at its middle portion, and a male die *h*, adapted to fit at its lateral face against a fish-plate as it lies in the female member, and having a projection *h'*, to enter the recess in upper edge of said female member.

2. The herein-described means for forming an upright guide on the base member of fish-plates having an upright portion and doubled base, comprising a fixed die member grooved at its lateral face to receive the doubled base of the fish-plate and having a portion of its face at one side of said groove cut away to expose the base member of the fish-plate, and a reciprocating male die member having a face adapted to fit against a fish-plate as it lies in the female die member and having a projection to enter the cut-away portion thereof and bend up the exposed base member of the fish-plate.

3. The combination with the fixed die member *g*, having in its lateral face a groove *g'*, for holding a fish-plate in inverted position and a recess *g'*, exposing the base member of said fish-plate, a movable member *h*, having a projection *h'*, adapted to enter said recess *g'*, and bend up the exposed portion of the base member, and means for automatically supplying fish-plates in said inverted position.

4. The combination with means for delivering fish-plates of the character described each with its base in vertical position, of conveyor-rollers

f, adapted to give a fish-plate a quarter-turn, while carrying it forward, and bring its base uppermost, and bending-die adapted to receive between themselves a fish-plate in said position, and having one a recess exposing the base member and the other a projection adapted to enter said recess and bend up the exposed portion of said base member.

699,149. IMPROVED MACHINERY. EDWARD E. CHARLTON, Milwaukee, Wis., assignor to the Continuous Roll Joint Company of America, a Corporation of New Jersey. Filed Aug. 10, 1901. Serial No. 71,612. (No model.)



Claim.—1. In a building-block-embossing machine, a die comprising a casing and a core, brackets extended forward from the casing, rollers supported by the brackets, and an embossing-cylinder engaging with its inner surface against said rollers, substantially as specified.

2. In a building-block-embossing machine, a die comprising a casing and a core, brackets extended forward from the casing at opposite sides, rollers adjustable vertically in said brackets, and an embossing-cylinder having its inner surface engaged by said rollers, substantially as specified.

3. In a building-block-embossing machine, the combination with a die comprising a casing and a core, of brackets projecting from the casing, an embossing-cylinder, bearing-rollers for the cylinder at the ends of the brackets, and rollers mounted in the brackets intermediate of their ends and traveling on the inner surface of the embossing-cylinder, as set forth.

4. In a building-block-embossing machine, brackets for supporting an embossing-cylinder and brackets being adapted to be secured to the machine and each provided with an inclined slot at each end, a vertical slot at its middle, and a standard slot at its middle, as and for the purpose set forth.

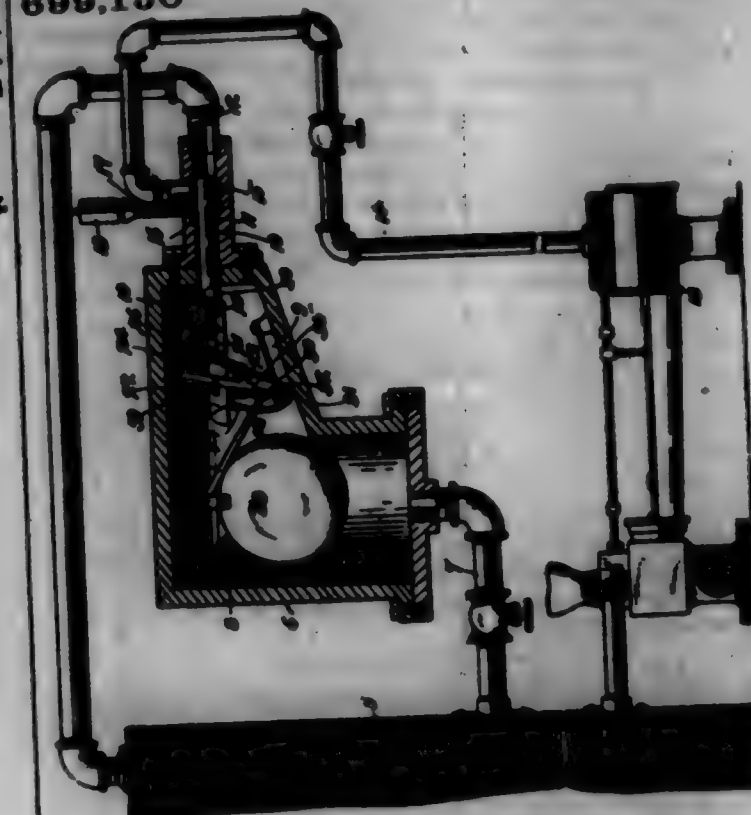
699,150. ROLLER-PISTON-REGULATING VALVE AND DEVICE FOR OPERATING SAME. EDWARD E. CHARLTON, Milwaukee, Wis., assignor to the Continuous Roll Joint Company of America, a Corporation of New Jersey. Filed Aug. 10, 1901. Serial No. 71,613. (No model.)

Claim.—1. The combination with an open-ended valve-rod having spaced ports opening thereinto between its ends, and continued throughout the inner circumference of the rod, of a valve disposed slidably in the rod and adapted successively to cover both ports and to uncover them, said valve having a passage therethrough and opening therefrom beyond the ports when the valve is in position to cover both ports.

2. The combination with a valve-rod having connections at both ends for supplying fluid-pressure thereto, said valve-rod having ports leading thereto between its ends and being continued at their inner ends, of a valve slidably disposed in the rod to cover and uncover the ports, said valve having a passage therethrough for conveying fluid under pressure from one to the other of said connections, a rocker connected with the valve and carrying spaced abutments, a seat, and a lever carried by the seat and having a projection to engage the said abutments.

3. The combination with a valve-rod having a port therein, of a valve in the rod for opening and closing the port, a rocker pivoted for movement from one side to the other of its center of oscillation and operatively connected with the valve to move it into open and closed position, a frame connected to the rocker above its pivot, a spring connected to the frame below the pivot of the rocker for holding the rocker yieldably at either side of its center of oscillation, a fluid-lever operatively connected with the rocker to move it over its center of oscillation, and stops carried by the frame for limiting the movement of the valve in either direction under the influence of said spring.

699,150



699,151. CAMER FOR HORSE-COLLAR. ARTHUR C. OWEN, Atlanta, Ga., assignor to Owen Brothers & J. J. Ryan Company, Atlanta, Ga., a Corporation of Georgia. Filed Oct. 7, 1901. Serial No. 77,804. (No model.)



Claim.—1. A casing for a section of a horse-collar, consisting of a single piece of material provided with a V-shaped notch and folded upon itself into two unequal parts, the edges of the notch substantially meeting and being attached together, the wider part of the casing being folded inward upon itself to form a rim, the edge of the narrower part of the casing being turned inward but overlapping the folded portion of the wider part of the casing, the whole being united by stitching from the outside through the overlapping portions of the casing, substantially as described.

2. A casing for a section of a horse-collar, consisting of a single piece of material provided with a V-shaped notch and folded upon itself into two unequal parts, the edges of the notch substantially meeting and being attached together, the wider part of the casing being folded inward upon itself to form a rim and held by a line of stitching, the edge of the narrower part of the casing being also turned inward but overlapping the stitching of the rim, the whole being united from the outside by stitching through the folded portions and parts of the casing, and the material being gathered near the notched portion to give a curved shape to the casing when stretched, substantially as described.

3. A casing for a section of a horse-collar, consisting of a single piece of material provided with a V-shaped notch and folded upon itself into two unequal parts, the edges of the notch substantially meeting and being attached together, the wider part of the casing being folded inward upon itself to form a rim and held by a line of stitching, the edge of

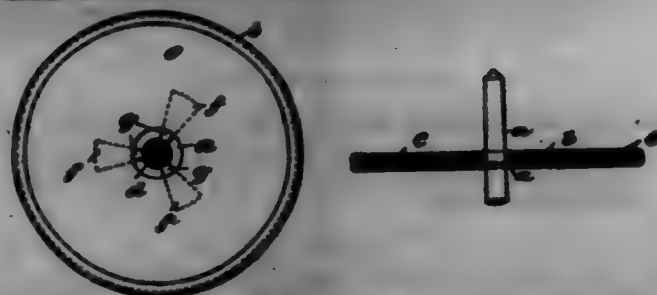
the narrower part of the casing being also turned inward but overlapping the stitching of the rim, the whole being united from the outside by substantially parallel rows of stitching through the folded portions and parts of the casing, substantially as described.

4. A casing for a section of a horse-collar, consisting of a single piece of material provided with a V-shaped notch and folded upon itself into two unequal parts, the edges of the notch being stitched together, the wider part of the casing being folded inward to form a rim, the edge of the narrower part of the casing overlapping the folded portion of the wider part, the whole being united by stitching from the outside through the overlapping portions of the casing, substantially as described.

5. A casing for a section of a horse-collar, consisting of a piece of material provided with a notch and folded upon itself into two parts, the edges of the notch being stitched together, one part of the casing being folded inward to form a rim, the edge of the other part of the casing overlapping said inwardly-folded portion, and the whole being united by stitching through the overlapping portions of the casing, substantially as described.

6. A casing for a section of a horse-collar, consisting of a piece of material provided with a notch and folded upon itself, one portion of the casing being folded inward to form a rim and another portion overlapping said inwardly-folded portion, the whole being united by stitching, substantially as described.

699,153. RING-SPINNING, DOUBLING, OR TWISTING MACHINE. FREDERICK P. GRAVER, Manchester, England. Filed May 14, 1907. Serial No. 51,886. (No model.)



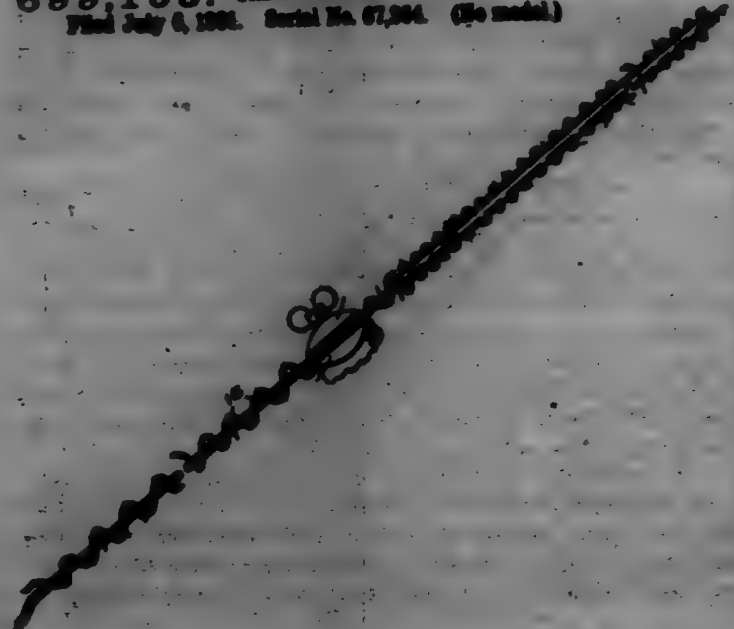
Claim.—1. In combination in the disk of a ring-spinning, doubling, or twisting machine spindle, the disk-springs adapted to exert pressure upon the sides of the spindle and a case or cover including the said springs between itself and the disk substantially as described.

2. In the disk of a ring-spinning, doubling, or twisting machine spindle the construction of the disk in two pieces, a of sheet metal or other suitable material, having the springs *y* located between them, one of the said pieces *b* being formed with recesses *z* adapted to receive and hold the fixed ends of the springs *y* substantially as described.

3. In ring-spinning, doubling or twisting machine the combination with the ring-roll 3 and spindle-disk 5 of a lifting-piece 2 attached to the ring-roll 3 and adapted to come in contact with the under side of the disk 5, as the ring-roll 3 approaches the end of each upward movement, before the traveler 4 reaches the said disk, substantially as described.

4. In ring-spinning, doubling, or twisting machine the combination with the disk-lifting piece 2, of the traveler-clearing device 5 and lifting-piece 2 being arranged to lift the disk and prevent engagement of the traveler therewith substantially as described.

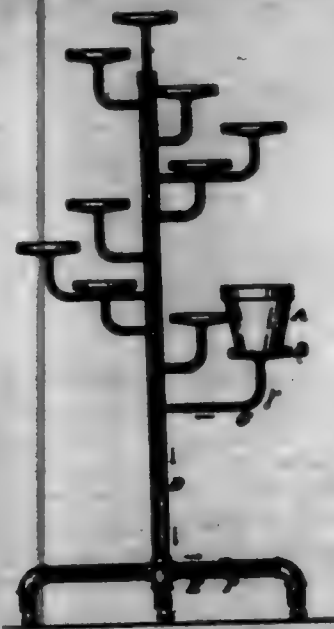
699,158. TAPE-REELER. THOMAS A. GREEN, Norwich, N. Y. Filed July 6, 1904. Serial No. 67,364. (No model.)



Claim.—1. A combined loop pick-up and ribbon-tube for machines for inserting ribbon in lace, consisting of a needle-body, and a ribbon-tube attached to the one end of said needle-body, the said tube being provided with a hole near the point of attachment of the said ribbon-tube to said needle-body, the said hole extending through the side of the said ribbon-tube into the tubular portion of the said ribbon-tube, into which a piece of ribbon is inserted and passed through the said tube, substantially as and for the purposes set forth.

2. A combined loop pick-up and ribbon-tube for machines for inserting ribbon in lace, consisting of a needle-body having at one end a curved "pick-up" for gathering lace upon said needle-body, and a ribbon-tube secured to the other end of said needle-body, said tube having an oval or elliptical shape in cross-section, and said tube having an opening near the end of its attachment to the needle-body, substantially as and for the purposes set forth.

699,154. FLOWER-STAND. MARY A. DE FOSSE, CURT, Pa., assignor of two-thirds to Dennis Fosse and George A. Williams, Juncos-town, N. Y. Filed Aug. 26, 1904. Serial No. 73,686. (No model.)



Claim.—1. In a flower-stand, a complete stand made of pipe and suitable couplings thereto, flower-pot cups on said pipe having openings into said pipe as a receptacle for drainage, and means for controlling the confinement and discharge of said drainage as desired, substantially as shown and described.

2. In a flower-stand, a complete movable stand made of pipe and suitable couplings thereto, cups on said pipe having openings for drainage into said pipe as a temporary receptacle, a stop-cock or faucet secured in said pipe near its lower part to confine or empty said drainage as desired, and wheels or casters on said stand for moving it about, substantially as shown and for the purposes specified.

699,155. PREPARATION OF COLLOID FOR THE MANUFACTURE OF ARTIFICIAL SILK. JULIUS DUBOIS, Paris, France. Filed Mar. 4, 1902. Serial No. 97,008. (No specimens.)

Claim.—1. The process above described for manufacturing artificial silk by means of cellulose obtained by the solution of pyruvic acid at low temperatures until it contains six to ten per cent. of water, is a mixture compounded according to the quality of the cellulose employed of ether, alcohol and an aqueous alkaline solution (potash, soda, ammoniac, or their carbonates, lithia, lime, baryta, sodium borate, potassium or sodium silicate or the like).

2. The process of preparing cellulose for the manufacture of artificial silk which consists in washing pyruvic acid, subjecting it to centrifugal action to eliminate water therefrom, exposing the same to a drying atmosphere until it is brought to a hygroscopic condition of about six to ten per cent., and subjecting it to the action of a mixture of alcohol, ether and an aqueous alkaline solution.

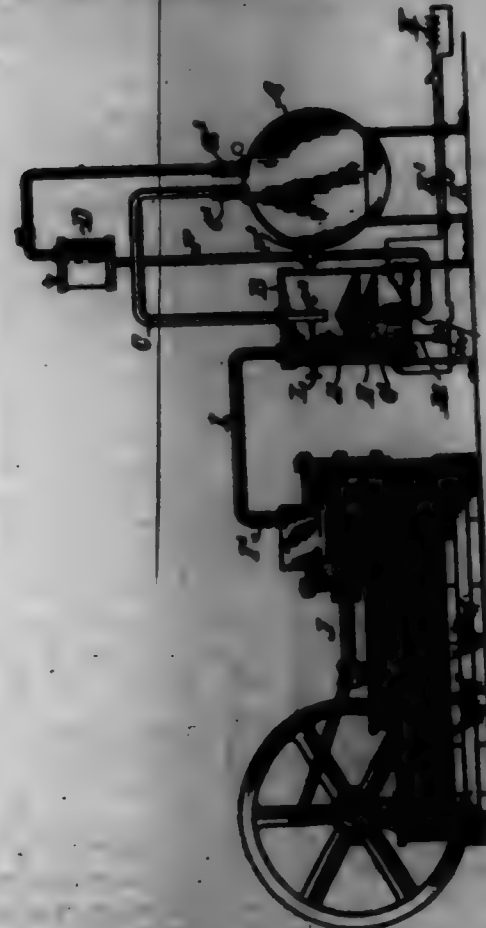
3. The process of preparing cellulose for the manufacture of artificial silk which consists in washing pyruvic acid, subjecting it to centrifugal action to eliminate water therefrom, exposing the same to a drying atmosphere until it is brought to a hygroscopic condition of about six to ten per cent., and subjecting it to the action of a solvent.

4. The process of preparing cellulose for the manufacture of artificial silk which consists in subjecting pyruvic acid to the action of a mixture of alcohol, ether, and an alkaline solution.

5. The process of preparing cellulose for the manufacture of artificial silk which consists in bringing pyruvic acid to a hygroscopic condition

of about six to ten per cent. and subjecting it to the action of a mixture of alcohol, ether and an alkaline solution.

699,156. COMPRESSED-AIR HEATER. CHARLES E. DUNN, New York, N. Y., assignor to John C. Henderson, New York, N. Y. Filed Jan. 12, 1901. Serial No. 68,864. (No model.)



Claim.—1. In a compressed-air heater, the combination with a motor adapted to be driven by compressed air, of a compressed-air chamber, an expanding-chamber provided with an air-inlet, a burner within the expanding-chamber for heating the air, and wire screens arranged in the expanding-chamber and interspersed between the burner and the air-inlet, substantially as described.

2. In a compressed-air heater, the combination with an expanding-chamber of a liquid-supply pipe entering the lower portion thereof, a burner at the termination of the said pipe within the chamber, an air inlet and outlet at the upper end of the chamber, and a series of horizontally-arranged wire screens or diaphragms in the chamber interspersed between the burner and the air inlet and outlet, substantially as described.

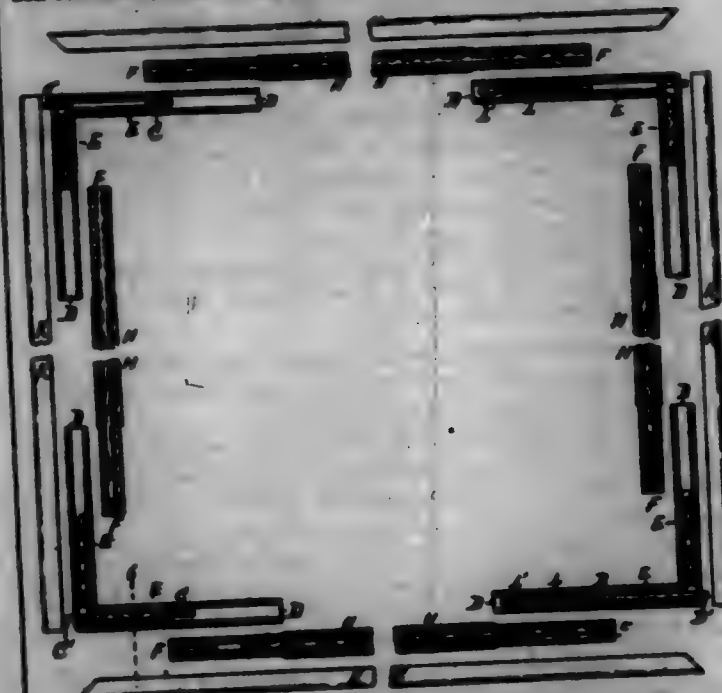
3. In a compressed-air heater, the combination with an expanding-chamber of a liquid-supply pipe entering the lower portion thereof, an outlet-pipe at the upper end of the chamber, a compressed-air inlet pipe also at the upper end of the chamber, a burner at the termination of the liquid-supply pipe within said chamber, a wire-glass head covering the same, and a plurality of wire-glass diaphragms arranged in the expanding-chamber, dividing the portion of the said chamber which contains the liquid from the portion of the chamber having the inlet and outlet pipes for compressed air, substantially as described.

699,157. WINDOW-CURTAIN. FRANKLIN C. BARNHAM, Cambridge, and ALBERT S. BARNHAM, Brooklyn, Mass. Filed Oct. 7, 1904. Serial No. 77,816. (No model.)

Claim.—1. In a window-curtain of the character described, corner-plates, each comprising two interlocking longitudinally channel-shaped plates disposed with the channel and web of one plate opposite the channel and web of the other plate, thereby producing a hollow corner-plate; and intermediate side, top and bottom bars connecting said corner-plates, and interlocking or interlocking therewith, substantially as set forth.

2. In a window-curtain of the character described, corner-plates, each comprising two interlocking longitudinally channel-shaped plates disposed with the channel and web of one plate opposite the channel and web of the other plate, thereby producing a hollow corner-plate; and each said bar comprising two interlocking longitudinally channel-shaped plates disposed with the channel and web of one plate opposite the channel and web of the other plate, said intermediate bars interlocking or interlocking with the corner-plates, substantially as described.

3. In a window-curtain of the character described, corner-plates, each comprising two interlocking longitudinally channel-shaped plates disposed with the channel and web of one plate opposite the channel and web of the other plate, thereby producing a hollow corner-plate; and intermediate side, top and bottom bars connecting said corner-plates, and each said bar comprising two interlocking longitudinally channel-shaped plates disposed with the channel and web of one plate opposite the channel and web of the other plate, said intermediate bars interlocking or interlocking with the corner-plates, the joints of the portions constituting the corner-plates and the portions constituting the intermediate bars being non-extended, substantially as set forth.



4. In a window-curtain of the character described, corner-plates, each comprising two oppositely-disposed interlocking channel-shaped bars; intermediate side, bottom and top rails, each comprising two oppositely-disposed interlocking channel-shaped bars, the intermediate bars interlocking with the corner-plates; and covering-bars extending along one side of the frame thus constructed and interlocking with the pairs of channel-shaped bars in the corner-plates and intermediate rails, substantially as described.

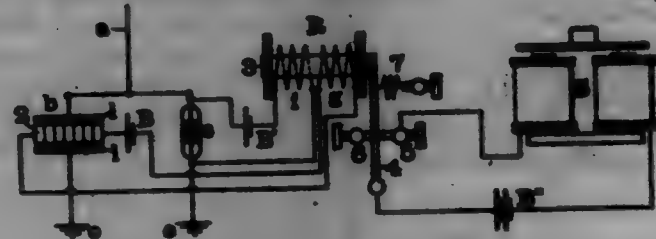
5. In a window-curtain of the character described, the corner-plates, each consisting of the bar consisting of the web *D*, flanges *D'*, *D''*, and flaps *D'''*, *D''''*, said flange *D'* and flap *D''* being continuous at and around the corner, and the bar consisting of the web *E*, flanges *E'*, *E''* and flaps *E'''*, *E''''*, said flange *E'* and flap *E''* being continuous at and around the corner; and the intermediate rails each consisting of the bar consisting of the web *F*, flanges *F'* and flaps *F''*, and the opposite bar *G* of similar shape to the bar *D*, *D'*, *D''*, *D'''*, *D''''*, the bars of the corner-plates and those of the intermediate rails interlocking, substantially as set forth.

6. In a window-curtain of the character described, the corner-plates, each consisting of the bar consisting of the web *D*, flanges *D'*, *D''*, and flaps *D'''*, *D''''*, said flange *D'* and flap *D''* being continuous at and around the corner, and the bar consisting of the web *E*, flanges *E'*, *E''* and flaps *E'''*, *E''''*, said flange *E'* and flap *E''* being continuous at and around the corner; the intermediate rails, each consisting of the bar consisting of the web *F*, flanges *F'* and flaps *F''*, and the opposite bar *G* of similar shape to the bar *D*, *D'*, *D''*, *D'''*, *D''''*, the bars of the corner-plates and those of the intermediate rails interlocking; and the angle-shaped covering-bars *K*, *K'*, their flaps *K''* extending into engagement with the corner-plates between the flaps *D'''* and flanges *E'* and between corresponding flaps and flanges in the intermediate rails, substantially as described.

7. In a window-curtain of the character described, hollow corner-plates; engaging clips having their shafts extending into the corner-plates and with hook-shaped outer ends extending beyond the edges of the frame of the curtain; compressed springs within the corner-plates connecting the shafts of the clips with the corner-plates; and a runway or vertically-grooved guide next the window-frame into which the clips extend, substantially as set forth.

8. In a window-curtain of the character described, hollow corner-plates; the engaging clips *B*, *B'*, *B''* having their shafts extending into the corner-plates on one side of the frame; compressed springs within the corner-plates connected at one end with the shafts and at the other end with the corner-plates; the engaging clips *C*, *C'*, *C''* extending from the corner-plates on the opposite side of the frame of the curtain and rigidly secured to said corner-plates; and the grooved guides *A*, *A'*, *A''*, *A'''*, *A''''* secured vertically to the window-frame and engaging with the clips, substantially as described.

699,158. WIRELESS-TELEGRAPH SYSTEM. CHARLES R. BAKER, Washington, D. C., assignor of one-half to American Wireless Telephone and Telegraph Company, a Corporation of Arizona. Filed Dec. 2, 1901. Serial No. 94,518. (No model.)



Claim.—1. In a signaling system, the combination of dissimilar wave-responsive devices conjointly controlling a translating device.

2. In a signaling system, the combination of dissimilar wave-responsive devices each having associated therewith a local circuit, said circuits being conjointly operative to produce a signal.

3. In a signaling system, the combination of dissimilar wave-responsive devices, and means controlled by each type of device, said means operating conjointly to produce a signal.

4. In a signaling system, the combination of dissimilar wave-responsive devices, and separate means controlled by each type of device, said means operating conjointly to produce a signal.

5. In a signaling system, a receiver selective of waves of two or more periodicities; dissimilar wave-responsive devices influenced by the waves of different frequencies; and separate means controlled by said wave-responsive devices, said means operating conjointly to produce a signal.

6. In a signaling system, the combination of dissimilar wave-responsive devices, and local circuits controlled by said devices, each of said circuits including a coil of a relay, said coils operating differentially on the magnetic circuit of said relay, substantially as described.

7. In a receiver, the combination of a receiver and an antireceiver, conjointly controlling a translating device.

8. In a receiver, the combination of a receiver and an antireceiver, a local circuit associated with each, and means for producing a signal controlled by said local circuits.

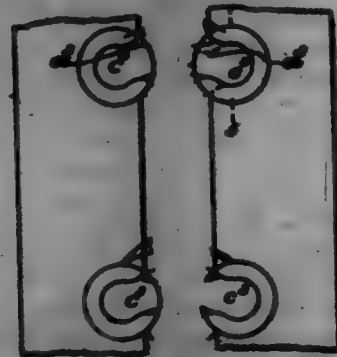
9. In a receiver, a receiver and an antireceiver, means controlled by each, said means operating conjointly to produce a signal.

10. In a receiver, the combination of a receiver and an antireceiver, a separate means controlled by each, said means operating conjointly to produce a signal.

11. A receiver selective of energies of different frequencies; a receiver and an antireceiver influenced respectively by the different energies, and means, conjointly operative to produce a signal, controlled by the receiver and antireceiver.

12. In a receiver, the combination of a receiver and an antireceiver, a local circuit controlled by each, a coil of a relay included in each circuit, said coils operating differentially on the magnetic circuit of said relay, substantially as described.

699,159. GEAR FOR WARPING-MACHINE. THOMAS C. BETHUNE, Lowell, Mass. Filed Oct. 31, 1900. Serial No. 736,396. (No model.)



Claim.—1. The combination with an upright, having a segmental cylindrical recess, of a hollow cylindrical bearing, adapted to fit said recess and to project laterally therefrom and having a lateral opening.

2. The combination with an upright, having a segmental cylindrical recess, the plane of section or segmental face of said recess coinciding with the vertical face of said upright, of a bearing, having a circular and provided with an arc-shaped marginal flange or curb, arranged perpendicularly thereto, the inner face of said flange near the ends of said flange being inclined outward and meeting the outer curved face of the recess and the lower end of said flange projecting beyond the face of said upright.

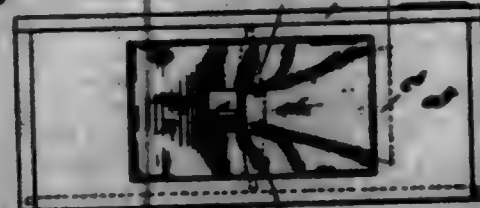
699,160. APPARATUS FOR DISPENSING ELECTRICITY IN DELIVERING CURRENTS INTO OR FROM PRINTING-PRESSES. FRANK A. STILES, Harrisburg, Pa., assignor of one-half to Hugo Henry, Harrisburg, Pa. Filed Feb. 2, 1901. Serial No. 48,728. (No model.)



Claim.—1. In a device for dispensing electricity from printing-presses, a half-oval or other shaped tube having a series of burners arranged in a line upon the top thereof, atmospheric inlets in one end of the said tube, a detachable wire-glass screen over the said burners and a connection to a supply-pipe, substantially as shown and described.

2. A device for dispensing electricity from paper, in combination with a printing-press, a half-oval or other shaped tube closed at both ends, a series of burners arranged upon the tube, a detachable wire-glass screen over the said burners, atmospheric inlets in one end of the tube and a connection to a supply-pipe, substantially as shown and described.

699,161. PANORAMIC CAMERA. JAMES FOSBERG, New York, N. Y., assignor to Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Filed Nov. 7, 1900. Serial No. 736,182. (No model.)



Claim.—1. In a panoramic camera, a lens and its holder and means for pivoting the holder under tension tending to swing it in either of two opposite directions to make an exposure, substantially as set forth.

2. In a panoramic camera, a lens and its holder provided with a light-confining tube, and a single operating device for swinging the lens-holder in either of two opposite directions to make an exposure, substantially as set forth.

3. In a panoramic camera, a lens and its holder provided with a light-confining tube, a tension-spring arranged to swing the lens-holder in opposite directions and means for setting the spring, substantially as set forth.

4. In a panoramic camera, a lens and its holder provided with a light-confining tube, means for swinging the lens-holder in opposite directions and a locking device under the control of the lens-holder-swinging means for temporarily locking the lens-holder at the limits of its swinging movement, substantially as set forth.

5. In a panoramic camera, a lens and its holder provided with a light-confining tube, a spring for swinging the holder in opposite directions, means for temporarily locking the lens-holder at the limits of its swinging movement and a device for imparting tension to the spring and releasing the lens-holder, substantially as set forth.

6. In a panoramic camera, a lens and its holder, an operating-disk having a pin-and-dot engagement therewith, a tension-spring, a device for temporarily locking the said disk and means for imparting tension to the said spring tending to swing the holder and for releasing the disk and thereby the holder, substantially as set forth.

7. In a panoramic camera, a lens and its holder mounted to swing, a stub-axis, a rotary disk carried thereby having a radial elongated dot therein, a pin carried by the holder in engagement with the said dot and a tension-spring engaged with the disk and the axis whereby rotary movement of the axis will impart a tension to the spring to swing the disk and thereby the holder, substantially as set forth.

8. In a panoramic camera, a lens and its holder mounted to swing, a stub-axis, a holder-operating disk carried thereby, a spring for locking the disk and means for releasing the spring comprising an arm loosely carried by the said axis and a tripping-arm fixed to the axis in position to operate the first-named arm as the axis is rotated, substantially as set forth.

9. In a panoramic camera, a lens and its holder mounted to swing, a stub-axis, a holder-operating disk mounted thereon, a tension-spring secured to said disk and having a flexible connection with the said axis whereby, as the axis is rotated, the spring will tend to rotate the disk and thereby the holder in a corresponding direction, substantially as set forth.

10. In a panoramic camera, a lens and its holder provided with a light-confining tube, means for swinging the holder and tube in opposite directions and ventholes for closing the inner end of the tube at the limits of its swinging movement comprising flexible flaps projecting into the path of the swinging movement of the tube, substantially as set forth.

11. In a panoramic camera, a camera-box having a removable bottom, top and bottom marginal guides covered within the box independently of the said bottom, and axis-pins for receiving the film-edges having their free ends removably engaged in the said bottom, substantially as set forth.

12. In a panoramic camera, a lens and its holder mounted to swing, a stub-axis, a holder-operating disk carried thereby, a spring for locking the disk and means for engaging the spring to release the disk and permit the spring to again return to its locking position, substantially as set forth.

13. In a panoramic camera, a lens, a light-directing chamber pivoted to swing together with the lens in opposite directions and means for swinging the said light-directing chamber and lens to make an exposure during the swinging movement in each of the two opposite directions, substantially as set forth.

14. In a panoramic camera, a lens, and light-directing chamber pivotedly mounted to swing together in opposite directions, means for swinging the lens and light-directing chamber to effect an exposure during the opposite swinging movements, and means for automatically locking the lens and light-directing chamber at both ends of each swinging movement, substantially as set forth.

15. In a panoramic camera, the combination with film-holding device embodying curved film-guides, and a pivoted oscillatory tube, of a reversible spring-motor for actuating the tube in opposite directions alternately, and a catch for retaining and releasing the tube.

16. In a panoramic camera, the combination with film-holding device embodying curved film-guides, and film-chambers at the ends, of a pivoted oscillatory tube, one end of which is movable over the film-guides and into line with the closed sides of the film-chambers, a reversible spring-motor for actuating the tube in opposite directions alternately, and a catch for retaining and releasing the tube.

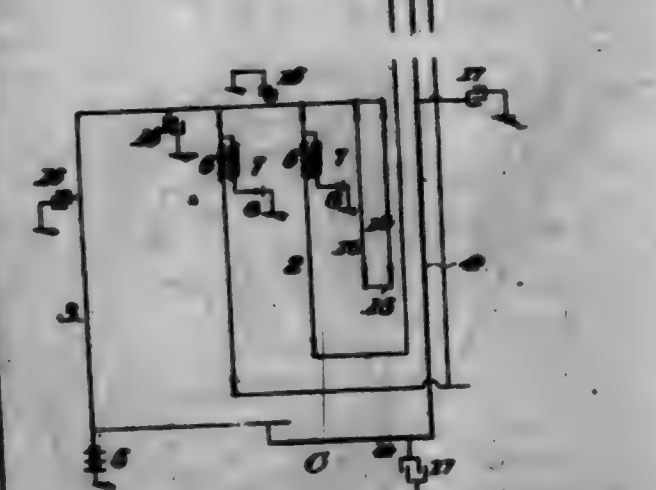
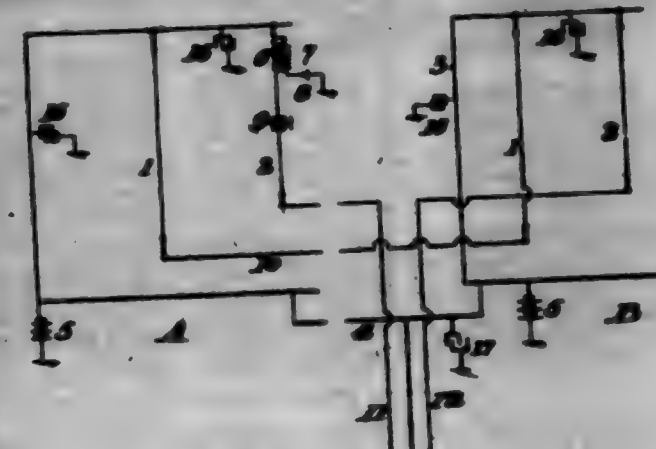
17. In a panoramic camera, the combination with curved film-guides, the film-chambers at the ends, and the flaps on the inner sides of the walls of the chambers, of the pivoted oscillatory tube, one end of which is movable over the film-guides and beyond the flaps, a reversible spring-motor for actuating the tube in opposite directions alternately, and a catch for retaining and releasing the tube.

18. In a panoramic camera the combination with a suitable case having a curved film-support and a swinging lens-holder adapted to turn on an axis concentric with said film-support, of mechanism adapted to turn said lens-holder alternately in opposite directions and comprising an actuating-spring, means for straining said spring and resetting said mechanism after each exposure for the next exposure, and means for manually releasing said mechanism, substantially as and for the purposes set forth.

699,162. TELEPHONE-CIRCUIT SYSTEM. RALPH F. FINE, Washington, D. C. Filed Nov. 12, 1900. Serial No. 56,628. (No model.)

Claim.—1. In a telephone-circuit system, a plurality of telephone-lines, a common return or battery-supply line, combined with a condenser, one side of which is connected to the earth, the other side of which is connected to the common return or battery-supply line, for the purposes specified.

2. In a telephone-circuit system, a plurality of telephone-lines, a common return or battery-supply line, a source of electric energy one pole of which is connected to the earth the other pole of which is connected to the common return or battery-supply line, combined with a condenser one side of which is connected to the earth the other side of which is connected to the said common return or battery-supply line for the purposes specified.

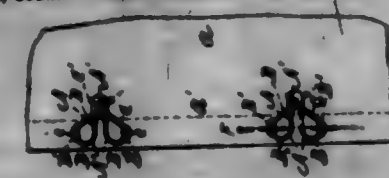


3. In a telephone-circuit system, a condenser, a telephone-circuit comprising a telephone-line and a common return-line, the latter of which is connected to the earth through said condenser.

4. In a telephone-circuit system, a telephone-circuit comprising a telephone-line and a common return-line, the latter of which is of relatively high static capacity to that of the former.

5. In a telephone-circuit system, a telephone-circuit comprising a telephone-line and a common return-line, the latter of which is of relatively high static capacity and low inductance to that of the former.

699,163. BOOK AND EYE. JUDITHA PETER, Chelsea, Mass. Filed Jan. 24, 1902. Serial No. 81,007. (No model.)

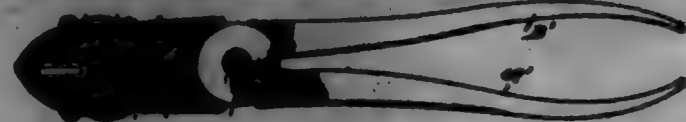


Claim.—The herein-described book for books and eyes, comprising the wire having its central portion formed into the raised tongue A and being bent from the tongue oppositely outward and downward into the loops B adapted to be curled to the garment near the edge thereof; and the wire extending from the outer edges of said loops inward toward each other, and then constituting inwardly-extending arms C, D, said arms crossing each other at substantially right angles centrally under the raised tongue A, and extending beyond each other as shown, the arm D being provided with a pointed end and curving the arm C between it and the tongue, whereby the arm C presses the central portion of the arm D toward the under side of the tongue to prevent withdrawal of the eye, the book being thus secured to the fabric in three places and bearing upon it in four places, substantially as described.

699,164. WIRE-TWISTING FLIER. JOHN R. GOSSETT, Philadelphia, Pa. Filed June 20, 1901. Serial No. 66,078. (No model.)

Claim.—1. In a tool of the character described, two jaws pivoted together, handles formed with said jaws, said jaws being formed within the jaws, said jaws being adapted to enter and rotate within the grooves in the blocks, said flanges adapted to enter and rotate within the grooves in the blocks, substantially as described.

jaws, ratchet-teeth formed upon the periphery of the semicircular block, a pawl pivoted in one of the jaws and adapted to engage the ratchet-teeth, semicircular grooves formed laterally across the flat face of each of the semicircular blocks, said grooves adapted to register with one another when the blocks are brought together for the purpose of grasping the article to be twisted, substantially as described and for the purpose set forth.



2. In combination with a pair of plates, two semicircular blocks, grooves formed laterally across the flat face of said semicircular blocks for the purpose of grasping the articles to be twisted, means for guiding the semicircular blocks within the jaws of the plates so as to allow said blocks to rotate when the jaws are together, ratchet-teeth formed in the periphery of the semicircular blocks, a pawl pivoted in one of the jaws of the plates and adapted to engage the ratchet-teeth, a spring adapted to hold the pawl in engagement with the ratchet-teeth, and a frictional spring adapted to bear against the block opposite from the one in engagement with the pawl, substantially as and for the purpose specified.

699,165. COTTON-CHOPPER. JAMES M. GRANT, JR., Ark. Filed Feb. 28, 1901. Serial No. 63,696. (No model.)



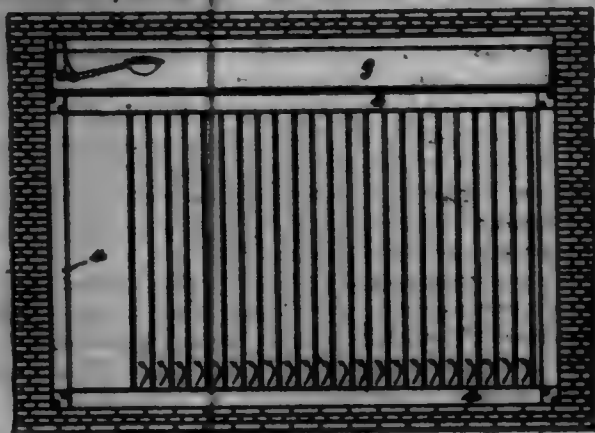
Claim.—1. In a cotton-chopper, the combination with a supporting-beam, of a standard movable longitudinally on said beam, a bar carried by said beam and locking said standard from longitudinal movement, a shaft carried by said standard, a support for the opposite end of said shaft, and a chopper carried by said shaft, substantially as described.

2. In a cotton-chopper, the combination with a beam, of a bifurcated standard having the legs thereof extending on the respective sides of the beam and connected above said beam, a bar pivoted to the beam and formed with slots engaging a projection carried by the standard, a shaft supported at one end in said standard, a bifurcated standard depending from the beam and receiving the opposite end of said shaft, a sleeve on said shaft between the bifurcations of the standard, and a chopper carried by said shaft, substantially as described.

699,166. APPARATUS FOR PURIFYING AIR. DAVID GROVE, Berlin, Germany. Filed May 29, 1900. Serial No. 714,736. (No model.)

Claim.—1. Is an air purifying and cooling apparatus, one or more series of air-channels, formed of partitions or walls of air-purifying material and arranged one behind the other, diagonally to the direction of the air, in combination with a water-distributing vessel above the air-channels

and a cloth immersed in the vessel, the edges of each cloth being located on the air-purifying material, as and for the purpose described.



699,167. SWITCH-ACTUATING MECHANISM. JOSEPH P. HARTY, Superior, Neb. Filed Aug. 21, 1901. Serial No. 72,794. (No model.)



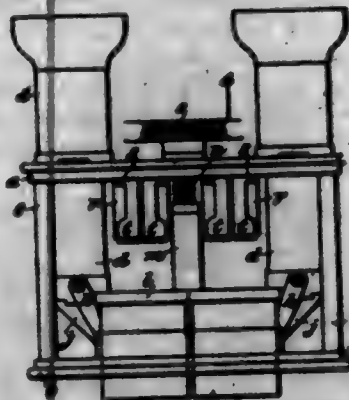
Claim.—1. The combination of the switch, the spindle, intermediate mechanism comprising levers and a connecting-rod, and a weight bearing on said levers to hold the switch as adjusted.

2. The combination of the switch, the spindle, intermediate mechanism comprising levers and a connecting-rod, and a weight bearing on said levers to hold the switch as adjusted, a part of said levers being pivoted to the spindle.

3. The combination of the switch, the rotatable spindle, intermediate mechanism comprising levers and a connecting-rod, a weight bearing on said levers to hold the switch as adjusted, and a signal fixed to the spindle.

4. The combination of the switch, the spindle, intermediate mechanism comprising levers and a connecting-rod, and a weight bearing on said levers to hold the switch as adjusted, said spindle being held against longitudinal movement.

699,168. PRISMATIC BINOCULAR TELESCOPE. FREDERICK R. HILL, London, England, assignor to Thomas Rudolph Hillier, county of Middlesex, England. Filed Sept. 30, 1901. Serial No. 77,066. (No model.)



Claim.—1. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, guides on one of the plates, a slide working in the guides, and an eyepiece-tube fixed to the slide.

2. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, two pairs of prisms carried by one plate, a pair of prisms and a pair of objective-tubes carried by the other plate, guides on the first plate, a pair of slides working in the guides, an eyepiece-tube fixed to each slide, and a prism fixed to each eyepiece-tube.

3. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, two pairs of prisms carried by one plate, a pair of prisms and a pair of objective-tubes carried by the other plate, guides on the first plate, a pair of slides working in the guides, an eyepiece-tube fixed to each slide, and a prism fixed to each eyepiece-tube.

extending from side to side of the instrument, a pair of objective-tubes passing through holes in one of the plates, and means for moving the objective-tubes in and out in the holes.

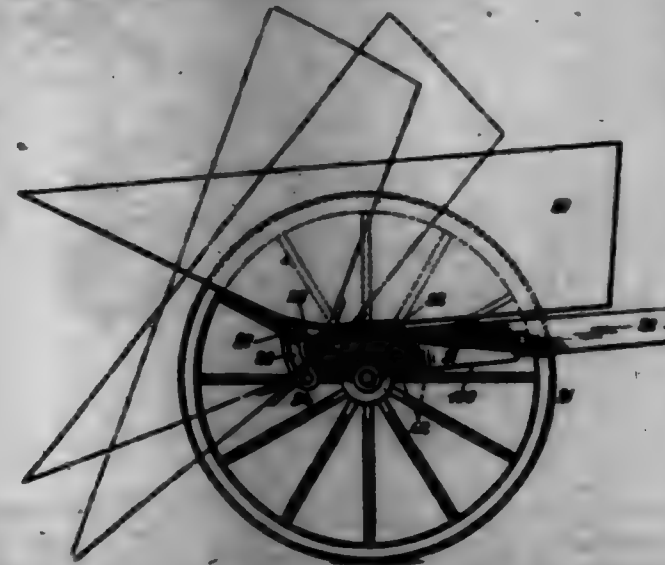
4. In a prismatic binocular telescope, the combination of a base-plate, a spring fixed to the base-plate, means on the base-plate and spring suitable for engaging with the edges of the prism, and a pivot about which the base-plate can turn.

5. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, two pairs of prisms carried by one plate, a pair of prisms carried by the other plate, guides on the first plate, a pair of slides working in the guides, an eyepiece-tube fixed to each slide, a prism fixed to each eyepiece-tube, a pair of objective-tubes passing through holes in the second plate, and means for moving the objective-tubes in and out in the holes.

6. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, three pairs of prism-holders, each prism-holder consisting of a base-plate, a spring fixed to the base-plate and means on the base-plate and spring for engaging with the edges of the prism, prisms in the holders, pivots connecting two pairs of the prism-holders to one plate and one pair to the other plate, guides on the first plate, a pair of slides working in the guides, an eyepiece-tube fixed to each slide, a prism fixed to each eyepiece-tube, a pair of objective-tubes passing through holes in the second plate, and means for moving the objective-tubes in and out in the holes.

7. In a prismatic binocular telescope, the combination of a framework consisting of two parallel plates rigidly connected together and extending from side to side of the instrument, guides on one of the plates, a slide working in the guides, an eyepiece-tube fixed to the slide and a prism fixed to the eyepiece-tube.

699,169. DUMPING-VEHICLE. THOMAS HILL, Jersey City, N. J. Filed Sept. 27, 1901. Serial No. 76,766. (No model.)



Claim.—1. In a dumping-vehicle, the side frames having the rear downwardly-turned bearing-surfaces 22 and slotted guide-frames 24, combined with the vehicle-body, the frame 24 secured to said body and comprising in one integral piece the transverse bar 25 and bearing-legs 29 and the shaft 27 mounted in said legs 29 and at its ends offering transverse extensions 30 into said slotted guide-frames; substantially as set forth.

2. In a dumping-vehicle, the side frames having the rear downwardly-turned bearing-surfaces 22 and slotted guide-frames 24, said side frames at a point to the front of said frames 24 having recesses which are open at their top at a point to the front of said surfaces 22, combined with the springs held within said recesses and exposed at the open top thereof, and the vehicle-body extending over said side frames and adapted to cushion on said springs, said springs being in line with said surfaces 22; substantially as set forth.

3. In a dumping-vehicle, the side frames having the rear downwardly-turned bearing-surfaces 22 and slotted guide-frames 24, combined with the vehicle-body, the frame 24 secured to said body and comprising the transverse bar 25 and longitudinal arms 26, and the shaft 27 mounted in said transverse bar and offering transverse extensions 30 into said slotted guide-frames, said arms 26 offering surfaces 28 for riding on said bearing-surfaces 22 during the dumping of said body; substantially as set forth.

4. In a dumping-vehicle, the side frames having the rear downwardly-turned bearing-surfaces 22 and slotted guide-frames 24, combined with the vehicle-body, the frame 24 secured to said body and comprising the transverse bar 25 and longitudinal arms 26, the shaft 27 mounted in said

transverse bar and offering transverse extensions 30 into said slotted guide-frames, the side frames for the vehicle-body, and the springs substantially concealed within said side frames and exposed at their upper ends, said arms 26 offering surfaces for riding on said bearing-surfaces 22 and also for engaging said springs; substantially as set forth.

5. The vehicle side frames having on their vertical sides the ears and at their lower ends the transverse flanges, and the axle-bar set between said flanges, combined with the parallel tie-rods connecting said side frames and having their ends extended downward through said ears, and the clip-plates securing said axle-bar and secured upon the mid ends of said tie-rods; substantially as set forth.

6. The vehicle-body having the transverse, combined with the side frames, and the shoes at the rear ends thereof and comprising in one integral piece the body portion, the downwardly-turned bearing portion and the slotted guide-frame to receive the body-transverse, the outer side of said shoes being in line with the front edges of said slotted frames; substantially as set forth.

7. The vehicle-body having the transverse, combined with the side frames, and the shoes at the rear ends thereof and comprising in one integral piece the body portion, the downwardly-turned bearing portion and the slotted guide-frame to receive the body-transverse, the outer side of said shoes being in line with the front edges of said slotted frames; substantially as set forth.

8. The vehicle-body having the transverse, combined with the side frames, the shoes at the rear ends thereof and comprising in one integral piece the body portion, the downwardly-turned bearing portion and the slotted guide-frame to receive the body-transverse, said shoes containing the openings in their top sides, combined with the springs substantially concealed within said shoes except at said openings for cushioning the vehicle-body; substantially as set forth.

9. The vehicle-body having the transverse, combined with the side frames, the shoes at the rear ends thereof and comprising in one integral piece the body portion, the downwardly-turned bearing portion, the slotted guide-frame to receive the body-transverse, the vertical ears on the inner side of said body portion, and the transverse flanges on the lower side of said body portion, the axle-bar confined between said flanges, the bolts passing through said ears at opposite sides of said axle-bar, and the clip-plates secured on said bolts and binding said axle-bar in position; substantially as set forth.

10. The vehicle-body having the transverse, combined with the side frames, the shoes at the rear ends thereof and comprising in one integral piece the body portion, the downwardly-turned bearing portion, the slotted guide-frame to receive the body-transverse, the vertical ears on the inner side of said body portion, and the transverse flanges on the lower side of said body portion, the axle-bar confined between said flanges, the parallel tie-rods having their downwardly-turned ends extended through said ears, and the clip-plates secured on said ends and binding said axle-bar in position; substantially as set forth.

699,170. STEAM-TRAP. JAMES W. HODSON, Jersey City, N. J., assignor of one-half to Henry C. Von, New York, N. Y. Filed Aug. 22, 1901. Serial No. 72,962. (No model.)



Claim.—1. A device of the class herein described comprising a horizontal body member having a valve-controlled outlet-port, as 6"; a diaphragm within said body member below said port, and having an orifice, as 7"; a float within said body member above said diaphragm, the said float being provided with a valve adapted to control said orifice; and means for limiting the rising and the falling movements of said float, the said body member being provided with a suitable inlet-opening substantially as herein specified.

2. A device of the class herein described comprising a hollow body member having a valve-controlled outlet-port, as 8"; a diaphragm within said body member, below said part, and having an orifice, as 7"; a valve for controlling said orifice; a float within said body member, above said diaphragm, the said float being adapted to rise and fall in its movements control the action of the valve last named; and means for limiting the rising and falling movements, respectively, of said float, the said body member being provided with a suitable inlet-opening, substantially as herein specified.

3. A device of the class herein described comprising a hollow body member provided with a valve-controlled outlet-port, as 8"; a diaphragm within said body member, below said part, and provided with an orifice, as 7"; a float within said body member, above said part; a float within said body member, between said diaphragm and said float, adapted to rise and fall, the said float being provided with a valve at its lower end for controlling the orifice in said diaphragm and with a stem at its upper end loosely engaging said float; and steps, as 7 7', engaging said stem one above and the other below said float and adapted to limit the rising and falling movements, respectively, of said float, the said steps each permitting of adjustment along said stem, and said body member being provided with a suitable inlet-opening, substantially as herein specified.

4. A device of the class herein described comprising a hollow body member having a valve-controlled outlet-port, as 8"; a diaphragm within said body member, below said part, and having an orifice, as 7"; a float within said body member, above said part, and having a suitable central orifice; a float within said body member, between said diaphragm and said float, adapted to rise and fall, the said float being provided with a needle-valve depending from the lower end thereof and adapted to control the orifice in said diaphragm, and with a threaded stem at its upper end projecting upwardly through the orifice in said float; and means, on said threaded stem, one above and the other below said float, and whereby the rising and falling movements, respectively, of said float may be limited, the said body member being provided with a suitable inlet-opening, substantially as herein specified.

699,171. TREADLE-MOTOR. GEORGE HUGHES, Jamaica, N. Y. Filed Oct. 31, 1901. Serial No. 90,004. (No model.)



Claim.—1. In a device of the character described, the combination with the driving and driven members, and intermediate clutch mechanism, of a treadle disposed below the driving member and fulcrumed at its rear end, a retracting-spring provided with an eye at one end, a single strand passed through the eye of the retracting-spring and doubled upon itself, the two strands then formed being wound upon the driving member in the same direction, and a clamp mounted upon the treadle and adjustably retaining the extremities of said strand.

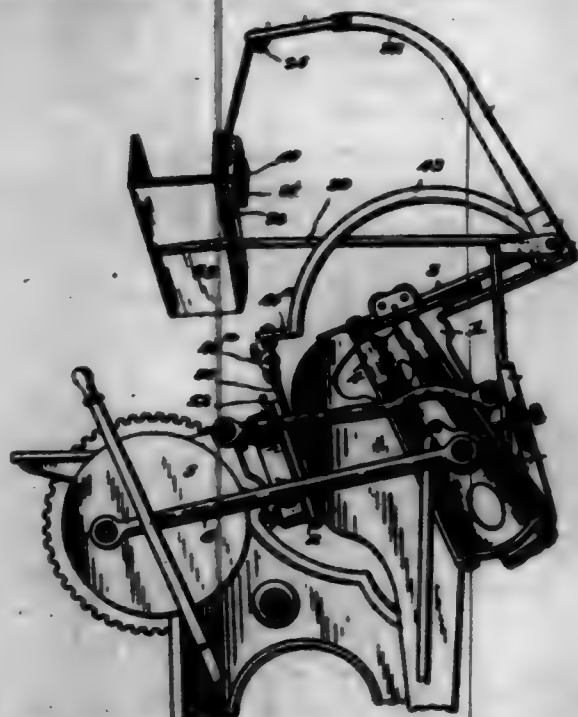
2. In a device of the character described, the combination with the driving and driven members, and intermediate clutch mechanism, of a treadle disposed below the driving member and fulcrumed at its rear end with its front end located in advance of the driving member, a retracting-spring secured directly beyond the rear end of the treadle and provided with an eye at one end, a single strand passed through the eye of the retracting-spring and doubled upon itself, the two strands then formed being wound upon the driving member in the same direction, and a clamp mounted on the treadle in advance of the driving member and adjustably retaining the extremities of the flexible piece.

3. In a device of the character described, the combination with a frame comprehending a transverse tie-rod, coaxial driving and driven

members, and intermediate clutch mechanism, of a treadle disposed below the driving member and having a fulcrum end and fulcrumed upon the tie-rod, a retracting-spring secured at one end to the tie-rod within the fork of the treadle and having an eye at its opposite end, a single flexible piece passed through the eye of the spring and doubled upon itself, the double strand being wound upon the driving member, and a clamp carried by the treadle in advance of the driving member and adjustably retaining the extremities of the flexible piece.

4. In a device of the character described, the combination with a shaft, and a wheel mounted thereon and provided with a clutch-disk having a flat annular side face, of a cylindrical driving member also mounted on the shaft and having at one end a clutch-disk opposed to the clutch-disk of the wheel, and formed with a series of tapering pockets having inclined bottom walls, clutch-balls located within the pockets and disposed against the flat annular face of the first-named clutch-disk, a treadle disposed below the driven member, a spring located at the rear end of the treadle, and a single flexible piece doubled upon itself and wound as a double strand upon the driving member, the doubled end of said piece being secured to the spring and the extremities of said piece having attachment to the treadle adjacent to the front and throat.

699,172. DELIVERY MECHANISM FOR PRINTING-PRESS. ALFRED J. HUGHES, New York, N. Y. Original application filed Aug. 1, 1901, Serial No. 71,204. Divided and this application filed Nov. 20, 1901. Serial No. 92,587. (No model.)



Claim.—1. In a printing-press, the combination with the bed, plates and inkling mechanism including the inkling-plate and roller-carrying arms; of a support fixed to the frame of the press in rear of the inkling-plate and having an upwardly and forwardly extending standard rising therefrom, a swinging delivery device movable over the inkling-plate toward and from the plates and provided with an automatic gripper to engage the printed sheets on the plates, a rock-shaft journaled in said support and carrying said delivery device, a crank-arm connected to the rock-shaft, a connection between said crank-arm and one of the roller-carrying arms of the inkling mechanism for swinging said delivery device, a receptacle for the printed sheets supported by said standard, and contact-pieces on the press-frame and receptacle for actuating the gripper to automatically engage and release the sheets, substantially in the manner described.

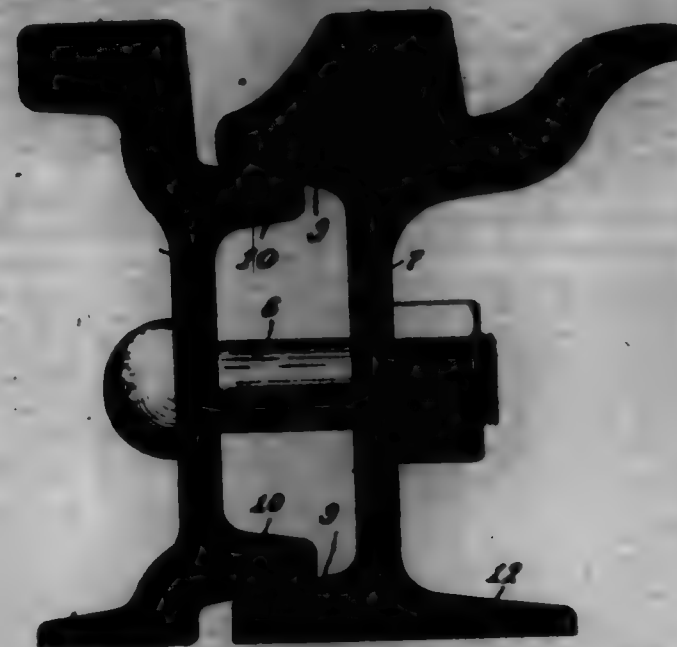
2. In a printing-press, a chute having a T-shaped slot forming the entrance thereto, combined with a delivery device movable through the body portion of the slot and adapted to draw the printed portion of the sheet through the cross portion of the slot, substantially as specified.

699,173. RAILWAY-RAIL. CLYDE E. HUGHES and JAMES W. HUGHES, Hamilton, Ohio. Filed Feb. 17, 1902. Serial No. 94,589. (No model.)

Claim.—1. A duplex railway-rail comprising an outer tread portion, an inner tread portion separated from the outer tread portion by a groove, and an inner guard portion separated from the inner tread portion by a groove.

2. A duplex railway-rail comprising an outer tread portion having a web and foot and inwardly-projecting flanges, an inner tread having a

web and inner foot and outwardly-projecting flange engaging the first-named flange, and bolts through the two webs.

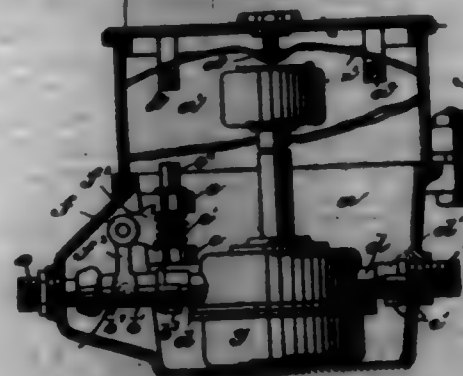


3. A duplex railway-rail comprising an outer tread portion having a web and outer foot and beveled inner flange, an inner tread portion having a web and inner foot and inner guard and inner flange fitting the first-named flange, and bolts through the two webs.

4. In a railway-rail, the combination, substantially as set forth, of a web having a tread portion and foot-flange at one side and a pair of projecting flanges at the other side, a second web having a pair of side flanges adapted to engage the first-named flange, and bolts through the two webs.

5. In a railway-rail the combination, substantially as set forth, of a length of web having a tread portion and a foot-flange projecting from one of its sides and a pair of flanges projecting from its other side, a length of web disposed alongside the first-named web and breaking joint therewith and having a foot-flange at one side and a pair of flanges at the other side engaging the first-named flange, and bolts through the two webs.

699,174. METER-BOX CONNECTOR. JOHN J. HUGHES, Spring-Field, Ohio. Filed Aug. 31, 1901. Serial No. 71,202. (No model.)



Claim.—1. In an meter casing such as described, the combination with the meter having oppositely-extending spouts, of an inlet and outlet extending horizontally into said casing, adapted to form with said spouts a straight way through said casing to said meter, telescoping connecting devices and mechanism to positively move said devices for connecting and disconnecting said inlet and outlet with said spouts, substantially as specified.

2. In an meter casing such as described, the combination with the meter having the oppositely-extending spouts, of an inlet and outlet extending horizontally into said casing, having spouts extending from the lower ends thereof to receive said spouts when the meter is lowered into the casing, and adapted to form with said spouts a straight way, and means for connecting and disconnecting said inlet and outlet with said spouts, substantially as specified.

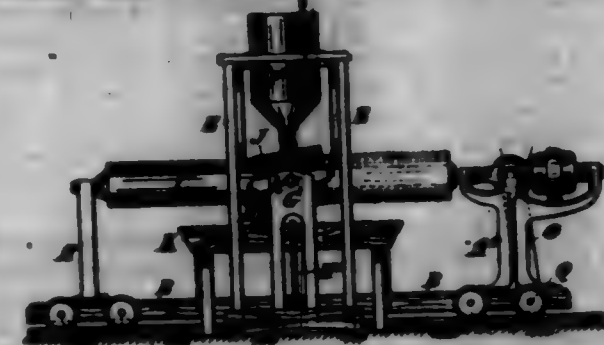
3. In an meter casing such as described, the combination with an inlet and outlet extending horizontally into said casing, having spouts extending from the lower ends thereof, of a meter having on each of its oppositely-extending spouts, a connection carrying a packing, said connection, when said meter is lowered into said casing, being adapted to be received into said spouts, and means, including a slip-joint, for connecting by pressure said inlet and outlet with the packing of said connection, substantially as specified.

4. The combination with the meter casing having the horizontal inlet and outlet extending into said casing, of a meter having oppositely-extending spouts, telescoping connecting devices and means transmitting a positive reciprocating motion to said telescoping connecting devices, for connecting and disconnecting said inlet and outlet with said spouts, substantially as specified.

5. The combination with the meter casing having the horizontal inlet and outlet, extending into said casing, and a meter with oppositely-extending spouts, of a vertically-disposed screw, a segment to engage said screw, having an arm at right angles thereto, and a sleeve pivotally connected to said arm, whereby upon the rotary movement of said screw, said sleeve will be given a longitudinal movement, substantially as and for the purpose specified.

6. The combination with the meter having the oppositely-extending spouts, and spouts extending beyond the ends of said spouts, having annular chambers therein, of packing in said chambers extending to the openings in said spouts, inlet and outlet pipes, and means for connecting by pressure said pipes with the packing of said spouts, substantially as specified.

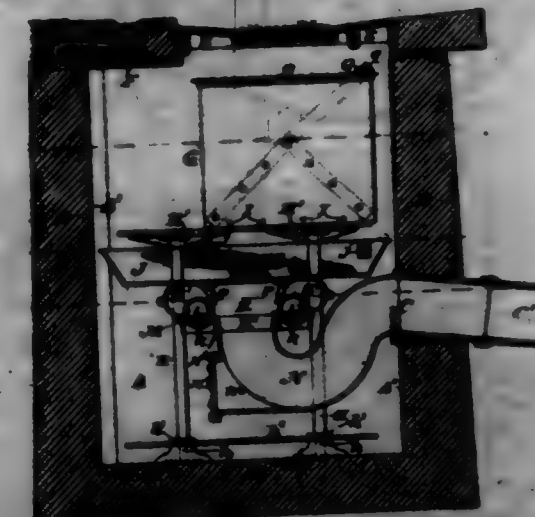
699,175. APPARATUS FOR MAKING CORES. GEORGE J. HUGHES, Sydney, New South Wales, Australia. Filed Oct. 2, 1901. Serial No. 77,314. (No model.)



Claim.—1. In apparatus for making cores for cylindrical castings, in combination, a truck or traveler running on rails the said truck having means for carrying the cylindrical core-barrel, a fixed feed-hopper placed near the said means for carrying the core-barrel as described, a fixed revolving wire cylinder mounted to rotate in contact with the core-barrel means for lowering the pressure of the wire cylinder against the core-barrel, a trough below the wire cylinder and means for rotating the core barrel, and for causing the forward travel of the truck as herein specified.

2. In a machine of the class described, a support for a core-barrel, means for moving said support in the direction of the axis of the core-barrel and for rotating said core-barrel, a rotatable wire cylinder of less length than the core-barrel having its axis inclined to the axis of the core-barrel, means for pressing the wire cylinder against the core-barrel, a feed-hopper above the point of contact of the core-barrel and cylinder and a trough below the cylinder, substantially as described.

699,176. CATCH-BASE FOR SHEWERS. WILLIAM J. HUGHES, Albany, N. Y. Filed Sept. 4, 1902. Serial No. 93,857. (No model.)



Claim.—1. A catch-base for showers having its walls convex-concave in section and of greater radius than the diameter of the basin, flanges projecting from the vertical edges of said walls, means for securing the adjacent flanges of the adjoining walls together, and a tapering concrete reinforcement for said walls.

2. A catch-base for showers having its walls convex-concave in section and of greater radius than the diameter of the basin, flanges project-

ing from the vertical edges of said walls, means for covering the adjacent flanges of the adjoining walls together, a tapering concrete reinforcement for said walls, said basin being formed with an intake-opening, and a grated cover for said opening supported by said walls and concrete reinforcement.

2. A catch-basin for sewers having a surface intake-opening, a plurality of sedimentary vessels, each of a size to readily pass through said opening and having an aggregated sectional area greater than that of the opening, said vessels being arranged in juxtaposition below said opening to receive the flow therefrom and retain detachable articles, a screening vessel below and of greater sectional area than the combined area of the sedimentary vessels, and a valved outlet from said basin.

3. A catch-basin for sewers having a surface intake-opening, a sedimentary vessel below said opening and supported from the bottom of the basin, a screening vessel below the sedimentary vessel, and a valved trap below the screening vessel, said trap supporting the screening vessel.

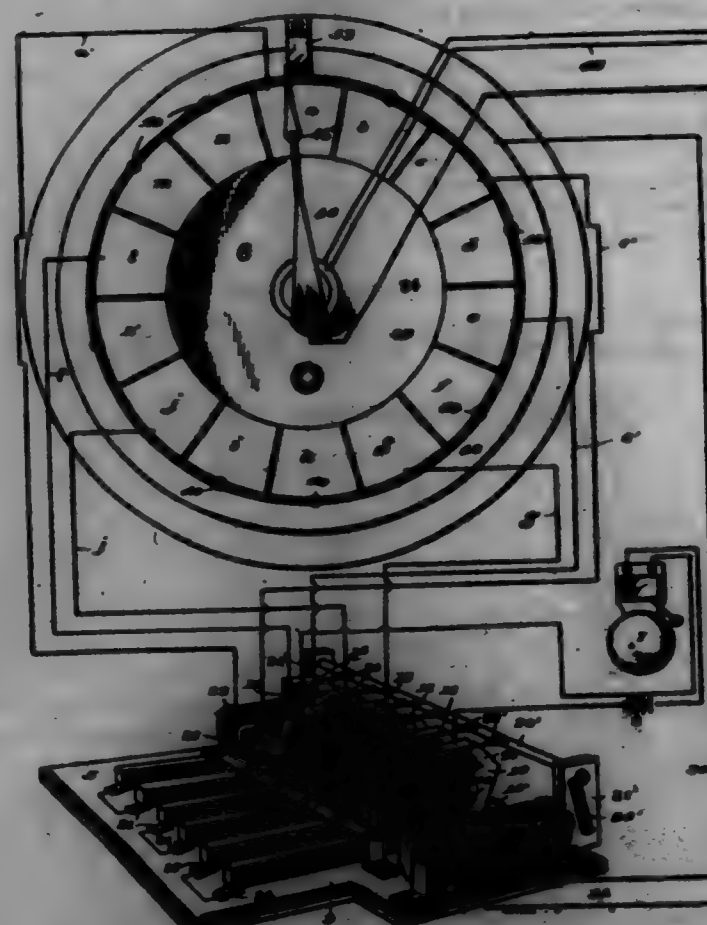
4. A catch-basin for sewers having a surface intake-opening, a valved trap-outlet, a screening vessel above the trap and extending beyond the same on all sides, and a sedimentary vessel between the screening vessel and the intake-opening, said sedimentary vessel being of less sectional area than the screening vessel and supported from the bottom of the basin.

5. A catch-basin for sewers having a surface intake-opening, a valved trap-outlet centrally disposed near the bottom of the basin, a screening vessel supported by the trap and projecting beyond the same in all directions, and a sedimentary vessel of less sectional area than the screening vessel, said sedimentary vessel being removably supported by the bottom of the basin and arranged to receive all the flow from said intake-opening.

6. A catch-basin for sewers having a surface intake-opening, a valved trap-outlet, a sedimentary vessel below said intake-opening, posts rising from the bottom of the basin and supporting said sedimentary vessel, and a screening vessel intermediate the trap and sedimentary vessel and supported by the trap.

7. A catch-basin for sewers having a surface intake-opening comprising a grate, the bars of which are arranged in the direction of flow of water in the street-gutter and having their surface planes above the surface of the transverse and members of the grate, a valved trap-outlet from the basin, a sedimentary vessel below said intake-opening, posts rising from the bottom of the basin and provided with horizontal seats to support said sedimentary vessel, and a screening vessel between the sedimentary vessel and trap.

699,177. ELECTRIC CALL SYSTEM. FRANK E. HUGHES, Kans. Filed Apr. 12, 1901. Serial No. 64,086. (No model.)



Claim.—1. A call system including a main line and its battery, instruments each including an alarm, an electrically-operated switch for closing the circuit of the alarm, and a selecting device for closing the circuit of the switch, the selecting device being connected in series in the

main line and the switches being responsive to differently-timed electrical impulses in the main line.

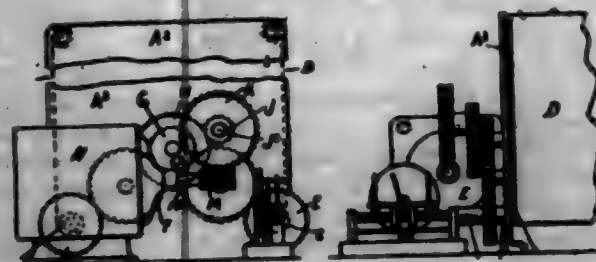
2. A call system including a main line and its battery, instruments each including an alarm, an electrically-operated switch for closing the alarm-circuit, and including a series of electromagnets, and a selecting device having individual circuits for the separate magnets, contact-plates included therein and a contact-finger adapted to traverse the plates, the selecting device being included in series in the main line, and having different plates connected with the switch-magnets.

3. A call system including a main line and its battery, a plurality of selecting devices connected in the main line and each comprising a movable contact and a series of fixed contacts for successive engagement thereby, a signal-circuit of each selecting device including a signal and battery, a switch for each signal-circuit including sections movable into and out of series relation to close and open the signal-circuit, an electromagnet for actuating each switch-section, each magnet having one terminal connected with the movable contact of the selecting device through a source of electricity, and its opposite terminal connected with a fixed contact of the selecting device, the different selecting devices having different groups of fixed contacts thus connected.

4. A call system including a main line and its battery, a plurality of selecting devices connected in the main line and each comprising relatively fixed and movable contacts for engagement one by the other, a signal-circuit at each selecting device including a signal and source of electricity, a switch for each signal-circuit including sections movable into and out of co-operative relation to close and open the signal-circuit, an electromagnet for actuating each switch-section, each magnet having one terminal connected with the movable contact through a source of electricity and its opposite terminal connected with a fixed contact of the selecting device, means for holding the switch-sections in positions to close the signal-circuit, and releasing mechanism including an electromagnet connected between the movable contact and all of the fixed contacts that are not connected with the switch-magnets, the different selecting devices having different groups of fixed contacts connected with the magnets of their respective switches.

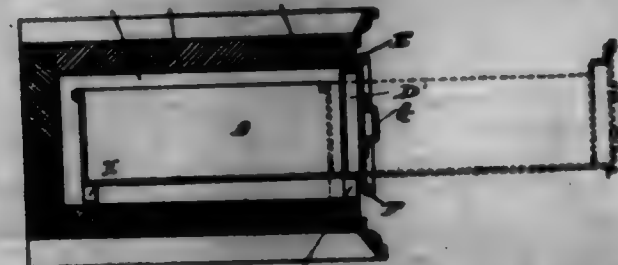
5. A call system including a main line and battery, a plurality of selecting devices connected in the main line and each including an annular series of fixed contacts and a rotatable contact adapted for movement against each of the contacts when correspondingly moved, an electromagnet for moving the hand against each contact when positioned adjacent thereto, said magnets being connected in series in the main line, means for rotating the hand, a signal-circuit at each selecting device including a signal and source of electricity, a switch for each signal-circuit including sections movable into and out of co-operative relation to close and open the signal-circuit, an electromagnet for moving each switch-section into closed position, each magnet having one terminal connected with the contact-finger of its selecting device through a source of electricity and its opposite terminal connected with a fixed contact thereof, means for holding the switch-sections in closed position, and releasing mechanism including an electromagnet connected between the contact-finger and the fixed contacts that are not connected with the switch-magnets, the selecting devices having different groups of fixed contacts connected with the switch-magnets.

699,178. ADVERTISING-SIGN. LITTLE J. HUYER, Cincinnati, Ohio. Filed Nov. 4, 1901. Serial No. 81,098. (No model.)



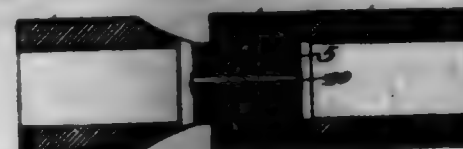
Claim.—In combination, the two curtains, a roller for each upon which they are mounted, an electric motor for communicating motion to the rollers, gear connections between the motor and the rollers and reversing mechanism for the motor comprising a screw-shaft T, a movable piece engaging the screw-shaft, a rotary disk P, a spring N connected at one end to the piece V, and at the other end to the disk, a series of clamps W carried by the disk, a series of tongues arranged to engage and be held by the clamps, a support for said tongues relatively fixed in relation to the disk, rods T' carried by the piece V, said rods being arranged to engage the ends on the disk to rotate the same and reverse the position of the disk and cause the engagement of the tongues and the other set of clamps and circuit connections controlled by the tongues and clamps, substantially as described.

699,179. ICE-CREAM CABINET. JOHN BURLAY, Little Falls, N. Y. Filed July 12, 1901. Serial No. 67,967. (No model.)



Claim.—An ice-cream cabinet, comprising a rectangular casing with an open front, a five-sided sheet-metal lining for the cavity of said casing, a block resting upon the bottom of the lining at the forward end thereof, an ice-cream receptacle slightly mounted in the space of said lining and resting upon the front block, a block depending from the bottom thereof at its rear adapted to rest upon the bottom of the lining and prevent the receptacle from being withdrawn entirely from the casing, a cover or door extending across the rear end of the receptacle and having inclined outer faces to contact the face of the opening of the cabinet, said surfaces being further provided with rolled or curved edges, a rectangular disk or plate held against the outer faces of the inclined surfaces by the rolled or curved edges to form a double-walled cover or door, and a handle carried by the disk.

699,180. UNIVERSAL JOINT. JULIUS JETTER, Winchester, Mass. Filed July 12, 1901. Serial No. 68,052. (No model.)



Claim.—1. A universal joint, having, in combination, coupling-heads, a block interposed between the coupling-heads, screws pivotedly connecting the block with the heads, and a pin arranged to engage the screws and prevent rotation thereof, substantially as described.

2. A universal joint, having, in combination, coupling-heads, a block interposed between the coupling-heads, conical-ended screws pivotedly connecting the block with the heads, and a pin arranged to engage the ends of the screws and prevent rotation thereof, substantially as described.

3. A universal joint, having, in combination, coupling-heads, a block interposed between the coupling-heads, four screws provided with grooved ends pivotedly connecting the block with the heads, and a pin arranged to engage the grooves in the ends of the screws and prevent rotation thereof, substantially as described.

4. A universal joint, having, in combination, forked coupling-heads, a block interposed between the coupling-heads provided with surfaces engaging the inner surfaces of the forks of the coupling-heads, four screws provided with grooved ends pivotedly connecting the block with the heads and a pin having a driving fit in a hole in the block at right angle to the plane in which the screws are located arranged to engage the grooves in the ends of the screws and prevent rotation thereof, substantially as described.

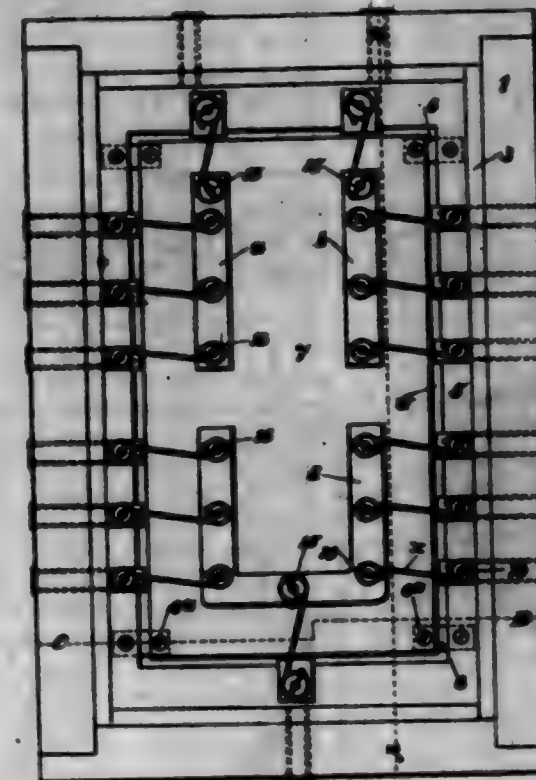
699,181. JUNCTION OR FUSE BOX. HENRIEY H. JENNISON, Utica, N. Y. Filed Dec. 26, 1901. Serial No. 67,617. (No model.)

Claim.—1. The combination in a fuse or junction box of the box or casing, an internal frame secured in the box above the bottom, a removable tablet supported within the said frame, entrance for electrical connections into said box below the tablet, fixed binding-posts on said frame electrically connected with the conductors, "bus-bars" and corresponding binding-posts on the removable tablet and removable frame, substantially as set forth.

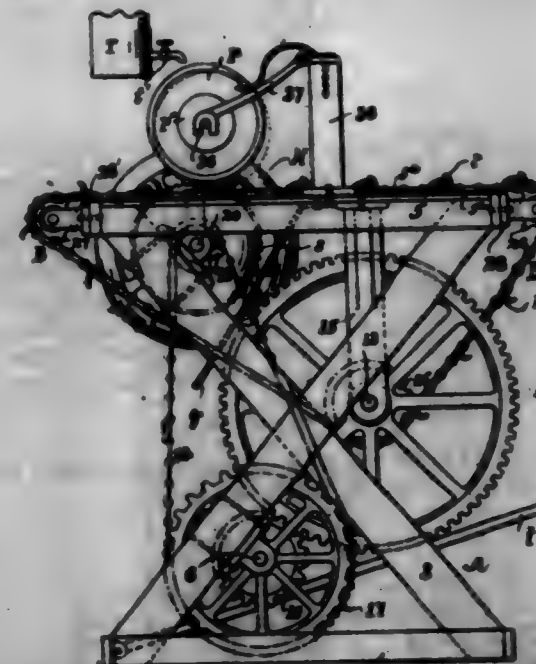
2. The combination in a fuse or junction box of the casing, an internal frame secured to the side of the box above the bottom, a removable tablet supported within the frame, "bus-bars" and binding-posts arranged on said tablet, corresponding binding-posts arranged on said frame, Z-shaped connecting-plugs extending from the binding-posts through the line of separation between the frame and the tablet into the space beneath the tablet, entrance for electrical conductors into the space beneath the tablet and means for connecting the conductors to said Z-shaped connecting-plugs arranged beneath the tablet, substantially as set forth.

3. The combination in a fuse or junction box of a casing, a two-part tablet supported above the bottom of said casing, one of said parts being removably secured and the other part fixed in the casing, entrance into said casing for electric conductors between said tablet and bottom of casing, binding-posts on said fixed portion of tablet and corresponding binding-posts mounted on the removable portion of the tablet, electrical dis-

tributing connections mounted upon and connected with the binding-posts on said removable portion and fixed-portion connecting said two sets of binding-posts and spanning the line of separation between the fixed and removable portions of tablet, substantially as set forth.



699,182. OYSTER-TRIMMING MACHINE. EDWARD D. JOHNSON, New York, N. Y. Filed June 10, 1901. Serial No. 68,948. (No model.)



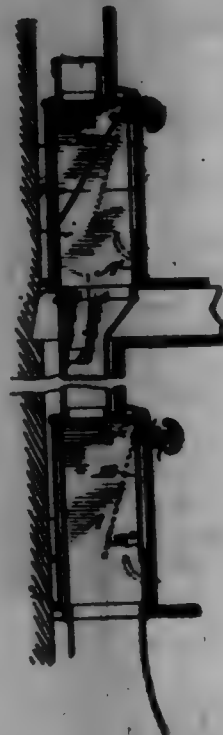
Claim.—1. In a machine of the class specified, the combination, with an endless conveyor and means for opening the same, of a revolving cutting device, a revolving clearing device and means for revolving the said clearing and cutting devices, both turning on the same axis, whereby they coast with the conveyor, the cutting device adapted to cut away a portion of the shell of a bivalve carried by the conveyor, and the clearing device adapted to clip and throw off the cut portion of the shell, substantially as shown and described.

2. In a machine of the class specified, the combination, with an endless conveyor having holding devices projecting therefrom, each holding device shaped for retaining a bivalve and having a flexible lining, and means for opening said conveyor, of a revolving cutting device and a revolving clearing device, both turning on the same axis, and means for revolving them, the cutting device and clearing device coasting with the conveyor, the cutting device adapted to cut away a portion of the shell of the bivalve carried by the conveyor, and the clearing device adapted to clip and clear away the cut portion of shell, substantially as shown and described.

3. In a machine of the class specified, the combination, with an end-

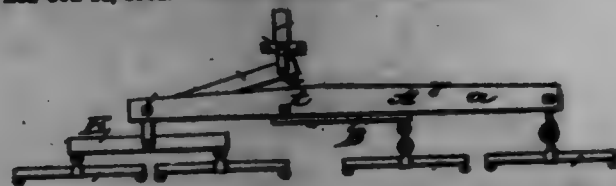
has conveyor having holding devices projecting therefrom, each holding device shaped for retaining a bivalve and having a flexible lining, and means for operating the same, and a flexible pressure-roller mounted on the frame for holding a bivalve in place on said conveyor while said bivalve is being clipped, of a revolvable cutting device and a revolvable clearing device, both turning on the same axis, and means for revolving them, the cutting device and clearing device coacting with the conveyor, the cutting device adapted to cut away a portion of the shell of a bivalve carried by the conveyor, and the clearing device adapted to clip and clear away the cut portion, substantially as shown and described.

699,183. HOT-AIR REGISTER. ALBION C. JONES, Baltimore, Md., assignor to The United States Register Company, Limited, a Corporation of Michigan. Filed May 13, 1901. Serial No. 69,998. (No model.)



Claim.—In a hot-air register, a casing, each end of which is adapted to be secured to a hot-air flue, and the upper portion of the front is open and notched at the top, a deflector within the casing provided with plates for fitting within the notches, a front cover to the front of the casing and adapted to hold the plates in place, the lower portion of which is open and the upper portion is provided with a screw-threaded guide, a member hinged in the opening of the front to swing outward, and a knob for engaging with and operating the deflector, the stem of said knob being screw-threaded and fitting within the guide, substantially as described.

699,184. DRAFT-EQUALIZER. JAMES JONES, Atlantic, Iowa. Filed Oct. 10, 1901. Serial No. 70,171. (No model.)



Claim.—1. The combination in a four-horse equalizer of the support C pivoted to the lever A, and adapted to be secured to an agricultural implement, the lever B pivoted to the lever A, and secured to the support C, and the lever A having a double-throw and a single-throw secured thereto, substantially as described.

2. The combination in a four-horse equalizer of the support C having one of its ends pivoted to and within the lever A, and adapted to be secured to an agricultural implement, the lever B which is pivoted to the lever A and plays within the same and which is secured between its ends to the support C, and the lever A having a slot for the reception of the support C and the lever B, substantially as described.

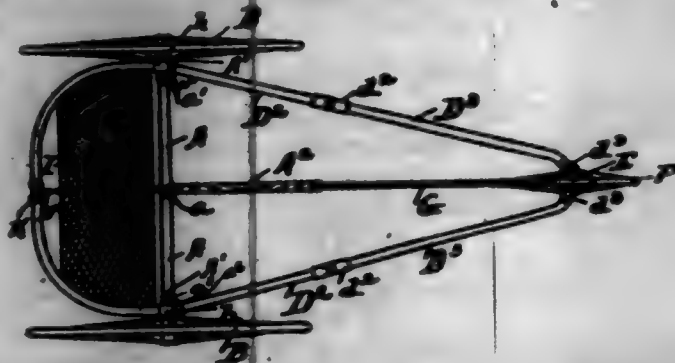
699,185. CHASING FOR WASHING-MACHINES. FREDERICK C. KAHNER, Chicago, Ill. Filed July 13, 1901. Serial No. 69,991. (No model.)

Claim.—The combination with a power-shaft, of a beveled gear, an oscillatory shaft suitably journaled, a gear on said shaft, a beveled gear

journaled to engage the first-named beveled gear, a shafted rack-bar pivotally connected to the last-named beveled gear and engaging the oscillatory shaft and the gear thereon, substantially as described.



699,186. COLLAPSIBLE BABY-CARRIAGE. ALBERT KATNER, Erie, Pa., assignor of one-half to Jacob Hammer, Erie, Pa. Filed Aug. 13, 1901. Serial No. 71,806. (No model.)



Claim.—1. In a collapsible baby-carriage, the combination of the axle having the two parts, A A, and joints a a', a forwardly-extending frame; a rod, G, connected with the forward end of the frame; and means for locking said rod with the axle to lock the axle in its open position.

2. In a collapsible baby-carriage, the combination with the axle having the parts A A, and joint a a'; the extension, A' A'; and joint, a'; the forwardly-extending frame jointed on the extension, A' A'; and means connected with the said frame for locking the axle in an open position.

3. In a collapsible baby-carriage, the combination of a jointed axle; a frame narrower at the front than at the rear; a joint between the axle and the frame sides and between said frame sides and the wheel-supporting device at the front of the carriage; and said wheel-supporting device.

4. In a collapsible baby-carriage, the combination of the axle, A A, having the joint, a a'; a tubular guide, A'; the extension, A' A'; the upright, C, on said extension; the upper and lower frame-pieces jointed on the upright; the fork, E; joints between said frame-pieces and the fork, E; and the rod, G, extending from the fork into the tubular guide for locking the axle in an open position.

5. In a collapsible baby-carriage, the combination of a jointed axle; uprights extending from said axle; a seat-frame secured to said uprights having joints with horizontal axes at its connection with the uprights; and a joint having a horizontal axis lengthwise of the carriage in the seat-frame to permit the folding of the seat-frame by a movement of the parts in a downward direction.

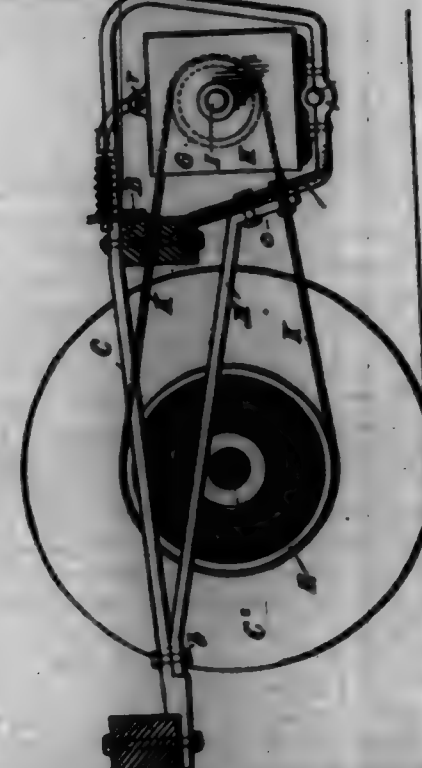
6. In a collapsible baby-carriage, the combination of a jointed axle; uprights extending from said axle; a seat-frame secured to said uprights, having joints with horizontal axes at its connection with the uprights; a joint having a horizontal axis lengthwise of the carriage in the seat-frame to permit the folding of the seat-frame by moving the parts in a downward direction; and means for locking the seat-frame in the upper position.

7. In a collapsible baby-carriage, the combination of a jointed axle; uprights extending from said axle; a seat-frame secured to said uprights having joints with horizontal axes at its connection with the uprights; a joint having a horizontal axis lengthwise of the carriage in the seat-frame to permit the folding of the seat-frame by moving the parts in a downward direction; a rod extending from the seat-frame to the axle; and means for locking said rod with the axle.

8. In a collapsible baby-carriage, the combination of the jointed axle, A A, with the extension, A'; a frame narrower at the front than at the axle; a front fork connected with the forward end of said frame; joints between the fork and the frame and between the axle and the frame; and means for telescoping the frame to contract the length of the vehicle.

9. In a collapsible baby-carriage, the combination of the axle having the parts, A A, with the joint, a a'; the joint, a' a' and extension, A' A'; the upright, C C'; the frame-pieces, D D', jointed on the uprights, C; the extension frame-pieces, D' D', arranged to telescope the frame-pieces, D; the front fork and joint between the front fork and frame-pieces, D' D'; the upper frame-piece, D', extending from the upright, C, to the frame-pieces, D; telescoping means between the frame-pieces, D' and D'; the joint, a', between the frame portion, D', and the fork; the seat-frame, H, jointed to the upper end of the upright, C, and having joints permitting of its folding in a downward direction; and the rod, W, for supporting the seat-frame in an open position.

699,187. MEANS FOR CONNECTING DYNAMOS WITH TRACKS OF RAILWAY-CARS. PETER KENNEDY, Brooklyn, N. Y., assignor to the Consolidated Railway Electric Lighting and Equipment Company, a Corporation of New Jersey. Filed Aug. 17, 1901. Serial No. 72,573. (No model.)



Claim.—1. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck, and a driving-belt from the pulley on the axle to the dynamo-pulley, of a support for the dynamo outside of the truck composed of bars fast at their inward ends to an inward cross-beam of the truck, extended outward over an outward beam of the truck and beyond the latter and back to the truck, means for attaching the said bars to the truck, and means for releasing the dynamo in the cage, as described.

2. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck, and a driving-belt from the pulley on the axle to the dynamo-pulley, of a support for the dynamo outside of the truck composed of bars fast at their inward ends to an inward cross-beam of the truck, extended outward over an outward beam of the truck and beyond the latter, then shaped to form a cage for the dynamo and thence inward and back to the truck, means for securing said bars to the truck, means extended from the inward side of the cage to the inward ends of the bars, and means for securing the respective ends of said beams to the adjacent portions of the bars, as described.

3. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck and a belt from the pulley on the axle to the dynamo-pulley, and a support for the dynamo composed of bars extended from an inward cross-beam of the truck outward over an outward cross-beam of the same and beyond the end of the truck, then bent to a shape requisite to form a cage for the dynamo, and thence inward back to the truck, of a pivotal support for the dynamo at the bottom of the cage, and means for elastically pressing the dynamo in a direction against the strain exerted by the tension of the belt, as described.

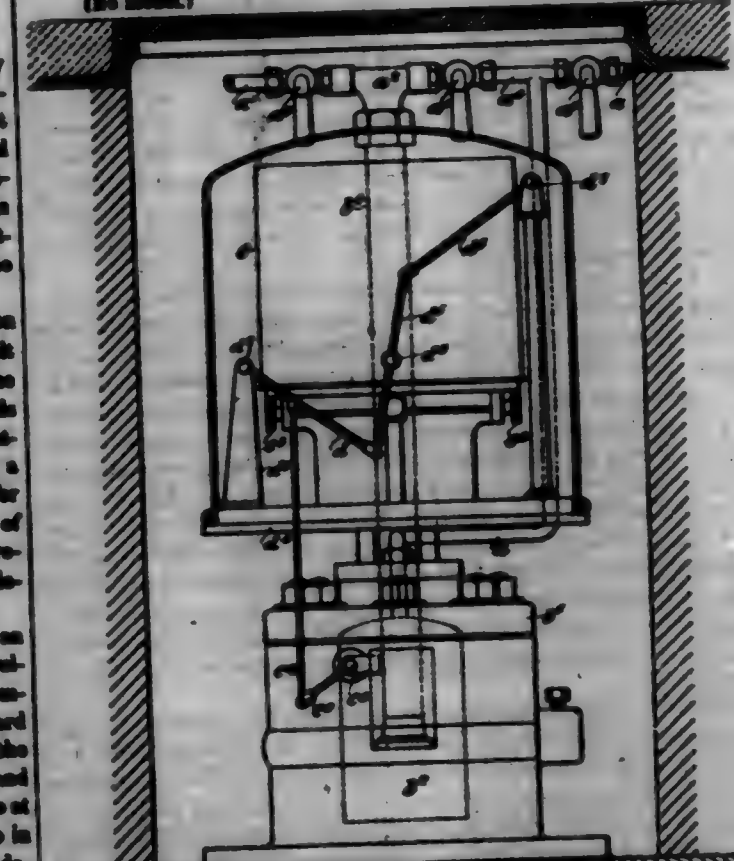
4. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck, and a belt from the pulley on the axle to the dynamo-pulley, of a support for the dynamo outside of the truck composed of bars extended outward from an inward cross-beam of the truck over an outward cross-beam through and beyond the

truck and then bent to the shape requisite to form a cage for the dynamo, and then back to the truck, of a transverse shaft for pivotally supporting the dynamo at the bottom of the cage, bearings for said shaft, a slide at the top of the cage having one end pivoted to the top of the dynamo, and a spring provided to the slide to press the same and consequently the dynamo in a direction against the strain exerted by the tension of the driving-belt, as described.

5. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck, and a belt from the pulley on the axle to the dynamo-pulley, of a support for the dynamo outside of the truck composed of bars extended outward from an inward cross-beam of the truck over an outward cross-beam thereof and beyond the truck and thence bent to the shape requisite to form a cage for the dynamo, and then back to the truck, of a transverse shaft for pivotally supporting the dynamo at the bottom of the cage, bearings for said shaft, a slide at the top of the cage having a strap thereon and having one end pivotally connected with the top of the dynamo, a guide for the opposite end of the slide, and a spring applied between the guide and the strap on the slide to press the latter and consequently the dynamo in a direction opposite the strain exerted by the tension of the belt, as described.

6. The combination with a railroad-truck, a driving-pulley fast on an axle of the truck, a dynamo carried by the truck, and a belt from the pulley on the axle to the dynamo-pulley, of a support for the dynamo composed of bars each of which at its inward end is shoulderbed at its upper side to abut against the bottom portion of an inward cross-beam of the truck to which said end of the bar is bolted and also shoulderbed at its outer side to become the abutting end of a beam, each bar extended over an outward cross-beam of the truck, then outward beyond the end of the truck and then bent to the shape requisite to form a cage for the dynamo and then inward to the outer side of said outward cross-beam, bolts extended through said cross-beam and through the bars above and below the same to secure the bars to said beam, beams extended from the inward side of the cage to the shoulders on the outer sides of the bars, and bolted to the said bars a transverse shaft at the bottom of the cage to pivotally support the dynamo from below, a slide at the top of the cage having a strap thereon and at one end pivotally connected with the top of the dynamo, a guide through which is passed the opposite end of the slide, and a spring between the guide and the strap on the slide to press the latter and consequently the dynamo in a direction opposite the strain exerted by the tension of the belt, as described.

699,188. WATER METER AND RECORDER. WALTER C. KEMP, county of Middlesex, England. Filed Nov. 4, 1901. Serial No. 71,157. (No model.)



Claim.—1. The combination of a water-main, a contraction thereon, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, a pen bear-

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ing against the drum, integrating mechanism located within the drum, means operated by the spindle for actuating the pen and the integrating mechanism, means for driving the drum and the integrating mechanism, and a register operated by the integrating mechanism.

2. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a cock in each pipe, means for putting the two pipes in communication, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, a pen bearing against the drum, integrating mechanism located within the drum, means operated by the spindle for actuating the pen and the integrating mechanism, means for driving the drum and the integrating mechanism, and a register operated by the integrating mechanism.

3. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber, parallel-motion links connecting the float and the spindle, a recording-drum, a pen bearing against the drum, integrating mechanism located within the drum, means operated by the spindle for actuating the pen and the integrating mechanism, means for driving the drum and the integrating mechanism, and a register operated by the integrating mechanism.

4. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, a pen-bearing against the drum, a rock-shaft connected to the spindle, parallel-motion links connecting the pen with the rock-shaft, integrating mechanism located within the drum, means operated by the spindle for actuating the integrating mechanism, means for driving the drum and the integrating mechanism, and a register operated by the integrating mechanism.

5. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber, parallel-motion links connecting the float and the spindle, a recording-drum, a pen bearing against the drum, a rock-shaft connected to the spindle, parallel-motion links connecting the pen with the rock-shaft, integrating mechanism located within the drum, means operated by the spindle for actuating the integrating mechanism, means for driving the drum and the integrating mechanism, and a register operated by the integrating mechanism.

6. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, a pen bearing against the drum, means operated by the spindle for actuating the pen, means for driving the drum, a shaft rocked by the movement of the float, a pivoted arm rocking with the shaft, a wheel carried by the arm, an integrating-disk on which the wheel runs, means for constantly rotating the disk, a counting-train, and means operated by the movement of the wheel for actuating the counting-train.

7. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, a pen bearing against the drum, means operated by the spindle for actuating the pen, means for driving the drum, a shaft rocked by the movement of the float, a pivoted arm rocking with the shaft, a wheel carried by the arm, an integrating-disk on which the wheel runs, means for constantly rotating the disk, a pivoted frame, a spring pulling the frame in one direction, a shed on the pivoted arm moving the frame against the spring, a bell-crank turned by the frame, a constantly-rotating toothed wheel, a pivoted spindle carried by the bell-crank, a pinion on this spindle meshing with the toothed wheel, a counting-train, and means for actuating the counting-train from the pivoted spindle.

8. The combination of a water-main, a contraction therein, a mercury-chamber, a float moving therein, two pipes conveying pressure from the contracted and uncontracted portions of the main to the float and the mercury, a spindle passing out from the mercury-chamber and turned by the movement of the float, a recording-drum, rollers supporting the drum, a rack of teeth on the lower edge of the drum, a pair of pinions gearing with the rack, a pair of shafts fast with the pinions, bevel-gear driving the shafts, a pen bearing against the drum, integrating mechanism located within the drum, means operated by the spindle for actuating the pen and the integrating mechanism, a clock driving the bevel-gear and the integrating mechanism, and a register operated by the integrating mechanism.

699,189. SWING. JAMES A. KERR, Morton, Pa. Filed Sept. 26, 1900. Serial No. 31,282. (No model.)



Claim.—1. A swing having a single rigid suspending-bar of elongated form provided with an upper eye, means held by said bar for supporting an occupant of the swing, and a chain secured to said eye and having a hook at its free end for engagement with a portion thereof.

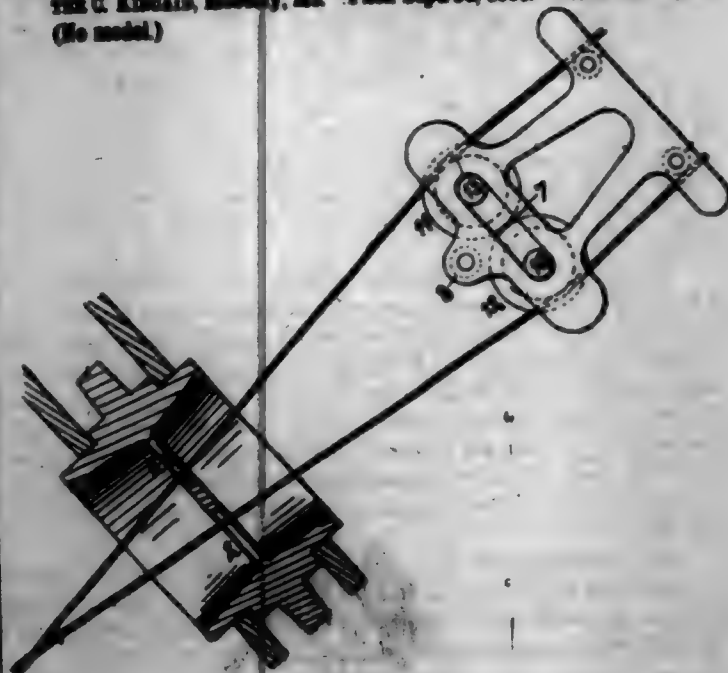
2. A swing comprising a single suspending-bar and a cage removably suspended from the lower extremity thereof and consisting of depending rods attached to a seat-board, an arched hanger removably secured in the upper portions of the said rods and formed with an upper loop, and a tie-plate for removably connecting the upper ends of the rods and having a central opening through which the hanger-loop extends.

3. A swing comprising an elongated suspending-bar having an upper flexible fastening means provided with a terminal hook to engage a portion of said means when the latter is disposed around a support, and means held by said bar for supporting an occupant of the swing.

4. A swing comprising an elongated rigid suspending-bar made in two parts adjustably connected and having an upper flexible member provided with a terminal hook to engage a portion of said member when the latter is disposed around a support, and means held by said bar for supporting an occupant of the swing.

5. A swing comprising an elongated rigid suspending-bar having adjustable means, a flexible member connected to the upper portion of the bar and provided with a terminal hook to engage a portion of said member when the latter is disposed around a support, and means held by said bar for supporting an occupant of the swing.

699,190. SPREADER FOR PAPER-MAKING MACHINES. WALTER C. KIRKLAND, Moberly, Mo. Filed Sept. 30, 1901. Serial No. 77,108. (No model.)



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Claim.—A spreader for portable wire-fence-making machines comprising two plates held separated, each having a slot and four projecting lugs, two groove-faced rollers located between the plates and having transverse slots in the slots the rollers being held in contact by the pressure of the fence-wire.

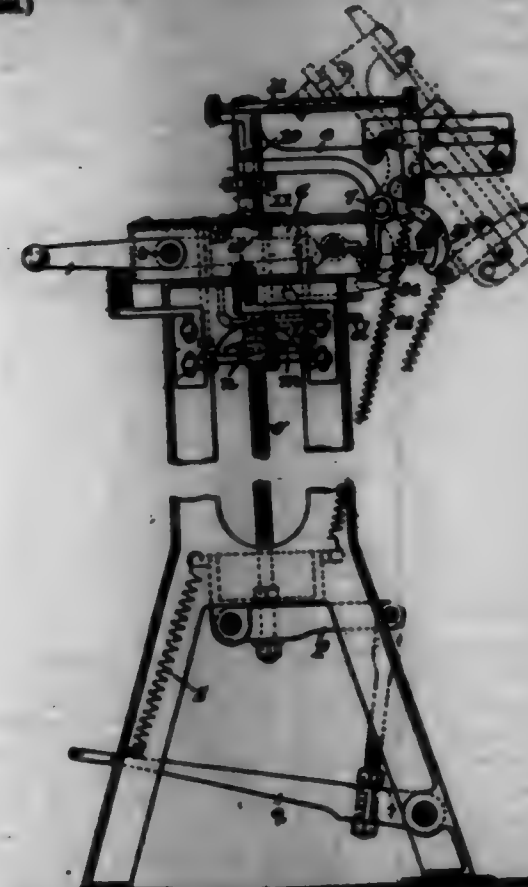
699,191. LUBRICATOR. OLIVER C. KIPP, Keshels, Ill. Filed May 24, 1901. Serial No. 61,157. (No model.)



Claim.—1. In a lubricator, the combination of an oil-reservoir, a cylinder supported by the reservoir, the lower end of the cylinder provided with an opening extending radially forming a communication between the cylinder and reservoir and a discharge-opening, a piston located within the cylinder and provided with a longitudinal slot which is located to one side of the center of the piston, a shaft, an eccentric supported by the shaft and located diagonally to the longitudinal direction of the shaft, and a connection between the eccentric and piston.

2. In a lubricator, the combination of an oil-reservoir, a cylinder, a piston for the cylinder, a shaft, a connection between the shaft and piston, a ratchet-wheel secured to the shaft, an arm supported by the shaft, a lever supported by the arm, a dog supported by the arm, and a spring connection between the dog and lever.

699,192. MACHINES FOR FOLDING CLOTH BLANKS. CHASLES H. KRAFT, Paterson, N. J. Filed Jan. 17, 1902. Serial No. 99,188. (No model.)



Claim.—1. In a folding or other substantially similar machine, the combination, with a support, of another and movable support, coasting forming means, a part of said means being mounted on said first-named support and the rest on the movable support, and means, controlled from the portion of said forming means on said first-named support, for locking the movable support in a retracted position, substantially as described.

2. In a folding or other substantially similar machine, the combination, with a support, of another and movable support, coasting forming device, a part of said device being mounted on said first-named support and the rest on the movable support, means for actuating the forming device on said first-named support, and means, controlled from said actuating means, for locking said movable support in a retracted position, substantially as described.

3. In a folding or other substantially similar machine, the combination, with a support, of another and fixed support, coasting forming device, a part of said device being mounted on said first-named support and the rest on the fixed support, means for actuating the forming device on said first-named support, a hook on said fixed support, and a movable locking-detent adapted to engage said hook, said detent being controlled from said actuating means, substantially as described.

4. In a folding or other substantially similar machine, the combination, with a bed, of a fulcrumed support, movable folding-plates mounted on said bed, a contrivance die carried by said support and adapted to contact with said folding-plates, means for actuating said folding-plates, a tappet movable with a part of said actuating means, and a movable detent, said detent being adapted to engage said support in its elevated position and said tappet being adapted to move said detent out of operative position when said folding-plates are retracted, substantially as described.

5. In a folding or other similar machine, the combination of a fulcrumed arm, a tool carried by said arm and comprising a movable part, a guide projecting from the fulcrum of said arm, a counterbalancing traveler arranged to move on said guide, and operative connecting means between the traveler and the movable part of said tool, substantially as described.

6. In a folding or other similar machine, the combination of a fulcrumed arm, a tool carried by said arm, a rotary handle for said tool, a guide projecting from the fulcrum of said arm, a counterbalancing traveler arranged to move on said guide, and operative connecting means between said traveler and the handle, substantially as described.

7. In a folding or other similar machine, the combination of a fulcrumed arm, a contrivance die carried by said arm, a rotary handle for said contrivance die, a guide projecting from the fulcrum of said arm, a counterbalancing traveler arranged to move on said guide, operative connecting means between said traveler and the handle, and a spring controlling said traveler, substantially as described.

8. In a folding or other similar machine, the combination of a fulcrumed arm having a guide, a movable part carried by said arm, means, comprising another movable part arranged on said guide, for turning said arm on its fulcrum, and operative connecting means between said parts, substantially as described.

9. In a folding or other similar machine, the combination of a fulcrumed arm, a movable part carried by said arm, a guide projecting from the fulcrum of said arm, a movable counterbalancing device arranged on the guide and operative connecting means between said movable part and said counterbalancing device, substantially as described.

10. In a contrivance die, the combination of die-plates arranged to move in a common plane into close proximity to each other and having projections extending from each of said plates toward the other, the projections of each plate being arranged out of the plane, and out of opposition to the projections, of the other plate, and a slotted guiding part receiving said projections, substantially as described.

11. In a contrivance die, the combination of die-plates arranged to move in a common plane and into close proximity to each other, the adjoining portions of said plates being cut away to form alternating spaces and projections, and the projections of each plate being arranged out of the plane, and opposed to the spaces, of the other plate, and a slotted guiding part receiving said projections, substantially as described.

12. In a contrivance die, the combination of die-plates arranged to move in a common plane and into close proximity to each other, the adjoining portions of said plates being cut away to form alternating spaces and projections, and the projections of each plate being arranged out of the plane, and opposed to the spaces, of the other plate, a slotted guiding part receiving said projections, a support carrying said guiding part, and sliding plates engaging the projections of said adapted to actuate said die-plates and guided in said guide-plates, substantially as described.

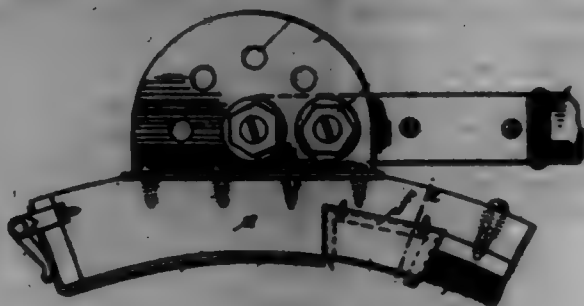
13. In a contrivance die, the combination of die-plates arranged to move in a common plane into close proximity to each other and having projections extending from each of said plates toward the other, the projections of each plate being arranged out of the plane, and out of opposition to the projections, of the other plate, and means, engaging said projections, for guiding said plates, substantially as described.

699,193. DEVICES FOR CLEANING AND RUBBING COLLECTORS OF ELECTRIC MOTORS AND DYNAMO-MACHINES. WILLIAM KIRBY, Berlin, Germany. Filed Feb. 11, 1902. Serial No. 98,857. (No model.)

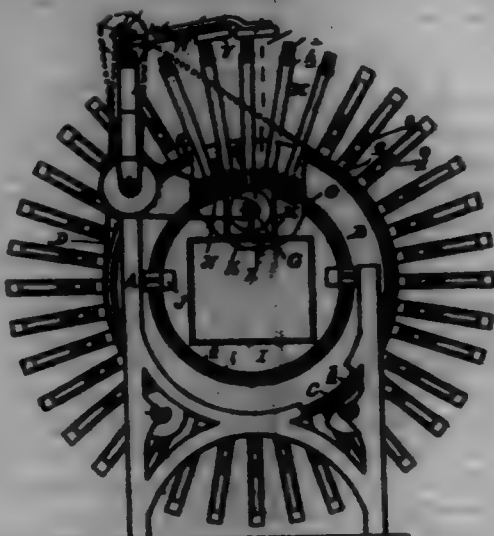
Claim.—1. The combination, in a device for rubbing and cleaning collectors of electric motors and dynamo-machines of a rubbing-block having its under face curved corresponding to the cylindrical face of the collector with a cavity for collecting the dust rubbed off from the collector and with an elastic means sliding upon the collector for cleaning the same.

2. In a device for rubbing and cleaning collectors of electric motors and dynamo-machines the combination of a rubbing-block having its under surface curved with a strip of emery-paper tied over the under sur-

face of the block, a cavity in the rear part of the block, a box fitted in the cavity for the entrance of dust and lined with soft material for retaining the dust, an elastic means at the rear part of the box, sliding upon the collector and keeping the same clean, and a brush at the rear part of the block for removing any dust retained upon the collector.



699,194. DUST-COLLECTOR. JOHN E. LANE and EDWIN R. WHITMAN, Jackson, Mich., assignors to Herman-Whitman Company, Jackson, Mich., a Corporation of Michigan. Filed June 5, 1901. Serial No. 11,354. (No model.)



Claim.—1. In a dust-collector, a rotary filter comprising a circular series of radially-extending filter-sections, each section consisting of a flattened fabric-tube open at its inner end, a pair of spaced bars to which the edges of the mouth of said tube are attached, opposite and brackets to which said bars are secured, a yielding frame for supporting the outer end of the tube secured to said brackets and annular flanges covering said brackets in fixed relation to each other with the spaced bars of adjacent sections pressed together to form a substantially air-tight joint.

2. In a dust-collector, a filter-section comprising a flattened tube of fabric closed at one end and open at the other, an external spring-frame for supporting said tube, and placing a tension thereon lengthwise of said tube, and rods within said tube at opposite edges thereof adapted to hold the same from drawing inward and permitting of the inward yielding of said spring-frame at the center.

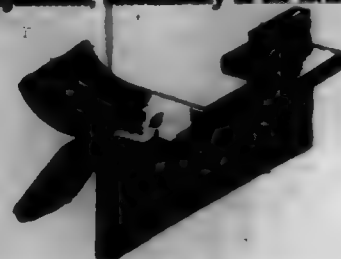
3. In a dust-collector, a filter-section comprising a flattened tube of fabric closed at one end and open at the other, an external spring supporting-frame for said tube having apertured bars to which the edges of the opposite ends of said tube are secured, and lining-plates secured to said bars and covering the fabric adjacent thereto for the purpose described.

4. In a dust-collector, a filter-section comprising a flattened tube of fabric closed at one end and open at the other, an external spring supporting-frame for said fabric having separated longitudinally-grooved bars adjacent to the open end of said tube, rods secured in loops in said fabric engaging in the grooves in said bars and plates secured to said bars covering the fabric on the inner faces of said bars and holding said rods in engagement with said grooves.

5. In a dust-collector, the combination with a rotary drum having annular end flanges and stationary heads, of a packing between said annular flanges and heads comprising a flexible flange of packing material, a split ring having slitted blocks at the end thereof, and a bow-spring for adjustably engaging with the slits in said ring whereby the latter will clamp said flexible flange to said annular flange.

699,195. RAIL AND BRACKET CONNECTION. JOHN E. LAMM, Stirling, Ill., assignor of one-half to Edwin F. Lawrence, Stirling, Ill. Filed Feb. 14, 1902. Serial No. 94,931. (No model.)

Claim.—1. A rail and bracket connection, comprising a bracket and formed with a socket-recess at one side adapted for engagement with the web of the rail, a rail formed with an arifice corresponding with the end of the bracket and adapted to receive said bracket end, engagement of the rail and the socket-recess being had by an independent longitudinal adjustment of one of said parts, and means for locking the parts at such longitudinal adjustment, substantially as set forth.



2. A rail and bracket connection, comprising a bracket end formed with a socket-recess at one side adapted for engagement with the web of the rail, a rail formed with an arifice corresponding with the end of the bracket and adapted to receive said bracket end, engagement of the rail and the socket-recess being had by an independent longitudinal adjustment of one of said parts, and means for locking the parts at such longitudinal adjustment, the same comprising a filling-piece inserted in the rail-arifice at the end of the same opposite to that at which the socket-recess has engagement, substantially as set forth.

3. A rail and bracket connection, comprising a bracket end formed with a socket-recess at one side adapted for engagement with the web of the rail, a rail formed with an arifice corresponding with the end of the bracket and adapted to receive said bracket end, engagement of the rail and the socket-recess being had by an independent longitudinal adjustment of one of said parts, and means for locking the parts at such longitudinal adjustment, the same comprising a filling-piece or tongue formed integral with the rail-web and adapted for engagement with the side of the bracket opposite to the side in which the socket-recess is formed, substantially as set forth.

4. A rail and bracket connection, comprising a bracket end formed with a socket-recess at one side adapted for engagement with the web of the rail, a rail having a crucial form and provided with an arifice immediately beneath the horizontal web of such rail and adapted to receive the engaging end of the bracket, engagement of the rail and the socket-recess being had by an independent longitudinal adjustment of one of said parts, and means for locking the parts at such longitudinal adjustment, substantially as set forth.

699,196. ELECTRIC ARC LAMP. ALBERT LAMM, New Bedford, Mass. Filed Dec. 4, 1902. Serial No. 94,941. (No model.)



Claim.—1. An arc-lamp having its lower carbon holder supported by a multiplicity of filamentary conductors distributed around the arc.

2. An arc-lamp having its lower carbon supported by a network of thin wires forming a curved-bed for the negative electrode.

3. An arc-lamp having its lower carbon suspended by a network of wires in circuit with the lamp and terminating in metal contacts to facilitate connection and disconnection with the lamp parts.

4. The combination with a lamp operated by electricity, of a multiplicity of filamentary conductors carrying a current to an electrode of said lamp.

5. The combination with a lamp operated by electricity, of a network of wires supporting the lower carbon and carrying current thereto.

6. In an electric arc lamp, an incandescent globe suspended by a network of wires including the same, an electrical connection from said wires to a terminal of the circuit, and an electrical connection from said wires to an electrode of the lamp, whereby the network of wires carries current to the lamp and at the same time mechanically supports the incandescent globe.

7. In an electric arc lamp the combination with an incandescent globe, of a series of filamentary conductors including and supporting the globe, and adapted to carry current to the negative electrode, said filamentary conductors having a diameter less than the electric arc, whereby the incandescence from the arc is not obscured by the conductors and cast as shadow.

8. In an electric arc lamp the combination with an incandescent globe, of a network of conducting-wires for the lower carbon of such a diameter that practically no shadows are cast by them from the light of the lamp.

699,197. AUTOMATIC SWITCH. FRANK S. LOWE, Baltimore, Md. Filed Feb. 26, 1902. Serial No. 94,942. (No model.)



Claim.—1. In an automatic switch, the combination with a main rail, and a switch-point, of a crank-shaft extending through said rail and switch-point, and formed with a worm working through a slot in the switch-point, and a gear-wheel interposed between the main rail and switch-point, and adapted to be raised and lowered by the movement of the crank-shaft.

2. In an automatic switch, the combination with a main rail, and a switch-point, of a crank-shaft extending through said rail and switch-point, and formed with a worm working through a slot in the switch-point, a beveled gear-wheel interposed between the main rail and the switch-point, and having its two ends oppositely beveled, and a connection between said crank-shaft and gear-wheel to raise and lower the latter through the movement of the crank-shaft.

3. In an automatic switch, the combination with a main rail and a switch-point, of a crank-shaft extending through said rail and switch-point, and formed with a worm working through a slot in the switch-point, a gear-wheel located between the main rail and switch-point pivotally secured at one end and oppositely beveled on the upper surface of its free end, and a keeper depending from the gear-wheel through which the crank of the shaft extends.

699,198. BOTTLE-STOPPER. GEORGE LEFFMANN, Brooklyn, N. Y., assignor of one-half to Charles L. Curtis, Brooklyn, N. Y. Filed Dec. 23, 1902. Serial No. 94,943. (No model.)



Claim.—1. The combination with a bottle provided with an inwardly-projecting beveled lip at the mouth thereof, a shoulder within the mouth and below the lip and a notch in the bottle-mouth with a free vertical opening, of a stopper seated on the shoulder, and a locking-wire ring fitted between the lip and the top of the stopper, one end of the wire forming the ring being bent outwardly and laid through the notch, whereby the end of the wire can be fitted vertically through the notch and the ring adjusting the end secured inwardly by the bevel of the lip when the end is fitted, substantially as described.

2. The combination with a bottle provided with an inwardly-projecting beveled lip at the mouth thereof, a shoulder within the mouth and below the lip and a notch in the bottle-mouth with a free vertical opening, of a stopper seated on the shoulder, and a locking-wire ring fitted between the lip and the top of the stopper, one end of the wire forming the ring being bent outwardly and laid through the notch, whereby the end of the wire can be fitted vertically through the notch and the ring adjusting the end secured inwardly by the bevel of the lip when the end is fitted, and the opposite end of the ring being separated from the body of the ring by an interval whereby the diameter of the ring may be reduced to permit its ready disengagement from its locking position, substantially as described.

3. The combination with a bottle, provided with an inwardly-projecting lip at the mouth thereof, of a stopper, composed of a sealing-disk

and a superimposed metal cover-disk fitting the mouth of the bottle, the metal cover-disk having tongues projecting therefrom at intervals on its periphery, and a locking-wire ring fitted between the lip and the cover-disk, the stopper and held beneath the tongues of the latter, the ends of the wire not being joined into a ring, and a space being left between one end of the wire and the opposite part of the ring, whereby the diameter of the ring may be reduced to permit its ready disengagement from its locked position, substantially as described.

699,199. GASKET AND SEAL FOR HYDROCARBON-LIQUID CONTAINERS. PHILIP J. LOWMEYER, Washington, D. C. Filed Apr. 26, 1901. Serial No. 94,944. (No model.)



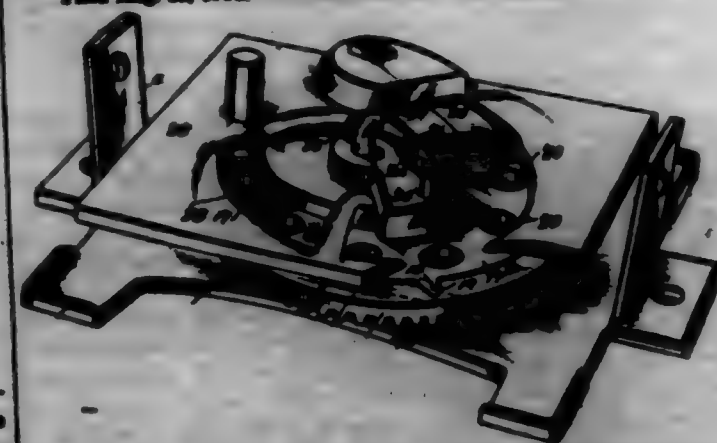
Claim.—1. A container having an opening formed with a gasket-seat, a gasket-holder having an annular depending flange of less diameter than the outer wall of said seat and of greater diameter than the inner wall of said seat, a gasket having its edges and upper surface locked by said holder, and a cushioning-cap removably connected to said gasket-seat and designed to clamp the gasket to its seat, substantially as described.

2. The combination with a container having an exteriorly-threaded nipple formed with a flaring gasket-seat; of a gasket-holder provided with a downwardly-extending surrounding flange to engage said seat, a gasket surrounded by said flange and resting upon said seat, and a screw-cap for engaging said nipple and forcing the gasket to its seat, substantially as specified.

3. The combination with a container having an exteriorly-threaded nipple formed with a gasket-seat; of a gasket-holder having a surrounding depending flange and formed with a central depression, said flange adapted to engage said seat, a gasket surrounded by said flange and resting upon said seat, and a screw-cap for engaging said nipple and forcing the gasket to its seat, substantially as set forth.

4. In combination with a liquid-hydrocarbon tank or other vessel having an opening, and having for the purpose of a closure thereof, the exteriorly-threaded nipple, the interiorly-threaded screw-cap, the gasket and the beveled or conical gasket-seat, all in combination as heretofore described for the use and purpose herein mentioned.

699,200. GASKET-SEALING. GEORGE A. LAWRENCE, Eastland, Ind. Filed Aug. 12, 1902. Serial No. 94,945. (No model.)



Claim.—1. The combination of a seal-dropping element having a primary and a secondary seal-opening, with means to open and close said secondary seal-opening to render the same effective or ineffective at will, substantially as described.

2. The combination of a seal-dropping element having a primary seal-opening and a secondary seal-opening at different distances from the center thereof, and means to cover and uncover said secondary seal-opening at will, substantially as described.

3. The combination of a seal-dropping element having primary and secondary seal-openings to render the same effective or ineffective at will, substantially as described.

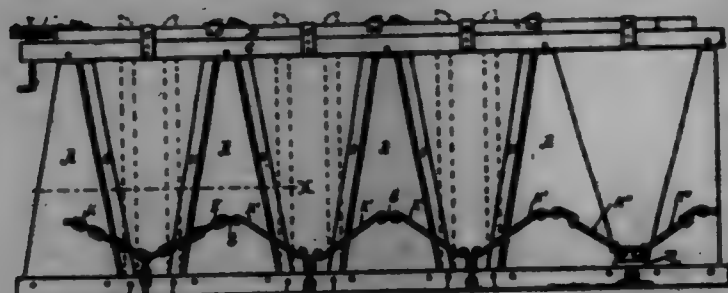
4. The combination of a seal-dropping element having primary and secondary seal-openings, a cut-off for said primary and secondary seal-openings and a valve to cover and uncover said secondary seal-openings to render the same effective or ineffective at will, substantially as described.

5. The combination of a ring-gear, a seal-disk rotatably therewith and detachably connected thereto, said seal-disk having a primary seal-opening and a secondary seal-opening at different distances from the cen-

ter thereof, a cut-off, and a valve, to cover and uncover said secondary seed-opening at will, substantially as described.

6. The combination of a revolvable seed-dropping element having a primary seed-opening and a secondary seed-opening at different distances from the center thereof, a cut-off, a valve, pivotally mounted on the center of said seed-dropping element, and means to operate said valve, to cover or uncover said secondary seed-opening at will, substantially as described.

699,201. CATTLE-TIE AND STANCHION. DE WITT C. MARSH, Leyden, N. Y. Filed Mar. 16, 1901. Serial No. 51,451. (No model.)



Claim.—1. In a stanchion, a pair of stanchion-bars pivoted at their lower ends, mounted to swing into and out of their vertical positions, a pair of horizontal sliding rails mounted to be operated in opposite directions, each sliding rail being provided with a gear-wheel secured thereto and a pivoted gear-wheel mounted between the gear-wheels and meshing into the same, and pivoted swinging levers or latches alternately mounted on the horizontal movable rails to engage the ends of the pivoted stanchion-bars, combined for the purpose stated.

2. In a stanchion, the combination of a series of pairs of stanchion-bars, pivoted at their lower ends, their upper free ends arranged to swing to and from vertical positions, a pair of horizontal sliding rails located on opposite sides of the stanchion-bars and mounted to be operated in opposite directions, a series of pivoted levers mounted alternately on the horizontal sliding rails to engage the free ends of the pivoted stanchion-bars for moving them into and out of vertical positions and means substantially as set forth for moving the horizontal rails in opposite directions, whereby a series of animals can be secured in the stalls and illustrated in one operation, substantially as set forth.

3. In a stanchion, a succession of pairs of standards, wider at the base than at the top, link connections secured to the standards, one on each side of the space between the standards and united at their lower ends, and a chain or other fastening device provided with means for surrounding the neck of the animal, in combination with pivotally-movable stanchion-bars, substantially as set forth for the purpose stated.

4. In a stanchion, pairs of standards, substantially as shown, secured in the frame of the stall, for permitting the neck and head of the animal to be inserted between the standards, a pair of connecting-rods with one end of each pivoted to the standard on each side of the opening and connected at the center, with means for securing the same to the neck of the animal, in combination with movable stanchion-bars, substantially as set forth for the purpose stated.

5. In a stanchion, a frame comprising upper and lower rails with upright standards between them, stanchion-bars pivotally attached to the lower rail, reciprocally-moving sliding rails, means for detachably connecting the sliding rails and the stanchion-bars, means for oppositely reciprocating the sliding rails, in combination, substantially as set forth.

6. In a stanchion, upright standards, rails connecting the standards at the top and bottom, stanchion-bars pivotally secured on one of the rails, means comprising reciprocally-moving rails for turning on its bearing each stanchion-bar, in combination, substantially as set forth.

7. In a stanchion and cattle-tie, a frame comprising top and bottom rails, standards suitably attached to the rails, chain-rods attached to the standards provided with links and here for securing the cattle, in combination, substantially as set forth.

8. In a stanchion or cattle-tie, upright standards, rails connecting the same at the top and bottom, chain-rods secured to the upright standards by swivels, swivels attached to each chain-rod, a link connecting the free ends of the chain-rods in the space between the standards, suitable means for securing the cattle depending from the link, in combination, substantially as set forth.

9. In a stanchion or cattle-tie, successive pairs of standards separated to allow the animal to withdraw the head freely from between the standards, rods and chains suitably secured at the one end to the standards one on each side of the opening, said rods and chains being connected at their adjoining ends with means for securing the chains and rods to the animal, in combination, substantially as set forth.

10. In a stanchion and cattle-tie, standards rigidly secured to the top and bottom, stanchion-bars pivotally attached to the bottom rail with openings between wide enough to allow the animal's head and neck to pass through between the stanchion-bars at will, rods and chains pivoted at the one end to the standards between the top and bottom rails and on the stall side of the standards, one on each side of the opening, said rods and chains being connected together at the center, in combination with means for securing the same to the neck of the animal whereby the animal is free to withdraw its head, but is prevented from working up and through the manger side by rods and chains coming in contact with the upright standards or stanchion-bars, substantially as set forth for the purpose stated.

11. In a stanchion and cattle-tie, standards rigidly secured to the top and bottom, rods and chains pivoted at one end to the standards between the top and bottom rails on the stall side of the standards, one on each side of the opening, said rods and chains being connected at the center, in combination with means for securing the same to the neck of the animal, the chains and rods and neck connections being adjusted to permit the animal to withdraw its head and to prevent it from crowding into the manger by the rods and chains coming in contact with the upright standards or bars, substantially as set forth for the purpose stated.

12. In a stanchion, a frame comprising top and bottom rails and standards suitably fixed to the top and bottom rails, chain-rods attached to the standards and having yielding connections and provided with means for securing the cattle by yielding fastenings, in combination, substantially as set forth.

13. In a cattle-tie or stanchion, a rigid frame having standards secured therein, stanchion-bars pivotally secured in the base of the frame, chain-and-rod connections secured to the standards and connected at their other end with neck-fastenings for the cattle whereby are provided yielding fastenings, sliding rails adapted to be moved respectively, detachable connections between the sliding rails and the stanchion-bars, in combination, substantially as set forth.

14. In a stanchion, upright standards, horizontal rails connecting the same at the top and bottom, chain-rods secured to the upright standards by swivels, swivels attached to each end of the chain-rods, a ring connecting the free ends of the chain-rods in the space between the standards, chains or other suitable means for securing the cattle depending from the ring, in combination, substantially as set forth.

699,202. ELECTRIC GAS-LIGHTER. ADOLF J. MARSHALL, Litchfield, N. Y. Filed Mar. 4, 1901. Serial No. 50,394. (No model.)



Claim.—1. In an electric gas-lighter, the combination of a conducting-battery casing, a battery having an internal and an external pole located in and insulated from said casing, a lighting-coil, a conducting-support for the same with which one terminal of said coil is electrically connected, means for detachably and electrically connecting the coil-support

with the casing, a conductor connecting with the other terminal of the coil and detachable with said coil-support from said casing, a contact for connecting said conductor with said internal pole of the battery, and a hand-controlled means for making electrical connection between said casing and said external pole of the battery, substantially as set forth.

2. In an electric gas-lighter, the combination with a lighting-coil, a supporting screw-cap and tubular stem, an insulated wire arranged within said stem, and a lighting-coil having one terminal connected with said cap and the other terminal with said wire, of a battery having an internal and an external pole, an insulating casing insulated from said external pole and having at its upper end a screw-thread for attachment to said cap, a circuit-breaker which is connected with said casing and adapted to make contact with the external pole of the battery, and a yielding contact interposed between the internal pole of the battery and said wire, substantially as set forth.

699,203. MACHINE FOR TWISTING AND SPINNING FIBROUS MATERIALS. JOHN MARSHALL, FORTSMOUTH, R. I., assignor of three-fourths to EDWARD E. MARSH, FORT RIVER, MASS., and T. ALBERTUS, BAY VILLE, R. I., and CHARLES T. ALBERTUS, FORTSMOUTH, R. I. Filed May 4, 1901. Serial No. 54,357. (No model.)



Claim.—1. In a spinning or twisting machine, in combination, the chambered support, the rotating ring having the lower portion thereof received within the chamber of the said support, the plates fitting around the said portion of the ring from opposite sides thereof, and the centrifugal rolls or wheels supported by the said plates within the oil-containing space of the support.

2. In a spinning or twisting machine, in combination, the chambered support having the central shaft extending upwardly within the chamber thereof and the said chamber adapted to contain oil, the rotating ring surrounding the said shaft and working within said chamber, and the centrifugal rolls or wheels working within the said chamber and engaging with the lower portion of the ring.

3. In a spinning or twisting machine, in combination, the chambered support having the central shaft rising within the chamber thereof, the rotating ring surrounding the said shaft, the plates fitting around the said ring from opposite sides thereof, and the centrifugal rolls or wheels supported by the said plates within the chamber.

4. In a spinning or twisting machine, in combination, the chambered support, the chamber thereof being adapted to contain oil, the rotating ring working within said chamber, and the centrifugal rolls or wheels engaging with the said ring and working in the oil-containing chamber of the said support, substantially as described.

5. In a spinning or twisting machine, in combination, the chambered support, the chamber thereof being adapted to contain oil, the rotating ring having the depending skirt entering the chamber of the said support, and the centrifugal rolls or wheels engaging with the said skirt and working in the said chamber.

6. In a spinning or twisting machine, in combination, the rotating ring, the plates fitting around the lower portion of the ring from opposite sides, and the centrifugal rolls or wheels carried by the said plates and engaging with the lower portion of the said ring.

7. In a spinning or twisting machine, in combination, the chambered support, the chamber thereof being adapted to contain oil, the rotating ring, provided with a guide through which the material being twisted or spun is fed, with means for receiving applied force whereby to drive the same, and with a depending skirt working within the said chamber, and a series of centrifugal rolls or wheels also working within said chamber and making contact only with the said skirt below the place where driving power is applied to the ring.

8. In a spinning or twisting machine, in combination, the chambered support, the chamber thereof being adapted to contain oil, the rotating ring provided with a guide through which the material being twisted or spun is fed, with means for receiving applied force whereby to drive the same, and with a depending skirt shaped for engagement with the supporting rolls or wheels and working within the said chamber, and a series of centrifugal rolls or wheels also working within the said chamber and engaging with the said skirt only below the place where driving power is applied to the ring and acting to restrain the ring from vertical movement.

9. In a spinning or twisting machine, in combination, the chambered support, the rotating ring having the lower portion thereof received within the chamber of the said support, the plates fitting around the said portion

of the ring from opposite sides thereof, the centrifugal rolls or wheels supported by the said plates, and means to adjust the said plates.

699,204. AUTOMATIC VENTILATING WINDOW-LOCK. WILLIAM E. MARSH, NEWTON, MASS. Filed Jan. 15, 1902. Serial No. 55,331. (No model.)



Claim.—1. A window-fastening comprising a spring-actuated bolt mounted in a casing secured to the top of the lower sash, a catch which when said bolt is retracted automatically engages the bolt and holds it retracted until said catch is tripped, a lock-plate on the upper sash which is adapted to be engaged by said bolt which can enter or withdraw from the lock-plate only when both sashes are closed, and a tripping device for said catch consisting of a double spring-wire forming two arms, the end of one arm being secured on the back side of the lock-plate, the other arm being formed with a hump which projects through a slot in the lock-plate and which is so formed that when either sash is opened the said projection will not trip said catch, and by the operation of closing either sash the catch will be tripped, substantially as described.

2. A window-fastening, comprising a spring-actuated bolt mounted in a casing secured to the top of the lower sash, a catch which when said bolt is retracted engages the bolt, a slotted lock-plate on the side rail of the upper sash and a tripping device for said catch consisting of a double spring-wire forming two arms, the end of one arm being secured at the back of the lock-plate, the other arm being formed with two humps which project through a slot in the lock-plate, said humps being so formed that when either sash is opened neither of the humps will trip said catch and in the operation of closing either sash one of said humps will trip the catch, the other hump serving as a guard to ward the tripping-hump from engagement with the rear side of the lower sash while the sash is being closed, substantially as described.

699,205. ELECTRICAL TAP-SOCKET. RUEL B. MAYNORTH, NEW YORK, N. Y., assignor to the Maynorth Manufacturing Co., a Corporation of New Jersey. Filed Aug. 27, 1901. Serial No. 73,463. (No model.)



Claim.—1. In a tap-socket, the combination of plug and socket parts, a circuit-controller contained therein, and having a reciprocating movement in a transverse direction and circuit-terminals whereby two circuits can be put into series or parallel with each other at will.

2. In a tap-socket, the combination of plug and socket parts, a circuit-controller contained therein and movable to project from one side or the other and circuit-terminals arranged so that when the circuit-controller is projecting from one side two circuits will be in parallel and when projecting from the other side the two circuits will be in series.

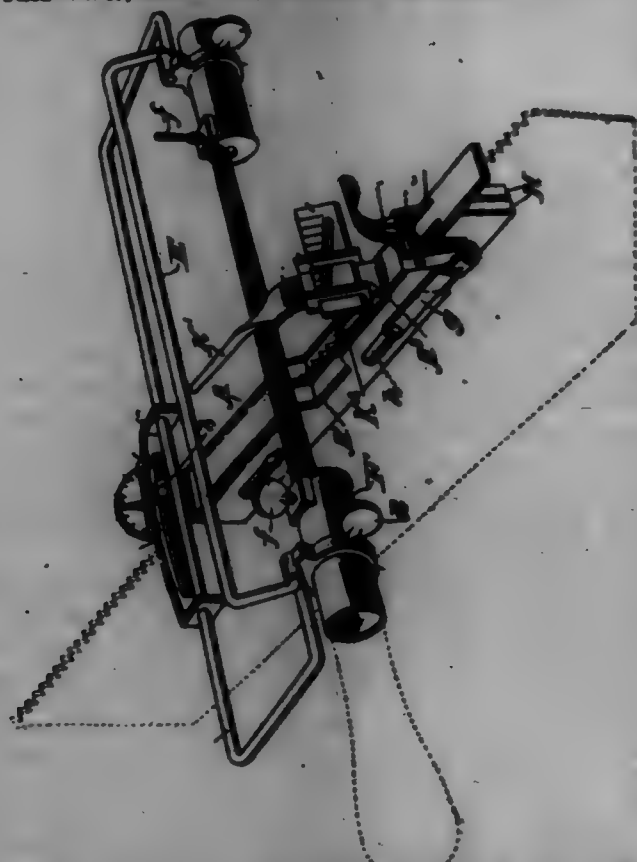
3. In a tap-socket, the combination of a circuit-controller movable to project from one point or the other thereof, and a branch circuit adapted to be connected with the projecting part of the circuit-controller to thereby be connected in series or parallel with the second circuit.

4. In a tap-socket, the combination of a circuit-controller having a portion adapted to be moved to change the relation of the circuits and a branch circuit whose terminals are removably connected with said portion, substantially as described.

5. In a tap-cocket, the combination of a movable circuit-controller, fixed contacts adapted to cooperate therewith, said circuit-controller being double-ended and adapted when pushed inward on one side to project from the other side and means whereby the terminals of a branch circuit can be connected with either end of the circuit-controller to thereby connect the branch circuit in series or parallel with the second circuit, substantially as described.

6. In a tap-cocket, the combination of plug and socket parts secured together, two contacts mounted thereon and adapted for parallel connection with a branch circuit, and two other contacts mounted thereon and adapted for series connection with a branch circuit.

699,208. SAW-FILING DEVICE. LEON H. MILLER, Wisconsin, Wis., assignor of one-half to George Harris, Wisconsin, Wis. Filed Jan. 13, 1902. Serial No. 69,891. (No model.)



Claim.—1. In a saw-filing device, a frame having depending sides which converge longitudinally, a reciprocating file-holding frame connected thereto, longitudinally-movable wedges between the depending sides of the frame, and means for moving said wedges, substantially as shown.

2. In a saw-filing device, a frame having depending and converging sides, a movable file-carrying frame mounted thereon, a pawl connected to the first-mentioned frame for engagement with the teeth of a saw, wedges reciprocally attached to the depending sides of the frame, and means for moving the wedges with respect to the frame.

3. In a saw-filing device, a frame, means for connecting thereto a file-holder, a pawl carried by the frame to engage the saw-teeth when the frame is mounted on a saw, wedges carried by the frame, and a thumb-lever mounted on the frame and connected to the wedges, substantially as shown.

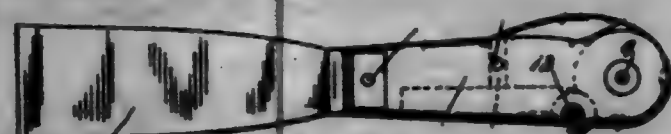
4. In a saw-filing device, a frame in which the top and sides are partially cut away to provide a recess, a pawl carried by the frame to depend below the top, a file-carrier reciprocally attached to the frame, wedges maintained between the sides of the frame, a lever pivoted on the frame, and means for connecting the lever members of the lever to the wedges, substantially as shown.

5. A frame for a saw-filing device made up to present longitudinally-converging sides and top, an end portion which projects upward at right angles to the top, an inclined portion designed to support a gage, legs which extend above the top, the frame being cut away centrally and provided with slots through the sides, in combination with a file-holder attached to the projecting portion at one end of the frame, a gage carried by the intermediate inclined portion, a lever pivoted on the legs, and bars connected to the lever and to wedges positioned between the converging sides, substantially as shown.

6. In a saw-filing device, the combination with a file-holder, of cylindrical heads adjustable longitudinally and relatively attached to the file-holder, each head having to one side of its center opening to receive the file, and means for clamping the file in each opening.

7. The combination with the frame of a saw-filing device said frame having wedges which are longitudinally adjustable in the frame to clamp against the saw and hold the frame over the teeth thereof, a pawl adapted to engage the saw-teeth, a gage movable in conjunction with the pawl to limit the movement of the file toward the teeth of the saw, a reciprocating file-holding frame mounted on the saw-engaging frame, the holding heads which are relatively mounted in rings which form a part of the file-holding frame, and a bar for engagement with the heads, substantially as shown.

699,207. COMBINATION-TOOL. SARAH A. NIX, Minneapolis, Minn. Filed July 22, 1901. Serial No. 69,891. (No model.)



Claim.—1. The combination with a tool-handle, of a tool pivoted thereto and provided with a notched disk, and a locking element pivoted to said handle and provided with a notch adapted to be moved into registration with the periphery of said disk to permit free movements of said pivoted tool, said locking element in other positions being engageable with one of the notches of said disk, to lock said pivoted tool in a set position.

2. The combination with a tool-handle, of a pair of tools pivoted thereto and provided with disk-like pivoted ends, the peripheries of which intersect, and each of which disk-like ends have notches cut on the line of an arc struck from the center of the other member, whereby either tool may be locked by the disk-like end of the other, substantially as described.

3. The combination with the bifurcated tool-handle having a rigidly-connected blade 1 of the jaw 7 provided with a notched disk 9 pivoted between the sides of the handle at 8, the lock-tumbler 11 pivoted between the sides of the handle at 12 and provided with the notch 13, and the tool 14 also pivoted at 12, and provided with the rounded lock portion 15 and notch 16, which parts cooperate, substantially as described.

699,208. VACUUM-TUBE CURVE. DANIEL H. MOORE, Newark, N. J., assignor to Edison Electrical Company, New York, N. Y., a Corporation of New York. Filed Apr. 13, 1901. Serial No. 69,891. (No model.)



Claim.—1. In the center, the combination with the direct-interceptor, of a permanent magnet located under the tail of the vibrating armature and an adjustable plate in which said magnet is mounted.

2. In the center the combination with the vibrator of a solenoid mounted above it, a vibrating core for the solenoid having an extension for striking the vibrator, and a vertically-adjustable core located in the upper end of the solenoid.

3. In the center the combination with the vibrator of a solenoid mounted above it, a vibrating core for the solenoid having an extension for striking the vibrator, an electric contact carried by said core, a spring-contact upon which the core normally rests, and a tension device for said spring.

4. In the center the combination with the vibrator-tube, of a curved arm therein having a pivot formed thereon and the armature supported on said pivot.

5. In an oscillator substantially as described, the combination with the circuit-breaking armature, of a permanent magnet located under one end thereof and adjustable longitudinally of said armature, for the purpose set forth.

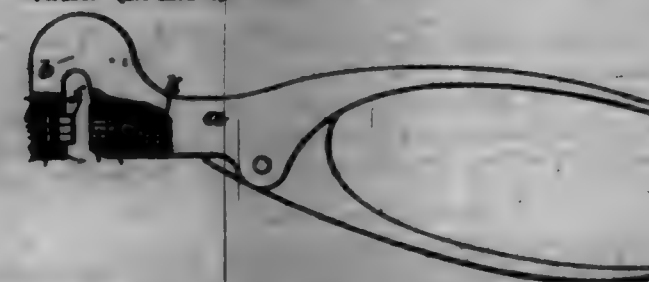
699,209. HAND-POWER BRAKE FOR RAILWAY-WAGONS. DAVID J. HOSMAN, Bury, England. Filed June 20, 1901. Serial No. 69,891. (No model.)



Claim.—1. In an either-side hand-power brake for railway-wagons or trucks the combination of a stop-rod A, washers C over same at lower side of each lever B from tube bearing on said washers and handles G with a catch C' fixed to said lever tube C' and rack D for said catch to engage with substantially as described.

2. In an either-side hand-power brake for railway-wagons the combination of a lever J, with connecting-rod G, having slot g' to operate brake-levers B from the wagon or buffer, substantially as described.

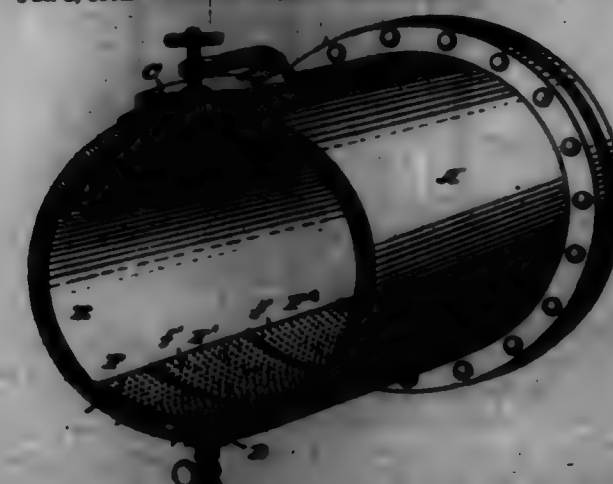
699,210. HAND-FUNCH. SARAH C. MOORE, New York, N. Y., assignor to Charles Morris, deceased. Filed Oct. 2, 1901. Serial No. 71,408. (No model.)



Claim.—1. The combination with the support therefor of an interchangeable and adjustable die opposing shoulders on said die and support, the movable washers united between the shoulders and jam-nut, substantially as shown and described.

2. The combination with a hand-punch having a horizontally-moving plunger and interchangeable and adjustable die of the interchangeable punch point or end, the shoulder thereon, said punch end secured to the end of the plunger, substantially as shown and described.

699,211. BARREL-FILTER. DE WITT C. MOORE, Colorado City, Colo., assignor to Charles H. MacCall, Colorado Springs, Colo. Filed Feb. 2, 1902. Serial No. 69,891. (No model.)



Claim.—1. A barrel-filter comprising filter-sections, the plates having projections on their outer sides and perforations through the plates arranged between the projections and having beveled longitudinal edges.

whereby the adjacent sides of the sections may be united by burning, substantially as described.

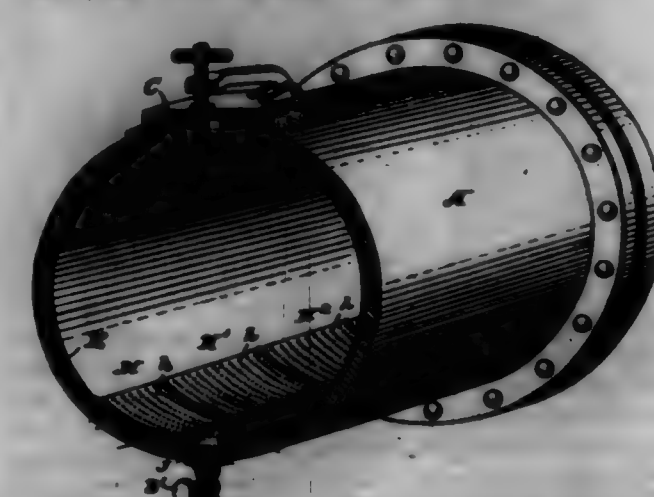
2. The combination with the head lining of a filter-barrel, of filter sections or plates having projections on their outer sides and perforations through the plates between the projections, and having beveled edges whereby the plates may be united to the lining by burning, substantially as described.

3. The combination with the head lining of a filter-barrel, of filter sections or plates having projections on their outer sides and perforations through the plates between the projections, the plates having beveled longitudinal edges and beveled ends, whereby the plates may be united together and to the head lining by burning, substantially as described.

4. The combination with the head lining of a filter-barrel having an opening, of filter sections or plates having projections on their outer sides and perforations through the plates between the projections, the plates being adapted to be burned together at their edges and to the lining at their ends, and a strengthening-plate adapted to extend over the opening in the barrel and to be secured to a section by burning, substantially as described.

5. In a barrel-filter, a filter-section having steel projections on one side, tapering perforations through the body of the section between the projections, and provided with beveled edges whereby various sections may be united to form a filter having a plate, perforated inner surface, substantially as described.

699,212. BARREL-FILTER. DE WITT C. MOORE, Colorado City, Colo., assignor to Charles H. MacCall, Colorado Springs, Colo. Filed Feb. 2, 1902. Serial No. 69,891. (No model.)



Claim.—1. A filter comprising pairs of filter-plates, provided with extensions on their adjacent ends, said extensions constructed and adapted to form when joined a longitudinal channel between the adjacent ends of the plates, substantially as described.

2. A filter comprising pairs of filter-plates having perforations and provided with imperforate extensions on their adjacent ends, said extensions constructed and adapted to form when joined a longitudinal channel between the adjacent ends of the plates, substantially as described.

3. The combination with the lining of a filter-barrel, of strips or supports united to the lining, and filter-sections provided with perforations supported on the strips and secured to the lining, substantially as described.

4. The combination with the lining of a filter-barrel, of strips or supports burned to the lining, the lining and strips or supports being of such material that they can be burned together, and filter-sections supported on said strips and secured to the lining, said sections being provided with imperforate extensions on their adjacent ends, substantially as described.

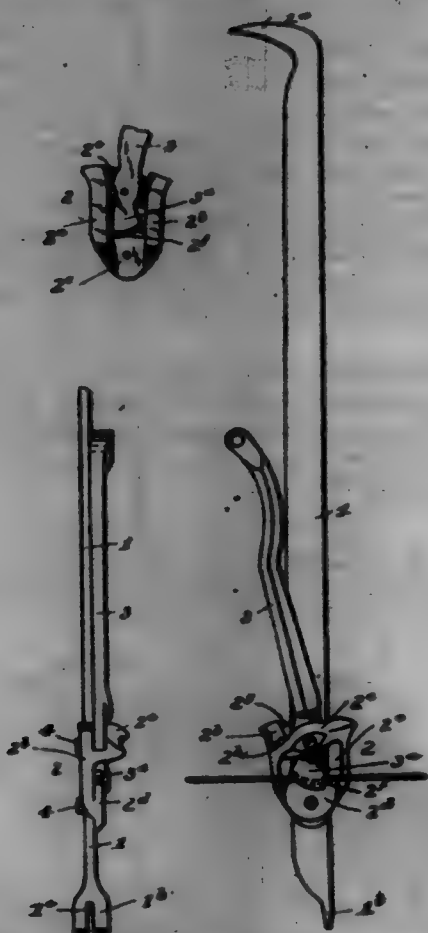
5. The combination with the lining of a filter-barrel, of filter-sections, and supports between the lining and sections, the sections being in pairs as constructed and arranged to form a longitudinal channel between the adjacent ends of the pairs, substantially as described.

6. The combination with the lining of a filter-barrel, of filter-sections, and supports between the lining and sections, the sections being arranged in pairs and provided with extensions as constructed as to form a longitudinal channel between the adjacent ends of the pairs, substantially as described.

7. The combination with the lining of a filter-barrel, of perforated filter-sections, and means for supporting said sections and securing them to the lining, said sections having their adjacent ends as constructed and arranged to form a longitudinal channel, substantially as described.

699,213. COMBINED WIRE STAPLER, CUTTER, SPLICE, AND STAPLE-PULLER. JAMES HOSMAN, Westerville, Ohio. Filed Oct. 2, 1901. Serial No. 71,407. (No model.)

Claim.—1. In combination with a bar or lever, a frame secured thereto having a stationary wire-cut $2'$ lying next the face of the bar and laterally-extending ribs $2'$ and $2''$ to fit the opposite edges of the bar the rib $2'$ affording a shearing edge and a lever 3 fulcrumed in the said bar having a wire-clamping end $3'$ to coast with said wire-cut $2'$ and a shearing edge to coast with the shearing member $2'$, substantially as described.



2. In combination with a bar or lever, a frame secured thereto having a stationary wire-cut $2'$ lying next the face of the bar and laterally-extending ribs $2'$ and $2''$ to fit the opposite edges of the bar, the rib $2'$ affording a shearing edge, a cross-piece $2'$ between the ribs $2'$ and $2''$, and a lever 3 fulcrumed between the said cross-piece and cross-piece and having a wire-clamping end $3'$ to coast with said wire-cut $2'$ and a shearing edge to coast with the shearing edge of the rib $2'$, substantially as described.

3. In combination with a bar or lever, a frame secured thereto having a stationary wire-cut $2'$ lying next the face of the said bar and laterally-extending ribs $2'$ and $2''$ to fit the opposite edges of the said bar, the rib $2'$ affording a shearing edge, a cross-piece $2'$ between the ribs $2'$ and $2''$, a wire-clamping notch $3'$ in said cross-piece, and a lever fulcrumed between the said cross-piece and cross-piece and having a wire-clamping end to coast with the cut $2'$ and a shearing edge to coast with the shearing edge of the rib $2'$ and the wire-clamping notch $3'$ in the cross-piece, substantially as described.

699,214. WINDOW-BRACKET. CARLES E. HENNING, Washington, D. C. Filed Feb. 4, 1902. Serial No. 92,511. (No model.)



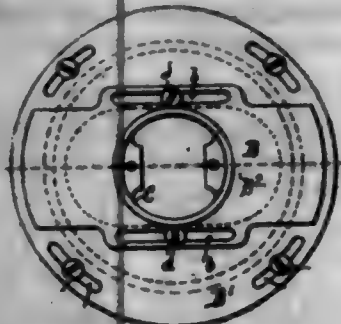
Claim.—1. A device of the class described, consisting of a back plate, flanged brackets hinged vertically to the back plate to fold inwardly, and chaises removably engaging at their ends the flanges of the brackets.

2. A device of the class described, consisting of a back plate, brackets hinged to the back plate to fold inwardly and brackets having flanges at their top provided with openings, and chaises and rods having downturned ends removably engaging the openings.

3. A device of the class described, consisting of a back plate having an arm toward its upper side, brackets hinged to the back plate to

fold inwardly and brackets having top flanges and openings in the flanges, chaises and rods having downturned ends engaging the flange-openings, holders on the back plate for the detached chaises and rods, and receptacles on the device for chaises and the like.

699,215. ELECTRICAL OUTLET-BOX. RICHARD W. MILLER, Brooklyn, N. Y. Assignor to Robert Krantz, Brooklyn, N. Y. Filed Mar. 11, 1902. Serial No. 97,748. (No model.)



Claim.—1. An electrical outlet-box having a receptacle-carrying part adjustable on the body of the box to shift the center of the receptacle.

2. An electrical outlet-box having a receptacle-carrying part adjustable crosswise and rotarily upon the body of the box to shift the center of the receptacle.

3. An electrical outlet-box, having a receptacle-carrying cover in two parts, one adjustable on the other and the two adjustable on the body of the box to shift the center of the receptacle.

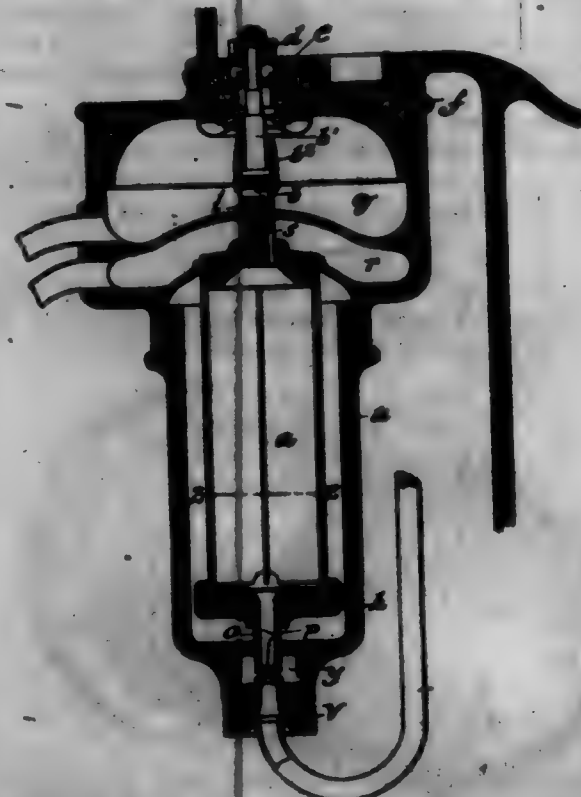
4. An electrical outlet-box, having a receptacle-carrying cover in two parts, one adjustable crosswise on the other and the two adjustable rotarily on the body of the box, as and for the purpose described.

5. An electrical outlet-box having a receptacle-carrying cover adjustable crosswise of the body of the box, as and for the purpose described.

699,216. ALUMINUM ALLOY. RICHARD HUNTER VIGOR, Austria-Hungary. Filed Aug. 14, 1900. Serial No. 24,893. (No specimen.)

Claim.—An aluminum alloy consisting of one hundred parts of aluminum to three to sixteen parts of copper to twelve to two parts of zinc, the amount of zinc being twice the amount of copper, substantially as set forth.

699,217. CENTRIFUGAL MACHINE. HENRY McDERMOTT, Westchester, Pa. Filed July 29, 1902. Serial No. 94,888. (No model.)

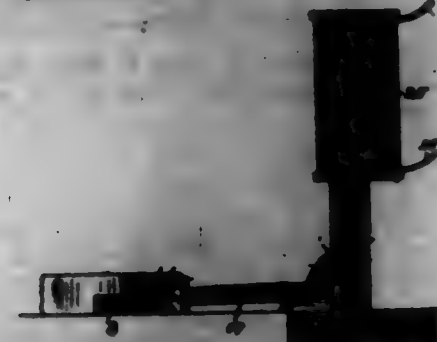


Claim.—1. In a centrifugal machine, a suspended centrifugal liquid-separator vessel having an axial feed-inlet at its lower end, and a fixed supply-nozzle below said inlet arranged in alignment with the normal axis of rotation of the vessel.

2. In a centrifugal machine, a suspended centrifugal liquid-separator vessel having an axial feed-inlet at its lower end, a fixed supply-nozzle below said inlet arranged in alignment with the normal axis of rotation of the vessel, and a drip-cup located between said inlet and nozzle, substantially as set forth.

3. In a centrifugal machine, a suspended centrifugal liquid-separator vessel having an axial feed-inlet at its lower end, provided with a flaring mouth, and a fixed supply-nozzle below said inlet arranged in alignment with the normal axis of rotation of the vessel.

699,218. ELECTRIC SWITCH-OPERATING DEVICE. ALFRED J. McULLOUGH, Mendota, Pa. Filed Mar. 29, 1901. Serial No. 92,482. (No model.)



Claim.—1. In switch-operating mechanism, the combination with the switch-tongue, of a vertically-arranged solenoid, a chain or other flexible means connected directly to both the switch-tongue and the core of the solenoid, and a pulley below said solenoid around which said chain passes.

2. In switch-operating mechanism, the combination with the switch-tongue, a spring bearing against said switch-tongue to hold it normally in one position, of a vertically-arranged solenoid, a chain or other flexible means connected directly to both the switch-tongue and the core of said solenoid, and a pulley below said solenoid around which said chain passes.

3. In switch-operating mechanism, the combination with a switch-piece provided with a floor or bottom and having an open space beneath the same, of a switch-tongue pivoted therein and provided with a projection extending down through a slot in the bottom of the switch-piece, a spring located in the space beneath the switch-piece and bearing against said projection, a solenoid, and connection between said switch-tongue and the core of said solenoid.

4. In switch-operating mechanism, the combination with a switch-piece provided with a perforated bottom and having an open space beneath the same, of a switch-tongue pivoted therein and having two downwardly-extending projections extending through slots in the bottom of the switch-piece, a spring located in the space beneath the switch-piece and bearing against one of the projections on the switch-point, a chain connected to the other of said projections, and the solenoid to the core of which the opposite end of the chain is connected.

699,219. APPLE-CRUSHER FOR CIDER-MILLS. JOHN F. McDONALD, Carthage, N. C. Filed Aug. 4, 1900. Serial No. 24,295. (No model.)

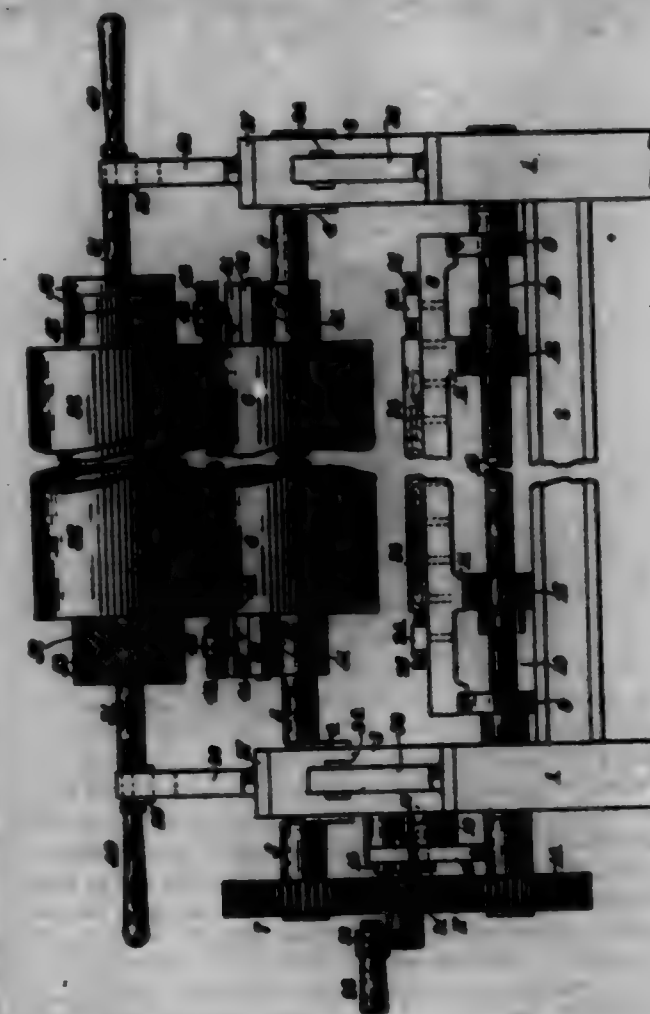


Claim.—1. In a device of the class described, the combination of a frame, having openings, a hopper, a grinding-cylinder, a presser or apron having a transverse perforation, a rod extending through the perforation of the presser or apron and having its ends arranged in the openings of the sides of the frame, and wedges also arranged in the said openings and engaging the ends of the rod and holding the latter against longitudinal movement, substantially as described.

2. In a device of the class described, the combination of a frame having openings, a hopper, a grinding-cylinder, a presser or apron, a rod

extending through the presser or apron and arranged in the said openings, a wedge mounted in one of the openings and engaging the rod, and means for locking the wedge in place, substantially as described.

699,220. MACHINE FOR FACILITATING THE PRODUCTION OF INTAGLIO PRINTING-FORMS. GEORGE F. McLENNAN, Boston, Mass. Assignor of two-thirds to James W. McIndoe, Boston, Mass., and Arthur E. Whitney, Winchester, Mass. Filed Sept. 4, 1901. Serial No. 74,868. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a longitudinally-reciprocating bed; means for securing thereon a fixed position thereto a wood block; a shaft located above said bed; a metallic cylinder to be developed into an intaglio printing-form mounted on said shaft with its lowest portion at such a distance above said bed that the wood block may be fed beneath it without touching it; an elastic roller; means for alternately supporting said elastic roller in positions to contact with the wood block on said bed, and with the periphery of said metallic cylinder; means for reciprocating said bed; and means for intermittently rotating said cylinder and elastic roller.

2. In a machine of the class described, the combination with side frames each provided with the bearings 2, and the forked stands 26 and 27; the half-bones 29 and 34, adjustably mounted in the forked stands 26 and 27, respectively; a horizontally-reciprocating bed mounted upon suitable supports; gearing for reciprocating said bed; the shaft 3; the metallic cylinder 6, and gear-wheel 7 mounted on said shaft; a pinion mounted upon an adjustable stud or journal, and constructed and arranged to alternately engage with the gear 7, and with the gearing for reciprocating said bed; and the elastic roller 22, constructed and adapted to be alternately mounted in the half-bones 34 with its periphery in contact with the wood block on said bed, and in the half-bones 29 with its periphery in contact with the periphery of said metallic cylinder 6.

3. In a machine of the class described the combination with the metallic cylinder 6, and the elastic roller 22, and means for revolving said cylinder and roller in end view, of the rollers 27 secured upon the shaft of the cylinder 6, and each provided with the ears 30 and 31 arranged at right angles to each other; a shaft-supporting arm pivoted to each of said rollers 27 between said ears 30 and 31; the roller-shaft 43 mounted in bearings in said supporting-arm; and the guard-plate 44 carried by said shaft, and constructed and arranged to operate substantially as described.

The combination of the shaft 3; the cylinder 6 and gear-wheel 7 mounted on said shaft; the elastic roller 22 mounted in bearings above said cylinder 6, and arranged to be rotated by contact therewith; the rollers 27 firmly secured upon said shaft-3, and each provided with ears 30 and 31 arranged at right angles to each other; a block 41 pivoted to each

of said collar between the ears 35 and 36; a stud 43 adjustably set in each of said blocks 41; the shaft 45 mounted in bearings in said studs; the guard-plate 44 carried by said shaft 45; the stop screw 50 and 51; and means for revolving said cylinder 6 and roller 33 in unison.

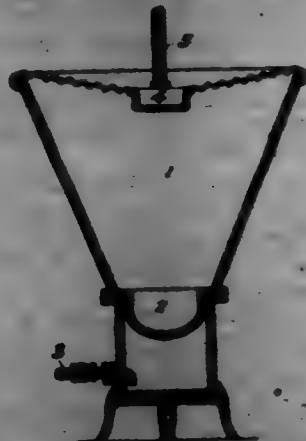
3. The combination of the metallic cylinder 6; the elastic rollers 33; means for rotating said cylinder and roller in unison; and a plurality of removable weights 52, 53, mounted on the shaft of said elastic roller, substantially as described.

699,321. ROBE-REEL. JOHN McKIM, Warren, Ohio. Filed Mar. 12, 1891. Serial No. 81,022. (No model.)



Claim.—A reel comprising four side members, two of which are provided at one end with handles and at the other with shafts, the other two members being connected with the first-named members intermediate of their ends, base-pieces connecting the four members, supporting-wheels carried by the base members at the rear portion thereof, a shaft passing through the four side members and carrying a reel and a driving-gear, a pawl-controlled gear in mesh with the driving-gear, and located adjacent to one of the handles of the frame, and a crank on the shaft of the latter gear, substantially as and for the purpose specified.

699,322. METHOD OF MAKING HATS AND ARTICLE PRODUCED THEREBY. JOHN H. HRAVE, Macleodfield, England. Filed Oct. 19, 1899. Serial No. 33,547. (No model.)



Claim.—1. The process of making hats from wool, fur or analogous fibers, which consists in progressively building from the fibers a body of the general form of the hat, incorporating in the fibers as the formation of the body progresses, a stiffening material, and finally treating the formed body to cause the material to stiffen and bind the fibers together and preserve the integrity of the body.

2. The process of making hats from fur, wool or like fibers, which consists in depositing on the fibers a stiffening material, progressively building up from said fibers a body of the general form of the hat, and finally treating the body to cause the stiffening material to bind the fibers together.

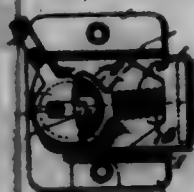
3. In the process of making hats from fur or wool or like fibers treating the fibers with an acid, subjecting them to an alkaline solution of resin whereby the resin will be precipitated on the fibers, and forming a body from the fibers thus treated.

4. The method of making hats from fur or wool or like fibers which consists in treating the fibers in an acid-bath to cause the acid to impregnate them, providing a solution of resin and alkali, subjecting the fibers to the action of this solution to precipitate the resin, forming a body of fibers thus treated, and finally treating the body to cause the resin to coalesce.

5. The improved hat consisting of a non-filled body composed of fur or wool or like fibers of short staple bound together wholly by a binding material incorporated among the fibers and curving as the sole means of preserving the form and integrity of the body.

6. The improved hat consisting of a non-filled body composed of fur or wool or like fibers of short staple bound together wholly by a binding material incorporated among the fibers, the said body having a distinct surface covering of fibers free from a binding material but united to the body by the same material that binds together the fibers of the said body.

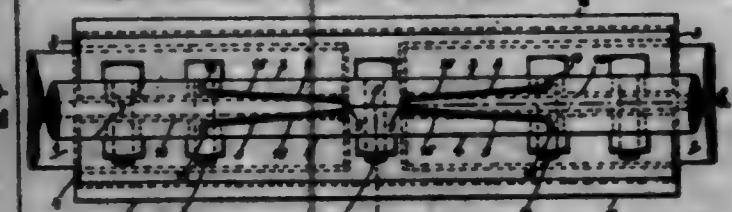
699,323. RAIL-FASTENER. JOHN F. HENNE, Engineer, Tex., and ROSE H. HENNE, Stationer, Kans. Filed Mar. 13, 1891. Serial No. 81,361. (No model.)



Claim.—1. The combination with a locking member, of an eccentric adapted to withdraw the same to releasing position, a follower in contact with said eccentric and adapted to be positively moved outwardly by said eccentric, and a spring situated between the follower and the locking member and adapted to be compressed between the two on the outward movement of said follower.

2. The combination with a locking member having a longitudinal slot, a fixed guide-pin passing through said slot, an eccentric tumbler mounted upon the guide-pin and having a flange-piece, a laterally-projecting portion formed on the locking member and adapted to be engaged by said tumbler, a follower in contact with said tumbler and adapted to be positively moved outwardly by said tumbler, and a spring situated between the follower and the locking member and adapted to be compressed between the two on the outward movement of said follower.

699,324. RAIL-JOINT CONNECTION. OLAV NORMAN, Stockholm, Sweden. Filed Oct. 3, 1891. Serial No. 77,460. (No model.)

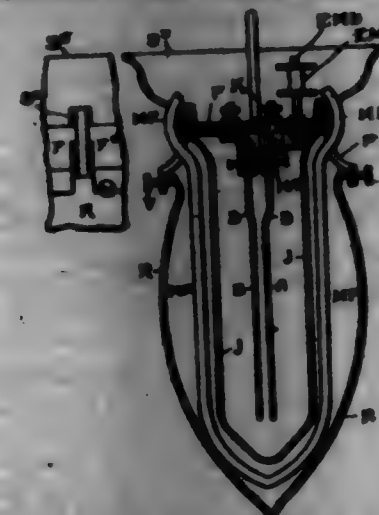


Claim.—1. In a rail-joint, the combination of rails having their heads cut away wedge-shaped at the ends, two fish-plates 2, 4 entering between the rail ends, which are located apart, and replacing the portions of the rail-heads cut away, said fish-plates 2, 4 being held together by a fish-belt 6 carried through the fish-plates 2, 4 at the space between the rail ends, and here having faces 5 bearing against each other along a longitudinal plane, and a bottom plate 13 having upwardly-projecting lateral edges 12 embracing the lower portions of the fish-plates 2, 4, for the purpose set forth.

2. In a rail-joint, the combination of rails having their heads cut away wedge-shaped at the ends, two fish-plates 2, 4 entering between the rail ends, which are located apart, and replacing the portions of the rail-heads cut away, said fish-plates 2, 4 being held together by a fish-belt 6 carried through the fish-plates 2, 4 at the space between the rail ends, and here having faces 5 bearing against each other along a longitudinal plane, and a bottom plate 13 having upwardly-projecting lateral edges 12 embracing the lower portions of the fish-plates 2, 4 and rounded points 9 on the wedged ends of the rails, for the purpose set forth.

3. In a rail-joint, the combination of rails having their heads cut away wedge-shaped at the ends, two fish-plates 2, 4 entering between the rail ends, which are located apart, and replacing the portions of the rail-heads cut away, said fish-plates 2, 4 being held together by a fish-belt 6 carried through the fish-plates 2, 4 at the space between the rail ends, and here having faces 5 bearing against each other along a longitudinal plane, and a bottom plate 13 having upwardly-projecting lateral edges 12 embracing the lower portions of the fish-plates 2, 4, and fish-belts 14 for holding together the fish-plates 2, 4 and rail ends, for the purpose set forth.

699,325. ELECTRIC ARC LAMP. JOHN A. HOSCHKE, Madison, Wis., assignor to General Electric Company, a Corporation of New York. Filed Mar. 10, 1893. Serial No. 569,957. (No model.)



Claim.—1. An arc-lamp in which the carbons lie parallel with one another, for that part of each which is for illumination, each carbon from that part being inclined at an angle to the first-named part, and then provided with a carbon handle or stick whereby the carbon can be held, the distance being greater between the carbons near or at the point where the carbons are held in their respective carbon-holders, the length of the arc being increased automatically when the proper amount of carbon is consumed, substantially as and for the purpose specified.

2. An arc-lamp in which the carbons lie parallel with one another, for that part of each which is for illumination, each carbon from that part being inclined at an angle to the first-named part, and then provided with a carbon handle or stick whereby the carbon can be held, the distance being greater between the carbons near or at the point where the carbons are held in their respective carbon-holders, the length of the arc being increased automatically when the proper amount of carbon is consumed, combined with an insulating vessel adapted to place said carbons in a partial vacuum, substantially as and for the purpose specified.

3. In an arc-lamp, two parallel carbons, capable of being approximated at their working (small) ends, and having straight portions, and then an angled portion, and another or third portion substantially parallel to the first portion, these portions of the carbons which are to be used in illumination being at a given distance, and the other parallel portions being further apart, substantially as and for the purpose specified.

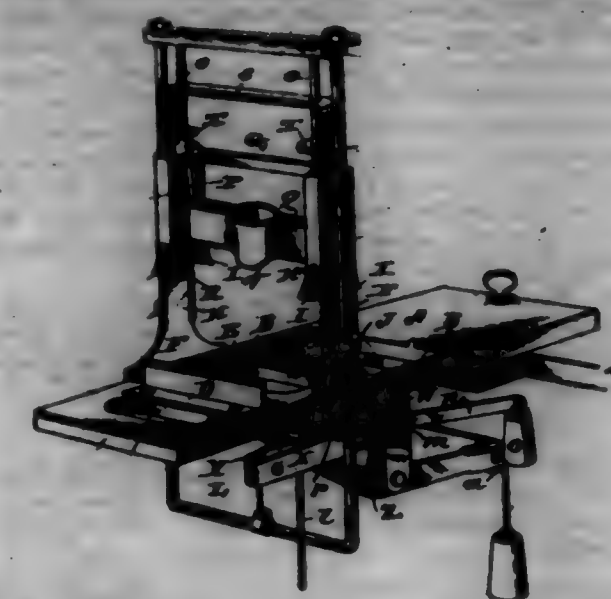
4. In an arc-lamp, two parallel carbons, capable of being approximated at their working (small) ends, and having straight portions, and then an angled portion, and another or third portion substantially parallel to the first portion, these portions of the carbons which are to be used in illumination being at a given distance, and the other parallel portions being further apart, in combination with a coil or coils or an electromagnet, sitting up magnetic lines of force that attract or repel the carbons as so as to maintain the arc at the extreme ends of the carbons, and an insulating vessel, said carbons being instead in a partial vacuum, substantially as and for the purpose specified.

5. In an arc-lamp, the combination of two carbon electrodes, substantially parallel, a supporting-frame, one carbon-holder stationary with the frame, the other carbon-holder pivotally suspended from the frame, the armature HAA, fixed thereto, electromagnet, core E, M, carrying curved-threads, support provided with interior curved-threads engaged by the curve of the core, the core extending down and bearing against the armature HAA, and adapted by the construction aforementioned to be adjusted in a direction toward or away from the armature, substantially as and for the purpose specified.

6. In an arc-lamp, the combination of two carbon electrodes, substantially parallel, a supporting-frame, one carbon-holder stationary with the frame, the other carbon-holder pivotally suspended from the frame, the armature HAA, fixed thereto, electromagnet, located above the supporting-frame, core E, M, thereof adjustable through the frame, by means of curved-threads on it, and below the frame, bearing against the armature HAA, and adapted by the construction aforementioned to be adjusted in a direction toward or away from the armature, substantially as and for the purpose specified.

7. In an arc-lamp, the combination of two carbon electrodes, substantially parallel, a supporting-frame, one carbon-holder stationary with the frame, the other carbon-holder pivotally suspended from the frame, the armature HAA, fixed thereto, electromagnet, located above the supporting-frame, core E, M, of the electromagnet extending through the latter, including-bearing in the frame, having interior curved-threads, core having a curved-threads, engaging the curved-threads of the bearing, and extending through and down against the armature, the arc being adjustable, substantially as and for the purpose specified.

699,326. FRUIT CORER AND GRINDER. BRIAN STODOLSKY, Montreal, Can. Filed Jan. 13, 1891. Serial No. 48,741. (No model.)



Claim.—1. In a fruit-pitting machine, the combination of a sliding frame, links pivotally connected at one end to said frame, a yielding frame carried by said sliding frame and pivotally supporting the opposite edges of the cutters, means for reciprocating said sliding frame, means for supporting the fruit during the operation of the cutters, and means interposed in the path of said yielding frame for offering a resistance to its movement, substantially as described.

2. In a fruit-pitting machine, the combination of a sliding frame, arms carried thereby, links pivoted at one end to said frame, a yielding frame supported by said arms, cutters pivoted at their cutting edges to said frame with said cutting edges arranged in close proximity to each other, said cutters at their opposite edges being pivoted to the opposite ends of the links, means for reciprocating said sliding frame, means for supporting the fruit during the operation of the cutters, and a stop interposed in the path of said yielding frame, substantially as described.

3. In a fruit-pitting machine, the combination of a support, standard raised therefrom and carrying guides, a frame sliding in said guides, a sliding frame formed diverging, arms carried by said sliding frame, a yielding frame movable upon said arms and moving in said guides, a sectional cutter carried by said yielding frame, the sections of the cutter being pivoted to said frame at their cutting edges, links pivoted to the outer-sections at their opposite edges and to the arms carried by the sliding frame, means for reciprocating said sliding frame, and a stop interposed in the path of said yielding frame, substantially as described.

4. In a fruit-pitting machine, the combination of a table formed with openings, an impaling-blade carried by said table and disposed between said openings, a reciprocable sectional cutter having the sections thereof arranged parallel with each other and separable at their upper edges so as to follow the lobes of the fruit and said openings, means for reciprocating said cutter and means for offering the operation of said cutter-sections, substantially as described.

5. In a fruit-pitting machine, the combination of a table, a vertically-movable substantially rectangular frame slidable on said table, a cutter carried by said frame, an intermediately-pivoted lever supported by said table and engaging said frame, a pulley mounted in said lever, a rope attached to the frame and passing over said pulley, a weight carried by said rope, a treadle, and an operative connection between said treadle and said lever, substantially as described.

699,327. COW-TAIL HOLDER. WILLIAM E. OSWEN, Kansas, Ind. Filed July 6, 1891. Serial No. 67,348. (No model.)



Claim.—1. In a device of the character described, a framework designed to hold the tail of a cow, consisting of wire bent so as to form V-shaped portions F and G, bent-in portions I formed in the upper V-shaped portion, base H connecting the two V-shaped portions, springs secured to said base, and means for attaching said springs to the body of the cow, substantially as described and for the purpose specified.

2. In a tail-holder attachment for cows, a forked framework adapted to embrace the tail, portions of said framework bent inward so as to rest against the hind quarters of the cow, springs, one end of which are attached to said framework, a band adapted to encircle the body of the cow, the other end of said springs attached to said band, substantially as described and for the purpose specified.

3. In a device of the character described, two V-shaped portions, vertically-disposed base connecting said portions, shoulders formed on the upper portion, a band for embracing the body of the animal, and springs connecting the base and band, as and for the purpose described.

699,228. REVOLUTION-INDICATOR. WILLIAM R. PARK, Thornton, Mass., assignor to Hancock Indicator Company, Boston, Mass., a Corporation of Massachusetts. Filed Dec. 26, 1901. Serial No. 57,514. (No model.)



Claim.—1. In a revolution-counter, the combination of a dial, a plurality of pointers, mounted on independently-driven shafts, the connection between one at least of the said shafts and its driving mechanism comprising a gear-wheel, loose on the shaft, a fixed collar on the shaft, a loose collar on the shaft between the fixed collar and the gear-wheel, a friction-washer between the loose collar and the gear-wheel, a second fixed collar on the other side of the gear-wheel, and a spring coiled around the shaft between the fixed and loose collars whereby the loose collar, friction-washer, and gear-wheel are cramped into close contact.

2. In a revolution-counter, the combination of a dial, a plurality of pointers, mounted on independently-driven shafts, the connection between one at least of the said shafts and its driving mechanism comprising a gear-wheel, loose on the shaft, a fixed collar on the shaft, a loose collar on the shaft between the fixed collar and the gear-wheel, a friction-washer between the loose collar and the gear-wheel, a second fixed collar on the other side of the gear-wheel, means for preventing the loose collar from turning on the shaft, and a spring coiled around the shaft between the fixed and loose collars, whereby the loose collar, friction-washer, and gear-wheel are cramped into close contact.

3. The combination, in a revolution-counter, of a dial, a pair of independent pointers, mounted respectively on concentric independently-rotating shafts, a worm-wheel on each shaft, frictional connection between the worm-wheels and their respective shafts, comprising shaft-collars, leather-board washers, clamping-rings, and clamping-springs; and driving-worms meshed with the worm-wheels, substantially as described.

699,229. RUFFLER. WILLOW R. PARKER, Chicago, Ill. Filed Dec. 2, 1900. Serial No. 124,504. (No model.)

Claim.—1. In a ruffler, the combination of a pair of opposed pendulum-links, separate pivots suspending said links, means supporting said pivots, a ruffler-blade, and pivots, each forming a connection of its own

between said blade and links, and means for actuating said blade and links, substantially as described.



2. In a ruffler, the combination with a main frame of a pair of pendulum-links, pivots therefor separated from each other on said frame, a ruffler-blade pivotally secured to the links and supported thereby, and means for reciprocating said blade, substantially as described.

3. In a ruffler, the combination with a main frame, a ruffler-blade, a pair of links pivotally depending from the opposite ends of said main frame and forming a vibratory support for a ruffling-blade, the toothed end of which is suspended at a point between said links and an actuating-lever for reciprocating said blade, substantially as described.

4. In a ruffler, the combination with a main frame, of a pair of pendulum-links pivotally supported from said main frame, a ruffling-blade pivotally suspended at a point between said links, and means for reciprocating said blade and adjusting the movement thereof, substantially as described.

5. In a ruffler, the combination with a main frame provided with upstanding supports separated from each other, of a pair of pendulum-links respectively pivoted to each of said supports, a ruffler-blade pivotally secured to the depending ends of the links and suspended therefrom, and means for oscillating one of said links to reciprocate said ruffler-blade, substantially as described.

6. In a ruffler, the combination with a main frame provided with upstanding supports arranged opposite each other at a distance apart, a pair of pendulum-links pivotally supported from said upstanding supports, a ruffling-blade pivotally supported by said links, an actuating-lever and a pivot therefor common to one of said supports, means reciprocating said blade and for regulating its length of stroke, substantially as described.

7. A ruffler, comprising a frame approximately L-shaped in its main portion, standards at opposite ends thereof, pendulum-links respectively pivotally depending from each standard, a ruffler-blade support pivotally suspended by and at a point between said links and arranged within the angle of the L-shaped frame, a ruffler-blade carried by said support, a tappet-lever pivoted to one of the standards, tappet-connections upon one of the adjacent pendulum-links in the path of oscillation of said tappet-lever, and means for varying the amount of lost motion between tappet-lever and pendulum-link, substantially as described.

8. In a sewing-machine attachment, the combination with an actuating-lever adapted to engage the needle-bar, of pivoted adjusting devices on said lever, and means for locking said devices in adjusted position, comprising an arm pivotally mounted on the lever, a marginal edge on the lever concentric with the pivot-point, and a set-screw threaded through the pivoted arm and impinging upon said concentric edge of the lever, the extremity of the arm being folded around said edge opposite said screw, substantially as described.

9. In a ruffler, the combination with a tappet-lever and a tappet-block pivotally mounted thereon, of means for adjustably locking said tappet-block in position comprising a holding-arm connected with the tappet-block, a segment-surface upon said tappet-lever, over which said holding-arm is arranged to sweep, having a marginal edge formed concentrically with the pivot of the holding-arm and around which concentric margin the free end of the holding-arm is returned, and a set-screw threaded through said holding-arm and arranged to clamp the edge of the segment between its impinging end and the returned end of the holding-arm, as and for the purposes described.

10. In a ruffler, the combination with the main frame, a ruffler-blade provided with a toothed end and movably mounted in said frame, means permanently limiting the back stroke of the toothed edge of said blade to a point on a line across said edge and through the needle-hole, means reciprocating said blade to form a ruffle after the needle has made a stitch, and means withdrawing said blade from the formed ruffle after the stitch is fully tightened, substantially as described.

11. In a ruffler the combination with the main frame, a ruffling-blade provided with a toothed end and movably mounted in said frame, means permanently limiting the back stroke of the toothed edge of said blade to a point on a line across said edge and the needle-hole, means of reciprocating said blade to form a ruffle after the needle has made a stitch, means

withdrawing said blade from the formed ruffle after the stitch is fully tightened and means for varying the forward stroke of the ruffing-blade, substantially as set forth.

12. In a ruffler, the combination with the main frame, of a ruffing-blade movably mounted thereon with its toothed end permanently stopping on a line transversely thereof and approximately across the needle-hole when the blade is retracted, means for reciprocating said blade to project its toothed end beyond the needle-hole, and means for varying the forward stroke of the blade, substantially as described.

13. In a ruffler, the combination with a main frame, provided with a pair of depending pendulum-links, parallel with and separated from each other, of a ruffing-blade pivotally supported by said links, an actuating-lever for reciprocating said ruffing-blade, the cloth-engaging end of the ruffing-blade extending approximately to the path of the needle, when the blade is retracted, and an adjustable contact applied in connection with the actuating-lever for varying the amount of advance of the blade beyond the needle on the upstroke of the lever, substantially as described.

14. In a ruffler, the combination with a main frame, of parallel links pivoted to said frame at points separated from each other, a ruffing-blade pivotally supported from said links, an actuating-lever for advancing and returning the ruffing-blade through the medium of contact-points, and an adjusting-lever having means to engage the contact-point which is engaged on the upstroke of the actuating-lever so as to advance the ruffing-blade a greater or less distance and so to engage the contact-point which is engaged on the downstroke of the actuating-lever so as to invariably return the blade to a position where the points of its teeth will be substantially coincident with the path of the needle transversely to the line of motion of the blade, substantially as described.

15. In a ruffler, the combination with the frame-plate provided with two upstanding supports, of a ruffing-blade carrier arranged adjacent to one of said supports, a link pivotally suspending the ruffing-blade from that support, another link depending from the other support, an extension rigid with the ruffing-blade support projecting across the frame-plate and pivotally suspended from the second link, and a ruffing-blade secured to said carrier, substantially as described.

16. In a ruffler, the combination with an L-shaped frame-plate provided with an upstanding support at the inner side of the leg of the L, a similar support at the foot of the L, a ruffing-blade carrier mounted in the angle of the L, a link depending from the inner side of the first support and pivotally suspending the ruffing-blade carrier, an extension in the carrier projecting across the frame-plate to the opposite side of the second support, a link depending from the latter and pivotally supporting said extension, and a ruffing-blade secured to said carrier, substantially as described.

17. In a ruffler, the combination with the frame-plate A provided with a struck-up portion a projecting rearwardly from the foot of the plate and adapted to be attached to a sewing-machine, an upstanding support A' at the inner edge of the frame-plate, a similar support A'' at the opposite edge of the struck-up portion a, the ruffing-blade, pendulum-links pivoted to said supports and to the ruffing-blade, substantially as described.

699,380. APPARATUS FOR TILLING. SHERMAN PARR, Jany. Newark. Filed June 12, 1906. Serial No. 29,000. (No model.)



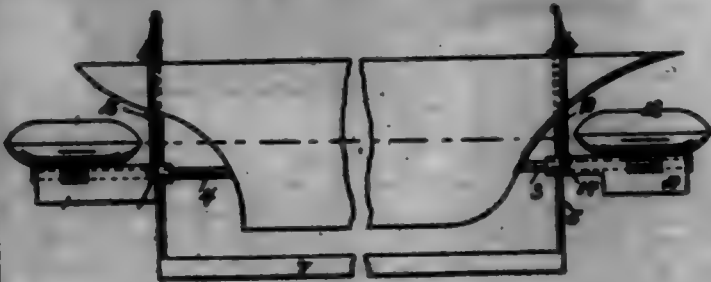
Claim.—1. In a land-tilling apparatus the combination of a frame-carriage which consists of an axle carrying a plate, a plow having a beam which is provided with a tailpiece or end adapted to be connected with said plate, and a belt or bar for connecting said beam to said plate.

2. In a land-tilling apparatus the combination of a frame-carriage which consists of an axle carrying a plate, a plow having a beam which is provided with a tailpiece adapted to be connected with said plate, and a winch on said frame-carriage adapted to hoist the tailpiece of the beam to disengage the shares.

699,381. BOAT. JAMES F. POSE, Brooklyn, N. Y. Filed Aug. 12, 1907. Serial No. 72,671. (No model.)

Claim.—1. The combination of a boat, a swinging weighted heel pivoted to the hull of the boat and a swinging float tending to assume a position above the point from which it is swung, connection between said float and said heel whereby when the boat careens to one side the weight of the heel forces the float toward the mid side and its resistance acts to move the boat into upright position, substantially as and for the purpose set forth.

2. The combination of a boat having a weighted heel pivoted thereto and tending to assume a vertical position, a float pivoted concentrically upon the boat and tending to assume a position above its pivotal point, a member or arm connected rigidly with said float, and connections between said member or arm and the swinging heel, whereby when the boat careens to one side the weight of the heel forces the float toward said side and its resistance tends to move the boat into upright position, substantially as and for the purpose set forth.



3. The combination of a boat, a weighted heel pivoted to the boat and tending to swing into vertical position one or more levers projecting upwardly from said heel to a point a considerable distance above the canoe, one or more floats pivoted upon the boat and adapted to assume normally a substantially floating position, one or more lever-arms connected rigidly with each of said floats, a flexible connection extending from each of said float lever-arms and passing loosely around a fixed point on the boat and connected with the said heel-lever, whereby when the boat careens in one side the tendency of the weighted heel to swing in a vertical position forces the float toward said side and the resistance of the float to the water tends to move the boat into upright position, substantially as and for the purpose set forth.

4. In combination of a boat, a weighted heel swung beneath the boat and provided with an upwardly-projecting lever-arm, a float pivoted at its under side to the boat and adapted to normally assume substantially a floating position, a rigid arm projecting laterally from each side of the float beneath the canoe, a flexible connection extending from each of said arms across to the opposite side of the boat and passing around a fixed point on the boat and having its other end connected with a point on the lever-arm of the heel, substantially as and for the purpose set forth.

5. The combination of a boat, a weighted heel extending beneath the boat and pivoted thereto on the bow and stern of the boat, a lever-arm projecting upwardly from each end of the heel above the pivotal point thereof, a float arranged at each end of the boat and each having a depending bracket pivoted concentrically with said heel, and each provided with two laterally-projecting rigid arms extending in opposite directions, and flexible connections between the end of each of said rigid arms of the float and crossing the boat and passing around a fixed point thereon and having its other end connected with the lever-arm of said heel, substantially as and for the purpose set forth.

699,382. METHOD OF TREATING BALLAST-WIRES FOR ELECTRIC LAMPS. RUSSET E. POTTER, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed July 14, 1906. Serial No. 28,661. (No apparatus.)

Claim.—1. The method of treating ballast-conductors for electric lamps which consists in heating said conductors in the presence of a compound containing as one of its constituents, the material of which the ballast-conductors are composed to such temperature as to effect a deposit of the material upon the conductors.

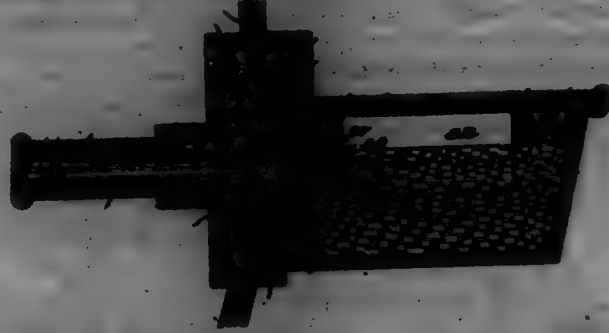
2. The method of treating iron ballast-conductors for electric lamps which consists in heating the conductors in the presence of a compound containing iron to such temperature and for such a period of time as will effect decomposition of the compound and a deposit of the iron therefrom upon the conductors.

3. The method of treating iron ballast-wires consisting of heating them in an inclosing chamber containing a compound of iron to such degree and for such a period of time as to effect decomposition of such compound and a deposit of iron on the ballast-wires.

4. The method of treating ballast-wires for electric lamps which consists in including a wire in a chamber containing an organic compound of iron and heating the wire to such temperature and for such a period of time as will effect decomposition of the compound and deposit the iron upon the wire.

5. The method of treating an iron ballast-wire for electric lamps which consists in including such wire in a chamber containing an organic compound of iron and passing an electric current through said wire of such volume and at such pressure as will effect a deposit of iron thereon in accordance with the resistance of the different portions thereof.

699,283. STOCK-WATERER. CHARLES G. CHASE and CHARLES J. CHASE, Des Moines, Iowa. Filed June 6, 1901. Serial No. 63,283. (No model.)

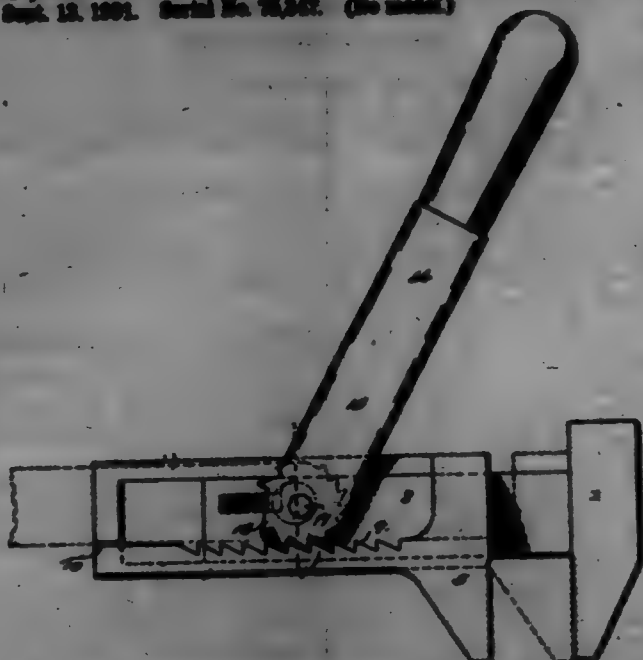


Claim.—1. In a stock-waterer, the combination with a receptacle having a projection on one wall, of a conveyor-tube carried by the receptacle and projecting from the side of the wall contiguous to the projection, said tube having a valve-seat, a valve located in the tube and coacting with the valve-seat thereof, a float arranged within the receptacle and having a connection with the valve, means for raising the tube to a reservoir, and a fastening device for securing the projection to the reservoir.

2. In a stock-waterer, the combination with a receptacle having an upstanding leg at one side, said leg being provided with an opening, of fastening means arranged to be passed through the opening of the leg and engage a reservoir, a supply-tube carried by the receptacle and located contiguous to the upstanding leg, said supply-tube being arranged to be fastened contiguous to its outer end to said reservoir, and having its inner end opening into the receptacle, a float removably secured in the end of the tube and forming a valve-seat, a plug movably mounted in the tube and having a stem passing through the float and projecting into the receptacle, and a float located in the receptacle and in co-operative relation with the valve-seat.

3. In a stock-waterer, the combination with a receptacle comprising a plurality of drinking-compartments and an intermediate float-compartment communicating therewith, said receptacle having an upstanding leg arranged at one side of the float-compartment and provided with an opening, of means passing through the opening of the leg and arranged to engage a reservoir, a supply-tube carried by the receptacle and located beneath the floating-leg, said supply-tube being curved-throated and adapted to be passed through the reservoir-wall, a float detachably secured within the outer end of the tube and having a tapered bore which forms a valve-seat, a plug movably mounted in the tube and having a stem passing through the float and projecting into the float-chamber, a float hinged in said float-chamber and arranged to shut against the projecting end of the plug-stem when the level of the water within the receptacle is lowered.

699,284. WRENCH. WILLIAM J. CHASE, Des Moines, N. Y. Filed Sept. 12, 1901. Serial No. 71,507. (No model.)



Claim.—1. In a wrench, the combination of a fixed jaw having an arm, a sliding jaw on said arm, and a lever pivoted to said arm and geared to said sliding jaw to operate the latter, the said lever also serving as the handle for operating the wrench, substantially as described.

2. In a wrench, the combination of a fixed jaw having an arm, a

sliding jaw guided on said arm and having a rack, and an operating-lever pivoted to said arm and having a gear engaging said rack, to operate said sliding jaw, said operating-lever also serving as the handle for operating the wrench, substantially as described.

3. In a wrench, the combination of a fixed jaw having an arm, a sliding jaw having a rack, an operating-lever pivoted to said arm and having a gear engaging said rack, and means to shift said gear out of engagement with said rack to enable said sliding jaw to be adjusted, for the purpose set forth, substantially as described.

4. In a wrench, the combination of a fixed jaw having an arm, a sliding jaw carried by said arm, an operating-lever pivoted to said arm, connections between said operating-lever and said sliding jaw, and means to disconnect said operating-lever from said sliding jaw, to enable the latter to be adjusted, independently of said lever, with relation to said fixed jaw, substantially as described.

5. In a wrench the combination of a fixed jaw having an arm, a sliding jaw carried by said arm, an operating-lever, pivoted to said arm and connected to said sliding jaw, to actuate the latter, and means to shift the pivot of said operating-lever and thereby disconnect the same from said sliding jaw, for the purpose set forth, substantially as described.

6. In a wrench, the combination of a fixed jaw having an arm, a sliding jaw, carried by said arm, an eccentric mounted in an opening in said arm as an operating-lever pivoted to said eccentric, said sliding jaw and said operating-lever having gear adapted to engage each other, said eccentric enabling the pivot of said operating-lever to be shifted, to disengage said gear and to compensate for the wear thereof, substantially as described.

7. In a wrench, the combination of a fixed jaw having an arm, a sliding jaw, a pivoted operating-lever, connections between the latter and the sliding jaw, means to shift the pivot of said lever to disengage the same from said sliding jaw, and means to lock said pivot-shifting means, substantially as described.

8. In a wrench, the combination of a fixed jaw having an arm provided with an opening, a sliding jaw-carried by said arm, said sliding jaw having a rack, an eccentric mounted in the opening of said arm, an operating-lever having its pivot carried by said eccentric, and a gear with which said operating-lever is provided, said gear engaging said rack, substantially as described.

9. In a wrench, the combination of a fixed jaw having an arm provided with an opening, a sliding jaw carried by said arm, said sliding jaw having a rack, an eccentric mounted in the opening of said arm, an operating-lever having its pivot carried by said eccentric, a gear with which said operating-lever is provided, said gear engaging said rack, and means to lock said eccentric against rotation, substantially as described.

10. In a wrench, the combination of a fixed jaw having an arm provided with an opening, a sliding jaw carried by said arm, said sliding jaw having a rack, an eccentric mounted in the opening of said arm, and having a peripheral notch, an operating-lever having its pivot carried by said eccentric, and said operating-lever having a gear engaging said rack, and a spring-pressed bolt to engage the notch of said eccentric and lock the latter against rotation, substantially as described.

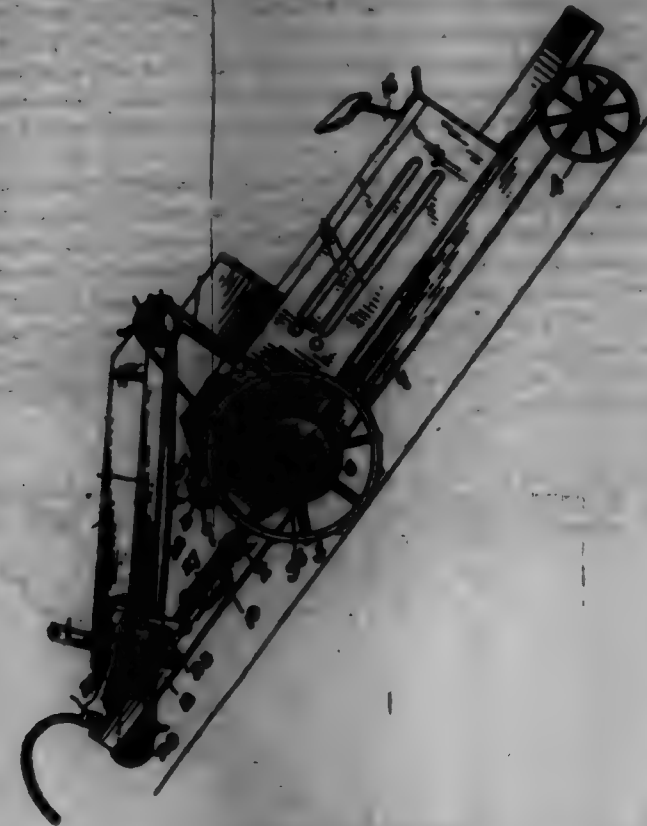
699,285. COMBINED HAY LOADER AND PRESS. WILLIAM F. RAHNEY and EDWIN E. POSE, Mountrieve, Ohio. Filed Apr. 11, 1901. Serial No. 65,375. (No model.)

Claim.—1. In a rake attachment for a combined hay loader and press, the combination, with a wheeled supporting-frame comprising side beams, of a rake-frame comprising parallel side bars pivoted to the rear ends of said beams, a rake or gatherer pivoted to the side bars, and springs secured to the beams and side bars for normally forcing the rake-frame down and holding the rake in yielding engagement with the surface of the ground, substantially as described.

2. In a rake attachment for a combined hay loader and press, the combination, with a wheeled supporting-frame comprising side beams, of a rake-frame composed of side-bars pivotally connected to the rear ends of said beams, plate-springs secured to the bars and beams and normally tending to force the bars downward to maintain the rake in yielding engagement with the surface of the ground, a pivoted rake or gatherer carried by said bars, and means for holding the rake into and out of working position, substantially as described.

3. In a rake attachment and conveyor for a combined hay loader and press, the combination, with a wheeled frame comprising side beams suitably connected, of a gatherer-frame comprising side bars pivotally connected to the rear ends of the side beams of the wheeled frame, a conveyor-frame pivoted at its lower end to the gatherer-frame and suitably supported at its upper end, an endless conveyor mounted in said conveyor-frame, springs connected to the rear ends of the side beams of the wheeled frame and to the side bars of the gatherer-frame and acting as yielding supports for the conveyor-frame and as means for yieldingly maintaining

the rake in contact with the surface of the ground, and a rake or gatherer supported by said gatherer-frame, substantially as described.



699,286. HOOK AND EYE. LEWIS KRAMER, Reading, Pa. Filed Feb. 4, 1901. Serial No. 62,002. (No model.)



Claim.—1. A member of a hook-and-eye device formed from a single piece of wire bent to form a base, hook-shaped arms rising from opposite sides of one end of said base, a bar connecting said arms together and an approximately U-shaped support having each of its two sides designed to engage the material to which the member is secured, said support being bent to bring both of its said sides near its closed end below the plane of the base.

2. A hook and eye, comprising a member with a downwardly-bent T-shaped head, and an engaging member having a base and formed with hook-shaped arms for engaging said head and with a support which extends below the plane of said base and is adapted to hold the contiguous portion of said member elevated above the material to which the member is secured.

3. A hook and eye, comprising a member having a downwardly-bent T-shaped head, and an engaging member having a base and provided with hook-shaped arms which rise from opposite sides of one end of said base and are connected with each other, said engaging member also having a supporting-guard which underlies said arms and projects above and below the plane of said base.

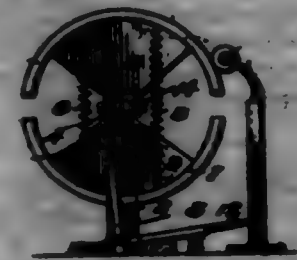
4. A member of a hook-and-eye device formed from a single piece of wire bent to form a base, hook-shaped arms rising from opposite sides of one end of said base, a bar connecting said arms together and an approximately U-shaped supporting-guard which is located below the plane of the upper portions of said hook-shaped arms and has each of its sides formed with bands, co-operating with said hook-shaped arms to form contracted mouths to the latter, said guard being also bent to extend below the plane of said base.

5. A hook and eye, comprising a member having a downwardly-bent T-shaped head, and an engaging or opposite member formed from a single piece of wire bent to form a base, hook-shaped arms rising from opposite sides of one end of said base, a bar connecting said arms together and an approximately U-shaped supporting-guard which is located below the plane of the upper portions of said arms and has each of its sides formed with bands which co-operate with said hook-shaped arms to form contracted mouths to the latter, said guard having its closed end bent to extend below the plane of said base at each side, for the purpose specified.

699,287. BARREL-FORMING MACHINE. JOHN C. C. RICHMOND, Syracuse, N. Y. Filed May 12, 1901. Serial No. 62,003. (No model.)

Claim.—1. In a barrel-forming machine, the combination with segmented sections arranged in cylindrical form and provided with inwardly-projecting bearing-blocks, springs connecting the sections of the cylinder

and causing their energy to draw them toward each other, a suitable screw-shaft, a sleeve loosely mounted upon said screw-shaft and provided with fixed cones, the bases of which project in the same direction and which have a screw-threaded connection with said shaft, and means for rotating the sleeve to move said cones longitudinally upon said shaft to spread the sections of the cylinder, substantially as set forth.



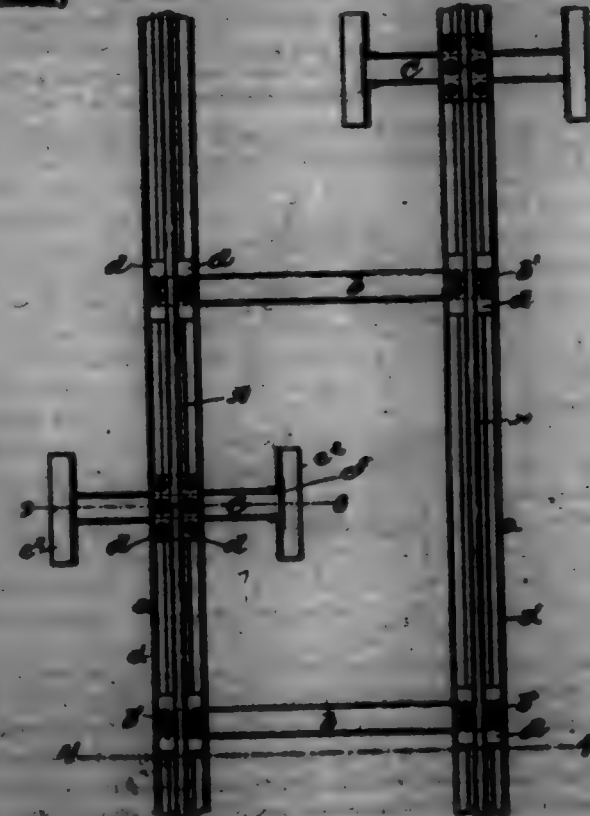
2. In a barrel-forming machine, the combination with segmented sections arranged in cylindrical form, a shaft, bearing-posts for supporting said shaft, said shaft having a screwable connection with one of said bearing-posts, bearing-blocks projecting inwardly from the cylinder-sections, a sleeve loosely mounted upon said shaft and provided with fixed cones adapted to engage the bearing-blocks and spread said sections, one end of said sleeve being provided with a hand-wheel by means of which the sleeve may be rotated, and springs connecting the cylinder-sections and causing their energy to draw them toward each other, substantially as set forth.

699,288. CHIEF'S RATING-APPROX. RUTHA J. REED, Brooklyn, N. Y. Filed Oct. 20, 1901. Serial No. 60,000. (No model.)



Claim.—An apron made from a single blank fashioned to form a body portion and integral sleeve-sections said blank having incisions at the junction of the front portion with the under side of the sleeve-sections and the upper edges of a portion of the sleeve-sections being cut in curved lines and the outer extremities thereof adapted to be joined to the lower edges of the incised portions to form a deeply-cut opening to the sleeve, said blank fashioned with a neck-opening and tabs adapted to enclose the neck.

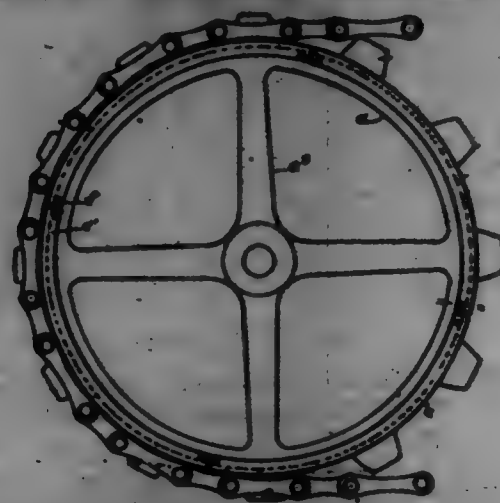
699,289. RAILWAY SYSTEM. JOHN R. REED, Boston, Mass. Filed July 24, 1901. Renewed Nov. 20, 1900. Serial No. 57,510. (No model.)



Claim.—1. In a structural support for railway systems, the rails and base-supports for each rail, combined with drain-chutes located at the union of the rails and forming supports for the rails and base-supports, and which drain-chutes extend outwardly upon opposite sides of the rail, substantially as described.

2. The herein-described drain-chute, adapted to be located to the under side of the base-support *a*, and consisting of a bottom *c* and sides *d*, *e*, *f*, *g* at each end thereof, the perforated plate *h*, at one end of the chute and the recess *i* for the reception of the base-support *a*, substantially as, and for the purpose, above described.

699,240. SPOCKET-WHEEL FOR RAILROAD LOWE RABY, Lawrence, Kan. Filed July 20, 1901. Serial No. 69,092. (No model.)



Claim.—1. A compensating device for gear-wheels, comprising a peripheral compensating plate having openings spaced apart for the teeth of the wheel, and flanges securing the compensating plate to the wheel.

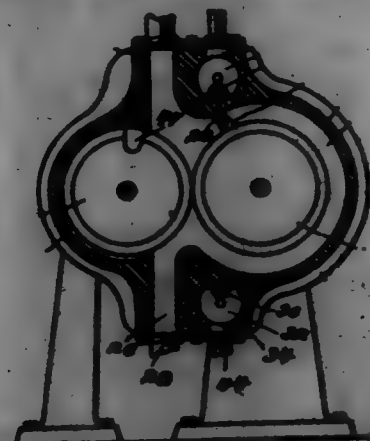
2. A compensating device for gear-wheels comprising a peripheral compensating plate, having openings spaced apart for the teeth of said wheel, flanges extending downwardly from the compensating plate upon the opposite surfaces of the rim of said wheel, and means for securing said flanges to said wheel.

3. A compensating device for gear-wheels comprising a compensating plate upon the periphery of the wheel and an attachment therefor on the inner side of the rim of said wheel.

4. A compensating device for gear-wheels comprising a compensating plate having openings spaced apart for the teeth of said wheel, and flanges upon each side of said compensating plate extending downwardly upon opposite surfaces of the rim of said wheel, and car-plates upon said flanges and means for securing said car-plates to each other.

5. A compensating device for gear-wheels comprising a compensating plate having openings spaced apart for the teeth of said wheel, flanges upon each side of said compensating plate, extending downwardly upon the opposite surfaces of the rim of said wheel, and car-plates connected with said flanges, and extending beyond the end of said compensating plate, and a securing device for said cars.

699,241. ENGINE. LEVI HANSEN, Crawfordville, Ind. Filed Oct. 23, 1901. Serial No. 70,616. (No model.)



Claim.—1. A rotary engine comprising a casing having a major and a minor cylinder which communicate, a cylindrical abutment in the minor cylinder and projecting into the major cylinder, said abutment having a longitudinal radial groove, a cylindrical piston in the major cylinder having a longitudinal radial groove, a cylindrical piston in the minor cylinder having a longitudinal radial groove, and means connected with the pistons for effecting the closing of the jaws and means carried by the holder adapted to detachably secure the other end of said strip of shoveling material for the purpose specified.

2. A rotary engine comprising a casing having two cylinders therein which communicate, a rotary abutment in one cylinder having a longitudinal radial groove, a cylindrical piston in the other cylinder in peripheral contact with the abutment and having a longitudinally-extending head connecting with the wall of its cylinder and adapted to mesh with the groove of the abutment, separate steam-chests, separate exhausts, a steam-supply, a valve for connecting the chests with the supply interchangeably, and means connected with the said valve for closing the exhaust interchangeably.

699,242. AIR-RAIL-TOOL. WILLIAM E. ROBERTSON, Elkhart, Ind. Filed Aug. 20, 1901. Serial No. 72,304. (No model.)



Claim.—1. In a device of the character described, the combination with a holder, of a pair of clamping-jaws carried thereby and adapted to detachably clamp one end of a strip of shoveling material and means adapted to detachably secure the other end of said strip of material, as and for the purpose set forth.

2. In a device of the character described, the combination with a holder, of a pair of clamping-jaws carried thereby and adapted to detachably clamp one end of a strip of shoveling material, means carried by the holder adapted to operate upon said jaws to open them and means carried by the holder adapted to detachably secure the other end of said strip of material, for the purpose set forth.

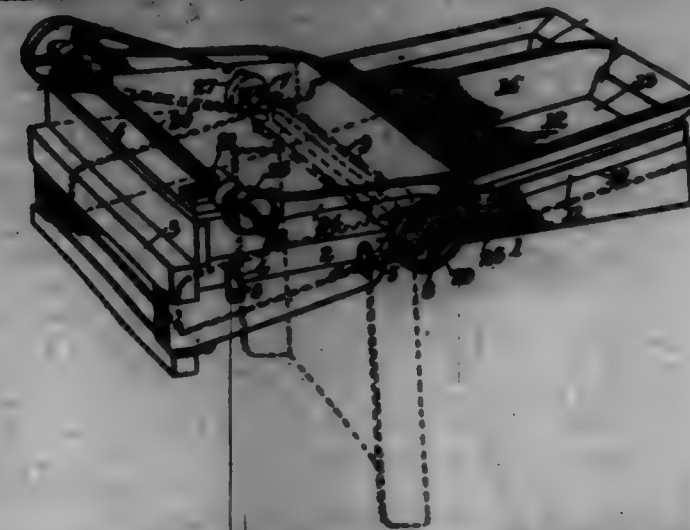
3. In a device of the character described, the combination with a holder, of a pair of clamping-jaws carried thereby, an operating-lever carried by the holder, a pin carried by the lever and connected with one of the clamping-jaws and the inner end of said pin being adapted to operate upon the other clamping-jaw when the operating-lever is depressed whereby to cause the jaws to open to receive one end of a strip of shoveling material and means carried by the holder adapted to detachably secure the opposite end of said strip of material for the purpose set forth.

4. In a device of the character described, the combination with a holder, a pair of clamping-jaws carried thereby, an operating-lever carried by the holder, a pin carried by said lever and connected at its inner end with one of said clamping-jaws, said pin being adapted to also operate upon the other jaw when the operating-lever is depressed whereby to cause the jaws to open to receive one end of a strip of shoveling material, a spring connected at one end to one of said jaws and having its other end of the pin to normally force the jaws in a direction to effect the closing of the jaws and means carried by the holder adapted to detachably secure the other end of said strip of shoveling material for the purpose specified.

699,243. HAND-OUTTER AND FEEDER FOR THRESHING-MACHINE. JOHN J. RAY, Wagonville, Ind. Filed Aug. 2, 1902. Serial No. 25,002. (No model.)

Claim.—1. A hand-outting and feeding attachment for threshing-machine comprising a frame having means to detachably secure it to the

feed end of a threshing-machine, the sides of the said frame having their upper edges inclined, an inclined reciprocating feed-pan having guide-bars 11 on its sides, said guide-bars bearing on the inclined upper edges of the sides of the frame, whereby said feed-pan is guided in a right line and supported by said frame, the latter having a cover over the inner portion of said feed-pan, and said feed-pan having its outer uncurved portion formed into a hopper, a reversible hand-cutting and feeding cylinder disposed transversely over said feed-pan, near the discharge of the hopper thereof, and under the cover of said frame, a power-shaft journaled in bearings on said frame, connections between said power-shaft and said hand-cutting cylinder to drive the latter, connections on said power-shaft and means connecting said connections to said feed-pan, substantially as described.



2. A hand-cutting and feeding attachment for threshing-machines comprising a frame having means to detachably secure it to the feed end of a threshing-machine, an inclined reciprocating pan guided in a right line and supported solely by said frame, the latter having a cover over the inner portion of said feed-pan and said feed-pan having its outer uncurved portion formed into a hopper, a reversible hand-cutting and feeding cylinder disposed transversely over said feed-pan, near the discharge of the hopper thereof, and under the cover of said frame, a power-shaft journaled in bearings on said frame, connections between said power-shaft and said hand-cutting cylinder, to drive the latter and connections between said power-shaft and said feed-pan, whereby the latter is reciprocated, substantially as described.

699,244. MACHINE FOR TESTING CANS. WILLIAM BERRY, South Omaha, Neb. Filed Oct. 5, 1901. Serial No. 71,006. (No model.)

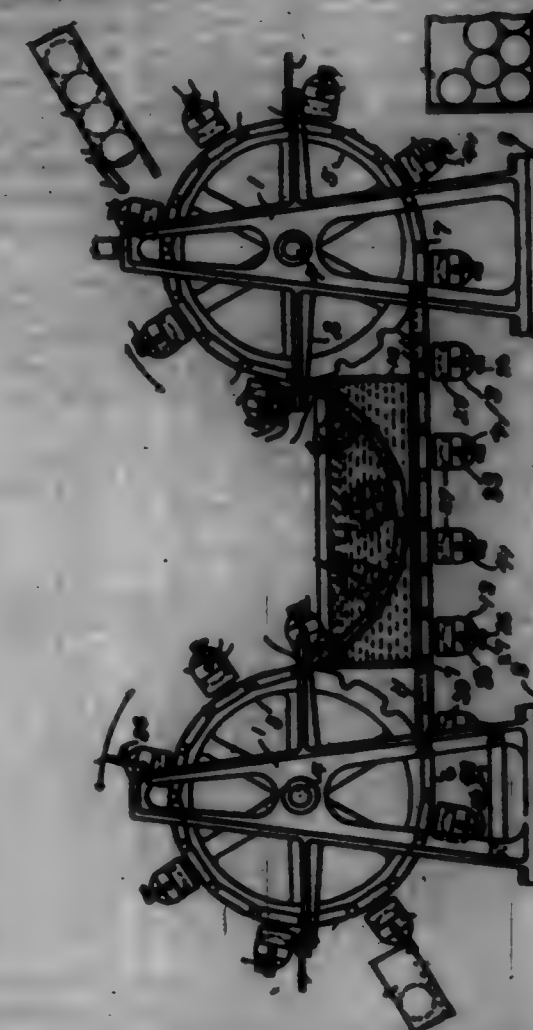
Claim.—1. In a can-testing machine, the combination with a suitable frame, of an endless conveyor-chain, sprocket-wheels carrying the same, can-holders secured to the chain at suitable intervals and each provided with can-clamping means, clamp-opening means carried thereby, a tank for containing a testing liquid, a track descending into said tank, means on said chain engaging said tank for guiding the chain and its can-holders into the tank, whereby the cans carried will be immersed in the testing liquid, means for operating said clamp-opening means for tightening the clamp, means on said frame for operating said clamp-opening means when in one position for releasing the same at one point in the machine, and means on the frame for operating said clamp-opening means when in another position at another point in the machine, substantially as described.

2. In a machine of the character described, the combination with a suitable frame, of endless carrying means supported thereon, can-holders provided with clamping means attached to said endless carrier, clamp-opening means carried thereby, means for automatically releasing said clamping means at one point in the machine, when the clamp-opening means is in one position, and means for automatically releasing said clamp-opening means at a different point in the machine when the clamping means is in another position, substantially as described.

3. A can-testing machine, comprising a carrier-chain, can-holders applied thereto at suitable intervals, each comprising a frame portion having a yielding pad on one side and a movable disk on the other side for clamping a can in position, a cam for operating the movable disk, an arm carried by said cam and adjustable thereon and means arranged at various points in the machine designed to estimate said arm according to its position for operating said cam at any one of said points, substantially as described.

4. A can-testing machine, comprising a conveyor-chain, can-holders secured thereto, comprising U-shaped frames, a central perforated elastic disk on one upright of said holder for receiving the open end of the can, a shaft on the other standard of the holder, a movable disk carried

by the shaft for pressing the can against the elastic disk, a cam engaging the end of said shaft for forcing the movable disk against the can, means carried by the cam for being operated to effect the release of the disk again when the can is to be discharged, and means for admitting compressed air to the cans while in the holders and retaining it therein, substantially as described.



5. A can-testing machine, comprising a traveling conveyor, a series of can-holders applied thereto, each holder having a standard, a yielding disk, and a movable disk for clamping a can therein, the said movable disk being provided with an operating-cam, guide-chains also carried by the said movable disk, springs for engaging the said cam for normally holding the disk in its outer position, a cam for engaging the operating-cam of the disk, a shaft carrying said cam, and arms on the shaft adapted to engage projections arranged in the machine, whereby the movable disk will be operated to clamp or release a can, substantially as described.

6. A can-testing machine made up of suitable supporting-standards, sprocket-wheels mounted therein, a carrier-chain passing over said sprocket-wheels, can-holders secured to the carrier-chain, a cam mechanism on each carrier for clamping cans in the holders, a shaft for operating said cam mechanism, a laterally-projecting arm rigidly connected to said shaft, and a pivoted arm also secured to said shaft and normally occupying a lateral position with respect to the cans, a projection upon the machine-frame for engaging the fixed arm to estimate the can mechanism for clamping a can in the holder, a projection for engaging the pivoted arm for releasing said holder, the said pivoted arm also affording means whereby the imperfect cans may be discharged at a different point in the machine from the good cans, substantially as described.

7. A can-testing machine, comprising a suitable frame, a traveling conveyor-chain moving therein carrying can-holders, a cam mechanism on each holder for clamping the cans therein, a shaft for operating the said cam, said shaft being provided with a fixed and a pivoted arm normally extending laterally therefrom, a projection on the frame for engaging the fixed arm to clamp the cans in the holders, a projection for engaging the pivoted arm, for releasing the cans from the holders when they are perfect, the said pivoted arm affording means for causing imperfect cans by turning the same so as to estimate with the longitudinal side of the can-shaft, a cam track or lug upon the machine for turning the pivoted arm to its laterally-projecting position, and a second projection on the frame for engaging the said pivoted arm, the structure being such that the imperfect cans will thus be discharged from the machine at a different place from the point where the good cans are discharged, substantially as described.

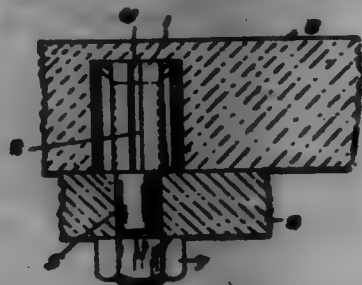
8. A can-testing machine, comprising a series of can-holders, means for delivering compressed air to the cans when in said holders, comprising

ing a valve mechanism, a plug in said valve mechanism, a star-wheel for operating said plug, and a projection on each can-holder for engaging the star-wheel and turning the same so as to open the valve and close the same again after air has been admitted to the can as the can-holder passes the valve mechanism.

9. A can-testing machine, comprising a series of can-holders, a valve mechanism adapted to be brought in coincidence with said holders, comprising a valve-casing, a plug or valve mounted within the casing and provided with a series of lateral ports, a chain for turning the valve or plug, arms projecting from said chain for actuating the same, the said arms projecting into the path of a rib or lug on the can-holder so that as the can-holder is moved past the valve, the said rib or lug will turn the plug or valve so as to admit compressed air from any suitable source into the can to be tested, the said plug being turned so as to shut off the supply of compressed air when the can-holder is moved away from the valve mechanism, substantially as described.

10. A can-testing machine, comprising a series of can-holders, and a valve mechanism, means for moving the can-holders past the valve mechanism but in very close relation thereto, a valve-plug within the valve-casing formed with a series of ports leading into the hollow interior of said valve or plug, the portions of the plug between said ports being arranged that one of them will normally occupy a position to close the outlet-port of the valve-chamber, and means for turning the plug as each holder passes the valve-casing, whereby compressed air will be admitted to the can in the holder, substantially as described.

699,245. EXPANDING BOLT. EDGAR A. BUNNELL, Wallingford, Conn. Filed Jan. 2, 1902. Serial No. 20,925. (No model.)



Claim.—1. In an expandable bolt, the combination with a longitudinally corrugated and split collar; of a bolt adapted to pass therethrough, and by its engagement therewith to expand said collar.

2. In an expandable bolt, the combination with a split collar having longitudinal corrugations therein; of a bolt adapted to pass therethrough and having a tapered head thereon which engages said collar.

3. In an adjustable bolt, the combination with a collar member slotted longitudinally and having a plurality of longitudinal corrugations therein, said corrugations having inclined faces at one end thereof; of a bolt having a tapered head thereon which engages the inclined faces of the said corrugations.

4. In an adjustable bolt, the combination with a longitudinally-slotted collar member having a plurality of inwardly-projecting corrugations therein, said corrugations having inclined faces upon one end; and a bolt having a tapered head, the angle of which corresponds to the inclined faces of the said corrugations.

5. In an adjustable bolt, the combination with a longitudinally-slotted collar member 1 having a plurality of corrugations 2 therein, one end of said corrugations having inclined faces 4; and a bolt 3 adapted to pass through said collar member and having a tapered head 5 thereon which engages the inclined faces 4.

6. In an adjustable bolt, the combination with a corrugated collar having a slot extending throughout the length thereof and a plurality of slots extending from one end and terminating adjacent to the other end thereof; of a bolt adapted to be surrounded by said collar and by its engagement therewith to expand the same.

7. In an adjustable bolt, the combination with a longitudinally-corrugated collar having a slot extending throughout the length thereof and a plurality of slots extending from one end and terminating adjacent to the other end thereof; of a bolt adapted to be surrounded by said collar and by its engagement therewith to expand the same.

8. In an adjustable bolt, the combination with a longitudinally-corrugated collar having a slot extending throughout the length thereof and a plurality of slots extending from one end and terminating adjacent to the other end thereof; of a bolt adapted to be surrounded by said collar and by its engagement therewith to expand the same.

9. In an adjustable bolt, the combination with a collar member 1 having a plurality of corrugations 2 therein, one end of said corrugations

having inclined faces 4; and a slot 3 extending throughout the length of said collar and slots 10 open at one end and terminating adjacent to the other end thereof; and a bolt 5 adapted to pass through said collar member and having a tapered head 6 thereon which engages the inclined faces 4.

699,246. FENCE-WIRE STRETCHER. BENJAMIN WAGNER, Union, Pa. Filed Dec. 26, 1901. Serial No. 61,677. (No model.)



Claim.—In fence-wire stretchers, a bar having teeth along one side and provided with feet at one end to engage a post; a lever fitted near one end to slide freely longitudinally upon the said bar; two pivots pivoted to the lever at opposite sides of the line of said teeth and each adapted to engage the said teeth, each pivot being formed at one end as a latch, and the two latches being adjacent to each other and adapted to be pressed toward each other to disengage the pivots from the teeth; and hooks freely hung to the lever for engaging wire, substantially as described.

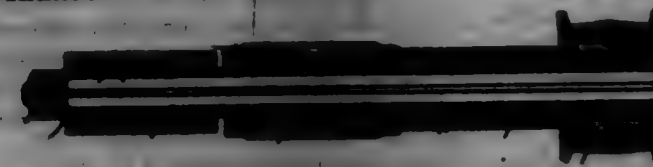
699,247. FERTILIZER DISTRIBUTOR. CHARLES E. SANDERS, Danville, Ala. Filed Oct. 24, 1901. Serial No. 71,252. (No model.)



Claim.—In a fertilizer distributor, the combination with the hopper, a drum having a lag formed integral therewith, lugs pivoted to said hopper and said drum, a tappet device for engaging the lag and moving the drum in one direction, and a spring for supporting one end of the drum for returning it to its normal position after having been moved by the tappet device, substantially as set forth.

699,248. MACHINE FOR BUFFING ARTICLES OF LEATHER. JAMES B. GALT, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Original application filed July 14, 1901. Serial No. 61,123. Divided and this application filed July 24, 1902. Serial No. 62,572. (No model.)

Claim.—1. A machine for buffing articles of leather, having, in combination, a flexible roll, a tubular covering of abrasive material, and means for holding the ends of the roll to grip the tubular covering, substantially as described.



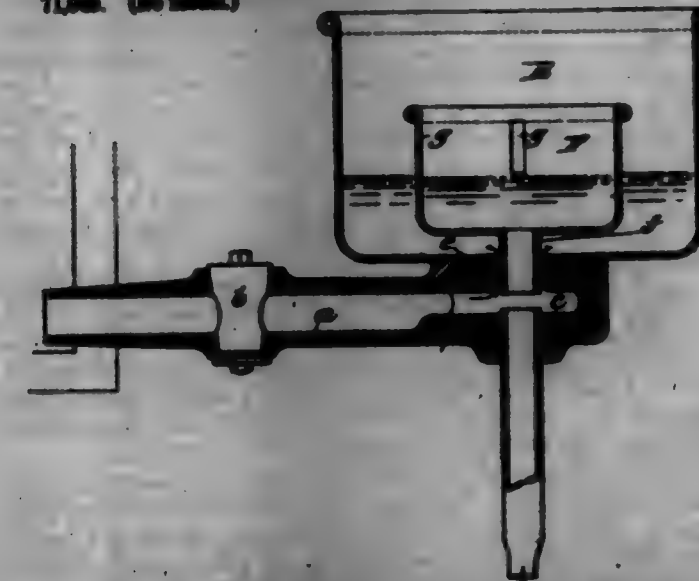
2. A machine for buffing articles of leather, having, in combination, a roll provided with a surface concave longitudinally of the roll and a covering of abrasive material supported thereon and bridging the concave surface, substantially as described.

3. A machine for buffing articles of leather, having, in combination, a roll consisting of a plurality of sections and provided with a surface concave longitudinally of the roll, and a tubular covering of abrasive material supported thereon and bridging the concave surface, substantially as described.

4. A machine for buffing articles of leather, having, in combination, a flexible roll provided with a rigid core fixedly secured thereto, a tubular covering of abrasive material and clamping-disks bearing against the ends of the roll to hold the roll at its ends to grip the tubular covering, substantially as described.

5. A machine for buffing articles of leather, having, in combination, a flexible roll, a tubular covering of abrasive material, rotatable sleeves mounted in bearings at each end of the roll, clamping-disks carried by said sleeves arranged to bear against the ends of the roll to hold the roll to grip the tubular covering, and a shaft passing through the sleeves and roll, substantially as described.

699,249. FROST-INSULATING MECHANISM FOR LIQUIDS. DAVID T. SHANLEY, Westchester, Pa. Filed Aug. 4, 1901. Serial No. 71,046. (No model.)



Claim.—1. A frost-regulating mechanism for liquids comprising a chamber having a supply-inlet, a discharge-outlet pipe and an overflow-outlet, and a movable device operated by the overflow from said chamber to vary the communication between the chamber and the discharge-outlet and serving to conduct the overflow indirectly to the latter.

2. A frost-regulating mechanism for liquids comprising a chamber having a supply-inlet, a discharge-outlet pipe and a direct-overflow outlet of less capacity than said discharge-outlet, and a movable conductor for said direct-overflow liquid to said discharge-outlet forming an automatically-operated valve adapted to regulate direct communication between the latter and said chamber.

3. In a frost-regulating mechanism for liquids having a main chamber with a supply-inlet, a discharge-outlet, and an overflow-outlet, and overflow-receiving chamber and a float-valve in said overflow-chamber arranged to automatically regulate direct communication between said discharge-outlet and the main chamber.

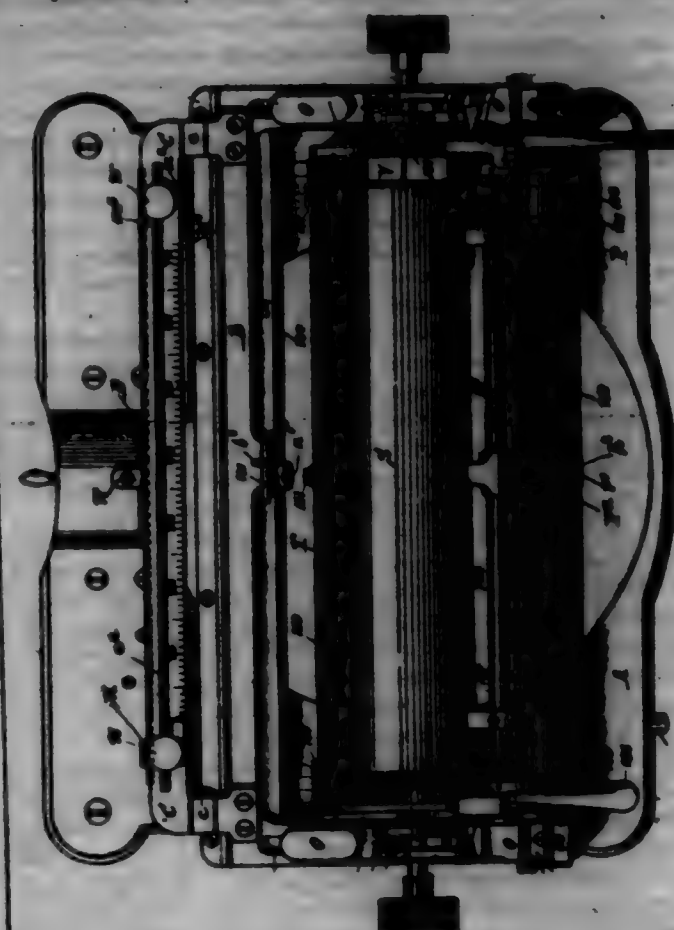
4. In a frost-regulating mechanism for liquids having a main chamber with a supply-inlet, a discharge-outlet, and an overflow-outlet, an overflow-receiving chamber and a float-valve in said overflow-chamber communicating with said discharge-outlet and arranged to automatically regulate the direct discharge from said main chamber.

5. In a frost-regulating mechanism for liquids having a main chamber with a supply-inlet, a discharge-outlet, and an overflow-outlet, an overflow-receiving chamber and a float-valve in said overflow-chamber having a tubular depending neck extending said chamber and adapted to rest upon

said discharge-outlet to cut off the latter from direct communication with the main chamber.

6. In a frost-regulating mechanism for liquids having a main chamber with a supply-inlet, a discharge-outlet, and an overflow-outlet, an overflow-receiving chamber and a float-valve in said overflow-chamber having a tubular depending neck passing loosely through said overflow-outlet into the main chamber and adapted to rest upon said discharge-outlet to cut off the latter from direct communication with the main chamber.

699,250. TYPE-WRITING HAMMER. SAMUEL S. BOWEN, Evanston, Ill., assignor to the Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Jan. 11, 1902. Serial No. 704,200. (No model.)



Claim.—1. In a type-writing machine, the combination with the top plate of the main frame and a carriage, of parallel carriage track-rails connected together, and a latch for releasably securing the rails upon the top plate.

2. In a type-writing machine, the combination with the top plate of the main frame and a carriage, of an auxiliary carriage-supporting frame, comprising track-rails united by cross-bars, and a latch for releasably securing said carriage-supporting frame upon said top plate.

3. In a type-writing machine, the combination with the top plate of the main frame and a carriage, of slots in said top plate, front and rear carriage-supporting rails, cross-bars uniting said rails and seated within said slots, and latches co-operating with said slots to releasably secure the carriage-supporting rails upon said top plate.

4. In a type-writing machine, the combination with the top plate of the main frame having long slots therein, of the front and rear carriage-supporting rails, cross-bars uniting said rails and cutting within the slots of the top plate and provided each with a side slot or groove, and thumb-screws having arms to engage said slots or grooves for detachably locking said cross-bars to the top plate.

5. In a type-writing machine, the combination with a main frame and a paper-carriage, of front and rear carriage-supporting rails, cross-bars uniting said rails, and means for adjusting one of said rails independently of the other on said cross-bars, said adjusting means being independent of the main frame.

6. In a type-writing machine, the combination with a main frame and a paper-carriage, of front and rear carriage-supporting rails, one of said rails being interlocked with said cross-bars, and means at the end of said cross-bars and independent of the main frame for adjusting said interlocked rail relatively to the other rail, each of said cross-bars extending longitudinally of its cross-bar and having a bearing thereon and also having a bearing upon the movable rail, for drawing the latter toward the other rail.

7. In a type-writing machine, the combination with the top plate of the main frame, of parallel carriage track-rails connected together and

detachably connected with said top plate and having roller-bearings and one of said rails being adjustable toward and from the other rail, a carriage having roller-bearings, and rollers interposed between said rail and carriage-bearings, said connected carriage track-rails and carriage being removable as a whole.

8. In a type-writing machine, the combination with the paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar, a carriage-advancing spring connected with said gear-wheel, an escapement mechanism, a suitable clutch between said escapement mechanism and the gear-wheel and means for shifting said clutch.

9. In a type-writing machine, the combination with the paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar and provided with clutch-teeth, a carriage-advancing spring connected with said gear-wheel, a movable clutch provided with teeth or notches to engage the clutch-teeth of the gear-wheel and means for shifting said clutch to separate the clutch-teeth in order to permit the carriage to be moved independent of the escapement mechanism.

10. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar and provided with clutch-teeth, a carriage-advancing spring, a movable clutch provided with teeth or notches to engage the clutch-teeth of the gear-wheel, means for shifting said clutch to separate the clutch-teeth in order to permit the carriage to be moved independent of the escapement mechanism, and a finger-piece suitably connected with said means for shifting said clutch.

11. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar, a shaft whereon said gear-wheel is mounted, a carriage-advancing spring connected to said gear-wheel, a clutch-wheel and two series of clutch-teeth one suited with the gear-wheel and the other with the clutch-wheel, a shifter engaging said clutch-wheel and means for operating said shifter from the paper-carriage.

12. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel having teeth upon its periphery to engage said rack-bar and having axially-arranged clutch-teeth, a clutch-wheel mounted concentrically with said gear-wheel and having axially-arranged clutch-teeth, a spring for forcing the clutch-wheel toward the gear-wheel, a shifter engaging the clutch-wheel to throw it out of action and suitable means connected with said shifter whereby it may be manually operated.

13. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar, a shaft extending through said gear-wheel, a carriage-advancing convolute spring controlling said shaft and connected to said gear-wheel, a sliding clutch-wheel mounted concentrically with the gear-wheel, and provided with a peripheral groove, clutch-teeth arranged intermediate said clutch and said gear-wheel and whereby the two may be connected for motion movement, a ratchet-wheel mounted concentrically with the clutch-wheel, suitable escape-degs for the escape of said ratchet-wheel, a shifter engaging the peripheral groove of the clutch-wheel and means for operating said shifter to disengage the clutch-wheel from the gear-wheel.

14. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a cup-shaped gear-wheel engaging said rack-bar, a convolute carriage-advancing spring within said gear-wheel and connected thereto, a shiftable clutch-wheel adapted to engage said gear-wheel, a ratchet-wheel connected with said clutch-wheel, suitable escape-degs for engaging said ratchet-wheel and shifting mechanism whereby said clutch-wheel is disengaged from said gear-wheel.

15. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a carriage-driving gear-wheel engaging said rack-bar, an escapement mechanism, a clutch-wheel connected with said escapement mechanism and provided with means for engaging the gear-wheel, a shifter for operating said clutch-wheel to disengage it from the gear-wheel, a release-key upon the paper-carriage and suitable means intermediate said release-key and said shifter whereby the shifter may be operated by the release-key on the paper-carriage.

16. In a type-writing machine, the combination with the paper-carriage provided with a rack-bar, of a gear-wheel engaging said rack-bar, a clutch-wheel mounted concentrically with said gear-wheel and free to slide toward and from the same, an escapement mechanism connected with said clutch-wheel, two series of bevel clutch-teeth between said clutch-wheel and said gear-wheel, a shifter engaging the periphery of said clutch-wheel, a shifting-rod mounted upon the main carriage and connected with said shifter and a release-key mounted upon the main carriage and having connected therewith a part extending in position to operate said shift-rod.

17. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a gear-wheel engaging said rack-bar, a clutch-wheel mounted concentrically with said gear-wheel and movable toward and from the same, a ratchet-wheel also mounted concentrically

with said clutch-wheel, suitable escapement-degs for engaging said ratchet-wheel, interlocking clutch-teeth arranged between said gear-wheel and said clutch-wheel, a pivoted shifter engaging the periphery of said clutch-wheel, rods extending beneath the top plate of the main frame and connected to said shifter, a shift-rod arranged above the top plate of the main frame and connected to said rods beneath the top plate, a release-key mounted upon the paper-carriage and suitable connections whereby said release-key will operate said shift-rod irrespective of the position of the carriage.

18. In a type-writing machine, the combination of component-controlled carriage-driving mechanism having a clutch, a carriage, a transverse rod or ball movably connected to the main frame and extending parallel with the line of travel of the carriage, a shifting rod or ball pivotally connected with the carriage and adapted to actuate said transverse rod or ball in all positions of the carriage, and connections between the transverse rod or ball-frame ball and the clutch for disengaging the latter.

19. In a type-writing machine, the combination of component-controlled carriage-driving mechanism having a clutch, a carriage, a transverse rod movably connected to the main frame and extending parallel with the line of travel of the carriage, a shifting rod or ball pivotally connected to the carriage and adapted to actuate the transverse rod in all positions of the carriage, a key for actuating said shifting-rod, and connections intermediate the transverse rod and the clutch for disengaging the clutch.

20. In a type-writing machine, the combination of an escapement-controlled carriage-driving mechanism having a clutch provided with a peripheral groove, a carriage, a frame pivotally hung to the main frame and provided with arms engaging said peripheral groove at opposite sides thereof, rods engaging said frame at opposite sides of the clutch and extending forwardly of the machine, a transverse rod connecting the forwardly-extending rods and extending parallel with the line of travel of the carriage, and means on the carriage adapted to coast with the transverse rod in all positions of the carriage to shift the pivoted frame to open the clutch.

21. In a type-writing machine, the combination of a spring-driven, a carriage connected with the drum, an escapement-wheel, a clutch intermediate said escapement-wheel and drum and provided with a peripheral groove, a frame H bowed around the clutch and pivoted to the main frame and provided with arms engaging said peripheral groove at opposite sides, rods 37 connected with the frame H at opposite sides of the clutch and extending forwardly, a rod 38 connecting said rods 37 and extending parallel with the path of travel of the carriage, and means on the carriage adapted to actuate the rod 38 in all positions of the carriage to disengage the clutch, with a spring for closing said clutch.

22. In a type-writing machine, the combination of component-controlled carriage-driving mechanism having a clutch, a carriage, a rod 40 pivotally connected by arms or levers of the carriage and extending across the carriage parallel with the line of travel thereof, a rod 39 parallel with the rod 40 and movably mounted on the main frame and adapted to be actuated by rod 40 in all positions of the carriage, and connections intermediate said rod 39 and the clutch for operating the latter.

23. In a type-writing machine, the combination of component-controlled carriage-driving mechanism having a spring-pressed clutch, a carriage, a rod 40 extending across the carriage parallel with the path of travel thereof and pivotally connected by arms to the carriage, a rod 39 above the top plate of the main frame and adapted to be operated by the rod 40 in all positions of the carriage, movable rods 37 at each side of the center of the machine and guided below the top plate and carrying the rod 39, and connections intermediate said rods 37 and the clutch for operating the latter.

24. In a type-writing machine, the combination with a paper-carriage provided with a rack-bar, of a gear-wheel engaging said rack-bar, a shaft whereon said gear-wheel is mounted, a convolute carriage-advancing spring connected to said shaft and to said gear-wheel, a clutch-wheel and a ratchet-wheel through both of which said shaft extends, a handle connected to said shaft whereby the tension of said spring may be varied, a spring for forcing the clutch-wheel into normal engagement with the gear-wheel and a shifter whereby the clutch-wheel may be disengaged from the gear-wheel.

25. In a type-writing machine, the combination with an escapement ratchet-wheel, of fixed and sliding escape-degs, a vibratory frame upon the top of which said escape-degs are mounted, the latter being pivotally supported and being provided with projecting wings and set-screws whereby the extent of its pivotal movement is determined.

26. In a type-writing machine, the combination of a vibratory frame, a holding-day, means for covering the day rigidly to the frame, horizontally-extending wings on the day and adapted to rest on the top of the frame, a leg on said wing portion, a spring-pressed foot-day pivoted between said leg and holding-day and provided with horizontally-extending arms, and adjusting-screws engaging threaded holes in said arms

and adapted to coast with the top of the wing portion to limit the motion of the foot-day.

27. In a type-writing machine, the combination with the paper-carriage, of a margin stop-bar at the rear of said carriage, a right-hand margin-stop mounted upon said margin stop-bar and provided at its inner end with a pawl, a sliding stop-arm arranged in the path of said pawl, and a shifting-rod connected with said sliding stop-arm and extending to the front of the machine.

28. In a type-writing machine, the combination of a carriage, a bell, a bell-striker, a carriage-stop on the framework, a pivoted trip-arm on the carriage adapted to operate the bell-striker and to coast with the carriage-stop to arrest the carriage, and means for moving said carriage-stop out of the path of said trip to permit the further advance of the carriage.

29. In a type-writing machine, the combination with the main paper-carriage, of a supplemental platen-carriage comprising a frame located beneath the main carriage and sliding bar connected to said frame located above the main carriage, and a platen supported by said sliding bar, said sliding bar and frame being connected together and mounted to move at right angles to the line of travel of the main carriage and said frame located beneath the main carriage comprising a pair of rigidly-joined and bars.

30. In a type-writing machine, the combination with the main paper-carriage, of a supplemental platen-frame comprising a U-shaped frame made in one piece and mounted beneath the main carriage, sliding bars mounted above said main carriage and connected to said U-shaped frame at its ends, and antifriction-balls interposed between said sliding bars and said paper-carriage.

31. In a type-writing machine, the combination with the main paper-carriage having its end bars clotted, of a supplemental platen-carriage comprising a frame located beneath the main carriage, sliding bars located above the end bars of the main carriage and attached through said slots to the frame beneath the carriage, and a plate or bar extending above the carriage and connecting the front ends of said sliding bars.

32. In a type-writing machine, the combination with the main carriage and with the supplemental platen-carriage mounted thereon and having a scale-plate at its front, of an indicator-pointer connected to the main frame in front of said main carriage and extending over the scale-plate of the supplemental carriage, said indicator-pointer being provided with an leverly-extending fixed supplemental pointer P, which is in proximity to the printing-point upon the platen when the supplemental platen-carriage is turned upward to expose the line of printing.

33. In a type-writing machine, the combination with a platen, of a platen-frame and a carriage, said platen-frame being mounted upon posts or brackets, and said posts or brackets having seats upon said carriage and being releasably held upon said seats by means of latches.

34. In a type-writing machine, the combination with a platen, of a platen-frame and a carriage, said platen-frame being pivotally connected with posts or brackets, which have seats upon said carriage and are releasably held upon said seats by means of latches.

35. In a type-writing machine, the combination with a platen, of a platen-frame and a carriage, said platen-frame being pivotally connected with posts or brackets which have seats upon the end bars of the carriage and are releasably held upon said seats by means of latches.

36. In a type-writing machine, the combination with the main paper-carriage and with the supplemental platen-carriage mounted thereon, of a platen, a supporting-frame for said platen, and suitable posts in pivotal connection with said platen-supporting frame, said posts being detachably connected to the end bars of the supplemental platen-carriage.

37. In a type-writing machine, the combination with the main carriage and with the supplemental carriage mounted thereon, of legs projecting from the end bars of the supplemental carriage, platen-supporting posts resting upon said end bars and engaging said legs, and spring-actuated latching bars or levers for detachably fastening said platen-supporting posts to the end bars of the supplemental carriage.

38. In a type-writing machine, the combination with the main paper-carriage and with the supplemental platen-carriage mounted thereon, of dovetailed legs or studs rising from the end bars of said supplemental carriage, the platen-supporting posts and bases provided with dovetailed portions to engage said legs or studs, a platen and a supporting-frame for said platen pivotally connected with said platen-supporting posts.

39. In a type-writing machine, the combination with the carriage mechanism, of platen-supporting posts or brackets detachably connected with the carriage mechanism, and spring-actuated latching-plungers for holding said platen-supporting posts or brackets in position.

40. In a type-writing machine, the combination with the carriage mechanism and with the platen and its supporting-frame, of supporting posts or brackets, arms at the ends of said supporting-frame and in rigid connection therewith, pivot-links connecting said arms with the tops of the supporting posts or brackets, and links whereby said supporting-frame is pivotally connected at points in front of said posts or brackets.

41. In a type-writing machine, the combination with the carriage mechanism and with the platen and a supporting-frame for said platen, of supporting posts or brackets located at the ends of said platen-frame and having forwardly-extending base portions, arms in rigid connection with said platen-supporting frame, links pivotally connecting said arms to the tops of the supporting posts or brackets, and pivot-links connecting the supporting-frame with the bases of said supporting posts or brackets.

42. In a type-writing machine and in a platen-shifting mechanism, the combination of a carriage provided with open seats or bearings for the platen-shaft, a platen, a platen-shaft, a frame in which said shaft is journaled, links pivotally connected with said shaft and with the carriage in front of said seats or bearings, arms on the platen-supporting frame and extending or standing normally over the platen-shaft, and links pivotally connected with said arms and with said carriage in rear of said seats and above the said seats.

43. In a type-writing machine and in a platen-shifting mechanism, the combination of a platen-frame, a platen journaled in said frame, arms connected to the ends of the platen-frame, links 130 pivotally connected at one end to a relatively stationary part of the carriage and at the other end to the platen-frame arms, and links 135 each pivotally connected at one end to a relatively fixed part on the carriage and at the other end to the platen shaft or axle, said links 130 and 135 being at opposite sides of the shaft or axle, and adapted to control the platen in its turning up and turning down movements.

44. In a type-writing machine and in a platen-shifting mechanism, the combination of a platen-frame, a platen, a platen-axle, a base-plate at each end of the platen having an open bearing for the platen-axle, a post or bracket extending upwardly from each base-plate, a link for connecting each post or bracket with the platen-frame, and a second link for each base-plate and pivotally connected to its base-plate and to the platen shaft or axle.

45. In a type-writing machine, the combination of a carriage, a platen-frame, a platen, a platen-axle, a base-plate at each end of the platen having an open bearing for the platen-axle and detachably connected with the carriage, a post or bracket extending upwardly from each base-plate, a link for and connecting each post or bracket with the platen-frame, and a second link for each of said base-plates and pivotally connected thereto and to the platen axle or shaft.

46. In a type-writing machine, the combination of a carriage having seats in its end bars, a platen-frame, a platen, a platen-axle, base-plates each having an open bearing for the platen-axle and adapted to the seats in the carriage, means for holding said base-plates detachably in said seats, a post or bracket extending upwardly from each base-plate, a link for and connecting each of said posts or brackets with the platen-frame, and a link for and connecting each base-plate and the platen shaft or axle.

47. In a type-writing machine, the combination of a platen-frame, a platen journaled in said frame, arms connected to the ends of the platen-frame, links 130 pivotally connected at one end to a relatively stationary part of the carriage, and one of said links being provided with a hole or indentation, a spring-pressed leveled pin on the corresponding stationary part of the carriage and adapted to engage said hole to offer a resistance to the turning down of the platen, and links 135 pivotally connected to a relatively fixed part of the carriage and to the platen shaft or axle, said links 130 and 135 being on opposite sides of the said shaft or axle.

48. In a type-writing machine, the combination with the detachable main paper-carriage and with the supplemental paper-carriage mounted to move transversely thereof, of a shifting-bar extending longitudinally beneath the main paper-carriage, a part extending from said supplemental carriage in position to be engaged by said shifting-bar, a latch for locking said main and supplemental carriages together, means for releasing said latch located in the path of the shifting-bar and adapted to be operated by said bar during its initial movement, and key-lever mechanism whereby said shifting-bar is manually operated, the construction and arrangement being such that the main paper-carriage, together with the supplemental paper-carriage, may be detached from the machine and from said shifting-bar, and such that when said carriages are in place upon the machine, said shifting-bar operates to automatically release the latch and shift said supplemental carriage.

49. In a type-writing machine, the combination with the main carriage and with the supplemental carriage mounted thereon, of a latch connecting said main and supplemental carriages, a pivoted release-arm for said latch, a shifting-bar extending longitudinally beneath the carriage at its rear and adapted to coast with a part depending from the supplemental carriage, said release-arm being located intermediate the shifting-bar and the depending part of the supplemental carriage, whereby the initial movement of said shifting-bar shall disconnect the carriage to permit the supplemental carriage to be shifted.

50. In a type-writing machine, the combination of a main carriage, a latch-plate pivoted thereon, a shifting platen-frame provided with a perforation to receive said latch-plate to lock the frame and carriage together, a release-arm adapted to operate and release the latch and pivoted on the

platen-frame, a shift-bar and a projecting part on the platen-frame for co-action with the shift-bar and relatively further from the shift-bar than said release-arm whereby the platen-frame is first unlocked and then shifted by a single movement of the shift-bar.

51. In a type-writing machine, the combination of a main carriage, a shifting platen-frame thereon provided with a perforation, a gravity-latch device on the main carriage adapted to coast with said perforated part on the platen-frame, a curved arm pivoted to the platen-frame and provided with an upright portion adapted to engage said latch device, a depending part on the platen-frame adapted to coast with the shift-bar, said shift-bar, depending part and curved release-arm being relatively arranged so that the shift-bar first operates the release-arm and then shifts the platen-frame by a single movement of the shift-bar.

52. In a type-writing machine, the combination of a main carriage, a platen-frame having a part extending under a bar of said main carriage, a perforation in said under part, latch-plate 151 having a tongue 152 adapted to engage said perforation to lock the frame and carriage together, a curved release-arm 153 provided with a stop-shoulder 154 adapted to coast with a part of the platen-frame to limit the downward motion of the curved arm, rollers 155 on the platen-frame, and a shift-bar, said shift-bar, arm 153 and rollers 155 being relatively arranged so that the shift-bar operates the release-arm to release the platen-frame and then coasts with the rollers 155 to shift the platen-frame by a single movement.

53. In a type-writing machine, the combination of a main carriage, a shifting platen-frame provided with a perforation, a pivoted latch-plate on the main carriage adapted to descend to engage said perforation, independently-pivoted means for lifting said latch-plate to disengage the shifting platen-frame, and a stop to limit the upward motion of the latch-plate.

54. In a type-writing machine, the combination with the carriage mechanism, of a platen-supporting frame pivotally mounted thereon to permit the platen to be operated to expose the line of print, a projection extending forwardly from said platen-supporting frame, a pivoted latch for engaging said projection to hold the platen-supporting frame in working position, a shoulder or offset connected with said latch, and a pivoted lever whereby said platen-supporting frame is tilted, said pivoted lever having a projection adapted to engage said shoulder or offset and release the latch during the initial movement of the lever.

55. In a type-writing machine, the combination with the platen and with the front bar of its supporting-frame, of a pressure-roll, a sliding block mounted upon said front bar and carrying said pressure-roll, and a spring-finger extending diagonally downwardly and inwardly from the upper part of said pressure-block and beneath the platen.

56. In a type-writing machine, the combination with the platen and its supporting-frame, of a clove mounted upon the back end of the platen-supporting frame, journal-arms connected to said clove, a shaft connected to said journal-arms and having one or more pressure-rolls mounted thereon, a spring for forcing said pressure-rolls toward the platen and a releasing-arm connected with said clove and serving to move the back pressure-roll or rolls away from the platen.

57. In a type-writing machine, the combination with the platen and its supporting-frame, of a clove mounted upon the back end of said supporting-frame, journal-arms connected to said clove, a shaft carried by said journal-arms and provided with one or more pressure-rolls, a poppet-rod connected to said clove, springs for forcing said pressure-roll or rolls and said table toward the platen, and a releasing-arm connected with said clove whereby said pressure-roll and said table may be simultaneously moved away from said platen.

58. In a type-writing machine, the combination of a platen, a back rod on the platen-carrier, a clove rotatably mounted on said rod, downwardly-extending arm rigid with said clove, pressure-rolls supported by said arm, a spring-pressed paper-table having the same axis of motion as said clove, upwardly-extending arm rigid with said clove and adapted to coast with the back of the upper portion of said table, and a lever rigidly connected for operating said clove and arm, whereby the pressure-rolls and table may be simultaneously moved away from the platen by a single movement of said lever.

59. In a type-writing machine, the combination with the main paper-carriage, the supplemental carriage and the platen supported thereby, of upper-can key-lever mechanism for said supplemental carriage comprising a shift-rod adapted to move backward and supplemental carriage, an upper-can key-lever connected with said shift-rod, a supplemental key pivotally mounted upon said key-lever at its front, and a pivoted latch-bar connected to said supplemental key-lever and having a part adapted to engage a fixed part of the main frame in order to retain the upper-can key-lever in depressed position.

60. In a type-writing machine, the combination of a shifting platen-carrier, a platen-shifting key-lever, connection between said lever and platen-carrier, a supplemental key pivoted to said key-lever, an angular

latch-plate pivoted to said key-lever and connected with the supplemental key, and a fixed part of the main frame with which said latch-plate is adapted to engage when the supplemental key is used to depress the key-lever and shift the platen, thereby locking the platen in shifted position.

61. In a type-writing machine, the combination of a shifting platen-carrier, a key-lever connected with the platen-carrier for shifting the main, a supplemental key pivoted to said key-lever, an angular latch-plate 201 pivoted at one end to the said key-lever and oppositely connected at the other end with said supplemental key and provided with an upright notched end, and a lug or bar 202 on the main frame adapted to coast with said latch-plate and to retain the shifting key-lever in depressed position.

62. In a type-writing machine, the combination with the platen and its supporting-frame and with the ratchet-wheel at the end of said platen, of a head including said ratchet-wheel, a line-space lever pivotally connected to said supporting-frame, a fixed-pawl pivoted to said line-space lever and adapted to engage said ratchet-wheel, and a locking-pawl located within said head and having an arm extending into position to be engaged by said fixed-pawl in order to cause said locking-pawl to arrest the ratchet-wheel.

63. In a type-writing machine, the combination with the platen and its supporting-frame and with the ratchet-wheel at the end of said platen, of a line-space lever pivotally connected to said supporting-frame and provided at one end with a series of steps or notches, a fixed-pawl pivotally connected with said line-space lever and extending into position to engage the ratchet-wheel, and a line-space regulator having an arm arranged to engage either of the steps or notches of the line-space lever to limit its return movements, and means for holding said line-space regulator in either of several positions.

64. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel thereon, a line-space lever, a pawl pivotally connected with said lever and extending into position to engage the ratchet-wheel, a pivoted line-space regulator provided with an arm adapted to engage said line-space lever to control the throw thereof and provided with an offset adapted to coast with a part on said pawl to lift the same from engagement with said ratchet-wheel on the return motion of the line-space lever.

65. In a type-writing machine, the combination of a platen having the printing-point at the under side thereof, a ratchet-wheel on end of less diameter than the platen, a platen-frame in which the platen is journaled, a head on the frame end of the same diameter as the platen and including said ratchet-wheel and provided with an opening at the upper side thereof, a line-space lever pivoted to the platen-frame below the platen-axis, a line-fixed pawl pivotally connected with said lever, and offset to extend through the opening in the head, and a line-space regulator-lever pivoted to the platen-frame and having an arm adapted to engage the end of the line-space lever to vary the throw thereof and also having an offset portion to engage the said line-fixed pawl to lift the same from the ratchet-wheel on the return of the line-fixed lever.

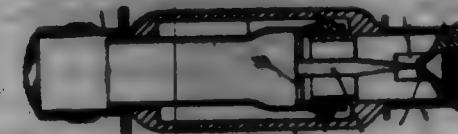
66. In a type-writing machine, the combination of a platen-frame, a platen journaled therein and provided at one end with a ratchet-wheel of less diameter than the platen, a head of the same diameter as and concentric with the platen and connected with the platen-frame and surrounding said ratchet-wheel and provided with an opening therein, a line-space lever pivoted to said frame, an offset line-fixed pawl extending through said opening to engage the ratchet, and a locking-dog pivoted within said head and normally disengaged from the ratchet-wheel and adapted to be thrown into locking engagement therewith by the line-fixed pawl as the latter completes its movement.

67. In a type-writing machine, the combination of a platen-frame, a platen journaled in said frame, a bent lever pivoted between its ends to said frame and having one end extending rearwardly, a line-fixed pawl pivotally connected with said lever toward the other end thereof and extending rearwardly, a ratchet-wheel on said platen, and a line-space regulator-lever pivoted between its ends to the platen-frame and having an offset or arm adapted to engage the said pawl to lift the same from the ratchet-wheel in all positions of the regulator and adapted to coast with the rearwardly-extending end of the line-fixed lever to regulate or vary the throw thereof.

68. In a type-writing machine, the combination with the top plate of the main frame, and a carriage, of parallel carriage track-rolls connected together and forming a frame, rods upon said top plate for said roll-frame, and a latch or lock for releasably securing said roll-frame upon said top plate.

69. In a type-writing machine, the combination with the top plate of the main frame, and a carriage, of slots in said top plate, legs 5 and 6, front and rear carriage-supporting rails, cross-bars uniting said rails and seated within said slots and resting upon said legs, and latches co-operating with said slots and legs to releasably secure the carriage-supporting rails upon said top plate.

699,251. WELLSBACH OR OTHER INCANDESCENT BURNER.
VINCE H. WELLSBACH, Philadelphia, Pa. Filed Nov. 14, 1891. Serial No. 82,178. (No model.)



Claim.—1. In an incandescent burner, the combination of a burner mixing-tube having an internal annular shoulder, a member adapted for communication with a gas-supply connection and with said burner mixing-tube and having a valve-seat that projects into the burner mixing-tube, and a needle-valve superimposed in said burner mixing-tube and adapted to said valve-seat and acting when open to direct the gas-jet against said shoulder, substantially as described.

2. In an incandescent burner, the combination of a burner mixing-tube having an internal annular shoulder, a tubular member detachably fitted in said burner mixing-tube arranged for attachment to a gas-supply connection and having a valve-seat, and a needle-valve superimposed in said burner mixing-tube adapted to said valve-seat, and acting when open to direct the gas-jet against said shoulder, substantially as described.

3. In an incandescent burner, the combination of a burner mixing-tube having an internal annular shoulder, a member detachably fitted in said burner mixing-tube arranged for communication with a gas-supply connection and with said burner mixing-tube and having a valve-seat, a needle-valve superimposed in said burner mixing-tube adapted to said valve-seat and acting when open to divert the gas-jet against said shoulder, and means for adjusting the supply of air, substantially as described.

4. In an incandescent burner, a burner mixing-tube having its inner wall provided with an annular shoulder, and means for regulating the admission of gas to said tube and causing it to impinge on said shoulder, substantially as described.

5. In an incandescent burner, the combination of a burner mixing-tube having an internal annular shoulder, a support the base of which constitutes the lower part of said burner mixing-tube, a thimble threaded for attachment to said base and with a gas-supply connection and provided with a valve-seat that projects into the burner mixing-tube, a needle-valve superimposed in said burner mixing-tube adapted to said valve-seat and acting when open to divert the gas-jet against said shoulder, and means releasably mounted with reference to the support for controlling the admission of air to the burner mixing-tube, substantially as described.

699,252. COIL-CONTROLLED NEWSPAPER-VENDING MACHINE.
ALFRED W. SMITH, St. Louis, Mo., assignor to Henry C. Wootler and Frederick Wootler, St. Louis, Mo. Filed July 10, 1891. Serial No. 67,746. (No model.)



Claim.—1. In a coin-controlled vending-machine, a rotatable coin intercepting and advancing disk, a releasing-lever normally locking the same against rotation, a speed loosely mounted on the disk-shaft, a pawl pivoted to the disk and normally engaging the speed, a gravity-bar adapted to disengage the releasing-lever from the disk upon movement of the gravity-bar in one direction, a locking-pawl normally engaging the speed, said locking-pawl being adapted to be disengaged from the speed simultaneously with the disengagement of the releasing-lever from the disk, substantially as, and for the purpose set forth.

2. In a coin-controlled vending-machine, a rotatable coin intercepting and advancing disk, a releasing-lever normally locking the same against rotation, a speed loosely mounted on the disk-shaft, a pawl pivoted to the disk and normally engaging the speed, a gravity-bar having an offset for the free passage therethrough of the releasing-lever, a locking-pawl pivoted opposite the base of the gravity-bar, a lever pivoted between the locking-pawl and gravity-bar, legs on the gravity-bar and locking-pawl respectively which the opposite ends of the pivoted lever are respectively adapted to engage, the gravity-bar upon being raised serving to disengage the releasing-lever and locking-pawl from the disk and speed respectively, substantially as set forth.

699,253. MAIL-BOX. ALFRED W. SMITH, Admin. Mch. Filed Sept. 20, 1891. Serial No. 73,042. (No model.)



Claim.—1. In a mail-box, the combination of a door, a water-shed overhanging the door at the top, a vertical portion below the water-shed into alignment with which the face of the door is adapted to swing, said door having a horizontal channel crossing at the top thereof and a vertical channel at either side communicating therewith.

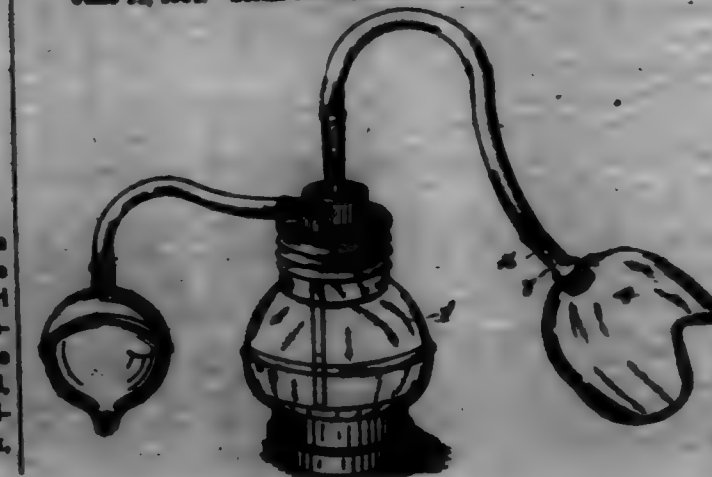
2. In a mail-box, the combination of a hinged door, a vertical strip on the box below which the door is adapted to close, the outer plate of the door having a flange at each edge adapted to embrace the side of the box and a channel in the edge of the door extending across the top and down the sides.

3. The combination with a mail-box, of a door hinged at its lower end and adapted to swing upwardly to a vertical position when closed, a water-shed overhanging the top of the door and a channel in the edge of the door extending across the top and down the sides, the side channels being open at the bottom.

699,254. SHAM FOR NEWSPAPER-VENDING MACHINE. JAMES W. SMITH, Worcester, R.I. Filed June 7, 1891. Serial No. 68,005. (No model.)

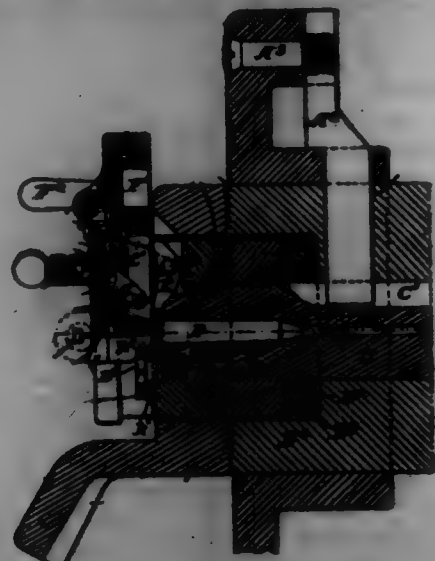
Claim.—In a sham for covered articles, the combination of a layer of stock having a line of curvilinear passages, the ends of which are disposed at the inner side of the layer, a layer of stock laid with its face against that of the first-named layer and having curvilinear passages intermediate the curvilinear passages in said first-named layer whereby a continuous passage is formed for a continuous thread, and the said continuous thread arranged to form a line of loop-stitches alternately through the curvilinear passages of the first-named layer and the second-named layer, and also passed the second time through passages of the layers to form lock or stay stitches; the said thread being drawn taut and suitably secured at its ends.

699,255. INHALER. HENRY GUYVER, Philadelphia, Pa. Filed June 11, 1891. Serial No. 64,190. (No model.)



Claim.—In an inductor, the combination of a shell, a mask formed with a screw-threaded inner end, a pipe screwed on the end of the mask, said pipe being reduced at its lower end, forming an internal conical valve-seat, a valve contained in the larger chamber of the pipe having a movement limited by the seat and the inner end of the threaded portion of the mask, a flexible connection between the mask and the valve, a tapered coupling-piece screwed in the outer end of the flexible connection, the tapered end of said coupling-piece being of a size to enter the outer reduced end of the pipe and to frictionally engage therewith, and a plurality of openings in the under side of the mask, substantially as shown and described.

699,256. FIRING ATTACHMENT FOR BREACH-LOADING ORDNANCE. JOHN W. STOKERT, Washington, D. C. Original application filed Oct. 23, 1906, Serial No. 23,701. Divided and this application filed June 2, 1908. Serial No. 66,994. (No model.)



Claim.—1. The combination with a carrier, of a breech-block mounted thereon, a spindle extending through the breech-block, and means connected to the carrier to permit the breech-block to turn but to prevent the spindle from turning, substantially as described.

2. The combination with a carrier, of a breech-block mounted thereon, a spindle within the breech-block, and a key mounted on the carrier, the breech-block and spindle being provided with grooves for the key whereby the breech-block can rotate and the spindle is prevented from rotating, substantially as described.

3. The combination with a spindle having a firing-opening for the reception of the primer, of means for holding the primer in position, and an ejector arranged to operate said means, before ejecting the primer, substantially as described.

4. The combination with a spindle having a firing-opening for the reception of the primer, of means for retaining the primer in position, an ejector for operating said means and ejecting the primer, and firing mechanism arranged to operate the ejector, substantially as described.

5. The combination with a spindle having a firing-opening for the reception of the primer, of means for retaining the primer in position, an ejector arranged to operate said means and eject the primer, a movable firing mechanism, and means connected to said movable firing mechanism for operating the ejector, substantially as described.

6. The combination with a spindle having a firing-opening for the reception of the primer, of a tumbler for retaining the primer in position and tumbler being provided with lugs, by means of which it is brought into inoperative and operative position by the insertion of the primer into the opening, substantially as described.

7. The combination with a spindle having a firing-opening for the reception of the primer, of an ejector, and a slide provided with an oblique slot and a loose pin mounted in the slot and adapted to engage the ejector, substantially as described.

8. The combination with a spindle having a firing-opening for the reception of the primer, of a slide having an oblique slot, and a loose pin mounted in said slot and adapted to engage and operate the ejector, substantially as described.

9. The combination with a spindle having a firing-opening for the reception of the primer, of an ejector having a projection, a slide having a recess embracing the projection and having an oblique slot, and a loose pin mounted in the slot and adapted to engage said projection to operate the ejector, substantially as described.

10. The combination with a spindle having a firing-opening for the reception of the primer, of a slide, an insulated plate mounted on the slide and adapted to engage the primer-wire, and a leaf also mounted on the slide adapted to embrace the primer-wire, substantially as described.

11. The combination with a spindle having a firing-opening for the reception of a primer, of a housing mounted on the spindle, a slide movably mounted in the housing, said slide being provided with an oblique slot, a loose pin mounted in the slot, an ejector operated by said pin, and a handle whereby the slide may be manually moved and the ejector operated to eject the primer, substantially as described.

12. The combination with a spindle having a firing-opening for the reception of the primer, of a housing mounted on the spindle, an ejector mounted in the housing and having a projection, a slide mounted in the housing having a recess embracing the projection and an oblique slot, and a loose pin mounted in the slot and adapted to engage the projection, substantially as described.

13. The combination with a spindle having a firing-opening for the reception of the primer, of a housing mounted on the spindle, an ejector mounted in the housing and having a projection, a slide mounted in the housing and having a recess embracing the projection and also having an oblique slot, and a loose pin mounted in said slot and adapted to engage said projection, substantially as described.

14. The combination with a spindle having a firing-opening for the reception of the primer, of a housing, a slide mounted in said housing, an insulated plate mounted on said slide, a hinged leaf also mounted on said slide, and means for moving the slide into and out of operative position, substantially as described.

15. The combination with a breech-block having a projection, of a spindle mounted within the breech-block, a housing mounted on the spindle, and a slide mounted in the housing having a groove and adapted to be operated by the projection on the breech-block engaging said groove, substantially as described.

16. The combination with a spindle having a firing-opening for the reception of the primer, of a housing mounted on the spindle, means for retaining the primer in position, an ejector mounted in the housing and provided with a lug for operating said retaining means, a slide mounted in the housing, and means for operating the ejector and thereby operating the retaining means and ejecting the primer, substantially as described.

17. The combination with a spindle having a firing-opening for the reception of the primer, of an ejector, a slide having an oblique slot, and a loose pin mounted in said slot, whereby the ejector is positively operated when the slide is moved in one direction and the ejector and pin resume their normal positions after the primer is ejected, substantially as described.

18. The combination with a housing having a recess and inclined slot, of an ejector having integral studs adapted to be slipped into the slot and retain the ejector in the recess, substantially as described.

19. The combination with a gun having a firing-opening for the reception of a primer, of an ejector, and a locking primer-retainer adapted to engage the outer rear end of the primer, substantially as described.

20. The combination with a gun having a firing-opening for the reception of a primer, of an automatic primer-ejector, and a locking primer-retainer adapted to engage the outer rear end of the primer and mounted independently of the ejector, substantially as described.

21. The combination with a gun having a firing-opening for the reception of a primer, of an automatic primer-ejector, a locking primer-retainer adapted to engage the outer rear end of the primer and mounted independently of the ejector, and means connected with the ejector for operating the retainer, substantially as described.

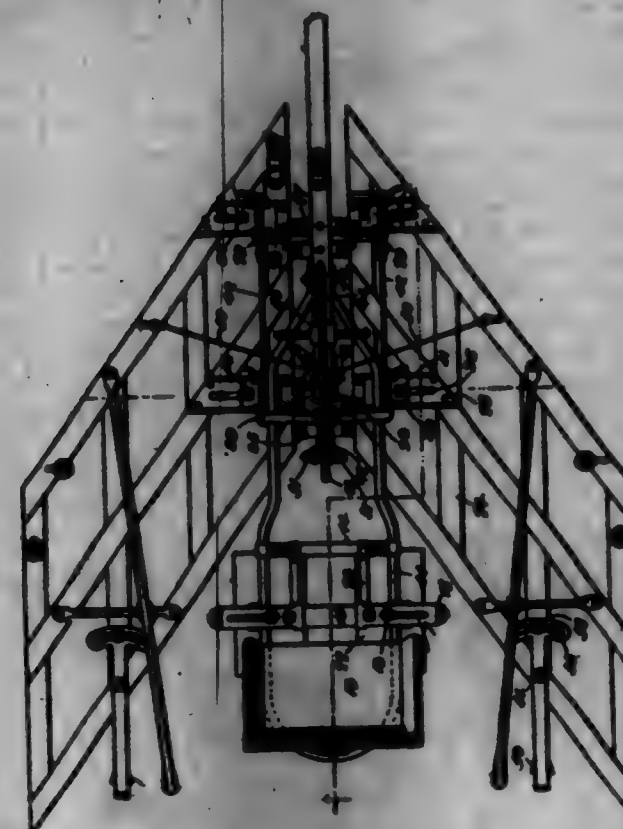
699,257. COMBINED HARROW AND ROLLER. JAMES SMITH, Madison, Ind. Filed Jan. 24, 1908. Serial No. 64,994. (No model.)

Claim.—1. The combination of a tongue, a seat-supporting bar connected thereto and extending rearward therefrom, standard-framed connected to said seat-supporting bar, rollers having their bearings in said standards and frames adapted for the attachment of suitable implements for operating in the soil, said frames being connected to and disposed on opposite sides of the tongue, substantially as described.

2. The combination of a tongue, rollers connected to the rear end thereof, a pair of frames pivotally connected to and laterally adjustable toward and from the tongue, whereby said frames may be set at any required distance apart, said frames being provided with suitable implements for operating in the soil, an elevating-rod connected to the tongue and elevating-rod attached to said frames and detachably connected to said elevating-rod, whereby said frames may be raised or lowered independently of each other or simultaneously, substantially as described.

3. The combination of a tongue, a seat-supporting frame extending from the rear and thence, laterally adjustable standard-framed connected to said seat-supporting frame, rollers mounted in said standard-framed and frames attached to and disposed on opposite sides of said tongue in advance of said rollers, said frames being adapted for the attachment thereto of suitable implements for operating in the soil, substantially as described.

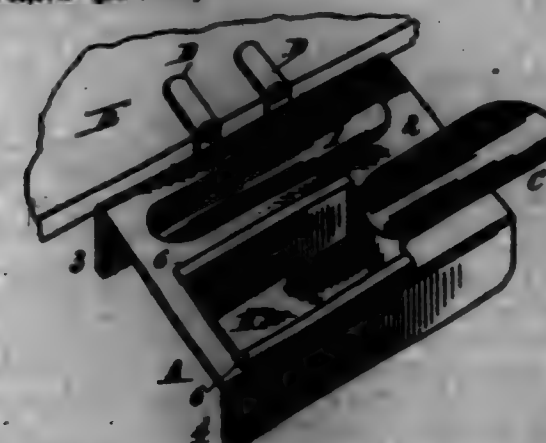
4. The combination of a pair of frames of the character described, yokes connecting the same together, a tongue pivotally attached to the front yoke and adjustably secured to the rear yoke, whereby said tongue may be disposed at any desired inclination, a frame pivotally connected to and extending in rear of said tongue, and supporting rollers for said frame, substantially as described.



699,258. PACKING COMPOUND FOR IRON. JOHN M. STOKER, San Antonio, Tex. Filed Feb. 24, 1908. Serial No. 64,178. (No model.)

Claim.—A dry packing compound comprising dry alkali dust, E.P.S.M., wood-ashes, sulfur, borax, saltpeter, salicylic acid, substantially in the proportions named.

699,259. CHAIR-TRAY. HARRY A. TRIMBLE, Chicago, Ill., as assignor to Charles G. Page, Chicago, Ill. Filed July 17, 1901. Serial No. 63,677. (No model.)



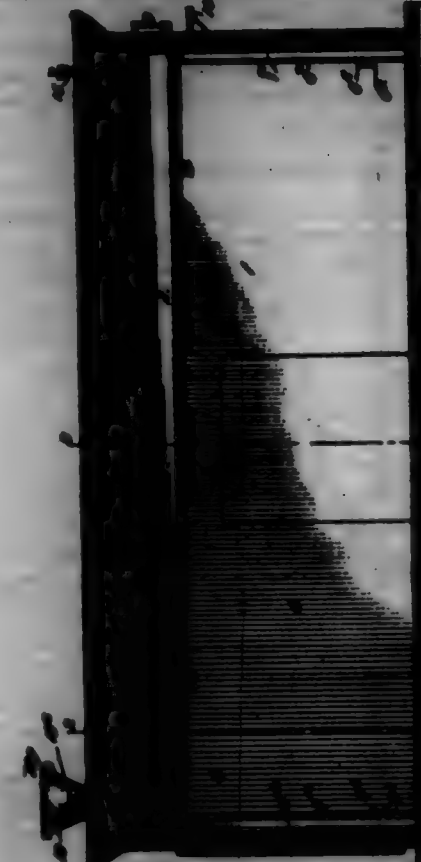
Claim.—1. A chair-tray constructed with a body portion having an opening 3, an ash-pan removably supported within the opening with its top substantially flush with the top of the body portion, and a trough-shaped sign-rest projecting from one end of the ash-pan, said rest being supported upon and extending beyond the body portion so as to form a handle.

2. A chair-tray constructed with a body portion having an opening 3, a depression 4, and an ash-pan removably supported within the opening with its top substantially flush with the top side of the body portion, and having a trough-shaped projection which seats in the depression in the body portion and is adapted to form a combined handle and sign-rest.

3. A chair-tray comprising a body portion formed with a top 2, sides 3 and 4, an opening 5, and a depression 6 in said top; and an ash-pan B removably supported in said opening and having flanges 8 which rest upon the top, and a trough-shaped sign-rest C which fits in said depression and is adapted to serve as a handle for the ash-pan.

4. A chair-tray comprising a body portion formed with a top 2, sides 3 and 4, and attaching-flaps D, and provided with an opening 5 and a depression 6 in the top, an ash-pan B removably supported in said opening, and a trough-shaped sign-rest C projecting from the ash-pan and fitting in the depression in the top 2 and projecting beyond the edge of the same to form a handle for the ash-pan.

699,260. REFRIGERATOR-CAR. JAMES R. UNDERWOOD, Fayetteville, N. C. Filed May 14, 1901. Serial No. 60,948. (No model.)



Claim.—1. In a refrigerating-car having a chill-compartment surrounded by metal walls, a second set of metal walls surrounding the first set of walls, said second set of walls forming the outer walls of the car, a means for disseminating a cooling agent over the outer surface of the said second metal walls, and a supply-tank carried on the car and forming a cooperative part of said disseminating means, as specified.

2. A refrigerating-car, having a chill-compartment, whose side, end and top walls are of metal, means for disseminating a cooling agent over the outer surface of said walls, said means including a cooling-agent reservoir, a second chill-compartment disposed above the other compartment and in communication therewith, mechanism for ventilating and cooling the chilled compartments, and second chill-compartment having doorways for the purpose set forth.

3. The combination in a refrigerating-car provided with metallic top and sides, having means for disseminating a cooling agent over the outer surface; of a lower chill-compartment, and an upper chill-compartment, communicating with the other compartment, said upper compartment having an end opening and air-inlets, a closure member slidable over said opening, and adapted to clamp off the opening air-tight, and having air-openings, adapted when said closure member is adjusted in one direction to register with the air-openings in the end of the upper chill-compartment or ventilating the interior of the car, as specified.

4. The combination in a metallic-sided refrigerating-car, having a means for disseminating a cooling agent over the outer surface of the metallic body; of a lower chill-compartment surrounded by supplemental side and end walls, inside the regular sides and ends, whereby intervening spaces 5 5' are provided, outlets for discharging the condensations collected in said spaces 5 5', a second chilled compartment above the other, a horizontal metal surface separating the two compartments, the sides and ends of which extend over and discharge into the spaces 5 5', said chilled compartments having doorways for the purpose specified.

5. A metal-body refrigerating-car, having a valley extending lengthwise in the top thereof, an absorbent material covering the outer surface of the metal body and the valley-surface, and a reservoir held in the valley, said reservoir having outlets for feeding the contents into the valley beneath it, for the purpose specified.

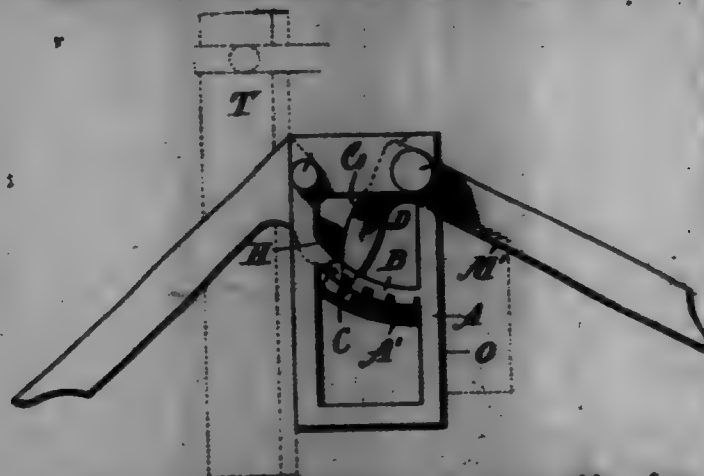
6. In a refrigerating-car, provided with metallic top and sides, an absorbent covering for the sides and top thereof, said covering lying in contact with the said sides and top, and having the outer surface exposed to atmosphere, means carried in the car for feeding the absorbent covering, and a screen covering the outer face of the absorbent, as specified.

7. In a refrigerator-car, provided with metallic top and sides, an absorbent covering for the sides and top thereof, said covering lying in contact with the metal parts and having the outer face exposed to air, and spark-deflector devices held over the said outer face of the absorbent covering, for the purpose described.

8. A refrigerator-car, having a supplemental or second top, a felt covering resting on said second top, and an ice-chamber or cooling-space, disposed between the main freight or carrying compartment, and the felt-covered top.

9. The combination in a car of the character described, with the side and end walls; of the supplemental side and end walls *C* *C'*, respectively, held apart from the regular side and end walls, whereby intervening spaces *B* *B'* are provided, the end walls *C* having apertures and deflector-chests on the inner sides overhanging the said apertures, all being arranged substantially as shown and described.

699,261. TRANSFERRING BEVEL AND TRY SQUARE. GUYE VALLEE, Watertown, N. Y., assignor of one-half to John H. Spangue, Watertown, N. Y. Filed Feb. 11, 1902. Serial No. 92,581. (No model.)



Claim.—1. A transferring bevel and try square, comprising a frame having an arc with ends thereof, an indicating pointer or tongue pivotally mounted on said frame and having a shank portion designed to form various angles with the edge of the frame, a pivotal arm carried by the frame and designed to be rotated by said tongue as it is moved over said ends, as set forth.

2. A transferring bevel and try square, comprising in combination with a frame, an arc with a scale formed thereon, an angled tongue pivotally mounted on said frame and having a shank portion designed to be held at various angles to the side of the frame, a pivotal arm, mounted on the frame and having a cam projection which is designed to contact with the curved edge of the end of the tongue, as the latter is passed over said ends, whereby an angle between said arm and the adjacent edge of the frame is held off, equal to the angle between said shank portion of the tongue, and the opposite edge of the frame from that carrying the pivotal arm, as set forth.

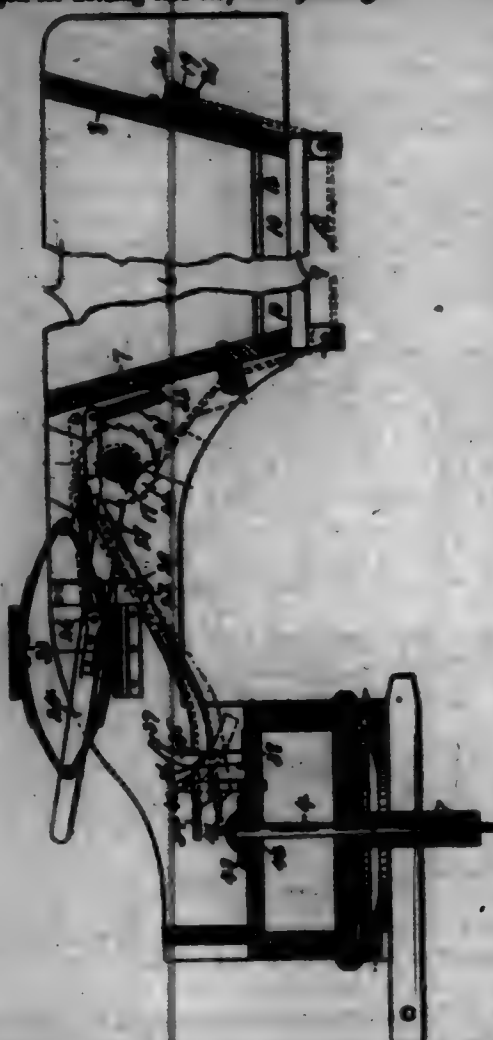
3. A transferring bevel and try square, comprising a frame made up of two plates, spaced apart, an arc with a scale formed thereon intermediate the longitudinal edges of the lower plate of the frame, an angled tongue pivotally mounted on the frame, one end of said tongue formed into a pointer which is adapted to be passed over said ends, a shank portion of said tongue extending laterally from the frame, a pivotal arm carried by the frame and having a cam projection against which the inner curved or cam outline of said tongue is adapted to bear whereby said arm is moved in unison with the shank of said tongue, as set forth.

4. A transferring bevel and try square, comprising a frame made up of two skeleton plates spaced apart, an arc with a scale thereon, a trapezoid on the upper plate spaced apart from said arc, an angled tongue pivotally mounted between said plates of the frame, and having one end formed into a pointer which is adapted to be passed over said ends, an arm pivoted between the plates, and having a cam projection which is adapted to be in contact with the outer cam-face of said tongue, whereby the arm will be moved automatically as said tongue is moved over the ends, as set forth.

5. In combination with the frame, made up of two skeleton plates spaced apart, a pivotal arm mounted between the plates and adapted to rest in a space intermediate the plates and in a position with its outer longitudinal edge parallel with the adjacent edge of the frame, an angled tongue with integral shank portion, pivoted between the plates, and designed to be held by a cam projection of said arm, at right angles to the longitudinal edge of the frame, as set forth.

699,262. BUMPING-WAGON. MATTHEW VAN WAGEN, Lynn, Mass., N. Y. Filed Aug. 3, 1901. Serial No. 71,377. (No model.)

Claim.—1. In a dump-wagon the combination with hinged bottom sections of a dump-box, a rotary drum and cable connected to elevate said sections to their closed position, means for rotating the drum, a yielding stop for holding the drum in its adjusted position and a locking member pivotally mounted on the shaft and arranged to engage a fixed member on the wagon for holding said stop from yielding.



2. The combination with the hinged bottom sections of a dump-box adapted to drop by gravity, a rotary drum connected to close said sections, means for rotating the drum, a stop pawl or lever for holding the drum in its adjusted position, said stop-pawl being movable for simultaneously releasing the drum and disconnecting its rotating means therefrom, for the purpose described.

3. The combination with a dump-wagon having movable bottom sections, a drum, a cable connected to the drum and to said movable sections, a ratchet-wheel secured to the drum, an operating member or lever loosely mounted on the drum and provided with a pawl adapted to engage the teeth of the ratchet for rotating the drum in one direction, a stop-pawl for engaging the ratchet-teeth and operable manually to release the former pawl from engagement with the ratchet, and means for locking the stop-pawl in engagement with said teeth for preventing the revolving of the drum.

4. The combination with a dump-wagon having movable bottom sections hinged to its side walls, a rotary drum at one end of the movable sections, a racking member at the other end, cables or chains connected to said drum and to said racking member at opposite sides of its pivot, the intermediate portion of said cable being connected to the bottom sections and means for rotating the drum.

5. In a dump-wagon, the combination with a box having hinged bottom sections, a racking member pivoted to the rear wall of the box above the bottom sections, a drum secured to the box at the other end of the bottom sections, a cable or cables having their opposite ends connected to the racking member and to said drum and their intermediate portions connected to the movable sections, means for rotating the drum to wind the cable thereon, additional means for preventing the return movement of the drum and a locking member for holding the latter means in its operative position.

6. In a dump-wagon, a dump-box having its bottom wall formed of sections having upright side portions hinged to the side walls of the box, the upper edges of said upright portions of the sections being provided for preventing the accumulation of dirt or other substance thereon and discharging the dirt therefrom onto the horizontal portions of the sections.

7. A dump-wagon having hinged bottom walls, a rotary drum having cable connected thereto and to the bottom walls for the purpose described and a racking member mounted on the frame of the wagon and

connected to said cable at opposite sides of its axis for the purpose set forth.

8. In a dump-wagon the combination of a front axle and frame, the axle having an opening and the frame having a platform provided with an elongated opening, a king-bolt inserted through the elongated opening in the platform and having its lower end fitting closely in the opening in the axle and a fifth-wheel comprising upper and lower sections surrounding the king-bolt the lower section of the front and rear wheel carriages rolling downwardly at their opposite ends for the purpose set forth.

9. In a dump-wagon, the combination with a dump-box having movable bottom sections hinged to its side walls, a compensating member secured to the box at the rear end of the bottom walls, a drum revolutely mounted on the box at the front end of the bottom sections, a cable or chain connected to the compensating member and drum and also to the bottom sections, a ratchet-wheel secured to the drum, an operating member having a pawl movable into and out of engagement with the teeth of the ratchet for rotating the drum and releasing the same, a stop-lever pivotally supported at its intermediate portion and having its rear end adapted to engage the teeth of the ratchet beneath the pawl, a spring for yieldingly holding the stop-lever in engagement with the ratchet-teeth, a locking member for positively locking said lever in engagement with the ratchet-teeth, said locking member being movable for releasing the lever and the lever being arranged to move out of engagement with the teeth and to simultaneously force the pawl out of the path of said teeth, and means for holding the lever in its inoperative position.

699,268. BIRDHOUSE-FRAME. FREDERICK G. VALLER, Port Clinton, Ohio. Filed May 10, 1902. Renewed Sept. 12, 1901. Serial No. 75,322. (No model.)

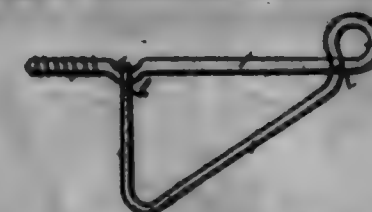


Claim.—1. In a work-holding frame, the combination with a bent rod threaded at both ends and having an enlargement on one end; of a hollow cylinder including the latter end of said rod, and having an axial opening provided with screw-threads engaging the screw-threads upon the said end of said rod and having external screw-threads; a clamping-screw mounted upon the said rod for locking the same in said cylinder; a second bent rod screw-threaded at both ends, having an enlargement thereon also fitting within said cylinder; a perforated cap provided with internal screw-threads engaging external screw-threads upon said cylinder including said second rod and retaining the enlargement thereon within said cylinder; a coil-spring interposed between the ends of said rods within said cylinder; a lock-out on the said second rod for clamping the same with respect to said cylinder; a T-shaped tubular connection mounted upon the other end of said second rod and adjustable about the axis thereof and branching arms connected to and extending from said T-shaped connection, and a frame carried thereby; and a clamp mounted upon the other end of the said first-mentioned rod for attachment to a table or other fixed object, substantially as described.

2. In an adjustable work-holding frame, the combination with a pair of bent rods; of a cylinder having a screw-threaded opening at one end and engaged by the end of one of said rods and adjustable thereon and having external screw-threads; a clamping-pawl mounted upon said rod for clamping said cylinder against rotation with respect to said rod; a ball on the end of the other rod fitting within the opposite end of said cylinder; cone bearings for the said ball; a retaining-cap provided with a perforation and having internal screw-threads engaging external screw-threads upon the end of said cylinder, retaining the said ball within the cylinder, the said second rod having screw-threads thereon; and a clamping-out for retaining the same against rotation with respect to said cylinder, substantially as described.

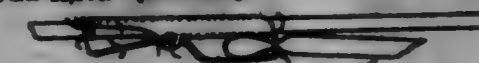
3. In a work-holding frame, the combination with a bent rod having a base near its end and having a screw-threaded portion in the region of its supporting end; of a tubular T-shaped connection fitting over the end of said rod; a spring surrounding the said rod within said tubular connection; branching supports extending from the opposite arms of said T-shaped connection supporting a work-holding frame and a clamping-pawl engaging the end of said rod, the said T-shaped connection being adjustable about the axis of the said rod, substantially as described.

699,264. WINDOW-SHADE HANGER. JAMES C. WALLACE, Colorado City, Colo. Filed Oct. 22, 1900. Serial No. 24,672. (No model.)



Claim.—A window-shade hanger made from a single piece of wire, said wire being bent to form a horizontal shank having a screw-threaded end, a curved end intermediate of its length, an eye whose forward side extends upward from the shank and thence downward below and to one side of the same, a downwardly-inclined brace-arm continuous with said downward extension, and another arm bent at a sharp angle to said brace-arm and provided with an eye to rest in the curved end of the shank, substantially as described.

699,265. GARMENT-SUPPORTER. CHARLES WARREN, Chicago, Ill., assignor to David R. Turner, Chicago, Ill. Filed Dec. 21, 1902. Serial No. 41,508. (No model.)



Claim.—1. In a garment-supporter, the combination of a cord or strap; a member secured to said strap to form a shoulder on same; a sleeve slidably mounted on said strap and having on one side a jaw; a shank pivoted to said sleeve, having thereon a jaw adapted to coast with the jaw on the sleeve; said strap being extended above and below the sleeve and shank, and both jaws being located on the same side of the strap, and a wedge-shaped projection on said shank adapted to engage said member and force said jaws toward each other.

2. In a garment-supporter, the combination of a cord or strap; a member secured to said strap to form a shoulder on same; a sleeve slidably mounted on said strap and having on one side a jaw; a shank pivoted to said sleeve, having thereon a jaw adapted to coast with the jaw on the sleeve; said strap being extended above and below the sleeve and shank, and both jaws being located on the same side of the strap, said shank being adapted to engage the member on said strap and force said jaws toward each other.

3. In a garment-supporter, the combination of a cord or strap; a member secured to said strap to form a shoulder on same; a sleeve slidably mounted on said strap and having on one side a jaw; a shank pivoted to said sleeve, having thereon a jaw adapted to coast with the jaw on the sleeve; and a wedge-shaped projection on said shank adapted to engage said member and force said jaws toward each other, said wedge having a notch therein to engage said member and limit its movement relatively to said shank.

4. In a garment-supporter, the combination of a cord or strap; a member secured to said strap to form a shoulder on same; a sleeve slidably mounted on said strap and having on one side a jaw; a shank pivoted to said sleeve, having thereon a jaw adapted to coast with the jaw on the sleeve; said strap being extended above and below the sleeve and shank, and both jaws being located on the same side of the strap, a wedge-shaped projection on said shank adapted to engage said member and force said jaws toward each other; and means for limiting the movement of said sleeve along said strap.

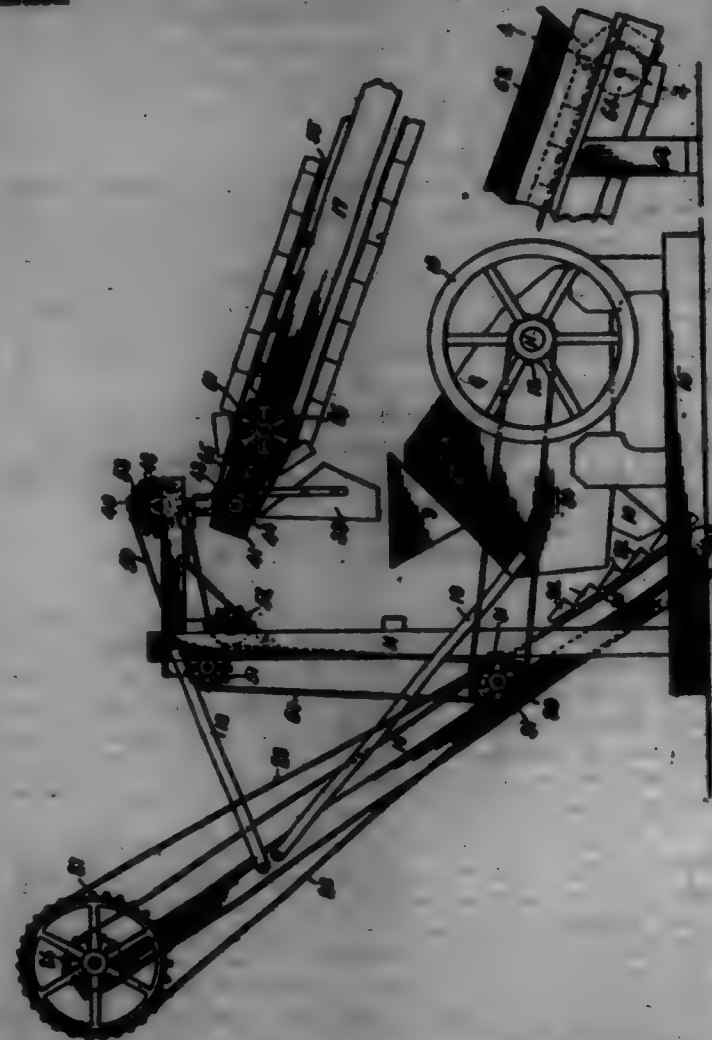
5. In a garment-supporter, the combination of a strap having thereon a slit extending longitudinally of same and having a shoulder at one end of said slit, a pair of lever-jaws and shanks pivotally connected and slidably supported on said strap, a wedge-shaped projection on one of said shanks seated in said slit and adapted to bear upon said shoulder and thereby force said jaws toward each other.

699,266. MACHINE FOR HANDLING COWS. DR. SAMUEL F. WELSH, Aurora, Ill., assignor to the Western Wheelbarrow Company, Aurora, Ill., a Corporation of Illinois. Filed Feb. 2, 1901. Serial No. 68,711. (No model.)

Claim.—1. The combination with supporting device, of a feed-conveyor, the discharge and thereof being pivotally suspended from said supporting device at a point beyond the conveyor proper in a manner to permit the receiving end of said conveyor to be adjusted vertically and laterally without affecting the discharge, and a funnel suspended from the conveyor-frame and adapted to receive the discharge from said conveyor, substantially as described.

2. The combination with supporting device, of a feed-conveyor, the discharge and thereof being pivotally suspended upon independent vertical and horizontal axes from said supporting device at a point beyond the conveyor proper, in a manner to permit the receiving end of said con-

voyor to be adjusted vertically and laterally without affecting the discharge end thereof, and a funnel suspended from the conveyor-frame and adapted to receive the discharge from said conveyor, substantially as described.



2. The combination with a feed-conveyor pivotally supported at its discharge end so as to be capable of swinging vertically and laterally, of a funnel pivotally suspended under said conveyor and adapted to receive the discharge therefrom, substantially as described.

4. The combination with a shaft 34, of a shaft 43 arranged at right angles with said shaft, beveled gears connecting said shafts, a conveyor-frame pivotally suspended from said shaft 34 and carrying said shaft 43 about which it pivots, and means for driving said conveyor from the shaft 43, substantially as described.

5. A conveyor-belt having at each side a series of overlapping side plates, and U-shaped plates connecting opposite side plates together and means connecting said U-shaped plates to the belt, substantially as described.

6. A conveyor-belt having at each side a series of side plates, and U-shaped plates connecting opposite side plates together and means connecting said U-shaped plates to the belt, substantially as described.

7. A conveyor-belt having at each side a series of overlapping side plates, and a pair of oppositely-arranged U-shaped plates connecting each pair of opposite side plates together and means connecting said U-shaped plates to the belt, substantially as described.

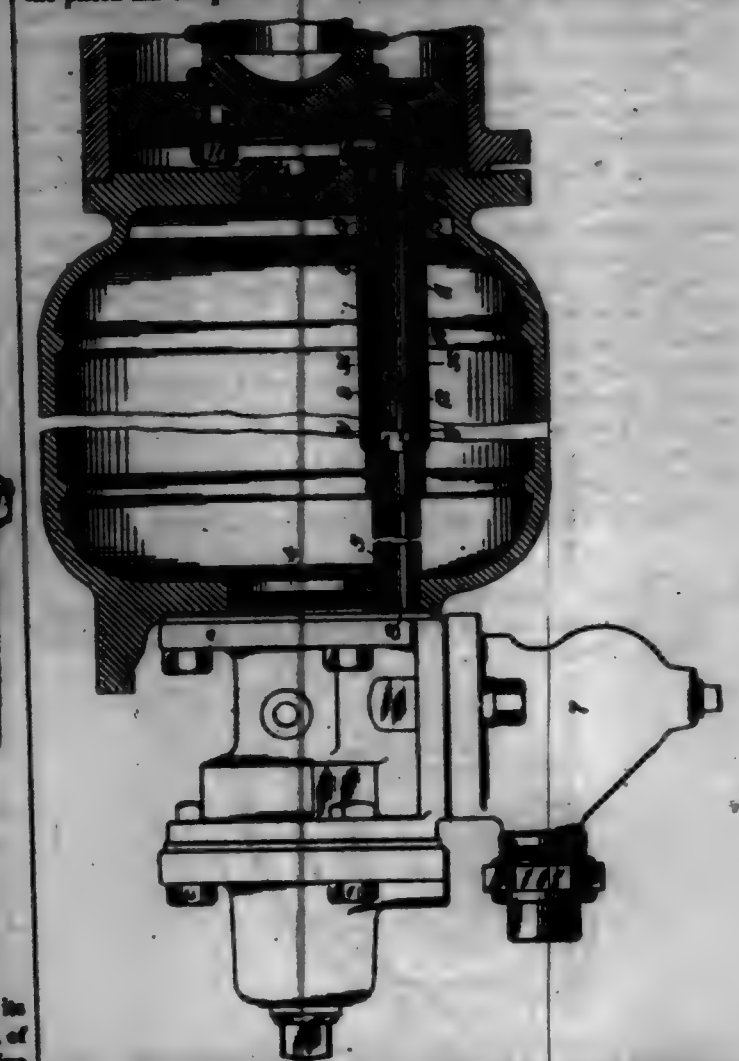
8. A conveyor-belt having at each side a series of side plates, a pair of U-shaped plates connecting each pair of opposite side plates together, and an intermediate bar between each pair of U-shaped plates and connected to the belt, substantially as described.

699,967. AUTOMATIC FLUID-PRESSURE BRAKE APPARATUS. GEORGE W. HENNINGSEN, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Feb. 25, 1897. Serial No. 583,094. (No model.)

Claim.—1. In an automatic fluid-pressure brake apparatus, the combination, with a series of brake-cylinders, of means for regulating or limiting the flow of fluid from an emergency-valve device to the brake-cylinders in emergency applications, whereby the application of the higher degree of pressure to the brake-cylinder pistons may be effected substantially simultaneously on all of the cars of a train, substantially as set forth.

2. In an automatic fluid-pressure brake apparatus, the combination, with a brake-cylinder, of means for automatically limiting discharge of fluid from the train-pipe by retarding its flow into the brake-cylinder.

3. In an automatic fluid-pressure brake apparatus, the combination, with a brake-cylinder, and means for permitting a greater flow of fluid thereto in emergency applications than in service applications, of means for restricting the flow from the train-pipe and auxiliary reservoir in emergency applications after the application has commenced, or before the piston has completed its stroke, substantially as set forth.



4. In an automatic fluid-pressure brake apparatus, the combination, with a brake-cylinder, of means for permitting a limited flow of fluid under pressure from the auxiliary reservoir to the brake-cylinder in service applications and a greater flow from the auxiliary reservoir and train-pipe in emergency applications, of means whereby the greater flow of fluid from the reservoir and train-pipe in emergency applications may be reduced before the piston in the brake-cylinder has completed its stroke, substantially as set forth.

5. In an automatic fluid-pressure brake apparatus, the combination, with a brake-cylinder, of means for permitting a comparatively limited flow of fluid to the brake-cylinder in service applications, and a greater flow in emergency applications, and means operated by the flow of fluid from the auxiliary reservoir and train-pipe to the brake-cylinder for reducing the flow thereto, substantially as set forth.

6. In an automatic fluid-pressure brake apparatus, the combination, with a brake-cylinder, and a triple-valve device, of a passage from the triple-valve device to the brake-cylinder through which fluid may pass when released from the auxiliary reservoir and train-pipe, and means whereby the capacity of the passage may be restricted in emergency applications, substantially as set forth.

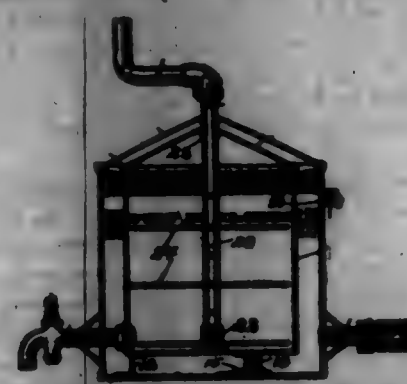
699,968. GLASS-TANK. CARL R. WILSON, Chicago, Ill. Filed July 21, 1899. Serial No. 54,570. (No model.)

Claim.—1. In a glass-tank, the combination with the closed water-jacket, of the closed tank supported therein so that it is surrounded throughout by the contents of the jacket, and a funnel passing through the water-jacket into said tank, substantially as and for the purpose described.

2. In a glass-tank, the combination with the closed water-jacket, of the closed tank supported therein so that it is surrounded throughout by the contents of the jacket, a rotating stirrer in said tank having a handle projecting outside of the water-jacket, and a funnel passing through the water-jacket into said tank, substantially as and for the purpose described.

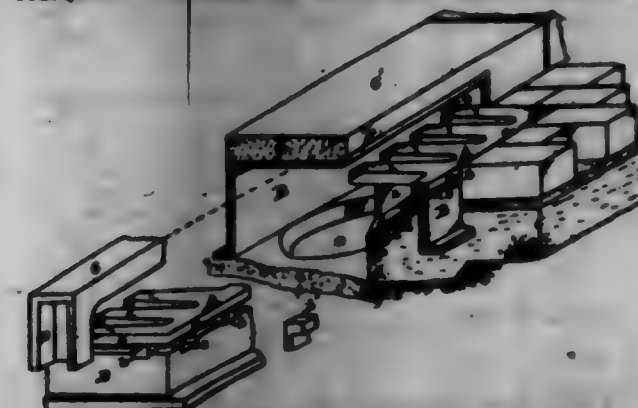
3. In a glass-tank, the combination with the water-jacket, of the tank supported therein and surrounded on all sides thereby, removable covers for said tank and jacket, and a funnel passing through the water-jacket into said tank, substantially as and for the purpose described.

4. In a glass-tank, the combination with the water-jacket, of the tank supported therein so as to be entirely surrounded by the fluid in said jacket, a rotating stirrer mounted in the said tank, removable covers for said tank and jacket through which said stirrer passes, and a funnel passing through the water-jacket into said tank, substantially as and for the purpose described.



5. In a glass-tank, the combination with the water-jacket, of the tank supported therein so as to be entirely surrounded by the fluid in said jacket, removable covers for said jacket and tank having a centrally-located aperture therein, the stirrer rotatably mounted in said tank and consisting of a shaft having its upper end projecting through said aperture and blades carried thereby within the tank throughout its length, and a removable handle, substantially as and for the purpose described.

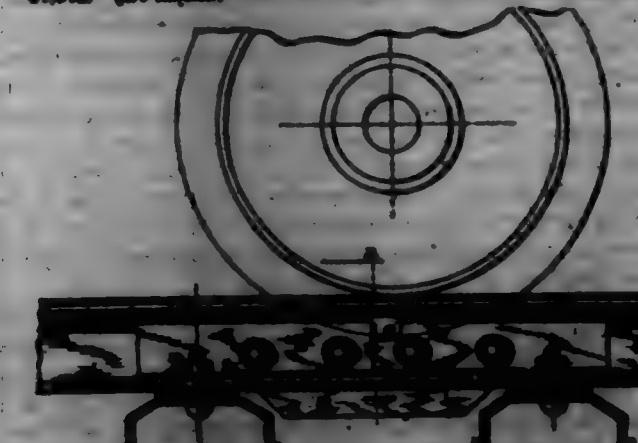
699,969. IRONY AND CATON-BASE. HOLLAND WHEELER, LAWRENCE, Kans. Filed Mar. 20, 1901. Serial No. 55,090. (No model.)



Claim.—1. The combination with a curb having an opening in its front and an opening in its bottom, of an open-ended grate having its base projecting into the front opening, partitions supporting said base and arranged to form between them channels having sloping bottoms, substantially as and for the purpose described.

2. In a catch-basin inlet, an open-ended grate having a supporting-frame, a base-box arranged to support the frame having in its upper edge notches of different depths, and adjusting-blocks adapted for insertion in the said notches, substantially as and for the purpose described.

699,970. RAIL FOR HITCHING JOINTS ON RAILWAYS. OTTO WELLMER, Dusseldorf, Germany. Filed Dec. 31, 1901. Serial No. 57,572. (No model.)

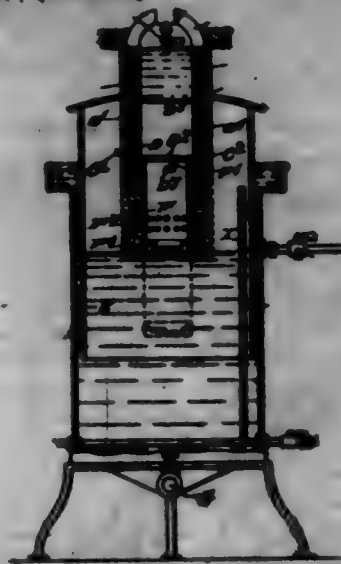


Claim.—1. A rail-joint for double rail-way-tracks, thereby characterized that a space is cut out under that end of each rail which is first traversed by the wheels of the carriages, the cutting out of the said space producing a somewhat elastic springy tongue which by yielding slightly when the wheels pass over the junction of two rails, maintains the job.

2. A railroad-rail provided with a web notched at the end, and with

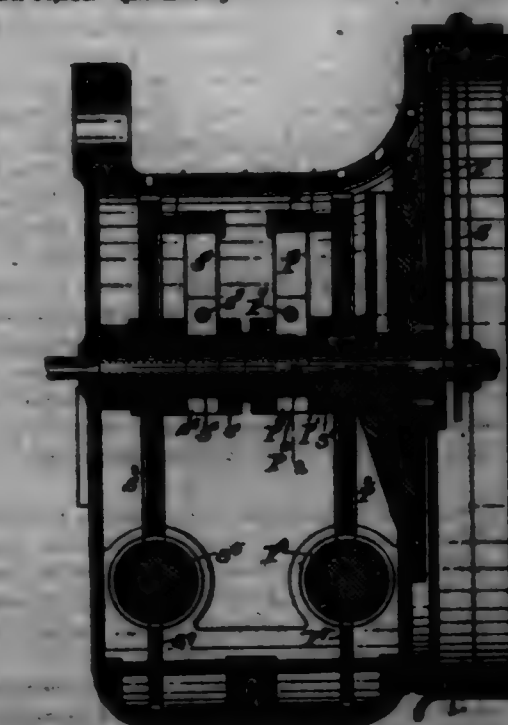
a resilient head that forms a projecting tongue above the notch, substantially as specified.

699,971. ACETYLENE-GAS GENERATOR. ALEXANDER D. WILLIAMS, Columbus, Ireland. Original application filed May 28, 1899. Serial No. 717,899. Divided and this application filed Nov. 6, 1902. Serial No. 58,074. (No model.)



Claim.—1. In an acetylene-gas generator provided with a water-tank the combination of a gas-holder disposed in said tank and being provided at its top with a charging-opening the walls of which are lined by open-ended concentric cylinders closed at their bottom and forming a water seal, of a charging device comprising concentric cylinders closed at their top the inner of said concentric cylinders being divided by partitions into a water-chamber and an air-chamber and being adapted to be inserted in the charging-opening of the holder and the outer one of said cylinders being adapted to be inserted in the water seal, a connecting-pipe at the top of the charging-cylinders and affording communication to the space within the walls thereof, a valved extension to said pipe adapted to enter the water-chamber of the inner charging-cylinder and a perforated curd-holding vessel attached to the bottom portion of said cylinder, substantially as described.

699,972. REVOLUTION-INDICATOR. BRUCE T. WILLIAMS, Somerville, Mass., assignor to Hancock Inspector Company, Boston, Mass., a Corporation of Massachusetts. Filed Dec. 20, 1901. Serial No. 57,512. (No model.)



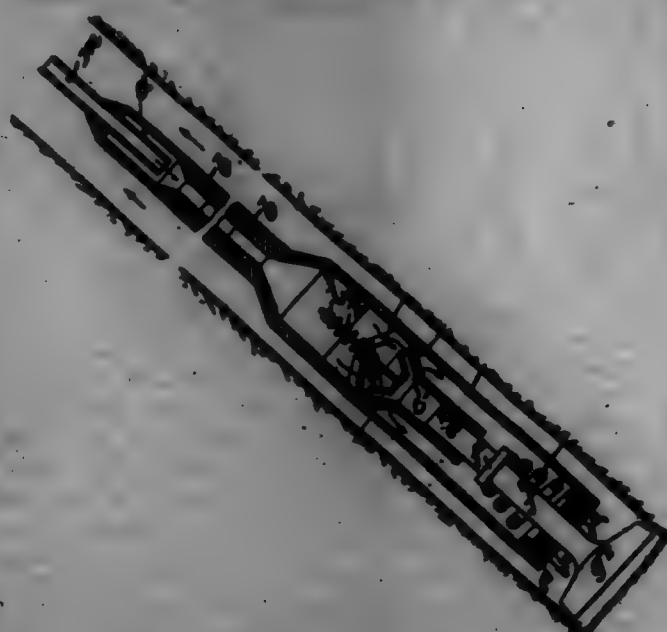
Claim.—1. In a revolution-counter, the combination of a dial, a plurality of independently-driven pointers, one at least of the pointers being driven by a train of mechanism which includes a gear-wheel, a pointer-shaft, friction-clutch clamped upon the said shaft on a friction-clamp and provided with radially-extending resilient arms, and a pin secured to the gear-wheel engaged by said arms.

2. In a revolution-counter, the combination of a dial, a plurality of independently-driven pointers, one at least of the pointers being driven

by a train of mechanism which includes a gear-wheel, a pointer-shaft, friction-claws clamped upon the said shaft and provided with radially-extending resilient arms, and a pin secured to the gear-wheel engaged by said arms.

3. In a revolution-counter, the combination of a dial, a pair of pointers, one secured to an inner shaft, the other to a servo-shaft journaled on the inner shaft, a sleeve, fixed to the inner shaft and having circumferential dimensions equal to those of the servo-shaft, interchangeable worm-wheels, and interchangeable friction-driven mounted respectively on the servo-shaft and fixed sleeve, and driving-gears for the said worm-wheel, substantially as described.

699,978. DIRT-BORING APPARATUS. WILIAM WOLKE, Budapest, Austria-Hungary. Filed Sept. 10, 1904. Serial No. 20,496. (No model.)



Claim.—1. In a water-actuated boring apparatus, a cylinder, a reciprocable tool, a by-pass, means for sending water to said cylinder and by-pass, a valve controlling the by-pass automatically closed by the force of the moving water, whereby the inertia of the column of water is imparted to the tool, substantially as described.

2. In a boring apparatus, a cylinder, a reciprocable tool, a by-pass, hollow bore-rods to send water to said cylinder and by-pass, a valve controlling the by-pass automatically closed by the force of the moving water to cause the inertia of the moving column of water to drive the tool and a suitably-located air-chamber to prevent the force of impact of the water from being transmitted to the bore-rods, substantially as described.

3. In a water-actuated boring apparatus, a cylinder, a reciprocable tool, a by-pass, hollow bore-rods to send water to said cylinder and by-pass, a valve controlling the by-pass, automatically closed by the moving water to cause said water to act by inertia on the tool, means for determining the length of time that the water effectively acts on the tool and means for determining the number of blows per unit of time, substantially as described.

4. In a water-actuated boring apparatus, a cylinder, a spring-actuated reciprocable tool, a by-pass, hollow bore-rods to send water to said cylinder and by-pass, a valve controlling the by-pass automatically closed by the force of the moving water to cause the inertia of the moving column of water to drive the tool and an air-chamber located above the cylinder on the end of the bore-rod to prevent the force of impact of the water from being transmitted to the bore-rods, substantially as described.

5. In a water-actuated boring apparatus, a cylinder, a reciprocable tool, a by-pass, a hollow bore-rod to send water to said cylinder and by-pass, a valve controlling the by-pass automatically closed by the force of the moving water to cause the inertia of the moving column of water to drive the tool, an air-chamber and a weighted element forming part of the bore-rod, substantially as described.

6. In a water-actuated boring apparatus, a cylinder, a reciprocable tool, a by-pass, a valve controlling the by-pass, a hollow bore-rod, and an air-chamber and a heavy hollow element between the end of the bore-rod and cylinder to prevent shock being transmitted to the bore-rod and to determine the number of impacts per unit of time, substantially as described.

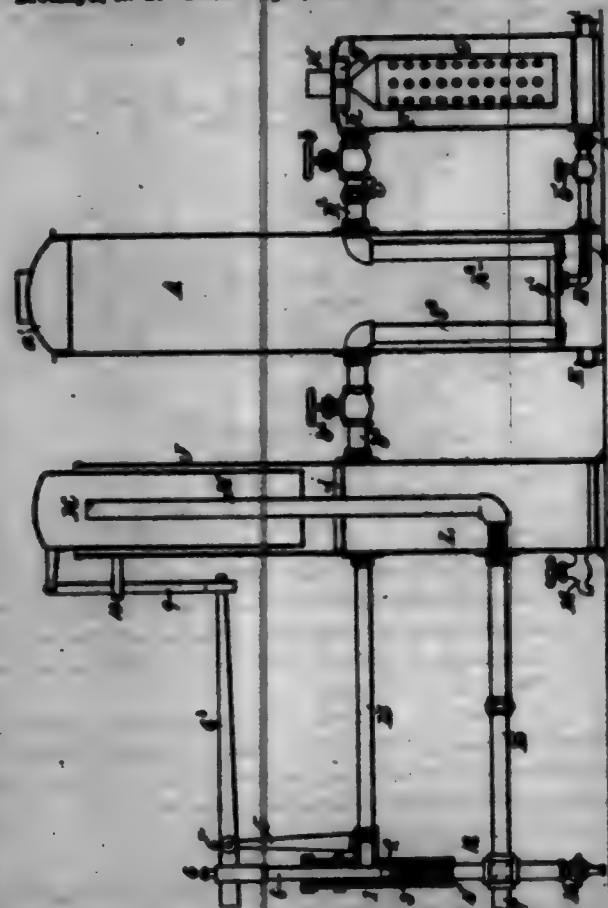
7. In a water-actuated boring apparatus, a reciprocable spring-actuated tool, a casing, a cylinder having an upper conical end covered to the casing and provided with by-pass ports, a yieldingly-held valve controlling the by-pass ports and having a central passage over the cylinder

leading to the tool, and means for preventing the translation of shock to the end, substantially as described.

8. In a water-actuated boring apparatus, a hollow bore-rod, an air-chamber, the end of the bore-rod projecting into one end of said chamber to form an air-trap, a casing, an element connecting one end of the casing and air-chamber that determines the direction of the shock imparted by the water, a cylinder in said casing having a flaring end, by-pass ports in said flaring end, a spring-actuated piston in said cylinder, a tool carried by the piston and a ring-valve controlling the by-pass ports automatically closed by the moving water to direct the inertia of the moving column through the valve against the piston, substantially as described.

9. In a water-actuated boring apparatus, a hollow bore-rod, an air-chamber, the end of the bore-rod projecting into the upper end of said chamber to form an air-trap, an open-ended cylinder, an enlarged conical end to said cylinder, by-pass ports in said conical portion, a casing surrounding the cylinder, a plug in the end of the casing provided with openings to admit water to the side of the bore-rod, a piston in said cylinder, a tool secured to said piston, a collar, a spring between the collar and plug and a spring-actuated ring-valve controlling the by-pass ports automatically operated by the water to direct the inertia of the moving column against the piston to drive the tool, substantially as described.

699,974. ACETYLENE-GAS GENERATOR. JAMES A. WOOD, JR., Brooklyn, N. Y. Filed July 8, 1901. Serial No. 67,312. (No model.)



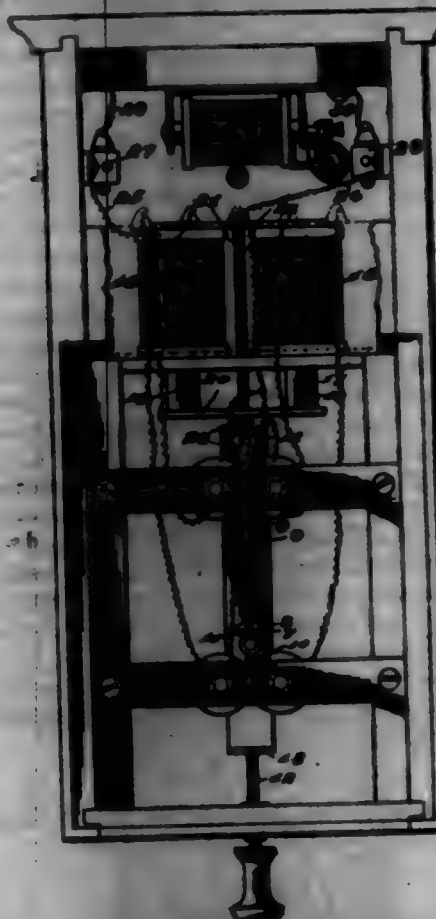
Claim.—1. In an acetylene-gas-generating apparatus, the combination with a water-tank A, having a gas expansion and condensation chamber B at the bottom, of a generating-chamber having a carbide-holder, a water-pipe, having a valve, connecting the base of the generator with the base of the water-tank, a gas-pipe connecting with the top of the generator and passing down through the water-tank to chamber B, a gas-outlet pipe leading from said chamber through the water-tank and connecting with a pipe having a controlling-valve, a regulator having a rising and falling gasometer, device connecting said controlling-valve with the regulator and a gas-inlet pipe to the regulator, substantially as and for the purpose described.

2. In an acetylene-gas-generating apparatus, the combination with the water-supply tank, of a generating-chamber having a carbide-holder, a valved water-pipe connecting said tank with the base of the generator, a gas-outlet pipe leading from the top of the generator, a gas and air mixture O having a controlling-valve, an expansion and condensation chamber between the generator and said gas and air mixture, a gas-supply pipe connecting said chamber with the mixer, a gas-regulator, a pipe leading from the mixer to said regulator and device connecting the regulator with said controlling-valve, substantially as and for the purpose set forth.

3. In an acetylene-gas-generating apparatus, the water-supply tank

and the gas-generator having a carbide-holder, and a valved water-pipe connecting said tank and the generator at the base, in combination with chamber B, an expansion and condensation chamber L, a gas-pipe connecting the generator with said chamber L, a gas and air mixer O having a controlling needle-valve G, a pipe 15 connecting chamber L with said mixer, a regulator having a rising and falling gasometer above said chamber L, opening device connecting the gasometer with said needle-valve, discharge-pipe 12 from the mixer, the house service-pipe H and the return gas-pipe 16 connecting with pipe 12, said pipe 16 passing up into the gasometer of the regulator whereby steam or water-vapor will be condensed before the gas enters the mixer and gas from the house service-pipe will quickly exit on the regulator to control the flow of gas, substantially as and for the purpose as set forth.

699,975. AUTOMATIC ANNUNCIATOR. JAMES A. WOOD, JR., Albany, N. Y., assignor to Western Electric & Manufacturing Company, a Corporation of Georgia. Filed June 10, 1901. Serial No. 68,919. (No model.)



Claim.—1. A solenoid for imparting a momentary movement to reset annunciators or other similar mechanism, comprising a hollow coil and two cores extending into the opposite ends thereof, one of the said cores being longer and heavier than the other, and so arranged that when an electrical impulse is passed through the coil the larger core will be given an impulse, the momentum obtained thereby causing the said larger core to momentarily go beyond the point to which the current alone would move it so as to actuate the shorter core, the said larger core then being returned to the point out of engagement with the short core where it is held by the current until it is interrupted, substantially as described.

2. A solenoid for imparting movement to a suitable mechanism, comprising a pair of hollow coils, comparatively long connected cores extending into said coils, the connection which joins said short coils being connected with the mechanism to be operated, and means for causing an electrical impulse through the coils, the structure being such that the long cores will be drawn inwardly in the coils so as to gain sufficient momentum to carry them still further so as to strike the short cores for actuating the mechanism connected therewith, after which the long cores will be separated from the other cores by gravity, and will fall back to the point where the current holds them, the said long cores then dropping to their lowest position when the current is interrupted, substantially as described.

3. A mechanism for actuating a resetting device for annunciators, comprising a solenoid made up of a hollow coil, a divided core adapted to reciprocate therein one portion of the said core being connected with a reciprocating rod, a resetting-spring adapted to control the position of the annunciator and connected with the said rod and means for passing an electrical impulse through the coil of the solenoid whereby one portion of the divided core will be given a momentum which will carry it against the other portion of the core after which it will return to the point where

the current holds it until the current is interrupted the reset mechanism being given a momentary actuation, substantially as described.

4. In a resetting mechanism for annunciators the combination with a reciprocating pointer-controlling slide of a rod for lifting the same, a solenoid made up of a pair of hollow coils, a pair of short cores connected with each other and with the lifting-rod, a pair of long cores connected with each other and extending well into the coils, and means for causing the coils whereby the long cores will be drawn inwardly, gaining sufficient momentum to overcome gravity momentarily and strike the short cores and lift the annunciator-slide, after which they will fall back out of engagement with the short cores in the point where the current holds them until said current is broken, substantially as described.

5. In a resetting mechanism for annunciators the combination with a reciprocating slide adapted to positively release the pointers of the said annunciator, of a lifting-rod for opening the said slide, a solenoid provided with hollow coils arranged on either side of the said rod, divided cores extending into the opposite ends of the said coils, one pair of cores being shorter than the other, a plate connecting the short cores and engaging the lifting-rod, a plate connecting the long cores and moving freely with respect to the said lifting-rod, and means for passing an electrical current through the coils whereby the long cores will be drawn inwardly so as to engage and lift the short cores and momentarily raise the lifting-rod, after which when the current is interrupted by releasing the push-button the said long cores will drop out of contact with the short cores because of the action of the force of gravity, substantially as described.

6. In combination with an annunciator, of a reset mechanism therefor comprising a solenoid having hollow coils, divided cores moving therein, one portion of each core being longer and heavier than the other portion thereof, a reset-slide adapted to return the pointers of the annunciator to their normal positions, connected with the short portions of the said divided cores, suitable wiring for leading part of the coil-bell current of the annunciator through the solenoid-coils, whereby upon the circuit being completed for a new call the energizing of the solenoid-coils will impart momentum to the long cores and force them momentarily against the short cores for actuating the reset-slide, the structure being such that if other calls come in while the coils are energized, they will be indicated, substantially as described.

699,976. FOOTMARKING AND STAMP-CAPING MACHINE. JAMES E. WHEAT, Omaha, Neb. Filed Mar. 21, 1901. Serial No. 62,181. (No model.)



Claim.—1. In a postal machine, the combination with printing mechanism and feed mechanism having a feed-disk and feed-feed device, of a separating device for individually feeding the letters through said disk, a drive-shaft, an eccentric upon said shaft, a reciprocating guide-bar, and a link connecting the eccentric and guide-bar and carrying said separating device, substantially as described.

2. In a postal machine, the combination with a frame, of a feed-chute and a face-plate cooperating therewith and forming a slot for the feed of letters to the machine, printing mechanism for canceling and post-marking the letters passing through said slot, a follower for forcing the letters against said face-plate, spring-actuated detents normally closing the slot, separating devices for individually feeding the letters through said slot to the printing mechanism against the tension of said spring-actuated detents, a drive-shaft, an eccentric upon said shaft, a reciprocating guide, and a link connecting the eccentric and guide and carrying said separating devices, substantially as described.

3. In a postal machine, the combination with a frame, of a feed-chute and a face-plate cooperating therewith and forming a slot for the feed of letters to the machine, detents pivoted to said plate and normally lying flush with the outer surface of the plate and closing or guarding said slot, springs acting on the detents, separating devices for individually feeding the letters through said slot against the tension of the spring-actuated detents, and means for moving the separating device in an irregular path to cause the same to move downwardly toward the face-plate to contact with the letters and feed them through said slot and then to move upwardly and away from said face-plate to release the letters, substantially as described.

4. In a postal machine, the combination with a frame, of a supporting-tray for the mail-matter, the same comprising a series of spaced parallel rods fixed at their inner ends to the frame, spaced substantially U-shaped side brackets also fixed at their inner ends to said frame, and a stay-plate connecting said brackets at their outer ends and serving as a support for the outer ends of the rods, substantially as described.

5. In a postal machine, the combination with a frame, of a feed-chute and a face-plate cooperating therewith and forming a slot for the feed of letters to the machine, printing mechanism for canceling and post-marking the letters passing through said slot, a follower for forcing the letters against said face-plate, spring-actuated detents normally closing the slot, separating devices for individually feeding the letters through said slot to the printing mechanism against the tension of said spring-actuated detents, a drive-shaft, an eccentric upon said shaft, a reciprocating guide, a link connecting the eccentric and guide and carrying said separating devices, a delivery-tray, a follower movable along said tray and cooperating with a stop or shoulder upon the frame to support the letters discharged from the printing mechanism, a thrust device for forcing said follower out along the delivery-tray and clamping the mail-matter, a cam upon the drive-shaft, and a bell-crank lever between the cam and thrust device for operating the latter, substantially as described.

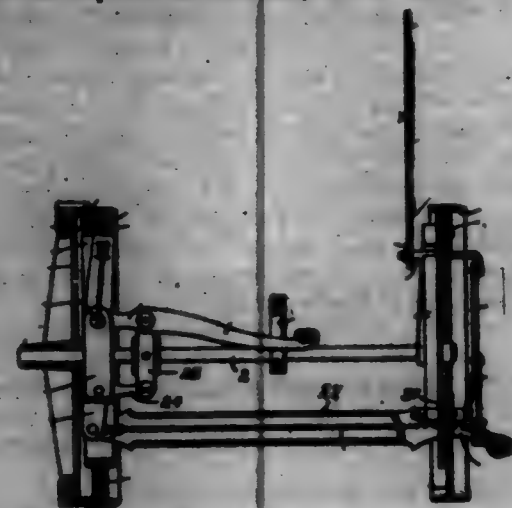
6. In a postal machine, the combination of a frame, a transverse block secured to the sides of the upper portion of the frame, a feed-tray, a face-plate located upon the front side of said transverse block and cooperating with the tray to form a feed-slot, spring-actuated detents carried by said plate and guarding said slot, a back-plate arranged in rear of said transverse block and forming therewith a guideway, a drive-shaft, an eccentric thereon, a reciprocating bar moving in said guideway, a link connecting said bar to the eccentric, and force-feed devices carried by said link to feed the letters through said slot, substantially as described.

7. In a postal machine, the combination of a frame, a base therefor, a primary drive-shaft journaled in the base, means for communicating motion to said shaft, feed and delivery chutes at the top and bottom of the frame, a face-plate cooperating with the feed-chute to form therewith a feed-slot, a screw-shaft mounted upon the feed-chute, a follower also mounted upon said shaft and operated by said shaft, an auxiliary drive-shaft journaled in the frame, connections between the same and the primary drive-shaft, a reciprocating guide-bar, an eccentric on the auxiliary shaft, a link connecting the guide-bar and eccentric, force-feed devices carried by the link for feeding the mail-matter through said slot, a counter-shaft journaled in the frame and driven from the auxiliary drive-shaft, printing, clamping and feeding rollers upon said auxiliary drive and counter shafts, a cam upon the auxiliary drive-shaft, gearing upon the counter-shaft for operating the screw-shaft, a follower upon the delivery-chute, a thrust device for moving the follower, and a bell-crank lever between the cam and thrust device, substantially as described.

699,977. HARVESTING-MACHINE. AUGUST T. BENTLEY, JR., Chicago, Ill., assignor of one-third to Milton L. Thackeray, Chicago, Ill. Filed Jan. 23, 1901. Serial No. 48,004. (No model.)

Claim.—1. In a harvesting-machine, the combination with a traction-wheel, of a shaft about which said traction-wheel is rotatably mounted, a framework also mounted upon said shaft, a second wheel rotatably mounted about said framework, two rows of knife-blades moving relatively in opposite directions, a wave-shaped cam mounted upon the interior periphery of said traction-wheel, means interposed between the said wave-shaped cam and the said two rows of knife-blades for causing an action thereon in opposite directions, said means passing transversely through

said framework, and lever mechanism for disengaging said means from the said wave-shaped cam, substantially as described.



2. In a harvesting-machine, the combination with a traction-wheel of a shaft about which said traction-wheel is rotatably mounted, a framework also mounted upon said shaft, a second wheel rotatably mounted about said framework, two rows of knife-blades moving relatively in opposite directions, a wave-shaped cam mounted upon the interior periphery of said traction-wheel, means interposed between the said wave-shaped cam and the said two rows of knife-blades for causing an action thereon in opposite directions, said means passing transversely through said framework, lever mechanism for disengaging said means from the said wave-shaped cam, a framework for supporting the said two rows of knife-blades, and means mounted upon said knife-supporting framework for adjusting the height thereof from the ground, substantially as described.

3. In a harvesting-machine, the combination with a traction-wheel, of a shaft about which said traction-wheel is rotatably mounted, a framework also mounted upon said shaft, a second wheel rotatably mounted about said framework, two rows of knife-blades moving relatively in opposite directions, a wave-shaped cam mounted upon the interior periphery of said traction-wheel, means interposed between the said wave-shaped cam and the said two rows of knife-blades for causing an action thereon in opposite directions, said means comprising levers and connecting-rods passing through said framework, lever mechanism for disengaging said means from the said wave-shaped cam, a framework for supporting said two rows of knife-blades, and means mounted upon said knife-supporting framework for adjusting the height thereof from the ground, substantially as described.

699,978. CONVEYER. ROLLAND A. SPOTER, Portsmouth, N. H. Filed Aug. 22, 1901. Serial No. 72,900. (No model.)



Claim.—1. A conveyor comprising, baskets provided with a central platform in each basket, sides extending above and below the said platform, an end projecting from the platform of each basket and joining the sides thereof, rollers journaled to the baskets, linked drive-chains pinned to the baskets, sprocket drive-wheels geared with the linked drive-chains, and guide-wheels for the latter.

2. A conveyor comprising, baskets provided with a platform in each basket, sides extending above and below the platform, an end extending from one side of the platform and joining the sides at one end of each basket, rollers journaled to the baskets, linked drive-chains, two of the connecting-pieces of the chain journaled to each side of each basket, sprocket drive-wheels geared with the linked drive-chains, and guide-wheels for the baskets.

3. A conveyor comprising, baskets provided with a central platform in each basket, sides extending above and below the platform, journal-pins extending from the central portion of the baskets, drive-chains and rollers journaled with the said pins, a belt extending from one end of each side of the baskets and journaled to the drive-chains, sprocket drive-wheels geared with drive-chains, and guide-wheels for the said chains.

4. A conveyor comprising, baskets provided with a platform in the central portion of each basket, sides extending above and below the said platform, an end joining the sides on one side of the platform, linked drive-chains, rollers supporting the linked drive-chains, a pin connecting the rollers, chains and baskets in the middle portion of the baskets, a belt connecting the linked chains with the end of a basket, sprocket drive-wheels, and guide-wheels operating with the linked chains, a curved cover extending over the drive-wheels, a sufficient distance therefrom for the clearance of the baskets, guide-wheels for the baskets, and tracks for the rollers.

5. A conveyor comprising, baskets provided with a central platform in each basket, sides extending above and below the platform, journal-pins extending from the central portion of each basket, drive-chains and rollers journaled with the said pins, a belt extending from one end of each side of the baskets and journaled to the drive-chains, sprocket drive-wheels geared with the drive-chains, a curved cover extending over the drive-wheels, and a sufficient distance therefrom for the clearance of the baskets, guide-wheels for the baskets, and tracks for the rollers.

699,979. TEMPORARY BLINDER. ALBERT S. BALLANTYNE, Chicago, Ill. Filed May 26, 1901. Serial No. 61,821. (No model.)



Claim.—1. In a temporary blinder, the combination of a plurality of leaf-holders adapted to hold a plurality of independent stacks or groups of removable leaves, swinging covers, means for pivotally connecting the said leaf-holders together, and a non-flexible back connected and arranged to automatically adjust itself to movements of the leaf-holders.

2. In a temporary blinder, the combination of a plurality of leaf-holders capable of holding a plurality of independent stacks or groups of removable leaves, means for adjusting the size or leaf-holding capacity of each leaf-holder, swinging covers, suitable means for connecting the leaf-holders together, and a non-flexible back connected and arranged to automatically adjust itself with respect to adjustments or variations in the size of the said leaf-holders.

3. In a temporary blinder, the combination of a plurality of pivotally-connected leaf-holders capable of holding a plurality of independent stacks or groups of removable leaves, swinging covers, toggle devices for changing or varying the size or leaf-holding capacity of the said leaf-holders, and a non-flexible back having a shifting connection with said leaf-holders and adapted to automatically adjust itself with respect to movements on the part of said leaf-holders.

4. In a temporary blinder, the combination of a plurality of leaf-holders hinged together and capable of holding a plurality of independent stacks or groups of removable leaves, swinging covers, suitable devices for changing or varying the size or leaf-holding capacity of said leaf-holders, and a non-flexible back composed of a plurality of relatively shifting sections and adapted to automatically adjust itself with respect to changes in the size or leaf-holding capacity of said leaf-holders.

5. In a temporary blinder, the combination of a plurality of hinged-connected leaf-holders, adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, covers swingingly secured to the outer corners of said leaf-holders, and a central back connected and arranged to automatically adjust itself when the said leaf-holders are adjusted.

6. In a temporary blinder, the combination of a plurality of hinged-connected leaf-holders, threaded rods and toggle-levers for changing or varying the leaf-holding capacity of said leaf-holders, covers swingingly connected with said leaf-holders, and a back constructed and arranged to automatically expand or contract with the said adjustable leaf-holders.

7. In a temporary blinder, the combination of a plurality of hinged-connected leaf-holders, threaded rods and toggle-levers for varying the size or leaf-holding capacity of said leaf-holders, a member adapted to serve as the main section of the blinder-back, filling members adapted to serve as supplemental or side sections of said back, and suitable connections between said leaf-holders and said main back-section, and also between said leaf-holders and the filling members, whereby the temporary blinder can be readily opened, and also whereby the back of the blinder will automatically adjust itself with respect to the expansion or contraction of the leaf-holders.

8. In a temporary blinder, the combination of a pair of expansible leaf-holders hinged-connected at their inner corners, a back having a shifting connection with the axis about which the leaf-holders swing relatively to each other, adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, connecting devices whereby the said back automatically adjusts itself with respect to the expansion or contraction of the leaf-holders, and covers swingingly secured to the outer corners of said leaf-holders.

9. In a temporary blinder, the combination of a plurality of leaf-holders or clamping members, a hinge or pivotal connection between the inner corners of said leaf-holders or clamping members, toggle-lever devices for varying the size or leaf-holding capacity of said leaf-holders or clamping members, a back having shifting connection with said leaf-holders or clamping members, and covers swingingly connected with the outer corners of said leaf-holders or clamping members.

10. In a temporary blinder, the combination of a pair of expansible leaf-holders hinged-connected at their inner corners, a back having a shifting or sliding connection with the axis about which the leaf-holders swing relatively to each other, adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, connecting devices whereby the said back automatically adjusts itself with respect to the expansion or contraction of the leaf-holders, and covers swingingly secured to the outer corners of said leaf-holders.

11. In a temporary blinder, the combination of a plurality of leaf-holders or clamping members, a hinge or pivotal connection between the inner corners of said leaf-holders or clamping members, a back having a shifting connection with the axis about which the said leaf-holders or clamping members swing relatively to each other, and covers swingingly connected with the said leaf-holders.

12. A temporary blinder comprising a plurality of hinged-connected leaf-holders, said leaf-holders being in a superimposed or one-on-top-of-the-other condition when the blinder is closed or lying on its side, a blinder-back having shifting connection with said leaf-holders, and covers swingingly connected to the outer corners of said leaf-holders.

13. In a temporary blinder, the combination of a plurality of expansible leaf-holders, hinge connection between said leaf-holders, the said leaf-holders being in a superimposed or one-on-top-of-the-other condition when the blinder is closed and lying on its side, adjusting devices for changing the size or leaf-holding capacity of said leaf-holders, and covers swingingly secured to said leaf-holders.

14. In a temporary blinder, the combination of a plurality of adjustable leaf-holders pivotally or hinge connected together and arranged to lie one on top of the other when the blinder is closed and lying on its side, adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, a plurality of members combining to form a back to said blinder, swinging or shifting connections between said back members and said leaf-holders, and covers swingingly connected with the said leaf-holders.

13. In a temporary binder the combination of a plurality of hinge-connected leaf-holders, a rigid member serving as a main section for said leaf, and a spring serving as a medium of connection between the main leaf-section and the pivotal or hinge-like connection between the leaf-holders, whereby the said leaf-holders may be caused to swing relatively to each other when the binder is opened.

16. In a temporary binder, the combination of a plurality of hinge-connected leaf-holders, each leaf-holder being provided with a plurality of telescoping devices adapted to extend through holes or openings in the leaves, a back having a shifting connection with said leaf-holders, adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, and covers swingingly connected with the outer corners of said leaf-holders.

17. In a temporary binder, the combination of a plurality of adjustable leaf-holders, said leaf-holders being arranged parallel and adapted to lie one on top of the other when the binder is closed and lying on its side, each leaf-holder being provided with telescoping and walls, adjusting devices accessible through openings in said walls and adapted to vary the size or leaf-holding capacity of said leaf-holders, a suitable back having swinging or shifting connection with said leaf-holders, and covers swingingly connected with the outer corners of said leaf-holders.

18. In a temporary binder, the combination with clamping members for the leaves or sheets of the book, said clamping members being hinge-connected and adapted to lie one on top of the other when the binder is closed and lying on its side, of a rigid back flexibly secured to said members, so as to permit freely opening the binder or book.

19. In a temporary binder, the combination with a plurality of clamping members hinged together, said clamping members being side by side when the binder is thereon open, of a sectional back secured to said members, to permit the free opening of the book and the operation of the clamping members.

20. In a temporary binder, the combination with two clamping members having side plates, between which the leaves are adapted to be clamped, of telescoping pins between said plates on which the leaves are adapted to be strong, adjusting devices between said plates for expanding the plates or drawing them together and clamping them upon the contained sheets, and pivotal or hinge-like connections for securing said members together in the binder.

21. In a temporary binder, the combination with two clamping members, each clamping member being adapted to clamp a number of the sheets or leaves together, of covers hinged to said members, a back for said members also secured to said members and comprising a central curved portion, and curved filling members at the ends of said central portion.

22. In a temporary binder, the combination with two clamping members, variable in width, of a central back portion as wide as the members when contracted to the greatest extent, filling members extendible in cross-section, between the said clamping members and the back portion to allow for the expansion of said members, the arrangement being such that the back is closed at all times.

23. A temporary binder constructed with rigid covers and also with a rigid back, adjustable leaf-holders hinged or pivotally connected together and arranged to lie one above the other when the binder is closed and lying on its side, suitable adjusting devices for varying the size or leaf-holding capacity of said leaf-holders, and pivotal or swinging connections between said leaf-holders and said back, and also between the leaf-holders and said covers, said rigid back being provided with relatively adjustable sections permitting the back to automatically adjust itself, and thereby fit any dimension to which the said leaf-holders are adjusted.

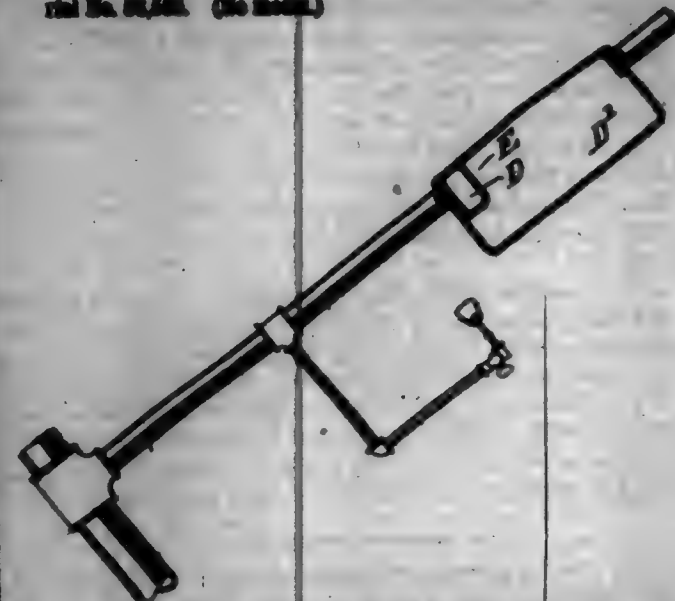
699,280. TRAVELING ROCKING-HORSE. ROY BARRETT, Pat. N.Y. Filed July 13, 1901. Serial No. 68,706. (No model.)



Claim.—1. A device of the character described comprising two side frames and each consisting of front and rear hinged sections forming parts of an animal figure, each section being mounted upon a rocker, the rockers of the sections being adapted to slide past one another, connections between the counterpart sections of each side frame, a seat carried by the front sections, and weighted levers attached to the front and rear sections, substantially as described.

2. A device of the character described, comprising front and rear hinged sections forming the parts of animal figure, rockers upon which the sections are mounted and adapted to slide one past the other, a chair or seat carried by one of the sections, opposing counterbalancing weights upon the sections, and rolls attached to the front section for drawing the same up to a tilted position when the device is rocked rearwardly, substantially in the manner set forth.

699,281. ARTIFICIALLY-INDUCED DEVICE FOR GAS SERVICE. FIFER, ROBERT E. BAYLE, Englewood, N. J. Filed May 1, 1902. Serial No. 68,466. (No model.)



Claim.—1. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber.

2. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a non-collapsible reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber.

3. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber, and a partition in said reservoir having a restricted opening therein for the passage of gas from one side thereof to the other side.

4. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber, and a partition in said reservoir having a restricted opening therein for the passage of gas from one side thereof to the other side.

5. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges, and a smaller compartment having a restricted opening for the passage of gas to the chamber, and a gas admission and exit, respectively, for the compartment and chamber.

6. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges and a smaller compartment with a restricted opening for the passage of gas to the chamber, a gas-supply communicating with said compartment, and an unrestricted gas-discharge leading from the chamber.

7. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges and a smaller compartment with a restricted opening for the passage of gas to the chamber, and a gas admission and discharge, respectively, for the compartment and chamber, the several openings of the apparatus in immediate relation thereto being valveless.

8. An antiluxator for use in connection with gas engine, pumps, and the like, comprising a reservoir provided with a gas-supply having a capacity for more than a single supply charge, a discharge leading from said chamber, a supply leading therein, and a restricted opening for the passage of gas to resist the flow thereof into said chamber.

699,282. PROCESS OF REDUCING METALS AND PRODUCING ALLOYS THEREOF. BERRY & BLACKBURN, Mount Vernon, N. Y. Filed Feb. 14, 1902. Renewed Mar. 16, 1904. Serial No. 61,500. (No specimens.)

Claim.—1. The process of reducing metals, which consists in exposing a composition thereof to be reduced containing metal and two or more non-metallic elements to the action of heat and a metallic carbide the combined elements of which are capable of combining with the electro-negative constituents of the compound, substantially as described.

2. The process of reducing metals, which consists in exposing a metallic carbide composed to the action of heat and a metallic carbide, the combined elements of which are capable of uniting with the electro-negative constituents of the material to be reduced.

3. The process of reducing metals, which consists in exposing a metallic carbide to the action of heat and a metallic carbide the combined elements of which are capable of abstracting the oxygen and fluorine.

4. The process of reducing metals and producing alloys thereof which consists in heating a mixture containing two or more metals combined with oxygen and haloid element, with a metallic carbide the combined elements of which are capable of abstracting the oxygen and haloid elements thereby liberating the metals and producing alloys thereof.

5. The process of reducing aluminum which consists in exposing aluminum oxyfluoride to the action of heat and a metallic carbide, the combined elements of which will unite with the oxygen and fluorine.

6. The process of reducing aluminum, which consists in exposing aluminum oxyfluoride to the action of sodium carbide and heat.

7. The process of reducing aluminum, which consists in introducing into an inert molten bath a mixture of aluminum oxyfluoride and a metallic carbide, the combined elements of which are capable of abstracting the oxygen and fluorine.

8. The process of reducing metals, which consists in exposing a compound to be reduced containing a metal and two or more non-metallic elements to the action of heat and a metallic carbide the combined elements of which are capable of combining with the electro-negative constituents of the compound.

9. The process of reducing metals which consists in exposing at a reducing temperature a composition containing metal and two or more non-metallic elements to the action of a carbide the combined elements of which are capable of combining with the electro-negative constituents of the composition.

10. The process of reducing aluminum which consists in extracting aluminum from a compound thereof containing associated elements capable of uniting with the combined elements of a carbide, by exposing said compound at a reducing temperature to the action of a carbide.

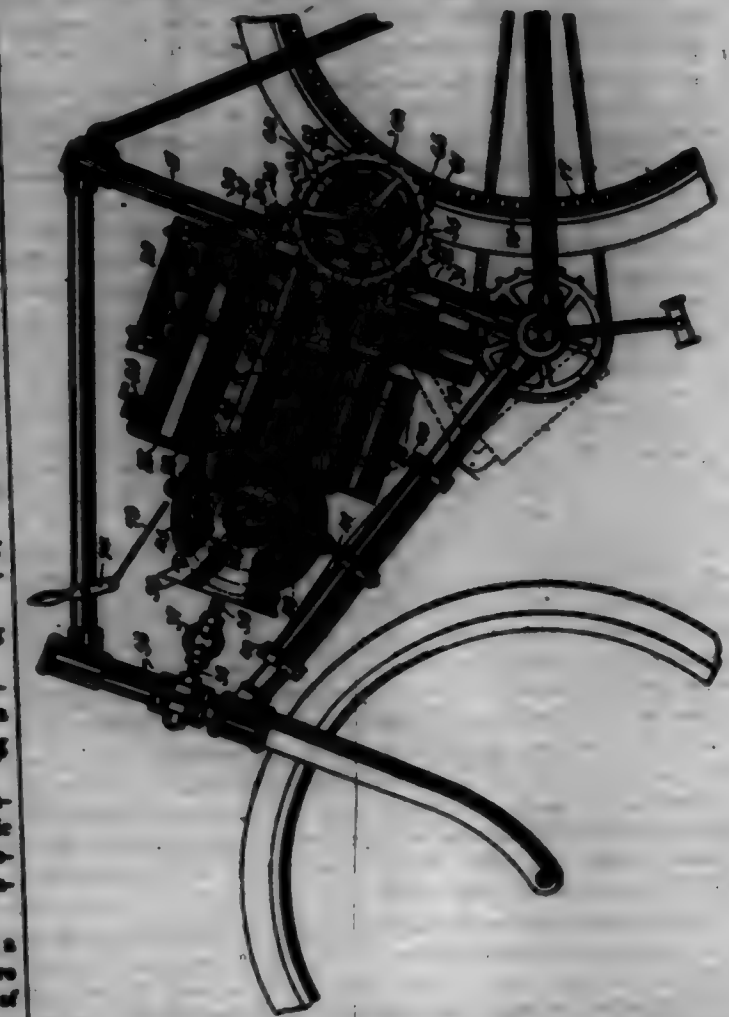
699,283. FENCE. EDWARD ROYER, Upper Sandusky, Ohio. Filed July 17, 1901. Serial No. 68,068. (No model.)



Claim.—In a fence, the combination of a base provided with a supporting transverse recess and having notches at opposite sides of the same, a fence-post having a tapered lower end fitted in the recess of the base

and provided at its side edges with notches located at opposite sides of the post and arranged in alignment with the notches of the base, and the fit controlling the base and engaging the said notches whereby the post is locked in the recess of the base and is permitted a limited lateral movement, substantially as described.

699,284. MOTOR-VEHICLE. JOHN E. GALT, Kansas City, Mo. Filed June 14, 1901. Serial No. 64,508. (No model.)



Claim.—1. In a driving attachment for a vehicle, the combination with a motor, of a spur-wheel operated by the motor, a toothed track arranged to be engaged by the spur-wheel and adapted to fit upon the inner side of the rim of a wheel, and means for securing the track to said rim.

2. In a motor-vehicle, the combination with a driven wheel, of a pinion-shaft having pinions secured thereto, connections between the pinion-shaft and the hub of the driven wheel, a motor secured upon the vehicle, gear connections between the motor and the rim of the wheel, and a clutch included in said connections for disconnecting the motor from the driven wheel.

3. In a motor-vehicle, the combination with a driven wheel, of an explosive-engine supported upon the vehicle, connections between the engine and the wheel, said connections including a shaft carrying a clutch which comprises separate members, a valve for the explosive-engine, and operating mechanism for the valve, said mechanism including a lever and a projection attached to one of the clutch members and adapted to engage the lever upon the rotation of the shaft.

4. In a driving attachment for vehicles, the combination with a motor, of a clamp having a rigid connection with one end of the motor and arranged to be secured to the frame-bar of a vehicle contiguous to one of the wheels thereof, and extensible means located at the opposite end of the motor for securing the same to another frame-bar.

5. In a driving attachment for a vehicle, the combination with a motor, of an upright clamp having a rigid connection at one end of the motor and arranged to be secured to the upright frame-bar of a bicycle contiguous to the driving-wheel thereof, a clamp arranged to be secured to the head-bar of a bicycle, and an extensible connection between the last-named clamp and the motor.

6. In a driving attachment for a vehicle, the combination with a motor, of a spur-wheel operated by the motor, a toothed track arranged to be engaged by the spur-wheel, and means for adjustably securing the track to the rim of a vehicle-wheel.

7. In a driving attachment for a vehicle, the combination with a motor, of a spur-wheel operated by the motor, a toothed track arranged to be engaged by the spur-wheel and provided with slots and devices for re-

oring said track to the rim of the vehicle, said device passing through the slot, whereby the track will be adjustably secured to the wheel.

8. In a driving attachment for a vehicle, the combination with a motor, of a spur-wheel operated by the motor, a track arranged to be engaged by the spur-wheel, said track comprising a ring having a plurality of spaced and laterally offset teeth that intermesh with the spurs of the wheel, and means for securing said track to a vehicle-wheel.

9. In a driving attachment for a vehicle, the combination with a motor, of a spur-wheel, a clutch connection between the motor and the spur-wheel, means for operating the clutch, a track arranged to be engaged by the spur-wheel, and means for securing said track to a vehicle-wheel.

10. In a motor vehicle, the combination with the vehicle, of a continuous track secured to a wheel of the vehicle, a motor carried by the vehicle, a spur-wheel having an operative engagement with the track, clutch connection between the motor and the spur-wheel, and means for operating the clutch.

11. In mechanism of the class described, the combination with a motor, of a shaft operatively connected with the motor, a spur-wheel mounted upon the shaft, a clutch connection between the shaft and spur-wheel, means for operating the clutch, a track arranged to be engaged by the spur-wheel, and means for securing said track to a vehicle-wheel.

12. In mechanism of the class described, the combination with a motor, of a shaft operatively connected with the motor, a sleeve rotatably mounted on the shaft, a clutch connection between the sleeve and shaft, means for operating the clutch, a spur-wheel secured to the sleeve, a track arranged to be engaged by the spur-wheel, and means for securing the said track to a vehicle-wheel.

13. In mechanism of the class described, the combination with a motor, of a shaft operatively connected with the motor, a sleeve rotatably mounted on the shaft, a flanged friction-disk secured to the shaft at one end of the sleeve, a collar slidably mounted upon the sleeve and carrying a track arranged to engage the flange of the disk, means for sliding the collar, a spur-wheel secured to the sleeve, a track arranged to be engaged by the spur-wheel, and means for securing said track to a vehicle-wheel.

14. In mechanism of the class described, the combination with a motor, of a journal secured to the opposite end of the engine, a motor-shaft mounted in the journal at one end of the motor, a driving-shaft mounted in the journal at the opposite end of the motor, means operatively connecting the motor and driving-shaft, and driving mechanism connecting said driving-shaft and a vehicle-wheel.

15. In mechanism of the class described, the combination with a motor, of a journal secured to opposite sides of the motor, a motor-shaft mounted in the journal at one end of the motor, a driving-shaft mounted in the journal at the opposite end of the motor, means operatively connecting the motor and driving-shaft, and driving mechanism connecting said driving-shaft and a vehicle-wheel, said mechanism including a clutch and means for operating said clutch.

16. In an attachment of the class described, the combination with an explosive-engine, of a carburetor suspended beneath the same, a fuel-receptacle supported upon and located above the engine, driving mechanism carried by and connected with the engine, and means for securing the attachment to a vehicle.

17. In an attachment of the class described, the combination with an explosive-engine, of a carburetor secured to and suspended beneath said engine, a fuel-receptacle supported upon the engine, driving mechanism carried by and connected with the engine, a blower secured at one end of the engine and connected to the driving mechanism, means for directing the current of air from the blower over the engine, and clamps secured to the attachment for fastening the same to a vehicle.

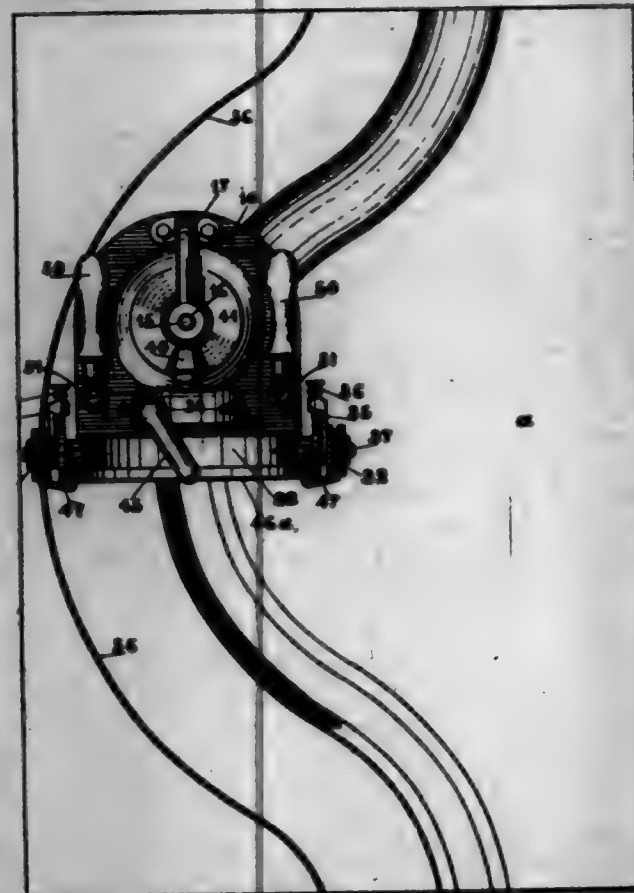
18. In mechanism of the class described, the combination with an engine and valve therefor, of an engine-shaft located transversely across one end of the engine and having an operative connection therewith, a driving-shaft located transversely across the opposite end of the engine, connection between the engine-shaft and driving-shaft, valve-operating mechanism carried by said driving-shaft, and means for connecting the driving-shaft to a vehicle.

19. In a driving attachment for vehicles, the combination with a motor, of a clamp secured to one end of the motor, an adjustable clamp located at the other end of the motor, and a turnbuckle connection between the latter clamp and the motor.

20. In an attachment of the class described, the combination with a motor, of a clamp for securing the motor to a vehicle, a driving-shaft mounted upon the clamp, connection between the motor and the driving-shaft, and means for connecting the driving-shaft to a vehicle-wheel.

21. In an attachment of the class described, the combination with a motor, of a two-part clamp, one part of which is attached to the motor, a driving-shaft mounted upon said attached part, connection between the motor and the driving-shaft, and means for connecting the driving-shaft to a vehicle-wheel.

699,285. CORE-BOX CUTTER. BRYAN L. CLOVER and ARTHUR GRADOWSKI, Chicago, Ill. Filed May 2, 1901. Serial No. 29,228. (No model.)



Claim.—1. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter journaled in the frame and flexible driving mechanism connected to said shaft.

2. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a cutter revolvably mounted thereon arranged to shape a core-box groove in such section below the surface thereof, an operating-shaft for said cutter mounted in the frame and flexible driving mechanism connected to said shaft.

3. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a cutter revolvably mounted thereon arranged to shape a core-box groove in such section below the surface thereof, flexible driving mechanism connected to said cutter and a pattern-guide for controlling the travel of said frame.

4. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a revolvable cutter and an operating-shaft therefor, carried by said frame, flexible driving mechanism connected to said operating-shaft, gaging-supports for said frame and adjustable eccentricities for said supports whereby the cutter is held in proper relation with its work.

5. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter carried by the frame and adjustable gaging-supports for said frame, whereby said cutter may be adjusted to its work.

6. In a core-box cutter, the combination with a movable frame having wheels for supporting the same upon the surface of the work, of a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter carried by the frame, flexible driving mechanism connected to said operating-shaft, and adjustable eccentric bearings for said supporting-wheels to raise and lower the frame, whereby said cutter may be adjusted to its work.

7. The combination with a movable frame adapted to travel upon the surface of the work and with a revolvable cutter and operating-shaft therefor carried by the frame, of a flexible pattern-guide for controlling the travel of said frame.

8. The combination with a movable frame adapted to travel upon the surface of the work, of a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter carried by the frame, flexible driving mechanism connected to said operating-shaft, and means for guiding the travel of said frame.

9. The combination with a flexible pattern-guide adapted to be adjustably fixed in place, of a movable frame having means for engaging said guide, a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter car-

ried by said frame and flexible driving mechanism connected to said operating-shaft.

10. The combination with a flexible pattern-guide adapted to be adjustably secured to the surface of the work, of a movable frame adapted to travel upon the surface of the work having wheels for tracking on said pattern-guide, and a revolvable cutter and operating means therefor mounted on said frame.

11. The combination with a flexible pattern-guide adapted to be adjustably secured to the surface of the work, of a movable frame having wheels for tracking on said pattern-guide, a cutter revolvably mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter carried by the frame, flexible driving mechanism connected to said operating-shaft, and means for adjusting said guide-wheels to raise and lower said frame, whereby said cutter may be adjusted to its work.

12. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a revolvable cutter and operating means therefor carried by the frame, gaging-supports for said frame to hold the cutter in proper relation with its work, a blower and operating means therefor carried by the frame, and means for directing the blast from said blower in front of said gaging-supports.

13. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a revolvable cutter and operating-shaft therefor on said frame, adjustable supporting-wheels for said frame to hold the cutter in proper relation with its work, a blower carried by said frame and arranged to be driven from said operating-shaft, and means for directing the blast from the blower in front of said adjustable supporting-wheels.

14. In core-box cutters, the combination with a movable frame having supporting-wheels and adapted to travel upon the surface of the work, of a stud-shaft mounted in said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft carried by the frame at right angles to said stud-shaft, a revolvable cutter removably secured to said stud-shaft, interengaging beveled gears fixed to said stud-shaft and to said operating-shaft, and means for coupling said operating-shaft to a flexible drive-shaft.

15. In core-box cutters, the combination with a movable frame adapted to travel upon the surface of the work, of a stud-shaft and an operating-shaft revolvably mounted in said frame, a revolvable cutter carried by said stud-shaft and interengaging gears on said stud-shaft and said operating-shaft, adjustable supports for raising and lowering said frame to adjust said cutter to its work, a blower carried by said frame, a friction-wheel on the shaft of said blower, a friction drive-wheel engaging the same fixed to said operating-shaft, and means for directing the blast from said blower in front of said adjustable supports.

16. In core-box cutters, the combination with a movable frame having supporting-wheels and arranged to travel upon the surface of the work, of a stud-shaft mounted on said frame to rotate in a plane at right angles to the travel thereof, a cutter removably secured to said stud-shaft, an operating-shaft carried by the frame at right angles to said stud-shaft, interengaging beveled gears fixed to said stud-shaft and to said operating-shaft, means for adjusting said supporting-wheels for raising and lowering said frame to hold said cutter in proper relation with its work, a centrifugal blower carried by said frame, a friction-wheel on the shaft of said blower, a friction drive-wheel engaging the same and fixed to said operating-shaft, means for directing the blast from said blower in front of said supporting-wheels, means for coupling said operating-shaft to a flexible drive-shaft and means for controlling the travel of said frame.

17. In core-box cutters, the combination with a frame arranged to move over the surface of the work, of a cutter revolvably mounted on said frame to rotate in a plane at right angles to the travel thereof, an operating-shaft for said cutter carried by the frame, means for driving said shaft during the movement of the frame and means for guiding the movement of the frame, substantially as described.

699,286. CORRUGATED SHEET-CLAMP AND WAIST-RETAINER. WILLIAM C. CUFF-HOLDER, Chicago, Ill. Filed May 14, 1901. Serial No. 29,229. (No model.)



Claim.—1. A shirt-clamp and waist-retainer comprising a hook-plate and an eye-plate, pivoted joint-supporting hooks carried by the hook-plate, and locking means carried by one of the pivoted hooks to embrace and hold the two plates assembled.

2. A shirt-clamp and waist-retainer comprising a plate provided with a plurality of hooks, a plate having a plurality of eyes to engage the hooks, and two pivoted joint-supporting hooks carried by one of the plates, one of the latter hooks having a catch to embrace the upper

edges of the two plates to hold them assembled against accidental separation.

3. A shirt-clamp and waist-retainer comprising two plates one of which is provided with a plurality of eyes, and the other with a plurality of hooks to engage the eyes, the latter plate carrying on the side opposite that on which the hooks are arranged two pivoted hooks to engage with openings in the waist of the garment, one of the hooks being provided with a curved projection to bear upon the upper edge of the two plates and thus hold them locked against accidental separation.

4. A shirt-clamp and waist-retainer comprising two plates one of which is provided with a plurality of eyes, and with incuts or depressions upon its upper edge, and the other provided with rigid hooks extending outward from the face of the plate, and with an incut or depression upon its upper edge and with two pivoted hooks arranged on the opposite side of the plate to that carrying the rigid hooks, one of the hooks being provided with a curved offset to engage with the depressions formed in the upper edges of the two plates.

5. A waist provided at the waist-line with a perforated plate secured thereto, in combination with a skirt carrying a plate provided with hooks to engage with the perforations of the waist-plate, the second-named plate being provided with outwardly-extending hooks, a third plate carried by the free end of the skirt to engage the outwardly-extending hooks, and locking means carried by one of the first-named hooks and the second-named plate for holding the two plates assembled.

6. A device of the class described, comprising two interlocked members, pivoted locking means to hold the two members in interlocked relation, and means carried by the locking means for supporting the skirt.

7. A device of the class described, comprising a pair of members having detachable interlocking means, a pivotal locking device carried by one of the members and constructed to hold the latter against separation when interlocked, and a pivotal support carried by the outer side of said member.

699,287. CUFF-HOLDER. WILLIAM C. CUFF-HOLDER, Chicago, Ill. Filed May 16, 1901. Serial No. 29,230. (No model.)



Claim.—1. A cuff-holder, comprising a sleeve member, and a cuff member separate from and detachably connected to the sleeve member, and comprising a pair of intermediately-pivoted members working in substantially parallel planes, one set of corresponding ends of the members being constructed to detachably engage the sleeve member, and the opposite set of corresponding ends of the members being constructed to prevent accidental separation of the first-named ends and capable of manual operation to separate said first-named ends for the purpose of detaching the same from the sleeve member, and a cuff-button carried by the cuff member.

2. A cuff-holder, comprising a sleeve member, and a cuff member, the latter having a pair of intermediately-pivoted members which work in substantially parallel planes, the opposite ends of each member being deflected laterally in the same direction to lie at one side of the plane of the member, whereby the corresponding ends of the pivotal members are adapted to abut and limit the pivotal movement of said members, one set of corresponding ends being constructed to detachably engage the sleeve member, and the opposite set of corresponding ends being capable of being sprung past each other to permit separation of the first-named ends, and a cuff-button carried by the cuff member.

3. A cuff-holder comprising two members pivoted together, each member being provided at one end with an arm, at the opposite end with an inward toe, and intermediate of its ends with a shoulder or offset, the shoulders, when the members are closed, to be engaged by suitable cuff-holder-supporting means, and the members to be held in locked engagement by abutting reaction between the curved toes.

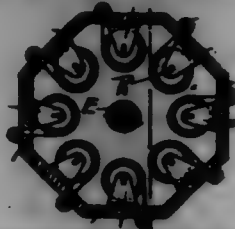
4. A cuff-holder comprising two members, a pivot connecting a cuff-button connecting the two members, each member being provided at one end with an inward toe, at the other end with an arm and intermediate of its ends with a shoulder or offset, the two shoulders, when the members of the device are closed, to be engaged by a suitable cuff-holder-supporting means, and the members to be held in locked engagement by abutting reaction between the curved toes.

5. A cuff-holder comprising two members each constructed of a thin strip of metal, and provided at one end with an inward toe, and at the opposite end with an arm, a shoulder arranged intermediate of the ends of the member and extending at right angles to the arm, and a pivot for holding the two members assembled, the pivot being provided with a hook to bear upon one of the members and with a head to engage the bottom-hole of the cuff, the shoulders, in the operation of the device, being engaged by the loop of a safety-pin and the two members being held in locked engagement by reaction between the curved toes.

6. A cuff-holder, comprising a safety-pin, a cuff element embodying

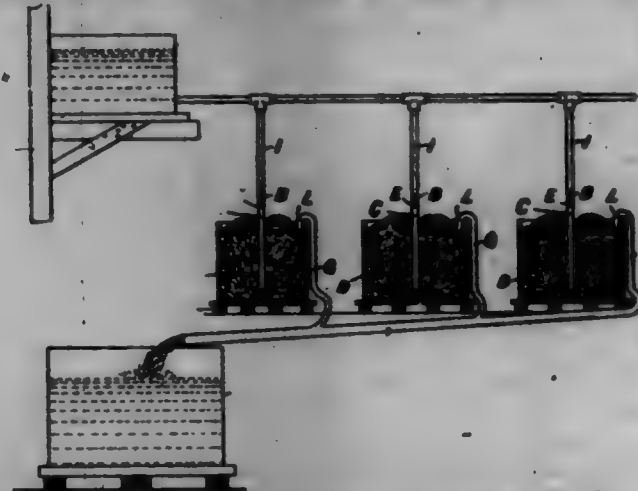
near the bottom of the cylinder, a standard secured to the platform and to the cylinder, and constituting a bearing for the piston-rod of the air-pump, a shaft supported by the standard and carrying a sprocket-wheel and a disk, a piston-rod connecting the disk and the piston-rod, and a sprocket-chain engaging the latter sprocket-wheel and the sprocket-wheel of the supporting-axis.

699,298. MAP OR CHART CASE. JOHN H. DOLBY, Providence, R. I. Filed Feb. 3, 1902. Serial No. 92,261. (No model.)



Claim.—In a device of the character described, the combination of a rotatable shaft; a pair of similar polygonal bands secured transversely on the shaft; longitudinal members each having one end removably secured to one of the bands; and trip-rolls mounted on the inner face of the said members and parallel with said shaft.

699,294. APPARATUS FOR AERATING OR AGITATING LIQUIDS. HAROLD E. DRAKE, Birmingham, near Liverpool, England. Filed Jan. 17, 1902. Serial No. 92,212. (No model.)



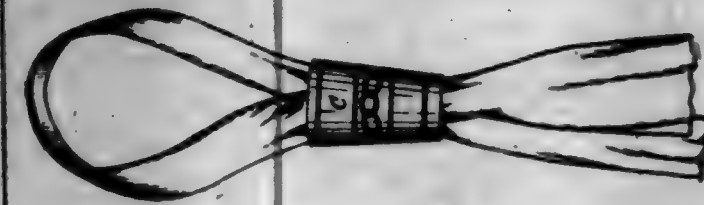
Claim.—1. In apparatus for aerating or agitating liquids, the combination with the vanes or coils of a feed-pipe for delivering liquid under pressure into the bottom of each cell, a run-off pipe for discharging liquid from the cells, an injecting-nozzle in the feed-pipe, and a fluid-orifice arranged immediately adjacent to said nozzle in such a manner, that the liquid issuing from the nozzle at high velocity sets up an induced current of fluid through the fluid-orifice, with which the jets of liquid mingle and is delivered into the cell, causing a very efficient and constant agitation therein, substantially as described.

2. In apparatus for aerating or agitating liquids, the combination with the vanes or coils of a feed-pipe for delivering liquid under pressure into the bottom of each cell, a run-off pipe for discharging liquid from the cells, an injecting-nozzle in the feed-pipe and a branch pipe leading from the adjacent cell to the said feed-pipe at a point adjacent to the nozzle in such a manner that the liquid issuing from the nozzle at high velocity sets up an induced current of liquid through the branch pipe, with which the jet issuing through the nozzle mingles and is delivered into the cell, causing a very efficient and constant agitation therein, substantially as described.

3. In an apparatus for aerating or agitating liquids, the combination of a storage-tank for the liquid, a series of vanes, a main supply-pipe leading from said storage-tank, a depending feed-pipe for each vat connected with the main pipe, the nozzle of the feed-pipe being constructed, a casing surrounding the nozzle and leading into the vat, an orifice in said casing contiguous to the nozzle of the feed-pipe for causing an induced current of air, and a duct for each cell communicating with a main pipe for discharging the liquids in the cell, substantially as described.

4. In an apparatus for aerating or agitating liquids, the combination of a storage-tank for the liquid, a series of vanes, a main supply-pipe leading from the storage-tank, a feed-pipe for each vat connected with the main supply-pipe, the nozzle of the feed-pipe being constructed, whereby the liquid will issue from the nozzle at high pressure, a casing or barrel surrounding the nozzle of the feed-pipe, orifices in the casing contiguous to said nozzle, whereby the liquid issuing from the nozzle at high pressure will cause an induced current of fluid through said orifices, substantially as described.

699,295. FICKER. THOMAS F. DUNE, Boston, Mass. Filed Jan. 10, 1902. Serial No. 92,199. (No model.)

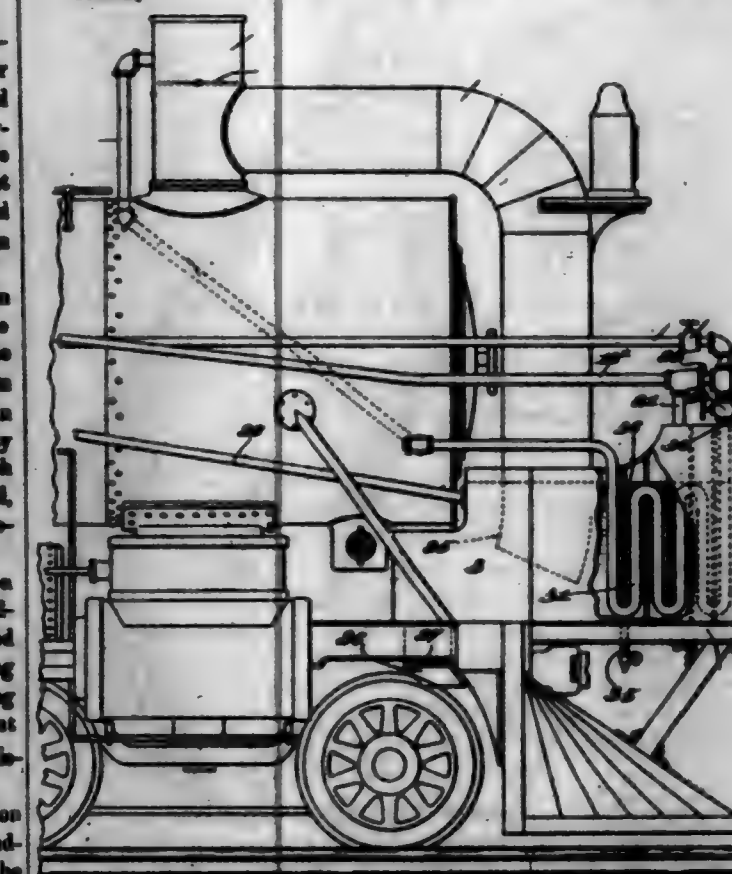


Claim.—1. In combination with a necktie of the character described, an attachable and detachable band adapted to be applied to the tie at the point where the knot is usually produced, laterally and when open, and to be secured around and encircle said tie by clamping the opposite ends of said band together, and to be removed from said tie by unclamping said ends, opening out the band and withdrawing it laterally from the tie; and means for engaging the band with the tie by the act of clamping said ends whereby it may be prevented from dropping out of such position, substantially as described.

2. In combination with a necktie of the character described, an attachable and detachable band adapted to be applied to the tie at the point where the knot is usually produced, laterally and when open, and to be secured around and encircle said tie by clamping the opposite ends of said band together and to be removed from the tie by unclamping said ends, opening out the band and withdrawing it laterally from the tie; metallic strips secured to the opposite ends of the band substantially parallel with said ends; clamping devices extending outward from said strips for engagement with each other when the band is closed; and means for engaging the band by the act of clamping its ends whereby it is prevented from dropping out of its position around the tie, substantially as set forth.

3. In combination with a necktie of the character described, the band comprising a base of relatively stiff material and a covering of ornamental material; the strips E, F secured to the opposite ends of the band; the dotted extension H, H' provided with the teeth J, J' and extending from the strip E beyond the edge of the band; and the hook F' extending from the strip F and adapted to engage the extension H by means of one of its slots H', substantially as described.

699,296. APPARATUS FOR DESTROYING GASES. JOHN H. HUNTER, Waltham, Mass. Filed Jan. 7, 1901. Serial No. 92,311. (No model.)

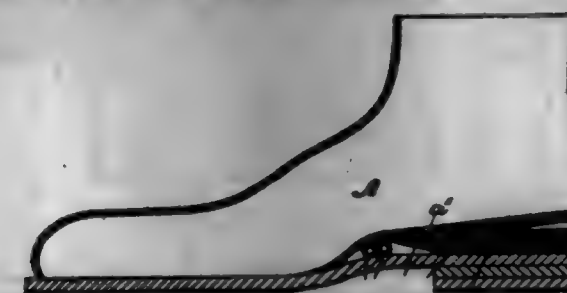


Claim.—1. In an apparatus of the class described, a closed chamber partially filled with water, a pipe to receive the products of combustion and exhaust-steam from an engine, said pipe extending into the closed chamber below the surface of the water, a steam-jacket for exhausting the air from the chamber, the exhaust-pipe from the jacket passing through the water in the closed chamber.

2. In a steam-engine, a vacuum-chamber partially filled with water, a pipe to receive the products of combustion and exhaust-steam from the engine, said pipe extending into the vacuum-chamber and below the surface of the water, a steam-jacket for exhausting the air from the vacuum-chamber, the exhaust-pipe of said jacket being branched and one branch leading through the water in the closed chamber and the other branch passing back to the combustion-chamber of the furnace, and valves to control said pipes.

3. In apparatus of the class described, a closed chamber partially filled with water, a pipe to receive waste product, said pipe extending into the closed chamber below the surface of the water, a steam-jacket for exhausting the air from the chamber, and means to condense the steam in the exhaust-pipe from the jacket.

699,297. KEEL-CUSHION. OTTO BAX, Baltimore, Md. Filed Mar. 12, 1901. Serial No. 91,908. (No model.)



Claim.—1. A keel-cushion, provided on its under side with a flap adapted to be attached to the inside of a shoe, and also provided with a shoulder adapted to abut against said flap, whereby to prevent the forward displacement of the cushion; and a resilient connection between said cushion and flap.

2. A keel-cushion, provided on its under side with a flap adapted to be attached to the inner sole of a shoe, and also provided with a shoulder adapted to abut against said flap whereby to prevent the forward displacement of the cushion.

3. A keel-cushion, provided on its under side with a flap adapted to be permanently attached to the inside of a shoe and said flap having a resilient connection with said cushion; and one or more elastic pads attached to the bottom of the cushion and adapted to abut against the rear edge of said flap whereby to prevent the forward displacement of the cushion.

4. A keel-cushion, comprising a bottom plate and a top plate one of which is secured to the other at its forward end only; a layer of cork secured to the inner surface of one of said plates at the rear end thereof; and a layer of felt wedged between said plates and secured thereto at its forward edge only whereby the rear ends of said plates tend to spring apart.

5. A keel-cushion, comprising a bottom plate and a top plate one of which is secured to the other at its forward end only; and an elastic filling having its forward end in contact with and wedged between the said bottom and top plates, and having its rear portion free from attachment to said two plates, whereby said filling tends to spread the rear ends of said plates apart.

699,298. STRIPS FOR SHAY-BUTTON. WILLIAM STYER, Ashland, Ohio. Filed July 12, 1901. Serial No. 92,311. (No model.)

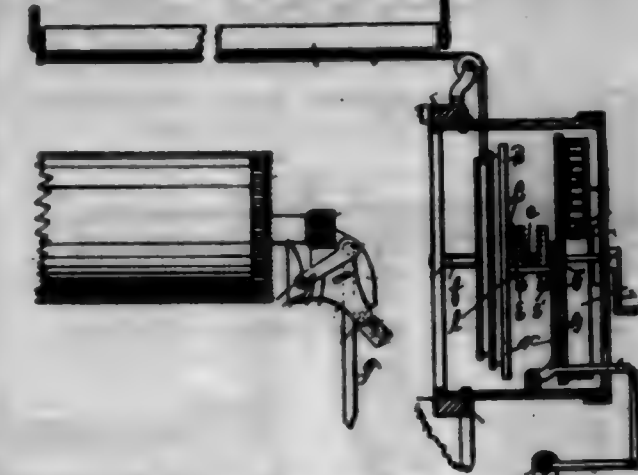


Claim.—1. The combination with a frame and a plurality of springs arranged in rows, of a plurality of tie-strips of sheet metal having bands forming seats at their ends, the coils of adjoining springs being seated in said seats, said strips having openings in the bent portions, and straight

wires or rods threaded through said openings and holding the coils in the seats or bands, substantially as described.

2. The combination with a frame and a plurality of springs arranged in rows, of a plurality of tie-strips of sheet metal each having V-shaped bands at its ends engaging the coils of two adjacent springs, said strips having slots formed in said bent portions from the apex of the V inward, and straight wires or rods threaded through said slots for holding the springs in the bands, substantially as described.

699,299. TYPE-WRITER. FRED H. FRY, Fort Worth, Tex. Filed May 21, 1897. Serial No. 92,502. (No model.)



Claim.—1. A type-writer-carriage-returning mechanism adapted to operate independently of the carriage-advancing mechanism consisting of a cord-winding drum having a clutch-jaw integral therewith, a cord attached to said drum and to the carriage-rod, a second clutch-jaw adapted to cooperate with said first-named clutch-jaw mounted rigidly on the shaft of said winding-drum, means for throwing said clutch-jaws in and out of mesh consisting of a key mounted in the keyboard and suitable levers and connecting devices, a pinion mounted rigidly on said shaft, a spring-actuated cog-wheel for driving said pinion, and means for locking said last-named clutch-jaw against rotation.

2. The combination with the type-writer carriage of a drum containing a coiled spring, said drum having cogs integral therewith, a pinion meshing with said drum, a clutch-jaw, means for locking said clutch-jaw in a stationary position, a cord-winding drum having a clutch-jaw integral therewith and loosely mounted on a suitable shaft, a cord connected to said drum and to the carriage-rod, means for throwing said clutch-jaw in and out of mesh and simultaneously releasing and locking said first-named clutch-jaw, whereby said carriage is returned to starting position.

3. The combination with the type-writer carriage provided with suitable advancing mechanism of a carriage-returning mechanism, said mechanism consisting of a cord-winding drum having a clutch-jaw integral therewith, a cord attached to said drum and to the carriage-rod at the opposite end to which the cord for advancing said carriage is attached, a shaft on which said drum is loosely mounted, a clutch-jaw rigidly mounted on said shaft having a series of apertures in the end thereof, a disk having two plugs adapted to engage two of said apertures for locking said clutch-jaw stationary, a spring mounted on said shaft between said clutch-jaws adapted to separate said clutch-jaws, a spring-actuated cog-wheel adapted to drive said last-described jaw, means for throwing said clutch-jaws in and out of mesh and simultaneously releasing and locking respectively said last-described clutch-jaw.

4. In an attachment for returning the carriage of a type-writer, a cord-winding drum, a spring-actuated drum, suitable gearing by which said cord-winding drum is operated by said spring-actuated drum, a cord attached to said first-named drum and to the carriage-rod at the opposite end to which the cord for advancing the carriage is attached, compound levers for connecting and disconnecting said drums through said gearing and a button for operating said levers.

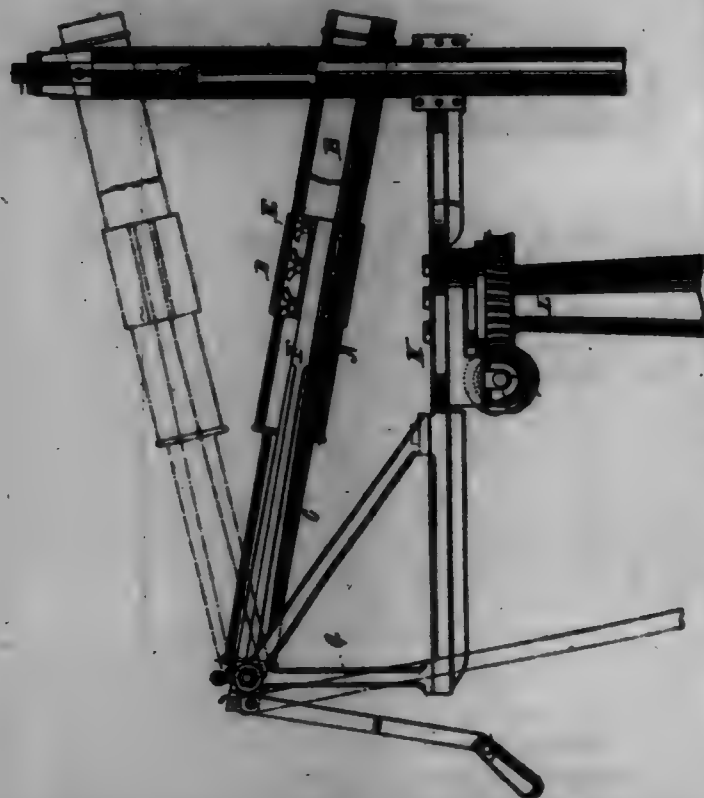
5. In a type-writer provided with a suitable component mechanism for driving the carriage from right to left; means for returning said carriage to starting-point consisting of a cord attached to the left side of the carriage-frame, a drum for winding said cord, a second drum provided with a suitable spring for retaining said first-named drum, a clutch for locking said drums, and a key provided with suitable connecting-levers for operating said clutch whereby said carriage can be started or stopped at any point in the line thereof.

6. In a type-writer provided with a suitable component mechanism for driving a carriage from right to left; the combination with means for returning said carriage to the right, of line-moving mechanism consisting of a rock-shaft mounted on the carriage-frame, a lever mounted rigidly on said shaft and provided with a finger pivoted thereon for rotating the plate-roller, a handle mounted on said shaft, and a trip mounted on the

type-writer frame for operating said handle, said handle being adapted to pass over said trip going to the left without rocking said shaft and in rock said shaft when going to the right.

7. In a type-writer provided with component mechanism for driving the carriage from the right to the left; means for returning said carriage to the right consisting of a cord attached to the left side of the frame of said carriage, a drum for winding said cord, a spring-drum for operating said drum, clutch-jaws for locking said drums, and means for throwing said clutch-jaws in and out of mesh consisting of a yoke on one side of said clutch-jaws, a disk on the other side thereof, said yoke having arms attached to said disk, said disk having flaps for inserting in the apertures in the adjacent clutch-jaw, a lever having two prongs or arms attached to said disk, means for operating said lever, and a spring between said clutch-jaws.

699,800. TELESCOPE-MOUNT. BRANLEY A. PINK, U. S. NAVY. Filed Oct. 29, 1901. Serial No. 99,418. (No model.)



Claim.—1. A telescope and a support therefor, the said telescope being mounted on a pivot and having its eyepiece in the line of said pivot.

2. The combination of a telescope pivoted for vertical motion and having its eyepiece in the line of its pivot, and a supporting-carriage pivoted for motion in azimuth.

3. A telescope, a carriage therefor, the said telescope being pivoted to said carriage at its eyepiece end and a head-rest on said carriage, disposed above said eyepiece.

4. A telescope, a carriage therefor, the said telescope being pivoted to said carriage at its eyepiece end and means for counterbalancing the free end of said telescope.

5. The combination of the carriage K, standards G thereon, telescope A pivoted at its eyepiece end in said standards and means supported on said carriage for counterbalancing the free end of said telescope.

6. The combination of the carriage K, standards G thereon, telescope A pivoted at its eyepiece end in said standards, means supported on said carriage for counterbalancing the free end of said telescope, a lever H for turning said telescope on its pivot, the said counterbalancing means and lever H being connected to said telescope on opposite sides of said pivot.

7. The combination of the carriage K, standards G thereon, telescope A pivoted at its eyepiece end in said standards, means supported on said carriage for counterbalancing the free end of said telescope, and a head-rest V supported on said standards G and above said eyepiece.

8. The combination of the carriage K, standards G and tubes O thereon, a telescope A pivoted at its eyepiece end in said standards and counterbalance-weights connected to said telescope and suspended in said tubes.

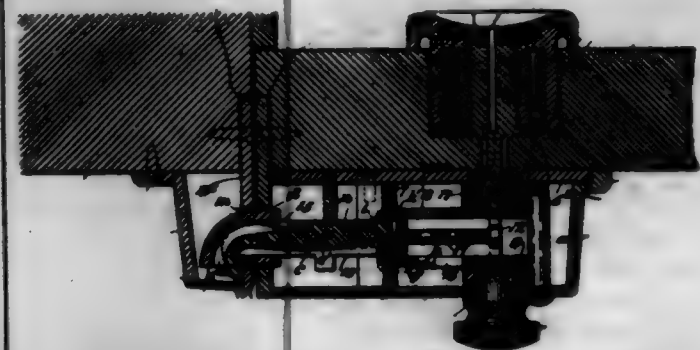
9. The combination of a carriage, arms pivoted at one end on said carriage, a telescope A supported by said arms, and means for counterbalancing said telescope.

10. The combination of a carriage, arms pivoted at one end in said carriage, a telescope supported by said arms, and detachably connected thereto, and means for counterbalancing said arms and telescope detachably connected to the said carriage.

11. The combination of the carriage K, standards G thereon, telescope A pivoted at its eyepiece end in said standards, means supported on said carriage for counterbalancing said telescope, and an arm H for turning said telescope on its pivot.

12. In combination with a telescope-mount having a carriage movable about a vertical pivot and two standards, on said carriage, a telescope supported on a horizontal pivot between said standards, and having its eyepiece in the line of said horizontal pivot.

699,801. COMBINED LOCK AND LATCH. HOWARD A. FORD, Burlington, Iowa. Filed Oct. 8, 1901. Serial No. 77,361. (No model.)



Claim.—1. The combination with a casing, a slidable latch-bolt having a longitudinal slot, and a coiled spring adapted to normally project the latch-bolt at one end from the casing, of a dog in bar form, having a laterally-hooking toe at one end and pivoted between its ends in the slot, so as to rock on the latch-bolt, a spring held between the latch-bolt and dog, normally pressing its toe outwardly, and a cam rockable in the casing at the rear of the dog and adapted to press its edge laterally on the inner end of the dog to retract its toe within the latch-bolt.

2. The combination with a casing, a slidable latch-bolt having parallel guide-rod thereon, and a longitudinal slot therein, and springs mounted on the guide-rod which press the latch-bolt outwardly, of a dog having a lateral toe at one end and pivoted to rock in the slot of the latch-bolt, a cam in plate form rockable in the casing at the rear of the dog, the edge of said cam being adapted to press laterally on the dog to rock it, said cam being adapted to subsequently slide the bolt against stress of the springs.

3. The combination with a casing, and a slidable latch-bolt in said casing having a latching-ear, of a dog pivoted to the bolt between its ends, a lateral toe on the end of the dog, a spring pressing the toe beyond one side of the nose, and manually-operated means for rocking the dog to withdraw the toe and subsequently retract the latch-bolt, said means being operative from either side of the lock-casing.

4. In a combined latch and lock, the combination of a casing, a strike-plate, a spring-pressed latch-bolt, a rockable dog mounted on the latch-bolt and adapted to interlock with the strike-plate when the latch-bolt is engaged therewith, a stub-spindle rockable in each side wall of the casing, and a cam-plate on each spindle, which will independently depress the dog for its release from the strike-plate, when the spindle that carries said cam-plate is rockably moved.

5. In a combined latch and lock, the combination of a casing, a strike-plate, a spring-pressed latch-bolt slidable in the casing for engagement of its nose with the strike-plate, a rockable dog on the latch-bolt, spring-pressed at one bent end to interlock said end with the strike-plate when the latch-bolt is engaged therewith, two stub-spindles oppositely held to rock in respective sides of the casing, a cam-plate on each spindle, each adapted to independently rock the dog for its release from the strike-plate when the spindle carrying said cam-plate is rocked, cam-wings on each cam-plate, and arms carried by the latch-bolt, whereon said cam-wings on the cam-plates have spring-pressed contact.

699,802. GRINDING-WHEEL. GEORGE E. POWLER and WILLIAM D. HOWE, Cortland, N. Y. Filed May 14, 1901. Serial No. 60,173. (No model.)

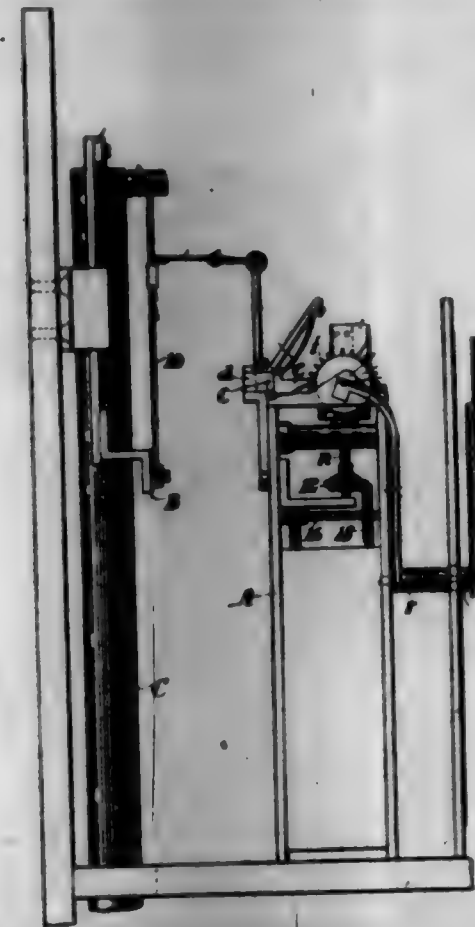


Claim.—1. A grinding-wheel comprising a reinforcing-ring embedded therein and laterally-projecting spurs connected with the ring.

2. A grinding-wheel comprising concentrically-arranged reinforcing-rings embedded therein and radial ties connecting the rings.

3. A grinding-wheel comprising concentrically-arranged reinforcing-rings embedded therein, laterally-projecting spurs connected with the rings and radial ties connecting the rings.

699,803. CHIMING-MECHANISM FOR CLOCK. THOMAS J. FOX, Boston, Mass., assignor to Rogers, Lamart & Co., Boston, Mass., & Fox. Filed Nov. 14, 1901. Serial No. 82,382. (No model.)



Claim.—1. In a chiming-clock, the combination with a time mechanism, of the chimino, a hammer mechanism therefor, a chime-cylinder having pins for actuating the hammer mechanism, means permanently geared to the chime-cylinder for rotating it, means whereby the pins on the chime-cylinder and the hammer mechanism may be thrown into and out of operative relation with respect to each other, and means for periodically releasing or setting in action the chime-cylinder-rotating mechanism from the time mechanism to sound the chimino, whereby, when the cylinder-pins and the hammer mechanism are thrown out of operative relation, the periodical revolution of the said cylinder will continue in regular order with respect to the hammer-operating mechanism.

2. In a chiming-clock, the combination with a time mechanism, of the chimino, a hammer mechanism therefor, a chime-cylinder having pins for actuating the hammer mechanism, means for moving the cylinder bodily to throw its pins into and out of the path of the hammer mechanism, means permanently geared to the chime-cylinder for rotating it, and means for periodically releasing or setting in action the chime-cylinder-rotating mechanism from the time mechanism to sound the chimino, whereby when the chime-cylinder is moved to throw its pins out of operative relation with the hammer mechanism, its periodical revolutions will continue in regular order with respect to the hammer-operating mechanism without disturbing the relative relation of its pins to the hammer-actuating mechanism.

3. In a chiming-clock, the combination with a time mechanism, of the chimino, a hammer mechanism therefor including hammer-levers, a longitudinally-movable chime-cylinder provided with a series of pins for actuating the hammer-levers, means for moving the cylinder longitudinally to throw its pins into and out of the paths of said hammer-levers, means permanently in gear with said chime-cylinder for rotating the same, means for periodically releasing or setting in action the chime-cylinder-rotating mechanism from the time mechanism, whereby longitudinal movement of the chime-cylinder will not interfere with its rotary movement and thus the relative relation of the cylinder-pins and hammer-levers be maintained.

4. In a chiming-clock, the combination with a time mechanism, of the chimino, a hammer mechanism therefor including hammer-levers, a longitudinally-movable chime-cylinder provided with a series of pins for actuating the hammer-levers, a spring holding the cylinder with its pins in register with the hammer-levers, a shut-off lever to move the chime-cylinder against the action of its spring, a wide gear on the chime-cylinder, a driving pinion or gear in permanent mesh with said wide gear and forming part of the chime-train, whereby the chime-cylinder will be rotated whenever released without any relative change between its pins and the hammer-levers, and means for periodically releasing the chime-train from the time mechanism.

699,804. FISHING-BAIT HOLDER. VICTOR GEMARDE, St. Louis, Mo. Filed Nov. 11, 1901. Serial No. 81,878. (No model.)



Claim.—1. The combination with a fish-hook having a plurality of shanks joined at the line-attaching end of the hook, and separate barbed ends, of a bait-holder secured to the fish-hook at its line-attaching end, and consisting of a plurality of members extending toward said barbed ends, said members being bent to cross each other, bent reversely to form bait-engaging hooks, and the members being adapted to be pressed together, whereby the bait-hooks near the barbed fish-hook ends are separated to allow insertion of bait.

2. The combination with a fish-hook, of a bait-holder secured to the fish-hook at its line-attaching end, and consisting of a plurality of members extending toward the barbed end of the fish-hook, said members being bent to cross each other, bent reversely to form bait-engaging hooks, and the members being adapted to be pressed together, whereby the bait-hooks, near the barbed end of the fish-hook, are separated to allow insertion of bait.

699,805. MECHANISM FOR OPERATING ELEVATOR-DOORS. CHARLES E. GILMORE, Chicago, Ill., assignor to the Winslow Bros. Co., Chicago, Ill., a Corporation of Illinois. Filed Oct. 19, 1901. Serial No. 73,128. (No model.)



Claim.—1. In a mechanism for operating elevator-doors, the combination with a slidable door and a normally stationary shaft connected thereto and adapted, by its rotation, to open said door, of shaft-rotating devices connected to said shaft and adapted to be set in motion at the will of the operator; substantially as described.

2. The combination with a slidable door and a normally stationary shaft connected thereto and adapted by its rotation in one direction to open said door and in the opposite direction to close the same, of devices for rotating said shaft in both directions, and means for throwing said shaft-operating devices in action at the will of the operator; substantially as described.

3. The combination with a slidable door and a normally stationary shaft adapted by its rotation to open and close said door, of devices for rotating said shaft, means for throwing said devices into gear at will and devices for automatically throwing them out of gear when the door comes to an open or closed position; substantially as described.

4. The combination with a slidable door and a shaft connected thereto, and adapted by its rotation, to open the same, of a pinion upon said shaft, a rack-bar in mesh therewith, slidable devices for advancing said rack-bar to rotate said shaft and devices adjacent to the door adapted to throw the bar-advancing devices into gear at will; substantially as described.

5. The combination with a slidable door and a shaft connected thereto and adapted by its rotation in one direction to open said door and in the opposite direction to close the same, of a pinion upon said shaft, a rack-bar meshing therewith, devices for reciprocating said rack-bar to open and close a door and means for throwing said devices into gear at will; substantially as described.

6. The combination with a slidable door and a shaft adapted, by its rotation in one direction, to open said door, and in the other direction, to

close the cone, of device for rotating said shaft, a clutch for throwing said device into gear, and means upon the shaft-rotating device adapted to automatically release the clutch when the door comes to an open or closed position; substantially as described.

7. The combination with a slidable door and a shaft connected thereto and adapted by its rotation to open said door, of a pinion on said shaft, a rack-bar, a rotatable arm connected to said bar and means for governing the rotation of said arm at the will of the operator; substantially as described.

8. The combination with a rotatable shaft, of a slidable door, a spool, a ribbon connected to the door and adapted to be wound upon the spool to open the door and suitable device for throwing said spool into rotatable engagement with the shaft; substantially as described.

9. The combination with a shaft adapted to be alternately rotated in both directions, of a slidable door, a spool upon said shaft, ribbons connected to opposite sides of the door, and adapted to be wound upon the spool and suitable means for rotatably connecting the spool with the shaft at will; substantially as described.

10. The combination with a shaft adapted to be rotated in both directions and a slidable door, of a spool, loose upon said shaft, connecting device between the door and spool a clutch fast upon the shaft, and suitable device for throwing said clutch into working engagement with the spool; substantially as described.

11. The combination with a shaft extending vertically in the elevator-well, and a slidable door, of suitable device upon the shaft operated thereby to open the door when rotated in one direction and to close the same when rotated in the opposite direction, of means for throwing said device into working engagement with the shaft and for simultaneously starting the rotation; substantially as described.

12. The combination with a normally stationary shaft, and a slidable door, of a spool loose upon said shaft, a flexible connection between said spool and one side of the door, a clutch upon the shaft, device for rotating said shaft and a lever adapted to be actuated to throw said clutch into engagement with the spool and simultaneously start the shaft-operating device; substantially as described.

13. The combination with a shaft and a slidable door, of a spool loose upon the shaft, flexible connection between said spool and the side of the door, whereby the rotation of the spool in one direction opens the door, and in the other closes the same, a clutch upon said shaft, mechanism for rotating said shaft in either direction, a lever for throwing said clutch into engagement with the spool and simultaneously starting the shaft-operating mechanism in the direction to open the door, device whereby the release of said lever starts the shaft-operating mechanism in the other direction, and device for keeping said clutch in engagement with the spool when said lever has been released and until the door is fully closed; substantially as described.

14. The combination with the shaft and a slidable door, of a spool loose upon said shaft, a flexible connection between said door, and the spool adapted to be wound thereupon in the closing of the door, mechanism for rotating the shaft, a lever for throwing said spool into engagement with the shaft, a dog for holding it in engagement therewith after the release of the lever until the door comes to a closed position, means for rotating the shaft and connections between said lever and the shaft-rotating mechanism, whereby the release of the lever starts said mechanism to close the door; substantially as described.

15. A rotatable shaft, a slidable door, a spool loose upon the shaft, a ribbon connecting the door with the spool, and adapted to be wound thereupon in the opening of the door, and a clutch upon the shaft adapted to rotatably connect the shaft with the spool; substantially as described.

16. A rotatable shaft, a slidable door, a spool loose upon said shaft adapted by its rotation to open and close said door, a clutch for throwing said shaft into engagement with the spool and device for locking the door to the clutch when in a closed position, said device being unlocked by the throwing of the clutch into engagement with the spool; substantially as described.

17. In a door opening and closing mechanism, the combination with a suitably-supported slidable door, of a rotatable shaft journaled adjacent thereto, suitable driving mechanism, connections between the shaft and the driving mechanism, adapted, when thrown into engagement, to rotate the shaft, connections between the shaft and the door adapted to move the door by the rotation of the shaft when engaged with the latter, and means for simultaneously throwing the shaft-rotating connections into action and the door-moving connections into engagement with the shaft; substantially as described.

18. The combination with a suitable support, and a slidable door mounted thereon, of a rotatable shaft journaled adjacent to the door, connections between the shaft and the door normally out of engagement with the shaft, but adapted when in engagement therewith to move the door by the rotation of the shaft, suitable driving-gear, connections between the driving-gear and the shaft, normally out of action, but adapted, when

thrown into action, to rotate said shaft, and means for simultaneously throwing said shaft-rotating connections into action and said door-moving connections into engagement with the shaft; substantially as described.

699,808. SAFETY APPLIANCE FOR USE IN CLEANING WINDOWS. HENRY GOLDENFARB, London, England. Filed June 17, 1901. Serial No. 64,917. (No model.)



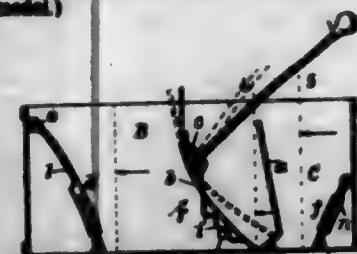
Claim.—1. In an appliance of the character described, the combination with a bar, a clamping-screw on one end of said bar, of a second bar having a clamping-screw on one end and adapted to slide on the first bar, a guide-clip on each bar through which the other bar is adapted to slide, and means for locking said bars together, substantially as described.

2. In an appliance of the character described, the combination with a bar, a clamping-screw on one end of said bar, of a second bar having a clamping-screw on one end and adapted to slide on the first bar, a guide-clip on each bar through which the other bar is adapted to slide, means for locking said bars together, a rope attached to one of said bars, a belt, and means for attaching said belt to said rope, substantially as described.

3. In an appliance of the character described, the combination with a bar, a clamping-screw on one end of said bar, of a second bar having a clamping-screw on one end and adapted to slide on the first bar, a guide-clip on each bar through which the other bar is adapted to slide, a pulley on one of said clips, a rope attached to the other clip and passing over said pulley for sliding one bar on the other, and means for locking said bars together, substantially as described.

4. In an appliance of the character described, the combination with a bar, a clamping-screw on one end of said bar, of a second bar having a clamping-screw on one end and adapted to slide on the first bar, a guide-clip on each bar through which the other bar is adapted to slide, a pulley on one of said clips, a rope attached to the other clip and passing over said pulley for sliding one bar on the other, means for locking said bars together, a belt, and means for attaching said belt to said bars, substantially as described.

699,807. APPARATUS FOR APPLYING FILLERS TO FLOORS. WILLIAM E. CRISTIN, Newark, N. Y. Filed Aug. 23, 1901. Serial No. 74,006. (No model.)



Claim.—1. A device for applying fillers to floors, comprising a hollow bottomless cone or body for receiving the filling material, a transverse movable rub-board in the body, and means to operate the rub-board and to propel the device by hand, substantially as shown and described.

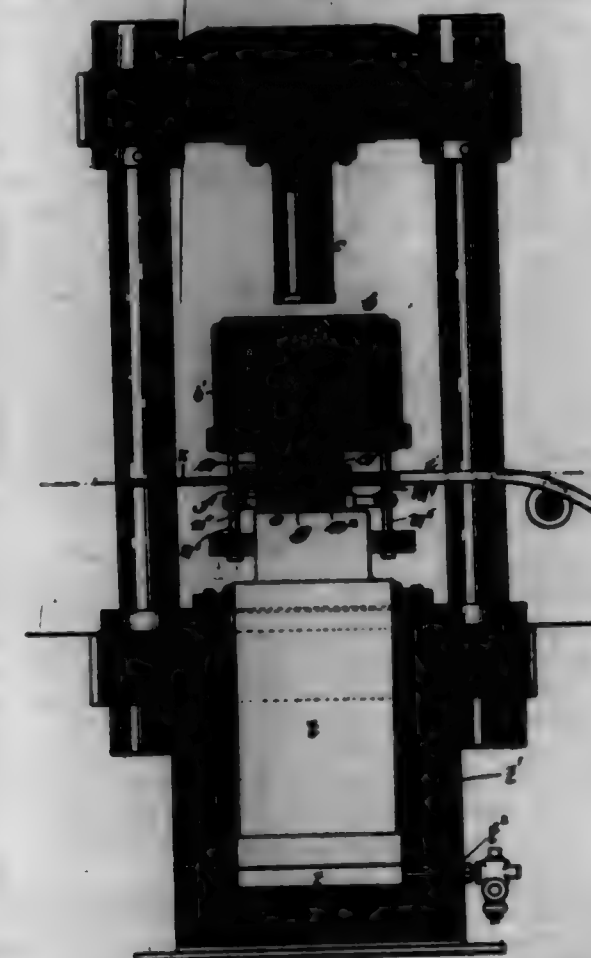
2. A device for applying fillers to floors, comprising a hollow bottomless body for receiving the filling material to move upon the floor, a transverse pivoted rub-board in the body, inclined to the floor, and a propelling-handle secured to the rub-board, substantially as and for the purpose set forth.

3. A device for applying fillers to floors, comprising a hollow bottomless body for receiving the filling material, a transverse inclined rub-board resting in bearings in the body and formed with horizontal corrugations, and an operating-handle secured to the rub-board to turn it upon its bearings, and to propel the device, substantially as shown and described.

4. A device for applying fillers to floors, comprising a hollow bottomless body for receiving the filling material, a transverse partition dividing the space in the body into forward and rear apartments, a rub-board and a cleaner in the forward apartment, and a cleaner in the rear apartment, with means to operate the device, substantially as shown and described.

5. A device for applying fillers to floors, having a hollow bottomless body for receiving the filling material, a partition dividing the space in the body, a rub-board adapted to turn upon an axis in the body, an operating-handle secured to the rub-board, the partition having a curved part adjacent to the lower edge of the rub-board and concentric with the axis of the rub-board, and cleaners in the body, substantially as shown and described.

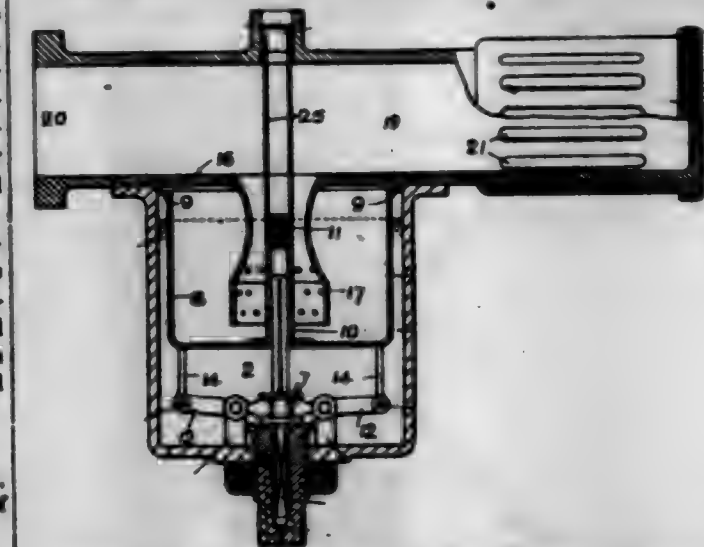
699,808. LEAD-PRESS. ROBERT F. HALL, East Orange, N. J., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 14, 1901. Serial No. 47,367. (No model.)



Claim.—1. In a lead-press, the combination with a die-block having a forming-chamber hollowed in the interior thereof, and a die and core-tube meeting in alignment in said chamber to form a die-opening, a single unobstructed passage *g* being provided in the die-block through which lead may be forced into the said chamber, said passage opening directly upon the body portion of the core at the rear of the die-opening, a raised supporting-tongue *A* extending along the wall of the forming-chamber at a point directly opposite the opening of said passage, said core-tube resting upon and being contained by said tongue at each point against the pressure of the lead entering the forming-chamber through said passage, means for forcing plastic lead into the forming-chamber through said passage, gas-burners arranged to direct their flames upon the die-block, and adjustable mountings for said burners, whereby the application of the heat to the lead in the forming-chamber may be varied to compensate for variations in pressure at different parts of said chamber.

2. In a lead-press, the combination with a die-block having a forming-chamber therein and a die and core-tube meeting in alignment therein to form a die-opening, a single unobstructed passage *g* being provided in the die-block, opening directly upon the body portion of the core-tube at the rear of the die-opening, means for forcing plastic lead through said passage into the forming-chamber and so through the die-opening, and a raised supporting-tongue *A* extending along the wall of the forming-chamber opposite the mouth of said passage *g*, the core-tube resting upon and being contained by said tongue.

699,809. CARBURTING DEVICE FOR INTERNAL-COMBUSTION MOTORS. CHARLES A. HAMILTON, Coventry, England. Filed Mar. 11, 1901. Serial No. 50,736. (No model.)



Claim.—1. In a carburting device for internal-combustion motors, the combination of a vessel, a liquid-supply pipe to said vessel, a needle-valve to said supply-pipe, a float, a lever connection between said float and the needle of the said valve, a tube carried by said float, an extension of said needle adapted to work in each tube, a passage between said tube and said extension of the needle, and a needle carried by the said tube, substantially as set forth.

2. In a carburting device for internal-combustion motors, the combination of a float exposed to the action of the piston, a needle carried by said float, an open-ended socket and a plunger connected to the said float and needle and free to slide in the said socket, substantially as and for the purpose set forth.

3. In a carburting device for internal-combustion motors, the combination of a vessel, a liquid-supply pipe to said vessel, a needle-valve to said supply-pipe, a cup adapted to float in said liquid, a lever connection between the said cup and the needle of the said valve, a tube carried by said cup, a needle carried by said tube, an extension of said needle adapted to work in said tube, a passage between said tube and said extension of the needle, a cover to the vessel, air-apertures in the said cover, a mixture-chamber, a sleeve communicating with said mixture-chamber and surrounding said tube and said needle, perforations in said mixture-chamber, and a perforated cap rotatable on the perforated part of said mixture-chamber, substantially as and for the purpose set forth.

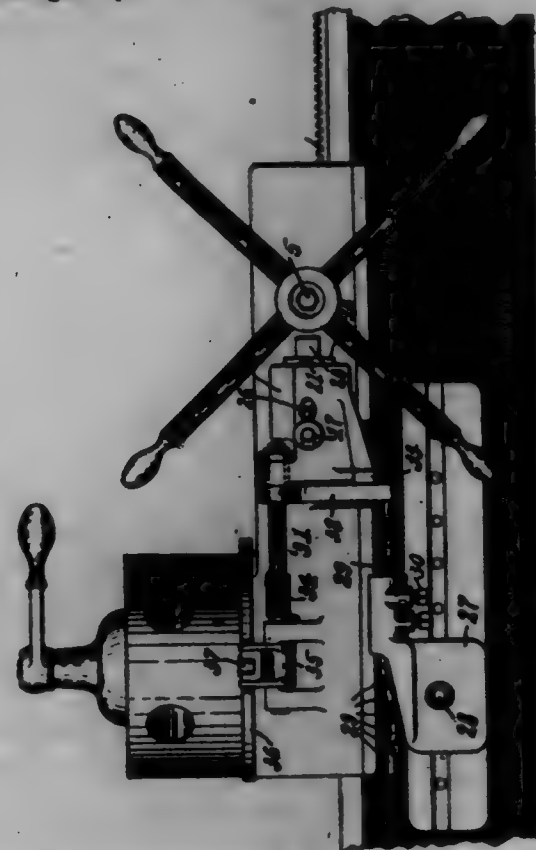
4. In a carburting device for internal-combustion motors, the combination of a vessel, a liquid-supply pipe to said vessel, a needle-valve to said supply-pipe, a cup adapted to float in said liquid and exposed to the action of the piston, a lever connection between the said cup and the needle of the said valve, a tube carried by said cup, a needle carried by said tube, an extension of said needle adapted to work in said tube, a passage between said tube and said extension of the needle, a cover to the vessel, air-apertures in the said cover, a mixture-chamber, a sleeve communicating with said mixture-chamber and surrounding said tube and said needle, perforations in said mixture-chamber, a perforated cap rotatable on the perforated part of said mixture-chamber, an open-ended socket, and a plunger connected to the said cup and needle and free to slide in the said socket, substantially as and for the purpose set forth.

699,810. LATHE-TURRET STOP. ROBERT M. W. HAMM, Hartford, Conn., assignor to The Pratt & Whitney Company, Hartford, Conn. Filed Dec. 18, 1901. Serial No. 56,370. (No model.)

Claim.—1. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a series of stop-rods supported by the bed, a finger carried by the turret-slide and movable into the line of any selected stop-rod, a support for said finger mounted for longitudinal movement on the turret-slide, a rigid stop to limit the extent of said support upon the turret-slide, a latch serving to lock said power mechanism into action, and connections between said support and latch whereby the retreating movement of said support toward said rigid stop serves to disengage said latch before the support reaches the rigid stop.

2. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a series of independently-adjustable stop-rods supported by the bed, a finger carried by the turret-slide and movable into the line of any selected stop-rod, a support for said finger mounted for longitudinal movement on the turret-slide, a rigid stop

to limit the retreat of said support upon the turret-slide, a latch serving to lock said power mechanism into action, and connections between said support and latch whereby the retracting movement of said support toward said rigid stop serves to disengage said latch before the support reaches the rigid stop.



3. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a bracket supported by the bed, a series of stop-rods supported by the bracket, a finger carried by the turret-slide and movable into the line of any selected stop-rod, a support for said finger mounted for longitudinal movement on the turret-slide, a rigid stop to limit the retreat of said support upon the turret-slide, a latch serving to lock said power mechanism into action, and connections between said support and latch whereby the retracting movement of said support toward said rigid stop serves to disengage said latch before the support reaches the rigid stop.

4. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a bracket supported by the bed and longitudinally adjustable along the same, a series of stop-rods supported by the bracket, a finger carried by the turret-slide and movable into the line of any selected stop-rod, a support for said finger mounted for longitudinal movement on the turret-slide, a rigid stop to limit the retreat of said support upon the turret-slide, a latch serving to lock said power mechanism into action, and connections between said support and latch whereby the retracting movement of said support toward said rigid stop serves to disengage said latch before the support reaches the rigid stop.

5. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a bracket carried by the bed and longitudinally adjustable along the same, a series of stop-rods supported by the bracket and longitudinally adjustable therein, a finger carried by the turret-slide and movable into the line of any selected stop-rod, a support for said finger mounted for longitudinal movement on the turret-slide, a rigid stop to limit the retreat of said support upon the turret-slide, a latch serving to lock said power mechanism into action, and connections between said support and latch whereby the retracting movement of said support toward said rigid stop serves to disengage said latch before the support reaches the rigid stop.

6. In a turret-lathe, the combination, substantially as set forth, of a lathe-bed, a turret-slide, a turret, means for advancing the turret toward the head end of the bed, a series of stop-rods supported by the bed between its ends and independent of the turret and presenting their ends in the direction of the tail end of the bed and held rigidly to resist endwise motion when their tail ends are pushed upon, and a finger pivoted to the turret-slide and adapted to be swung into the line of any selected stop-rod and engage and be arrested by the tailward presenting end thereof.

7. In a turret-lathe, the combination, substantially as set forth, of a lathe-bed, a turret-slide, a turret, means for advancing the turret toward the head end of the bed, a series of longitudinally-adjustable stop-rods

supported by the bed between its ends and independent of the turret and presenting their ends in the direction of the tail end of the bed and held rigidly to resist endwise motion when their tail ends are pushed upon, and a finger pivoted to the turret-slide and adapted to be swung into the line of any selected stop-rod and engage and be arrested by the tailward presenting end thereof.

8. In a turret-lathe, the combination, substantially as set forth, of a bed, a turret-slide, a turret, disengageable power mechanism for feeding the turret-slide along the bed, a latch carried by the turret-slide and adapted to lock the power mechanism into action, a series of stop-rods fixedly supported by the bed, a transversely-movable finger carried by the turret-slide and adapted to be moved into the line of any selected stop-rod and mounted to have a motion of retreat upon the turret-slide, a stop carried by the turret-slide and adapted to serve in limiting the retracting motion of the finger, and connections between said finger and latch to cause the retracting motion of the finger to release the latch.

9. In a turret-lathe, the combination, substantially as set forth, of a bed, a turret-slide, a turret, disengageable power mechanism for feeding the turret-slide along the bed, a latch carried by the turret-slide and adapted to lock the power mechanism into action, a series of stop-rods fixedly supported by the bed, a finger carried by the turret-slide and mounted for longitudinal movement thereon and constructed to be moved into the line of any selected stop-rod and adapted to serve in limiting the retracting motion of the finger, connections between said finger and latch to cause the retracting motion of the finger to release the latch, and mechanism connecting the turret and the finger to cause the finger to move into line with the several stop-rods in accordance with the angular motion of the turret.

10. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the turret-slide along the bed, of a series of stop-rods fixedly supported by the bed, a finger carried by the turret-slide and movable into the line of any selected stop-rod and capable also of a retracting movement upon the turret-slide, mechanism connecting the turret and finger to move the finger into line with the several stop-rods in correspondence with the angular motion of the turret, a latch-rod mounted in the turret and serving to engage and disengage the power mechanism, a latch carried by the turret-slide and engaging the latch-rod and holding it in position corresponding with the engaged position of the power mechanism, and connections between the latch and the finger to cause the latch to be released by the retracting motion of the finger.

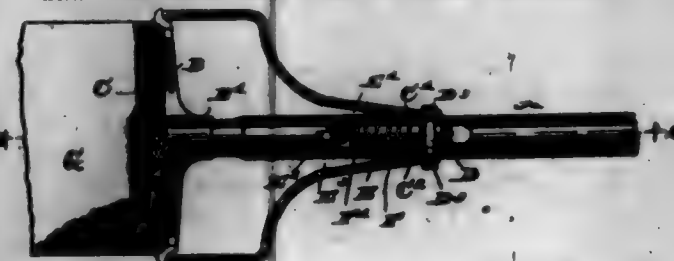
11. In a turret-lathe, the combination, substantially as set forth, of a lathe-bed, a turret-slide, a turret, releasable power mechanism for feeding the turret-slide along the bed, a series of stop-rods fixedly supported by the bed, a block mounted to slide horizontally on the turret-slide, a stop carried by the turret-slide to limit the rearward sliding of the block, a latch carried by the block and adapted to serve in retaining the power mechanism in action, a finger mounted on the block and adapted to move into line of any selected stop-rod, and mechanism connecting the turret and the finger to cause the finger to move into the line of the several stop-rods in correspondence with the angular movement of the turret.

699,811. SHEET-METAL PARTING-CLEAT. FREDERICK E. HERR, Louisville, Ky., assignor of two-thirds to CURTIS POPE and ALFRED THURMAN POPE, Louisville, Ky. Filed Aug. 23, 1901. Serial No. 73,002. (No model.)



Claim.—A cleat composed of a rectangular plate of metal bent on a line parallel to its edge to form two flanges, one flange being plane, the other flange having points struck from its body with their faces in the plane of the plane flange but projecting in opposite direction, and having also points struck from its edge with their bases perpendicular to the plane flange, and extending in reverse direction from the plane flange.

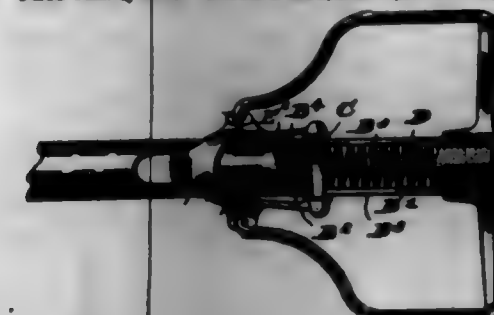
699,812. MOP-HEAD. AUGUST S. HELM, Prospect, Ill., assignor to Stover Manufacturing Company, Prospect, Ill., a Corporation of Illinois. Filed Oct. 30, 1902. Serial No. 80,570. (No model.)



Claim.—1. In a mop-head, in combination, a handle, a casing comprising a fixed clamping-jaw and a handle-socket, a counterpart movable clamping-jaw—parallel with the fixed jaw—having its ends extending and converging rearwardly and united by connecting means, a lever fulcrumed, by one end, to the handle, and extending therefrom rearwardly through the connecting means of the clamping-jaw ends, and a spring interposed between said connecting means and a bearing at the lower end and portion of the lever, substantially as and for the purpose specified.

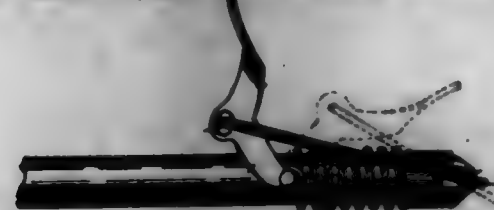
2. The combination of a handle A, with a fixed clamping-jaw B fast thereto, a movable clamping-jaw C having its ends C' C'' extending and converging rearwardly, means, as a collar D, for uniting the ends C' C'' of the jaw C, a lever E fulcrumed, by one end, to the handle A, and extending therefrom through the collar D, and a spring F normally acting to clamp the jaw C against the jaw B, substantially as and for the purpose specified.

699,813. MOP-HEAD. AUGUST S. HELM, Prospect, Ill., assignor to Stover Manufacturing Company, Prospect, Ill., a Corporation of Illinois. Filed Jan. 4, 1903. Serial No. 82,422. (No model.)



Claim.—In a mop-head, in combination, a handle, a casing comprising a fixed clamping-jaw; a transversely-slotted spring-chamber; and a handle-socket, a fulcrum, extending through, and adapted to slide in and longitudinally of, the transverse slot in the spring-chamber, a spring, inclined in each chamber and normally acting to force the fulcrum from the fixed jaw, a bifurcated lever, connected, by its fulcrum, with the ends of the fulcrum, a counterpart movable clamping-jaw, parallel with the fixed jaw, having its ends extending and converging rearwardly and pivotally connected with the lever, at its mid-portion, substantially as and for the purpose specified.

699,814. MOP-HEAD. AUGUST S. HELM, Prospect, Ill., assignor to Stover Manufacturing Company, Prospect, Ill., a Corporation of Illinois. Filed Jan. 4, 1903. Serial No. 82,423. (No model.)



Claim.—In a mop-head, in combination, a stick having a transverse slot extending therethrough, a casing comprising a fixed clamping-jaw and a handle-socket, a fulcrum, extending through, and adapted to slide in and longitudinally of, the transverse slot in the stick, a coiled spring—encircling the stick—compressible between the socket on the fixed jaw and the slidable fulcrum, and normally acting to force each fulcrum from the fixed jaw, a bifurcated lever, connected, by its fulcrum, with the ends of the fulcrum, a movable clamping-jaw—parallel with the fixed jaw—having its ends extending and converging rearwardly and pivotally connected with the lever at its mid-portion, substantially as and for the purpose specified.

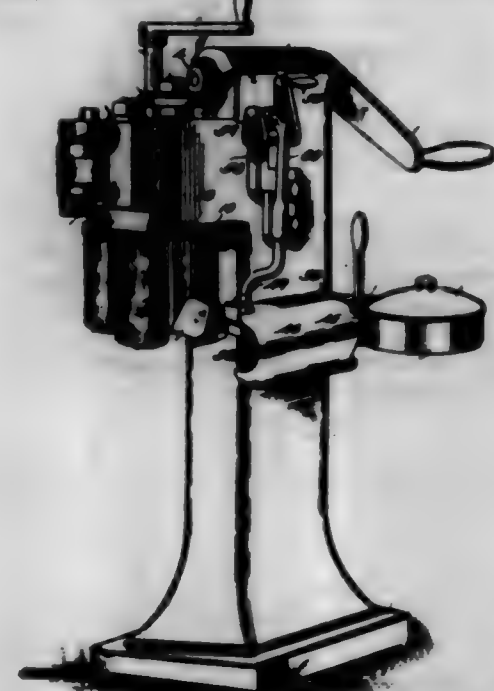
699,815. MOP-HEAD. AUGUST S. HELM, Prospect, Ill., assignor to Stover Manufacturing Company, Prospect, Ill., a Corporation of Illinois. Filed Jan. 4, 1903. Serial No. 82,427. (No model.)



Claim.—In a mop-head, in combination, a stick, a casing comprising an upper clamping-jaw and a transverse socket adapted to admit

and freely slide on the lower end and portion of the stick, a fulcrum extending through and fixed in the stick, a bifurcated lever, connected by its fulcrum, with the ends of the fulcrum, a counterpart lower clamping-jaw—parallel with the upper jaw—having its ends extending and converging rearwardly and pivotally connected with the mid-portion of the lever, and means for slidably connecting the socket of the upper jaw with the stick, substantially as and for the purpose specified.

699,816. MACHINE FOR FINISHING BOTTOMS OF TROUSERS. WILLIAM HERR, Stevens, Ill. Filed Sept. 14, 1901. Serial No. 73,037. (No model.)



Claim.—1. In a machine of the class set forth, an ironing-roll, means for heating the same, a pressing-roll, means for moving the same toward and from the ironing-roll, a hemming attachment, and means for feeding an adhesive strip into said hem.

2. In a machine of the class set forth, an ironing-roll, means for heating the same, a pressing-roll, a hemming attachment, and means for moving said hemming attachment into and out of operable relation to the rolls.

3. In a machine of the class set forth, an ironing-roll, means for heating the same, a pressing-roll having a covering of yielding material, means for moving the pressing-roll toward and from the ironing-roll, a hemming attachment movable into and out of operable relation to the rolls, and means for guiding and feeding an adhesive strip into said hem.

4. In a machine of the class set forth, ironing and pressing rolls, a movable hemming attachment, an adhesive-strip-feeding means, and a covering device for the adhesive strip.

5. A machine of the class set forth, comprising ironing and pressing rolls, a hemming attachment movable into line with the said rolls and having a groove therein, and an adhesive-strip guiding and feeding means.

6. The combination with pressing and heating devices, a hemming attachment, means for feeding an adhesive strip to said hemming attachment, and a movable rest for covering a portion of the said means to protect the strip passing therethrough.

7. A machine of the class set forth, comprising heating and pressing devices, the pressing device being adjustable in relation to the heating device, and an adjustable and movable hemming attachment.

8. In a machine of the class set forth, ironing and pressing devices, a hemming attachment, an adhesive-strip-feeding means, and covering means for said strip located between the feeding means and the hemming attachment.

9. A machine of the class set forth, comprising pressing and heating devices, a feed-guide for an adhesive strip having a rearwardly-directed terminal, and means for severing the said strip located between the said terminal and the heating and pressing devices.

10. A machine of the class set forth, comprising vertically-disposed ironing and pressing rolls, a pivotally-mounted hemming attachment, and means for effecting the adjustment of the hemming attachment as a whole longitudinally of the rolls, whereby the attachment may be held in operable relation to said rolls, or may be moved beyond the ends of the rolls, substantially as specified.

11. A machine of the class set forth, comprising heating and pressing devices, an elevatable and depreciable hemming attachment, means for feeding an adhesive strip, and covering device for the adhesive strip located in advance of the said hemming attachment.

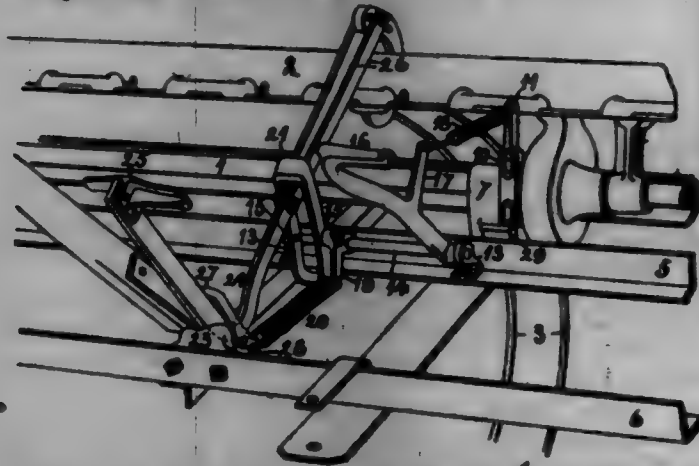
12. A machine of the class set forth, comprising heating and pressing devices, a hemming attachment, means for feeding an adhesive strip, and a movable rest having a finger projecting therefrom, the said rest and finger forming guard means for the adhesive strip.

699,817. **BUCKLE-SHIELD.** GEORGE L. HENRY, Erie, Ohio. Filed Jan. 20, 1902. Serial No. 90,442. (No model.)



Claim.—The combination with a buckle having a pivoted tongue, of a shield angular in length and provided with downwardly-projecting angular side flanges which are pivoted intermediate their ends to the sides of the buckle-frame at its front end and are adapted to guide the strap between the sides of the buckle-frame into position to be engaged with the tongue, substantially as set forth.

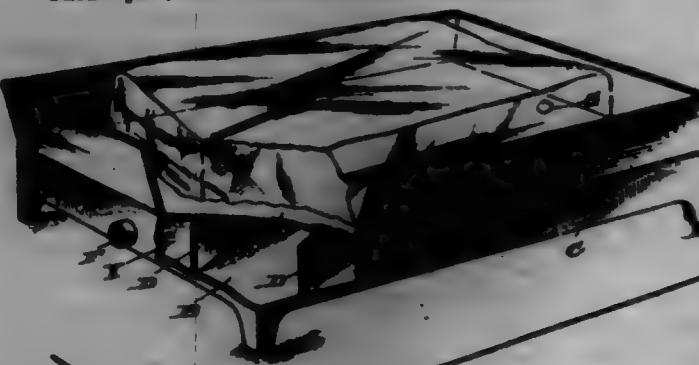
699,818. **HORN HAY-RAKE.** GEORGE F. HENDON, Rockford, Ill., assignor to Emerson Manufacturing Company, Rockford, Ill. Filed Sept. 3, 1901. Serial No. 74,188. (No model.)



Claim.—1. In a horse hay-rake, the combination of an axle, a rake-head, a tongue-supporting frame, a double link connection between the rake-head and tongue-supporting frame, a foot-lever, a loop receiving the double link connection, a connection between the foot-lever and loop, and a stop for the loop.

2. In a horse hay-rake, the combination of an axle, a rake-head, a tongue-supporting frame, a double link connection between the rake-head and tongue-supporting frame, a foot-lever, a loop receiving the double link connection, a connection between the foot-lever and loop, a stop for the loop, a pivoted bail and a spring connection between the bail and foot-lever.

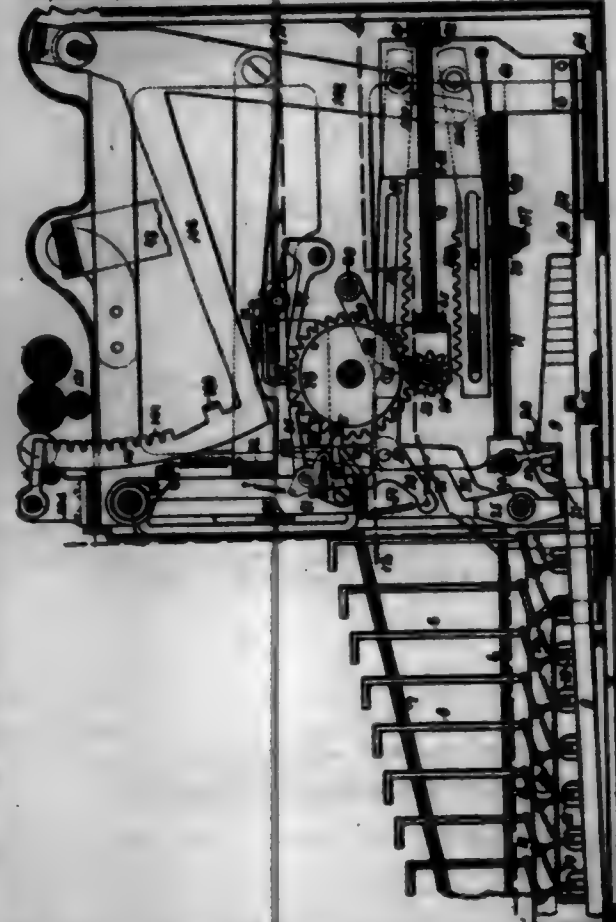
699,819. **KE-TRAY.** THOMAS W. HENNING, Los Angeles, Tex. Filed Sept. 4, 1901. Serial No. 74,221. (No model.)



Claim.—The herein-described combined ice-holder and water-cooler consisting essentially of the bottom wall, the wall of cold-conducting ma-

terial disposed in a plane above the bottom wall, the capacious side wall O extending upwardly from the bottom wall to a point above the cold-conducting wall, and permanently joined in a water-tight manner at their lower ends to the bottom wall, and at an intermediate point of their height to the cold-conducting wall; said side wall O serving in conjunction with the bottom and cold-conducting walls to form a water-chamber, and in conjunction with the cold-conducting wall to form an ice-receptacle above the water-chamber, and having inlet and outlet ports communicating with the water-chamber at opposite points, and the plurality of partitions arranged in the water-chamber at intervals between the inlet and outlet ports, and extending from side to side and top to bottom of the chamber; the said partitions each having a small opening near its upper edge whereby the water must of necessity pass several times in a slight stream adjacent to the cold-conducting wall incident to its passage through the water-chamber, and the opening in one partition being arranged adjacent to the opposite side of the chamber with reference to the opening in the next adjacent partition to compel the water to take a tortuous course and retard its passage through the chamber.

699,820. **ADDING-MACHINE.** DE KROMER & T. HENRY, St. Louis, Mo., assignor to the New Best Machine Manufacturing Company, St. Louis, Mo., a Corporation of Missouri. Filed Nov. 21, 1902. Serial No. 37,308. (No model.)



Claim.—1. The combination of a column of keys, a separate sliding stop-bar connected to each key, each stop-bar when operated dropping below the level of the other stop-bars, an adding device, a printing device, a carriage positively connected to the printing device, the movement of said carriage being limited by the said stop-bars when in operation; substantially as described.

2. An adding-machine as described comprising a system of geared accumulating devices, independently-operated toothed racks for turning said accumulating devices in one direction when adding, total-racks for turning said accumulating devices in an opposite direction, a system of stops to limit the travel or movement of said independently-operated racks when in engagement with said accumulating devices, other stops to limit travel or movement of said total-racks when in engagement with said accumulating devices, means for operating said independently-operated racks, and said total-racks so that each shall move from the same point at the same time, and a printing device cooperatively connected therewith.

3. In combination two or more sets of independent keys loosely mounted to operate sliding stop-bars in one direction, a transversely-mounted bar for holding said stop-bars in a retracted and lowered position, an independently-mounted stop-bar for printing 0's when and where desired operatively connected therewith, independent error-keys for each column of keys to restore any lowered stop-bar independently, and automatic restoring device transversely disposed to operate said stop-bars conjointly; substantially as described.

4. The combination of a series of columns of independent keys, of graded stop-bars slidingly connected therewith, an 0 stop-bar for each column of keys, means for automatically operating said 0 stop-bars conjointly with other like stop-bars when it is desired to print 0's to the right of a figure, means for holding all of said stop-bars in an elevated position, means for retaining said stop-bars within the path of other moving parts of the machine, automatic means for restoring said stop-bars to a position out of the path of travel of other parts of the machine; substantially as described.

5. The combination in a machine of the kind described, of sliding stop-bars of graded length operatively held above the line of travel of the accumulator stop devices, keys for operating said sliding stop-bars independently, a transverse bar for holding said stop-bars out of engagement, notches formed in one edge of said stop-bars for engaging said transverse bar when it is desired to operate the machine for adding, recording device connected to the accumulator-actuating device, said actuating device arranged to shut against said limiting device when engaging said transverse retaining-bar; substantially as described.

6. A column of independent keys loosely connected to and operating stop-bars, a series of retracting sliding stop-bars of graded lengths, which in operation drop below the level of other stop-bars thereby limiting the movement of the adding and recording devices conjointly; substantially as described.

7. The combination of a series of columns of independent keys, of graded stop-bars connected therewith, and an 0 stop-bar for each column of keys, means for automatically bringing the 0 stop-bar into engagement in all columns where it is desired to print an "0" conjointly with the stop-bar operated by the key; substantially as described.

8. The combination of the keyboard and sliding stop-bars which in operation drop below the level of the other stop-bars for limiting the movements of the adding mechanism, of a printing device and an adding device having a positive mechanical connection between them; substantially as described.

9. In an adding-machine the combination of stop-bars connected to the keys and the 0 stop-bar without a corresponding key, of means for operating the 0 stop-bar by both the key-operated stop-bars and the 0 stop-bar in the column above; substantially as described.

10. The combination of a series of columns of numbered keys, each key connected to an independent stop-bar of length to correspond to the number on the connected key, an 0 stop-bar without connected key arranged to be automatically operated by the operation of either the key stop-bars or the 0 stop-bar in the column to the left, substantially as described.

11. The combination of a series of columns of numbered keys, each key operating an independent stop-bar, of length to correspond to the number on the key, and a separate error-key for disengaging the stop-bars under each column of keys, substantially as described.

12. The combination in an adding and recording machine, of columns of keys connected to operate sliding stop-bars, pinion-wheels engaging the accumulator-wheels, operative connections between said stop-bars and pinion-wheels and means for retaining said pinion-wheels in one direction when adding and in the reverse direction when taking the total; substantially as described.

13. The combination in an adding and recording machine a keyboard having columns of independent keys, stop-bars connected to said keys, pinion-wheels for operating the accumulating device, operative connections between said stop-bars and pinion-wheels and racks above and below said pinion-wheels, which are alternately brought into engagement with said pinion-wheels when adding and taking the total, substantially as described.

14. The combination of a keyboard having columns of independent keys operating sliding stop-bars, pinion-wheels for operating the accumulating device, racks for rotating said pinion-wheels, operative connections between the stop-bars and the pinions and the type-casters for printing the amounts added and the totals, the said racks and type-casters being both positively connected to the same operative mechanism, substantially as described.

15. In an adding and recording machine, type-casters bearing type numbered from one to nine and having an 0 after the nine, and an independent 0 before the one so arranged that when any type-caster is brought into operation it moves all the independent 0's in the higher columns out of the printing-line, substantially as described.

16. An adding-machine of the kind described consisting of two or more intermeshing sets of keys having stems, each key arranged to operate a bent lever in but one direction, bent levers pivoted with one arm within the path of one of said keys, and the other arm operatively connected to a stop-bar, stop-bars of graded length, means for holding the graded ends of said stop-bars in an elevated position, means for holding graded ends of said stop-bars in a lowered position, means for restoring all depressed stop-bars to an elevated position simultaneously, means for

restoring any one of said stop-bars independently, stop-bars for limiting the travel of other parts of the machine when it is desired to print 0's automatically, overlapping pendulums in connection with said stop-bars, operative connections between the keys and said overlapping pendulums, 0 printing-type connected to print "0's" automatically in connection therewith, substantially as described.

17. An adding-machine of the kind described consisting of two or more sets of keys, each arranged to operate a bent lever in but one direction, bent levers for each of said keys, said bent levers pivoted with one free arm within the path of each one of above keys and connected to stop-bars of graded length, stop-bars graded as to length with respect to point of connection with above said keys, means for holding the graded ends of said stop-bars in an elevated position, means for holding graded ends of said stop-bars when in a lowered position, means for restoring said stop-bars to an elevated position simultaneously, means for restoring any one of said stop-bars independently, a stop-bar for limiting the travel of other parts of the machine when it is desired to print 0's automatically, means for operating said stop-bars conjointly with other like stop-bars, substantially as described.

18. An adding-machine of the kind described consisting of a keyboard, key-operated stop-bars, accumulating devices, independently-mounted racks for turning said accumulating devices in one direction, racks for turning said accumulating devices in an opposite direction, means for transferring motion from one accumulating device to another like device consecutively, type-bearing printing-casters operated by handle or other motive power so that said type-bearing casters shall move uniformly with said handle or other motive power when no key has been operated; means for limiting the movement of said type-bearing casters independent of the stop-bars, means for limiting said type-bearing casters for printing 0's when and where desired, means for printing 0's independently of said type-bearing casters when the total-key is operated for printing a total, substantially as described.

19. An adding-machine of the kind described consisting of detachable keys, loosely-mounted bent connecting-levers within the path of said keys, stop-bars connected to said bent connecting-levers, means for holding one end of said stop-bars in a forward elevated position, means for holding one end of said stop-bars when in a lowered position, a lever for elevating said stop-bars simultaneously, keys for elevating said stop-bars independently, sliding devices mounted to stop against or pass beneath said stop-bars at the will of the operator, connection between said sliding devices and the racks for operating the accumulators, and printing or recording devices.

20. In an adding-machine the combination of sliding stop-bars and the engaging and overlapping pendulums, for operating the 0 stop-bar in the column below; substantially as described.

21. In an adding-machine the combination of a sliding carriage, a rack connected thereto, a pinion for rotating the accumulator-wheel, means for bringing said rack into engagement with said pinion as a forward movement of the carriage in columns where keys have been depressed, and means for automatically disengaging said rack on the return movement of the carriage; substantially as described.

22. In an adding-machine the sliding carriage, a special rack connected thereto for taking the total, a pinion for operating the accumulating device, and means for engaging said rack with the pinion for rotating the accumulator-wheel so that when the carriage moves forward the rack will reverse the accumulator-wheel and means for disengaging the rack or leaving it in engagement with the pinion at the end of the forward stroke of the handle at the will of the operator; substantially as described.

23. In an adding-machine a series of accumulator-wheels, pins secured to said wheels and operated by a distance of ten teeth, wings for carrying hooks within the path of said pins, and a shearing-bar for restoring said wings whenever the hooks have been disengaged, pins connected to said wings and engaging the next accumulator-wheel above, and means for rotating said accumulator-wheel above one tooth after said pin engages said hook; substantially as described.

24. The combination in an adding-machine of a series of accumulator-wheels and a carrying device having a pawl engaging the accumulator-wheel above, which is released by pins secured to said accumulator-wheels, a shearing-bar which operates to successively release all of said carrying devices beginning at the lowest column and ending at the highest; substantially as described.

25. In an adding-machine a carrying device consisting of swiveling wings carrying pawls and provided with inclined forward edges, a descending bar acting on the inclined edges successively from the right side in the left side of the machine and holding said wings in an engaged position until all are brought into engagement; substantially as described.

26. In an adding-machine a series of accumulator-wheels a series of bent-pawls arranged to engage all of said accumulator-wheels at the same time and permitting the accumulator-wheels to revolve one tooth while in engagement; substantially as described.

27. The combination with keys connected to independent sliding stop-bars, of pivoted type-carriers connected to sliding carriages, and sliding carriages whose movement is limited by said stop-bars; substantially as described.

28. The combination with a series of type-carriers, of a series of independent stop-bars connected to keys, for each type-carrier and an automatically-operated stop-bar for each type-carrier, means for moving said type-carrier, and means for restoring all of said stop-bars automatically; substantially as described.

29. In an adding-machine the combination of keys, each key connected to an independent sliding stop-bar, a series of accumulator-wheels, means for rotating said accumulator-wheels as many teeth as the number of the key depressed, type-carriers pivoted to swing a distance to correspond to the number on the key depressed and connected to the same moving part that operates the accumulator-wheel; substantially as described.

30. In an adding-machine the combination of keys, each key connected to an independent stop-bar, a series of accumulator-wheels, means for rotating said accumulator-wheels as many teeth as the number of the key depressed, type-carriers pivoted to swing a distance to correspond to the number on the key depressed and connected to the same moving part that operates the accumulator-wheel, and a device for printing 0's in taking totals without raising the type-carriers; substantially as described.

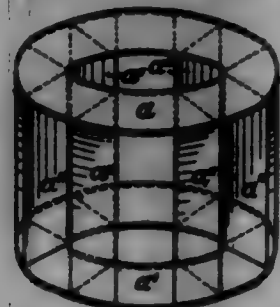
31. In a machine of the kind described the combination of accumulating devices and a printing device, a shuttle arranged to bring the accumulating mechanism into engagement with its operating mechanism before movement is imparted to the printing device on a forward stroke of the handle and arranged to release the accumulating mechanism before the backward movement of the handle begins; substantially as described.

32. In an adding-machine a handle connected to levers which successively bring into engagement racks with accumulator-wheels in the columns where the keys have been depressed rotate said accumulator-wheels and set the printing device, operate the printing device, and release the racks from engagement with the accumulator-wheels on the forward stroke of the handle, and restore the stop-bars and keys to their normal position on the return stroke of the handle; substantially as described.

33. In an adding-machine a printing device for printing a line of irregular number of type, of a series of lines of type and a corresponding series of contact pressure-surfaces, so arranged that the contact pressure-surfaces will be in engagement whenever the type do not print when the machine is operated; substantially as described.

34. A printing device consisting of a series of bars having type fixed thereon, a series of contact-surfaces, rollers for holding the paper and pressing against the type when the same are opposite the printing-line and against the contact-surfaces when the type are not opposite the printing-line, whenever the machine is operated.

699,821. CENTRIFUGAL MACHINE. LEONIE RIEG, Grevenbroich, Germany. Filed Jan. 17, 1902. Serial No. 90,104. (No model.)



Claim.—1. In centrifugal machines to be used in the manufacture of sugar a wedge-shaped partition to be inserted between a top and a bottom flat horizontal ring, within the drum or basket of the machine, said wedge-shaped partition consisting of angular bent sides *b b* with strengthened corner-points, of a curved back side *d* and of triangular pieces *g g* at top and bottom, the two latter being riveted to the sides *b b* and *d*.

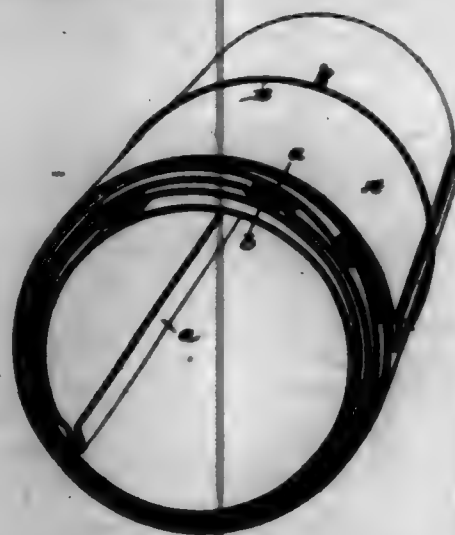
2. In centrifugal machines a wedge-shaped partition to be inserted between a top and a bottom flat horizontal ring within the drum or basket of said centrifugal machine consisting of angular bent sides *b b*, of a curved back side *d*, of triangular pieces *g g* at top and bottom, the sides of said triangular pieces and the plates or sides *b b* and back side *d* being provided with corresponding holes, for split rivets to pass into these holes, to expand within the holes by wedges inserted into the split and to receive counter-sunk rivet-heads when said rivets are driven home.

3. In centrifugal machines a wedge-shaped partition, consisting of angular bent sides, a curved back side, top and bottom triangular pieces, said triangular pieces being secured to the plates *b b* and *d* by being riveted together by expanding split rivets with counter-sunk heads, the top and bottom pieces being provided with holes and set-screws to render

possible the proper placing of the wedge-shaped partition between the flat horizontal rings at top and bottom, the upper triangular piece being provided with a bolt and strap-shaped nut.

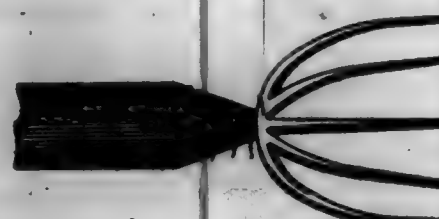
4. In centrifugal machines a wedge-shaped partition, consisting of angular bent sides, a curved back side, top and bottom triangular pieces all these parts riveted together by expanding split rivets with counter-sunk heads, a bolt traversing the top ring, the upper triangular piece, the wedge-shaped partition, the lower triangular piece and the lower flat horizontal ring, to which said bolt is rigidly connected.

699,822. PACKAGING SHEET-METAL SECTIONS. GEORGE F. ROSS, New Orleans, La., assignor of one-half to THE H. HALLER MANUFACTURING COMPANY, LIMITED, New Orleans, La. Filed Dec. 2, 1901. Serial No. 84,322. (No model.)



Claim.—The herein-described package or bundle comprising a plurality of sheet-metal articles having hook-shaped portions at opposite edges; the said articles being loosely and detachably hooked one on the other to form a continuous sheet of detachably-connected articles, and being rolled into a package or bundle, and means for securing the detachably-connected articles in the form of a package or bundle.

699,828. TOOL-HANDLE. WILLIAM A. HOLLIDAY, Chgo., Ill. Filed Feb. 18, 1902. Serial No. 84,328. (No model.)



Claim.—As an improved article of manufacture, a hollow handle having a tapering end, which is conical-shaped with a threaded aperture through the apex thereof, and a flattened shoulder adjacent to the inner end of the aperture in said apex, combined with a conical-shaped washer, the apex of said washer bearing against said shoulder, with the outer circumference of said washer in contact with the inner tapering wall of the handle, and the head having a threaded shank portion passing through the threaded aperture, in the apex of the handle and the threaded aperture in the enlarged end of said washer, whereby the parts are securely held together, as set forth.

699,824. COTTON-PICKER'S SACK. JOHN H. HOLLEN, Epling, Miss. Filed Aug. 26, 1901. Serial No. 73,345. (No model.)

Claim.—A sack of the class set forth having the upper extremity of that portion adapted to be nearest the wearer extended above the corresponding outer portion to provide a mouth, inclined reinforced straps secured across the corner portions of the upper or mouth extremity of the sack and interiorly located, strips secured against the opposite sides of the lower closely-drawn terminal portion of the sack, doubled corner-strips extending vertically over the opposite terminals of the strips at the bottom of the sack and also over the lower corners of the latter above the plates of said strips, and means for holding the sack in operative position on the body of the wearer, whereby the lower end of the sack may be permitted to drag upon the ground during the operation of cotton-picking with greater wearing durability.

699,824.



699,825. TYPE-WRITING MACHINE. RICHARD ECKHART and WILHELM WERNER, Berlin, Germany. Filed Feb. 27, 1901. Serial No. 84,325. (No model.)



Claim.—1. In a type-writer, a pivoted platen-hammer, a depending abutment fixed to said hammer so as to turn with it, a retaining-bush pivoted to and suspended on said hammer, a plunger passing through said abutment and impinging upon said latch, a shoulder on said plunger and a spring between said shoulder and said abutment, substantially as described.

2. In a type-writer, a pivoted type-carrier, a selecting-arm fixed thereto so as to rotate therewith, depressible key-levers, selecting-plungers for stepping said selecting-arm under the respective key-levers and a spring under each plunger normally supporting both its plunger and the key-lever over it.

699,826. REFINING OF COPPER BY THE WET METHOD. THOMAS A. DYER, Birmm., England, assignor to DONALD McVIE, London, Ontario, England. Filed Dec. 26, 1901. Serial No. 84,326. (No model.)

Claim.—1. A process for the extraction of copper consisting in the treatment of the ore within a mixed solution of chlorid of sodium and sulfuric acid in which solution there is an excess by weight of the chlorid of sodium in respect to the sulfuric acid, substantially as described.

2. A process for the extraction of copper, consisting in the treatment of the ore within a mixed solution of chlorid of sodium and sulfuric acid in the proportion of four ounces chlorid of sodium and one fluid ounce of concentrated sulfuric acid to the gallon.

699,827. SWITCH-OPERATING APPARATUS. CHARLES E. JACKSON, Rockford, Ill. Filed Dec. 12, 1901. Serial No. 84,327. (No model.)



Claim.—1. In a switch-operating apparatus, in combination, a switch-tongue; a pivoted T-shape lever; a rod having a pivotal connection with one arm of said lever and with said switch-tongue; a switch-operating box located between the rails of the track; a switch-operating box aligned with said first-mentioned switch-operating box and located intermediate said box and said switch-tongue; a plate pivotally mounted near one of its sides in each of said boxes; an arm extending downward from the under side of each of said plates; a rod pivotally connected with the arm of one of said pivoted plates and with one of the arms of said T-shape lever; a rod pivotally connected with the arm of the other of said pivoted plates and with the remaining arm of said T-shape lever; and a device carried by the car for moving one of said plates to actuate said T-shape lever to operate said switch-tongue.

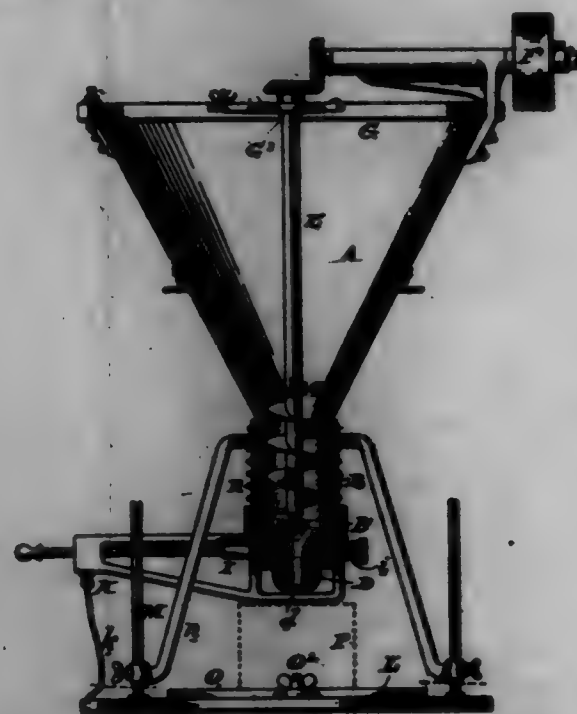
2. In a switch-operating apparatus, in combination, a switch-tongue; a pivoted T-shape lever; a rod having a pivotal connection with one arm of said lever and with said switch-tongue; a switch-operating box located between the rails of the track; a switch-operating box aligned with said first-mentioned switch-operating box and located intermediate said box and said switch-tongue; a plate pivotally mounted near one of its sides in each of said boxes; an arm extending downward from the under side of each of said plates; a rod pivotally connected with the arm of one of said pivoted plates and with one of the arms of said T-shape lever; a rod pivotally connected with the arm of the other of said pivoted plates and with the remaining arm of said T-shape lever; a flexible water-tight covering for the upper end of each of said switch-operating boxes; and a device carried by the car for moving one of said plates to actuate said T-shape lever to operate said switch-tongue.

3. In a switch-operating apparatus, in combination, a switch-tongue; a pivoted T-shape lever; a rod having a pivotal connection with one arm of said lever and with said tongue; two aligned switch-operating boxes between the rails of the track, one of said boxes being located intermediate said switch-tongue and the other of said boxes, each of said boxes having bases for securing them to the ties; a tilting plate pivotally mounted near one of its sides within each of said boxes; a rod forming a connection between the arm of one of said tilting plates and one of the arms of said T-shape lever; a rod forming a pivotal connection between the arm of the other of said tilting plates and the remaining arm of said T-shape lever.

lever; a pipe for each of said rods; a pipe for the rod extending between the stem of the T-shape lever and said switch-tongue; a packing in said last-mentioned pipe to prevent the ingress of water to said mechanism; and a device carried by the car for moving said plates to actuate said T-shape lever and to operate said switch-tongue.

4. In a switch-operating apparatus, in combination, a switch-tongue; a pivoted T-shape lever; a rod having a pivotal connection with one arm of said lever and with said tongue; two aligned switch-operating boxes between the rails of the track, one of said boxes being located intermediate said switch-tongue and the other of said boxes, each of said boxes having bases for securing them to the ties; a tilting plate pivotally mounted near one of its sides within each of said boxes; an arm extending downward from the under side of each of said plates; a rod forming a connection between the arm of one of said tilting plates and one of the arms of said T-shape lever; a rod forming a pivotal connection between the arm of the other of said tilting plates and the remaining arm of said T-shape lever; a pipe for each of said rods; a pipe for the rod extending between the stem of the T-shape lever and said switch-tongue; a packing in said last-mentioned pipe to prevent the ingress of water to said mechanism; a pressure-wheel carried by the car, for moving said plates to actuate said T-shape lever and to operate said switch-tongue; means for depressing said pressure-wheel; and means for returning the pressure-wheel to its normal position.

699,838. WEIGHING AND MEASURING MACHINE. ARTHUR P. JOHNSON, Oshkosh, N. J., assignor of one-half to George A. McAllister, Oshkosh, N. J. Filed Aug. 9, 1901. Serial No. 71,484. (No model.)



Claim.—1. In a device for weighing and measuring points, the combination of a hopper having at the bottom a feeding-tube, a valve arranged below the feeding-tube, a feeding-curve arranged in the feeding-tube, an upright shaft for rotating the feeding-curve jointed to the screw within the hopper so as to be capable of being turned at an angle to the screw, a bearing at the upper part of the hopper for holding the upright shaft in position and having means for liberating the shaft therefrom, and power devices for rotating said upright shaft forming a detachable connection with said shaft, whereby the latter may be liberated and drawn to one side for the purpose of removing the feeding-curve.

2. In a device for weighing and measuring points, the combination of a hopper having at the bottom a feeding-tube, a valve arranged below the feeding-tube, a feeding-curve arranged in the feeding-tube, an upright shaft for rotating the feeding-curve jointed to the screw within the hopper so as to be capable of being turned at an angle to the screw, a bearing at the upper part of the hopper for holding the upright shaft in position and having means for liberating the shaft therefrom, and power devices consisting of a horizontal power-shaft carried in fixed bearings, and bevel-gears connecting the said horizontal power-shaft with the upright shaft for rotating said upright shaft and forming a detachable connection with said shaft, whereby the latter may be liberated and drawn to one side for the purpose of removing the feeding-curve.

3. In a device for weighing and measuring points, the combination of a hopper having at the bottom a feeding-tube, a valve arranged below the feeding-tube, a feeding-curve arranged in the feeding-tube, an upright

shaft for rotating the feeding-curve jointed to the screw within the hopper so as to be capable of being turned at an angle to the screw, a bearing at the upper part of the hopper for holding the upright shaft in position and having means for liberating the shaft therefrom, power devices for rotating said upright shaft forming a detachable connection with said shaft whereby the latter may be liberated and drawn to one side for the purpose of removing the feeding-curve, a movable platform for carrying the receptacle to be filled, an adjustable support to permit the platform to rise or fall, automatic means for closing the valve upon the proper depression of the platform, and actuating means between the platform and the automatic means for closing the valve.

4. In a device for weighing and measuring points, the combination of a hopper having at the bottom a feeding-tube, a valve arranged below the feeding-tube, a feeding-curve arranged in the feeding-tube, an upright shaft for rotating the feeding-curve jointed to the screw within the hopper so as to be capable of being turned at an angle to the screw, a bearing at the upper part of the hopper for holding the upright shaft in position and having means for liberating the shaft therefrom, power devices for rotating said upright shaft forming a detachable connection with said shaft whereby the latter may be liberated and drawn to one side for the purpose of removing the feeding-curve, hand-controlled means for opening the valve, a spring to close the valve, a detent or latch carried with the valve-body to hold the valve in its open position, a flexible or yielding connection to operate the detent, and a counterbalanced platform upon which the vessel to be filled is to be placed adapted to move the yielding connection to operate the detent or latch for the purpose of closing the valve upon the depression of said platform under the weight of the filled receptacle or vessel.

5. In a device for weighing and measuring points, the combination of a hopper for receiving material terminating at the bottom in a downwardly-extending feeding-tube having a reduced neck and, a valve in the end of the tube having a small orifice relatively to the area of the feeding-tube, a feeding-curve within the feeding-tube and substantially fitting it for forcing the material through the small valve-orifice, means for operating the feeding-curve, hand devices for opening the valve, an automatic spring device for closing the valve, a latch or detent for holding the valve in open position, and a counterbalanced platform for sustaining a removable vessel to be filled adapted to operate the latch or detent to close the valve under the weight of the material delivered to the receptacle on the platform.

6. In a device for weighing and measuring points, the combination of a hopper for receiving material terminating at the bottom in a feeding-tube, a valve below the tube, a feeding-curve within the feeding-tube, means for operating the feeding-curve, hand devices for opening the valve, automatic mechanical devices for closing the valve, a latch or detent for holding the valve in an open position, a counterbalanced platform for sustaining the vessel to be filled adapted to operate the latch or detent to close the valve under the weight of the material delivered to the receptacle on the platform, a spring surrounding the feeding-tube, a supporting-frame carried by said spring, and a connection between said frame and the platform.

7. In a device for weighing and measuring points, the combination of a hopper for receiving material terminating at the bottom in a feeding-tube, a valve below the tube, a feeding-curve within the feeding-tube, means for operating the feeding-curve, hand devices for opening the valve, automatic mechanical devices for closing the valve, a latch or detent for holding the valve in an open position, a counterbalanced platform for sustaining the vessel to be filled adapted to operate the latch or detent to close the valve under the weight of the material delivered to the receptacle on the platform, a spring surrounding the feeding-tube, a supporting-frame carried by the said spring, and an adjustable connection between said frame and the platform for the purpose of setting same or vessels of different heights.

8. In a device for weighing and measuring points, the combination of a hopper for receiving material terminating at the bottom in a feeding-tube, a valve below the tube, a feeding-curve within the feeding-tube, means for operating the feeding-curve, hand devices for opening the valve, automatic mechanical devices for closing the valve, a latch or detent for holding the valve in an open position, a counterbalanced platform for sustaining the vessel to be filled adapted to operate the latch or detent to close the valve under the weight of the material delivered to the receptacle on the platform, and an adjustable guide on the platform consisting of two arms at an angle at each other adjustable to or from the center of the platform and under the valve between which arms the cans or vessels are placed and centrally guided.

9. In a device for weighing and measuring points, the combination of a hopper terminating at the bottom in a valve-body, and a rotating valve-ping fitted in the body and having its circumferential surface at the bottom substantially on a line with the lower orifice of the valve-body whereby the dripping of the material after the valve is closed is avoided.

10. In a device for weighing and measuring points, the combination of a hopper terminating at the bottom in a valve-body, a rotating valve-ping fitted in the body and having its circumferential surface at the bottom substantially on a line with the lower orifice of the valve-body whereby the dripping of the material after the valve is closed is avoided, hand devices for opening the valve, mechanical devices for closing the valve, a latch or detent for holding the valve open, a movable support for the receptacle to be filled arranged below the valve, and connecting means between the movable support and the latch or detent.

699,839. DOOR-OPERATING MECHANISM FOR ELEVATORS. JAMES L. KELL, Chicago, Ill., assignor to the Winslow Bros. Co., Chicago, Ill., a Corporation of Illinois. Filed Oct. 19, 1901. Serial No. 70,510. (No model.)



Claim.—1. In a door-operating mechanism, the combination with a suitable support, of a slidable door, a bar thereon having a series of laterally-extending pins, a worm parallel with said bar and in engagement with said pins and means for imparting rotation to said worm alternately in opposite directions; substantially as described.

2. The combination with a slidable door and devices for opening and closing the same, of a spring-pressed frictional connection interposed in said devices whereby the tension of the spring tends and limits the pull on the door; substantially as described.

3. In combination, a rotatable shaft, a door, a bar upon said door, a worm-gear in mesh with said bar, a beveled gear frictionally connected with said worm, gears meshing with said beveled gear upon opposite sides of its diameter and each adapted to be thrown into engagement with the shaft; substantially as described.

4. In combination, a rotatable shaft, a door, a bar upon said door, a worm-gear meshing with said bar, a beveled gear held in frictional contact with said worm-gear, gears meshing with said beveled gear upon opposite sides thereof and means for throwing either of said gears into engagement with the shaft; substantially as described.

5. In combination, a rotatable shaft, a door, a worm-gear adapted by its rotation to operate said door, a beveled gear frictionally connected to the worm-gear, gears meshing upon said shaft and meshing with said first-named gear upon opposite sides thereof, a sleeve non-rotatable with respect to the shaft but capable of longitudinal movement thereon, and adapted to connect either of said second-named gears to the shaft; substantially as described.

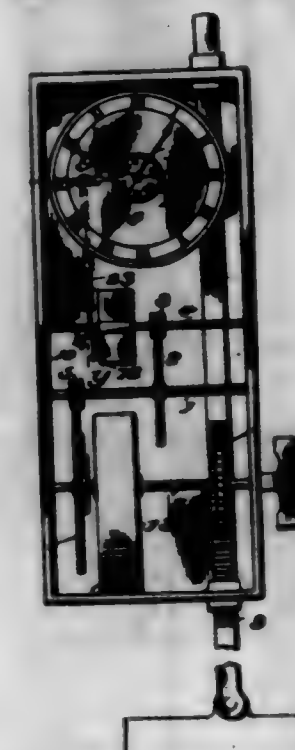
6. In combination, a rotatable shaft, a door, a bar supported thereon, a worm-gear meshing with said bar, and adapted to be thrown into or out of gear with the rotatable shaft and stops adapted to automatically throw said worm out of gear with the shaft when the door reaches its open or closed position; substantially as described.

7. In combination, a rotatable shaft, a door, a bar supported thereon, a worm-gear, gearing between said worm-gear and the rotatable shaft, a lever for throwing said worm-gear into or out of gear with the shaft,

and stops upon the bar adapted to engage the said lever when the door reaches its open or closed position and automatically throw the worm-gear out of engagement with the shaft; substantially as described.

8. The combination of a door, a rotatable shaft, a supporting-frame, a worm-gear journaled therein, a beveled gear, a shaft carrying said beveled gear and journaled in the worm, a spring adapted to hold the worm-gear and beveled gear in frictional contact, beveled gears loose upon the first-named shaft and meshing with the first-named beveled gear, means for throwing either of said second-named beveled gears into engagement with the shaft, and a device on the door for engagement with the worm; substantially as described.

699,880. TIME-CONTROLLED DAMPER. ROBERT A. ELLIS, JR., Cincinnati, Ohio. Filed Feb. 17, 1902. Serial No. 94,518. (No model.)



Claim.—1. In time setting mechanism a train of gearing, a time-movement, a setting-dial, means for securing the setting-dial to the hour-shaft of the time-movement, a detent for holding the train of gearing in restraint, a bolt adapted to hold the detent in operative position, and an arm extended from the aforementioned dial to effect a release of the detent and permit movement of the train of gearing; substantially as set forth.

2. In time setting mechanism, the combination with a time-movement, a train of gearing, and a detent mechanism for holding the train of gearing in restraint, a dial loosely mounted upon the hour-shaft of the time-movement, and a cam-lever pivoted to said dial and serving to secure it to the shaft in an adjusted position and also adapted to provide a finger-grip or handle to assist in rotation of the dial; substantially as set forth.

3. In combination, a time-movement, a train of gearing, a detent for holding the train of gearing in restraint, a sliding bolt, a rod connected with the detent and having a bent portion overlapping a part of the sliding bolt, a dial provided with an arm for operating the sliding bolt, and means for securing said dial to the hour-shaft of the time-movement; substantially as set forth.

699,881. COMBINED FRESH-WATER SIFON AND TRAP. CHAS. LUTHER, Vicksburg, Miss. Filed Jan. 4, 1902. Serial No. 93,462. (No model.)

Claim.—1. In a device of the character described, the combination with a tank, of a siphon housed therein and having relatively movable concentric legs, one of which is in communication with the interior of the tank, and each of which is secured to a separate wall of said tank.

2. In a device of the character described, the combination with a tank, of a siphon housed therein and having concentric legs communicating with each other at a point above the tank.

3. In a device of the character described, the combination with a tank, of a siphon housed therein and having concentric legs communicating with each other at a point above the tank, one of said legs being extended below the tank and having communication with the interior thereof.

4. In a device of the character described, the combination with a tank, of a siphon having both of its legs mounted for independent automatic movement, to accommodate the movement of the tank-walls.

5. In a device of the character described, the combination with a tank, the walls of which are capable of relative movement, of a siphon having its intake carried by different walls of the tank, and disposed for relative endwise movement to accommodate the movement of said walls.



6. In a device of the character described, the combination with a tank, the walls of which are capable of relative movement, of a siphon having concentric legs secured to opposite walls of the tank and disposed for relative endwise movement to accommodate the movement of said walls.

7. In a device of the character described, the combination with a tank, of a siphon having concentric legs secured to opposite walls of the tank and disposed for relative endwise movement, and a guide movable with each wall and disposed to receive the leg secured to the opposite wall.

8. In a device of the character described, the combination with a tank, of a siphon having concentric legs, and a dome secured to one wall and establishing communication between the legs of the siphon.

9. In a device of the character described, the combination with a tank, of a dome and a trap carried by the opposite walls thereof, and a siphon having concentric legs carried by the dome and trap, respectively.

10. In a device of the character described, the combination with a tank, of a dome and trap carried by the opposite walls thereof and each provided with a guide, and a siphon the legs of which are carried by the dome and trap, respectively, and are slidably received by the guides.

11. In a device of the character described, the combination with a tank, of a dome located above the tank, a trap located below the tank, and a siphon having its legs extended from the dome and trap, respectively, and located one within the other.

12. In a device of the character described, the combination with a tank, of a dome secured to the top wall of the tank and having the ascending leg of a siphon attached thereto, a trap secured to the bottom wall of the tank, a hose-siphon detachably secured to said trap, and the descending leg of a siphon carried by the hose-siphon and extended through the ascending leg and into the dome.

13. In a device of the character described, the combination with a tank, of a trap communicating with the interior of the tank, and a siphon having both its inlet and outlet ends retained by the trap.

14. In a device of the character described, the combination with a tank, of a trap having communication with the interior thereof, and a siphon, one leg of which is supported by the trap, and the other leg of which is retained by the trap against lateral movement but is movable independently thereof in an endwise direction.

15. In a device of the character described, the combination with a tank, of a trap communicating with the interior thereof, a siphon having its intake in communication with the trap, and a strainer located within the trap and disposed to prevent debris from passing to the siphon with the water.

16. In a device of the character described, the combination with a tank, of a trap communicating therewith, a siphon having its intake in communication with the trap, and a removable strainer slidably mounted in the trap to strain the water passing to the siphon.

17. In a device of the character described, the combination with a tank, of a trap secured to the bottom wall thereof and communicating therewith, a siphon having its intake and extended into the trap and having its descending leg extended through the trap, and a pair of removable strainer-plates located within the trap and disposed to prevent debris from passing into the siphon with the water.

18. In a device of the character described, the combination with a tank, of a trap secured to the bottom wall thereof and communicating with its interior, said trap being provided with a partition and with a

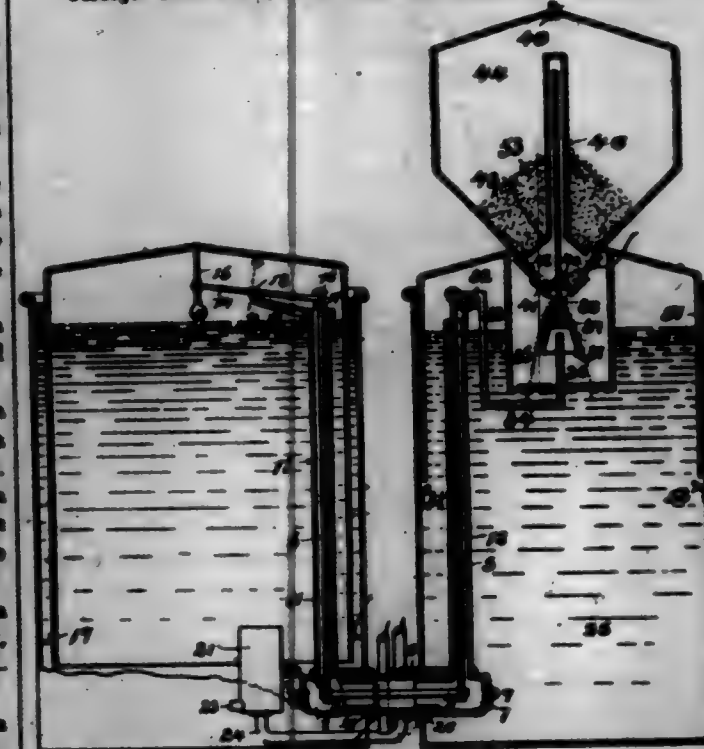
pair of removable strainer-plates resting upon the partition, means for drawing off sediment from the bottom of the tank, and a siphon, the ascending leg of the siphon being in communication with that portion of the tank defined between the partition and the strainer-plates, and the descending leg of the siphon being extended through the trap for delivery therebelow.

19. In a device of the character described, the combination with a tank, of a trap, a hose-siphon secured into the bottom of the trap, and a siphon having its intake communicating with the trap and having its descending leg supported by the hose-siphon.

20. In a device of the character described, the combination with a tank, of a siphon having concentric legs, a dome establishing communication between the legs of the siphon, and an air-cock for admitting air to the dome to break the siphon.

21. In a device of the character described, the combination with a tank, of a siphon having independently-movable legs secured to the opposite walls of the tank, whereby relative movement of the walls will be accommodated by corresponding relative movement of the siphon-legs, and means exterior to the tank for breaking the siphon.

699,882. **ACTION-GAS GENERATOR.** DAVID H. LEE, Buffalo, N. Y., assignor to the J. E. Oak Company, a Corporation of New Jersey. Filed Oct. 2, 1900. Serial No. 22,462. (No model.)



Claim.—1. In combination with a carbide-holder and a water-holder of a generator, and a separate and detachable expandible gas-holding chamber provided with connections for controlling the gas generation, a connecting gas-pipe between the generator and the said gas-holding chamber, and a water-cooled drain-pipe leading from the said connecting gas-pipe and provided with a raised mouth through which water may be poured to close the said connecting gas-pipe and cut off the generator from the gas-holding chamber, substantially as set forth.

2. In combination with a carbide-holder and a water-holder of a generator, and a separate and detachable expandible gas-holding chamber provided with connections for controlling the gas generation, a connecting gas-pipe between the generator and the said gas-holding chamber, a water-cooled safety blow-off pipe and a service-pipe leading from the said connecting gas-pipe, and means for introducing water to cut off the service-pipe, substantially as set forth.

3. In combination with a carbide-holder and a water-holder of a generator, and a separate and detachable expandible gas-holding chamber provided with connections for controlling the gas generation, a connecting gas-pipe between the generator and the said gas-holding chamber, and a service-pipe connection from the said connecting gas-pipe and means for introducing water to cut off the said service-pipe, substantially as set forth.

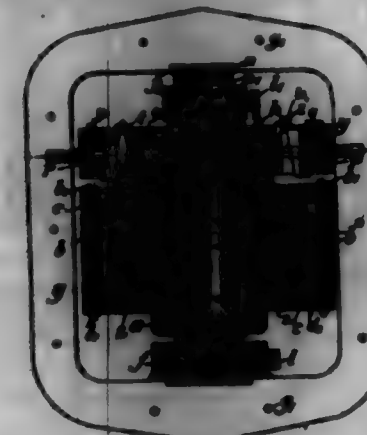
4. In a gas-generating apparatus, the combination with a gasometer distinct from the gas-generating chamber, of a gas connection leading from one to the other, a service-pipe leading from the said gas connection, a drain-pipe for the service-pipe and gas connection, and means for introducing water to seal the service-pipe and gas connection, substantially as set forth.

5. In a gas-generating apparatus, the combination with a gasometer distinct from the gas-generating chamber, of a gas connection leading from

one to the other, a substantially rigid sliding operating connection controlling the generation of gas, actuated by the gasometer, extending through the said gas connection, and guides against which the said operating connection is guided, substantially as set forth.

6. In a gas-generating apparatus, the combination with a gasometer distinct from the gas-generating chamber, of a gas connection leading from one to the other, and combining a cushion exterior to both the generating-chamber and the gasometer, an elbow within the generating-chamber, a gas-pipe secured to said elbow, an elbow and gas-pipe in the gasometer, all detachably coupled to and communicating through the walls of the gasometer and the gas-generating chamber, and an operating connection for controlling the generation of gas, extending through the said elbows and gas connection, substantially as set forth.

699,888. **VESEL FOR THE PRODUCTION OF HIGH-PRESSURE GAS.** ALBERT LEUW, Danburg, Germany. Filed Oct. 2, 1900. Serial No. 21,572. (No model.)



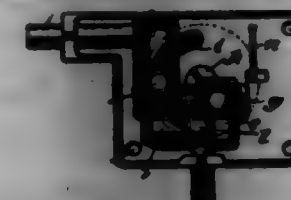
Claim.—1. An electric furnace for gases under high pressure, comprising a vessel having a cover, a fastening-strip including the same, wedges adapted to force the parts together, means to hold the vessel and cover centrally within the strip and to allow self-adjustment so that a uniform pressure is transmitted to all portions of the apparatus, and means for producing an electric arc within said vessel, substantially as described.

2. An electric furnace for gases under high pressure, comprising a metallic vessel having a cover and concave surfaces, a fastening-strip in closing the same, wedges adapted to force the same together, recessed blocks adapted to receive said concave surfaces, and means for producing an electric arc within said vessel, the arrangement being such as to allow of self-adjustment centrally and the transmission of a uniform pressure to all parts of the apparatus, substantially as described.

3. An electric furnace for gases under high pressure, comprising a vessel having a cover, a fastening-strip including the same, wedges adapted to force the cover upon said vessel, graduations upon said wedges whereby the parts may be adjusted to allow gas to escape at a predetermined pressure, means to hold the vessel and cover centrally within the strip and to allow self-adjustment so that a uniform pressure is transmitted to all portions of the apparatus, and means for producing an electric arc within said vessel, substantially as described.

4. An electric furnace for gases under high pressure, comprising a vessel having a cover, a fastening-strip including the same, wedges adapted to force the cover upon said vessel, a refrigerating device for said vessel comprising rings shrunk upon said vessel to produce a predetermined external pressure, means for cooling said rings, and means for producing an electric arc within said vessel, substantially as described.

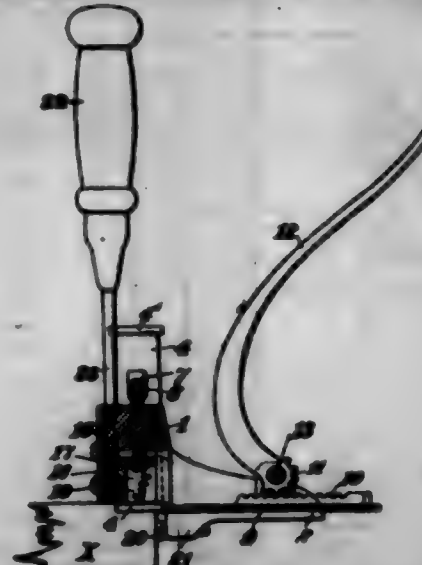
699,884. **GAS-FASTENER.** JAMES W. LYON, Brooklyn, N. Y. Filed Jan. 25, 1902. Serial No. 21,567. (No model.)



Claim.—1. In a gas-fastener of the character herein set forth, the combination of the two bolts each having an arm or appendage provided with two slots at substantially right angles to each other, the said arms being arranged to move one under the other and being guided and held in place within the shell by a guiding-rod projecting through both, and an interior knob carrying pins projecting through a circular slot in the top of the shell and entering slots in the said arms and arranged to move the arms, substantially in the manner and for the purposes set forth.

2. In a gas-fastener of the character herein set forth, the combination with the knob carrying the pins and the locking-bolts moved by said pins, of a spring-actuated detent projecting up from the interior of the shell and arranged to engage a notch in the base of the operating-knob, substantially as shown and described and for the purposes set forth.

699,885. **KINDS-MOUNTING MACHINE.** JAMES A. WACKNER, Minneapolis, Minn. Filed July 20, 1901. Serial No. 70,000. (No model.)



Claim.—1. A machine or tool for the purpose described having a stock, a side knife fixed therein, a depth-gage, and knives slidable in the stock and adapted to be driven, a knife for removing the chip slidably mounted in the stock, means for operating said knife, and a width-gage.

2. A machine or tool for the purpose described having a stock, a side knife fixed therein, a depth-gage, two end knives slidably mounted in the stock, a lever loosely coupling said end knives, whereby one is withdrawn when the other is driven, a knife for removing the chip, and means for operating said knife.

3. A machine or tool for the purpose described, having a stock, two end knives 4, 4, slidably mounted in the stock, a bearing-rod 7 cut in the stock between said knives, and a lever 6, having its fulcrum in said rod and coupled at its respective ends to said knives.

4. A machine or tool for the purpose described, having a stock, knives mounted thereon for forming the gage, a depth-gage 16 mounted adjustably on the stock, and a wedge 17, mounted slidably on the stock between said gage and an inclined shoulder on the stock, substantially as and for the purposes set forth.

5. A machine or tool for the purpose described, having a stock, a sliding knife 9, mounted in the stock and carrying shoulders 14, adjustable limiting-steps 15 for the said shoulders to impinge upon, and means for operating said knife, substantially as and for the purposes set forth.

6. A machine or tool for the purpose described, having a stock provided with guides 8 for the sliding knife 9, the said knife, sections 21 below the level of said guides, the screws 20 in said sections and forming a width-gage, and the fixed side knife 3, in the stock, substantially as set forth.

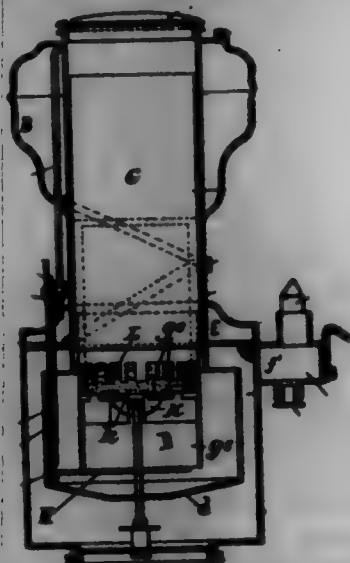
699,886. **GRAIN-DOOR FOR CARS.** WILLIAM H. MAHLE and OLYMPIA S. MAHLE, Davenport, Iowa. Filed Dec. 17, 1901. Serial No. 20,200. (No model.)



Claim.—1. In a grain-door for cars, the combination with a door-opening, a retaining-strip at one side of the opening, an inclined track at the other side, and a roller mounted on said door and engaging said track; of a vertical rod having its lower end journaled in a plate sunk in the floor of said car and provided with arms or eccentrics, a bracket holding the upper end of said rod and provided with perforations, a perforated crank-arm secured to the upper end of said rod, a pin for simultaneously engaging the perforation of said crank-arm and one of the perforations of said bracket, and wear-plates on the door opposite said arms, all as and for the purposes set forth.

2. In a grain-door for cars, the combination with a door-opening, a retaining-strip at one side of the opening, an inclined track at the other side, a guard-rail along its length, a door bridging said opening and engaging said retaining-strip, a stub-shaft mounted on the upper corner of said door, and a roller mounted on said stub-shaft and engaging said track; of a vertical rod having its lower end journaled in a plate sunk in the floor of said car and provided with cams or eccentrics, a bracket holding the upper end of said rod, a crank-arm secured to the upper end of said rod, and wear-plates on the door opposite said cams, all as and for the purpose set forth.

699,887. ACETYLENE-GAS GENERATOR. LEO MORTON, New York, N. Y., assignor to Acetylene Manufacturing Company, New York, N. Y., and Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 2, 1900. Serial No. 21,511. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a container adapted to receive water, a tube extended above the container and adapted to receive the carbide in its lower portion, a generating-chamber supported at the lower end of said tube, a pressure-equalizing chamber formed in the upper part of the container, and a small tube connecting the upper part of the first-named tube with said pressure-equalizing chamber.

2. In an acetylene-gas generator, the combination with a carbide-container of a scraper provided with means engaging directly with the carbide to remove the coating therefrom.

3. In an acetylene-gas generator, the combination with the container adapted to receive water and a carbide-container, of a scraper provided with teeth to engage with the carbide mounted in the container first named, and means external to said container to operate said scraper to remove the coating from the carbide.

4. In an acetylene-gas generator, the combination with a container adapted to receive water, a generating-chamber having an outlet, a stop-cock to control said outlet, and a lifter to raise the carbide from the water, of an actuator operatively connected with said lifter and said stop-cock to operate the same simultaneously.

699,888. BOILER. JAMES M. McLELLAN, Everett, Mass. Filed July 8, 1901. Serial No. 67,451. (No model.)

Claim.—1. A flue for a boiler, having inclosed therein and extending longitudinally thereof a plurality of spirally-arranged water-tubes, said tubes dividing the interior of the flue into two independent compartments.

2. In a tubular boiler, a plurality of flues extending therethrough, and a series of spirally-arranged water-tubes inclosed in and extending longitudinally of each of said flues.

3. In a tubular boiler, a boiler-shell, a plurality of flues therein, a plurality of water-tubes extending longitudinally of each flue, said water-tubes dividing the interior of the flues longitudinally into a plurality of sinuous compartments.

4. In a tubular boiler, a boiler-shell, a plurality of flues therein, and a plurality of water-tubes extending longitudinally of each flue, said water-tubes dividing the interior of the flues longitudinally into a plurality of independent compartments.

5. In a boiler, a boiler-shell, a plurality of flues therein, each of said flues having at each end a header extending across the interior thereof, a plurality of water-tubes connected to said headers, said water-tubes having communication at their ends with the interior of the boiler-shell.

6. In a boiler, a boiler-shell, a plurality of flues therein, headers on the interior of said flues extending transversely across each flue near its ends,

and spirally-arranged water-tubes connecting said headers, the ends of said water-tubes having communication with the interior of the boiler-shell.



7. In a boiler, a boiler-shell having a plurality of flues therein, headers in the interior of each flue near each end thereof, a water-tube connecting the headers in each flue and extending centrally of the flue, and a port extending transversely through the flue and through each header whereby said water-tube has a free communication with the interior of the boiler-shell near each end thereof.

8. In a boiler, a boiler-shell having a plurality of flues therein, a header extending across the interior of each flue near each end thereof, spirally-arranged water-tubes connecting the headers in each flue, and an opening extending transversely through the flue and each header and furnishing communication between the water-tubes and the interior of the shell.

9. In a boiler, a boiler-shell having a plurality of flues, a series of spirally-arranged water-tubes inclosed by each flue, and extending longitudinally thereof, the water-tubes of each series being in contact with each other and the outer tubes of the series engaging the inner wall of the flue, whereby each flue is divided into two sinuous compartments.

699,889. SKIRT AND WAIST SUPPORTER. JAMES C. McDONALD, Davenport, Iowa. Filed Oct. 10, 1901. Serial No. 73,208. (No model.)



Claim.—1. A supporting device for connecting and supporting garments, comprising a body-encircling belt, a ball-and-socket fastening having one of its members secured to said belt and the opposite member secured to one garment, and an eyelet-carrying flap secured at its upper edge only to the opposite garment and slanted between the members of the ball-and-socket fastening.

2. A supporting device for an upper and a lower garment comprising a flap secured to the upper garment and having one or more eyelets, a body-encircling belt adapted to pass between the flap and the upper garment and carrying one member of a ball-and-socket fastening, the opposite member of said fastening being secured to the lower garment, substantially as specified.

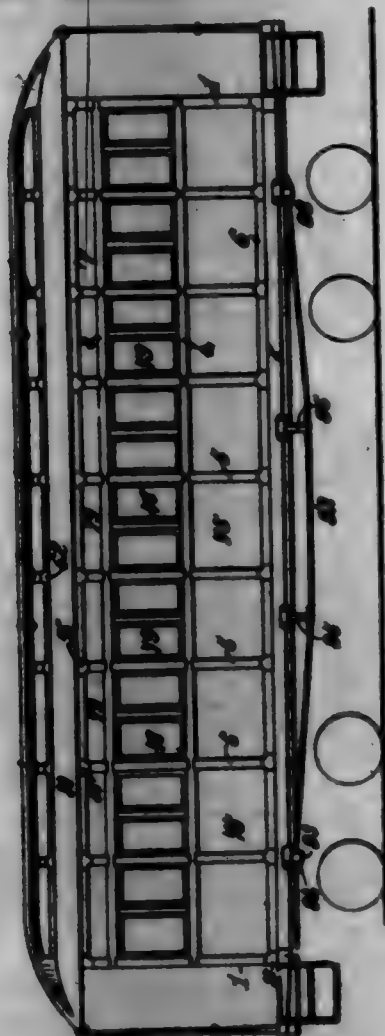
3. A supporting device for an upper and a lower garment comprising a flap secured at its upper edge to the rear of the upper garment and provided on opposite sides of the center with metallic eyelets, a body-encircling belt adapted to pass under said flap on the exterior of the upper garment and provided at its ends with securing devices, said-attaching members secured to said belt in alignment with the metallic eyelets, and socket members adapted for attachment to the lower garment and adapted for engagement with said said members.

4. A supporting device for an upper and a lower garment comprising a flap secured at its upper edge to the rear of the upper garment and provided on opposite sides of the center with enlarged metallic eyelets, a body-encircling belt, adapted to pass under said flap on the exterior of the upper garment and provided at its ends with securing devices, stud-attaching members secured to said belt in alignment with the metallic eyelets, and cocket members for attachment to the lower garment and adapted for engagement with said stud members, the eyelets being of larger diameter than the stud and cocket members in order to permit lateral adjustment of the garments.

5. A supporting device for an upper and a lower garment comprising a flap secured at its upper edge to the rear of the upper garment and provided on opposite sides of its center with enlarged metallic eyelets, a body-encircling belt adapted to pass under said flap on the exterior of the upper garment, stud-attaching members secured to said belt in alignment with the metallic eyelets and of a diameter considerably less than that of said eyelets to permit lateral adjustment of the garments, and cocket members having attaching-plates of a length greater than the diameter of the eyelets and adapted to be secured to the inner portion of the waistband of the lower garment.

6. In combination, a waist having an eyelet member secured at its upper end only to the waist, a belt adapted to encircle the waist of the wearer, said belt passing under said eyelet member, a member of a belt-and-cocket fastener carried by the belt in alignment with the eyelet, and a skirt having a mating belt-and-cocket member adapted to engage with the member carried by the belt.

689,840. RAILWAY-CAR. HARRY McLOUGHLIN, Stapleton, N. Y. assignor to Barton R. Kingman, New York, N. Y. Filed Aug. 31, 1901. Serial No. 72,908. (No model.)



Claim.—1. A frame for railway-cars, comprising vertical metallic tubular corner-posts and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and bent around the latter, substantially as described.

2. A frame for railway-cars, comprising vertical metallic tubular corner-posts and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and bent around the outer faces of the latter, the corner-posts and stringers being riveted together, substantially as described.

3. A frame for railway-cars, comprising vertical metallic tubular corner-posts and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and bent around the outer faces of the latter, the corner-posts and stringers being riveted

together, and the inner sides of the said corner-posts being apertured on their inner sides for the insertion of riveting-tools, substantially as described.

4. A frame for railway-cars, comprising vertical metallic tubular corner-posts and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and bent around the outer faces of the latter, the ends of the recessed portions of the stringers being provided with tongues or flanges struck up from the walls of the stringers and riveted to the corner-posts, said corner-posts being apertured on their inner sides for the insertion of riveting-tools, substantially as described.

5. A frame for railway-cars, comprising vertical corner-posts consisting of metallic tubes each having two outer flat faces disposed at a right angle to one another and united by a rounded corner, and an inner concave-convex wall having flat edge portions, the edges of the flat outer faces being rounded and joined to the flat edge portions of the inner wall, and horizontal stringers consisting of metallic tubes having inner flat faces and outer rounded faces, the inner sides of the stringers being recessed to fit the corner-posts and bent around the outer faces of the latter, and said stringers and corner-posts being riveted together, substantially as described.

6. A frame for railway-cars, comprising vertical metallic tubular corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and standards and riveted to said corner-posts and standards, substantially as described.

7. A frame for railway-cars, comprising vertical metallic tubular corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers, said tubular stringers being recessed on their inner sides to fit the corner-posts and standards and riveted to said corner-posts and standards, the inner sides of the corner-posts and standards being apertured for the insertion of riveting-tools, substantially as described.

8. A frame for railway-cars, comprising vertical metallic tubular corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers recessed on their inner sides to fit the corner-posts and standards, the ends of the recessed portions of the stringers being provided with integral tongues or flanges struck up from the stringers and riveted to the corner-posts and standards, said corner-posts and standards being apertured on their inner sides for the insertion of riveting-tools, substantially as described.

9. A frame for railway-cars, comprising vertical metallic tubular corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers recessed on their inner sides to fit the corner-posts and standards and riveted to said corner-posts and standards, and tubular sections fitted between the ends of adjacent standards and fastened to the latter, substantially as described.

10. A frame for railway-cars, comprising vertical metallic corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers, said standards and stringers consisting of metallic tubes each having a flat inner face or wall and a rounded outer face or wall, the stringers being recessed on their inner sides to fit the standards and corner-posts and riveted thereto, the flat sides of the stringers and standards lying flush with one another, substantially as described.

11. A frame for railway-cars, comprising vertical metallic corner-posts, intermediate metallic tubular standards, and horizontal metallic tubular stringers, said tubes being provided with flat inner portions lying flush with one another and riveted together, and panels fitted against said flat portions of the corner-posts, standards and stringers and riveted thereto, substantially as described.

12. A frame for railway-cars, comprising vertical metallic corner-posts, intermediate metallic tubular standards, horizontal metallic tubular stringers, and tubular sections fitted between the ends of the standards, said stringers being recessed on their inner sides to fit the standards and corner-posts and riveted thereto, said tubes having flat inner portions lying flush with one another, and panels fitted against said flat portions of the tubes and riveted thereto, substantially as described.

13. A frame for railway-cars, comprising vertical metallic corner-posts, intermediate metallic tubular standards, horizontal metallic tubular stringers, and metallic tubular sections arranged between the ends of the standards, brackets interposed between the adjacent ends of the standards and tubular sections and lying flush therewith, said brackets each having two lateral tongues fitted in the ends of adjacent tubular sections and a vertical tongue fitted in the end of an adjacent standard, and panels secured to the inner sides of the corner-posts, standards, stringers and tubular sections, substantially as described.

14. A metallic frame for railway-cars, comprising tubular sills, vertical tubular corner-posts rigidly fastened at their lower ends to the sills, intermediate tubular standards, horizontal tubular stringers fastened to the corner-posts and standards, tubular sections arranged between the lower ends of the standards, brackets arranged between the contiguous ends of

the tubular sections and standards and lying flush therewith, each of said brackets having two lateral tenses fitted in the ends of the adjacent tubular sections and a vertical tense fitted in the lower end of the adjacent standard, and a lag or foot projecting horizontally inward from the bracket and latched to the adjacent sill, substantially as described.

15. A metallic frame for railway-cars, comprising tubular side and end sills rigidly secured together at their meeting ends and each consisting of a metallic tube having a flat horizontal and a flat vertical face or wall and a concave-convex inner face or wall, vertical tubular standards, horizontal tubular stringers fastened to the standards, tubular sections arranged between the lower ends of the standards and tubular sections and lying flush therewith, each of said brackets having two lateral tenses fitted in the ends of the adjacent tubular sections and a vertical tense fitted in the lower end of the adjacent standard, and a lag or foot projecting horizontally inward from the bracket and resting on and riveted to the upper flat face of the adjacent sill, the inner face of the sills being apertured for the insertion of riveting-tools, substantially as described.

16. A metallic frame for railway-cars, comprising side and end sills each consisting of a metallic tube having a flat horizontal and a flat vertical face or wall and a concave-convex inner wall, corner-brackets fitted between the contiguous ends of the sills and each consisting of an elbow having lateral tenses arranged at a right angle to one another and fitted in the contiguous ends of the sills, horizontal lugs or flanges projecting inwardly from the brackets, tubular corner-posts riveted to the said lugs or flanges and horizontal stringers fastened to the corner-posts, substantially as described.

17. A metallic frame for railway-cars, comprising side and end sills each consisting of a metallic tube having a flat horizontal and a flat vertical face or wall and a concave-convex inner wall, corner-brackets fitted between the contiguous ends of the sills and each consisting of an elbow having lateral tenses arranged at a right angle to one another and fitted in the contiguous ends of the sills and provided with a horizontal inwardly-projecting lug or flange, vertical standards secured to the sills, horizontal stringers fastened to the standards, tubular sections fitted between the lower ends of the standards and secured thereto, vertical tubular corner-posts disposed above said brackets, brackets provided with lateral tenses fitted in the ends of adjacent tubular sections and with vertical tenses fitted in the lower ends of the corner-posts, and having horizontal inwardly-projecting lugs or feet riveted to the lugs or flanges of the corner-brackets, uniting the sills, substantially as described.

18. A metallic frame for railway-cars, comprising vertical tubular standards, horizontal tubular stringers recessed on their inner sides to fit the standards and riveted thereto, and tubular sections arranged between the ends of the standards and connected thereto, panels fitted and riveted to the inner sides of the tubular standards, stringers and tubular sections, said tubes being apertured on their inner sides for the insertion of riveting-tools, substantially as described.

19. A metallic frame for railway-cars, comprising tubular side and end sills rigidly secured together at the corners, a central longitudinal truss consisting of a hollow tubular trans-beam provided on its opposite vertical sides with sockets, and brace-rods fitted at their inner ends to said sockets and connected at their outer ends to the side sills, substantially as described.

20. A metallic frame for railway-cars, comprising tubular side and end sills rigidly connected together at the corners, a central longitudinal truss consisting of top and side plates and a bottom frame fastened together to form a hollow trans-beam, which is attached to the opposite vertical sides of the trans-beam and to the interior of the tubular side sills, and brace-rods fitted at their opposite ends respectively to the sockets on the trans-beam and the sockets in the said sills, said side sills being apertured on their inner sides for the passage of the brace-rods and for the insertion and attachment of the sockets, substantially as described.

699,841. **BRACKET-PANTRY.** JOHN E. McMAHON, Goodhope W. Va. Filed Sept. 12, 1901. Serial No. 74,973. (No model.)

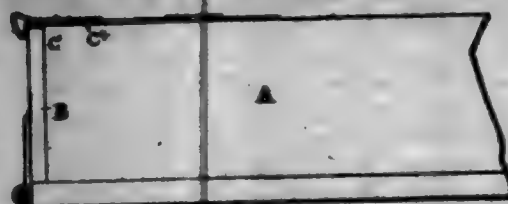


Claim.—1. In a bracket-pantry, a member having a rounded head with its opposite sides flattened and having corresponding ears extending inward about at a right angle to the plane of the flattened sides to form yielding side portions, and a compression member having an oblong opening and a socket extended from the plate in line with the opening and having its opposite sides flattened, said socket and an edge portion of the plate being split, substantially as set forth.

2. In a bracket-pantry, a collar-button comprising a flat stem, a foot and a head and a head having flattened sides and inwardly-extending

ing ends, and a member for attachment to a necktie and comprising a plate having an oblong opening and a socket extended from the plate in line with the opening and having its opposite sides flattened, said socket and an edge portion of the plate being split, substantially as set forth.

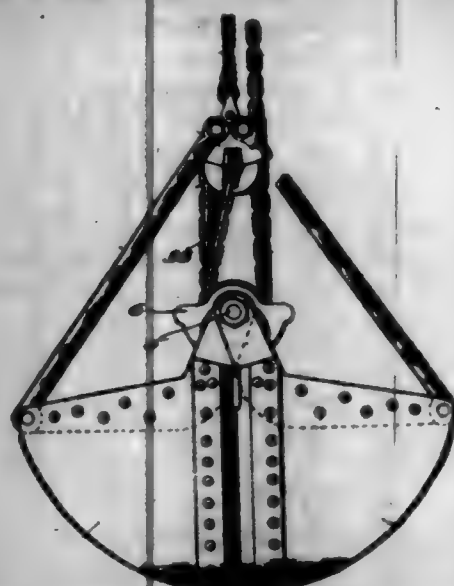
699,842. **TAIL-BOARD SPRING.** FREDMAN BUCKINGHAM, JR., Fall River, Mass. Filed Jan. 25, 1902. Serial No. 91,204. (No model.)



Claim.—1. The combination with a tail-board spring consisting of a strip of spring metal having screw-bolts near one end, of a reinforcing-plate covering one of said bolts, and provided with lateral lugs bent down on each side of said spring.

2. The combination with a tail-board spring consisting of a strip of spring metal having screw-bolts near one end, of a reinforcing-plate covering one of said bolts, and extending rearwardly from said bolt.

699,843. **HOISTING-SOCKET.** ALBERT E. NORMAN, Cambridge, Mass., assignor to Evers & Norman Manufacturing Company, Cambridge, Mass. Filed Oct. 17, 1901. Serial No. 73,954. (No model.)



Claim.—1. A hoisting-socket comprising two bucket-sockets pivotally connected together, a head, links connecting the head and bucket-sockets, a series of sheaves carried on the pivotal connection between said bucket-sockets, a corresponding series of sheaves mounted in the head, and an opening and closing chain passing around the sheaves of said two series, the sheaves of one series having an angular relation to the sheaves of the other series, whereby these portions of the said chain stretching between the sheaves are substantially at right angles to the axis of said sheaves.

2. In a hoisting-socket, two bucket-sockets pivotally connected together, a head, links connecting said head and bucket-sockets, a series of axially-aligned sheaves carried by the bucket-sockets, a second series of axially-aligned sheaves mounted in said head, and an opening and closing chain passing over said sheaves, the axes of the two series of sheaves having an angular relation to each other.

3. In a hoisting-socket, two bucket-sockets pivotally connected together, a head, links connecting said head and bucket-sockets, a series of axially-aligned sheaves mounted on the pivotal connection between said bucket-sockets, said head having its upper portion squared with the bucket-sockets, and its lower portion formed to receive sheaves rotating about an axis having an angular relation to the axis of said first-mentioned sheaves, and an opening and closing chain passing about said sheaves.

4. In a clam-shell hoisting-socket having two pivoted bucket-sockets, a head having an upper portion squared with said bucket-sockets and to which said segments are connected, and a lower sheave-receiving portion having an angular relation to the said bucket-sockets.

5. In a clam-shell hoisting-socket, two pivoted bucket-sockets, a head having an upper portion squared with said bucket-sockets and to which said segments are connected, and a lower sheave-receiving portion having an angular relation to the said bucket-sockets, and a guide-eye

extended laterally from one end of said upper portion, combined with an opening and closing chain passing through said guide-eye.

6. In a clam-shell hoisting-socket having two pivoted bucket-sockets, a head having an upper portion squared with said bucket-sockets and to which said segments are connected, and a lower sheave-receiving portion having an angular relation to said bucket-sockets, said head having a laterally-extended guide-eye directed adjacent one end of said upper portion, and a leader surrounding the opening and closing chain and detachably secured to said guide-eye, combined with the said opening and closing chain.

7. In a clam-shell bucket, two bucket-sockets pivotally together, a series of sheaves mounted on the pivotal connection between the segments, a head carrying a second series of sheaves cooperating with said first-mentioned series, an opening and closing chain passing over said sheaves, said head having a laterally-extended guide-eye substantially in line with the end sheave of the first-mentioned series.

8. In a clam-shell bucket, two bucket-sockets pivotally connected together, a series of sheaves mounted on the pivotal connection between the said segments, a head carrying a second series of sheaves cooperating with said first-mentioned series, said second series of sheaves having an angular relation to the sheaves of the first series, a guide-eye extended laterally from the head substantially in line with the end sheave of the first-mentioned series, combined with an opening and closing chain passing through said guide-eye and around said sheaves, the construction being such that the runs of the chain between the sheaves are substantially at right angles to the axis of said sheaves.

9. In a hoisting-socket, two bucket-sockets, a head, connections between said head and bucket-sockets, and a series of sheaves carried by the bucket-sockets and turning about a common axis, a second series of sheaves mounted in the head and also having a common axis, and an opening and closing chain passing about all of said sheaves and operating to open and close both bucket-sockets simultaneously, the axes of the two series of sheaves having such an angular relation to each other that the runs of the chain between the sheaves are substantially at right angles to the axis of said sheaves.

10. In a hoisting-socket, two bucket-sockets, a series of sheaves carried thereby, a head, a second series of sheaves mounted therein, the sheaves in the head having an angular relation to the sheaves carried by the bucket-sockets, an opening and closing chain passing around the sheaves of both series, an arm rigid with the head and to which the end of the opening and closing chain is fastened, said arm being directed substantially over the end sheaves of the series carried by the bucket-sockets.

11. In a hoisting-socket, two bucket-sockets, a head having an upper portion squared with said segments and to which the segments are connected, and a lower sheave-receiving portion having an angular relation to said bucket-sockets, an arm rigid with the lower sheave-receiving portion of the head and to which the end of the opening and closing chain is adapted to be secured.

12. In a hoisting-socket, two bucket-sockets, a plurality of sheaves carried thereby, a head, a series of sheaves carried thereby and having an angular relation to the sheaves carried by the bucket-sockets, an opening and closing chain passing around the sheaves of both series, an arm rigid with the head and to which the end of the opening and closing chain is attached, said arm being in alignment with the portion of the chain secured thereto, and being directed substantially over the end sheaves of the series carried by the bucket-sockets.

699,844. **MECHANICAL TOY.** GEORGE E. FARR, Fayetteville, E. C. Filed Nov. 7, 1901. Serial No. 81,498. (No model.)



Claim.—1. A device of the character described, comprising a hollow body having a characteristic head and feet, the latter being provided

with a movable lower jaw, means for yieldably holding the movable jaw normally closed, a resilient diaphragm stretched across the hollow head, and a manipulating-cord operatively connected with the movable jaw and in operative relation with the resilient diaphragm.

2. A device of the character described, comprising a hollow body having a fixed characteristic head and feet at one end thereof, the feet being provided with a fixed jaw and a movable jaw, a spring to hold the latter jaw normally closed, a resilient diaphragm stretched across and closing the opposite end of the body, and a manipulating-cord connected to the movable jaw and in operative relation with the resilient diaphragm.

3. A device of the character described, comprising a hollow body, a movable member carried thereby, a resilient diaphragm also carried by the body and provided with a perforation, a manipulating-cord connected to the movable member and projected through the perforation of the diaphragm, and a stop carried by the cord and in operative relation to the diaphragm.

4. A device of the character described, comprising a hollow body, a characteristic head at one end of the body and provided with a movable jaw, a resilient diaphragm closing the opposite end of the body and provided with a perforation, a manipulating-cord projected through the perforation and connected to the movable jaw, and a stop carried by the cord within the body and in operative relation to the diaphragm.

5. A device of the character described, comprising a hollow body having a fixed characteristic head and feet, the latter being provided with a fixed upper jaw and a movable lower jaw, a spring-actuated bell-crank lever mounted in the body and having one arm connected to the movable jaw to normally hold the latter closed, a resilient diaphragm stretched across the hollow body, and a manipulating-cord connected to the other arm of the lever and in operative relation with the diaphragm.

6. A device of the character described, comprising a hollow body having a characteristic head and feet, the latter being provided with a fixed jaw and a movable jaw, a spring-actuated bell-crank lever within the body, one arm of the lever being connected to the movable jaw to hold the latter normally closed, a resilient diaphragm stretched across the body, and an operating-cord connected to the other arm of the lever and in operative relation with the diaphragm.

7. A device of the character described, comprising a hollow body, a characteristic head at one end of the body and having a movable jaw, a resilient diaphragm closing the opposite end of the body and provided with a perforation, a spring-actuated bell-crank lever mounted within the body and having one arm connected to the movable jaw, a manipulating-cord projected through the perforation in the diaphragm and connected to the other arm of the lever, and a stop carried by the cord and in operative relation to the inner side of the diaphragm.

8. A device of the character described, comprising a hollow body, a movable member carried thereby, a resilient diaphragm also carried by the body, a spring-actuated lever mounted within the body and connected with a movable member, a link connected to the lever and projected through a perforation in the diaphragm, the link being twisted into a loop adjacent to the inner side of the diaphragm to form a stop for engagement therewith, and a cord connected to the outer free end of the link.

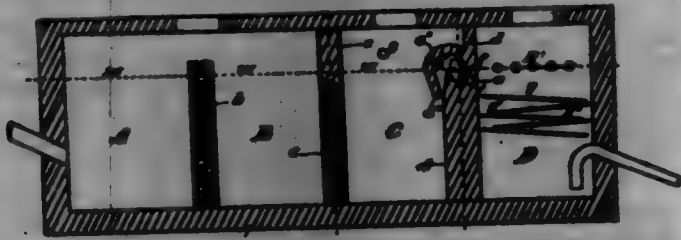
9. A device of the character described, comprising a hollow body, a movable member carried thereby, a resilient diaphragm also carried by the body, a transverse pin or rod within the body, a wire doubled upon itself to form an arm, and having its opposite portions twisted into spring-coils embracing the rod or pin, the outer end of one of the coils being connected to the body, and the outer end of the other coil being extended to form an arm connected to the movable member, and an operating-cord connected to the first-mentioned arm and in operative relation to the diaphragm.

10. A device of the character described, comprising a hollow body, a characteristic head at one end of the body and provided with a movable jaw, a transverse rod or pin within the body, a wire doubled upon itself to form a downwardly-inclined arm, the head of the wire being formed into a hook, the opposite portions of the wire being twisted into spring-coils embracing the rod or pin, the outer end of one of the coils being connected to the body, the outer end of the other coil being extended into an arm connected to the movable jaw, a wire link connected to the hook of the first-mentioned arm and having its opposite end projected through a perforation in the diaphragm, an intermediate portion of the link being twisted into a loop to form a stop in operative relation to the inner side of the diaphragm, and a cord connected to the outer free end of the link.

699,845. **APPARATUS FOR THE TREATMENT OF SEWAGE.** ANDREW J. FARRER, JR., Brooklyn, N. Y. Filed Apr. 4, 1901. Serial No. 84,500. (No model.)

Claim.—1. In an apparatus for purifying sewage by bacterial action the combination of a first compartment for the reception of the sewage from the sewer and adapted to encourage bacterial growth, a second compartment likewise adapted and a pervious partition between said

compartments, adapted to detain in the first compartment a given size of solid constituents of the sewage and to pass into the second compartment such solid constituents of lower size, substantially as and for the purposes described.



2. In an apparatus for purifying sewage by bacterial action the combination of a compartment adapted to the growth and action of anaerobic bacteria a second compartment adapted to the growth and action of facultative bacteria and a filtering-partition between the said compartments, substantially as and for the purposes described.

3. In an apparatus for purifying sewage by bacterial action the combination of a compartment adapted to the growth and action of anaerobic bacteria and to the reception and partial detention of the sewage from the sewer, a second compartment likewise adapted to the growth and action of anaerobic bacteria, a filter connecting said two compartments and adapted to resist the passage of a certain size of particles of the solid constituents of the sewage and to permit the passage of all smaller ones, a third compartment adapted to the growth and action of facultative bacteria and a filter connecting said last-mentioned compartment with the aforesaid second compartment and adapted to detain substantially all solid constituents in said second compartment, substantially as and for the purposes described.

4. In an apparatus for purifying sewage by bacterial action the combination of a compartment adapted to the growth and action of anaerobic bacteria and to the reception and partial detention of the sewage from the sewer, a second compartment likewise adapted to the growth and action of anaerobic bacteria, a filter connecting said two compartments and adapted to resist the passage of a certain size of particles of the solid constituents of the sewage and to permit the passage of all smaller ones, a third compartment adapted to the growth and action of facultative bacteria and a filter connecting said last-mentioned compartment with the aforesaid second compartment and adapted to detain substantially all solid constituents in said second compartment and a fourth compartment connected with said last-mentioned third compartment and adapted to the growth and action of aerobic bacteria, substantially as and for the purposes described.

5. In an apparatus for the purification of sewage by bacterial action a series of three successively-interconnecting compartments having the same water-level, the first adapted to the action and growth of anaerobic bacteria and to the reception of the sewage from the sewer, the second likewise adapted to the growth and action of anaerobic bacteria and communicating with the first through a filter adapted to detain in the latter a certain size of particles of the solid constituents of the sewage and to admit passage into the latter with the liquid constituents of all smaller-sized particles of said solid constituents, the third compartment adapted to the growth and action of facultative bacteria and connected with the second compartment through a filter adapted to detain in the latter substantially all its contained solid constituents of the sewage, substantially as and for the purposes described.

6. In an apparatus for purifying sewage by bacterial action and containing a plurality of interconnecting compartments adapted to successive stages of treatment of such sewage a final retaining wall or dam having a horizontally-extended upper edge determining the level of the liquid in all of said compartments and in combination therewith an inwardly and downwardly extending and correspondingly horizontally extended projection forming a head for said upper edge and projected downwardly beneath the surface of the liquid, substantially as and for the purposes described.

7. In an apparatus for purifying sewage by bacterial action and consisting of one or more compartments adapted to temporarily detain the sewage a partition or wall having a horizontally and longitudinally extended inner chamber provided with outlets on upper edge correspondingly longitudinally and horizontally extended above the bottom of each chamber and fixing the level of the liquid in each compartment or compartments and an inwardly and downwardly and correspondingly horizontally and longitudinally extended projection covering said chamber and said edge and projecting downwardly into the liquid below its said level substantially as and for the purposes described.

8. In an apparatus for purifying sewage by bacterial action and consisting of one or more compartments adapted to temporarily detain the sewage a partition or wall having a horizontally and longitudinally extended inner chamber provided with outlets on upper edge correspondingly longitudinally and horizontally extended above the bottom of each chamber and fixing the level of the liquid in each compartment or com-

partments and an inwardly and downwardly and correspondingly horizontally and longitudinally extended projection covering said chamber and said edge and projecting downwardly into the liquid below its said level, a partition or wall *d* containing a longitudinally-extended and horizontally-extended inner chamber *f* having outlets *e* a correspondingly horizontally and longitudinally extended upper edge *e'* and over the said chamber and edge an inwardly and downwardly projecting and correspondingly horizontally and longitudinally extended projection or head *e''* having a lower edge or lip *e'''* below the level of the liquid, substantially as and for the purposes described.

699,846. CAR-MAKER. LOUIS T. FROST, Philadelphia, Pa., assignor to John E. Rayburn, Philadelphia, Pa. Filed Dec. 17, 1900. Renewed Oct. 16, 1902. Serial No. 72,067. (No model.)



Claim.—1. In a brake, a truck-frame, wheels supporting the truck, brake heads and shoes front and back of each wheel, the front heads of each wheel, and the back heads of each wheel being attached to longitudinal bars, and all the heads and shoes for each side of the truck being actuated by toggle mechanism from one point, between the wheels.

2. In a brake, a truck-frame, wheels for the truck, brake heads and shoes at the front of each wheel, longitudinal bars connecting the brake-heads; brake heads and shoes at the back of each wheel, longitudinal bars connecting the brake-heads, and toggle means located between the wheels at each side of the truck to simultaneously force the front and back shoes to the wheels.

3. In a brake, a truck-frame and wheels, brake heads and shoes front and back of each wheel, the front heads of each wheel on each side of the truck being connected by a longitudinal bar placed outside of the wheels; the back heads on each wheel on each side of the truck being connected by a longitudinal bar, placed outside of the wheels, and means to operate the front and back heads of each side to simultaneously move to and press the wheels.

4. In a brake, a truck-frame and wheels, brake heads and shoes at the front and back of each wheel, the heads and shoes at the front of the wheels, on each side of the truck, being longitudinally connected by a bar outside of the wheels, which is rigidly attached to one head and is adjustably attached to the other head; the heads and shoes at the back of the wheels, on each side of the truck, being longitudinally connected by a bar outside of the wheels, which is rigidly attached to one head and is adjustably attached to the other head; and means operative at each side of the truck to force all of the shoes at that side to the wheels simultaneously.

5. In a brake, a truck-frame and wheels, brake heads and shoes for each side of each wheel, and toggle means to simultaneously press the front heads and shoes and the back heads and shoes to the wheels, for operative contact.

6. In a brake, a truck-frame and wheels, heads and shoes for the wheels, at the front and back of each wheel, a longitudinal tie-bar connecting the front heads and shoes of each side of the truck, the back be-

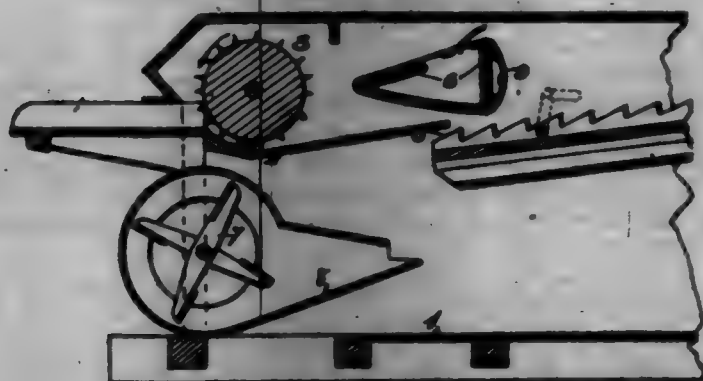
ing located outside of the wheels; a longitudinal tie-bar connecting the back heads and shoes of each side of the truck, the bars being located outside of the wheels; the tie-bars for the front heads and shoes and the tie-bars for the back heads and shoes overreaching each other at the side center of the truck, and toggle means at each side center of the truck having compression members thereto and to the brake-heads between the wheels, whereby all the heads and shoes are pressed to contact with all the wheels, at the same time, by said centrally-located toggle means.

7. In a brake, a truck-frame and wheels, a toggle mechanism at the center of each side of the truck, means to connect the toggle mechanism to operate brake heads and shoes at each side of the wheels, on each side of the truck simultaneously, and adjusting means on the toggles whereby the wear on the shoes is taken up by a single operation.

8. In a brake-toggle, a pull-bar, push-bar extending outward and connected to brake-heads at their outer ends, and at their inner ends resilient lifting-links connected thereto, reaching therefrom and connected and attached to the head or upper end of the pull-bar aforesaid.

9. In a brake, a truck-frame, wheels thereon, brake heads and shoes for the wheels, and hangers for the heads having substantially parallel members having means for connection to the brake-head, at their lower ends, means for connection to a supporting-bracket, and therefrom united above said bracket-supporting point.

699,847. REVELING OR TRAVELING BEATER-COVER. JOHN E. BARAK and JOHN E. ROSENTHAL, Grand Rapids, Mich.; said Barak assignor to said Rosenthal. Filed June 2, 1901. Serial No. 68,712. (No model.)



Claim.—1. A beater-cover for threshing-machines, consisting of a pliable piece of material, preferably rectangular and oblong in shape; slats secured to the inner face and crosswise of the said pliable material; straps perforated at their tail ends, and provided with buckles at their head ends, and secured to the inner face of the pliable material, and the inner faces of the slats; perforated straps secured to the inner face and tail end of the pliable material; straps and buckles corresponding with said last-mentioned straps, and secured to the outer face and head end of said pliable material, substantially as shown and described and for the purposes set forth.

2. A beater-cover for threshing-machines, consisting of a pliable piece of material, preferably rectangular and oblong in shape; slats secured crosswise and on the inner face of said pliable material; straps secured to the inner face of the pliable material, and inner faces of the slats; said straps being provided at their tail ends with perforations, and at their head ends with buckles; said beater-cover adapted to be secured around a pair of beaters, and further around said beaters by suitable means, substantially as shown and described and for the purposes set forth.

3. A traveling or revolving beater-cover for threshing-machines, consisting of a pliable piece of material, preferably rectangular and oblong in shape; slats, or other suitable material to answer the same purpose, secured to the inner or outer, or both faces of said pliable material, and across the same; straps perforated at their tail ends, and provided with buckles at their head ends, and secured to the inner face of the pliable material, and the inner faces of the slats; perforated straps secured to the inner face and tail end of the pliable material, at its head end, and the inner faces of the slats; perforated straps secured to the inner face and tail end of the pliable material; straps and buckles corresponding with said last-mentioned straps, and secured to the outer face and head end of said pliable material, substantially as shown and described and for the purposes set forth.

4. A traveling or revolving beater-cover for threshing-machines, consisting of a pliable piece of material, preferably rectangular and oblong in shape; slats, or other suitable material secured crosswise the inner or outer, or both faces of the pliable material; straps secured to the inner face of the pliable material, and inner faces of the slats, or other suitable material used; said straps being provided at their tail ends with perforations and at their head ends with buckles; said traveling or revolving beater-cover, adapted to be secured around a pair of beaters, or a single

beater on threshing-machines, and further around said beater by a suitable means, substantially as shown and described and for the purposes set forth.

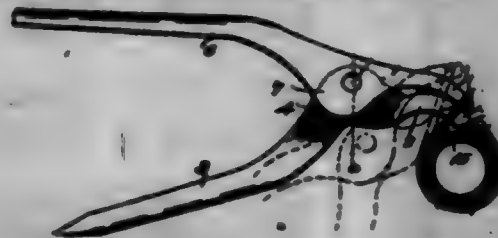
699,848. BRUSH. GEORGE R. RICHARDSON, Leam, Wm. Filed May 11, 1901. Serial No. 68,808. (No model.)



Claim.—1. In a brush, a handle having a kerf extending therein from one end, and a brush-frame fitted in the said kerf and having a depression in its edge to receive and embrace opposite sides of the handle in line with and adjacent the inner end of the said kerf, and means for connecting the parts of the handle separated by the kerf and clamping the brush-frame therebetween, substantially as set forth.

2. In a brush, a handle having a kerf formed therein at one end, a frame comprising spaced bars and having a portion crimped to form a depression, brush material folded about said spaced bars and secured thereto, the crimped portion of the frame entering the kerf of the handle and embracing opposite sides thereof and the folded part of the brush material fitting in a notch in the end of the handle and means for connecting and clamping the separated parts of the handle against opposite sides of the brush-frame, substantially as set forth.

699,849. HOOP-PLIERS. JAMES F. SARGENT, Jr., Grand Rapids, Mich., assignor of one-half to Owen R. Chaffee, Grand Rapids, Mich. Filed Nov. 21, 1901. Serial No. 68,908. (No model.)



Claim.—1. An implement of the character specified, comprising two jaws, the outer side of the terminal of each of which is provided with a transversely-disposed clamping-band-engaging recess, the said recesses being adapted simultaneously to receive the ends of the clamping-band and to retain them until the band has been secured in position around the hoop.

2. An implement of the character specified, comprising two jaws, the outer side of the terminal of each of which is provided with a transversely-disposed clamping-band-engaging recess, the terminal of one jaw projecting beyond that of the other, the said recesses being adapted simultaneously to receive the ends of the clamping-band and to retain them, until the band has been secured in position around the hoop.

699,850. POWER-PRESS. GEORGE R. THOMAS, Johnstown, Pa. Filed Aug. 4, 1901. Serial No. 68,992. (No model.)

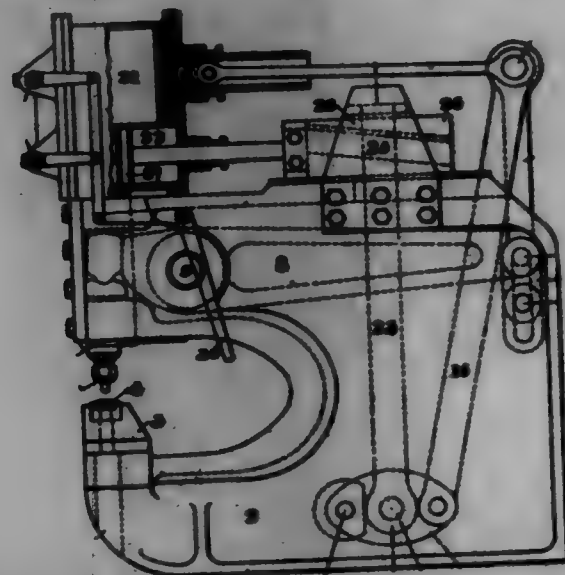
Claim.—1. A power-press having a toggle-joint, means for actuating the toggle-joint, and power-actuated mechanism arranged to automatically adjust the fixed point of the toggle and thereby change the position of the tool; substantially as described.

2. A power-press having a toggle-joint arranged to actuate a tool, means for actuating the toggle-joint, and an inclined block having connections arranged to adjust the fixed point of the toggle; substantially as described.

3. A power-press having a toggle-joint arranged to actuate a tool, a cylinder arranged to move the toggle-joint, and another cylinder having connections arranged to automatically adjust the fixed point of the toggle; the latter cylinder being of insufficient power to actuate the tool in its working stroke, and arranged to merely adjust the position of the tool substantially as described.

4. A power-press having a toggle-joint connected to and arranged to actuate a plunger, a lever connected to the plunger, and means for

swinging the lever to adjust the fixed point of the toggle; substantially as described.



5. A power-press having a toggle-joint connected to and arranged to actuate a tool, a lever connected to the toggle, a link connected to the lever and having an inclined face, and a sliding block having an inclined face arranged to rest upon the link to adjust the position of the fixed point of the toggle; substantially as described.

6. A power-press having a toggle-joint connected to and arranged to actuate a tool, a lever connected to the main link of the toggle and arranged to change the fixed point of the toggle, and mechanism for swinging the lever; substantially as described.

7. A power-press having a toggle-joint arranged to actuate a tool, a cylinder arranged to actuate the toggle, and automatically-acting mechanism arranged to adjust the position of the fixed point of the toggle and drawing the tool to the desired point before the toggle-link is actuated to move the tool; substantially as described.

8. A power-press having a toggle-joint arranged to actuate a tool, a cylinder arranged to actuate the toggle, and a smaller cylinder having connections arranged to adjust the fixed point of the toggle; the latter cylinder being of insufficient power to move the tool through its working stroke substantially as described.

9. A power-press having a toggle-joint arranged to actuate a tool, mechanism for adjusting the fixed point of the toggle and an adjustable stop arranged to regulate the amount of said adjustment; substantially as described.

10. A power-press having a toggle-joint arranged to actuate a tool through a pressure-link, a lever connected to the main side link of the toggle, a link connected to the lever and having an inclined face, a sliding block arranged to rest upon the link, an adjustable stop for the block, and a power-cylinder connected to the block; substantially as described.

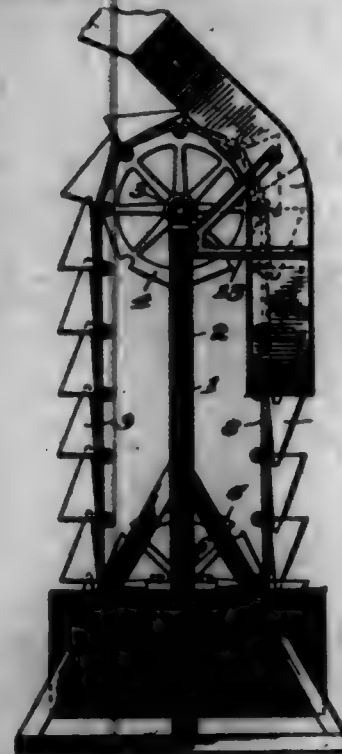
11. A power-press having a toggle provided with two levers of different lengths connected together at their adjacent ends, the shorter lever being arranged to actuate the tool, the longer lever having an adjustable fulcrum at its opposite end, said opposite ends of the levers both being on the same side of the joint between the levers, means for applying power to said joint, and mechanism for adjusting the fulcrum of the longer lever; substantially as described.

12. A power-press having a toggle device formed with a longer and a shorter lever with their ends connected together, the opposite ends of the levers both being on the same side of the joint between the levers, a lever connected to the other end of the shorter lever and arranged to actuate the tool, means for applying power to the joint between the two toggle-levers, and an adjustable fulcrum for the longer lever; substantially as described.

13. A power-press having a toggle-joint formed of a longer and a shorter lever pivotally connected at their ends, a power-cylinder connected to the joint between the two toggle-levers, the opposite ends of the levers both being on the same side of the joint between the levers, a third lever pivotally connected to the opposite end of the shorter lever and arranged to actuate the tool, a fixed fulcrum for the opposite end of the longer lever, and mechanism for adjusting said fulcrum; substantially as described.

14. A power-press having a toggle-joint formed of a longer and a shorter lever pivotally connected at their ends, a power-cylinder connected to the joint between the two toggle-levers, a third lever pivotally connected to the other end of the shorter lever and arranged to actuate the tool, a fixed fulcrum for the other end of the longer lever, and mechanism for automatically adjusting the fulcrum to bring the tool to the desired point; substantially as described.

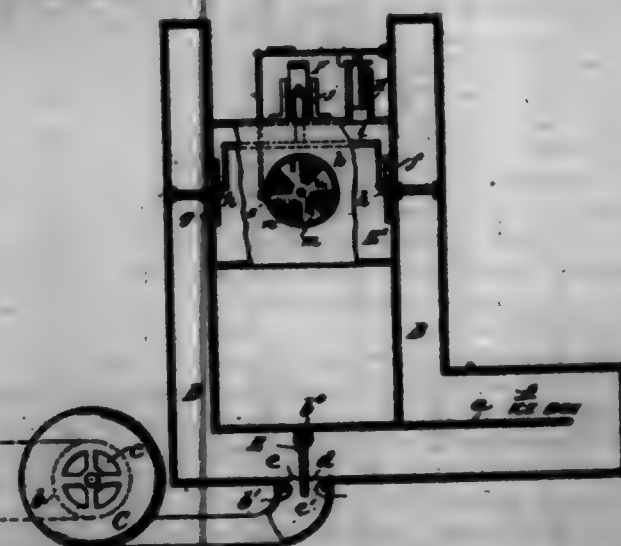
699,851. CHAIN WATER-MOTOR. GEORGE E. THURMON, Colby, Wash. Filed Mar. 12, 1901. Serial No. 50,990. (No model.)



Claim.—1. A water-motor comprising a frame, a sprocket-wheel mounted therein, a chain carrying buckets arranged on said sprocket-wheel, a weighted sprocket-wheel at the bottom of the machine for keeping the chain taut, a guiding frame or baring pivotally suspended on the axle of the lower sprocket-wheel, the said baring or frame engaging the side standards of the machine so as to hold the parts in proper place, and a housing surrounding the bucket-chain for holding water or other liquids therein, substantially as described.

2. A water-motor comprising a frame formed with side standards, a cross-shaft supported at the upper end thereof, a sprocket-wheel carried by the said shaft, a chain passing around the sprocket-wheel and carrying a series of angular-shaped hollow buckets, a lower sprocket-wheel resting upon the lower loop of the chain, a casing or baring suspended upon the lower sprocket-wheel by means of suitable shafting, the said baring and sprocket-wheel serving to maintain the chain in the proper degree of tension, and means for delivering water to the buckets as they descend, the said means also serving to prevent the water from spilling from the buckets, substantially as described.

699,852. VENTILATING APPARATUS. JOHN TITUS, Oyster Bay, and WILLIAM TITUS, Old Westbury, N. Y. Filed Aug. 11, 1902. Serial No. 79,490. (No model.)



Claim.—1. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of the shafts, of a mixing-chamber between the two shafts communicating therewith, and having an outlet to the room or place to be ventilated, registers at the inlets from said air-shafts to said mixing-chamber, and mechanism for simultaneously operating the registers to regulate the relative volumes of air from the two shafts into the chamber, substantially as described.

2. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of the air-shafts for forcing air simultaneously to said shafts, of a mixing-chamber between the two shafts and having an outlet to the room or place to be ventilated, registers at the inlets from said shafts to said mixing-chamber, a thermostat and device for connecting the thermostat with said registers to automatically actuate said registers by the temperature of the room or place to be ventilated, substantially as described.

3. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, an air-firing apparatus at the lower ends of the shafts, for simultaneously forcing air thereto, and a valve at the throat of said apparatus for regulating the relative volumes of air supplied to the two shafts, of an air-mixing chamber between the two shafts and communicating therewith, registers at the inlets from said air-shafts to said chamber, and mechanism for simultaneously operating the registers to regulate the relative volumes of air from the two shafts into the chamber, substantially as described.

4. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, an air-firing apparatus at the lower ends of said shafts for simultaneously forcing air thereto, and a valve at the throat of the air-firing apparatus for regulating the relative volumes of air supplied to the two shafts, of an air-mixing chamber between the two shafts and communicating therewith, registers at the inlets from the shafts to the chamber, a thermostat, and device for connecting the thermostat with the registers to automatically actuate the registers by the temperature of the room or place to be ventilated, substantially as described.

5. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of two air-shafts for forcing air simultaneously to said shafts, a mixing-chamber between the two shafts and having an outlet to the room or place to be ventilated, registers at the inlets from the shafts to the chamber, and a register at the outlet of the chamber, into the room or place to be ventilated, of a device actuated by pressure of the air within the chamber and mechanism for transmitting motion from said device to the register at the outlet of the chamber, substantially as described.

6. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of said shafts for forcing air simultaneously thereto, of a mixing-chamber between the two shafts, and having an outlet to the room or place to be ventilated, registers at the inlets from the shafts to the chamber, of a register at the outlet from the chamber to the room or place to be ventilated, an arm provided to said register, a cylinder, the lower end of which communicates with the said chamber, a plunger in said cylinder with its upper end projected from the top thereof, a loaded lever actuated from the plunger, and means for connecting said lever with the register at the outlet of the chamber whereby said register is actuated from the varying pressure within the chamber to regulate the outflow of air from the chamber to the room or place to be ventilated, substantially as described.

7. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of the two shafts, of a mixing-chamber between the said shafts and having an outlet to the room or place to be ventilated, a flexible air-conducting pipe connected to said outlet, registers at the inlets from the two air-shafts to the chamber and mechanism for actuating said registers to regulate the admission of air from the shafts to the chamber, substantially as described.

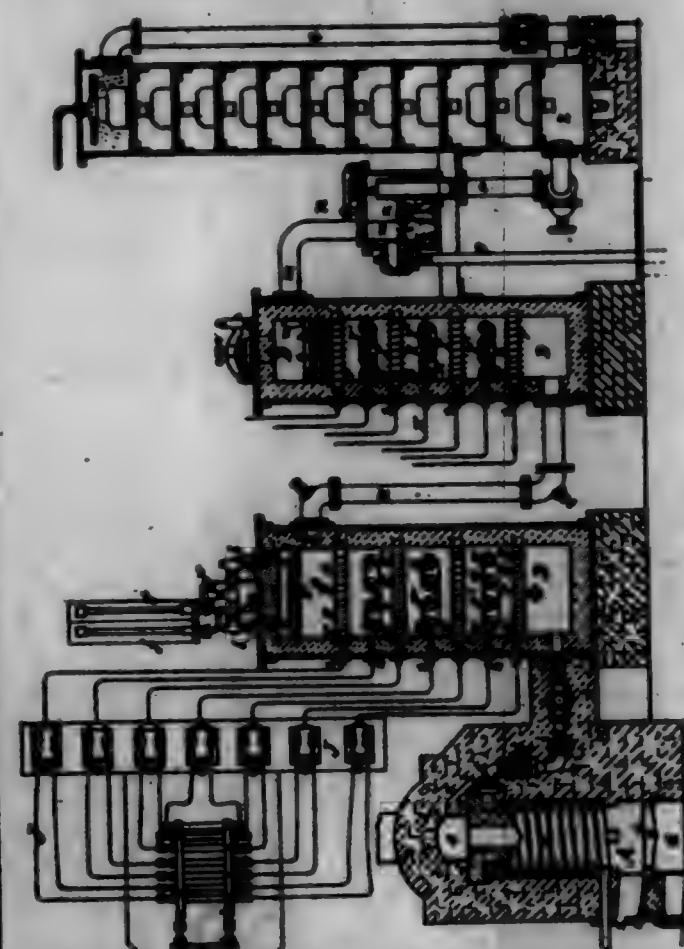
8. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, and an air-firing apparatus at the lower ends of said shafts, of a mixing-chamber between said shafts and having an outlet to the room or place to be ventilated, a flexible air-conducting pipe connected to said outlet, a register at said outlet, a pressure-regulator connected with said register, registers at the inlets from the two shafts to the mixing-chamber, and mechanism for simultaneously operating the said registers to regulate the relative volumes of air passed from the shafts to the chamber, substantially as described.

9. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary air-shaft parallel with the cold-air shaft, an air-firing apparatus at the lower ends of the shafts, and a valve in the throat of said apparatus to regulate the relative volumes of air passed therefrom to the two air-shafts, of a mixing-chamber between said shafts and having an outlet to the room or place to be ventilated, a flexible air-conducting tube connected to said outlet, a register at said outlet, a pressure-regulator connected to said register, registers at the inlets of the two shafts to the mixing-chamber, a thermostat, and mechanism for no-

testing the said registers from changes in the temperature of the room or place to be ventilated, substantially as described.

10. The combination with an air-cooler, a cold-air shaft extended upward from said cooler, a secondary shaft parallel with the cold-air shaft, an air-firing apparatus at the lower ends of said shafts, and an adjustable valve in the outlet-throat of the air-firing apparatus to regulate the relative volumes of air passed therefrom to the two shafts, of a mixing-chamber between the two shafts and having an outlet to the room or place to be ventilated, a register at said outlet, a pressure-regulator connected to said register, a flexible air-conducting tube connected to said outlet, registers at the inlets from the two air-shafts to the air-mixing chamber, a thermostat, and mechanism connecting the thermostat with said registers to simultaneously actuate the same from the varying temperature of the room or place to be ventilated, substantially as heretofore described and set forth.

699,853. APPARATUS FOR THE MANUFACTURE OF CARBON-DEUTERIDE HYDROGEN GAS. BENJAMIN VAN RENSSELAER, New York, N. Y. Filed Sept. 4, 1901. Serial No. 74,445. (No model.)



Claim.—1. In an apparatus for generating illuminating-gas, the combination comprising a generating-chamber, oil-condenser and electric incandescent burner, a connected steam-superheater and a connected electric steam or water decomposing chamber substantially as and for the purpose herein set forth.

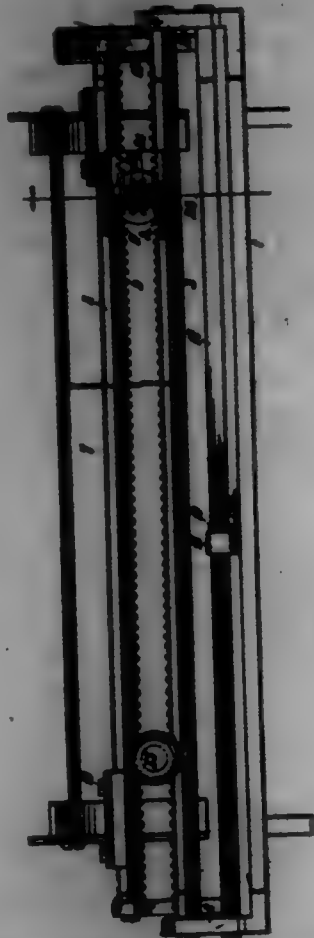
2. In an apparatus for generating water-gas the combination of the generating-chamber, the firing-chamber, steam-decomposing chamber, the hydrocarbon oil and carbide and the generating-chamber provided with oil-condensers, the firing-chamber with carbon passages and both chambers provided with electric incandescent burners, substantially as and for the purpose herein set forth.

3. In an apparatus for generating gas the combination comprising the generating chamber, the firing-chamber the electric water or steam decomposing chamber; said generating and firing chamber provided with electric incandescent burners, and said decomposing-chamber provided to deliver free hydrogen into the generating-chamber, and provided to conduct the oxygen to a storage-holder substantially as and for the purpose herein set forth.

699,854. TYPE-WRITING MACHINE. FRANK Y. WAGNER, New York, N. Y., assignor to the Wagner Typewriter Company, New York, N. Y., a Corporation of New York. Filed Jan. 28, 1902. Serial No. 84,771. (No model.)

Claim.—1. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and means on which the rollers are adapted to roll for maintaining

the rollers fixed one with relation to another throughout the movement of the carriage.



2. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and rack and pinion for maintaining the rollers in fixed relation to the trackway on the framing of the machine throughout the movement of the carriage.

3. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and rack and pinion for maintaining the rollers in fixed relation to the trackways throughout the movement of the carriage.

4. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and rack and pinion for maintaining the rollers in fixed relation to the trackways throughout the movement of the carriage.

5. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a rack carried by said trackway, a trackway carried by the framing of the machine, a rack carried by said second-named trackway, disconnected intermediate bearing-rollers between said trackways, and a gear connected to each of said rollers, each of which gears is adapted to engage the rack on the trackways.

6. In a type-writing machine, the combination of a carriage and geared roller-bearings upon which said carriage is supported.

7. In a type-writing machine, the combination of a carriage and disconnected uncoupled geared roller-bearings upon which said carriage is supported.

8. In a type-writing machine, the combination of a carriage, geared roller-bearings upon which said carriage is supported, and racks cooperating with said roller-bearings and carried by the carriage and the framing of the machine.

9. In a type-writing machine, the combination of a platen, a platen-carriage, means for moving the platen in a direction transverse to the length thereof for upper and lower case printing, a trackway carried by the carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and means on which the rollers are adapted to roll for maintaining the rollers fixed one with relation to another throughout the movement of the carriage.

10. In a type-writing machine, the combination of a platen, a platen-carriage, means for moving the platen in a direction transverse to the length thereof, a pivoted trackway carried by the carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and means for maintaining the rollers fixed one with relation to another.

11. In a type-writing machine, the combination of a platen, a platen-carriage, means for moving the platen in a direction transverse to the length thereof, a pivoted trackway carried by the carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, and means for maintaining the rollers fixed one with relation to another and in fixed relation to the trackways.

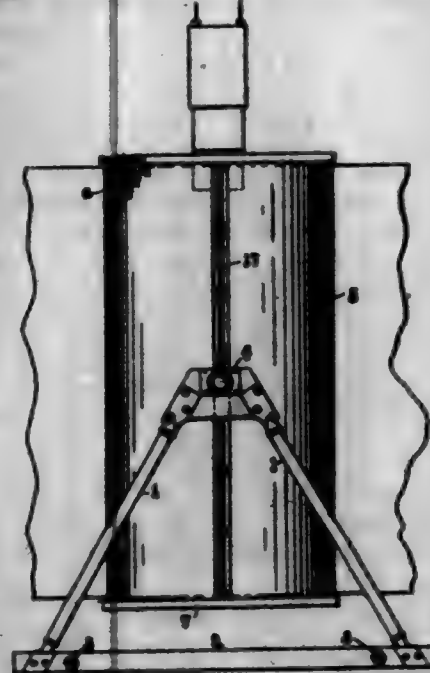
12. In a type-writing machine, the combination of a carriage, a trackway carried by the carriage, a trackway carried by the framing of the machine, disconnected intermediate bearing-rollers between said trackways, means for maintaining the rollers fixed one with relation to another, a carriage fixed member carried by the carriage, and a cooperating carriage fixed member carried by the framing of the machine.

13. In a type-writing machine, the combination of a carriage, a trackway carried by said carriage, a rack carried by the trackway, a second trackway carried by the framing of the machine, a rack carried by said second-named trackway, intermediate flanged bearing-rollers between said trackways, and circular racks carried by each of the bearing-rollers intermediate of the flanges thereof, which circular racks mesh in the racks carried by the trackways.

14. In a type-writing machine, the combination of a carriage, a trackway pivoted to said carriage, a rack carried by the trackway, means for maintaining said trackway against lateral displacement but permitting a free longitudinal movement thereof with the carriage, a second trackway carried by the framing of the machine, a rack carried by said second-named trackway, intermediate flanged bearing-rollers between said trackways, and circular racks carried by each of the bearing-rollers intermediate of the flanges thereof, which circular racks mesh in the racks carried by the trackways.

15. In a type-writing machine, the combination of a carriage, a trackway connected to said carriage, which trackway is curved in connection, a rack on the trackway, a second trackway on the framing of the machine, a rack on said second-named trackway, disconnected bearing-rollers which cooperate with the trackways and with the racks thereon, and pivotal connections for maintaining the carriage-trackway in operative position, whereby said carriage-trackway can turn with the carriage as well as move longitudinally therewith.

699,855. BLUE-PRINTING APPARATUS. SAMUEL R. WHITNEY, Pittsburg, Pa., assignor to the Pittsburg Blue Print Company, a Corporation of Pennsylvania. Filed Jan. 21, 1902. Serial No. 90,962. (No model.)



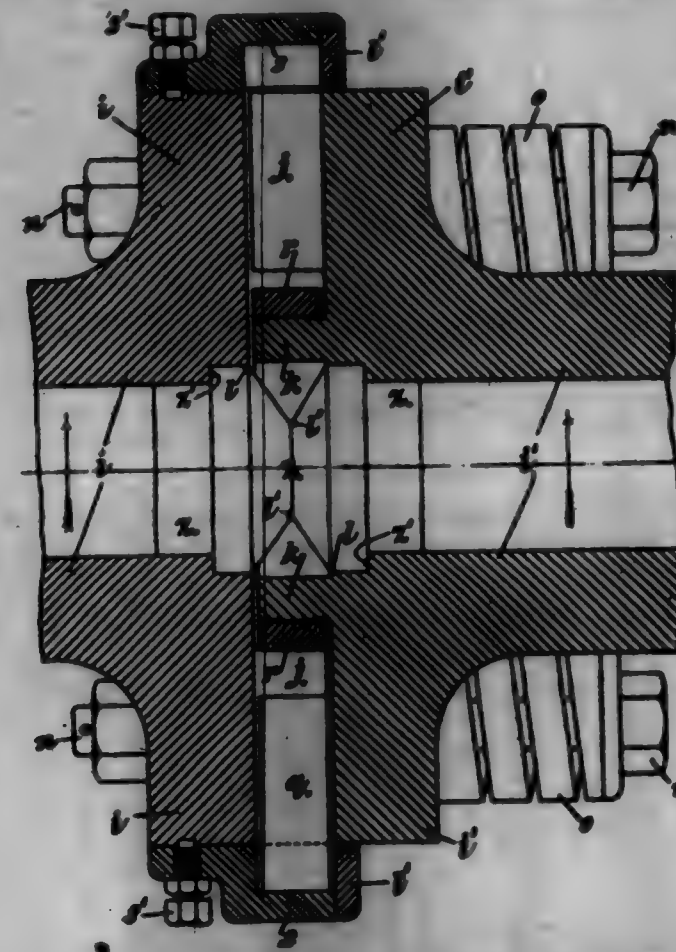
Claim.—1. A transparent hollow printing-frame, a cover therefor provided with one or more catches, each having two members composed of spring material, one secured to the cover and the other forming a clasp.

2. A transparent hollow printing-frame, a cover therefor provided with one or more catches, each having spring members secured together at their ends, the intermediate portions supporting the cover and the printing part of the catch.

699,856. COUPLERS FOR SHIPS PROPELLER-SHAFTS. WILLIAM W. WHITE, New York, N. Y., assignor to John Verity, deceased. Filed Feb. 24, 1902. Serial No. 90,961. (No model.)

Claim.—1. In a multiple-propeller ship's shafting, the combination of the engine crank-shaft *A*; the thrust-ring length *B* next same, having at each end an ordinary coupling-flange *a*, and a flexible device *y* in said

length between said flanges; a tail-shaft *c* at the stern end of which the propeller is fastened, having an ordinary coupling-flange *s* at its forward end, and a flexible device *y* between this flange and the stern end; and a plurality of lengths *e* between the shafts *a* and *b*, each length having ordinary coupling-flanges *a* at their ends; substantially as set forth.



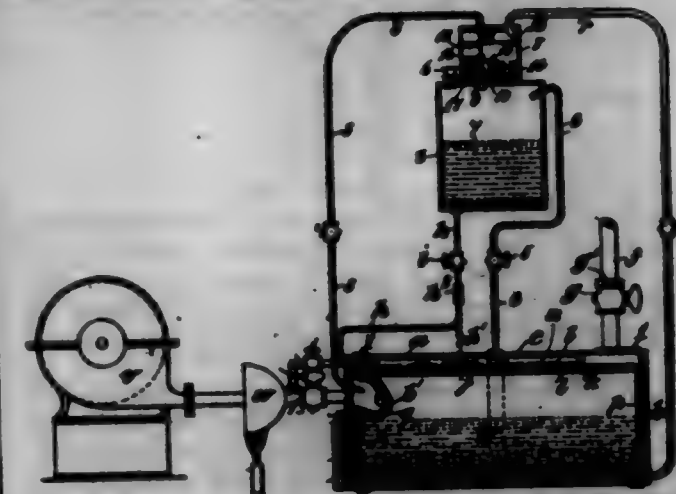
2. In a ship's propeller-shaft comprising a plurality of lengths, a length of shafting having a coupling-flange *a* at each end, and between these ends a flexible device consisting of a flange *i* on one part of the shaft with projections *j* on its inner face, a flange *i'* on the other part having projections *j'* on its inner face adapted to fit in the spaces between the projections *j* of the other flange; oppositely-disposed bearing-heads *x*, with shoulders *x'* fitting in and supported in the ends of said shaft, and inwardly-tapering bearing-faces; keys *p* fitting between two of the adjacent faces or edges of the projecting parts *j*, wedges *q* disposed between the other adjacent edges of said parts *j*, a wedge-holding cam-ring *r* fitting over the flange *i'*, having cam-ribs *t* in which the ends of the wedges *q* work, a projecting annular flange or ring *k* on the flange *i'*, and a ring *v* fitting outside and on the ring *k*, and supporting the inner ends of the keys *p*, and a plurality of bolts *u* and springs *e*, said bolts passing through said flange *i* and parts *j*; substantially as set forth.

3. In a ship's propeller-shaft comprising a plurality of lengths, a length of shafting having a coupling-flange *a* at each end, and between these ends a flexible device consisting of a flange *i* on one part of the shaft with projections *j* on its inner face, a flange *i'* on the other part having projections *j'* on its inner face, adapted to fit in the spaces between the projections *j* of the other flange, oppositely-disposed bearing-heads *x*, with shoulders *x'* fitting in and supported in the ends of said shaft, and inwardly-tapering bearing-faces; keys *p* fitting between two of the adjacent faces or edges of the projecting parts *j*, wedges *q* disposed between the other adjacent edges of said parts *j*, a wedge-holding cam-ring *r* fitting over the flange *i'*, having cam-ribs *t* in which the ends of the wedges *q* work, a projecting annular flange or ring *k* on the flange *i'*, and a ring *v* fitting outside and on the ring *k*, and supporting the inner ends of the keys *p*, and a plurality of bolts *u* and springs *e*, said bolts passing through said flange *i* and parts *j*; substantially as set forth.

699,857. CARBURIZER. JOSEPH WILKINSON, Burton-in-Lonsdale, and EDWARD F. CHAPMAN and HARRY THOMPSON, Leeds, England. Filed Jan. 21, 1902. Serial No. 90,963. (No model.)

Claim.—1. In apparatus for producing mixtures of vaporized oil and air, a carburizer consisting of a cylinder provided with closed ends and apertures for admission of air and of oil, and for the exit of the gaseous mixture as described, a deflecting-plate fixed to the interior of the air-admission end of said cylinder, an arch constructed as described and composed of absorbent material arranged between layers of gauze, and provided with end pieces similarly constructed, said arch being made to fit portions of the interior of said cylinder, and at other portions to leave spaces for the oil and gas, the air-admission pipe provided with an air-collecting chamber in communication with one end of the cylinder, an exit-pipe at the opposite end of the cylinder and in communication with the gas-space, an oil-supply pipe at a suitable distance from the air-admission end of the cylinder, an oil-distributing plate fixed to the interior of the cylinder under the said oil-pipe, a closed oil-supply tank placed above the carburizer and provided with an oil-admission aperture, a pipe provided with a stop-cock connecting the bottom of said tank with gas-space in said carburizer and a pressure-pipe for connecting the said gas-space with the top of said tank, substantially as set forth.

2. In apparatus for producing mixtures of vaporized oil and air, a carburizer consisting of a cylinder provided with closed ends and apertures for admission of air and of oil, and for the exit of the gaseous mixture as described, a deflecting-plate fixed to the interior of the air-admission end of said cylinder, an arch constructed as described and composed of absorbent material arranged between layers of gauze, and provided with end pieces similarly constructed, said arch being made to fit portions of the interior of said cylinder, and at other portions to leave spaces for the oil and gas, the air-admission pipe provided with an air-collecting chamber in communication with one end of the cylinder, an exit-pipe at the opposite end of the cylinder and in communication with the gas-space, an oil-supply pipe at a suitable distance from the air-admission end of the cylinder, an oil-distributing plate fixed to the interior of the cylinder under the said oil-pipe, a fan for causing a current of air to pass through the carburizer, a gas-jet for heating the air as it passes to the carburizer, tanks for receiving and mixing the oils, and pipes provided with valves for connecting the tanks with each other and with the carburizer, all in combination and substantially as described and illustrated herein.



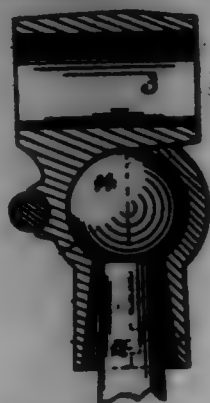
3. In apparatus for producing mixtures of vaporized oil and air the combination with a carburizer of a closed oil-supply tank placed above the carburizer and provided with an oil-admission aperture, a pipe provided with a stop-cock connecting the bottom of said tank with gas-space in said carburizer, a pressure-pipe for connecting the said gas-space with the top of said tank, a smaller closed tank fixed to the top of the oil-supply tank, a pipe connecting the two tanks together, valves as described within the smaller tank and connected together by a rod, levers for supporting said rod in position and pipes provided with stop-cocks for connecting the top of the smaller tank respectively with said gas-space, and with the base of the carburizer at its gas-exit end, all as set forth.

4. In apparatus for producing mixtures of vaporized oil and air, a carburizer consisting of a cylinder provided with closed ends and apertures as described, a deflecting-plate fixed to the interior of the air-admission end of said cylinder, an arch constructed as described and composed of absorbent material arranged between layers of gauze, and provided with end pieces similarly constructed, said arch being made to fit portions of the interior of said cylinder, and at other portions to leave spaces for the oil and gas, the air-admission pipe provided with an air-collecting chamber in communication with one end of the cylinder, an exit-pipe at the opposite end of the cylinder and in communication with the gas-space, an oil-supply pipe at a suitable distance from the air-admission end of the cylinder, an oil-distributing plate fixed to the interior of the cylinder under the said oil-pipe, a closed oil-supply tank placed above the carburizer and provided with an oil-admission aperture, a pipe provided with a stop-cock connecting the bottom of said tank with gas-space in said carburizer and a pressure-pipe for connecting the said gas-space with the top of said tank, substantially as set forth.

5. In apparatus for producing mixtures of vaporized oil and air, a carburizer consisting of a cylinder provided with closed ends and apertures for admission of air and of oil, and for the exit of the gaseous mixture as described, a deflecting-plate fixed to the interior of the air-admission end of said cylinder, an arch constructed as described and composed of absorbent material arranged between layers of gauze, and provided with end pieces similarly constructed, said arch being made to fit portions of the interior of said cylinder, and at other portions to leave spaces for the oil and gas, the air-admission pipe provided with an air-collecting chamber in communication with one end of the cylinder, an exit-pipe at the opposite end of the cylinder and in communication with the gas-space, an oil-supply pipe at a suitable distance from the air-admission end of the cylinder, an oil-distributing plate fixed to the interior of the cylinder under the said oil-pipe, a closed oil-supply tank placed above the carburizer and provided with an oil-admission aperture, a pipe provided with a stop-cock connecting the bottom of said tank with gas-space in said carburizer, a pressure-pipe for connecting the said gas-space with the top of said tank,

a smaller closed tank fixed to the top of the oil-supply tank a pipe connecting the two tanks together, valves as described within the smaller tank and connected together by a rod, bearings for supporting said rod in position and pipes provided with stop-cocks for connecting the top of the smaller tank respectively with said gas-space, and with the base of the carburetor at its gas-exit end, all as set forth.

699,858. FITMAN. GEORGE WILSON, Rockford, Ill., assignor to Emerson Manufacturing Company, Rockford, Ill. Filed Aug. 21, 1901. Serial No. 74,083. (No model.)



Claim.—1. In a fitman, the combination of a pitman-head fitted to receive a wrist-pin of a crank-head, a projection extending at right angles from the pitman-head, a cap secured in connection with the projection, the projection and cap having their meeting faces provided with semispherical recesses and a pitman-rod having a ball at one end and located in the recesses.

2. In a fitman, the combination of a pitman-head fitted to receive a wrist-pin of a crank-head, a projection extending at right angles from the pitman-head, a cap secured in connection with the projection, the projection and cap having their meeting faces provided with semispherical recesses and a pitman-rod having a ball at one end and located in the recesses, the free ends of the projection and cap forming an elongated opening for the movement of the pitman-rod.

699,859. CORSET-FASTENER. JOHN H. WALKER, Concord, Mich. Filed Sept. 12, 1901. Serial No. 73,904. (No model.)



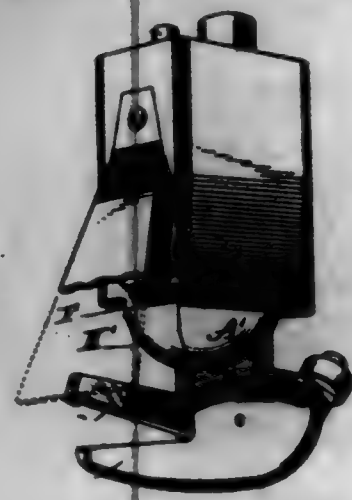
Claim.—1. In a corset-fastener, the combination of the two bux, one having a continuous longitudinal shoulder, *B*, and the parts of the bux at the opposite sides of the shoulder lying in different planes, and one of said parts having hooks integral therewith bent toward and opposing said shoulder, and the other bux having apertures near its edge to receive said hooks, whereby it will lie with said edge against and lapping over the nearer part of the former bux, opposite said shoulder, and in substantially the same plane with the further part of the other bux.

2. In a corset-fastener, the combination of the two bux, one having a continuous longitudinal shoulder, *B*, and the parts of the bux at the opposite sides of the shoulder lying in different planes, and one of said parts having hooks integral therewith formed within the edge of the bux bent toward and opposing said shoulder, and the other bux having apertures near its edge to receive said hooks, whereby it will lie with said edge against and lapping over the nearer part of the former bux opposite said shoulder and in substantially the same plane with the further part of the former bux, substantially as set forth.

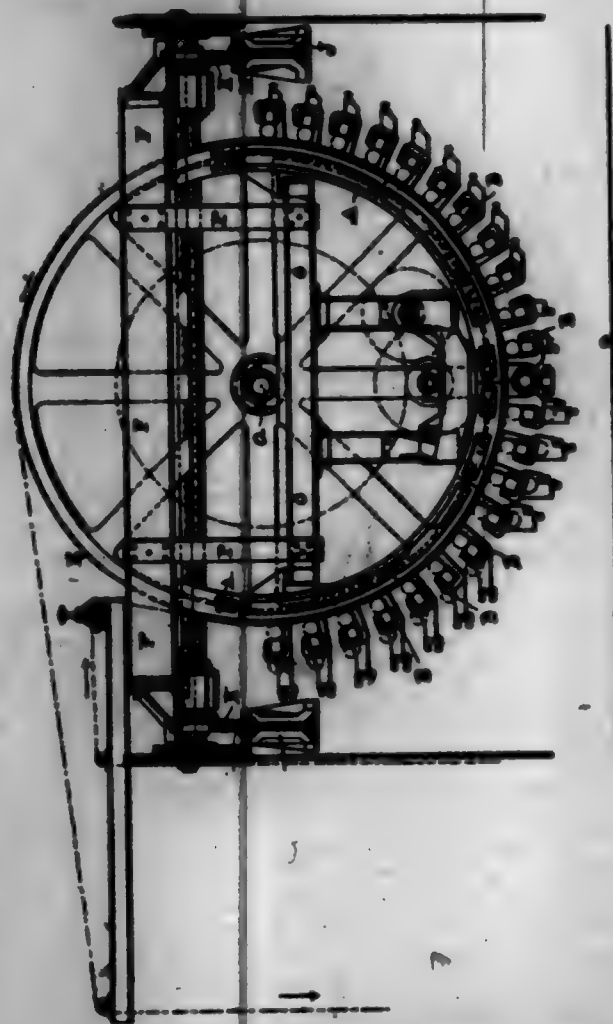
3. A fastening device for a corset, consisting of a bux having a series of apertures, and an opposite bux having the portions *A*, *B* offset or in different planes forming the shoulder *B*, the part *B* extending continuously in one plane from the side edges of the bux; and the portions *B* of the part *B* between the hooks lying in one plane from the edge *B* to said shoulder *B*, substantially as set forth.

699,860. KNOTTER ATTACHMENT FOR HARVESTERS. DAVID L. WOLF, Archer City, Tex. Filed Aug. 17, 1901. Serial No. 73,499. (No model.)

Claim.—In an attachment for the frame of a harvester for a harvester, the combination with the frame *A*, having two longitudinal apertures therein, and provided with a curved projecting portion *A'* at one end thereof, of the shouldered knotted-chalk journaled in one of said apertures, a wear-block *K* having a shank portion *J* passing through the other aperture in said frame, said block having two flat faces disposed at an angle to each other, and adapted to contact with the wall of the shouldered portion, and a curved edge on the block designed to be flush with the surface of the projecting portion *A'*, as set forth.



699,861. ROTARY COLOR-PRINTING MACHINE. WILLIAM F. WILKINSON, Highbury, England. Filed Nov. 12, 1901. Serial No. 82,948. (No model.)



Claim.—1. In a device of the character described, a track, a frame movable on the track, checks suspended from the frame, printing-rollers carried by the checks, and a drum journaled in the checks coacting with the printing-rollers whereby material carried by the drum will be printed upon by the printing-rollers.

2. In a device of the character described, a frame mounted on elevated supports, checks suspended from the sides of the frame and hanging clear of the floor, printing-rollers carried by the checks around their lower parts, and a drum journaled in the checks coacting with the printing-rollers whereby material carried by the drum will be printed upon by the printing-rollers.

3. In a device of the character described, an elevated track, a frame having wheels bearing on the track, checks suspended from the sides of the frame and hanging clear of the floor, printing-rollers carried by the checks on their lower parts, a drum journaled in the checks coacting with the printing-rollers whereby material carried by the drum will be printed upon by the printing-rollers, and means for traversing the frame on the track.

699,862. MARKING-TAG. LEWIS T. ANDER, St. Louis, Mo. Filed May 17, 1901. Serial No. 69,047. (No model.)



Claim.—1. A marking-tag comprising a pair of flat plates, rivets extending transversely of the same pivotally connecting said plates, a wedge-bar pivoted at one end to one of said plates at the corner of the latter the said bar being mounted on a pin independent of said rivets, substantially as described.

2. A marking-tag comprising a pair of flat rectangular plates, rivets pivotally connecting said plates together, a wedge-bar pivoted to one of said plates at the corner thereof, said bar being interposed between said plates and being adapted to occupy a position substantially within the border of the plates when in turned-down wedging position, substantially as described.

699,868. OPERATING DEVICE FOR ELEVATOR-DOORS. HARRY BRINK, Durvya, Ill., assignor to the Winslow Elev. Co., Chicago, Ill., a Corporation of Illinois. Filed Sept. 20, 1900. Serial No. 59,578. (No model.)



Claim.—1. The combination with a horizontally-reciprocable door, of a vertically-reciprocable rod, a pair of pulleys respectively upon opposite sides of said rod, a flexible connection secured to one side of the door passing around one of said pulleys along said rod in one direction and having a limited sliding engagement therewith, a flexible connection secured to the other side of the door passing over the other pulley and having means of temporary engagement with the rod, means for reciprocating the rod and means for effecting such temporary engagement; substantially as described.

2. The combination with a horizontally-reciprocable door, a vertically-reciprocable rod, and pulleys upon opposite sides thereof, of flexible connections secured to the opposite edges of the door extending over the respective pulleys and along said rod in opposite directions, slides secured to said connections and guided on the rod, a block secured to said rod and adapted to engage one of said slides in the direction which closes the door, a block secured to said rod adjacent to the other slide and a device for effecting engagement between the latter slide and the adjacent block and thereby open the door; substantially as described.

3. The combination with a horizontally-reciprocable door, of a vertical reciprocable rod, pulleys journaled adjacent to said rod, cables leading from the opposite edges of the door, around the pulleys in opposite directions, slides secured upon the ends of said cables and sliding upon the rod, blocks secured upon the rod, one of which is adapted, when the rod is moving in one direction, to draw the adjacent slide with it, a spring-pressed hook upon the other slide adapted to hook upon the adjacent block, means for reciprocating the rod and means for throwing the hook into or out of engagement with the block; substantially as described.

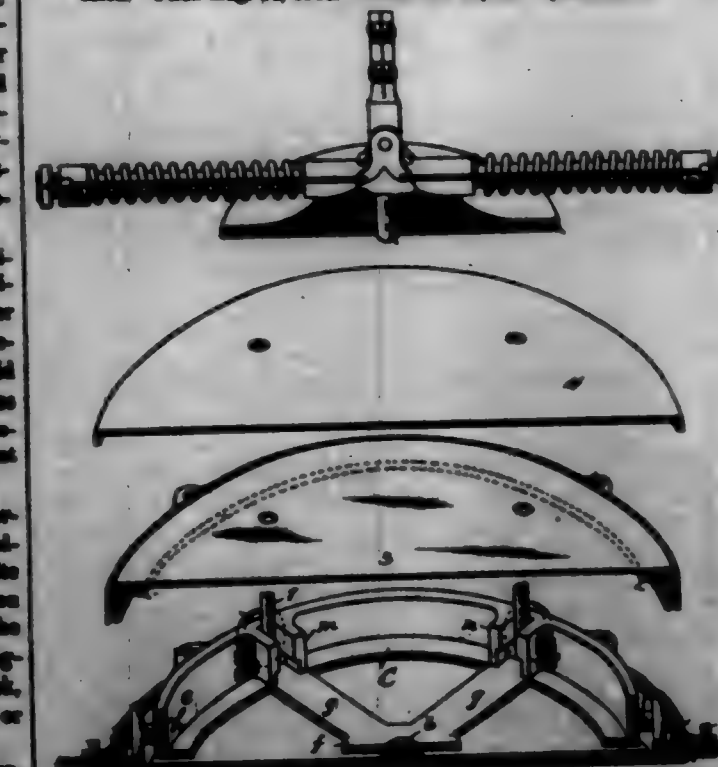
4. The combination with a horizontally-reciprocable door, of a vertically-reciprocable rod/pulleys adjacent to the rod, cables extending from the opposite edges of the door around the pulleys in opposite directions, slides secured to said cables and guided upon the rod, a block upon the rod adapted to engage one of the slides to move the door in one direction, a block secured to the rod adjacent to the other slide and adapted to be temporarily connected with the adjacent slide to move the door in the opposite direction, devices for reciprocating the rod and an operating-lever adapted to effect the engagement of said block and slide and to start the device for reciprocating the rod; substantially as described.

5. The combination with a horizontally-reciprocable door, of a vertically-reciprocable rod, pulleys adjacent thereto, cables extending from the opposite edges of the door around the pulleys in opposite directions, slides secured to said cables and guided upon the rod, a block secured upon the rod adjacent to one of the slides and adapted to engage said slide in the movement of the rod in one direction to move the door in one direction, a block secured upon the rod adjacent to the other slide, a spring-pressed hook pivoted upon the latter slide adapted to hook upon the adjacent block, a lever adapted, when in one position, to hold the hook out of engagement with the block to permit the rod to be reciprocated without affecting the movement of the door, and a motor for reciprocating the rod connected to said lever, whereby the movement of said lever into a second position permits of the connection between the hook and block and starts the motor; substantially as described.

6. The combination with a horizontally-reciprocable door, of a vertically-reciprocable rod, pulleys adjacent thereto, cables extending from the opposite edges of the door around the pulleys in opposite directions, slides secured to said cables and guided upon the rod, a block secured upon the rod adjacent to one of the slides and adapted to engage said slide in the movement of the rod in one direction to move the door in one direction, a block secured upon the rod adjacent to the other slide, a spring-pressed hook pivoted upon the latter slide and adapted to hook upon the adjacent block, a lever adapted, when in one position, to hold the hook out of engagement with the block to permit the rod to be reciprocated without affecting the movement of the door and a motor for reciprocating the rod connected to said lever, whereby the movement of the lever into a second position allows the spring-hook to engage the block and starts the motor to move the rod in one direction and the return of the lever to the first position starts the motor in the opposite direction; substantially as described.

7. The combination with a horizontally-reciprocable door, of a vertically-reciprocable rod, pulleys adjacent thereto, cables extending from the opposite edges of the door around the pulleys in opposite directions, slides secured to said cables and guided upon the rod, a block secured upon the rod adjacent to one of the slides and adapted to engage said slide in the movement of the rod in one direction to move the door in one direction, a block secured upon the rod adjacent to the other slide, a spring-pressed hook pivoted upon the latter slide and adapted to hook upon the adjacent block, and a lever, lying in the path of the hook and adapted to crowd the same out of engagement with the block, when said hook is moved upon the lever; substantially as described.

699,864. TROLLEY-STAND. CHARLES C. BROADBENT, Detroit, Mich. Filed Aug. 14, 1901. Serial No. 72,047. (No model.)



Claim.—1. In combination with a trolley-stand, a relative support and a housing including and covering said relative support, substantially as described.

2. In a trolley-stand, in combination with a housing arranged to be attached to the car-roof, a support within said housing arranged to rotate

therein, a trolley-socket arranged to be secured to the support and means for drawing the housing substantially as described.

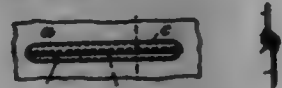
3. In combination with a base arranged to be attached to a car-roof provided with a track for a rotary support, an upper track arranged to be secured to the fixed base, a cover adapted to inclose the upper side of the housing thus made, and a packing held in position relatively fixed to the fixed parts of the housing and adapted to coast with the rotary part of the housing to form a complete closure, substantially as described.

4. In a trolley-support, the combination of a fixed part provided with a circular hardened track and having a base portion and covering-ring adapted to engage the base portion with a close-packed joint, a rotative cover arranged to be placed over the cover-ring, an interposed packing, a rotary support provided with wheels arranged to travel on the hardened track and means for securing the trolley-stand to the rotary support through the interposed packing, substantially as described.

5. In a trolley-support, in combination with a housing provided with a hardened track on its outer side and a hardened track on its covered side, a rotary support arranged in the housing and provided with running wheels adapted to engage the said hardened track, substantially as described.

6. In combination with a trolley-stand, a rotative support, a housing inclosing and covering said rotative support and means for securing electric wires to said housing, substantially as described.

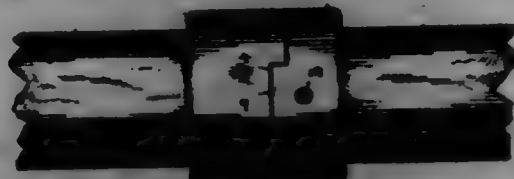
699,865. SHIRT. DAVID L. BLOK, New York, N. Y., assignor of one-half to Jacob Lederer, New York, N. Y. Filed Feb. 26, 1908. Serial No. 94,982. (No model.)



Claim.—1. A shirt provided with a transverse slit for the passage of a suspender-strap, and with a binding that overlaps the upper edge of the slit and extends downward over the slit, substantially as specified.

2. A shirt provided with transverse slits at the front and back for the passage of the suspender-strap, and with a continuous binding around the slits that is turned downward to form a flap over the slits, substantially as specified.

699,866. ROBE-COUPLES. JOHN J. BOWEN, JR., FARMERS, Pa. Filed Nov. 3, 1901. Serial No. 81,787. (No model.)



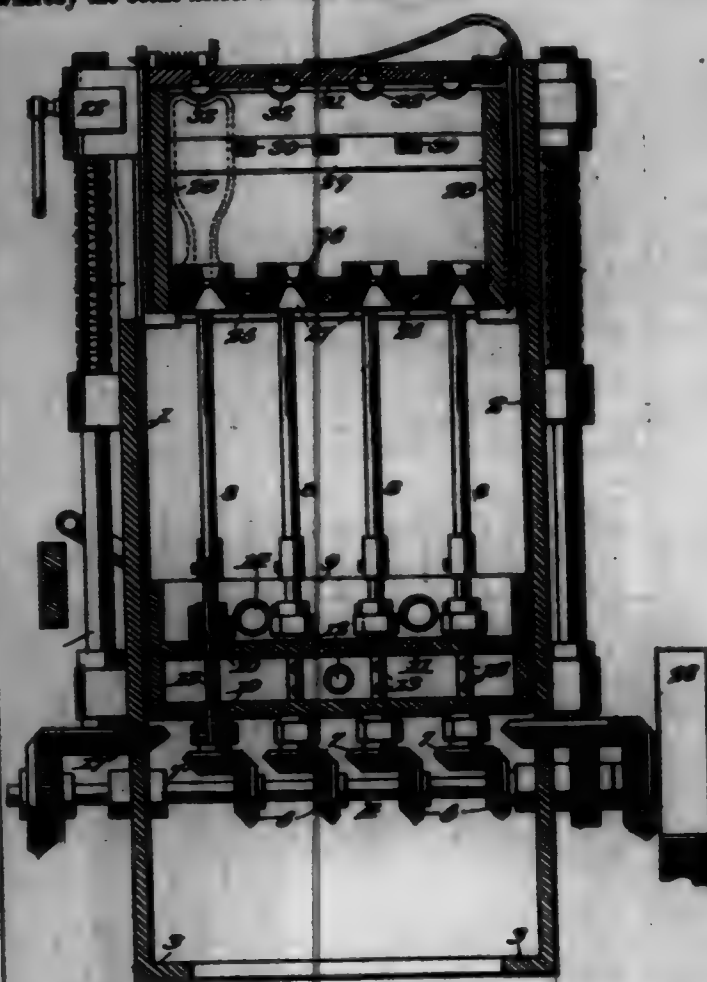
Claim.—1. A coupling, comprising a female section having an enlarged head, provided with recesses and inwardly-projecting flanges, a male section provided with lugs and a shoulder having cockets, a locking-ring slidably mounted on said cockets and having extensions to engage said recesses, springs in said cockets to hold said ring normally projected, and a U-shaped washer carried in said head.

2. A coupling, comprising a female section having an enlarged annular head provided with segmental flanges and recesses, a male section provided with segmental lugs and a shoulder having cockets, a locking-ring having forwardly-extending lugs to engage said recesses, springs interposed in said cockets to keep said ring normally projected, and an annular U-shaped washer carried in said head, and the flanges of which rest against the inner wall of the head and the outer surface of the male section.

3. A coupling, comprising a female section, provided at diametrically opposite points with inwardly-projecting segmental flanges and intermediate said flanges with recesses, a pocket within said head, a male section provided with segmental lugs, and an annular shoulder having cockets, a locking-ring having forwardly-extending lugs to engage said recesses and slidably mounted upon said shoulder, lugs upon said ring extending into said cockets, permitting the ring to have a limited longitudinal movement on said shoulder, springs in said cockets and secured to said lugs keeping the ring normally projected, and an annular U-shaped washer carried in said pocket, and the flanges of which rest against the inner wall of the head and the outer surface of the male section.

699,867. BOTTLE-WASHING MACHINE. EMERY & BROWNE, Baltimore, Md., assignors of one-half to William F. Sahn, Baltimore, Md. Filed Sept. 5, 1901. Serial No. 74,348. (No model.)

Claim.—1. In a bottle-washing machine, the combination with rotary spindles of a cradle or bottle-holder, gearing for revolving the spindles, vertical shafts each formed with crossed threads, and nuts at opposite sides of the cradle or bottle-holder through which said shafts extend whereby the bottle-holder is raised and lowered.



2. The combination with a water-box having a horizontal partition and revolvable hollow spindles of a vertically-movable cradle or bottle-holder and means for raising and lowering the cradle comprising revolvable vertical shafts each formed with crossed threads, and nuts secured to opposite sides of the cradle through which said shafts extend.

3. In a bottle-washing machine, the combination with revolving spindles, and a water-box divided by a horizontal partition, of a device for supporting the bottles above the spindles comprising a vertically-movable cradle or holder provided with yielding supports for the mouth ends of the bottles, and a cover provided on its inner surface with pads to fit upon the bottoms of the bottles.

4. In a bottle-washing machine, the combination with the revolvable hollow spindles of a cradle or bottle-holder, means for raising and lowering the same, and a cover for the holder, provided with opening-springs and a spring-latch.

5. In a bottle-washing machine, the combination with a supporting-frame, of a water-box divided into supply and discharge compartments, hollow spindles revolvably supported within said box a cradle or bottle-holder, means for raising and lowering said cradle, and means for automatically controlling the water-supply to the spindles.

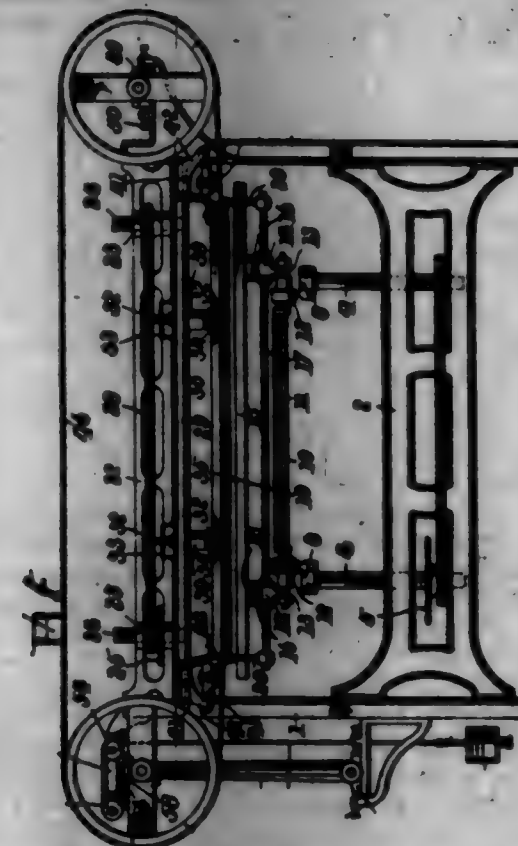
699,868. SANDING AND POLISHING MACHINE. EDWARD T. CLEMON, Hornellsville, N. Y., assignor of one-half to George Osterman, Hornellsville, N. Y. Filed Sept. 2, 1901. Serial No. 74,788. (No model.)

Claim.—1. In a machine of the character described, the combination with a supporting-frame, of tracks mounted on said supporting-frame, a carriage freely movable on said tracks transversely of the machine, a work-table mounted on said carriage and movable independently thereof transversely of the machine, and finishing instrumentalities mounted above said table.

2. In a machine of the character described, the combination with a supporting-frame, of tracks mounted on said supporting-frame a carriage freely movable on said tracks transversely of the machine, a work-table mounted on said carriage and movable independently thereof transversely of the machine, means for moving said work-table vertically relative to said tracks, and finishing instrumentalities mounted above said table.

3. In a machine of the character described, the combination with a suitable supporting-frame, of transversely-placed supporting-tracks adjustably mounted on said frame, a carriage freely movable on said tracks

transversely of the machine, a table-supporting frame mounted on said carriage and movable independently thereof transversely of the machine, a work-table carried by said supporting-frame, means for moving said table vertically relative to said supporting-frame, and finishing instrumentalities mounted above said table.



4. In a machine of the character described, the combination with a suitable supporting-frame, of transversely-placed tracks adjustably mounted on said frame, said tracks being provided with steps at their outer ends, a carriage freely movable on said tracks, a table-supporting frame mounted on said carriage and movable independently thereof, said supporting-frame having downwardly-turned steps at its ends, a work-table mounted on said supporting-frame, means for moving said table vertically relative to said supporting-frame, and finishing instrumentalities mounted above said table.

5. In a machine of the character described, the combination with a suitable supporting-frame, of transversely-placed tracks adjustably mounted on said frame, a carriage mounted on said tracks and freely movable thereon transversely of the machine, said carriage being provided with wheels having grooved outer extensions, a table-supporting frame mounted on said carriage and movable transversely of the machine independently of the said carriage, rock-shafts mounted in said table-supporting frame, links carried by said rock-shafts, a work-table mounted on said links, means for moving said table vertically relative to its supporting-frame, and finishing instrumentalities mounted above said table.

6. In a machine of the character described, the combination with a suitable supporting-frame, of transverse supporting-tracks adjustably mounted on said frame, a carriage mounted on said tracks and freely movable thereon, a table-supporting frame mounted on said carriage and movable transversely of the machine independently thereof, rock-shafts mounted in said table-supporting frame, links carried by said rock-shafts, a work-table supported by said links, a hand-lever secured to one of said rock-shafts by which said shaft may be rocked and the said work-table moved vertically, a weighted lever secured to one of said rock-shafts to counter-balance the weight of the table, and finishing instrumentalities mounted above said table.

7. In a machine of the character described, the combination with a supporting-frame, of transverse tracks mounted on said frame, a work-table movable transversely of the machine on said tracks, means for moving said table vertically, a finishing-belt mounted above said table, a belt-guide beneath which said finishing-belt travels, and means for supporting said belt-guide so as to permit it to yield longitudinally and transversely; whereby the said finishing-belt may accommodate itself to inequalities in the surface of the work.

8. In a machine of the character described, the combination with a supporting-frame, of transverse tracks mounted on said frame, a work-table mounted on said tracks and freely movable transversely of the machine, means for raising said work-table vertically, a finishing-belt adapted to travel above said work-table, a belt-guide adjustably supported above said belt, springs normally flexing said belt-guide downwardly and permitting it to yield longitudinally, and connections between said belt-guide and its supports, whereby the said guide can rock transversely and allow

the finishing-belt to accommodate itself to inequalities in the surface of the work.

9. In a machine of the character described, the combination with a supporting-frame, of transversely-placed tracks adjustably mounted on said frame, a work-table supported by and freely movable on said tracks, means to move said table vertically, a continuous finishing-belt adapted to travel above said table, a belt-guide against the under surface of which said finishing-belt travels, and adjustment devices at each end of said belt-guide over which the finishing-belt runs.

10. In a machine of the character described, the combination with a supporting-frame, of a work-table movable transversely of said frame, means for raising said work-table vertically, a finishing-belt mounted above said work-table, a yielding belt-guide against the under surface of which said belt travels, and yielding-mounted adjustment-rollers at each end of said belt-guide over which the said finishing-belt runs.

11. In a machine of the character described, the combination with a supporting-frame, of a work-table, a finishing-belt, a belt-guide against the under surface of which said finishing-belt travels, and between which said belt and the work is held, and means for depressing the finishing-belt below its normal line of travel at each end of said belt-guide; whereby a curved or rounded edge may be finished.

12. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon, means for moving said table transversely of the machine, means for raising said work-table vertically, a finishing-belt mounted above said table, a belt-guide against the under surface of which said finishing-belt travels, adjustment-rollers at each end of said belt-guide over which the said finishing-belt runs, and means for vertically adjusting said rollers.

13. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon, means for moving said table transversely of the machine, means for raising said work-table vertically, a finishing-belt mounted above said table, a belt-guide against the under surface of which said finishing-belt travels, adjustment-rollers at each end of said belt-guide over which the said finishing-belt runs, and means for lowering said adjustment-rollers and depressing the said belt at the ends of the belt-guide below its line of travel whereby a curved or rounded edge may be finished.

14. In a machine of the character described, the combination with a main supporting-frame, of transversely-placed tracks adjustably mounted on said frame, a work-table movable on said tracks, means for moving said work-table vertically, a finishing-belt adapted to travel above said table, an adjustable support mounted on said main supporting-frame above said belt, a yielding belt-guide carried by said adjustable support against the under surface of which said finishing-belt runs, plates secured to said adjustable supporting-frame at each end of said belt-guide, and adjustable lengthwise thereon, and adjustment-rollers supported by said adjustable plates over which said finishing-belt runs.

15. In a machine of the character described, the combination with a main supporting-frame, of transversely-placed tracks adjustably mounted on said frame, a work-table movable on said tracks, means for moving said work-table vertically, a finishing-belt adapted to travel above said table, an adjustable supporting-frame mounted on said main frame above said belt, a yielding belt-guide carried by said adjustable frame against the under surface of which said finishing-belt runs, plates secured to said adjustable supporting-frame at each end of said belt-guide, and adjustable lengthwise thereon, and adjustment-rollers supported by said adjustable plates over which said finishing-belt runs.

16. In a machine of the character described, the combination with a supporting-frame, of a work-table movable transversely of the machine, means for raising said work-table vertically, a finishing-belt mounted to travel above said table, a belt-guide against the under surface of which said belt runs, a supporting-frame for said guide, supporting-rolls for said guide depending from said frame, and yielding connections between said rolls and guide whereby a rocking movement of said belt-guide is permitted.

17. In a machine of the character described, the combination with a supporting-frame, of a work-table movable transversely of the machine, means for raising said work-table vertically, a finishing-belt mounted to travel above said table, a belt-guide against the under surface of which said belt runs, a supporting-frame for said guide, supporting-rolls for said guide depending from said frame, and spring-plates on said guide to engage said supporting-rolls whereby a rocking movement of said belt-guide is permitted.

18. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon and movable transversely of the machine, means for moving said work-table vertically, a finishing-belt mounted to travel above said table, a belt-guide against the under surface of which said belt runs, an adjustable supporting-frame for said belt-guide, supporting-rolls depending from said frame, yielding connections between said rolls and said belt-guide whereby a transverse rocking movement of said belt-guide is permitted, springs surrounding said

rod and normally forcing said belt-guide downwardly, and means for adjusting the tension of said springs.

19. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon and movable transversely of the machine, means for moving said work-table vertically, a spring-pressed, transversely-yielding belt-guide adjustably mounted above said table, a finishing-belt adapted to travel beneath said belt-guide, a driving-pulley at one end of the machine over which said belt travels, a rocking frame mounted at the other end of the machine, and an idler-pulley carried by said rocking frame over which said finishing-belt travels.

20. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon and movable transversely of the machine, means for moving said work-table vertically, a spring-pressed, transversely-yielding belt-guide adjustably mounted above said table, a finishing-belt adapted to travel beneath said belt-guide, a driving-pulley at one end of the machine over which said belt travels, a rocking frame mounted at the other end of the machine, an idler-pulley carried by said rocking frame over which said finishing-belt travels, and means to throw said rocking frame to its outer position and maintain a uniform tension on said finishing-belt.

21. In a machine of the character described, the combination with a supporting-frame, of a work-table mounted thereon and movable transversely of the machine, means for moving said work-table vertically, a spring-pressed, transversely-yielding belt-guide adjustably mounted above said table, a finishing-belt adapted to travel beneath said belt-guide, a driving-pulley adjustably mounted at one end of the machine over which said belt travels, a rocking frame adjustably mounted at the other end of the machine, an idler-pulley carried by said rocking frame over which said finishing-belt travels, and means to throw said rocking frame to its outer position and maintain a uniform tension on said finishing-belt.

22. In a machine of the character described, the combination with a main supporting-frame, of a work-table adjustably mounted on said frame and movable transversely thereof, means for moving said table vertically relative to its adjustable supports, a belt-guide adjustably mounted above said table, a continuous finishing-belt adapted to run against the under surface of said belt-guide, supporting-pulleys over which said belt runs, means for driving said pulleys and belt, and a hopper containing a finishing compound beneath which the upper run of said belt travels and from which it receives a coating of polishing or finishing material.

23. In a machine of the character described, the combination with a main supporting-frame, of a work-table adjustably mounted on said frame and movable transversely thereof, means for moving said table vertically relative to its adjustable supports, a belt-guide adjustably mounted above said table, a continuous finishing-belt adapted to run against the under surface of said belt-guide, supporting-pulleys over which said belt runs, means for driving said pulleys and belt, a hopper arranged above the upper run of the said finishing-belt and adapted to deliver a finishing compound to the surface of said belt, and a liquid-feed pipe above the said upper run of the belt in proximity to said hopper.

699,869. PADLOCK. JAMES H. O'NEIL, Chicago, Ill. Filed Feb. 28, 1901. Serial No. 46,712. (No model.)

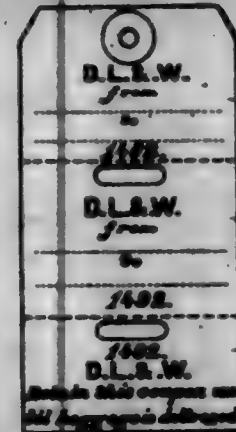


Claim.—1. A padlock comprising a shackle locking mechanism enclosed by a suitable casing, and a shackle arranged directly back of said casing, said shackle having forwardly and upwardly projecting lower and portions to which the said casing and locking mechanism are applied, substantially as described.

2. A padlock comprising a shackle, locking mechanism engaging said shackle, a casing including said locking mechanism, the said shackle being formed with upward lower and portions adapted to extend through openings or sockets in the bottom of the casing, and the said locking mechanism including a dog and a plurality of tumblers, the dog engaging the shackle and the said tumblers engaging the said dog, the dog and tumblers being rotatable in one and the same direction for the purpose of disengaging the dog from the shackle, or so to unlock the padlock, and the

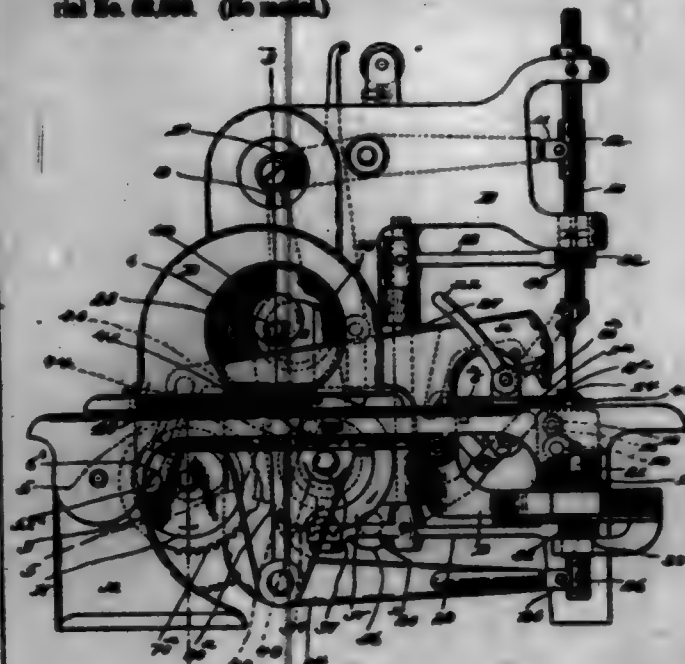
said dog and tumblers being both rotatable in an opposite direction for the purpose of allowing the dog to engage the shackle, or so to lock the padlock, substantially as described.

699,870. TAG OR CHECK. WILLIAM F. CUNNING, New York, N.Y. Filed Oct. 11, 1901. Serial No. 71,266. (No model.)



Claim.—A combination delivery receipt-tag, composed of three parts, each part a means of identifying the article, constructed and adapted for one part to be attached to the article, a second given to the holder of the article by the person to whom the delivery is to be made, and the third to be given to the holder of the article after the article has been delivered.

699,871. EYELET-HOLE-SEWING MACHINE. CHARLES A. DARR, Lynn, Mass., assignor to Boston Buttonhole Sewing Machine Company, Boston, Mass., a Corporation of Maine. Filed May 21, 1901. Serial No. 68,598. (No model.)



Claim.—1. A sewing machine of the character indicated, comprising a bed-frame, a work-clamping member, an eye-pointed, reciprocating, straight needle located above the clamping member, an eye-pointed, reciprocating curved needle located below the work-clamping member, means to rotate the needle in making the stitches comprising the needle-carrying members 13 and 17, the part H, having toothed formations and cam-groove 25, and connections substantially as described, with the needle-carrying members 13, 17, and means to partially rotate the part H, step by step, whereby the needles are rotated a full revolution during the stitching operation, combined with a separately-actuated part, as H, having toothed formations adapted for engagement with the toothed formations of the part H, for completing the rotation of part H, whereby the needles are reversely rotated to the starting-point, substantially as described.

2. An overedge sewing-machine, comprising a clamp-frame, a work-clamp mounted thereon, a stitch-former, stitch-forming mechanism mounted thereon, and means for operating it, said stitch-forming mechanism being capable of bodily rotation in said stitch-former, a cam member, and connections between said cam member and the stitch-forming mechanism whereby upon a single rotation of said cam member the stitch-forming mechanism is bodily rotated in one direction and then bodily rotated in the reverse direction, means for giving a step-by-step movement to said cam member to an extent sufficient to give the desired rotation to the stitch-forming mechanism and a second means for continuing said move-

ment of said cam member in an extent sufficient to give the desired reverse rotation to the stitch-forming mechanism.

3. A buttonhole-sewing machine comprising stitch-forming mechanism capable of bodily rotation, three shafts, a driven pulley loosely mounted on the first of said shafts and connected with the manual of said shafts to rotate the same, a clutch between the pulley and the first shaft, means for intermittently rotating the third shaft from the first shaft, connections between the third shaft and the stitch-forming mechanism whereby the latter may be rotated in either direction, a device loosely-mounted on the second shaft and having periodic engagement with the third shaft to operate the same at times, a clutch between said device and the second shaft, connections between the first shaft and the stitch-forming mechanism for operating the same to form stitches, means for actuating the second of said shafts when the machine is set in operation.

4. A buttonhole-sewing machine, comprising stitch-forming mechanism capable of bodily rotation, three shafts, a pulley loosely mounted on the first shaft, a clutch between said pulley and said shaft, connections between the first and second shafts whereby the latter may be driven by the former, a cam mounted on the third shaft and connected with the stitch-forming mechanism to rotate the same, means for giving a continuous rotation to the third shaft from the second shaft at times, means for giving an intermittent rotation to the third shaft from the first shaft at other times whereby intermittent movement may be given to the stitch-forming mechanism in one direction and a continuous movement may be given to the stitch-forming mechanism in the opposite direction.

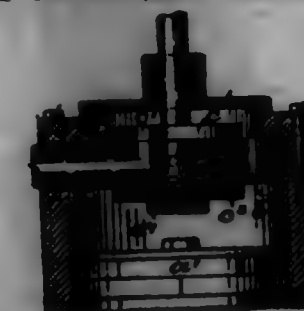
5. A buttonhole-sewing machine, comprising a rectilinearly-reciprocating needle, and means for operating it, lower complementary stitch-forming mechanism comprising a curved needle pivoted at an oblique angle to the path of reciprocation of the needle upon a rotary support, the said rotary support, means for rotating said support, and means for operating the curved needle.

6. A buttonhole-sewing machine, comprising a rectilinearly-reciprocating needle, and means for operating it, lower complementary stitch-forming mechanism, comprising a curved needle pivoted at an oblique angle to the path of reciprocation of the needle upon a rotary support, the said rotary support, means for rotating said support, and means for giving a variable movement to the said curved needle.

7. A buttonhole-sewing machine comprising a rectilinearly-reciprocating needle, and means for operating it, lower complementary stitch-forming mechanism comprising a thread-carrier mounted upon a shaft, said shaft being arranged at an oblique angle to a path of reciprocation of the needle, a gear upon the end of said shaft, a second gear co-operating therewith and mounted for rotary movement in a plane parallel with the path of reciprocation of the needle, a rod or bar connected to the second gear and reciprocating in a path parallel to the path of the needle, and means for reciprocating said rod or bar, a rotary support for said complementary stitch-forming mechanism and means for rotating said support.

8. A buttonhole-sewing machine comprising stitch-forming mechanism capable of bodily rotation, three shafts, buttonhole-cutting mechanism, means for moving the stitch-forming mechanism relatively to the cutting mechanism, connections between the first shaft and the second shaft for operating the latter connections between the first shaft and the stitch-forming mechanism for operating the same to form stitches, connections between the second shaft and the cutting mechanism for operating the same, connections between the third shaft and the stitch-forming mechanism for rotating the same in either direction, means for operating the third shaft intermittently from the first shaft to rotate the stitch-forming mechanism step by step during the stitching of the buttonhole, means to operate the third shaft continuously from the second shaft to rotate the stitch-forming mechanism continuously in the direction opposite to that obtained during the stitching.

699,872. BALANCE VALVE FOR GAS-ENGINE. SHERMAN E. DINE, Pawtucket, R.I., assignor of one-half to Edmund W. Gravel, Pawtucket, R.I. Filed Oct. 6, 1900. Serial No. 32,394. (No model.)



Claim.—1. A rotatable valve for a gas-engine having two disks secured to a valve-stem, a body between the two disks containing the inlet and the outlet passages, an opening in one of the disks arranged to register with said passages as the valve rotates, and a chamber including the

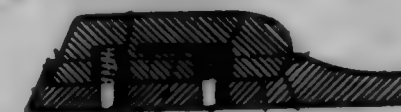
valve, whereby the force of the explosion is exerted equally on the two disks, as described.

2. In a gas-engine, the combination with the cylinder, of a perforated disk, inlet and outlet passages in the disk, two valve-disks bearing on the opposite sides of the perforated disk and secured to a common valve-stem, the part of, and a cap, as described.

3. A gas-engine valve having two disks secured to a valve-stem, inlet and outlet passages between the two disks, an opening in one of the disks, and a combustion-chamber including both of the valve-disks, as described.

4. In a gas-engine, a cylinder having a perforated disk containing the inlet and outlet passages, a cap secured to the end of the cylinder, a rotary valve-disk having an opening controlling the inlet and outlet ports, a valve-stem journaled in the perforated disk, and a disk secured to the end of the valve-stem and bearing on the opposite side of the perforated disk, as described.

699,873. SOFT-THREAD HORNSEHOE. OSCAR E. DYER, Chicago, Ill. Filed Jan. 6, 1900. Renewed July 3, 1901. Serial No. 67,007. (No model.)



Claim.—1. The combination, with a hornshoe having a projecting stud, of a pad or cushion of rubber or other elastic material, and a coil of spring-wire embedded in the pad or cushion and adapted to receive and grip the stud, substantially as described.

2. The combination, with a hornshoe having a seat or recess and a stud or pin projecting into the same, of a pad or cushion of rubber or other elastic material adapted to fit said recess, and a coil of wire embedded in said pad and adapted to receive and grip said stud, substantially as described.

3. The combination, with a hornshoe having a pair of studs projecting therefrom, of a pad or cushion of rubber or the like, and a wire bent to form two coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

4. The combination, with a hornshoe having two projecting studs, of a pad of rubber or the like, and a wire bent to form two oppositely-twisted coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

5. The combination, with a hornshoe having a socket or recess and studs projecting into the same, of a pad or cushion of rubber or the like adapted to fit said socket or recess, and a wire bent to form two oppositely-twisted coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

6. The combination with a hornshoe, of a cushion-tread portion, and a coiled wire uniting the cushion-tread portion with the body of the shoe, substantially as described.

7. The combination with a hornshoe, of a cushion-tread portion and united coils of wire for joining the tread portion with the body of the shoe, substantially as described.

8. The combination with a hornshoe, of a cushion-tread portion therefor, and united coils of wire oppositely twisted for joining the said tread portion with the body of the shoe, substantially as described.

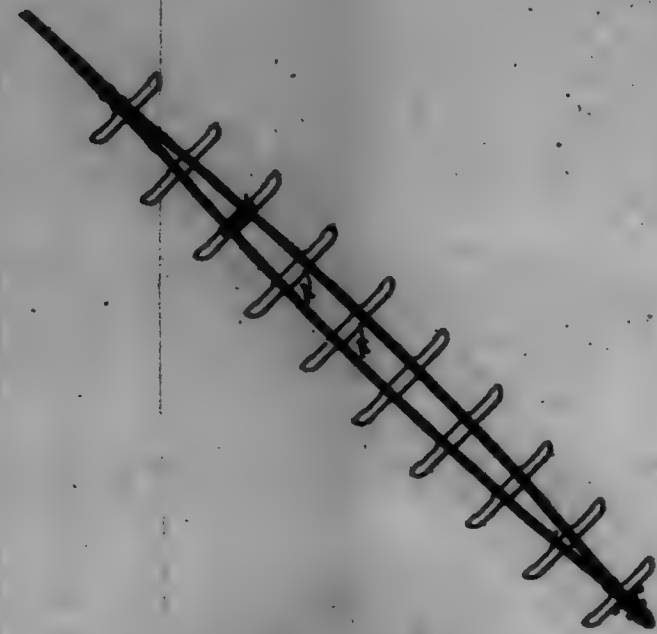
9. The combination with a hornshoe, of studs 7, 7, extending from the body thereof, a tread-cushion having a connection 10 embedded therein and adapted for engagement with the said studs, the said studs being surrounded by the cushion, substantially as described.

10. The combination with a hornshoe, of a stud projecting from the body thereof, a tread-cushion surrounding the stud, and a fastening device 10 contained within the cushion and engaging the said stud to secure the cushion in place, substantially as described.

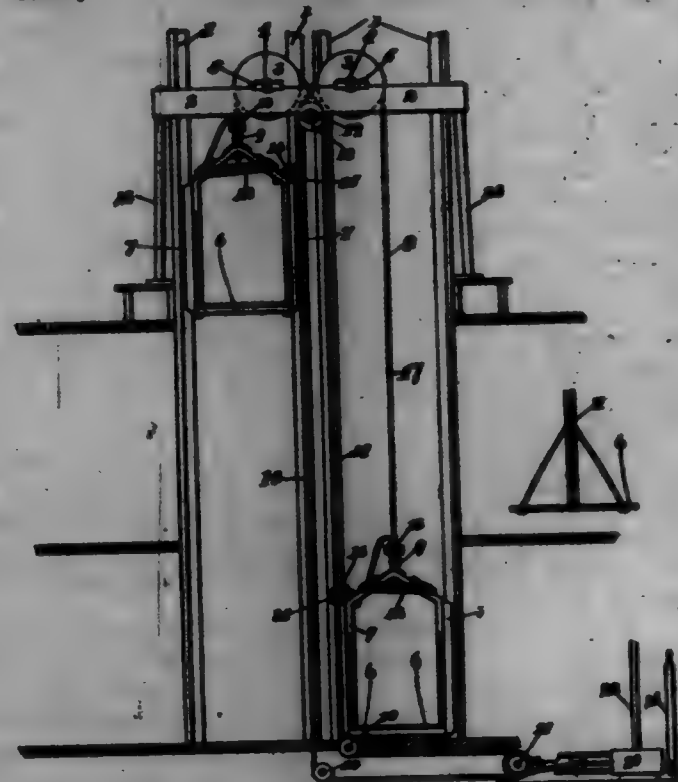
699,874. TRUNCHED SCALING-LADDER. GEORGE A. BURNHAM and A. E. HYMAN, Spokane, Wash. Filed Oct. 21, 1901. Serial No. 73,294. (No model.)

Claim.—The combination of the double wooden ladder-shaft, trunched, each of the wooden ladder-shafts being supported on the outside by continuous steel strips, running the entire length of the ladder and extending beyond at the top of the ladder, terminating in a hook, the said wooden ladder-shafts and the said steel strips being morticed at intervals to receive the ladder-rungs, the rungs formed by the ladder-shafts being retained by shoulders on the ladder-rungs between the shafts, the steel cushion thrust onto the hook at the top of the ladder and a ladder-rest attached to the back of the ladder-rungs, substantially as set forth.

699,874.



699,875. SAFETY APPLIANCE FOR ELEVATORS. JOHN E. BROWN, Chicago, Ill. Filed Feb. 24, 1902. Serial No. 95,251. (No model.)



Claim.—1. In a device of the kind described, elevator-cars arranged in pairs to simultaneously move in opposite directions, and means for operating them, in combination with supplemental supporting means connecting the cars, whereby upon the parting of either of the supporting cable motions the cars will mutually contain one another.

2. In a device of the kind described, elevator-cars arranged in pairs and secured in a dependent supporting end of a common cable, having a central crossed light, and means for operating the cable, in combination with means securing the cars to the proximate line of the light, whereby upon the parting of either of the supporting ends of the cable, the cars will be contained and mutually contain each other.

3. In a device of the kind described, elevator-cars arranged in pairs and secured in a dependent supporting end of a common cable, spacing-wheel 18, 18, spacing the lines of a crossed central light, and means for operating the cable, in combination with means for securing the cars to the proximate line of the light, whereby upon the parting of either of the ends of the cable the cars will be contained and mutually contain each other.

4. In a device of the kind described, vertical ways 1, 1, provided with transverse supporting-beams 2, 2, and wheels or rollers 3, 3, in combination with cars 6, 6, provided with guides or shoes 7, engaging the ways 1, a cable 8, having its free ends secured to the cars and thence extended upward over the wheels 3, a central crossed light 14, 14, connecting the proximate lines of the light and supporting end 8, to simultaneously

only move in the same direction, clamps 15, 15, secured to the light as indicated, and means connecting the cars with the proximate line of the light 14, above said clamps, whereby the cars are supplementally connected, substantially as described.

699,876. SPRING-FRAME FOR BICYCLES. CHARLES W. BROWN, North Tonawanda, N. Y. Filed Feb. 11, 1902. Serial No. 95,491. (No model.)



Claim.—1. A spring-frame for bicycles having the upper and lower forward frame-tubes in sections, one section of the upper tube having both pivotal and vertical adjustment with respect to the frame and telescoping in another section, a coil-spring between the sections of said upper tube and a flat spring between the sections of the lower tube, substantially as set forth.

2. A spring-frame for bicycles having the upper and lower forward frame-tubes in sections, a coil-spring between the sections of the upper tube, a flat spring between the sections of the lower tube and two springs having their outer ends superposed upon the flat spring and their inner ends bent up and normally in proximity, substantially as set forth.

3. A spring-frame for bicycles having the upper forward tube composed of a pivotal portion and a rigid portion, a coil-spring interposed between said portions, a sectional lower tube and a flat spring between the sections of said lower tube, substantially as set forth.

4. In a spring-frame for bicycles, an upper forward tube composed of a pivotal rear portion, a rigid front portion, a casing screwing into said front portion, a coil-spring having its ends in the rear portion and casing, a lower tube in sections and a spring connection between said sections, substantially as set forth.

5. A spring-frame for bicycles having a sectional upper tube composed of a rigid front portion, a casing longitudinally adjustable in said front portion, a pivotal rear portion telescoping in the casing, a coil-spring in the casing and rear portion, a sectional lower tube and a spring connection between the sections of the lower tube, substantially as set forth.

6. A spring-frame for bicycles having a sectional upper tube composed of a rigid front portion, a casing longitudinally adjustable in said front portion, a pivotal rear portion telescoping in the casing, a coil-spring in the casing and rear portion, a ball-bearing device supported from the casing having the balls connecting with the telescopic part of the rear portion, a sectional lower tube and a spring connecting the sections of said lower tube, substantially as set forth.

7. A spring-frame for bicycles having an upper tube composed of a front section and a rear section, a casing fitting in the rear end of said front section and having a flange at its rear extremity, one surface of which is beveled to form a bearing, an outer bearing-cup screwing on the flange, a series of balls between the flange-bearing surface and the outer bearing-cup; the rear section telescoping in the casing, a coil-spring supported in the casing and rear section, a lower tube in sections and a spring connecting the sections of said lower tube, substantially as set forth.

8. A spring-frame for bicycles and the like having a sectional upper tube; one section having a vertically elongated slotted connection with the frame whereby both pivotal and vertical adjustments are obtained and another section being rigid with the frame, a coil-spring between said sections, a sectional lower tube, and a spring between the sections of the lower tube, substantially as set forth.

9. In a spring-frame, a seat-post tube, a bifurcated lag extending forwardly from the upper extremity of the seat-post tube, a sectional upper frame member, one section of which is rigid and another section telescoping in said rigid section, a vertical slotted lag extending from said telescoping section and pivoted to the bifurcated section, a coil-spring between the sections, a sectional lower tube, and a spring between the sections of the lower tube, substantially as set forth.

10. A spring-frame for bicycles and the like having a sectional upper tube; one section having a vertically-elongated slotted connection with the frame whereby both pivotal and vertical adjustments are obtained and another section being rigid with the frame, a coil-spring between said sections and a sectional lower tube having yieldingly-jointed sections, substantially as set forth.

11. In a spring-frame, a seat-post tube, a bifurcated lag extending forwardly from the upper extremity of the seat-post tube, a sectional upper frame member, one section of which is rigid and another section telescoping in said rigid section, a vertical slotted lag extending from said telescoping section and pivoted to the bifurcated section, a coil-spring between the sections, a sectional lower tube, and a spring between the sections of the lower tube, substantially as set forth.

scopes in said rigid section, a vertical slotted lag extending from said telescoping section and pivoted to the bifurcated section, a coil-spring between the sections and a sectional lower tube having yieldingly-jointed sections, substantially as set forth.

12. A spring-frame for bicycles having an upper frame-tube in sections, one section of said upper tube having both pivotal and vertical adjustment with respect to the frame and telescoping in another section, a coil-spring between the sections of said upper tube and a sectional lower frame-tube having yieldingly-jointed sections, substantially as set forth.

699,877. VALVE. FREDERICK F. FINE, Providence, R. I. Filed Apr. 2, 1901. Serial No. 54,884. (No model.)



Claim.—1. The combination of an inlet-pipe, an outlet-pipe and a chamber connecting the two said pipes, a valve-casing arranged within the inlet-pipe with its inner end closed and provided with a valve-seat at its outer end and communicating with said chamber, the walls of said valve-casing being provided with ports or openings communicating with said inlet-pipe and arranged in a plane or planes oblique to the axis of said casing and extending over an arc about equal to the range of movement of the valve, an imperforate valve moving within said casing and having its periphery sliding over the said ports or openings in the casing and its outer face acting upon the said valve-seat to close the passage at each point, the pressure of the fluid upon said valve serving to normally hold the valve closed on its seat, and means for pushing the valve from its seat to open the passage, said means being disconnected from said valve, substantially as and for the purpose set forth.

2. The combination of an inlet-pipe, an outlet-pipe and a chamber connecting the two said pipes, a valve-casing arranged within the inlet-pipe with its inner end closed and provided with a valve-seat at its outer end and communicating with said chamber, the walls of said valve-casing being provided with ports or openings communicating with said inlet-pipe and arranged in a plane or planes oblique to the axis of said casing and extending over an arc about equal to the range of movement of the valve, an imperforate valve moving within said casing and having its periphery sliding over the said ports or openings in the casing and its outer face acting upon the said valve-seat to close the passage at each point, a valve-stem mounted through the wall of said chamber with its outer end projecting to the exterior thereof and its inner end acting upon the said valve to push it open but disconnected from said valve, substantially as and for the purpose set forth.

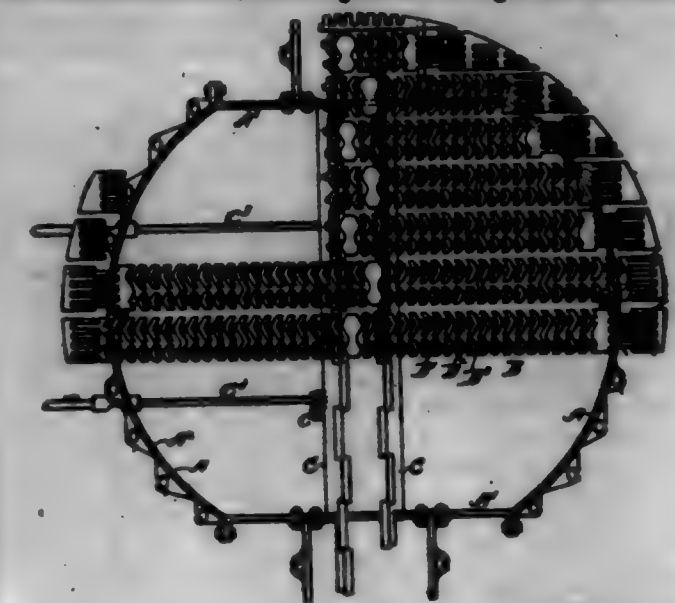
3. The combination of an inlet-pipe, an outlet-pipe and a chamber connecting the two said pipes, a valve-casing arranged within the inlet-pipe with its inner end closed and provided with a valve-seat at its outer end and communicating with said chamber, the walls of said valve-casing being provided with ports or openings communicating with said inlet-pipe and arranged in a plane or planes oblique to the axis of said casing and extending over an arc about equal to the range of movement of the valve, an imperforate valve moving within said casing and having its periphery sliding over the said ports or openings in the casing and its outer face acting upon the said valve-seat to close the passage at each point, a reciprocating valve-stem adapted to push upon the outer face of said valve to force it from its seat against the pressure of the fluid, the said valve-stem being provided within said chamber with a fluid cushion which is supplied with fluid from said chamber to prevent the sudden closing of the valve on its seat, substantially as and for the purpose set forth.

4. In a faucet, the combination with a valve-operating stem provided with a cup and a stationary seat in the cup, of the valve-seat of the tubular above a provided with a series of diagonally-arranged ports or openings of the plug of in cross-thread engagement with the above, the stem of the valve, and the valve, as described.

699,878. ROUND BEATING-GRATE. FRANK W. FOSTER, Worcester, Mass. Filed Dec. 2, 1901. Serial No. 54,867. (No model.)

Claim.—1. In a round boiler-grate, the combination with a ring-frame, of parallel grate-bars supported at the ends on the frame and at the middle by rocker-bars, the rocker-bars, the ring-frame comprising

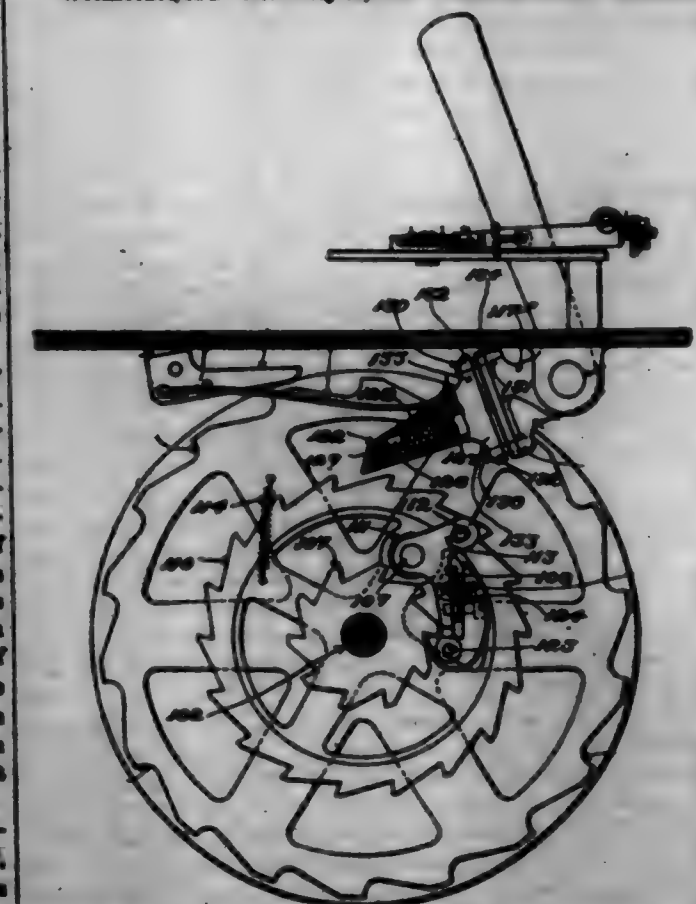
straight chord members, wherein the rocker-bars are pivoted, side brackets on the chord members, the outer grate-bars resting on the said brackets.



2. In a round boiler-grate, the combination with a ring-frame comprising straight chord members and side brackets projecting from said chord members, parallel grate-bars supported at the ends in the frame and at the middle by rocker-bars, the outer grate-bars resting in the said side brackets, the rocker-bars, pivotally hung on the frame, and an annular fire-supporting surface made in section, filling the space between the ends of the grate-bars and the fire-box wall, and supported by the ring-frame.

3. In a round boiler-grate, the combination of parallel grate-bars supported by a frame, the frame, consisting of ring-segments, hangers depending from the ring-segments, chord-bars secured to the hangers at a level below that of the ring-segments, and rocker-bars hung on the chord-bars, and connected to the grate-bars, substantially as described.

699,879. CLUTCH AND STOP MECHANISM. JOSEPH FRANK WOODWARD, R. I. Filed July 10, 1901. Serial No. 61,721. (No model.)



Claim.—1. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, a controller-wheel also connected with said dog, a spring operating to cause said dog to engage with said toothed wheel, and means to act upon said controller-wheel to effect the disengagement of said dog from said toothed wheel, substantially as described.

2. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the con-

troller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, and the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, substantially as described.

3. In combination, a rotatable carrier, the dog pivotally mounted upon said carrier, the engaging portion movably applied to the main part of the dog, the yielding cushion between said main part and said engaging portion, the toothed wheel engaged by said engaging portion, a controller-wheel also connected with the dog, a spring operating to cause the dog to be moved to place its engaging portion in engagement with the toothed wheel, and means to set upon said controller-wheel to effect the disengagement of said dog from said toothed wheel, substantially as described.

4. In combination, a rotatable carrier, the dog pivotally mounted upon said carrier, the engaging portion movably applied to the main part of the dog, the yielding cushion between said main part and said engaging portion, the toothed wheel engaged by said engaging portion, a controller-wheel also connected with the dog, a spring operating to cause the dog to be moved to place its engaging portion in engagement with the toothed wheel, and the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, substantially as described.

5. In combination, the rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the controller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, and a movable support for said stop-dog, substantially as described.

6. In combination, a rotatable carrier, the dog pivotally mounted upon said carrier, the engaging portion movably applied to the main part of the dog, the yielding cushion between said main part and said engaging portion, the toothed wheel engaged by said engaging portion, a controller-wheel also connected with the dog, a spring operating to cause the dog to be moved to place its engaging portion in engagement with the toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, and a movable support for said stop-dog on which it is independently movable, and a yielding cushion for said stop-dog, substantially as described.

7. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the controller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, and the recoil-dog whereby recoil of the parts is prevented, substantially as described.

8. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the controller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, and the recoil-dog under control of said stop-dog, whereby when said stop-dog is caused to set the said recoil-dog is brought into action also, substantially as described.

9. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the controller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, the recoil-dog, and the yielding connection between the recoil-dog and the stop-dog, substantially as described.

10. In combination, a rotatable carrier having the dog pivotally connected therewith, the toothed wheel engaged by the said dog, the controller-wheel operatively connected with the said dog, the spring operating to cause said dog to engage with said toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, a movable support for said stop-dog on which it is independently movable, and a yielding cushion for said stop-dog, the recoil-dog, and the yielding connection between the recoil-dog and the stop-dog, substantially as described.

11. In combination, a rotatable carrier, the dog pivotally mounted upon said carrier, the engaging portion movably applied to the main part of the dog, the yielding cushion between said main part and said engaging portion, the toothed wheel engaged by said engaging portion, a controller-wheel also connected with the dog, a spring operating to cause the dog to be moved to place its engaging portion in engagement with the

toothed wheel, the stop-dog to arrest the rotation of said controller-wheel and thereby occasion the disengagement of said dog from said toothed wheel, and a movable support for said stop-dog on which it is independently movable, and a yielding cushion for said stop-dog, the recoil-dog, and the yielding connection between the recoil-dog and the stop-dog, substantially as described.

699,880. HYDROCARBON-BURNER. EDWARD E. FULLAWAY, Los Angeles, Cal. Filed Oct. 31, 1901. Serial No. 99,999. (No model.)

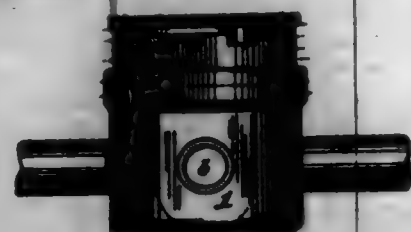


Claim.—1. A hydrocarbon-burner consisting of a casing having a partition arranged to divide the interior thereof into two parallel longitudinal chambers, terminating in the same vertical line, and provided with ports, the lower of said chambers having a vertically-adjustable uncovered swirl-blade, whose upper surface projects in front of said chamber at an angle.

2. A burner, composed of an oil-chamber disposed above a steam-chamber, both of said chambers having ports which open on the same vertical line, said steam-chamber having in its front composed of an uncovered swirl-blade whose upper surface projects upward at an angle to the central line of the steam-chamber.

3. In a burner in which oil and steam are discharged into the fire-box from separate chambers, having ports terminating on the same vertical line, the oil-chamber being disposed above the steam-chamber; an uncovered swirl-blade extending across and at the lower edge of the steam-port; said swirl-blade having its upper surface projecting in front of the steam-port, upwardly at an angle to a plane which is parallel with the center line of the steam-chamber.

699,881. OUTLET-BOX FOR ELECTRIC WIRES AND CONDUITS. JAMES H. C. FULLER, Pittsburg, Pa. Filed May 14, 1901. Serial No. 99,999. (No model.)



Claim.—1. A water-tight floor outlet-box for electric wires comprising a stationary box and a cap to close the same adapted to be adjusted with reference to the floor-level vertically and horizontally.

2. A water-tight floor outlet-box for electric wires comprising a stationary box, a cap or plate to close the same, and means interposed between the box and plate to seal the space between the same and at the same time permit the plate to be adjusted to the floor-level both vertically and horizontally independently of the box.

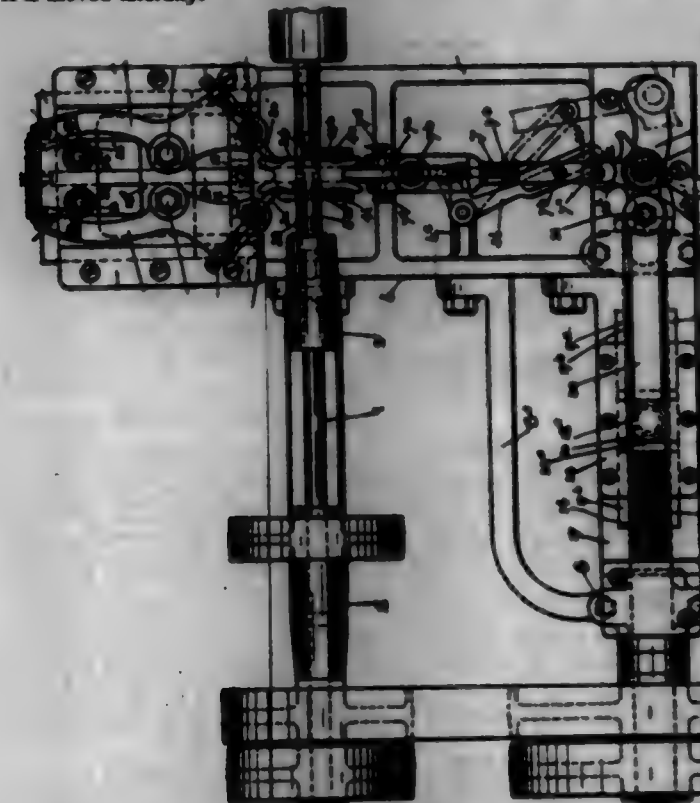
3. A water-tight floor outlet-box comprising a box, having around the rim thereof a deep channel or groove, a ring the lower rim of which is adapted to be adjusted to said channel to conform with the floor-level, a cap or plate adapted to be secured to said ring, in combination with a plastic compound adapted to be charged into the channel of the box around the lower rim of the ring to form a water seal at each point.

4. A water-tight floor outlet-box comprising a box, having a deep channel or groove around the rim thereof, a ring the lower rim of which is adapted to be adjusted to said channel to conform with the floor-level, a cap or plate adapted to be secured to said ring, a gasket interposed between said cap and ring, in combination with a plastic compound adapted to be charged into said channel of the box around the lower rim of the ring to form a water seal at each point.

699,882. TROLLEY-WHEEL-TURNING MACHINE. EDWARD O'CALLAGHAN, Lynn, Mass. Filed Apr. 11, 1900. Serial No. 12,882. (No model.)

Claim.—1. A turning device consisting of a rotating shaft to which the wheel is secured, a pivoted lever having a tool secured thereto, means for producing longitudinal movements of said lever, a fixed screw having jointed connections with said lever, which is adapted to swing said lever on its pivot, a fixed cam-disk, a pin carried by said lever for engaging said disk, whereby said lever will be caused to simultaneously swing laterally and move longitudinally.

2. A turning device comprising a rotating shaft to which the wheel is secured, a pivoted lever having tool secured thereto, means for producing longitudinal movements of said lever, a fixed screw having jointed connections with said lever, which is adapted to swing said lever on its pivot, a cam, means for causing said cam to move said lever longitudinally while it is moved laterally.



3. A turning device consisting of a rotating shaft, to which the wheel is secured, a main operating-lever, a tool secured thereto, which is arranged to engage the work at one side of the shaft, means for swinging said lever on its pivot, means for simultaneously moving said lever longitudinally, a pair of secondary levers carrying tools which are adapted to engage the work at the opposite side of the shaft, means connecting said main lever to said secondary levers, which are adapted to move the latter simultaneously with the movement of the former.

4. A turning device consisting of a rotating shaft, to which the wheel is secured, a main operating-lever, a tool secured thereto, which is arranged to engage the work at one side of the shaft, means for swinging said lever on its pivot, means for simultaneously moving said lever longitudinally, a pair of secondary levers carrying tools which are adapted to engage the work at the opposite side of the shaft, means connecting said main lever and said secondary levers which are adapted to swing the latter on their pivots and move them longitudinally, simultaneously with the movement of the former.

5. A turning device consisting of a rotating shaft to which the wheel is secured, a main operating-lever, a tool secured thereto which is arranged to engage the work at one side of the shaft, means for swinging said lever on its pivot, means for simultaneously moving said lever longitudinally, a pair of secondary levers carrying tools which are adapted to engage the work at the opposite side of the shaft, a reciprocating support for said secondary levers, a rod connected to said support, connections between said rod and said main lever which will cause said rod to reciprocate when said main lever is swinging on its pivot, and means which are adapted to engage said secondary levers and swing them on their pivots during their reciprocating movements.

6. A turning device consisting of a rotating shaft to which the wheel is secured, a main operating-lever, a tool secured thereto which is arranged to engage the work at one side of the shaft, means for swinging said lever on its pivot, means for simultaneously moving said lever longitudinally, a pair of secondary levers carrying tools which are adapted to engage the work at the opposite side of the shaft, a reciprocating support for said secondary levers, a rod connected to said support, connections between said rod and said main lever which will cause said rod to reciprocate when said main lever is swinging on its pivot, a spring which acts constantly to draw the tool of said secondary levers in one direction, a cam arranged between each of said levers and a fixed portion of the machine which causes said levers to swing as they are reciprocated.

7. A turning device consisting of a rotating shaft to which the wheel is secured, a lever carrying a tool which is adapted to engage the work, a reciprocating support to which said lever is pivoted, a spring which acts constantly to draw the tool away from the work, a cam carried by said lever, a central roll with which said cam is drawn in contact by said spring, and means for moving said roll longitudinally.

8. A turning device consisting of a rotating shaft to which the wheel is secured, a movable support carrying a tool, means for moving said tool with respect to the work, a fixed screw, means for rotating the same, a nut which is adapted to engage one side of said screw, a connection between said support and said nut, means for holding said nut in engagement with said screw, and means for automatically moving said nut laterally out of engagement with said screw when said support has been moved a predetermined distance.

9. A turning device consisting of a rotating shaft to which the wheel is secured, a movable support having a tool which is adapted to engage the work, a screw-threaded shaft, means for rotating the same, a nut which is adapted to engage one side of said shaft, a suitably-guided rod which is connected to said nut, a spring which acts constantly to draw said nut out of engagement with said screw, a projection carried by said rod, an inwardly-projecting flange which is adapted to engage the upper side of said projection and hold said nut in engagement with said screw-threaded connection between said rod and said movable support, said flange being of such length that said projection will pass from under the same when said support has been moved the desired distance and permit said spring to move said nut out of engagement with said screw, said part being arranged so that said projection may pass above said flange and move above the same as the support is returned to its initial position.

10. A device for turning trolley-wheels consisting of a rotating shaft to which a trolley-wheel is secured, a tool-holder, means for moving the same laterally and longitudinally of the wheel so as to turn off the face thereof, a reciprocating carriage, a rod connected to said carriage, means connecting said rod and said tool-holder for reciprocating said rod as said holder is moved from one side of the wheel to the other, side tools connected to said carriage which are adapted to engage the sides of the wheel, means for moving said side tools laterally with respect to the line of movement of said carriage as the latter is reciprocated, a pair of tool-carriers provided with tools which are adapted to engage the ends of the hub of the wheel, and means connecting said tool-carrier and said rod which are adapted to cause the tool of said carrier to engage the wheel-hubs as said rod is reciprocated.

11. A turning device comprising a rotatable shaft to which the wheel is secured, a pivoted lever, means for simultaneously swinging said lever on its pivot and moving it longitudinally, a tool secured to said lever, and means for tipping said tool laterally in either direction during the movements of the lever.

12. A turning device comprising a rotating shaft to which the wheel is secured, a tool having a bit, the upper or cutting end portion of which is cylindrical and the end of which is substantially flat and is in a plane perpendicular to the center line of the bit, means for supporting said bit and for adjusting the same vertically and means for automatically varying the inclination of said bit so that it will engage the work at various angles while it is taking off the same chip.

13. A turning device comprising a rotating shaft to which the wheel is secured, a tool which is supported adjacent thereto, and has a normally horizontal cutting edge, a bearing in which the shaft of said tool is journaled so that it may be tipped laterally in either direction, a lever connected to said tool, a cam which engages said lever and means for moving said bearing laterally with respect to the work.

699,883. INSULATING COMPOSITION AND METHOD OF PREPARING SAME. ADOLF VETTER, Vienna, Austria-Hungary. Filed Aug. 30, 1901. Serial No. 73,798. (No specimens.)

Claim.—1. An insulating composition consisting of gum-rubber or caoutchouc and a vegetable wax kneaded together under a mild heat which is increased gradually during the kneading operation, substantially as and for the purposes set forth.

2. An insulating composition, consisting of gum-rubber or caoutchouc and carnauba-wax combined together, in about the proportions stated, by kneading under the influence of a mild heat, substantially as and for the purposes set forth.

3. The method of making an insulating composition, which consists in first subjecting gum-rubber or caoutchouc and vegetable wax, to a kneading operation under the influence initially of a mild heat, and in then increasing said heat during the kneading operation, to convert said mass into a composition of a plastic nature, substantially as and for the purposes set forth.

699,884. HOSE-POWELL. HENRY POWELL, Chicago, Ill., assignor to W. D. Allen Manufacturing Company, Chicago, Ill., a Corporation. Filed Feb. 24, 1903. Serial No. 95,235. (No model.)

Claim.—1. A hose-cumple comprising a chambered hose portion, a tubular body revolvably connected to said hose portion and formed with one or more lateral perforations, a tubular stem or part having one or

more lateral perforations adapted to coincide with the perforations of the tubular body and means for holding said stem or part against revolution on the tubular body is revolved, whereby the coincidence between the perforations of the tubular stem and of the tubular body may be varied to change the character of the stream through the nozzle.



2. A base-nozzle comprising a base portion having an annular chamber, a tubular body revolvably connected to said base portion and having a laterally-perforated part extending into said chamber, a tubular stem or part located within said chamber and having a laterally-perforated part engaging the inner end of the tubular body and means for holding said stem or part against revolution as the tubular body is revolved.

3. A base-nozzle comprising a chambered base portion provided with a valve-seat, a tubular body revolvably connected to said base portion and having its inner end formed with one or more lateral perforations, a tubular stem or part having one or more lateral perforations adapted to coincide with the perforations of the tubular body, means for holding said stem or part against revolution as the tubular body is revolved, said stem or part being provided with a valve adapted to close against the valve-seat of the base portion.

4. A base-nozzle comprising a chambered base portion having a valve-seat, a tubular body revolvably connected to said base portion and formed with one or more lateral perforations and with a screw-threaded inner end, a screw-threaded tubular stem comprising a valve and engaging the inner end of said tubular body and provided with one or more lateral perforations and means for holding said stem against revolution as the tubular body is revolved.

5. A base-nozzle comprising a base portion A having a valve-seat *a'* and a chamber *a''*, tubular body B having an interiorly-threaded and laterally-perforated inner end extending into said chamber *a''* and revolvably connected with said base portion, an exteriorly-threaded and laterally-perforated tubular stem D engaging said tubular body and carrying a valve adapted to close against the valve-seat *a'* and a web or part D' for holding said stem D against revolution.

699,885. TWISSENS WITH HEART, ALL IN ONE PIECE.
GEO. HAYES, NEWARK, N. J., assignor to Hayes Manufacturing Company, Newark, N. J., a Corporation of New Jersey. Filed June 25, 1891. Serial No. 68,114. (No model.)

Claim.—1. A twissens having an integral tang and formed therefrom in one continuous narrow strip of sheet metal, with the jaws at the ends of each strip and each jaw having an integral tang-portion extended from its cheek upon the middle of the strip, the tang-portion being integrally united at their contiguous ends, and folded upon one another to form the tang, and an ornamental handle secured upon each tang to form part of a mounted toilet set, substantially as herein set forth.

2. A twissens having the jaws formed each of sheet metal with flat cheek and integral tang-portion of semicircular form extended into the flat cheek, and the cheek having shoulders upon each tang-portion to fit a bolster, substantially as herein set forth.

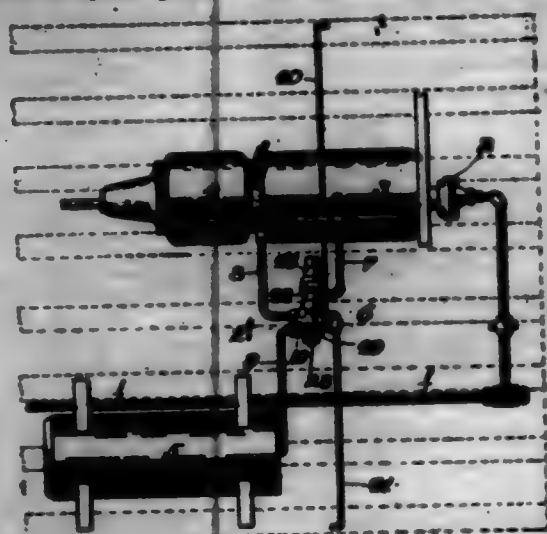
3. A twissens formed in one piece of sheet metal with an integral tang having semicircular sections, the cheek of the twissens having shoulders upon each tang, and the bolster *c* applied to the tang next the shoulder to hold the jaws elastically together.

4. The twissens formed in one piece of sheet metal with an integral tang having semicircular sections, the cheek of the twissens having shoulders upon each tang, the bolster *c* applied to the tang next the shoulder, and handle secured upon the tang in contact with the bolster.

699,886. FLUID-PRESSURE BRAKE. HARRY W. HUBBARD, Chicago, Ill., assignor to Richard Fitzgerald, Chicago, Ill. Filed Dec. 17, 1891. Serial No. 68,304. (No model.)

Claim.—1. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat on whose face terminate parts or connections respectively with the supplemental reservoir, brake-cylinder, the pressure-regulating device and the atmosphere, said chamber also having a communication with the auxiliary reservoir, a rotary disk valve working on said seat and having means for controlling said various parts and connections, substantially as described, and means for operating the valve from the side of the car.

2. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat on whose face terminate parts or connections respectively with the supplemental reservoir, brake-cylinder, the pressure-regulating device and the atmosphere, said chamber also having a communication with the auxiliary reservoir, a rotary disk valve working on said seat and having the two parts 20 and 21 and means 22 for controlling said parts and connections and having a valve-seat, an operating-lever secured to the stem, and operating-rods connected to the lever and extending to opposite sides of a car.



3. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat on whose face terminate parts or connections respectively with the supplemental reservoir, brake-cylinder, the pressure-regulating device and the atmosphere, said chamber also having a communication with the auxiliary reservoir, a rotary disk valve working on said seat and having the two parts 20 and 21 and means 22 for controlling said parts and connections, a valve-seat for operating said valve, a lever connected to said stem and having the opposite arms 38 and 39 and operating-rods connected to each lever-arm respectively and extending to opposite sides of a car.

4. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat on whose face terminate parts or connections respectively with the supplemental reservoir, brake-cylinder, the pressure-regulating device and the atmosphere, said chamber also having a communication with the auxiliary reservoir, a rotary disk valve working on said seat and adapted to govern said parts and connections, a valve-seat detachably but operatively connected to each valve and extending through one side of the casing, operating devices secured to the valve-seat, a flange 15 on the stem within the valve-chamber, and a gasket 16 on which said flange is seated.

5. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat on whose face terminate parts or connections respectively with the supplemental reservoir, brake-cylinder, the pressure-regulating device and the atmosphere, said chamber also having a communication with the auxiliary reservoir, a rotary valve 13 working on said seat to govern said parts and connections, valve-stem 14 for each valve, a cap 12 secured to the casing and forming a wall of the valve-chamber, and provided with a central bore through which said stem passes, and means for operating the valve-stem and valve.

6. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a chamber provided with a valve-seat having terminating thereon a part 9 to the supplemental reservoir, a part 6 to the brake-cylinder, a part 25 to the pressure-regulating device, and a part 27 to the atmosphere, a disk valve having a recess 22 and two parts 20 and 21, the recess in normal position connecting parts 9 and 25, in loaded-car position, the parts 9 and 20 being in register to connect the two reservoirs and the recess no longer connecting parts 9 and 25 and in bleed position, the parts 21 and 27 being in register to release the auxiliary-reservoir pressure.

7. The combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication with the air-brake system, with the supplemental reservoir and with the pressure-regulating device, the lower end or portion of the casing being formed as a screw-threaded extension by which the pressure-regulating device is received and a rotary disk valve is held chamber in govern said communication.

8. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication with the air-brake system, with the supplemental reservoir and with the pressure-regulating device, said casing having the auxiliary-reservoir connection 7, and a similar but normally closed connection 7', whereby the auxiliary-reservoir air may enter the chamber from either side, and a valve in said chamber to govern said communication.

9. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication with the air-brake system, with the supplemental reservoir and with the pressure-regulating device, said casing having the two auxiliary-reservoir connections 7 and 7' either one of which may be used for the reservoir air and the other one of which is closed but adapted to act as an oiling-bolt, said connections entering the chamber above the bottom whereby a supply of oil may be introduced so that the valve will work in oil.

10. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with a vertical valve-seat on whose face terminate communications respectively with the supplemental reservoir, with the brake system and with the pressure-regulating device, a rotary disk valve working on said seat to govern said communication, said casing and chamber having the two auxiliary-reservoir connections 7 and 7' either one of which may be used for the reservoir air and the other one of which is closed but adapted to act as an oiling-bolt, said connections entering the chamber above the bottom whereby a supply of oil may be introduced so that the valve will work in oil.

11. In combination with an air-brake system and the usual bleed-rods thereof, a supplemental reservoir, a casing having a valve-chamber provided with communication respectively with the air-brake system, the supplemental reservoir and the atmosphere, a valve in said chamber to govern said communication, and an operative connection between the valve and bleed-rods whereby the usual pull on either rod bleeds or releases the auxiliary reservoir and on inward push on either rod operates the valve to connect the supplemental and auxiliary reservoirs for greater braking force for loaded cars.

12. In combination with an air-brake system and the usual bleed-rods thereof, a supplemental reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication respectively with the brake system, supplemental reservoir, pressure-regulating device, and the atmosphere, a valve in said chamber to govern said communication, and an operative connection between the valve and the bleed-rods whereby the usual pull on either rod bleeds or releases the auxiliary reservoir as heretofore while on inward push or thrust on either rod adjusts the valve to loaded-car position, the normal position of each valve and rods representing empty-car position.

13. In combination with an air-brake system comprising the trip-valve 1, trip-valve 2, auxiliary reservoir 3, brake-cylinder 4, a supplemental reservoir 5, a pressure-regulating device, a valve device 6 having a chamber 11 in communication with the brake-cylinder through a port and passage 8, with the supplemental reservoir, through a port and passage 9, with the pressure-regulating device through a port and passage 25 and with the atmosphere through a port and passage 27, a disk valve 13 having the two transverse parts 20 and 21 and a recess 22, said chamber also having a port and passage 7 to the auxiliary reservoir, a valve-stem 14 for the valve, an operating-lever connected to the stem and having the lever-arms 38 and 39 provided with lugs on their outer ends and the rods 40 and 41 connected respectively to said lugs of the lever-arms.

14. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and full braking pressure for a car loaded, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to loaded-car position, during the entire period of loaded-car braking.

15. In combination with an air-brake system, means normally adjusted to produce partial braking pressure for a car empty and adapted to be adjusted independently of the application of the brakes to produce full braking pressure for a car loaded, and mechanism dependent upon the pressure of the brake system for holding said means to loaded-car position and adapted to return the same to normal or empty-car position.

16. In combination with an air-brake system, a device adapted to be adjusted for braking a car in proportion to its empty or loaded weight and means for automatically returning said device to its empty position only when the air has substantially passed from the entire brake system.

17. In combination with an air-brake system, a device adapted to be adjusted independently of the application of the brakes for braking a car

lower end or portion of the casing being formed as a screw-threaded extension by which the pressure-regulating device is received and a rotary disk valve is held chamber in govern said communication.

8. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication with the air-brake system, with the supplemental reservoir and with the pressure-regulating device, said casing having the auxiliary-reservoir connection 7, and a similar but normally closed connection 7', whereby the auxiliary-reservoir air may enter the chamber from either side, and a valve in said chamber to govern said communication.

9. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication with the air-brake system, with the supplemental reservoir and with the pressure-regulating device, said casing having the two auxiliary-reservoir connections 7 and 7' either one of which may be used for the reservoir air and the other one of which is closed but adapted to act as an oiling-bolt, said connections entering the chamber above the bottom whereby a supply of oil may be introduced so that the valve will work in oil.

10. In combination with an air-brake system, a supplemental air-reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with a vertical valve-seat on whose face terminate communications respectively with the supplemental reservoir, with the brake system and with the pressure-regulating device, a rotary disk valve working on said seat to govern said communication, said casing and chamber having the two auxiliary-reservoir connections 7 and 7' either one of which may be used for the reservoir air and the other one of which is closed but adapted to act as an oiling-bolt, said connections entering the chamber above the bottom whereby a supply of oil may be introduced so that the valve will work in oil.

11. In combination with an air-brake system and the usual bleed-rods thereof, a supplemental reservoir, a casing having a valve-chamber provided with communication respectively with the air-brake system, the supplemental reservoir and the atmosphere, a valve in said chamber to govern said communication, and an operative connection between the valve and bleed-rods whereby the usual pull on either rod bleeds or releases the auxiliary reservoir and on inward push or thrust on either rod operates the valve to connect the supplemental and auxiliary reservoirs for greater braking force for loaded cars.

12. In combination with an air-brake system and the usual bleed-rods thereof, a supplemental reservoir, a brake-cylinder pressure-regulating device, a casing having a valve-chamber provided with communication respectively with the brake system, supplemental reservoir, pressure-regulating device, and the atmosphere, a valve in said chamber to govern said communication, and an operative connection between the valve and the bleed-rods whereby the usual pull on either rod bleeds or releases the auxiliary reservoir as heretofore while on inward push or thrust on either rod adjusts the valve to loaded-car position, the normal position of each valve and rods representing empty-car position.

13. In combination with an air-brake system comprising the trip-valve 1, trip-valve 2, auxiliary reservoir 3, brake-cylinder 4, a supplemental reservoir 5, a pressure-regulating device, a valve device 6 having a chamber 11 in communication with the brake-cylinder through a port and passage 8, with the supplemental reservoir, through a port and passage 9, with the pressure-regulating device through a port and passage 25 and with the atmosphere through a port and passage 27, a disk valve 13 having the two transverse parts 20 and 21 and a recess 22, said chamber also having a port and passage 7 to the auxiliary reservoir, a valve-stem 14 for the valve, an operating-lever connected to the stem and having the lever-arms 38 and 39 provided with lugs on their outer ends and the rods 40 and 41 connected respectively to said lugs of the lever-arms.

14. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and full braking pressure for a car loaded, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to loaded-car position, during the entire period of loaded-car braking.

15. In combination with an air-brake system, means normally adjusted to produce partial braking pressure for a car empty and adapted to be adjusted independently of the application of the brakes to produce full braking pressure for a car loaded, and mechanism dependent upon the pressure of the brake system for holding said means to loaded-car position and adapted to return the same to normal or empty-car position.

16. In combination with an air-brake system, a device adapted to be adjusted for braking a car in proportion to its empty or loaded weight and means for automatically returning said device to its empty position only when the air has substantially passed from the entire brake system.

17. In combination with an air-brake system, a device adapted to be adjusted independently of the application of the brakes for braking a car

in proportion to its empty or its loaded weight, and means governed by the pressure of the brake system for returning the device to normal position of light-weight braking.

18. In combination with an air-brake system, a device adapted to be adjusted for braking a car in proportion to its empty or loaded weight and normally maintained in empty-car position and mechanism governed by the pressure of the brake system to maintain said device in loaded-car position when so adjusted and so long as air-pressure remains in the brake system.

19. In combination with an air-brake system, a device for producing a partial braking pressure for a car empty and full braking pressure for a car loaded, a brake-cylinder pressure-regulator and mechanism actuated by the pressure of the brake system to maintain said device when adjusted for loaded-car braking.

20. In combination with an air-brake system, a device for producing a partial braking pressure for a car empty and full braking pressure for a car loaded, a brake-cylinder pressure-regulator, and fluid-pressure-actuated mechanism for maintaining said device when adjusted for loaded-car braking.

21. In combination with an air-brake system, a device adjustable for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded, a pressure-regulator for regulating the brake-cylinder pressure to a predetermined amount for said partial braking pressure, said regulator being out of service when full braking pressure is produced, and mechanism for holding said device when adjusted for full braking pressure so long as the brake system is charged with pressure.

22. In combination with an air-brake system, a device adjustable for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded, a pressure-regulator for regulating the brake-cylinder pressure to a predetermined amount for said partial braking pressure, said regulator being out of service when full braking pressure is produced, and mechanism for holding said device when adjusted for full braking pressure so long as the brake system is charged with pressure.

23. In combination with an air-brake system, valve mechanism co-operating therewith and adapted when in one position to produce a predetermined or partial braking pressure in the brake-cylinder and in another position to produce a higher or full braking pressure therein, and in a third position to bleed the auxiliary reservoir of the brake system, and mechanism for returning such valve mechanism to a normal position of partial braking pressure after adjustment to either of the other two positions.

24. In combination with an air-brake system, valve mechanism co-operating therewith and adapted when in one position to produce a predetermined or partial braking pressure in the brake-cylinder and in another position to produce a higher or full braking pressure therein, and in a third position to bleed the auxiliary reservoir of the brake system, and mechanism actuated by the pressure of the brake system for returning such valve mechanism to a normal position of partial braking pressure after adjustment to either of the other two positions.

25. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, and a fluid-pressure-actuated controller operated by pressure admitted by the valve mechanism when adjusted for full-pressure braking and having operating connection with the valve mechanism to maintain it in such adjusted position so long as the brake system remains charged with pressure.

26. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, means for operating such valve mechanism and thereby adjusting it for an empty or a loaded car, a fluid-pressure-actuated controller and a connection between the controller and said operating means, said valve mechanism being arranged to admit the fluid-pressure of the brake system to the controller when the former is adjusted to loaded-car position, and to thereby maintain it in such position.

27. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, a valve-seat for said valve mechanism, an operating-lever on said stem, and a fluid-pressure-actuated controller connected to said lever, said valve mechanism being arranged to admit pressure from the brake system to the controller when the valve mechanism is adjusted to loaded-car position whereby such adjustment is maintained so long as the brake system is charged.

28. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, operating connection for the valve mechanism, a fluid-pressure-actuated controller connected to said connection and having means for maintaining a position of normal for bleed and consequently such connection, said valve mechanism being arranged to admit pressure from

the brake system to the controller when the valve mechanism is operated in loaded-car position to thereby maintain the valve mechanism in said loaded position.

29. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, operating connections for the valve mechanism, a fluid-pressure-actuated controller connected to said connections, and a spring for holding said controller and connections in a normal position for partial braking pressure for an empty car, said valve mechanism being adapted when adjusted to loaded-car position against the tension of the controller-spring to admit pressure to the controller to overcome the spring-pressure and maintain the valve mechanism in said adjusted position.

30. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a fluid-pressure-actuated controller, a valve device having communication respectively with the supplemental reservoir, auxiliary reservoir and the controller and adapted to govern such communication, operating devices connected to each valve device and to the controller whereby when the valve device is adjusted to connect the two reservoirs, air-pressure is admitted to operate the controller through whose connection with the valve device the latter is maintained in such adjusted position so long as the brake system is charged with pressure.

31. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a fluid-pressure-actuated controller, a valve device having communication respectively with the supplemental reservoir, auxiliary reservoir and the controller and adapted to govern such communication, a valve-stem for each valve device, an operating-lever having operating devices running to the sides of the car, and a connection between the controller and the lever.

32. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a fluid-pressure-actuated controller, a valve device having communication respectively with the supplemental reservoir, auxiliary reservoir and the controller and adapted to govern such communication, a valve-stem for each valve device, an operating-lever having operating devices running to the sides of the car and a connection between the controller and the lever, said controller comprising a piston working in a chamber and having a stem connected to said connection.

33. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a fluid-pressure-actuated controller, a valve device having communication respectively with the supplemental reservoir, auxiliary reservoir and the controller and adapted to govern such communication, a valve-stem for each valve device, an operating-lever having operating devices running to the sides of the car, and a connection between the controller and the lever, said controller comprising a piston working in a chamber and having a stem connected to said connection and a spring against whose tension the piston moves.

34. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, a fluid-pressure-actuated controller operated by pressure from the valve mechanism when adjusted to loaded-car position and comprising a casing having a chamber, a piston therein having a projecting stem, a spring against whose tension the piston moves, operating devices for the valve mechanism and a connection between each stem and the said device.

35. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, a fluid-pressure-actuated controller operated by pressure from the valve mechanism when adjusted to loaded-car position and comprising a casing having a chamber, a piston therein having a projecting stem, a spring against whose tension the piston moves, an operating-lever for the valve mechanism, and a pivotal connection between the piston-stem and lever.

36. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, a fluid-pressure-actuated controller operated by pressure from the valve mechanism when adjusted to loaded-car position, and comprising a casing having a chamber, a piston therein having a stem projecting through the chamber and when moved to loaded-car position adapted to seat at one end of the chamber to prevent leakage around the stem, and a connection between the stem and valve mechanism.

37. In combination with an air-brake system, valve mechanism co-operating therewith and adapted when in one position to produce a predetermined or partial braking pressure in the brake-cylinder and in another position to produce a higher or full braking pressure therein, and in a third position to bleed the auxiliary reservoir of the brake system, a controller actuated by pressure from the valve mechanism when adjusted to full braking pressure and comprising a casing having a chamber, a piston therein having a stem operatively connected to the valve mechanism,

a double-acting spring holding the piston in normal position against movement in either direction.

38. In combination with an air-brake system, valve mechanism co-operating therewith and adapted when in one position to produce a predetermined or partial braking pressure in the brake-cylinder, and in another position to produce a higher or full braking pressure therein and in a third position to bleed the auxiliary reservoir of the brake system, a controller actuated by pressure from the valve mechanism when adjusted to full braking pressure and comprising a casing having a chamber, a piston therein having a stem operatively connected to the valve mechanism, follower-plates on the stem, a double-acting spring between said plates and abutments within the chamber for limiting the movements of the plates.

39. In combination with an air-brake system, valve mechanism for producing a partial braking pressure for a car empty and a full pressure for a car loaded, an operating-lever connected to the valve mechanism and having arms 38 and 39, operating-rods 40 and 41 connected to said arm, a branch 50 on the arm 38 having bearing-lugs 40, a controller actuated by pressure from the valve mechanism when adjusted for full braking pressure and having a movable stem 44 and a link connection 45 between the stem and said bearing-lugs.

40. In combination with an air-brake system, an air-reservoir supplemental to the usual auxiliary reservoir, a valve-casing having a chamber in communication with the supplemental reservoir, auxiliary reservoir, and with a controller, and also having an extension forming a controller-chamber, a valve in said valve-chamber for governing said communication, an operating-lever for said valve, a piston arranged in said controller-chamber and having a stem operatively connected to said lever and a spring against whose tension the piston as well as the valve is moved.

41. In combination with an air-brake system, a supplemental reservoir, a valve device adapted, when adjusted to loaded-car position to connect said reservoir with the usual auxiliary reservoir of the air-brake system, and means for holding the valve device in such adjusted position as long as the brake system of the car is under air-pressure.

42. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir of the brake system, a valve device adapted, when adjusted to loaded-car position, to connect the two reservoirs whereby the pressure of both are made available to obtain increased braking force and means governed by the pressure of the brake system and co-operating with the valve device to maintain it in such adjusted position during all loaded-car brakings.

43. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir of the brake system, a valve device adapted, when adjusted to loaded-car position, to connect the two reservoirs and a fluid-pressure-actuated device co-operating with said valve device to maintain it in such adjusted position during all loaded-car brakings.

44. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir of the brake system, a valve device adapted, when adjusted to loaded-car position, to connect the two reservoirs to obtain increased braking force, and a controller co-operating with the valve device to maintain it in such adjusted position, said valve device itself initially governing said controller.

45. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir of the brake system, a valve adapted, when adjusted to loaded-car position to connect the two reservoirs and a fluid-pressure-actuated controller co-operating with said valve device to maintain it in such adjusted position, said valve device governing the admission of fluid-pressure to said controller.

46. In an air-brake system, the usual auxiliary reservoir for producing a partial or empty car braking pressure, in combination with a supplemental reservoir for producing a full or loaded car braking pressure, a device adapted to be adjusted to connect said reservoirs and also to bleed the auxiliary reservoir and controlling mechanism for maintaining said device, after adjustment, at a position to connect said reservoirs, said device itself governing the operation of said mechanism.

47. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir of the brake system, a valve device adapted when adjusted to loaded-car position to connect the two reservoirs and also adapted in another adjusted position to bleed the auxiliary reservoir, and a controller co-operating with the valve device to maintain it in its loaded-car position, said valve device itself initially governing said controller.

48. In an air-brake system for producing light and heavy braking, the combination of a casing having a chamber communicating with the auxiliary reservoir and filled with the air thereof and also having an opening to atmosphere, a supplemental reservoir also communicating with said chamber, and adapted to control said opening to bleed the auxiliary reservoir and also adapted to govern communication between said reservoirs, a spring holding the valve to its seat and maintaining the supplemental

reservoir pressure after the auxiliary-reservoir pressure has been vented from said chamber, and a fluid-pressure controller operatively connected to said valve to hold it in a position for establishing communication between said reservoirs and having a port or passage communicating with said chamber and governed by the said valve.

49. In an air-brake system, an auxiliary reservoir for light braking, a supplemental reservoir adapted to be combined, as to its pressure, with such auxiliary reservoir to produce heavy braking, in combination with a rotary disk valve provided with an operating-stem and adapted to connect or disconnect the two reservoirs, and a spring coiled around the valve-stem and arranged to hold the valve to its seat to thereby maintain the supplemental-reservoir pressure regardless of any decrease in the auxiliary-reservoir pressure.

50. In combination with an air-brake system, means for obtaining in the brake-cylinder a certain braking pressure when a car is empty and capable of adjustment for obtaining in the brake-cylinder a greater or increased braking pressure when the car is loaded, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to loaded-car position.

51. In combination with an air-brake system, means adapted to produce partial braking pressure for a car empty and manually adjustable for producing a full and increased braking pressure for a car loaded, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to its adjusted position of loaded-car braking so long as the brake system of the car is under pressure.

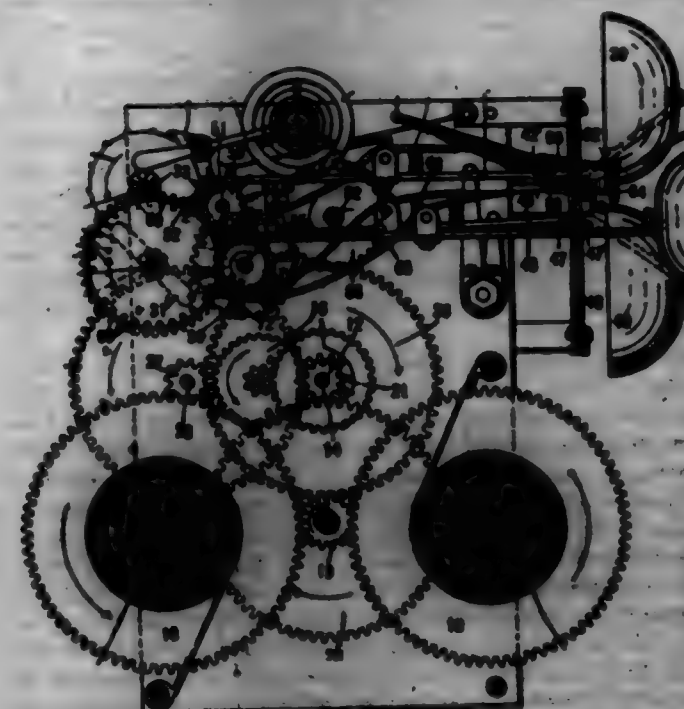
52. In combination with the usual air-brake system having a single brake-cylinder, means for producing in said cylinder a partial braking pressure for a car empty and a full or increased braking pressure in said cylinder for a car loaded, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to loaded-car position.

53. In combination with the usual air-brake system having a single brake-cylinder, means for producing a light braking force for a car empty and a heavy braking force for a car loaded, and mechanism manually adjustable for said heavy braking and controlling said means, said mechanism being arranged to automatically return to light braking position when the air-pressure passes from the brake system.

54. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and full braking pressure for a car loaded and adapted to be adjusted, independently of the pressure of the brake system, to a position for loaded-car braking, and mechanism governed by the pressure of the brake system for controlling said means and adapted to hold the same to loaded-car position.

55. In combination with an air-brake system including the auxiliary reservoir, means for producing a partial braking pressure for a car empty and full braking pressure for a car loaded and mechanism governed by the auxiliary-reservoir pressure for controlling said means.

699,867. CLOCK STRIKING MECHANISM. HENRY H. REED.
Indianapolis, Ind. Filed Feb. 4, 1901. Serial No. 65,311. (No model.)



Claim.—1. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of nine graduated minute-pins carried by said wheel, a swinging lever, a hammer-lever carried by said lever, a rotatable cam engaging said first lever, means for advancing said cam step by step once each minute, a second lever, a hammer-lever carried thereby and arranged to be engaged by the hour-pin, a cam engaging said third lever, means for advancing said cam step by step once each hour so as to swing said third lever through its range of movement once in twelve hours, and three balls arranged to co-operate with the hammer-levers.

arranged to be engaged by said pins, a ball, and means for swinging said lever as to shift the hammer-lever to vary the number of pins engaging said hammer-lever.

2. In a striking-clock, the combination with a revolvable striking-wheel, of a graduated series of pins carried by said striking-wheel, a lever, a hammer-lever pivoted upon said lever and arranged to be engaged by said pins, a ball, means for swinging said lever as to shift the hammer-lever to vary the number of pins engaging the hammer-lever, and means for carrying said pins past the hammer-lever once each period of time to be indicated.

3. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once during each period of time indicated, of a graduated series of pins carried by said striking-wheel, a lever, a ball mounted upon said lever, a hammer-lever pivoted upon said lever and arranged to be engaged by said pins, and means for swinging said lever as to shift the hammer-lever to vary the number of pins engaging said hammer-lever.

4. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, three balls, a hammer-lever pivoted upon the first of said levers and adapted to be engaged by the hour-pin, means for swinging said first lever as to vary the number of hour-pins engaging its hammer-lever, a hammer-lever pivoted upon the second lever and adapted to be engaged by the ten-minute pins, means for swinging said second lever as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the third lever and adapted to be engaged by the minute-pins, and means for swinging said third lever to vary the number of pins engaging its hammer-lever.

5. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said striking-wheel, a series of five graduated ten-minute pins carried by said wheel, three balls, one carried by each of said levers, a hammer-lever pivoted upon the first of said levers and adapted to be engaged by the hour-pin, means for swinging said first lever as to vary the number of hour-pins engaging its hammer-lever, a hammer-lever pivoted upon the second lever and adapted to be engaged by the ten-minute pins, means for swinging said second lever as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the third lever and adapted to be engaged by the minute-pins, and means for swinging said third lever to vary the number of pins engaging its hammer-lever.

6. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a lever, a hammer-lever pivoted upon said lever and arranged to be engaged by the minute-pins, a cam arranged to engage the said lever, means for moving said cam as to swing said lever through its range of movement once in each ten minutes, a second lever, a hammer-lever carried by said second lever and arranged to be engaged by the ten-minute pins, a cam engaging said third lever, means for advancing said cam step by step through the range of its movement once each hour, a third lever, a hammer-lever carried thereby and arranged to be engaged by the hour-pin, a cam engaging said third lever, means for advancing said cam step by step once each hour so as to swing said third lever through its range of movement once in twelve hours, and three balls arranged to co-operate with the hammer-levers.

7. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a swinging lever, a hammer-lever carried by said lever, a rotatable cam engaging said first lever, means for advancing said cam step by step once each minute, a second lever, a hammer-lever carried thereby and arranged to be engaged by the ten-minute pins, a cam engaging said second lever, a pin-point star-wheel connected to said cam, means for advancing said star-wheel intermittently one-sixth of a revolution each ten minutes, a third lever, a hammer-lever carried thereby in position to be engaged by the hour-pin, a cam arranged to engage said third lever, a twelve-point star-wheel connected to said cam, means carried by said six-point star-wheel for advancing the twelve-point star-wheel once each revolution, and three balls arranged to co-operate with the hammer-levers.

8. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, three hammer-levers and co-operating

balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, means for changing the relative position of the minute-pin and cooperating hammer-lever once each minute, means for changing the relative position of the ten-minute pin and cooperating hammer-lever five times each hour, and means for changing the relative position of the hour-pin and cooperating hammer-lever once each hour.

8. In a striking-clock, the combination with a revolvable striking-wheel, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, means for carrying said pins past their respective hammer-levers once each minute, means for changing the relative position of the minute-pin and cooperating hammer-lever once each minute, means for changing the relative position of the ten-minute pin and cooperating hammer-lever five times each hour, and means for changing the relative position of the hour-pin and cooperating hammer-lever once each hour.

10. In a striking-clock, the combination with a revolvable striking-wheel, of a driving-wheel 57 geared therewith, a series of five graduated hour-pins carried by said striking-wheel, a series of five graduated ten-minute pins carried by said striking-wheel, a series of five graduated minute-pins carried by said striking-wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, a cam for shifting the first hammer-lever with relation to the minute-pin, a star-wheel secured to said cam, means carried by the driving-wheel 57 for engaging said star-wheel to advance said cam one step each minute, a second cam secured upon the arbor of the first cam and arranged to shift the position of the second hammer-lever with relation to the ten-minute pin, a star-wheel carried by said second cam, means carried by gear 57 for advancing said second cam one step each ten minutes, a third cam arranged to shift the third hammer-lever with relation to the hour-pin, a star-wheel secured thereto, and means carried by the second star-wheel for engaging the third star-wheel and advancing said third star-wheel one step each hour.

11. In a striking-clock, the combination with a revolvable striking-wheel, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three levers, three balls, a hammer-lever pivoted upon the first of said levers, and adapted to be engaged by the hour-pin, means for swinging said first lever so as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the second lever and adapted to be engaged by the ten-minute pin, means for swinging said second lever so as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the third lever and adapted to be engaged by the minute-pin, means for swinging said third lever so as to vary the number of pins engaging its hammer-lever, and means for carrying the three series of pins past their respective hammer-levers once each minute.

12. In a striking-clock, the combination with a revolvable striking-wheel, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, a lever, a hammer-lever pivoted upon said lever and adapted to be engaged by the minute-pin, a cam arranged to engage the said lever, means for moving said cam so as to swing said lever through its range of movement once each ten minutes, a second lever, a hammer-lever carried by said second lever and arranged to be engaged by the ten-minute pin, a second cam, means for advancing said second cam one step by step through the range of its movement once each hour, a third lever, a hammer-lever carried thereby and arranged to be engaged by the hour-pin, a third cam engaging said third lever, means for advancing said third cam one step by step once each hour so as to swing said third lever through its range of movement once in twelve hours, three balls arranged to cooperate with the hammer-levers, and means for rotating the striking-wheel so as to carry the three series of pins past their respective hammer-levers once each minute.

13. In a striking-clock, the combination with a revolvable striking-wheel, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, means for changing the relative position of the minute-pin and cooperating hammer-lever once each minute, means for changing the relative position of the ten-minute pin and cooperating hammer-lever five times each hour, and means for rotating said wheel so as to carry the three series of pins past their respective hammer-levers once each minute.

14. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three levers, three balls, a hammer-lever pivoted upon the first of said levers and adapted to be engaged by the hour-pin, means for swinging said first lever so as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the second lever and adapted to be engaged by the ten-minute pin, means for swinging said second lever so as to vary the number of pins engaging its hammer-lever, a hammer-lever pivoted upon the third lever and adapted to be engaged by the minute-pin, means for swinging said third lever so as to vary the number of pins engaging its hammer-lever, and three pins carried by the striking-wheel in position to engage the three hammer-levers substantially simultaneously in all positions of said levers.

15. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, a lever, a hammer-lever pivoted upon said lever and adapted to be engaged by the minute-pin, a cam arranged to engage the said lever, means for moving said cam so as to swing said lever through its range of movement once each ten minutes, a second lever, a hammer-lever carried by said second lever and adapted to be engaged by the ten-minute pin, a second cam, means for advancing said second cam one step by step through the range of its movement once each hour, a third lever, a hammer-lever carried thereby and arranged to be engaged by the hour-pin, a third cam engaging said third lever, means for advancing said third cam one step by step once each hour so as to swing said third lever through its range of movement once in twelve hours, three balls arranged to cooperate with the hammer-levers, and three pins carried by the striking-wheel in position to engage the three hammer-levers substantially simultaneously in all positions of said levers.

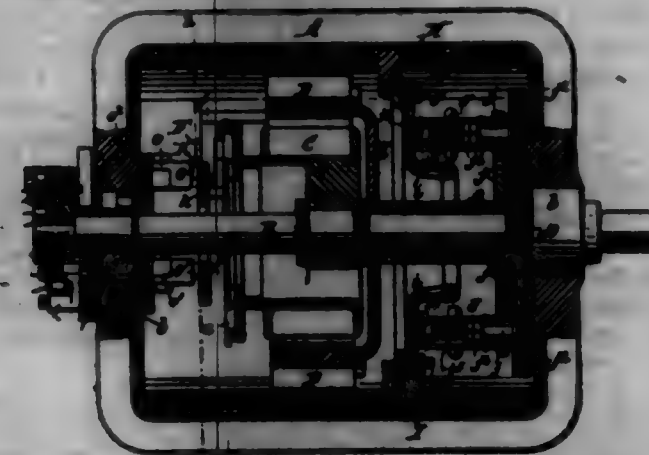
16. In a striking-clock, the combination with a revolvable striking-wheel, and means for rotating said wheel once each minute, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, means for changing the relative position of the minute-pin and cooperating hammer-lever once each minute, means for changing the relative position of the ten-minute pin and cooperating hammer-lever five times each hour, and means for rotating the striking-wheel in position to engage the three hammer-levers substantially simultaneously in all positions of said levers.

17. In a striking-clock, the combination with a revolvable striking-wheel, of a series of twelve graduated hour-pins carried by said wheel, a series of five graduated ten-minute pins carried by said wheel, a series of five graduated minute-pins carried by said wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, means for carrying said pins past their respective hammer-levers once each minute, means for changing the relative position of the minute-pin and cooperating hammer-lever once each minute, means for changing the relative position of the ten-minute pin and cooperating hammer-lever five times each hour, and means for changing the relative position of the hour-pin and cooperating hammer-lever once each hour, and three pins carried by the striking-wheel in position to engage the three hammer-levers substantially simultaneously in all positions of said levers.

18. In a striking-clock, the combination with a revolvable striking-wheel, of a driving-wheel 57 geared therewith, a series of twelve graduated hour-pins carried by said striking-wheel, a series of five graduated ten-minute pins carried by said striking-wheel, a series of five graduated minute-pins carried by said striking-wheel, three hammer-levers and cooperating balls, said hammer-levers being arranged to be engaged respectively by the hour-pin, ten-minute pin, and minute-pin in succession, a cam for shifting the first hammer-lever with relation to the minute-pin, a star-wheel secured to said cam, means carried by the driving-wheel 57 for engaging said star-wheel to advance said cam one step each minute, a second cam secured upon the arbor of the first cam and arranged to shift the position of the second hammer-lever with relation to the ten-minute pin, a star-wheel carried by said second cam, means carried by gear 57 for advancing said second cam one step each ten minutes, a third cam arranged to shift the third hammer-lever with relation to the hour-pin, a third star-wheel secured thereto, means carried by the second star-wheel for engaging the third star-wheel and advancing said third star-wheel one step each hour.

wheel one step each hour, and three pins carried by the striking-wheel in position to engage the three hammer-levers substantially simultaneously in all positions of said levers.

699,888. **STRAKER**. STRAKER, BOSTON, Massachusetts, England. Assignor of one-half to Charles A. Gould, New York, N. Y. Filed Dec. 18, 1901. Serial No. 95,492. (No model.)



Claim.—1. The combination of an armature, a field magnet or magnets movably mounted and adapted to follow the armature and means for maintaining a substantially constant difference of speed between the armature and field magnet or magnets, substantially as set forth.

2. The combination of an armature, a field magnet or magnets movably mounted and adapted to follow the armature, a governor movable with the field magnet or magnets, gearing between said governor and the armature, and means actuated by said governor for controlling the movement of the field-magnet, substantially as set forth.

3. The combination of an armature, a field magnet or magnets movably mounted and adapted to follow the armature, a governor movable with the field magnet or magnets, gearing between said governor and the armature, a fixed brake-surface, and a brake held in contact with said brake-surface and controlled by said governor, substantially as set forth.

4. The combination of an armature, a field magnet or magnets movably mounted and adapted to follow the armature, a commutator, brushes carried by the field magnet or magnets and connecting with said commutator, collecting-rings carried by said magnet or magnets and electrically connected with said brushes, fixed brushes connecting with said collecting-rings, and governing means for maintaining a substantially constant difference of speed between the armature and the field-magnet, substantially as set forth.

5. The combination of an armature-shaft, an armature fixed thereon, a frame journaled on the armature-shaft, a field magnet or magnets carried by said frame, a governor carried by said frame, gearing connecting said armature-shaft and governor, a fixed brake-ring, a brake-shoe carried by said frame and bearing against said brake-ring, and a connection between said governor and brake-shoe for controlling the same, substantially as set forth.

6. The combination with an armature and a field magnet or magnets movably mounted and adapted to follow the armature, a governor movable with the field magnet or magnets, a switch movable with said field magnet or magnets and controlled by said governor, and electrical connections between the armature and said switch, substantially as set forth.

7. The combination with an armature, a field magnet or magnets movably mounted and adapted to follow the armature, and means for maintaining a substantially constant difference of speed between the armature and the field magnet or magnets, of an external circuit, current-collecting means including brushes arranged to maintain a constant position relative to said field magnet or magnets, and a reversing-switch and connection for maintaining a constant direction of current in said external circuit, substantially as set forth.

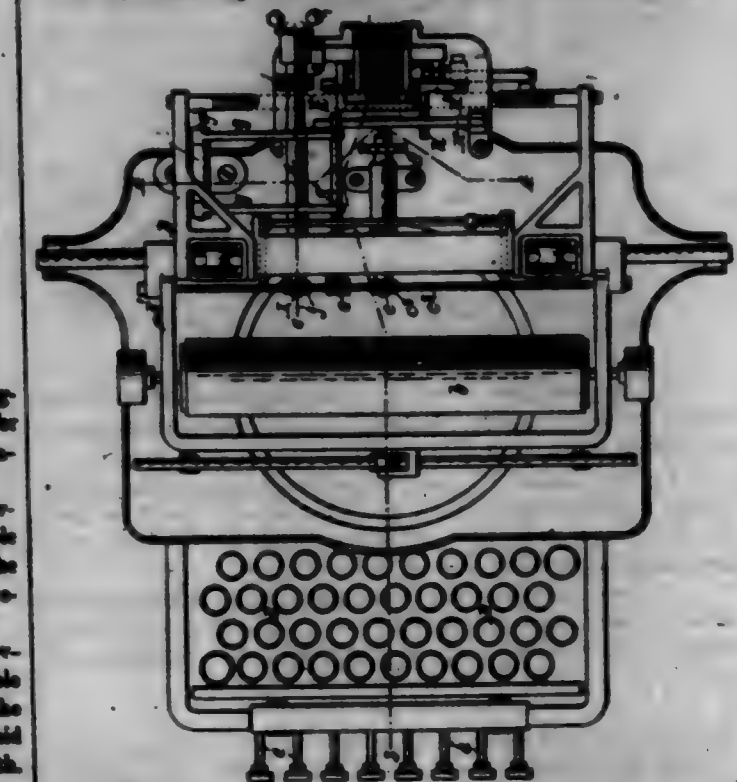
8. The combination with an armature, and a field magnet or magnets movably mounted and adapted to follow the armature, of a commutator, brushes thereon carried by the field magnet or magnets, collector-rings each electrically connected with one of said brushes, fixed brushes for said collector-rings, an external circuit connecting with said fixed brushes, and a reversing-switch and connection for maintaining a constant direction of current in said external circuit, substantially as set forth.

9. The combination with a dynamo, of a device rotated by the dynamo-shaft, an oscillating device adjacent to said rotary device, a pawl pivoted to a fixed part and connected to said oscillating device, means tending to hold said pawl in a central position, said rotary device adapted to engage said pawl and shift the same to opposite sides of said central position when said rotary device is oppositely rotated, and contacts controlled by said oscillating device, substantially as set forth.

10. The combination with a dynamo, of a collar fixed to the dynamo-shaft, an oscillating ring adjacent to said collar, a pawl pivoted to a fixed part and connected to said oscillating ring, means tending to hold said pawl in a central position, said collar adapted to engage said pawl and shift the same to opposite sides of said central position when the collar is oppositely rotated, and contacts carried by said oscillating ring and cooperating with fixed contacts, substantially as set forth.

no-shaft, an oscillating ring adjacent to said collar, a pawl pivoted to a fixed part and connected to said oscillating ring, means tending to hold said pawl in a central position, said collar adapted to engage said pawl and shift the same to opposite sides of said central position when the collar is oppositely rotated, and contacts carried by said oscillating ring and cooperating with fixed contacts, substantially as set forth.

699,889. **TYPE-WRITING MACHINE**. HAROLD JARVIS, Buffalo, N. Y. Assignor to Jarvis Type-writer & Tabulator Company, Buffalo, N. Y. Filed July 2, 1901. Serial No. 95,493. (No model.)



Claim.—1. In a type-writing machine, the combination with a paper-carriage and a stop-by-stop feed mechanism therefor, the carriage being capable of disconnection from said feed mechanism, and a speed-governor comprising a governor-shaft, a driving-shaft from which said governor-shaft is driven and which is movable into and out of gear therewith, and gearing between the carriage and said driving-shaft for rotating the latter by the movement of the carriage, substantially as set forth.

2. In a type-writing machine, the combination with a paper-carriage having a gear-rack, of a speed-governor comprising a governor-shaft having a pinion, and a driving-shaft movable toward and from said governor-shaft and having gear-wheels arranged to engage with said gear-rack and the pinion of the governor-shaft, substantially as set forth.

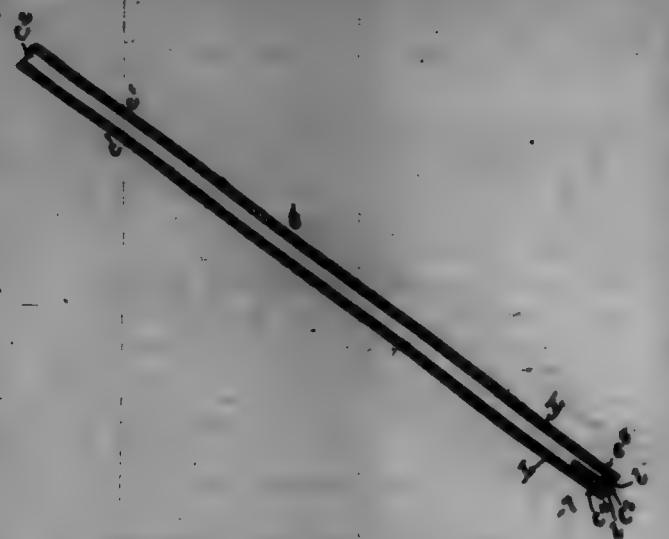
3. In a type-writing machine, the combination with a paper-carriage, of an escapement therefor, one member of which consists of a vertically-movable gear-rack mounted on the carriage and capable of engaging and having the other member, a governor-shaft, a vertically-movable driving-shaft from which said governor-shaft is driven and which is movable into and out of gear therewith, said driving-shaft having a pinion which engages with the toothed lower edge of said gear-rack, substantially as set forth.

4. In a type-writing machine, the combination with a paper-carriage and an escapement therefor having a pinion, of a vertically-movable gear-rack mounted on said carriage and capable of moving into and out of gear with said pinion, and a speed-governor comprising a vertically-movable driving-shaft geared with said gear-rack and having a gear-wheel, and a governor-shaft arranged above said driving-shaft and having a pinion arranged to mesh with the gear-wheel thereof when the driving-shaft is raised, and means for elevating said driving-shaft, substantially as set forth.

5. In a type-writing machine, the combination with a paper-carriage having feed mechanism from which it can be disconnected, of a governor-shaft, a vertically-movable frame or support arranged below the plane of said governor-shaft, a driving-shaft for said governor-shaft journaled in said frame, a driving means connecting said driving-shaft with the paper-carriage, a series of auxiliary levers, and lifting devices for said vertically-movable shaft-frame which are operated by said levers, substantially as set forth.

699,890. **TYPE-CONTAINING CHAIN**. LOUIS E. JOHNSON and ALBERT A. LOW, Brooklyn, N. Y. Assignors to Alden Type Machine Company, New York, N. Y. Filed Apr. 12, 1902. Serial No. 12,578. (No model.)

Claim.—1. The type-containing channel C, formed with the pusher-dot c' , with the lateral openings c'' , in its side walls, and with the spring-latches L, the whole arranged and operating substantially as set forth.

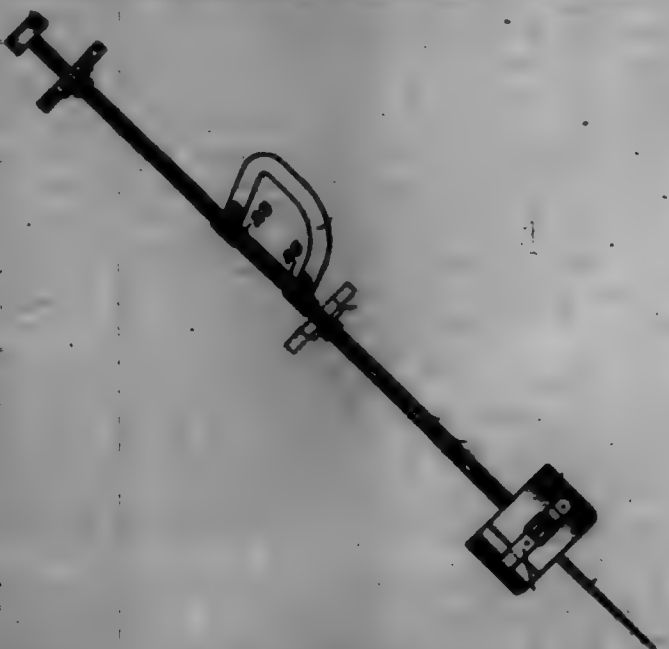


2. The combination of a type-containing channel formed with perforated spring-latches and a clag having a spring-bolt for engagement with said latches, substantially as herein set forth.

3. The combination of the type-containing channel C, the latches L, formed with abutted ends l' , l'' , and perforations l' , l'' , and the clag S, formed with the spring-bolt s , for engagement with said spring-latches substantially as described.

4. The combination of a type-containing channel C, having a spring-act L, formed with a perforation l' , and a type-clag S, formed with a spring-bolt s , for engagement with said spring-latch, substantially as described.

699,891. GOLF-CLUB HOLDER. WILLIAM E. JOHNSON, Haverhill, Mass. Filed May 20, 1901. Serial No. 69,970. (No model.)



Claim.—1. A portable golf-club holder comprising in combination a base provided with means for receiving the handle ends of a series of clubs, a rod rigidly secured to said base at its center, a head rigidly secured to said rod above the base and provided with means for detachably engaging the shafts of said clubs, and holding the same in proximity to said rod, and a handle secured to said rod between the base and head and projecting outward therefrom between and beyond said clubs.

2. A portable golf-club holder comprising in combination a base provided on its top with a series of sockets, a rod rigidly secured to said base at its center, a head rigidly secured to said rod above the base and provided with a series of sockets corresponding to the sockets in said base and adapted respectively to detachably receive the shaft of a club, and a handle secured to said rod between the base and head and projecting outward therefrom between and beyond said clubs.

3. In a device of the character described, the combination of a base having a double bottom forming a compartment as described, means for obtaining access to said compartment, means carried by the top of said base for receiving the handle ends of a series of clubs, a head provided

with means for detachably engaging the shafts of said clubs, and a rod connecting said head and base.

4. In a device of the character described, the combination of a base provided with a series of sockets, a head provided with means for detachably engaging the shafts of a series of clubs, a rod connecting said head and base, a spring varied by said rod, and a handle rigidly connected to said spring.

5. In a device of the character described, the combination of a rod, a blade or spike adapted to slide lengthwise of the same, a handle connected to said blade or spike, and means carried by said rod for detachably holding a series of clubs.

6. In a device of the character described, the combination of a base, a hollow rod passing through the center thereof, a head carried by said rod, means for detachably securing a series of clubs to said head and base, a blade or spike adapted to slide within said rod and to be projected below the bottom of said base, and a handle secured to said blade or spike.

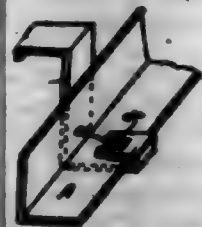
7. In a device of the character described, the combination of a base provided with a series of sockets, a head provided with means for detachably engaging the shafts of a series of clubs, rigid connections between said head and base, a blade or spike mounted to slide past the bottom of said base, and a handle rigidly secured to said spike.

8. In a device of the character described, the combination of a base, a hollow rod secured to said base and having a slot in its side, a head carried by said rod, means for detachably securing a series of clubs to said head and base, a blade or spike arranged to slide within said rod, a handle mounted to slide upon the exterior of said rod, and connections passing through said slot for rigidly uniting said handle and spike.

9. In a device of the character described, the combination of a rod provided near its upper end with a head and means carried thereby for detachably engaging the shafts of a series of clubs, two disks 6 and 11 carried by said rod near its lower end and spaced apart, as described, the upper disk being provided with a series of recesses forming sockets, a disk 7 secured to said rod below said disks 6 and 11, and a strip of flexible material secured to the edges of said disks along a portion of their peripheries and left unsecured thereto for the remainder of its length, and means for detachably fastening the free end of said strip to the secured portions thereof, for the purpose set forth.

10. In a device of the character described, the combination of a rod provided with means for detachably engaging the shafts of a series of clubs, two disks carried by said rod and spaced apart to form the top and bottom of a compartment, a series of sockets located above the top disk and open at their outer edges, and a strip of flexible material secured to the edges of said disks and extending above the top disk, thereby forming a compartment in connection with said disks and also serving to prevent the outward displacement of the club-handles, substantially as set forth.

699,892. RACKER FOR SUPPORTING BED-BOTTOMS. FRANK KARR, Holland, Mich. Filed Jan. 23, 1901. Serial No. 69,125. (No model.)



Claim.—1. In combination with a bed-bottom having angle-iron frames and a bedstead having angle-iron rails, a hanger the body of which is bent at opposite right angles, the upper angle-arm having a retaining-lip at the end and the lower angle-arm bent upward and then bent over and parallel with the arm and forming a receptacle for the web of the rail of the bed-bottom, substantially as and for the purpose set forth.

2. In combination with a bedstead and bed-bottom, each having side rails formed of angle-iron, a hanger the body of which is bent at opposite right angles, the upper angled arm projecting over the bed-rail and having a retaining-lip at the end, and the lower angled arm projecting under the bed-bottom rail and bent upward and then bent parallel with the arm and forming a receptacle for the web of the rail of the bottom, and a bolt passing through said rail and arm, substantially as and for the purpose set forth.

699,893. TIME-INDICATOR FOR PHOTOGRAPHER. JOHN KIMMER, Jr., Brooklyn, N. Y. Filed May 27, 1901. Serial No. 70,566. (No model.)

Claim.—1. In a photograph instrument, the separately-formed plate D and posts D' D' one carrying a graduated scale and the other a pivot, in combination with the lower-IP and means for actuating the latter, as

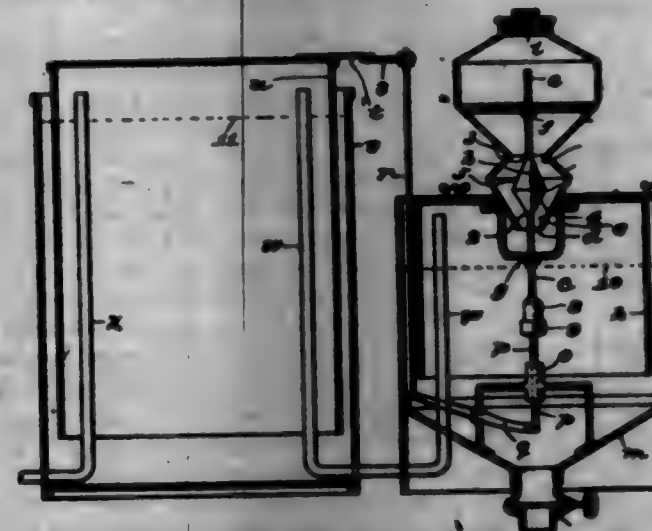
ording as the speed-timing device is adjusted, all substantially as herein specified.



2. In a photograph instrument, a speed-regulating screw arranged to serve its usual ends, in combination with a scale and with an unequally-divided indicating-lever having its short arm actuated by the longitudinal motion of said screw and its long arm moving over said scale, substantially as herein specified.

3. In a photograph instrument the graduated scale D' in combination with the index IP carried on a separate plate D' IP' with the screw O O' for conveniently attaching and detaching, and means for actuating the index according as the timing device is moved, and means as the screw O' for adjusting the supporting-pivot E of the index so that the indications may be varied as required for different instruments, all substantially as herein specified.

699,894. GASKET-PRESSURE MECHANISM. JOHN G. KIMM, Oshkosh, Ind. Filed June 12, 1901. Serial No. 69,112. (No model.)



Claim.—1. A gasket-feeding mechanism including a valve-rod having fixed opening lower sides the upper and lower portions of which slope at different degrees of angularity toward the ends of the case terminating at inlet and outlet openings having fixed cones, any yielding valve-seats of the openings, and a valve confined between the said upper and lower portions and limited in its travel by the any yielding valve-seats.

2. A gasket-feeding mechanism comprising a valve-rod the lower portion of which is in the form of a funnel having any yielding relatively long straight sloping sides approaching the perpendicular in degree of angularity and the upper portion of which is in the form of an inverted funnel having any yielding relatively short sloping sides approaching the horizontal in degree of angularity, a valve comprising conical ends having straight faces differing in degree of angularity, the angularity of the lower portion of the valve corresponding substantially to the angularity of the lower portion of the case and the angularity of the upper portion of the valve differing from the angularity of the upper portion of the case, the valve being confined operatively in the case, and means for the valve.

3. In a gasket-gas generator, the combination with a water-tank, of a valve-rod having two opposing valve-seats and an enlarged space between the two seats, a hopper communicating with the top of the valve-rod, a guide in the hopper, a guide below the valve-seats, a valve adapted to move partially through the orifices at the valve-seats and having a guide-stem engaging the said guides, said valve having an enlarged portion intermediate of the ends thereof at either side of which it is adapted to engage one of said seats, a push-bar for the valve, a weight for depressing the valve, and means for operating the push-bar.

4. In a gasket-gas generator, the combination of the water-tank, the gate-valve, the receiver secured immovably to the water-tank, the valve-rod attached to the receiver and having the upper valve-seat and the opposing lower valve-seat, the valve having the oppositely-disposed conical ends adapted to engage said seats and having the guide-stem attached to the ends thereof, the guides engaging said stems, the weighted operating-stem connected to said guide-stem, the guide attached to said tank and having the push-bar mounted therein, the lever engaging said push-bar, the coupling-rod connected to said lever, the gasometer-tank, the gasometer-bell operatively engaging said coupling-rod, the gas-pipe extending from the receiver into the bell, and the hopper at the top of the valve-rod communicating therewith, substantially as set forth.

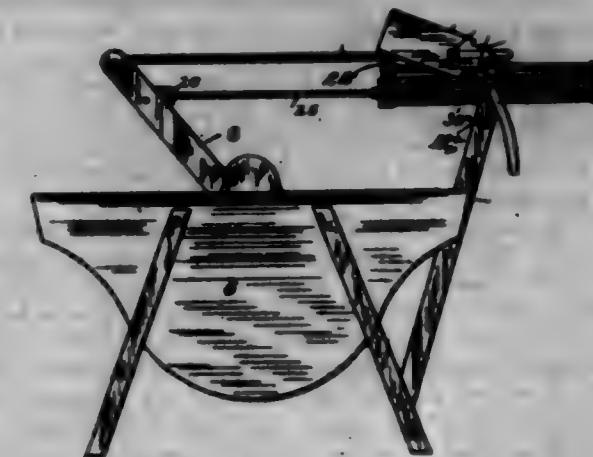
699,895. METHOD OF PROTECTING FILMS. WHITTAKER & KRYER, San Francisco, Cal. Filed Sept. 27, 1901. Serial No. 70,000. (No specimens.)

Claim.—1. A method of protecting films, lenses and the like, which consists in coating the surface of said films or lenses with hydrocarbon products to form a tough viscous covering.

2. A method of protecting films, lenses and the like from greases and the like, which consists in coating the surface of said films or lenses with crude petroleum to form a hard crust.

3. A method of protecting carbon films, lenses and the like which consists in coating the surface of the film or lens with broken rock, gravel or sand and applying a hydrocarbon compound such as crude petroleum to said coating to form a tough impervious crust or surface that will resist the action of the water and gases dissimilar to solvents.

699,896. HYDRAULIC MOTOR. FRANK KARR, Holland, Ohio. Filed Sept. 20, 1901. Serial No. 70,715. (No model.)



Claim.—In a hydraulic motor, the combination with an oscillating cylinder and valve-chest supported upon tubular trunnions forming inlet and outlet passages, said cylinder having a piston and its rod and inlet and outlet ports, of a rocking valve having a lever projecting from the stem thereof, a trip-plate to throw the valve, and operative connections between the piston-rod and the trip-plate comprising a slotted rod, a pin on the plate projecting into the slot, and an oscillating lever to which the piston-rod and slotted rod are pivotally connected.

699,897. FIRE-BOOM. ANDREW E. LAMY, Washington, D. C. Filed Sept. 2, 1901. Serial No. 74,300. (No model.)



Claim.—1. A fire-boom provided with an offsetting vane or wing to curve as a hydroplane and impart a forward movement to the boom when the line receives a smart pull or jerk, substantially as set forth.

2. A fire-boom having a vane or wing extended rearwardly therefrom in a diametrically opposite direction to the point to provide a hydroplane to cause the boom to spring forward, simultaneously with a quick pull or jerk upon the line, substantially as specified.

3. A fire-boom having a rearwardly-extended vane of greater transverse extent than the body of the boom and rigid therewith and adapted to receive the reacting influence when the line is quickly drawn upon to impel the boom forward, substantially as set forth.

4. A fire-boom having an end portion of the wire from which it is formed rearwardly bent and transversely flattened to provide a vane or hydroplane for the reacting action of the water to cause a forward spring of the boom when the line is quickly drawn upon or jerked, substantially as set forth.

5. A fire-boom having an end portion bent to provide an eye and rear extension, which latter is transversely flattened to form a vane or hydroplane, substantially as and for the purpose set forth.

6. A fire-boom having an end portion rearwardly bent and robust and flattened to form a vane or hydroplane, substantially as and for the purpose set forth.

699,898. CONNECTING DEVICE. IRVING LAMM, Chicago, Ill., assignor of one-half to Robert G. Armstrong, Chicago, Ill. Filed Aug. 31, 1901. Serial No. 73,748. (No model.)



Claim.—1. The combination with two interlocking members one embracing a loop and the other a locking-plate, said plate being provided on its outer margin with a rearwardly-opening notch adapted to engage the end of said loop and at its inner margin with a projection which is adapted to be interlocked with a projection carried by the other member, one of the said projections being spring-pressed, to permit said members to be locked and unlocked.

2. The combination with two interlocking members one embracing a loop and the other a locking-plate, said plate being provided on its outer margin with a rearwardly-opening notch adapted to engage the end of said loop and at its inner margin with a projection which is adapted to be interlocked with a projection carried by the other member, one of said projections being spring-pressed to permit said members to be locked and unlocked, said members having abutting parts which are brought into contact when said members are locked to prevent said members being moved to past their locking positions.

3. The combination with two interlocking members one embracing a loop and the other a locking-plate adapted to enter said loop, said locking-plate being made of such width as to engage both side members of the loop, said plate being provided (a) its outer margin with a rearwardly-opening notch which engages the end of the loop and at its inner margin with a projection which is adapted for interlocking engagement with a projection carried by the other member, one of said projections being spring-pressed to permit said members to be locked and unlocked.

4. The combination with two interlocking members one embracing a loop and the other a locking-plate adapted to enter said loop, said locking-plate being made of such width as to engage both side members of the loop, said locking-plate being provided on its outer margin with a rearwardly-opening notch which engages the end of the loop and at its inner margin with a projection adapted for interlocking engagement with a projection carried by the other member, one of said interlocking parts being spring-pressed to permit the members to be locked and unlocked, and parts on said members which are in contact when said members are locked to prevent said members being moved beyond their locking positions.

5. The combination with two interlocking members one embracing a loop and the other a locking-plate adapted to enter said loop, said plate being provided on its outer margin with a rearwardly-opening notch adapted to engage the end of the loop, one of said parts being provided with a barrel, an endwise-reciprocating spring-pressed plunger riding in said barrel, and a spring interposed between the outer end of said plunger and the end of the barrel, and the other part being provided with a shoulder adapted for interlocking engagement with the plunger.

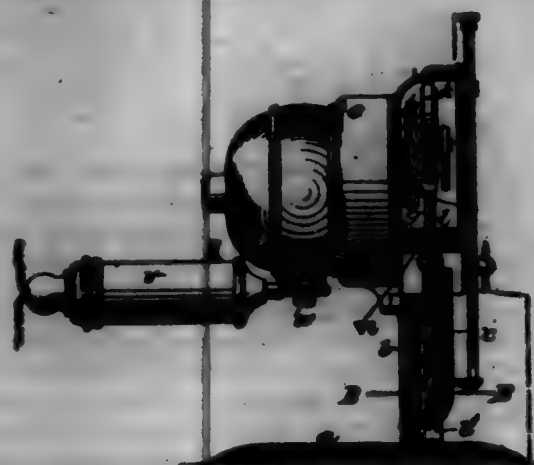
6. The combination with two interlocking members one embracing a loop and the other a locking-plate adapted to enter said loop, said plate being provided on its outer margin with a rearwardly-opening notch adapted to engage the end of the loop, one of said parts being provided with a barrel, an endwise-reciprocating spring-pressed plunger in said barrel and a spring interposed between the outer end of said plunger and the end of the barrel, and the other part being provided with a shoulder adapted to have interlocking engagement with the plunger, and means for moving said plunger endwise comprising a pin which enters a transverse aperture in said plunger and extends outwardly through a slot in the wall of the barrel.

7. The combination with two interlocking members one embracing a loop and the other a locking-plate, said plate being provided in its outer margin with a rearwardly-opening notch which engages the outer end of the loop, and a spring-pressed plunger on the loop member the inner end of which enters said loop, said locking-plate being provided on its inner margin with a shoulder adapted to engage the plunger to hold the members in their locked position.

699,899. CLASH-GUTTER. IRVING LAMM, New York, N. Y. Filed Nov. 11, 1901. Serial No. 81,707. (No model.)

Claim.—1. A dash-cutter comprising a reliable base, a standard spring from the base, a cam-structure supported on the standard and including a motor for driving the shaft, a knife, a guide for holding the knife against lateral vibration during its reciprocating movement and opening through the walls of the guide, the bottoms of said openings having

an upward and inward inclination toward the opposite sides of the knife for relieving the knife from clogging material, substantially as set forth.



2. The combination with the knife having its upper end perforated, of a plunger or connecting-rod provided with dovetail-pieces arranged to enter the perforations in the knife and a removable clamping-piece under the control of a screw for locking the knife to the plunger, substantially as set forth.

3. The combination with a knife having its upper end perforated and notched, of a plunger provided with pins arranged to enter the perforations in the upper end of the said knife, a screw adapted to enter the notch in said knife and a movable clamping-piece under the control of the screw for locking the parts in assembled adjustment, substantially as set forth.

4. The combination with a knife having its upper end perforated and notched, of a plunger provided with pins arranged to enter the perforations in the knife, a movable clamping-piece and a screw provided in said movable clamping-piece in position to engage the notch in the knife for holding the parts in assembled adjustment, substantially as set forth.

5. The combination with a knife having its upper end perforated and notched, of a plunger having its lower end perforated, a movable clamping-piece provided with pins arranged to move together with the pins into and out of engagement with the perforations in the knife and a clamping-screw provided to said movable clamping-piece and engaged with the plunger for locking and releasing the parts, substantially as set forth.

6. A dash-cutter comprising a reliable base, a standard spring therefrom, a casing supported on said standard, said casing being divided into compartments, one of said compartments serving to house an electric motor and another of said compartments containing therein an eccentric, a gear-wheel fixed to rotate with the eccentric, a pinion on the motor-shaft in engagement with said gear-wheel, an eccentric-clip engaged with the eccentric and a plunger connected with said clip and extending through the bottom of the casing, the latter serving as a guide for the plunger, a knife attached to the lower end of the plunger and having a reciprocating movement along said spring standard and a handle, connected with the casing for manipulating the cutter, substantially as set forth.

699,400. SPRING-POST FOR MOTOYS SEATS OR HANDS. BAKER GREEN & LLOYD, Chicago, Ill. Filed Dec. 9, 1901. Serial No. 85,188. (No model.)

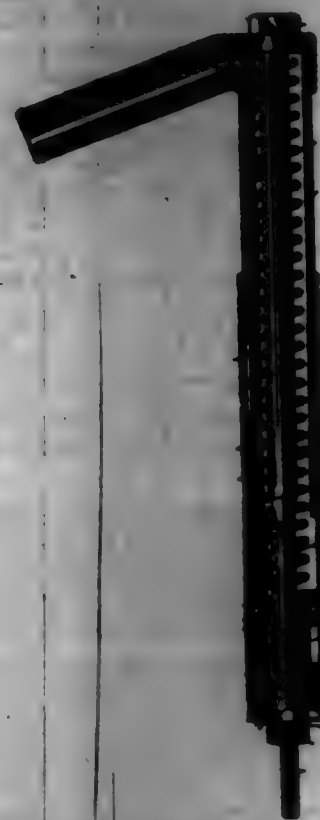
Claim.—1. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a coupling-rod limiting the longitudinal expansion of said post, an internal expander-peg, a screw threaded therein to raise and lower said plug, means for operating said screw by rotation of said coupling-rod, and means for limiting the movement of said screw to that of rotation only.

2. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a coupling-rod therein to limit the distance of longitudinal expansion, an expander-peg, a screw threaded therein to raise and lower said plug, internal means for rotating said rod, connecting means between said rod and screw to rotate said screw, and means for limiting the movement of said screw to that of rotation only.

3. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a coupling-rod limiting the longitudinal expansion of said post, an expander-peg, a screw threaded therein to operate said plug, external means for rotating said coupling-rod, connecting means between said rod and screw to rotate said screw, means for limiting the movement of said screw to that of rotation only, and means for varying the resiliency of said spring.

4. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a coupling-rod limiting the longitudinal expansion of said post, a screw-controlled, expander-peg operable by rotation of said coupling-rod, and connecting means between said rod and screw for varying the resiliency of said spring.

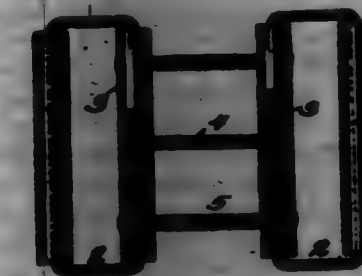
5. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a screw-controlled, internal expander-peg, a coupling-rod limiting the longitudinal expansion of said post, connecting means between said screw and rod to operate said screw by rotation of said rod, and means for varying the length of said coupler to increase or diminish the resiliency of said spring.



6. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of a coupling-rod limiting the longitudinal expansion of said post, an expander-peg, a screw threaded therein to operate said plug, external means for rotating said coupling-rod, connecting means between said rod and screw to rotate said screw, means for limiting the movement of said screw to that of rotation only, and means for varying the length of said coupler to increase or diminish the resiliency of said spring.

7. In a spring-post for bicycles, the combination with a longitudinally-elastic, tubular part, of internal expander-peg, means for preventing rotation of said plug, a screw threaded therein to raise and lower said plug, means for limiting the movement of said screw to that of rotation only, a coupling-rod limiting the longitudinal expansion of said post, said rod being freely slidable longitudinally through said screw and rotatable to operate said screw, and means for varying the length of said coupling-rod.

699,401. REINFORCING DEVICE. WILLIAM F. LOYD, East Orange, N. J. Filed Feb. 6, 1902. Serial No. 85,571. (No model.)



Claim.—1. An anchor comprising two parts each having a handle, the two parts having an inextensible swiveling connection and also connected by elastic means constructed to afford tensile resistance to the swiveling movement.

2. An anchor comprising two parts each having a handle and a cross-bar connected together, the two cross-bars having a swiveling connection and also connected by elastic means constructed to afford tensile resistance to the swiveling movement.

3. An anchor comprising two parts each having a cross-bar suitably connected together, the two cross-bars having an inextensible swiveling connection and also connected by elastic means constructed to afford tensile resistance to the swiveling movement.

4. An anchor comprising two parts each having a handle, a pivot-pin connecting the two parts together with a swiveling connection, and elastic tension devices also connecting the parts together.

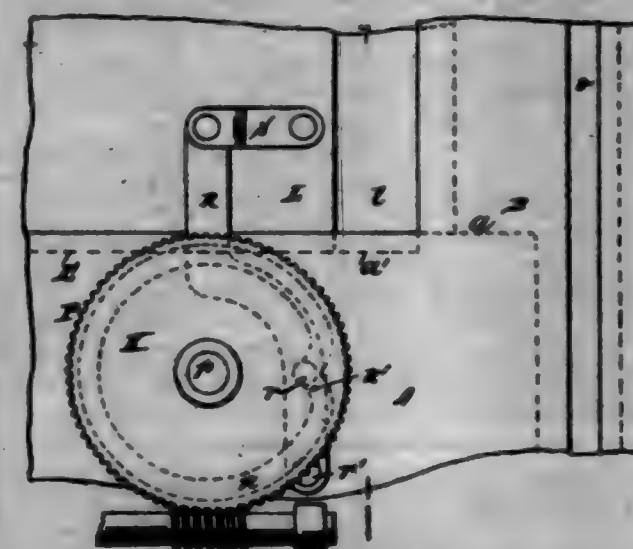
5. An anchor comprising two parts each having a handle and a cross-bar connected together, a pivot-pin connecting the two cross-bars together with a swiveling connection, and elastic tension devices also connecting the cross-bars together.

6. An anchor comprising two parts each having a handle and a cross-bar suitably connected together, a pivot-pin connecting the two cross-bars together with a swiveling connection, and elastic tension devices also connecting the cross-bars together.

7. In an anchor, in combination, two cross-bars, a pivot-pin connecting them together with a swiveling connection, elastic tension devices also connecting the cross-bars together, and two handles, one for each cross-bar, each handle being mounted upon a ball pivotally connected to its corresponding cross-bar.

8. In an anchor, in combination, two cross-bars, a pivot-pin suitably connecting them together with a swiveling connection, elastic tension devices connecting the cross-bars together in proximity to the ends of the cross-bars, and two handles, one for each cross-bar, each handle being axially rotatably mounted upon a ball pivotally connected to its corresponding cross-bar, substantially as set forth.

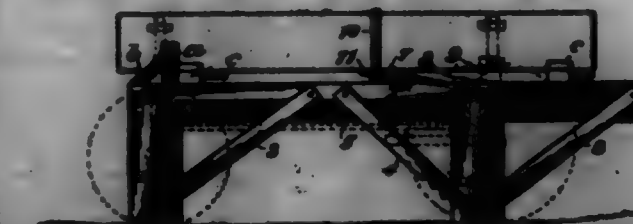
699,402. TYPE-DISTRIBUTING APPARATUS. ADOLF A. LOW and JAMES BRADLEY, Brooklyn, N. Y., assignors to Alden Type Machine Company, New York, N. Y. Filed Aug. 28, 1901. Serial No. 73,380. (No model.)



Claim.—1. In a device for forwarding lines of type, the combination of the vertical type-channel V, the abutment B, the reciprocating line-forwarder L, the rotatable wheel F, the driving-worm W, the cam K, the rocker R and the link S, the whole arranged and operating substantially in the manner and for the purpose set forth.

2. In a device for forwarding lines of type, the combination of the vertical distributer-channel V, formed with the vertical slot, the abutment B, the rotatable wheel F, the driving-worm W, the cam K, the rocker R, the link S, and the reciprocating line-forwarder L, the whole arranged and operating substantially in the manner and for the purpose set forth.

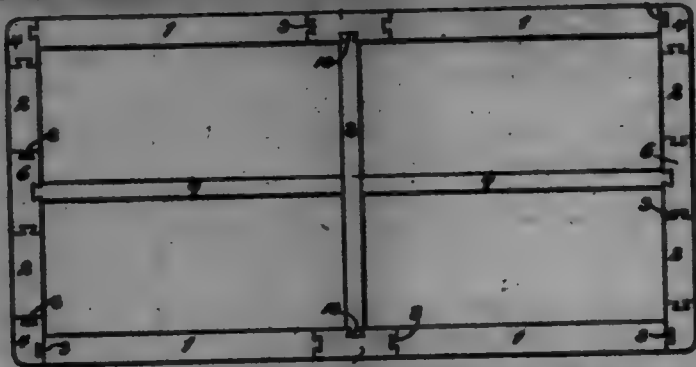
699,403. VEHICLE-BODY RAISER. WILLIAM HARRIS, Reed City, Mich. Filed July 28, 1901. Serial No. 78,388. (No model.)



Claim.—In a wagon-body lifter a reliable supporting-frame, movable beams, links connecting the movable beams to the supporting-frame bottom projecting from the beams, supporting-arms extending from one beam to the other, the ends of one of said arms engaging the bottom, beams carried by a wagon-body and embracing the tops of a wagon-body whereby the movement of the raising-gear in either direction is communicated to the body.

699,404. FREIGHTS CHAIR. SUMNER S. McNEILL, Chicago, Ill.; Anna S. McNeill, administratrix of said Sumner S. McNeill, deceased, assignors of one-half to Jacob P. Repp, Chicago, Ill. Filed Nov. 2, 1900. Serial No. 86,718. (No model.)

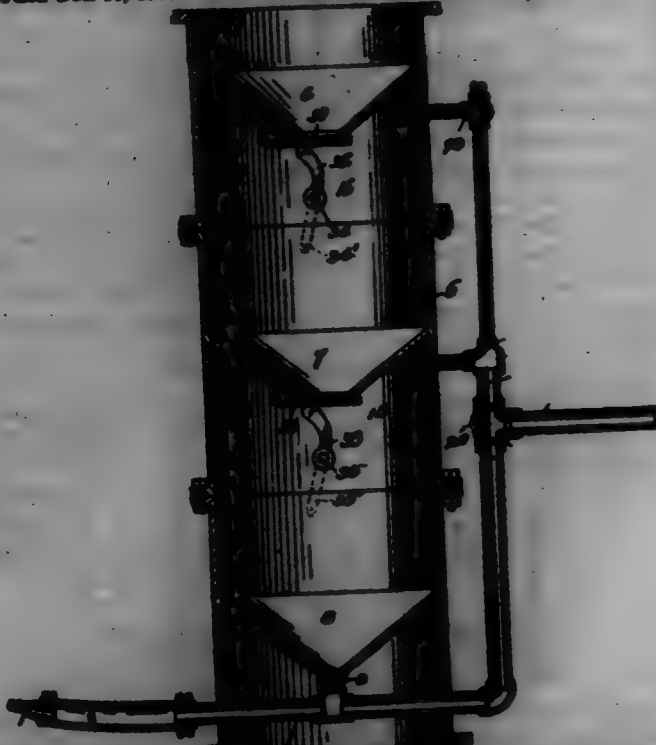
Claim.—1. A printer's chase comprising the corner-pieces, and the detachable side and end bars connecting said corner-pieces and forming therewith a rigid rectangular frame; said corner-pieces and bars being separable only when oppositely moved transversely to a plane extending through all of said sections, and each of said corner-pieces having one of its ends for attachment to said bars further removed from the corner than its other end for attachment to said bars, substantially as described.



2. A printer's chase comprising the corner-pieces, and the detachable side and end bars connecting said corner-pieces and forming therewith a rigid rectangular frame; said corner-pieces and bars being separable only when oppositely moved transversely to a plane extending through all of said sections; said bars having all of their attaching ends of uniform shape and size, and said corner-pieces each having their attaching parts formed oppositely to said attaching ends and adapted for receiving and securing any of said attaching ends and each of said corner-pieces having one of its attaching parts located further from the corner than its other attaching part, substantially as described.

3. A printer's chase comprising the corner-pieces, and the detachable side and end bars connecting said corner-pieces and forming therewith a rigid rectangular frame; said corner-pieces and bars being separable only when oppositely moved transversely to a plane extending through all of said sections; said bars having at each end a dovetail in the form of a truncated wedge with trapezoidal base, and said corner-pieces having mortises fitting said dovetails, and all of said dovetails being of uniform size and shape, and adapted to similarly fit in any of said mortises, each of said corner-pieces having one of its mortises located further from the corner than its other mortise, substantially as described.

699,405. SAND-MASS. RAY E. NEWBORN, Columbus, Ohio.
Filed Dec. 10, 1901. Serial No. 28,300. (No model.)



Claim.—1. A sand-blast comprising a casing, frusto-conical partitions arranged within the casing at different points and forming upper and lower sand-chambers, a blast-pipe connected with the lowermost partition, valves arranged at the other partitions, an air-supply pipe connected with the blast-pipe and with the individual chambers, and means for connecting the chambers and the air-supply pipe individually or simultaneously, substantially as described.

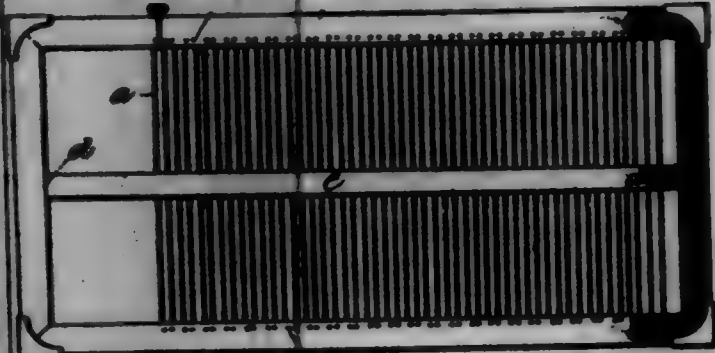
2. A sand-blast comprising a casing, upper, lower and intermediate frusto-conical partitions arranged within the casing and forming upper and lower sand-chambers, a blast-pipe connected with the lower partition,

valves arranged at the other partitions, shafts provided with rockers for engaging the valves and having exterior means for operating them, an air-supply pipe connected with the blast-pipe and with the individual chambers, and means for connecting the chambers and the air-supply pipe individually or simultaneously, substantially as described.

3. A sand-blast comprising a casing having upper and lower sand-chambers, a blast-pipe connected with the lower chamber to receive sand therefrom, an air-supply pipe connected with the blast-pipe and with the individual chambers, and means for connecting the chambers and pipe individually or simultaneously with the air-pipe.

4. A sand-blast comprising a casing having upper and lower sand-chambers, a blast-pipe connected with the lower chamber to receive sand therefrom, an air-supply pipe, a pipe leading from the air-supply pipe to the blast-pipe, a pipe connecting the air-supply pipe with the lower chamber, a pipe connecting the air-supply pipe with the upper chamber, a valve for connecting the receiving-chamber or upper chamber with its pipe to equalize pressure in the chambers, and a valve for connecting the pipes of the chambers or the pipe of the blast-pipe individually or simultaneously with the air-supply pipe.

699,406. VOTE-COUNTING FRAME. THOMAS C. OGDENSTY,
Worcester, Mass. Filed Feb. 20, 1902. Serial No. 25,725. (No model.)



Claim.—1. A vote-counting frame, consisting of a frame proper of a width not less than the length of the ballot, and lines or cords secured to and extending across between the sides of the frame parallel with one another and at intervals apart about equal to the width of the *m* or vote-mark column of the ballot, substantially as and for the purposes hereinbefore set forth.

2. A vote-counting frame consisting of a frame proper of a width not less than the length of the ballot, lines or cords extending across between and secured to the sides of the frame parallel with one another and at intervals apart about equal to the width of the *m* or vote-mark column of the ballot, mortises in the interior opposite edges of the ends of the frame, and two rules or blading-strips adapted to be sprung into said mortises, substantially as and for the purposes hereinbefore set forth.

699,407. MAIL-SERVICE APPARATUS. GEORGE A. OWEN,
Springfield, Mass. Filed Mar. 12, 1900. Serial No. 732,002. (No model.)

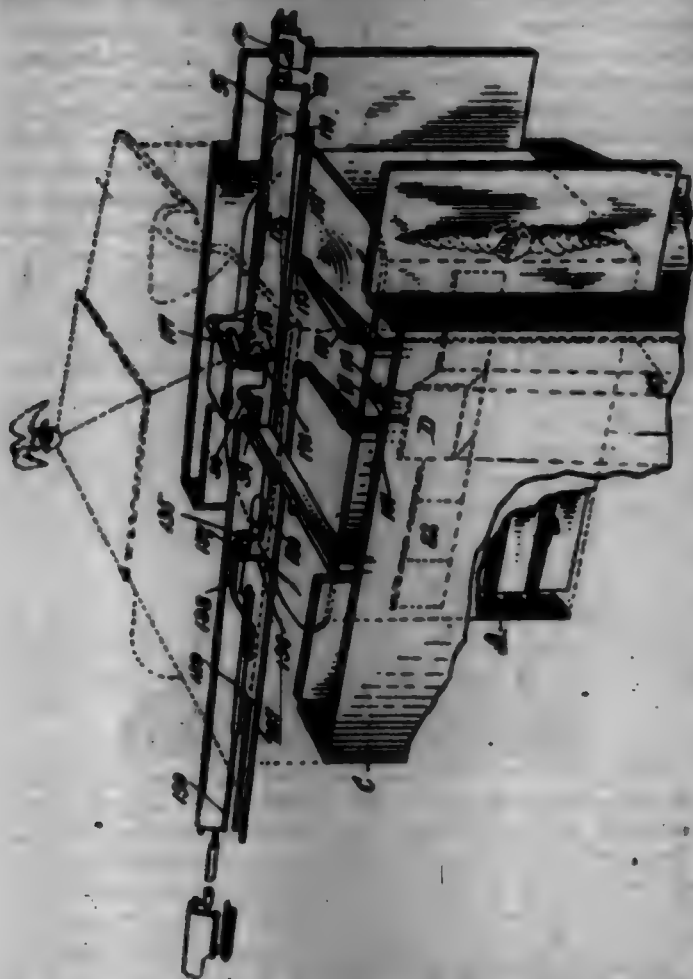
Claim.—1. In a mail-service apparatus, in combination with the post-office having mail-receiving chutes with upwardly-opening ends, the conveyor for delivering sorted mail into said chutes, of an elevator having series of compartments to which the chutes respectively lead, adapted to be elevated in a building, and receiving chutes or passages into which the sorted mail from the said elevator is respectively delivered.

2. In a mail-service apparatus in a building, the series of chutes all having adjacent series of receiving-mouths at an upper floor in the building, the several series of such successively being downwardly extended to different floors as described, in combination with an elevator having series of mail-compartments corresponding to the said series of chutes and means for elevating said elevator for delivery opposite the mouths of the several chutes.

3. In a mail-service apparatus, a building having a series of chutes all having adjacent receiving-mouths at an upper part of the building, the several series of such leading downwardly to the lower stories and having lock-boxes at their lower terminals, in combination with the elevator normally located at a lower part of the building and adapted to be elevated to a position opposite the mouths of the several series of chutes, and having compartments corresponding in number and arrangement to as to register with said mouths, substantially as described.

4. In a mail-service apparatus, a building having a series of chutes all having adjacent receiving-mouths at an upper part of the building, the chutes of the several series leading downwardly to the successively lower stories and extended to within different apartments in the building as described, in combination with the elevator having the several series of mail-receiving compartments, normally located at a lower part of the building

and adapted to be elevated to a position opposite the mouths of the several series of chutes, substantially as described.



5. In a mail-service apparatus, in combination with the post-station having mail-receiving chutes with upwardly-opening ends, the conveyor for delivering assorted mail into said chutes, of an elevator having series of compartments to which the chutes respectively lead, adapted to be elevated in a building, receiving chutes or passages into which the assorted mail from the said elevator is respectively delivered, and means operated by the movable conveyor for elevating said elevator.

6. The combination with the elevator and means by which it is elevated in a building, of the series of chutes 182 having open mouths at the upper ends thereof corresponding to compartments which are provided in said elevator, said chutes extending from their mouths in a downwardly-inclined direction, and terminating in letter-boxes at their lower ends.

7. In a mail-service apparatus, of the character described, the combination with the elevator having the series of compartments 164 the partitions of which are obliquely arranged, of a series of chutes in a building having their upper ends open and in arrangement to register with that of said compartment, said chutes being extended from their mouths inclining downward and continued to within separate apartments in the building, substantially as described.

8. In a mail-service apparatus, in combination with the post-station having the series of chutes 182, the elevator 165 having compartments to which said chutes lead, the trackway and the conveyor movable thereon, an elevating-cable connected to said elevator 165, a movable part longitudinally sliding on the trackway to which said cable is connected and provided with an abutment, a movable device provided on the elevator adapted to engage said abutment, and means for tripping said engaging device, after a given movement of the elevator in its forward direction sufficient for elevating the said elevator, substantially as described.

9. In a mail-service apparatus of the character described, the combination with the post-station having series of upwardly-open chutes, the trackway 155 having the cam or incline 179 and having, longitudinally movable along said trackway, the sleeve 175 provided with the stud 176, the elevating flexible connection or cable 167 connected to said sleeve, the conveyor provided with the movable tripping device 177 adapted to engage said stud 176 and having the member 178 to be impinged against by the said incline 179, substantially as described and shown.

10. The combination with a building having several series of chutes 182, all having openings adjacent each other at another part of the building, said chutes leading downwardly from said opening for conducting respective mail-matter to be introduced therein to different locations in the building, a well or vertical passage-way in the building extending from the lower portion thereof below the ground upwardly to the upper ends of said chutes, the elevator normally located in the lower end of said well

having the several series of compartments therein, opening both outwardly and inwardly, a post-station having chutes in arrangement as described located outside of the building adjacent thereto, said chutes extending downwardly inclined and terminating opposite and next to the outwardly-opening compartment of said receptacle, and means for elevating the latter, for the purpose set forth.

11. In combination with a building having a mailing-chute, extending from upper floors downwardly to the lower part of the building and thence continued downwardly inclined outside of and below the building, a mail-receiving box into which said chute delivers, a post-station thereabove, a trackway and a conveyor movable along it, and means actuated by the conveyor for elevating the said mail-receiving box into the upper part of the post-station whereby it may deliver its contents into the said conveyor, substantially as described.

12. A building having several series of mail-chutes provided at their upper ends which are located in proximity to each other at an upper part of the building with receiving-openings, said chutes extended downwardly to different floors in the building, substantially as described.

13. A building having several series of mail-chutes provided at their upper ends which are located in proximity to each other at an upper part of the building, with mail-receiving openings, said chutes extended downwardly to different stories in the building, and one or more thereof entering for the delivery of the mail into respective apartments in said building, substantially as described.

14. In a mail-service system of the character described, in combination, a post-station, the letter-box D thereunder, a mailing-chute in the building leading downwardly and discharging into said letter-box, the suspension-cable for the box, the trackway, the movable part or sleeve 129 to which the cable is connected, the conveyor having an abutment, the device on said sleeve adapted to be engaged by the abutment of the conveyor, and means for automatically disengaging the said parts, substantially as and for the purposes set forth.

15. The combination with a post-station, the letter-box D and the trackway, of a building having a chute for conveying mail from the building into said box, of the conveyor movable along said trackway past the post-station, and means operated by the conveyor for bringing said box in proximity thereto, whereby the box may be discharged of its contents into the conveyor.

16. In a mail-service system, in a building, the series of chutes 182 having receiving-mouths located at an upper part of the building, in combination with the elevator having the series of mail-compartments corresponding to said chutes, a movable wall for temporarily closing the compartments at their ends toward said chutes in the building, means for raising and lowering the elevator, and means for operating the movable wall for the elevator, as and for the purpose set forth.

17. In a mail-service system, the combination with the building having the hoistway and chutes 182, of the elevator having the compartments substantially as described, and a curtain, movable across the side of the elevator which is toward said chutes, for opening and closing the compartments, means operating on the descent of the elevator for drawing the curtain across and closing the compartments, and means operative on the raising of the elevator for withdrawing said curtain leaving the compartments open for mail-delivery discharge into the chutes.

18. In a mail-service system of the character described, the combination with the building, having the chutes 182 and the hoistway, of the elevator 165 having the compartment 164 and provided with the curtain 205, the spring-roller 206 therefor, and the shaft or rod 208 provided to the curtain and having the catch members 209 and the studs 210, the abutments 213 and 214 located in the hoistway and the notches or shoulders 212 being provided in the conveyor, substantially as and for the purposes set forth.

19. The combination with the building having series of chutes 182 with a receiving-mouth located at an upper part of the building, the hoistway and the post-station chutes having their discharging ends terminating in the hoistway at a lower part of the latter, of the elevator 165 having the compartment 164, means for raising and lowering the elevator, and an adjustable stop for limiting the descent of the elevator whereby its lower position may be such as to insure its compartments matching with the discharging-mouths of the post-station chutes, substantially as shown.

699,408. MAIL-SERVICE APPARATUS. GEORGE A. OWEN, Springfield, Mass. Filed Mar. 15, 1898. Serial No. 104,354 (B-model.)

Claim.—1. In a mail-service, the combination of a hoistway, a carrier movable therein; a plate secured to the carrier and having an inclined deflecting portion, a clamping member pivoted to the plate transversely of the carrier; means for retaining the clamping member in its closed position; an arm on the clamping member extending transversely to the carrier; and means located in the hoistway for tripping said arm and thereby opening the clamping-member.

2. In a mail-service, the combination of a hoistway, a carrier mov-

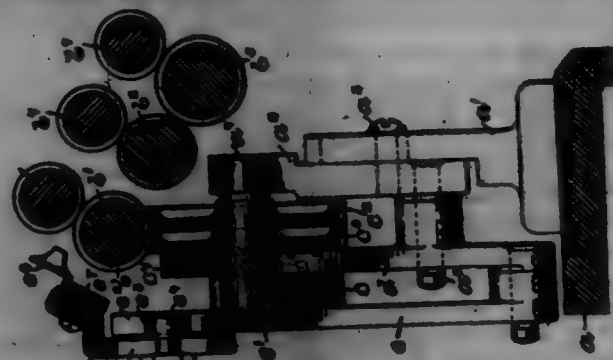
able therein; the plate, 24, secured to the carrier and having the inclined deflecting portion 25; the clamping member, 26, pivoted to the plate, 24, transversely of the carrier; means for retaining the clamping member in its closed position; the arm, 23, on the clamping member extending transversely to the carrier; and means located in the highway for tripping said arm and thereby opening the clamping member.



2. In a mail-carrier, a building having the highway, wheels 20 and 22 therein and an endless flexible carrier around said wheels, later-hold-on mounted on said flexible carrier, and the journal-shaft 54 on which the said wheel 20 is mounted, the rock-shaft 50 and means for rocking it, and connection between said rock-shaft and said shaft 54 for imparting from the rocking movement of the former a step-by-step motion to the latter, for the purpose set forth.

4. In a mail-carrier in combination, the highway having the upper and lower wheels 29 and 30, the shaft 54 on which the latter is fixed, the rock-shaft 50 having the operating-lever 49 and the lever-arm 52, the drum 53 provided with the ratchet-teeth and the reversing-spring 57, and the strap 51 secured to said arm 52 and having a winding engagement around said drum, and the spring-pawl mounted on the wheel 20, as shown.

699,409. TRAVERSE-MOTION FOR SPINNING-MACHINES. ORRIS L. OWEN, Whitinsville, Mass., assigner to The Whitin Machine Works, Incorporated, Whitinsville, Mass. Filed Mar. 20, 1901. Serial No. 61,902. (No model.)



Claim.—1. A traverse-motion for spinning-machines, consisting in the combination of a pair of gears differing in the number of their teeth, and each having a cam connected therewith and driven thereby, a suitable gear for driving said differential gears, an oscillating lever rocking on a stationary fulcrum intermediate its ends, one end of said lever being acted upon by one of said cams to oscillate the lever, an arm pivoted to the other end of said lever so as to be swung thereby and acted upon by the other said cam to oscillate said arm, and a traverse-rod mounted on said swinging arm, substantially as and for the purpose set forth.

2. A traverse-motion for spinning-machines, consisting in the combination of a pair of gears differing in the number of their teeth, a suitable gear for driving said differential gears, a fixed stud and a sleeve turning thereon, said sleeve being provided with a cam and having one of said differential gears fast on said sleeve, the other said gear being loose on said sleeve and provided with a cam, an oscillating lever acted upon by the cam controlled by said loose gear, a swinging arm pivoted to said oscillating lever and acted upon by the cam controlled by said fast gear, and a traverse-rod mounted upon said swinging arm, substantially as and for the purpose set forth.

3. A traverse-motion for spinning-machines, consisting in the combination of a pair of gears differing in the number of their teeth, a set of drawing-rolls having the back one thereof provided with a driving-worm for actuating the said differential gears, a fixed stud and a sleeve turning thereon, said sleeve being provided with a cam and having one of said differential gears fast on said sleeve, the other said gear being loose on said sleeve and provided with a cam, an oscillating lever acted upon by the cam controlled by said loose gear, a swinging arm pivoted to said oscillating lever and acted upon by the cam controlled by said fast gear, and a traverse-rod mounted upon said swinging arm, substantially as and for the purpose set forth.

a traverse-rod mounted upon said swinging arm, substantially as and for the purpose set forth.

4. A traverse-motion for spinning-machines, consisting in the combination of a support *a* provided with a fixed stud *a'*, a loose sleeve *c* mounted upon said stud and provided with a cam *c*, a pair of differential gears *d* and *e*, the former mounted fast upon said sleeve and the latter mounted loosely thereon and provided with a cam *e'*, the said pair of gears simultaneously driven by the same means, an oscillating lever *d* rocking upon a pivot *f* and having its upper end engaged by the said cam *c* so as to oscillate the lever upon its pivot, a swinging arm *g* pivoted to the lower end of said lever *d*, and having its upper end engaged and actuated by the said cam *e'* for swinging it upon its pivot, and a traverse-rod carried by said swinging arm, substantially as and for the purpose set forth.

699,410. HAMMOCK. RALPH E. PARKER, Middletown, Conn. Filed May 4, 1901. Serial No. 60,737. (No model.)



Claim.—1. The combination with a hammock-spreader and hammock, the latter being provided with a pocket for the reception of the spreader, the said pocket having end walls adapted to conceal the ends of the spreader, of a clip for binding the spreader to the body of the hammock and to the wall of the pocket whereby the spreader is held in position with relation to the body of the hammock and is prevented from waving its end through the wall of the pocket under the lateral strain of the hammock, substantially as set forth.

2. The combination with a hammock-spreader and hammock, of a clip arranged to embrace the spreader and lock the hammock-body between it and the spreader and a suspension-rod secured between the clip and spreader, substantially as set forth.

3. The combination with a hammock having a suspension-rod extending at its ends down to the body of the hammock, the said hammock-body being provided with a spreader-pocket at its end, of a spreader located within the pocket at the end of the hammock and a clip embracing the spreader, the end of the cord and the wall of the pocket for locking the wall of the pocket and the cord to the spreader, substantially as set forth.

699,411. STANCHION. EDWIN FRISVOLD, Arlington, Mass. Filed May 17, 1900. Serial No. 17,005. (No model.)



Claim.—1. The combination with a suspended stanchion having a movable bar, of a link connecting the lower end of said stanchion with a fixed part of the barn structure.

2. A stanchion, a link connecting its lower end with a fixed part of the barn structure, and a secondary link affording a limiting-stop for the stanchion in its extreme position.

3. A stanchion, a stop on the fixed part of the barn structure, a link connecting the lower end of said stanchion with said fixed part, and means carried by the stanchion and under the control of the stop to lift the link and permit the lower end of the stanchion to slide forward as the cow is lying down or getting up.

4. The combination with a stanchion having in its lower end a sliding pin, of a link connecting said pin with a fixed part of the barn structure, a plurality of levers for lifting said pin and a suitable stop for said link.

5. A stanchion having at its upper end a pivoted bar-guiding loop having its outer end made substantially square, and a stationary holder to receive the upper end of the bar.

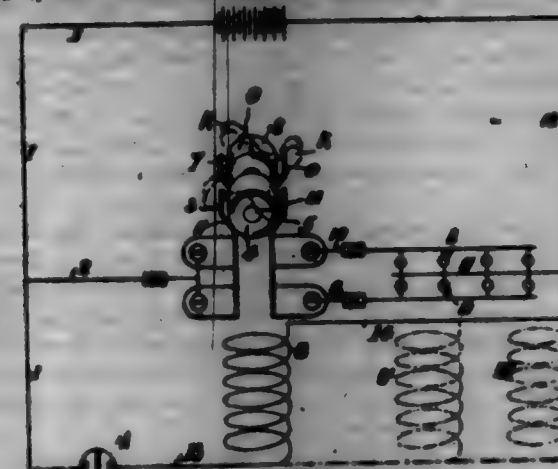
6. A pivoted stanchion having a loose bar rounded at its upper end and combined with a link connected at one end with one side of said movable bar, and a longer mating link or lever connected with the head of the stanchion.

7. A pivoted stanchion having a movable bar rounded at its upper end, combined with a link curved in two directions and connected at one end with the upper end of said bar, and at its opposite end with a curved end of a mating link or lever pivotedly mounted upon the head of the stanchion.

8. A pivoted stanchion having a movable bar rounded at its upper end, combined with a link curved in two directions and connected at one end with the upper end of said bar, and at its opposite end with a curved end of a mating link or lever pivotedly mounted upon the head of the stanchion, said mating link presenting the same curve as the link uniting it with the loose bar.

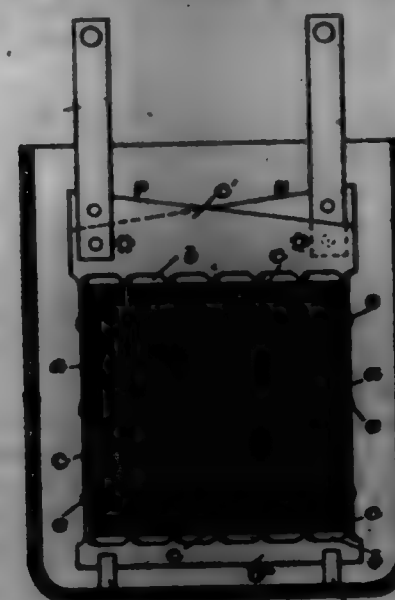
9. A pivoted stanchion having a connected movable bar, a curved link connected with the upper end of said movable bar, a curved mating link or lever pivotedly mounted upon the head of said stanchion, the point of connection of said link with the upper end of said bar being at the rear of a line drawn from the point of connection of said link with its longer mating link or lever and the connection of said longer mating link or lever with the stanchion.

699,412. DEVICE FOR OPERATING ELECTRIC LIGHTS IN RAILWAY-CARRIAGES FROM THE GUARD'S VAN. EDWIN J. FRISVOLD, Boston, Mass., and ARTHUR D. GILL, Northampton Park, England. Filed Dec. 6, 1900. Serial No. 730,000. (No model.)



Claim.—The combination with the main electric circuit, a plurality of translating devices each arranged in a branch of said main circuit, and a plurality of switches each arranged in and controlling one of said branches, of an electromagnet, a circuit-circuit in which said electromagnet is arranged, a hand-crank arranged in said circuit-circuit and by which the current is controlled which actuates said electromagnet, and mechanism operated by said electromagnet to move said switches to successively close said branches, and also operated by said electromagnet to move said switches to successively open said branches, substantially as set forth.

699,413. STORAGE BATTERY. JAMES E. KESSE, Boston, Mass., assigner of two-thirds to LEON WILLIAM DORRIS and LUCYLYN D. LATHROP, Gloucester, Mass. Filed Aug. 6, 1901. Serial No. 70,002. (No model.)



Claim.—1. A storage battery structure consisting of superposed layers of lead-fall having numerous perforated indentations each layer being entirely coated over both sides with active material.

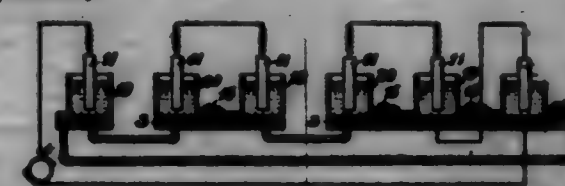
2. A storage-battery element comprising a lead frame, superposed layers of perforated lead-fall filling the frame, and one or more lead cases passing through the frame and the lead-fall layers.

3. A storage-battery element comprising a single-piece lead frame subdivided into sections by twisted bars between openings and superposed layers of perforated and pitted lead-fall occupying said openings.

4. A storage-battery element comprising a single-piece lead frame subdivided into sections by twisted bars between openings, superposed layers of perforated and pitted lead-fall occupying said openings, and lead rivets passing through the said bars and the lead-fall, substantially as described.

5. A storage-battery element comprising a lead frame subdivided by cross-bars, superposed layers of lead-fall occupying the subdivisions of the frame, and one or more solid-lead cases extending through the frame, cross-bars and the lead-fall layers.

699,414. METHOD OF TREATING SOLUTIONS OF SALTS. CHAS. J. KINN, Philadelphia, Pa. Filed Aug. 1, 1901. Serial No. 70,000. (No specimen.)



Claim.—1. The method of treating a liquid electrolyte, which consists in electrolyzing the same in a plurality of cells having mercury cathodes and connected in series and subjecting the same mercury, as anodes, to electrochemical action in a few number of cells connected in series.

2. The method of treating a liquid electrolyte, which consists in electrolyzing it in a number of cells, in series, in which mercury constitutes the cathodes, subjecting the same mercury, as anodes, to electrochemical action in a few number of cells, in series, and transferring the mercury from cell to cell throughout the series.

3. The method of treating a liquid electrolyte, which consists in subjecting it to the action of an anode of electro-negative material and a moving disk-shaped metal cathode coated with mercury in a stationary reducing-cell, in series with a stationary oxidizing-cell and a body of mercury moving freely between said cells.

4. The method of treating a liquid electrolyte, which consists in subjecting the same to the action of an electric current in a plurality of reducing-cells containing a mercury cathode, in series with a few number of oxidizing-cells containing mercury and an electrolyte, transferring the amalgam produced in each reducing-cell to the next oxidizing-cell uninterruptedly and transferring the amalgam from each oxidizing-cell to the next reducing-cell in the series in separated portions.

5. The method of treating a solution of sodium chloride to produce sodium hydroxide and chlorine which consists in subjecting the solution to the action of an electric current in a plurality of reducing-cells containing a mercury cathode, in series with a few number of oxidizing-cells, transferring the resulting amalgam, and with it the electric current, from each reducing-cell to the next oxidizing-cell in the series and transferring the amalgam from each oxidizing-cell to the next reducing-cell in the series without thereby transferring the electric current.

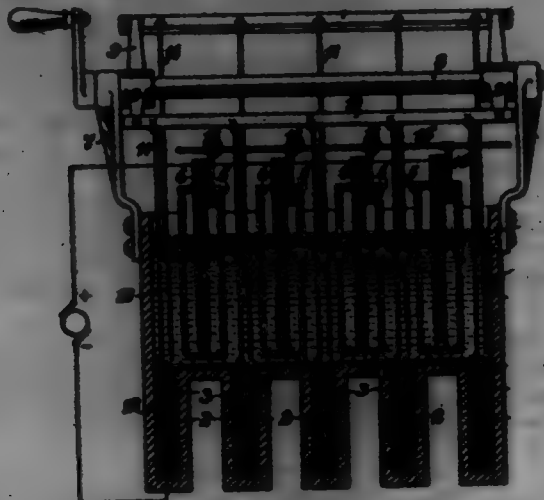
6. The method of producing sodium hydroxide and chlorine from an aqueous solution of sodium chloride which consists in subjecting the solution to electrolytic action by means of mercury cathodes and anodes of electro-negative material in a plurality of reducing-cells, in series, subjecting the resulting amalgam to electrolytic action in a few number of oxidizing-cells, in series, and transferring the resulting amalgam from each cell to the next in the series.

699,415. ELECTROLYTIC APPARATUS. CHAS. J. KINN, Philadelphia, Pa. Filed Aug. 1, 1901. Serial No. 70,007. (No model.)

Claim.—1. In an electrolytic apparatus, a receptacle or compartment containing a body of mercury and a body of decomposable liquid superposed thereon, in combination with one or more electrodes of electro-negative material and one or more disk-shaped metal electrodes and means for moving said metal electrodes into and out of said body of mercury and within said receptacle or compartment to effect a distribution of mercury over the same.

2. In an electrolytic apparatus, the combination with a receptacle or compartment containing a decomposable liquid and a body of mercury, of one or more electrodes of electro-negative material, one or more disk-shaped metal electrodes and means for moving the metal electrode or

electrodes within said receptacle or compartment, into and out of the body of mercury and through the liquid to be decomposed.



3. In an electrolytic apparatus, the combination with a receptacle or compartment having a body of mercury and a body of superposed electrolyte, of a plurality of electrodes of electronegative material projecting into the electrolyte, a plurality of disk-shaped metal electrodes and means for moving the metal electrodes within said receptacle or compartment, through the electrolyte and into and out of the body of mercury.

4. In an electrolytic apparatus, the combination with a receptacle or compartment having a plurality of pockets containing mercury and a superposed liquid electrolyte, of a plurality of electrodes of electronegative material projecting into the electrolyte, a plurality of metal electrodes located in the electrolyte and alternately disposed with reference to the electronegative electrodes and means whereby the metal electrodes may be moved within said receptacle or compartment, through the electrolyte and into and out of the mercury.

5. In an electrolytic apparatus, the combination with a receptacle having a plurality of open pockets containing mercury and having a body of liquid electrolyte above the mercury, of a plurality of plates of electronegative material projecting into the electrolyte, a plurality of metal disks alternating with the electronegative plates, a shaft on which the disks are mounted and means for rotating the shaft to move the edges of the disks into and through the mercury.

6. In an electrolytic apparatus, the combination with a receptacle having a plurality of open pockets containing mercury and having a body of liquid electrolyte above the mercury, of a plurality of electrodes of electronegative material projecting into the electrolyte, a plurality of metal disks provided with side channels, a shaft on which said disks are mounted and means whereby said shaft may be rotated to move the edges of the disks through the mercury.

7. In an electrolytic apparatus, the combination with a receptacle having a plurality of open pockets containing mercury and having a body of liquid electrolyte above the mercury, of a plurality of electrodes of electronegative material projecting into the electrolyte, a plurality of metal disks provided with side grooves extending from their peripheries toward their centers, a shaft on which said disks are mounted and means whereby said shaft may be rotated to move the edges of the disks through the mercury.

8. In an electrolytic apparatus, the combination with a receptacle having a plurality of open pockets containing mercury and having a body of liquid electrolyte above the mercury, of a plurality of electrodes of electronegative material projecting into the electrolyte, a plurality of metal disks provided with curved guides extending from their peripheries toward their centers, a shaft on which said disks are mounted and means whereby said shaft may be rotated to move the edges of the disks through the mercury.

9. In an electrolytic apparatus, the combination with a reducing-cell and an oxidizing-cell each of which is provided with a body of mercury, a superposed body of electrolyte, one or more stationary electrodes of electronegative material and one or more movable metal electrodes, of means for transferring the amalgam from the one cell to the other without thereby effecting a transfer of electric current.

10. In an electrolytic apparatus, the combination with a reducing-cell and an oxidizing-cell each of which is provided with a body of mercury, a superposed body of liquid electrolyte, one or more electrodes of electronegative material, one or more metal electrodes, of a transfer device and means for rotating the metal electrodes in contact with the mercury and the electrolyte and means for operating the transfer device to transfer the resulting amalgam from the one cell to the other without thereby effecting a transfer of electric current.

11. In an electrolytic apparatus, the combination with one or more oxidizing-cells and a greater number of reducing-cells each of which con-

tains mercury, a superposed body of liquid electrolyte, one or more electrodes of electronegative material and one or more metal electrodes, of means for moving the metal electrodes through the electrolyte and the mercury to promote electrolytic action, an uninterrupted channel for the flow of amalgam between each reducing-cell and the next succeeding oxidizing-cell in the series and means for transferring the amalgam progressively from each oxidizing-cell to the next reducing-cell of the series without thereby transferring electric current.

12. In an electrolytic apparatus, the combination with a series of reducing-cells and oxidizing-cells, the former being greater in number than the latter, a single body of mercury located in and between each reducing-cell and the next oxidizing-cell in the series, a liquid electrolyte, one or more stationary electrodes of electronegative material and one or more movable metal electrodes in each cell and a non-conducting device for transferring the amalgam, produced by electrolytic action, from each oxidizing-cell to the next reducing-cell in the series without thereby transferring electrical energy.

13. In an electrolytic apparatus, a receptacle having an external, open channel along at least two of its sides and a plurality of wells in the bottom that communicate at their ends with said channel, a body of mercury in said channel and wells and a body of liquid electrolyte above the mercury, in combination with electrodes of electronegative material and metal electrodes and a cover having a sealing-flange that projects downwardly into the electrolyte.

14. In an electrolytic apparatus, a receptacle having a plurality of channels or wells in its bottom and two outside, open channels with which the ends of the interior channels connect and a cover having a sealing-flange that projects downwardly at a distance from the side walls.

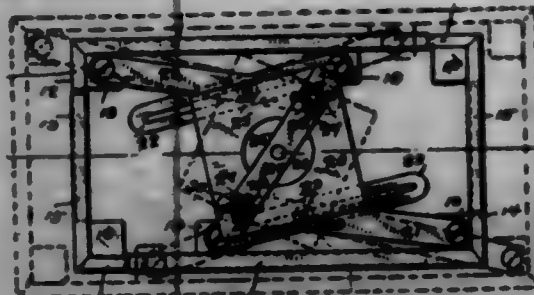
15. In an electrolytic apparatus, the combination with one or more reducing-cells and one or more oxidizing-cells containing mercury and a liquid electrolyte and having external, open channels into which the mercury flows, of a non-conducting wheel having pockets and projecting into the mercury in one channel adjacent to its end wall and means for rotating said wheel to transfer mercury to the adjacent channel in insulated portions.

16. In an electrolytic apparatus, the combination with one or more reducing-cells and one or more oxidizing-cells containing mercury and a superposed electrolyte and having external, open channels into which the mercury flows but from which the electrolyte is excluded, a partition between each oxidizing-cell and the next reducing-cell in the series and a wheel having pockets and projecting into the mercury in each oxidizing-cell adjacent to the partition and means for rotating the wheel to transfer the mercury in insulated portions.

17. In an electrolytic apparatus, a plurality of reducing-cells, and a less number of oxidizing-cells each of which contains mercury and a liquid electrolyte, means for transferring the amalgam produced in the reducing-cells to the next oxidizing-cell in the series and thereby transmitting the electrical energy and means for transferring the amalgam from the oxidizing-cells to the next reducing-cells in series without thereby transferring electrical energy.

18. In an electrolytic apparatus, a plurality of oxidizing-cells and a greater number of reducing-cells each of which contains mercury and a liquid electrolyte, means for transferring the resulting amalgam from each reducing-cell to the next oxidizing-cell in the series as an unbroken mass and means for transferring the amalgam from each oxidizing-cell to the next reducing-cell in the series in insulated parts, thereby avoiding a transfer of the electrical energy.

699,416. ADJUSTABLE FORM FOR PAPER-BOX MACHINES.
CHARLES I. RUSSELL, Bridgeport, Conn. Filed Jan. 30, 1902. Serial No. 91,918. (No model.)



Claim.—1. An adjustable form for box-machines comprising inner and outer side and end parts, and corner-blocks to which they are secured, said inner side and end parts being provided with longitudinal slots, and said outer side and end parts with tongues which are passed through the slots and folded down upon the inner sides of the inner parts.

2. An adjustable form for box-machines comprising inner and outer side and end parts, corner-blocks to which they are secured, said inner side and end parts being provided with longitudinal slots and inwardly-

extending flanges, and said outer side and end parts with tongues which are passed through the slots and folded down upon the inner sides of the inner parts, and with flanges which partly inclose the flanges on the inner parts.

3. An adjustable form for box-machines comprising inner and outer side and end parts, an inner and an outer of said parts being formed integral, corner-blocks to which said parts are secured, the inner side and end parts being provided with longitudinal slots, and the outer side and end parts with tongues which are passed through the slots and folded down upon the inner sides of the inner parts.

4. An adjustable form for paper-box machines comprising inner and outer side and end parts, corner-blocks to which said parts are secured, intermediate blocks secured to the inner side parts, an attaching-block, levers 21 pivoted to opposite sides of the attaching-block and to diagonally opposite corner-blocks, dotted levers pivoted to the intermediate blocks, and screw-pins passing through the dots and engaging levers 21, whereby the side and end parts may be locked at any desired adjustment.

5. An adjustable form for paper-box machines comprising inner and outer side and end parts, means for securing said parts together leaving them free to slide over each other, corner-blocks to which said side and end parts are secured, intermediate blocks secured to the inner side parts, an attaching-block, levers 21 pivoted to opposite sides of the attaching-block and to diagonally opposite corner-blocks, levers 22 pivoted to the intermediate blocks, and means for locking contiguous levers 21 and 22 together and thereby securing the side and end parts at any required adjustment.

6. In an adjustable box-form the combination with inner and outer side and end parts and means for securing them together leaving them free to slide, of an attaching-block, levers 21 pivoted at diagonally opposite corners of the side and end parts and to opposite sides of the attaching-block, levers 22 pivoted to inner side parts and means for locking contiguous levers 21 and 22 together and thereby securing the side and end parts at any required adjustment.

7. In an adjustable box-form the combination with inner and outer side and end parts and means for securing them together leaving them free to slide, of an attaching-block, levers 21 pivoted at diagonally opposite corners of the side and end parts and to opposite sides of the attaching-block, levers 22 pivoted to inner side parts, means for locking contiguous levers 21 and 22 together, for the purpose set forth, and a cross-piece 24 for attachment to a hand-machine, said cross-piece having open and closed slots, and means operating in connection with said slots to lock said cross-piece in or out of operative position.

699,417. SHIPPING-PACKAGE. GEORGE F. BARNES, San Francisco, Cal. Filed Feb. 2, 1902. Serial No. 92,293. (No model.)

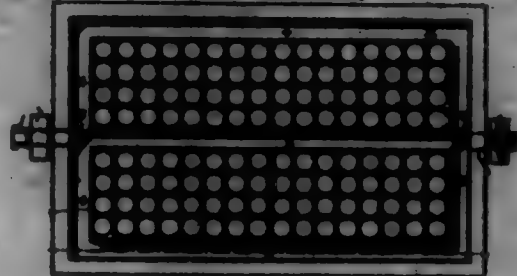


Claim.—1. A shipping-package consisting of an inner wooden strengthening-drum, an outer stove covering therefor bound by hoops or bands, an inner metallic lining fitted within, said lining terminating a short distance from each end of the drum and being secured to the wooden drum by means of hoops or bands which cover the ends of the said lining, and hoops or bands for the package supported within the inner drum by the hoops or bands which attach the metallic lining thereto, each having a metallic inner surface and being held in place by means of hoops or bands nailed to the inner strengthening-drum.

2. A shipping-package consisting of an inner wooden strengthening-drum, an outer stove covering therefor bound by hoops or bands, an inner metallic lining fitted within, said lining terminating a short distance from each end of the drum and being secured to the wooden drum by means of hoops or bands which cover the ends of the metallic lining, a waterproof filling interspersed between the said lining and the wooden

strengthening-drum, and hoops or bands for the package supported within the inner drum by the hoops or bands which secure the metallic lining thereto, said hoops or bands being secured to the package by means of hoops or bands.

699,418. EGG-PRESERVING SAFE. ROBERT E. SEARS, Sacramento, Cal., assignor to E. C. Huddell, Sacramento, Cal. Filed Sept. 23, 1901. Serial No. 79,192. (No model.)



Claim.—1. The combination in an egg-safe of an outer case having journal-shafts at the center of its ends and supports therefor, interior cases having individual compartments adapted to contain eggs or the like said inner cases separated from each other and from the inner walls of the outer case to form intermediate channels, and means whereby air may be introduced and circulated through said channels.

2. The combination in an egg-safe of an outer case having tubular shafts or journals at the center of its ends, and supports upon which they are turnable, interior cases having individual compartments adapted to contain and separate the eggs or the like, said interior cases separated from each other and from the outer case to form channels between the interior cases and between them and the outer case, and gates whereby the air admitted to said channels is diverted and caused to pass around the inner cases between the inlet and outlet passages.

3. An apparatus for containing and preserving eggs and the like, consisting of an exterior case, having tubular journals centrally fixed to the opposite ends, supports therefor, interior cases separated from each other and from the outer case to form channels or spaces between said interior cases and the outer case, said interior cases having separate compartments in which the contents are placed, means whereby air may be introduced through one of the hollow journal-shafts, a valve-controlled exit and gates interspersed between the inner and outer cases whereby the current of air is directed successively around the interior cases.

699,419. MACHINE FOR WRAPPING PAMPHLETS OR SIMILAR ARTICLES. EDWARD P. SHELTON, Brooklyn, N. Y. Filed Sept. 2, 1901. Serial No. 74,946. (No model.)

Claim.—1. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices, adapted to receive the wrapped pamphlet and to convey the same away from the wrapping-space.

2. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and means adapted to move said revolving devices or some of them so as to vary the size of said wrapping-space; of means for delivering the wrapped pamphlet from the wrapping-space comprising a depression or recess in one of said revolving devices, adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

3. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; non-revolving guides adapted to cooperate with said revolving devices in acting upon said pamphlet and wrapper; and means adapted to move said guides to enlarge the wrapping-space as the roll being formed therein enlarges and is about to leave the wrapping-space; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices, adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

4. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space, devices

grippers comprising a shaft 158, arms 161 and 162, guides 165 and 166, and a spring 163.

31. In a machine for wrapping pamphlets or similar articles, the combination with a series of revolving devices, adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of a receptacle for holding the pamphlets to be wrapped, having a floor the end of which adjacent to the said revolving devices is adapted to be moved vertically and is provided with a stop adapted to check said pamphlets; means for holding one of said pamphlets momentarily stationary as regards vertical movement and then drawing it toward said revolving devices; means for lowering the said stop while said pamphlet is so being held stationary as regards vertical movement, whereby the lower edge of said pamphlet is permitted to pass over said stop; and means for conveying said pamphlet to said wrapping-space.

32. In a machine for wrapping pamphlets or similar articles, the combination with a series of revolving devices, adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of a receptacle for holding the pamphlets to be wrapped, the end of which adjacent to the said revolving devices is adapted to be moved vertically and is provided with a check adapted to hold said pamphlets; means for holding one of said pamphlets momentarily stationary as regards vertical movement and then drawing it toward said revolving devices, comprising a vacuum-pump, pipes connected therewith, sucking-openings at the ends thereof, and means for moving said pipes; means for lowering said stop while said pamphlet is so being held stationary as regards vertical movement, whereby the lower edge of said pamphlet is permitted to pass over said stop; and means for conveying said pamphlet to said wrapping-space.

33. In a machine for wrapping pamphlets or similar articles, the combination with a series of revolving devices, adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of a receptacle for holding the pamphlets to be wrapped, the end of which adjacent to the said revolving devices is adapted to be moved vertically and is provided with a check adapted to hold said pamphlets; means for holding one of said pamphlets momentarily stationary as regards vertical movement and then drawing it toward said revolving devices, comprising a vacuum-pump, pipes having sucking-openings at the ends thereof, means for moving the sucking ends of said pipes backward and forward and means for placing said pipes in communication with said pump when their sucking ends are forward and in communication with the open air when said ends are backward; means for lowering said stop while said pamphlet is so being held stationary as regards vertical movement, whereby the lower end of said pamphlet is permitted to pass over said stop; and means for conveying said pamphlet to said wrapping-space.

34. In a machine for wrapping pamphlets or similar articles, the combination with a series of revolving devices, adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of a receptacle for holding the pamphlets to be wrapped, the end of which adjacent to the said revolving devices is adapted to be moved vertically and is provided with a check adapted to hold said pamphlets; means for holding one of said pamphlets momentarily stationary as regards vertical movement and then drawing it toward said revolving devices, comprising a vacuum-pump, pipes having sucking-openings at the ends thereof, means for moving the sucking ends of said pipes backward and forward and means for placing said pipes in communication with said pump when their sucking ends are forward and in communication with the open air when said ends are backward; means for lowering said stop while said pamphlet is so being held stationary as regards vertical movement, whereby the lower end of said pamphlet is permitted to pass over said stop; and means for conveying said pamphlet to said wrapping-space, comprising grippers borne by one or more of said revolving devices and means for operating the same.

35. In a machine for wrapping pamphlets or similar articles the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; devices adapted to separate a wrapper for said pamphlet from a sheet of paper; devices adapted to gun an edge of said covered wrapper; and devices adapted to feed said covered wrapper into said wrapping-space; the said feeding device being adapted to pass momentarily and permit the wrapper to remain stationary while the gun is being applied thereto; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

36. In a machine for wrapping pamphlets or similar articles the combination with revolving devices adapted to form a wrapping-space

between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; devices adapted to separate a wrapper for said pamphlet from a sheet of paper; devices adapted to gun an edge of said covered wrapper; and devices adapted to feed said covered wrapper into said wrapping-space, passing momentarily while the wrapper is being covered and its edge gunned, and then continuing said feeding; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

37. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; devices adapted to separate a wrapper for said pamphlet from a sheet of paper; devices adapted to feed said wrapper into the wrapping-space; and adjustable means adapted to control the operation of the wrapper-feeding device with relation to the covering device so that a variable amount of paper may be fed before same is covered; of means adapted to deliver the wrapped pamphlet from the wrapping-space.

38. In a machine for wrapping pamphlets or similar articles, the combination with shafts 22, 25, 26, 27, and 28 bearing respectively gear-wheels 27, 29, 30, 32, 43, and 46 and rollers 28, 30, 31, 32, and 33; and intermediate gear-wheels adapted to cause said shafts to all revolve in the same direction; said rollers forming a wrapping-space adapted to wrap a pamphlet and its wrapper between them and secure the wrapper; of grippers 160 borne by said rollers 29 adapted to convey a pamphlet into said wrapping-space, and means for operating the same comprising a shaft 158, an arm 161, and guides 165 and 166.

39. In a machine for wrapping pamphlets or similar articles, the combination with shafts 22, 25, 26, 27, and 28 bearing respectively gear-wheels 27, 29, 30, 32, 43, and 46 and rollers 28, 30, 31, 32, and 33; and intermediate gear-wheels adapted to cause said shafts to all revolve in the same direction; said rollers forming a wrapping-space adapted to wrap a pamphlet and its wrapper between them and secure the wrapper; of grippers 160 borne by said rollers 29 adapted to convey a pamphlet into said wrapping-space, and means for operating the same comprising a shaft 158, an arm 161 and 162, guides 165 and 166, and a spring 163.

40. In a machine for wrapping pamphlets or similar articles, the combination with rollers 28, 30, 31, 32, and 33, and guides 200 and 201, of means for moving said rollers and said guides to vary the size of the wrapping-space formed between the same so as to accommodate rolled pamphlets of different diameters.

41. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space, and devices adapted to eject the wrapped pamphlet from the wrapping-space, comprising a plunger 237, arm 238, sleeve 236 and spring 235.

42. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space, and devices adapted to eject the wrapped pamphlet from the said depression or recess, comprising fingers 175, a shaft 176, arms 171, 173 and 178, a spring 172 and a cam 179.

43. In a machine for wrapping pamphlets or similar articles the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; and devices adapted to feed a wrapper into said wrapping-space, comprising a finger 54, lever 51, rod 52, and a cam on the shaft 51; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

44. In a machine for wrapping pamphlets or similar articles the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; and de-

vices adapted to feed a wrapper into said wrapping-space, comprising rollers 51, 52, 54, and 57, a finger 54, lever 51, rod 52, and a cam on the shaft 51; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

45. In a machine for wrapping pamphlets or similar articles, the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; devices adapted to separate a wrapper for said pamphlet from a sheet of paper, comprising a knife 100, arm 101, 104 and 105, a spring 103, rod 107, and cam 108; and devices adapted to feed said covered wrapper into the wrapping-space, comprising rollers 51, 52, 54, and 57, a finger 54, lever 51, rod 52, and a cam on the shaft 51; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

46. In a machine for wrapping pamphlets or similar articles the combination with revolving devices adapted to form a wrapping-space between them and to coast to roll a pamphlet and its wrapper together within said wrapping-space and secure the wrapper; and devices adapted to introduce a pamphlet edgewise into said wrapping-space; devices adapted to separate a wrapper for said pamphlet from a sheet of paper, comprising a knife 100, arm 101, 104 and 105, a spring 103, rod 107 and cam 108; devices adapted to gun an edge of said covered wrapper, comprising a gunner 120, and means for operating the same, a roller for applying gun thereto, and means for reciprocating said roller between a source of gun-supply and said gunner 120; and devices adapted to feed said covered wrapper into the wrapping-space, comprising rollers 51, 52, 54, and 57, a finger 54, lever 51, rod 52, and a cam on the shaft 51; of means adapted to deliver the wrapped pamphlet from the wrapping-space, comprising a depression or recess in one of said revolving devices adapted to receive the wrapped pamphlet and convey the same away from the wrapping-space.

699,490. PRINTING-MACHINE. ROBERT L. SHAWMAN and HENRY A. SHAWMAN, JR., New Orleans, La. Filed Sept. 26, 1901. Serial No. 74,572. (No model.)



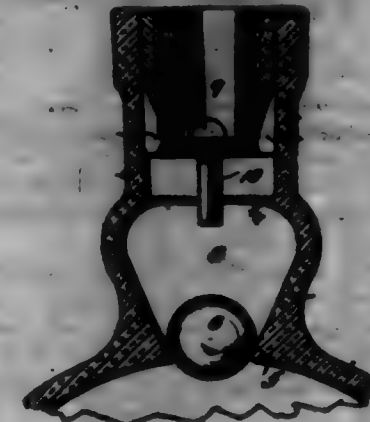
Claim.—1. The combination with a plurality of rollers adjustably mounted in guideways, of a tension device for regulating the pressure between said rollers, comprising a pair of substantially elliptical-shaped springs, the lower faces of which are provided with central concave depressions, forming bearing-surfaces adapted to engage the shaft of the end roller, and adjustment-screws engaging said springs opposite said central depressions.

2. The combination with a clamped frame and a plurality of rollers adjustably mounted therein, of a tension device for regulating the pressure between said rollers, comprising a pair of substantially elliptical-shaped springs, provided with a central inwardly-projecting bearing-surface, engaging the shaft of the end roller, and outwardly-bent ends opposite said bearing-surface, thinblades mounted in said frame for retaining the ends of said springs, and an adjustment-screw operating in said thinblades and engaging the end of said springs.

699,491. NON-EXPLODABLE BOTTLE. DANIEL K. SMITH, Portsmouth, Va. Filed Dec. 14, 1901. Serial No. 55,393. (No model.)

Claim.—In a device of the class described, the combination of a receptacle provided with a neck composed of upper and lower portions, the upper portion being approximately cylindrical and the lower portion being provided with a valve-seat and having an approximately horizontal guard or flange, and the approximately cylindrical shield or guard open

at the top to receive a cork and fitted in the upper portion of the neck and provided with a stem extending into the lower portion of the neck, said shield or guard being provided at the bottom with exterior recesses, substantially as described.



699,492. METHYLENE DICHLORIDE AND PROCESS OF MAKING SAME. WILLIAM STRECHER, Berlin, Germany, assignor to Chemische Fabrik und Aktien, (vorm. E. Schering,) Berlin, Germany. Filed Oct. 29, 1901. Serial No. 59,459. (No specimens.)

Claim.—1. The herein-described process of manufacturing methylene dichloride, which consists in causing formaldehyde, preferably in a polymeric state, to react upon chloric acid and isolating the resulting product, substantially as set forth.

2. As a new product the herein-described methylene dichloride, being a white crystalline powder, difficultly soluble in cold but easily in hot water, and melting at 209° centigrade.

699,493. DIMETHYLENE TARTRATE AND METHOD OF MAKING SAME. WILLIAM STRECHER, Berlin, Germany, assignor to Chemische Fabrik und Aktien, (vorm. E. Schering,) Berlin, Germany. Filed Oct. 29, 1901. Serial No. 59,460. (No specimens.)

Claim.—1. The herein-described process of manufacturing dimethylene tartrate, which consists in causing formaldehyde to react upon tartaric acid in the presence of a condensing agent which at the same time withdraws water, and isolating the resulting product, substantially as set forth.

2. As a new product the herein-described dimethylene tartrate forming fine needles which melt at 120° centigrade, being easily soluble in alcohol, acetone and chloroform, substantially as set forth.

699,494. UMBRELLA-COVER FASTENING. AUGUSTUS C. STROMM, Troy, Ohio, assignor to the Troy Carriage and Shade Company, Troy, Ohio, a Corporation of Ohio. Filed Jan. 6, 1902. Serial No. 55,394. (No model.)



Claim.—1. The combination with the web of the seam of the cover and the supporting-rib for the cover, said rib having plain outer ends, of the fastener composed solely of a single metallic sheet, formed into a clamp arranged substantially in two hollow parallel portions with flanged outer ends, the clamping portion to engage and confine said web and the other portion to receive and hold the plain ends of said rib, substantially as specified.

2. The combination with the web of the seam of the cover and the supporting-rib for the cover, said rib having plain outer ends, of a fastener composed of a single metallic sheet formed into a clamp, having indicated sides, substantially dividing it into two hollow parallel portions, with closed outer ends, the clamping portion to engage and confine said web and the other portion to receive and hold the plain ends of said rib, substantially as specified.

3. The combination with the web of the seam of the cover and the supporting-rib for the cover, said rib having plain outer ends, of a fastener composed of a single metallic sheet formed into a clamp, one side being inwardly folded back and extended across the interior, dividing the fastener into two hollow portions with closed outer ends, the clamping portion to engage and confine said web and the other portion to receive and hold the plain end of said rib, substantially as specified.

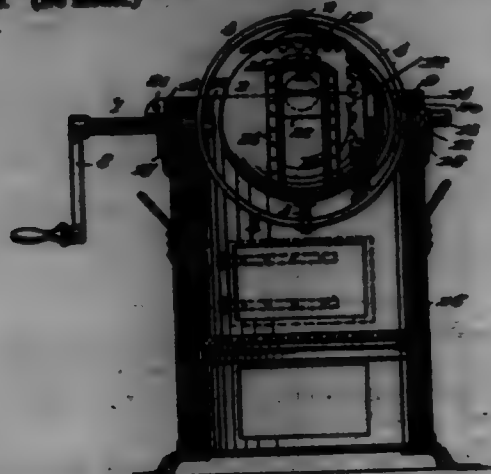
699,425. SAFETY WATCH-POCKET. HARRIS M. STRAIN.
Chicago, Ill. Filed Jan. 24, 1902. Serial No. 61,062. (No model.)



Claim.—1. The combination with a pocket, of a guard-flap having its upper edge stitched along the top of the pocket at the inner side of the pocket-mouth and provided adjacent its line of attachment with a hole extending lengthwise of the pocket adjacent the line of stitches at its upper edge for the passage of a watch-chain.

2. The combination with a pocket, of a guard-flap shorter than the mouth of the pocket and having its upper edge stitched along the top of the pocket at the inner side of the pocket-mouth and provided adjacent its line of attachment with a hole extending lengthwise of the pocket near one end of the guard-flap and parallel with its line of attachment to the pocket.

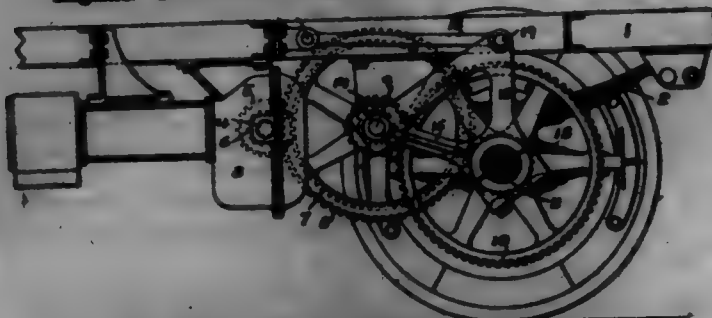
699,426. MACHINE FOR THE TORREFACTION OF COFFEE. FRANK G. THIE, Paris, France. Filed Aug. 2, 1901. Serial No. 70,779. (No model.)



Claim.—1. In a machine of the character described, the combination with a casing, a ring rotatably secured in said casing, a spindle, a square and cylindrical and formed on said spindle, a spherical casing revolvably mounted in said ring, wheels 12 and 19 arranged within said ring for revolving said spherical casing, and means to rotate said ring.

2. In a coffee-roaster, the combination of an outer casing, a furnace arranged in said casing, a crank-shaft secured in said casing, a furnace arranged in said casing, a crank-shaft secured in said casing, a spindle, a square and cylindrical and formed on said spindle, a spherical casing revolvably mounted in said ring, wheels 12 and 19 arranged within said ring, for revolving said spherical casing, and means to rotate said ring.

699,427. MOTOR-VEHICLE. JOHN R. TROSTENBERG, London, England. Filed June 1, 1901. Serial No. 62,712. (No model.)



Claim.—1. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a train of gearing for transmitting the power from the motor to the driving-gear, a bracket supporting that gear of the train which meshes with the driving-gear, and a compensating connection between the bracket and the spring-mounted frame, substantially as described.

2. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a train of gearing for transmitting the power from the motor to the driving-gear, a bracket carried on the vehicle-frame and supporting that gear of the train which meshes with the driving-gear, and a compensating connection between the bracket and the spring-mounted frame, substantially as described.

3. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, a bracket supporting one end of said flexible shaft and transmitting-gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

4. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, a bracket carried on the axle of the vehicle, said bracket supporting one end of said flexible shaft and transmitting-gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

5. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, one end of which is supported by the spring-frame, a bracket supporting the other end of the flexible shaft and the power-transmitting gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

6. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, one end of which is supported by the spring-frame, a bracket carried on the axle of the vehicle, said bracket supporting the other end of the flexible shaft and the power-transmitting gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

7. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, a bracket supporting one end of said flexible shaft and the transmitting-gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

8. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, a bracket carried on the axle of the vehicle, said bracket supporting one end of said flexible shaft and the transmitting-gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

9. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, one end of which is supported by the spring-frame, a bracket supporting the other end of the flexible shaft and the power-transmitting gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

10. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by said frame, a gear for transmitting power from the motor to the driving-gear, a flexible shaft, one end of which is supported by the spring-frame, a bracket carried on the axle of the vehicle, said bracket supporting the other end of the flexible shaft and the power-transmitting gear, and a compensating connection between the bracket and the spring-frame, substantially as described.

11. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by the frame, a bracket mounted so as to be movable about the axle of said driving-gear, a flexible shaft driven by the motor, a power-transmitting gear driven by the shaft, one end of said shaft and said transmitting-gear being carried on the bracket, and a compensating connection between the bracket and the spring-frame, substantially as described.

12. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by said frame, a bracket loosely mounted on the axle of the vehicle, a flexible shaft driven by the motor, a power-transmitting gear connected to the shaft, one end of the shaft and said gear being supported in the bracket, and a compensating connection between the bracket and a spring-frame, substantially as described.

13. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by the frame, a train of gearing for transmitting the power from the motor to the driving-gear, a bracket supporting that gear of the train which meshes with the driving-gear, said bracket being mounted so as to be movable about the axle of the driving-gear, and a pivoted-link compensating connection between the bracket and the spring-mounted frame, substantially as described.

14. In a motor-vehicle, the combination with a driving-gear thereof, of a spring-mounted frame, a motor carried by said frame, a train of gearing for transmitting the power from the motor to the driving-gear, a bracket carried on the vehicle-frame and supporting that gear of the train which meshes with the driving-gear, and a compensating connection between the bracket and the spring-mounted frame, substantially as described.

15. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by the frame, a bracket supported on and movable about the axle of the vehicle, a flexible shaft driven from the motor, a power-transmitting gear, said flexible shaft and transmitting-gear being supported in the bracket, and a pivoted compensating connection between the bracket and the spring-frame, substantially as described.

16. In a motor-vehicle, the combination with a driving-gear thereof, said gear being mounted on the axle of the vehicle, of a spring-mounted frame, a motor carried by the frame, a bracket supported on and movable about the axle of the vehicle, a flexible shaft driven from the motor, a power-transmitting gear, said flexible shaft and transmitting-gear being supported in the bracket, a pivoted-link compensating connection between the bracket and the spring-frame, and a spring interposed in said connection, substantially as described.

17. In a motor-vehicle, the combination with a spring-mounted frame, of a motor carried thereby, a driving-gear for the vehicle mounted on the axle thereof, a bracket supported upon and movable about the axle of the vehicle, a power-transmitting gear, a flexible shaft for driving said transmitting-gear, one end of said shaft and said power-transmitting gear being supported by the bracket and the other end of said shaft being carried in the spring-frame, and a link pivoted to the bracket and to the frame, and forming a compensating connection, substantially as described.

699,428. VEHICLE-SEAT. LOUIS R. THORLOV, Thompson, N. Y. Filed Mar. 12, 1902. Serial No. 67,904. (No model.)



Claim.—1. In a vehicle of the character described, the combination of a seat having a single depending supporting-arm rigidly connected thereto at each end of the seat, said supporting-arm being provided with a series of perforations to adjust the height of seat, a pivot-bolt adapted to enter any of said perforations and support the seat, a bracket extended from either side of the depending supporting-arm and having downward-turned ends, and a spring directly connecting the downward-turned ends of the brackets on each side of the depending supporting-arm with the seat.

2. In a vehicle, the combination of a seat, a depending supporting-arm fixedly secured to the seat, means for pivotally connecting the depending arm to the vehicle-body at a point below the seat to permit the latter to have a bodily-swinging movement in the arc of a circle about the pivotal connection of the depending arm with the vehicle body due to vehicle motion, spring-connecting devices as brackets having downward-turned ends projecting to each side of the depending supporting-arm, and springs directly connecting the seat at each side of the depending supporting-arm with the downward-turned ends of said devices to control the bodily-swinging movement of the seat to either side of a vertical plane passing through the pivot of the depending supporting-arm.

3. In a vehicle of the character described, the combination of a seat, a depending supporting-arm at each end of the seat and rigidly secured thereto, the said supporting-arm at points remote from the seat having pivotal connection with the carriage-body to permit the seat as an entirety to swing in the arc of a circle about the pivotal connection of the supporting-arm within the carriage-body due to vehicle motion, spring-connecting devices as brackets having downward-turned ends provided with hooks and projecting to each side of the depending supporting-arm directly beneath the seat, and springs disposed on each side of the depending supporting-arm and connecting the hooked ends of the spring-connecting devices or brackets with the seat to control the bodily-swinging movement of the seat about the pivotal connection of the supporting-arm with the vehicle-body.

699,429. HEATING-STOVE. GEORGE W. WILSON, Delaware, Ohio, assignor of three-fourths to Henry B. Bump, August P. Miller, and Frank W. Young, Delaware, Ohio. Filed Aug. 17, 1901. Serial No. 71,000. (No model.)

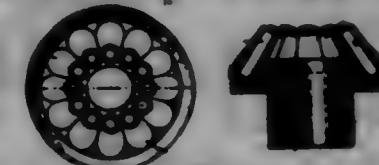


Claim.—1. A heating-stove having side walls, with their lower portions, around the fire-box, reinforced and their upper portions, which surround the combustion-chamber, separated to form a smoke-flue which passes around the combustion-chamber, said smoke-flue communicating with the interior of the stove and with the smoke-outlet thereof, substantially as described.

2. A heating-stove having a smoke-flue formed with the side walls thereof, said smoke-flue passing around the stove, communicating with the interior thereof and with the smoke-outlet, and an air-heating flue disposed within the said smoke-flue and depending from the top of the stove, the latter having an air-intake opening at one end of said air-heating flue, and a discharge-opening at the opposite end thereof, proximate to the smoke-outlet, substantially as described.

3. A heating-stove having side walls with their lower portions, around the fire-box, reinforced and their upper portions, which surround the combustion-chamber, separated to form a smoke-flue which passes around the combustion-chamber, said smoke-flue communicating with the interior of the stove and with the smoke-outlet thereof, and an air-heating flue disposed within the said smoke-flue and having an intake and an outlet for air, substantially as described.

699,430. ROTARY GOLF-EDGE SETTER. HAROLD A. WHITTE, Everett, Mass., assignor to Herbert B. Norton, Everett, Mass. Filed Feb. 22, 1901. Serial No. 62,661. (No model.)



Claim.—1. An edge-setter comprising a driving member and series of taper rolls secured to said driving member with their outer ends in an axial plane different from that of their inner ends.

2. As a new article of manufacture, an edge-setter member comprising a tapered or conical roll.

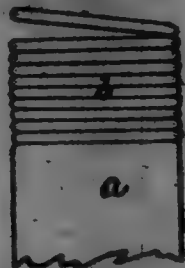
699,431. MAIL-POUCH ADDRESS AND FASTENING ATTACHMENT. HERBERT D. WILSON, San Jose, Cal., assignor of three-fourths to Wm. C. Hawley and E. F. Laventure, San Jose, Cal. Filed June 10, 1901. Serial No. 62,974. (No model.)



Claim.—The combination with a mail-pouch and a flap permanently secured to the flap thereof, and having an end opening, of a strap having one end secured to the flap, a channelled plate secured to the free end of the strap and plate having a bolt projecting from its front end, the outer side of said bolt forming the top wall of the channel, at the entrance thereto whereby the address-card or label is inserted from beneath the flap and its end is protected by the overhanging bolt, said bolt adapted

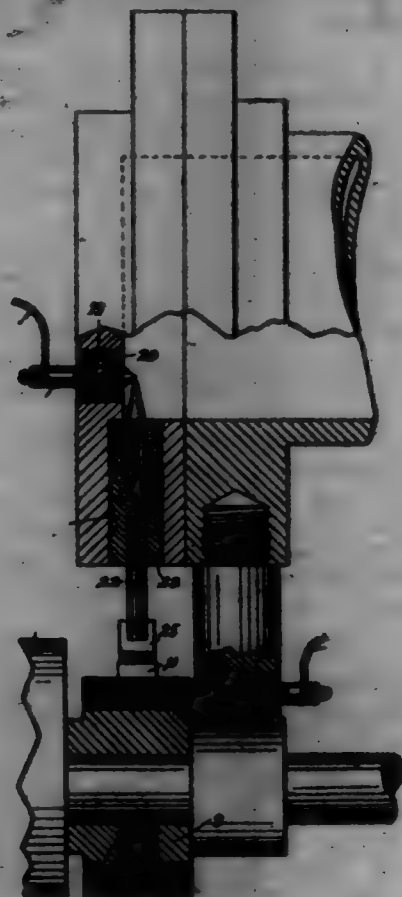
to engage the end opening of the lock and the end of the cord or label being in line with the solid wall of the lock below the opening.

699,432. LAMP-WICK. EMERY WILSON, Philadelphia, Pa. Filed July 28, 1901. Serial No. 68,682. (No model.)



Claim.—A lamp wick the upper part of which is constructed of a series of separate detachable combustible horizontal sections or ribs.

699,433. SPARKING SWITCH FOR EXPLOSIVE-ENGINE. RICHARD L. YOUNG, Milwaukee, Wis., assignor of one-half to Thomas J. Price, Milwaukee, Wis. Filed July 8, 1901. Serial No. 67,444. (No model.)



Claim.—1. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a rotatable cam-shaft, an insulating-disk mounted thereon, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

2. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a contact-point secured to the outer end of the other electrode, a rotatable cam-shaft, an insulating-disk mounted thereon, a metallic ring secured to and surrounding the disk, and provided with a contact-point adapted to make contact with the contact-point of the electrode on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

3. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a rotatable cam-shaft, an insulating-disk mounted thereon, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

above mentioned thereon, a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

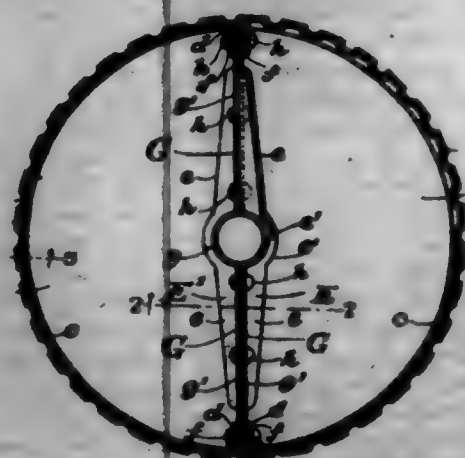
4. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a brush extending from the cylinder, a rotatable cam-shaft having its bearing in an opening in the brush, an insulating-disk mounted on the cam-shaft, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

5. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a brush extending from the cylinder, a rotatable cam-shaft having its bearing in an opening in the brush, an insulating-disk mounted on the cam-shaft, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

6. In a sparking igniter for explosive engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a brush extending from the cylinder, a rotatable cam-shaft having its bearing in an opening in the brush, an insulating-disk mounted on the cam-shaft, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

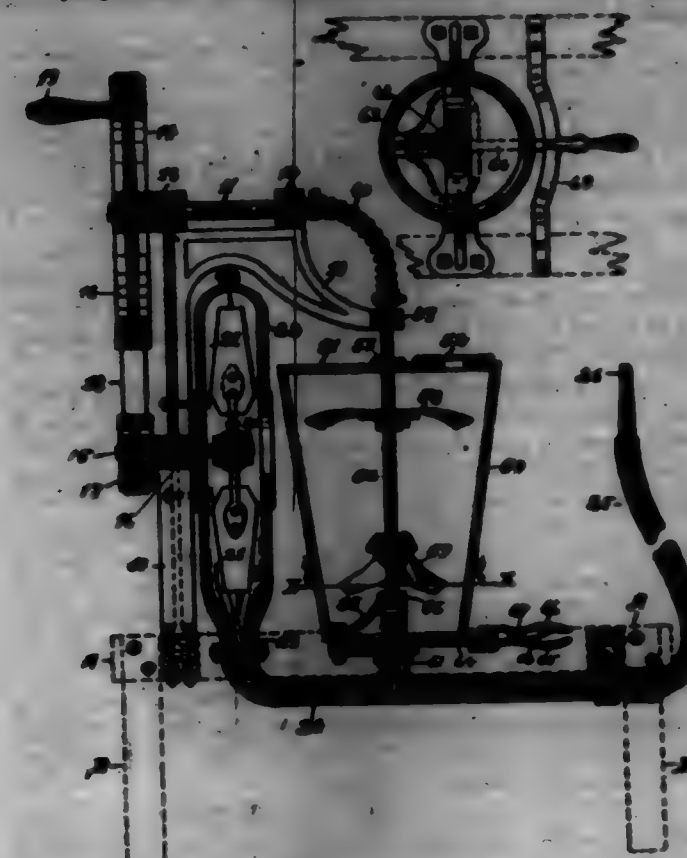
7. In a sparking igniter for explosive-engines, the combination of a cylinder, electrodes extending into said cylinder and insulated therefrom, an electrical conductor extending from one of said electrodes and leading to the source of electrical supply, a rotatable cam-shaft, an insulating-disk mounted thereon, a metallic ring secured to and surrounding the disk, and provided with a contact-point projecting therefrom and adapted to make contact with the outer end of one of the electrodes on each revolution of the cam-shaft, a longitudinally-adjustable metallic rod having one end in contact with the metallic ring, and an electrical conductor connecting said rod with the source of electrical supply.

699,484. FULLEY. FRIEDRICH ALBERT, Furberg, Germany. Filed Sept. 12, 1900. Serial No. 51,578. (No model.)



Claim.—A pulley comprising a plurality of sections, each section consisting of a segmental rim with inward curved, smooth marginal edges, and a central peripheral bulge crowned by transverse corrugations, and also a tie-piece constituting one member of the rim and making said inward curved ends, the matching tie-pieces of the several sections being bolted together.

699,485. DUST-SPRAYING MACHINE. CHARLES E. ALLEN, Springfield, Mo. Filed Sept. 2, 1901. Serial No. 74,582. (No model.)



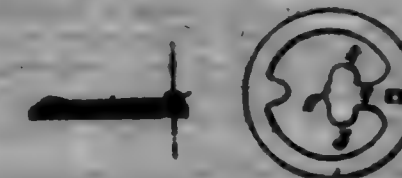
Claim.—1. In a dust-spraying machine, in combination with a suitable base A, of a supporting-frame 10 rising therefrom and extending rearward at the top, with a shaft 11 mounted at the top in the bearings 12 and 13, a drive-wheel 14 secured to the front end of the axle 11, with a flexible coil-spring attached to the rear end of 11 and extending down in a curve and attached to the axle 54 which latter is at right angles to said axle 11, an axle 15 mounted in a bearing 16 located midway between the top and bottom of the frame 10, a pulley-wheel 17 secured to the front end of the axle 15 and immediately under the wheel 14, said wheel 14 and 17 being connected by a band passing over each so that the wheel 17 will be revolved by the wheel 14, a hub 20, provided with paddles 21, secured on the rear end of the axle 15, with a casing 22 enclosing the latter, substantially as shown and described, a dust-box 50 located in rear of the casing 22 which is provided with an opening provided with a cap or lid 52 in the top thereof, agitators secured on the shaft 54 and adapted to be revolved inside of the said dust-box 50, a pipe 34 extending from the casing 22 underneath the paddles 21 with an opening extending up into the dust-chamber 50 with means for controlling the discharge of the dust from the dust-chamber into the pipe 34 and a flexible tube 35 with a nozzle 36 attached to the outer end of the pipe 34, all substantially as shown and described and for the purposes set forth.

2. In a dust-spraying machine, in combination with the blowing mechanism operated by the main wheel, of a dust-box located in rear thereof, of a perpendicular shaft adapted to revolve therein carrying a series of arms or agitators, said shaft being pivoted in the bottom of the dust-box in a bracket 56 and the top of said shaft being supported by the bearing 57 and passing through the center of the top of the dust-box, of the axle 54 being revolved in unison with and by the axle 11 with a flexible coil-spring connecting them substantially as shown and described.

3. A dust-spraying machine; a base, a main casting rising from the base for supporting the various mechanisms; a power mechanism, consisting of the wheels 14 and 17, the axle 11 and 15, the belt 16, and the handle 19; an air-chamber formed by the casing 22, with paddles operated by the shaft 15 revolving in said air-chamber; of a dust-box located in rear of the air-chamber with a shaft 54 revolving therein which shaft carries a multiple of agitators and is operated by the shaft 11 and at right angles thereto; of the flexible spring connecting the shafts 11 and 54 at right angles to each other; of a controlling mechanism located underneath the dust-chamber 50 adapted to be operated by the handle projecting back therefrom and adapted to be locked in the position desired; of a pipe extending from the air-chamber, underneath the dust-chamber, and thence to the rear where it is provided with a flexible hose and a nozzle; all substantially as shown and described and for the purposes set forth.

699,486. RADDER OR BUTTON BACK. JOHN W. AYERS and ALBERT H. AYERS, New York, N. Y. Filed Jan. 8, 1902. Serial No. 14,719. (No model.)

Claim.—1. A badge or button back comprising a ring of sheet material having a keeper formed thereon and a projection bent upon itself to form a stop, legs formed on the turned-back portion of the said projection and extended rearwardly through the ring and a pin adapted to said legs, the said pin being arranged to be engaged by the stop for holding the pin within its keeper under tension.

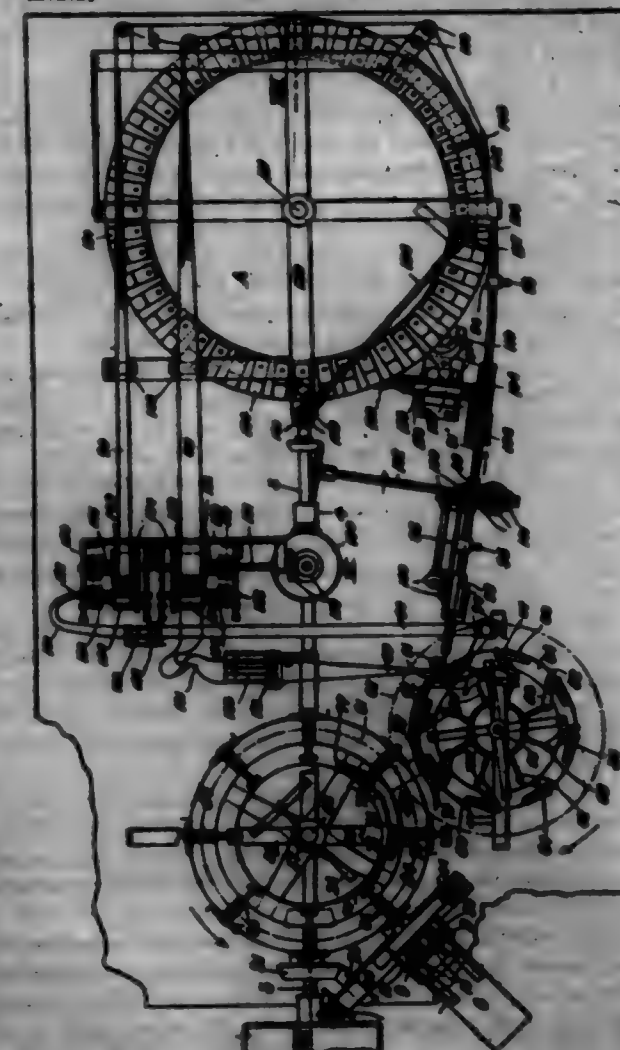


2. A badge or button back comprising a pin, a ring having a keeper for engaging the free end of the pin, a slot therethrough and a projection bent to form a stop, legs extended from the bent-back portion of the projection rearwardly through the said slot, to which the pin is biased and a shallow leg formed on the turned-back portion of the projection serving to limit the extension of the legs through the said slot.

3. A blank for badge or button backs comprising a sheet-metal ring having a keeper extended laterally therefrom, an inwardly-extended projection opposite the keeper, legs thereon and a slot formed in the ring at the base of the said projection.

4. A blank for badge or button backs comprising a sheet-metal ring having a keeper extended laterally therefrom, an inwardly-extended projection opposite the keeper, opposite extended legs thereon, a shallow leg at the end of the projection and a slot cut through the ring at the base of the projection.

699,487. MATCH-MACHINE. SMITH & BROWN, Pittsburgh, Pa. Filed Apr. 7, 1902. Renewed Mar. 2, 1900. Serial No. 78,422. (No model.)



Claim.—1. In a match-machine provided with means for receiving the splints horizontally and carrying them vertically; a composition-wheel adapted to distribute the composition to the splints, a reservoir, and means for rotating and controlling the wheel, substantially as set forth.

2. A match-machine provided with means for intermittently feeding a strip of veneer, means for dividing the veneer into splints, impelling-media for conveying the splints vertically and separately, means for applying a binding composition, and means for drying and drying the finished matches, in vertical position, heads downward, substantially as set forth.

3. In a match-machine the combination of a feed-table provided

with guiding edges, and a limiting-stop, plane lower and grooved upper feed-rollers mounted thereon, pressure-springs mounted on the table extending through the grooves of the upper roller and adapted to bear on the blank in advance of the rollers, and a reciprocating shear-knife adapted to cover splices from the blank, a splice-holding treadle and a device for removing the splices singly, substantially as set forth.

4. In a match-machine provided with a feed-table, feed-rollers mounted thereon, a limiting-stop, a shearing-knife, and a needle mechanism for removing the splices singly, substantially as set forth.

5. In a match-machine, the combination of a feed-table, feed-rollers mounted thereon, a limiting-stop, a shearing-knife, and a needle mechanism for removing the splices singly, substantially as set forth.

6. In a match-machine provided with a knife adapted to shear splices from a strip of veneer, a pointed spindle adapted to engage and remove the covered splice, substantially as set forth.

7. In a match-machine provided with a knife adapted to shear splices from a strip of veneer, a reciprocating spindle provided with a needle-point adapted to be inserted in a splice, substantially as set forth.

8. In a match-machine provided with a knife adapted to shear splices from a strip of veneer, a spindle provided with a needle-point, means for advancing the spindle to insert the needle in a splice, and means for moving the spindle, substantially as set forth.

9. In a match-machine provided with a knife adapted to shear splices from a strip of veneer, a spindle provided with a needle-point, means for advancing the spindle to insert the needle in a splice, means for moving the spindle and for giving it a partial rotation, substantially as set forth.

10. In a match-machine, provided with a feed-table, feeding-rollers, and a shearing-knife for cutting the splices, a spindle-wheel adapted to rotate in proximity to the inner end of the feed-table, a series of pointed spindles mounted thereon, and means for forcing the spindles outwardly, to engage the splices, partially rotating and returning the spindles, and then retracting them, substantially as set forth.

11. In a match-machine provided with a feed-table, feeding-rollers, and a shearing-knife for cutting the splices, a stationary disc-wheel, a spindle-wheel concentric therewith provided with a series of pointed spindles mounted thereon having blocks adapted to bear upon the disc-wheel, and cam-faces and abutments on the disc-wheel adapted to advance, partially rotate and retract the spindles, substantially as set forth.

12. In a match-machine provided with a feed-table, feeding-rollers, and a shearing-knife for cutting the splices, a spindle-wheel provided with pointed spindles, and temporary holding devices for the spindles: a splice-distributing wheel provided with arms adapted to engage the spindles and deliver them to conveying-tapes, substantially as set forth.

13. In a match-machine provided with means for delivering the splices in a vertical position to temporary holding devices: a splice-distributing wheel provided with arms adapted to engage the spindles and retaining-springs in advance of the arms, substantially as set forth.

14. In a match-machine provided with a rotatable spindle having a needle-point for delivering the splices in a vertical position to temporary holding rails and wires: a splice-distributing wheel provided with pivoted arms adapted to engage the spindles and deliver them to conveying-tapes, and means for disengaging the arms, substantially as set forth.

15. In a match-machine provided with means for delivering the splices in a vertical position to temporary holding devices, with a splice-distributing wheel provided with pivoted arms adapted to engage the spindles, retaining-springs in advance thereof, retracting-springs, and a stationary cam for disengaging the arms, substantially as set forth.

16. In a match-machine, splice-conveying mechanism consisting of a wide and narrow tape, an outwardly-curved plate having top and bottom edges forming a guide for the wide tape and a pressure-strip adapted to bear upon the narrow tape, with means for exerting elastic pressure on the strip, substantially as set forth.

17. In a match-machine, splice-conveying mechanism consisting of a wide and narrow tape, a guide for the wide tape having a recess at its middle portion, and a pressure-strip adapted to bear upon the narrow tape, with means for exerting elastic pressure on the strip, substantially as set forth.

18. In a match-machine, splice-conveying mechanism consisting of a wide tape having projecting ribs at top and bottom, a narrow tape midway of each wide tape, and a pressure-strip adapted to bear upon the narrow tape, with means for exerting elastic pressure on the strip, substantially as set forth.

19. In a match-machine, in combination with vertical splice-conveying mechanism consisting of a wide and narrow tape, a plate having top and bottom edges forming guides and an elastically-actuated pressure-strip adapted to bear upon the tapes: upper and lower adjusting-rollers adapted to bear upon the tapes and bottoms of the splices, positively driven in the same direction as the tapes, substantially as set forth.

20. In a match-machine, a composition-wheel and a reservoir, with means for rotating the wheel and imparting to it a transverse oscillatory motion, substantially as set forth.

21. In a match-machine, a grooved composition-wheel mounted on a spindle having a bearing in a sliding frame, a sliding connection with rotating gearing, and a reciprocating arm in engagement with the sliding frame and means for actuating the arm, substantially as set forth.

22. In a match-machine provided with double conveying-tapes: a storage-drum consisting of vertical staves supported on a circular inclined plate, and means for rotating the drum, substantially as set forth.

23. In a match-machine provided with double conveying-tapes: a storage-drum consisting of vertical staves mounted on a circular inclined plate forming a spiral, means for rotating the drum, and means for lowering each staff from the highest extremity of the circular inclined plate, substantially as set forth.

24. In a match-machine provided with double conveying-tapes: a revolving storage-drum consisting of staves upon which the tapes are wound, means for gradually advancing the staves throughout their revolution whereby the tapes assume a spiral direction, and means for retracting each staff at the same point, substantially as set forth.

25. In a match-machine provided with double conveying-tapes: a revolving storage-drum consisting of staves upon which the tapes are wound, means for gradually raising the staves throughout their revolution whereby the tapes assume a spiral direction, means for lowering each staff at the same point, a separating device for the tapes and a conveying-chain, substantially as set forth.

26. In a match-machine provided with double conveying-tapes and a revolving storage-drum upon which the tapes are wound spirally: guide-rollers mounted in the framework and tension-rollers with friction driving mechanism, substantially as set forth.

27. In a match-machine, double conveying-tapes disposed around guiding-rollers and meeting at a splice-receiving point, carried through vertical guiding mechanism disposed in a curve, carried spirally around a storage-drum, separated and carried around guide-rollers to tension-rollers provided with positively-driven friction driving mechanism, and over guide-rollers provided with tension devices to the meeting-point, substantially as set forth.

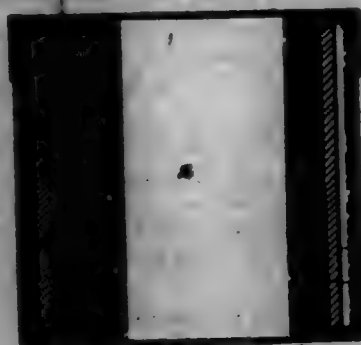
28. In a match-machine, a tape provided with projections of frictional material at each edge, a narrower tape traveling in the same plane between such projections, and means for holding the tapes together, substantially as set forth.

29. In a match-machine, a tape provided with projections of frictional material at each edge, a narrower tape traveling in the same plane between such projections and means for holding the tapes together and for transmitting to them forward motion, substantially as set forth.

30. A match-machine comprising a feed-table, feed-rollers mounted thereon, a splice-cutting knife, a spindle-wheel provided with means for transmitting and carrying the splices, a splice-distributing wheel adapted to deliver the splices to conveying-tapes, conveying-tapes for carrying the splices, aligning-rollers, a composition-roller, and a winding-drum, substantially as set forth.

31. A match-machine comprising a feed-table, feed-rollers mounted thereon with pressure-adjusting devices, a reciprocating splice-cutting knife, a spindle-wheel provided with pointed spindles for transmitting, carrying the splices and partially rotating them, temporary holding devices, a splice-distributing wheel adapted to deliver the splices to conveying-tapes, conveying-tapes mounted edgewise in supporting-frames, upper and lower aligning-rollers, a composition-roller submerged in a reservoir with means for rotating and oscillating the roller, a winding-drum composed of staves mounted on supporting mechanism adapted in case the conveying tapes to assume a spiral arrangement, and means for discharging the matches, substantially as set forth.

699,488. BOX. CHARLES E. BALDWIN, Brooklyn, N. Y. Filed Feb. 7, 1901. Serial No. 34,698. (No model.)



Claim.—1. A box of the character described, comprising the box proper, a tube located within said box provided with integral outwardly-

projecting extensions at its lower end secured to the bottom of the box, the said extensions being corrugated and presenting a yielding surface or cushion, and a cover for the box.

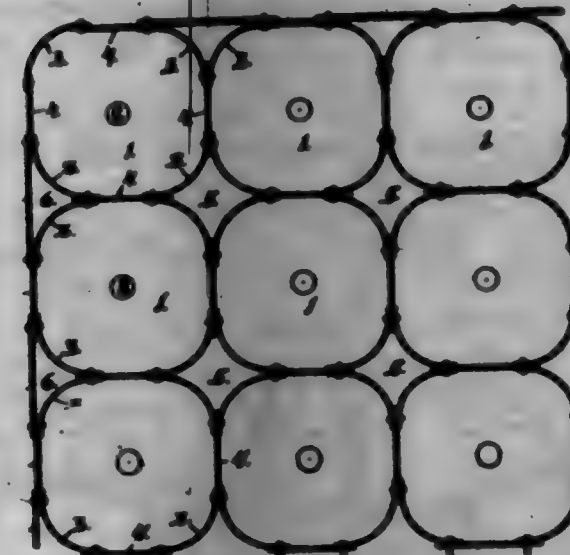
2. A box of the character described, comprising the box proper, a tube secured within said box to receive a record-cylinder thereover, a yielding cushion located in the bottom of the box around the lower end of said tube, and a cover having an annular cushion on its under side extending, when the cover is in position, around the upper end of the tube and engaging with its outer side, for the purpose set forth.

3. A box of the character described, comprising the box proper, a tube located centrally within said box with an annular opening or space between the same and the inner wall of the box, a cushion of yielding material located in the bottom of the box around the lower end of said tube, and a cover having an annular cushion on its under side which registers with the said annular opening in the box and engages at one edge thereof with the side of the tube at its upper end, for the purpose set forth.

4. A box of the character described, comprising the box proper, a tube located within said box to receive a record-cylinder thereover and being provided with an outer face of corrugated paper or similar flexible material for contact with the record-cylinder, the said tube being also provided with integral outwardly-projecting extensions at its lower end and secured to the bottom of the box and presenting an upper corrugated yielding surface for the lower end of the record-cylinder to rest upon, and a cover having an annular strip of corrugated paper or similar yielding material on its under side for engaging with the upper end of the record-cylinder.

5. A box of the character described, comprising the box proper, a tube secured within said box, a yielding cushion located in the bottom of the box around the lower end of said tube, and a cover having an annular cushion on its under side extending, when the cover is in position, around the upper end of the tube.

699,489. STEEL GRAIN-MILL. JAMES E. RALPH and JEREMY J. SMITH, Buffalo, N. Y. Filed May 4, 1901. Serial No. 35,738. (No model.)



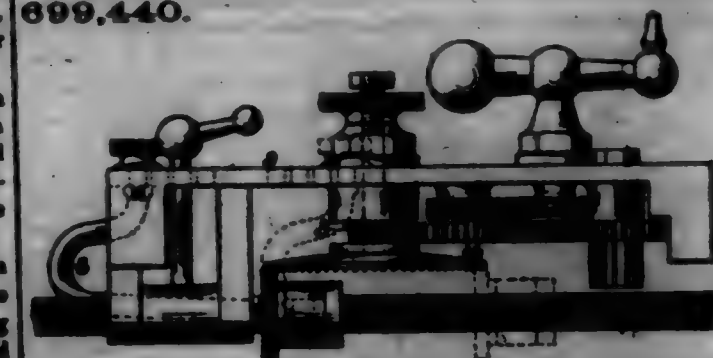
Claim.—1. A series of bins for grain-elevators and storage-houses, each bin composed of separate corner-plates and intersected flat side sheets, the flat side sheets being secured between the contiguous corner-plates of separate adjacent bins to form an inner side wall common to any two adjacent bins.

2. A series of bins for grain-elevators and storage-houses, each bin composed of separate corner-plates and intersected flat side sheets, the flat side sheets being secured between adjacent corner-plates of the same bin to form outer side walls, and secured between the contiguous corner-plates of separate adjacent bins to form an inner side wall common to any two adjacent bins.

699,440. TOOL-GARRIAGE FOR LATHES. WILLIAM F. BARNER, Rochester, N. Y., assignor to W. F. & John Barnes Company, Rochester, N. Y. Filed Feb. 9, 1901. Serial No. 35,739. (No model.)

Claim.—In a lathe, the combination of a toothed rack and a gear, a driving-shaft, a gear connection between the shaft and rack comprising a spur-toothed pinion, and a flange-plate having a series of concentric rings of teeth, the pinion being movable into mesh with the several rings of teeth and across the face of the plate and means for holding the pinion in its adjusted position, the teeth of the intermediate rings being of double-flange form.

699,440.



699,441. SHAFT-TOO. HENRY A. BURLAY, Portsmouth, Ohio, assignor of one-half to William C. Stafford, Columbus, Ohio. Filed July 11, 1900. Serial No. 35,740. (No model.)



Claim.—In a harness and shaft connector, the combination with a hook adapted to be suspended by one end from the harness-middle and provided at its other end with an integral strap-retaining loop having a strap-protecting flange, of a reliable strap attached to the lower end of the hook and adapted to encircle a shaft and to have its free end connected in the said strap-retaining loop and to be connected to the girth to secure the shaft to the harness.

699,442. CAN FOR HOLDING COARSE GRINDING OR THE LIKE. CLARENCE W. BROWN, New York, and JAMES H. KIM, Brooklyn, N. Y., said Brown assignor to said Kim. Filed Dec. 24, 1901. Serial No. 37,000. (No model.)



Claim.—1. A can for holding coarse emery or other bottle-dressing material, having a circular bottom, an open upper end, a close-fitting removable cover for the same, and a handle in the cover, substantially as and for the purposes hereinbefore set forth.

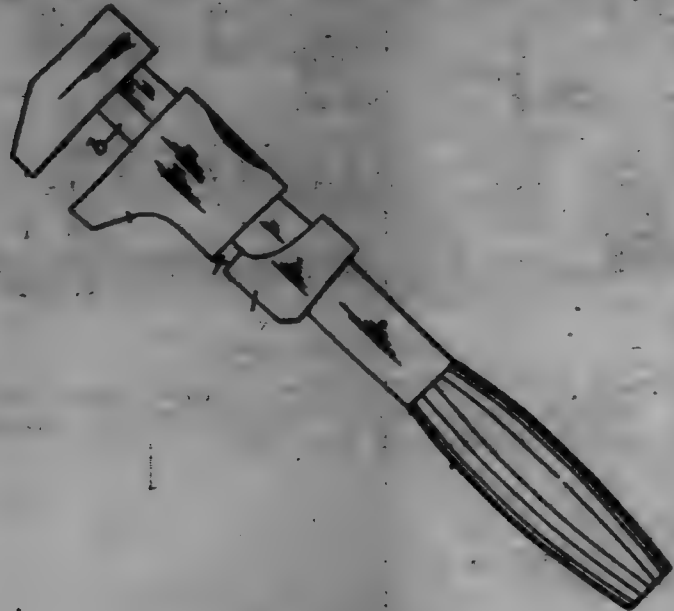
2. A can for holding coarse emery or other bottle-dressing material, having a circular bottom, and supporting legs or projections extending below said bottom, an open upper end, a close-fitting removable cover for the same, and a handle in the cover substantially as and for the purposes hereinbefore set forth.

699,443. WRENCH. ALBERT BORN, Berlin, Prussia, assignor of one-half to John W. Currier, North Troy, Vt. Filed Mar. 1, 1901. Serial No. 35,741. (No model.)

Claim.—1. In a wrench of the class described, the combination with a fixed jaw and a cheek to which it is secured, of a movable jaw mounted to slide on said cheek intermediate the fixed jaw and tip of said cheek, and a locking collar or yoke mounted on said cheek to move bodily thereon and adapted to engage said movable jaw, substantially as described.

2. In a wrench of the class described, the combination with a fixed jaw a cheek to which it is secured and a handle secured to said cheek, of a movable jaw mounted to slide on said cheek intermediate said fixed jaw and said handle, a handle being projecting from the under side of said

movable jaw, and a locking-collar adapted to engage said jaw to lock the movable jaw in its adjusted position, substantially as described.



699,444. DEVICE FOR PREVENTING SWINE FROM ROOTING. An. SAMUEL J. BARNES, Portland, Iowa. Filed Apr. 28, 1906. Serial No. 12,047. (No model.)



Claim.—1. An implement of the character described and for the purpose described, comprising two pivotally-connected hand-levers, one being provided with a outer-block head having a flat knife-opening surface and convergent tapering sides at its extremity, and the other having a knife-attaching head, and a separately-formed knife secured at its extremities to said last-named head and having a forwardly-projecting central web-cutting portion afforded by convergent knife sections substantially parallel to the convergent sides of said opposed head, said outer-block head projecting beyond the outer, substantially as and for the purpose set forth.

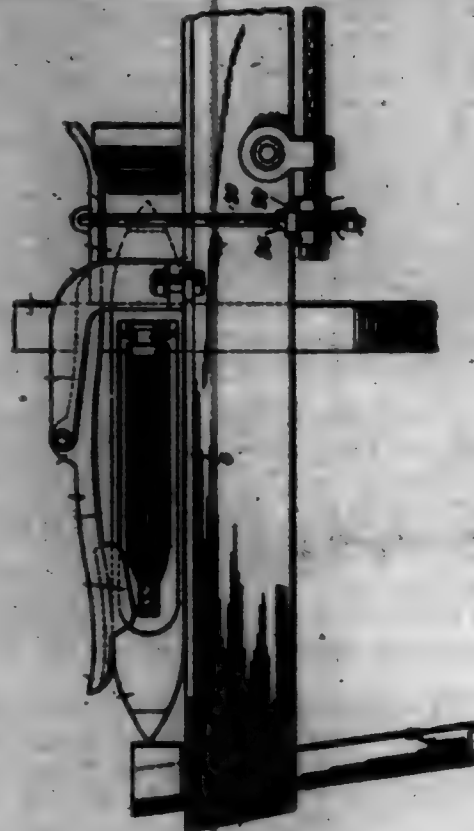
2. In an implement of the character described, the combination of two pivotally-connected hand-levers, one of said levers being provided with a bifurcated head and the other with a flattened portion passing between the bifurcations of said head and having also an expanded knife-opening head provided with a flat knife-opening surface, said last-named head having forwardly-convergent sides, and a knife secured at its extremities to the bifurcations of said first-named head and having a forwardly-projecting cutting-web formed by forwardly-converging knife-sections, the said knife-opening head projecting beyond said knife, substantially as and for the purpose set forth.

699,445. SHUTTLE-CHECK FOR LOOMS. JOHN C. BRYAN, Augusta, Ga. Filed Sept. 7, 1906. Serial No. 23,266. (No model.)

Claim.—1. In a shuttle-check, the combination with a shuttle-box, of a top pressure-plate pivotally hung at a point intermediate of its ends, the outer extremity of the plate having opposite depending flanges and normally held in depressed position for contact with the shuttle, the shuttle raising the outer extremity of the plate when assuming an operative position in relation to the pick mechanism for the shuttle, and means connected to the inner extremity of the plate for restoring the same to normal position after the shuttle has passed out of the box.

2. In a shuttle-check, the combination with a shuttle-box, of a top pressure-plate pivotally mounted above the box and having the fulcrum therefor located at a point intermediate of the ends thereof, the outer end of the plate being normally depressed and the inner end elevated to respectively contact with and clear the shuttle, the shuttle raising the outer

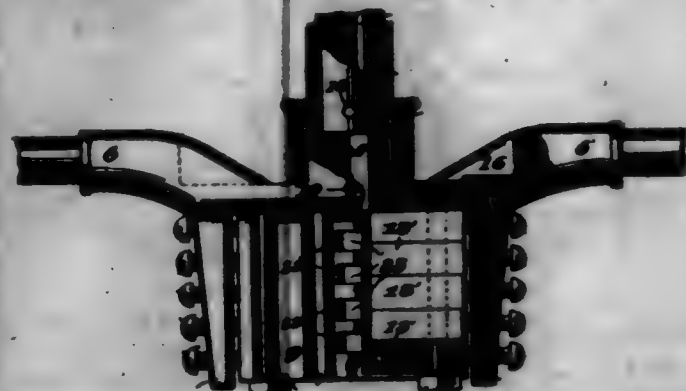
end of the plate in passing under the lower, and means for cushioning and restoring the plate to normal position consisting of a tension-rod under spring control and a rocking element connected to said rod.



3. Mechanism of the character set forth, including a shuttle-box, and a top pressure-plate movably mounted therein having opposite depending flanges.

4. In an attachment of the character set forth, the combination with a shuttle-box, of a top oscillable pressure-plate pivotally mounted above the box and adapted to have its outer extremity bear upon the shuttle, a rod attached to the inner extremity of the plate and having adjusting-nuts on the lower end thereof, a rocking element having an ear through which the lower end of the rod extends, the upper nut having contact with the upper side of the ear, and a spring on the lower end of the rod between the said ear and the lower nut.

699,446. SCREW-CUTTING TOOL. JAMES J. BAKER, Hartford, Conn. Filed Oct. 31, 1906. Serial No. 29,047. (No model.)



Claim.—1. A screw-cutting implement comprising sets of independent dies arranged in columns, each die being constructed to thread a different gage of work, and means for adjusting said dies, so that the die it is desired to employ may be utilized for threading the work for which it is intended while the other dies are withdrawn and do not interfere with the passage of said work.

2. A screw-cutting implement comprising sets of independent, sectional dies arranged in columns, the dies being of different sizes and each die being adapted to thread work independent of the work threaded by any other die; means for adjusting said dies; and means for guiding the work to the dies in use.

3. In a screw-cutting tool, the combination, with a chambered die-stock, of pairs of superimposed dies, each of a die for threading a different diameter of work, mounted in the chamber of said stock; means for clamping the dies in position; a work-guide; and telescopic bushings adapted to be fitted within said work-guide.

4. In a screw-cutting tool, the combination, with a chambered die-stock of slotted dies arranged in superimposed pairs within the chamber

of said stock, each pair of dies being of a size different from the other pairs of dies; both passing through the slots of the dies; and means for individually adjusting the dies.

5. In a screw-cutting tool, the combination, with a die-stock of pairs of dies fitted for adjustment on said stock, each pair being of different gages from any other pair; means for clamping the dies together in column; means for individually adjusting the dies; and means for guiding the work.

6. In a screw-cutting tool, the combination, with a chambered die-stock, of dies arranged in column at each end of the chamber of said stock, each die being of different size from any other die of said column; means for clamping said dies in place; and means for adjusting the dies.

7. In a screw-cutting tool, the combination, with a chambered die-stock having side plates, of dies arranged in column between said plates, each die being of a size adapted to thread a certain gage of work different from the gages threaded by any other die; means for clamping the dies in place; and means for adjusting the dies.

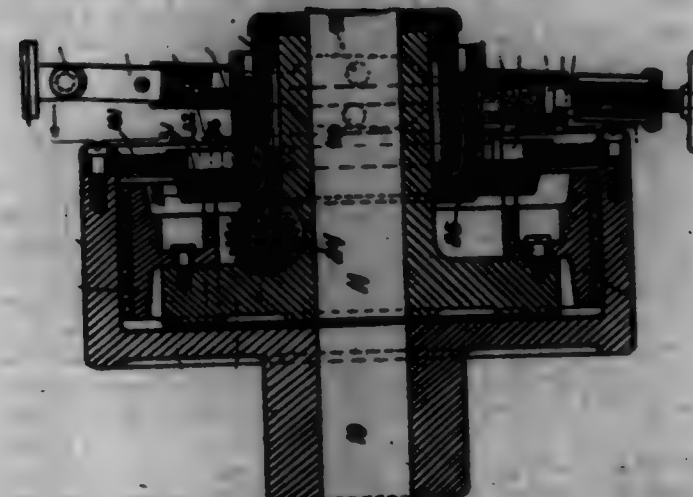
8. In a screw-cutting tool, the combination, with a die-stock having slotted side plates and a work-guide, of pairs of dies, each pair being of different gages from any other pair arranged in column at each end of the chamber between said plates; both passing through slots in the dies and threaded at one end into the stock; and means for individually adjusting the dies.

9. In a screw-cutting tool, the combination, with a die-stock having eight openings, of pairs of dies of different gages mounted in a chamber of said stock, the dies being arranged in column; and means for adjustably securing said dies in position.

10. In a screw-cutting tool, the combination, with a die-stock having a chamber, of dies of a construction adapted to thread different classes of work, arranged in column within said chamber; extensions adjacent to the ends of said chamber; screws threaded through the extensions and bearing against the dies; and means for clamping the dies in place.

11. In a screw-cutting tool, having a work-guide, the combination, with said guide, of screws passing through the walls of the guide; telescopic bushings fitted within the guide; superimposed pairs of dies, each pair being of a size to fit a different gage of work from any other pair.

699,447. FEEDING-CLUTCH. MALCOLM CAMPBELL, Boston, Mass. Filed Dec. 14, 1906. Serial No. 33,051. (No model.)



Claim.—1. In a friction-clutch, a normally rotating clutch member having two friction-surfaces, a member having friction mechanism to engage one of said surfaces, a worm for actuating said mechanism, and a member in sliding engagement with said worm, and provided with means for frictionally engaging the other surface of the normally rotating clutch member, and with speed-controlled positive clatching means for engaging said normally rotating clutch member.

2. In a friction-clutch, a normally rotating clutch member having a friction-surface, a member having a complementary friction-surface to engage the first-mentioned friction-surface and having a movable positive clatching device operative by centrifugal action to positively engage the first-mentioned clutch member when the second-mentioned member reaches a predetermined speed of rotation, said normally rotating clutch member having means to be engaged by said positive clatching device.

3. In a clutch, a normally rotating clutch member having a friction-surface, and one or more ratchet-teeth, and a member adapted to frictionally engage the said friction-surface, said member being provided with a pawl operative by centrifugal action when the said second member reaches a predetermined speed of rotation to engage the teeth or teeth on the said normally rotating clutch member.

4. In a friction-clutch, a normally rotating clutch member having two friction-surfaces, a member having relatively movable friction-surfaces to engage one of the friction-surfaces, means for actuating said member in

clutching a worm rotatable independently of the clutch-carrying member, and a third member rotatable with the second mentioned member, but adapted to slide thereon, the said third member having means for frictionally engaging the first-mentioned member, and speed-controlled means for positively engaging the first-mentioned member.

5. In a friction-clutch, a normally rotating clutch member having a friction-surface, a second member having relatively movable friction-surfaces to engage the friction-surface of the first-mentioned member, means for actuating said second member, including a worm rotatable independently of the clutch-carrying member, a third member for connecting the worm to and disconnecting it from the first-mentioned normally rotating clutch member, and a yieldingly-mounted shifting lever having friction mechanism for retarding the rotation of the said third member, whereby the relative movement of said worm mechanism is reversed and the friction-surfaces separated.

6. In a friction-clutch, a normally rotating clutch member, a second member having friction mechanism for engaging the first-mentioned member, a third member for operating the friction mechanism, and means for retarding the rotation of the said third member for reversing the operation thereof, said retarding means including a yieldingly-mounted shifting lever, friction-shoes on said lever, and means for affecting the engagement of said shoes with said third member.

699,448. PUMP. ALEXANDER S. CARDWELL, Elmwood, N. Y., assigner of one-half to Wesley Parrott Loomis, Kalamazoo, Mich. Filed Mar. 26, 1901. Serial No. 63,991. (No model.)

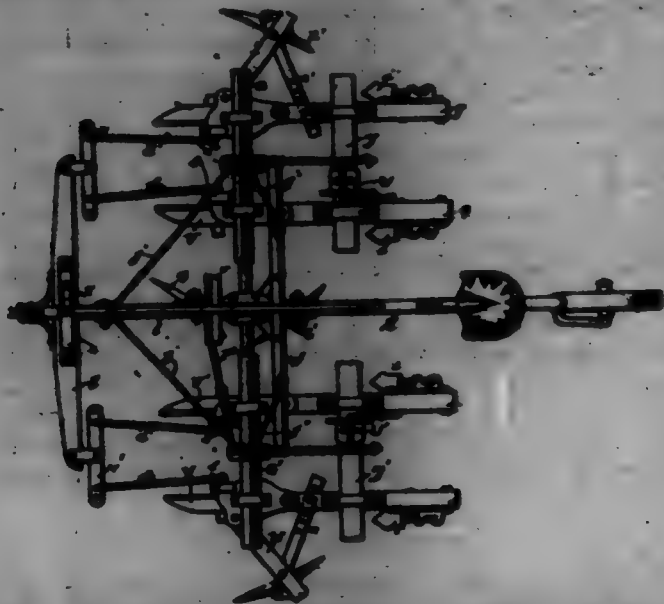


Claim.—1. In a pump, the combination with a rotatable cylinder, of a piston therein provided with suitable connections for its reciprocation and a spring-actuated piston contiguous to the first piston and provided with a spring tending to press it against said first piston whereby said spring-actuated piston is moved positively in one direction by the first piston and is moved in the opposite direction by the spring; substantially as described.

2. In a pump, the combination with a suction-pipe containing a series of check-valves opening upward, of a branch pipe connected therewith above the upper check-valve, said branch pipe also containing a check-valve opening upward, a cylinder connected with said suction-pipe above the branch pipe, an upwardly-pressing spring in said cylinder, a spring-actuated piston pressed upward by said spring and containing a perforation provided with an upwardly-opening check-valve, a positively-driven piston above the spring-actuated piston, also perforated, containing a check-valve, and suitable connections for positively reciprocating said second piston; substantially as described.

699,449. CULTIVATOR. FRANK R. CHAMBERLAIN, Concord, N.H., assigner of one-half to Edwin Childers, deceased. Filed May 21, 1901. Serial No. 63,994. (No model.)

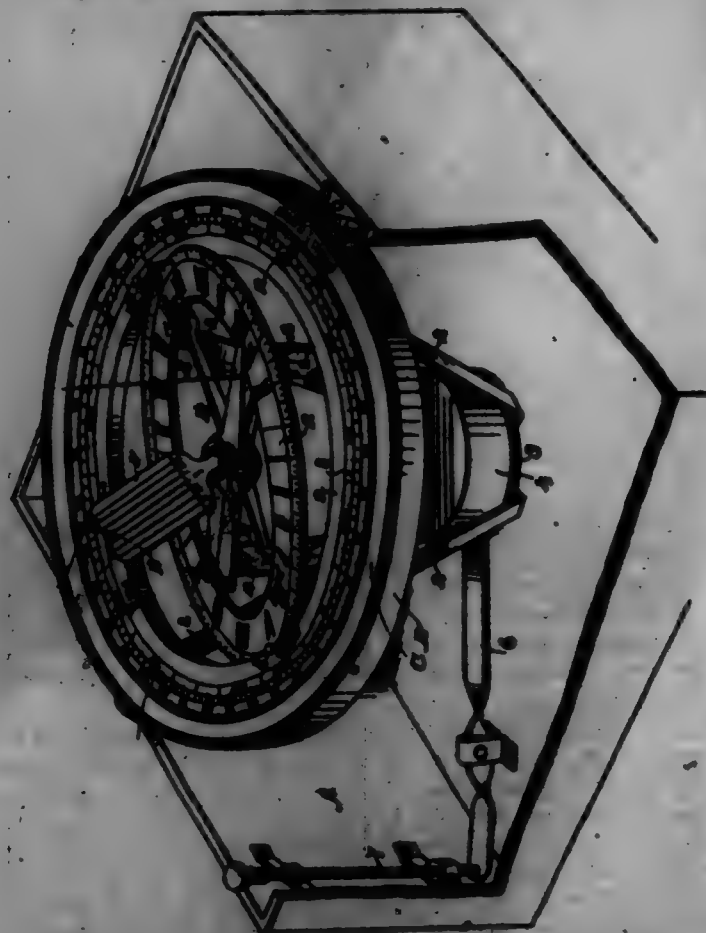
Claim.—1. In a cultivator, having transversely-adjustable gangs connected to move simultaneously, the combination of a wing-beam laterally adjustable having means for carrying cultivating instrumentalities with each gang all for the purpose described.



2. The combination in a cultivator of a center frame, carrying cultivating instrumentalities, a cross-bar carrying transversely-adjustable gangs having wing-beams carrying cultivating instrumentalities adjustable laterally to the said gangs, all for the purpose set forth.

3. The combination in a cultivator having transversely-adjustable gangs connected to move simultaneously, of a center beam carrying a cross-bar engaging said gangs, a lever pivoted thereon, a draft-bar sliding or suspended to said frame, means adjustable to receive draft connections engaging said gangs, laterally-adjustable wing-beams carrying cultivating instrumentalities, all substantially as described and for the purpose set forth.

699,450. DEVICE FOR CORRECTING COMPASS ERRORS. JAMES CHERRYMAN, San Francisco, Cal. Filed Mar. 11, 1901. Serial No. 69,396. (No model.)



Claim.—1. An apparatus for correcting compass errors and the like, consisting of the weighted horizontally-suspended counterbalance-rings, a compass and degree subdivided ring turnable horizontally within the inner of the two rings, another ring turnable horizontally within the compass-ring, a ring journaled across the open center of the inner ring and having clock-subdivisions on its face, said ring having its axis substantially in the

horizontal plane of the other rings, and being tiltable to show an inclination with relation to the horizontal rings, a centrally-pivoted needle turnable in the plane of the clock-ring, having a member with a central vertically-marked surface, and a shadow-pin carried by the needle and adapted to cast a shadow upon said member.

2. An apparatus for correcting compass errors and the like consisting of two rings pivoted at right angles with each other, with a counterbalance-weight whereby an essentially horizontal position of the inner ring may be maintained, a ring turnable horizontally with relation to the inner ring having degree and compass subdivisions marked upon it, another ring turnable horizontally with relation to the compass-ring, a ring pivoted within said last-named ring and turnable about its pivot to change its plane with relation to said rings, and an indicating-segment fixed thereto, subdivided to show the ship's altitude, in combination with a centrally-pivoted needle turnable in the plane of the clock-face having a shadow-pin perpendicular to it, a centrally-fixed inclined and marked surface upon which the shadow of the pin is caused to fall and a pointer turnable in unison with said third-named ring and movable over the degree-divided ring to indicate the compass error.

3. In an apparatus for indicating compass errors and the like, the universally balanced and suspended rings by which a horizontal position of the apparatus is maintained, a compass and degree divided ring turnable in the same plane with the innermost of the counterbalance-rings, a ring turnable with relation to the compass and degree ring having a pointer extending over the degree-markings, a ring having its circumference divided into two equal clock-faces for forenoon and afternoon use, said ring having its axis substantially in the horizontal plane of the last-named horizontal ring, and turnable to stand at any angle of inclination with relation thereto, a segment fixed at right angles to said clock-ring and extending through the open center of the adjacent ring, and subdivided in degrees whereby the angle of inclination is indicated, a centrally-pivoted needle turnable in the plane of the clock-face and movable over the subdivisions thereof, a shadow-pin perpendicular to and carried by said needle, a vertically-inclined shadow-plate upon said needle and turnable in unison therewith, said plate having a marked surface and a central line or sight adapted to coincide with the shadow-pin.

4. In an apparatus for determining compass errors, the combination of a horizontally-supported and movable ring having compass and degree markings thereon, an another support within and movable in the plane of this compass-ring, a ring with clock-face markings thereon pivoted within the said another support, and adapted when horizontal to lie in the same plane with said support and compass-ring, a needle pivoted centrally of said clock-face ring or hour-circle, and movable over said clock, a pin carried by said needle, a surface upon said needle whose plane is disposed at right angles to a plane which includes the shadow-pin, and markings on said surface with which the shadow of the pin is adapted to coincide.

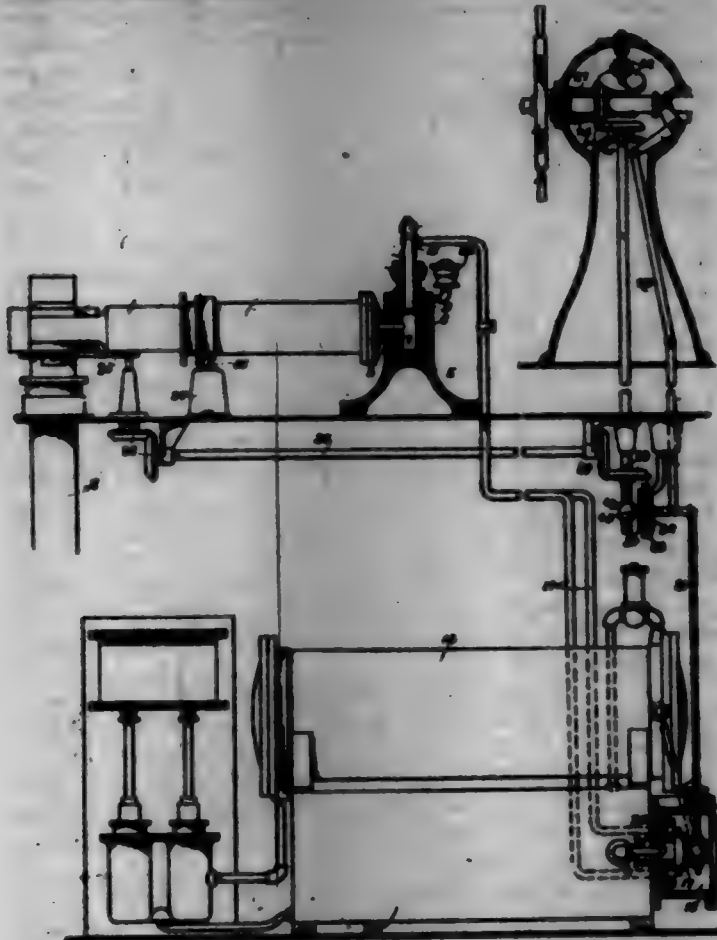
5. An improved apparatus for correcting compass errors and the like, including a ring in which the compass and degree circle of the apparatus are turnable in the same plane, said support-ring being pivoted in an outer ring, and said outer ring pivoted at right angles therewith upon a support whereby universal movement and a constant horizon of the inner portion of the apparatus is obtained, an inner ring having clock-face markings said last-named ring, when horizontal, adapted to lie in the same horizontal plane with said support and compassing-arms converging downwardly from the inner support-ring, a counterbalance-weight centrally and removably carried thereby, a means for locking the parts to prevent movement consisting of a fulcrumed lever, a screw-rod by which it is moved, the inner end of said lever having a device adapted to interlock with the lower part of the counterbalance device.

699,451. HYDRAULIC STEERING MECHANISM. JAMES CHERRYMAN, San Francisco, Cal. Filed Nov. 15, 1901. Serial No. 69,402. (No model.)

Claim.—1. The combination in a steering mechanism of hydraulic cylinders pivoted at one end, and having connections through said end with a fluid-supply, means connecting the pivot end of one cylinder with the like end of a second cylinder whereby the fluid may flow from one cylinder to the other, a rudder-stock with which the piston-rods of said cylinders are connected, a source of fluid-supply, means by which the admission of fluid to the cylinder is controlled, and means whereby the movement of the rudder is limited automatically.

2. The combination in a steering mechanism of hydraulic cylinders, connections between said cylinders having connection through one end with a source of fluid-supply, means connecting the end of one cylinder with a corresponding end of another cylinder whereby the fluid may flow from one cylinder to the other, and a rudder-stock, a source of fluid-supply in conjunction with said cylinders, means for controlling the admission and exhaust of said cylinders, and means whereby the movement of the rudder beyond a certain point in either direction is controlled automatically and independent of the operator.

3. The combination is a steering mechanism of oscillating hydraulic cylinders, having connection through their pivot ends with a source of fluid-supply, and means connecting the cylinders whereby the fluid may flow from one cylinder to the other, pistons reciprocable within said cylinders, piston-rods connected with the stock of the rudder, means for controlling the flow to and from said cylinders whereby the pistons are actuated to move the rudder, and means upon the rudder-stock whereby said flow may be automatically checked when the rudder has swung a certain distance in either direction.



4. The combination is a steering mechanism of oscillating cylinders having connection through their pivot ends with a source of fluid-supply, pipes or passages connecting the pivot end of one cylinder with a like end of a second cylinder whereby the fluid may flow from one cylinder to the other, pistons movable within the cylinders, piston-rods connected with the rudder-stock, a source of fluid-supply, means for controlling the admission and exhaust of fluid to the cylinders, a segment carried on the rudder-stock, gearing with which said segment engages and connections between said gearing and the means controlling said admission and exhaust whereby said flow of fluid may be checked automatically.

5. The combination is a steering mechanism of hydraulic cylinders having their pistons connected with the rudder-stock, said cylinders having their pivot ends connected with a source of fluid-supply, and means connecting the pivot end of one cylinder with a like end of a second cylinder, for transferring the fluid from one cylinder to the other, a source of fluid-supply, a valve by which the flow of fluid to and from the cylinders is controlled, a tiller-wheel, connections between said tiller-wheel and valve, connections between the rudder-stock and said valve-operating mechanism whereby the valve may be actuated automatically and independently of the tiller-wheel.

6. The combination is a steering mechanism of hydraulic cylinders operatively connected with the rudder-stock, said cylinders having their pivot ends connected with a source of fluid-supply, and means connecting the pivot end of one cylinder with a like end of a second cylinder, for transferring the fluid from one cylinder to the other, supply-pipes for said cylinders, a source of fluid-supply, a valve by which the flow of fluid through said pipes is controlled, a tiller-wheel, a shaft upon which said wheel is fixed, said shaft having a rotatable and longitudinal movement, a ball-crank lever engaging therewith, connecting-rods between said lever and said valve, a segment on the rudder-stock, gearing and connections between said segment and said rods whereby the valve may be moved independently of the movement of the ball-crank tiller-wheel shaft.

7. In a hydraulic steering apparatus, the combination of a tiller-wheel, a shaft upon which said wheel is fixed, a rotatable sleeve, said shaft and sleeve being independently turnable and said shaft capable, also, of a longitudinal movement, connections between the rudder-stock and said sleeve whereby the latter is turned as the rudder moves and an indicator

operated by the movement of the sleeve which indicator shows the relative position of the rudder.

8. In a steering mechanism, the combination of hydraulic cylinders, supply-pipes entering said cylinders, a valve by which the flow through said pipes is controlled, a tiller-wheel, a shaft upon which said wheel is fixed, a sleeve including and turnable independently of said shaft, said shaft having a movement longitudinally in relation to said sleeve, a ball-crank lever adapted to be actuated by the longitudinal movement of the shaft, connecting-rods between said lever and the above-mentioned valve, said rods intermediately connected to a short lever having one end pivoted to a slidable block, resilient supports for said block and connections between the rudder and said block whereby the latter is moved to actuate said valve automatically.

9. A steering mechanism consisting in combination of oscillating cylinders, pistons movable therein, piston-rods connected with the rudder, fluid-supply pipes entering the cylinders, a valve by which the flow through said pipes is regulated, means for operating said valve, a segment carried by the rudder-stock, an indicator, connections between said segment and indicator whereby the latter is moved to show the relative position of the rudder, a traveling arm carried by said connecting means, said arm adapted to engage the valve-operating mechanism to move said valve automatically.

10. In a steering mechanism, the combination of hydraulic cylinders pivoted at one end and having their piston-rods connected with the stock of a rudder, passages formed in the pivots through which fluid is admitted to the cylinders and connections between the cylinders whereby fluid may flow from one cylinder to the other.

11. In a steering mechanism the combination of oscillating cylinders, pistons movable therein, piston-rods connected with a yoke on the rudder-stock, means for admitting fluid to said cylinders to move their pistons, pipes connecting the cylinders and valves in said pipes which are adapted to be opened and allow fluid to pass from one cylinder to the other when excessive pressure is exerted in either of said cylinders.

12. In a steering mechanism the combination of oscillating hydraulic cylinders operatively connected with the rudder-stock, said cylinders having connections through their pivot ends and their pivots with a source of fluid-supply, connecting-pipes between the cylinders, and relief-valves in said pipes.

13. In a hydraulic steering mechanism the combination of cylinders pivoted at one end and having their piston-rods connected with a yoke on the rudder-stock, a hollow extension on the pivot end of each cylinder and communicating with the cylinder-chamber, sleeves on said extensions turnable about the pivots of the cylinders, a passage-way in each of said pivots, in continuous register with the channel in said extension, a pipe connecting said passage-ways, relief-valves interposed in said pipe, and supply-pipes entering said connecting-pipes on either side of said valves.

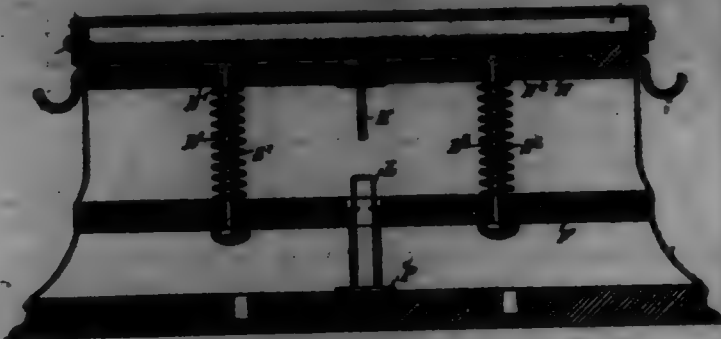
14. A hydraulic steering mechanism consisting in combination of oscillating cylinders having their piston-rods operatively connected with the rudder-stock, communications between the cylinder-chambers and a source of fluid-supply through the pivots of the cylinders, said source of supply comprising a pressure-reservoir, a valve-chamber, pipes leading from said reservoir and to said cylinders, a slide-valve controlling the flow through the latter pipes, said valve adapted when in a control position between the ports leading to said pipes to uncover each port slightly, and means by which said valve may be moved to admit or discharge fluid to or from the cylinders.

15. A hydraulic steering mechanism consisting in combination of oscillating cylinders having their piston-rods operatively connected with the rudder-stock, communications between said cylinders and a source of supply, a slide-valve by which the flow of fluid to the cylinders is controlled, a rod attached to said valve, a short lever to which the other end of the rod is pivoted, a resiliently-supported and slidable block to which the other end of the lever is pivoted, a tiller-wheel, a shaft upon which said wheel is fixed, connections between said lever and wheel whereby said lever may be actuated to operate the valve by the movement of the wheel, a trip member operable by the movement of the rudder, said member adapted to engage the slidable block when the rudder has swung a certain distance in either direction, said engagement serving to move the before-mentioned valve independently of the operation of the tiller and so automatically check the flow of fluid to the cylinders.

16. In a hydraulic steering mechanism, the combination of cylinders pivoted at one end, pistons movable in said cylinders, piston-rods connected with a yoke on the rudder-stock, channels formed in the pivots, and passages in the cylinder-heads connecting said channels and the cylinder-chambers through which fluid may be delivered to and discharged from said chambers.

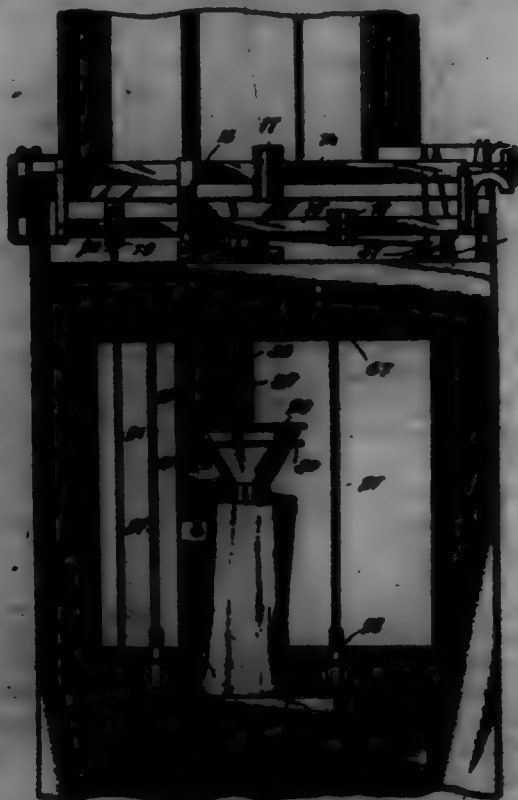
399,459. FLANK-LAMP. GEORGE WILLIAMS, South, England, assignor of one-fifth to Arthur Gladwell, South, England. Filed Sept. 12, 1891. Serial No. 72,600. (No model.)

Claim.—1. A flash-lamp comprising a narrow elongated tray, an ejector-casing in which said tray is moved vertically, springs within said casing for moving the tray upward in said casing, a trigger mechanism for holding the tray with the springs compressed at a point considerably within the casing and steps or abutments for limiting the outward movement of the tray, said casing having at its upper end about its elongated mouth a narrow channel extending about it for a wick and for receiving a combustible fluid, substantially as described.



2. A flash-lamp comprising a narrow elongated tray, an ejector-casing in which said tray is moved vertically, springs within said casing for moving the tray upward in said casing, a trigger mechanism for holding the tray with the springs compressed at a point considerably within the casing and steps or abutments for limiting the outward movement of the tray, said casing having at its upper end about its elongated mouth a narrow channel extending about it for a wick and for receiving a combustible fluid, said steps comprising bolts connected with the tray and disposed at different points along the same, and a floor against which the bolt-heads strike, said trigger mechanism being arranged substantially centrally of the tray, substantially as described.

699,458. WEIGHING-MACHINE. GEORGE E. COHEN, Ash Grove, Mo. Filed June 12, 1901. Serial No. 64,617. (No model.)



Claim.—1. The combination of means commanding a source of material supply, a scale-beam in two parallel parts, one of which is formed with a value-graduation and the other of which is formed with two graduations, one of which is a price-graduation, a pen on the value-graduation, a platform adjustably connected with the part of the scale-beam having the two graduations and at the price-graduation, a counterbalance-pen on the other graduated portion of the said beam and coacting with the platform in the manner specified, and means actuated from the scale-beam for controlling the device for commanding the source of material supply.

2. The combination of a main sliding valve-plate having two orifices therein, a supplemental sliding valve-plate arranged to command one of the orifices in the main valve, and mechanism for successively actuating the valve-plates.

3. The combination of a main sliding valve-plate having two orifices therein, a supplemental sliding valve-plate commanding one of the orifices

of the main valve, independent devices for actuating the valve-plates, and weighing devices connected with said valve-actuating devices to successively operate the same.

4. The combination of a source of material supply, a main sliding valve-plate commanding the same and having two orifices therein, a supplemental sliding valve-plate commanding one orifice of the main valve-plate, weighing devices, and means for independently operating the valve-plates, said means being successively actuated from the weighing devices.

5. The combination of a main valve-plate having two orifices, a supplemental valve-plate commanding one of the said orifices, means for opening the main valve, means for opening the supplemental valve, the supplemental-valve-opening means being actuated from the main valve, and independently-operated devices for returning the valves to closed position.

6. The combination of a weighing device, a lever, a spring actuating the lever, the lever being arranged to be moved contrary to the spring by the weighing device, a valve, a trigger-plate, controlled by the lever, and a connection between the valve and trigger-plate.

7. The combination of two independently-operated valves, two spring-pressed levers, a trigger-plate actuated by each lever, a means connected with each valve, said means being respectively releasably held by the trigger-plates, and a weighing device actuating the levers against the action of their springs.

8. The combination of a scale-beam, a lever adapted to be moved in one direction by the beam, a pivoted arm, a spring connected with the lever and arm, a scale bearing graduations corresponding to the graduations of the scale-beam, and means for adjusting the free end of the arm across the said scale, as set forth.

9. The combination of a valve, means tending to close it, a rod connected with the valve, a latch serving to engage and hold the rod, a rock-shaft, a part of which is engageable with the latch to release it, a trigger-plate releasably holding a part of the rock-shaft, a weighing device, and means actuated by the weighing device for moving the trigger-plate to release the rock-shaft.

10. In a weighing-machine, the combination with a scale-beam, of a spring-actuated valve-plate having a major and minor orifice, a locking device controlled by the scale-beam for locking the valve-plate with its major orifice in position to receive the discharge, a supplemental valve controlling the minor orifice of said plate, and means controlled by the scale-beam for operating the supplemental valve to cause it to close the said minor orifice, as set forth.

11. In a weighing-machine, the combination with a scale-beam, of a main valve having a major and a minor orifice, a supplemental valve controlling the minor orifice of the main valve, a locking device for locking the main valve in position, means controlled by the scale-beam for releasing the locking device, a locking device for the supplemental valve, and means controlled by the scale-beam for releasing the locking device of the supplemental valve, as set forth.

12. In a weighing-machine, the combination with a scale-beam, of a main valve having a major and a minor orifice, a supplemental valve for the minor orifice of the valve, levers arranged under the scale-beam, and arranged to follow the movement thereof, a locking device for the main valve, means controlled by one of the said levers for releasing the locking device, a locking device for the supplemental valve, and means controlled by the other lever for releasing the locking device of the supplemental valve, as set forth.

13. In a weighing-machine, the combination with a scale-beam, a main valve having a major and a minor orifice, and a supplemental valve for the minor orifice of the main valve, of two spring-actuated levers arranged under the scale-beam, a sliding and spring-pressed rod connected with the main valve, a latch for engaging the said rod, means controlled by one of the levers for releasing the latch from the said rod, a locking device for the supplemental valve, and means controlled by the other lever for releasing the locking device of the supplemental valve, as set forth.

14. In a weighing-machine, the combination with a scale-beam, a main valve having a major and a minor orifice, and a spring-pressed supplemental valve for the minor orifice of the valve and working at right angles to the said valve, of two pivoted and spring-pressed levers arranged under the scale-beam, one of the levers being arranged to swing higher than the other, a sliding and spring-pressed rod connected with the main valve, a pivoted latch for engaging the said rod, means controlled by one of the levers for releasing the latch, a rock-shaft provided with means for engagement with the supplemental valve for locking the same in position, and means controlled by the other lever under the scale-beam for operating the rock-shaft, as set forth.

15. In a weighing-machine the combination with a scale-beam, and a spring-pressed valve-rod, of a spring-actuated member under the scale-beam, a spring-pressed latch for locking the valve-rod, a rock-shaft, means controlled by the spring-pressed member for locking the rock-shaft, and means carried by the rock-shaft for holding the latch disengaged from the valve-rod, as set forth.

16. In a weighing-machine, the combination with a scale-beam, and a spring-pressed valve-rod, of a spring-pressed lever under the scale-beam, a spring-pressed latch for locking the valve-rod, a rock-shaft provided with arms one of which is adapted to hold the latch disengaged from the valve-rod, and a trigger-plate connected with the lever and with which the other arm of the rock-shaft engages, as set forth.

17. In a weighing-machine, the combination with a scale-beam, and a spring-pressed valve-rod, of a pivoted and spring-pressed lever under the scale-beam, a pivoted and spring-pressed latch for locking the valve-rod, a rock-shaft provided with arms one of which is adapted to hold the latch out of engagement with the valve-rod, a pivoted and spring-pressed trigger-plate connected with the said lever and with which the other arm of the rock-shaft engages, and means for limiting the swinging movement of the trigger-plate, as set forth.

18. In a weighing-machine, the combination with a scale-beam, and a spring-pressed valve-rod provided with a detent, of a pivoted and spring-pressed lever under the scale-beam, a pivoted and spring-pressed latch for locking the valve-rod, a rock-shaft provided with arms, one of which is adapted to hold the latch out of engagement with the valve-rod, a pivoted and spring-pressed trigger-plate connected with the lever and with which the other arm of the rock-shaft engages, a bar loosely mounted on the rock-shaft, and with which the detent of the valve-rod is adapted to engage, and a spring having one end secured to the shaft and the other to the bar, as set forth.

19. In a weighing-machine the combination with a scale-beam, and a spring-pressed valve, of a pivoted and spring-pressed lever under the scale-beam, a rock-shaft provided with an arm, a trigger-plate connected with the said lever and with which the arm of the rock-shaft engages, a locking device for the said valve, and means for operating the locking device from the rock-shaft, as set forth.

20. In a weighing-machine the combination with a scale-beam, and a spring-pressed valve, of a pivoted and spring-pressed lever under the scale-beam, a rock-shaft provided with an arm, a trigger-plate connected with the said lever and with which the arm of the rock-shaft engages, a second rock-shaft provided with an arm for engaging the valve, and means for operating the second rock-shaft from the first, as set forth.

21. In a weighing-machine the combination with a scale-beam, and a spring-pressed valve, of a pivoted and spring-pressed lever under the scale-beam, a rock-shaft provided with arms, a trigger-plate connected with the lever and with which one of the arms of the rock-shaft engages and a second rock-shaft provided with arms one of which engages the valve, and the other an arm of the first-named rock-shaft, as set forth.

22. In a weighing-machine the combination with a main valve-plate having a major and a minor opening, and means for operating the same, of a supplementary valve-plate for controlling the minor opening and operating transversely to the main valve-plate, and a pivoted and spring-pressed bell-crank lever having one member connected with the supplementary valve-plate and its other member adapted to be engaged by the main valve-plate, as set forth.

23. In a weighing-machine the combination with a "main" valve-plate having a major and a minor opening, and means for operating the same, of a supplementary spring-pressed valve-plate for controlling the minor opening and operating transversely to the main valve-plate, a pivoted bell-crank lever, a link connecting one member of the lever with the supplementary valve-plate, and a spring having one end secured to a fixed support and its other end to the other member of the bell-crank lever, the member of the bell-crank lever to which the spring is secured being adapted to be engaged by the main plate, as set forth.

24. In a weighing-machine, the combination with a main valve-plate having a major and a minor opening, and means for operating the same, of a supplementary and spring-pressed valve-plate for controlling the minor opening and operating transversely to the main valve-plate, a pivoted and spring-pressed bell-crank lever having one member connected with the supplementary valve-plate and its other member adapted to be engaged by the main valve-plate, and a locking device for holding the supplementary valve-plate open, as set forth.

25. In a weighing-machine the combination with a scale-beam, and levers arranged transversely under the scale-beam, of a pivotally-mounted arm, springs secured to said arm and to the levers, a scale, and means for adjusting the arm with respect to the scale, as set forth.

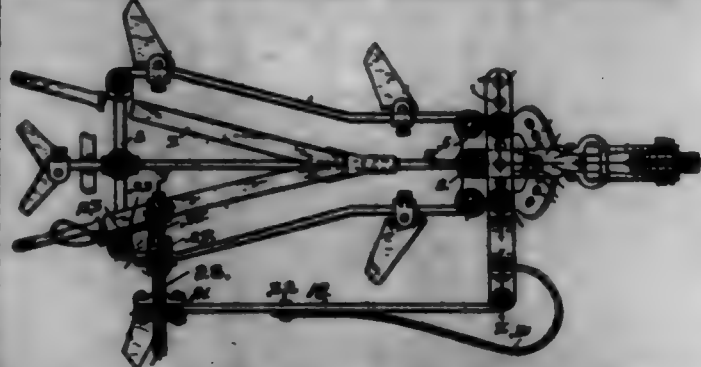
26. A weighing-machine, comprising a scale-beam, a platform connected with the scale-beam, a hopper, a spring-pressed main valve-plate having a major and a minor opening, means for holding said plate with its major opening in register with the hopper, a spring-pressed supplementary valve-plate for controlling the minor opening of the main valve-plate, means controlled by the scale-beam for releasing the main valve-plate whereby the minor opening thereof will be brought into register with the hopper, a locking device for holding the supplementary valve-plate from over the minor opening of the main valve-plate, and means controlled by the scale-beam for releasing the locking device, as set forth.

27. A weighing-machine, comprising a scale-beam, a platform connected with the scale-beam, a hopper, a spring-pressed main valve-plate having a major and a minor opening, a locking device for holding the said plate with its major opening in register with the hopper, a spring-pressed supplementary valve-plate for controlling the minor opening of the main valve-plate, said supplementary valve-plate working at right angles to the main plate a locking device for holding the supplementary valve from over the minor opening on the main valve-plate, two spring-pressed levers arranged under the scale-beam, a swinging and spring-actuated arm for releasing the locking device of the main and supplementary valve-plates, and means controlled by the said levers for holding the arms in inactive positions, as set forth.

28. A weighing-machine, comprising a scale-beam, a platform connected therewith, a hopper, a spring-pressed main valve-plate having a major and a minor opening, a locking device for holding the main valve-plate with its major opening in register with the hopper, a spring-pressed supplementary valve-plate for controlling the minor opening of the main valve-plate, said supplementary valve-plate working at right angles to the main valve-plate, a locking device for holding the supplementary valve-plate from over the minor opening of the main valve-plate, two spring-pressed levers arranged under the scale-beam, a swinging and spring-actuated arm for releasing the locking device of the main valve-plate, means controlled by one of the said levers for locking the said arm in inactive position, a second swinging and spring-pressed arm, means controlled by the other lever for holding the last-named arm in inactive position, and means for releasing the locking device of the supplementary valve-plate from the said second swinging arm, as set forth.

29. A weighing-machine, comprising a scale-beam, a platform connected therewith, a hopper, a main valve-plate having a major and a minor opening, a spring-pressed and sliding rod connected with the valve-plate, a pivoted latch for engaging the sliding rod to hold the valve-plate with its major opening in register with the hopper, a spring-pressed supplementary valve for controlling the minor opening of the main valve-plate, said supplementary valve-plate working at right angles to the main valve-plate, a rock-shaft provided with an arm for engaging the supplementary valve-plate to hold it from over the minor opening of the main valve-plate, two spring-pressed levers arranged under the scale-beam, a rock-shaft provided with arms, one of which is adapted to engage the latch to release it, a trigger-plate connected with one of the levers and with which the other arm of the rock-shaft is adapted to engage, a second rock-shaft provided with arms, one of which is adapted to operate the rock-shaft which locks the supplementary valve-plate, and a second trigger-plate connected with the other lever and with which the other arm of the rock-shaft is adapted to engage, as set forth.

689,454. CULTIVATOR ATTACHMENT. FRANK D. COOK, Torrington, Cal. Filed Jan. 22, 1902. Serial No. 91,654. (No model.)



Claim.—1. A cultivator consisting in combination of a main plow-frame, a supplemental lateral frame pivoted thereon, plows or shovels adjustable on the lateral frame, a segmentally-flanged plate upon the main frame, a clavis pivoted thereon, said flange concentric with the pivot of said clavis, means for rotating said clavis and flange so that the former may stand at any desired angle in relation to the axis of the cultivator, and a collar carried by said clavis.

2. In a cultivator, the combination of main and supplemental plow-frames of a clavis attachment upon the main frame consisting of upper and lower plates united to said frame, a clavis pivoted thereon, said upper plate having a segmental flange concentric with the pivot of said clavis, perforations in said clavis and flange, and means for securing said parts rigidly together.

3. The combination in a cultivator with the main frame thereof, of a pivoted, supplemental, lateral frame, shovels or plows carried by said frame, and means including a spring member by which said lateral frame may be maintained at a distance from the main frame.

4. The combination in a cultivator of a main plow-frame, a transverse support carried thereby, and a supplementary spring-pressed plow-frame pivoted to said support, said frames adapted to straddle a row.

5. The combination in a cultivator of a main frame, a transverse bar secured thereto, a spring-pressed arm pivoted to the end of said bar and pivoted to the end of said bar, a standard having an adjustable tilting and vertical movement secured to said bar and pivoted to the end of said bar.

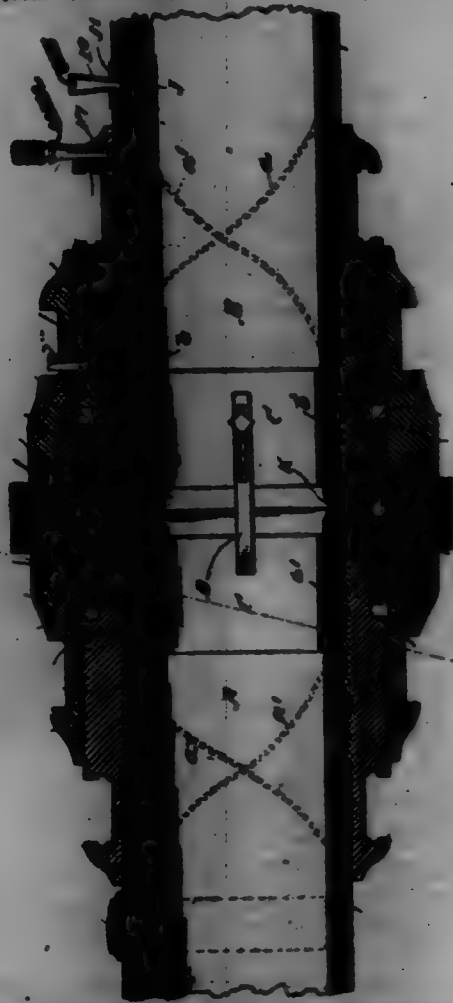
6. The combination in a cultivator of a main frame, a transverse bar adjustably secured to the forward end of said frame, an arm pivoted to the end of said bar, a standard having an adjustable tilting and vertical movement secured to said bar and pivoted to the end of said bar.

7. The combination in a cultivator of a main frame, a supplemental lateral frame secured thereto but adapted to have an intervening space therebetween, pivots or shovels carried adjustably on said lateral frame, and spring means by which the two frames are normally separated.

8. The combination in a cultivator of a main frame, a transverse bar adjustably secured to said frame, a segmental projecting extension of said bar, an arm pivoted at the end of said extension, a spring adapted to press said arm outwardly from the frame, a pivot or shovel adjustably carried on the rear end of said arm, a guide-rod extending outwardly from the frame and adapted to support the shovel end of said arm, means by which the outward or divergent movement of said arm may be limited and means connecting with the handle of the frame by which the arm may be drawn in toward the frame.

9. A cultivator consisting in combination of a main frame, a guide-rod extending outwardly from the forward portion of said frame, an arm pivoted to said bar, a spring by which said bar is normally held away from said frame, pivots or shovels adjustably carried on the end of said arm, means connecting with the handle by which the bar may be drawn in toward said frame, a curved flanged plate secured to the frame, a shovel pivoted on said plate and adapted to be held at any desired angle in relation to the axis of the cultivator and a collar carried on said shovel.

699,455. COVERING HOSE AND ELECTRIC SIGNALING DEVICES. HARRISON T. CHASE, New York, N. Y. Filed Mar. 4, 1908. Serial No. 69,773. (No model.)



Claim.—1. A hose having two wires embedded therein out of contact with each other, and contact-plugs arranged on the inside and outside respectively of the hose and each connected with one of the said wires.

2. A hose having two wires embedded therein out of contact with each other, contact-plugs arranged on the inside and outside respectively of the hose at the end thereof and each connected with one of said wires, a conducting-ring arranged within the hose in contact with one of said plugs, and a coupling-section arranged on the outside of the hose and in engagement with the other contact-plugs.

3. A hose having two wires embedded therein out of contact with each other, contact-plugs arranged on the inside and outside respectively

of the hose at the end thereof and each connected with one of said wires, a conducting-ring arranged within the hose in contact with one of said plugs, a connecting member in electrical connection with said ring and arranged to project into an adjacent hose-section to engage the ring thereof, and a coupling-section arranged on the outside of the hose and in engagement with the other contact-plugs.

4. A hose having two wires embedded therein out of contact with each other, contact-plugs arranged on the inside and outside respectively of the hose at the end thereof, and each connected with one of said wires, a conducting-ring arranged within the hose in contact with one of said plugs, a connecting member detachable in and out of the hose at the end thereof and in electrical connection with the said ring, said connecting member being arranged to project into an adjacent hose-section to engage the ring thereof, and a coupling-section arranged on the outside of the hose and in engagement with the other contact-plugs.

5. A hose, having a wire embedded therein, contact members connected with the ends of the wire and arranged on the inside of the hose, and a coupling-section in electrical connection with one of said contact members and arranged to project into an adjacent hose-section, to engage the contact member thereof.

6. The combination of two hose-sections each having two insulated conductors embedded therein, one conductor having its ends exposed on the inner surface of the hose, and the other on the outer surface thereof, the shunting ends of the hose-sections being turned over or bent outwardly, forming flanges, means for connecting electrically the conductors exposed on the inner surface of the hose, and a coupling in electrical connection with the other conductors and having projections extending into the space between the bodies of the hose-sections and the flanges thereof, and portions engaging the outer surfaces of said flanges, to press the hose ends together tightly and prevent short-circuiting by leaks.

7. The combination of hose-sections each having two insulated conductors embedded therein, one conductor having its ends exposed on the inner surface of the hose and the other on the outer surface thereof, the hose having a recess in its outer surface, a conducting-plate located in said recess and connected with that conductor which has its ends exposed on the inner surface of the hose, a removable insulating-cap covering said recess, and means for connecting adjacent hose-sections and the conductors thereof.

8. The combination of a coupling having its metal parts separated and insulated from the inner surface of the hose, with an electric circuit, one leg or wire of which passes inside the hose at the coupling, being thus insulated from the other leg or wire which passes through or over the metal parts of the coupling.

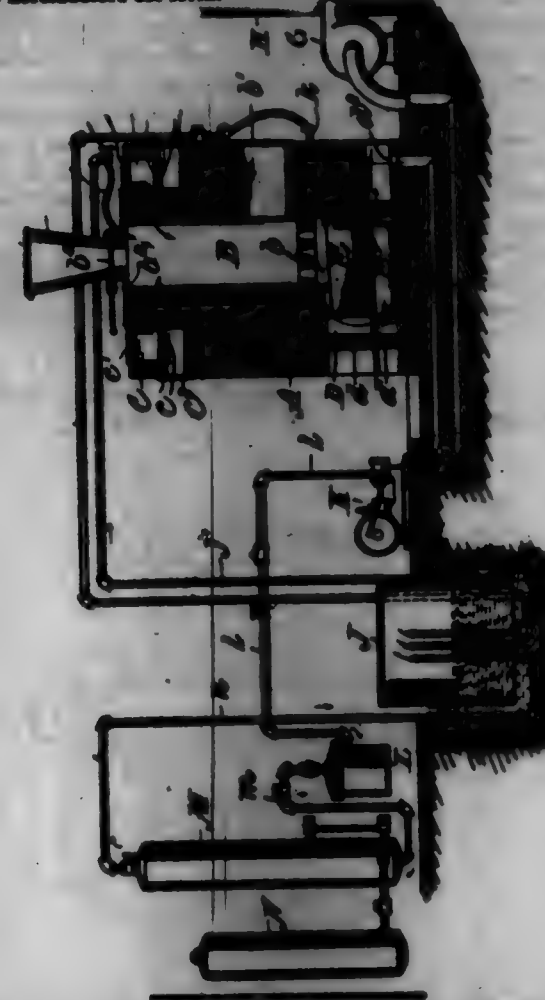
9. The combination of a coupling having its metallic parts insulated from the inner surface of the hose by the hose itself, the shunting ends of which are turned back over parts of the coupling, clamped in that position and pressed firmly together by the other parts thereof, with any electric circuit for signaling, including conductors, connections, circuit-breakers, transmitters and receivers, so arranged that one leg or wire passes through or is connected inside of the hose at the coupling, and is insulated by the hose and its shunting ends from the other leg or wire, which passes outside the coupling, through or over the metallic parts.

10. The combination with hose-sections having their adjacent ends turned over or bent, forming flanges, the ends or bands of which are adapted to abut against each other, of inner coupling-sections each projecting into the space between the body of a hose-section and the flange thereof, clamping-sections each surrounding one of the inner sections and arranged to clamp the hose-flange against it, and a nut to turn on one of the outer sections adapted for a screw connection with the other clamping-section, so arranged that when the nut is screwed up on the other clamping-section, the flanges will be pressed together by the inner coupling-sections and locked by the nut, and embedded in each section of hose two wires out of contact with each other, the end of one connected by contact-plugs or otherwise with the inner coupling-section, and connecting through the outer sections of the coupling with a similar plate or wire in another section of hose or stand-pipe or tank, the end of the other wire entering the tube of the hose inside the coupling, and terminating in a contact-plate which may be connected by a suitable device with a similar plate and wire in another hose-section or stand-pipe or tank.

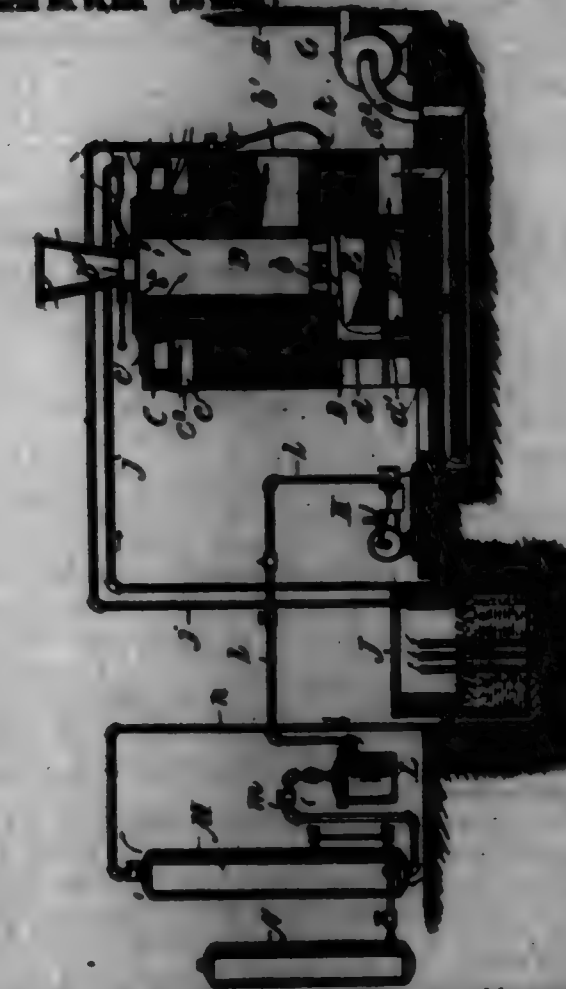
699,456. ART OF TREATING ORES. ARTHUR H. DOW and JAMES W. DAVIS, Boston, Mass., assignors to Chemical and Electrical Ore Reducing Company, of West Virginia. Filed Feb. 12, 1908. Serial No. 94,888. (No specimen.)

Claim.—The process of producing matte directly from ores which consists in charging the ore into a suitable chamber, subjecting it there first to a comparatively low heat whereby it is heated to drive off as far as possible its volatile constituents, and next to a high or smelting heat, discharging the ore as it is smelted into a matte-chamber below and subjecting the molten mass as it accumulates in said matte-chamber to an

intense heat, whereby it is purified and concentrated, supplying a gas rich in oxygen both to the chamber in which the ore is heated and smelted, and, at the time the metal begins to flow, to the matte-chamber, and maintaining a downward draft through both chambers, substantially as and for the purposes hereinafter set forth.



699,457. APPARATUS FOR TREATING ORES. ARTHUR H. DOW and JAMES W. DAVIS, Boston, Mass., assignors to Chemical and Electrical Ore Reducing Company, of West Virginia. Filed Feb. 12, 1908. Serial No. 94,888. (No model.)

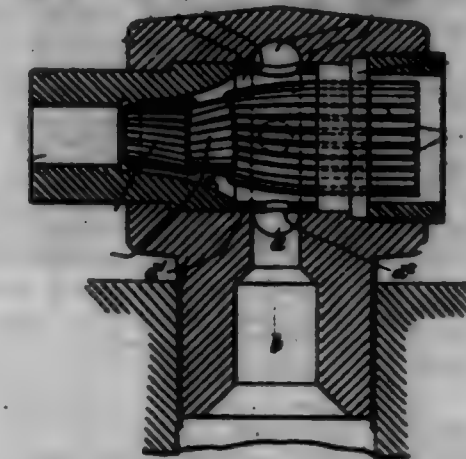


Claim.—1. Apparatus for treating ores, comprising a reduction-chamber; a matte-chamber below and communicating with the reduction-

chamber; means for creating and maintaining a downward draft through the reduction and then through the matte-chamber; charcoal-chambers communicating with the upper part of said reduction-chamber; gas-jets located in both the reduction-chamber and the matte-chamber; and a source of supply of gas under pressure having controllable communication with said gas-jets, substantially as and for the purposes hereinafter set forth.

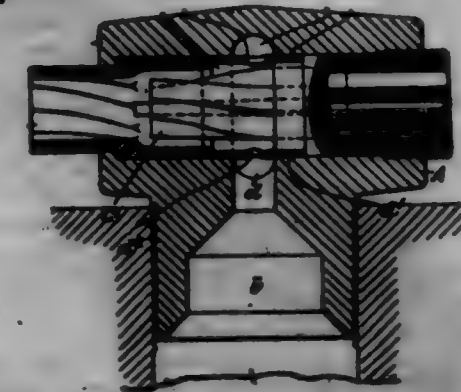
2. A furnace for the treatment of ores having a reduction-chamber; charcoal-chambers communicating with the upper portion of said reduction-chamber; a matte-chamber below the reduction-chamber; a molten-metal receiver in said matte-chamber; means for creating and maintaining a downward draft in said furnace, downward through the reduction-chamber thence down, into and through the matte-chamber and around the receiver therein, and thence out from the furnace, and means for introducing gas into both the reduction-chamber and the matte-chamber, substantially as and for the purposes hereinafter set forth.

699,458. METHOD OF COVERING ELECTRIC CONDUCTORS AND MAKING CABLES. ROBERT W. DOWSE, Northampton, England. Filed Feb. 1, 1908. Serial No. 92,888. (No model.)



Claim.—The herein-described method of making an electric cable formed of a plurality of wires or strands or wires and strands embedded or incased in celluloid, xylolite or similar material by forcing the material under pressure through a die and around and between the wires or strands passing through the die and at same time imparting a twist to the cable thus formed so as, at a single operation, to form a cable wherein the individual wires and strands are insulated from each other and are twisted about the central wire or strand, as described.

699,459. APPARATUS FOR INSULATING OR COVERING STRANDS AND FORMING SAME INTO CABLES. ROBERT W. DOWSE, Northampton, England. Filed Feb. 1, 1908. Serial No. 92,887. (No model.)

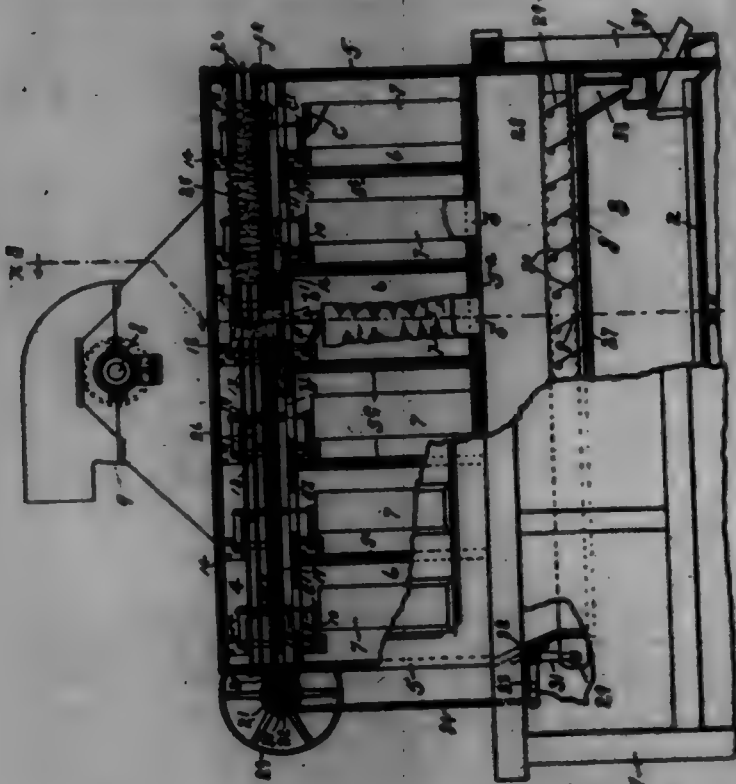


Claim.—1. A die for the manufacture of electric cables by extrusion of plastic insulating material around and between a central conductive strand and a surrounding circle of strands, the said die comprising a cylindrical chamber closed at one end and having an extrusion-nozzle of larger internal diameter than that of the chamber at the other end, said chamber communicating through lateral inlet-ports with the pressure-cylinder for supplying the plastic material, a central tubular guide-rod extending into the extrusion-nozzle and a group of similar guide-needles spaced in a circle around and converging toward the central guide-rod, all of said guide-needles being of conically-tapered form, and leading into the die-chamber through the closed end thereof, to a point beyond the lateral inlet-ports and terminating just before the commencement of the extrusion-nozzle, substantially as specified.

2. A die for the manufacture of electric cables by extrusion of plastic insulating material around and between a central conductive strand and

a surrounding circle of strands, the said die comprising a cylindrical chamber closed at one end and having an extrusion-nozzle of lesser internal diameter than that of the chamber at the other end, said chamber communicating through lateral inlet-orifices of graduated diameter with a circumferential channel in connection with the pump-cylinder for supplying the plastic material, a central tubular guide-mandrel coaxial with the extrusion-nozzle and a group of similar guide-mandrels spaced in a circle around and converging toward the central guide-mandrel, all of said guide-mandrels being of externally-tapered form, and leading into the die-chamber through the closed end thereof, to a point beyond the lateral inlet-orifices and terminating just before the commencement of the extrusion-nozzle, substantially as specified.

699,460. DUST-COLLECTOR. BENJ. R. DRAVER, Winchester, Ind.
Filed Mar. 23, 1900. Serial No. 19,466. (No model.)



Claim.—1. In a dust-collector, the combination with a casing having a series of cells and dust-receiving and clean-air chambers in communication through said cells, dust-collecting media within said cells, and a cut-off device traveling over said cells and operating to cut off therefrom, in succession, the dust-laden air, which cut-off device is in communication with the supply of clean air, whereby a reverse current of clean air will be forced through the dust-collecting media of said cells while the dust-laden draft is cut off from the particular cells containing the same.

2. In a dust-collector, the combination with a casing having a series of cells and dust-receiving and clean-air chambers in communication through said cells, dust-collecting media supported in said cells, a cut-off device mounted to travel back and forth over said series of cells and operating to cut off the dust-laden draft through the said cells and their collecting media, in succession, which cut-off device is in communication with the supply of clean air and delivers the same to said collecting media while the dust-laden air is cut off from the particular cells containing the same, and means for jarring the collecting media while the dust-laden air is cut off from the same, substantially as described.

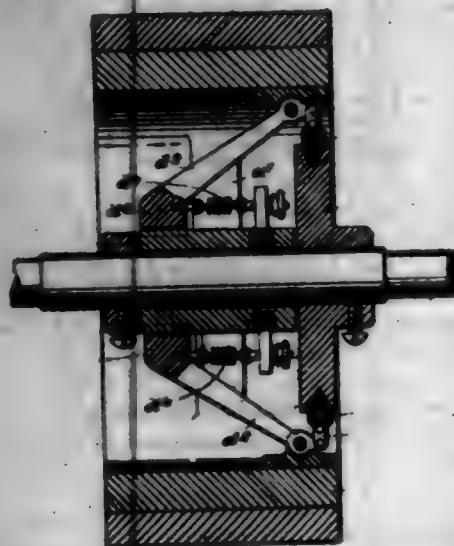
3. In a dust-collector, the combination with a casing having dust-receiving and clean-air chambers, and a series of cells affording communication between said chambers, dust-collecting tubes suspended in said cells, a section-fan applied to produce the dust-laden draft through said tubes and cells, a cut-off gate mounted to travel over the delivery end of said cells and operating to cut off the dust-laden draft from said cells, in succession, which cut-off gate is in communication with the supply of clean air, and delivers the same to said cells and the tubes therein contained, while the dust-laden draft is cut off therefrom, and means for jarring said tubes while the dust-laden draft is cut off from the particular cells containing the same, substantially as described.

4. In a dust-collector, the combination with the casing having dust-receiving and clean-air chambers in communication only through the intermediary of a series of stationary cells and dust-collecting tubes suspended in said cells, of means for forcing the dust-laden air through said tubes and cells, a cut-off gate mounted to travel over the delivery end of said cells, for cutting off the dust-laden draft from the tubes and cells

which cut-off gate is provided with an opening in communication with the external atmosphere by an extensible tube, for supplying clean air to said cells and tubes when the dust-laden draft is cut off by said gate, substantially as described.

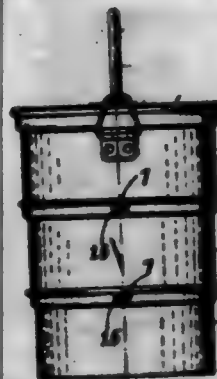
5. The combination with the middlings-purifier having the dust-chamber 3, of the dust-collector casing 5 applied to said purifier and constructed to afford the clean-air chamber 4, the interposed series of cells 6 and collecting-tubes 7, through which the said chambers 3 and 4 communicate with each other, the section-fan applied to produce the dust-laden draft through said cells and tubes, a cut-off gate mounted to travel back and forth over the delivery ends of said tubes, which cut-off gate is provided with an opening connected by an extensible tube with the external atmosphere for delivering clean air to said cells and tubes when the dust-laden draft is cut off, and shaking devices operated by said cut-off gate for jarring the said tubes within said cells when the dust-laden draft is cut off, all substantially as and for the purposes set forth.

699,461. CLUTCH. BENJ. DREWSEN, Monterey, Mexico. Filed Mar. 20, 1901. Serial No. 59,478. (No model.)



Claim.—The combination of a rotary shaft, a driving member arranged thereon and comprising an outer part or rim, a hub fitted loosely on the shaft and spokes connecting the outer part and hub together, a lever fulcrumed on the outer part of the driving member and carried thereby, the lever having a weighted arm extending between the spokes and normally lying adjacent to the hub, a spring attached to the hub and to the said weighted arm of the lever to hold the arm forward, a clutch member carried by the other arm of the lever, and a disk fastened to the shaft and adapted to be engaged on its periphery by the said clutch member, whereby to fix the driving member to the shaft.

699,462. NESTABLE PAIR. FRANK C. G. HILL, Buffalo, N. Y.
Filed May 23, 1901. Serial No. 61,432. (No model.)



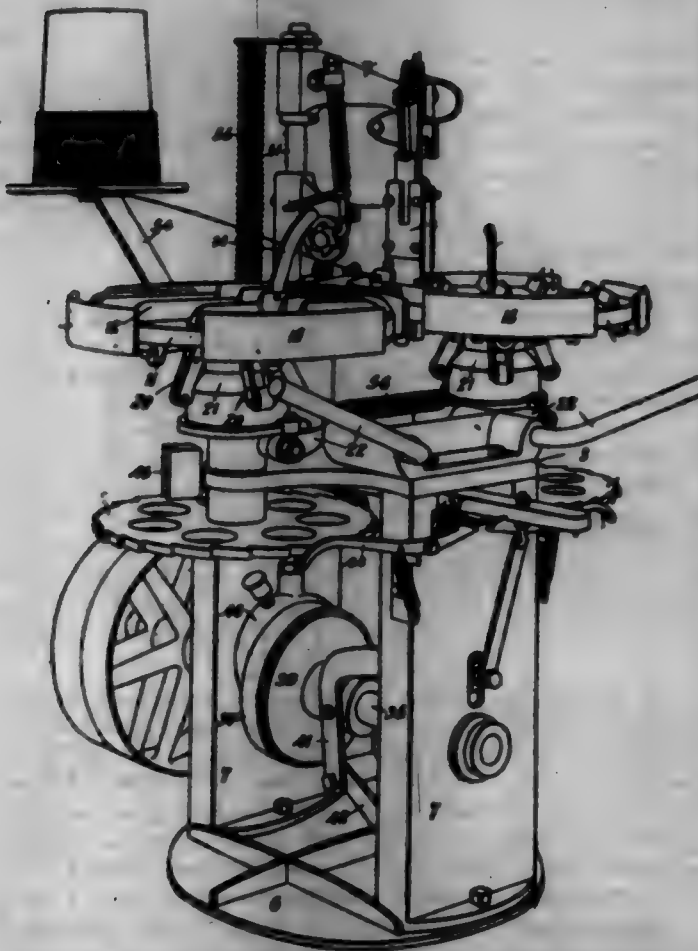
Claim.—1. A pair comprising a plurality of vessels; one of which has a hinging portion provided with oppositely-disposed perforations, and the other oppositely-disposed spring-tensioned bolts adapted to lock in the perforations in said hinging portion and to be pressed inwardly by the operator to release it therefrom.

2. In a vessel comprising a plurality of parts, one having a perforation and another having slots and an opening between the slots, a locking-bolt adapted to seat in the perforation of the first-mentioned part and projecting through the opening, a spring tensioning the bolt and an enclosing part for said spring having ears fitting through the slots, substantially as set forth.

3. In combination, a plurality of vessels adapted to be fastened in superimposed position and having oppositely-disposed perforations in the

upper portions of its ends and each vessel with the exception of the bottom vessel having oppositely-disposed spring-tensioned locking-bolts in the lower portion of its ends adapted to spring into the depressions of the adjacent vessel, substantially as set forth.

699,463. MACHINE FOR MAKING BASKET-COVERS. CARL BROSINA, St. Joseph, Mich., assignor to Abel W. Wells and John Higman, St. Joseph, Mich. Filed Oct. 31, 1901. Serial No. 59,648. (No model.)



Claim.—1. The combination of a work form or holder, means for imparting a step-by-step movement thereto, and a stapling device consisting with the work-holder, said work-holder comprising a circular body or form, parallel ribs on the top thereof, and a clamp or clamps working against the periphery of the form.

2. The combination of a work form or holder, means for imparting a step-by-step movement thereto, a stapling device consisting with the work-holder, said work-holder comprising a circular body or form, parallel ribs on the top thereof, a clamp or clamps working against the periphery of the form, the parallel ribs being separated by an open space running across them, and a notch located at said space, for the purpose specified.

3. The combination of a work form or holder, means for imparting a step-by-step movement thereto, a stapling device consisting with the work-holder, the work-holder comprising a body or form, a clamp working against the body, a lever connected to the clamp, a tapering member acting on the lever, for the purpose specified, and means for actuating the said tapering member.

4. The combination with a frame, of a base carried thereon, a shaft arranged to turn thereon, a means for driving the shaft, a work-form carried by the shaft, a clamp working with and carried by the form, a lever connected with the clamp, a tapered member slidable on the base to engage and throw the lever, and means for actuating the said tapered member.

5. The combination of a rotary shaft, a work-form carried thereby, a ratchet-wheel fixed to the shaft, a pawl, means actuating the pawl to impart a step-by-step movement to the ratchet-wheel, and a friction device consisting with the ratchet-wheel and its connected part to prevent idle movement thereof, said friction device comprising a block, a cammed rock-shaft whereon it is carried, and a spring pressing the rock-shaft.

6. The combination with two work forms or holders, of a means movable into engagement with one or the other to impart a step-by-step movement thereto, and a stapling device in connection with said means to be shifted in unison therewith.

7. The combination of two work forms or holders, a reciprocal device adapted to impart a step-by-step rotary movement to one or the other of the work-holders, a lever connected with said reciprocal device to

throw it to the adjustment desired, and a stapling device connected with the lever, to be shifted upon the movement thereof.

8. The combination of two work forms or holders operative with a step-by-step rotary movement, a ratchet-wheel in connection with each, a reciprocally-driven member, a pawl pivotally carried on said member, and means for throwing the pawl into engagement with one ratchet-wheel or the other.

9. The combination of two work forms or holders operative with a step-by-step rotary movement, a ratchet-wheel in connection with each, a reciprocally-driven member, a pawl pivotally carried on said member, means for throwing the pawl into engagement with one ratchet-wheel or the other, and a stapling device connected with said means for throwing the pawl, whereby to be adjusted in unison with the pawl.

10. The combination of two work forms or holders operative with a step-by-step rotary movement, a ratchet-wheel in connection with each, a reciprocally-driven member, a pawl pivotally carried on said member, a lever connected with the pawl to throw it into engagement with one ratchet-wheel or the other, a member mounted to turn and forming the fulcrum of the lever, and a stapling device connected with said turning member.

11. The combination with two work forms or holders, of a means movable into engagement with one or the other to impart a step-by-step movement thereto, a stapling device in connection with said means, to be adjusted in unison therewith, an operating-lever for the said means, a gearing for driving the said means, said gearing including a clutch, and a connection between the clutch and operating-lever.

12. The combination of two work forms or holders, a means for imparting a step-by-step movement to either of the work-holders, a hollow column mounted to turn, a lever connected thereto and to said means for imparting movement to the work-holders, a stapling device carried by the column, an operating rod running through the column to actuate the stapling device, a drive-shaft, a clutch consisting therewith, a connection between the lever and the clutch to actuate the latter, and devices actuated from the drive-shaft and controlled by the clutch, said devices respectively driving the means for imparting movement to the work-holders and the said operating-rod.

13. The combination of two work-form holders, a means movable into engagement with either one or the other to impart a step-by-step movement thereto, and a stapling device capable of working with either one of the work-holders.

699,464. PEN. FREDERICK J. W. FISHER, Rockaway, N. Y., assignor to Eagle Pen Company, New York, N. Y. Filed Mar. 3, 1902. Serial No. 59,494. (No model.)



Claim.—As a new manufacture a steel pen having the longitudinal central slit reduced surface *a*, extending from the piercing along and on both sides of the central slit leading from the piercing to the point, substantially as and for the purposes hereinafter set forth.

699,465. ANIMAL-TRAP. JAMES M. BRAMMER, El Paso, Pa. Filed Sept. 7, 1901. Serial No. 74,677. (No model.)



Claim.—1. In a device of the kind described, the combination of a base-bar having its ends terminating in spring-arms, posts arranged on the said base-bar and adapted to pass through apertures formed in the said arms, jaws pivotally held on the said posts, a cross-bar arranged to operate upon the said jaws, and means for holding the said jaws in an open position, substantially as shown and described.

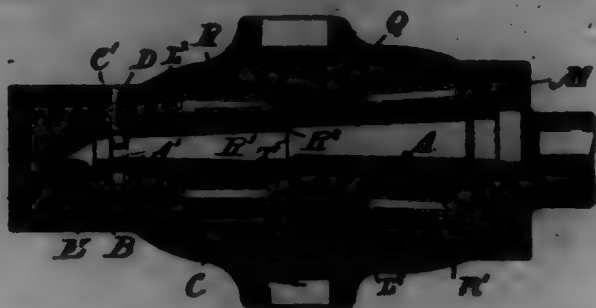
2. In a device of the kind described, the combination of a base-bar having its ends terminating in spring-arms, posts arranged on the said base-bar, jaws pivotally held in the said posts, a cross-bar having perforations formed in the ends thereof and adapted to slide upon the said posts and operate through the medium of the spring-arms, to close the said jaws, and means for locking the said jaws in an open or closed position, substantially as shown and described.

3. In a device of the kind described, the combination of a base having spring-arms formed thereon, posts held on the said base-bar, jaws provided with spurs pivoted in the posts, a cross-bar having spurs and ar-

arranged to operate to close the said jaws through the medium of the said spring-arms, and a trigger arranged for engagement with the said cross-bar for holding the trap in an open or set position, substantially as shown and described.

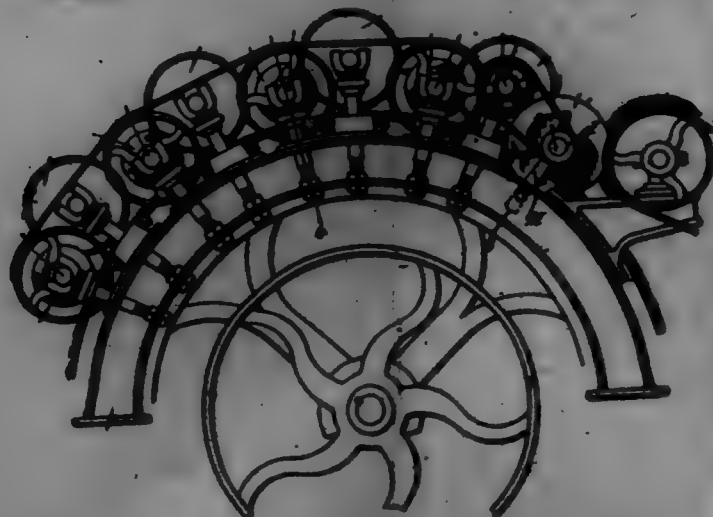
4. In a device of the kind described, the combination of a base-bar, having spring-arms formed thereon, posts arranged on the said base-bar and adapted to pass through apertures formed in the ends of the said spring-arms, jaws pivoted in the said posts, a cross-bar having its ends provided with apertures through which the said posts are adapted to pass when the said bar is pressed down against the tension of the spring-arms, and adapted to operate upon the jaws when the springs are released, a trigger pivotally held on a transverse bar arranged on the base and adapted for locking the said cross-bar against the tension of the spring-arms, the said springs being adapted to rest against the upper ends of the posts when released from engagement with the trigger, thereby locking the jaws in a closed position, the said jaws and bar having spurs arranged thereon, substantially as shown and described.

699,466. ROLLER-BEARING. CLEVELAND C. HUBBARD, Indianapolis, Ind. Filed Sept. 12, 1901. Serial No. 78,678. (No model.)



Claim.—In combination with the hub and axle, having a shoulder T, a shell Q having a central portion with thickened wall, an integral annular flange E², in the bore of said shell, designed to contact with said shoulder, the shells E¹ reversely arranged on the opposite sides of the central thickened portion of shell Q, and abutting against the same and the rings L², rollers journaled in said rings, and means for holding the parts in place, as set forth.

699,467. CARDING-MACHINE ATTACHMENT. GEORGE D. B. GRADAR, Providence, R. I. Filed Dec. 12, 1901. Serial No. 93,900. (No model.)



Claim.—1. A carding-machine attachment, comprising revoluble guards for closing the spaces at the ends of the cylinder, workbars and cleaners, as set forth.

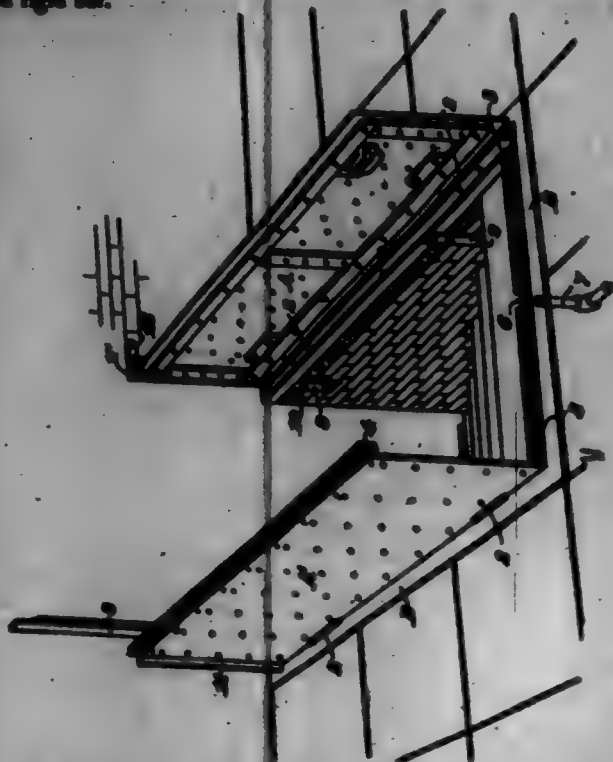
2. A carding-machine attachment, comprising a pair of revoluble guards for closing the spaces at the ends of the cylinder, the last worker and the finny, as set forth.

3. A carding-machine attachment, comprising a pair of revoluble guards for closing the spaces at the ends of the cylinder, the last worker and the finny, and means for rotating the said guards from the last worker, as set forth.

4. A carding-machine attachment, comprising revoluble guards for closing the spaces at the ends of the cylinder, workbars and cleaners, the said guards being in the form of disks secured to the shafts of the cleaners, as set forth.

699,468. SIDEWALK TRAP-DOOR. PETER H. JACOBSON, San Francisco, Cal. Filed Dec. 28, 1901. Serial No. 94,900. (No model.)

Claim.—1. Sidewalk-door, substantially horizontally disposed, a frame extending on two sides and across the front of the hatchway-opening to the sides of which doors are hinged, said doors closable together, and a bearer rigidly secured to the underlapping door and projecting beyond the free edge of the same and capable of extending across the rear open ends of the said frame, and a support for the outer or free end of said right bar.



2. Sidewalk-door closable to meet together, a framework set in the sidewalk to the sides of which the longitudinal edges of the doors are hinged, said framework extending across the outer or front side of the hatchway and being open at the inner or rear ends, a bearer bolted immovably to the underlapping leaf of the doors and projecting beyond the edge so as to extend across the full width of the hatchway and supports upon which the ends of the bearer rest when the doors are closed.

3. The combination with a sidewalk hatchway-opening of a frame set therein and surrounding three sides of the opening and anchored fixed to said frame extending downward within the hatchway and fixed to the sides thereof whereby the frame is prevented from being loosened, doors hinged to the sides of the frame and closable together, a bearer carried by one of said doors having a length sufficient to extend across the rear open space between the ends of the frame and steps at the ends upon which the bearer rests.

4. A hatchway-opening having a frame surrounding three sides and open at the rear, doors hinged to the sides of the frame closable together, a combined trough and bearer extending beneath the hinged edges of the doors and across the front forming a support for the door when closed, and a combined trough and bearer which is bolted along the free edge of the underlapping leaf of the doors; in combination with flanges upturned around the rear edges of the doors where they meet the building-front, said flanges preventing the entrance of water and obviating a gutter at this point.

5. A hatchway having a framework extending on two sides and the front and interconnected at the rear, doors hinged to the sides of said framework closable together, said doors having their inner ends formed with an upturned flange, a bar or bearer bolted across the inner end of the underlapping door extending beyond the outer edge, a support upon the opposite side of the hatchway upon which said bar rests when the door is closed and upon which bearer the inner end of the other leaf of the door rests when closed.

699,469. ELBOWED COUPLING. TUDOR C. JAMES, Milwaukee, Wis. Filed Aug. 22, 1901. Serial No. 78,698. (No model.)



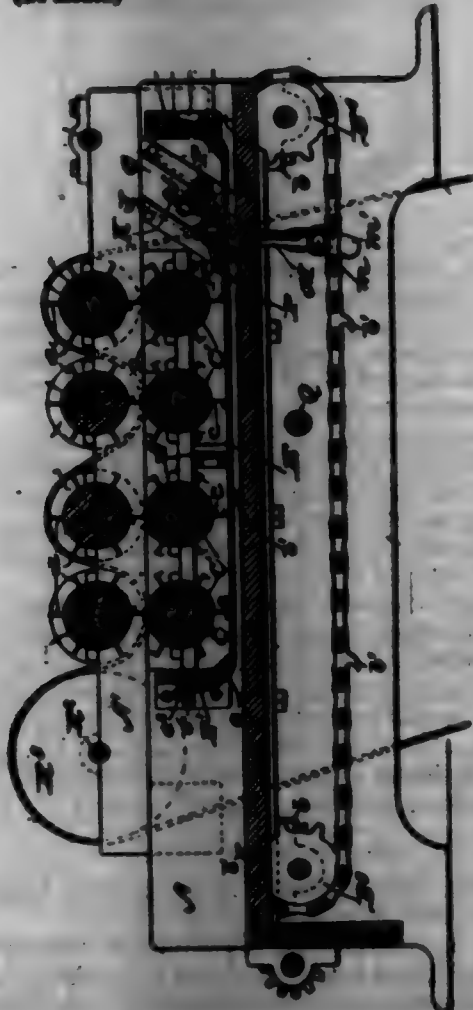
Claim.—1. An electric coupling, comprising two sections, each section being divided into two chambers or compartments, contact devices arranged in the chambers, and contact devices carried by each section for closing a circuit when the sections of the coupling are separated, substantially as specified.

2. An electric coupling, comprising two sections, each section being divided into two chambers, a block arranged in the outer end of one of said chambers, a contact-screw passing through a central opening in said block and adapted for connection with a line-wire, a metallic sleeve with which the inner end of said screw-contact engages, another block arranged in said chamber, a contact-screw extending through said other block and engaging with said sleeve, a sleeve in other chamber engaging the projected end of said other block, a block in the other chamber, a plate on the inner end of said block and in connection with the line-wire, a spring attached to said block, and a cap secured to the other end of said spring and adapted for engaging with the last-named contact-screw of the other section, substantially as specified.

3. An electric coupling, comprising two sections, each section consisting of two tubes of insulating material, the two tubes being secured together, a metallic cap at the outer end of the section, socket-sections extended from said cap into the tubes, a block of insulating material in the socket in one of the tubes, a contact screw or bar passing longitudinally through said block and having connection with a line-wire, a metallic sleeve with which said screw or bar engages, another block arranged in said tube, a long contact screw or bar extended through said other block and engaging with the sleeve, the said long contact screw or bar being provided with a head, a spring arranged in a tube of the other section of the coupling for engaging said last-named screw or bar, a tubular block in the other tube of the section, a cap on the inner end of said block, a spring connected at one end to the cap, and a plate connected to the other end of said spring, substantially as specified.

4. In an electric coupling, a section having circuit-carrying device therein, and a closing-plate for the rear end of a car, the said plate consisting of two tubular portions of insulating material secured together, a cap at one end of said tubes, a sleeve or socket portion extended from said cap through one of the tubes, a spring arranged in said socket portion, a block arranged in the other of the tubes, and a contact-bar extended through said block but not engaging with the cap, substantially as specified.

699,470. COMBINED COMBING AND SHEARING MACHINE.
SAMUEL W. KAPLAN, Hartford, Conn. Filed June 2, 1901. Serial No. 68,742. (No model.)



Claim.—1. The combination with a main frame having a slotted bottom, of an endless feed device moving in the said slot, the combing-cylinders arranged in the main frame above the feed device, the cleaning-cylinders arranged above the combing-cylinders, a shearing device arranged adjacent to one end of the feed device, and means for simultaneously operating the feed device, combing and cleaning cylinders and shearing device, substantially as described.

2. In a combined combing and shearing machine, the combination of a framing, a floor arranged therein, a shearing device arranged above the said floor, combing-cylinders journaled in the said framing and cleaning-cylinders journaled above each combing-cylinder, and means for revolving the cylinders and operating the shearing device, substantially as shown and described.

3. In a combined combing and shearing machine, the combination of a frame, a floor provided with slots held within the frame, feed-belts arranged to operate in the said slots, combing and cleaning cylinders journaled in said frame, a reciprocating cutter-bar adjustably held in the said frame, and means for operating the said cylinders and cutter-bar, substantially as shown and described.

4. In a combined combing and shearing machine, the combination of a frame having a slotted floor arranged therein, feed-belts adapted to travel in the said slots, combing-cylinders journaled in the said frame, cleaner-cylinders journaled above each combing-cylinder, and guards arranged between the said flooring and combing-cylinders, substantially as shown and described.

5. In a machine of the kind described, the combination of a frame, a floor held therein and provided with slots, feed-chains adapted to operate in the slots, combing-cylinders mounted in the said frame, cleaner-cylinders mounted above the said combing-cylinders, a cutter held within the framing, a drive-shaft journaled in the said frame and carrying a cam-disk, a lever pivoted at one end to the side of the frame and having its opposite end provided with antifriction-rollers for engagement with the said disk, and a plunger connecting the said lever and cutter-bar, substantially as shown and described.

6. In a machine of the kind described, the combination of a frame having brackets held to the inner sides thereof, plates carrying cutter-bars adapted to operate in the brackets, levers journaled upon the sides of the frame, plunger connecting one end of the said levers to the plates, segmental racks formed upon the opposite ends of the levers, a shaft provided with pinions journaled in the front of the frame, the said pinions being held in engagement with the racks, and a crank for operating the said shaft, substantially as shown and described.

7. The combination with a main frame, of a series of horizontally-disposed combing-cylinders journaled therein, cleaning-cylinders journaled above each of the said combing-cylinders and operating in a reverse direction to its respective combing-cylinder, a shearing device arranged in the said frame, and means for feeding the skins to the said combing-cylinders and shearing device, substantially as described.

8. The combination of a main frame having a slotted bottom arranged therein, an endless feed device adapted to operate in the said slot of the bottom, combing-cylinders arranged above the said feeding device, cleaning-cylinders arranged for engagement with the said combing-cylinders, a shearing device arranged adjacent to one end of the feeding device and means for removing the sheared material from the cylinders and shearing device, substantially as shown and described.

9. In a combined combing and shearing machine, the combination of a frame, shafts carrying combing-cylinders journaled therein, and having pulleys fixedly held upon one end thereof, shafts carrying cleaner-cylinders journaled above the said combing-cylinders and having pulleys upon the ends thereof and arranged upon the opposite side of the machine to the pulleys of the combing-cylinders, and belts arranged to travel over and under the said pulleys for revolving the combing and cleaner cylinders in opposite directions, substantially as shown and described.

10. In a machine of the kind described, the combination of a frame having a flooring arranged therein, guide-brackets having dovetailed grooves held within the said frame, plates adapted to travel in the said grooves, a cutter-bar connected to the said plates, and means for adjusting the said plates and cutter-bar and reciprocating the cutter-bar, substantially as shown and described.

11. In a machine of the kind described, the combination of a frame a series of combing and cleaner cylinders held in the said frame, a cutter-bar adjustably held within the frame, and heads connected with a section-bar held above the said cylinders and cutter-bar for removing the cut material from the machine, substantially as shown and described.

699,471. APPARATUS FOR FEEDING AND TEMPERING FOUNDRY-SAND.
ALFRED M. ASHLEY, Pittsburgh, Pa. Filed Jan. 24, 1902.
Serial No. 91,117. (No model.)

Claim.—1. In a device for feeding and tempering foundry-sand, the combination of a receptacle or hopper, a table, and rotatable mechanism above said table and under said hopper adapted to be lowered and raised with the table to receive the material from the hopper and discharge the same therefrom.

2. In a device for feeding and tempering foundry-sand, the combination of a receptacle or hopper, a table, and a rotatable feed-wheel above said table having receptacles therein passing under said hopper

adapted to be lowered and raised with said table to receive the material from the hopper and discharge the same therefrom.



2. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a feed-wheel having receptacles therein passing under said hopper to receive the material therefrom, and means for permitting said feed-wheel and table to be lowered and raised to discharge the material from the feed-wheel.

4. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a table, a feed-wheel above said table having receptacles therein passing under said hopper to receive the material therefrom, and means for rotating said feed-wheel and for lowering and raising the same and table to discharge the material from the feed-wheel.

5. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a feed-wheel having receptacles therein under said hopper adapted to receive the material from said hopper and be rotated to discharge the material therefrom, and a weighted table under said feed-wheel adapted to be lowered and raised for engaging and disengaging with the rotating mechanism.

6. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a feed-wheel having receptacles therein under said hopper to receive the material therefrom and adapted to be lowered and raised, a shaft passing loosely through said table and connected to the feed-wheel, said shaft having a clutch member thereon, and a continuously-moving shaft or drive having a clutch member thereon adapted to engage with the clutch member on the first-named shaft to rotate the feed-wheel when it is lowered with the table to discharge the material from the receptacles in the feed-wheel.

7. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a table, a horizontal feed-wheel above said table having receptacles therein passing under said hopper to receive the material therefrom, and means for permitting said feed-wheel and table to be lowered and raised to discharge the material from the feed-wheel and receive the same therein.

8. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a table, a horizontal feed-wheel above said table having receptacles therein passing under said hopper to receive the material therefrom, and means for rotating said feed-wheel and for lowering and raising the same and table to discharge the material from the feed-wheel and receive the same therein.

9. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a horizontal feed-wheel having receptacles therein under said hopper adapted to receive the material from said hopper and be rotated to discharge the material therefrom, and a weighted table under said feed-wheel adapted to be lowered and raised for engaging and disengaging with the rotating mechanism.

10. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a horizontal feed-wheel having receptacles therein under said hopper to receive the material therefrom and adapted to be lowered and raised, a vertical shaft passing loosely through said table and connected to said feed-wheel, said shaft having a clutch member thereon, and a continuously-moving upright shaft or drive having a clutch member thereon adapted to engage with the clutch member on the first-named shaft to rotate the feed-wheel when it is lowered with the table to discharge the material therefrom.

11. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, rotating mechanism under said hopper adapted to be automatically lowered and raised to receive the material and discharge the same therefrom, and means for supplying water to said material.

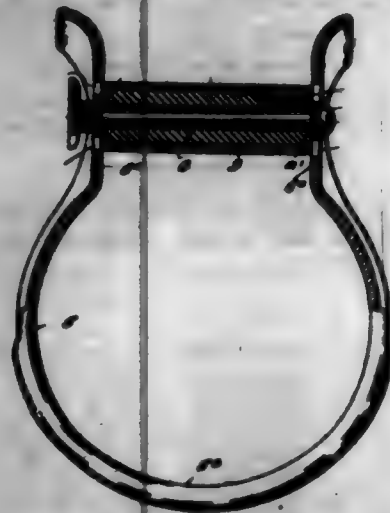
12. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a feed-wheel having receptacles therein under said hopper to receive the material therefrom, means for rotating said feed-wheel and for lowering and raising the same to discharge the material therefrom and receive the same therein, and means for supplying water to said material.

13. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a feed-wheel having receptacles therein under said hopper to receive the material therefrom, means for rotating said feed-wheel and for lowering and raising the same to discharge the material therefrom and receive the same therein, and a pipe connected to a water source and adapted to supply water to the material.

14. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a table, a feed-wheel above said table having receptacles therein passing under said hopper to receive the material therefrom, means for rotating said feed-wheel and for lowering and raising the same and table to discharge the material from the feed-wheel and receive the same therein, a pipe connected to a water source and provided with a valve therein, and connection between said table and valve for opening and closing said valve to supply water to the material.

15. In a device for feeding and tempering foundry-sand, &c., the combination of a receptacle or hopper, a table, a feed-wheel above said table having receptacles therein passing under said hopper to receive the material therefrom, means for rotating said feed-wheel and for lowering and raising the same and table to discharge the material and receive the same therein, a pipe connected to a water source and provided with a valve therein, a lever on said valve, a rod connected to said lever, and a bar connected to said table and rod for opening and closing said valve to supply water to the material.

699,479. **STURDY.** WILLIAM E. AUBREY and WALTER CLIFTON, Chicago, Ill. Filed June 6, 1901. Serial No. 62,357. (No model.)



Claim.—1. A stirrup, comprising a metal body circular in its major portion, concave-convex in cross-section throughout said circular portion, and provided above the circular portion with two members, that are parallel and flat on inner surfaces thereof, a changeably-positioned carrier-bolt held between said flat surfaces, and means to change the position of said carrier-bolt laterally and vertically.

2. A stirrup, comprising a metal body circular in its major portion, convex on the inner face of said circular portion, and provided above the circular portion with two limbs that are flat on their inner surfaces, a carrier-bolt adapted for engagement with either of a group of spaced holes in each of said flat-faced limbs, and thus raise or lower the tread portion of the stirrup with regard to said carrier-bolt.

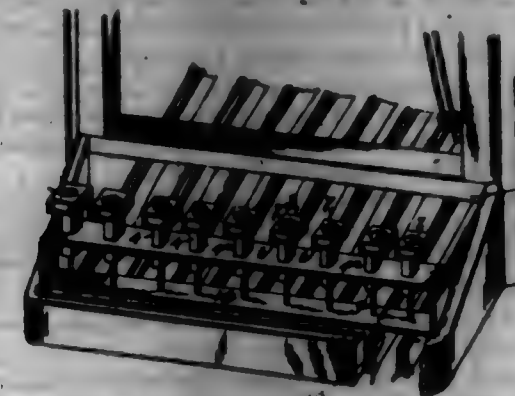
3. A stirrup, comprising a metal body convex on the inner surface, circular in its major portion, having two straight members above the circular portion, a plurality of orifices in said straight members, disposed oppositely in pairs, a carrier-bolt having a head on one end and a screw-end on the opposite end, said bolt being adapted to engage with any pair of the orifices so as to dispose said bolt above, below or at either side of a central pair of the orifices, a cylindrical core-block mounted on the bolt-body, and a sleeve loosely supported upon the core-block.

699,478. **TYPE-WRITER.** THOMAS E. AUBREY, Columbia, Tex. Filed Feb. 3, 1902. Serial No. 14,081. (No model.)

Claim.—1. In a type-writer, the combination of a type-bar bearing a lower-case letter and provided with a pivoted key-bar, a type-bar bearing an upper-case letter and provided with a key-bar, a slidingly-mounted key bearing a rotatable shaft bearing a pinion and a foot normally engaging one of said key-bars, and means for rotating said pinion to bring said foot into engagement with the other of said key-bars, substantially as described.

2. In a type-writer, a pair of pivoted key-bars, a slidingly-mounted key bearing a rotatable shaft having a foot engaging one of said key-bars, a sliding plate carried by said key, and means operated by the slid-

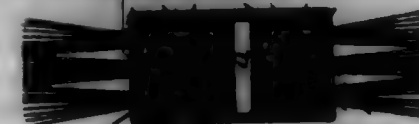
ing of said plate to rotate said shaft to bring said foot into engagement with the other of said key-bars, substantially as described.



3. In a type-writer, a pair of pivoted key-bars, a slidingly-mounted key bearing a rotatable shaft having a foot engaging one of said key-bars, a sliding plate carried by the head of said key, means operated by the sliding of said plate to rotate said shaft to bring said foot into engagement with the other of said key-bars, and a spring arranged to operate said sliding plate to restore it to its initial position, substantially as described.

4. In a type-writer, the combination of a pair of pivoted key-bars, a slidingly-mounted key having a rotatable shaft bearing a foot normally engaging one of said key-bars, a pinion on said shaft, a sliding plate bearing a rack-bar meshing with said pinion, and a spring arranged to operate said sliding plate to restore it to its initial position, substantially as described.

699,474. **BRUSH.** GEORGE H. BRADLEY, Canton, Mass., assignor to Bradley Brush Company, Canton, Mass. Filed Jan. 21, 1902. Serial No. 70,577. (No model.)



Claim.—1. In a rotary brush, the combination of an apertured core, perforated portions having a greater diameter than and surrounding said core, an annular space being left between said perforated parts and said core, bristles passing through said perforated parts and into said annular space, annular plates secured upon each side of said core, and a cementing composition filling said annular space.

2. In a rotary brush, the combination of an apertured core, a perforated band of greater diameter than said core enclosing said core, a perforated annular casing fitted over said band provided with overlapping edges, annular plates secured upon each side of said core, over which are rolled said overlapping edges, bristles passing through said band and casing, and a cementing composition filling the space between said band and core.

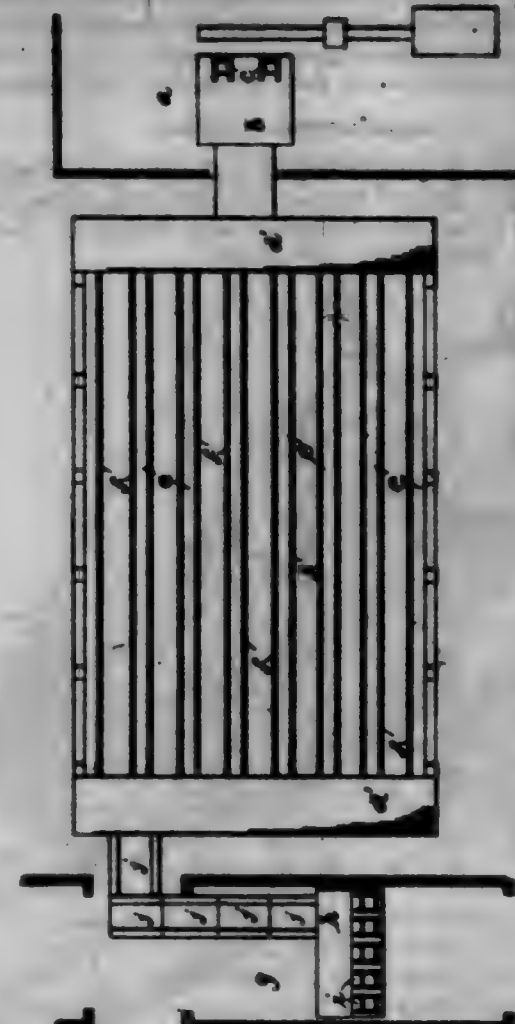
699,475. **BRICK PLANT.** BYRON E. ROBERTS, Waterloo, Canada. Filed Nov. 22, 1901. Serial No. 14,074. (No model.)

Claim.—1. A brick plant having a loading-platform provided with elevated supports adapted to uphold the pallets on which the green bricks are stacked, whereby the loaded pallets can be picked up by the brick-truck, a back-shed having parallel elevated supports for the loaded brick-pallets, extending throughout, an unloading-platform provided with elevated supports to receive and uphold the loaded brick-pallets from said shed, and passage-ways or floors for the brick-trucks from the loading-platform to and through the shed to said unloading-platform, substantially as described.

2. A brick-making plant or system having brick-pallets, a loading-platform arranged adjacent to the green-brick-forming machinery, and provided at its brick-receiving edge with a fixed elevated support for the loaded brick-pallets comprising two parallel rigid bars or beams resting on the platform, a back-shed having elevated supports therein to receive the loaded pallets, and a passage-way for the trucks from said platform into said shed, substantially as described.

3. A brick plant having a back-shed having an inlet and an outlet, and a multiplicity of pallet-supporting beams arranged edgewise along the floor of said shed between said inlet and outlet, said beams arranged in parallel pairs, said pairs being closely arranged transversely with intervening track-spaces between and parallel with said pairs of beams for the passage of the wheels of a hand-truck movable along above any pair of beams with its wheels in the track-spaces along opposite sides of said pairs, transverse track-passages at the inlet and outlet of said shed communicating with said track-spaces, whereby the loaded trucks can pass in at the inlet along any pair or pairs of beams to deposit the loaded pal-

lets on said beams, and whereby trucks can pass in at the outlet along any pair or pairs of beams to pick up and remove the loaded pallets from the shed, substantially as described.



4. A brick-making plant having a back-shed having elevated supports extending throughout from the inlet to the outlet thereof, and tracks arranged between and parallel with the supports, the supports and tracks arranged so that each track serves for two supports, substantially as described, and transverse track-passages arranged at the ends of said tracks and supports and communicating with each track, whereby loaded trucks can move through the inlet and along any track and support, and whereby trucks for removing the bricks can move in and out of the outlet and along any track and support.

5. A brick-making plant having a back-shed having series of elongated parallel supporting-bars closely arranged on and projected above the floor thereof and adapted to transversely receive loaded brick-pallets and uphold the same from said floor, said bars arranged in parallel pairs with spaces between the pairs for the passage of the truck-wheels, whereby the trucks can pass in and out at one end of the shed in depositing the loaded pallets on said bars, and can pass in and out at another end of the shed in picking up and removing said loaded pallets, substantially as described.

6. A brick-making plant having a back-shed having closely arranged series of supporting-bars extending throughout between the inlet and outlet thereof, said bars arranged in pairs for the purpose specified, and a parallel track-wheel track arranged between each pair of said bars, as and for the purposes mentioned.

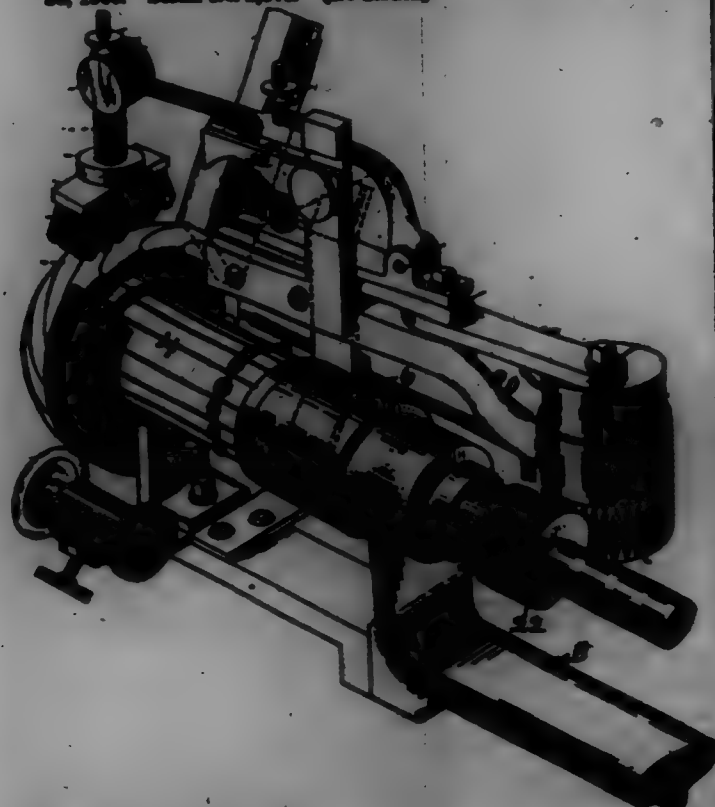
7. A brick-making plant having a back-shed having series of pairs of supporting-bars arranged on and projecting above the floor thereof to receive and uphold the loaded pallets of brick, said bars arranged with intervening spaces for the truck-wheels, a movable unloading-platform arranged in a kiln and provided with an elevated unloading-table to receive the loaded pallets from the trucks, and a passage-way for the trucks from said supporting-bars if said shed to said platform comprising movable track-sections, substantially as described.

8. A brick plant having a platform to receive the loaded brick-trucks, and parallel bars resting on and projecting above the platform and rigidly secured together and provided with projections to enter the platform and hold the support in place, said support adapted to transversely receive loaded brick-pallets from a truck and uphold the same from the platform, as described.

9. In a brick plant, a platform to receive the brick-trucks, and an elevated support on the platform comprising bars resting on the platform and rigidly secured together and provided with projections to enter the platform and hold the support in place, said support adapted to transversely receive loaded brick-pallets from a truck and uphold the same from the platform, as described.

10. In a brick plant, a head-shed having a multiplicity of closely-arranged parallel pallet-supporting beams arranged on the floor thereof, said beams arranged in pairs with track-wheel spaces between the pairs and parallel therewith and a single track arranged in each space parallel with the beams, as and for the purpose stated, the arrangement being such that a head-truck can move longitudinally along, above a pair of beams with its wheels travelling on the tracks outside of said pairs, substantially as described.

699,476. MACHINE FOR WAX-TREATING PARTS OF BOOTS OR SHOES. DA. HARRY E. BINKLEY and CHARLES FRANK, Lynn, Mass., assignors to the Xpedite Machine Company, Barwick, Me. Filed Jan. 28, 1900. Serial No. 2,371. (No model.)



Claim.—1. A machine of the character indicated, comprising a work-rubbing member, means to move it for rubbing the work, means for holding malleable wax, where it will be applied to the work-rubbing face of said member and separate means for spreading said wax on said work-rubbing face.

2. A machine of the character indicated, comprising a work-rubbing member, and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, and means operating transversely to the motion of the work-rubbing member for spreading said wax on said face, substantially as described.

3. A machine of the character indicated, comprising a work-rubbing member, and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a medium for spreading said wax on the work-rubbing face of said member, and means to be adjustably shifted for changing the state of said medium relatively to said face, substantially as described.

4. A machine of the character indicated comprising a work-rubbing member and means to move it for rubbing the work and means for applying wax to the work-rubbing face of said member combined with a medium and means to move it across the working edge of said rubbing member for spreading said wax on said face, substantially as described.

5. A machine of the character indicated, comprising a work-rubbing member, and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a medium and means to move it transversely for spreading the wax on said face, substantially as described.

6. A machine of the character indicated, comprising a work-rubbing member, and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member combined with a medium, and means to move it for spreading the said wax on said face, and a controller means for regulating the path of movement of said medium, whereby it is caused to move in approximately conformity with the contour of said work-rubbing face, substantially as described.

7. A machine of the character indicated, comprising a work-rubbing member, and means to move it for rubbing the work, and means for applying wax to the said work-rubbing face, combined with a medium and means to move it for spreading the wax on said face, and a cam device for controlling the path of movement thereof, whereby it is caused to

move in a line conformable approximately to the contour of said working face, substantially as described.

8. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a medium and means to move it for spreading the wax on said work-rubbing face, and a controller means whereby the movement of said medium is made to conform, approximately, to the cross-sectional contour-line of said work-rubbing face, substantially as described.

9. A machine of the character indicated, comprising a work-rubbing member, means to move it for rubbing the work, means for applying malleable wax to the work-rubbing face of said member, a separate medium in juxtaposition with said face for spreading said wax on said face.

10. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a medium in juxtaposition with said work-rubbing face for spreading the wax thereover, and mechanism to be adjustably moved for shifting the pressure of said medium on said working face, substantially as described.

11. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a yieldingly-supported medium in juxtaposition with said working face for spreading the wax thereover, substantially as described.

12. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a reciprocating medium of yielding material in juxtaposition with said working face for spreading the wax thereover, substantially as described.

13. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with a reciprocating medium in juxtaposition with said work-rubbing face for spreading the wax thereover, and spring-controlled means for regulating the pressure of said medium on said face, substantially as described.

14. A machine of the character indicated, comprising a work-rubbing member and means to move it for rubbing the work, and means for applying wax to the work-rubbing face of said member, combined with means for spreading the wax on the work-rubbing face of said member, and means for gauging the position of the work to the said work-rubbing face, substantially as described.

15. A machine of the character indicated, comprising, in combination, a work-rubbing member and means to move it for rubbing the work, means for heating said member, means for applying wax to the work-rubbing face of said member, transversely-reciprocating means for spreading the wax on said work-rubbing face, and means for gauging the position of the work relatively to said face, substantially as described.

16. A machine of the character indicated, comprising a work-rubbing member, means to move it for rubbing the work, means for applying malleable wax to the work-rubbing face of said member, means for artificially heating said member and independent means for spreading said wax on said work-rubbing face.

17. A machine of the character indicated, comprising a work-rubbing member, means to move it for rubbing the work, means for applying malleable wax to the work-rubbing face of said member, an independent medium and means to move it for spreading said wax on said work-rubbing face.

18. A machine of the character indicated, comprising a work-rubbing member, means to move it for rubbing the work, means for applying wax to the work-rubbing face of said member, a medium and means to move it in a line running opposite of the line of movement of said work-rubbing face for spreading said wax on said face, substantially as described.

19. A machine of the character indicated comprising a work-rubbing member, means to move it for rubbing the work, means for holding malleable wax, means for melting and applying said wax to the work-rubbing face of said member, an independent medium in juxtaposition with said face, and means to move it for spreading said wax on said face, substantially as described.

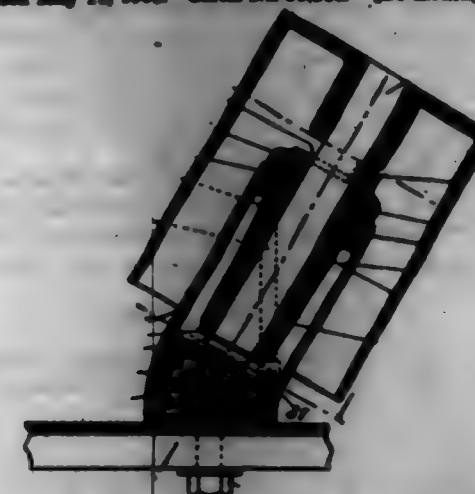
20. A machine for the purpose indicated comprising a work-rubbing member, means for applying wax to said member, separate means operating to thereafter spread said wax on the working face of said member and means for moving said member to do its work.

21. A machine for the purpose indicated comprising a work-rubbing member, means for applying wax to said member, separate means for thereafter spreading said wax on the working face of said member, means for heating said member, and means for moving said member to do its work.

22. A machine for the purpose indicated, comprising a work-rub-

ing member, a wax-supply, means for heating said wax, and a medium of yielding material for spreading the wax on said face.

699,477. CONVEYER-BELT ROLLER. WILLIAM E. BEE, ANSON, Ill., assignor to FIRM of Stephens, Adams & Co., consisting of WILLIAM E. BEE, WILLY W. STEPHENS, and FREDERICK S. ADAMS, ANSON, Ill. Filed May 11, 1901. Serial No. 59,599. (No model.)



Claim.—1. In a conveyor for conveyor-belts, in combination, an upwardly-extending bracket apertured from its upper end, a bearing fitting in the aperture and spaced from the side wall thereof, a spindle journaled in the bearing, the bearing having passages leading from the space surrounding the same to the spindle, and a roller fixed upon the outer end of the spindle and extending downwardly over the bracket.

2. In a conveyor for conveyor-belts, in combination, an upwardly and outwardly inclined bracket apertured from its upper end, a bearing fitting in but not filling such aperture, a spindle journaled in the bearing and resting upon the bottom of the aperture, a roller fixed upon the outer end of the spindle and extending downwardly over the bracket, and a scraper integral with the bearing for removing from the spindle and returning to the bearing the oil carried out of the bearing.

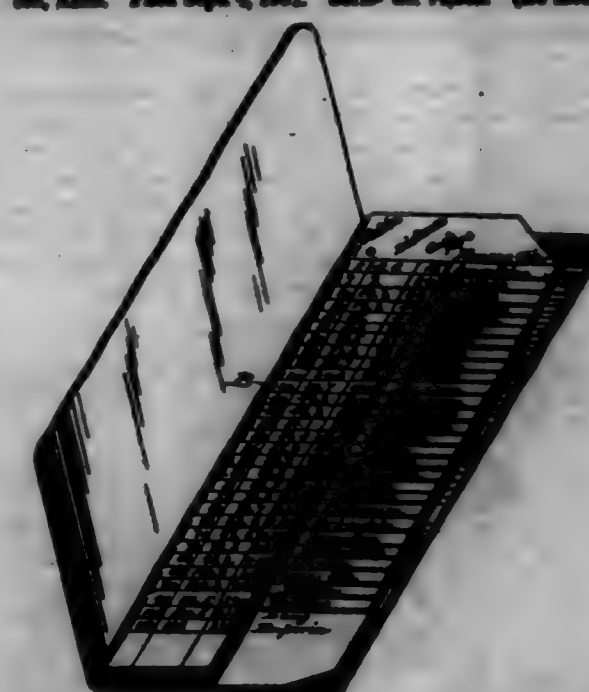
699,478. WALL-PAPER-DISPLAY RACK. OLIVE BAKERLY, Lacey, Mo. Filed Nov. 1, 1901. Serial No. 59,598. (No model.)



Claim.—1. In a wall-paper-display rack, the combination with a beam, of a rack revolvably supported thereon, said rack composed of detachable sections, and a plurality of rolls detachably locked and revolvably supported in each section, so that the entire rack may be dismantled for packing or shipping and each rack-section still retain its full complement of rolls.

2. In a wall-paper-display rack, the combination with a beam having a rod secured thereto and projecting upward therefrom, of a frame comprising a bottom plate and side frame, and a pair of spindles secured to the bottom plate, one projecting downwardly and the other upwardly into the space in the side frame, said spindles each having a hole in the center whereby to receive the rod or bolt which projects upwardly from the beam and upon which the rack turns.

699,479. RAILWAY TARIFF-BOOK. WILLIAM E. BINKLEY, New-ton, Kans. Filed Sept. 4, 1901. Serial No. 59,598. (No model.)



Claim.—1. A railway tariff-book with index-leaves having the index-leaf of each succeeding leaf so cut that its lower edge shall be a sufficient distance below the index-leaf of the preceding leaf to afford space for the name of a station, and its upper edge shall be a sufficient distance below the upper edge of the index-leaf of the preceding leaf to afford space on the back of each preceding leaf for the name of a station, means of one route arranged in order on the front of the index-leaf, and station-names of a second route so arranged upon the back of the successive index-leaf that they will be readable only when the position of the book is reversed; substantially as described.

2. A railway tariff-book with index-leaves having the index-leaf of each succeeding leaf so cut that its lower edge shall be a sufficient distance below the index-leaf of the preceding leaf to afford space for the name of a station, and its upper edge shall be a sufficient distance below the upper edge of the index-leaf of the preceding leaf to afford space on the back of each preceding leaf for the name of a station, means of one route arranged in order on the front of the index-leaf, and station-names of a second route so arranged upon the back of the successive index-leaf that they will be readable only when the position of the book is reversed, and columns of figures opposite the station-names upon the main portions of the several leaves to indicate cash fares and distances from the station on the fly-leaf of that leaf to each of the succeeding stations; substantially as described.

699,480. TOBACCO-PIPE. ALLEN E. BOWMAN, Philadelphia, Pa. Filed Apr. 10, 1901. Serial No. 59,571. (No model.)



Claim.—1. A pipe having a spherical bowl cut off at the top, a cover for said top, the cover being concave-convex in form and having a slot therein, and a guide device fastened to the bowl and loosely received in the slot.

2. A pipe having a straight-tube of woven fabric arranged thereto and adapted to have the smoke drawn through it, and a ball-plate secured in the tube.

3. A pipe having its stem provided with a structure in the form of a funnel-shaped tube into which the smoke-passage of the bowl leads, said tube being provided with a ball-plate at about the center of its length.

4. A pipe having a bowl, a stem fastened thereto, a mouthpiece fastened to the stem, a coupling for joining together the stem and mouthpiece, the coupling comprising a web projecting between said parts, a smoke-

tube held in the web, and a strainer in the form of a fruminated tube held in the stem and mounted on said smoke-tube.

5. In a pipe, a stem provided with an apertured web extending across its bore, a short tube carried by the web, and a tubular strainer into the outer end of which the short tube projects, said strainer being provided with a transverse partition.

6. A pipe comprising a bowl having a tube leading therefrom, a stem secured to the bowl, a mouthpiece secured to the stem, an apertured web arranged between the stem and mouthpiece, a short tube secured in the aperture of the web, and a tubular strainer into the inner end of which the tube of the bowl projects, the said strainer being provided with a transverse partition and having its outer end fitting upon the said short tube, as set forth.

7. A pipe, comprising a bowl having a tube leading therefrom, a stem secured to the bowl, a mouthpiece, a threaded band engaging the stem and mouthpiece and securing them together, said band being provided with a web having a central aperture, a short tube having a reduced end fitting in the aperture of the web, and a tubular strainer into the inner end of which the tube of the bowl extends, the said strainer being provided with a transverse partition and having its outer end fitting upon the inner end of the said short tube, as set forth.

699,481. DRIP ATTACHMENT FOR DISPENSING APPARATUS.
GEORGE W. BOTE, Washington, D. C. Filed Apr. 2, 1901. Serial No. 54,148. (No model.)



Claim.—1. A drip attachment for faucets and the like comprising a support attached to the faucet, a bracket fitted upon the support, and a horizontal swinging holder carrying a drip-receptacle and pivotally connected with said bracket, said receptacle being arranged to move upright to a position at one side of the plane of the faucet-nozzle.

2. A drip attachment for faucets and the like comprising a support, a swinging holder pivotally connected with said support, means for vertically adjusting said holder, a drip receptacle or cup carried by the holder, and yielding means for normally holding the drip receptacle or cup in vertical alignment with the faucet-nozzle.

3. A drip-cup attachment for faucets and the like comprising a support, a vertically-adjustable bracket mounted upon the support, a horizontally-swinging holder carrying a drip-receptacle and pivotally united to the bracket, and means located at the pivot for the holder for automatically returning it to a position beneath the faucet-nozzle after having been swung outside of the plane of said nozzle.

4. A drip attachment for faucets and the like, comprising a support attached to the faucet, a swinging holder carried by said support, and a drip receptacle or cup carried by said holder and arranged to move upright to a position at one side of the plane of the faucet-nozzle.

5. A drip attachment for faucets and the like, comprising a support, a pivot-bracket mounted upon said support, and having an inclined bearing shoulder or cam, and a laterally-swinging holder consisting of an arm carrying a drip-receptacle and provided with a pivot-head having an inclined face co-operating with said bearing shoulder or cam.

6. A drip attachment for faucets and the like, comprising a support, a pivot-bracket mounted upon the support and having an inclined bearing shoulder or cam, a laterally-swinging arm carrying a drip-receptacle,

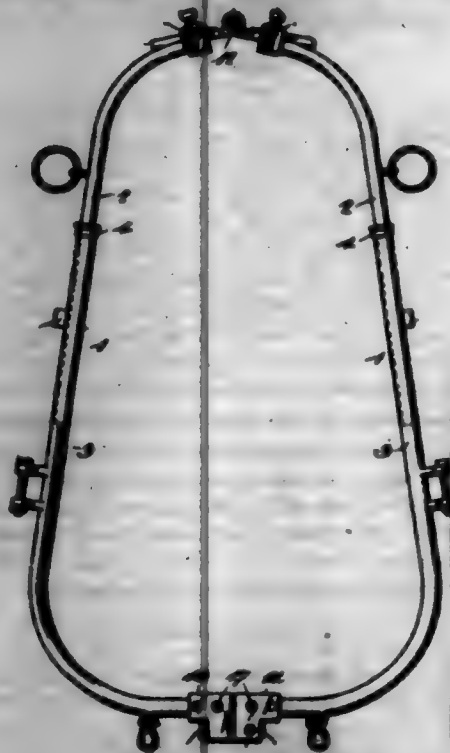
and provided with a pivot-head pivotally united with the bracket and having an inclined face co-operating with said bearing shoulder or cam, and means for holding the pivot-head under yielding pressure.

7. A drip-cup attachment for faucets and the like, comprising a support, a pivot-bracket adjusted upon said support, and a horizontally-swinging holder carrying a detachable drip-receptacle and pivotally connected with said bracket said receptacle being arranged to move upright to a position at one side of the plane of the faucet.

8. A drip attachment for faucets and the like, the same comprising a support consisting of a stem or standard, a drip-receptacle carried by said support, and arranged to move upright to a position at one side of the plane of the faucet-nozzle, and a fastening clip or clips carried by the support and adapted to engage with the faucet.

9. A drip attachment for faucets and the like, the same comprising a support consisting of a standard, the drip-receptacle, and separate right-angled fastening-clips having adjustable connection with the standard and adapted to respectively engage the stem and delivery-nozzle of the faucet.

699,482. ADJUSTABLE HAME-FASTENER. FRANK J. BOTTLE, Galveston, Tex. Filed Oct. 14, 1901. Serial No. 71,904. (No model.)



Claim.—The combination of the hames, the casings provided with upper and lower sleeves, the upper sleeves of the casings being adjustably secured to the lower ends of the hames, and a bar secured in one of the lower sleeves of the casings and provided with a pair of oppositely-disposed catches for engaging the other lower sleeve, substantially as described.

699,483. ELECTRICAL APPARATUS. THOMAS H. BRADY, New Britain, Conn. Filed July 24, 1901. Serial No. 60,167. (No model.)



Claim.—1. A motor-box provided with apertures for the wires, and binding-cords within and integral with said box to receive and retain the ends of said wires, substantially as described.

2. A metallic motor-box provided with apertures for the wires, binding-cords formed integral with said box, and a cover therefor, substantially as described.

699,484. FORCE-PUMP. OTTO G. BRAHMA, Rutland, N.H. Filed July 27, 1901. Serial No. 68,971. (No model.)



Claim.—1. In a pump as described, the combination with the casing, the lift and discharge pipe sections, and a cylindrical body connected with the two pipe-sections, said body having two independent vertical compartments, said compartments having fluid passages or openings, one at the upper and the other at the lower end; of a cut-off slidably mounted on the cylindrical body, having a fluid-passage at the upper end, and a similar passage at the lower end, a piston-disk attached to and movable with the cut-off, said cut-off being movable in reverse directions by pressure on the disk in opposite directions, whereby to bring the openings in said sleeve into alternate cooperative position with the cylindrical-body openings, for the purpose described.

2. The combination with the casing 1, having a pendant pipe 1', and a lift-pipe at the top, and a mounted extension detachably joined to the upper end of the casing; of the lift and discharge pipes, a cylindrical body having its ends joined with the discharge and lift pipes, said body having a central vertical division, terminating at the ends in oppositely-extending horizontal sections, whereby to produce internal spaces *d* and *e*, a pair of water passages or openings 8 8', in the lower end, one of which opens into space *d*, the other into space *e*, said body having a second pair of water-passes 9 9', opening, respectively, into the spaces *e* and *d*, a sleeve slidably mounted on the cylindrical body for a limited movement vertically thereon, a piston-disk fixedly mounted on the sleeve, said sleeve having an opening or passage at the top, and a similar opening at the bottom, said openings being adapted to alternately close and open the two sets of passages in the cylindrical body, for the purpose specified.

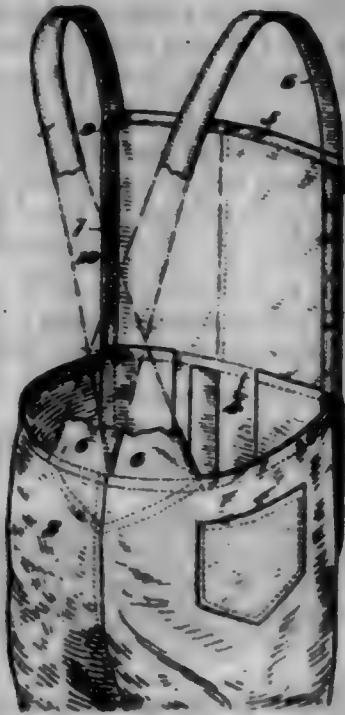
3. The combination with the pump-casing; of the inlet and outlet pipe sections, the cylindrical body 6, connected therewith, said body having two independent compartments *d* and *e*, one of which *d* has direct communication with the lift-pipe section, and the other *e* has direct communication with the outlet-pipe section, said cylinder-body having openings or fluid-passages 9 9' opening, respectively, into the upper end of the compartments *d* and *e*, and like passages 8 8' opening respectively into the compartments *d* and *e*; of the sleeve 10, slidably held on the body 6, and having openings 10 10' at the upper and lower ends for operating in harmony with the openings 9 9' and 8 8', a piston-disk fixedly held on the sleeve, and means on the body for limiting the sliding movement of the sleeve, as set forth.

699,485. OVERALLS. ROBERT S. BARNHARTTER, Butler, Pa., assignor of one-half to Charles W. Dickinson, Pittsburg, Pa. Filed Dec. 28, 1901. Serial No. 67,888. (No model.)

Claim.—1. Overalls having an opening at each side, the rear flaps of said openings having cords secured thereto, said cords extending forwardly and being secured to the upper part of the apron portion, and guides upon the front overalls portion through which the intermediate portions of the cords extend; substantially as described.

2. Overalls having side openings, side guides secured to the front-flap portions and flexible connections secured to the rear-flap portions of said openings, and extending through said guides, said cords being ar-

ranged to be drawn taut by the suspender portions; substantially as described.



3. Overalls having side openings, guides secured to the front-flap portions, cords having their ends secured to the rear-flap portions of said openings, said cords extending through guides and upwardly of the apron parts, their ends being secured to the upper portion of the apron; substantially as described.

4. Overalls having side openings, guides secured to the front-flap portions, cords having their ends secured to the rear-flap portions of said openings, said cords extending through the guides and upwardly of the apron parts, their ends being secured to the upper portion of the apron, and guide-strips covering the front portions of the cords; substantially as described.

699,486. CURRYCOMB. CLAYTON P. BRIMM, Cogan Station, Pa. Filed Sept. 11, 1901. Serial No. 73,063. (No model.)



Claim.—1. The combination with a currycomb, having a rearwardly-projected handle and an angular Shank having one end connected to the handle and its opposite end applied to the top of the back of the comb, of a thumb-piece fitted between the handle and the rear edge of the comb and having a lower forwardly-directed tang driven in between the back of the comb and that part of the Shank which is connected thereto, and an upper rearwardly-directed tang driven into the handle, the outer face of the body of the thumb-piece being concaved vertically and concaved laterally, and a substantially semicircular finger-piece applied to the front of the back of the comb with its concaved face in front, its front edge projected in advance of the front edge of the comb and its rear edge rising above the latter, integral angular attaching-brackets at opposite ends of the body portion and embracing the top and front edge of the back of the comb, the outer ends of the brackets being projected beyond the respective side edges of the comb to form knockers, and fastenings pivoting the brackets and the back of the comb.

2. As a new article of manufacture, a finger-piece for currycombs, struck from a sheet of metal and consisting of a substantially semicircular body portion, provided with opposite terminal angular attaching-brackets having substantially horizontal top members lying below the upper edge of the body, terminated short of the lower front edge of the body and provided with perforations, and front members pendant from the front edges of the top members and lying in rear of the lower bottom edge of the body, the brackets being of a length to project at opposite sides of a currycomb and form knockers.

3. The combination with a currycomb, having a rearwardly-projected handle, and an angular Shank having one end connected to the handle and its opposite end applied to the top of the back of the comb, of a thumb-piece fitted between the handle and the rear edge of the comb and having a lower forwardly-directed tang driven in between the back of the comb and that part of the Shank which is connected to the comb, and an upper rearwardly-directed tang driven into the handle, the outer

face of the body of the thumb-piece being concaved vertically, concaved laterally and projected at opposite sides of the shank.

4. The combination with a carrycomb, having a rearwardly-projected handle and an angular shank connecting the handle to the back of the comb, the forward portion of the shank being provided with an up-struck corrugation, of a thumb-piece having its upper end provided with a rearwardly-projected tang which is fitted into the adjacent end of the handle, and a forwardly-projected tang provided at the lower end of the thumb-piece and inserted into the socket formed by the corrugation of the shank and the adjacent portion of the back of the comb.

5. As a new article of manufacture, a thumb-piece for carrycombs, consisting of a body having one face concaved longitudinally and concaved laterally, an integral tang projected rearwardly from one end and at the longitudinal concaved side thereof, and a second tang carried by the opposite end of the body and projected forwardly at the opposite side thereof.

699,487. BEST-SPREADER. DANIEL BROWN, Oxnorton, R. I. Filed Feb. 18, 1908. Serial No. 84,576. (No model.)

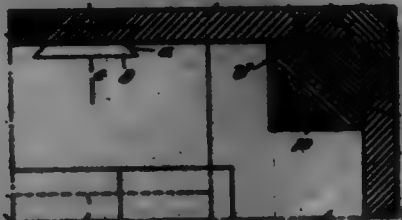


Claim.—1. The improved shot-spreader herein described, consisting of a rhomboid-shaped piece of pasteboard and a spirally-bent wire in frictional contact with the two long sides thereof, substantially as shown.

2. The combination of the shot-spreader F, made in the shape of a rhomboid, and a wire G spirally bent with short curves b and intermediate straight portions, said wire being in frictional engagement with the two long edges of the spreader F, substantially as described.

3. In combination with a loaded cartridge-shell having a wad to confine the powder and a wad to confine the shot, a shot-spreader surrounded by said shot and having a rhomboid shape, one acute corner of which is in contact with the first-named wad and the other acute corner of which is in contact with the second-named wad, and a spirally-bent wire in frictional engagement with the two long edges of said spreader and in contact with the interior surface of said shell, substantially as specified.

699,488. VEHICLE-BODY. JAMES E. BROWN and CHARLES E. BROWN, Bedford, Pa. Filed Apr. 10, 1904. Serial No. 84,178. (No model.)



Claim.—As an article of manufacture, a vehicle-body comprising a bottom, corner-posts, hays and side and end panels, all of said panels being mitered externally at the ends thereof, and provided with inner flat faces interrupted by keyways, said keyways extending entirely across said panels for the purpose of affording a firm grip throughout the entire width of said panels, the general location of the said keyways being obliquely opposite said mitered ends of said panels and parallel with the inner faces of said panels, the mitered surfaces and said keyways being parallel with each other, the said corner-posts being provided with substantially V-shaped slots and with keyways, one wall of each slot being interrupted by a keyway extending lengthwise of said post a distance representing the entire width of one of said panels, the said hays engaging with all of said keyways, the relative engagement of said mitered edges and said keyways being such that each mutually locks the other throughout the entire length thereof, whereby each braces the other throughout the entire width of said panels.

699,489. CAR-COUPLING. JOHN BROWN and SAMUEL E. CUNNINGHAM, Smithfield, W. Va. Filed Nov. 14, 1904. Serial No. 84,578. (No model.)

Claim.—1. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch arranged transversely to the line of draft and cooperating with a headed link, a yielding trip arranged back of the link-opening and cooperating with the latch to hold the same raised, and uncoupling device associated with the latch.

2. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally supported within the head and having

a catch-hook working over the link-opening and cooperating with the headed link, a forwardly-sprung trip-spring arranged in rear of the link-opening and adapted to engage with the latch to hold the same raised, and uncoupling device for the latch.



3. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally mounted within the head transversely of the line of draft and provided with a catch-hook cooperating with a headed link, a forwardly-sprung trip-spring arranged in rear of the link-opening back of the latch, said trip-spring having a holding member for engagement with the latch when raised, and uncoupling device for the latch.

4. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally mounted within the draw-head and having a catch-hook cooperating with a headed link, a forwardly-sprung trip-spring arranged in rear of the latch and having at its free end an outwardly-deflected holding-finger for engagement with the swinging end of the latch when raised, a pressure-spring arranged to exert a downward pressure upon the latch, a rigid abutment-plate arranged at the lower side of the link-opening within the vertical plane of the catch-hook, and uncoupling device for the latch.

5. In a car-coupling, the draw-head, a vertically-swinging pivotal latch having a hook cooperating with a headed link, said latch having a projecting stud, a slotted link receiving said stud, a lifting-pin engaging in the link, a side uncoupling-lever operatively related to the lifting-pin, and a top uncoupling-rod also operatively related to the coupler-pin.

699,490. TOY OR GAME APPARATUS. CHARLES E. BROWN, Norwich, Wm. Filed Oct. 12, 1904. Serial No. 78,487. (No model.)



Claim.—1. The combination of two rounding bars arranged to move toward and from each other at one end, for the purpose specified, said bars having heads at their free ends formed with matching cavities to receive a ball.

2. The combination of two rounding and tapered bars hinged together at one end, for the purpose specified.

3. The combination of two rounding bars, hinged together at one end, for the purpose specified, said bars having heads at their free ends, which heads are extended downward to bear on the supporting-surface and hold the bars inclined.

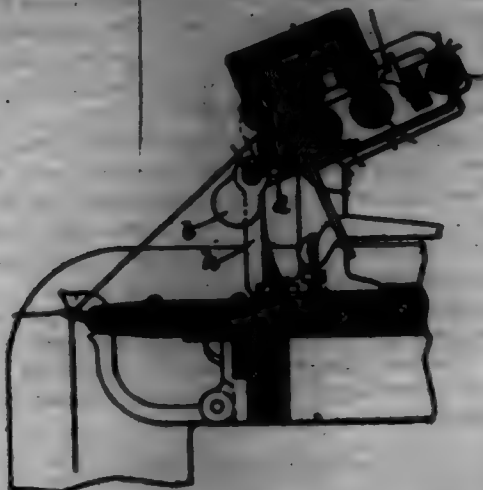
4. The combination of two rounding bars hinged together at one end, for the purpose specified, said bars having heads at their free ends formed with matching cavities to receive a ball.

699,491. SPINNING OR TWISTING FRAME. LEON W. CAMPBELL, Worcester, R. I. Filed Feb. 2, 1908. Serial No. 84,584. (No model.)

Claim.—1. A spinning or twisting machine having a plurality of means each controlled independently by the accumulation of one of the single rovings upon one of the bobbins for continuously clamping or grasping the same roving at a point adjacent to the receiving side of the series of rolls, whereby the power which rotates the rolls is utilized to again break any single roving, and stop its delivery to the rolls, the broken end being left in position for automatic engagement with the nip of the rolls at the receiving side.

2. In a spinning or twisting machine, the combination with the drawing-rolls, of a roving-clamp adjacent to the receiving side of the rolls, and clamp closing means, comprising a normally idle member of a couple of rotation, the other member of which is the lower roll of the front drawing-rolls, and connection between said idle member and the clamp, the said idle member being in close proximity to said lower roll whereby upon

the breakage of a roving at the delivering side of the rolls, and the accumulation of the roving upon said lower roll, the said side member is permitted to operate the clamp.



2. In a spinning-frame, drawing-rolls, means to stop delivery of the roving, said means comprising two apertured and relatively movable members normally forming a roving-guide, and means actuated by or through accumulation of roving upon breakage of the thread, to effect relative movement of said apertured members and part the roving.

699,493. PROCESS OF FORMING STORAGE-BATTERY PLATE. EDWIN H. CHAMBERLAIN, DEPOT, N. Y., assignor to Gould Storage Battery Company, New York, N. Y., a Corporation of West Virginia. Original application filed Mar. 3, 1900, Serial No. 707,002. Divided and this application filed Nov. 9, 1900. Serial No. 26,931. (No specimens.)



Claim.—1. The process of forming a lead storage-battery plate which consists in forming an oxidized coating on the plate by making it the anode in an electrolytic bath, the electrolyte of which produces an oxidizing chemical reaction upon the anode, whereby a continuous electrochemical effect takes place, and then shifting the plate thus provided with the oxidized coating into the position of cathode and introducing a new unoxidized plate as anode, whereby the reduction of oxid on the first-named plate serves to diminish the amount of energy required to oxidize the second plate.

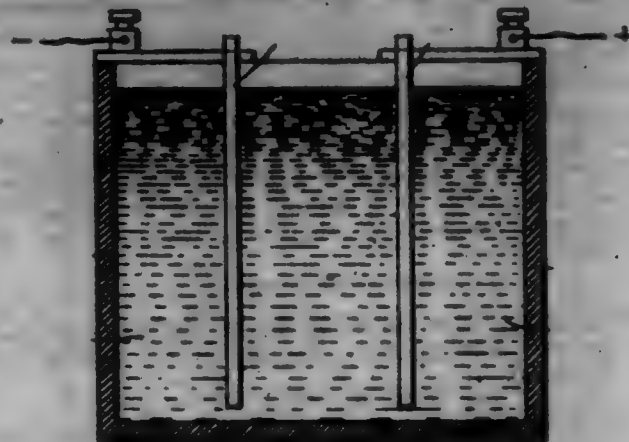
2. The process of forming lead storage-battery plates which consists in exposing each of a series of plates first as the anode and then as the cathode in an electrolytic bath containing sulfuric acid and a dissolving agent, whereby a continuous electrolytic action takes place without reversing the current, and each plate being exposed as an anode in connection with a cathode comprising a preceding plate of the series which has been exposed as an anode, substantially as and for the purpose set forth.

3. The process of forming lead storage-battery plates which consists in oxidizing a plate as an anode in an electrolytic bath, then shifting the plate thus oxidized into the position of cathode, then introducing a new plate as anode and oxidizing the latter in conjunction with the previously-oxidized plate as cathode, the electrolyte being composed of acetic and sulfuric acids.

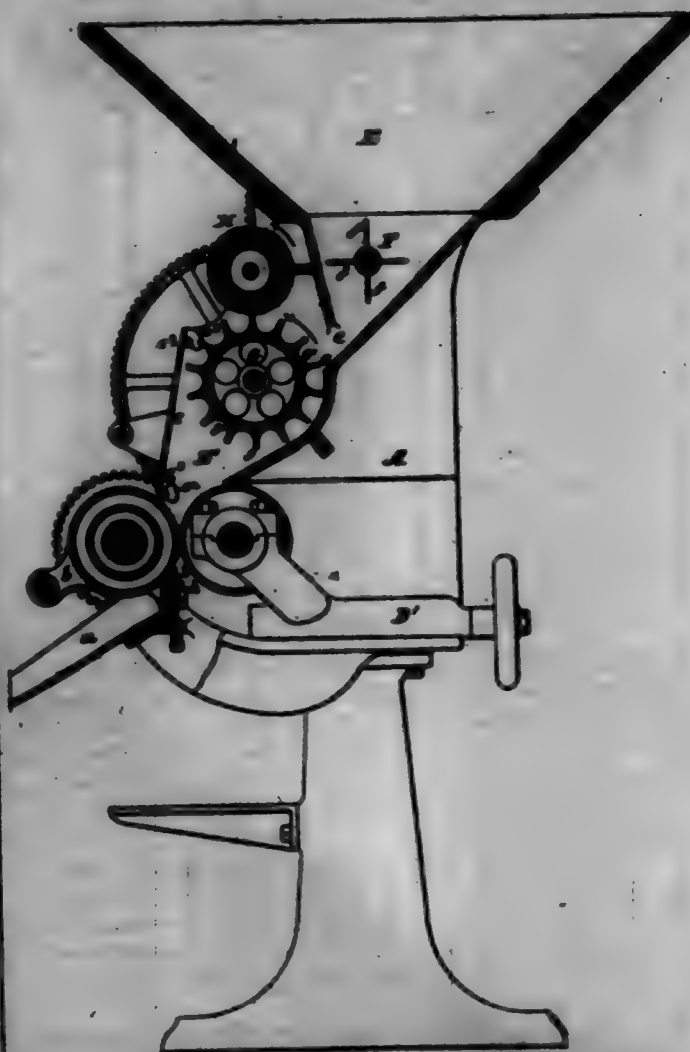
699,498. METHOD OF CLEANING SPONGY LEAD PLATES FOR STORAGE BATTERIES. EDWIN H. CHAMBERLAIN, DEPOT, N. Y., assignor to Gould Storage Battery Company, New York, N. Y., a Corporation of West Virginia. Original application filed Mar. 3, 1900, Serial No. 707,002. Divided and this application filed Nov. 9, 1900. Serial No. 26,932. (No specimens.)

Claim.—1. The process of cleaning a spongy lead plate from the active dissolving agent of an electrochemical forming-bath which consists in exposing said plate as a cathode in an electrolytic bath, each bath containing a solution relatively free from such active agent.

2. The process of cleaning a spongy lead plate and simultaneously oxidizing another plate which consists in exposing said plates respectively as cathode and anode in an electrolytic bath.



699,494. BATHING-MACHINE. FRANCIS J. WIL COOPER, Philadelphia, Pa., assignor to the Heteropne Manufacturing Company of Pennsylvania, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 31, 1901. Serial No. 668,002. (No model.)

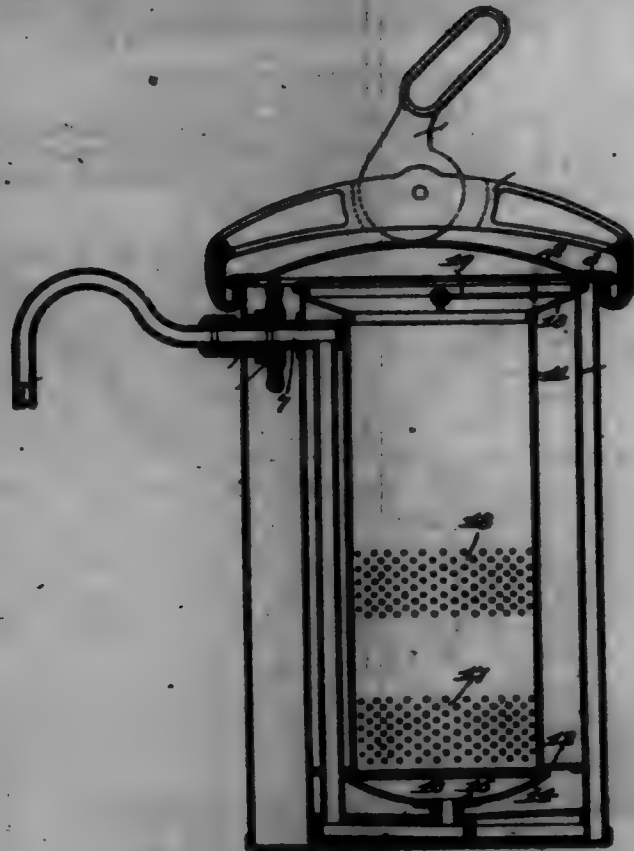


Claim.—1. The combination in a rinsing-casser, of a hopper, agitating mechanism comprising a shaft with a series of arms located therein, a rotating carrier mounted at the mouth of the hopper, the inclined bottom plate of the hopper being curved so as to extend under the carrier and in close proximity thereto, said carrier having longitudinal grooves for the reception of the rinsin, a brush serving to remove the surplus rinsin from the carrier mounted above and in close proximity thereto, means for rotating the brush the carrier and the agitating mechanism simultaneously, with feeding mechanism arranged below the carrier to which the rinsin are fed, said mechanism comprising a feeding-roll driven with the rest of the mechanism and a yielding pressure-roller engaging the feeding-roll and receiving its movement from the same, said pressure-roller being adjustable from and toward the feeding-roll.

2. The combination in a rinsing-casser, of the toothed or serrated feeding-roll, a yielding pressure-roller in engagement with the feeding-roll and adjustable from and toward the same, a frame in which said rolls are mounted, a hopper having an inclined bottom with a curved extension connected thereto also carried by the frame, an outlet in the front of the

hopper at the bottom leading to the seeding mechanism, a longitudinally-grooved carrier mounted in bearings in the frame and arranged within the hopper above said opening and adjacent to the curved extension of the bottom plate, a detachable front plate extending from the seeding-roll to a point in front of the carrier, said plate forming with the extension of the hopper-bottom a chute, a rotating clearing-brush mounted above the grooved carrier, a shaft with projecting fingers mounted within the hopper and curving to separate the refuse placed therein, and means for driving the rotating mechanism carrier-brush and seeding-roll simultaneously, so that the refuse may be fed continuously to the seeding mechanism, the pressure-roller being driven by its engagement with the seeding-roll and being adjustable from end toward the same to operate upon refuse of different size.

699,495. APPARATUS FOR MAKING COFFEE, DR. FRANK W. DALLISON, Cambridge, Mass. Filed Mar. 14, 1901. Serial No. 51,041. (No model.)



Claim.—1. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber, and a coffee-holder within the decoction-chamber, said coffee-holder being provided with a pipe leading from its bottom upward and out through the side of the steam-chamber near its top, said decoction-chamber being in communication with said steam-chamber and coffee-holder, substantially as described.

2. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber, and a coffee-holder within the decoction-chamber provided with a pipe leading from its bottom, said decoction-chamber being in communication with said steam-chamber and coffee-holder, substantially as described.

3. An apparatus for making coffee or the like, having, in combination, a steam-chamber, a decoction-chamber, a coffee-holder in said decoction-chamber provided at or near its bottom with perforations communicating with the decoction-chamber and provided with a pipe leading from its bottom, substantially as described.

4. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber, a coffee-holder within the decoction-chamber provided with a pipe leading from its bottom upward and out through the side of the steam-chamber near its top, substantially as described.

5. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber and a decoction-chamber in said steam-chamber having communication with the steam-chamber above the level of the liquids adapted to be contained in both chambers, substantially as described.

6. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber having communication with the steam-chamber above the level of the liquids adapted to be contained in both chambers, and a coffee-holder

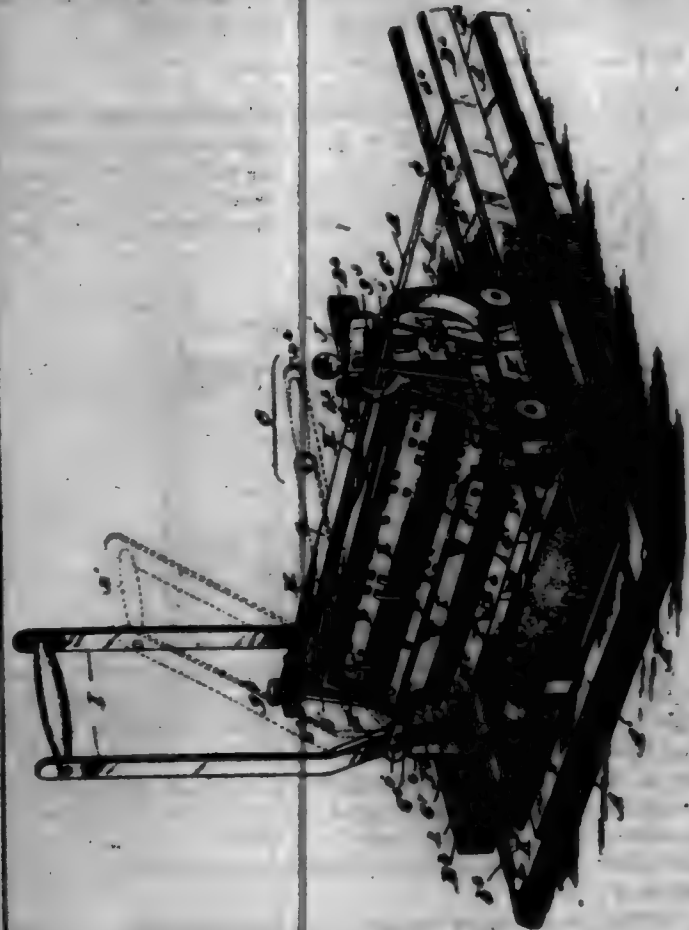
in and having communication with said decoction-chamber, substantially as described.

7. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber having pressure communication with said steam-chamber, and provided with an outlet through the steam-chamber for the discharge of the decoction, and a coffee-holder in and having communication with said decoction-chamber, substantially as described.

8. An apparatus for making coffee or the like, having, in combination, a closed steam-chamber, a decoction-chamber in said steam-chamber, a coffee-holder in and having communication with the decoction-chamber and a pipe passing through the decoction-chamber, leading from the bottom of the coffee-holder upward and out through the side of the steam-chamber, substantially as described.

9. An apparatus for making coffee or the like, having, in combination, a decoction-chamber, a coffee-holder in said decoction-chamber provided near its bottom with separated bands of perforations affording the only means of communication for liquids between the coffee-holder and the decoction-chamber, substantially as described.

699,496. UNIVERSAL PRINTING-MACHINE, CLARENCE L. DAWSON, Jacksonville, Ill. Assignor of one-half to Walter E. Graham, Jacksonville, Ill., and Frank McCuddy, Clinton, Ill. Filed Dec. 12, 1901. Serial No. 50,007. (No model.)



Claim.—1. A universal letter-type comprising independently-movable block-sections having inter-joints at the corners and each having its face joining onto its neighbor to form a continuous surface and each having a non-rotatable stem rising therefrom with a spiral spring around it, and a back plate supporting said stems and blocks, substantially as shown and described.

2. A universal letter-type comprising independent movable block-sections, the longitudinal members and the transverse members of the latter having at the point of intersection a common movable member adapted to act unobscurely with the longitudinal member or exclusively with the transverse member, substantially as described.

3. A printing device comprising a universal letter-type having independently-movable printing-blocks abutting against each other and having stems rising therefrom and springs for holding them up, a horizontal roller having projections on its periphery for selecting and depressing the stems, said rollers being arranged in parallel position above the printing-type and being made vertically adjustable with an equal movement at each end, a supporting-frame carrying each end of the roller, means for equally depressing each end of said frame, and means for rotating the roller to enable it to make proper selection, substantially as described.

4. A printing device comprising a universal letter-type having independently-movable printing-sections with spring-biased stems, arranged

in rows, and a corresponding set of selecting-rollers having peripheral projections and indentations, said rollers being arranged above the rows of stems and having gear-wheels connecting them for an equal and simultaneous rotary adjustment substantially as described.

5. A printing device comprising a universal letter-type having independently-movable printing-sections with spring-biased stems attached in the same said stems being arranged in three rows with the middle row of stems the highest, and three triangularly-arranged rollers with peripheral projections and indentations and connecting-gears, the upper roller being arranged above the row of highest stems substantially as described.

6. A printing device consisting of a universal letter-type having independently-movable printing-sections each provided with upwardly-projecting and spring-biased stems, a selecting-roller having peripheral projections and indentations arranged in different circular series, means for rotating the roller, and means for shifting the roller lengthwise in such a way as to bring a different series of projections into range of engagement with the stems substantially as described.

7. A printing device consisting of a universal letter-type having independently-movable printing-sections with upwardly-projecting spring-biased stems, a frame for said letter-type made vertically adjustable to bring the type into printing contact with the paper, and a frame within said type-frame made vertically adjustable in relation to the type-frame, an adjustable selecting device for picking out the selected sections of the type, said selecting device being carried in the lower frame, springs for holding up the two frames, and means for depressing them, whereby the selecting-device frame descends first to effect the selection of the type-sections and after which the entire type mechanism descends to print the impression as described.

8. A printing device of the kind described having two or more selecting-rollers, and gears for connecting them together, one of said rollers having an extended shaft bearing an index-wheel having letters and numerals displayed thereon and having a correspondingly-notched flange, and a locking-batch engaging with said notched flange to determine the position of the selecting-roller as described.

9. A printing device of the kind described, having one or more selecting-rollers each provided with a separate circular series of projections and indentations, a frame supporting the journals of the same made adjustable lengthwise with the rollers and having pin A, and a locking spring-bar B' with holes A' and B' adapted to fit the longitudinal adjustment of the rollers as described.

10. In a printing device of the kind described the combination with the printing-type-frame H and its printing device; of the dotted and plates G' and top plate G, the outside frame-plates G' with outward legs G', the headed pins g' with springs g' supporting legs G', and an independent frame H' arranged inside frame G' and carrying the selecting-rollers and means for giving a vertical motion to said frame substantially as described.

11. In a printing device of the kind described, the combination of the frame carrying the printing-type, the independently-movable frame carrying the selecting-rollers, the latter being provided with the horizontal bars G', and the lever-bar I having cams i' and the parallel bar I' having corresponding cams substantially as and for the purpose described.

12. In a printing device of the kind described, the combination of the carriage-frame F' having outward legs F', and the selecting-roller frame G' having outward legs G' carrying vertical headed pins G' and springs g' coiled around the pins between its head and the outward leg F' substantially as described.

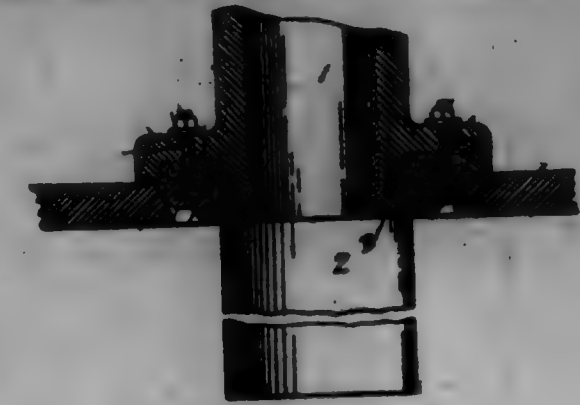
13. In a printing device of the kind described, the combination of a base-board A, the end frame B' the rails B', the printing-carriage C mounted thereon, and the paper-feeding mechanism consisting of rubber-foam wheels B' B', the shaft B' with groove b adjustably connected to wheel B', means for rotating said shaft and the adjusting rollers B' B' the latter being made of a length to accommodate the adjustment of wheel B' substantially as described.

14. In a printing device of the kind described, the combination with the base-board A, its pad A', and the paper-feed device; of the paper-straightening tension wire or cord A' arranged at the front of the base-board substantially as described.

699,497. WARE-HOUSE CHIMNEY FOR CLOSET-BOWLS, ALBERT DELLINGER, Los Angeles, Cal. Filed Jan. 8, 1902. Serial No. 50,412. (No model.)

Claim.—The combination with the neck or tubular portion of a closet-bowl formed with an annular extension having a downwardly-projecting flange; of a vent-pipe, a collar fixed to the upper end thereof provided with capillary peripheral legs, and two of the diametrically opposite ones of which having reversely-arranged undercut channels, the two other diametrically opposite legs curving as steps, and both with heads adjustably connected to said extension, said heads being arranged between the step-legs and channel-legs and adapted to slide on the periphery of

the collar so as to permit of said heads of said bolts engaging with the reversely-arranged channel-legs, substantially as specified.



699,498. COAT, JAMES DE MATO, Mount Vernon, N. Y. Filed July 8, 1901. Serial No. 51,074. (No model.)



Claim.—1. A coat or similar garment composed of a single piece, said piece comprising a body portion having side extensions, a central upwardly-directed portion in which the neck-opening is formed, and side extensions connected with said upwardly-directed portion and which form the shoulders and sleeves of the garment, said parts being adapted to be folded so as to form a garment, and the body portion being provided at the top where the side extensions join said body portion and where the sleeves connect with the upwardly-directed extensions with downwardly and upwardly directed darts, the inner lines or edges of which are curved inwardly, substantially as shown and described.

2. A coat or similar garment composed of a single piece, the blank from which it is formed comprising a body portion having side extensions, a central upwardly directed portion in which the neck-opening is formed, said neck-opening being provided at the bottom thereof with upwardly-directed members designed to form a part of the lapels of the garment, side extensions connected with the upwardly-directed portion and designed to form the shoulders and sleeves of the garment, said parts being adapted to be folded so as to form said garment, substantially as shown and described.

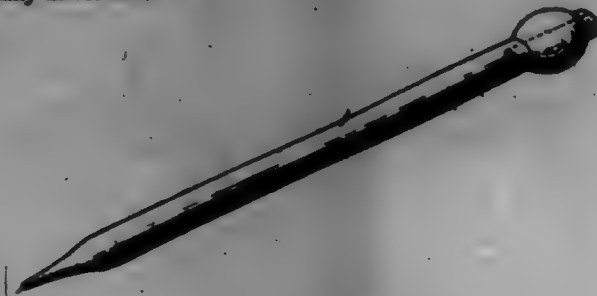
3. A coat or similar garment composed of a single piece, the blank from which it is formed comprising a body portion having side extensions, a central upwardly directed portion in which the neck-opening is formed, said neck-opening being provided at the bottom thereof with upwardly-directed members designed to form a part of the lapels of the garment, side extensions connected with the upwardly-directed portion and designed to form the shoulders and sleeves of the garment, said parts being adapted to be folded so as to form said garment, and the body portion being also provided at the top of the side extensions with downwardly-directed darts, the inner lines or edges of which are curved inwardly, substantially as shown and described.

4. A coat or similar garment composed of a single piece, the blank from which said piece is formed comprising a body portion having side extensions, a central upwardly-directed portion in which the neck-opening is formed, said neck-opening being provided at the bottom thereof with upwardly-directed members designed to form a part of the lapels of the garment, side extensions connected with the upwardly-directed portion and designed to form the shoulders and the sleeves of the garment, said parts being adapted to be folded so as to form said garment, and the body portion being also provided at the top of the side extensions and at the bottom of the sleeve extension with downwardly and upwardly directed darts, substantially as shown and described.

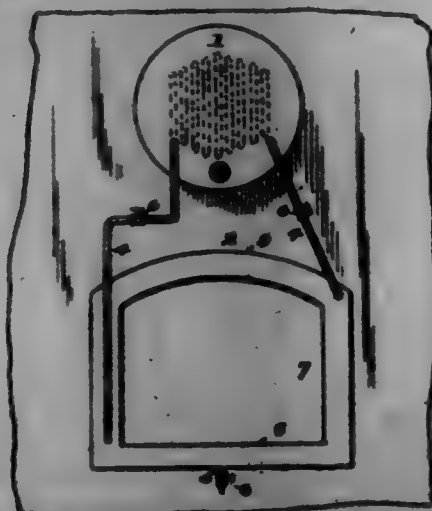
699,499. FOUNTAIN-PEN, ROBERT S. BROWN, Kansas, Mo. Filed Dec. 31, 1901. Serial No. 51,511. (No model.)

Claim.—In a stylographic pen, the combination of a transparent barrel terminating in a point formed with an ink duct or channel, said

barrel having formed integrally with its opposite end an inwardly-projecting capillary tube open at each end and spaced from the barrel to form a chamber whereby is produced a capillary attraction which prevents the escape of writing fluid when the pen is in an inverted position, substantially as set forth.



699,500. MOUTHPIECE FOR BOILER-FURNACE. WILLIAM H. DUNLEY, Springfield, Mass. Filed Jan. 14, 1902. Serial No. 68,670. (No model.)

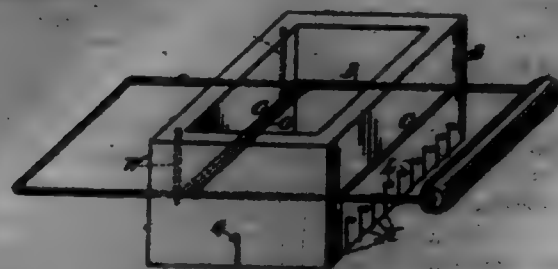


Claim.—1. The combination with a boiler-furnace, a hollow metal mouthpiece fitting therein, and extending around the entire mouth of the furnace, a series of braces or division walls in the mouthpiece having openings, and forming water jackets or chambers, and water-supply means, and the draw-off pipe for sediment or foreign matter.

2. The combination with a boiler-furnace, the mouthpiece having a hollow compartment extending around its entire construction, a series of perpendicular walls in the horizontal portion of the mouthpiece and a series of horizontal walls in the vertical portion, said walls having openings and forming a series of communicating jackets or chambers, and water-supply means.

3. A mouthpiece for boiler-furnace, consisting of a hollow casing adapted to fit the mouth of the furnace, division-walls in the casing connecting the walls of the mouthpiece and forming a series of water-jackets, said division-walls each having an opening forming communication throughout the entire mouthpiece and also bracing the walls thereof.

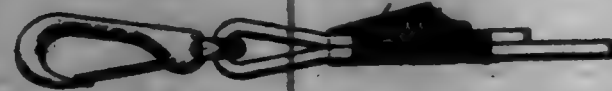
699,501. BUTTER-CUTTER. ALFRED DUBOVAR, Atlantic City, N. J., assignor of two-thirds to Jacob Myers, Daniel Myers, and James G. Fleming, Atlantic City, N. J. Filed Dec. 11, 1901. Serial No. 68,431. (No model.)



Claim.—1. In a butter-cutter, a body portion, open at top and bottom, cutters passing across the bottom thereof, and a movable cutter suitably mounted in substantially the center of said body portion and adapted to be operated after the first-mentioned cutters have cut the butter where-by the latter is cut in half.

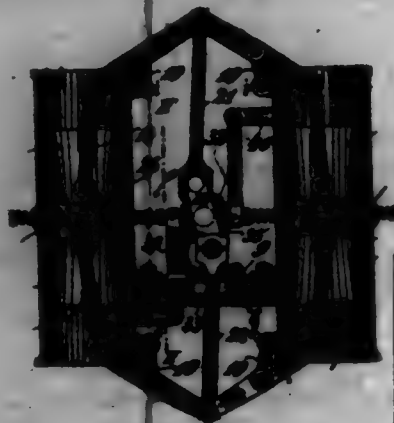
2. In a butter-cutter, a body portion, cutters secured to the bottom thereof, passages in the body portion, a frame having side bars moving in said passages and a cutter secured to said frame and adapted to move therewith.

699,502. BUCKLE. ALBERT E. DOWLAND, Southampton, N.Y. Filed Oct. 4, 1901. Serial No. 71,002. (No model.)



Claim.—A buckle or strap fastener comprising the socket-section, and the wedge-section fitting therein, and having the spring wedge tongues separated by an interval from the base of the wedge, and the lateral guard-walls for said tongues, substantially as specified.

699,508. DOUBLE-CYLINDER HYDROCARBON-MOTOR. FRIEDRICH DÖRFLER, Schönebeck, Germany. Filed July 8, 1902. Serial No. 82,004. (No model.)

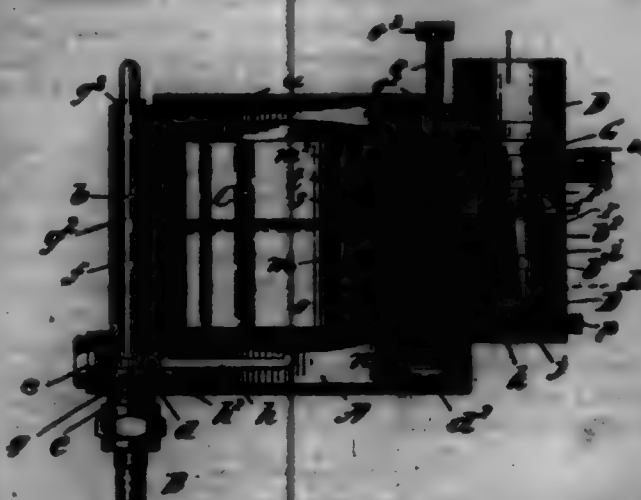


Claim.—1. A hydrocarbon-motor comprising two parallel cylinders, two oppositely-moving pistons in each cylinder, a driving-shaft journaled between said cylinders, a crank mounted on the driving-shaft, and connections between the pistons and crank-shaft allowing the pistons in both cylinders to move apart and to move together simultaneously.

2. A hydrocarbon-motor comprising two parallel cylinders, two oppositely-moving pistons in each cylinder, a driving-shaft journaled between said cylinders, a crank mounted on the driving-shaft, and connections between the crank and the pistons comprising a swinging lever for each piston, a connecting-rod between the crank-shaft and each two adjacent swinging levers.

3. A hydrocarbon-motor comprising two parallel adjacent cylinders each having two oppositely-moving pistons, an inlet-valve and an exhaust-valve, a crank-shaft mounted between the two cylinders and connected with the above-said pistons, a cam-wheel rotatable upon the crank-shaft, mechanism driving the cam-wheel, and a swinging arm on each of said cylinders actuated by the said cam-wheel and operating the exhaust-valves.

699,504. CARBURIZER FOR EXPLOSIVE-ENGINEER. JAMES P. DUNLEY, Springfield, Mass. Filed Nov. 30, 1901. Serial No. 68,670. (No model.)



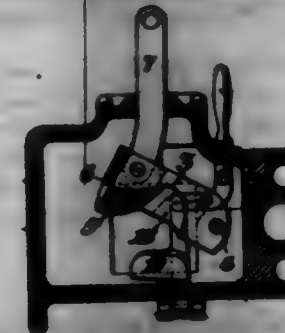
Claim.—1. In a carburizer, the combination of a mixing-chamber having a longitudinal slot in its side wall, a partition-ring in the chamber having a central axial aperture and also other apertures, an inlet-pipe arranged to discharge hydrocarbon in said central aperture, a movable collar located in the chamber above said ring and arranged to control said other apertures in the partition by its axial movement, said collar being so disposed as to cover said slot in its several positions, and a screw secured to the collar and projecting through the slot, the screw being arranged to adjust the collar from the outside of the carburizer and also to clamp the collar in its position of adjustment.

2. In a carburizer, the combination of the chamber, D, having the slot, a; the ring, F, having a central aperture and also the apertures, a; the nozzle, G, arranged to discharge the hydrocarbon in said central aperture; the ring, G, arranged to move axially and thereby control said apertures, a; the ring being so disposed as to cover the slot, a, in its various positions; and the screw, c, tapped into the ring, G, and projecting through said slot; said screw being arranged to move the ring, G, and to clamp it in its position of adjustment.

3. In a carburizer, the combination of a mixing-chamber, a partition-ring in the chamber having a central axial aperture and also other apertures, an inlet-pipe for the hydrocarbon arranged with its discharge end located in said central aperture, a movable collar located in the chamber above said ring and arranged to control said other apertures in the partition by its axial movement, said collar having its lower edge tapering outwardly toward its axis, said partition having the part in opposition to said tapering portion of the collar of a corresponding taper, means for moving the collar axially, and means for securing the collar in its position of adjustment.

4. In a carburizer, the combination of the chamber, D; the ring, F, having a central aperture and also other apertures, a; the nozzle, G, arranged to discharge hydrocarbon into the central aperture; the ring, G, arranged to move axially and having its lower edge tapering outwardly toward its axis; the ring, F, having the upper flange forming the margin of the apertures, a, of a taper corresponding to the tapering part of the collar, G; means for moving the collar, G, axially; and means for securing the collar in its position of adjustment.

699,505. CAR-COUPLING. JOHN E. B. RADAR, Philadelphia, Pa. Filed May 14, 1901. Serial No. 68,680. (No model.)



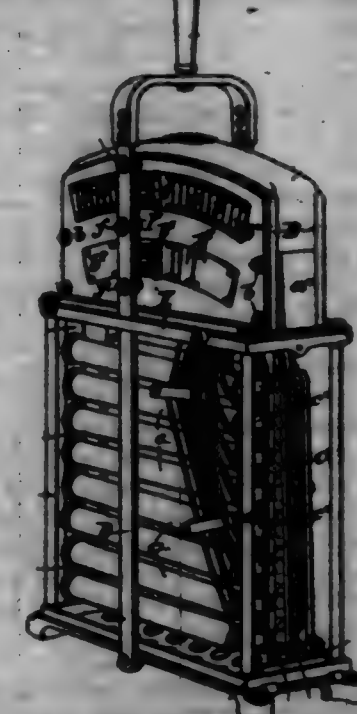
Claim.—1. The combination, to form a car coupling member, of a coupling head, a knuckle pivotally mounted in said head, a locking block movable in an approximately vertical plane, adapted to be automatically elevated by the knuckle tail in its rearward movement, and, after such rearward movement, to descend by gravity into position to lock the knuckle tail, a locking block elevating device connected with said locking block and extending to the exterior of the head, a trigger pivotally mounted, at a point on one side of its center of gravity, to the bottom portion of the head, extending through an opening in the top of said head, and adapted to be manually tilted with respect to its pivot, and also adapted to be tilted by the knuckle tail in its movement, and means by which said trigger automatically engages the locking block when the latter is in elevated position.

2. The combination, to form a car coupling member, of a coupling head, a knuckle pivotally mounted in said head, a locking block movable in an approximately vertical plane, adapted to be automatically elevated by the knuckle tail in its rearward movement, and, after such rearward movement, to descend by gravity into position to lock the knuckle tail, an elevating device connected with said locking block and extending to the exterior of the head, a trigger pivotally mounted, at a point on one side of its center of gravity, to the bottom portion of the head, and extending through an opening in the top of said head, and adapted to be manually tilted with respect to its pivot, means by which said trigger automatically engages the locking block when the latter is in an elevated position, and a contact block carried on said trigger and projecting beneath the locking block in position to be encountered, and, with the trigger, tilted, by the knuckle tail.

3. The combination, to form a car coupling member, of a coupling head having a trigger opening formed in its top and a trigger opening formed in its bottom, a knuckle pivotally mounted in the vicinity of the opening formed in its bottom, a knuckle pivotally mounted in said head, a movable locking block adapted to be automatically elevated by the knuckle tail in its rearward movement, and, after such rearward movement, to descend by gravity into position to lock the knuckle tail, a locking block elevating device connected with said locking block, and extending to the exterior of the head, a trigger extending through the trigger opening in the top and bottom of the head and having a pivotal connection with the top, said pivotal connection being at one side of the center of gravity of the trigger, means by which said trigger automatically

ally engages the locking block when the latter is in elevated position, and a contact block carried on said trigger and projecting past the locking block in position to be encountered and, with the trigger, tilted, by the knuckle tail.

699,508. ELECTRIC CONTROLLER. ARTHUR C. BARWOOD, Cleveland, Ohio, assignor to the Electric Controller and Supply Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 20, 1901. Serial No. 67,003. (No model.)



Claim.—1. In an electric controller, the combination of substantially parallel plates of insulating material, series of contact-platen supported thereon, a lever having a member or members extending adjacent to said plates and contact-brushes carried by said members, said brushes being placed and connected so that they form electrical connection between certain of the contact-platen when the lever is operated, substantially as described.

2. In an electric controller, the combination of resistance, vertical and parallel plates of insulating material, a series of contact-platen mounted on each of said plates, a lever having two side members each adjacent to one of said plates, and carrying brushes, said brushes being placed to electrically connect certain of the contact-platen on the insulating-plate to which it is adjacent, substantially as described.

3. In an electric controller, the combination of resistance, parallel plates of insulating material carrying contact-platen electrically connected with said resistance, a U-shaped lever extending over said plates carrying a brush on each of its side members placed to engage said contact-platen, substantially as described.

4. The combination of a frame, resistance, two parallel plates of insulating material mounted on the frame, groups of contact-platen connected to the resistance on each of the insulating-plates, a lever having members adjacent to the surfaces of the insulating-plates, and brushes on each of the said members, the same being insulated therefrom and constructed to electrically connect certain of the contact-platen on each plate when the lever is operated, substantially as described.

5. In an electric controller, the combination of a frame carrying two plates of insulating material parallel to each other and lying in substantially vertical planes, two series of contact-platen on each of said plates, an operating-lever having two members of which one extends adjacent to each insulating-plate, brush-holders on each member carrying brushes, the same being constructed to electrically connect the series of contacts on each plate, said brushes being insulated from the lever and from each other, substantially as described.

6. In an electric controller, the combination of a frame carrying two plates of insulating material parallel to each other and supported on the frame in substantially vertical planes, two series of contact-platen on each of said plates as operating-lever having two members of which one extends adjacent to each plate, a brush-holder fixed to each of said members of the lever but insulated therefrom, two sets of brushes on each holder placed to bear upon the series of contacts of their respective plates, the brushes of each holder being electrically separated to each other, substantially as described.

7. The combination of a frame, a U-shaped lever pivoted thereto, insulating-plates carried in vertical planes by the frame and adjacent to the side members of the lever, two series of contact-platen on each of the plates, the same being arranged on the ends of double whose centers are

coincident with the pivotal line of the lever, brush-holders with brushes carried by the side members of the lever, the same forming an electrical connection between the car of contacts upon each plate and the levers operated, substantially as described.

8. In an electric controller of the character described, the combination of a frame, a U-shaped lever pivoted to the lower portion of the frame, contact-pieces lying in vertical planes carried by the frame and brushes carried by the lever, said frame being provided with guides engaging the side members of the lever whereby lateral motion of the same is prevented, substantially as described.

9. In an electric controller of the character described, the combination of a frame, a U-shaped lever pivoted to the lower portion of the frame, contacts lying in planes at right angles to the pivot of the lever also carried by the frame, and brushes carried by the lever, the upper portion of the frame having on each side guide-pieces, the side members of the lever extending between said guide-pieces and the frame and being thereby secured against lateral motion, substantially as described.

10. The combination with an electric controller of the character described, of a lever pivoted to said controller, a brush-holder fixed to the lever and movable with it in a plane at right angles to its pivot, a series of brushes pivotally attached to the holder, each of the same having a projecting portion together with springs carried by the brush-holder and bearing upon said projecting portions of the brushes, substantially as described.

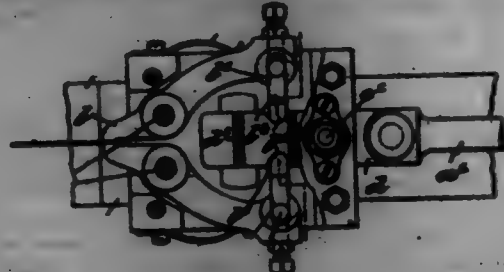
11. The combination with an electric controller of the character described, of a lever pivoted to said controller, a brush-holder fixed to the lever and movable with it in a plane at right angles to its pivot, a series of bolts projecting from the holder, T-shaped brushes pivoted to the holder, each having one of its projecting portions engaging a bolt with a spring on each bolt bearing upon said projecting portion of its respective brush, with a spring on each brush, substantially as described.

699,507. CURTAIN-POLE RING. GEORGE HANCOCK, Brooklyn, N. Y., assignor of one-half to George Grah, Glendale Station, N. Y. Filed Nov. 11, 1901. Serial No. 91,578. (No model.)



Claim.—A curtain-pole ring consisting of an exterior ring provided with a concave recess at its exterior circumference and radial recesses at its inner upper portion, a wire ring spring into the recess formed at the inner circumference of the exterior ring, centrifugal-rollers placed in the radial recesses, and a keeper extending over the ends of the wire ring and exterior ring, and provided with an eye at its lower end, substantially as set forth.

699,508. GRIPPING MECHANISM FOR FEEDING METAL STRIPS. DR. WILLIAM FRIED, Philadelphia, Pa., assignor to Steel Rods Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 20, 1901. Serial No. 94,695. (No model.)



Claim.—1. In a mechanism of the character described, a case having a limited range of reciprocating movement, a gripping and feeding mechanism carried by said case, mechanism for reciprocating the case, means for limiting the movement of the case independently of the full movement of the reciprocating mechanism, and means controlled by the reciprocating mechanism during its movement independent of the case arranged to operate the gripping and feeding mechanism only during said independent movement.

2. In a mechanism of the character described, a case, a rail or guide wherein the case is arranged to reciprocate, two jaws pivoted within the case, a shaft, a head formed on said shaft and extending within the case,

means for locking the head to the case during other movement of the case, means for shifting the head in the case at the end of each reciprocation of said case, and mechanism controlled by the head arranged when the head is shifted to the case to open and close the jaws.

3. In a mechanism of the character described, a case, two gripping-jaws pivoted within the case, springs adapted to separate said jaws, a shaft arranged to reciprocate the case, a head formed on said shaft and arranged to slide within the case at or near the end of each reciprocating movement of said case, and toggle or links connecting the head with the gripping-jaws, said toggle or links adapted as the head is shifted in one direction to close the jaws against the tension of the springs.

699,509. COUPLING FOR RAILROADS. DR. JOSEF FURBER, Philadelphia, Pa., assignor to Thomas Devlin & Co., Philadelphia, Pa., a Firm. Filed Jan. 20, 1902. Serial No. 91,880. (No model.)

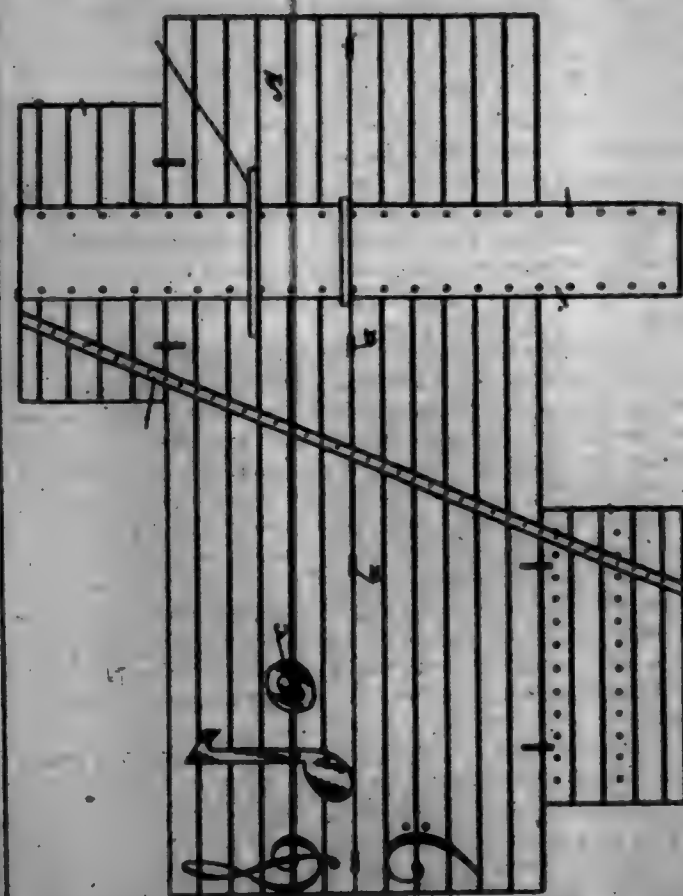


Claim.—1. A coupling for the members of a rail consisting of sections, one of which is formed with a neck, and the other section provided with a nut, the latter being adapted to freely receive said neck, and a screw which is passed through the side of one section, through said nut and into the neck of the other section.

2. A coupling for a rail consisting of sections, one of which has a neck with a nut on one side, an opening therethrough, a contiguous section having a socket and an opening opposite to the latter, and a screw passing through said opening and socket into the opening of the neck and socket of the other section.

3. A coupling consisting of sections, one of which has a neck thereon, and a socket on one side thereof, and another section having a socket and opening in opposite sides and a screw passing through said opening and socket into the neck and socket of the other section, said sockets having flat faces which are in contact and adapted to ride one on the other in the adjustment of the coupling and rest firmly on each other in the fixed completed condition of the latter.

699,510. MIMO-TEACHING APPARATUS. JAMES E. FORBES, Toronto, Canada. Filed Sept. 24, 1902. Serial No. 94,977. (No model.)



Claim.—1. In mimo-teaching apparatus a board having the face of the manual staff displayed thereon in combination with two supplemental boards detachably secured respectively to the lower left-hand edge and the upper right-hand edge of the main board and having large faces above and below the staff displayed thereon, substantially as and for the purpose specified.

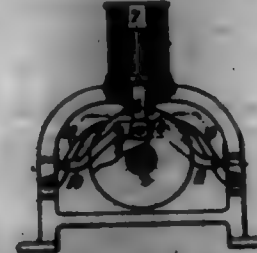
2. In mimo-teaching apparatus a board having the face of the manual staff displayed thereon in combination with two supplemental boards attached respectively to the lower left-hand edge and the upper right-hand edge of the main board and having large faces above and below the staff displayed thereon; and a detachable diagonal strip extending across the three boards and provided with projecting pins opposite any or all of the lines and spaces of the said boards, substantially as and for the purpose specified.

3. In mimo-teaching apparatus a board having the face of the manual staff displayed thereon in combination with a detachable strip extending across the said board and provided with projecting pins opposite the lines and spaces of the said board, substantially as and for the purpose specified.

4. In mimo-teaching apparatus a board provided with a series of projecting pins arranged in pairs in combination with a number of bars suitably spaced to agree with the lines of the staff and which may be laid upon the pins to represent the long lines of a musical staff, and short bars to represent the higher lines of the staff, substantially as and for the purpose specified.

5. In mimo-teaching apparatus a board provided with a series of projecting pins arranged in pairs in combination with a number of bars suitably spaced to agree with the lines of the staff and which may be laid upon the pins to represent the long lines of the staff, and a series of blocks marked with the names of the spaces and provided with projecting spines or pins for attachment to the board between the said bars, substantially as and for the purpose specified.

699,511. SAFETY ATTACHMENT FOR ELEVATORS. WALTER A. FURBER, Brooklyn, N. Y. Filed Mar. 25, 1902. Serial No. 94,980. (No model.)



Claim.—1. In an elevator, the combination with its valve-chamber, of an electromagnet and its circuit, a clear for said chamber operated by the opening of an elevator-door, and a lock or clutch mechanism controlled by said magnet adapted to restrain the shaft from movement in either direction when the motive power is cut off, and adjustable for different normal positions of such shaft or part.

2. The combination with an elevator valve-chamber, of a pair of oppositely-toothed segmental ratchets thereon, their pawls, means for adjusting said ratchets to different normal positions of said shaft, the electric circuit, the electromagnet and its circuit, the clear for said chamber operated by the opening of an elevator-door, substantially as and for the purpose set forth.

3. In an automatic stop device for elevators, in combination with its valve-chamber, the disks adjustable on said shaft, each having a small arc only ratchet-toothed, the teeth of one being oppositely inclined to those of the other, the pawls, the toothed segments of the disks being so positioned as to be presented to the pawls only when the shaft is in normal or valve-closing position, and means operative by the opening of an elevator-door for automatically bringing each pawl into engagement with said teeth.

4. The combination with an elevator valve-chamber, of the segmentally-toothed ratchet-disks independently adjustable thereon, the oppositely-disposed pawls, the electromagnet and its circuit, the loose operative connection between its armature and said pawls, and the circuit-clear actuated by the opening of an elevator-door, all substantially as and for the purpose specified.

5. The combination with the valve-chamber, the ratchet-disks thereon, the pawls, the magnet and its armature, of the over-bar and links connecting said armature and pawls, said connections being sufficiently free or loose to permit either pawl to drop into engagement with a notch upon its ratchet while the other pawl may be resting upon the apex of a tooth.

6. The combination with the valve-chamber, the segmental ratchet-disks thereon, their pawls, the magnet and its armature, of the loose connection between said armature and pawls, permitting, when the magnet is energized, either pawl to drop into engagement with its ratchet irrespective of the position of the other pawl, and whereby both pawls are thrust equally away from their ratchets when the magnet is deenergized.

7. In combination with the electric circuit in a safety device of the character described, a secondary circuit in multiple with the main circuit and having an independent switch automatically closed while the car is

running, a mechanical trip for the valve-chamber-operating means, and a magnet in the secondary circuit controlling said trip, substantially as and for the purpose specified.

8. In combination with an electrically-operated locking device for an elevator valve-chamber controlled by circuit-clears operative by the opening or closing of elevator-chamber doors, a secondary circuit in multiple with the main circuit, normally closed while the car is running and opened when the car is at rest, a mechanical trip adapted to engage the valve-chamber cable and to operate the same in turn the shaft into valve-closing position, and a magnet in the secondary circuit controlling said trip.

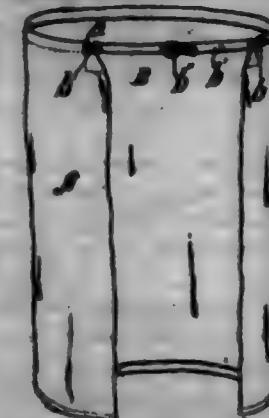
699,512. THILL-COUPLES. BERTON S. FURBER, Vernon, N. Y. Filed Sept. 2, 1901. Serial No. 74,000. (No model.)



Claim.—1. In a thill-coupling of the within-described class, the clip-net formed with duplex locking-shoulders projecting laterally from the sides thereof, and the locking-bolt having the lower and portions of its arms disposed apart to receive between them the shoulders, and the upper and portions of said arms disposed parallel and nearer to each other to closely embrace the sides of the net and united by a horizontal bar to ride upon the top of said net, all constructed and combined to operate substantially as set forth and shown.

2. In a thill-coupling, the combination with the coupling-pin, a spring connected at its front end to said coupling-pin, and a lever connected to the opposite end of said spring, of a lock-plate secured to the axle and adapted to be reversed and forward and provided with two pairs of shoulders on its side edges and disposed at the rear and front respectively, and a bolt connected at one end to said lever and formed at its opposite end so as to pass over the lock-plate and terminated with a laterally-constructed neck to engage the rear pair of shoulders on said lock-plate substantially as described.

699,513. APRON AND APRON-TIE. WILLIAM GARR, Los Angeles, Cal. Filed Jan. 27, 1901. Serial No. 89,000. (No model.)

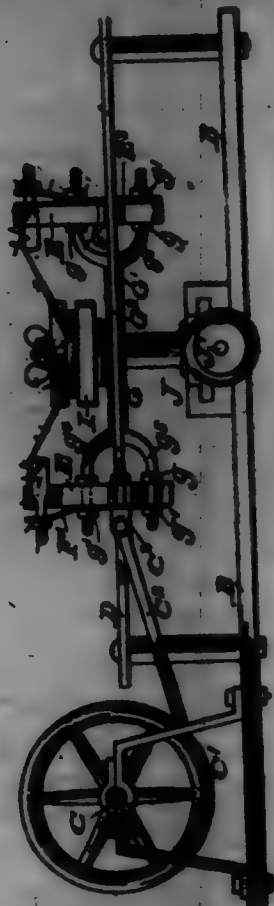


Claim.—1. In an apron, the combination, with a sheet or flat piece of material forming the apron-body provided with apertures for the reception of hooks, of an adjustable take-up comprising a band, two hooks to engage in said apertures and a take-up buckle, said buckle being provided with three bars, and one end of the band being permanently secured to the middle bar of the buckle and the remaining portion of the band being passed, first through the eye of one of the hooks, then through the buckle, then through the eye of the other hook, and then having its free end passed through the buckle, each fold or layer of the band passing under the ends of the buckle and over the central portion whereby they are thrown out of line with the main portion and are caused to bind against the bars of the buckle and prevent slipping by friction only.

2. A new article of manufacture, an adjustable detachable tie for aprons comprising a retaining portion, a band permanently secured to said retaining at one end and having its opposite end passed through the re-

tainer in reverse directions and adjustably secured thereto by friction only so as to form a variable loop on each side of the container, and a fastener in each loop.

699,514. MACHINE FOR POLISHING RINGS. GEORGE E. GAO, Elm, Portsmouth, Va. Filed Jan. 10, 1902. Serial No. 99,129. (No model.)



Claim.—1. An apparatus substantially as described comprising a carrier for the polishing-strap provided with opposite heads having the plurality of openings for the chains of the intermediate braco, the intermediate braco having at its ends threaded chains passing through the openings in the opposite heads, the nuts on said chains on opposite sides of the heads, the springs on the outer sides of the heads and held by the nuts thereof and deflected to operate upon the strap-holding bolts, the strap-holding bolts and their nuts, the guideways upon which the strap-carrying heads reciprocate, means for reciprocating the carrier and means for holding the work to be operated upon substantially as set forth.

2. The combination in a machine substantially as described of a reciprocating strap-carrier, guideways for said carrier, and a ring-holder provided with means for securing the ring in a plane approximately parallel with the direction of movement of the strap-carrier whereby the ring will be secured with its axis at a right angle to the line of movement of the strap-carrier substantially as set forth.

3. The combination of the reciprocating carrier for the polishing-strap having opposite heads, devices for securing the opposite ends of the strap, said devices being movable in the opposite heads of the carrier, and springs by which to give tension to said strap-securing devices substantially as set forth.

4. The combination in an apparatus substantially as described with the opposite carrier-heads of an intermediate braco extending between said heads and provided at its ends with the three threaded chains extending through the heads, and nuts on said chains on opposite sides of the heads, substantially as set forth.

5. In an apparatus substantially as described the combination with the strap-carrier heads of the bolts movable in said heads and provided with means for securing the ends of the polishing-strap, and the springs acting upon said bolts whereby to give tension to the same substantially as set forth.

6. A machine substantially as described comprising the reciprocating carrier provided with means for securing the opposite ends of a polishing-strap and means for supporting said carrier of a ring-holder having a support and securing means for the ring, and a device for said ring adapted to permit the same to turn in one direction and to lock it from turning in the opposite direction substantially as set forth.

7. The combination in a machine substantially as described with means for supporting the ring to be polished, of a device mechanism by which to lock said ring from turning in one direction and to permit it to turn in the opposite direction substantially as set forth.

8. In a machine substantially as described the combination of a table for supporting the ring, a keeper arranged at its ends to overlap the ring and hold it upon the table, and means for securing the keeper substantially as set forth.

9. The combination of the ring-holder, means for securing the ring, and a device-pawl arranged to operate on the ring and to prevent the same from turning in one direction, substantially as set forth.

10. In a machine substantially as described the combination of the reciprocating carrier for the polishing-strap, a holder for the work to be polished and guides for said holder extending in a direction transverse to the path of the strap-carrier and means for adjusting the work-holder substantially as set forth.

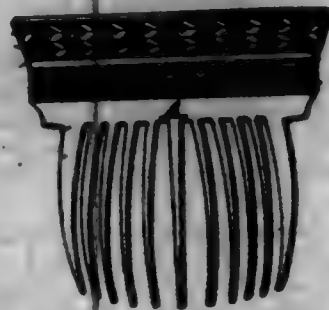
11. The combination in a machine substantially as described of the reciprocating carrier, a polishing-strap connected at its ends with the said carrier and adapted between its ends to be looped around the work to be polished, and a holder for said work substantially as set forth.

699,515. DOOR-KNOB. WILSON F. GILBERT, New Britain, Conn., assignor to P. & F. Curtis, New Britain, Conn., a Corporation of Connecticut. Filed Feb. 17, 1902. Serial No. 94,572. (No model.)



Claim.—A door-knob comprising a knob, a supporting-shoulder thereon, a mandrel bearing upon said supporting-shoulder a portion of said knob being flanged inside of said mandrel to secure the same in place, the outer edge of said mandrel being curved inwardly and mandrel forming front and rear bearing-surfaces, an envelope for said mandrel, a flange on the knob-shank and flange bearing against the inner edge of said envelope.

699,516. MANUFACTURE OF CELLULOSE ARTICLES. JULIUS HACHINGER, Hoboken, N. J. Filed Feb. 6, 1902. Serial No. 92,688. (No model.)



Claim.—1. The process herein described of ornamenting celluloid articles which consists in making strips or bands of celluloid, formed of differently-colored pieces of celluloid cemented together, and to the articles to be ornamented, substantially as set forth.

2. The process herein described of ornamenting celluloid articles, which consists of cementing longitudinal strips of celluloid of different colors into plates or blocks, cutting transversely from said plates or blocks narrow strips or plates, cementing said narrow strips or plates together into a suitable design, cementing said design to the blank of the article to be ornamented, and lastly molding the blank thus ornamented into shape by heat, substantially as set forth.

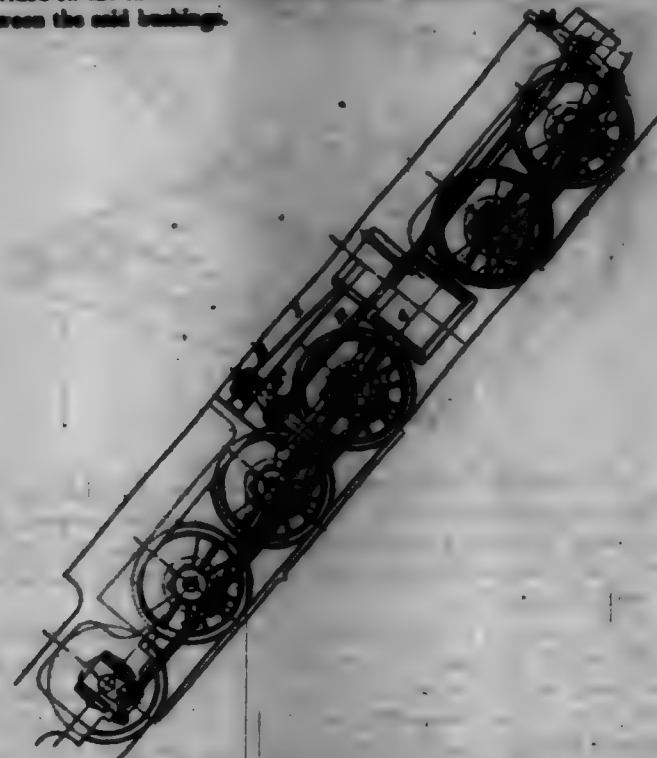
3. An article of celluloid, the body of which is provided with ornamental strips or bands formed of differently-colored pieces of celluloid cemented together, substantially as set forth.

699,517. LOCOMOTIVE WITH DRIVEN ROCKER. CHRISTIAN KAHLEN, Brieg, Germany. Filed Sept. 20, 1900. Serial No. 51,394. (No model.)

Claim.—1. In a locomotive, a bogie at the front of the cylinders thereof, a fixed truck provided with coupled axles at the rear of the cylinders, a connecting-rod for operating said coupled axles, a lever connected to said rod for operating the same, a lever connected with said bogie, and means connecting said levers together for operating said bogie.

2. In a locomotive of the character described, a pivoted frame or truck, a coupled axle supported thereby and consisting of a hollow axle forming a coupling-ring, a pair of half crank-axles mounted in said hollow axle and journaled in the main frame of the locomotive, and a universal coupling seated in said hollow axle and engaging the inner end of said half crank-axles.

3. In a locomotive of the character described, a pivoted frame or truck, a coupled axle supported thereby and consisting of a hollow axle having its inner flange formed with bearing-surfaces and forming a coupling-ring, a pair of half crank-axles mounted in said hollow axle, journaled in the main frame of the locomotive and provided with working flanges engaging the bearing-surfaces of the hollow axle, bearing-bushings provided on the inner end of said half crank-axles, and a sphere mounted between the said bushings.



4. In a locomotive of the character described, a pivoted frame or truck, a coupled axle supported thereby and consisting of a hollow axle provided with bearing-surfaces and forming a coupling-ring, a pair of half crank-axles mounted in said hollow axle and journaled in the main frame of the locomotive, an articulated connection between the said half crank-axles and provided with working flanges engaging the bearing-surfaces of the said hollow axle, bearing-bushings on the inner end of said half crank-axles, and a sphere mounted between the said bearing-bushings.

5. In a locomotive engine, an adjustable resistance for the displacement of the bogie consisting of means interposed between the main frame of the engine and the bogie for causing friction, pivoted levers engaging with the said means and operated by the movement of the frame for operating the said means, said means attached to the levers for connecting them together.

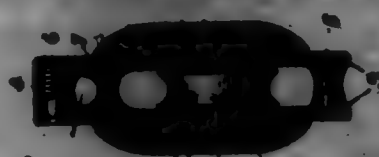
6. In a locomotive of the character described, an adjustable resistance for the displacement of the bogie, comprising slide-blocks, rollers connected thereto, and means for connecting the rollers to the slide-blocks.

7. In a locomotive of the character described, an adjustable resistance for the displacement of the bogie, comprising slide-blocks, rollers connected thereto, means for connecting the rollers to the blocks, and levers for operating the blocks upon the movement of the bogie.

8. In a locomotive of the character described, a bogie provided with pivoted axles, a truck provided with adjustable axles, bars for connecting the pivoted to the adjustable axles, means facilitating on fixed pivots suitably connected to said bars, pins attached to said bars, and bars attached in the axle-bearings and to said pins.

9. In a locomotive of the character described, a bogie provided with pivoted axles, a truck provided with adjustable axles, bars for connecting the pivoted to the adjustable axles, means facilitating on fixed pivots suitably connected to said bars, pins attached to said bars, and bars attached to the axle-bearings and to said pins, and spring-arms suitably arranged in relation to the said equalizing-beams for the purpose of giving a complete initial tension and facilitating an adjustment of one axle to the curve, while the other axle is still located on the straight part of the line.

699,518. TACKLE-BLOCK. EDGAR E. HARRISON, New Bedford, Mass. Filed Feb. 10, 1902. Serial No. 93,377. (No model.)



Claim.—1. A tackle-block comprising the sheave, the sheave having bearings in the sheave, the lining-plates connected to the sheave, and

the check-plates connected by bolts fastening to the lining-plates and having unbroken outer surfaces.

2. A tackle-block comprising a pair of sheaves, a sheave having bearings in the sheave, lining-plates connected to the sheave, marginal flanges about the lining-plates, and check-plates having unbroken outer surfaces, said check-plates fitting within the marginal flanges and being connected to the lining-plates by screws inserted from the inner surface thereof.

3. A tackle-block comprising sheaves, sheave having outwardly-projecting bearings for the sheave, lining-plates connected to the sheave, and check-plates upon the outer surface of the lining-plates, said check-plates having unbroken outer surfaces and having recesses to receive the sheave-bearings and pads of lubricating material in said recesses.

4. A tackle-block comprising sheaves having inwardly-projecting bearings, 3, 4, connected by screws 5, 6, a sheave mounted in bearings in said sheave, lining-plates connected to the sheave, and check-plates connected to the lining-plates by bolts fastening, said check-plates having unbroken outer surfaces.

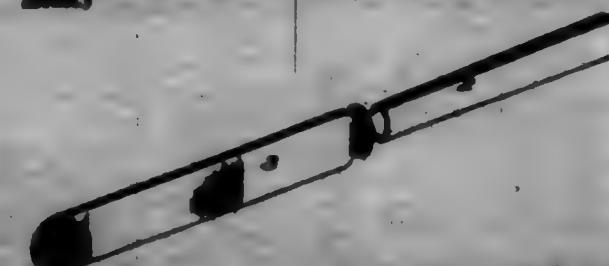
699,519. BUTTERFLY HOOK. HENRY L. HAMM, Oakland, Cal. Filed Nov. 11, 1901. Serial No. 81,992. (No model.)



Claim.—1. In a detachable hook for boats and shores a metallic hook-plate attached to the hook-end of the shank; holes in said plate to receive the heads of screws or pins; a multiple-armed hook attached centrally to the plate on a swivel center; a lever-arm connected with the hook and adapted to project beyond the edge of the hook; a depression in the upper face of the hook adapted to receive the multiple-armed hook and its lever arm and screws or pins having heads projecting from the upper face of the hook and adapted to enter the holes in the hook-plate and to be locked in position by bolts on the ends of the arms of the multiple-armed hook substantially as described.

2. In a detachable hook for boats and shores a multiple-armed hook attached by a swivel center to the hook-end of the shank or shank; hooks at the ends of the arms; a lever projecting from the multiple-armed hook and projecting beyond the edge of the hook; a hook proper having a depression in its upper face corresponding with the multiple-armed plate and its lever; projecting headed screws or pins in the depression and adapted to be embraced by the hooks of the multiple-armed plate, substantially as described.

699,520. KNIFE AND THE ART OF MAKING SAME. HENRY G. HART, Utica, N. Y. Filed Jan. 20, 1902. Serial No. 81,000. (No model.)



Claim.—1. The art of making knives which consists in making the blade proper and handle of metal and in one piece, of making the rim or bolster separately and of a non-corrosive metal, and then joining the blade and rim, together, substantially as described.

2. The art of making knives which consists in making the blade proper and handle of steel and in one piece, of making the rim or bolster separately, and of a non-corrosive metal, and then joining the blade and rim together, substantially as described.

3. The art of making knives, which consists of making the blade proper of metal which has formed therein a rim-end, and then joining a non-corrosive rim in the end, substantially as described.

4. The art of making knives which consists in making the blade proper, having a seat for a rim, a non-corrosive rim placed in the seat, and then joining the rim and drawing and shaping said rim, substantially as described.

5. As an article of manufacture, a knife proper and handle made of metal and in one piece, a separate and non-corrosive rim or bolster, and a plating covering the blade and rim, substantially as described.

6. As an article of manufacture, a knife proper and handle made of metal having a groove, and a separate and non-corrosive rim or bolster overlaid in the groove, substantially as described.

7. As an article of manufacture, a knife proper and handle made of metal having a groove, a separate and endless non-corrosive rim or bolster overlaid in the groove, and a plating covering the knife and rim, substantially as described.

8. As an article of manufacture, a steel knife and handle made in one piece and having a groove formed therein, a separate and non-corrosive rim or bolster overlaid in said groove, and a plating covering the knife and rim, substantially as described.

9. A knife and handle made in a single piece and being formed with an endless groove, a separate non-corrosive rim overlaid into the groove, and a plating covering the knife and rim, substantially as described.

699,521. CHURCH. Otto Hermann, Stuttgart, Germany. Filed Jan. 13, 1901. Serial No. 42,942. (No model.)



Claim.—1. The combination of the vessel having a neck, a blade or heater pivoted to oscillate in said vessel and extending through the neck thereof, and a flexible member arranged at the neck and engaging the heater-clip.

2. The combination of the vessel having a neck and a curved bottom, a blade or heater pivoted about an axis extending approximately through the center of curvature of the bottom, said heater having its stem extended through the neck of the vessel, a support for the vessel, a cap for the vessel, a washer or cushion interposed between the cap and the vessel and having a flexible member or sleeve engaging the heater-clip, and means connecting the support with the cap.

699,522. FLASH-LIGHT APPARATUS. ALFRED H. HENLEY, Leesport, Pa. Filed July 26, 1901. Serial No. 69,042. (No model.)

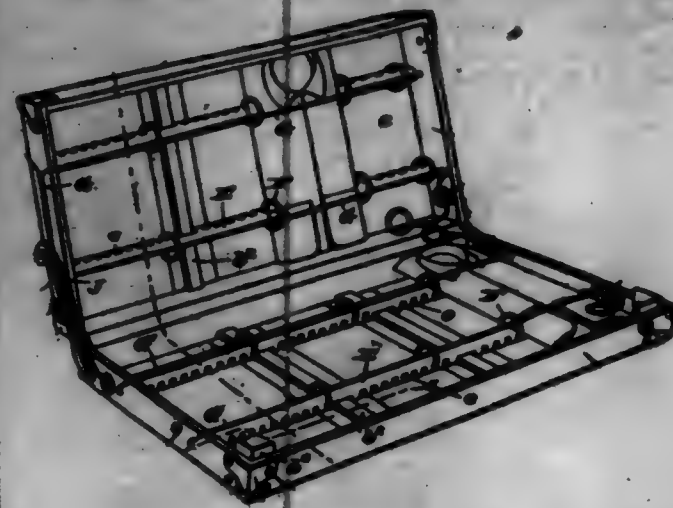


Claim.—In a flash-light apparatus, a block provided with a receptacle for the powder, two metallic arms pivotally attached to said block and each having a split end extending over the receptacle, a resistance inserted in said split ends to bridge the same, and said arms having a projecting free end extending above the face of the block to receive the terminals of an electric circuit, all arranged so that variations in the bridging resistance may be obtained either by removing and replacing the resistance in the split ends of said arms or by turning the arms on their pivotal supports.

699,523. TRUNK AND DISPLAY CASE. CHRISTIAN EDWARDS, St. Joseph, Mo. Filed Mar. 14, 1902. Serial No. 57,562. (No model.)

Claim.—1. The combination with a trunk comprising a body, the interior of which is gradually tapered in transverse width from its bottom to its top, and a suitable cover, of cover removably arranged side by side in the body and projecting above the top of the same.

2. In a tray for holding and displaying shirts and the like, the combination of a frame having a suitable back, one or more bars disposed in the frame, and shirt-holding means arranged to be held in adjustable engagement with said bar or bars by shirts arranged below said means.



3. In a case for holding and displaying articles; the combination of sections hinged together, a stay connected to one section, means on the same section for coacting with the stay to hold the sections together or closed; and means on the other section for coacting with the stay to hold the sections open or apart.

4. In a case for holding and displaying articles, the combination of sections hinged together, a stay connected to one section, means on the same section for coacting with the stay to hold the sections together or closed, means on the other section for coacting with the stay to hold the sections at an angle to each other, and means on said other section for coacting with the stay to hold the sections in alignment with each other.

5. In a case for holding and displaying articles, the combination of sections hinged together, a stay pivotally connected to one section, and having a slot and an offset leading therefrom, and also having a beveled portion, a keeper on the same section arranged to engage the stay and hold the sections closed, a pin on the other section arranged in the slot and adapted to rest in the offset of the stay, and a stud also on said other section and adapted to pass the beveled portion of the stay and enter the slot thereof for the purpose described.

6. In a tray for holding and displaying shirts and the like, the combination of a frame having a suitable back, one or more longitudinal bars disposed in the frame and having notches, and shirt-holding means engaging notches in the bar and adapted to be held in engagement with said notches by shirts arranged below said means.

7. In a tray for holding shirts and the like, the combination of a frame having a yielding back, a bar disposed in the frame and having notches in its edge adjacent to the yielding back, and shirt-holding means removably arranged in notches of the bar and adjustable between said bar and the yielding back.

8. In a tray for holding shirts and the like, the combination of a frame having a yielding back, a bar disposed in the frame and having notches in its edge adjacent to the yielding back, rings surrounding the bar and removably seated in notches thereof, and a cord stretched between opposite bars of the frame and extending through the rings.

9. The combination in a tray, of a frame having a suitable back, a bar disposed in the frame, rings surrounding the bar and adjustably held thereby, and a cord stretched between opposite bars of the frame and extending through the rings.

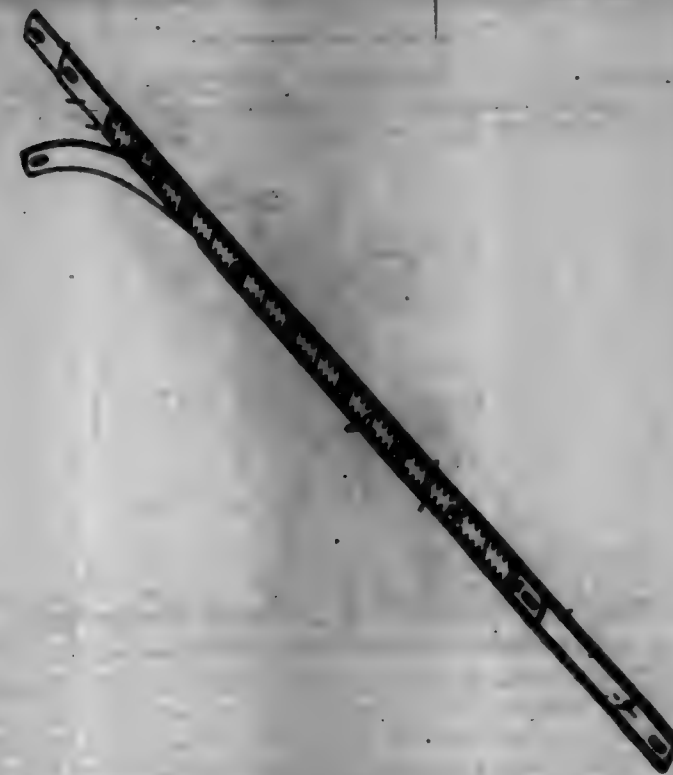
10. In a case for holding and displaying shirts and other articles, the combination of two trays hinged together and having backs, notched bars, rings surrounding the bars and seated in notches thereof, and cords extending through the rings, and a stay connected to the trays for holding the same in proper relative position.

699,524. LETTER OR SPACE INDICATING SCALE FOR TYPE-SETTING MACHINES. CHRISTIAN R. HALL, Newark, N. J., assignor to the Whitehead & Hall Company, Newark, N. J., a Corporation of New Jersey. Filed Oct. 24, 1901. Serial No. 52,224. (No model.)

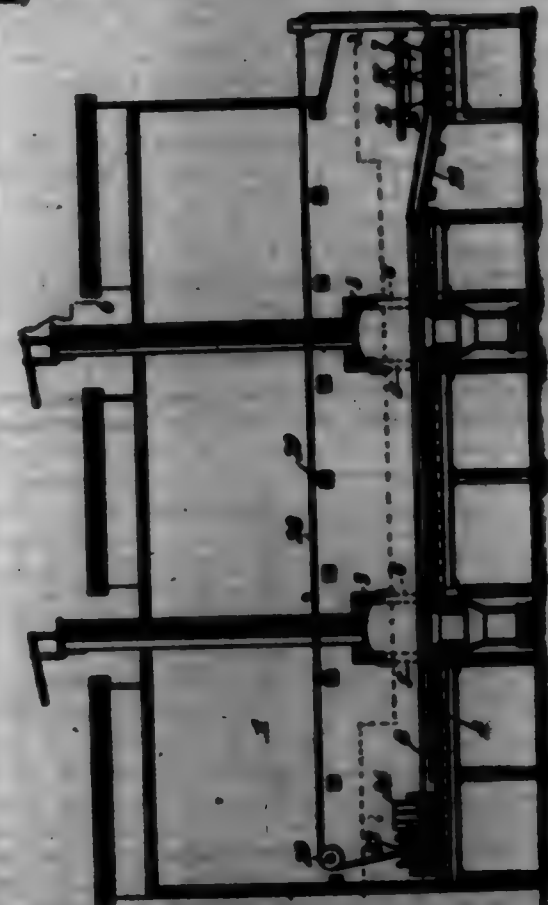
Claim.—1. An index-plate comprising a pad or filling, a back plate having a coated surface provided with graduations, a transparent facing in contact with the graduated surface and separate therefrom and means for impinging the edges of said layers one against the other for holding them in fixed relation.

2. An index-plate comprising a metallic strip, a pad or filling in contact with the metal, a back plate having a graduated surface, and a transparent facing in contact with and separate from the graduated surface, the longitudinal edges of the metal strip being clamped over and upon the longitudinal edges of the transparent facing for holding the parts in fixed relation.

prevent facing in contact with and separate from the graduated surface, the longitudinal edges of the metal strip being clamped over and upon the longitudinal edges of the transparent facing for holding the parts in fixed relation.



699,525. FURNACE-CHARGING SYSTEM. ARTHUR W. HODGE, Grand Forks, Canada. Filed June 7, 1901. Serial No. 62,961. (No model.)



Claim.—1. A furnace-charging system comprising in combination with the furnace, a charge-carrier having a charging area the size and shape of the area of the furnace, means for moving the charge-carrier, and charge-distributing means comprising a charging aperture or apertures the size and shape of the area of the charge-carrier.

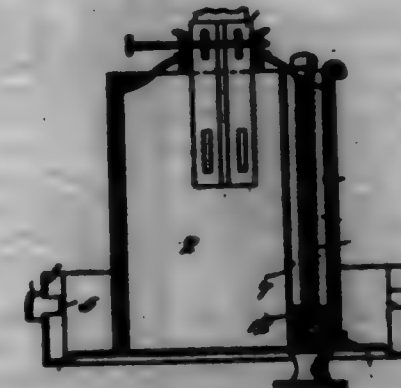
2. A furnace-charging system comprising in combination with the furnace, a charge-carrier having a plurality of compartments, the combined dumping area of which approximately equals the cross-sectional area of the furnace, means for moving the carrier, and charge-distributing means comprising a ladder above the carrier when in a position to be charged, said charge-distributing means being constructed to effect a distribution of the charge in the carrier in conformity with the position to be occupied thereby in the furnace.

3. A furnace-charging system comprising, in combination with the furnace, a charge-carrier having a charging area the size and shape of the area of the furnace, means for moving the carrier, and means, disposed within the vertical plane of both sides of the carrier when in position to be charged, for effecting a charging of the carrier in conformity with a predetermined position to be occupied by the charge in the furnace.

4. A furnace-charging system comprising in combination with a furnace, a charge-carrier having a charging area the size and shape of the area of the furnace, means for moving the carrier, a charging-pit for the empty carrier, and charge-distributing means arranged above the pit and comprehending a charging aperture or apertures the size and shape of the area of the charge-carrier.

5. In a furnace-charging system, the main feed-door, the furnace-opening through the said door, a truck arranged on the floor and extending across the furnace, a car-charging pit into which said truck extends, an auxiliary feed-door section constituting the roof of said pit and having elongated filling or distributing holes, a traveling charge-carrier rolling on the truck and having several compartments corresponding to said filling or distributing holes, and opening means for moving said carrier over the truck.

699,526. SIGNAL-LASTING. EDWARD R. BROWN, Colorado Springs, Colo. Filed Jan. 10, 1902. Serial No. 63,178. (No model.)



Claim.—1. In a device of the class described, the combination of a base having a reservoir and provided within the area of the same at the periphery thereof with a vertical channel having a contracted slot communicating with the exterior of the reservoir and forming an entrance to the channel throughout the length of the same, a vertically-movable globe-support provided with a nut arranged within the channel of the base, and a screw mounted on the base and engaging the nut and adapted to be rotated to raise and lower the support, substantially as described.

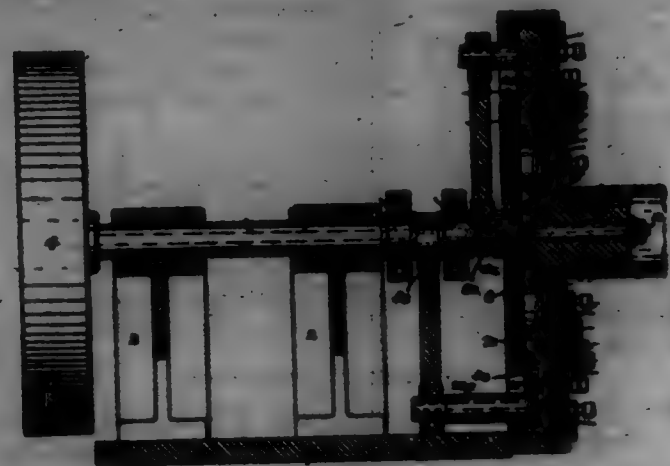
2. In a device of the class described, the combination of a base provided with a reservoir and having a channel or groove located within the area or contour of the reservoir at the periphery thereof and provided therewith with a contracted slot forming a peripheral entrance throughout the length of the groove or channel, a vertically-movable support provided with a nut adapted to receive a supplemental globe, said support being also provided with a nut arranged in the channel or groove, a catch mounted on the support for engaging the upper edge of a globe, and a screw mounted on the base and arranged within the groove or channel and engaging the nut, said screw being provided at the bottom of the reservoir with an exterior head, substantially as described.

3. In a device of the class described, the combination of a base having a reservoir and provided at one side thereof with a vertical groove or channel and having a peripheral entrance to the said groove or channel throughout the entire length of the same, a support having a nut slidably arranged in the groove or channel, a rod extending upward from the support and provided with a head arranged to engage the upper edge of a globe, and a screw mounted on the base and arranged in the groove or channel and engaging said nut, substantially as described.

4. In a device of the class described, the combination of a base provided at one side with a vertical groove or channel and having a contracted slot forming a peripheral entrance to the groove or channel throughout the length of the same, a support having a nut for a supplemental globe and provided with a nut slidably arranged within the groove or channel, a screw mounted on the base and arranged within the groove or channel and engaging the nut, said screw being provided with an exterior head, a catch for holding the globe on the support, and the vertical wires secured to the exterior of the reservoir and forming guides for the globe and opening the same from the reservoir, substantially as described.

699,527. GLOBE-SIGNAL-FIRE SIGNAL. EDWARD R. BROWN, Colorado Springs, Colo., assignor to the Brown Brothers and Manufacturing Company, Grand Forks, Canada. Filed Feb. 17, 1902. Serial No. 64,022. (No model.)

Claim.—1. In a sheet-metal-pipe crimper, a shaft, a series of double cranks on said shaft, a head located in concentric line with said shaft, a series of radially-movable dies located around said head, and a series of links severally pivotally connected at one end with the respective cranks and at the other end with the respective dies, the double cranks and links being arranged to move the dies simultaneously toward and then simultaneously from the head.

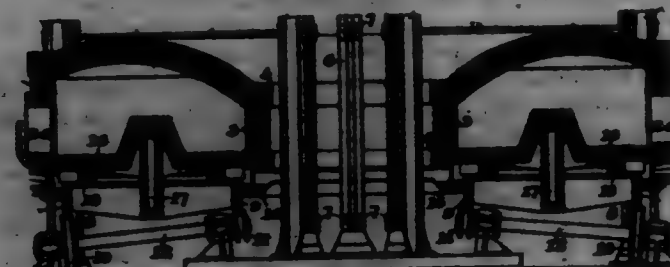


2. In a sheet-metal-pipe crimper, a shaft, a series of double cranks on said shaft, a series of radially-movable dies located around the line of the center of said shaft, and a series of links severally pivotally connected at one end with the respective cranks and at the other end with the respective dies, the double cranks being arranged to move the dies simultaneously toward and then simultaneously from said center line.

3. In a sheet-metal-pipe crimper, a head, longitudinal converging inclined channels in said head, ridge-pieces movable endwise in said channels, and springs acting to keep said ridge-pieces in their normal expanded position.

4. In a sheet-metal-pipe crimper, a head, longitudinal converging channels in said head, there being steep inclined parts in the bottoms of said channels near the larger end of said head, ridge-pieces movable endwise in said channels, and springs acting to keep said ridge-pieces in their normal expanded position.

699,528. HEATING-FURNACE FOR COILED BUNDLES. AMOS R. HUNT and WILLIAM ADLER, Duquesne, Pa. Filed Jan. 24, 1900. Serial No. 91,611. (No model.)



Claim.—1. A continuous heating-furnace comprising a movable carrier, a set of revolvable bundle-supports mounted on the carrier, and a furnace-chamber through which the bundles pass; substantially as described.

2. A furnace-chamber having an endless carrier forming its bottom, means for moving the carrier, and a series of revolvable bundle-supports mounted on the carrier-bottom; substantially as described.

3. A bundle-heating furnace of circular form, having a rotary bottom, and a coating water-trough, bundle-supports revolvably mounted on said bottom and flange forming an air seal around the furnace; substantially as described.

4. A continuous heating-furnace for bundles, having an annular heating-chamber, a rotary bottom carrying revolvable bundle-carriers, and a partition extending transversely of the furnace chamber and arranged to prevent short-circuiting of the gases; substantially as described.

5. A heating-furnace having a fuel-inlet and gaseous outlet, and a rotary bottom, revolvable bundle-carriers mounted on said bottom, a radially-extending partition between the fuel-inlet and the outlet for gases, and a door in said partition arranged to be actuated by the bundle-carriers; substantially as described.

6. A continuous heating-furnace having an annular furnace-chamber of smaller cross-sectional area in its inner portion than in its outer portion; substantially as described.

7. A continuous heating-furnace having an annular chamber with a rotary bottom, arranged to involve coils, and a roof which is inclined inwardly to contract the cross-sectional area of the inner part of the chamber; substantially as described.

8. A heating-furnace comprising a movable carrier, a set of revolvable bundle-supports mounted on the carrier, and a furnace-chamber through which the bundles pass, said chamber having an opening through which a heated bundle may be inserted and drawn; substantially as described.

699,529. BUT-CRACKER. JOHN A. HUTCHINSON, Chicago, Ill. Assignor of two-thirds to John R. Hutchinson and Charles A. Yates. Filed July 22, 1900. Serial No. 94,561. (No model.)

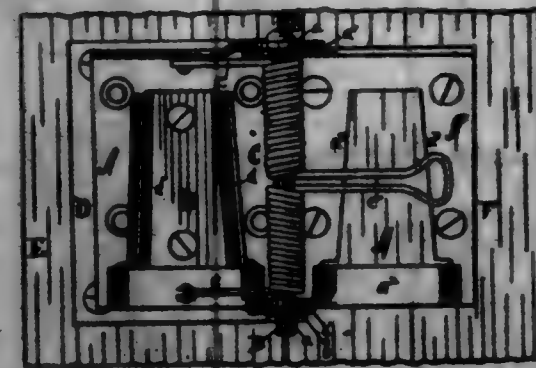


Claim.—1. In a nut-cracker, the combination of a frame having a fixed jaw, a vertically-moving plunger carrying a jaw, collars surrounding said plunger, said collars having their bases at an angle to the plane of the plunger, means for normally holding the collars out of frictional engagement with the plunger upon the upward movement of the latter, and levers for raising the plunger, substantially as set forth.

2. In a nut-cracker, the combination of a frame having a fixed jaw, a vertically-moving and spring-supported plunger carrying a jaw, collars surrounding said plunger, said collars having their bases at an angle to the plane of the plunger, a sleeve normally holding the collars out of engagement with the plunger upon the upward movement of the latter, a collar engaging said sleeve, and levers adapted to raise said collar and plunger, substantially in the manner and for the purpose set forth.

3. In a nut-cracker, the combination of a frame having a fixed jaw, a vertically-moving and spring-supported plunger carrying a jaw, collars surrounding said plunger, said collars having their bases at an angle to the plane of the plunger and provided with lateral legs, a sleeve surrounding said collars and having openings engaging said legs, a collar surrounding said sleeve and adapted to engage same, and levers for raising said plunger and collar, as set forth.

699,530. DETACHABLE FASTENER FOR HINGES. BENJAMIN H. JAMES, Chicago, Ill. Filed Jan. 22, 1901. Serial No. 46,664. (No model.)

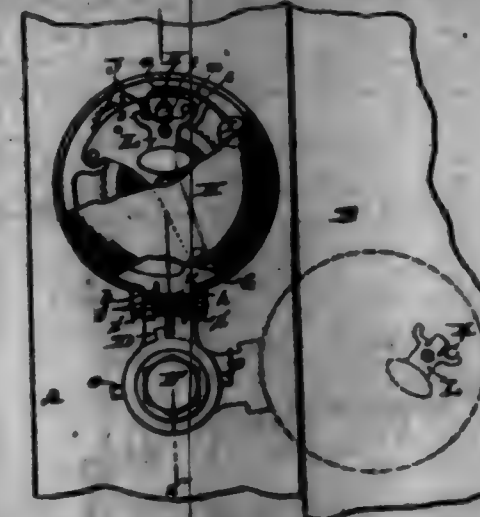


Claim.—1. A fastener for hinges consisting of a plate having upwardly-converging grooved flanges formed on the front of its body and a hinge-leaf having in its body an upwardly-tapered longitudinal slot opening at its base near to the bottom of the leaf with its side in the same plane as the body of the leaf, substantially as described.

2. A detachable fastener for hinges consisting of a plate having upwardly-converging flanges formed outwardly from its body, each flange having on its outer face a recess or groove and a hinge provided with two companion base-plates, each leaf having in its body an upwardly-tapered longitudinal slot opening at its base to the bottom of the leaf and each leaf having at the base of the slot a raised end bar extending over the slot substantially as described.

699,531. ALARM. MAXIMILIAN P. JAMES, Muskegon, Mich. Filed Jan. 2, 1900. Serial No. 95,125. (No model.)

Claim.—1. An automatic alarm-controller and a carrier with which it has retractable engagement adjustable to be in or out of the opening path of a door, and a latch automatically engageable with said controller on retraction of the same by door-pressure thereon.



2. An automatic alarm-controller and a pivotally-adjustable flexibly-jointed carrier with which it has retractable engagement, and a latch automatically engageable with the controller to hold the same in retracted position subsequent to pressure thereon when said carrier is arranged and adjusted in connection with a support to be in the opening path of a door.

3. An automatic alarm-controller and carrier for same adjustable in connection with a support to be in or out of the opening path of a door, and an independent spring-controlled push-button arranged in connection with the door-frame to have its shaft engage said controller when the same with its carrier is adjusted out of said opening path of the door.

4. A door-frame fixture having an annular flange and radial legs, an arm having a flange lapping the fixture-flange and provided with a fin having play between fixture-legs, a pivot extending through the arm and fixture, a spiral spring surrounding the pivot under compression, between said arm and fixture, a spring-motor adjustable with the abovedescribed arm, a gear-bell in connection with the main-spring-arbor of the motor, a bell-crank having shaft connection with the pivot-axis of said motor, and a spring-controlled push-stem having a collar arranged to be normally under the bell-crank shaft to check operation of the abovedescribed motor.

5. A door-frame fixture having an annular flange and radial legs, an arm having a flange lapping the fixture-flange and provided with a fin having play between fixture-legs, a pivot extending through the arm and fixture, a spiral spring surrounding the pivot under compression between said arm and fixture, a spring-motor adjustable with the abovedescribed arm, a gear-bell in connection with the main-spring-arbor of the motor, a bell-crank having shaft connection with the pivot-axis of the motor, a spring-controlled push-stem having a collar arranged to be normally under the bell-crank shaft to check operation of said motor, and a gravity-latch automatically adjustable to be engageable with the push-stem when the latter is retracted by pressure of a door subsequent to having been brought in the opening path of same.

6. A door-frame fixture, a flexibly-jointed carrier in pivotally-adjustable connection with the fixture, automatic alarm mechanism in connection with the carrier, and an alarm-controller in the form of a push-stem arranged to be brought with said carrier in the opening path of a door.

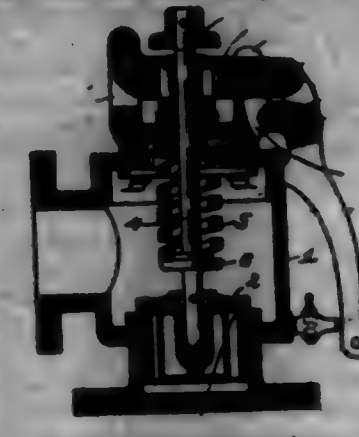
7. A door-frame fixture, a flexibly-jointed carrier in pivotally-adjustable connection with the fixture, automatic alarm mechanism in connection with the carrier, an alarm-controller in the form of a push-stem arranged to be brought with said carrier into the opening path of a door, and means for holding said push-stem in retracted position subsequent to door-pressure thereon.

8. A carrier for adjustable connection with a door-frame automatic alarm mechanism in connection with the carrier, an alarm-controller in the form of a push-stem arranged to be brought with said carrier into the opening path of a door, and a spring-controlled push-button for connection with the door-frame to have its shaft in register with said push-stem when the latter and the abovedescribed carrier are adjusted out of the way of the door.

699,532. SAFETY-VALVE. WILLIAM E. JEROME, Watkiss, Mass. Assignor to the American Steam Gauge Company, Boston, Mass., a Corporation. Filed Sept. 22, 1900. Serial No. 73,982. (No model.)

Claim.—In a safety-valve, the combination with a valve-spindle lever, of a hand-lever pivotally secured to the casing, a link connecting the valve-lever and the hand-lever, and an abutment to act as a stop to limit the movement of the link, the parts being so arranged that when

the hand-lever is moved to operate the valve-lever the link will automatically maintain the valve-lever in its changed position.



699,533. SEMI-METAL-BRATING FURNACE. JOHN E. JOHNS and WILLIAM JOHN, Howard, Ind. Filed June 24, 1901. Serial No. 46,557. (No model.)



Claim.—1. In a heater of the character described, the combination of the heating-chambers arranged side by side, a transverse heating-chamber establishing communication between said first-named heating-chambers, conveyors for conveying the material to be heated through the several heating-chambers, and actuating means common to all the conveyors for operating them, substantially as set forth.

2. In a heater of the character described, the combination of the heating-chambers arranged side by side, one having an entrance and the other an exit at their forward ends, a transverse heating-chamber establishing communication between the rear ends of the first-named heating-chambers, conveyors for conveying the material to be heated through the several heating-chambers, and actuating means common to all the conveyors for operating them, substantially as set forth.

3. In a heater of the character described, the combination of the heating-chambers arranged side by side, the transverse heating-chamber establishing communication between said first-named heating-chambers, conveyors for the respective heating-chambers, means for actuating the conveyors in the first-named chamber in unison to project their rear ends into and withdraw them from the transverse chamber, and means for operating the transverse conveyor to reciprocate the same in alternation with the longitudinal conveyors, substantially as set forth.

4. In a heater of the character described, the combination with the longitudinal chambers, of a transverse chamber establishing communication between the rear ends of the longitudinal chambers, said chambers being provided with grooved flanges and the grooves of the transverse chamber being interlocked by those of the longitudinal chambers, con-

veyers for said chambers, means for raising the conveyers in the longitudinal chambers across the grooves of the transverse chamber, and means for moving the transverse conveyer in alternation with the longitudinal conveyers, substantially as set forth.

5. In a heater of the character described, the combination with a heating-chamber having an exit, and a door for closing the exit, of a reciprocating ejector, a conveyor for moving the heated material upon said ejector, means for opening the door, and simultaneously operating the ejector to thrust it forwardly, substantially as set forth.

6. In a heater of the character described, the combination with the heating-chamber provided with an exit, a door for closing the exit, a conveyor having a movement through the exit, an ejector adapted to be engaged by the conveyor and moved rearwardly under the edge of the door, means for elevating said door, and means for returning said ejector to its normal position, substantially as set forth.

7. In a heater of the character described, the combination with the longitudinal heating-chambers and the transverse heating-chamber establishing communication between the longitudinal chambers at the rear ends thereof, of conveyers located within said chambers, the forward ends of said longitudinal chambers being provided one with an entrance and the other an exit and doors for closing the entrance and exit, and means for opening and closing the entrance and exit doors for the entrance into one of the longitudinal heating-chambers, of material to be heated, and the removal from the other longitudinal heating-chamber, of the properly heated material, substantially as set forth.

8. In a heater of the character described, the combination with the longitudinal heating-chambers and the transverse heating-chamber establishing communication between the rear ends of the longitudinal chambers, said chambers having slots in their floors of conveyers projecting upwardly through the slots in the floors of the several chambers, means for elevating the conveyers of the longitudinal chambers in alternation, advance and retract for reciprocating the longitudinal conveyers in union, one in its depressed position and the other in its elevated position, means for elevating the transverse conveyer, and advance and retract for reciprocating the transverse conveyer in alternation with the reciprocating movement of the longitudinal conveyers, substantially as set forth.

699,534. MANUFACTURE OF BRICKS, TILES, OR THE LIKE. ARTHUR J. KEMMEL, Peterborough, England. Filed Aug. 17, 1901. Serial No. 72,441. (No model.)

Claim.—1. The process of manufacturing bricks, tiles and the like, by first shaping the article, then coating it with a solution of colloid, such as glue animal albumen, gelatin, isinglass or equivalent heretofore mentioned and subsequently drying and firing the same.

2. The process of manufacturing bricks, tiles and the like, by first shaping the article, then partially coating it with a solution of colloid such as glue, animal albumen, gelatin, isinglass or equivalent heretofore mentioned, and subsequently drying and firing the same.

3. The process of manufacturing bricks, tiles and the like by applying to the surface thereof a solution of colloid, such as glue, animal albumen, gelatin, isinglass or equivalent heretofore mentioned, previous to drying and firing the same.

4. The process of treating earthen articles before drying and burning, which consists in coating the same with an animal colloid solution prepared from glue, animal albumen, gelatin, isinglass or the like, substantially as set forth.

699,535. DRILLING-MACHINE. EDWARD F. KELLEY, Patented U. S. Filed July 25, 1901. Serial No. 69,002. (No model.)

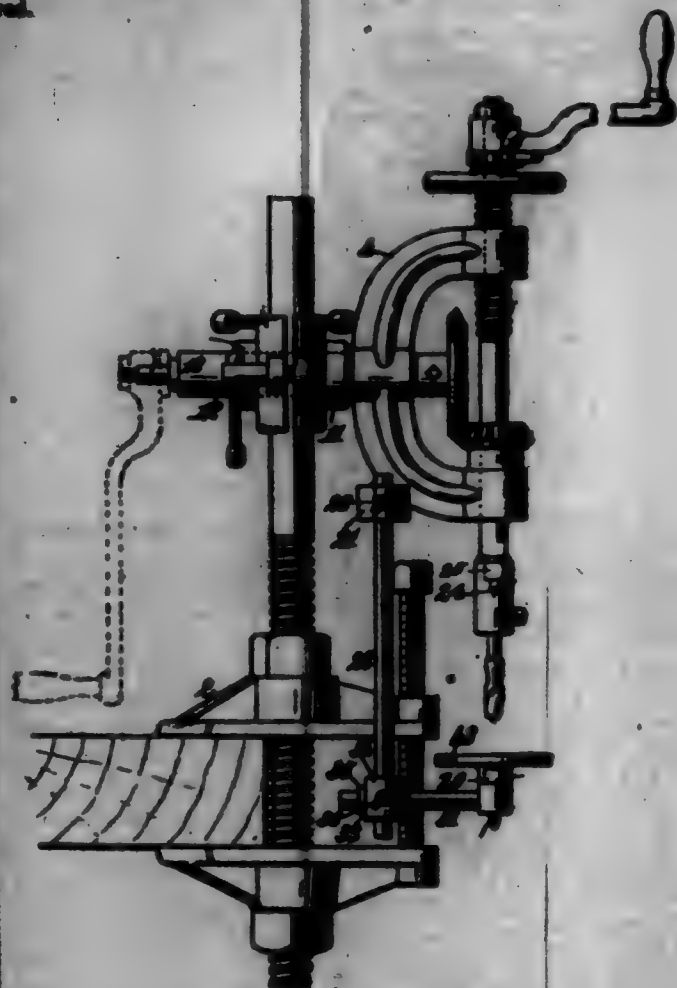
Claim.—1. The combination with the standard or support of a drilling-machine, a yoke or bracket adjustable thereon and a rotary spindle mounted in said bracket, of means for connecting up various interchangeable tools with said spindle, a support on said yoke or bracket for various interchangeable cooperating devices for said tools, and coupling devices for connecting said cooperating devices to said support.

2. The combination with the standard or support of a drilling-machine, a yoke or bracket adjustable thereon and a rotary spindle mounted in said bracket, of means for connecting up various interchangeable tools with said spindle, a supporting-rod secured to said yoke or bracket for uniting various interchangeable cooperating devices for said tools, and coupling devices for connecting said cooperating devices to said rod.

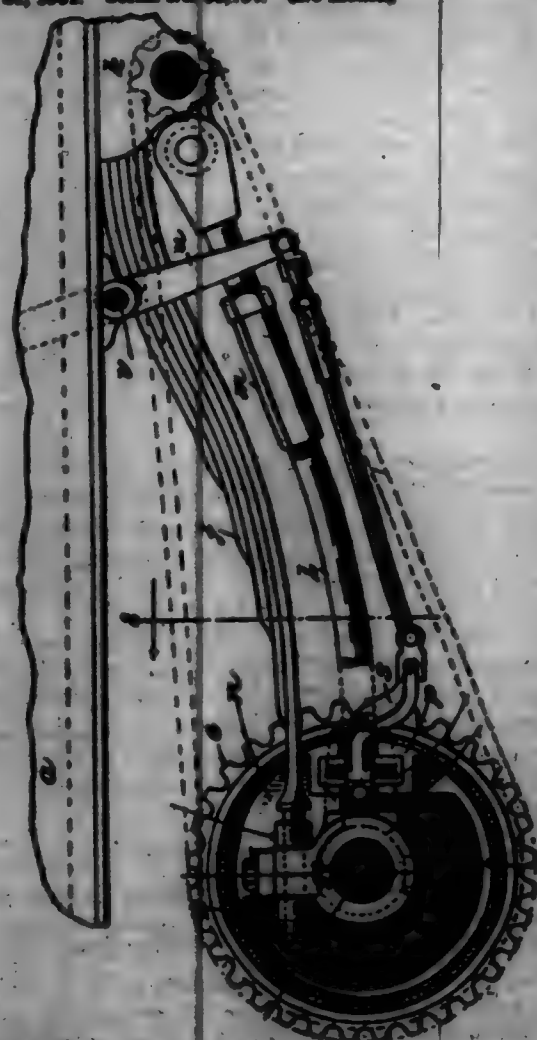
3. The combination with the standard or support of a drilling-machine, a yoke or bracket adjustable thereon and provided with a lag, and a rotary spindle mounted in said bracket, of means for connecting up various interchangeable tools with said spindle, a supporting-rod removably secured in said lag, and means for connecting up various cooperating devices for said tools to said supporting-rod.

4. The combination with the frame of a drilling-machine having a lag thereon, and a rotary spindle having screw-threads thereon for the

attachment of a drill-check and a shoulder adjacent to said screw-threads, of a grinding-wheel having a central opening therein designed to receive the screw-threads and of said spindle, a nut for holding said grinding-wheel into locking engagement with said shoulder, a supporting-rod secured in said lag, and a tool-rod adjustably secured to said supporting-rod.

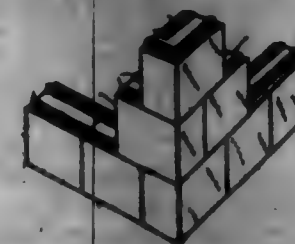


699,536. BRACK. HARRY A. KNEE, Springfield, Mass. Filed Dec. 21, 1901. Serial No. 96,797. (No model.)



Claim.—A rotatable axle, a cup-shaped body secured thereon, a bearing for said axle, a split ring in said body for frictional contact with the inner surface of the peripheral wall of said body, one end of said ring having a solid web forming part thereof, whereby it is made practically rigid, an arm between said web and said bearing for supporting said ring; a screw-threaded stud between the ends of said ring, and means for rotating said stud to force the free end of said ring away from said rigid end thereof to bring the ring into frictional contact with the peripheral wall of said body.

699,537. BUILDING STONE OR BRICK. JOHN W. LAMMIE, Indianapolis, Ind. Filed Feb. 27, 1902. Serial No. 95,944. (No model.)



Claim.—1. A building stone or brick having a longitudinal groove in its bottom extending from end to end thereof, a longitudinal rib upon its top extending from end to end thereof, a horizontally-disposed groove in one end extending from the inner side nearly to the outer side or face thereof, and a rib projecting from the opposite end and extending from the inner side nearly to the outer side or face thereof, whereby the blocks are rendered self-aligning and self-leveling when laid upon a level and aligned bottom layer.

2. A building corner stone or brick having a longitudinal and a transverse groove in its bottom, and a longitudinal and a transverse rib upon its top integral therewith extending from one end nearly to the opposite end thereof and thence to the inner side thereof; a horizontal transverse groove in one end extending from the inner side nearly to the outer side thereof, and a horizontal rib on the inner face near the opposite end thereof, substantially as set forth.

3. A building corner stone or brick having a longitudinal and a transverse groove in its bottom, and a longitudinal and a transverse rib on its top integral therewith extending from one end nearly to the opposite end thereof and thence to the inner side thereof; a horizontal transverse rib in one end extending from the inner side nearly to the outer side thereof, and a horizontal groove in the inner face near the opposite end thereof, substantially as set forth.

4. A wall formed of stones or bricks comprising line-blocks having each a longitudinal groove in the bottom thereof and a longitudinal rib on its top thereof, the grooves and the ribs extending from end to end of the blocks, said blocks each having also a horizontal groove in one end thereof extending from the inner side nearly to the outer side thereof, and a horizontal rib on the opposite end thereof extending from the inner side nearly to the outer side thereof; corner-blocks each having longitudinal and transverse grooves in the bottom and longitudinal and transverse ribs on the top thereof, and also a horizontal groove in one end thereof and a horizontal rib on the inner side near the opposite end thereof, registering with the grooves and the ribs of the line-blocks; and corner-blocks having each longitudinal and transverse grooves in the bottom and longitudinal and transverse ribs on the top thereof, and also a horizontal rib on one end thereof and a horizontal groove in the inner side near the opposite end thereof, registering with the grooves and the ribs of the line-blocks, substantially as set forth.

699,538. BELT-PARTNER FOR CONSTRUCTING RIMS OF DRIVE-ROLLERS. EMMY F. LARAVA, Worcester, Mass. Filed Sept. 2, 1901. Serial No. 74,124. (No model.)



Claim.—A belt-partner for constructing the ends of drive-belts comprising a plate having slotted integral extended ends adapted to be bent to form tubular rivets on the upper terminal ends of said plate, the upward-extending ends when bent forming ribs opposite the ribs in the integral extended ends, and a plate with eyes consisting with said rivets, substantially as specified.

699,539. CAR-TRUCKING MACHINE. BLAKE J. LEWIS, New York, N. Y. Filed May 22, 1901. Serial No. 61,002. (No model.)

Claim.—1. In a machine for testing cars, the combination with the main shaft provided with one-carrying device of the character described, of an operating-arm secured on said shaft, and mechanism for intermittently operating the arm to rock the shaft.



2. In a machine for testing cars, the combination with the main shaft provided with one-carrying device, of an operating-arm secured on said shaft, a perforated steel adjustably secured on the arm, a supporting-rod adjustably mounted in the end and provided with adjustable stops, and means for operating the rod to rock the operating-arm and thereby the shaft.

3. In a car-testing machine, the combination with the main shaft provided with one-carrying device, of an operating-arm secured on said shaft, a perforated steel adjustably secured on the arm, a connecting-rod having one end operating in the perforated steel and the other end pivotally connected to a crank-arm secured on a gear-wheel, the gear-wheel, and mechanism for driving said gear-wheel.

699,540. SLEDGE. FREDERICK F. LEWIS, Hastings, Mass. Filed Jan. 21, 1902. Serial No. 95,099. (No model.)



Claim.—1. In a sledge, the combination with a bearing-block, arranged to be rigidly secured to the beam of a sledge and having a flat seat in its under face, of a knee provided with a head rotatably mounted in the seat, and a vertical pivot securing the head and bearing-block together, said knee having a horizontal pivotal movement upon said bearing-block.

2. In a sledge, the combination with a beam, of a bearing-block fastened to the under side of the beam against relative movement thereon, said bearing-block having a seat in its under face, a runner, a knee comprising pivotally-connected sections, the lower section being secured to the runner and the upper section fitting in the seat of the bearing-block, and a vertically-arranged pivot connecting the upper knee-section and the bearing-block.

3. In a sledge, the combination of a beam with a runner, of a bearing-block fixedly secured to the under side of the beam and having a flat seat in its under face, and a knee comprising pivotally-connected sections, the lower of which is secured to the runner, the upper section being secured in the seat of the bearing-block and having a horizontal pivotal movement therein.

4. In a sledge, the combination with a beam, of a bearing-block fastened to the under side of the beam against relative movement thereon and having a seat in its under face, a runner, a knee comprising sections having a horizontal pivotal connection, the lower knee-section being secured to the runner and the upper section having an outstanding plate at its upper end and that is fitted in the seat of the bearing-block, and a vertical pivot-rod passing through the bearing plate and block to secure them together, and yet permit the pivotal movement of the knee.

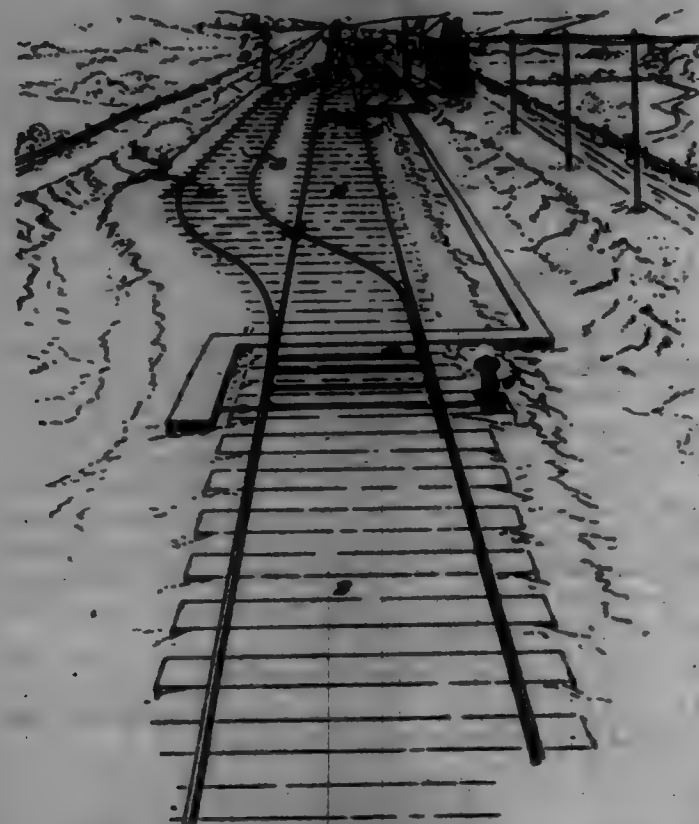
5. In a sledge, the combination with a bearing-block arranged to be fixedly secured to a sledge-beam and having a seat in its under face, of a

runner, and a brace connecting the runner and bearing-block, said brace comprising pivotally-connected sections, the upper of which is provided with a head that bears in the seat of the block, and a vertical pivot passing through the head and the block.

699,541. PROCESS OF MAKING PRESERVATIVES FOR VEGETABLES. FRED LUTZ, Hamburg, Germany. Filed Sept. 9, 1901. Serial No. 74,888. (No specimens.)

Claim.—A process for manufacturing a preservative for gel strings consisting in dissolving paraffin-oil in a mixture of benzene and camphor-spirit.

699,542. RAILWAY BLOCK SYSTEM. JOHN S. MATHES, Greenville, Pa. Filed Jan. 12, 1902. Serial No. 32,404. (No model.)



Claim.—1. In a railway block system, a block-station having at least one siding, a derail in the siding, and semaphore-signals for the siding and main track; substantially as described.

2. In a railway block system, a block-station having a siding, a derail near the clearance of the siding, and provided with a signal, and semaphore-signals upon opposite sides of the track at the entrance end of the siding; substantially as described.

3. In a railway block system, a block-station having an operating-tower, a siding having a derail with a signal, semaphore-signals for the main track and siding, and connections leading from the switches, derails and signals to the tower; substantially as described.

4. In a railway block system, a block-station having at least one siding, two derails located in the tracks adjacent to the station and having signals, semaphore-signals for the main track and siding, and connections leading from the switches derails and signals to the block-station tower; substantially as described.

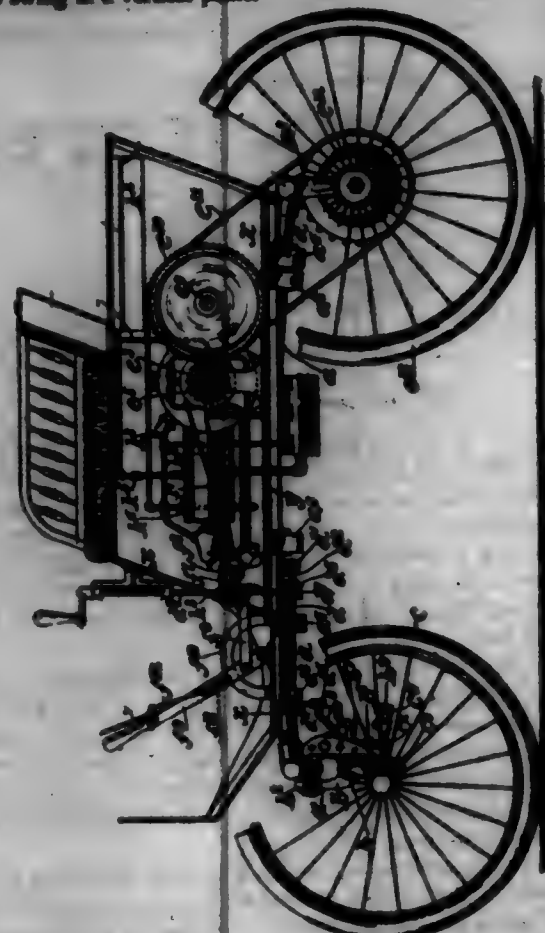
5. In a railway block system, a block-station having two lap-sidings, a derail in each siding provided with a signal, and semaphore-signals for the sidings and main track; substantially as described.

6. In a railway block system, a block-station having an operating-tower, two lap-sidings, a derail on each siding, semaphore-signals for the sidings and main track, and mechanism in the tower for operating the switches, derails and signals; substantially as described.

699,543. MOTOR-VEHICLE. ERHAN P. MAKIN, Hartford, Conn., assignor, by mesne assignments, to Electric Vehicle Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed June 3, 1902. Renewed Aug. 12, 1902. Serial No. 737,708. (No model.)

Claim.—1. In a motor-vehicle, the combination with a running-gear frame comprising side bars and front and rear cross-bars, of springs secured to said side bars, a carriage-body supported upon said springs, a motor, transmitting-gearing, a motor-platform independent of said carriage-body, and springs independent of said front-mounted springs, secured in said side bars and supporting said motor-platform.

2. In a vehicle, the combination with the running-gear frame having a front cross-bar, of a front axle supported by the running-gear frame to swing about a horizontal axis, a yoke and a hub secured to the end of said cross-bar and the other to said axle, the hub having bearings in said yoke and braced secured to one of said parts having vertical bearing-surfaces for contact with the other of said parts to support the front axle, with freedom to swing in a vertical plane.



3. In a vehicle, the combination with the running-gear frame having a front cross-bar, and a front axle, of a yoke to which said front axle is secured, and a hub having front and rear bearings in the ends of said yoke, the front cross-bar being secured to said hub, whereby it may swing in a vertical plane.

4. In a vehicle, the combination with the running-gear frame having a front cross-bar, and a front axle, of a yoke to which said front axle is secured, a hub having front and rear bearings in the ends of said yoke, the front cross-bar being secured to said hub to swing in a vertical plane, and braced secured to said front cross-bar and having bearing-surfaces to support said front axle.

5. In a vehicle, the combination with the running-gear frame, the front axle, and wheels mounted to oscillate with respect to said axle, of a frame secured to said axle and supported by said running-gear frame, a short shaft supported by the frame secured to the axle, an arm secured to said shaft, a link extended from said arm to the bearing of the corresponding wheel, and mechanism to oscillate said shaft.

6. In a vehicle, the combination with the running-gear frame, the front axle, and wheels mounted to oscillate with respect to said axle, of a frame secured to said axle, a hub secured to said running-gear frame and having front and rear bearings in said frame secured to the axle, a vertical shaft having bearings in said last-named frame, an arm secured to said shaft, a link extended from said arm to the bearing of the corresponding wheel and means to oscillate said shaft.

7. In a vehicle, the combination with a carriage-body free to oscillate, a front axle, independent steering-wheels mounted thereon, a steering-frame connected with the wheel-supports, a steering-shaft mounted in bearings on the body, a gear on said shaft, a second gear on a horizontal axle in mesh with the first gear, an arm carried with the second gear, and connections from said arm to the steering-frame to transmit motion and permitting relative motion of said frame and body.

8. In a vehicle, the combination with the running-gear frame, a steering arm or lever carried with said running-gear frame, and a carriage-body free to oscillate, with respect to said running-gear frame, of a shaft connected with said steering-arm and means supported on the carriage-body to oscillate said shaft.

9. In a vehicle, the combination with the running-gear frame, a steering arm or lever carried with said running-gear frame, and a carriage-body free to oscillate with respect to said running-gear frame, of a shaft carried by said carriage-body, a ball-and-socket bearing for the rear

end of said shaft, a vertically-slotted bearing for the forward end of said shaft, an arm depending from said shaft to engage said steering-arm and means to oscillate said shaft.

10. In a vehicle, the combination with the running-gear frame, a steering arm or lever carried with said running-gear frame, and a carriage-body mounted on said running-gear frame, of a horizontal shaft supported in bearings on said carriage-body and having a depending arm connected with said steering-arm, a gear on said shaft and a vertical shaft having a gear to engage said first-named gear and bearing also a handle.

11. In a vehicle, the combination with a running-gear frame having a rear member and supports for the rear axle, a front axle, a horizontal axle for said axle supported by the running-gear frame, a body independent of the running-gear frame, and supported by springs thereon, the wheels, supports upon which said wheels are free to rotate, and a pivotal connection between each of said supports and the front axle, the axis of said pivotal connection being in rear of the axis of the wheel and lying in the plane of the wheel.

12. In a vehicle, the combination with the running-gear frame and wheels, of supports upon which said wheels are free to rotate, and a pivotal connection between each of said supports and the running-gear frame, the axis of said pivotal connection being inclined upwardly and rearwardly and lying in the plane of the wheel.

13. In a vehicle, the combination with the running-gear frame and wheels, of supports upon which said wheels are free to rotate, and a pivotal connection between each of said supports and the running-gear frame, the axis of said pivotal connection being in rear of the axis of the wheel and inclined upwardly and rearwardly and lying in the plane of the wheel.

14. In a vehicle, the combination with the running-gear frame and wheels, of supports upon which said wheels are free to rotate, and a pivotal connection between each of said supports and the running-gear frame, the axis of said pivotal connection lying in the plane of the wheel and being inclined upwardly and rearwardly.

15. In a vehicle, the combination with the running-gear frame having a rear member and supports for the rear axle, a front axle, a horizontal axle for said axle supported by the running-gear frame, a body independent of the running-gear frame and supported by springs thereon, and wheels, of supports upon which said wheels are free to rotate, and a pivotal connection between each of said supports and the front axle, the axis of said pivotal connection lying in the plane of the wheel and being in the rear of the axis of the wheel.

16. In a vehicle, the combination with the running-gear frame, of a hub mounted to oscillate with respect to said frame and formed with ball-bearings at its ends, the axis of oscillation being within the hub, a wheel mounted to rotate upon said hub with corresponding ball-bearings at its ends, and balls interposed between said bearings.

17. In a vehicle, the combination with the running-gear frame and a hub carried by said frame of a stud having a bearing in said hub, a hub carried by said stud to oscillate thereon and formed with ball-bearings at its ends, a wheel mounted to rotate upon said hub with corresponding ball-bearings, and balls interposed between said bearings.

18. In a vehicle, the combination with the front axle and a hub carried by said axle, of a stud having a bearing in said hub, a hub carried by said stud to oscillate thereon and formed with ball-bearings at its ends, a wheel mounted to rotate upon said hub with corresponding ball-bearings, balls interposed between said bearings, and a link connected to said hub to oscillate the same.

19. In a vehicle, the combination with the front axle and a hub carried by said axle, of a stud having a bearing in said hub, a hub carried by said stud to oscillate thereon, a wheel mounted to rotate upon said hub, a sleeve mounted to slide on said axle, and a link connecting said hub to said sleeve.

20. In a vehicle, the combination with an axle, of a tubular hub mounted to oscillate upon the end of said axle, a wheel-hub mounted upon said tubular hub, interposed antifriction-bearings, and a removable retaining-ring secured to one of said hubs.

21. In a vehicle, the combination with an axle, of a tubular hub mounted to oscillate upon the end of said axle, a wheel-hub mounted upon said tubular hub, and a retaining-ring secured to one of said hubs, said tubular hub having a projection at one side for connection of means for oscillating the same.

22. In a vehicle, the combination with an axle, of a tubular hub mounted to oscillate upon the end of said axle, a stud to secure the hub to the axle, and a wheel-hub mounted upon said tubular hub and having holes to permit the manipulation of said stud.

699,544. SAFETY-GATE FOR RAILWAY-CROSSING. JOHN W. WYATT, C. HENRY and WILLIAM A. HARRIS, Cincinnati, Ohio. Filed Feb. 1, 1902. Serial No. 51,004. (No model.)

Claim.—1. In a door-guard, a hinge attached to the door, a folding gate pivoted to the said hinge, and means for engaging the free end of the gate when extended.



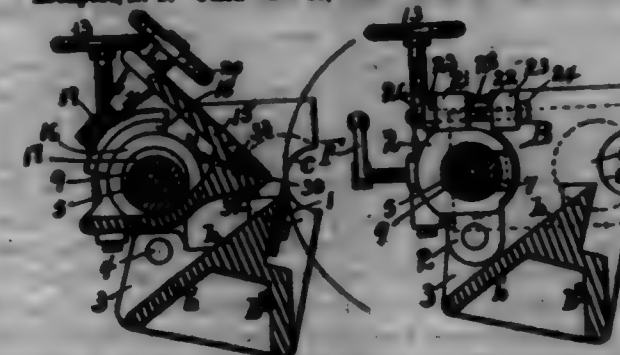
2. In a door-guard, a hinge attached to a collar-door, a folding gate pivoted to said hinge, and a catch fixed to said collar-door adapted to engage the outer end of the gate when collapsed and folding inwardly against the door.

3. In combination with a two-leaved door, a long-tongue safety-gate hinged to the under side of one of the said leaves, and fastenings upon the other leaf to which the free ends of the long-tongue may be secured when the door is in its open position, substantially as described.

4. In combination with a two-leaved hatchway-door, a long-tongue gate hinged to the under side of one of the said leaves by means of a permanent hinge and an extensible hinge, and fastenings upon the other leaf to which the free ends of the long-tongue may be secured when the door is in its open position, substantially as described.

5. The herein-described safety-gate construction for hatchway-doors comprising the hinged door, A¹, A², long-tongue gate, A³, hinged to the door A¹, by means of the stationary hinge C and extensible hinged joint B, and opposite fastenings, as M, K, on the door A¹, for the free ends of the gate, substantially as described.

699,545. VENEER-CUTTING MACHINE. LOUIS S. MERRITT, Lockport, N. Y. Filed June 12, 1901. Serial No. 64,374. (No model.)



Claim.—1. In a veneer-cutting machine, in combination, a pressure-bar having bearing-surfaces in connection therewith and an eccentric shaft having bearings in said bearing-surfaces, the construction and arrangement being such that the eccentric applies the pressure substantially in a straight line passing through the pressure-plate and the center of the log.

2. In a veneer-cutting machine, in combination, a pressure-bar having bearing-surfaces in connection therewith located near the center of gravity of said bar and an eccentric shaft having bearings in said bearing-surfaces.

3. In a veneer-cutting machine in combination a pressure-bar and an eccentric shaft supporting said pressure-bar, the axis of said shaft being located substantially in the horizontal plane of the working edge of said pressure-bar.

4. In a veneer-cutting machine a pressure-bar, an eccentric shaft upon which said bar is pivotally supported and means for rotating said shaft.

5. In a veneer-cutting machine a pressure-bar, and an eccentric shaft passing through bearings in said pressure-bar near the center of gravity thereof, whereby said pressure-bar may be adjusted to and from the work by rotation of said shaft and may be readily tilted upon its bearings about said shaft.

6. In a veneer-cutting machine a pressure-bar, an eccentric shaft passing through bearings in said pressure-bar and means for tilting said pressure-bar about said shaft as an axis.

7. In a veneer-cutting machine, the combination, the pressure-bar 15 having bearings 16 in connection therewith, the shaft 9 having eccentric portion 17 in connection with said bearings, and a lever rigid with said pressure-bar whereby the pressure-bar may be rocked upon said eccentric shaft as an axis.

8. In a veneer-cutting machine, an eccentrically-mounted shaft, a sleeve surrounding said shaft, a pressure-bar mounted on eccentric bearings on said sleeve, a pivoted ball-bearing having lag-screws connected therewith, said lag-screws being supported on said sleeve, and means for rotating said sleeve and said shaft.

9. In a veneer-cutting machine, an eccentrically-mounted shaft, a sleeve surrounding said shaft, a pressure-bar mounted on eccentric bear-

lugs on said sleeve, a pivoted knife-carriage having hangers pivotally connected therewith, said hangers being supported on said sleeve, and means for rotating said sleeve and said shaft independently.

10. In a veneer-cutting machine, in combination, a pressure-bar, bearings in connection therewith, an eccentric sleeve passing through said bearings, an eccentric shaft passing through said sleeve, a pivoted knife-carriage, hangers connected to said knife-carriage and providing journals for said sleeve, and a means for rotating said eccentric shaft.

11. In a veneer-cutting machine, in combination, a pressure-bar, bearings in connection therewith, an eccentric sleeve passing through said bearings, an eccentric shaft passing through said sleeve, a pivoted knife-carriage, hangers pivotally connected to said knife-carriage and providing journals for said sleeve, means for rotating said eccentric shaft, and means for adjusting the position of said hangers, sleeve and shaft without effecting the position of the knife-carriage.

12. In a veneer-cutting machine, in combination, a pressure-bar, bearings in connection therewith, an eccentric sleeve passing through said bearings, an eccentric shaft passing through said sleeve, a pivoted knife-carriage, hangers pivotally connected to said knife-carriage, said sleeve being journaled in said hangers, means for rotating said eccentric shaft, and means for adjusting the position of said hangers, sleeve and shaft independently at each end of the carriage.

13. In a veneer-cutting machine, in combination, a pressure-bar, bearings in connection therewith, an eccentric sleeve passing through said bearings, an eccentric shaft passing through said sleeve, a pivoted knife-carriage, hangers pivotally connected to said knife-carriage and providing journals for said sleeve, means for rotating said eccentric shaft, and adjusting-curve-connecting said hangers to the knife-carriage whereby said hangers may be independently adjusted toward and from the work.

14. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a sleeve surrounding said shaft, a pressure-bar carried by said sleeve, a knife-carriage having hangers connected therewith, said sleeve being journaled in said hangers, and means for rotating said shaft.

15. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a sleeve surrounding said shaft, a pressure-bar carried by said sleeve, a knife-carriage having hangers pivotally connected therewith, said sleeve being journaled in said hangers, and means for rotating said shaft.

16. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a sleeve surrounding said shaft, a pressure-bar carried by said sleeve, a knife-carriage having hangers pivotally connected therewith, said sleeve being journaled in said hangers, and means for rotating said shaft.

17. In a veneer-cutting machine, a shaft having eccentric bearings in suitable slide-blocks, a sleeve surrounding said shaft, a pressure-bar carried by said sleeve, a knife-carriage, hangers pivotally connected to said carriage, said hangers furnishing journals for said sleeve at each end thereof, means for rotating said shaft, and means for independently adjusting relatively to the knife-carriage the hanger and its connected parts at either end of said sleeve.

18. In a veneer-cutting machine, in combination, a pressure-bar carried by an eccentric sleeve, a knife-carriage having pivoted hangers connected therewith, said eccentric sleeve being journaled in said hangers, means for rotating said sleeve, and means for rotating said hangers.

19. In a veneer-cutting machine, a pressure-bar, an eccentric shaft upon which said pressure-bar is supported for horizontal adjustment, means for rotating said shaft and means for independently adjusting the ends of said shaft.

20. In a veneer-cutting machine, a pressure-bar, an eccentric shaft upon which said pressure-bar is supported for horizontal adjustment, means for rotating said shaft and means for adjusting either end of said shaft toward or from the work independently of the other.

21. In a veneer-cutting machine, a pressure-bar, a sleeve supporting said pressure-bar, the points of support being eccentric to the axis of the sleeve whereby said pressure-bar may be adjusted by rotating the sleeve, hangers in which the ends of said sleeve are journaled, and means for independently adjusting said hangers transversely of the axis of the sleeve.

22. In a veneer-cutting machine, a pressure-bar, a sleeve supporting said pressure-bar, the points of support being eccentric to the axis of the sleeve whereby said pressure-bar may be adjusted by rotating the sleeve, hangers in which the ends of said sleeve are journaled, and means for independently adjusting said hangers transversely of the axis of the sleeve and for locking them in said adjusted position.

23. In a veneer-cutting machine, a pressure-bar, a sleeve supporting said pressure-bar, the points of support being eccentric to the axis of the sleeve, whereby said pressure-bar may be adjusted by rotating the

sleeve, hangers in which the ends of said sleeve are journaled, a knife-carriage pivotally connected to said hangers, and means for independently adjusting each of said hangers transversely of the sleeve without effecting the position of the knife-carriage.

24. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a knife-carriage having hangers connected therewith, said hangers being supported by said shaft and means for rotating said shaft.

25. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a knife-carriage having hangers connected therewith, said hangers being supported by said shaft concentrically to the axis of rotation thereof, and means for rotating said shaft.

26. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a knife-carriage having hangers pivotally connected therewith, said hangers being supported by said shaft, and means for rotating said shaft.

27. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a pivoted knife-carriage having hangers pivotally connected therewith supported by said shaft, and means for rotating said shaft.

28. In a veneer-cutting machine, slide-blocks adapted for location in ways in a suitable framework, a shaft having eccentric bearings in said slide-blocks, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a knife-carriage having hangers pivotally connected therewith, said hangers being supported from said shaft, and means for adjusting said hangers to and from the work.

29. In a veneer-cutting machine, a shaft having slidable eccentric bearings in suitable supports, a pressure-bar mounted upon said shaft, a knife-carriage having hangers pivotally connected therewith, said hangers being supported from said shaft, and means for adjusting said hangers to and from the work.

30. In a veneer-cutting machine, a shaft having slidable eccentric bearings in suitable supports, a pressure-bar mounted upon said shaft for tilting movement relative thereto, a pivoted knife-carriage having hangers pivotally connected therewith, said hangers being supported from said shaft, and means for rotating said shaft, and means for swinging said hangers on their pivots and locking them in adjusted position.

31. In a veneer-cutting machine, a pressure-bar, hangers with reference to which said pressure-bar is supported for tilting or pivotal movement relative thereto, said hangers being pivoted for movement toward and from the work.

32. In a veneer-cutting machine, a pressure-bar, hangers with reference to which said pressure-bar is supported for tilting or pivotal movement relative thereto, said hangers being pivoted, and means for adjusting said hangers on their pivots toward and from the work.

33. In a veneer-cutting machine, a pressure-bar, hangers with reference to which said pressure-bar is supported for tilting or pivotal movement relative thereto, said hangers being pivoted, means for adjusting said hangers on their pivots toward and from the work, and locking them in adjusted position.

34. In a veneer-cutting machine, a pressure-bar, hangers with reference to which said pressure-bar is supported for tilting or pivotal movement relative thereto, said hangers being pivoted, means for independently adjusting said hangers on their pivots toward and from the work and locking them in adjusted position.

35. In a veneer-cutting machine, in combination, a knife-carriage, hangers in connection with said carriage, a pressure-bar, said pressure-bar being mounted for tilting or pivotal movement with reference to said hangers, and means for adjusting said hangers to and from the work.

36. In a veneer-cutting machine, in combination, a knife-carriage having hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and means for adjusting said hangers to and from the work.

37. In a veneer-cutting machine, in combination, a knife-carriage having hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and means for independently adjusting said hangers to and from the work.

38. In a veneer-cutting machine, a knife-carriage, hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and means for adjusting said hangers relatively to said knife-carriage.

39. In a veneer-cutting machine, a knife-carriage, hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and means for independently adjusting said hangers relatively to said knife-carriage.

40. In a veneer-cutting machine, a knife-carriage hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and means for independently adjusting said hangers relatively to said knife-carriage, and for locking them in adjusted position.

41. In a veneer-cutting machine, a pivoted knife-carriage hangers pivotally connected therewith, a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, means for independently adjusting said hangers relatively to said knife-carriage, and means for locking them in adjusted position.

42. In a veneer-cutting machine, an eccentrically-mounted shaft, a pressure-bar mounted on said shaft, a knife-carriage, hangers pivotally connected thereto, said hangers being supported from said shaft.

43. In a veneer-cutting machine, a shaft concentrically mounted in slidable bearings, a pressure-bar carried by said shaft, a knife-carriage, pivoted hangers connected to said knife-carriage, said hangers being supported from said shaft, means for rotating said shaft, and means for adjusting said hangers to and from the work.

44. In a veneer-cutting machine, a shaft concentrically mounted in slidable bearings, a pressure-bar carried by said shaft, a knife-carriage, pivoted hangers connected to said knife-carriage, said hangers being supported from said shaft, means for rotating said shaft, and means for adjusting said hangers to and from the work.

45. In a veneer-cutting machine, a knife-carriage having hangers connected therewith, a sleeve journaled in said hangers, a pressure-bar mounted on said sleeve for tilting or pivotal movement relative thereto, and an eccentrically-mounted shaft passing through said sleeve.

46. In a veneer-cutting machine, a knife-carriage having hangers pivotally connected therewith, a sleeve journaled in said hangers, a pressure-bar mounted on said sleeve for tilting or pivotal movement relative thereto, and an eccentrically-mounted shaft passing through said sleeve.

47. In a veneer-cutting machine, a pivoted knife-carriage having hangers pivotally connected therewith, a sleeve journaled in said hangers, a pressure-bar mounted on said sleeve for tilting or pivotal movement relative thereto, and an eccentrically-mounted shaft passing through said sleeve.

48. In a veneer-cutting machine, in combination, a pressure-bar, bearings in connection therewith, an eccentric sleeve passing through said bearings, a shaft passing through said sleeve and concentrically supported in slidable bearings, a pivoted knife-carriage, hangers pivotally connected to said knife-carriage and supported from said sleeve, means for rotating said shaft, and adjusting-curve in connection with said hangers, whereby said hangers may be independently adjusted toward and from the work.

49. In a veneer-cutting machine, in combination, slide-blocks A, shaft 5 having eccentric bearings in boxes 7 rotatable with relation to said slide-blocks, a pressure-bar mounted on said shaft, a knife-carriage, hangers 2 pivotally connected to said carriage and supported by said shaft, substantially as and for the purposes set forth.

50. In a veneer-cutting machine, a suitable frame, pivotally-mounted hangers secured to said frame, and a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and free to partake of the movement of the hangers about their pivotal mounting.

51. In a veneer-cutting machine, a suitable frame, pivotally-mounted hangers adjustably secured to said frame, and a pressure-bar mounted in said hangers for tilting or pivotal movement relative thereto, and free to partake of the movement of the hangers about their pivotal mounting.

689,548. VENEER-CUTTING MACHINE. LOUIS C. HENRY.
Lynchport, N. Y. Filed July 28, 1901. Serial No. 68,348. (No Model.)



Claim.—1. In a veneer-cutting machine, a pressure-bar, an immediate support for the pressure-bar, a means for moving the support to-

ward and from the work with a slow and gradual movement and a means for directly moving the immediate support toward and from the work with a comparatively quick clearing movement.

2. In a veneer-cutting machine, a pressure-bar, an immediate support for the pressure-bar, a means for moving the support toward and from the work with a slow and gradual movement and a means for directly moving the immediate support toward and from the work with a comparatively quick clearing movement and along the path in which the support moves when moved by the first stated means.

3. In a veneer-cutting machine, a pressure-bar, a support for the pressure-bar, a means for moving the support toward and from the work with a slow and gradual movement and a means for moving the same support toward and from the work with a comparatively quick clearing movement and along the path in which the support moves when moved by the first stated means.

4. In a veneer-cutting machine, a pressure-bar, means for moving said pressure-bar toward and from the work with a slow and gradual movement and means for moving said pressure-bar toward and from the work with a comparatively quick clearing movement and along the path in which it is moved by the first stated means.

5. In a veneer-cutting machine, a pressure-bar, an eccentric shaft, connections between said shaft and bar whereby the bar is adjusted upon rotation of the shaft, means for giving said shaft a gradual rotation, the limits of which may be positively fixed whereby a definite amount of adjusting movement may be given to the pressure-bar, and means for giving said shaft a quick rotation whereby a rapid movement of clearance may be given to the pressure-bar.

6. In a veneer-cutting machine, a pressure-bar, a shaft upon which said pressure-bar is concentrically mounted, means for giving said shaft a quick throw to carry said pressure-bar rapidly toward or from the work, and means for giving said shaft a slow, measurable throw whereby the position of said pressure-bar may be accurately adjusted within narrow limits.

7. In a veneer-cutting machine, a pivotally-mounted pressure-bar, and means whereby at one operation said pressure-bar may be retracted from the work and then tilted or rocked about its pivots.

8. In a veneer-cutting machine, a pressure-bar, means for moving said pressure-bar from the work with a comparatively slow and measurable adjusting movement, and a single means whereby said pressure-bar may be moved toward and from the work with a quick clearing movement and then tilted or rocked vertically.

9. In a veneer-cutting machine, a pressure-bar, an eccentric shaft upon which said pressure-bar is pivotally mounted, and means whereby the pressure-bar may be given a rapid movement toward or from the work to an extent depending upon the eccentricity of the shaft and then tilted or rocked on its pivots.

10. In a veneer-cutting machine, a pressure-bar, an eccentric shaft upon which said pressure-bar is pivotally supported, and an operating-lever for said eccentric shaft, said pressure-bar having a part rigid therewith extending into the path of movement of said operating-lever, whereby by a single movement of said lever the pressure-bar may be moved a horizontal distance equal to the full throw of the eccentric shaft and then tilted or swung up about its pivotal support.

11. In a veneer-cutting machine, a pressure-bar, a shaft upon which said pressure-bar is concentrically mounted, a collar loose upon said shaft, a worm-wheel carried by said collar, a worm adapted to engage said worm-wheel, a collar rigid with said shaft, a lever connected with said second collar whereby said shaft may be rotated, and means for locking said collars together.

12. In a veneer-cutting machine, a pressure-bar, a shaft upon which said pressure-bar is concentrically mounted, a collar loose upon said shaft, a worm-wheel carried by said collar, a worm engaging said worm-wheel, a second collar rigid with said shaft, a notch or recess in said first collar, a lever mounted upon said second collar so that it will carry such collar with it in its movement transversely of said shaft but free to swing upon said collar parallel to said shaft, and a lug upon said lever adapted to rest in said notch.

13. In a veneer-cutting machine, a pressure-bar frame, a shaft upon which said pressure-bar is concentrically mounted, a worm-wheel loosely carried by said shaft, a worm for engaging said worm-wheel, a housing for said worm carried by said pressure-bar frame, a recess in the side of said worm-wheel, a collar keyed to said shaft, a lever pivoted to said collar and having a projection therefrom adapted to rest normally in said recess so that the rotation of said worm-wheel normally carries with it the shaft, but upon disengaging the lever and worm-wheel the shaft may be revolved freely within said worm-wheel by movement of the lever.

14. In a veneer-cutting machine, in combination, the pressure-bar casing A, the eccentric shaft 10 supporting said pressure-bar casing, the collar 16 loose upon said shaft carrying the worm-wheel 18, the worm 25 mounted in said pressure-bar casing, the collar 17 keyed to said shaft, and

the spring-pressed lever 20 pivoted to said collar 17 and adapted in one position to lock said collars together.

15. In a vane-cutting machine, in combination, a pressure-bar casting, an eccentric shaft upon which said pressure-bar casting is pivotally supported, a worm-wheel meshing upon said shaft, a collar adjacent to said worm-wheel keyed to said shaft, a room in said worm-wheel, projecting lugs upon said collar, a lever pivoted between said lugs to swing toward and from said worm-wheel and having a projection thereon adapted to rest in the room in said worm-wheel.

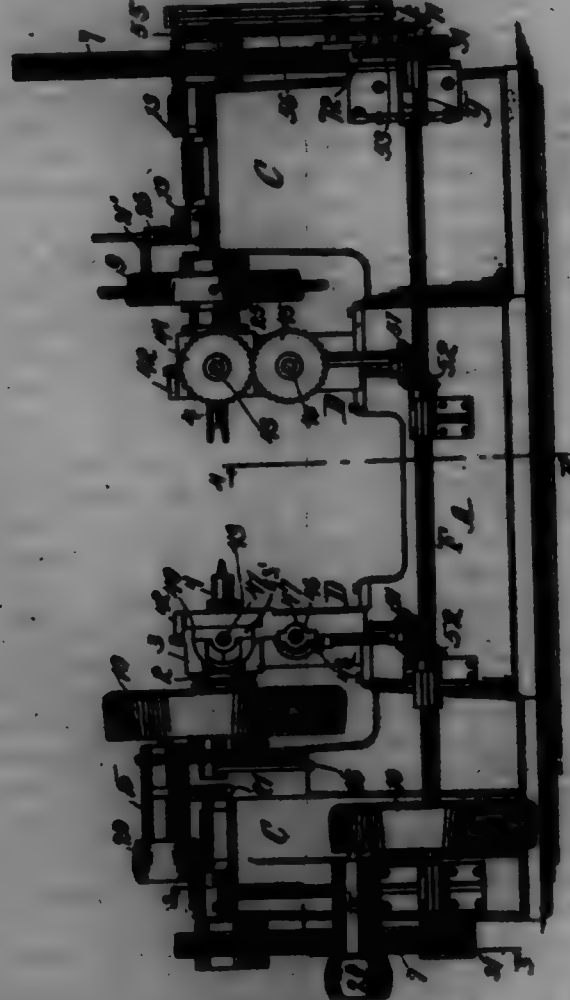
16. In a vane-cutting machine, a pressure-bar casting or frame, a shaft upon which said casting is eccentrically mounted, a collar meshing upon said shaft, a worm-wheel carried by said collar, a worm housed in said pressure-bar casting and engaging said worm-wheel, a collar rigid with said shaft, a lever connected with said second collar whereby said shaft may be rotated, and means for locking said collars together.

17. In a vane-cutting machine, a pressure-bar, means for moving said pressure-bar toward or from the work with a comparatively slow and measurable adjusting movement, means for moving said pressure-bar toward or from the work with a comparatively quick clearing movement, and a single operating-lever by the movement of which said first-mentioned means may be disconnected from the pressure-bar and said second-mentioned means actuated.

18. In a vane-cutting machine, a pressure-bar, means for moving said pressure-bar toward or from the work with a comparatively slow and measurable adjusting movement, and a single means whereby said first-mentioned means may be disconnected from the pressure-bar and the pressure-bar moved toward or from the work with a comparatively quick clearing movement.

19. In a vane-cutting machine, a pressure-bar mounted for movement toward or from the work, a shaft in operative connection to the pressure-bar whereby the pressure-bar is so moved, means acting upon said shaft for moving said pressure-bar with a measurable adjusting movement, and means acting upon said shaft for moving said pressure-bar with a quick clearing movement.

699,547. LATER, LOUIS C. HENRY, Lockport, N. Y. Filed July 20, 1891. Serial No. 70,308. (No model.)



Claim.—1. In a vane-cutting machine, a carriage for supporting the vane-cutting knife, and supports providing ways for said carriage, said ways furnishing bearings for said carriage both above and below the line of chuck centers, the construction and arrangement being such that the cutting edge of the knife is located substantially on the line of feed and in the plane of the chuck centers.

2. In a vane-cutting machine, in combination with the usual chuck and chuck-spindles, a carriage for the vane-cutting knife reciprocable with relation to said chucks, ways for said carriage furnishing bearings therefor both above and below the line of chuck centers and feed-covers located on the line of chuck centers, whereby the strain upon the vane-cutting knife is substantially along the line of the feed-covers.

3. In a vane-cutting machine, a main frame, bearings in said main frame for the chuck-spindles, supports located on said main frame adjacent the head portions thereof, ways said supports for the slide-blocks, which support the vane-cutting carriage, said ways furnishing bearings for said slide-blocks both above and below the line of chuck centers, bearings in said supports through which the chuck-spindles pass, and feed-covers for said slide-blocks, said feed-covers being located so as to apply their pressure in the line of centers.

4. In a vane-cutting machine, a frame comprising a base portion and two head portions, in combination with supports located parallel to the inner faces of said head portions and connected to said base portion, bearings in said head portions for the chuck-spindles, supplementary bearings in said supports for the chuck-spindles, ways in said supports, said ways furnishing bearings for the slide-blocks of the vane-cutting knife carriage both above and below the line of centers of the chucks, whereby the strain upon the vane-cutting knife in operation will be divided between the two ways, substantially as and for the purposes set forth.

5. In a vane-cutting machine, a main frame, ways upon said main frame adapted for slide-blocks for a main carriage, feed-covers for said slide-blocks acting in the line of centers, threaded shafts below said feed-covers and parallel therewith, which shafts pass below the drive-spindles and are adapted to act as feed-covers for an auxiliary carriage, means for driving said feed-cover shafts from said second shafts, and means for driving said second shafts from the main feed-shaft of the machine.

6. In a vane-cutting machine, in combination, with the usual chucks and chuck-spindles, a main carriage, a feed-cover therefor, a shaft passing below said chuck-spindles, and gearing at one end with said feed-cover and threaded at its other end whereby it is adapted to engage the feed-out of an auxiliary carriage located on the opposite side of the line of centers from the main carriage.

7. In a vane-cutting machine, in combination, with the usual chucks and chuck-spindles, a main carriage, a feed-cover therefor, a shaft passing below said chuck-spindles, and gearing at one end directly with said feed-cover and threaded at its other end whereby it is adapted to engage the feed-out of an auxiliary carriage located on the opposite side of the line of centers from the main carriage.

8. In a vane-cutting machine, a tool-carriage supported upon slide-blocks in suitable ways, feed-covers for said slide-blocks, gears connecting said feed-covers with shafts parallel therewith, a driving-shaft *F* located at a substantial distance within the ends of said feed-covers and auxiliary shafts and toward the center of the machine, and gearing between said driving-shaft and said auxiliary shafts, substantially as and for the purposes set forth.

9. In a vane-cutting machine, in combination, a tool-carriage supported upon slide-blocks in suitable ways, feed-covers therefor, parallel shafts geared directly to said feed-covers and extending toward the center of the machine, a driving-shaft located at a substantial distance within the ends of said feed-covers and toward the center of the machine, and driving connections between said shafts.

10. In a vane-cutting machine, in combination, a frame comprising a base portion and head portions integral therewith, chuck-spindles having bearings in said head portions, an independent way or support located adjacent one of said head portions and providing supplementary bearings for one of said spindles and a way for the slide-block of a tool-carriage, a nut located upon said spindle between said head portion and said support, means for rotating said spindle, and means for independently controlling the rotation of said nut, the construction and arrangement being such that the strain resulting from the digging of the work is borne by the head portion of the frame while the strain resulting from the action of the tool-carriage is borne in the first instance by said support.

11. In a machine of the character described, a frame comprising a base portion and head portions, supports located on said base portion adjacent the inner faces of said head portions, ways in said supports adapted for the slide-blocks of a tool-carriage, spindles supported in bearings in said head portions and in said supports, nuts controlling the longitudinal movement of said spindles located between said head portions and said supports, whereby the strain resulting from the digging of the work is borne by the head portion of the frame, while the strain resulting from the action of the tool-carriage is borne in the first instance by the supports.

12. In a vane-cutting machine, in combination, a frame having the base portion *B* and the integral head portions *C*, *D*, a support or way *D*, a spindle *E* supported in bearings in one of said head portions and in said way, a nut *F* upon said spindle located between said support and said head portion, means for driving said spindle, and means for controlling the rotation of said nut independently of said spindle.

13. In a vane-cutting machine, in combination, a frame, suitably-driven spindle supported upon said frame, suitable ways upon said frame, slide-blocks in such ways, feed-covers 43 for each slide-block, a second shaft 45 from which shafts 43 are driven, shaft 50 from which said shafts 43 are driven, and a main feed-shaft *F* from which said shaft 50 is driven, the construction and arrangement being such that the main feed-shaft *F* is inside of the vertical plane of the end of the shaft 45.

14. In combination, a lathe-spindle, a nut controlling the longitudinal movement of said spindle, and power-actuated frictional means for locking said nut from rotation.

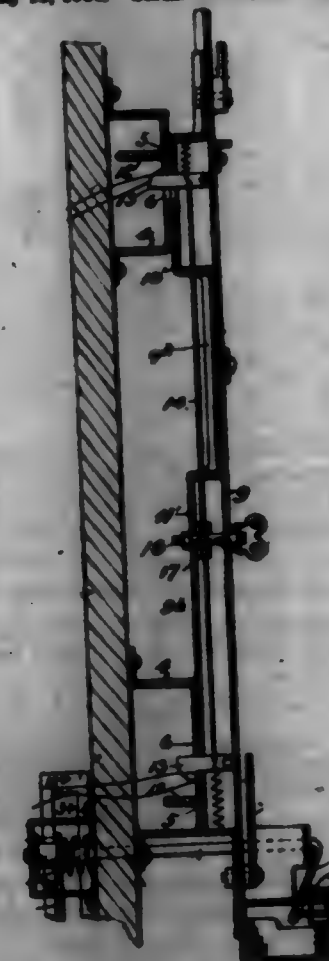
15. In combination, in a machine of the character described, a lathe-spindle, a nut controlling the longitudinal movement of said spindle, a wheel connected to said nut to rotate therewith, and a frictional device located within the rim of said wheel on said wheel whereby said nut may be prevented from rotation.

16. In combination, a lathe-spindle, a nut controlling the longitudinal movement of said spindle, a rimmed wheel keyed to said nut, friction-chess adapted to bear within the rim of said wheel, and means for forcing said chess against said rim whereby the wheel will be held from rotation.

17. In combination, a lathe-spindle, a nut controlling the longitudinal movement of said spindle, a rimmed wheel keyed to said nut, friction-chess adapted to bear one against the inner face of said rim and one against the hub of said wheel, a flattened shaft upon which the sides of said chess normally rest, and means for rocking the said shaft whereby the said chess will be forced against the adjacent parts of said wheel and said wheel will be locked against rotation.

18. In a vane-cutting machine, in combination, the threaded spindle 1, nut 8 upon said spindle, wheel 9 carried with said nut, friction-wheels 25 and friction-chess 24 adapted to bear within said wheel, flattened shaft 22 controlling the position of said friction device, and lever 26 for rocking said shaft.

699,548. MUMFORD TURNER. BENJAMIN F. D. MILLER, Worcester, Ohio, assignors to Frank Herman and C. C. Adams, Worcester, Ohio. Filed July 15, 1891. Serial No. 68,222. (No model.)



Claim.—1. In a shoe-last the combination with a last frame having a center bar, of lugs projecting from the back of said bar, notched spring-actuated catches located adjacent to said lugs, a cord connecting said catches, and a key having a longitudinally-apertured cross-bar which is threaded on said cord, said key being constructed to be turned to tighten said cord to operate said catches, substantially as described.

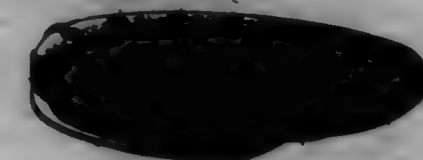
2. In a shoe-last, the combination with a shoe-board bearing apertured U-shaped brackets, of a last frame having a center bar, of lugs projecting from said center bar and constructed to fit said apertures in said brackets, of pivoted spring-actuated catches constructed to engage apertures in said brackets, a cord connecting said catches, and a key connected to said cord and constructed to be operated to disengage said catches, substantially as described.

3. In a shoe-last, the combination with a shoe-board bearing U-shaped brackets having apertured cross-bars, of a last frame, spring-actuated notched catches mounted on said last and located to engage said apertures in said brackets, a cord connecting said catches, and means for tightening said cord to operate said catches to disengage them from said brackets, substantially as described.

4. In a shoe-last, the combination with frames for supporting heels and constructed to be fitted over, of spring-actuated cross bearing shoes and constructed to engage said frames, angular shafts bearing crank-arms, cords passing around said shafts and connected to said crank-arms, spring-actuated lever-arms mounted on said angular shafts, levers arranged to be operated by the laces of the shoe to turn the said frames, cords connected to said lever-arms and to said knee-operated levers, substantially as described.

5. In a shoe-last, the combination with a last, of parallel guides mounted on said last with an intervening space, of an axle bearing sliding frames, oppositely-actuating arms mounted on said axle and constructed to fit under said guides and hold the axle in place, said arms being located in substantially the same plane with said last, substantially as described.

699,549. CUSHIONING DEVICE FOR BOOTS OR SHOES. FRANK P. MONTGOMERY, Philadelphia, Pa. Filed July 20, 1891. Serial No. 68,212. (No model.)



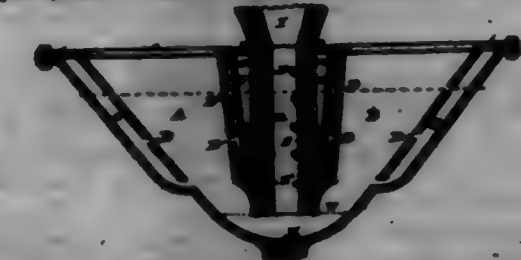
Claim.—1. An elastic heel-pad for boots and shoes, comprising a flexible upper strip, a metal plate backing the same, a folded strip, and a mass of elastic material contained between said folds, the top strip, the metal plate, and the upper fold of said insulating strip being secured together, substantially as specified.

2. An elastic heel-pad for boots and shoes, said pad comprising an upper strip of flexible material, a metallic plate supporting the same, a folded strip, and a mass of elastic material contained between said folds, the top strip, the metal plate, and the upper fold of the insulating strip being secured together and the lower fold of said strip being provided with a coating of cement whereby it may be secured to the inside of the boot or shoe, substantially as specified.

3. An elastic heel-pad for boots and shoes, comprising a flexible top strip, a metal plate supporting the same, a mass of elastic material secured to and supporting said plate, and a strip including said elastic material, substantially as specified.

4. An elastic heel-pad for boots and shoes, comprising a top strip, a metal plate supporting the same, and a mass of elastic material supporting the plate, said mass of elastic material being of less dimensions than the plate, and the latter and the top strip having ventilating-openings in the projecting portion, substantially as specified.

699,550. AMALGAMATOR. JONATHAN McKEEVER, Louisville, Ky., assignor of one-fifth to William H. Rigdon, Louisville, Ky. Filed Sept. 28, 1891. Serial No. 70,120. (No model.)



Claim.—1. In an amalgamator, the combination with a case having a mercury-holding basin and provided with chambers and having means for admitting water under pressure to said chambers, of a chain-tube in one of said chambers and an outlet-pipe in another of said chambers, said tube and pipe each having communication with said basin and each having series of openings for the admission thereto of water from their respective chambers, substantially as described.

2. An amalgamator embracing a casing having a mercury-holding basin and a chain-tube in communication with said basin, and means for admitting water to said chain-tube embracing series of downwardly-inclined openings through which the water can run at an angle to the others and a water-pressure chamber surrounding the chain-tube, for the

purpose set forth, said amalgamator also having means through which water is supplied thereto, means for withdrawing amalgam and conducting means for the tailings.

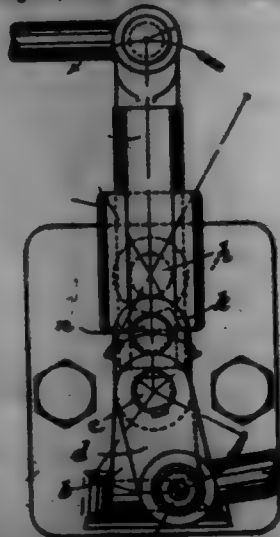
3. An amalgamator having its sluice-tube provided with a series of downwardly-inclined openings of which the lower ones are at an angle to the others, said amalgamator also having a basin for mercury in communication with said sluice-tube and a conducting means for tailings in communication with said basin, combined with a water-supplying means.

4. In an amalgamator, the combination with a case having a mercury-holding basin, provided with means for withdrawing amalgam therefrom, said casing also having outer chambers, an intermediate chamber and a separate chamber having openings leading to said outer and intermediate chambers and provided with means for the admission of water under pressure to said separate chamber, in combination with overflow-pipes in said outer chambers, having apertured walls for the admission of water thereto, and a sluice-tube in said intermediate chamber, having openings for the admission of water from said intermediate chamber, said pipes and tubes having communication with said basin, substantially as described and for the purpose specified.

5. In an amalgamator, the combination with a case having a mercury-holding basin, provided with means for withdrawing amalgam therefrom, said casing also having outer chambers, an intermediate chamber and a separate chamber having openings leading to said outer and intermediate chambers, and means through which water under pressure is admitted to said separate chamber, of a sluice-tube in said intermediate chamber, having a series of downwardly-inclined apertures for the admission thereto of the water from said intermediate chamber, the apertures near the lower end of said tube extending through the wall of the case at an angle nearer the horizontal than those above, said overflow-pipes in said outer chambers, having non-radiated apertures in their walls for the admission of water from their respective chambers, said tube and pipes having communication with said basin, substantially as described and for the purpose specified.

6. An amalgamator having its sluice-tube provided with a series of downwardly-inclined openings of which the lower ones are at an angle to the others, said amalgamator also having a basin for mercury in communication with said sluice-tube and an overflow-pipe in communication with said basin, said overflow-pipe being formed with apertures so arranged as to cause the water entering the pipe through the case to give a whirling motion to the material in said pipe, and means through which water is supplied to said sluice-tube and overflow-pipe.

699,551. **REDOUCING MECHANISM.** WALKER & McKENNEY, Chicago, Ill. Filed July 24, 1901. Serial No. 66,962. (No model.)



Claim.—1. In a reducing mechanism, the combination of a pivoted guide, a lever sliding therein, a rock-shaft and an arm fixed to said rock-shaft and pivotally connected to said lever.

2. In a reducing mechanism, the combination of a rock-shaft having a fixed axis, an arm secured to said shaft, a bar pivoted to said arm, means for rocking said shaft and a guide for said bar, whereby the longitudinal axis of said bar may vary its inclination but always passes through a fixed point.

3. In a reducing mechanism, the combination of a rock-shaft, an arm keyed thereto, a bar pivoted to said arm, a guide for said bar, a second arm keyed to said rock-shaft and means for operating said second arm.

4. In a reducing mechanism, a bar pivoted at one extremity to a rocking arm and at the other extremity to a driven part of the mechanism in combination with a guide wherein said bar is slidingly mounted, said guide being revoluble upon a fixed axis.

5. In a reducing mechanism, the combination of a bar or lever pivotally and slidingly supported between its extremities, said bar or lever

being connected at one end to a driven part of the device, a rocking arm pivotally connected to the other end of said bar or lever, a rock-shaft for driving said rocking arm, a second arm for driving said rock-shaft, a crank, and connections between said crank and said second arm whereby the rotation of said crank is transmitted to said second arm.

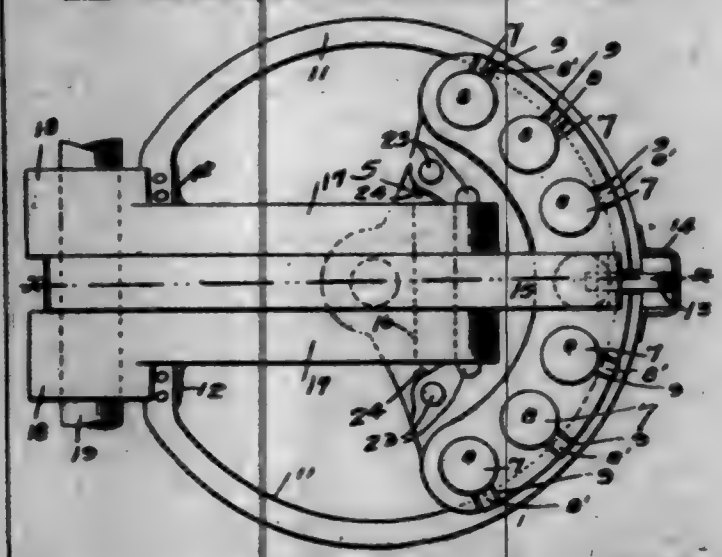
6. In a reducing mechanism, the combination of a crank, a rod connected thereto, a rock-shaft, an arm keyed to said shaft and pivoted to said rod, a second arm keyed to said shaft, a bar or lever pivoted to said second arm, a guide wherein said bar or lever is slidingly mounted, said guide having a fixed pivot, and a representing driven member connected to said bar or lever.

7. In a reducing mechanism, the combination of a driven reciprocating member, a rod connected thereto, a bar or lever connected to said rod, a pivotally-supported guide for said bar or lever, a rock-shaft, an arm keyed to said shaft and pivoted to said bar or lever, and means for operating said rock-shaft.

8. In a reducing mechanism the combination of a sliding block, means for guiding said block, a connecting-rod pivoted to said block, a bar or lever pivoted to said rod, a guide wherein said bar or lever is slidingly mounted, said guide being pivoted on a fixed axis, a rock-shaft, an arm keyed to said shaft and pivoted to said bar or lever, and means for operating said rock-shaft.

9. In a reducing mechanism, the combination of a reciprocating block, guides for said block, a bar or lever, a rod connecting said bar or lever to said block, a pivoted guide wherein said bar or lever is slidingly mounted, an arm pivoted to said bar or lever, a rock-shaft keyed to said arm, a second arm keyed to said rock-shaft, a crank and a connecting-rod joining said crank to said second arm for operating the latter.

699,552. **PUNCHING-MACHINE.** BAKER & McLAUGHLIN, Brooklyn, Minn. Filed Oct. 24, 1901. Serial No. 79,781. (No model.)



Claim.—1. The combination, with a base having a bracket or standard thereon, of a sector-shaped block pivoted on said base between it and said bracket and adapted to describe a partial revolution thereon, a series of punches carried by said block each punch being provided with a leg, means engaging each leg to support its punch during the movement of said block and prevent longitudinal movement of said punch except at a certain predetermined point on said base, a lever adapted to engage each punch when opposite said predetermined point to perform the punching operation, and a hook device adapted to engage each leg and return its punch to its normal position when the punching operation has been completed.

2. The combination, with a base, of a block pivoted thereon, a series of punches mounted in said block, means for normally holding said punches in their raised position and preventing their depression except when opposite a certain predetermined point on said base, means for depressing said punches one at a time when opposite said described point, and means engaging said punches to return them to their normal position after the punching operation has been completed.

3. The combination, with a suitable base, of an oscillating block thereon, a series of punches loosely mounted in said block and provided with a corresponding number of legs, curved arms engaging said legs and normally holding said punches in their raised position, a space being provided between the ends of said arms to permit the punches to drop when opposite that point, a hook 13 projecting into the space between said arms and engaging the punch-leg opposite the same, means for depressing said hook and the punch with which it is engaged, and means for elevating them, substantially as described.

4. The combination, with a base, of an oscillating block mounted thereon and provided with a series of vertical holes and slots communi-

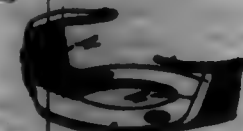
cating therewith, a series of punches provided in said holes and having legs extending into said slots, curved arms adapted to project into said slots and engage said legs to support said punches, a space being provided between the ends of said arms to permit the depression of a punch when opposite that point, a hook 13 projecting into said space and engaging the punch-leg therein, and a lever 15 connected with said hook and adapted to engage the upper end of the punch, substantially as described.

5. The combination, with a base, of an oscillating sector-shaped block thereon, a series of punches provided near the curved face of said block and having legs fitting loosely in vertical slots therein, stationary curved bars extending around the face of said leg and normally engaging said legs and supporting said punches in their raised position, a space being provided between the ends of said bars wherein the legs are slidable to permit the depression of their punches when opposite that point, means for depressing the punches, and means for raising the same.

6. The combination, with a suitable base, of an oscillating punch-holder thereon, a series of punches loosely mounted in said holder, arms for normally holding said punches in their raised position and preventing depression thereof except when opposite a certain predetermined point on said base, an operating-lever, and means for returning said punches to their normal position when released by said lever after the punching operation has been completed.

7. The combination, with a suitable base, of an oscillating punch-holder thereon, a series of punches loosely mounted in said holder, arms for normally holding said punches in a raised position and preventing their depression, a space being provided between said arms to permit the punches to drop through when opposite that point, an operating-lever adapted to engage said punches one at a time and a device carried by said lever to engage a punch when depressed and elevate the same to its normal operative position after the punching operation has been completed.

699,553. **CORD-CUTTING KNIFE FOR GRAIN-BINDING MACHINES.** ALBERT R. HILLER, Naperville, Ill. Filed Feb. 20, 1901. Serial No. 48,984. (No model.)



Claim.—1. A revolvable cord-cutting knife for grain-binding machines having a guard in advance of and above the cutting edge thereof to prevent the cord from prematurely coming in contact with the cutting edge of the knife at a point between the binder-arm and the cord-holder, substantially as described.

2. A revolvable cord-cutting knife for grain-binding machines, comprising a central plate, upturned blades each having a cutting edge, said cutting edges being reversely disposed and guards disposed above and projecting in advance of the said cutting edges, substantially as described.

3. In a machine of the class described, the combination of a cord-holder, a revolvable knife, and a guard, revolvable with the knife and extending in advance of and above the cutting edge thereof, said guard being adapted when the cord is laid, to keep the cord out of contact with the cutting edge of the knife, between the binder-arm and the cord-holder, substantially as described.

699,554. **ROCK-SHIFTER.** WILLIAM F. SWEETMAN, Macon, Ga. Filed Dec. 18, 1901. Serial No. 38,091. (No model.)



Claim.—1. In a device, the combination with a body having a discharge-orifice, of a sprayer-open rotatably mounted upon the body in front of and concentrically to the discharge-orifice, said open being movable into and out of alignment with the orifice upon its rotation.

2. In a device, the combination with a body having an eccentrically-disposed discharge-orifice, of an inclined sprayer-open rotatably mounted upon the body in front of and concentric to the discharge-orifice, said open being movable into and out of alignment with the orifice upon its rotation on the body.

3. In a device, the combination with a body, of a tubular casing revolvably mounted upon the body, said body having a discharge-opening communicating with the interior of the casing and located concentrically to the axis of rotation of said casing, and an inclined sprayer-open located within the casing and movable into and out of alignment with the discharge-orifice upon the rotation of the casing.

4. In a device, the combination with a body having a discharge-opening, of a tubular casing mounted upon the body and projecting therefrom, and a sprayer-open arranged within the casing in front of the discharge-opening of the body and movable into and out of the path of the stream discharging through the opening, said open having inwardly-turned guide-flanges at its side edges.

5. In a device, a body having a discharge-orifice, and a sprayer-open mounted upon the body in front of the discharge-orifice and having guide-flanges at its side edges, the free edges of said flanges overhanging the open.

6. In a device, a body having a discharge-orifice, and a sprayer-open mounted upon the body in front of the discharge-orifice and having guide-flanges at its side edges, the flanges curving inwardly and overhanging the open.

699,555. **PAINT-DRIVER.** DAVID J. O'NEIL, Cincinnati, Ohio. Filed July 24, 1901. Removed Oct. 2, 1902. Serial No. 51,573. (No specimens.)

Claim.—1. A driver for paints, oils, and such like, resulting from the combination of manganese, lead, and calcium oxide, with resin-oils, at an elevated temperature, substantially as specified.

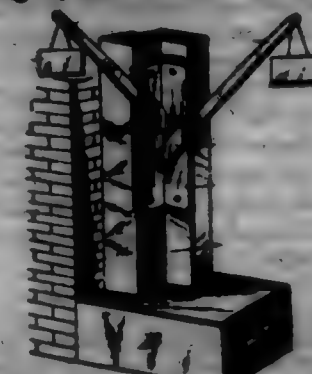
2. A driver for paints, oils, and such like, resulting from the combination of manganese, lead, and calcium oxide with resin-oils at an elevated temperature, and reduced to a proper consistency with a suitable solvent, substantially as specified.

699,556. **PLASTER.** JOHN J. GLENN, New York, N. Y. Filed Dec. 22, 1901. Serial No. 34,941. (No model.)



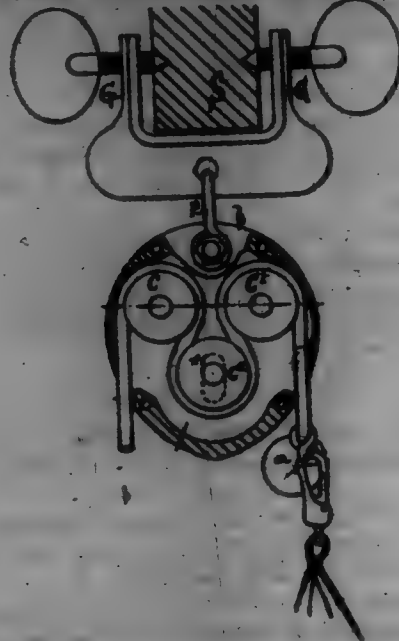
Claim.—A plaster, comprising two conical jaws tapered to a point at one end, a pivotal connection between the jaws at the upper end, handles extending from the jaws, portions of said handles being projected laterally one above the other, and a spring for normally holding the jaws closed.

699,557. **DISPLAY DEVICE.** JAMES K. O'NEIL, Washington, W. Va. Filed Aug. 12, 1901. Serial No. 71,773. (No model.)



Claim.—A display device consisting of the base-plate having wings united at an angle approximating a right angle, and transversely-extending socket-bases arranged one on each of the said wings and one above the other and closed at their inner ends by the wings joining them on which the respective socket-bases are provided substantially as set forth.

699,558. FIRE-ESCAPE. FREDERICK GUNDMANN, Brooklyn, N. Y.
Filed Jan. 15, 1901. Serial No. 43,729. (No model.)

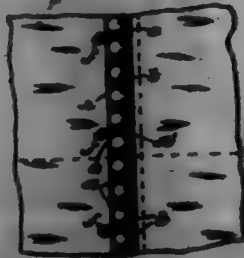


Claim.—1. A fire-escape, comprising a rope, in combination with a friction-block and three pulleys therein, two above, over which the rope passes on its way in and out, while the third pulley is below for the rope to pass around it in a loop, the two upper pulleys being in fixed bearings, while the third and lower pulley is freely movable toward and from the first two so as to grip the rope between them, substantially as described.

2. The combination with the rope of a fire-escape, of a detachable suspending-plate having an eye *e'*, and a slot through which a light of the rope may be passed, and a locking-latch hinged to the plate on one side of the slot and adapted to swing in a path substantially at right angles to and through a light of rope thrust through the slot, whereby the plate may be locked to a light of the rope at any point, substantially as described.

3. The combination with the rope and block of a fire-escape, of a bracket provided with means for clamping it to a window-cash, a suspending device secured to the bracket, and a gripping-rod carried by the bracket and having its end pointed and extending downwardly at an angle from the bracket and adapted to enter and engage the window-frame in a plane parallel to the window-cash, substantially as described.

699,559. HATCH DRESS FASTENER. MARY OGDEN, Baltimore, Md.
Filed Sept. 12, 1900. Renewed Oct. 21, 1901. Serial No. 39,672. (No model.)



Claim.—1. As a new article of manufacture, a hat and drum fastener comprising a flexible strip provided with a row of hollow, convex button-heads, contiguous to each other, whereby to clasp a row of buttons placed closely together, and also having a body portion provided along each edge with a series of apertures each adapted to receive suitable stitching means, as and for the purpose set forth.

2. A drum-fastener, comprising a flexible strip provided with a row of hollow, convex button-heads contiguous to each other, and also provided along each edge with a series of apertures; means engaging the apertures along one edge of said strip whereby to secure said edge to one edge of a garment; and two pronged hooks secured by one prong at intervals in the apertures along the other edge of said strip, with the other prongs of said hooks taking in the opposing edge of the garment, as and for the purpose set forth.

699,560. BEET-HARVESTER. HERBERT W. PALMER, Hamilton, Mich., assignor of one-fourth to Richard H. De Mott, Holland, Mich.
Original application filed Mar. 6, 1901, Serial No. 39,661. Divided and this application filed Sept. 20, 1901. Serial No. 73,971. (No model.)

Claim.—1. In a beet-harvester, the combination of the opposing cutters composed each of a body portion provided on its under side with a central projection forming outwardly-flaring shoulders, and plate-cutters

shutting at their inner edges against said shoulders, and secured to the body portion and provided at their outer edges each with a notch and with a projecting tooth portion, the teeth of each cutter being arranged to enter the notches of the opposing cutter in the operation of the device, substantially as set forth.



2. In a beet-harvester, the cutter, substantially as described, comprising a body portion and a circumferential series of plate-cutters secured thereto and provided each in its cutting edge with a notch and having at each edge a projecting tooth spaced apart from the adjacent notches by an intervening cutting portion, substantially as set forth.

3. In a beet-harvester, a circular cutter-head having its periphery formed with notches and with projections conforming to said notches whereby the projections of one cutter may enter the notches of a matching cutter and having cutting edges between the adjacent notches and projections.

4. The combination of the opposing cutters provided each in its cutting edge with notches and having on each edge projecting teeth to enter the notches of the opposing cutter, shafts supporting said cutters, means for operating each shaft, supports for said shafts, and means whereby the cutters may be held yieldingly together, substantially as set forth.

5. In a beet-harvester, the combination of the main frame, the cutters having upright shafts, brackets having bearings for said shafts and pivoted at their upper ends, a spring connecting each bracket below said pivot, and stop devices operating between the opposite brackets and adjustable, substantially as set forth.

6. The combination, substantially as described, of the framing, the cutters having upright shafts, the brackets having bearings for each shaft and pivotally supported at their upper ends from the framing, and stop devices between the opposite brackets consisting of bars arranged at their outer ends for abutment by the brackets, and fastening means at the inner ends of said bars, substantially as set forth.

699,561. BEET-PULLER. HERBERT W. PALMER, Hamilton, Mich.
Filed Dec. 20, 1901. Serial No. 47,905. (No model.)



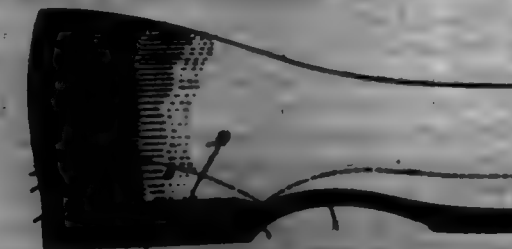
Claim.—1. The combination is a beet-puller, of a V-shaped beam, handle-bar having vertical adjustment as set forth, braced standards bolted to the rear end of the beam and opened as shown, a brace-iron connecting each standard with its respective member of the beam, the brace-iron passing through the beam member and an ear on the standard, the upper end of the brace-iron being headed as shown, and its lower end threaded and provided with nut on each side of the said ear, elongated and horizontally-disposed runners rigid with the standards and inclined laterally, substantially as described, rigid with the runners, as set forth.

2. The combination in a beet-puller substantially as described, comprising a beam, handle-bar and standards as shown, of means permitting independent adjustment of the handle-bar and standards, and beet-raising means consisting of elongated runners rigid with the standards, and a substantially triangular vertically-disposed plate rigid with the runners supporting inclined later-arms as set forth.

3. The combination in a beet-puller substantially as described, comprising a beam, handle-bar and standards as specified, of means permitting independent adjustment of the handle-bar and standards, inclined braces connecting the latter and the beam and arranged between the

standards as shown, and beet-raising means consisting of elongated runners rigid with the standards supporting inclined later-arms as set forth.

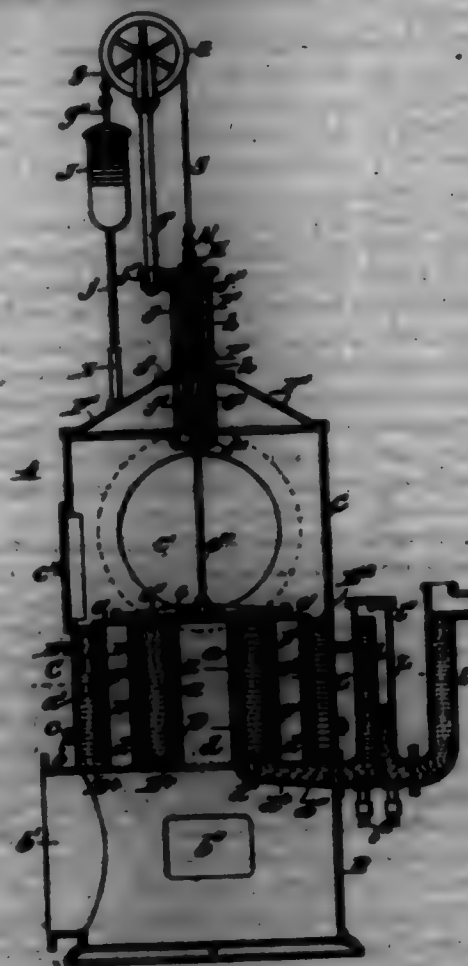
699,562. RUBBER ROOF OR HOSE. JAMES L. FINEY, Astoria, R. I.
Filed Mar. 20, 1901. Serial No. 43,699. (No model.)



Claim.—1. As an article of manufacture, a shoe-heel provided with a rigid collar-like flange integral therewith, said flange being widest at its middle and narrowed toward its ends, said flange having a bevel edge and being located slightly inward from the edge of said heel for the purpose of admitting the lower edge of the outer rubber of a shoe, the said collar-like flange then being disposed parallel to said outer rubber so as to be completely hidden thereby.

2. As an article of manufacture, a shoe-heel provided upon its upper face with a rigid collar-like circumferential flange integral therewith and provided with a bevel edge and also with a circumferential shoulder, both said bevel edge and said shoulder extending the entire length of said flange and parallel therewith, said shoulder being for the purpose of shutting the edge of the outer rubber of a shoe, for the purpose of forming an external seam on the same plane with the upper face of the heel, said flange being widest at its middle portion and gradually contracting in width toward its respective ends.

699,563. APPARATUS FOR EXTRACTING TAR FROM GUM. FREDERICK FLINTHOLM, Fort Wayne, Ind.
Filed Aug. 12, 1901. Serial No. 71,911. (No model.)



Claim.—1. In apparatus for extracting tar from gum, the combination with a coal-cup having vertical gas-inlet passages, of two or more counterbalanced regulating and tar-extracting drums, connected one within the other, and having walls composed of injecting and impact plates in said cup, one of said gas-inlet passages opening into each drum, substantially as described.

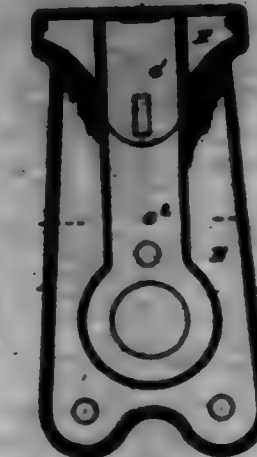
2. In apparatus for extracting tar from gum, a series of drums having concentric walls, each wall being composed of injecting and impact plates, in combination with an annular gas-supply channel and annular coal-cups, substantially as described.

3. In a tar-extracting apparatus, the central and annular gas-inlet passages and annular tar-cups, in combination with the compound drums having concentric walls, composed of injecting and impact plates, and a drum for the central gas-inlet, substantially as described.

4. In apparatus for extracting tar from gum, the coal and regulating chamber constructed, with annular walls, and annular bottom plates, forming gas-passages, as *d* and *d'* open at top and bottom, and annular coal-cups, closed at the bottom and open at the top, in combination with the regulating and tar-extracting drums closed at the top, and having these concentric perforated walls in said cups, substantially as described.

5. In apparatus for extracting tar from gum the combination with the outer case, of the annular coal-cups, each having a bottom opening, a top pocket *d'* extending below and connecting said cups with the outer wall of the chamber, and an overflow-tap connecting with the wall of the opening of said pocket, substantially as described.

699,564. ROSE-HANGER LOCK. THOMAS C. FREESTY, Milford, Mass., assignor to the T. C. Freesty Company, Limited, Albany, N. Y., a Limited Partnership. Filed Oct. 10, 1900. Serial No. 39,694. (No model.)



Claim.—1. A sheet-metal door-hanger loop having an integral body portion and head, each of which is formed with bearings for the roller, the opposing portions of the head and body portion having said bearings being a less distance apart than the overhanging portions on the opposite sides thereof.

2. A sheet-metal door-hanger having an integral head and body portion each having an inwardly-extending portion having the bearings for the roller.

3. A sheet-metal door-hanger having an integral head and body portion each having an inwardly-extending portion having the bearings for the roller, the edges of said body portion being carried inwardly to a point on an approximate plane with said inwardly-extending portion.

699,565. BUTTON-GARDING MACHINE. WILLIAM J. PEAR, New-
port, Tenn. Filed May 14, 1901. Serial No. 49,571. (No model.)

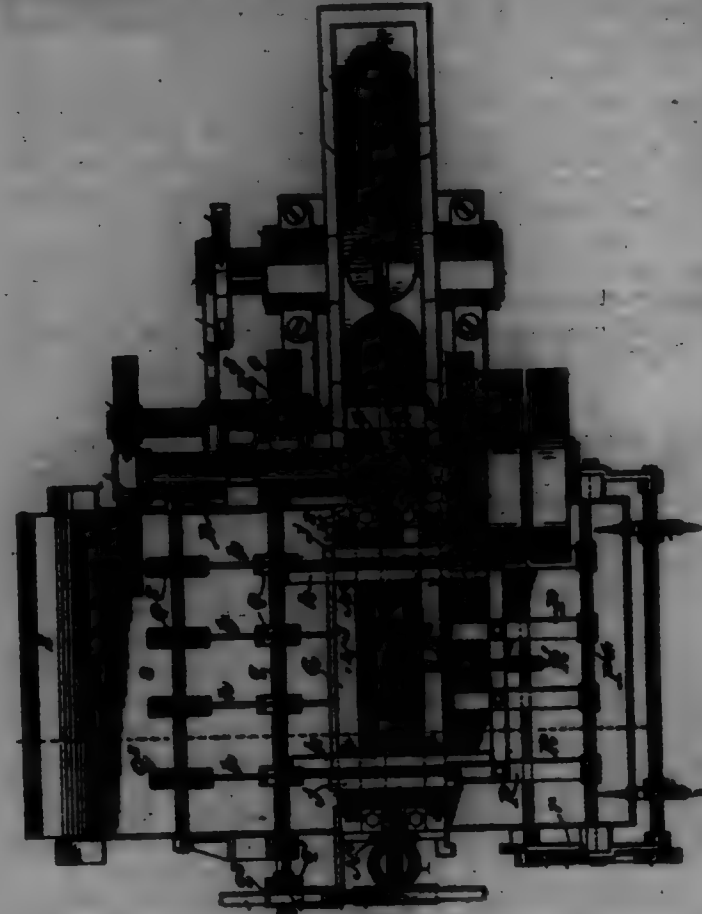
Claim.—1. In a button-fining or turning device, the combination of a slotted member through which the buttons are successively passed, a rotating member beside the slotted member, and clutch mechanism controlled by the passage of buttons through the slot, whereby the slotted member is locked to the rotating member for a half-revolution, upon the entrance of an improperly-fining button into the slot, substantially as described.

2. In a button-fining or turning device, the combination of a rotatable cylinder having a transverse slot through which the buttons are successively passed, a rotating leg beside the cylinder, clutch-arms pivoted to the cylinder on opposite sides of the slot and adapted to project into the latter if an improperly-fining button enters it, and thereupon to be engaged by the leg, and a cam-plate for disengaging the clutch-arms from the leg when the cylinder has made a half-revolution, for the purpose and substantially as described.

3. The combination, with the feed-drum, and the feed-channel, of a cylinder interposed in the channel and having a slot forming a part of said channel, a pair of clutch-levers pivoted to the cylinder on opposite sides of and having their inner ends projecting into said slot, a spring for forcing the outer ends of said clutch-levers apart, and a rotatable disk beside the cylinder, having a leg adapted to engage a clutch-arm when the latter is displaced by the entry of an improperly-fining button into the slot, and a fixed cam-plate beside the disk adapted to cause the clutch-arm to disengage the leg when the cylinder has made a half-revolution, for the purpose and substantially as described.

4. The combination of the feed-hopper, the drum having its periphery forming the bottom thereof provided with a series of recesses adapted to contain buttons, and a circumferential peripheral groove intersecting

the recesses; with a stripper for forcing the buttons out of the recesses into said channel.



5. The combination is a button-feeding machine, of means for attaching buttons to the card; with a feed-hopper, a feed-drum having peripheral recesses for removing buttons from the hopper, and an intersecting peripheral groove and a channel for conducting buttons from the drum to the attaching mechanism, and means for periodically imparting a series of step-by-step movements to the drum, substantially as described.

6. The combination is a button-feeding machine, of means for attaching buttons to the card, a feed-hopper, and a feed-drum having peripheral recesses for taking buttons from the hopper, and a peripheral groove intersecting the recesses; with a channel for conducting buttons from the drum to the attaching mechanism, a button-stripper beside said channel projecting into the peripheral channel in the drum, and means for imparting a series of step-by-step movements to the drum, and then allowing it to remain at rest while the attaching mechanism operates substantially as described.

7. In a button-feeding machine, the combination of means for attaching disk-shaped buttons to cards, and button-feeding mechanism; with a movable bar adapted to engage the periphery of the buttons and turn them on their axes to bring them into proper position for engagement of the attaching device, substantially as described.

8. In a button-feeding machine, the combination of a chamber to contain the buttons during the attaching operations having a movable side wall; with mechanism whereby said wall is moved out of the way to permit the removal of the carded buttons from the chamber, substantially as described.

9. In a button-feeding machine the combination of a chamber to contain the buttons during the carding operation, said chamber having a movable rear wall, and mechanism for feeding a card through said chamber; with mechanism for attaching buttons to the card while in said chamber, and means for raising the movable wall of said chamber to permit the card to be advanced with the carded buttons, substantially as described.

10. In a button-feeding machine, the combination of button-feeding mechanism, and a shaft for operating the same once for each revolution; the button-attaching mechanism, a second shaft for operating the latter once during each revolution thereof, and a main shaft adapted to be continuously driven; with gearing whereby the first shaft is operated a number of times from and during a half-revolution of said main shaft, and gearing whereby said second shaft is operated once from and during a half-revolution of the main shaft, said first shaft and its mechanisms being idle when said second shaft and its mechanisms are in operation, and vice versa.

11. In a button-feeding machine, the combination of button-feeding mechanism and a shaft for operating the same once for each revolution; the card-feeding mechanism, staple-forming mechanism and button-attaching mechanism, a second shaft for operating the latter mechanisms once during each revolution thereof, and a main shaft adapted to be continuously driven; with gearing whereby the first shaft is operated four times from and during a half-revolution of said main shaft, and stopped during the remaining portion of the revolution thereof; and gearing whereby the second shaft is operated once from and during the half-revolution of the main shaft and stopped during the completion of the revolution thereof; said first shaft and its mechanisms being idle when said second shaft and its mechanisms are in operation, and vice versa, all substantially as and for the purpose set forth.

12. The combination of means for simultaneously stapling a number of buttons to cards; with a single button-feeding feed device, adapted to feed the proper number of buttons one by one in succession to the stapling means while the latter is at rest until the desired number is fed in, and then stopping the feeding operation during the stapling operation, substantially as described.

13. The combination of a plurality of stapling devices for simultaneously attaching a plurality of buttons to cards; with a single feed device adapted to feed a predetermined number of buttons one at a time to the stapling devices while the latter are idle, the stapling and feeding operations occurring alternately.

14. The combination of means for simultaneously forming a plurality of staples, and a plurality of devices for simultaneously driving the said staples into a card; with a single feed device adapted to feed one button at a time to the stapling device until the desired number of buttons is fed thereto, substantially as described.

15. The combination of mechanism for simultaneously forming a plurality of staples, means for feeding an impure card thereto, and a plurality of devices for simultaneously driving the said staples through the card; with a single feed device and means for operating it repeatedly to feed a plurality of buttons one at a time onto the card until the desired number are in position to be secured thereto by the staples, substantially as described.

16. In a button-feeding machine, the combination of card-feeding mechanism, staple-forming mechanism, a plurality of devices for simultaneously attaching a plurality of staples to the card; with a single feed device and mechanism for causing said device to feed a plurality of buttons one by one successively into position beneath the several attaching devices to be subsequently simultaneously attached to the card substantially as described.

17. In a button-feeding machine, the combination of card-feeding mechanism, and a plurality of devices for simultaneously attaching a plurality of staples to the card; with a single feed device and mechanism for causing each device to feed a predetermined number of buttons one at a time in position to be simultaneously secured to the card by the staples, substantially as described.

18. In a button-feeding machine, the combination of button-feeding mechanism, a rotatable button-feeding device through which the buttons are fed, and button-attaching mechanism; with staple-driving mechanism, and staple-clench mechanism, substantially as described.

19. In a button-feeding machine, the combination of a single feed device, means for causing said device to feed a predetermined number of buttons one by one, and means for adjusting each button in a row on the card in position for attachment thereto; with means for simultaneously forming a number of wire staples, means for simultaneously driving the staples through the row of buttons and card to attach them to the latter, substantially as described.

20. In a button-feeding machine, the combination of a single device for feeding a predetermined number of buttons one by one to the stapling mechanism, a rotatable device for feeding the buttons alike as they are fed, and means for assembling the buttons in a row on a card for attachment thereto; with mechanism for simultaneously driving staples through the row of buttons to attach them to the card, the series of buttons being fed after the stapling operation, substantially as described.

21. In a button-feeding machine, the combination of card-feeding mechanism, a single device for feeding buttons one by one to the stapling mechanism, mechanism for feeding the buttons alike as fed, button-attaching mechanism, and button-holding mechanism; with wire-feeding mechanism, staple-forming mechanism, staple-driving mechanism, and staple-clenching mechanism, substantially as described.

22. In a button-feeding machine, the combination of card-feeding mechanism, a single feed device, means for causing said device to feed a predetermined number of buttons one by one onto the card, and means for adjusting the buttons in a row on the card in position for attachment thereto; with means for simultaneously forming a number of wire staples, means for simultaneously driving the staples through the row of buttons and card to attach them to the card, and means for clenching the staples, substantially as described.

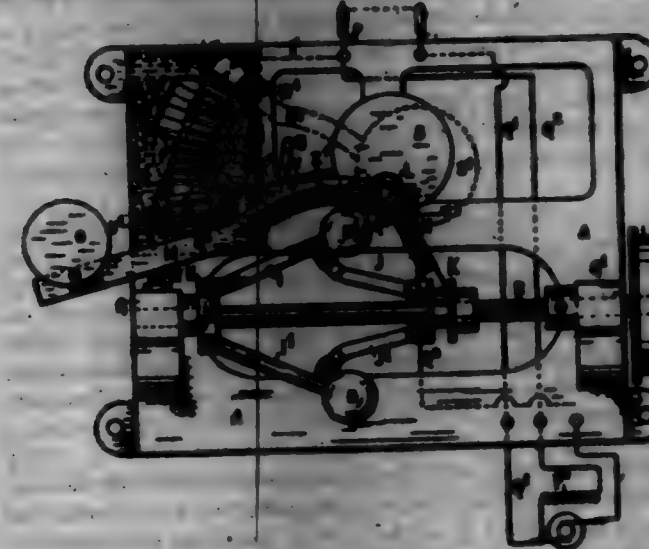
23. In a button-feeding machine, the combination of card-feeding mechanism, a single button-feed device, mechanism for causing said device to feed a number of buttons one by one onto the card, means for automatically feeding the buttons alike as fed, and means for assembling the

buttons in a row on the card for attachment thereto; with mechanism for simultaneously forming a number of staples, mechanism for simultaneously driving the staples through the card and a row of buttons thereon to attach them to the card, and means for simultaneously clenching the staples, substantially as described.

24. In a machine for carding four-hole buttons, the combination of means for attaching buttons to cards, the fixed and movable guide-bars for turning the buttons on their axes and holding them in proper position for engagement by the fastening device, and the pivoted catches for locking the buttons in each position until secured to the card, substantially as described.

25. In a button-feeding machine the combination of means for attaching disk-shaped perforated buttons to cards, and button-feeding mechanism; with the movable bar O for turning the buttons on their axes to proper position for engagement by the fastening device, and the pivoted catches P having downwardly-bent fingers adapted to engage the perforations in the buttons and hold them in position while being stapled to the card, substantially as described.

899,568. AUTOMATIC FEEDER FOR ELECTRIC MOTORS. JOHN R. PUTMAN, Rochester, N. Y. Filed Sept. 4, 1900. Serial No. 28,287. (No model.)



Claim.—1. The combination with the electric motor, of the weighted opening-lever, the counterbalanced contact-lever, the variable resistance, the connection between the lever, suitable means driven by the motor for shifting the opening-lever in accordance with the speed of the motor and suitable electrical connections, as and for the purpose specified.

2. The combination with the electric motor, of the weighted opening-lever, the counterbalanced contact-lever, the counterweight spring with the contact-lever, the variable resistance, the electrical contacts with the contact-lever at the upper end of the resistance, the connection between the lever, suitable means driven by the motor for shifting the opening-lever in accordance with the speed of the motor, and suitable electrical connections, as and for the purpose specified.

3. The combination with the electric motor, of the weighted opening-lever, the contact-lever provided with the counterbalance placed above the pivot of the lever and adapted to hold the lever in its uppermost position, the variable resistance, the connection between the lever, suitable means driven by the motor for shifting the opening-lever in accordance with the speed of the motor, and suitable electrical connections, as and for the purpose specified.

4. The combination with the electric motor, of the opening-lever provided with the longitudinally-adjustable weight, the contact-lever provided with the counterbalance placed above the pivot of the lever and adapted to hold the lever in its uppermost position, the variable resistance, the connection between the lever, suitable means driven by the motor for shifting the opening-lever in accordance with the speed of the motor, and suitable electrical connections, as and for the purpose specified.

899,567. LAWE-COASTER. HARVEY C. KALYA, Legal, Ind., assignor of one-half to Edward B. Weston, Legal, Ind. Filed Oct. 25, 1901. Serial No. 28,728. (No model.)

Claim.—1. In a device of the character described, a movable member or part equipped with a cast, a stationary member or part extending some distance beyond said movable member, at each end, pairs of rollers or track carrying hangers or brackets, with their longitudinally-slotted portions arranged next to said stationary member and their integral upstanding arms connected to said movable member, and means adapted to provide for centering said movable member, said movable member adapted

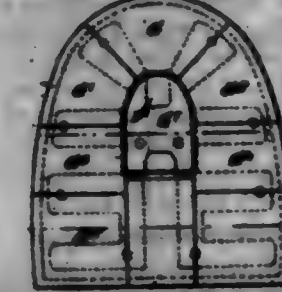
to be moved and restricted within limits corresponding to the length of said stationary member, substantially as set forth.



2. In a device of the character described, a movable part or member, a stationary member or part extending some distance beyond said movable member, at each end, pairs of hangers or brackets, with their longitudinally-slotted portions arranged next to said stationary member and their integral upstanding arms connected to said movable member, and springs connected to said movable and stationary members at their ends, said movable member or part adapted to be moved and restricted within limits corresponding to the length of said stationary member or part, substantially as set forth.

3. In a device of the character described, a movable member or part equipped with a pivoted cast and a brace or prop connected to said member and adjustably to said cast, a stationary member or part extending some distance beyond said movable member, at each end, pairs of rollers or track carrying hangers or brackets, with their longitudinally-slotted portions arranged next to said stationary member and their integral upstanding arms connected to said movable member, and means adapted to provide for centering said movable member, said movable member adapted to be moved and restricted within limits corresponding to the length of said stationary member, substantially as set forth.

899,568. HEEL FOR BOOTS OR SHOES. JOHN S. RAY, Paterson, N. J., assignor of one-half to Robert A. Ray, Paterson, N. J. Filed May 28, 1901. Serial No. 61,992. (No model.)



Claim.—1. A heel for boots and shoes, comprising a plate for attachment to a heel or shoe, flanges on said plate, rubber blocks slightly held on said flanges and forming an unbroken tread when assembled, said blocks comprising a central block, side blocks on opposite sides of the central block and changeable one relatively to the other, a hysteresis-shaped block, corner-blocks, and a middle block between the corner-blocks, as set forth.

2. A heel for boots and shoes, comprising a plate for attachment to a heel or shoe, flanges on said plate, rubber blocks slightly held on said flanges and forming an unbroken tread when assembled, said blocks comprising a central block, side blocks on opposite sides of the central block and changeable one relatively to the other, a hysteresis-shaped block, corner-blocks, and a middle block between the corner-blocks, each of the blocks being recessed at the outer edge to form a continuous groove on the periphery of the heel, and an endless binding band or wire engaging said groove, to hold the blocks in place, as set forth.

3. A heel or shoe heel, comprising a central plate, flanges extending outwardly from the plate and in a different horizontal plane thereon, a retaining-flange on said plate, a key movable on said flange, blocks adapted to engage the flange, and a central block engaging said flange and key, as set forth.

4. A heel or shoe heel, comprising a central plate, flanges extending outwardly from the plate and in a different horizontal plane thereon, a retaining-flange on said plate, a key movable on said flange, blocks adapted to engage the flange, and a central block engaging said flange and key, one of the blocks locking said key in place, as set forth.

5. A heel for boots and shoes, comprising metallic fastenings to be secured to the bottom of the heel or shoe, a plurality of rubber blocks clustered together in a plane parallel with the bottom of the heel or shoe, and an endless metallic band completely encircling said blocks.

6. A heel for boots and shoes, comprising metallic fastenings to be secured to the bottom of the heel or shoe, a central block to engage said fastenings, a plurality of loose blocks to be clustered around said central block thus forming a flat member disposed parallel with the bottom of the heel or shoe, and having the general conformity of a shoe-heel, a band

surrounding said flat member thus formed, and fastenings for holding said blocks in registry with each other.

7. A heel for boots and shoes, comprising metallic fastenings to be secured to the bottom of the boot or shoe, a central block for engaging said fastenings, a plurality of blocks of substantially cubical shape to be clustered around said central block thus forming a flat member disposed parallel with the bottom of the boot or shoe, means for securing said blocks in position, and an external band completely encircling all of said blocks for the purpose of holding them together.

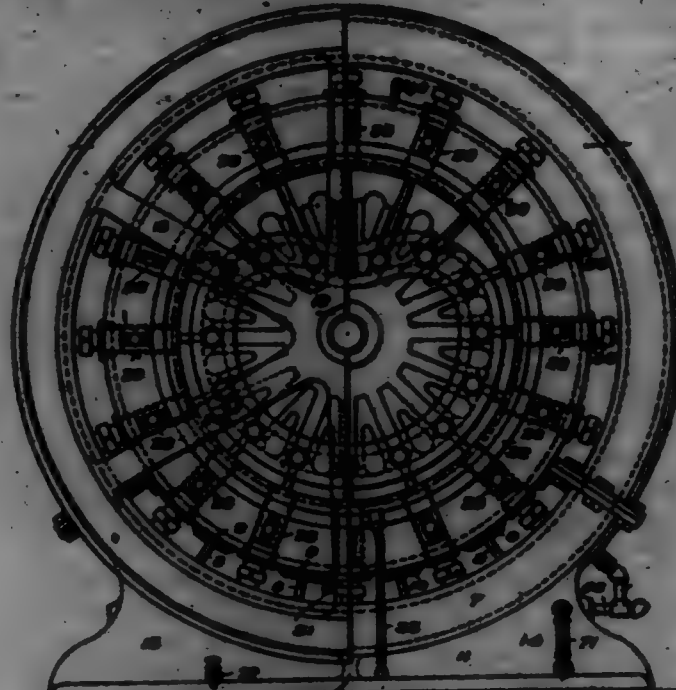
699,569. LACING-BUTTON. WILLIAM KIMBROW, Chicago, Ill. Filed Jan. 4, 1900. Serial No. 21,671. (No model.)



Claim.—1. In combination with an eyelet, a stud consisting of a head having a hollow stem projecting from its under side, said stem being of such a size that it will rest against said eyelet without passing therethrough, a shank having a head of larger size than the eyelet-hole and a stem which is adapted to pass through the eyelet and into said hollow stem, the diameter of said shank-stem being greater than the internal diameter of said hollow stem, so that when one stem is forced into the other the shank and top may be permanently held together by the frictional engagement between the stems, and they may engage opposite sides of the eyelet as so to be firmly held thereby.

2. In combination with an eyelet, a stud having a hollow stem projecting from its under side, an annular enlargement on the outer side of said stem and near its end which is adapted to rest against the outer face of said eyelet, the portion of said stem beyond said enlargement being adapted to fit said eyelet but not extend entirely therethrough, a shank having a head which is adapted to rest against the inner face of said eyelet, a stem which extends therefrom and is adapted to pass through said eyelet into said hollow stem, the diameter of said shank-stem being slightly greater than the internal diameter of said hollow stem, so that when the one is forced into the other the two will be held together firmly by frictional engagement, and the ends of the hollow stem may be expanded against the sides of the eyelet, said shank-stem being forced into said hollow stem a sufficient distance to cause said shank and the flange of the top to be firmly engaged opposite sides of the eyelet.

699,570. AIR-COMPRESSOR. GEORGE W. BROWN, ALBANY, N. Y. Filed Jan. 4, 1902. Serial No. 21,665. (No model.)



Claim.—1. In an air-compressor, the combination with a stationary disk, of an annular air-chamber surrounding the disk, an annular casing between the disk and air-chamber, a series of pump-cylinders supported within the casing, a revolvable shaft extending loosely through the disk, which fixed upon the shaft on opposite sides of the disk grooved cams secured to the inner side of the wheels, and pump-pistons provided with rollers adapted to travel within the grooves of the cams.

2. In an air-compressor, the combination with a stationary disk, of an annular air-chamber surrounding the disk, an annular casing between

the disk and air-chamber, a series of pump-cylinders supported within the casing and communicating with the air-chamber, a piston and piston-rod for each cylinder, a roller on each piston-rod, a revolvable shaft extending through said disk, which fixed upon the shaft on opposite sides of the disk, grooved cams secured to the inner side of the wheels to receive said rollers, means for guiding the movement of the pistons, and means for cooling the cylinders.

3. In an air-compressor, the combination with a stationary disk having radially-disposed guideways on the opposite sides of the disk, of pump-cylinders arranged on opposite sides of the vertical center of the disk, a piston and piston-rod for each cylinder, said piston-rods working in the guideways and means for reciprocating the pistons.

4. In an air-compressor, the combination with a stationary disk, of an annular air-chamber surrounding the periphery of the disk and having a lower extension forming a hollow basin, an annular casing interposed between the disk and air-chamber and secured thereto, a series of air-pumps disposed radially in parallel pairs, a revolvable shaft extending loosely through the center of the disk, which fixed upon said shaft one at each side of the disk, a grooved cam secured to the inner side of each of said wheels, and rollers mounted upon the piston-rods of the pumps and extending into the grooves of said cams.

5. In an air-compressor, the combination with a stationary disk having a central hub, of an annular casing secured to the periphery of said disk, an annular air-chamber secured to the outer side of the casing, a series of air-pumps arranged in radial pairs and supported within the casing, a revolvable shaft extending loosely through said hub which mounted on said shaft, a hollow basin below the air-chamber having an oil-reservoir, pipe connections between said oil-reservoir and the cylinders of the pumps and means carried by the wheels for reciprocating the pump-pistons.

6. In an air-compressor, the combination with a stationary disk having a central hub, of an annular casing secured to the periphery of said disk, an annular air-chamber secured to the outer side of the casing, a series of air-pumps arranged in radial pairs and supported within the casing, a revolvable shaft extending loosely through the hub, which mounted on said shaft, grooved cams carried by the wheels, rollers on the piston-rods of the pumps extending into the grooves of said cams, an oil-reservoir, circular pipes connected with said reservoir, and intake-pipes connecting the circular pipes with the pump-cylinders.

7. In an air-compressor, the combination with a stationary disk having a central hub and radially-arranged guideways, of a revolvable shaft extending loosely through said hub, which fixed upon said shaft one at each side of the disk, grooved cams secured to said wheels, a series of radially-disposed air-pumps supported on opposite sides of the vertical center of the disk, a series of rollers mounted on the piston-rods of the pumps and extending into the guideways of the disk.

8. In an air-compressor, the combination with an air-chamber, of a series of air-pumps all communicating with the air-chamber, and each comprising a cylinder open at its ends, a piston having a valve opening, and means for connecting the cylinder to the air-chamber consisting of a tubular coupling, and a valve-casing containing an automatically-closing valve, said valve-casing having air-inlet ports, controlled by a disk.

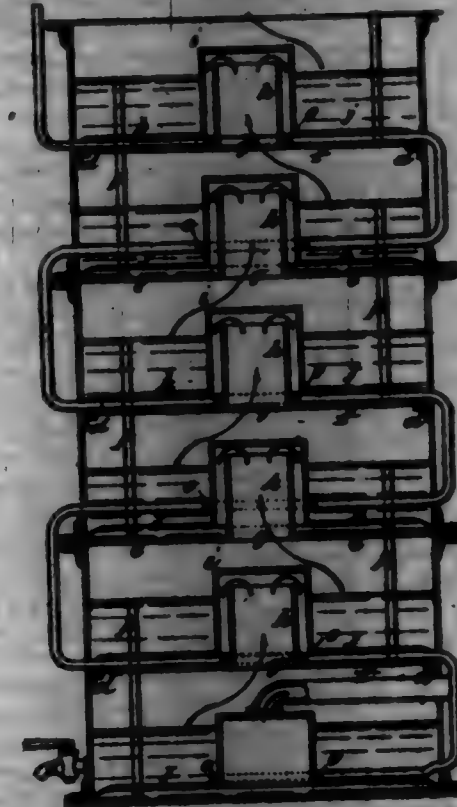
9. In an air-compressor, the combination with a stationary disk, of an annular casing secured thereto, an annular air-chamber secured to the casing, a series of radially-disposed air-pumps each comprising a cylinder open at its ends, a piston and piston-rod, means for connecting the cylinder to the casing consisting of a coupling having air-ports controlled by a valve, and means for connecting the cylinder to the air-chamber consisting of a tubular coupling and a valve-casing containing an air-closing valve, said valve-casing having air-inlet ports controlled by a disk.

10. In an air-compressor, the combination with a stationary disk having a central hub, of a revolvable shaft extending loosely through said hub, which fixed upon said shaft one at each side of the disk, grooved cams carried by said wheels, an annular water-casing surrounding the disk and secured thereto, pipes for supplying water to said casing, a series of air-pumps arranged radially in pairs within said water-casing, rollers mounted on the piston-rods of the pumps and extending into the grooves of the cams, and an annular air-chamber surrounding the water-casing into which all of said pumps deliver air.

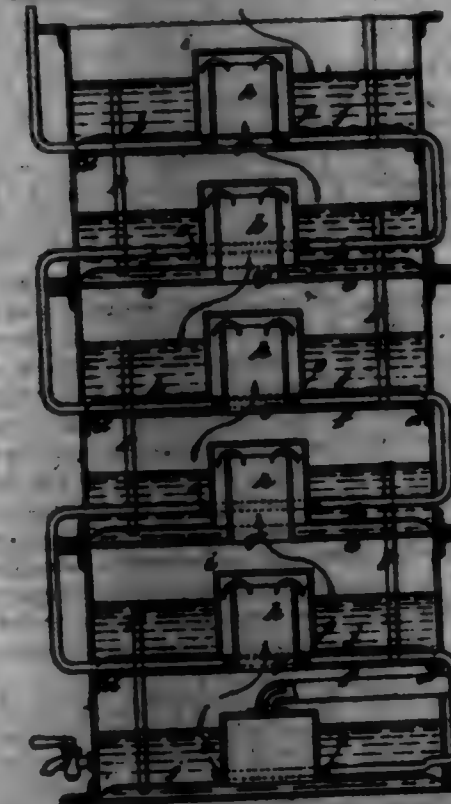
699,571. PROCESS OF REFINING OIL. RICHARD BROWN, Birmingham, France. Filed July 12, 1900. Serial No. 21,661. (No specification.)

Claim.—1. The herein-described method of refining oil, which consists in causing a current of oil and a current of steam to move in opposite directions and causing the current of steam in two jets to pass upwardly through the current of oil at a plurality of points, and in maintaining the steam against condensation throughout its travel, substantially as set forth.

2. The herein-described method of refining oil, which consists in causing the oil to flow in one direction, but stop by stop from one collecting-point to another successively, simultaneously causing a current of steam to flow in the opposite direction from one of said oil-collecting-points to another successively, the steam passing in a finely-divided condition through the oil at said collecting-points, and applying heat at said collecting-points to prevent undue condensation, substantially as set forth.



699,572. APPARATUS FOR REFINING OIL. RICHARD BROWN, Birmingham, France. Original application filed July 12, 1900, Serial No. 21,661. Divided and this application filed Dec. 10, 1901. Serial No. 21,395. (No model.)



Claim.—1. An apparatus for refining oil with the aid of steam, the same comprising a series of connected oil-receivers having an inlet for admitting oil to the receiver at one end of the series and an inlet for admitting steam to the receiver at the other end of the series, each receiver having a perforated plate near its bottom and above the steam-inlet to the receiver whereby the steam is broken up into jets, and having also in it a closed steam-coil for maintaining the temperature of the matter treated.

2. An apparatus for refining oil with the aid of steam, the same comprising a series of connected oil-receivers having an inlet for oil and an outlet for steam at one end of the series and an inlet for steam and an

outlet for oil at the other end of the series, the inlet for steam being at the bottom of each receiver, and each receiver having a perforated plate above the steam-inlet and a steam-coil below said plate, substantially as and for the purpose set forth.

699,573. TRACK-SWAPPER ATTACHMENT FOR STREET-RAILWAY CARS. FRED H. ROSS, Kalamazoo, Mich. Filed Dec. 21, 1901. Serial No. 21,776. (No model.)



Claim.—1. The combination of the rock-shaft B; connections for adjusting the same; springs E curved upwardly and rearwardly and downwardly secured to the said rock-shaft, the upper portions of said springs being deflected inward; diagonal couplers F secured to the rear and lower ends of said springs; and auxiliary spring-couplers I having adjustable shoes J secured to said rock-shaft and adapted to rest upon the rails, for the purpose specified.

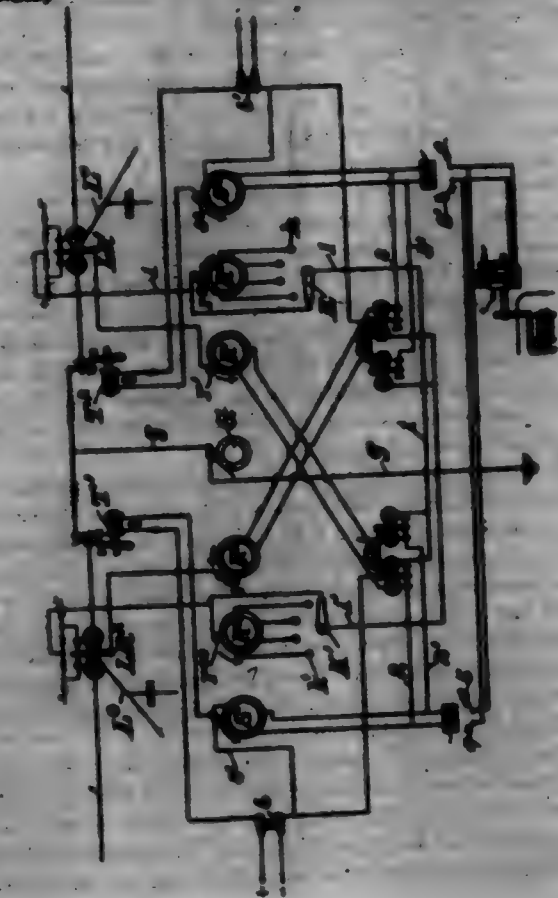
2. The combination of the rock-shaft B; connections for adjusting the same; springs E curved upwardly and rearwardly and downwardly secured to the said rock-shaft, the upper portions of said springs being deflected inward; diagonal couplers F secured to the rear and lower ends of said springs and auxiliary spring-couplers I secured to said rock-shaft, for the purpose specified.

3. The combination of the rock-shaft B; connections for adjusting the same; springs E curved upwardly and rearwardly and downwardly secured to the said rock-shaft, the upper portions of said springs being deflected inward; diagonal couplers F secured to the rear and lower ends of said springs, for the purpose specified.

4. The combination of the rock-shaft B; connections for adjusting the same; springs E curved upwardly and rearwardly and downwardly secured to the said rock-shaft; diagonal couplers F secured to the rear and lower ends of said springs, for the purpose specified.

5. A swapper for street-railways carried on a suitable yielding spring; an auxiliary swapper independently supported to the rear of and extending below the bottom of the same and adapted to yield independent of the main swapper.

699,574. TELEGRAPHIC DISTRIBUTION. BENJAMIN H. BOW-LAND, Baltimore, Md., administrator of Henry A. Bowland, deceased, assignor to Bowland Telegraphic Company, Baltimore, Md., a Corporation of New Jersey. Filed July 24, 1901. Serial No. 21,694. (No model.)



paper-supporting carriage, of a spacing-rod located near said carriage, an electromagnet for imparting lateral reciprocating motion to said rod, operative connection between said carriage and said rod whereby the reciprocating motion of the rod imparts a step-by-step motion to the carriage, means for retaining the spacing-rod for releasing the operative connection between said carriage and said rod, and means for shifting the carriage in a direction opposite to that in which it is sent by said rod.

3. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, operative connection between said carriage and said rod whereby the reciprocating motion of one of said rods imparts a step-by-step motion to the carriage, means for retaining the operative connection between the carriage and said rod by the operation of said rod, and means for shifting the carriage in a direction opposite to that in which it was sent by the said rod.

4. In a printing-machine, the combination with a printing mechanism, of a laterally-movable paper-supporting carriage, spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods after the printing of each character, operative connection between said carriage and said rod whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rod for releasing the operative connection between the carriage and said rod, and means for shifting the carriage in a direction opposite to that in which it was sent by the said spacing-rod.

5. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, an electromagnet for imparting lateral reciprocating motion to one of said rods, means for automatically energizing said magnet, operative connection between said carriage and said rod whereby the reciprocating motion of one of said rods imparts a step-by-step motion to the carriage, means for releasing the operative connection between the carriage and said rod by the operation of said rod, and means for shifting the carriage in a direction opposite to that in which it was sent by the spacing-rod, substantially as described.

6. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of toothed spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls mounted upon said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods whereby the teeth thereof are disengaged from said pawls, and means for shifting the carriage in a direction opposite to that in which it was sent by the said spacing-rod after the pawls have been so released.

7. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, operative connection between said carriage and said rod whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, an electromagnet, an armature operated by said magnet and adapted to rotate said spacing-rod and thereby release the operative connection between the said rods and said carriage, and means for shifting the carriage in a direction opposite to that in which it was sent by the said spacing-rod, substantially as described.

8. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of toothed spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, a pinion carried by each of said rods, a rack engaging both of said pinions, an electromagnet adapted to shift said rack whereby the teeth of said rods are disengaged from said pawls, and means for shifting the carriage in a direction opposite to that in which it is sent by the spacing-rod, substantially as described.

9. In a printing-machine, the combination with a horizontal shaft, of a sleeve adapted to slide on said shaft, a paper-supporting carriage suspended from said sleeve, spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, operative connection between said carriage and said rod whereby the reciprocating motion of one of said rods imparts a step-by-step motion to the said carriage, means for retaining the operative connection between said carriage and said rod by the operation of said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

10. In a printing-machine, the combination with a horizontal shaft, of a sleeve adapted to slide upon said shaft, a paper-supporting carriage suspended from said sleeve, toothed spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls mounted upon said carriage and adapted to engage the teeth of the said rod, means for retaining said rods whereby the teeth thereof are disengaged from said pawls and means for shifting the carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

11. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of toothed spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, electromagnetically-operated means for rotating said rods whereby the teeth thereof are disengaged from said pawls, an electrical contact carried by one of said rods, and an electrical contact carried by the said carriage, the said contact on the said rod being shifted into alignment with the contact on the said carriage upon the rotation of the said rod and means for shifting the carriage in a direction opposite to that in which it was sent by the said spacing-rod, whereby the electrical contact on the said carriage is brought into engagement with the contact carried by the said rod, an electric circuit completed by the said contacts and a relay operated by the said circuit for restoring the electromagnet means for rotating the said spacing-rod to its normal position, substantially as described.

12. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of a spacing-rod located near said carriage, means for imparting lateral reciprocating motion to said rod, operative connection between said carriage and said rod whereby the reciprocating motion of said rod imparts a step-by-step motion to said carriage, means for retaining said rod for releasing the operative connection between said carriage and said rod, a spring-controlled wheel and flexible connection between said wheel and said carriage for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

13. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of toothed spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the pawls from engagement with the teeth of said rod, a spring-controlled wheel and flexible connection from said wheel to said carriage for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

14. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

15. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

16. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

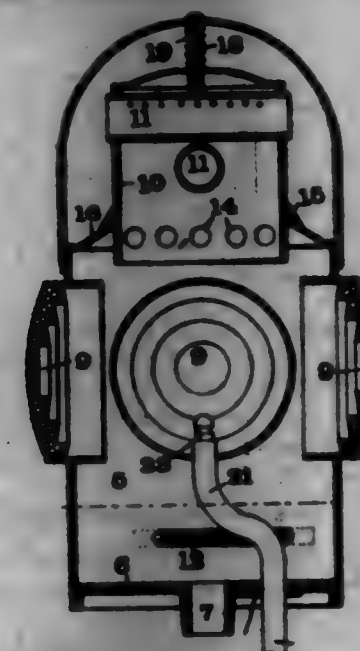
17. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

18. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

19. In a printing-machine, the combination with a laterally-movable paper-supporting carriage, of spacing-rod located near said carriage, means for imparting lateral reciprocating motion to one of said rods, pawls carried by said carriage and adapted to engage the teeth of said rod, whereby the reciprocating motion of one of said rods imparts a step-by-step motion to said carriage, means for retaining said rods for releasing the operative connection between said carriage and said rod, and means for shifting the said carriage in a direction opposite to that in which it is sent by the said spacing-rod, substantially as described.

section from said wheel to said body for shifting the same in a direction opposite to that in which it is sent by the said spacing-rod.

699,576. SIGNAL-LANTERN. C. A. R. BAKER, St. Louis, Mo., assignor of one-half to R. E. R. Green, Terrell, Tex. Filed Aug. 9, 1901. Serial No. 71,001. (No model.)



Claim.—1. The combination with a rotatable signal-lantern, of a slot formed in the bottom of said lantern between the axis of rotation and the side of the lantern, a stationary gas-supply pipe projecting through said slot, and a shield carried by said supply-pipe and closing said slot.

2. In a signal-lantern, the combination with a lantern-body, of a movable top carried by said body, and an opening in said top adapted to be put into communication with the atmosphere by the movement of said top.

3. In a signal-lantern, the combination with a lantern-body, of a movable top carried by said body, an opening in said top adapted to be put into communication with the atmosphere by the movement of said top, and a spring for returning said top to its normal position.

4. In a signal-lantern, the combination with a lantern-body, of a flange carried at the top of said body, a movable lantern-top projecting into said body and provided with openings adapted to be put into communication with the atmosphere by the movement of said top, and a flange carried by said top and resting on the flange on said body.

5. In a signal-lantern, the combination with a lantern-body, of a flange carried by said body, a movable top projecting into said body and provided with openings adapted to be put into communication with the atmosphere by the movement of said top, a flange carried by said top and resting on the flange on said body, and a spring for returning said top to its normal position.

699,577. PROJECTILE AND TIME-FUSE THEREFOR. WILHELM KRAUS, Bamberg, Germany. Filed Jan. 2, 1902. Serial No. 90,321. (No model.)



Claim.—1. In a time-fuse for projectiles, a fuse-holder arranged in the direction of the axis of the projectile, a time-fusing composition extending in the direction of the axis of the projectile and arranged in said holder, a band extending in the holder surrounding said composition and provided with a hole for the passage of fire from said composition when it is ignited, and a time-fusing composition arranged in said holder and adapted to be ignited by the passage of fire from the time-fusing composition through the opening in said band.

2. In a time-fuse for projectiles, a fuse-holder arranged in the direction of the axis of the projectile, a time-fusing composition extending in the direction of the axis of the projectile and arranged in said holder, an adjustable band extending in the holder surrounding said composition and provided with a hole for the passage of fire from said composition when

it is ignited, and a time-fusing composition arranged in said holder and adapted to be ignited by the passage of fire from the time-fusing composition through the opening in said band.

3. In a fuse for projectiles, a time-fusing composition and a time-fusing composition suitably arranged within the projectile, a band surrounding the time-fusing composition for separating the same from the time-fusing composition, said band provided with an opening to permit of the passage of fire from the time-fusing composition to the time-fusing composition, and means for igniting the time-fusing composition.

4. In a fuse for projectiles, a time-fusing composition and a time-fusing composition suitably arranged within the projectile, an adjustable band surrounding the time-fusing composition for separating the same from the time-fusing composition, said band provided with an opening to permit of the passage of fire from the time-fusing composition to the time-fusing composition, and means for igniting the time-fusing composition.

5. In a fuse for projectiles, a time-fusing composition and a time-fusing composition suitably arranged within the projectile, a band surrounding the time-fusing composition for separating the same from the time-fusing composition, said band provided with an opening to permit of the passage of fire from the time-fusing composition to the time-fusing composition, means for adjusting the said band, and means for igniting the time-fusing composition.

6. In combination with a projectile, a compressed powder-strip suitably arranged therein and extending in the direction of the axis of the projectile, a band surrounding the said strip and provided with an opening for the passage of fire therefrom, a conical mass of combustible material arranged in the projectile and extending in the direction of the axis thereof and adapted to be ignited by the passage of fire through said opening in said band, and means for igniting the said strip.

7. In combination with a projectile, a time-fusing composition arranged therein, a time-fusing composition arranged in the projectile and adapted to be ignited by said time-fusing composition, means for igniting the latter, means extending in the projectile and separating the time-fusing composition from the time-fusing composition and provided with an opening to permit of the passage of fire from the time-fusing composition to the time-fusing composition when the former is ignited.

8. In combination with a projectile, a time-fusing composition arranged therein and extending in the direction of the axis thereof, a time-fusing composition arranged in the projectile and extending parallel with the time-fusing composition, means for igniting the time-fusing composition, and means arranged in the projectile to permit of the passage of fire from the time-fusing composition to the time-fusing composition.

9. In combination with a projectile, of a holder arranged therein and extending in the direction of the axis thereof, said holder communicating by an opening at its lower end with the explosion-chamber of the projectile, a time-fusing composition arranged in the said holder, a time-fusing composition arranged in said holder and communicating with the opening in the bottom thereof, means for igniting the time-fusing composition, and means extending in the holder for separating the time-fusing composition from the time-fusing composition and to permit of the passage of fire from the time-fusing composition to the time-fusing composition for igniting the latter.

10. In combination with a projectile, a time-fusing composition strip arranged therein, a conical mass of combustible material arranged in the projectile, an adjustable band extending between the said mass and strip and provided with an opening to permit of the passage of fire from said strip to said mass, and means connected with the projectile to permit of suitably adjusting the said band.

11. In combination with a projectile, a time-fusing composition arranged therein, a time-fusing composition arranged parallel with the time-fusing composition, both of the said compositions extending in the direction of the axis of the projectile, and means for adjusting the burner period of said time-fusing composition, the displacement of the said means being effected parallel to the longitudinal axis of the projectile.

699,578. GAS-BURNER FOR FIRING BARRICA. HENRY C. BAKER, St. Louis, Mo. Filed Dec. 7, 1901. Serial No. 90,307. (No model.)

Claim.—1. In a barrel-loading apparatus, the combination with a barrel-support, of a burner projecting above the support and located within a barrel placed upon said support, a supply-pipe leading to the burner, a valve controlling the passage-way through the pipe, and operating means for the valve connected thereto and normally projecting above the barrel-support, said means being engaged and moved by a barrel when placed upon said support.

2. In barrel-loading apparatus, the combination with a barrel-supporting platform, of a burner arranged above the platform and located within a barrel placed on said platform, a supply-pipe leading to the burner, a valve controlling the passage-way through the pipe, and a valve-operating arm extending across the platform and having a connection with the valve, said arm being moved by a barrel when placed upon the platform.

3. In barrel-heating apparatus, the combination with a barrel-support, of a burner, a supply-pipe leading to the burner, a valve controlling the passage-way through the pipe, and a valve-operating arm hinged at one end to the support and extending across the upper face of the same, said arm having a connection at its free end with the valve, and being moved by a barrel placed upon the platform.



4. In barrel-heating apparatus, the combination with a barrel-support having a groove, of a burner projecting above the platform and having a valve, and an operating-arm for the valve connected thereto and located at one end of and below the burner, said arm being movable in the groove of the support.

5. In barrel-heating apparatus, the combination with a platform having a depressed barrel-rest, said rest being provided with a groove, of a burner, a valve for the burner, and an operating-arm for the valve pivoted to the platform at the inner end of the groove and located in the groove of the rest, said arm being connected at its outer end to the valve.

6. In barrel-heating apparatus, the combination with a barrel-supporting platform, of a burner located upon the platform, said burner comprising a body that tapers toward its lower end and having openings in its side walls, said body constituting a deflector to throw the heat against the side of a barrel placed thereover.

7. In barrel-heating apparatus, the combination with a barrel-support and burner, of a cover for the barrel comprising spaced facing-plates, and barrel-engaging devices for supporting the plates in spaced relation to the barrel-walls to permit the escape of the products of combustion.

8. In barrel-heating apparatus, the combination with a barrel-support, of a burner, a deflector for the barrel comprising spaced facing-plates, and upwardly and outwardly projecting barrel-engaging hooks secured to one of the plates.

9. In barrel-heating apparatus, the combination with a barrel-supporting platform, of a burner located thereon and disposed within a barrel placed upon the platform, and a deflector arranged to be supported within the barrel and spaced from the walls thereof to allow the heat to escape only about the edges of said cover.

10. In barrel-heating apparatus, the combination with a barrel-supporting platform, of a burner comprising inner and outer conical walls spaced from each other and moved together at their outer peripheral edges, the inner conical wall being open at its base, and a deflector arranged to be supported within a barrel in spaced relation to the walls thereof.

11. In a barrel-heating apparatus, the combination with a barrel-supporting platform, of a burner located upon the platform and comprising inner and outer conical walls spaced apart from each other and secured together at their outer peripheral edges, said edges being arranged upwardly, and the inner conical wall being open at its base.

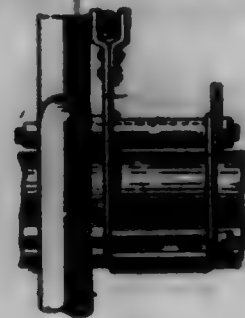
12. In a barrel-heating apparatus, the combination with a barrel-support, of a burner located upon an intermediate portion of the support, barrel-positioning means arranged upon the support in spaced relation to the burner, a controlling-valve for the burner, and actuating means for the valve connected thereto and arranged contiguous to the barrel-positioning means, whereby said actuating means will be moved by a barrel placed upon the support and in coacting relation with the positioning means.

699,579. **BRAKE** HENRY L. SHAFER, Florence, Italy. Filed Oct. 24, 1901. Serial No. 78,000. (No model.)

Claim.—1. The combination of the wheel, brake-levers pivoted on opposite sides thereof, and brake-chains carried by said levers; with a connection composed of a short and a long member respectively connected to the free ends of the opposite levers, the joint between one member of the connection and one lever being adjustable, and means for extending the connection, substantially as described.

2. The combination of the wheel, the brake-levers pivoted on op-

posite sides thereof, the stops for limiting the releasing movement of the levers, the link pivoted to one lever, a rod pivotally connected to the link and transmitting the other lever, an adjusting-rod on the rod, a spring interposed between the rod and lever, a pull connected to the link, and a spring for separating the levers, substantially as described.



3. The combination of the wheel, the clamps on opposite sides thereof, the brake-levers pivoted on the clamps limiting the releasing movement of the levers, the brake-chains attached to the levers above their pivots, a link pivoted to one lever, an adjustable rod pivotally connected to the link and connecting it with the other lever, and a spring for separating the levers, substantially as described.

699,580. **SARKIS-FASTNER** JAMES H. SHIVERS, Cleveland, Ohio. Filed June 15, 1901. Serial No. 84,706. (No model.)



Claim.—In a cash-fastener, the combination with the base-plate having side and front walls, of the locking dog or member pivoted between the side walls, a locking or latching block sliding upon the base-plate between the side walls, and a screw passing through the front wall and adapted to engage the locking or latching block for the purpose of moving the same into or out of engagement with the pivotal end of the locking dog or member, substantially as described.

699,581. **INDIGO-DIAZOTIC ACID AND PROCESS OF MAKING SAME** PAUL SEIGEL, Ludwigshafen, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Feb. 28, 1901. Serial No. 48,578. (Specimens.)

Claim.—1. The process of making indigo-diazotie acid which consists in treating anthranilic acid with two (2) molecular proportions of mono-haloid-acetic acid and then treating this product successively with caustic alkali, water and air.

2. The process of making indigo-diazotie acid which consists in treating anthranilic-acetic acid successively with caustic alkali, water, and air.

3. The process of making indigo-diazotie acid which consists in treating indoxyl-acetic-carboxylic acid in the presence of caustic alkaline solution with air.

4. The process of making indigo-diazotie acid which consists in treating anthranilic acid successively with mono-haloid-acetic acid, caustic alkali, water, and air.

5. The process of making indigo-diazotie acid which consists in treating anthranilic acid successively with mono-chlor-acetic acid, caustic potash, water, and air.

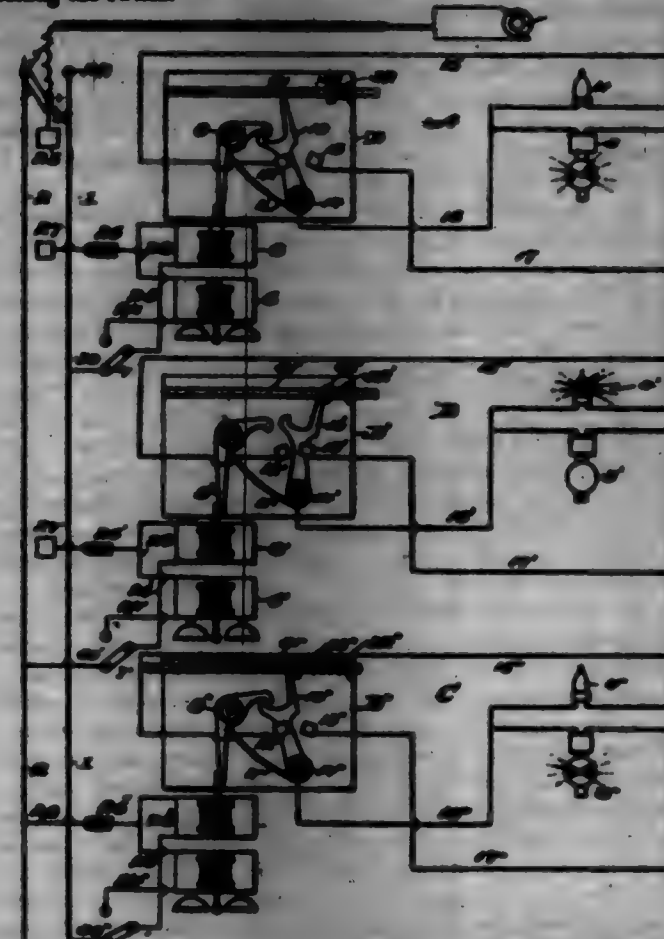
6. As a new article of manufacture the new indigo coloring-matter, namely, indigo-diazotie acid which is soluble in hot water yielding crystals upon cooling, which upon heating melts and decomposes and which is readily soluble in alcohol and in ether, substantially as described.

699,582. **ISSEAL APPARATUS** SAMUEL C. SHAFER, Hobbs, Ala. Filed Jan. 9, 1902. Serial No. 90,002. (No model.)

Claim.—1. In a signal apparatus, the combination with the electric street-lighting system, of the street telephone or signal system, and a switch operated by the latter for affecting the former.

2. In a signal apparatus, the combination with the electric street-lighting system, of the street telephone or signal system, and a switch op-

erated by the latter for affecting the former, and mechanical means for resetting the switch.



3. In a signal apparatus, the combination with the electric street-lighting system, a street signal-box, an electrically-operated switch therein for affecting the street-lighting system, and a mechanical connection between said box and switch for resetting the latter.

4. In a signal apparatus, the combination with the electric street-lighting system, a street signal-box, an electrically-operated switch therein for affecting the street-lighting system, and a mechanism controlled by the opening of the box-door for resetting the switch.

5. In a signal apparatus, the combination with the street-lighting system, a street signal-box, an electrically-operated switch therein, controlling mechanism for said switch, a street-lamp in the street-check, a signal-lamp in check therewith, electrical connections between said switch and signal-lamp so that the operation of the switch will extinguish the street-lamp and ignite the signal-lamp, and mechanical connections between said box and switch for resetting the latter.

6. In a signal apparatus, the combination with the street-lighting system, a central office, the street-signal controlled therefrom, a series of street signal-beams thereon, switches within the beams electrically operated from the central office, the said switches affecting the street-lighting system, and mechanical connections between said beams and switches for resetting the latter.

7. In a signal apparatus, the combination with the street-lighting system, a central office, a two-wire street signal system controlled therefrom, a series of street signal-beams, some of said beams being connected with one wire and the other wire and the ground, and other beams being connected with both wires, switches within the beams electrically operated from the central office, the said switches affecting the street-lighting system, and mechanical connections between said beams and switches for resetting the latter.

8. In a signal apparatus, the combination with the street-lighting system, a central office, a two-wire street signal system controlled therefrom, a series of street signal-beams, some of said beams being connected with the first wire and the ground, other of said beams being connected with the second wire and the ground, and the remainder being connected with both wires, switches within the beams electrically operated from the central office, the said switches affecting the street-lighting system, and mechanical connections between said beams and switches for resetting the latter.

9. In a signal apparatus, the combination with the street-lighting system, a central office, a two-wire street signal system controlled therefrom, a series of street signal-beams, some of said beams being connected with the first wire and the ground, other of said beams being connected with the second wire and the ground, and the remainder being connected with both wires, switches within the beams electrically operated from the central office, the said switches affecting the street-lighting system, and mechanical connections between said beams and switches for resetting the latter.

10. In a signal apparatus, the combination with the street-lighting system, a central office, a street signal system controlled therefrom, a series of street signal-beams thereon, switches within the beams for affecting the street-lighting system, a polarized actuating device for each switch in circuit with the street-signal system, a condenser in each box, means for passing a suitable actuating-current of electricity over the signal system for energizing the actuating device, and mechanical connections between each box and switch for resetting the latter.

11. In a signal apparatus, the combination with the street-lighting system, a central office, a street signal system controlled therefrom, signal-beams thereon, a switch and an audible alarm within the box, both being electrically operated from the central office, the said switch affecting the lighting system, and mechanical connections between said box and switch for resetting the latter.

12. In a signal apparatus, a signal-box, a door, a switch, the said switch having a movable arm, a latch, electrically-operated means for actuating the latch to release the arm, and mechanical connections actuated by the door for returning the arm to engagement with the latch.

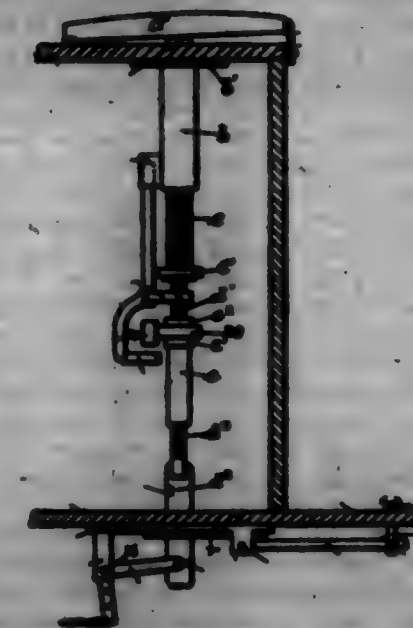
13. In a signal apparatus, a signal-box, a door, a switch, the said switch having a movable arm, a latch, electrically-operated means for actuating the latch to release the arm, a rod actuated by the door having an offset or lug for returning the arm to engagement with the latch.

14. In a signal apparatus, a signal-box, a door thereon, a switch-box, a switch thereover, said switch having a movable arm, and an electrically-operated latch therefor, and mechanical connections between said box-door and switch-arm for returning it to engagement with the latch.

15. In a signal apparatus, a signal-box, a door thereon, a switch-box, a switch thereover, said switch having a movable arm and an electrically-operated latch therefor, a movable rod connecting the two boxes, and engaging with the switch-arm, and a bell-crank lever within the signal-box actuated by the door of the latter.

16. In a signal apparatus, the combination with the street-lighting system, a street signal-box, a switch therein for affecting the street-lighting system, a latch for holding the switch in signaling inoperative position, polarized means for tripping the latch, and mechanical means for resetting the switch.

699,583. **MEANS FOR AUTOMATIC CONTROL OF MOTOR-VEHICLES** HENRY E. SHAFER, Pasadena, Cal. Filed Nov. 6, 1901. Serial No. 81,170. (No model.)



Claim.—1. In a motor-vehicle, the combination with a movable seat and a plunger device operated thereby, of means for causing the said plunger device to press against the said seat, means for regulating the above-said means, means for guiding the said plunger device, means for keeping the plunger device from turning, and means connected to and actuated by the said plunger device to turn on the power when the plunger device is depressed and to automatically shut off the power when the plunger device is raised, substantially as set forth.

2. In a motor-vehicle, the combination with a movable seat and a plunger device operated thereby, of means for causing the said plunger device to press against the said seat, means for regulating the above-said means, means for guiding the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to turn on the power when the plunger device is depressed and to automatically shut off the power when the plunger device is raised, and means independent of the seat for holding the plunger device down in operative position, substantially as set forth.

3. In a motor-vehicle, the combination with a movable seat and a plunger device operated thereby, of means for causing the said plunger device to press against the said seat, means for regulating the aforesaid means, means for guiding the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to turn on the power when the plunger device is depressed and to automatically shut off the power when the plunger device is raised, means independent of the seat for holding the plunger device down in operative position, and means connected to and actuated by the said plunger device to operate a brake, substantially as set forth.

4. In a motor-vehicle, the combination with a movable seat and a plunger device operated thereby, of means for causing the said plunger device to press against the said seat, means for regulating the aforesaid means, means for guiding the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to turn on the power when the plunger device is depressed and to automatically shut off the power when the plunger device is raised, means independent of the seat for holding the plunger device down in operative position, means connected to and actuated by the said plunger device to operate a brake, and means for locking the seat when the same is raised, substantially as set forth.

5. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through the casing and bearing upon and actuated by the said seat, a spring within the said casing to keep the plunger against the seat, means for varying the tension on said spring, means for adjusting the length of the said plunger device, and means connected to and actuated by the said plunger device to connect the power with the motor when the plunger device is depressed and to disconnect the power from the motor when the plunger device is raised, substantially as set forth.

6. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through the said casing and bearing upon and actuated by the said seat, a spring within the said casing to keep the plunger against the seat, means for varying the tension on said spring, means for adjusting the length of the said plunger device, means for keeping the plunger device from turning, and means connected to and actuated by the said plunger device to connect the power with the motor when the plunger device is depressed and to disconnect the power from the motor when the plunger device is raised, substantially as set forth.

7. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through the said casing and bearing upon and actuated by the said seat, a spring within the said casing to keep the plunger against the seat, means for varying the tension on said spring, means for adjusting the length of the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to connect the power with the motor when the plunger device is depressed and to disconnect the power from the motor when the plunger device is raised, and means independent of the seat for holding the plunger device down in operative position, substantially as set forth.

8. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through the said casing and bearing upon and actuated by the said seat, a spring within the said casing to keep the plunger against the seat, means for varying the tension on said spring, means for adjusting the length of the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to connect the power with the motor when the plunger device is depressed and to disconnect the power from the motor when the plunger device is raised, means independent of the seat for holding the plunger device down in operative position, and means connected to and actuated by the said plunger device to cut a brake when the plunger device is raised, substantially as specified.

9. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through the said casing and bearing upon and actuated by the said seat, a spring within the said casing to keep the plunger against the seat, means for varying the tension on said spring, means for adjusting the length of the said plunger device, means for keeping the plunger device from turning, means connected to and actuated by the said plunger device to connect the power with the motor when the plunger device is depressed and to disconnect the power from the motor when the plunger device is raised, means independent of the seat for holding the plunger device down in operative position, means connected to and actuated by the said plunger device to cut a brake when the plunger device is raised, and means for locking the seat when it is raised, substantially as specified.

10. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a

spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes, and by which the tension of said spring is regulated, means for keeping the plunger device from turning, means for varying the length of the plunger device, means connected to and actuated by the plunger device for setting a brake when the plunger device is raised, means independent of the seat for holding the plunger device in its operative position, and means for locking the seat when the same is raised, substantially as specified.

11. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes and by which the tension of said spring is regulated, a bar connected to the said casing, a collar surrounding the said plunger device and connected to the said bar, a pin in said collar passing into a slot in said plunger device to keep the latter from turning, means for varying the length of the plunger device, means connected to and actuated by the plunger device for setting a brake when the plunger device is raised, means independent of the seat for holding the plunger device in its operative position, and means for locking the seat when the same is raised, substantially as set forth.

12. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes and by which the tension of said spring is regulated, a bar connected to the said casing, a collar surrounding the said plunger device and connected to the said bar, a pin in said collar passing into a slot in said plunger device to keep the latter from turning, a coupling within which the plunger device is divided, whereby the length of the same may be varied, means connected to and actuated by the plunger device for setting a brake when the plunger device is raised, means independent of the seat for holding the plunger device in its operative position, and means for locking the seat when the same is raised, substantially as specified.

13. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes, and by which the tension of said spring is regulated, a bar connected to the said casing, a collar surrounding the said plunger device and connected to the said bar, a pin in said collar passing into a slot in said plunger device to keep the latter from turning, a coupling within which the plunger device is divided whereby the length of the same may be varied, a ball-crank lever pivoted to bracket-legs under the floor of the vehicle and actuated by the plunger device to operate a brake when the plunger device is raised, means independent of the seat for holding the plunger device in its operative position, and means for locking the seat when the same is raised, substantially as specified.

14. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes and by which the tension of said spring is regulated, a bar connected to the said casing, a collar surrounding the said plunger device and connected to the said bar, a pin in said collar passing into a slot in said plunger device to keep the latter from turning, a coupling within which the plunger device is divided whereby the length of the same may be varied, a ball-crank lever pivoted to bracket-legs under the floor of the vehicle and actuated by the plunger device to operate a brake when the plunger device is raised, a slide-plate, through which the plunger device passes, attached to a plate under the floor of the vehicle, a foot-actuated post, a lever pivoted to the said post and in a bracket integral with the said plate, an end of the said lever being adapted to fit into an opening in the said slide-plate whereby when the plunger device is down the slide-plate may be moved along by the depression of the post to engage with a notch in the plunger device to hold the same in operative position, and means for locking the seat when the same is raised, substantially as specified.

15. In a motor-vehicle, the combination with a movable seat and a tubular casing attached to the seat-frame, of a plunger device passing through said casing and bearing upon and actuated by the said seat, a spring within said casing and acting upon the plunger device to cause the same to bear against the said seat, a washer within the said casing, a screw-closure through which the plunger device passes and by which the tension of said spring is regulated, a bar connected to the said casing, a collar surrounding the said plunger device and connected to the said bar, a pin in said collar passing into a slot in said plunger device to keep the latter from turning, a coupling within which the plunger device is divided whereby the length of the same may be varied, a ball-crank lever pivoted to bracket-legs under the floor of the vehicle and actuated by the plunger device to operate a brake when the plunger device is raised, a slide-plate, through which the plunger device passes, attached to a plate under the floor of the vehicle, a foot-actuated post, a lever pivoted to the said post and in a bracket integral with the said plate, an end of the said lever being adapted to fit into an opening in the said slide-plate whereby when the plunger device is down the slide-plate may be moved along by the depression of the post to engage with a notch in the plunger device to hold the same in operative position, and means for locking the seat when the same is raised, substantially as specified.

699,584. IMPLEMENT FOR CUTTING PAPER OR THE LIKE. HARRY J. SMITH, New York, N. Y. Filed Apr. 19, 1901. Serial No. 69,154. (No model.)

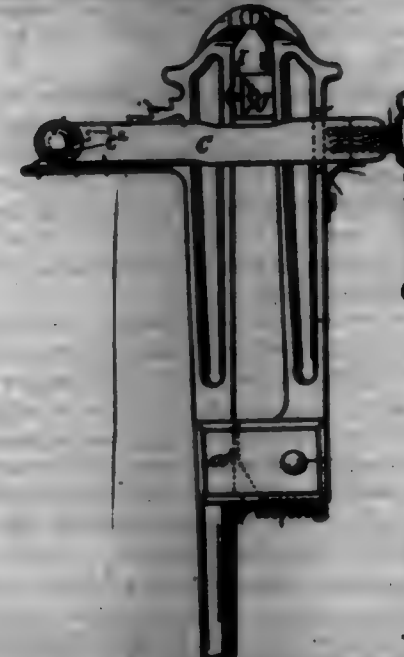
Claim.—1. An implement for cutting paper and the like comprising

ing a handle, a circular cutter-blade mounted in one end of the said handle, a ratchet-wheel connected to the said cutter-blade, a pawl mounted in connection with the handle and engaging said ratchet-wheel whereby to hold the cutter-blade rigidly or immovably to the handle when drawn in one direction and to permit it to turn in the opposite direction.



2. An implement for cutting paper and the like comprising a handle, an arm projecting therefrom, a circular cutter-blade provided with a spindle which passes through the end of the said arm, a ratchet-wheel mounted upon the said spindle between the blade and the arm and rigidly connected to each disk, a spring-pawl comprising a single piece of wire passing through the arm of the handle and bearing upon the said ratchet-wheel, and a milled nut mounted upon the spindle upon the opposite side of the arm of the handle.

699,585. VISE. WILLIAM E. SCHUBERT, Camden, N. J. Filed Apr. 8, 1901. Serial No. 54,028. (No model.)



Claim.—1. In a vise and in combination with jaws carried by fixed and movable arms and a link insuring said arms, of a bolt having surfaces forming a right angle adapted to engage with a rack on said fixed arm, a key for holding said bolt in position, a bolt-head having a segmental recess and a pin carried by said link engaging with said bolt-head substantially as described.

2. In a vise and in combination with jaws carried by fixed and movable arms and a link insuring said arms, of legs on the movable arm above and below said link, a spring secured to said movable arm tending to draw the back end of the link down, and a spring placed below the fixed arm of the movable lever tending to keep the jaws separated, substantially as described.

3. In a vise and in combination with jaws carried by fixed and movable arms pivoted together at their lower ends, of an adjustable jaw-then having legs carrying a rod, a clamp secured to said movable arm, a projection on said clamp curved to fit the surface of the adjustable jaw-then and adapted to hold said jaw-then in place and allow it to turn freely, substantially as described.

699,586. CAP FOR PUMPS. CHARLES E. SHRYVER, Loveland, Nev. Filed Nov. 13, 1901. Serial No. 69,500. (No model.)

Claim.—A cap for pumps, comprising a shell having a body portion, a pointed end, an offset on its interior to limit the insertion of a stem therein, and prongs struck up from said cylindrical portion to engage a stem, substantially as set forth.

699,587. ARTIFICIAL BUILDING-STONE. CHARLES W. SHRYVER, North Harvey, Ill. Filed Jan. 7, 1902. Serial No. 69,600. (No model.)

Claim.—1. An artificial building-stone comprising two outer walls spaced apart and connected together by posts formed integrally therewith, substantially as described.



2. An artificial building-stone comprising two oppositely-disposed walls spaced apart and connected together, the space between said walls being unobstructed on four sides, substantially as described.

3. An artificial building-stone comprising outer parallel walls spaced apart and connected together, the space therebetween being open on all sides not limited by said outer walls, substantially as described.

4. An artificial building-stone comprising two outer walls and an intermediate wall, said walls being spaced apart and connected together by posts formed integrally therewith, substantially as described.

5. An artificial building-stone comprising three walls, spaced apart and connected together, the space between two of said walls being open on three sides, substantially as described.

6. An artificial building-stone comprising three walls spaced apart and connected together, the space between two of said walls being open on four sides, substantially as described.

7. An artificial building-stone comprising two walls, spaced apart and connected together by posts, substantially as described.

8. An artificial building-stone comprising three walls spaced apart and connected together by posts, substantially as described.

699,588. PROCESS OF MAKING ARTIFICIAL STONE. CHARLES W. SHRYVER, North Harvey, Ill. Filed Mar. 21, 1901. Serial No. 62,100. (No specimens.)



Claim.—1. The process of making artificial stone, which comprises pouring a wet artificial-stone compound into a mold and around a bottomless core-box, said box containing a core of dry sand or similar material, and in withdrawing said core-box, while said compound is still in a flowing condition, in such a manner that said flowing compound will follow the lower ends of said core-box and fill in after it as the same is withdrawn, and in then allowing the stone compound to set, substantially as described.

2. The process of making artificial stone, which comprises pouring a wet artificial-stone compound into a mold and around a core-box surrounding a plurality of relatively dry sand cores, and in withdrawing said core-box so that said stone compound will flow into and fill the spaces previously occupied by the walls and partitions of said core-box, and in then allowing the stone compound to set, substantially as described.

3. The process of making artificial stone, which consists in forming a layer of sand in the bottom of a mold, in pouring liquid stone compound upon said layer of sand, in placing a core-box containing a plurality of bottomless core-chambers upon said layer of stone compound, in filling relatively dry sand into said core-chambers, in then pouring plastic stone compound into said mold and around said core-box, and in then withdrawing said core-box so that the stone compound will flow into the spaces surrounding said cores, and in then allowing said stone compound to set, substantially as described.

4. The process of making artificial stone, which consists in forming a dry-sand core in a mold, said core being surrounded and supported by removable walls, in then pouring artificial-stone compound, in a plastic or semifluid condition, into said mold and around said core, in then removing the supporting-walls surrounding said core, while said stone compound is still sufficiently plastic to flow into the spaces previously occupied by said removable walls, and in then allowing said stone compound to set, substantially as described.

5. The process of making artificial stone, which consists in forming a mold containing a plurality of dry-sand cores, said cores being initially supported and separated by removable partition-boards, in then pouring wet artificial-stone compound into said mold, in then removing said partition-boards, while said compound remains sufficiently plastic to flow into

the space between and surrounding said end cores, and is then allowing the stone compound to set, substantially as described.

3. The process of making artificial stone, which consists in forming a mold containing a plurality of dry sand cores, said cores being laterally supported by removable parting-boards and separated by parting-boards so disposed as to provide a space between the opposing faces of said parting-boards, in then pouring wet artificial-stone compound into said mold around and between said parting-boards, in withdrawing said parting-boards while the stone compound is still sufficiently plastic to flow into the space previously occupied by the parting-boards, and is then allowing the compound to set, substantially as described.

699,589. BATHING APPARATUS. WILLIAM J. STOFFER, San Francisco, Cal. Filed Dec. 21, 1899. Serial No. 41,569. (No model.)



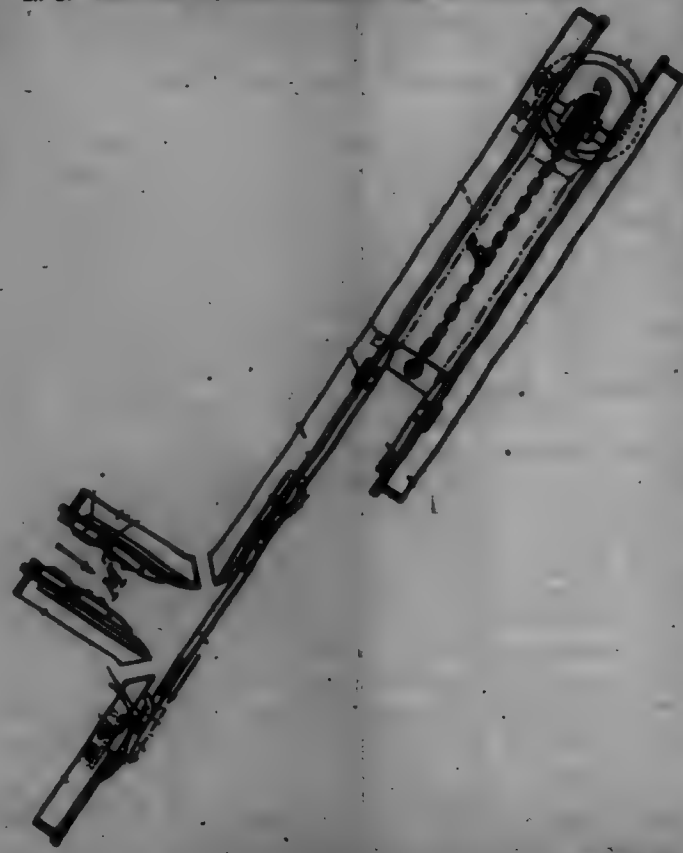
Claim.—1. In a receptacle of the class described, a collapsible body comprising a flexible bottom and an upstanding flexible rim, and a plurality of handle elements secured at the sides of the receptacle and extending across the same, said handle elements being arranged in interlocking relation.

2. A receptacle of the class described, comprising a collapsible body having a flexible bottom and a continuous flexible upstanding rim, and a plurality of flexible handle elements, the ends of said elements being secured to the edge of the receptacle, the distance between the points of attachment of the several ends being equal.

3. In a receptacle of the class described, a collapsible body comprising a flexible bottom having a continuous flexible upstanding rim, and a plurality of flexible handle elements, the ends of each handle element being secured to diametrically opposite portions of the body, whereby said handle elements will be located in intersecting relation.

4. In a receptacle of the class described, a collapsible body comprising a bottom made of flexible waterproof material having a flexible continuous upstanding side rim, one secured to the edge of the body at diametrically opposite points and having eyes at their terminals which project above the side walls, and a plurality of independent flexible handle elements secured respectively at their ends to the oppositely-disposed projecting eyes and arranged across the body in intersecting relation.

699,590. ELECTRIC RAILWAY. ALBERT A. STOLLER, New York, N. Y. Filed Oct. 25, 1901. Serial No. 79,512. (No model.)



Claim.—1. In an electric-railway crossing, the combination with a conductor of one line having a vertical side face adapted to receive a con-

tact member and having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece supported upon one part of said conductor, extending along the vertical contact-face thereof, and having a similar side contact-face and means for moving the same into or out of position to form a connection across said gap.

2. In an electric-railway crossing, the combination with a conductor of one line having a vertical side face adapted to receive a contact member and having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece supported upon one part of said conductor, extending along the vertical contact-face thereof and having a similar side contact-face and means automatically moving the same into or out of position to form a connection across said gap as a car passes over said crossing.

3. In an electric-railway crossing, the combination with a conductor of one line having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece slidably connected to said conductor at one side of said gap, and means automatically moving the same into position to form a connection across said gap as a car passes over said crossing, and means for automatically returning said bridge-piece to its original position.

4. In an electric-railway crossing, the combination with a conductor of one line having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece slidably connected to said conductor at one side of said gap, and means attached directly to the bridge-piece in position to be engaged by the contact member of a car for moving said bridge-piece with said contact member to maintain the connection of said contact member with the conductor as said contact member crosses said gap.

5. In an electric-railway crossing, the combination with a conductor of one line having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece slidably connected to said conductor at one side of said gap, and means attached directly to said bridge-piece in position to be engaged by a car for moving said bridge-piece to a position to form a connection across said gap as a car passes over said crossing, and means for automatically returning said bridge-piece to its original position.

6. In an electric-railway crossing, the combination with a conductor of one line having a gap at the point where it crosses the other line, of means for closing said gap including a movable bridge-piece slidably connected to said conductor at one side of said gap, and means connected to said bridge-piece adapted to be engaged by a car for moving said bridge-piece to a position to form a connection across said gap as a car passes over said crossing, means for automatically disengaging said bridge-piece when the car has passed said crossing, and means for automatically returning said bridge-piece to its original position.

7. In electric railways, means for closing a gap in a conductor comprising a movable bridge-piece, a projecting member connected to said bridge-piece, and means whereby said projecting member is automatically engaged by a car moving in one direction and withdrawn from the path of a car moving in the opposite direction.

8. In electric railways, means for closing a gap in a conductor comprising a movable bridge-piece, a hook connected to said bridge-piece, and means whereby said hook is automatically engaged by a car moving in one direction and withdrawn from the path of a car moving in the opposite direction.

9. In electric railways, the combination with a conductor adapted to receive a contact member on its vertical side face and formed in two parts separated by a gap, of a bridge-piece supported upon one part of said conductor extending along the vertical contact-face thereof and adapted to be moved in a direction to close said gap.

10. In electric railways, the combination with a conductor adapted to receive a contact member on its vertical side face and formed in two parts separated by a gap, of a bridge-piece supported slidably upon one of said parts extending along the vertical contact-face thereof and adapted to be moved in a direction to close said gap.

11. In electric railways, the combination with a pair of opposite conductors A A' each adapted to receive a contact member on its vertical side face and formed in two parts separated by a gap, of a bridge-piece supported upon one part of said conductors extending along the vertical contact-face thereof and adapted to be moved in a direction to close said gaps.

12. In an electric-railway crossing, the combination with a pair of conductors of one line having vertical side faces between and in contact with which the contact member of the car travels and which have gaps at the point where they cross the other line, of means for closing said gaps including a movable bridge-piece supported upon said conductors, extending along the vertical contact-face thereof and having similar side contact-faces and means for moving the same into or out of position to form connection across said gaps.

699,591. FILE. JAMES F. SULLIVAN, Philadelphia, Pa., assignor of one-half to James Richardson, Philadelphia, Pa. Filed Apr. 11, 1899. Serial No. 55,292. (No model.)



Claim.—1. In a file, a base, a detachable filing-epistle thereon and a transfer-epistle having means at one end whereby it may be attached to the lower end of the filing-epistle to the end that the papers from the first-mentioned epistle may be transferred to the other by the jolting of the epistles.

2. A file comprising a base, a epistle removably held therein, and a second epistle of less diameter, and means for detachably uniting the two epistles to form a continuous one.

3. A file comprising a base, a epistle removably held therein, a removable point to said epistle, and a second epistle of less diameter than the first-mentioned epistle and provided with a removable hook and designed to receive the first-mentioned epistle when said hook is removed.

4. In a file, a base, a epistle having lower threaded end, and with an opening transversely through said threaded end, and a nut on said threaded end covering the epistle to the base and covering said opening to exclude dust, &c., therefrom.

699,592. PROCESS OF REINFORCING JOINTS OF SUBMERGED VESSELS HERMETICALLY TIGHT. WALTER THOMPSON, Toronto, Canada, assignor to John Murphy, Brooklyn, N. Y. Filed Mar. 28, 1898. Serial No. 100,004. (No specimens.)



Claim.—1. The process of forming an hermetic joint or seal between laminated layers having flexible metallic coatings, which consists in immersing said layers, with their coatings protruding, in a bath composed of a suitable fluid having a temperature higher than the fusing-point of said coatings, until said portions fuse and form one integral body, and then removing the same from the bath and allowing the fused portions to set, substantially as described.

2. The process of sealing the joints of sheet-metal vessels having a coating formed of flexible material which consists in immersing the joints to be treated in a bath composed of a suitable fluid and having a temperature higher than the fusing-point of said coating until the coating is fused and then removing the joints from the bath and allowing their fused portions to set, substantially as described.

3. The process of forming an hermetic seal in the joints of sheet-metal vessels having a flexible coating which consists in immersing the joint to be treated in a bath of molten oil heated to a temperature higher than the fusing-point of said coating and maintaining said joints therein until said coating is fused and forms one integral body and then removing the joints from the bath and allowing their fused portions to set, substantially as described.

699,593. BAKING-HANDLE. HARRY THOMAS, Boston, N. Y. Filed Nov. 12, 1899. Serial No. 51,095. (No model.)

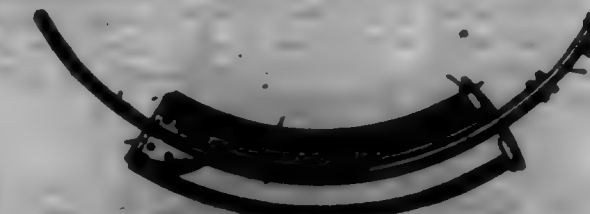
Claim.—1. A baking-handle, formed in two sections of spring material, each section having a grip at one end and a hook at the other end,

and a shoulder intermediate the ends of the sections, the said sections being arranged to enter the sides of the basket and the shoulders to bear on the top thereof, and the hooks being capable of interlocking to connect the sections together and also to place them under tension, whereby to cause the shoulders to bear down firmly on the cover.



2. A basket-handle formed in two sections of yielding material, each section having an intermediate part to bear on the basket-top and also having at its lower end means for engaging the basket, the upper ends of the sections being capable of interengagement whereby to connect the ends together and also to place them under tension whereby to cause the said intermediate parts of the sections to bear down firmly on the top of the basket.

699,594. APPLICATOR. GEORGE J. VAN SICK, French, N. J. Filed Oct. 23, 1899. Serial No. 79,471. (No model.)



Claim.—1. An instrument of the character described, comprising a curved tubular shell, an applicator for insertion in the shell, said applicator comprising a perforated cap, a curved tubular stem extending from the cap, and a cap secured to the stem and engaging the shell to close the end thereof, and a curved tubular follower having a perforated end and adapted to be inserted in said applicator, as set forth.

2. An applicator, comprising a cap, a segmental tube carrying the cap, and a segmental follower for insertion into the tube to pass with it forward and into the said cap, as set forth.

3. An applicator, comprising a perforated cap, a segmental tube carrying the cap, and a segmental tubular follower for insertion into the said tube and having its inner end perforated, and through which a medicament is adapted to be forced by pressure, as set forth.

4. An applicator, comprising a cap for engaging the cervix uteri, a segmental tube carrying the cap and opening into the same at the bottom thereof, and a segmental tubular follower for insertion into the said tube and cap and having its forward end perforated, as set forth.

5. An applicator, comprising a cap for engaging the cervix uteri, a segmental tube carrying the cap and opening into the same at the bottom thereof, and a segmental tubular follower for insertion into the said tube and cap and having its forward end perforated, the follower having a longitudinal inlet-channel and a longitudinal outlet-channel, as set forth.

6. An applicator, comprising a segmental shell for insertion in the vagina and formed at its outer end with recesses, a perforated cap for insertion in the said shell to engage the cervix uteri, a segmental tube carrying the said cap and opening into the bottom thereof, and a cap on the outer end of the said tube and having lugs for slidably engaging the said shell-recesses, as set forth.

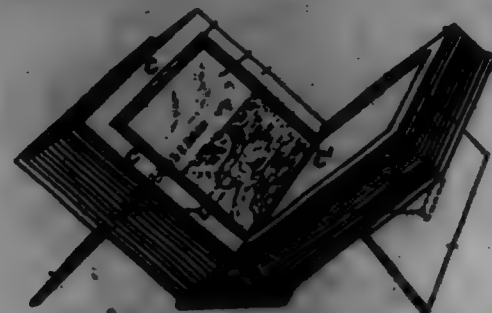
7. In an applicator, a segmental shell, a perforated cap, a segmental tube carrying the cap and opening into the same at the bottom thereof, and a cap on the outer end of the tube and having a locking engagement with the shell, as set forth.

699,595. STOPPING-ONE FOR PHOTOGRAPHIC PLATES. ALFRED WAGNER, Munich, Germany. Filed Jan. 11, 1898. Serial No. 39,204. (No model.)

Claim.—1. In a receptacle for photographic plates and the like, a leaf having a means in its face to receive the plates, said means extending to the lower edge of the leaf and exposing the entire surface of the plates.

2. In a receptacle for photographic plates and the like, a book consisting of a number of leaves hinged together each of which has a recess in its face extending to its lower edge and exposing the entire surface of the plates.

3. In a receptacle for photographic plates, a leaf consisting of a substantially U-shaped frame, and a thin backing covered upon both sides of the frame and extending into the open portion of the same to form a plate-supporting recess extending to the lower edge of the leaf and exposing the entire surface of the plate.

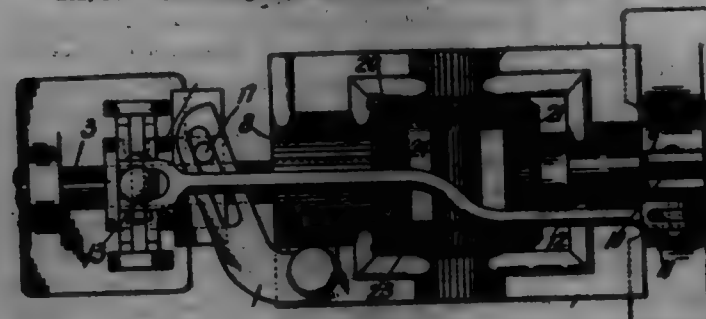


4. In a receptacle for photographic plates, a number of leaves hinged together in a book form, said leaves consisting of frames open at the hinge and a thin backing covered upon and over the frame forming therewith a recess for the plate.

5. In a receptacle for photographic plates and the like, a leaf consisting of a frame open at one side and having thin covering-sheets attached to the front and back thereof, one of said sheets being stretched tight, while the other is depressed through the frame to form a recess, the two sheets being pasted or fastened together.

6. A book for holding photographic plates composed of a number of leaves hinged together, each of said leaves being composed of a frame open at the hinged side, and a thin sheet covered on the frame, stretched over the back thereof and drawn over the front of the same and pressed therethrough and onto the stretched sheet, whereby a recess with an open lower end is formed in the face of the leaf to support the plate with its lower edge resting on the back of the book.

699,596. REVERSING-GEARING. CLAREN W. WALKER, Camden, N. J. Filed July 31, 1901. Serial No. 70,289. (No model.)



Claim.—1. In a reversing-gearing, the combination of an expandable and contractible bearing, a frame adapted to rotate and having a journal mounted in said bearing, a driven shaft extending through said journal, a drive-shaft journaled in the frame in longitudinal alignment with said driven shaft, means for clamping the frame to the drive-shaft, gearing between the drive and driven shafts, and means for simultaneously causing the bearing to grip the frame-journal and the clamping means to release the drive-shaft, and vice versa, substantially as described.

2. In a reversing-gearing, the combination of an expandable and contractible bearing, a frame provided at one end with a journal mounted in said bearing and at its other end with a clamp, a drive-shaft mounted in the frame and adapted to be engaged and released by said clamp, a counter-shaft mounted in said journal, gearing between the two shafts, a screw mounted upon the expandable bearing and clamp, and means for operating said screw to simultaneously contract the bearing and expand the clamp, and vice versa, substantially as described.

699,597. LOCKING SYSTEM FOR MAIL-BOXES. JOHN E. WALKER, Washington, D. C. Filed Feb. 10, 1902. Serial No. 90,346. (No model.)



Claim.—1. In a locking system for a series of receptacles, the combination with a portable carrier adapted to hold the keys of said receptacles, of means located at each of said receptacles for releasing the key to the next succeeding receptacle in the series.

2. The combination with a portable carrier adapted to hold the keys of a series of receptacles, of unlocking means located within each of said receptacles for releasing the key to the next succeeding receptacle of the series.

3. In a locking system for a series of receptacles, the combination with portable means adapted to hold the key of each of said receptacles in an inoperative position, of means located within each of said receptacles for releasing the key to the next succeeding receptacle of the series.

4. The combination with a portable carrier for holding the keys of a series of receptacles in an inoperative position, of a key located within each receptacle of the series for releasing the key to the next succeeding receptacle.

5. In a mail-box-locking system the combination with portable means for securing the keys of a series of boxes, of independent locking and unlocking means for each key located within each box of the series for releasing the key to the next succeeding box.

6. In a mail-box-locking system, the combination with a portable carrier for holding the keys for a series of mail-boxes in an inoperative position, of means located at each box for releasing the key to the next box of the series, and means for returning the preceding key of the series to an inoperative position.

7. In a mail-box-locking system, the combination with portable means for holding the keys of a series of boxes, of unlocking means for each key located at each box, and means for locking the preceding key in an inoperative position upon the release of the key to the next box of the series, substantially as set forth.

8. In a mail-box-locking system, the combination with portable means for securing the keys of a series of boxes in an inoperative position, of means located within each box for releasing the key of the next succeeding box of the series, and means for locking the preceding key of the series in an inoperative position whereby the entire series of boxes must be opened in their regular order before the first box can again be opened.

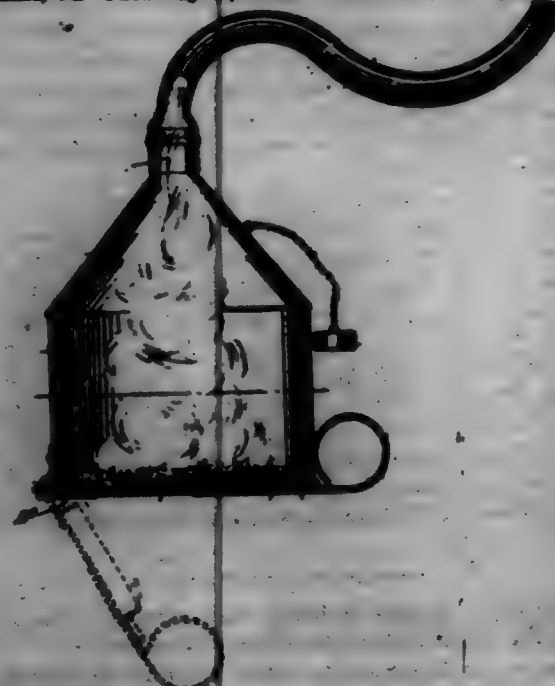
9. In a mail-box-locking system, the combination with a key-carrier having a separate key for each box in the system, of means for retaining said keys normally in an inoperative position, and means located at each box for releasing the key of the next succeeding box.

10. In a mail-box-locking system, the combination with a key-carrier having a separate key for each box in the system, of means for retaining said keys normally in an inoperative position, means located at each box for releasing the key to the next succeeding box, and a connection between each key and the preceding key by which one key is retracted as the other is released.

11. The combination in a device of the character described, of a key-carrier comprising a casing, a number of keys pivoted therein, a series of key-operated bolts each pivoted to one of the keys, tumblers pivoted in the casing and engaging the bolts, means on each tumbler engaging the preceding tumbler and means for retracting the bolts.

12. The combination in a device of the character described, of a key-carrier comprising a casing, a number of keys pivoted therein, a series of key-operated bolts each pivoted to one of the keys, tumblers pivoted in the casing and engaging the bolts, a pin on each tumbler engaging the preceding tumbler and springs bearing on the keys, substantially as described.

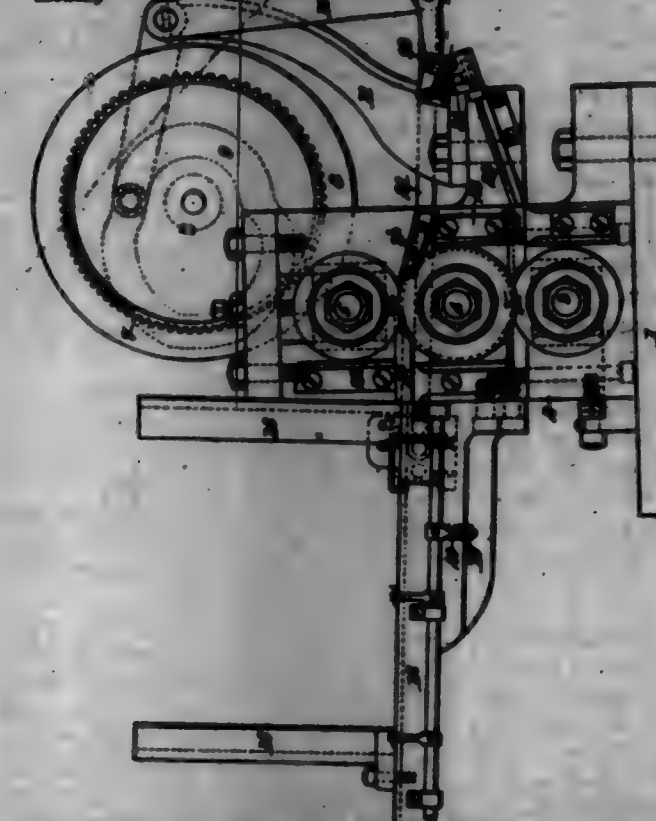
699,598. BURNER AND INHALER. WILLIAM E. WALKER, Verona, N. J. Filed July 28, 1901. Serial No. 90,350. (No model.)



Claim.—1. A burner and inhaler, comprising a shell having a hinged bottom, a dome, a discharge-spout extending from the apex of the dome, a flexible tube for carrying off the generated fumes, and a burner on the upper side of said hinged bottom, for receiving and burning the drugs, said burner being formed by a central solid portion of the bottom and by an annular flange rising from said bottom and surrounding said central portion, the bottom being provided with air-inlets outside said flange and leading into the shell, to furnish the necessary air for proper combustion of herbs or drugs placed in the burner, as set forth.

2. A burner and inhaler, consisting of a shell having a dome-shaped upper portion terminating in a spout, and a hinged bottom having a combined catch and handle, the bottom being provided with an annular vertical flange on its inner face and of less diameter than the shell and with perforations in the space intervening the flange and shell, as set forth.

699,599. CORNER-GRASP-GETTING MACHINE. MARTIN B. WATSON, Ansonia, Conn. Filed Feb. 27, 1902. Serial No. 90,397. (No model.)



Claim.—1. In a tipping-machine, the combination with "three-high" compression-rolls, of means for feeding stock with tips upon the ends between two of the rolls, means for placing the stock in line with the other rolls, tipping the stock and passing each tipped stock between the other rolls, substantially as set forth.

2. In a tipping-machine, the combination with a reciprocating feed device, a chute for tips between the feed device and compression-rolls, a second reciprocating feed device below the plane of the first one, a second chute for tips between the second feed device, and compression-rolls arranged "three high," substantially as shown and for the purpose set forth.

3. In combination with three rolls arranged one above the other, reciprocating feeds on opposite sides of the rolls and tip-holders between the reciprocating feeding means and the intake-faces of the rolls, for the purpose set forth.

4. In a tipping-machine, a chute, means for taking stock successively therefrom, a reciprocating feed which engages the stock, a chute to receive tips which if open is in the path of the stock the chute being positioned adjacent to the intake-face of the compression-rolls, a second feed to which the stock with tips on one end are fed by the upper compression-rolls, a chute for tips between said feed and the intake-faces of the lower compression-rolls, the compression-rolls being "three high," substantially as shown and for the purpose set forth.

5. In a corner-grasp-getting machine, the combination with the "three-high" rolls, stop-supports on opposite sides of the rolls on different planes, reciprocating carriages which engage the stops and feed them to the intake sides of the rolls, and chutes for tips opposite the intake-faces of the rolls, substantially as shown.

6. In a tipping-machine, compression-rolls having their intake-faces on different planes, a reciprocating feed for presenting stock with tips thereon to the intake-faces of a pair of the rolls, means for effecting an engagement of the partially-tipped stock with a second feed which when reciprocated presents the stock to the lower rolls, substantially as shown.

7. In a day-tipping machine, the combination of a hopper, means

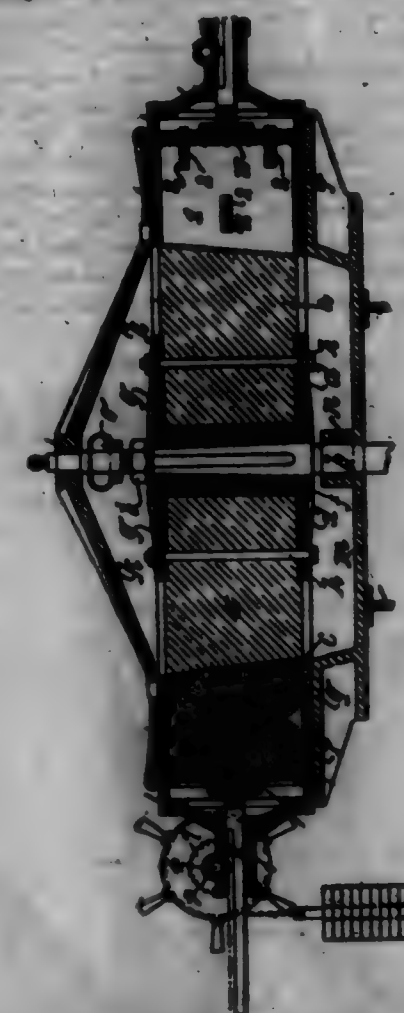
for feeding stock therefrom, a two-part carrier between which a steel is clamped, and means for reciprocating the carrier, substantially as shown.

8. The combination in a tip-attaching machine, of a carriage having parts which are movably connected, a slide upon which one part of the carriage is mounted, means for reciprocating the carriage connected to its upper movable part, substantially as shown, whereby when the carriage is moved in one direction the upper part will be raised, and when moved in an opposite direction the upper part will be lowered.

9. The combination in a tip-attaching machine, of rolls, tip-carriers adjacent to the rolls, reciprocated carriages on each side of the rolls, a hopper for the stops, and means for feeding the stops from the hopper to one of the carriages, substantially as shown.

10. In a tip-attaching machine, a two-part reciprocating carrier, the parts being connected so that as the carrier is moved in one direction the parts will be separated and when moved in the other direction the parts will be brought together to clamp a steel and feed it into compression-rolls.

699,600. WOOD-GRINDING MACHINE. EDWARD WOODRUM, Glasgow, Austria-Hungary. Filed Nov. 2, 1902. Serial No. 90,398. (No model.)



Claim.—1. A wood-grinding machine, comprising a cylindrical housing, a multiplicity of parallel-pipedal boxes for the reception of the wood to be ground, disposed in the vertical walls of said housing and projecting radially therefrom, said boxes open at their inner ends, a feed-piston in each of said boxes having a toothed rod, a vertical shaft revolvable in axially-disposed bearings in the base and cover of the housing and a grinding-stone of the form of an inverted truncated cone secured to said shaft; in combination with a spindle revolvable in bearings in brackets secured to the outer face of each box, a piston secured to said spindle and gearing with the toothed piston-rod, a rope-drum also secured to said spindle and a weighted rope wound on said drum to revolve the piston so as to move the piston inwardly, substantially as set forth.

2. A wood-grinding machine comprising a cylindrical housing, a multiplicity of parallel-pipedal boxes for the reception of the wood to be ground, disposed in the vertical walls of said housing and projecting radially therefrom, said boxes open at their inner ends, a feed-piston in each of said boxes having a toothed rod, a vertical shaft revolvable in axially-disposed bearings in the base and cover of the housing and a grinding-stone of the form of an inverted truncated cone secured to said shaft; in combination with a spindle revolvable in bearings in brackets secured to the outer face of each box, a piston secured to said spindle and gearing with the toothed piston-rod, a rope-drum also secured to said spindle and a weighted rope wound on said drum to revolve the piston so as to move the piston inwardly and means for revolving the drum by hand is a second claim.

verse direction and locking the same against rotation, substantially as and for the purpose set forth.

2. A wood-grinding machine comprising a circular base, a plurality of vertical frames removably secured thereto so as to form between them rectangular open-ended spaces, the inner, narrower ends of said frames constituting the vertical wall of the housing, one or more of the inner ends of the frames of each group having a vertical recess for the reception of a perforated pipe, a parallelepipedal box for the wood to be ground removably secured to the base of the housing and to proximate walls of the frames in the spaces between them, said boxes open at their inner end and having a double charging-aperture in their upper wall and a head or cover bolted to the inner end of the vertical frames and boxes; in combination with a vertical shaft revolvable in bearings in the cover and base of the housing, a grinding-stone of the form of a truncated cone secured to said shaft with its periphery proximate to the inner end of the above-said boxes, and means for automatically feeding the wood in the boxes to the stone, for the purpose set forth.

4. A wood-grinding machine, comprising a circular base provided with a depression for the collection of the fiber, a plurality of vertical frames removably secured thereto so as to form between them rectangular open-ended spaces, the inner, narrower ends of said frames constituting the vertical wall of the housing, one or more of the inner ends of the frames of each group having a vertical recess for the reception of a perforated pipe, a parallelepipedal box for the wood to be ground removably secured to the base of the housing and to proximate walls of the frames in the spaces between them, said boxes open at their inner end and have a double charging-aperture in their upper wall and a head or cover bolted to the inner end of the vertical frames and boxes; in combination with a vertical shaft revolvable in bearings in the cover and base of the housing, a grinding-stone of the form of a truncated cone secured to said shaft with its periphery proximate to the inner end of the above-said boxes, and means for automatically feeding the wood in the boxes to the stone, for the purpose set forth.

699,601. CORN HARVESTING AND HOOKER. THOMAS P. WHEAT and IRON WHEAT, Plymouth, Ind. Filed Sept. 25, 1901. Serial No. 74,408. (No model.)



Claim.—1. A corn harvester and hooker, comprising a pair of driving-rolls for drawing the stalks downward, the said rolls being arranged horizontally and spaced apart, the space between the rolls decreasing in width from the front to the rear thereof, a pair of pulling-rolls similarly spaced for pulling the ear off the stalk at the time the latter is drawn downward, the pulling-rolls being inclined and extending from in front of the driving-rolls upwardly and rearwardly over the same, means for elevating the pulled-off ear, and a hooking device for receiving the ear from the elevating means to remove the husk from the ear, as set forth.

2. A corn harvester and hooker, comprising a pair of driving-rolls for drawing the stalks downward, the said rolls being arranged horizon-

tally and spaced apart, the space decreasing in width from the front to the rear thereof, a pair of pulling-rolls similarly spaced apart and arranged for pulling the ear off the stalk at the time the latter is drawn downward, the pulling-rolls being inclined and extending from in front of the driving-rolls upwardly and rearwardly over the same, means for elevating the pulled-off ear, a hooking device for receiving the ear from the elevating means to remove the husk from the ear, and an elevator for receiving the husked ear from the said hooking device to discharge the ear from the machine, as set forth.

3. A corn-harvester, comprising a main frame, an inclined elevator-frame mounted thereon and having a slot in its middle, the forward ends of the frame being provided with chutes for guiding the stalk into the slot, elevator-frames mounted to travel on the elevator-frame at each side of the slot, similarly-inclined pulling-rolls journaled on the frame at each side of the slot and extending into the same, the pulling-rolls being spaced apart and the space between the rolls decreasing in width from the front or lower end to the rear end thereof, and a horizontally-arranged driving device for the stalks, the pulling-rolls extending from in front of the driving device upwardly and rearwardly over the same, as set forth.

4. A corn-harvester, comprising a main frame, an inclined elevator-frame made in two parts spaced apart and having chutes at their forward ends to guide the stalk into the space between the members of the frame, a pair of driving-rolls for drawing the stalk downward and arranged below the elevator-frame and extending horizontally, brackets carried by the main frame to which the driving-rolls are journaled, the said driving-rolls being spaced apart, the space decreasing in width from the front of the rolls to the rear thereof, curvilinearly-bent chutes at the forward ends of the brackets to guide the stalks between the driving-rolls, and pulling-rolls arranged above and at an inclination to the driving-rolls for pulling the ear in a direction opposite to that in which the stalk is drawn by the driving-rolls, the inclination of the pulling-rolls corresponding with that of the elevator-frame, as set forth.

5. A corn-harvester having a driving device comprising a pair of driven rolls horizontally arranged and spaced apart for engaging the stalk and drawing the same downward, and a pulling device comprising a pair of inclined rolls extending from in front of the driving-rolls upwardly and rearwardly above the same, and likewise spaced apart, the space between the said pairs of rolls being in vertical alignment, the pulling-rolls operating in unison with the driving-rolls to pull the ear off the stalk while the latter is drawn downward, as set forth.

6. A corn-harvester having a driving device comprising a pair of driven rolls, horizontally arranged and spaced apart, the space decreasing in width from the forward to the rear ends of said rolls, the said rolls being arranged to engage the stalk and draw the same downward, a pulling device comprising a pair of inclined pulling-rolls extending from in front of the driving rolls upwardly and rearwardly above the same and similarly spaced apart, the pulling-rolls operating in unison with the driving-rolls to pull the ear off the stalk while the latter is drawn downward, and an elevator for receiving the pulled-off ear from the said pulling device and moving it upward and rearward away from the pulling device, as set forth.

7. A corn-harvester, having a pair of driven driving-rolls for engaging the stalk and drawing the same downward, the driving-rolls extending in a horizontal direction and a pair of driven pulling-rolls for pulling the ear off the stalk engaged at the time by the driving-rolls, the pulling-rolls being inclined and extending from in front of the driving-rolls upwardly and rearwardly over the same, as set forth.

8. A corn-harvester, having a pair of driven driving-rolls for engaging the stalk and drawing the same downward, the driving-rolls extending in a horizontal direction and rotating toward each other in a downward direction, and a pair of driven pulling-rolls rotating toward each other in an upward direction and adapted to pull the ear off the stalk engaged at the time by the driving-rolls, the pulling-rolls being inclined and extending from in front of the driving-rolls upwardly and rearwardly over the same, as set forth.

9. A corn-harvester having a pair of horizontally-arranged driven driving-rolls for engaging the stalk and drawing the same downward, and a pair of inclined driven pulling-rolls extending from in front of the driving-rolls upwardly and rearwardly over the same, the pulling-rolls being smooth and the driving-rolls being fluted, and the rolls in each pair being spaced apart and arranged obliquely one to the other, as set forth.

10. A corn-harvester, having a pair of horizontally-arranged driven driving-rolls for engaging the stalk and drawing the same downward, the driving-rolls being fluted and rotating toward each other in a downward direction and a pair of inclined driven pulling-rolls rotating toward each other in an upward direction, the pulling-rolls being smooth and extending from in front of the driving-rolls upwardly and rearwardly over the same, the rolls in each pair being spaced apart and arranged obliquely one to the other, the forward ends of the rolls in each pair being spaced furthest apart, as set forth.

11. A corn-harvester, comprising a wheeled frame, an inclined elevator-frame mounted thereon and having a slot in its middle extending longitudinally, horizontally-arranged driving-rolls journaled in brackets carried by the main frame, pulling-rolls journaled in the elevator-frame, and inclined to correspond therewith, the pulling-rolls extending from in front of the driving-rolls upwardly and rearwardly over the same, and elevating devices mounted to travel in the elevator-frame on opposite sides of said pulling-rolls, as set forth.

12. A corn harvester and hooker, comprising a wheeled frame, an inclined elevator-frame mounted thereon, and having a slot in its middle, elevator-frames mounted to travel on the elevator-frame at each side of the slot, pulling-rolls inclined to correspond with the elevator-frame and journaled thereon at each side of the slot, horizontally-arranged driving-rolls for drawing the stalks downward, and arranged below the inclined pulling-rolls, brackets carried by the main frame in which the said driving-rolls are journaled, a hooking device for receiving the ear from the elevator-frames, and means for discharging the husked ears from the machine, as set forth.

699,602. SIA. GEORGE F. WHITE, Peabody, Tenn. Filed Apr. 20, 1901. Serial No. 77,000. (No model.)



Claim.—1. A stove-top of the body portion, the roof and the base of the roof connected to the top of the body and composed of a series of overlapping sections.

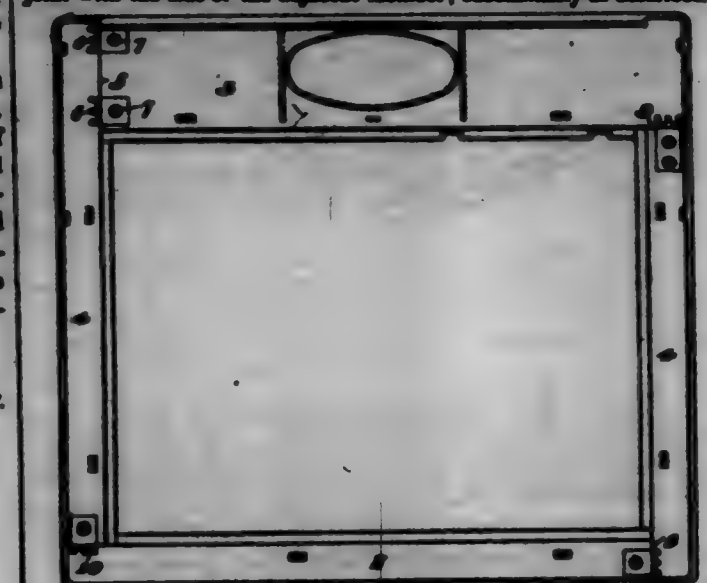
2. A stove-top of the body portion, the roof and the base of the roof made of sections and connected to the top of the body.

3. The stove-top shown and described, consisting of the vertical standards or supports, the rectangular strips interposed between said supports and having their lower edges stacked snugly, the horizontal rods passing through the supports and interposed strips to bind the lower edges of the strips and supports firmly together and leave the outer edges open or flaring, the top portion mounted upon the body and consisting of the ends of overlapping curved strips secured together and permitting contraction and expansion, the top or cap secured upon said top portion, and the flaps in the body and top to permit access to the fire.

4. The stove-top shown and described, consisting of the vertical supports, the interposed rectangular strips having their lower edges meeting and their outer edges apart, means for clamping the supports and strips firmly together, said strips being made in sections secured together to permit contraction and expansion, the flaps in the body, the vertical chutes adjacent to said flaps, the doors in the sides of the body and chime, and a top portion connected to the body to have a slight movement or play.

699,603. STOVE-TOP. FRANK E. WILSON, Indianapolis, Ind., assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 28, 1901. Serial No. 68,022. (No model.)

Claim.—1. A stove-top composed of metal castings, each forming one side of the top and having depending edge flanges, one flange upon each casting extending around an outer corner of the top, the inner flange of said member being cut away at each end to form a side joint with the end of the next member, the other end of each member forming an end joint with the side of the adjacent member; substantially as described.

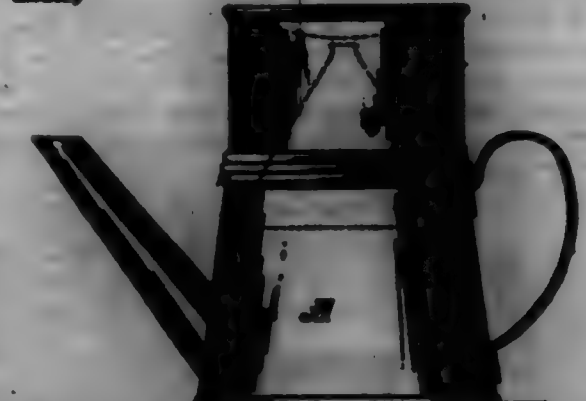


2. A stove-top composed of metal members having depending side flanges, each member forming one side of the top and having an end joint at one end and a side joint at the other end, the inner flange of each member being cut away at its side joint, and the members being secured together by fastenings extending transversely to the plane of the stove-top; substantially as described.

3. A back strip for stove-tops, having an end joint at one end, and a side joint at the other end, said strip having a central opening larger than the fire-opening, and a plate adjustably secured to the back strip over this hole, and containing a fire-opening; substantially as described.

4. A back strip, having an end joint at one end and a side joint at the other end, said strip having a large central hole, a plate adjustably secured over the hole and having a depending part adjustable within said hole, said plate having a fire-opening and flange surrounding it; substantially as described.

699,604. COFFEE-POT. FRANK E. WILSON and JOHN S. GARDNER, New Orleans, La. Filed Feb. 27, 1902. Serial No. 95,000. (No model.)



Claim.—1. The combination with a coffee-pot, of a hollow strainer, for dividing the pot into two compartments, comprising an enlarged perforated base portion, a reduced perforated top portion and an intermediate impervious portion.

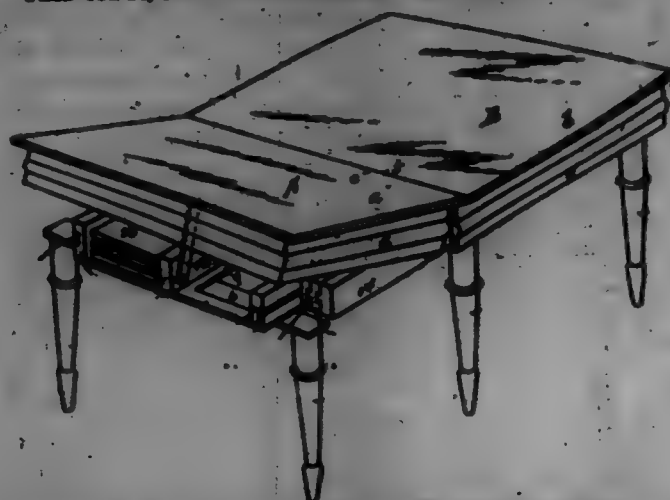
2. The combination with a coffee-pot composed of two receptacles, of a strainer, separating the two receptacles, comprising an enlarged perforated base portion, a reduced perforated top portion and an intermediate impervious portion.

3. The combination with a coffee-pot, composed of two receptacles, of a hollow substantially tapering strainer, separating said receptacles, provided with an impervious band centrally disposed circumferentially around the same.

4. The combination with a coffee-pot, composed of two receptacles, of a hollow substantially tapering strainer, separating said receptacles, provided with a removable impervious band centrally disposed circumferentially around the same.

5. The combination with a coffee-pot composed of two receptacles, of a strainer, separating the same, comprising an enlarged perforated base portion, a reduced perforated top portion and an intermediate impervious portion, and provided at its base with an inwardly-projecting conical flange.

699,805. EXTENSION-TABLE. JOHN F. WILSON, Detroit, Mich. Filed Oct. 24, 1901. Serial No. 79,763. (No model.)



Claim.—1. In an extension-table, the combination of a frame, a receptacle for loose leaves having an end thereof open, a table-section connected thereto by slide-rails and a section of the table-top hinged to said frame intermediate the ends of the frame, said section being provided with shirring arranged to drop in front of the receptacle, and being adapted to swing upward carrying the shirring with it to give access to the receptacle, substantially as described.

2. In an extension-table, the combination of an extensible frame containing a receptacle for loose leaves, a table-top in sections arranged to separate, a hinge secured to one of said sections extending under the adjacent section and secured to the frame behind the edge of said section, whereby on lifting the free edge of the hinged section the adjacent edges engage and extend the frame to produce an initial extension thereof, substantially as described.

3. In an extension-table, in combination with extensible slides, a receptacle for loose leaves arranged between the slides and having an end thereof open, a hinged section of the table-top having shirring attached thereto and arranged to swing upward and carry the shirring and thereby give access to the end of the receptacle, substantially as described.

4. In an extension-table, the combination of a frame, a table-top in sections, a swinging section of said top being arranged with its hinge connection at an intermediate line of said table and with its free edge at an end thereof, a fixed section arranged to shut against the hinged edge, a hinge projecting from the swinging section and fixed to a part of the frame behind the abutting edge of the fixed section of the table-top, substantially as described.

5. In an extension-table, in combination with extensible slides, a receptacle for loose leaves arranged between the slides and having an end thereof open, a hinged section of the table-top having shirring attached thereto and arranged to swing upward and carry the shirring and thereby give access to the end of the receptacle, and means for locking the top in its closed position, substantially as described.

699,806. NECK AND COVER FOR CLOSING BOTTLES OR JARS. ALLEN F. WILSON, Dayton, E. J., assignor of one-half to John Wesley Webb, Dayton, E. J. Filed Oct. 1, 1901. Serial No. 77,596. (No model.)



Claim.—In a device for closing bottles and jars, a neck having three substantially cylindrical segmental projections and a free-poleball lip, in combination with a clip having a packing and corresponding longer internal ball-like projections, adapted to engage said short projections and enter the top of the neck and compress the packing into fluid-tight contact with the lip, substantially as set forth.

699,807. GRASP-HANDLIFE. JAMES F. WILSON, York, Pa. Filed June 29, 1902. Serial No. 82,982. (No model.)

Claim.—1. In a machine of the character described, a supporting or rolling table formed of a series of independently-removable slats, and interchangeable forms of different shapes on which the slats are removably seated, substantially as set forth.

2. In a machine of the character described, a supporting or rolling

table formed of a series of parallel independently-removable slats extending lengthwise of the machine, and interchangeable forms of different shapes secured to the machine upon which the slats are removably seated, substantially as set forth.



3. In a machine of the character described, the combination with the frame of the machine, the top of which is provided with an opening having grooves formed in the walls thereof, of interchangeable forms of different shapes secured to the top of the machine, and a supporting or rolling table composed of a series of independently-removable slats having their ends fitting in said grooves and supported by said frame, substantially as set forth.

4. In a machine of the character described, the combination with the frame of the machine, the top of which is provided with an opening having grooves formed in the side walls thereof and flanges projecting inwardly from the side walls and provided with notches, of interchangeable forms of different shapes placed transversely of the opening and having their ends seated in said notches, but secured to the under side of the top of the machine and supporting the ends of said frame, and a table composed of a series of parallel longitudinally-extending independently-removable slats seated in said grooves and supported by said frame, substantially as set forth.

5. In a machine of the character described, a rolling or supporting table formed of a series of independently-removable slats spaced apart and interchangeable forms of different shapes on which said slats are removably seated, substantially as set forth.

6. In a machine of the character described, a rolling or supporting table formed of a series of longitudinally-extending parallel independently-removable slats spaced apart and interchangeable forms of different shapes on which said slats are removably seated, substantially as set forth.

7. In a machine of the character described, the combination with the frame and its rolling-table, of an apron secured to said frame and arranged over said table, a carriage provided with a bunching-roller adapted to coast with the apron and table in forming the bunch, and means located inside of the edges of the apron and projecting therefrom for automatically trimming the rolled work, substantially as set forth.

8. In a machine of the character described, the combination with the frame and its bunching mechanism, of trimming mechanism consisting of cutters located between the two edges of the apron and projecting therefrom and means for actuating said cutters, and a connection between the movable parts of the bunching mechanism and the cutters for actuating the latter to trim the work, substantially as set forth.

9. In a machine of the character described, the combination with the frame and its rolling-table, a forming-apron and a reciprocating carriage provided with a shaping-roller, of cutting mechanism located between the edges of the apron and projecting therefrom supported by the frame, means for adjusting the cutting mechanism, and a connection between the cutting mechanism and the carriage for actuating said cutting mechanism, substantially as set forth.

10. In a machine of the character described, the combination with the frame provided with a rolling-table, an apron, and a carriage provided with a shaping-roller, of a cutter consisting of two blades provided with oppositely-disposed cam-edges, a sliding rod extending through said slats, and a connection between the sliding rod and the carriage for actuating the blades by the movement of the carriage, substantially as set forth.

11. In a machine of the character described, a supporting or rolling

table, the combination with the frame of the machine, of a shaft extending transversely of the frame, cutting mechanism pivoted to said shaft and provided with oppositely-disposed cam-edges, and a rod extending through said slats and having its ends held in guiding-slits in which the rod is moved back and forth and connected with some movable part of the machine for actuating the blades of the cutting mechanism, substantially as set forth.

12. In a machine of the character described, the combination with the frame and its rolling-table, of cutting mechanism arranged at one end of the frame and consisting of two oppositely-disposed blades arranged between the two edges of the apron and projecting through suitable openings therein and one of which projects above the surface of the rolling-table and the other of which fits with or below the surface and in advance of the first-named blade, and connections between some movable part of the machine for actuating the blades by the movement of the machine, substantially as set forth.

13. In a machine of the character described, the combination with the frame, the top piece of which is provided with a rolling-table, depressions arranged at the top forwardly and rearwardly of the rolling-table, of an apron extending over the rolling-table and depressions and fixed at its ends, a reciprocating carriage provided with a shaping-roller to travel over said table, cutting mechanism located in the depressions at the rear end of the table, and connections between the cutting mechanism whereby the cutting mechanism is actuated by the movement of the carriage to trim the ends of the rolled work, substantially as set forth.

14. In a machine of the character described, the combination with the frame provided with journal-brackets having a lag projecting therefrom, of a longitudinally-divided shaft, an apron clamped between the divided parts of said shaft, a wheel mounted to one end of the shaft and adapted to coast with the lag projecting from the journal-brackets, and a spring confined between a fixed part of the machine and a shoulder on said shaft entering in co-operation to hold the notched wheel into engagement with the fixed lag, substantially as set forth.

15. In a machine of the character described, the combination with the frame consisting of front and rear pieces and a top connecting the two together, the front and rear pieces being provided with roller-bearings, of a rolling-table secured to the top, track-rolls connecting the front and rear pieces, a carriage mounted to slide upon said track, an apron secured to said frame over the rolling-table, and a rope secured to said carriage having one end passed around a pulley carried by the front end piece and having both its ends then passed around a pulley carried by the rear end piece and connected to a tensioner, substantially as set forth.

16. In a machine of the character described, the combination with a rolling or supporting table formed of a series of interchangeable parallel slats, of interchangeable bunching-rollers of different shapes operating over said table and provided with a periphery of varying diameter.

17. In a machine of the character described, a rolling or supporting table having a curved upper surface formed of a series of interchangeable slats, combined with a bunching-roller operating over said table and having different diameters at different points in its length.

18. In a machine of the character described, a rolling or supporting table having a curved upper surface formed of a series of interchangeable parallel slats spaced apart, combined with a bunching-roller operating over said table, the periphery of the roller having a curvature opposite that of the upper surface of the table to produce a shape of a shape opposite that of the roller.

699,808. REEFL-PAD FOR GUNS. JAMES E. WILSON, Clinton, Mo. Filed July 25, 1901. Serial No. 69,368. (No model.)



Claim.—1. The reepl-pad herein described, comprising the air-chamber composed of inner and outer flexible walls united directly together at their outer edges, whereby the air-chamber will form an substantial projection beyond the end of the gun-stock at the upper and lower edges thereof, the sleeve extending from the outer edge of the air-chamber, and adapted to embrace the stock, and the filling-tube arranged within

the said sleeve and connected with the inner wall of the air-chamber, substantially as set forth.

2. A reepl-pad for guns, having an air-chamber composed of inner and outer walls, and a sleeve extending from the outer edge thereof and adapted to embrace the rear end of the gun-stock, and the filling-tube located within said sleeve and connected with the inner wall of the air-chamber, substantially as set forth.

3. A reepl-pad for guns, comprising the air-chamber having inner and outer walls, said walls being united directly together at their outer edges, that is to say without any intervening connecting portions whereby to avoid any substantial projection beyond the end of the stock at the edges thereof, and the sleeve projecting from the outer edge of the pad and adapted to embrace the rear end of the gun-stock, substantially as set forth.

4. A reepl-pad for guns, comprising an air-chamber composed of inner and outer walls united directly together at their outer edges that is to say without any intervening connecting portions and provided along said edges with means whereby the pad may be secured to the butt-end of the gun-stock, substantially as set forth.

5. The combination of the gun-stock, the reepl-pad having inner and outer walls united directly together at their edges and provided at each edge with a projecting sleeve to embrace the butt-end of the stock, and a cover fitting over said pad and stock, and held in position, substantially as set forth for the purposes set forth.

699,809. NON-REFILLABLE BOTTLE. JAMES E. WILSON, Clinton, Mo., assignor of one-half to William A. Jacobs and George L. Sloan, Baltimore, Md. Filed July 15, 1901. Serial No. 67,402. (No model.)



Claim.—1. A non-refillable bottle, comprising a valve-actuating lever having a valve-seat, a flap-valve on the said casing to close and open the said seat, a weighted ball flexibly connected with the said valve and extending within the valve-casing, and a spring connected with the said valve for drawing the latter to its seat, as set forth.

2. A non-refillable bottle, comprising a valve-actuating lever having a valve-seat and provided with a yoke, a flap-valve on the said casing to close and open the said seat, a weighted ball flexibly connected with the said valve and extending within the valve-casing, and a spring connected with the said valve for drawing the latter to its seat, the said spring extending downwardly through the valve-seat to connect with a yoke carried by the said casing, as set forth.

3. A non-refillable bottle, comprising a bottle having an annular recess in the neck thereof, a valve-actuating lever having an inclined ring adapted to engage the annular recess in the neck of the bottle, a bar depending from the said casing and having an aperture for engaging a projection in the neck of the bottle, and a valve in the said casing normally held to its seat adapted to open on tilting the bottle, as set forth.

4. A non-refillable bottle, provided with a casing, having a valve-seat, a valve for the said valve-seat and provided with a resilient-plate, a spring for normally holding the valve closed, and a weighted ball having a flexible connection with the said valve to open the same on tilting the bottle, the said ball being adapted to rest on a resilient-plate of the valve, as set forth.

5. A non-refillable bottle having a valve-actuating lever having a valve-seat and provided in its top with an aperture near its periphery, the said casing having a film top provided with a central aperture, the wall of the casing being provided with cut-out portions in its periphery and between the said top with apertures leading to the cut-out portions forming spaces between the upper end of the casing and the inner surface of the neck of the bottle, as set forth.

6. A non-refillable bottle having a spring-pressed valve in its neck,

and a weight connected with the valve for opening the same when the bottle is tilted, as set forth.

7. In a non-refillable bottle, a casing held in the neck of the bottle and having a valve-out in its lower portion and a circular outlet at its top, a spring-pressed valve on said valve-out, and a spherical weight within the casing and loosely connected with the valve, as set forth.

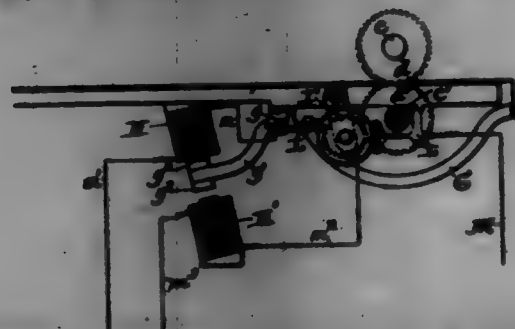
699,610. FOOT-CLIP FOR TREADLES OF SEWING-MACHINES.
ARTHUR EYRE, Providence, R. I. Filed Sept. 14, 1901. Serial No. 78,411.
(No model.)



Claim.—1. In combination with a treadle of a machine, of a foot-clip consisting of a metallic strip, of resilient material, having a flat central portion provided with a square-shaped opening with two extensions from said flat portion, each of which extensions is curved in the arc of a circle, with a bolt having one portion of its shank square-shaped to fit in the opening of said foot-clip and its opposite portion diametrically cross-threaded to receive a washer and nut, respectively, to hold said clip in position upon the treadle, substantially as shown and described.

2. The herein-described foot-clip A having a central flat portion with outwardly-curved wings or extensions b b therefrom, said flat portion provided with a square-shaped opening, the bolt d having an enlarged head d' and having its shank provided with a square-shaped portion d'' having a head, of a size to enter the opening of said foot-clip, and the opposite end of said bolt provided with an exterior cross-threaded surface, with a washer and nut, respectively, to engage upon the threaded portion of said bolt, as shown and described.

699,611. BAG-MACHINE. LEONARD B. BROWN, Perth, N. J., assignor to Lester G. Fisher, Chicago, Ill. Filed Aug. 2, 1900. Serial No. 725,000. (No model.)



Claim.—1. In a paper-bag machine, in combination with the feed-rolls and knife-edge thereof, an electrically-actuated covering device consisting with said knife-edge, of a commutator rotatably carried on a swinging shaft which is actuated by suitable intermeshing gears from the roller-shaft, and of suitable adjustable contact-points, with said commutator, arranged to regulate the action of said covering device, for the purpose described.

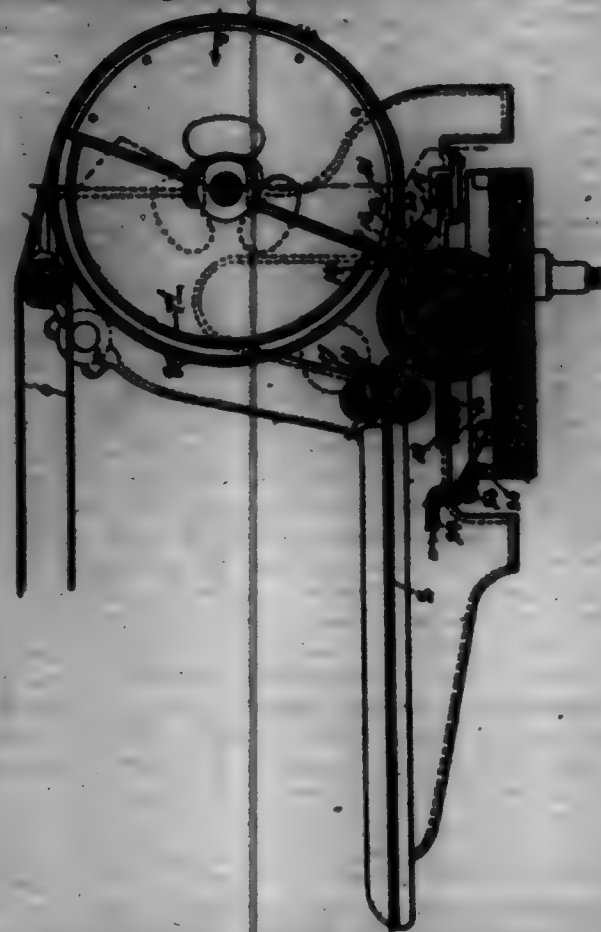
2. In a paper-bag machine, the combination with the feed-rolls and knife-edge thereof, a covering device consisting with said knife-edge, and actuated by a suitable electromagnetic device, a commutator substantially as described rotatably carried on a swinging shaft adapted to carry differential gearing for regulating the speed of said shaft, a series of contact-points with the said commutator adjustably carried on the machine, and means for alternately throwing into circuit suitable electromagnets which actuate the covering device, substantially in the manner described.

3. In a device of the character described comprising the feeding device and covering device, the electromagnet for actuating the covering device, the circuit containing the magnet, devices for controlling the circuit through the magnet carried by an adjustable support and means operated by the paper-feeding device for actuating the circuit-controlling device, substantially as described.

699,612. COATING-MACHINE. GEORGE A. BROWN, Newark, N. J., assignor to the Whitehead & Berg Company, Newark, N. J., a Corporation of New Jersey. Filed July 12, 1901. Serial No. 67,000. (No model.)

Claim.—1. In a coating-machine, a supply-tank and coating-roller movable thereon, in combination with an adjustable deflector plate or bar for forcing the article to be coated into contact with the roller.

2. In combination with a supply-tank, coating-roller and means for feeding the article to be coated to the upper face of the coating-roller, an additional roller above the coating-roller for feeding the coated article from the coating-roller, and stripper-fingers for deflecting the coated article from the coating-roller to the latter feeding-roller.



3. In combination with a supply-tank, coating-roller and means for feeding the article to be coated to the coating-roller, additional means for feeding the coated article from the coating-roller and a scraper-gage between the coating-roller and latter feeding means for evening the coated surface of the article.

4. In combination with a supply-tank, coating-roller and means for feeding the article to be coated to the coating-roller, additional means for feeding the coated article from the coating-roller and a scraper-gage between the coating-roller and latter feeding means for evening the coated surface of the article, and a guide or pressure bar for forcing the coated surface of the article against the scraper-gage.

5. In combination with a supply-tank, coating-roller and means for feeding the article to be coated to the coating-roller, additional means for feeding the coated article from the coating-roller and a scraper-gage between the coating-roller and latter feeding means for evening the coated surface of the article, and an adjustable guide or pressure bar engaged with the coated surface of said article for forcing the coated surface against the scraper.

6. The combination with a coating-roller and feed-roller arranged to feed the article to and from the coating-roller, a scraper-gage between the coating-roller and feed-roller for scraping the coated surface, and stripper-fingers between the gage and coating-roller for the purpose set forth.

7. The combination with a tank for the coating material, coating-roller having its lower face movable in the tank; feed-rollers arranged to feed the article to and from the upper face of the coating roller, and independently-movable scraper-fingers beneath said article for deflecting the coated article from the coating-roller to the feed-roller.

8. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, a scraper-gage between the coating-roller and an outfeed-roller for scraping the coated surface, and stripper-fingers adjustably mounted on the scraper-gage for the purpose described.

9. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, a scraper-gage between the coating-roller and an outfeed-roller for scraping the coated surface, independently-movable scraper-fingers between the gage and coating-roller for the purpose set forth, and a guide or pressure bar engaging the coated surface for forcing the coated surface against the scraper-gage.

10. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, the outfeed-roller being in a plane above the coating-roller, a deflector-plate for feeding the article

downwardly from the infeed against the coating-roller, and stripper-fingers for deflecting the coated article upwardly from the coating-roller to the outfeed.

11. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, the outfeed-roller being in a plane above the coating-roller, a deflector-plate for feeding the article downwardly from the infeed against the coating-roller, and independently-movable scraper-fingers for deflecting the coated article upwardly from the coating-roller to the outfeed.

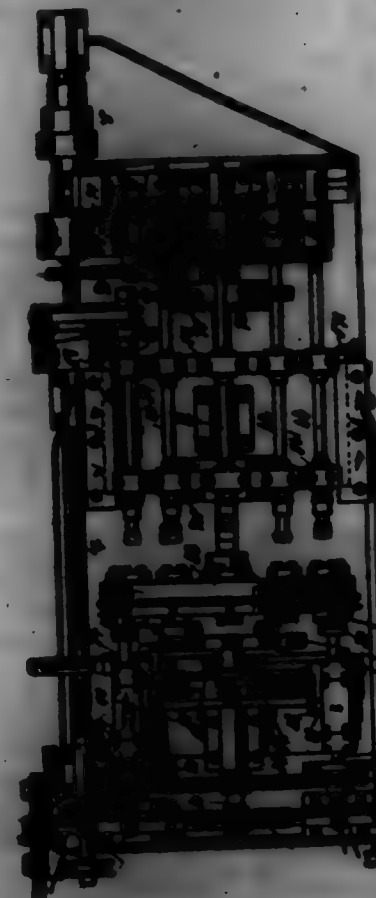
12. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, a deflector-plate for feeding the article from the infeed against the coating-roller, and stripper-fingers for deflecting the coated article from the coating-roller to the outfeed, and a scraper-gage between the strippers and outfeed-roller for equalizing the thickness of the coating.

13. The combination with a tank for the coating material, a coating-roller having its lower portion movable in the tank, feed-rollers arranged to feed the article to and from the coating-roller, a scraper having a beveled edge inclining downwardly away from the coating-roller and arranged to regulate the thickness of the coating on the coating-roller before being applied to the article and to break the air-bubbles in the coating, a plate or bar for deflecting the article downwardly from the infeed to the coating-roller, and stripper-fingers for deflecting the coated article upwardly from the coating-roller to the outfeed.

14. The combination with a coating-roller and feed-rollers arranged to feed the article to and from the coating-roller, of a drive belt or conveyor to receive the coated article from the outfeed-roller, and a stripper arranged to deflect the coated article from the latter roller to the belt.

15. A coating-machine comprising a coating-supply tank, means for maintaining a predetermined level of coating material in said tank, a coating-roller having a portion thereof movable in the coating material of the tank, infeed-rollers for feeding the article to be coated to the coating-roller, an adjustable scraper-bar arranged to regulate the thickness of the coating adhering to the coating-roller before being applied to the article, an adjustable deflector-plate between the infeed and coating rollers for forcing the article into contact with the coating-roller, stripper-fingers for deflecting the coated article from the coating-roller to the outfeed-roller, a scraper-gage for evening and regulating the thickness of the coating on the article after leaving the stripper-fingers, a drive-belt, and a second stripper for deflecting the coated article from the outfeed-roller to the belt.

699,613. MACHINE FOR FINISHING METAL ARTICLES.
HENRY H. DAVIS, Hastings, Mich., assignor to the Rustic Creek Iron Works Company, Limited, Bathurst, Mich. Filed June 12, 1900. Serial No. 64,490. (No model.)



Claim.—1. The combination of a chuck-carrier, a chuck provided with a jaw actuator, a clutch arranged to engage therewith, a positively-

driven clutch-actuator, and friction-gearing between the clutch and its driver, substantially as described.

2. The combination of a chuck-carrier, a plurality of chucks, jaw-actuators on the chucks, a clutch adapted to engage the jaw-actuators, and also the jaws, friction-gearing adapted to allow the clutch to stop while in driving means it is in action, and means for regulating the tension of the friction-gearing, substantially as described.

3. The combination of a chuck-carrier, driving mechanism therefor, a stop mechanism acting alternately with the driving mechanism, non-rotatable chucks or collets on said carrier, actuators adapted to operate the jaws of said collets, and a clutch arranged to engage said actuators to operate the jaws of the chuck during the period of rest of said carrier.

4. The combination of a chuck-carrier, non-rotatable chucks or collets thereon, means for operating the jaws of said chucks, a driving mechanism for said carrier arranged to act intermittently, a stop mechanism acting alternately with the driving mechanism, a gang of rotatable tool-spindles mounted in a reciprocating carriage and so arranged that the tools therein shall operate upon the work in said chucks, at one end of the reciprocation of the reciprocating carriage, and means for reciprocating the tool-carriage.

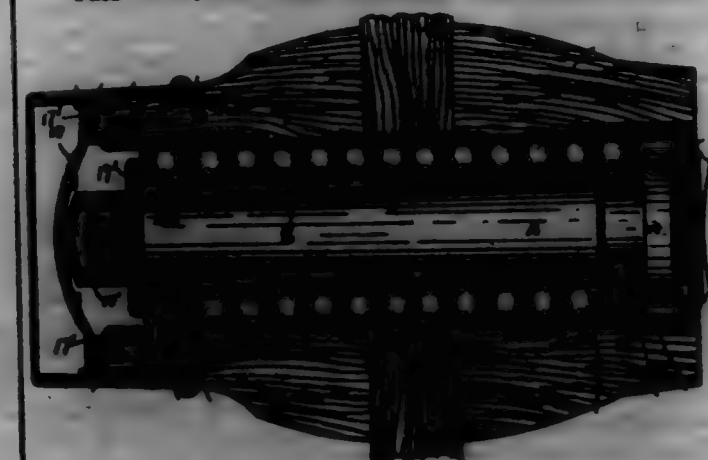
5. The combination of a chuck-carrier arranged to rotate, chucks provided with jaw-actuators adapted to operate by rotating, mounted in the chuck-carrier, a rotating shaft mounted in a stationary bearing, and means for engaging and disengaging said shaft with said jaw-actuators.

6. The combination of a chuck-carrier arranged to rotate, chucks provided with jaw-actuators adapted to operate by rotating, mounted in the chuck-carrier, two rotating shafts mounted in stationary bearings and rotating in opposite directions and means for engaging and disengaging said shafts alternately with said jaw-actuators.

7. A means for actuating the jaws of a chuck, comprising a spindle, a clutch-head secured to said spindle, a disk secured to said spindle, a driving-wheel journaled on the spindle, and adapted to have frictional engagement with the disk, a spring arranged to produce longitudinal movement of the spindle in its bearings, a cam-driver arranged to produce longitudinal movement of the spindle in its bearings against the tension of said spring, substantially as described.

8. A means for actuating the jaws of a chuck, comprising a spindle, a clutch-head secured to said spindle, a disk secured to said spindle, a driving wheel journaled on the spindle, and adapted to have frictional engagement with the disk, a spring arranged to produce longitudinal movement of the spindle in its bearings, a cam-driver arranged to produce longitudinal movement of the spindle in its bearings against the tension of said spring, a spring arranged to hold said disk and wheel in frictional contact, and means adjusting the tension of said spring, substantially as described.

699,614. BALL-BEARING. HERBERT E. CLARK, Worcester, Mass. Filed Jan. 22, 1900. Serial No. 607,004. (No model.)



Claim.—1. In a ball-bearing device, the combination with a journal, of outer and inner sleeves surrounding the journal, a series of balls interposed between the sleeves, a housing on the journal adapted to slide thereon when the rolling friction is interrupted, rings at either end of the journal whereby to retain the ball-bearings and act as stops therefor, and a flanged nut at the free end of the journal to maintain the parts in proper relation to one another.

2. In a ball-bearing device, the combination of a journal, a chamber in which balls may run around the journal, said chamber consisting of an inner sleeve and an outer sleeve, and a series of balls interposed between said inner and outer sleeves, and an intermediate housing adapted to slide around said journal when rolling friction is interrupted, substantially as set forth for the purpose set forth.

3. In a ball-bearing device, the combination with a journal, of an outer and an inner sleeve surrounding said journal and forming a cham-

bar, balls arranged within said chamber, rings arranged within said chamber and dividing the balls into smaller rows, an intermediate bushing arranged to slide when rolling friction is interrupted, and a washer provided with balls to receive the end thrust of the bar, substantially as and for the purpose set forth.

4. In a ball-bearing, the combination with a journal, a hard bushing surrounding the journal, and a plurality of sleeves surrounding the bushing, of rows of balls interposed between the sleeves, rings of varying width between each two rows of balls, hardened rings at either end of the sleeves, packing for receiving the end thrust of the journal, ball-bearing washers at either end of the journal, packing for excluding foreign material, and a nut removably secured on the outer end of the journal, the nut provided with a flange designed to retain the parts in place.

5. In a ball-bearing, the combination with a journal, a hard bushing surrounding the journal, and a plurality of sleeves surrounding the bushing, of rows of balls interposed between the sleeves, rings of varying width between each two rows of balls, hardened rings at either end of the sleeves, packing for receiving the end thrust of the journal, ball-bearing washers at either end of the journal, rollers removably secured at either end of the outer sleeve, a dust-cap removably secured by the collar on one end of the outer sleeve, for excluding foreign material, and a nut removably secured on the outer end of the journal, the nut provided with a flange designed to retain the parts in place.

6. In a ball-bearing, the combination with a journal, a hard bushing surrounding the journal, and a plurality of sleeves surrounding the bushing, of rows of balls interposed between the sleeves, rings of varying width between each two rows of balls, hardened rings at either end of the sleeves, packing for receiving the end thrust of the journal, ball-bearing washers at either end of the journal, packing for excluding foreign material and a nut removably secured on the outer end of the journal, the nut provided with a flange designed to retain the parts in place, the outer end of the journal provided with an aperture to receive a cotter-pin whereby to prevent the accidental displacement of the nut.

7. In a ball-bearing, the combination with a journal, of a bushing, a plurality of sleeves spaced apart from each other, the innermost sleeve secured on the bushing against rotation thereon, rows of balls interposed between the sleeves, means for separating the rows of balls, ball-bearing washers and a flanged nut fitting upon the journal for retaining the parts in place.

8. In a ball-bearing, the combination with a journal, of a bushing surrounding the journal, the bushing capable of being made to fit any size of journal, sleeves surrounding the bushing, the inner sleeve secured on the bushing against rotation thereon, rows of balls interposed between the sleeves, means interposed between the rows of balls to retain them in predetermined lines of travel, and means secured on the journal for retaining the parts in place.

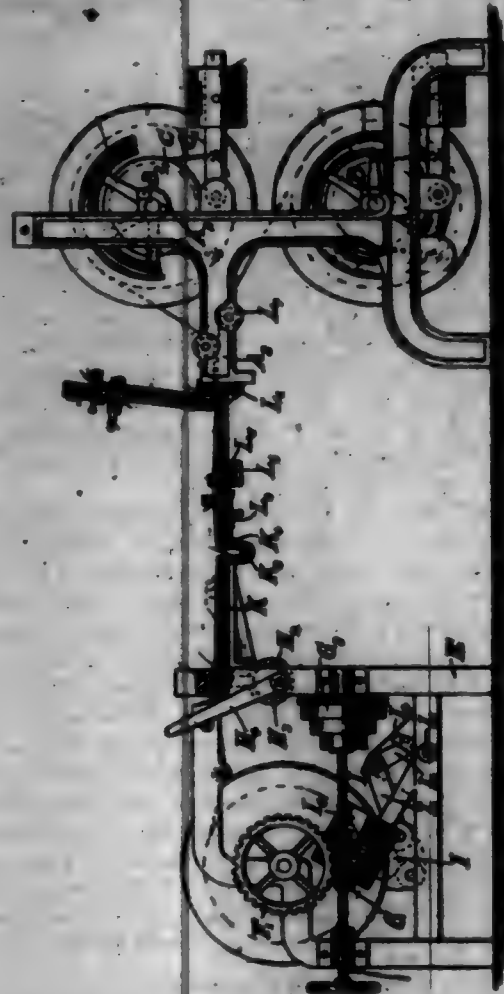
9. In a ball-bearing, the combination with a journal, of a bushing surrounding the journal, the bushing capable of being made to fit any size of journal, sleeves surrounding the bushing, the inner sleeve secured on the bushing against rotation thereon, rows of balls interposed between the sleeves, means interposed between the rows of balls to retain them in predetermined lines of travel, rings located at either end of the sleeves, collars to which the outer sleeve is secured, means secured on the journal for retaining the parts in place, and a dust-cap removably secured to the outer collar.

699,615. WARPING-MACHINE. JEREMIAH W. DUNN, JR., and JAMES JACOB, Ritten, N. Y. Filed Jan. 27, 1902. Serial No. 91,268. (No model.)

Claim.—1. In a warping-machine, a beam-frame, warp-beams mounted upon said beam-frame, hand-wheels secured to said warp-beams, friction-drums secured to said warp-beams, friction-ropes engaging said drums, clamp-levers connected to said clamps and carrying adjustable weights to form tension devices for said warp-beams, a winding-frame mounted adjacent said beam-frame, a winding-beam mounted in said winding-frame, a worm-wheel secured to said winding-beam, driving-gear including a hand-wheel, engaging said worm-wheel, a presser to cooperate with said winding-beam, a cutting-table mounted on said winding-frame and provided with cutting-grooves and a loop-dot, a winding-clamp mounted adjacent said cutting-table, cringing clamping-tables mounted on said beam-frame to cooperate with said cutting-table, and leashes to secure either of said clamping-tables to said cutting-table, each of said clamping-tables being provided with a rod and a table-clamp.

2. In a warping-machine, a beam-frame to support a plurality of warp-beams, a winding-frame carrying a winding-beam and means to rotate said winding-beam, a cutting-table secured to said winding-frame, said cutting-table being formed with a series of parallel transverse cutting-grooves and with a transverse loop-dot adjacent said cutting-grooves to form a series of equal loops in warp-threads and a winding-clamp on said winding-frame adjacent said cutting-table.

3. In a warping-machine, a beam-frame carrying warp-beams, a winding-frame carrying a winding-beam, means to rotate said winding-beam, a cutting-table secured to said winding-frame, movable clamping-tables mounted on said beam-frame to cooperate with said cutting-table and means to clamp a series of warp-threads upon said cutting-table and said clamping-tables.



4. In a warping-machine, a beam-frame, a plurality of warp-beams revolvably mounted in said beam-frame, a winding-frame, a winding-beam mounted in said winding-frame, a cutting-table secured to said winding-frame, a plurality of clamping-tables secured to said beam-frame, each of said clamping-tables being adapted to cooperate with said cutting-table and means to clamp a series of warp-threads upon said cutting-table and upon said clamping-tables.

5. In a warping-machine, a beam-frame, a plurality of warp-beams mounted in said beam-frame, a winding-frame mounted adjacent said beam-frame, a winding-beam in said winding-frame, driving mechanism for said winding-beam, a presser to cooperate with said winding-beam and a clamp secured to said winding-frame to clamp a series of warp-threads.

6. In a warping-machine, a beam-frame having bearings for a plurality of warp-beams, a winding-frame to support a winding-beam, a clamp upon said winding-frame to engage a series of warp-threads and means to rotate said winding-beam to alternately wind threads from each of said warp-beams.

7. In a warping-machine, a beam-frame, a plurality of warp-beams revolvably mounted in said beam-frame, movable clamping-tables mounted on said beam-frame, means to clamp a series of warp-threads upon said clamping-tables, a winding-frame mounted adjacent said beam-frame, a winding-beam in said winding-frame and driving mechanism for said winding-beam.

8. In a warping-machine, a beam-frame, a plurality of warp-beams mounted in said beam-frame, movable clamping-tables mounted on said beam-frame, means to clamp a series of warp-threads from said beams upon said clamping-tables and a winding-frame having a winding-beam mounted therein adjacent said beam-frame.

9. In a warping-machine, a beam-frame, a plurality of warp-beams mounted in said beam-frame, movable clamping-tables mounted on said beam-frame, each of said clamping-tables being provided with a rod and a table-clamp to engage warp-threads from said warp-beams.

10. In a warping-machine, a beam-frame to carry a plurality of warp-beams and clamping-tables being provided with a rod and a table-clamp to engage warp-threads from said warp-beams.

11. In a warping-machine, a beam-frame to carry warp-beams, a winding-frame mounted adjacent said beam-frame, means to rotate said winding-beam, a cutting-table provided with cutting-grooves and with a

loop-dot secured to said winding-frame and a winding-clamp mounted adjacent said table.

12. In a warping-machine, a winding-frame to carry a winding-beam, means to rotate said winding-beam, a cutting-table provided with cutting-grooves and with means to form loops in warp-threads mounted on said winding-frame and a winding-clamp adjacent said table.

13. In a warping-machine, a winding-frame to carry a winding-beam and a cutting-table provided with a loop-dot mounted on said winding-frame.

699,616. VELVET CARPET AND PROCESS OF MAKING SAME. JAMES W. DUNN, JR., and JAMES JACOB, Ritten, N. Y. Filed Jan. 27, 1902. Serial No. 91,268. (No model.)



Claim.—1. The process of making carpet comprising printing warp-threads with a quarter-section design and with knotting-sections at the ends of said quarter-section design, spreading and bending the part of said warp-threads to form a direct warp, spreading and bending another part of said warp-threads to form a reverse warp, covering and knotting said knotting-sections of said direct and reverse warps to form a compound warp composed alternately of direct and reverse warp-sections, weaving a velvet carpet with said compound warp as a pattern-warp, inserting a loop-rod under the knots in said compound warp at the center of the pattern to raise said knots from the surface of the fabric, cutting out said loop-rod and removing the upstanding ends of said knotting-sections to form a full-length strip comprising two symmetrical quarter-section patterns; in reversing said compound warp from right to left and in weaving a similar full-length strip therefrom to produce a second strip symmetrical to the first.

2. The process of making carpet which comprises printing pattern-warps with a quarter-section design and with knotting-sections at the ends of said quarter-section design, covering said pattern-warps at said knotting-sections, cutting and assembling said pattern-warps to form a compound pattern-warp having a full-length symmetrical design comprising two of said quarter-section designs and weaving said compound warp as the pattern-warp of a carpet to produce a strip comprising two of said quarter-section designs.

3. The process of making carpet which comprises printing warp-threads with a quarter-section design, covering, joining and assembling said warp-threads to form a compound warp comprising two of said quarter-section designs and weaving said compound warp as the pattern-warp of a carpet to produce a strip comprising two of said quarter-section designs symmetrical about the middle of said strip.

4. The process of making carpet which comprises printing warp-threads with a quarter-section design and producing a fabric from said warp-threads after joining the same, said fabric comprising a design formed of two of said quarter-section designs symmetrical arranged.

5. The process of making fabric which comprises printing warp-threads with a section design and with knotting-sections, covering said warp-threads at said knotting-sections, cutting and assembling said warp-threads to form a compound warp embodying a series of said section design and weaving said compound warp to produce a pattern fabric embodying a multiple design.

6. The process of making fabric which consists in producing colored warp-threads, cutting and assembling said warp-threads to produce a compound warp embodying a compound design and in weaving said compound warp to produce a fabric embodying said compound design.

7. The process of making fabric which consists in printing warp-threads with a section design, cutting and assembling said warp-threads to form a compound warp embodying a multiple design and in weaving said warp.

8. The process of making fabric which comprises printing warp-threads with a section design, cutting said warp-threads to form a multiple warp and producing a fabric from said multiple warp embodying a multiple design formed of a plurality of said section design.

9. A carpet formed of right and left hand strips said strips comprising symmetrical pattern-warps formed of united section warps printed with a section design and united symmetrically.

10. A carpet comprising compound pattern-warps symmetrical about the center of the same, said compound warps being formed of section pattern-warps symmetrically united.

11. A carpet comprising compound pattern-warps symmetrical about the center of the same, said compound warps being formed of two quarter-section pattern-warps symmetrically united.

12. A carpet comprising symmetrical pattern-warps formed of section warps printed with a quarter-section design and united symmetrically.

13. A fabric comprising compound pattern warp-threads, said compound warp-threads being formed of joined section warp-threads.

14. A fabric comprising compound pattern warp-threads said compound warp-threads being formed of joined colored section warp-threads.

15. A compound warp composed of section warp-threads printed with a quarter-section design and with knotting-sections and united at said knotting-sections to form compound warp-threads having a symmetrical design formed of two of said quarter-section designs.

16. A compound warp formed of a plurality of section pattern-warps united to form a compound design comprising said section designs.

17. The process of forming a compound warp which consists in printing warp-threads with a quarter-section design and with knotting-sections, in covering said warp-threads and uniting said knotting-sections to form a compound warp having symmetrically-arranged quarter-section designs.

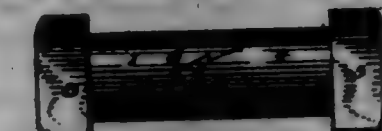
18. The process of forming a compound warp which consists in printing warp-threads with a quarter-section design, in covering and uniting said warp-threads to form a compound warp having symmetrically-arranged quarter-section designs.

19. The process of producing a compound warp which consists in printing warp-threads with a section design, in covering and uniting said warp-threads to produce a warp having a compound design composed of said section designs.

20. The process of producing a compound warp which consists in producing colored warp-threads, in cutting and in assembling said warp-threads to produce a warp having a compound design.

21. The process of producing a compound warp which consists in printing warp-threads with a section design and in uniting said warp-threads to produce a warp having a compound design composed of said section designs.

699,617. RAIL. OLIVER C. RAIL, Allegheny, Pa. Filed Sept. 22, 1902. Reissued Oct. 12, 1901. Serial No. 73,493. (No model.)



Claim.—In a device of the character described, a round shank, a head on one end thereof, said head having formed on opposite sides of its free end a single pair of inclined cut away portions, a single pair of shoulders on said portions, and a single arrow-shaped projection made integral with said free end, in combination with a round shank, a head on one end thereof, the other end having formed therein a single pair of inclined recesses, a single pair of shoulders for the reception of the said arrow-shaped projection whereby the two members are driven into positive locking engagement with one another and when in this position the said round shanks are of uniform thickness throughout, substantially as described.

699,618. RAIL-ROAD. AXEL H. RAIL, Philadelphia, Pa., assignor to the Protected Rail Road Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Mar. 2, 1902. Serial No. 92,008. (No model.)



Claim.—1. A rail head consisting of two heads united by a body formed in two divisions of unequal transverse dimensions or mass.

2. A rail head the body of which is formed in two divisions one of said divisions being of greater height than the other.

3. A rail head having a body arranged in two divisions each consisting of a series of ribbons like strands arranged face to face, one of said divisions having a series of such strands in excess of the number present in the other division.

4. In combination, a pair of meeting rail ends, a pair of splices here mounted on said rail ends in such manner that a head space exists between a splice bar and the side flange of the rails, bolts extending through said bar and rails, and unequally dividing vertically, the head space, and a rail head mounted in said space and making connection with the rail ends, the body of said head being formed of strands, arranged in two divisions of unequal diametric mass, the smaller of said divisions being located in the smaller portion of the head space and the larger of said divisions being located in the larger portion of said head space, substantially as set forth.

699,619. COMBINATION DROP AND JACK FOR TELEPHONE-LINES. SWITZERLAND. HENRY H. FINE, Weston, N. H. Filed June 20, 1900. Serial No. 21,200. (No model.)



Claim.—1. In a combined indicator and jack for telephone-lines, the combination of a socket, a suitable plug adapted to enter said socket, a drop-chamber in close proximity to said socket and a slide adapted to engage with the tip of said plug to be moved horizontally thereby and adapted to cooperate with the said drop-chamber to restore the same; said slide being so formed that a vertical movement is imparted to the end cooperating with the drop-chamber when said slide actuated by said plug rises horizontally over a suitable bearing, whereby the drop-chamber is restored to its normal position with greater certainty.

2. The combination of a drop, a device constructed and arranged to be moved bodily by and travel with a plug and means for simultaneously raising said device to close the drop.

3. The combination with a jack-socket and a drop, of a longitudinally-movable slide having a portion to be engaged by a plug, and a cam for causing the slide to rise and restore the drop when the plug is moved longitudinally in the jack-socket.

4. The combination with a drop, a jack socket and a front piece having a slot, of a slide adapted to be moved by a plug, projecting through the slot and having a cam to engage the wall of the slot and raise the slide to restore the drop.

5. The combination with a drop and jack-socket, of a slide projecting beyond the drop and adapted to receive it when it falls, as are depending from the slide into the jack-socket and adapted to be actuated by a plug and a cam to effect the elevation of the slide to restore the drop.

6. In a combined indicator and jack device for telephone-lines, the combination with the jack having a socket, of a suitable plug adapted to enter said socket, a drop-chamber pivoted upon the front of said device above the socket and in close proximity thereto, a longitudinally-movable slide mounted in said device above the socket and having a downwardly-turned end extending into the path of the plug when the plug is inserted in the socket, the outer end of said slide being turned upwardly so as to stand in front of said drop-chamber, whereby when the drop-chamber is down and the plug is inserted in the socket, its tip engages the downwardly-turned end of the slide and causes the slide to travel inwardly with the plug while the said outer upward end of the slide engages the drop-chamber and restores the same, substantially as described.

699,620. VAULT OR GRAVE. THOMAS B. HARKINS and F. J. VINTAGE, New Haven, Ind. Filed Jan. 11, 1902. Serial No. 20,202. (No model.)



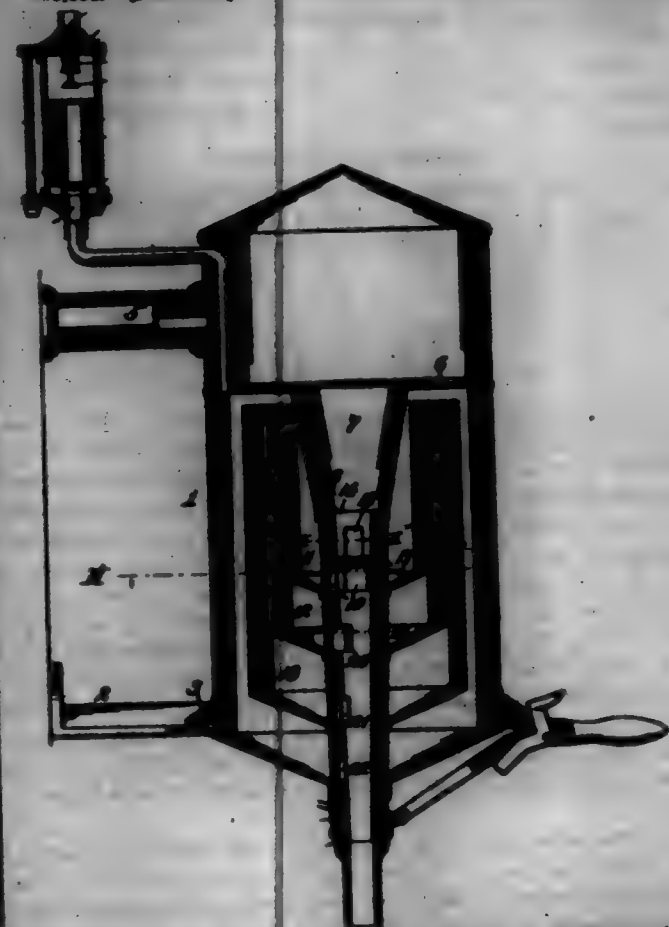
Claim.—1. A burial-vault or grave comprising a socket-bar having cross-bars on its top, and a wall surrounding the said bar, the ends of the cross-bars projecting beyond the sides of the bar and being embedded in the wall.

2. A burial-vault or grave comprising a socket-bar, cross-bars permanently secured on the top of the bar, permanent loops or rings rising from the cross-bars, and an impervious wall surrounding said bar in which said cross-bars and loops or rings are embedded.

3. The combination with an impervious wall and a socket-bar surrounded closely by said wall, of cross-bars on the top of said bar having loops at their ends embedded in said wall, and rings rising from the cross-bars and likewise embedded in the said wall.

4. In a burial-vault, the combination with an impervious wall, and a socket-bar surrounded thereby and having openings in its bottom near its ends, of tubes inserted in said openings and having ends on their lower ends beneath the bar embedded in the said wall, the openings of the tubes extending through the said ends and the said ends having horizontal openings through which the material of the wall passes.

699,621. LIQUID-MEASURING DEVICE. SYLVEN R. BARNETT, Kansas City, Mo., assignor to Edgar J. Barnette, individually and as trustee, Patrons, Kans. Filed June 20, 1901. Serial No. 20,203. (No model.)



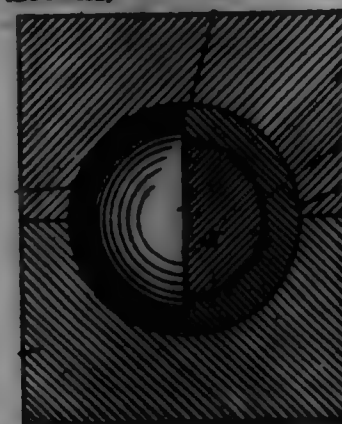
Claim.—1. A measuring device, comprising a cylindrical casing, a partition dividing the same horizontally and provided with a depending funnel, a valve-opening depending from said funnel through the bottom of the casing, having openings, caps of varying capacity arranged one within the other and surrounding the valve-opening, the topmost cap communicating with the two uppermost openings, and the remaining caps and the cylindrical casing each with one of the remaining openings, and a tubular valve fitting snugly in the valve-opening and provided with openings, and an internal partition between the topmost and the remaining openings, the topmost opening being adapted to register with the corresponding opening of the valve-opening non-concurrently with the registration of the remaining valve-openings and valve-opening openings; said remaining openings, beginning at the top, registering successively with the said remaining valve-opening openings, substantially as described.

2. A measuring device, comprising a cylindrical casing, a partition dividing the same horizontally and provided with a depending funnel, a valve-opening depending from said funnel through the bottom of the casing, having openings, caps of varying capacity arranged one within the other and surrounding the valve-opening, the topmost cap communicating with the two uppermost openings, and the remaining caps and the cylindrical casing each with one of the remaining openings, a tubular valve fitting snugly in the valve-opening and provided with openings, and an internal partition between the topmost and the remaining openings, the topmost opening being adapted to register with the corresponding opening of the valve-opening non-concurrently with the registration of the remaining valve-openings and valve-opening openings; said remaining openings, beginning at the top, registering successively with the said remaining valve-opening openings, a wrench or lever secured to operate the valve, a dog carried thereby, and a band or ring provided with notches to receive the dog accordingly as the device is to be filled or varying quantities are to be discharged therefrom, substantially as described.

3. A measuring device, comprising a cylindrical casing having a horizontal partition and provided with caps of varying capacity below said partition, and valve mechanism whereby said caps may be charged or relieved of their charge, a pipe for supplying liquid to the casing above said partition, an indicator, comprising a transparent cylinder, caps secured upon its opposite ends and provided with longitudinal passages, a reciprocity valve conveying the passage of the upper cap, a tube connecting the passage of the lower cap with the upper end of the lower chamber of the cylindrical casing, a notched flange surrounding the upper end of said lower cap, and a float within the transparent cylinder normally resting upon said notched cap without interfering with the passage of the air, but adapted when liquid enters said cylinder to rise and seat said reciprocity valve, and adapted as the discharge from the de-

vice taken place to descend and permit said valve to open, substantially as described.

699,622. MANUFACTURE OF PLAYING-BALLS. BRADMAN KEMPSTALL, Boston, Mass., assignor to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 20, 1902. Serial No. 21,201. (No model.)



Claim.—1. A process in producing a playing-ball, consisting in curing a thick rubber envelop upon a compressible core, so that the expansion of the rubber in the curing process condenses said core, and also so that when the ball is removed from the mold said core recovers at least partially its original bulk and places said envelop under tension.

2. A process in producing a playing-ball, consisting in curing a rubber envelop upon a compressible core of gutta-percha, so that the expansion of the rubber in the curing process condenses said core, and also so that when the ball is removed from the mold said core recovers at least partially its original bulk and places said envelop under tension.

699,623. MANUFACTURE OF GOLF-BALLS. BRADMAN KEMPSTALL, Boston, Mass., assignor to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 21,202. (No model.)



Claim.—1. A process in producing a playing-ball, consisting in forming a rubber sphere, covering said sphere with a gutta-percha shell, applying plastic or fluid coating to said shell, and hardening said coating so as to form a casing upon said shell.

2. A process in making a playing-ball, consisting in forming a yielding core, covering said core with hemispherical segments of gutta-percha, covering the latter with a plastic or fluid coating, hardening said coating so as to form a casing, and compressing said casing upon the ball.

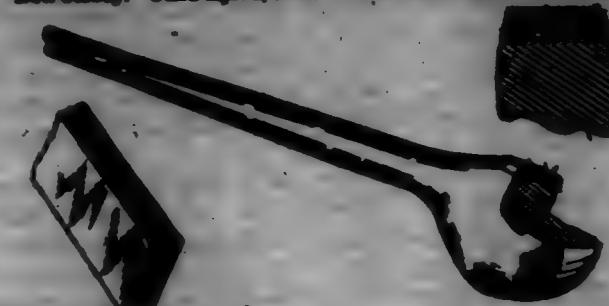
3. A process in making a playing-ball, consisting in placing a yielding core within a gutta-percha shell, covering the whole with a celluloid solution, and effecting a hardening and compression of said coating under heat, so as to form a casing upon the shell.

4. A process in making a playing-ball, consisting in covering a soft core with a gutta-percha shell, covering the shell with successive layers of celluloid, hardening one layer before the next is applied, and applying thereto simultaneously heat and compression, so as to compact the same into a stiff, springy casing.

5. A process in making a playing-ball, consisting in applying a gutta-percha shell to a rubber core, covering said shell with successive layers of plastic or fluid material, and hardening each layer before the casing is applied, then subjecting the whole to heat and compression and maintaining the compression while the ball cures.

6. A process in making a playing-ball, consisting in applying upon a compressed core whereof the outer portion consists of a distended rubber envelop, a shell consisting of at least partially of compressed gutta-percha, adding a plurality of layers, one after another, of fluid or plastic material, drying or partially curing one layer before another is applied, and subjecting the whole to heat and compression to an extent to weld said layers and place said rubber envelop under compression, and maintaining the compression while the ball cures.

699,624. GOLF-CLUB. BRADMAN KEMPSTALL, Boston, Mass., assignor to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Apr. 2, 1902. Serial No. 21,203. (No model.)



Claim.—1. A club having a head, and a flange upon said head consisting of celluloid and fabric.

2. A club having a head, and a flange upon said head consisting of plastic material and fibrous material, the latter being embedded in the plastic material.

3. A club having a head, and a flange upon said head consisting of at least one layer of plastic material and at least one layer of open-mesh woven fabric embedded therein.

4. A club having a head, and a flange upon said head consisting of a plurality of layers of celluloid and at least one layer of fabric, the latter intervening between the celluloid layers.

5. A club having a head, and a flange upon said head consisting of a plurality of pieces of celluloid and a plurality of pieces of fabric, the latter alternating with the celluloid and being embedded therein.

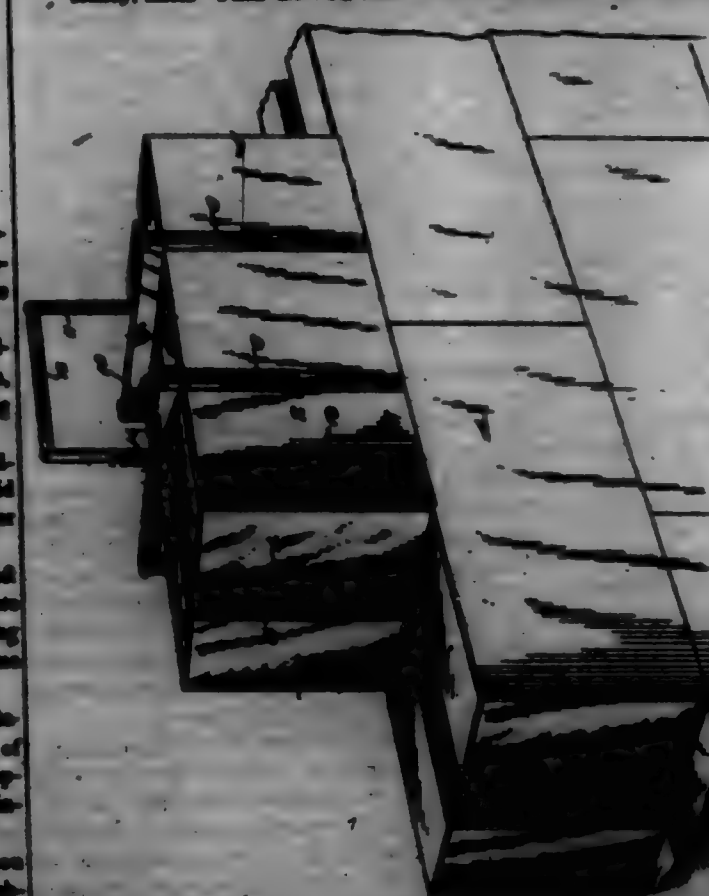
6. A club having a head, and a flange upon said head consisting of a plurality of pieces of celluloid and a plurality of alternating pieces of fabric; the inner and outer layers of said flange consisting of celluloid.

7. A club having a head, and a flange upon said head consisting of three layers of celluloid and two layers of fabric embedded therein and alternating therewith, the outer and inner layers of said flange consisting of celluloid.

8. A club having a head, and a flange upon said head consisting of open-mesh fabric embedded in celluloid.

9. A club having a head, and a flange dovetailed into said head and consisting of celluloid in which fabric is embedded.

699,625. MOLD FOR CONCRETE STRUCTURES. CHARLES F. LAMBERT, Potomac, Md., assignor of one-half to Fred S. Davis, Potomac, Md. Filed Nov. 14, 1901. Serial No. 20,272. (No model.)



Claim.—1. In a mold for concrete work, the combination with the side plates, a cross-bar and posts or standards secured to the side plates one directly connected at its upper end to the cross-bar and the other pivotally connected to said cross-bar, of means for moving one side plate toward and away from the other, said means comprising a lever pivoted

to the cross-bar and a link connected to the movable side piece, substantially as set forth.

2. In a mold for concrete work, the combination with an inner set of side pieces and an outer set of side pieces, posts or standards secured to said sets of side pieces, cross-bars to which the upper ends of the posts of one set of side pieces are fixed and the upper ends of the posts of the other set of side pieces are pivoted, of levers pivoted to said cross-bars and links pivoted to said levers and to the movable sets of side pieces, substantially as set forth.

3. In a mold for concrete work, the combination with an inner set of side pieces and an outer set of side pieces, posts or standards secured to said sets of side pieces, cross-bars to which the upper ends of the posts of one set of side pieces are fixed and the upper ends of the posts of the other set of side pieces are pivoted, of levers pivoted to said cross-bars, links pivoted to said levers and to the movable sets of side pieces, and a handle connecting said levers, substantially as set forth.

699,626. NON-REFILLABLE BOTTLE. JAMES R. LATHAM, New York, N. Y., assignor of one-half to Robert M. Hunt, New York, N. Y. Filed May 10, 1902. Serial No. 14,129. (No model.)



Claim.—1. The combination with the neck of a bottle provided with a passage-way for opening communication between the interior of the neck and the interior of the body of the bottle, of a float-valve for closing said passage-way, guides for directing the float-valve to its seat, a pivoted weight for holding the valve closed under the influence of gravity and a pivoted gravity-catch for locking the weight in position to close the valve, substantially as set forth.

2. The combination with the neck of a bottle provided with a passage-way opening communication between the interior of the neck and interior of the body of the bottle, of a float-valve, guides for directing the float-valve toward and away from its seat to close the above-mentioned passage-way, a weight for holding the valve closed under the influence of gravity, the said weight being pivoted to swing vertically, a horizontally-acting piece forming a support for the vertically-acting weight and a swinging gravity-catch for locking the weight, substantially as set forth.

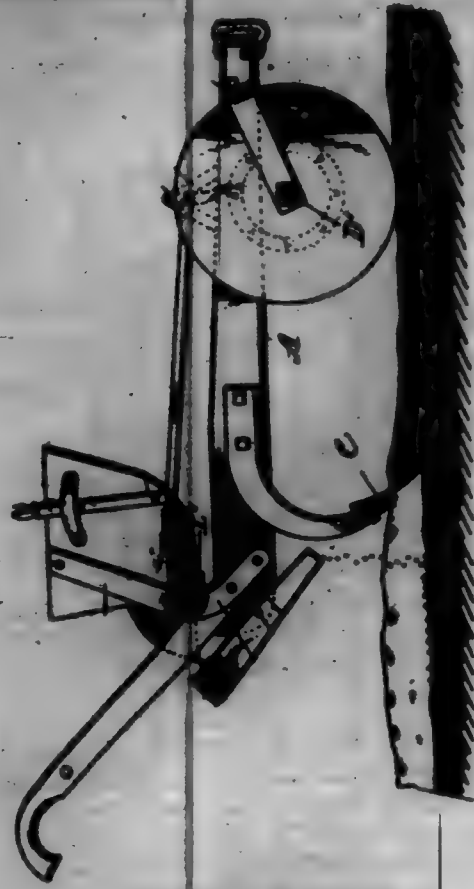
3. The combination with the neck of a bottle provided with a passage-way for opening communication between the interior of the neck and the interior of the body of the bottle and means for automatically closing said passage-way, of a guard located between said closing means and the neck of the bottle, the said guard comprising a perforated support and a glass plate loosely held on said perforated support, substantially as set forth.

699,627. GUANO-DISTRIBUTER. ROBERT H. NIXON, Columbus, Ga., assignor to Felt & Harris, Columbus, Ga. Filed Mar. 6, 1902. Serial No. 24,962. (No model.)

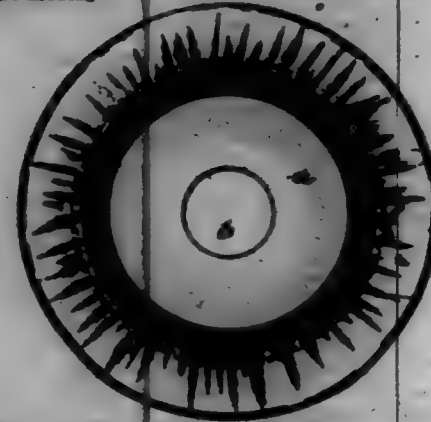
Claim.—1. A vibrating guano-distributor, comprising in combination with the beam, handles coated in recesses in the opposite faces of the beam and secured therein, angle-bars fastened to said handles, a hopper pivotally mounted on said bars, a wheel journaled in suitable bearings on said beam, a disk on the face of said wheel and provided with laterally-projecting pins, a pivoted arm, carried by said beam and disposed in the path of said pins, pivoted link-and-lever connections between said arm and the hopper, as set forth.

2. A vibrating guano-distributor, comprising, in combination with the beam, the wheel carried thereby, the disk rotating with said wheel laterally-projecting pins on said disk, a standard on the beam, an arm pivoted to said standard, and having its free end disposed in the path of said pins, handles coated in inclined recesses in the opposite faces of said beam, angle-bars, fastened to said handles, a hopper pivotally mounted on said bars, a cross-piece fastened to the lower rear edge of said hopper, the ends of which cross-piece are adapted to strike against the forward edges of the upright inclined portions of said angle-bars, to limit the rearward throw of the hopper, a lever pivoted to the hopper, means for holding the lever in different positions, a bar pivotally connecting said

lever with said pivotal arm, and the pivotal point mounted on the rear end of the beam, as set forth.

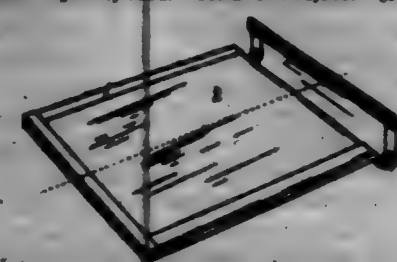


699,628. METHOD FOR POLISHING PARTS OF BOOTS OR SHOES. JOHN R. HORN, Lynn, Mass. Filed Jan. 17, 1902. Serial No. 1,708. (No model.)



Claim.—A medium for polishing the worn surfaces of boots and shoes comprising a carrier arranged for movement relatively, flangeless members projecting tangentially from the periphery of the carrier, and a flexible covering over the outer ends of said members.

699,629. KNEADING-BOARD. LORENZO D. FAYNE, Mansfield, Ohio. Filed Sept. 21, 1901. Serial No. 78,078. (No model.)

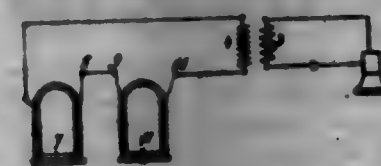


Claim.—1. As an improved article of manufacture, a kneading-board consisting of a body or filling having heated upon the bottom or under side thereof, a metal bottom provided with a right-angled portion formed of a width to correspond with the thickness of the body or filling, and an extension formed integral with the bottom, a metal top located over the body or filling and over the extension, and said top folded at its sides and ends, substantially as and for the purpose specified.

2. As an improved article of manufacture, a kneading-board consisting of a body or filling, a metal bottom provided with a metal extension, a metal top secured to the body and metal bottom and to the forward extension, and said forward extension and metal top located upon

mid metal extension formed into a U-shape molding, said U-shaped molding extended above the top of the board, and the forward edge thereof extended below the bottom of the board, and located away from the end of the body, substantially as and for the purpose specified.

699,630. METHOD OF RECORDING MESSAGE SIGNALS. DR. PETER O. PEDERSEN, Copenhagen, Denmark, assignor, by mesne assignments, to the American Telegraph and Telephone Company, a Corporation of New Jersey. Filed Mar. 2, 1902. Serial No. 8,017. (No model.)



Claim.—1. The method of storing a plurality of messages or signals for subsequent reproduction, which consists in establishing in a paramagnetic body a series of magnetic conditions corresponding to a message or signal and then superposing or establishing another series of magnetic conditions in said paramagnetic body within the range of the first series of magnetic conditions and corresponding to a second message or signal and so on superposing series of magnetic conditions corresponding to respective messages or signals.

2. The method of storing a plurality of messages or signals for subsequent reproduction, which consists in establishing in a paramagnetic body two series of magnetic conditions similar in all respects to each other and corresponding to one message or signal and then superposing or establishing two other series of magnetic conditions in said paramagnetic body within the range of the first-mentioned two series, the second two series being similar to each other in every respect and corresponding to a second message or signal, and so on superposing or establishing two corresponding series of magnetic conditions for each message all within the same range on the paramagnetic body, substantially as described.

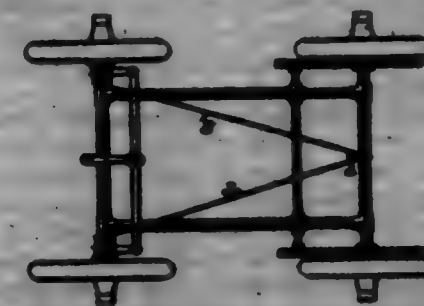
3. The method of storing a plurality of messages or signals for subsequent reproduction which consists in establishing in a paramagnetic body two series of magnetic conditions similar in all respects to each other and corresponding to the message or signal, then superposing or establishing two other series of magnetic conditions in said paramagnetic body similar in all respects to each other but differing in relation to each other from the relation existing between the two series first mentioned, said second two series being established in the said paramagnetic body within the range of the two series first mentioned and so on superposing or establishing two corresponding series of magnetic conditions for each message all within the same range on the paramagnetic body and the relation between each two series differing from that between every other two, substantially as described.

4. The method of storing a plurality of messages or signals for subsequent reproduction which consists in simultaneously causing a plurality of electromagnets to establish like magnetic conditions at a plurality of different locations on a moving magnetic body, said magnetic conditions corresponding to and being produced by one message, then altering the relation of the electromagnets and again causing them to establish like magnetic conditions at a plurality of different locations on said moving body, said magnetic conditions corresponding to and being produced by a second message, and so on, for each message altering the relation between the magnets and then establishing the magnetic conditions therein, substantially as described.

5. The method of storing a plurality of messages or signals and subsequently reproducing the same which consists in establishing in a paramagnetic body a series of magnetic conditions corresponding to a message or signal and then superposing or establishing another series of magnetic conditions in said paramagnetic body within the range of the first series and corresponding to a second message or signal and so on superposing different series of magnetic conditions corresponding to respective messages or signals, and then causing any one of said respective series of magnetic conditions to influence a receiving apparatus sensitive thereon.

6. The method of storing a plurality of messages or signals and subsequently reproducing the same, consisting in establishing in a paramagnetic body two series of magnetic conditions similar in all respects to each other and corresponding to one message or signal and then superposing or establishing two other series of magnetic conditions in said paramagnetic body within the range of the first-mentioned two series, the second two series being similar to each other in every respect and corresponding to a second message or signal, and so on superposing or establishing two corresponding series of magnetic conditions for each message all within the same range on the paramagnetic body and then causing any one of said pairs of series of magnetic conditions to influence a receiving apparatus sensitive thereon.

699,631. RUNNING-GEAR FOR VEHICLES. EDWARD J. FRIEDBERG, London, England. Filed June 10, 1901. Serial No. 64,698. (No model.)



Claim.—In a vehicle, the combination of a fixed wheeled axle at one end thereof; an axle at the opposite end of the vehicle carrying steering knuckles and wheels adapted to be shifted in position in steering; a block or support attached centrally to the fixed axle; a pulley mounted in said block or support, and a flexible connection having one end secured to an arm on the steering-knuckle of the running-gear adapted to be shifted in position in steering, then passing around said pulley and having its opposite end fastened to the other and coincidentally-operated steering-knuckle of said running-gear, substantially as set forth.

699,632. MANUFACTURE OF GOLF-BALLS OR OTHER ARTICLES. FRANK E. REINHARDT, Hartford, Conn., assignor to The Knapshall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 14, 1902. Serial No. 98,312. (No specimens.)



Claim.—1. A process in producing playing-balls, consisting in molding a core within a shell of plastic material and causing said shell to harden.

2. A process in producing playing-balls, consisting in molding a springy core within a shell of celluloid.

3. A process in producing playing-balls, consisting in molding a gutta-percha core within a shell of celluloid.

4. A process in molding playing-balls, consisting in placing a shell of plastic material within the mold, forcing heated material into the shell so as to cause the latter to conform to the mold, and causing the shell and core to harden.

5. A process in molding playing-balls, consisting in placing a celluloid shell within plastic within a figured mold, forcing a fluent mass into the shell so as to cause the shell to expand and become embraced by the mold, and causing the shell and core to harden while confined in the mold.

6. A process in molding playing-balls, consisting in placing an undischarged celluloid shell within a mold and causing the same and cause it to fit the mold, and hardening the shell while in the mold.

7. A process in molding playing-balls, consisting in placing within a figured mold a shell consisting partially or wholly of celluloid, causing the mold tightly, forcing gutta-percha, forcing the gutta-percha into said shell so as to cause the same to fit the mold, and causing the celluloid to harden while the mold remains closed.

8. A process in molding an article of celluloid, consisting in forcing a blank undischarged but approximately conforming to the shape of the mold, inserting the blank within the mold, heating the blank, and expanding the blank by internal pressure so as to fit the mold.

9. A process in molding an article of celluloid, consisting in forcing the article undischarged but approximately conforming to the shape of the mold, inserting the blank within the mold, heating the mold, expanding the blank by internal pressure so as to fit the mold, and causing said article to harden while confined in the mold.

10. A process in molding an article of celluloid, consisting in forcing the article undischarged but approximately conforming to the shape of the mold, inserting the blank within the mold, heating the mold, expanding the blank by internal pressure so as to fit the mold, causing said article to

harder while confined in the mold, and maintaining such internal pressure until the article hardens.

11. A process in producing playing-balls, consisting in reducing hard material to fluent condition, forcing it into a hollow sphere of plastic material so as to cause the latter to conform to a mold, causing the sphere and the filling to harden, and plugging up the hole through which the fluent mass is introduced.

12. A process in producing playing-balls, consisting in forcing into a shell consisting partially or wholly of malleable material a heated mass of gutta-percha too great for the capacity of said shell, so as to expand the latter, and causing the gutta-percha to harden and form a permanent core.

13. A process in producing playing-balls, consisting in forcing a hollow malleable sphere with a vent, inserting a funnel into said sphere, heating said sphere, heating gutta-percha, causing said gutta-percha to flow through said funnel and force out the air through said vent, subjecting the gutta-percha to pressure so as to distend said sphere, preventing escape of gutta-percha through said vent during the application of pressure, allowing the gutta-percha and the shell to harden under pressure, withdrawing the funnel, and plugging the shell.

14. A process in producing playing-balls, consisting in introducing a fluent mass into a hollow sphere of plastic material, permitting the air to escape from said hollow sphere, closing the air-vent, forcing more fluent mass into the sphere so as to expand the latter, and causing said sphere and filling to harden.

15. A process in producing playing-balls, consisting in introducing heated gutta-percha into a heated hollow sphere consisting partially or wholly of malleable material, permitting the air to escape from said hollow sphere at a point near the point of introduction of said gutta-percha, closing the air-vent, forcing more gutta-percha into the sphere so as to distend the latter, and causing said sphere and said gutta-percha to harden.

16. A process in producing playing-balls, consisting in forcing a seamless shell of plastic material, molding a core within said shell, and causing the shell to harden.

17. A process in producing playing-balls, consisting in reducing hard, springy material to a fluent condition, introducing it within a seamless shell of malleable material, and causing the core to harden.

18. A process in producing playing-balls, consisting in heating gutta-percha, introducing it into a seamless shell of malleable material, and causing the gutta-percha to harden under pressure.

19. A process in molding playing-balls, consisting in placing a seamless malleable shell within the mold, forcing heated material through a hole formed in the shell so as to cause the latter to conform to the mold, and causing the shell and core to harden.

20. A process in molding playing-balls, consisting in placing a fluent mass into the shell so as to cause the latter to conform to the mold, and causing the shell and core to harden while confined in the mold.

21. A process in molding playing-balls, consisting in placing an undistended seamless malleable shell within a figured mold, forcing heated gutta-percha into the shell so as to expand the same to fit the mold, and hardening the shell while in the mold.

22. A process in producing playing-balls, consisting in introducing core material under pressure within a shell of plastic material, and causing said shell and core to harden gradually from the exterior while the pressure is continued.

23. A process in producing playing-balls, consisting in compressing a springy core within an entire shell consisting partially or wholly of malleable material.

24. A process in producing playing-balls, consisting in compressing gutta-percha within a shell of malleable material by forcing into said shell extra gutta-percha while in a fluent condition, and causing it to harden while under pressure.

25. A process in molding playing-balls, consisting in placing a malleable shell within the mold, forcing heated material into the shell so as to cause the shell to conform to the mold, forcing extra material into said shell so as to compress the shell and compress the core, and causing the shell and core to harden while the pressure is continued.

26. A process in molding figured playing-balls, consisting in placing an entire malleable malleable shell within a figured mold, forcing a fluent mass into the shell so as to cause the same to conform to the mold, and causing the shell and core to harden while confined in the mold.

27. A process in molding playing-balls, consisting in placing an undistended malleable shell within a mold and causing the mold, forcing heated gutta-percha into the shell so as to expand the same to fit the mold, and forcing extra gutta-percha into the shell so the shell and core gradually harden.

28. A process in molding playing-balls, consisting in placing within a mold a shell consisting partially or wholly of malleable material, closing the mold tightly, heating gutta-percha, forcing the gutta-percha into said shell so as to cause the same to fit the mold, causing the shell and core to harden

gradually while the mold remains closed, and forcing an extra quantity of gutta-percha into the shell during said hardening.

29. A process in producing playing-balls, consisting in reducing hard material to fluent condition, forcing it into a seamless hollow sphere of malleable material so as to cause the latter to conform to a mold, forcing extra fluent material into the sphere, causing the sphere and the filling to harden, and plugging up the hole through which the fluent mass was introduced.

30. A process in producing playing-balls, consisting in forcing into a seamless shell consisting partially or wholly of malleable material a heated mass of gutta-percha too great for the capacity of said shell, so as to expand the latter, and causing the shell and gutta-percha to harden while confined in the mold.

31. A process in producing playing-balls, consisting in forcing a seamless hollow malleable sphere with a vent, inserting a funnel into said sphere, heating said sphere, heating gutta-percha, causing said gutta-percha to flow through said funnel and force out the air through said vent, subjecting the gutta-percha to pressure so as to distend said sphere, preventing escape of gutta-percha through said vent during the application of pressure, allowing the gutta-percha and the shell to harden under pressure, withdrawing the funnel, and plugging the shell.

32. A process in producing playing-balls, consisting in introducing a fluent mass into a hollow sphere of plastic material, permitting the air to escape from said hollow sphere, closing the air-vent, forcing more fluent mass into the sphere so as to expand the latter, and causing said sphere and filling to harden gradually from the exterior while extra material is forced into the shell.

33. A process in producing playing-balls, consisting in introducing heated gutta-percha into a heated seamless hollow sphere consisting partially or wholly of malleable material, permitting the air to escape from said hollow sphere at a point near the point of introduction of said gutta-percha, closing the air-vent, forcing more gutta-percha into the sphere so as to distend the latter, and causing said sphere and said gutta-percha to harden, while extra gutta-percha in a fluent condition is forced therein.

699,683. ELECTRIC CUT-OFF SWITCH. LAWRENCE W. RICHMOND, Durham, Tenn., assignor of one-half to VERNON E. LOCKWOOD, Lawrence County, Tenn. Filed Oct. 10, 1901. Serial No. 71,169. (No model.)



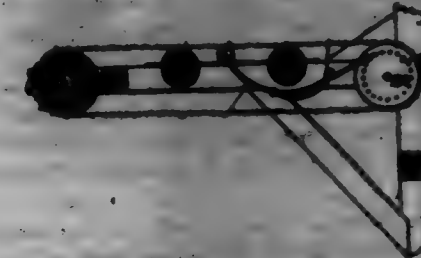
Claim.—1. In combination with the insulating tubes and supporting means therefor, a metallic plug secured within each tube, a threaded wire passing through each plug, a movable guide-plate and a threaded wire passing through each guide-plate and mounted within the tubes, insulating plugs at the ends of said tubes and through which plugs said wires pass, a switch-lever, and insulated connections between said lever and the wires passing through the guide-plates, as set forth.

2. In combination with the glass tubes, the frame supporting the same, the metallic plugs, one secured in the corresponding end of each tube, each plug being centrally apertured and threaded, the inner end of the plugs being chamfered out in conical shape, a headed wire coated in said chamfered portion, with the wire passing through the threaded aperture therein, the guide-plates, one in each tube and centrally apertured, a threaded wire passing through the apertured portion of each guide-plate, a switch-lever, and segment to which it is pivoted, a dog engaging a recess in said segment, an insulating-bar connecting the eyes at the outer ends of the threaded wires engaging said guide-plates, and a connection between the switch-lever and the insulating-bar, substantially as shown and described.

3. In combination with the bracket-arm, the yokes secured therein, the frame secured to said yokes, the glass tubes supported in recessed portions of said yokes, the metallic plugs chambered as described and seated in the ends of said tubes, the threaded wires passing through threaded apertures in said plugs, the movable guide-plates in the tubes, the threaded wires passing through threaded apertures in said movable guide-plates and

having eyes at their outer ends, the switch-lever, the insulating-bar mounted on the eyes of said wires, the insulating-strip connecting the switch-lever with said insulating-bar and the insulating washers and spacers as said bar, as shown and described.

699,684. CAR-GRAT CLEANER. JOHN A. EMM, San Antonio, Tex. Filed Feb. 14, 1901. Serial No. 47,399. (No model.)



Claim.—1. A machine for cleaning car-grats, comprising a continuous flexible, telescopic, movable support having means for moving it and adapted to receive and support the car-grats throughout the width of the latter, and a beater constructed and arranged to strike the support at the opposite side from the car-grats, whereby the force of the blow is distributed over the face of the car-grats.

2. A machine for cleaning car-grats comprising a laterally-extensible carrying-belt adapted to receive and support the car-grats throughout the width of the latter, and a beater constructed and arranged to strike the belt at the opposite side from the car-grats, whereby the force of the blow is distributed laterally over the car-grats.

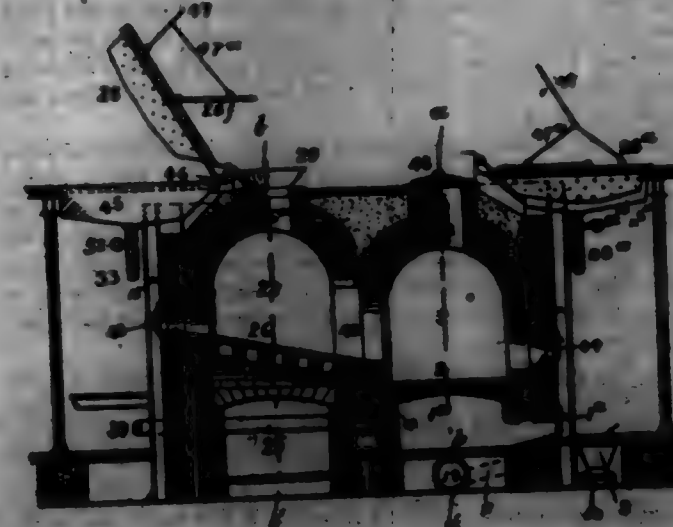
3. A machine-cleaning machine comprising a carrying-belt adapted to receive and support an article to be treated throughout the width of the latter, and a beater operably connected with the belt-carrying means, and disposed to strike the belt and force it against the article undergoing treatment.

4. A machine of the class described comprising a telescopic belt having supporting-rollers one of which has terminal pins, and a beater pivoted with one end in the path of movement of the pins and having the opposite end thereof disposed to strike against the under side of the belt and force it against the article undergoing treatment.

5. A machine for cleaning car-grats comprising a telescopic, laterally-extensible belt having supporting-rollers and adapted to receive and support car-grats throughout the width of the latter, a strikeer operably connected with one of the rollers and disposed to strike the belt at the opposite side from the car-grats, and brushes disposed beyond the belt to receive the car-grats from the latter and having means for operating them.

6. A machine of the class described comprising a telescopic belt having supporting-rollers and disposed to receive an article to be cleaned, a beater disposed to strike the belt beneath the said article and force it thereagainst, brushes adapted to receive from the belt, supporting-rollers adjacent the brushes for maintaining the article in operative relation to the brushes, a tank in which the brushes dip to take a cleaning fluid therefrom, a drive-shaft, and connections between the drive-shaft, the belt-supporting means and the brushes for operating the apparatus.

699,685. GRABATOR FOR REFUSE. ROBERT R. ROBINSON, Portland, Ore., assignor to Robert R. Robinson, Herbert R. Robinson, and Harsho R. Robinson, Portland, Ore. Filed May 20, 1902. Serial No. 711,364. (No model.)



Claim.—1. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table, and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by

over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table, and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by the main burning-chamber communicating with the smoke-stack, substantially as set forth.

2. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by a damper whereby such branch flue may be closed, the main burning-chamber communicating with the smoke-stack, there being suitable charge-holes in the roof of each burning-chamber, and over the burning-table, through which to throw refuse, substantially as set forth.

3. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table, which branch flue is controlled by a damper whereby such branch flue may be closed, the main burning-chamber communicating with the smoke-stack, a series of doors in the working side of the primary burning-chamber for the removal of ashes, and a grating elevated platform, as B, extending beneath, outside of, said doors, there being suitable charge-holes in the roof of each burning-chamber, and over the burning-table, through which to throw refuse, a series of pipes or ducts as 11, the outer ends of which extend beneath said elevated platform and are connected with means causing an air-current through said pipes, for removing the ashes and dust contained by pulling the ashes and unburned refuse out of the primary burning-chamber onto said platform, substantially as set forth.

4. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table, which branch flue is controlled by a damper whereby such branch flue may be closed, the main burning-chamber communicating with the smoke-stack, a series of doors in the working side of the primary burning-chamber for the removal of ashes, and a grating elevated platform, as B, extending beneath, outside of, said doors, there being suitable charge-holes in the roof of each burning-chamber, and over the burning-table, through which to throw refuse, a series of pipes or ducts as 11, the outer ends of which extend beneath said elevated platform and are connected with means causing an air-current through said pipes, for removing the ashes and dust contained by pulling the ashes and unburned refuse out of the primary burning-chamber onto said platform, substantially as set forth.

5. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by a damper whereby such branch flue may be closed, a third independent fire-box, as 12, connected by a passage-way with the main burning-chamber and the smoke-stack, there being suitable charge-holes in the roof of each burning-chamber and over the burning-table G through which to throw the refuse, substantially as set forth.

6. The combination in a conveyor of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a fire floor or table and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as G located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by

a damper whereby each branch flue may be closed, a third independent fire-box, as 18, connected by a passage-way with the main burning-chamber, said third fire-box comprising two contiguous independent compartments connected with each by an intermediate passage-way, one being a coking-chamber, having a closed floor and the other being a burning-chamber with grating floor, and there being a checker-arch within the said burning-chamber, an expansion-chamber 25, connected by passage-ways with the said third fire-box 18, and having a suitable damper-controlled heat-escape, a drying and burning chamber 27 located above said expansion-chamber 25, having a closed floor and connected by passage-ways with the said burning-chamber 2, there being suitable charge-holes for throwing the refuse into the crucible, substantially as described.

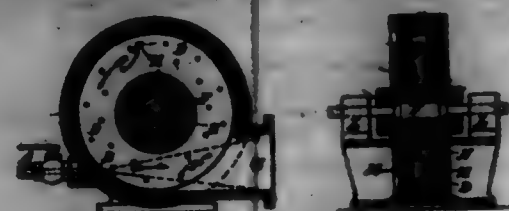
7. The combination is a crucible of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a tile flooring or table, and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table as 6 located over the second fire-box, and a branch flue extending around and over said table, which branch flue is controlled by a damper whereby each branch flue may be closed, a third independent fire-box as 18 connected by a passage-way with the main burning-chamber, said third fire-box comprising two contiguous independent compartments connected with each by an intermediate passage-way one being a coking-chamber, having a closed floor and the other being a burning-chamber with grating floor, and there being a checker-arch within the said burning-chamber, an expansion-chamber 25, connected by passage-ways with the said third fire-box 18 and communicating with chamber as 21, provided with a tank for receiving, and in which to evaporate water drained from the receiving and dumping tanks, said chamber 21 having a suitable damper-controlled heat-escape, a drying and burning chamber 27 located above said expansion-chamber 25 having a closed floor and connected by passage-ways with the main burning-chamber 2, there being suitable charge-holes for throwing the refuse into the crucible, each of said charge-holes being provided with a suitable receiving or dumping tank adapted to discharge its contents through such charge-holes and to drain its contents into a catch-basin, for such purpose provided, the catch-basin having a pipe for conveying the water collected into the evaporating-tank, substantially as described.

8. The combination is a crucible of a lower or primary fire-box and burning-chamber, an upper or main burning-chamber extending over the primary fire-box and burning-chamber, a portion of the base of the upper or main chamber over the primary fire-box being a tile flooring or table, and the remainder an open grating, a second independent fire-box, a communicating passage-way or flue between the said primary and main burning-chambers, passing under and around each second fire-box, a drying and burning table, as 6, located over the second fire-box, and a branch flue extending around and over said table which branch flue is controlled by a damper whereby each branch flue may be closed, a third independent fire-box, as 18 connected by a passage-way with the main burning-chamber, said third fire-box comprising two contiguous independent compartments connected with each by an intermediate passage-way one being a coking-chamber, having a closed floor and the other being a burning-chamber with grating floor, and there being a checker-arch within the said burning-chamber, an expansion-chamber 25, connected by passage-ways with the said third fire-box 18 and communicating with chamber as 21, provided with a tank for receiving, and in which to evaporate water drained from the receiving and dumping tanks, said chamber 21 having a suitable damper-controlled heat-escape, a drying and burning chamber 27 located above said expansion-chamber 25 having a closed floor and connected by passage-ways with the main burning-chamber 2, there being suitable charge-holes for throwing the refuse into the crucible, each of said charge-holes being provided with a suitable receiving or dumping tank adapted to discharge its contents through such charge-holes and to drain its contents into a catch-basin, for such purpose provided, the catch-basins having pipes as 23, 23' for conveying the water collected into the evaporating-tank, and means for producing an air-current through said catch-basins and drain-pipes 23 23' for removal of the offensive gases and conveyance of the same into a burning-chamber to be there consumed, substantially as described.

9. The combination is a refuse-burner in which each hopper rests, and the cover for the hopper, of means for lifting each hopper at an end and simultaneously therewith its cover, substantially as described.

10. In a crucible, or furnace, the combination of the combustion-chamber, a superimposed heating-chamber, and an intermediate, or dividing table or floor consisting of bearing courses, leading courses intersecting the former, and lipped flues covering the openings between such intersecting courses, substantially as described.

699,686. TURNER. ROBERT C. TURNER, Wallen-upton-Thames, England. Filed Jan. 11, 1902. Serial No. 90,216. (No model.)



Claim.—1. A turbine comprising a shaft, a number of flat circular disks spaced apart on the shaft and means for forcing a liquid in a straight line between the disks, whereby said disks and shaft are caused to revolve by the friction of the liquid on the sides of the disks, substantially as described.

2. A turbine having a casing, a shaft carrying flat disks spaced apart, means for passing a fluid through the spaces thus formed to rotate the disks by friction, and an inlet and an outlet both in the circumference of the casing, as described.

3. A turbine having a shaft carrying flat disks, spaced apart, an inlet for the motive fluid to rotate the disks by friction and an outlet in line with said inlet and tangential to the disks, substantially as described.

4. A turbine comprising a shaft carrying disks with chamber spaces between them in combination with an inclosing casing provided with a fluid-inlet and an opposite outlet, in line with the inlet, whereby the fluid passes in contact with the disks in a straight line through the chamber spaces between the disks to the outlet, substantially as described.

5. A turbine comprising a number of shafts, disks on said shafts, said disks being spaced apart, a casing for the shafts and disks and an inlet and an outlet in the casing placed in a line with each other and crossing the disks of more than one shaft, substantially as and for the purpose described.

REISSUES.

11,989. CARTER. ALBERT R. CARTER, Brooklyn, N. Y. Filed Dec. 12, 1901. Serial No. 95,928. Original No. 694,966, dated July 31, 1900.



Claim.—1. The combination with the center-wheel, jaws and pliate, of a disk surrounding the pliate and upon which the tubular leg rests, a spring-frame spanning the pliate, fitting within the tubular leg and acting frictionally against the inner surface of the tubular leg to hold the center in place and prevent the same accidentally dropping out, and means for limiting the compressive movement of the free portion of said frame, substantially as set forth.

2. The combination with the center-wheel, jaws and pliate, of a disk surrounding the pliate and upon which the tubular leg rests, a spring-frame spanning the pliate and having a hole at its folded portion to receive the pliate near its free end, said frame fitting within the tubular leg and acting frictionally against the inner surface thereof to hold the center in place and prevent the same accidentally dropping out, and means for limiting the compressive movement of the free portion of said frame, substantially as set forth.

3. The combination with the center-wheel, jaws and pliate, of a disk surrounding the pliate and upon which the tubular leg rests, a spring-frame spanning the pliate fitting within the tubular leg and acting frictionally against the inner surface of the tubular leg to hold the center in place and prevent the same accidentally dropping out, means for limiting the compressive movement of the free portion of said frame, and means for limiting the central position of the pliate, substantially as set forth.

4. The combination with the center-wheel, jaws and pliate, of a disk

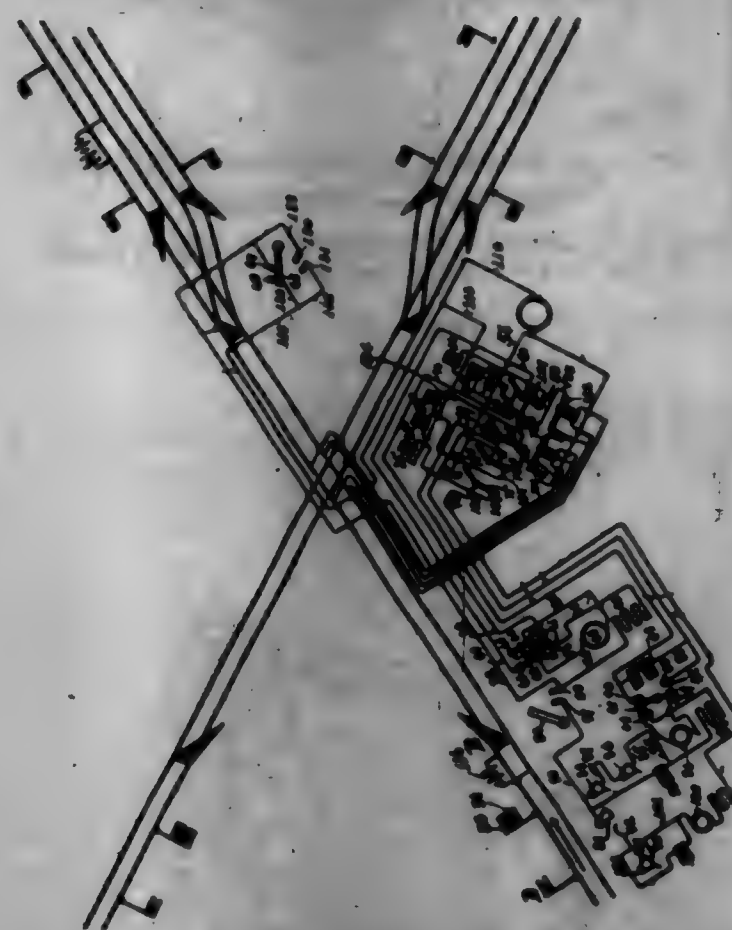
surrounding the pliate and upon which the tubular leg rests, a spring-frame spanning the pliate and having a hole at its folded portion to receive the pliate near its free end, said frame fitting within the tubular leg and acting frictionally against the inner surface thereof to hold the center in place and prevent the same accidentally dropping out, means for limiting the central position of the pliate and means for limiting the compressive movement of the free portion of said frame, substantially as set forth.

5. The combination with the center-wheel, jaws and pliate, a disk surrounding the pliate and upon which the tubular leg rests, and a spring-frame spanning the pliate within the tubular leg and acting outwardly against the inner surface of the tubular leg to maintain the center frictionally in position, of means for limiting the central position of the pliate and means acting in connection therewith and with the spring-frame for limiting the movement of the spring-frame, substantially as set forth.

6. The combination with the center-wheel, jaws and pliate, a disk surrounding the pliate and upon which the tubular leg rests, and a spring-frame spanning the pliate within the tubular leg and acting outwardly against the inner surface of the tubular leg to maintain the center frictionally in position, of a guide-plate surrounding the pliate above the said disk and adapted to pass into the lower end of the tubular leg, said plate having perforations at opposite sides of the pliate and tapers upon the free ends of the spring-frame passing into the perforations of the said plate, substantially as set forth.

7. The combination with the center-wheel, jaws and pliate and a disk surrounding the pliate and upon which the tubular leg rests, of an inverted-U-shaped spring-frame spanning the pliate within the tubular leg and having a central portion through which the pliate passes and the vertical edges of the frame bent outward as wings and which frame acts outwardly against the inner surface of the tubular leg to maintain the center frictionally in position, means for limiting the central position of the pliate and means acting in connection therewith and with the spring-frame for limiting the movement of the spring-frame, substantially as set forth.

11,988. RAILWAY SIGNALING AND SWITCHING APPARATUS. JOHN D. TAYLOR, Buffalo, N. Y., assignor to Taylor Signal Company, a Corporation of New York. Filed May 30, 1901. Serial No. 95,929. Original No. 694,967, dated June 7, 1900.



Claim.—1. In a railway signaling and switching apparatus, a series of operating-levers, primary and secondary locking-bars, connections between the primary bars and levers, yielding connections between the primary and secondary bars, holding-latches for the secondary bars, and electrical means for releasing the latches, substantially as and for the purposes set forth.

2. In a railway signaling and switching apparatus, a series of operating-levers, primary and secondary locking-bars arranged in pairs, one

upon the other, connections between the primary bars and levers, spring-yielding connections between the pairs of bars, and electrically-actuated locking devices for the secondary bars, substantially as specified.

3. In a railway switching apparatus, a series of operating-levers, primary and secondary locking-bars, arranged in pairs, one upon the other, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, two latches for controlling the opposite movements of each secondary bar, spring-pressed pawls, one at each end of each primary bar, adapted to engage notches in the primary bars, and hold said primary bars until released by the secondary bars, and electromagnetic means for lifting the latches and releasing the secondary bars, substantially as specified.

4. A railway switching mechanism, comprising operating-levers, primary and secondary locking-bars, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, holding-latches for the secondary bars, electromagnets for raising the latches, and a switch-operating motor, by means of which the magnets are energized at the proper time by currents generated by the rotation of the switch-motor mechanism, substantially as specified.

5. In a railway-switch-operating mechanism, a series of operating-levers, electric-circuit-carrying levers, primary and secondary locking-bars, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, holding-latches for the secondary bars, spring-pressed pawls for holding the primary bars until the secondary bars have made complete movement, electromagnets for lifting the latches and electric circuits comprising the switch-operating motor, an automatic electric reversing-switch operated by the motor, the circuit-carrying levers attached to the operating-levers, the electromagnets and electrical connections, substantially as specified.

6. In a railway signaling apparatus, a signal, a motor for reversing the same, a counterbalanced lever for restoring the signal to its normal position, and rotating the motor in the reverse direction, a signal-operating lever, a two-position circuit-carrying lever, a primary locking-bar, a secondary locking-bar, a link connection between the primary bar and lever, a spring-yielding connection between the two bars, a latch for controlling the movement of the secondary bar, and an electromagnet for raising said latch, the said magnet being in a circuit leading from the motor and energized by the current generated by the reverse rotation of the motor, substantially as specified.

7. In a railway signaling apparatus, two electromagnets or signals, a motor, chevron levers mounted on the shaft of the motor, a clutch mechanism, between said shaft and the chevrons, the said clutch mechanism operating to rotate the chevrons in opposite directions when the motor is reversed, and connections between said chevrons and electromagnets or signals, substantially as specified.

8. A railway-signal, comprising two swinging signals, a motor for operating the same, two chevrons loosely mounted on the shaft of the motor, a single-tooth ratchet-wheel, arranged at one side of each chevron, pawls carried by the chevrons for engaging the said teeth, counterbalanced levers on the support for the signals, connections between the chevrons and levers, and connections between the levers and signals, substantially as specified.

9. In a railway-signal-operating mechanism, two electromagnets or signals, a reversal electric motor for operating the signals, a clutch mechanism on the shaft of the motor for selecting either one or the other signal, depending on the direction of rotation of the motor, a polarized pole-changing relay for determining the direction of the current through the motor-circuit, a two-position circuit-carrying lever, attached to each of the two signal-operating levers, one for each signal, said circuit-carrying levers acting conjointly to control the circuit through the polarized relay and severally to control circuits through the motor, a generator and the electrical connections, substantially as specified.

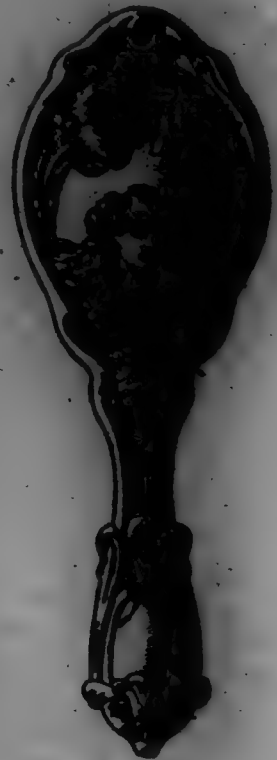
DESIGNS.

85,890. BUTTON. BRADLEY T. HARRIS, St. Louis, Mo. Filed Apr. 1, 1902. Serial No. 100,065. Term of patent 14 years.



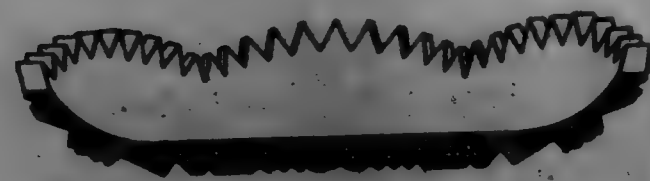
Claim.—The design for a button, substantially as herein shown and described.

85,891. RACK FOR BRUSHES, BROOMS, OR SIMILAR ARTICLES. HENRY A. KRAMER, New York, N. Y., assignor to Long & Koch, Newark, N. J., a Corporation of New Jersey. Filed Mar. 12, 1902. Serial No. 97,864. Term of patent 14 years.



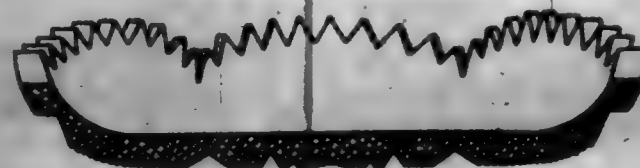
Claim.—The design for a rack for brushes, brooms or similar articles, substantially as herein shown and described.

85,892. GLASS DISK. WILLIAM S. CLARK, St. Louis, Mo., assignor to Missouri Glass Company, St. Louis, Mo., a Corporation of Missouri. Filed Apr. 14, 1902. Serial No. 100,941. Term of patent 7 years.



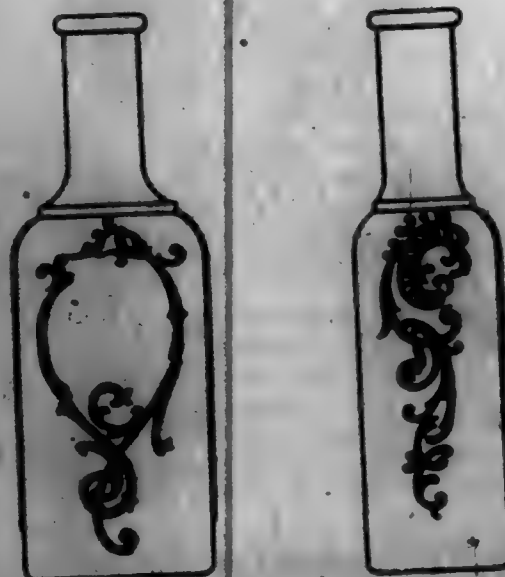
Claim.—The design for a glass disk as herein shown and described.

85,893. GLASS DISK. WILLIAM S. CLARK, St. Louis, Mo., assignor to Missouri Glass Company, St. Louis, Mo., a Corporation of Missouri. Filed Apr. 14, 1902. Serial No. 100,942. Term of patent 7 years.



Claim.—The design for a glass disk as herein shown and described.

85,894. BOTTLE. ROBERT H. HUNTER, New York, N. Y. Filed Mar. 21, 1902. Serial No. 100,943. Term of patent 7 years.



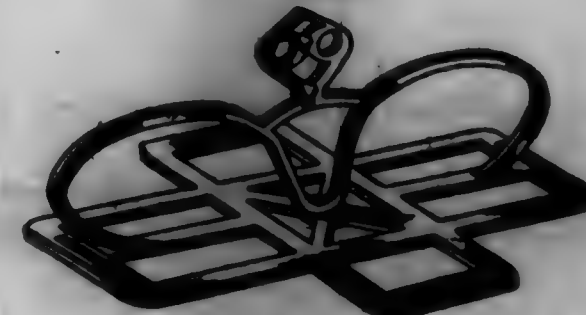
Claim.—The design for a bottle substantially as herein shown and described.

85,895. LAMP-GLASS. GEORGE W. BAIN, Pittsburgh, Pa. Filed Mar. 27, 1902. Serial No. 100,944. Term of patent 14 years.



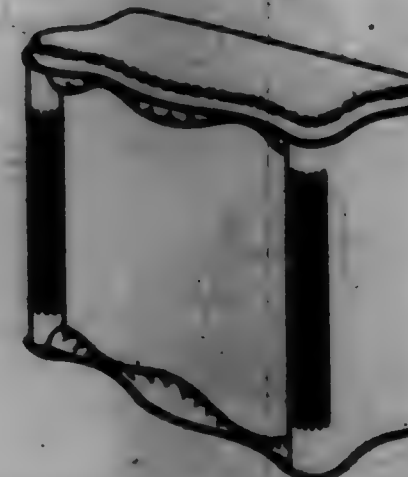
Claim.—The design for a lamp-glass substantially as herein shown and described.

85,896. RING-STRAP FOR HARNESSES. JOHN HENRY ALLEN, Williamsport, Pa. Filed Mar. 29, 1902. Serial No. 100,945. Term of patent 7 years.



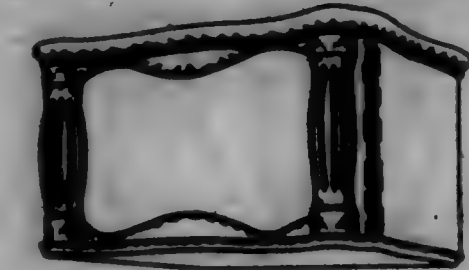
Claim.—The design for a ring-strap as herein shown and described.

85,897. FLOWING-TANK. CHARLES SUTHERLAND, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed Apr. 14, 1902. Serial No. 100,946. Term of patent 7 years.



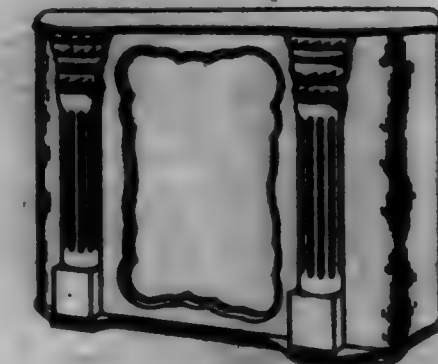
Claim.—The design for a flowing-tank substantially as herein shown and described.

85,898. FLOWING-TANK. CHARLES SUTHERLAND, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed Apr. 14, 1902. Serial No. 100,947. Term of patent 7 years.



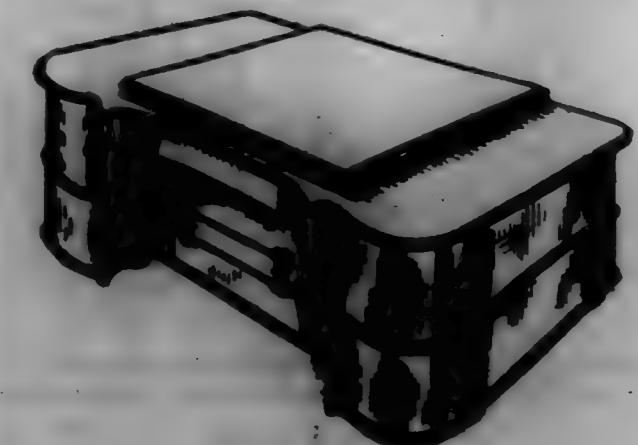
Claim.—The design for a flowing-tank substantially as herein shown and described.

85,899. FLOWING-TANK. CHARLES SUTHERLAND, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed Apr. 14, 1902. Serial No. 100,948. Term of patent 7 years.



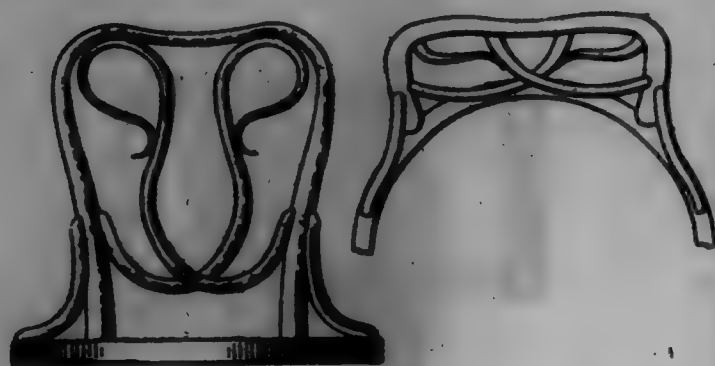
Claim.—The design for a flowing-tank substantially as herein shown and described.

85,900. SEWING-MACHINE CABINET. THOMAS KIMBLE, Cleveland, Ohio. Filed Apr. 11, 1902. Serial No. 100,949. Term of patent 7 years.



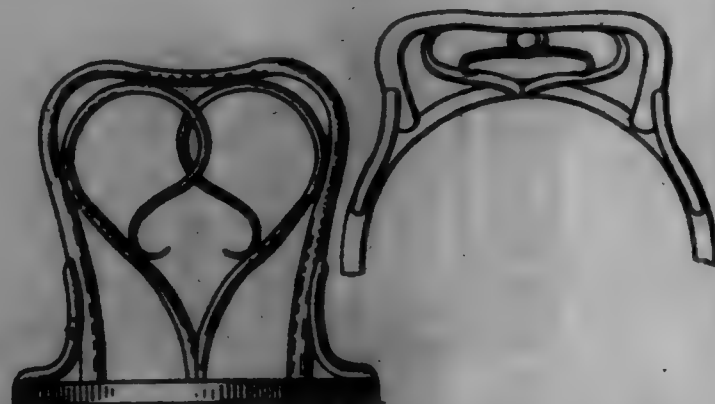
Claim.—The design for a sewing-machine cabinet substantially as herein shown and described.

85,901. CHAIR-BACK. ALBERT WAGNER, Jr., Hoboken, N. J.
Filed Mar. 20, 1902. Serial No. 99,217. Term of patent 14 years.



Claim.—The design for a chair-back as herein shown and described.

85,902. CHAIR-BACK. ALBERT WAGNER, Jr., Hoboken, N. J.
Filed Mar. 20, 1902. Serial No. 99,218. Term of patent 14 years.



Claim.—The design for a chair-back herein shown and described.

85,903. CASKET-BODY. JOHN MATTHEW, Omaha, N. Y. Filed
Apr. 11, 1902. Serial No. 100,482. Term of patent 7 years.

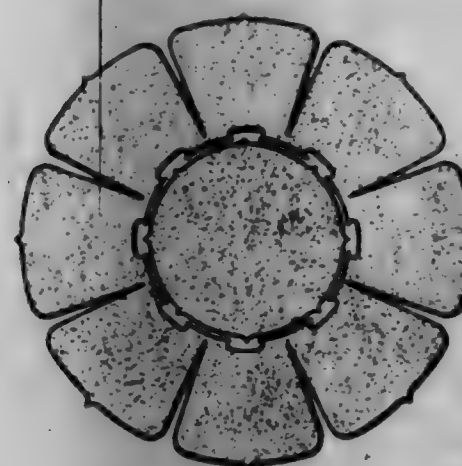


Claim.—The design for a casket-body substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 6, 1902.

88,915. GINGER, DRAFTER AND POTTER. Shows Business &
Co., New York, N. Y. Filed June 2, 1901.



A trade mark having a round central field and divergent sections or
petals. Used since April 27, 1900.

88,916. ARTIFICIAL TEETH. CURTIS W. HENSON, Toledo, Ohio.
Filed Apr. 12, 1901.

RIB-ANCHOR.

The compound word "RIB-ANCHOR." Used since April 30,
1900.

88,917. CERTAIN NAMED CARMEN. THE DUNSTON CIGARETTE CO.
Baltimore, W. Va., and New York, N. Y. Filed Mar. 28, 1902.



An Indian represented as standing on a rocky elevation and holding
a bow in hand of outstretched arm and an arrow with the word "DUNSTON"
on the shaft thereof. Used since May 1, 1901.

88,918. RUBBER DUTH AND GROUND. THOMAS CROWLEY, Long
Island, N. Y. Filed Jan. 12, 1902.



The word "TUNNEL" and the pictorial representation of a miner's
cap, lamp, and tools. Used since December 28, 1901.

88,919. LEATHER-LIKE AND WATERPROOF FABRICS AND
CERTAIN CHEMICAL PREPARATIONS. THE NEW YORK LEATHER &
PAINT CO., New York, N. Y. Filed Mar. 14, 1902.

FABRIKOID

The word "FABRIKOID." Used since April 19, 1901.

88,920. MINERAL WATER. AUGUSTE THOMAS WAGNER (KARL-
HEINRICH) AUGUST-GESCHLUSSEN, Als-la-Chapelle, Germany. Filed
Mar. 28, 1902.



A representation of Emperor Charles Magnus and of a shield, as-
sociated with the words "CAROLUS MAGNUS." Used since 1899.

88,921. MINERAL WATER. AUGUSTE THOMAS WAGNER (KARL-
HEINRICH) AUGUST-GESCHLUSSEN, Als-la-Chapelle, Germany. Filed
Mar. 28, 1902.

CAROLUS

The word "CAROLUS." Used since 1899.

May 6, 1902.

88,999. GAS STOVES AND RANGERS. GEORGE W. GAS STOVE CO., New York, N. Y. Filed Apr. 2, 1902.

88,998. STEAM-ENGINE REGISTRATION. RICHARD T. STEAM-ENGINE CO., New York, N. Y. Filed Apr. 2, 1902.

IMPERIAL**Twentieth Century.**

The word "IMPERIAL." Used since September 1, 1900.

The representation of an arrow extending horizontally, with the word "TWENTIETH" adjacent to one end and the word "CENTURY" adjacent to the other end thereof. Used since March 28, 1902.



LABELS

REGISTERED MAY 6, 1902.

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| <p>9,118.—Title: "EL PITIRRE." (For Cigarettes.) STRECHER LITHO CO., Rochester, N. Y. Filed April 9, 1902.</p> <p>9,119.—Title: "ROYAL EGG NOODLES." (For Egg-Noodles.) THE PRATTMAN EGG NOODLE CO., Cleveland, Ohio. Filed April 14, 1902.</p> <p>9,120.—Title: "PURE SPICES." (For Spices.) THE WOOLSON SPICE COMPANY, Toledo, Ohio. Filed April 7, 1902.</p> <p>9,121.—Title: "PURE SPICES." (For Spices.) THE WOOLSON SPICE COMPANY, Toledo, Ohio. Filed April 7, 1902.</p> <p>9,122.—Title: "GERMANTOWN LAMP-BLACKS MADE BY THE L. MARTIN CO." (For Lampblack.) THE L. MARTIN CO., Jersey City, N. J. Filed April 11, 1902.</p> <p>9,123.—Title: "FEDERAL FAMILY SOAP." (For Soap.) KIRK BROS. & COMPANY, Chicago, Ill. Filed April 14, 1902.</p> <p>9,124.—Title: "BOBO QUININE HAIR TONIC." (For Hair-Tonic.) W. A. ANSCHUTZ, Des Moines, Iowa. Filed February 19, 1902.</p> | <p>9,125.—Title: "THE S. & G. HAIR GROWER." (For Hair-Tonic.) SUSANNA GARNER, St. Paul, Minn. Filed March 12, 1902.</p> <p>9,126.—Title: "MRS. WHITE'S HAIR GROWER & TONIC." (For Hair Grower and Tonic.) MARY A. WHITE, Washington, D. C. Filed April 12, 1902.</p> <p>9,127.—Title: "KOLA CREAM AND PEPSEIN." (For Tonic.) JACOB F. GOLDBERG, Cincinnati, Ohio. Filed March 12, 1902.</p> <p>9,128.—Title: "KENNEDY'S SWEET CASTOR OIL." (For Castor-Oil.) J. J. KENNEDY, Collins, Ga. Filed April 9, 1902.</p> <p>9,129.—Title: "LAXACURA." (For a Medicine.) J. F. BRUNSON, Lakon, Ohio. Filed March 22, 1902.</p> <p>9,130.—Title: "LITTLE INDIAN FINE OINTMENT." (For Ointment.) THE CHEMICAL SPECIALTY COMPANY, Newark, N. J. Filed April 15, 1902.</p> |
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PRINTS

REGISTERED MAY 6, 1902.

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| <p>499.—Title: "CHOCOLAT DES MARQUISES." (For Chocolate.) RUSSEL BROS., New York, N. Y. Filed April 15, 1902.</p> <p>500.—Title: "ECLIPSE PASTE." (For Paste.) RUSSEL & SMITH, New York, N. Y. Filed April 2, 1902.</p> | <p>501.—Title: "MEN'S APPAREL." (For Clothing.) Wm. C. BOTE, Chicago, Ill. Filed April 9, 1902.</p> <p>502.—Title: "OUR BRANDS." (For Hats.) ROTHSCHILD BROS. HAT CO., St. Louis, Mo. Filed April 12, 1902.</p> |
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1831

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

ARBETTER v. LEWIS.

Decided March 20, 1902.

1. INTERFERENCE—TRANSMITTAL OF MOTION TO DISSOLVE.

A motion to dissolve an interference brought after the twenty-day limit allowed by the rule for such motions should be transmitted when the delay is slight and it appears that no testimony has been taken and that a motion to dissolve on another ground is already before the Primary Examiner.

2. SAME—EXCUSE FOR DELAY.

If reasons exist why an interference should not be continued, it is for the interest of all concerned that all such reasons be considered at the same time. Hence the matter submitted in excuse of the delay will not be so closely scrutinized as when presented at a later stage of the proceedings.

APPEAL ON MOTION.

STATE AND METHOD OF MAKING SAME.

Application of Wolf Arbetter filed October 10, 1901, No. 78,177. Renewal application of John G. Lewis filed July 27, 1901, No. 69,990.

Messrs. Crosby & Gregory for Arbetter.

Messrs. Fowler & Fowler and Mr. George H. Evans for Lewis.

ALLEN, Commissioner:

This is an appeal by Arbetter from a decision of the Examiner of Interferences refusing to transmit to the Primary Examiner a motion by Arbetter to dissolve the above-entitled interference.

It appears that a motion to dissolve this interference was brought by Lewis, which motion has not yet been heard by the Primary Examiner. The present motion was brought by Arbetter after the twenty-day limit, within which such motions must be brought under the rule, had expired. As an excuse for the delay an affidavit by a representative of the attorneys for Arbetter is presented, in which it is stated that—

... negotiations were entered into between the parties to the above-named interference with a view of differentiating if possible the construction of the claims of the respective parties, which form the subject-matter of the present interference.

The Examiner of Interferences based his decision refusing to transmit the motion on the fourth paragraph of the syllabus in *Latham v. Force and Parenteau*, (89 O. G., 185,) which is as follows:

The fact that negotiations were pending between the parties with a view to a settlement of the contest without proceeding with the interference is no valid excuse for delay in presenting a motion for dissolution, since the delay which will be excused must be caused by circumstances which have something of a compelling power.

The Examiner of Interferences is of the opinion

99 O. G.—4—11

that this holding is binding upon him, leaving him no discretion as to the transmittal of the motion to dissolve.

It is to be observed that the circumstances in the present case are very different from those in *Latham v. Force and Parenteau*, *supra*. In the case now under consideration no testimony has been taken. There is already before the Primary Examiner for his consideration a motion to dissolve on the ground that Arbetter has no right to make the claims. This motion has not yet come on for hearing. The present interference has not, therefore, progressed beyond the stage which interference proceedings customarily reach within the first twenty days.

This case does not present the same reasons for refusing to consider a motion to dissolve as did that of *Latham v. Force and Parenteau*, *supra*, in which testimony had been taken and a decision on the question of priority rendered. In such a case it would impose hardship on the opposing party by reason of the delay and expense if such a motion were to be considered. When, however, as in the present case, no testimony has been taken and the delay in bringing the motion is slight, no such hardship can arise. If reasons exist why the interference should not be continued, it is for the interest of all concerned that all such reasons be considered at one time, if possible. Hence the matter submitted in excuse of the delay in bringing the motion to dissolve will not be so closely scrutinized as when presented at a later stage of the proceedings. No hard and fast rule can be laid down in these cases, but each one must be considered on its own merits. Reasons which would warrant the transmittal of a motion brought, as was the present one, before the interference has progressed to an advanced stage might not be sufficient if the motion were brought later. This is a matter which, as was stated in *Winter v. Blick v. Vollkommer*, (97 O. G., 1887,) "rests largely within the discretion of the Examiner of Interferences."

In the present case it is desirable that all reasons for dissolution shall be considered by the Primary Examiner when the case comes before him. In view of this fact, therefore, and of the further fact that no hardship will be imposed on the opposing party, Arbetter's motion to dissolve should be transmitted to him.

The decision of the Examiner of Interferences refusing to transmit this motion is reversed.

1893

EX PARTE POWELL.

Decided March 21, 1902.

DIVISION—PROCESS AND ARTICLE OF MANUFACTURE.

Division properly required between a claim for an ax as an article of manufacture and claims for a method of finishing axes, which method is applicable to other articles and does not necessarily result in the particular product.

ON petition.

RECORD BY EXAMINER ALLEN.

Application of Fred T. Powell filed January 6, 1900, No. 88,547.

Messrs. Bakewell & Byrnes for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring division between the claims of the above-entitled application.

Claims 1 to 3, inclusive, cover a method of finishing axes, and claim 4 covers an ax as an article of manufacture.

Rule 41 permits the joinder in one application of claims for a process and its product. This permission, however, does not go so far as to allow the joinder of a process and its product at the will of the applicant. Due regard must be had for the Office classification and for the relation existing between the two inventions. If it appears that the process and product are classified separately, and, further, if it is clear that the process does not necessarily result in the product or that the product may be made by some other process, the inventions in such a case are independent and should be claimed in separate applications, as provided by Rule 42. (*Ex parte Erdman*, 98 O. G., 2531.)

Applying these tests to the case now under consideration, it is clear that the method covered by claims 1 to 3 is not necessarily confined to axes, but may be used for finishing other edge-tools, such as hatchets, chisels, and the like. Furthermore, the ax covered by claim 4 may be produced by other processes than that described in the other claims. The inventions are therefore independent. The fact that claims 1, 2, and 3 for process are examinable in one division and claim 4 for the ax in another strengthens this conclusion and forms, as above noted, another reason for requiring division. The action of the Examiner requiring division was correct.

The petition is denied.

BENGER & BURSON.

Decided April 15, 1902.

1. INTERFERENCE—THE RESTORATION OF JURISDICTION FOR ONE SPECIFIC PURPOSE DOES NOT OPERATE FOR ALL PURPOSES.

Where a motion is brought to restore jurisdiction to the Examiner of Interferences after the limit of appeal has expired in order that he may consider a motion to transmit a motion for dissolution and the motion is granted for that sole purpose, Held that the jurisdiction of the Examiner of Interferences was not restored for all purposes.

2. SAME—PRIORITY—APPEAL AFTER LIMIT HAS EXPIRED.

Where after the limit of appeal on the question of priority has expired a motion to dissolve is transmitted to the Primary Examiner and decided by him, Held that the party is not entitled thereafter to take an appeal as to priority.

3. SAME—SAME.

While it may have been necessary in justice to both parties to finally determine whether or not an interference in fact existed or whether or not either of the parties had a right to make the claim, the necessity for an appeal to the Examiners-in-Chief from a decision awarding priority on the record is not apparent. Such a course would only operate to delay the final determination of the case.

MOTION to reopen.

TUNULAR EXIT GOODS.

Application of Gottlieb Benger filed December 5, 1899, No. 789,263. Application of William W. Burson filed June 6, 1896, No. 594,485.

Mr. Max Georgitt for Benger.

Messrs. Macleod, Calver & Randall for Burson.

ALLEN, Commissioner:

This is a motion brought by Benger that a new limit of appeal be fixed in order that he may take an appeal to the Examiners-in-Chief on the merits of this interference.

The records show that this interference was declared June 6, 1900.

On August 24, 1900, priority of invention was decided on the record (Rule 114) in favor of Burson and the limit of appeal was set to expire September 14, 1900. On said date a motion was made by Benger to extend the limit of appeal, which was granted on September 15, the time being extended to October 4, 1900.

On October 25, 1900, Benger brought a motion—
to restore jurisdiction of this interference to the Hon. Examiner of Interferences in order that he may consider motions to dissolve said interference made on behalf of said Benger, the motion papers for said motion to dissolve being filed herewith.

In support of this motion certain affidavits were filed setting forth the "reasons why the motion to dissolve was not presented before the expiration of the limit of appeal."

The Commissioner in a decision rendered November 8, 1900, stated:

I have looked into the merits of the case sufficiently to become convinced that Benger should be permitted to file a motion to dissolve the interference. Jurisdiction is therefore restored to the Examiner of Interferences who will exercise his discretion in determining the question whether the motion to dissolve the interference should be transmitted to the Primary Examiner.

It is therefore seen that the motion was brought solely for the purpose of being allowed to file a motion for dissolution and that the Commissioner granted said motion solely for that purpose. While the reasons given for not filing a motion for dissolution within the limits of appeal might very well be held sufficient to excuse the delay, it does not follow that the same reasons would necessarily avail to excuse the same delay in filing an appeal from a decision of the Examiner of Interferences awarding priority on the record under Rule 114. On November 16, 1900, the motion to dissolve the interference was transmitted by the Examiner of Interferences to the Primary Examiner for his determination.

The Primary Examiner held that Burson had a right to make the claims, and that there was an interference in fact, and that there was no such irregularity in declaring the same as to preclude the proper determination of the question of priority.

From the decision on the last two grounds an ap-

peal was taken by Benger to the Commissioner, who in a decision rendered March 4, 1902, affirmed the decision of the Primary Examiner.

On March 12, 1902, the Examiner of Interferences made the following order:

On the 26th day of November, 1901, the Primary Examiner decided a motion to dissolve this interference made on behalf of Benger, and such decision had become final, as has also the decision of priority rendered in favor of Burson on the 14th of August, 1901. It is therefore ordered that this fact be spread upon the interference record, and that the application papers of the respective parties be forthwith transmitted to the Primary Examiner.

Thereupon Benger, on April 1, 1902, brings this motion, which is specified above. The granting of the motion is opposed by Burson.

Benger in his brief states that he believed that—
the restoration of jurisdiction to the Examiner of Interferences was a full restoration for all purposes, and was not to be limited to a specific restoration merely for the purpose of entertaining a motion to dissolve. The question of whether or not this supposition of Benger's was correct is now submitted to the Honorable Commissioner of Patents for his consideration.

It is clear from the record that the supposition of Benger is not correct, for the motion itself is specific in the request that he be allowed to file a motion for dissolution. The decision of the Commissioner is equally specific in granting the motion.

Benger also states that—

the grounds upon which he asks that the motion be granted are fully set forth in the affidavit accompanying the motion to restore jurisdiction granted by the Commissioner of Patents on November 8, 1900.

The grounds then set forth, while undoubtedly sufficient to warrant the grant of the motion at that time and for the specific purpose set forth, are not such as to warrant the grant of this motion now, (nearly one year and five months afterward,) which is brought for a totally different purpose.

While it may have been necessary in justice to both parties to finally determine whether or not an interference in fact existed or whether or not either of the parties had a right to make the claims, the necessity for an appeal to the Examiners-in-Chief from a decision awarding priority on the record is not apparent. Such a course would only operate to delay the final determination of this case.

No reasons now appear to warrant a reopening of this case. The rights of the opposing party as well as those of the moving party should be considered and should have weight in determining a delayed motion, such as the one now under consideration.

The motion is denied.

WHITLOCK AND HUSON v. SCOTT.

Decided April 15, 1902.

1. INTERFERENCE—MOTION FOR DISSOLUTION—NEW FACTS DISCOVERED—PRIORITY.

Upon the discovery of new facts after a motion to transmit a motion for dissolution is granted "the Primary Examiner may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve." (*Wells v. Fisher*, 90 O. G., 1947.)

2. SAME—SAME—MOTION TO OPPOSE.

If notice of the new facts be served on the opposing party at least five days before the day set for hearing, such notice should be considered as "due and timely."

3. SAME—SAME—SAME—DELAY NOT PERMITTED.

Unless the practice of giving "due and timely notice" on the discovery of new facts is enforced a postponement of the time of hearing becomes necessary, and therefore a delay of proceeding might be obtained by the observance of this practice by the moving party. It is therefore held that such a delay should not be permitted except upon a showing of facts that the new motion could not have been earlier presented. (*Oling Summers v. Hart*, 98 O. G., 2885.)

4. SAME—SECOND MOTION TO DISSOLVE—RESPONSE TO TRANSMIT—DELAY UNNECESSARY.

Where a second motion to transmit a motion for dissolution is brought before the Examiner of Interferences on the ground of the discovery of new references, Held that the consideration of unavoidable delay should be controlling with the Examiner of Interferences, for the granting of the second motion for transmittal necessarily results in a second hearing of the motion for dissolution by the Primary Examiner and the same end would be gained by a different means.

5. SAME—SAME—DELAY NOT UNAVOIDABLE.

Where after a period of three months has elapsed from the date of the decision of priority on the record and it appears that the new references were discovered after a very short search on the morning of the day of hearing among the records of this Office in places where they might be expected to have been found, Held that the delay in discovering the new references was not unavoidable.

APPEAL on motion.

PRINTING PRESS.

Patent granted Sturges Whitlock and Winfield S. Huson November 12, 1900, No. 661,924. Application of Walter Scott filed April 27, 1901, No. 57,739.

Messrs. Seymour & Earle for Whitlock and Huson.

Mr. Richard W. Barkley for Scott.

ALLEN, Commissioner:

This is an appeal by Scott from the decision of the Examiner of Interferences transmitting to the Primary Examiner a second motion for a dissolution of this interference.

The records show that the interference was declared on October 22, 1901, and on November 16, 1901, a judgment of priority was rendered on the record in favor of Scott, the limit of appeal being set for December 7, 1901.

By stipulation of the parties the limit of appeal was extended to December 17, 1901. On said date a motion for dissolution was brought by Whitlock and Huson on the ground that the counts of the issue were not patentable over certain United States patents cited in said motion paper.

On December 23, 1901, the Examiner of Interferences transmitted the motion to dissolve to the Primary Examiner for his determination. Certain motions were subsequently made and proceedings with relation thereto were had, to which it is not now necessary to refer.

The Primary Examiner finally set February 23, 1902, at 10.30 a. m., as the time for hearing the motion to dissolve. It appears that between 10 and 10.30 on the morning of the day of hearing, February 23, 1902, the counsel for the moving party, Whitlock and Huson, together with one of the joint inventors and one of the Assistant Examiners in the division in which this case is pending, found in the Scientific Library of the Patent Office a box of catalogues containing two catalogues published by the Campbell Printing Press Company, in each of which, it is alleged, was illustrated the inking mechanism covered in the issue, and that on the finding of these catalogues it occurred to them that there was a bare possibility that Campbell had taken out an English patent on said inking mechanism, and that upon a search in the files containing the English patents a Patent No. 199 of 1873, which, it is alleged, discloses the inking mechanism of the issue, was readily found.

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It also appears that the counsel for the moving party just prior to the time set for the hearing of the first motion and before the argument was begun proposed to the counsel for Scott, who was present, that he accept notice of this additional material which it was desired to cite as further reasons why the interference should be dissolved, and that he agree to a postponement of the hearing, and that times be set for a second hearing, so that the Examiner might consider the new references in rendering his decision.

To this proposition the counsel for Scott did not agree.

The second motion to dissolve was thereupon brought before the Examiner of Interferences on February 26, 1901, who transmitted the same, and from said decision this appeal is taken by Scott.

In the decision of *Wells v. Packer* (90 O. G., 1947) it was held that upon the discovery of new facts after the motion to transmit was granted—the Primary Examiner may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to transmit.

It was also announced in said decision that if notice of the new facts be served on the opposing party at least five days before the day set for hearing such notice should be considered as "due and timely."

In the decision of *Summers v. Hart* (98 O. G., 2665) the decision of *Wells v. Packer*, *supra*, was quoted with approval, and it was further stated that unless the practice of giving "due and timely notice" in such cases was enforced a postponement of the time of hearing would be necessary in order to do justice to the opposing party, and it was pointed out that a delay of the proceedings might thereby be obtained by the observance of this course by the moving party.

It was accordingly held that—such a delay should not be permitted, except upon a showing of facts that the new matter could not have been earlier presented.

It follows, therefore, that this consideration should be controlling upon the Examiner of Interferences in considering the transmittal of a second motion for dissolution, for the granting of the second motion for transmittal necessarily results in a second hearing of the motion for dissolution by the Primary Examiner, and the same end would be gained by a different means.

It is to be determined, therefore, whether or not the delay in this case was unavoidable and whether the new facts could not have been earlier presented. It is to be noticed that a period of over two months was permitted to pass between the date of the first motion and the date of the second motion, and, further, that the moving party took all the time allowed him, a period of one month from the date of the decision of priority, before he brought the first motion.

It also appears that the new references were found in the files of the Patent Office, where they had been during all that time. They were surely not inaccessible, for they were found in the course of a very short search made on the morning of the day of hearing, before the time set for the hearing

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had arrived. The only reason which appears why these new references were not found before is that it did not until that morning occur to the parties who made the search to look for them in the way that they did, when their search developed the additional references. The English patents were as accessible at any time during the period of three months as they were on the day that the search was made and the English Patent No. 109 of 1873 found, and the same is true of the catalogues in question.

It is argued that the catalogues were not in the Examiner's room; neither were they placed among the files in the Scientific Library, which are open to the inspection of the public; that they were kept in the alcoves of the library, which are not accessible to the public.

It is true the public is not permitted free access to the alcoves of the Scientific Library; but it does not follow that the public is not permitted to search the books of reference kept therein upon proper request being first made to the librarian or his assistant. The argument could as well be made that none of the many books of reference on file in the alcoves of the Scientific Library were accessible to the public and that therefore it is not necessary to extend a search in said library until one sees fit to do so with the assistance of an employee of this Office.

The facts set forth are not such as to show that these new references could not have been found before.

The records show that counsel for Whitlock and Hason regard the English patent as a better reference for the counts of the issue than the disclosure in the catalogues. It also appears that the counsel for Scott has withdrawn his objections to the consideration by the Primary Examiner of the English patent.

In rendering his decision, therefore, the Primary Examiner may properly consider the English patent referred to in the motion.

Nothing in this decision should be construed to mean that the Primary Examiner should not give due consideration to all anticipating matters of which he may be aware or hereafter discover when the application of Scott comes before him for *ex parte* consideration after the final determination of this interference.

The decision of the Examiner of Interferences is reversed.

EX PARTE RAYMOND.

Decided April 18, 1902.

1. REOPENING REJECTED CLAIMS—SHOWING INSUFFICIENCY.

Where the claims in a case were properly finally rejected and the applicant thereafter sought to amend and as a reason for not amending earlier alleged that prior to final rejection he had been intent in framing claims upon a different view of the invention and references and because the view of the invention contained in the amended claims did not then present itself, *Held* that the showing does not warrant reopening the case for further prosecution before the Examiner. (Citing *ex parte Beckwith*, 91 O. G., 1481.)

2. SAME—ADMISSION OF AMENDMENT FOR PURPOSE OF APPEAL.

Where the new claims sought to be entered after final rejection are not merely those rejected in better form, but differ as to their merits, *Held* that they cannot be admitted under Rule 68 for the purpose of appeal.

3. FINAL REJECTION—NO APPEAL TAKEN WITHIN THE STATUTORY TIME LIMIT—APPLICATION ABANDONED.

Where the final rejection was made on February 27, 1900 and no appeal therefrom was taken within the time limit allowed by the statute, all the intermediate actions being limited to proceedings relative to the admission of an amendment canceling the rejected claims and substituting others in lieu thereof, *Held* that it would be useless to admit claims for the purpose of appeal, as the application is abandoned.

ON petition.

CONFIRMING-MACHINES FOR NEEDS, ETC.

Application of Freeborn F. Raymond, 2d, filed January 18, 1897, No. 619,978.

Messrs. Clarke & Raymond and Mr. Henry Colver for the applicant.

ALLEN, Commissioner.

This is a petition from the action of the Examiner refusing to reopen the above-entitled application after its final rejection and enter and consider certain claims filed in lieu of the finally-rejected claims.

The records show that claims 1, 2, 3, and 4 were finally rejected on certain references on February 27, 1900. This final action was not taken until after two successive arguments had been filed in support of the petitioner's contention that the said claims were patentable.

On February 12, 1901, the petitioner filed an argument and an amendment. The amendment directed the cancellation of the four claims under final rejection and the substitution of four others in lieu thereof. This amendment was properly refused entry by the Examiner on the ground that the petitioner had not complied with the provisions of Rule 68, which relate to the entry of amendments after final rejection.

On July 28, 1901, another amendment was filed similar to that filed on February 12, 1901. To this amendment was attached an affidavit of the petitioner setting forth reasons why the amendment was not earlier presented. The Examiner held that the showing made was not sufficient to warrant a reopening of the case, citing in support of this holding the decisions *ex parte Weller* (91 O. G., 1088) and *ex parte Beckwith*, (95 O. G., 1481). It is from this action that the present petition is taken.

The petitioner has complied with the letter of Rule 68. It is not only necessary that the rule should be complied with in order to warrant a reopening of an application after final rejection, but it is essential that the verified showing required by the rule should be sufficient. This petition presents, therefore, the question of sufficiency of the showing for decision, as the letter of the rule has been complied with.

The showing consists of an affidavit of the applicant setting forth that prior to the final rejection—

"... the applicant had been intent in framing claims upon a different view of the invention and references and because the view of the invention contained in the amended claims did not then present itself."

That the failure to obtain the claims which he considers he is entitled to receive is not due to the relevancy of the references, but to his own inability to properly compare his invention with them and this inability arising largely from the fact that the invention and the references belong to two dissimilar classes thereby making comparison more difficult than it would otherwise be. By his present claims he has attempted to introduce such elements as tend to make the fundamental distinction be-

tween the two types of inventions so apparent that the said references can no longer be urged as containing his invention.

It is further stated that all the amendments have been made in good faith and with no intention of causing delay. This showing does not warrant a reopening of the case for further prosecution before the Examiner.

The record shows that two long and careful arguments were filed without in any way amending the original claims before the final rejection was given by the Examiner. These arguments show that a careful study of the references as they applied to the claims was given by the applicant before the final rejection.

The statements made in *ex parte Beckwith*, *supra*, apply with equal force to this case.

In the brief filed by the counsel for the petitioner it is suggested that the claims should at least be admitted for the purposes of appeal, "as they better define the applicant's invention." This request cannot be granted, for the reason that the new claims are not merely those rejected in better form, but they differ as to their merits. (*Ex parte White*, 98 O. G., 1069.) That the new claims differ from those under final rejection as to their merits is admitted by the applicant in the paper filed October 19, 1901. In this paper it is stated, referring to the new claims, that "we will submit claims which will bring into view an element which has not been before included and that is, &c." This statement clearly shows that in the opinion of the applicant the new claims differ in scope from those under final rejection. The opinion of the applicant in this respect is concurred in.

Furthermore, in this particular case, even though the claims submitted after the final rejection of February 27, 1900, differed from those rejected only as to matters of form, it would be useless to now admit them for the purposes of appeal, because an appeal has not been taken within two years from said date of February 27, 1900.

The petition is denied, and this application is held to be abandoned. (Rules 171 and 68.)

DECISIONS OF THE U. S. COURTS

Court of Appeals of the District of Columbia.

PETRIE & DE SCHWEINITZ.

Decided March 5, 1902.

1. INTERFERENCE—UNSUPPORTED TESTIMONY OF A PARTY.

That the unsupported evidence of a party will not be accepted or acted upon as sufficient proof of the conception of an invention is a well-settled principle, the reasons for which apply with equal force to its reduction to practice.

2. SAME—EVIDENCE AS TO PAST STATEMENTS—CONFESSION.

Evidence that a party at a certain time stated that he had reduced the invention in controversy to practice while admitting as tending to establish the fact of conception is clearly incompetent to prove the independent fact of reduction of that conception to practice.

3. SAME—DILIGENCE.

Where during a delay of six years F. was poor, but concealed his invention and failed to make efforts to interest others in it to assist him in securing a patent or in making practical use of it, *Held* that mere poverty cannot excuse an absence of all effort for such a length of time.

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Mr. Cyrus W. Rice, Mr. Clarence K. Chamberlain, and Mr. Harvey S. Knight for the appellant. Messrs. Penne & Goldsborough for the appellee.

SHEPARD, J.:

This is an interference proceeding relating to an improved process for treating tobacco. The issue was declared in the following terms:

1. The process of treating tobacco of inferior quality, consisting, first, in sterilizing the same, under such conditions and sufficiently long continued as to destroy the original bacteria and spores existing thereon, then adding to the sterilized tobacco bacteria or cultures thereof to produce a new and characteristic flavor, and then subjecting the tobacco to fermentation, substantially as set forth for the purpose described.
2. The process of changing the flavor of tobacco, which consists in first treating the tobacco of the species of bacteria originally existing thereon, and then adding in place thereof bacteria or cultures thereof, to produce a new and characteristic flavor, and also a material suitable for bacterial food, substantially as described.

The appellee, De Schweinitz, took no proof, but relied solely upon his application filed in the Patent Office February 4, 1897.

The appellant, Petrie, filed his application August 10, 1899, and introduced evidence under the burden of proof imposed to show conception prior to the record-date of his opponent and actual reduction to practice prior thereto, or else due diligence therein.

The Examiner of Interferences awarded priority to Petrie, but his decision was reversed by the Examiners-in-Chief. Their decision was on appeal to the Commissioner affirmed by him, and further appeal has been prosecuted therefrom.

Petrie's preliminary statement alleged discovery of the invention of count 1 in the summer of 1898, and of that of count 2 not later than June, 1898. He further alleged that he reduced both inventions to actual practice not later than June 15, 1898, and continued his experiments up to the summer of 1899, for the purpose of ascertaining the best method commercially of practicing the process, and produced improved tobacco several times by way of demonstrating the practicability of his process. This was amended subsequently and made to show disclosure to others not later than June 1, 1898, and the production of improved tobacco under both counts prior to June 15, 1898.

The Examiners-in-Chief and Commissioner conceded the early conception of Petrie, but held the evidence insufficient to show either reduction to practice or the exercise of the necessary diligence to that end, before the constructive reduction of his opponent through the application filed.

The process described by Petrie as practiced by him is an elaborate one. He does not claim that even a member of his household saw him conduct one of his numerous experiments. Several witnesses testified that he told them what he had done or was doing in the way of practicing and perfecting his process for improving tobacco, but none saw the process worked. All of his experimentation was secret. This is expressly admitted in his affidavit filed to obtain the amendment of the preliminary statement, in which he says:

During the time that I have been engaged in experimenting and working out my said invention, I have been strongly of the opinion that an inventor, at least until the time of making application for a patent, should not divulge the theory or practice of his invention, but should keep the same within his own knowledge.

Upon the consideration of this evidence, the Commissioner concluded as follows:

The testimony of the witnesses as to what Petrie told them he was doing or intended to do may be taken as showing that he had a conception of the invention at that time, but it cannot be accepted as showing a reduction to practice. Petrie himself is the only one who testifies to an actual performance of the process of the issue. None of the others saw it, and all that they know of it was derived from Petrie's statements. The testimony of these witnesses does not corroborate Petrie's present statement that he successfully performed the process, and his unsupported statement to that effect is insufficient to establish the fact. From the nature of the invention, the result of his experiments performed in secret could not be preserved to show what was done and whether or not it amounted to a reduction to practice of the invention, and his present statement of his conclusion that his experiments were successful and constituted a reduction to practice of the invention is not capable of being rebutted any more than would be the statement of an inventor as to his conception. Considering the natural bias of a party and the incentive to color the testimony in his own interest, it has been repeatedly held that the unsupported testimony of the inventor is insufficient to establish facts of this kind.

In this we fully concur. The evidence of self-serving declarations concerning an invention, while admissible as disclosures tending to establish the fact of conception, are clearly incompetent to prove the independent fact of reduction of that conception to practice.

That the unsupported evidence of a party will not be accepted or acted upon as sufficient proof of the conception of an invention, is a well-settled principle, the reasons for which apply with equal force to its reduction to practice. (*Mergenthaler v. Souder*, 11 App. D. C. 264, 278; *Winslow v. Austin*, 14 Idem, 187, 141; *De Wallace v. Scott*, 15 Idem, 187, 193; *Tyler v. St. Amant*, 17 Idem, 464, 487; *Young v. Donnelly*, C. D. 1898, p. 30.)

The remaining question is whether Petrie, having conceived the invention was exercising diligence in respect of it at the date of De Schweinitz's application.

Without restating the evidence that has been reviewed in the decisions of the Patent Office tribunals, we are content to adopt, as the expression of our opinion on this point, the following extract from the Commissioner's decision:

There is a delay of thirteen years after his alleged conception to be explained. He alleges that for the first seven years, or until 1895, he was searching for the proper "bacterial food," and after that date he was financially unable to apply for a patent. Considering all of the circumstances, these excuses are clearly insufficient. The first rests upon his own statement, and that statement is not consistent with other testimony given by him or with his conduct. He says himself that his invention was complete in 1893, and that the only difficulty was that he was not able to obtain the bacterial food of all times, thus indicating that the trouble, if any, was in his ability to obtain the food easily and not in its character. This view is strengthened by an inspection of the issue and the other claims of Petrie's application, none of which are limited to the particular "bacterial food" obtained from sprouted barley, which is now claimed to be so important. They are broad, and apply to what Petrie claims to have had in 1893. Petrie's own testimony shows that he had ample means to make practical use of the invention or file an application at any time up to 1898.

Even if the time after his discovery of sprouted barley in 1893 is alone considered Petrie did not exercise reasonable diligence. It is true that he seems to have been poor, but there is no showing whatever that he tried to interest others in the invention to assist him in securing a patent or in making practical use of the invention, but, on the contrary, he seems to have intentionally kept it from the public. More poverty cannot excuse an absence of all effort for such a length of time. According to his own showing all that Petrie did between 1893 and 1898 was to make a few experiments in private upon the same lines as his previous experiments, without accomplishing or expecting to accomplish anything further than he had previously accomplished.

This conclusion is amply supported by former decisions of this court where analogous conditions were shown. (*Griffin v. Swenson*, 15 App. D. C. 185, 188; *Platt v. Shipley*, 11 Idem, 878, 888; *Dodge v. Fowler*, 11 Idem, 592, 598; *Marsel v. Decker*, 18 Idem, 532, 534.)

It follows that the decision of the Commissioner must be affirmed. It is so ordered and that this decision be certified to the Commissioner of Patents as the statute requires.

THE OFFICIAL GAZETTE

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[BY AUTHORITY OF CONGRESS.]

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Vanden Bergh and Co. v. Belmont Distillery Co.....		1589
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Patents.....	12	No. 2,221 to No. 2,222, inclusive.
Designs.....	51	No. 2,221 to No. 2,222, inclusive.
Trade-Marks.....	12	No. 2,221 to No. 2,222, inclusive.
Labels.....	2	No. 2,221 to No. 2,222, inclusive.
Prints.....	7	No. 2,221 to No. 2,222, inclusive.
References.....	7	No. 2,221 to No. 2,222, inclusive.

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama.....	1	1	Nebraska.....	1	1
Alaska Territory.....	1	1	Nevada.....	1	1
Arizona Territory.....	1	1	New Hampshire.....	1	1
Arkansas.....	1	1	New Jersey.....	1	1
California.....	1	1	New Mexico Territory.....	1	1
Colorado.....	1	1	New York.....	1	1
Connecticut.....	1	1	North Carolina.....	1	1
Delaware.....	1	1	North Dakota.....	1	1
District of Columbia.....	1	1	Ohio.....	1	1
Florida.....	1	1	Oklahoma Territory.....	1	1
Georgia.....	1	1	Oregon.....	1	1
Hawaii Territory.....	1	1	Pennsylvania.....	1	1
Idaho.....	1	1	Rhode Island.....	1	1
Illinois.....	1	1	South Carolina.....	1	1
Indiana Territory.....	1	1	South Dakota.....	1	1
Indiana.....	1	1	Tennessee.....	1	1
Iowa.....	1	1	Texas.....	1	1
Kansas.....	1	1	Utah.....	1	1
Kentucky.....	1	1	Vermont.....	1	1
Louisiana.....	1	1	Virginia.....	1	1
Maine.....	1	1	Washington.....	1	1
Maryland.....	1	1	West Virginia.....	1	1
Massachusetts.....	1	1	Wisconsin.....	1	1
Michigan.....	1	1	Wyoming.....	1	1
Minnesota.....	1	1	U. S. Navy.....	1	1
Mississippi.....	1	1	Total to citizens of the United States.....	400	400
Missouri.....	1	1			
Montana.....	1	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Austria-Hungary.....	1	1	Netherlands.....	1	1
Barbados.....	1	1	Newfoundland.....	1	1
Belgium.....	1	1	New South Wales.....	1	1
Bermuda.....	1	1	New Zealand.....	1	1
Brasil.....	1	1	Norway.....	1	1
Canada.....	1	1	Peru.....	1	1
Cape Colony.....	1	1	Queensland.....	1	1
Chile.....	1	1	Roumania.....	1	1
China.....	1	1	Russia.....	1	1
Cocos Island.....	1	1	Scotland.....	1	1
Colombia.....	1	1	South Africa.....	1	1
Cuba.....	1	1	Spain.....	1	1
Denmark.....	1	1	Sweden.....	1	1
Egypt.....	1	1	Switzerland.....	1	1
France.....	1	1	Tasmania.....	1	1
Germany.....	1	1	Texas.....	1	1
Haiti.....	1	1	Victoria.....	1	1
India.....	1	1	Western Australia.....	1	1
Ireland.....	1	1	Total to citizens of foreign countries.....	71	71
Italy.....	1	1			
Mexico.....	1	1			

Design Patents.

AN ACT to amend section forty-nine hundred and twenty-nine of the Revised Statutes, relating to design patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-nine hundred and twenty-nine of the Revised Statutes be, and the same is hereby, amended so as to read as follows: "Sec. 4929. Any person who has invented any new, original, and ornamental design for an article of manufacture, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, the same as in cases of inventions or discoveries covered by section forty-eight hundred and eighty-six, obtain a patent therefor."

Approved May 9, 1902.

Attorneys.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 8, 1902.

This Office has been advised of the disbarment by the Secretary of the Interior of the following attorney from practice before the Department or any Bureau thereof: James H. Arnold, Ardmore, Ind. Ter., April 20, 1902.

U. H. MILLER,
Chief Clerk.

APPLICATIONS UNDER EXAMINATION.

Conditions of Court of Business May 4, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Under one month.			
100	II. Farm Stock, Products, etc., Livestock, Poultry, Stationery, etc.	Apr. 17	Apr. 20	205
101	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Apr. 16	Apr. 20	161
200	X. Carriages and Wagons.	Apr. 10	Apr. 20	125
201	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Clock-Controlled Apparatus.	Apr. 10	Apr. 21	267
211	XXIII. *Optics, *Thermometers, *Lenses and *Prisms, *Optical and *Photography.	Apr. 9	Apr. 20	55
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Apr. 9	Apr. 20	109
227	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Apr. 9	Apr. 21	221
44	XXXV. Acoustics, *Lenses, *Prisms, *Optical and *Photography, *Bells, *Gongs, *Chimes, *Harmoniums, *Pianos, *Organs, *Electric and *Magnetic Apparatus, *Pressure Regulators, *Pumps and *Suction Pumps, etc.	Apr. 7	Apr. 24	274
105	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Apr. 7	Apr. 20	155
120	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilets.	Apr. 7	Apr. 20	200
206	I. Textiles, etc., and Fumors.	Apr. 7	Apr. 20	130
210	III. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Apr. 7	Apr. 20	104
207	XV. Plastics, Paper-Making, Paving, Outfitters, Glass, Fuel, Bread-Making, etc.	Apr. 7	Apr. 20	200
200	XIV. Metal-Working, Ornamenting, and Personal Wear, Jewelry, *Watches, *Clocks, *Time-Pieces, *Watches, *Metal Wire Making, etc.	Apr. 7	Apr. 20	240
200	XXVI. Curtains, Shades, and Screens, Drafting, Drifts, Measuring Instruments, and Wind-Wheels.	Apr. 7	Apr. 20	204
200	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Apr. 7	Apr. 21	200
100	XX. Stoves and Furnaces and Steam-Boiler Furnaces.	Apr. 7	Apr. 21	200
127	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Apr. 7	Apr. 18	100
	Between one and two months.			
200	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 5	Apr. 20	215
200	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Apr. 5	Apr. 20	200
27	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Apr. 3	Apr. 14	100
20	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Apr. 2	Apr. 10	204
120	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, *Machineries, *Shipping and *Storing Vessels, Refrigeration, etc.	Apr. 1	Apr. 8	200

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
201	XXXIV. Railways, Railway-Breaks, Draft Applications, and Rolling-Stock, Signals, and Store-Service.	Mar. 21	Apr. 21	200
213	XVII. Printing, Type-Setting, *Lithography, and *Engraving.	Mar. 20	Apr. 11	200
100	XXIII. Fire-Arms, Ordnance, Protection, Navigation.	Mar. 19	Apr. 8	100
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Mar. 14	Mar. 20	200
240	VII. Velocipedes, *Clutches, Fire-Engines, *Gears, and Toys, *Ladders, Mechanical Motors, and Fishing and Trapping.	Mar. 6	Apr. 20	200
	Between two and three months.			
120	XXX. Wood-Working Machines, Coopering and Hoisting.	Mar. 5	Apr. 1	210
20	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 1	Mar. 15	279
240	XVIII. Steam-Engines, etc., *Spinning, *Weaving, etc.	Mar. 1	Mar. 2	207
20	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 20	Feb. 20	240
240	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Feb. 24	Feb. 24	200
21	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Feb. 21	Mar. 2	200
100	V. Fine Arts, Book-Binding, *Hatters, *Jewelry, and *Music.	Feb. 10	Mar. 4	210
	Between three and four months.			
100	XI. Boots and Shoes, Harness, Hoses and Belting, Leather Manufactures, Nailing and Stapling, Button-Making, and Whips.	Jan. 15	Mar. 27	247

Total number of applications awaiting action..... 9,285

Under one month.

*Designs.....	Apr. 17	Apr. 20	190
†Trade-Marks.....	Apr. 17	May 2	112
‡Labels and Prints.....	May 6	May 2	2

Briefs in Appealed Cases.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 4, 1902.

All briefs filed in this Office should have conspicuously printed thereon a statement designating the particular tribunal of the Patent Office to which the brief is addressed.

F. I. ALLEN,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.
2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.
3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.
4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.
5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

PATENTS

GRANTED MAY 13, 1902.

699,687. REFRIGERATOR. ALBERT E. ALDEN, Lexington, Ky.
Filed July 25, 1891. Serial No. 69,724. (No model.)

Claim.—1. In a device of the class specified, a tube containing an agent arranged to move back and forth in said tube longitudinally thereof, said tube having a plurality of legs, an opening for the admission of an air-blast and an orifice between said opening and movable agent.

2. In a device of the class described, a tube containing a movable agent and having a plurality of parallel legs, said tube having an opening for the admission of an air-blast and an orifice between said opening and said movable agent, and a graduated scale coextensive with one of the legs.

3. In a device of the class described, a tube containing a liquid and having a plurality of legs, one of which is of greater diameter than another, said tube having an opening for the admission of an air-blast, and an air-escape orifice between said opening and liquid.

4. In a device of the class described, a tube having a plurality of legs, adapted to contain a body of liquid, and the end of one leg being open to permit the entrance therethrough of a blast of air, said tube having an orifice between the body of liquid and the point at which the air-blast enters the tube.

5. In a device of the class described, a tube bent on itself to form at least three legs, said tube having an orifice at the bend or junction between two of the legs, the opposite ends of the tube being open.

6. In a device of the class specified, a tube containing a movable agent, said tube being arranged to receive an air-blast and having an air-escape orifice between said movable agent and the place at which the air is initially received, a support for said tube, and a gauge.

7. In a device of the class described, a tube having a plurality of substantially parallel legs and an air-escape orifice, one end of the tube being open, and a flexible tube connected with said open end.

8. In a device of the class described, a support and a tube on said support, having a plurality of substantially parallel legs and an air-escape orifice, one of the legs being tapered and having a bulb at its end, and a flexible tube fitted over said bulb, having a manometer.

9. In a device of the class specified, a support and a tube on said support, having at least three legs, the middle one being of greater diameter than the others, and one of the latter being tapered and having a bulb and a flexible tube fitted over said bulb.

10. In a device of the class specified, a bent piece and a chambered two-plate fastened thereon, the latter having an elongated slot, and a tube within the two-plate having a plurality of legs, and a graduated scale observable through said slot and coextensive with one of the legs of said tube.

11. In a device of the class described, a tube containing a movable agent and said tube being arranged to receive an air-blast from the rear, and the tube having means for the escape of air between said movable agent and the place at which the blast is initially received.

699,688. FINE-SEPARATING MACHINE. SAMUEL J. ALLEN,
Galveston, Tex.; C. A. Derricks administrator of said Allen, deceased.
Filed Aug. 13, 1899. Serial No. 237,900. (No model.)

Claim.—1. The combination of a feeding-belt, a feeding-roller having circumferential grooves to embrace and contain the sides of the stems without splitting or crushing them and maintain their parallelism on the moving belt, knives supported centrally with respect to the grooves and in the path of the upper sides of the stems, a hinged support for said knives and springs to hold the knives to their work in a yielding manner.

2. The combination of a feeding-belt with a roller having circumferential grooves to embrace and contain the sides of the stems without splitting or crushing them and maintain their parallelism on the belt, said belt having an elastic support adjacent said roller.

3. The combination of a feeding-belt, a feeding-roller having circumferential grooves to embrace and contain the sides of the stems without splitting or crushing them and maintain their parallelism on the moving belt, knives supported centrally with respect to the grooves and in the path of the upper sides of the stems, a hinged support for said knives and springs to hold the knives to their work in a yielding manner, said knives having cutting edges beveled to the path of the stems.

4. The combination of devices for breaking stalks, plate-faced rollers 8 and 9 acting simultaneously and oppositely on the crushed stalks, a blank provided with a working face curved to correspond to one of the rollers and situated partly between them and extending from near a plane passing through the axis of both rollers to and terminating near a plane passing through the axis of one of the rollers and transversely to the first-named plane, catching devices acting on the material immediately adjacent the termination of said face, and a guide 11 situated in close proximity to the termination of the working face, the rollers and catching device, said guide having a scraping edge contiguous roller 9 and acting oppositely to the direction of the movement of said roller 9 whereby the face is scraped.

5. In a machine for separating fiber, in combination with a slotted reciprocating bar to beat the fiber, a fixed bar correspondingly slotted having tracks bearing on the face of the reciprocating bar to guide said bar in a constant plane and receive the wear, said tracks being removable to provide for renewal.

6. In a machine for separating fiber, in combination with a slotted reciprocating bar to beat the fiber, a fixed bar correspondingly slotted having tracks bearing on the face of the reciprocating bar to guide said bar in a constant plane and receive the wear, said tracks being removable to provide for renewal, and the fixed bar being adjustable.

7. In a machine for separating fiber, the combination of a fixed slotted plate and a reciprocating slotted bar to beat the fiber, said fixed plate having tracks provided with ball-bearings for the reciprocating bar, ball-bearings between the edges of the reciprocating bar and the frame, and said frame.

8. In a machine for separating fiber, a beating-bar, means for reciprocating it, and cushions at its ends to obviate jar and noise.

9. In a machine for separating fiber, a bar in combination with actuating device having a broken connection with the bar alternately acting on each end of the bar to positively reciprocate it.

10. In a machine for separating fiber, the combination of a reciprocating catching-bar, a separating bar, and mechanism for actuating fiber-cleaning tools, and the tools, said tools being carried lengthwise the lower of the two catching-bars in proximity thereto to coast with it to clean the fiber.

11. In a machine for separating fiber, the combination of a reciprocating catching-bar, a separating bar, and mechanism for actuating fiber-cleaning tools, and the tools, said tools being carried in proximity to the lower of the two catching-bars and lengthwise thereof to coast with it to clean the fiber, and the head constituting a continuation of a bar said head having a curved surface conforming to the path of the tools.

12. In a machine for separating fiber, the combination of a reciprocating catching-bar, a separating bar, and mechanism for actuating fiber-cleaning tools, and the tools, said tools being carried in proximity to the lower of the two catching-bars and lengthwise thereof to coast with it to clean the fiber, and the head constituting a continuation of a bar, said head having a curved surface conforming to the path of the tools, and made adjustable to and from the path.

13. In a machine for separating fiber, a scraper for the material, and an elastic holder for said scraper, said holder consisting of an elastic stretched band.

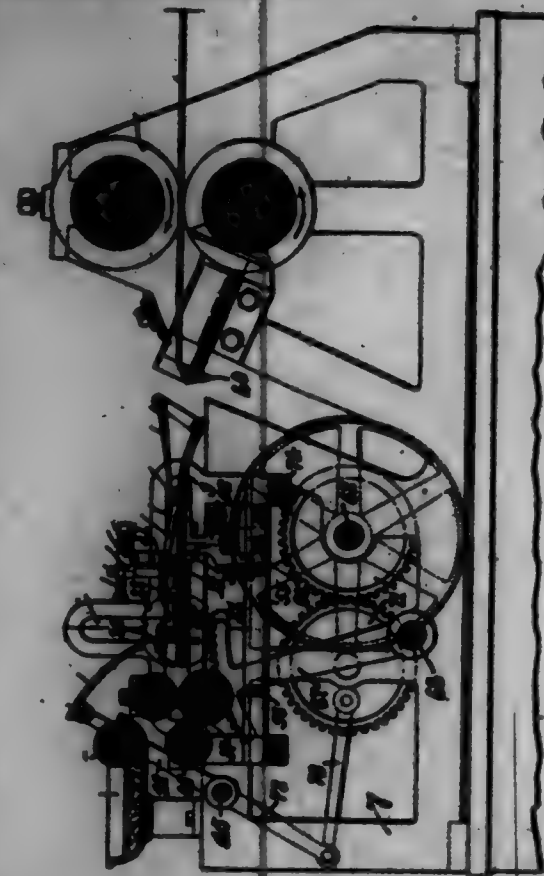
14. The splitting-blades, in combination with means for feeding and guiding the material in parallel lines, and means for holding both the guides and the blades to their work in a yielding manner.

699,680. PAPER-BAG MACHINE. DANIEL APPEL, Cleveland, Ohio, assignor to the Union Paper Bag Machine Company, Philadelphia, Pa. Filed Dec. 26, 1891. Serial No. 57,178. (No model.)

Claim.—1. In a paper-bag machine, the combination, substantially as set forth, of a table, side grippers thereon adapted to hold the lower ends of a blank to the table, a folding-plate disposed in prolongation of the table and hinged thereto, a clamp-bar mounted upon the folding-plate and adapted to clamp all of the piles of the blank thereto, a bearing-plate disposed parallel with the table and having pivotal connection with the folding-plate and link connection with the table, grippers mounted on the bearing-plate and adapted to grip the upper ends of the blank thereto, a follower disposed over the table and presenting an edge above the table at a transverse folding-line of the blank, mechanism for opening and closing the grippers and clamp and moving the bearing-plate to and from the table and turning the folding-plate upwardly and then downwardly to near the table.

2. In a paper-bag machine, the combination, substantially as set forth, of a table, side grippers thereon adapted to hold the lower ends of a blank to the table, a folding-plate disposed in prolongation of the table and hinged thereto, a clamp-bar mounted upon the folding-plate and adapted to clamp all of the piles of the blank thereto, a bearing-plate disposed parallel with the table and having pivotal connection with the folding-plate and link connection with the table, grippers mounted on the

bearing-plate and adapted to grip the upper ends of the blank thereto, a follower disposed over the table and presenting an edge above the table at a transverse folding-line of the blank, mechanism for opening and closing the grippers and clamp and moving the bearing-plate to and from the table and turning the folding-plate upwardly and then downwardly to near the table, and discharge-rolls adapted to take the folded blank from between the table and the folding-plate.



3. In a paper-bag machine, the combination, substantially as set forth, of a table, side grippers thereon adapted to hold the lower ends of a blank to the table, a folding-plate disposed in prolongation of the table and hinged thereto, a clamp-bar mounted upon the folding-plate and adapted to clamp all of the piles of the blank thereto, a bearing-plate disposed parallel with the table and having pivotal connection with the folding-plate and link connection with the table, grippers mounted on the bearing-plate and adapted to grip the upper ends of the blank thereto, a follower disposed over the table and presenting an edge above the table at a transverse folding-line of the blank, mechanism for opening and closing the grippers and clamp and moving the bearing-plate to and from the table and turning the folding-plate upwardly and then downwardly to near the table, discharge-rolls adapted to take the folded blank from between the table and the folding-plate, and mechanism for reciprocating said table to and from the discharge-rolls.

4. In a paper-bag machine, the combination, substantially as set forth, of a table, a folding-plate disposed in prolongation thereof and hinged thereto, a bearing-plate disposed parallel with the table, grippers upon the table and the bearing-plate, a clamp-bar mounted across the folding-plate, springs urging the clamp-bar toward the folding-plate, fixed stops adapted to be engaged by and support the clamp-bar, fixed stops adapted to be engaged by and support the folding-plate, independent transverse-bearings on the folding-plate and clamp-bar, and moving transverse engaging said transverse-bearings.

5. In a paper-bag machine, the combination, substantially as set forth, of a table, a folding-plate disposed in prolongation thereof and hinged thereto, a bearing-plate disposed parallel with the table, grippers upon the table and the bearing-plate, a clamp-bar mounted across the folding-plate, springs urging the clamp-bar toward the folding-plate, fixed stops adapted to be engaged by and support the clamp-bar, fixed stops adapted to be engaged by and support the folding-plate, a crank with its axis in the plane of the surface of the table, a crank-pin carried by the crank, a link-lever having its mid-portion carried by the crank-pin and having one of its ends pivoted at the junction between the table and the folding-plate, independent transverse-bearings on the folding-plate and clamp-bar, and a transverse carrier by the other end of the link-lever and engaging said transverse-bearings.

6. In a paper-bag machine, the combination, substantially as set forth, of a table, a folding-plate disposed in prolongation thereof and hinged thereto, a bearing-plate disposed parallel with the table, grippers upon the table and the bearing-plate, a clamp-bar mounted across the folding-plate, springs urging the clamp-bar toward the folding-plate, fixed stops adapted

ed to be engaged by and support the clamp-bar, fixed stops adapted to be engaged by and support the folding-plate, a crank with its axis in the plane of the surface of the table, a crank-pin carried by the crank, a link-lever having its mid-portion carried by the crank-pin and having one of its ends pivoted at the junction between the table and the folding-plate, a horizontal guideway for the table, and a vertical guideway for said transverse carrier.

7. In a paper-bag machine, the combination, substantially as set forth, of a table, a rear pair of transverse rollers, a forward pair of transverse rollers, horizontal guideways for said transverse rollers, a folding-plate disposed in prolongation of the table and coupled to the forward transverse rollers, a vertical guideway, a crank with its axis in the vertical plane of the vertical guideway, a link-lever carried by the pin of the crank and having its rear end coupled to a forward transverse roller of the table, a transverse carrier by the forward end of the link-lever and adapted to engage the folding-plate and travel in said vertical guideway, a bearing-plate disposed parallel with the table and linked thereto and coupled to said transverse carrier, and holding devices adapted to grip the upper ends of a blank to the bearing-plate and the lower ends of the table and all of the piles to the folding-plate.

8. In a paper-bag machine, the combination, substantially as set forth, of a table, a rear pair of transverse rollers, a forward pair of transverse rollers, horizontal guideways for said transverse rollers, a folding-plate disposed in prolongation of the table and coupled to the forward transverse rollers, a vertical guideway, a crank with its axis in the vertical plane of the vertical guideway, a link-lever carried by the pin of the crank and having its rear end coupled to a forward transverse roller of the table and adapted to travel in said vertical guideway, a clamp-bar disposed across the folding-plate, springs urging the clamp-bar to the folding-plate, ball-bearings on the clamp-bar and the folding-plate and engaging the transverse rollers of the link-lever, a bearing-plate disposed parallel with the table and pivoted to the clamp-bar, side grippers upon the bearing-plate and table, and links connecting the rear portions of the bearing-plate with the rear transverse rollers of the table and having a length equal to that of the link-lever.

9. In a paper-bag machine, the combination, substantially as set forth, with the table, the folding-plate, the bearing-plate, the blank-holding devices, and mechanism for reciprocating the table and opening the folding-plate and holding device, of a follower moving with the table and presenting an edge above the same at the rear folding-line of the blank and adapted to prevent the retreat of the bag when the holding device shall have been released.

10. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table matched at its forward edge, a folding-plate matched at its rear edge and having its rear edge pivoted to the forward edge of the table, means for holding a blank to the table and folding-plate, means for turning the folding-plate upward and backward upon the table so that the joint edges of the table and folding-plate will present forwardly, and a pair of discharge-rolls disposed in advance of the table and adapted to be engaged by the notches at the joint edges of the table and folding-plate.

11. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table, a folding-plate with its rear edge hinged to the forward edge of the table, a clamp carried by the folding-plate, a bearing-plate disposed parallel with the table, grippers carried by the bearing-plate and table, means for actuating the clamp and grippers, means for reciprocating the table and turning the folding-plate up and back over the table, feed-rolls disposed at the rear of the table and adapted to feed a tube upon the table, a covering device disposed between the table and the feed-rolls, and discharge-rolls disposed in advance of the table and having a peripheral rate of speed higher than that of the feed-rolls.

12. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table, a folding-plate with its rear edge hinged to the forward edge of the table, a clamp carried by the folding-plate, a bearing-plate disposed parallel with the table, grippers carried by the bearing-plate and table, means for actuating the clamp and grippers, means for reciprocating the table, means for turning the folding-plate up and back over the table, a pasting-blade disposed over the forward portion of the folding-plate when the latter is in initial position, a spring connected with said pasting-blade and permitting it to yield upwardly, and mechanism for moving said pasting-blade forward away from and then back to the position mentioned.

13. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table, a folding-plate with its rear edge hinged to the forward edge of the table, a clamp carried by the folding-plate, a bearing-plate disposed parallel with the table, grippers carried by the bearing-plate and table, means for actuating the clamp and grippers, means for reciprocating the table, means for turning the folding-plate up and back over the table, and a follower carried by the table and presenting a thin edge across the table over a folding-line of the blank.

14. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table, a folding-plate with its rear edge hinged

to the forward edge of the table, a clamp carried by the folding-plate, a bearing-plate disposed parallel with the table, grippers carried by the bearing-plate and table, means for actuating the clamp and grippers, means for reciprocating the table, means for turning the folding-plate up and back over the table, a follower having its rear portion pivotally supported by the table and having its front edge within and disposed across and above the table at a folding-line of the blank, a stop to limit the upward movement of the follower away from the table, and a spring at the pivot-connection of the follower to hold the follower against its stop and permit it to descend toward the table when engaged by the bearing-plate.

15. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating table, a folding-plate with its rear edge hinged to the forward edge of the table, a clamp carried by the folding-plate, a bearing-plate disposed parallel with the table, grippers carried by the bearing-plate and table, a gear carrying a crank-pin connected with said table and folding-plate, a toothed rack engaging said gear, a driving-shaft, and a cam on the driving-shaft and arranged to rock said toothed rack.

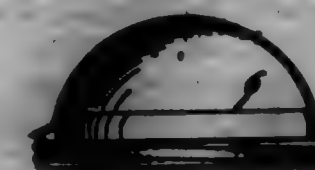
16. In a paper-bag machine, the combination, substantially as set forth, of a reciprocating folding device, a pair of feed-rolls disposed to the rear of said folding device and in the plane of movement thereof, a guide-plate disposed between said feed-rolls and projecting toward the folding device, a covering-blade disposed above said guide-plate between the forward and rear ends of the feed-rolls, a covering-arm arranged to move diagonally upward past the end of the guide-plate and past said covering-blade, discharge-rolls in advance of said folding mechanism, means for reciprocating the folding device, and gearing connecting said feed-rolls and discharge-rolls and serving to rotate them continuously and turn the discharge-rolls at a peripheral rate of speed in excess of that of the feed-rolls.

699,640. TROLLEY HEAD OR WHEEL. GEORGE A. KRAMER, New York, N. Y. Filed Sept. 22, 1891. Serial No. 78,898. (No model.)



Claim.—A trolley-head having sliding plates extending from the wheel and formed to cover the side faces of a trolley-wheel and having laterally-extending bearing-ends having inclined upper surfaces, a trolley-wheel journaled between the plates, bearing-plates projected through the laterally-extending bearing-ends, and formed with a central conical collar, and side wheels journaled on the bearing-plates and formed with conical cones to sit over the conical collar, and having conical upper portions and curved lower portions, substantially as and for the purpose specified.

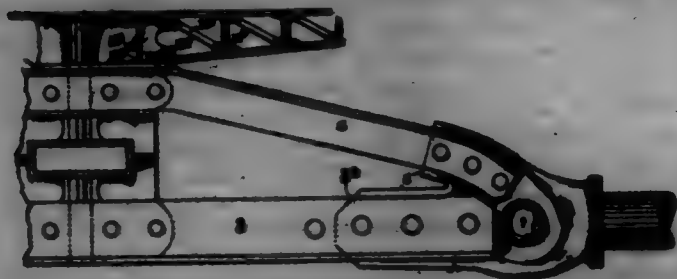
699,641. FLAT-BALL. ARTHUR W. ATLAS and PAUL F. KRAMER, Toledo, Ohio. Filed Mar. 2, 1891. Serial No. 69,424. (No model.)



Claim.—1. A flat-ball formed of two hemispheres of thin sheet metal stiffened and covered by curve-threads rolled in their marginal edges, said coverings being provided with a shoulder and an annular channel, a packing-ring in said channel, and resting against the shoulder, and a frictionally-secured ring for holding the packing-ring, substantially as set forth.

2. A flat-ball formed of two hemispheres having their outer edges rolled into curve-threads portions, a shoulder being thereby formed on one hemisphere to receive the edge of the other, and an inner ring secured inside said shoulder and forming with the shoulder portion on said hemisphere a groove, and a gasket on said groove for making a tight joint between the parts, substantially as described.

699,642. METAL WAGON-CHAM. JAMES E. BAKER, Allegheny, Pa., assignor to the James E. Baker Manufacturing Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Dec. 27, 1900. Serial No. 62,598. (No model.)



Claim.—1. In combination, a wagon running-gear having an axle-tree, a bolster or sand-board, and an axle-arm, the latter having two members each provided with a vertical web reinforced by flanges, between which the axle-tree and the bolster or sand-board are secured.

2. The combination of an axle-tree, a bolster and an axle-arm divided into two branches, one branch flanged to receive the axle-tree and the other branch channel-shaped at its upper end to receive the bolster.

3. A wagon rock-bolster composed of a top and bottom member, a central vertical strengthening-plate between said members and struts tied to said plate and each other between said top and bottom members.

4. An axle-arm provided with flanges between which are secured both the axle-tree and projections from the bolster or sand-board, said axle-arm perforated transversely, whereby the end of a hooped or hooped-bracket can be inserted in and secured to said axle.

5. In a wagon rock-bolster, a central vertical member, reinforced by upper and lower flanges a horizontal top member and two short lower horizontal members, said lower members secured to the lower flanged portion of said vertical member and extending outwardly therefrom.

6. In a wagon rock-bolster, a central vertical flanged member, projections from said member whereby the same can be secured thereto, shoulder projections on said member against which the bottom members of said bolster abut.

7. A wagon rock-bolster, consisting of upper and lower plates united by struts and then, said struts having integral projections extending therefrom and said ties being interposed between and secured to said projections.

8. In a wagon rock-bolster, a central vertical flanged member, a shoulder projection on said member against which a bottom member of said bolster abuts.

9. In combination an axle-tree, a sand-board or bolster and an axle-arm having one of its members composed of a vertical web reinforced by transverse flanges, the axle-tree having one of its ends secured between the flanges of said member and a second member composed of a vertical web reinforced by flanges whereby a projection from the bolster or sand-board can be secured between said flanges.

10. An axle-tree, a sand-board or bolster, and an axle-arm integrally composed of a spindle, a member to which the axle-tree is secured and a second member to which the sand-board or bolster is secured.

11. In a wagon rock-bolster, a central vertical member having a top and a bottom flange, a shoulder projection on the bottom flange, a member abutting against said projection and secured to said bottom flange.

12. An axle-tree, a sand-board or bolster and an axle-arm having a spindle and tapering and extending rearwardly and upwardly from the spindle into two separate members of web formation, to which the axle-tree and sand-board or bolster are secured.

13. An axle-tree, a sand-board or bolster, and an axle-arm having a spindle, and tapering and extending rearwardly and upwardly from the spindle, into two separate members of flanged web formation, to which the axle-tree and sand-board or bolster are secured.

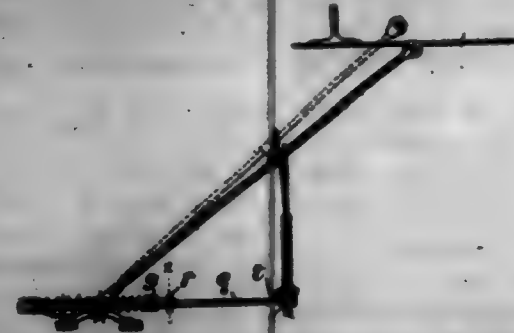
699,643. CONTROLLING ATTACHMENT FOR TROLLEY-POLES. ROBERT J. BAKER, Waltham, Canada. Filed Dec. 10, 1901. Serial No. 62,599. (No model.)

Claim.—1. The combination with the trolley-pole and spring tending to hold it erect, of a countervailing spring means arranged in the path of the pole so that the same might be caught thereby when it flies off the conductor as and for the purpose specified.

2. The combination with a trolley-pole and a spring tending to hold it erect, of a rod having a hooked upper portion to engage said trolley-pole and a spring attached to the lower end of said rod and suitable means for securing said spring to the top of the trolley-car as and for the purpose specified.

3. The combination with a trolley-pole and a spring tending to hold it erect, of a rod having a hooked upper portion to engage said trolley-pole, a spring secured to the lower end of said rod, a casing in which the

lower end of said spring is held stationary and means for securing said casing to the car as and for the purpose specified.



4. The combination with a trolley-pole and a spring tending to hold it erect, of a rod having a hooked upper portion to engage said trolley-pole, a spiral spring, an adjuster immovably secured to the lower end of said rod, and having on its outer circumference a spiral groove designed to receive said spiral spring, a casing to which the lower end of said spring is secured and having a hollow in its upper end through which said rod extends and means for securing said casing to said car as and for the purpose specified.

5. The combination with a trolley-pole and a spring tending to hold it erect, of a bar designed to turn on the same vertical pivot as said trolley-pole, a rod having a hooked upper portion to engage said trolley-pole, a spring attached to the lower end of said hooked rod, a casing to which the lower end of said spring is secured, and having a hole in its upper end through which said hooked rod extends, and means for pivotally securing said casing to said bar as and for the purpose specified.

6. The combination with a trolley-pole and a spring tending to hold it erect, of a bar designed to turn on the same vertical pivot as said trolley-pole, a rod having a hooked upper portion to engage said trolley-pole, a spring attached to the lower portion of said rod, a casing to which said spring is attached at its lower end and having a hole in its upper portion through which said rod extends, a supporting-piece secured to the end of said bar and having upwardly-extending legs formed thereon and a pin or pivot passing through said legs and through holes in the lower portion of said casing as and for the purpose specified.

7. The combination with the trolley-pole and the spring tending to hold it erect, and the hollow bar on which said spring is mounted and the vertical pivot on which said trolley-pole and hollow bar are supported, of a rod having a hooked upper portion designed to engage said trolley-pole, a spiral spring secured to the lower end of said rod, a casing for said spiral spring having a hole in its upper portion through which said rod extends, a rearwardly-extending bar having its forward end secured in said hollow bar, a supporter secured to the rear end of said rearwardly-extending bar, said supporter having upwardly-extending legs and a pin or pivot passing through said legs and said casing, the lower end of said spring being secured to said pin or pivot as and for the purpose specified.

699,644. TABLE. WILLIAM E. BAKER, Chilliota, Ohio. Filed May 2, 1901. Serial No. 62,602. (No model.)



Claim.—1. In a table, the combination with the framework having an opening in the top thereof, of journalled cross-bars 6 below said opening, end-bolts mounted concentrically on said cross-bars, a platform above and supported on said end-bolts and means for rotating said cross-bars, substantially as specified.

2. In a table, the combination with the framework having an opening in its upper side, of journalled cross-bars 9 below said opening, cam-bolts carried thereon, a horizontal platform above said cam-bolts, rollers journalled beneath said platform bearing on said cam-bolts, rigid guide-rods passing through the end and extension of said platform and means for rotating said cross-bars, substantially as specified.

699,645. ACETYLENE-GAS GENERATOR. WILLIAM E. BAKER, Waltham, Mass. Filed June 2, 1901. Serial No. 62,606. (No model.)

Claim.—1. In an acetylene-gas generator, a stationary tank, a bell moving up and down therein having carbide-holders contained in the gas-

chamber therein and connected to a tubular support, an air-chamber centrally disposed in the bell which serves as a guide for said tubular support, and said air-chamber being in open communication with the atmosphere but water-sealed at its lower end, and means for connecting said air-chamber with the gas-chamber when the bell is lifted, substantially as described.



2. In an acetylene-gas generator, a stationary tank, a bell moving up and down therein having carbide-holders contained in the gas-chamber therein and connected to a tubular support, an air-chamber centrally disposed in the bell which serves as a guide for said tubular support, and said air-chamber being in open communication with the atmosphere but water-sealed at its lower end, and a pipe connecting said air-chamber with the gas-chamber of the bell, normally closed by a water seal, substantially as described.

3. In an acetylene-gas generator, a stationary tank, a bell moving up and down therein having carbide-holders contained in the gas-chamber therein and connected to a tubular support, an air-chamber centrally disposed in the bell which serves as a guide for said tubular support, and said air-chamber being in open communication with the atmosphere but water-sealed at its lower end, and a trap-pipe contained in said air-chamber connected with the gas-chamber of the bell, substantially as described.

4. In an acetylene-gas generator, a stationary tank, a bell moving up and down therein having carbide-holders contained in the gas-chamber therein and connected to a tubular support, an air-chamber centrally disposed in the bell which serves as a guide for said tubular support, and said air-chamber being in open communication with the atmosphere but water-sealed at its lower end, and a trap-pipe contained in said air-chamber the lower end of which is connected with the lower part of the gas-chamber, which when closed by the water forms a water seal which closes the passage between the gas-chamber and the air-chamber, substantially as described.

5. In an acetylene-gas generator, a stationary tank and a bell working up and down therein having a gas-chamber, carbide-holders contained therein having sloping top walls for shading the carbide, substantially as described.

6. In an acetylene-gas generator, a stationary tank, a bell working up and down therein having a gas-chamber, carbide-holders contained therein, a support therefor to which a float is attached and a conducting-passage leading from the carbide-holders to the top of the gas-chamber, substantially as described.

7. In an acetylene-gas generator, a stationary tank, a bell working up and down therein having a gas-chamber, carbide-holders contained therein, a tubular support to which said carbide-holders are attached consisting of two cylinders of different diameter contained one within the other to form an annular space between them, said tubular support having openings communicating with said carbide-holders and terminating at the top of the gas-chamber and its annular space being open at the top to thereby deliver the gas to the top of the gas-chamber, substantially as described.

8. In an acetylene-gas generator, a stationary tank, a bell working up and down therein having a gas-chamber, an outlet from the gas-chamber to the atmosphere, carbide-holders contained within the bell above said outlet and a supplemental carbide-holder contained within the bell below said outlet, substantially as described.

9. In an acetylene-gas generator, a stationary tank, a bell working up and down therein having a gas-chamber, a trap-pipe leading from the gas-chamber which is in open communication with the atmosphere, carbide-holders contained within the bell above said trap-pipe and a supplemental carbide-holder contained within the bell below said trap-pipe, substantially as described.

10. In an acetylene-gas generator, a stationary tank, a bell working up and down therein having a gas-chamber, carbide-holders contained therein having sloping top walls, a tubular support to which said carbide-holders are attached consisting of two cylinders of different diameter contained one within the other to form an annular space between them, said tubular support having openings communicating with said carbide-holders and terminating at the top of the gas-chamber and its annular space being open at the top to thereby deliver the gas to the top of the gas-chamber, substantially as described.

699,646. STEAM-TRAP. CHARLES E. BERRY, Manchester, England. Filed Apr. 20, 1901. Serial No. 62,608. (No model.)

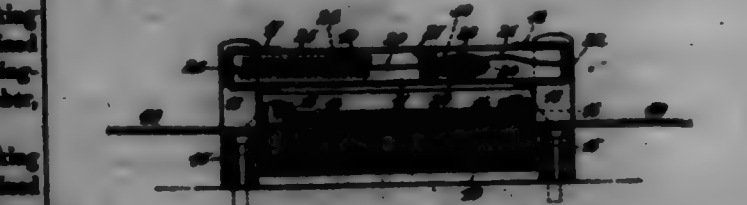


Claim.—1. In a steam-trap of the class described, an inlet-tube having a high coefficient of expansion and fixed at one of its ends, an outlet-tube having a low coefficient of expansion and fixed at one end parallel with the inlet-tube, a valve-bar mounted upon the free ends of the parallel tubes, a valve within the valve-bar between the tube-openings, a valve-spindle projecting through the upper part of the valve-bar, a lever having a straight part above the valve-spindle and a curved part and being fulcrumed between the straight and curved parts, an arm pivoted in the center of curvature of the lever and capable of being moved in its plane, a compressed spring between the arm-pivot and the curved part of the lever and tending to force the end of the lever against the valve-spindle, and adjusting-nuts on the arm whereby the said tendency can be regulated, substantially as set forth.

2. In a steam-trap of the class described, an inlet-tube having a high coefficient of expansion and fixed at one of its ends, an outlet-tube having a low coefficient of expansion and fixed at one of its ends parallel with the inlet-tube, a valve-bar mounted on the free ends of the parallel tubes, a valve within the valve-bar between the tube-openings and having a projecting valve-spindle, a spring-controlled lever in working contact with the valve-spindle, and means for varying the point of attachment of the spring to said lever, substantially as set forth.

3. In a steam-trap of the class described, the combination with a valve and its stem, of a curved lever having an arm adjacent to said valve-stem, an arm pivoted in the center of curvature of the lever and capable of being engaged therewith nearer to or further from the fulcrum, a compression-spring between the arm-pivot and the lever, and nuts whereby the compression of the spring can be adjusted, substantially as set forth.

699,647. SAFETY-FUSE FOR ELECTRIC CIRCUITS. DAVID G. BLACK, Brooklyn, N. Y. Filed Jan. 3, 1900. Serial No. 62,607. (No model.)



Claim.—1. The safety-fuse for electric circuits comprising the insulating casing subdivided into substantially independent chambers, the conductor 21 in one of said chambers, the conductor 20 usually in the other of said chambers but extended into the first chamber where it is connected with the conductor 21 by a small quantity of easily-fusible metal, the heat-cell in the conductor 21 adjacent to said fusible metal, and means for with-

drawing the conductor 20 entirely within its own chamber upon the softening of said metal; substantially as set forth.

2. A safety-fuse for electric circuits comprising the conductors 20, 21, and a small quantity of easily-fusible metal connecting said conductors, one of said conductors having a heat-coil adjacent to said fusible metal, and the other conductor having the spring for effecting the separation of the conductors upon the softening of said metal, combined with a substantially air-tight coating covering said heat-coil and fusible metal, said coating being composed of non-conducting and non-inflammable substances; substantially as set forth.

3. A safety-fuse for electric circuits comprising the conductors 20, 21, and a small quantity of easily-fusible metal connecting said conductors, one of said conductors having a heat-coil adjacent to said fusible metal, and the other conductor having the spring for effecting the separation of the conductors upon the softening of said metal, combined with the plaster-of-paris coating covering said heat-coil and fusible metal; substantially as set forth.

4. A safety-fuse for electric circuits comprising the conductors 20, 21, and a small quantity of easily-fusible metal connecting said conductors, one of said conductors having a heat-coil adjacent to said fusible metal, and the other conductor having the spring for effecting the separation of the conductors upon the softening of said metal, combined with the substantially air-tight coating covering said heat-coil and fusible metal and having an asbestos lining about the conductor 20; substantially as set forth.

5. A safety-fuse for electric circuits comprising separable conductors normally connected together by a small quantity of metal fusible under the thermal effect of the current, a substantially air-tight coating applied at the point where said conductors are to separate, and means for effecting the separation of said conductors upon the softening of said metal; substantially as set forth.

6. A safety-fuse for electric circuits comprising the insulating casing and the conductors 20, 21, incased within said casing and normally connected together by a small quantity of fusible metal, one of said conductors having a heat-coil adjacent to said fusible metal, and the other conductor having a spring for effecting the separation of the conductors upon the softening of said metal, and said casing having a spy-hole, combined with the indicating-plate connected with the movable conductor and visible at the proper time as said spy-hole to denote the relation of the said conductors to each other; substantially as set forth.

699,648. CHAIN-PUMP-TYPE COUPLING. Leo A. Brown, Jr., Cincinnati, Ohio. Filed Apr. 10, 1901. Serial No. 66,181. (No model.)



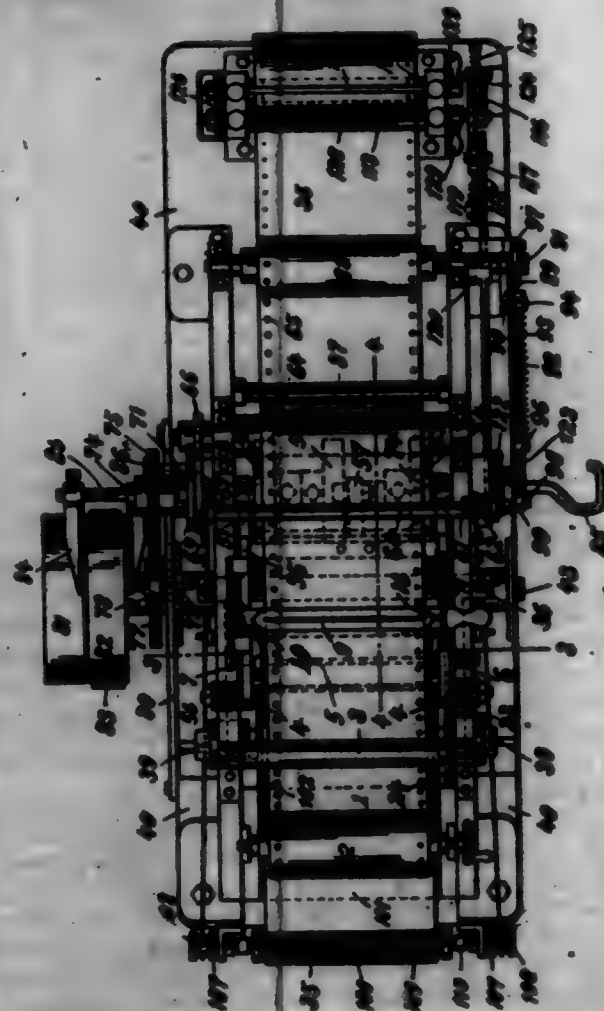
Claim.—1. In a chain-pump, a reservoir formed of a cast-metal bottom section provided with a rib upon the upper and lower side of the outer edge thereof, sheet-metal side walls, and folds upon the lower edges thereof adapted to take over and engage said ribs, substantially as set forth.

2. A chain-pump provided with sections of tubing, coupling-sections taking over the abutting ends of said tubing, means for drawing and holding said coupling-sections together against endwise movement, said means comprising ears and inclined ways, and ears on the exterior of the male and female coupling-sections adapted to be secured to each other by suitable fastening devices whereby the coupling-sections are drawn and locked in alignment in the adjusted position and said fastening devices.

3. In a chain-pump, a tube-coupling consisting of a male coupling-section provided with a series of locking-ears, a female coupling-section provided with recesses for the passage of the locking-ears of the male section and with inclined ways along which the ears of the male section slide and ears on the exterior of the coupling-sections adapted to shut and means for positively drawing and holding the ears together to prevent the disengagement of the coupling-sections, substantially as specified.

4. In a chain-pump a reservoir having a coupling-section formed integral therewith, a tube having coupling-sections at opposite ends; a funnel having a coupling-section formed integral therewith, said interengaged coupling-sections being held against displacement endwise by means of ears engaging inclined ways, and being held and locked in alignment in the adjusted position by means of abutting ears and bolts passing through the same.

699,649. MACHINE FOR PERFORATING PAPER. Dr. JAMES R. BROW, New York, N. Y., assignor to "Adit" Manufacturing Company, a Corporation of New York. Filed July 22, 1901. Serial No. 69,649. (No model.)



Claim.—1. The combination of a suitably perforated pattern-sheet, the operating guide-bars 8, 9, therefore; a range of selecting-rod 18, depressed by the contact of imperforate parts of the pattern-sheet; a range of spring-pressed arms 19 applying upward pressure to the respective selecting-rod; a range of perforating-punches 21 corresponding to the selecting-rod in number and relative position; a range of spring-pressed vibrating arms 26, controlled in position by the depression of the corresponding selecting-rod 18 and arms 19 and constructed with projections and depressions, which are respectively presented to the punches to as to render them operative only when the corresponding selecting-rod is advanced by the pressure of a perforation in the pattern-sheet, the vibrating frame 50, 51, for returning the arms 26 to permit descent of the selecting-rod; and means for forcing paper to be perforated against the punches, substantially as described.

2. The combination of the spring-pressed vibrating levers 26, having protuberances 20 and recesses 29 at their free ends and projecting lugs 31 at their fulcrum ends; a range of selecting-rod 18 adapted to bear endwise against the pattern-sheet and to enter perforations therein;

a corresponding range of spring-pressed levers 19 controlled in position by the respective selecting-rod and controlling the corresponding levers 26 by contact of the lug 31 therein; a corresponding range of perforating-punches 21 controlled in their endwise movement by the operation of the protuberances 20 or recesses 29 of the levers 26; and means for pressing the paper 25 against the punches and thereby perforating the paper by each of the punches as are opposed by the protuberances 20, as explained.

3. The combination of corresponding ranges of selecting-rod 18 and perforating-punches 21, vibrating guide-frames 8, 9, and 24, 27 for the pattern-sheet and paper respectively; interposed spring-pressed levers 19 and 26 controlling the movement of the punches by the position of the corresponding selecting-rod; and means for imparting step-by-step feed movement to the pattern-sheet and the cam-shaft 74 having suitable means for actuating the feed mechanism and interposed controlling devices, substantially as described.

4. In a machine for perforating paper under control of a pattern-sheet, the combination of the pattern-sheet 1, adjustable edge-guides 4 for the pattern-sheet, toothed feed-cylinder 65 and take-up roll 66, and means for operating the same, substantially as described.

5. In a machine for perforating paper or the like, the combination of a series of perforating-punches, a guide-frame for the paper vibrated to apply perforating pressure to the paper against the punches; edge-trimming devices operated by said vibrating guide-frame, and means for conveying away the waste edges, substantially as set forth.

699,650. GAS-FIXTURE. GEORGE F. BRYAN, Chicago, Ill., assignor to Edward R. Hollerton and Fred Garisch, trustees, Chicago, Ill. Filed June 2, 1901. Serial No. 68,196. (No model.)



Claim.—1. A gas-fixture comprising the combination with a bracket formed with a screw-thread whereby the bracket can be attached to the screw-threaded terminal of a fixed pipe or support, of a burner-carrying standard adjustably held in said bracket, and a flexible section secured to said standard, said bracket having a gas-port extending therethrough, said section being secured also to said bracket.

2. A gas-fixture comprising the combination with a bracket formed and adapted to be attached to a fixed pipe or support, of a burner-carrying standard adjustably held in said bracket, and a flexible section secured to said standard, said bracket having a gas-port extending therethrough, said section being secured also to said bracket.

3. A gas-fixture comprising the combination with a bracket formed and adapted to be attached to a fixed pipe or support, of a burner-carrying standard, a flexible pipe-section secured to said standard and connected with said bracket, a plurality of steps on said standard, said steps being arranged to secure the standard at different elevations in said bracket.

4. A gas-fixture comprising the combination with a bracket formed and adapted to be attached to a fixed pipe or support, of a burner-carrying standard, a flexible pipe-section secured to said standard and connected with said bracket, said bracket having a socket therein and a plurality of steps on said standard, said steps fitting within said socket and being arranged to adjustably secure said standard at different elevations.

5. A gas-fixture comprising the combination with a bracket formed and adapted to be attached to a fixed pipe or support, of a burner-carrying standard, a flexible pipe-section secured to said standard and connected with said bracket, said bracket having a socket therein and an opening wherethrough the standard can be withdrawn laterally, and a plurality of steps on said standard, said steps fitting within said socket and being arranged to adjustably secure said standard at different elevations.

6. A gas-fixture comprising the combination with a bracket formed with a screw-thread whereby the bracket can be attached to the terminal of a fixed pipe or support, of a burner-carrying standard adjustably held in said bracket, a flexible section secured to said standard and connected with said bracket, and a stem secured to said bracket and having a nut wherein the standard will be held, to provide an additional lateral support for the standard.

699,651. ELECTRIC HEATER. MARTIN G. BURN, Chicago, Ill. Filed Oct. 28, 1901. Serial No. 69,568. (No model.)



Claim.—1. In an electrical heater, the combination with a hollow supporting member having an insulated perforated section, of a series of resistance-plugs 7 secured on the section, a resistance-coil surrounding the perforated section and means for forcing air through the support, and connections 7 between the adjacent plugs.

2. In an electrical heater, the combination with a hollow support having a perforated portion, of a series of plate resistance-coils secured on the perforated portion, a resistance-coil surrounding the perforated portion and passing into and out of the same at the point where the plates are connected, and means for forcing air through the perforations.

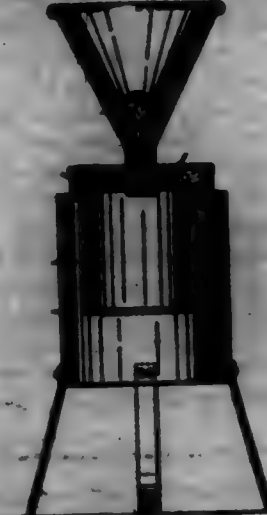
3. The combination with a perforated supporting member, of a resistance-coil surrounding the same and having portions projecting into the perforated portion, a resistance-coil surrounding the perforated portion and passing into and out of the same at the point where the plates are connected, and means for forcing air through the perforations.

4. An electric heater provided with a plurality of plates or disks, connections between the same, and a resistance-coil arranged longitudinally of the heater and with its turns encircling plates intermediate of the adjacent pairs of plates or disks; substantially as described.

5. An electric heating apparatus comprising a longitudinally-disposed perforated hollow pipe, means encircling said pipe at separated points, a resistance-coil surrounding the pipe in each box, and resistance plates or disks on said pipe disposed between the turns of the coil in each box, substantially as described.

6. An electric heating apparatus comprising a longitudinally-disposed perforated pipe, a box inclosing said pipe, a resistance-coil in said box and surrounding the pipe therein, and resistance plates or disks on said pipe disposed between the turns of the resistance-coil, substantially as described.

699,652. APPARATUS FOR DIFFUSING VAPORIZABLE SUBSTANCES. JOHN D. CAMPBELL and WILLIAM E. YATES, Manchester, England. Filed Aug. 29, 1901. Serial No. 72,702. (No model.)



Claim.—1. An apparatus for diffusing vaporizable substances through the air, consisting of a vessel, a funnel opening into the upper part of said vessel, a loose light valve controlling the passage through said funnel, and means for guarding said funnel from overheating.

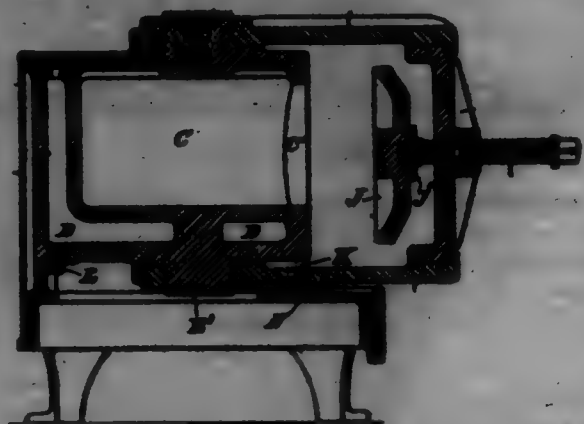
2. An apparatus for diffusing vaporizable substances through the air, consisting of a vessel, a funnel opening into the upper part of said vessel, a loose light valve controlling the passage through said funnel, and a heat-resisting medium interposed between said funnel and the vessel, in which vaporization takes place.

3. An apparatus for diffusing vaporizable substances through the air, consisting of a vessel, a funnel opening into the upper part of said vessel, a loose light valve controlling the passage through said funnel, and a water-jacket surrounding said funnel.

699,653. DENTAL VULCANIZER. JOHN E. CAMPBELL, London, England. Filed June 2, 1901. Serial No. 68,709. (No model.)

Claim.—1. In a vulcanizer the combination of a vulcanizing-chamber provided with an opening on one side thereof, a door-supporting member pivotedly connected near its opposite ends to the vulcanizer and having

a horizontal path of movement, a door carried by said member, and means for opening and closing the same, substantially for the purpose specified.



2. In a valveless the combination of a valveless-chamber provided with an opening on one side thereof, a door-supporting member having a horizontal path of movement, a door carried by said member, means for actuating the door, and means for limiting the movement of said door-supporting member when the door is in the correct position for closing, substantially for the purpose specified.

3. In a valveless the combination of a valveless-chamber provided with an opening on one side thereof, a door-supporting member having a horizontal path of movement, said member consisting of a pair of arms, one pivoted to the top and the other to the bottom of said chamber, and a yoke connecting said arms, a door carried by said yoke, means for actuating the door, and a stop for limiting the movement of the door-supporting member, substantially as and for the purpose specified.

4. In a valveless the combination with a chamber provided with an opening on one side thereof, a door-supporting member having a horizontal path of movement, and consisting of a pair of arms, one pivoted to the top and the other to the bottom of said chamber and a vertical yoke connecting said arms, a door carried by said yoke, and means for actuating said door.

5. In a valveless the combination of a valveless-chamber provided with an opening on one side thereof, a pair of arms and a vertical connecting-yoke constituting a door-supporting member, said arms being pivoted to the chamber one at the top and the other at the bottom thereof, at the central vertical axis of the valveless, and a door and means for actuating it carried by the yoke.

6. In a dental valveless the combination of a valveless-chamber with opening at the side, a supporting-bar, and a drainage-tray on said base, substantially as and for the purpose set forth.

7. In a dental valveless the combination of a valveless-chamber with opening at the side, a pivoted yoke carrying a door, a supporting-bar with notches, projections on said chamber engaging with said notches, a drainage-tray and a dust leading from said tray, substantially as and for the purpose set forth.

8. In a dental valveless the combination of a valveless-chamber, an opening thereto at the side, an arm pivoted to the top of said chamber, an arm pivoted to the bottom of said chamber, a yoke connecting said arms, a cover in said yoke, a door carried by said cover, an abutment for said arm, a supporting-bar, a casing connecting said chamber and said base, and a drainage-tray on said base, substantially as and for the purpose set forth.

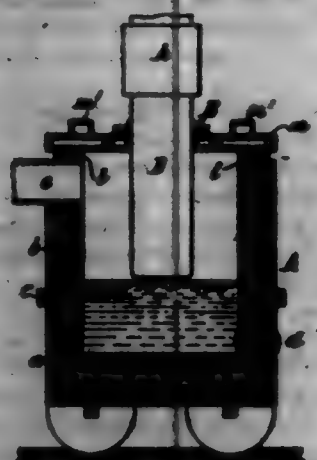
699,654. ELECTRIC FURNACE. CHARLES DE CHALING, Holbrook, N. Y., assignor to the Wilson Aluminum Company, New York, N. Y., a Corporation of New York. Filed July 8, 1900. Serial No. 698,493. (No model.)

Claim.—1. In an electric furnace the combination with the pot and carbon pencil entering it, of a cover for the furnace consisting of a plurality of sections fitting closely together, each formed of hollow metal with a water-chamber within it and vent-pipes for causing water to flow through said chamber, the opening through which said pencil passes being formed partly in each of two adjoining sections, which may remain in place undisturbed during the operation, while other sections are removable independently thereof for striking.

2. In an electric furnace, the combination with the pot A and carbon pencil B entering it, of a cover C for said pot having a hole through which said pencil may pass, and constructed in sections, said sections fitting closely together and being separately removable, and base D D taking under the ends of said sections for fitting said cover bodily.

3. In an electric furnace, the combination with a pot or crucible, a carbon pencil entering thereto, a cover for said pot, hinged to the pot, electrically connected to the carbon pencil, and having an opening through which the carbon pencil may pass, and a base stuffing-bar ap-

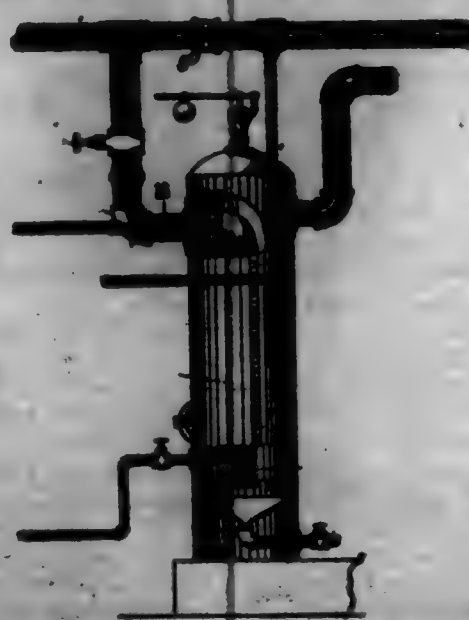
plied to said cover around said pencil, comprising a flange packing, and means for retaining the same against the pencil, said stuffing-bar adapted to permit the pencil to be freely adjusted through it, while preventing gases passing through the opening around the pencil.



4. In an electric furnace, the combination with a pot or crucible, a carbon pencil entering thereto, a cover for said pot having an opening through which the pencil may pass, and a stuffing-bar applied to said cover around said pencil, consisting of relatively adjustable sections of sheet metal having each a base of flange and means for fastening the same adjustably to said cover, and having each an upper portion adjacent to the pencil forming a chamber for retaining a flange packing against the pencil.

5. In an electric furnace, the combination with pencil B and cover C, of a stuffing-bar E comprising sheet-metal sections G having dotted base-flanges F and upright chambered portions A, with clamping devices for engaging their base portions and fastening them adjustably to the cover.

699,655. APPARATUS FOR PURIFYING WATER. WILLIAM C. CLARK, Pittsburgh, Pa., assignor to James V. Smith, Pittsburgh, Pa. Filed Sept. 18, 1901. Serial No. 73,498. (No model.)



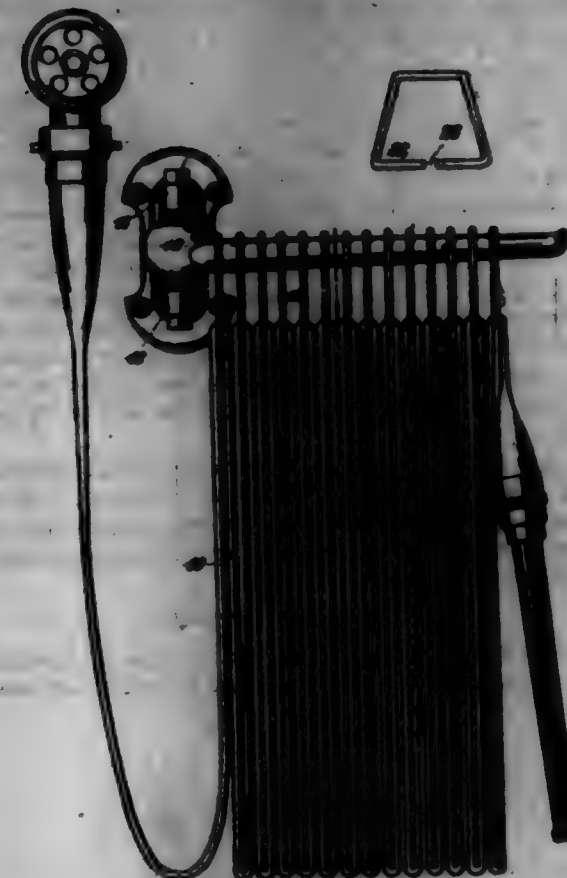
Claim.—1. In a water-purifying apparatus a precipitating-tank, a supply-pipe, its exit being near the bottom of the tank, a pipe connected to said main pipe whereby a neutralizing solution is discharged thereto, and a pipe entering said tank and said main pipe inside the tank, whereby a precipitating solution is discharged thereto.

2. In a water-purifying plant, a precipitating-tank, a main supply-pipe leading thereto and having its exit near the bottom thereof, a pipe discharging neutralizing solution into the main pipe, and a second pipe entering the main supply-pipe near its exit in the tank for discharging a precipitating solution thereto.

3. In a water-purifying plant, a precipitating-tank, a main supply-pipe having its exit near the bottom of the tank, pipes for discharging neutralizing and precipitating solutions into the main pipe, one of the solution-discharging pipes having its exit near the bottom of the main pipe.

4. In a water-purifying plant, a precipitating-tank, a main supply-pipe having its exit near the bottom of the tank, pipes for discharging neutralizing and precipitating solutions into the main pipe, one of the solution-discharging pipes having its exit near the bottom of the main pipe, the said tank having its outlet near its top.

699,656. HOSE-RECK. HOWARD CLAY, Newark, N. J., assignor to Cliff and Galt Company, New York, N. Y., a Corporation of New York. Filed Dec. 28, 1901. Serial No. 67,647. (No model.)



Claim.—1. The hose-reck comprising the supporting-bar secured at one end and free at the other end, and the series of rings for suspending the hose in folds or loops from said bar, said rings being freely strung upon the hose so as to be movable thereon and adapted while on the hose to pass upon and hang from said bar and suspend the folded hose, and said rings being of sufficient diameter to permit the expansion therein of the hose when the latter is in use; substantially as set forth.

2. The hose-reck comprising the supporting-bar, and the series of rings strung upon the hose for suspending the latter in folds or loops from said bar, said rings being adapted while on the hose to pass upon and hang from said bar and suspend the folded hose, and said rings being split to admit the flattened hose into the inclosure formed by the rings; substantially as set forth.

3. The hose-reck comprising the supporting-bar, and the series of rings strung upon the hose for suspending the latter in folds or loops from said bar, said rings being adapted while on the hose to pass upon and hang from said bar and suspend the folded hose, and said rings having substantially horizontal lower sides of a length corresponding with the width of the hose when the latter is flattened; substantially as set forth.

4. The hose-reck comprising the supporting-bar, and the series of rings strung upon the hose for suspending the latter in folds or loops from said bar, said rings having the substantially horizontal lower sides of a length corresponding with the width of the hose when the latter is flattened, and said lower sides at about their central portion being split to admit the hose into the inclosure formed by the rings; substantially as set forth.

5. The hose-reck comprising the horizontal bar having the longitudinal runways at the opposite ends of its upper surface, and the brackets to which said bar is pivoted, combined with the series of rings strung upon the hose for suspending the latter in folds or loops from said bar, the upper sides of said rings being adapted to said runways and the lower sides of said rings being adapted to hold the flattened hose; substantially as set forth.

6. The hose-reck comprising the supporting-bar, and the series of rings strung upon the hose for suspending the latter in folds or loops from said bar, said rings at their upper sides substantially corresponding with the width of said bar and at their lower sides substantially corresponding with the width of the hose when flattened; substantially as set forth.

699,657. STOPPER FOR VIBRIOLA. FRANK C. CONNELL, Washington, D. C. Filed Oct. 21, 1901. Serial No. 58,590. (No model.)

Claim.—As a new article of manufacture, a stopper for vibras, consisting of a thin paper disk, adapted to be sprung into the neck of a bot-

tle and provided with a staple adapted to form a handle, made of flexible wire, bent to form a loop on one side of the disk and having its ends or legs passed through the disk and bent on the opposite side thereof parallel to the bottom of the disk to clamp the same thereto, substantially as set forth.

699,658. STORAGE BATTERY. HENRY J. OGDEN, Hartford, Conn., assignor to the Hartford Accumulator Company, Hartford, Conn., a Corporation of Connecticut. Filed Oct. 28, 1900. Serial No. 734,811. (No model.)



Claim.—1. As an improved article of manufacture an electrode comprising a body portion, a series of annular flanges equally disposed along said electrode, and fixed abutments arranged at intervals between each series of annular flanges, both the flanges and abutments being formed in the body portion of the electrode.

2. As an improved article of manufacture an electrode comprising a core of antimony lead bearing fixed abutments disposed at intervals along said electrode, a filling of soft lead arranged between said abutments and divided into a series of flanges, said soft lead being closely united to the core of antimony lead.

3. As an improved article of manufacture an electrode comprising a core and fixed abutments disposed at intervals along the core, a holder for an active material arranged upon said core between the abutments and consisting of a soft lead, said holder being divided into a series of flanges and the whole electrode being substantially cylindrical in cross-section.

699,659. GAS STOP-COCK. WILLIAM R. OLIVER, Worcester, Mass. Filed Aug. 10, 1900. Serial No. 58,591. (No model.)



Claim.—1. In a gas stop-cock, comprising a tapered rotating key having a tapered end fitting the key, the combination with the tapered rotating key of a pin having a tapered and projecting from the key, a fixed bar arranged to bear against the tapered end of said pin, and means for advancing said pin and bar in order to compress the key, substantially as described.

2. In a gas stop-cock, the combination of a pipe having a tapered end, a tapered rotating key fitting said end and having a transverse screw-threaded hole, a screw-threaded pin held in said transverse hole and having a tapered end projecting beyond the periphery of the key, said pipe having a surface arranged to bear against the tapered end of the pin, whereby said key is crowded against its seat by advancing said screw-threaded pin in the key, substantially as described.

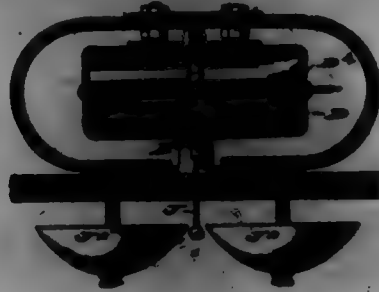
3. The combination of a rotary plug-valve, a body in which said valve is fitted to seat and turn, an inclined cam-face formed on the exterior of the valve-body adjacent to one end of the valve-seat, in position to limit the traverse of the valve in one direction, and a locking device connected to the valve and adapted to permit free movement thereof throughout the middle portion of its traverse and to abut against the cam-face adjacent to one of the limits of said traverse.

4. The combination with a pipe, having a key-seat, of a rotating key, a projection on said key, a flange projecting from the pipe, and including a portion of said key, cam-surfaces on each side of said flange and arranged to bear against the projecting end of said projection as the key is rotated.

699,660. POLARIZED ELECTROGRAPHIC APPARATUS. FRANK R. COLE, Chicago, Ill. Filed Aug. 28, 1900. Serial No. 734,812. (No model.)

Claim.—1. In a polarized electrographic apparatus the combination of a polarized and plotted structure, a two-part magnetic casing or

shell, said armature being positioned between the ends of the two-part shell and said casing or shell surrounding the electromagnet.



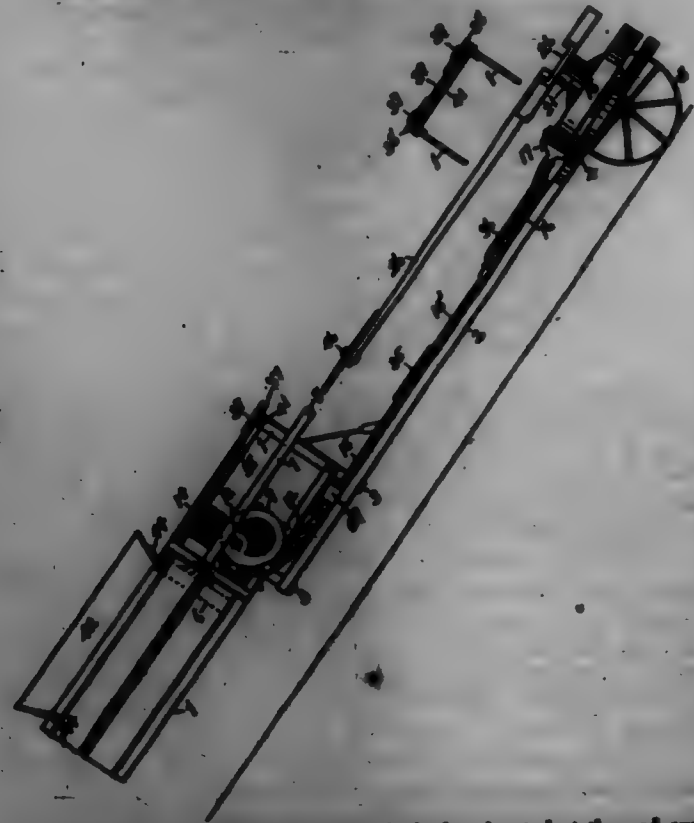
2. In a polarized electromagnetic apparatus, the combination of a polarized and pivoted armature, a two-part magnetic casing or shell, said armature encircling the electromagnet and positioned between the ends of the shell and said casing or shell surrounding the electromagnet.

3. An electromagnetic apparatus, consisting of an armature, a two-part magnetic casing or shell, an extension of said armature, a bracket and a spring connected with the armature and bracket, together with means for regulating the tension of the spring.

4. In a polarized electromagnetic apparatus, the combination of a polarized and pivoted armature, a two-part magnetic casing or shell having a tapered end or index, said armature being positioned between the ends of the two-part shell and said casing or shell surrounding the electromagnet.

5. In a polarized electromagnetic apparatus, the combination of a polarized and pivoted armature, a two-part magnetic casing or shell, said armature positioned between the ends of the casing or shell and means for adjusting the parts of the armature in relation to said ends, the said casing or shell surrounding the electromagnet.

699,661. BALING-PRESS. THOMAS J. CONNOR, Sterling, Ill. Filed June 1, 1891. Serial No. 69,661. (No model.)



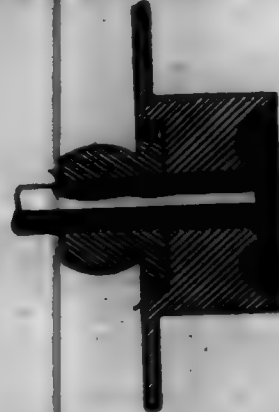
Claim.—1. In a baling-press, a bed-plate located at the end opposite the bale-chamber, a trip-arm 22 rigidly secured to the upper face of the bed-plate, an upright end-shaft rigidly secured to said trip-arm, a substantially elliptical cam 18 mounted rotatably on said end-shaft, a crank for rotating said cam, a pair of dogs lying within slots in said cam, parallel to the longest axis of said cam, in opposite ends thereof, a stud secured to each dog, and engaged by said trip-arm, whereby the outer ends of said dogs normally project beyond the periphery of said cam 18, an upwardly and a downwardly projecting peripheral flange on said cam, a cam having antifriction-rollers engaging said flanges, a recess 28 in said trip-arm, and an auxiliary cam 26 adjacent to said recess for pulling each of said dogs inwardly in succession, thereby releasing said cam when either of the antifriction wheels is engaged by said auxiliary cam; a plunger, and tension members between the plunger and said cam; substantially as described.

2. In a baling-press, the combination, with the crank, having a longitudinal groove in its upper face, of a plunger-actuating chain 12, a rod connected thereto, a compression rod, a pivotal connection between said rods, comprising a pair of links, the lower of said links lying in said groove in the crank, roller-plates secured to the crank above said lower link, a cap secured to said plates above the path of said links, a chain 16 connected to the last-named rod, a forked shackle connected to said chain, a cam having an upwardly and a downwardly projecting peripheral flange engaged by the arms of said shackle, a movable projection on said cam for engaging said shackle, and a longitudinal projection secured to the crank at one side the chain 16, for preventing said chain from forming a hook therein when it is released from said cam; substantially as described.

3. In a baling-press, the combination, with the plunger plate or apron 27, of plates 20 secured thereto at their inner periphery and having their outer portions free, to form grooves with said plunger apron or plate, frame-bars 26 having flanges entering said grooves, and transverse bolt passing through said frame-bars for drawing them together into frictional engagement with said grooves; substantially as, and for the purpose, specified.

4. In a baling-press, in combination with angle-bars 20 of the bale-chamber frame, a reversible hopper comprising a hopper, a lip secured thereto for engaging one of said angle-bars, and depending hooks secured to the respective sides of the hopper, for engaging the opposite angle-bar; substantially as described.

699,662. PULLEY ATTACHMENT. LEWIS C. COULDER, Portland, Oreg. Filed Nov. 30, 1900. Serial No. 24,200. (No model.)



Claim.—A shaft provided with a keyway, a grooved pulley on the shaft, a removable and replaceable supplemental flat-faced pulley provided with a recess to receive and cover the grooved portion of the first-named pulley, and a key to engage the keyway and to hold both pulleys on the shaft, substantially as and for the purpose specified.

699,663. BUTTER-DRILLING MACHINE. ALBERT A. GUYER, Dubuque, Iowa. Filed Dec. 20, 1891. Serial No. 64,785. (No model.)

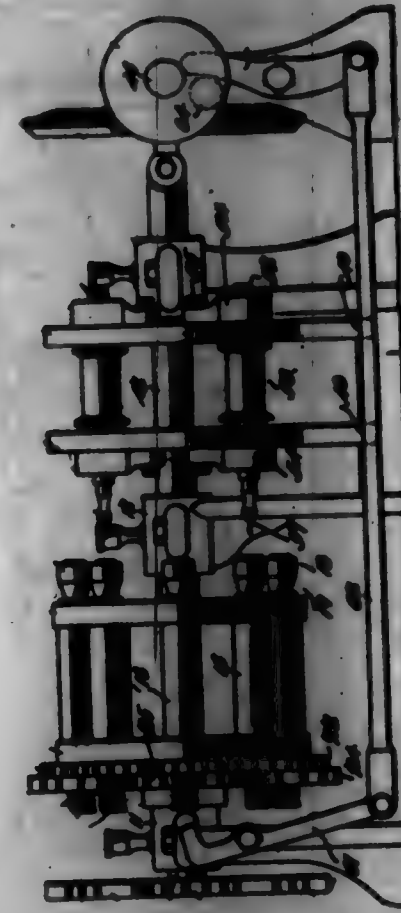
Claim.—1. The combination in a butter-drilling machine, of a series of drills, means for operating the same, a series of bottom-holding checks arranged in sets, supporting-disks therefor, one set of checks being held in operative relation to the drills while the remaining set is in inoperative relation thereto, the checks of operative and inoperative sets being alternately disposed, and means for automatically shifting said checks to present the sets alternately to the drills.

2. The combination in a butter-drilling machine, of a series of drills, means for operating the same, a series of bottom-holding checks arranged in operative and inoperative sets, means for revolving said checks, intermittently-rotatable supports carrying said checks, and means for automatically changing the extent of movement to alternately present the different sets of bottom-holding checks to the drills, substantially as specified.

3. The combination in a butter-drilling machine, of a series of drills, means for operating the same, a plurality of sets of bottom holding checks adapted to operate alternately in connection with said drills, supporting-disks for said checks, means for rotating the disks through a number of equal angular distances to effect the drilling of the butter-blanks held by one set of checks, and means for changing the extent of angular movement of the disks to present the bottom-blanks of the second set of checks to said drills.

4. In a butter-drilling machine, a series of drills, means for operating the same, a series of bottom-holding checks, bottom check-spindles supporting said checks, spindles arranged on each spindle and intermeshing to form a continuous train of gearing, a shaft, disks mounted on said shaft and supporting the series of spindles, means for intermittently rotating said shaft, spur-gears carried by one or more of the spindles, and a stationary gear intermeshing with said spur-gear and adapted to rotate the latter during the relative movement of the shaft and disks.

5. In a butter-drilling machine, a series of drills, means for operating the same, a shaft, a pair of disks secured thereto, check-holding spindles mounted on said disks, a gear carried by each spindle, said gears being arranged in a continuous angular series, auxiliary gears carried by one or more of said spindles, a stationary gear with which said auxiliary gears intermesh, means for intermittently rotating the shaft and disks, check-spindles adapted to said spindles, and means for locking the disks in position after each movement and during the operation of the drills, substantially as specified.



6. The combination in a butter-drilling machine, of a series of drills, means for operating the same, a shaft, a series of bottom-holding checks, disks carried by the shaft and supporting said checks, said checks being arranged in two sets disposed respectively in operative and in inoperative relation to the drills, a spur-gear mounted on the shaft, and a mutilated gear having a series of sets of teeth adapted to engage said spur-wheel and to effect the movement of the sets of checks to alternately present the same to the drills, substantially as specified.

7. In a butter-drilling machine, the series of drills means for operating the same, a shaft, a pair of disks arranged on said shaft, a series of spindles carried by said disks, bottom-holding checks supported by the spindles, intermeshing spindles carried by the spindles, spur-gears carried by one or more of said spindles, a stationary gear-wheel intermeshing with said spur-gear, a spur-gear secured to the shaft, a mutilated gear having a series of sets of teeth adapted to effect a series of movements of the spur-gear through a predetermined distance, and an auxiliary tooth or teeth for effecting a movement of the spur-gear through a less distance, thereby to shift the positions of the bottom-holding checks, substantially as specified.

8. In a butter-drilling machine, means for operating the same, a series of drill-shafts, adjustable supports therefor, means for rotating said drill-shafts, means for moving the same from end toward said bottom-holding checks, and means for successively opening single checks to release the finished bottom, substantially as specified.

9. The combination in a butter-drilling machine, of a series of bottom-holding checks, a pair of dotted disks, means for reciprocating the same, a series of bearing-blanks carried by said disks and adjustable thereon, and drill-shafts adapted to said bearing-blanks, substantially as specified.

10. In a butter-drilling machine, a pair of dotted disks, a series of dotted blanks carried thereby, cut-curves for locking the blanks in an adjusted position, drill-shafts adapted to said blanks, a reciprocating shaft carrying said disk, and means for moving said shaft, substantially as specified.

11. In a butter-drilling machine, the combination with an intermittently-rotative support, of a series of bottom-holding checks carried thereby, a series of drills, means for rotating said drills, means for moving the drills toward and from the bottom-holding checks, a shaft, a disk mounted

thereon, a wrist-pin carried by the disk, and a check-opening lever operatively connected to said pin, substantially as specified.

12. In a butter-drilling machine, the combination of the primary shaft, a movable drill-holding frame, a crank carried by the shaft and operatively connected to said frame, a series of drills mounted in said frame, a rotatable shaft, a pair of supporting-disks thereon, a series of bottom-holding checks carried by the disks, a train of gearing connecting the said shafts, a spur-gear secured to said rotatable shaft, a second shaft, level-gearing connecting the same to the primary shaft, and a mutilated gear on said second shaft and adapted to intermesh with said rotatable shaft, substantially as specified.

699,664. FLOORING-SAW. WILLIAM W. OWEN, Pathe, Ind. Filed May 21, 1891. Serial No. 61,674. (No model.)



Claim.—1. In a gage of the character described, a main bar, a head-piece secured to said bar, said head-piece having a socket, a die which is mounted in said socket and is removable therefrom in the direction of the main bar, a tail-piece mounted to slide upon the main bar, a socket in said tail-piece in which the opposite die is mounted, said die being removable in the direction of the main bar, and means for securing said die in said socket.

2. In a gage of the character described, a main bar, a head-piece secured to said bar, a socket in said head-piece, a die mounted in said socket to determine the form of the edge of a board, said die being removable from the socket in the direction of the length of the main bar, a plate extending into said socket and lying against the surface of the die opposite the main bar to gage the thickness of the board, and means for holding the die and plate in position.

3. In a gage of the character described, a main bar which has a groove throughout the greater part of its length, a head-piece secured to the main bar, a die secured to said head-piece, a tail-piece sliding upon said main bar, a die carried by said tail-piece, and a stop adjustable in said groove to limit the movement of the tail-piece.

4. In a gage of the character described, a main bar, a head-piece secured to said bar, a die carried by said head-piece, a plate for gaging the thickness of the board resting against said die opposite the main bar, said plate being removably secured against said die in order that it may be used with dies made for different thicknesses of boards, a tail-piece slidingly mounted upon the main bar, a die carried by said tail-piece, and a stop adjustably secured to the main bar for limiting the movement of the tail-piece.

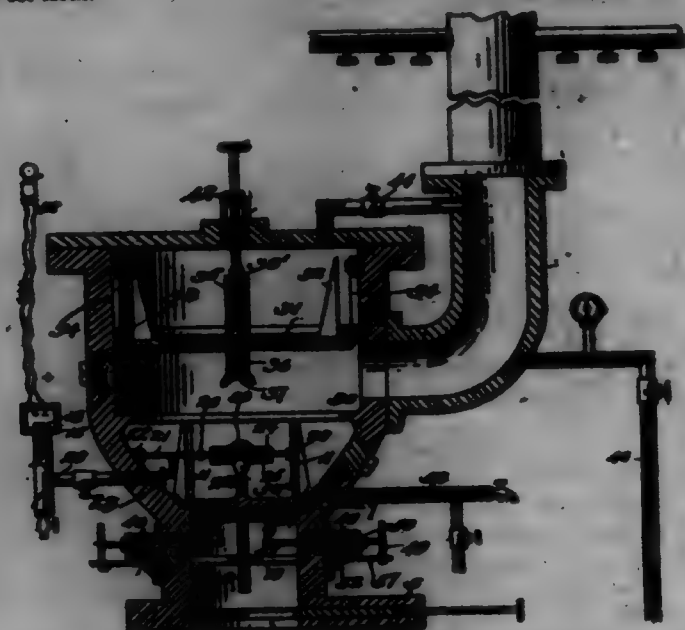
5. In a gage of the character described, a main bar provided with a male and a dovetailed groove throughout the greater part of its length, a head-piece secured to said bar, a die carried by said head-piece, a tail-piece mounted for sliding upon the main bar, a die carried by said tail-piece, an adjustable stop having a dovetailed tongue resting in the groove of the main bar, and a cut-over for fixing said stop in any position desired.

6. In a gage of the character described, a main bar which is thicker at its center than at its sides to form a sharp edge, and a male and female die carried by said main bar, the parts being so arranged that when applied to a board the edge on the main bar will fit against the side of the board and the dies will fit its edges.

7. In a gage of the character described, a main bar provided with a male and a dovetailed groove throughout the greater part of its length, a head-piece secured to said bar at one end, a socket in said head-piece, a female die projecting into said socket, a plate for gaging the thickness of the board resting upon the female die, a cut-over for securing the die and plate in the socket, a tail-piece mounted to slide on the main bar, a socket in the tail-piece, a male die projecting into said socket, a partition through the tail-piece separating the main bar and the male die, a cut-over securing the male die in its socket, an adjustable stop carried by said main bar and having a dovetailed tongue entering the groove therein, and a cut-over for fixing the stop in any position desired.

699,665. AUTOMATIC HYDRAULIC FIRE-EXTINGUISHING SYSTEM. JAMES ORRICK, Rockford, Ill. Filed Oct. 19, 1891. Serial No. 71,190. (No model.)

Claim.—1. In a controlling device for a combined wet and dry pipe fire-extinguishing system, the combination with the valve-actuating having an inlet and an outlet, valve-cocks arranged between the inlet and outlet, an air-valve and a water-valve to engage said cocks and held thereby by air-pressure within the dry-pipe system and operably connected to each other, means for holding the air-valve elevated above said cock when the device is used in a wet-pipe system to permit of the free upward movement of the water-valve, and spring-actuated crank-arms arranged below the water-valve and pressing upwardly to augment the force of the inflowing water when the device is used in a dry-pipe system, substantially as set forth.



2. In a controlling device for a combined wet and dry pipe fire-extinguishing system, the combination with the valve-actuating having an inlet and an outlet, valve-cocks arranged between the inlet and outlet, an air-valve and a water-valve to engage said cocks, the water-valve being provided with an upwardly-projecting shank and the air-valve being provided with a downwardly-projecting lug, means for elevating said air-valve from its seat and holding it in such position, an electric alarm, and a lever interposed between the lug and the shank and upon the opening of the valves adapted to permit of the sounding of the alarm, substantially as set forth.

699,666. MATCH-BOX HOLDER. ALFRED H. DOTT, Oconomowoc, Wis. Filed May 14, 1901. Serial No. 60,322. (No model.)

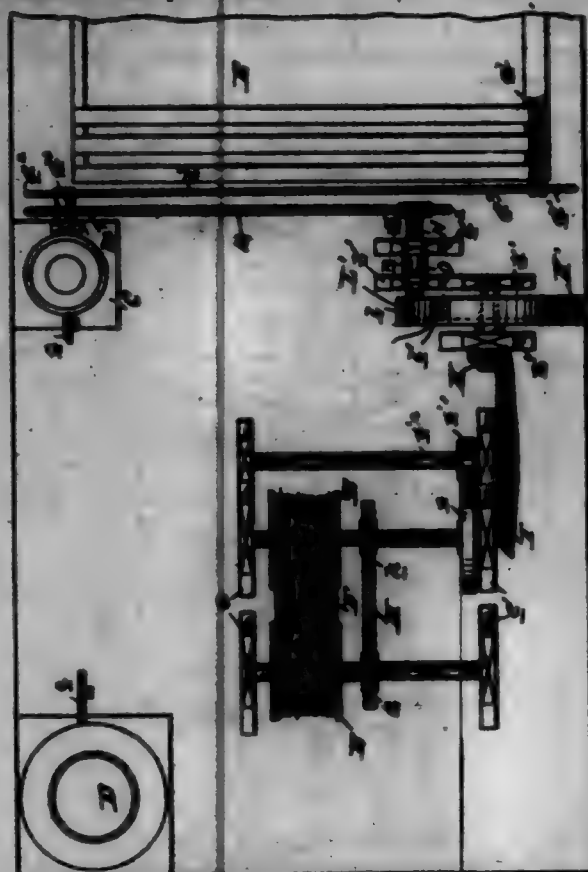


Claim.—A match-box holder adapted to receive a sliding-cover match box, comprising a casing having an opening at the top through which the match-box may be inserted in the holder, a back extending above and below the sides and adapted to be attached to a wall or other support, sides projecting from the back, a front having a central vertical opening adapted to permit the removal of matches from the box, and a bottom having a central transverse opening extending to the back.

699,667. DRAWING MECHANISM FOR MIXING-MACHINE VEHICLES OR THE LIKE. GEORGE T. DRAKE, Chicago, Ill. Filed June 7, 1901. Serial No. 61,304. (No model.)

Claim.—1. The combination with a vehicle, of parallel shafts journaled above the body of said vehicle, drums fixed upon said shafts, a stationary cable a portion of which passes through the body of the vehicle and around said drums a plurality of times, guide-rollers engaged by the cable suspended beneath the body of the vehicle, a power-shaft also jour-

nalled upon the body of the vehicle and parallel with said drum-shafts, speed-reducing connections between said power-shaft and one of said drum-shafts for driving the latter, connections between said drum-shafts whereby the rotation of one affects the rotation of the other, a motor mounted on the vehicle, and speed-reducing gearing operatively connecting said motor to said power-shaft.



2. The combination with a vehicle, of parallel shafts journaled above the body of said vehicle, drums fixed upon said shafts, a stationary cable a portion of which passes through the body of the vehicle and around said drums, guide-rollers engaged by the cable suspended beneath the body of the vehicle, a power-shaft also journaled upon the body of the vehicle and parallel with said drum-shafts, connections between said power-shaft and one of said drum-shafts for driving the latter, connections between said drum-shafts whereby the rotation of one affects the rotation of the other, a motor mounted upon the vehicle, power connections between said motor and said power-shaft, and means for reversing the direction of rotation of said power-shaft whereby the vehicle may be propelled in either direction.

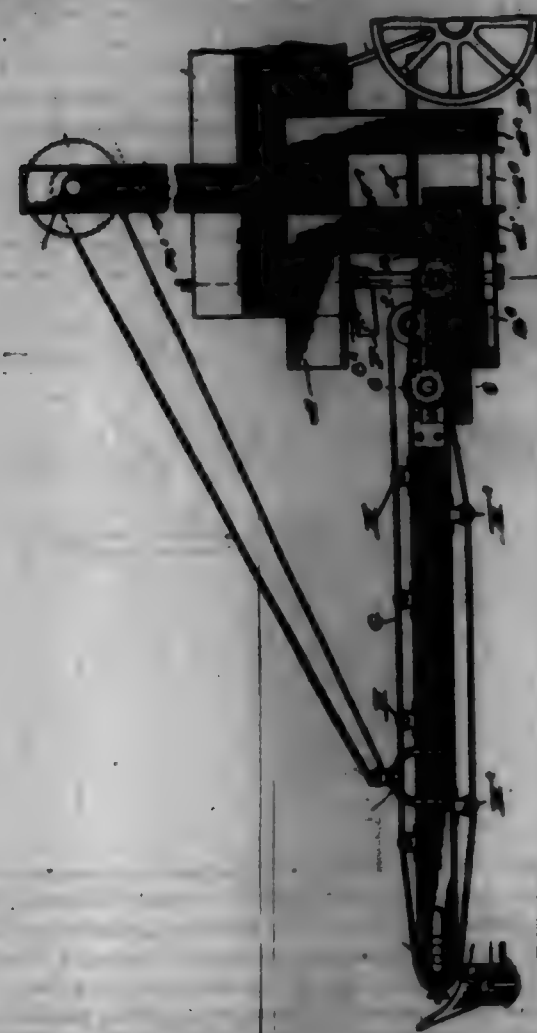
3. The combination with a vehicle, of parallel shafts journaled above the body of said vehicle, drums fixed upon said shafts, a stationary cable a portion of which passes through the body of the vehicle and around said drums, guide-rollers engaged by the cable suspended beneath the body of the vehicle, a power-shaft also journaled upon the body of the vehicle and parallel with said drum-shafts, connections between said power-shaft and one of said drum-shafts for driving the latter, connections between said drum-shafts whereby the rotation of one affects the rotation of the other, a shaft-shaft rotating at right angles to said power-shaft with which it is operatively connected, a second shaft-shaft parallel with the first, shaft-shaft, a motor mounted upon the vehicle and operatively connected to said second shaft-shaft, and means interposed between said shaft-shafts whereby the former may be rotated in either direction.

4. The combination with a vehicle, of standards mounted upon and projecting above the body thereof, shafts journaled in said standards, a power-shaft also journaled in said standards parallel with said first-mentioned shafts, speed-reducing gears between said power-shaft and said first-mentioned shafts, drums fixed upon said shafts, brackets secured to and depending below the body of said vehicle, guide-rollers journaled in said brackets, other guide-rollers between said shafts and said first-mentioned guide-rollers, and a stationary cable passing around said guide-rollers, through the body of the vehicle and around said drums a plurality of times.

699,668. APPARATUS FOR MIXING CONCRETE. GEORGE T. DRAKE, Chicago, Ill. Filed Nov. 14, 1901. Serial No. 61,728. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a mixer, of longitudinal parallel beams upon which the mixer is supported, beams secured to and depending from said longitudinal beams, a horizontal frame supported beneath the discharging end of the mixer,

by said depending beams, and a conveyor mounted upon said horizontal frame.



2. In an apparatus of the character described, the combination with a mixer, of longitudinal parallel beams upon which the mixer is supported, beams secured to and depending from said longitudinal beams, a horizontal frame supported beneath the discharging end of the mixer by said depending beams, a turn-table rotatably mounted upon said horizontal frame, and a vertically-rotating conveyor pivoted to said turn-table.

3. In an apparatus of the character described, the combination with a mixer, of a support therefor, a discharge-chute located beneath the delivery end of said mixer and mounted upon said support, a cylindrical guide-roller journaled upon said support beneath said chute, a conveyor-frame pivotedly mounted on said support, a cylindrical guide-roller journaled in the outer end of said frame, concave guide-rollers journaled in said conveyor-frame, a conveyor-belt passing around said cylindrical and concave guide-rollers, and a funnel-shaped hopper supported by said conveyor-frame below the cylindrical guide-roller journaled in the end thereof.

4. In an apparatus of the character described, the combination with a mixer, of a support therefor, a horizontally-rotating conveyor-frame mounted upon said support, a conveyor-belt carried by said frame, a chute horizontally movable with said conveyor-frame and receiving the material from the mixer and depositing the same upon the conveyor-belt, and concave guide-rollers journaled in said conveyor-frame over which said belt passes, substantially as described.

5. In an apparatus of the character described, the combination with a mixer, of a support therefor, a horizontally-rotating conveyor-frame mounted upon said support, a conveyor-belt carried by said frame, a chute horizontally movable with said conveyor-frame and receiving the material from the mixer and depositing the same upon the conveyor-belt, and concave guide-rollers journaled in said conveyor-frame over which said belt passes, substantially as described.

6. In an apparatus of the character described, the combination with a mixer, of a support therefor, a horizontally-rotating conveyor-frame mounted upon said support, a conveyor-belt carried by said frame, a chute horizontally movable with said conveyor-frame and receiving the material from the mixer and depositing the same upon the conveyor-belt, concave guide-rollers journaled in said conveyor-frame over which said belt passes, and a funnel-shaped hopper supported by said conveyor-frame below the delivery end thereof, substantially as described.

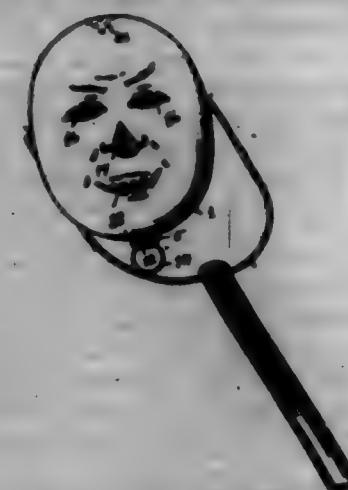
7. In an apparatus of the character described, the combination with a support, of a vertically-rotating conveyor-frame mounted on said support, a conveyor-belt carried by said frame, transversely-rotating shafts secured to the sides of said frame, bearings on said support within which said shafts are received, a shaft extending through said bearings, bushings secured to said shaft and interposed between the same and said shafts,

means for rotating said shaft, and means connecting said shaft with said conveyor-belt for driving the latter, substantially as described.

8. In an apparatus of the character described, the combination with a support, of a horizontally-rotating conveyor-frame, a conveyor-belt carried by said frame, a turn-table mounted upon said support to which said conveyor-frame is connected, a king-bolt passing through said support and said turn-table, a gear-wheel the axis of which is in alignment with the king-bolt, a support for said gear-wheel secured to said turn-table and interposed between said gear-wheel and king-bolt, a power-shaft operatively connected with said gear-wheel, and means connecting said gear-wheel with said belt whereby the latter is driven, substantially as described.

9. In an apparatus of the character described, the combination with a support, of a horizontally-rotating conveyor-frame, a conveyor-belt carried by said frame, a turn-table mounted on said support to which said conveyor-frame is pivoted, a king-bolt passing through said support and said turn-table, a double gear-wheel having teeth on its upper and lower faces the axis of which is in alignment with said king-bolt, a power-shaft having a gear-wheel in mesh with the teeth on one face of said double gear-wheel, a shaft-shaft having a gear-wheel in mesh with the teeth on the other face of said double gear, and means connected to said shaft-shaft for driving the conveyor-belt, substantially as described.

699,669. TOY JACK-O'-LANTERN. JOHN J. DE KAY, Toledo, Ohio. Filed May 12, 1901. Serial No. 60,897. (No model.)



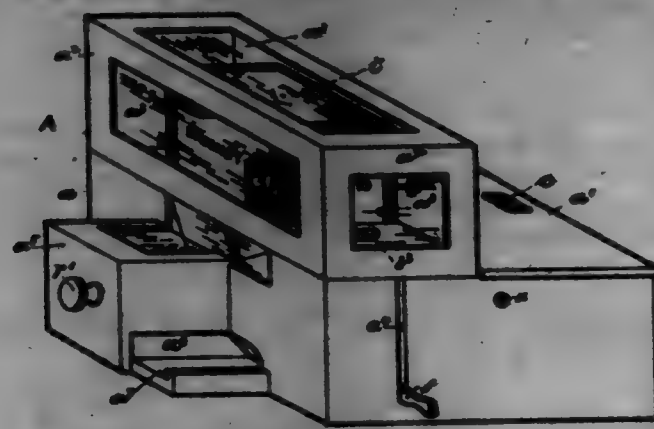
Claim.—1. In a toy jack-o'-lantern, the combination of a hollow spheroidal body, comprising continuous provided with rim extensions adapting the sections to be telescopically joined to form the whole; a ball coincident through the joined rims at opposite points above the center of gravity of the lantern-body; a ball provided with a central stem for a handle, and having arms curved to cradle the body of the lantern, and the ends of the arms angled inward and adapted to be inserted in the ball-sockets to lock the sections against disjoining and pivotally support the lantern-body; a candle-socket within the lantern-body secured by its base to one of the sections below the center of gravity and at right angles to the pivotal axis and adapted to be held normally vertical by gravity; ventilating-cribs in the lantern-body at the base and opposite the top of the candle-socket; apertures cut through the wall of the body, and translucent coverings for the apertures.

2. In a toy jack-o'-lantern, the combination of a hollow spheroidal body comprising continuous provided with rim extensions, adapting the sections to be telescopically joined to form the whole; cribs for a ball coincident through the joined rims at opposite points above the center of gravity of the lantern-body; a ball provided with a central stem for a handle, and having arms curved to cradle the body of the lantern and the ends of the arms angled inward and adapted to be inserted in the ball-sockets to lock the sections against disjoining, and pivotally support the lantern-body; cribs through the lantern-body at diametrically opposite points at right angles to the pivotal axis, adapted to be brought, one vertically above and the other vertically below the axis by gravity; a candle-socket adapted to be inserted in the cribs normally below the axis, said socket having an elastic base adapted to be compressed by such insertion and frictionally secure the socket within the lantern-body; apertures cut through the wall of the body and translucent coverings for the apertures.

3. In a toy jack-o'-lantern, the combination of a hollow spheroidal body comprising continuous provided with rim extensions, adapting the sections to be telescopically joined to form the whole, a segment of one of said sections being cut away parallel with the plane of its rim and a translucent, flame-proof sheet fitted over the opening thus made in the section; cribs for a ball coincident through the joined rims at opposite points above the center of gravity of the lantern-body; a ball provided with a central stem for a handle, and having arms curved to cradle the body of

the lantern and the ends of the arms angled inward and adapted to be inserted in the ball-sockets to lock the sections against disjoining, and pivotally support the lantern-body; crutons through the lantern-body at diametrically opposite points at right angles to the pivotal axis, adapted to be brought, one vertically above and the other vertically below the axis by gravity; and a candle-socket adapted to be inserted in the cruton normally below the axis, said socket having an elastic base adapted to be compressed by each insertion and frictionally secure the socket within the lantern-body.

699,670. CIGAR-VENDING MACHINE. WILLIAM R. DUTCHER, Auburn, R. I. Filed Jan. 9, 1908. Serial No. 64,886. (No model.)



Claim.—1. In a cigar-vending machine, the combination of a magazine having a receptacle at its lowermost portion arranged to receive a single cigar; an actuating device arranged to direct a cigar into said receptacle; an ejector arranged to enter the receptacle and move a cigar outwards therefrom; and means for preventing movement of the actuating device while the ejector is located in the said receptacle.

2. In a cigar-vending machine, the combination of a magazine having a substantially V-shaped bottom that is provided with one or more slots extending transversely to the line of convergence of the walls forming the V-shaped bottom; an actuating-lever operating in each slot; each lever having a depression in its upper edge that is in alignment with the said line of convergence when the lever is in its normal position; and means for ejecting a cigar from the angular portion of the magazine.

3. In a cigar-vending machine, the combination of a magazine having a substantially V-shaped bottom that is provided with one or more slots extending transversely to the line of convergence of the walls forming the V-shaped bottom; an actuating-lever *d*, operating in each slot; said lever having a depression *d'*, in its upper edge that is in alignment with the said line of convergence when the lever is in its normal position; the lever also having the corrugation *d''*, adjacent the depression *d'*, and the extended portion *d'''*; and means for moving a cigar from the angular portion of the magazine.

699,671. COMBINED WHEEL-HOIST, WHEEL-REST, TRIMMER, SCRAPER, BUT-GLITCH, &c. CHARLES H. PARKER, Christiansburg, Va. Assignor of one-third to Margaret Hartwell Stuart, Longwood, Cal. Filed Feb. 6, 1901. Serial No. 64,886. (No model.)

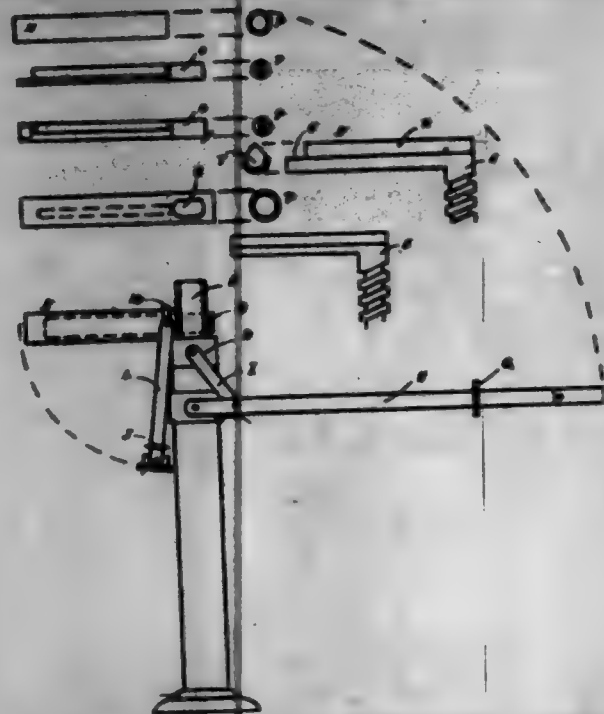
Claim.—1. In a wheel-hoist the combination of a standard, a screw-rod slidably mounted therein, a nut carried on said screw-rod, a lever mounted at one end on said standard, and links connecting said nut and lever all substantially as set forth.

2. A wheel-hoist consisting of a standard, a double-bar lever pivoted at one end to opposite sides thereof, means carried by said lever for holding the latter in an elevated position, an adjustable screw-rod slidably in said standard, a nut carried by said screw-rod, links pivotally connected to said nut and lever, and a wheel-rest horizontally supported by the upper portion of said screw-rod, all substantially as set forth.

3. A wheel-hoist consisting of a standard, an adjustable screw-rod slidably therein, a nut carried on said screw-rod, a double-bar lever pivoted to opposite sides of said standard, links connecting said nut and lever having a plate slidably thereon said plate having an aperture therein adapted to fit over the upper end of said screw-rod to hold the lever in elevated position and a wheel-rest horizontally supported by the upper portion of the said screw-rod, all substantially as set forth.

4. A wheel-hoist consisting of a standard, a double-bar lever pivoted to opposite sides thereof, means carried by said lever for holding the latter in an elevated position, an adjustable screw-rod slidably in said standard, a nut carried by said screw-rod, links pivotally connected to said nut and lever, and a wheel-rest having a sharp upper edge thereon, horizontally supported by the upper portion of said screw-rod, all substantially as set forth.

5. A wheel-hoist consisting of a standard, a double-bar lever pivoted at one end to opposite sides thereof, means carried by said lever for holding the latter in elevated position, an adjustable screw-rod slidably in said standard, a nut carried by said screw-rod, links pivotally connected to said nut and lever, and a wheel-rest having means at its outer end to receive and support the end of a vehicle-spindle and horizontally supported by the upper portion of said screw-rod, all substantially as set forth.



6. A device of the character described comprising a standard, a rod slidably therein, means for adjusting said rod, a support horizontally held by the upper portion of said rod, a ring rotatably mounted on said support, two bars pivoted to opposite sides of said ring and means for clamping the free ends of said bars together, all substantially as set forth.

7. A wheel-hoist comprising a base-plate, a hollow standard supported thereby, a collar fixed to said standard, a screw-threaded rod slidably mounted in said standard and having a projection at its upper end, a threaded nut mounted upon said rod, a double-bar lever pivotally connected at one end with said collar links pivotally connected to said nut and to said lever intermediate its ends, a latch for said lever consisting of a plate slidably thereon and having an aperture adapted to fit over the projection upon the screw-rod in order to hold the lever and thereby the screw-rod in elevated position, said rod having a transverse aperture near its upper end, a wheel-rest horizontally carried by said rod and consisting of a thin flat bar, one end of which is adapted to enter the aperture in the screw-rod, a support carried by said bar, said support having means at its outer end to receive the threaded end of a vehicle-spindle, all substantially as set forth.

699,672. SPINNING-MACHINE. JOHN A. FREDERICK, Reading Pa. Filed May 28, 1901. Serial No. 64,886. (No model.)



Claim.—1. The combination with a tube having a pocket therein; of a grooved die seated within the tube; a vertically-movable die thereabove; a stem to said die; a spring including the said stem and adapted to hold the die normally in contact; arms to the stem; and a cam including said stem and normally contacting with the arm, said cam being adapted to raise the stem and its die.

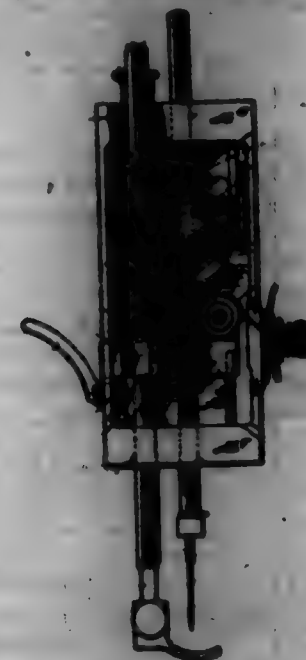
2. In a device of the character described, the combination with a

tube having a pocket therein, of a grooved die seated within the pocket, independent vertically-movable die thereon, means for holding said die normally in contact with the grooved die and means for raising the movable die simultaneously.

3. In a device of the character described, the combination with a tube having a pocket therein; of a grooved die seated within the pocket, independent vertically-movable grooved die thereon, springs for holding said die in contact with the die in the pocket, and means for raising the movable die simultaneously.

4. In a device of the character described, the combination with a tube having a pocket therein; of a grooved die seated within the pocket, vertically-movable independent grooved die thereover, stems to said independent die, springs thereon for holding said die normally in contact with the die in the pocket, a rotatable cam, and means operated by the cam for raising the stems and their die, simultaneously.

699,673. TAKE-UP FOR SEWING-MACHINE. WILLIAM C. PARK, Chicago, Ill. Filed Oct. 21, 1901. Serial No. 78,428. (No model.)



Claim.—1. In a take-up mechanism for sewing-machine, in combination, a take-up lever provided with a thread-eye, a vertically-movable presser-bar, a bracket fixed to the presser-bar and arranged to reciprocate vertically therewith, a slack-thread-controlling lever, mounted on the bracket on the presser-bar and provided, at its free end, with a thread-eye, means for actuating the take-up lever and means for reciprocating the presser-bar, substantially as and for the purpose specified.

2. In a take-up mechanism for sewing-machine, in combination, a driving-shaft, a wheel—fast thereto—having a circumferential cam-groove therein adapted to engage and operate a take-up lever, a take-up lever engaged, at one end, by the circumferential groove in the wheel, and provided, at its other end, with a thread-eye, a vertically-movable presser-bar, a bracket fixed to the presser-bar and arranged to reciprocate vertically therewith, a slack-thread spring-actuated controlling-lever mounted on the bracket on the presser-bar and provided, at its free end, with a thread-eye, and bearings, in the machine-frame, for operatively supporting all of said parts, substantially as and for the purpose specified.

699,674. CIGAR-SMOKING MACHINE. WILLIAM H. GARDNER, Canton, R. I. Filed Aug. 3, 1901. Serial No. 78,428. (No model.)

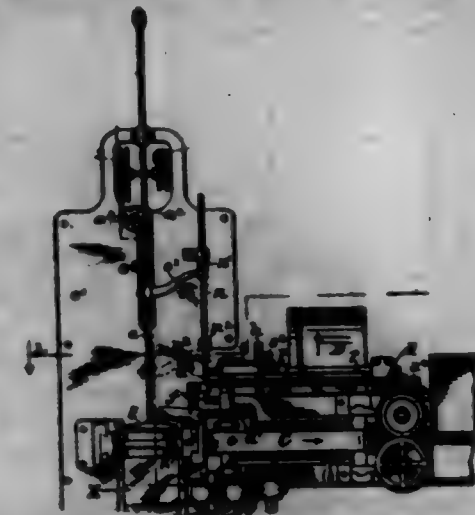
Claim.—1. In a cigar-smoking machine, the combination with a tobacco-feeding mechanism, a magazine communicating therewith, and a plunger arranged to advance the tobacco in the magazine, of means for causing the plunger mechanism to vary the action of the feeding mechanism.

2. In a cigar-smoking machine, the combination with a tobacco-feeding mechanism, a magazine communicating therewith, and a plunger arranged to advance the tobacco in the magazine, of means for causing the plunger mechanism to retard the normal action of the feeding mechanism when the tobacco in the magazine exceeds a predetermined quantity.

3. In a cigar-smoking machine, the combination with a tobacco-feeding mechanism, a magazine communicating therewith, and a plunger arranged to advance the tobacco in the magazine, of means for causing the plunger mechanism to retard the feeding mechanism temporarily inoperative when the tobacco in the magazine exceeds a predetermined quantity.

4. In a cigar-smoking machine, the combination with a tobacco-feeding mechanism, a magazine communicating therewith, and a plunger

arranged to advance the tobacco in the magazine, of means for causing the plunger mechanism to retard the normal action of the feeding mechanism when the tobacco in the magazine exceeds a predetermined quantity, and means for adjusting said latter means to vary said predetermined quantity.



5. In a cigar-smoking machine, the combination with an intermittent vertically-movable tobacco-feeding mechanism, a magazine communicating therewith, and a plunger arranged to advance the tobacco in the magazine, of means connected with the plunger mechanism for causing the feeding mechanism to omit one or more steps in its intermittent movement when the tobacco in the magazine exceeds a predetermined quantity.

6. In a cigar-smoking machine, the combination with a feeding device provided with a ratchet-wheel through which power is transmitted to actuate the device, an oscillating pawl having an invariable angular movement and arranged to engage said wheel, and a gage-rod arranged to be normally in the path of said pawl and engage with and strip said pawl, a magazine, a plunger arranged to press the tobacco ahead in the magazine, the plunger being arranged to move the gage-rod out of position of engagement with said pawl when the quantity of tobacco in the magazine extends to a predetermined point.

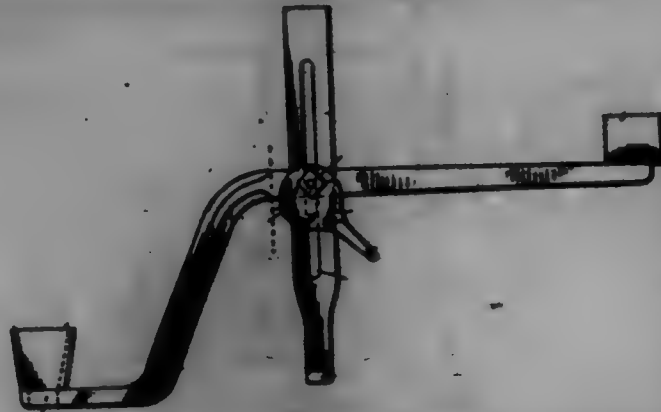
7. In a cigar-smoking machine, the combination with a feeding device provided with a ratchet-wheel through which power is transmitted to actuate the device, an oscillating pawl having an invariable angular movement and arranged to engage said wheel, and a gage-rod arranged to be normally in the path of said pawl and engage with and strip said pawl, a magazine, a plunger arranged to press the tobacco ahead in the magazine, means for causing the plunger to engage with and thereby advance and retract the gage-rod at its forward and rearward positions respectively, and means for adjusting the said position of engagement.

8. In a cigar-smoking machine, the combination of a tobacco-feeding device, a ratchet-wheel through which the device is adapted to be rotated in one direction only, an oscillating pawl moving an invariable angular distance back and forth at each revolution of the machine, a magazine, a plunger arranged to press the tobacco in the magazine, means for moving the plunger, a rod having the plunger secured to its front end and carrying an arm, an end-wise-movable gage-rod passing loosely through the said arm, a collar secured to the rod on each side of said arm, the collar being arranged whereby the plunger in its forward movement causes said arm to engage one of the collars and advance the gage-rod into a position to engage with and move the said pawl downwardly onto the wheel and then rotate the latter on the return movement of the pawl and thereby actuate the feeding device, the other collar being so arranged that on the rearward movement of the plunger said arm will engage this collar and thereby return the gage-rod to its normal or non-operative position.

9. In a cigar-smoking machine, a tobacco-feeding device provided with a ratchet-wheel through which the device is operated, an oscillating arm carrying a spring, a spring-pressed pawl mounted in the outer end of said arm and arranged to engage the teeth of said wheel, a notched latch connected with and moving in unison with the pawl and arranged to receive the free end of said spring at its notch, a fixed stop arranged to engage with and detach the spring from the notched portion of said latch just before said arm and attached parts complete the forward stroke, thereby permitting the pawl to swing upwardly out of engagement with the wheel, and an automatically-actuated gage-rod located in the path of the pawl, and so arranged that the pawl in its rearward movement strikes the rod and is moved downward into engagement with the ratchet-wheel whereby said spring is permitted to enter the notched part of the latch.

699,675. WINDING. ALBERT F. SMITH, Redwood, N. H. Filed Sept. 21, 1901. Serial No. 78,427. (No model.)

Claim.—1. The combination with a shank, having a head or socket at one end and at the opposite end a bearing-plate, of a movable jaw or spoke-grip having an elongated slot whereby the same is slidably secured to said shank through the medium of a headed bolt, a hook at one end of said jaw or spoke-grip to partially enclose a spoke, a finger-grip at the opposite end of said jaw or spoke-grip to adjust the same; and a cam-faceted lever to secure said jaw in its adjusted position.



2. The combination with a shank, having a head or socket at one end and at the opposite end a bearing-plate, of a movable jaw or spoke-grip having an elongated slot whereby the same is slidably secured to said shank through the medium of a headed bolt, a hook at one end of said jaw or spoke-grip to partially enclose a spoke, a finger-grip at the opposite end of said jaw or spoke-grip to adjust the same, and a cam-faceted lever mounted on said bolt and provided with a handle to facilitate said lever to bring the cam portion thereof under the head of said bolt to head the said jaw against the shank, locking it in its adjusted position.

3. A wrench comprising a shank having a downwardly and outwardly curved portion and a straight portion, a head or socket having tapering inner walls secured to outwardly-curved portion, a rectangular opening in said portion, a bearing-plate secured to said straight portion, a movable jaw having an elongated slot whereby the same is slidably secured to said shank upon a head-bolt, a curved portion on one end of said jaw, a finger-grip on the opposite end thereof, a cam-faceted lever eccentrically mounted on said bolt whereby the jaw is secured in its adjusted position, and means for preventing the parts that come in contact with the wheel from scratching the same, substantially as shown and described.

699,676. TELEPHONE-CIRCUIT. GEORGE R. COWMAN, Worcester, Mass. Filed June 14, 1903. Serial No. 20,393. (No model.)



Claim.—1. In a telephone circuit or system, a switch, comprising two contact-plates having connection with the main line, a movable contact-plate adapted for engagement with either one of the first-named contact-plates, a receiver-hook and a shifting rod extended from said movable contact-plate and having a loop through which the receiver-hook passes, whereby said receiver-hook may move upward without imparting motion to the rod, the said receiver-hook operating to close the calling-circuit when moved downward, substantially as specified.

2. In a telephone circuit or system, two contact-plates arranged within a telephone-box and having connection with the main line, a movable contact-plate adapted to be engaged with either one of said first-named contact-plates and adapted to interlock therewith, a swinging blank on which the movable contact-plate is mounted, a receiver-hook, and a shifting rod extended from said blank down the outer side of the box and having a loop portion through which the receiver-hook passes, the said receiver-hook causing the closing of the calling-circuit when moved downward, substantially as specified.

3. In a telephone, a circuit-changer comprising contact-plates connected with the main circuit, a movable contact-plate adapted for engagement with either one of the first-named contact-plates, a receiver-hook, a shifting rod extended from the movable contact-plate, and a loop on the end of said shifting rod, through which the receiver-hook of the telephone passes and in which the said hook may move upward without imparting motion to the rod, but upon a downward motion of which will shift the rod to close the ringing-circuit, substantially as specified.

4. In a telephone system, circuits leading in opposite directions from a telephone, a receiver-hook on the telephone, contacts closed for one line by the upward movement of the hook, and contacts in the opposite line closed upon a downward movement of said hook, substantially as specified.

699,677. MEDICAL BATTERY. FREDERICK GUNN, Chicago, Ill. Filed Sept. 27, 1900. Serial No. 731,874. (No model.)

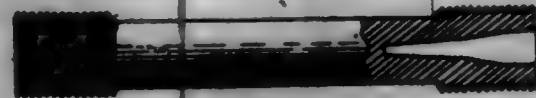


Claim.—1. In a medical battery, in combination, an insulating case containing a cell having a contact-spring secured to its negative pole; a base-plate carrying a coil on one of its surfaces; and two contact-springs on the other surface of said base-plate, respectively adapted to engage the contact-spring of the negative pole of the cell and the lining of said coil.

2. In a medical battery, in combination, a battery comprising a plurality of cells; a coil; a base-plate carrying said coil on its upper surface; a contact-spring secured to the lower surface of said base-plate, for each of said cells, for making electrical connection between the casing of said coil and the line of the cell; and a contact-spring projecting downward from the lower face of said base-plate, for each of said cells, for making electrical connection between one of the poles of said coil and the line of the cell.

3. In a medical battery, in combination, a battery comprising a plurality of cells, each cell being provided with a contact-spring secured to its negative pole; a coil; a switch; a base-plate carrying said coil and said switch on its upper surface; a contact-spring secured to the lower surface of said base-plate, for each of said cells, for making electrical connection between the casing of said coil and the line of the cell; a contact-spring projecting downward from the lower face of said base-plate, for each of said cells, for making electrical connection between the contact-spring secured to the negative pole of said coil and the line of the cell.

699,678. STAY-BOLT AND PROCESS OF MAKING SAME. GUS O. GRIMLEY, Windsor, Vt. Filed May 24, 1906. Serial No. 17,807. (No model.)



Claim.—1. The herein-described method of making a stay-bolt for bolters which consists in simultaneously rolling the threads at both ends of the said stay-bolt and thereby making said threads continuous of each other and forming on the said bolt a surface or skin which is compressed or compressed.

2. The herein-described method of making a stay-bolt for bolters which consists in upsetting the ends of a cylindrical blank, and simultaneously rolling the threads on the said upset ends, whereby said threads are continuations of each other.

3. The herein-described method of making a stay-bolt for bolters, which consists in simultaneously upsetting and preparing an end of a suitable blank for a tool for forming it, and then threading the said upset end.

4. The herein-described method of making stay-bolts for bolters, which consists in providing a cylindrical blank, upsetting the ends thereof, and simultaneously rolling threads on the two ends of the partially-upset stay-bolt, whereby the threads thereon are practically continuations of each other, and the surface or skin of the threaded part is compressed or compressed.

5. The herein-described method of making stay-bolts for bolters, consisting in providing a suitable cylindrical blank, simultaneously upsetting an end and punching a hole in the said end of the said blank, and then rolling threads on the upset end.

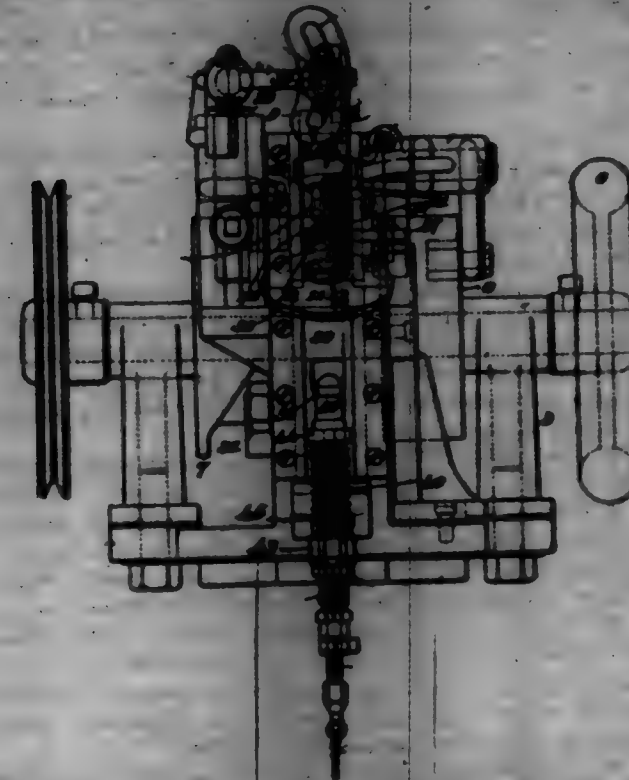
6. As a new article of manufacture, a stay-bolt for bolters having threads rolled on its ends whereby the surface of said ends is compressed or compressed, the threads on one end being continuations of the threads on the other end.

7. As a new article of manufacture, a stay-bolt for bolters having upset ends, and threads simultaneously rolled on said ends, whereby the said surfaces of the said ends are compressed or compressed, and the threads thereon are continuations of each other.

8. As a new article of manufacture, a stay-bolt for bolters having its ends larger than its middle, and having threads rolled on said ends whereby the surface of said ends are compressed or compressed.

9. As a new article of manufacture, a stay-bolt for bolters having its ends upset and longitudinally apertured by a punching process, said apertures projecting into the body of the said bolt beyond the upset ends, said stay-bolt having the said upset ends provided with threads which are rolled thereon and which are in effect continuous.

699,679. STITCH-SEPARATING MACHINE. JOHN R. HAMMILL, Boston, Mass. Filed Mar. 6, 1901. Serial No. 49,941. (No model.)



Claim.—1. A stitch-separating machine, having, in combination, a work-support, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, means for actuating the tool to indent the work, and means independent of the work for imparting to the tool a shaping and polishing oscillating movement while in engagement with the work, substantially as described.

2. A stitch-separating machine, having, in combination, a work-support, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, means for actuating the tool to indent the work, and means independent of the work for imparting to the tool a shaping and polishing oscillating movement while in engagement with the work, substantially as described.

3. A stitch-separating machine, having, in combination, a work-support, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, means for actuating the tool to indent the work, means for actuating the tool to feed the work, and for simultaneously imparting to the tool a shaping and polishing oscillating movement, substantially as described.

4. A stitch-separating machine, having, in combination, a work-support, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, means for actuating the tool to indent the work, and means for imparting to the tool a shaping and polishing oscillating movement to feed the work, substantially as described.

5. A stitch-separating machine, having, in combination, a work-support, an indexing-tool, means for actuating the tool to indent the work, and means for oscillating the tool about an axis below the plane of the surface of the work to feed the work, substantially as described.

6. A stitch-separating machine, having, in combination, a work-support, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, means for actuating said tool toward and from its axis of oscillation, means for adjusting for imparting to the tool a shaping and polishing oscillating movement to feed the work, substantially as described.

7. A stitch-separating machine, having, in combination, an indexing-tool provided with an indexing portion and with a shaping and polishing portion, a work-support arranged to allow the work to shift under the action of the tool, means for actuating the tool to indent the work and means independent of the work for imparting to the tool a shaping and polishing oscillating movement to cause the tool to act successively on different portions of the work, substantially as described.

8. A stitch-separating machine, having, in combination, an indexing-tool, a yielding-mounted work-support, means for actuating the tool to indent the work, means for oscillating the tool to feed the work, and means for locking the work-support during the indexing and feeding movements of the tool, substantially as described.

9. A stitch-separating machine, having, in combination, a work-support, a two-pointed indexing-tool, means for actuating the tool to come one of the points to indent a stitch interval and means independent of the work for oscillating the tool to cause the other point to indent the next adjacent stitch interval, substantially as described.

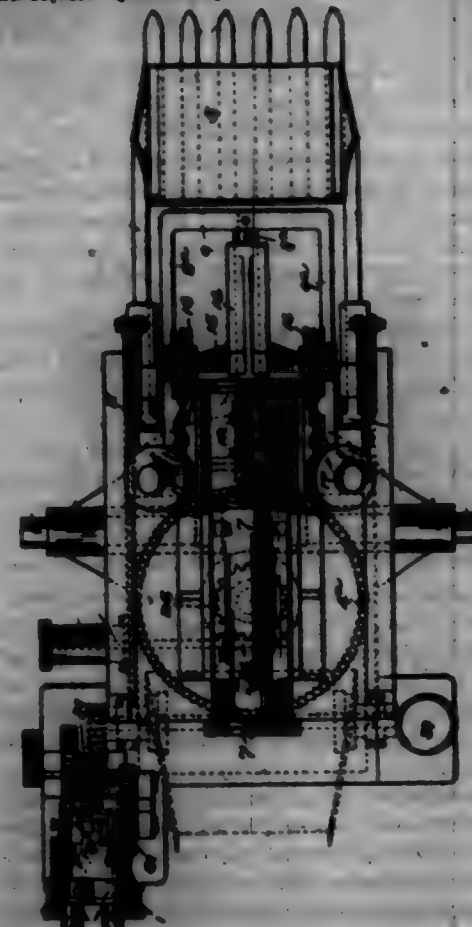
10. A stitch-separating machine, having, in combination, a work-support, an indexing-tool, means for oscillating the tool to feed the work, means for yieldingly pressing the tool against the work during a portion of its feeding movement, and means for positively pressing the tool against the work during the remainder of its feeding movement, substantially as described.

11. A stitch-separating machine, having, in combination, a work-support, a tool-carrier, an indexing-tool carried thereby, means for actuating the tool-carrier to bring the tool into engagement with the work, and mechanism for oscillating the tool on the tool-carrier to feed the work, substantially as described.

12. A stitch-separating machine, having, in combination, a work-support, a two-pointed indexing-tool, means for actuating the tool to indent the work and means independent of the work for oscillating the tool while in engagement with the work, substantially as described.

13. A stitch-separating machine, having, in combination, a work-support, an oscillating indexing-tool provided with an indexing portion and with a shaping and polishing portion having its working face set off from its axis of oscillation and means independent of the work for imparting to the tool a shaping and polishing oscillating movement, substantially as described.

699,680. PNEUMATIC SHOVEL. LAFAYETTE HAMMILL, Mable Springs, and WILLIAM C. DAVIS, Denver, Colo. Filed Dec. 12, 1901. Serial No. 60,716. (No model.)



Claim.—1. In a power-shovel, a carrying-truck, a two-table mount of thereon, guides on said turn-table, arms slidingly and pivotally supported from said guides, a shovel carried by said arms, means for advancing and retracting said arms, and means connected to said arms for raising and lowering them, substantially as described.

2. In a power-shovel, a carrying-truck, guides carried thereby, a yoke having members sliding in said guides, means for reciprocating said yoke, arms pivoted to said members and carrying a shovel at their forward ends, and means connected to said arms for swinging them upwardly, substantially as described.

3. In a power-shovel, a carrying-truck, guides carried thereby, a yoke having members sliding in said guides, means carried directly by the truck for reciprocating the yoke, arms having their rear ends pivoted to said yoke members, and carrying a shovel at their forward ends, and means connected to said arms for raising and lowering them, substantially as described.

4. In a power-shovel, a carrying-truck, guides carried thereby, a yoke having side members sliding in said guides, arms having their rear ends pivotally connected with said yoke members, and carrying a shovel at their forward ends, means carried by said truck between the guides for reciprocating the yoke, and means supported by the truck above the reciprocating means for raising and lowering the arm, substantially as described.

5. In a power-shovel, a carrying-truck, guides carried thereby, arms having their rear ends provided with a sliding connection with said guides, a shovel carried on the front ends of said arms, a pneumatic cylinder and piston for reciprocating said arms, and a pneumatic cylinder and piston for raising and lowering said arms, substantially as described.

6. In a power-shovel, a carrying-truck, guides carried thereby, a yoke having members sliding in said guides, a pneumatic cylinder and piston for reciprocating said yoke, arms having their rear ends pivoted to said yoke members and carrying a shovel at their forward ends, and a pneumatic cylinder and piston for raising and lowering said arms, substantially as described.

7. In a power-shovel, a carrying-truck, guides carried thereby, a yoke having members sliding in said guides, a pneumatic cylinder and piston for reciprocating said yoke, arms having their rear ends pivoted to said yoke members and carrying a shovel at their forward ends, a lifting-cylinder and piston supported by said truck, movable sheaves operated by said piston, stationary sheaves suitably supported, and chains having each one end connected to the pivoted arms and the other connected to a rigid part of the frame, substantially as described.

8. In a power-shovel, a truck, a yoke having members supported thereby to have longitudinal movement, means for moving said yoke, arms pivoted to said members and carrying a shovel at their forward ends, quadrants secured to said arms, stationary and movable sheaves, chains secured to said quadrants and passing around said stationary and movable sheaves, the opposite ends of said chains being secured to a fixed part of the frame, and means for moving said movable sheaves to elevate the arms, substantially as described.

9. In a power-shovel, a truck, a yoke having members supported thereby to have longitudinal movement, means for moving said yoke, arms pivoted to said members and carrying a shovel at their forward ends, quadrants secured to said arms, stationary and movable sheaves, chains secured to said quadrants and passing around said stationary and movable sheaves, the opposite ends of said chains being secured to a fixed part of the frame, and means for moving said movable sheaves to elevate the arms, and buffers on the frame to contact with said quadrants, substantially as described.

10. In combination, a suitable truck, guides supported thereby, a yoke having side members movably supported in said guides, arms pivoted to said members carrying a shovel at their forward ends, a cylinder and piston for operating said yoke, quadrants secured to said arms, a lifting-cylinder having a piston, a cross-head operated by said piston, sheaves carried by said cross-head, a second pair of sheaves journaled on stationary axes, and chains secured to stationary parts of the frame, passing around said sheaves and having their opposite ends passing around the quadrants and secured for lifting the arms, substantially as described.

11. In combination with a suitable truck, arms pivotally supported thereby carrying a shovel at their forward ends, quadrants carried by said truck, a cross-head carrying sheaves operatively connected to said piston, sheaves journaled on stationary axes, and lifting-chains passing around said sheaves and having their ends connected respectively with the arms and a stationary part of the frame, substantially as described.

12. In combination, with a suitable support, arms pivotally supported thereby carrying a shovel at their forward ends, quadrants carried by said arms, chains connected at one end to act on said arms, and passing over said quadrants, the opposite ends of said chains being connected to a fixed part of the support, idler-sheaves over which the intermediate portions of said chains pass, and means for moving said idler-sheaves to strain the chains and elevate the arms, substantially as described.

13. In combination with a suitable truck, arms pivotally supported thereby carrying a shovel at their forward ends, quadrants carried by said arms, chains connected with said quadrants, means for applying tension to said chains to raise the arms, and yielding buffers for limiting the movement of said quadrants, substantially as described.

14. In combination, a suitable truck, a dumping-chute at the rear thereof, a shovel independent of said chute having a reciprocating and vertical swinging movement and supported by said truck, means for advancing and retracting said shovel and for raising the same, said means causing said shovel to advance to be filled and raised and then to move back to dump the contents into the chute at the rear of the truck, substantially as described.

15. In combination, a suitable truck, a turn-table mounted thereon with means for operating it, horizontal guides supported by said turn-table, a power-cylinder disposed longitudinally of said guides, a yoke having parallel members supported in said guides, connections whereby said cylinder operates said yoke, arms pivoted to said members and carrying a shovel at their forward ends, and a lifting-cylinder having connections for lifting said arms, substantially as described.

16. In combination, a suitable truck, a turn-table mounted thereon, shoveling mechanism mounted upon said turn-table, means carried by the

truck below the turn-table for rotating the latter, and laterally-movable bracing-jacks also carried by said truck below the turn-table, substantially as described.

17. The combination with a suitable truck and shoveling mechanism carried thereby, of transversely-arranged hydraulic jacks carried by said truck and means for operating said jacks independently, substantially as described.

18. The combination with a suitable truck and shoveling mechanism carried thereby, of transversely-arranged hydraulic jacks carried by said truck, pumps also carried by said truck for supplying water to said jacks with means for operating said pumps and means for rendering either jack inoperative, substantially as described.

19. The combination with a suitable truck and shoveling mechanism carried thereby, of hydraulic jacks carried by said truck, a water-tank also carried by the truck and connected with the jacks, means for admitting compressed air to the tank to start the jacks, and other means for supplying water under pressure to the jacks to complete their movement, substantially as described.

20. The combination with a suitable truck and shoveling mechanism carried thereby, of hydraulic jacks carried by the truck, a water-tank having pipe connections to the jacks, means for supplying air under pressure to said tank to impart a rapid initial movement to said jacks and water-pumping mechanism for supplying water under pressure directly to said jacks to complete their movement, substantially as described.

21. The combination with a suitable truck and shoveling mechanism carried thereby, of hydraulic jacks carried by said truck, a pair of pumps for supplying water to said jacks with means for operating said pumps, one of said pumps being connected to each jack, and means for rendering either pump inoperative, substantially as described.

22. The combination with a suitable truck, and shoveling mechanism carried thereby, of hydraulic jacks carried by said truck, a pump having a water-driving pipe leading directly to each of said jacks, check-valves in said pipes, and means for raising either of said check-valves at will to maintain any jack out of action, substantially as described.

23. The combination with a suitable truck and shoveling mechanism carried thereby, of hydraulic jacks for said truck, a water-tank having pipe connections to said jacks, means for admitting compressed air to said tank to force an initial supply of water into said jacks, and pumping mechanism having connections for drawing water from said tank and forcing it into said jacks, substantially as described.

24. The combination with a suitable truck, of a plurality of hydraulic bracing-jacks, a water-tank having pipe connections to said jacks, means for admitting air under pressure to said tank to force an initial supply of water into said jacks, a pump for each jack having pipe connections with the water-tank and with its respective jack, means for operating said pumps, and means for rendering any or all of said pumps inoperative, substantially as described.

25. The combination with a suitable truck carrying shoveling device, of an operating-platform carried thereby, a pair of hydraulic jacks carried by said truck, a pump for each jack located beneath the platform with means for operating said pumps, pipe connections from each pump to its respective jack, a check-valve in each of said pipe connections, and shut-off valves on the platform operatively connected with the check valves, substantially as described.

26. The combination with a suitable truck, of a rigid chute at the rear thereof, a single shovel at the front and independent of said chute arranged to lift the material to be excavated, convey it backward and dump it into said chute, arms having a sliding and pivoted connection with the truck and supporting said shovel, and means for operating said arms, substantially as described.

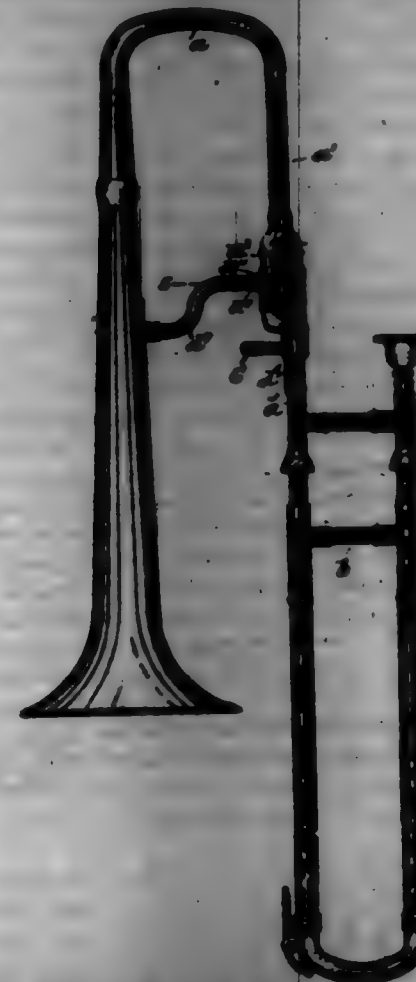
27. The combination with a suitable truck, of a chute carried at the rear thereof, arms having sliding and pivoted connection with said truck, a single shovel carried at the forward ends of said arms, means carried by the truck for reciprocating said arms and raising and lowering them whereby said shovel is filled, raised, retracted and the contents dumped into said chute, an operating-platform at one side of the truck, out of the path of the shovel, and means on the platform for controlling the mechanism for operating the shovel-supporting arms, substantially as described.

28. The combination with a suitable truck, of a chute at the rear thereof, a single shovel at the front arranged to lift the material to be excavated, convey it backward and dump it into the chute, pneumatic cylinders for operating said shovel, an operating-platform located at one side of the truck, and controlling means on said platform for controlling the operation of the cylinders, substantially as described.

699,681. SLIDE-TRANSFORMER. JAMES HANLEY, Boston, Mass. Filed June 14, 1904. Serial No. 64,718. (No model.)

Claim.—1. A trombone having a detachable pliab-transformer at or near the center of the length of the instrument.

2. A trombone provided with a detachable pliab-transformer at or near the center of its length, the said pliab-transformer having a tuning slide.



3. A trombone having a detachable transformer in its cylindrical section *c'* and at or near the center of the length of the instrument, the passage of which is of the bore of the pump of said section.

4. A trombone comprising the bell, a head, a straight section at the end of the bell, a separate section to which the slide is attached, and an interrupted removable section attached to the instrument and connecting the two parts and forming a pliab-transformer, the said pliab-transformer also having attached tuning means.

5. A trombone comprising the bell, a head, a straight section at the end of the bell, a separate section to which the slide is attached, and an interrupted removable section attached to the instrument and connecting the two parts and forming a pliab-transformer, the said pliab-transformer also having attached tuning means.

6. A trombone having a bell provided with a head and a return-section *c'*, the end of which forms a part of a joint, the section *c'* of the transformer carrying the playing-slide, a mouthpiece, the end of which also forms a part of the joint, a handle or brace attached to the bell, and a high or low pliab-transformer attached to the slide or handle and having joints which connect it with the said two parts of the instrument.

7. A trombone having a handle or brace and detachably connected with the bell of the instrument and with the playing sliding section.

8. A trombone comprising three sections or parts, viz: first, the section comprising the bell and the mouthpiece, intermediate bell end; second, the section embracing the playing-slide; third, one or two or more detachable pliab-transformers one of which pliab-transformers combines the bell and slide sections at or near the center of the length of the instrument and either of which pliab-transformers completes the instrument.

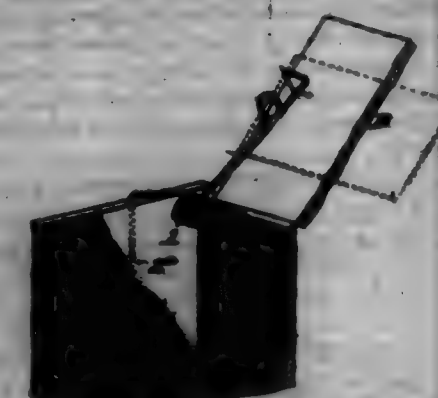
9. A trombone having a bell and an intermediate head, the end of which is fitted to receive an end of a detachable pliab-transformer, a section embracing a playing-slide, the end of which is fitted to receive an end of a detachable pliab-transformer and said detachable pliab-transformers having means for attachment to the bell-section and the playing-slide section and connecting the playing-slide section with the bell-section.

10. A trombone having a removable transformer at or near the center of its length and a rest extending from said transformer.

11. A trombone constructed at or near the center of its length to receive a removable pliab-transformer, the said removable pliab-transformer and means in said pliab-transformer for varying the length of its wind-passage.

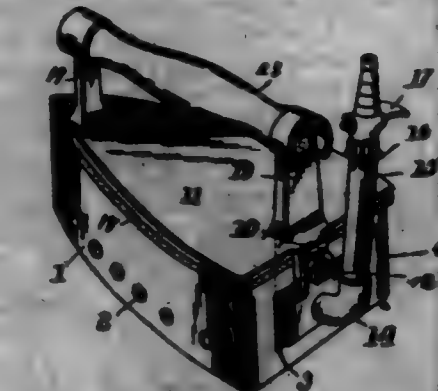
699,682. BOX-LID AND TAP SUPPORT. GEORGE W. HANFMAN, Kansas City, Mo. Filed Sept. 6, 1904. Serial No. 74,478. (No model.)

Claim.—1. The combination with a box provided with a hinged lid, of a support, comprising a coil arranged within the box near one of its rear corners, and provided with an angle-arm fitting over the contiguous end of the box, and provided with a second or hinge arm projecting upwardly and rearwardly and terminating in a U-shaped portion embracing the contiguous end of the box-lid, substantially as described.



2. The combination with a box provided with a hinged lid, of a support, comprising a coil arranged within the box near one of its rear corners, and provided with an angle-arm fitting over the contiguous end of the box, and provided with a second or hinge arm projecting upwardly and rearwardly and terminating in a U-shaped portion embracing the contiguous end of the box-lid, and provided also with a coil or convolution to support a card in front of and parallel with the face of said lid, substantially as described.

699,683. GAS-HEATED IRON. BENJAMIN E. HAWES, Washington, D. C. Filed Dec. 14, 1904. Serial No. 55,944. (No model.)



Claim.—1. In a gas-heated flat-iron, the combination with a hollow body provided with air-inlet openings near the bottom thereof, and a rectangular opening in its rear wall, of a burner in said body of less size than the opening in the rear wall and provided with a slotted ear, a top plate provided with a slotted ear adapted to register with the ear on the burner, and means for locking the two ears and body together, whereby the top plate is held to the bottom of the body, substantially as described.

2. In a gas-heated flat-iron, the combination with a hollow body provided with air-inlet openings near the bottom thereof, and a rectangular opening in its rear wall, of a burner in said body of less size than the opening in the rear wall and provided with an ear, a top plate provided with an ear adapted to register with the ear on the burner, and means for locking the two ears and body together, whereby the top plate is held to the bottom of the body, substantially as described.

3. In a gas-heated flat-iron, the combination with a hollow body provided with air-inlet openings near the bottom thereof, and a rectangular opening in its rear wall, of a burner in said body of less size than the rectangular opening and provided with a slotted ear adapted to register with the ear on the burner and with the slot in the rear wall of the body, whereby the top plate is held to the body and the burner locked in any adjusted position with relation to the bottom of the body, substantially as described.

4. In a gas-heated flat-iron, the combination with a hollow body provided with air-inlet openings near the bottom thereof, and a rectangular opening in its rear wall, of a burner in said body of less size than said opening and provided with a slotted ear 20, and also with a slotted ear or lateral extension 25, a top plate provided with a slotted ear adapted to register with the ear 20 on the burner, means for locking the ears 10 and 20 to the body, and means for locking the ear or lateral extension to the body, whereby the top plate is held to the body and the burner locked

in any adjusted position with relation to the bottom of the iron, substantially as described.

699,684. INCORPORATION PREVENTIVE. EDWARD HALL, Chicago, Ill. Filed May 17, 1908. Serial No. 14,989. (No specimen.)

Claim.—A metallic composition for preventing incrustation in steam-generating appliances, consisting of zinc, tin, antimony, mercury, and nitrate of silver; the zinc being present in a greater proportion than that of the tin, the proportion of the tin being greater than that of the antimony, the proportion of the antimony being greater than that of the mercury, and the proportion of the nitrate of silver being less than that of any other element.

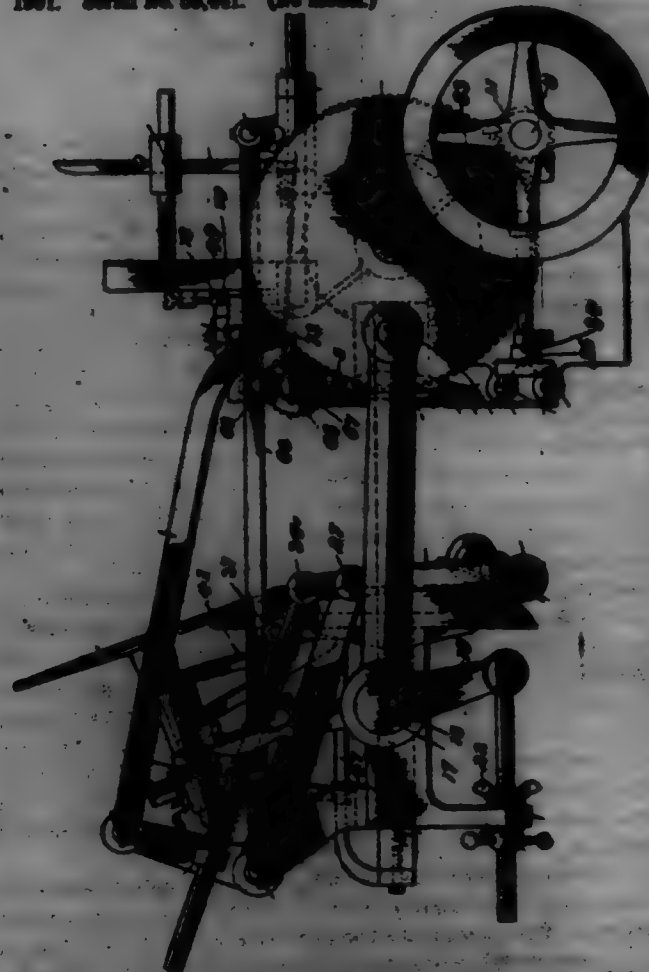
699,685. CURTAIN-STRETCHER. HARRY E. HOWARD, Chicago, Ill. Filed Dec. 23, 1901. Serial No. 94,553. (No model.)



Claim.—1. In a curtain-stretcher, a bar having an open vertical slot extending longitudinally therethrough, an attaching-pin formed of a single piece of wire bent to form a base portion adapted to snugly fit said slot in the bar, bent to form an upwardly-projecting hump between the point and the base, and bent to form an acute-angled hook, the angle of which is substantially in the same plane as the center of the base portion, substantially in the manner and for the purpose described.

2. In a curtain-stretcher, a stretcher-bar having a narrow vertical slot extending therethrough near one edge, and with an extension on the lower side of said edge and a stretcher-pin having a base fitting said slot, and provided with a head adapted to engage the portion of the bar overhanging said slot, and having a hook portion adapted to engage an extension on the lower side of the edge of the bar, substantially as set forth.

699,686. ENVELOPE-PRINTING PRESS. WILLIAM J. JENNINGS, Woodbury, N. J., assignor, by direct and mesne assignments, to the Steel Machine Company, a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,461. (No model.)



Claim.—1. In an envelope-printing press, suitable framework for supporting the operating parts, a vertical platen secured to said framework, a vertical form-holder adapted to slide horizontally, guideways formed upon the face of the platen for holding the envelope while receiving the

impression, automatic means for feeding the envelope from a suitable source of supply to said guideways upon the face of the platen, means for releasing the envelope after it has received its impression, and means operated by the sliding motion of the form-holder for automatically taking the type, substantially as described and for the purpose specified.

2. In combination in an envelope-printing machine, a framework adapted to support the operating parts, a power-shaft journaled in said framework, suitable gearing for transmitting motion from said power-shaft to the operating parts of the machine, a vertical platen secured to the framework of the machine, guides secured upon the face of the platen for holding the ends of the envelope while receiving the impression, fingers upon which the lower edge of the envelope is adapted to rest while receiving the impression, means for causing these fingers to spread and allow the envelope to drop after receiving the impression, slide-bars secured in the frame of the machine and extending forward from the same, slides adapted to slide upon said slide-bars, a vertical form-holder secured to said slides and adapted to slide thereon horizontally, means for communicating motion to said slides for the purpose of reciprocating the same, ink-rollers adapted to travel over the face of the form, an ink-plate from which the rollers are adapted to receive their supply, means for causing these rollers to travel from the ink-plate over the form and back again, adjustable upright guides supported by the framework of the machine for holding a supply of envelopes, a pair of constantly-revolving rollers arranged above the platen, slide-bars secured in the framework of the machine and extending rearwardly from the same, slides adapted to slide upon said slide-bars, a connection connecting said slides with the sliding frame which carries the form, blades secured to said slides and adapted to bear against the lower envelope of the pile and adapted to enter between the envelope and the flap thereof, and feed the same between the two rolls when the slides are brought forward, a shield secured in front of the rolls and adapted to deflect the envelope downward within the guides formed on the face of the platen, substantially as described and for the purpose specified.

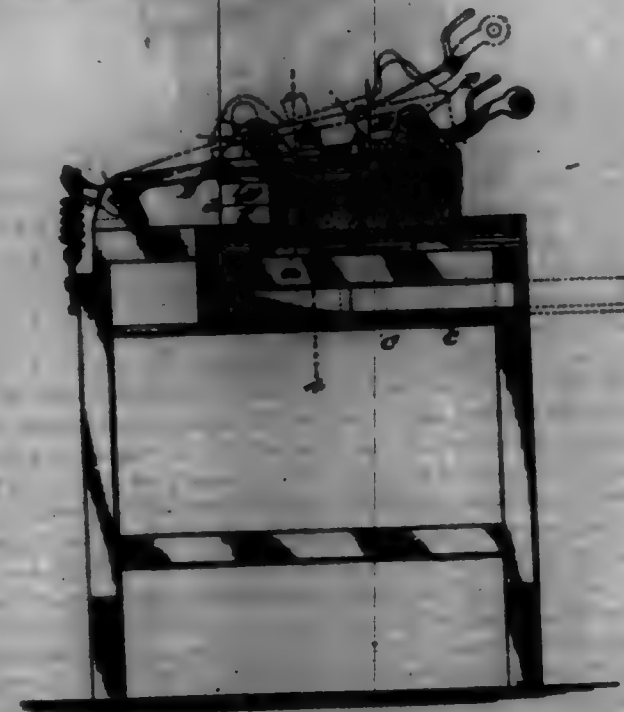
3. In combination in an envelope-printing press, suitable framework adapted to support the operating parts, a power-shaft journaled in said framework, a train of gears adapted to transmit motion from the power-shaft to the operating parts of the machine, a vertical platen secured to the front of the framework, adjustable guides secured to the face of the platen for holding the ends of the envelope while being printed, two fingers, upon the end of which the two lower corners of the envelope are adapted to rest while receiving the impression, means for causing said fingers to spread at a predetermined time to allow the envelope to drop after it has received the impression, means for automatically feeding the envelope from the source of supply to the face of the platen, horizontal slide-bars secured in the framework upon each side of the machine and extending forward, a framework adapted to slide upon said slide-bars, a vertical form-holder secured in or formed with said framework and adapted to reciprocate thereon, a crank-wheel journaled in the framework of the machine and adapted to be constantly revolved, a pitman, one end of which is pivotally connected to said crank-wheel, a stud extending outward from the sliding framework, a circular block journaled concentrically upon said stud, the other end of the pitman being pivoted upon said circular block concentrically-journaled block, an arm extending downward from said block, a cover-threaded rod pivoted to the lower end of said arm and adapted to slide through a lug carried by the sliding framework, two thumb-nuts threaded upon the cover-threaded rod upon each side of the lug for the purpose of allowing the eccentric block to be turned backward or forward for the purpose of regulating the impression, an ink-plate journaled in suitable bearings carried by the sliding framework, means for rotating said ink-plate a short distance upon each backward-and-forward movement of the sliding framework, bell-crank levers pivoted to the sliding framework upon each side of the machine, an arm pivoted to the end of one member of each bell-crank lever, ink-rollers carried by the lower ends of said arms, springs arranged to exert tension so as to keep the ink-rollers in contact with the form or ink-plate at all times, a link pivotally connected to the upper end of the other member of the bell-crank lever, the other end of said link being pivotally connected to the stationary framework of the machine, substantially as described and for the purpose specified.

4. In combination with a machine of the character described, vertical adjustable guides adapted to hold a stack of envelopes, said envelopes being placed within said guides horizontally with the flap downward, ledges formed upon the lower end of said guides upon which the envelopes rest, two rollers arranged one above the other above the platen, means for constantly revolving said rollers in contact with one another, said rollers covering surrounding one or both of said rollers, slide-bars extending rearwardly from the framework of the machine, slides adapted to slide upon said slide-bars horizontally, suitable means for sliding said slides, spring-blades secured to said slides and adapted to reciprocate thereon, the end of said spring-blades adapted to enter between the envelope and the flap thereof when the slides are caused to travel forward and then remove

the lower envelope from the stack and feed the same between the two rolls, a plunger guided in suitable guides, the lower end of said plunger being beveled rearwardly, a spring adapted to exert pressure downward upon said plunger, a cut-cover adapted to limit the upward movement of said plunger, a curved shield arranged in front of the rolls and adapted to deflect the envelope downward and cause the envelope to assume a vertical position within the guides formed on the face of the platen, substantially as described and for the purpose specified.

5. In combination with a machine of the character described, a suitable framework, a vertical platen secured to said framework, vertical guides secured to the face of the platen upon each side thereof, two fingers arranged in front of the lower edge of the platen, the two slide-bars supported in suitable bearings, one of said fingers being adjustably secured to one slide-bar, and the other finger adjustably secured to the other slide-bar, a shaft journaled in suitable bearings on the framework and extending longitudinally of the machine, an arm secured to the forward end of said shaft, two pins secured in said arm one upon each side of the shaft, notches formed in the ends of the slide-bars in which the said pins are adapted to rest, an arm extending upward from the other end of the longitudinal shaft, a roller pivoted to the upper end of this arm, a circular cam journaled in suitable bearings in the framework of the machine and adapted to be constantly revolved, said cam adapted to operate upon the roller and rock the shaft for the purpose of spreading the fingers and allowing the envelope to drop, and a spring adapted to return the parts to their normal position when allowed to do so by the cam, substantially as described and for the purpose specified.

699,687. INK-REMOVER COMPOSITIONER'S HOLDER OR PRINTER. ROBERT D. KILLAM, Boston, Mass. Filed June 12, 1901. Serial No. 64,767. (No model.)



Claim.—1. In a machine of the character specified, the combination of a mold-box for holding formative material, a lever, a die-board carried by the lever having dies or formers, and means for vertically adjusting the die-board upon the lever without changing its inclination.

2. In a machine of the character specified, the combination of a frame having a support at its top for a mold-box upon which the mold-box may be slid from the front of the machine, adjustable means for centering the bar upon said support, a lever pivoted to the frame of the machine, movable upward automatically and downward by hand, a die-board holder carried by the lever and adjustably attached thereto with one varying its inclination and also having means for permitting the placing and removal of the die-board.

3. The combination in a machine of the character specified of a support for a mold-box, a means for holding dies or formers and moving them vertically by hand and one or more vibrations, also hand-actuated, during the movement of the lever.

4. The combination in a machine of the kind described of a frame, a movable mold-box supported by the frame, a lever pivoted to the frame, moved upward automatically and automatically held in elevated position, an adjustable die-board holder mounted on the lever, and a removable die-board carried by said holder.

5. The combination in a machine of the kind described of a lever having two die arms and a connecting-handle of their two ends, an adjustable holder comprising two bars having means for carrying a die-board,

one of which is mounted upon one of the lever-arms and the other upon the other, and means for adjusting the bars upon the arms.

6. The combination in a machine of the character specified of the lever-arms, the holder-bars mounted thereon and connected therewith by means of slotted connections and coupling bolts and nuts.

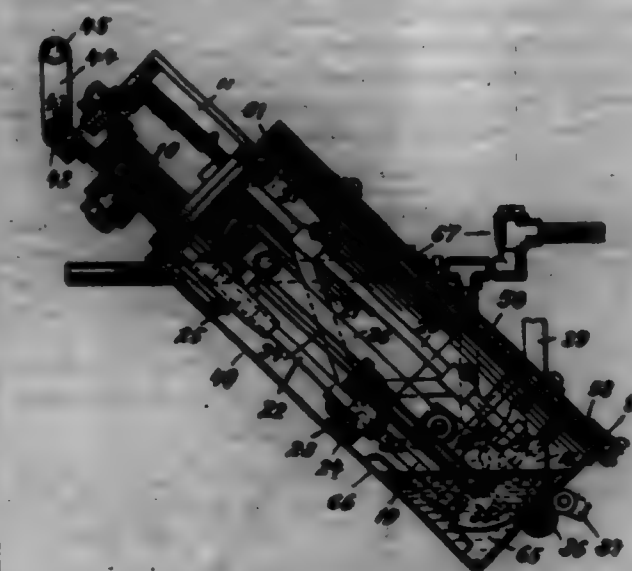
7. The combination in a machine of the character described of the lever, its operating-handle, the vibrator moved in one direction by hand and in a reverse direction by a spring, the die-board holders mounted upon the lever, and the die-board.

8. In a machine of the character specified, the combination of a frame, a mold-box for holding formative material supported on the frame, a lever attached at one end to the frame extending over the mold-box and having a clear motion relatively thereto, and a die-board carrying die or formers mounted upon said lever above said mold-box and movable by said lever toward and from said box.

9. In a machine of the character specified, the combination of a frame, a mold-box for holding formative material mounted upon the frame, a lever attached to the frame and extending over the mold-box and having a clear motion relatively thereto, a die-board carrying die or formers mounted upon said lever and movable thereby toward and from said box, and means for automatically moving said lever and said die-board upward automatically, and for holding them removed from the mold-box.

10. In a press of the character specified, the combination of a mold-box holding formative material and dies or formers mounted upon a lever having a clear motion with respect to the box whereby the molds are progressively formed by the dies and released from the dies and displacement of the material upon the parting of the dies from the molds due to motion avoided.

699,688. LUBRICATOR FOR ENGINES. WILLIAM J. LANE and GEORGE LANE, Poughkeepsie, N. Y. Filed Mar. 12, 1901. Serial No. 61,811. (No model.)



Claim.—1. In combination with an engine-frame carrying an air-pump and a water-pump, an inletting oil-pipe for said frame and pumps, valves for said pumps external to said casing, and means interposed between said valves and pumps for connecting said valves and pumps and preventing the escape of oil from the interior of the casing.

2. A casing for a steam-engine frame, comprising a body portion provided with the flanges 52, packing-rings 54, 56, side plates 51, and cover having the flanges 53.

3. In combination with a vehicle-body, a steam-motor device suspended at an angle below the body, a casing for said motor device, and a body of oil carried in said casing.

4. The combination with a motor-vehicle, of a two-cylinder reciprocating engine suspended at an angle below said vehicle-body, a casing including said engine-frame, a body of oil carried in said casing, and means whereby the body of oil and condensed water within the casing cannot rise above a predetermined level.

699,689. FIRE-RESISTING WINDOW. THOMAS LEE, Hono. Oreg. Filed Dec. 28, 1901. Serial No. 57,678. (No model.)



Claim.—1. In a fire-resisting window, the combination of an outer frame provided with ambryes, an upper and lower sliding sash fitted into

these ways and operatively connected to each other so that movement of one cash effects also the other, the lower cash being heavier than the upper one, so as to have a normal tendency to drop and close, thereby raising and closing also the upper cash, a pull-rope to sustain the cashes in an open position against the action of the heavier cash and a suitable connection connected to this pull-rope.

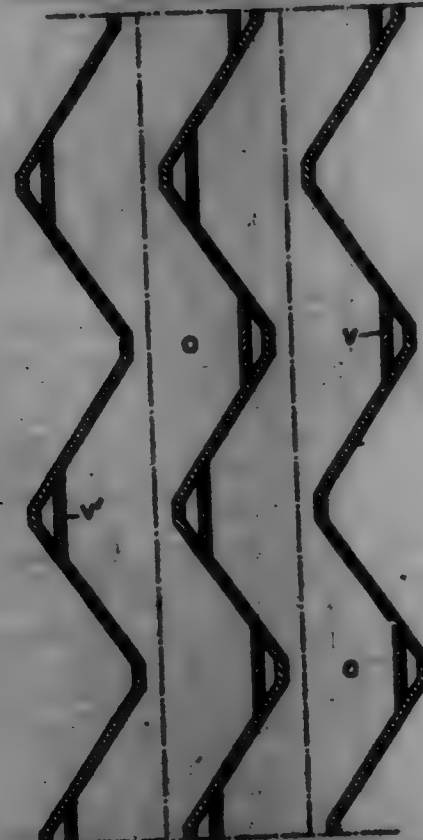
2. In a fire-resisting window, the combination of an outer frame provided with casework, an upper and lower sliding cash fitted into these ways and operatively connected to each other so that movement of one cash effects also the other, the lower cash being heavier than the upper one, so as to have a normal tendency to drop and close, thereby raising and closing also the upper cash, a pull-rope or its equivalent attached to the connected cashes to open them and hold them so, a guide-pulley for this pull device and a support for it, the same being covered within the window-opening in the highest part thereof and of a material susceptible to destruction at a predetermined temperature.

3. In a fire-resisting window, the combination of an outer frame, provided with casework, sliding cash-frames fitted thereto consisting each of four hollow sheet-metal box-frame sections, means to support these cash-frames, rollers carried by them and interposed between their upright members and the casework and springs upon which these rollers are mounted and whereby they are yieldingly held in contact with the casework.

4. In a fire-resisting window, the combination of an outer frame consisting of four sheet-metal box-frame sections, the inner sides and two adjacent ones of the upright sections being integrally connected and formed of one piece, so shaped as to contain the casework, a recess for the parting-strip between them and a cash-guide, the outer side being connected thereto by clamped means and having part of it between its upright edges bent outwardly to form a projecting nose adapted to be engaged by parts of the wall within which this frame is set, thereby holding it in place and cashes fitted to this frame.

5. In a fire-resisting window, the combination of an outer frame, cashes fitted thereto consisting each of four hollow sheet-metal box-frame sections, glass panels obtained by turning the edges of the sheet metal of the cash-frames parallel inwardly thereto and then outwardly again forming flanges and members G closing the bottom of these grooves and being held in place by clamping the flanges mentioned.

699,690. STRUCTURE FOR STORAGE AND DELIVERY OF MERCHANDISE. EDWARD B. LEHRMAN, York, England. Filed July 9, 1901. Serial No. 57,000. (No model.)



Claim.—1. In a structure for the storage and delivery of articles of merchandise a plurality of contiguous compartments having inclined floors, walls for said compartments which alternately approach toward and recede from the median line and form a zigzag path in each compartment and fitting-pieces in the angles of said compartments, substantially as set forth.

2. In a structure for the storage and delivery of articles of merchandise comprising a plurality of contiguous compartments having inclined

floors, a vertically-pivoted wing capable of being folded against the wall of the compartment with which it is used and of being extended into the compartment; a projection from the wing-pivot, a catch connected with the said projection, a longitudinal reciprocable rod having ends thereon adapted to be engaged by the said catches, and means for reciprocating the rod whereby the wing may be positioned to act as a stop or to be folded out of the way, substantially as set forth.

3. In a structure for the storage and delivery of articles of merchandise comprising a plurality of contiguous compartments having inclined floors, an inclined tray common to a series of compartments and having converging sides and an open end, so that articles delivered to the tray from any compartment slide down it and are delivered from the open narrow end, substantially as set forth.

4. In a structure for the storage and delivery of articles of merchandise comprising a plurality of contiguous compartments having inclined floors, a truck having an inclined table thereon with converging sides, adapted to be moved to a series of compartments and to receive goods from them or any of them and to deliver the said goods from its narrow lower end, substantially as set forth.

699,691. STEAM AND OIL SEPARATOR. JOHN T. LINDSTROM, Alhambra, Pa. Filed Nov. 9, 1901. Serial No. 51,728. (No model.)



Claim.—1. A steam and oil separator, comprising a suitable casing, a nest of transversely-arranged bars in the casing laid in vertical series and having spaces between them, the bars of each succeeding layer intersecting the spaces of the layer below, a steam-pipe entering the casing above and discharging below the nest of bars, a steam-box disposed in the upper portion of the casing having inlets in its top, and a steam-outlet pipe leading from the steam-box above the nest of bars.

2. A steam and oil separator, comprising a suitable casing, a nest of transversely-laid bars in the casing placed in vertical series and having spaces between them, the bars of each succeeding layer intersecting the spaces of the layer below, a steam-pipe entering the casing above and discharging below said bars, a steam-box having a perforated cover or top, in the upper portion of the casing, and a steam-outlet pipe leading from the bottom of the steam-box through the wall of the casing.

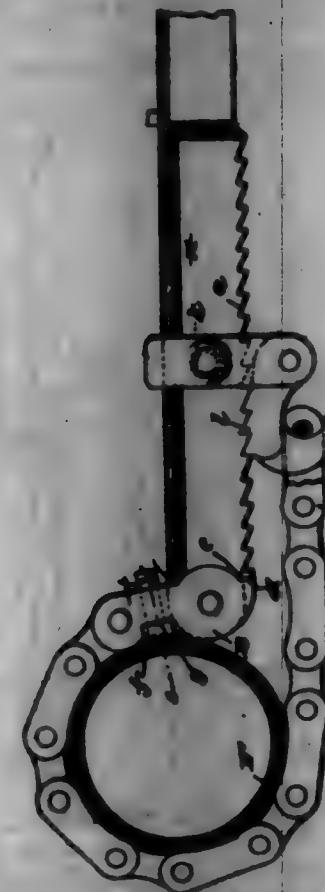
3. A steam and oil separator, comprising a suitable casing, a nest of transversely-laid bars in the casing, conical in cross-section and placed in vertical series with spaces between them, the bars of each succeeding layer intersecting the spaces of the layer below, a steam-pipe entering the casing above and discharging below the said bars, a steam-box in the upper portion of the casing, having a perforated cover, a steam-outlet pipe leading from the steam-box through the casing, and means in the bottom of the casing to draw off the water of condensation and the oil.

4. A steam and oil separator, comprising a casing, separator arranged therein, a steam-pipe discharging beneath the separator, a steam-box disposed in the casing above the separator and provided with steam-inlets, and a steam-discharge leading from the steam-box out of the casing.

699,692. WRENCH. CHARLES C. LOWMAN, Halifax, Canada. Filed Sept. 21, 1901. Serial No. 70,004. (No model.)

Claim.—1. A pipe-wrench comprising a handle toothed at one edge, a pipe-engaging member at one end of said handle, a slide mounted on the handle, a detent pivotally connected to the extended portion of the slide and extending forwardly therefrom, and having the side of its forward portion adjacent to the toothed edge of the handle toothed and also having a hook on said forward portion, and a second pipe-engaging member suitably connected with the handle and having a connection removably engaged with the hook of the detent on the slide.

ing a connection adapted to be placed in engagement with the hook of the detent on the slide.



2. A pipe-wrench comprising a handle toothed at one edge, a pipe-engaging member at one end of said handle, a slide mounted on the handle and extended beyond the toothed edge thereof, and having the transverse portion arranged to engage the edge of the handle opposite to the toothed edge, a detent pivotally connected to the extended portion of the slide and extending forwardly therefrom, and having the side of its forward portion adjacent to the toothed edge of the handle toothed and also having a hook on said forward portion, and a second pipe-engaging member suitably connected with the handle and having a connection removably engaged with the hook of the detent on the slide.

3. A pipe-wrench comprising a handle toothed at one edge, a pipe-engaging member pivotally connected to one end of said handle, a slide mounted on the handle and extended beyond the toothed edge thereof, and having the transverse portion arranged to engage the edge of the handle opposite to the toothed edge, a detent pivotally connected to the extended portion of the slide and extending forwardly therefrom and having the side of its forward portion adjacent to the toothed edge of the handle toothed and also having a hook on said forward portion, and a chain consisting of a second pipe-engaging member, connected at one end to the first-named pipe-engaging member, and provided at its opposite end with a connection adapted to be placed in engagement with and disengaged from the hook of the detent on the slide.

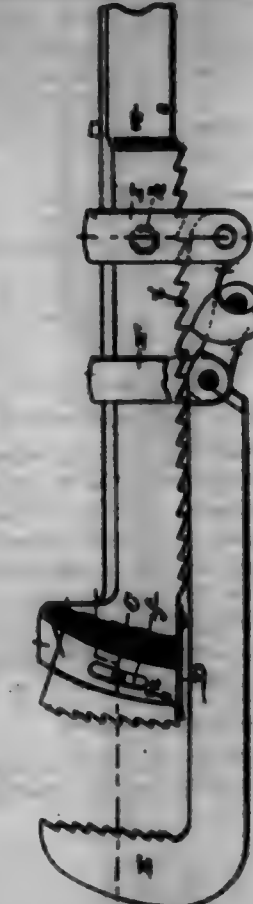
4. A pipe-wrench comprising a handle toothed at one edge, and having its forward and reduced, links pivotally connected to said reduced end and having portions arranged to abut against shoulders of the handle, and also having notches in their forward edges, a toothed dog seated in said notches of the links and having a shank extending between the links, means for securing the shank in the links, a slide mounted on the handle, a hook pivotally connected to the slide and having a toothed edge or side arranged to engage that of the handle, and a chain connected to the links on the handle, and having a connection adapted to be engaged with the hook on the slide.

5. In a pipe-wrench, the combination of parallel links having notches in their edges, a toothed dog seated in said notches and having a shank extending between the links, and means at the back of the links engaging the shank and covering the dog in its seat in the links.

699,693. PIPE-WRENCH. CHARLES C. LOWMAN, Halifax, Canada. Filed Sept. 21, 1901. Serial No. 70,004. (No model.)

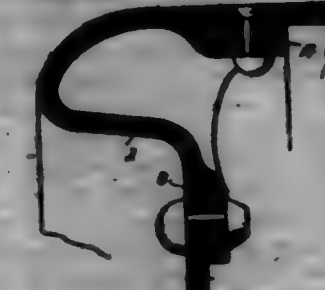
Claim.—1. In a pipe-wrench, the combination of a handle toothed at one edge and having a pipe-engaging member or jaw at its end, forward and rear slides mounted on the handle, a second pipe-engaging member pivotally connected at the rear end of its shank to the forward slide, a link pivotally connected to said shank and the forward slide, and extending rearwardly therefrom, and a hook engaged with the link and

pivotally connected to the rear slide and having its edge or side adjacent to the toothed edge of the handle correspondingly toothed.



2. In a pipe-wrench, the combination of a handle toothed at one edge, a head at the end of the handle having the convex inclined face, and the groove therein, a gripper having a reduced portion curved and adapted to move in the groove of the head, and also having shoulders curved and inclined in conformity to the face of the head, a slide mounted on the handle and extended beyond the toothed edge thereof, and having the transverse portion arranged to engage the edge of the handle opposite to the toothed edge, a link pivotally connected to the extended portion of the slide and extending forwardly therefrom, and having the side of its forward portion adjacent to the toothed edge of the handle toothed, a jaw having a shank disposed at the side of the handle, a slide straddling the handle and connected to said shank, and a connection between the shank and the pivoted and toothed link.

699,694. HAND-ROLLER. CHARLES K. LOWMAN, Brooklyn, N. Y., assignor of one-half to Julian Schell, New York, N. Y. Filed Sept. 7, 1901. Serial No. 74,000. (No model.)



Claim.—1. A hand-roller having a cylindrical face, a pair of heads and hollow annular flanges uniting the face with the heads, said flanges projecting laterally outward beyond the heads and curving inwardly to the face of the roller.

2. A hand-roller comprising a cylindrical face, a pair of heads, and hollow annular flanges uniting the face with the heads, said flanges projecting laterally outward beyond the heads and curving inwardly to the face of the roller, and having internal ribs arranged to brace the flanges radially.

3. A hand-roller comprising a cylindrical face-plate, and a pair of heads secured thereto by hollow flanges, said flanges extending laterally outward from the heads and curving inwardly to the face-plate and being united to said plate by a flush joint.

4. A hand-roller comprising a cylindrical face-plate and a pair of heads secured thereto by radially-braced hollow flanges, said flanges extending laterally outward from the heads and curving inwardly to the face-plate and being united to the face-plate by a flush joint.

5. A hand-roller comprising a cylindrical face-plate, a pair of heads

and separate hollow flanges secured to the heads and face-plate, said flanges projecting laterally outward beyond the heads and curving inwardly to the face-plate, and being secured to said plate by a flush joint.

6. A lead-roller comprising a cylindrical face-plate, a pair of heads and separate hollow flanges secured to the heads and face-plate, said flanges projecting laterally outward beyond the heads and curving inwardly to the face-plate and making a flush joint therewith, and said flanges having internal ribs arranged to brace them radially.

699,695. SNAP-HOOK. BYRON P. MATTHEW, Walton, Iowa. Filed Oct. 18, 1900. Serial No. 33,377. (No model.)



Claim.—A snap-hook comprising the loop 5 continuing to form the recurve hook 1, said hook extending in a plane at right angles to a plane passing through said loop, the cutting 6 provided within the hook and 1, upon the under side, a depression upon the side between the loop 5 and hook 1, the pin 3 passing through said hook 1, within said depression, the sheet-metal tongue 2, secured to said pin 3, the loop 7, secured to said sheet-metal tongue 2, and the spring 4 held within said loop 7, winding about said pin 3, and being secured to said hook near the loop and 5, all arranged substantially as, and for the purpose set forth.

699,696. WINDOW-FARTHER. GEORGE R. MEALIN, Chicago, Ill. Filed Dec. 24, 1901. Serial No. 37,003. (No model.)



Claim.—1. A locking device of the class described, in which is combined a case adapted to be secured to one of the members to be locked, an elbow-shaped locking-dog, pivotally secured therein, a rack upon the counterpart member to be locked, said rack being in position to be engaged by the teeth upon one arm of said locking-dog, a sliding spring-actuated follower-block arranged to wedge beneath the heel of said locking-dog, a horizontal slot having a notch in the upper side of its rear end and a pin or knob upon said follower-block, said pin being projected through said slot and fitted to engage said notch when in an abnormal position.

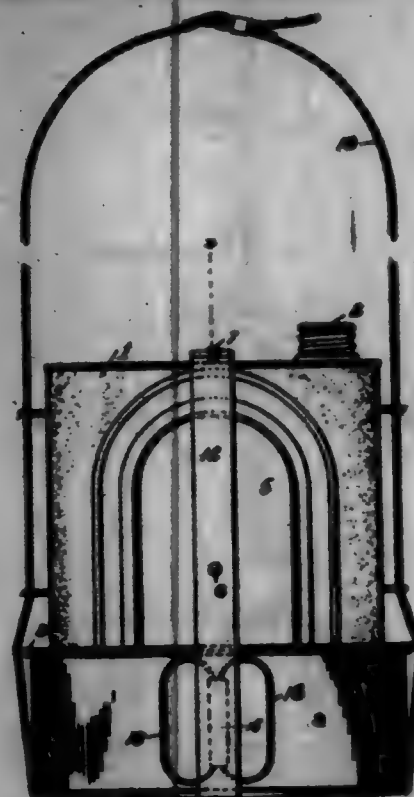
2. A window-frame in which is combined a rack attached to the vertical rail of the upper sash, a lock-case attached to the top of the vertical rail of the lower sash, an elbow-shaped locking-dog pivotally mounted within said case and in position to engage said rack, the heel of said locking-dog being heavier than the engaging arm thereof, a spring-actuated follower-block arranged to slide beneath said heel and means for securing said follower-block in an abnormal position.

3. In a window-further, the combination of a rack attached to the vertical rail of the upper sash, a lock-case attached to the top of the vertical rail of the lower sash, an elbow-shaped locking-dog pivotally mounted within said case in position to engage said rack, the heel of said locking-dog being heavier than the engaging arm thereof, a spring-actuated follower-block arranged to slide beneath the heel of said locking-dog, a pin attached to said follower-block and extending laterally through slots in the case and sash upon the ends of said pin whereby said block may be automatically locked against a backward movement.

4. In a window-further, the combination of a pivoted locking-dog arranged to be moved into an abnormal or unlatched position by the action of gravity, a spring-actuated follower-block for pushing and wedging said dog into a locked position and gravity friction-cams for normally holding said follower-block against a backward movement.

699,697. CARTON. HENRI L. HENRIOT, Salt Lake, Mexico. Filed Aug. 31, 1901. Serial No. 74,067. (No model.)

Claim.—1. The combination with a pan, of a canteen adapted to rest therein, a raised portion upon one face of the canteen, and a cover for the pan adapted to fit upon said raised portion.

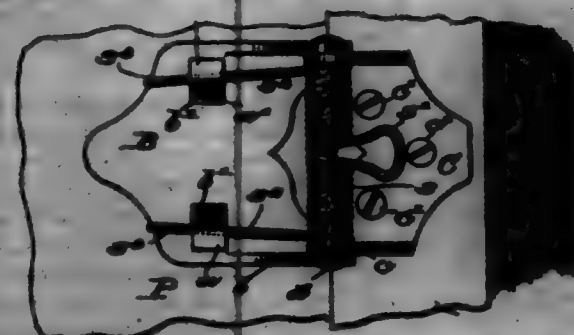


2. The combination with a pan, of a canteen adapted to rest therein, a raised portion upon one face of the canteen, a cover for the pan adapted to fit upon said raised portion, a bottom upon the cover and upon the canteen, and a strap adapted to extend around the pan and canteen and engage the bottom.

3. The combination with a canteen having a raised portion upon one face; of a series of pans of different sizes adapted to rest one within the other, flanges, angular in section, at the edges of the pans, the flange of one pan being adapted to receive the bottom of the next largest, a lid or cover for the pans adapted to fit upon the raised portion of the canteen, and means for securing the canteen and nested pans, together.

4. A device of the character described comprising a series of pans of different sizes adapted to rest one within the other, angular flanges at the edges of the pans, the flange of one pan being adapted to receive the bottom of the next largest pan, a canteen adapted to rest within the nested pans, a raised portion upon one face of the canteen, a lid adapted to fit either upon said raised portion or upon a pan, a strap for securing the pans and canteen together, and a carrying-strap extending under the pans.

699,698. SEPARABLE SCREEN-HINGE. HERMAN W. MURRAY, Milton, Mass. Filed Aug. 7, 1901. Serial No. 71,347. (No model.)

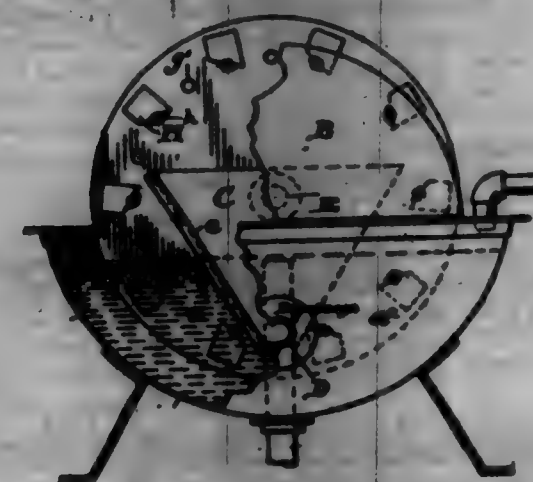


Claim.—1. A separable hinge comprising a portion adapted to be permanently secured to a stationary part, and a portion adapted to be secured to a movable part, the latter portion comprising a plate to be secured to said movable part, and a plate pivoted thereon, said pivoted plate and said permanent portion having interlocking lugs and apertures to receive said lugs, said lugs filling said apertures, said lugs having overhanging portions of projecting toward each other, and means for engaging beneath said lugs against the plates having the apertures for holding the separable parts of the hinge together.

2. A separable hinge comprising two plates pivoted together and a spring for yieldingly holding said plates apart, one of said plates having means for securing it to a door, and the other of said plates having opposite apertures, combined with a detachable plate provided with lugs adapted to fit said apertures, said lugs having overhanging portions for

projecting through said apertures, and said spring having projecting ends adapted to rest beneath said overhanging portions for locking the two parts together.

699,699. MEASURED-FEED APPARATUS. SPENCER E. FOWLER, Sandusky, Ohio, assignor to the Sandusky Portland Cement Company, Sandusky, Ohio, a Corporation of West Virginia. Filed Feb. 4, 1901. Serial No. 33,511. (No model.)



Claim.—1. In a measured-feed apparatus, the combination of a rotatable disk, a plurality of impervious buckets removably carried on one side of said disk and capable of angular adjustment thereon whereby the capacity is regulated, a tub into which said buckets dip in the lower portion of their travel, a hopper within the tub into which said buckets discharge in the upper portion of their travel, and an overflow-pipe for preserving a constant level in the tub, substantially as described.

2. In a measured-feed apparatus, in combination, a metal tub, a hopper formed by a metal plate pivoted to the inner side thereof, a rotatable disk extending into said tub, a shaft carrying said disk, a plurality of removable impervious buckets secured to said disk by arms passing through openings in the disk, an admission-pipe and an overflow-pipe for said tub, substantially as described.

699,700. FLAT-IRON HEATER. WILLIAM F. FENIGAN, Chicago, Ill. Filed Jan. 20, 1901. Serial No. 33,439. (No model.)



Claim.—1. In a gas-stove the combination, with a burner, a housing provided with a plurality of inclined sides, an angular trunk on the base of said housing, a base and a series of rollers supported thereon adapted to engage said trunk, whereby said housing may be rotated.

2. In a gas-stove the combination, with a burner, a housing provided with a plurality of inclined sides, an angular trunk on the base of said housing, a base, a series of rollers supported thereon, adapted to engage said trunk, a lid adapted to cover the top of said housing, and a flame-spreader depending from said lid and immediately over said burner.

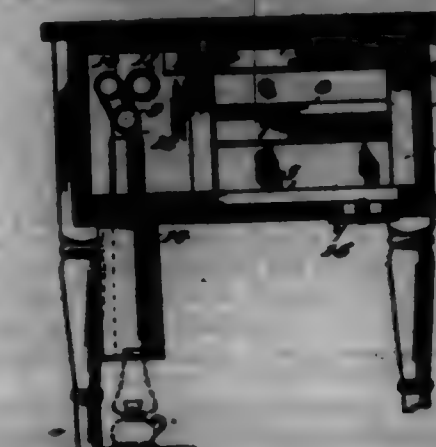
699,701. RATCHET-DRILL STOCK AND SUREW-DRIVER. HENRY HOBBS, Cambridgeport, Mass. Filed Feb. 12, 1900. Serial No. 33,304. (No model.)

Claim.—The herein-described ratchet-drill stock, consisting in combination a tongue or handle H, a ratchet extension G, G', attached to or made integral with the part H, a blade D, secured to said ratchet extension, a pair of plates F, F', secured to the blade D, a cogwheel I journaled on said plates and having secured to it a ratchet-wheel L, and provided with a fixed-curve Q, a pivot-carrier K pivoted to said plates and provided with parts E and N, adapted to be swung into engagement with the ratchet-wheel I and provided with a spring M, for holding either of said parts in engagement with the ratchet-wheel I, substantially as and for the purpose set forth.

699,701.



699,702. KITCHEN-CABINET. JOHN P. FALAMINE, Fredericks, Wis. Filed Jan. 4, 1902. Serial No. 34,433. (No model.)



Claim.—1. In a kitchen-cabinet, a compartment, a bank of pipes located within the compartment and connected in alternation at opposite ends, the end pipes of the series extending through opposite ends or walls of the cabinet, and a vertical pipe connected centrally with the lowermost pipe of the horizontal series for supplying either hot or cold air thereto, substantially as set forth.

2. In a kitchen-cabinet, a compartment having an opening in its bottom, a series of horizontal pipes located within the structure and connected in alternation at opposite ends, the end pipes of the series extending through opposite walls of the cabinet, a vertical pipe connected with the lowermost pipe of the horizontal series at a point mid-way of its ends, and a second pipe surrounding the said vertical pipe and in line with the opening in the bottom of the cabinet and adapted to supply fresh air thereto, substantially as set forth.

3. The herein-described kitchen-cabinet comprising a compartment or box-like structure mounted upon legs and having an opening in its bottom, a central support within the compartment, upper and lower grates, a series of horizontal pipes located in the rear of the compartment and connected at opposite ends in alternation, the end pipes of the series extending through opposite ends of the compartment, a vertical pipe connected with the lowermost horizontal pipe and extending through the bottom of the compartment and adapted to receive the upper portion of a lamp-chimney, and a second pipe surrounding the vertical pipe and in line with the opening in the bottom of the compartment and terminating

about in the plane of the top side thereof, substantially as and for the purpose set forth.

699,708. MAGAZINE-FIREARM. SAMUEL PARSONS, Kansas City, Mo. Filed Dec. 12, 1891. Serial No. 65,893. (No model.)



Claim.—1. In a firearm, a compound magazine mounted rotatably below the barrel, two sets of pointed projections secured on the magazine, said projections in one set being pointed toward the projections in the other set, and the number of said projections in each set corresponding to the number of barrels or tubes in the magazine, an action-slide comprising a sleeve embracing the portion of the magazine having said projections thereon, said sleeve being movable longitudinally on the magazine but not rotatable, two sets of pointed projections secured within said sleeve, the projections in said sets pointing oppositely, and lying between the abutting pointed projections on the magazine, the projections in said sleeve being so arranged that when said sleeve is moved in one direction over the magazine, one set of projections in said sleeve will engage the corresponding set of projections on the magazine, and will thereby partially rotate the magazine, and when said sleeve is moved in the opposite direction over the magazine, the other set of projections in said sleeve will engage the other set of projections on the magazine, and will thereby further rotate the magazine; substantially as and for the purpose described.

2. In a firearm, an action-slide having a rearward extension, a block secured to said action-slide, a notch 51 in the upper face of said block, a hammer having a cam portion 36', a slide-lock consisting of a forwardly-extending catch mounted pivotally below the hammer, said catch being adapted to engage said notch in said block and an extension of said catch arranged to be depressed by said cam portion of the hammer when the hammer is closed, thereby holding said catch disengaged from said notch to permit said action-slide to be moved forward; substantially as described.

3. In a firearm, an action-slide having a rearward extension, a block secured to said action-slide, said block having an inclined rear face, a notch 51 in the upper face of said block, a hammer having a cam portion 36', a slide-and-hammer lock comprising a forwardly-extending catch and a rearwardly-extending portion having a heel or detent 48 thereon, a notch 47 in the rear face of said cam portion of the hammer, a pivot-pin extending through said slide-and-hammer lock between said catch and said rearwardly-extending portion; the action of said parts being that when said slide and block are moved back, the inclined rear face of said block will raise said catch and thereby disengage said detent 48 from said notch 47, thereby permitting the hammer to fall when released by the trigger; substantially as described.

4. In a magazine-firearm, the combination, with the receiver, of an action-slide having a rearward extension, a block secured thereto, said block having an inclined front face, a cartridge-opening 10 in the front wall of the receiver, a carrier having a cartridge-pocket 29 and an inclined lower face 29, a lever, a link connecting the lower end of said le-

ver to said block, said lever lying partly between the arms of said carrier, and pins projecting from the upper end of said lever, whereby the forward motion of said block raises said carrier to register with the bore of the barrel, while the backward motion of said block moves the upper end of said lever obliquely downwardly, causing said pins to follow the arms of said carrier down until the cartridge-pocket in the receiver registers with said cartridge-opening in the front wall of the receiver; substantially as described.

5. In a magazine-firearm, an action-slide having a rearward extension, a block secured to said extension, a link pivotally connected to said block, a breech-bolt provided with depending legs, arranged to form a vertical slot therebetween, and a lever having its upper end extending into said slot and its other end pivotally connected to said link, whereby movement of said slide in either direction will move said breech-bolt in the opposite direction, substantially as described.

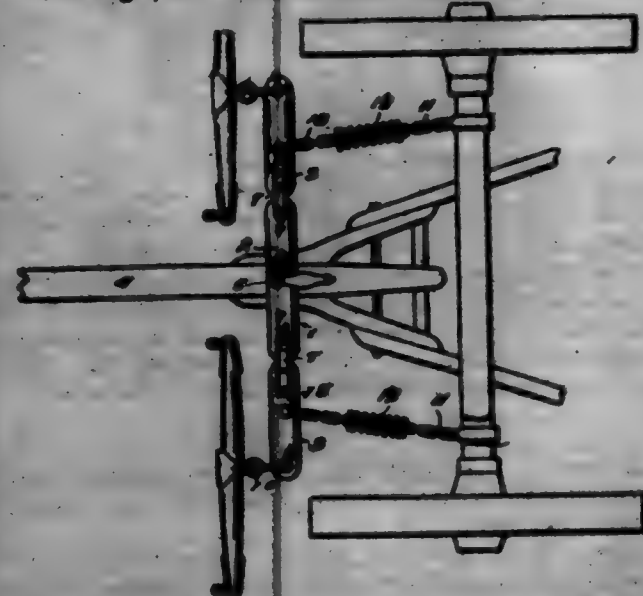
699,704. VALVE-OPERATING MECHANISM FOR WARE-HOUSES. EDGAR R. PARSONS, Moorhead, Iowa. Filed Nov. 9, 1901. Serial No. 61,732. (No model.)



Claim.—1. The combination with a basin provided with an outlet orifice, of a valve seated therein; a valve-stem projecting from said valve; a removable plate provided with an upturned lip at one end; a lever fulcrumed at the other end of the plate and adapted to rest on the lip; an eye formed intermediate the lever and adapted to engage the stem of the valve whereby the same may be actuated to close or open the outlet-orifice.

2. A stopper mechanism for basins comprising a plate having upwardly-projecting legs or ears on one end; a lever fulcrumed to said ears consisting of a single piece of wire bent to engage the fulcrum; thence bent to form an eye intermediate the ends of said lever and terminating in a handle; of a valve-stem connected to the intermediate eye of the lever; and a valve on the other end of said valve-stem.

699,705. WAGON-GEAR. GEORGE H. PERRY, Franklin, Tenn. Filed Aug. 2, 1901. Serial No. 71,362. (No model.)



Claim.—The combination with a running-gear, of a double-throw composed of a centrally-pivoted central section extending from opposite sides of the tongue, and the independently-movable and stationary pivots connected to the ends of the central section and capable of moving backward and forward simultaneously to permit both horses to move backward and forward simultaneously to points to advance and in rear of the pivot point of the central section in pulling and backing, and the stay-chains

connecting the end sections of the double-throw with the running-gear and provided with cushioning-springs and adapted to permit such independent movement of the said end sections, substantially as described.

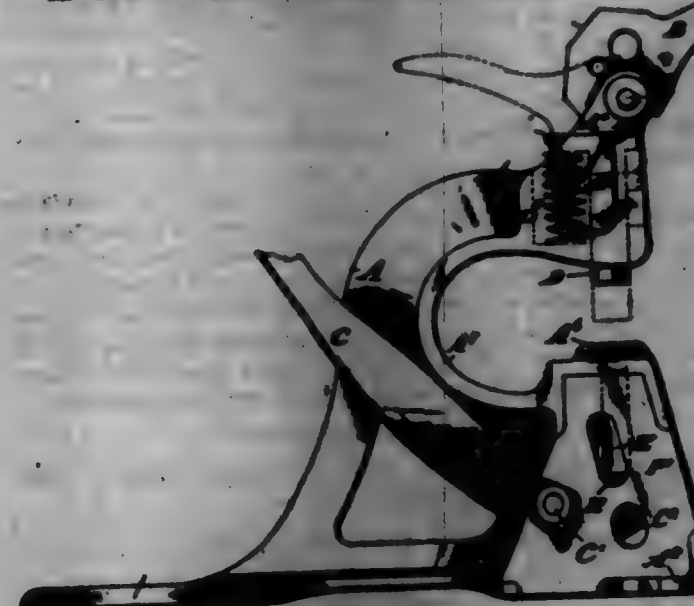
699,706. FAN. CHARLES B. FISKE, Cleveland, Ohio. Filed July 14, 1901. Serial No. 62,600. (No model.)



Claim.—1. A folding fan comprising a series of sections comprising ribs and web-sections, the ribs expanding when the fan is opened in one direction and two of the ribs of each two sections coming together and held in place by opposite folds of the web-sections therebetween when the fan is opened in an opposite direction to produce a continuous web, substantially as set forth.

2. In a folding fan comprising two sets of ribs, even and odd alternately arranged and web-sections, the latter being attached to the even and reverse sides of even and odd ribs in successive order, whereby when the fan is opened in one direction the sections will separate and when opened in the opposite direction a continuous web will be produced, substantially as set forth.

699,707. RIVETING-MACHINE. HENRY C. FENNERTY, Chicago, Ill. Filed Oct. 26, 1900. Serial No. 34,981. (No model.)



Claim.—1. In a riveting-machine, the combination with a slidable die, of a device mounted above the die having independent means for moving the same in one direction successive distances relative to different lengths of rivets, and a plunger having a fixed length of travel and adapted to cooperate with said die; substantially as specified.

2. In a riveting-machine, the combination with a movable die, of a device mounted above the die for moving the same in one direction and having a series of contact-faces at different distances from a fixed point relative to different lengths of rivets, a plunger adapted to cooperate with said die and having a fixed length of travel, means for retracting said die in the reverse movement of the advancing device, and means for retracting said plunger and its operating-lever when pressure is relieved from the same; substantially as specified.

3. In a riveting-machine, the combination with a casing or housing, of a movable die, an adjustable device adapted to contact with said die having a series of faces disposed at different distances from a pivotal point relative to different lengths of rivets and adapted to be successively brought into contact with said die, and a movable plunger cooperating with said die; substantially as specified.

4. In a riveting-machine, the combination with a casing or housing, of a movable die, an adjustable device adapted to contact with said die having a series of faces disposed at different distances from a pivotal point relative to different lengths of rivets and adapted to be successively brought into contact with said die, a movable plunger cooperating with said die, a spring for retracting said die, a spring for retracting said plunger, an operating-lever pivoted in said casing and having a projection adapted to engage and move said plunger; substantially as specified.

5. A casing for a riveting-machine having a horizontally-disposed base portion, a casing disposed at the forward end of said base, an operating face at the upper portion of said casing, a neck provided with pivoting-ears and extended over said operating face, a stop-rib disposed at one side of said neck, a rearwardly-extending base portion, and a rib deflecting laterally from the center of said neck to one side of said base; substantially as specified.

6. In a riveting-machine, a casing or housing provided with a casing at its forward portion and pivoting-ears above said casing, an adjustable die slidably mounted between said ears, a cam device pivoted at the upper portion of said ears and provided with a series of faces at different distances from the pivot, relative to different lengths of rivets, a spring for retracting said die, and a plunger for cooperating with said die; substantially as specified.

7. In a riveting-machine, a casing or housing provided with a casing at its forward portion and pivoting-ears above said casing, an adjustable die slidably mounted between said ears, a cam device pivoted at the upper portion of said ears and provided with a series of faces spaced from said pivot at distances relative to different lengths of rivets, a spring for retracting said die, a plunger slidably mounted at the upper portion of said casing, a spring for retracting said plunger, an operating-lever pivoted to said casing and provided with a projection lying beneath said plunger; substantially as specified.

8. In a riveting-machine, the combination with a movable die, of a pivoted cam device having a series of flat faces spaced from the pivot at distances relative to different lengths of rivets adapted to bear against a portion of said die to advance the same to different degrees, and a plunger having a fixed length of travel; substantially as specified.

9. In a riveting-machine, the combination with a casing or housing provided at its forward portion with a casing and a neck having pivoting ears or legs, of a die slidably mounted between said ears and having a transverse head, a retracting-spring disposed between said head and casing, an adjusting-cam device pivoted above said die and having a series of flat faces spaced from the pivot at distances relative to different lengths of rivets, a plunger slidably mounted in said casing beneath said die, a laterally-extending head to said plunger, a spring disposed between said head and casing, and an operating-lever pivoted to said casing and provided with an arm beneath said plunger; substantially as specified.

10. In a riveting-machine, the combination with a casing or housing provided at its forward portion with a casing and a neck having pivoting ears or legs, of a die slidably mounted between said ears and having a transverse head, a retracting-spring disposed between said head and casing, an adjusting-cam device pivoted to said ears above said die and having a series of flat faces spaced from the pivot at distances relative to different lengths of rivets, a plunger slidably mounted in said casing beneath said die, a laterally-extending head to said plunger, a spring disposed between said head and casing, an operating-lever pivoted to said casing and provided with an arm beneath said plunger, a stop-rib extending from the casing above the outer end of said plunger-lever, a cover-plate for said casing, a bolt for said operating-lever passing through the casing, lever and cover-plate, and a projecting arm at the base of said casing lying beneath the extended free end of the plunger-operating lever, substantially as specified.

699,708. TOOL-HOLDER. CHARLES F. FENNERTY, Chicago, Ill. Filed July 26, 1901. Serial No. 62,704. (No model.)



Claim.—1. A tool-holder, comprising a casing, a slide movable in said casing and adapted to project at its forward end therefrom, the said forward end of the slide being retained and forced with a beveled top for engaging the tool and pressing the same against a correspondingly-beveled wall of the casing, as set forth.

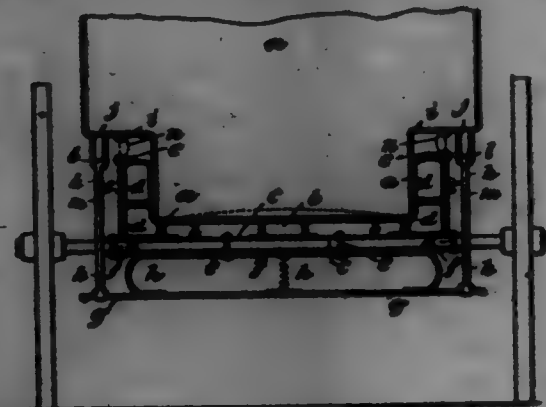
2. A tool-holder, comprising a casing, and a slide having a rectangular body portion fitted in the opening of the casing, the forward end of said slide being retained and the top of said retained portion being beveled inward and downward, opposite a corresponding level in the top wall of the casing, the said retained end of the slide being adapted to be moved into an outermost position to permit of the insertion of a tool between said beveled surfaces, as set forth.

3. A tool-holder, comprising a casing, a slide movable in the casing, one face of said slide at one end being beveled inward opposite a corresponding level in the wall of the casing, and a set-screw extending through the wall of the casing and engaging the slide.

4. A tool-holder, comprising a casing, a slide movable therein, the slide having one end retained, the top of the retained portion being beveled inward and downward opposite a corresponding level in the top wall of the casing, and a set-screw engaging in the casing against the

bevel on the side, to lock the latter in place after adjustment is made, as set forth.

699,709. ELASTIC SUPPORT FOR VEHICLE. ARTHUR F. MANN, London, England. Filed Dec. 3, 1903. Serial No. 94,497. (No model.)



Claim.—1. In a vehicle, the combination with a supporting axle, of a box-shaped frame carried thereby, a body extending within said frame, cushioning devices located between the vertical walls of the frame and the vertical walls of the body, and independent cushioning devices between horizontal portions of the frame and horizontal portions of the body, substantially as described.

2. In a vehicle, the combination with the axle, of a suitable frame including vertical side members, a body having a portion depending within said side members, cushion devices beneath said body for yieldingly supporting the same, and independent cushion devices between said side members and the depending side portions of the body, substantially as described.

3. In a vehicle the combination with the supporting axle, of a suitable frame secured thereto, having vertical side walls or portions, a body having a portion seated within said side walls, cushion devices interposed between said frame and body, cushion devices interposed between said body and said side walls, a platform beneath the axle, connections between said platform and the body, and cushion devices between said platform and the frame, substantially as described.

4. In a vehicle, the combination with the supporting axle, of a suitable frame secured thereto, having vertical side walls or portions, a body having a reduced portion depending within said side walls, cushion devices interposed between the bottom of said reduced portion and said frame, a platform beneath the axle connections between said platform and body, and cushion devices between said platform and the frame, substantially as described.

5. In a vehicle, the combination with the supporting axle, of a suitable frame secured thereto, a body having a reduced portion or bottom located in proximity to said frame, a platform located beneath the axle and frame, cushion devices located between said reduced body-bottom and frame and between the frame and platform, and tie-rods connecting the enlarged portions of the body with the platform, substantially as described.

6. In a vehicle, the combination with the supporting axle, of a suitable frame secured thereto, a body having a reduced portion or bottom located in proximity to said frame, a platform located beneath the axle and frame, cushion devices located between said reduced body-bottom and frame and platform and frame, and tie-rods connecting the enlarged portions of the body with the platform, said tie-rods having universal joint connections with the body and platform, substantially as described.

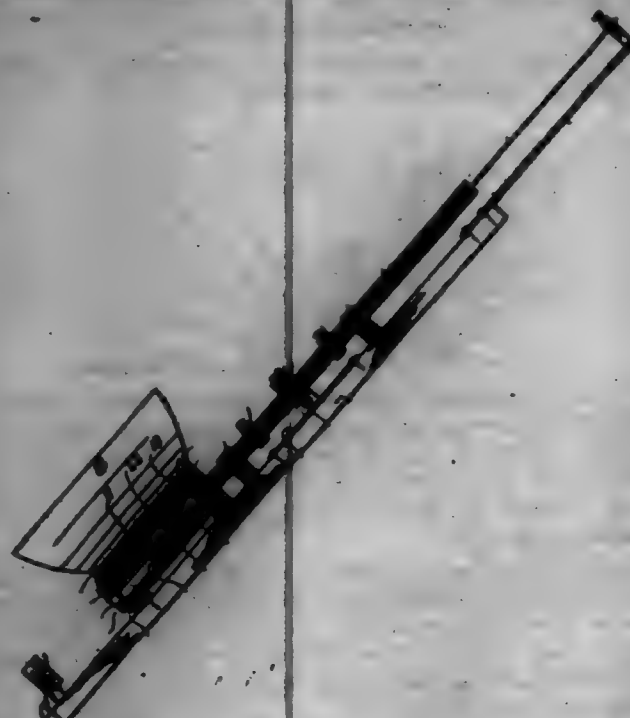
7. In a vehicle, the combination with the supporting axle, of a frame carried thereby, an elongated pneumatic cushion seated on said frame, a body having its bottom supported on said cushion, a platform beneath the axle, tie-rods connecting the platform with the body, and an elongated pneumatic cushion interposed between the frame and platform substantially as described.

8. In a vehicle the combination with the supporting axle, of a box-shaped frame carried thereby having vertical side walls, of a body having a portion depending within said side walls, an elongated pneumatic cushion between the bottom of the body and the frame, and independent pneumatic cushions between the sides of said body and the vertical walls of the frame, substantially as described.

699,710. CORE-MOLDING MACHINE. JAMES H. FROST, JR., Chicago, Ill. Filed Jan. 11, 1909. Serial No. 95,399. (No model.)

Claim.—1. A core-molding machine, comprising a frame, a tube secured in said frame and open at its ends, a rod extending longitudinally within said tube, means for supplying core material to said tube, and a plunger longitudinally slidable within said tube and along said rod and

adapted to force said material through said tube, said plunger having its forward end inclined so as to force said material upwardly and thereby prevent the formation of cavities in the upper part of the core.



2. A core-molding machine, comprising a frame, a tube secured to said frame and open at its ends, a rod extending longitudinally within said tube, means for supplying core material to said tube, and a plunger longitudinally slidable within said tube and along said rod and adapted to force said material through said tube, said plunger having an aperture extending longitudinally through same and adapted to receive said rod, and having a second aperture separated from the other and adapted to permit the passage of a stiffening wire through said plunger longitudinally of the core.

3. In a core-molding machine, the combination of a frame, a tube secured to said frame, a hollow shaft slidably mounted in said frame in alignment with said tube, a plunger secured to said shaft, forcing said tube and longitudinally slidable therein, a rod secured to said frame and extending longitudinally through said shaft and plunger and into said tube a considerable distance beyond said plunger, means for supplying core material to said tube, and means for causing said shaft to reciprocate longitudinally of said tube and force said material through same.

699,711. FIRE-HOOK. JAMES H. FROST, JR., Chicago, Ill. Filed Mar. 10, 1909. Serial No. 97,512. (No model.)



Claim.—1. In a device of the class described, the combination of three hooks secured together at the shanks thereof, the planes of said hooks being approximately equidistant, and the points of said hooks projecting inwardly and lying approximately in the axial line of the device.

2. In a device of the class described, the combination of three hooks lying in approximately equidistant planes with the points of said hooks projecting inwardly; and means for securing said hooks together at different lengths, the head of one hook lying nearer the common joint than the point of the next longer hook.

3. In a device of the class described, the combination of hooks joined at the upper ends of their shanks and having their points projecting inwardly; and a guard secured to the shanks of the hooks near the joint thereof, said guard being trained toward the points of said hooks for preventing access of weeds thereto.

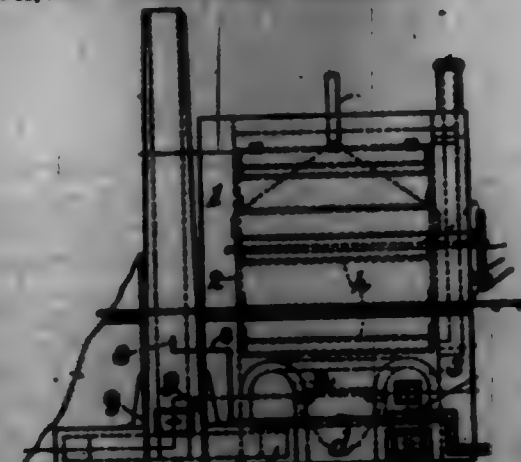
4. In a device of the class described, the combination of hooks joined at the upper ends of their shanks and having their points projecting in-

wardly; a guard secured to the shanks of said hooks; and a support for supplementing the stiffness of said guard to maintain the same distended.

5. In a device of the class described, the combination of hooks joined at the upper ends of their shanks and having their points projecting inwardly; a guard of fibrous material fastened to the shanks of said hooks near the joint thereof and trained toward the points of the hooks; and a flexible core secured to and extending the shanks of said hooks, said core lying beneath said guard to support the same.

6. In a device of the class described, the combination of three hooks joined together at the shanks thereof, the planes of said hooks being approximately equidistant and the points of said hooks lying approximately on the axis of the device, and said hooks being of different lengths, the head of any one of said hooks lying nearer the upper end of the device than the point of the next longer hook; a guard secured to the shanks of said hooks and extending toward the points thereof; and a collapsible support beneath said guard for normally maintaining the same in a distended condition.

699,712. OVEN. FRANK RABENHAGEN, Los Angeles, Cal. Filed Nov. 15, 1901. Serial No. 62,771. (No model.)



Claim.—1. An oven having a heat refractory fire-chamber inside the oven-chamber furnished with passages opening directly from the tunnel into the oven; a burner for producing fire at one end of the tunnel, an air-inlet being provided below said burner; means for controlling the burner; a chimney; a flue opening from the fire-chamber at the end opposite the burner and leading to the chimney; means for controlling the passage through said flue; and means for forcing a draft through said chimney; said oven being provided with draft-opening; whereby the oven can be alternately heated and cooled.

2. An oven provided with a perforated tunnel, means for supplying heat to the tunnel, and means communicating with the tunnel for drawing air therethrough to cool the same.

3. A ventilated oven provided with a perforated tunnel, an oil-burner at one end of the tunnel, and means communicating with the other end of the tunnel for drawing air therethrough to ventilate the same.

699,713. PLASTIC COMPOUND AND THE METHOD OF MANUFACTURING SAME. LEONARD E. RABENHAGEN, NEWARK, N. J., assignor of three-fifths to LEONARD E. RABENHAGEN and LEONARD E. RABENHAGEN, NEW YORK, N. Y. Filed Sept. 8, 1907. Serial No. 71,446. (No model.)

Claim.—1. The plastic compound herein described, consisting of varnish, rosin, put and oil, substantially as set forth.

2. The plastic compound herein described, consisting of varnish, rosin, put and oil, and a coloring-matter of the desired shade and quantity, substantially as set forth.

3. The plastic compound herein described, consisting of substantially equal parts of varnish, rosin and put and from ten to twenty per cent. of oil, substantially as set forth.

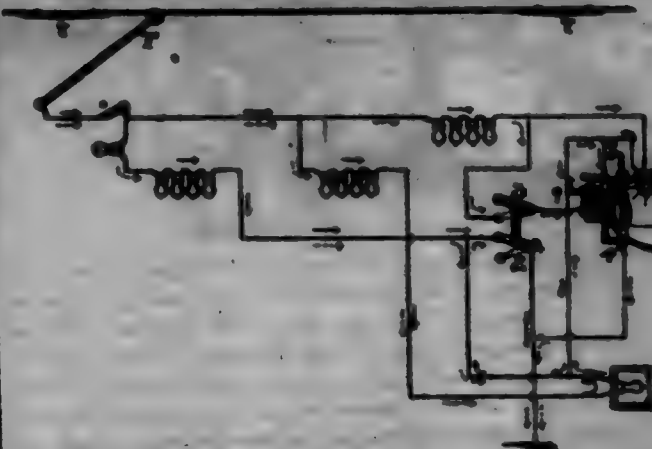
4. The plastic compound herein described, consisting of substantially equal parts of varnish, rosin and put and from ten to twenty per cent. of oil, and a coloring-matter of the desired shade and quantity, substantially as set forth.

5. The method of manufacturing the plastic compound herein specified, consisting in taking equal parts of varnish, rosin and put, thoroughly mixing the same and allowing the material to dry, breaking up the compound and then heating the same until hot, adding thereto in the hot condition from ten to twenty per cent. of oil, and thoroughly incorporating the same with the other ingredients, placing said material in an oven or suitable heater, drying the same, breaking up and grinding the said material into a fine consistency to prepare the same for molding into the desired form, substantially as set forth.

6. The method of manufacturing the plastic compound herein specified, consisting in taking equal parts of varnish, rosin and put, thoroughly

mixing the same and allowing the material to dry, breaking up the compound and then heating the same until hot, adding thereto in the hot condition from ten to twenty per cent. of oil, and a coloring-matter of the desired shade and quantity, and thoroughly incorporating the same with the other ingredients, placing said material in an oven or suitable heater, drying the same, breaking up and grinding the said material into a fine consistency to prepare the same for molding into the desired form, substantially as set forth.

699,714. HEADLIGHT FOR MOTOR-CARS. CHRISTIAN REINER, Cleveland, Ohio. Filed Feb. 11, 1901. Serial No. 63,969. (No model.)



Claim.—1. In motor-car, an arc-lamp having magnet-controlling mechanism, in combination with electrical circuits for said lamp having trolley-wire and trolley-pole connections for conveying the current, and non-conducting sections on said trolley-wire to automatically cut off the current-supply and thereby operate said magnet-controlling mechanism, substantially as described.

2. A headlight for cars having an arc-lamp with magnet-controlling mechanism, in combination with a series of inductance lamps for lighting the car, trolley-wire and trolley-pole with circuits leading to said inductance lamps and arc-lamps, and non-conducting sections on the trolley line-wire to cut off the current at intervals whereby said arc-light-controlling mechanism is actuated, substantially as described.

3. A headlight for cars having both an arc-lamp and an inductance lamp, in combination with electrical circuits for said lamps having trolley-wire and trolley-pole connections for conveying the current, and non-conducting sections on said trolley-wire to cut off the current-supply at intervals, substantially as described.

4. In motor-car, the combination of a trolley-wire, trolley-pole, and non-conducting sections on said wire to break the flow of current, with a headlight having a series of arc-lighting lamps, and means to switch either of said arc-lighting lamps into said circuit, substantially as described.

5. In arc-lamps, a supporting-bracket for both carbons, a magnet and an armature controlled thereby and a shroud pivoted on one end of said armature and a post in which the shroud slides, and a spring arranged to pull the armature away from the magnet, substantially as described.

699,715. DISPLAY DEVICE FOR BOOKS. HENRY BROWN, Chicago, Ill. Filed Mar. 3, 1909. Serial No. 97,392. (No model.)



Claim.—The combination in a display device for books of a plurality of hollow polygonal posts, each of said posts being formed from a single flat sheet-metal blank, the base of the posts being bent on longitudinal lines of the blank and having base portions corresponding in number to the sides or faces of the post, each of said base portions being bent outwardly at right angles to said face, prongs integral with said base portions, and a main supporting-body through which said prongs are extended and beneath which they are bent in a plane parallel to said base portions respectively.

699,716. FLOW. JOHN GARDNER, Dundee, Tex. Filed Nov. 9, 1901. Serial No. 63,399. (No model.)

Claim.—1. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, and a share secured to the forward ends of the blades and spanning the joint therebetween, whereby the share forms a base connection between the blades, the forward end of the share being formed into a plow-point, and its rear end being projected rearwardly between the blades and bowed upwardly to form a deflector or moldboard.



2. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, and a share secured to the forward ends of the blades and spanning the joint therebetween, whereby the share forms a connection between the blades, the forward end of the share having its opposite longitudinal edges bowed forwardly to form a point which projects in front of the blades, and the rear end of the share being projected between the blades and twisted upwardly and laterally, one rear corner of the twisted portion being cut away diagonally.

3. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, a share secured to the forward ends of the blades and spanning the joint therebetween, whereby the share forms a connection between the blades, the forward end of the share being formed into a plow-point, the rear end of the share being extended rearwardly between the blades and bowed or twisted upwardly to form a moldboard, and the intermediate portion of the blade having an opening extending through the joint between the blades for the reception of a fastening for connection with a plow-standard.

4. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, an attaching-base secured to the under side of the blades and overlapping the joint between the blades, and a share secured to the upper sides of the blades and overlapping the outside of the said joint, the forward end of the share being formed into a plow-point, and the rear portion thereof being extended rearwardly and bowed upwardly to form a moldboard, and a fastening device piercing the share and the attaching-base.

5. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, an attaching-base secured to the under sides of the blades and overlapping the joint therebetween, a share secured to the upper sides of the blades and overlapping the said joint, the forward end of the share being formed into a plow-point, and the rear portion thereof being extended rearwardly and bowed upwardly to form a moldboard, and a fastening device piercing the share and the attaching-base.

6. A plow, comprising a pair of rearwardly-diverged blades having their forward ends mitered and abutted, an attaching-base having rearwardly-directed members secured to the under sides of the respective blades and provided with a forwardly-directed portion overlapping the under side of the joint between the blades, a share secured to the upper sides of the blades and overlapping the joint therebetween, the forward portion of the share being formed into a plow-point and the rear portion being shaped into a moldboard, and a fastening piercing the share and the rearwardly-directed portion of the attaching-base.

7. A plow, comprising rearwardly-diverged blades, and a base or attaching-frame having substantially parallel members to embrace a standard and located below and projected in rear of the intersected front ends of the blades, and rearwardly-diverged wings projected from the front ends of the members, said wings fitting snugly against the under sides of the blades, and the latter being connected to the wings.

8. In a plow, the combination of rearwardly-diverged blades, a point secured to the intersected ends of the blades, and an attaching base or frame therefor comprising spaced rearwardly-projected members located below the front portions of the blades, and having rearwardly-diverged wings fitting snugly the under sides of the blades, one of the members having a front projection fitting snugly in the angle between the intersected blades, and fastenings connecting the blades to the wings and the point to the front projection of the base or attaching-frame.

9. In a plow, the combination of rearwardly-diverged blades having their front ends mitered and abutted, a share applied to the upper sides of the abutted ends of the blades, the forward end of the share being projected in front of the blades and formed into a point, and the rear portion

of the share being extended rearwardly between the blades and bowed upwardly and laterally to form a deflector or moldboard, one rear corner of the upturned portion being cut away, and a base or attaching-frame, comprising a pair of substantially parallel members located below the forward ends of the blades and having rearwardly-diverged wings projected from the forward ends of the members and fitting snugly the under sides of the respective blades, one of the members having a forward extension fitting the angle between the blades, a fastening piercing the share and the forward projection of the base, and other fastenings connecting the blades to the wings.

699,717. STELLER. San G. STELLER, Chicago, Ill. Filed July 24, 1901. Serial No. 90,000. (No model.)



Claim.—1. A sterilizer comprising a receptacle having double walls including a passage; a boiler completely closed except at its periphery where said boiler communicates with the passage between said walls, and tubes passing through said boiler for the admission of heated gas into said receptacle.

2. In a sterilizer the combination of a receptacle having double walls including a passage, a boiler closed to the atmosphere and communicating with said passage, a set of tubes extending through said boiler for conducting the heating-gas directly through said boiler without deflection into said receptacle and a distributing-plate within said receptacle for spreading said gas after the latter have been introduced within said receptacle.

3. In a sterilizer, the combination of a receptacle consisting of an inner and an outer vessel including a vertically-arranged passage, said passage having openings at the top thereof connecting with the interior of the inner vessel, a boiler beneath said receptacle, the outer wall of said boiler joining the outer wall of said receptacle to thereby prevent the escape of steam directly from said boiler to the atmosphere, said boiler opening into said vertical passage; a set of boiler-tubes extending through said boiler for conducting the heating-gas directly through said boiler into said receptacle, and means for detachably attaching said boiler to said receptacle.

4. In a sterilizer, the combination of a receptacle having double walls including a passage, a boiler beneath said receptacle communicating with said passage, the outer wall of said boiler joining the outer wall of said receptacle to thereby prevent the escape of steam from said boiler directly to the atmosphere, a set of tubes extending vertically through said boiler for conducting the heating-gas through the boiler into the lower extremity of the sterilizing-receptacle, a removable distributing-plate above said tubes, and a diaphragm above said plate having an aperture therein for permitting the upward progress of the heating-gas.

5. In a sterilizer, a receptacle having double walls including a passage between them, in combination with a separate boiler detachably attachable to said receptacle, said boiler being completely closed except at portions communicating with the passage between said walls, and said boiler having a set of vertically-arranged tubes extending therethrough for conducting the heating-gas directly into the said receptacle.

6. In a sterilizer, a pair of hollow cylinders one within another including a passage, said passage being closed at the top and open at the bottom, a boiler, closed except at the bottom of said passage where said boiler communicates with the lower extremity of said passage, apertures in the inner of said cylinders near the top thereof, a cover having a depending flange fitting next to said inner cylinder and apertures in said depending flange, apertures in said inner cylinder and cover, corresponding and communicating when said cover is in one position but being non-communicant when said cover is rotated, said cover thereby constituting a diaphragm for regulating the admission of steam to the heating-chamber.

699,718. ADVERTISING DEVICE. CHARLES F. BARKER, Buffalo, N. Y. Filed Mar. 20, 1901. Serial No. 51,051. (No model.)

Claim.—1. In an advertising device, the combination with the casing having a right-opening therein, of an apron or ribbon movably held in said casing, a rock-shaft, a rock-arm secured to said rock-shaft, a reversible shaft, a ratchet-wheel secured to said reversible shaft, a ratchet-engage-

ment pivotally secured to the rock-arm and adapted for engagement with said ratchet-wheel, means for disengaging the ratchet-engage-ment from the ratchet-wheel as it approaches the end of its operative movement and whereby said segment is caused to remain disengaged until it assumes its normal position, and mechanism intermediate of the movable ribbon and the said reversible shaft, substantially as set forth.



2. In an advertising device, the combination with the casing having a right-opening therein, of a movable apron or ribbon supported in said casing, a rock-shaft, a rock-arm secured to said rock-shaft, a reversible shaft, a ratchet-wheel secured to said reversible shaft, a ratchet-engage-ment pivotally secured to said rock-arm and adapted to engage said ratchet-wheel, a spring-controlled and laterally-projecting pawl secured to said segment, a cam-guide on which said segment rides and which disengages the same from the ratchet-wheel after revolving the latter a predetermined distance, said cam-guide having an upwardly-projecting flange against which the said pawl strikes and whereby it is caused to remain during the operative movement of the segment, said pawl being projected and adapted to ride on said flange during the return movement of the segment, and mechanism intermediate of the reversible shaft and the movable apron, substantially as set forth for the purpose set forth.

3. In an advertising device, the combination with the casing having a right-opening therein, of a movable apron or ribbon adapted to be moved intermittently a predetermined distance, a rock-shaft, a rock-arm secured to said rock-shaft, mechanism intermediate of said rock-arm and the movable apron or ribbon, a cam-guide secured to the casing and having teeth formed thereon and an upwardly-extending flange arranged on one side of said teeth, a dog pivotally secured to said rock-arm which rides over the teeth on the cam-guide during the operative movement of the rock-arm, and a spring-controlled pawl secured to said dog and normally projecting therefrom, said pawl being made to engage and disengage the teeth of the said dog by striking the flange of the cam-guide, and being held in such position until said dog approaches the end of its movement when it is projected and runs on the said flange, on which it rides during the return movement of the dog, thus keeping the latter disengaged from the teeth on said cam-guide during said return movement, substantially as set forth.

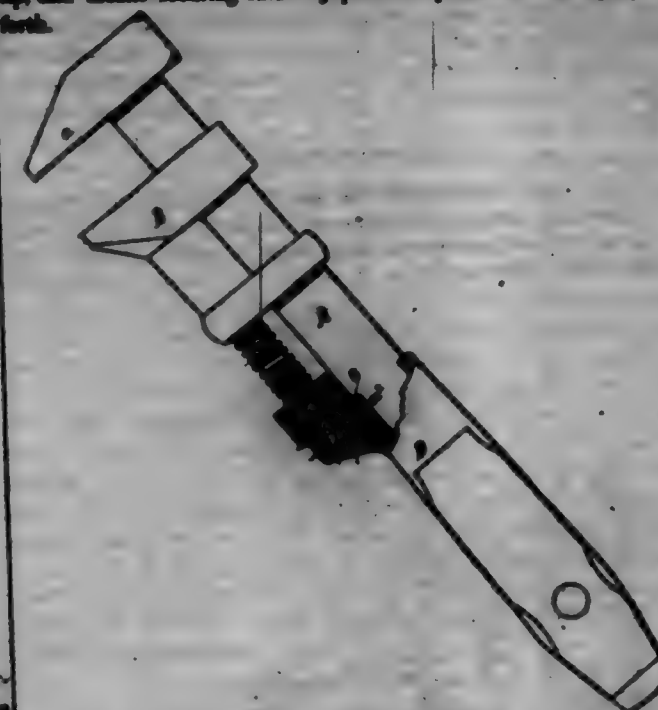
4. The combination with the casing having a right-opening therein, of a movable element bearing advertisements located in said casing, a fuel-receptacle, a rock-shaft, a lighting-jet secured to said rock-shaft as to operate the same, a pipe connecting the lighting-jet with the fuel-receptacle, a housing in which the lighting-jet is normally confined, and mechanism intermediate of the rock-shaft and the movable element bearing the advertisement whereby the latter is moved, substantially as set forth.

5. The combination with the casing having a right-opening therein, of a movable apron or ribbon bearing advertisements and adapted to be moved a predetermined distance intermittently, a transparent housing located outside of said casing, a movable lighting-jet normally confined in said housing, mechanism intermediate of said lighting-jet and the movable apron or ribbon whereby the latter is opened by the movement of said lighting-jet, and means whereby said lighting-jet is prevented from returning to its normal position until the said apron or ribbon has reached the end of its predetermined movement, substantially as set forth.

699,719. CONSTRUCTION OF WRESCHE. FRANKLIN STARR, Worcester, Mass., assignor to Loring Case & Company, Incorporated, Worcester, Mass., a Corporation of Massachusetts. Filed Feb. 2, 1903. Serial No. 22,523. (No model.)

Claim.—1. In a wrench, a wrench-handle collar provided with a

curved-bearing cap having an integral inwardly-overhanging lip, a jaw-adjusting screw having a flanged journal laterally interlocking beneath said lip, a counterbalancing key-piece engaging the journal opposite said lip, and means securing said key-piece in position, for the purpose set forth.

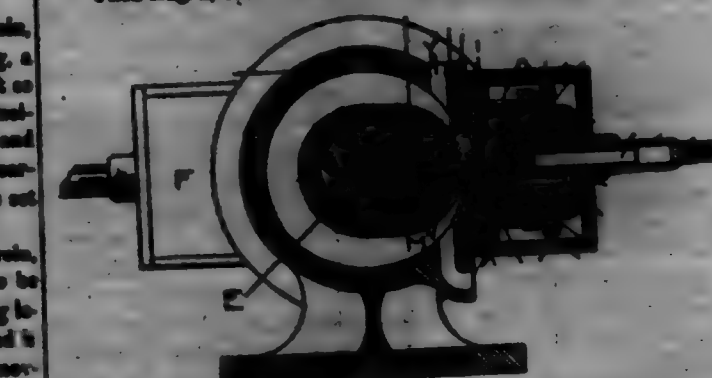


2. In a wrench, the handle-collar having an undercut screw-bearing seat with an open undercut cavity extending to the bar-space or collar-opening, into which the flanged screw-journal is interlocked by insertion at the collar-opening and transverse passage to its seat; and an interlocking follower or key-piece fitting said cavity and confining the screw-journal in its bearing, substantially as set forth.

3. The combination, of a wrench-handle frame provided in its collar end with an undercut cavity extending to the screw-axis, and having an inwardly-overhanging lip and round end seat for receiving the journal; the jaw-adjusting screw having a T-shaped journal, and the interlocking key-piece block provided with side lips adapted for engaging beneath said overhanging lip on the handle-frame, and a transversely-secured end with a lip counterbalancing the screw-journal, and a rear end matching the face of the wrench-bar neck.

4. In a screw-wrench comprising a wrench-bar having a straight body, a fixed jaw and a handle-supporting shank with front and rear collar-positioning shoulders, and a movable jaw slidable on said bar; the jaw-adjusting screw having a ratchet and a grooved and flanged stop-journal, a handle-frame fitting upon said bar-shank against said shoulders, and having an inwardly-tipped bearing-seat for said screw-journal with an open channel having undercut sides extending thereto from the collar-openings and a key-piece, or pieces, fitting in said channel with the end thereof confined beneath the collar-positioning shoulder and against the neck of the bar-shank.

699,720. ROTARY ENGINE. STEPHEN SMITH, Glasgow, Scotland. Filed Aug. 2, 1900. Serial No. 24,700. (No model.)



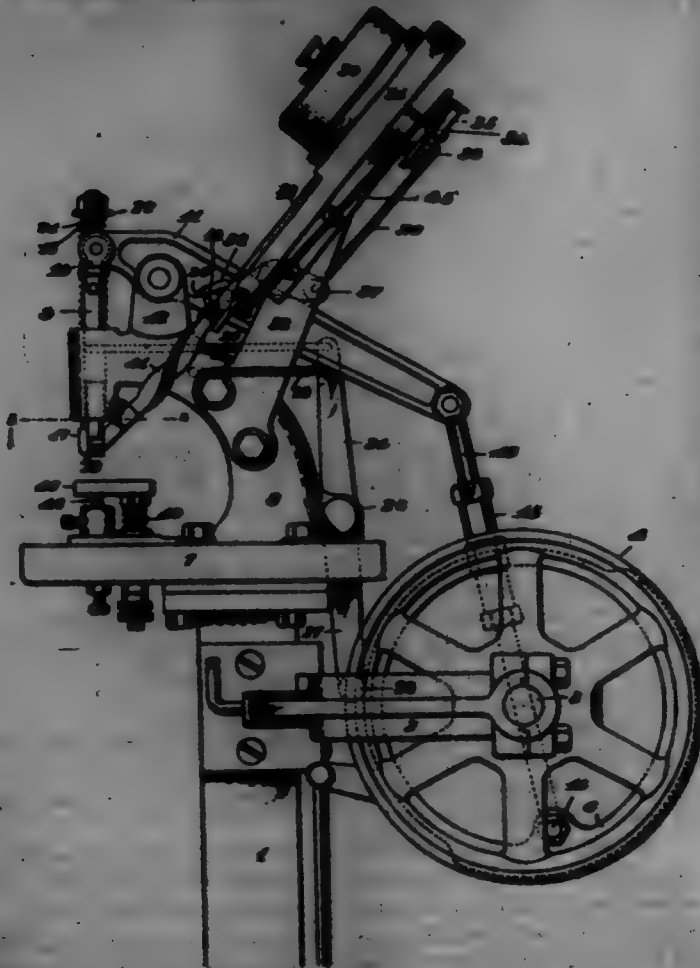
Claim.—1. In a rotary engine, a cylinder, a cam-plate, in combination with a sliding element provided with a circular casing, a segmental packing-piece adapted to rest in the casing and make sliding contact with the periphery of the cam-plate, and an anti-friction roller or rollers within the segmental packing-piece adapted to roll on the periphery of the said cam-plate, substantially as described.

2. In a rotary engine, a cylinder and a movable element in combination with a cam-plate having a diagonal groove containing the peripheral packing consisting of a metallic packing-piece having horns with inclined surfaces, a layer of soft threads packing filling up the space in

the groove below the metallic plate, a metallic supporting-strip below the flange packing and springs arranged at the bottom of the groove to compress the flange packing and press the whole packing outward substantially as described.

3. In a rotary engine a cylinder, a cam-piston, and a movable abutment in combination with a lubricating pumping device operated by the reciprocation of the movable abutment to pump lubricant to the rubbing-surfaces of the abutment and to the interior of the engine, substantially as described.

699,791. BUTTER-SHRETTING MACHINE. FRANKLIN E. SHAWLEY, Waterbury, Conn., assignor to Swift Manufacturing Company, Waterbury, Conn., a Corporation of Connecticut. Filed Dec. 20, 1900. Serial No. 41,061. (No model.)

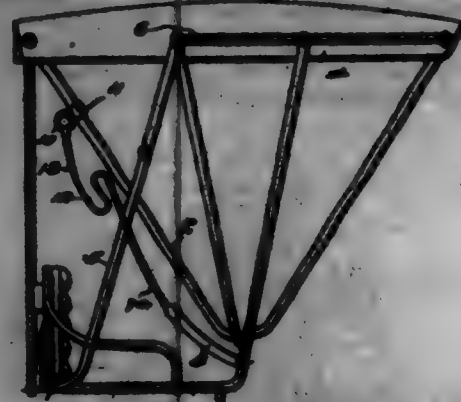


Claim.—1. In a butter-shrepping machine, having an overhanging arm, a task-containing turret, a reservoir discharging therefrom, a reciprocating plunger, the combined task-receiver and carrier comprising a rod 16 supported in a bearing in the overhanging arm independently of the plunger, a packed arm 17 rigid on said rod adapted to slide with the reservoir to receive a task therefrom and present it beneath the plunger, a spring 21 normally elevating said rod and arm, a crank-arm 20 fixed to turn said rod and permitting longitudinal movement of the rod through it, means to rock said crank-arm, and means to depress said plunger and thereby cause the said plunger to carry the said receiver and carrier with it in its descent away from the reservoir and into proximity to the object to which the task is to be applied, substantially as described.

2. In a butter-shrepping machine of the class described, having an overhanging arm and a reciprocating plunger therein, the combined task-receiver and carrier comprising a rod 16 having a bearing in the overhanging arm independently of the plunger, and capable of longitudinal and rotary movement in said bearing, a packed arm 17 rigid on said rod and a spring 21 normally holding the packed arm in operative alignment with the plunger and beneath it, combined with a crank-arm 20 hinged to the rod and adapted to turn it and also permitting free longitudinal movement of the rod through it, and means to vibrate said crank-arm, substantially as described.

3. In a butter-shrepping machine of the class described, having an overhanging arm and a reciprocating plunger therein, the combined task-receiver and carrier comprising a rod 16 having a bearing in the overhanging arm independently of the plunger, and capable of longitudinal and rotary movement in said bearing, a packed arm 17 rigid on said rod and a spring 21 normally holding the packed arm in operative alignment with the plunger and beneath it, combined with a crank-arm 20 hinged to the rod and adapted to turn it and also permitting free longitudinal movement of the rod through it, a link 24, a crank-arm 24, a cam-disk and connection between said disk and crank-arm, substantially as described.

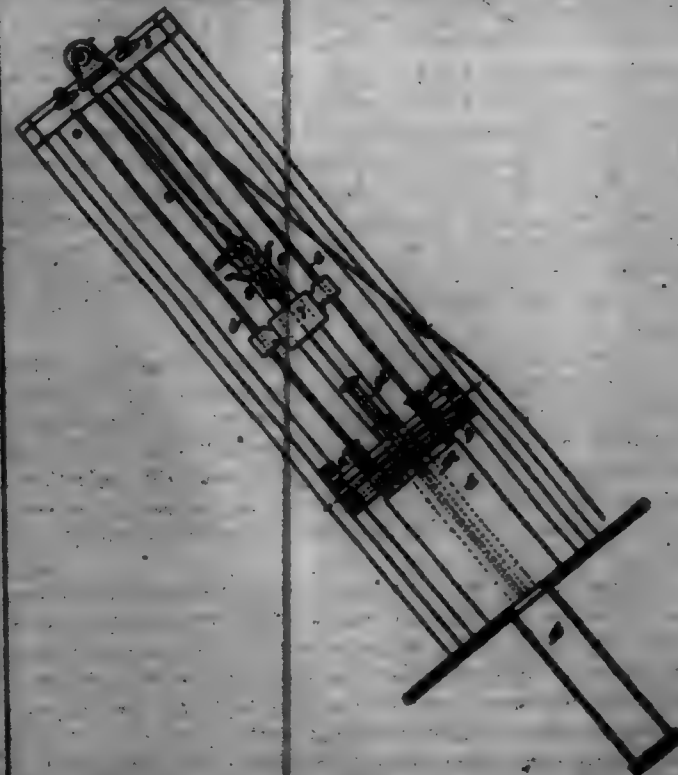
699,792. HOIST-ING SUPPORT. WILLIAM E. STANLEY, Chicago, Ill., Filed Aug. 26, 1901. Serial No. 73,264. (No model.)



Claim.—1. The combination with a vehicle-top, and a prop-bolt, of a spring-bar pivotally attached at its front end and having its rear extremity bearing against the rear bow, said spring-bar being arranged to engage the prop-bolt when the top is lowered and being provided with an approximately S-shaped portion, the front portion of the spring-bar which rests upon the prop-bolt being located at the top of the S-shaped portion, and the rear portion of the spring-bar being located at the bottom of the said S-shaped portion and the latter being located in rear of the prop-bolt and adapted to be disengaged in unlatching the vehicle-top, whereby its resiliency is increased and the movement of the rear end of the spring reduced to a minimum, substantially as described.

2. The combination with a vehicle-top, and a prop-bolt, of a spring-bar pivotally attached at its front end and having its rear extremity bearing against the rear bow, said spring-bar being arranged to engage the prop-bolt when the top is lowered and being provided with an approximately S-shaped head located in rear of the prop-bolt, the front portion of the spring-bar, which rests upon the prop-bolt, being located at the top of the S-shaped head and the rear portion of the spring-bar being located at the bottom of the said head, whereby the latter is disengaged in unlatching the vehicle-top and its resiliency increased, an anti-friction-roller mounted on the rear end of the spring-bar, and a loop extending around the front of the rear bow and holding the anti-friction-roller against the same, substantially as described.

699,793. CORE-DRIVER FOR ROUND-LAP RAILS. HENRY SWANSON, Chicago, Ill., assignor to the American Cotton Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 14, 1901. Serial No. 51,288. (No model.)



Claim.—1. In a core-driver for round-lap rails, the combination with a stationary guide for receiving a drift-pin and beneath which the rail is placed, of a weighted driver arranged to fall upon the drift-pin, means for elevating the weighted driver, and means for releasing the weighted driver from an elevated position, substantially as set forth.

2. In a core-driver for round-lap rails, the combination with a stationary guide for receiving a drift-pin and beneath which the rail is placed, of a weighted driver arranged to fall upon the drift-pin, means for elevating

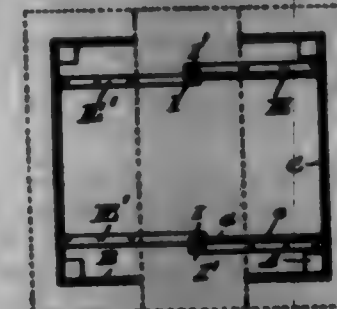
ing the weighted driver, means for releasing the weighted driver from an elevated position, and elastic buffer carried by said guide for receiving the impact of the weighted driver after it has engaged the drift-pin, substantially as set forth.

3. In a core-driver for round-lap rails, the combination with a stationary guide for receiving a drift-pin and beneath which the rail is placed, of a weighted driver arranged to fall upon the drift-pin, means for elevating the weighted driver, means for releasing the weighted driver from an elevated position, and a receptacle for receiving the core after the latter has been driven from the hole, substantially as set forth.

4. In a core-driver for round-lap rails, the combination of a vertical frame, a stationary cross-brace beneath which the hole is placed and having an opening therein for the reception of a drift-pin, vertical guides extending upwardly from said cross-brace, a weight vertically movable on said guides, and means for operating said weight, substantially as set forth.

5. In a core-driver for round-lap rails, the combination of a vertical frame, a stationary cross-brace beneath which the hole is placed and having an opening therein for the reception of a drift-pin, vertical guides extending upwardly from said cross-brace, a weight vertically movable on said guides, means for operating said weight, and buffer-springs surrounding said guides and carried by the cross-brace for receiving the impact of the weight after it has engaged the drift-pin, substantially as set forth.

699,794. EXTENSION-SLIDE FOR TABLE. DR. WILLIAM TRENKLE, Belleville, Canada. Filed Apr. 20, 1901. Serial No. 50,720. (No model.)

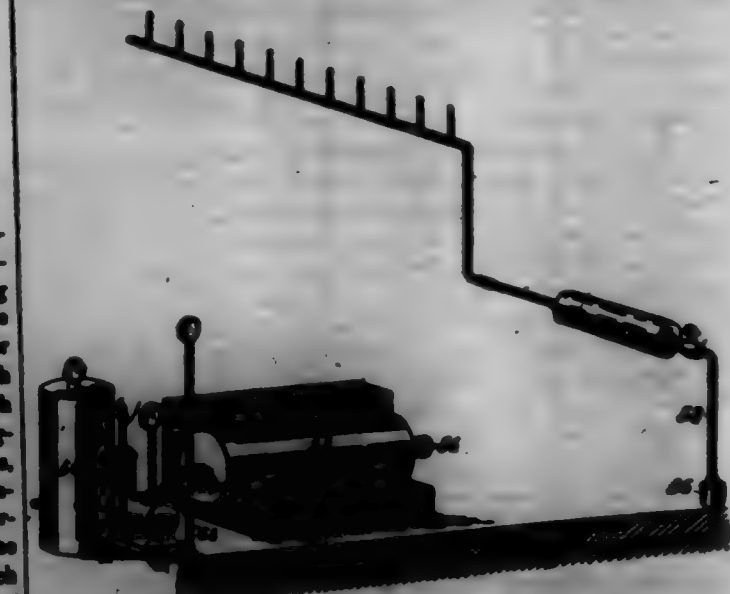


Claim.—1. In an extension-slide comprising two members, the combination with a first member provided, for its whole length, with a compound groove, clear of obstruction, continuous therein, the same being provided with two outwardly-flared grooves, a side groove on each side of said compound groove and parallel therewith, formed in said first member for its whole length, the said side grooves designed to receive blocks which operate therein, and a second member provided, for its whole length, with a continuous central channel parallel with its side, a channel-piece rigidly secured in said channel and provided with outwardly-flared flanges, the same having movement in the outwardly-flared grooves of said compound groove, and a side groove on each side of said channel-piece and parallel with the same, formed in said second member for its whole length, the said side grooves of said second member designed to receive blocks which operate therein, of a pair of blocks rigidly secured in one end of each of the side grooves of said first member, and another pair of blocks rigidly secured in one end of each of the side grooves of said second member, the blocks in the side grooves of said first member operating in the side grooves of said second member, and the blocks of said second member operating in their respective grooves in order to prevent the said members from sagging and binding, the said blocks further abutting, as described in order to prevent the said members from being pulled apart longitudinally.

2. In an extension-slide comprising a series of members, the combination with one end member provided, for its whole length, with a compound groove, clear of obstruction, continuous therein, the same being provided with two outwardly-flared grooves, a side groove on each side of said compound groove, formed in said one end member, for its whole length and parallel with said compound groove, the said side grooves designed to receive blocks which operate therein, the central member, the same being provided, for its whole length, with a continuous central channel parallel with its side, a channel-piece rigidly secured in said channel and provided with outwardly-flared flanges, the same having movement in the outwardly-flared grooves of the compound groove of said one end member, a side groove, on each side of said channel-piece, formed in said central member, for its whole length and parallel with said compound groove, the said side grooves designed to receive blocks which operate therein, the said side grooves of said central member being further provided, on their opposite side and for their whole length, with compound grooves clear of obstruction, continuous therein, the same being provided with two outwardly-flared grooves, a side

groove on each side of said compound groove in said central member, and parallel therewith, the said side grooves designed to receive blocks which operate therein, and another end member provided for its whole length with a continuous central channel parallel with its side, a channel-piece rigidly secured in said central channel of said other end member and provided with outwardly-flared flanges, the same having movement in the outwardly-flared grooves of one of said side grooves of said one end member, a side groove on each side of said channel-piece, formed in said other end member for its whole length and parallel with said outwardly-flared groove of said central member, the said side grooves designed to receive blocks which operate therein, of a first pair of blocks rigidly secured in one end of each of the side grooves of said one end member, a second pair of blocks rigidly secured in one end of each of the side grooves formed on each side of the channel-piece of said central member, the second pair of blocks operating in the side grooves in which the first pair of blocks are secured, the first pair of blocks operating in the side grooves in which the second pair of blocks are secured, a third pair of blocks rigidly secured in one end of each of the side grooves formed in said central member on each side of the compound groove formed therein, and a fourth pair of blocks rigidly secured in one end of each of the side grooves of said other end member, the third pair of blocks operating in the side grooves in which the first pair of blocks are secured, and the fourth pair of blocks operating in the side grooves in which the third pair of blocks are secured, the said pairs of blocks operating in their respective grooves in order to prevent the said members from sagging and binding, the said blocks further abutting, as described, in order to prevent the said members from being pulled apart longitudinally.

699,795. GAS-DISTRIBUTING SYSTEM. MAX TRENN and ALBERT LUTHELMAN, St. Paul, Minn.; and Leopoldo assignor to said Trenn. Filed Jan. 12, 1901. Serial No. 48,690. (No model.)



Claim.—1. The herein-described system comprising a source of compressed acetylene gas, in combination with a service pipe or main, a distributing-valve, and said pipe or main containing a fusible pipe-section, as and for the purpose specified.

2. The herein-described system comprising a source of compressed acetylene gas, in combination with a service pipe or main, a distributing-valve, and a fusible pipe whereby said main and valve are connected, substantially as described.

3. The herein-described system comprising a source of compressed acetylene gas, in combination with a service pipe or main, a fusible pipe-section interposed between said source and said main, and a safety gas-distributing pipe provided at a remote point on said main, substantially as described.

4. The herein-described system comprising a source of compressed acetylene gas, in combination with a service pipe or main, a service-tank, a regulating-valve provided in connection therewith, and a fusible section interposed in said main in proximity to said service-tank, substantially as described.

5. The herein-described system comprising a source of compressed acetylene gas, in combination with a storage-tank, a service pipe or main leading therefrom, a distributing-valve, and a fusible pipe-section interposed between said main and said valve, substantially as described.

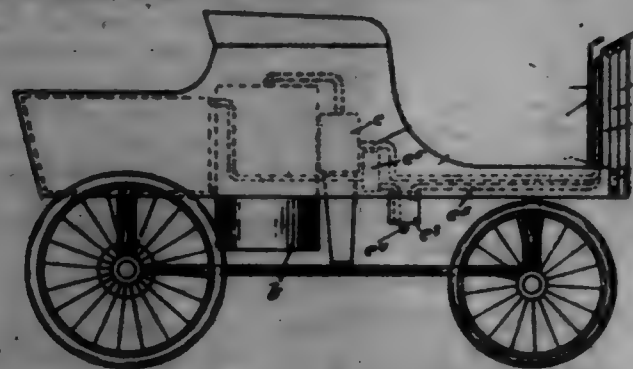
6. The herein-described system comprising a source of compressed acetylene gas, in combination with a storage-tank, a service pipe or main leading therefrom, a distributing-valve, a fusible pipe-section interposed between said main and said valve, a service-tank supplied with gas from said distributing-valve, a regulating-valve, and a fusible pipe interposed

between said service-tank and said regulating-valve, substantially as described.

7. The herein-described system comprising a source of compressed acetylene gas, in combination with a storage-tank 56 insulated against heat and provided with a fusible valve, a service-pipe leading from said tank to a point of gas distribution and containing a fusible section at each point, as and for the purpose specified.

8. The herein-described system comprising a source of compressed acetylene gas, in combination with a storage-tank, a fusible pipe connection between said source and said tank, a service pipe or main leading from said tank, a distributing-valve remotely situated, and a fusible pipe-section whereby said main and valve are connected, substantially as described.

699,726. CONDENSER FOR STEAM MOTOR-CARRIAGES.
FRANKLIN W. TOWN, Cambridge, Mass. Filed Mar. 24, 1908. Serial No. 10,600. (No model.)



Claim.—1. A condenser for steam motor-carriages consisting of several upright banks of pipes arranged in parallelism at the front end of the carriage-body, the pipes of each bank being disposed in different planes, supports therefor attached to said carriage-body, a pipe leading therefrom from the exhaust-pipe of the engine and a pipe leading therefrom, substantially as described.

2. A condenser for steam motor-carriages consisting of one or more banks of pipes arranged in vertical position at the front end of the carriage-body, channels, supports therefor attached to said carriage-body having means for connecting the bank or banks of pipes thereto, a pipe leading to said condensing-pipes from exhaust-pipe of the engine and a pipe leading therefrom, substantially as described.

3. A condenser for steam motor-carriages consisting of several upright banks of pipes arranged in parallelism at the front end of the carriage-body, the pipes of each bank being disposed in different planes, channels and supports attached to said carriage-body having means for connecting the banks of pipes thereto and also for connecting the several supports together, a pipe leading to said condensing-pipes and a pipe leading therefrom, substantially as described.

4. A condenser for steam motor-carriages consisting of one or more banks of pipes arranged in a vertical position at the front end of the carriage-body, and supports therefor attached to said carriage-body, a pipe leading to said condensing-pipes and a pipe leading therefrom, and an obliquely-disposed plate attached to the upper end of said condensing-pipes, substantially as described.

5. A condenser for steam motor-carriages consisting of one or more banks of pipes arranged in a vertical position at the front end of the carriage-body, supports therefor attached to said carriage-body, a pipe leading therefrom from the exhaust-pipe of the engine and a pipe leading therefrom, and a shield disposed back of said condensing-pipes, substantially as described.

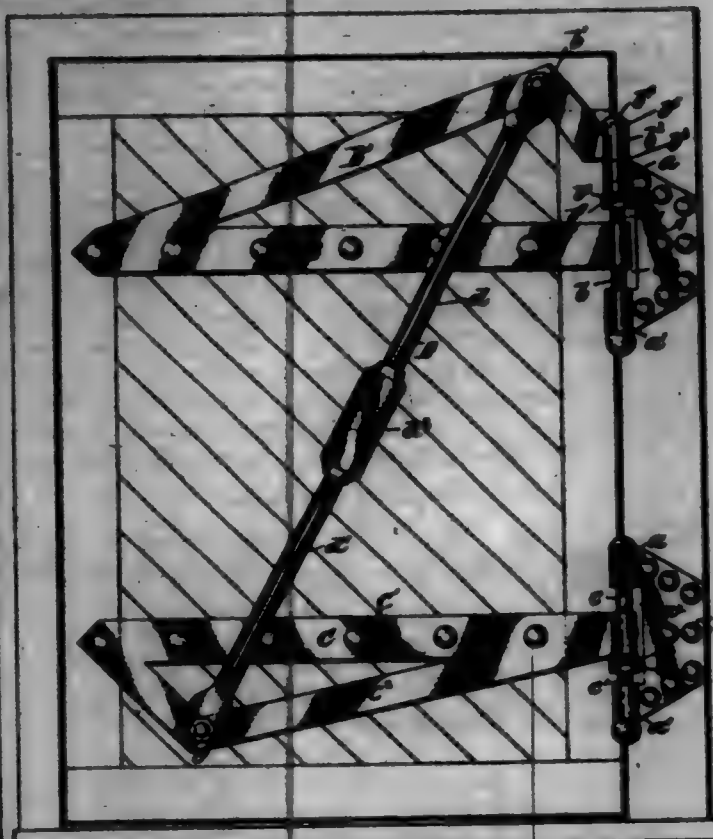
6. A condenser for steam motor-carriages consisting of one or more banks of pipes arranged in a vertical position at the front end of the carriage-body, supports therefor attached to said carriage-body, a pipe leading therefrom from the exhaust-pipe of the engine and a pipe leading therefrom, and a shield disposed back of said condensing-pipes having an opening at or near the bottom and a removable cover therefor, substantially as described.

699,727. HINGE. JAMES H. UPTON, Atlantic, and WILLIAM S. GRAY, Danvers, Mass. Filed May 28, 1901. Serial No. 61,204. (No model.)

Claim.—1. The door-hinge having two bats adapted to be secured to the door-jamb, each bat having two bearings for a pin and relatively long openings between, plates mounted in each bearing, the hinge members secured to the door mounted and vertically adjustable on each plate, and means for each vertical adjustment, substantially as described.

2. The door-hinge herein described, the same comprising hinge mem-

bers secured to the door, suitable bats, plates carried by the bats, having threaded sections, nuts carried upon said threaded sections, those of the upper plate offering adjustable bearing, and that of the lower plate adjustable support to the corresponding hinge members fastened to the door substantially as described.



3. A door-hinge consisting of bats adapted to be secured to the door-jamb, plates mounted in the bats having threaded sections and nuts thereon, members of the hinge secured to the door, one of which members has a bar or arm mounted upon the plate and resting upon the nut, and the other a bar or arm mounted upon the plate to rest upon the nut carried thereby substantially as described.

4. A door-hinge having bats adapted to be secured to the door-jamb, plates mounted therein, hinge members secured to the door pivotally supported by said plates, an arm also pivotally mounted, and resting upon or against a bat secured to the door-jamb, with regard to which arm the door is adjustable, and means for effecting the adjustment substantially as described.

5. A door-hinge comprising in its construction hinge members secured to the door, one of which has an arm attached thereto and extending therefrom to rest upon a bat, means for holding each arm to the bat, bats and plates arranged as to provide suitable rest and mounting for the door members of the hinge and arm thereon, and means for adjusting the door with respect to the said arm, resting upon the bat thereon substantially as described.

6. A door-hinge comprising in its construction hinge members secured to the door, one of which has an arm attached thereto and extending therefrom to rest upon a bat, the door being adjustable with respect to such arm, means for effecting such adjustment, bats with pin-bearings having relatively wide openings between, plates centrally mounted therein offering pivotal support to the door members of the hinge as also to the arm mounted on the bat and nut mounted on the plates, as and for the purpose described.

7. In a hinge for doors and similar uses, hinge members fastened to the door extending across the same, separated from each other, and each of which has a true reinforcement-bar with a stay or bump rod connecting the two members substantially as described.

8. A door or other hinge having two reinforced members, the reinforcement of one of which extends near the inner upper corner of the door and the reinforcement of the other of which extends near the lower outer corner of the door, and a brace or tie rod extending diagonally across the door, connecting said reinforcements near said corners substantially as described.

9. A door or other hinge having two reinforced members, the reinforcement of one of which extends near the inner upper corner of the door and the reinforcement of the other of which extends near the lower outer corner of the door, and a brace or tie rod extending diagonally across the door, connecting said reinforcements near said corners, and means for shortening or lengthening said brace or tie rod substantially as described.

10. A hinge having a member provided with two swinging plate-bearings and a nut, a member provided with a swinging bearing and a nut,

means for clamping or drawing together the members diagonally the door, the hinge bats and plates carried by the bats, the plates and bats being combined to provide a vertical adjustment of the hinge members and nuts with respect to the bats substantially as described.

11. The combination in a hinge of two bats, one of which has a nut for the arm of a hinge member, a plate mounted centrally therein to provide a bearing for the arm of the hinge member above the nut and a bearing below it, the other of said bats having a stationary plate and a movable nut mounted upon said plate, hinge members constructed and shaped as described to engage said plates and nuts as specified, and a clamping device connecting the hinge members with each other as set forth.

12. The combination in a hinge of a yielding arm attached to a hinge member fastened to the door, and extending therefrom to rest securely upon or against a bat secured to the door-frame, with a tie-rod connecting said arm with the door, and means for shortening or lengthening the same as and for the purpose described.

13. The combination in a hinge, of bats adapted to be secured to the door-jamb, plates mounted therein, door members of the hinge pivotally mounted upon said plates, one of which members has a bar or arm attached thereto and extending therefrom to rest upon or against a bat secured to the door-frame, with a brace or tie rod, and means for lengthening or shortening the same connecting said arm with the door, so that the said door may be vertically or laterally adjusted substantially as described.

14. The combination in a door-hinge of bats adapted to be secured to the door-frame, plates mounted therein, hinge members secured to the door pivotally mounted upon said plates, an arm also pivotally mounted, and resting upon or against a bat secured to the door-frame, with regard to which arm the door is adjustable, with means for effecting the adjustment consisting of a tie-rod connecting said arm with the door, and means for lengthening or shortening the same, as and for the purpose described.

15. A door or other hinge having two members fastened to the door, a supplementary arm integrally attached to and suspended from one, extending up to near the inner upper corner of the door, then down to proper angle to rest upon its bat, the other member with reinforcing-arm extending down to near the bottom or outer corner of the door, a brace or tie rod extending diagonally across the door connecting said supplementary arm with the other hinge member secured to the door, means for shortening or lengthening said brace or tie rod, bats, plates whereby the door members of the hinge are pivotally connected to said bats and means for adjusting the hinge members secured to the door as aforesaid with respect to the arms aforesaid so that a vertical or lateral movement may be obtained as described.

16. A door-hinge comprising in its construction hinge members secured to the door, a supplementary arm attached to and extending from one hinge member fastened to the door to rest securely upon or against a bat secured to the door-frame, with respect to which arm the door is adjustable, means for effecting such adjustment consisting of a tie-rod extending diagonally across the door and connecting said supplementary arm with the other hinge member secured to the door, means for shortening or lengthening said tie-rod, bats with plate-bearings having relatively long openings between, plates mounted thereon, whereby the door members of the hinge are pivotally connected to said bats, and nuts mounted upon said plates offering adjustable bearing and support to the hinge members secured to the door as and for the purpose set forth.

699,728. LINOTYPE-CLIP HOLDER. GEORGE E. WALLER, Chicago, Ill. Filed Nov. 22, 1901. Serial No. 94,267. (No model.)



Claim.—1. As an improved article of manufacture, a Linotype-clip holder comprising a pressure member to engage a clip, a pair of spaced resilient jaws, and a single clamping-loop extending outwardly from and common to both of the said jaws, a space being formed between the clamping-loop and the jaws to adapt the latter to be frictionally and slidably as well as freely removable in relation to the side portion of a galley.

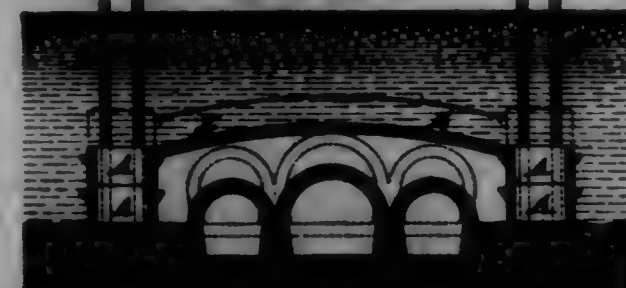
2. As an improved article of manufacture, a Linotype-clip holder comprising a pressure-frame having a pair of spaced jaws at one end, and a clamping-loop extending with the said jaws and spaced outwardly from the latter, the jaws and clamping-loop being adapted to removably and

adjustably engage the side of a galley and the jaws to contact with the latter at separated points on the same surface.

3. As an improved article of manufacture, a Linotype-clip holder comprising a pressure-frame to bear against a clip, and a pair of spaced jaws and a clamping-loop, and said jaws being adapted to frictionally and slidably engage the inner and outer faces of one side of a galley.

4. As an improved article of manufacture, a Linotype-clip holder comprising a pressure-frame to bear against a clip, and a pair of spaced jaws and a clamping-loop, said jaws being adapted to bear against the inner and outer faces of one side of a galley, one of the jaws being adapted to provide biting edges.

699,729. SYSTEM OF SUBMARINE CONSTRUCTION. BENJAMIN H. WHEELER, New York, N. Y. Filed Jan. 4, 1908. Renewed Oct. 7, 1901. Serial No. 77,880. (No model.)



Claim.—1. A collar-dam, consisting of separate collar-dam sections of rectangular, circular or other shape, said sections being provided with exterior guideways, pins for guiding said sections and holding them in position, and partition-walls guided in said ways for connecting said collar-dam sections, substantially as set forth.

2. A collar-dam, consisting of a number of separate collar-dam sections of rectangular, circular or other shape, braces connecting the walls of said sections, guide-rollers in said braces, pins in said rollers for guiding the sections into position, and partition-walls connecting the opposite ends of said collar-dam sections, substantially as set forth.

3. A collar-dam consisting of a number of independent collar-dam sections of rectangular, circular or other shape, transverse stiffening-braces in said sections, guide-rollers in said braces, pins in said guide-rollers for guiding and retaining the sections in position, partition-walls connecting said collar-dam sections, and a series of vertically-guided mauling rollers or blades arranged on the walls of the collar-dam sections and partition, substantially as set forth.

4. The combination, with a collar-dam composed of a number of separate collar-dam sections of rectangular, circular or other shape, of pins for holding said sections in position, partition-walls connecting said collar-dam sections, mauling rollers or blades for securing the lowermost collar-dam sections and partitions on the ground, and a water-tight curb connecting the collar-dam sections and partition-walls, substantially as set forth.

5. A collar-dam section composed of an open casing of rectangular, circular or other shape provided with transverse braces having interior guide-rollers, substantially as set forth.

6. A collar-dam section composed of an open casing of rectangular, circular or other shape provided with transverse braces having interior guide-rollers and exterior guideways near the corners, substantially as set forth.

7. A collar-dam section composed of an open casing of rectangular, circular or other shape, provided with transverse braces having interior guide-rollers, exterior guideways near the corners, and exterior projecting brackets on the walls, substantially as set forth.

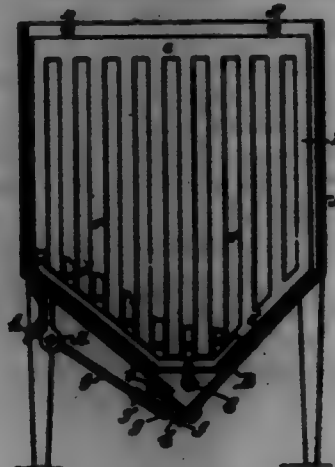
8. The combination, with a collar-dam, consisting of a number of collar-dam sections secured by pins, of partition-walls between said sections, said sections and partition-walls being provided with projecting brackets, and a transverse water-tight curb connecting said collar-dam sections and partition-walls and composed of curved supporting-ribs resting on said brackets, wire-netting placed on said ribs, and a layer of waterproof material placed over said netting, substantially as set forth.

9. In a system of submarine construction, a temporary arch, extending upon the collar-dam and composed of arched supporting-ribs, wire-netting placed on said ribs and a layer of waterproof material placed over said netting, substantially as set forth.

10. In a system of submarine construction, a temporary arch spanning the collar-dam and composed of arched supporting-ribs, wire-netting placed on said ribs, a layer of this sheet-lead placed over said wire-netting and a layer of waterproof material placed in the layer of sheet-lead, substantially as set forth.

11. In a system of submarine construction, a temporary guard-cover, consisting of wire-netting, sheets of lead spread over said netting, and a layer of waterproof material placed over said sheets of lead, substantially as set forth.

699,780. SYRUP-COOLER. JAMES WHERRY, Rochester, N. Y.
Filed Feb. 26, 1906. Serial No. 706,815. (No model.)



Claim.—1. In a syrup-cooler, a tank, suitable cooling device in said tank; a swinging valve for closing the outlet from the bottom of said tank and a screw-threaded rod for operating said valve passing through a pivot not attached to said tank.

2. In a syrup-cooler, the combination of a tank, suitable cooling device in said tank, a swinging valve for closing an opening at the bottom of said tank, screw-operated means for closing said valve and an independent cam device for forcing said valve upon its seat.

3. In a syrup-cooler, the combination of a tank, suitable cooling device in said tank, a swinging valve adapted to close and open at the bottom of said tank, a socket of pivoted to said valve, a rod resting in said socket and having a screw-threaded portion, a bearing for said screw-threaded portion attached to said tank, means permitting the revolution of the rod in said socket and a slight longitudinal movement of said rod with minimum in the socket, and an independent locking device for locking said valve upon its seat.

699,781. FOLDING UMBRELLA. WILLIAM G. WHERRY, Genl. Pkns. N. Y. Filed Sept. 12, 1906. Serial No. 720,561. (No model.)



Claim.—1. The combination with a tubular portion having a perforation therein and a slot, of a spring-plate comprising a base, a leg adjacent one end of the base and engaged with the perforation of the tubular portion, a spring-plate forming a continuation of the opposite end of the base and lying out of contact with the tubular portion at its rear end, a head upon the forward extremity of the spring-plate and lying in the slot of the tubular portion and adapted for reciprocation therein, and a spring-finger extending from the spring-plate and disposed in the same direction therewith and divergingly therefrom, the extremity of the spring-finger lying against the tubular portion at the opposite side from the perforation to hold the leg in the perforation and to reinforce the spring action of the stem.

2. In an umbrella-rod, the combination with a tubular section, of a rod therein and having a longitudinal line to one end, a perforation in the base of the slot, a latch-tongue disposed in the slot and having a leg at one edge engaging the perforation, the opposite edge of the latch-tongue lying against the inner face of the tubular portion to hold the leg in engagement, a perforation through the tubular portion and the rod, a recess in the spring-tongue aligning with the perforation, and a rivet passed through said perforation and recess to hold the parts in position.

3. In a folding umbrella, the combination with ribs-sections and a spreader, of interlocking and pivotally-connected lock elements carried by the ribs-sections, connections between one of said elements and a spreader for holding the elements in mutual engagement, a recess in one of the elements, and a spring-finger carried by the other element and adapted for engagement with the recess to hold the elements in their locking position, said spring being also adapted to move the elements upon their pivotal connection when they are unlocked.

4. In a folding umbrella, the combination with ribs-sections and a spreader, of a lock element carried by each section and having pivotal engagement with each other, said elements being movable longitudinally with respect to each other to lock and unlock them, connections between the spreader and one of said elements for moving it longitudinally with respect to the other element and a spring carried by one element and adapted for engagement with the other element to move the elements upon their pivotal connection when they are unlocked.

5. The combination with a ribs-section having a grooved lock element fixed therein, of a second ribs-section, having a lock element fixed therein, said second lock element lying in the groove of the first element and having a longitudinal slot, a pivot-pin passed through the walls of said groove and through the slot and adapted to play in the latter to permit mutual longitudinal movement of the elements, a pin carried by the first element, a hook adapted for engagement and disengagement with respect to the pin, connections between a spreader and one of said lock elements to move the latter with respect to the second element to engage and disengage the hook with the pin and a spring-finger carried by one of the elements and adapted for engagement with the other element when the hook is engaged with the pin, said finger being adapted to move the elements on their pivot when the hook is disengaged from the pin.

6. The combination with a ribs-section having a locking element provided with a longitudinal groove, of a second ribs-section having a locking element seated in said groove and having pivotal and longitudinal connection with the first-mentioned element, a pin carried by the first element, a hook carried by the second element and adapted for engagement with the pin to hold the ribs-sections together, a spreader pivotally connected with the first element and adapted to move it longitudinally of the second element to engage and disengage the hook with the pin and a spring-finger carried by one of the elements and adapted for engagement with the other element when the hook is engaged with the pin, said finger being adapted to move the elements on their pivot when the hook is disengaged from the pin.

7. The combination with a ribs-section having a locking element fixed therein and comprising a hook and a spring-tongue, of a second ribs-section having a locking element pivoted to the first-mentioned element, the second element having a recess to receive the spring-tongue and having a pin adapted to engage the hook subsequent to the engagement of the spring-tongue with the recess, and a spreader connected with the second element and adapted to move the pin into and out of engagement with the hook.

8. In a folding umbrella, the combination with inner and outer ribs-sections and a spreader, of interlocking and pivotally-connected locking members carried by the ribs-sections, and a fixed pivotal connection between the outer ribs-section and spreader, whereby said spreader serves to hold the locking members in engagement, and means for engaging the ribs-sections apart when the locking members are disengaged.

9. In a folding umbrella, the combination with an inner ribs-section provided with a locking member formed with a longitudinal slot and a locking-hook, of an outer ribs-section having a second locking member provided with a pair of transverse pins designed respectively for engagement with the slot and hook of the other member, a spreader connected to the inner end of the second locking member to urge said members into and out of interlocking engagement, one of said locking members being provided with a recess, and the other of said members being provided with a spring-finger disposed for engagement with the recess to resist relative longitudinal movement of the locking members.

10. In a folding umbrella, the combination with an inner ribs-section, of an outer ribs-section having a loose pivotal connection intermediate of its ends with the outer end of the inner ribs-section, a spreader having pivotal connection with the inner end of the outer ribs-section, means for locking the outer ribs-section and the spreader to the inner ribs-section, and a spring interposed between the two ribs-sections at a point between the two pivotal connections above stated, said spring serving to effect the swinging of the outer ribs-section when said section is unlocked.

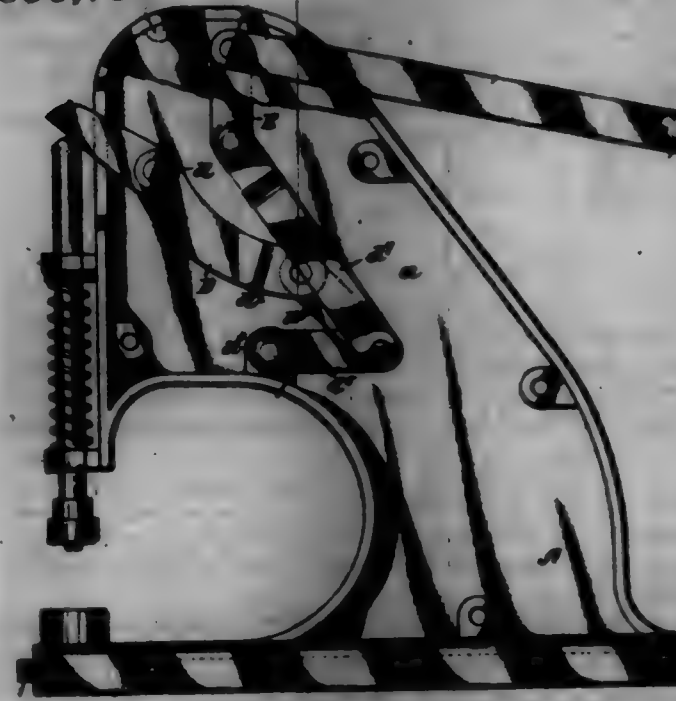
699,782. PRESS. JAMES F. WILLIAMS, Boston, Mass., assignor to Ball and Socket Manufacturing Company, Quabbin, Conn., and Boston, Mass., a Corporation of Connecticut. Filed Dec. 2, 1901. Serial No. 54,327. (No model.)

Claim.—1. In a press, the combination of the frame of the press, a plunger carried thereby, a lever pivoted to the frame to engage the plunger, a toggle beneath the lever pivoted to the frame and to the end of the lever, a crank above the lever, and a draft-link connecting the crank with the toggle.

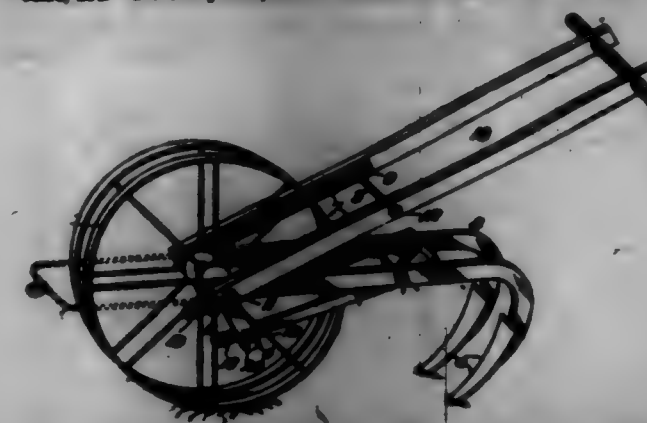
2. In a press, the combination of its frame having a bed and a die or holder carried thereby, a plunger supported by the frame, a plunger-actuating device comprising a lever pivoted to the frame, a toggle connecting the end of the lever with the frame and arranged beneath it, a shaft above the lever and the toggle, a crank upon said shaft, a link connecting said crank with the toggle, a stop for limiting the extent of movement of the toggle, and a plunger and works returning and holding spring.

3. In a press, the combination of the frame, a plunger, means for moving it in one direction comprising a lever, a toggle below the end of the lever connecting its end with the frame, a shaft above the lever, a handle for turning it, a crank upon said shaft, a draft-link connected with the crank and straddling the lever and toggle and connected with the toggle, and a plunger and works returning and holding spring.

699,782.



699,783. HAND-CULTIVATOR. JAMES F. WILLIAMS, Independent. Filed Sept. 12, 1901. Serial No. 75,126. (No model.)



Claim.—1. A hand-cultivator, comprising wheel-supported draft-beam, angle-plates secured rigidly to the draft-beam, plow-beams, equipped with shovels or plows secured at their front ends substantially with the draft-beam, and a link clamped near one end to the plow-beam and near the other to the angle-plate and extending at an angle to both, substantially as described.

2. A hand-cultivator, comprising draft-beam, wheels journaled at one end of said draft-beam, plow-beams equipped with plows and secured at their front ends substantially with said draft-beam, angle-plates secured to the draft-beam, and a link extending at an angle to and connecting the angle-plate with the plow-beam, substantially as described.

3. A hand-cultivator, comprising an axle, a pair of wheels journaled thereon, a pair of plow-beams equipped with shovels or plows, and pivoted at their front ends on said axle at the outer sides of said wheels, a pair of draft-beams connected together and mounted on the axle outward of the plow-beams, a pair of angle-plates, pivoted on the axle and secured in the draft-beam, and links detachably connecting said plow-beams and plow-beams and extending at an angle to both, substantially as described.

4. A hand-cultivator, comprising an axle, plow-beams equipped with shovels or plows, and mounted at their front ends on the axle, and a pair of draft-beams mounted at their front ends on the axle, and connected at their rear ends by a handle, a pair of angle-plates mounted on the axle at the inner sides of the draft-beams and bolted at their opposite ends to said beams, bolts mounted in the ends of the angle-plates projecting away from the draft-beams, and links engaging said bolts at their front ends and detachably connected to the plow-beams at their rear ends, substantially as described.

5. A hand-cultivator, comprising an axle, plow-beams equipped with plows or shovels, and mounted at their front ends on the axle, a pair of draft-beams mounted at their front ends on the axle, and connected at their rear ends by a handle, a pair of angle-plates mounted on the axle at the inner sides of the draft-beams and bolted at their opposite ends to said beams, a U-shaped link having a series of holes in its front ends, and bolted at its rear end to the plow-beams, bolts mounted in the ends of the angle-plates projecting away from the draft-beams, and engaging certain holes of said link, and clamping-arms engaging the ends of said link, substantially as described.

6. A hand-cultivator, comprising a wheel-supported draft-beam, an angle-plate secured rigidly to the draft-beam, a plow-beam equipped with a shovel or plow and secured at its front end coincidentally with the draft-beam, and a link clamped near one end to the plow-beam and near the other to the angle-plate, and extending at an angle to both, substantially as described.

699,784. ELECTRIC GENERATOR. JAMES H. WHERRY, Battle-creek, Mich., assignor to Electric Sparking and Illuminating Company, Limited, Battle-creek, Mich., a Corporation. Filed Apr. 27, 1901. Serial No. 57,726. (No model.)



Claim.—1. In an electrodynamic generator a stationary element, a shaft, an element adapted to be revolved mounted upon said shaft, a shaft turning freely therein, supports for said shaft, centrifugal weights carried by said shaft, and springs for pressing said weights into contact with said shaft.

2. In an electrodynamic generator, a shaft, an armature mounted upon said shaft, a shaft turning freely therein, supports for the shaft, centrifugal weights having surfaces fitting said shaft, springs for pressing said weights into contact with said shaft, and a means for adjusting said weights.

3. In an electrodynamic generator, a shaft, an element adapted to be revolved mounted upon said shaft, a shaft turning freely therein, supports for the shaft, centrifugal weights having surfaces practically fitting said shaft, a flanged collar fixed to the said shaft, two oppositely-disposed elastic supports fixed to the flange of said collar and including said weights, upon one of which said weights are supported, and a means at the top where the two supports cross for varying the tension of the said support.

4. The combination with an electrodynamic generator, of a driving-shaft or rotary part, a clutch carried by the rotary part of said generator, weights for joining the two parts and suitable springs for holding the same normally in contact with the said driving-shaft or rotary part, whereby in the operation of the generator, the weights will release the clutch when a predetermined speed is reached and prevent the more rapid rotation of the revolving part.

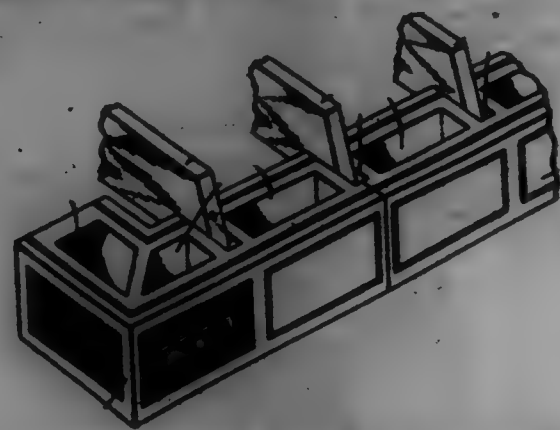
5. In a vehicle-lamp the combination of an electrodynamic generator, a shaft, an element thereof mounted upon said shaft and adapted to be revolved, a vertical shaft adapted to turn freely therein, centrifugal weights having surfaces practically fitting said shaft, an elliptical spring to which said weights are attached, a support over said spring and a screw carried by said support, for varying the tension of said spring.

699,785. BUILDING CONSTRUCTION. HARRY A. WISNER, Columbus, Ohio. Filed Dec. 2, 1906. Serial No. 64,322. (No model.)

Claim.—1. In a building construction a building-block of concrete or similar material, said block having formed therein vertical spaced openings and a joint-receiving recess between said openings and each end of said block having formed therein the open half-rooms &c as described, substantially as specified.

2. In a building construction, the combination with two rows of blocks arranged one upon the other, said blocks having formed therein registering openings 2 which extend vertically through the same and hor-

ing joint-receiving recesses formed partly in blocks of the lower row and partly in blocks of the upper row, substantially as specified.



2. In a building construction blocks of concrete or similar material adapted to be supported upon each other, said blocks having registering openings formed therethrough, the blocks of one horizontal row having joint-receiving recesses between their openings and the blocks below said joint-receiving blocks having solid partitions between their openings and beneath said recesses whereby a solid joint-support is provided vertically below said joints, substantially as specified.

699,736. CLOTHES-LINE. ARTHUR A. WOODSTOCK, TRENTON, Victoria, Australia. Filed Aug. 17, 1901. Serial No. 73,414. (No model.)



Claim.—The herein-described improved clothes-line consisting of the combination of the single wire doubled on itself to form two strands A A, metal clasp B adapted to be slid along the line and hold the two strands together, clasp C and C' supporting the line from posts C' and C'', winding-drum as D, furnished with pawl D' and ratchet-wheel D'' all assembled and arranged substantially as described.

699,737. FLY-KIT FOR SCREENS. CHARLES F. WORKER, Ottawa, Iowa. Filed Apr. 24, 1901. Serial No. 67,597. (No model.)



Claim.—1. In a fly-kit for screens, the combination of two bars rigidly connected together and spaced apart, a slit formed between said bars narrowing toward the exterior of the door, and a conical recess in each edge of said slit so shaped that both edges thereof slant toward the exterior opening of the slit.

2. The combination of a screen-frame formed with a head-bar, two bars fixed to said screen-frame and spaced apart, the edges of the bars being beveled to form a slit, the slit and the lower bar overlapping the lower edge of said head-bar and a screen on said frame, the upper edge of said screen being bent within the slit and fixed to the lower bar, the beveled edges of the bars being formed with concave opening to said slit.

699,738. DRAWING INSTRUMENT. MAX C. RAME, New Haven, Conn. Filed Dec. 20, 1901. Serial No. 67,598. (No model.)

Claim.—1. The combination with a flat drawing instrument, adapted to be reversed face for face, of a handle mounted thereon, and movable through the instrument to project above whichever face of the instrument is uppermost.

2. The combination with a flat drawing instrument, adapted to be reversed face for face, of a handle mounted thereon, and movable through the instrument from one face to the other according to the face thereof that is uppermost so that the handle projects above the uppermost face of the instrument, and lies flush with the lower thereof.



3. The combination with a flat drawing instrument, adapted to be reversed face for face, of a sliding handle mounted in the instrument at a right angle to the plane thereof and formed at its ends with steps which limit the movement of the handle in either direction, whereby when the instrument lies on one face the handle will project above its opposite face, and vice versa.

4. The combination with a flat drawing instrument adapted to be reversed face for face, of a hatching handle mounted in the instrument, provided with steps at its ends and sliding to project beyond the opposite faces of the instrument according to which is uppermost.

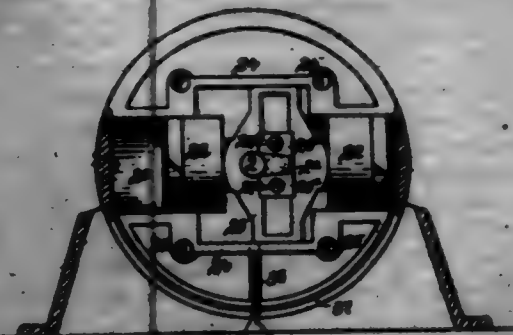
5. The combination with a flat drawing instrument, of a hatching handle mounted therein, a stop-piece located in the said handle, and a sliding handle mounted in the handle and provided at its ends with steps engaging with the said stop-piece for limiting the movement of the handle in either direction.

699,739. COMBINED PHOTOGRAPHING AND VIGNETTING FRAME. WILLIAM ARTHUR and WILLIAM R. O. CHAMBER, Southampton, England. Filed July 15, 1901. Serial No. 68,485. (No model.)



Claim.—The improved vignetting attachment for photographic-printing frame comprising a frame a fitted with legs b formed with slots c, thumb-screws c engaging with said slots for fixing the frame a to the printing-frame, and the light-diffuser A held in position by clips d, in combination with the printing-frame b provided with strips f and plates g formed with arrow-heads, the back h, stop n, marks a, and pivoted plate p, substantially as described.

699,740. ROTARY ENGINE. JOHN R. ANDERSON, Lima, Pa. Filed Nov. 14, 1900. Serial No. 34,000. (No model.)



Claim.—1. In a reciprocating rotary engine, a circular casing for the cylindrical cylinders having a groove communicating with the outer ends of the cylinders, a pipe running from the space between pistons to the groove and a three-way valve at the intersection of the pipe with the groove, substantially as described.

2. In a rotary engine, the combination of a stationary crank-shaft, a pair of pistons connected together by means of a cross-head that connects slidably with the crank of the crank-shaft, a pair of quarter-balls embracing the crank, a pair of slide-bars containing the quarter-balls

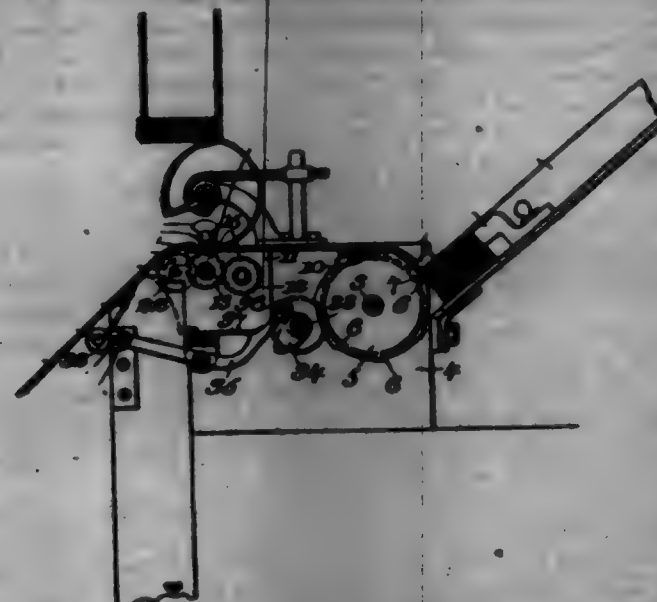
and fitting in the slot of the cross-head, pyramidal wedges between the quarter-balls and the slide-bars and curves in the small ends of the wedges, substantially as and for the purpose described.

699,741. HYDRAULIC. LOUIS A. RAMM and LOUIS J. RAMM, Louisville, Ky. Filed Jan. 14, 1902. Serial No. 83,484. (No model.)



Claim.—In a syphon, the combination of lenses, studs having threaded longitudinal sockets and intersecting transverse openings, guards, each having a cheek and projecting wings, a spring having an upwardly-bowed center and rearwardly-extending ends formed with horizontal coils and entering said transverse openings, and curves passing through the cheeks of the guards and entering the threaded sockets of the studs to secure the guards thereto, and impinging against the ends of the springs to hold the same seated in said openings, substantially as set forth.

699,742. ADDRESSING-MACHINE. FRANK D. BRIDGES, Invented. N. Y. Filed Feb. 15, 1902. Serial No. 83,485. (No model.)



Claim.—1. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism, continuously acting and independent of the printing mechanism, said feed mechanism being operatively arranged between the magazine and printing mechanism, as specified.

2. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting and separated from the printing mechanism, but operatively arranged to feed the cards from the magazine, as specified.

3. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting, said feed mechanism being arranged between the magazine and printing mechanism to cooperate therewith as a separate and independent device.

4. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting, said feed mechanism being arranged between the magazine and printing mechanism to cooperate therewith as a separate and independent device, and a second magazine, comprising card-carrying guides extending from the feed to the printing mechanism.

5. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting, said feed mechanism being arranged between the magazine and printing mechanism to cooperate therewith as a separate and independent device, and a second magazine, comprising card-carrying guides extending from the feed to the printing mechanism, the entrance to the second magazine being constructed to the approximate thickness of the card.

6. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting, said feed mechanism being arranged between the magazine and printing mechanism to cooperate therewith as a separate and independent device, strippers for the cards and a second magazine, comprising card-carrying guides extending from the feed to the printing mechanism.

7. The combination with printing mechanism and a card-magazine, of rotary card-feed mechanism continuously acting, said feed mechanism being arranged between the magazine and printing mechanism to cooperate therewith as a separate and independent device, and comprising a series of projections radially disposed about and carried by a rotatable shaft.

8. In a stencil-printing machine, the combination with card-magazine and stencil-printing mechanism, of a card-feeding device comprising twin disks, toothed to engage the cards and arranged in operative relation to the magazine, one of the magazines extending from the point of feed to the printing mechanism, as specified.

9. In a stencil-printing machine, the combination with card-magazine and stencil-printing mechanism, of a card-feeding device, comprising twin disks, toothed to engage the cards and arranged in operative relation to the magazine, and card-strippers cooperating with the disks, as specified.

10. In a stencil-printing machine, the combination with card-magazine and stencil-printing mechanism, of a card-feeding device, comprising twin disks, toothed to engage the cards and arranged in operative relation to the magazine, one of the magazines extending from the point of feed to the printing mechanism, and card-strippers cooperating with the disks.

11. In a stencil-printing machine, the combination with a vertically-disposed card-receiving box arranged in operative relation to the discharge end thereof, of a movable inclined bottom frictionally contained within the box and an automatic feed for adjusting the bottom according to the number of cards entered, as specified.

12. In a stencil-printing machine, the combination with a vertically-disposed card-receiving box arranged in operative relation to the discharge end thereof, of a movable bottom frictionally contained within the box and an automatic feed for adjusting the bottom according to the number of cards entered, and one or more projections entering the box as card-receivers, as specified.

13. In a stencil-printing machine, the combination with a vertically-disposed card-receiving box arranged in operative relation to the discharge end thereof, of a movable bottom frictionally contained within the box, a series of springs secured to the movable bottom and bearing against the inner walls of the box, whereby the bottom is frictionally supported, and an automatic feed device for adjusting the bottom according to the number of cards entered, as specified.

14. In a stencil-printing machine, the combination with a card-receiving box arranged in operative relation to the discharge end thereof, of a movable bottom frictionally contained within the box, a series of springs secured to the movable bottom and bearing against the inner walls of the box, whereby the bottom is frictionally supported, and an automatic feed device for adjusting the bottom comprising a vibrating arm relatively disposed to engage the cards within the box and suitable gearing for transmitting the requisite motion for vibrating said arm, as specified.

15. The combination of a rotary printing mechanism, a rotary stencil-card-feed mechanism separate from the printing mechanism, and straight slotted guides extending from between the two and tangential to all the rotating elements comprised therein.

16. The combination of a continuously-rotating, printing mechanism, a continuously-rotating stencil-card-feed mechanism, and two oppositely-arranged slotted guides between which the card passes from feed mechanism to printing mechanism, whereby said cards are positively held in line at every point of their progress from feed to printing mechanism.

699,743. BRASS-TIP FOR PENCIL. WILLIAM E. BROWELL, Littleton, Mich. Filed Aug. 20, 1901. Serial No. 73,993. (No model.)

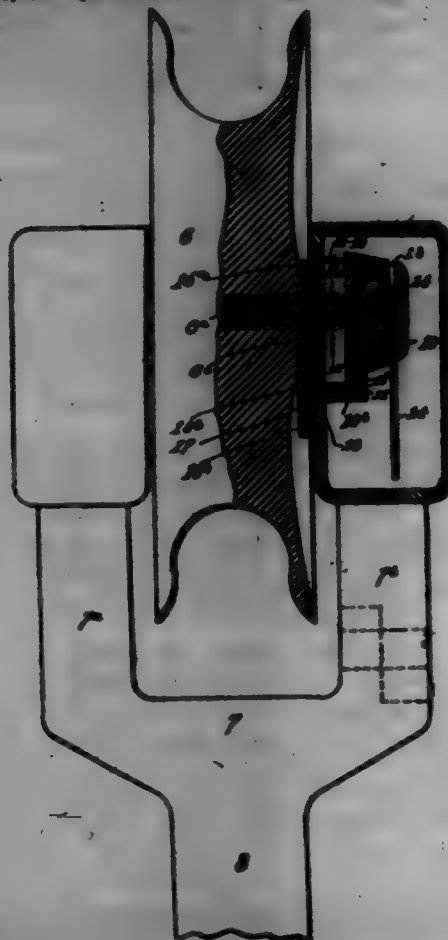


Claim.—1. In a pencil-tip, the combination of a sleeve A slotted at one end to fit on the upper end of a pencil, the other end of which is slotted into jaws B which are bent slightly inward, one of said jaws being bent to form a leg B'; said jaws adapted to receive an elongated piece of elastic ename material; an external sleeve C containing a detent U for engaging leg B' embracing the said jaws and contacting with the same sufficiently to crowd them into the yielding ename material, whereby the said external sleeve is adjustable back and forth over the said ename material, for the purpose specified.

2. In a pencil-tip, the combination of a sleeve A slotted at one end to fit on the end of a lead-pencil, the other end of which is slotted into jaws B which are bent slightly inward and adapted to receive an elongated piece of elastic ename material; an external sleeve C embracing the said jaws and contacting with the same sufficiently to crowd them into the yielding ename material whereby said external sleeve is adjustable back and forth over said jaws and over the ename material, for the purpose specified.

2. In a pencil-tip, the combination of a sleeve adapted to fit on the end of a lead-pencil, the upper end of which is divided into jaws which are bent slightly inward and adapted to receive an elongated piece of elastic crumple material of such size as to force the jaws slightly outward; an external sleeve embracing the jaws and extending beyond the same and covering the same into the crumple material to retain it securely and adjustably back and forth over the same, for the purpose specified.

699,744. TROLLEY-WHEEL. GEORGE R. CHAPMAN, GEORGE L. BROWN, and JOHN H. WHEEL, Cleveland, Ohio. Filed July 10, 1901. Serial No. 69,458. (No model.)



Claim.—1. In combination, a trolley-pole and harp, a trolley-wheel supported thereby, and a contact-piece between the harp and the wheel having both lateral and tangential contact-surfaces with the wheel.

2. In combination, a trolley-pole and harp, a trolley-wheel supported in bearings on the harp, an axle for the wheel, a hub or shoulder extending from the side of the wheel, and a contact-piece between the wheel and the harp having two lines of contact, one laterally with the wheel and the other tangentially with the hub or shoulder.

3. In combination, a trolley-pole, a harp at the upper end thereof, a bearing-box on each arm of the harp, a wheel between the bearing-boxes having an axle extending into the bearing-box, and a contact-ring hinged to the inner wall of the bearing-box and adapted to contact with the wheel.

4. In combination, a trolley-pole, a harp at the upper end thereof, a bearing-box on each arm of the harp, a wheel between the bearing-boxes having an axle extending into the bearing-box, and a contact-ring hinged to the inner wall of the bearing-box and adapted to yieldingly contact with the wheel.

5. In combination, a trolley-pole, a harp at the upper end thereof, a bearing-box on each arm of the harp, a wheel between the bearing-boxes having an axle supported in the bearing-box, and a contact-ring hinged to the inner wall of the bearing-box, the hinged connection being such that the ring has longitudinal and radial movement relative to the axle, so that it contacts with the side of the wheel and with the periphery of the axle or hub.

699,745. FLOOR-POLISHING BRUSH. DANIEL I. OGDEN, Watery, N.H. Filed Apr. 20, 1901. Serial No. 69,399. (No model.)



Claim.—1. A belting device for gyratory belting-machines, comprising superposed frame members having bottoms provided with cor-

responding tailings-discharge openings, the bottom of the upper member being formed by a screen, and the contiguous edges of the frames being provided with a notch and projection interlocking connection to prevent edgewise separation of the frames.

2. A belting device for gyratory belting-machines, comprising superposed frames, having bottoms which are provided with corresponding tailings-discharge openings, the bottom of the upper frame member being formed by a screen, the upper edge of the lower frame member being provided with notches, and the bottom edge of the upper member being provided with projections corresponding to and adapted to fit snugly within the notches of the lower frame to prevent edgewise separation of the frame members.

3. As a new article of manufacture a belting element for gyratory belting-machines, comprising a skeleton frame having its upper edge provided with sets of aligned notches, a bottom secured to the lower edge of the frame and having a discharge-opening formed therein at one end thereof, and bottom-supporting cleats secured to the lower edge of the frame across the outer side of the bottom and disposed to correspond with the respective sets of notches in the upper edge of a similarly-constructed adjacent frame.

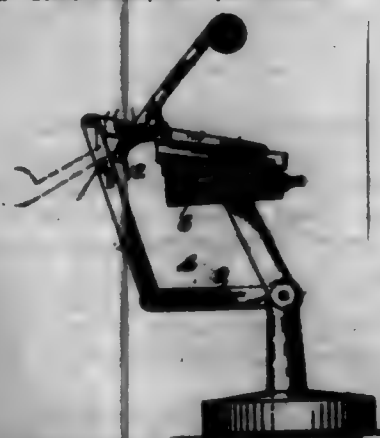
4. The combination with a belting-device, the cloth of which presents an unobstructed and unbroken plane throughout its entire upper surface, and sleeve-cloth-supporting bars or cleats secured to the under side of the frame and arranged transversely and longitudinally thereof, of a collecting-box having recesses formed in its upper edges, with which recesses the said bars or cleats on the belting-device detachably engage when the device and the box are assembled, thereby to prevent lateral and longitudinal play of the frame when in operation.

5. The combination with a belting-device having sleeve-cloth-supporting bars secured to the under side of the frame, of a collecting-box having its upper edges provided with recesses with which the bars of the belting-device detachably engage when the device and the box are assembled, the connection between the bars and the recesses serving to effect a stable juncture between the two parts, and at the same time to prevent lateral or longitudinal play of the frame when in operation.

6. A belting device for gyratory belting-machines, comprising a plurality of belting members having corresponding tailings-discharge openings, and detachable interlocking means between the frames of consecutive members so as to prevent edgewise play thereof.

7. As a new article of manufacture, a belting element for gyratory belting-machines, comprising a skeleton frame having notches formed in one edge, and projections carried by the opposite edge thereof, and a bottom secured to the lower edge of the frame and having a discharge-opening formed in one end thereof.

699,746. MAIL-BOX. DARWIN R. CHAPMAN, English, Ohio. Filed Mar. 2, 1902. Serial No. 69,451. (No model.)



Claim.—1. In a mail-box of the character described, the combination with a suitable base; of a tilting frame or support, a box carried by the support, a cover for the box, and means for opening and closing the cover upon the tilting of the support, substantially as described.

2. In a mail-box, the combination with a suitable base; of a tilting frame or support, a box carried thereby, a hinged or pivoted cover for the box, and connections between the cover and base for automatically opening or closing said cover upon the forward or backward tilting of the box on said support, substantially as specified.

3. In a mail-box of the character described, the combination of a base-support provided with a rearwardly-extending arm, a tilting frame mounted upon said support, a box carried by the frame, a hinged or pivoted cover for the box, an arm projecting rearwardly therefrom, a link connecting the arms of the support and cover, whereby when the box is moved forwardly or rearwardly on its tilting frame, the cover is automatically opened or closed, substantially as specified.

4. In a mail-box of the character described, the combination of a

base-support, a tilting frame mounted thereon, a box carried by the frame, a hinged or pivoted cover for the box, a link connection between the support and cover for automatically opening and closing the cover upon the forward and backward swinging of the box upon its tilting frame, and a signal adapted when in one position to rest upon the box-cover, and in its other position to be supported by the link, substantially as specified.

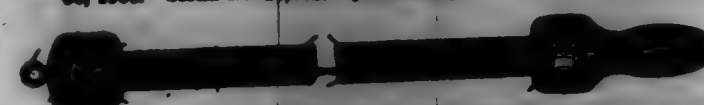
699,747. RAILWAY-FRAME LUBRICATOR. FRED M. DE LAFF, Chicago, Ill. Filed Oct. 9, 1901. Serial No. 70,128. (No model.)



Claim.—1. Is a lubricator for railway-cars the combination with an injector-pipe of a steam-pipe, inserted into the head of the boiler and extending downward underneath the cab and to the trunk of the tender, a motion-valve in said pipe, a T connecting said motion-valve with said injector-pipe and valves to operate said lubricator substantially as specified.

2. Is a lubricator for railway-cars a steam-induction pipe connected with the head of boiler of the engine a motion-valve connecting with said induction-pipe, a T connecting said motion-valve with the water-injector pipe on the boiler of the engine and means to operate said device substantially as specified.

699,748. FILE. HENRY F. BULLOCK, Chicago, Ill. Filed Dec. 26, 1901. Serial No. 67,778. (No model.)



Claim.—1. Is a file for the temporary preservation of newspapers and like publications the combination comprising a staff formed of one piece of material, preferably of wood, having a longitudinal channel triangular in form, the interior and exterior angles of said channel being rounded, a handle affixed to one end of said staff, a cap adapted to be attached to and to be removable from the other end of the staff, the said cap having a central aperture in line with the longitudinal center of the staff, and a bar or file adapted to extend longitudinally through the channel in the staff and through the aperture in the cap, the said bar or file having a cut-off end and an eye, the said eye and cut-off being arranged to engage and to hold the cap in a permanent movable position on said bar or file, substantially as described.

2. Is a file of the class described the combination of a staff having a longitudinal channel triangular in form, and having a handle affixed to one end of said staff, with a cap adapted to fit on the other end of said staff, and a bar or file having an offset end and an eye, that part of said bar or file between the offset end and eye being adapted to pass through an aperture in said cap and to form a permanent central bearing on which said cap is free to be revolved, substantially as described.

699,749. LOADING OR UNLOADING APPARATUS. DAVID J. FARMER, Butler, Tenn. Filed Nov. 14, 1901. Serial No. 69,395. (No model.)

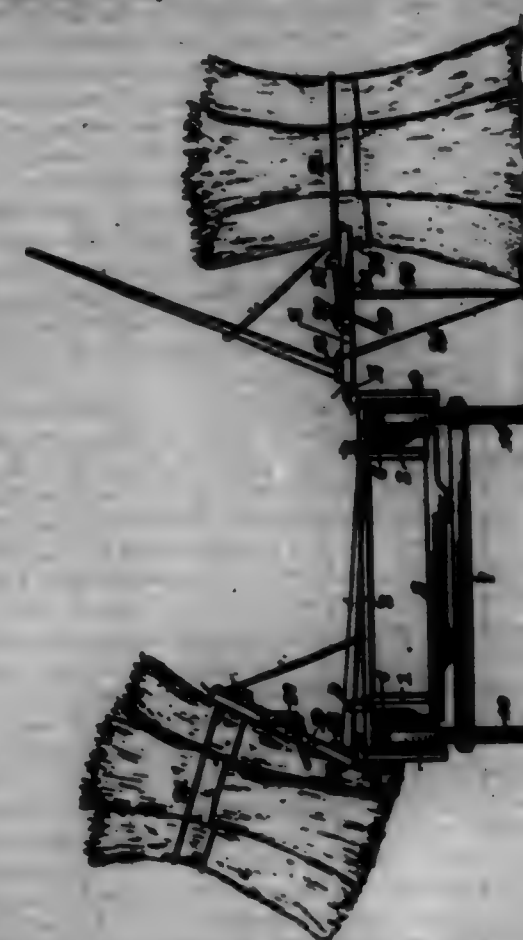
Claim.—1. Is a loading and unloading apparatus of the character described, a supporting-frame comprising longitudinal side, cross-bars connecting the side and projected at opposite sides thereof, and pendant finger-boards connected to the opposite ends of the cross-bars, and check-bolting means hinged to the frame.

2. Is a loading and unloading apparatus of the character described, a main supporting-frame comprising opposite longitudinal side, cross-bars connecting the side and projected at opposite sides thereof, finger-boards carried by the opposite ends of the cross-bars, longitudinal brace-bars applied to the upper edges of the finger-boards and the cross-bars, opening-blocks interposed between the side and the adjacent finger-boards, and a plurality of check-bolting means hinged to the respective longitudinal brace-bars.

3. Is a loading and unloading apparatus, the combination with a vehicle, of a check-bolting device hinged thereto, and a substantially U-shaped standard pivoted at opposite ends to the bolting device to engage the ground and support said device in position for engagement with a check, and a flexible brace extending between the bolting device and the swinging standard.

4. Is a loading and unloading apparatus, the combination with a vehicle, of a bolting-frame hinged to the vehicle, check-engaging means carried by the frame, a lever mounted upon the frame to swing the same upwardly upon its hinged connection, and a substantially U-shaped swing-

ing standard having its opposite ends pivoted to opposite sides of the bolting-frame, and provided with a flexible brace extending between the standard and the rear portion of the bolting-frame.



5. Is a loading and unloading apparatus, the combination with a supporting-frame, of a bolting device hinged thereto and capable of swinging in a vertical direction, and an extending lever rigidly carried by the bolting device, the top of the supporting-frame lying in the path of the swing of the lever and forming a stop to limit the movement thereof, whereby said lever forms a prop to support the bolting device in its elevated position.

6. Is a loading and unloading apparatus, a substantially rectangular vertically-swinging bolting-frame, a winding-drum mounted thereon, pairs of guide-rollers mounted upon the outer end of the frame, and a looped check-embolting cable projected in front of the outer end and having its opposite portions working between the members of the respective pairs of guide-rollers, and its opposite ends connected to the winding-drum, whereby the cable and the outer end bar cooperate to embrace a check.

7. Is a loading and unloading apparatus, a vertically-swinging substantially rectangular bolting-frame, having a transversely-disposed winding-drum, a lever projected upwardly from the inner end of the frame, a brace extending between the lever and the outer corner of the frame, a swinging standard normally pendant from the frame, a flexible brace connection between the standard and the rear end of the frame, guides upon the upper side of the outer end of the frame, teeth projected from the under side of said outer end, and a looped check-embolting cable having its opposite portions working through the respective guides and also connected to the drum.

8. Is a loading and unloading apparatus, the combination with a frame comprising opposite longitudinal side, cross-bars connecting the same and projected at opposite sides thereof, finger-boards carried by the opposite ends of the cross-bars, and check-bolting frames hinged to opposite sides of the frame, each bolting-frame having an opening-lever, a winding-drum, guides upon the outer end of the frame, a check-embolting looped cable having its opposite portions working through the respective guides and also connected to the drum, and a supporting-standard and swing from the frame and adapted to engage the ground for the support of the frame.

9. Is a loading and unloading apparatus, the combination of a frame comprising opposite longitudinal side, cross-bars connecting the same and projected at opposite sides thereof, finger-boards carried by the outer ends of the cross-bars, and longitudinal brace-bars applied to the outer end portions of the cross-bars, each brace-bar having pairs of notches formed in the upper outer edge thereof, hinge-connections secured to the brace-bars and adjacent to the notches, substantially rectangular vertically-swinging bolting-frames at opposite sides of the main frame, each bolting-frame comprising opposite longitudinal bars and end cross-bars, the rear cross-

bar being disposed inwardly from the rear ends of the side bars, said rear ends of the side bars working in corresponding notches of the main frame, a hinge-plate pivoting the rear ends of the hoisting-frame and engaging the hinge-sockets, a winding-drum mounted upon the hoisting-frame, guides carried by the outer end of said frame, a shock-absorbing looped cable having its opposite portions working through the respective guides and connected to the drum, a swinging supporting-standard carried by the hoisting-frame, a flexible connection between the standard and the rear end of the frame, and a lever rigidly connected to the hoisting-frame.

10. The combination with vehicle-holsters having standards rising therefrom, of a loading and unloading apparatus having a main supporting-frame comprising opposite longitudinal side members supported upon the holsters and at the inner ends of the standards, cross-bars connecting the side members and projected at opposite sides thereof, flanges carried by the opposite ends of the cross-bars to fit upon the outer sides of the vehicle-wheels, and vertically-swinging shock-holding frames hinged to opposite sides of the main supporting-frame.

11. In a loading and unloading apparatus, the combination with a vehicle, of a hoisting device hinged to the vehicle and adapted to assume a substantially horizontal position for engagement with a shock, means for elevating the hoisting device independently of the movement of the vehicle, and a pendant swinging supporting-standard carried by the hoisting device with its lower end capable of resting upon the ground to support the hoisting device when the latter is swung outwardly into a substantially horizontal position for engagement with a shock.

12. In a loading and unloading apparatus, the combination with a vehicle, of a hoisting device hinged thereto, means for supporting the hoisting device in a substantially horizontal position when swung outwardly from the vehicle into position for engagement with a load, and means for elevating the hoisting device upon its hinged support independently of movement of the vehicle.

13. In a loading and unloading apparatus, the combination with a vehicle, of a hoisting device hinged thereto, means for supporting the hoisting device in a substantially horizontal position when swung outwardly from the vehicle into position for engagement with a load, and means for elevating the hoisting device upon its hinged support independently of movement of the vehicle.

14. In a loading and unloading apparatus, the combination with a vehicle, of a hoisting device hinged to one side and capable of swinging transversely thereof, propping means swung from the hoisting device to support the latter in a substantially horizontal position when swung outwardly from the vehicle for engagement with a load, and an upstanding lever carried by the hoisting device for swinging the same upwardly upon its hinged connection independently of a movement of the vehicle.

15. In a loading and unloading apparatus, the combination with a supporting-frame, of a hoisting device hinged thereto, and a lever rigidly carried by the hoisting device and inclined upwardly and outwardly toward the free end thereof, the top of the supporting-frame lying in the path of the inward swing of the lever, whereby the latter forms a prop to support the hoisting device in an inwardly and upwardly inclined position when elevated.

699,750. WRAPPING-MACHINE. JOHN H. PHILIPS, Pittsburg, Pa. Filed Apr. 20, 1901. Serial No. 55,145. (No model.)

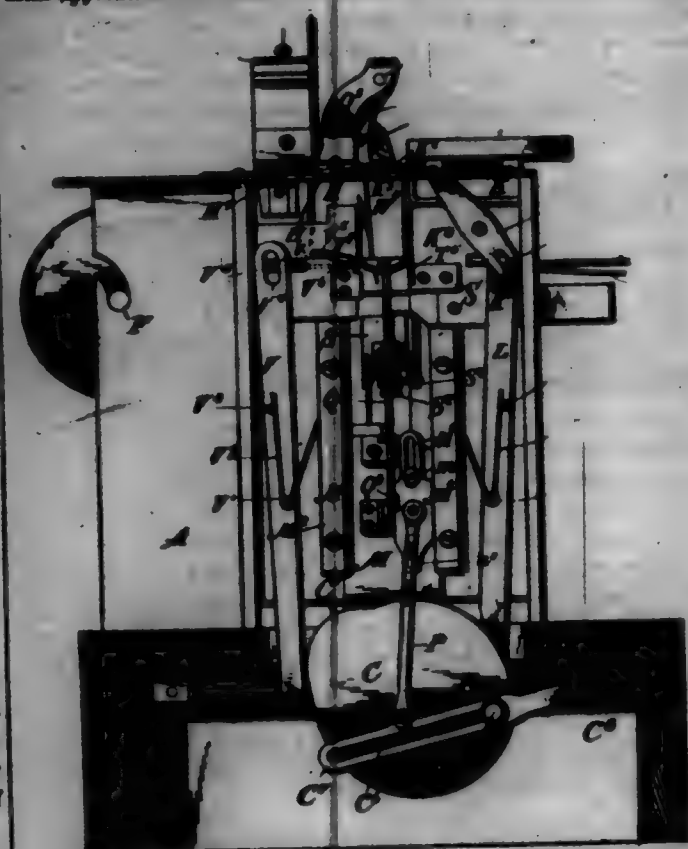
Claim.—1. A wrapping-machine, consisting of a frame having folding mechanism, a wrapper-feeding device, a depending shoe for temporarily holding an article to be wrapped, and means for swinging the shoe from underneath said article preparatory to its being wrapped, as set forth.

2. A wrapping-machine, consisting of a frame and folding apparatus, a wrapper-feeding device, a depending swinging shoe on which an article is fed and temporarily held, arms designed to depress the article and wrapping-paper onto a folding-table, and means actuated by one of said arms, for depositing the article to be wrapped on the wrapping-paper by withdrawing said shoe, as set forth.

3. A wrapping-machine, consisting of a frame and folding mechanism, a wrapper-feeding device, a depending swinging shoe mounted over the wrapping-paper, and designed to temporarily hold the article to be wrapped over the paper, arms for engaging the article, one of said arms adapted to swing said shoe from under the article to be wrapped, and means for depressing the article and paper beneath same onto a folding-table, as set forth.

4. A wrapping-machine consisting of a frame and folding mechanism, an intermittent wrapper-feeding device for advancing the paper to a position on which an article is deposited, means for cutting the wrapping-paper a measured length, a yoke rotated to the frame, a swinging shoe pivoted thereto, and having an angled and adapted to temporarily support the article to be wrapped, the pivoted arms for engaging the article and depressing same with the wrapping-paper onto a wrapping-table, one

of said arms designed to throw the shoe back to free the article as the arms approach each other, as set forth.



5. A wrapping-machine, consisting of a frame and folding mechanism, an intermittent wrapper-feeding mechanism for advancing a piece of paper to a position to receive an article to be wrapped, means for cutting the paper a measured length, a yoke secured to the top of the frame, a swinging shoe having a projection designed to temporarily support the article to be wrapped, a plate pivoted to swing with said shoe, and arms having angled ends which engage and depress the article to be wrapped, one of said arms designed to contact with and swing said plate and the shoe centered thereto backward to free the shoe from the article, as set forth.

6. A wrapping-machine, consisting of a frame and folding mechanism, an intermittent wrapper-feeding mechanism for advancing the paper to a position to receive an article to be wrapped, means for cutting the paper to a measured length, a yoke secured to the frame, a shoe having an angled projection, and pivoted within said yoke, a plate mounted to swing with said shoe, and guided by a pin working in a slot in one of the arms of the yoke, the edge of said plate being inclined, the pivoted arms with plates secured to the ends thereof which are adapted to engage over the article to depress same onto a wrapping-table, one of said arms adapted to contact with said plate and swing same together with said shoe rearward to release the article and deposit same on the wrapping-paper, as set forth.

7. A wrapping-machine, comprising a frame and folding mechanism, an intermittent wrapper-feeding mechanism, for advancing the paper to a position to receive an article to be wrapped, a reciprocating paper supporting and guide plate, means for operating same, a swinging shoe for temporarily supporting the article to be wrapped over the wrapping-paper which has been cut to a measured length, and mechanism for swinging the shoe rearward and for operating said guide-plate, as set forth.

8. A wrapping-machine comprising a frame and folding mechanism, paper-feeding means, a reciprocating plate mounted on the frame of the machine and having two blades K' and K'' spaced apart, a tilting lever engaging said spaced plate, and adapted to reciprocate the same, and means for tilting said lever, as set forth.

9. A wrapping-machine, comprising in combination with the frame, the paper-feeding mechanism, means for cutting the paper, swinging arms which are adapted to automatically grip an article which has been deposited upon the wrapping-paper, means for operating said arms and depress the same with the wrapping-paper, and means for folding the opposite longitudinal edges of the wrapping-paper about an article resting on a folding-table, as said swinging arms are raised to their highest position, as set forth.

10. A wrapping-machine, comprising in combination with the frame of the machine, means for feeding the paper to a position to receive an article to be wrapped, pivoted and vertically-reciprocating arms adapted to grip the article which has been superimposed upon the wrapping-paper and depress the same with the wrapping-paper, means for operating said arms, a wrapping-table, and means for folding one edge of a wrapping-

paper resting on said table on which an article to be wrapped rests, slightly in advance of the opposite flap, said folding being effected in the upward throw of said reciprocating arms.

11. In a wrapping-machine, the combination with the frame, reciprocating pivoted arms, which are adapted to engage and depress an article to be wrapped, which has been superimposed upon the wrapping-paper, means for operating said arms, a stationary wrapping-table, horizontally-movable folding-blades mounted above said table, and levers which are adapted to actuate said blades, one in advance of the other, as said swinging arms are raised to depress a following article to be wrapped, as set forth.

12. A wrapping-machine, comprising in combination with the frame, vertically-movable swinging arms, which are adapted to engage and depress an article to be wrapped, which has been previously superimposed upon a piece of wrapping-paper, means for operating said arms, a driving-shaft and connection between said shaft and the swinging arms for operating the latter, folding-blades adapted to be actuated, one in advance of the other, as said arms are raised to their highest position, as set forth.

13. A wrapping-machine, comprising in combination with the frame, an operating-shaft, a reciprocating cross-head, pivoted and swinging arms carried by said cross-head, connections between said shaft and cross-head for operating the latter, and means for tilting or swinging said arms as the cross-head reciprocates.

14. A machine for wrapping articles, comprising in combination with the frame, a driving-shaft, a cam-wheel mounted thereon, a cross-head and connection between same and said cam-wheel for reciprocating the cross-head, folding-blades, which are driven forward by said cam-wheel as the cross-head rises, pivoted and swinging arms carried by the cross-head, and adapted to be thrown outward as the cross-head is raised, and means for throwing the arms toward each other as they approach their highest position, as set forth.

15. A machine for wrapping articles, comprising in combination with the frame, a driving-shaft, cam-wheel mounted thereon, a reciprocating cross-head, horizontally-disposed folding-blades, which are driven forward by the cam-wheel, as said cross-head rises, pivoted arms mounted on said cross-head, and end-folding blades carried by said arms, as set forth.

16. A machine for wrapping articles, comprising in combination with the frame, a driving-shaft and cam-wheel rotating therewith, a reciprocating cross-head, connections between same and said driving-shaft, the side-folding flaps actuated by said cam-wheel, the pivoted arms carried by the cross-head, and means for operating said arms as the cross-head reciprocates, an edge-folding blade secured to each arm, adapted in turn to fold the opposite edge flaps of the wrapper, as said arms descend, as set forth.

17. A machine for wrapping articles, comprising in combination with the frame the driving-shaft, the cam-wheel rotating therewith, cross-head and connections between same and said cam-wheel, the side-folding blades actuated by said cam-wheel, the pivoted arms carried by the cross-head and means for tilting said arms as the cross-head reciprocates, an edge-folding blade secured to each of said arms, and a pivoted folding member carried by each arm, as set forth.

18. A wrapping-machine, comprising in combination with the frame, the driving-shaft, cam-wheel rotating therewith, horizontally-movable folding-blades and levers actuated by the cam-wheel for operating the same, a reciprocating cross-head, pivoted arms carried thereby, and adapted to be tilted as the cross-head reciprocates, edge-folding blades carried by said arms adapted to be thrown toward each other, as said arms approach their highest position, and means for holding said blades so that as they descend they will be held parallel to each other, and a pivoted folding member carried by each arm, as set forth.

19. A wrapping-machine, comprising in combination with the frame, the driving-shaft, cam-wheel rotating therewith, the horizontally-movable folding-blades, levers connected with said cam-wheel for operating said folding-blades, a reciprocating cross-head and connections between same and the cam-wheel, the pivoted arms carried by the cross-head, and rocked or tilted as said cross-head reciprocates, a blade carried by each of said arms, which blade is adapted to fold the opposite edges of the wrapper, and retaining guide-plates held to the frame of the machine behind which said edge-folding blades are adapted to engage, and to be held in parallel relation against the article to be wrapped as said blades are descending, and a pivoted folding-flap carried by each arm, as set forth.

20. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, a reciprocating cross-head, the horizontally-movable folding-blades, the pivoted arms carried by the cross-head, a blade adapted to fold the opposite edges of the wrapper carried by each of said arms, means for throwing said edge-folding blades toward each other as the cross-head is driven to its highest position, stationary retaining guide-plates behind which said cross-head is thrown, a pivoted folding member on each of said arms and having a projection which is adapted to fold the top flaps slightly in advance of the folding of the edge flaps, and means for throwing said pivoted folding member outward, as the opposite edge flaps are folded, as set forth.

21. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, the horizontally-movable folding-blades, means for actuating same, the reciprocating cross-head, pivoted arms carried thereby, and means for tilting the same as the cross-head reciprocates, folding-blades secured one to each arm, which blades are adapted to fold the opposite edges of the flap, one in advance of the other as said blades are held in parallel relation, and on their downward movement, a pivoted folding member on each of said arms, a stationary portion of the frame in the path of said pivoted folding member adapted to throw the latter outward as the opposite edge flaps are being folded, as set forth.

22. A wrapping-machine, comprising in combination with the frame, the operating-shaft and cam-wheel rotating therewith, the horizontally-movable folding-blades and means for operating the same, the cross-head, connections between same and the operating-shaft, the pivoted arms carried by the cross-head, means for tilting said arms as the cross-head reciprocates, the edge-folding blades and pivoted folding member carried by each of said arms, means for adjusting said edge and top folding members longitudinally on each of said arms, as set forth.

23. A wrapping-machine, comprising in combination with the frame, the operating-shaft, a reciprocating cross-head, pivoted arms carried by said cross-head, means for imparting an intermittent motion to the cross-head as the shaft is rotated.

24. A wrapping-machine, comprising in combination with the frame, the driving-shaft, a reciprocating cross-head, and means connected with said shaft for operating same, pivoted arms carried by said cross-head, and means for throwing the upper ends of said arms toward each other when the cross-head is at its upper end, and stationary, as set forth.

25. A wrapping-machine, comprising in combination with the frame, the driving-shaft, the cam-wheel, a reciprocating cross-head, the horizontal folding-blades, means for operating the same, a sliding plate carried by the cross-head, and having pin and lever connections with said cam-wheel, the pivoted arms, and means for actuating same as said plate slides, as set forth.

26. A wrapping-machine, comprising in combination with the frame, driving-shaft, cam-wheel rotating therewith, a reciprocating cross-head, a sliding plate secured to said cross-head, and having a longitudinal ply, pivoted arms carried by the cross-head, a pivoted and tilting link actuated by said sliding plate, and adapted to operate said pivoted arms as the cross-head and plate carried thereby are reciprocated.

27. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, a reciprocating cross-head, a plate having a longitudinal sliding connection with said cross-head, pin and lever connections between said plate and the cam-wheel, the arms carried by the cross-head, and having their lower ends angled, one of said angled ends being connected to receive the convex end of the other, and adapted to tilt in contact with each other, and a link adapted to tilt one of said levers, as set forth.

28. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, the reciprocating cross-head adapted in its stationary position for a moment when at its highest limit and sliding plate mounted thereon, pin and lever connections between said cam-wheel and the sliding plate, the arms carried by the cross-head and having their lower portions angled, one end being connected and the other convex, and held in contact with each other, a link mounted on one of the pivots of said arms, and having pivotal connection with the angled portion of one of said arms, whereby as said sliding plate is reciprocated independent of the cross-head, said arms are tilted upon their pivots, as set forth.

29. A wrapping-machine, comprising in combination with the frame, a driving-shaft, reciprocating cross-head, a sliding plate mounted thereon, connections between said sliding plate and the driving-shaft, the pivoted arms carried by the cross-head, and having their lower ends angled and turning in contact with each other, one of the meeting ends of said arms being connected to receive the convex end of the other, shoulders on said ends to limit the throw of said arms, a link carried on one of the pivots of said arms, and having pivotal connection with the angled portion of an arm, and in free end engaging a means in said sliding plate, as set forth.

30. In a wrapping-machine, the combination with the frame, the shaft, the reciprocating cross-head, the sliding plate having slots at its opposite ends, covers secured to the cross-head and passing through said slots to limit the throw of said plate, the arms pivoted at their angled portions to the cross-head, the inner ends of said arms, being held in frictional contact, shoulders to limit the throw of said arms, and dotted guide-plates through which the arms pass, a link mounted on one of the pivots of said arms and having pivotal connection with the angled end of one of said arms, the end of said link adapted to rest in a recess in said sliding plate, and to be tilted by the latter as the plate reciprocates independent of the cross-head, as set forth.

31. In a wrapping-machine, the combination with the frame, the

driving-shaft, the cam-wheel rotating therewith, the cross-head, the pivoted cross carried thereby, sliding plate mounted upon the cross-head, means for tilting said arms as the plate moves independent of the cross-head, a dotted lever *O* pivoted at one end to the frame of the machine, plunger connection between said lever and sliding plate, and a pin *C* mounted eccentrically on said cam-wheel and working in the slot of said lever, whereby the cross-head has an oscillated motion during its upward movement, and a gradual movement on the downward throw of said cross-head, as set forth.

22. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, a reciprocating cross-head, sliding plate mounted thereon, pivoted arms carried by the cross-head and means for tilting said arms as said plate is actuated independent of the cross-head, a dotted lever pivoted to the stationary portion of the frame, a wrist-pin carried by the cam-wheel and having a sliding play in said lever, and plunger connection between said sliding plate and lever, as set forth.

23. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, a segment-arm mounted on one face of the cam-wheel, the pivoted levers *L* and *V*, the folding-blades actuated by said levers *L* and *V*, the paper-guiding plate mounted on the table, a pivoted lever *K* actuated by said lever *L* for reciprocating said guide-plate.

24. A wrapping-machine, comprising in combination with the frame, driving-shaft, the cam-wheel rotating therewith, the lever *V* normally held in contact with the cam edge of said wheel, a horizontal folding-blade having a bar *V* engaging an aperture in the upper end of said lever, a spring *V* adapted to said bar and a pin *V* secured to the free end of said spring, and secured to slide in diagonally-disposed slot *V* in the frame of the machine, whereby as said horizontal blade is drawn forward, the spring will be slightly under tension, and the folding-blade adapted to yield slightly, as set forth.

25. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel rotating therewith, a segment-arm on the face of said cam-wheel, the pivoted lever *L* actuated by said segment-arm, a spring mounted on the pivoted pin of said lever, one end bearing against the stationary part of the frame, its other end against a pin on said lever, and adapted to normally hold the lower curved portion of said lever in the path of the circumference of said segment-arm, a pin carried at the upper end of said lever, the folding-blade secured to said pin and a spring secured to said blade, and a tilting lever dotted, and engaging said pin, and a paper-guide plate actuated by said tilting lever, as set forth.

26. In a wrapping-machine, the combination with the frame, the driving-shaft, the cam-wheel, a reciprocating cross-head, a sliding plate mounted on said cross-head, pivoted connections between the cam-wheel and said plate, and a spring bearing against the cross-head and adapted to flexibly engage and hold the same expanded while said plate has a movement independent of the cross-head, as set forth.

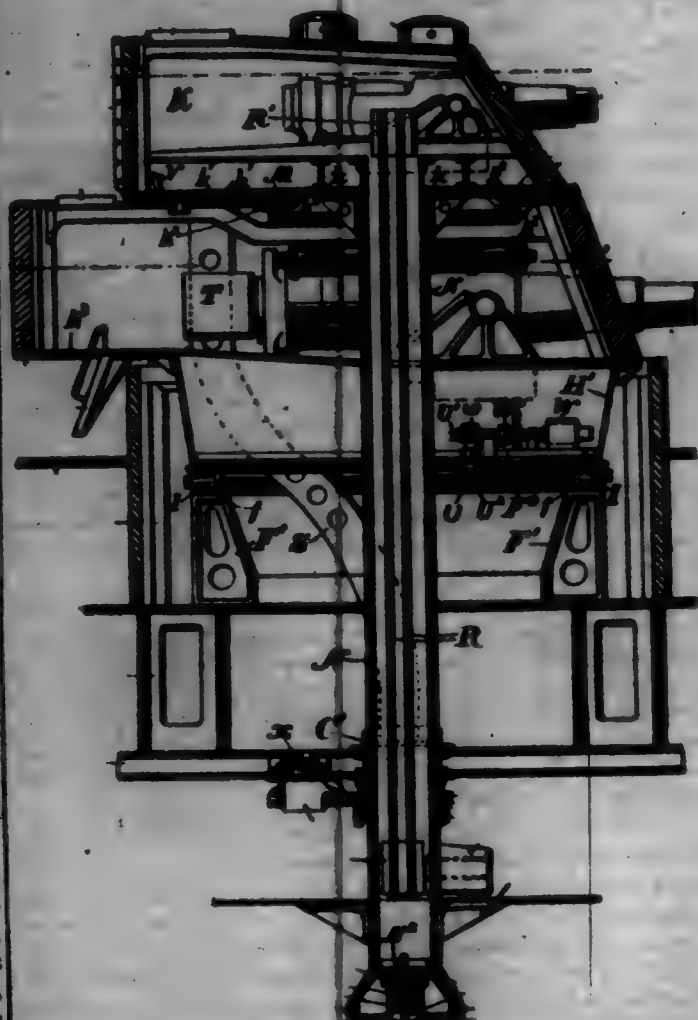
27. A wrapping-machine, comprising in combination with the frame, the driving-shaft, the cam-wheel rotating therewith, the segment-arm, the pin mounted on said segment, the tilting lever actuated by the segment-arm, and the folding-blade actuated by said lever, a plunger, a spring-actuated pivoted lever having connection with said plunger, a trip member pivoted to the frame and having flat connections with said plunger engaging lever, the lower end of said trip disposed in the path of said pin on the segment-arm, whereby the plunger is drawn forward and automatically returned to its starting position by said spring-actuated lever, as set forth.

28. A wrapping-machine, comprising in combination with the frame, the driving-shaft and cam-wheel, the plunger, the table on which the same is mounted, the spring-actuated lever engaging said plunger, the pivoted trip, flat connection between the same and said lever, the pin mounted on the cam-wheel adapted to contact with said trip to drive the plunger forward, said plunger being longitudinally slotted, a spring secured to the frame and having its lower free end engaging in the slotted end of said plunger, as set forth.

29. A wrapping-machine, having in combination with the frame, the driving-shaft, the cam-wheel rotating therewith, the plunger and folding means, and mechanism for operating the same, the folding-table having diagonally-disposed and slightly-curved slots in its opposite edges, one in advance of the other, and into which the last flaps of the wrapper are adapted to engage as the articles being wrapped are successively driven by the plunger outward, the outer marginal walls of said slots projecting outward over the opposite sides of the table, forming wings to guide the end flap, as set forth.

30. In combination with the cross-head and pivoted arms carried thereby, the folding-blade secured to each arm, said plate having its lower end slotted, one edge of which is provided with an abrupt curved portion *T*, and its opposite edge curved gradually, as set forth.

699,751. SUPERPOSED TURRET. THOMAS C. FURRY, U. S. Navy. Filed May 24, 1901. Serial No. 61,706. (No model.)



Claim.—1. The combination with a pair of turrets arranged one above the other, of independent means for rotating each turret separately, substantially as described.

2. The combination with a pair of turrets arranged one above the other, of independent means for rotating each turret separately, and means for locking said turrets together when desired, substantially as described.

3. The combination with a pair of turrets arranged one above the other, of independent means for rotating each turret separately, means for locking said turrets together when desired, and means for throwing the motive power of either turret out of action, substantially as described.

4. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret revolvably mounted above the lower turret, and independent means for rotating said upper turret independently of said lower turret, substantially as described.

5. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret revolvably mounted above the lower turret, and independent means for rotating said upper turret independently of said lower turret, with means for locking the two turrets together when desired, substantially as described.

6. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret revolvably mounted above the lower turret, independent means for rotating said upper turret, with means for locking the two turrets together when desired, and means for throwing the mechanism for turning either turret out of action, substantially as described.

7. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and a rack and pinion, with means for rotating said pinion, for rotating said turret, of an upper turret revolvably mounted above the lower turret, and independent means for rotating said upper turret, substantially as described.

8. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and a rack and pinion, with means for rotating said pinion, for rotating said turret, of an upper turret revolvably mounted above the lower turret, and independent means for rotating said upper turret, with means for locking the two turrets together when desired, substantially as described.

9. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and a rack and pinion with means for rotating said pinion, for rotating said turret, of an upper turret revolvably mounted above the lower turret, with means for locking the two turrets

together when desired, and means for throwing the mechanism for turning either turret out of action, substantially as described.

10. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, and means for rotating said tube, substantially as described.

11. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, means for rotating said tube, means for locking the two turrets together when desired, and means for throwing the mechanism for turning either turret out of action, substantially as described.

12. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, means for rotating said tube, means for locking the two turrets together when desired, and means for throwing the mechanism for turning either turret out of action, substantially as described.

13. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, apparatus for applying connection to the upper turret mounted in said tube, and means for rotating said tube, substantially as described.

14. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, means for rotating said tube, apparatus for applying connection to the upper turret mounted in said tube, and means for locking the two turrets together when desired, substantially as described.

15. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, apparatus for applying connection to the upper turret mounted in said tube, means for rotating said tube, means for locking the two turrets together when desired, and means for throwing out of action the mechanism for turning either turret, substantially as described.

16. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, anti-friction-bearings at the base of said tube for supporting the upper turret, and means for rotating said tube, substantially as described.

17. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, anti-friction-bearings at the base of said tube for supporting the upper turret, means for rotating said tube, and means for locking the two turrets together when desired, substantially as described.

18. In a vessel, the combination with a supporting-platform, a lower turret revolvably mounted thereon, and means for rotating said turret, of an upper turret mounted above the lower turret, a tube rigidly connected to said upper turret and projecting downward through said lower turret, roller-bearings at the base of said tube for supporting the upper turret, means for rotating said tube, means for locking the two turrets together when desired, and means for throwing out of action the mechanism for turning either turret, substantially as described.

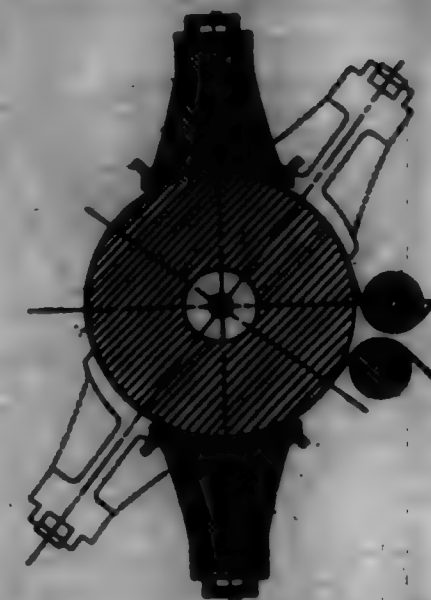
699,752. HOOK. AUGUST GARNER, Owner Inventor, of Costa Rica. Filed Nov. 6, 1901. Serial No. 61,800. (No model.)



Claim.—The method of making a hook from wood bark, which consists in flattening the bark to remove the contained gum, then, while

one wet, cutting the bark into strips of a width equal to the length of the bark-body and then subjecting the strips to suitable molding machinery to split or divide the bark into flaps or blades.

699,753. LINCOLN-PRESS. HENRY W. GOSWELL, Stationer, England. Filed Feb. 27, 1901. Serial No. 61,800. (No model.)



Claim.—1. The combination of a continuously-rotating drum, a frame oscillating upon it, a plate carried by the frame, and means for pressing the plate intermittently against the drum.

2. The combination of a continuously-rotating drum, a frame oscillating upon it, plates carried by the frame, means for pressing the plates intermittently against the drum, and apparatus connecting the plates so that they move in and out together.

3. The combination of a continuously-rotating drum, a frame oscillating upon it, plates carried by the frame, means for pressing the plates intermittently against the drum, a rocking lever pivoted on the frame and bearing against one plate, and a link connecting the lever to the other plate.

4. The combination of a continuously-rotating drum, a frame oscillating upon it, plates carried by the frame, hydraulic pressure on the frame acting on the plates, and means for intermittently admitting water to the pressure.

5. The combination of a continuously-rotating drum, a frame oscillating upon it, plates carried by the frame, hydraulic pressure on the frame acting on the plates, a valve for the pressure, and means for automatically operating the valve by the movements of the frame.

6. The combination of a continuously-rotating drum, a frame oscillating upon it, plates carried by the frame, hydraulic pressure on the frame acting on the plates, a valve for the pressure carried by the oscillating frame, and means carried by the stationary framing for operating the valve.

7. The combination of an oscillating press, a valve moving with the press, a valve-stem operating the valve, a disk on the stem, a stud on the disk, and a spring-arm turning on a stationary pivot and adapted to engage the stud.

8. The combination of an oscillating press, in inlet and an exhaust valve moving with the press, valve-stems operating the valves, plates on the stems working with one another, studs on the plates, and a spring-arm turning on a stationary pivot and adapted to engage the studs.

9. The combination of an oscillating press, in inlet and an exhaust valve moving with the press, valve-stems operating the valves, plates on the stems working with one another, studs on the plates, a pair of arms turning on stationary pivots, a spring connecting the arms, and stationary stops for the arms.

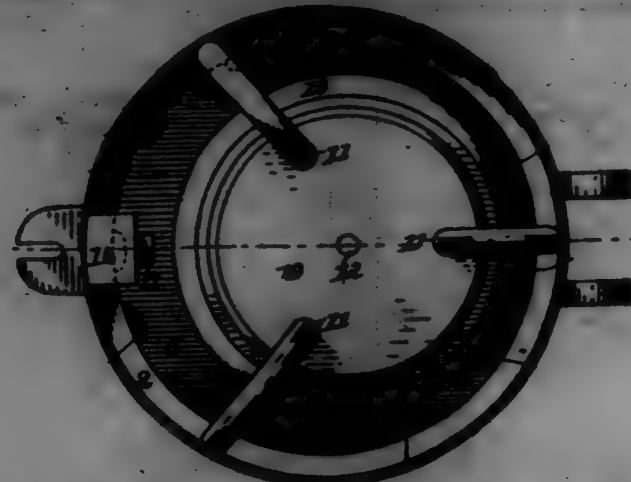
699,754. GUM-PLANTER. LOUIS GRAMER, Inventor, U. S. Filed Feb. 28, 1901. Serial No. 61,800. (No model.)

Claim.—1. In dropping mechanism for condenser, the combination of a dropping-plate having a coal-receiving cell, a barrier on one side of the cell, and a feeder-plate on the opposite side of the cell movable toward and from the barrier and the intervening cell.

2. In dropping mechanism for condenser, the combination of a dropping-plate having a coal-receiving cell, a barrier on one side of the cell, and a barrel-edge feeder-plate on the opposite side of the cell, movable toward and from the barrier and the intervening cell.

3. In dropping mechanism for condenser, the combination of a coal-wheel having a coal-receiving cell, a barrier on one side of the cell, and

a feeder on the opposite side of the cell movable radially of the wheel toward and from the barrier and the intervening cell.



4. In dropping mechanism for seedlings, the combination of a rotatable seed-wheel having a seed-receiving cell, a stationary barrier alongside one side of the path of motion of the cell, and a feeder on the opposite side of the cell movable toward and from the cell and rotating with the wheel; the movement of the feeder being so timed that the nearest approach of the feeder to the cell occurs when the cell is adjacent to the barrier.

5. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a feeder-disk journaled above the seed-wheel concentric with the path of motion of the cells, and a barrier alongside the cells, opposite the nearest approach of the feeder-disk to the cells.

6. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a level-edge disk pivoted above the seed-wheel inside the path of motion of the cells and concentric with each path, and a barrier outside the cells, opposite the nearest approach of the disk to the cells.

7. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a disk journaled above the seed-wheel inside the path of motion of the cells and concentric therewith, means for rotating the disk in the same direction as the motion of the wheel, and a barrier outside the cells opposite the nearest approach of the disk to the cells.

8. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a level-edge disk with an unbroken perimeter pivoted above the seed-wheel concentric therewith, and means, covered by the disk, for transmitting motion from the seed-wheel to the disk.

9. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a feeder-disk pivoted above the seed-wheel concentric therewith, and a radially-adjustable connection between the under side of the disk and the upper side of the wheel, such connection being cutaway covered by the disk.

10. Dropping mechanism for seedlings, comprising a seed-wheel having cells, a disk journaled above the seed-wheel concentric therewith, a radial rib on the under side of the disk and a stud projecting upward from the wheel into engagement with the rib.

11. Dropping mechanism for seedlings comprising a box-bottom having a discharge-opening, a seed-wheel having cells adapted to discharge through the opening in the bottom of the box, and a feeder-plate approaching the cells and receding therefrom at a point non-coincident with the discharge-opening of the seedlings.

12. Dropping mechanism for seedlings comprising a seed-wheel having cells, a feeder-disk smaller than the circle described by the cells and pivoted concentric with each circle, and a cut-off in the wide space formed by the eccentricity of the disk.

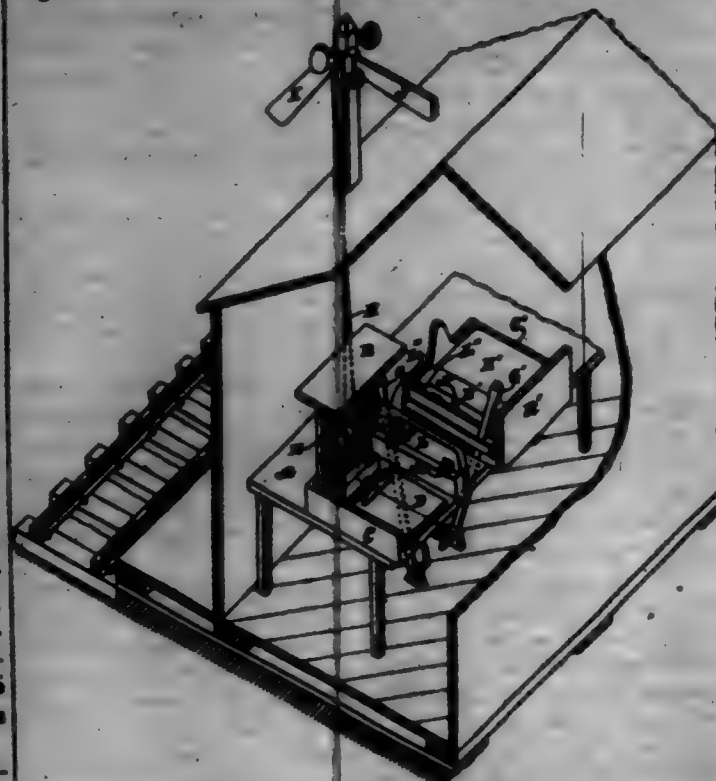
899,755. TRAIN-ORDER BOX IN CONNECTION WITH SIGNAL-PRINTER. ISA S. BROWN, Los Angeles, Cal. Filed Mar. 4, 1905. Serial No. 97,894. (No model.)

Claim.—1. The combination is a gravity-operated camshaft of the camshaft-arm operatively connected with the operating-lever with a stationary train-order box having a swinging cover adapted to be swung open and uncover the box only after the operating-lever is shown in the danger position and means substantially as shown to prevent the movement of the lever to a clear position until after the cover is closed.

2. In a gravity-operated camshaft system, in which the camshaft-arm are operated by levers in the office of the local operator, a train-order box, having a swinging cover arranged to prevent the use of the box when the cover is closed, means to hold the cover closed and prevent it being opened until after the operating-lever is thrown to the danger position, carrying the camshaft-arm to the same position, means to hold said lever in said danger position until after the box is closed.

3. In a gravity-operated camshaft system, the combination with

the camshaft-arm operatively connected with an operating-lever of a stationary train-order box, the said box being provided with a swinging cover, a locking-bar hinged to the side of the box and arranged when closed to lay upon the cover and prevent the cover from being opened when the bar is in a closed position, the bottom of the said locking-bar adapted to contact with the operating-lever when out of a danger position and be prevented thereby from being opened except when the bar is in a clear position, the said locking-bar being provided with a shoulder therein to engage the operating-lever when the locking-bar is in the open position and prevent the lever from moving from that position while in the open position, the said locking-bar adapted to contact with the edge of the cover while the cover is open and be thereby prevented from being closed while the cover is in the open position as shown.



4. The combination is a camshaft system of the stationary train-order box C having swinging cover K provided with the front end R the locking-bar L, hinged to the side of the box and having shoulder P to engage the edge of the cover and thereby prevent the cover from accidental closing, the locking-bar being also provided with the lever-engaging shoulder L' to hold the lever in the danger position while the locking-bar is open, the locking-bar hinged adjacent to the lever and adapted to block the path of the lever and prevent the movement of the lever while the locking-bar is open, but to permit the free movement of the lever when the locking-bar is closed.

5. A stationary train-order box having a swinging cover arranged to prevent the use of the box when closed, and a swinging locking-bar hinged thereon adapted to hold the cover shut when the bar is closed, in combination with an operating-lever operatively connected with a camshaft-arm, the lever arranged to swing in a path and prevent the locking-bar from being opened when the lever is out of the danger position, and the bar, being provided with a shoulder to engage and hold the lever in the danger position when the bar is open, the locking-bar arranged to contact with the cover when the cover is open and be prevented thereby from closing while the cover is open.

899,756. WHEEL. CHARLES L. BRADY, Brooklyn, N. Y., assignor to Burtis H. Williams, New York, N. Y. Filed Mar. 30, 1907. Serial No. 629,946. (No model.)



Claim.—1. In a wheel, the combination with its hub and spokes, of a homogeneous fully comprising laminae suitably joined together and provided with an interior chamber between each lamina, and a suitable disc around each fully.

2. In a wheel, the combination with its hub and spokes, of a fully comprising laminae suitably joined together and containing a pocket closed

to the atmosphere, one of the laminae, where it faces an adjoining lamina being provided with a depression for the purpose of forming such pocket.

3. In a wheel the combination with its hub and spokes, of a fully comprising laminae suitably joined together and containing a pocket, one of the interior laminae where it faces adjoining laminae being perforated for the purpose of forming such pocket.

4. In a wheel, the combination with its hub and spokes, of a fully comprising laminae suitably joined together and containing a pocket, one of the interior laminae being perforated and an adjoining lamina where it faces each perforation being provided with a depression on its face, whereby such pocket is formed.

5. In a wheel, the combination with its hub and spokes, of a fully comprising a series of laminae including internal chambers between interior surfaces of each lamina and disposed symmetrically around each fully.

6. In a wheel, the combination with its hub and spokes, of a fully comprising laminae suitably joined together, each lamina sloping toward each other and toward the central vertical plane of the wheel and being joined together at both sides of said plane.

7. In a wheel, the combination with its hub and spokes, of a fully comprising two groups of laminae sloping toward each other and toward the central vertical plane of the wheel and other laminae secured to laminae in both of said groups.

8. In a wheel, the combination with its hub and spokes, of a fully comprising interior pockets provided at both sides of its central vertical plane, each fully being made solid along each plane.

9. In a wheel, the combination with its hub and spokes, of a fully comprising a series of laminae, tension-rods passing through each fully, and means for increasing the tension of each rod independent of the tension of the portions of the spokes between fully and hub.

10. In a wheel, the combination with its hub and spokes, of a spoke passing through the fully, each spoke being deflected near the point where it enters the fully and a head insulating portions of the spokes at both sides of the point of deflection.

11. In a wheel, the combination with its hub, of a fully comprising laminae suitably joined together, spokes passing through the same, and elastic packings around the spokes and extending into adjoining laminae.

12. In a wheel, the combination with its hub, of a fully comprising laminae suitably joined together, spokes passing through the same and elastic packings around the spokes and extending into adjoining laminae.

13. In a wheel, the combination with its hub, of a fully comprising laminae suitably joined together, spokes passing through the same and elastic packings around the spokes and extending into adjoining laminae.

14. In a wheel, the combination with its hub, of a fully comprising a U-shaped rod having its ends extend into the body of the fully and a disc secured to said rod and to the outer surface of the fully.

15. In a wheel, the combination with its hub and spokes, of a fully comprising laminae suitably joined together, and a disc along the outer surface of the fully and extending over the joints between the laminae and along the bearing portion of the wheel.

899,757. CHILD'S TEETHING-SIPPLE. WILLIAM HOWELL, Brooklyn, N. Y. Filed Sept. 4, 1904. Serial No. 74,088. (No model.)

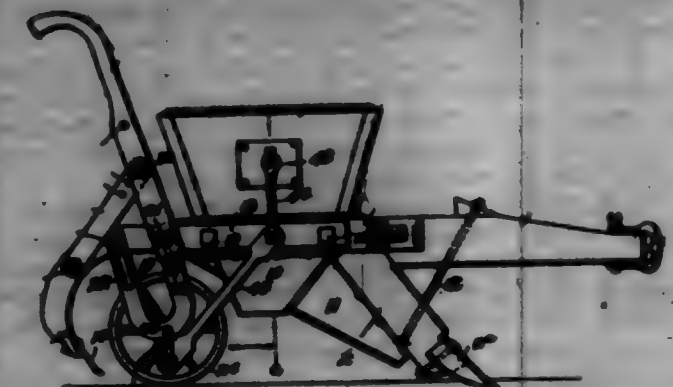


Claim.—1. In a device of the character described, the combination with a guard comprising a centrally-apertured frusto-conical disk, having an annular groove in the wall of said aperture intermediate the base and apex of said disk, a nipple provided on the end of its neck with an annular bead or flange, said neck and flange being respectively fitted in the said aperture and groove, and a handle and holder provided at one end with a transverse flange within the said aperture and the neck of the nipple, and operating to hold said neck and flange to their seats in the disk, said transverse flange being provided for a portion of its length and engaging a correspondingly-shouldered portion of the wall of the said aperture, substantially as described.

2. In a device of the character described, the combination with a guard comprising a centrally-apertured frusto-conical disk, having an annular groove in the wall of said aperture intermediate the ends of the handle, a holder and handle provided at one end with a transverse flange for a portion of its length and provided with a rounded and unrounded end, a

sipple provided on the end of its neck with an annular bead or flange, said neck and flange being respectively fitted in the said aperture and groove, the unrounded end of the transverse flange being fitted in the end of said neck and operating to hold the latter and the flange to their seats in the disk, and the threaded portion of said transverse flange engaging a correspondingly-threaded portion formed in the wall of the said aperture, said handle and holder being provided with a longitudinal duct or channel extending centrally through the same and through the transverse flange, substantially as described.

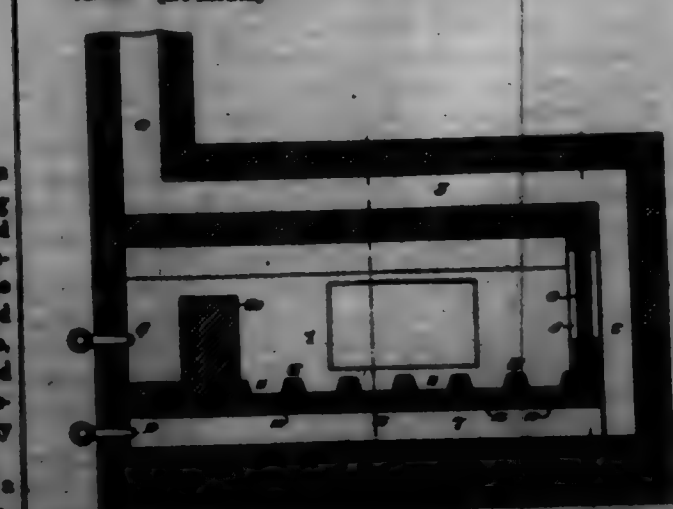
899,758. COMBINED COTTON-PLANTER AND FERTILIZER-DISTRIBUTOR. FRANKLIN M. HUGHES, Vicksburg, Miss., assignor of one-half to Ernest L. Hahmy and Miss Rodgers, Vicksburg, Miss., Co. Filed Sept. 24, 1904. Serial No. 70,028. (No model.)



Claim.—1. In a combined planter and fertilizer-distributor, the combination of a hopper having seed and fertilizer compartments with discharge-openings in the lower side thereof, laterally-movable cut-off plates under the bottom of the hopper and having each an outwardly-extending arm, a rearwardly-extending operating-arm, pivoted at its front end under the bottom of the hopper, connected to the arm of the cut-off plate to adjust the latter and having a transverse slotted portion at its rear end and a cut-screw engaging said slotted transverse rear portion of the operating-arm, a furrow-opener standard, a pair of laterally and oppositely inclined seed and fertilizer spouts having their upper ends under said openings in the hopper and their lower ends disposed in the same vertical plane, said fertilizer-spout being in the rear side of the furrow-opener standard, extending downwardly thereon and discharging immediately behind and at the lower end of the same, so that the fertilizer will be covered in the bottom of the furrow, and said seed-spout having its discharge end at some distance in rear of and at a higher plane than that of the fertilizer-spout so that the seed will be dropped on the loose soil which covers the fertilizer in the furrow and kept out of contact with and above the fertilizer, for the purpose set forth, substantially as described.

2. In a planter, the combination of a hopper having a discharge-opening in its lower side, a laterally-movable cut-off plate under the bottom of the hopper and having an outwardly-extending arm, a rearwardly-extending operating-arm pivoted at its front end under the bottom of the hopper, connected to the arm of the cut-off plate to adjust the latter, and having a transverse, slotted portion at its rear end, and a cut-screw engaging said slotted transverse rear portion of the operating-arm, substantially as described.

899,759. METALLURGICAL FURNACE. JOHN A. BRYAN, Philadelphia, Pa. Filed Aug. 9, 1903. Renewed Oct. 10, 1904. Serial No. 72,948. (No model.)



Claim.—1. A metallurgical furnace having a working chamber, a fire beneath the floor of the same, a discharge-flue communicating with said lower flue, and a discharge opening at that end of the working cham-

ber, through which said working chamber communicates with the discharge-flue, and means for applying heat independently to the working chamber and the base-flue, substantially as specified.

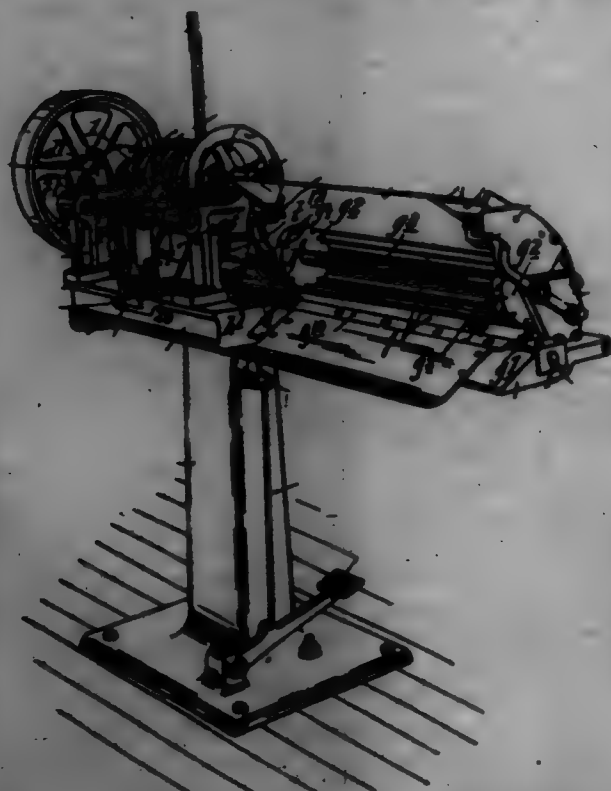
2. A metallurgical furnace having a working chamber, a flue beneath the floor of the same, a rear flue communicating with said base-flue, and a dampened opening at that end of the working chamber, through which said working chamber communicates with the rear flue, a return-flue over the top arch or crown of the working chamber, and means for applying heat independently to the working chamber and base-flue, substantially as specified.

3. A metallurgical furnace having a working chamber with bottom provided with ribs or projections for the support of the material to be treated, means for heating said material by gaseous products of combustion introduced into the working chamber, and provision for introducing a fluid treating agent into said working chamber, independently of the gaseous products of combustion, substantially as specified.

4. A metallurgical furnace having a working chamber, combined with means for introducing gaseous products of combustion into the same and a floor composed of blocks having therein channels or passages for conveying a fluid treating agent into the furnace independently of the gaseous products of combustion, substantially as specified.

5. A metallurgical furnace combined with means for introducing gaseous products of combustion into the same and having a floor composed of blocks with recessed upper faces, and channels or passages communicating with said recessed faces of the blocks and providing for the introduction of a fluid treating agent into the furnace, independently of the gaseous products of combustion, substantially as specified.

699,760. CHAIN-MAKING MACHINE. WILSON L. JONES, Chicago, Ill. Filed June 28, 1901. Serial No. 63,466. (No model.)



Claim.—1. In a machine adapted to form a chain from hooks and link-forming elements, the combination with means for holding the hooks longitudinally spaced, of means for applying the link-forming elements to the pair of positioned hooks while longitudinally spaced.

2. In a machine adapted to form a chain from hooks and link-forming elements, the combination with means for holding the hooks longitudinally spaced, of means for feeding the prongs of the staples into eyes of the pair of positioned hooks, while longitudinally spaced, and means for clamping the ends of the said staples to complete the links.

3. In a machine adapted to form a chain from hooks and link-forming elements, the combination with means for intermittently feeding the hooks and holding the same properly spaced, of means for intermittently feeding the staples into eyes of the pair of positioned and longitudinally spaced hooks, and means for clamping the ends of the inserted staples to complete the links.

4. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for feeding the hooks and holding the same longitudinally spaced, of a supply-holder for the staples, a reciprocating feed-plunger cooperating with the delivery end of said holder to feed the staples, one at a time, into eyes of the pair of positioned and

longitudinally spaced hooks, and means for clamping the ends of the inserted staples to complete the links.

5. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same longitudinally spaced, of a supply-holder for the staples, a reciprocating feed-plunger cooperating with the delivery end of the said holder to feed the staples, one at a time, into eyes of the pair of positioned and longitudinally spaced hooks, and means for clamping the ends of the inserted staples to complete the links.

6. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for feeding the hooks and holding the same longitudinally spaced, of means for feeding the staples into eyes of the pair of positioned and longitudinally spaced hooks, a pair of clamping-placers for partly clamping the ends of the inserted staples and a pair of cooperating clamping-disks for completing the links.

7. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same properly spaced, of a supply-holder for the staples, a reciprocating feed-plunger cooperating with the delivery end of the said holder to feed the staples, one at a time, into eyes of a pair of positioned hooks, a pair of clamping-placers for partly clamping the ends of the inserted staples, and a pair of cooperating clamping-disks for completing the links.

8. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same properly spaced, of a supply-holder for the staples, a pair of reversibly-reciprocating slides, a feed-plunger on one of said slides cooperating with the delivery end of said holder to feed the staples, one at a time, into eyes of a pair of positioned hooks, a pair of plungers carried by the other slide and operating to partially clamp the ends of the inserted staples, and a pair of cooperating clamping-disks carried, one by each slide, and operating to complete the links.

9. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same properly spaced, of a supply-holder for the link-forming staples, a pair of reversibly-reciprocating slides, a feed-plunger on one of said slides cooperating with the delivery end of said holder to feed the staples, one at a time, into eyes of a pair of positioned hooks, a pair of plungers pivoted to one of said slides and operating to partially clamp the ends of the inserted staples, a plunger-operating cam-plate movable first with and then with respect to the plunger-carrying slide, a pair of clamping-disks carried one by each slide and operating to complete the links, and automatic means for moving the said parts with properly-timed action.

10. In a machine adapted to form a chain from hooks and link-forming staples, the combination with a feed-curve for feeding and holding the hooks longitudinally spaced, of means for applying the link-forming elements to the pair of positioned and longitudinally spaced hooks.

11. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a feed-curve for feeding and holding the hooks longitudinally spaced, of means for holding the said hooks subject to said curve, and means to move in a series extending in longitudinal line, parallel to said curve, and means for applying the link-forming elements to the pair of positioned and longitudinally spaced hooks.

12. In a machine adapted to form a chain from hooks and link-forming staples, the combination with an intermittently-movable feed-curve, for feeding and holding the hooks in a longitudinally-spaced series, of means for feeding the prongs of the link-forming staples into eyes of the pair of positioned and longitudinally spaced hooks, and means for clamping the ends of the inserted staples to complete the links.

13. In a machine adapted to form a chain from hooks and link-forming staples, the combination with an intermittently-movable feed-curve and cooperating guide-channel for guiding and feeding the hooks in a longitudinally-spaced series, of a staple-supply holder, a reciprocating feed-plunger cooperating with the delivery end of said holder to feed the staples, one at a time, into eyes of a pair of positioned hooks, and means for clamping the ends of the inserted staples to complete the links.

14. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a feeding device serving to hold the hooks properly spaced, of a plurality of magazines for the hooks, a rotary magazine-holder, and guide opening to deliver said magazines to said holder, at one side thereof, which holder is operated by the over-riding-weight of said magazines and automatically delivers the hooks to said feed device.

15. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a hook-feed device serving to hold the hooks properly spaced, of a magazine for the hooks, means for moving said magazines into a position to deliver said hooks to said feed device, and means for applying the link-forming elements to the hooks.

16. In a machine adapted to form a chain from hooks and link-form-

ing elements, the combination with a hook-feeding device serving to hold the hooks properly spaced, of a magazine for holding and opening the hooks in an aligned series, a rotary magazine-holder operating to move said magazine transversely of the line of feed, into a position to deliver said hooks to said feeding device, and means for applying the link-forming elements to said hooks while the hooks are subject to said feeding device.

17. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a hook-feeding device serving to hold the hooks properly spaced, of a magazine for holding and opening the hooks in an aligned series, a stop-bar extending longitudinally of said feed device, a rotary magazine-holder operating to move said magazine transversely of the line of feed and to deliver the hooks to said feed device and against said stop-bar, and means for applying the link-forming elements to the hooks while they are subject to said feed device.

18. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a feeding device serving to hold the hooks properly spaced, of a magazine for holding and opening the hooks in an aligned series, a stop-bar extending in the line of feed, a rotary magazine-holder operating to move said magazine transversely of the line-feed and deliver the hooks to the said feed device and against said stop-bar, a grooved concave guide cooperating with said holder to deliver said hooks to said feed device, and means for applying the link-forming elements to the hooks while they are subject to said feed device.

19. In a machine adapted to form a chain from hooks and link-forming elements, the combination with an intermittently-movable feed-curve, of a magazine for holding and opening the hooks in an aligned series, means for moving said magazine transversely of the line of feed, and into position to deliver the hooks, properly spaced, to said feed-curve, and means for applying the link-forming elements to the hooks while they are subject to said feed-curve.

20. In a machine adapted to form a chain from hooks and link-forming elements, the combination with an intermittently-movable feed-curve, of a magazine for holding and opening the hooks in an aligned series, a stop-bar extending in the line of feed and into a position to deliver said hooks, properly spaced, to said feed-curve and against said stop-bar, and means for applying the link-forming elements to the hooks while they are subject to said feed-curve.

21. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a hook-feeding device serving to hold the same properly spaced, of a magazine for holding and opening the hooks in an aligned series, a gravity-actuated holder for said magazine operating to move the same transversely of the line of feed and to deliver the said hooks, properly spaced, to said feeding device and means for applying the link-forming elements to the said hooks while they are subject to said feeding device.

22. In a machine adapted to form a chain from hooks and link-forming elements, the combination with a feed-curve serving to hold the hooks properly spaced, of a stop-bar extending longitudinally of said feed-curve, a magazine for holding and opening the hooks in an aligned series, a gravity-actuated rotary magazine-holder operating to move said magazine laterally and to deliver the hooks to said feed-curve, properly spaced, and against said stop-bar, and with the magazine clear of said stop-bar, whereby a continuous supply of loaded magazines is effected.

23. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for holding the hooks in a longitudinally-spaced series, of means for feeding the staples into the eyes of different longitudinally-spaced hooks and clamping the ends of the same, one or more opening-blades, and means for intermittently moving said opening-blades between the assembled hooks, for cooperative with the clamping means.

24. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for holding the hooks spaced, of means for feeding the staples into eyes of the positioned hooks and clamping the ends of the same, and one or more blades movable between the assembled hooks for successively holding and lowering the accurate spacing of the hooks.

25. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the staples into eyes of the positioned hooks, means for clamping the ends of the inserted staples, and a plurality of opening-blades intermittently movable between the assembled hooks, for lowering accurate spacing of the hooks, and at least one, thereof, serving as a former or mold for cooperating with the clamping means.

26. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same properly spaced, of means for feeding the staples into eyes of the positioned hooks, a pair of clamping-placers for partially clamping the ends of the inserted staples, a pair of cooperating clamping-disks for completing the links, a spacing-blade insertible between

the hooks in front of said placers, and a forming-blade insertible between the hooks, at a point between said clamping-disks.

27. In a machine adapted to form a chain from hooks and link-forming elements, the combination with means for feeding and holding the hooks in a longitudinally-spaced series, of means for intermittently applying the link-forming elements to the pair of positioned and longitudinally spaced hooks, and a cut-out device operating at predetermined intervals to cause a link-forming element to be omitted and the chain to be continued.

28. In a machine adapted to form a chain from hooks and link-forming elements, under a continuous action, the combination with a cut-out device operating, at predetermined intervals to cause a chain element to be omitted, which cut-out device involves a reversible, toothed ratchet member having a pair of reversing-steps, of a vibrating reversible driving-pawl cooperating with the teeth of said toothed ratchet member, and itself adapted to be reversed by the said reversing-step thereof.

29. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for intermittently feeding the hooks and holding the same in a longitudinally-spaced series, of a supply-holder for the staples, a reciprocating feed-plunger cooperating with the delivery end of said holder to feed the staples, one at a time, into eyes of the pair of positioned and longitudinally spaced hooks, and a cut-out device operating at predetermined intervals to interrupt the feed movement of said plunger and cause a staple to be omitted, thereby determining the length of the chain-section.

30. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for feeding the hooks and holding the same properly spaced, of a supply-holder for the staples, a staple-feeding device operating to intermittently feed the staples from said holder and apply the same to the hooks, and a cut-out device comprising a reversible ratchet member having a pair of spaced reversing-steps, a vibrating reversible driving-pawl cooperating with the teeth of said toothed member and itself reversed by the reversing-steps thereof, and a trip actuated by said reversible toothed member for causing said staple-feeding device to stop feed movements at predetermined intervals.

31. In a machine adapted to form a chain from hooks and link-forming staples, the combination with means for feeding and holding the hooks properly spaced, of a supply-holder for the link-forming staples, a reciprocating feed-plunger cooperating with the delivery end of said holder, to feed the staples, one at a time, into eyes of a pair of positioned hooks, a reciprocating driver for said feed-plunger, a lock normally connecting said feed-plunger to its driver, and a cut-out device for tripping said lock out of action at predetermined intervals, comprising a ratchet-disk with a lock-tripping pin or part, a pair of reversing-steps on said disk, and a vibrating arm provided with a pivoted reversible pawl having a pawl-reversing finger which works between and is acted upon by said reversing-steps.

32. In a machine adapted to form a chain from hooks and link-forming elements, under a continuous action, of a cut-out device operating, at predetermined intervals, to cause a chain element to be omitted, which cut-out device involves a reversible toothed ratchet member having a pair of reversing-steps, at least one of which steps is adjustable with respect to the other, to vary the length of the chain-section, and a vibrating reversible driving-pawl cooperating with the teeth of said toothed member and itself adapted to be reversed by the said reversing-step thereof.

699,761. INSULATOR. HENRY F. KREMER, St. Louis, Mo. Filed Jan. 27, 1902. Serial No. 91,465. (No model.)



Claim.—1. An insulator comprising a body portion, a circumferential groove located adjacent to one end thereof, parallel circumferential passages leading from said groove along the periphery of the body por-

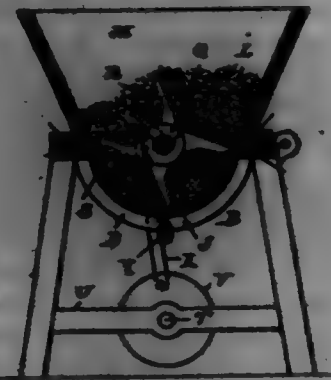
tion, a depression formed in the face of the body portion for the reception of the electric conductor or rod, the groove being adapted to receive the loop of a suitable securing-wire, the ends of the latter being passed through the passages and folded over the rod, substantially as set forth.

2. An insulator comprising a body portion, an annular groove disposed adjacent to the base thereof, communicating passages leading from said groove at points diametrically opposite one another and opening at the face or top of the body portion, a depression formed in the face and disposed at right angles to a line connecting the passages aforesaid, a socket leading from the center of said depression, and a passage or perforation leading from the base of the socket for the reception of a securing-rod, substantially as set forth.

3. An insulator comprising a cylindrical body portion, an annular peripheral groove disposed adjacent to the base thereof, communicating passages leading from the groove, supplemental grooves formed in the face of the body portion leading from the passages aforesaid, a depression formed in the face and disposed at right angles to the supplemental grooves, a socket leading from the center of the depression, and a perforated passage leading from the socket for the reception of a securing-rod, substantially as set forth.

4. An insulator comprising a cylindrical body portion, an annular peripheral groove disposed adjacent to the base thereof, parallel diametrically separated passages leading from the groove and terminating at the face of the body portion, a depression disposed in the face of the body portion at right angles to the diametric line connecting said passages, and oblique perforations opening through the parallel passages, substantially as set forth.

699,762. DISINTEGRATING-MACHINE. JAMES M. MACDONALD, Detroit, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a Corporation of Michigan. Filed May 12, 1901. Serial No. 69,009. (No model.)



Claim.—In a disintegrating-machine, the combination with a framework, of a conical grating therein provided with a continuous lateral flange or rim at its upper edge, said rim being rabbeted or recessed as described, a rectangular frame detachably arranged within said recessed rim, a conical blade detachably secured to the frame and resting upon the base of the grating, a rock-shaft within the grating, and cooperating blades carried by said rock-shaft, extending in proximity to the cleve.

699,763. REEL. GEORGE R. HATFIELD, Kalamazoo, Mich. Filed Oct. 25, 1901. Serial No. 79,000. (No model.)



Claim.—1. An attachment for a fish-reel consisting of the frame D with bearings for embracing one of the pillars of the reel; a coiled spring with adjusting-roller to be placed on the said pillar of the reel for applying regulated pressure to the frame D; side pieces D' on the said frame; cone-bearings F, F' with a screw-threaded connection between them for insertion through the perforations in the side pieces; and a roller, the ends of which are properly fitted to the cone-bearings and carried thereby in position to rest against the line wound upon the reel, all coacting substantially as described for the purpose specified.

2. An attachment for a fish-reel consisting of the frame D with bearings for embracing one of the pillars of the reel; side pieces D' on the said frame; cone-bearings F, F' with a screw-threaded connection between them for insertion through the perforations in the side pieces; and a roller, the ends of which are properly fitted to the cone-bearings and

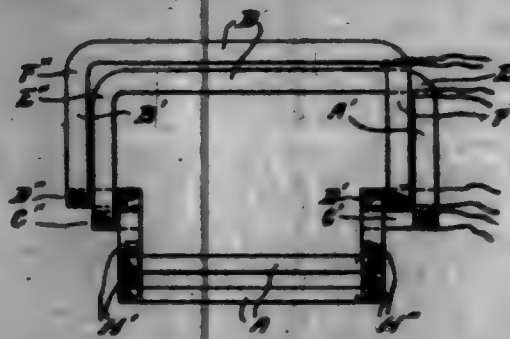
carried thereby in position to rest against the line wound upon the reel, all coacting substantially as described for the purpose specified.

3. An attachment for a fish-reel consisting of a suitable frame rigidly connected to one of the pillars of the reel; a spring for applying pressure thereto; a roller carried by the said frame and adapted to rest against the line on the reel, coacting for the purpose specified.

4. The combination with a fish-line reel of a suitable frame having a roller adapted to rest against the line on the reel and a spring for exerting yielding pressure on the said frame.

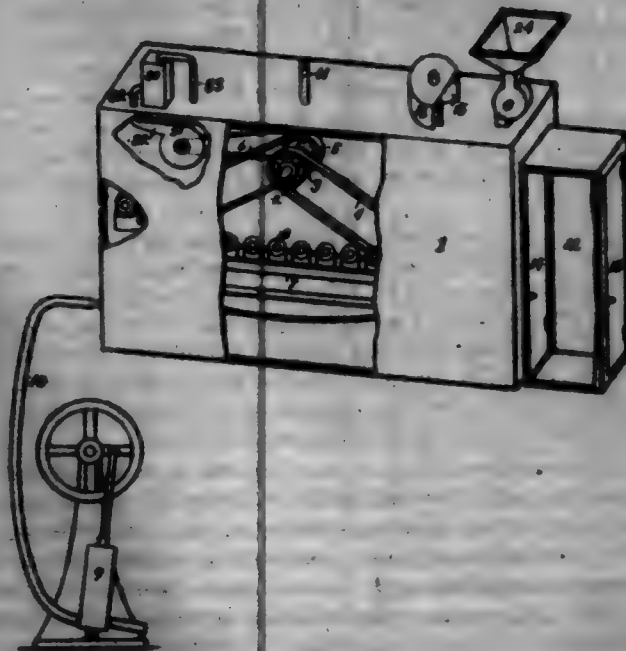
5. The combination with a fish-line reel of a suitable frame having a roller adapted to rest against the line on the reel.

699,764. SYSTEM OF ARMATURE-WINDING FOR ELECTRIC MOTORS. THOMAS J. BERRY, Montreal, Canada. Filed Oct. 17, 1901. Serial No. 79,001. (No model.)



Claim.—In a system of armature-winding the combination of coils A' B' of the portion D' F' and B' being arranged to lie outside of coil A' between C' E' and portion between C' E' and A' to lie outside D' F' as shown and described.

699,765. METHOD OF CANNING CORN OR OTHER VEGETABLES. CLARENCE E. PLENNER and FRANK T. STARR, Waukegan, Wis. Filed Feb. 7, 1901. Serial No. 42,301. (No specimens.)



Claim.—1. The method of canning corn and other vegetables, consisting in, first, cooking the corn and raising the temperature thereof to a point considerably in excess of the normal boiling-point; second, filling the cans with corn at such temperature, under a surrounding atmospheric pressure greater than the normal pressure of the atmosphere, and sufficient to prevent the oblation of the contents of the cans; and third, sealing the cans while the contents are maintained at such temperature, and with the cans and contents subjected to such surrounding pressure.

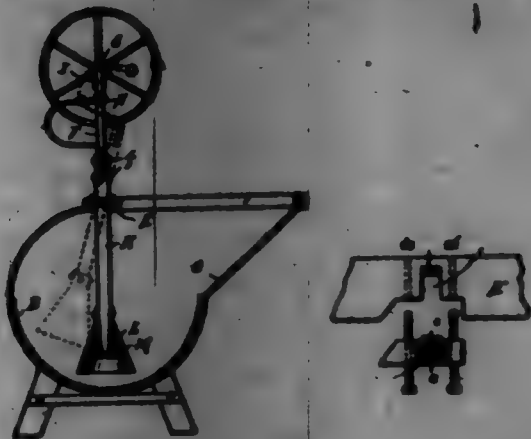
2. The method of canning corn, and other vegetables, consisting in filling and sealing cans at a temperature in excess of the normal boiling-point, and simultaneously subjecting the cans and contents to a surrounding atmospheric pressure sufficiently in excess of the normal pressure, to prevent oblation.

3. The method of canning corn, and other vegetables, consisting in, first, cooking the vegetables; second, in filling the cans; and third, in sealing the cans, all of said steps being performed under a surrounding atmospheric pressure greater than normal.

4. The method of canning corn, or other vegetables, consisting, first,

In cooking the material and raising the temperature thereof materially above the normal boiling-point; second, filling the cans with material, at said temperature, and discontinuously applying an external air-pressure thereto sufficient to balance the internal steam-pressure of the material; and third, sealing the cans while such pressure is maintained.

699,766. WASHING-MACHINE. EMERY A. HANCOCK, Port Huron, Mich. Filed Aug. 25, 1904. Serial No. 72,902. (No model.)



Claim.—In a washing-machine, the combination with the end-receptacle, of a drive-shaft journaled in bearings above said receptacle, cranks upon the shaft arranged in angular relation to each other for the purpose set forth, power-rods carried by the cranks and extending from the latter within the receptacle, power-rods secured to the lower ends of the rods, guides for said rods, and a spring-biased packing in each guide.

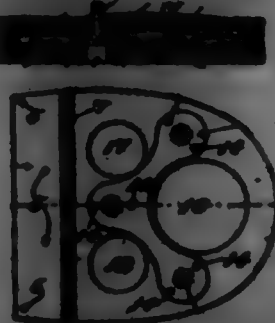
699,767. FOCUSING ATTACHMENT FOR CAMERAS. FRANK W. SAKSE, Liverpool, England. Filed Oct. 7, 1900. Serial No. 72,912. (No model.)



Claim.—1. The combination with a photographic camera of a short-focus reversing-glass, and a carrier, connecting the back of the camera and the glass, and supporting the same substantially as set forth.

2. In combination with camera, a short-focusing reversing eyepiece and an adjustable carrier between the same and the back of the camera, substantially as described.

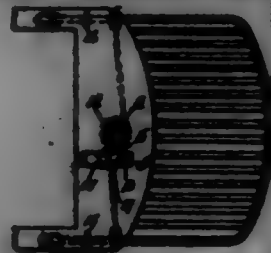
699,768. BOOT OR SHOE HEEL. FRANKLIN C. SAYLER, Frank-
lin, Mass., assignor to Walter E. Andrews, Boston, Mass. Filed Feb.
21, 1904. Serial No. 42,335. (No model.)



Claim.—A heel comprising a perforated leather top, a narrow rib of leather secured to the upper side of the top across the front part thereof forming a solid leather foot to the heel, a washer-plate secured to the upper side of the top in the rear of said narrow leather rib, a rubber core which covers the upper side of said top rearward of the narrow leather rib, a channel in said core to receive the said washer and having a projection or protrusion which extends through the perforated top, perforations in the washer and rubber to admit passage of air to covering the heel to the

bottom of a boot or shoe, and larger perforations in the top to receive the heads of the nails against the washer, substantially as described.

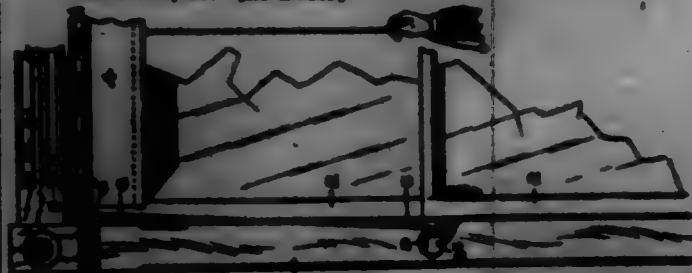
699,769. STREET-CAR FINDER. AUGUST W. GRANT, Detroit, Mich., assignor to Edward A. Hall and William C. Keller, Detroit, Mich. Filed May 12, 1904. Serial No. 59,994. (No model.)



Claim.—1. In a car-finder, the combination with the car-frame, of a fender-frame hinged at its rear end to the frame of the car and adapted at its forward end to swing downward by gravity into contact with the rails of the track in advance of the car-frame, pulleys journaled on the car-frame on either side thereof, a drum journaled centrally to the car-frame, chains attached directly to the opposite sides of the fender-frame passing upwardly over said pulleys and horizontally to and around said drum whereby the fender-frame becomes suspended above the track-rails to move freely in the arc of a vertical circle, means for rotating said drum to draw upon said chains and raise the fender, a ratchet-wheel upon the shaft of said drum having peripheral teeth, a plate upon the platform adjacent thereto, a curved detent pivoted at the center to said plate and adapted to engage the teeth upon the periphery of the ratchet, the engaging end of said detent being adapted to move vertically, a curved shoulder on said plate coinciding with and embracing the curved end of said detent when said detent is in engagement with the ratchet, a tread upon the free end of the detent to enable it to be raised at its curved end and disengaged from said ratchet-wheel to release the drum and allow the chains to run slack when the fender is down and avoid imparting to the fender the tilting movement of the car-frame.

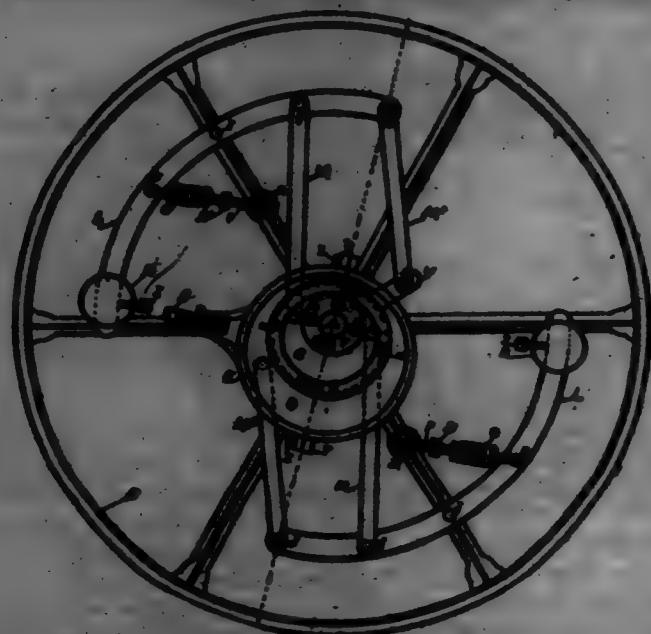
2. In a street-car finder, the combination with the frame of the car, of the fender pivoted thereto so as to allow the forward end thereof to swing vertically, the upper side bars of the fender-frame lying close to the bottom of the car above the plane of the horizontal forward portion which is connected to the upper side bars by a vertical section and stands parallel with the track, chains attached directly to the opposite upper side bars of the fender-frame forward of said point of pivot and running freely to loosely suspend the forward end of the fender above the track and allow of a tilting and swaying movement thereof, said chains passing vertically over suitable rollers and horizontally to a rotary drum, means for rotating said drum to wind the chains thereon and raise the fender, means for locking the drum against rotation to maintain the fender in its raised position and means for unlocking said drum to permit the chains to unwind freely therefrom and the forward end of the fender to drop to the track by gravity.

699,770. ATTACHMENT FOR WINDOW-SEALER. MARION F. STEVENS and OTIS STEVENS, Indianapolis, Ind. Filed Mar. 10, 1902. Serial No. 57,699. (No model.)



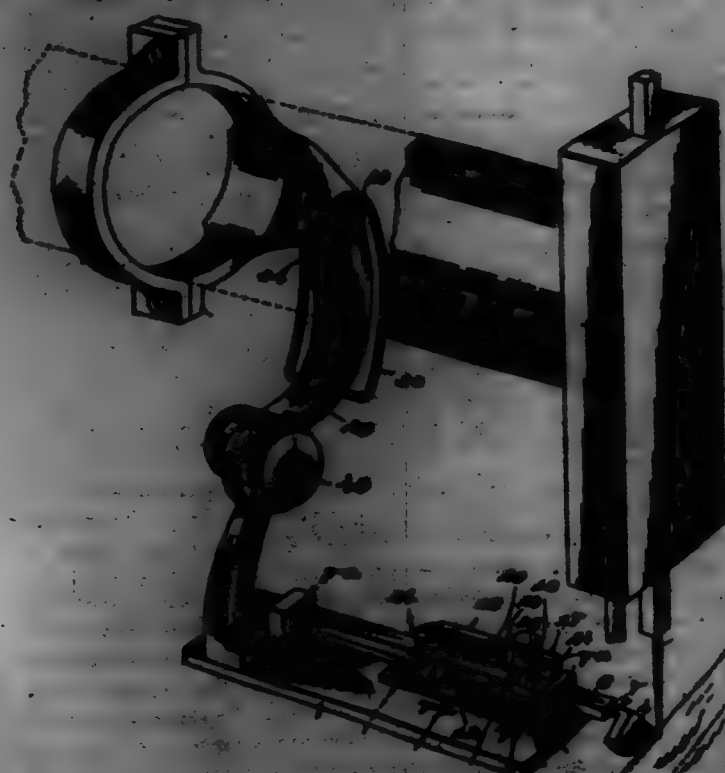
Claim.—In a shade-rolling device, a base-plate having integrally-formed ears which carry threaded apertures, a seal-housing adapted to overlie the said ears, screws passing through the said housing and engaging with the apertures in the ears on the base-plate, a post integral with the housing and centrally mounted therein and which forms a bearing for the seal, a seal on the post which carries an integral recessed ratchet on one side, an integrally-formed sleeve on the other, the said sleeve forming a bearing for the spring, a spring secured to the sleeve and seal-housing, a pawl pivotally secured to the central post, the said pawl engaging at one end with the ratchet on the seal while the other end thereof is bent at right angle from the main body and formed into a hook, a leaf-spring secured to the seal-housing the free end of which rests on the pawl, whereby the said pawl is held into contact with the ratchet, a cord extending from the seal to the housing and engaging with the secondary seal secured to the shade-roller, whereby a means is provided for operating the window-shade, substantially as shown and described.

699,771. AUTOMATIC CUT-OFF GOVERNOR. GEORGE STERN, Fairport, N. H. Filed Apr. 24, 1901. Serial No. 67,289. (No model.)



Claim.—In a device for the purpose described, the combination consisting of an auxiliary eccentric ring supported and free to turn on the hub of a fly-wheel, means for holding same thereon, a main eccentric ring supported and free to turn on the periphery of the said auxiliary eccentric ring, means for preventing the main eccentric ring from working off the periphery of the auxiliary eccentric ring, the two weighted levers provided with adjustable weights on the free arm extensions thereof, means for pivotally attaching said weighted levers to the spokes or web of said fly-wheel shaft, the connecting-rods pivotally attached at one end to the two ends of the weighted levers and at the other end to the main eccentric ring, the connecting-rods pivotally attached to the weighted levers between the pivotal fulcrums and two ends thereof and to the auxiliary eccentric ring, the tension-springs fastened at one end to the free arm extensions of the weighted levers and the other end thereof being attached to a movable block on the adjustable tension-rods, the adjustable tension-rods, means for supporting same, all connected and operated substantially as described and illustrated for the purpose, substantially as set forth.

699,772. GUIDE FOR SEWING-MACHINE. RALPH STEWART, Chicago, Ill. Filed Jan. 24, 1903. Renewed Mar. 23, 1902. Serial No. 100,690. (No model.)



Claim.—1. A guide attachment for sewing-machines having in combination a plate, two independent gages adjustably secured to said plate, a guide proper having a stem adjustably mounted on said plate over said gages, flanges on said gages having notches and a dog on said stem adapted to engage in said notches, substantially as set forth.

2. A guide attachment for sewing-machines having in combination a guide proper, a two-part hinged arm and an eccentric by which the parts of said arm are hinged together, whereby the guide may be elevated by the turning of said eccentric, substantially as set forth.

3. A guide attachment for sewing-machines having in combination a guide proper, a two-part hinged arm by which said guide is supported, an eccentric journaled in one part of said arm, a screw projecting from said eccentric and being threaded in the other part of said arm and a nut on said screw, substantially as set forth.

4. A guide attachment for sewing-machines having in combination a guide proper, and a two-part hinged arm by which said guide is supported, the parts of said arm being reversely curved, substantially as set forth.

5. A guide attachment for sewing-machines having in combination a guide proper, a support to which said guide is rotatably secured, an arm for supporting said support and an eccentric by which said support is connected to said arm and by which eccentric said support may be bodily lifted to permit the support to pass over the goods without lifting the guide out of operative relation to the goods, substantially as set forth.

6. A guide attachment for sewing-machines having in combination a plate, two gages relatively adjustable, secured to said plate, a guide proper having a longitudinal stem crossing said plate adjacent to said gages and extending longitudinally of the adjustable movement of said gages, a dog carried by said stem and means whereby said dog is caused to attach said stem to either of said gages always at a definite or fixed point with reference to both the length of said stem and the length of the gage, substantially as set forth.

699,778. RATCHET SCREW-DRIVER. ISAAC B. STONE, Cleveland, Ohio, assignor of one-half to Ernest H. Stone, Cleveland, Ohio. Filed July 28, 1901. Serial No. 68,102. (No model.)



Claim.—1. In combination, a tool-stock, having a tool at each end, a removable handle adapted to cover one of the tools when the other is in use, and a yoked handle pivoted to the stock and adapted to rotate the same.

2. In combination, a tool-stock, a relatively stationary ratchet-thimble secured thereto, a relatively movable ratchet-block mounted upon the stock and adapted to engage the thimble, and a handle pivoted to the ratchet-block.

3. In combination, a tool-stock, a pair of non-rotatable ratchet-thimbles thereon having teeth inclined in opposite directions, a rotatable ratchet-block upon the stock between the thimbles having teeth at each end adapted to engage the teeth of the thimbles, and a reversible handle secured to the ratchet-block.

4. In combination, a reversible tool-stock having a tool at each end, a rotatable ratchet-block thereon, a yoked handle the arms of which are pivotally connected to the ratchet-block and adapted to rotate the same, and a ratchet-thimble upon the stock adapted to engage the block and rotate the stock.

5. In combination, a stock, a rotatable ratchet-block thereon having teeth at each end, a pair of longitudinally-yielding non-rotatable thimbles on the stock having oppositely-inclined teeth adapted to engage the teeth of the ratchet-block, means to retain either thimble out of engagement with the ratchet-block and a handle attached to the ratchet-block and adapted to rotate the same.

6. In combination, a stock having a tool at each end, a rotatable ratchet-block on the stock having teeth at each end, a yoked handle the

arms of which are pivotally attached to the ratchet-block so that it may be reversed relative to the tools or extended laterally as a lever, a pair of non-rotatable ratchet-thimbles on the stock having teeth adapted to engage the teeth of the ratchet-block in opposite directions, and means to retain either thimble out of engagement with the block.

7. In combination, a stock having a tool at each end, a rotatable ratchet-block on the stock having teeth at each end, a yoked handle pivotally attached to the ratchet-block so that it may be reversed relative to the tools or extended laterally as a lever, a removable handle adapted to cover the tool not in use and to fit between the arms of the yoked handle, a pair of non-rotatable ratchet-thimbles on the stock having teeth adapted to engage the teeth of the ratchet-block in opposite directions, and means to retain either thimble out of engagement with the block.

8. In combination, a ratchet-driven stock having a tool at each end, a yoked handle, the stock being pivotally mounted between the arms of the handle and reversible therein, and means to prevent pivotal turning of the stock, so as to retain the stock and handle right.

9. In combination, a stock, a tool at each end thereof, a ratchet-block rotatably mounted upon the stock having oppositely-inclined teeth at each end, non-rotatable ratchet-thimbles upon the stock having teeth adapted to engage the ratchet-block and turn the stock in opposite directions, springs bearing against the thimbles causing the same to normally engage the ratchet-block, means to retain either thimble out of engagement with the ratchet-block, rollers upon the stock, a yoked handle adapted to cover the tool not in use and to bear upon the rollers so as to prevent the rotation of the said tool therewith.

699,774. MACHINE FOR THE SIMULTANEOUS APPLICATION OF IMPREGATING OR OTHER POWER FOR OPERATING ROTARY MACHINERY. MARY H. SWIFT, Chicago, Ill., assignor of Edward D. Swift, deceased. Filed Nov. 4, 1900. Serial No. 26,593. (No model.)



Claim.—1. A machine, of the class of mechanism described, having two rotating wheels, and two idle or guide wheels, arranged in line, each with the other, and operating in the same plane, with caps or lugs formed on their external surfaces or perimeters; the two rotating wheels, adjusted closely to each other and mounted upon a cylindrical drum, and having rotary motion thereon; the drum, being hung upon and fixed to a shaft, for operative work; the two idle or guide wheels, being hung upon the shaft, upon which they have rotary motion; two endless chain belts, one chain belt being hung upon and running over one of the rotating wheels, and one idle or guide wheel, and the other chain belt being hung upon and running over the other rotating wheel and the other idle or guide wheel, the links of each chain belt being so formed as to engage the perimeters and caps or lugs of the wheels, upon and over which it is hung and run; two extension arms or rods, one end of one extension arm or rod being secured to the surface of one chain belt

at a point on a right line tangential to the perimeters of the wheels at their upper face, upon which it is hung, and one end of the other extension arm or rod being secured to the surface of the other chain belt at a point on a right line tangential to the perimeters of the wheels at their lower face, upon which it is hung, the opposite end of each extension arm or rod being secured to a cross-head, and having a reciprocating movement thereon; a cross-head, attached to the end of a reciprocating piston-rod, P; a lock, adjusted in the inner face of one side of each wheel mounted upon the drum, a friction-belt, H, encircling the periphery of the drum, and being a part of the lock, the lock being so constructed as to lock the wheel to the drum and unlock it therefrom, at each alternate reciprocating movement of the motive power, substantially as specified.

2. A machine, of the class of mechanism described, having two rotating wheels, A and A', and two idle or guide wheels, B and B', arranged in line, each with the other, and operating in the same plane, with caps or lugs formed on their external surfaces or perimeters; the two rotating wheels, A and A', adjusted closely to each other, and mounted upon a cylindrical drum, D, and having rotary motion thereon; the drum, D, being hung upon and fixed to a shaft, S, for operative work; the idle or guide wheels, B and B', being adjusted closely to each other upon an axle, S', and having rotary motion thereon; two endless chain belts, E and E', the chain belt, E, being hung upon and running over the wheels, A' and B', and the other chain belt, E', being hung upon and running over the wheels, A and B, the links of each chain belt being so formed as to engage the perimeters and caps or lugs of the wheels, upon and over which it is hung and run; two extension arms or rods, F and F', one end of one extension arm or rod, F, being secured to the surface of the chain belt, E, at a point on a right line tangential to the perimeters of the wheels, A' and B', at their upper face, upon which it is hung, and one end of the other extension arm or rod, F', being secured to the surface of the chain belt, E', at a point on a right line tangential to the perimeters of the wheels, A and B, at their lower face, upon which it is hung, and having reciprocating movement thereon; a cross-head, attached to the end of a reciprocating piston-rod, P; a lock, L, L', adjusted to the inner face of one side of each one of the wheels, A and A', the friction-belt, H, encircling the periphery of the drum, D, and being a part of the lock, the lock being so constructed as to lock the wheel to the drum and unlock it therefrom, at each alternate reciprocating movement of the motive power, substantially as specified.

3. In a mechanism of the class described, the combination of the two wheels, A and A', adjusted closely to each other upon the cylindrical drum, D; the drum, D, hung upon the shaft, S; the two wheels, B and B', adjusted closely to each other upon an axle, S'; the chain belt, E, hung upon and running over the wheels, A' and B; the extension arms or rods, F and F', one end of the arm or rod, F, being secured to the surface of the chain belt, E, and one end of the arm or rod, F', being secured to the surface of the chain belt, E', the opposite ends being secured to a cross-head, attached to the end of the motive piston-rod, P; the lock, L, L', adjusted to the inner face of one side of each one of the wheels, A and A', the friction-belt, H, encircling the periphery of the drum, D, and being a part of the lock, the lock being so constructed as to lock the wheel to the drum and unlock it therefrom, at each alternate reciprocating movement of the motive power, substantially as specified.

4. In a mechanism of the class described, the combination of the two wheels, A and A', mounted upon the cylindrical drum, D, the two wheels, B and B', adjusted upon the axle, the endless chain belt, E, hung upon the wheels, A and B, the endless chain belt, E', hung upon the wheels, A' and B', the extension arm or rod, F, secured to the chain belt, E, the lock, L, L', adjusted in the wheels, A and A', the segment, m, the bar, n, the lugs, n' and n'', the friction-belt, H, encircling the drum, D, the spring, A, and the bar, p, substantially as specified.

5. In a mechanism of the class described, the combination of the two wheels, A and A', the drum, D, the two wheels, B and B', the endless chain belts, E and E', the two extension arms or rods, F and F', the lock, L, L', the segment, m, the bar, n, the lugs, n' and n'', the friction-belt, H, encircling the drum, D, the spring, A, and the bar, p, substantially as specified.

6. In a machine of the class described, the combination of two rotating or driving wheels, each wheel having a circumferential exterior engaging or driving flange, a driven drum, on which the wheels are mounted to be substantially locked thereto, and unlocked therefrom, means for engaging and disengaging the wheels from the drum, operating for one wheel to be simultaneously disengaged as the other wheel is engaged; driving or driven chain belts, one for each wheel for intermittently and alternately advancing each wheel to impart a continuous rotation of the drum, and means for retaining the chain belts on a right line tangential to the exterior flange or perimeters of the rotating or driving wheels, substantially as specified.

7. In a machine of the class described, the combination of two rotating or driving wheels, each wheel having a circumferential exterior engaging or driving face, a driven drum, on which the wheels are mounted to be automatically locked thereto and unlatched therefrom, means for engaging and disengaging the wheels from the drum, operating for one wheel to be disengaged, as the other wheel is engaged; driving or draw chain belt, one for each wheel, for intermittently and alternately advancing each wheel to impart a continuous rotation of the drum, means for actuating the chain belt from a reciprocating motive power on a right line tangential to the exterior face or periphery of the rotating or draw wheel, and a shaft on which the drum is fixed, for the shaft to be continuously rotated from the drum, substantially as specified.

8. In a machine of the class described, the combination of two rotating or driving wheels, each wheel having a circumferential exterior, engaging or driving face, a drum on which the wheels are mounted to be automatically locked thereto and unlatched therefrom, means for engaging and disengaging the wheels from the drum, operating for one wheel to be disengaged, as the other wheel is engaged; driving or draw chain belt, one for each wheel, for intermittently and alternately advancing each wheel to impart a continuous rotation of the drum; two guide or carrying wheels, one for each rotating or draw wheel in line with and in the same plane as its rotating or driving wheel, and having a circumferential exterior, engaging or driving face, receiving the driving or draw chain belt, and means for actuating the chain belt from a reciprocating motive power, on a right line tangential to the exterior face or periphery of the rotating or driving wheel, substantially as specified.

9. In a machine of the class described, the combination of two rotating or driving wheels, each wheel having a circumferential exterior, engaging or driving face, a driven drum, on which the wheels are mounted, to be automatically locked thereto and unlatched therefrom, means for engaging and disengaging the wheels from the drum, operating for one wheel to be disengaged, as the other wheel is engaged; driving or draw chain belt, one for each wheel, for intermittently and alternately advancing each wheel to impart a continuous rotation of the drum; two guide or carrying wheels, one for each rotating or driving wheel in line with, and in the same plane as its rotating or driving wheel, and having a circumferential exterior, engaging or driving face, receiving the driving or draw chain belt, means for actuating the driving chain belt from a reciprocating motive power, on a right line tangential to the exterior face or periphery of the rotating or driving wheel; a shaft on which the drum is fixed for the shaft to be continuously rotated from the drum, and an axle for the guide or carrying wheel, substantially as specified.

10. In a machine of the class described, the combination of two rotating or driving wheels, each having on its exterior circumferential face or periphery a series of projecting caps or lugs, a driven drum, upon which the wheels are mounted to be automatically locked thereto and unlatched therefrom, a lock for each wheel to the drum, actuated by the advance of the wheel to engage the wheel and drum, and by the return of the wheel to disengage the wheel and drum; chain belt, one for each wheel for intermittently and alternately advancing each wheel to impart a continuous rotation to the drum, each chain in engagement with the exterior face or periphery of the drum, and the caps or lugs of its rotating or driving wheel; two guide or carrying wheels, one for each rotating or driving wheel, in line with, and in the same plane as its rotating or driving wheel, each guide or carrying wheel having on its circumferential exterior face or periphery, a series of caps or lugs corresponding to the caps or lugs on the rotating or driving wheel, and receiving the driving or draw chain belt, means for actuating the drive or draw chain belt on a right line tangential to the exterior face or periphery of the rotating or driving wheel, from a reciprocating motive power, on a right line tangential to the exterior face or periphery of the rotating or driving wheel; a shaft on which the drum is fixed to be continuously rotated from the drum, and an axle for the guide or carrying wheel, substantially as specified.

11. In a machine of the class described, the combination of two rotating or driving wheels, each having on its circumferential exterior face or periphery a series of projecting caps or lugs, a driven drum, upon which the wheels are mounted to be automatically locked thereto and unlatched therefrom, a lock for each wheel to the drum, actuated by the advance of the wheel to engage the wheel and drum, and by the return of the wheel to disengage the wheel and drum; chain belt, one for each wheel, for intermittently and alternately advancing each wheel to impart a continuous rotation to the drum, each chain in engagement with the exterior face or periphery of the drum, and the caps or lugs of its rotating or driving wheel; two guide or carrying wheels, one for each rotating or driving wheel, in line with, and in the same plane as its rotating or driving wheel, each guide or carrying wheel having on its circumferential exterior face or periphery a series of caps or lugs corresponding to the caps or lugs on the rotating or driving wheel, and receiving the driving or draw chain belt; an arm or rod attached, at its forward end, to the upper face of one of the chain belts, on a right line tangential to the exterior face or periphery of the rotating or

driving wheel of the chain belt, an arm or rod attached, at its forward end, to the under face of the other chain belt, on a right line tangential to the exterior face or periphery of the rotating or driving wheel of the chain belt; a cross-head having the rear ends of the arms or rods attached thereto; a piston-rod carrying the cross-head; a shaft, on which the drum is fixed to be continuously rotated from the drum, and an axle for the guide or carrying wheel, substantially as specified.

12. In a machine of the class described, the combination of the two rotating or driving wheels, each wheel composed of two sections or divisions, each division having an exterior body or rim, the body or rim of one division, having, also, a series of caps or lugs on its exterior face or periphery, and an interior diameter and width to receive the body or rim of the other division; a drum, on which the rotating or driving wheels are mounted, to be automatically locked thereto and unlatched therefrom; a lock for each wheel to the drum, actuated by the advance of the wheel to engage the wheel and drum, and on the return of the wheel, to disengage the wheel from the drum; a drive or draw chain belt for each wheel, each chain in engagement with the exterior face or periphery and caps or lugs of its wheel, and intermittently and alternately advancing the wheel for the two wheels to impart a continuous rotation of the drum, and means for actuating the drive or draw chain belt, each on a right line tangential to the exterior face or periphery of its rotating or driving wheel, from a reciprocating motive power, substantially as specified.

13. In a machine of the class described, the combination of the two rotating or driving wheels, each wheel composed of two sections or divisions, each division having an exterior body or rim, the body or rim of one division having, also, a series of caps or lugs on its exterior face or periphery, and an interior diameter and width to receive the body or rim of the other division; a drum, on which the rotating or driving wheels are mounted to be automatically locked thereto and unlatched therefrom; a lock for each wheel to the drum, actuated by the advance of the wheel to engage the wheel and drum, and on the return of the wheel to disengage the wheel from the drum; a drive or draw chain belt for each wheel, each chain in engagement with the exterior face or periphery and caps or lugs of its wheel, and intermittently and alternately advancing the wheel for the two wheels to impart a continuous rotation to the drum, a guide or carrying wheel in line with and in the same plane as its rotating or driving wheel, and having on its exterior face or periphery a series of caps or lugs corresponding with the caps or lugs of the rotating or driving wheel, and means for actuating the drive or draw chain belt, each on a right line tangential to the exterior face or periphery of the rotating or driving wheel from a reciprocating motive power, substantially as specified.

14. In a machine of the class described, the combination of two rotating or driving wheels, each wheel having a rim or ring body, a drum on which the rotating or driving wheels are mounted in juxtaposition, side by side, means for alternately locking the wheels to the drum and unlatching them therefrom automatically with the advance and return movement of the wheels; a drive or draw chain belt for each wheel, and means for actuating the chain belt from a reciprocating motive power, to intermittently and alternately advance the wheels and impart a continuous rotation to the drum, substantially as specified.

15. In a machine of the class described, the combination of the two rotating or driving wheels, each wheel having a rim or ring body, a drum, on which the rotating or driving wheels are mounted in juxtaposition, side by side, means for alternately locking the wheels to the drum and unlatching them therefrom automatically with the advance and return movement of the wheels; a drive or draw chain, and means for actuating the chain from a reciprocating motive power, to intermittently and alternately advance the wheels and impart a continuous rotation to the drum, and a shaft having the drum fixed thereto, for the shaft to be continuously rotated from the drum, substantially as specified.

699,775. PACKING LEVER. GEORGE T. THOMAS, Washington, D. C. assignor of one-half to GEORGE T. THOMAS, Washington, D. C. Filed Jan. 7, 1908. Serial No. 55,708. (No model.)

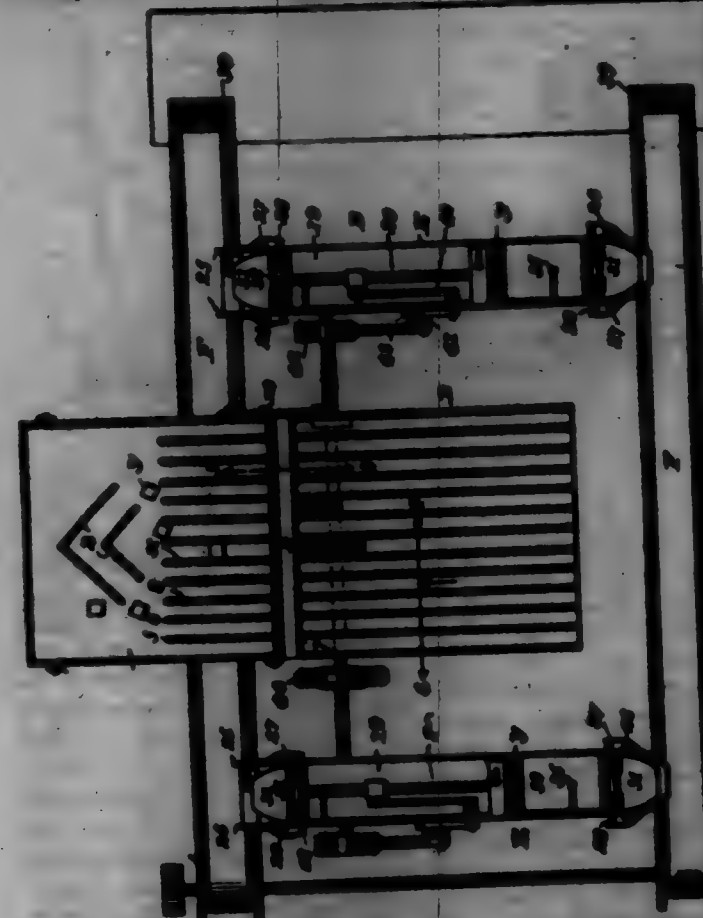
Claim.—1. The device provided with the receiving platform, and with portions extending beyond the platform capable of limited longitudinal play independently of the movement of the platform, substantially as set forth.

2. The device provided with the receiving platform, and with portions extending beyond the platform, the alternate portions capable of limited longitudinal play independently of the movement of the platform, substantially as set forth.

3. The combination of the reciprocating platform having portions and discharge openings between the portions, transverse blades in front and rear of said openings, and a channelled receiver into the channels of which the rear blades project, substantially as set forth.

4. The reciprocating platform with discharge openings and blades extending downward in front and at the rear of said openings, combined

with a receiver having channels into which the rear blades project, substantially as set forth.



5. The combination is a packing-section, of a reciprocating plunger and a trough for receiving the article to be packed adapted at the end to enter the packing box or receptacle and provided at said end with yielding sides, substantially as set forth.

6. The combination of the reciprocating plunger and a trough having yielding sides and a yielding cap, substantially as set forth.

7. The trough having a right bottom, side adapted to yield near the end of the trough for the passage of articles between them, a cap pivoted between the sides, and a plunger reciprocating in the trough, substantially as set forth.

8. The combination is a packing-section, of a trough having yielding side portions at each end and a double-ended plunger, and means for reciprocating it in the trough, substantially as set forth.

9. The combination with a reciprocating plunger, of a trough adapted at the end to enter the packing box or receptacle and its sides having the terminal portions pivoted to swing laterally, and springs for carrying the pivoted portions inward, substantially as set forth.

10. The combination with a reciprocating plunger, of a trough, side having the terminal portions pivoted to swing laterally, springs for carrying the pivoted portions inward, and a cap pivoted between the sides, substantially as set forth.

699,776. RUBBER IMPRESSION-TRAY. BENNY L. TOWNSHIP, Los Angeles, Cal. Filed July 28, 1904. Serial No. 78,108. (No model.)

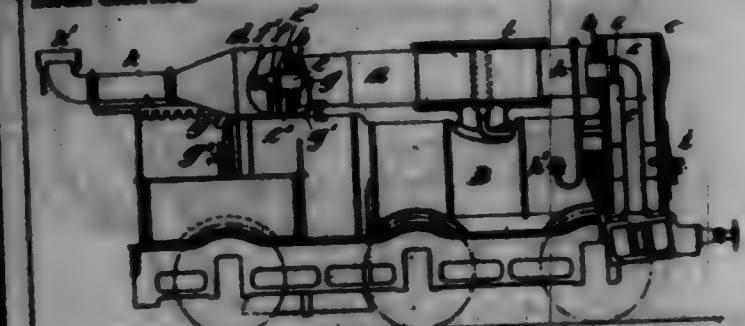


Claim.—1. A lining for impression-trays composed of detached sections extending transversely to a line which coincides with the central tooth-line when the tray is used in taking an impression.

2. The device described having for impression-trays, comprising a plurality of sections which meet longitudinally on a line which coincides with the central tooth-line when the tray is used in taking an impression; said sections having opposed edges along their meeting-lines, substantially as described herein.

699,777. HEATING FIRE-WATER. FREDERICK H. TREVISEN, Cairo, Egypt. Filed Jan. 14, 1908. Serial No. 68,988. (No model.)

Claim.—1. A hot-water heater adapted for use with locomotives and other combined engines and boilers, arranged substantially above the boiler and comprising a cylindrical hot-water-containing vessel surrounded by an annular steam-chamber and traversed by tubes which open into a smoke-box at each end and serve to convey the waste gases from the furnace, said annular steam-chamber being also traversed centrally by a pipe which forms a continuation of the exhaust-steam pipe, substantially as herein described.



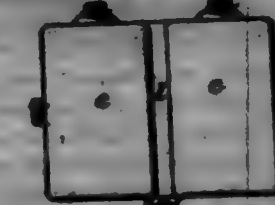
2. In a locomotive or other combined engine and boiler, the device described means for heating the hot-water heater, arranged horizontally above the boiler and whereof the tubes communicate at one end with the forward smoke-box and at the other end with the rear smoke-box, an exhaust-steam pipe led through the forward smoke-box and centrally through the tubular water-containing vessel, a smoke-stack attached to the rear smoke-box, and means for creating a blast at the rear extremity of the exhaust-steam pipe, substantially as herein described.

3. In a locomotive or other combined engine and boiler, the combination with a boiler B of a tubular water-heater A, a smoke-box C at the forward end of the said vessel, a smoke-box D at the rear end of the said vessel, an exhaust-steam pipe E traversing the first smoke-box and then, centrally, the hot-water-containing vessel, a blast-nozzle F at the rear extremity of the said pipe and a smoke-stack extending from the rear smoke-box substantially as herein described and for the purposes set forth.

4. In a locomotive or other combined engine and boiler, the combination with a boiler B of a tubular water-heater A, an annular steam-receiver I surrounding the said water-heater, a smoke-box C at one end of the heater and a smoke-box D at the other end thereof, an exhaust-steam pipe E extending through a central tubular passage in the water-heater, and a blast-nozzle F on the said exhaust-steam pipe, substantially as set forth for the purposes set forth.

5. In a locomotive or other combined engine and boiler, the combination with a boiler B of a tubular water-heater A, an annular steam-receiver I surrounding the said water-heater, a smoke-box C at one end of the heater and a smoke-box D at the other end thereof, an exhaust-steam pipe E extending through a central tubular passage in the water-heater, a blast-nozzle F on the said exhaust-steam pipe, a smoke-packet J situated above the fire-box and tubes in said packet communicating with the rear smoke-box D, substantially as set forth for the purposes set forth.

699,778. WATER-BAG. EDWARD H. UNGER, New York, N. Y. Filed Jan. 17, 1908. Serial No. 68,104. (No model.)

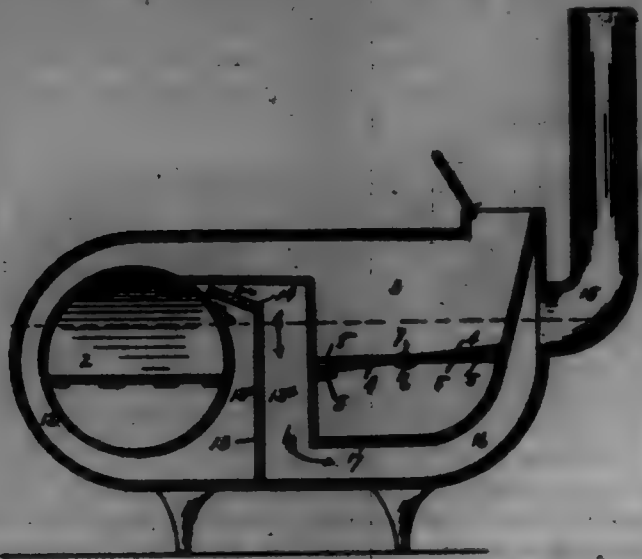


Claim.—1. An improved article of manufacture a multiple water-bag comprising a plurality of independent flexible water cells or compartments each complete in itself and united by flexible flattened connecting portions, said water-cells being in communication with each other by passages through said flattened connecting portions, as set forth.

2. An improved article of manufacture, a multiple water-bag comprising a plurality of independent flexible water cells or compartments each complete in itself and united by flexible flattened connecting portions, said multiple water-bag being provided with means for admitting water to, confining it in and discharging it from said water cells or compartments, as set forth.

3. An improved article of manufacture a multiple water-bag comprising a plurality of independent flexible water cells or compartments each complete in itself and united by flexible flattened connecting portions, said multiple water-bag having means for admitting water to one of said cells, and a communication between said cell and the others, as set forth.

699,779. COMBINED HEATING AND COOKING STOVE. JOHN L. VAN HORN, Florida, Tex. Filed June 22, 1901. Serial No. 61,611. (24 claims.)



Claim.—1. The herein-described combined heating and cooking stove comprising a body portion having a circular oven and a combustion-chamber; suitable partition-walls between the oven and the fire-box adapted to cause the products of combustion to extend entirely around said oven and thence under the sub-receiver to the chimney and a suitable opening in the upper portion of the combustion-chamber through which the fuel may be introduced, all substantially as specified and for the purpose set forth.

2. In a stove of the character described the combination with the body portion having combustion-chamber and circular oven, and a vertical channel between the same, of a deflector-plate at the top of said channel, the combustion-chamber having an opening for the introduction of the fuel and the chimney communicating with the body at the end opposite the oven outside the combustion-chamber, as set forth.

3. In a combined cooking and heating stove, a body portion having a combustion-chamber and a circular oven, a channel formed between the combustion-chamber and oven and closed at its top, a chimney communicating with the space around the combustion-chamber, and a diaphragm in the said channel having deflector at its upper end, whereby the products of combustion are forced to travel over the said channel around the oven up one side of said diaphragm and down the other and beneath the bottom of the combustion-chamber into the chimney, substantially as shown and described.

699,780. FOOT-REST. LEONARD W. WATSON, Brooklyn, N.Y. Filed Sept. 11, 1901. Serial No. 74,999. (No model.)



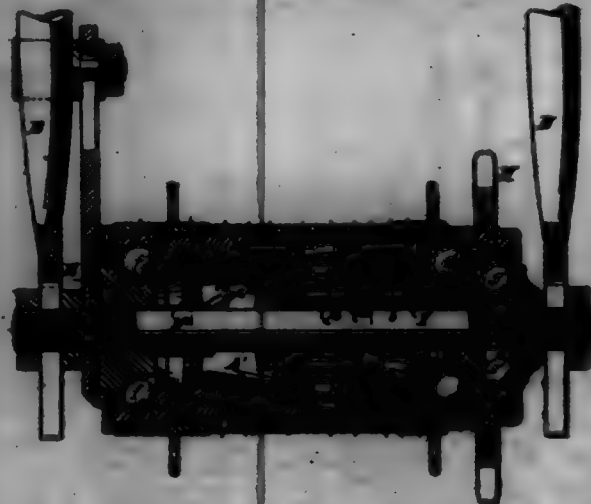
Claim.—1. A foot-rest, consisting of a turtle-shaped body, a base upon which the same is supported, a compressible back portion of said body, leg, head and tail members arranged between said base and said body, and means for actuating said leg, head and tail members to move inwardly and outwardly, substantially as set forth.

2. A foot-rest, consisting of a base, a compressible turtle-shaped body, supports arranged at the ends of said base to support said body, passages between said supports, leg, head and tail members adapted to move inwardly and outwardly in said passages, and means for producing the movement of said members, substantially as set forth.

3. A foot-rest, consisting of a base, a compressible turtle-shaped body, a supplemental base therein, spiral springs arranged between the back of said body and said supplemental base, an elliptical compression-spring passing through a slot in said supplemental base, leg, head and tail members, and means connecting said members and said elliptical compression-spring, substantially as set forth.

4. A foot-rest, consisting of a base, a turtle-shaped body having a flexible back, a supplemental base in said body, spiral springs arranged thereon, a transverse slot in said supplemental base, an elliptical compression-spring adapted to operate through the same, leg, head and tail members, and key-tongs connecting said members with said elliptical compression-spring, substantially as set forth.

699,781. BACK-PEDALING BRAKE. JAMES C. ASHTON and CHARLES KAPP, Buffalo, N.Y.; said Kapp assignor to said Ashton. Filed Dec. 9, 1901. Serial No. 66,168. (No model.)



Claim.—1. The combination of an axle, a wheel-hub mounted to rotate about said axle and provided with a brake-surface and a clutch-face, a brake-shoe located in said hub and movable longitudinally in the hub, means for holding said brake-shoe from rotation, a longitudinally-movable clutch device arranged between said brake-shoe and said clutch-face on the wheel-hub, said clutch device having a driving clutch-face cooperating with said clutch-face on the hub, a shifting device for moving said clutch device longitudinally to move the brake-shoe longitudinally, means for operating the shifting device, and a holding device to hold said clutch device from rotation while being moved longitudinally, substantially as set forth.

2. The combination of an axle, a wheel-hub mounted to rotate about said axle and provided with a brake-surface and a clutch-face, a brake-shoe longitudinally movable in said hub and having a brake-surface cooperating with said brake-surface on the hub, means for holding the brake-shoe from rotation, a longitudinally-movable clutch device arranged between said brake-shoe and said clutch-face on the hub, said clutch device having a driving clutch-face cooperating with said clutch-face on the hub, and having a part adapted to engage said brake-shoe to move the same longitudinally, means for shifting said clutch device longitudinally, and holding devices carried by said clutch device and acting to hold the same from rotation while being moved longitudinally, substantially as set forth.

3. The combination of an axle, a wheel-hub mounted to rotate about said axle and provided with a brake-surface and a clutch-face, a brake-shoe located in and longitudinally movable in the hub and provided with a braking-surface cooperating with said braking-surface on the hub, means for holding said brake-shoe from rotation, a rotatable driving-shaft, a longitudinally-movable clutch device provided with a clutch-face cooperating with said clutch-face on the hub, and with a face cooperating with a face on said brake-shoe, means operated by said driving-shaft for shifting said clutch device longitudinally, and a friction device carried by said clutch device and adapted to frictionally engage with said clutch-face on the hub in one position of the clutch device and with a face carried by the brake-shoe in another position of the clutch device, substantially as set forth.

4. The combination of an axle, a wheel-hub mounted to rotate thereon and provided with a brake-surface and a clutch-face, a brake-shoe arranged in said hub between said brake-surface and said clutch-face and having a face cooperating with said brake-surface and a friction-face, a longitudinally-movable clutch device arranged between said shoe and said clutch-face on the hub, means for moving the shoe longitudinally, a clutch-face on said clutch device cooperating with said clutch-face on the hub, friction holding devices carried by said clutch device, and means for holding said friction devices toward said friction-face on the brake-shoe and said clutch-face on the hub, substantially as set forth.

5. The combination of an axle, a hub mounted to rotate thereon and provided with a brake-surface and a clutch-face, a brake-shoe located in and longitudinally movable in said hub between said brake-surface and said clutch-face and having an internal friction-face, means for holding said brake-shoe from rotation, a clutch-ring arranged between said brake-shoe and said clutch-face on the hub and surrounded by said internal friction-face of the brake-shoe, a spring-pressed friction holding device seated in a recess in said clutch-ring and cooperating with said clutch-face on the hub and with said internal friction-face on the brake-shoe, and means for shifting said clutch-ring longitudinally, substantially as set forth.

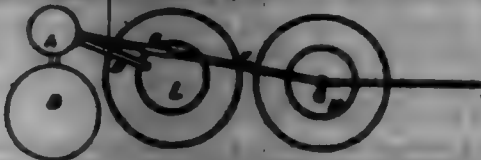
6. The combination of an axle, a hub mounted to rotate thereon and provided with a brake-surface and a clutch-face, a brake-shoe arranged in the hub between said brake-surface and said clutch-face and provided with an internal friction-face, means for holding said brake-shoe from rotation, a longitudinally-movable clutch-ring having a clutch-face cooperating

with said clutch-face on the wheel-hub, and surrounded by said friction-face on said brake-disk, said clutch-ring having oppositely-arranged slots or depressions therein, a friction holding device located in each of said slots or depressions in the clutch-ring, a spring in each of said slots beneath said holding device and acting to move the same outwardly, said friction holding device having a face cooperating with said clutch-face on the hub and a face cooperating with said internal friction-face on said brake-disk, and means for moving said clutch-ring laterally and rotating the same, substantially as set forth.

7. The combination of an axle, a wheel-hub mounted to rotate thereon and having a brake-surface and a conical clutch-face, a brake-shoe arranged in said hub between said brake-surface and said conical clutch-face and having an internal friction-face, means for holding said brake-shoe from rotation, a clutch-ring arranged between said brake-shoe and said conical clutch-face on the hub, and provided with a conical clutch-face and extending within said internal friction-face of the brake-shoe, said clutch-ring having slots therein, a friction holding device arranged in each of said slots, a spring in each of said slots beneath said friction holding device and tending to move the same into engagement with said internal friction-face on the brake-shoe and said conical clutch-face on the hub, means for holding said friction holding devices and springs from longitudinal movement on the clutch-ring, means for moving said clutch-ring longitudinally into engagement with said brake-shoe or with said conical clutch-face on the hub, and means for rotating said clutch device, substantially as set forth.

8. The combination of an axle, a wheel-hub journaled to rotate about said axle and having a brake-surface and a conical clutch-face, a brake-shoe in said hub between said brake-surface and said clutch-face and having an internal friction-face, means for holding said brake-shoe from rotation, a clutch-ring arranged between said brake-shoe and said conical clutch-face on the hub, and provided with a conical clutch-face and extending within said internal friction-face of the brake-shoe, said clutch-ring having a peripheral slot therein, a spring-pressed friction holding device arranged longitudinally of the clutch-ring in said slot and having an inclined face circumferentially in line with the conical face of said clutch-ring, and a face coopering with said internal friction-face of the brake-shoe, means for preventing longitudinal movement of said friction holding device in said slot, and means for moving said clutch-ring laterally and for retaining the same, substantially as set forth.

899,782. MEANS FOR VENTILATING MILK AND CREAM DURING THE PROCESS OF SEPARATION. ARTHUR H. DANCHEWICZ, Hingham, Mass. Filed May 6, 1904. Serial No. 51,932. (No model.)



Claim.—1. An apparatus for ventilating milk and cream during their separation by means of a cream-separator, which apparatus comprises a cream-pipe connected to the cream-separator, a system of tubing connected to said cream-pipe and adapted to communicate with a source of fresh air, means for preventing foreign matter from passing with the air through said system, and means for preventing the admission of air from the work-room into the cream-pipe in combination substantially as described.

2. An apparatus for ventilating milk and cream during their separation by means of a cream-separator, which apparatus comprises a cream-pipe connected to the cream-separator, means for conveying a constant supply of pure air to said cream-pipe, and an automatic counterweighted valve adapted to close the discharge end of said cream-pipe in combination substantially as and for the purposes set forth.

3. An apparatus for ventilating milk and cream during their separation by means of a cream-separator, which apparatus comprises a cream-pipe connected to the cream-separator, a system of tubing connected to said cream-pipe and adapted to communicate with a source of fresh air, means for preventing foreign matter from passing with the air through said system, and an automatic counterweighted valve adapted to close the discharge end of said cream-pipe, in combination, substantially as and for the purposes set forth.

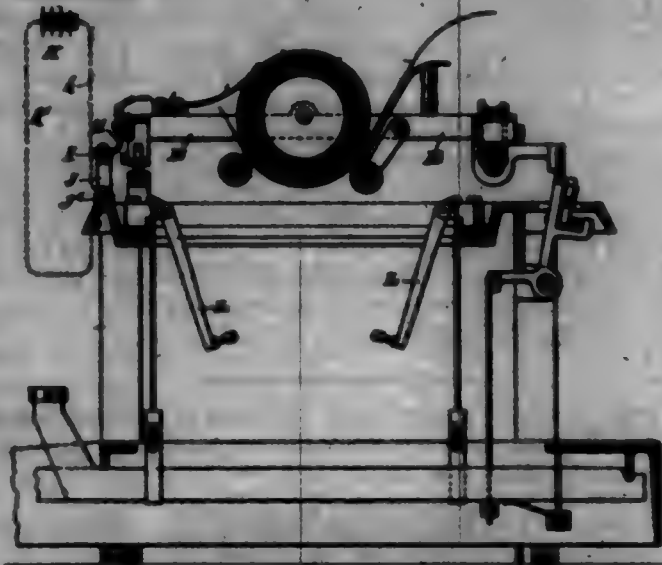
699,788. VAULT-LIGHT. LOUIS BRAM, New York, N. Y., assignor of one-half to Joseph Bucklebach, New York, N. Y. Filed Nov. 1, 1901. Serial No. 66,762. (No model.)

Claim.—1. The combination of wrought Z-iron all-base having grooves cut or otherwise formed therein, wrought angle-iron base B, the iron base B to fit into the grooves of the Z-iron all-base, wrought flat-iron transverse base C, and glass half-spheres, substantially as described, and for the purpose specified.

2. The combination of wrought Z-iron sill-bars having grooves cut or otherwise formed therein, wrought flat-iron transverse bars C, wrought angle-iron bars B, the iron bars B to fit into the grooves of the Z-iron sill-bars, and reflecting bull's-eye substantially as described and for the purpose specified.



899,784. ELECTROGRAPHICALLY-PRINTING TYPE-WRITER. STROUD
A. BROWN, New York, N. Y. Filed June 19, 1900. Serial No. 89,784.
(No model.)



Claim.—1. A type-writing machine having a longitudinally-traveling paper-carriage, means for supporting the paper therefrom, a platen, types, the platen-surfaces and types being of electrically-conductive materials normally insulated from each other and adapted to receive the paper between them, means for selecting the desired type and for bringing the selected type and the platen into contact with opposite sides of the paper at a common printing-point whereby the circuit is closed through the paper, and connections from platen and types to opposite poles of an electric battery.

2. In a type-writing machine the combination of a platen, means for securing the paper thereto, types, keys and means controlled by said keys for selecting and successively impressing the types upon the paper, the platen and types having electrically-conductive surfaces insulated from each other and adapted to be connected with opposite poles of an electric battery.

2. A type-writing machine having a platen for the reception of the paper, types, the platen-surface and types being of electrically-conductive materials and adapted to be respectively connected with opposite poles of an electric battery, keys for selecting and presenting the types at a common printing-point, and means for causing relative movement of paper and printing-point to print a succession of lines upon the paper.

4. A type-writing machine having a longitudinally-traveling platen provided with a metallo foil covering insulated from the types, means for securing the paper upon the platen, types, means for collecting and presenting the types to the platen to print a series of lines, and means for connecting said foil covering and types respectively with opposite sides of an electric battery.

5. A type-writer having a platen-carriage and a platen provided with an electrically-conductive surface, types and means for selecting and successively presenting the types at a common printing-point, means for causing the types to be impressed upon the paper to print a series of lines, an inclined bar and a brush engaging with the platen, one carried by the carriage and the other stationary, a brush connected with said bar and engaging said conductive surface on the platen and a battery connected from opposite ends respectively with the bar-engaging brush and with the types.

3. In a type-writing machine the combination of a platen having an electrically-conductive surface, means for covering thereto a sheet of electrically-prepared paper, a series of types, said platen and types being electrically insulated from each other and adapted to be connected with opposite poles of an electric battery, and means for bringing said type con-

continuously in contact with the paper upon said plates at a common printing-point, whereby a current of electricity is caused to flow through said sheet of paper at the point of contact of said types with the plates.

7. In a type-writing machine the combination of a longitudinally-traveling paper-carriage, a platen having an electrically-conductive surface insulated from the types, a plurality of types and means for presenting them at a common printing-point, said platen-surface and types being connected with opposite poles of an electric battery.

8. In a type-writing machine the combination of a plurality of type-carriages and means for bringing them successively in contact with the paper, at a common printing-point, a platen having an electrically-conductive surface insulated from the types, the types and platen-surface being connected with opposite poles of an electric battery, and means for causing relative movement of platen and printing-point to form a series of printed lines.

9. In a type-writing machine the combination of a longitudinally-traveling paper-carriage, means for securing the paper thereon, types, an impression member cooperating with the types, means controlled by the keys for selecting and presenting the types at a common printing-point and means for impressing the paper between the types and the impression member at said common printing-point, said impression member and the types having electrically-conductive surfaces mutually insulated and adapted to be connected with opposite poles of an electric battery.

10. In a type-writing machine the combination of a longitudinally-traveling paper-carriage, means for securing the paper thereon, types, an impression member adapted to cooperate with the selected type to form a printing-couple, keys, and means controlled by the keys for selecting the types and successively presenting them at a common printing-point and means for advancing one member of the printing-couple to impress the type upon the paper, said impression member and the types having mutually-insulated and electrically-conductive surfaces which are adapted to be connected with opposite poles of an electric battery.

699,785. HINGED LIFT. JEROME T. BROWN, Springfield, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed Apr. 2, 1906. Serial No. 13,171. (No model.)



Claim.—1. A hinged lift having a fore part, a heel part, and a hinge connecting said parts, said hinge comprising two members of which one is provided with a finger or projection and the other is formed with a stationary abutment and a movable lock adapted to receive said finger or projection between them.

2. A hinged lift having a hinge comprising two members secured in the respective parts of the lift, and a pin connecting said hinge members, the member for the heel part carrying a sliding lock movable longitudinally of the lift, and the member for the fore part having a projection extending rearwardly and adapted to be engaged by the lock.

3. A hinged lift having a hinge comprising two members and a pin, the member for the heel part having two forwardly-projecting webs, and the member for the fore part having a web lying between the first-mentioned webs and pivoted therein by the pin, the first-mentioned member having a lock movable longitudinally of the lift into engagement with the web of the second-mentioned member.

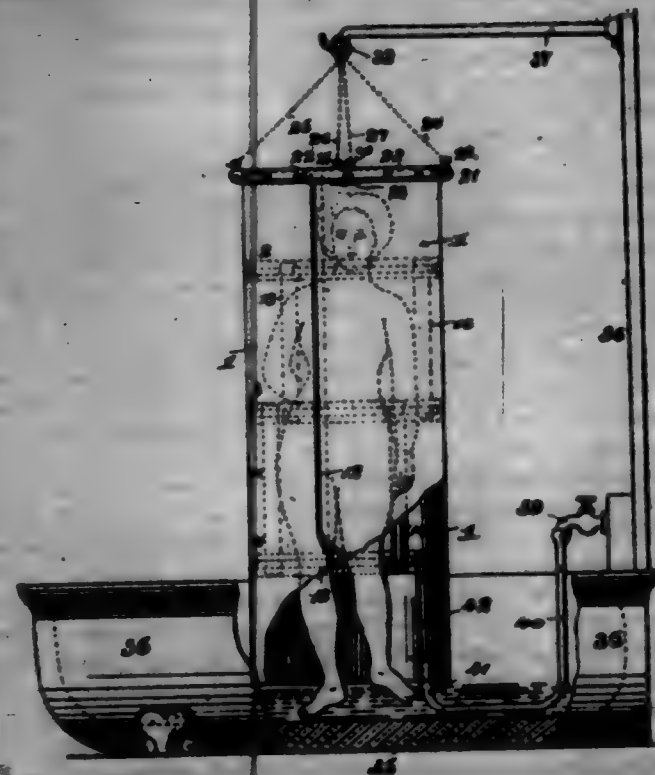
4. A hinged lift having a hinge comprising two members connected by a pin, the member for the fore part having a rearwardly-projecting web, and the member for the heel part having parallel webs to receive the web of the first-mentioned member, said member for the heel part also having a stop to limit the movement of the other member when it has reached the extremity of its movement, and a lock to hold said other member against said stop.

699,786. BATH ATTACHMENT. OLIVER GARFINKEL, Yonkers, N. Y. Filed Sept. 10, 1901. Serial No. 74,598. (No model.)

Claim.—1. As an article of manufacture, a flexible sheet having secured thereto a strip of flexible material having central projecting head, and outwardly-extending flanges secured to the sheet, and perforations in said head, as and for the purposes set forth.

2. As an article of manufacture, a flexible sheet having lateral ducts formed on its upper surface by headed strips having edges connected to the sheet, perforations in the head of said strip, and other strips likewise formed, extending between the lateral ducts, and a passage from the channel of one strip to that of the other, as and for the purposes specified.

3. The combination in an article of the class described, of a flexible and waterproof or water-repellent sheet, the parallel ducts, and the parallel longitudinal ducts connecting the lateral ducts, substantially as described.



4. The combination in an article of the class described, of the flexible waterproof or water-repellent sheet, the lateral and parallel and perforated ducts, and the longitudinal ducts connecting two of the lateral ducts, the adjacent ends of the longitudinal ducts being staggered relative to each other, substantially as described.

5. The combination in an article of the class described, of the sheet 1, the strip 5 secured thereto having the head 6 and projecting flanges 7, an aperture 20 in the head, another strip 15 having the flanges 16 and end flange 18, the flanges 18, 19, being secured upon the flange 7, as and for the purposes described.

6. In an article of the class described, the combination with the sectional ring, the sections being hinged together, a shield having component spray-dots, the hinge being below the sections, depending ends or chains secured at their lower ends, one adjacent each of the section ends, and others at a point removed from the hinge, and a suspending ring uniting the outer ends of the chains together.

7. In a bath-shield-suspending ring, the combination with the segmental sections hinged at their ends together by longitudinally-disposed pivots, shields depending from each section, each shield having a chain or cord extending from the ring-section, and a ring at the other end of the chain or cord, uniting them together, substantially as described.

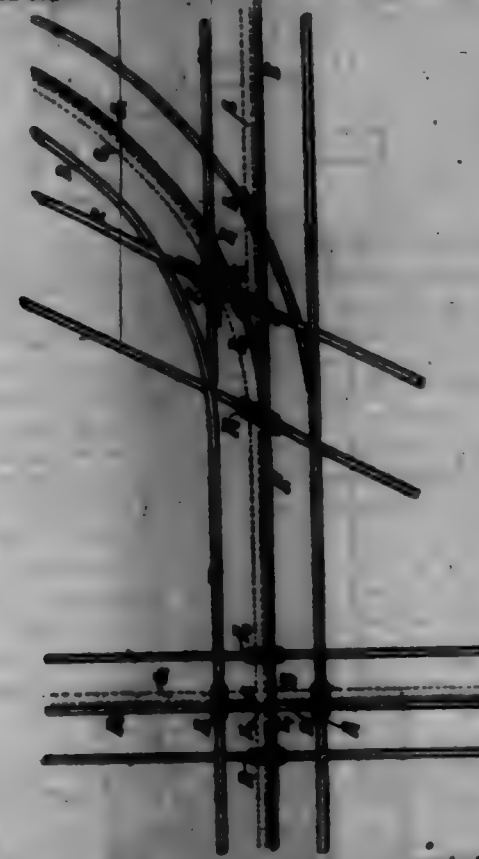
699,787. ELECTRIC-RAILWAY SYSTEM. THOMAS L. GARDNER, Synt, N. Y., assignor to International Electric Traction Company, a Corporation of West Virginia. Filed Aug. 28, 1904. Serial No. 71,682. (No model.)

Claim.—1. In an electric-railway system track-rails, intersecting track-rails to form a crossing, a closed conduit extending adjacent said track-rails, a continuous and a sectional conductor in said conduit, a sectional contact-rail adjacent said conduit connected to said sectional conductor, the sections of said contact-rail being above the level of said intersecting track-rails at said crossing and insulated therefrom, a trolley in said conduit to connect said conductors, a car-magnet mounted on a car to control said trolley, an elongated contact-disk mounted on said car to make contact with said contact-rail, the intersecting track-sections above said conduit being formed of manganese steel to provide a non-magnetic housing for said conduit.

2. In an electric-railway system embodying track-rails, and a closed conduit, intersecting track-rails forming a crossing, a sectional contact-rail electrically connected from said conduit by magnetic means, said contact-rail being higher than said intersecting track-rails at said crossing, the intersecting track-rails over said conduit being non-magnetic so as to be free from interference with said conduit.

3. In an electric-railway system embodying a sectional contact-rail, a closed conduit and magnetically-actuated means in said conduit to charge said contact-rail, and a non-magnetic track-section.

4. In an electric-railway system embodying a sectional contact-rail, a closed conduit and magnetically-actuated means in said conduit to charge said contact-rail, a permanent-steel track-section forming a non-magnetic housing for said conduit.



5. In an electric-railway system, track-rails, a magnetically-operated closed conduit and sectional contact-rails intersecting at a crossing, there being a section of said sectional contact-rails within the track-rails at said crossing, said contact-rails being elevated above said track-rails.

6. In an electric-railway system, track-rails, a magnetically-operated closed conduit and a sectional contact-rail parallel to said track-rails, intersecting track-rails to form a crossing, there being an insulated section of said sectional contact-rail between said intersecting track-rails, insulating-blocks to insulate said sectional contact-rail from said intersecting track-rails, said sectional contact-rails and said insulating-blocks being elevated above said track-rails.

7. In an electric-railway system, track-rails, an intersecting sectional contact-rail elevated above said track-rails at its intersection with the same and elevated insulating-blocks between said contact-rail and said track-rails.

8. In an electric-railway system track-rails, magnetically-operated closed conductors and sectional contact-rails intersecting at a crossing, said contact-rails being elevated above said track-rails at said crossing and being formed with depressed non-magnetic portions where they pass over said conductors.

9. In an electric-railway system track-rails, closed conductors and sectional contact-rails intersecting at a crossing, said contact-rails being elevated above said track-rails at said crossing and being formed with non-magnetic sections above said conductors, a contact-disk, a car-magnet and means to maintain said car-magnet out of contact with said contact-rails.

10. In an electric-railway system, track-rails, a magnetically-operated closed conduit parallel to said track-rails, intersecting track-rails to form a crossing said intersecting track-rails being formed with non-magnetic sections over said conduit.

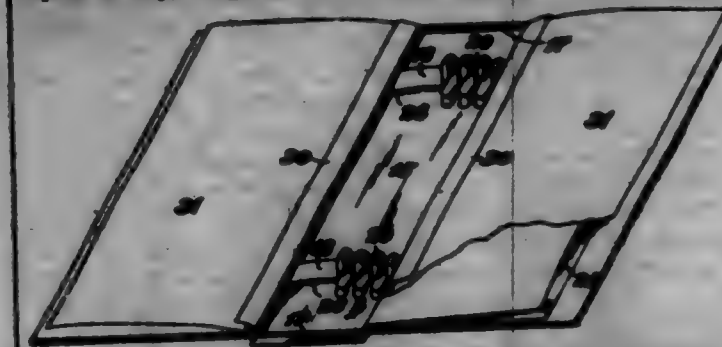
11. In an electric-railway system, track-rails, magnetically-operated closed conductors parallel to said track-rails and sectional contact-rails of magnetic material parallel to and removed from said conductors intersecting at a crossing, there being non-magnetic sections of said sectional contact-rails over the intersecting conductors.

699,788. HINGING-CASE FOR PAMPHLETS. DR. FRANK L. CLARK, Philadelphia, Pa. Filed Oct. 28, 1905. Serial No. 24,884. (No model.)

Claim.—1. In a hinging-case, the combination of a cover and a plurality of flexible elements extending transversely to the back thereof, with a plurality of leaf receiving and retaining clips and means on said clips engaging said flexible elements.

2. In a hinging-case, the combination of a cover, and a plurality of flexible elements secured to the cover and extending transversely across the back thereof, with a plurality of clips, means securing leaves or sheets in said clips and devices operating the clips to the flexible elements.

3. In a hinging-case, the combination of a cover or casing, transverse supporting-strips, of flexible material, connected to the back of said cover, connecting-clips adapted to receive a plurality of leaves or sheets, means for securing leaves or sheets in said clips, and means for attaching said clips to the supporting-strips.



4. In a hinging-case, the combination of a cover or casing, transverse supporting-strips, of flexible material, connected to the back of said cover, a plurality of connecting-clips, each channelled to receive an alignment of leaves or sheets and having a tongue for attachment to a supporting-strip, and sheet-fasteners for securing leaves or sheets in the connecting-clips.

5. In a hinging-case, the combination of a cover or casing, transverse supporting-strips, of flexible material, connected to the back of said cover, blocks or clip-cases fixed to the sides of the supporting-strips which adjust the back, connecting-clips each channelled to receive an alignment of leaves or sheets and having a tongue adapted to embrace a clip-end, and sheet-fasteners for securing leaves or sheets in the connecting-clips.

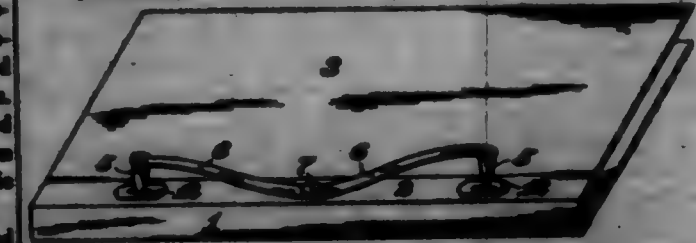
6. In a hinging-case, the combination of a cover or casing, transverse supporting-strips, of flexible material, connected to the back of said cover, a plurality of connecting-clips each channelled to receive an alignment of leaves or sheets, means for securing leaves or sheets in the connecting-clips, means for attaching clips, when connected to an alignment of leaves or sheets, to the supporting-strips, and means for covering spaces between alignments and connecting the connecting-clips.

7. In a hinging-case, the combination of a cover or casing, a transverse supporting-strip, of flexible material, connected to the back of said cover, a connecting-clip of light metal bent into channel form in transverse section and having openings in its sides to receive a sheet-fastener and a tongue by which it is attached to the supporting-strip, and a sheet-fastener adapted to pass through the openings of the clip and secure an alignment of sheets or leaves therein.

8. The combination of a hinging-case, and a channelled clip having a tongue secured to one end of the clip and extending therefrom and provided with a catch-shoulder for engagement with the other end of the clip.

9. A channelled hinging-clip having a tongue secured to one end of the clip and extending therefrom and provided with a catch-shoulder for engagement with the other end of the clip.

699,789. TEMPORARY BLINDER. FRANK L. CLARK, Philadelphia, Pa. Filed Oct. 28, 1905. Serial No. 24,885. (No model.)



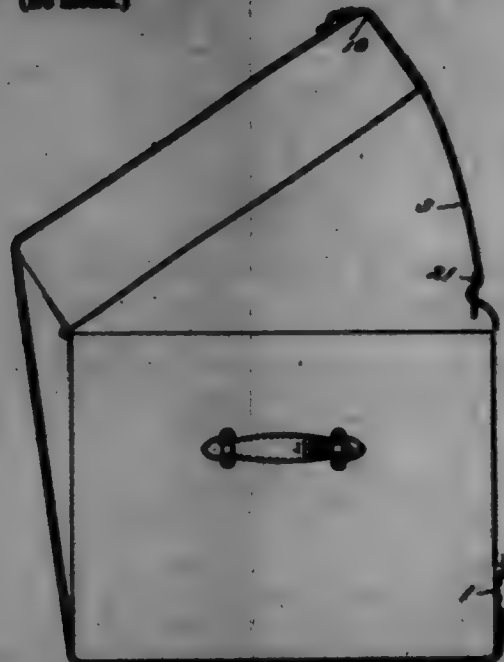
Claim.—1. In a temporary blinder, the combination of a channel-shaped back having lateral openings, sides flexibly connected to the back, an end gage fixed to the back, a perforator adapted to pass through a lateral opening of the back, and a spring-arm connecting the perforator to the back.

2. In a temporary blinder, the combination of a channel-shaped back having lateral openings adjacent to its ends, sides flexibly connected to the back, an end gage fixed to the back, two perforators each adapted to pass through one of the lateral openings of the back, and connections coupling said perforators to an intermediate stud or pivot fixed to the back.

3. In a temporary blinder, the combination of a channel-shaped back having lateral openings, sides flexibly connected to the back, an end gage fixed to the back, sliding-plates secured to the inside of the back and having lateral openings registering with the openings thereof, sliding-plates being on the outside of the back and having openings registering with the openings thereof and of the sliding-plates and end tongues engaging the openings thereof.

the stiffening-plates, and a perforator connected to the back and adapted to pass through an opening thereof and of the adjacent stiffening and facing plates.

699,790. SAFETY ATTACHMENT FOR TRUNKS OR BOXES. JOHN T. COLLIER, Hartford, Conn. Filed Aug. 27, 1901. Serial No. 73,672. (No model.)



Claim.—1. An attachment consisting of a plate bearing a lever, a binding-plate with openings, a loop-plate having a loop adapted to receive the lever, and a flexible strap rove through the openings in the binding-plate and having one end attached to the lever-plate and the other end attached to the loop-plate, substantially as specified.

2. An attachment consisting of a plate provided with outwardly-projecting ears which bear a lever, a binding-plate with openings, a loop-plate having a loop adapted to receive the lever and the ears so that the strain of the loop-plate will be resisted by the ears, and a flexible strap rove through the openings of the binding-plate and having one end attached to the lever-plate and the other end attached to the loop-plate, substantially as specified.

3. An attachment consisting of a plate bearing a lever, a binding-plate with openings and projecting lugs, a loop-plate having a loop adapted to receive the lever, and a flexible strap rove through the openings of the binding-plate and having one end attached to the lever-plate and the other end attached to the loop-plate, substantially as specified.

4. An attachment consisting of a plate having outwardly-projecting ears with undercut edges, and bearing a lever with a curved detaching-lug, a binding-plate with openings, a loop-plate with an opening adapted to receive the lever and the ears, and a flexible strap rove through the binding-plate and having one end attached to the lever-plate and the other end attached to the loop-plate, substantially as specified.

5. An attachment consisting of a plate having outwardly-projecting ears bearing a lever, a binding-plate having openings, a loop-plate having openings, one of which is adapted to receive the lever and the ears, and a flexible strap rove through the openings in the binding-plate and having one end attached to the lever-plate and the other end rove through openings of the loop-plate, substantially as specified.

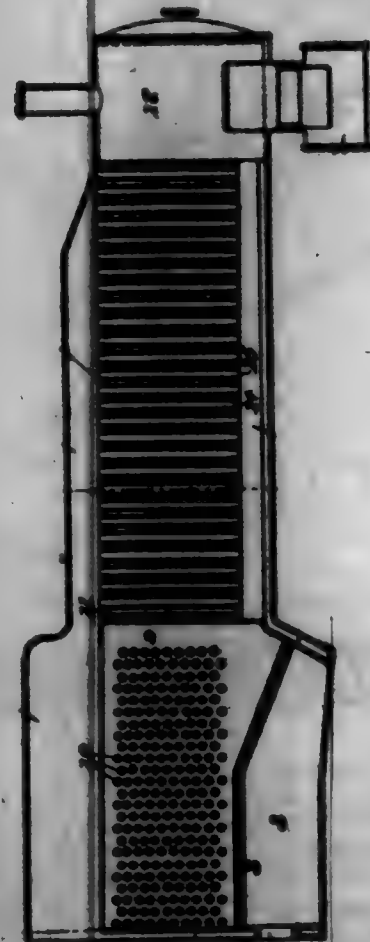
6. An attachment consisting of a plate having outwardly-projecting ears with undercut edges, and bearing a lever, a loop-plate with an opening adapted to receive the lever and the ears so that the strain of the loop-plate will be resisted by the ears, and a flexible strap rove through the loop-plate and attached to the lever-plate, substantially as specified.

699,791. LOCOMOTIVE-BELLER. SAMUEL G. CHASELEY, Philadelphia, Pa., assignor of one-half to Frank A. Winder, Philadelphia, Pa. Filed Oct. 21, 1901. Serial No. 73,682. (No model.)

Claim.—1. In a locomotive-beller, water fire-box, a plurality of longitudinally-extending water-tubes joining the front and rear portions of said water fire-box, a plurality of transversely-arranged water-tubes arranged in series and having different inclinations joining the sides of the fire-box, and located above said longitudinally-extending tubes, a fine leading from the combustion-chamber to the smoke-box, and water-tubes located in said fine.

2. A locomotive-beller consisting of a water fire-box, a plurality of longitudinally-extending water-tubes joining the front and rear legs of said water fire-box, the rear extremities of said tubes being deflected downwardly, a plurality of transverse water-tubes located in the combustion-chamber above said longitudinally-extending tubes, said transverse tubes being arranged in series and having different inclinations, a fine leading from the combustion-chamber to the smoke-box of the boiler, and water-distributing tubes located in said fine, the lower portion of said fine being arc-shaped and serving as a tube-sheet for the reception of the lower ends of said water-tubes.

chamber above said longitudinally-extending tubes, said transverse tubes being arranged in series and having different inclinations each curve inclined in opposite directions, a fine leading from the combustion-chamber to the smoke-box of the boiler, and water-distributing tubes located in said fine.



3. A locomotive-beller consisting of water fire-box surrounding the combustion-chamber, a plurality of longitudinally-extending water-tubes joining the front and rear legs of said water fire-box, the rear extremities of said tubes being deflected downwardly, a plurality of transverse water-tubes located in the combustion-chamber above said longitudinally-extending tubes, said transverse tubes being arranged in series and having different inclinations, a fine leading from the combustion-chamber to the smoke-box of the boiler, and water-distributing tubes located in said fine, the lower portion of said fine being arc-shaped and serving as a tube-sheet for the reception of the lower ends of said water-tubes.

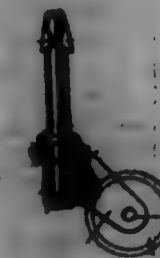
4. In a locomotive-beller, the combination of a water fire-box, a plurality of longitudinally-extending tubes extending between the front and rear portions of said fire-box, a series of transversely-arranged tubes located in the combustion-chamber above said longitudinally-extending tubes, said transverse tubes being longitudinally inclined and arranged in staggered order, a fine leading from said combustion-chamber to the smoke-box, the lower portion of said fine being arc-shaped and the upper portion of said fine being also curved, and water-tubes joining the upper and lower portions of said fine, the central water-tubes being substantially vertical and the outer water-tubes having a greater inclination outwardly than said central water-tubes.

5. In a boiler, a water fire box, a plurality of longitudinally-extending tubes, located between the front and rear portions of said fire-box, a series of transversely-arranged tubes, located in the combustion-chamber above said longitudinally-extending tubes, said transverse tubes being in series and each curve inclined in opposite directions, a fine leading from said combustion-chamber to the smoke-box, and water-tubes joining the upper and lower portions of said fine, the central water-tubes being substantially vertical and the outer water-tubes having a greater inclination outwardly than said central water-tubes.

699,792. CARTER. ROSE DAVID, New York, N. Y., assignor to Standard Carter and Wheel Company, a Corporation of West Virginia. Filed Aug. 17, 1901. Serial No. 73,683. (No model.)

Claim.—1. In a meter, the combination of a vertical shaft or stem, provided with a suitable collar formed in one piece therewith, and forming a truck-plate; a horn carrying a roller at one extremity and forming at its other extremity an elongated bearing for holding the extremity of the shaft in a vertical position, capable of supporting a ball-cap; a ball-cap independent of and supported by the horn; and a series of steel balls

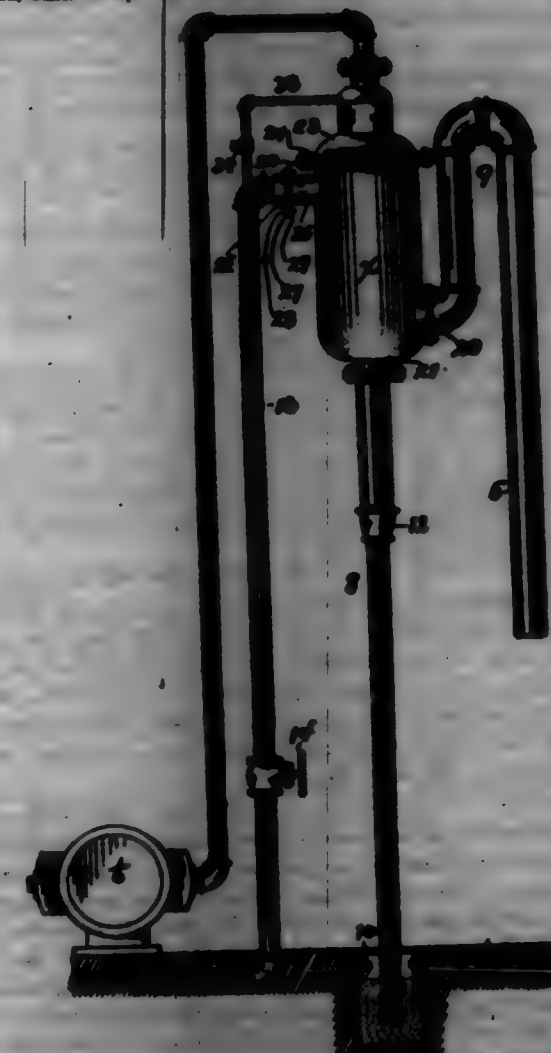
in the cap forming a bearing with the collar upon the shaft, upon which the meter rotates.



2. In a meter, the combination of a vertical shaft or stem provided with a suitable collar formed in one piece therewith and forming a truck-plate; a horn carrying a roller at one extremity and forming at its other extremity a bearing for holding the extremity of the shaft in a vertical position; a bearing arranged to fit into the bearing, engaged at the top to form a cap, and a series of steel balls in the cap forming a bearing with the collar upon the shaft upon which the meter rotates.

3. In a meter, the combination of a vertical shaft or stem provided with a suitable collar formed in one piece therewith and forming a truck-plate; a horn pressed or struck up from a single piece of steel so as to form in the center an elongated bearing for holding the shaft in a vertical position, provided with shoulders forming a bearing for a ball-cap and bent so as to form parallel horns arranged to hold a roller; a roller carried in the horns and a cap supported in the bearing and a series of steel balls in the cap forming a bearing with the collar upon the shaft upon which the meter rotates.

699,793. CONDENSING APPARATUS. ROBERT S. BROWN, Cleveland, Ohio. Filed Jan. 12, 1902. Serial No. 69,102. (No model.)



Claim.—1. Condensing apparatus comprising a water-receiving chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; a water-distributing pipe-connection arranged within and transversely of the said chamber, which pipe-connection is closed at its lower end and has slots formed in the sides and extending longitudinally thereof, and a water-supply pipe arranged to feed water to the said water-distributing pipe-connection.

2. Condensing apparatus comprising a casing forming a primary chamber and having a head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome and an upright tube extending through the chamber of the dome and in open relation, at its lower end, with the primary chamber of the condenser, and having lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube.

means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome, and a tube extending through the chamber of the dome and in open relation with the primary chamber of the condenser, which tube has lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube.

3. Condensing apparatus comprising a casing forming a primary chamber and having a head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome and an upright tube extending through the chamber of the dome and in open relation, at its lower end, with the primary chamber of the condenser, and having lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube.

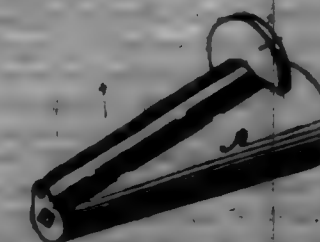
4. Condensing apparatus comprising a casing forming a primary chamber and having a head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a passage-way extending upwardly from and in open relation, at its lower end, with the said chamber; means for conducting water into the said passage-way, and a head arranged in the upper end of the above-said chamber and above the above-said water-distributing means and having an aperture below the lower end of the above-said passage-way, substantially as and for the purposes set forth.

5. Condensing apparatus comprising a casing forming a primary chamber and having a head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome; an upright tube extending through the chamber of the dome and in open relation, at its lower end, with the primary chamber of the condenser, and having lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube, and a head suspended in the upper end of the primary chamber above the above-said water-distributing means and having an aperture below the lower end of the above-said tube, substantially as and for the purposes set forth.

6. Condensing apparatus comprising a casing forming a primary chamber and having an upwardly-bulging concave-concave head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome; an upright tube extending through the chamber of the dome and in open relation, at its lower end, with the primary chamber of the condenser, and having lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube, and an upwardly-bulging concave-concave head arranged within the upper end of the primary chamber above the above-said water-distributing means and perforated below the lower end of the above-said tube, substantially as and for the purposes set forth.

7. Condensing apparatus comprising a casing forming a primary chamber and having a head at its upper end over the said chamber; means for draining the said chamber of liquid received thereby or formed therein; means for conducting gases and vapors into the said chamber; means for distributing water in the said chamber; a dome upon the above-said head; means for supplying water to the chamber of the dome, and a chamber tube extending upwardly through the chamber of the dome and in open relation at its lower end with the primary chamber of the condenser, and having lateral apertures arranged to discharge water from the chamber of the dome into the passage-way formed by the said tube.

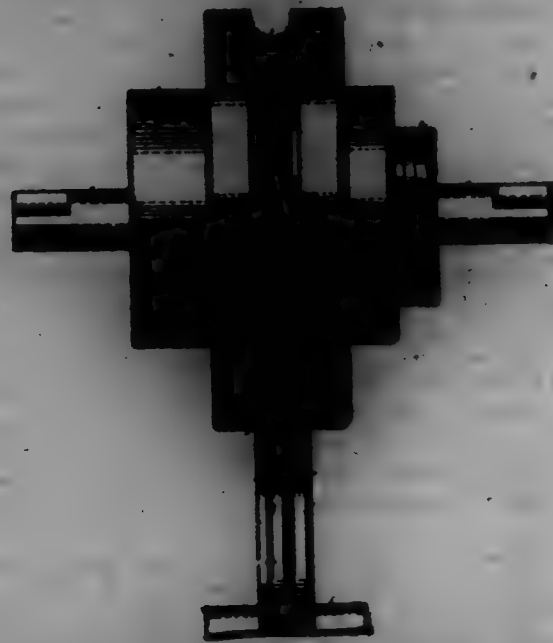
699,794. VERGULE FOR AWL OR KNIFE HANDLES. RITA HOWARD, Webster City, Iowa. Filed Dec. 26, 1901. Serial No. 69,103. (No model.)



Claim.—A tapering metal ferrule closed at its small end and provided with an aperture in the center of the closed end and two parallel

longitudinal ribs on its outside to produce a groove and a guard projecting at right angles from the inner ends of the ribs and groove, for the purpose stated.

699,795. APPARATUS FOR ROLLING ENGINES UPON STRIPS
OR BARS. JAMES BYRNE and WILLIAM D. BYRNE, Philadelphia, Pa.
Filed Dec. 31, 1898. Serial No. 617,574. (No model.)



Claim.—1. In an apparatus of the character named, a roll for making ornamental configurations, consisting of an ornamental ring or collar having therein the device to be impressed, the portions adjacent to said device being peripherally turned or finished and a plurality of roll-sections having turned or tread shoulders thereon, adapted to contact with said ring or collar, in combination with means for clamping said collar and sections together.

2. In an apparatus of the character named, a roll for making ornamental configurations, consisting of an ornamental ring or collar having therein the device to be impressed, the portions adjacent to said device being peripherally turned or finished, a plurality of roll-sections having turned or tread shoulders thereon, adapted to contact with said ring or collar, and means for clamping said collar and sections together, in combination with a second roll located in proximity to said first-mentioned roll and means for rotating one of said rolls.

3. In an apparatus of the character named, a roll for making ornamental configurations, the same consisting of an ornamental ring or collar having cut therein the device to be impressed, the portions adjacent to said device being peripherally turned or tread so as to impart a finished appearance to the edges of the article rolled, and a plurality of roll-sections having turned or tread shoulders thereon, adapted to contact with said ring or collar, in combination with means for clamping said collar and sections together.

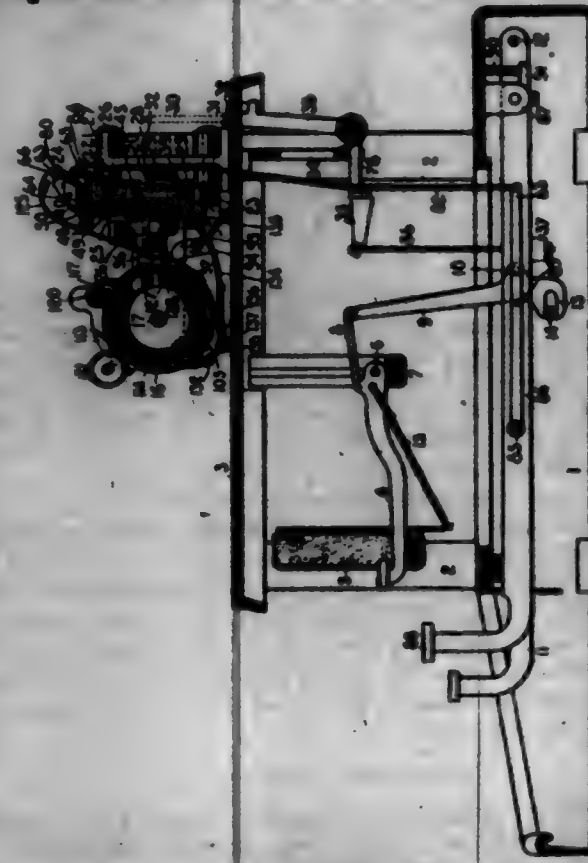
4. In an apparatus of the character named, a collar or ring having cut in the periphery thereof a design or device, in combination with a roll having a turned or tread shoulder thereon, adapted to contact with said collar, a loose collar having a turned or tread shoulder adapted to contact with said first-mentioned collar and means for clamping said collars in position.

699,796. TYPE-WRITING MACHINE. JAMES FRANK, New York, N. Y., and CARL GARDNER, Greenville, S. C., joint inventors; assignors to said Frank. Filed May 14, 1901. Serial No. 66,187. (No model.)

Claim.—1. In a type-writing machine, the combination of a carriage-plate having grooves in its upper and lower edges, a grooved rail beneath said plate, a grooved rail above said plate, balls placed in the upper and lower grooves, a spacer 20 perforated to receive the balls in the lower grooves, arms 41 connected to said spacer, a spacer connected to the upper ends of the arms 41 and perforated to receive the balls in the upper grooves, said arms and said spacers being integral and the arms 41 extending up in rear of said carriage-plate, and the upper spacer including a forwardly-extending and upturned rack 43 comprising a portion in front of the upper rail, a pinion 45 mounted upon the carriage-plate below said rack and meshing therewith, a pinion 47 having twice the diameter of pinion 45 and rigidly secured thereto, and a rack 46 mounted upon the upper rail above said pinion 47 and meshing with pinion 47.

2. In a type-writing machine, the combination of a carriage-plate, a letter-spacing rack mounted upon forwardly-extending arms so as to form a ball, rack-shaft 56 carried at opposite ends of the plate and fixed at

their inner ends to the forward ends of said arms, and forwardly-extending finger-levers fixed to the outer ends of said rack-shafts.



3. In a type-writing machine, the combination of a carriage-plate, rack 20 arranged in rear thereof, forwardly-extending arms 58 fixed upon said rack, rack-shaft 56 journaled in opposite bases 54 and at their inner ends secured to the forward ends of said arms 58, forwardly-extending levers 59 fixed to the outer ends of said rack-shafts and provided with finger-pieces 60, and a spring 61 compressed between an arm 58 and a portion of said shaft.

4. In a type-writing machine, the combination of a carriage-plate, a letter-spacing rack arranged in rear thereof, forwardly-extending arms having flanged ends to which said rack is rabbeted and secured by screws, means for hinging the forward ends of said arms upon said plate, and a forwardly-extending finger-lever for engaging said rack.

5. In a type-writing machine, the combination of a carriage-plate, a letter-spacing rack arranged in rear thereof, arms 58 having flanged rear ends 59 to which said rack is rabbeted and secured by screws 51, rack-shaft 56 mounted in opposite bases 54 carried upon the forward side of said plate and at their inner ends pinned to the forward ends of said arms 58, and forwardly-extending finger-levers 59 secured by screws 56 upon the outer ends of said rack-shafts.

6. In a type-writing machine, the combination with a carriage and suitable letter-spacing device therefor, of a bar extending longitudinally of the carriage and pivotally supported upon the framework, key-locking device, including a part mounted upon said carriage and cooperating with a projection carried upon the said pivoted bar, arm 80 projecting from said bar, link 82 loosely connecting lever 83 to said arm 80, key-lever 84 extending to the keyboard and having means for operating said lever 83.

7. In a type-writing machine, the combination with a carriage and suitable letter-spacing device therefor, of a bar extending longitudinally of the carriage and pivotally supported upon the framework, key-locking device including a part mounted upon said carriage and cooperating with a projection carried upon the said pivoted bar, arm 80 projecting from said bar, link 82 loosely connecting lever 83 to said arm 80, key-lever 84 extending to the keyboard and having means for operating said lever 83, a spring for said pivoted bar, and a spring for said key-lever 84.

8. In a type-writing machine, the combination with a carriage and suitable letter-spacing device therefor, of a bar extending longitudinally of the carriage and pivotally supported upon the framework, key-locking device, including a part mounted upon said carriage and cooperating with a projection carried upon said pivoted bar, arm 80 projecting from said bar, link 82 having a slot 84 for engaging a pin projecting from said arm 80, lever 83 telescoped at one end and attached at the other end to the lower end of said link, key-lever 84 telescoped at its rear end and having a key 86 at the keyboard and having means between its ends for operating said lever 83, spring 90 for said key-lever 84, and spring 91 for said pivoted bar.

9. In a type-writing machine, the combination of a carriage, lever 80 thereon, bar 70 mounted upon the framework of the machine and op-

erated by said lever, locking-lever 78 connected to said bar 70, dog-rocker 33 having arm 72 adapted to be engaged by the lever 78, type-opening keys operatively connected to said dog-rocker, bar 60 extending longitudinally of the carriage and pivotally supported upon the framework, projection 53 adjustable along said bar 60 and engaged by said lever 65, arm 60 fixed upon said bar 60, link 59 having pin-and-slot connection with said arm 60, lever 58 attached at its rear end to said link and telescoped at its forward end, bearing-pin 66, lever 66 pivoted at its rear end and having at its forward end a key, spring 90 for said lever 66, and spring 91 for said bar 60.

10. In a front-strike writing-machine, the combination of a carriage, a platen, the detachable rod 122 supported at its outer end by the carriage and provided at its inner free end with a pressure device.

11. In a front-strike writing-machine, the combination of a carriage, a platen, the detachable spring-arm 123 attached at its outer end to the carriage and provided at its inner free end about midway of the platen with a pressure-roller 121.

12. In a type-writing machine, the combination of a platen, a deflector 94 having perforations 97 and 105 and extending down the rear side of the platen and forwardly and upwardly around the same and terminating below the printing-point, pressure-roller 96 projecting through the perforation 97 in said deflector carried by post-arm 100 having spring 101 bearing against adjustable stop-screw 104, pressure-roller 102 passing through the perforation 105 in said deflector and carried upon the forward end of arm 106, mounted independently of the arm 100, and provided with springs 110 fixed upon the carriage and bearing against said arm 106 between the ends of the latter.

13. In a type-writing machine, the combination with a platen, of a rod 118 arranged longitudinally thereover and provided with an integral flange 117, forwardly and downwardly curving arm 115 pivotally engaging said rod by means of perforated yoke 116, a spring surrounding said rod and confined in said yoke and bearing at one end upon said flange, and a pivotally-mounted paper-finger carried by the lower end of said arm and held against the platen by means of said spring.

14. In a type-writing machine, the combination with a platen, of a gage for the side edge of the paper having a downwardly and inwardly sloping face.

15. In a type-writing machine, the combination with a platen, of a gage for the side edge of the paper arranged in rear of the platen and having a downwardly and inwardly inclined face.

16. In a type-writing machine, the combination with a platen, of a rod arranged thereover, a paper-gage adjustable on said rod and comprising a rearwardly-curved arm 119 and an inclined gage 118.

17. In a type-writing machine, the combination with a platen and a paper-table arranged in rear thereof and at an angle thereto, of an adjustable paper-gage arranged in proximity to the lower end of the paper-table and in the angle between it and the rear side of the platen.

18. In a type-writing machine, the combination with a platen and a paper-table arranged in rear thereof and at an angle thereto, of a paper-gage arranged in proximity to the lower end of the paper-table and in the angle between it and the rear side of the platen, a curved arm carrying said paper-gage, and a rod arranged over the platen for supporting said arm.

19. In a type-writing machine, the combination with a platen and a deflector, of an adjustable paper-gage arranged on the rear side of the platen and between it and the deflector.

20. In a type-writing machine, the combination with a platen and a deflector, of a rod arranged over the platen, an arm adjustable on said rod and carrying rearwardly and downwardly behind the platen, and a paper-gage carried by said arm and arranged between the platen and the deflector.

21. In a type-writing machine, the combination with a platen, a paper-table and a deflector, of a paper-gage arranged in the pocket or angle formed by the paper-table and deflector and the rear side of the platen.

22. In a type-writing machine, the combination with a platen, a paper-table and a deflector, of a rod arranged over the platen, a curved arm extending down in rear of the platen, and a paper-gage carried by said arm and arranged in the angle or pocket formed by the rear side of the platen and the lower end of the paper-table and the upper end of the deflector.

23. In a type-writing machine, the combination with the platen, the paper-table and the deflector, of a rod arranged over the platen, the arm 118 adjustable on said rod and carrying a paper-guiding device, the curved arm 119 also supported on said rod and adjustable with the arm 118, and a paper-gage 110 supported by the arm 119 below the top of the platen and in rear thereof and held from the arm 118.

24. In a type-writing machine, the combination of a platen, a rod mounted over the platen, a paper-gage having a part pivotally engaging said rod and extending forwardly and downwardly around the platen, and a paper-gage arranged in rear of the platen and carried by an arm co-

acted to said paper-gage but directly engaging said rod independently of the paper-gage, the guide and the gage being adjustable together along said rod.

25. In a type-writing machine, the combination with a platen, of a rod mounted thereover, a paper-gage having a supporting portion pivotally engaging said rod and extending forwardly and downwardly around the platen, and a paper-gage arranged in rear of the platen and mounted upon a depending arm which directly engages said rod by means of ears which clamp the supporting portion of said paper-gage, the latter and the gage being adjustable together along said rod.

26. In a type-writing machine, the combination with a platen, of a rod arranged thereover and having an integral flange, a paper-gage having a perforated yoke portion pivotally engaging said rod and extending forwardly and downwardly around the platen and carrying at its lower end a pivotally-mounted paper-finger, a spring surrounding said rod and confined in said yoke and bearing at one end upon the latter and at the other end upon said flange, and a sloping paper-gage 118 arranged in rear of said platen and carried upon the lower end of a depending arm 119 which lies close to the platen and is keyed upon said rod by means of ears 120 which clamp said yoke.

27. In a type-writing machine, the combination with a carriage and a platen, of a paper-shelf having ears 129 pivotally mounted upon arms 127 which are detachably secured upon the carriage.

28. In a type-writing machine, the combination with a carriage and a platen, of a paper-shelf 126, strip 120 secured thereto and having ears 129, a ball comprising arms 127 which are mounted upon the carriage, screws 128 for pivoting said ears upon said arm, and spring 131.

29. In a type-writing machine, the combination with a carriage and a platen, of a spring-controlled paper-shelf pivotally mounted upon a device which is detachably mounted upon the carriage.

30. In a type-writing machine, the combination with a platen and a carriage, of margin-controlling device including a bar arranged in rear of the platen, a paper-shelf overhanging said bar and pivotally mounted upon a device which is detachably mounted upon the carriage, so that said paper-shelf may be swung forwardly to expose said margin-gage bar, and a spring for returning the paper-shelf to normal position.

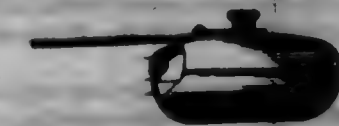
31. In a type-writing machine, the combination with a platen and a carriage, of a support detachably mounted upon the carriage in rear of the platen, and a spring-pressed paper-shelf arranged forwardly of said support and pivotally mounted thereon.

32. In a type-writing machine, the combination of a carriage having studs, a support having forked arms which detachably engage said studs, and a spring-pressed paper-table pivotally connected to said support.

33. In a front-strike writing-machine, the combination of a carriage-plate, a platen mounted upon arm extending forwardly from said plate, a platen-rod having arms 125 upon the forward end of arm 124 secured upon said plate, and a spring for holding said plate against the platen.

34. In a front-strike writing-machine, the combination of a carriage-plate, a platen mounted in arm extending forwardly therefrom, a platen-rod hinged by arms 123 upon arm 124 projecting forwardly from said carriage-plate beneath the platen, and spring 126 mounted upon said arm 124 and bearing upon finger 127 fixed upon said arm 123.

699,797. SERIAL TYPE. PERMANENT FORM. Bridgeport, Conn. Filed Feb. 14, 1902. Serial No. 64,989. (No model.)



Claim.—1. A valve comprising an inflatable pad, a disk within said pad, a holder and arm therefor, a valve-shoe extending through said disk and holder, and a valve to close the said shoe substantially as described.

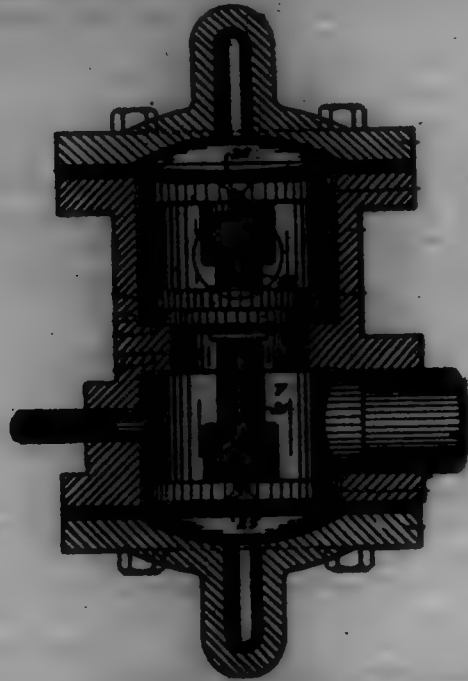
2. A valve comprising an inflatable pad, a disk within said pad, a holder in receipt of the same, a valve-shoe extending through said disk, pad and holder, means for clamping the disk, pad and holder together, and a valve to close said shoe substantially as described.

3. A valve comprising an inflatable pad, a disk within the same, a holder adapted to contain the pad and disk, a valve-shoe extending through said disk, pad and holder, means for clamping said shoe in position, a valve mounted within the pad and adapted to close the inner end of said shoe substantially as described.

699,798. VALVE FOR AUTOMATIC WATER-HEATERS. JAMES L. CHAMBER, Albany, N. Y. Filed Dec. 31, 1901. Serial No. 66,776. (No model.)

Claim.—1. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing

having a chamber therein, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve for controlling the passage of the gas to the heater, and disks connected to said valve and working in said chamber adjacent to the diaphragm, whereby said diaphragm will transmit motion to said valve.



2. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein connected to the gas-supply pipe, a valve-seat in said chamber, a disk valve coacting with said seat and opening toward the heater, a piston coacting with said disk and opening toward the heater, a piston connected to said valve and working in said chamber adjacent to the diaphragm, whereby said diaphragm will transmit motion to said valve, one of said pistons being of greater area than the gas-valve, and connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve for controlling the passage of the gas to the heater, and disks connected to said valve and working in said chamber adjacent to the diaphragm, whereby said diaphragm will transmit motion to said valve.

3. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein connected to the gas-supply pipe, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve-seat in said chamber, a disk valve coacting with said seat and opening toward the heater, and projections on said valve and having their ends lying adjacent to the diaphragm, whereby said diaphragm will transmit motion to said valve, one of said projections carrying a piston of greater area than the gas-valve, whereby when the pressure on the diaphragm is balanced the pressure of the gas will keep the valve seated.

4. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein, a valve controlling the passage of gas to the heater, connections from the water-supply pipe to both ends of the valve-chamber, movable means in said chamber near each end thereof for receiving the water-pressure, and adjustable connections between said movable means and the valve, whereby said movable means will transmit motion to said valve.

5. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein, movable means in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said movable means, a valve for controlling the passage of the gas to the heater, stems on said valve, and heads adjustably seated to said stems and lying adjacent to diaphragm, whereby said diaphragm will transmit motion to said valve.

6. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve for controlling the passage of the gas to the heater, disks working in said chamber adjacent to the diaphragm, and adjustable connections between said disks and the valve, whereby said diaphragm will transmit motion to the valve.

7. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein connected to the gas-supply pipe, a valve-seat in said chamber, a disk valve coacting with said seat and opening toward the heater, a piston working in said chamber and connected to the valve, one of said pistons being of greater area than the gas-valve, and connections

from the water-supply pipe to both ends of the valve-chamber outside of the piston.

8. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein connected to the gas-supply pipe, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve-seat in said chamber, a disk valve coacting with said seat and opening toward the heater, a piston working in said chamber adjacent to the diaphragm, and connections between said piston and the valve, one of said pistons being of greater area than the gas-valve, whereby said diaphragm will transmit motion to said valve.

9. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve for controlling the passage of gas to the heater, said valve being provided with screw-threaded stems projecting in opposite directions, disks connected to said screw-threaded stems and working in said chamber adjacent to the diaphragm, whereby said diaphragm will transmit motion to said valve, and screws extending through said disks into openings in the ends of the stems.

10. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a passage therethrough for the gas, a valve for controlling said passage, connections from the water-supply pipe to opposite sides of the valve for transmitting motion to said valve, a pressure-regulating valve in the water-supply pipe between the connections leading to the valve, and a supply-regulating valve in the water-supply pipe in advance of the connections leading to the valve.

11. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein connected to the gas-supply pipe, a valve-seat in said chamber, a disk valve coacting with said seat and opening toward the heater, a piston connected to said valve and working in said chamber, one of said pistons being of greater area than the gas-valve, connections from the water-supply pipe to each end of the chamber outside said piston, a pressure-regulating valve in the water-supply pipe between the connections leading to the valve-chamber, and a supply-regulating valve in the water-supply pipe in advance of said connections.

12. In an automatic water-heater, the combination with a water-supply pipe and gas-supply pipe, of a valve comprising a casing having a chamber therein, a diaphragm in said chamber near each end thereof, connections from the water-supply pipe to both ends of the valve-chamber outside said diaphragm, a valve for controlling the flow of the gas to the heater, disks lying adjacent the diaphragm, adjustable connections between said disks and the valve, whereby said diaphragm will transmit motion to said valve, a pressure-regulating valve in the water-supply pipe between the connections leading to the valve-chamber, and a supply-regulating valve in said water-supply pipe in advance of said connections.

699,799. CHART FOR RECORDING ANCESTRY. CHERRMAN GULL, Providence, R. I. Filed Dec 21, 1900. Serial No. 48,708. (No model.)

Claim.—1. An improved ancestry-record, comprising a primary chart provided with a plurality of series of spaces the number of spaces in the different series increasing in geometrical progression from left to right and said series marked consecutively by numerals increasing in arithmetical progression from left to right to indicate the generation to be recorded in each series, and a series of secondary charts in number corresponding to the number of spaces in the right-hand series of the primary chart, the secondary charts having spaces arranged the same as in the primary chart, marked in increasing arithmetical progression from left to right, the left-hand space of each secondary chart being marked to indicate its corresponding right-hand space of the primary chart, and means on each secondary chart for indicating the information given in the right-hand series of the primary chart, substantially as described.

2. An improved ancestry-record, comprising a primary chart provided with a plurality of series of spaces the number of spaces in the different series increasing in geometrical progression from left to right and marked consecutively by numerals increasing in arithmetical progression from left to right to indicate the generation to be recorded in each series, and a series of secondary charts in number corresponding to the number of spaces in the right-hand series of the primary chart, the secondary charts having spaces arranged the same as in the primary chart marked in increasing arithmetical progression from left to right, the left-hand space of each secondary chart being marked the same as the right-hand space of the primary chart, the secondary charts having on their reverse sides indices, each having a series of spaces in number and on

engagement corresponding with the right-hand series of spaces on the primary chart, for indicating the name to occupy the first space on the left of each secondary chart, substantially as described.



699,800. OVERSHOE-FITTER. ROBERT E. KIM, Pittsburg, Pa. Filed Aug 2, 1901. Serial No. 73,081. (No model.)



Claim.—1. An overshoe-fitter comprising a plate adapted to be secured at the heel or back portion of an overshoe and provided with an opening therethrough, a dog adjustably mounted back of said plate and provided with a curved lower end adapted to project through the opening in the plate and engage the heel of the shoe, and means for securing said dog to the plate when in its downwardly-projected position.

2. An overshoe-fitter comprising a plate adapted to be secured at the heel or back portion of an overshoe and provided with an opening therethrough, a dog adjustably mounted back of said plate and provided with a curved lower end adapted to project through the opening in the plate and engage the heel of the shoe, said dog being provided at its upper end with two arms, one of which is adapted to yield laterally, and coacting locking means on said arm and the plate whereby said dog may be secured to the plate when in its downwardly-projected position.

3. An overshoe-fitter comprising a plate adapted to be secured at the heel or back portion of an overshoe and provided with an opening therethrough, a locking-dog adjustably mounted back of said plate and provided with a curved lower end adapted to project through the opening in the plate and engage the heel of the shoe, the lower end of said plate being bent upwardly and lying back of the lower end of said dog, and means for securing said dog to the plate when in its downwardly-projected position.

4. An overshoe-fitter comprising a plate adapted to be secured at the heel or back portion of an overshoe and provided with an opening therethrough, a dog adjustably mounted back of said plate and provided with a curved lower end adapted to project through the opening in the plate, means for securing said dog to the plate when in its downwardly-projected position, and a notched disk or screw in the heel of the shoe

with which the lower end of said dog is adapted to engage when projected downwardly.

699,801. SPRAY-POURER. ROBERT MARTIN, Paterson, N. Y. Filed Aug 18, 1901. Serial No. 73,082. (No model.)



Claim.—1. In a nozzle, the combination with a tubular body, and a spray device at one end thereof, of a cut-off sleeve mounted upon the body in cooperative relation to the spray device, and having means for directing the discharge laterally at one side only of the sleeve, also having an endwise-adjustable adjustment and a rotatable adjustment, the two adjustments being independent of each other.

2. A nozzle, comprising a tubular open-ended body, a spray device adjustable toward and away from the outer end of the body, and an endwise-adjustable cut-off sleeve mounted to slide freely upon the body into and out of engagement with the spray device, and provided with means for directing the discharge laterally at one side only of the sleeve, the latter also being capable of an inward movement under the influence of the inward adjustment of the spray device.

3. A nozzle, having a cut-off sleeve provided with means for directing the discharge laterally at one side only thereof, and also having a rotatable adjustment, and an endwise-adjustable adjustment, said adjustments being entirely independent of each other.

4. A nozzle having a spray device at one end, and a cut-off sleeve having an endwise-adjustable adjustment into and out of engagement with the spray device, and provided at its outer end with a lateral discharge-opening, the sleeve also having a rotatable adjustment which is independent of its endwise adjustment.

5. A nozzle, comprising a tubular body having a smooth exterior, and provided at one end with a spray device, and an endwise-adjustable cut-off sleeve having means to direct the discharge at one side thereof, a smooth interior embracing the body and slidable toward and away from the spray device, and a frictional engagement with the body to hold the sleeve against accidental endwise movement.

6. A nozzle, comprising a body, a spray device which is adjustable toward and away from one end thereof, and an endwise-adjustable cut-off sleeve slidably embracing the body and provided at its outer end with a partly-cylindrical cut-off flange for coadaptation with the spray device, whereby the discharge may be directed at one side only of the nozzle and the width of the discharge-opening may be varied.

7. A nozzle, having a spray device which is adjustable toward and away from one end thereof, said device being projected outwardly beyond the body and having the inner face of the projected portion provided with a marginal seat, and an endwise-adjustable cut-off sleeve mounted upon the body and provided with a partly-cylindrical flange for directing the discharge laterally at one side thereof, the outer end of the flange being adapted to fit in the marginal seat of the spray device, said sleeve also having a rotatable adjustment which is independent of its endwise adjustment.

8. A nozzle, comprising a tubular body, a spray device located externally at one end of the body and projected marginally beyond the same, the inner face of the projected portion thereof having a marginal groove formed therein, and an endwise-adjustable cut-off sleeve mounted upon the body and having its outer end provided with a longitudinally-projected cut-off flange to be received within the groove of the spray device.

9. A nozzle, comprising an open-ended tubular body having its inner end provided with a coupling, and an internal cross-bar having a screw-threaded opening, a spray-device located externally at the outer end of the body and projected marginally beyond the same, the inner face of the projected portion of the plate having a marginal groove, a central screw-threaded stem carried by the plate and adjustably received within the opening in the cross-bar, and a cut-off sleeve mounted upon the body for independent endwise and rotatable adjusting movements thereon, and provided at its outer end with a semi-cylindrical cut-off flange in coadaptation to the groove in the spray-device.

10. A nozzle, having a cut-off sleeve which is provided with means for directing the discharge laterally at one side only thereof, and also has an endwise-adjustable adjustment and a rotatable adjustment, said adjustments being entirely independent of each other and also capable of simultaneous action.

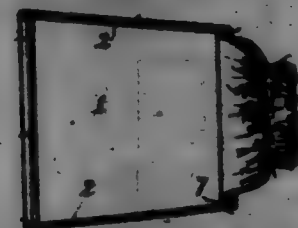
11. A nozzle, comprising a tubular body having a smooth exterior,

and provided at one end with a sprayer device, and a cut-off sleeve having means to direct the discharge at one side only thereof, and also capable of an outward-adjustable adjustment, and a rotatable adjustment which is independent of the outward adjustment, the interior of the sleeve being smooth and embracing the body with a frictional engagement to hold the sleeve against accidental movement thereon.

12. A nozzle, comprising a tubular body, the outer end of which is entirely open, a sprayer device which is normally out of engagement with the outer end of the body, whereby the discharge may be in all directions from the body as a center, and a cut-off sleeve embracing the body and having its outer end provided with a partly-cylindrical flange for engagement with the sprayer device to direct the discharge at one side only, said sleeve having an endwise adjustment to bring the flange into engagement with the sprayer device and also to withdraw the flange inwardly beyond the outer edge of the body, and also provided with a rotatable adjustment which is independent of the endwise adjustment to vary the direction of the lateral discharge.

13. A nozzle, comprising a tubular body, a sprayer device located externally thereof and adjustable toward and away from one end of the body to direct the discharge laterally in all directions from the nozzle as a center, and an endwise-adjustable cut-off sleeve having one end provided with a partly-cylindrical flange for engagement with the sprayer device to direct the discharge laterally in one direction only, said sleeve also having a rotatable adjustment which is independent of its endwise adjustment, whereby the direction of discharge may be varied and the size of the discharge-opening may be adjusted.

699,803. GASTLEY. LEON MURPHY, New York, N. Y. Filed Dec. 31, 1901. Serial No. 87,982. (No model.)



Claim.—A gas mask comprising a cuff portion of stiff material laterally folded and secured along its longitudinal free edges to normally present a cuff portion in cross-section approximately in the form of a narrow vertical oval calculated to expand when said portion is slipped over the wearer's nose and maintain a proper seal of the mask thereon, and a fitting-portion of more flexible material shown folded and longitudinally attached to present the upper continuous rounded portion, each flexible material being underlaid at the respective ends of the cuff portion and attached, a considerable part of said more flexible material extending beyond the forward end of the cuff portion to constitute a wristband which is padded and yieldingly contracted by an elastic cord.

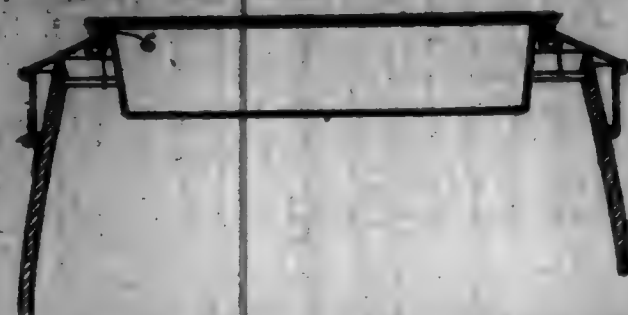
699,808. FRUIT-GAR OPENER. MICHAEL MORGAN and FREDERICK DORRIS, DORRIS, Ill. Filed Dec. 4, 1901. Serial No. 84,846. (No model.)



Claim.—In a fruit-gar opener, the combination of two arms or levers suitably connected together whereby they may be moved toward and from

each other, each arm having a handle portion and a curved portion to substantially conform to the round top of a fruit-jar, the said curved portions having upper and lower inwardly-extending flanges and cushions confined between said flanges to grasp the sides of a jar-top, the upper flanges projecting inwardly beyond the said cushions to rest on the top of the jar in use and to insure that the pressure of the cushions will be confined to the sides of the jar at points adjacent to the top thereof, and the lower flanges projecting less than the cushions to avoid contact with the jar.

699,804. BARREL-COVER. JAMES F. MOORE, LAWRENCE, Mass. Filed Feb. 4, 1902. Serial No. 82,895. (No model.)



Claim.—A sample-holding barrel-cover comprising an annular rim portion formed to bear on the upper end of a barrel, a rim portion projecting downwardly from the outer margin of said rim, and formed to surround the upper end of the barrel, and a pin portion having a flange projecting over the inner margin of said rim and filling the space surrounded thereby, combined with an annular rim or frame seated on said flange and provided with means for detachable connection with the cover, and with a circular transparent pane covering this pin portion of the cover, the lower portion of the annular rim or frame extending between the pane and the flange of the pin portion.

699,805. BARREL-COVER. JAMES F. MOORE, LAWRENCE, Mass. Filed Mar. 17, 1902. Serial No. 83,445. (No model.)



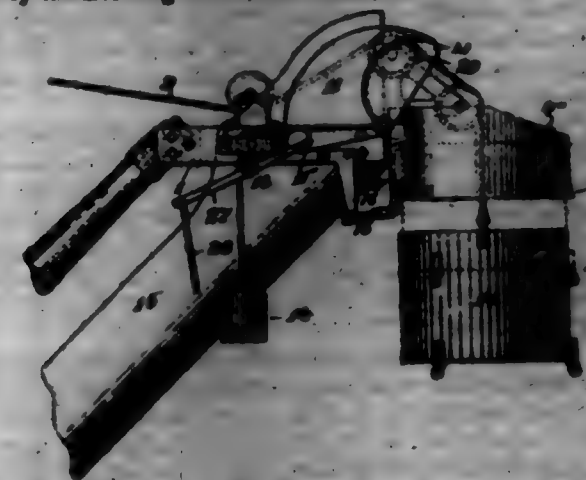
Claim.—1. A sample-holding barrel-cover comprising an annular rim portion formed to bear on the upper end of a barrel, a rim portion projecting downwardly from the outer margin of said rim and formed to surround the upper end of the barrel, a cylindrical bottomless body portion projecting downwardly from the inner margin of the rim, and provided at its upper end with means for holding a circular transparent pane, an independent bottom piece having a marginal flange in frictional sliding contact with the body, and means for adjustably securing the flange to the body, whereby the bottom piece may be secured at different distances from the transparent pane.

2. A sample-holding barrel-cover comprising an annular rim portion formed to bear on the upper end of a barrel, a rim portion projecting downwardly from the outer margin of said rim and formed to surround the upper end of the barrel, a cylindrical bottomless body portion projecting downwardly from the inner margin of the rim, and provided at its upper end with means for holding a circular transparent pane, an independent bottom piece surrounded by the lower portion of said body and vertically adjustable therein, said bottom piece having a downwardly-projecting marginal flange in sliding contact with the interior of the body, said flange having vertical slots, and clamping-bolts engaged with the body and passing through said slots.

699,806. BOWLING AND BOWLING APPARATUS. CHARLES A. MOORE, CHICAGO, Ill. Filed Apr. 3, 1902. Renewed Sept. 28, 1901. Serial No. 73,028. (No model.)

Claim.—1. A bowling and dumping apparatus, having a supporting frame, a dumping-guide hinged in said frame and provided with guide-chains for the bowling-rope, the said rope, the bucket, and a locking device

vice which locks said guide from turning, said device adapted so to be locked by the ascending bucket, substantially as set forth.



2. A bowling and dumping apparatus, having a supporting-frame, a dumping-guide hinged in said frame and provided with guide-chains for the bowling-rope, the bucket, a locking-latch carried by said guide, a keeper mounted on the frame and adapted to be engaged by said latch, and means whereby the ascending bucket releases said latch when it enters the said guide, substantially as set forth.

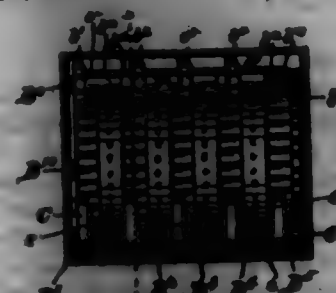
3. A bowling and dumping apparatus, having a supporting-frame, a dumping-guide hinged in said frame and provided with guide-chains for the bowling-rope, the said rope, the bucket, and a locking device which locks said guide from turning, said device consisting of a keeper 16, as a fixed part of the apparatus, a locking-latch 18, pivotally mounted on the dumping-guide, and an operating-rod 19, coupled to said latch and provided with a leg 19' which extends into the path of the ascending bucket substantially as set forth.

4. A bowling and dumping apparatus, having a supporting-frame, a chain, a dumping-guide hinged in said frame, means for counterbalancing said guide yieldingly in its normal position, means for locking said guide against dumping, the bowling-rope and bucket, and means whereby the ascending bucket, when it enters said guide, unlocks the latter, substantially as set forth.

5. A bowling and dumping apparatus, having a supporting-frame, a chain, a dumping-guide hinged in said frame, means for counterbalancing said guide yieldingly, in its normal position, means for turning said guide back after dumping, guide-chains carried by said guide, a bowling-rope over said chains, a bucket means for locking said guide in its normal position during the loading of the bucket, and means actuated by the ascending bucket when it enters said guide, for releasing the latter substantially as set forth.

6. A bowling and dumping apparatus having a supporting-frame, a fitting dumping-guide in said frame, a bucket, raising and lowering means therefor and means for automatically locking the dumping-guide substantially as described.

699,807. CALCULATING-MACHINE. LEON Y. MCGOWAN and CHARLES L. RAYMOND, Rochester, N. Y. Filed June 27, 1901. Serial No. 84,388. (No model.)



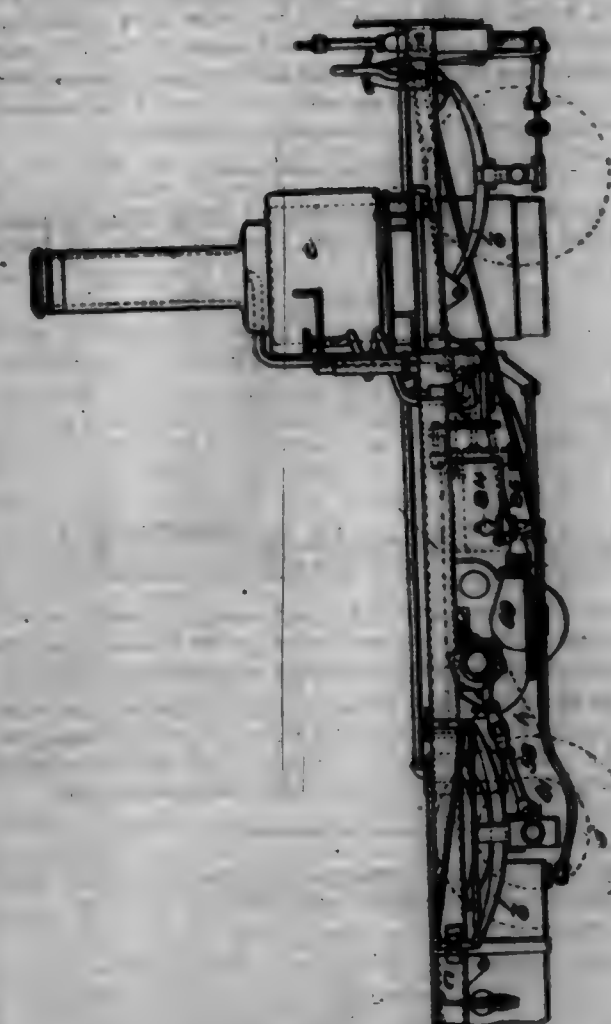
Claim.—1. In a calculating-machine, a series of counting-wheels having teeth thereon, a series of pinions one engaging the teeth of each counting-wheel, said pinions having separated engaging faces P^1 , P^2 , a block for each pinion rotatable thereby and having a tooth B^1 adapted to engage intermittently teeth of the wheel of the denomination next higher than that with which the pinion engages, a leg upon said block having a loose movement between said faces P^1 and P^2 and adapted on movement of the pinion in one direction to (1) shift a movement of one tooth-space to a wheel from the wheel of next lower denomination, said block being thereby capable of movement by the wheel of higher denomination to discharge said tooth B^1 therefrom without moving the pinion, substantially as described.

2. In a calculating-machine, a series of counting-wheels having teeth thereon, a series of pinions one engaging the teeth of each counting-wheel,

a block for each pinion and rotatable thereby and having a tooth adapted to engage intermittently the teeth of the wheel of the denomination next higher than that with which the pinion engages, means for driving said block by said pinion and having a loose movement as between the pinion and block whereby said block is so moved by the counting-wheel of the higher denomination as to discharge the tooth therefrom without moving the pinion, substantially as described.

3. In a calculating-machine, a series of counting-wheels having teeth thereon, a series of pinions one engaging the teeth of each counting-wheel, said pinions having extended hubs and caskets to said hubs forming engaging faces P^1 , P^2 , a block for each pinion and rotatable thereby and having a tooth B^1 adapted to engage the teeth of the wheel of the denomination next higher than that with which the pinion engages, a leg upon said block having a loose movement between said faces P^1 , P^2 , said pinions and blocks being driven on the same axis whereby on operating the wheel of lower denomination to a selected extent, the movement is transmitted through the block to the wheel of next higher denomination, and on operating said wheel of next higher denomination the block turns and discharges said tooth from said wheel by the movement of the leg in said casket and said pinion when moved, substantially as described.

699,808. MOTOR-VEHICLE. WILLIAM BURNER, Preston, England, assignor to T. Gifford & Company, Limited, Preston, England. Filed July 2, 1901. Serial No. 84,383. (No model.)



Claim.—1. In motor-propelled vehicle an improved yielding bearing comprising a divided sleeve, a flange formed on the sleeve, a divided ring of plane-convex longitudinal sections loosely fitting around the sleeve, a supporting-bracket and cover, a concave recess formed around the inside of the bracket and cover corresponding to the convex surface of the divided ring which bears in said recess, and a flexible ring placed between the bracket and flange around the divided sleeve, whereby slight movement of the shaft in a vertical plane and laterally may occur, substantially as described.

2. In a motor-vehicle, an improved spring-drive consisting of two springs coiled in opposite directions one end of each spring being attached to the shaft carrying the chain-wheels and other end of each spring being secured to the compensating gear, whereby shocks from the road-wheels are prevented from being transmitted to the motor when running in a forward or backward direction, substantially as described.

3. In a motor-vehicle, an improved spring-drive consisting of two sets of coiled springs, each set comprising two coiled springs arranged one within the other but coiled in opposite directions, one end of

each spring in the two sets being attached in the compensating gear, and the other end of each spring being attached in the shaft carrying the chain-wheel, substantially as described.

4. In a motor-propelled vehicle, an improved spring-drive, comprising a spiral spring having one end attached to the compensating gear-wheel and the other to the shaft carrying the chain-wheel, a circular rim formed on the gear-wheel thereby inducing the spring, substantially as described.

5. In a motor-vehicle, an improved arrangement of compensating gearing and shafting, comprising a "jack-in-the-box" gearing mounted loosely upon a main shaft, a chain-wheel carried by the shaft on one side of the compensating gearing a sleeve extending over the shaft on the other side of the compensating gearing, said shaft projecting somewhat beyond the sleeve, a clutch sliding on this projecting portion of the shaft, a chain-wheel carried by the sleeve, clutch-jaws formed on the chain-wheel, spring-connections between the "jack-in-the-box" gearing and both the shaft and the sleeve, substantially as described.

6. In a motor-vehicle, in combination with a compensating gear-shaft and sleeve operated by "jack-in-the-box" gearing, a clutch comprising a sleeve sliding upon the main gear-shaft, a collar formed on the sleeve, a feather on the shaft and corresponding keyway on the sleeve, clutch-teeth formed on the face of the sleeve adapted to engage with recesses in the chain-wheel, a finger-bracket secured to the end of the shaft, a spring-controlled latch loosely supported by the finger-bracket, whereby the clutch may be held in or out of gear with the chain-wheel substantially as described.

7. In a motor-propelled vehicle, in combination with a road-wheel, a chain-wheel having a central cyphers fitting over the hub of the road-wheel, arms carried by the chain-wheel, said arms being attached to the rim of the road-wheel whereby the power of the motor is transmitted directly to the rim of the wheel, substantially as described.

699,809. SIGAR-PERFORATING MACHINE. ERIC P. FRANKS.
Brooklyn, Mass. Filed Sept. 11, 1901. Serial No. 78,071. (No model.)



Claim.—In a cigar-perforating machine, the combination, with a base-plate provided with a channel having a pointed end portion, of a longitudinally-adjustable guide provided with a notched finger which projects longitudinally from its lower part over the pointed end portion of the said channel and engages with the tip of the sign, and a plunger provided with a perforator and sliding vertically in the said guide over the pointed end portion of the said channel, substantially as set forth.

699,810. CHAIR. ARTHUR J. FROST, Henderson, Tenn. Filed May 21, 1901. Serial No. 61,200. (No model.)



Claim.—1. In combination with a chair provided with adjustable back and foot sections, a rotatable supporting frame, vertically-disposed

supporting members, suitable connections between the lower portions of said members and the body of the chair, substantially horizontally disposed members crossing and pivotally secured to said vertically-disposed members, and suitable connections between the respective ends of the horizontally-disposed members and the back and foot sections, substantially as described.

2. A reclining-chair comprising suitable side-supporting members, a seat-section, pivoted back and foot sections, and means for adjusting the back and foot sections simultaneously comprising an elongated rod, means for pivotally supporting the rod intermediate of its ends, a link connection between one end of said rod and the back-section, a corresponding link connection between the opposite end of the rod and the foot-section, and means for adjusting the length of the several link connections, substantially as described.

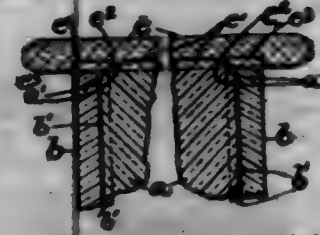
3. In combination with a reclining-chair provided with pivoted back and foot sections, means for adjusting said sections comprising a connecting-bar pivoted intermediate of its ends, pivotal connections between said bar and the respective sections, a rack on the connecting-bar, a dog adapted to engage said rack under normal conditions, and means for disengaging the dog from the rack comprising an operating-cable passing through an opening in the chair within convenient reach of an operator and connected at its ends to the free end of the dog, and a guide on the connecting-bar for said cable, substantially as described.

4. In combination with a reclining-chair provided with pivoted back and foot sections, means for adjusting said sections comprising a pivoted connecting-bar, link connections between the ends of the connecting-bar and the respective sections, a toothed rack on the lower surface of the connecting-bar, a pivoted dog adapted to engage said rack to lock the sections in adjusted position, and a spring between the free end of the dog and a portion of the connecting-bar, substantially as described.

5. In combination with a reclining-chair provided with suitable side supports and adjustable back and foot sections, a brace-rod connecting the side frames, and means for adjusting the sections comprising suitable brackets extending above and below the upper and lower edges of the brace-rod, an elongated connecting-rod pivotally secured in the upper extensions of the brackets, link connections between the ends of the connecting-rod and the back and foot sections respectively, a toothed rack on the lower surface of the connecting-rod, a dog adapted to engage said rack pivoted in the lower extension of the brackets, and a spring between the free end of the dog and a portion of the connecting-rod, substantially as and for the purpose described.

6. In combination with a chair provided with adjustable back and foot sections, substantially vertically disposed supporting members, substantially horizontally disposed members pivoted intermediate of their ends to said vertical members, and suitable connections between the respective ends of the horizontally-disposed members and the back and foot sections.

699,811. SHOW-CASE. FREDERICK POLLARD, Cleveland, Ohio.
Filed June 12, 1901. Serial No. 64,302. (No model.)



Claim.—1. A show-case of the character indicated, comprising a base *d*, an upright glass front or front plate *a*, upright glass sides or end plates *b* and *b'*, a back *c*, and a glass top or top plate *e* mounted upon the upright plates and provided, in its under side, with a groove *f* which extends between the side or end plates near the forward edge of the top plate, and the front plate *a* extending, at the top, into and from end to end of the said groove *f*, and being cut away next to its side edges to accommodate the extension of the front plate in under the top plate and beyond the ends of the said groove *f* in the said top plate.

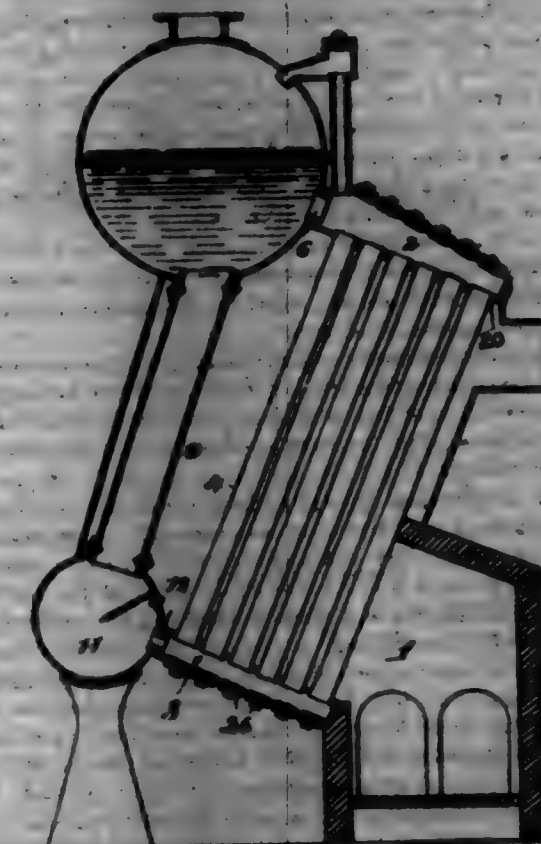
2. A show-case of the character indicated, comprising a base *d*, an upright glass front or front plate *a*, upright glass sides or end plates *b* and *b'*, a back *c*, and a glass top or top plate *e* mounted upon the upright plates and provided, in its under side, with a groove *f* which extends between the side or end plates near the forward edge of the top plate and has its ends sloping inwardly and upwardly, and the front plate *a* extending, at the top, into and from end to end of the said groove *f*, and being cut away next to its side edges to conform to the aforesaid sloping end walls of the aforesaid groove *f* and to accommodate the extension of the front plate in under the top plate and beyond the ends of the said groove *f* in the said top plate.

3. A show-case of the character indicated, comprising a base *d*, an upright glass front or front plate *a*, upright glass sides or end plates *b* and *b'*

overlapping and extending forwardly beyond opposite side edges, respectively, of the front plate and having grooves *f'* engaging the said edges of the front plate, and a glass top or top plate *e* mounted upon the said upright plates and provided, in its under side, with a groove *f* which extends between the side or end plates near the forward edge of the said top plate, and the front plate *a* extending, at the top, into and from end to end of the said groove *f* and being cut away, next to its side edges, to accommodate the extension of the front plate in under the top plate into the aforesaid grooves *f'* of the side or end plates beyond the ends of the groove *f* in the said top plate.

4. A show-case of the character indicated, comprising a base *d*, an upright glass front or front plate *a*, upright glass sides or end plates *b* and *b'* overlapping and extending forwardly beyond opposite side edges, respectively, of the front plate, and a glass top or top plate *e* mounted upon the upright plates and provided, in its under side over the side or end plates, with grooves *f'* which extend from the front plate rearwardly, and the side or end plates extending, at the top, into and from end to end of the said grooves *f'* and being cut away to accommodate the extension of the said side or end plates in under the top plate forwardly beyond the side edges of the front plate.

699,813. STEAM-BOILER. CHARLES B. BRADLEY, New York.
N. Y. Filed Oct. 21, 1900. Serial No. 734,514. (No model.)



Claim.—1. In a steam-boiler, the combination of a series of upper headers, a steam and water drum, one or more connecting-passages from each of the said headers to the side of the said drum, and one or more downflow-passages leaving the lower side of each steam and water drum, said downflow-passages or passages extending along the drum substantially the same portion of its length as do the passages from the headers, as and for the purpose set forth.

2. In a steam-boiler, the combination of a steam and water drum as an upper header, one side thereof adjoining the said drum and in communication therewith, and one or more downflow-passages leaving the lower side of each steam and water drum, each downflow passage or passage extending along the drum substantially the same portion of its length as does the upper header, as and for the purpose set forth.

3. In a steam-boiler, the combination of a steam and water drum, two or more headers, connecting-passages between each header and drum, and main downflow-pipes leaving the steam and water drum from the lower side thereof at intervals along its length, there being one or more such downflow-pipes for each header, as and for the purpose set forth.

4. In a steam-boiler, the combination of a steam and water drum, an inclined header, one or more passages, normally water-filled, connecting said header and each drum, and one or more rise-passages leaving the upper side of said header and entering the steam and water drum and terminating at a point above the water-line therein.

5. In a steam-boiler, the combination of a steam and water drum, a horizontal or horizontally-inclined header, one or more passages, normally water-filled, connecting said header to each drum, and one or more rise-

passages leaving the upper side of each header and entering the steam and water drum and terminating at a point above the water-line therein.

6. In a steam-boiler, the combination of a steam and water drum, a series of horizontal or horizontally-inclined headers, one or more passages, normally water-filled, connecting each header to said drum, and one or more rise-passages leaving the upper side of each of such headers and entering the steam and water drum and terminating at a point above the water-line therein.

7. In a steam-boiler, the combination of a steam and water drum, a header, passages normally water-filled, connecting each header and drum, and a series of rise-passages from the upper side of said header, each rise-passages entering the said drum above the water-line and extending laterally beyond the inside of the shell of same.

8. In a steam-boiler, the combination of a steam and water drum, one or more headers, passages, normally water-filled, connecting each drum and header, and one or more rise-passages from the upper side of each of the said headers, each rise-passages entering the said drum above the water-line and extending laterally beyond the inside of the shell of same.

9. In a steam-boiler, the combination of a steam and water drum, a header, passages, normally water-filled, connecting each header and drum, and rise-passages from the upper side of said header, each rise-passages entering the said drum and terminating at a point above the water-line therein with the exit ends of same pointing downward.

10. In a steam-boiler, the combination of a steam and water drum, a series of headers, passages, normally water-filled, connecting each drum and header, and one or more passages from the upper side of each of the said headers, each rise-passages entering the said drum and terminating at a point above the water-line therein with the exit ends of same pointing downward.

11. The combination of one or more upper headers, a steam and water drum, passages, normally water-filled, connecting said header or headers and each drum, one or more downflow-passages from the lower side of each steam and water drum, and one or more rise-passages from the upper side of said header or headers, each rise-passages entering the steam and water drum and terminating at a point above the water-line therein.

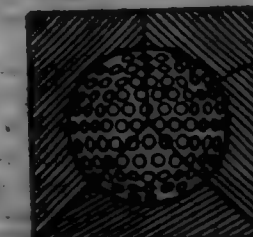
12. In a steam-boiler, the combination of a steam and water drum, a header or headers, passages, normally water-filled, connecting said header or headers and each drum, downflow-pipes leaving the lower side of said steam and water drum at intervals along its length, and rise-passages from the upper side of said header or headers, each rise-passages entering the said drum and terminating at a point above the water-line therein.

13. In a steam-boiler, comprising banks of vertical or vertically-inclined tubes, terminating in upper and lower headers, a space left open and free between two adjacent headers, of width at least as great as the diameter of the tubes, each space, in the headers on each side of the inverted V, being opposite each other, and removable covers or plugs inserted in each space, between each adjacent header, separated by each space, as and for the purpose set forth.

14. In a steam-boiler, comprising banks of vertical or vertically-inclined tubes, two or more top headers connecting with the upper ends, and one or more bottom headers connecting with the lower ends of such tubes, with a space or spaces left open and free between the said top headers, and removable covers for each open space as and for the purpose set forth.

15. In a steam-boiler, comprising two sets or banks of vertically-inclined tubes together forming an inverted V and each set or bank of tubes terminating in upper and lower headers, a space left open and free between two adjacent headers of each set or bank of tubes, of width at least as great as the diameter of the tubes, each space, in the headers on each side of the inverted V, being opposite each other, and removable covers or plugs inserted in each space, between each adjacent header, separated by each space, as and for the purpose set forth.

699,818. PLAYING-BALL. FRANK H. RICHARDS, Hartford, Conn., assignor to the Knapp Manufacturing Company, a Corporation of New Jersey. Filed Feb. 7, 1900. Serial No. 68,001. (No model.)

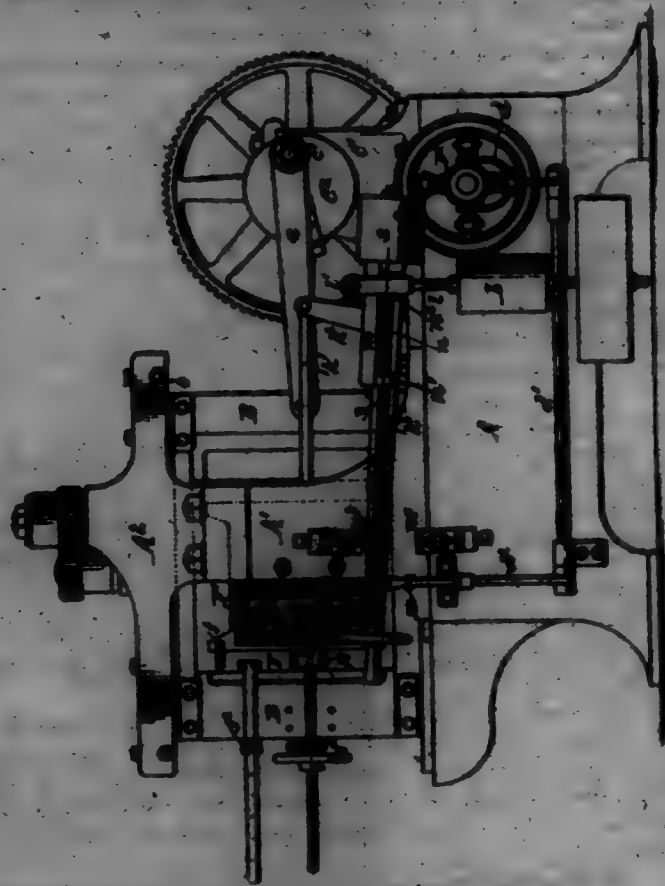


Claim.—1. In a playing-ball, a spherical shell consisting at least partially of celluloid, said shell being distended by plastic material injected thereinto.

2. In a playing-ball, a shell formed at least partially of celluloid, said shell being distended by a core of gata-pieces injected thereinto.

3. In a playing-ball, an embossed hard shell formed of plastic material and distended by a core of plastic material injected therewith.
4. In a playing-ball, an embossed shell formed of celluloid and distended by a gutta-percha core injected therewith, and a plug filling the injection-hole in the shell.
5. A playing-ball comprising a cushion or continuous embossed hard shell of plastic material distended by a core of plastic material injected therewith.
6. In a playing-ball, a cushion or continuous shell of celluloid distended by a mass of mobile material injected therewith.
7. In a playing-ball, an embossed shell of plastic material distended by a core of plastic material injected therewith, said shell being harder than said core.
8. In a playing-ball, a shell distended by a core injected therewith, one of said shell and core elements consisting of celluloid and the other consisting of gutta-percha.

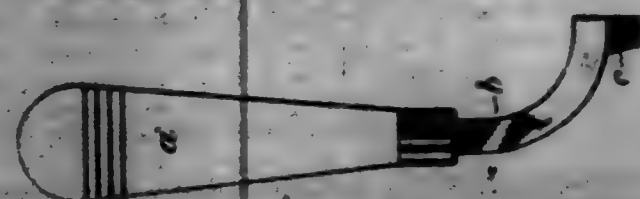
699,814. MACHINE FOR MAKING BATTERY-GRIDS. WILLARD F. EMMERICH, Buffalo, N. Y., assignor to Great Storage Battery Company, New York, N. Y., a Corporation of West Virginia. Filed Oct. 2, 1900. Serial No. 38,177. (No model.)



- Claim.—1. In a machine for making battery-grids, the combination with a pair of upright spinning-rollers, of an upright support for the blank or battery-plate arranged to move back and forth between said rollers, substantially as set forth.
2. The combination with a pair of upright horizontally-rotating frames, of upright spinning-rollers journaled in said frames, means for moving said frames toward and from each other, and an upright support for the blank or battery-plate arranged to reciprocate between said rollers, substantially as set forth.
3. In a machine for making battery-grids, the combination with a pair of frames which are movable toward and from each other, of spinning-rollers journaled in said frames, toggles which connect said frames with a stationary part of the machine, and means for actuating said toggles, substantially as set forth.
4. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, means for straightening and deflecting said toggles, and a support for a blank arranged to reciprocate between said rollers, substantially as set forth.
5. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft having actuating-arms, and rods connecting said toggles with said actuating-arms, substantially as set forth.
6. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft

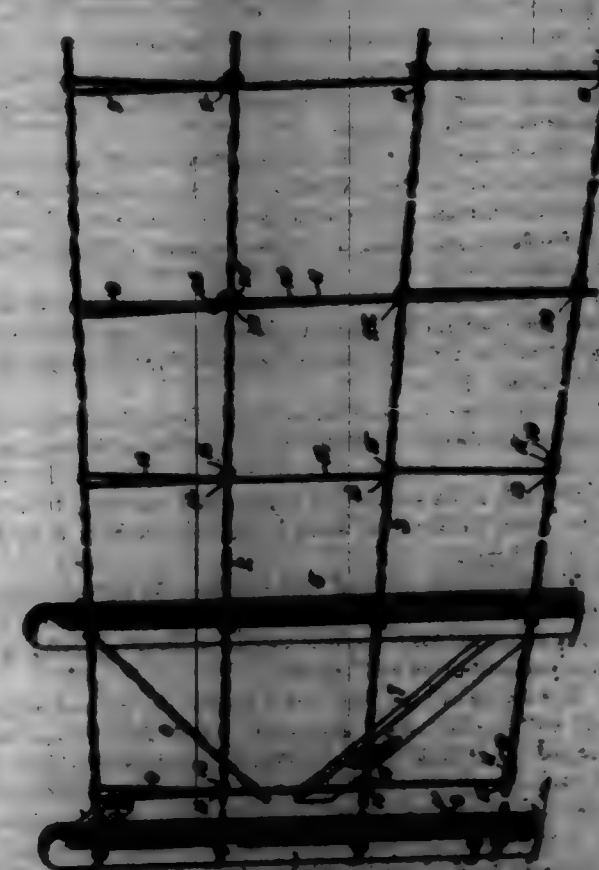
- having actuating-arms, connections between said toggles and said actuating-arms, and a pressure device applied to said rock-shaft for holding the spinning-rollers to their work with a yielding pressure, substantially as set forth.
7. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft having actuating-arms and a pressure arm or lever, connections between said toggles and said actuating-arms, and a movable weight mounted on said pressure-arm, substantially as set forth.
8. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft having actuating-arms connected with said toggles and a pressure-lever which extends in front and in rear of said rock-shaft, a weight arranged to move lengthwise on said pressure-lever, and an adjusting device for shifting said weight on said lever, substantially as set forth.
9. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft having a pressure-lever and actuating-arms connected with said toggles, a movable weight carried by said pressure-lever, and a longitudinal adjusting-curve for said weight mounted on said lever, substantially as set forth.
10. The combination with a pair of horizontally-rotating frames and upright spinning-rollers journaled therein, of horizontal toggles connecting said frames with a stationary part of the machine, a transverse rock-shaft having a pressure-lever and actuating-arms connected with said toggles, a movable weight carried by said pressure-lever, a rotary adjusting-curve mounted lengthwise on said lever and held against longitudinal movement therein, and a shifting nut traversing said curve and connected with said weight, substantially as set forth.
11. In a machine for making battery-grids, the combination with the spinning-rollers and a frame or carrier arranged to reciprocate between said rollers, of a blank-holder capable of longitudinal adjustment in said carrier, substantially as set forth.
12. In a machine for making battery-grids, the combination with the spinning-rollers and a frame or carrier arranged to reciprocate between said rollers, of a blank-holder movable lengthwise in said carrier, and an adjusting-curve for shifting said holder in said carrier, substantially as set forth.
13. In a machine for making battery-grids, the combination with the spinning-rollers, of a frame or carrier arranged to reciprocate between said rollers and provided with a pointer, of a blank-holder capable of longitudinal adjustment in said carrier, a gauge-bar secured to said holder and traversing said pointer, and means for adjusting the holder in said carrier, substantially as set forth.
14. The combination with a pair of movable frames and spinning-rollers journaled therein, of a rock-shaft, connections between said rock-shaft and said frames for moving the same toward each other, and a pressure device applied to said rock-shaft for holding the spinning-rollers to their work with a yielding pressure, substantially as set forth.
15. The combination with a pair of movable frames and spinning-rollers journaled therein, of toggles connecting said frames with a stationary part of the machine, a rock-shaft having actuating-arms, connections between said arms and said toggles, and a pressure device applied to said rock-shaft for holding the spinning-rollers to their work with a yielding pressure, substantially as set forth.
16. The combination with a movable frame and a spinning-roller journaled therein, of a pressure device, and mechanism connecting said movable frame and said pressure device whereby said spinning-roller is held with a pressure to its work and is automatically moved away from the work, substantially as set forth.

699,815. RING-COVER. WILLIAM J. BROWN, Kingston, N. Y. Filed Dec. 14, 1901. Serial No. 38,187. (No model.)



- Claim.—A ring-cover, consisting of handle *a*, adapted to be held vertically when in use, shaft *b*, curved through substantially a right angle, and a cutting blade or blades *c*, projecting downward from said shaft at or near its extremity in a direction parallel with the axis of the handle, the bottom cutting edges being transverse to said shaft, for covering the ring of meat to a uniform depth preparatory to cooking, substantially as specified.

699,816. FENCE. LOUIS H. BARTON, Albany, N. Y. Filed Nov. 26, 1901. Serial No. 38,171. (No model.)



- Claim.—In a fence, the combination with means, of a stay consisting of a single piece of wire twisted at one end around the second runner and extended therefrom to the top runner and then downward to the bottom runner to form a top loop and to provide lower connecting portion, the upper terminal of the wire being twisted around the loop at the lower end thereof, and the said wire being twisted around the runner below the second and called to form upon the runner the lower connecting portion, and the reinforcing end or brace passing through the said loop and secured to the adjacent runner by the stay and extending from the bottom of the fence to the second runner, substantially as described.

699,817. WATER-PROOF FENCING FOR ELECTRIC LIGHTS. FRANK J. BROWN, New York, N. Y. Filed Feb. 10, 1900. Serial No. 38,188. (No model.)



- Claim.—1. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of the transparent shield, means for pressing and holding the said stop against the said transparent shield, and a cover connected with the casing and adapted to lockup and protect the parts within the casing, together with means for securing the said cover in position, substantially as set forth.
2. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured the electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of the transparent shield, means for pressing and holding the said stop against the said transparent shield, and a cover formed of an open grating connected with the casing and adapted to lockup and protect the parts within, together with means for securing the said cover in position, substantially as set forth.
3. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield formed with a closed hemispherical end, the edges of the other open end resting against said annular gasket, a stop for straddling the closed hemispherical end of the transparent shield, said stop being made in two sections loosely connected together, one section of which is pivotally connected to the casing below the position of the hemispherical end of the transparent shield for the purpose of pressing the stop against the shield to effect a water-tight joint between the latter and the casing, substantially as set forth.

the edges of the other end resting against said annular gasket, a stop for straddling the closed end of said transparent shield, said stop being pivotally connected to the casing, and means for pressing and holding the said stop against the said transparent shield for the purpose of effecting a water-tight joint between the shield and the casing, substantially as set forth.

4. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of said transparent shield, said stop being pivotally connected to the casing, and a cover passing through said casing and bearing against said stop and holding said transparent shield against the said gasket to form a water-tight joint, substantially as set forth.

5. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of the said end disk, a substantially cylindrical transparent shield, formed with a closed hemispherical end and having the edges of the other end resting against said annular gasket, a stop for straddling the closed hemispherical end of the transparent shield, said stop being pivotally connected to the casing below the position of the hemispherical end of the transparent shield for the purpose of pressing the stop against the shield to effect a water-tight joint between the latter and the casing, substantially as described.

6. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, said end disk being formed with an external flange-chamber, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield, closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of said transparent shield, and means for pressing and holding the said stop against the transparent shield for the purpose of effecting a water-tight joint between the shield and the casing, substantially as set forth.

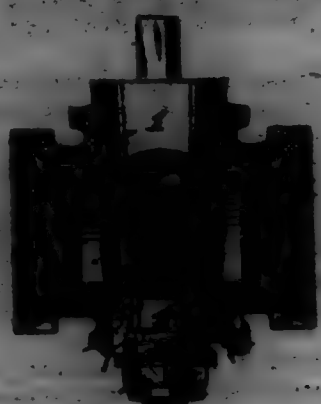
7. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, said end disk being formed with an external flange-chamber, provided with a removable water-tight cover, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield formed with one open end and one closed end, the edges of the open end resting against said annular gasket, a stop for straddling the closed end of said transparent shield, and means for pressing and holding the said stop against the transparent shield, for the purpose of effecting a water-tight joint between the shield and the casing, substantially as set forth.

8. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of the transparent shield, means for pressing and holding the said stop against the said transparent shield, and a cover connected with the casing and adapted to lockup and protect the parts within the casing, together with means for securing the said cover in position, substantially as set forth.

9. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield closed at one end, the edges of the other end resting against said annular gasket, a stop for straddling the closed end of the transparent shield, means for pressing and holding the said stop against the said transparent shield, and a cover formed of an open grating connected with the casing and adapted to lockup and protect the parts within, together with means for securing the said cover in position, substantially as set forth.

10. The combination of a casing, of substantially conical shape internally, formed with an end disk to which is secured an electric terminal-block and lamp-socket, an annular gasket on the inner side of said end disk, a substantially cylindrical transparent shield formed with a closed hemispherical end, the edges of the other open end resting against said annular gasket, a stop for straddling the closed hemispherical end of the transparent shield, said stop being made in two sections loosely connected together, one section of which is pivotally connected to the casing below the position of the hemispherical end of the transparent shield for the purpose of pressing the stop against the shield to effect a water-tight joint between the latter and the casing, substantially as set forth.

669,818. VALVE. JAMES J. STANLEY, Wilkes, Pa., assignor to Remond Valve Manufacturing Company, Remond, Pa., a Corporation of Pennsylvania. Filed Aug. 9, 1891. Serial No. 71,008. (No model.)



Claim.—1. The combination of a rotary plug-valve, a body in which said valve is fitted to seat and turn, and which is subdivided peripherally except by lateral pipe connections, an inclined cam-face formed on one end of the valve-body, in position to limit the traverse of the valve in one direction, and a locking device connected to the end of the valve which adjusts the cam-face, said locking device being freely movable throughout the middle portion of its traverse and abutting against the cam-face adjacent to one of the limits of said traverse.

2. The combination of a valve, a body in which said valve is fitted to seat and turn, oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-rod, and a locking device rotatably with the valve and abutting against one of said cam-faces in the open and in the closed positions of the valve.

3. The combination of a valve, a body in which said valve is fitted to seat and turn, two oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-rod, and a locking-collar rotatably with the valve and having opposite locking arms or dogs, each abutting against one of the cam-faces of each pair in the open and in the closed positions of the valve.

4. The combination of a valve, a body in which said valve is fitted to seat and turn, two oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-rod, an indexing projection interposed between said cam-faces, and a locking device rotatably with the valve and abutting against one of said cam-faces in the open and in the closed positions of the valve.

669,819. HOPPER-CAR AND DOOR THEREOF. RALPH V. RAGG, Westmont, Pa. Filed Dec. 20, 1891. Serial No. 64,328. (No model.)



Claim.—1. A hopper-car provided with a bottom sloping longitudinally from the side toward the transverse middle line of the car, said

bottom also sloping transversely from the side toward the longitudinal middle line of the car, a cross-section of said transverse slopes having the form of a V.

2. In a hopper-car, a bottom sloping downwardly from both ends, and from both sides in a V shape toward the center, supports and braces secured to the lower ends of said bottom and attached to the adjoining portions of the car construction.

3. In a hopper-car, a bottom sloping downwardly toward the center from both ends, and from both sides in a V shape, supports and braces secured to said bottom and to the adjoining portions of the car construction, said supports and braces being also connected to the floor-framing by intermediate braces.

4. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a cross-section of the transverse slopes having the form of a V and a central incline sloping downwardly in both directions toward the ends.

5. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the middle line of the car, a central transverse incline sloping downwardly in both directions from the center of the car toward the ends, and a longitudinal central ridge extending downwardly about the central framing, thus forming four compartments at the lower portion of the hopper.

6. In a hopper-car provided with a bottom sloping both longitudinally and transversely toward the center of the car and forming trapezoidal openings at the lower portion thereof, doors of trapezoidal shape adapted to cooperate with said openings.

7. In a hopper-car provided with a bottom sloping both longitudinally and transversely toward the center thereof, doors of trapezoidal form adapted to cooperate with corresponding openings in the lower part of the hopper-bottom, the adjacent doors on each side of the transverse center line being moved together in pairs by a connecting member.

8. A hopper-car provided with a bottom sloping transversely toward the center, doors of trapezoidal form adapted to cooperate with corresponding openings in said bottom, said doors being attached together in pairs by a connecting member, and operating mechanism attached to said connecting member intermediate of said doors for closing and releasing the same.

9. A hopper-car having a bottom sloping both longitudinally and transversely in a downward direction toward the center of said car and forming trapezoidal openings at the lower portion thereof, doors of trapezoidal form hinged to a horizontal support and arranged with their deeper ends adjacent, said doors being adapted to cooperate with the openings above.

10. In a hopper-car provided with a bottom sloping both longitudinally and transversely toward the center and forming trapezoidal openings at the lower ends thereof, hinged doors of trapezoidal form adapted to cooperate with the openings above, said doors being moved together in pairs by a connecting member to the intermediate portion of which operating mechanism is attached.

11. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, said bottom having trapezoidal openings at the lower portion thereof, hinged trapezoidal doors arranged in pairs and adapted to cooperate with the openings above.

12. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, said bottom having trapezoidal openings at the lower portion thereof, hinged doors of trapezoidal form, said doors being moved together in pairs by a connecting member and adapted to cooperate with the openings above.

13. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, said bottom having trapezoidal openings at the lower portion thereof, hinged doors of trapezoidal form, said doors being moved together in pairs by a connecting member to the intermediate portion of which operating mechanism is attached.

14. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, a central longitudinal ridge sloping downwardly in both directions toward the ends, said bottom having trapezoidal openings at the lower portion thereof, hinged trapezoidal doors arranged in pairs and adapted to cooperate with the openings above.

15. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, a central ridge sloping downwardly in both directions toward the ends, thus forming four compartments at the lower portion of said hopper each of which compartments is provided with a trapezoidal opening at the lower portion thereof.

hinged doors of trapezoidal form arranged in pairs and adapted to cooperate with the openings above.

16. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, a central longitudinal ridge sloping downwardly in both directions toward the ends, thus forming four compartments at the lower portion of said hopper, each of which compartment is provided with a trapezoidal opening at the lower portion thereof, hinged doors of trapezoidal form moved together in pairs by a connecting member and adapted to cooperate with the trapezoidal openings of the doors.

17. A hopper-car provided with a bottom sloping both longitudinally and transversely toward the center, a central transverse incline sloping downwardly in both directions from the center, a central longitudinal ridge, thus forming four compartments at the lower portion of said hopper each of which is provided with a trapezoidal opening at the lower portion thereof, hinged doors of trapezoidal form moved together in pairs by a connecting member, and operating mechanism connected to said member intermediate of the doors.

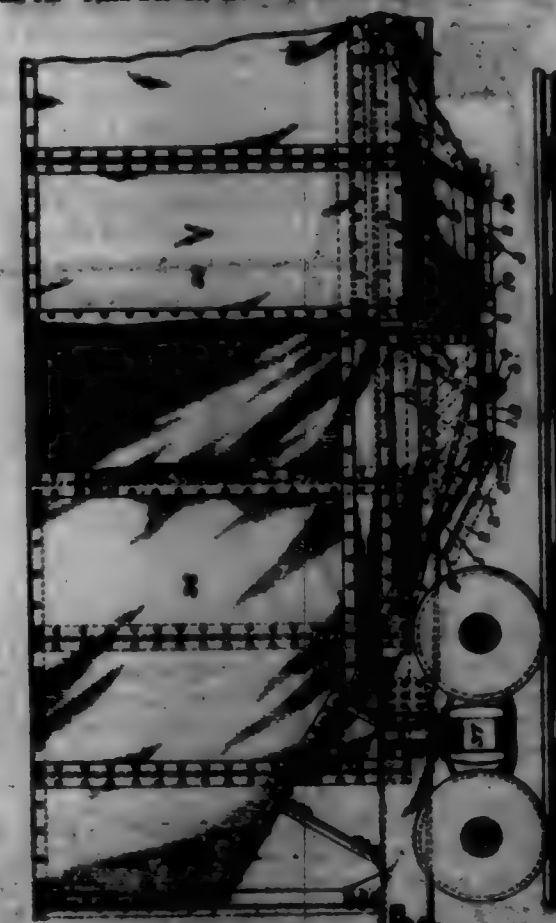
18. A hopper-bottom car provided with trapezoidal doors moved together in pairs by a connecting member, and mechanism for operating the same intended to said member intermediate of said doors.

19. A hopper-bottom car provided with hinged trapezoidal doors arranged with their deeper ends adjacent and moved together in pairs by a connecting member attached thereto, and operating mechanism connected to said member intermediate of said doors.

20. A hopper-bottom car provided with trapezoidal doors moved together in pairs by a connecting member, the deeper ends of said trapezoidal doors being adjacent, a chain attached to said member intermediate of the doors above, and means for operating said chain.

21. A hopper-bottom car provided with a pair of trapezoidal doors arranged with their deeper ends adjacent, said doors being moved together by a connecting member attached thereto, a chain connected to said member intermediate of said doors, a shaft for winding said chain and means for operating and locking said shaft.

669,820. DOOR FOR DUMPING-CAR. RALPH V. RAGG, Westmont, Pa. Filed Dec. 11, 1891. Serial No. 64,400. (No model.)



Claim.—1. In a dumping-car, a door mounted on swinging links, an endless flexible member secured to said door, and means for operating the same to open and close the door above.

2. In a dumping-car, a pair of adjacent doors mounted on swinging links, a connecting member secured to each of said doors, an endless flexible member attached to said connecting member intermediate of said doors, and means for operating the same.

3. In a dumping-car, a pair of doors mounted on swinging links, a connecting member secured to each of said doors, an endless flexible member

secured to said connecting member intermediate of the doors, a winding-shaft and pulley for operating said flexible member for the purpose of opening and closing said doors.

4. In a dumping-car, a pair of doors mounted on swinging links, a connecting member secured to each of said doors, an endless flexible member attached to said connecting member intermediate of the doors, an idler-pulley mounted above said doors, and a winding-shaft for operating said flexible member to open and close the doors above.

5. In a dumping-car, a pair of doors mounted on swinging links, a connecting member secured to each of said doors, an endless flexible member attached to said connecting member intermediate of the doors, an idler-pulley mounted above said doors, an operating-pulley mounted on a winding-shaft, and means for locking said winding-shaft.

6. In a dumping-car, provided with center shaft, a pair of doors mounted on swinging links, a connecting member secured to each of said pair of doors, an endless flexible member secured to said connecting member intermediate of said doors, means for operating said flexible member comprising an idler-pulley, an operating-pulley and a winding-shaft, said operating mechanism being located in an open space between and below the center shaft of the car.

7. In a dumping-car, a pair of doors mounted on swinging links, a connecting member secured to each of said doors, an endless flexible member attached to said connecting member intermediate of the doors, an idler-pulley mounted on the car-frame above said doors, an operating-pulley mounted on a winding-shaft provided with a ratchet, a pawl and a pawl-lock.

8. In a dumping-car, a pair of doors mounted on swinging links, a connecting member secured to each of said doors, a sprocket-chain attached to the connecting member intermediate of said doors, an idler-pulley mounted on the car-frame above said doors, a sprocket-wheel and winding-shaft for opening and closing the doors by means of the chain above.

9. In a dumping-car, a pair of doors, swinging links pivoted to said doors and to the car-frame, a connecting member attached to each of said doors, a sprocket-chain attached to said connecting member intermediate of the doors, an idler-pulley mounted on the car-frame above said doors, a sprocket-wheel and winding-shaft thereto, said winding-shaft being provided with a ratchet, pawl and pawl-lock.

10. A car provided with a pair of hoppers extending below the frame thereof, said hoppers having horizontal openings at their lower ends, a pair of doors for said hoppers, swinging links pivoted to said doors and to the car-frame, a connecting member secured to each of the pair of adjacent doors, an endless flexible member attached to said connecting member intermediate of the doors, and means for operating said flexible member.

11. A car provided with a pair of hoppers extending below the frame thereof, said hoppers having horizontal openings at their lower ends, a pair of doors for said hoppers, swinging links pivoted to said doors and to the car-frame, a connecting member secured to each of said pair of adjacent doors, an endless flexible member attached to said connecting member intermediate of the doors, an idler-pulley mounted above the pair of doors, a sprocket-wheel and winding-shaft for operating said flexible member to open and close the doors above.

12. In a dumping-car, a pair of doors mounted on outer and intermediate swinging links, a connecting member secured to each door of said pair, each door being composed of a flat body portion provided with side and end stiffening members attached thereto.

13. In a dumping-car, a pair of hoppers, one of which is located on each side of the center shaft and extends below the car-frame, said hoppers having horizontal openings at their lower ends, a pair of doors for said hoppers, swinging links pivoted to said doors and to the car-frame, a connecting member secured to each of said pair of doors, an endless flexible member attached to said connecting member intermediate of the doors, said flexible member being located in the open space between and below said car-shafts, and means for operating said flexible member to open and close the doors above.

14. In a dumping-car, two pairs of doors, a connecting member secured to the adjacent doors of each pair, an endless flexible member attached to each of said connecting members intermediate of the doors, and means for operating said flexible member, so that each of the two pairs of doors may be opened and closed independently of the other pair.

15. In a dumping-car, two pairs of doors mounted on swinging links, a connecting member secured to the adjacent doors of each pair, a separate continuous chain attached to each of said connecting members intermediate of the doors, and means for operating said chain so that each of the two pairs of doors may be opened and closed independently of the other pair.

16. In a dumping-car, two pairs of doors mounted on swinging links, a connecting member secured to the adjacent doors of each pair, a separate continuous chain attached to each of said connecting members intermediate of the doors, an idler-pulley mounted above each pair of doors,

a sprocket-wheel mounted on a winding-shaft supported by the car-framing and means for operating the same.

17. In a dumping-car provided with a pair of center sills, two pairs of doors mounted on swinging links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain for each pair of doors attached to said connecting member intermediate of the doors, an idler-pulley mounted above each pair of doors on a shaft supported by the center sills, a sprocket-wheel for each chain located between the center sills and mounted on a winding-shaft extending to the car side, and means for operating and locking said winding-shaft.

18. In a dumping-car provided with a pair of center sills, two pairs of doors mounted on swinging links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain for each pair of doors attached to said connecting member intermediate of the doors, an idler-pulley mounted above each pair of doors, a sprocket-wheel for each chain, said idler-pulleys and sprocket-wheels being mounted between said center sills, a winding-shaft for said sprocket-wheel extending to the side of the car, a ratchet-wheel mounted on said winding-shaft and a pawl and lock for co-operating with said ratchet-wheel.

19. In a dumping-car provided with a pair of center sills spaced apart, a pair of doors, a connecting member secured to each of said doors, swinging links pivoted to the outer ends of said doors and to the car-framing, and a middle swinging link pivoted to said connecting member intermediate of the doors, the upper pivot of said middle link being mounted between the center sills above said.

20. In a dumping-car provided with a pair of center sills, two pairs of doors mounted on swinging links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain for each pair of doors attached to said connecting member intermediate of the doors, an idler-pulley mounted above each pair of doors, a sprocket-wheel for each chain, said idler-pulleys and sprocket-wheels being mounted between said center sills, a winding-shaft for each sprocket-wheel extending from said center sills to the side of the car, a ratchet-wheel mounted on each winding-shaft, a pawl and lock mounted on the car side in co-operating with each ratchet-wheel, and a wrench or crank for operating each of the winding-shafts above said.

21. In a dumping-car provided with a pair of center sills spaced apart, a pair of doors, horizontal when in closed position; a connecting member secured to each of said doors, two swinging links pivoted to each of the outer ends of said doors and to the car-framing, a middle swinging link pivoted to said connecting member intermediate of the doors, the upper pivot of said middle link being mounted between the center sills above said; the swinging links nearest the transverse center line of the car being longer than those most distant from it whereby the doors when opened assume an inclined position.

22. In a dumping-car provided with a pair of center sills, two pairs of doors, a connecting member secured to the adjacent doors of each pair, a central supporting swinging link pivoted to each of said connecting members intermediate of the doors, the upper end of said middle swinging link being mounted on a shaft supported by the center sills above said, swinging links pivoted to the outer ends of said doors and to the car-framing, a separate continuous operating-chain attached to said connecting member intermediate of said doors, an idler-pulley mounted on a shaft supported by and between said center sills, a sprocket-wheel also mounted between said center sills on a winding-shaft extending to the car side, and means for operating and locking said winding-shaft.

23. In a dumping-car provided with oppositely-swinging doors mounted on vibratory links, a pair of locking-jaws pivoted to the car-framing between the inner edges of said doors, and means for operating said locking-jaws.

24. In a dumping-car provided with two pairs of oppositely-swinging doors, a stiffening and reinforcing member attached to the inner edges of each of said pairs of doors, a pair of locking-jaws pivoted between the pairs of doors, said locking-jaws being provided with inclined and vertical surfaces for automatically engaging with and securing said doors in closed position by co-operating with the stiffening and reinforcing members above said.

25. In a dumping-car provided with oppositely-swinging doors, a pair of locking-jaws mounted on a pin secured intermediate of said doors, said locking-jaws being provided with suitable surfaces for automatically engaging and locking the doors above said, and means for lifting and disengaging said locking-jaws.

26. In a dumping-car provided with a pair of oppositely-swinging doors, a pair of locking-jaws mounted on a pin secured intermediate of said doors, said locking-jaws being provided with suitable surfaces for automatically engaging with and securing said doors in closed position; link, crank and chain connections for lifting and disengaging said locking-jaws.

27. In a dumping-car provided with two pairs of oppositely-swinging doors mounted on vibratory links, a stiffening and reinforcing member attached to the inner edges of each pair of doors, a pair of locking-jaws

mounted between the pairs of oppositely-swinging doors, said locking-jaws being provided with suitable surfaces for engaging with the stiffening and reinforcing member above said, and means for lifting and disengaging said locking-jaws.

28. In a dumping-car provided with two pairs of oppositely-swinging doors mounted on vibratory links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain for each pair of doors attached to said connecting member intermediate of the doors, means for operating said chain, a stiffening and reinforcing member secured to the inner edges of said doors, a pair of locking-jaws mounted between said pairs of doors and provided with suitable surfaces for engaging with and securing said doors by means of the stiffening member above said, and means for lifting and disengaging said locking-jaws.

29. In a dumping-car, two pairs of oppositely-swinging doors mounted on vibratory links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain for each pair of doors attached to said connecting member intermediate of the doors, an idler-pulley mounted above each pair of doors, a sprocket-wheel for each chain, a winding-shaft for each sprocket-wheel extending to the side of the car, means for operating and locking said winding-shafts, a pair of locking-jaws pivoted intermediate of the pairs of doors and provided with suitable surfaces for engaging and securing said doors, and means for lifting and disengaging said locking-jaws.

30. In a bumper-car provided with a pair of center sills spaced apart, two pairs of oppositely-swinging doors mounted on vibratory links, a connecting member secured to the adjacent doors of each pair, a separate continuous operating-chain attached to each connecting member intermediate of the doors, an idler-pulley mounted above each pair of doors on a shaft supported by and between said center sills, a sprocket-wheel for each chain also mounted between said center sills on a winding-shaft extending to the car side, means for operating and locking said winding-shafts, a pair of locking-jaws pivoted intermediate of the pairs of doors and provided with suitable surfaces for automatically engaging and securing said doors, and means for lifting and disengaging said locking-jaws.

699,821. HAYE-THOMAS MACHINE. GEORGE S. THOMAS, Washington, D. C., assignor, by means of assignment, to the Federal Automatic Machine Company, New York, N. Y., a Corporation of New York. Filed June 1, 1901. Serial No. 68,716. (No model.)



Claim.—1. In a vending-machine, a magazine, an ejector carrying a rotator-bar, a latch-lever having a laterally-acting bearing-spring engaging a pivot, said latch-lever carrying a coin-cage, a coin-retainer spring extending through said cage and carried by the latch-lever, and a trip-arm carried by the ejector and engaging with said spring.

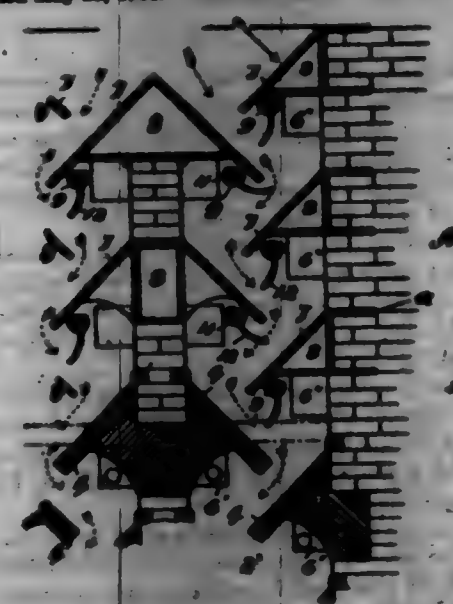
2. In a vending-machine, a magazine-chamber, a stationary guide-support, an ejector working on the said support, lock and release mechanism, co-operating with the ejector, and a guard-latch on the guide-support against which the package in the ejector lodges to prevent the return of the said ejector to a locked position before the operation of ejecting is completed.

3. In a vending-machine, a magazine, an ejector carrying a rotator-bar, a latch-lever having a laterally-acting bearing-spring engaging a pivot,

a coin-cage on the latch-lever, sliding slots in the walls of said cage, a coin-retainer arm projected through the said slots and carried by the latch-lever, and means on the ejector to engage said arm to release the coin from the cage.

4. In a vending-machine, a magazine, an ejector carrying a rotator-bar, a latch-lever having a laterally-acting bearing-spring engaging a pivot, said latch-lever carrying a coin-cage, a coin-retainer extending through said cage and carried by the latch-lever, and means on the ejector to engage said coin-retainer to free the coin from the coin-cage.

699,822. GUN-SILVER-FURNACE. ROBERT DODD, San Jose, Cal. Filed May 22, 1901. Serial No. 61,651. (No model.)



Claim.—1. A gun-silver-furnace provided with a series of fins over which the ore is adapted to pass, a fire formed in one or more of said fins and through which gases from said fire are adapted to pass, and means for directing said gases from said fire to said fins for the purpose set forth.

2. A gun-silver-furnace provided with a series of fins over which the ore is adapted to pass, one or more rods between said fins and provided with projecting ends, said rods being arranged for movement to engage said ore for the purpose set forth.

699,823. MECHANICAL MOVEMENT. JAMES W. SHARRARD and THOMAS W. LLOYD, Ashburn, Kans. Filed Feb. 26, 1901. Serial No. 61,928. (No model.)



Claim.—1. In a mechanical movement, a cam embodying three cam-faces of varying diameters arranged each with its highest point coincident with the neutral point of the next disk and with the points of merger at different circumferential points to the cam whereby a machine element co-operating with said cam travels from one to the other of the disks and changes from one to the other at periods less than a complete revolution of the cam.

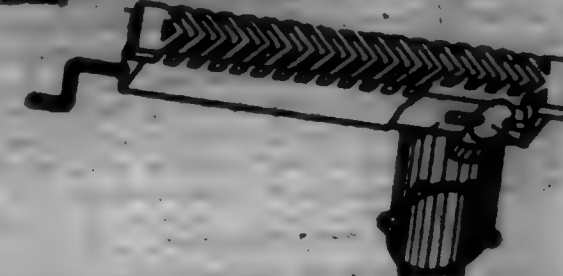
2. A mechanical movement comprising a co-operating member suitably shaped, and a cam with which said member co-operates made up of three or more cam-faces concentric to the shaft, arranged so that the neutral point of one disk merges with the highest point of the next disk, and with said points of merger arranged in the same diametric line and alternately on opposite sides of the center of revolution, so that the co-operating member travels from one disk to another, and its periods of reversing or shifting when traveling from one extreme of the cam to the other, occur at half-revolutions of the cam.

3. A mechanical movement comprising a suitably-shaped lever arranged to perform work, a rotating shaft, a compound cam made up of a plurality of cam-faces concentric but eccentrically fixed to said shaft in different planes, and a ratchet-wheel carried by the lever, adapted to bear upon the cam, and having its periphery offset to operate in the planes of

the cam-faces the portions of the periphery of said ratchet-wheel which co-operate the respective disks.

4. In a mechanical movement the combination of the mounting 1, the lever 2 horizontally pivoted to said mounting, a ratchet-wheel 4 at the outer end of said lever, the plunger 6 connected to said lever 2, a constantly-rotating shaft 3 and a compound cam 5 composed of a plurality of concentric, eccentric cam-faces, in different planes, the periphery of the ratchet-wheel being offset to bring the portions of its rim into the planes of the cam-faces encountered thereby.

699,824. GRATE-BAR FOR FURNACE. HENRY SHERRILL, Chattanooga, Tenn. Filed Oct. 16, 1901. Serial No. 73,906. (No model.)



Claim.—1. The combination of hollow grate-bars provided with pivoted bottoms, a forced-draft air-pipe, conduits providing communication between the grate-bars and the forced-draft air-pipe, a damper in each of said conduits, said dampers being operatively connected with said pivoted bottoms, substantially as described.

2. A hollow grate-bar comprising closed side and end walls, an open-work top and a pivoted bottom, and a valve attached to said bottom and arranged at right angles thereto, said valve being adapted to control an air-draft opening leading into the grate-bar, substantially as described.

3. A furnace-grate comprising a plurality of hollow grate-bars each provided with a damping-bottom, a forced-draft air-pipe, conduits providing communication between the grate-bars and the forced-draft air-pipe, and a damper secured to and arranged at a right angle to each damping-bottom, said dampers controlling the passage of air through the conduits, substantially as described.

4. A hollow grate-bar having an air-tight opening and a damping-bottom, a valve for said air-tight opening, and means for discontinuously opening the bottom and closing the valve of the air-tight opening.

5. A hollow grate-bar having a damping-bottom and an air-tight opening, a valve for said air-tight opening, and means for discontinuously closing the bottom and opening the air-tight valve.

6. A hollow grate-bar having a damping-bottom and an air-tight opening, a valve for said air-tight opening, and means controlled by the position of said bottom for regulating the area of the air-tight opening.

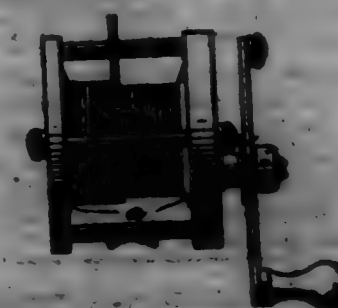
7. A hollow grate-bar having a pivoted bottom and an air-tight opening, and a valve attached to said bottom and controlling said air-tight opening.

8. A furnace-grate comprising a plurality of hollow grate-bars, each of said bars being provided with a damping-bottom and an air-tight opening, a forced-draft air-pipe communicating with said air-tight openings, and a separate valve for each of said openings, said valves being attached to said bottoms.

9. A furnace-grate comprising a plurality of hollow grate-bars, each of said bars being provided with a damping-bottom and an air-tight opening, a forced-draft air-pipe communicating with said openings, and a separate valve for each of said openings operable from said bottoms.

10. A furnace-grate comprising a plurality of hollow grate-bars each having a pivoted bottom and an air-tight opening, means for forcing an artificial draft through said openings into the grate-bars, and valves for each of said openings attached to and operable from said pivoted bottoms.

699,825. PULVERIZING-MACHINE. MALCOLM A. SHIPLEY, Philadelphia, Pa. Filed Feb. 21, 1902. Serial No. 66,941. (No model.)



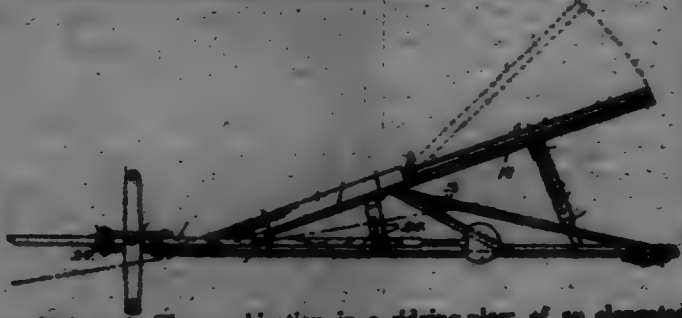
Claim.—1. In a taking-rod, a speed, gearing controlling the rotation of said speed, a shaft controlling said gearing, a friction-disk in lock-

ing engagement with said shaft, a second friction-disk loosely turning on the shaft, a handle connected to said friction-disk, a spiral spring bearing against the outer face of the second friction-disk to cause the same to contact with the first friction-disk, and means for adjusting the tension of said spring, substantially as and for the purposes described.

2. In a fishing-reel, a shaft controlling the movement of the spool of the reel, a disk locked to said shaft, a handle formed with a second friction-disk loosely turning upon the end of said shaft, a headed pin adapted to be advanced or retracted in the end of said shaft, and a spiral spring coiled around said pin, one end of said spring bearing against the head of the pin and the other end bearing upon the disk of the handle to force said disk into frictional contact with the disk locked to said shaft, substantially as and for the purposes described.

3. In a fishing-reel, a shaft controlling the movement of the spool of the reel, a disk locked to said shaft, a handle formed with a second friction-disk loosely turning upon the end of said shaft, a headed pin adapted to be advanced or retracted in the end of said shaft, a spiral spring coiled around said pin, one end of said spring bearing upon the head of the pin and the other end bearing upon the disk of the handle, and a cap insulating said spring and interposed between the head of the pin and the end of the shaft, substantially as and for the purposes described.

699,826. RIDGING-PLOW. JOSEPH C. SILVERA, San Francisco, Cal. Filed Jan. 20, 1902. Serial No. 99,467. (No model.)



Claim.—1. The combination in a ridging-plow, of an elongated handle, a vertically-disposed, endwise-adjustable plate or knife carried thereon, a plowshare, and an adjustable moldboard.

2. In a ridging-plow, the combination with the share and handle, of a pivoted moldboard, adapted to have a horizontal movement about its pivots, and means including a vertical bar and a projection adjustable thereon said projection fixed to said moldboard whereby the latter is also capable of a vertical adjustment in relation to the share.

3. The combination in a ridging-plow of an elongated handle, a plowshare, a moldboard pivoted thereto, a transverse beam adjustable in length supported between the handle and moldboard, connections including a vertical extension of one of the members of said beam and a projection on the moldboard said projection and extension adjustable one relative to the other, and means by which the moldboard may be adjustably supported at any desired angle above the ground.

4. The combination in a ridging-plow of an elongated handle, a plowshare, a moldboard pivoted rearward of said share, transverse braces connecting the share and handle, a beam adjustable in length between the moldboard and handle, a vertical projection on said beam and means in connection with said projection by which the moldboard may be engaged.

5. In a ridging-plow, a moldboard having outwardly-extending lateral flanges upon its upper and lower edges, in combination with a vertical projection of one of said flanges, and a member on which the projection is vertically adjustable.

6. In a ridging-plow, a moldboard substantially rectangular in form and having outwardly-extending flange projections upon its upper and lower edges, in combination with a vertical projection of the upper flange and a vertical extension above the moldboard to which the projection is adjustably secured.

7. A ridging-plow consisting in combination of an elongated handle, a vertically-disposed, endwise-slidable knife carried thereon, a share, a rectangular moldboard loosely pivoted at its upper and lower edges rearward of the share, means including a laterally-adjustable beam, a vertically-disposed bar and a projection of the moldboard adjustable on the bar by which said board may be moved vertically or horizontally about said pivots and securely held in any desired position, a pole pivoted intermediate of its ends, and means by which said pole may be held at any desired angle in relation to the handle, a coat upon and movable with said pole and a vertically-adjustable wheel-frame carried on the pole.

699,827. REPAIR-STRIP FOR BUTTONHOLE PORTIONS OF ARTICLES OF APPAREL. JOHN P. STOUT, Washington, D. C. Filed June 4, 1901. Serial No. 99,117. (No model.)

Claim.—1. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the said strip containing a buttonhole and having a reinforced end and an adjacent thin portion, the said reinforced end being formed by a plurality of folds in the blank from which the strip is made.



2. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same containing a buttonhole and having a thin portion and a thick or reinforced portion adjacent thereto, the thin portion of said strip being provided with attaching means, and the thick or reinforced portion being formed by a plurality of folds in the blank from which the strip is made.

3. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same containing a buttonhole, having a reinforced end formed by a plurality of folds in the blank from which the strip is made, and having a flap extending beyond the reinforced portion.

4. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same containing a buttonhole, having a reinforced end formed by a plurality of folds in the blank from which the strip is made, and having a plurality of flaps extending beyond the reinforced portion.

5. As a new article of manufacture a repair or renewal strip for the buttonhole portions of articles of apparel, the same having a concave reinforced upper end containing a buttonhole, and a plurality of flaps extending below and beyond the opposite side ends of the reinforced portion.

6. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same having a concave reinforced upper end containing a buttonhole, and a flap extending below and beyond the opposite side ends of the reinforced portion.

7. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same having a concave reinforced upper end containing a buttonhole, and a flap extending below and beyond the opposite side ends of the reinforced portion, the said flap extending at an angle to the reinforced portion.

8. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the same having a concave reinforced upper end formed by a plurality of folds in the blank from which said strip is made, cemented or otherwise secured together and containing a buttonhole, and flaps extending below the reinforced portion and beyond the opposite side ends thereof.

9. As a new article of manufacture, a repair or renewal strip for the buttonhole portions of articles of apparel, the said strip being made from a blank having incisions or indentations in the opposite side edges thereof and bent or folded and shaped to form a concave reinforced upper end, the folds being cemented or otherwise secured to each other, containing a buttonhole, and terminating short of the side and lower edges of the body of said strip.

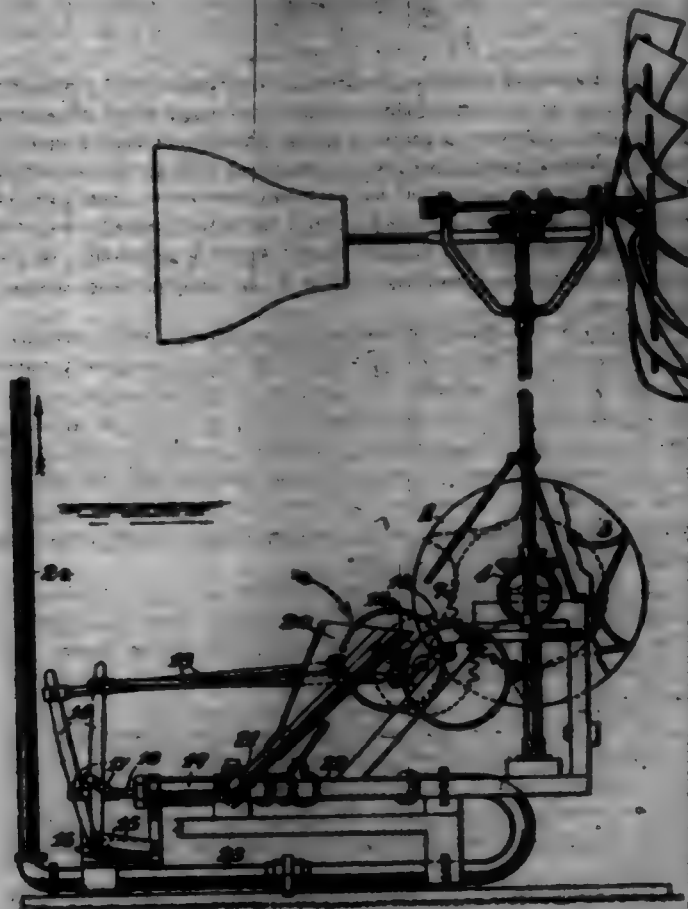
699,828. ACETYLENE-GAS-GENERATING APPARATUS. ARTHUR E. ADOLFSSON, Stockholm, Sweden. Filed July 25, 1901. Serial No. 99,705. (No model.)



Claim.—In an acetylene-gas-generating apparatus, the combination with the generating-chamber and gasometer, of a carbide-feeding vessel, a feeding-plate therein, a shaft supporting the said plate, an arm or wheel on said shaft, a pin carried by said arm or wheel, a double lever secured to the shaft of the feeding vessel and having a curved outer back part on which said pin rests, pins carried by the branches of said double lever, a stationary guide on which one of the pins always moves when the lever

is moved by the pin on the arm or wheel, said guide, at parts corresponding to the extreme positions of the feeding vessel, having slots or edges extending radially inward permitting further movement of the wheel without turning of the feeding vessel, substantially as described.

699,899. PUMPING APPARATUS. JOHN ALABRUGH, San Francisco, Cal. Filed July 20, 1901. Serial No. 70,211. (No model.)



Claim.—1. The combination in a single apparatus of a horizontally-journalled water-wheel wholly or partly submerged within a stream and having buckets exposed to tidal conditions and the waves or current thereof whereby the wheel is operated by the natural power of the stream, pump-cylinders having plungers movable therein, means connected with the pump-cylinders and retaining a constant supply of water sufficient to supply the cylinders for one or more strokes, a windmill exposed to the air and operated by air-currents, a shaft and connections between the windmill and water-wheel, and connections between the water-wheel shaft and the pump-plungers.

2. In a pumping apparatus, wind and water wheels, with intermediate connections whereby the combined power of the two is transmitted, cranks or eccentrics mounted upon a supplemental shaft and mechanism by which power is transmitted from the driving-wheel thereto, fulcrumed levers having their upper ends connected with the eccentrics, and jointed links by which the intermediate portions of the levers are connected with the plunger-rods of the pump-cylinders, funnel into which the water is automatically delivered, connections between said funnel and the pump-cylinders whereby the latter are supplied, and the discharge-main, with which the pump-cylinders are connected.

699,880. CARBURETER. RABBIT, JR., San Leandro, Cal. Filed July 3, 1901. Serial No. 69,090. (No model.)



Claim.—1. A vaporizing apparatus consisting of an exterior casing, detaining-surfaces arranged therein from top to bottom, a plurality of passages extending through said surfaces connecting with a common chamber at the bottom and the top, a passage through which hot vapors are introduced into one of said chambers and passed thence through one of the pipes and returned through the other.

2. A vaporizing apparatus consisting of a casing having detaining-

surfaces arranged therein between top and bottom, chambers located above and below the apparatus and separated therefrom, a plurality of pipes extending through the surfaces and connecting said chambers, an inlet-passage through which hot products are introduced into one of said chambers and passed through the said pipes, and a gate movable in the chamber whereby the direction of movement of the heated products through the pipes is controlled.

3. A vaporizing apparatus consisting of a casing having detaining-surfaces arranged between the top and bottom, separate chambers located respectively above and below the apparatus, a plurality of pipes connecting said chambers, an inlet-passage by which hot exhaust products are delivered into one of said chambers, a gate by which said products are caused to pass through one of the pipes to the opposite end, and thence returned through the other pipe, and an exhaust-passage through which they are finally discharged, and means for changing the gate to alter the direction of movement of the hot products through the apparatus.

4. A vaporizer and generator consisting of an inclined casing having detaining-surfaces arranged therein between top and bottom, means for supplying oil to be vaporized upon one of the surfaces intermediate between the top and bottom, so as to form a superheater of the surfaces above, heating-pipes passing through the apparatus, and means for discharging the hot products of combustion from the engine through said pipes, an air-admission passage opening into the generator, and a gas-discharge passage located above the oil-admission passage.

5. A vaporizer and generator consisting of an exterior casing having detaining-surfaces arranged between the top and the bottom, pipes extending directly therethrough adapted to convey the hot exhaust products from the engine, a pipe for the admission of oil upon the surfaces near the top of the apparatus, a pipe for the admission of air near the bottom whereby the air is first brought into contact with the heavy products of vaporization, and a discharge-passage for the mixed products at the top of the apparatus.

6. In an apparatus for the production of explosive gas, a casing having detaining-surfaces arranged between the top and the bottom, pipes passing through said surfaces and adapted to conduct the hot products of combustion from the engine whereby the oil is vaporized, an air-inlet passage opening into the lower part of the generator, and a discharge-passage from the upper part whereby the air is first brought into contact with the gases evolved from the heavy oil near the bottom and successively with the lighter gases above before being discharged.

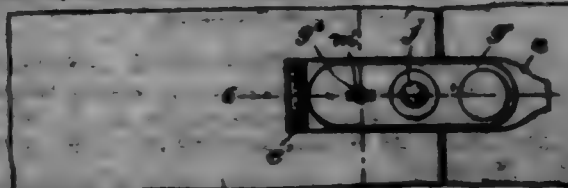
7. The combination in an apparatus for the production of explosive gas of a vertically-disposed closed chamber, a series of surfaces interposed between the top and bottom, with means discharging successively from the upper to the adjacent lower one, means for heating said surfaces, consisting of pipes passing therethrough, retarding-ribs and indentations formed upon the surfaces, and passages through which a hydrocarbon liquid is delivered upon the surfaces near the top.

8. The combination in an apparatus for the production of explosive gas of a normally vertical closed casing, a series of surfaces disposed between the top and bottom with serpentine discharges from the upper to the lower ones, heat-pipes passing through said surfaces, means for supplying a hydrocarbon liquid upon one of the upper surfaces, and detaining ribs and pockets upon said surfaces to prevent too rapid flow when the apparatus is tilted from a vertical position.

9. The combination in a vaporizing apparatus of a normally vertical closed casing, surfaces disposed therein between the top and bottom, said surfaces fitting against the interior of the casing and having a series of serpentine connecting-passages, a hydrocarbon-inlet near the top, an air-inlet at the bottom and a gas-discharge at the top, and heating-pipes passing vertically through the surfaces interior to the casing.

10. The combination in an apparatus for the production of explosive gas, of a closed vertically-disposed chamber with a series of transverse surfaces between the top and bottom, having serpentine connections, a hydrocarbon-supply to a surface near the top, an air-inlet at the bottom, and a gas-discharge at the top, independent chambers exterior to the top and bottom of the main chamber and heat-conducting pipes connecting said chambers and passing through the interior of the main chamber and through each of the surfaces.

699,881. LOCK. CHARLES E. BROWN, Yonkers, N. Y. Filed June 17, 1900. Serial No. 750,890. (No model.)



Claim.—1. A lock comprising a plate having holes adapted to receive screws or other attaching devices, a hump linged thereto and

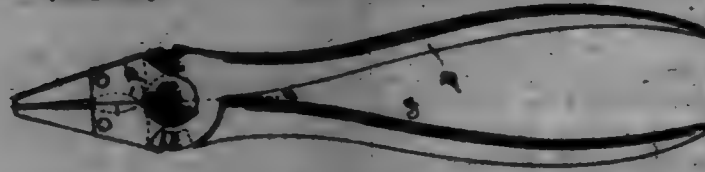
meant to close over said plate and carrying a spring-actuated bolt, key-operated means for actuating said bolt, tumbler mechanism for normally preventing the retraction of the bolt except by a key, and means accessible solely when the key is opened for displacing the tumbler mechanism to permit the bolt to be retracted without the use of a key.

2. A lock comprising a latching-bolt, a bolt-retracting plate, a slot in one of said members elongated longitudinally of the bolt, and a pin on the other member occupying said slot, a spring engaged primarily with the bolt and normally projecting said bolt and the plate, a key-operated member adapted to engage and retract the plate, and thereby retract the bolt, a knob projecting from the bolt-retracting plate, and one or more key-operated tumblers normally obstructing the plate and preventing its retraction.

3. A lock comprising a casing, a bolt mounted therein, key-actuated means for operating said bolt, a series of bolt-controlling tumblers normally spring-held in bolt-obstructing positions and movable in opposite directions into bolt-releasing positions, a casing including said parts, and a rotary member mounted in the casing and exposed externally through a hole therein, said member having tumbler-displacing elements interposed between the tumblers and adapted when the member is rotated, to move the tumblers into bolt-releasing positions.

4. A lock comprising a plate, a key-bolted thereto and provided with a lock-casing, a bolt mounted in said casing, a series of key-operated bolt-controlling tumblers within the casing, a bolt-retracting knob located on the outer side of the casing and a tumbler-displacing device located on the inner side of the casing.

699,883. COMBINED WIRE-CUTTER AND PLIERS. FREDERICK B. BROWN, JR., N. Y. Filed Mar. 20, 1901. Serial No. 69,981. (No model.)



Claim.—1. In combination, two levers pivoted together, jaws formed with or secured to said levers, two side plates secured one to each of the jaws upon one side thereof, the heel ends of said side plates being pivoted together upon the outside of the main joint of the pliers, cutting edges formed upon each of said side plates, a plate secured to one of the jaws upon the opposite side thereof, the heel end of said plate being pivoted upon the same pivot as the jaws, substantially as described and for the purpose specified.

2. In combination, a pair of handle-levers led together and pivoted to each other, a pair of jaws formed with or secured to said levers, two removable plates, one secured to each of the said jaws upon one side thereof, the heel ends of said plates being pivoted together upon one side of the pivotal point of the jaws, cutting edges formed upon said plates at the point where said plates meet when the pliers are closed, a stop formed upon each member of the pliers, said stops adapted to engage one another when the jaws are open to a certain point for the purpose of limiting the movement of the same, substantially as described and for the purpose specified.

3. In combination, a pair of handle-levers led together and pivoted to each other, concentric portions formed concentric with the pivotal point formed with each of said levers, cavities formed upon the inside of each of the jaws and also the upright part of the concentric portions, a point comparatively near the pivot, stops formed upon one edge of each of said concentric portions and adapted to engage one another when the jaws of the pliers are open to a certain point, diagonal slots formed in the opposite edge of the concentric portions for the purpose of cutting or shearing wire, said diagonal slots adapted to register with one another when the shearing stops upon the opposite edges are in contact with one another, jaws formed with or secured to the handle-levers, two side plates, one secured to each of said jaws, the heel ends of said side plates being pivoted together, cutting edges formed upon said side plates, a plate upon the opposite side of the pliers, said plate being pivoted to one of the jaws, the heel end of said plate being pivoted upon the same pivot as the handle-levers and jaws, substantially as described and for the purpose specified.

699,888. LEATHER-GRIPPING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Eddy Company, Minneapolis, Minn., a Corporation. Original application filed Jan. 26, 1900, Serial No. 1,494. Divided and this application filed Jan. 2, 1901. Serial No. 69,988. (No model.)

Claim.—1. In a leather-gripping machine, the combination with a stretcher-head, of a series of independent leather-holders adjustable lat-

erally and longitudinally thereof, and a corresponding series of coupling devices having laterally-adjustable pivotal connection with the holders adapting the latter to swing freely under tension, and means for independently pivoting each of said coupling devices to the stretcher-head, substantially as set forth.



2. In a leather-gripping machine, the combination with a stretcher-head, of a series of leather-holders adapted to engage marginal portions of leather at different inclinations to the direction of tension upon it, coupling devices having two pivotal connection with the holders for effecting them to a member of the stretching mechanism, means for lateral variation of the points of each pivotal connection corresponding with the varying inclinations of the holders, and means for adjustably and pivotally connecting such coupling devices to the stretcher-head, substantially as set forth.

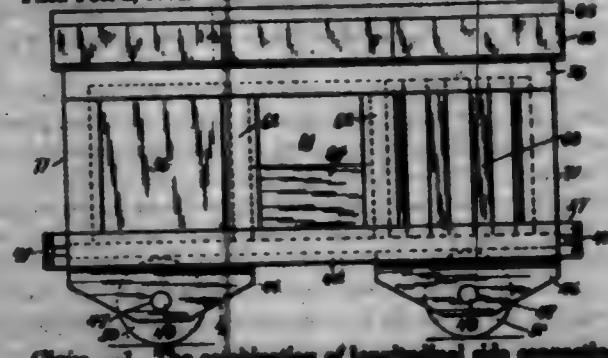
3. In a leather-gripping machine, the combination with a stretcher-head, of a series of leather-holders adapted to engage marginal portions of leather at different inclinations to the direction of tension upon it, coupling devices having two pivotal connection with the holders for effecting them to a member of the stretching mechanism, means for lateral variation of the points of each pivotal connection corresponding with the varying inclinations of the holders, and means for independently and successively pivotally connecting such coupling devices to the stretching mechanism, substantially as set forth.

4. The combination with a leather-holder and a stretcher-head, of a coupling-bar having a laterally-adjustable pivotal connection with the holder adapted to permit the holder to swing freely under tension, and means for adjustably and pivotally connecting such bar to said head, substantially as set forth.

5. The combination with a stretcher-head, of a leather-holder having means for the laterally-adjustable pivotal connection of a coupling device adapted to permit the holder to swing freely under tension, a coupling-bar, and means for adjustably and pivotally connecting such bar to the leather-holder and to the stretcher-head, substantially as set forth.

6. A leather-holder for a stretching machine, consisting of a body provided with means for engaging the leather and having in rear of the leather-engaging member a slot concave in the direction of the latter, a coupling-bar adapted to engage in said slot and thereby pivotally connect said body to said bar, and means for adjustably and pivotally connecting the coupling-bar to the stretching mechanism.

699,884. TOY BLOCK. EDWARD A. GARDNER, Greenwich, Wt. Filed Feb. 2, 1901. Serial No. 69,979. (No model.)



Claim.—1. The combination of longitudinal side connecting-blocks having longitudinal grooves on their under sides, a bottom block or blocks fitted to said longitudinal connecting-blocks, bearing-blocks fitted in the longitudinal grooves on the under side of the side connecting-blocks, said bearing-blocks provided with openings therethrough, axle-blocks having reduced ends fitting in the openings of the bearing-blocks, and wheel blocks mounted on the reduced ends of the axle-blocks between the shoulders of said axle-blocks and the inner sides of the side connecting-blocks.

2. The combination of side connecting-blocks provided with longitudinal grooves upon their inner sides, and with longitudinal grooves upon their under sides, and connecting-blocks provided with longitudinal grooves upon their inner sides, a bottom block or blocks having in or their side edges fitting in the side grooves of the side connecting-blocks, bearing-blocks fitted in the longitudinal grooves on the under sides of the side connecting-blocks, said bearing-blocks provided with openings therethrough, axle-blocks having reduced ends fitting in the openings of the bearing-blocks, and wheel blocks mounted on the reduced ends of the axle-blocks between the shoulders of said axle-blocks and the inner sides of the side connecting-blocks.

3. The combination of side connecting-blocks provided with longitudinal grooves on their inner sides, a central longitudinal block provided with longitudinal grooves on its opposite side edges, and bottom blocks having their outer edges fitting in the grooves on the inner sides of the side connecting-blocks, and having their inner edges fitting in the grooves on the opposite side edges of the central longitudinal block.

4. The combination of side connecting-blocks provided with longitudinal grooves on their inner sides, a central longitudinal block provided with longitudinal grooves on its opposite side edges, two connecting and blocks at each end, and between the inner ends of each end thereof the ends of the central longitudinal block fit, said end connecting-blocks provided upon their inner sides with grooves, and bottom blocks having their outer side edges fitting in the grooves of the side connecting-blocks, and their inner side edges fitting in the side grooves of the central longitudinal block, and their end edges fitting in the inner grooves of the end connecting-blocks.

5. The combination of side connecting-blocks provided with longitudinal grooves on their inner sides, a central longitudinal block provided with longitudinal grooves on its opposite side edges, two end connecting-blocks at each end, and between the inner ends of each end thereof the ends of the central longitudinal block fit, and project outwardly therefrom to form projecting draw-bars, said end connecting-blocks provided upon their inner sides with grooves, and bottom blocks having their outer side edges fitting in the grooves of the side connecting-blocks, and their inner side edges fitting in the side grooves of the central longitudinal block, and their end edges fitting in the inner grooves of the end connecting-blocks.

6. The combination of side connecting-blocks provided with longitudinal grooves on their inner sides, a central longitudinal block provided with longitudinal grooves on its opposite side edges, two end connecting-blocks at each end, and between the inner ends of each end thereof the ends of the central longitudinal block fit and project outwardly therefrom to form projecting draw-bars, said end connecting-blocks provided upon their inner sides with grooves, and bottom blocks having their outer side edges fitting in the grooves of the side connecting-blocks, and their inner side edges fitting in the side grooves of the central longitudinal block, and their end edges fitting in the inner grooves of the end connecting-blocks.

7. The combination of lower side connecting-blocks having longitudinal grooves in their upper sides, and also upon their inner sides, lower end connecting-blocks having longitudinal grooves in their upper sides and also in their inner sides, a bottom block or blocks having in or their outer side edges fitting in the inner side grooves of the lower end connecting-blocks, and their end edges fitting in the inner grooves of the lower end connecting-blocks, upper longitudinal side connecting-blocks having longitudinal grooves upon their under sides, and side and end blocks having longitudinal grooves upon their under sides, and side and end blocks fitting in the upper grooves of the lower side and end connecting-blocks, and their upper ends fitting in the under grooves of the upper longitudinal side and end connecting-blocks.

8. The combination of lower side connecting-blocks provided with longitudinal grooves on their inner sides and also upon their upper sides, a central longitudinal block provided with longitudinal grooves on its opposite side edges and also with cross-grooves on its upper side near opposite ends thereof, two lower connecting-blocks at each end, and between the inner ends of each end thereof the ends of the central longitudinal block fit, and said lower end connecting-blocks provided upon their inner sides with grooves and also upon their upper sides with grooves, bottom blocks having their outer edges fitting in the grooves on the inner sides of the lower side connecting-blocks, and their inner edges fitting in the side grooves of the central longitudinal block, and their end edges fitting in the inner grooves of the lower connecting and blocks, upper longitudinal side connecting-blocks having grooves on their under sides, and side and end blocks having side and end pieces and having, respectively, their lower ends fitting in the upper grooves of the lower side connecting-blocks, and in the upper grooves of the central longitudinal block, and their upper ends fitting in the under side grooves of the upper longitudinal side and end connecting-blocks.

9. The combination of a structure having side pieces, at opposite sides and ends, upper longitudinal side connecting-blocks to which said side pieces are connected, said side connecting-blocks provided upon their inner sides with longitudinal grooves, upper end connecting-blocks to which the end pieces of the structure are connected, said end connecting-blocks provided upon their inner sides with grooves, two flat blocks at opposite ends, the outer edges of each of these blocks fitting in the side grooves of the upper longitudinal side connecting-blocks, and their end edges fitting in the grooves of the upper end connecting-blocks, the inner edges of said flat blocks being out of contact with each other, coupling-

blocks provided with grooves in opposite sides in which grooves the inner edges of the flat blocks fit, said coupling-blocks provided upon their upper sides with longitudinal grooves, upright blocks fitting in the upper grooves of these coupling-blocks, and a roof having the ridge block or piece thereof provided upon its under side with a longitudinal groove which receives the upper edges of the upright blocks.

10. The combination with a structure having upright blocks extending upwardly from opposite ends thereof, a longitudinal ridge-block provided upon its under side with a longitudinal groove which receives the upper edges of the upright blocks, and said ridge-block provided upon opposite sides with downwardly-facing grooves, and roof-blocks having their inner edges fitting in the channel grooves of the ridge-block.

11. The combination of lower longitudinal side connecting-blocks having grooves upon their upper sides, lower end connecting-blocks having grooves upon their upper sides, a bottom piece connected to the lower side and end connecting-blocks, upright corner-blocks each having grooves in its two inner faces, upper longitudinal side connecting-blocks having grooves upon their under sides, upper end connecting-blocks having grooves upon their under sides, side blocks forming side pieces and having their lower ends fitting in the upper grooves of the longitudinal lower side connecting-blocks, and their upper ends fitting in the under grooves of the upper longitudinal side connecting-blocks, and their end edges fitting in one of the grooves of the upright corner-blocks, and two end blocks for forming each end of the structure, the lower ends of said end blocks fitting in the upper grooves of the lower end connecting-blocks, and the upper ends thereof fitting in the under grooves of the upper end connecting-blocks, and the outer side edges of said end blocks being out of contact with each other, the longitudinal projecting edge of each between said end-ways portion fitting in one of the grooves of the upright corner-blocks.

12. The combination of lower longitudinal connecting side blocks having grooves upon their upper sides, lower end connecting-blocks having grooves upon their upper sides, a bottom piece connected to the lower side and end connecting-blocks, upper longitudinal side connecting-blocks having grooves upon their under sides, upper end connecting-blocks having grooves upon their under sides, side blocks forming side pieces and having their lower ends fitting in the upper grooves of the lower side connecting-blocks, and their upper ends fitting in the under grooves of the upper side connecting-blocks, and two end blocks forming the end pieces at each end, the lower ends of said end blocks fitting in the upper grooves of the lower end connecting-blocks, and the upper ends thereof fitting in the under grooves of the upper end connecting-blocks, the inner edges of said end blocks or pieces, at medial points, provided with recesses which, when the end pieces are adjusted, register and form a window.

13. The combination of upper and lower side connecting-blocks and upper and lower end connecting-blocks, blocks forming side pieces and having their opposite ends connected to said upper and lower side and end connecting-blocks, a space being left between the inner edges of the innermost side blocks or pieces to form a doorway, blocks forming the side joints of the doorway, said blocks provided upon their outer sides with grooves to receive the inner edges of the side blocks or pieces.

14. The combination of upper and lower side connecting-blocks and upper and lower end connecting-blocks, blocks having their opposite ends connected to said upper and lower side and end connecting-blocks and forming side pieces, a space being left between the inner edges of the innermost side blocks or pieces to form a doorway, blocks forming the side joints of the doorway, said blocks provided upon their inner edges with grooves and upon their outer edges with grooves the latter grooves to receive the inner edges of the side blocks or pieces, and a door-block having its opposite side edges fitting in the inner grooves of the side joints.

15. The combination of longitudinal side connecting-blocks having grooves upon their upper sides, connecting and blocks having grooves upon their upper sides, side blocks forming side pieces and having their lower edges fitting in the upper grooves of the longitudinal side connecting-blocks, and end blocks forming end pieces having their lower edges fitting in the upper grooves of the end connecting-blocks.

16. The combination of longitudinal side connecting-blocks having grooves upon their upper sides, and connecting-blocks having grooves upon their upper sides, upright corner-blocks each having longitudinal grooves in two of its faces, side blocks forming side pieces, the lower edges of said side pieces fitting in the grooves in the upper sides of the side connecting-blocks, and their end edges fitting in one of the grooves of the corner-block, and end blocks forming end pieces, said end blocks or pieces having their lower edges fitting in the grooves of the upper side of the end connecting-blocks, and their end edges fitting in the other side grooves of the corner-blocks.

17. The combination of side connecting-blocks having grooves in their inner sides and grooves upon their under sides, a bottom block or blocks having in or their outer edges fitting in the inner grooves of the side connecting-blocks, bearing-blocks fitted in the grooves on the under sides of the side connecting-blocks, an axle-block having its ends mounted

In openings in the bearing-blocks, wheel-blocks mounted on the axle-block, log-blocks at the rear and on the outer side of the side connecting-blocks, mid log-blocks having longitudinal grooves upon opposite sides, and brace-blocks each having one edge fitting in one of the side grooves of the log-block, and another edge fitting in the under groove of the side connecting-block.

18. The combination of side connecting-blocks having grooves in their inner sides, a bottom block or blocks having its or their outer edges fitting in the inner grooves of the side connecting-blocks, handle-bar blocks fitting in the inner grooves of the side connecting-blocks, and a handle-block connecting the ends of the handle-bar blocks.

19. The combination of side connecting-blocks having grooves in their inner sides, a rear end block having a groove upon its inner side, and provided at opposite ends with grooves, a bottom block or blocks having its or their outer side edges fitting in the inner grooves of the side connecting-blocks and the rear edge fitting in the inner groove of the rear end block, handle-bar blocks fitting in the inner grooves of the side connecting-blocks and the ends of the handle-bar blocks, and a handle-block connected to the ends of the handle-bar blocks.

20. The combination of side connecting-blocks having grooves in their inner sides and also upon their upper sides, a bottom block or blocks having its or their outer edges fitting in the inner grooves of the side connecting-blocks, blocks projecting upwardly from the upper sides of the forward ends of the side connecting-blocks and at a forward incline, said inclined blocks provided upon their inner sides with grooves and upon their forward sides with grooves, side-blocks connecting the inner grooves of the inclined blocks, and brace-blocks fitted to the forward grooves of the inclined blocks and to the upper grooves of the side connecting-blocks.

21. The combination of a base-block provided with an opening therein, a spindle or axle block having its lower end revolvably fitting in said opening, longitudinal side connecting-blocks, a bottom block or blocks connected to the side connecting-blocks, and said bottom block or blocks being revolvably mounted on the upper end of the spindle-block.

22. The combination of a base-block provided with an opening therein, a spindle or axle block having its lower end revolvably fitting in said opening, longitudinal side connecting-blocks having grooves on their inner sides, a bottom block or blocks having its or their outer edges fitting in the inner grooves of the side connecting-blocks, and said bottom block or blocks being revolvably mounted on the upper end of the spindle-block.

23. The combination of a base-block provided with an opening therein, blocks provided upon their inner sides with grooves which the side edges of the base-block fit, a spindle or axle block having its lower end revolvably fitting in the opening of the base-block, longitudinal side connecting-blocks, a bottom block or blocks connected to the side connecting-blocks, and said bottom block or blocks being revolvably mounted upon the upper end of the spindle-block.

24. The combination of a base-block provided with an opening therein, side bordering-blocks provided upon their inner sides with grooves which the side edges of the base-block fit, and upon their upper sides with grooves, side-blocks fitting in the upper grooves of the border-blocks, a wheel-block seated on the base-block between the side-blocks, the opening of said wheel-block registering with the opening of the base-block, a spindle or axle block having its lower end reduced, said reduced end revolvably engaging the registering openings of the wheel-block and the base-block, longitudinal side connecting-blocks, and a bottom block or blocks connected to the side connecting-blocks, and said bottom block or blocks being revolvably mounted on the upper end of the spindle-block.

25. The combination of a base-block provided with an opening therein, side bordering-blocks provided upon their inner sides with grooves which the side edges of the base-block engage, and border-blocks provided upon their inner sides with grooves which the end edges of the base-block engage, a spindle or axle block having its lower end revolvably fitting in the opening of the base-block, longitudinal side connecting-blocks, and a bottom block or blocks connected to the side connecting-blocks, and said bottom block or blocks being revolvably mounted upon the upper end of the spindle-block.

26. The combination of a base-block provided with an opening therein, a spindle or axle block having its lower end revolvably mounted in the opening of the base-block, the upper end of said spindle-block being reduced, a wheel-block mounted on said reduced end, longitudinal side connecting-blocks, and a bottom block or blocks connected to the longitudinal side connecting-blocks and resting upon the wheel-block, the said bottom block or blocks being revolvably mounted upon the upper end of the spindle-block.

27. The combination of longitudinal side connecting-blocks having grooves upon their upper sides, a bottom block or blocks connected to the side connecting-blocks, the blocks fitted in the upper grooves of the side connecting-blocks at the ends thereof, blocks (see 79) having grooves upon their outer sides which the side-blocks engage, and also provided with grooves upon their inner sides and upon their upper sides, side-blocks

having their opposite ends engaging said inner grooves and forming the bottom of a seat, upright blocks extending upwardly from the ends of the blocks 79, said upright blocks having grooves upon two of their faces, side-blocks connecting the opposite grooves on the inner faces of said upright blocks, and forming the back of the seat, and brace-blocks engaging the other grooves of the upright blocks and also engaging the grooves in the upper sides of the blocks 79 and brace-blocks forming the side arms of the seat.

28. The combination of a base-block, a spindle revolvably mounted in said base-block, longitudinal side connecting-blocks, bottom blocks connected to the longitudinal side connecting-blocks, the inner edges of said bottom blocks being cut off and thereby forming a space in the bottom, in which space the spindle extends, blocks seated upon the bottom blocks and between the inner sides of the longitudinal side connecting-blocks, said blocks provided upon their inner faces with longitudinal grooves, and cross-blocks having their opposite ends extending into said grooves, the space between the cross-blocks receiving the upper extremity of the spindle-block revolvably therein.

699,885. INDOTRAP. BRASS CURTAINS, Manchester, England. Filed Mar. 18, 1901. Serial No. 61,898. (No model.)

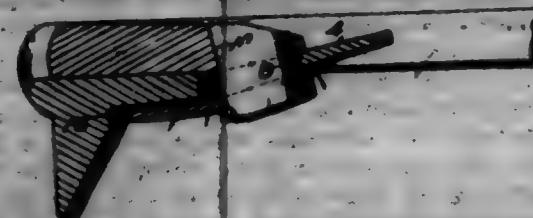


Claim.—1. In an iron bedstead, the combination with the independent side and end members, of corner-brackets for securing said members together, said corner-brackets having sockets, and vertical rods supported by said brackets, substantially as described.

2. In an iron bedstead, the combination with the independent side and end members, of corner-brackets for securing said members together, said corner-brackets having sockets, vertical rods supported in said sockets, horizontal rods at the top of the inclined rods forming a rectangular frame, inclined rods from corners of the frame to lower ends of the vertical rods, detachable connections between some of the adjoining ends of the vertical and horizontal and inclined rods, and hinge connections between the remaining of the adjoining ends of said rods, substantially as described.

3. In an iron bedstead, the combination with the side and end members, of sockets at the corners thereof, vertical rods supported by said sockets, horizontal side and end rods having a sliding connection with the upper ends of two of said vertical rods and a detachable connection with the other two, and inclined rods having sliding connections to the upper ends of said other two rods, substantially as described.

699,886. HORNHOLE-GALE. JOHN E. CROSBYMAN, St. Albans, Vt. Filed Feb. 21, 1902. Serial No. 55,126. (No model.)



Claim.—1. A shoe-calk provided with lugs for engaging the outer wall of the toe portion of the shoe, and with a rearward-extending plate having an orifice therein, a bolt having a groove to engage the rear wall of the orifice and provided with a shoulder to engage the inner wall of the toe portion of the shoe, and a locking-key engaging the bolt and the bolt, substantially as described.

2. A shoe-calk provided with curved lugs for engaging the outer wall of the toe portion of the shoe and with a rearward upward extending plate having an orifice therein, a bolt having a groove to engage the rear wall of the orifice and provided with a shoulder to engage the inner wall of the toe portion of the shoe, and a transversely-disposed, wedge-shaped locking-key adapted to engage with the bolt and the bolt and to have one end downturned to lock it against accidental operation, substantially as described.

3. A shoe-calk provided with a pair of curved lugs to engage with the toe portion of the shoe and with a rearward upward extending plate having an orifice therein, the rear wall of which is disposed in alignment with the outer side of the shoe, a bolt having a groove to engage the

and rear wall, and an angular shoulder to engage with the shoe, and a transversely-disposed locking-rod adapted to engage with the bolt and the bolt, respectively in the bolt and in the shoe, substantially as described.

699,887. DOOR-CALIBRATOR. GEORGE W. BROWNE, Chicago, Ill. Filed Dec. 30, 1901. Serial No. 57,851. (No model.)



Claim.—1. In a door-calibrator, the combination of the frame, the removable sign-plate, the dial-rod attached below said plate and projecting forward of the plate thereof, the apertured plate covering said dial and the edges of said case, the hand covering said plate to said case, the pointer, the pointer-hub in range of the aperture in said plate, the zero or neutral mark fixed perpendicularly above said hub, the sign-plate projecting from the frame below and beyond said dial, the shaft-stands mounted in said case, the spring-stop attached to the lower side of one of said stands, the cylinder-shaft in said stands, the cylinder-heads secured to said shaft, the number plate having the numbers therein and secured to the outer side of one of said heads in contact with said stop, the card-holders attached to said heads, the cards in said holders, and the data secured to said frame and extending from the rear under side of said sign-plate, substantially as shown and described.

2. In a door-calibrator, the combination of the frame, the pair of removable sign-plates extending across the upper end of said frame, the dial-rod projecting from said frame immediately below said plates, the zero-mark fixed below the center of the lower end of said plates, the pointer, the apertured glass plate, the retaining-band, the sign-plate attached to said frame adjacent to said dial-rod, the glass plate at the front of said sign-plate, the counterbalance at the end of said sign-plate, the cylinder-shaft mounted in said sign-plate, the spring-stop secured to the lower side of one of said stands, the shaft mounted in said stands with the upper end thereof adjacent to said counterbalance, the cylinder-heads secured to said shaft, one of which is adjacent to said stop, the number plate having the numbers therein attached to the outer side of said head but described and in contact with said stop, the card-holders extending from one of said heads to the other one and secured therein, each of said holders being formed of strips having their edges turned over toward each other, the cards in said holders, and the data extending from the rear under side of said sign-plate downwardly and protected thereby from the rain, substantially as shown.

699,888. SAND-BLASTING APPARATUS. MYRON E. SWAN, New York, N.Y. Filed Dec. 6, 1900. Serial No. 730,008. (No model.)

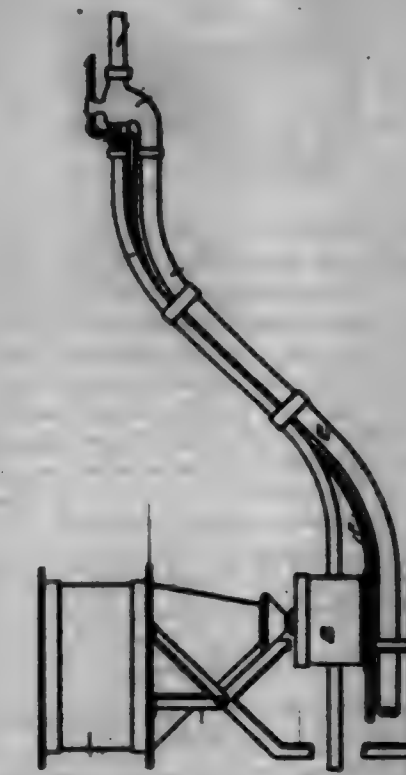
Claim.—1. In a sand-blast apparatus a nozzle-body, consisting of an air-chamber, an inner nozzle, and a detachable outer nozzle, the adjacent surfaces of said air-chamber and said inner nozzle forming an annular opening when said outer nozzle is detached, and the adjacent surfaces of said inner and outer nozzle forming an annular opening when said outer nozzle is attached.

2. The combination in a sand-blast apparatus of a reservoir, a mixing device, means for delivering sand from the said reservoir to the said mixing device, a nozzle-body consisting of an inner nozzle and an air-chamber and having an annular opening formed by the adjacent surfaces of the said inner nozzle and the said air-chamber, means for conveying sand from the said mixing device to the said inner nozzle, an air-driving apparatus, means for connecting the said air-driving apparatus and the said air-chamber.

3. In a sand-blast apparatus a nozzle-body consisting of an air-chamber and an inner nozzle, the adjacent surfaces of the said inner nozzle and the said air-chamber forming an adjustable annular opening.

4. In a sand-blast apparatus a nozzle-body consisting of an air-chamber, an inner nozzle, and a detachable outer nozzle, the adjacent surfaces of said air-chamber and said inner nozzle forming an adjustable annular opening when said outer nozzle is detached, and the adjacent surfaces of said inner and outer nozzle forming an adjustable annular opening when said outer nozzle is attached.

5. In a sand-blast apparatus a nozzle-body, consisting of an air-chamber, an inner nozzle, and a detachable discharging-nozzle, the adjacent surfaces of the said inner nozzle and the said discharging-nozzle forming an annular opening.



6. The combination in a sand-blast apparatus of a discharging-nozzle, an air-driving apparatus, means for connecting the said air-driving apparatus and the said discharging-nozzle, an inner nozzle projecting into the said discharging-nozzle, a mixing device, and an adjustable reducer situated between the said inner nozzle and the said discharging-nozzle.

7. The combination in a sand-blast apparatus of a mixing device, a nozzle, means for connecting the said mixing device and the said nozzle, means for conveying a blast of air past the end of said nozzle and inducing a current of air through the said nozzle and the said mixing device.

8. In a sand-blast apparatus a nozzle-body consisting of an air-chamber and an inner nozzle, the adjacent surfaces of the said inner nozzle and the said air-chamber forming an annular opening, and means for regulating the area of said annular opening.

9. In a sand-blast apparatus a nozzle-body consisting of an air-chamber and an inner nozzle adapted to be moved backward and forward and held in various positions, the outer surface of said nozzle-body being conical-shaped, and forming with the adjacent inner surface of said air-chamber an annular opening whose area varies according to the relative position in which said inner nozzle is held.

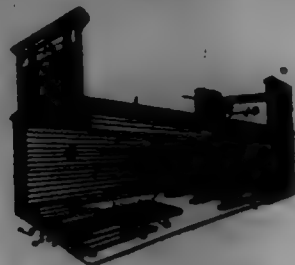
10. The combination in a sand-blast apparatus of a mixing-box having pipes entering said box at opposite sides, but in substantially the same vertical and horizontal planes, but leaving a space between the interior adjacent extremities of said pipes; a nozzle; means for connecting said nozzle to one of said pipes; and means for discharging a blast of air past the end of said nozzle and inducing a current of air through the said nozzle and the said pipes.

11. The combination in a sand-blast apparatus of a nozzle-body, consisting of a nozzle and an air-chamber, and having an annular opening formed by the adjacent surfaces of said nozzle and air-chamber; an air-driving apparatus; means for connecting said air-driving apparatus and said air-chamber; a mixing-box having pipes entering said box at opposite sides, but in substantially the same vertical and horizontal planes, and leaving a space between the interior adjacent extremities of said pipes; and means for connecting said nozzle to one of said pipes.

12. In a sand-blast apparatus a mixing device, consisting of a mixing-box having an opening for the admission of sand, and two conduits entering said box at opposite sides, but in substantially the same horizontal and vertical planes, and adapted to have an adjustable space between their inner adjacent extremities.

13. In a sand-blast apparatus the combination of a nozzle and mixing device, means for connecting said nozzle and said mixing device, means for conveying a blast of air past the end of said nozzle and inducing a current of air through said nozzle and said mixing device, and a reservoir adapted to supply said mixing device with sand, and also to be coupled as will without stopping the operation of the apparatus.

699,889. DRY-KILN. EDWARD GERRARD, Indianapolis, Ind., assignor to the National Dry Kiln Company, Indianapolis, Ind., a Corporation of Indiana. Filed Apr. 3, 1901. Serial No. 84,111. (No model.)

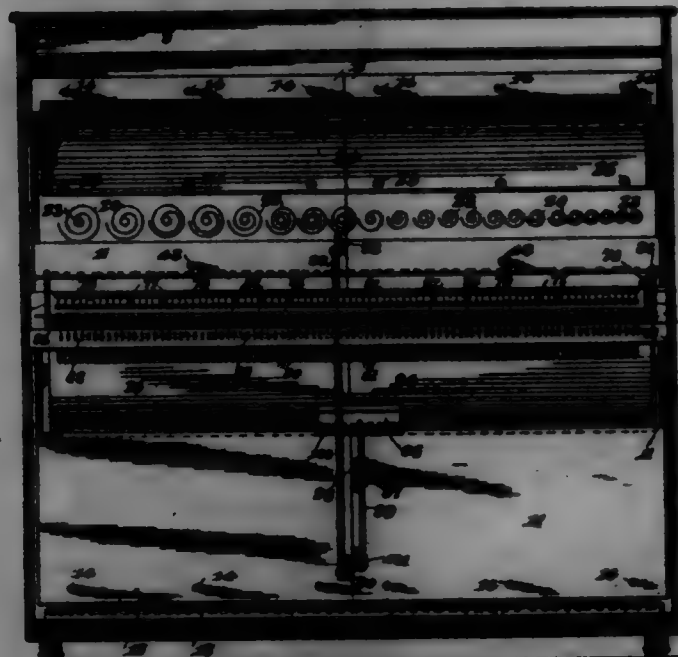


Claim.—1. A dry-kiln having a suitable floor, walls and roof, with doors at the ends said floor having suitable openings near one end for the admission of air, and escape-flues at the other end having widened lower ends, one side of said flues being inclined, and the exposed side extending at right angles therewith being provided with a series of closable ingress-openings arranged parallel to the inclined edge, substantially as set forth.

2. The combination, with a dry-kiln, of escape-flues therefor located at one end thereof, said flues having inclined rear edges and a series of adjustable closable ingress-openings near to and at equal distances from said inclined rear edges, substantially as and for the purpose set forth.

3. The combination, in a dry-kiln, of the body thereof, flues therein having widened lower ends provided with ingress-openings equidistant from the inclined side thereof, doors to said openings, and handles to said doors extending to a convenient point for the operator, substantially as shown and described.

699,840. WIRELESS PLANO. E. F. GILBERT, Birmingham, Ala. Filed June 28, 1901. Serial No. 66,968. (No model.)



Claim.—1. In a wireless piano, the combination with a casing, of a laterally-movable sound-box therein, said box having a sounding-board constituting the rear wall thereof, of reeds having their rear ends located contiguous to the sounding-board and extended beyond the front of the box, a sound-chamber movable with the box, means for operating the reeds, and means extended beyond the casing for moving the box.

2. In a musical instrument, the combination with a sound-box having a sounding-board constituting the rear wall thereof, of a series of reeds having their rear ends located contiguous to the sounding-board, a sound-chamber partially inclosing the reeds and having an open side located within the sound-box, and reed-operating mechanism disposed to engage the front ends of the reeds.

3. In a wireless piano, the combination with a casing and a vertically-disposed and tiltable-mounted sound-box therein having a sounding-board constituting the rear wall of the box, of a series of reeds within the box and extended beyond the front wall thereof, reed-operating mechanism located in advance of the reeds, and means extended beyond the casing for tilting the sound-box to effect the endwise adjustment of the reeds.

4. In a musical instrument, the combination with a sound-box having a sounding-board constituting its rear wall, of a semicylindrical sound-chamber extended from the front wall of the sound-box and having an open side disposed adjacent to the sounding-board, a series of reeds partially inclosed by the sound-chamber, reed-operating mechanism disposed to engage the front ends of the reeds, and means for moving the sound-

box for the purpose of moving the reeds toward or from their operating mechanism.

5. In a musical instrument, the combination with a vertically-disposed sound-box having a sounding-board constituting its rear wall, of a horizontally-disposed sounding-board located within the sound-box, reeds mounted on the horizontal sounding-board and extended through and beyond the front side of the box, a sound-chamber partially inclosing the reeds and means for operating the reeds.

6. In a musical instrument, the combination with a sound-box having a sounding-board constituting the rear wall thereof, of a horizontal sounding-board located within the box, reeds mounted on the horizontal sounding-board and extended beyond the front side of the sound-box, a rearwardly-opening sound-chamber partially inclosing the reeds and opening into the sound-box, and reed-operating mechanism.

7. In a musical instrument, the combination with a vertically-disposed sound-box, and a sounding-board constituting the rear wall thereof, of a horizontal sounding-board located within the box and disposed in close relation to the vertical sounding-board, a series of reeds carried by the horizontal sounding-board and extended beyond the front of the sound-box, a semicylindrical sound-chamber supported by the horizontal sounding-board and having its open rear side disposed adjacent to the vertical sounding-board, and reed-operating mechanism located in front of the semicylindrical sound-chamber.

8. In a wireless piano, the combination with a vertically-disposed, tiltingly-mounted sound-box provided with a sounding-board constituting the rear wall thereof, of a series of reeds supported within the sound-box and terminating at one end adjacent to the sounding-board, reed-operating mechanism disposed to engage the front ends of the reeds, and means for tilting either portion of the sound-box.

9. In a musical instrument, the combination with a sound-box and a sounding-board constituting the rear wall thereof, of a sound-conductor mounted to the sounding-board and extended through the opposite wall of the box, a sound-chamber extended through the wall of the sound-box at a point below the sound-conductor and having its rear open side disposed adjacent to the sounding-board, a series of reeds partially inclosed by the sound-chamber, and means for operating the reeds.

10. In a musical instrument, the combination with a sound-box having a sounding-board constituting one wall thereof, of reeds mounted within the box and extended through the side thereof opposite the sounding-board, sympathetic sounding devices mounted on the sounding-board and within the box, and means for operating the reeds.

11. In a musical instrument, the combination with a sound-box, and a sounding-board constituting the rear wall thereof, of a series of reeds mounted within the box and extended through the sounding-board to a point in advance of the box, a semicylindrical sound-chamber partially inclosing the reeds and having a rear open side disposed contiguous to the sounding-board, and sympathetic sounding devices carried by the sounding-board within the box.

12. In a musical instrument, the combination with a sound-box, and a sounding-board constituting the rear wall thereof, of reeds extended laterally from the sounding-board, a semicylindrical sound-chamber partially inclosing the reeds and having an open side located adjacent to the sounding-board, a sound-conductor extending laterally from the sound-box at a point above the sound-chamber, and a series of sympathetic sounding devices mounted on the sounding-board within the box.

13. In a musical instrument, the combination with the reed-operating mechanism, of two separate series of reeds, and means for moving the series of reeds independently toward or from the reed-operating mechanism.

14. In a musical instrument, the combination with reed-operating mechanism, of reeds movable endwise toward or from the reed-operating mechanism, said reeds being divided into independently-movable series, and means for moving each series of reeds independently of the other series.

15. In a musical instrument, the combination with a sound-box composed of independently-movable sections, of reed-operating mechanism in spaced relation to the box, and a series of reeds mounted upon and movable with each section of the sound-box.

16. In a musical instrument, the combination with a sound-box composed of a pair of vertically-disposed independently-movable sections, the rear wall of each section being formed by a sounding-board, a series of horizontal reeds extended from within each of the sound-box sections, reed-operating mechanism disposed to engage the ends of the reeds, and means for effecting the independent movement of the sections of the sound-box.

17. In a musical instrument, the combination with a series of keys, and a series of resonant bars suspended above the same, of pivoted hammers arranged to strike the bars and each disposed to be directly engaged by a key, a series of reeds disposed end to end with the keys, and pickers extended from the rear ends of the keys and disposed to engage the reeds.

18. In a musical instrument, the combination with a series of keys, of a sounding-board located above the same, a series of resonant bars suspended from the sounding-board, a series of pivoted hammers arranged for direct actuation by the keys, means for moving the hammers alternately into or out of operative relation with the keys, a series of reeds disposed end to end with the keys, and pickers extending from the ends of the bars to engage the reeds.

19. In a musical instrument, the combination with keys and reeds disposed end to end, of pickers extending from the rear ends of the keys and disposed to engage the reeds.

20. In a musical instrument, the combination with a key, and a reed disposed beyond the rear end thereof, of a picker slidably mounted in the key, and means for automatically moving the picker to cause it to engage the reed during one movement of the key and to clear the reed during the opposite movement thereof.

21. In a musical instrument, the combination with a key provided with a guide in its rear end, of a picker movably mounted in the guide, means arranged to shift the picker longitudinally, and a reed disposed to be engaged by the picker during one movement of the key.

22. In a musical instrument, the combination with a key, a longitudinally-movable picker mounted in the rear end thereof, a cam-plate associated with the picker and extended above and below the same, reversely-curved guides disposed above and below the key for engagement with the cam-plate to shift the picker longitudinally in opposite directions during the opposite movements of the key, and a reed disposed beyond the key for engagement with the picker.

23. In a musical instrument, the combination with a key, a picker and a reed, of a cam-plate carried by the picker, a movable support having a cam-face disposed for engagement with the cam-plate, and means for adjusting the position of the support.

24. In a musical instrument, the combination with a key provided with a picker in its rear end, and a reed arranged for engagement by the picker, of movable supports disposed above and below the key and having cam-faces, a cam-plate carried by the picker and disposed for engagement with the curved faces of the supports, and means for shifting the position of the supports.

25. In a musical instrument, the combination with a key, a picker operated thereby and a reed, of hinged supports located at opposite sides of the picker and provided with cam-faces, a cam-plate carried by the picker and having curved faces disposed for engagement with the cam-faces of the supports, means connecting the supports to insure their movement in unison, and an adjusting device connected with one of the supports to shift the position thereof.

26. In a musical instrument, the combination with the keys, pickers and reeds all disposed in substantially the same plane, of a series of metal strips laterally supported above the reeds and disposed for engagement with the free ends thereof, a series of resonant bars suspended above the keys, a series of pivoted hammers disposed below the resonant bars and having arms extended into engagement with the keys, means for moving the metal strips into and out of engagement with the reeds, and means for moving the several hammer-arms out of engagement with the keys.

27. In a musical instrument, the combination with a sound-box having a sounding-board constituting the rear wall thereof, of a sound-chamber extended through the front wall of the box, a series of reeds partially inclosed by the sound-chamber and extended into close relation to the sounding-board, muffling devices for the sounding-board and sound-chamber, respectively.

28. In a musical instrument, the combination with a sound-box having a sounding-board constituting the rear wall thereof, of a sound-chamber extended through the front wall of the box, a series of reeds partially inclosed by the sound-chamber and extended into close relation to the sounding-board, muffling devices for the sounding-board and sound-chamber, respectively, and a single pedal connected to both of said muffling devices.

29. In a musical instrument, the combination with a casing having a movable sound-opening front and reeds, of a sound-box located within the casing and having a sounding-board constituting the rear wall thereof, a curved sound-conductor extending from the sounding-board of the sound-box, through the front of the box and into close proximity to the sound-opening front, means for operating the reeds, and means for adjusting the position of the sound-opening front to increase or diminish the sound.

30. In a musical instrument, the combination with a pivoted key, of a picker projecting from the rear end thereof, and a reed covered at one end and having its free end in hinging relation with the picker.

31. In a musical instrument, a series of reeds, a series of keys each carrying a picker-arm to engage a reed, and means for adjusting the picker-arm with relation to the reed.

32. In a musical instrument, the combination with an adjustable sound-box carrying reeds, of keys disposed in front of the sound-box

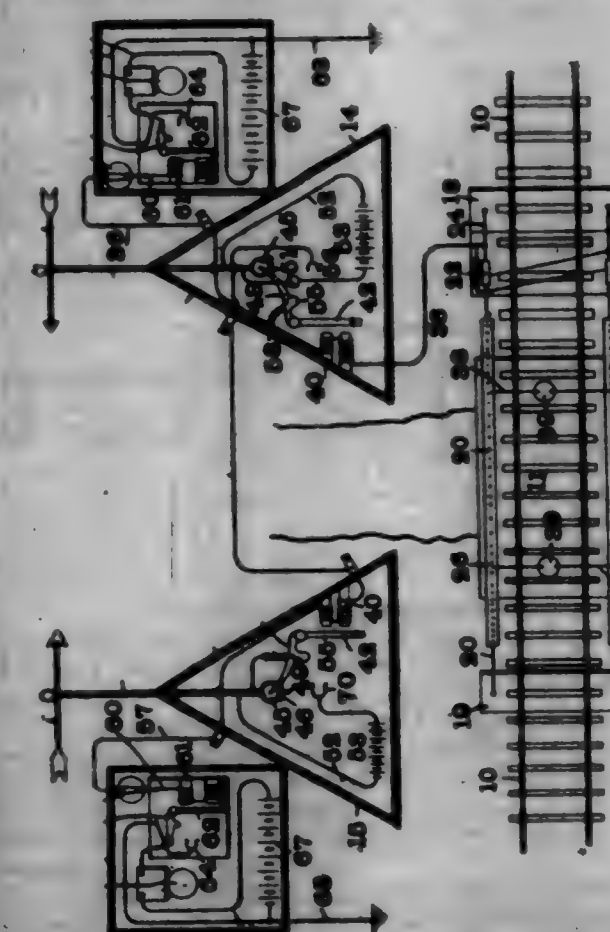
pickers adjustable on the keys and arranged to engage the reeds, means for adjusting the sound-box, and other means for adjusting the picker-arms upon the keys, whereby the engagement of the arms with the reeds may be adjusted by the movement of both the reeds and arms.

33. In a musical instrument, the combination with an adjustable sound-box carrying a series of reeds mounted therein, of a sound-conductor extending from the box, means located in the sound-box for producing sympathetic tones in consonance with those of the reeds, a semicylindrical sound-chamber partially inclosing the reeds, means for operating the reeds, and means for moving the sound-box toward and from the reed-operating means.

34. In a musical instrument, the combination with a sound-box having a sounding-board constituting the rear wall thereof, of a series of reeds having their rear ends located contiguous to the sounding-board, a sound-chamber partially inclosing the reeds, and reed-operating mechanism disposed to engage the front ends of the reeds.

35. In a musical instrument, the combination with a key, and a reed, of a picker extending from the rear end of the key for movement therewith and having limited independent movement, a cam for automatically effecting such independent movement of the picker when the key is depressed, and means for adjusting the position of the cam to regulate the extent of the engagement of the picker with the reed during the movement of the key.

699,841. ELECTRIC SIGNAL DEVICE. THOMAS J. ROOPER, Carleville, Ill. Filed Sept. 20, 1901. Serial No. 74,708. (No model.)



Claim.—1. In an electric signal device, the combination with a railway-track, of a semaphore, a signal-station, an automatic circuit-closing device in line with said semaphore and signal-station for closing the circuit through the same when said track is injured, and means for cutting said signal-station out of said circuit.

2. In an electric signal device, the combination with a railway-track, of a semaphore, an automatic circuit-closing device in line with said semaphore for closing the circuit through the same when said track is injured, a second semaphore, and automatic means carried by said first-named semaphore for closing the circuit through said second semaphore.

3. In an electric signal device, the combination with a railway-track, of a semaphore, an automatic circuit-closing device in line with said semaphore for closing the circuit through the same when said track is injured, a semaphore-arm, means for moving said arm by the closing of said circuit, an electric lamp carried by said semaphore, and means for closing the circuit through said lamp, said means being operated by the passage of the current through said semaphore.

4. In an electric signal device, the combination with a railway-track, of a signal-station, an automatic circuit-closing device in line with said signal-station for closing the circuit through the same when said track is injured, a signal in said station, a source of electrical supply, and means

for short-circuiting said source of electrical energy through said signal, said means being actuated by the passage of the current through said signal-station.

5. In an electric signal device, the combination with a railway-track, of a semaphore, an arm for said semaphore, gearing for operating said arm, a weighted lever for actuating said gearing, means for locking said gearing, a magnet for releasing said lever and an automatic circuit-closing device for closing the circuit through said magnet when the track is injured.

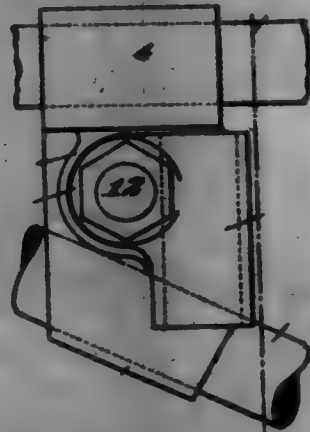
6. In an electric signal device, the combination with a railway-track, of a semaphore, an arm for said semaphore, a weighted lever for moving said arm, a magnet for releasing said lever, an automatic circuit-closing device for closing the circuit through the magnet when said track is injured, a second semaphore, an automatic means for closing the circuit through said second semaphore, said means being operated by the movement of said lever.

7. In an electric signal device, the combination with a railway-track, of a semaphore, an arm for said semaphore, a weighted lever for moving said arm, a magnet for releasing said lever, an automatic circuit-closing device for closing the circuit through said magnet when said track is injured, an electric lamp carried by said semaphore, a switch for closing the circuit through said lamp, means for closing said switch by the movement of said weighted lever, a second semaphore, and means also actuated by the movement of said lever for closing the circuit through said second semaphore.

8. In an electric signal device, the combination with a railway-track, of a signal, a circuit leading through said signal, a casing, a pair of contact-springs carried by said casing, one of said springs being connected to each side of the circuit, a member for electrically connecting said contact-springs, and means for moving said springs and member relatively when the track is injured.

9. In an electric signal device, the combination with a railway-track, of a signal, a circuit leading through said signal, a pair of casings, two contact-springs in each of said casings, one spring in each casing being connected to one side of the circuit, and the other spring to the other side of the circuit, members for electrically connecting the said pairs of springs, and means for moving said springs and member relatively when the track is injured.

699,842. REVERSIBLE GUARD-FINGER CLAMP FOR BRAKE-BEAMS. CHARLES F. HERRON, Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 13, 1902. Serial No. 94,656. (No model.)



Claim.—1. A guard-finger clamp for brake-beams formed with a plurality of sockets for the reception of the guard-finger and a cast for a member of the brake-beam, and means for clamping the guard-finger in either of said seats and coincidentally securing the device in position on a brake-beam member; substantially as described.

2. A guard-finger clamp for brake-beams consisting of jaws connected at one end, and being provided with an overhang having one free end, said overhang being designed to embrace the guard-finger; substantially as described.

3. A guard-finger clamp for brake-beams consisting of two jaws connected at one end, and a curved extension free at one end and provided with an opening in its free end for the passage of a bearing-bolt, said curved extension being designed to embrace the guard-finger; substantially as described.

4. A guard-finger clamp for brake-beams consisting of two jaws connected at one end, whereby a guard-finger may be secured in position in either of said curved extensions and the device coincidentally clamped in position on a brake-beam member; substantially as described.

5. A guard-finger clamp comprising two jaws connected at one end and having seats for embracing a brake-beam member between their

free ends, and overhanging heads extending from the edges of said jaws and provided with aligning openings in their free ends, either opening being capable of receiving a guard-finger; substantially as described.

6. A guard-finger clamp for brake-beams consisting of two jaws connected at one end and formed with seats at their opposite or free ends, overhanging heads extending from the edges of said jaws and being provided with perforated lugs at their free ends, and hollow beams formed on said jaws in alignment with the perforated lugs on said overhanging heads; substantially as described.

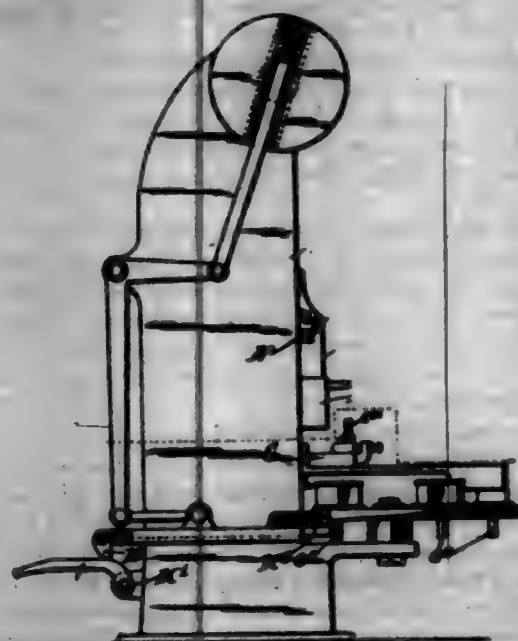
7. A guard-finger clamp having a plurality of sockets whereby said clamp may be secured in position at either end of the beam, and a reversible guard-finger clamp; substantially as described.

8. A guard-finger clamp having jaws for attachment to the beam, and a plurality of clamp bolts or pins, either of which is adapted to hold a guard pin or finger; substantially as described.

9. A guard-finger clamp consisting essentially of two members having parallel folds for separately cooperating with the guard pin or finger; substantially as described.

10. A guard-finger clamp consisting essentially of two members each of which is provided with a fold or ear, said folds or ears being in vertical alignment and designed to separately cooperate with a guard pin or finger; substantially as described.

699,843. MACHINE FOR END-MARKING SHEET-METAL BOULDS. WILLIAM J. HENRY, Chicago, Ill., assignor to one-half to WILLIAM J. HENRY, Chicago, Ill. Filed Apr. 12, 1901. Serial No. 15,707. (No model.)



Claim.—1. A machine for the purpose stated comprising a die or support, vertically-reciprocating forming-jaws, and means for moving said jaws inwardly against a body-blank while said jaws are descending, said support being mounted to move in unison with the jaws in a part of the vertical reciprocation thereof.

2. A machine for the purpose stated, comprising a die or support, vertically-reciprocating wings pivoted to swing in vertical planes, forming-jaws carried by said wings, and means for moving said jaws inwardly against a body-blank while said jaws are descending, said support being mounted to move in unison with the jaws in a part of the vertical reciprocation thereof.

3. A machine for the purpose stated, comprising a die or support, vertically-reciprocating wings pivoted to swing in vertical arcs, and forming-jaws carried by said wings and sliding horizontally therein radially toward a centrally-located body-blank.

4. A machine for the purpose stated, comprising a die or support, vertically-reciprocating wings pivoted to swing in vertical arcs, forming-jaws carried by said wings and movable horizontally therein, and springs applied to said jaws which tend to retract the jaws from their work.

5. A machine for the purpose stated, comprising a die or support, vertically-reciprocating wings pivoted to swing in vertical arcs, forming-jaws carried by said wings and movable horizontally therein, said jaws being each made of a plurality of parts having relative horizontal movements.

6. A machine for the purpose stated comprising a die or support, vertically-reciprocating forming-jaws adapted to surround said die or support, and a cam-ring through which said jaws pass in their descent, said ring being adapted to engage at its inner margin the jaws to move the jaws inwardly toward the die or support as the jaws descend.

7. A machine for the purpose stated comprising a die or support, vertically-reciprocating wings pivoted to swing in vertical arcs, forming-jaws carried by said wings, and a cam-ring through which said jaws pass in their descent, said ring being constructed to move said jaws inwardly as the wings descend.

8. A machine for the purpose stated, comprising a die or support, vertically-reciprocating forming-jaws, a cam-ring adapted to engage the jaws to move the same inwardly as the jaws descend, and springs applied to throw the jaws outwardly when disengaged from said cam-ring.

9. A machine for the purpose stated, comprising a die or support, vertically-reciprocating forming-jaws, a cam-ring adapted to engage the jaws to move the same inwardly as the jaws descend, and a cam-ring constructed to move said jaws inwardly in the descent of the head.

10. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating forming-head, jaws carried by said head, means for moving said jaws inwardly against a body-blank in the descent of the head, and a head-plate adapted to enter a depression in the end plate of the blank against the margins of which the jaws act, said head-plate being non-rotative and having a continuous margin against which the jaws act.

11. A machine for the purpose stated, comprising a die or support, radially-movable forming-jaws, and a collapsible head-plate adapted to press upon the end plate of the blank-body and against the margins of which the jaws act.

12. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating head, forming-jaws carried by said head, means for moving said jaws inwardly against a body-blank in the descent of the head, and a collapsible head-plate adapted to enter a depression in the end plate of the blank and against the margins of which the jaws act.

13. A machine for the purpose stated, comprising a die or support, radially-movable forming-jaws, and a segmental head-plate, the parts of which are hinged at their adjacent corners to a part which carries the jaws, and filling-pieces adapted to fill the space between the segments of the plate.

14. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating head, jaws carried by said head, means for moving said jaws inwardly against a body-blank in the descent of the head, and a segmental head-plate, the parts of which are hinged at their adjacent corners to the head, and against the outer margin of which, when said plate is expanded, the forming-jaws act.

15. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating head, forming-jaws carried by said head, means for moving said jaws inwardly against a body-blank in the descent of the head, a segmental head-plate, the parts of which are hinged at their adjacent corners to the head and against the outer margin of which, when the plate is expanded, the forming-jaws act, and filling-pieces projecting from the head and adapted to fill the space between the segments of the plate.

16. A machine for the purpose stated, comprising a die or support, radially-movable forming-jaws arranged alternately in two sets, the jaws of one set overlapping a part of the work effected by the jaws of the other set.

17. A machine for the purpose stated, comprising a die or support, radially-movable forming-jaws arranged alternately in two sets, the jaws of one set overlapping a part of the work effected by the jaws of the other set, and means for advancing the jaws of one set to their work and retracting the same before the jaws of the other set are advanced to their work.

18. A machine for the purpose stated, comprising a die or support, vertically and horizontally movable jaws arranged alternately in two sets, the jaws of one set overlapping a part of the work effected by the jaws of the other set, and means for moving said jaws inwardly against the work as the jaws are moved downwardly.

19. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating forming-head, forming-jaws carried thereby, said jaws being divided in two sets and the jaws of one set being arranged alternately with respect to the jaws of the other set, said jaws of one set being actuated in advance of the jaws of the other set, and means for moving said jaws inwardly against the body-blank in the descent of the head.

20. A machine for the purpose stated, comprising a die or support, a vertically-reciprocating head, forming-jaws carried by said head, said jaws being arranged in two sets and the jaws of one set being arranged alternately with respect to the jaws of the other set, one set of said jaws being actuated in advance of the other, and the working faces of the jaws of one set overlapping a part of the work effected by the jaws of the other set.

21. A machine for the purpose stated, comprising a die or support, two sets of jaws which have vertical and horizontal movement, the working faces of one set of jaws overlapping a part of the work effected by the jaws of the other set, means for advancing said jaws to their work

and means for retracting one set of jaws from the work before the jaws of the other set are advanced.

22. A machine for the purpose stated, comprising a die or support, vertically and horizontally movable forming-jaws, arranged in two sets, the jaws of one set being arranged alternately with respect to the jaws of the other set, means for moving said jaws inwardly as they descend, said means being constructed to move one set of jaws inwardly to their work and retract the same before the jaws of the other set are advanced to their work.

23. A machine for the purpose stated, comprising a die or support, radially-movable jaws arranged in two sets, the jaws of one set being arranged alternately with respect to the jaws of the other set, means for moving one set of jaws horizontally to their work and retracting the same before the jaws of the other set are advanced to their work, and means for forcing the set of jaws first actuated against the work after the second set has been retracted.

24. A machine for the purpose stated, comprising a die or support, vertically and horizontally movable jaws arranged in two sets, the jaws of one set being arranged alternately with respect to the jaws of the other set, a cam-ring into which said jaws are depressed and by which they are advanced inwardly against the work, said cam-ring being provided with two sets of cams, one set being arranged above the other, whereby the two sets of jaws are separately actuated, as said jaws are moved downwardly.

25. A machine for the purpose stated, comprising a die or support, vertically and horizontally movable jaws arranged in two sets, the jaws of one set being arranged alternately with respect to the jaws of the other set, a cam-ring into which said jaws are depressed and by which they are advanced inwardly against the work, said cam-ring being provided with two sets of cams, one set being arranged above the other, whereby the two sets of jaws are separately actuated as said jaws are moved downwardly, the jaws of one set being passed entirely below the upper set of cams, and springs applied to said last-mentioned jaws to effect a prompt retraction of said jaws after they have passed below their actuating-cams.

26. A machine for the purpose stated, comprising a die or support, vertically and horizontally movable jaws arranged in two sets, the jaws of one set being arranged alternately with respect to the jaws of the other set, a cam-ring through which said jaws are depressed and by which they are advanced inwardly against the work, said cam-ring being provided with two sets of cams, one set above the other, whereby the two sets of jaws are separately actuated as said jaws are moved downwardly, the jaws of one set being passed entirely below the upper set of cams and springs applied to said last-mentioned jaws to effect a prompt retraction of said jaws after they have passed below their actuating-cams, the working faces of the jaws of the last-mentioned set being made wider than the space between the jaws of the other set when the latter jaws are moved inwardly.

27. A machine for the purpose stated comprising a die or support, combined gripping and forming jaws, and means causing said jaws to first grip a body-blank to hold it in place and thereafter to form a seam on said body-blank.

28. A machine for the purpose stated comprising a die or support, vertically-reciprocating, combined gripping and forming jaws, and means causing the gripping-jaws in the first part of the descent thereof to grip the body-blank to hold it in place and thereafter in the further descent of the jaws to move the forming-jaws inwardly to form a seam on the body-blank.

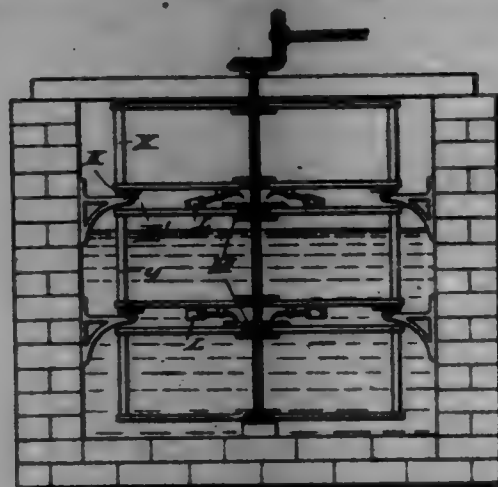
29. A machine for the purpose stated comprising a die or support, vertically-reciprocating, combined gripping and forming jaws, and means causing the gripping-jaws in the first part of the descent thereof to grip the body-blank to hold it in place and thereafter in the further descent of the jaws to move the forming-jaws inwardly to form a seam on the body-blank, said support being movable in unison with the jaws in a part of the vertical reciprocation of the latter.

30. A machine for the purpose stated comprising a die or support, vertically-reciprocating, combined gripping and forming jaws, means causing the gripping-jaws in the first part of the descent thereof to grip the body-blank to hold it in place, and thereafter in the further descent of the jaws to move the forming-jaws inwardly to form a seam on the body-blank, and a spring applied to hold each forming-jaw to retract it with respect to its associated gripping-jaw.

31. A machine for the purpose stated comprising a die or support, a plurality of vertically-reciprocating forming-jaws, adapted when depressed to surround said die or support, and means for moving said jaws inwardly against the body-blank while said jaws are descending, said jaws being each made of a plurality of parts having relative, horizontal movement radially toward the die or support.

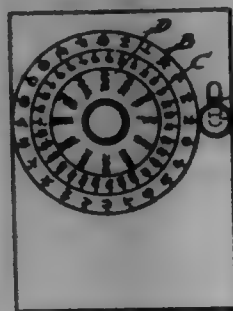
699,844. NON-REVERSIBLE WATER-WHEEL. JOHN T. MOATE, Adelaide, South Australia, Australia. Filed Dec. 12, 1901. Serial No. 68,864. (No model.)

Claim.—1. An improved non-reverting water-wheel comprising a shaft, arms radiating therefrom, vanes hinged to said arms and chains connected with the vanes for limiting the movement thereof, said vanes comprising semicylindrical strips of metal arranged parallel with spaces between them and bars carrying the said strips, substantially as described.



2. In combination in a water-wheel, a vertical shaft, a bottom section having vanes and attached rigidly to the said shaft, a section superimposed above the rigid section and having vanes and float-operated means for connecting said superimposed section with and disconnecting the same from the said shaft, substantially as described.

699,845. COMBINATION-LOCK. WILLIAM H. S. MOORE, West Chicago, Ill. Filed Jan. 22, 1901. Serial No. 45,195. (No model.)



Claim.—1. The combination with rotary tumblers and a locking-bolt, of means for disengaging the tumblers simultaneously with the retraction of the locking-bolt from its keeper, substantially as set forth.

2. In a combination-lock, the combination of rotary tumblers, actuated by rotary dial, a slide adapted to throw back the latch-bolt and simultaneously rotate the tumblers, and a pawl adapted to release both the slide and the tumblers after the tumbler-locks have been set in registry with the free end of each pawl, substantially as shown and described.

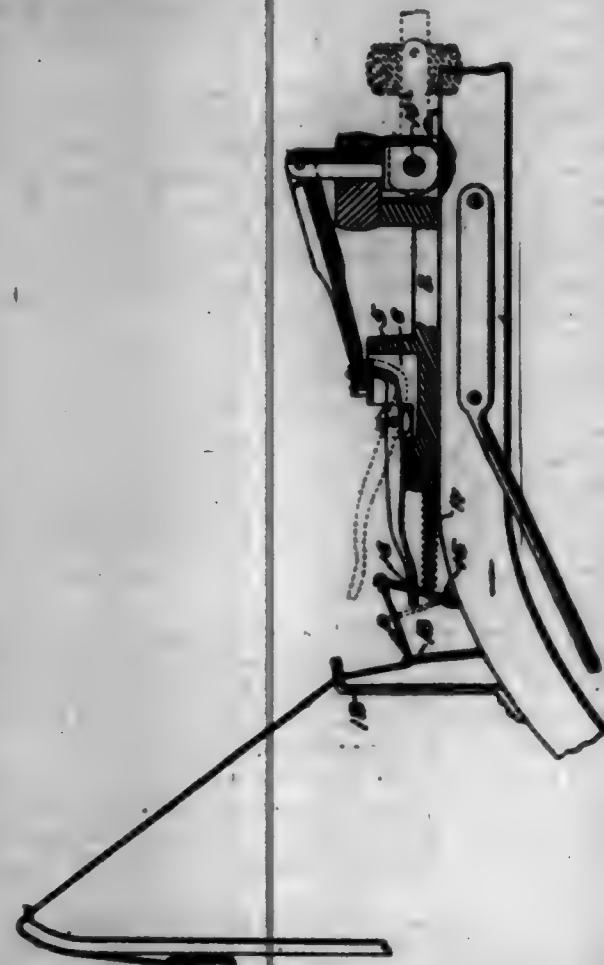
3. In a combination-lock, the combination of rotary tumblers, each provided with one or more tumbler-locks, each tumbler actuated by a rotary graduated dial, a slide carrying a pivoted pawl, a stationary cam adapted to raise each pawl through the tumbler-locks brought into registry with the free end of the pawl, a spring adapted to hold the pawl against the cam, a projection from the slide adapted to engage and throw back the latch-bolt of the lock, projections from the slide adapted to strike against projections from the rotary tumblers so as to irregularly rotate each tumbler, a latch-knob actuating the said slide, and means for changing the relation of the dial and tumblers in respect to the graduations on the dial, substantially as shown and described.

4. In a combination-lock, the combination of rotary tumblers actuated by rotary dial, means whereby the complete unlocking of the lock causes such rotation of the tumblers as to return them to a locked position, interlocking concentric sleeves connecting the rotary tumblers with the rotary dial, and a series of pin-holes in the outer flanges of the said sleeves, each pin-hole being adapted to receive a pin fixed in the under face of the dial so as to permit the graduations on the dial to be set in various relations to the notches of the rotary tumblers, substantially as shown and described.

699,846. HORSE-DETACHER. CHARLES J. MEYER, Charleston, W. Va. Filed Feb. 17, 1902. Serial No. 94,881. (No model.)

Claim.—1. In a horse-detacher, the combination of a pivotally-mounted flexible coupling-pin, a draft element held on and by said pin and adapted to slide from the pin when the latter is straightened out forwardly, means to engage the outer end of said pin when the same is turned

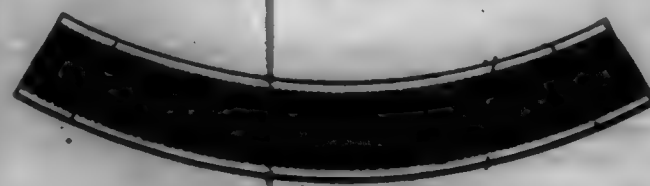
rearwardly, and means to lock and release said pin-engaging means, substantially as described.



2. In a horse-detacher, the combination of a pivotally-mounted, flexible coupling-pin, a draft element pivoted thereon and adapted to be drawn therefrom when the coupling-pin is straightened out forwardly, a hook to engage the pin, to lock the latter against pivotal movement and retain the draft element thereon, a stop, coacting with the hook to maintain the engagement of the latter with the flexible pin, and a movable keeper to engage and disengage the hook, substantially as described.

3. In a horse-detacher, the combination of a pivotally-mounted coupling-pin having an outer section flexibly connected and adapted to be disposed at an angle thereto, a draft element on said pin and adapted to be drawn therefrom when said pin is turned forwardly, the said outer section of the pin having an opening, a pivotally-mounted hook to engage said opening and lock the pin in position to retain the draft element, and a movable keeper to engage and disengage said hook, substantially as described.

699,847. COLLAR-FOUNDATION. RABBIT & FURBER, New Britain, Conn. Filed Oct. 22, 1901. Serial No. 79,999. (No model.)



Claim.—1. A reinforce for collars, coats, and the like, comprising a central field of fabric having hairs woven therewith, with a binding of leather-like material impervious to and covering the ends of the hair-like portion of said fabric.

2. A collar-foundation formed of the body part of hair cloth A bound with leather B, substantially as and for the purpose specified.

3. A collar-foundation formed of a body part of hair cloth bound at the upper and lower edges with leather and reinforced at the ends.

4. A collar-foundation formed of a body part of hair cloth and bound at the upper and lower edges with leather, the hair at the central portion of the collar being substantially perpendicular to the edges and at the ends reinforced by hair cloth for the purpose specified.

5. A reinforce for collars, coats, and the like, comprising a central field of fabric having hairs woven therewith, with a binding of a material impervious to, and covering, the ends of the hairs in said fabric.

699,848. SEALING DEVICE FOR TUBULAR WELLS. CHARLES F. FENELAN, Cincinnati, Ohio, assignor to the Procter-Greer Manufacturing Co., Cincinnati, Ohio, a Corporation of Ohio. Filed July 5, 1891. Serial No. 57,555. (No model.)



Claim.—1. In a sealing apparatus of the character indicated, the combination of an expandable seal, a rotatable compressor operative thereon, and a single tube supporting the seal and also engaging and operating the compressor said tube detachably secured to the compressor and said compressor remaining attached to the seal when the tube is removed.

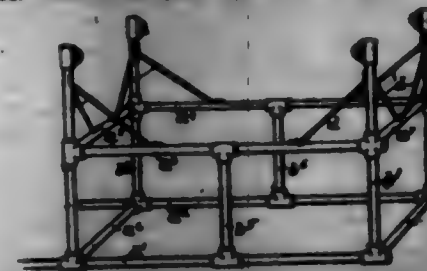
2. In a sealing apparatus of the character indicated, the combination of a single tube, an independent expandable seal, and a compressor on the seal, adapted to be directly detachably secured to, and operated by the tube, whereby the tube may be removed and the seal and compressor left in place.

3. In a sealing apparatus, the combination of a cylindrical expandable seal having a threaded central stem, and a rotating compressor operative thereon, a depending-tube adapted to be detachably and rotatively connected to said compressor, and expandable and contractible means for connecting or disconnecting the same at will.

4. In a sealing apparatus of the character indicated, the combination of the expandable seal, and its rotating compressor having an upward tubular flange; a depending-tube adapted to drop down within the flange of the compressor; radial pins attached to and extending through the depending-tube; a conical or wedge-shaped "plunger" carried within the depending-tube adapted to be dropped down between the inner ends of the radial pins and force them outward through corresponding apertures of the compressor-flange; and springs coiled upon the pins and acting normally to withdraw them inward and disengage the tube and flange when the plunger is withdrawn upward, substantially as set forth.

5. In a sealing apparatus of the character indicated, the combination of a seal having a threaded stem; a compressor on said stem; a tube; and radially-opening devices between the tube and compressor whereby the seal is detachably secured and the expander operated.

699,849. APPARATUS FOR SINKING TUBULAR WELLS. CHARLES F. FENELAN, Cincinnati, Ohio, assignor to the Procter-Greer Manufacturing Co., Cincinnati, Ohio, a Corporation of Ohio. Filed Aug. 27, 1901. Serial No. 73,645. (No model.)



Claim.—1. In a well-sinking apparatus a rectangular supporting-frame composed of an upper and lower series of horizontal tubular ribs connected by vertical tubular uprights united thereto by "pipe-fittings" and with corner-uprights extended above the uppermost horizontal ribs, in combination with the derrick consisting of two side pieces, one at each side of the frame and provided with fittings extending in the direction of the length of the said side pieces and provided with terminal studs, said forward-extended corner-uprights having sockets to receive said studs when the derrick is in its elevated position, and said fittings pivotally mounted in said forward uprights substantially as set forth.

2. In a well-sinking apparatus, a rectangular tubular supporting-frame substantially as described and including corner-uprights, in combination with a derrick composed of two side members converging upward and having fittings at their lower ends and forming longitudinal extensions of said ends one of said side pieces pivotally mounted to each of the corner-uprights of the main frame and said fittings having terminal studs to fit sockets in the upper extremities of the front uprights, when the derrick is in elevated position, a walking-beam having one end pivotally connected to the extended portions of the rear corner-uprights and extending forward between the extended portions of the front uprights substantially as set forth.

3. In a well-sinking apparatus of the character indicated, the combination with a frame composed of horizontal spaced metallic tubes and means uniting them at the ends, and tubular corner-posts, of a shaft-support consisting essentially of a triangular block on each of a pair of tubes and having a journal-bearing at the apex and perpendicular to the plane of the triangle, a groove at the base and in the plane of the triangle and one or more correspondingly-grooved tubes removably united thereto with screws or bolts to constitute a clamp connection for the shaft-support upon a tubular rib or upright of a frame, substantially as set forth.

4. The combination with a main frame having sockets at the front, of a removable "revolving-head" device embodying a frame containing the revolving head, said last-named frame fixed to bars or tubes adapted to telescope into said sockets of the main frame, a driving-shaft engaging the revolving head by bevel-gearing and clamping-caps adapted to secure the device removably upon ribs or extensions of the main supporting-frame of the well-sinking apparatus, substantially as set forth.

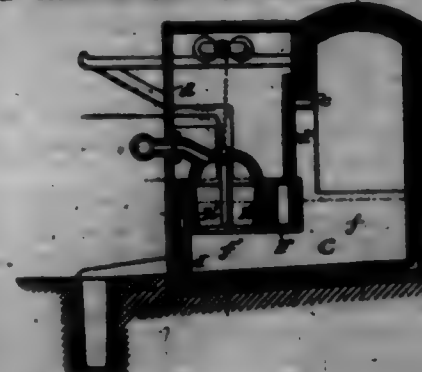
699,850. MEANS FOR ACTUATING WINDOW-BLINDS. DANIEL W. BARNES, Worcester, Mass. Filed Dec. 21, 1901. Serial No. 95,588. (No model.)



Claim.—1. In a mechanism for actuating window-blinds movably mounted on an overhead track, upon which said blind may slide or be swung outwardly and form an awning the combination of said track, blind, actuating mechanism extending to the interior of the house connected with said blind to open and close said blind and allow blind to swing outwardly without disengaging from house or blind the said actuating mechanism, and a locking device secured to the said blind for normally holding blind in vertical position when not swung outwardly, capable of disengagement from a part secured on house to allow said blind to be swung outwardly as shown and described substantially.

2. The combination with actuating mechanism having a shaft extending into the interior of the house and actuating-arm having one or more connectors and pivots thereon and adapted to connect to a blind for opening and closing said blind, of a blind having rollers adapted to turn about on an overhead track, as overhead track adapted to allow the blind to be swung outwardly to form an awning and on which it may slide to open or close the blind, and two-part locking device one part secured to the house, the other part secured to the said blind for normally holding blind in vertical position when not swung outwardly, capable of disengagement from part secured on house to allow the blind to be swung outwardly, substantially as shown and described.

699,851. APPARATUS FOR FUSED-BATH ELECTROLYTES. CHARLES W. BARNES and GEORGE P. BARNES, Philadelphia, Pa.; said Charles W. Barnes assignor to said George P. Barnes. Filed Aug. 20, 1900. Renewed Oct. 15, 1901. Serial No. 73,693. (No model.)



Claim.—1. In an apparatus for the electrolysis of fused substances, the combination of a vessel for containing fusible substances; a heating-chamber of smaller dimensions than said vessel, but of which a portion of said vessel forms the bottom, and means to said heating-chamber for reducing the contents of said vessel to fusion; a partition forming one of

the said walls of the heating-chamber which extends below the normal level of the fused contents of said vessel but does not reach to its bottom; an electrolytic chamber outside but immediately alongside of the heating-chamber separated from it only by said partial partition, there being no uncontrolled air-space between the two; and means consisting of positive and negative electrodes situated within said electrolytic chamber, and wholly exterior to the heating-chamber, for carrying on the electrolysis of the fused contents of the vessel.

2. In an apparatus for the electrolysis of fused substances, the combination of a heating-chamber in the form of a reverberatory furnace; a vessel for containing fused substances over which the products of combustion in the reverberatory furnace play, said fusion vessel extending at one side of the heating-chamber beyond its walls; a partition forming the last-mentioned side of the heating-chamber which extends below the normal level of the contents of said fusion vessel but which does not reach to its bottom; and means for conducting electrolysis of the contents of said fusion vessel situated wholly outside of said partial partition, substantially as described.

3. In an apparatus for the electrolysis of fused substances, the combination of a heating-chamber in the form of a reverberatory furnace; a vessel for containing fused substances over which the products of combustion in the reverberatory furnace play, said fusion vessel extending at one side of the heating-chamber beyond its walls; a partition forming the last-mentioned side of the heating-chamber which extends below the normal level of the contents of said fusion vessel but which does not reach to its bottom; a separate electrolytic box open at the bottom and carrying positive and negative electrodes and fitting removably into that part of the fusion vessel which is situated outside of the heating-chamber, substantially as described.

4. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; means whereby products of combustion are caused to play over the surface of all but a restricted portion of the contents of said fusion vessel; one or more vertical partitions extending below the normal level of the contents of said fusion vessel wholly insulating the said restricted portion of the contents of said fusion vessel from the products of combustion whereby free access to said restricted portion may be had; a removable electrolytic box, open at the bottom, carrying positive and negative electrodes; and means for bringing said electrolytic box into or out of contact with the contents of the fusion vessel within said restricted portion, substantially as described.

5. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel and means for heating the contents thereof; a separate electrolytic box, open at the bottom, and carrying attached to itself both positive and negative electrodes; and means for placing said electrolytic box within a portion of said fusion vessel with its bottom dipping beneath the contents thereof and removing it therefrom, substantially as described.

6. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; means for heating its contents; a separate electrolytic box open at the bottom removable therefrom carrying positive and negative electrodes and having hollow walls with means for maintaining circulation of a suitable fluid medium through said walls, substantially as described.

7. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; vertical partitions extending below the normal level of the contents of the fusion vessel and dividing it into a centrally-located heating-chamber and a series of electrolytic chambers grouped around said heating-chamber; means situated within said heating-chamber for heating the contents of the fusion vessel; and a series of electrodes situated wholly within said electrolytic chamber whereby electrolysis may be carried on therein, substantially as described.

8. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; means for heating the contents of said vessel; a preheating-chamber within the effective reach of the source of heat provided with a bottom above the normal level of the contents of the fusion vessel into which the contents of the preheating-chamber when fused will flow down; and electrodes immersed in the contents of the fusion vessel, substantially as described.

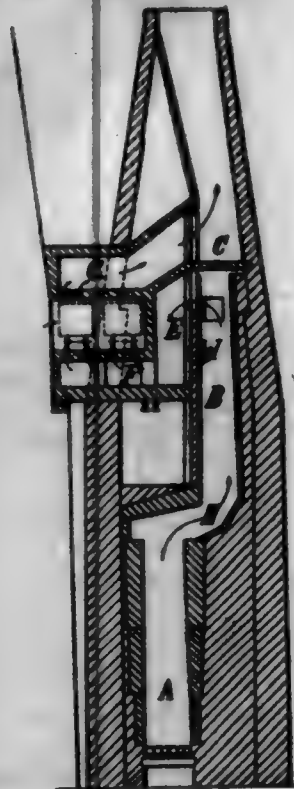
9. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; means for heating its contents; a removable open-bottomed electrolytic box carrying electrodes, fitting into the fusion vessel; and ledges on the side of the fusion vessel below the normal level of its contents upon which the electrolytic box rests and which are arranged to seal the outside of the box from the contents of the fusion vessel, substantially as described.

10. In an apparatus for the electrolysis of fused substances, the combination of the fusion vessel; means for heating its contents; an open-bottomed removable electrolytic box carrying electrodes; and blocks of fire-clay, or similar resistant material, fitted removably around the inside

of the electrolytic box and forming the lining thereof, substantially as described.

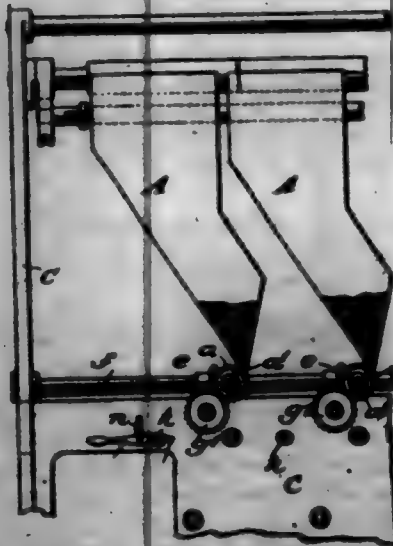
11. In an apparatus for the electrolysis of fused substances, the combination of a fusion vessel; two vertical partitions extending below the normal level of the contents of the fusion vessel, but not reaching to its bottom, forming three separate chambers above the fusion vessel, one at each end and one in the center; means situated within each of the end chambers for heating the contents of the fusion vessel; and one or more open-bottomed electrolytic boxes carrying electrodes fitted removably within the central chamber, substantially as described.

699,853. SHAFT-FURNACE FOR BURNING CEMENT. JOHANN A. F. C. SCHNEIDER, Lagerdorf, Germany. Filed July 27, 1900. Serial No. 25,081. (No model.)



Claim.—In combination in a furnace, a drying-chamber, heating and protecting chambers above and below said drying-chamber and opening thereto, a combustion-chamber, a preliminary-heating chamber into which the hot gases from the combustion-chamber pass, and a heating and protecting chamber lying back of the drying-chamber and connecting the preliminary-heating chamber with the chamber below the drying-chamber, the gases passing therethrough in a downward direction, substantially as set forth.

699,858. ANTI-OFFSET DEVICE. RALPH C. DETHMERS, South Orange, N. J., assignor to C. B. Ottrell & Sons Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 10, 1901. Serial No. 25,251. (No model.)



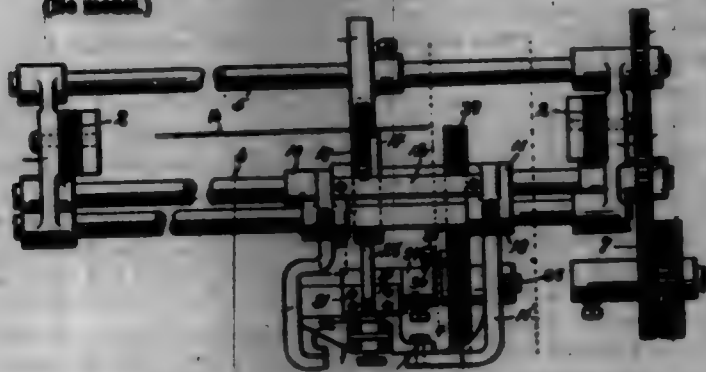
Claim.—1. The combination with a roller in contact with which a printed web passes, of a self-adjusted roller in contact with the first-mentioned roller for taking the offset therefrom, a brush and a lever by which

said brush is carried for taking it into and out of contact with said soft-surfaced roller, substantially as and for the purpose herein described.

2. The combination with a roller in contact with which a printed web passes, of a soft-surfaced roller in contact with the first-mentioned roller for taking the offset therefrom, a brush normally out of contact with said soft-surfaced roller, and means for bringing said brush from time to time in contact with said soft-surfaced roller, substantially as herein described.

3. In a folding-machine, the combination of a plurality of folding or turning devices each for folding or turning a printed web, offset-receiving rollers in contact with which severally the printed webs pass, soft-surfaced wiping-rollers one for each folding or turning device in contact with its offset-receiving roller or rollers, rock-shafts and attached cleaning-brushes one for each of said wiping-rollers, connections between said rock-shafts and means applied to one of said rock-shafts for placing the several brushes together into and out of contact with their respective wiping-rollers, substantially as herein described.

699,854. PRINTING-PRESS ATTACHMENT. EDWARD C. KIMMEL, Akron, Ohio, assignor to the Federal Appliance and Manufacturing Company, Pittsburg, Pa. Filed June 6, 1901. Serial No. 62,422 (No model.)



Claim.—1. Newspaper-casing mechanism comprising supports arranged at opposite sides of the path of a web and extending transversely thereof, and casing mechanism including cooperating devices for the opposite surfaces of the web, said cooperating devices being longitudinally adjustable on said supports, whereby the web may be operated upon at any desired point between its longitudinal edges.

2. Newspaper-casing mechanism comprising supports arranged at opposite sides of the path of the web and extending transversely thereof, and casing mechanism including cooperating rotating devices for the opposite surfaces of the web, said cooperating rotating devices being longitudinally adjustable on said supports, whereby the web may be operated upon at any desired point between its longitudinal edges.

3. Newspaper-casing mechanism comprising rotatable shafts arranged at opposite sides of the path of the web and extending transversely thereof, and casing mechanism including cooperating rotating devices at opposite sides of the web and adjustable longitudinally of the shafts and actuated thereby, whereby the web may be operated upon at any desired point between the longitudinal edges thereof.

4. The combination of a press-frame, two rotatable shafts extending transversely across the frame at opposite sides of the path of the web, a transverse support in the frame paralleling the shafts, and casing mechanism including cooperating rotating devices adjustable longitudinally of the shafts and support, the said rotating devices being mounted on and actuated by the shafts, whereby the web may be operated upon at any desired point between the longitudinal edges thereof.

5. The combination of a press-frame, two rotatable shafts extending transversely across the frame on opposite sides of the path of the web, the fixed guide extending transversely across the frame and paralleling said shafts, a frame adjustable longitudinally on said guide and on one of said shafts and adapted to be fixed to the said guide, casing mechanism consisting in part of a roll within said frame and mounted on the frame-supporting shaft and adjustable longitudinally with the frame, a second roll adjustable on the other shaft and adapted to cooperate with the first-mentioned roll, and paste-delivering mechanism carried by the said longitudinally-adjustable frame, substantially as shown and described.

6. Newspaper-casing mechanism embodying a rotating device formed with a peripheral opening, a paste-delivering device carried by the rotating device adjacent said opening, an isolating or covering device carried by the rotating device and operative through the peripheral opening thereof, and a cooperating surface at the opposite side of the path of the web for said rotating device, substantially as shown and described.

7. Newspaper-casing mechanism embodying a rotating device formed with a peripheral opening, a paste-delivering device carried by the rotating device and overhanging the peripheral opening thereof, an isolating or covering head operative through said peripheral opening and adapted

to embrace the paste-delivering device, actuating means for the head, and a cooperating surface at the opposite side of the web for said rotating device, substantially as shown and described.

8. Newspaper-casing mechanism embodying two cooperating rolls, means for driving said rolls at a peripheral speed equal to the speed of the web passing therebetween, a paste-delivering projection on the periphery of one of said rolls, a reciprocating head carried by said roll and having a top depression adapted to embrace the projection when the head is extended, and perforating-points carried by and projecting upwardly from the head, substantially as shown and described.

9. The combination of roll 14 formed with a peripheral opening, a perforating-head adapted to reciprocate through the opening, and the paste-applying block adapted to be positioned at either side of the opening, substantially as shown and described.

10. The combination of roll 14 formed with a peripheral opening and with peripheral depressions on opposite sides of the opening, and the paste-delivering block adapted to overhang the opening and projecting from a plate, said plate being adapted to be secured in either of the said roll depressions, substantially as shown and described.

11. Newspaper-casing mechanism comprising a rotating device formed with a peripheral opening, a paste-applying device adapted to be positioned at opposite sides of the opening, isolating or covering means operative through the opening, and a cooperating surface at the opposite side of the web for said rotating device.

699,855. ROTARY MEASURE. JOHN F. SCHNEIDER, Chicago, Ill. Filed May 2, 1901. Serial No. 60,230. (No model.)



Claim.—1. A measuring device comprising a frame or casing, a rotary, graduated measuring-wheel journaled in the casing and projecting therefrom for contact with the article to be measured, a dial on the casing, a pointer, concentric to said measuring-wheel, cooperating with said dial and capable of a step-by-step movement, means for locking said pointer from movement in either direction after each step of its movement and means on the measuring-wheel for first effecting the release of said locking means and thereafter moving said pointer one step.

2. A measuring device comprising a frame or casing, a rotary, graduated measuring-wheel journaled in the casing and projecting therefrom for contact with the article to be measured, a dial on the casing, a pointer, concentric to said measuring-wheel, cooperating with said dial and capable of a step-by-step movement, means for locking said pointer from movement in either direction after each step of its movement, means on the measuring-wheel for first effecting the release of said locking means and thereafter moving said pointer one step and means independent of the measuring-wheel for releasing said locking means to permit the pointer to be returned to zero.

3. A rotary measuring device comprising a frame or casing, a toothed wheel journaled therein, a dial on the casing, a pointer cooperating with the dial and rotating with said toothed wheel, a graduated measuring-wheel journaled in the casing concentrically to said toothed wheel and projecting from the casing for contact with the article to be measured, means for locking the toothed wheel from rotation and means on the measuring-wheel for first releasing the locking means and thereafter turning the toothed wheel one step, said locking means locking the toothed wheel from rotation in either direction after each step of its movement.

4. A rotary measuring device comprising a frame or casing, a toothed wheel journaled therein, a dial on the casing, a pointer cooperating with the dial and rotating with said toothed wheel, a graduated measuring-wheel journaled in the casing concentrically to said toothed wheel and projecting from the casing for contact with the article to be measured, means for locking the toothed wheel from rotation, means on the measuring-wheel for first releasing the locking means and thereafter turning the toothed wheel one step, said locking means locking the toothed wheel from rotation in either direction after each step of its movement, and means independent of the measuring-wheel for releasing said locking means and permitting the pointer to return to zero.

5. A measuring device comprising a frame or casing, a rotary, graduated measuring-wheel, journaled in said casing and projecting therefrom for contact with the article to be measured, a dial on the casing, a pointer

cooperating with said dial and capable of a step-by-step movement, means for locking said pointer from movement in either direction after each step of its movement, means on the measuring-wheel for first releasing said locking means and thereafter moving said pointer one step, said measuring-wheel being free to return to zero, and means independent of the measuring-wheel for releasing the pointer-locking means to permit said pointer to be returned to zero.

6. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the wheel and cooperating with the dial, a reciprocating plunger in the casing provided with a detent adapted to interlock with the teeth of said wheel, a rotary measuring-wheel journaled in the casing and projecting therethrough between said toothed wheel and plunger and adapted to engage said plunger to release the detent from said toothed wheel and thereafter turn said wheel.

7. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the wheel and cooperating with the dial, a reciprocating plunger in the casing provided with a detent adapted to interlock with the teeth of said wheel, a rotary measuring-wheel journaled in the casing and projecting therethrough between said toothed wheel and plunger and adapted to engage said plunger to release the detent from said toothed wheel, and thereafter turn said wheel and means for restoring the locking means after said toothed wheel has been turned one step.

8. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the wheel and cooperating with the dial, a reciprocating plunger in the casing provided with a detent adapted to interlock with the teeth of said wheel, a rotary measuring-wheel journaled in the casing and projecting therethrough between said toothed wheel and plunger, and projecting parts on said measuring-wheel adapted to engage said plunger to release the detent from said toothed wheel and thereafter turn said wheel one step, and a spring-pressed lever pivoted in the casing having an exposed finger-piece at one end and adapted to engage at its other end a projection on the plunger to release the detent thereof from the toothed wheel.

9. A rotary measuring device comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the toothed wheel and cooperating with the dial, a reciprocating plunger in said casing at one side of the toothed wheel provided at one end with a detent adapted to engage the teeth of said toothed wheel and at its lower end with a laterally-directed arm, a rotary measuring-wheel journaled in the casing and projecting therethrough between the plunger and toothed wheel, and projecting parts on said measuring-wheel adapted to engage a projecting part on the arm to release the detent thereof from the teeth of the toothed wheel and to thereafter engage one of the teeth of said toothed wheel to rotate the latter one step.

10. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the toothed wheel and cooperating with the dial, a reciprocating plunger in said casing at one side of the toothed wheel provided at one end with a detent adapted to engage the teeth of said toothed wheel, and at its other end with a laterally-directed arm, a rotary measuring-wheel journaled in the casing and projecting therethrough between the plunger and toothed wheel, and projecting parts on said measuring-wheel adapted to engage a projecting part of the arm to release the detent from the teeth of the wheel and to thereafter engage one of the teeth of said wheel to rotate the latter one step, said plunger being located in the path of the projection on the measuring-wheel to limit the reverse movement of the measuring-wheel, and a step in the casing adapted to receive the thrust of the arm of said plunger when the projection on the measuring-wheel is brought into engagement with the plunger in the reverse movement of said measuring-wheel.

11. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the toothed wheel and cooperating with the dial, a reciprocating plunger in said casing at one side of the toothed wheel provided at one end with a detent adapted to engage the teeth of said toothed wheel and at its other end with a laterally-directed arm, a rotary measuring-wheel journaled in the casing and projecting therethrough between the plunger and toothed wheel, and projecting parts on said measuring-wheel adapted to engage a projecting part of the arm to release the detent thereof from the teeth of the toothed wheel and to thereafter engage one of the teeth of said wheel to rotate the latter one step, and a spring bearing against said arm to hold the detent of the plunger normally engaged with the toothed wheel.

12. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the toothed wheel and cooperating with the dial, a reciprocating plunger in said casing at one side of the toothed wheel provided at one end with a detent adapted to engage the teeth of said toothed wheel and at its other end with a laterally-directed arm, a rotary measuring-wheel journaled in the

casing and projecting therethrough between the plunger and toothed wheel, and projecting parts on said measuring-wheel adapted to engage a projecting part of the arm to release the detent thereof from the teeth of the toothed wheel and to thereafter engage one of the teeth of said wheel to rotate the latter one step, a spring bearing against the arm to hold the detent of the plunger normally engaged with the toothed wheel, and means independent of the measuring-wheel for lifting said plunger against the action of said spring.

13. A rotary measuring device, comprising a casing, a toothed wheel journaled therein, a dial on the casing, a pointer connected with the wheel and cooperating with the dial, a reciprocating plunger in the casing provided with a detent adapted to interlock with the teeth of said toothed wheel, a rotary measuring-wheel journaled in the casing and projecting therethrough between said toothed wheel and plunger, projecting parts on said measuring-wheel adapted to engage said plunger to release the detent from the toothed wheel and thereafter rotate said toothed wheel one step, and a spring-pressed lever pivoted in the casing and having at one end a finger-piece projecting through a slot in the casing-wall and adapted to engage at its other end a projection on said plunger to release the detent from the toothed wheel, said lever being provided with flat extensions which cover the slot in the casing through which said finger-piece passes.

14. The combination with a relative toothed wheel, a spring-pressed plunger at the side thereof and parallel with the plane of the wheel, a detent on the plunger, adapted to interlock with the teeth of the wheel, an actuating-wheel having its periphery located between the toothed wheel and plunger and projecting on the actuating-wheel adapted to engage said plunger and the teeth of the toothed wheel respectively, whereby the plunger will be first raised to free the detent of the toothed wheel and said toothed wheel thereafter rotated.

15. The combination with a relative toothed wheel, a spring-pressed plunger at the side thereof and parallel with the plane of the wheel, a detent on the plunger adapted to interlock with the teeth of said wheel, an actuating-wheel having its periphery located between the toothed wheel and plunger, a laterally-directed arm on the plunger opposite the detent on said plunger and located at the margin of the tooth-wheel and projections on the actuating-wheel adapted to engage said arm to raise the plunger to release the detent from the toothed wheel, and thereafter rotate said wheel.

16. A measuring device comprising a frame or casing, a rotary graduated measuring-wheel journaled in the casing and projecting therefrom for contact with the article to be measured, a dial on the casing, a pointer cooperating with said dial and associated with mechanism having a step-by-step movement, means for locking said pointer from movement in either direction after each step of its movement and means on the measuring-wheel for first effecting the release of said locking means and thereafter positively engaging said pointer mechanism to move the pointer one step, said measuring-wheel being at other times operatively free from said pointer mechanism.

699,856. GAS FOR FURNING WATER. HERBERT SMITH, Brooklyn, N. Y. Filed Aug. 7, 1901. Serial No. 71,948. (No model.)



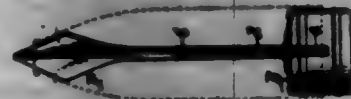
Claim.—1. In combination, with an upright can for freezing water, of a removable partition-frame composed of upright and transverse partitions, the transverse partitions being provided with apertures adjacent said upright partition, substantially as set forth.

2. A cellular partition-frame for an upright freezing-can, consisting of an upright partition centrally arranged in said can, and a plurality of transverse partitions, the transverse partitions being provided with apertures adjacent said centrally-arranged upright partition and approximately the center of the can, substantially as set forth.

3. The combination, with an upright can for freezing water, of a removable partition-frame of sheet metal, consisting of a central upright partition, a plurality of transverse partitions on each side of said upright partition, said transverse partitions having their outer ends adjacent the walls of said upright can, and apertures at their inner ends adjacent said central upright partition, substantially as set forth.

699,857. MANTLE-SUPPORT FOR GAS-BURNERS. ELMAN H. TANN, West Sussex, N. Y., assignor to the Tanno Mantle Support Company, Buffalo, N. Y., a Corporation of New York. Filed May 31, 1901. Serial No. 68,464. (No model.)

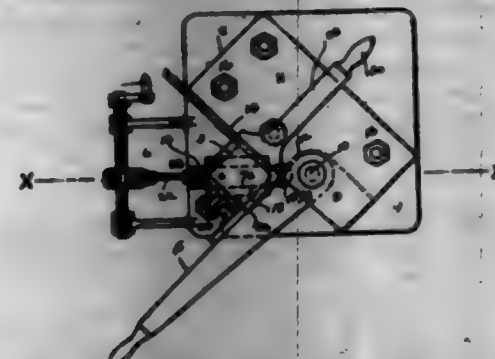
Claim.—1. A mantle-support for a gas-burner, comprising an upright rod or standard, and a head surrounding the same and composed of a plurality of independent wings extending outward from the rod, arranged lengthwise thereof and separated from each other throughout their length, thereby permitting a direct and uninterrupted ascent of the products of combustion on opposite sides of the wings, substantially as set forth.



2. A mantle-support for a gas-burner, comprising an upright rod or standard, and a head surrounding the same and composed of a plurality of independent longitudinal wings separated from each other throughout their length and having their lower portions gradually narrowed toward the lower ends of the wings, whereby the lower portions of the wings present upwardly-diverging edges which gently deflect the ascending gases laterally on opposite sides of the wings, substantially as set forth.

3. A mantle-support for a gas-burner, comprising an upright rod or standard, and a winged head tapered from its middle portion toward both ends and having its wings arranged lengthwise of the rod, substantially as set forth.

699,858. MACHINE FOR BENDING IRON—FLAT AND ANGLE. WILLIAM VOLLMER, Brooklyn, N. Y. Filed Aug. 2, 1901. Serial No. 72,794. (No model.)



Claim.—1. An improved bending-machine of the class described, comprising a bed-plate, a main operating-arm arranged to swing above the surface of the bed-plate, a former mounted upon the bed-plate, means for moving the former into and out of operative position with respect to the operating-arm, a guide between which and the former the stock is fed above the bed-plate into position for bending, and a supplemental operating-arm which is operated simultaneously with the main operating-arm to maintain the stock in proper condition during the bending operation.

2. An improved bending-machine of the class described, comprising a bed-plate, a guide mounted upon the bed-plate, a main operating-arm pivoted above the bed-plate, a former mounted upon the bed-plate, means for moving the former into and out of operative position with respect to the guide and the operating-arm, and a supplemental operating-arm pivoted to the former and arranged to be depressed upon the stock during the bending operation.

3. An improved bending-machine of the class described, comprising a bed-plate, a guide mounted thereon, an operating-arm seated in a cavity formed in the guide and pivoted above the bed-plate whereby the arm is in close engagement with the guide, a former mounted upon the bed-plate, and means for moving the former into and out of operative position with respect to the guide and arm.

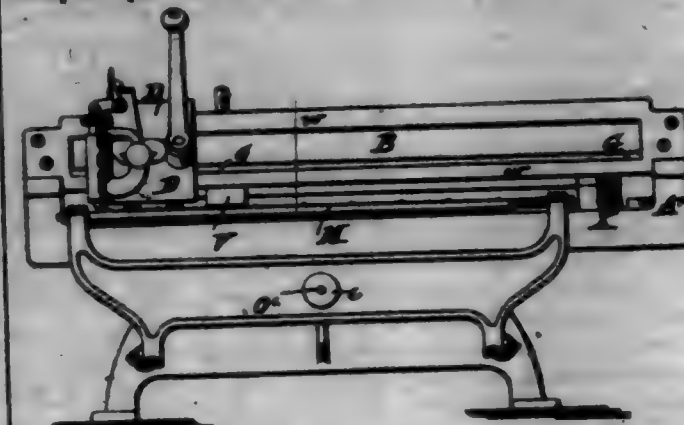
4. An improved bending-machine of the class described, comprising a bed-plate, a guide mounted thereon and provided with a recess having its wall curved, an operating-arm having a rounded end fitting in said recess and pivoted in said bed-plate, a former mounted on said bed-plate, and means for moving said former into and out of operative position with respect to the guide and arm.

5. An improved bending-machine of the class described, comprising a bed-plate, a guide mounted thereon and provided with a recess having a curved wall, a cap-plate secured to said guide and extending over said recess, an operating-arm having a rounded end fitting in said recess and pivoted in said bed-plate and said cap-plate, a former movably mounted on said bed-plate, and means for moving said former into and out of operative position with respect to the guide and arm.

699,859. ENGRAVER'S RULING-MACHINE. FREDERICK WILSON, Brooklyn, N. Y. Filed July 27, 1901. Serial No. 69,989. (No model.)

Claim.—1. In an engraver's ruling-machine, the combination of a table, a longitudinal bar of U-shaped cross-section supported thereon and having the open face thereof to the front, parallel guideways provided at

the front edge of the top and bottom flanges of said bar, a longitudinal nut provided on the inner surface of the lower part of said bar, a tool-head adapted to reciprocate on said guideways, a shaft mounted in said tool-head, a pinion secured to the inner end thereof adapted to mesh with said nut, a crank for operating the same, a tool-socket vertically arranged on said tool-head, means for inwardly or outwardly adjusting said socket relatively to said tool-head, and a downwardly spring-actuated tool-spindle provided in said socket, substantially as set forth.



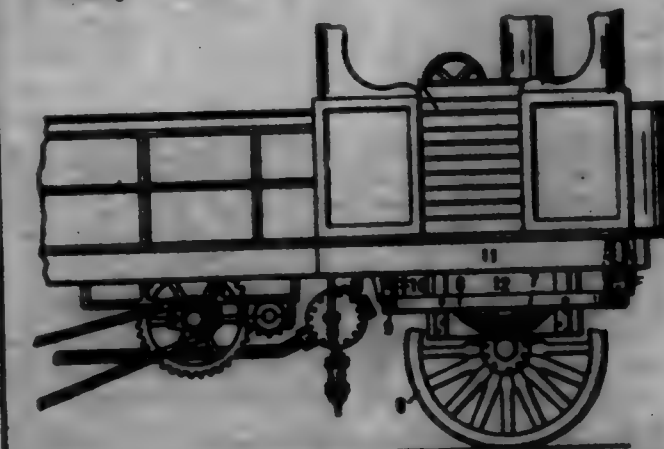
2. In an engraver's ruling-machine, the combination of a tool-head guided on suitable ways, means for reciprocating the same, a vertically-disposed tool-socket arranged on said tool-head, a tool-spindle provided therein, a spring provided in said socket for actuating said spindle, an elbow-lever pivoted to said tool-head and connected with the upper end of said spindle, a screw-out arranged in the upper end of said spindle adapted to adjust said spindle in vertical direction, and means for adjusting said socket inwardly or outwardly relatively to said tool-head, substantially as set forth.

3. In an engraver's ruling-machine, the combination, with a table having a side gage, of a tool-head, means for guiding and means for operating the same, a cutting-tool adjustably secured to said tool-head, a bar at one end pivotedly mounted on the table, and having a recessed opposite end, a suitable piece supported at the opposite end of the table and adapted to abutably support the recessed end of said bar, and a clamping means adapted to slide on said bar, substantially as set forth.

4. In an engraver's ruling-machine, the combination, with a table having a side gage, of a tool-head, means for guiding and means for reciprocating the same, an adjustable cutting-tool secured to said tool-head, an adjustable clamping means secured to said table, and on inwardly and outwardly adjustable and spring-actuated edge gage secured to said table, substantially as set forth.

5. In an engraver's ruling-machine, the combination, with a table having a side gage, of a tool-head, means for guiding and means for reciprocating the same, a cutting-tool secured to said tool-head, a clamping means secured to said table, a downwardly spring-actuated edge gage, movable supports on the frame of said table for pivotedly securing said edge gage, and means for reciprocating said supports, substantially as set forth.

699,860. STRAIN-WAGON TRUCK. PAUL H. WHITE, Indianapolis, Ind., assignor to White Steam Wagon Company, Indianapolis, Ind., a Corporation of Indiana. Filed Nov. 27, 1901. Serial No. 68,821. (No model.)



Claim.—1. A truck for wagons, consisting of a single axle, and an open frame carried by said axle above the same, the said open frame being adapted for attachment to the main frame of a wagon so as to receive a projected portion thereof.

2. A truck for wagons, consisting of a single axle, a pair of springs carried by said axle, one near each end, and an open frame mounted upon said springs above the axle, the said frame being adapted to be attached

to the main frame of a wagon and to receive a projected portion of the said main frame.

3. The combination with a wagon-frame, of a boiler-furnace carried by the wagon-frame and projected below the same, an open frame surrounding the projecting portion of the furnace, wheel-supports carried by opposite sides of the open frame, and connections between the open frame and wagon-frame.

4. The combination with a wagon-frame, of a boiler-furnace carried by the frame and projected below the same, an open frame surrounding the projecting portion of the furnace, an axle extending transversely beneath the open frame, spring connections between the open frame and axle, and connections between the open frame and wagon-frame.

5. The combination with a wagon-frame, of a boiler-furnace carried by the wagon-frame and projected below the same, an open frame surrounding the projected portion of the furnace, a pivotal connection on a longitudinal axis between the wagon-frame and open frame, and wheel-supports carried by the open frame.

6. The combination with a wagon-frame, of a boiler-furnace carried by the wagon-frame and projected below the same, an open frame surrounding the projected portion of the furnace, a pivotal connection on a longitudinal axis between the wagon-frame and open frame, an axle below the open frame, and spring connections between the axle and open frame.

7. The combination with a wagon-frame, of a boiler-furnace carried by the wagon-frame and projected below the same, a truck mounted below the projected portion of the furnace, and a longitudinal pivotal connection between the truck and the wagon-frame in line with the projected portion of the furnace.

699,861. RAIL. ALAN WINDHAMMER, Chicago, Ill., assignor to American Key Can Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 21, 1901. Serial No. 88,166. (No model.)



Claim.—The combination with a rail, of a bell embracing a central curved portion so shaped as to bear throughout its length against the outer surface of the rail when the bell is in a downwardly-inclined position, and provided with approximately straight parallel end portions having hooks for engagement with sockets in the bell-cars on said rail, said parallel end portions being arranged at a distance apart approximately equal to the external diameter of the upper part of the rail, and oblique portions joining the ends of the curved central portion of the bell with the straight end portions thereof.

699,862. FINGER-GUARD FOR BRAKE-BEAMS. CHARLES E. WILLIAMS, Jr., Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 12, 1901. Serial No. 88,794. (No model.)



Claim.—1. The combination with a brake-beam, of a guard-finger passing through an opening in the flange of the beam; and means for securing the inner end of the guard-finger to the web of the beam; substantially as described.

2. The combination with a brake-beam, of a guard-finger connected thereto at two points, said guard-finger between said points being formed with a hook portion for the attachment of a safety-chain; substantially as described.

3. The combination with a brake-beam, and a guard-finger whose inner end is formed as a hook for the attachment of a safety-chain; substantially as described.

4. The combination with a brake-beam, of a guard-finger having a reduced inner end, said guard-finger having a shouldered engagement with the flange of the beam, and the said reduced portion being provided with a shoulder 8, and means for securing the guard-finger in position by clamping the web of the beam against said shoulder 8; substantially as described.

5. The combination with a brake-beam, of a guard-finger having a bent inner end forming a hook for the attachment of a safety-chain and a shouldered engagement with the brake-beam at a point beyond said bent portion; substantially as described.

6. The combination with a brake-beam having an elongated opening, of a guard-finger rotatably mounted in the flange of the beam and capable of rotation whereby one end thereof will pass through said elongated opening, and means for securing said guard-finger in its final position; substantially as described.

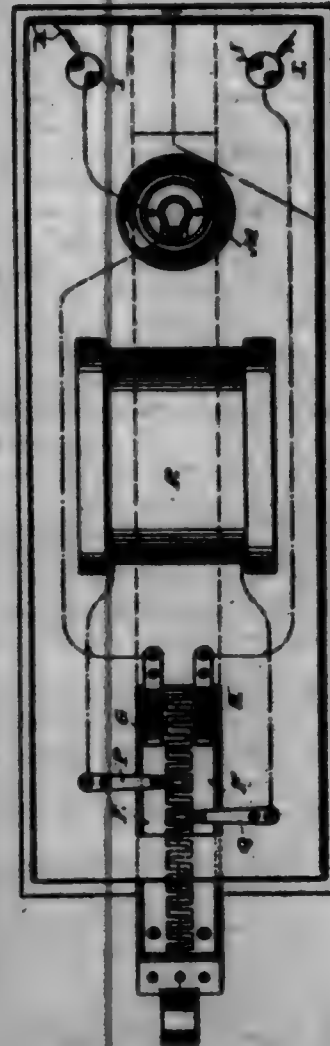
7. The combination with a brake-beam having an opening in its flange, of a guard-finger rotatably mounted therein, the inner end of said guard-finger being bent, said bent end being received in an opening in the web of the beam upon the rotation of said guard-finger, and means for securing said bent end in said opening; substantially as described.

8. The herein-described guard-finger whose inner end is reduced in diameter and bent to form a hook for the attachment of a safety-chain; substantially as described.

9. The herein-described guard-finger whose inner end is reduced in diameter, tapered and bent to form a hook; substantially as described.

10. The herein-described guard-finger whose inner end is reduced in diameter, tapered and bent to form a hook, the extreme end of said hook portion being shouldered and provided with attaching means; substantially as described.

699,863. DEMAGNETIZER. GUYAV BENTON, Milwaukee, Wis. Filed Mar. 21, 1901. Serial No. 88,692. (No model.)



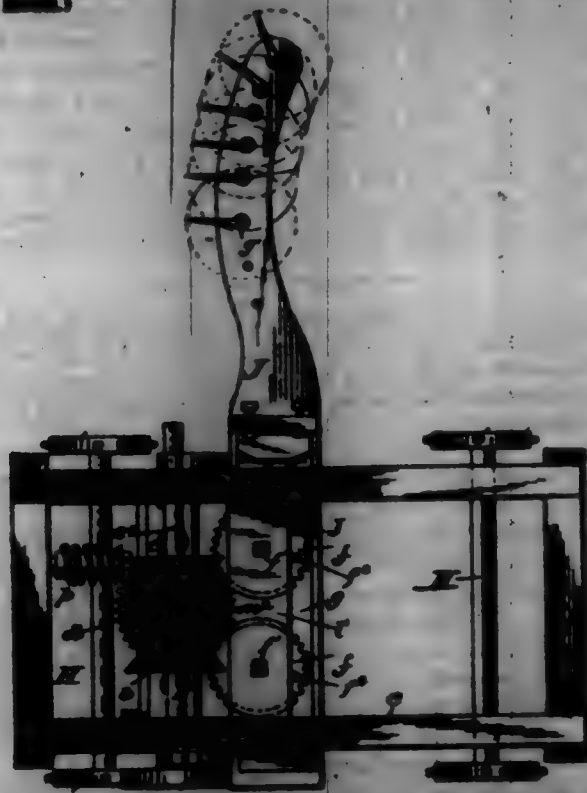
Claim.—1. A demagnetizer comprising a hollow-core electromagnet, a pair of conductor-combs mounted on a slide to have the teeth of one in intervals between the teeth of the other, circuit-terminal brushes in contact with continuous free portions of the combs, and other brushes arranged in electric connection with said magnet to have contact with the comb-teeth.

2. A demagnetizer comprising a hollow-core electromagnet, a pair

of conductor-combs mounted on a slide to have the teeth of one in intervals between the teeth of the other, circuit-terminal brushes in contact with continuous face portions of the combs, resistance in circuit with said brushes, and other brushes arranged in electrical connection with said magnet to have contact with the comb-teeth.

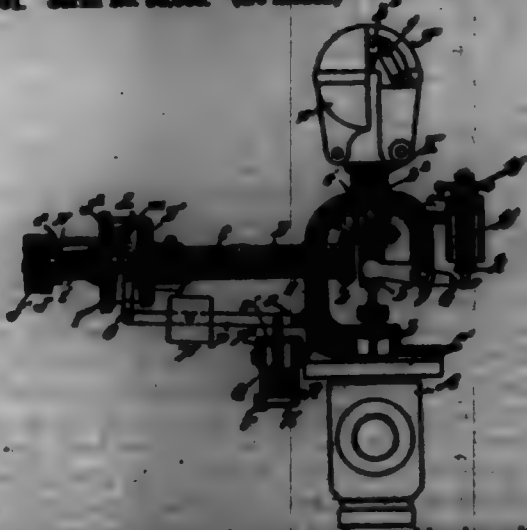
3. A demagnetizer comprising an insulating-base, an insulating-slide on the base, a pair of conductor-combs mounted on the slide to have the teeth of one in the intervals between teeth of the other, an insulating-block flat on said base and provided with a guide-groove for the slide, a hollow-core electromagnet and binding-posts on the blocks, brushes in circuit with the binding-posts and arranged on said block to extend through a slot in same against continuous face portions of the combs, and other brushes arranged on the adjacent block in electric connection with said magnet to extend through the block-slot and contact with the comb-teeth.

699,864. COAL-MINING MACHINE. JOHN DUNSON and WILLIAM E. LAWREN, Myrtle, Tenn. Filed Nov. 12, 1900. Serial No. 30,317. (No model.)



Claim.—In a coal-mining machine, the combination with the frame having a rotating shaft with slide-movable, beveled gear-wheels arranged at suitable distances apart thereon, girths arranged one above the other, a slotted slide mounted on the upper girth, a vertical worm-shaft having its upper end journaled in the upper girth and passing through the slot of the slide, a bevel-gear on said upper end of the worm-shaft, a cog gear-wheel on the lower end thereof meshing with crank-wheel journaled on a cross-bar of the frame, a cutter-bar drive-shaft, a cutter-bar with teeth mounted on the crank-pins of the said crank-wheel, whereby a longitudinal and vertical movement is imparted to said cutter-bar, substantially as specified.

699,865. GOVERNOR. EUGENE COMANOR, Erie, Pa. Filed Apr. 20, 1901. Serial No. 62,000. (No model.)



Claim.—1. In a governor for pumps, the combination with a centrifugal element; a driving means for actuating said element; mechanism

arranged to operate upon said centrifugal element and means actuated by the pumped fluid for operating said mechanism to vary its force independently of the speed of the driving means.

2. In a governor for pumps, the combination of a centrifugal element; a centrifugal element arranged to act in opposition to said centrifugal element; mechanism for varying the strength of said centrifugal element independently of any variation of strength in the centrifugal element and means actuated by the pumped fluid for operating said mechanism.

3. In a governor for pumps, the combination of a centrifugal element; mechanism for automatically varying the speed of the centrifugal element and means actuated by the pumped fluid for operating said mechanism.

4. In a governor, the combination of a centrifugal element; a centrifugal element arranged to act in opposition to said centrifugal element; means acting independently of said centrifugal element for automatically varying the strength of said centrifugal element and mechanism for actuating said means.

5. In a governor for pumps, the combination of a centrifugal element; a centrifugal element arranged to act in opposition to said centrifugal element; means acting independently of said centrifugal element for automatically varying the speed of said centrifugal element and mechanism for actuating said means.

6. In a governor for pumps, the combination of a centrifugal element; a centrifugal element acting in opposition to said centrifugal element; means acting independently of the centrifugal element for automatically varying the speed of the centrifugal element and mechanism actuated by the pumped fluid for operating said means.

7. In a pump-governor, the combination of a centrifugal element; a speed-changing device for said centrifugal element; a pressure device arranged to be actuated by the pumped fluid; a counter-pressure device operating upon said pressure device with a varying pressure; and a connection between said pressure device and the speed-changing device.

8. In a governor for pumps, the combination with the centrifugal element; a speed-changing device for driving said element; a pressure device arranged to be actuated by the pressure of pumped fluid; and a connection between said pressure device and speed-changing device.

9. In a governor for pumps, the combination of a centrifugal element; a speed-changing device; a pressure device arranged to be operated by the pumped fluid; a spring arranged against said pressure device; and a connection between said pressure device and the speed-changing device.

10. In a governor for pumps, the combination of a centrifugal element; a speed-changing device; a pressure device arranged to be operated by the pumped fluid; a spring arranged against said pressure device; means for varying the tension of the spring; and a connection between said pressure device and the speed-changing device.

11. In a governor for pumps, the combination of a centrifugal element; a speed-changing device arranged in the driving mechanism of said element; a pressure device arranged to be actuated by the pressure of pumped fluid; a counter-pressure device arranged against said pressure device; means for varying the force of said counter-pressure; and a connection between said pressure device and speed-changing device.

12. In a governor for pumps, the combination of a centrifugal element; a disk for driving said centrifugal element; an opposing disk connected with the driving element of the governor; a friction-roller between said disks; means for varying the relative position of said roller on said disks for varying the speed; a pressure device arranged to be actuated by the pumped fluid; and a connection between said pressure device and said friction-roller whereby said roller is actuated relatively to the axes of said disks by said pressure device.

13. In a governor for pumps, the combination of the centrifugal element; the friction-disk, D', for driving said element; the driving-disk, J'; the friction between said disks; the rolls, m m, and shaft H; a bearing for said rolls carried by said friction; means for shifting said roller in said friction; and means for holding said roller in engagement with said disk.

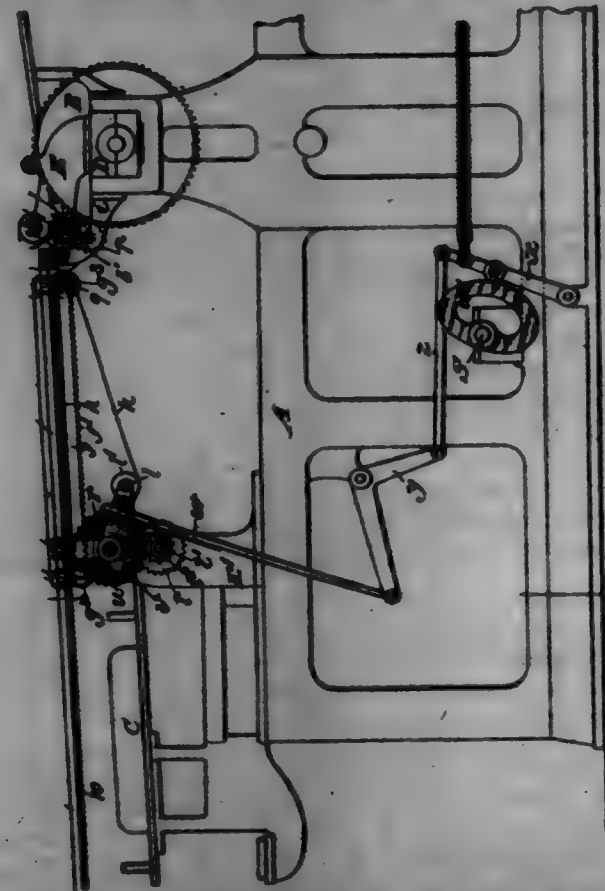
14. In a governor for pumps, the combination of the centrifugal element; the friction-disk, D', for driving said element; the driving-disk, J'; the friction between said disks; the rolls, m m; the shaft, H; a bearing for said rolls carried by said friction; means for shifting said bearing in said friction; means for holding said rollers in engagement with said disks; a pressure device arranged to be operated by the pumped fluid of a pump controlled by said governor; and a connection between said pressure device and the bearing carrying said rolls, whereby said rolls are shifted by a movement of the pressure device.

15. In a governor, the combination of the disk, J'; the casing, I; the disk, D'; the rolls, m m; the sleeve, L; the shaft, H connecting the rolls journaled in the sleeve; the transmission, K; means for carrying pressure on the transmission to hold the rolls in contact with the disk; and means for

adjusting the position of the sleeve, I, in the transmission for varying the relative speed of the disk.

16. In a governor, the combination of the centrifugal element; the centrifugal element arranged to oppose said centrifugal element; the disk, D', for driving the centrifugal element; the casing, I, arranged in the disk, D'; the flange, T, secured to the casing, I; the bearing, J, on said flange, T; the shaft, J', arranged in said bearing; the pulley, J'', fixed on said shaft; the disk, J''', fixed on said shaft, mid disk, J'' and D', having the bevel described the rollers, m, n; the shaft, M, connecting said rollers; the sleeve, L, on which said shaft is journaled; the tension, K; a spring for exerting pressure on said tension to hold the roller in contact with said disk; the pressure-cylinder, R', having a connection, r; the piston, R, in said cylinder; the cap, r', on said cylinder; the spring, Q, tensioned against the piston and said cap; the stem, P', extending from said piston; the lever, P, secured to said stem; the weight, P'', on said lever; and the yoke, O, connecting said lever with the sleeve, L.

699,866. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. CHARLES F. OUTRELL, Westbury, N. Y., assignor to G. R. Ottrell & Son Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 21, 1901. Serial No. 22,694. (No model.)



Claim.—1. In a printing-machine, the combination with an impression-cylinder and a delivery-table, of a carriage between said cylinder and table, an endless carrier in said carriage, delivery-pulleys between said cylinder and carriage, means for giving said carriage a to-and-fro movement between said cylinder and table, and means for giving said carrier two forward movements within said carriage, one while the latter is stationary at the end of its movement toward the cylinder and the other while it is moving backward toward the cylinder, substantially as herein described.

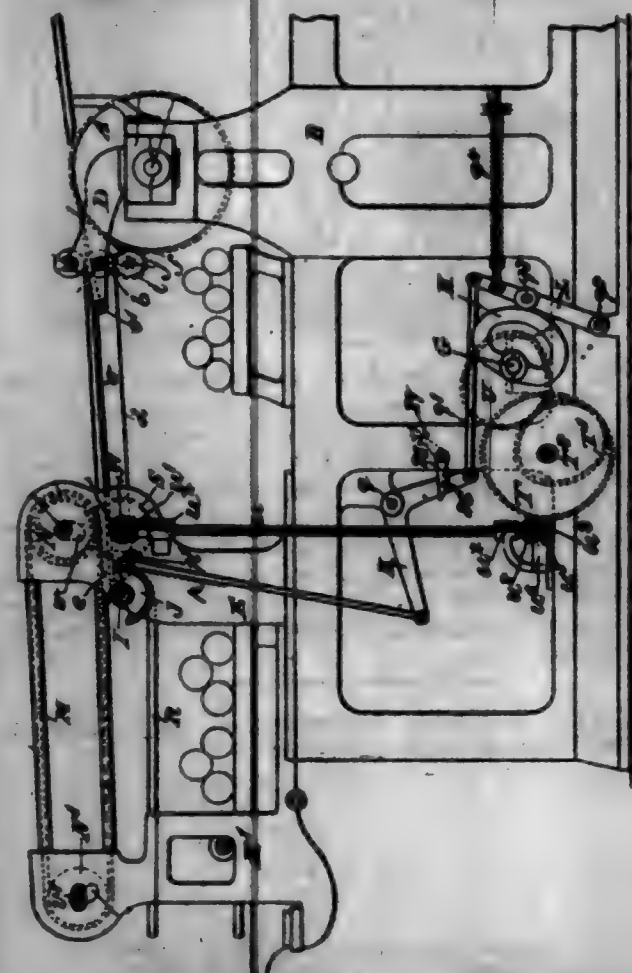
2. In a printing-machine, the combination with an impression-cylinder and a delivery-table, of a carriage between said cylinder and table, delivery-pulleys between said cylinder and carriage, an endless carrier in said carriage, means for giving said carriage both a forward movement toward said table while said carrier remains in fixed position within it, and a return movement, and means for giving said carrier two forward movements within said carriage, one while the latter is stationary at the end of said return movement and the other during said return movement, substantially as herein described.

3. The combination with the impression-cylinder and a delivery-table arranged in front thereof in a printing-machine, of a carriage and stationary guides therefor and means for giving the said carriage a to-and-fro movement between said cylinder and table, a carrier comprising endless tapes and carrying shafts and pulleys therefor in said carriage, driving-wheels and means for transmitting constant rotary motion thereto from the cylinder, and wheels on one of said shafts for transmitting motion to said carrier from the said driving-wheels for the purpose of conveying printed sheets into said carriage, substantially as herein described.

4. In a printing-machine, the combination with the impression-cylinder and delivery-pulleys in front thereof, of a delivery-table arranged in front of said delivery-pulleys, a carriage and stationary guides therefor and means for giving said carriage a forward movement from said delivery-pulleys toward the table and a return movement and for holding it stationary between said movements, a carrier comprising endless tapes and carrying shafts and pulleys therefor in said carriage, means for giving said carrier a forward movement in the carriage while the latter is so held stationary, a stationary toothed rack and a pinion on and having a ratchet-and-pawl engagement with one of said shafts and gearing with said rack for giving said carrier a movement toward the table for discharging the sheets from the carriage during said return movement, substantially as herein described.

5. The combination with the impression-cylinder and a delivery-table arranged in front thereof in a printing-machine, of a carriage and stationary guides therefor and means for giving the said carriage a to-and-fro movement between said cylinder and table, a carrier comprising endless tapes and carrying shafts and pulleys therefor in said carriage, driving-wheels and means for transmitting constant rotary motion thereto from the cylinder, wheels on one of said shafts for transmitting motion to said carrier from the said driving-wheels for the purpose of conveying printed sheets into said carriage while it is stationary at the end of its movement toward the cylinder, a stationary toothed rack, and a pinion on and having a ratchet-and-pawl engagement with the other of said shafts and gearing with said rack for the purpose of giving said carrier a movement toward the table for discharging sheets from the carriage while the latter returns toward the cylinder, substantially as herein described.

699,867. SHEET-DELIVERY MECHANISM FOR PRINTING-MACHINES. CHARLES F. OUTRELL, Westbury, N. Y., assignor to G. R. Ottrell & Son Company, New York, N. Y., and Westbury, Conn., a Corporation of New Jersey. Filed Nov. 27, 1901. Serial No. 22,571. (No model.)



Claim.—1. In a printing-machine, the combination of a rotary impression-cylinder, a fly delivery-frame and mechanism for operating the same, a chain delivery-carrier consisting of chains and attached grippers, tapes common to said fly-frame and to said carrier for receiving the printed sheets from said cylinder and presenting them either to said fly-frame or said carrier and means for covering the said mechanism with the fly-frame in an inoperative position between the tapes and below the operative portions thereof, substantially as and for the purpose herein described.

2. In a printing-machine, the combination of a rotary impression-cylinder, a fly delivery-frame and a rack-shaft for said frame, a chain delivery-carrier consisting of chains and attached grippers, tapes common to said fly-frame and to said carrier for receiving sheets from the cylinder

and presenting them either to said fly-frame or to said carrier, a toothed sector on said rack-shaft, a rack-bar engaging with said sector, a rotary cam and operating mechanism between said cam and said rack-bar, and a detent applied to said mechanism for holding it out of operative relation to said cam with the fly-frame stationary below the operative portions of the tapes, substantially as herein described.

699,868. MEANS FOR CARRYING BOTTLES. HARTWILL M. A. HANSEN, Milwaukee, Wis. Filed Feb. 10, 1902. Serial No. 22,628. (No model.)



Claim.—1. In means for carrying bottles, the combination of a sterilizing-tank, a track leading therefrom, a device for supporting the opposite end of the track, said supporting device being located convenient to the point where the bottles are labeled or tin-filled, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the sections are together, and means for stopping the forward motion of the table at the end of its travel in one direction on the track, whereby the table-sections, after they have traveled to the limit of their extent in one direction, form a continuous table.

2. In means for carrying bottles, the combination of a sterilizing-tank, a track leading therefrom at a downward incline for a desired distance, a device for supporting the opposite end of the track, said supporting device being located convenient to the point where the bottles are labeled or tin-filled, the portion of the track supported by said supporting device being on a horizontal or substantially horizontal plane, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, said platforms adapted to fit end to end when the sections are together, and means for stopping the forward travel of the table at the completion of its travel in one direction on the track, whereby the table-sections, after they have traveled the limit of their travel in one direction, form a continuous table.

3. In means for carrying bottles, the combination of a sectional track, a frame for supporting the terminal track-section and located convenient to the point where the bottles are labeled or tin-filled, a sterilizing-tank to which the initial track-section is connected, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the table-sections are together, and means for stopping the travel of the forward table-section at the end of the terminal track-section, whereby the several table-sections, after they have traveled the limit of their travel in one direction, form a continuous table.

4. In means for carrying bottles, the combination of a sectional track, a frame for supporting the terminal track-section and located convenient to the point where the bottles are labeled or tin-filled, a sterilizing-tank to which the initial track-section is connected, a supporting means carried at the ends of the rails of one track-section and adapted to removably support the adjacent ends of the rails of the other track-section, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the table-sections are together, and means for stopping the forward table-section at the end of the terminal track-section, whereby the several table-sections, after they have traveled the limit of their travel in one direction, form a continuous table.

5. In means for carrying bottles, the combination of a sectional track, a frame for supporting the terminal track-section and located convenient to the point where the bottles are labeled or tin-filled, a sterilizing-tank to which the initial track-section is connected, a U-shaped cocket connected to the ends of the rails of one track-section and adapted to receive and removably support the adjacent ends of the rails of the other track-section, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the table-sections are together, and means for stopping the travel of the forward table-section at the end of the terminal track-section, whereby the several table-sections, after they have completed their travel in one direction, form a continuous table.

6. In means for carrying bottles, the combination of a sectional track, a frame for supporting the terminal track-section and located convenient to the point where the bottles are labeled or tin-filled, a sterilizing-tank, means for adjustably connecting the initial track-section to said sterilizing-

tank, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the table-sections are together, and means for stopping the travel of the forward table-section at the end of the terminal track-section, whereby the several table-sections, after they have completed their travel in one direction, form a continuous table.

7. In means for carrying bottles, the combination of a sectional track, the rails of the initial track-section having a plurality of notches on their under edges, a frame for supporting the rails of the terminal track-section, and located convenient to the point where the bottles are labeled or tin-filled, a sterilizing-tank, the upper edge of one of the sides thereof adapted to be engaged by any of the corresponding notches of the rails of the initial track-section, a bottle-carrying table consisting of a series of separate sections having horizontal platforms and supporting-wheels adapted to run on the track, the horizontal platforms adapted to fit end to end when the table-sections are together, and means for stopping the travel of the forward table-section at the end of the terminal rail-section, whereby the several table-sections, after they have completed their travel in one direction, form a continuous table.

699,869. SHOE-LACING. HATTIS W. REILLY, New York, N. Y. Filed July 27, 1901. Serial No. 22,595. (No model.)

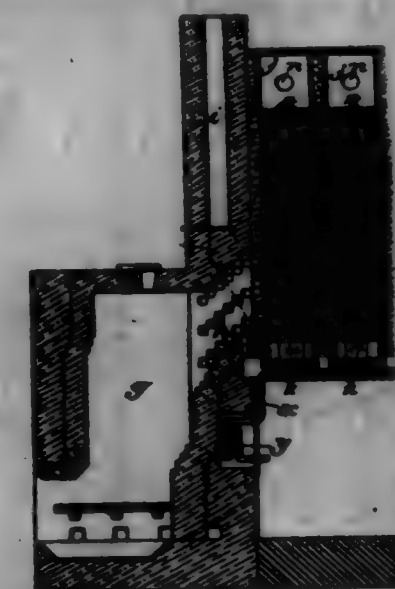


Claim.—1. A shoe-lacing separated throughout a portion of its length into a plurality of longitudinal parts or sections, substantially as set forth.

2. A shoe-lacing comprising a central non-separable body portion included between portions separated into a plurality of longitudinal sections or parts, substantially as set forth.

3. A shoe-lacing comprising a central non-separable body portion, portions on the opposite sides of the non-separable body portion separated into a plurality of longitudinal parts or sections and tips for pulling the several sections or parts, substantially as set forth.

699,870. GAS-RETORT. CHARLES W. REILLY, New York, N. Y. Original application filed May 15, 1901, Serial No. 22,528. Divided and this application filed Aug. 21, 1901. Serial No. 22,751. (No model.)



Claim.—1. The combination with an upright gas-retort having upwardly-directed channels in its inner face and an external furnace for heating said retort, of means for introducing steam or air directly into the lower part of said retort without its entering the furnace, substantially as and for the purpose herein described.

2. The combination with an upright gas-retort having upwardly-directed channels in its interior, of a retort-bottom in which is a chamber for air or steam, means for supplying air or steam to said chamber, and a valve for opening communication between said chamber and the interior of the retort, substantially as and for the purpose herein described.

3. The combination with an upright gas-retort having upwardly-directed channels in its interior, of a retort-bottom in which is a chamber for air or steam, means for supplying air or steam to said chamber, a grate supported on and some distance above said bottom for the support of the charge in the retort, and a valve for opening communication between said chamber and the space within the retort below said grate all substantially as herein described.

for shifting the gear-wheel to throw its clutch-pins into connection with said complementary clutch-pins; a cam having neutral and active portions for actuating said lever; and means for operating said cam.

33. The combination, with a driving-shaft, of a friction-clip having a hub splined to said driving-shaft; a quill loosely mounted on the driving-shaft; a driven shaft connected with the quill; a second friction-clip loose upon the quill; a gear fixed to said friction-clip; a grooved sleeve splined to the quill; keys carried by the sleeve; expansion-rings locked to the sleeve by said keys; pivoted levers for expanding said expansion-rings; a shifter-sleeve; wedge-blocks secured to said shifter-sleeve and traveling in grooves of the sleeve splined to the quill; an angle-lever; a slide having a cam for actuating said angle-lever; a gear mounted upon the hub of the friction-clip splined to the driving-shaft; clutch-pins carried by said gear; clutch-pins upon the friction-clip; an angle-lever for reciprocating said gear along the hub; a cam carried by the slide for actuating said angle-lever; means for actuating the slide; and means for connecting the gear on the hub of the friction-clip splined to the driving-shaft with the gear of the friction-clip loose upon the quill.

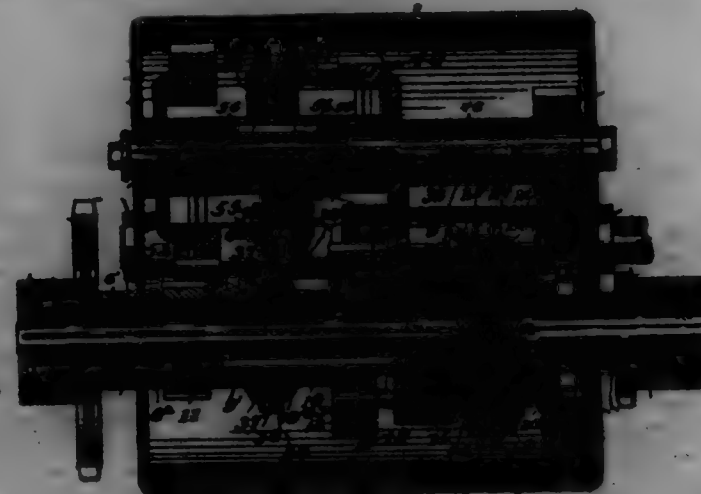
34. The combination, with a driving-shaft, of a quill splined on said shaft; a driven shaft controlled by the quill; a clutch member carried by the driving-shaft; means for connecting said clutch member to the quill; and means for reversing the motion of the quill, said means including a shiftable element adapted to be engaged with said clutch member.

35. The combination, with a shaft, of a device connected to rotate with said shaft; a clutch part carried by said device; a shiftable element loosely mounted with relation to said device, and having a groove to receive said clutch part; a complementary clutch part carried by said shiftable element; a moved shaft; and means for connecting said device with said moved shaft.

36. In mechanism of the class described, the combination, with a driving-shaft, of a clutch member connected to said driving-shaft; a quill loosely mounted on the driving-shaft; a driven shaft actuated by the quill; means for locking said clutch member to the quill; reversing mechanism, including a second clutch member; and means for locking said second clutch member to the quill.

37. The combination, with a shaft, of means for driving said shaft in one direction; a clutch device carried by a member of said means; a shiftable element having a groove to receive the clutch device; a clutch device carried by said shiftable element; and shaft-reversing mechanism connected with said shiftable member.

699,878. SPEED-CONTROLLING AND REVERSING MECHANISM. MOSES C. JOHNSON, Hartford, Conn. Filed Jan. 13, 1908. Serial No. 88,181. (No model.)



Claim.—1. The combination, with a shaft, of a quill loose on the shaft; means for rotating the quill; a clutch element splined upon and connected to the quill; gearing carried by said clutch element; a complementary clutch element; a carrier for said complementary clutch element, said carrier being rigid with the shaft; a gear on the shaft adjacent to said carrier; means for actuating the complementary clutch element in lock with said clutch element splined upon the quill to the carrier, and means for connecting the gearing of the clutch element splined upon the quill with the gear upon the shaft.

2. The combination, with a shaft, of a quill loose on said shaft; means for rotating said quill; a clutch element splined upon and connected to the quill; a carrier rigid with the shaft; a complementary clutch element mounted on the carrier; means for actuating said complementary clutch element; and shaft-reversing mechanism controlled by the quill.

3. The combination, with a shaft, of a quill loosely mounted on said shaft; a device secured to said quill; a gear carried by said device; a carrier secured to the shaft; mechanism for clatching said device to the

carrier; means for actuating said clatching mechanism; a counter-shaft; a gear loosely mounted on said counter-shaft; means for connecting said gear in the counter-shaft; a gear fixedly mounted on the counter-shaft; and mechanism connecting said gear with the shaft.

4. The combination, with a driven shaft, of a quill loosely mounted on said shaft; a device having a hub secured to said quill; a counter-shaft; gearing loosely mounted on said counter-shaft; a gear fixed to the counter-shaft; a gear carried by the driven shaft and in mesh with said fixed gear; gearing in mesh with the loose gear of the counter-shaft, said gearing being carried by the device having a hub secured to the quill; an idler for connecting one of the gears carried by the hub with one of the gears of the counter-shaft; and means for connecting the gear in mesh with the idler with said counter-shaft.

5. The combination, with a driven shaft, of a quill loosely mounted on said shaft; means for rotating the quill; a device having gears carried by the quill; a counter-shaft; gears loosely mounted on said counter-shaft; a gear fixed to said counter-shaft; an idler between one of the gears of the device on the quill and one of the loosely-mounted gears on the counter-shaft; a gear carried by the driven shaft and in mesh with the fixed gear of the counter-shaft; means for connecting said gear to the driven shaft; devices for alternately clatching the loosely-mounted gear to the counter-shaft; a cam; connections from said cam for actuating said devices; and means for actuating the cam.

6. The combination, with a driven shaft, of a quill mounted on said shaft; a sleeve secured to the quill; gearing carried by the sleeve; a counter-shaft; a gear loosely mounted on said counter-shaft and in engagement with an element of the gearing carried by the sleeve; another gear loosely mounted on said counter-shaft; an idler connecting said gear with another member of the gearing carried by the sleeve; means for alternately clatching the loosely-mounted gear to the counter-shaft; a cam-shaft; a cam carried by said cam-shaft; lever-and-link connections between said cam and the clutch-actuating devices of the counter-shaft; a fixed gear carried by the counter-shaft; a gear in engagement with said fixed gear; means for securing said gear to the driven shaft; and means for actuating the cam-shaft.

7. The combination, with a shiftable element, of means for actuating said element; a link connected to said actuating means; a rocker movably connected to and supporting said link; a cam; a device carried by the link and actuated by said cam; and means for actuating said cam.

8. The combination, with a shiftable element, of a yoke for actuating said element; an arm projecting from said yoke; a link articulated to the arm; a rocker pivoted to the link; a cam; a device carried by the link and bearing against the cam; and means for actuating said cam.

9. The combination, with a driven shaft, of mechanism for actuating said shaft at one speed in a forward direction; mechanism for actuating said shaft at a different speed in a forward direction; mechanism for reversing the rotation of said shaft; a cam; links carrying devices acted upon by said cam; means for connecting one of said links with the reversing mechanism; means for connecting the other link with the mechanism for driving the shaft in a forward direction; and rockers to which said links are pivoted.

10. The combination, with a driven shaft, of a counter-shaft; gearing connecting said driven shaft and counter-shaft; means for locking an element of said gearing to the counter-shaft when it is desired to rotate the driven shaft at a slow speed in a forward direction; means for connecting another element of said gearing to the counter-shaft when it is desired to reverse the rotation of said driven shaft; means for rotating the driven shaft at a fast speed in a forward direction; a cam; and mechanism for connecting said cam with the means for imparting rotary movement to said shaft.

11. The combination, with a driven shaft, of a carrier secured to said driven shaft; a friction-clip; a continuously-driven quill to which said clip is connected; an expansion-ring between the friction-clip and carrier; a counter-shaft; gearing between said friction-clip and the counter-shaft; a fixed gear carried by the counter-shaft; a gear carried by the driven shaft and in engagement with said fixed gear of the counter-shaft; means for connecting the gear carried by the driven shaft to said driven shaft; means for alternately clatching certain gear of the counter-shaft to said shaft; means for actuating the expansion-ring in the friction-clip; a cam; and connections from the cam for actuating all of said means.

12. The combination, with a driven shaft, of a quill loose on said shaft; means for rotating the quill; a sleeve secured to said quill; a counter-shaft; a pair of gears loosely mounted on said counter-shaft; a pair of gears carried by the sleeve on the quill, one of which is in engagement with one of the loosely-mounted gears of the counter-shaft; an idler in engagement with the other loosely-mounted gear of the counter-shaft and with the other gear of the pair carried by the quill; gearing for connecting the counter and driven shafts; devices for clatching the loosely-mounted gears to said counter-shaft; and a cam for actuating said devices.

13. The combination, with a driven shaft, of a quill loose on said

shaft; means for rotating the quill; a hub or carrier secured to the driven shaft; means for connecting said quill to the hub or carrier; a counter-shaft; a gear fixed to said counter-shaft; a gear on the driven shaft; means for connecting said gear to the driven shaft; gears loosely mounted on the counter-shaft; means for clatching either of said gears to the counter-shaft; a cam and connections for actuating said means; gears carried by the quill; and a gear for connecting one of said gears carried by the quill with one of the gears of the counter-shaft.

14. The combination, with a driven shaft, of a quill loose on said driven shaft; means for rotating said quill; a hub or carrier secured to the driven shaft; means for connecting the quill to said hub or carrier to rotate said driven shaft at a fast speed in a forward direction; means for connecting the quill with the driven shaft to rotate the driven shaft at a different speed in a forward direction; and means controlled by the quill for reversing the movement of the driven shaft.

15. The combination, with a driven shaft, of a quill loose on said shaft; means for rotating the quill; a pair of gears controlled by the quill; means for connecting the quill to the driven shaft to turn said shaft at a fast speed in a forward direction; a counter-shaft; a pair of gears loosely mounted on said counter-shaft, one of said gears being in mesh with one of the gears controlled by the quill, a gear connecting the other loose gear of the counter-shaft with the other gear controlled by the quill; clutch connections for clatching said loosely-mounted gear to the counter-shaft; means for actuating said connections; a gear fixed to the counter-shaft; and means connecting said gear with the driven shaft.

16. The combination, with a driven shaft, of a quill; means for rotating said quill; a sleeve rotating with the quill; means for connecting said sleeve to the driven shaft to drive the same at a certain speed; means for connecting said quill with the driven shaft to rotate the same at a different speed; means for connecting said quill with the driven shaft to reverse the motion thereof; a cam; and devices actuated by said cam for affecting the connections set forth.

17. The combination, with a driven shaft, of a quill loosely mounted on said shaft; a hub or sleeve secured to the quill; a sleeve mounted for reciprocatory movement on said hub or sleeve; clutch devices for connecting the sleeve with the hub; gearing carried by the reciprocatory sleeve; a counter-shaft; a gear loosely mounted upon the counter-shaft and in engagement with an element of the gearing of the sleeve; a gear fixed to the counter-shaft; a gear in engagement with said fixed gear and carried by the driven shaft; and means for connecting said last-named gear to said driven shaft.

18. The combination, with a driven shaft, of a quill loosely mounted on said shaft; a hub secured to the quill; a reciprocatory sleeve carried by the hub; means for reciprocating said sleeve; clutch devices connecting said sleeve and hub; a counter-shaft; gearing for connecting the sleeve with said counter-shaft; a fixed gear carried by the counter-shaft; a gear in engagement with said fixed gear, and carried by the driven shaft; and means for connecting said gear to the driven shaft.

19. The combination, with a shaft, of a quill loosely mounted on said shaft; means for rotating said quill; a hub splined to the quill; a reciprocatory sleeve mounted upon the hub; means for clatching said reciprocatory sleeve to the hub; a gear carried by the sleeve; a counter-shaft; a gear loosely mounted on said counter-shaft; means for clatching said gear to the counter-shaft; a fixed gear carried by the counter-shaft; a gear loosely mounted on the driven shaft; and means for clatching said gear to the driven shaft.

20. The combination, with a driven-shaft, of a quill loose on said shaft; means for rotating the quill; a hub splined to said quill; a friction-clip carried by the hub; an expansion-ring located within said friction-clip; a carrier secured to the driven shaft; means for locking the expansion-ring to the friction-clip; a sleeve mounted on the hub of the friction-clip; means for reciprocating said sleeve; clutch devices carried by the sleeve; a counter-shaft; gearing carried by the sleeve; a counter-shaft; gearing carried by said counter-shaft; means for locking said gearing to the counter-shaft; and gearing connecting the counter-shaft with the driven shaft.

21. The combination, with a shaft, of a quill loosely mounted on said shaft; means for rotating the quill; a friction-clip having a hub secured to the quill; clutch devices carried by said friction-clip; a sleeve mounted on the hub; clutch devices carried by said sleeve; gearing also carried by the sleeve; means for reciprocating the sleeve; a counter-shaft; gears loosely mounted on said counter-shaft; devices for locking said gears to the counter-shaft; a gear intermediate one of said counter-shaft gears and one of the gears carried by the hub; a fixed gear carried by the counter-shaft; a gear in engagement with said fixed gear and loosely mounted on the driven shaft; and means for connecting said gear to said driven shaft.

22. The combination, with a shaft, of a quill loosely mounted on said shaft; a friction-clip having a hub splined to said quill; means for rotating the quill and thereby the friction-clip; a clutch device within the

friction-clip, means for actuating said clutch device; a sleeve mounted on the hub; means for reciprocating said sleeve; clutch devices carried by the sleeve and adapted to engage with the clutch devices of the clip; a pair of gears carried by the sleeve; a counter-shaft; a pair of gears loosely mounted on said counter-shaft; clutch mechanisms for locking said loosely-mounted gears to the counter-shaft; a gear intermediate one of the loosely-mounted gears of the counter-shaft and one of the sleeve-gears; a fixed gear carried by the counter-shaft; a gear in engagement with said fixed gear and loosely mounted on the driven shaft; clutch devices carried by said gear; a carrier secured to the driven shaft; clutch devices movable on said carrier and adapted to engage with the clutch devices of the gear; and means for actuating the clutch devices of the carrier.

23. The combination, with a shaft, of a quill loosely mounted on said shaft; means for rotating the quill; a hub splined to the quill; a friction-clip carried by the hub; means for connecting said friction-clip to the driven shaft; a sleeve movable on the hub; clutch devices between said sleeve and hub; gears carried by the sleeve; a counter-shaft; gears loosely mounted on the counter-shaft; clutch devices for locking one of said gears to said counter-shaft; clutch devices for locking another of said gears to said counter-shaft; a gear intermediate one of said loosely-mounted gears and one of the gears of the movable sleeve and in engagement with each of said gears; a pinion fixed to the counter-shaft; a gear loosely mounted on the driven shaft; clutch devices carried by said gear; a carrier; clutch devices mounted on the carrier; and means for actuating said clutch devices to cause them to engage with the clutch devices of the gear.

24. The combination, with a shaft, of a quill loosely mounted on said shaft; means for rotating said quill; a friction-clip having a hub splined to the quill; a carrier secured to the shaft; an expansion-ring secured to said carrier; means for expanding said expansion-ring to lock the friction-clip to the carrier; a sleeve movable on the hub of the friction-clip; a gear carried by said sleeve; means for actuating the sleeve; clutch devices between the gear and friction-clip; a counter-shaft; a gear loosely mounted on said counter-shaft; means for connecting said gear to said counter-shaft; a pinion carried by the counter-shaft; a gear loose on the driven shaft and in engagement with said pinion; clutch devices carried by the gear; clutch devices mounted on the carrier; and means for actuating said clutch devices to cause them to engage with the clutch devices of the gear.

25. The combination, with a driven shaft, of a quill loose on said shaft; a hub splined to said quill; a sleeve movable on said hub; means for clatching the sleeve to the hub; a gear carried by the hub; a counter-shaft; a gear carried by the counter-shaft; means for clatching said gear to the counter-shaft; a gear intermediate the gear on the counter-shaft and the gear of the hub and in engagement with both of said gears; a pinion carried by the counter-shaft; a gear in engagement with said pinion; and means for clatching said gear to the driven shaft.

26. The combination, with a shaft, of a quill loose on said shaft; a hub splined to the quill; a sleeve movable on the hub; means for connecting the hub to the driven shaft; clutch devices intermediate the sleeve and hub; a counter-shaft; a gear loosely mounted on the counter-shaft and in engagement with the gear of the hub; means for reciprocating the sleeve on the hub to cause the clutch devices to engage; means for locking the gear on the counter-shaft to said counter-shaft after said clutch engagement has been made; a pinion on the counter-shaft; a gear loose on the driven shaft; and means for connecting said gear to the driven shaft.

27. The combination, with a driven shaft, of a quill loose on said shaft; means for rotating the quill; means for connecting the quill to the driven shaft, to drive the same at full speed forward; a sleeve; gears carried by the sleeve; means for reciprocating the sleeve; means for connecting the sleeve to the quill; a counter-shaft; a gear loose on the counter-shaft; means for connecting said gear to the counter-shaft; a gear fixed to the counter-shaft; a gear loose on the driven shaft; clutch-pins carried by said gear; a carrier secured to the driven shaft; clutch-pins movable on the carrier; and means for actuating said clutch-pins to cause them to engage the clutch-pins of the gear and rotate the driven shaft at a slow forward speed.

28. The combination, with a driven shaft, of a quill loose on said shaft; means for rotating the quill; a hub splined to the quill; means for connecting said hub to the driven shaft to rotate the same in one direction; a sleeve movable on the hub; clutch devices between the hub and sleeve; and means for rotating the driven shaft in a reverse direction, said sleeve constituting a part of the reversing means.

29. The combination, with a shaft, of mechanism for rotating said shaft; means for connecting said mechanism to the shaft; a cam-shaft; a cam; means for actuating the cam; lever-and-link mechanism actuated by the cam and controlling the shaft-rotating mechanism; a device carried by each of the link parts of said lever-and-link mechanism; and means for latching said device in fixed relation to the cam.

30. The combination, with a shaft, of means for rotating said shaft at a slow forward speed; means for rotating said shaft at a fast forward speed; means for reversing the rotation of the shaft; a movable sleeve

constituting a part of the slow forward and reversing mechanism; means for connecting said sleeve to the shaft; and a cam having active and non-active portions for actuating said sleeve and said mechanism.

31. The combination, with a driven shaft, of a quill loose on said shaft; means for rotating the quill; a hub splined to the quill; a friction-cup carried by the hub; means for connecting said friction-cup to the driven shaft; clutch-pins carried by the friction-cup; a sleeve movable on the hub of the friction-cup; gears carried by the sleeve; a counter-shaft; a pair of gears loosely mounted on said counter-shaft; clutch devices for locking said gears to the counter-shaft; means for actuating each of said clutch devices; a gear in engagement with one of the gears of the sleeve and with one of the loosely-mounted gears of the counter-shaft; a fixed gear on the counter-shaft; a loose gear on the driven shaft and in engagement with said fixed gear; clutch-pins carried by said loose gear; a carrier splined to the driven shaft; clutch-pins movable in ways of the carrier; means for actuating said clutch-pins to cause them to engage the clutch-pins of said loose gear; a cam; and means intermediate said cam for shifting the clutch-pins-actuating mechanism.

32. The combination, with a shaft, of a quill splined on said shaft; a hub rotating with the quill; a clutch element carried by the hub; a clutch element carried by the shaft; means for actuating one of said clutch elements to connect the shaft and hub; a counter-shaft; and gearing controlled by the hub for changing the speed of the shaft on which the quill is splined.

33. The combination, with a shaft, of a quill splined to said shaft; a hub carried by and rotating with the quill; a clutch element carried by the hub; a clutch element carried by the shaft; means for actuating the clutch element carried by the shaft to connect the shaft and hub; means for applying power to the quill; a counter-shaft; reversing mechanism of which the hub carried by the quill constitutes a part; and means for connecting said reversing mechanism with the shaft.

34. The combination, with a shaft, of a hub or carrier secured to said shaft; a gear loose on the shaft; clutch devices carried by the gear; clutch devices movable on the hub or carrier; means for actuating said clutch devices of the carrier; and means for rotating the gear and, through the hub or carrier to which it is splined, the shaft.

35. The combination, with a shaft, of a hub or carrier splined to the shaft; a power-transmitting element loose on the shaft; clutch-pins mounted in guides of the hub or carrier; means for reciprocating said clutch-pins; clutch-pins carried by the power-transmitting element; and means for actuating said element and, through the hub or carrier, the shaft.

36. The combination, with a shaft, of a hub or carrier splined to said shaft; said hub or carrier having open slots; means for rotating the hub or carrier and thereby the shaft at full speed in a forward direction; a gear loosely mounted on the shaft adjacent to said hub or carrier; clutch-pins carried by the gear; means for reciprocating the clutch-pins of the hub or carrier to cause them to engage the clutch-pins of the gear; and means for rotating said gear when such engagement is made, and thereby the hub or carrier, at a slow, forward speed.

37. The combination, with a shaft, of a hub or carrier having longitudinal guideways splined to said shaft; means for rotating the hub or carrier, and thereby the shaft, at a fast speed forward; clutch-pins; means for reciprocating the clutch-pins in the guideways of said hub or carrier; a gear loosely mounted on the shaft adjacent to said hub or carrier; clutch-pins carried by the gear; means for reciprocating the clutch-pins of the counter-shaft and in mesh with the gear carrying the clutch-pins; means for locking said loose gear to the counter-shaft; and means for rotating the counter-shaft and thereby causing the shaft to which the hub or carrier is splined to rotate at a slow speed in a forward direction.

38. The combination, with a shaft, of a hub or carrier splined to said shaft; a quill loose on the shaft; means for rotating the quill; a hub splined to the quill; means for clamping said hub to the hub or carrier; a gear loose on the shaft and located adjacent to one end of said hub or carrier; means for clamping the hub or carrier to said gear; means for releasing the clutch devices connecting the hub or carrier and the hub splined to the quill; and means for rotating the gear adjacent to one end of said hub or carrier.

39. The combination, with a driven shaft, of a hub or carrier splined to said shaft; a gear loosely mounted on the shaft adjacent to one end of said hub or carrier; means for clamping the hub or carrier to said gear; a counter-shaft; a gear loosely mounted on said counter-shaft; means for clamping said gear to the counter-shaft; means for rotating said gear when thus locked to the counter-shaft; and a gear carried by the counter-shaft and in mesh with the gear loosely mounted on the driven shaft.

40. The combination, with a driven shaft, of a hub or carrier splined to said shaft and having guideways; clutch-pins mounted in the guideways; a shifting ring mounted upon the hub or carrier and connected with said clutch-pins; means for actuating said shifting ring; a gear loose on the driven shaft and located adjacent to one end of said hub or carrier;

clutch-pins carried by said gear and adapted to engage with the complementary pins of the hub or carrier; a counter-shaft; a gear carried by said counter-shaft and in mesh with the gear loose on the driven shaft; and means for rotating said counter-shaft.

41. The combination, with a driven shaft, of a hub or carrier splined to said shaft and having longitudinal guideways; clutch-pins mounted in said guideways; a shifting ring; studs projecting from the shifting ring and in engagement with the clutch-pins; a cam; means controlled by said cam for actuating the shifting ring; a gear loosely mounted on the driven shaft adjacent to one end of the hub or carrier; clutch-pins carried by the gear; a counter-shaft; a gear carried by said counter-shaft and in mesh with the gear loose on the driven shaft; and means for actuating the counter-shaft.

42. The combination, with a driven shaft, of a hub or carrier splined to said shaft and having open slots; clutch-pins mounted in said slots; a shifting ring; studs projecting from said shifting ring passing through the slots of the hub or carrier and engaging said clutch-pins; a revoluble cam; means controlled by said cam for actuating the shifting ring; a gear loose on the driven shaft; clutch-pins carried by the gear and adapted to engage the complementary pins of the hub or carrier; a counter-shaft; a gear carried by said counter-shaft, and in engagement with the gear loose on the driven shaft; and means for rotating the counter-shaft.

43. The combination, with a driven shaft, of a hub or carrier splined to said shaft and having longitudinal guideways; a shifting ring mounted on the hub or carrier; clutch-pins mounted in the guideways of said hub or carrier; studs projecting from the shifting ring and in engagement with said clutch-pins; a revoluble cam; lever-and-link mechanism controlled by said cam for actuating the shifting ring; a power-transmitting element loose on the driven shaft adjacent to one end of the hub or carrier; clutch-pins carried by said power-transmitting element; and means for rotating said power-transmitting element.

44. The combination, with a driven shaft, of a hub or carrier secured to said shaft; an expansion-ring attached to the hub or carrier; a friction-cup; means for actuating said expansion-ring and thereby locking the cup and hub or carrier together; means for rotating the friction-cup; a power-transmitting element located adjacent to said hub or carrier; means for clamping said power-transmitting element to the hub or carrier; and means for rotating the power-transmitting element.

45. The combination, with a driven shaft, of a hub or carrier secured to said shaft; means for driving said hub or carrier and thereby the driven shaft at a fast speed in a forward direction; a power-transmitting element loosely mounted on the driven shaft adjacent to said hub or carrier; means for clamping said power-transmitting element to the hub or carrier; means for rotating said power-transmitting element at a slow speed in a forward direction; and means for reversing the rotation of said power-transmitting element, and, through the hub or carrier clamped thereto, the driven shaft.

46. The combination, with a driven shaft, of a hub or carrier splined to said shaft; an expansion-ring secured to said hub or carrier; a shifting ring mounted on the hub or carrier; means controlled by the shifting ring for actuating said expansion-ring; a friction-cup surrounding said expansion-ring and having a hub; a quill to which the hub of the friction-cup is splined; means for rotating the quill; clutch devices movable on the hub or carrier; means connecting the shifting ring with said clutch devices; a power-transmitting element loose on the driven shaft adjacent to the hub or carrier; clutch devices carried by said power-transmitting element and adapted to engage the clutch devices of the hub or carrier; a counter-shaft; means for rotating said counter-shaft in different directions; and means carried by the counter-shaft for actuating the power-transmitting element loose on the driven shaft.

47. The combination, with a driven shaft, of a hub or carrier secured to said shaft; a friction-cup; means for clamping said friction-cup to the hub or carrier; means for rotating the friction-cup, and thereby the hub or carrier and driven shaft, at full speed in a forward direction; devices for actuating said means; a power-transmitting element loose on the driven shaft adjacent to the hub or carrier; means for clamping said power-transmitting element to the hub or carrier; and means for rotating said power-transmitting element in different directions.

48. The combination, with a shaft, of a hub or carrier secured to said shaft; means for rotating the hub or carrier and thereby the shaft; a cam; means for actuating said cam; a link carrying a pin in engagement with the cam; a rocker movably connected to the link; and devices controlled by the link and connecting the means for rotating the hub or carrier to said hub or carrier.

49. The combination, with a shaft, of a hub or carrier secured to said shaft; means for rotating the hub or carrier; a grooved cam; a link having a pin fitted in the groove of said cam; a rocker to which the link is pivoted; and devices controlled by said link for clamping the means for rotating the hub or carrier to said hub or carrier.

50. The combination, with a shaft, of means for rotating said shaft;

a grooved cam; means for actuating the cam; a link having a pin located in the groove of said cam; a rocker connected to said link; and means controlled by the link for actuating the shaft-rotating means.

51. The combination, with a shaft, of means for rotating said shaft; a grooved cam; means for actuating the cam; a link having a pin; a rocker to which one end of the link is pivoted; a yoke having an arm to which the other end of the link is connected; and devices controlled by the yoke for connecting the shaft-rotating means to said shaft.

52. The combination, with a shaft, of means for rotating said shaft in forward and reverse directions; a cam; means for actuating the cam; links having devices in engagement with the cam; rockers movably connected to the links; and means controlled by said links for connecting the mechanisms for rotating the shaft to said shaft.

53. The combination, with a shaft, and with means for rotating said shaft, of a grooved cam having active and non-active portions secured to the shaft; a link having a pin fitted in the groove of said cam; a rocker to which one end of said link is articulated; a movably-mounted yoke having an arm to which the opposite end of said link is pivoted; a driven shaft; a hub or carrier secured to said driven shaft; shaft-rotating mechanism; and means controlled by the yoke for clamping said shaft-rotating mechanism to the hub or carrier.

54. The combination, with a driven shaft, of mechanism for rotating said shaft; a hub or carrier secured to said shaft; a shifting ring mounted on said hub or carrier; means controlled by the shifting ring for clamping one of the shaft-rotating mechanisms to said hub or carrier; means for actuating the shifting ring; a grooved cam; a link pivoted to said shifting ring, and having a pin fitted in the groove of the cam; a rocker to which said link is articulated; and means controlled by the link for throwing another of the shaft-rotating mechanisms into action.

55. The combination, with a driven shaft, of a hub or carrier splined to said shaft; a quill loosely mounted on the shaft; a friction-cup having a hub splined to said quill; means for rotating the quill; means for coupling the friction-cup to the hub or carrier; a sleeve movably mounted on the hub of the friction-cup; means for actuating the sleeve; gears carried by the sleeve; clutch devices between one of the gears and the friction-cup; a counter-shaft; and means controlled by said counter-shaft for actuating the driven shaft in different directions.

56. The combination, with a driven shaft, of a hub or carrier splined to said shaft; a quill loose on the shaft; means for rotating the quill; a device having a hub splined to said quill; means for clamping said device to the hub or carrier; a sleeve mounted on the hub; clutch mechanism carried by the sleeve; complementary clutch mechanism carried by the friction-cup; means for reciprocating the sleeve; a counter-shaft; and gearing connecting the counter-shaft with the hub or carrier splined to the driven shaft.

57. The combination with a driven shaft, of a hub or carrier splined to said shaft; a friction-cup; clutch-pins carried by said friction-cup; means for coupling said cup to the hub or carrier; means for rotating the friction-cup; a gear having clutch-pins adapted to engage with the clutch-pins of said friction-cup; means for throwing said clutch-pins into engagement with the complementary clutch-pins; a counter-shaft; gearing carried by the counter-shaft; means for clamping said gearing to the counter-shaft; a gear loose on the driven shaft; a gear carried by the counter-shaft and in engagement with said loose gear; and means for clamping said loose gear to the hub or carrier.

58. The combination, with a shaft, of means for rotating said shaft; mechanism for reversing the rotation of said shaft; a cam; means for actuating said cam; a link; a device carried by the link and in engagement with the cam; a rocker to which the link is pivoted; and means connecting said link with a part of the shaft-reversing mechanism.

59. The combination, with a shaft, of means for rotating said shaft; mechanism for reversing the rotation of the shaft; a clutch constituting a part of the shaft-reversing mechanism; clutch-actuating mechanism; a grooved cam; means for actuating said cam; a link having a pin; devices connecting the link with the clutch-actuating mechanism; and a rocker for controlling the movement of the link upon its pin.

60. The combination, with a shaft, and with means for actuating the same, of a grooved cam having active and non-active portions secured to said shaft; a link; a pin carried by the link, said pin entering the cam-groove; a rocker to which the link is pivoted; and a shiftable element to which said link is connected.

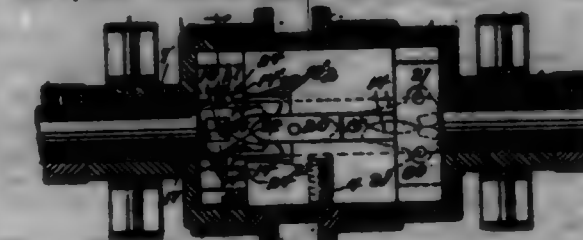
61. The combination, with a grooved cam, of means for actuating said cam; a link; a pin carried by the link and entering the groove of the cam; a rocker connected to the link; and a shiftable element also connected to the link.

62. Speed controlling and reversing mechanism comprising the following instrumentalities in combination: a shaft; means for rotating the shaft at full speed forward; means for rotating said shaft at slow speed forward; means for reversing the rotation of said shaft; a cam having a series of active and passive portions; a link and connections operated by the cam for throwing the full-speed shaft-actuating mechanism into and

out of action; devices actuated by said link for throwing the slow-speed, shaft-actuating mechanism into and out of action; a second link; and devices operated by said second link for throwing the shaft-reversing mechanism into and out of action.

63. Speed controlling and reversing mechanism comprising the following instrumentalities in combination: a shaft; means for rotating said shaft at slow speed in a forward direction; means for rotating said shaft at fast speed in a forward direction; means for reversing the rotation of said shaft; a grooved cam having a series of active and passive portions; a link carrying a pin entering the cam-groove; connections from the link for throwing the mechanism for actuating the shaft at a slow speed forward into and out of action; connections from the link for throwing the mechanism for actuating the shaft at fast speed in a forward direction into and out of action; a rocker pivoted to the link; a second link having a pin entering the cam-groove; a rocker articulated to said second link; and means actuated by the second link for throwing the shaft-reversing mechanism into and out of action.

699,874. CLUTCH. MOSES C. JOHNSON, Hartford, Conn. Filed Feb. 4, 1902. Serial No. 92,164. (No model.)



Claim.—1. The combination, with a shaft, of a clutch; means for actuating said clutch; connected devices movably mounted on said means; and means for adjusting said devices to cause them to move toward each other.

2. The combination, with a shaft, of a friction-cup; an expansion-ring; a pair of levers movably mounted on said ring; a device for actuating said levers to cause them to lock the expansion-ring to the friction-cup; connected blocks carried by said levers; and means for adjusting said blocks toward each other.

3. The combination, with a shaft, of a friction-cup; an expansion-ring located within the friction-cup; a pair of levers; mechanism for actuating said levers to expand the ring; and a device for connecting said levers and causing them to move simultaneously.

4. The combination, with a shaft, of a friction-cup; an expansion-ring fitted within said cup; means controlled by the cup, when said ring is expanded, for actuating the shaft; a pair of levers movably mounted on the expansion-ring, said levers having pockets with inclined bottom walls; blocks having inclined surfaces fitted in said pockets; means for adjusting said blocks simultaneously transversely of the levers; and means for directly connecting the blocks so that when one is actuated the other will move therewith.

5. The combination, with a shaft, of a member loose on said shaft; an expansion-ring; a member secured to the shaft and to which the expansion-ring is connected; a pair of levers carried by the expansion-ring, the levers having pockets with inclined bottom walls; blocks with inclined surfaces fitted in the pockets of said levers; means for adjusting one of said blocks; means for connecting one block with the other block, so that the blocks will move toward each other when one of them is adjusted; and means for actuating the levers.

6. The combination, with a shaft, of a member loose on said shaft, said member having a friction-surface; an expansion-ring; a pair of pivoted levers carried by said expansion-ring; blocks fitted within pockets of said levers; means for adjusting one of said blocks transversely of the lever in which it is supported; and means for connecting said block with the other block, whereby both blocks may be simultaneously moved toward each other when one of them is adjusted.

7. The combination, with a shaft, of a friction member; an expansion-ring located within said friction member; a pair of levers pivoted on said expansion-ring, each of said levers having a pocket; blocks fitted within said levers, means for adjusting one of said blocks; and means for connecting one block with the other block, so that when actuated by the adjusting means the blocks will move in unison and will be forced toward each other.

8. The combination, with a shaft, of a friction member; an expansion-ring located within the friction member; levers pivoted on said expansion-ring; a toothed connection between the levers; and means for actuating the levers.

9. The combination, with a shaft, of a friction member; means for connecting said friction member with the shaft, said means involving an expansion-ring; levers pivoted to said expansion-ring, each lever having a socket with an inclined wall; a block having an inclined wall fitted in

one of said sockets, said block having a dot; a tooth carried by the block; a screw, a flange of which is fitted in said dot; and a block having an inclined wall fitted in the socket of the other lever, said block having a recess for the reception of the tooth of the other block.

10. The combination, with a shaft, of a friction member; means for connecting said friction member with the shaft, said means involving an expansion-ring; levers pivoted to said expansion-ring, each lever having a pocket with an inclined bottom wall; blocks movably mounted in the pockets of the levers; means for adjusting one of said blocks; and a toothed connection between the blocks.

11. The combination, with a shaft, of a friction member; means including an expansion-ring for connecting said member with the shaft; levers pivoted to the expansion-ring; a toothed connection between said levers, whereby they are caused to rock in unison; and means for actuating the levers to cause them to expand the expansion-ring and lock it in said friction member.

12. The combination, with a shaft, of a friction member; means for connecting said friction member with the shaft; said means including an expansion-ring having sockets in its two ends; levers having horns fitted in said sockets; a toothed connection between said levers; a wedge-block for actuating the levers to expand the expansion-ring and lock it in the friction member; and means for actuating said wedge-block.

13. The combination, with a shaft, of a friction member; an expansion-ring adapted to be connected to said friction member; means for connecting said expansion-ring to the shaft; levers pivoted to the expansion-ring; each lever having a pocket; blocks fitted in the pockets of the levers; means for connecting the blocks; means for adjusting one of said blocks; and means for actuating the levers to cause them to lock the expansion-ring to the friction member.

14. The combination, with a shaft, of a friction member; an expansion-ring; levers pivoted to the expansion-ring; engaging surfaces on the levers; a toothed connection between said surfaces; and means for actuating the pivoted levers to cause them to lock the expansion-ring to the friction member.

15. The combination, with a shaft, of a friction member; an expansion-ring; lever mechanism for expanding the expansion-ring; a device for connecting the elements of the lever mechanism so that they will move in unison; means for adjusting said device; and means for actuating said lever mechanism.

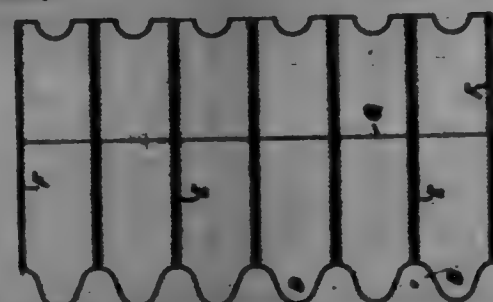
16. The combination, with a shaft, of a friction member; an expansion-ring; levers pivoted on the ends of the expansion-ring; said levers having straight and inclined engaging surfaces; a toothed connection between said engaging surfaces; and means for actuating the levers.

17. The combination, with a shaft, of a friction-cup; an expansion-ring; means for connecting said ring with the shaft; levers pivoted to the expansion-ring, and each having a pocket with an inclined bottom wall; blocks seated in said pockets and having inclined portions fitting against said bottom walls, one of said blocks having a dot; a screw having a projection engaging said dot; a connection between the blocks; and means for actuating the levers.

18. The combination, with an expansion-ring, of means for supporting said ring; levers having enlargements fitted in sockets of the ring; means for actuating the levers; and means engaging with said enlargements for preventing disengagement of the levers from the ring.

19. The combination, with an expansion-ring having sockets in its two ends, of a support for said ring; levers having grooved enlargements fitted in said sockets; means for actuating the levers; and pins passing through the ring and entering the grooves in the enlargements of said levers.

699,875. REVELOT AND BLANK THEREFOR. AMUSEMENT. Liverpool, England. Filed Nov. 26, 1900. Serial No. 97,260. (No model.)

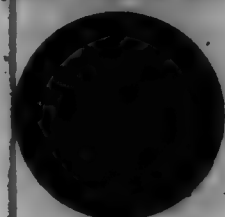


Claim.—1. An improved article of manufacture, consisting of a block provided with a series of tabs at one edge, and a series of cut-away portions approximately rectangular in shape in the other edge in the same relative plane as the tab portions, strips of gum or other adhesive substance extending transversely of said block from points between said tabs on one edge to points in the same relative plane between the said

cut-away portions of the opposite edge, said gum strips being of uniform width throughout their length, the lower portion of said block being designed to be folded upon and directly secured to the remainder thereof, by means of said gum strips, for forming a series of envelopes each having a rectangular including space, the said block having a single line of perforations extending through the central longitudinal line of each of said strips of gum, whereby the envelopes may easily be torn apart without interfering with the adhesion of the gum strips, thereby facilitating the passage of the envelope through a type-writer in sheet or strip form before separation, substantially as described.

2. An improved article of manufacture, consisting of a single blank having one edge provided with a series of flaps or extensions, and the opposite edge provided with a series of cut-away portions, corresponding in number and in line with the said flaps, a strip of gum or other adhesive material extending from a point midway between each flap to a point midway between each cut-away portion of uniform width throughout its length, a single line of perforations extending along through the central line of each of said gummed portions, the construction and arrangement being such that when one portion of the blank is folded upon the other, and caused to adhere directly thereto substantially as described, a series of envelopes is formed having rectangular including spaces, each envelope of the series being easily capable of separation by tearing along the line of perforations, whereby the passage of the envelope through a type-writer in sheet or strip form is facilitated.

699,876. GOLF-BALL. BRADLEY KIMBALL, Boston, Mass., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 1, 1902. Serial No. 101,997. (No model.)



Claim.—1. A playing-ball having a cloth cover, said ball comprising a springy core and a colloid casing with which said cover is incorporated.

2. A playing-ball having a cloth cover, said ball comprising a sphere of gutta-percha, and a colloid casing upon said sphere, the cloth being incorporated with said casing.

3. A playing-ball having a cloth cover, said ball comprising a springy core, a sphere of gutta-percha including said core, and a casing of colloid upon said sphere, the cloth being incorporated with said casing.

4. A playing-ball having a cloth cover, said ball comprising a shell of colloid upon which said cover is applied; the cloth being incorporated with the colloid.

5. A playing-ball having a sectional cloth cover, said ball comprising a sphere of plastic material and a casing consisting of welded segments of colloid each of which has incorporated therewith a section of said cloth cover.

699,877. TRACTION-TRUCK. ALFRED ELLIS, Danversville, Mo. Filed Jan. 25, 1902. Serial No. 91,344. (No model.)



Claim.—1. In a traction-truck, the combination with a series of grooved rollers mounted to revolve in close proximity to each other, of

an endless track on said rollers consisting of a series of strips having tongues at their centers, links connecting said tongues, and said tongues and links so shaped as to form a continuous smooth bearing for the grooved periphery of the rollers.

2. In a traction-truck, the combination with a series of grooved rollers mounted to revolve between parallel bars, of an endless track consisting of a series of beveled strips, central tongues on the strips bifurcated at each end, links pivotally connecting the tongues on adjacent strips, and the outer or upper edges of said links and tongues in alignment forming a smooth track on which the grooved rollers run.

699,878. RIBBON-LOOM. REYNOLD KREHLMAN, Philadelphia, Pa. Filed July 31, 1901. Serial No. 70,380. (No model.)



Claim.—1. In combination with a ribbon-loom, a shaft adapted to extend transversely of the loom-beam, bearings secured to and depending from the loom-beam in which the shaft is journaled, two pulleys journaled loosely upon said shaft, two cords, one end of one cord being attached to one of the pulleys, and one end of the other cord attached to the other pulley, pulleys journaled in the loom-beam, one of the cords adapted to pass around one of the pulleys and be attached to the rack, the other cord adapted to pass around the other pulley and also be attached to the rack, said last-named pulleys so placed that when the cords are pulled alternately the rack will be reciprocated, means for rocking the transverse shaft a predetermined part of one revolution backward and forward, clamping mechanism adapted to alternately connect first one end and then the other of the pulleys journaled upon the transverse shaft to said shaft each time the shaft is rocked in one given direction, means whereby the pulley in clutch with the shaft will rotate the other pulley in the opposite direction at the same rate of speed so that the cord connected to one of the pulleys will be wound upon the same, and the cord connected to the other pulley will be unwound from the same, substantially as described and for the purpose specified.

2. In an operation of the character described, a shaft adapted to extend transversely across the loom-beam, bearings secured to and depending from said loom-beam, in which said shaft is journaled, two pulleys journaled loosely upon said shaft, two cords, one of which is attached to one of the pulleys and the other attached to the other pulley, two pulleys journaled in the loom-beam, one of the cords adapted to pass over one of the pulleys and be secured to the rack, the other cord adapted to pass over the other pulley and also be secured to the rack, said pulleys so arranged in the loom-beam that when the cords are alternately pulled the rack will be reciprocated, a hand-wheel adapted to be journaled upon a suitable bearing depending from the loom-beam, two bands or straps secured to the hand-wheel and wound upon the same in opposite directions; said bands or straps adapted to be alternately pulled so as to rock said hand-wheel a predetermined part of one revolution backward and forward, a crank-arm journaled loosely upon the transverse shaft, an arm secured to the transverse shaft, a curved slot formed in the crank-arm concentric to the transverse shaft, a screw or bolt adapted to pass through said

slot and be secured to the arm which is secured to the transverse shaft, a connection between the hand-wheel and the crank-arm whereby the hand-wheel is rocked with the crank-arm, clamping mechanism whereby the pulleys journaled upon the transverse shaft are alternately connected to said shaft so as to rock therewith, means whereby the pulley which is in clutch with the shaft will cause the other pulley to rotate in the opposite direction the same distance and at the same rate of speed, whereby the cord connected to one pulley will be wound upon the same, and the cord connected to the other pulley will be unwound from the same, said pulleys adapted to be so placed relative to one another, and the crank-arm so placed relative to the transverse shaft as to cause the shuttle to travel any distance backward and forward, provided said distance is less than that represented by the circumference of the pulleys, and the hand-wheel adapted to be rocked a distance backward and forward to correspond with the adjustment of the pulleys and the crank-arm, substantially as and for the purpose specified.

3. In a device of the character described, means for increasing the speed of the shuttle midway of its travel and decreasing the speed toward each end of its stroke, consisting of a bracket having a vertical slot formed therein, which bracket supports the steel upon which the hand-wheel is journaled, a shoulder formed upon said steel bearing against the lower surface of the bracket, a nut threaded upon the outer end of the steel for the purpose of holding said steel within the slot at any position it is placed, a crank-arm having a longitudinal slot formed therein, a block secured to the hand-wheel and adapted to slide in said slot, said hand-wheel adapted to be adjusted within the vertical slot so that its end may be on a line with the transverse shaft upon which the crank-arm is journaled, or may be made concentric thereto by lowering said hand-wheel within the slot, substantially as described and for the purpose specified.

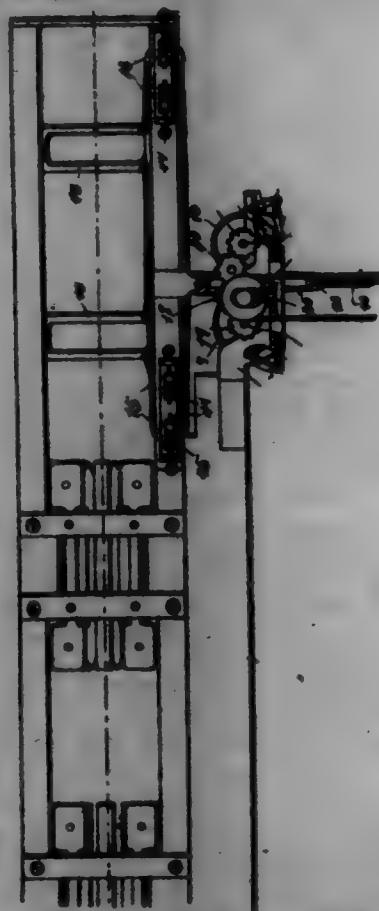
4. In a device of the character described, clamping mechanism consisting of a dog pivoted to each of the pulleys journaled upon the transverse shaft, a spring adapted to hold the outer edge of the dogs normally beyond the periphery of the pulleys, a notch formed in the dogs, pawls secured to the transverse shaft and adapted to rock therewith, springs pivoted to a hanger depending from the loom, springs adapted to normally hold said springs in contact with the periphery of the pulleys and push one of the dogs forward so that the notch will be in the path of travel of the pawls and engage said notch to carry the pulley with it in its revolution, said pulleys adapted to be so placed relative to one another that both the dogs will never be in contact with the spring-cams at the same time, but the pulleys will be so rotated that the opposite dog to the one engaged by the pawl will be brought in contact with the cam at the limit of its movement and forced in the path of travel of the pawl so as to be engaged by the same upon the next movement of the pawl, means for locking the dogs in their reared position when engaged by the pawl, and means for releasing said locking mechanism when the pawl has made about one-half of its retrograde movement, substantially as and for the purpose set forth.

699,879. RIBBON-LOOM. REYNOLD KREHLMAN, Philadelphia, Pa. Filed Aug. 26, 1901. Serial No. 72,728. (No model.)

Claim.—1. In combination with a ribbon-loom of the character described, bearings secured to the back loom, clutch-pulleys journaled loosely transversely of the loom and adapted to be supported by said bearings, said clutch-pulleys arranged in pairs, one pair for each series of shuttles, two cords for each pair of pulleys, one end of one cord being attached to one pulley of the pair, one end of the other cord attached to the other pulley of the pair, the pulleys journaled in bearings on the loom-beam, one of the cords of each pair of clutch-pulleys adapted to pass from said clutch-pulleys in one direction and pass around the idle pulleys and be attached to the rack, the other cord of the same pair of clutch-pulleys adapted to pass in the opposite direction around another idle pulley and be attached to the rack, said idle pulleys so placed that when the cords are pulled alternately the rack will be reciprocated, means for rocking the transverse shaft upon which the clutch-pulleys are journaled a predetermined part of one revolution backward and forward, clamping mechanism adapted to alternately connect first one end and then the other of the clutch-pulleys of each pair to their shafts each time the shafts are rocked in one given direction, means whereby the pulley in clutch with the shaft will rotate the other pulley of the pair in the opposite direction at the same rate of speed so that the cord connected to one of the pulleys of the pair will be wound upon the same, and the cord connected to the other pulley of the pair will be unwound from the same, means whereby the clamping mechanism is thrown in and out of engagement with different pairs of clutch-pulleys automatically by the raising and lowering of the front loom, substantially as described and for the purpose set forth.

2. In an operation of the character described, one or more shafts adapted to extend transversely across the loom-beam, bearings secured to the back loom in which said shaft or shafts are journaled, clutch-pulleys

journalled loosely upon said shaft or shafts, said clutch-pulleys arranged in pairs, one pair for each series of clutches carried by the latter, two cords for each pair of clutch-pulleys, one end of one of the cords of each pair attached to one of the clutch-pulleys of each pair, and one end of the other cord attached to the other pulley of the same pair, idle pulleys, two for each pair of clutch-pulleys, journalled in the front lath, one of the cords of each pair of clutch-pulleys adapted to pass around one pulley of each pair of idle pulleys, the other cord adapted to pass around the other idle pulley, and both cords adapted to be secured to one rack, said idle pulleys so arranged in the front lath that when the cords are alternately pulled the rack will be reciprocated, a hand-wheel journalled upon a suitable bearing extending from the back lath, two bands or straps secured to the hand-wheel and wound upon the racks in opposite directions, said bands or straps adapted to be alternately pulled so as to rack said hand-wheel a predetermined part of one revolution backward and forward, means for transmitting this backward-and-forward motion to the transverse shaft or shafts, clutching mechanism whereby one pair of pulleys journalled upon the transverse shaft is alternately connected to said shaft so as to be revolved therewith when the shaft or shafts are moved in one direction, means whereby the clutch-pulley which is in clutch with the shaft will cause the other pulley of the same pair to rotate in the opposite direction the same distance and at the same rate of speed, whereby the cord connected to one pulley will be wound upon the same, and the cord connected to the other pulley will be unwound from the same, the cords tied to the clutch-pulleys at such a point that when the front lath is raised certain distances the clutch-pulleys will be so revolved as to throw into engagement the clutching mechanism of a certain set of clutch-pulleys, and means for giving to the actuated clutch-pulleys a variation of speed, said means adapted to increase the speed at one-half of the revolution, and diminish the speed toward each end of the stroke, substantially as and for the purpose specified.



3. In combination with a device of the character described, clutching mechanism consisting of a dog pivoted to each of the clutch-pulleys, a spring adapted to hold the outer edge of the dogs normally beyond the periphery of the pulleys, a notch formed in the dogs, pawls secured to the transverse shaft or shafts and adapted to rest therewith, spring-cams pivoted to the back lath, springs adapted to normally hold said spring-cams in contact with the periphery of the pulleys, and said cams adapted to act so as to push the dogs inward so that the notch in the dog will fit in the path of travel of the pawls whenever said dogs are stepped in the proper position, means whereby only one pair of clutch-pulleys are adapted to work in conjunction with the clutch mechanism so as to reciprocate one of the racks at a time, a vertically-moving front-lath beam forming a part of the beam to which this device is attached, said pairs of clutch-pulleys adapted to be thrown in and out of contact with the clutching mechanism by the raising and lowering of the front lath, each pair of clutch-pulleys adapted to be so revolved relative to one another that both the dogs pivoted to said pulleys will never be in contact with the spring-

men at the same time, but the actuated clutch-pulleys will be so rotated that the dog of the opposite pulley of the pair engaged by the pawl will be brought in contact with its cam at the limit of its movement and travel in the path of the travel of the pawl so as to be engaged by the same upon the next movement of the pawl, means for locking the dogs in their raised position when engaged by the pawl, and means for releasing said locking mechanism when the pawl has made about one-half of its reverse movement, substantially as and for the purpose set forth.

699,880. CHECKROW PLANTER. WILLIAM LA FOLLETTE, Makaburg, Iowa. Filed Feb. 8, 1902. Serial No. 98,147. (No model.)



Claim.—1. A planter comprising a furrow-opener, a hopper above the furrow-opener and having a best leading to the latter, a valve mechanism for the hopper, a driving-wheel actuated by the furrow-opener, and connections between the driving-wheel and valve mechanism for operating the latter.

2. A planter comprising a furrow-opener, a hopper above the furrow-opener and having a best leading to the latter, a valve mechanism for the hopper, a driving-wheel actuated by the furrow-opener, and connections between the driving-wheel and valve mechanism for operating the latter, said connections being passed through the best.

3. A planter comprising a furrow-opener, a hopper above the furrow-opener and having a best leading thereto, a valve mechanism for the hopper including a dropping-link having a gear, a longitudinally-adjustable shaft having pinions fixed thereon and disposed at opposite sides of the gear for alternate engagement therewith and for simultaneous disengagement therefrom, a sprocket-wheel mounted slidably upon the shaft and splined thereto, a driving-wheel within the furrow-opener and projecting therebelow, a sprocket-wheel rotatable with the driving-wheel, and a chain connecting the wheels and passed through the best.

4. A planter comprising a furrow-opener, a hopper above the furrow-opener having a best leading to the latter, a driving-wheel within the furrow-opener and projecting therefrom, a dropping mechanism for the hopper and adjustable connections between the driving-wheel and dropping mechanism for reversely operating the dropping mechanism.

699,881. BABY-COACH OR GO-CART. AUGUSTUS R. LANFLORE, Philadelphia, Pa., assignor to Fannie Bloch and Harry Levi, copartners trading as the Philadelphia Baby Carriage Factory, Philadelphia, Pa. Filed Aug. 24, 1901. Serial No. 73,507. (No model.)



Claim.—1. In a baby-coach or go-cart, an axle, springs secured directly thereto, handle-ranches secured directly to said springs approximately at the juncture of said axle and springs, and a frame or body portion secured to said springs.

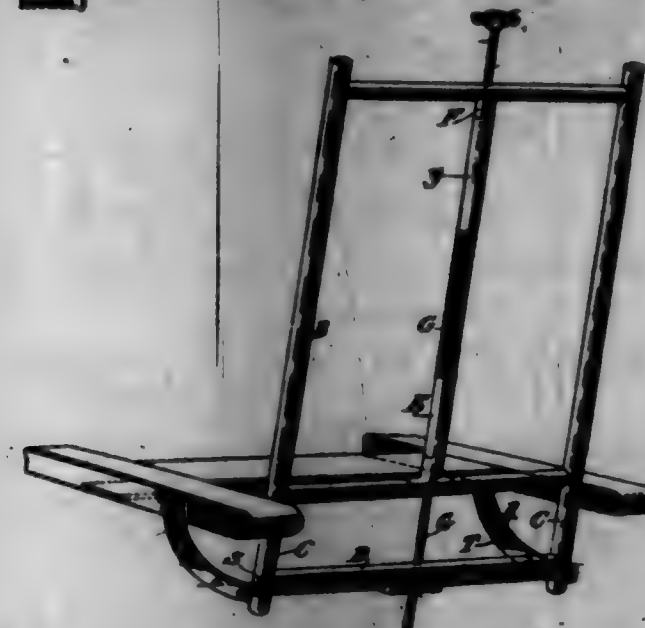
2. In a baby-coach or go-cart, an axle, a coupling-block secured to said axle, springs secured to said coupling-block, handle-ranches secured directly to said springs approximately at the juncture of said coupling-block and springs and braced upon said coupling-block, and a frame or body portion secured to said springs.

3. In a baby-coach or go-cart, an axle, a coupling-block mounted thereon and having a socket, springs mounted in the socket of said coupling-block,

means connecting said springs, coupling-block and axle, reaches connected directly with said springs and braced upon said coupling-block, and a frame or body portion secured to said springs.

4. The combination of a frame of a coach, springs for supporting the same, an axle and a coupling-block mounted upon said axle, said springs, coupling-block and axle being secured together, an overhanging arm at one end of said coupling-block, and a reach fastened under and engaged by said arm and provided with a dedicated end portion secured to said springs.

699,882. BABY-COACH OR GO-CART. AUGUSTUS R. LANFLORE and HARRY LEVI, Philadelphia, Pa., assignors to Fannie Bloch and Harry Levi, copartners trading as the Philadelphia Baby Carriage Factory, Philadelphia, Pa. Filed Aug. 24, 1901. Serial No. 73,508. (No model.)



Claim.—1. In a baby-coach or go-cart, a seat having a relatively tiltable back, locking device at the lower end portion thereof, an operating handle or finger-piece at the upper end portion thereof, and a connecting-piece extending in the plane of the back from said handle or finger-piece to said locking device.

2. In a baby-coach or go-cart, a seat having a relatively tiltable back, locking device at the lower end portion thereof, an operating handle or finger-piece at the upper end portion thereof, and a connecting-piece extending in the plane of the back between said handle or finger-piece and said locking device and entirely within the sides of said back.

3. In a baby-coach or go-cart, a seat having a relatively tiltable back, locking device at the lower end portion thereof, an operating handle or finger-piece and a spindle connected with said handle or finger-piece and said locking device, said spindle extending in the plane of said back.

4. In a baby-coach or go-cart, a seat having a relatively tiltable back, locking device at the lower end portion thereof, a rotatable spindle connected with said locking device for operating the same, said spindle extending upwardly in the plane of the back to the upper end portion thereof and provided at its upper end with an operating handle or finger-piece.

5. In a baby-coach or go-cart, a tiltable back, locking device at the lower end thereof, a spindle extending through one of the upright dovetails of the back and connected with said locking device for operating the same, and a handle or finger-piece at the upper end of said spindle.

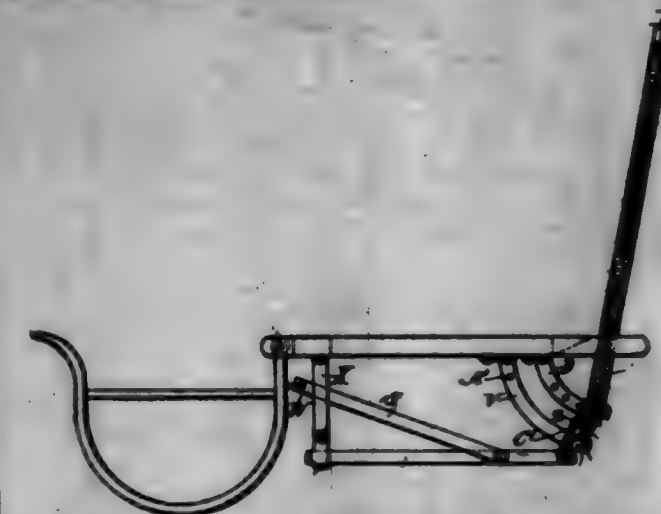
699,883. BABY-COACH OR GO-CART. AUGUSTUS R. LANFLORE and HARRY LEVI, Philadelphia, Pa., assignors to Fannie Bloch and Harry Levi, copartners trading as the Philadelphia Baby Carriage Factory, Philadelphia, Pa. Filed Sept. 5, 1901. Serial No. 74,396. (No model.)

Claim.—1. The combination with a frame of a coach or go-cart, of a tiltable back and footpiece, locking means for holding said back and frame relatively immovable, and device for actuating said locking means to connect or disconnect the back and frame and by means of which said footpiece is engaged and moved with the back.

2. A coach or go-cart having a tiltable back and footpiece, locking means for said back, a movable member connected with said footpiece, and device for actuating said locking means, and by means of which said movable member is engaged and said footpiece moved with the back.

3. A coach or go-cart having a tiltable back and footpiece, locking means for said back, a movable member connected with said footpiece, a catch to hold said member, and device for actuating said locking means and for extending said catch and by means of which said movable member is engaged and the footpiece moved with the back.

4. A coach having a tiltable back and footpiece, a guide mounted upon a stationary part of the coach, a sliding member mounted upon said guide and connected with the footpiece, a catch carried by said sliding member and adapted to engage said guide, means for tilting the back and for holding it in adjusted position, said means being normally disconnected from and movable independently of said sliding member and provided with a member to engage said catch and sliding member for disengaging the catch and guide and for moving said sliding member upon the guide when the back is tilted.



5. A coach or go-cart having a tiltable back and footpiece, a movable member upon the frame of the go-cart, a link pivotally connected therewith at one end, a movable guide engaging the other end of said link, a second link pivoted to said first-mentioned link and to the footpiece, and means for tilting the back, adapted to engage said movable member to shift the same and tilt the footpiece.

6. A coach or go-cart having a tiltable back and footpiece, a guide secured to a stationary portion of the coach or go-cart, and provided with an opening near its upper end, a sliding member mounted upon said guide and pivotally connected with the footpiece, a spring-actuated catch carried by said sliding member and adapted to engage said opening in the guide, a shoulder upon said catch, means for tilting the back embodying a rotatable spindle having a lug adapted to engage said shoulder of the catch to move said catch against the action of the spring and to engage said sliding member to move the same upon the guide.

7. The combination with the frame of a coach or go-cart, of a swinging back provided with laterally-extending locking-pins at the lower end portion of the sides thereof, a spring for moving said pins outwardly, device carried by said back for moving said pins inwardly, said device extending to the upper end portion of the back and being provided therewith with a handle or finger-piece.

8. The combination with a frame of a coach, of a swinging back, a rotatable spindle extending through said back and substantially in the plane thereof, locking-pins mounted upon said back and connected with said spindle to be moved thereby, a series of sockets to receive the ends of said pins, and a spring for moving said pins toward said sockets.

9. The combination with a frame of a coach, of a pivoted back, a rotatable spindle extending through the dovetail thereof and above and below the same, pins mounted upon said back and geared to said spindle, arms at the sides of said frame provided with openings to receive said pins, and a spring for moving said pins outwardly and into said openings.

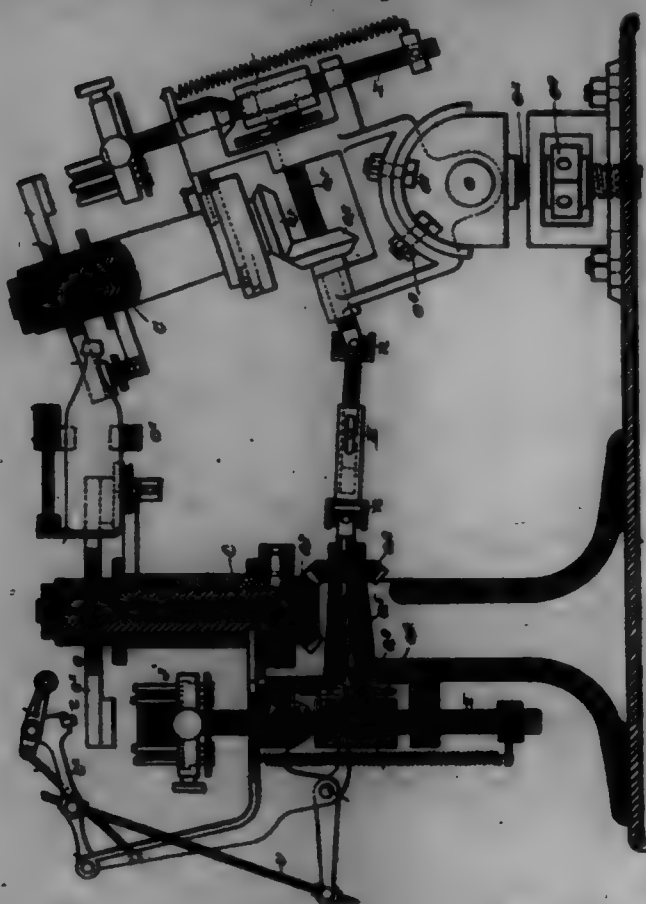
10. The combination with a frame of a coach, of a pivoted back, a rotatable spindle carried thereby and provided with a gear, pins mounted upon said back and having racks engaged by said gear, and arms upon said frame having openings adapted to engage said pins.

11. A coach having a tiltable back and footpiece, a guide mounted upon a stationary part of the coach, a sliding member mounted upon said guide and connected with the footpiece, interlocking means for said guide and sliding member adapted to interlock when the footpiece is elevated, means movable with the back for tilting the same and holding it in adjusted position, said means being provided with a member normally disconnected from and movable independently of said sliding member, and adapted to engage said interlocking means to unlock the same and allow the footpiece to descend, said member being also adapted to contact with and move the sliding member upon said guide to elevate the footpiece.

12. A coach having a tiltable back and footpiece, a guide mounted upon a stationary part of the coach, a sliding member mounted upon said guide and connected with the footpiece, a catch carried by said sliding member and adapted to engage said guide when the footpiece is elevated, means movable with said back for tilting the same and holding it in adjusted position, said means being provided with a member normally disconnected from and movable independently of said sliding member and

adapted to engage said catch to discharge the same from said guide to allow the footpiece to descend, said member being also adapted to contact with and move the sliding member upon said guide to elevate the footpiece.

699,884. BOTTLE-LABELING MACHINE. CHARLES LEVYMAN, Brooklyn, N. Y. Filed Feb. 23, 1900. Serial No. 6,985. (No model.)



Claim.—1. In a bottle-labeling machine, the combination with a bottle-carrier, of a label-applying mechanism cooperating therewith and means for adjusting the relative angular position of the carrier and label-applying mechanism.

2. In a bottle-labeling machine, the combination with a bottle-carrier, of two label-applying mechanisms cooperating therewith and means for adjusting the relative angular positions of the label-applying mechanisms.

3. In a bottle-labeling machine, the combination with a bottle-carrier, of two label-applying mechanisms cooperating therewith means for adjusting the relative angular position of the label-applying mechanisms, the driving-shafts of the two label-applying mechanisms being connected together.

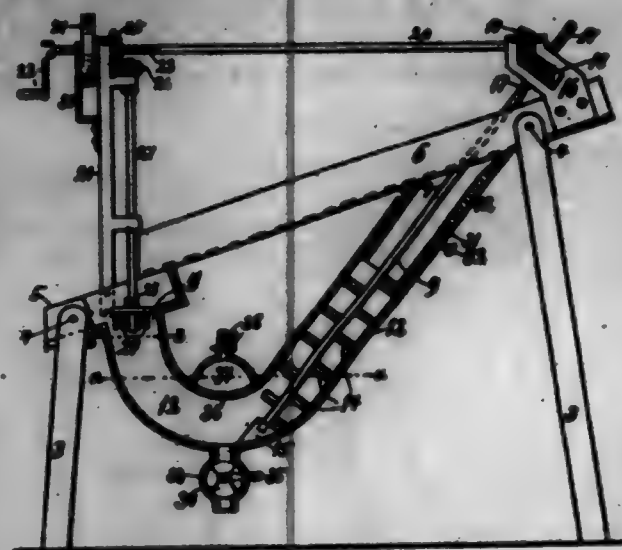
4. In a bottle-labeling machine, the combination of a reciprocating label-holder, a printing device adapted to print on the top label in the holder, a reciprocating member and a system of levers between the reciprocating member and the printing device substantially as described.

699,885. GOLD-SEPARATOR. ROBERT C. LINTON, Napleton, N. D. Filed May 11, 1901. Serial No. 59,957. (No model.)

Claim.—1. A gold-separator having in combination a pipe curved downward near its middle, or between its ends forming a short and a long inclined arm, a vacuum-chamber at the upper side of the curve, opening into the pipe and having a petcock at its top, said chamber and curve of the pipe, being adapted to contain mercury; an inclined stirrer-shaft in the long arm of the pipe for driving and stirring the water-mixed gold-holding sand through the pipe, a stirrer at the outlet end of the short arm of the pipe for separating the mercury and gold from the sand or gravel before it leaves the machine, means for connecting and driving or operating said stirrer, and means for providing a current of water to pass through the pipe.

2. In a gold-separator and mounted in suitable framework the combination with a V-shaped pipe having a short outlet-arm and a long inclined inlet-arm of an inclined stirrer-shaft journaled to revolve axially in the long arm of the pipe, a vertical stirrer-shaft having a vertically-adjustable stirrer revolving in the mouth or outlet opening of the short pipe-arm, the horizontal operating-shaft 30, having the crank 23 and the pulley 24, the bevel-gears 18, 19 and 25 and 26 connecting the operating-shaft with both of the stirrer-shafts; said operating-shaft also having the long lay-

way 23, the pulley 24, and gear 25 having keys slidable in said keyway; a key secured in the gear 18 and the long keyway 11 in shaft 9; the said long pipe-arm having the slidable joint 31 with the cut-screw 28; the discharge-box 5 6, made in two overlapping sections, so as to be extendible when the joint 31 and the shaft 30 are extended.



699,886. WAXER FOR CUT-IRONS. BLAIR LEON, Newport, N. Y. Filed Mar. 18, 1901. Serial No. 61,457. (No model.)



Claim.—A waxing device for cut-irons, consisting of a shell provided with a handle at one end, a piece of wax under constant pressure in said shell, a helical spring interposed between the inner end of the wax and the shell, and a retaining-piece of textile fabric attached to the shell and extending over the open end of the same and the wax, substantially as set forth.

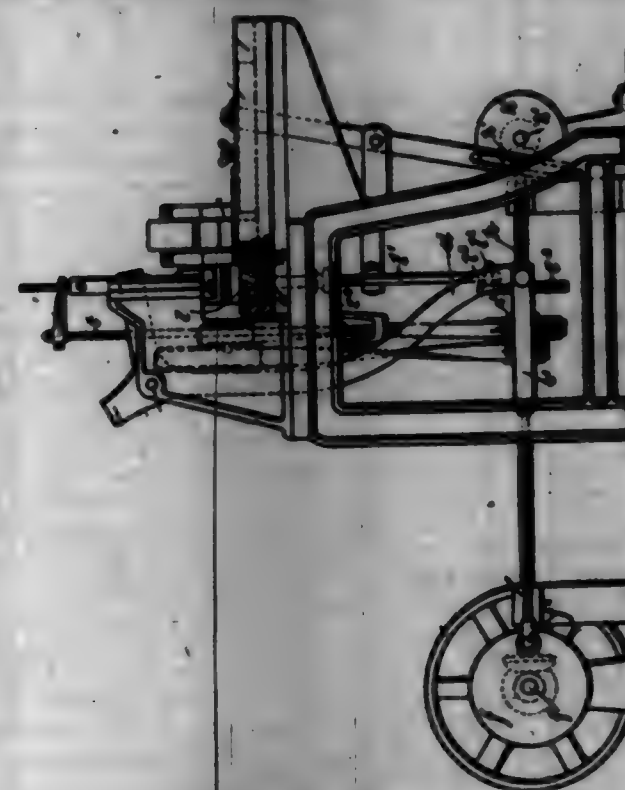
699,887. SOAP-PRIMER. JOHN B. HAMMAR, Toronto Junction, Canada, assignor of one-half to David Brown, Donaghmore, Ireland. Filed Dec. 11, 1901. Serial No. 55,473. (No model.)

Claim.—1. In a machine of the class described, the combination with the vertically-reciprocating disc, of a charging-table, a charger arranged to push the bars placed thereon into the disc, and a discharging-striker acting in the plane of the charger at an angle to the line of movement thereof adapted to discharge the pressed bar from the disc and throw the same laterally out of the path of the impressed bar which is to be advanced by the charger, substantially as set forth.

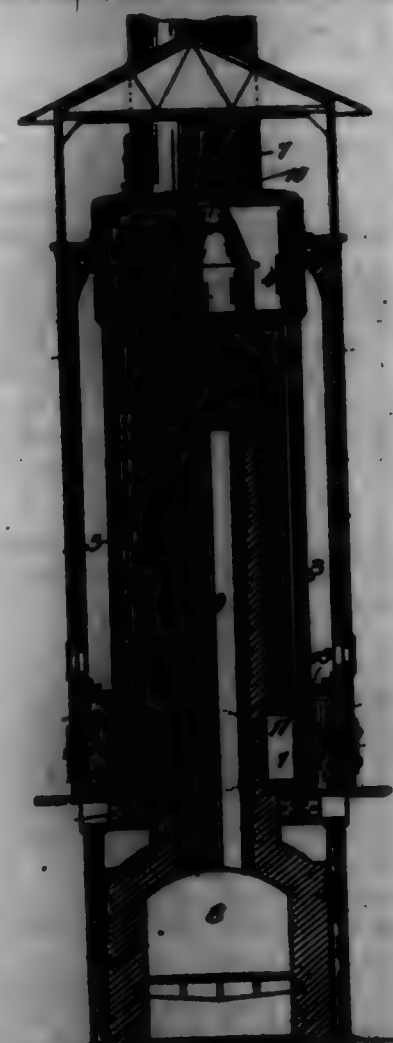
2. In a machine of the class described, the combination with a discharge having a mouth or opening at the top, of a vertically-reciprocating upper die adapted to force a cake to be pressed down into a die-box through said opening, the lower die reciprocating vertically within the die-box and arranged to return the stamped cake to the mouth of the box, a charging-table on a level with the mouth of the die-box, a charger arranged to push an unstamped cake along said table to the mouth of the die-box, a discharge-truck leading laterally from said mouth of the die-box, the discharging-striker arranged opposite said discharge-truck facing the same and acting across the mouth of the die-box to throw the pressed cake into the discharge-truck, and mechanism for automatically returning the several moving parts, as set forth.

3. In a machine of the class described, the combination with the vertically-reciprocating disc of a charging-table in front of said disc, a charger adapted to push between the disc a bar or cake placed on said charging-table, a discharging-striker acting at an angle to the charger in the same horizontal plane to discharge the pressed bar from the disc and throw the same laterally out of the path of the impressed bar which is to be advanced by the charger, and mechanism for actuating the striker, said mechanism being arranged to return the striker more quickly than the cake is advanced.

4. In a machine of the class described, the combination with the vertically-reciprocating disc, of a charging-table in front of said disc, a reciprocating charging-plunger arranged to slide to and fro on said table, and mechanism for actuating said plunger, a discharge-truck at right angles to the line of travel of the charging-plunger, a stop on the opposite side of the disc from the charging-plunger, a discharging-plunger arranged to slide to and fro in a path at right angles to the charging-plunger and facing the discharge-truck, mechanism for advancing the discharge-plunger, and a spring for quickly snapping back the said discharge-plunger after it has made its forward journey.



699,888. REVOLVING CHAIR. ARTHUR L. MARSHALL, NEWTON, Mass. Filed Jan. 6, 1902. Serial No. 58,884. (No model.)



Claim.—1. The combination of a beller consisting of an upper drum, an annular lower drum and tubes connecting said drums, a fire-chamber,

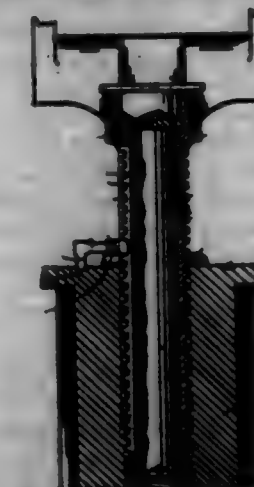
a combustion-chamber extending from the fire-chamber through the lower drum and up between the tubes toward the upper drum and an insulating casing or shell having its upper end closed and its lower end connected to the stack, substantially as set forth.

2. The combination of a beller consisting of upper and lower drums and vertical tubes connecting said drums, a metal shell including the drums and tubes, and a protecting-roof arranged above the beller and supported by the metal shell, substantially as set forth.

3. In a beller the combination of a beller consisting of an upper drum and an annular lower drum and tubes connecting said drums, a fire-chamber, an annular combustion-chamber extending from the fire-chamber through the lower drum and up between the tubes toward the upper drum and an insulating casing having its lower end connected to the stack and provided with a contracted throat above the point of connection with the stack, substantially as set forth.

4. The combination of a beller consisting of an upper drum, an annular lower drum and tubes connecting said drums, a fire-chamber located below the lower drum, an annular combustion-chamber extending from the fire-chamber up through the lower drum and between the tubes to a plane adjacent to the upper drum and an insulating case or shell having its lower end connected to the stack, substantially as set forth.

699,889. REVOLVING CHAIR. ARTHUR L. MARSHALL, NEWTON, Mass. Filed Jan. 6, 1902. Serial No. 58,884. (No model.)



Claim.—1. The combination of a hub, a spindle, a member supported by the hub and revoluble with respect to said hub, two of said parts having threaded engagement with each other, and means for locking the revoluble member to the spindle, under one adjustment of said means, to prevent rotation of the spindle in said revoluble member, and for unlatching said revoluble member from the spindle, and locking the same to the hub, under another adjustment of said means, one of said adjustments permitting of the spindle rotating without raising or lowering the same, and the other of said adjustments permitting of the vertical adjustment of the spindle.

2. The combination of a hub, a sleeve supported by the hub, a spindle within the sleeve, two of said parts having threaded engagement with each other, means for locking the sleeve to the hub, and means when the locking mechanism is disengaged from the hub for locking the sleeve and spindle together in order to prevent rotation of the spindle in the sleeve, one of said adjustments permitting of the spindle rotating without raising or lowering the same, and the other of said adjustments permitting of the vertical adjustment of the spindle.

3. The combination of a hub, a sleeve supported by the hub, a spindle within the sleeve, two of said parts having threaded engagement with each other and means for locking the sleeve to the hub under one adjustment of said means, and under another adjustment of said means to disengage said means from the hub and cause the same to engage and lock the sleeve and spindle together in order to prevent rotation of the spindle in the sleeve, one of said adjustments permitting of the spindle rotating without raising or lowering the same, and the other of said adjustments permitting of the vertical adjustment of the spindle.

4. The combination of a hub, a sleeve supported by the hub, a longitudinally-recessed spindle within the sleeve, two of said parts having threaded engagement with each other and locking means engaging the sleeve and adapted under one adjustment to also engage the recess of the spindle and thereby lock the sleeve and spindle together, in order to prevent rotation of the spindle in the sleeve, and under another adjustment to be disengaged from the recess of the spindle and engage the hub, and thereby lock the sleeve to said hub, one of said adjustments permitting of the spindle rotating without raising or lowering the same, and the other of said adjustments permitting of the vertical adjustment of the spindle.

5. In a revolving chair, the combination of a hub having a threaded

here, an exteriorly-threaded and longitudinally-slotted sleeve, the threads thereof engaging the threaded bore of the hub, a longitudinally-recessed spindle depending from the chair-seat and revoluble in the sleeve, a loose member, a part carried by the loose member, and having one portion thereof, when said part is under one adjustment, adapted to extend into the slot of the sleeve, and, when under another adjustment, to have another portion thereof adapted to extend through the slot of the sleeve and into the recess of the spindle, and means adapted, when the portion of said part which engages only the slot of the sleeve, is in engagement with said slot, to lock the loose member and the said part carried thereby against turning.

6. In a revolving chair, the combination of a hub having a threaded bore and provided on its top with a plurality of steps, an exteriorly-threaded and longitudinally-slotted sleeve, the threads thereof engaging the threaded bore of the hub, a longitudinally-recessed spindle depending from the chair-seat and revoluble in the sleeve, a loose member, a part carried by the loose member, and having one portion thereof, when said part is under one adjustment, adapted to extend into the slot of the sleeve, and having another portion thereof, when said part is under another adjustment, adapted to extend through the slot of the sleeve and engage the recess of the spindle, and means adapted to engage any of the series of steps, when the portion of said part which engages only the slot of the sleeve is in engagement with said slot, to thereby lock the loose member and the said part carried thereby against rotation.

7. In a revolving chair, the combination of a hub having a threaded bore, and also provided with a step, an exteriorly-threaded and longitudinally-slotted sleeve, the threads thereof engaging the threaded bore of the hub, a longitudinally-recessed spindle depending from the chair-seat and revoluble in the sleeve, a loose member, a part carried by the loose member, and having one portion, when said part is under one adjustment, adapted to extend into the slot of the sleeve, and having another portion, when said part is under another adjustment, adapted to extend through the slot of the sleeve and engage the recess of the spindle, said part also provided with a dog adapted to engage the step of the hub, when the portion of the said part which engages only the slot is in engagement with said slot, to thereby hold the loose member and the said part which it carries against rotation.

8. In a revolving chair, the combination of a hub having a threaded bore and also provided with a step, an exteriorly-threaded and longitudinally-slotted sleeve, the threads thereof engaging the threaded bore of the hub, a longitudinally-recessed spindle depending from the chair-seat and revoluble in the sleeve, a loose member on the top of the hub and surrounding the threaded sleeve, a lever pivoted to the loose member, and having its short arm, when the lever is turned in one direction, adapted to extend into the slot of the sleeve, and having its long arm provided with a depending dog adapted to engage the step on the hub when the short arm of the lever is engaging the slot of the sleeve, the said long arm of the lever when the lever is turned in the opposite direction adapted to be thrown into engagement with the slot of the sleeve and also in engagement with the recess of the spindle, when said recess is brought into registration with the slot.

9. The combination of a hub, a spindle, a sleeve supported by the hub, two of said parts having threaded engagement with each other, and means for locking the sleeve to the spindle under one adjustment of said means in order to prevent rotation of the spindle in the sleeve, and for locking said sleeve to the hub under another adjustment of said means, one of said adjustments permitting of the spindle rotating without raising or lowering the sleeve, and the other of said adjustments permitting of the vertical adjustment of the spindle.

10. The combination of a hub, a spindle, a sleeve supported by the hub, two of said parts having threaded engagement with each other, a loose member carried by the hub and revoluble thereon, and locking mechanism carried by the loose member and adapted for locking the sleeve to the spindle under one adjustment of the locking mechanism in order to prevent rotation of the spindle in the sleeve, and for locking said sleeve to the hub under another adjustment of said locking means, one of said adjustments permitting of the spindle rotating without raising or lowering the spindle, and the other of said adjustments permitting of the vertical adjustment of the spindle.

699,890. KNIFE-SHARPENER. ALFRED M. McLEMAN, Reno, Cal., Kans. Filed June 10, 1901. Serial No. 63,914. (No model.)

Claim.—1. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends pressed toward each other with a yielding pressure, and sharpening-blades mounted in said frames and having their grinding-surfaces intersecting or crossing each other, substantially as described.

2. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed

toward each other with a yielding pressure, and sharpening-blades mounted in said frames and having their grinding-surfaces converging with respect to each other, substantially as described.



3. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed toward each other with a yielding pressure, and sharpening-blades mounted in said frames, and having their grinding-surfaces converging and intersecting or crossing each other, and beveled to provide a slicing mouth, substantially as described.

4. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed toward each other with a yielding pressure, and sharpening-blades mounted in said frames and provided with interlocking or overlapping ribs having their inner faces adapted to operate upon the knife to be sharpened, substantially as described.

5. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed toward each other with a yielding pressure, and sharpening-blades mounted in said frames and provided with interlocking or overlapping ribs; said ribs having their inner faces formed with teeth which extend in the same general direction when fitted together, substantially as described.

6. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed toward each other with a yielding pressure, and provided with longitudinal grooves of gradually-varying width, and sharpening-blades corresponding in form to said grooves and fitting snugly therein, and having their inner or grinding faces converging with and intersecting each other, substantially as described.

7. A knife-sharpener, comprising a base portion, a pair of arms attached thereto and provided with frames at their free ends held pressed toward each other with a yielding pressure, sharpening-blades mounted in said frames and having their grinding-surfaces intersecting or crossing each other, and means for attaching the device to a suitable support, substantially as described.

8. In a knife-sharpener, a pair of frames held toward each other with a yielding pressure, said frames being formed at their inner or opposing sides with longitudinal grooves, whose sides converge inwardly or in the direction of the pressure applied as the knife-blade is forced down between them, and sharpening-blades of corresponding taper at their side edges and of size to fit snugly in said grooves, substantially as described.

9. In a knife-sharpener, a pair of frames held toward each other with a yielding pressure, said frames being formed at their inner or opposing sides with longitudinal grooves, whose sides converge inwardly or in the direction of the pressure applied as the knife-blade is forced down between them, and also inwardly toward the opposite frame, and sharpening-blades fitting snugly in said grooves and of corresponding contour as to be held reliably in the frames, substantially as described.

699,891. CAN OR LIKE CLOSURE. ARTHUR R. McWHART, Cleveland, Ohio. Filed Aug. 21, 1901. Serial No. 73,971. (No model.)



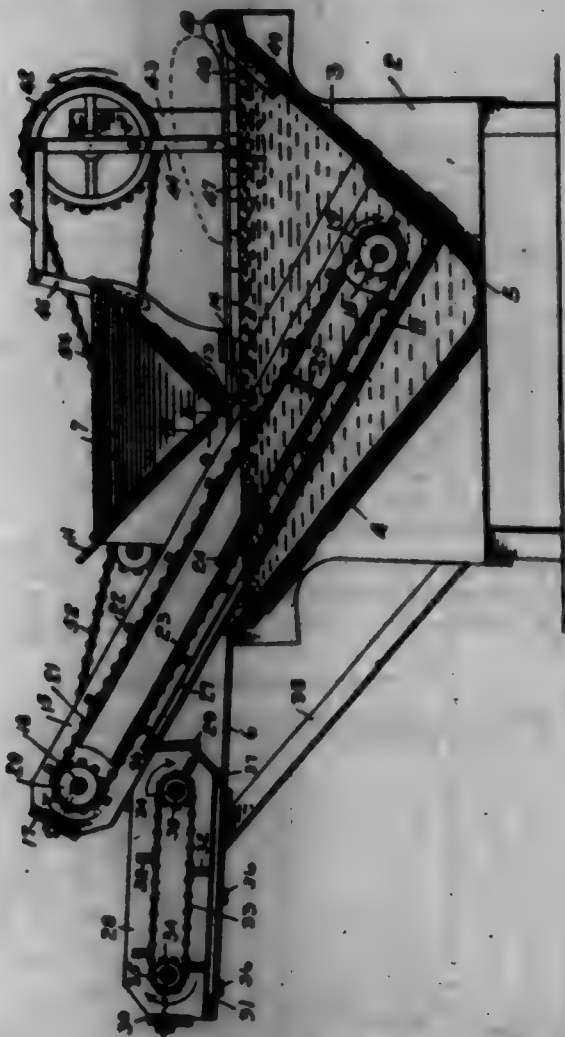
Claim.—1. A can or like closure having near its top an interior ledge or shoulder and a raised portion above said ledge or shoulder, a cover fitting within said raised portion and supported by said ledge, a bar extending across said cover to lock it in position, said raised portion of the can being formed upon its interior at one side with a seat for one end of said locking-bar and at its opposite side with a groove having an angular or offset portion to receive and retain the corresponding end of the locking-bar.

2. A can or like closure having upon its interior at one side of its top a groove open at one end to admit a locking-bar and formed with an angular or offset portion to hold said bar in locked position, the opposite side of the can-top being provided with means for engaging the other end of said locking-bar, a cover for the can and a locking-bar extending over said cover and engaging the top of the can.

3. A can or like closure having near its top an interior ledge or shoulder and a raised portion above said ledge or shoulder, said raised portion being provided within its interior with seats or depressions to receive the ends of a locking-bar, one of said seats or depressions being offset as at *f* to form a shoulder *f'* for holding the bar in locked position, a cover sitting within said raised portion and supported by said ledge and a locking-bar extending across said cover and having its ends within said seats or depressions.

4. A can or like closure having within its upper portion a metal ring extending over the top of the can-body and provided at a distance below said top with an inwardly-extending ledge or shoulder, said ring and said can-body being formed above said ledge or shoulder with seats or depressions to receive the ends of a locking-bar, one of said seats being formed with an offset portion to retain the locking-bar in position, a cover supported by said ledge or shoulder and a bar extending across said cover and having its ends within said seats or depressions.

699,892. SMUT-MACHINE. JOHN L. OWEN, Minneapolis, Minn.
Filed Feb. 4, 1901. Serial No. 46,511. (No model.)



Claim.—1. The combination, with a tank adapted to contain a supply of water and provided with a suitable hopper, of an inclined elevator-trunk within said tank beneath said hopper, a floor 18 in the bottom of said trunk whereon the grain falls from said hopper, a slatted elevator-belt adapted to sweep over said floor and carry the grain to the upper end thereof out of the water in the tank, a perforated plate or section provided near the upper end of said floor whereon the grain is partially drained before its discharge by said conveyor, a trough beneath the discharge end of said floor to receive the grain therefrom, a perforated floor therein whereon the grain falls and is drained a second time, and a slatted belt operating over said perforated floor to sweep the grain to the discharge end of said trough, substantially as described and for the purpose specified.

2. The combination, with a tank adapted to contain a supply of water and provided with a suitable hopper, of an inclined elevator-trunk within said tank beneath said hopper, a floor 18 in the bottom of said trunk whereon the grain falls from said hopper, a slatted elevator-belt adapted to sweep over said floor and carry the grain to the upper end

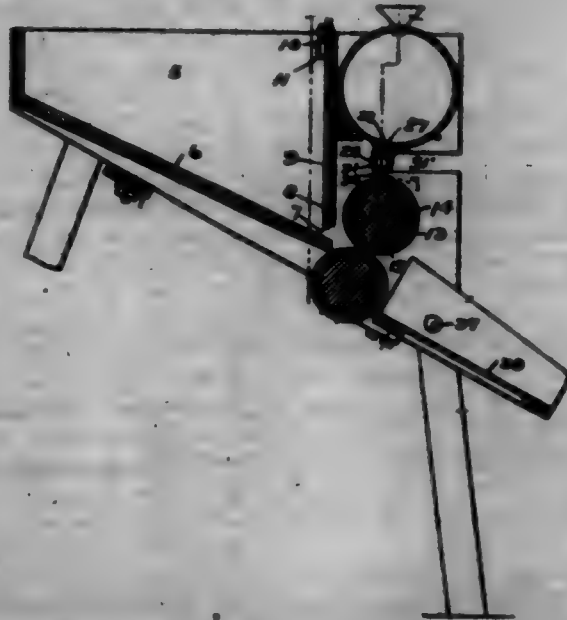
thereof out of the water in the tank, a trough 28 beneath the discharge end of said floor to receive the grain therefrom, a perforated plate 31 in the bottom of said trough whereon the grain falls and is drained of the water, a slatted belt operating over said plate to sweep the grain to the discharge end of said trough, and an impermeable plate 6 provided beneath said trough and plate and whereon the water drained from the wheat is conducted back to said tank, substantially as described and for the purpose specified.

3. The combination, with a tank adapted to contain a supply of water and provided with a suitable hopper, of an inclined elevator-trunk within said tank beneath said hopper, a floor 18 in the bottom of said trunk and whereon the grain falls from said hopper, a slatted elevator-belt adapted to sweep over said floor and carry the grain to the upper end thereof out of the water in the tank, a perforated plate or section provided in the upper end of said floor whereon the grain is partially drained of water before its discharge by said conveyor, a substantially horizontal trough 28 beneath the discharge end of said floor, a perforated plate 31 provided in the bottom of said trough and whereon the grain falls from said floor and is subjected to a second draining operation, a slatted belt operating over said plate to sweep the grain to the discharge end of said trough, and an impermeable plate 6 provided beneath said trough and perforated plate and inclined slightly toward said tank, whereby the drippings from said trough will be conducted back to said tank, substantially as described and for the purpose specified.

4. The combination, with a tank adapted to contain a supply of water and provided with a suitable hopper and a grain-elevating mechanism, of a sprocket-wheel supported on the wall of said tank, means for driving said wheel, a lever 44 pivoted eccentrically on said wheel and depending to a point near the water in said tank, a skimmer device 47 provided on the lower end of said lever and adapted to sweep over the surface of the water when said lever is elevated, a fixed arm 45 and a link 46 pivotally connecting said arm 45 and the upper end of said lever, whereby when said wheel is revolved a gyrating motion will be imparted to said lever and skimmer, for the purpose specified.

5. The combination, with a tank adapted to contain a supply of water and provided with a suitable hopper and grain-elevating device, of a gear-wheel supported on the wall of said tank, means for driving said wheel, a lever 44 eccentrically pivoted on said wheel and depending to a point near the surface of the water in the tank, a skimming device provided on the lower end of said lever and adapted to sweep over the surface of the water and gather up the smut thereon, a perforated plate provided on the wall of said tank whereon the smut is deposited by the action of said skimmer, and means connected with the upper end of said lever, whereby when said wheel is revolved said lever will be gyrated, substantially as described.

699,898. SMUT-MACHINE. JOHN L. OWEN, Minneapolis, Minn.
Filed Mar. 11, 1901. Serial No. 50,508. (No model.)



Claim.—1. An apparatus for destroying smut germs, comprising contacting rolls arranged one above the other each having a yielding porous covering, means for driving said rolls, means for delivering a chemical solution upon the upper roll, the lower-roll covering being saturated by the drippings from the upper roll, and means for delivering grain in a thin sheet between said rolls, substantially as described.

2. An apparatus for destroying smut germs, comprising two rolls arranged one above the other and each provided with a yielding porous covering, means for driving the lower roll, the upper roll being in contact

with the lower and driven thereby, means for delivering a chemical solution upon the surface of the upper roll is to be absorbed by the covering thereof and by the covering of the lower roll, means for delivering grain in a thin stream between said rolls, a dove to receive the grain from said rolls, and means for agitating said dove, substantially as described and for the purpose specified.

3. An apparatus for delivering said grain, comprising containing rolls arranged one above the other, each having a yielding porous covering, means for driving said rolls, a tank supported above said rolls, telescoping members provided beneath said tank and communicating therewith and each member having discharge-openings adapted to register and deliver the liquid in said tank upon the upper of said rolls, and means for delivering grain in a thin stream between said rolls.

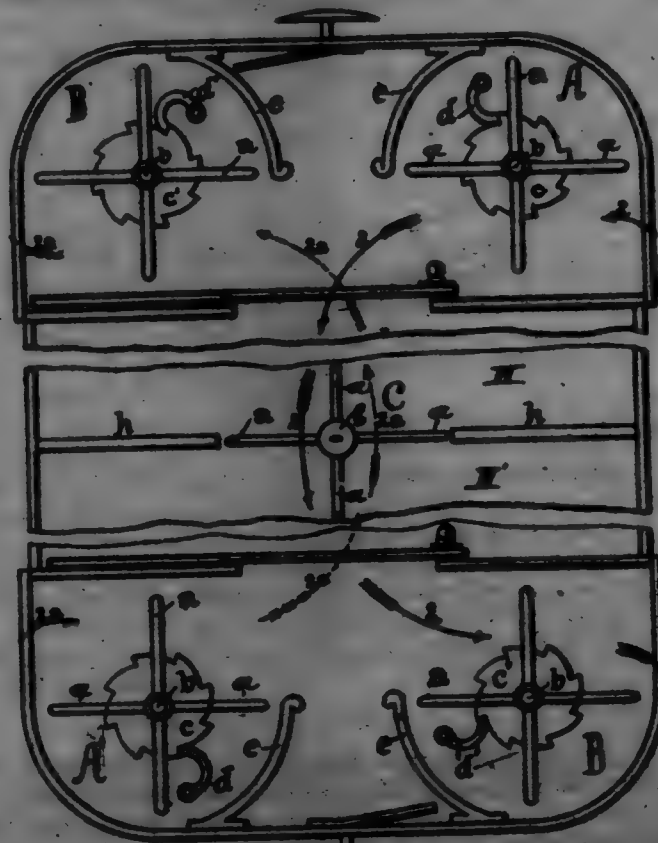
699,894. METAL STRIP OR GRANT FOR USE IN MANUFACTURE OF CARDBOARD BOXES. MAX R. FARMER, Dresden, Germany. Filed Sept. 12, 1897. Serial No. 661,494. (No model.)



Claim.—1. As an improved article of manufacture, a flat-bellied metallic fastening-strip having its extreme edge depressed at intervals, the material from the depressions forming teeth projecting at substantially right angles to the plane of the body of the strip, with a space between adjacent teeth, each of said teeth being bent in cross-section in a plane parallel with the plane of the body of the strip the base-line of each tooth starting from the original edge of the strip and returning to it; substantially as described.

2. As an improved article of manufacture, a metallic fastening-strip having its edges depressed at intervals, the material from the depressions forming teeth projecting at substantially right angles to the plane of the body of the strip and the sides of each of the teeth extending along the edges of both adjacent projections left by the depressions, whereby a tooth bent in cross-section is formed; substantially as described.

699,895. AUTOMATIC PAPER-COLLECTING APPARATUS FOR STREET-CARS OR OTHER PUBLIC VEHICLES. LEONARD FARMER, Vienna, Austria-Hungary. Filed July 12, 1900. Serial No. 94,900. (No model.)



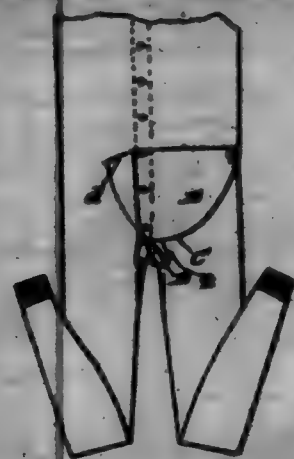
Claim.—1. The combination in a vehicle of means for permitting entrance but barring exit, means for permitting exit but barring entrance, a passage between the two, and coin-controlled step-by-step mechanism blocking said passage except upon the deposit of a suitable coin.

2. The combination, in a vehicle, of a turnstile permitting entrance and barring exit, a turnstile permitting exit and barring entrance, and an intermediate coin-controlled turnstile having passage between the other two except when released upon the deposit of a suitable coin.

3. The combination, in a vehicle having and platform, of two turnstiles on each platform, one barring exit and permitting entrance, and the other barring entrance and permitting exit, the corresponding turnstiles for each platform being arranged diagonally opposite each other, and an intermediate coin-controlled turnstile placed between the platforms and blocking the only passage from the entrance-turnstiles to their relative exit-stiles.

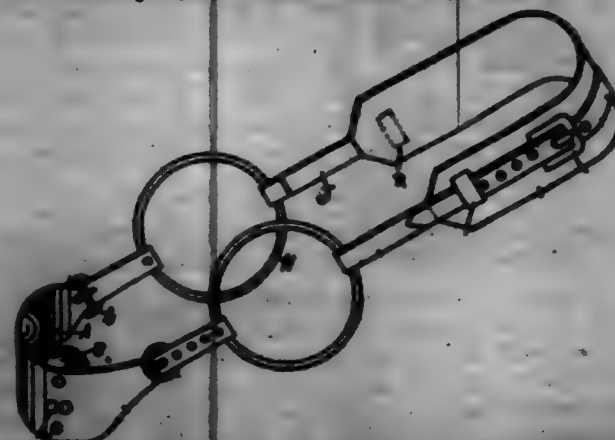
4. The combination of the entrance-turnstiles at one end of the car or vehicle, arranged to bar exit, the exit-turnstiles at the other end of the car or vehicle, arranged to bar entrance, the partition dividing the car into front and rear compartments, and the coin-controlled turnstile blocking the passage between these compartments.

699,896. UNDERGARMENT. FRANK J. FINE, Worcester, R. I. Original application filed Sept. 25, 1891, Serial No. 74,000. Divided and this application filed Mar. 2, 1902. Serial No. 97,500. (No model.)



Claim.—A garment having a front, buttoned opening extending down to the feet, and also having an opening in its rear communicating with the front, buttoned opening and extending upwardly from the crotch, and cut portion, the flap B joined along its vertical edge to one of the cut portions at one edge of the rear-opening and extending throughout the latter, means for detachably connecting the free portion of said flap to the body of the garment, and a supplemental flap forming a continuation of the inner layer of the buttoned front of the garment joined along its vertical edge to the cut portion opposite to that to which the flap B is joined, and joined at its upper end to the body of the garment; the said supplemental flap being arranged to normally rest within the flap B.

699,897. ANALYTIC BANDAGE. THOMAS L. RAY, Fort Worth, Tex. Filed Apr. 9, 1891. Serial No. 64,900. (No model.)



Claim.—1. A bandage consisting of strips adapted to circumscribe the head and having a cushion and pads attached to the inside thereof, and means for protecting the ear from the pressure of the strips, said strips being provided with suitable buckles whereby said pads may be adjusted to press on the nerve centers about the head for controlling the flow of blood through the head and the face.

2. A bandage provided with strips adapted to circumscribe the head, pads attached to the inside of the strip passing around the lower back part of the head at points adjacent to the vasomotor nerve centers at the base of the skull, said rings circumscribing the ear for protecting the ear from the pressure of said strips, said strips being attached to said rings.

3. A bandage consisting of a strip adapted to pass around the lower

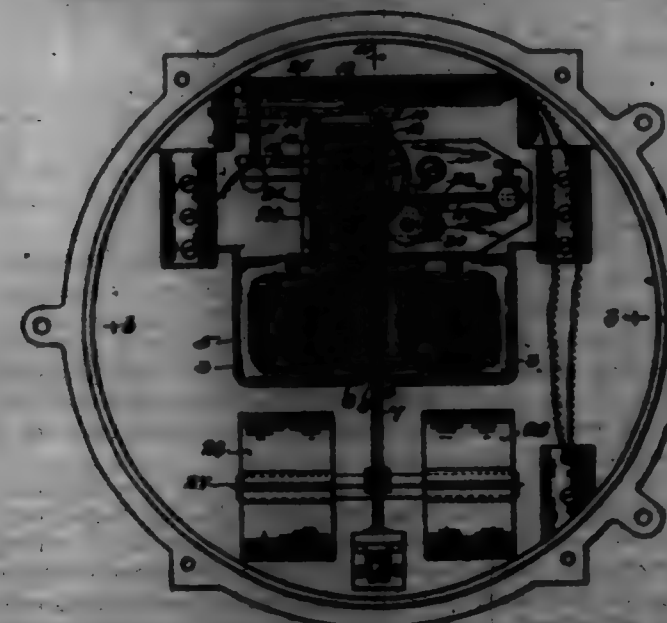
back part of the head and having two pads attached to the inside thereof adjacent when in position to the vasomotor nerve centers at the base of the skull, a ring circumscribing each ear, said strip adapted to pass said pads against the head and being adjustably attached to said rings and connected together in front of the forehead whereby said strips hold said rings in place and draw said pads against the head, and a forehead-strap adjustably mounted on the inside of said strips for protecting the forehead from said strips.

699,898. REGISTER. RICHARD HANSEN, Christiania, N. Filed Jan. 28, 1892. Serial No. 61,900. (No model.)



Claim.—In a register, the combination of a case having an opening and a glass in its front wall; said glass being provided with a pointer, a rotary disk mounted in the case opposite the glass and having numbered divisions on its face, a rotary disk also mounted in the case and having a circular series of consecutive numbers on its face arranged to be exposed through the opening of the case, means for rotating the first-mentioned disk, a case fixed with respect to said disk and having a notch in its periphery, a ratchet fixed with respect to the second-mentioned disk, the flat spring I connected at one end to the case and having its free end disposed against the periphery of the case and adapted to lateral, flat spring into the notch thereof, and also having the spring-arm F arranged in engagement with the ratchet, and means for preventing retrograde movement of the rotary disk.

699,899. ELECTRIC METER. GEORGE A. SCHNEIDER, Perth, N. S. W., assignor to the Diamond Meter Company, Perth, N. S. W. Filed Jan. 10, 1900. Serial No. 1,001. (No model.)



Claim.—1. In a meter, the combination with the armature-winding thereof, of a shaft upon which the armature-winding is rotatably mounted, a yoke 14 secured to the shaft, a cylindrical contact-pin located in axial alignment with the shaft, said contact-pin constituting a terminal of the armature-winding, a brush engaging the said contact-terminal for connecting a terminal of the armature-winding with one side of a distribution-circuit, and means for connecting the other terminal of the armature-winding with the remaining side of the distribution-circuit, substantially as described.

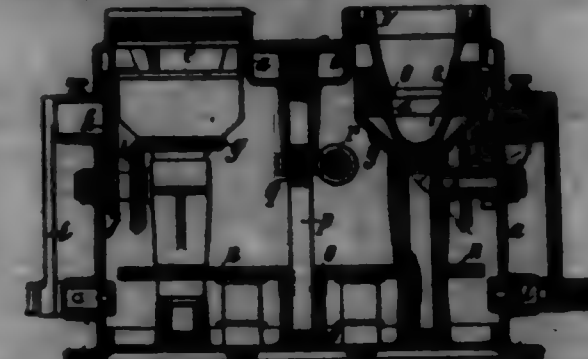
2. In a meter, the combination with the armature-winding thereof, of a shaft upon which the armature-winding is rotatably mounted, a yoke

14 secured to the shaft, an insulating portion 12 carried by the yoke, a cylindrical contact-pin secured to the said insulating portion and placed in axial alignment with the shaft, said pin having connection with the terminals of the armature-winding, and contact-brushes for engagement with the pin to include the armature-winding in circuit, substantially as described.

3. In a meter, the combination with the armature-winding thereof, of a shaft upon which the armature-winding is rotatably mounted, a yoke 14 secured to the shaft, an insulating portion 12 carried by the yoke, a cylindrical contact-pin secured to the said insulating portion and placed in axial alignment with the shaft, said pin having threaded engagement with the insulating portion, and nuts 13; 13 also having threaded engagement with the pin, terminal wires of the armature-winding being secured in electrical connection with the contact-pin through the agency of said nuts, substantially as described.

4. In an oscillating electric meter, the combination with the oscillating member thereof mounted upon a rotating shaft, of an arm movable with the oscillating member, an electromagnet, means controlled thereby for effecting the movement of the oscillating member of the meter in a direction reverse to the direction of rotation due to the torque-producing means of the meter, the said arm being adapted to come in contact with a terminal of the electromagnet to close circuit therewith, a yoke 14 carried by the shaft of the oscillating member, a cylindrical contact-pin carried by the said yoke in axial alignment with the said shaft, said pin having electrical connection with the said arm, and a brush for connecting the said electrical contact-pin with one side of the transmission-circuit, the remaining terminal of the electromagnet being suitably connected with the remaining side of the transmission-circuit, substantially as described.

699,900. APPARATUS FOR SETTING TIME-PURSE. CHARLES P. R. SCHNEIDER and JOHN R. G. A. GARDNER, Le Grand, France. Filed June 12, 1891. Serial No. 64,901. (No model.)



Claim.—1. In apparatus for setting time-purse, a casing, two members rotatably mounted in said casing, locking means for holding one of said members in any desired position of adjustment in the casing, manually-operable means for rotating the other member, and catches one on each member adapted to engage respectively with and temporarily lock the members to the two parts of the face which are relatively adjustable to give the desired setting.

2. In apparatus for setting time-purse, a casing, two members rotatably mounted in said casing, locking means for holding one of said members in any desired position of adjustment to which it is rotated, manually-operable means for rotating the other member, a stop device acting to arrest the rotation of said other member when it reaches a certain predetermined position, and a catch on each member adapted to engage respectively with and temporarily lock the members to the two relatively movable parts of the face.

3. In apparatus for setting time-purse, a casing, two members rotatably mounted therein, manually-operable gearing for rotating one of said members to any desired position of adjustment and for locking it in said position, manually-operable means for rotating the other member, a stop device acting to arrest the rotation of said member when it reaches a certain predetermined position, and a catch on each member adapted to engage respectively with and temporarily lock the members to the two relatively movable parts of the face.

4. In apparatus for setting time-purse, a casing, two hollow members rotatably mounted therein adapted to embrace a face inserted therein, manually-operable means for rotating one of said members to any desired position of adjustment, manually-operable means for rotating the other member, and a spring-actuated catch on each member adapted to engage respectively with and temporarily lock the members to the two relatively movable parts of the face.

5. In apparatus for simultaneously setting two time-purse, a casing, two members in said casing each comprising two hollow rotatable members adapted to embrace a face inserted therein, manually-operable means common to both mechanisms for simultaneously rotating one of the members of each mechanism to any desired position of adjustment, manually-

operable means common to both mechanisms for simultaneously rotating the other member of each mechanism, spring-actuated catches on each member adapted to engage respectively with and temporarily lock the members in the relatively movable parts of the frame.

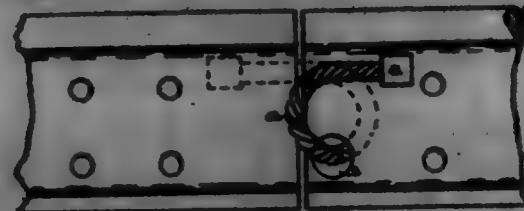
699,901. MIRROR-BRACKET. SVENNE SVENSSON, Sweden. Filed July 5, 1901. Serial No. 67,532. (No model.)



Claim.—1. A mirror-bracket comprising a mirror-supporting bar bent between its ends to provide oppositely-inclined members, side supports having braces at their lower ends for engagement with the back of the mirror, forwardly-extending shoulder-hooks arranged about midway of the ends of the said side supports, and an adjustable transverse connection forming a tie for the said side supports, substantially as specified.

2. A mirror-bracket formed of a single length of wire and comprising a transverse mirror-supporting bar having its end portions oppositely inclined, side members having their upper portions upwardly diverged and their lower parts constituting braces for engagement with the back of the mirror, shoulder-engaging hooks extended forward from the side members at a point intermediate of their ends, and a transverse connection forming a tie for the said side members, substantially as described.

699,902. RAIL-BOND CONSTRUCTION. EDWARD S. THOMAS, Cambridge, Mass. Filed Nov. 1, 1901. Serial No. 59,742. (No model.)



Claim.—1. A rail-bond consisting of a flexible strip, having portions of its length between its ends bent laterally, sufficiently to pass through the web of a rail.

2. A rail-bond consisting of a flexible strip, having its ends located in different planes, corresponding to the opposite sides of the web of a rail.

3. A rail-bond consisting of a flexible strip bent laterally between its ends and thereby adapted to be passed through an opening in one or both of the rails to be joined, and to be attached at each end to one of the rails.

4. In a rail-bond, a combination of two attaching-surfaces and a flexible portion bent in the direction toward which one or both of the said surfaces face, and thereby adapted to pass through the web of a rail.

5. In a rail-bonding construction, the combination with rails provided with a perforation, of a flexible connection secured to said rails and passing through said perforation.

6. In a rail-bonding construction, the combination with rails provided with an opening leading from one side to the other thereof, of a flexible strip passing through said opening and secured at its ends to the opposite sides of said rails.

699,903. RAIL-JOINT. JOHN THORNTON, Butler, Iowa. Filed Mar. 2, 1902. Serial No. 65,982. (No model.)



Claim.—1. In a rail-joint, a member having spaced longitudinal extensions, and a mortise extended inward from the extremity of the rail and opening upward through the tread-surface, and the other member having the foot of the rail cut away at each side of the web to receive the said extensions, which embrace the sides of the web, and a longitudinal extension to fit within the said mortise, substantially as set forth.

2. In a rail-joint, a member having spaced longitudinal extensions, and a mortise extended inward from the extremity and having its side walls upwardly flared, and the mating member having the foot cut away at each side of the web to receive the said extensions and having a longitudinal extension with its sides upwardly diverged to snugly fit the said mortise, substantially as set forth.

3. In a rail-joint, a member having spaced longitudinal extensions and a mortise, the mating member having a portion of the foot cut away upon each side of the web to receive the said extensions and having a longitudinal extension to snugly fit said mortise, and splice-plates secured to opposite sides of the joint and having offsetting wings to be attached to a tie, each of the splice-plates having an offset portion to fit a cut-away part of the foot of the rail member forming the joint, substantially as set forth.

699,904. UNIVERSAL JOINT. RICHARD C. WARREN, Hartford Conn. Filed Jan. 2, 1902. Serial No. 64,494. (No model.)



Claim.—1. In a universal joint, the combination, with a flanged shaft having headed studs, of a sectional connecting-block having grooves for the reception of the heads of said studs; a second shaft; and means for uniting said second shaft to said connecting-block.

2. In a universal joint, the combination, with a shaft having inwardly-projecting arms, of headed studs carried by said arms; a sectional connecting-block fitted to said shaft, each section being grooved to receive the studs; a second shaft having projecting arms; and means for uniting the shafts and sectional connecting-block.

3. In a universal joint, the combination, with a shaft having arms, of headed studs projecting inwardly from said arms; a sectional connecting-block, each section having grooves for the reception of the heads and shanks of said studs; a second shaft; and means for uniting said second shaft to the connecting-block.

4. In a universal joint, the combination, with a shaft having arms at its end, of headed studs carried by said arms; a sectional connecting-block having grooves for the reception of said studs, each section of said block being perforated; a second shaft having perforated arms; and a bolt for securing said shaft to the connecting-block, said bolt passing through the aligned perforations of the connecting-block.

5. In a universal joint, the combination, with a shaft having arms, of headed studs carried by said arms; a sectional connecting-block having grooves for the reception of said studs, each of the sections of said block being perforated; a second shaft having perforated arms; and means passing through the perforations of said arms and block for securing the parts together.

6. In a universal joint, the combination, with a shaft having arms, of headed studs carried by said arms; a sectional connecting-block, the sections of said block having grooves for the reception of the headed studs and being perforated; a second shaft having perforated arms, one of which is threaded; and a bolt having a thread at one of its ends for engaging with said threaded arm, said bolt passing through the perforations of the sectional connecting-block and serving to unite the parts, substantially as set forth.

7. In a universal joint, the combination, with a shaft secured at its end and having arms, of laterally-projecting, headed studs carried by said arms; a sectional connecting-block, each section of the block having grooves for the reception of the studs and also having lubricating passages, and each of said sections being perforated; a second shaft secured at its end and having perforated arms, one of said arms being laterally threaded; and a bolt having a screw-thread at its end, and serving to unite said shaft with the connecting-block.

8. The combination, with devices having flanged ends, of studs, each having a projection, carried by one of said devices; a sectional block, each section of which is shaped to receive the studs and is also perforated; and a bolt passing through one of the flanged devices and through the sectional block, said bolt bearing against the projections of the studs.

9. The combination, with devices, each having a pair of arms, one pair of said arms being perforated, of devices uniting laterally from the

other pair of said arms, said devices having projections, a sectional block having grooves to receive the projections, each section of said block being perforated; and a bolt passing through the perforations of the arms and block-sections and bearing against said projections.

699,905. RAIL-JOINT END-PLATE. JOHN E. WHITNEY, Johnstown, N. Y. Filed Aug. 28, 1901. Serial No. 73,795. (No model.)



Claim.—In a rail-joint end-plate consisting of a flat metal strip of about the same width as the flange of the rail, a turned-over portion formed upon one side of the strip, another turned-over portion formed upon the other side of the strip, an extension formed upon each end of the strip, and a tie passing through the perforations of the said ends and block for securing the parts together, substantially as and for the purpose specified.

699,906. RAILROAD WAGON AND RECEIPTAGE. CHARLES A. WILLIAMS, Chicago, Ill. Filed Sept. 25, 1901. Serial No. 74,046. (No model.)



Claim.—1. In a device of the class described, the combination with the wheels and running-gear, of a vertical frame carried thereby, and plural rows of supports for garbage-receptacles on both sides of said frame; substantially as and for the purpose described.

2. In a device of the class described, the combination with the wheels and running-gear, of a vertical frame carried thereby, and plural rows of supports on both sides of said frame, each of said supports consisting of a horizontal ring secured at one edge to said frame and having the vertical flange on the outer edge thereof; substantially as described.

3. In a device of the class described, the combination with the wheels and running-gear, of a vertical frame carried thereby, and plural rows of supports on both sides of said frame, said supports consisting of the horizontal rings secured at one edge to said frame and the brackets 25 secured to said frame and to said rings; substantially as described.

4. In a device of the class described, the combination with the vertical frame, of the supports formed of strips of angle-iron bent into circles and secured at one side thereof to said frame, and the said brackets 25 secured to said frame between the supports; substantially as described.

5. In a device of the class described, the combination with the vertical frame, of the supports consisting of the horizontal rings secured at one edge to said frame and having the vertical flange on the outer edge thereof; substantially as described.

thereof, and the brackets 15 secured to said frame above the points where the rings touch the frame; substantially as described.

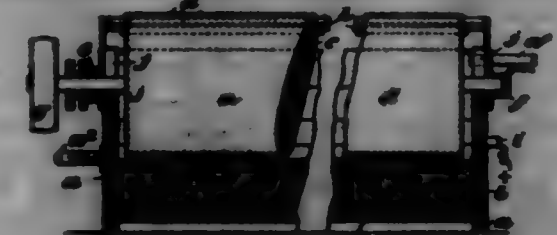
6. In a device of the class described, the combination with the vertical frame, of the supports consisting of the horizontal rings secured at one edge to said frame and having the vertical flange on the outer edge thereof, the brackets 25 secured to said frame and to said rings, and the brackets 15 secured to said frame above the points where the rings touch the frame; substantially as described.

7. In a device of the class described, the combination with a receptacle having the loop 9 formed in the upper edge thereof, of the lid having the loop 14 in the edge thereof engaging with the loop 9; substantially as and for the purpose described.

8. In a device of the class described, the combination with a receptacle having the ring 7 in the upper edge thereof, said ring being provided with the loop 9 thereof, of the lid having the ring 11 in the edge thereof, said ring being provided with the loop 14 engaging the loop 9; substantially as and for the purpose described.

9. In a device of the class described, the combination with the vertical frame, of the supports secured at one edge to said frame and having the vertical flange on the outer edge thereof, the brackets 15 secured to said frame above the points where the supports touch the frame, the receptacles having their lower ends adapted to fit in said supports and provided with the loops 9 in the upper edge thereof, the lids for said receptacles having the loops 14 engaging the loops 9, which are also adapted to engage the brackets 15; all combined and co-operating substantially as and for the purpose described.

699,907. ELECTROLYTIC APPARATUS FOR MANUFACTURING CERTAIN SALTS SUITABLE FOR THE SUBSEQUENT PRODUCTION OF CHLORINE. GEORGE J. AHERN, London, England. Filed Aug. 17, 1901. Serial No. 74,055. (No model.)



Claim.—Electrolytic apparatus for manufacturing certain salts suitable for the subsequent production of chlorine which consists of a long trough-like vessel *a* lined with a tubular member *b*, a cylinder *c* secured in said vessel forming a cathode arranged to rotate in the trough-like vessel *a*, a connection *d*, with a source of electricity arranged to deliver a current of not more than ten volts of electro-motive force to the electrolyte, a flexible scraper *e* to remove the adhering electrolyte solution and the bubbles of hydrogen from the rotating cathode, an inlet *f* for electrolyte solution at one end of the trough and an outlet *g* for same at the opposite end of the trough, substantially as described.

699,908. HAND-OUTTER AND FEEDER FOR THRESHING-MACHINES OR GRAIN-SEPARATORS. WILLIAM SHANNON, Kansas, Canada. Filed Sept. 12, 1901. Serial No. 74,594. (No model.)

Claim.—1. In a hand-outter and feeder, the combination of a cranked shaft, a feeder-board having one end connected with the crank on said shaft and its other end mounted to revolve, a sprocket-wheel carried by the crank of the shaft, a second sprocket-wheel carried upon bearings in the feeder-board, endless conveyor-chains passing over both said sprocket-wheels so as to be operated by the revolving motion of the cranked shaft simultaneously with the reciprocation of the feeder-board, and revolving cutter-knives hinged on the shaft of the second sprocket-wheel and operating in slots in said feeder-board.

2. In a hand-outter and feeder, the combination of a double-cranked shaft having its two cranks oppositely disposed upon the axle of the shaft, a pair of feeder-boards, one mounted on each of said cranks, a sprocket-wheel carried by each crank, a second sprocket-wheel mounted on a shaft carried rearwardly of said first sprocket-wheel upon each feeder-board and operating in a slot therein, an endless band or chain passing over each of said sprocket-wheels upon each feeder-board and carrying means for transporting the grain, a series of rotary cutters mounted on the shaft of the rearward sprocket-wheel in each feeder-board and operating in slots therein, a series of backwardly-directed pointed ledges or curvatures on the upper face of each feeder-board, and means for reciprocally supporting the rear end of each feeder-board, whereby the feeder-boards alternate with one another in their back-and-forth movements and the conveyor-chains and cutters are continuously operated.

3. In a hand-outter and feeder, a feeder-board having backwardly-facing curvatures or ledges upon its upper surface and a downwardly-bent

rear portion, a cranked shaft on which said roller-board is supported at one end, a pivoted link on which the other end of roller-board, a sprocket or gear wheel attached to the crank of the shaft, a second parallel shaft carried in bearings on the roller-board at the head thereof and close to the face of the roller-board, a sprocket or gear wheel carried thereon, endless chains or conveyor-belts passing over the face of the roller-board and around said sprocket-wheel and under its rear side through slots thereof, rotary cutters mounted on said last-mentioned shaft and likewise operating through slots adjacent to the head in the roller-board, and means for reciprocally supporting the rear end of the roller-board as described.



4. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board having an angular head intermediate thereof causing the rear portion to be downwardly and rearwardly deflected, bearings connecting the front end of said feeder-board with the cranked portion of said shaft, sprocket-wheel carried by said cranked portion, a transverse shaft journaled on said feeder-board close to the face thereof and adjacent to said angular head, sprocket-wheel and rotary cutters mounted on said shaft and operating through suitable slots in the feeder-board, endless conveyor belts or chains passing over both series of sprocket-wheel and having their upper runches close to the face of said board and their lower runches passing through said slots and around the lower face of said board, and laterally-feeding ridges or corrugations projecting from the upper face of said board along the length of the conveyor-chains and at each side thereof.

5. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board attached at its forward end to the cranked portion of said shaft and having its other end reciprocally mounted, sprocket-wheel carried by the cranked portion of said shaft, a transverse parallel shaft mounted midway of the feeder-board and carrying sprocket-wheel and rotary cutters, each operating through suitable slots in the feeder-board, conveyor-chains passing over said sprocket-wheel and adapted simultaneously to carry forward the grain placed upon said table and to operate said rollers to cut the heads, hicker-blades pivoted upon a second transverse shaft rearwardly of said first-mentioned shaft, and means for reciprocally said hicker-blades to open the grain after the operation of the cutter-blades.

6. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board supported by bearings at its forward end and to the cranked portion of said shaft and having its opposite end reciprocally mounted, sprocket-wheel carried by the cranked portion of said shaft, a transverse shaft mounted midway of the feeder-board adjacent to its face, sprocket-wheel and rotary cutter-blades mounted on said second shaft and operating in slots in the feeder-board, a chain conveyor passing over said sprocket-wheel and adapted to operate said rollers and to be operated by the turning of the cranked shaft, said chain conveyor having its upper runch passing over the face of said feeder-board and its

lower runch beneath the same and through the slots therein, and hicker-blades mounted on a transverse shaft rearwardly of said first transverse shaft and adapted to be opened to throw the grain upwardly and rearwardly toward the thrasher, substantially as described.

7. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board supported by bearings at its forward end and to the cranked portion of said shaft and having its opposite end reciprocally mounted, sprocket-wheel carried by the cranked portion of said shaft, a transverse shaft mounted midway of the feeder-board adjacent to its face, sprocket-wheel and rotary cutter-blades mounted on said second shaft and operating in slots in the feeder-board, a chain conveyor passing over said sprocket-wheel and adapted to operate said rollers and to be operated by the turning of the cranked shaft, said chain conveyor having its upper runch passing over the face of said feeder-board and its lower runch beneath the same and through the slots therein, a second transverse shaft mounted rearwardly of the first, cutter-shaped hicker-blades mounted on said second shaft and projecting forwardly through appropriate slots in the feeder-board, and means connecting said blades with a stationary point of the apparatus, whereby the reciprocation of the feeder-board causes the blades to be thrown up to project the grain upwardly and rearwardly.

8. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board having an angular head intermediate thereof causing the rear portion to be downwardly and rearwardly deflected, bearings connecting the front end of said feeder-board with the cranked portion of said shaft, sprocket-wheel carried by said cranked portion, a transverse shaft journaled on said feeder-board close to the face thereof and adjacent to said angular head, sprocket-wheel and rotary cutters mounted on said shaft and operating through suitable slots in the feeder-board, endless conveyor belts or chains passing over both series of sprocket-wheel and having their upper runches close to the face of said board and their lower runches passing through said slots and around the lower face of said board, and laterally-feeding ridges or corrugations projecting from the upper face of said board along the length of the conveyor-chains and at each side thereof.

9. In a head-cutter and feeder, a cranked shaft adapted for the application of power, a feeder-board having an angular head intermediate thereof causing the rear portion to be downwardly and rearwardly deflected, bearings connecting the front end of said feeder-board with the cranked portion of said shaft, a transverse shaft journaled on said feeder-board close to the face thereof and adjacent to said angular head, sprocket-wheel and rotary cutters mounted on said shaft and operating through suitable slots in the feeder-board, endless conveyor belts or chains passing over both series of sprocket-wheel and having their upper runches close to the face of said board and their lower runches passing through said slots and around the lower face of said board, a transverse shaft journaled upon the lower face of said feeder-board rearwardly of said cutters, cutter-shaped hicker-blades mounted on said shaft and projecting forwardly thereof, a crank-arm hinged to said last-mentioned shaft and attached to a stationary point of the apparatus, and a link having a stationary bearing at one end and supporting the feeder-board at the other end so as to permit the latter to oscillate or reciprocate thereon.

10. In a head-cutter and feeder, the combination of a plurality of feeder-boards, a grain-table having a longitudinal partition, a pair of sprocket-wheel for each feeder-board, one at each end of said partition and parallel therewith, a head-conveyor for each feeder-board passing over said sprocket-wheel and having its upper runch passing adjacent to the edge of the partition, and means for operating said conveyor-chains, whereby to push the grain off of the edge of said partition.

11. In a head-cutter and feeder, the combination of a plurality of feeder-boards, a grain-table having a longitudinal partition, a pair of sprocket-wheel mounted one at each end of the partition and parallel therewith, a head-conveyor for each feeder-board passing over said sprocket-wheel and having its upper runch adjacent to the upper edge of said partition, feeding means on the table for pushing forward the grain, and means for operating the head-conveyor at a different rate of speed from said feeding means, whereby to push the grain from the edge of said partition and throw it onto the table.

12. In a head-cutter and feeder, the combination of a grain-table having feeding means adapted to carry forward the grain thereon, a partition longitudinal thereof, a sprocket-wheel mounted at each end of the partition and in line therewith, an endless conveyor-chain passing over said sprocket-wheel and having its upper runch passing along the top edge of said partition, and means for operating said conveyor-chains at a different speed from the feeding mechanism, whereby to push off the grain helping on said partition.

13. In a head-cutter and feeder, the combination of a grain-table having endless conveyor-belts thereon adapted to push forward the grain, a partition longitudinal thereof and carrying at each end a sprocket-wheel parallel therewith, a head-conveyor carried on said sprocket-wheel and

having its upper runch extending along the upper edge of the partition, and means connecting said conveyor-belts with said head-conveyor, whereby said head-conveyor is moved faster than the feeder-blades to push off the grain helping on the partition.

14. A grain-table for head-cutter and feeder comprising a frame carrying at each end a transverse shaft, small and large sprocket-wheel carried by said shaft, endless conveyor-belts passing over said smaller sprocket-wheel, a longitudinal partition between said conveyor-belts, an idle sprocket-wheel carried at each end thereof and in line therewith, and a head-conveyor carried over said idle sprocket-wheel and adjacent to the upper edge of the partition and having its lower runch engaging said large sprocket-wheel, whereby to drive the head-conveyor at a faster rate than said conveyor-belts.

15. A head-cutter and feeder comprising a cranked shaft adapted for the application of power, a feeder-board connected at its forward end to the cranked portion of said shaft and reciprocally mounted at its rear end and having a downwardly-bent rear portion, sprocket-wheel carried by the cranked portion of said shaft, a transverse shaft mounted intermediate of said feeder-board in the upper face thereof and over the angle of said bend, sprocket-wheel and rotary cutters mounted on said shaft and operating through slots in said feeder-board, conveyor-chains passing over said sprocket-wheel and adapted simultaneously to move forward the grain and to rotate said cutters upon the turning of the said cranked shaft and reciprocally said feeder-board, a shaft journaled upon the under face of said feeder-board transversely of the cutters, hicker-blades mounted on said shaft and extending forwardly thereof and oscillating through slots in the feeder-board to project the grain upwardly and rearwardly, means connecting said shaft with a stationary point on the opposite side, a grain-table overlapping the forward end of said feeder-board and having a transverse shaft in each end thereof, the rearward shaft being extended to form pivots for said table, whereby the same may be turned into upright position, differential sprocket-wheel carried by said transverse shaft, endless conveyor-belts mounted on the smaller of said wheels, a longitudinal partition on said grain-table, idle sprocket-wheel carried at each end thereof, a head-conveyor passing around said idle sprocket-wheel and adjacent to the upper side of said head-conveyor, and having its lower runch engaging with the larger of said differential sprocket-wheel, and a step 73 attached to the frame of the machine, whereby said grain-table may be turned about its rearward shaft as a pivot and retained in a nearly vertical position, substantially as described.

699,909. FLEISSA. FRANK BERNARDSON, Detroit, E. Y. Filed Mar. 20, 1899. Serial No. 69,909. (No model.)



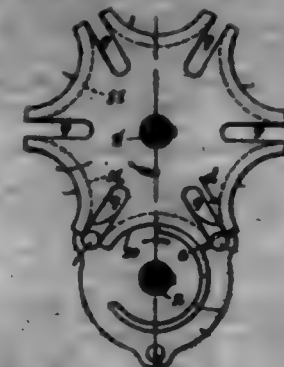
Claim.—1. In a pliers, a pair of handles pivoted together, a pair of jaws pivoted together independent of said handles, plates arranged in pairs upon each side of the handles and jaws, said plates crossing one another and being pivoted together upon the same pivot as the jaws, one end of said plates upon each side being connected to the jaws, the heel end of the plates upon each side being connected to the handles, substantially as described and for the purpose specified.

2. In a pliers, a pair of handles pivoted together, a pair of jaws pivoted together at their heel ends independent of the handles, a pair of plates, one upon each side of the jaws and handles, one end of said plates being pivoted to one of the jaws, the other end of said plates being pivoted to one of the handles, a second pair of plates, one upon each side of the jaws and handles, said second pair of plates adapted to cross the first-mentioned pair of plates and to be pivoted at one end to the other jaw and at their other end to the other handle, said plates being all pivoted together upon the same pivot as the jaws, cutting-edges curved to or formed with said side plates, the cutting edges adapted to meet and be parallel with one another when the jaws are closed, substantially as described and for the purpose specified.

3. In combination, to pliers, a pair of handles A pivoted together, a pair of jaws B pivoted together independent of the handles, one plate C arranged in pairs upon each side of the jaws and handles and pivoted upon the same pivot as the jaws, one end of said plates, one upon each side of the jaws being pivoted at one end to one of the jaws at a point between the pivotal point of the jaws and the end of the jaws, the other end of the same plates being pivoted to one of the handles at a point intermediate of the pivotal point of said handles and their ends, the other two plates, one upon each side of the jaws, being pivoted at one of their ends to the other jaws at a point intermediate between the pivotal point of the jaws

and the end of the jaws, and the other end of the same plates being pivoted to the other handles at a point intermediate of the pivotal point of the handles and their ends, wire-cutters curved to or formed with one side of the jaws having cutting edges adapted to meet and be parallel with one another when the pliers are closed, substantially as and for the purpose specified.

699,910. FLEISSA. AND HAN WHEEL. BOSTON. JOHN T. O'NEILL, Worcester, Mass., assignor to Crumpton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 20, 1899. Serial No. 71,001. (No model.)

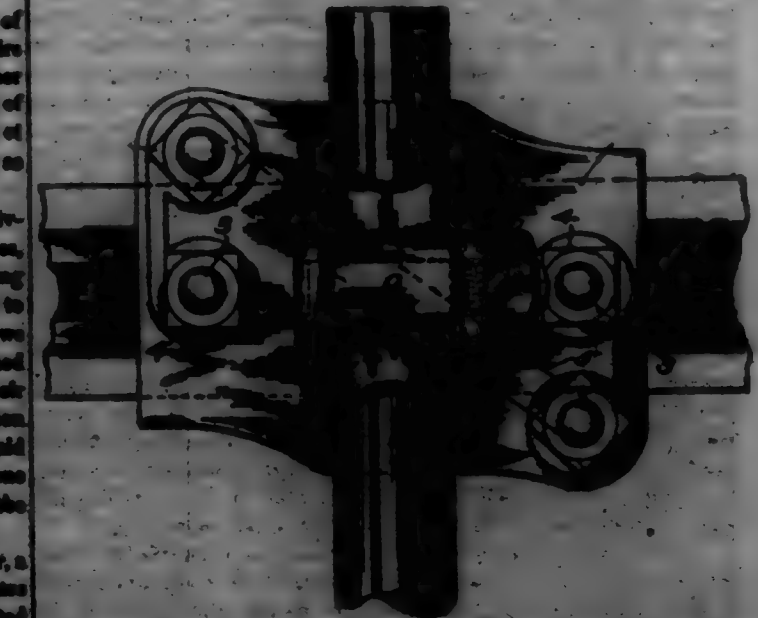


Claim.—1. In a pin-wheel and star-wheel motion, a pin-wheel having a driver-pin, a curved flange or extension, and two shorter pins, the three pins being on the same arc of a circle and equal distances from each other, and a star-wheel, having radial slots in its periphery, and concave recesses or depressions intermediate said slots, and curved flanges or extensions on one side near the edge, substantially as shown and described.

2. In a pin-wheel and star-wheel motion, a pin-wheel, having a driver-pin, a curved flange or extension, and two shorter pins, the three pins being on the same arc of a circle, and equal distances from each other, and a star-wheel, having radial slots in its periphery, and concave recesses or depressions intermediate said slots, and curved flanges or extensions on one side near the edge, the width of said flanges being a little less than the width or distance between the curved flanges on the pin-wheel and the two shorter pins thereon, substantially as shown and described.

3. In a pin-wheel and star-wheel motion, means for locking or holding the star-wheel in position during its rest or dwell, consisting of a curved flange or extension on the pin-wheel, two shorter pins on the pin-wheel, in the same arc of a circle as the driver-pin, and equal distances apart, and a curved flange or extension on the star-wheel, which extends between the two shorter pins and the curved flange on the pin-wheel, when the star-wheel is at rest, substantially as shown and described.

699,911. CLARK. CALVIN E. DAVIS, South Bend, Ind., assignor to Oliver Chilled Iron Works, South Bend, Ind. Filed Jan. 26, 1899. Serial No. 91,908. (No model.)



Claim.—1. A red-clamp comprising a sleeve to receive the rod, a housing open at its ends and located in the outer face of the sleeve and communicating therewith, and a wedge adapted to be inserted at one end of said housing and project at the other and clamp the rod in the sleeve.

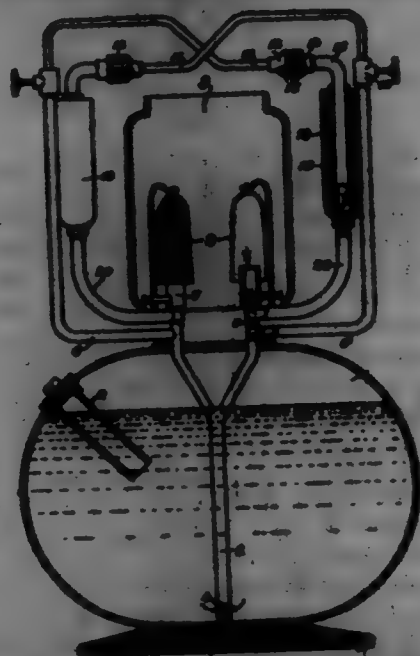
2. A red-clamp consisting of a sleeve to receive the rod, a housing open at its ends and located in the outer face of the sleeve and communicating therewith, a wedge adapted to be inserted at one open end of

and bearing and project at the other end, and a nut on said projecting end for moving the wedge longitudinally.

3. A clamp for a rod comprising a sleeve to receive the rod a bearing open at its ends and hinged in the center face of the sleeve and communicating intermediate its ends with same, the said bearing having a flat inner face, an angular clamping-belt adapted to be inserted through one end of the bearing and project through the other open end, and a nut screwed onto the projecting end of said clamping-belt.

4. A collar or jointer clamp, comprising a metal plate adapted to be secured to the beam of a press, a sleeve integral with said plate to receive a collar or jointer supporting-rod, a bearing on the sleeve, communicating therewith and having an angular base or channel and an angular opening in one end, a clamping-belt in said bearing made angular and wedge shape throughout a portion of its length to wedge between the bearing and rod, a cylindrical screw-threaded end on said belt projecting through one end of said bearing and a nut screwed onto said belt.

699,912. HYDROCARBON-BURNER. CHARLES E. DE VERA, Oakland, Cal. Filed Sept. 20, 1901. Serial No. 75,712. (No model.)



Claim.—1. The combination in a hydrocarbon-burner of a reservoir containing liquid and air under pressure, a pipe extending to the bottom of the reservoir having openings at the lower end through which the liquid may enter, a burner leading from said pipe upwardly and across above the burner-chimney which is carried by the lamp, said pipe having a fitting of wire-gauge whereby the liquid is divided and heated, a discharge-pipe through which the vapor is delivered, a second pipe located with its end in line to receive the discharge from said burner, adjustable intake caps connecting the two pipes having openings and means by which said openings are made to coincide or be partially closed to regulate the supply of air which is admitted, a cap into which the second pipe discharges and in which the air and vapor are mixed, an exterior cap enclosing the first-named one having the pipe leading therefrom to the burner.

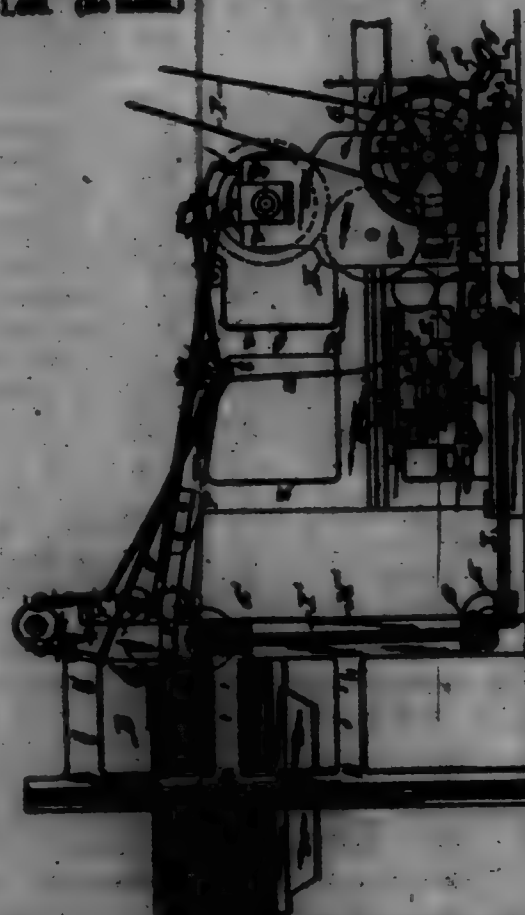
2. The combination in a hydrocarbon-burner of a reservoir in which liquid and air under pressure are contained, a burner and chimney carried upon said reservoir, a pipe connecting with the bottom of the reservoir having a valve through which a regulated amount of liquid is allowed to pass, said pipe extending above the burner so as to be heated thereby, and containing a body of wire-gauge, a jet-nozzle through which the vapor is discharged from said pipe, a second pipe in line with said nozzle, and means for admitting and regulating the supply of air thereto, a valve consisting of an exterior chamber closed at the top having a pipe leading from the bottom and connecting with the burner, and an inner cap or chamber supported out of contact with the sides of the outer one, into the bottom of which the pipe receiving the vapor and air discharges whereby the mixing is effected, said inner cap being open at the top so that the mixed products must take a tortuous direction to the burner-pipe.

3. The combination in a hydrocarbon-lamp of a reservoir for liquid and air under pressure, a burner supported thereby, a mixing-chamber including concentric cups supported out of contact with each other, for mixing vapor and air, and a pipe leading from the outer cup to the burner, a pipe connecting with the reservoir through which the liquid is forced, said pipe crossing above the lamp-chimney so as to be heated thereby, and also passing in contact with the mixing-chamber so that the temperature of the liquid is elevated before it reaches the point where it is vaporized.

4. The combination in a hydrocarbon-lamp of a reservoir adapted to contain liquid, and a means for admitting a stated quantity of liquid there-

and air under pressure, a plurality of burners supported upon said reservoir having nozzles and a chimney common to both, a pipe extending upwardly from the bottom of the reservoir having openings by which the liquid is admitted therein, valve-controlled branches extending from said pipe upwardly and crossing above the burner-chimney whereby they are heated and the liquid vaporized, jets through which the vapor is discharged from each pipe, mixing-chambers including concentric cups supported out of contact with each other, pipes adapted to receive the discharged vapor and lead it into the mixing-chambers, concentric cups are exactly movable relative to each other said cups including the jet-nozzles and the mouths of the receiving-pipes, and having perforations to be moved into and out of line and through which air is admitted and delivered with the vapor into the mixing-chambers, and pipes leading from the mixing-chambers to each of the burners.

699,913. AUTOMATIC PRINTING-PRESS CONTROLLER. T. M. DE VERA, New York, N. Y. Filed May 21, 1901. Serial No. 61,602. (No model.)



Claim.—1. In combination with a printing-press and feeder, the automatic stop mechanism, a tripper controlling said stop mechanism, and a detent movable to and from a position to restrain the action of the tripper, two disks disposed side by side and oscillating independently of each other, means for transmitting motion from one of said disks to the other, a guard carried on the other of said disks to and from a position to prevent transmission of motion to the detent, and a feather actuated by the paper in transit to the press and controlling the motion of the guard-carrying disk.

2. The combination with a printing-press and its actuating mechanism, of a pivoted tripper-disk, a rod connected to said disk and at the opposite end to the above-said actuating mechanism to control the same, means actuating said disk to automatically arrest the actuating mechanism, a key on said disk, a latch engaging said key and restraining thereby the action of the disk, an oscillatory disk, means for transmitting motion from said disk to the latch to throw it out of engagement, a guard movable to and from a position to prevent said transmission of motion to the latch, and a feather actuated by the paper in transit to the press and controlling said guard as set forth.

3. The combination with a printing-press and its actuating mechanism, of a pivoted tripper-disk, a rod connected to said disk and at the opposite end to the above-said actuating mechanism, a movable detent normally disposed to restrain the action of said tripper, a pivoted disk provided with a pawl to engage said detent, means for throwing the detent out of restraining position by the movement of said disk, an oscillatory lever provided with a pawl to engage said detent, and a feather actuated by the paper in transit to the press and controlling said lever as set forth.

4. The combination with a printing-press, an automatic paper-supplier, a feed-board and mechanism actuating said press and supplier in common, of a pivoted tripper suitably connected to said mechanism to control the same, means actuating said tripper to arrest said mechanism, a movable detent normally disposed to restrain the action of said tripper, a pivoted disk provided with a shoulder on its periphery, an oscillatory lever provided with a pawl to engage said shoulder, means for throwing the detent out of restraining position by the movement of said disk, an oscillatory disk at the side of the shoulder-disk and provided with a guard for throwing the pawl out of engagement, mechanism imparting motion to said guard-disk, a rod-disk disposed transversely over the delivery end of the feed-board, an arm attached to said rod-disk, a rod connecting said arm to the above-said guard-disk, and a feather actuated by the paper in transit to the press and controlling said rod-disk as set forth.

699,914. CHILING-MACHINE. CHARLES W. REED, Pittsburgh, Pa. Assignor of one-half to Thomas P. Reed, Pittsburgh, Pa. Filed Aug. 10, 1901. Serial No. 74,774. (No model.)

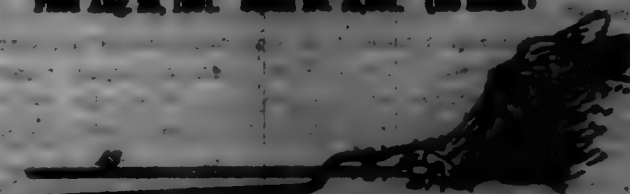


Claim.—1. In an electric current of the class set forth, the combination of a base-block having diametrically-disposed contact-pieces comprising inwardly-extending horizontal members and outwardly-located vertically-disposed corrugated heads open at the bottom, the inwardly-extending members forming seats with adjacent portions of the block, a cover having a series of contact-strips of similar form and comprising resilient loops with depending lips over portions of the bodies thereof beneath, flexible connections interspersed between the loops and held by the lips and terminals attached to a portion of said strips, a part of the strips being arranged to engage the contact-pieces of the base-block.

2. In an electric cut-out of the class set forth, the combination with a base-block having contact devices or pieces which in part engage the main conductors, of a cover having a series of contact-strips of similar form and comprising resilient loops with depending lips over slots in the bodies thereof beneath, flexible connections interspersed between the loops and held by the lips, and terminals attached to a portion of said strips, a part of the strips being arranged to engage the contact-pieces of the base-block.

3. A contact-strip for an electric cut-out having a loop bent or extending thereover and provided with depending lips at the sides which are located over side edge strips in the body of the strip below the loop.

699,915. TATTOOING INSTRUMENT. JOHN PERRY, San Francisco, Cal. Filed Aug. 28, 1901. Serial No. 75,001. (No model.)



Claim.—1. In a tattooing instrument, the combination with two-linked levers having suitable jaws and handles; of a third link, pivotally attached to said levers and carrying a holder and tattooing device carried by said holder as shown, and specified.

2. In a tattooing instrument, the combination with two-linked levers provided with handles, and having jaws of suitable shape to fit in the mouth and held and support the nose of an animal, of a third link, pivotally attached to said two-linked levers, and provided with means for taking the nose, as specified.

699,916. BODY-BINDER. CHARLES E. CHAMBERLAIN, Burlington, Iowa. Filed Sept. 21, 1901. Serial No. 75,776. (No model.)

Claim.—1. A body-binder, comprising a block of suitable material, rods projecting therefrom, and oval-shaped rollers suitably mounted thereon, each having its periphery provided with cupping-notches, the said peripheries being of the same material of said rollers, substantially as described.

2. A body-binder, comprising a block of suitable material, rods projecting therefrom, and oval-shaped rollers suitably mounted thereon, each having its periphery provided with cupping-notches, the said peripheries being of the same material of said rollers, substantially as described.



3. A body-binder, comprising a block of suitable material, oval-shaped rollers suitably curved thereby, the peripheries of said rollers being formed of rigid material and each provided with a plurality of cupping-notches, substantially as described.

4. A body-binder, comprising a block of suitable material, rods projecting therefrom, and oval-shaped rollers suitably mounted upon said rods and provided with integral rigid peripheries each having a cupping-notch thereby, substantially as described.

699,917. BOTTLEING-MACHINE. HENRY GUTENBERG, New York, N. Y. Filed Mar. 7, 1902. Serial No. 70,104. (No model.)



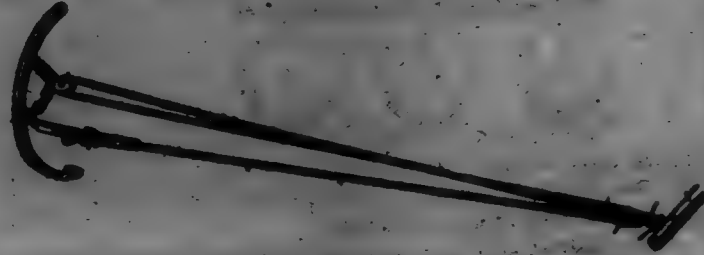
Claim.—1. In a bottleing apparatus the combination of the liquid-out, the two flexible feed-tubes connected to said faucet, the bottle-stopper through which the lower end of said feed-tubes passes, the two flexible vent-tubes also passing through said stopper and of approximately equal length with the feed-tubes, and means for supporting the upper end of said vent-tubes at or about the level of the faucet, said upper end of said vent-tubes being open to the atmosphere, together with the overflow-tank having a connection with the vent-tubes above the level of the bottom of said tank.

2. In a bottleing apparatus the combination of the liquid-out, the two flexible feed-tubes connected to said faucet, the bottle-stopper through which the lower end of said feed-tubes passes, the two flexible vent-tubes also passing through said stopper and of approximately equal length with the feed-tubes, and means for supporting the upper end of said vent-tubes at or about the level of the faucet, said upper end of said vent-tubes being open to the atmosphere, together with the overflow-tank having a connection with the vent-tubes above the level of the bottom of the tank, and the additional feed-tube connected to the lower part of said overflow-tank.

3. In a bottleing apparatus, the combination of the liquid-out and faucet, the two flexible feed-tubes connected to said faucet, the bottle-stopper through which the lower end of said feed-tubes passes, the two flexible vent-tubes also passing through said stopper, and of approximately equal length with the feed-tubes, and means for supporting the upper end of said vent-tubes at or about the level of the faucet, said upper end of said

vent-tube being open to the atmosphere, together with the overflow-tank supported on the bag and having a connection with the vent-tube above the level of the bottom of said tank.

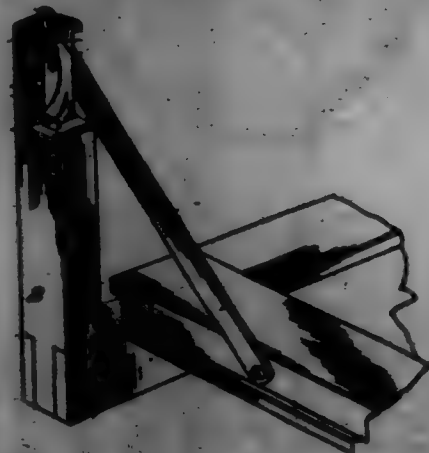
699,918. TRACE. **FRANK H. GYLLBERG**, Liberty Corner, N. J. Filed July 13, 1891. Serial No. 68,174. (No model.)



Claim.—1. A draft connection consisting of opposite pulleys, one of which is provided with an elastic fastening, and a flexible trace having its intermediate portions reeved through the opposite pulleys, one end of the trace being fixed to the other pulley and the opposite end of the trace having a fastening for engagement with the part to which the first-mentioned pulley is to be connected.

2. A draft connection, consisting of opposite pulleys, one of which is provided with angularly-related spring-fastenings for engagement with a harness-roller, and the other being constructed for connection to a draw-bar, and a flexible trace having its intermediate portions reeved through the opposite pulleys, one end of the trace being fixedly connected to the said other pulley, and the opposite end of the trace having a collar-engaging fastening.

699,919. WINDOW. **MORRIS BLUMBERG**, Brooklyn, N. Y. Filed Aug. 18, 1891. Serial No. 72,022. (No model.)



Claim.—1. In a window, and in combination with slideable bar, a window having hinged connection therewith, and a slide-block having a T-shaped leg, a brace-bar having pivotal connection at one end with the window and provided at its opposite end with an oblique opening and a round cam-bush for reception of the arm of the T-shaped leg after the latter has passed through the said oblique opening, substantially as set forth.

2. In a window, and in combination with slideable bar, and a window having hinged connection therewith, a fastening comprising complementary members secured to, respectively, the slideable bar and side stile of the window and having cooperating beveled portions, and a lock-pin applied to a side stile of the window to pass through corresponding openings in the said members of the fastening, substantially as set forth.

3. In a window, and in combination with slideable bar, and a window having hinged connection thereto, a lock-pin slideably mounted in an opening formed in a side stile of the window for receiving the latter when closed, said pin having an intermediate flattened portion, and an intermediate-plate having a keyhole-slot and secured to the side stile of the window with the flattened portion of the lock-pin arranged to operate in the notched portion of the said keyhole-slot, substantially as set forth for the purpose set forth.

4. In a window, and in combination with slideable bar having vertical slots, a window having hinged connection with the said bar so as to swing open and shut, slide-blocks having notched legs for reception of the limited end of the rope or cord leading from the counterbalance, said blocks mounted for sliding movement in the aforesaid vertical slots and having the open sides of the notches closed by a side of the said slots, and brace-bars connecting the slide-blocks with the hinged window, substantially as set forth.

5. In a window, and in combination with the element having a vertical groove, slideable bar, and a window having hinged connection with said slideable bar, a lock-pin applied to the window for cooperation with a slideable

bar to hold the window closed and adapted to enter the aforesaid groove for holding the window open without interfering with its sliding movement, substantially as set forth.

699,920. ART OF MAKING LEAF METAL. **FRANZOS HANNA**, Pasing, Germany. Filed Sept. 1, 1899. Serial No. 56,955. (No specification.)

Claim.—The improvement in the art of beating gold and other metals into leaf metal, which consists in assembling the sheets of metal, for the final beating, with sheets of "Purpura," or substantially similar paper, and then beating the sheets so assembled in the usual manner.

699,921. HYDRAULIC CUTTING MACHINE. **STEPHEN B. KARPIS**, St. Louis, Mo., assignor of two-thirds to Edward W. Moon and Joseph M. Berry, St. Louis, Mo. Filed July 13, 1891. Serial No. 68,156. (No model.)



Claim.—1. In a small cutting machine, the combination with a punch-disk, punch carried thereby and an operating-lever, of independently-mounted retaining means arranged for engagement with the punch-disk, and means connected with the operating-lever moving the retaining means into engagement with the punch-disk in advance of the punching of the sheet.

2. In a small cutting machine, the combination with a punch-disk and punch carried thereby, of a vertically-movable retaining-pin, a transversely-movable slide-bar moving the retaining-pin positively into and out of engagement with the punch-disk, and single means for operating the punch-disk and slide-bar.

3. In a small cutting machine, the combination with a die-disk and die carried thereby, and a punch-disk and punch carried thereby, of an operating-lever, a retaining-pin arranged for engagement with said punch-disk, and a slide-bar positioned to said retaining-pin and adapted to receive the engagement of said operating-lever, substantially as described.

4. In a small cutting machine, the combination with a die-disk and die carried thereby, and a punch-disk and punch carried thereby, of an operating-lever, a retaining-pin arranged for engagement with said punch-disk, a slide-bar arranged to operate in said retaining-pin, downwardly and upwardly extending arms carried by said slide-bar, said slide-bar being adapted to receive the connection of said operating-lever to move said arms into said retaining-pin, substantially as described.

5. In a small cutting machine, the combination with a die-disk and die carried thereby, a punch-disk and punch carried thereby, plungers by which said punches are carried, of lift-bars attached to said plungers, guide-pins on which said lift-bars ride and springs surrounding said guide-pins and adapted to bear against the under side of said lift-bars, substantially as described.

6. In a small cutting machine, the combination with plungers carrying a punch and operating means for the plunger, of a lift-bar attached to said plunger, and a spring normally raising the lift-bar at one end and means carried by the plunger-operating means for raising it to the other end.

7. In a small cutting machine, the combination with a die-disk and die carried thereby, a punch-disk and punch carried thereby, a plunger by which said punches are depressed, of an operating-plunger, a steel projecting from said operating-plunger and a feeding mechanism comprising a vertical slide-bar, feed-wheels journaled to said slide-bar, a wheel-wheel and a spring-supported roller-arm carrying a pawl adapted for engagement with said wheel-wheel and arranged to receive the engagement of a steel carried by said operating-plunger, substantially as described.

699,922. FEEDING-BOARD. **ANDREW F. STONE** and **THOMAS HOGAN**, Chicago, Ill. Filed Aug. 3, 1891. Serial No. 70,100. (No model.)



Claim.—1. In an ironing-stand the combination with a suitable base, of a standard vertically adjustable on said base, a casing constructed to contain heating and cooling devices carried by said standard, an heating-board hinged to said casing, and means for adjusting said standard.

2. In an ironing-stand, the combination with a suitable base, of a standard vertically adjustable on said base, the casing carried by said standard, brackets hinged to said casing, an heating-board adjustable vertically relatively to said brackets, and means for adjusting said standard and heating-board.

3. The combination with an ironing-stand, of a cooling-tank, a suitable support movable vertically into and out of said tank, a lever to which said support is connected, said lever being pivoted to the stand and a spring arranged to normally hold the lever and support in their elevated position.

4. In an ironing-stand, the combination with a base, of a standard adjustable relatively to said base, a casing carried by said standard and constructed to contain heating and cooling devices, an heating-board hinged to said casing, and means for adjusting said parts relatively to the base comprising a rack secured to the standard, a pinion journaled in the base, a hand-wheel for operating said pinion and a rack and pawl arranged to prevent the backward rotation of the pinion.

5. In an ironing-stand, the combination with the brackets hinged to a suitable support, of a hand vertically adjustable relatively to said brackets and means for adjusting said hand comprising a rack secured to the board, a pinion shaft journaled in the brackets, a pinion upon said shaft engaging the rack, a hand-wheel for turning said shaft and a pawl and ratchet adapted to prevent the backward rotation of the shaft.

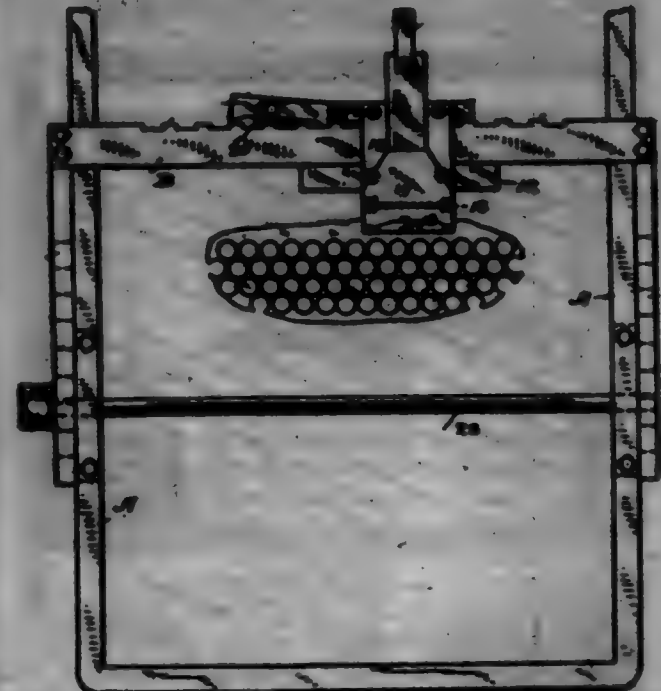
6. In an ironing-stand, the combination with the standard and the casing, of the brackets pivoted to said casing, the heating-board secured to said brackets, a door adapted to close one end of the casing and a hinge-pin upon which said door is hinged, said pin having its opposite ends projecting through the casing and forming stops for the brackets.

7. The combination with a laundry-board having a series of uniformly-projecting pins extending around its edges and adapted to engage the edges of the cover, of a removable guard, V-shaped in cross-section and comprising two pivotally-connected parts extending around the board over said pins, the free ends of said guard being adjustably secured together.

699,923. SPACING DEVICE. **CHARLES C. LAM**, Boston, Mass. Filed Dec. 18, 1891. Serial No. 71,124. (No model.)

Claim.—1. A spacing device consisting essentially of a horizontal rack, a carrier adapted to be moved thereon, means for locking the carrier against backward movement, a vertical rack rigidly secured to the horizontal rack and means for locking the vertical rack and the carrier against downward movement.

2. A spacing device consisting essentially of a horizontal rack, a carrier adapted to be moved thereon, a double-acting pawl for locking the carrier against backward movement, a vertical rack rigidly secured to the horizontal rack and a pawl for locking the vertical rack and the carrier against downward movement.



3. A spacing device consisting essentially of a frame, a horizontal rack, a carrier adapted to be moved thereon, a pawl for locking the carrier against backward movement, a vertical rack rigidly secured to the horizontal rack and a pawl carried by the frame and adapted to engage the vertical rack to lock the latter and the carrier against downward movement.

4. A spacing device consisting essentially of a frame, a horizontal rack, a carrier adapted to be moved thereon, a pawl for locking the carrier against backward movement, vertical racks rigidly secured to the horizontal rack and an oscillating shaft mounted on the framework and carrying pawls adapted to engage the vertical racks.

5. A spacing device consisting essentially of a frame, a horizontal rack, a carrier adapted to be moved thereon, a pawl for locking the carrier against backward movement, vertical racks rigidly secured to the horizontal rack, an oscillating shaft mounted upon the framework and pawls rigidly secured to the shaft and carrying engaging projections at opposite ends, so that the racks and the carrier may be depressed and may be locked by the pawls against further downward movement.

6. A spacing device comprising a horizontal rack, a carrier adapted to be moved thereon, means for locking the carrier against backward movement, a vertical rack rigidly secured to the horizontal rack, an oscillating shaft, pawls carried by said shaft and having upper and lower legs adapted to engage the vertical rack, the teeth of the racks and the engaging legs bearing such a relation to each other that said legs cannot be out of the engaging position simultaneously, so that on oscillation of the shaft will permit the vertical rack and carrier to drop one tooth in two distinct movements.

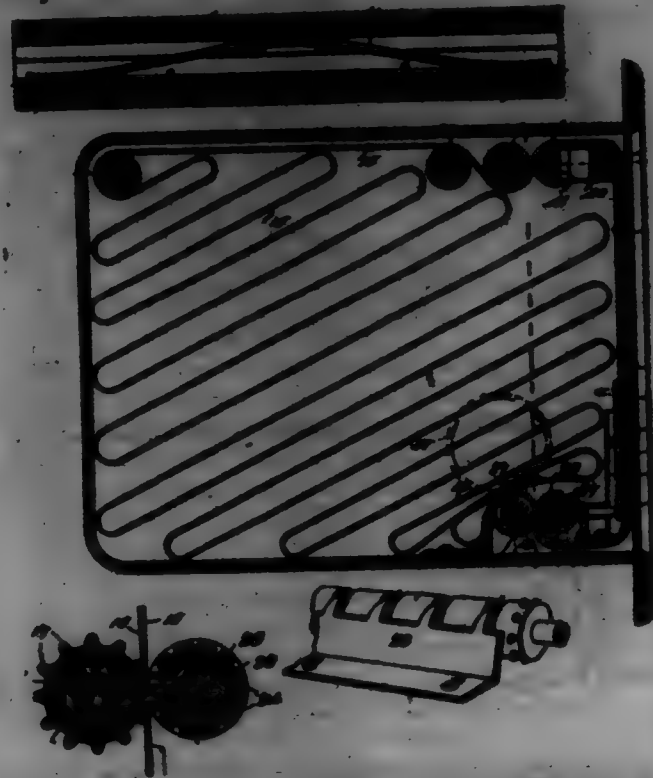
699,924. STATION-INDICATOR. **FRANK C. LAMONT**, Chicago, Ill. Filed Oct. 21, 1891. Serial No. 71,476. (No model.)

Claim.—1. In a station-indicator, a casing, an endless strip or band contained therein and bearing the names of the stations, there being in the opposite edges of said strip equidistant openings, a pair of feed-rollers between which said strip is guided, one of said rollers having teeth for the engagement of the openings in the strip, and the opposite rollers having openings to receive said teeth, and mechanism for actuating said rollers.

2. In a station-indicator, the combination of the casing or casing, an endless strip or band bearing the names of the stations, there being in the opposite edges of said strip openings for the reception of feeding-teeth, a pair of feeding-rollers arranged in the lower portion of the casing and having a series of smaller grooves, one of said rollers being provided with teeth for engagement in the strip-openings, means for operating said rollers, guards having fingers being in opposite directions and adapted to the spiral grooves in the rollers, strip-guiding devices arranged at the upper portion of the casing, and a tension-bar adapted to engage with the strip in advance of the exposure-point.

3. In a device of the class described, a pair of feeding-rollers to

twice which the station-indicating strip or ball is guided and fed, an adjustable block arranged in contact with one of said rollers, a spring normally acting on the opposite end of said block, and means for adjusting said spring to increase or decrease the pressure of the feeding-roller, substantially as described.



4. In a station-indicator, an indicating-strip, a feeding-roller therefor, and mechanism for operating said feeding-roller, said mechanism comprising a gear-wheel mounted loosely on a shaft and operatively connected to a pinion on the shaft of the feed-roller, a ring having recessed inner and outer faces secured to one side of said gear-wheel, a locking-dog adapted to engage in one of the outer recesses, a disk, a pawl thereon adapted to engage with one of the inner recesses of the ring, and mechanism for unlatching the ring and for rotating said disk and ring, substantially as specified.

5. In a station-indicating mechanism, the combination with indicating mechanism, of feeding device comprising a stationary shaft, a primary gear mounted loosely thereon, a ring secured to one side of said gear-wheel and having recesses in its inner and outer faces, a dog adapted for locking engagement in the outer recesses, a pivoted lever carrying said dog, an arm pivoted to said lever, a cam carried by said arm, a disk also mounted loosely on the shaft, a pawl carried by the disk for engagement in the inner recesses of said ring, a rope wheel also mounted loosely on the shaft, a spring connecting said wheel to said disk, a return-spring connecting the wheel to the stationary shaft, and a pin carried by said wheel for engagement with said cam, substantially as described.

6. In a station-indicator, the combination with the indicating device, of an actuating mechanism comprising a wheel having a fixed limit of relative movement, an operating-wheel having a variable movement, and a yielding connection between said operating-wheel and said first-named wheel, substantially as described.

7. In a station-indicating mechanism, the combination with indicating device, of a primary wheel adapted to receive a relative movement of variable extent, a second wheel connected to the indicating device and having a fixed predetermined limit of movement, means for releasing and locking said second wheel, and a yielding connection between the two wheels, substantially as described.

8. In a station-indicator, an indicating device, an operating-lever pivoted under the car and adapted for yielding operative engagement in both directions with a series of projections on the roadway, an opening rope or chain extending between the upper end of said lever and the indicating mechanism, a vertically-disposed spring connecting the upper end of said lever to a fixed point, and guiding-rollers situated one on either side of the vertical center of the lever and adapted to receive and guide the rope or chain.

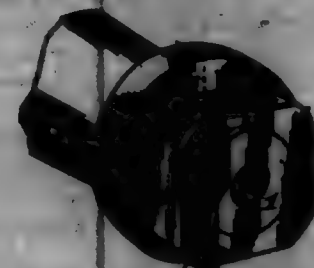
699,995. CATTLE-GUARD. EDGAR T. HERRON, CHICAGO, ILL. Filed Feb. 12, 1908. Serial No. 94,678. (No model.)

Claim.—A cattle-guard comprising the central and side sections, and the side wings consisting of upright frames of angle-iron tapered toward the mid sections and provided at the top and lower end with open or pointed, barbed wires, and braces supporting the barbed wires and the frames, substantially as described.

699,996



699,996. NUT-LOCK. EDWARD E. HERRON, ST. LOUIS, MO. Filed Jan. 6, 1908. Serial No. 95,000. (No model.)



Claim.—The combination with a notched threaded member, of a nut provided with a groove in the face thereof, a tongue constructed of spring material, carried by said nut and adapted to enter said groove to engage the notch in said threaded member, and a guard carried by said nut arranged to receive the free end of said tongue, substantially as described.

699,997. TROLLEY. FREDERICK M. HERRON, TROBROOK, LIVERPOOL, ENGLAND. Filed June 26, 1906. Serial No. 95,051. (No model.)

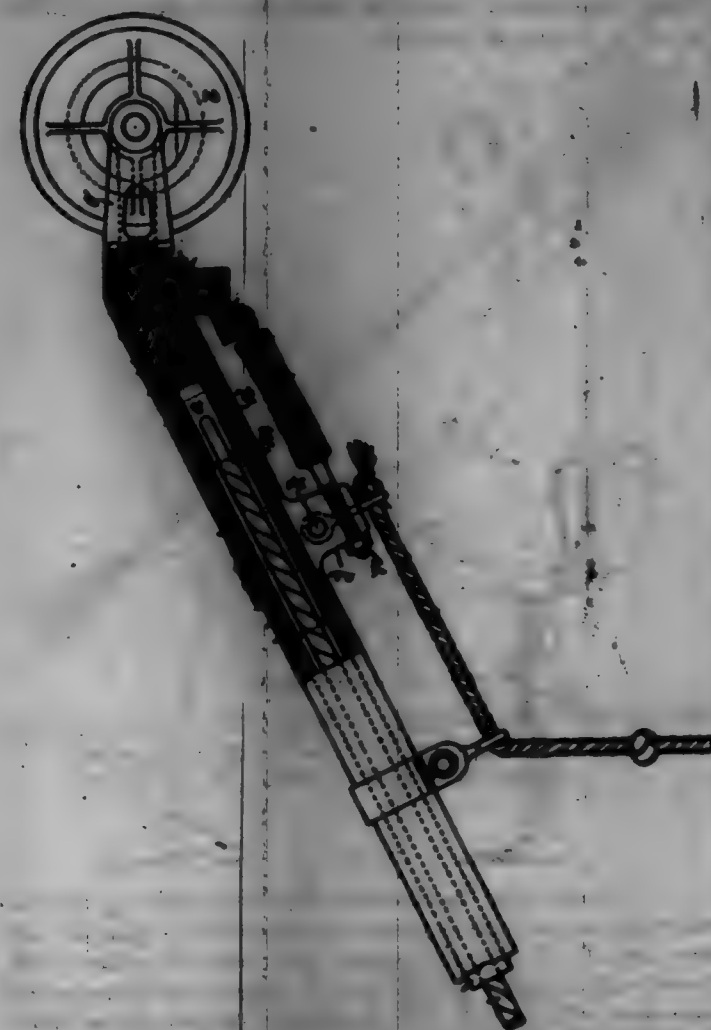
Claim.—1. A trolley-head having a fork in which the trolley is mounted, the said fork being removably secured on the end of a trolley-pole, means for securing the end of a conducting-wire at the end of the trolley-pole, means for insulating the trolley-head from the said trolley-pole, and a contact-plate carried by the trolley-head for engaging the means employed for securing the end of the conducting-wire in the trolley-pole, substantially as described.

2. In a trolley-head, the combination with a pole having a conducting-wire passing through the same, means for insulating the end of the wire from the end of the pole, the said trolley-head having a contact for fitting around the end of the pole, and means for insulating said contact from said pole, a contact-piece secured upon the end of the pole to the conducting-wire, and a contact-plate in the said contact for engaging the same, substantially as described.

3. In a trolley-head, the arrangement for enabling the trolley-head to separate from the pole without injury to the conducting-wire when an exceptional pull is applied, namely passing the conducting-wire through the pole and at the end fastening it to an outer metallic contact-plate insulated or not as required from the pole but in electrical contact with the trolley-head, and making a split in the trolley-head whereby it can be compressed around the trolley-pole, substantially as described.

4. A trolley-head having a longitudinal split therein, legs with a clamping-bolt for compressing the contact around the trolley-pole, a recess or channel at the end of the contact, in combination with a corresponding

leg further or projection on the pole which enters the channel and prevents the head from turning when actuated on the pole, substantially as described.



5. In a trolley, the combination with the trolley-pole of an outer metallic contact-plate insulated therefrom to which the wire is secured, and a socket on the trolley-head clamped around said plate with sufficient grip to prevent them separating under ordinary conditions, substantially as described.

6. In a trolley, the combination with a trolley-pole and a contact secured to the free end thereof, of a trolley-head having a depending spindle arranged at right angles to said contact and engaging a bearing in the end thereof, the said spindle projecting beyond said bearing, an arm secured to the end of said spindle, and a spring connecting the arm with said contact for the spring exerting a straight pull on said arm holding the trolley-head in proper alignment therewith, under yielding pressure, substantially as described.

7. In a trolley, the combination with a trolley-pole of a trolley-head formed with a socket adapted to fit upon the end of the pole, clamping means on said head for gripping the end of the pole, a fork carrying the trolley, the said fork being hinged to the rear of the said socket, a spindle attached to the said fork, an arm carried by the said spindle, and a spring connecting the arm with the projection on the trolley-head, so that the fork is normally held in alignment with the trolley-wire under yielding pressure, the spring and means for holding the said fork in position remaining with the trolley-head whenever the same is separated from the pole, substantially as described.

699,998. WIRE VENTILATOR. CHARLES McVINTY and JOHN F. PARR, PHILADELPHIA, PA. Filed July 14, 1907. Serial No. 95,114. (No model.)



Claim.—1. A ventilator comprising in combination with a series of curved plates of gradually-increasing width having tapered edges form-

ing grooves, a series of split tubes or ribs for engaging the grooves of said plates, and ribs arranged at the base and mouth having grooves engaging the plates and openings to receive the ribs substantially as specified.

2. A ventilator comprising a curved tapered plate arranged in cross-section composed of plates A, having tapered and flaring grooves, the B in the form of split tubes for engaging and holding said plates in position, and ribs C and D arranged respectively at the base and mouth of the ventilator having slotted openings to receive the plates and openings for the ribs, substantially as specified.

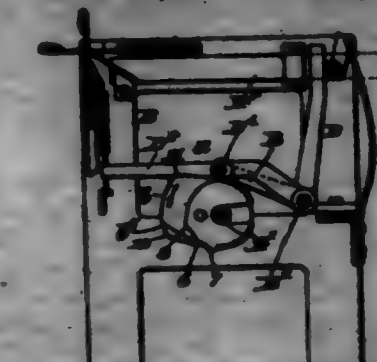
699,999. WINDER-GUARD-CLIPPER-BRAKE-DRUM. JAMES T. W. KENNEDY, ST. LOUIS, MO., assignor to KENNEDY BRAKE DRUM COMPANY, ST. LOUIS, MO., a Corporation. Filed Oct. 21, 1907. Serial No. 79,388. (No model.)



Claim.—1. The combination of a brake-beam, a clip fitted against the beam and having an arm extending rearwardly therefrom and resting on the body of the beam, an eyebolt for connecting the arm to the beam, and a finger-guard fitting in a socket formed in the clip and the lower end of which bears against the beam, substantially as set forth.

2. A brake-beam having a flange and a web, a clip fitted against the face of the flange and having an arm passing over the upper edge of the flange and seated upon said web, and having a clip fitting beneath the lower edge of the flange, an eyebolt connecting the arm of the clip to the web of the beam, and a finger-guard fitting in a socket formed in the clip and the lower end of which is provided with a head that bears against the face of the flange of the beam, substantially as set forth.

699,980. KNITTING-MACHINE. WILLIAM E. HERRON, TROBROOK, ENGLAND. Filed June 11, 1907. Serial No. 95,105. (No model.)



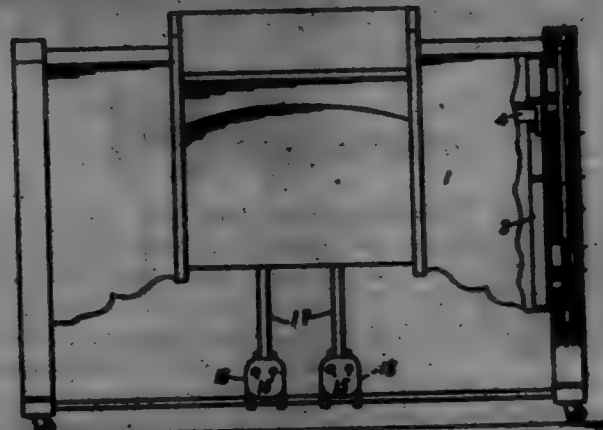
Claim.—1. In a straight-knitting machine for knitting ribbed work, a set of substantially horizontal and a set of substantially vertical needles, means to actuate the vertical needles, means to impart a preliminary forward movement to said horizontal needles and then substantially arrest them with their free ends back of the rear sides of the vertical needles to thereby sufficiently slacken the tension on the loops held by both sets of said needles, a knock-off bar, and means to actuate it while the horizontal needles are substantially arrested to meet and knock over from the cheeks of the vertical needles the loops next to be cast off to the knitting.

2. In a straight-knitting machine for knitting ribbed work, two sets of bearded needles, one set being arranged substantially vertical and the other substantially horizontal, means to actuate the vertical needles, means to impart a preliminary forward movement to said horizontal needles and then substantially arrest them with the ends of the beards back of the rear sides of the vertical needles to thereby slacken the tension on the loops held by both sets of said needles, a knock-off bar, and means to actuate it while the horizontal needles are in position to slacken the loops pulling the outer edge of said knock-off bar in or above the plane of movement of the rear sides of the horizontal needles.

3. In a machine of the class described, a series of vertical needles, means to actuate them, a needle-bar having an attached series of horizontal needles, means for moving said horizontal needles forwardly, actuating-levers coacting with the bar carrying said horizontal needles, and a cam having a depression to enable the bar carrying said horizontal needles to provide of a preliminary forward movement and then arrest said bar with the ends of the horizontal needles near the rear sides of the vertical needles, to thereby slacken the tension on the loops extended from one to the other set of said needles preparatory to knocking off the loops held on the cheeks of the vertical needles.

4. In a machine of the class described, a series of vertical needles, means to actuate them, a knock-off bar coacting with the vertical-needles,

699,981. AUTOMATIC ATTACHMENT FOR PIANOS. JOHN A. SARRIS, Baltimore, Md., assignor to Smith Lyngbush Company, a Corporation of West Virginia. Filed May 10, 1901. Serial No. 99,000. (No model.)



Claim.—1. In an automatic attachment for pianos, the combination of the two stationary ends of the casing; a metal frame, carrying the operative parts of the instrument, having legs projecting at right angles thereto and extending into said ends; means passing through the said legs and ends for vertically adjusting the frame with relation to said ends, substantially as described.

2. In an automatic attachment for pianos, the combination of the two stationary ends of the casing each having a vertical hole passing down from the top thereof; a metal frame, carrying the operative parts of the instrument, having legs projecting at right angles thereto and extending into the said ends; and a bolt passing through the vertical hole in the said ends and through the legs, for vertically adjusting the frame with relation to the said ends, substantially as described.

3. In an automatic attachment for pianos the combination of a frame adjustably secured to the ends of the casing and carrying the operative parts of the instrument; means to raise and lower the frame; a driving-shaft; belt connecting the driving-shaft with the treadle; treadle having blocks on their under side secured thereto by screws for gripping said belt, and open through which said belt pass, as and for the purpose described.

4. In an automatic attachment for pianos, the combination of a frame secured to the ends thereof and carrying the operative parts of the instrument; a belt to raise and lower the frame; a driving-shaft; belt connecting the treadle with the driving-shaft; and means to adjust the said treadle with relation to the said belt, to maintain the proper angle of the said treadle, as and for the purpose described.

699,982. PROCESS OF PURIFYING FLUID SUGAR-WEARING MATERIAL. CLARENCE A. SWINBERG and CLARENCE A. KERR, New York, N. Y., assignors to Federal Refining Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 13, 1901. Serial No. 99,001. (No model.)

Claim.—1. A device of the class described comprising a seat, a leg pivotally connected at a point between its ends with the seat and adapted to be arranged at different angles, and means for detachably connecting the upper end of the leg with the seat, whereby the leg is rigidly held in its adjusted position, substantially as described.

2. A device of the class described comprising a seat, a leg pivotally and elastically connected at a point between its ends with the seat and adapted to be arranged at different angles, and means for detachably interlocking the upper end of the leg with the seat, whereby when the leg is drawn outward, it will be disengaged from the seat, and when moved inward will be engaged with the seat, substantially as described.

3. A device of the class described comprising a seat provided at opposite sides with arms, a belt having the arms pivotally connected to it, a sliding leg pivotally connected with the seat, and means for connecting the leg to the belt, whereby the leg and the seat are retained in their adjusted position, substantially as described.

4. A device of the class described comprising a seat designed to be connected to a person, and a sliding leg pivotally and elastically connected near one end with the seat and adapted to be arranged at different angles and having an interlocking connection with the seat, whereby it is held rigidly with the seat, substantially as described.

5. A device of the class described comprising a seat, a sliding leg

pivotally connected between its ends with the seat and interlocked with the seat, said leg being capable of a limited longitudinal movement, whereby it is engaged with and disengaged from the seat, and a fastening device for holding the leg against such longitudinal movement, substantially as and for the purpose described.



6. A device of the class described comprising a seat designed to be connected to and carried by a person, a leg provided at its upper end with teeth and having a slot, a pivot carried by the seat and connected with the same and arranged in the said slot, and means carried by the seat and cooperating with the teeth of the leg, whereby the seat and the leg are interlocked, substantially as described.

7. A device of the class described comprising a seat provided with arms, a leg having a slot and arranged between the arms and provided with recesses, inner and outer fastening devices carried by the arms, the outer fastening device being arranged in the slot of the leg and the inner fastening device being arranged to fit in the said recesses, a key adapted to lock the leg against movement, and means for causing the seat to be a person, substantially as described.

699,983. PROCESS OF PURIFYING FLUID SUGAR-WEARING MATERIAL. CLARENCE A. SWINBERG and CLARENCE A. KERR, New York, N. Y., assignors to Federal Refining Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 13, 1901. Serial No. 99,002. (No model.)

Claim.—1. The process of treatment of sugar, which consists in mixing with a sugar solution a defecating or clarifying liquid containing a sulfonated body and then separating said liquid and the impurities from the solution, substantially as described.

2. The process of treatment of sugar, which consists in mixing with a sugar solution a sulfonated body, and then separating the sulfonated body and impurities from the solution, substantially as described.

3. The process of treatment of sugar, which consists in mixing with a sugar solution a sulfonated body, and then separating the sulfonated body and impurities from the solution, substantially as described.

4. The process of treatment of sugar, which consists in mixing with a sugar solution a sulfonated derivative of a resinous body, and then separating said derivative and the impurities from the solution, substantially as described.

699,984. BRASS. BENJAMIN SWINBERG, Chicago, Ill. Filed Feb. 17, 1901. Serial No. 99,003. (No model.)

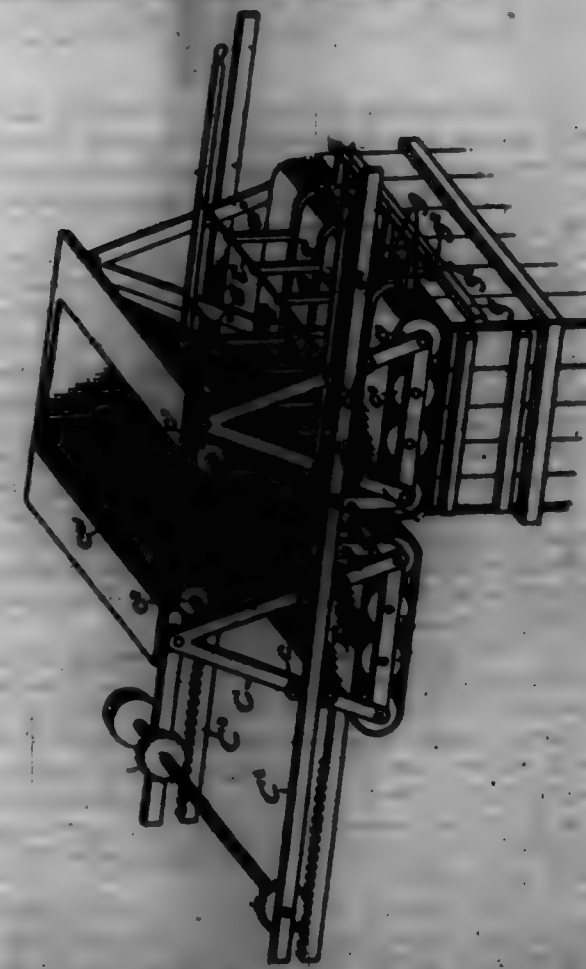
Claim.—1. An error in which is combined a handle, a revolvable screw-disk mounted in a bearing at one end thereof, the axis of which is arranged at right angles to that of said handle, a spring secured to the opposite end of said handle, a pulley upon the axis of said disk and a cord trained over said pulley, one end of which is attached to said spring, and the other of which is free to be grasped by the hand.

2. An error in which is combined a tubular handle, a revolvable screw-disk mounted thereon, a spiral spring within said handle, cords having their ends attached to said spring and said handle being trained over pulleys upon opposite sides of said disk, and a handle attached to the opposite ends of said cords, substantially as and for the purpose specified.

legs upon opposite sides of said disk, and a handle attached to the opposite ends of said cords, substantially as and for the purpose specified.



699,985. COTTON-PRESS. AMER R. TUCKER, Little Rock, Ark., assignor to Thomas C. Thompson Company, a Corporation of Arkansas. Filed Sept. 14, 1901. Serial No. 75,573. (No model.)



Claim.—1. In a cotton-press, the combination of a bale-forming mechanism, device for raising upon the top layer of cotton to depress the same after the formation of the bale, and means for holding the top layer of cotton in each depressed position as the bale is transferred from the bale-forming mechanism.

2. In a cotton-press, the combination of a preliminary-bale-forming mechanism, a finishing mechanism, device for raising upon the top of the bale to depress the same after the formation of the latter, and means for holding the top of the bale in each depressed position as the bale is transferred from the preliminary-bale-forming mechanism to the finishing mechanism.

3. In a cotton-press, the combination of a bale-forming mechanism, means adapted to be inserted between the bale-forming mechanism and top of the bale after the formation of the latter for holding the cotton in position in the bale, and a depressor for forcing said means upon the top of the bale prior to removal from the press.

4. In a cotton-press, the combination of a bale-forming mechanism, means adapted to be inserted between the bale-forming mechanism and top of the bale after the formation of the latter for holding the cotton in position in the bale, a depressor for forcing said means upon the top of the bale prior to removal from the press, and device for holding said means in depressed position as the bale is moved from the bale-forming mechanism.

5. In a cotton-press, the combination of a preliminary-bale-forming mechanism, a finishing mechanism, and means adapted for insertion between the preliminary-bale-forming mechanism and the top of the bale after the formation of the latter for holding the layers of cotton in position as the bale is transferred from under the preliminary-bale-forming mechanism, and device for depressing said means upon the top layer of cotton prior to the removal of the bale from the press.

6. In a cotton-press, the combination of a bale-forming mechanism for laying cotton layer upon layer in the formation of a bale and maintaining the same under compression during the formation thereof, device operative upon the top of the bale to depress the same after the formation of the bale, and means for holding the top of the bale in each depressed position as the bale is transferred from the bale-forming mechanism.

7. In a cotton-press, the combination of a traveling carriage, two series of rollers mounted thereon to travel therewith, an endless belt or apron passing around each series of rollers to form a hopper or receptacle for cotton and feed the same between them, a set of rollers mounted on said carriage below the said belt or apron and a curved set of rollers mounted below said first-mentioned set, and means for driving the second set of rollers at an increased speed to draw out the fibers of the top.

8. In a cotton-press, the combination with a preliminary-bale-forming mechanism, a finishing mechanism, means adapted to be inserted between the preliminary-bale-forming mechanism and top of the bale after the formation of the latter for holding the cotton in proper position in the bale as the latter is transferred from the preliminary-bale-forming to the finishing mechanism, and device for forcing said means against the top of the bale after the said means has been inserted as specified.

9. In a cotton-press, the combination with a preliminary-bale-forming mechanism, a finishing mechanism, means adapted to be inserted between the preliminary-bale-forming mechanism and top of the bale after the formation of the latter for holding the cotton in proper position in the bale as the latter is transferred from the preliminary-bale-forming to the finishing mechanism, and device for forcing said means against the top of the bale after the said means has been inserted as specified, and instrumentalities for maintaining the said means in position on the bale as it is transferred from one mechanism to the other.

10. In a cotton-press, the combination of a baling box or chamber, a hopper, means for representing one of said parts with respect to the other to lay layers of cotton upon each other in the formation of a bale, a pressure device to maintain pressure upon the cotton as it is laid layer upon layer, device for raising upon the top layer of cotton to depress the same after the formation of the bale, and means for holding the top layer of cotton in each depressed position as the bale is removed from the press.

11. In a cotton-press, the combination of a baling box or chamber and a bale-forming mechanism, means to move one of said parts with respect to the other to lay the top layer upon layer in the formation of a bale, pressure device for exerting pressure upon the bale as it is formed, belt for opposing the pressure device, a cut-off adapted to be inserted over the top of the bale after the formation thereof and means passing through suitable passages in one of said belts for forcing the cut-off upon the top of the bale.

12. In a cotton-press, a preliminary-bale-forming mechanism comprising two series of rollers to feed a top-of cotton layer upon layer in the formation of a bale, a pressure device for maintaining the layers of cotton pressed against said rollers as the bale is being formed, in combination with a cut-off adapted to be inserted over the top of the bale after the formation thereof, means passing through suitable passages in one of said belts for forcing the cut-off upon the top of the bale and device for maintaining the cut-off in position on the bale as the latter is removed from the press.

13. In a cotton-press, the combination of a hopper, a series of rollers at each side thereof, a plurality of belts carried by one of said series of rollers with a space between them, a cut-off, and a cut-off depressor movable in the space between the belts.

14. In a cotton-press, the combination of a hopper, a series of rollers at each side thereof, a belt-carried by one of the said series of rollers, a plurality of belts carried by the other series of rollers with a space between them, a cut-off adapted to be inserted between the said plurality of belts, and a cut-off depressor movable in the space between the belts.

15. In a cotton-press, the combination of a hopper, a series of rollers at each side thereof, a plurality of belts carried by one of said series of rollers with a space between them, and a cut-off depressor com-

prising handle-bar, and push-bar operable therefrom, said push-bar passing between said belt, and a cut-off adapted to be inserted in the space between the belt and to be engaged by the push-bar.

16. In a cotton-press, the combination of a carriage, a hopper mounted thereon and adapted to receive loose cotton direct from a gin or suitable source of supply, series of rollers and bale-forming surfaces mounted on said carriage, means for reciprocating said carriage to lay the cotton layer upon layer in the formation of a bale, the bale-forming surface on one of said series of rollers consisting of several parts spaced apart, a cut-off adapted to be inserted in the space between the parts of said bale-forming surface, and a cut-off depresser operable between said parts upon the cut-off.

17. In a cotton-press, the combination of a hopper, a series of rollers on adjacent ends thereof carrying bale-forming surfaces, the bale-forming surface on one of said series of rollers comprising a plurality of spaced parts, a cut-off depresser operable between the said parts of the bale-forming surface, a cut-off adapted to be inserted in the space between said parts and to be engaged by the cut-off depresser, and retaining device for holding the cut-off in place upon the top of the bale.

18. In a cotton-press, the combination of a hopper, a series of rollers on adjacent ends thereof carrying bale-forming surfaces, the bale-forming surface on one of said series of rollers comprising a plurality of spaced parts, a cut-off depresser operable between the said parts of the bale-forming surface, a cut-off adapted to be inserted in the space between said parts and having spaced ends and adapted to be engaged by the cut-off depresser, and retaining device for holding the cut-off in place upon the top of the bale.

19. A cut-off for holding the cotton in a cotton-bale as the latter is removed from the bale-forming mechanism, said cut-off comprising a series of parallel bars adapted to be placed above the bale after the formation of the latter, said parallel bars being free at one end, and a cross-piece connecting said parallel bars at the opposite end.

20. A cut-off for holding the cotton in a cotton-bale comprising a series of parallel bars, a cross-piece for connecting the bars at one end thereof, said bars being free at their opposite ends, in combination with a bale box or chamber and means carried by said box or chamber for engagement with said cut-off.

21. A cut-off for holding the cotton in a cotton-bale comprising a series of parallel bars, a cross-piece for connecting the bars at one end thereof, in combination with a bale box or chamber, hooks carried by said box or chamber for engagement with the cut-off, and means for forcing said hooks and the engaged cut-off toward the top of the bale box or chamber.

22. In a cotton-press, a bale-forming mechanism comprising a bale-box and means for laying the cotton layer upon layer in said box to form a square bale, and pressure device maintaining the layers of cotton under compression as the bale is being formed, said device comprising a plunger movable within the bale-box in combination with a differential balancing device having gearing connection with said plunger for maintaining the pressure exerted by the plunger on the layers of cotton in the bale-box uniform and equal throughout the formation of the bale.

23. In a cotton-press, the combination of a preliminary-bale-forming mechanism comprising device for supporting the bale as it is formed, bale-forming surface, means for moving one of said parts with relation to the other to lay the cotton in layers and starting-dogs mounted to the bale-forming surface to start the lay in the backward fold at the commencement of each movement.

24. In a cotton-press, a bale box or chamber, a traveling carriage, a hopper, a series of rollers and belt mounted on said carriage, means for moving the carriage back and forth over the bale box or chamber, and starting-dogs secured to the said belt.

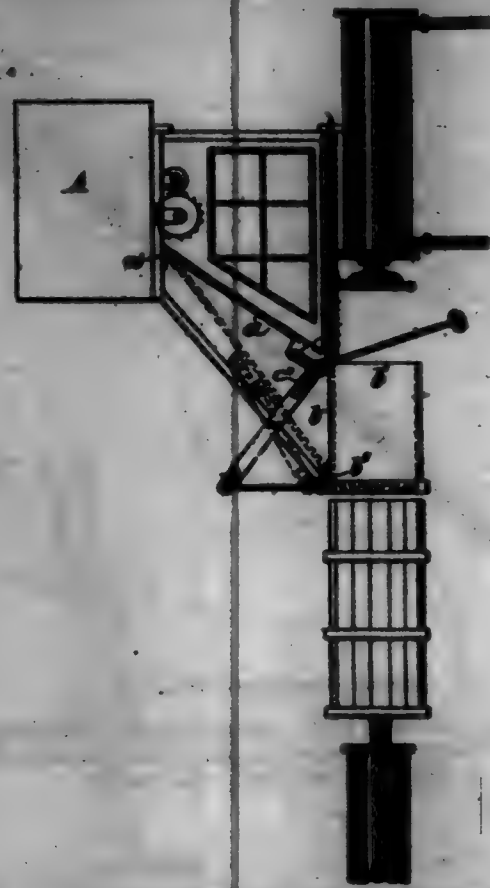
25. In a cotton-press, the combination of bale-forming mechanism, means for maintaining the bale under desired compression as the cotton is laid layer upon layer, a follower, and automatically-engaging hooks for holding the follower in position during the laying of some of the preliminary layers and for them to automatically release said follower as the compression means act to compress the layers of cotton.

26. In a cotton-press, the combination of bale-forming mechanism comprising means for laying the cotton layer upon layer, a pressure device for maintaining pressure on the bale as it is formed, a follower and automatically-disengaging hooks for holding the follower in position during the formation of the first part of the bale and for automatically releasing the follower as the pressure device operates to apply pressure to the bale.

699,986. BALEING-MACHINE. ARTHUR B. THOMAS, Little Rock, Ark., assignor to Thomas Gin-Compress Company, a Corporation of Arkansas. Filed Feb. 16, 1902. Serial No. 94,168. (No model.)

Claim.—1. In a baling-machine, the combination of a charging-chamber, a bale-box adapted to be moved beneath said charging-chamber,

bar, and means for closing the bottom of the charging-chamber as desired to prevent material to be fed therinto while the bars are being changed.



2. In a baling-machine, the combination of a charging-chamber, a trumper or plunger movable into said charging-chamber, a bale-box adapted to be moved beneath said chamber, and means for closing the bottom of the charging-chamber as desired to prevent material to be fed therinto while the bars are being changed.

3. In a baling-machine, the combination of a charging-chamber adapted to receive material to be baled, a trumper or plunger movable into said charging-chamber, means for preventing the material from entering said charging-chamber above said trumper head or plunger, a bale-box adapted to be moved beneath said charging-chamber, and a movable bottom for said charging-chamber to permit material to be fed therinto while the bars are being changed.

4. In a baling-machine having movable baling-bars, the combination of a charging-chamber open at its upper and lower ends, a reciprocating trumper or plunger movable in said chamber and out of the upper end thereof to a position above said chamber, means for delivering material into said chamber, and means detachably connected with the trumper or plunger for cutting off the supply of material to the charging-chamber when said trumper or plunger enters said chamber.

5. In a baling-machine, the combination of a charging-chamber, a bale-box adapted to be placed beneath the said chamber, means for delivering material direct from the gin or container into said charging-chamber, a trumper or plunger movable into said chamber to transfer the material into the bale-box, a cut-off for stopping the delivery of material into the charging-chamber while the trumper or plunger is operating therein, and means for detachably connecting the cut-off and trumper or plunger to cause the former to move with the latter during the portion of its travel above the charging-chamber.

6. In a baling-machine, the combination of a charging-chamber, means for delivering material into said chamber, a trumper or plunger and means for moving it into said charging-chamber, a cut-off for stopping the delivery of material into the charging-chamber while the trumper or plunger is operating therein, and means for detachably connecting the trumper or plunger and said cut-off whereby the delivery of material to the charging-chamber may remain uninterrupted while the trumper or plunger is raised above the said chamber.

7. In a baling-machine, the combination of a charging-chamber, bale-bars adapted to be moved beneath the charging-chamber, and means for retaining material in the charging-chamber during the change of bars beneath said chamber.

8. In a baling-machine, the combination of a charging-chamber having a movable side, bale-bars adapted to be moved beneath the charging-chamber, and means for moving the side into a position to increase the capacity of the charging-chamber as the bars are changed beneath the said chamber.

9. In a baling-machine, the combination of a charging-chamber hav-

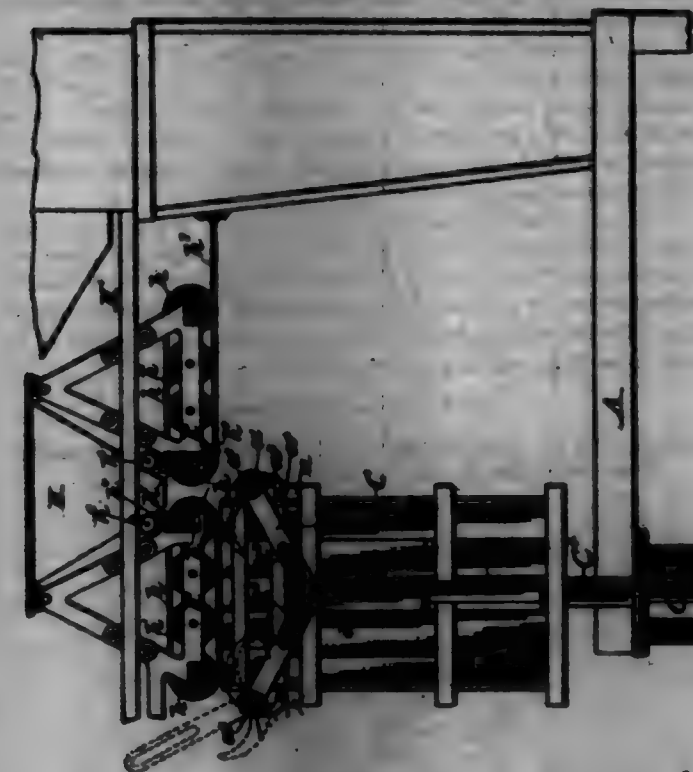
ing a movable side and bottom, bale-bars adapted to be moved beneath the charging-chamber and means for moving the side into a position to increase the capacity of the charging-chamber and to close the bottom thereof.

10. In a baling-machine, the combination of a charging-chamber for receiving material to be baled and having a hinged side and movable bottom, bale-bars adapted to be moved beneath said charging-chamber, a trumper or plunger, means for moving it into and out of said chamber, and means for turning the side of the charging-chamber open its hinges and closing the bottom of said chamber as the bars are changed beneath the chamber, whereby supply of material to said chamber need not be interrupted.

11. In a baling-machine, the combination of a charging-chamber for receiving material to be baled direct from the gin or container, said chamber having a hinged side and movable bottom, a link connecting said side and bottom to cause simultaneous movement thereof, bale-bars movable beneath the charging-chamber and operating means for said link, whereby the capacity of the charging-chamber may be increased and its bottom closed while the bars are changed beneath said chamber to permit a continuous supply of material to be received into the chamber.

12. In a baling-machine, the combination of bale-forming mechanism, a bale-box adapted to be moved beneath said baling mechanism and means interposed between the baling mechanism and bale-box for receiving and holding material to be baled during the change of bale-bars beneath said means to thereby permit the continuous operation of the supplying means.

699,987. COTTON-PRESS. ARTHUR B. THOMAS, Little Rock, Ark., assignor to Thomas Gin-Compress Company, a Corporation of Arkansas. Filed Feb. 16, 1902. Serial No. 94,168. (No model.)



Claim.—1. In a baling-machine, the combination of bale-forming mechanism, a bale-box adapted to be placed below said mechanism, and means journaled upon the bale-box and movable into position between the bale-forming mechanism and top of the bale after the formation of the latter to press the top layers of the bale away from the bale-forming mechanism and hold the material of the bale in position as the bale is moved from the bale-forming mechanism.

2. In a baling-machine, the combination of bale-forming mechanism, a bale-box for receiving the material delivered therinto from the bale-forming mechanism, device journaled upon the bale-box and movable into the top of the bale after the formation of the latter, and means for turning and continuously compressing said device upon the top of the bale to compress the layers of material below the bale-forming mechanism and retain them in such position as the bale is removed from the bale-forming mechanism.

3. In a baling-machine, the combination of bale-forming mechanism, a bale-box for receiving material to be baled, bale-holding dogs journaled upon the bale-box and movable into the top of the bale after the formation of the latter and prior to its removal from the bale-forming mechanism, and means for forcing the dogs upon the top of the bale to carry the layers of material away from the bale-forming mechanism and

holding them in such position as the bale is removed from the bale-forming mechanism.

4. In a baling-machine, the combination of bale-forming mechanism, a bale-box for receiving material to be baled, a shaft mounted on said bale-box, bale-holding dogs secured to said shaft, and means for turning said shaft to carry the dogs onto the top of the bale after the formation of the latter.

5. In a baling-machine, the combination of bale-forming mechanism, a bale-box for receiving material to be baled and having side thereon, a shaft mounted on said bale-box and carrying bale holding dogs, means for turning said shaft to carry the dogs onto the top of the bale and device for holding the dogs in position on top of the bale as the bale is removed from the bale-forming mechanism.

6. In a baling-machine, the combination of bale-forming mechanism, a bale-box for receiving the material to be baled, means for maintaining pressure on the material as it is being baled and device operated by the pressure of said means upon the material being baled for indicating the pressure on the material throughout the baling operation.

7. In a baling-machine, bale-forming mechanism comprising rollers and belt, a bale-box for receiving the material to be baled, means for maintaining pressure on the material during the baling operation, one of the rollers of the bale-forming mechanism being yielding and means connected with said yielding roller to indicate the pressure exerted on the material throughout the baling operation.

8. In a baling-machine, a pivoted bale-holding dog, said dog comprising a plurality of parts between the pivot and end thereof, said parts being flexibly united.

9. In a baling-machine, the combination of a bale-box, means for forming material into a bale, and bale-holding dogs pivotally connected to said bale-box and formed of a plurality of flexibly-united parts, said dogs movable into position upon the top of the bale after the formation of the latter for holding the layers of material in position as the bale is transferred from the bale-forming mechanism.

699,988. HEATING ATTACHMENT FOR LAMPS OR GAS BURNERS. REUBEN H. THOMAS, Chicago, Ill. Filed June 10, 1901. Serial No. 94,169. (No model.)



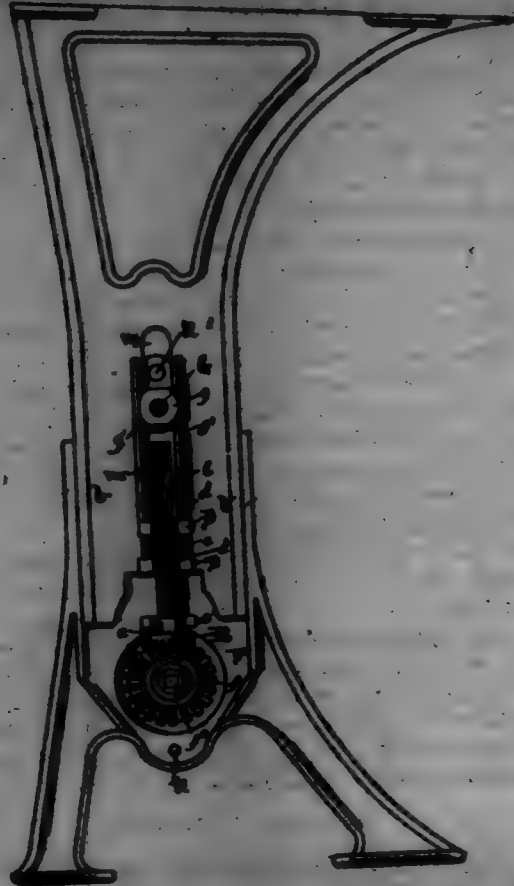
Claim.—1. A heating attachment for burners, comprising a rigid base-plate, a vertical supporting-arm carried thereby, and means carried by the upper end of said arm to hold the article to be heated and to guard the handle or similar portion of said article from the influence of the heat.

2. A heating attachment for lamps and the like comprising a rigid base-plate, a vertical arm or support carried thereby, a spigot carried by said arm and having a central opening, and a removable deflecting-plate carried by said spigot, said plate having a centrally-disposed perforated base adapted to said spigot-opening, substantially as specified.

699,989. ADJUSTABLE BURN AND HEAT. CHARLES E. WOOD, High, Ill., assignor to Woodruff & Edwards Company, High, Ill., a Corporation of Illinois. Filed Nov. 14, 1901. Serial No. 94,170. (No model.)

Claim.—1. In combination with a divided standard or upright for desks and seats, consisting of a movable section and a fixed section, of a threaded stem or screw operating in free contact with both sections of the standard or support, a traveling nut mounted thereon, legs or steps

on the movable section or division of the standard or support on each side of and in engagement with the traveling nut, a gear connection for turning the threaded stem or screw and actuating the traveling nut, and a cap having therein a longitudinal recess forming a guideway for the traveling nut and preventing the same from turning, substantially as described.



2. The combination of a divided standard or support for adjustable desks and seats, consisting of a movable section supported by and lying in fluid contact with a fixed section, a threaded stem or screw having thereon a traveling nut, legs or steps on the movable section or division of the standard or support in engagement with the traveling nut, a bevel-pinion on the end of the threaded stem or screw, legs on the fixed section or division furnishing a journal-bearing race for the stem or screw, a bevel-gear mounted in the fixed section or division of the standard or support and in mesh with the bevel-pinion for turning the threaded stem or screw and actuating the traveling nut, and a cap or cover provided with a recess furnishing a journal-bearing race for the stem or screw, substantially as described.

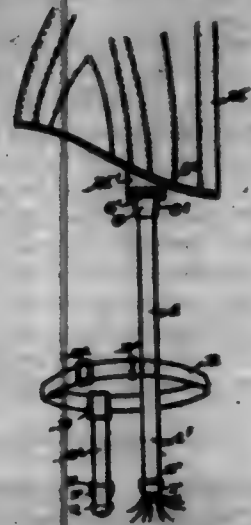
3. The combination with a divided standard or support for adjustable desks and seats, of a threaded stem or screw having thereon a traveling nut, legs or steps on the movable section or division of the standard or support on each side of and in engagement with the traveling nut, a bevel-pinion on the end of the threaded stem or screw, and a hub on the stem or screw behind the bevel-pinion, legs on the fixed section or division forming a journal-bearing race for the hub, a bevel-gear mounted in the fixed section or division of the standard or support and in mesh with the bevel-pinion, and a cap or cover attached to the fixed section or division of the standard or support including the gear and the threaded stem or screw, and having in its body a depressed journal-bearing race for the hub, substantially as described.

4. The combination with a divided standard or support for adjustable desks and seats, of a threaded stem or screw having thereon a traveling nut, legs or steps on the movable section or division of the standard or support in engagement with the traveling nut, a bevel-pinion on the end of the threaded stem or screw, a bevel-gear mounted in the fixed section or division of the standard or support and in mesh with the bevel-pinion, and a cap or cover attached to the fixed section or division of the standard or support including the gear and the threaded stem or screw and having a table or shelf forming a step for the lower end of the threaded stem or screw, substantially as described.

5. The combination of a divided standard or support for adjustable desks and seats, having a movable upper section or division provided with guide-rails and a fixed lower section or division, a bolt and nut with the stem of the bolt passing through the fixed section or division of the standard or support, and through a longitudinal slot in the body of the movable section or division of the standard or support with the nut of the bolt entered between guide-rails of the movable section or division of the standard or support, a threaded stem or screw having thereon a traveling nut, legs or steps on the movable section or division of the standard or support in engagement with the traveling nut, a bevel-pinion on the end of

the threaded stem or screw, a bevel-gear mounted in the fixed section or division of the standard or support and in mesh with the bevel-pinion, and a cap or cover attached to the fixed section or division of the standard or support including the gear and the threaded stem or screw and having a table or shelf forming a step for the end of the threaded stem or screw, substantially as described.

699,940. STOCKING-SUPPORTER. RALPH H. YAMMERS, Bham., and THOMAS HALL, Brooklyn, N. Y. Filed Aug. 4, 1906. Serial No. 26,592. (No model.)



Claim.—1. In a stocking-supporter, a head to enclose the heel with means for attaching it to the dress or belt above and means for supporting the stocking below, substantially as shown and described.

2. In a stocking-supporter, a clasp composed of a member B provided with a hinged ring at its lower end, an opening C and a portion E overhanging at its upper end, in combination with a member T having at its upper end a provision for support by cord or web, and its lower end shaped to pass into the hinged ring at lower end of member B substantially as shown and described.

3. In a stocking-supporter, a clasp composed of a member B provided with a hinged ring at its lower end, an opening C at its upper end, in combination with a member T having at its upper end a provision for support by cord or web and its lower end shaped to pass into the hinged ring at the lower end of member B and force into the ring a portion of the fabric to be supported, substantially as shown.

699,941. CONVERTIBLE TOOL. CHARLES S. ARNOLD, Greenwich, Mass. Filed Feb. 12, 1908. Serial No. 69,597. (No model.)



Claim.—1. A convertible tool having pivotally-connected members consisting of a head and a shank adapted to occupy a plurality of relative positions, one of said members being provided with an eye having a contour curved concentrically with the pivot and the other member having a shoulder overlapping and bearing upon the periphery of the eye of the other member, and means for securing the members in their adjusted relative positions.

2. A convertible tool having pivotally-connected members consisting of a head and a shank adapted to occupy a plurality of relative positions, said members having conical concave eyes peripherally concentric with the pivotal point of connection, and one of the members having a shoulder overlapping and bearing upon the periphery of the eye of the other member, and means for securing the members in their adjusted relative positions.

3. A convertible tool having pivotally-connected members consisting of a head and a shank, one of which is provided with an eye having a contour curved concentrically with the pivot and provided with a plurality of teeth, and a locking device consisting of a rotary button or bolt mounted in the other member for engagement with either of the said teeth and being notched or cut away at one side to give clearance and permit relative movement of the members.

4. A convertible tool having pivotally-connected members consisting of a head and a shank, said head having a pin, and means for securing the shank in adjusted positions with relation to the head, the shank in one of its positions being in engagement with said pin.

5. A convertible tool having pivotally-connected members consisting of a head and a shank, and means for securing said members in different relative positions, the head being provided with a pin for engagement with the shank in one of its positions.

6. A convertible tool having pivotally-connected members consisting of a head and a shank, and means for securing the same in different relative positions, the shank being provided with a handle-socket, and a handle-socket device consisting of a rotary button or bolt mounted in the wall of the socket for engagement with the notch in the handle and provided with a cut-away portion for registration with the socket to release the handle.

699,942. STARCHING-MACHINE. SAMUEL S. HANCOCK, Chicago, Ill. Filed Mar. 24, 1908. Serial No. 14,972. (No model.)



Claim.—1. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; a starching-roller comprising a series of starching-rollers; a starching-wheel adapted to rotate in said starching-roller; said wheel carrying a series of starching-rollers; an endless open adapted to travel with the starching-rollers in said roller; an endless open adapted to travel with the starching-rollers on said starching-wheel to move said open at the same rate of speed with relation to each other; and means for rotating said wheel.

2. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; two starching-rollers each comprising a series of starching-rollers; a starching-wheel for each of said starching-rollers, one of said wheels carrying a series of starching-rollers, the other wheel being provided with a series of rubbing-blocks; an endless open adapted to travel with the starching-rollers; an endless open adapted to travel with the starching-rollers; and means for rotating said wheel.

3. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; three starching-rollers, each comprising a series of starching-rollers; a starching-wheel for each of said starching-rollers, two

of said wheels carrying a series of starching-rollers, the other one of said wheels being provided with a series of rubbing-blocks; an endless open adapted to travel with the starching-rollers in said roller; an endless open adapted to travel with the starching-rollers; and means for rotating said wheel.

4. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; a substantially conical starching-roller pivotally supported within said receptacle; a starching-wheel rotatably mounted concentrically with the axis of the roller described by said roller; a peripheral series of starching-rollers on said wheel; a series of starching-rollers rotatably mounted in yielding bearings in said roller and adapted to be held in contact with the starching-rollers on said wheel; an endless open adapted to travel with the starching-rollers in said roller; an endless open adapted to travel with the starching-rollers on said starching-wheel; and means for rotating said wheel to move said open at the same rate of speed with relation to each other.

5. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; a framework pivotally mounted within said starch- receptacle, said framework comprising two starching-rollers; a series of starching-rollers yieldingly mounted within said framework, for each of said rollers; a rotatable starching-wheel concentric with the axis of the roller described by one of said rollers; a starching-wheel concentric with the axis of the roller described by the other of said rollers, said last-mentioned starching-wheel being provided with a series of peripheral rubbing-blocks; a yieldingly-mounted roller having an elastic face intermediate said starching-wheels; an endless open adapted to travel with the starching-rollers of said rollers; an endless open adapted to travel with the starching-rollers of said rollers; and means for rotating said wheel.

6. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; a framework pivotally mounted within said starch- receptacle, said framework comprising three starching-rollers, each provided with a series of starching-rollers rotatably mounted in yielding bearings, the rollers of each roller being disposed on the axis of a roller; three starching-wheels rotatably mounted in bearings in the supporting-frame, each of which starching-wheel is concentric with the axis of the roller described by said starching-roller, two of said wheels also being provided with a peripheral series of starching-rollers, the intermediate wheel having a peripheral series of rubbing-blocks; three rotatable rollers yieldingly supported in said frame and being provided with elastic faces; an endless open adapted to travel with the starching-rollers of said rollers; an endless open adapted to travel with the starching-rollers of said rollers; and means for rotating said wheel.

7. In a starching-machine, in combination, a supporting-frame; a starch- receptacle; a substantially conical starching-roller pivotally mounted within said starch- receptacle; said roller comprising a series of starching-rollers; a starching-wheel adapted to rotate in said starching-roller, said wheel carrying a peripheral series of rubbing-blocks; an endless open adapted to travel with the starching-rollers in said roller; an endless open adapted to travel with the starching-rollers on said starching-wheel; and means for rotating said wheel.

699,943. SHIRT-HANGER. CHARLES A. HANLEY, Philadelphia, Pa. Filed Mar. 22, 1901. Serial No. 62,282. (No model.)



Claim.—1. A shirt-hanger having a lower body portion consisting of a light open frame comprising four corner-uprights connected by cross-braces two of said corner-uprights extending all four uprights so as to leave an open space transversely through the mid body portion and the other two corner-uprights extending the upright in pairs and leaving a vertical space between the uprights and last-mentioned two corner-uprights, in combination with a journal-bolt arranged in the open space between all the corner-uprights and vertical and horizontal screws carried by said corner-uprights for holding the journal-bolt in position.

2. In a shirt-hanger the combination of four depending arms A of single-bow substantially equidistant at the bottom and spreading at the top to form a large supporting-base, transverse plates C pivoted to the upper ends of the said arms to properly space them in pairs, means B connecting the lower portions or extensions of the arms in pairs, upper and lower transverse plates D and E for connecting the two pairs of arms A at points above

and below the brace H, a removable journal-box J arranged between the brace H, F and E, and adjusting and supporting covers A, f and c for said box carried respectively by said brace.

3. In a shaft-hanger the combination of four depending arms A of angle-iron substantially equidistant at the bottom and spreading at the top to form a large supporting-base and in which the lower portions of the arms are made detachable from the upper portions, transverse plates O pivoted to the upper ends of the said arms to properly space them in pairs, braces H connecting the lower portions or extensions of the arms in pairs below the union of the upper and lower portions of the arms A, upper and lower braces F and E for connecting the lower portions of the two pairs of arms A at points above and below the brace H but also arranged below the union of the upper and lower portions of the said arms A, a removable journal-box J arranged between the brace H, F and E, and adjusting and supporting covers A, f and c for said box carried respectively by said brace.

4. A shaft-hanger having a lower body portion consisting of four upright angle-irons, combined with braces for connecting said uprights in two pairs, two other braces for connecting the two pairs of uprights into a single structure said last-mentioned braces being arranged respectively above and below the level of the first-mentioned braces, and a journal-box supported between the four braces and four uprights.

5. A drop-hanger consisting of a body portion comprising four upright flanged metal members flaring or spreading at the top, combined with transverse plates connecting the tops of the members to form an extended base, braces H H rigidly connecting the said members in pairs, braces F and E connecting the pairs of members together and located respectively at a higher and lower elevation than the brace H, a journal-box J arranged between the braces, and covers passing through the braces and supporting the journal-box.

6. A shaft-hanger frame formed of flanged metal bars and having its body portion formed of four upright members united at the top by transverse plates O O and the two curved angle-iron bars B B secured together at their middle portions and having their ends secured to the upright members.

7. In a drop-hanger the combination of four upright members, transverse side braces connecting said upright members in two pairs, a transverse brace connecting the two pairs of upright members at a level above the side braces, and a second transverse brace between the two pairs of upright members and at a level below the side braces, detachable means for connecting the last-mentioned and lowermost brace to the upright members, supporting and adjusting covers carried by the braces, and a journal-box supported by said covers.

699,944. FORMALDEHYDE-GAS GENERATOR. EDWARD W. GARDNER and FREDERICK H. LAWRENCE, Fleming, N. Y. Filed Feb. 4, 1908. Serial No. 88,548. (No model.)



Claim.—1. As a new article of manufacture, the formaldehyde-gas generator comprising the tablet 12 of para-formaldehyde and the tablet 13 of carbon thoron and at its base substantially of the same surface area as the upper surface of said tablet 12; substantially as and for the purposes set forth.

2. As a new article of manufacture, the formaldehyde-gas generator comprising the tablet 12 of para-formaldehyde and the tablet 13 of carbon thoron and at its base substantially of the same surface area as the upper surface of said tablet 12, combined with a non-inflammable covering extending up the sides of said tablet 12 to said tablet 13; substantially as and for the purposes set forth.

3. As a new article of manufacture, the formaldehyde-gas generator comprising the tablet 12 of para-formaldehyde and the tablet 13 of carbon thoron and at its base substantially of the same surface area as the upper surface of said tablet 12, said tablet 13 above its base being substantially of cone shape; substantially as and for the purposes set forth.

699,945. BURIAL-CASE PROTECTOR. JOHN B. CLARK, Columbus, Ohio. Filed Oct. 10, 1907. Serial No. 78,188. (No model.)

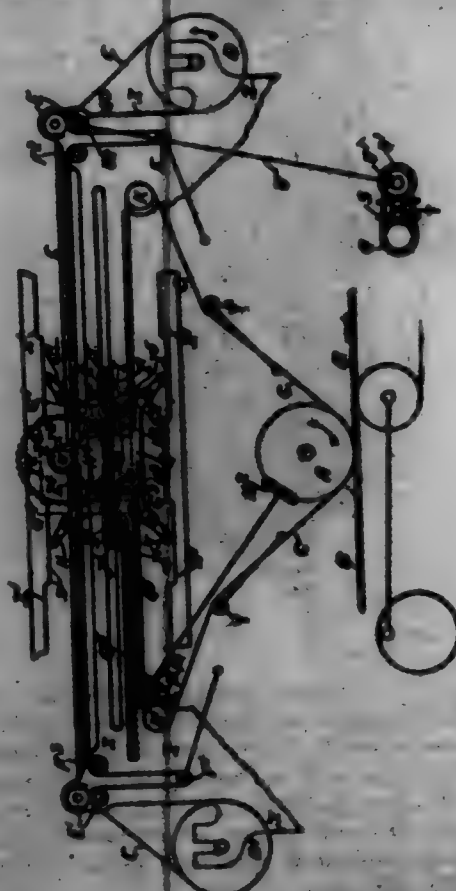
Claim.—1. In a burial-case protector, the combination with a bottom frame comprising a central bar formed of hinged sections and laterally-extended end-bars, said bars being when horizontal of greater length than

the length and width of the grave in which they are intended for use, of a coffin-containing case mounted on said bottom frame, an external jacket including the sides, ends and top of said coffin-containing case, vertical standards rising from said bottom frame on the upper sides of said jacket, each extending across the upper side of the jacket and locked in connection with said standards, substantially as specified.



2. In a burial-case protector, the combination with a bottom frame comprising united bars adapted to have their ends projecting into the walls of a grave, and a coffin-containing case supported on said bottom frame-bar, of hollow locking-standards rising from said bottom frame-bar, each of said standards having on its inner side a projecting tooth 17, a spring 18 opposite the same and the upper portions of said standards having transverse keyways or openings 19, longitudinal and transverse frame-bars 18 and 19 extending over the burial-case and having openings in their outer end portions adapted to receive the upper portions of said standards 12, a block 20 detachably mounted on each of said standards above the corresponding top frame-bar and having a projecting bar engaging the opening of said frame-bar, a block 20 fitting over the upper end of each of said standards and bearing upon the block 20, a key-block 26 having a central opening therein and adapted to be inserted in one of the openings 19 and a locking-bar adapted to be inserted vertically through said block 26 and into the standard 12, said bar having formed in its lower portion teeth 28 having an enlarged head as described adapted to enter the opening of the block 26, substantially as specified.

699,946. PRINTING-MACHINE. THOMAS CONRAD, Geneva, Switzerland. Filed Oct. 20, 1906. Serial No. 754,165. (No model.)



Claim.—1. In an offsetting-cylinder printing-machine, means for automatically and intermittently feeding the paper to be printed from the web, consisting of a sliding frame, a rack on said frame geared to a driven toothed wheel, spring-clippers for engaging the paper, and a novel independently-movable frame carried by the first-mentioned frame, substantially as shown and described.

2. In an offsetting-cylinder printing-machine for printing from the web, the combination with a sliding frame, of a curved frame carried by said sliding frame, gear-wheels centered on the sliding frame engaging racks on the curved frame, a quadrant-arm for actuating said gear-wheels

and a rack which controls the movement of said quadrant-arm, substantially as shown and described.

3. In an offsetting-cylinder printing-machine for printing from the web, the combination with a quadrant-arm, of a rack for controlling the movement of said quadrant-arm, said rack being jointed and adjustable by the action of curved spindles upon nuts on the rack, to lengthen or shorten the path of the quadrant-arm controlled by the rack, substantially as shown and described.

4. In an offsetting-cylinder printing-machine for printing from the web, the combination with a quadrant-arm, of means for changing the direction of movement of the quadrant-arm and ultimate direction of the feed consisting of levers connected to the pivoted portions of the rack, rods connecting them together, a rod connecting one of the pivoted portions to a dotted quadrant and a second rod connected to said quadrant and carrying a roller operated by a cam, substantially as shown and described.

699,947. OPERATING-HALTER. ROBERT W. BLAIR, New York, N. Y. Filed Mar. 6, 1908. Serial No. 81,871. (No model.)



Claim.—1. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a yoke connected with the side straps for insertion beneath the animal's upper lip, and side guys connected to said yoke, substantially as set forth.

2. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a yoke connected with the side straps for insertion beneath the animal's upper lip, side guys connected to said yoke, and means for adjusting said yoke, substantially as set forth.

3. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a carriage connection to said bridge, a yoke connected with the side straps for insertion beneath the animal's upper lip, and side guys connected to said yoke, substantially as set forth.

4. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a loop connected with the side straps for insertion beneath the animal's upper lip, side guys connected to said loop, a yoke connected to said bridge, and a carriage connection to said yoke, substantially as set forth.

5. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a loop connected with the side straps for insertion beneath the animal's upper lip, side guys connected to said loop, a yoke movably connected to said bridge, and a carriage connection to said yoke, substantially as set forth.

6. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a loop connected with the side straps for insertion beneath the animal's upper lip, side guys connected to said loop, and a tubular protecting-paddling on said loop, substantially as set forth.

7. As a new manufacture, an operating-halter composed of side straps, a bridge connected with said straps for engaging the animal's nose, a loop connected with the side straps for insertion beneath the animal's upper lip, side guys connected to said loop, and a rubber tube on said loop for protecting the same, substantially as set forth.

8. As a new article of manufacture, an operating-halter comprising side straps, a rigid bridge connected to said straps and engaging the animal's nose, said bridge having offset portions coincident with the cheeks, and side guys connected to said halter, substantially as set forth.

9. As a new article of manufacture, an operating-halter comprising side straps, a bridge connected to said straps and engaging the animal's nose, said bridge having offset portions coincident with the cheeks, a padding for said bridge, and side guys connected to said halter, substantially as set forth.

699,948. YARN-PRINTING MACHINE. JAMES HAMILTON, Philadelphia, Pa., assignor to James Dunlop Carpet Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 18, 1908. Serial No. 81,348. (No model.)



Claim.—1. In a yarn-printing machine, the combination with the yarn-draw, the carriage, the color-bar and its wheel, and the rubbing device on the respective ends of the carriage, of a horizontally-disposed bar, upwardly-inclined ends supporting said bar, rock-shafts carrying said ends, other ends extending downwardly from said rock-shafts, and links coupling said last-mentioned ends to cause them to operate as a unit; device operating to maintain the horizontal bar normally elevated, and means to effect an opposite lowering movement of said bar when desired.

2. The combination with the yarn-draw, the carriage, the color-bar and its wheel, of the rubbing device at the respective ends of the carriage, said device comprising each a vertically-movable support, a spring-controlled link pivotedly mounted in an independent bearing at the upper end of said support, operating to maintain the same yieldingly in position, springs to maintain said supports in normal position, a roller, a dotted bearing member pivotedly mounted on the lower end of said support, a horizontally-arranged lifting-bar having an inclined end, with actuating means operated by a treadle to bring said bar into the path of said roller; substantially as described.

3. The combination with the yarn-draw, the carriage, the color-bar and its wheel, of the rubbing device at the respective ends of the carriage, said device comprising each a vertically-movable post, means to maintain it in normal position, a stem independently movable on said post, a spring to maintain said stem normally raised, a spring-controlled link pivotedly mounted on said stem, together with means for bodily raising the said post with its connections, substantially as described.

4. The combination with a yarn-drive, the carriage, the color-bar, the color-wheel, the rubbing device on the opposite ends of said carriage, means to yieldingly support each rubbing device in an independently-movable path, spring devices to maintain the said parts in normal position, and means to raise said parts against counter spring action; substantially as described.

699,949. CHORDOLA CAR. HARRY S. HARR, Chicago, Ill., assignor to Hodge Patent Car Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 10, 1901. Serial No. 71,545. (No model.)



Claim.—1. In a car of the class described, the combination of a frame portion provided with swinging doors forming side boards thereof, a rock-shaft arranged to directly and positively contact the free end of each swinging door between the bearing portions of each rock-shaft and held in its locked position, an integral crank-arm upon the shaft, each pivoted at its outer end at a point concentric from the rock-shaft to permit the shaft to swing to and from the door, substantially as described.

2. In a car of the class described, the combination of a frame portion provided with swinging doors forming side boards thereof, a swinging rock-shaft provided with crank-arms upon which it is swingingly mounted each crank-arm being arranged in reliable bearings in the frame portion at or near each side thereof and each shaft being adapted to be swung into and held in direct positive contact with the free ends of the swinging doors between the bearing portions of each shaft and adapted to force each door into and hold them locked in their closed position, substantially as described.

3. In a car of the class described, the combination of a frame provided with swinging doors forming side boards thereof, a swinging rock-shaft, integral crank-arms on the shaft pivoted at their outer ends at points concentric from the main portion of the rock-shaft and at substantially right angles with the outer surface of the door when closed, and the point of the rock-shaft's contact with the door, substantially as described.

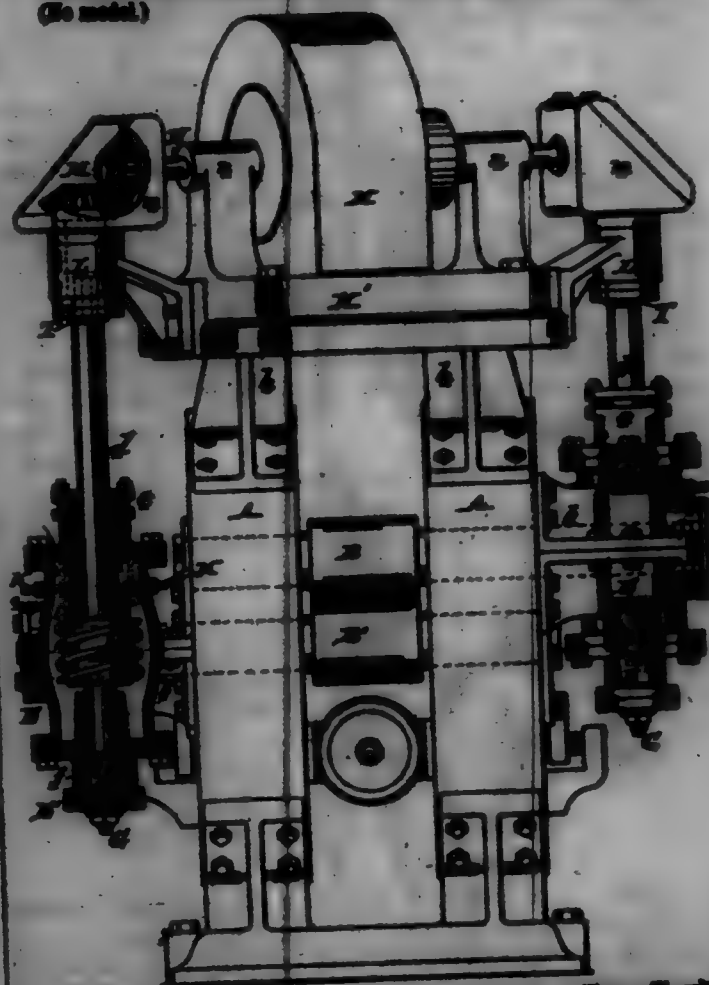
4. In a car of the class described, the combination of a frame portion, swinging doors forming side boards thereof, a swinging rock-shaft arranged at each side of the car, a plurality of integral crank-arm portions upon each rock-shaft having their outer ends pivotedly mounted at points concentric from the main portion of the shaft and at substantially right angles with the outer surface of the door when closed, and the point of contact with the door, and means for swinging the shaft into and out of positive contact with the lower ends of the swinging doors, substantially as described.

5. In a car of the class described, the combination of a frame portion, swinging doors forming side boards thereof, a swinging rock-shaft mounted at each side of the car adjacent to the lower ends of the doors, a plurality of integral crank-arm portions upon each shaft pivotedly mounted in the frame at points substantially at right angles with the outer surface of the doors when closed, and the point of contact with each door,

each crank-arm being of such length as to reach only to the edge of the door nearest the pivotal point of the rock-shaft, and means for swinging the rock-shaft into and out of positive contact with the lower ends of each door, substantially as described.

6. In a car of the class described, the combination of a frame portion, swinging doors forming side boards thereof, a rock-shaft for each side of the car arranged at the lower ends of each door having a plurality of ball portions each adapted to extend lengthwise of one of the doors from end to end thereof, a pair of integral crank-arms for each ball portion connected thereby and having their outer ends pivotedly mounted concentric with the ball portions and at substantially right angles with the outer surface of the doors when closed, and the point of contact with the door, and means for swinging the rock-shaft into and out of positive contact with each door, substantially as described.

699,950. ELECTRICALLY-DRIVEN ROLLING-MILL. HENRY HARVEY, Philadelphia, Pa., assignor to Morse, Williams and Company, a Corporation of Pennsylvania. Filed Jan. 10, 1901. Serial No. 64,701. (No model.)



Claim.—1. The combination of the two rolls of a rolling-mill, with two vertical shafts and connecting worm and worm-wheel gearing arranged upon opposite ends of the two rolls for independently and mechanically rotating the respective rolls, a transverse power-shaft carried in reliable bearings on the top of the housings of the rolling-mill, and independent connecting-gearing between the ends of the power-shaft and the upper ends of the two vertical shafts.

2. The combination of the two rolls of a rolling-mill, with two vertical shafts and connecting worm and worm-wheel gearing arranged upon opposite ends of the two rolls for independently and mechanically rotating the respective rolls, a horizontal transverse and diagonally-arranged power-shaft carried in reliable bearings on the top of the housings of the rolling-mill, and independent connecting-gearing between the ends of the power-shaft and the upper ends of the two vertical shafts.

3. In a rolling-mill, the combination of the housings and horizontal rolls journaled therein one of which has its end projecting beyond the end of the other roll, a motor for operating the roll mounted on top of the housings and above the rolls and provided with a transverse power-shaft, a worm-wheel carried to the projecting end of the roll and extending beyond the line of the shorter end of the other roll, an upright shaft extending from the level of the rolls to the power-shaft, gearing between the power-shaft and upright shaft, and a worm on the upright shaft gearing with the worm-wheel of the rolls.

4. In a rolling-mill, the combination of the housings and horizontal rolls journaled therein one of which has its end projecting beyond the end of the other roll, a motor for operating the rolls mounted on top of the housings and above the rolls and provided with a transverse power-

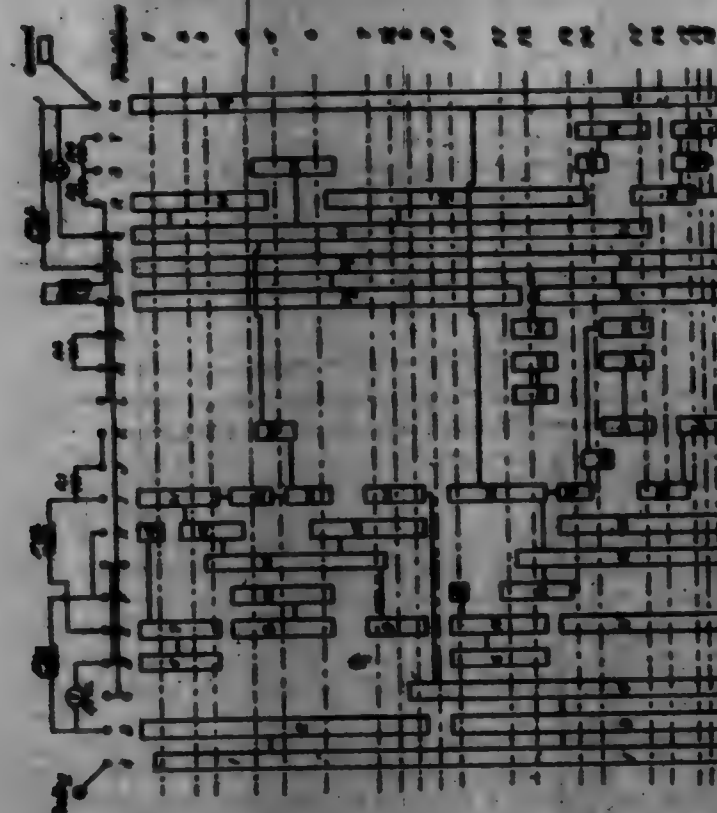
shaft, a worm-wheel secured to the projecting end of the roll and extending beyond the line of the shorter end of the other roll, an upright shaft extending from the level of the rolls to the power-shaft, gearing between the power-shaft and upright shaft, a worm on the upright shaft gearing with the worm-wheel of the rolls, and a casing inclosing the worm and worm-wheel gearing secured to the housing and provided with a bearing for the upright shaft.

5. In a rolling-mill, the combination of the housings and the two rolls, with a motor for rotating the rolls arranged immediately above and supported by the housing, and two sets of power-transmitting connections between the motor and the opposite ends of the respective rolls for rotating them in opposite directions.

6. In a rolling-mill, the combination of the housings, the two rolls having their operating-shafts extended through the housings in opposite directions, worm-wheels secured upon said extended roll-shafts, worms meshing with opposite sides of said respective worm-wheels upright shafts for operating the worms, and a diagonally-arranged power-shaft carried in bearings upon the upper part of the housings and having its ends mechanically connected with the upper ends of the upright shafts.

7. In a rolling-mill, the combination of the housings the two rolls having their operating-shafts extended through the housings in opposite directions, worm-wheels secured upon said extended roll-shafts, worms meshing with opposite sides of said respective worm-wheels upright shafts for operating the worms, a diagonally-arranged power-shaft carried in bearings upon the upper part of the housings and having its ends mechanically connected with the upper ends of the upright shafts inclosing casings surrounding the worms and worm-wheels secured to the housings at different elevations and provided with bearings for the upright shafts.

699,951. ELECTRIC CONTROLLER. JOHN C. HENRY, Denver, Colo.; RALPH A. HENRY, assignor of said John C. Henry, deceased, assignor to Stanley Electric Manufacturing Company, a Corporation of New Jersey. Filed Apr. 1, 1901. Serial No. 54,000. (No model.)



Claim.—1. The method of regulating an electric motor which consists in connecting the field-coils so that on starting the motor may be connected as a compound machine, having one portion of its high-resistance field in series with its armature and the other portion in shunt therewith, changing said shunt-portion to long shunt, so that it embraces the series portion and then connecting both of said field-coils in shunt with the armature.

2. The method of regulating an electric motor, which consists in connecting the field-coils so that on starting the motor may be connected as a compound machine, having one portion of its high-resistance field in series with its armature and the other portion in shunt therewith, changing said shunt-portion to long shunt so that it embraces the series portion, and then connecting both of said field-coils in shunt and further regulating by varying the current in said field.

3. The method of regulating a pair of electric motors which consists in starting one of them as a compound machine, using a portion of the ordinary shunt-coil as a series coil, changing the shunt connection to long

shunt and then to regulate shunt combination cutting one of the said motors from the circuit by first reversing a part of its field-coils, and then connecting it in parallel in the same manner as it was previously started.

4. The method of changing motors from series to parallel, consisting in reversing a part of the field-coils of one of the motors so as to neutralize its magnetism, opening the armature-circuit, allowing the current to pass through the field in series with the other motor, then short-circuiting and removing the field of the first-named motor from the circuit and connecting the motors in parallel.

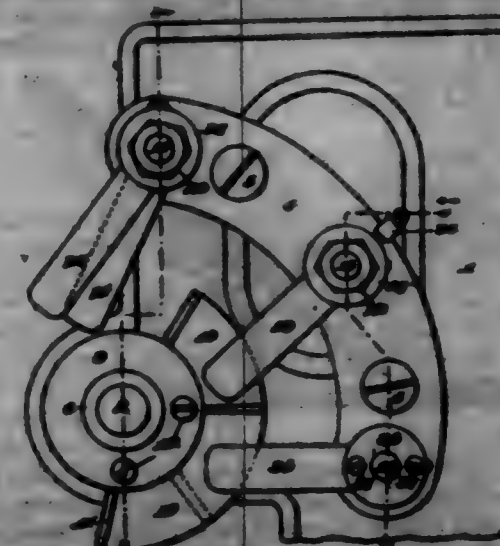
5. The method of operating a pair of electric motors, which consists in connecting the armatures in series relation, and the field in shunt relation thereto, changing the combined machines to parallel, and then speeding-up by increasing the resistance of the field-circuit by changing the field-coils from parallel to series relation, and by inserting resistances.

6. The method of operating a pair of electric motors, which consists in connecting the armatures in series relation and the field in shunt relation thereto, changing the combined machines to parallel and then speeding-up by placing the field of both motors in series.

7. The method of operating a pair of electric motors which consists in connecting the armatures in series relation and the field-coils partly in series and partly in shunt relation, and then changing the field-coils wholly to series relation.

8. The method of operating electric motors which consists in reversely connecting a part of the coils of a motor to neutralize the field thereof, and then opening the armature-circuit.

699,952. CIRCUIT-CONTROLLER. RICHARD BERNARD, London, Eng. Filed Oct. 7, 1901. Serial No. 71,702. (No model.)



Claim.—1. In a circuit-controller, the combination with a supporting-frame, a plate supported by said frame, studs mounted in said plate, contact-fingers arranged in pairs on said studs, and contact-blades movable in the arc of a circle to make and break contact with said fingers.

2. In a circuit-controller, a supporting-plate, studs mounted in said plate, collars mounted on said studs, a pair of contact-fingers carried by each collar, and contact-blades movable in the arc of a circle between the pairs of fingers to make and break contact therewith.

3. In a circuit-controller, a segmental supporting-plate, studs mounted in said plate, collars mounted on each of said studs, a pair of contact-fingers mounted in recesses provided therein in each collar, and contact-blades movable in the arc of a circle between the fingers to make and break contact therewith, substantially as described.

4. In a circuit-controller, a supporting-plate, one or more studs mounted in said plate, collars mounted on the stud or studs with their opposite faces recessed, contact-fingers mounted in said recesses, and contact-blades movable between the fingers to make and break contact therewith.

5. In a circuit-controller, a series of suitably-supported studs, collars mounted on each of said studs, with their opposite faces recessed, and contact-fingers mounted in said recesses for engagement with opposite faces of contact-blades to make and break contact.

6. In a circuit-controller, a series of suitably-supported studs, collars mounted on said studs, a pair of contact-fingers carried by each of said collars, one pair of said fingers being insulated from the supporting-plate, and contact-blades movable between the fingers, substantially as described.

7. In a circuit-controller, a series of suitably-supported studs, collars mounted on said studs, a pair of contact-fingers carried by each of said collars, one pair of the fingers having an oscillating movement, and contact-blades movable in the arc of a circle between the fingers.

8. A multiple-circuit-controller, comprising a series of electrically-connected spring-fingers arranged in pairs, one pair of fingers being ex-

ble of oscillatory movement on their support, and segmental contact-blades movable in the arc of a circle between the pairs of fingers for contact therewith.

9. A multiple-circuit controller comprising a series of suitably-mounted spring contact-fingers one of which is capable of oscillatory movement on its support, and contact-blades movable between the fingers in the arc of a circle for engagement with the fingers.

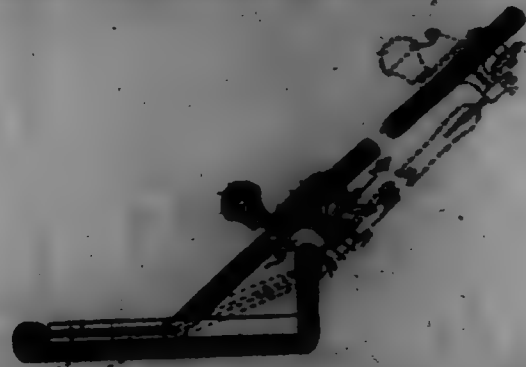
10. In a multiple-circuit controller, a supporting-plate, slant mounted in said plate and insulated therefrom, collars mounted on each of said studs, a pair of spring contact-fingers carried by each of said collars, one of said collars and fingers twisted thereby being insulated from their stud, and contact-blades movable in the arc of a circle between the fingers and provided with knife-edges, as and for the purpose described.

11. A multiple-circuit controller embodying a support, slant mounted therein and insulated therefrom, collars mounted on said studs, a pair of spring-fingers carried by each of said collars, one of said pairs of fingers capable of oscillatory movement, and contact-blades which are movable between the pairs of fingers to make and break contact therewith.

12. In a circuit-controller, a support, a stud mounted in said support, a collar mounted on said stud to partially rotate thereon, a pair of spring-fingers carried by the collar and movable therewith, means for limiting the movement of said collar and fingers, and a contact-blade movable between the fingers to make and break contact therewith.

13. In a circuit-controller, a support, a stud mounted thereon, collars mounted on said stud, a pair of spring-fingers carried by each of said collars, and contact-blades movable in the arc of a circle between the fingers to make and break contact therewith.

699,958. **IMP AND WRINGER THEREFOR.** HOWARD BRUSH, Chicago, Ill. Filed Aug. 20, 1901. Serial No. 73,399. (No model.)



Claim.—1. The combination of a bifurcated body, with a handle pivotedly secured thereto, a ball secured on the body and extending crosswise one of its ends, a sleeve movably located on the handle and having means to fix it thereto, a rod or shaft journaled on said sleeve, a map secured at one of its ends to said rod or shaft and at its other end to the said ball, and means to rotate the shaft, substantially as described.

2. The combination with a bifurcated body, of a handle pivotedly connected thereto between its prongs, a ball secured on the body and extending crosswise one end thereof, a rib secured longitudinally on said handle, a sleeve movably secured on the handle and having means to fix it thereto, a shaft journaled on said sleeve, a map secured at one of its ends to said shaft and at its other end to the ball, and means to rotate the shaft, substantially as described.

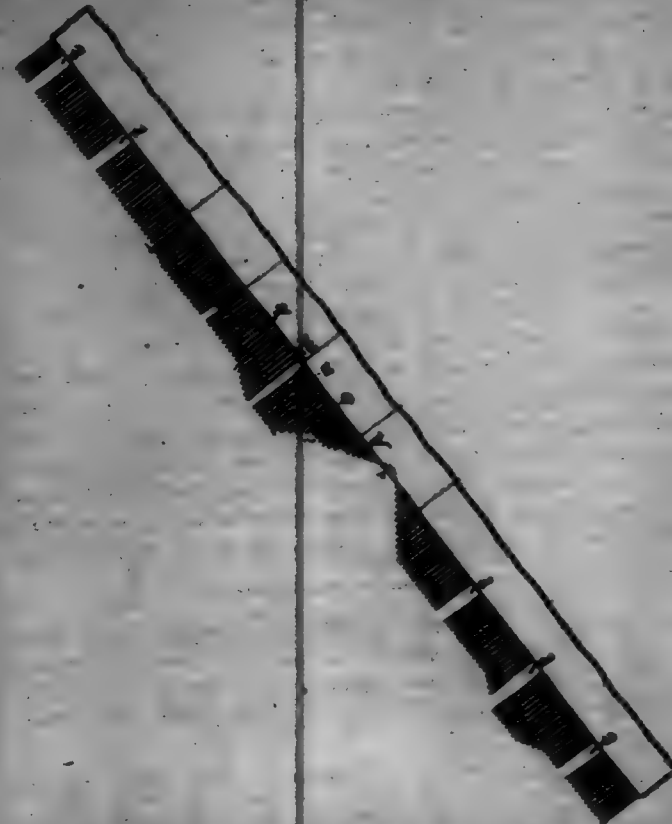
3. The combination of a bifurcated body, with a handle pivotedly connected thereto between its prongs, a map connected to one end of said body, and means movably secured on the handle and connected to the other end of the map to raise, lower and twist the same, substantially as described.

4. The combination with a bifurcated body, of a handle pivotedly connected thereto between its prongs, a sleeve secured longitudinally on the handle, a shaft journaled on said sleeve, a beveled gear on said shaft, a map connected at one of its ends to said shaft and at its other end to the ball, a crank-shaft journaled on the sleeve at right angles to the first-named shaft, and a beveled gear on the crank-shaft, substantially as described.

699,959. **MANUFACTURE OF OPEN WEAVED FABRIC.** BENJ. A. HENNER, Allentown, Pa. Filed May 4, 1905. Serial No. 84,895. (No model.)

Claim.—1. The process of knitting open stripes, which consists in causing single needles, corresponding in position to the stripes to be produced, to receive and draw down thread with the rest of the needles, and thereafter to cast off this thread, prior to again receiving the thread for the next course of knitting, substantially as described.

2. The process of knitting hosiery with open stripes down the back, which consists in causing single needles, corresponding in position to each such stripe to be produced, to successively retreat and cast off the thread of the preceding course, and then to receive the thread of the succeeding course, and then to again retreat with the rest of the needles and pull out an amount of thread by which each space free from knitting which these needles occasion is broader than would be produced by the mere omission of a single needle, substantially as described.



3. The process of knitting hosiery with open stripes down the back, which consists in causing single needles, corresponding in position to each such stripe to be produced, to successively retreat and cast off the thread of the preceding course, and then to receive the thread of the succeeding course, and then to again retreat and pull thread with the rest of the needles, and so on, until the leg of the stocking is knit, and thereafter knitting the heel and sole with the single needles operating as do the rest of the needles, substantially as described.

699,955. **MEASURING APPARATUS.** FRANK BRY, St. Louis, Mo. Filed Sept. 20, 1901. Serial No. 77,979. (No model.)



Claim.—1. In a measuring apparatus, a suitable tank; a measuring-receptacle mounted below the tank; a connection between the tank and the measuring-receptacle so that liquid will run from the tank into the receptacle; a valve controlling the said connection; a piston mounted in said receptacle; a piston-rod extending from said piston through the head of said receptacle; cross-arms mounted on the rear end of said piston-rod outside of the receptacle; connecting-rods extending from the ends of said

cross-arms forwardly; a shaft mounted above the forward end of said receptacle; cross-arms extending from the ends of said shaft and connected to the forward ends of said connecting-rods; an indicator-plate extending upwardly from the forward end of said receptacle in front of the storage-tank; a wheel mounted in front of said indicator-plate; a crank-pin carried by said wheel; a crank-arm extending from the center of said shaft; and a connecting-rod connecting said crank-pin to said cross-arm, as required to reciprocate the piston by the rotation of the wheel, or as required to rotate the wheel when liquid is admitted to the measuring-receptacle and operates the piston, substantially as specified.

2. In a measuring apparatus, a suitable tank; a measuring-receptacle mounted below the tank; a connection between the tank and the measuring-receptacle, so that liquid will run from the tank into the receptacle; a piston in said measuring-receptacle; a piston-rod extending from the piston through the head of the receptacle; cross-arms mounted upon the outer end of the piston-rod; connecting-rods extending forwardly from the ends of the cross-arms; a shaft mounted above the measuring-receptacle in front of the storage-tank; cross-arms extending from the ends of said shaft and connected to the forward ends of said connecting-rods; an indicator mounted in front of the storage-tank; an indicator-wheel mounted in front of the indicator, and having a finger pointing to the indicator; a crank-pin carried by the wheel; a crank-arm extending forwardly from the shaft; and a connecting-rod connecting the crank-pin to the cross-arm, as required to move the indicator when liquid is admitted to the measuring-receptacle to operate the piston, substantially as specified.

699,956. **GARMENT-HANGER.** JOHN JENNISON, New York, N.Y. Filed Aug. 19, 1901. Serial No. 73,990. (No model.)



Claim.—1. A garment-hanger comprising a segmental support, secured to a suitable containing device, a rod or arm pivotedly connected with said containing device at the center of a circle of which the segmental support forms a portion, said rod or arm being adapted to swing in a horizontal plane and the free end of said rod or arm being adapted to rest upon and move upon said segmental support, substantially as shown and described.

2. A closet, cupboard, wardrobe or other similar article provided with a top shelf, a garment-hanger connected with the bottom of said shelf and comprising a segmental support, and a rod or arm pivoted to the shelf at the center of a circle of which said segmental support forms a portion, the free end of the rod or arm being adapted to rest upon and move upon said segmental support, substantially as shown and described.

3. A garment-hanger comprising a segmental support secured to a suitable containing device and provided with a segmental groove in the top thereof, a rod or arm pivotedly connected to said containing device at the center of a circle, of which the segmental support forms a portion, said rod or arm being adapted to swing in a horizontal plane and the free end thereof being provided with an antifriction-roller which runs in the segmental groove of the segmental support, substantially as shown and described.

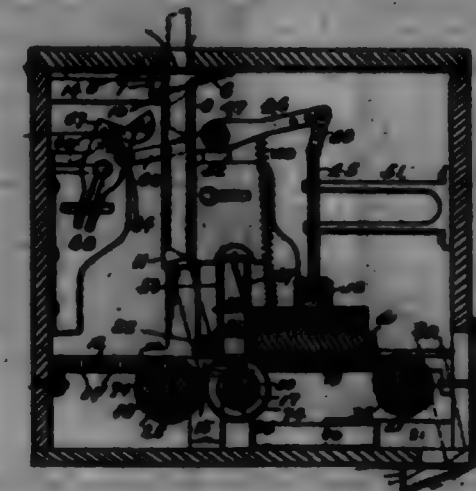
699,957. **MACHINE FOR CLEANING BLACKBOARD-WRASHERS.** JAMES A. JOHN, Leavenworth, Ind. Filed Jan. 14, 1905. Serial No. 80,795. (No model.)

Claim.—1. An eraser-cleaner having a movable member, an eraser-holder secured to said member, and means for automatically engaging and disengaging an eraser.

2. An eraser-cleaner having a movable member, an eraser-holder secured to said member, springs for moving an eraser thereto, and an automatically engaging and disengaging mechanism.

3. An eraser-cleaner having a movable member, an eraser-holder secured to said member and provided with a convex face, springs on the sides thereof, and a tripping device connected to said springs.

4. An eraser-cleaner having a movable member provided with a block having eraser-engaging springs thereon, a vertically-movable tripping-rod, and connections between the springs and said rod.



5. An eraser-cleaner having a movable member, an eraser-holder secured to said member, and means for feeding erasers to the eraser-holder.

6. An eraser-cleaner having a movable member, an eraser-holder secured to said member and a revolvable feed device engaging the side of an eraser to feed the eraser to the holder.

7. An eraser-cleaner having a movable member, an eraser-holder secured to said member, and rolls engaging one side and one face of an eraser.

8. An eraser-cleaner having a movable member, an eraser-holder secured to said member, a perforated plate on which erasers are broken, and means for feeding erasers to the holder.

9. An eraser-cleaner having a movable member, an eraser-holder secured to said member, and a brush for engaging the face of an eraser after it has been broken.

10. An eraser-cleaner having a movable member, an eraser-holder secured to said member, an eraser-feed mechanism, a perforated plate on which the erasers are broken, an opening in said plate beyond the perforations, and a brush engaging the face of an eraser while passing over said opening.

11. An eraser-cleaner having a movable member, an eraser-holder secured to said member and provided with springs to engage an eraser, means engaging the springs, rolls for feeding erasers to the eraser-holder, one of which rolls is provided with a groove, and an elongated flat-like trip engaging the grooved roll.

12. An eraser-cleaner having a movable member provided with an eraser-holder having springs to engage an eraser, a roll and a resilient rod engaging the sides of an eraser, rolls engaging the face of the eraser, and an automatic tripping device for releasing an eraser from the holder.

13. An eraser-cleaner having an indexing casing, inlet and discharge eraser openings provided with closures, means for breaking erasers, a chute for conducting erasers, and means for feeding erasers to the holders of the breaking mechanism.

14. An eraser-cleaner having a plurality of movable members provided with eraser-holders, means for feeding erasers to each holder, a shaft having cranks connected to said movable members, and an operating mechanism engaging said shaft.

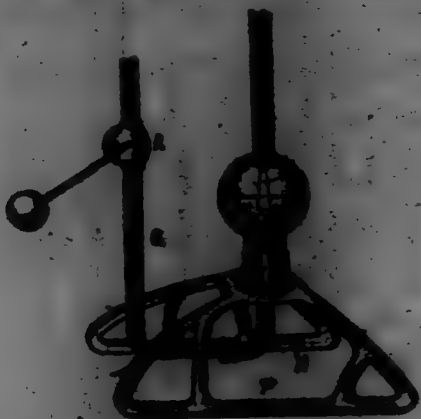
15. An eraser-cleaner having a movable member provided with an eraser-holder, a table or plate on which erasers are broken having an opening therein, feed-rolls under the plate and in said opening, a chute above the opening, a discharge for erasers, and means for imparting motion to the movable member.

699,958. **GASTER.** JOHN F. KELLY, St. Louis, Mo. Filed Nov. 5, 1901. Serial No. 81,990. (No model.)



Claim.—An adjustable center comprising a tubular casing having the laterally-curved-throated lower portion 1; and a smaller upper portion 2; the nipple 3 adjustably secured to said larger portion 1; the center having the bracket 4 to engage the lower end of the nipple 3; and the vertical rod 5 extending through the nipple 3 into the smaller upper portion 2 of the casing, said upper-portion 2 serving as a bearing to support the upper end of the rod 5, substantially as specified.

699,959. CELLAR OR CISTERN DRAINER. WILLIAM B. LARSEN, South Bend, Ind., assignor of one-half to Joseph G. Bush, Milwaukee, Wis. Filed Jan. 7, 1901. Serial No. 61,494. (No model.)



Claim.—In a drainer, the combination of a vertical steam-inlet pipe having two right-angled bends to dispose its discharge and vertically upward and an automatic float-valve to control the supply of steam, a stand having horizontal laterally-offset legs and converging arms which terminate in a supporting-base to which the discharge end of the inlet-pipe is secured, a vertical ejecting-chamber having a series of perforations near its bottom supported on said base, ejecting-tubes in the chamber and a vertical discharge-pipe connected to the top of the chamber in alignment with the discharge end of the inlet-pipe and the tubes, the whole adapted to be supported on the stand whereby the drainer is portable.

699,960. PLEASURE-RAILWAY. ERIC LARSEN, Coney Island, N. Y. Filed Oct. 17, 1901. Serial No. 70,002. (No model.)



Claim.—1. A pleasure-railway comprising suitable supports, an inclined track or way suspended thereby, said track or way consisting of two separate parallel parts substantially in the form of double T-rails and connected shafts or axles placed in said track or way and provided with wheels which rest in said rails and with laterally-directed antifriction wheels or rollers which bear on the central portions of said rails, said shafts or axles being also provided with depending supports and a derrick animal suspended thereby, substantially as shown and described.

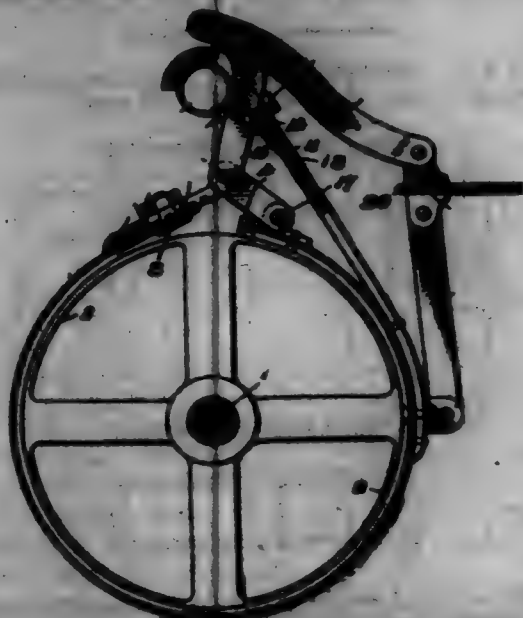
2. A pleasure-railway comprising suitably-supported inclined tracks or ways consisting of parallel members, the adjacent sides of which are provided with horizontal flanges, and connected shafts or axles provided with wheels which rest on said flanges and with laterally-directed antifriction-rollers which bear on the body portion of said track members, said shafts or axles being also provided with depending supports substantially as shown and described.

699,961. TUG-STOP. OLIVER P. LANSBURY, St. Louis, Mo. Filed Dec. 9, 1901. Serial No. 59,570. (No model.)



Claim.—A shaft-tag stop comprising a metallic strap or ring, the ends of which are turned parallel to each other, and provided with slots; a bolt through said slots to form a clamp; lateral projections extending from opposite sides of the ring or strap; and a projection extending outwardly from the ring and serving as a stop for the tag, substantially as specified.

699,962. VEHICLE BRAKE. BLAUWERT H. LUTER, Waverly, N. Y., assignor of one-half to Elsworth Gamble, Waverly, N. Y. Filed Sept. 16, 1901. Serial No. 70,642. (No model.)



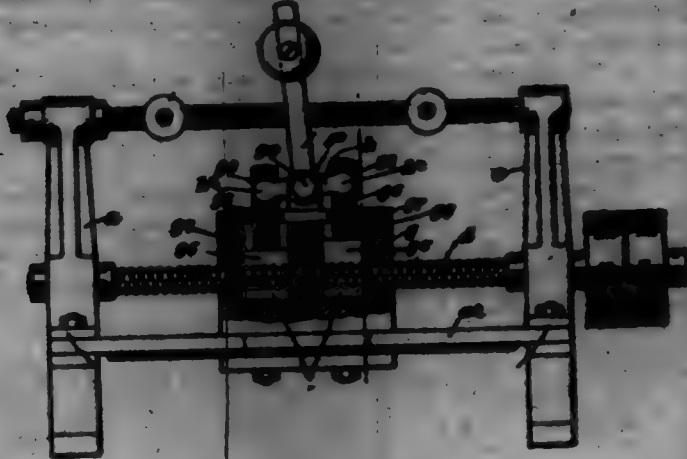
Claim.—1. A vehicle-brake comprising a friction-drum fixed to one of the vehicle-axles, a friction-band encircling the drum, a pair of bell-crank levers, the ends of the band being connected to the lower ends of the said levers, a rod secured to the outer face of the brake-band and having its upper end hooked to engage a bracket on the running-gear for supporting the said brake-band, a link pivoted between the upper ends of the said levers, a vertically-arranged rod pivoted at its lower end to the brake-band, a short link connecting the free ends of the said link and rod, and a brake-rod secured to said short link.

2. A vehicle-brake, comprising a friction-drum fixed to one of the vehicle-axles, a friction-band encircling the drum, a pair of bell-crank levers, the ends of the band being connected to the lower ends of the bell-crank levers and the upper ends of said bell-crank levers being secured to a brake-rod, a rod secured to the outer side of the brake-band and having its upper end hooked to engage a bracket on the running-gear for supporting the said brake-band, a link provided with a central screw-threaded opening for the reception of the brake-operating rod, and a pair of rods pivoted to the upper and lower sides of the said link for supporting the same, the upper rod being secured to the said bell-crank levers and the lower rod secured to the said brake-band-supporting rod.

3. A vehicle-brake, comprising a friction-drum fixed to one of the vehicle-axles, a friction-band encircling the drum, eye-pieces secured to the ends of said friction-band through the medium of which the band may be adjusted, a rod provided with a hooked end secured to the said friction-band for supporting the same, a sliding block arranged upon said bar, adjacent its hooked end for preventing displacement of the same, a pair of bell-crank levers pivoted to the eyes of the said friction-band, and extending on either side of the said supporting-rod, a brake-rod attached to said bell-crank levers and means for operating said brake-rod.

699,963. REVERSING DEVICE. EDWARD J. LUTER, Northampton, England. Filed Nov. 21, 1901. Serial No. 69,000. (No model.)

Claim.—In a machine of the class described, a frame, a rotatable shaft mounted therein and provided with several threads, a reciprocating member mounted on said shaft and provided with two sets through which the shaft passes, the said sets being divided horizontally into two separated parts or halves, one of said parts or halves being provided with a left-hand and the other with a right-hand thread and means for alternately raising and lowering the upper halves of said sets as the reciprocating member is operated, said reciprocating member being adapted to be operated by the turning of said shaft, substantially as shown and described.



699,964. ELECTROLYTIC CONVERTER. FRANKLIN E. LEE, Chicago, Ill., assignor to Ross J. Denny, trustee, Muncie, Ind. Filed Oct. 15, 1906. Serial No. 35,692. (No model.)



Claim.—1. In electrolytic converter, the combination with the closed redox vessel having the anode and cathode terminals and the interposed diaphragm dividing the vessel into upper anode and lower cathode chambers, of a combined separator and vent-pipe connected to the cathode-chamber beneath the diaphragm extending upwardly above the level of said diaphragm and having a free outlet for the gases, substantially as described.

2. In electrolytic converter, the combination with the closed redox vessel having the anode and cathode terminals and an interposed, substantially horizontal diaphragm dividing the vessel into upper anode and lower cathode chambers, of a combined separator and vent-pipe connected to the cathode-chamber beneath the diaphragm and extending upwardly beyond the diaphragm and having separate outlets for the gases and liquids, substantially as described.

3. In electrolytic converter, the combination with the closed redox vessel having the anode and cathode terminals and an interposed diaphragm dividing the vessel into upper anode and lower cathode chambers, of an external, combined separator and vent-pipe having a U-shaped lower end opening through the bottom of the redox vessel into the cathode-chamber beneath the diaphragm, extending upwardly above the level of said diaphragm and having a free outlet for the gases, substantially as described.

4. In electrolytic converter, the combination with a redox vessel having anode and cathode terminals and an interposed diaphragm dividing the vessel, of an external, upright, separator and vent-pipe opening into the space beneath the diaphragm, and having a connection with the top of the vessel substantially as described.

5. In electrolytic converter, the combination with a redox vessel having anode and cathode terminals and an interposed diaphragm dividing the vessel, of an external, upright, separator and vent-pipe opening into the space beneath the diaphragm and having a branch intermediate its ends substantially as described.

699,965. CARBURIZER. ALEXIS L. HANSEN, Aymer Road, Canada. Filed May 24, 1901. Serial No. 61,604. (No model.)

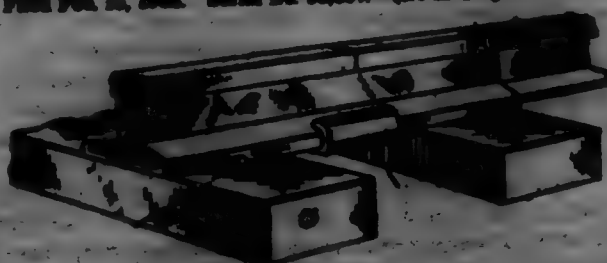


Claim.—1. A carburizer comprising a tank provided with a false bottom terminating at one end within the tank to form an opening or passage, a partition having a perforated diffusing-section at the end of the false bottom and secured to the false bottom and the bottom of the tank, a radially-perforated diffusing-wall disposed wholly within the chamber formed by the false-bottom partition, a suitable oil-tight seal chamber, an air-pipe discharging into the chamber formed by said diffusing-wall, a tortuous circulating-passage within the tank, and a carburized-air outlet communicating with said passage, substantially as described.

2. A carburizer comprising a tank having means for diffusing air below the level of a hydrocarbon-bath, a helical partition within said tank and forming therein a corresponding circulation-passage and a central chamber, the flanges within the tank and on the helical partition, a top clamped to the tank, a top layer interposed between the flanges of the partition and the clamped top, and an outlet-pipe communicating with the central chamber, substantially as described.

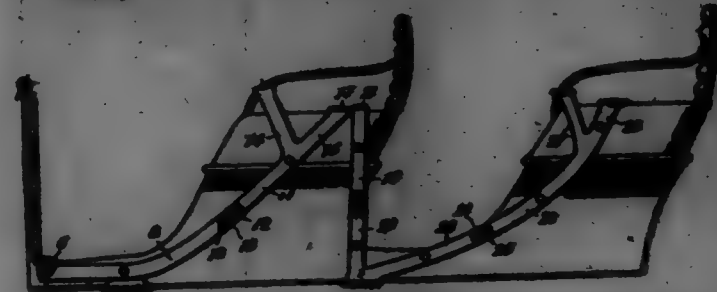
3. A carburizer comprising a tank provided with a false bottom, a helical partition secured within the tank and to the false bottom thereof and forming the liquid-circulation space at the lower edge of said partition, a feed-plate secured to the partition, a feed-pipe supported by the feed-plate at the desired elevation, means for diffusing air below the false bottom and in the hydrocarbon-bath, and a carburized-air outlet communicating with the liquid-circulation space, substantially as described.

699,966. RAIL-JOINT. CHARLES E. HARR, East Palestine, Ohio. Filed Feb. 10, 1902. Serial No. 98,637. (No model.)



Claim.—In a rail-joint, the combination with the rails having openings formed in the sides of the base thereof in staggered relation to each other, of a chair comprising two sections each having base portions and carrying integral fish-plates extending to the under side of the rail-head, steps secured between the fish-plates and the base portions adapted to be received within said openings in the rail-base sides, an integral clamp extending under the base of the chair and having its ends bent to engage the upper portion of the chair, a pin engaging in the line for locking the movement of the chair, and a series of nuts and bolts extending through the fish-plates and the webs of the rails, substantially as described.

699,967. VEHICLE-CURTAIN ATTACHMENT. FREDERICK W. MANN, New York, N. Y. Filed Feb. 10, 1902. Serial No. 94,966. (No model.)

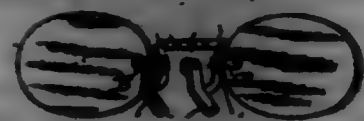


Claim.—1. In an attachment for vehicle-curtains, a sectional frame extending along the top and ends of the dashboard, and along the side of the body, then diagonally upward, means on the section for engaging the edge of a seat, a member engaging the under surface of the body and means for clamping the sections together.

2. In an attachment for vehicle-curtains, a frame comprising an approximately vertical standard with an upper and lower section, the former having an internal end to engage a seat, and the latter having a foot fitting under a body, an arm formed with the lower section, an extension hinged to the arm and a member carried by the arm for engaging the edge of a seat, as and for the purpose described.

3. In an attachment for vehicle-curtains, a frame comprising an approximately vertical standard with an upper and lower section, the former having an internal end to engage a seat, and the latter having a foot fitting under a body, an arm formed with the lower section, an extension hinged to the arm and a member carried by the arm for engaging the edge of a seat and a second member for engaging a supporting hook.

699,968. HYDRAULIC PRESS. E. McDONALD, Chicago, Ill. Filed Nov. 11, 1901. Serial No. 94,968. (No model.)



Claim.—1. As a new article of manufacture, a pair of cylinders having in combination a pair of levers, a pair of beams open at top, and a bow-spring having a horizontal intermediate portion with flat vertical faces, said intermediate portion being located in a horizontal plane above the horizontal plane of the beams and being located also in front of the vertical plane of the levers, said spring having beyond said intermediate portion portions which project forward and beyond these other portions which project downward in the vertical plane of the levers and enter the top of the beams, substantially as described.

2. As a new article of manufacture, a pair of cylinders having in combination a pair of levers, a pair of beams open at top, and a bow-spring having a horizontal intermediate portion with flat vertical faces whereby it is adapted to bend horizontally, while, at the same time, it is practically rigid vertically, said spring having also depending and portions that lie in the vertical plane of the levers and enter the beams at top, the spring being bent rearward and twisted between the extremities of said intermediate portion and the beams so as to bring the broad faces of the depending and portions into planes perpendicular with the vertical plane of said intermediate portion, substantially as described.

3. As a new article of manufacture, a pair of cylinders having in combination a pair of levers, a pair of beams open at top, a bow-spring having a horizontal intermediate portion with flat vertical faces whereby it is adapted to bend horizontally, while, at the same time, it is practically rigid vertically, said spring having beyond said intermediate portion portions that project forward and beyond these other portions that lie in the vertical plane of the levers and enter said beams at top, and rearwardly-extending cantilever guards secured to the posts, substantially as described.

4. As a new article of manufacture, a pair of cylinders having in combination beams open at top, a bow-spring having a flat intermediate portion which is straight when viewed from in front, said intermediate portion being located in a horizontal plane above the horizontal plane of the beams and in front of the vertical plane of the levers and being slightly curved as viewed from above, said spring having beyond said intermediate portion twisted portions extending first rearward, then inward and then downward, entering the top of the beams, substantially as shown and described.

699,969. PROCESS OF MAKING SPINEL. OWEN HARRIS, New York, N. Y. Filed Nov. 12, 1901. Serial No. 94,969. (No specimens.)

Claim.—1. An improved process for conducting also vapors to spin-

el, which consists in cooling the vapors in an atmosphere of water-gas, substantially as set forth.

2. An improved process for reducing also crystals over, which consists in subjecting the material to the pressure of heat to the reducing effect of water-gas, substantially as set forth.

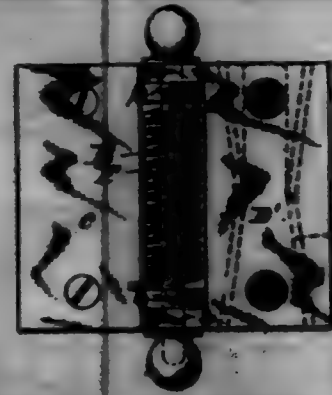
3. An improved process for reducing also crystals over, which consists in subjecting the material to the reducing effect of heated water-gas, substantially as set forth.

4. An improved process of making spinel from also crystals over, which consists in subjecting the material to the pressure of heat to the reducing effect of water-gas, and in cooling the resulting also-vapors in an atmosphere of such gas, substantially as set forth.

5. An improved process of making spinel from also crystals over, which consists in subjecting the material to the reducing effect of heated water-gas, and in cooling the resulting also-vapors in an atmosphere of such gas, substantially as set forth.

6. An improved process of making spinel from also crystals over or also materials, which consists in subjecting a mixture of such material and coal in the presence of heat to the reducing effect of water-gas, and in cooling the resulting also-vapors in an atmosphere of such gas, substantially as set forth.

699,970. SHEATHING KNIFE. GEORGE R. FARRER, New Britain, Conn., assignor to F. & F. Cutler, New Britain, Conn., a Corporation of Connecticut. Filed Feb. 11, 1902. Serial No. 94,970. (No model.)



Claim.—1. A knife comprising a pair of leaves, one of said leaves having an undercut tapered cavity in the rear side thereof, and a detachable keeper-plate projecting into said cavity and secured thereto, said cavity being of an hour-glass shape, the keeper being adapted to engage in either end of said cavity.

2. A knife comprising a pair of leaves, one of said leaves having an undercut tapered cavity in the rear side thereof, and a detachable keeper-plate projecting into said cavity and secured thereto, screw-passages in said knife-leaves and in said keeper-plate, said passages in the leaf bearing said plate being sufficiently large to permit of the passage of the screw-head.

699,971. CURTAIN-POLE. GEORGE F. FARRER, Philadelphia, Pa. Filed Jan. 24, 1902. Serial No. 94,971. (No model.)



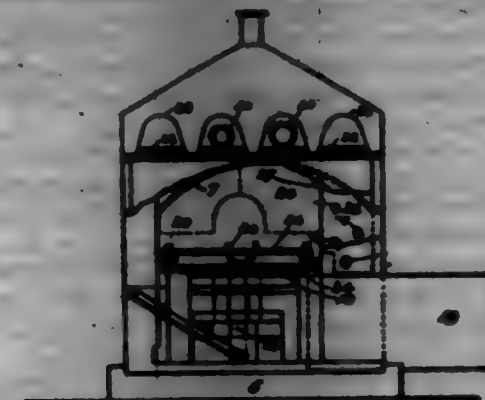
Claim.—1. In a device of the character described, a single pair of telescopically-mounted tubes having registering slots on their outer sides extending from a point in proximity to their outer ends through their other ends, the slot of the inner tube being enlarged adjacent to the outer end of the tube, with ornamental knobs secured to the outer ends of the tubes, and clips carrying integral balls adapted to pass through said enlarged portion of the slot and engage on the interior of the tubes, the outer tube having its end engaging the knob of the inner tube whereby the said enlarged opening of the latter is partially closed, substantially as described.

2. In a device of the character described, a single pair of telescopically-mounted tubes with registering slots, the slot of the inner tube being enlarged at its one end, clearing means carrying balls at their upper ends received in said enlarged portion and projecting through the slots from the interior of the pole, and knobs carried by the tubes, the knob of the inner tube being engaged by the lower end of the outer tube whereby the enlarged opening of the inner tube is partially closed to prevent the balls from leaving the interior of the tubes, substantially as described.

699,972. GLASS-FURNACE. JEAN P. FERRASS, Brooklyn, N. Y. Filed Jan. 15, 1902. Serial No. 94,972. (No model.)

Claim.—1. A glass-furnace provided with a central longitudinal partition forming the bottom of the furnace-chamber, a vertically-movable

plate mounted in the said bottom of the furnace-chamber, tracks or ways at the sides of the said bottom, a car mounted thereon, and means for raising and lowering said plate, said furnace-chamber being also provided at the front and thereof with doors and a central opening placed over said doors, and open at the bottom and grating placed therein, substantially as shown and described.



2. A glass-furnace open at both ends and provided with a central longitudinal partition forming the bottom of the furnace-chamber, a vertically-movable plate mounted in the top portion of said partition which forms the bottom of the furnace-chamber, tracks or ways at the sides of the furnace-chamber, and a car mounted thereon, a vertically-movable support on which said plate is placed, a lever pivoted to the support at the lower end of said support for raising and lowering the same, and a hollow central casing at the front and over the furnace-chamber, and the bottom of which is open and provided with grating, substantially as shown and described.

3. A glass-furnace provided with a central horizontal partition forming the bottom of the furnace-chamber, a vertically-movable plate mounted in the said bottom of the furnace-chamber centrally thereof, tracks or ways at the sides of the said bottom of the furnace-chamber and projecting forwardly and backwardly therefrom, and means for raising and depressing the vertically-movable plate, substantially as shown and described.

4. A glass-furnace provided with a central horizontal partition forming the bottom of the furnace-chamber, a vertically-movable plate mounted in the said bottom of the furnace-chamber centrally thereof, tracks or ways at the sides of the said bottom of the furnace-chamber and projecting forwardly and backwardly therefrom, and means for raising and depressing the vertically-movable plate, and cars mounted on said tracks or ways at the front and rear ends of the furnace, substantially as shown and described.

5. A furnace-chamber the bottom of which is provided with a cavity or recess, and a vertically-movable plate arranged centrally thereof, tracks or ways at the opposite side of said plate and extending through the furnace-chamber and projecting at each end thereof, a burner-ports at one side of said chamber and communicating therewith, and means for supplying fuel to said ports, substantially as shown and described.

6. A gas-furnace, the bottom of the chamber of which is provided with a cavity or recess, a vertically-movable plate placed in said cavity or recess, means for raising and lowering said plate, a vertically-arranged casing supported over the front of the furnace-chamber and open at the bottom and provided with front openings, and means for supporting glass therein, substantially as shown and described.

7. A gas-furnace, the bottom of the chamber of which is provided with a cavity or recess, a vertically-movable plate placed in said cavity or recess, means for raising and lowering said plate, a vertically-arranged casing supported over the front of the furnace-chamber and open at the bottom and provided with front openings, and means for supporting glass therein, said furnace-chamber being also provided at one side with a fuel-ports in communication therewith and means for supplying fuel thereto, substantially as shown and described.

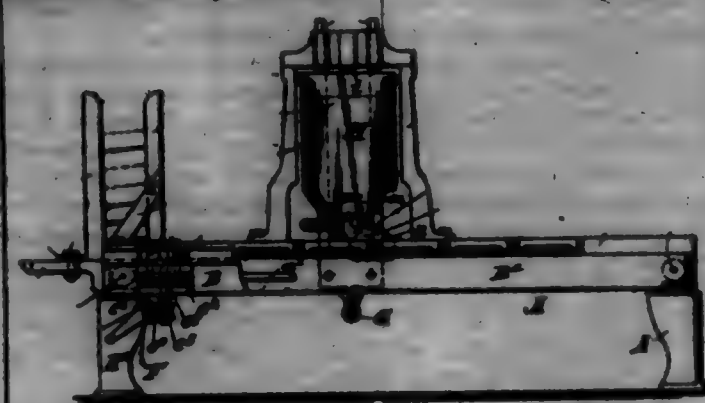
699,973. SAND-DRILLING MACHINE. ARTHUR FARRER, Vienna, near Baden, Germany. Filed Oct. 25, 1901. Serial No. 94,973. (No model.)

Claim.—1. In a sand-drilling machine, the combination, of a substantially-supported rectangular frame having longitudinally-arranged beams thereon, said beams being provided with ways, means for laterally adjusting one of said beams, and a sand-cask supported on said beams at one end of the machine, substantially as set forth.

2. In a sand-drilling machine, the combination, of a rectangular frame having a stationary beam and a movable beam, ways provided on said beams, means for laterally adjusting said movable beam, and rest-standards secured at one end of the machine, substantially as set forth.

3. In a sand-drilling machine, the combination, with a rectangular frame, of a stationary beam and a movable beam, said beams being pro-

vided with ways, means for laterally adjusting said movable beam, and stationary and adjustable rest-standards secured on said beams and suitably-provided brackets, said adjustable standards being secured on said brackets, substantially as set forth.



4. In a sand-drilling machine, the combination, with a rectangular frame, of a stationary beam and a movable beam, said beams being provided with parallel ways, means for laterally adjusting said movable beam, stationary and adjustable standards of angle-iron, and clotted brackets secured at one end of the frame to the ways with said beams having said adjustable standards adjustably secured thereon, substantially as set forth.

5. In a sand-drilling machine, the combination, with parallel beams provided with suitable ways, of a frusto-conical engaging roll on each beam, a cylindrical roll adjacent to said frusto-conical roll, and means for actuating the same, substantially as set forth.

6. In a sand-drilling machine, the combination, with beams having parallel ways, of a frusto-conical engaging roll vertically mounted on each of said beams, a cylindrical roll also mounted on each beam adjacent to said frusto-conical roll, and means for imparting similar rotary motion to said rolls, substantially as set forth.

7. In a sand-drilling machine, the combination, with parallel beams provided with ways, of a mill-wheel at one end of the machine, feed-rolls on each beam adjacent said wheel, and means for actuating said feed-rolls, substantially as set forth.

8. In a sand-drilling machine, the combination, with parallel beams provided with ways, of suitable means fed in said ways, a suitably-supported sand-containing hopper, and means for vertically adjusting said sand-containing hopper, substantially as set forth.

9. In a sand-drilling machine, the combination, of a rectangular frame supporting longitudinally-arranged beams, said beams being provided with ways, a mill-wheel on said ways, a sand-containing hopper supported on said frame, a movable partition in said hopper, and a yoke-shaped support for said partition carried on said beams, substantially as set forth.

10. In a sand-drilling machine, the combination, of suitably-supported beams, a sand-containing hopper, supports for said hopper, standards on said beams having ways for guiding said supports, screw-clamps carried by said standards engaging said supports, means for simultaneously operating said screw-clamps for adjusting the hopper, said hopper having a converging mouth, an adjustable lip for said mouth, and a resilient stirrer inclined rearwardly from said mouth, substantially as set forth.

699,974. APPARATUS FOR DRILLING, TREATING, AND DELIVERING SAND. CHARLES J. REILL, Syracuse, Ind., and Spencer B. Bortney, Sandusky, Ohio, assignors to the Sandusky Portland Cement Company, Sandusky, Ohio, a Corporation of West Virginia. Filed July 28, 1901. Serial No. 94,974. (No model.)



Claim.—1. In combination, a hopper, and, supported upon it, a driving mechanism, a pump into which the material raised by the drive is delivered, two air-tight tanks, valve pipes through which the products of the pump may be delivered into said tanks respectively, a compressed-air apparatus, and valve pipes connecting it with the two tanks respectively, valve discharge-pipes for said tanks, and a suitable pipe connected with said discharge-pipes and extended therefrom to the shore, substantially as and for the purpose specified.

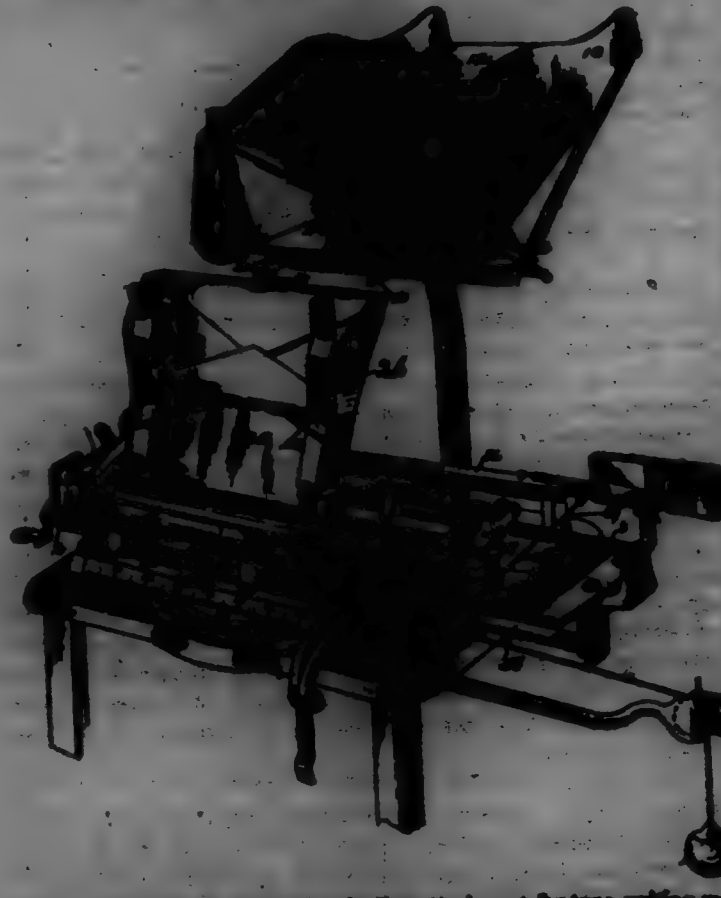
2. In combination, a hopper, and, supported upon it, a driving mechanism, a pump into which the material raised by the drive is delivered, two air-tight tanks, valve pipes through which the products of the pump may be delivered into said tanks respectively, a compressed-air

apparatus, and valves connecting it with the two tanks respectively, a valve-discharge-pipe for said tanks, and a flexible pipe connected with said discharge-pipe and extended thence to the shore, a branch-pipe to which the shore end of said flexible pipe is connected, valves in said branch, and receiving-tanks into which said branches respectively discharge, substantially as and for the purpose specified.

3. In combination, a boat, and, supported upon it, dredging mechanism, a pag-mill into which the material raised by the dredge is delivered, two air-tight tanks, valves through which the products of the pag-mill may be delivered into said tanks respectively, a compressed-air apparatus, and valves connecting it with the two tanks respectively, valves discharge-pipes for said tanks, an electric motor and driving mechanism connecting the same with the dredging mechanism, the pag-mill, and the compressed-air apparatus, a flexible pipe, to which both of said discharge-pipes are connected, and which extends to the shore, flange to which said flexible pipe is connected, and conductor-wires supported by said flexible pipe and extending from the shore to the motor on the boat, substantially as and for the purpose specified.

4. In combination, a boat, two air-tight tanks on said boat, each having a valve-controlled inlet-pipe and a valve-controlled outlet-pipe, mechanism for simultaneously operating the valves in all of said inlet and outlet pipes, a flexible pipe connected with said outlet-pipes and extended to the shore, an air-compressor upon said boat, and two valve-controlled pipes connecting said air-compressor with said tanks respectively, substantially as specified.

699,975. ENVELOPE-FEEDING ATTACHMENT FOR TYPE-
WRITERS. RALPH E. RYNDEN, Hartford, Ct. Filed Mar. 21, 1900.
Serial No. 10,968. (No model.)



Claim.—1. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of device adapted to be operated when the carriage is shifted for ejecting an envelope therefrom, substantially as described.

2. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of device connected with and operated by said shifting means for ejecting an envelope from the carriage, substantially as described.

3. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of device adapted to be operated by the shifting movement of the carriage to feed an envelope to the machine, substantially as described.

4. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, comprising a platen-roller and a holding-roller, of device adapted to be operated when the carriage is shifted for operating the holding-roller from the platen-roller, substantially as described.

5. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, comprising a platen-roller

and a holding-roller, of means for shifting the carriage and device connected with and adapted to be operated by said shifting means for operating the holding-roller from the platen-roller, substantially as described.

6. In an envelope-feeding attachment for type-writing machines, the combination of device for ejecting an envelope from the machine and device simultaneously operating to feed a fresh envelope into position for printing, substantially as described.

7. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of a carrier, a supply-holder and means for feeding the envelope separately from the holder to the carrier, substantially as described.

8. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine and an envelope-supply holder of a carrier located below the holder and intermediate of the holder and the carriage, substantially as described.

9. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, and a holder for a supply of envelopes, of a carrier located intermediate of the carriage and holder and traveling with the carriage, substantially as described.

10. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of a holder located behind and above the carriage, and a carrier arranged between the holder and carriage and adapted to receive the envelope from the holder and feed them singly to the machine, substantially as described.

11. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, of a holder carrying a supply of envelopes, a carrier arranged between the holder and the carriage of the machine, and device for feeding the first envelope from the supply to the carrier, substantially as described.

12. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, an envelope-supply holder and a carrier located between the holder and the carriage, of device for feeding an envelope from the supply to the carrier and device for feeding the envelope from the carrier to the carriage, substantially as described.

13. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, an envelope-supply holder and a carrier arranged between the carriage and the holder, of device for feeding an envelope from the holder to the carrier, device for ejecting an envelope from the carriage, and device for feeding an envelope from the carrier into position for printing, substantially as described.

14. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, an envelope-supply holder and a carrier arranged between the carriage and holder, of device for feeding an envelope from the holder to the carrier, from the carrier to the carriage and finally ejecting the envelope from the carriage, all of said devices being operated simultaneously when the carriage is shifted, substantially as described.

15. In an envelope-feeding attachment for type-writing machines, the combination with the carriage of the machine, a holder for a supply of envelopes and a carrier traveling with the carriage of means for shifting the carriage, and device for feeding an envelope from the holder to the carrier, device for feeding an envelope from the carrier into position for printing and at the same time ejecting the previously-printed envelope, said device being actuated when the carriage is shifted, substantially as described.

16. The combination with a type-writer, of an envelope-feeding attachment comprising a holder for a supply of envelopes, and main and temporary holding-dogs operating to release the first envelope in the pile and allow the same to drop freely from the holder, substantially as described.

17. In an envelope-feeding attachment for type-writing machines, a holder for a supply of envelopes, a main holding-dog normally engaging the first envelope in the supply to keep the envelope from falling out of the holder and a temporary holding-dog, and device intermediate of the carriage of the machine and said dogs for operating the same whenever the carriage is shifted, substantially as described.

18. In an envelope-feeding attachment for type-writing machines, a holder for a supply of envelopes, a main holding-dog and a temporary holding-dog operating on said envelope-supply, device supporting said dogs, a bell-crank lever adapted to rotate said device to raise the temporary holding-dog into contact with the envelope-supply and depress the main holding-dog, and a device carried by the carriage for returning the bell-crank lever, substantially as described.

19. The combination with a type-writing machine, of a carriage, a feeding attachment comprising the combination with a carrier traveling with the carriage, of means adapted to support an envelope temporarily in the carrier and adapted when withdrawn, to permit the envelope to drop through the carrier, substantially as described.

20. In an envelope-feeding attachment for type-writing machines, the combination with the carriage supported on and traveling with the carriage

of the machine, of supporting-arm adapted to support an envelope in the carrier and means for automatically operating said supporting-arm when over the carriage of the machine is shifted, substantially as described.

21. In an envelope-feeding attachment for type-writing machines, the combination with a carrier, of pivotal arms normally covering the movement of an envelope through the carrier and adapted to be operated to release the envelope whenever the carriage is shifted, substantially as described.

22. In an envelope-feeding attachment for type-writing machines, the combination with shifting means, of a carrier, device for temporarily covering the movement of an envelope through the carrier and connection between the shifting means and said covering device for operating the latter to release the envelope, substantially as described.

23. In an envelope-feeding attachment for type-writing machines, the combination with a platen-roller and means for revolving the same to open lines of printing, of device normally arranged in position for limiting the feeding of the envelope and means connected with the device for revolving the platen-roller adapted to throw the stop-guide device out of the way of the feeding of the envelope, substantially as described.

24. In an envelope-feeding attachment for type-writing machines, the combination with a roller-platen, of a rack-shaft located in front of the platen, stop-guides rigidly mounted on said rack-shaft and provided with forwardly-turned upper ends adapted to limit the initial feeding of the envelope around the platen in position for printing, a lever device for revolving the roller-platen for line-spacing, and an arm carried by said lever device and adapted to rock the stop-guides shaft so as to release the stop-guides from engagement with the envelope when the latter is fed through the machine to receive a second line of printing, substantially as described.

25. The combination with a type-writing machine, of a feeding attachment comprising a holder for a supply of envelopes, a main holding-dog normally in engagement with the envelopes, and a temporary holding-dog to be engaged with the envelope behind the first envelope to hold them in place while the first envelope is being fed from the holder, substantially as described.

26. In an envelope-feeding attachment for type-writing machines, the combination with a carriage, of shifting means connected with the carriage a platen-roller and a holding-roller carried by the carriage and device connected with the shifting means for simultaneously ejecting the addressed envelope from the machine and arranging a fresh envelope in position for printing, substantially as described.

27. In an envelope-feeding attachment for type-writing machines, the combination with a carriage, of shifting means connected with the carriage a platen-roller and a holding-roller carried by the carriage and device adapted to be operated by the shifting means for drawing the holding-roller away from the platen-roller and revolving the platen-roller to eject the addressed envelope and arrange a fresh envelope in position for printing, substantially as described.

28. In an envelope-feeding attachment for type-writing machines, the combination with a carriage, of a platen-chest mounted thereon and carrying the platen-roller, a pulley on said platen-chest, a pull-cord for shifting the carriage and hooked around the pulley on the platen-chest to revolve said chest when the carriage is shifted and means for limiting this rotation of the platen-chest, substantially as described.

29. In an envelope-feeding attachment for type-writing machines, the combination with a carriage, of a platen-chest carrying a roller-platen, a ratchet-wheel rigidly mounted on said chest and provided with an elongated hub, a pulley loosely mounted on said hub and carrying a pawl arranged to engage the teeth of the ratchet-wheel and a pulley cord device for shifting the carriage and connected with said pulley to revolve the platen at the same time that the carriage is shifted, substantially as described.

30. In an envelope-feeding attachment for type-writing machines, the combination with a carriage, of a platen-chest mounted thereon and provided with a roller-platen, a ratchet-wheel rigidly mounted on said chest and having an elongated hub, a pulley loosely mounted on said hub and provided with a pawl engaging the teeth of the ratchet-wheel, a pull-cord for shifting the carriage and operating over the pulley to revolve the platen as the carriage is shifted, a stop-plate carried by the pulley, a rigid stop-bar adapted to be engaged by the stop-plate and a spiral spring for returning the pulley to its original position after the carriage has been shifted, substantially as described.

31. In an envelope-feeding attachment for type-writing machines, the combination with a roller-platen and a holding-roller, of a pull-cord and device adapted to be operated by the pull-cord for withdrawing the holding-roller away from the platen-roller and revolving the platen-roller, substantially as described.

32. In an envelope-feeding attachment for type-writing machines, the combination with a roller-platen and a holding-roller, of a pull-cord shifting device and connection intermediate thereof and the roller-platen and holding-roller adapted to be operated when the cord is pulled to draw the holding-roller away from the platen-roller and revolve the platen-roller, substantially as described.

33. In an envelope-feeding attachment for type-writing machines, the combination with a platen-roller, of a holding-roller, a lever, connection between said lever and the holding-roller, a pull-cord adapted to shift the lever on its pivot to draw the holding-roller away from the platen-roller, substantially as described.

34. In an envelope-feeding attachment for type-writing machines, the combination with carriage carrying the platen-roller and a holding-roller, of a lever pivotally mounted on the carriage and connected at one end with, and adapted to draw the holding-roller away from the platen-roller and a pull-cord device adapted to swing said lever on its pivot at the same time as it shifts the carriage, substantially as described.

35. In an envelope-feeding attachment for type-writing machines, the combination with a carriage carrying a platen-roller and holding-roller, of a lever pivotally mounted on the carriage and having one end connected with the holding-roller, a swinging arm on the carriage, a cord connected with said swinging arm and the lever and means for pulling on said cord to shift the lever on its pivot, substantially as described.

36. In an envelope-feeding attachment for type-writing machines, the combination with the carriage carrying a platen-roller and a holding-roller, of a lever pivotally mounted on the carriage, a rack-bar, a stop-pawl, pivotally mounted on one end of said lever, a pivoted arm on the carriage, a cord connected to said pivoted arm and the stop-pawl and means for swinging the arm to throw the stop-pawl into engagement with the rack-bar and swing the lever on its pivot, substantially as described.

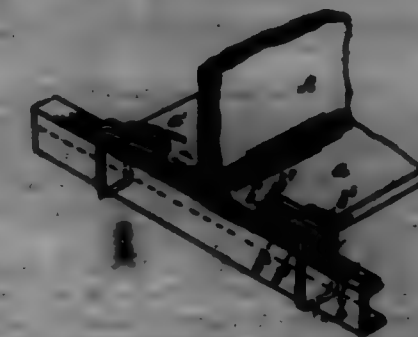
37. In an envelope-feeding attachment for type-writing machines, the combination with a carriage carrying a platen-roller and a holding-roller, of a lever pivotally mounted on the carriage, a stop-pawl pivoted to one end of the lever, a rack-bar, a swinging arm on the carriage, a cord connecting said swinging arm with the stop-pawl, and a pull-cord adapted to be operated to shift the carriage and at the same time cause the stop-pawl to engage the rack-bar and the lever to swing on its pivot to carry the holding-roller away from the platen-roller and partially revolve the platen-roller, substantially as described.

38. In an envelope-feeding attachment for type-writing machines, the combination with a carriage carrying a platen-roller and a holding-roller, of a carrier supported on the carriage, temporary supporting-arm mounted on the carrier, a lever pivoted on the carriage and a pull-cord for shifting the carriage, partially revolving the platen-roller, swinging the lever on its pivot, drawing the holding-roller away from the platen-roller and throwing the supporting-arm away from the carrier, substantially as described.

39. The combination with a type-writing machine, of a feeding attachment comprising a holder for a supply of envelopes, a main holding-dog provided with a detent and normally retaining the envelopes in the holder, and a temporary holding-dog operating through the detent of the main holding-dog and adapted to hold all the envelopes in the holder except the first envelope, while the main holding-dog is depressed to permit the first envelope to be fed from the holder, substantially as described.

40. The combination with a type-writing machine, of a carriage; an envelope-feeding attachment comprising the combination with a carrier traveling with the carriage, of supporting device for temporarily arresting the movement of an envelope through the carrier, substantially as described.

699,976. ATTACHMENT FOR UNITING METAL OR WOOD
BEAMS. JAMES T. REINHARD, New York, N. Y. Filed Aug. 12, 1901.
Serial No. 73,694. (No model.)



Claim.—1. As a new article of manufacture, a wire clip for uniting one small beam to another formed with two extended tongues adapted to cooperate with the smaller beam to compel the clip to grip the larger beam and flexibly hold the smaller beam closely thereto, substantially as described.

2. The combination of a containing-beam, expanded beam and a spring-metal clip, the clip being extended along the upper surface of the expanded beam and by the wedging action of each beam between the extended ends to the clamp thereof compelling a grip to be taken upon the flange of the containing-beam, substantially as described.

699,977. NARROW-WARE LOOM. EMERY EISEL, Jr., Philadel-
phia, Pa. Filed Jan. 23, 1905. Serial No. 61,166. (No model.)



Claim.—1. In combination with a beam, an upper shuttle-carrying block, a lower shuttle-carrying block mounted on said beam and a plate common to said shuttle-blocks and situated between said blocks and the beam, a projection on said plate and an adjusting member upon one of said blocks adapted to engage said projection.

2. In combination with a beam, an upper shuttle-carrying block, a lower shuttle-carrying block mounted on said beam and a dotted plate situated between said blocks and beam and provided with a projection, means passing through said lower block and plate for supporting the latter and an adjusting member upon said lower block adapted to engage with said projection.

3. The combination of a beam, an upper shuttle-carrying block, a lower shuttle-carrying block mounted on said beam, a plate provided with a projection thereon, situated between said blocks and beam, and an adjusting member upon said lower block having a flaring head engaging said projection.

4. The combination with a beam, of an upper shuttle-carrying block, a plate secured to said upper block and having a slot in its lower portion, a projection on said plate, the latter being situated between said blocks and beam, means for securing the lower shuttle-carrying block to said beam, and an adjusting member upon said lower block, said adjusting member having a flaring head engaging said projection, whereby said upper and lower blocks can be moved toward and away from each other according to requirements.

5. In combination with a beam, an independent upper shuttle-carrying block, an independent lower shuttle-carrying block, both of which are suitably supported on said beam, and a plate common to said shuttle-blocks and secured to one of said blocks, and an adjusting member upon the other of said blocks adapted to engage with said plate for operating the same to adjust the said blocks.

699,978. HORIZONTAL SOUNDER. EMERY RECOVER, New York, N. Y. Filed Jan. 20, 1901. Renewed Sept. 24, 1904. Serial No. 70,412. (No model.)



Claim.—1. A musical sounder having beveled flaps extending to its lateral edges, the said edges being also beveled at inclinations differing from those of the flaps, and provided at its respective edges and beyond the limits of the flaps with divided or test ribbons parallel with the adjacent edges, said ribbons having their flaps oblique to the face of the body, substantially as set forth.

2. A musical sounder comprising a body having beveled flaps extending to its lateral edges, and provided with a ribbon or ribbons at each of its lateral edges, said ribbons being divided or test and having their flaps oblique to the face of the body, substantially as set forth.

3. A musical sounder comprising a hollow body A, with inclined flaps a', and ribbons B, at its lateral edges, said ribbons being divided or test and having their flaps oblique to the general plane of the body, substantially as set forth.

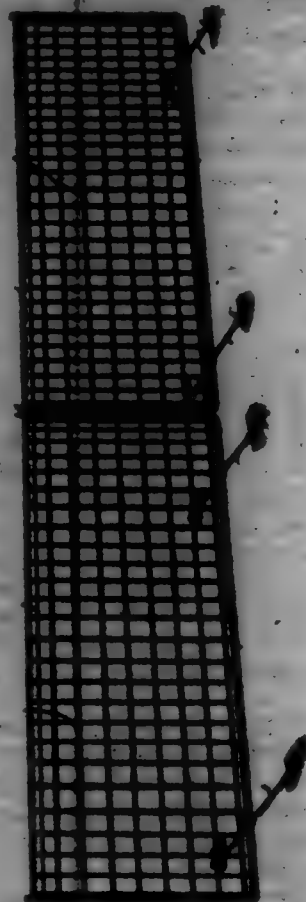
699,979. METHOD OF PRESERVING MEAT. HERMAN VAN
Nest, Stuttgart, Germany. Filed Mar. 22, 1902. Serial No. 90,690. (No specimens.)

Claim.—1. A method of preserving meat which consists in impregnating it with an infusion of tea.

2. A method of preserving meat which consists in impregnating it with a brine containing tea.

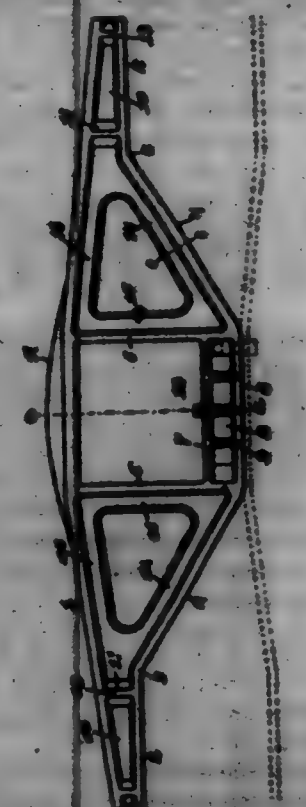
3. A method of preserving meat which consists in adding an infusion of tea to the preserving liquid.

699,980. TABLE-TURNER ME. JOHN GARDNER, Liverpool, Eng-
land. Filed Feb. 12, 1900. Serial No. 90,694. (No model.)



Claim.—A table-turner set, having the combination of a horizontal metallic bar bent upward at the ends to form posts, fast secured to said horizontal bar, and a flexible network secured at each end to said bent part by said uprights, substantially as described.

699,981. ARCH-BAR. THOMAS C. SALVETER, St. Louis, Mo.
Filed Sept. 14, 1901. Serial No. 70,690. (No model.)



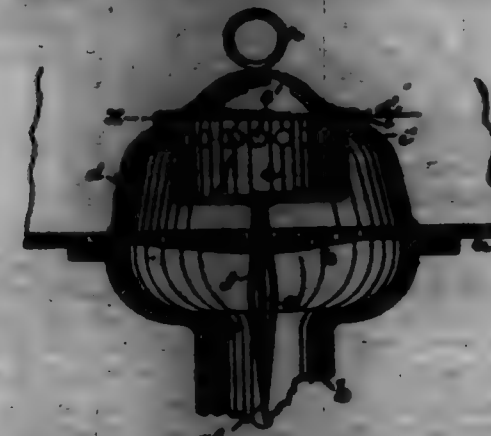
Claim.—1. An arch-bar, comprising a curved upper member, a lower member having its ends substantially parallel with the said upper member, and connected therewith by integral webs and the middle of the

lower member extending below the said upper member, posts connecting the upper and lower members, and a spring-act supported above the lower member and formed integral therewith and with the said posts.

2. The improved arch-bar, comprising an arched upper member, a lower member, having its ends substantially parallel with the upper member and connected thereto by integral webs, divergent extensions 4 integral with the lower member, integral posts 5 connecting the divergent parts 4 of the lower member with the upper member, the horizontal part 6 of the lower member formed integral with the lower end of said posts, and a spring-act supported between the posts above the said part 6.

3. The improved arch-bar, comprising an arched upper member, a lower member having its ends extended horizontally below the ends of the upper member and connected therewith by integral webs, posts integral with the upper member, a spring-act integral with the lower ends of said posts, integral posts 4 of the lower member connecting the lower ends of the said posts with the horizontal portions of the lower member and with the upper member, and reinforcing-flanges integral with said members to give additional strength.

699,982. DISSEMINATING DEVICE FOR SHEEP-SHEARERS. JAMES
F. SHAWNEY and CHARLES L. LOR, Newark, N. J. Filed May 21, 1901.
Serial No. 68,881. (No model.)



Claim.—1. A disseminating device for disinfectants, comprising an inverted-cup-like body portion adapted to cover the perforated disinfectant plate of a sink, an inner receptacle for disinfectant operably connected to said body portion, and a central stem on said receptacle adapted to enter a perforation of the disinfectant-plate and support the device.

2. The basic-disseminating device for disinfectants, consisting of a body portion in the form of an inverted cup provided with a handle A, a receptacle for disinfectant attached to the inner walls of said body portion and being perforated, and a resilient stem f, projecting downwardly from said receptacle to enter the sink-drain.

3. In a disseminating device for disinfectants, the combination of a bell-shaped body portion adapted to be held with its mouth over the disinfectant, a perforated receptacle within said body portion and a stem comprising resilient wires spread apart or bowed between their extremities and united at their projecting extremities distant from the body portion and receptacle, substantially as set forth.

4. The combination of the body portion d, having the interior corner recess d', a disinfectant-receptacle e, adapted to enter at its upper edges said recess, legs i, on the receptacle and supporting rest f', on the body portion for connecting said parts, and a stem f, depending from the said receptacle and formed of a plurality of wires bowed apart intermediate of their ends.

5. The combination with the bell-shaped cover, of a resilient stem projecting down below the bottom edge of said cover, at, or approximately at, the axial center of said cover, said stem comprising a series of bent wires united at their projecting extremities to enter together through a small perforation of a disinfectant-plate, substantially as set forth.

699,983. HOLDER FOR TOOTH-BRUSHES AND TOOTH-POW-
DER. BENJAMIN C. H. SHAWNEY and CARL F. SHAWNEY, Philadelphia, Pa.
Filed Oct. 12, 1901. Serial No. 70,690. (No model.)

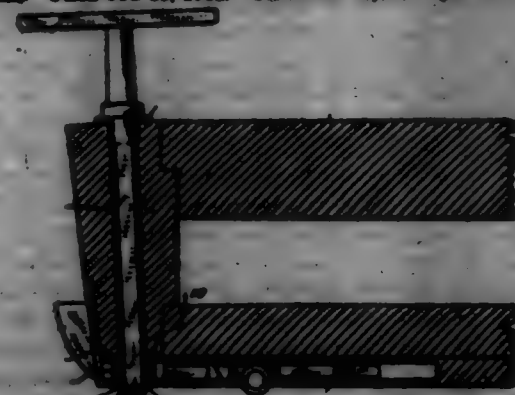


Claim.—1. A holder for a tooth-brush and a tooth-powder comprising a rectangular receptacle formed of a base of approximately the length of the tooth-brush and of a width approximately equal to the depth of

the bristle portion thereof, and having upwardly-projecting walls of a height at least equal to the width thereof, a tooth-powder-containing compartment formed in the said rectangular receptacle at one end thereof and projecting rearwardly beyond the transverse center thereof whereby the rear or inner wall of the compartment forms with the rear or outer wall of the main holder a narrow longitudinal compartment continuous with the main or opposite end portion of the compartment comprised by the receptacle, and ranging parallel with the said rear wall of the holder and in such relation thereto as to operate in connection therewith to hold the handle of the brush whereby to retain the same in the holder against displacement; and the said tooth-powder-containing compartment being of a length to leave a space between the bristles of a tooth-brush and the inner end of the compartment for the entrance of a finger beneath the neck of the brush; and means operating in connection with the tooth-powder-containing compartment and the outer wall of the holder whereby to close the said tooth-powder-containing compartment only, leaving the main or brush-holding compartment open.

2. A holder for a tooth-brush comprising a receptacle formed of a rectangular base of a length approximately equal to that of an ordinary tooth-brush and of a width approximately equal to the depth of the bristle portion thereof and formed with upwardly-projecting walls in height at least equal to the width of the brush and adapted to receive the entire brush within the same when the handle of the brush is placed in contact with one of the longitudinal walls of the said receptacle; a tooth-powder-containing compartment formed of a longitudinal partition ranging within the main receptacle or compartment and at one end thereof parallel with the said longitudinal wall of the holder and rearwardly of the transverse center of the holder and in such relation to the said longitudinal wall as to operate in connection with the said longitudinal wall to hold the handle of the brush whereby to retain the same in the holder against displacement, the said partition being secured to one end wall of the holder and to the base and ranging longitudinally to a point appreciably below the position of the bristles in the operative position of the brush in the holder whereby a finger may be inserted between the said bristles and the end of the partition beneath the neck of the brush to remove the same from the holder; the inner end of the said partition being turned around to form a semi-circular or rounded end wall for the tooth-powder-containing compartment, and being secured to the base and to the front wall of the main receptacle and the said partition, and its rounded end or extension being of equal height with the walls of the brush-holder; and a lid for the tooth-powder-containing compartment only, the said lid being hinged to the partition and extending to the front wall of the holder and provided with a longitudinal flange adapted to connect the said lid to the said front wall, means upon the said flange and upon the said front wall for fastening the lid down, a flange upon one end of the lid overlapping the outer end of the main receptacle and downwardly-projecting corner-lugs upon the opposite inner end of the lid engaging the rounded or semi-circular end or extension of the partition.

699,984. CARRIAGE-LOCK. ADOLPHUS C. SMITH, New Haven, Conn. Filed Oct. 16, 1901. Serial No. 70,690. (No model.)



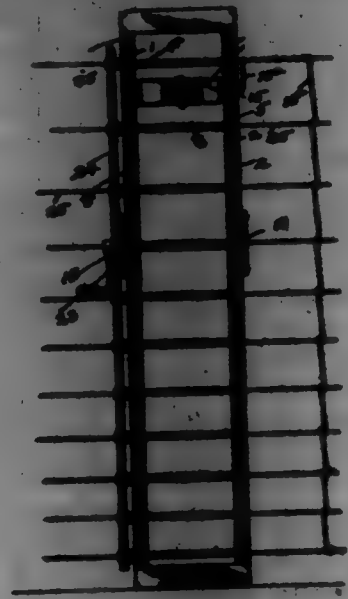
Claim.—1. A carriage-lock having a substantially spherical operating-hub, whereby said hub may have universal movement in its casing for the purpose specified.

2. A carriage-lock having hub-openings in its plate made of least diameter on the outer side and flaring inward, and a substantially spherical hub to correspond with the openings, whereby said hub may have universal movement relatively to said openings, for the purpose specified.

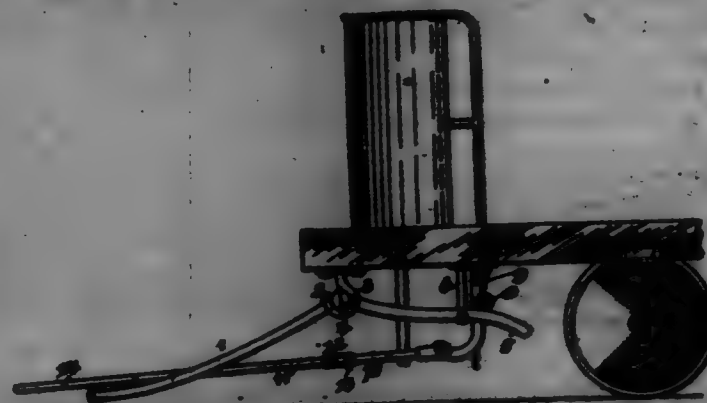
3. A carriage-door lock, substantially as shown and described, having a hub provided with a spindle-opening, said hub being mounted for universal movement to adapt it to receive a spindle of other than a right angle to the plane of the lock.

699,985. MACHINE FOR WEAVING CROSS-WIRES IN PIGGON.
HAROLD STEIN and HARRY BROWN, Columbus, Ohio. Filed Apr. 27,
1901. Serial No. 67,000. (No model.)

Claim.—In a machine for weaving cross-ribs in tissue, the combination with a framework comprising vertical frame-standards and spools 6 having enlarged heads journaled in said frame-standards, said heads having peripheral notches 11, the shafts of said spools being tubular and a gear connection between the outer ends of said shafts, of a reel-frame 12 having journaled therein a wire-carrying spool, said frame 12 having transverse 14 and 15, the latter being tubular, said transverse adapted to engage oppositely-located notches of the spool-heads 4 and 5, and means for directing said transverse from the notches of one pair of heads into the notches of an adjacent pair, substantially as specified.



699,986. CAR-FENDER. WILLIAM SULLIVAN, St. Louis, Mo. Filed July 14, 1901. Serial No. 95,577. (No model.)



Claim.—In a car-fender, a fender pivoted to the car body at its rear end; an arm 5 extending rearwardly from the center of the fender; the frame 7 hinged to the lower end of the car-body the roller 8 mounted in said frame, and engaging the arm 5 as required to hold the front end of the frame 7; a spring 9 holding said frame in its vertical position, said frame being mounted to swing backwardly against the tension of the spring as required to carry the roller 8 out of engagement with the arm 5 and allow the arm 5 to swing upwardly, then depressing the forward end of the fender; the rod 10 connected to the lower end of the frame 7 and extending forwardly; the sleeve 12 upon the forward end of the rod 10; the rod 11 connected to the forward end of the fender, the forward end of said rod being bifurcated; the secondary fender or frame 14 mounted upon the forward end of said rod and projecting beyond the first fender, so that when the secondary fender strikes an obstruction on the track, the frame 7 will be operated to allow the arm 5 to be lifted, then depressing the forward end of the fender, substantially as specified.

699,987. POCKET IMPLEMENT. JAMES TAYLOR and JOHN ROBERTSON, Lancaster, England. Filed Sept. 12, 1903. Serial No. 75,516. (No model.)

Claim.—A tool or implement or use when described comprising an elongated body portion, V-shaped in cross-section and pointed at one end, the lower walls of the sides thereof being provided with rounded corners, and a head or plate pivoted to the larger end thereof, substantially as shown and described.

699,988. CATTLE-STALL. JAMES B. TIERNEY, WILLIAM TIERNEY, and FRANKLIN H. MONTGOMERY, Chardon, Tex. Filed Oct. 21, 1903. Serial No. 79,495. (No model.)



Claim.—In a cattle-stall, a series of posts suitably pivoted at their lower ends, a second series suitably pivoted at their lower ends and acting in conjunction with the first-named series, links pivoted to the tops of the posts and pivoted together in pairs, upwardly-extending links pivoted to the intermediate pair of links, a lever for elevating and depressing the upwardly-extending links, and boards and rails connecting the posts to form opposite sides whereby the movement of the intermediate posts will be conveyed to the end posts, as and for the purpose described.

699,989. SHOULDERING BLOCK. FRANK E. VANHORN, Watertown, Conn., assignor of one-half to John Meyer, Watertown, Conn. Filed Oct. 17, 1901. Serial No. 75,909. (No model.)



Claim.—1. In a shoe-lacing device, the combination with a lacing-rod, of an annular depending flexible apron for the shoe covering the heel and adapted to hold the lacing-rod in position to pass thereby for engagement with the said heel.

2. A shoe-lacing device comprising a steel having an annular projecting yieldable extension secured thereto covering the entrance to the heel and provided with suitable notches in its peripheral forming string pockets.

3. A shoe-lacing device comprising a steel having an enlarged head integral therewith, a covering for said head with a depending flexible apron including the entrance to the heel.

699,990. SHOULDERING BLOCK. FRANK E. VANHORN, Watertown, Conn., assignor of one-half to John Meyer, Watertown, Conn. Filed Oct. 17, 1901. Serial No. 75,909. (No model.)



Claim.—1. A shoe-lacing device comprising an eyelet and heel portion, a protector made of flat spring material and secured to the base of said heel and normally extending upward across the opening of the heel and having its end substantially at the edge of the heel and designed to automatically spring open or close with the passage of the shoe thereunder.

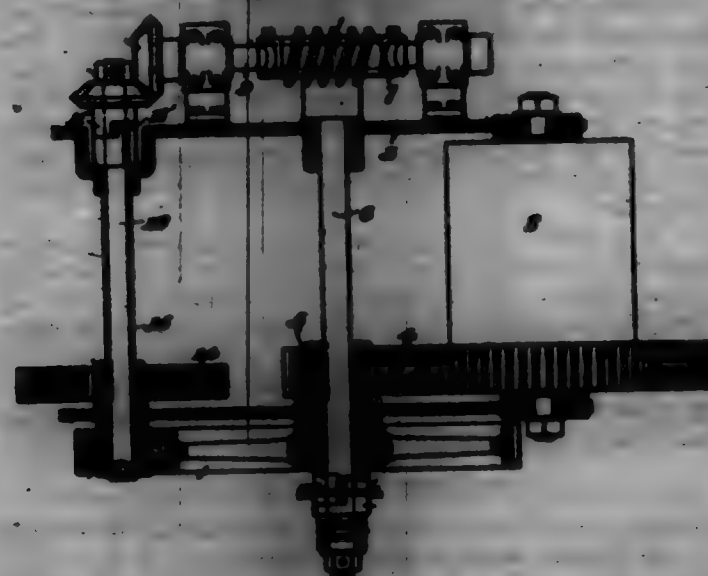
2. A protecting device for a shoe-lacing heel consisting of a sheet-metal ring-like part having an upwardly-deflecting flexible extension fitted into the base portion of the heel so that said extension will normally close the mouth of the heel but will yield in either direction with the insertion or removal of the foot.

699,991. COOKING-STOVE. BENJAMIN A. VAUGHN, Curing, Cal. Filed Feb. 3, 1903. Serial No. 92,492. (No model.)



Claim.—In a cooking-stove, the combination, of the oven, the warming-chamber having shelves with openings for the passage of air, a fire-pot and ash-box located between the oven and warming-chamber, smoke-passages extending around the oven and under the warming-chamber, a smoke-pipe communicating with the smoke-passages and extending up at the outer side of the warming-chamber, a damper in the smoke-passage above the oven, and a smoke-passage above the warming-chamber having a damper or a damper in at the upper end of the warming-chamber leading into the smoke-pipe, a door to the warming-chamber, and a wheel or damper at the lower end of the door; the damper, a, c, and a having operating-rods extending through the front of the stove, as herein shown and described.

699,992. HOISTING APPARATUS. SAMUEL E. WALSH, Montreal, Pa. Filed Oct. 28, 1903. Serial No. 92,416. (No model.)



Claim.—1. A rotary element having two sets of driving connections, one set including worm-gearing, and connection between the two sets, said connections including a plurality of clutches, each having lost motion; substantially as described.

2. A rotary element having spur-gear driving connections and worm-gear driving connections, the spur-gear having a plurality of connections with the worm-gear, said connections including at least two clutches having lost motion; substantially as described.

3. A rotary element having spur-gearing driving connections, one of the shafts of the spur-gears having lost-motion clutch connection with a worm-gear, mechanism for driving the other element of the worm-gear, and means for adjusting the amount of lost motion in the clutch; substantially as described.

4. A rotary element having spur-gearing driving connections, worm-gearing driving connections, the shafts of the spur-gears being provided with lost-motion clutch connections with the worm-gearing elements, one at least of said lost-motion connections being adjustable; substantially as described.

699,993. STAIRWAY. FREDERICK W. WHEEL, Danbury, Pa. assignor of one-half to Benjamin F. Keller, Danbury, W. Va. Filed Feb. 25, 1903. Serial No. 91,570. (No model.)

Claim.—1. A sectional rail adapted to support or guard a stairway composed of a series of similar sections provided with locking devices whereby they are interlocked together.

2. A sectional rail for supporting or guarding a stairway composed of a series of similar one-shaped interlocked sections having beveled joints.

3. As an article of manufacture a section for a rail adapted to support or guard a stairway consisting of a block having beveled ends provided with parts of two locking devices.

4. As an article of manufacture a block adapted to constitute a section

of a stairway string-board and provided at its opposite ends with parts of two locking devices, said block having horizontal ends in different planes and an intermediate vertical end.



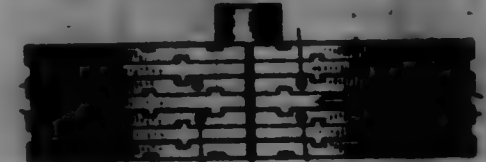
5. As an article of manufacture a block adapted to constitute a section of a stairway string-board and provided at its opposite ends with parts of two locking devices, said block being step-shaped along its upper edge and inclined along its lower edge, said lower edge being provided with a rabbet.

6. A sectional rail for a stairway comprising a series of similar sections provided with concealed locking devices whereby they are interlocked together.

7. As an article of manufacture a block adapted to constitute a section of a stairway string-board having a vertical flange at its lower end and a vertical flange at its upper end, one of said flanges being provided with a plate having slots enlarged at their upper ends and the other of said flanges being provided with a plate having beveled ends.

8. As an article of manufacture a block adapted to constitute a section of a stairway supporting rail, said block being step-shaped along its upper edge and inclined along its lower edge and provided with vertical flanges at its opposite ends, one of said flanges being provided with a plate having slots enlarged at their upper ends and the other of said flanges being provided with a plate having beveled ends.

699,994. VEHICLE-WHEEL. PAUL E. WHEEL, Indianapolis, Ind., assignor to White Steam Wagon Company, Indianapolis, Ind., a Corporation of Indiana. Filed Nov. 20, 1901. Serial No. 94,116. (No model.)



Claim.—1. A vehicle-wheel having its central portion formed integrally of cast metal, and comprising a central hollow hub, a series of spokes V-shaped in cross-section, a peripheral rim surrounding said spokes at their outer ends, and a central disc connected to said rim, all substantially as shown and described.

2. The combination, in a vehicle-wheel, of an integral central portion comprising a hub, spokes and rim, and a tire composed of sections secured to the outer surface of said rim, the traction-surfaces of said tire having grooves with short lateral branches forming pockets, substantially as set forth.

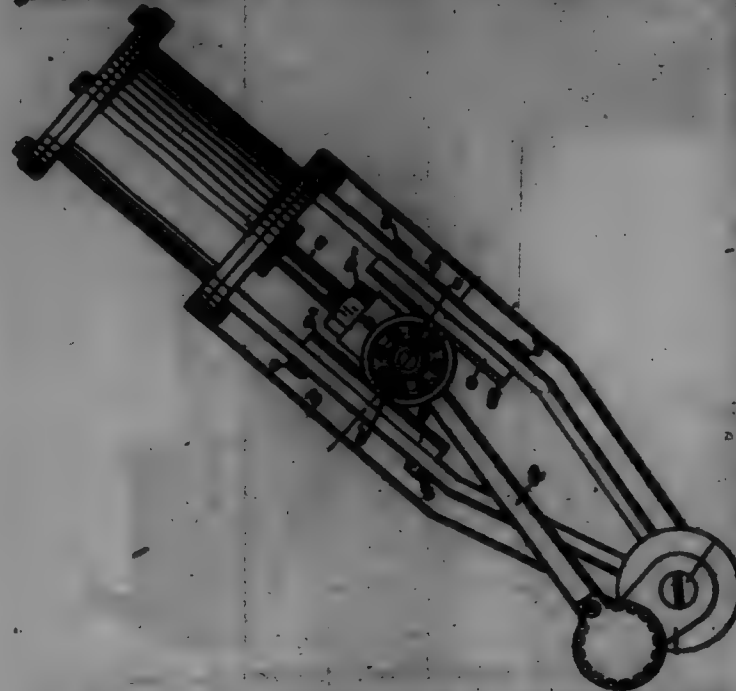
3. The combination, in a vehicle-wheel, of a central portion, and a tire secured to the periphery thereof, said tire having grooves in its traction-surfaces, and said grooves having branches forming cavities or pockets arranged in staggered relation to each other, substantially as set forth.

699,995. ENGINE. GEORGE E. WHITNEY, Boston, Mass., assignor to Whitney Motor Wagon Company, Albany, N. Y., a Corporation of Maine. Filed Jan. 23, 1903. Serial No. 92,699. (No model.)

Claim.—1. An engine containing a piston-rod, a connecting-rod, a crank-pin joining the two, a guide and a guide-wheel mounted on said crank-pin.

2. An engine containing a piston-rod, a connecting-rod, a guide-wheel connected with and moved by said piston-rod, and guides arranged at opposite sides of said guide-wheel.

3. An engine containing a piston-rod, a connecting-rod, a plurality of guide-wheels having coincident axes arranged at opposite sides the axis of said connecting-rod and connected therewith and movable thereby and guides for said wheels.

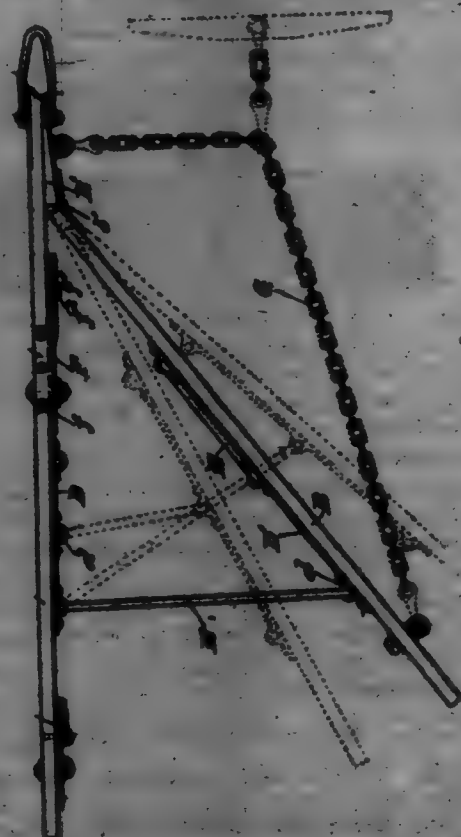


4. An engine containing a piston-rod, its connecting-rod, a cylindrical guide-wheel and a guide therefor, said guide and guide-wheel together presenting perpendicular side guiding means to receive the side thrust of said wheel.

5. In an engine a connecting-rod having a forked end, a wrist-pin provided with conical portions firmly held therein, a cross-head in which said wrist-pin turns, and a plurality of guide-wheels mounted on said wrist-pin and guides therefor.

6. In an engine having a wheel cross-head, a pair of wheels, a connecting-rod and a cross-head arranged between said wheels, a wrist-pin extended through said cross-head, connecting-rod and wheels, with means outside said wheels and acting upon the parts between said wheels but not by means thereof, to move said wrist-pin axially.

699,996. GRADNER. EPHRAIM WILLIAMS, Foster, Mo. Filed Nov. 19, 1901. Serial No. 88,912. (No model.)



Claim.—1. In a grader or the like, the combination with a main beam, and a scraping-blade adjustable with relation thereto, one of said members being provided with a tie-rod support and the other thereof being provided with a plurality of tie-rod supports, of a tie-rod adapted to simultaneously engage supports upon the said beam and blade and thereby

by adjustably space the said members apart, two of the said supports upon the member provided with the plurality thereof being so spaced that they are adapted to be simultaneously engaged by said tie-rod and thereby support the same; substantially as described.

2. In a grader or the like, the combination with a main beam, and a scraping-blade adjustable with relation thereto, each of said members being provided with a plurality of tie-rod supports, of a plurality of tie-rods of different lengths, each of which rods is adapted to simultaneously engage supports upon the said beam and blade and thereby adjustably space said members apart, two of the said supports upon one of said members being so spaced that they are adapted to be simultaneously engaged by one of said tie-rods, and two of the said supports upon the other of said members being so spaced that they are adapted to be simultaneously engaged by the other of said tie-rods, whereby said respective rods can be carried by said respective members; substantially as described.

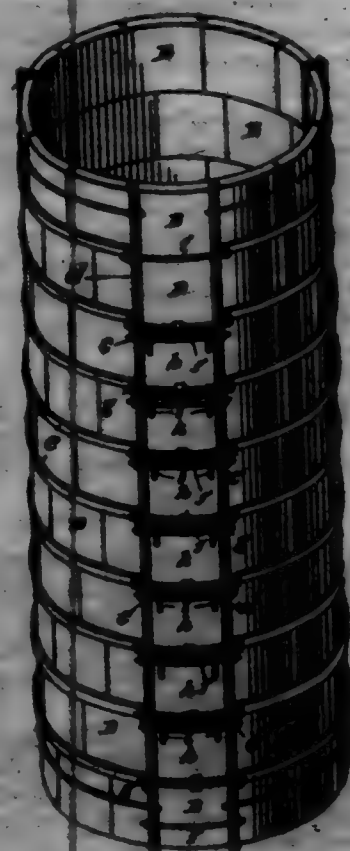
3. In a grader or the like, the combination with a main beam, and a scraping-blade adjustable with relation thereto, each of said members being provided with a plurality of tie-rod supports, of a plurality of tie-rods of different lengths, each of which rods is adapted to simultaneously engage supports upon the said beam and blade and thereby adjustably space said members apart, each of said members having supports so spaced that each supports upon a respective member are adapted to be simultaneously engaged by one of said rods, whereby said rod can be supported upon either of said members, and one of said members having a support adapted to be engaged by the other of said tie-rods when one of said rods is supported upon said member; substantially as described.

4. In a grader or the like, the combination with a main beam, and a scraping-blade adjustable with relation thereto, each of said members being provided with a plurality of tie-rod supports, of a plurality of tie-rods of different lengths, each of which rods is adapted to simultaneously engage supports upon the said beam and blade and thereby adjustably space said members apart, supports upon one of said members being so spaced that they are adapted to be simultaneously engaged by one of said tie-rods, and three supports upon the other of said members being so spaced that when said tie-rod engages the central of said supports it can simultaneously engage either of the other of said two supports; substantially as described.

5. In a grader or the like, a main beam, a scraping-blade adjustably supported with relation thereto, and a flexible draft connection having one end attached to said beam and its other end attached to said blade and adapted to be engaged at either of a plurality of points by a draft appliance; substantially as described.

6. In a device of the character described, a guiding-rod comprising a plate having one portion formed into a blade and another portion formed into a handle; substantially as described.

699,997. MIA. JAMES W. WOODMAN, Danbury, N. Y. Filed Nov. 30, 1901. Serial No. 84,546. (No model.)

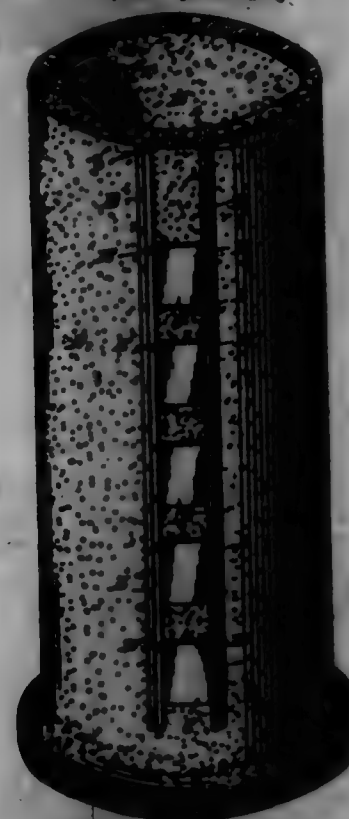


Claim.—1. In a device of the class described coupling-standards, segmental ribs having grooved edges between the standards, a cement filling in said grooves, and tightening-bands connecting the standards.

2. In a device of the class described, coupling-standards, tightening-bands connecting the standards, an opening between two adjacent standards, a door for closing said opening having staples through which a tightening-band passes whereby the door may be swung outwardly and then said inwardly to a position in which it bears upon one of the edges of the opening to maintain it in open position.

3. In a device of the class described coupling-standards, courses of segmental filling-pieces between the standards tightening-bands between the standards located over the joints between the courses of filling-pieces and means for tightening the bands.

699,998. MIA. JAMES W. WOODMAN, Danbury, N. Y. Filed Jan. 7, 1902. Serial No. 83,785. (No model.)



Claim.—1. In a silo composed of a frame formed of upright beams, spaced apart and held by rods, said frame being embedded in concrete, having air-spaces therein, in combination with a series of elastic door-openings doors in said openings plus for operating said doors located in the holes in the ways B, said openings extending from top to bottom all substantially as heretofore shown and described.

2. In a silo composed of a frame formed of upright beams, spaced apart and held by rods said frame being embedded in concrete, having air-spaces therein, in combination with a series of elastic door-openings extending from top to bottom, doors in said openings plus located in the holes in the ways B, and grooved strips or ways B, on the inner and outer sides of the silo, and each side of a continuous narrow opening extending from top to bottom all substantially as heretofore described.

3. A silo composed of a frame formed of upright beams spaced apart and held by rods, said frame being embedded in concrete having air-spaces therein.

699,999. MILLER-BRACE. JOHN R. WORTH and CHARLES R. FAIRWEATHER, Danbury, Pa. assignors to J. & W. Worth and W. P. Worth, Danbury, Pa. Filed Nov. 30, 1901. Serial No. 84,588. (No model.)

Claim.—1. As a new article of manufacture, a boiler-plate made of a single sheet of metal bent so as to form a body portion of double thickness, a head portion of double thickness connected to the body portion by a single thickness of metal and having feet of single thickness, substantially as described.

2. As a new article of manufacture, a boiler-plate made of a single sheet of metal bent so as to form an inclined body portion of double thickness, a head portion, said head portion having wings bent upon the head portion, and having feet spread apart and forming a channel, substantially as described.

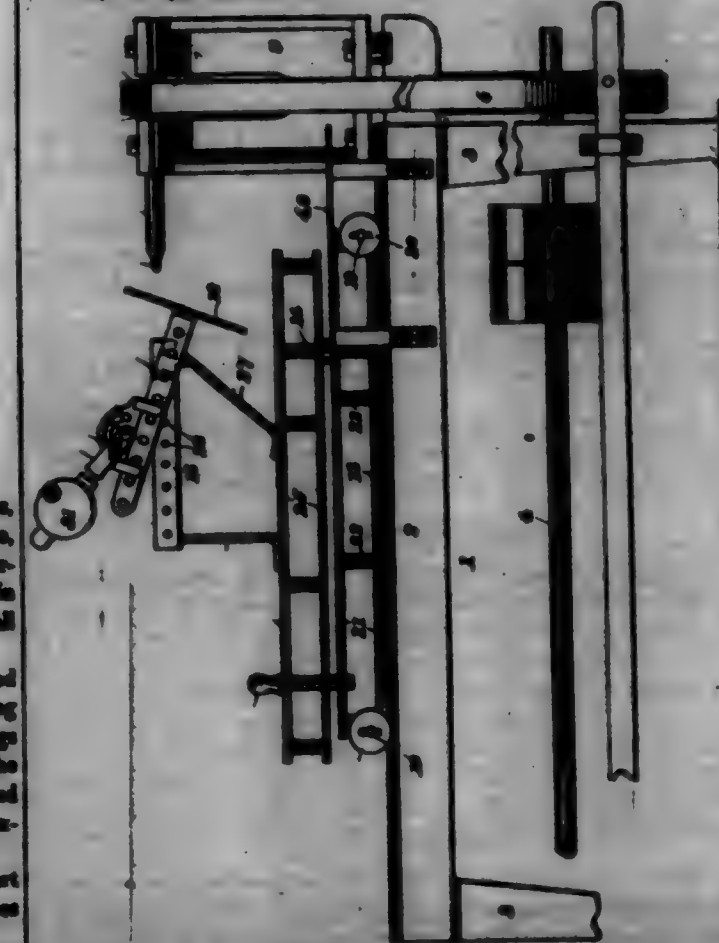
3. As a new article of manufacture, a boiler-plate made of a single sheet of metal having an inclined body portion of double thickness, a head portion of double thickness and feet extending from each side of the base of the inclined portion, the base of the inclined portion being spread

apart forming a V-shaped channel between the feet, substantially as described.



4. A blank for a boiler-plate consisting of a single sheet of metal having a body portion a, a head portion b, wings c projecting from each side of the head portion, and portions d projecting at an angle from the opposite end of the body portion, substantially as described.

700,000. WORK-HOLDING DEVICE FOR BORING-MACHINES. McLENNAN YOUNG, Frederick, Md., assignor to Palmetto Fire Company, a Corporation of Maryland. Filed Nov. 30, 1901. Serial No. 88,773. (No model.)



Claim.—1. In combination with a borer, a carriage movable to and from the same, a work-holding table, a frame containing said table and extending in front of the same, a pivotal connection between said frame and carriage, and means for adjusting said pivotal connection along the frame from a point in rear of the table to a point in front of the same.

2. In combination with a borer, a carriage movable to and from the same, a work-holding table, a frame containing the same, and a pivotal connection between the frame and carriage adapted to be located in advance of the plane of the table.

3. In combination with a borer, a block-holding table mounted on an axle located with reference to the table to permit the latter to be swung around and present the edge of the block to the action of the borer.

4. In combination with a horizontal borer, a carriage movable to and from the same, a frame pivoted to said carriage on a vertical axis, a work-holding table contained by said frame in rear of its axis and movable on a horizontal transverse axis.

5. In combination with a borer, a carriage movable to and from the same and formed with a series of vertical holes, a pivot-pin adapted to be removably seated in said holes, a frame provided with a series of holes

adapted to receive the upper end of the pin, and a work-holding table mounted by said frame.

6. In combination with a horizontal borer, a carriage movable to and from the same, a frame 15 mounted on the carriage below the level of the borer on a vertical axis, a superstructure fixed to the frame at or near the level of the borer, and a work-holding table mounted on the superstructure on a transverse horizontal axis, in such position that the face of the table will be in rear of the axis of the frame 15; whereby the table may be swung around on the axis of the frame 15 to present the edge of the block to the borer, and may be swung vertically on its horizontal transverse axis relative to the superstructure without interference with the frame 15.

7. In combination with a horizontal borer, a frame, a work-holding table mounted on the frame on a horizontal transverse axis, means for adjusting the axis of the table to and from the face of the same, a counterweight connected with the table, and means for adjusting the counterweight with relation to the table to and from its axis.

8. In combination with a borer, a frame, a work-holding table, arms extending rearwardly from the same and pivoted to the frame on a transverse axis, means for adjusting the axial connection of the arms, a rod 23 pivoted to one of the arms on a horizontal transverse axis, means for adjusting the pivoted rod in its path of movement on its axis, and a weight carried by the rod.

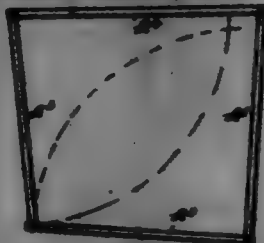
9. In combination with a main frame, guides or tracks thereon, a vertical standard at one end of the frame, a horizontal borer mounted in the standard and overhanging the tracks at one end, a carriage provided with front wheels adapted to travel on the tracks and movable to and from the borer, a table on the carriage arranged to present the block to the borer when the carriage is moved up to the same, and horizontal plates fixed to the main frame and extending above the tracks below the borer, said plates being so positioned with relation to the tracks as to closely overlie the front wheels of the carriage when the latter is moved up to present the block to the borer; whereby the plates serve the three-fold functions of supports for the blank blocks to be bored; shields to prevent the drillings from gaining access to the tracks and wheels of the carriage, and stops to prevent the carriage from accidentally lifting from the track.

10. In a machine of the type described the combination with a drill, of means for presenting a block at an inclination to the same, and a gage device fixed to the drill and having its end beveled to permit the drill to enter the inclined block.

11. In a machine of the type described the combination with a drill, of means for presenting the block to the same, and a gage device on the drill having a conical end.

12. In a machine of the type described, the combination with a drill, of means for presenting the block to be bored to the same, and a gage device on the drill formed with a conical end, and adjustable along the drill.

700,001. EASY FURNITURE. WILLIAM F. ABELL, Derby, England. Filed Feb. 6, 1901. Serial No. 42,264. (No model.)



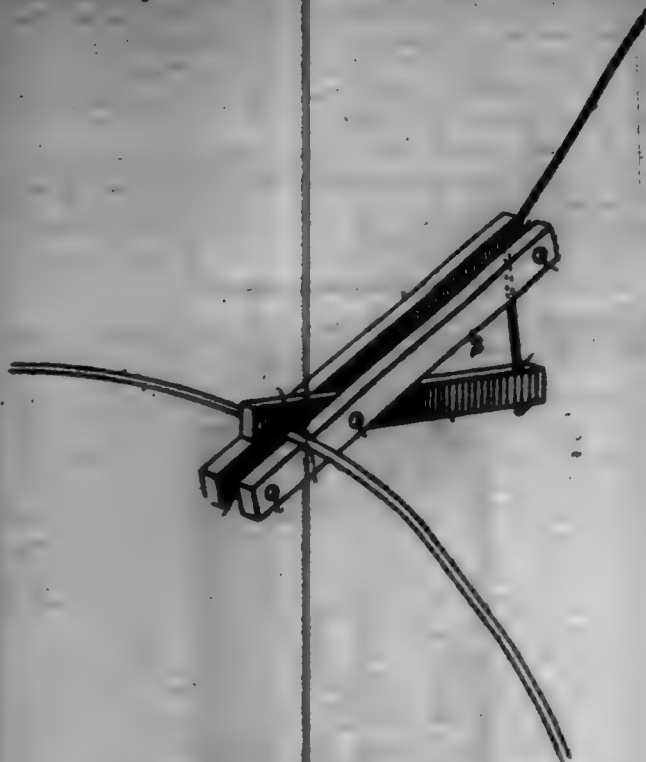
Claim.—A pen or enclosure device of the class specified consisting of four separate parts, panels or sections, two of which are hinged together and are shorter than the other two and are of the same length, the other two being also hinged together and hinged to the first two and being also of the same length, each of said parts or sections being composed of separate parts or strips connected with the corner-posts so as to turn thereon, four of said posts being employed, substantially as shown and described.

700,002. PICK-UP TONGS FOR LIVE WIRES. ANDREW ANDERSON, Decatur, Ill., assignor to Carter-Danahy Company, Keokuk, Iowa, a Corporation of Iowa. Filed Nov. 20, 1901. Serial No. 34,123. (No model.)

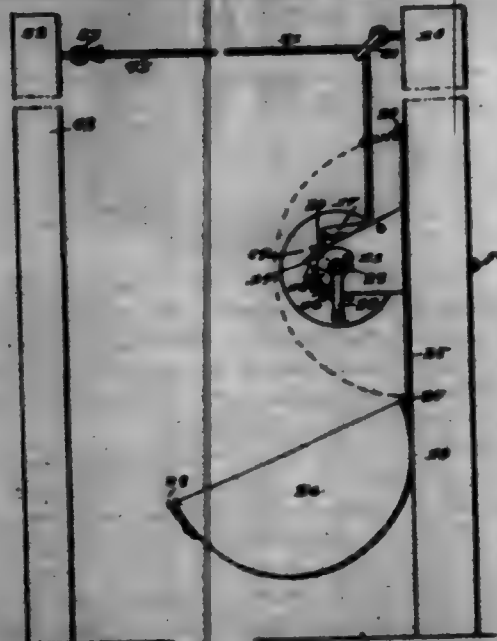
Claim.—1. In a tong for picking up and handling live wire, the combination of a pair of straight parallel bars conjoined at their ends and separated except at their ends, and a straight bar shorter than the distance between the connected ends of the parallel bars, the single bar being pivoted between the parallel bars to occupy the space between the same, and the single bar and the compound bar comprising the handles and jaws of the tong.

2. In a tong for handling wire, the combination of a pair of parallel bars conjoined at their ends and separated between their ends, and

other bar pivoted between the parallel bars with its jaw part swingable between the jaw part of the parallel bars, and a flexible line connected with the handle end of the single bar and extended through the handle end of the compound bar.



700,003. CLOTHES-LINE REEL AND STRETCHER. CARL G. ANDERSON, Des Moines, Iowa, assignor to E. Hartman, Des Moines, Iowa. Filed Mar. 5, 1901. Serial No. 42,692. (No model.)

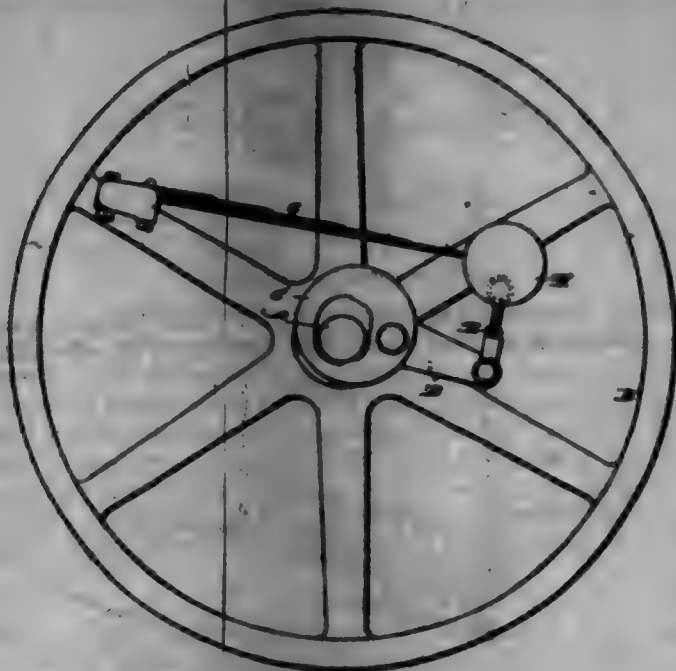


Claim.—An improved clothes-line reel and stretcher, comprising in combination a support provided with slots 11, having the slots 14 therein, and having a curved back 12, a post pivoted to one side of said support, semicircular rollers 15 pivoted to the supports adjacent to the slots 14, an axle 18, flanges 19 thereon, a ratchet 20 thereon, and a crank 22 thereon, said axle being designed to enter the slots 14, and a back 25, a box 26 open at one side, and hinged to the back, and means for securing the free end of the box to the upper end of the back, whereby the reel and stretcher may be inclined, substantially as, and for the purposes stated.

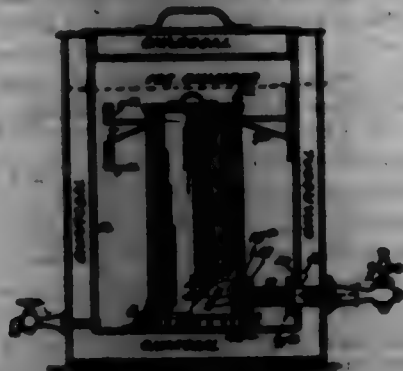
700,004. SUTTERING. EDWIN J. ANDERSON, Erie, Pa. Filed Nov. 20, 1901. Serial No. 34,573. (No model.)

Claim.—1. The combination in a shaft-governor of a carrier, an eccentric pivotally mounted thereon and adapted to be shifted through a suitable range, a centrifugal weight, a spring upon which said weight is mounted and means whereby said weight and eccentric are so connected that their movements will be in opposite directions and of approximately equal gravity amount, thereby balancing the weight of the eccentric and also so that the centrifugal force exerted by the weight shall not be transmitted through the pivot of the governor.

2. The combination in a shaft-governor of a carrier, an eccentric pivotedly mounted thereon and adapted to be shifted through a suitable range, a centrifugally-acting weight, a spring upon which said weight is mounted, and a longitudinally-adjustable link connecting said eccentric and weight in such a manner that their movements shall be in opposite directions.



700,005. COOLING APPLIANCE. THOMAS S. ARMSTRONG, North Plainfield, N. J. Filed Nov. 12, 1901. Serial No. 52,504. (No model.)



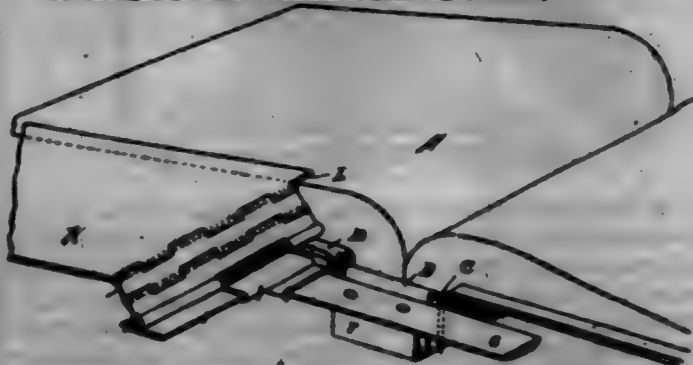
Claim.—1. In a cooling appliance of the character described, the combination with the vessel for holding the cooling agent, said vessel being open at the top and having a drawing-off tube at the bottom whose inner end projects inward toward the center of the vessel and having a collar projected up from the bottom thereof; of a retainer or beverage-holder, said holder having pendant supporting-brackets at the bottom and having its lower end of a size to fit within the upper edge of the collar on the bottom of the vessel, the brackets projected radially inward from the upper end of the vessel adapted to engage the upper end of the said container or holder, one of said brackets being detachably held, the container or holder having an opening at the lower end, whereby it can be slipped onto the inner end of the drawing-off tube, and the clamping-nuts for securing the tube and the container all being arranged substantially as shown and for the purposes described.

2. In a cooling appliance of the character described, the combination with the vessel for holding the cooling agent, said vessel having a drawing-off tube and having a drawing-off tube whose inner end projects toward the center of the vessel, said projecting end being threaded, said vessel having an annular collar projected upward from its bottom, and a series of brackets projected radially inward from the upper end of the vessel, one of said brackets being disposed over the drawing-off tube and detachably held within the vessel; of the container or holder, said holder having pendant brackets at the lower end and having the said end of a diameter to fit between the upper edge of the collar at the bottom of the vessel, the lower end of the said holder being open, whereby it can be readily fitted over the projecting end of the drawing-off tube, clamping-nuts engaging the said tube for holding the container or holder in a fluid-tight engagement with the tube, all being arranged substantially as shown, whereby by releasing the nuts from the drawing-off tube, and removing the detachable bracket, the container or holder can be tilted and slipped from engagement with the inner end of the drawing-off tube, substantially as shown and for the purposes described.

3. The heretofore-described improvement in cooling appliances, comprising a vessel adapted to hold the cooling agent, said vessel having

an annular collar projecting vertically upward from the bottom and having a plurality of brackets projected radially inward, said brackets being fixedly connected to the interior of the vessel; another bracket of like structure projected radially in line with the other brackets, said bracket being detachably connected with the inner side of the vessel, an externally-threaded drawing-off tube, one end of which projects through the vessel and has an internally-threaded outer end, the inner end of said tube projecting inward to a point over the collar on the bottom of the vessel, said end being threaded, the container having pendant bracket members adapted to straddle the collar on the bottom of the vessel, said vessel-bottom being arranged to fit within the upper end of the collar, the upper end of said vessel projecting above the brackets, said brackets and the container being relatively of such proportions that the brackets will form lateral braces for the said container, the container having an elongated opening at the lower end, whereby it can be fitted over the inner end of the externally-threaded drawing-off tube, and the nuts and washers for effecting a tight adjustment of the container, the vessel, and the drawing-off tube, all being arranged substantially as shown and for the purposes described.

700,006. ARM-REST FOR BOOKS. JAMES BARKER, Detroit, Mich. Filed Aug. 14, 1901. Serial No. 74,392. (No model.)



Claim.—1. The combination with a book, of a member secured to the end thereof, a support detachably connected to said member, and an arm-rest mounted upon the support for longitudinal movement along the edge of the book.

2. The combination with a book, of a transverse member secured to the book at one end thereof, a support detachably connected to said member, a longitudinal guide-bar upon the support, an arm-rest, and connections between said guide-bar and arm-rest permitting movement of the latter along the lower edge of the book.

3. In an arm-rest for books, the combination of a support, a longitudinal guide-bar thereon, a sliding block movable on the guide-bar, a transverse guide-bar on the sliding block, the arm-rest block sliding thereon, and the multiple-hinged arm-rest on said block.

4. In an arm-rest for books, the combination of a support, a longitudinal guide-bar thereon, a sliding block movable on the guide-bar, a transverse guide-bar on the sliding block, the arm-rest block sliding on the transverse guide-bar and the slidingly-hinged arm-rest on said block.

5. In an arm-rest for books, a support for the hinged arm-rest comprising a base adapted to engage the book-cover, a transverse bar at the end of the book, and a hook adapted to engage the bar.

6. In an arm-rest for books, the combination of a base adapted to engage beneath the book-cover, a transverse bar at the end of the book extending across between the covers, an upright hook engaging the bar, a standard beside said book, and an arm-rest supported upon the standard.

700,007. ROTARY ENGINE. BLAINE W. BARTON, Windsor, N. Y. Filed Sept. 4, 1901. Serial No. 74,394. (No model.)

Claim.—1. The combination with the casing having an annular steam-chamber, having a single exhaust, a rotary piston consisting of two separate sections, each having radial abutments and steam-pockets, these on one section being disposed intermediate those of the other section, and means for clamping the two sections to form a single rotary piston; of a steam-chest forming an attached part of the casing, a governor-regulated feed-pipe thereto, said chest having two independent ports that discharge into the piston-chamber, one for each piston-section, a single cut-off slide for controlling the said feed-ports, gearing connecting the said slide with the engine drive-shaft, and gearing including means for varying the movement of the cut-off slide, for the purposes specified.

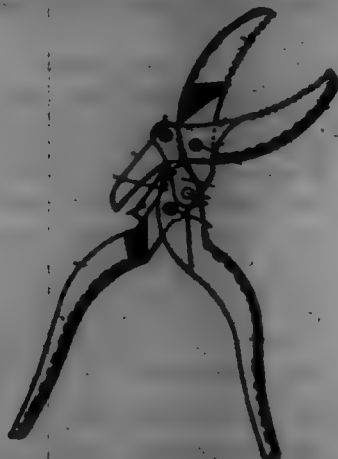
2. In a rotary engine, as described, the combination with the casing having a single exhaust, and a steam-chest forming an attached part of the casing, and having two separate ports discharging into the piston-chamber, and the rotary concentrically-operating piston, said piston having two independent sets of abutments and steam-pockets alternately arranged relatively to each other; of a cut-off slide for controlling the steam-ports to the piston-chamber, said slide consisting of an angle-plate

having one member engaging and guided by the side wall of the casing, and its other member slidable over the steam-ports, and mechanism connected with and automatically operated by the drive-shaft for shifting said cut-off to alternately open and close the steam-ports, said mechanism including means for varying the throw of said cut-off slide, for the purpose specified.



2. In a rotary engine of the character described, the combination with the casing having a single exhaust, an exhaust-pipe therefor, and the rotary piston formed of sections each having independently-operating steam-ports and steam-pockets; of the steam-chest mounted on the casing, a valved drip-pipe connected with the casing and the exhaust exhaust-pipe, said chest having two ports discharging into the piston-chamber, a feed for the steam-chest having governor device, operated from the drive-shaft, a cut-off slide operating within the said chest for controlling the steam-ports, and means energized from the drive-shaft for shifting the cut-off, said means including hand act device for regulating the speed of said cut-off movement, as set forth.

700,008. PIPE-TOUCH. CHARLES F. BAKER, McCormickville, Ohio, assignor of one-half to George H. Bahr, McCormickville, Ohio. Filed Apr. 26, 1901. Serial No. 66,711. (No model.)



Claim.—The wrench herein described, consisting of the integral jaw and handle-bar having a single slot, the cooperating short jaw and its handle-lever separately formed and pivoted in said slot, and the thin link-plates extending through the said slot and connecting the short jaw and its handle-lever, substantially as modified.

700,009. WHEEL. JOHN BARR, Los Gatos, Cal. Filed Feb. 17, 1901. Serial No. 64,691. (No model.)

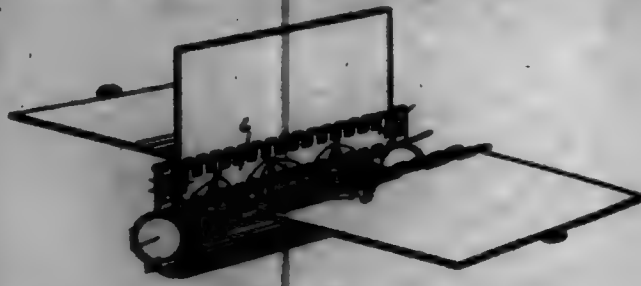
Claim.—1. In a wheel, a rotatable shell or body having an upwardly-extending bracket and a regulating-arc engaging therewith and supported thereby, and a rotatable valve having at its upper extremity and above the upper end of the shell or body an elliptically-formed head against which the end of the screw is adapted to impinge, substantially as and for the purpose set forth.

2. In a wheel, a rotatable shell or body having an outlet with side walls increasing in width in a direction near their center, said shell or body having a bracket extending out from the same, and a rotatable valve

having an elliptically-formed head at its upper end and above the shell or body, and a regulating-arc supported by the bracket and adapted to impinge against the elliptically-formed head, substantially as and for the purpose specified.



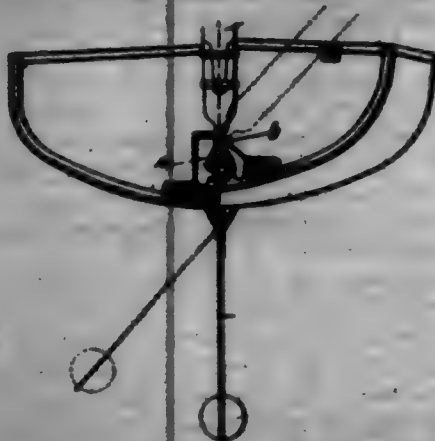
700,010. CIGARETTE-MACHINE. FRANK B. BRATTON, South Norwalk, N. Y. Filed Jan. 14, 1901. Serial No. 66,722. (No model.)



Claim.—1. In a cigarette-machine, the combination with a pair of conical members hinged together, and one provided with a laterally-projecting tablet; of a guide-plate supported a short distance from the surface of the tablet and having its inner edge portion inclined toward the line of junction of said cylindrical portion and tablet; a ribbon-guide on the other member; and a ribbon inserted between said members, and having one end projecting exteriorly through said ribbon-guide, and the other end exteriorly between said tablet and guide-plate, substantially as described.

2. In a cigarette-machine, the combination with a pair of conical members hinged together, and one provided with a laterally-projecting tablet; of a guide-plate supported a short distance from the surface of the tablet and having along its inner edge a series of teeth inclined toward the line of junction of said cylindrical portion and tablet; a ribbon-guide on the other member; and a ribbon inserted between said members, and having one end projecting exteriorly through said ribbon-guide and the other end exteriorly between said tablet and guide-plate, substantially as described.

700,011. BOAT OR VESSEL. JULIUS F. BUCK, Hamburg, Germany. Filed Aug. 27, 1901. Serial No. 73,496. (No model.)



Claim.—In a ship, boat, or other vessel, the combination, of a hinged mast, a toothed segment rigidly secured to said mast below the hinge, a shaft, a second toothed segment, secured on said shaft and meshing with the segment secured to the mast, a third toothed segment, secured to said shaft, a lever carrying a weight, a fourth toothed segment, secured to said lever, substantially as, and for the purpose, set forth.

700,012. PROTECTIVE TUNNELING-HEAD FOR SHIP HATCHES. JOHN BRADSHAW, New York, N. Y. Filed Feb. 12, 1901. Serial No. 67,781. (No model.)

Claim.—1. The combination with an inwardly-projecting arm secured to the upper end of the article to be protected and provided with

a nut at its free inner end, of a screw-threaded rod screwing into the nut of the cone and provided with a ball at its upper end, and a conical head having a socket on its inner face at the apex to receive the ball of the rod, said head being of a diameter considerably greater than that of the article and adapted to be seated on the upper edge of cone, as set forth.



2. The combination with a hatch having a packing around the upper edge of its outer surface, of an inwardly-projecting arm having one end secured to the hatch and provided with a nut at its free inner end, a screw-threaded rod screwing in the nut of the arm and provided with a ball at its upper end, and a conical head having a socket on its inner face at the apex and in which the ball of the rod fits, said head being of a diameter considerably greater than that of the hatch and adapted to be seated on the packing-ring at the upper edge of the hatch, as set forth.

700,018. SHIRT-BAND STIFFENER. ARTHUR B. BOONER, Paris, France, assignor to Jules Louis Vincent, Paris, France. Filed Feb. 14, 1900. Serial No. 94,162. (No model.)



Claim.—1. A stiffener for a shirt-band consisting of two sections of thin, resilient material hinged together at their ends, said stiffener being provided, adjacent to the hinge, with a stud.

2. A stiffener for a shirt-band consisting of two similar sections of thin, resilient material hinged together at their overlapping ends and one of said sections having a stud attached to it below and adjacent to the hinge.

700,014. ADJUSTABLE BUSHING. GERHARD P. BOCK, Prout Royal, Va. Filed Aug. 13, 1901. Serial No. 71,888. (No model.)



Claim.—1. An adjustable bushing or packing consisting of a strip of thin flat metal wound in the form of a roll and solder connecting the edges of said strip, substantially as described.

2. An adjustable bushing or packing consisting of a strip of thin flat flexible metal wound in the form of a roll and the edges of said strip soldered together, whereby a bushing or packing is formed with smooth solid ends, substantially as described.

3. The combination with a bearing-cap, of an adjustable bushing consisting of a thin flat flexible strip of metal wound upon said cap and solder connecting the edges of said strip, whereby a bushing is formed with smooth solid ends, substantially as described.

700,015. CASING POINT OR STRAINER. ANDREW E. CARLSON, Memphis, Tex. Filed Apr. 9, 1901. Serial No. 88,040. (No model.)

Claim.—1. A well-strainer comprising a pipe having a bottom inlet, a rigid frame depending below the pipe, trussed rods arranged longitudinally of the pipe and in a series around the same and at their upper ends secured to the pipe and at their lower ends secured to said frame, said rods between their ends arranged a distance from the outer surface of the pipe, and a strainer-covering arranged around the series of rods, substantially as described.

2. A well-strainer comprising a pipe having a bottom inlet and radial supports projecting beyond the outer wall of the pipe, rods arranged longitudinally of the pipe and in a series around the same and drawn in-

wardly and secured at their end portions, said rods between their end in-ward portions being held away from the outer surface of the pipe by said supports, a strainer-covering around said series of rods and tapering oppositely at the end portions, substantially as described.



3. In combination, a pipe having an open lower end, the legs secured to and projecting below the pipe end, the strainer-plate secured to the lower ends of said legs, the ring on the legs above the strainer-plate, rods arranged longitudinally of the pipe and in a series around the same, said rods at their upper ends secured to the pipe and at their lower ends secured to said ring, the radial studs projecting from the pipe and engaging said rods between their ends and holding the same a distance from the surface of the pipe and forming the series of rods tapering inwardly and upwardly at the upper end, a strainer-covering around the series of rods, and exterior guard-rings around said covering, substantially as described.

4. A casing point or strainer comprising a well tube or casing, a framework secured thereto and arranged longitudinally thereof and extending below said tube and having a longitudinally-tapered end, a strainer-covering around said framework and conforming to the tapered end thereof, and a guard-ring slipped over and wedged on the exterior of said covering and located at the large end of said tapered portion, substantially as described.

5. A casing point or strainer comprising a well tube or casing, rods rigid therewith and projecting longitudinally beyond the end thereof, an end plate carried by said rods a distance beyond the end of the casing, a framework extending longitudinally of the casing and at the upper end secured thereto and at the lower end secured to said rods, and a strainer covering around and the length of said framework, substantially as described.

6. A casing point or strainer comprising a well-tube having an end inlet, a frame rigid with and projecting below said end of the tube and having a perforated bottom floor a distance below said tube end, a framework extending longitudinally of said tube and at its upper portion tapered inwardly and upwardly and secured to said tube and below its upper end held away from said tube and extending below the tube and at its lower portion secured to the lower portion of said frame, and a strainer covering around and the length of said framework and forming a water-space around and below the tube, substantially as described.

7. In combination, the pipe or casing having a lower inlet end, and a strainer movable into and out of the well with said pipe and comprising a framework surrounding said pipe and arranged longitudinally thereof from a point above said inlet end to a point below the same, said framework between its ends held away from the exterior of the pipe to form a water-circulating space around the same, and having its upper end tapered upwardly and inwardly to the pipe and secured thereto, means rigid with and projecting below the pipe, the lower end of said framework tapered inwardly and downwardly and secured to said means below said inlet end of the pipe, a strainer-covering around said framework, and exterior guards around said strainer-covering and projecting beyond the same to prevent injury thereto as the pipe is inserted in or removed from the well, substantially as described.

8. In combination, a pipe having an inlet, rods arranged longitudinally thereof and in a series around the same and at their upper ends secured to the pipe a distance above said inlet, and at their lower ends projecting below the inlet, means rigid with said pipe and to which the lower ends of said rods are secured, the lower ends of said rods being threaded

and provided with nuts screwing thereon for tightening the rods and securing the same at their lower ends, and a strainer-covering around said series of rods and forming a water-circulating chamber around said pipe, substantially as described.

9. In combination, a pipe having an inlet, an open framework arranged longitudinally of said pipe from a point above said inlet to a point below the same, said frame at its upper end secured to the pipe and at its lower end provided with means securing it to the pipe, opening devices arranged between the pipe and intermediate portions of the framework and holding said framework, between its ends, away from the pipe, whereby the ends of the framework are tapered inwardly, in opposite directions, and a strainer-covering around said framework and forming an open water-space within the framework around the pipe, substantially as described.

10. In combination, a pipe having a lower inlet end, legs rigid with and depending below said end, a perforated bottom plate secured to said legs, an open framework arranged longitudinally of said pipe and secured thereto and between its ends trained therefrom and extending down to said plate and confined to said legs, and a strainer-covering around and throughout the length of said framework, substantially as described.

11. In combination, a pipe having a lower inlet, an open framework including, secured to and arranged longitudinally of said pipe from a point above to a point below said inlet, said framework at one end fixedly secured and at the opposite end provided with longitudinally-screw-threaded portions and nuts thereon securing the frame and drawing the same longitudinally taut, an abutment for said nuts, and a strainer-covering around said framework and forming a water-space within the same, substantially as described.

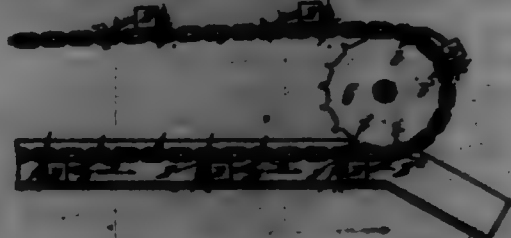
12. In combination, the pipe having a bottom inlet, an open framework arranged around the pipe and extending longitudinally thereof, the upper end of said framework drawn inwardly on an upward taper to the exterior surface of the pipe and there secured to said pipe, means securing the lower end of the framework rigid with the pipe, the lower end of the framework drawn inwardly on a downward taper, and a strainer-covering secured around said framework, substantially as described.

13. In combination, a pipe having a bottom inlet, a series of rods arranged around and extending longitudinally of said pipe and at their upper ends secured to the pipe, a plate through which the lower ends of said rods pass, means confining said plate to the pipe, the lower ends of said rods longitudinally threaded and provided with tightening and securing nuts, and a strainer-covering around said rods, substantially as described.

14. In a well-strainer, in combination, an uptake pipe or casing having a lower inlet end, and an open framework secured to and carried by said casing and arranged longitudinally of said casing and projecting a distance below the inlet end thereof, said framework comprising a series of rods arranged longitudinally of and in a series around the casing, means confining said rods at their ends, and intermediate spacing or supporting devices arranged within the series of rods and engaging the same, said series of rods having a diameter greater than the exterior diameter of the casing, and a strainer-covering around the exterior of the series of rods, substantially as described.

15. In combination, in a well-strainer, an uptake pipe or casing having a lower inlet end, and an open framework secured to said casing above its inlet end and extending longitudinally thereof to a point below the same and comprising a bottom head or plate, a multiplicity of rods confined at their ends and arranged longitudinally of said pipe and in a series around the same and at their lower ends confined to said bottom head, and intermediate spacing or securing devices arranged at intervals within the series of rods and formed to fit the individual rods, and a strainer-covering wrapped around the exterior of the series of rods, substantially as described.

700,016. MECHANISM FOR SECURING LARS TO CARRIER-CHAINS. CARL S. CARLSON and ARTHUR TUNALL, Duluth, Pa. Filed Dec. 26, 1901. Serial No. 87,967. (No model.)

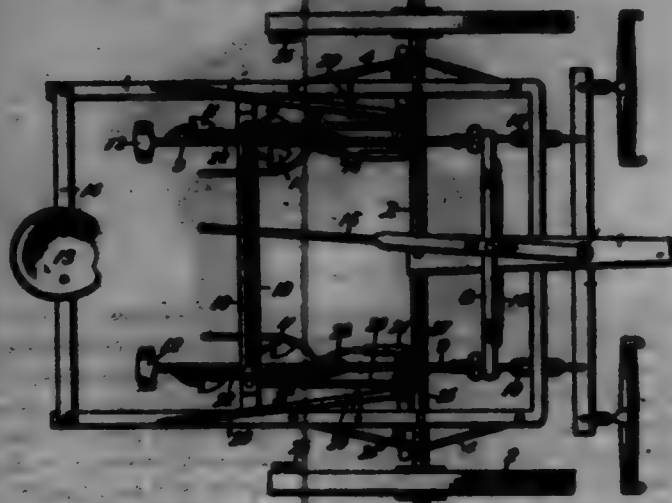


Claim.—1. The combination in a mechanism for securing lars to a carrier-chain, of a curved loop or stirrup, and a curved cross-bar secured to the rear end thereof, substantially as set forth.

2. The combination with a carrier-chain, of legs, loops or stirrups extending from the fronts of said legs through links of the carrier-chain,

and curved cross-bars extending upward from the backs of said legs through links of said chain substantially as set forth.

700,017. CORE-CULTIVATOR. CHARLES H. GARDNER, Chicago, Ill. Filed Feb. 10, 1902. Serial No. 92,851. (No model.)



Claim.—1. In a cultivator an arched axle, a frame rigid with the axle, a movable arched frame, means for adjusting it, beams having their ends connected to the arched frame, crank-levers mounted in the bearings, connections from the cranked levers to the beams, cam-tripping blocks on the wheels and means for projecting the crank-levers into contact with the tripping-blocks.

2. In a cultivator, an arched axle, a frame rigid thereon, a movable frame having depending ends, segmental racks carried by the rigid frame, levers pivoted on the racks, connections from the levers to the beams, crank-levers mounted in bearings on the axle, connections from the beams to the crank-levers, springs coacting with the crank-levers, tripping-blocks on the wheels and means for projecting the crank-levers into the path of travel of the tripping-blocks.

3. In a cultivator, an arched axle, ground-wheels thereon, a frame rigid with the axle, a movable frame, a lever for adjusting the movable frame, pivot-beams, connected to the movable frame, crank-levers suitably mounted, tripping-blocks on the wheels and means whereby the crank-levers are moved into engagement with the tripping-blocks, as and for the purpose described.

700,018. BAKE-OVEN. WILLIAM CLARK, Cincinnati, Ohio. Filed Nov. 26, 1901. Serial No. 90,502. (No model.)



Claim.—1. An oven having a baking-chamber, a fire-box at one side and below the baking-chamber, a partition below the baking-chamber and provided with a passage one end of which is extended to the outside of the oven and provided with a door, two flues at opposite sides of said partition, respectively, and extended from the fire-box toward the opposite side of the oven, other flues outside of and in the same vertical plane with and adapted for communication with the first-named flues, means for circulating the products of combustion from said flues above the baking-chamber, a shaft extended down through the baking-chamber and having its lower end in the passage below said chamber, a step-bearing for said shaft in said passage, driving means for said shaft and a plate on said shaft within the baking-chamber to support articles to be baked, substantially as set forth.

2. An oven having a baking-chamber, a fire-box at one side and below the baking-chamber, a partition below the baking-chamber and provided with a passage one end of which is extended to the outside of the oven and provided with a door, two flues at opposite sides, respectively, of said partition and extended from the fire-box toward the opposite side of the oven, other flues outside of and in the same vertical plane with and adapted for communication with the first-named flues, upwardly-extended flues adapted for communication at their lower ends with the outside flues below the baking-chamber, two sets of flues in the

case plane above the baking-chamber, the outer line of each set having communication with one of said upwardly-extended lines and the inner line of each set being adapted for communication with a smoke-outlet, a shaft extended down through the baking-chamber with its lower end in the passage below said chamber, a step-bearing for said shaft in said passage, driving means for said shaft and a plane on said shaft within the baking-chamber to support articles to be baked, substantially as set forth.

3. An oven having a baking-chamber, means for heating the same, a vertical shaft in said chamber, arms extended radially from the shaft and provided with depressions, plaster in said depressions and a covering for said arms held thereon by said plaster, substantially as set forth.

4. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, arms extended radially from the shaft, parts extended intermediate the outer ends of said arms, each of said arms and intermediate parts having a longitudinal flange and depressions, plaster in said depressions and a covering formed in sections held on said arms and intermediate parts between said longitudinal flanges, substantially as set forth.

5. An oven having a baking-chamber, means for heating the same, a vertical shaft in said chamber, driving means for said shaft, a plane for supporting articles to be baked and formed of a framework and a covering supported thereon, a collar on the shaft below said plane, diagonal braces extended from said collar up to said framework, a central collar on the shaft, and brace-rods having oppositely-arranged threaded ends, each such brace-rod having one end engaged with said central collar and its opposite end engaged with one of said diagonal braces, substantially as set forth.

6. An oven having a baking-chamber, a fire-box, a partition below the baking-chamber and forming on its opposite sides flues having communication with said fire-box, said partition having a passage one end of which is extended to the outside of the oven-wall and provided with a door, a vertical shaft in the baking-chamber with its lower end extended in said passage-way, a plane on the shaft in the baking-chamber, and a step-bearing for said shaft in said passage, substantially as set forth.

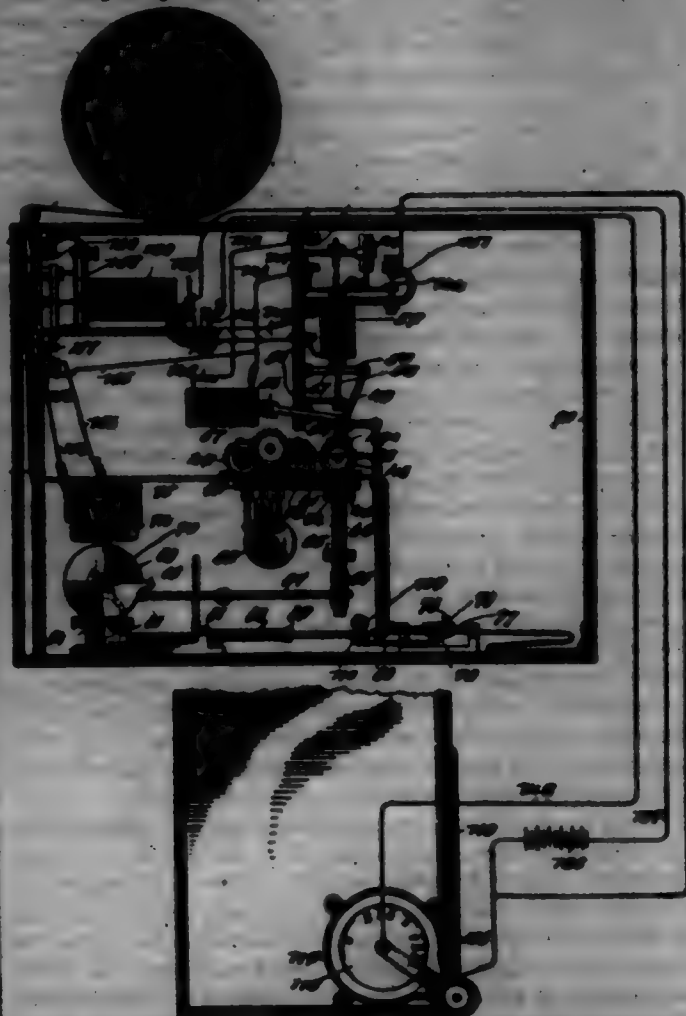
7. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, a plane within the chamber and on said shaft, braces having their lower ends supported adjacent to the shaft and below said plane, said braces being extended upward with their upper portions inclined out from the shaft and arranged to support said plane and devices for drawing the inclined upper portions of the braces toward said shaft for raising said plane, substantially as set forth.

8. An oven having a baking-chamber, means for heating the same, a shaft extended in said chamber, arms extended radially from said shaft, a covering rested on said arms and forming a plane for supporting articles to be baked, means for driving said shaft and an annular part rested on said arms at the center of said plane and provided with a raised flange against which the covering of the device has engagement to hold said covering against displacement, said annular part being also provided with downwardly-extended portions having engagement between said arms to hold said annular part in position on the arms, substantially as set forth.

9. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, a plane within the chamber and on said shaft, braces having their lower ends supported adjacent to the shaft and below said plane and having their upper portions extended upward and inclined out from the shaft, a collar held on the shaft and brace-rods having their inner ends engaged with the collar and having at their outer ends adjustable connection with said inclined braces, substantially as set forth.

10. An oven having a baking-chamber, means for heating the same, a vertical shaft in the chamber, a plane on the shaft in the chamber, means for driving the shaft, the lower end of the shaft having a central recess and being provided with a flanged collar, an anchor-plate beneath the lower end of the shaft, a stirrup comprising upwardly-extended spaced arms produced on said anchor-plate, two correspondingly-grooved bearing-plates one above the other and provided with central openings aligned with the central recess in the lower end of the shaft, the lower bearing-plate being rested on the stirrup and the flanged collar of the shaft being rested on and secured to the upper bearing-plate, balls interposed between the bearing-plates and engaged in the grooves thereof, a stud having its upper end engaged in the central recess in the lower end of the shaft, said stud being passed down through the central openings in the bearing-plates, the stirrup having a central bearing at its upper part in which the lower end of said stud is engaged and a screw carried by the stirrup with its upper end engaged under the lower end of said stud and its lower end formed with a head at the under side of the upper part of the stirrup and between the two arms thereof, substantially as set forth.

Claim.—1. In a collection-recording mechanism, a recording device located at a central office, an electric circuit in which the recording device is located, a circuit-controller supported on a letter-box for opening and closing the electric circuit and means in the circuit for marking the box, substantially as specified.



2. In a collection-recording mechanism, a recording device located at a post-office, electric devices for causing movements of the recording device, an electric circuit in which the electric devices are placed, and a circuit-controller supported on a letter-box and operated by a movement of the letter-box door, substantially as specified.

3. In a collection-recording device, a recording mechanism, comprising printing-wheel, electric devices for causing movements of said printing-wheel, for printing on a record-strip, electric devices for controlling the feeding of said record-strip, an electric circuit in which said electric devices are located, and a circuit-controller supported on a letter-box and operated by a movement of the letter-box door, substantially as specified.

4. In a device for recording the collection of mail-matter, a recording mechanism adapted to be located at a central office and comprising printing-wheel, platens movable relatively to said printing-wheel, an electromagnet for causing the movements of said printing wheel to print the number of the box from which the collection is made, means for imparting motion to others of the printing-wheel, electric devices for moving the platens, electric devices for causing the feeding movement of a record-strip, an electric circuit in which said electric devices are arranged, and a circuit-controller located on a letter-box and operated by an opening movement of the letter-box door, substantially as specified.

5. In a collection-recording mechanism, a recording device, comprising printing-wheel for printing on a strip the number of a letter-box, printing-wheel for printing the time of the collection from said letter-box, said last-named printing-wheel being adapted for connection with a clock mechanism, an electric device for operating the first-named wheel, means for causing a step-by-step movement of a paper strip, platens for moving the paper against the printing-wheel, electric devices for controlling the movements of said platens, an electric circuit in which the electric devices are arranged, and a circuit-controller in the circuit and attached to the letter-box, the said circuit-controller being operated by a movement of the letter-box door, substantially as specified.

6. In an apparatus for recording the collection of mail-matter, a recording mechanism located at a post-office, said recording mechanism comprising printing-wheel, for printing on a record-strip movable along said wheel, platens movable under the printing-wheel, means for moving the printing-wheel to printing position, means for moving the platens toward the printing-wheel when in such printing position, means for feeding the strip after the printing, electric devices for controlling the movements of said printing-wheel, platens and paper strip, an electric circuit

in which said electric devices are arranged, and a circuit-closer in the circuit and arranged on a letter-box, the said circuit-closer being operated by a movement of the letter-box door, substantially as specified.

7. In a collection-recording mechanism, a recording apparatus, comprising printing-wheels, an electric circuit, electric devices in said circuit for causing movements of certain of the printing-wheels, a circuit-closer operated by a letter-box door for closing and opening said circuit, a record-strip-feeding device, comprising a sliding block, a gripping-dog pivoted to said block, a rod extended from said dog, a spring for moving the rod in one direction, a rotating shaft, a disk loosely mounted on said shaft and having a lag, electrically-controlled means for locking said disk to the shaft, causing said lag to engage with said rod and move it in one direction, and a platen also operated by said lag, substantially as specified.

8. In a collection-recording mechanism, a recording apparatus located at a post-office or the like, electric devices for operating the printing apparatus, an electric circuit in which said electric devices are located, and a circuit-closer comprising a casing attached to a letter-box, a disk mounted in said casing and having blocks of insulating material spaced apart, a contact-point engaging with the periphery of said disk, said contact-point being arranged in the electric circuit, a spring for rotating said disk, and means actuated by an opening movement of the letter-box door for winding said spring, substantially as specified.

9. A mail-collection-recording mechanism, comprising a recording device arranged at a central station, electrically-controlled means for causing movements of the recording apparatus, an electric circuit in which said electrically-controlled means are located, a circuit-closer, comprising a casing adapted to be secured to a letter-box, a disk mounted to rotate in said casing and having insulating-blocks spaced apart in its periphery, a contact-pin engaging with the periphery of said disk, a spring for causing a movement of said disk in one direction, a connection between said spring and the pin of the box-door hinge, whereby the spring will be wound upon opening the door, a governor for the spring, and a brake for the disk, substantially as specified.

10. In a mail-collection-recording mechanism, two printing-wheels for printing the number of a letter-box from which mail is collected, ratchet-wheels mounted on the shafts of said printing-wheels, escapements for engaging with said ratchet-wheels, a tappet adapted for engagement with either one of said escapements, an electromagnet for causing the movement of said tappet from one escapement to the other, an electromagnet for moving the said tappet out of engagement with the escapement, a spring for moving the tappet into engagement with said escapement, an electric circuit in which the said electromagnets are located, and a circuit-controller in the circuit, said circuit-controller being attached to a letter-box and operated by an opening movement of the letter-box door, substantially as specified.

11. In a recording mechanism, a recording device, an electric circuit in which the recording device is located, a circuit-closer arranged in a box having a door, a spring for operating said circuit-closer in circuit-closing direction, and connections between said spring and the box-door whereby the spring is wound by opening movement of the door, substantially as specified.

12. In a recording apparatus, printing-wheels, means for causing the movements of said printing-wheels, a platen movable under certain of said printing-wheels, an electromagnet for causing an operative movement of said platen, an electromagnet for controlling the circuit through the first-named electromagnet, an electric circuit, and a circuit-controller located on a letter-box and operated by a movement of the letter-box door, substantially as specified.

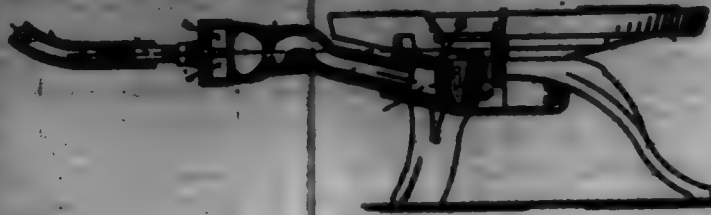
13. In a recording mechanism, a recording device, an electric circuit in which the recording device is located, a letter-box having a door, a circuit-closer in the box and operated by a movement of the door, a lock for the door, and devices arranged in the electric circuit for releasing said lock, substantially as specified.

14. In a recording mechanism, a recording device arranged at a central station, an electric circuit in which the recording device is placed, a letter-box, a circuit-closer in said letter-box, a swinging latch for locking the door of the box, an electromagnet for moving said latch in one direction, the said electromagnet being arranged in the said electric circuit, and a device in the circuit for closing the same and energizing said electromagnet, substantially as specified.

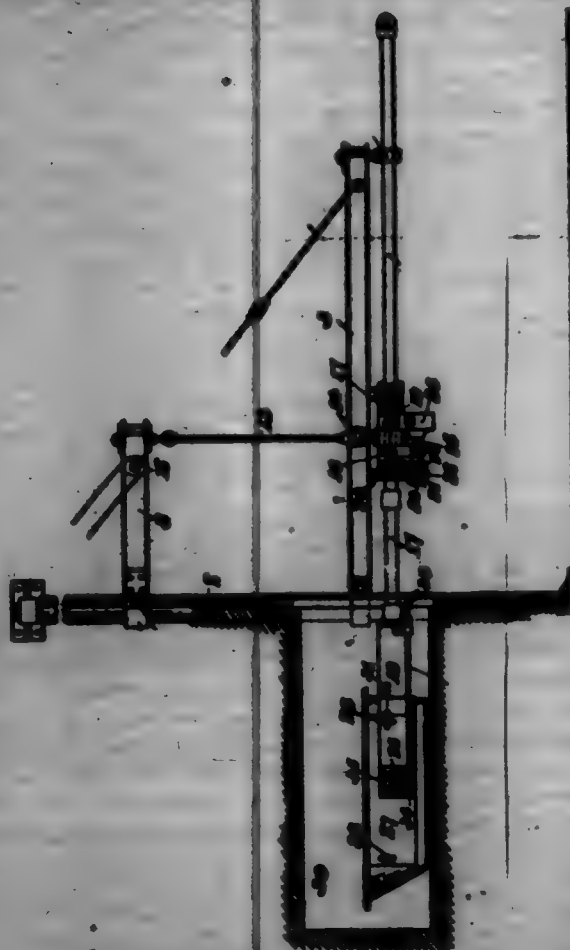
700,020. COMBINED GAS AND AIR FEEDING ATTACHMENT FOR GAS-STOVE. JAMES DENNIS, JR., East Providence, R. I. Filed Mar. 27, 1901. Serial No. 53,021. (No model.)

Claim.—In a device of the character described, a member having a passage therethrough, a transverse partition in the member having an axially-disposed aperture therein, a curved partition having an aperture in alignment with said aperture, means for directing the gas to be mixed axially through one of said apertures, the member having an enlarged

chamber intermediate of said partitions whose interior walls at the inlet of said chamber are of a concave form and which walls are tapering at the outlet of the chamber, the member also having the portion of the passage extending beyond said aperture in the second partition disposed at an angle to the axis of said partitions, and having a cavity in the wall of the passage located opposite to the ridge formed by the bend.



700,021. ENAMELING-FORK FOR BATH-TUBS. EDWARD DITTMER, Elwood City, Pa. Filed Jan. 31, 1901. Serial No. 48,672. (No model.)



Claim.—1. In bath-tub handling apparatus, a movable support carrying a tub-fork, mechanism for rotating the fork on its axis, and mechanism for tilting the tub to different angles relatively to the fork-axis; substantially as described.

2. In enameling apparatus, an overhead support, an enameling-fork carried thereby, mechanism for raising and lowering the fork, mechanism for rotating the fork, and mechanism for tilting the tub to an angle with the axis of the fork; substantially as described.

3. An enameling-fork having pivoted side supports for the tub mounted thereon, and end clamping devices for the tub arranged to engage said side supports; substantially as described.

4. In enameling apparatus, a crane-post mounted in stationary bearings and having a horizontally-swinging arm, an enameling-fork supported from said arm, mechanism for rotating the fork around its axis, and mechanism for tilting the tub into an angular position with respect to said axis; substantially as described.

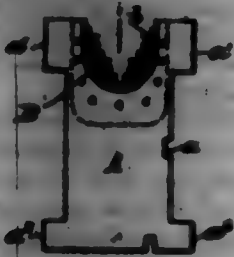
700,022. LITHOTYPE-MATRIX. PHILIP T. DYER, Washington, D. C., assignor to Mergenthaler Lithotype Company, a Corporation of New York. Filed Mar. 7, 1902. Serial No. 97,102. (No model.)

Claim.—1. A lithotype-matrix consisting of a body portion and a distinct portion secured to the body and provided with distributing-teeth.

2. A lithotype-matrix consisting of a body portion and a relatively hard portion attached thereto and containing the distributing-teeth.

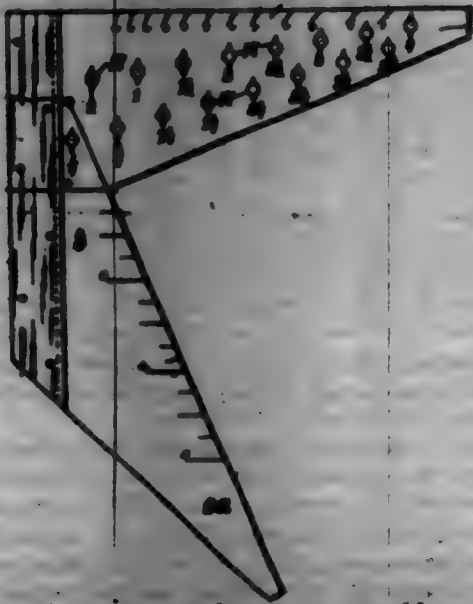
3. A lithotype-matrix consisting of a relatively hard member B, provided with distributing-teeth and a body portion cast upon and latched with the member B.

4. A foot-type-machine comprising a hard metal strengthening member, and a cast-metal body portion cast upon and around the hard member and interlocked therewith to hold it in place, substantially as described and shown.



5. For a foot-type-machine, a cast-metal matrix, having portions of harder metal applied to reinforce and strengthen the core thereof.

700,038. CARPENTER'S TOOL. JAMES T. BENT, Leontine, N. J., assignor of one-half to William H. Bunt, Leontine, N. J. Filed Sept. 4, 1901. Serial No. 74,038. (No model.)



Claim.—1. A carpenter's tool or square comprising a base-plate having a front straight edge and composed of top and bottom parts, one of which is wider at the straight edge than the other, one end of said base-plate being also formed at a right angle to the straight edge thereof, and the other end at an angle of forty-five degrees to the said straight edge, and a plate set into the front straight edge of the base-plate longitudinally and centrally thereof and provided with two arms, which taper outwardly, the outer edge of one of said arms forming a right angle to the straight edge of the base-plate and the outer edge of the other arm forming an angle of forty-five degrees to the said straight edge of the base-plate, said plate being also cut out opposite the central portion of the base-plate as to form said arms and an angle of ninety degrees at the intersection of the adjacent edges of said arms adjacent to the middle of the base-plate, substantially as shown and described.

2. A carpenter's tool or square comprising a base-plate having a front straight edge and composed of top and bottom parts, one of which is wider at the straight edge than the other, one end of said base-plate being also formed at a right angle to the straight edge thereof, and the other end at an angle of forty-five degrees to the straight edge, and a plate set into the front straight edge of the base-plate longitudinally and centrally thereof and provided with two arms, which taper outwardly, the outer edge of one of said arms forming a right angle to the straight edge of the base-plate and the outer edge of the other arm forming an angle of forty-five degrees to the said straight edge of the base-plate, said plate being also cut out opposite the central portion of the base-plate as to form said arms and an angle of ninety degrees at the intersection of the adjacent edges of said arms adjacent to the middle of the base-plate, the arm, the outer edge of which forms an angle of ninety degrees to the straight edge of the base-plate being also provided with a plurality of rows of scale-holes and said arm being also provided centrally of the base thereof with a hole in line with the inner inclined edge of the other arm, substantially as shown and described.

3. A carpenter's tool or square comprising a base-plate having a front straight edge and composed of top and bottom parts, one of which is wider at the straight edge than the other, one end of said base-plate being also formed at a right angle to the straight edge thereof, and the other end at an angle of forty-five degrees to the straight edge, and a plate set into the front straight edge of the base-plate longitudinally and centrally thereof and provided with two arms which taper out-

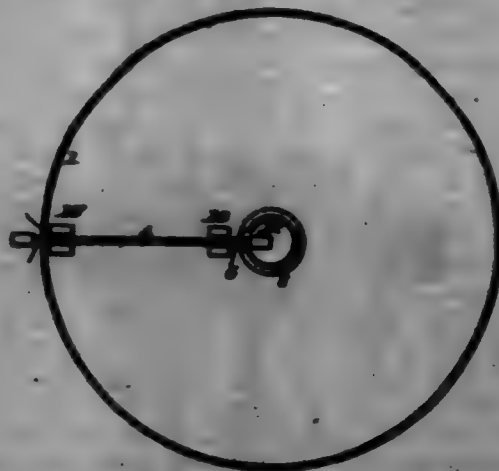
wardly, the outer edge of one of said arms forming a right angle to the straight edge of the base-plate and the outer edge of the other arm forming an angle of forty-five degrees to the said straight edge of the base-plate, said plate being also cut out opposite the central portion of the base-plate as to form said arms and an angle of ninety degrees at the intersection of the adjacent edges of said arms adjacent to the middle of the base-plate, the arm, the outer edge of which forms an angle of ninety degrees to the straight edge of the base-plate being also provided with a plurality of rows of scale-holes and said arm being also provided centrally of the base thereof with a hole in line with the inner inclined edge of the other arm, and said first-named arm, being also provided on the opposite side of its outer or straight edge with inclined scale-marks, and the last-named arm being provided on its inner or inclined edge with scale-marks, substantially as shown and described.

4. A carpenter's tool or square, comprising a base-plate having a front straight edge and composed of top and bottom parts, one of which is wider at the straight edge than at the other, one end of said base-plate being also formed at a right angle to the straight edge thereof and the other end at an angle of forty-five degrees to said straight edge and two tapered arms projecting from said straight edge, said arms being separated by an angle of ninety degrees at their adjacent edges and said adjacent edges converging and intersecting adjacent to the middle of the base-plate, the outer edge of one of said arms being at an angle of forty-five degrees to the straight edge of the base-plate, and in line with the corresponding end of the base which is similarly formed, the outer edge of the other arm being at an angle of ninety degrees to the straight edge of the base-plate, and in line with said end of the base-plate which is similarly formed, substantially as shown and described.

5. A carpenter's tool or square, comprising a base having a front straight edge and composed of top and bottom parts, one of which is wider at the straight edge than at the other, one end of said base-plate being also formed at a right angle to the straight edge thereof and the other end at an angle of forty-five degrees to said straight edge and two tapered arms projecting from said straight edge, said arms being separated by an angle of ninety degrees at their adjacent edges and said adjacent edges converging and intersecting adjacent to the middle of the base-plate, the outer edge of one of said arms being at an angle of forty-five degrees to the straight edge of the base-plate, and in line with the corresponding end of the base-plate which is similarly formed, the outer edge of the other arm being at an angle of ninety degrees to the straight edge of the base-plate, and in line with said end of the base-plate which is similarly formed, the outer edge of the last-named arm being also provided at both sides with inclined or diagonal scale-marks, substantially as shown and described.

6. A carpenter's tool comprising a base having a straight edge and an arm projecting therefrom, and provided with a plurality of scale-holes arranged longitudinally thereof, said base being wider at one side than at the other, substantially as shown and described.

700,034. METHOD OF MAKING METAL WHEELS. BENJ. H. FLETCHER, Davenport, Iowa, assignor to Dittman Metal Wheel Company, a Corporation of Illinois. Filed Aug. 10, 1901. Serial No. 71,501. (No model.)



Claim.—1. In the method of making metal wheels, forcing a spoke simultaneously to both the hub and the rim by forcing the outer material of the spoke in the form of an integral shoulder into engagement with the adjacent member of the wheel without disturbing the interior of the spoke.

2. In the method of making metal wheels, forcing the outer material of the spoke into engagement with the adjacent member of the wheel without disturbing the interior of the spoke.

3. In the method of making metal wheels, coupling up the external material of the spoke in the form of a shoulder into forcible engagement

with the adjacent member of the wheel without disturbing the interior of the spoke.

4. In the method of making metal wheels, crimping up the external material of the spoke into forcible engagement with the outer side of the hub without disturbing the interior of the spoke.

5. In the method of making metal wheels, forcing the external material of the spoke against both the inner side of the rim and the outer side of the hub without changing the length of the spoke between the rim and hub.

6. In the method of making metal wheels, upsetting the end of the spoke and simultaneously forcing up the material of the spoke against the adjacent member of the wheel without changing the length of the spoke between the rim and hub.

7. The method of making metal wheels, which consists in assembling in proper relation the hub, rim and spoke and simultaneously upsetting the outer ends of the spoke and forcing the material of the spoke against the inner side of the rim and outer side of the hub without changing the length of the spoke between the rim and hub.

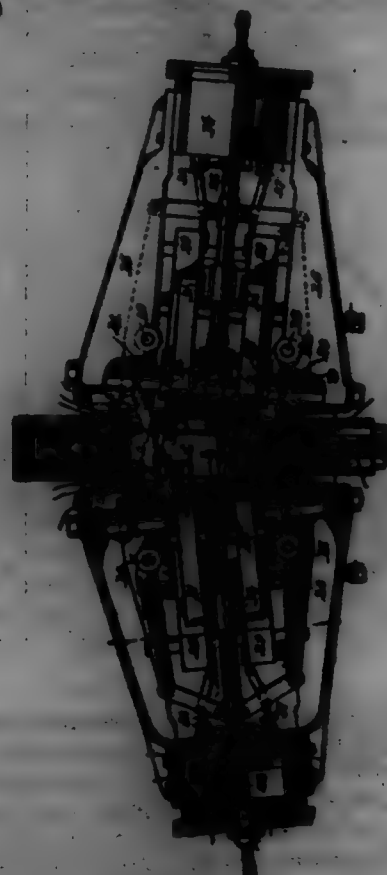
8. In the method of making metal wheels, providing a hub, rim and a spoke with a thickened or enlarged portion, and crimping up this thickened portion of the spoke into forcible engagement with the adjacent member of the wheel without disturbing the interior of the spoke or changing its length between the rim and hub.

9. In the method of making metal wheels, providing a hub, rim and a spoke with a thickened portion and an external shoulder, crimping up the thickened portion, and jamming up the shoulder into engagement with the hub and rim respectively without reducing the length of the spoke between the rim and hub.

10. The method of making metal wheels which consists in providing a rim having holes, a hub having holes, and a spoke having a thickened portion and a shoulder, passing the thickened end of the spoke through a hole in the hub, upsetting the outer ends of the spoke against the outer side of the rim and the inner side of the hub respectively, jamming up the shoulder on the spoke at the inner side of the rim, and crimping up the outer material of the spoke against the outer side of the hub in the form of a shoulder.

11. In the method of making metal wheels, providing a rim, a hub and a spoke, heating the end of the spoke and covering the same to the hub and rim while heated, by forcing the outer material of the spoke in the form of a shoulder into engagement with the adjacent member of the wheel without disturbing the interior of the spoke.

700,026. MACHINE FOR MAKING METAL WHEELS. BEN. BERNHART, Des Moines, Iowa, assignor to International Metal Wheel Company, a Corporation of Illinois. Filed Aug. 20, 1901. Serial No. 70,202. (No model.)



Claim.—1. In a machine of the type described, means for forcing the external material of the spoke at a point between the hub and rim,

against the adjacent member of the wheel without disturbing the interior material of the spoke, substantially as described.

2. In a machine of the type described, the combination with a device adapted to engage the spoke between the hub and rim, of means for moving said device along the spoke and in relation to the same, and means for so engaging the said device with the spoke that only the external material of the spoke will be displaced in the form of a shoulder against the adjacent member of the wheel.

3. In a machine of the type described, the combination with means for forming a head or shoulder on the end of the spoke, of means for forcing the external material of the spoke at a point between the hub and rim in engagement with the adjacent member of the wheel without disturbing the interior of the spoke, substantially as described.

4. In a machine of the type described, the combination with means for forming heads on the opposite ends of the spoke respectively outside the rim and inside the hub, of means for forcing the external material of the spoke between the hub and the rim, into engagement with the adjacent member of the wheel without disturbing the interior material of the spoke.

5. In a machine of the type described, the combination with mechanism adapted to act on the end of the spoke, of cooperating mechanism arranged to act on the spoke between the hub and the rim, means for moving said mechanism along the spoke, and means for so engaging said cooperating mechanism with the spoke that only the external material of the same will be displaced.

6. In a machine of the type described, the combination with head-on adapted to upset the ends of the spoke respectively outside the rim and inside the hub, of means for jamming a previously-formed shoulder on the spoke against the rim, and means for crimping up the outer material of the spoke against the outer side of the hub.

7. In a machine of the type described the combination with head-on movable inward toward the ends of the spoke, of devices adapted to grasp the spoke at the outer side of the hub and inner side of the rim, and means for moving said devices outward in opposite directions respectively toward the inwardly-moving head-on.

8. In a machine of the type described, the combination with a heading-tool and means for moving the same against the end of the spoke, of a device adapted to embrace the spoke between the hub and the rim and adjacent to the heading-tool, means for moving the said device outward toward the head-on, and in relation to the spoke and means for so engaging the said device with the spoke that only the external material will be displaced.

9. In a machine of the type described, the combination with means for holding the hub with its axis horizontal, of means for supporting the rim in a vertical position around the hub, devices for covering the spoke to the rim and hub, and means for moving said devices bodily horizontally in position to act on the spoke.

10. In a machine of the type described, a hub-holder comprising relatively movable rings adapted to engage the ends of the hub.

11. In a machine of the type described, the combination with a containing-frame, of two cooperating hub-holding members mounted between two to two, means for adjusting said members to and from each other and for fixing them in their adjusted positions to accommodate hubs of different lengths, and independent means for moving said members to and from each other, to admit of the insertion and removal of the hub, substantially as described.

12. In a machine of the type described, a hub-holder comprising two cooperating members adapted to grasp and hold the hub between them, said members being adjustable to and from each other and also in a direction transversely of the axis of the hub.

13. In a machine of the type described, a hub-holder comprising two cooperating members adjustable bodily in the direction of the axis of the spoke.

14. In a machine of the type described, the combination of two cooperating members adapted to hold the hub between them, means for adjusting said members to and from each other, means for adjusting them also in the direction of the axis of the spoke, and means for moving them to and from each other independently of the adjusting means.

15. In a machine of the type described, the combination with means for supporting the hub in a horizontal position, of a relatively movable support on which the rim is adapted to rest in a vertical position, and means for moving said support vertically to adjust the rim bodily transversely of the axis of the hub.

16. In a machine of the type described, the combination with means for supporting the hub, of means for supporting the rim around the same, and means for adjusting bodily the position of the rim in a direction transversely of the axis of the hub.

17. In a machine of the type described, the combination with means for supporting the hub, of a roller adapted to support the base of the rim,

and means for raising and lowering said roller to adjust the position of the rim with relation to the hub.

18. In a machine of the type described, the combination with means for supporting the base of the rim, of an adjustable stop device for supporting the side of the rim.

19. In a machine of the type described, the combination with means for supporting the rim, of a pin adapted to enter a hole in the rim to steady the same.

20. In a machine of the type described the combination with means for supporting the rim, of a pin adapted to enter a hole in the same and means for moving said pin to and from the rim.

21. In a machine of the type described, the combination with means for supporting the rim, of a pin adapted to enter a hole in the same, and movable from one side of the rim to the other, so as to enter either one of two holes in the rim.

22. In a machine of the type described, the combination with a support for the base of the rim, of a stop adapted to be engaged by the side of the rim, and a pin adapted to enter a hole in the rim.

23. In a machine of the type described the combination with means for supporting the rim, of a pin adapted to enter a hole in the rim, said pin being movable to and from the rim and also from side to side.

24. In a machine of the type described, the combination of a clamp adapted to close on the spoke between the hub and the rim, means for closing the same on the spoke, means for subsequently moving the clamp bodily toward the end of the spoke and in relation to the same and means for so regulating the pressure of the clamp that only the outer material of the spoke may be displaced.

25. In a machine of the type described the combination of heading-tools movable toward each other, of clamps movable outward toward the head-on, a cylinder and a piston therein, and operative connections between the piston and the head-on and between the piston and clamps, for operating them simultaneously.

26. In a machine of the type described, the combination with clamping devices movable outward from each other, of an operating-head movable between said clamps.

27. In a machine of the type described, the combination of clamps movable outward from each other, of means for moving one a greater distance than the other.

28. In a machine of the type described, the combination of clamps movable outward and inward with inclined adjacent surfaces, of an operating-head provided with inclined surfaces adapted to engage those on the clamps, one of the surfaces on the head being of a greater inclination than the other.

29. In a machine of the type described the combination with movable head-on adapted to act on the ends of the spoke, of clamping-jaws adapted to close on the spoke, a cylinder, a piston therein operatively connected with the head-on, a second cylinder situated within the first cylinder and open at its rear to the pressure in front of the piston, a piston in second cylinder, operative connections between this piston and the clamps formed to close the clamps on the extension of the piston, the first cylinder having a constant pressure in front of its piston and in rear of the second piston, means for admitting a high pressure to the first cylinder in rear of its piston, and means for admitting a high pressure to the second cylinder in front of its piston.

30. In a machine of the type described, the combination of a cylinder, a piston therein, spoke-holding devices operated by the advance of the piston, means for admitting a constant pressure in front of the piston, means for admitting a high pressure in rear of the same, a second cylinder situated in the first with its rear and open to the constant pressure, a piston in said second cylinder, spoke-clamping devices operated by the retraction of the second piston, and means for admitting a high pressure in front of the second piston.

31. In a machine of the type described, the combination with clamping-jaws movable bodily in a direction transversely of their clamping movement, of a cylinder and piston, a device controlled by the movement of the piston for closing the jaws, and a jointed connection between the same and the piston; whereby the jaws may be moved bodily with relation to the cylinder.

32. In a machine of the type described, the combination with means for supporting the hub and rim, of spoke-holding devices, and means for adjusting the same bodily around an axis transversely of the axis of the hub.

33. In a machine of the type described, the combination with means for supporting the hub with its axis horizontal and the rim vertical, of spoke-holding devices, and means for adjusting the same bodily around a vertical axis.

34. In a machine of the type described, the combination with means for supporting the hub and rim, of a plurality of spoke-holding devices on opposite sides of the same, and means for operating them alternately to fasten alternately the spokes to the hub and rim in one cycle.

35. In a machine of the type described, the combination with means for supporting the hub and rim, of a plurality of spoke-holding devices on opposite sides, and means for adjusting one with relation to the other on an axis transverse to that of the hub.

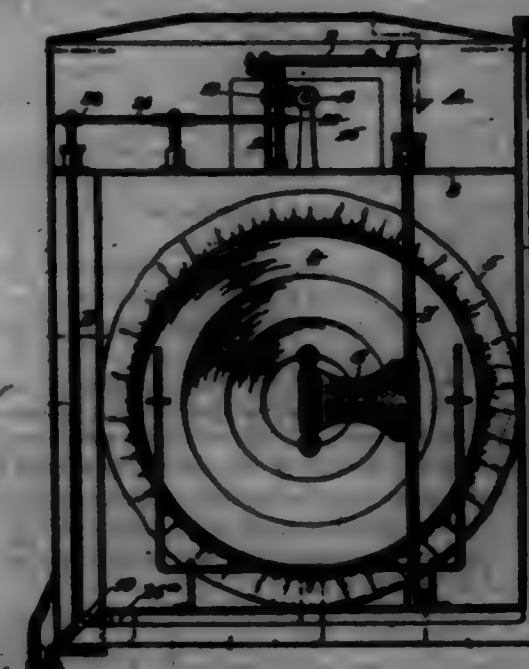
36. In a machine of the type described, the combination with means for supporting the hub and rim, of a plurality of spoke-holding devices on opposite sides of the same, and means for adjusting said devices independently on axes transverse to that of the hub.

37. In a machine of the type described, the combination with means for supporting the hub, rim and spoke, of two alternately-acting spoke-holding devices on opposite sides of the hub, and means for moving them independently to and from each other.

38. In a machine of the type described, the combination with a heading device adapted to act on the end of the spoke, and means for moving the same to upset the end of the spoke, of a device adjacent them adapted to act on the spoke near its end, and means for moving said heading device independently of its upsetting movement and in relation to the other device to an inoperative position to widen the space between it and the said device.

39. In a machine of the type described the combination of a main frame, standards rising therefrom, tables contained by said standards and adjustable thereon around vertical axes, slides mounted on the tables and movable to and from each other, opposing spoke-holding devices mounted on the slides, and means for supporting the hub, rim and spoke between said devices.

700,026. GAS-METER. ROBERT E. BARNES, Brooklyn, N. Y., assignor of one-fourth to Louis A. Steinhilber, Brooklyn, N. Y. Filed Feb. 4, 1902. Serial No. 20,115. (No model.)



Claim.—1. A gas-meter having a valve for controlling the flow of gas through the meter, a ported cast for the latter, said cast being set with its face out of a horizontal plane, and inlet and outlet gas-paues communicating with the ports in said cast, the inlet-paues for the gas being disposed below the outlet-paues for the gas, whereby the liquid of condensation will flow through the ports and by the valve from the outlet to the inlet without cooling the valve.

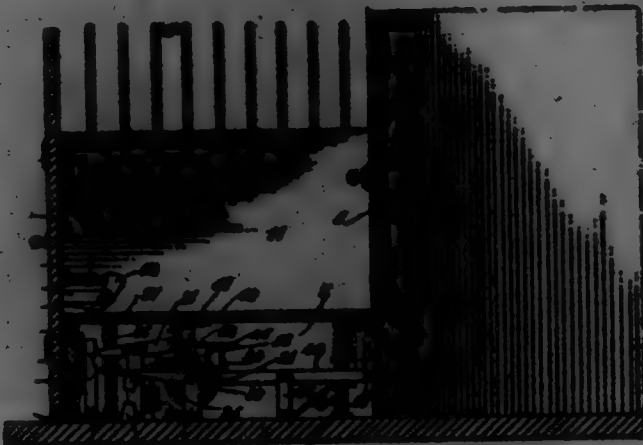
2. A gas-meter having a gas-chamber which extends below the diaphragm-chamber of the meter, valves at the lower part of said gas-chamber, ported valve-casts for said valves, said casts having their faces at an angle to a horizontal plane, an inlet for the gas opening into the gas-chamber below the level of the valve-controlled ports, and gas-outlets disposed above said ports in a manner to prevent the cooling of the valves by the accumulation of water of condensation about the same.

3. A gas-meter having its gas-inlet at a point below its diaphragm-chamber, a gas-chamber receiving gas from said inlet, and ported valve-casts in said chamber and below the diaphragm-chamber, slide-valves on said casts, mechanism for operating said valves for controlling the flow of gas through the meter, and conduits leading from the ports in the valve-casts to the gas-outlet of the meter and to the respective diaphragm-chambers, said conduits being below the said chamber.

4. A gas-meter having a diaphragm and diaphragm-chamber for measuring the gas, a gas-chamber the bottom of which is below the bottom of the diaphragm-chamber, an inlet for gas to the gas-chamber, outlets for gas from said chamber, said outlets being disposed above the level of the inlet so that liquid may flow from the former down to the latter without cooling the passage from one to the other, a valve controlling said

outside, and mechanism between the valve and diaphragm whereby the latter actuates the former.

700,087. **MURRAY-ALARM FOR SAFES.** BRANK J. MURRAY, Waverly, Ohio. Filed Dec. 10, 1906. Serial No. 66,091. (No model.)



Claim.—1. A device of the class described, having walls forming a closed passage-way leading to a safe or vault, a movable platform within said passage-way, an alarm mechanism controllable by the platform, a door arranged at the entrance to the passage-way, and means actuated by the opening of the door to depress the platform.

2. A device of the class described, comprising a protected passage-way, a movable floor therein, a door having a yieldable flap adapted to engage with said floor, and alarm device controllable by said floor.

3. A device of the class described, having a passage-way leading to a safe or vault, a platform therein, alarm device actuated by the platform, a door at the entrance to the passage-way, and means actuated by opening the door to set the alarm device into action.

4. In a device of the class described, the combination of a movable platform, a rock-shaft having a sector, a lever engaging with said sector and controllable by the platform, and alarm device actuated by movement of said rock-shaft.

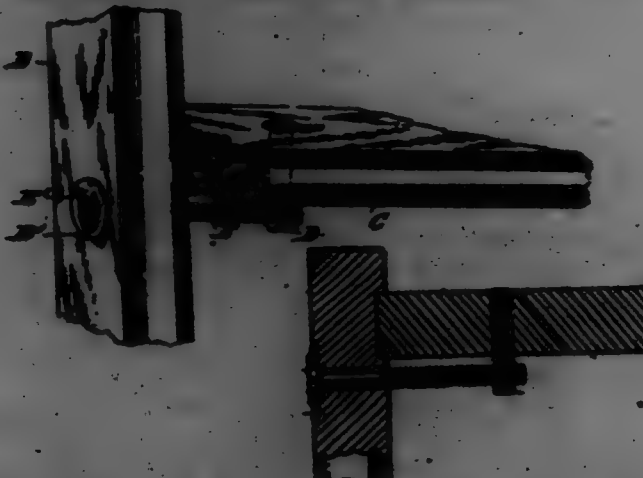
5. In a device of the class described, the combination of a platform, a rock-shaft having a contact-arm engaged to make and break an alarm-circuit, a motor on the rock-shaft, and a lever adapted to engage with the motor.

6. In a device of the class described, the combination of a movable platform, a rock-shaft having a spring-controlled arm, a contact arranged to engage with said arm, a motor on the rock-shaft, a lever arranged to engage with the motor, and alarm device actuated by the rock-shaft.

7. In a device of the class described, the combination with a rock-shaft and a lever, of a platform, a trip-lever in operative relation to the platform and adapted to engage with the first-named lever, and alarm device actuated by the rock-shaft.

8. In a device of the class described, the combination of a rock-shaft provided with a sector, a lever arranged to engage with the sector, a ratchet-wheel and a pressure-plate carried by said lever at opposite ends thereof, a hinged movable platform, cambed device for said platform, and means actuated by said platform to engage the pressure-plate or the ratchet-wheel and adapted to turn the rock-shaft so as to actuate said alarm device.

700,088. **STEP-LANDER.** HERBERT L. FINELL, Boston, Mass. Filed Mar. 10, 1908. Serial No. 66,208. (No model.)



Claim.—1. A lander-step-indeh comprising two side rails, joined together at proper intervals by a series of horizontal upholding-

steps, the ends of which are inserted in grooves in the rails, and secured and reinforced by offset binding-covers passed up to their heads through the rails below and parallel with the under sides of the steps, and threaded into the eyes of bolts inserted in and projecting from the steps, and by which means the rails and steps are detachably drawn together and their joints braced and reinforced substantially as specified.

2. The combination of upwardly-bolting side rails R, R, having grooves or recesses in their inner faces; steps Q, Q, having their ends inserted in the recesses and bearing against the interior of the same; eye-bolts D, riveted to holes near the ends of the steps with their threaded eyes projecting from the upper sides thereof; and binding-covers E extended through the rails parallel with the under sides of the steps, and offset therefrom to enter the threaded eye-bolts, while their heads H pass against the outer faces of the rails, through interspersed washers F, whereby the separable joints of the rails and steps are strongly reinforced and braced; substantially as specified.

700,089. **ATTACHMENT FOR FINGER-BARS OF MOWERS OR HARVESTERS.** WILLIAM SATTENHAIN, Keweenaw, Wis. Filed May 1, 1908. Serial No. 66,209. (No model.)

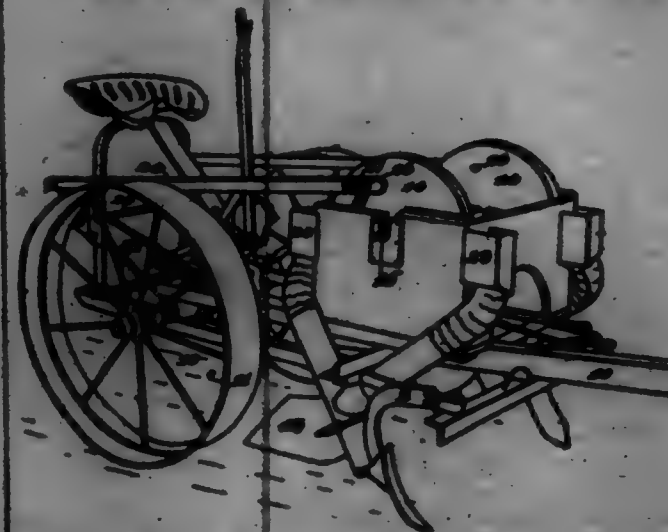


Claim.—1. In combination with the finger-bar and guards of a mower or harvester, a series of castings, provided with longitudinal slots, these pivotally attached to the forward ends of said castings, and provided with backward-extending oblique arms with spring connections to said castings, and bolts longitudinally adjustable in said slots and provided with means for the retraction of the points or forward ends of said guards.

2. In combination with the finger-bar and guards of a mower or harvester, a series of castings, provided with longitudinally-recessed upper faces, and longitudinal slots therethrough, these pivotally attached to the forward ends of said castings, and provided with backward-extending oblique arms with spring connections to said castings; clamps or castings fitted to said castings, each clamp or casting having a hole therethrough; adjustable bolts, each bolt having a head and a control opening therethrough, and a screw-threaded shank adapted to pass through said hole in the clamp or casting, and through the corresponding slot in the casting to which said clamp or casting is secured, for the retraction of the points or forward ends of said guards, and nuts on each of said bolt-shanks for securing the same in place in the desired adjustment, whereby said castings are adapted for use in supporting the forward ends of said guards, irrespective of the length or angular projection of the latter.

3. In combination with the finger-bar and guards of a mower or harvester, a series of castings, with clamps supported on said castings, and held against lateral movement by the upper edges thereof, for receiving the points or forward ends of said guards, and bolts for securing said parts together.

700,080. **HOES OR POTATO PLANTER.** CHARLES E. GARDNER, Newburgh, N. Y. Filed Mar. 11, 1908. Serial No. 67,708. (No model.)



Claim.—1. The combination with a suitable framework having two drive-wheels, of a hopper; a seed-wheel mounted adjacent to the

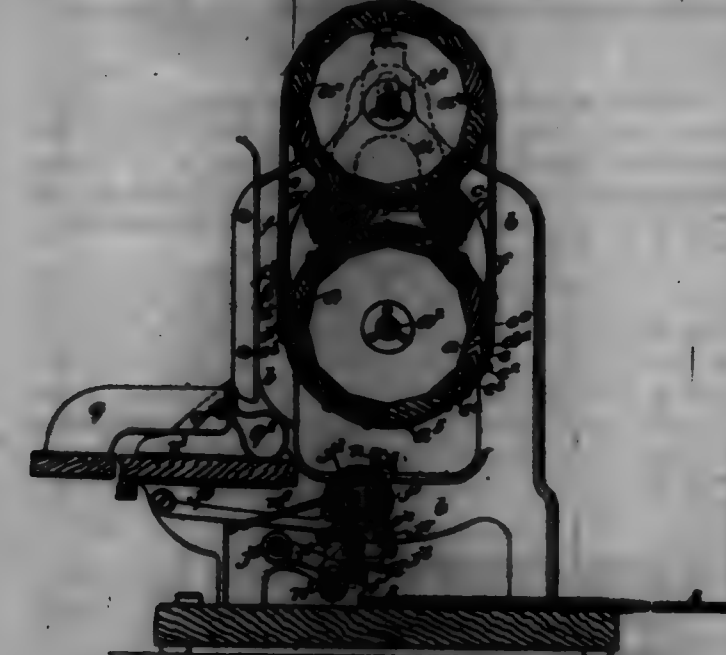
hopper and having means to receive the seed from the hopper; and a crank connection between the seed-wheel and the drive-wheel whereby the seed-wheel is oscillated to take the seed into the said pockets and throw it upwardly; substantially as specified.

2. In a seed-planter, a suitable hopper; a seed-wheel mounted adjacent to the hopper and having means to receive the seed from the hopper; and means for oscillating the seed-wheel to take seed into said pockets and throw it upwardly and outwardly; substantially as specified.

3. In a seed-planter, a seed-wheel mounted for oscillation upon a pivot and having pockets below the pivot; means for conducting the seed to said pockets; and means for oscillating the seed-wheel to throw the seed upwardly; substantially as specified.

4. A seed-planter comprising the combination with a suitable framework having traction drive-wheels and having a furrow-opener and a seed-covener, of a hopper; a seed-wheel mounted adjacent to the hopper and having means to receive the seed from the hopper; a crank-shaft connected to the drive-wheel; a crank-pin upon the seed-wheel; a connecting-rod connecting the crank-shaft pin to the seed-wheel crank-pin, the crank-pin bearing in one end of the connecting-rod being slotted to give a jerky motion so that as the crank-shaft rotates the seed-wheel is oscillated to take seed from said hopper into said pockets and throw it upwardly and outwardly in both directions; and conveyers to receive said seed and carry it to the furrow behind said furrow-opener; substantially as specified.

700,081. **STENCIL-PRINTING APPARATUS.** DAVID GUTHRIE, London, England. Filed Feb. 1, 1908. Serial No. 66,164. (No model.)



Claim.—1. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, and a flexible impression-roller, of spring-supported carriers for said rollers, arms supporting said carriers, a shaft on which said arms are fixed, links pin-jointed to the carriers and end frames for controlling the motion of the carriers, a pin on one of said arms, a hook on a lifting-plate to act with said pin, and a rising and falling plate to which said lifting-plate is pivoted to lift the impression-roller to the printing position, substantially as herein set forth.

2. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, a clamp on said bands to hold one end of a stencil the body of which is held smoothly over and adheres to the surface of the inked presser sheet, and waver or distributing rollers in contact with the ink-rollers, of means for automatically giving to-and-fro endwise motion to said waver-roller, a flexible impression-roller, and a paper-stop, both automatically operated, substantially as herein set forth.

3. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, of a flexible impression-roller, a paper-stop against which the paper to be printed is placed, and means for automatically placing said stop in position for use and removing it therefrom, substantially as herein set forth.

4. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, of a flexible impression-roller, and means for varying the time at which the impression-roller and paper-stop come into operative position without changing the time at which the impression-roller leaves the printing position, substantially as herein set forth.

5. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, of a flexible impression-roller, a paper-stop, and means for throwing the impression-roller and paper-stop out of operative position while the ink-roller and waver rollers are left free to revolve, substantially as herein set forth.

6. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet in contact with the ink-rollers, and a stencil supported by said bands and presser sheet, of spring-supports to the upper ink-roller to maintain the tension of the endless bands, substantially as herein set forth.

7. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, of blocks in which the waver-roller arms are supported at each end, open-ended slotted levers in which said blocks are carried, springs connecting together each pair of blocks to keep the waver-roller in constant contact with the ink-rollers when the machine is in use, a lever mounted on an axle and giving motion to one of said slotted levers, and an eccentric for giving motion to said slotted lever, substantially as herein set forth.

8. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers, of wedge-shaped plates placed between the axes of the waver-rollers in position to be depressed by the cover being placed over the machine, thereby automatically separating the waver-rollers from the ink-rollers, substantially as herein set forth.

9. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, on impression-roller, and a paper-stop, of a guided rising and falling plate, a lifting-plate pin-jointed to said guided plate, a dependent stoppiece pin-jointed to said lifting-plate, a spring attached to said lifting-plate and to one of the levers carrying the impression-roller, and a wedge-piece operated by an eccentric to lift said guided plate to give the required motion to the impression-roller and paper-stop in the normal working of the machine, substantially as herein set forth.

10. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers in contact with the ink-rollers, and a flexible impression-roller, of spring-supported carriers for said rollers, arms supporting said carriers, a shaft on which said arms are fixed, links pin-jointed to the carriers and end frames for controlling the motion of the carriers, a pin on one of said arms, a hook on a lifting-plate to act with said pin, and a rising and falling plate to which said lifting-plate is pivoted to lift the impression-roller to the printing position, substantially as herein set forth.

11. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers, and an impression-roller, of a paper-stop, arms carrying said stop, slots in said arms, a shaft passing through said slots, pins in sides of said arms, cam-floated levers fixed on said shaft to act against said pins, springs attached to said arms and to the end frames to pull the stop forward, a rising and falling plate, an incline and a stoppiece on said plate, and a roller on one of the cam-floated levers acted upon by said incline and stoppiece to operate the paper-stop, substantially as herein set forth.

12. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil carried by said bands, waver or distributing rollers, and a flexible impression-roller, of a paper-stop, arms carrying said stop, slots in said arms, a shaft passing through said slots, and cam-floated levers acting against said arms to first raise the stop slightly above the impression-roller and then to push said stop back, substantially as herein set forth.

13. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers, and an impression-roller, of a sliding bar, a screw to move said bar back and forth to adjust the time of raising the impression-roller, a lever pin-jointed to said bar, a bar pin-jointed to said lever and operated by an eccentric to give motion thereto, a wedge-piece pin-jointed to said lever, and a rising and falling plate acted upon by said wedge-piece to raise the impression-roller to the printing position, substantially as herein set forth.

14. The combination with stencil-printing apparatus having two ink-rollers, a pair of endless bands around said rollers, a presser sheet and a stencil attached to said bands, waver or distributing rollers, on impression-roller, and a paper-stop, of a slotted bar, a lifting-plate giving motion to the impression-roller and paper-stop and to which said slotted bar is pivoted, a shaft, a crank-pin on said shaft acting within said slot, and a weighted lever to operate said shaft so as to enable the impression-

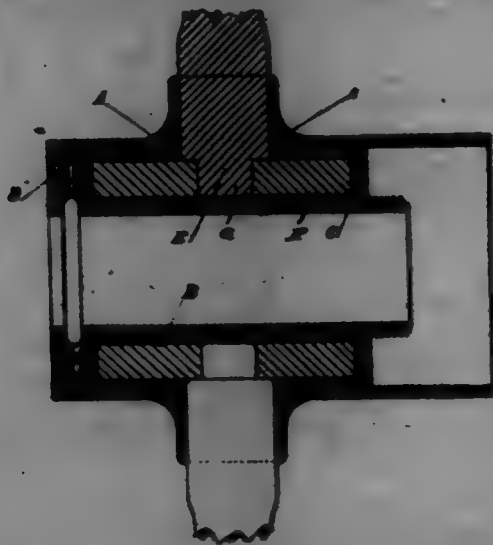
roller and paper-strip to be put in or out of operation, substantially as herein set forth.

15. The combination with stencil-printing apparatus having a pair of inking-rollers, endless bands passing around said rollers, and a porous sheet and stencil removably attached to said bands, of a strengthened edge on the porous sheet, keyhole-slots in said strengthened edge, a pocket of stronger material attached to the other edge of said porous sheet, and holes perforated along the edge of said pocket, substantially as herein set forth.

16. The combination with stencil-printing apparatus having a pair of inking-rollers, endless bands passing around said rollers, and a porous sheet and stencil removably attached to said bands, of a bar fixed to said bands, studs on said bar, a strengthened edge on the porous sheet, keyhole-slots in said strengthened edge, a pocket of stronger material attached to the other edge of said porous sheet, holes perforated along the edge of said pocket, a removable bar having rounded projections thereon to pass through said holes, and springs to connect each removable bar with the endless bands, substantially as herein set forth.

17. The combination with stencil-printing apparatus having a pair of rollers, endless bands passing around said rollers, and a porous sheet, and stencil removably attached to said bands, of a clamp-base fixed to the endless bands, and a trough-shaped cover removably attached to said base to secure one edge of the stencil, substantially as herein set forth.

700,083. WHEEL-HUB. LEON T. GUNN, New York, N. Y., assignor to Vehicle Equipment Company, Brooklyn, N. Y., a Corporation of New Jersey. Filed Sept. 11, 1901. Serial No. 74,986. (No model.)



Claim.—A wheel-hub comprising in combination a single casing A, a tubular wooden core B driven or pressed into the same, the outer end of said casing having an opening equal in diameter to that through the wooden core, and the inner end being of greater diameter than the core, to afford two supports for a bearing, and a box or bearing extending through the hub and supported at each end by the casing, as set forth.

700,088. RENDERING AND DRYING APPARATUS. JAMES GLAZIER, Brooklyn, N. Y. Filed June 2, 1901. Serial No. 68,905. (No model.)

Claim.—1. In a combined rendering and drying apparatus the combination of a casing, a rotary hollow shaft contained within the said casing, hollow arms carried by the said shaft delivering fluid to the interior of said casing, means for rotating the said shaft and a removable head and screen and an outlet for fluid, which may be rendered out, the said outlet being adapted to remain constantly open during the rendering and drying operations.

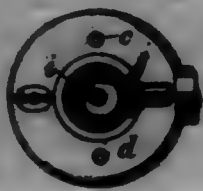
2. In an apparatus adapted for rendering or drying the combination of a casing, rotary means for introducing and distributing heated fluid into contact with the material to be treated, a sleeve at or near the bottom of said casing, a run-off duct or passage receiving melted fat, &c., and means for removably securing the sleeve or screen in the casing.

3. In an apparatus adapted for rendering or drying the combination of a casing, a hollow shaft, hollow arms carried on the said shaft and communicating therewith and delivering fluid to the interior of said casing, and stirring-blades carried by the said arms.

4. In an apparatus adapted for rendering or drying the combination of a casing, a rotary means for delivering fluid to the interior of said casing, and into contact with the material to be treated, and a removable head and a screen.

5. In an apparatus adapted for rendering or drying the combination

of a suitable casing, a rotary combined stirring and fluid-delivering apparatus contained therein, the said casing being entirely unobstructed except for the said rotary apparatus, a suitable sleeve or screen and means for movably supporting the sleeve or screen whereby the charge may be removed from the vessels.



6. In an apparatus adapted for rendering or drying, the combination of a casing, a hollow shaft with means for revolving the said hollow shaft, laterally-projecting fluid-conducting means carried by the said shaft, adapted to deliver fluid to the interior of said casing at points remote from the said shaft, the said laterally-projecting fluid-conducting means carrying means for effecting a stirring action on the mass.

7. In an apparatus adapted for rendering or drying, the combination of a casing, a hollow rotary fluid-distributing device, adapted to distribute fluid into the said casing at the points remote from the center of rotation of the said fluid-distributing device, a liquid-outlet and a sleeve contained within the casing whereby fluid may be introduced into the said casing at places throughout the mass contained in said casing whereby a pressure may be brought to bear upon the said mass at widely-different points in order to force moisture out of said mass through the fluid-delivery orifices.

700,084. PHOTOGRAPHIC-PLATE HOLDER. JAMES GOODMAN, Rochester, N. Y., assignor to Rochester Optical & Camera Co., Rochester, N. Y., a Corporation of New York. Filed Jan. 17, 1902. Serial No. 90,198. (No model.)



Claim.—1. In a photographic-plate holder, the combination with the plate-holder frame and the slide provided at its outer end with a depending flange, of a spring-catch fixed to the front end of the plate-holder frame and projecting beyond the latter, said catch being arranged to automatically yield to said flange when the slide is pushed into place and having a projecting end adapted to be engaged by the same hand employed to withdraw the slide, whereby the catch may be released and the slide withdrawn at one movement of the hand, substantially as described.

2. In a photographic-plate holder, the combination with the plate-holder frame and the slide provided at its end with a depending flange, of a spring-catch fixed to the front end of the plate-holder frame and projecting beyond the latter, said catch comprising a spring-finger provided with a beveled end adapted to be engaged by and thrust aside by the flange on the slide and with a corrugated portion arranged to snap under the lower edge of said flange and lock the slide in place, substantially as described.

3. In a photographic-plate holder, the combination with the plate-holder frame and the slide provided at its outer end with a depending flange, of a spring-catch fixed to the front end of the plate-holder frame and projecting beyond the latter, said catch comprising a spring-finger provided with a beveled end adapted to be engaged by and thrust aside by the flange on the slide and with a corrugated portion arranged to snap under the lower edge of said flange and hold the slide in place, and a transverse strip fitted in the front end of the plate-holder frame and longitudinally grooved on its under side, the said spring-finger being provided at its inner end with a flat head fitted in said groove, substantially as described.

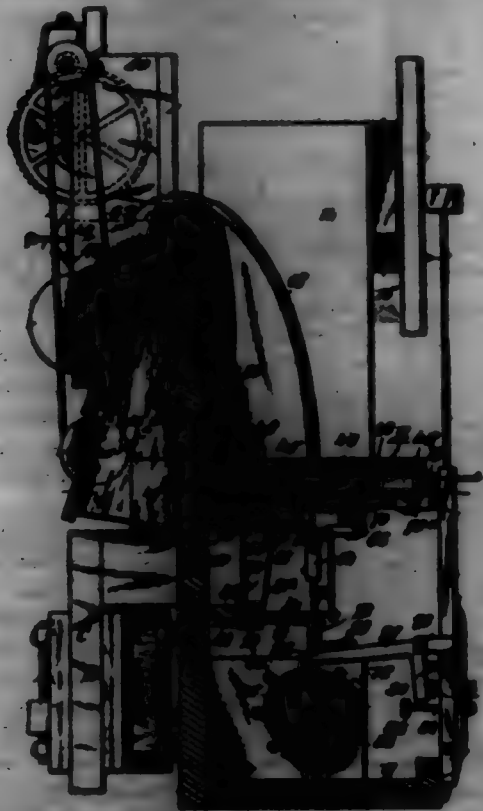
4. In a photographic-plate holder, the combination with the plate-holder frame, of a light-enclosing device, consisting of a transverse strip fitted in the front end of the plate-holder frame and provided on its upper side with a light-enclosing brush, and having a groove on its under side, of the slide provided at its free end with a depending flange, and a spring-catch comprising a flat head fitted between the grooved portion of said strip and the bottom of the plate-holder frame and having an outwardly-projecting spring-finger arranged to engage the said flange and hold the slide in place, substantially as described.

5. In a photographic-plate holder, the combination with a plate-holder frame, of a light-enclosing device, consisting of a transverse strip fitted in the front end of the frame and provided on its upper side with a light-enclosing brush and having a groove on its under side, of a slide provided at its free end with a depending flange, and a spring-catch comprising a flat head, having two parallel wings, the rear edge of the head and the free ends of the wings having depending flanges, said head being fitted in said groove, and an integral spring-finger projecting outward from the head and arranged to engage the flange on the slide and hold the latter in place, substantially as described.

6. In a photographic-plate holder, the combination with a plate-holder frame and its slide, of a skeleton frame fitted in the plate-holder frame and comprising a rectangular sheet-metal frame provided at its opposite inner ends with integral inwardly and upwardly projecting spring-fingers, arranged to engage the under side of the plate, substantially as described.

7. In a photographic-plate holder, the combination with a metal plate-holder frame having inwardly-bent flanges, of a sheet-metal slide, and a skeleton frame, comprising a rectangular sheet-metal frame, provided with upwardly and inwardly bent flanges arranged to fit beneath the flanges of the plate-holder frame and provided at its opposite inner ends with inwardly and upwardly projecting integral spring-fingers, substantially as described.

700,085. XYLOPHONE-PLAYER. FREDERICK R. GOSMAN, Banghamton, N. Y. Filed May 14, 1894. Serial No. 69,594. (No model.)



Claim.—1. In a musical instrument, an apertured chest, a dust-bridge over which the chest passes, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, mechanism for operating the hammers, means operated by the motors for causing the hammer-operating mechanism to operate each hammer so that it will make a single stroke, an auxiliary pneumatic motor connected with the ducts of the bridge, and means operated by said motor and controlling the means operated by the first-named motors so as to cause the hammer-operating mechanism to operate each hammer so that it will make a number of strokes in quick succession, as set forth.

2. In a musical instrument, an apertured chest, a dust-bridge over which the chest passes, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, a swinging lever carried by each hammer, a movable member with which the swinging levers of the hammers are adapted to engage, means operated by the motors for holding the levers of the hammers into engagement with the movable member,

an auxiliary pneumatic motor connected with the ducts of the bridge, and means operated from said motor and controlling the time the levers of the hammers are held in the path of the movable member, as and for the purpose set forth.

3. In a musical instrument, an apertured chest, a dust-bridge over which the chest passes, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, a swinging lever carried by each hammer, a revolvable cylinder provided with projections on its periphery with which the swinging levers of the hammers are adapted to engage, means operated by the motors for moving the levers of the hammers into engagement with the projections of the cylinder, an auxiliary pneumatic motor connected with the ducts of the bridge, and means operated by the said motor and controlling the means operated by the first-named motors, as set forth.

4. In a musical instrument, an apertured chest, a dust-bridge over which the chest passes, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a revolvable cylinder provided with projections on its periphery with which the levers of the hammers are adapted to engage, swinging operating-levers carrying feet adapted to engage the levers of the hammers, and operated from the said motors, an auxiliary pneumatic motor, and means operated by the said motor and controlling the swinging movement of said operating-levers, as set forth.

5. In musical instruments, an automatic xylophone-player, consisting of a frame, a series of tone-producing bars carried by the frame, spring-controlled hammers for said bars, jack-levers carried by the hammers, a ribbed cylinder arranged to rest upon the jack-levers, a vacuum-chest, operating-levers for the jack-levers, actuated from the vacuum-chest, an auxiliary chest, a controlling mechanism for the operating-levers, operated from the auxiliary chest, a dust-bridge, one end of the said ducts in the bridge being connected with the vacuum-chest and others with the auxiliary chest, and means, substantially as described, for opening and closing the ducts in the said bridge, as set forth.

6. In musical instruments, the combination, with a frame, tone-producing bars carried by the frame, spring-actuated hammers for the said tone-producing bars, a rotary peripherally-ribbed cylinder, jack-levers carried by the hammers and adapted to be brought in the path of the ribs of the cylinder and carried out of the path of the same, a vacuum-pump for the vacuum-chest, an auxiliary chest, and an equalizing-pump also in communication with the vacuum-chest, of spring-controlled operating-levers, having vertical movement to and from the jack-levers connected with the hammers and capable of swinging movement over said jack-levers, operating mechanism controlled by the vacuum-chest and operating on the operating-levers, a controlling device for the operating-levers, operated from the auxiliary chest, a dust-bridge, tubular connections between one end of the ducts of said bridge and the vacuum-chest, and tubular connections between other ducts of the said bridge and the auxiliary chest, and means for opening and closing the ducts of the bridge, as described.

7. In musical instruments, the combination, with a frame, tone-producing bars carried by the frame, spring-controlled hammers for said bars, jack-levers carried by the said hammers, a peripherally-ribbed cylinder, the ribs of which are adapted for engagement with the jack-levers, a vacuum-chest having a series of upper chambers provided with diaphragms, and a lower continuous chamber, an auxiliary chest provided with a continuous diaphragm, vacuum-pumps connected with the continuous chamber of the vacuum-chest, and an equalizing-pump connected with said chamber, of spring-controlled operating-levers capable of movement to and from the jack-levers, being adapted to normally rest thereon, and also to have swinging movement over the jack-levers, said operating-levers being acted upon by the diaphragms of the vacuum-chest, a controlling device for the operating-levers, operated upon by the diaphragms of the auxiliary chest, and a dust-bridge, one end of the ducts of which have tubular connections with the upper compartments of the vacuum-chest, other of the ducts in said bridge having connection with the auxiliary chest above its diaphragm, as and for the purpose specified.

8. In a musical instrument, a dust-bridge, means for opening and closing the ducts thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a revolvable cylinder provided with peripheral projections with which the levers of the hammers are adapted to engage, and means operated by motors for moving the levers of the hammers into engagement with the projections of the cylinder, as set forth.

9. In a musical instrument, a dust-bridge, means for opening and closing the ducts thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a revolvable cylinder provided with peripheral projections with which the levers of the hammers are adapted to engage, spring-pressed swinging operating-levers carrying feet for engagement with the levers of the hammers, and means whereby the operating-levers are operated from the motors, as set forth.

10. In a musical instrument, a dust-bridge, means for opening and

closing the duct thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a reversible cylinder provided with peripheral projections with which the levers of the hammers are adapted to engage, pivoted and spring-pressed opening-levers, means for operating the levers from the motors, and pivoted and spring-pressed feet carried by the operating-levers and adapted to engage the levers of the hammers, as set forth.

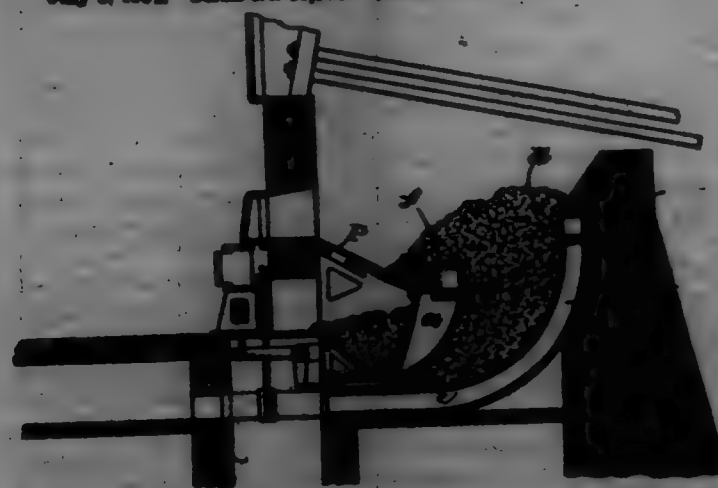
11. In a manual instrument, a duct-bridge, means for opening and closing the duct thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a reversible cylinder provided with peripheral projections with which the levers of the hammers are adapted to engage, pivoted and spring-pressed angular levers, means for operating the levers from the motors, and pivoted and spring-pressed feet carried by the vertical member of the angular levers, and feet carried by the feet and adapted to engage the levers of the hammers, as set forth.

12. In a manual instrument, a duct-bridge, means for opening and closing the duct thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, means with which the levers of the hammers are adapted to engage to operate the hammers, pivoted and spring-pressed feet adapted to engage the levers of the hammers, means for operating the feet from the motors to cause them to depress the said hammer-levers, an auxiliary pneumatic motor connected with the ducts of the bridge, and means operated by the auxiliary motor for controlling the swinging movement of the said feet, as set forth.

13. In a manual instrument, a duct-bridge, means for opening and closing the duct thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, means with which the said levers are adapted to engage to operate the hammers, pivoted and spring-pressed feet adapted to engage the hammer-levers, means for operating the feet from the motors to cause them to depress the hammer-levers, an auxiliary pneumatic motor, a swinging bar operated by the auxiliary motor, and a connection between the said bar and the feet, as set forth.

14. In a manual instrument, a duct-bridge, means for opening and closing the duct thereof, a series of pneumatic motors connected with the ducts of the bridge, a series of hammers, pivoted and spring-pressed levers carried by the hammers, a reversible cylinder provided with peripheral projections with which the hammer-levers are adapted to engage, pivoted and spring-pressed feet adapted to engage the hammer-levers, means for operating the feet from the motors to cause them to depress the hammer-levers, an auxiliary pneumatic motor, a swinging bar, an angle-lever connected with the bar and operated by the auxiliary motor, and yokes extending from said bar and engaging the feet, as set forth.

700,086. FURNACE. RALPH H. COVENS, Reading, Mass. Filed July 4, 1901. Serial No. 61,364. (No model.)



Claim.—1. In an underfed mechanical stoker in which the coal is supplied to a magazine or retort extending transversely across the rear end of the furnace, a plurality of tuyers extending transversely of the furnace and rising one above the other from the front to the rear of the furnace.

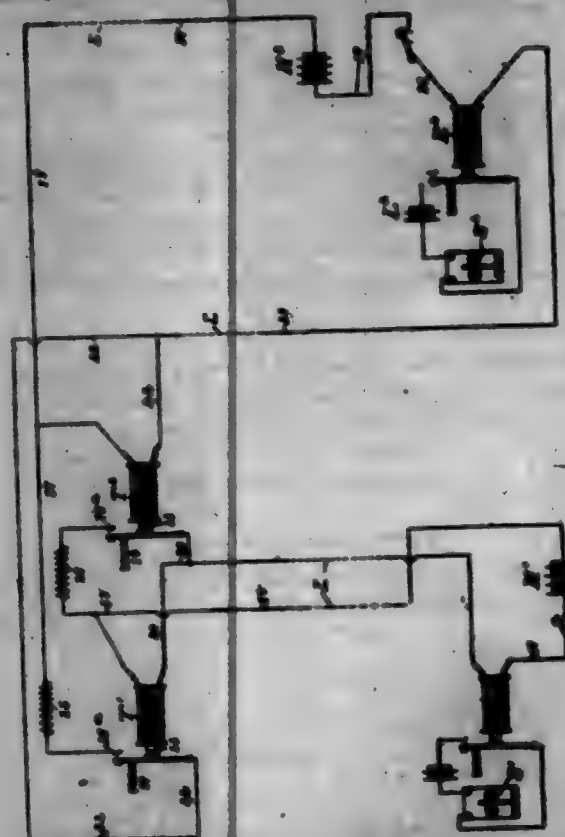
2. In an underfed mechanical stoker in which the coal is supplied to a magazine or retort extending transversely across the rear end of the furnace, one or more rows of tuyers transverse to said furnace, said row or rows including a plurality of tuyers projecting beyond the remainder of the tuyers in the said row or rows, so as to produce a more thorough distribution of the air throughout the fuel and above the retort.

3. In an underfed mechanical stoker in which the coal is supplied to a magazine or retort extending transversely across the rear end of the furnace, a front air-box to which the air is supplied under pressure, a row

of tuyers connected to said box, and having one or more projecting tuyers, so as to produce a thorough distribution of the air throughout the fuel.

4. In an underfed mechanical stoker in which the coal is supplied to a magazine or retort extending transversely across the rear end of the furnace, a front air-box and a rear air-box to which the air is supplied under pressure, rows of tuyers transverse to said boxes, one or more longitudinal air-boxes connecting the two front-mentioned boxes, and one or more tuyers-bleeds connecting said longitudinal air box or boxes and having air-outlets, substantially as described.

700,087. REPEATER FOR TELEGRAPH-LINES. JAMES W. GRAY, Forter, Ind. Filed Nov. 20, 1901. Serial No. 59,306. (No model.)



Claim.—1. In a repeater, the combination of a high-resistance relay, a low-resistance relay, a battery, and a key all connected in circuit, a circuit-breaker and a resistance-coil both in shunt around said high-resistance relay, substantially as described.

2. In a repeater, the combination of a low-resistance relay-coil, a high-resistance relay-coil, a battery and a first key all connected in circuit, a resistance-coil and a circuit-breaker both in shunt around said high-resistance relay, means for operating said circuit-breaker, a second key and a battery all three of the last-mentioned devices included in circuit, substantially as described.

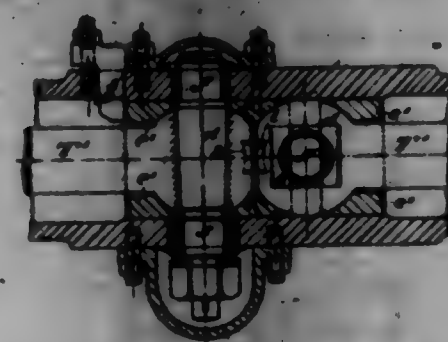
3. In a repeater, the combination of a low-resistance relay-coil, a first key, a battery and a high-resistance relay all connected in circuit, a resistance-coil and a circuit-breaker both connected in a shunt around said high-resistance relay-coil, a local sounder, a battery and a circuit-breaker all three connected in circuit, said circuit-breaker being arranged to be operated by said high-resistance relay-coil, substantially as described.

4. In a repeater, the combination of a first low-resistance relay-coil, a first key, a battery, and a first high-resistance relay all connected in circuit, a resistance-coil and a first circuit-breaker both connected in a shunt around said high-resistance relay-coil, a local sounder, a battery and a circuit-breaker all connected in circuit, said circuit-breaker being arranged to be operated by said low-resistance relay-coil, a second key, a battery, and a low-resistance relay-coil all four connected in circuit, said second low-resistance relay-coil being arranged to operate said first circuit-breaker, a second circuit-breaker and a resistance-coil both connected in a shunt around said second high-resistance relay-coil, said second circuit-breaker being arranged to be operated by said first high-resistance relay-coil, substantially as described.

5. In a repeater, the combination, of a first low-resistance relay-coil, a first key, a battery, and a first high-resistance relay and all four connected in circuit, a local sounder, a battery and a circuit-breaker all three connected in circuit, said circuit-breaker being arranged to be operated by said low-resistance relay-coil, a resistance-coil and a first circuit-breaker all connected in a shunt around said high-resistance relay-coil, a second low-resistance relay-coil, a second high-resistance relay-coil, a second key, and a battery all four connected in circuit, said second high-resistance relay-coil

being arranged to operate said first circuit-breaker, a second circuit-breaker, and a resistance-coil both connected in a shunt around said second high-resistance relay-coil, said second circuit-breaker being arranged to be operated by said first high-resistance relay, a local sounder, a battery and a circuit-breaker, said last-mentioned circuit-breaker being arranged to be operated by said second low-resistance relay-coil, substantially as described.

700,088. DRIVING-AXLE FOR LOCOMOTIVES. CHRISTIAN HAAKE, Berlin, Germany. Filed Nov. 27, 1901. Serial No. 59,308. (No model.)



Claim.—1. A device of the class specified, comprising a sleeve provided with wheels, an axle consisting of a plurality of sections fitted in the sleeve, and the lower ends of the axle-sections being ball-shaped and the sleeve being slotted, spherical bearings in the sleeve for said ball ends, and wedges adapted to project through said slots and to bear against said spherical bearings for the purpose of adjusting the same.

2. A device of the class described, comprising a sleeve provided with wheels, an axle consisting of a plurality of sections fitted in the sleeve and having ball-shaped inner ends, spherical bearings in the sleeve for said ball ends, and the latter having recesses in their adjacent surfaces, and the bottoms of the recesses being convex, and a body fitted into said recesses and its opposite ends being convex.

3. A device of the class specified, comprising a sleeve provided with wheels, an axle consisting of a plurality of sections fitted in said sleeve and having ball-shaped inner ends, spherical bearings in the sleeve for receiving said ball-shaped ends, pins extending through slots in the sleeve and ball-shaped ends respectively, and caps upon the sleeve covering the outer ends of said pins.

700,089. FIRE-ALARM AND DOOR-LOCK. LOUIS E. HANST, New Providence, and GEORGE S. HANST, Baltimore, Md. Filed Sept. 14, 1901. Serial No. 73,492. (No model.)



Claim.—1. In a burglar-alarm and door-lock, the combination of a holder-plate adapted to be seated between the door-casing and the door edge, and having in its rear end an open-ended slot, a base-plate having a stud with thumb-out, whereby said plate is adjustably and removably fitted to the slot of said holder-plate, said base-plate carrying an alarm mechanism and having a stop on its forward end opposing the door, a slidable tripping-rod mounted in the base-plate with its end extending through the stop and lying in the path of the door movement, and an engagement between said rod and the mechanism of the alarm mechanism effective to arrest the operation of the said mechanism when the rod is normally out and to release said mechanism when the rod is pushed back.

2. In a burglar-alarm and door-lock, the combination with the last and bell, of a holder therefor comprising a plate A provided at one end with an opening for a screw pin or bolt, and at the other end with separated members having offset points a, a, and an elongated spring c' struck up from the plate at a point intermediate of said separated members and projecting laterally therefrom, substantially as described.

3. In a burglar-alarm and door-lock, the combination with the last

and bell, of a holder therefor comprising a plate A cut away at one end to function as open-ended slot c' for a screw pin or bolt, and provided at its opposite end with separated members having offset points a, a, and an elongated spring c' struck up from the plate at a point intermediate of said separated members and projecting laterally therefrom, substantially as described.

4. In a burglar-alarm and door-lock, the combination with the last and bell, a holder therefor comprising a plate A provided with an opening for a screw pin or bolt, and at one end with a member having an offset point a, and an elongated spring c' elongated said offset point a, said spring being struck up from the plate and projecting laterally beyond the pointed member, substantially as described.

5. In a burglar-alarm and door-lock, the combination of a holder-plate A adapted to be seated between the door-casing and the door edge, a base-plate B, means for securing the base-plate in adjusted position on the holder-plate, an apertured offset portion b on the base-plate arranged to oppose the opening of the door, an alarm mechanism carried by the base-plate, said mechanism including a stop-pin c, a tripping-rod F slidably mounted on the base-plate with its end passing through the aperture in the offset portion b, and lying in the path of the door movement, a spring G secured at one end to the base-plate B and at the other end bearing against the rod F to normally retain the same in outward position, and a shoulder / on said rod adapted to cooperate with the stop-pin c of the alarm mechanism to hold the alarm mechanism inactive until the rod is forced inwardly, substantially as described.

6. In a burglar-alarm and door-lock, the combination of a holder-plate A adapted to be seated between the door-casing and the door edge, a base-plate B, means for securing the plate B in adjusted position on the holder-plate, and apertured offset portion b on the base-plate arranged to oppose the opening of the door, an alarm mechanism carried by the base-plate, said mechanism including a stop-pin c, a tripping-rod F slidably mounted on the base-plate with its end passing through the aperture in the offset portion b and lying in the path of the door movement, and a shoulder on said rod adapted to normally engage the stop-pin c of the alarm mechanism to hold said alarm mechanism inactive, but to be withdrawn from engagement therewith to release the alarm mechanism when the rod is forced inwardly, substantially as described.

7. In a burglar-alarm and door-lock, the combination with a lock and an alarm mechanism including a stop-pin c, of a support, a slidable tripping-rod F normally projecting outward into the path of the door movement, a spring G for holding the rod in position, said spring being secured at one end to the support and at its free end slidably engaging the rod to permit the movement of said rod independently of the spring, and a shoulder on the rod adapted to normally engage the stop-pin c to retain the alarm mechanism inactive but when withdrawn from engagement therewith to release the alarm mechanism when the rod is forced inwardly, substantially as described.

700,040. CIGARETTE-MACHINE. JAMES C. HANSEN-BALHAGEN, Copenhagen, Denmark. Filed June 7, 1901. Serial No. 61,544. (No model.)

Claim.—1. In a cigarette-machine, a filling mechanism comprising a spiral, and mechanism for positively actuating said spiral to impart rotary movement and axial displacement thereto; said mechanism being effective on the advancement of the filler to give both rotary movement and axial displacement to the spiral, and then to impart axial displacement only to said spiral, while on the return movement of the filler, the mechanism causes the spiral out of the cigarette and thereafter displace the spiral in the direction only of its axis.

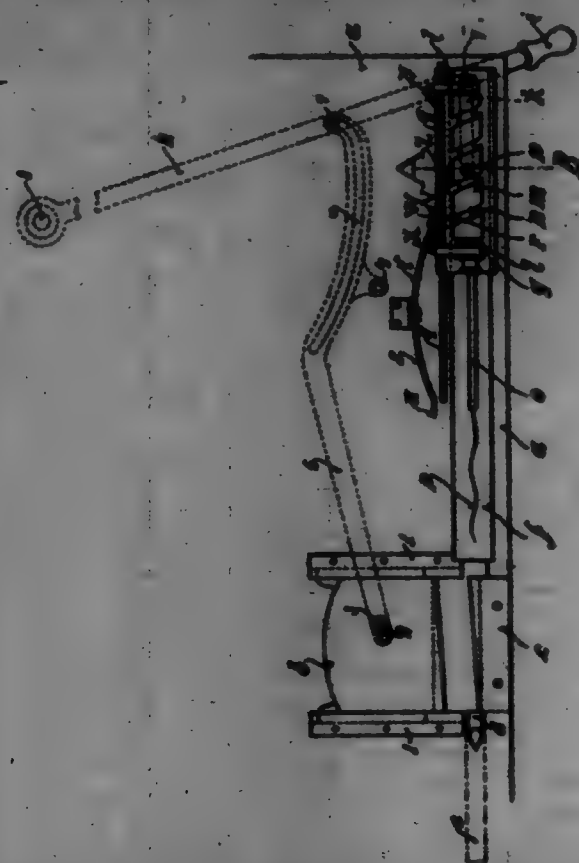
2. A cigarette-machine having filling means comprising a wire in the form of a spiral, means for imparting movement to the said filling means, a body m, mounted transversely upon a movable slide p, to which body is fitted the cross-shaped wire p and which body is provided with a cross shaped groove a of the same pitch as the wire, in combination with a pin v projecting into said groove and capable of being at suitable moments held firm as regards the movable slide or released therefrom in such a manner that a moving and a straight motion is alternately imparted to the wire.

3. A cigarette-machine having a filling mechanism comprising a spiral feeder, a slide provided with spaced hooks, a slide-bar having a pin, yieldable arms disposed in the path of said pin and having projections in the path of the spaced hooks, and means for actuating the slide.

4. In a cigarette-machine, a filling mechanism comprising a spiral feeder, and an actuating mechanism to impart rotary and axial movement to said spiral feeder, said actuating mechanism including a cam-governed reversible member, said spiral feeder having its revolution corresponding in pitch to the groove of said reversible member.

5. In a cigarette-machine, a filling mechanism comprising a spiral feeder and an actuating mechanism therefor, said mechanism having a reversible and slidable member which carries the spiral feeder, means for imparting rotary movement to the carrier member, and means for rotating

ing the carrier member simultaneously with its slidable travel; said rotating means being effective only for a part of the travel of the carrier member.



6. In a cigarette-machine, a filling mechanism comprising a spiral feeder and an actuating mechanism therefor, said mechanism including a movable base, a rotatable carrier member mounted on the base and having the feeder movable therewith, means for giving reciprocating movement to the base, and means for intermittently rotating the carrier member.

7. A cigarette-machine having a filling means, comprising a device in the form of a spiral, adapted to enter and carry the filler, and means for imparting a rotary motion to the said device.

8. A cigarette-machine having a filling means, comprising a device in the form of a spiral, adapted to enter and carry the filler, and means for imparting alternately a longitudinal and a rotary motion to the said device.

9. A cigarette-machine comprising a base having an opening therein, a slide movable in the opening and carrying a device in the form of a spiral adapted to enter and carry the cigarette-filling mechanism for imparting a rotatable and endwise movement to said spiral, a mold, means thereon for holding a cigarette tube or wrapper, and means for imparting movement to the slide to pass the filling into the cigarette tube or wrapper.

10. In a cigarette-machine, a filling mechanism comprising a rotatable and slidable carrier member, a filler spiral thereon, stop devices adjacent to the path of the carrier member, and a slidable element movable with the carrier member and having means arranged to coast with the stop devices.

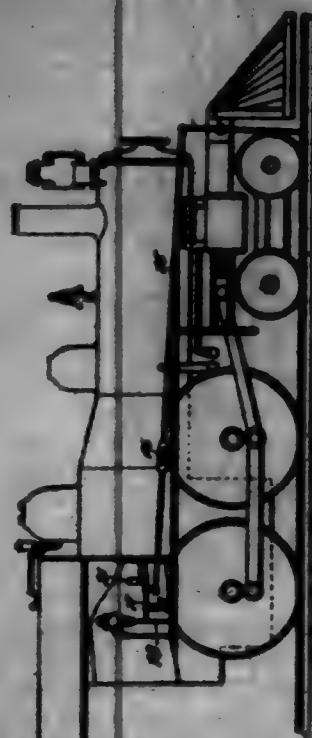
11. In a cigarette-machine, the combination of a cam-grooved carrier member having a spiral feeder, means to impart slidable movement to said carrier member, yieldable stops disposed in the path of projection from said carrier member, and a slidable bar mounted to travel with the carrier member for a limited distance and having means engaging with the groove of said member and other projections adapted to engage with the stop devices.

12. In a cigarette-machine, the combination of a shaping and forming mold having a movable member, a filler mechanism including a spiral feeder, mechanism to impart a traveling motion to said filler mechanism, and means for opening and closing the mold on the rotation of the filler mechanism.

13. In a cigarette-machine, the combination of a mold, a filler mechanism including a spiral feeder which is adapted to be thrust with a twisting movement into said mold, and a common mold and filler actuating mechanism having operative connection with the filler mechanism to impart slidable travel thereto and an operative connection with the mold to open and close the latter.

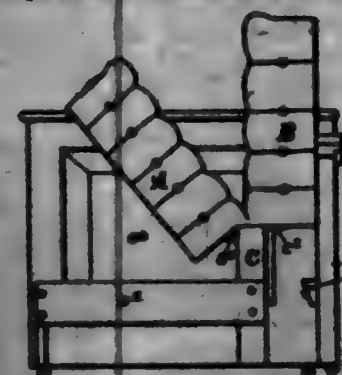
14. In a cigarette-machine, the combination with a forming and shaping mold, of a filler mechanism having a spiral feeder and means for giving a twisting movement to said feeder when advanced into the mold, mechanism for imparting traveling movement to the feeder mechanism and means for opening and closing the mold.

700,041. **WHEEL**. WILLIAM E. HANDELIN, Thompson, Pa. Filed Dec. 13, 1901. Serial No. 33,083. (No model.)



Claim.—In a wheel, a camshaft part and its arm, a bell-crank pivoted to the part near the bottom, a cam-block slidable with relation to one of the rails of a railway-track, a yoke secured to the block, a link connected to the yoke and pivotally connected to the bell-crank, means whereby the bell-crank operates to lift the camshaft-arm and move the block close to the rail, a tripping-lever carried by the engine operated by contact with the cam-block, a pipe tapped in the main-pipe of an air-brake system, a whistle on the pipe, a valve in the pipe and a connection from the tripping-lever to the valve whereby said valve is opened when the lever is tripped as and for the purpose described.

700,042. **FOLDING SUGAR-BED**. RICHARD C. HARRINGTON, Denver, Colo. Filed Apr. 9, 1901. Serial No. 33,084. (No model.)



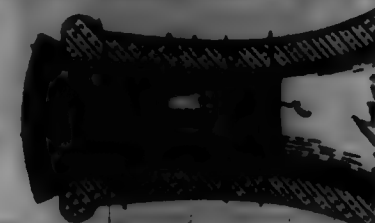
Claim.—1. In a bed-bed, the combination with a pair of ends, each composed of a stationary and an adjustable section hinged together whereby the said adjustable section may be extended in alignment with the stationary section and arranged at right angles to said stationary section, of a vertically-extending support arranged between the stationary section of the ends, an adjustable rest adapted to engage over and upon the top of said support when the said rest is in a lowered position, means for suitably hinging one side of the rest to the support to permit of elevating the said rest, an adjustable back adapted to extend over and upon the top of the said support when the said back is in a lowered position, means for suitably hinging the back to the said support to permit of vertically adjusting the said back, an elongated clasp secured to the stationary section of the ends, clasp connected to the rest and engaging in the clasp of the ends for supporting the rest when in a lowered position, and means carried by the adjustable section of the ends for supporting the back when in a lowered position.

2. In a bed-bed, the combination with a pair of ends, each composed of a stationary and an adjustable section hinged together whereby the said adjustable section may be extended in alignment with the stationary section and arranged at right angles to said stationary section, of a vertically-extending support arranged between the stationary section of the ends, an adjustable rest adapted to engage over and upon the top of said support when the said rest is in a lowered position, means for suitably hinging one side of the rest to the support to permit of elevating

the said rest, an adjustable back adapted to extend over and upon the top of the said support when the said back is in a lowered position, means for suitably hinging the back to the said support to permit of vertically adjusting the said back, an elongated clasp secured to the stationary section of the ends, clasp connected to the rest and engaging in the clasp of the ends for supporting the rest when in a lowered position, means carried by the adjustable section of the ends for supporting the back when in a lowered position, and means carried by the rear face of the back and adapted to extend over and engage the adjustable section of the ends when the latter are arranged at right angles to the stationary section for securing the back in a vertical position, substantially as herein shown and described.

3. In a bed-bed, the combination with a pair of ends each composed of a stationary and an adjustable section hinged together whereby the adjustable section may be extended in alignment with the stationary section, a support arranged between the sections, a rest, means for hinging the rest to the said support, an adjustable back, means for hinging the back to the support, means carried by the ends and engaging with the rest for supporting the same, means carried by the adjustable section for supporting the back when in a lowered position, and means carried by the rear face of the back and adapted to engage with the top of the adjustable section of the ends for securing the back in a vertical position.

700,043. **BOTTLE-STOPPER**. JOHN HANCOCK, Chesham, Canada. Filed Aug. 4, 1901. Serial No. 33,085. (No model.)

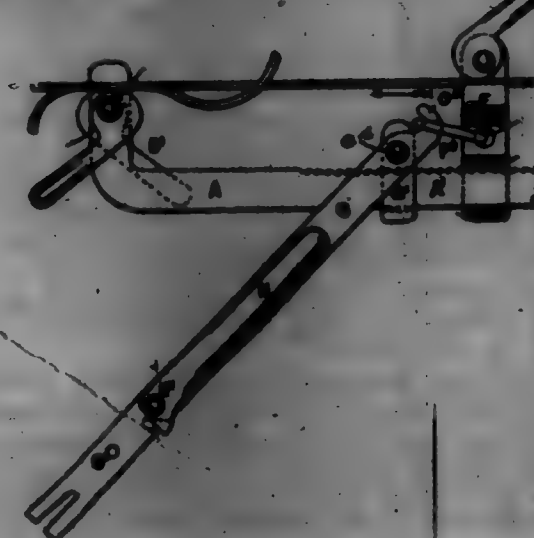


Claim.—1. The improved bottle-stopper comprising a body having a conical recess in its lower portion, the walls of the latter being tapered or beveled and the end of the same being flat as described, a conical plug conformed to and adapted to enter said recess and having an integral dash provided with a cap for operating it, an expansible ring or washer interposed between the flat end of the walls of the body and a shoulder of the plug, whereby upon rotating the cap the plug is drawn into the said recess and the ring or washer expanded as described.

2. In bottle-stoppers, a body-section provided with a conical recess in its bottom portion, a conical plug adapted to enter the said recess, an elastic band located at the exterior of the parts of the body and compressed by the action of the said plug when entering the recess in the body, a locking device connected with the plug, and a cap above the body of the stopper, the whole attached to the locking device, and through the medium of which cap the locking-bar is manipulated, as described.

3. A bottle-stopper, consisting of a body provided with a recess in its bottom, an expansible ring at the lower portion of said body, an expanding-plug which enters the recess in the body, the exterior portion of the plug being formed correspondingly to the inner contour of the said recess, a locking-bar connected with the plug, and a cap above the body, connected with the locking-bar and adapted in its operation to draw the plug upward in the said recess through the medium of the locking-bar, as set forth.

700,044. **APPARATUS FOR STRAINING WIRE**. THOMAS HUNT, Dunedin, New Zealand. Filed July 23, 1901. Serial No. 33,086. (No model.)



Claim.—In a wire-strainer, a longitudinally-extending main sliding bar having one end bent in a vertical manner terminating in a horizontally-extending arm with a grooved lower face, a pair of clips secured to said vertically-extending portion of the main bar, a movable head consisting of a vertical member having one side thereof formed with an offset provided with a grooved upper edge, a clip secured to said movable head above the said grooved offset, an auxiliary head mounted upon said main bar, a lever pivoted to the said auxiliary head and adapted to be re-depressed, and suitable connections between the lever and the movable head for causing the operation of the latter when the lever is re-depressed.

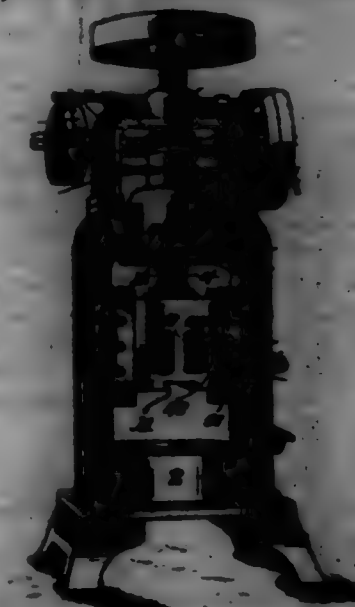
700,045. **BAKE-OVEN FOR GAS OR GASOLINE STOVE**. EDWARD W. HILLMAN, Kansas City, Kans. Filed Sept. 10, 1901. Serial No. 33,087. (No model.)



Claim.—1. In an oven of the character described, the combination with the casing provided with an inwardly-projecting annular flange having a central draft-opening, a deflector secured to said flange above said opening, and shelves in said opening and provided with supporting-legs, the supporting-legs of the uppermost shelf being longer than those of the lowermost shelf, the supporting-legs of said shelves extending laterally from the edges of said shelves and engaging the sides of the oven to prevent lateral shifting of said shelves, substantially as set forth.

2. In an oven of the character described, the combination with the oven-casing having a top consisting of two parts spaced apart, one of said parts being provided with draft-openings at the center and the other part being provided with draft-openings near its periphery, an inwardly-projecting annular flange secured to the lower end of the casing and having a central draft-opening, a deflector secured to said flange above said opening, and shelves in said opening and provided with supporting-legs, the supporting-legs of the uppermost shelf being longer than those of the lowermost shelf, the supporting-legs of said shelves extending laterally from the edges of said shelves and engaging the sides of the oven to prevent lateral shifting of said shelves, substantially as set forth.

700,046. **POWER SCREW-PRESS**. HENRY J. HARRIS, Toledo, Ohio. Filed Apr. 10, 1901. Serial No. 33,088. (No model.)



Claim.—1. In a press, the combination with a suitable frame and a reciprocating plunger mounted therein, of a screw-shaft for moving the said plunger, gearing for operating the said shaft, an actuating-shaft mounted upon the frame and adapted to engage oppositely-moving belts, sub-

leg-rods adapted to engage the said belt, rocking cam-blocks engaging the said shifting-rods, means for moving both the cam-blocks back and forth in opposite directions to each other simultaneously, comprising a bar connecting them, whereby the cam-blocks may be moved in either direction, or may be brought to a standstill, substantially as described.

2. In a press, the combination with a suitable frame, and a reciprocating plunger mounted therein, a curved shaft for moving the plunger, mechanism for connecting the said curved shaft with oppositely-moving power-belts, shifting-rods engaging the said belt, rocking cam-blocks engaging the said shifting-rods for reciprocating them, a bar connecting both the said cam-blocks together said bar being connected with means arranged in the path of a projection on the plunger, whereby the belt may be automatically moved to arrest the descent of the plunger and reverse its motion, said means also operating to automatically arrest its upward movement, substantially as described.

3. In a press, the combination with a suitable frame, and a reciprocating plunger mounted therein, a curved shaft for moving the plunger, mechanism for connecting the said curved shaft with oppositely-moving power-belts, shifting-rods engaging the said belt, cam-blocks engaging the said shifting-rods for reciprocating them, means connected with the said cam-blocks and arranged in the path of a projection on the plunger, whereby the belt may be automatically moved to arrest the descent of the plunger and reverse its motion, said means also operating to automatically arrest its upward movement, substantially as described.

4. In a press, the combination with a frame and a reciprocating plunger-carrier, of a shaft for driving said carrier, belt for actuating the shaft in different directions, shifting-rods engaging the said belt, pivoted cam-blocks, having cam-grooves formed in their faces, and adapted to engage wrist-pins on the said shifting-rods, rods connecting the said cam-blocks with each other and with a hand-lever, a rock-shaft mounted upon the frame of the machine and connected with the said rods, an actuating-arm on one end of the said rock-shaft, legs carried by the plunger and adapted to engage the said arm for automatically operating the belt-shifting mechanism to correspond with the position of the plunger in the machine, substantially as described.

5. In a press, the combination with a frame, a reciprocating plunger mounted therein, of shifting and gearing for operating the same, belt-shifting rods for controlling the application of power to the said mechanism, pivoted cam-blocks having cam-grooves upon their faces adapted to engage projections on the shifting-rods, the said cam-blocks being arranged to swing in opposite directions from each other, rods for operating them simultaneously, means for imparting movement to the rods from the plunger, the structure being such that when the plunger is at its lowest point one of the cams will be moved so as to rotate the shifting-rod and apply one belt so as to drive the machine in one direction, and when the plunger is moved in the other direction the other cam will be operated to produce an opposite movement of the parts, the structure also being arranged to bring the said mechanism to rest at the proper time, substantially as described.

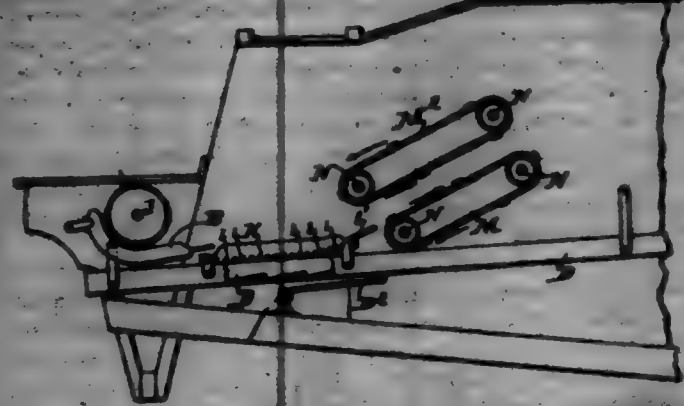
6. In a press, the combination with a reciprocating plunger, of mechanism for moving the same up and down, cam-blocks for controlling the application of power to the said mechanism through the agency of belts, a rock-shaft for operating the said cam-blocks, an arm on the said rock-shaft, adjustable legs mounted on the said plunger, adapted to contact with said arm, belt for adjustably securing the said legs to the plunger, the said belt engaging a longitudinally-arranged groove upon the plunger, the structure being such that the legs may be so set that the plunger will be arrested in its downward movement and reversed at the proper time, and will be stopped in its upward movement at a proper point, substantially as described.

7. A press comprising a main frame, a reciprocating plunger mounted therein, a curved shaft for moving the same up and down, a bushing, having internal threads adapted to engage the threads upon the curved shaft, the said bushing being seated in a recess formed in the main frame, the said bushing having a head formed with beveled edges adapted to be brought opposite beveled faces on the main frame, and legs of a suitable size to fit between the beveled edges and the inclined faces by the insertion of which the bushing will be securely locked in position in the main frame, and means for reciprocating the carrier, substantially as described.

700,047. GRAIN-THRESHING MACHINE. FREDERICK H. HAYMAN, Grandfield, Iowa. Filed June 25, 1899. Serial No. 64,283. (No model.)

Claim.—A shaker suspended under the cylinder and concave, an extension at the rear of the said carrier adapted to serve as a bridge between the auxiliary shaker and the two parallel concaves and carrying drive-carriers, two endless carriers in parallel upwardly-inclined planes in rear of the auxiliary carrier on the shaker and means for simultaneously actuat-

ing the shaker and the endless carriers in contact with the cylinder, arranged and combined to operate in the manner set forth for the purpose stated.



700,048. HOO-CARDLER. HENRY E. HUGHES, Correspondent, Wm. Filed Jan. 7, 1899. Serial No. 64,284. (No model.)

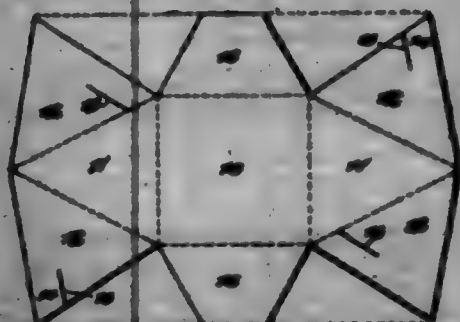


Claim.—1. In a device of the class described the combination with a casing constructed to accommodate a lamp, a shelf hinged to said casing, a concave screen secured to said shelf and a reflector mounted to concentrate the light of said lamp on eggs placed on said screen, substantially as described.

2. In a device of the class described, the combination with a casing having diverging sides and divided into upper and lower compartments by a transverse partition, a hinged shelf located below an aperture communicating with said upper compartment, a concave screen secured to said shelf, and a reflector mounted to reflect the light of a lamp placed in said casing against eggs placed on said screen, substantially as described.

3. In a device of the class described, the combination with a casing having diverging sides and divided into upper and lower compartments by a transverse partition, a hinged shelf located just below an aperture in said upper compartment, a concave screen secured to said shelf and constructed to support eggs, means for adjusting said hinged shelf to vary the angle of incidence of light falling on the eggs placed thereon, and a reflector mounted to reflect the light of a lamp placed within said casing on eggs placed on said shelf, substantially as described.

700,049. FOLDING BOX. JAMES C. HAYMAN, Washington, D. C. Filed July 11, 1899. Serial No. 67,573. (No model.)



Claim.—1. In a pyramidal folding box, the combination with a bottom, of side walls hinged to the bottom and spaced from each other, said walls tapering toward their outer ends, side flaps hinged to the side edges of the walls and arranged to overlap when set up, and means carried by the flaps for detachably securing together the flaps which are on the corresponding edges of the side walls.

2. In a folding box, the combination with a bottom, of side walls hinged to the bottom and spaced from each other, said walls tapering toward their free ends, means for fastening the side walls together at their upper or free ends, side flaps hinged to the side edges of the walls, and interlocking means carried by the flaps for detachably securing together the flaps which are on the corresponding edges of the walls.

3. In a pyramidal folding box, the combination with a polygonal bottom, of side walls hinged to the opposite side edges of the bottom and tapering toward their free ends, means for securing the upper ends of the opposite side walls together, side flaps hinged to the side edges of the walls, said flaps being arranged in overlapping relation when the walls are set up, and means carried by the overlapping flaps for detachably securing them together.

4. In a pyramidal folding box, the combination with a polygonal bottom, of side walls hinged to the opposite side edges of the bottom, and tapering toward their free ends, side flaps hinged to the side edges of the walls, said flaps being arranged in overlapping relation when the walls are set up, one of the side flaps being provided with a flange extending to its hinged edge and the other having a tongue at its outer edge that engages in the slit, whereby the flaps may be detachably secured together.

5. In a pyramidal folding box, the combination with a bottom, of side walls hinged to the bottom and spaced from each other said walls tapering toward their outer ends, wings also hinged to the bottom between the side walls, said wings tapering toward their outer ends, flaps hinged to the side walls and adapted to be placed in overlapping relation over the wings when said side walls are set up, and detachably-interlocking means carried by the overlapping flaps for detachably securing them together.

6. In a pyramidal folding box, the combination with a rectangular bottom, of triangular side walls hinged to the opposite side edges of the bottom, wings hinged to the bottom between the side walls and tapering toward their outer ends, triangular flaps hinged to the side edges of the walls and being of the same size thereof, said flaps being adapted to be placed in overlapping relation over the wings when the walls are set up, one of the overlapping flaps having a tongue and the other a slit that receives the tongue whereby they are detachably secured together.

700,050. FLAT IRON. WILLIAM E. HUGHES, New York, N. Y. Filed Jan. 24, 1899. Serial No. 64,285. (No model.)



Claim.—1. A flat brush provided with a metallic band encircling the butt-end of the bristles, and having metallic outward extensions on the front and rear faces, linings of flexible material for the said extensions and extending beyond the outer ends of the extensions and beyond the sides thereof, and a connection between the front and rear metallic extensions at or near the sides thereof, as set forth.

2. A flat brush provided with a metallic band encircling the butt-end of the bristles and having outward extensions on the front and rear faces, linings of flexible material for the said extensions and extending beyond the ends, and a connection between the front and rear metallic extensions at or near their sides and comprising wires or cords extending around the outside of the bristles, as set forth.

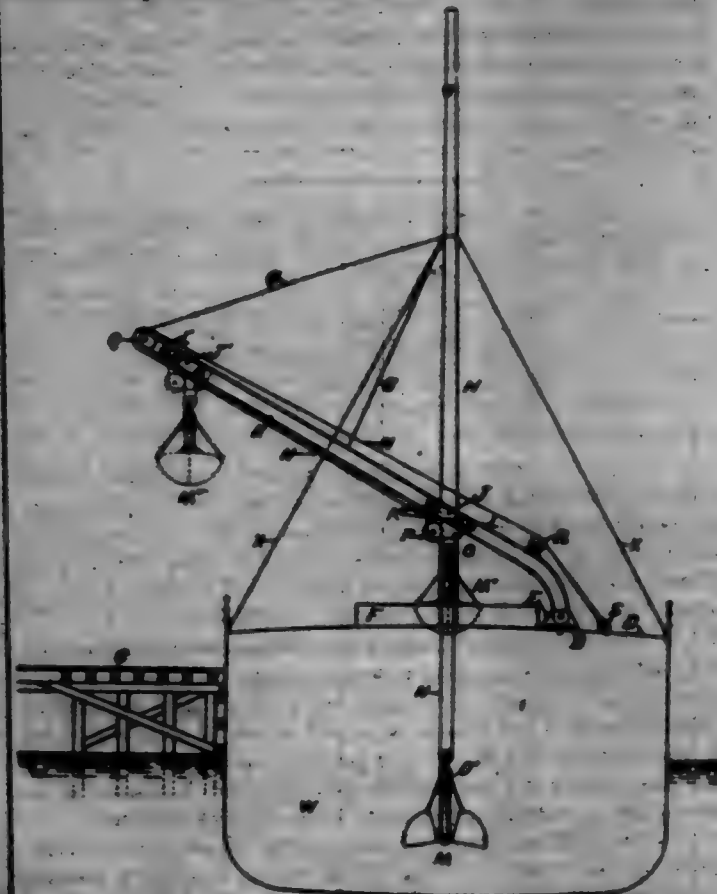
3. A flat brush provided with a band encircling the butt-end of the bristles and secured on the head of the handle, the band having outward extensions on the front and rear faces, flexible linings for the said extensions and secured thereto by eyelets, and wires or cords extending through the eyelets at or near the sides of the extensions and connecting the front and rear extensions, as set forth.

4. A flat brush provided with a band encircling the butt-end of the bristles and secured on the head of the handle, fastening devices extending through the band and bristles and engaging the wooden core in the butt-end of the bristles, the said band having outward extensions on the front and rear faces, flexible linings for the said extensions extending beyond the outer ends of the extensions, and the sides thereof and wires or cords connecting the front and rear extensions at or near the sides thereof, as set forth.

700,051. BERRY FOR UNLOADING SHIPS. WILLIAM E. HUGHES, Louisville, Ky. Filed Sept. 12, 1899. Serial No. 73,142. (No model.)

Claim.—1. In boats for unloading ships, the combination of a trolley-wagon J, an inclined trolley-track A attached to the deck of the ship by a hinge and pivot, and supported from above by guys; said trolley-track being a single beam of "I-beam" section, with the wheels of the trolley-wagon running on and outside of the bottom flange thereof, together with line K attached to a hook M, running through said trolley-

wagon and along said trolley-track; said line being controlled by engine, all for the purpose of lifting freight out of the ship's hold toward the outward end of the trolley-track, in order to transfer it to a deck or to another ship, substantially as described.



2. In boats for unloading ships, the combination of a trolley-wagon J on inclined trolley-track A attached to the deck of a ship by a hinge and pivot, and supported from above by guys, together with line K attached to a hook M, running through said trolley-wagon and along said trolley-track; said line to be controlled by engine, all for the purpose of lifting freight out of the ship's hold toward the outward end of the trolley-track, in order to transfer it to a deck or to another ship, substantially as described.

700,052. ELECTRIC MOTOR-CAR OR LOCOMOTIVE. CHAS. H. KAMM, Budapest, Austria-Hungary. Filed Apr. 12, 1899. Serial No. 64,286. (No model.)



Claim.—1. An electric motor-car or electric locomotive for high-tension electric system, having the conductors, motors and all parts con-

rying current within the car insulated by but insulated from metallic covers surrounding and protecting all such insulated parts, such metallic covers not being part of the electric circuit, but means being provided to electrically connect said covers to the rails, substantially as and for the purpose described.

2. An electric motor-car or electric locomotive for high-tension systems, having the current-carrying parts insulated within but insulated from protective metallic covers electrically connected to the wheels of the vehicle, to form an earth connection for the said covers, as and for the purpose described.

700,058. KNIFE FOR GULLOTINE PAPER-CUTTING MACHINE. THOMAS R. KIMMEL, London, England. Filed Mar. 7, 1898. Serial No. 97,112. (No model.)



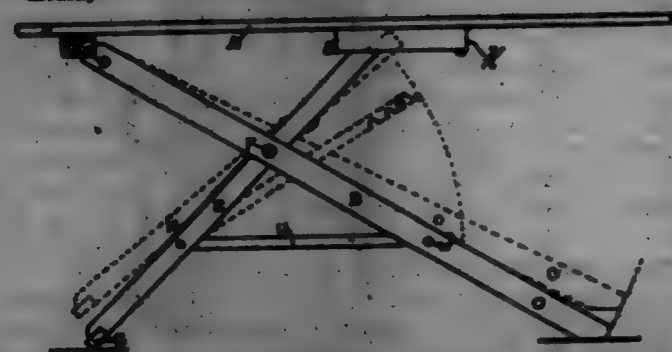
Claim.—1. A knife for guillotine paper-cutting machines, provided with a hole for the passage of a bolt therethrough, and a recess concentric to said hole, of a hole having a chamfer adapted to extend through said hole in the knife, and having its head provided with eccentric portions to engage said recess in the knife, whereby said knife may be adjusted by turning said bolt, substantially as described.

2. The combination with a knife for guillotine cutting-machines, provided at intervals with a pair of apertures arranged in a line substantially perpendicular to the edge of the blade, and a series of bolts, each having a chamfer adapted to pass through one of said pair of apertures, and having its head provided with an eccentric projection adapted to pass through the other aperture of a pair, whereby said knife may be adjusted by removing said bolts and reversing them, substantially as described.

3. In a guillotine cutting-machine, the combination with the knife-carriage provided with a bolt-hole formed therein, of the knife provided on one face with a recess, and having two holes formed in the knife at the bottom of said recess, said holes being in a line substantially perpendicular to the cutting edge, of a securing and adjusting bolt having a chamfer adapted to pass through one of the holes in said knife, and the hole in the knife-carriage, said bolt having a head adapted to fit in said recess of the knife and provided with a projection to engage the other of said holes, substantially as described.

4. A knife for guillotine paper-cutting machines having a number of recesses formed at its top or back, the said recesses being provided with two holes through the knife, substantially as, and for the purpose, hereinafter described.

700,054. FOLDING IRONING-TABLE. WILHELM R. KRAFT, Grand Rapids, Mich. Filed June 17, 1891. Serial No. 64,995. (No model.)



Claim.—1. In an ironing-table, a top, a plurality of standards pivoted to each other and one of them pivoted to the top, a part fastened to said top, having grooves, projections upon one of the standards slotted in said grooves, and a ratchet-frame hinged to the top, the notches of which are adapted to engage one of the standards, and having projections at each side thereof extending outwardly therefrom, the standard being recessed to receive said projections.

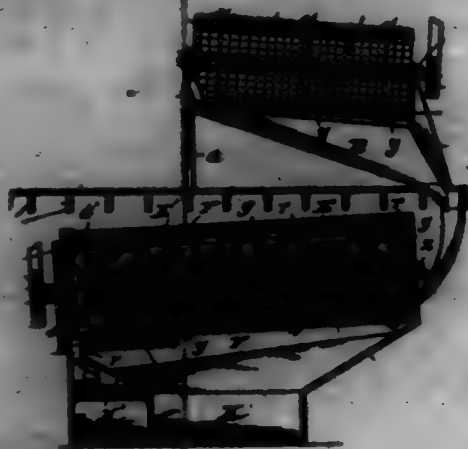
2. In combination with a table-top, a pair of front standards pivoted thereto, a pair of rear standards pivoted to said front standards, a bed-frame secured to the table-top and provided with a rod connecting its free ends and extending on either side beyond said frame, a ratchet-rod connecting the upper ends of the rear standards, having its ends extending on either side beyond the standards and adapted to engage with the grooves in the bed-frame, substantially as described.

3. In an ironing-table a top, a bed-plate on the under side of said top near one end thereof, a bed-frame on the under side of the top at the

opposite end of the latter, means for reversibly connecting the top to the bed-plate and bed-frame, a standard having projections at one end and the bed-frame being grooved to receive said projections, a second standard pivoted to the other standard and hinged to said bed-plate, a ratchet pivoted to the frame, said ratchet serving to engage the first standard, and means carried by the ratchet for preventing said projections from being displaced from their grooves.

4. In an ironing-table the combination of front and rear standards a bed-frame K having grooved side pieces and a ratchet-frame J hinged to the said bed-frame, a rod I connecting the upper ends of standards E and extending on either side into the grooves in side pieces of bed-frame K, hooked notches H in hinged ratchet-frame adapted to engage ratchet-rod I, a rod O connecting the free ends of the ratchet-frame and extending beyond on each side, and projects P on the inside of standards K, all substantially as and for the purpose set forth.

700,055. MACHINE FOR SEPARATING AND CLEANING CORN CULLINGS. RICHARD S. KRAFT, Toledo, Kans. Filed Jan. 11, 1899. Serial No. 42,912. (No model.)



Claim.—1. The combination, in a machine for separating and cleaning corn cullings, of an inclined cylindrical rotating screen, its upper portion being of a fine mesh, and its lower portion of a coarse mesh; a cylindrical rotating screen of larger diameter and substantially the same size mesh as said upper portion, and surrounding, parallel to and concentric with, said lower portion, the lower end of said larger screen being flanged outwardly; and an annular or ring-like conveyor-box, which induces the said flanged lower end of said surrounding screen, substantially as shown.

2. In a machine for separating and cleaning corn cullings, the combination of a rotating cylindrical screen and a wind-distributing box, said box being placed along and near, but not in contact with, the outside of said screen, and consisting of an elongated box, its inner face open, containing a series of graduated vanes or wind-guides, fixedly attached within said box, at an angle to the direction of the incoming blast, thence toward said screen, substantially as shown.

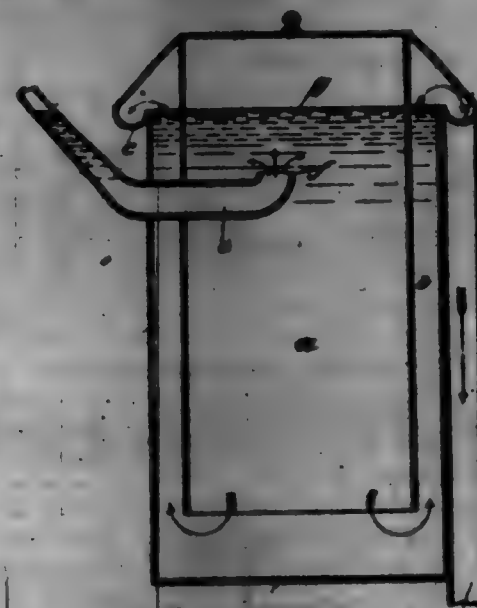
3. The combination, in a machine for separating and cleaning corn cullings, of a primary inclined cylindrical rotating screen of a large mesh; a secondary inclined cylindrical rotating screen having its upper portion fine-meshed and its lower portion coarse-meshed; a tertiary inclined cylindrical rotating screen, of a fine mesh, surrounding, parallel to and concentric with, the lower, or coarse-meshed portion of said secondary screen, and having its lower end flanged outwardly; an annular ring-like conveyor-box, which has an annular opening in its inner facing side, in which is rotatably located said flanged end of said tertiary screen; an inclined representing shaker-screen, and an incline plane located facing the lower end of said shaker-screen, and a blower with a throat or guiding-opening, which direct the blast from the blower along substantially horizontally under said shaker-screen and against said incline plane; together with suitable chutes and receptacles, substantially as shown.

700,056. APPARATUS FOR THE KNOWING OF FATS ON THE LIVER. GUNTER KRIEGER, Wiesbaden, Germany. Filed Aug. 26, 1894. Serial No. 73,265. (No model.)

Claim.—1. In an apparatus for separating fat from liquids, the combination of an outer vessel, an inner vessel therein open at bottom, an overflow for the outer vessel below the top of the inner vessel, and an inlet-pipe leading laterally through the walls of both vessels and opening into the inner vessel below the water-level, substantially as described.

2. In an apparatus for separating fat from liquids, the combination of an outer vessel, an overflow-channel at the upper end thereof, a cylindrical open-ended vessel within the outer vessel, but separated from the walls thereof and rising above the overflow-channel, an inlet-pipe

opening into the inner vessel below the water-level therein, and an overflow-pipe from said channel, substantially as described.



3. In an apparatus for separating fat from liquids, the combination of the outer vessel having an annular overflow-channel around its top, and an overflow-pipe from said channel, a cylindrical vessel located within the outer vessel open at bottom and extending above the outer vessel, and an inlet-pipe arranged below the channel and passing laterally through both vessels and opening upwardly into the inner vessel below the water-level thereof, substantially as and for the purpose described.

700,057. BROOM-CORNER-KNIFE. BRUNO P. LA GRAM, A-Ges, Conn. Filed Feb. 15, 1891. Serial No. 67,069. (No model.)



Claim.—A downwardly tapering detachable broom-corner-knife having one longitudinal portion of iron, and the other portion of steel, the steel being harder in its exposed parts remote from the iron.

700,058. BROOM-CORNER-KNIFE. GUNRAY A. LAMSON and JOHN E. JOHNSON, Worcester, Mass. Filed June 2, 1893. Serial No. 10,945. (No model.)



Claim.—1. In a knife of the kind described, the combination of a blade having its sides converge toward the rear edge, and having its front edge sharpened, a handle-retaining member held upon the rear of the blade and U-shaped handle-sections carried by the said retaining-section, substantially as shown and described.

2. In a knife of the kind described, the combination of a blade having a handle-retaining member connected thereto, and handle-sections slidably held by said retaining member, substantially as shown and described.

3. In a knife of the kind described, the combination of a blade having one edge provided with a cutting-surface, a handle-retaining member arranged on said blade opposite the cutting-surface, the said retaining member having its free edges bent to form guides, and handle-sections having their outer ends provided with apertures, their inner ends arranged to fit and slide within the guides of the retaining member, and a cord or strap connecting the same ends of the handle, substantially as shown and described.

700,059. CALIBREBAR. MALVIN LAMSTER, New York, N. Y. Filed Nov. 27, 1891. Serial No. 38,929. (No model.)

Claim.—1. A display device of the class described, comprising a plate having a pair of parallel slots, and a display-strip for engagement

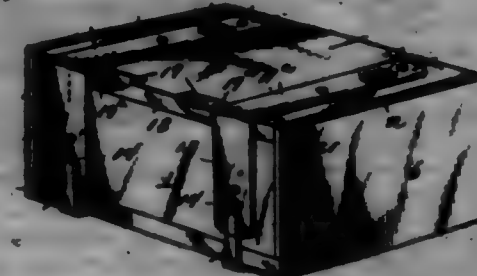
with the slots and extending at its ends through the slots to display a portion of the strip at the front of the plate between the slots, said display-strip being flexible and having its ends free and curled up at the back of the plate adjacent to the slots to hold the strip in position, as set forth.

2. A display device of the class described, comprising a plate having a pair of parallel slots, and a display-strip for engagement with the slots and extending at its ends through the slots to display a portion of the strip at the front of the plate between the slots, said display-strip being flexible and having its ends free and curled up at the back of the plate adjacent to the slots, the curled free ends extending toward each other to exert pressure in opposite directions on the displayed portion, to draw the same taut on the front face of the plate, as set forth.

3. A display device of the class described, comprising a plate having pairs of parallel slots, the pairs standing at angles to each other, and a display-strip for each pair of slots, extending at its ends through the slots to display a portion of the strip at the front of the plate between the slots, each of the display-strips being flexible and having its ends free and curled up at the back of the plate adjacent to the slots, the curled free ends extending toward each other to exert pressure in opposite directions on the displayed portion, to draw the same taut on the face of the plate, as set forth.

4. A display device of the class described, comprising a flat body having a pair of spaced and parallel slots, and a display-strip passed through the slots to display a portion of the strip at the front of the body between the slots, the said strip being of resilient material and held in the position to which it is adjusted by its resiliency, as set forth.

700,060. BOOK-SHELF AND SHIPPING-CRATE. ALVA A. LUDLOW, Dayton, Ohio. Filed May 7, 1891. Serial No. 34,173. (No model.)



Claim.—1. In a bookcase and shipping-box, a body portion adapted to be used as a book case or shelf, said body portion being of a depth sufficient to provide a space between the top of the books and the bottom of the contiguous book case or shelf, to permit the books being tilted, straps secured to the body portion, and provided with slots, a cover consisting of sides, a front, and a back, books secured to the front and adapted to engage the slots, and means for securing the sides to the body portion.

2. In a bookcase and shipping-box, comprising a body portion adapted to be used as a book case or shelf, said body portion being of a depth sufficient to provide a space between the top of the books and the bottom of the contiguous book case or shelf, to permit the books being tilted, and a cover adapted to be secured to said body portion, to embrace the edges and sides of the body portion to protect them from injury.

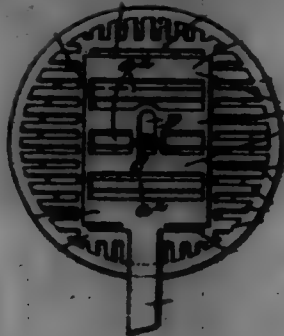
3. The combination with a body portion; of a cover consisting of sides having top and front flanges provided with perforations, of a front having perforations, and of a top having perforations, plates having perforations, and secured to said top and front, threaded screws mounted in the perforations in the front and top, screw-bolts passing through the perforations in said plates into said screws to secure them to the plates, screw-bolts passing through the perforations in the flanges into said screws to secure the front, top and sides together, and means substantially as described for securing the cover to the body portion.

4. A shipping-box comprising a body portion having recesses in the back thereof and passages communicating with said recesses and the edges and sides of said body, L-shaped straps secured to said body portion and having perforated ends fitting in said recesses in said body, and the opposite ends of said straps are provided with slots, a cover provided with perforations adapted to slide with said passages, bolts upon said cover to engage said slots, and screw-bolts passing through said perforations and passages into said recesses, substantially as described.

5. In a bookcase and shipping-box, comprising a body portion adapted to be used as a book case or shelf, and consisting of a bottom, sides and a back, said body portion being of a depth sufficient to provide a space between the top of the books and the bottom of the contiguous book case or shelf, to permit the books being tilted, and a cover adapted to be secured to said body portion and consisting of a top to occupy said space to prevent the books having any movement in the box, a front and sides to embrace the edges and sides of the body portion to protect them from injury.

1. In a bookcase and shipping-box, a body portion adapted to be used as a book case or shelf, said body portion being of a depth sufficient to provide a space between the top of the books and the bottom of the contiguous book case or shelf, to permit the books being tilted, straps secured to the body portion and provided with slots, a cover consisting of sides having top and front flanges, a front end and a back, means for securing the front and back to the flanges, books secured to the front and adapted to engage the slots, and means for securing the sides to the body portion.

700,061. SEATE. THOMAS E. LUMA, Minneapolis, Minn. Filed Jan. 2, 1891. Serial No. 82,888. (No model.)



Claim.—1. The grate herein described comprising the main or basket section having a bottom frame provided with cross-bars spaced apart and with side bars inclining inwardly toward the bottom frame, a depending pivot-rod on the bottom frame, and the shaker having a handle and a frame and cross-bars adapted to partly close the space between the bars of the bottom of the main section and a bearing opening or slot for the pivot-rod elongated from front to rear whereby the shaker-section can be oscillated with respect to a vertical axis and reciprocated, substantially as set forth.

2. The combination of the main or basket section provided with side bars and with the flat bottom having cross-bars, and the shaker-section supported below said bottom and capable of oscillating with respect to a vertical axis and reciprocating substantially as set forth.

3. The grate herein described having the main section provided with a bottom having openings, and the shaker-section supported to oscillate with respect to a vertical axis and to reciprocate beneath said bottom substantially as set forth.

4. The combination of the grate-section having a depressed or basket form, and the shaker arranged close beneath the grate-section and capable of oscillating with respect to a vertical axis and of reciprocating substantially as set forth.

5. The combination of a fixed or main grate-section having a depressed or basket form and a movable shaker close beneath said section and capable of oscillating with respect to a vertical axis and of reciprocating substantially as set forth.

6. A grate comprising the main section having its bottom formed of cross-bars spaced apart, and the shaker-section supported close below the said bottom and having its cross-bars formed to partly close the space between those of the grate-bottom, each shaker being capable of oscillating with respect to a vertical axis and of reciprocating substantially as set forth.

7. A grate composed of a main fixed section and a shaker-section below the fixed section, the entire shaker-section being arranged and supported to oscillate with respect to a vertical axis and to reciprocate beneath the fixed section substantially as set forth.

8. The combination of the fixed section having a stud and a shaker-section having an elongated opening or slot receiving the stud, whereby the shaker-section can be oscillated with respect to a vertical axis and reciprocated, substantially as set forth.

9. The grate herein described, comprising the basket-section having its bottom formed with cross-bars, and provided on said bottom with a depending pivot-rod, and a shaker comprising a frame and cross-bars, and provided with a vertical opening for the passage of the end of the basket-frame, said opening being elongated whereby the shaker-section can be oscillated around the pivot-rod as a vertical axis, and can be reciprocated below the basket-section substantially as set forth.

700,062. MANOLE. DAVID LINDAHL, West Ny City, N.Y. Filed Nov. 2, 1891. Serial No. 81,088. (No model.)

Claim.—In a manhole, the combination with the side standards, each of which consists of parallel upright bars, the lower ends of the bars of each standard being rounded from a point midway their length to their upper ends to form grooves or ways, filling-blocks clamped between said bars at their lower ends, blocks mounted to slide in said grooves or ways,

a roll journaled in bearings formed between the contiguous faces of the filling-blocks, a roll journaled in bearings formed in the contiguous faces of the sliding blocks and the upper faces of the uppermost filling-blocks, and means for exerting a downward pressure upon said sliding blocks, substantially as set forth.



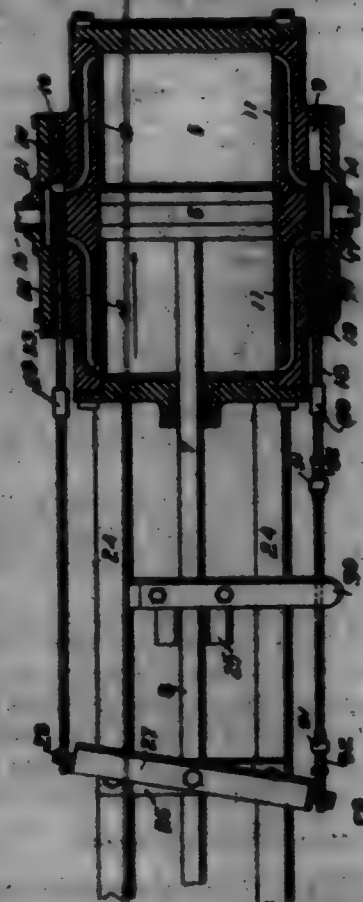
700,063. PROCESS OF RECONSTRUCTING RAILROAD-RAILS. VERNON T. LYMAN, Chicago, Ill. Filed Jan. 4, 1892. Serial No. 83,542. (No model.)



Claim.—1. The process of transforming flanged rails into grooved rails while in position on the road-bed, which consists first in swinging or offsetting the edge of the flange of the rail, and then cutting a strip of metal on the flange parallel to the ball or tread of the rail.

2. The process of transforming flanged rails into grooved rails, while in position on the road-bed, which consists in first swinging or offsetting the edge of the flange of the rail at one or more parts to form projecting portions at said edge, second, protecting the portion of the flange adjacent to the tread, third, running a mass of molten metal along the unprotected outer portion of the flange and parallel to the ball or tread of the rail, and allowing the metal to harden on the flange, thereby forming a second tread spaced from the tread of the rail to produce the groove, the swung or offset portion of the flange serving to retain the second tread in position.

700,064. UPRIGHT-ROCKING. ARTHUR J. MANTON, N.Y. Filed Feb. 3, 1892. Serial No. 82,311. (No model.)



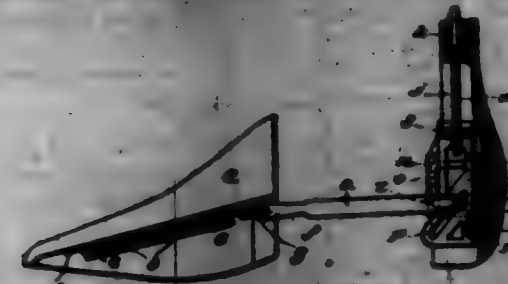
Claim.—1. The combination in a steam-engine, of the cylinder, valve-chests arranged on opposite sides of the same, there being ports or passages leading from the opposite ends of the cylinder to said valve-chests, slide-valves disposed within the chest, valve-rods connected to said

valve and to each other, one of said valve-rods having a pair of lugs, and a tappet-bar actuated by the movement of the piston of the engine and adapted to make contact with said lugs.

2. The combination in an engine, of the cylinder, valve-chests arranged on opposite sides of the same, there being ports or passages leading between the valve-chests and the opposite ends of the cylinder, a piston in said cylinder, a piston-rod connected to the piston, a tappet-bar connected to and movable with the piston-rod, valve-rods connected to the valves, a pivoted lever to which both rods are connected, and one of said valve-rods being provided with lugs adapted to be engaged by the tappet-bar, substantially as specified.

3. The combination in a steam-engine, of the cylinder, valve-chests arranged on opposite sides of the same, there being ports or passages leading between the valve-chests and the opposite ends of the cylinder, a piston in said cylinder, a piston-rod 7 connected to the piston, a cross-head 25 connected to the piston-rod, cross-head guides 24 carrying said cross-head, a tappet-bar 20 connected to the cross-head and projecting laterally therefrom, a transverse bar 26 connecting the cross-head guides, a bar 27 pivotedly connected to said bar 26, an adjustable valve-rod 22 connecting the exhaust-valve to one end of the bar 27, an adjustable valve-rod 18 connecting the steam-valve to said bar 27, lugs 31 carried by said valve-rod 18, and a tappet-bar 29 carried by said lugs and adapted for contact with said tappet-bar 29, substantially as and for the purposes specified.

700,065. SHOE-GRADING DEVICE. HENRIK HANSEN, Copenhagen, Denmark. Filed Dec. 14, 1891. Serial No. 82,888. (No model.)



Claim.—1. In a device of the character described, the combination with toe and heel pieces, said toe-piece comprising oppositely-arranged sections, of springs 5 arranged between the said sections, pins 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 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987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

3. In a device of the character described, the combination with toe and heel pieces and a rod a pivotally connected at one end with the toe-piece, of a vertically-movable slide carried by the heel-piece and provided with inclined slots, a fixed guide-piece carried by the heel-piece and provided with horizontal slots, and a pin upon which the other end of the rod is mounted and passing through the slots in the slide and guide-piece, and means for operating the slide.

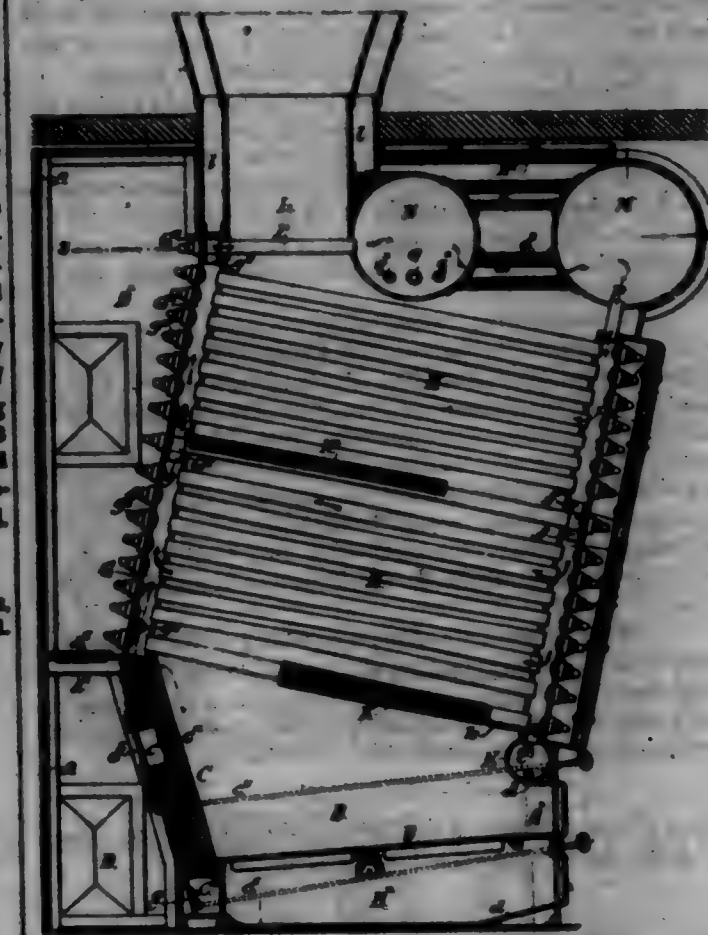
4. In a device of the character described, the combination with toe and heel pieces, said toe-piece comprising oppositely-arranged sections having a yielding connection to adapt said sections for lateral movement relatively to each other, of plates 4 carried by the sections of the toe-piece and provided with eyes, a pin or bolt seated within the eyes, a rod mounted at one end upon the said pin or bolt, and springs mounted upon the bolt at each side of the rod, the said rod having a pivotal and slidable connection with the heel-piece, as and for the purposes specified.

700,066. SHOE-GRADING. HENRIK HANSEN, Copenhagen, Denmark. Filed Dec. 14, 1891. Serial No. 82,888. (No model.)

Claim.—1. A shoe-grading device having inclined water-tubes, front and rear headers to which said tubes are connected, and water and steam drums arranged transversely above said tubes, one of said drums being situated directly over a series of heating-tubes having communication between the front and rear headers, substantially as described.

2. The combination in a boiler, of a series of inclined heating-tubes, front and rear headers to which said tubes are connected, with transverse

drums mounted above said tubes, said drums being connected together and to the front and rear headers, the connections between said drums affording a means of circulation through the same, substantially as described.



3. The combination in a steam-boiler, of inclined heating-tubes, front and rear headers to which said tubes are connected, two transverse heating-drums mounted above said tubes, said drums being connected together by horizontal pipes providing a circulation between the same, one of said drums being connected to the front header, and a series of tubes coupling the other drum to the rear header, said tubes extending across the opening leading to the stack, substantially as described.

4. The combination of inclined heating-tubes, front and rear headers, two transverse drums, one mounted above the front header and connected thereto, the other mounted above the heating-tubes, a series of circulating-tubes connecting said drum with the rear header, the two drums being connected at top and bottom, substantially as described.

5. The combination of the vertically-arranged polygonal front and rear headers, inclined heating-tubes coupled to the two sets of headers, and drums mounted above said heating-tubes and connected together by pipes affording a circulation between the same, said drums being also connected to the front and rear headers, substantially as described.

6. The combination of the front and rear headers, inclined heating-tubes coupled therein, drums connected to the upper portion of the headers, a collection-chamber mounted in front of the fire-box directly below the front header and coupled thereto, with independent circulating-pipes extending from both ends of said collection-chamber to one of the drums exterior of the boiler, substantially as described.

7. The combination of a casing, a collection-chamber supported thereby and extending through the side walls thereof, a series of vertically-arranged headers, each header being coupled to the collection-chamber, inclined heating-tubes coupled to the front header, rear header to which the heating-tubes are also connected, a drum mounted above the front header, and pipes coupling the front header to the drum, said drum being connected to the rear header, substantially as described.

8. The combination of a front header made up of two series of sections arranged vertically, a transverse section to which both series of vertically-arranged sections are coupled, a rear header, and heating-tubes connected to the front and rear headers, substantially as described.

9. The combination of front and rear headers and inclined heating-tubes, said front header being made up of two series of vertically-arranged sections and a said cross-section coupled to the vertical sections, the heating-tubes coupled to the vertical sections arranged one above another, while the heating-tubes coupled to the cross-section are arranged in line with the space between the other heating-tubes, substantially as and for the purposes set forth.

10. The combination of the front and rear headers, inclined heating-tubes coupled therein, said front header made up of sections spaced apart

so that access may be had to the combustion-chamber to clean the tubes, and removable non-combustible sections of filling material for closing the space between said headers, substantially as described.

11. The combination of front and rear headers, inclined heating-tubes coupled thereto, the front header made up of sections spaced so that access may be had to the combustion-chamber to clean the tubes, with asbestos plates adapted to said openings, substantially as described.

12. The combination with a front header made up of a series of vertically-arranged sections, of a rear header made up of vertically-arranged sections, heating-tubes situated one above another and coupled to the sections of the front and rear headers, a horizontal section connected to the upper end of the rear header-sections, circulating-tubes coupled to the said sections, two drums coupled together, one of said drums connected to the circulating-tubes and the other connected to the front header, substantially as described.

13. The combination of a fire-chamber, an inclined back wall, a rear header mounted above the back wall and inclined forward, inclined heating-tubes coupled to the back header, a front header coupled to the heating-tubes, a sediment-chamber under the front header at the front of the fire-chamber, two drums, one mounted above the front header and coupled thereto and the other mounted above the heating-tubes and connected at top and bottom with the other drum, the outlet-flow to the steam from the combustion-chamber being between the said last-mentioned drum and the rear header, and a series of circulating-tubes coupling the rear header to the drum and extending across the fire to the stack, substantially as described.

14. The combination in a steam-boiler furnace, of the front header, heating-tubes, rear header made up of a series of vertical sections closed at their bottom, said sections being coupled together at the side near the base by nipples, a drum, and circulating-pipes connecting the drum with the front and rear headers, substantially as described.

700,067. CHAIR. JAMES F. MOORE, Fairland, Md. Dec. 2nd. Filed May 20, 1901. Serial No. 61,912. (No model.)



Claim.—1. The combination with a chair-bottom and a back hinged thereto; of a lever rigidly connected to the back, a plunger pivotally connected to the lever and located beneath the chair-bottom, a spring for forcing the plunger backward, and means whereby the plunger is permitted to move in one direction but not in the other.

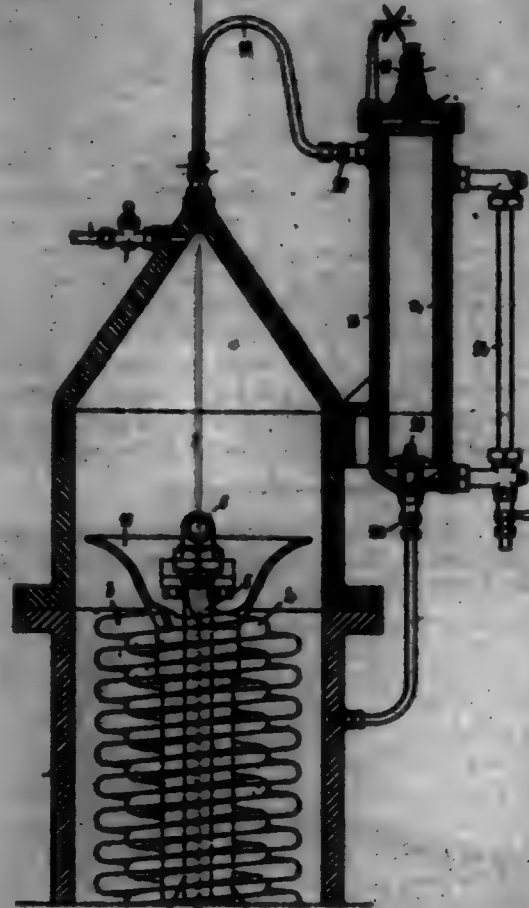
2. The combination with a chair-bottom and a back hinged thereto; of a lever rigidly connected to the back, a plunger pivotally connected to the lever and located beneath the chair-bottom, a plunger-tube secured to the chair-bottom, an extension to the plunger slidably mounted in the tube, a spring for forcing the plunger and its extension in one direction, a pivoted latch normally projecting into the tube, and means whereby said latch permits the plunger to move in one direction but not in the other.

3. The combination with a chair-bottom and a back hinged thereto; of a lever rigidly connected to the back, a plunger pivotally connected to the lever and located beneath the chair-bottom, a plunger-tube secured to the chair-bottom, an extension to the plunger slidably mounted in the tube, a spring for forcing the plunger and its extension in one direction, a pivoted latch normally projecting into the tube, a spring-controlled latch operating and releasing said latch extending to the edge of the chair-seat, and means whereby the latch permits the plunger to move in one direction but not in the other.

700,068. FEED-WATER CLEANER. DONALD R. MORRIS, Hartlepool, England. Filed June 10, 1901. Serial No. 61,916. (No model.)

Claim.—1. In a feed-water cleaner, a suitable chamber, heater-coils therein, a discharge-pipe extending through the center of said coils, a flaring mouthpiece on said pipe to form a restricted passage between it and the walls of the chamber, and a contracted top on the heater for collecting oil and air separated from the water, means for discharging the oil and means for automatically discharging air, substantially as and for the purpose set forth.

2. In a feed-water cleaner, a suitable chamber, having a contracted top, means for heating the water, a float-chamber communicating with the first-mentioned chamber below the water-level and with the air-space formed in the contracted top, an open-ended float in the float-chamber, a valve controlling an air-outlet operated by the float, substantially as and for the purpose set forth.



3. In a feed-water cleaner, a suitable chamber having a conical top, means for heating the water therein, a float-chamber, an open-ended float therein, a pipe connecting the lower end of the float-chamber with the first-mentioned chamber below the normal water-level and projecting into the end of said float, a pipe connecting the open end of the conical top of the first-mentioned chamber with the upper part of the float-chamber, an air-outlet for the float-chamber, a valve carried by the float controlling the air-outlet, means for drawing off the oil and means for visibly indicating the flow of air from the float-chamber, substantially as and for the purpose set forth.

4. In a feed-water cleaner, a suitable chamber having a conical top, means in the chamber for heating the feed-water, a float-chamber, an open-ended float therein, a pipe connecting the lower end of the float-chamber to the first-mentioned chamber below normal water-level, and projecting into the open end of the float, a pipe connecting the open end of the conical top with the upper end of the float-chamber, stop-cocks in each of said pipes whereby the float-chamber can be cut off from the first-mentioned one and the float proportionally loaded to its working pressure in the first-mentioned chamber, an air-outlet a needle-valve carried by the float controlling the air-outlet, and a revolving vane over the air-outlet to visibly indicate a current of air from the float-chamber, substantially as and for the purpose set forth.

5. In a feed-water cleaner, a suitable heating-chamber having a conical top, a float-chamber communicating with the heating-chamber below water-level therein and with the air-space in the conical top, a float in said chamber, a valve controlling air-outlet operated by the float and an air-outlet in the conical top, substantially as and for the purpose set forth.

6. In a feed-water cleaner, a suitable heating-chamber having a conical top, a float-chamber a pipe connecting the latter with the heating-chamber below normal water-level therein and one connecting its upper end with the conical top, an open-ended float in said chamber, the first-mentioned pipe entering the open end of the float, a needle-valve connected to the float and controlling an air-outlet, a vane adapted to be moved by the current of air having from said air-outlet, a water-level indicator connected to the float and means for withdrawing oil from the surface of the water in the conical top, and means within the chamber for throttling the feed-water near the top of the chamber, substantially as and for the purpose set forth.

700,069. GROSS-JUSTICE. WILLIAM G. HILLMAN, Pasadena, Cal. Filed Sept. 14, 1901. Serial No. 71,421. (No model.)

Claim.—1. In a shoe-duster, the combination with a treadle, of an auxiliary shaft arranged above the treadle, an operative connection between the treadle and shaft for imparting motion to the latter, and one or more brushes or dusters connected with said shaft and adapted to be thrown into contact with the shoe while the foot is resting on the treadle.



2. In a shoe-duster, the combination with a suitable base, and a frame extending upward therefrom, of a treadle mounted on the base, an auxiliary shaft journaled in the frame, a flexible connection between the treadle and shaft, a spring for retracting or reversing the direction of rotation of the shaft, and an auxiliary hand on said shaft provided with one or more dusting-brushes.

700,070. BOTTLE FOR PREVENTING REFILLING. JAMES F. MCGRAW and General G. DUNNAN, Wellington, New Zealand. Filed Oct. 1, 1901. Serial No. 71,399. (No model.)



Claim.—1. In a bottle to prevent refilling a ball resting on an internally-projecting annular seat in the bottle-neck in combination with a guard secured in the bottle-neck above the ball comprising a lower insert or perforated diaphragm, an intermediate insert or perforated diaphragm having above and below it a supporting-plate, and an upper diaphragm all as and for the purposes hereinafter described and as illustrated in the drawings.

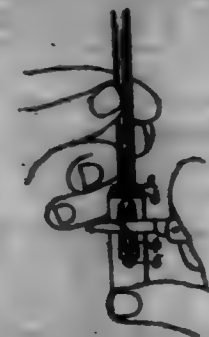
2. An improvement in bottles to prevent refilling consisting of a bottle having a body the neck of which is ground or fruted and latched and near the bottom of which is an annular protruding seat in combination with a ball resting on said seat, a guard secured in the bottle-neck, above the ball, comprising a lower insert or perforated diaphragm, an intermediate insert or perforated diaphragm having above and below it supporting-plates and an upper insert or perforated diaphragm, said diaphragms being arranged as described all as and for the purposes hereinafter described, and as illustrated in the drawings.

700,071. PENCIL-SHARPENER. EDWARD L. McVITT, Detroit, Mich. Filed Dec. 2, 1901. Serial No. 64,066. (No model.)

Claim.—1. A pencil-sharpener comprising a sheet-metal plate provided with a lengthwise opening and a perforated and bent substantially at right angles to the face of the plate and a bridge with a peripheral opening located across the opening in the plate.

2. A pencil-sharpener comprising a sheet-metal plate provided with a lengthwise opening, a bridge with a peripheral opening located across

the opening in the plate having a portion of the lengthwise opening each side of the bridge, and a spring secured to the back of the plate.



3. A pencil-sharpener comprising a plate with a lengthwise opening and an end provided with an opening, a bridge located across the lengthwise opening and having a conical recess and a peripheral opening.

4. A pencil-sharpener comprising a sheet-metal plate provided with a lengthwise opening, a bridge with a peripheral opening located across the opening in the plate and a plate-spring secured to the back of the plate and held in place by the bridge.

5. A pencil-sharpener comprising a sheet-metal plate provided with a lengthwise opening, a bridge with a peripheral opening located across the opening in the plate, and a plate-spring with a lengthwise opening secured to the back of the plate and held in place by the bridge.

700,072. WEIGHING-MACHINE. EDWARD L. McVITT, St. Paul, Minn. Filed May 17, 1901. Serial No. 69,971. (No model.)



Claim.—1. The herein-described apparatus for weighing articles in bulk, comprising a supporting-structure, a receptacle for the articles to be weighed, pivotally attached to said framework, said pivotal supports including links pivoted at their upper ends to said framework and pivotally connected at their lower ends to the receptacle, said supports or receptacles being arranged entirely below the upper pivots of the links, and restraining means for holding said support or receptacle in a position to one side of the position which it would naturally assume under the action of gravity, against which means said receptacle exerts force in a horizontal line and means for measuring said horizontal pressure or force and indicating therefrom the weight placed on the receptacle.

2. The herein-described apparatus for weighing articles in bulk, comprising a framework, two pairs of depending arms or links pivoted at their upper ends to said framework, a support or receptacle for the article to be weighed in which the lower ends of said arms are pivotally connected, said support or receptacle being arranged within the framework, and centrally below the upper pivots of the links, said receptacle having an inclined bottom with a discharge at the lower end thereof, substantially as described.

3. An apparatus for weighing articles in bulk, comprising a supporting-structure, links pivotally hung from said supporting-structure, a receptacle supported entirely below the upper pivotal connections of the links and pivotally attached at the lower ends of said links, said receptacle

ole being substantially triangular in shape with a bottom inclined downwardly and having a discharge-opening at the lower end, brass-rods extending from the lower end of one pair of links and secured to the receptacle at a point adjacent its discharge-opening, and restraining means arranged in line with the pivot-points of the links; substantially as described.

700,078. FIRE-SCAPES AND FIRE-ALARM FOLDING LADDER. RICHARD HENRIKSEN, Auckland, New Zealand. Filed Oct. 1, 1904. Serial No. 77,282. (No model.)



Claim.—1. In a ladder, side pieces having bearings, rungs or steps the ends of which extend through said bearings and are oppositely turned to embrace said bearings, combined with a catch for holding said side pieces together when folded up, and a pivoted ladder for one of said side pieces connected with the catch.

2. In a ladder, side pieces having bearings, rungs or steps the ends of which extend through said bearings and are oppositely turned to embrace said bearings, combined with a catch for holding said side pieces together when folded up, a pivoted ladder for one of said side pieces connected with the catch, and means carried by one of said rungs for operating a signal.

700,074. WIRE FENCE. FRANKLIN W. ORIN and JOHN G. ORIN, Ireland, Ind., assignors of one-third to HENRY WINDGATER, Ireland, Ind. Filed Nov. 20, 1901. Serial No. 23,600. (No model.)



Claim.—1. In a fence, the combination of a post, a fence-wire supported thereby, at two points, and a brace connected to the said fence-wire, between said supported points thereof, said wire and brace each maintaining the tension of the other, and whereby the sagging of the wire between two posts adds tension to the brace, substantially as described.

2. In a fence, the combination of a post, a fence-wire supported thereby at two points, a brace for the post, and an adjustable connection between the said brace and the said wire, said connection being attached to the wire between the supported points thereof, said wire and brace each maintaining the tension of the other, substantially as described.

3. In a fence, the combination of a post having a transverse slot, a fence-wire supported by the post, a brace having a hight disposed in the said slot, the said brace being connected to and supported by the said wire substantially as described.

4. In a fence, the combination of a base, a post supported on and detachable from the base, a fence-wire supported by the post at two points, and a brace-wire transversely disposed with reference to the post, the hight of said brace-wire being connected to said fence-wire between the supported points thereof, said brace-wire contributing to the tension of said fence-wire, substantially as described.

5. In a fence, the combination of a base, a post supported on and detachable from the base, a wire fabric having its upper and lower wires engaged with the upper and lower ends of the post and its intermediate wires bearing against one side of the post, and a brace for the latter, substantially as described.

6. In a fence, the combination of a base, a post supported on and detachable from the base, a wire fabric having its upper and lower wires engaged with the upper and lower ends of the post and its intermediate wires bearing against one side of the post, and a brace for and detachable from the latter, substantially as described.

7. In a fence, the combination of a base, a post supported on and detachable from the base, a wire fabric having its upper and lower wires engaged with the upper and lower ends of the post and its intermediate wires bearing against one side of the post and a brace for the post, detachably connected to said upper wire, substantially as described.

700,075. MACHINE FOR DRAWING IN WARP-THREADS. EUGEN FALDER, Grubbi, Germany. Filed Sept. 26, 1902. Serial No. 20,800. (No model.)



Claim.—In a machine for drawing in warp-threads, the combination with a frame, of a rod horizontally arranged therein, the vertically-movable knives arranged one above the other, and means for operating said knives, and the bottom knife having a notch for the reception of the warp-thread, substantially as described.

700,076. LIVE-WOOD WALL FOR LEVERING. JAMES PATTON, New York, N. Y. Filed Mar. 12, 1900. Serial No. 674,265. (No model.)

Claim.—1. A live-wood wall composed of live trees or other long-lived wood plants which were assembled, fastened together and planted substantially as herein described and for the purposes set forth.

2. A live-wood wall composed of trees (or other long-lived wood plants) which were trimmed or flattened where they were joined before they were assembled, fastened together and planted, substantially as herein shown and for the purposes herein set forth.

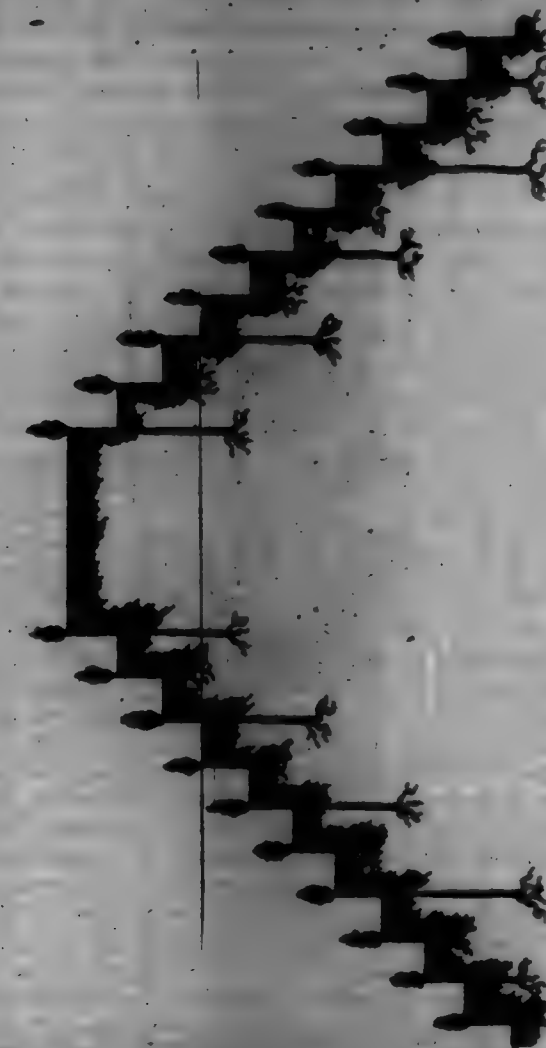
3. An X-shaped live-wood wall composed of live trees (or other long-lived plants) which were arched, assembled X-shaped in a double row, fastened together and planted, substantially as herein described and for the purposes set forth.

4. A live-wood-wall pipe composed of live trees (or other long-lived wood plants) which were trimmed or flattened beneath the bark on the sides where they join before they were assembled, fastened together and planted substantially as described and for the purposes set forth.

5. A live-wood wall composed of live trees (or other wood plants) assembled, fastened together and planted substantially as described, in combination with sufficient earth deposited between or against the live-wood wall to form a levee or embankment, substantially as described and for the purposes set forth.

6. A system of live-wood walls composed of live trees (or other long-lived wood plants) assembled, fastened together and planted substantially as described so as to form retaining-walls for the dikes and terraces of

levees or embankments, substantially as described and for the purposes set forth.



700,077. FEATHER-POKE. FRANK A. FERRIS, Seattle, Wash. Filed Dec. 20, 1901. Serial No. 57,777. (No model.)



Claim.—1. A metallic post which is imperforate, a resistance-plate having a concave face with a shoulder at its lower pointed end, the lower end of said post adapted to rest on the shoulder of said resistance-plate, a threaded bolt with hooked end passing through said plate and holding the latter to the post and a resistance-plate fastened to the opposite edge of the post and above the plate fastened to the bottom of the post, as set forth.

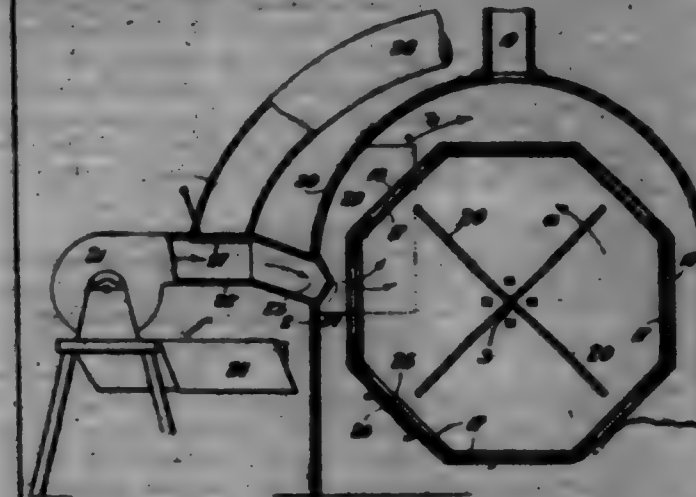
2. A metallic post, a resistance-plate having a shoulder near its tapered end, a threaded bolt with hooked end passing through an aperture in said plate and designed to hold the plate to the post, said plate being concave on one face and notched to receive the edge of the post, a resistance-plate having its opposite sides concave, oppositely-disposed notches or grooves on one side thereof, a threaded bolt adapted to engage over the edge of the post and designed to hold the plate with concave face on the opposite edge of the post from that engaged by the plate at the lower end of the post, as set forth.

700,078. FEATHER-CLEANING MACHINE. HARRY W. FERRY, FARMER, Allegheny, Pa. Filed Jan. 2, 1902. Serial No. 55,301. (No model.)

Claim.—1. A feather-cleaning apparatus consisting of an outer surrounding case provided with an suction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions, and a blower in communication with the interior of the case, and provided with an adjustable speed adapted to be connected with the drum to withdraw the feathers therefrom.

2. A feather-cleaning apparatus consisting of an outer surrounding case provided with an suction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions, and a blower provided with an inlet-duct leading to the interior of the case, a

discharge-duct adapted to communicate with the interior of the drum, a valve, and a discharge-pipe.



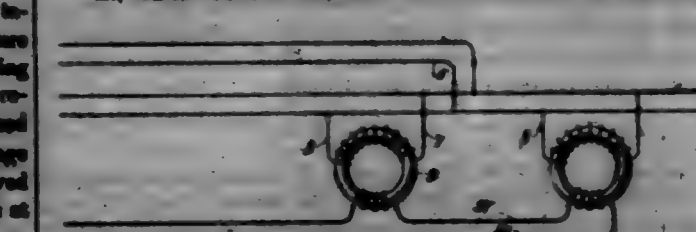
3. A feather-cleaning apparatus consisting of an outer surrounding case provided with an suction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions, an air-inlet-duct leading to the interior of the case, a suction-duct adapted to communicate with the interior of the drum, a discharge-pipe and means for supplying a current of air to the case and for establishing a suction-current through the suction-duct and the discharge-pipe.

4. A feather-cleaning apparatus consisting of an outer surrounding case provided with an suction-pipe, a central shaft provided with laterally-arranged beater-arms, a surrounding drum within the case journaled around said shaft and provided with curved-sections, means for rotating the drum and beater-arms in opposite directions, and a blower provided with a discharge-pipe leading to the interior of the case and a suction-pipe adapted to communicate with the interior of the drum, with a valve-controlled discharge-pipe.

5. In a feather-cleaning machine provided with a revolving drum having a series of curved-sections, a slide-covered opening in one of said sections, and a suction-pipe adapted to communicate therewith to establish communication with a discharge-pipe, with means for establishing a suction-current therethrough.

6. In a feather-cleaning machine, the combination of an outer surrounding case provided with an suction-pipe, an inner revolving drum provided with a series of removable perforated sections, a central shaft provided with a series of radial beater-arms, means for rotating the drum and central shaft in opposite directions and at different speeds, a blower device communicating with the interior of the case adapted to discharge a current of air against the sections, an opening in one of the sections, and a suction-pipe adapted to communicate therewith with the interior and adapted to act as an outlet-duct for the sections of the drum.

700,079. POTENTIAL-REGULATOR. ROBERT A. PHILLIP, Seattle, Wash. Filed Nov. 6, 1901. Serial No. 51,120. (No model.)



Claim.—1. A system of the kind described, comprising main, pilot-wire and potential-transformers, said potential-transformers having primary circuits arranged in multiple and connected with said main, and having secondary circuits arranged in series and connected with said pilot-wire.

2. A system of the kind described, comprising main, pilot-wire and potential-transformers, said potential-transformers being arranged in multiple and connected with said main, and having secondary circuits arranged in series and connected with said pilot-wire, the primary and secondary coils of one transformer having a ratio of potential differing from those of another transformer for the purpose of modifying the main potential of both of said transformers.

3. A system of the kind described, comprising main, pilot-wire, potential-transformers and shunt-wire, said potential-transformers having primary circuits connected with said main, secondary circuits connected with said pilot-wire, and said shunt-wire directly connecting said main

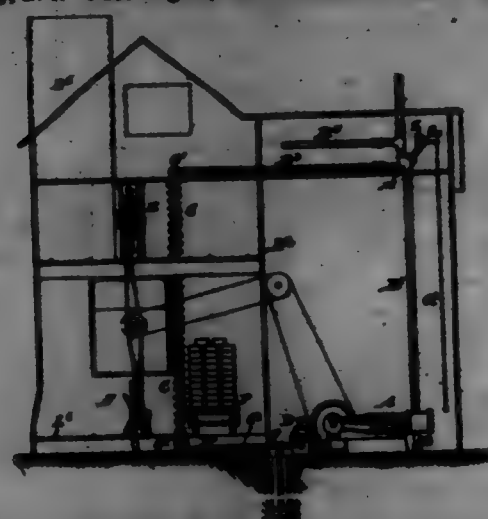
and said pilot-wires, the potential of said steam-circuit thus formed being a component of the potential reported by said pilot-wires.

4. A system of the kind described, comprising pilot-wires, potential-transformers, and primary and secondary mains, some of said transformers having their secondary circuits arranged in series and connected with said pilot-wires, their primary circuits being arranged in multiple and connected to said primary mains and also to the said secondary mains, said secondary mains being in turn connected to the secondary coil of another of said transformers, the primary coil of which is connected to said primary mains.

5. A system of the kind described, comprising main, pilot-wires, transformers provided with primary and secondary coils, said primary coils being connected in parallel with said mains for the purpose of averaging the potential thereof, said pilot-wires being connected with said secondary coils for reporting a potential proportionate to the average voltage of said primary coils.

6. A system of the kind described, comprising pilot-wires, transformers provided with primary and secondary coils, said primary coils being connected in parallel with said mains, and means connected with said secondary coils for indicating various degrees of potentials proportionate to the average potentials of said primary coils.

700,080. STEAM HEATING APPARATUS. GEORGE S. PHILLIPS, Albany, N. Y. Filed Aug. 14, 1898. Serial No. 690,265. (No model.)



Claim.—1. In a drying apparatus, an inclosure having a series of inlet-openings and discharge-passage, a series of vertical radiator-coils arranged within the inclosure, and a series of fans arranged to receive cold air from without, whereby it is independent currents spirally between the coils and discharge it while hot but before the temperature rises too high to effect condensation, and thereby insuring a partial vacuum on the exhaust side of the engine, as set forth.

2. In a drying apparatus a series of vertical radiator-coils, an inclosure therefor having a series of inlet-openings and discharge-passage, a series of fans arranged to receive cold air from without, whereby it is independent currents spirally between the coils and discharge it while hot but before the temperature rises too high to effect condensation, whereby a partial vacuum on the exhaust side of the engine is insured, obliquely-disposed partitions in said inclosure, and tracks upon opposite sides of the fan and coils, substantially as shown and described.

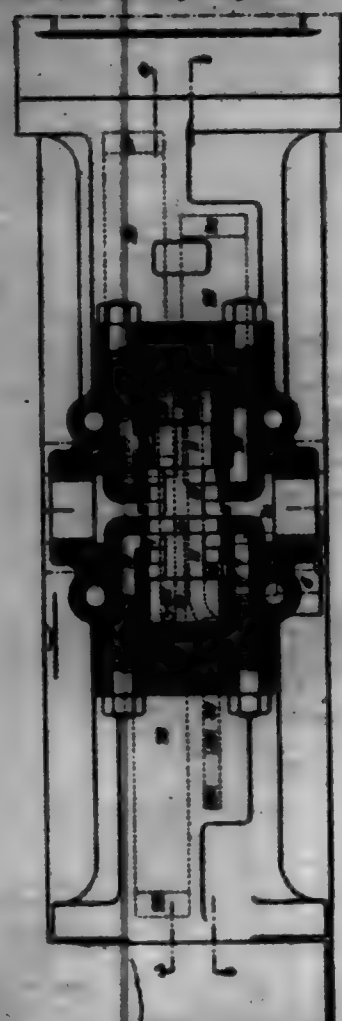
700,081. IMPACT-TOOL. THOMAS H. PHILLIPS, St. Louis, Mo. Filed Feb. 12, 1898. Serial No. 69,391. (No model.)

Claim.—1. The combination, in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, a steam-inlet uncontrolled by the piston for admitting steam to the forward end of the cylinder through the medium of the valve, and a steam-inlet controlled by the piston for admitting steam to the rear end of the cylinder, substantially as specified.

2. The combination, in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, a steam-inlet uncontrolled by the piston for admitting steam to the forward end of the cylinder through the medium of the valve, and a steam-inlet controlled by the piston for admitting steam to the rear end of the cylinder through the medium of the valve, substantially as specified.

3. The combination, in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, a steam-inlet uncontrolled by the piston for admitting steam to the forward end of the cylinder through the medium of the valve, a steam-inlet controlled by the piston for admitting steam to the rear end of the cylinder through the medium of the valve, and a steam-inlet controlled by the piston for admitting steam to the rear end of the cylinder through the medium of the valve, substantially as specified.

by the piston for admitting steam to the rear end of the cylinder through the medium of the valve, substantially as specified.



4. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, and parts and passages whereby the rearward movement of the valve is effected by full-pressure steam acting upon its larger forward head against full-pressure steam acting upon the smaller rear head, and forward movement of the valve is effected by full-pressure steam acting upon said smaller rear head against expanded steam acting upon the larger forward head, substantially as specified.

5. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, parts and passages whereby said valve controls admission of steam to the front end of the cylinder and exhaust of steam from both ends of the cylinder, and other parts and passages whereby the rearward movement of the valve is effected by full-pressure steam acting upon its larger forward head against full-pressure steam acting upon the smaller rear head, and forward movement of the valve is effected by full-pressure steam acting upon said smaller rear head against expanded steam acting upon the larger forward head, substantially as specified.

6. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having heads of different area, parts and passages whereby said valve controls admission of steam to and exhaust of steam from each end of the cylinder, and other parts and passages whereby the rearward movement of the valve is effected by full-pressure steam acting upon its larger forward head against full-pressure steam acting upon the smaller rear head, and forward movement of the valve is effected by full-pressure steam acting upon said smaller rear head against expanded steam acting upon the larger forward head, substantially as specified.

7. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having central piston and forward and rear heads, said rear head being of less diameter than the central piston and forward head, and parts and passages whereby rearward movement of the valve is effected by live-steam pressure acting upon the forward head in opposition to live-steam pressure acting upon the rear head, and forward movement of the valve is effected by live-steam pressure acting upon the rear head assisted by expanded pressure in the chamber between the central piston and rear head, and opposed by expanded pressure acting upon the forward head, substantially as specified.

8. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having central piston and forward and rear heads, said rear head being of less diameter

than the central piston and forward head, parts and passages whereby said valve controls admission of steam to the forward end of the cylinder, and exhaust of steam from both ends of the cylinder, and other parts and passages whereby rearward movement of the valve is effected by live-steam pressure acting upon the forward head in opposition to live-steam pressure acting upon the rear head, and forward movement of the valve is effected by live-steam pressure acting upon the rear head assisted by expanded pressure in the chamber between the central piston and rear head, and opposed by expanded pressure acting upon the forward head, substantially as specified.

9. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having central piston and forward and rear heads, said rear head being of less diameter than the central piston and forward head, parts and passages whereby said valve controls admission of steam to and exhaust of steam from each end of the cylinder, and other parts and passages whereby rearward movement of the valve is effected by live-steam pressure acting upon the forward head in opposition to live-steam pressure acting upon the rear head, and forward movement of the valve is effected by live-steam pressure acting upon the rear head assisted by expanded pressure in the chamber between the central piston and rear head, and opposed by expanded pressure acting upon the forward head, substantially as specified.

10. The combination in an impact-tool, of the cylinder, the piston having a steam-supplying groove, the valve-chest, the valve having a forward head of greater area than the rear head, parts and passages whereby said valve controls admission of steam to and exhaust of steam from both ends of the cylinder, a steam-inlet to the rear end of the cylinder controlled by the piston independently of the valve, and parts and passages whereby on the rearward movement of the piston steam under full pressure is conveyed to the forward end of the valve-chest from the cylinder, before the uncovering of said direct steam-passage, and on the forward movement of the piston, steam under full pressure is maintained in the rear end of the valve-chest, after the cutting off of the inlet of steam to the rear end of the cylinder, substantially as specified.

11. The combination of the cylinder and piston of an impact-tool, with a packing-ring fitting snugly upon said piston but free to move laterally with the same in the cylinder, said ring having a flange bearing against a corresponding flange in the cylinder, substantially as specified.

12. The combination of the cylinder and piston of an impact-tool, with a packing-ring fitting snugly upon said piston but free to move laterally with the same in the cylinder, said ring having a flange bearing against a corresponding flange in the cylinder and having its opposite flange beveled, substantially as specified.

13. The combination in an impact-tool, of the cylinder having an enlarged rear bore, a bushing fitted in said enlarged bore, a piston working within said bushing and having fitted to it a packing-ring which is free to play laterally to a limited extent within the cylinder and occupies a chamber between a shoulder in the cylinder and the bushing, substantially as specified.

14. The combination in an impact-tool, of the cylinder having an enlarged rear bore, a bushing fitted in said enlarged bore and having a central forward end, a piston working within said bushing, and a packing-ring fitted to said piston and having a slight lateral play in the central bore of the bushing, substantially as specified.

15. The combination in an impact-tool, of the cylinder, the piston having a rear head and a groove in advance of the same, a packing-ring fitting upon said rear head of the piston and free to move laterally with the same in the cylinder, but confined longitudinally between shoulders in said cylinder, and ribs on the grooved portion of the piston for supporting said ring when the piston-head leaves the same, substantially as specified.

700,082. ARMOR. JOHN J. PHILIP, Chicago, Ill. Filed Aug. 1, 1891. Serial No. 79,000. (No model.)



Claim.—1. Armor comprising plates each having yieldable arms which have bearing against a suitable backing and against adjacent armor-plates, as and for the purposes set forth.

2. An armor, comprising armor-plates, and spring-arms thereon, projecting laterally to rest on the side of the vessel and thereby yieldingly support an armor-plate and form an abutment for the same, each spring-arm also forming a support for an adjacent armor-plate, as set forth.

3. An armor, comprising armor-plates having their ends provided with integral spring-arms extending laterally, and chains on which the spring-arms are slidably held, as set forth.

4. An armor, comprising armor-plates having their ends provided

with integral spring-arms extending laterally, and chains on which said spring-arms are slidably held, said arms having extensions for supporting the next adjacent armor-plate a distance from the end thereof, as set forth.

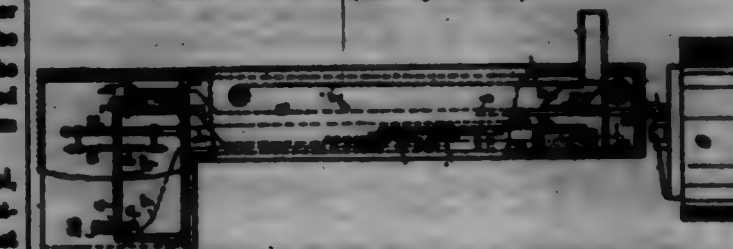
5. An armor, comprising armor-plates each having laterally-projecting spring-arms at each end, each spring-arm being formed with a flange and an extension having a head, chain and boys for receiving and holding the flange of the spring-arm, and boys and guides on the armor-plates for receiving the grooved heads of the spring-arms of an adjacent plate, as set forth.

6. Armor comprising plates each having yieldable arms disposed in crossing relation, means for movably confining said arms against a suitable backing, and means whereby the arms of one plate are movably connected with an adjacent plate or plates.

7. Armor comprising plates each having a series of yieldable arms which are fashioned to produce thereon two points of bearing, one of which points of each arm engages with a suitable backing and the other point of bearing engaging with an adjacent armor-plate.

8. Armor comprising plates each having yieldable arms disposed in crossing relation to arms on adjacent plates, a suitable foundation or backing, means for slidably holding said arms on the foundation, and other means for heavily confining the free ends of said arms on the rear sides of the armor-plates.

700,083. PHOTOGRAPHIC-SHUTTER-CONTROLLING DEVICE. JAMES F. PHILLIPS, Charleston, S. C. Original application filed July 14, 1898, Serial No. 24,978. Divided and this application filed Feb. 27, 1899. Serial No. 69,180. (No model.)



Claim.—1. The combination with a photographic shutter adapted to be opened in open position, and mechanism for actuating said shutter; of an electric circuit, device therein electrically actuated, a photo-electric cell, means for rendering the cell conductive in decreasing intensity during the time of exposure, thereby moving said device to cause the shutter-actuating mechanism to close the shutter, substantially as and for the purposes set forth.

2. The combination with a photographic shutter and its actuating mechanism, of an electric circuit, device therein electrically actuated, a photo-electric cell in said circuit and means for rendering said cell conductive in decreasing intensity, thereby moving said device to cause the operation of said shutter-actuating mechanism, substantially as set forth.

3. The combination with a photographic shutter, of electrically-controlled detent mechanism holding said shutter open, an electric circuit containing a photo-electric cell organized to close circuit to operate device to release the detent mechanism, thereby closing the shutter, substantially as set forth.

4. The combination with a photographic shutter, of circuit-closing device, a photo-electric cell electrically connected therewith, an auxiliary circuit, electrically-controlled shutter-detent mechanism therein, said circuit-closing device arranged to send current to actuate the shutter-detent mechanism, substantially as set forth.

5. The combination with a photographic shutter and its actuating mechanism, of a circuit and means for electrically releasing the shutter-actuating mechanism, a parallel circuit, a photo-electric resistance and circuit-closing device therein, and means for admitting light to said cell, thereby actuating the circuit-closing device to send current to release the shutter-actuating mechanism, substantially as set forth.

6. In combination with a source of electricity, a circuit, a solenoid and a circuit cell in series in said circuit, a second circuit, a circuit-closing switch and electrically-operated means to cause the actuation of a photographic shutter in said second circuit, substantially as set forth.

7. In combination, a photographic shutter, a source of electricity, a circuit containing a switch and electrically-operated means to cause the actuation of the photographic shutter, a second circuit divided into two branches, each branch containing a solenoid and a photo-electric resistance, said solenoid arranged to operate said switch, substantially as and for the purposes set forth.

8. In combination, a photographic shutter, a source of electricity, a circuit, a switch and electrically-operated means to cause the actuation of the photographic shutter, a second circuit divided into two branches, a solenoid coil, and a solenoid in series in each branch, means for temporarily causing one coil to be of a different resistance from

the other, a core common to both solenoids and arranged to operate said solenoid, substantially as set forth.

9. In combination, a photographic shutter, a source of electricity, a circuit, a switch and electrically-operated means in the circuit to cause the extension of said shutter, a second circuit divided into two branches, each containing a solenoid coil and a solenoid, movable core common to said solenoids, the latter arranged for differential action, said core arranged to operate the switch and means to cause a difference of resistance in said coils, substantially as set forth.

10. The combination with a pneumatic photographic shutter, of a source of electricity, a circuit, a switch and shutter-detent mechanism therein, a second circuit divided into two branch circuits, each containing a solenoid coil and a solenoid, means for causing a differential action of said solenoid by varying the conductivity of one of the coils relatively to the other and core for said solenoid arranged to close the first-mentioned circuit, substantially as set forth.

11. The combination with a photographic shutter, of a source of electricity, a circuit, electrically-operated shutter-releasing mechanism therein, a second circuit, a photo-electric resistance and a circuit-closer therein, and device for intermittently admitting light to said coil, thereby actuating the circuit-closer to release the shutter, substantially as set forth.

12. The combination with a photographic shutter, of a source of electricity, a circuit, electrically-operated shutter-detent mechanism therein, a second circuit, a photo-electric coil and circuit-closer therein, means for intermittently admitting light to said coil and auxiliary means for decreasing the intensity of said light, thereby actuating the circuit-closer to send current through the first-mentioned circuit and release the shutter, substantially as set forth.

13. The combination with a photographic shutter, of a source of electricity, a circuit containing electrically-operated shutter-detent mechanism, two branch circuits each containing a solenoid coil and both of said circuits arranged to differentially operate a circuit-closer, mechanism for intermittently admitting light to each of said coils and a device for gradually decreasing the action of light on one of said coils, thereby actuating the circuit-closer to send current through the first-mentioned circuit to release the shutter, substantially as set forth.

14. The combination with a photographic shutter, of a source of electricity, a circuit containing electrically-operated shutter-detent mechanism, two circuits in parallel with the first circuit, each containing a solenoid coil, a differentially-operated circuit-closer in said parallel circuit, a perforated diaphragm moved past said coils, means for admitting light of decreasing intensity to one end of constant intensity to the other of said coils and through the opening in said diaphragm, substantially as set forth.

15. The combination with a photographic shutter, of a source of electricity, a circuit, electrically-operated detent mechanism and a pair of contacts therein, two circuits in parallel with the first circuit, a solenoid coil and a solenoid in each of the two parallel circuits, said contacts arranged to be closed by said solenoid, a rotating perforated diaphragm moved past said coils, means for admitting light of decreasing intensity to one end of constant intensity to the other of said coils through the opening in the diaphragm, substantially as set forth.

16. The combination with a photographic shutter, of an electric circuit, electrically-operated shutter-detent mechanism and a pair of contacts therein, a second circuit, a photo-electric resistance and a solenoid arranged to operate the mechanism to close said circuit, a perforated diaphragm moved past said coils, means for reflecting light from an actinic medium through the perforation to said coil, substantially as set forth.

17. The combination with a photographic shutter, of an electric circuit, electrically-operated shutter-detent mechanism and a solenoid in the latter circuit arranged to open and close said circuit, a perforated diaphragm mechanically revolved past and whose perforations register with said coil, means for reflecting light to an actinic body and from the latter through the perforations to said coil, substantially as set forth.

18. The combination with a photographic shutter, of an electric circuit, electrically-operated shutter-detent mechanism and a pair of contacts therein, means for opening said contacts to vary the time of exposure, two branch circuits in parallel, a solenoid and photo-electric coil in each of the branch circuits, a perforated rotating disk, the perforations therein rotatable past said coil, a clockwork for moving said disk and means for reflecting light from an invariable reflector near each coil to an actinic reflector at one end and a reflector of constant color at the other end from said last reflector through the rotating diaphragm in the respective coils, substantially as set forth.

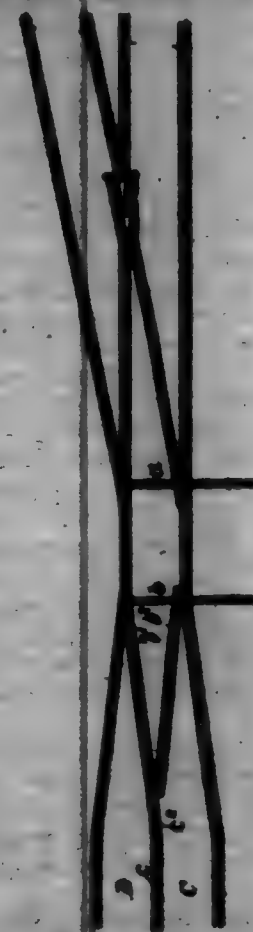
19. The combination with a photographic shutter, of an electric circuit, a solenoid coil acting as electric conductor when subjected to light and as resistance when withdrawn from light, a sensitive body darkening by the action of light and placed between the solenoid coil and the light,

an electrically-operated shutter-detent mechanism in such connection with the solenoid coil that on the change of the electric circuit the detent is released and the shutter closed.

20. The combination with a photographic shutter and its actuating mechanism, of electrically-operated means for controlling the operation of the shutter and a photo-electric resistance operatively combined with said means, whereby exposure is made in accordance with the intensity of the light, substantially as set forth.

21. The combination with a photographic shutter and its actuating mechanism, of electrically-operated means for controlling the operation of said shutter and a pair of photo-electric resistances, the combined action of which is differential, operatively combined with said means, whereby exposure may be regulated in accordance with the intensity of light, substantially as set forth.

700,084. TRACK. JOHN R. GUNN, Chicago, Ill. Filed July 18, 1891. Serial No. 67,718. (No model.)



Claim.—1. In a track system, the combination with two parallel rails forming a portion of a single track, of three parallel rails a short distance therefrom, the middle rail of which is adapted for use with either of the outer rails, and connecting-rails between both rails of the single track and the middle rail being provided with means whereby they may be brought alternately into use to connect the single track with either side of the three-rail track, substantially as described.

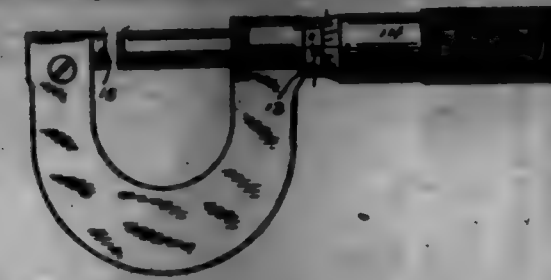
2. In a track system, the combination with two parallel rails separated to the extent of the track-gage and having diverging extensions, separating to substantially twice said gage and thereafter extending in parallel direction, of a third rail between the latter parallel portions and equidistant therefrom, and movable connection between said middle rail and each of the former parallel portions of the two rails, said movable portions being capable of alternate movement toward their respective side rails to connect the latter with the middle rail; substantially as described.

3. The combination with a two-rail track, of a double three-rail track formed by a continuation of the rails of the two-rail track, diverging to twice the distance and a third rail intermediate and equidistant therefrom, a pair of split-joint switch-rails, moving alternately into engagement with the rails of the two-rail track and leading therefrom toward the middle rail and a bent reversible connecting portion adapted, when placed in the proper position, to connect either of the switch-rails with the middle rail; substantially as described.

700,085. MICROSCOPE-CALIPERS. GEORGE H. HADENLIFE, Derby, Conn. Filed Jan. 21, 1902. Serial No. 80,000. (No model.)

Claim.—A measuring instrument comprising two members and means whereby one may be adjusted toward and from the other, one of

said members having a depression in its side said depression being adapted to receive one point of compass or divider and to retain that point against lateral displacement, and the other member having a groove to receive the other point of the compass or divider.



700,086. DUMPING-WAGON. PHILIP KEMM, Hops, Ohio. Filed Oct. 13, 1891. Serial No. 73,302. (No model.)



Claim.—1. In a dumping-wagon, the combination with the frame provided with longitudinal slots in its side bars, and the wagon-body; of parallel shafts mounted below the wagon-body and having their ends projecting through said slots, and having enlarged central portions, a pair of toggle-arms at each side of the wagon connecting said shafts and pivoted to the sides of the wagon-body, a screw extending through the enlarged portions of said parallel shafts, and means for revolving said screw.

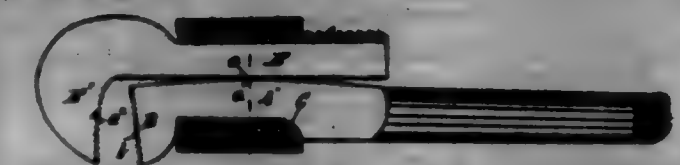
2. In a dumping-wagon, the combination with the frame provided with longitudinal slots in its side bars, and the wagon-body; of parallel shafts mounted below the wagon-body and having their ends projecting through the said slots, a pair of toggle-arms at each side of the wagon connecting said shafts and pivoted to the sides of the wagon-body, a block having an unthreaded opening arranged centrally on one of said shafts, a block having a threaded opening arranged centrally on the other shaft, and a screw through the said blocks whereby the wagon-body will be raised and then moved rearward.

3. In a dumping-wagon, the combination with a supporting frame having rollers mounted at its rear end and having side bars formed with longitudinal slots; of two parallel shafts, the ends of which project through said slots, a pair of toggle-arms at each side of the wagon-body connected to the ends of said shafts and pivoted to the sides of the wagon-body, a block formed with an unthreaded opening centered on one shaft, a nut centered on the other shaft, a screw extending through said nut, and means for operating said screw.

700,087. PIPE-WRENCH. HENRY F. SUMNER, Erie, Pa., assignor to Hollands Manufacturing Company, Erie, Pa., a Corporation. Filed Dec. 20, 1891. Serial No. 67,890. (No model.)

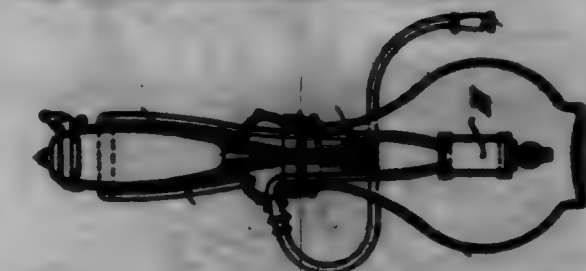
Claim.—1. The combination in a pipe-wrench, of a handle, a fixed jaw on the end thereof, a sliding jaw resting against the handle so that it will rest slightly thereon, an internally-threaded shank extending the sliding jaw and the handle immediately behind the fixed jaw thereon so as

to hold the two jaws in place, and a thread on the back of the sliding jaw engaging the thread in said shank, substantially as set forth for the purpose set forth.



2. The combination in a pipe-wrench, of a fixed jaw, a handle thereon having a room in its outer face back of the jaw thereon, a curved surface on the handle, a sliding jaw contacting with said curved surface, a thread on the outer face of the sliding jaw, and an internally-curved threaded shank extending the handle at the room therein and also the sliding jaw, and engaging the thread thereon, substantially as set forth for the purpose set forth.

700,088. WATER-PIPE. WILLIAM KEMMER, Gerdau, Germany, assignor to August Volpert, Gerdau, near Elm, Germany. Filed Aug. 20, 1891. Serial No. 73,303. (No model.)



Claim.—1. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, and means for directing the passage of the smoke from the bowl through the water in the reservoir, and for subjecting the same to the drying action of the tobacco burning in the bowl after its passage through the water in the reservoir, substantially as shown and described.

2. In a device of the class described, the combination with a pipe-bowl, of a water-bottle, a smoke-conduit in communication at one end with the pipe-bowl and at the other with the water-bottle below the level of the water therein, and a smoke-conduit in communication at its inlet end with the water-bottle above the water-level thereof, a portion of which conduit is in such proximity to the pipe-bowl as to be heated by the combustion of the tobacco therein, whereby the smoke is heated and dried after its passage through the water, substantially as shown and described.

3. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, a smoke-conduit leading from the bowl to the reservoir and in communication therewith below the water-level thereof by way of a plurality of orifices, substantially as shown and described.

4. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, a smoke-conduit leading from the bowl to the reservoir and in communication therewith below the water-level thereof, and means located at the outlet end of the conduit for breaking up the smoke into a plurality of small streams as it passes from the conduit, substantially as shown and described.

5. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, a smoke-conduit leading from the bowl to the reservoir and in communication therewith below the water-level thereof, and an enlarged portion or stiller-plate open at the bottom and provided with a perforate wall forming the end of the smoke-conduit within the water-reservoir, substantially as shown and described.

6. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, means for directing the passage of the smoke from the pipe-bowl through the water in the reservoir, means for subjecting the smoke to the heating action of the tobacco burning in the bowl after its passage through the water, a condenser located in the reservoir below the water-line thereof, and means for passing the smoke through the condenser after it has been subjected to the heating action of the pipe-bowl, substantially as shown and described.

7. In a device of the class described, the combination with a pipe-bowl, of a water-reservoir, means for directing the passage of the smoke from the pipe-bowl through the water in the reservoir, means for subjecting the smoke to the heating action of the tobacco burning in the bowl after its passage through the water, a condenser located in the reservoir below the water-line thereof, a stop-cock for the condenser, and means for passing the smoke through the condenser after it has been subjected to the heating action of the pipe-bowl, substantially as shown and described.

8. A water-pipe composed of the water-reservoir A, the pipe-bowl B, the perforated stiller F in communication with the bowl by a tube E, a tube G by which the heated smoke is circulated around the bowl

B and again through the water into the condenser H, and pipe-stem D forming a communication between the condenser and the manhole C, substantially as shown and described.

700,089. VEHICLE-BRAKE. JOHN D. EDWARDS, Wheeling, Ind., assignor of one-half to Edward G. Edwards and Elmer Baker, Wheeling, Ind. Filed Dec. 2, 1901. Serial No. 94,394. (No model.)



Claim.—In a vehicle-brake the combination with the brake-shoe of brake-rods connected thereto, loops in said brake-rods, springs secured thereto, the whole arranged whereby, the loops engage the shafts and prevent the brake-rods from turning when the vehicle is moving forward, and which form cranks to draw the said brake-rods into their normal position after the brake-shoes are raised by the backing of the vehicle substantially as described.

700,090. PROCESS OF COLORING MARBLE STONE, OR THE LIKE. WILLIAM S. BROWN and ALBERT C. BROWN, Cincinnati, Ohio, assignors of three-fifths to Henry C. Yelver and Otto H. L. Wernicke, Cincinnati, Ohio. Filed Feb. 17, 1902. Serial No. 94,502. (No specific claim.)

Claim.—1. The process of coloring marble stone and the like, which consists in first heating the stone to a temperature of about 215° Fahrenheit, and then applying the dye dissolved in oil to permeate the pores of the material, substantially as described.

2. The process of coloring marble stone and the like, which consists in first heating the stone to a temperature of about 215° Fahrenheit, and then applying the dye dissolved in oil to permeate the pores of the material, then coating the surface with paraffin to fix the color, substantially as described.

700,091. WATER-TUBE BOILER. ROBERT C. YOUNG, Pueblo, Colo. Filed Nov. 1, 1901. Serial No. 91,499. (No model.)

Claim.—1. In a water-tube boiler, the combination of a furnace, upper and lower drums, a number of series of straight tubes connecting said drums, the latter being constructed with a series of pressed-out plane surfaces tangent to their curved surface, the same being constructed to permit the entrance in the same plane of all the tubes in each series perpendicular to both the interior and exterior surface of said pressed-out portions without bending, a stack, means for causing the products of combustion to circulate around the tubes and drums as they pass from the furnace to said stack, substantially as described.

2. As a new article of manufacture, a tube-sheet for a water-tube boiler, the same having portions of its surface pressed out to form a series of plane surfaces, each one of said surfaces being tangent to the curve of

the tube-sheet and having an unflared curved portion of said tube-sheet between it and the pressed-out surface next adjacent, substantially as described.

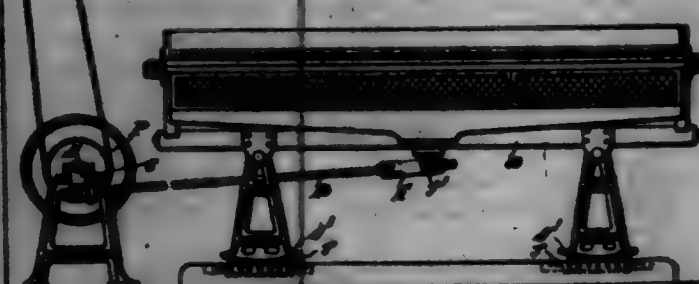


3. In a water-tube boiler, the combination of a furnace, upper and lower drums each having its curved surface pressed out so as to form a number of successive plane surfaces all in the same plane and separated from the plane surface on each side of it by an unflared curved section of the drum-surface, series of tubes extending between the drums, all the tubes of each series entering a single one of said plane surfaces, a stack and means for causing the products of combustion to circulate around said tubes during their passage from the furnace to the stack, substantially as described.

4. The combination in a water-tube boiler, of a casing, a series of lower drums, a series of upper drums, straight tubes connecting each of the upper drums with one of the lower drums, the vertical boiler-tubes between the sets of tubes arranged across the combustion-chamber of the structure, having means whereby they are supported independently of said tubes and drums, a furnace-section connected with one end of the combustion-chamber and a stack connected to the other end of the same, substantially as described.

5. As a new article of manufacture, a tube-sheet for a water-tube boiler, the same having portions of its surface pressed out to form a series of plane surfaces, each one of said surfaces having an unflared curved portion of said tube-sheet between it and the pressed-out surface next adjacent, substantially as described.

700,092. APPLIANCE FOR TAKING UP OR NEUTRALIZING SHOCKS. FRIEDRICH H. SCHMIDT, Hamburg, Germany. Filed Jan. 2, 1904. Serial No. 94,514. (No model.)



Claim.—1. The combination with a body to be reciprocated and an element, as a crank-driven connecting-rod, for reciprocating said body; of

means for neutralizing shocks, comprising a carrier journaled to said body and mounted loosely on the connecting-rod, and provided with cross-head guides, a cross-head guided thereby and secured to the rod, and yielding resistance acting at different points on said cross-head to antagonize its movements with the connecting-rod, the degree of resistance varying substantially in accordance with the moment on the cross-head at said different points, for the purpose set forth.

2. The combination with a body to be reciprocated and an element, as a crank-driven connecting-rod, for reciprocating the same; of means for neutralizing shocks, comprising a carrier in the form of a frame journaled to the abovementioned body at points intermediate of its longitudinal center and that end furthest from the driven end of the rod, said carrier having cross-head guides, a cross-head secured to the connecting-rod and guided by said guides, and yielding resistance acting on opposite faces of the cross-head at different points to antagonize its to-and-fro movements with the connecting-rod, the power exerted by said resistance varying substantially in accordance with the moment on said cross-head at said different points, for the purpose set forth.

3. The combination with a body to be reciprocated and an element, as a crank-driven connecting-rod, for reciprocating the same; of means for neutralizing shocks comprising a carrier loosely mounted on the rod and journaled to the abovementioned body at points intermediate of its longitudinal center and that end furthest from the driven end of the rod, said carrier having cross-head guides, a cross-head secured to the connecting-rod and guided by said guides, and yielding resistance acting on opposite faces of the cross-head at different points to antagonize its to-and-fro movements with the connecting-rod, the power exerted by said resistance varying substantially in accordance with the moment on said cross-head at the abovementioned different points, for the purpose set forth.

4. The combination with a body to be reciprocated and an element, as a connecting-rod, for reciprocating the same; of a carrier in the form of a frame, loosely mounted on the rod and journaled to the abovementioned body at points intermediate of its longitudinal center and that end furthest from the driven end of the rod, guide-rods secured to said frame, a cross-head secured to the connecting-rod and having free motion on the guide-rods, and yielding resistance on said rods antagonizing the movements of the cross-head with the connecting-rod, the power exerted by said resistance varying substantially in accordance with the moment on the cross-head at the various points acted on by the resistance, for the purpose set forth.

5. The combination with a separator and a to-and-fro movable connecting-rod; of the frame F loosely mounted on said rod and having journal F' journaled in bearings on and about midway of the length of the separator-support, guide-rods G, secured to the ends of said frame, the cross-head H secured to the connecting-rod and guided on rods I, springs U, V, W, secured on opposite sides of the cross-head, and the buffer B and B' interposed between the cross-head and the springs U, V, W, respectively, substantially as and for the purpose set forth.

6. The combination with a body to be reciprocated and an element, as a crank-driven connecting-rod, for reciprocating the same; of means for neutralizing shocks comprising a carrier loosely mounted on the rod and journaled to the abovementioned body at points intermediate of its longitudinal center and that end furthest from the driven end of the rod, said carrier having cross-head guides, a cross-head secured to the connecting-rod and guided by said guides, and yielding resistance acting on opposite faces of the cross-head at different points to antagonize its to-and-fro movements with the connecting-rod, substantially as and for the purpose set forth.

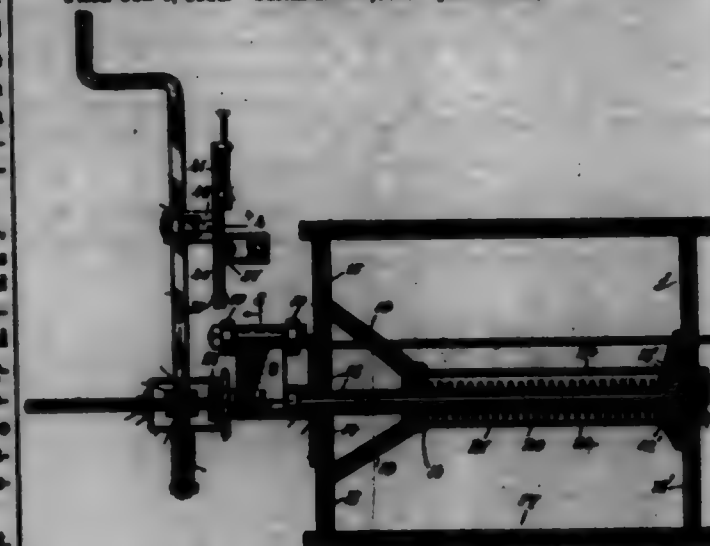
700,093. FISHING DEVICE. JAMES SMITH, South Norwalk, Conn. Filed Sept. 20, 1901. Serial No. 77,894. (No model.)



Claim.—1. The combination of a body, means for attaching a line thereto, said means comprising a pointed spur with an eye therein, and hooks attached to the body and projecting outward therefrom with their points in direction of the line.

2. A fishing appliance, comprising a body, a shaft fastened to the top of the body in the vertical center thereof, the shaft curving to carry the fishing-line, hooks rigidly attached to the body and projecting outward radially therefrom, the hooks having their points extending in direction of the line, and a bait-spur attached to the body and projecting upward therefrom alongside of the shaft.

700,094. HARVESTER-KNIFE. BEN AME GULPE, Winchester, Ohio. Filed Oct. 7, 1901. Serial No. 77,907. (No model.)



Claim.—1. In a harvester, the combination with a collapsible reel, means for expanding the same, and a slideable rack, of a frame mounted on the reel-shaft, and having the rack fitted therein, a pinion in mesh with the rack, and an adjusting-rod fitted in the frame and clatched to the pinion, as set forth.

2. In a harvester, the combination with a reel-shaft, a spring-coiled reel, and a rack for expanding the reel, of a slideable and revolvable adjusting-rod, a pinion in mesh with said rack and clatched to said adjusting-rod, and means for holding said rod and the pinion in operative relation to each other and to the rack.

3. In a harvester, the combination with a reel-shaft, a spring-coiled reel, and a rack for expanding the reel, of a pivoted hanger in which the reel-shaft is journaled, a lever having a pivoted yoke, an adjusting-rod slideably fitted in said yoke and a pinion clatched to the adjusting-rod and meshing with the reel-expanding rack.

4. In a harvester, the combination with a reel-shaft, a spring-coiled reel, and a rack for expanding the reel, of a frame on the reel-shaft, an adjusting-rod revolvably fitted in said frame, a spring acting against said rod to hold it in one position, and a pinion clatched to the rod and meshing with said rack, whereby the reel may be drawn against the energy of the spring and released from engagement with the pinion.

5. In a harvester, the combination of a pivoted hanger, a collapsible reel having its shaft mounted therein, an expanding rack in operative relation to the reel, a revolved yoke, an adjusting-rod having a polygonal portion fitted slideably in the yoke, a rubber on said polygonal portion of the rod, a detent engaging said rubber, and a pinion clatched to the adjusting-rod and meshing with the rack.

6. In a harvester, the combination with a reel-shaft, a reel, and a rack, of a frame connected to the reel-shaft, a guide-plate engaging with the rack and fastened adjustably to said frame, an adjusting-rod fitted in the frame, and a pinion clatched to said rod and meshing with the rack.

7. In a harvester, the combination with a reel-shaft, a reel, and a rack, of a frame fitted in the reel-shaft, a slideable and revolvable rod fitted in the frame and having a clutch-pin, a pinion loose on the reel, in engagement with the rack, and having a clutch-finger adapted for engagement with the clutch-pin, and a spring normally impelling the rod to its clutch-pin to make the pinion fast with said rod.

700,095. SAFETY ATTACHMENT FOR POISON BOTTLES. GEORGE J. BERNHARDT, Washington, D. C. Filed Feb. 11, 1902. Serial No. 94,517. (No model.)



Claim.—1. A safety attachment for a poison-containing receptacle having a closing device, consisting of a clip to engage the receptacle and

closing device, and a locking-disk rotatably mounted over the clip and closing device.

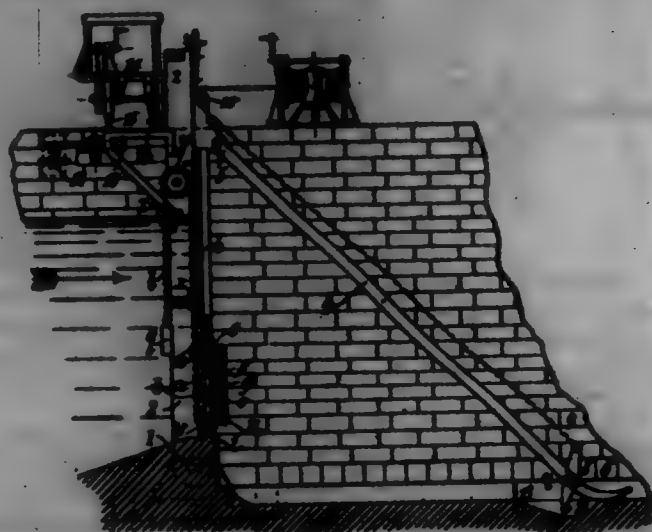
2. A safety attachment for poison-containing receptacles and the like having closing devices, consisting of a clip with an upper arcuate portion and depending legs to engage the closing device and rim of the receptacle, and a locking-disk having a slot therethrough with diametrically-opposed extensions.

3. A safety attachment for the purpose set forth comprising a resilient clip having depending legs and a locking-disk with a slot therethrough to engage the said legs.

4. A safety attachment of the class set forth having resilient legs, a poison-indicating insignia movably attached to one of said legs and means for holding the legs in contact with the poison-containing receptacle.

5. A safety attachment of the class set forth comprising a clip having resilient legs with contact ends, and means for contracting the said legs.

700,096. AUTOMATIC SLUICE. WILHELM K. GERTH, Wismar, Germany, and ALFRED F. GERTH, Wismar, Germany. Filed Oct. 7, 1901. Serial No. 77,886. (No model.)



Claim.—1. In an automatic sluice, the combination with a suitable frame, of a transverse shaft therein located nearer the bottom than the top, a straight, normally upright shutter pivotedly mounted on said shaft, the part below the shaft being shorter than the part above, a step to prevent movement of the lower wing of the shutter from the perpendicular in the direction of the flow of the water, a step to prevent movement of the upper wing in the direction opposite to the flow of the water, leaves attached at their upper ends outside of the lower wing, and means whereby said leaves are caused to follow the inward movement of the lower wing and at an acute angle thereto, substantially as described.

2. In an automatic sluice, the combination with a suitable frame, of a transverse shaft therein located nearer the bottom than the top, a straight, normally upright shutter pivotedly mounted on said shaft, the part below the shaft being shorter than the part above, a step to prevent movement of the lower wing of the shutter from the perpendicular in the direction of the flow of the water, a step to prevent movement of the upper wing in the direction opposite to the flow of the water, leaves loosely pivoted at their upper ends outside of the lower wing and normally depending vertically when the wing is vertical, and means for limiting their distance from the lower wing, and from each other, when the wing is moved inward, substantially as described.

3. In an automatic sluice, the combination with a suitable frame, of a transverse shaft therein located nearer the bottom than the top, a straight, normally upright shutter pivotedly mounted on said shaft, the part below the shaft being shorter than the part above, a step to prevent movement of the lower wing of the shutter from the perpendicular in the direction of the flow of the water, a step to prevent movement of the upper wing in the direction opposite to the flow of the water, leaves loosely pivoted at their upper ends outside of the lower wing and normally depending vertically when the wing is vertical, and means for holding the leaves closely against the rear face of the lower wing during any inward movement of said wing, substantially as described.

4. In an automatic sluice, the combination with a suitable frame, of a transverse shaft therein located nearer the bottom than the top, a straight, normally upright shutter pivotedly mounted on said shaft, the part below the shaft being shorter than the part above, a step to prevent movement of the lower wing of the shutter from the perpendicular in the direction of the flow of the water, a step to prevent movement of the upper wing in the direction opposite to the flow of the water, leaves loosely pivoted at their upper ends outside of the lower wing and normally depending vertically when the wing is vertical, a pulley in an opening in the inter-

mediate leaf, a pulley in an opening in the lower wing, a pulley on the inside of the shutter at the height of its shaft, a pulley on the pillar or side wall of the sluice, a chain secured to the inside of the outer leaf and passing about all of said pulleys, and a weight at the end of said chain, substantially as described.

5. In an automatic sluice, the combination with the shutter and the pillars therefor pivoted at their lower ends of a strut longer than the pillars and pivoted at its upper end to the upper ends of the pillars, said strut having its lower end clamped to move freely upon the bottom of the sluiceway, a transverse step on said bottom, a two-armed lever pivotedly attached to the strut near its lower end and the lower arm of said lever being adapted to engage said step when the shutter is raised, a chain attached to the upper arm of said lever, means for pulling said chain, and a screw-spline connected to said chain to securely tighten it, substantially as described.

700,097. GRAIN-LOADER. BENJAMIN F. BLANCH, Pease, N. H. Filed May 24, 1900. Serial No. 17,575. (No model.)



Claim.—1. The combination in a grain-loader, of a portable support, a casing arranged thereon and adapted for tilting adjustment to vary the height of its discharge, said casing being provided with a curved or concave bottom and having discharge-openings at its opposite ends, means for independently closing said openings, the side of the casing being provided with two grain-inlet openings, a pivoted cover for closing either of said openings, and a reversible rotary fan mounted in said casing.

2. The combination in a grain-loader, of a portable support, a shaft mounted in bearings thereon, a casing carried by the shaft and adapted for tilting adjustment, a locking-rod carried by the casing and adapted to slide in the support said casing having discharge-openings at each end, means for independently closing said openings, the side of the casing being provided with two grain-inlet openings, means for closing said openings, and a reversible rotary fan in said casing, substantially as specified.

3. The combination in a grain-loader, of a portable casing provided with a discharge-opening, a fan therein, a bracket hinged to a fixed support, a rod detachably connected to the bracket and adapted to support the casing in position, driving-gearing in part supported by the bracket, a power-transmitting shaft connected by universal couplings to the driving-gearing and to the fan-shaft, the arrangement being such that when the bracket is released the driving mechanism will fall by gravity vertically alongside the fixed support.

700,098. HANDLE-BAR. LAWRENCE K. W. SMITH, New Brighton, N. Y. Filed Mar. 14, 1901. Serial No. 51,157. (No model.)



Claim.—1. In a handle-bar, the combination with a casing, of a worm-gear rotatably mounted within the casing and provided with a concave annular groove having a worm-thread on its surface, of a pair of handle-bar arms pivotedly mounted upon the casing and having inner curved

edges fitting in the annular groove of the stem and provided with worm-teeth that engage the worm-thread of the same.

2. In a handle-bar, the combination with a casing having an open upper end, of a pair of handle-bar arms pivoted upon the casing and having worm-teeth at their inner ends, an operating-stem rotatably mounted in the casing and having a worm-thread that engages the teeth of the arms, retaining means for the stem movably secured to one face of the casing and engaging said stem, and a locking device located upon the other face of the casing and engaging the retaining means to prevent the movement of the stem.

3. In a handle-bar, the combination with a casing having an open upper end, said casing being provided with worm-teeth on its inner and outer faces, of a pair of handle-bar arms pivoted upon the casing and having worm-threads at their inner ends, an operating-stem rotatably mounted in the casing and having a worm-thread that engages the teeth of the arms, a retaining-ring for the stem threaded upon the inner face of the casing and engaging said stem, and a locking-ring threaded upon the outer face of the casing and engaging the retaining-ring to prevent the movement of the stem.

4. In a handle-bar, the combination with a casing having an open upper end and outwardly-projecting ears, of a pair of handle-bar arms pivoted to said ears and provided with worm-teeth at their inner ends, an operating-stem rotatably mounted in the casing and having a worm-thread that engages the teeth of the arms, said stem projecting above the open end of the casing and having an annular shoulder located within the casing, a retaining-ring secured in the upper end of the casing and bearing upon the annular shoulder of the stem, said ring having an outstanding flange at its upper end which projects over the upper end of the casing and a locking-ring secured upon the upper end of the casing and adapted to hold the clamping-ring against movement.

700,099. PROCESS OF TREATING SUGAR-CRYSTALS. GLAS A. BRONKHORST and CHARLES A. KISS, New York, N. Y., assignors to Federal Refining Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 19, 1900. Serial No. 62,857. (No specimens.)

Claim.—1. The method or process of refining or purifying a mass of sugar-crystals, consisting in washing the mass with a sulfurous de-aerating or cleaning agent which is a non-equivalent of sugar-crystals, and then separating the said agent together with the absorbed impurities, substantially as described.

2. The method or process of refining or purifying sugar-crystals, consisting in washing the mass with a sulfurous body, and then separating the said sulfurous body together with the absorbed impurities, substantially as described.

3. The method or process of refining or purifying sugar-crystals, consisting in washing the mass with a sulfurous body, and then separating from the mass the said sulfurous body together with the absorbed impurities, substantially as described.

4. The method or process of refining or purifying a mass containing sugar-crystals, consisting in washing the mass with a de-aerating or cleaning agent containing a sulfurous derivative of a sulfurous body, and then separating from the mass the said de-aerating or cleaning liquid together with the absorbed impurities, substantially as described.

700,100. SPARKING APPARATUS FOR GASOLINE-ENGINE. JOHN W. BRADY, Providence, R. I., assignor of one-half to Joseph D. Fitch, Providence, R. I. Filed Aug. 23, 1901. Serial No. 78,500. (No model.)

Claim.—1. In a sparking apparatus for a gasoline-engine, the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, an electrode-bar mounted and longitudinally movable on a fixed support, means adapted to move said electrode longitudinally to the sparking-pin, and a spring adapted to be compressed by said longitudinal movement of the electrode and to move automatically the electrode longitudinally away from the sparking-pin when said spring is relieved from said compression, substantially as described.

2. In a sparking apparatus for a gasoline-engine, the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, an electrode-bar mounted and longitudinally movable on a fixed support, a worm-bar secured to the electrode-bar at a right angle and movable therewith, a support on which said worm-bar is movable, and a spiral spring surrounding the electrode-bar and having one end bearing against said fixed support and the opposite end bearing against said worm-bar, substantially as set forth.

3. In a sparking apparatus for a gasoline-engine, the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, an electrode-bar mounted and longitudinally movable on a fixed support, two parallel clamping-pieces adapted to embrace the outer end of the electrode-bar, two screw-threaded rods extending from a fixed cap-

port parallel with each other and with the electrode-bar, a thumb-screw engageable with each of said rods at the screw-threaded end thereof and having its inner end in contact with the edges of the clamping-pieces and a spiral spring surrounding the electrode-bar and having one end bearing against the first-named fixed support and the opposite end bearing against said clamping-pieces, substantially as specified.



4. In a sparking apparatus for a gasoline-engine, the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, an electrode-bar mounted and longitudinally movable on a fixed support, two clamping-pieces adapted to embrace the outer end of the electrode-bar and each having two oppositely-extending arms, two screw-pieces passing through the adjacent arms of said clamping-pieces, as shown, two screw-threaded guide-rods extending from a fixed support parallel with each other and with said electrode-bar and in loose contact with the adjacent arms of the clamping-pieces respectively, a thumb-screw engageable with each of said guide-rods on the screw-threaded end thereof and having its inner end in contact with the edges of the clamping-pieces, and a spiral spring surrounding the electrode-bar and having one end bearing against the first-named fixed support and the opposite end bearing against said clamping-pieces, substantially as specified.

5. In a sparking apparatus for a gasoline-engine, the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, an electrode-bar mounted and longitudinally movable on a fixed support, two clamping-pieces having joined a circular aperture wherein the outer end of the electrode-bar is movable, and each of which clamping-pieces has two oppositely-extending arms, two screws passing through the adjacent arms of said clamping-pieces, as shown, two screw-threaded guide-rods extending from a fixed support parallel with each other and with said electrode-bar and in loose contact with the adjacent arms of the clamping-pieces respectively, a thumb-screw engageable with each of said guide-rods on the screw-threaded end thereof and having its inner end in contact with the edges of the clamping-pieces, a spiral spring surrounding the electrode-bar and having one end bearing against the first-named fixed support and the opposite end bearing against said clamping-pieces, a screw-threaded spindle projecting axially from the outer end of the electrode-bar, and a thumb-screw engageable with said spindle and having its inner end in contact with said clamping-pieces, substantially as described.

6. The improved sparking apparatus for a gasoline-engine, consisting of the combination of a properly-mounted oscillating shaft having a sparking-pin projecting therefrom, a tubular barrel having a centrally-perforated partition in the bore thereof midway between its ends, a cylindrical bar mounted in said barrel and passing through said perforated partition, a packing surrounding a portion of said cylindrical bar within said barrel, a packing-ring in contact with the packing and loosely in contact with the cylindrical bar and having an annular flange covering the upper end of the barrel and projecting slightly beyond the edge thereof, screws passing through said annular flange into said barrel, an electrode mounted in the opposite end of the cylindrical bar and adapted to contact with the sparking-pin, a ring having an annular internal shoulder adapted to contact with the under side of the projecting portion of the flange of the packing-ring and provided with two diametrically opposite rounded bot-

two shouldered guide-rods inserted in said holes and having riveted ends therein and provided at their opposite ends with screw-threads, two clamping-pieces having when joined a circular aperture wherein the ends of the cylindrical bar is mounted and each of which clamping-pieces has two oppositely-extending-arms, between which respectively said two guide-rods loosely pass, two screws passing through the adjacent arms of the clamping-pieces, a screw-threaded spindle extending axially from the center end of the cylindrical bar, a thumb-screw engageable with said spindle, a thumb-screw engageable with the screw-threaded end of each of said guide-rods, and a spiral spring surrounding the cylindrical bar and having one end bearing against said packing-ring and the opposite end bearing against said clamping-pieces, substantially as shown and for the purpose specified.

700,101. APPARATUS FOR ANNEALING SILVER OR OTHER METALS. CALVIN STRIMMER, Newburyport, Mass., assignor to Twiss Manufacturing Company, Newburyport, Mass., a Corporation of Massachusetts. Filed July 1, 1901. Serial No. 64,696. (No model.)



Claim.—1. The combination of a muffle; means for heating the muffle exteriorly; a hot-gas-inlet pipe discharging into said muffle; a source of hot-gas supply connected with said hot-gas-inlet pipe; means for forcing said gas through said hot-gas-inlet pipe; a door for said muffle; a receiving-table at the front of said muffle; and a tank for an air-circulating bath; the receiving-table mounted to discharge into said tank.

2. The combination of a muffle; means for heating the muffle exteriorly; a hot-gas-inlet pipe discharging into said muffle; a source of hot-gas supply connected with said hot-gas-inlet pipe; means for forcing said gas through said hot-gas-inlet pipe; a receiving-table in front of said muffle, and near the door thereof; diverging supports for the table, and having steps at their front ends; transverse on opposite ends of the table; a chain attached to the table; a counterweight on the free end of the chain; a pulley over which the chain runs; the table being slidable on its supports between the muffle and said steps; and being tiltable when said to the front of said supports.

700,102. SELF-LEVELING WAGON. HERMAN W. THORPSON, Nigro, Ore. Filed Oct. 12, 1901. Serial No. 73,100. (No model.)

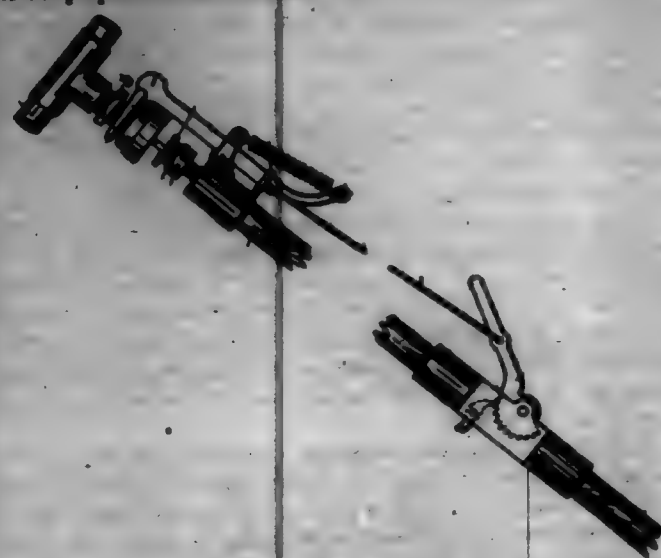


Claim.—A self-leveling wagon comprising a truck, bolsters supported thereon and provided with standards, axles or tracks securely fastened to the body of each bolster and the standards, a wagon-body, bottom brackets on said body provided with grooved and flanged rollers in engagement with the trucks, and side brackets on the wagon-body provided with grooved and flanged rollers also in engagement with the trucks, substantially as and for the purpose specified.

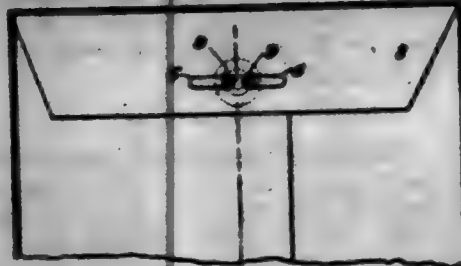
700,103. APPARATUS FOR THE STOPPAGE OF WATER FROM AUTOMATIC SPRINKLER HEADS AFTER FIRE OR ACCIDENT. THOMAS TITTON, Ashton-upon-Ribble, and EDWARD FLEMING, Preston, England, assignors to William Lewis Holland, Preston, England. Filed Feb. 12, 1902. Serial No. 65,000. (No model.)

Claim.—The combination with an automatic sprinkler installation, of an apparatus for closing a discharged sprinkler, said apparatus consisting, in its essential features, of a frame mounted upon a pole, a part con-

ried by the frame and arranged to engage the body of the sprinkler, a valvular part arranged to seal the sprinkler and operating means, each as a connected catch-hand-lever and retaining-pawl, substantially as and for the purpose herein set forth.

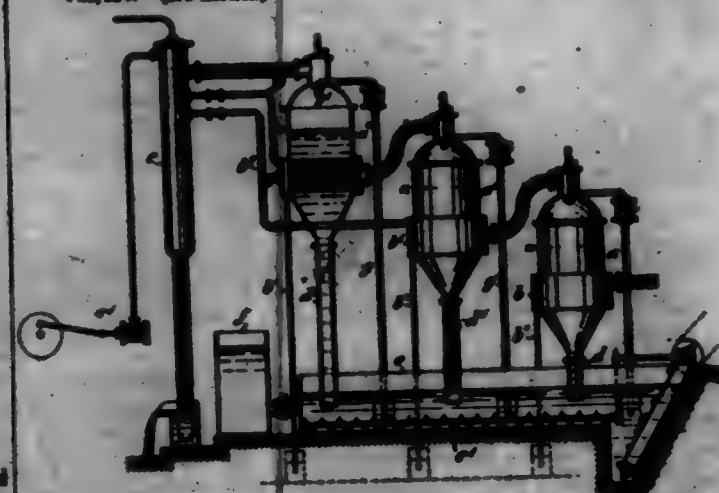


700,104. PAPER-FASTENER. HENRY THOMAS, JR., Brooklyn, N. Y. Filed Mar. 3, 1902. Serial No. 64,604. (No model.)



Claim.—An envelop-holder, comprising an eyelid adapted to be engaged through the back of an envelop, and fingers extended from opposite sides of the eyelid and adapted to be passed through the flap of the envelop and turned outward and down thereon, the material between the openings in the flap forming a cover or closure for the eyelid, substantially as specified.

700,105. VACUUM EVAPORATING APPARATUS. GERNARD E. VIL, Schürmühle, Switzerland. Filed Dec. 22, 1900. Serial No. 741,417. (No model.)



Claim.—1. In vacuum apparatus for obtaining salt from brine, the combination, with a pan provided with an internal system of heating-pipes and having its bottom constructed with a tubular extension, and a supply-reservoir arranged below said extension for receiving the mass and communicating with the atmosphere, of an air-pipe descending from the top of the pan, and a liquid seal for the lower end of said air-pipe, substantially as and for the purpose specified.

2. In vacuum apparatus for obtaining salt from brine the combination, with a pan provided with an internal system of heating-pipes and having its bottom constructed with a tubular extension for receiving the mass and communicating with the atmosphere, of an air-pipe descending from the top of the pan, a non-increasing liquid seal for the lower open end of said air-pipe, and means for preventing liquid from being drawn from said air-pipe into the pan, substantially as and for the purpose specified.

3. In vacuum apparatus for obtaining salt from brine the combination of a pan provided with an internal system of heating-pipes, and provided at the bottom with a tubular leg or extension, an open supply-tank below into which the said leg dips, an air-pipe communicating with the top of the pan and a liquid seal for the lower open end of said air-pipe; a removable double-legged "washing-pipe" one leg of which is adapted to be placed over the said tubular leg of the pan, and a cock-controlled brine-supply for the other leg of said double-legged pipe, substantially as and for the purpose hereinbefore set forth.

700,106. LOCK. RAIL WHITE and FRANK C. FREY, Baker City, Ore. Filed June 15, 1901. Serial No. 64,730. (No model.)



Claim.—1. The combination with a quadrant provided with a knob-bolt and a segmental cast, of an oscillating shackle having a key-slot and provided with a segmental tumbler to normally engage said cast, said tumbler having a shoulder and parallel openings having recesses and extending from the rear of said shoulder to the key-slot, pins of varying length movably mounted in said openings and provided with legs to work within said recesses, a stop-pin to limit the movement of said tumbler, and a dog to engage said shoulder to hold the tumbler normally in engagement with said cast, and having a segmental recess providing a shoulder to engage the inner projecting curved edge of said tumbler when a false key is inserted into the key-slot.

2. The combination with a casting, of a pivoted quadrant adapted to swing therein, provided with segmental slots 6 and 7, an oblong recess and a segmental cast, pins extending in said slots to limit the movement of the quadrant, an operating-lever working within the recess, a knob-bolt having a stem extending through an opening in the quadrant into the segmental slot 7, a pin holding said knob-bolt therein, an oscillating shackle having a key-slot and provided with a segmental tumbler to normally engage said cast, said tumbler having a shoulder and parallel openings having recesses and extending from the rear of said shoulder to the key-slot, pins of varying length movably mounted in said openings and provided with legs to work within said recesses, a stop-pin to limit the movement of said tumbler, and a dog to engage said shoulder to hold the tumbler normally in engagement with said cast, and having a segmental recess providing a shoulder to engage the inner projecting curved edge of said tumbler when a false key is inserted in the key-slot.

700,107. MANUFACTURE OF ELECTRIC CABLES. JULIAN E. WISE, Berlin, Germany. Filed Dec. 21, 1901. Serial No. 76,120. (No model.)



Claim.—1. In combination, a bulk of insulating material having notches in its sides and wires held in said notches, substantially as described.

2. In combination, a bulk of insulating material having notches in its sides or edges, wires in said notches and a cord to hold the wires in position, substantially as described.

3. In combination, a bulk of a continuous strip of insulating material having notches formed in its exterior and interior edges, and wires in said notches, substantially as described.

4. In combination, a bulk of insulating material having notches in its sides or edges arranged in a spiral line about the bulk and wires held in said notches, substantially as described.

5. In combination, a bulk of a flat strip of insulating material folded longitudinally, so as to form an upstanding edge having notches therein, wires in said notches and a cord to hold the wires therein, substantially as described.

6. In combination, a bulk of a flat strip of insulating material folded

longitudinally, so as to form an upstanding edge having notches in said edge, wires in said notches, the portions of the standing strip between the notches capable of being turned between the wires inward or from the center, substantially as described.

7. A bulk of a flat strip of insulating material having two longitudinal folds and both edges of the strip having notches, in combination with wires held in said notches, the parts between the notches on one edge of the strip projecting from the center and those on the other edge toward the center, substantially as described.

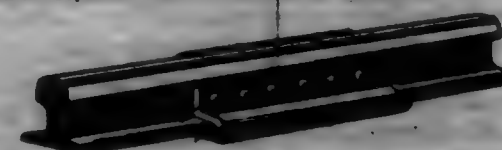
8. A bulk of a flat strip of insulating material folded longitudinally so as to be substantially Z shape in section and having notches in its edges, in combination with wires held in said notches, the parts between the notches of the strip on one edge projecting between the wires from the center of the bulk and those on the opposite edge projecting between the wires toward the center, substantially as described.

9. In combination, a bulk of a flat strip of paper folded longitudinally and notches cut from one edge of the strip to the line of fold and notches intermediate them of lesser depth, and wires held in said notches, substantially as described.

10. In combination, a bulk of a flat strip of paper having two parallel longitudinal folds and notches in each side of the strip from each edge to the adjacent longitudinal fold, the wires in said notches, the sides of the strip between the notches on one side projecting between wires and outward from the center of the bulk, and those on the other side projecting between wires toward the center of the bulk, substantially as described.

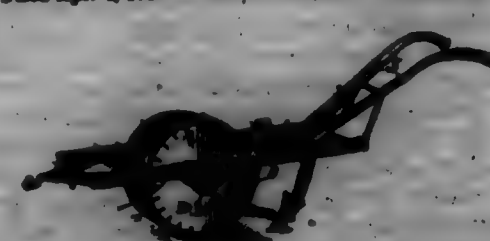
11. In combination, a bulk formed of a flat strip of paper having a longitudinal fold, and cross-shaped notches extending from one edge to said fold to form upstanding portions with lateral notches in said upstanding portions, substantially as described.

700,108. RAIL-CLAMP. ARTHUR H. WHITE, Gaylord, Mich. Filed Nov. 26, 1901. Serial No. 64,500. (No model.)



Claim.—A clamp of the class set forth comprising a member having a horizontal base-plate with an inwardly-extending side running above the same and continuing into a vertical element with an upper edge 7 constructed as a narrow tread-surface to lie flush with the upper surface of the heads of the rails to which the device is applied, a groove being formed between the inwardly-projecting portion of the side and the base-plate, the latter having handles at its opposite ends, a movable member hinged to the said handles and conforming in shape to the flange and recesses of the rails and of less vertical extent than the opposite right side, and bolts extending through the movable member and side and forming the sole means of movement of the clamp to the rails, the base-plate terminating at the point where the handles are formed.

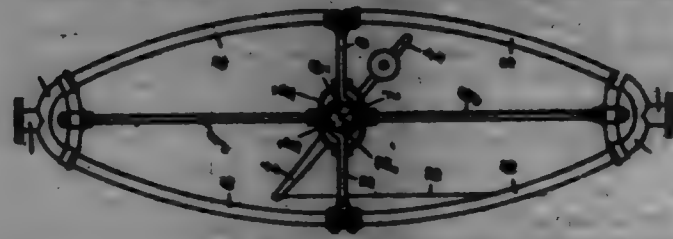
700,109. COTTON-CHOPPER. WILLIAM R. WILKINSON, Glasgow, Ga. Filed Apr. 4, 1902. Serial No. 64,800. (No model.)



Claim.—1. In a cotton-chopper, a chopping-wheel comprising oppositely arranged and aligning disks having central circular recesses or cuts and oppositely-arranged radial knife-slots, a hub formed with annular flanges at the ends seated within the central circular recesses of the disks, a shaft in the hub, chopping-blades having their ends lodged in the radial slots of the disks, and driven about the disks over the ends of the knives, substantially as described.

2. In a cotton-chopper, a chopping-wheel comprising oppositely arranged and aligning disks having central circular recesses or cuts in the inner faces and oppositely-arranged radial knife-slots in their peripheral faces, a hub formed with annular flanges at the ends seated within the central circular recesses of the disks, bolts projected through the disks into the ends of the hub, a shaft in the hub, chopping-blades having their ends removably lodged in the radial slots in the disks, drive on the disks to hold the knives in position, and bolts through the drive and entering the disks to detachably hold the drive to the disks, substantially as described.

700,110. AUTOMATIC FEED APPARATUS. FRANK WERNER, Hamburg, Germany. Original application filed June 26, 1899, Serial No. 21,972. Divided and this application filed July 2, 1901. Serial No. 64,064. (No model.)



Claim.—1. An automatic regulating device comprising a pair of steam-lugs connected to an inlet-valve at one end and to an outlet-valve at the opposite end, said lugs adapted to diverge or expand, and converge or contract under varying temperatures, a spindle, means operated by the steam-lugs when displaced in one direction to rock said spindle in one direction, and means automatically rocking said spindle in a reverse direction on the displacement of the steam-lugs in a reverse direction, for the purpose set forth.

2. An automatic regulating device, comprising a pair of steam-lugs connected to an inlet-valve at one end and to an outlet-valve at the opposite end, said lugs adapted to diverge or expand and converge or contract under varying temperatures, a spindle, means operated by the steam-lugs when displaced in one direction to rock said spindle in one direction, and a weighted lever secured to said spindle to rock the same in a reverse direction, for the purpose set forth.

3. An automatic regulating device, comprising a pair of steam-lugs connected to an inlet-valve at one end and to an outlet-valve at the opposite end, said lugs adapted to diverge or expand and converge or contract under varying temperatures, a spindle, means operated by the steam-lugs when displaced in one direction to rock said spindle in one direction, and a two-armed lever having one of its arms weighted, said lever secured to the spindle to rock the same in a reverse direction, for the purpose set forth.

4. In an automatic boiler-feeding device, the combination with the feed-pipe, its valve and valve-stem; of a pair of steam-lugs connected at one end to a steam-inlet union and at the opposite end to a steam-outlet union, said steam-lugs adapted to diverge or expand and converge or contract under varying temperatures, means operated by the steam-lugs when displaced in one direction to rock the overhead valve-spindle in one direction and means automatically rocking said spindle in a reverse direction on the displacement of the steam-lugs in a reverse direction, for the purpose set forth.

5. In an automatic boiler-feed, the combination with the feed-pipe, its valve and valve-stem and a notched disk secured thereto; of a pair of steam-lugs connected to a steam-inlet union at one end and to a steam-outlet union at the opposite end, said lugs adapted to diverge or expand and converge or contract under varying temperatures, rods connected by the displacement of the steam-lugs in one direction and engaging the notches in the disk on the valve-spindle to rock the same in one direction, and means automatically rocking said spindle in a reverse direction on the displacement of the steam-lugs in a reverse direction, for the purpose set forth.

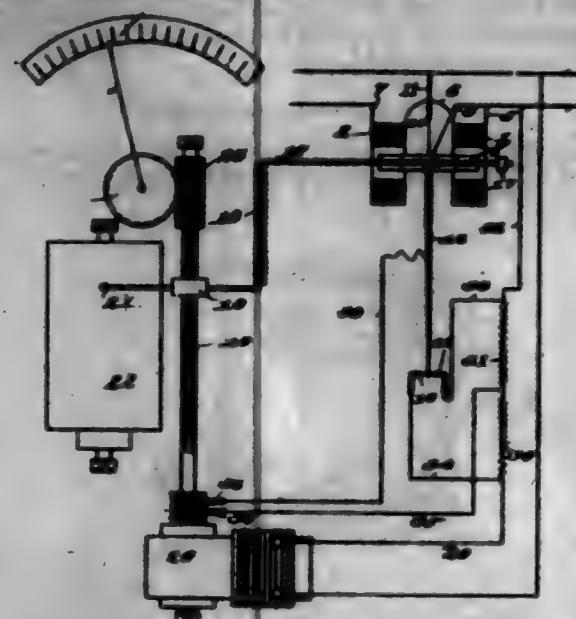
6. In an automatic boiler-feed, a pair of steam-lugs each composed of two tubes and an intermediate hollow union, said lugs connected at one end to a steam-inlet union and at the opposite end to a steam-outlet union, and a belt extending through each of the intermediate unions, said belts provided with recessed heads at their proximate ends; of a boiler-feed pipe, its valve and valve-stem, a weighted lever, and a disk secured to said stem, said disk having oppositely-arranged notches *p* and *q* and oppositely-arranged rods seated in the recesses in the heads of the above-said belts, the free beveled ends of said rods projecting into the notches *p*, *q*, respectively, substantially in and for the purpose set forth.

700,111. ELECTRICAL MEASURING INSTRUMENT. VITTORIO ARNONE, Spicchi, Italy, assignor to Cusella Olivetti, Ivrea, Italy. Filed July 18, 1899. Serial No. 20,725. (No model.)

Claim.—1. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a shaft and means movable longitudinally of said shaft for automatically increasing and decreasing the tension of said counterbalancing device on said movable part.

2. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a shaft and means movable longitudinally of said shaft and thrown into operation by an increase or decrease in the energy or other value of the current to be measured for increasing and decreasing the tension of said counterbalancing device on said movable part.

3. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a shaft, means movable longitudinally of said shaft for automatically increasing and decreasing the tension of said counterbalancing device on said movable part, and means for indicating the force exerted on said counterbalancing device.



4. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a shaft, means movable longitudinally of said shaft for automatically increasing and decreasing the tension of said counterbalancing device on said movable part, and means for continuously recording the force exerted on said counterbalancing device.

5. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a shaft, means movable longitudinally of said shaft for automatically increasing and decreasing the tension of said counterbalancing device on said movable part, means for indicating the force exerted on said counterbalancing device, and means for continuously recording said force.

6. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a motor, a rotary shaft operated thereby, a longitudinally-movable connecting device actuated by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, and means thrown into operation by said movable part for operating said motor in one direction or the other, according as the energy or other value of the current increases or decreases.

7. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a motor, a rotary shaft operated thereby, a longitudinally-movable connecting device actuated by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, means thrown into operation by said movable part for operating said motor in one direction or the other, according as the energy or other value of the current increases or decreases, and an indicating device connected with said motor and operated thereby.

8. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a motor, a rotary shaft operated thereby, a longitudinally-movable connecting device actuated by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, means thrown into operation by said movable part for operating said motor in one direction or the other, according as the energy or other value of the current increases or decreases, and a recording device connected with said motor and operated thereby.

9. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current thereon, a motor, a rotary shaft operated thereby, a longitudinally-movable connecting device actuated by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, means thrown into operation by said movable part for operating said motor in one direction or the other, according as the energy or other value of the current increases or decreases, an indicating device, and a recording device, both connected with said motor and operated thereby.

10. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with

and operated by said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, and means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases.

11. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with and operated by said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases, and an indicating device connected with, and operated by, said shaft.

12. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with, and operated by, said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases, and a recording device connected with, and operated by, said shaft.

13. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with, and operated by, said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases, a worm secured to said shaft, a worm-wheel meshing therewith, and an indicating hand or pointer carried by said worm-wheel.

14. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with, and operated by, said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases, a rotating drum or cylinder, and a marking device carried by said collar or nut and bearing against said drum.

15. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a motor for increasing and decreasing the tension of said counterbalancing device, a threaded shaft connected with, and operated by, said motor, a threaded nut or collar on said shaft, movable longitudinally thereof and having said counterbalancing device connected with it, means thrown into operation by said movable part for starting said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases, an indicating device, and a recording device, both connected with, and operated by, said shaft.

16. In an electrical measuring instrument, a movable part acted upon by the current, a spring connected thereto for overcoming the torque of the same and for maintaining said movable part normally at its zero-point, a shaft thrown into operation by an increase in the energy or other value of the current to be measured and longitudinally-movable means on said shaft for increasing and decreasing the tension of said spring.

17. In an electrical measuring instrument, a movable part acted upon by the current, a spring connected thereto for overcoming the torque of the same and for maintaining said movable part normally at its zero-point, a motor, a shaft operated thereby, means thrown into operation by said movable part for starting said motor in one direction or the other and means movable longitudinally of and by said shaft for increasing or decreasing the tension of said spring.

18. In an electrical measuring instrument, a movable part acted upon by the current, a counterbalancing device for equalizing the action of the current on said movable part, a reversible electric motor, a shaft operated thereby, a connecting device movable longitudinally of said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, a circuit through said motor, and means thrown into operation by said movable part for closing the circuit through said motor in one direction or the other, according as the energy or other value of the current to be measured increases or decreases.

19. In an electrical measuring instrument, a movable part acted upon

by the current, a connecting rod or arm connected with said movable part and operated thereby, electric contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero position and said rod at a point intermediate said contacts, a reversible electric motor, a shaft operated thereby, a connecting device movable longitudinally of said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, a circuit through said motor adapted to be closed in one direction or the other by the engagement of said rod with one or the other of said contacts as the energy or other value of the current through the instrument increases or decreases.

20. In an electrical measuring instrument, a movable part acted upon by the current, a connecting rod or arm connected with said movable part and operated thereby, electric contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero position and said rod at a point intermediate said contacts, a reversible electric motor, a shaft operated thereby, a connecting device movable longitudinally of and by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, a circuit through said motor adapted to be closed in one direction or the other by the engagement of said rod with one or the other of said contacts as the energy or other value of the current through the instrument increases or decreases, and indicating mechanism connected with, and operated by, said motor.

21. In an electrical measuring instrument, a movable part acted upon by the current, a connecting rod or arm connected with said movable part and operated thereby, electric contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero position and said rod at a point intermediate said contacts, a reversible electric motor, a shaft operated thereby, a connecting device movable longitudinally of and by said shaft and attached to said counterbalancing device for increasing and decreasing the tension thereof, a circuit through said motor adapted to be closed in one direction or the other by the engagement of said rod with one or the other of said contacts as the energy or other value of the current through the instrument increases or decreases, and recording mechanism connected with, and operated by, said motor.

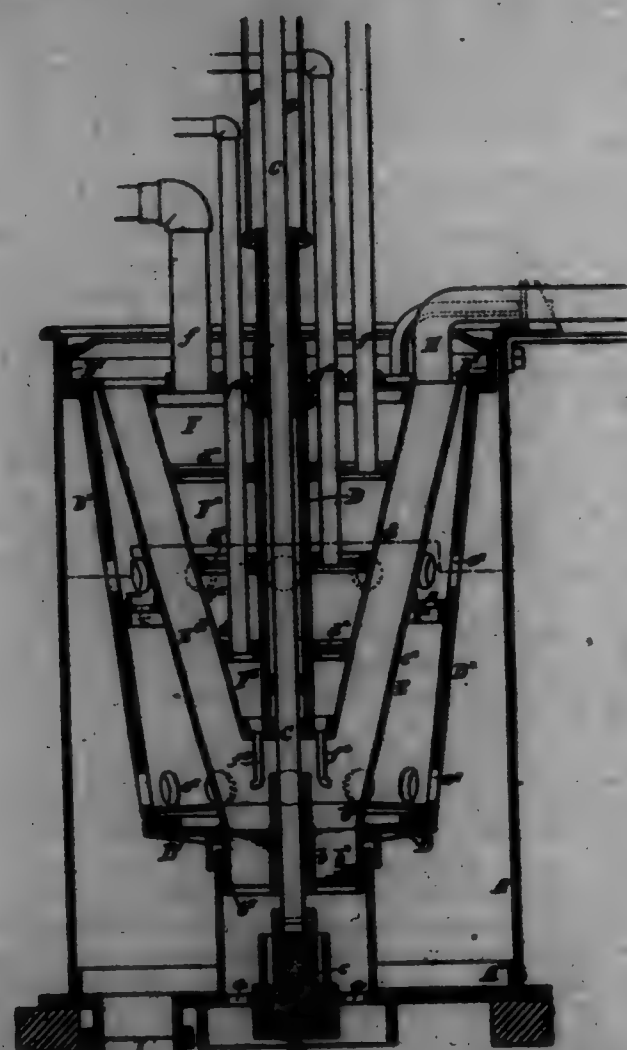
22. In an electrical measuring instrument, a movable part acted upon by the current, a connecting rod or bar connected therewith and operated thereby, contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero-point and said rod at a point intermediate said contacts, a reversible electric motor for increasing and decreasing the tension of said counterbalancing device, a short-circuit from the line, including the field-magnets of said motor and two resistance-coils, circuit connections between said contacts and said short-circuit at points, respectively above and below said coils, and circuit connections between said connecting-rod, the armature of said motor, and said short-circuit, at a point intermediate said coils, whereby the circuit through said armature may be closed in one direction or the other by the engagement of said rod with one or the other of said contacts upon an increase or decrease in the energy or other value of the current through the instrument.

23. In an electrical measuring instrument, a movable part acted upon by the current, a connecting rod or bar connected therewith and operated thereby, contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero-point and said rod at a point intermediate said contacts, a reversible electric motor for increasing and decreasing the tension of said counterbalancing device, a short-circuit from the line, including the field-magnets of said motor and two resistance-coils, circuit connections between said contacts and said short-circuit at points, respectively above and below said coils, circuit connections between said connecting-rod, the armature of said motor, and said short-circuit, at a point intermediate said coils, whereby the circuit through said armature may be closed in one direction or the other by the engagement of said rod with one or the other of said contacts upon an increase or decrease in the energy or other value of the current through the instrument, and indicating mechanism connected with and operated by said motor.

24. In an electrical measuring instrument, a movable part acted upon by the current, a connecting rod or bar connected therewith and operated thereby, contacts between which said rod is mounted, a counterbalancing device for equalizing the action of the current on said movable part and thereby normally maintaining said movable part at its zero-point and said rod at a point intermediate said contacts, a reversible electric motor for increasing and decreasing the tension of said counterbalancing device, a short-circuit from the line, including the field-magnets of said motor and

two resistance-coils, circuit connections between said contacts and said short-circuit at points respectively above and below said coils, circuit connections between said conducting-rod, the armature of said motor, and said short-circuit, at a point intermediate said coils, whereby the circuit through said armature may be closed in one direction or the other by the engagement of said rod with one or the other of said contacts upon an increase or decrease in the energy or other value of the current through the instrument, and recording mechanism connected with, and operated by, said motor.

700,112. CONTINUOUS HYDRO-EXTRACTOR. LEONARD ATWOOD, Philadelphia, Pa. Filed May 14, 1901. Serial No. 98,572. (No model.)



Claim.—1. A hydro-extractor having a perforated conical shell, a conical water-chamber within said shell and means for forcing water into the chamber and through perforations in the walls thereof, with a device in the lower portion of said shell for facilitating the removal of material therefrom after its liquid has been extracted, substantially as described.

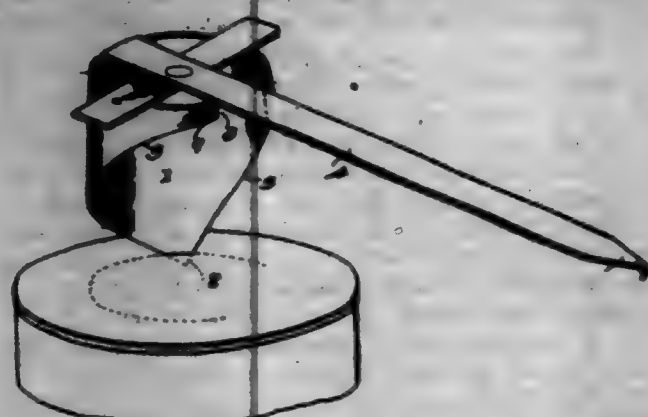
2. A hydro-extractor having a casing, a perforated shell within the casing, a water-chamber within the shell having perforations in its walls and a device in the lower portion of the shell for facilitating the removal of material therefrom after its liquid has been extracted, substantially as described.

3. The combination in a conical perforated casing, means for revolving the same, said casing having an open bottom, a bladed wheel in the bottom, means for supplying material to the shell, a conical water-receptacle having a perforated body, and means for forcing water to said shell, substantially as described.

4. The combination in a conical perforated casing, of means for revolving the same, said casing having an open bottom, a bladed wheel in the bottom, means for supplying material to the shell, a conical water-receptacle having a perforated body, and means for forcing water to said shell, the body of said water-receptacle having inclined discharge-openings, substantially as described.

5. The combination in a conical perforated casing, means for revolving the same, said casing having an open bottom, a bladed wheel in the bottom, means for supplying material to said shell, a conical water-receptacle having a perforated body, and means for forcing water to said shell, the body of said water-receptacle having inclined discharge-openings, with a discharge-pipe at the bottom for discharging the material so that it will pass away from the machine, substantially as described.

700,113. CAN-OPENER. JAMES D. BROWN, Trinidad, Colo., assignor of one-half to William W. Griswold, Trinidad, Colo. Filed Oct. 24, 1901. Serial No. 78,830. (No model.)



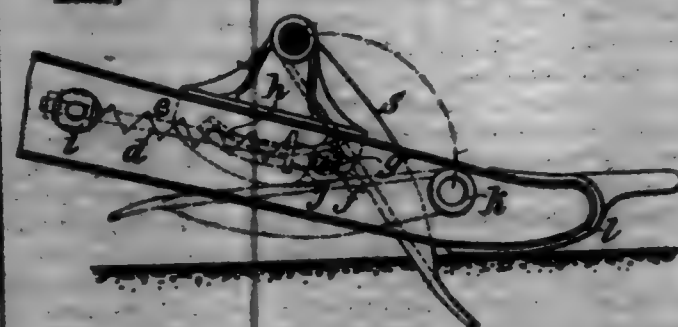
Claim.—1. A can-opener having an approximately cylindrical upwardly-tapered or reduced blade provided with cutting edges which progress spirally in opposite directions from a penetrating-point, to cause the transverse compression of the several portions of a can-top as the blade advances therethrough.

2. A can-opener having an approximately cylindrical, transversely-expandable blade, reduced in diameter toward its tip, and having spirally-disposed downwardly-convergent cutting edges intersecting to form a penetrating-point.

3. A can-opener having an approximately cylindrical, transversely-expandable blade provided with spirally-disposed downwardly-convergent cutting edges intersecting to form a penetrating-point, and a handle secured to the upper edge of the blade at one point and provided with a brace having a plurality of bearings on the edge of the blade to provide for the application of downward pressure to the blade without interfering with transverse expansion.

4. A can-opener having an approximately cylindrical, transversely-expandable, upwardly-reduced or tapered blade, of which the cutting edges progress spirally from a penetrating-point and terminate short of each other near the upper edge of the blade, and a handle secured to the blade at its upper edge and remote from the terminus of the cutting edges and provided with a brace or cross-head bearing on the upper edge of the blade adjacent to said terminus of the cutting edges.

700,114. GUN-CARRIAGE. KARL DUMMER, Ploem, Austria-Hungary, assignor to The Firm of Steudacher, Aktiengesellschaft in Ploem, Ploem, Austria-Hungary. Filed Dec. 26, 1901. Serial No. 77,269. (No model.)



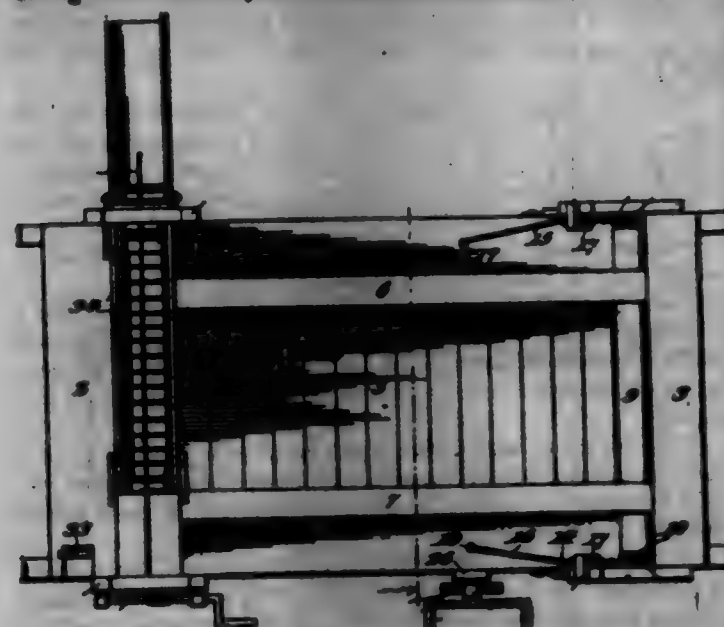
Claim.—1. In a gun-carriage, the combination with the trail thereof, of a spade detachably connected thereto, a spring-pressed rod suitably connected with the trail, means for connecting the said rod with the spade, said means provided with projections, guides attached to the trail for the said projections when the spade is retracted, and means carried by the trail to prevent the dropping down of the spade.

2. In a gun-carriage, the combination with the trail of a spade adapted to operate between the sides of the trail, a pin removably secured to the trail for detachably and pivotally connecting the spade thereto, a spring-pressed rod, a bearing connected with the trail for supporting one end of the rod, a bolt provided with projections, said bolt adapted to connect the other end of the rod to the spade, curved-shaped guides carried by the trail for the said projections when the spade is retracted, and means on the trail to prevent the dropping down of said spade and rod.

700,115. BURNING APPARATUS. JOHN BELL, White, N. H. Filed Sept. 18, 1901. Serial No. 78,888. (No model.)

Claim.—1. In a burning apparatus, the combination with a platform of parallel tilting beams connected at their front ends by a trans-

verse bar, journals secured to the tilting beams, means for tilting said beams, and means for guiding them in their movement, comprising bars having curved slots adapted to receive the said journals.



2. In a burning apparatus, the combination with a fixed platform of parallel tilting beams connected at their front ends by a transverse bar, said bar having its ends projecting beyond the tilting beams, means for tilting said beams, and guides secured to the frame adapted to receive the projecting ends of the said transverse bar.

3. In a burning apparatus, the combination with a platform having keeplines secured to its under side, of a pair of tilting beams, means for raising and lowering the same, and means for locking the tilting beams in position comprising a locking-bar slidably mounted in the said keeplines, a horizontally-disposed lever fulcrumed below the platform, strips connecting the said locking-bar to one end of the said lever, and a vertically-disposed lever fulcrumed on the frame having its lower end connected to the opposite end of the horizontally-disposed lever.

4. In a burning apparatus, the combination with a fixed platform of parallel tilting beams connected at their front ends by a transverse bar, means for tilting said beams and means for guiding them in their movement, comprising transversely-inclined bars having curved slots and projections from said transverse bar moving in said slots.

5. In a burning apparatus, the combination with a pair of weighted tilting beams, of a transverse beam connecting the front ends of the beams, journals projecting from the ends of said beam, pulleys on said journals, elevating-cords on said pulleys, inclined bars rising from the frame and having curved slots to receive the ends of said journals, a winding-shaft and crank for said cords, means for locking the beams against movement, a conveyor and a chute adjacent to the conveyor.

700,116. HITCHER-BLOCK AND LEVER CONNECTION. CHARLES F. FAZ, Chicago, Pa., assignor to J. Stevens Arms & Tool Company, Chicago, Pa., Inc., a Corporation. Filed July 25, 1901. Serial No. 68,219. (No model.)

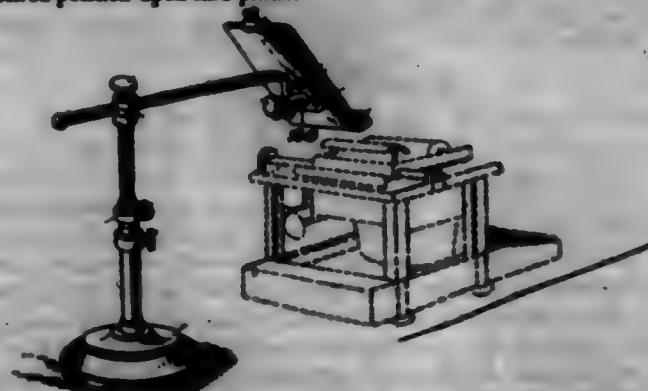


Claim.—1. The combination in a breech-loading firearm of a breech-block pivotally supported therein and adapted to swing in the plane of the base of the arm, a thumb-lever for operating the block, and means for rigidly connecting the lever to the block consisting of a sleeve, lugs thereon for engaging recesses in the breech-block and in the side of the thumb-lever, and a screw-threaded pin loose in the sleeve and having a threaded engagement with the breech-block, substantially as described.

2. The combination in a breech-loading firearm, of a breech-block pivotally supported therein adapted to swing in the plane of the base of the arm, said block having a vertically-located slot therein, an extractor in said slot, a thumb-lever for operating the block, and means for rigidly connecting the lever to the block and for supporting said extractor, consisting of a sleeve, lugs thereon for engaging recesses in the breech-block and in the side of the thumb-lever, and a screw-threaded pin loose in the sleeve and having a threaded engagement with said breech-block and extractor, substantially as described.

700,117. TYPE-WRITER COPY-HOLDER. FRANK E. GRAY, Franklin, Pa. Filed Dec. 24, 1900. Serial No. 68,967. (No model.)

Claim.—1. In a type-writer copy-holder, the combination with a base having a standard, of a substantially horizontal arm slidably mounted upon the upper end of the standard and having a downwardly-curved pin at its outer end, a stop located upon the depending end of the pin, a bracket carrying a rack, said bracket being slidably and reversibly mounted upon the pin, and means for maintaining the bracket at any desired position upon said pin.



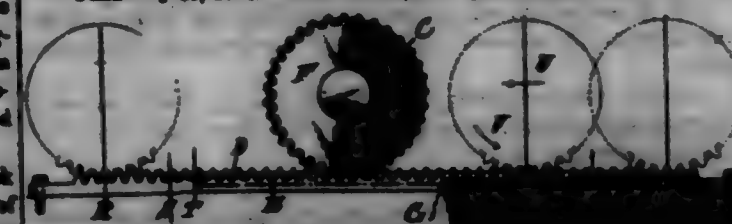
2. In a type-writer copy-holder, the combination with a base, of an upright sectional adjustable standard, one section of which is secured to the base, and another section is slidably mounted upon said base-section, a horizontally-disposed arm slidably mounted upon the upper end of the standard and provided with a downwardly-curved depending pin having an enlarged head, a bracket reversibly and slidably mounted upon the pin and bearing upon the enlarged head, said bracket having its outer face inclined, and a copy-holding rack secured to said inclined face.

700,118. PIPE OR TUBE SAWING MACHINE. HENRY W. HATTON, Mason City, Iowa. Filed May 2, 1901. Serial No. 68,662. (No model.)



Claim.—A tube-sawing machine comprising a cylindrical and revolvable body, an eccentric bearing rotatably mounted in the body, a revolvable mandrel mounted eccentrically within the bearing, means for revolving the body, bearing and mandrel independently of each other, a rack upon the bearing, a pin upon the body adapted to engage the rack, and a saw upon the mandrel, and a spring secured to the body and adapted to press the saw against the tube to be cut and hold the body in operative position.

700,119. PRINTING-PRESS. ROBERT HENSON, Baltimore, Md., assignor to the Duplex Printing Press Co., Baltimore, Md. Filed July 19, 1901. Serial No. 68,681. (No model.)



Claim.—1. The combination of a cylinder, in gear, a bed consisting with the cylinder and a bed-car mounting with said gear, the teeth of the rack being irregular to permit play of the cylinder relatively to the rack while on impression, substantially as described.

2. The combination of a cylinder and bed, the cylinder-gear, and the bed-rack consisting with said gear, said rack having its intermediate teeth thinner than its end teeth, and the spaces therebetween correspondingly wider, for the purpose and substantially as described.

3. The combination of a cylinder and bed, the gear on the cylinder and a bed-rack mounting thereon having its teeth opposite the type-

flaps on the head reduced in thickness, and the space therebetween increased to permit play of the cylinder relatively to the gear while on impression, the teeth of the rack beyond the flange increasing to fill also to correct any lost motion or accelerated movement of the cylinder during impression, substantially as and for the purpose set forth.

700,120. PHOTOGRAPH-ROLL HOLDER. DAVID E. HOSMER, Hunter, N. D. Filed Mar. 12, 1897. Serial No. 67,994. (No model.)



Claim.—1. In a photograph-roll holder the combination of a casing having a front opening, a slide in said front opening, a film-support having two of its edges connected to the outside walls of said casing, said film-support having an observation-aperture therethrough, rounded guides for the film positioned in line with the said film-support, winding and supply chambers located in the rear of said film-support, winding and supply spools pivoted in said chambers, and a winding device adapted to turn the reel-spools, the casing being arranged to open and allow access to the interior thereof.

2. In a photograph-roll holder the combination of a casing having a front opening, a slide in said front opening, rounded film-guides positioned in the right and left interior front corners of the casing, a film-support provided with an observation-aperture therethrough, said film-support positioned in line between the rounded film-guides, the film-support having two of its edges connected to the interior parts of the outside walls of the casing, the casing having a central compartment open at its rear side, through which central compartment observation can be had through the observation-aperture in the film-support, two closed side compartments, said side compartments formed by walls connected to the film-support on opposite sides of the observation-aperture and by walls forming the outer sides of the casing, a spool located in one of said side compartments, a reel located in the other of said side compartments, and a reel-winding device passing through a wall of the casing, the casing being arranged to open and allow access to the interior thereof.

3. In a photograph-roll holder the combination of a casing constructed with a film-support connected to the interior parts of two of its outside walls, said casing having a front opening, a slide in said front opening, a central compartment having the opening at its rear side, and being located between two side compartments, said central compartment having its front wall formed by the film-support, said front wall of the central compartment having an observation-aperture therethrough, two side compartments formed by the outside walls of the casing and the film-support and the side walls of the central compartment, a reel-winding device passing through a wall of the casing, the casing being arranged to open and allow access to the interior thereof.

700,121. EYELET. BRADSHAW KIMBALL, Boston, Mass., assignor to United Fastener Eyelet Company, Portland, Me., and Boston, Mass., a Corporation of Maine. Filed Jan. 20, 1898. Serial No. 71,498. (No model.)



Claim.—1. An eyelet comprising a tubular body and a cap of fabric and celluloid at one end thereof.

2. An eyelet having a head, and a cap or flange on said head, said cap or flange consisting of fibrous material combined with plastic material.

3. An eyelet comprising a tubular metal body and a fabric sheath secured thereon by means of celluloid, said fabric being also fixed by celluloid.

4. An eyelet comprising a tubular body having a flaring end, and a cap protecting said end and consisting of a fabric sheath fixed with wear-resisting material.

5. An eyelet comprising a tubular metal body, a molded ring of celluloid thereon, and a fabric sheathing-ring within the celluloid and covering the edge of the metal.

6. An eyelet comprising a tubular body having a flaring end, and a cap molded upon said flaring end, said cap consisting of wear-resisting material in which fabric is embedded.

7. A metal eyelet having a head, and a cap secured upon said head and consisting of fibrous material fixed with wear-resisting material.

8. An eyelet comprising a tubular body having a flaring end, and a cap upon said end, said cap consisting of compressed celluloid in which fabric is embedded, and being of larger diameter than said flaring end.

9. An eyelet comprising a tubular body having a flaring end, and a

single-ply sheath of fabric fixed with celluloid and keyed upon and protecting said flaring end.

10. An eyelet comprising a tubular body having a flaring end, and an annulus of fabric and celluloid protecting said flaring end, the celluloid being said fabric and also forming a flange around and beneath said flaring end.

11. An eyelet comprising a metallic body having an enlarged end, and an annulus of fabric having a thin flange of celluloid and protecting said end, the annulus and the celluloid forming a flange of greater diameter than said enlarged end, and interlocking therewith.

12. An eyelet comprising a metal body having a head, and a cap of celluloid compressed upon and including said head; said cap having a reinforcement of fibrous material embedded therein.

13. An eyelet comprising a tubular body and a flaring end, and a thin cap of celluloid compressed upon and including said flaring end; said cap having a rounded top surface and a plane outer surface, and also having an internal reinforcement of fibrous material which sheaths said flaring end.

14. An eyelet comprising a tubular body and a flaring end, and a cap upon said end, said cap comprising an annular sheath of fibrous material embedded in celluloid, the diameter of said sheath being greater than that of said flaring end.

15. An eyelet having a tubular metal body provided with a flange or enlargement at its outer end, and also having a rigid wear-resisting covering including and interlocked with the flange or enlargement and forming on the outside of the eyelet a shoulder adapted to bear on the material in which the eyelet is inserted; and an annulus of fabric embedded within said covering and overlying the outer edge of said tubular body.

16. An eyelet having a lateral flange or ledge upon its outer end, and a cap made of plastic material surrounding and including said flange, said cap being made with a central locking-portion, a rounded outer surface, and a shoulder surrounding said tubular part beneath said flange and arranged substantially at right angles to the axis of the eyelet, the lower end of the tubular body being adapted to be clamped against the under surface of the material to which the eyelet is applied, and cooperating with said shoulder in securing the eyelet to said material, and an annulus of reinforcing fabric being embedded in said plastic material.

17. An eyelet comprising a tubular metallic body having at the top an outwardly-extending flange and a cap or covering of plastic material surrounding and including said flange, and formed on the under side of said flange with a shoulder arranged substantially at right angles to the axis of the eyelet, an annulus of reinforcing fabric being embedded in said cap and overlying said flange.

18. An eyelet having a tubular metal body provided with a flange or enlargement at its outer end, and also having a rigid wear-resisting covering including and interlocked with the flange or enlargement and forming on the outside of the eyelet a shoulder adapted to bear on the material in which the eyelet is inserted; and an annulus of fabric embedded within said covering and overlying the outer edge of said tubular body, said fabric being in direct contact with the edge of the said flaring portion.

700,122. LACING-BOOK. BRADSHAW KIMBALL, Boston, Mass., assignor to Sidney W. Winslow, trustee, Beverly, Mass. Filed Jan. 20, 1898. Serial No. 71,515. (No model.)



Claim.—1. A lacing-book having a head and a cap or flange on said head, said cap or flange consisting of fabric and celluloid.

2. A lacing-book having a head, and a cap or flange on said head, said cap or flange consisting of fibrous material combined with plastic material.

3. A lacing-book having a head, and a fabric sheath secured upon said head by means of celluloid, said fabric being also fixed by celluloid.

4. A lacing-book comprising a metal body, a head, and a cap molded upon said head and consisting of celluloid and fabric, the fabric forming a sheath within the celluloid and covering the edge of the metal in the head.

5. A lacing-book comprising a body and a head, and a cap protecting said head and consisting of a fabric sheath fixed with wear-resisting material and compressed upon said head.

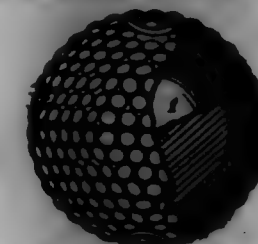
6. A lacing-book having a metal head, and a cap secured thereon and consisting of fibrous material fixed with wear-resisting material.

7. A lacing-book having a head and fabric protecting said head, said fabric having a thin flange of celluloid, and the fabric and celluloid interlocking and interlocking with the edge of said head.

8. A lacing-book having a head and a cap molded thereon, said cap consisting of celluloid in which a sheath of fabric is embedded, and the spread of said sheath being greater than that of said head.

9. A lacing-book having a metal head, a rigid wear-resisting covering including and interlocking with said head, and a portion of fabric embedded within said covering and serving as a sheath for the edge of said head.

700,128. PLAYING-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 27, 1898. Serial No. 100,587. (No model.)



Claim.—1. A playing-ball comprising a shell which consists of laminae of gutta-percha and fibrous material in alternation.

2. A playing-ball comprising a springy core and a shell thereon consisting of laminae of gutta-percha and laminae of fabric alternating with the gutta-percha laminae.

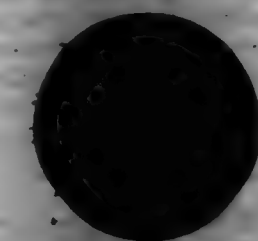
3. A playing-ball comprising a springy core and a shell holding the same under compression and consisting of laminae of fabric and laminae of gutta-percha in alternation.

4. A playing-ball comprising a springy core and a shell thereon consisting of five laminae of gutta-percha and four laminae of fabric alternating with the gutta-percha laminae.

5. A playing-ball comprising a springy core and a shell thereon consisting of laminae of gutta-percha and laminae of cloth of open mesh alternating with said gutta-percha laminae; said laminae being interlocked.

6. A playing-ball comprising a springy core and a shell consisting of laminae of gutta-percha and laminae of cloth of open mesh alternating with said gutta-percha laminae, said laminae being interlocked, and said core being held under compression by said shell.

700,124. PLAYING-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 4, 1898. Serial No. 101,498. (No model.)



Claim.—1. A playing-ball having a cloth cover, the ball comprising spherical segments of plastic material joined together, and the cover having internal portions which are locked between the segments.

2. A ball having a cloth cover, the ball comprising spherical segments of gutta-percha welded together, and the cover having internal portions which are locked between said segments.

3. A playing-ball having a cloth cover, the ball comprising a core and hemispherical segments of plastic material welded together upon said core and holding the same under compression, and the cover having internal portions which are locked between said segments.

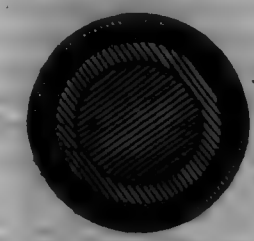
4. A ball having a cloth cover, the ball comprising a sphere or core of soft rubber and hemispherical segments of gutta-percha welded together upon said core and holding the same under compression, and the cover having internal portions which are locked between said segments.

5. A playing-ball having a cloth cover made in sections, the ball comprising spherical segments of plastic material welded together, each of said segments having one of the cover-sections, and the latter having internal portions or brims which are locked between said segments.

700,125. SPINNING-ROLL. BRADSHAW KIMBALL, Boston, Mass. Filed Apr. 18, 1898. Serial No. 100,541. (No model.)

Claim.—1. A roll consisting of a core, a layer of soft rubber thereon, and a shell upon said soft rubber consisting of celluloid in which fibrous

material is embedded, said shell holding said soft rubber under compression.



2. A roll consisting of a core, a layer of soft rubber cemented thereon, and a compound layer forming a shell upon said soft rubber; said shell consisting of woven fabric and celluloid and holding said soft rubber under compression.

3. A roll consisting of a core, a layer of soft rubber cemented thereon, and a compound layer forming a shell upon said soft rubber; said shell consisting of woven fabric and celluloid, the latter forming the periphery of the roll, said shell holding said soft rubber under compression.

4. A roll consisting of a core, a layer of yielding material thereon, and a hard shell holding said yielding layer under compression.

5. A roll consisting of a core, a layer of yielding material thereon, and a hard shell of waterproof material holding said yielding layer under compression.

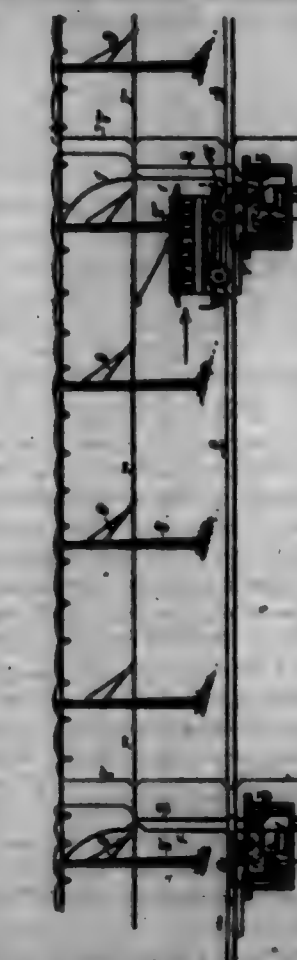
6. A roll consisting of a core, a layer of soft rubber thereon, and a shell holding said soft-rubber layer under compression; said shell consisting of waterproof plastic material compounded with fabric.

7. A roll comprising a core, a soft-rubber layer thereon, a layer of fabric, provided with a flange of celluloid, holding said rubber layer under compression.

8. A roll comprising a core, a soft-rubber layer thereon, and a shell holding said rubber under compression; said shell comprising a layer of woven fabric and a flange of celluloid.

9. A roll comprising a core, a layer of soft rubber thereon, and a shell consisting of a sheet of celluloid having fabric embedded therein and wrapped around said soft rubber and welded together at its edges; said shell holding said soft rubber under compression.

700,126. SYSTEM OF ELECTRIC RAILWAYS OF THE SECTIONAL TYPE OF CONDUCTORS OR RAILS. CHARLES J. KENTNER, New York, N. Y. Filed Dec. 2, 1891. Serial No. 84,388. (No model.)



Claim.—1. The described method of avoiding collisions between cars passing over an electric railway having a working course of current-supply and a sectional system of normally dead working conductors, consisting in causing the moving cars to automatically break the sectional working conductors into connection with the working course of current-supply

in sequence as they pass over the route, and to automatically release said conductors in like sequence as the ends of the adjoining sectional conductors are passed, simultaneously utilizing a part of the working current taken directly from a live section over or by which a car is passing to continuously prevent any circuit connection whatever between a sectional conductor immediately in the rear of the live section and the current feeder or main, until the car has passed out of the section on which it is located.

2. The described method of avoiding collisions between cars passing in opposite directions over an electric railway having a working source of current-supply and a sectional system of normally dead working conductors; consisting in causing the moving cars to automatically lock the sectional working conductors into connection with the working source of current-supply in sequence as they pass over the route, and to automatically release said conductors in like sequence as the ends of the adjoining sectional conductors are passed; simultaneously utilizing a part of the working current to prevent the sectional conductors immediately in the rear and in the advance of any car from being connected to the working source of current-supply until said car has passed out of the section on which it is located.

3. The described method of avoiding collisions between cars passing over an electric railway having a working source of current-supply and a sectional system of normally dead working conductors, consisting in maintaining each sectional conductor in electrical connection with the working source of current-supply, while a car is passing over or by it, by a local source of applied power or energy independent of or distinct from the working source of current-supply; releasing said conductors in sequence as the car passes out of the successive sections and simultaneously utilizing a part of the working current taken directly from a live section over or by which a car is passing to continuously prevent any circuit connection whatever between a sectional conductor immediately in the rear of the live section and the current feeder or main, until the car has passed out of the section on which it is located.

4. The described method of avoiding collisions between cars passing over an electric railway having a working source of current-supply and a sectional system of normally dead working conductors; consisting in maintaining each sectional conductor in electrical connection with a working source of current-supply while a car is passing over or by it by a local source of applied power or energy independent of or distinct from the working source of current-supply; successively releasing said conductors through the agency of a part of the working current taken directly from a live section over or by which a car is passing and continuously utilizing the same to prevent any circuit connection whatever between a sectional conductor adjacent to the live section and the current feeder or main until the car has passed out of the section on which it is traveling.

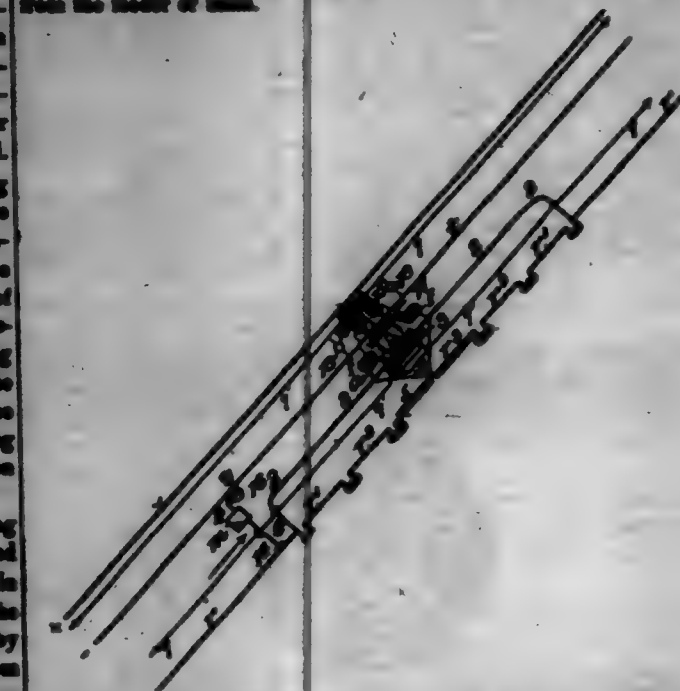
5. The described method of preventing front or rear end collisions upon an electric railway having a working source of current-supply located at a power-house and a sectional system of normally dead working conductors extending over the route; consisting in maintaining each sectional conductor in electrical connection with the working source of current-supply while a car is passing over or by it, through the agency of an applied power or energy, independent of or distinct from the working current; releasing or disconnecting said sectional conductors from the working source of current-supply in sequence and simultaneously utilizing a part of the working current for preventing the adjacent sectional conductors in the rear and advance of any sectional conductor thus made alive from being connected to the working source of current-supply.

6. The described method of avoiding collisions between cars passing over an electric railway having a working source of current-supply and a sectional system of normally dead sectional conductors; consisting in causing the cars to connect the sectional conductors to the current feeder or main as they pass over the same, maintaining said connection by a source of locally-applied power or energy, independent of or distinct from the working source of current-supply; successively releasing said conductors through the agency of a part of the working current taken directly from a live section over or by which a car is passing and continuously utilizing the same to prevent any circuit connection whatever between a sectional conductor adjacent to the live section and the current feeder or main until the car has passed out of the section on which it is traveling.

700,127. ELECTRIC RAILWAY. CHARLES J. KENTNER, New York, N. Y. Original application filed May 4, 1901, Serial No. 53,992. Divided and this application filed Mar. 20, 1902. Serial No. 59,141. (No model.)

Claim.—1. In a system of electric railways of the sectional-conductor type the method of preventing abnormal or damaging arcing at the terminals of the switches where the sectional conductors are connected to and disconnected from the current feeder or main; consisting in automatically reducing the current-flow delivered through the terminals by successive steps until a current is flowing to an amount insufficient to

damage the same at the time that the sectional conductor is disconnected from the feeder or main.



2. In a system of electric railways of the sectional-conductor type the method of preventing abnormal or damaging arcing at the terminals of the switches where the sectional conductors are connected to and disconnected from the current feeder or main; consisting in automatically increasing the resistance to the current delivered through the terminals by successive steps until a current is flowing to an amount insufficient to damage the same at the time that the sectional conductor is disconnected from the feeder or main.

3. In a system of electric railways of the sectional-conductor type the method of preventing abnormal or damaging arcing at the terminals of the switches where the sectional conductors are connected to and disconnected from the current feeder or main, and damage to the current-collector and translating device carried by a car; consisting in automatically reducing the current-flow through the terminals and to the translating device as the current-collector passes from one sectional conductor to another and correspondingly increasing the current-flow as it advances upon the next adjacent sectional conductor.

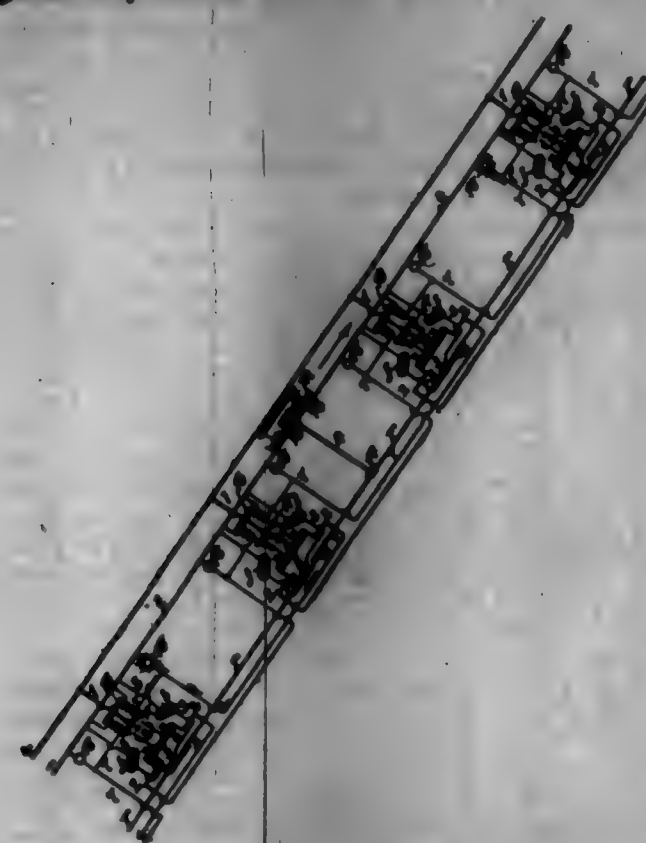
4. In a system of electric railways of the sectional-conductor type the method of preventing abnormal or damaging arcing at the terminals of the switches where the sectional conductors are connected to and disconnected from the current feeder or main, and damage to the current-collector and translating device carried by a car; consisting in automatically increasing the resistance to the current delivered through the terminals and at the ends of adjacent sectional conductors as the current-collector passes from one sectional conductor to another, and in correspondingly decreasing the resistance to the current-flow as it advances upon the next adjacent sectional conductor.

700,128. ELECTRIC RAILWAY. CHARLES J. KENTNER, New York, N. Y. Filed May 4, 1901. Serial No. 53,992. (No model.)

Claim.—1. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches, said safety-circuits being permanently connected to the negative pole of the power-house generator so as to be normally without electrical current potential; the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear thereof is rendered temporarily inoperative until the car passes out of said section, substantially as described.

2. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for locking said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits, two for each sectional third rail or conductor, said safety-circuits including devices for releasing the conducting-terminals of the switches and so connected to the power-house generator as to be normally without electrical current potential, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switches at the distant ends of the two

adjacent sectional third rails or conductors are both rendered temporarily inoperative until the car passes out of the section over which it is traveling, substantially as described.



3. A safety system of electric railways, embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism having conducting-terminals for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with releasing-electromagnets for the conducting-terminals of the switches, the individual coils of said releasing-magnets being included in circuit with safety-circuits running in opposite directions and connected to earth and to the adjacent ends of distant sectional third rails or conductors, substantially as described.

4. A system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom, and a series of electromagnetic switching devices for connecting said sectional conductors to the current feeder or main as a car passes by or over the same; in combination with additional conductors, two for each sectional third rail or conductor, said additional conductors including electromagnetic devices for releasing the conducting-terminals of the switches, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switches at the distant ends of the two adjacent sectional third rails or conductors are both rendered temporarily inoperative until the car passes out of the section over which it is traveling, substantially as described.

5. A system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and electromagnetic switching devices having conducting-terminals for connecting said sectional conductors to the current feeder or main as a car passes by or over the same; in combination with releasing-electromagnets for disconnecting the terminals of the switches, the individual coils of said releasing-magnets being included in circuit with conductors running in opposite directions and connected to earth and to the adjacent ends of distant sectional third rails or conductors, substantially as described.

6. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors for a main track normally disconnected from the current feeder or main and a siding having a third rail or conductor adapted to be connected in circuit with the current feeder or main; in combination with switching devices and circuit connections whereby when a car approaches within a definite distance of the siding it obtains control of the operating-current for a section of the main track until it passes upon the siding adjacent thereto; together with additional means for restoring the circuit condition of the sectional conductor of the main track to normal, the arrangement being such that no other car can approach the siding in either direction until the first-named car has been side-tracked and the circuits restored to normal condition, substantially as described.

7. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors for a main track normally disconnected from the current feeder or main and a siding having a third

rail or conductor adapted to be connected in circuit with the current feeder or main; in combination with switching devices so arranged that when a car approaches within a definite distance of the siding it obtains control of the working current for the section adjacent to the siding and in such manner that no car can approach in either direction until the first-named car has passed upon the siding, substantially as described.

8. In an electric-railway system a current feeder or main, two or more sectional third rails or conductors normally disconnected therefrom and switching mechanism adapted to connect said sectional conductors to and disconnect them from the current feeder or main as a car passes over the route; together with a siding and circuit connections therefor so arranged that when a car passes within a definite distance of the siding it obtains absolute control of the working current for that section until said car has passed upon the siding; and additional means for restoring the electrical condition of the third rails of the main track to normal after the car has been properly side-tracked, substantially as described.

9. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with a drawbridge carrying a sectional third rail or conductor and circuit and circuit connections relatively so arranged with relation to one of the first-named sectional third rails or conductors that when the drawbridge is moved from its normal or closed position a car is prevented from approaching either end thereof, substantially as described.

10. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with a drawbridge carrying a sectional third rail or conductor and circuit and circuit connections relatively so arranged with relation to one of the first-named sectional third rails or conductors that when the drawbridge is moved from its normal or closed position no working current can be supplied to an approaching car for a definite distance from either end of the bridge, substantially as described.

11. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with a drawbridge carrying a sectional third rail or conductor, circuit and circuit connections and locking mechanism, all so arranged that when a car approaches either end of said bridge within a definite distance the latter is locked or held so that it cannot be disturbed until after the car has crossed the bridge or passed out of the section which includes the bridge, substantially as described.

12. In a safety system of electric railways a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom; switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main as a car or vehicle passes over the route; in combination with a similar system crossing the first-named system; together with switching devices, circuit and circuit connections for both systems, so arranged that when a car reaches a definite point from the crossing in either direction it prevents any other car, approaching in any direction or either of the four intersecting branches, from advancing toward the crossing beyond a definite distance until the first-named car has crossed, substantially as described.

13. Two systems of electric railways embracing each a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom; switching devices for connecting said sectional third rails or conductors to and disconnecting them from the current feeder or main; in combination with electrical circuits and circuit connections for the two systems so interconnected and arranged that when a car reaches a definite point from the crossing in either direction it obtains absolute control of the working current of both systems and prevents any car from approaching the crossing upon any of the four intersecting branches by depriving it of working current at definite points from the crossing until the first-named car has crossed, substantially as described.

14. A system of electric railways of the sectional-third-rail type embracing a current feeder or main and switching devices for connecting the third-rail sections to the current feeder or main; in combination with circuit-closing rails or contacts located at the adjoining ends of the sectional third rails or conductors and on opposite sides thereof; together with a reversible trolley, the arrangement being such that the sectional third rails are connected to the current feeder or main in advance of the trolley so matter in which direction the latter may be moving, substantially as described.

15. In a sectional-third-rail system of electric railways a series of switches; in combination with a series of sectional third rails or conductors and a series of water-tight switch-boxes including electromagnetic switching mechanism; together with a current feeder or main, all of said

parts being supported or retained by said insulators, the switch-beams being constructed of insulating material and each provided with an opening at its bottom through which all of the circuit connections are effected, together with a removable water-tight cover adapted to prevent the admission of water after the manner of a diving-bell, substantially as described.

15. Means for preventing arcing at the ends of adjacent sectional third-rail sections of a third-rail system of electric railways and at the terminals in the switch-beams thereof, consisting of a variable resistance and circuit connections so arranged that as a car approaches the adjacent ends of two third rails the current supplied to the motor is reduced to a minimum and again restored to normal conditions after the switch is operated, substantially as described.

17. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom; switching devices for connecting said sectional third rails or conductors to and disconnecting them from the current feeder or main; in combination with a car provided with a trolley or contact shoe for conveying current to a motor on board thereof; together with means adapted to automatically lower the current potential at the switch-terminals and at the junction of the third-rail sections or conductors each time the trolley or contact shoe passes from one sectional third rail or conductor to another, substantially as described.

18. In a sectional third-rail system of electric railways means for preventing abnormal arcing at the ends of adjacent third rails and at the switching-terminals in the switch-beams, consisting of a variable resistance carried by a car; in combination with means located in or adjacent to the road-bed for automatically causing said variable resistance to be gradually inserted in circuit with the motor on board the car until a minimum flow results at the time that the junction of the third rails is passed, and to correspondingly increase the current flow from the next adjacent third rail to the motor until a maximum flow is obtained, substantially as described.

19. In a safety system of electric railways a current feeder or main; a drawbridge carrying a sectional conductor constituting a part of the service-conductor for supplying current to the motor on board a car as it passes over the same, when in closed position; in combination with locking mechanism and circuits operatively connected therewith and so arranged that after a car approaches within a definite distance of either end of the bridge, the latter is locked so that it cannot be moved from its normal position, substantially as described.

20. A sectional third-rail safety system of electric railways provided with switching mechanism for effecting electrical connection of the third rails to and disconnection thereof from the current feeder or main; in combination with means for covering said third rails adjacent to the road-bed; together with a protecting-conduit for said rails consisting of side timbers located on opposite sides thereof and provided with means for effectually covering and protecting the current feeder or main and other conductors, substantially as described.

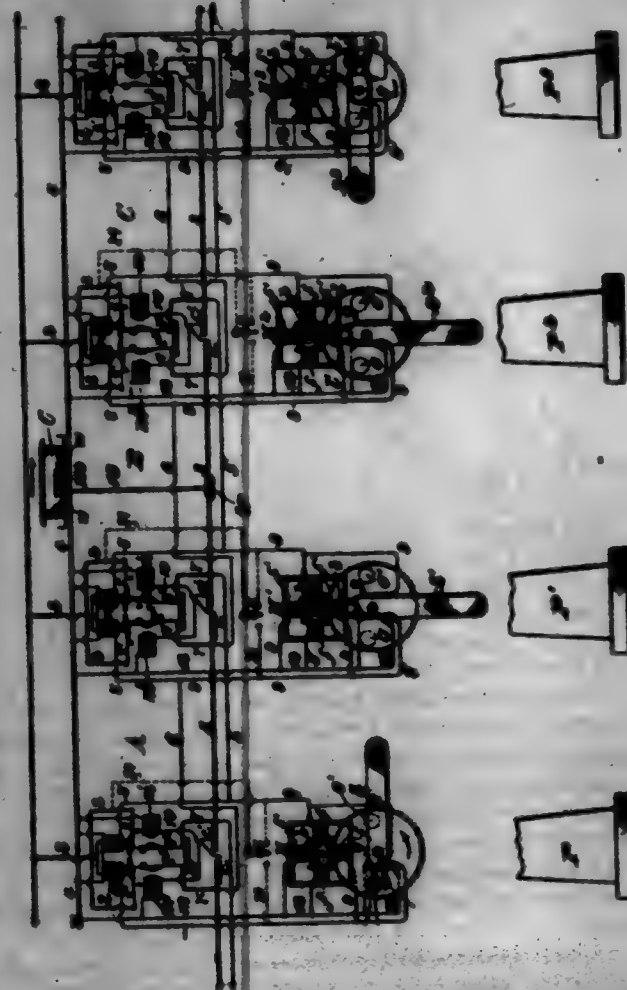
21. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors, a protecting-conduit consisting of side timbers located on opposite sides of said third rails or conductors and having channels or grooves for concealing the conductors of the system; in combination with switch-beams including switching devices for connecting the sectional conductors to and disconnecting them from the current feeder or main; together with a series of insulators supporting all of said parts, substantially as described.

22. In an electric-railway system a current feeder or main; sectional third rail or conductors normally disconnected therefrom; switching mechanism for connecting said sectional conductors to the current-feeder, and releasing-electromagnets for disconnecting them therefrom; said releasing-electromagnets being included in circuits connected each at one end directly to earth or return and extending in opposite directions to the near ends of adjacent sectional conductors, substantially as described.

700,129. ELECTRIC RAILWAY. CHARLES J. KETNER, New York, N. Y. Original application filed May 6, 1901, Serial No. 54,955. Divided and this application filed Sept. 25, 1901. Serial No. 76,664. (No model.)

Claim.—1. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and interlocking switching mechanism for positively connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits, two for each sectional third rail or conductor, said safety-circuits including devices for releasing the interlocking conducting-terminals of the switches and signaling devices, and so connected to the power-house generator as to be normally without electrical current potential, substantially as described.

2. A safety system of electric railways embracing a current feeder or main and a series of sectional third rails or conductors normally disconnected therefrom; in combination with interlocking switching mechanism for positively connecting said sectional third rails or conductors to the current feeder or main and disconnecting them therefrom; together with a series of danger-signals, one for each sectional third rail or conductor, said danger-signals being connected permanently in circuit with said sectional third rails or conductors, and all of the conductors of the system, except the current feeder or main, being normally without current potential, substantially as described.



3. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism having conducting-terminals for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with releasing-electromagnets for the conducting-terminals of the switches, the individual coils of said releasing-magnets being included in circuit with safety-circuits normally without current potential and running in opposite directions and connected to earth and to the adjacent ends of adjoining sectional third rails or conductors; together with signaling mechanism included also in the safety-circuits, substantially as described.

4. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main as a car or vehicle passes by or over the same; in combination with a series of safety-circuits, two for each sectional third rail or conductor, said safety-circuits being connected directly to the opposite ends of each of said conductors and extending to the opposite ends of the sectional third rails or conductors immediately in the front and rear thereof; together with signaling devices included in said safety-circuits, substantially as described.

5. A system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and a series of electromagnets switching devices for positively connecting and locking said sectional conductors to the current feeder or main as a car passes by or over the same; in combination with additional conductors normally without current potential and including electromagnets for releasing the conducting-terminals of the switches; together with signaling devices included in circuit with said releasing devices for indicating the electrical condition of the sectional third rails or conductors, there being one such signaling device for each sectional third rail or conductor, substantially as described.

6. A system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom, and a series of electromagnets switching devices for connecting said

sectional conductors to the current feeder or main as a car passes by or over the same; in combination with additional conductors, two connected to each sectional third rail or conductor, said additional conductors including electromagnets for releasing the conducting-terminals of the switches and signaling devices; said additional conductors being normally without current potential, substantially as described.

7. A system of electric railways embracing a current feeder or main and a series of sectional third rails or conductors normally disconnected therefrom; in combination with electromagnets switching devices for connecting said sectional third rails or conductors to the current feeder or main; together with electromagnets releasing devices for disconnecting them therefrom and a series of danger-signals connected permanently in circuit with the sectional third rails or conductors, the circuits including the danger-signals being normally without current potential, substantially as described.

8. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors for a main track normally disconnected from the current feeder or main, and a siding having a third rail or conductor electrically connected with one of said third rails or conductors; in combination with switching devices for connecting the sectional conductors to and disconnecting them from the current feeder or main; together with signaling devices, and circuit connections between the siding third rail and the abovementioned switching devices, substantially as described.

9. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main and disconnecting them therefrom as a car or vehicle passes by or over the same; in combination with a drawbridge carrying a sectional third rail or conductor and circuits and circuit connections between the main and side of the sectional third rails or conductors; together with signaling mechanism operatively included in circuit with the sectional conductor adjacent to the bridge and with the current feeder or main, substantially as described.

10. An electric railway including a draw or turn bridge therefor; in combination with circuits and circuit connections so arranged that when a car approaches either end of said bridge within a definite distance the latter is locked or held so that it cannot be disengaged until after the car has crossed the bridge; together with one or more signals for giving continuous indication of the fact that a car is near or upon the bridge, substantially as described.

11. An electric railway of the sectional third-rail type embracing a current feeder or main; a series of sectional third rails or conductors; switching devices for connecting the sectional conductors to the current feeder or main and signaling devices for indicating the electrical condition of the sectional third rails or conductors; together with branch circuits and switches adapted to connect the signaling devices directly with the current feeder or main, or to maintain the same in temporary connection therewith, substantially as described.

12. An electric railway embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom; a series of electromagnets operatively connected with electromotive devices for controlling their movement; in combination with branch circuits and switches adapted to connect the electromotive devices directly with the current feeder or main, substantially as described.

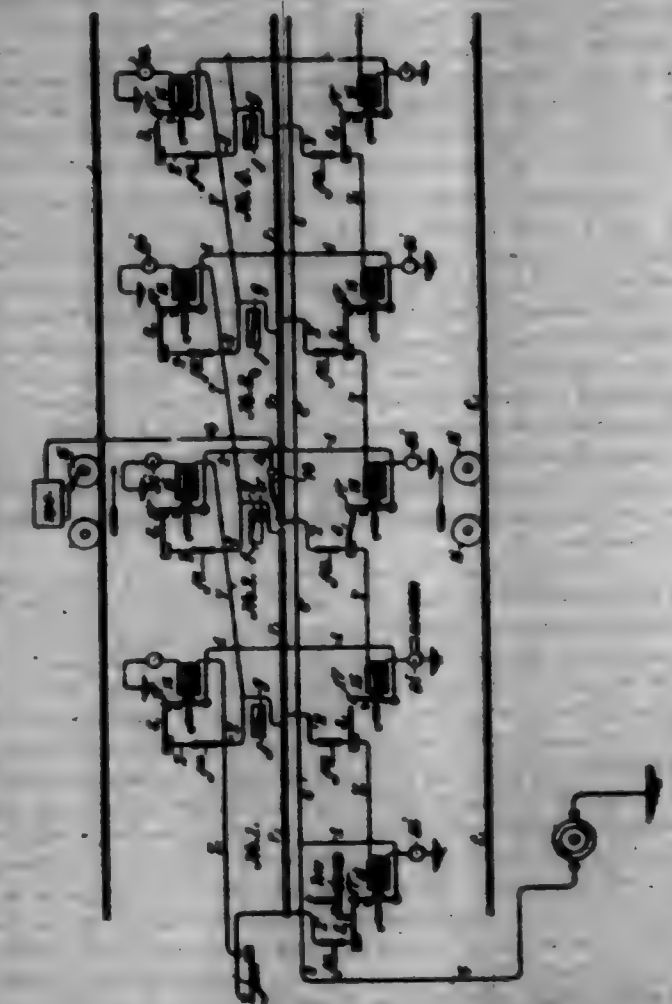
13. A system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom, and a series of switching devices for connecting said sectional conductors to the current feeder or main as a car passes by or over the same; in combination with additional conductors, two for each sectional third rail or conductor, said additional conductors including electromagnets for releasing the conducting-terminals of the switches and electromotive devices operatively connected with electromagnets, substantially as described.

14. An electric railway embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom; a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; a series of releasing-circuits operatively connected with the switching devices and permanently in circuit with the sectional conductors; in combination with a series of electromagnets operatively connected with electromotive devices included in the latter-mentioned releasing-circuits, said electromagnets being adapted to move in opposite directions, substantially as described.

700,130. ELECTRIC RAILWAY. CHARLES J. KETNER, New York, N. Y. Filed Dec. 5, 1901. Serial No. 54,724. (No model.)

Claim.—1. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism

for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches, said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential, and the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear thereof is rendered temporarily inoperative until the car passes out of said section, substantially as described.



2. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits, two for each sectional third rail or conductor, said safety-circuits including devices for releasing the conducting-terminals of the switches and so connected to the power-house generator as to be normally without electrical current potential, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switches at the distant ends of the two adjacent sectional third rails or conductors are both rendered temporarily inoperative until the car passes out of the section over which it is traveling, substantially as described.

3. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches and signaling devices; said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear is rendered temporarily inoperative and a danger-signal is displayed, until the car passes out of said section, substantially as described.

4. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits, two for each sectional third rail or conductor, said safety-circuits including devices for releasing the conducting-terminals of the switches and signaling devices, and so connected to the power-house generator as to be

normally without electrical current potential, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switches at the distant ends of the sectional third rail or conductor immediately in the front and in the rear are rendered temporarily inoperative and danger-signals are displayed until the car passes out of said section, substantially as described.

5. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches, said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential; together with additional means included in branches of the safety-circuits for enabling a motorman to cause his car or vehicle to enter upon a section adjacent to a preceding section over which a car is then passing, substantially as described.

6. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches and safety-circuits being so connected to the power-house generator as to be normally without electrical current potential; together with additional means for enabling a motorman to cause his car or vehicle to enter upon a section where a danger-signal is displayed, and additional signaling mechanism for giving a special indication or signal to the motorman of following cars that two or more cars are passing over adjacent preceding sections, substantially as described.

7. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches, said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential; together with a series of permanent glowing or burning illuminating lamps or signals located one between each succeeding pair of third-rail sections, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear thereof is rendered temporarily inoperative until the car passes out of said section, and the motorman given a positive indication at all times of the beginning and ending of the third rails or conductors of the system, substantially as described.

8. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches and signaling devices; said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential; together with a series of permanent glowing or burning illuminating lamps or signals located one between each succeeding pair of third-rail sections, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear thereof is rendered temporarily inoperative until the car passes out of said section, danger-signals displayed, and the motorman given a positive indication at all times of the beginning and ending of the third rails or conductors of the system, substantially as described.

9. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with safety-circuits including devices for releasing the conducting-terminals of the switches, said safety-circuits being so connected to the power-house generator as to be normally without electrical current potential; together with manual circuit-breaking switches, one in each safety-circuit, the entire arrangement being such that when a car is passing by or over a given sectional third rail or conductor the switch at the distant end of the sectional third rail or conductor immediately in the rear thereof is rendered temporarily inoperative; or, any or all of the safety-circuits may be permanently interrupted in such manner that when the sectional third rails or conductors are connected to the current feeder or main they will remain thus connected, substantially as described.

10. A safety system of electric railways embracing a current feeder

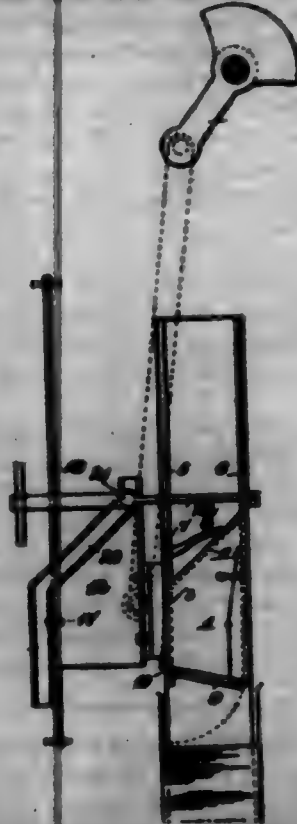
or main and a series of sectional third rails or conductors normally disconnected therefrom; in combination with mechanically-actuated switching mechanism for connecting said sectional third rails or conductors to the current feeder or main and disconnecting them therefrom; together with a series of danger-signals connected permanently in circuit with the sectional third rails or conductors, the arrangement being such that the circuits including the danger-signals are normally without electrical current potential and that if a sectional third rail or conductor be left connected with the current feeder or main after a car has passed from over the same said signals will be continuously displayed, substantially as described.

11. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism having conducting-terminals for connecting said sectional conductors to the current feeder or main as a car or vehicle passes by or over the same; in combination with releasing-electromagnets for the conducting-terminals of the switches, the individual coils of said releasing-magnets being included in circuit with safety-circuits running in opposite directions and connected to earth and to the adjacent ends of distant sectional third rails or conductors, substantially as described.

12. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and mechanically-actuated switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main as a car or vehicle passes by or over the same; in combination with a series of safety-circuits, two for each sectional third rail or conductor, said circuits being connected directly to the opposite ends of said conductors and extending to the opposite ends of the sectional third rails or conductors in the front and rear thereof; together with signaling devices included in said safety-circuits, the arrangement being such that normally there is no electrical current potential in the signaling-circuits and that should any sectional third rail or conductor be left permanently connected with the current feeder or main, said signaling devices will be continuously displayed, substantially as described.

13. In an electric-railway system a current feeder or main, sectional third rails or conductors normally disconnected therefrom; mechanically-actuated switching mechanism for connecting said sectional conductors to the current-feeder and releasing-electromagnets for disconnecting them therefrom; said releasing-electromagnets being included in circuits connected at one end directly to the sectional conductors and extending in opposite directions to the distant ends of adjacent sectional conductors where they are connected to the return-circuit of the power-house generator, substantially as described.

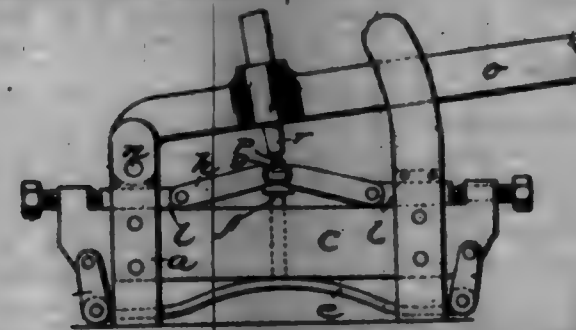
700,181. LOCK-SWITCH MECHANISM FOR SEWING-MACHINE. JOHN G. BLACKWELL, Wynyard, Tasmania, Australia, assignor of one-half to John Bruce Irvine, Caulfield, Victoria, Australia, and Frederick Baker, Middle Brighton, Victoria, Australia. Filed Mar. 28, 1902. Serial No. 48,594. (No model.)



Claim.—In a lock switch forming mechanism for sewing-machines, the combination with a needle-thread-opening mechanism, a shuttle

adapted to be reciprocated past the needle of the machine, a pair of guide-rolls for said shuttle, a driver provided with a flat and a spring-pressed arm engaging with the shuttle for reciprocating it, a rod adapted to have one end thereof catch the loop of the needle-thread and draw the same across the shuttle-path and hold said thread during the passage of the shuttle so as to form a lock-stitch, a stud carried by the said arm, a traveler provided with a cam-groove in which engages said stud for operating the same, connections between the traveler and the driving means for the shuttle, means connected to the traveler for operating the same and said driving means simultaneously, and means connected to the under side of the traveler for clamping the same during its operation.

700,183. MACHINE FOR SETTING DIMENSIONS IN METAL. JOHN REIDEN, Rumburg-Sandau, Germany. Filed Feb. 14, 1902. Serial No. 54,118. (No model.)



Claim.—1. In a machine for setting hard substances in metal, the combination of a support for the metal piece, a lever having means for pressing the said substance into the metal, a tube connected with the lever, a port leading through the lever for directing a cooling liquid to the metal piece and a valve carried by the lever and controlling said port, substantially as described.

2. In combination, a yielding support for a metal piece, clamping bands or links having pivoted outer ends, said links being inclined toward each other and having their inner ends resting upon the yielding support with a space between for the metal piece, and means for pressing the same downwardly into the metal piece, said support yielding to permit the links to move downwardly to compress the metal piece between their adjacent ends and upon the same, substantially as described.

700,188. GUARD-BOARD FOR COACH-BOLTS. JAMES A. GUNN, Hiram, Ohio, assignor of one-half to George F. Hunt, Hiram, Ohio. Filed Feb. 12, 1902. Serial No. 52,261. (No model.)



Claim.—1. In a guard-board for a coach-roll, the combination, substantially as set forth, of a board supported over the coach-roll, front and rear clamp-strips secured to the lower edge thereof, layers of felt clamped between said clamp-strips and extending from the lower edge of said board to the jacket of the coach-roll and pressing their lower edges to the latter, and means for vertically adjusting said board.

2. In a guard-board for a coach-roll, the combination, substantially as set forth, of a board supported over the coach-roll and having a hark extending up into its lower edge and along its length and near one of its corners, clamp-strips secured to the front and rear faces of said board and projecting below the lower edge of the board, flexible material disposed between said clamp-strips and extending from the lower edge of said board down to the jacket of the coach-roll, clamp-strips engaging said board and clamp-strips and crossing said hark, and means for vertically adjusting said board.

3. In a guard-board for a coach-roll, the combination, substantially as set forth, of a supporting-board disposed over the coach-roll, a guard-board disposed against the front surface of said supporting-board and provided with an active edge engaging the jacket of the coach-roll, hangers lying against the front face of said guard-board and extending upwardly and then rearwardly over the upper edge of the guard-board, screws passing through the lower portions of said hangers and through vertical slots in said guard-board and into the supporting-board, and screws threaded downwardly through the upper portions of said hangers and engaging the upper edge of said guard-board.

4. In a guard-board for a coach-roll, the combination, substantially as set forth, of a supporting-board disposed over the coach-roll, a guard-board disposed against the front surface of said supporting-board and provided with an active edge engaging the jacket of the coach-roll, hangers lying against the front face of said guard-board and extending upwardly and then rearwardly over the upper edge of the guard-board and secured to said supporting-board, screws passing through the lower portions of said hangers and through vertical slots in said guard-board and into the supporting-board, and screws threaded downwardly through the upper portions of said hangers and engaging the upper edge of said guard-board.

700,184. TROLLEY. MINNAN P. CHAMBERLAIN, Pittsburgh, Pa. Filed Oct. 25, 1901. Serial No. 73,973. (No model.)



Claim.—1. In combination with a trolley-pole, a bracket-arm connected to the upper end thereof, a hark journaled in said bracket-arm, and a forked spring connected to the trolley-pole and to the axle of the trolley-wheel, substantially as shown and described.

2. In a trolley, the combination with the trolley-pole, of a tubular bracket-arm connected to the upper end of the pole, a hark journaled in said bracket-arm, a trolley-wheel mounted in said hark, and a forked spring connected to the trolley-pole with slotted ends engaging the axle of the trolley-wheel; as and for the purpose described.

3. In a trolley, the combination with the tubular trolley-pole, of a tubular bracket-arm connected to the upper end of the pole and having a barrel or sleeve on its free end, a trolley-harp having a tubular journal-shaft fitted in said sleeve or barrel, a trolley-wheel mounted in said harp, and a forked spring connected to the trolley-pole and having forked ends engaging the axle of the trolley-wheel.

4. In combination with a trolley-pole, a bracket-arm connected to the upper end thereof, a hark journaled in said bracket-arm and carrying a wheel having its axle in line with the trolley-pole when the wheel is in full contact with the wire, and a spring connected to the trolley-pole and having a slotted end to receive the axle of the trolley-wheel, substantially as described.

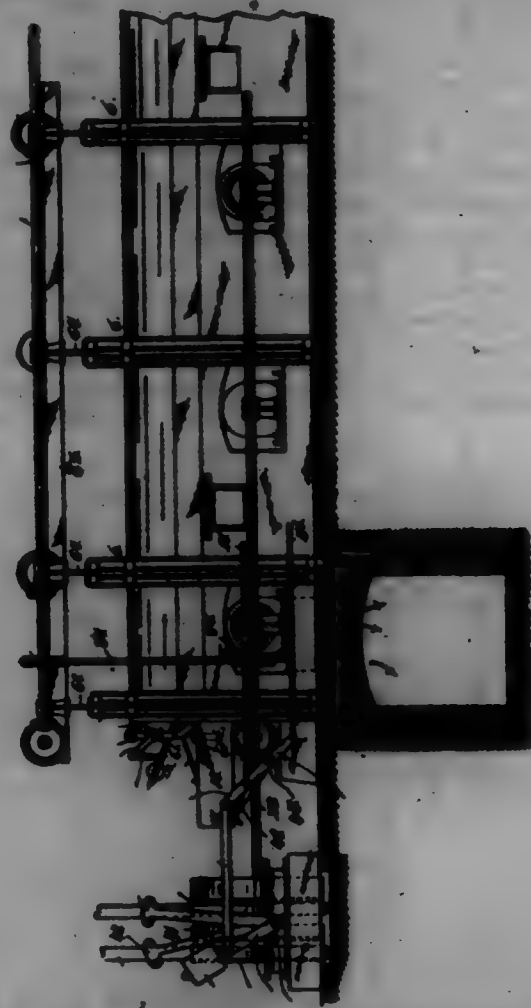
5. In a trolley, the combination with the trolley-pole, of a tubular segment-shaped bracket-arm connected to the upper end of the trolley-pole, a trolley-harp journaled for vertical and relative movement in said bracket-arm, a wheel mounted in said harp and adapted when in engagement with the wire to have its axle in line with the trolley-pole, and a spring connected to the trolley pole and engaging the axle of the trolley-wheel, as and for the purpose described.

6. In a trolley, the combination with a trolley-pole, and a tubular fitting mounted on the upper end of said pole, of a tubular segment-shaped bracket-arm having its one end braced into the fitting carried by the trolley-pole, a barrel or sleeve carried by said bracket-arm at its outer end, a tubular journal-shaft fitted in the sleeve vertically in said barrel or sleeve, a hark carried by the said journal-shaft, a trolley-wheel mounted in said harp and adapted to lie with its axle in central longitudinal alignment with the trolley-pole when the wheel is depressed by contact with the

current-wire, and a spring exerting its pressure at all times against the wheel in hold the latter in contact with the current-wire, substantially as described.

7. In a trolley, the combination with a trolley-pole, of a bracket-arm connected to the upper end thereof, a bar journaled for vertical movement in said bracket-arm, a trolley-wheel mounted in said bar and adapted when in full contact with the trolley-wire to have its axle in line with the trolley-pole, and a spring connected to one end of the trolley-pole and its other end engaging the axle of the trolley-wheel, as and for the purpose described.

700,185. APPARATUS FOR ROASTING AND COOLING ORBS.
WILLIAM G. DAVIS, Denver, Colo. Filed Jan. 6, 1902. Serial No. 93,601.
(No Model.)



Claim.—1. In a roasting apparatus, the combination with a roasting chamber and hearth, of a rabble-carriage located in the roasting-chamber and comprising hollow side bars forming water-receptacles, open to permit evaporation in the roasting-chamber, a transverse bar provided with rabble plevs or blades, the side bars occupying positions on opposite sides of the hearth, and means for propelling the rabble-carriage.

2. In an apparatus of the class described, the combination with a roasting chamber and hearth, of hollow side bars forming water-receptacles located on opposite sides of the hearth, a transverse bar connecting the side bars, and a sleeve movably mounted on the transverse bar, and provided with rabble plevs or blades, and means for propelling the rabble-carriage.

3. The combination with a combustion chamber and hearth, of hollow side bars forming water-receptacles located on opposite sides of the hearth, a hollow transverse bar connecting the side bars, and having open ends to allow the water to enter from the side bars, and a rabble-sleeve mounted to rotate on the transverse bar.

4. The combination with a combustion chamber and hearth, of a rabble-carrier located in the said chamber and composed of hollow side bars forming water-receptacles, hollow transverse bars connecting the side bars and open to allow the water to enter from the side bars, and rabble plevs or blades mounted on one of the transverse bars, the side bars being located on opposite sides of the hearth, and suitable means for propelling the rabble-carriage.

5. The combination with a chamber and hearth, and a source of heat connected with the chamber, of a rabble-carriage composed of hollow side bars forming water-receptacles open at the top to permit free evaporation, a hollow transverse bar connecting the side bars and open to allow the water to enter from the side bars, rabble plevs or blades mounted on the transverse bar, and suitable means for propelling the rabble-carriage.

6. The combination with a chamber, a hearth, and a source of heat, of a rabble-carriage located in the chamber and composed of hollow side bars forming water-receptacles located on opposite sides of the hearth, and open at the top, the lower edges of the side bars being provided with coggled racks, transverse bars connecting the side bars and open to allow the water to enter from the side bars, rabble plevs or blades mounted on one of the transverse bars, and propelling-means suitably journaled along the sides of the hearth and provided with cogs engaging the racks of the side bars for actuating the rabble-carriage.

7. The combination with a hearth, of side bars located on opposite sides of the hearth, their lower edges being partly coggled and partly plain, transverse bars connecting the side bars, rabble plevs or blades mounted on one of the transverse bars, and wheels located along the sides of the hearth for supporting and propelling the rabble-carriage, the c-ld wheels having a coggled rim to engage the cogs of the side-bar racks, and a plain rim to engage the plain portions of the rack-bars, forming the support for the carriage, whereby the coggled portions of the wheels are relieved of the weight and only required to perform the propelling function, substantially as described.

8. In an apparatus of the class described, the combination with a hearth upon which ore may be spread for roasting or cooling purposes, of side bars arranged to travel on opposite sides of the hearth, transverse bars connecting the side bars, wheels located along the hearth sides and engaging the side bars in operative relation for propelling purposes, a rabble-sleeve movably mounted on one of the transverse bars, said sleeve being provided with plevs or blades, a toothed wheel fast on the rabble-sleeve, a pawl or dog pivotally mounted on one of the side bars and engaging the toothed wheel to prevent rotation in one direction, and a trip located at each extremity of the hearth for engaging the toothed wheel of the rabble-sleeve and imparting a partial rotation thereto, substantially as described and for the purpose set forth.

9. The combination with a hearth, of side bars arranged to travel along the hearth on opposite sides, connecting-bars extending transversely across the hearth, a sleeve movably mounted on one of the transverse bars, a toothed wheel fast on each extremity of the sleeve, a dog or pawl pivoted on each side bar and engaging the adjacent toothed wheel to prevent the rotation of the latter in one direction, and a tripping device suitably located to engage and rotate the toothed wheel, whereby a partial rotation is imparted to the rabble-sleeve at predetermined intervals, substantially as described and for the purpose set forth.

10. The combination with a hearth, of carriage side bars located and arranged to travel on opposite sides of the hearth, bars extending transversely across the hearth and connecting the side bars, a sleeve movably mounted on one of the transverse bars and composed of interlocking sections, rabble plevs or blades mounted on the sleeve, and means for imparting a partial rotation to the sleeve at predetermined intervals, substantially as described.

11. The combination with a hearth, of carriage side bars arranged to move on opposite sides of the hearth, a transverse bar connecting said side bars, a sectional sleeve mounted to rotate on said bar, each sleeve-section being provided with two rabble blades or plevs diametrically located, and means for imparting a partial rotation to the rabble-sleeve in the opposite direction at predetermined intervals, substantially as described.

12. The combination with a hearth, of side bars located and adapted to travel on opposite sides of the hearth, a bar extending transversely across the hearth and connecting the side bars, a sleeve mounted to rotate on said bar, rabble plevs or blades diametrically located on opposite sides of the sleeve, the oppositely-located blades being parallel and adjacently connected with the sleeve, substantially as described.

13. The combination with a hearth, of carriage side bars arranged and adapted to travel on opposite sides of the hearth, a transverse bar connecting the side bars, a sleeve mounted to rotate on said bar, rabble plevs or blades diametrically located on opposite sides of the sleeve, the opposite blades being parallel, a toothed wheel fast on each extremity of the sleeve, a dog mounted on each side bar and engaging the adjacent toothed wheel to prevent the movement of the sleeve in one direction, and a depending tripping device arranged to engage each toothed wheel and impart a partial rotation to the rabble-sleeve in the opposite direction, the tripping device being pivoted to swing freely from the vertical position in one direction, but locked against movement in the opposite direction, substantially as shown and described.

14. The combination with a hearth, of side bars located and arranged to travel on opposite sides of the hearth, transverse bars connecting the side bars, rabble plevs mounted on one of the transverse bars, the side bars having coggled racks on their lower edges, coggled propelling-wheels located along the sides of the hearth at suitable intervals, and engaging the side-bar racks, shafts extending longitudinally along the sides of the hearth and geared to the carriage-propelling wheels, means for operating the shafts and means connected with the operating mechanism and acted on

by the rabble-carriage at each end of the hearth, for automatically reversing the movement of the longitudinal shafts and carriage-propelling wheels, whereby the carriage is made to move back and forth over the hearth, substantially as shown and described.

15. In an apparatus of the class described, the combination of a combustion-chamber and a hearth, with a rabble-carriage provided with side bars arranged to travel on opposite sides of the hearth, transverse bars connecting the side bars, rabble plevs mounted on one of the transverse bars, propelling-wheels located at suitable intervals along the hearth sides and engaging the carriage side bars in operative relation, shafts located outside of the chamber and geared to the propelling-wheels for operating the carriage, means for operating the shafts and means connected with the shaft-operating mechanism, located at each end and outside of the chamber, for reversing the movement of the operating-shafts, said means being actuated by a carriage side bar, the end walls of the chamber being being open to allow the side-bar to protrude for the purpose set forth.

16. The combination with a chamber and a hearth, of side bars located and arranged to travel on opposite sides of the hearth, a transverse bar connecting the side bars and provided with rabble blades or plevs, means located outside of the chamber for operating the carriage and causing it to move longitudinally over the hearth, and means exteriorly located at each extremity of the chamber for reversing the movement of the carriage-operating mechanism, the said reversing means being actuated by the rabble-blades, the end walls of the chamber being provided with openings to allow the carriage side bars to protrude for the purpose set forth.

17. In an apparatus of the class described, the combination with a combustion-chamber and a hearth, of a rabble-carrier located in said chamber and having a part arranged to protrude at each end of the chamber whose ends and walls are provided with openings for the purpose, means for causing the carriage to travel longitudinally, and means located at each end of the chamber and acted on by the protruding part of the rabble-carriage, whereby the carriage-operating mechanism is automatically reversed, and the carriage made to travel back and forth in the chamber, substantially as described.

18. In an apparatus of the class described, the combination with a roasting chamber and hearth, of a rabble-carriage provided with side bars located and arranged to travel on opposite sides of the hearth, propelling-wheels engaged by the carriage side bars in operative relation, two longitudinal shafts located outside the chamber and connected to operate the rabble-carriage-propelling wheels, the two longitudinal shafts being connected to operate in unison, fast and loose pulleys connected with one of the longitudinal shafts, belts for the pulleys, belt-shifting devices for reversing the rotation of the shaft, the rabble-carriage being provided with a part protruding through openings formed in the end walls of the chamber, and means located at each end of the chamber and connected with the belt-shifting devices, for operating the latter, the said means being automatically actuated by the carriage-protruding part, substantially as described.

19. In an apparatus of the class described, the combination with a chamber and hearth, of a rabble-carriage located in said chamber which is provided with openings in its end walls, the carriage being provided with parts adapted to protrude through said openings, a shaft located outside the chamber and connected to cause the rabble-carriage to move longitudinally therein, means for operating said shaft, and means located exteriorly at each end of the chamber and arranged to be actuated by the carriage-protruding parts, for reversing the shaft-operating mechanism, substantially as described.

20. In an apparatus of the class described, the combination with a chamber and hearth, of a rabble-carriage arranged to move longitudinally in said chamber which is provided with openings in its end walls, the carriage being provided with parts adapted to protrude through said openings, a shaft located outside the chamber, means connected with and operated by said shaft for actuating the carriage in the chamber, fast and loose pulleys mounted on said shaft, belts connected with said pulleys, belt-shifting devices, and means located at each end of the chamber and connected with said devices for shifting the belts and reversing the rotation of the shaft, said means being actuated by the protruding part of the carriage, whereby the latter is caused to travel back and forth in said chamber, substantially as described.

21. In an apparatus of the class described, the combination with a chamber and hearth, of a rabble-carriage arranged to move longitudinally in said chamber which is provided with openings in its end walls, the carriage being provided with parts adapted to protrude through said openings, a shaft located outside of the chamber, means connected with and operated by said shaft for actuating the carriage in the chamber, fast and loose pulleys mounted on said shaft, belts connected with said pulleys, belt-shifting devices, a rock-shaft on which said devices are mounted, an arm also fast on the rock-shaft, another rock-shaft provided with a crank-arm, a link connecting the two arms, a third arm mounted on one of the

rock-shafts, and lying in the path of the carriage-protruding part at the end of the chamber, whereby the belt-shifting devices are actuated and the movement of the carriage-operating shaft reversed, substantially as described.

22. In an apparatus of the class described, the combination with a chamber and hearth, of a rabble-carriage located and arranged to move longitudinally in said chamber which is provided with openings in its end walls, the carriage having parts adapted to protrude through said openings, a shaft located outside of the chamber, means connected with and operated by said shaft for actuating the carriage in the chamber, pulleys mounted on said shaft, belts connected with said pulleys, belt-shifting devices, a rock-shaft on which said devices are mounted and made fast, an arm also fast on the rock-shaft, another rock-shaft provided with a crank-arm, a link connecting the two arms, a third arm mounted on one of the rock-shafts and lying in the path of the carriage-protruding part at one end of the chamber, a rock-shaft located at the opposite end of the chamber, a crank-arm fast on the last-named rock-shaft, and located in the path of the carriage-protruding part, a rocking bar fast on the rock-shaft at each extremity of the chamber, each bar projecting on equal distance from the rock-shaft in opposite directions, and rods or cables connecting the corresponding extremities of the two rocking bars, whereby as soon as the rabble-carriage reaches its limit of movement in either direction, its operating mechanism is reversed and it is caused to travel in the opposite direction.

23. The combination with a roasting or drying chamber, and a suitable hearth, of a rabble-carriage movable longitudinally in the chamber and provided with hollow side bars forming water-receptacles, a hollow transverse rabble-bar connecting the side bars and open to allow the water from the side bars to enter, and a valve-controlled water-supply conduit located exteriorly at one end of the roasting-chamber, for supplying the carriage with water, the valve of the conduit being automatically opened by the movement of the carriage.

24. The combination with a roasting or drying chamber and a hearth, of a rabble-carriage located in said chamber and adapted to hold water, means for operating the carriage, whereby it is made to travel back and forth in said chamber which is provided with openings in its end walls, the carriage having a part adapted to protrude through said openings, a valve-controlled water-supply conduit located outside the chamber, and means for opening the valve, said means being actuated by the protruding part of the carriage, which protruding part is connected to receive the water and conduct it to the other carriage parts.

25. The combination with a roasting chamber and hearth, of a rabble-carriage adapted to move back and forth in said chamber and provided with hollow side bars forming water-receptacles, the end wall of the chamber being open to allow the side bars to protrude, a hollow rabble-bar connecting the side bars and open to allow the water from the side bars to enter, a water-supply conduit exteriorly located at one end of the chamber, a valve for controlling the discharge of water from said conduit, operating means connected with the valve, said means being actuated by a protruding side bar of the carriage, whereby the valve is automatically opened and closed at predetermined intervals, the said bar being in position to receive the necessary water for supplying the carriage.

26. In an apparatus of the class described, the combination with a roasting chamber and hearth, of a rabble-carriage located therein and adapted to move back and forth, said carriage having side bars forming water-receptacles open at the top, and a hollow transverse bar connecting the side bars and communicating therewith to permit circulation of water, rabble blades or plevs mounted on the transverse bar, one end wall of the roasting-chamber having openings to allow the hollow side bars to protrude, a water-supply conduit exteriorly located, a valve for controlling the discharge from said conduit, and means connected with the valve and lying in the path of the free extremities of the side bars, whereby the said valve is opened, substantially as described.

27. In an apparatus of the class described, the combination with a roasting chamber and hearth, of a rabble-carriage constructed to hold water and provided with a part adapted to protrude from the end of the chamber the latter being provided with an opening for the purpose, an exteriorly-located water-supply device, a valve connected with said device and arranged to be opened by the protruding part of the rabble-carriage when traveling in one direction, and closed by said part when traveling in the opposite direction, substantially as described.

28. The combination with a chamber and hearth, of a rabble-carriage adapted to hold water and being arranged to protrude from the end of the chamber whose wall is provided with an opening for the purpose, a water-supply conduit exteriorly located and provided with a valve, a lever connected with the valve and lying in the path of the protruding part of the carriage, whereby the lever is actuated to open the valve when the carriage is moving in one direction, and to close the valve when the carriage is moving in the opposite direction, substantially as described and shown.

29. The combination with a resting chamber and hearth, of a rabbit-carriage constructed to hold water and provided with a part adapted to protrude from the resting-chamber and conduct water to the portion of the carriage within the chamber, the latter having an opening in its end wall to allow the said parts to protrude, water-supply means provided with a valve controlling the discharge-opening, a lever connected with said valve and provided with two arms, one of which lies in the path of the carriage-protruding part when it is moving in one direction, whereby the lever is actuated to open the valve and allow the water to flow therefrom into the protruding part of the carriage, the other lever-arm being thrown to a position to be engaged by the carriage during its movement in the opposite direction, whereby the valve is closed.

30. The combination with a resting chamber and hearth, of a rabbit-carriage located therein and adapted to move back and forth as described, the said carriage having a protruding part adapted to receive and conduct water to the other parts of the carriage, the said part being open to permit the escape of water by evaporation in the resting-chamber, the end wall of the chamber having an opening to allow the said part of the carriage to pass through, substantially as described.

31. The combination with a chamber and hearth, of a rabbit-carriage adapted to hold and retain water and permitting escape only by evaporation, said carriage having a protruding part adapted to receive and conduct water to the parts of the carriage within the chamber, and a water-supply means provided with a valve arranged to be opened and closed by the protruding part of the carriage as it moves in opposite directions, substantially as described.

32. The combination with a chamber and hearth, of a carriage arranged to move back and forth in said chamber and provided with a protruding part adapted to receive water and conduct it to the other parts of the carriage which is constructed to contain water, permitting escape only by evaporation, a water-supply source located outside the chamber, a valve controlling the discharge from said source, a triple-armed lever, one arm of which is connected with the valve, another arm lying in the path of the carriage-protruding part as it moves forwardly or out of the chamber, whereby the lever is actuated to open the valve, the third lever-arm being thrown by said action into the path of the protruding part as it moves in the opposite direction, whereby the lever is actuated to close the valve.

33. The combination with a resting chamber and hearth, of a rabbit-carriage located in the chamber and constructed to hold water and permit escape by evaporation, said carriage having a protruding part adapted to receive water from a source outside of the chamber, and conduct it to the portion of the carriage within the chamber, and means located outside the chamber and automatically controlled by the carriage-protruding part, whereby the carriage is supplied with water while the said carriage part is outside of the chamber, the water discharge being cut off when the said part moves into the chamber.

34. The combination with a resting chamber and hearth, of a rabbit-carriage arranged to move back and forth within the chamber, the said carriage being constructed to hold water and permit escape by evaporation, the said carriage having a protruding part adapted to receive and conduct water from a point outside the chamber to the portion of the carriage within the chamber, the wall of the chamber having an opening through which the said carriage part passes, a water-supply source located outside the chamber and provided with a valve, a crank-arm attached to the valve-stem, a triple-armed lever, one arm of which is connected with the valve-stem, another arm located in the path of the protruding part as it moves out of the chamber, whereby the lever is actuated to open the valve and allow the water to pass into the protruding part of the carriage, the third arm of the lever being thrown into the path of the carriage protruding part as it moves in the opposite direction or into the chamber, whereby the lever is actuated to close the valve.

35. The combination with a chamber and hearth, of a rabbit-carriage arranged to move back and forth within the chamber and over the hearth, the said carriage being adapted to hold water and permit its escape by evaporation, the carriage being also provided with a protruding part adapted to receive water and conduct it to the part of the carriage within the chamber, the wall of the chamber having an opening to allow the carriage protruding part to pass outside the chamber, a water-supply source located outside the chamber, a valve controlling the escape of water from said source, a crank connected with the valve, a lever, a link connecting the said crank with one arm of the lever which is provided with another arm lying in the path of the protruding part as it moves out of the chamber, whereby the valve is opened, the lever having a third arm which is engaged by the carriage protruding part as it moves in the opposite direction, whereby the valve is closed.

36. The combination with a resting chamber and hearth, and a cooling-hearth located above the resting-chamber, of a discharge-chute at one extremity of the chamber, means for advancing the ore in the rest-

ing-chamber and discharging the roasted ore from the chamber through said chute at predetermined intervals, a basket for receiving the ore discharged, means for elevating the basket and discharging its contents upon the cooling-hearth and returning the empty basket to the mouth of the discharge-chute, the movement of the basket-carrying mechanism being timed to harmonize with the operation of the ore-discharge means, whereby the basket is always in place at the time the ore is discharged, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing and discharge means within the resting-chamber.

37. The combination with a resting chamber and hearth, and a cooling-hearth located above the resting-chamber, of a discharge-chute located at the rear extremity of the resting-chamber, means for advancing the ore and discharging it through said chute at predetermined intervals, an ore-receptacle adapted to receive the ore discharged from the chute, carrying-chains with which said ore-receptacle is connected, and means for actuating the chains whereby the ore-receptacle is elevated to the cooling-hearth, means for dumping the basket as it is moved along by the carrying-chains, means for reversing the movement of the carrying-chains, whereby the ore-receptacle is returned to the mouth of the ore-discharge chute, the movement of the carriage-chains being timed to harmonize with the operation of the ore-discharge mechanism, to bring said receptacle into place at the proper time to receive the ore discharged, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing means within the resting-chamber.

38. The combination with a resting chamber and hearth, and a cooling-hearth located above the resting-chamber, of an ore-discharge chute located at the rear extremity of the resting-chamber, means located within the chamber for advancing the ore in the resting-chamber and discharging it through said chute at predetermined intervals, a basket located outside the chamber and constructed to receive the ore discharged from the chute, carrying mechanism attached to the basket for elevating the latter to a position above the cooling-hearth, means for dumping the contents of the basket upon the cooling-hearth while the carrying means is moving in one direction, means for reversing the movement of the carrying mechanism when the basket is dumped, whereby the basket is returned in the path of its original travel, to a position below the mouth of the discharge-chute, the operation of the basket-carrying and ore-discharge mechanism being timed to operate in unison, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing means within the resting-chamber, substantially as described and for the purpose set forth.

39. The combination with an ore-resting chamber and hearth, and a cooling-hearth, of means for advancing the ore within the resting-chamber, discharging it from the said chamber at predetermined intervals, a receptacle adapted to receive the ore discharged from the resting-chamber, means whereby the ore-receptacle is carried to and discharged upon the cooling-hearth, and means to receive again the ore discharged from the resting-chamber, the ore-receptacle-carrying mechanism being timed to harmonize with the discharge mechanism, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing means within the resting-chamber, substantially as described and for the purpose set forth.

40. The combination with a resting chamber and hearth, and a cooling-hearth located above the resting-chamber, of means located within the resting-chamber for advancing the ore in the resting-chamber and discharging it therefrom at predetermined intervals, a basket constructed to receive and hold the ore discharged, carrying means for the basket, whereby the latter is elevated to the cooling-hearth, means located in proximity to the hearth for dumping the contents of the basket upon the cooling-hearth as the basket is traveling in one direction, means for reversing the travel of the basket to receive the ore discharged from the chamber, the operation of the ore-discharge and the basket-carrying mechanism being timed to produce this result, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing means within the resting-chamber.

41. The combination with a resting-chamber, a resting-hearth and a cooling-hearth located above the resting-hearth, of an ore-discharge chute located at the rear extremity of the resting-chamber, means located within the chamber for discharging the ore through said chute at predetermined intervals, a basket to receive the ore from the chute, endless carrying-chains connected with the basket, means for operating the chains to carry the basket to the cooling-hearth, means for discharging the basket contents during its forward travel, and means for reversing the travel of the carriage-chains to bring the basket again to the discharge-chute, the movement of the endless carrying-chains and the ore-discharge mechanism within the chamber being timed to harmonize, substantially as described.

42. The combination with a resting-chamber, a resting-hearth, chute located at the rear extremity of the said chamber, a basket con-

and a cooling-hearth located above the resting-chamber, of a discharge-chute to receive the discharge through the chute, endless carrying-chains connected with the basket, means for operating the chains whereby the basket is carried to the cooling-hearth, and a stepped device mounted in proximity to the cooling-hearth and lying in the path of the basket during its forward travel, whereby the basket is first tipped onto one side, and finally inverted to dump its contents upon the hearth, and means for returning the basket-carrying mechanism to the discharge-mouth of the chute to receive the next charge of ore, substantially as described.

43. The combination with a resting-chamber, a resting-hearth, and a cooling-hearth located above the resting-hearth, of a discharge-chute protruding from the rear extremity of the resting-chamber, and of a width equal to the width of the chamber, a basket having a length equal to the width of the discharge-chute, endless chains to which the ends of the basket are respectively attached, means for operating the chains to carry the basket upwardly to the cooling-hearth, means mounted in proximity to the cooling-hearth, for automatically dumping the basket and discharging the contents upon the cooling-hearth, and means for reversing the movement of the carrying-chains, whereby the basket is returned to its position below the mouth of the discharge-chute, suitable means located within the resting-chamber for discharging ore through the chute at predetermined intervals, the movement of the said means and that of the basket-carrying device being limited to cooperate for the purpose set forth.

44. The combination with a resting-chamber, a resting-hearth, and a cooling-hearth located above the resting-chamber, of a rabbit-carriage located in the resting-chamber, a discharge-chute at the rear extremity of the chamber, means for causing the carriage to travel back and forth in said chamber whereby ore is advanced and discharged through the chute at predetermined intervals, means for taking each discharge of ore from the resting-chamber and elevating it to the cooling-hearth, the operation of the ore-carrying means with reference to the movement of the rabbit-carriage being timed, substantially as described, and means for advancing the ore upon the cooling-hearth, said means being independent of the ore-advancing means within the resting-chamber.

45. The combination with a resting-chamber, a resting-hearth and a cooling-hearth located above the resting-chamber, of a rabbit-carriage located in the chamber, a discharge-chute at the rear extremity of the chamber, means for causing the carriage to travel back and forth in said chamber, whereby the ore is advanced and discharged through the chute at predetermined intervals, means for taking each discharge of ore from the resting-chamber and elevating it to the cooling-hearth, the operation of the ore-carrying means with reference to the movement of the rabbit-carriage being timed as described, and a rabbit-carriage mounted to move over the cooling-hearth and arranged to cause the ore to travel from the point of discharge at the rear extremity of the cooling-hearth, to the opposite extremity of the same, said cooling-hearth carriage being distinct and separate from the carriage within the resting-chamber, substantially as described.

46. In an ore resting and cooling apparatus, the combination with a resting chamber and hearth, of a rabbit-carriage located in the resting-chamber and arranged to cause the ore to travel toward the rear extremity thereof, the said carriage having side bars located on opposite sides of the hearth, propelling-rollers located along the sides of the hearth, engaging the side bars of the carriage, shafts located outside the resting-chamber and extending longitudinally thereof, said shafts being geared to the carriage-propelling rollers, the two longitudinal shafts being connected in operative relation, means for transmitting motion to one of said shafts, a cooling-hearth, a rabbit-carriage arranged to cause the ore to travel from its rear extremity toward the forward extremity thereof, propelling-rollers engaging said carriage, shafts connected with the said rollers for operating the same, and connected with each other in operative relation, means for transmitting motion from one of the operating-shafts of the resting-chamber carriage to one of the similar shafts of the cooling-hearth carriage, means for automatically reversing the rotation of the carriage-operating shafts when the carriages have reached their limit of movement in either direction, the rabbit-carriages of the resting-chamber being arranged to cause the ore to travel rearwardly and discharge at predetermined intervals at the rear extremity of the chamber, while the rabbit-carriage of the cooling-hearth is arranged to cause the ore to travel forwardly, and means for receiving each ore-discharge from the resting-chamber and automatically elevating it upwardly to the rear extremity of the cooling-hearth, the operation of the ore receiving and elevating means being so timed with reference to the travel of the rabbit-carriage, that the ore is carried upwardly and discharged on the cooling-hearth during the forward movement of the carriage, the ore receiving and elevating mechanism making the return movement while the carriage is traveling rearwardly, substantially as described.

47. The combination with a resting chamber and hearth, of a rabbit-carriage located in the resting-chamber and constructed to hold wa-

ter, means for operating the carriage, a source of water-supply located outside the chamber, a valve for controlling the discharge from said source, means connected with the valve and operated by the carriage for opening the valve to supply the carriage with water when the carriage is moving in one direction, means actuated by the carriage for reversing the carriage-operating mechanism simultaneously with the opening of said valve, whereby the carriage begins the reverse movement, and means actuated by the carriage for closing the valve as the carriage begins the return movement, substantially as described.

48. The combination with a resting chamber and hearth, of a carriage movable longitudinally in said chamber and arranged to hold water and permit escape thereof by evaporation, said carriage having a protruding part constructed to receive water and conduct it to the carriage within the chamber, a valve-controlled water-supply source located outside the chamber, a connection with the valve, acted on by the protruding part of the carriage for opening the valve when the carriage is moving in one direction, means for operating the carriage, and means also acted on by the protruding part of the carriage for reversing the movement of the operating mechanism simultaneously with the opening of said valve, and means acted on by the carriage protruding part for closing the valve as the carriage begins its return movement.

49. The combination with a resting chamber and hearth, of a rabbit-carriage movable longitudinally in said chamber and provided with hollow side bars forming water-receptacles, and hollow connecting-bars communicating with the water-receptacles of the side bars which are adapted to protrude from the resting-chamber, the latter having openings in its end walls to allow the said bars to protrude, means for opening the carriage, means actuated by the protruding side bar for reversing the carriage-operating mechanism when the carriage has reached its forward limit of movement, and means connected with the valve of the water-supply source and acted on by a carriage side bar for opening the valve, and means also acted on by a carriage side bar for closing the valve as the carriage begins its reverse movement.

50. The combination with a resting chamber and hearth, of a rabbit-carriage movable longitudinally in said chamber and provided with hollow side bars forming water-receptacles located on opposite sides of the hearth, hollow bars connecting the side bars and communicating with the water-receptacles therein, the end walls of the chamber being open to allow the side bars to protrude, means for operating the rabbit-carriage, means operated from either extremity of the chamber by a protruding side bar for automatically reversing the carriage-operating mechanism, whereby the carriage is caused to move back and forth in said chamber, a valve-controlled water-supply source located at one extremity of said chamber, and means acted on by the carriage side bar for opening said valve as the carriage reaches its limit of movement in one direction, and for closing said valve as the carriage moves in the opposite direction.

51. The combination of a resting-chamber, a resting-hearth within said chamber, means for stirring and advancing the ore upon the resting-hearth, and discharging it from the resting-chamber, a cooling-hearth, means for receiving the ore from the resting-chamber and discharging it upon the cooling-hearth, and means for stirring and advancing the ore upon the cooling-hearth, said means being independent of the ore stirring and advancing means within the resting-chamber.

52. The combination of a resting-chamber, a resting-hearth located therein, means for stirring and advancing the ore upon the resting-hearth and discharging the roasted ore from the said chamber, a cooling-hearth located above the resting-chamber, means for elevating the ore from the resting-chamber and discharging it upon the cooling-hearth, and means for stirring and advancing the ore upon the cooling-hearth, said means being independent of the ore stirring and advancing means within the resting-chamber.

700,186. REVERSIBLE GALVANIC BATTERY. THOMAS A. BROWN, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, a Corporation of New Jersey. Filed Mar. 6, 1901. Renewed Mar. 2, 1908. Serial No. 98,098. (No Model.)

Claim.—1. An element for a reversible galvanic cell, consisting of electrolytically-reducible oxide of iron, substantially as set forth.

2. An element for a reversible galvanic cell, consisting of electrolytically-reducible oxide of iron in finely-divided form, substantially as set forth.

3. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of oxide of iron, and a second element having a depolarizing material not soluble in such solution, substantially as set forth.

4. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of oxide of iron in finely-divided form, and a second element having a depolarizing material not soluble in such solution, substantially as set forth.

5. An element for a reversible galvanic cell, consisting of oxide of iron and graphite mixed therewith, substantially as set forth.

6. An element for a reversible galvanic cell, consisting of scale oxid of iron and manganese, foliated or flake-graphite mixed therewith, substantially as set forth.

7. An element for a reversible galvanic cell, consisting of scale oxid of iron in flake-divided form and graphite mixed therewith, substantially as set forth.

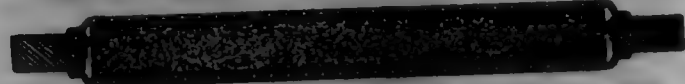
8. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of scale oxid of iron and graphite mixed therewith, and a second element having a depolarizing material not soluble in such solution, substantially as set forth.

9. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of scale oxid of iron, and a second element having a depolarizing element consisting of an oxid of a magnetic metal other than iron, substantially as set forth.

10. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of scale oxid of iron, and a second element having a depolarizing material consisting of oxid of nickel, substantially as set forth.

11. A reversible galvanic cell, comprising an alkaline electrolyte, an element consisting of flake-divided scale oxid of iron mixed with graphite, and a second element having a depolarizing element consisting of oxid of nickel mixed with flake-graphite, substantially as set forth.

700,187. REVERSIBLE GALVANIC BATTERY. THOMAS A. EDISON, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, a Corporation of New Jersey. Filed Mar. 2, 1901. Serial No. 46,986. (No model.)



Claim.—1. A grid or plate for alkaline reversible galvanic batteries, the immersed surface of which is unaffected by the alkaline solution and having a series of openings therein, a receptacle secured in each opening and having a surface which is unattacked by the alkaline solution, both of the exposed walls of each receptacle being elastic and having numerous perforations permitting the passage of the solution therethrough, and an active material tightly packed in each receptacle, whereby the elastic walls of the latter will maintain continuous pressure with the active material, substantially as and for the purposes set forth.

2. A grid or plate for alkaline reversible galvanic batteries, the immersed surface of which is unaffected by the alkaline solution and having a series of openings therein, a receptacle made of telescoping sections secured in each opening and having a surface which is unattacked by the alkaline solution, both of the exposed walls of each receptacle being elastic and having numerous perforations permitting the passage of the solution therethrough, and an active material tightly packed in each receptacle, whereby the elastic walls of the latter will maintain continuous pressure with the active material, substantially as and for the purposes set forth.

3. A grid or plate for a reversible galvanic battery having a plurality of openings therein, a perforated cup or pocket the edges of which are crimped around the edges of each of the openings, and an active material in said cup or pocket, substantially as set forth.

4. A grid or plate for a reversible galvanic battery having a plurality of openings therein, a sectional perforated cup or pocket the edges of which are crimped around the edges of each of the openings, and an active material in said cup or pocket, substantially as set forth.

5. A grid or plate for a reversible galvanic battery having a plurality of openings therein, a perforated cup or pocket made of elastic metal and secured in place within each of said openings, and a coherent block of active material within each cup or pocket and maintained under pressure therein, substantially as set forth.

6. A grid or plate for a reversible galvanic battery having a plurality of openings therein, a perforated cup or pocket made of telescoping sections secured in place within each of said openings, and a coherent block of active material within each cup or pocket and maintained under pressure therein, substantially as set forth.

7. A plate or grid for a reversible galvanic battery employing an alkaline electrolyte and presenting an immersed surface of nickel, said plate having a series of openings therein, and a perforated cup or pocket within each of said openings and containing the active material, said cup or pocket being made of highly-elastic sheet metal having a nickel surface and of telescoping sections, substantially as set forth.

8. A plate or grid for a reversible galvanic cell employing an alkaline electrolyte, made of iron nickel-plated having a series of openings therein, and a perforated cup or pocket secured within each of said openings and containing the active material, said cup or pocket being made of nickel-plated sheet-steel and of telescoping sections, substantially as set forth.

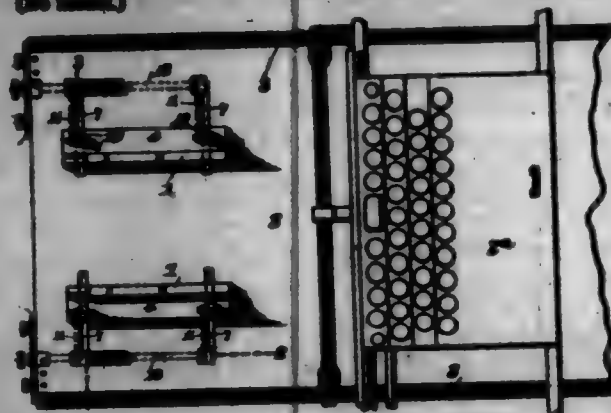
9. A grid or plate for a reversible galvanic battery having a plu-

reality of openings therein, a perforated cup or pocket the edges only of which are crimped around the edges of each of the openings and the chamber of the cup or pocket being of less thickness at its marginal portions than at its other portions, and an active material in said cup or pocket, substantially as set forth.

10. A grid or plate for a reversible galvanic battery having a plurality of openings therein, a sectional perforated cup or pocket the edges only of which are crimped around the edges of each of the openings and the chamber of the cup or pocket being of less thickness at its marginal portions than at its other portions, and an active material in said cup or pocket, substantially as set forth.

11. As a new manufacture, a metallic cup or pocket made of telescoping sections having perforated walls, each perforation being surrounded by a bar of displaced metal which extends inwardly, and an active material within said cup or pocket, substantially as set forth.

700,188. CARD OR SHEET HOLDING ATTACHMENT FOR TYPE-WRITING MACHINES. ROBERT J. FISHER, Athens, Tenn., and HERMAN F. BOKHEIM, Cleveland, Ohio, assignors to the Fisher Type-Writer Company, Athens, Tenn. Filed Mar. 31, 1900. Serial No. 9,662. (No model.)



Claim.—1. In a type-writing machine, the combination with the flat platen, and the traveling printing mechanism, of work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism comprising means located below the writing-surface of the platen for bodily shifting a work-holding member to provide for the internal adjustment of said members.

2. In a type-writing machine, the combination with the flat platen, and the traveling printing mechanism, of work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism comprising means for bodily shifting and simultaneously adjusting a work-holding member.

3. In a type-writing machine, the combination with the flat platen, and the traveling printing mechanism, of work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism comprising means for shifting and locking a work-holding member.

4. In a type-writing machine, the combination with the flat platen, and the traveling printing mechanism, of work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism having means for shifting, and simultaneously adjusting and locking a work-holding member.

5. In a type-writing machine, the combination with the flat platen, and the traveling printing mechanism, of internally-movable work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism comprising means for shifting, and simultaneously adjusting, said internally-movable members, said means being located below the writing-surface of the platen.

6. In a type-writing machine, the combination with the flat platen and the traveling printing mechanism, of shiftable work-holding members having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and mechanism comprising means for shifting, adjusting and locking said members, said means being located below the writing-surface of the platen.

7. In a type-writing machine, the combination with the flat platen, and the printing mechanism, of a work-holding member having guiding and holding means for the work, and interposed in a plane between the printing mechanism and the writing-surface of the platen, and adjusting mechanism comprising a rock-shaft having an operative connection with

the work-holding member to shift bodily the same laterally, and means for turning the rock-shaft in either direction.

8. In a type-writing machine, the combination with the flat platen, and the printing mechanism, of a laterally-movable work-holding member having guiding and holding means for the work, and adjusting mechanism comprising a rock-shaft having an operative connection with the work-holding member for shifting the same, operating means for turning the rock-shaft in either direction, and locking means for holding the shaft and the member associated therewith against movement.

9. In a type-writing machine, the combination with the flat platen, and the printing mechanism, of relatively movable work-holding members having guiding and holding means for the work, and adjusting mechanism including an actuating-spring which tends to normally vary the distance between the work-holding members in one direction, and means for adjusting the distance between said members in a direction contrary to the action of the spring.

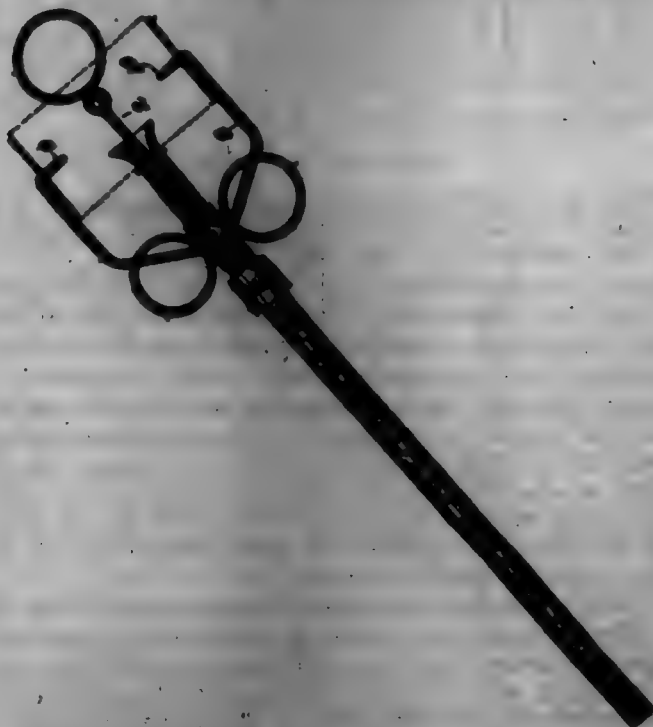
10. In a type-writing machine, the combination with the flat platen, and the printing mechanism, of a movable work-holding member having guiding and holding means for the work, and adjusting mechanism comprising a rock-shaft having operative connection with the work-holding member to slide the same over the flat platen, an actuating-spring connected with the rock-shaft for normally turning the same in one direction, and an operating device also connected with said rock-shaft.

11. In a type-writing machine, the combination with the flat platen having slots therein, and the printing mechanism, of a movable work-holding member interposed in a plane between the printing mechanism and the writing-surfaces of the platen, said work-holding member having slide-blocks working in the slots of the platen, and adjusting mechanism comprising a rock-shaft having operative connection with said slide-blocks, and means for turning said rock-shaft in either direction.

12. In a type-writing machine, the combination with a movable work-holding guide, of a rock-shaft carrying swinging arms having link connections with the guide to provide for shifting the same laterally, an actuating-spring for turning the rock-shaft in one direction, an adjusting-head fitted to the rock-shaft and having an operating-handle, a locking device associated with the adjusting-head, and adjustable stops fitted to the adjusting-head, respectively at opposite sides of the locking device.

13. In a type-writing machine, the combination with the movable work-holding guide, of a rock-shaft carrying swinging arms having link connections with the guide to provide for shifting the same laterally, an actuating-spring for turning the rock-shaft in one direction, an adjusting-head fitted to the rock-shaft and having a segmental or screw slot, and a single operating-handle, a lock-throw working through the slot in said head and engaging a fixed point of support, and adjustable stop-bushes slidably mounted in the slotted adjusting-head, respectively at opposite sides of the said lock-throw.

700,189. ATTACHMENT FOR UTILITY PACKER. JOHN E. FULLER, Mansfield, Mass. Filed Jan. 2, 1902. Serial No. 34,000. (No model.)



Claim.—1. In combination with a surgical packer comprising a tube and a feeding-plunger for packing a strip of fabric into cavities, a packing-holder attached thereto having spring-arms which branch away from the tube and which are formed at the ends with long, pointed prongs

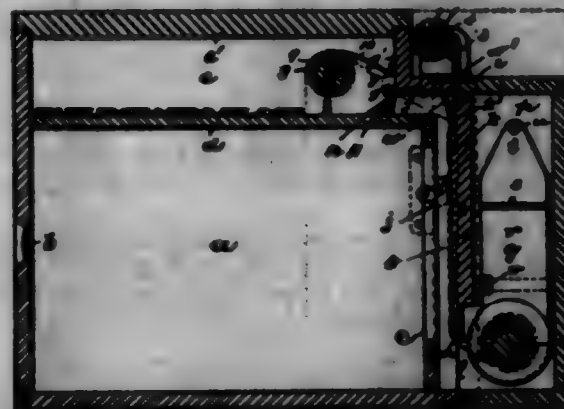
turned toward each other and adapted to penetrate the ends of a roll of packing formed of a strip wound close upon itself without any bobbin or spool, said prongs forming bearings on which the roll may rotate, said arms being formed of spring metal and adapted to be sprung apart to admit and to release the roll, substantially as described.

2. In combination with a surgical packer comprising a tube and a feeding-plunger for packing a strip of fabric into cavities, a packing-holder attached thereto having spring-arms which branch away from the tube and which are formed at the ends with long, pointed prongs turned toward each other and adapted to penetrate the ends of a roll of packing formed of a strip of fabric wound close upon itself without any bobbin or spool, said prongs forming bearings on which the roll may rotate, said arms being formed of spring metal and adapted to be sprung apart to admit and to release the roll of packing, and having one at the outer ends of the prongs, substantially as described.

3. In combination with a surgical packer comprising a tube and a feeding-plunger for packing a strip of fabric into cavities, a packing-holder comprising a sleeve whereby the holder may be mounted on said tube, means for clamping said sleeve to the tube, two arms secured in the sleeve and branching away from each other, the arms being turned in toward each other at their outer ends forming pointed prongs adapted to penetrate the ends of a roll of packing formed of a strip of fabric wound close upon itself without any bobbin or spool, said prongs forming bearings for the roll, the arms being formed of spring metal and adapted to be sprung apart in admit and to release the roll, substantially as described.

4. In combination with a surgical packer comprising a tube and a feeding-plunger, a packing-holder comprising a sleeve whereby the holder may be mounted on said tube, means for clamping the sleeve to the tube, two arms secured in the sleeve and branching away from each other, the arms having at their outer ends prongs which point toward each other and adapted to penetrate the ends of a roll of packing formed of a strip of fabric wound close upon itself without any spindle or spool, said prongs forming bearings for the roll, the arms being formed of spring metal, and adapted to be sprung apart to admit entrance of the roll and engagement by the prongs, and ears at the base of the prongs to guide and clamp the ends of the roll, substantially as described.

700,140. CAMERA. HANNAH GOODWIN, Newark, N. J.; Rebecca Goodwin executrix of said Hannah Goodwin, deceased. Filed Apr. 22, 1900. Serial No. 714,971. (No model.)



Claim.—1. The improved camera, herein described comprising a camera-box, provided with a suitable lens and a film-holder having therein pay-out roll and stripping means, the said stripping means being arranged to contact with the film, and effect a complete detachment of said film from its support, substantially as set forth.

2. The improved camera herein described, comprising a camera-box having an open diaphragm and a dark chamber, the mouth or entrance to which is disposed at or near the plane of said diaphragm, a stripping-blade outside of said mouth or entrance to the dark chamber and a film-holder having a pin and a spool-holder chamber back of said pin, substantially as set forth.

3. The improved camera herein described, comprising a camera-box, having a dark chamber and open diaphragm, a stripping-blade, a film-holder separable from the said box, and having a pin at the front an over-riding spool-holder at its free end adapted to be swung out from the spool-holder chamber to permit an easy manipulation of the spool therein, substantially as set forth.

4. The combination with the camera-box a, having a dark chamber, an open diaphragm and stripping-blade, of a film-holder adapted to be arranged in connection with said camera-box, the said film-holder having a removable plate adapted to be disposed parallel with the said open diaphragm and having a passage for the film therewith, the said plate terminating at one edge, short of the end of the film-holder to form a passage for the film and a spool adapted to be arranged in said film-holder, substantially as set forth.

5. In a camera, the combination with a camera-box having an open diaphragm, a dark chamber above said diaphragm and a stripping-blade, at the top of said diaphragm and adjacent to the mouth of the dark chamber, of a separable film-holder having a paten, adapted to lie parallel to said open diaphragm, said paten being recessed contiguous to the edge of the said stripping-blade to receive said edge and effect a flexing of the film in its passage to said blade, a supply-roller and a draft-roll at opposite ends of said paten, and means for fastening the said film-holder in the camera-box, substantially as set forth.

6. In a camera, the combination with the camera-box, having a dark chamber, open diaphragm, and stripping-blade, of a separable film-holder, having a spool, at the bottom of said open diaphragm and below the stripping-blade and adapted to contain the unexposed portions of the film and a drum above said open diaphragm and stripping-blade and adapted to receive one end of the film and, when turned, to effect an out-passage of the support of the said film and a stripping of the sensitive portion therefrom, substantially as set forth.

7. In a camera, the combination with the camera-box, its dark chamber, open diaphragm and stripping means of a roller for holding the unexposed film, breaking means therefor, and a drum or windlass for drawing the film over the said stripping-blade and means for preventing back movement of said drum or windlass, substantially as set forth.

8. In a camera, the combination with the camera-box, its dark chamber and stripping means, of a film-holder separable from said box, having a chamber for the unexposed film and a paten removable from said holder to permit manipulation of the spool-holder, and said spool-holder and means for holding it in place in said film-holder, substantially as set forth.

9. The combination with the camera-box having a dark chamber and stripping-knife, of a spring-actuated shutter for closing said dark chamber automatically and a drawing-in roll arranged within said dark chamber independent of the shutter, substantially as set forth.

10. The combination with the box, of a camera, having a dark chamber, of an automatic door at the mouth or entrance to said dark chamber and a drawing-in roll provided with teeth, and a spring for co-operating with said teeth, substantially as set forth.

11. The combination with the camera-box having the dark storage-chamber and stripping means, of a drawing device adapted to grasp the stripped portions after they have been detached and carry them into said dark chamber from the mouth or in-passage thereto, substantially as set forth.

12. In a camera, the combination with a film-supply spool, a stripping-blade, a paten between said spool and stripping-blade for exposing the film, a take-up spool beyond said stripping-blade for winding up the support or backing, a dark chamber having an entrance into which the stripped portion of the film is forced by the stripping operation an automatic door for said entrance, and means within the dark chamber for entirely drawing in the stripped portion of the film, substantially as set forth.

13. In a camera, the combination with the box having an open diaphragm, dark chamber and stripping-blade at the entrance to said dark chamber, of a film-holder having therein a swinging spool-holder comprising two springs between which the spool is held under friction, substantially as set forth.

14. In a camera, the combination with the box having an open diaphragm, dark chamber and stripping-blade, of a spool-holder consisting of springs providing bearings on which the spool is adapted to rotate, said springs pressing against the ends of said spool to retard turning, substantially as set forth.

15. In a camera, the combination with the box having an open diaphragm, dark storage-chamber for the light-improved film and a storage-chamber for the unimproved film and means in the latter chamber for holding the film, and the flexible supports therefor, said camera having a paten back of said diaphragm with a film-passage between said paten and the top of said passage, diverging passages, one leading into the dark storage-chamber and the other leading to the exterior of the camera, and stripping means at the junction of the passages, substantially as set forth.

700,141. **BUTTON-FLY-SCALLOPING MACHINE.** JAMES G. GRALL, DUBLIN, IRELAND, assignor, by means of assignment, to the Robert Mitchell Machinery Company, a Corporation of Michigan. Filed Jan. 8, 1898. Serial No. 701,312. (No model.)

Claim.—1. In a button-fly scalloper, the combination with a rotary table, and a vertically-reciprocating scalloping-knife above the table, of a separate guide-pattern adapted to carry the work in fixed relation thereto and projecting with its rear edge in rear of said work, a series of guide-marks on said exposed portion and a support for said guide-pattern on the table having a fixed guide mark or marks with which those of the guide-pattern are adapted to register separately and thereby position the work in relation to the knife.

2. In a button-fly scalloper, the combination with a table and a vertically-reciprocating scalloping-knife above the table, of a separate guide-pattern for the work adapted to support the same and having an exposed portion projecting in rear thereof, and guide-marks formed thereon, means in the guide-pattern for clamping the work thereon in a prescribed position, a support for the guide-pattern adjustably secured in front of said table and means on the guide-pattern and its support for positioning the guide-pattern upon the support in different prescribed positions.



3. In a button-fly scalloper, the combination with the frame and cutting-block supported thereon, of the vertically-reciprocating scalloping-knife, the separate guide-pattern provided with means for clamping the blank thereon, the series of notches cut into the front edge of the guide-pattern, and the pattern-guide support having a projection with which the notches on the guide-pattern are adapted to register.

4. In a button-fly scalloper, the combination with the frame and cutting-block supported thereon, of a vertically-reciprocating scalloping-knife, a separate guide-pattern for supporting the blank thereon and means for locating the guide in prescribed relation to the knife for each scallop, said guide-pattern having projecting lugs at the ends registering with the ends of the blank.

5. In a button-fly scalloper, the combination with the frame and rotary table supported thereon, of the reciprocating scalloping-knife adapted to cut portions of two adjacent scallops, the notched guide-pattern with which the blank is adapted to be registered having a series of guide-marks thereon, and the pattern-guide support having the projection and guide-mark.

6. In a button-fly-scalloping machine, the combination with an intermittent rotary cutting-block, and a vertically-reciprocating scalloping-knife, of a separate guide-pattern for carrying the blank, said guide-pattern having projections at its opposite ends registering with the ends of said blank, a fixed support for said guide-pattern in front of the cutting-block and means on the guide-pattern and its support for adjusting the guide-pattern in predetermined positions in relation to the knife to cut a series of connected scallops along one edge of the blank.

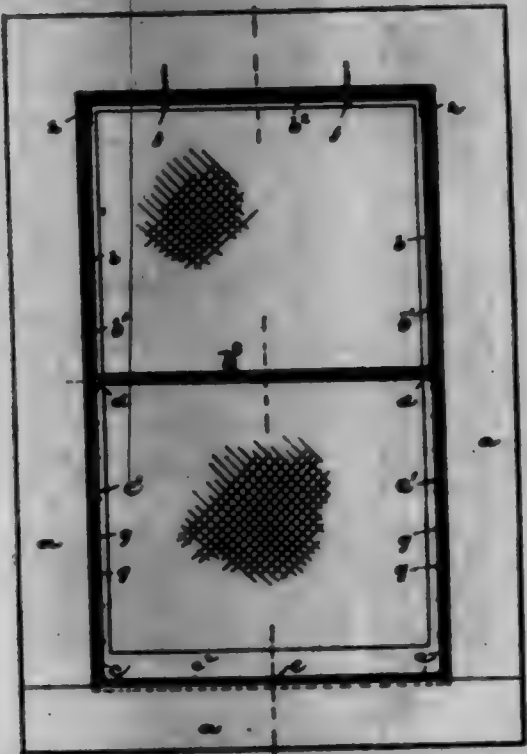
7. In a fly-scalloping machine, the combination with the frame of an intermittent rotary table having a cutting-block secured thereon, a vertically-reciprocating scalloping-knife, a separate guide-pattern for supporting the blank and with which the blank is adapted to be registered, an adjustable pattern-guide support for said guide-pattern in front of the table, a projection on said support, a series of notches on the guide-pattern adapted to be registered with said projection, a series of guide-marks on the pattern-guide, and a guide-mark on the support with which the above-said series of guide-marks are adapted to be registered.

700,142. **CURTAIN-HOLDER.** CHARLES HEYER, NEWARK, N. J., assignor of one-half to Jacob Fitzgerald, Newark, N. J. Filed Feb. 1, 1901. Serial No. 45,921. (No model.)

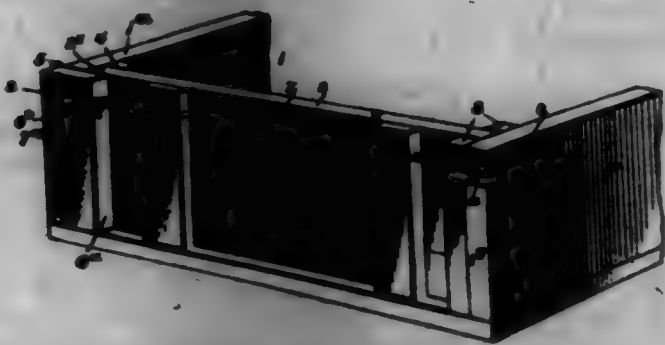
Claim.—1. The combination of a quadrangular frame-section having tubular side portions *S*, *S*, and top and bottom bars *T*, *B*, said section being perforated at the point of meeting of the side and bottom portions or bars in line with said side portions, a section having arms *A*, *A*, extending telescopically into said side portions, a curtain attached to said sections and adapted to be stretched thereon when said sections are fitted to the window, said curtain below the bottom bar *B*, being loosely attached to the arms of the lower frame-section to permit said arms to slide within the said side portions, means for holding said frame and curtain within the window-frame and means for holding the sections at the desired adjustment, substantially as set forth.

2. The combination with the window-frame, of a curtain holding and stretching frame constructed to fit the opening of said window, said frame being suspended from hooks attached to said frame and thus removably supported at the top, means for fastening said frame at the lower part, said frame being in sections, the lower one of which is adapted to be removed to permit access to the window and means for cutting one section with relation to the other, and a curtain attached to said frame-sections, the lower part being loosely attached to permit the sliding of the lower frame within the upper frame, substantially as set forth.

2. The combination with the window-frame, of a curtain holding and stretching frame constructed in fit the opening of said window, said frame being suspended from hooks attached in said frame, and then removably supported at the top, means for fastening said frame at the lower part, and shade-brackets attached to the upper part of said frame, said frame being in sections, the lower one of which is adapted to be moved to permit access to the window, and means for putting one section with relation to the other, the said frame and its shade-brackets permitting the swinging back of the stretched curtain and drawn-down shade without changing the relation of the shade and curtain to one another, substantially as set forth.



700,148. END-GATE FASTENER. ALBERT A. KILGUS, Clinton, Mo., assignor of one-half to Gustave C. Hayner, Clinton, Mo. Filed Mar. 14, 1900. Serial No. 93,999. (No model.)

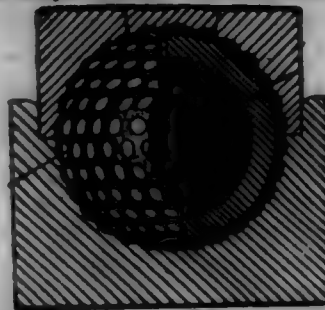


Claim.—1. Is an end-gate fastening means of the character described, the combination with the wagon side, one of the said sides having the ordinary fixed end guide-chains, the other side having its end terminating in a plate with the outer face of the end-gate, and provided with a single fixedly-held inner cleat member; of the member 6 hinged to the outer edge of the wagon side, having the fixed cleat, and adapted to swing inwardly and beyond the inner face of the wagon-body side to which it is hinged, to form a guide portion for co-operating with the fixed cleat, the end-gate section having the stay portion 2, the rod 7, detachably connected at one end to the hinged member 6, adapted to extend across the end-gate and to bear against its cleat 3, and means on the wagon-body for drawing the said rod to a locking position, said means including a crank-shaft, adapted to be automatically held to its locked position by the strain on the rod 7, substantially as shown and described.

2. The combination with the wagon-body side 1^a 1^b, the cleats 3 3, fixedly secured to the side 1, the outer end of the side 1 and the cleats 3, being slotted horizontally, the fixed cleat 4, secured to the side 1^a, and the end-gate 2; of the member 6 hinged to the end of the side member 1^b, to close inward over the end of the said side member, and to project inwardly beyond the inner side of the member 1^a to form a cleat portion to co-operate with the fixed cleat 4, the rod 7, one end of which is adapted to play in the slot formed in the members 1 and 2, said rod 7 having a hook portion 7^a, adapted to detachably engage with the member 6, and the crank-shaft 8, having a pivotal engagement with the rod 7, and pro-

vided with a handle member for adjusting it, all being arranged substantially as shown and for the purposes described.

700,144. GOLF-BALL. BRADEN KNEFTHALL, Boston, Mass., assignor to The Knefthall Manufacturing Company, a Corporation of New Jersey. Filed Apr. 15, 1900. Serial No. 108,008. (No model.)



Claim.—1. A playing-ball comprising a wear-resisting cover and a distorted core of soft rubber held under compression thereby; said core being distorted throughout in radial directions.

2. A playing-ball comprising a solid rubber spherical shell and a cover of hard, wear-resisting material thereon; said rubber shell being in a state of collapse and held under compression by said casing.

3. A playing-ball comprising a cover of plastic material and a filling held under compression thereby; said filling consisting of a solid-rubber spherical shell in a state of collapse.

4. A playing-ball comprising a cover which consists of welded segments of gutta-percha, and a filling held under compression by said shell; said filling consisting of a rubber spherical shell in a state of collapse but tending constantly to recover its normal form.

5. A playing-ball comprising a rubber spherical shell in a state of collapse, and a cover holding said shell under compression; said cover being a compound of plastic material and fabric.

6. A playing-ball comprising a cover of plastic material and a filling held under compression thereby; said filling consisting of a solid-rubber spherical shell which is collapsed to such an extent as to form substantially a solid sphere.

7. A playing-ball comprising a cover consisting of welded segments of plastic material, and a filling held under compression by said shell; said filling consisting of a rubber spherical shell collapsed to such an extent as to form a substantially solid sphere.

8. A playing-ball comprising a cover consisting of welded segments of gutta-percha, and a filling held under compression by said shell; said filling consisting of a rubber spherical shell collapsed to such an extent as to form a substantially solid sphere.

9. A playing-ball comprising a rubber spherical shell compressed to an extent to form a solid sphere, and a covering upon said sphere consisting of plastic material compounded with fabric.

10. A playing-ball comprising a wear-resisting cover and a distorted core of soft rubber held under compression thereby; said core being distorted throughout in radial directions, and forming a solid sphere.

11. A playing-ball comprising a rubber sphere compressed in bulk and a shell thereon consisting of plastic material and fibrous material, the latter being continuously wound in different directions and embedded in the plastic material.

12. A playing-ball comprising a rubber sphere compressed in bulk, and a shell thereon, said shell comprising welded segments of plastic material and a casing, the latter consisting of plastic material in which are embedded strips of fabric, and said strips being wound continuously in different directions.

13. A playing-ball comprising a rubber sphere materially compressed in bulk, and a shell holding said sphere under compression; said shell including portions of gutta-percha and fabric.

14. A playing-ball comprising a rubber sphere materially compressed in bulk, and a shell holding said sphere under compression; said shell comprising gutta-percha, fabric and collodion, the latter forming the periphery or lining of the ball.

15. A playing-ball comprising a rubber sphere materially compressed in bulk, a shell holding said sphere under compression, said shell consisting of welded segments of gutta-percha, and a casing consisting of strips of collodion and fabric wound continuously in different directions and compressed upon said gutta-percha.

16. A playing-ball comprising a springy core, a gutta-percha shell thereon, and a casing on said shell; said casing consisting of strips of collodion and fibrous material wound continuously in different directions and welded together where they cross.

17. A playing-ball comprising a soft-rubber sphere, a gutta-percha shell thereon, and a casing upon said shell consisting of strips of collodion wound continuously in different directions and welded together where crossing; fibrous material being embedded throughout said casing.

18. A playing-ball comprising a soft-rubber sphere, a gutta-percha shell thereon, and a casing upon said shell; said casing consisting in strips compounded of plastic material and fibrous material wound continuously in different directions upon said gutta-percha and welded where crossing, and said casing and gutta-percha shell being highly compressed.

19. A playing-ball comprising a core, segments of plastic material welded together upon said core, and a casing upon said segments consisting of plastic material throughout which ligaments are embedded.

700,145. CONICAL-ROLLER BEARING. JOSHUA R. LARSEN, JAMES L. PARKER, and JAMES A. JOYCE, Cleveland, Ohio. Filed Jan. 24, 1901. Serial No. 44,998. (No model.)



Claim.—1. In a roller-bearing, the combination of a lower section having an inclined wearing-surface and an annular upwardly-extending flange, an upper section having a wearing-surface inclined in the reverse direction to the wearing-surface of the lower section, said upper section having a downwardly-extending annular flange which incloses the upper portion of the flange of the lower section, a series of conical bearing-rollers arranged on the wearing-surface of the lower section and engaged by the wearing-surface of the upper section, a pin loosely mounted in central recesses provided therefor in the lower face of the upper section and upper face of the lower section respectively, a center ring carried by said pin and circumferentially recessed on its undermost face to receive transmissions on the inner ends of the central rollers, a rotative ring having apertures to receive transmissions on the outer ends of the conical rollers, and antifriction-bearings between the ends of the rollers and the rotative ring, substantially as described.

2. In a roller-bearing, the combination of a lower section having a wearing-surface and an upwardly-extending annular flange, an upper section having a wearing-surface and a downwardly-extending annular flange that surrounds the upper portion of the flange of the lower section, said upper section having a central oil-aperture, a series of circumferentially-arranged conical bearing-rollers engaged by the wearing-surfaces of the sections, a pin fitted in central recesses provided therefor in the lower face of the upper section and upper face of the lower section, a center ring mounted on said pin to receive transmissions on the inner ends of said rollers, grooved bearing-rings in said rotative ring and in the outer ends of the rollers, and antifriction-bearings in said grooved bearing-rings, substantially as described.

700,146. TURRET-LATCH. JAMES P. LAYTON, New Haven, Conn., assignor to Standard Screw Co., Chicago, Ill., a Corporation. Filed Mar. 13, 1901. Renewed Jan. 24, 1902. Serial No. 91,008. (No model.)

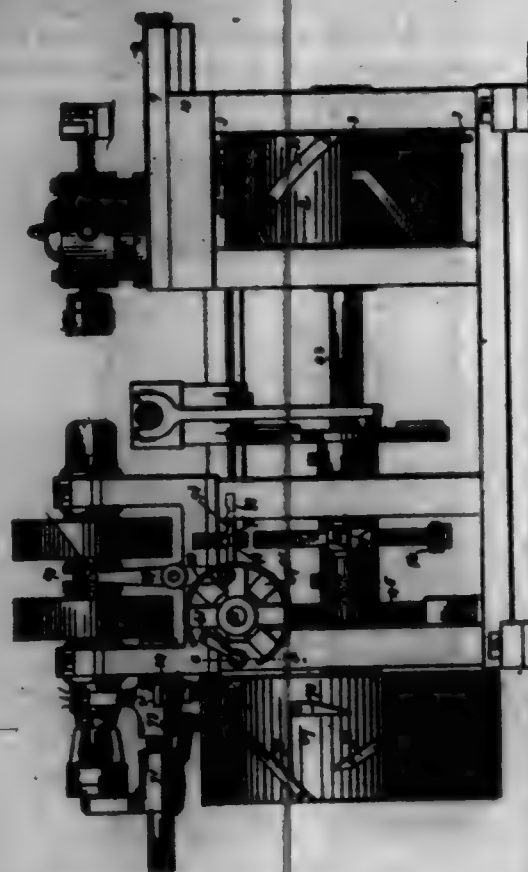
Claim.—1. In a turret-latch, the combination with the turret thereof, of means for imparting step-by-step rotary movement thereto, a locking-bolt for the turret, a bolt-retracting lever for operating the said bolt in unlatching the turret, a drum, and pins mounted in the said drum and coacting with the said lever and with the said rotating means which are arranged so that each pin operates successively upon the lever and then upon the said rotating means.

2. In a turret-latch, the combination with the turret thereof, of means for imparting step-by-step rotary movement thereto, including a star-wheel, a locking-bolt for the turret, a bolt-retracting lever provided with an arm, a drum, and pins mounted in the drum and coacting with the said arm of the said lever for retracting the bolt and unlatching the turret, and then coacting with the star-wheel for the rotation of the turret when so unlatched.

3. In a turret-latch, the combination with the turret thereof, of means for imparting step-by-step rotary movement thereto, including a star-wheel, a locking-bolt for the turret, a bolt-retracting lever provided with an arm formed upon its under face with a bevel and with a flat containing-surface, a drum, and pins mounted in the drum and coacting with the said arm of the lever for retracting the bolt and unlatching the turret, and then coacting with the star-wheel for the rotation of the turret.

4. In a turret-latch, the combination with the turret thereof, of a turret-slide formed with a deep groove, a turret-locking bolt located in the said groove, means for operating the said bolt, two tapering pins located

in the said groove upon opposite sides of the said bolt, supporting-curves mounted in the said pins, projecting below the lower edges thereof and resting upon the bottom of the said groove in which the pins are raised or lowered by means of the said curves, and pressure-curves mounted in the said slide and engaging with the pins for forcing the same laterally inward and holding them in place.



5. In a turret-latch, the combination with the main shaft thereof, of cutting instrumentalities driven by the said shaft, and differential gearing connected with the said shaft for driving the same at varying rates of speed, the said differential gearing including a revolving cup arranged in a vertical plane, a plurality of gears located within the said cup, an annular cap applied to the open end of the cup which it converts into an oil-retaining cup, and one or more studs mounted in the cup and extending through the said cup which they hold in place and which in turn assist in supporting the said studs.

700,147. SPARKING PLUG. CHARLES A. MEYER, Brooklyn, N. Y., assignor to Electric Motor, Brooklyn, N. Y. Filed Mar. 25, 1902. Serial No. 93,982. (No model.)



Claim.—1. The combination of a chambered plug having a sparking point thereon, an elongated conducting member forming the second sparking point and projected through the chamber and extending adjacent to the sparking point, and a tubular shell arranged in the chamber of the plug and spaced from the walls thereof and from the sides of said elongated member forming the second sparking point, for the purpose specified.

2. The combination of a chambered plug having a sparking point thereon, an elongated conducting member projected through the chamber and extending adjacent to the sparking point, a tubular insulating-shell arranged in the chamber of the plug and spaced from the walls thereof and from the sides of said elongated member forming the second sparking point, for the purpose specified, an insulating-tube at the base of the insulating-shell, and means for holding the said elongated conducting member snugly within the shell and tube.

3. The combination of a chambered plug having a sparking point

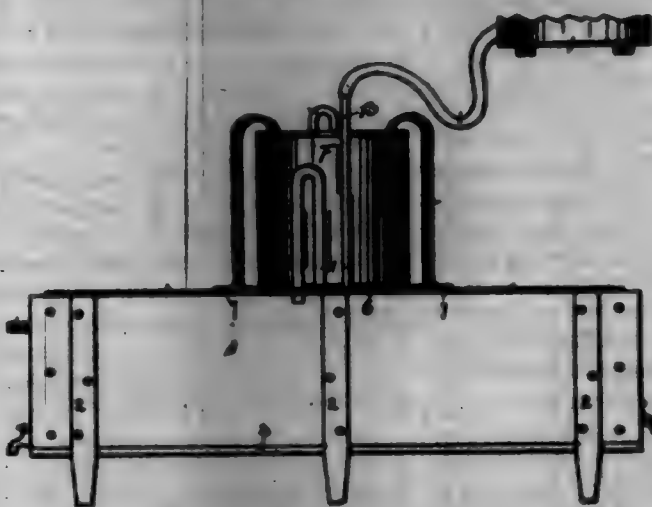
thereon, an elongated insulating member projected through the chamber and extending adjacent to the sparking point, a tubular shell arranged in the chamber of the plug and spaced from the walls thereof and from the sides of said elongated member forming the second sparking point, for the purpose specified, an insulating-tube at the base of the said insulating-shell, and means for holding the said elongated conducting member snugly within the shell and tube, said means comprising an insulated cap bearing against the plug and a nut working on the outer end of the said elongated conducting member.

4. An electric igniter, comprising an elongated member forming a sparking point, and an insulating-shell enclosing the major portion of the exposed part of said elongated member, the said shell having an open space around its outer side and between its inner side and the said elongated member.

5. The combination of a plug proper having a chamber therein and a reduced passage leading therefrom, an insulating-tube placed in the said passage and having a shell-like extension projected into the chamber of the plug and spaced from the interior walls thereof, and a rod projected through the tube and through the shell, said rod being spaced from the inner walls of the shell, for the purpose specified.

6. The combination of a plug proper having a chamber therein and a reduced passage leading therefrom, an insulating-tube placed in the said passage and having a shell-like extension projected into the chamber of the plug and spaced from the interior walls thereof, a rod projected through the tube and through the shell, said rod being spaced from the inner walls of the shell for the purpose specified, and being formed with an enlargement engaging a shoulder at the outer end of the shell, and means for exerting an outward pressure on the rod to hold the parts snugly engaged.

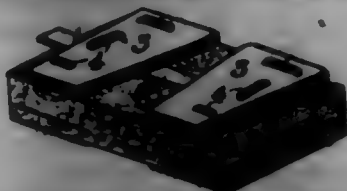
700,148. AUTOMATIC CREAM-COOLER. MARTIN E. MILLER, Omaha, Neb. Filed Feb. 12, 1902. Serial No. 98,712. (No model.)



Claim.—1. The combination with a suitable trough having an outlet, of a tank held within said trough, a water-receptacle above said tank, a siphon extending from said receptacle and emptying into said trough, a float within said water-receptacle, a cooling-coil secured to said float, one end of said cooling-coil being in connection with a suitable intake, the remaining end connected to said water-receptacle.

2. The combination with a trough, of a tank held within said trough, an exit-pipe extending from said trough, a drain-cock secured to said tank, a water-receptacle secured above said tank, a siphon extending from said water-receptacle and entering said trough, a cooling-coil within said tank both ends extending upward, one terminating in a goose-neck connected to said water-receptacle, the remaining end being in connection with the water-supply, and a float within said water-receptacle secured by means of brackets to said cooling-coil, all arranged substantially as and for the purpose set forth.

700,149. ANTICLIPPING HOOF-PAD. JOHN E. MITCHELL, Washington, D. C., assignor of one-half to Mary E. Emery, Mary A. Emery, and William Van Zandt Cox, executors and trustees of Matthew S. Emery, deceased. Filed Sept. 26, 1901. Serial No. 78,992. (No model.)



Claim.—1. An anticlipping hoof-pad, comprising a fitted oblong body, keepers fastened to the upper surface of the pad and having rearwardly-diverging adjacent edges, and a retaining-spring fastened between

the keepers and body of the pad with its extremities projecting beyond the ends of the pad, said spring allowing the pad to project below the horse's hoof, substantially as and for the purpose specified.

2. An anticlipping hoof-pad, comprising a fitted body, keepers applied to the upper surface of the body of the pad, a retaining-spring interposed between the keepers and pad and arranged to permit the pad to project below the horse's hoof, and fasteners passing through the keepers and pad and serving to secure the keepers to the pad and also serving to secure the spring between the keepers and pad.

3. An anticlipping hoof-pad, comprising a fitted body, keepers applied to the upper surface thereof, a retaining-spring held between the keepers and pad and arranged to permit the pad to project below the horse's hoof, fasteners which serve to secure the keepers to the pad and hold the spring between the keepers and pad, said fasteners being inserted through the keepers and pad and clamped against the bottom of the pad, and flange-strips connected to the bottom of the pad and covering the clamped portions of the fasteners.

700,150. POWER-INDICATOR. HERMAN MÜLLER, Leipzig, Germany. Filed Jan. 12, 1902. Serial No. 10,077. (No model.)



Claim.—1. A power-indicator, comprising a shaft to be driven, a hub on the same, a pulley and a plurality of spiral springs which are connected at their outer ends with the rim of the pulley, and at their inner ends with the hub in such a manner that the locations of the centers of gravity of the springs are equalized relatively to the axis of rotation, substantially as set forth.

2. A power-indicator, comprising a driven shaft, a hub on said shaft, a pulley and a plurality of spiral springs, the outer ends of which are connected with the pulley at diametrically opposite points, and the inner ends thereof are connected at diametrically opposite points with the hub at an angle of ninety degrees relatively to the outer ends so that the locations of the centers of gravity of the springs are equalized relatively to the axis of rotation, substantially as set forth.

700,151. MOTOR-CYCLE. WILLIAM E. EMERY, Dayton, Ohio. Filed Mar. 24, 1902. Serial No. 99,506. (No model.)

Claim.—1. The combination with a motor including a laterally-movable hollow crank-shaft and a pitman, of a pedal crank-shaft formed in two sections which are connected through the path of the pitman so that a movement of one section will result in a corresponding movement of the other section, brake members mounted respectively on the laterally-movable hollow crank-shaft and a stationary part of the motor, and means for moving the hollow crank-shaft laterally when the pedal crank-shaft is moved backward by either pedal.

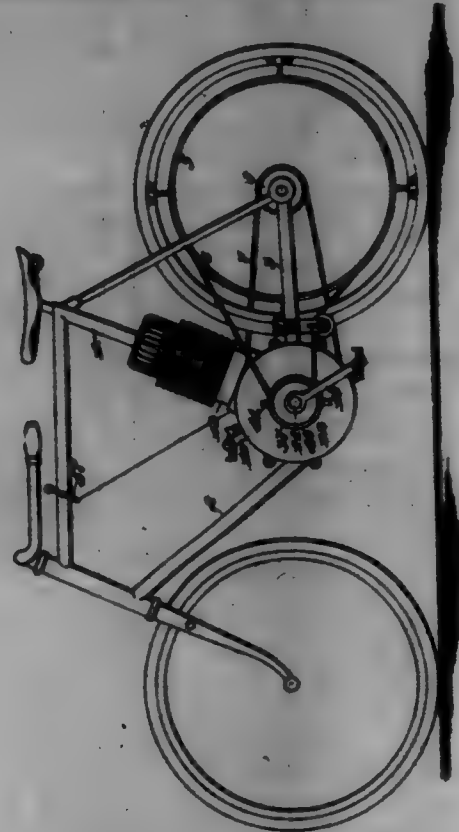
2. The combination with a motor including a laterally-movable crank-shaft, of a pedal crank-shaft concentric therewith, means controlled by the pedal crank-shaft for moving the motor crank-shaft laterally, exhaust-valve gear, make-and-break mechanism for controlling the spark, and means operated by the lateral movement of the crank-shaft for preventing the seating of the exhaust-valve and for breaking the circuit.

3. The combination with a cycle, of a motor, a driving-pedal crank-shaft, means for applying a brake to the motor controlled from the pedal crank-shaft, exhaust-valve gearing, make-and-break mechanism for controlling the spark, and means controlled by the pedal crank-shaft for preventing the seating of the valve and breaking the circuit.

4. The combination with a cycle, of a motor, means connecting the motor and the driving-wheel, a pedal crank-shaft, means connecting this latter shaft and the driving-wheel, a brake for the driving-wheel controlled from the pedal crank-shaft and a brake for the motor also controlled by said shaft.

5. The combination with a vehicle, of a motor, a starting crank-shaft independent of the motor but passing through the crank-shaft of the same and also through the path of travel of the motor crank-shaft.

6. The combination with a motor having a crank and pitman, of an independent crank-shaft and connections passing through the path of travel of the motor-crank and pitman.



7. The combination with a motor having a crank, pitman and fly-wheel, of an independent crank-shaft and connections passing through the path of travel of the motor-crank, pitman and fly-wheel.

8. The combination with a motor having a double crank and a pitman, of an independent crank-shaft and connections passing through the path of travel of the crank and pitman.

9. The combination with a motor including two fly-wheels connected by a pin to form the crank, of an independent crank-shaft and connections passing through the path of travel of the motor-crank.

10. The combination with a motor including a crank-shaft and a pitman, of an independent crank-shaft concentric with the first crank-shaft and formed in separated sections, and means connecting the sections through the path of movement of the crank and pitman.

11. The combination with a motor having a crank and crank-shaft formed of hollow shaft-sections, fly-wheels and a connecting-pin, of independent crank-shaft sections passing through the hollow sections and means connecting the independent sections through the path of travel of the crank.

12. In a motor-cycle including a motor and a starting and controlling pedal-shaft the combination of a brake forming part of the motor and controlled entirely from the pedal.

13. In a motor-cycle including a motor and a starting and controlling pedal-shaft, valve-gear operated by the motor, and means operated by the pedal-shaft for preventing the motor, when running, from feeding fuel.

14. In a motor-cycle including a motor and a starting and controlling pedal-shaft, the combination with make-and-break devices for the circuit controlling the spark, of means operated by the pedal-shaft for breaking the circuit.

15. The combination of a motor having a crank-shaft, of a pedal crank-shaft concentric therewith and formed in two sections, and means connecting the two sections so that they move together without interfering with the motor crank-shaft.

16. The combination of a motor having a crank-shaft made up of hollow shaft-sections, fly-wheels and a crank-pin, of pedal-shaft sections mounted within the hollow shaft-sections and means for connecting the pedal-shaft sections so that they move together.

17. The combination of a motor having a crank-shaft, a pedal crank-shaft concentric therewith and formed in two sections, and gearing connecting these sections through the path of the motor crank-shaft.

18. In a motor-cycle the combination with a diamond frame, of a driving-wheel journaled at the rear point of the diamond, a motor hung at the lower point of the diamond, and a pedal-shaft hung at the same point.

19. The combination with a motor including two fly-wheels connected by a crank-pin to form the motor-crank, of a pitman connected to the crank-pin, and an independent crank-shaft concentric in the motor

crank-shaft and including connections which pass through the path of the motor crank-shaft and pitman.

20. In a motor-cycle the combination with a frame, of a driving-wheel, a motor so located in the frame that the rear fork of the latter extends in a direct line between the motor crank-shaft and the driving-wheel axle, and a controlling pedal crank-shaft so mounted as to bear a similar relation to the rear fork.

21. In a motor-cycle the combination with a frame, a driving-wheel, a motor, a brake for the driving-wheel, a direct brake for the motor, a pedal crank-shaft, and means for controlling both brakes from the pedal crank-shaft.

22. In a motor-cycle the combination with a motor, of a cycle driving-wheel, a brake for the driving-wheel, make-and-break devices, and a pedal crank-shaft, connections between said shaft and brake, and means controlled by said shaft for preventing the motor feeding fuel and for breaking the electric circuit.

23. In a motor-cycle the combination with a motor, of a pedal crank-shaft and means intermediate the shaft and motor for preventing explosions in the motor at will.

24. In a motor-cycle the combination with a motor, of a pedal crank-shaft, and means intermediate the shaft and motor for preventing the opening of the exhaust-valve at will.

25. In a motor-cycle the combination with a motor, of a pedal crank-shaft and means intermediate the shaft and motor for preventing the sparking in the motor at will.

26. In a motor-cycle the combination with a motor, of a pedal crank-shaft, a direct brake for the motor and means intermediate the crank-shaft and brake for applying the same to the motor at will.

27. The combination with a motor including a crank-shaft of an independent shaft formed in two sections and mounted concentric with the crank-shaft, a sleeve mounted on the crank-pin and provided with gears and gears connecting the shaft-sections and said sleeve-gears so that the two shaft-sections move together.

28. The combination with a motor including a crank-shaft having hollow journal-sections, of an independent shaft formed in two sections which are mounted respectively in the hollow shaft-sections, a sleeve mounted on the crank-pin and carrying gears at its opposite ends and gears connecting the independent shaft-sections to the sleeve-gears.

29. The combination with a motor including a crank-shaft made up of two fly-wheels, a connecting crank-pin, and hollow journal-sections, of an independent pedal crank-shaft formed in sections and mounted in the hollow motor crank-sections, gears mounted on the pedal crank-sections, a sleeve on the crank-pin carrying gears which mesh with the sleeve-gears and a pitman with its lower end journaled on said sleeve.

30. The combination with a motor having incoiled crank and fly wheels, of a brake within the motor and applied directly to the crank-shaft, and means for operating the brake from the exterior of the motor.

31. The combination of a motor having incoiled fly-wheels, of friction-brake members mounted respectively upon the fly-wheels and the crank-casing and means for bringing the members together from the exterior of the casing.

32. The combination with a motor having a laterally-movable crank-shaft, of a brake mounted upon said shaft and brought into action by its lateral movement, and means for moving the shaft laterally.

33. The combination with a motor, of a starting-shaft for the same and means for arresting the motor when the shaft is moved backward.

34. In a motor-vehicle the combination with an explosive-motor, of a crank-shaft for starting the same, and means connected to said shaft for preventing the motor sparking when the shaft is moved backward.

35. In a motor-vehicle the combination with a motor, of a lever for starting the same, and means connected to the lever for preventing fuel being fed to the motor when said lever is moved backward.

36. In a motor-vehicle the combination with a motor, of a starting-crank, a direct brake for the motor and means connecting the crank and brake for applying the latter when the crank is moved backward.

37. In a motor-vehicle the combination with a motor, of a starting-crank for the same and means for cutting off the supply to the motor and breaking the circuit when the crank is turned backward.

38. In a motor-vehicle the combination with a motor, of a starting-crank, means intermediate the crank and motor for moving the latter forward with the crank for allowing the latter to remain stationary or move backward independently, and means for preventing explosions in the motor when the crank is moved backward.

39. The combination with a motor, of a starting crank-shaft for the same concentric with the motor crank-shaft and means intermediate the starting crank-shaft and the motor crank-shaft for communicating movement to the latter.

40. The combination with a motor, of a starting crank-shaft for the same concentric with the motor crank-shaft and means for preventing explosions in the motor controlled by the starting crank-shaft.

41. In a motor-vehicle the combination with a motor of a starting-crank for the same and means controlled by the starting-crank for preventing or allowing explosions in the motor.

42. In a motor-vehicle the combination with an explosive-motor, of means for starting said motor, and devices actuated by the starting means for controlling the explosions in the motor.

43. In a motor-vehicle the combination with an explosive-motor, of a starting means and connections for controlling the speed of the motor.

44. In a motor-vehicle the combination with an explosive-motor, of a manually-operated starting means, and devices actuated by said means for controlling the speed of the motor.

45. In a motor-cycle the combination with an explosive-motor, of a pedal crank-shaft for starting said motor and devices actuated by said crank-shaft for controlling the speed of the motor.

46. In a motor-cycle the combination with an explosive-motor, of a pedal crank-shaft for starting said motor and means actuated by said pedal-shaft for breaking the electric circuit and thus preventing sparking in the motor.

47. In a motor-cycle the combination with an explosive-motor, of a pedal crank-shaft for starting both the cycle and the motor and means actuated by said shaft for controlling the speed of the motor.

48. In a motor-cycle the combination with a motor having a crank-shaft made up of shaft-sections carrying each a fly-wheel and a crank-pin connecting said fly-wheels, of a pedal crank-shaft formed of two sections concentric with the motor crank-shaft sections, gears mounted on the inner ends of the pedal-crank-shaft sections and a sleeve journaled on the crank-pin and carrying gears at its opposite ends which mesh with the sleeve-gears.

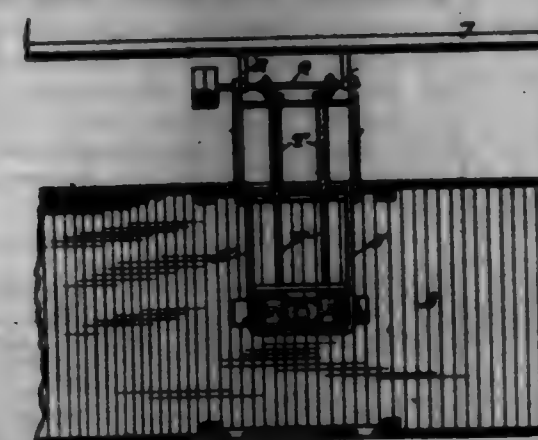
49. In a motor-vehicle the combination with a motor having a laterally-movable crank-shaft, of a brake applied to the motor by the lateral movement of said shaft and means for moving the shaft laterally at will.

50. In a motor-vehicle the combination with a motor having a laterally-movable crank-shaft, and a starting device for the motor also controlling the lateral movement of the shaft.

51. In a motor-vehicle the combination with a motor having a laterally-movable crank-shaft, means for moving the shaft laterally at will, and speed-controlling devices actuated by the lateral movement of the shaft.

52. In a motor-cycle the combination with a motor, of a driving-wheel, a pedal crank-shaft, a counter-brake on the driving-wheel, means connecting the pedal crank-shaft and counter-brake, a direct brake for the motor also controlled by the pedal crank-shaft, and means connecting the motor and driving-wheel.

700,152. CAR-LOADER. RALPH E. RUTHERFORD, Starting, II. Filed Apr. 10, 1901. Serial No. 64,222. (No model.)



Claim.—1. In a car-loader, the combination with a driving-shaft, of a main frame pivotally mounted on said driving-shaft to swing in a vertical plane, a supplemental frame slidably supported on said main frame, a horizontally-disposed rotary distributing device carried by said supplemental frame and a telescopic shaft geared to the driving-shaft and operating the distributing device, substantially as described.

2. In a car-loader, the combination with a driving-shaft, of a main frame pivotally mounted on said shaft to swing in a vertical plane, parallel hollow shafts carried by the main frame and geared to said driving-shaft, a supplemental frame slidably supported on said main frame, a horizontally-disposed rotary double-cylinder distributor carried by said supplemental frame, and shafts for operating said distributor and telescoping in said hollow shafts, substantially as described.

3. In a car-loader, the combination with a driving-shaft, of a main frame pivotally mounted on said shaft to swing in a vertical plane, a supplemental frame slidably supported on said main frame, a horizontally-disposed rotary distributing device carried by said supplemental frame, a telescopic shaft geared to the driving-shaft and operating the distributing

device, and means for swinging the frame from a horizontal to a vertical position, substantially as described.

700,153. CAR-LOADER. RALPH E. RUTHERFORD, Starting, II. Filed Apr. 10, 1901. Serial No. 64,223. (No model.)



Claim.—1. In a car-loader, a distributing device comprising a cylinder and a discharge-spout connected with said cylinder on its periphery by a hinged joint and adjustable in an opening therein, substantially as described.

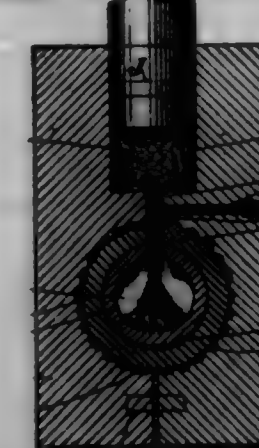
2. In a car-loader, a distributing device comprising a cylinder and a discharge-spout hinged at one end to the periphery of the cylinder and having its bottom curved to correspond with the periphery of the cylinder, substantially as described.

3. In a car-loader, a distributing device comprising a cylinder, a discharge-spout hinged on the periphery of said cylinder and adjustable in an opening therein, said spout consisting of a curved bottom and straight sides arranged to be adjusted within the sides of the cylinder, substantially as described.

4. In a car-loader, a distributing device comprising a cylinder, and oppositely-arranged discharge spouts hinged on the periphery of said cylinder and adjustable in openings therein, substantially as described.

5. In a car-loader, the combination with a driving-shaft, of a distributing device mounted thereon and comprising a cylinder provided with receiving-openings on opposite sides of the driving-shaft, oppositely-arranged discharge-spouts hinged on the periphery of said cylinder and adjustable in openings therein, swinging covers for the side receiving-openings, and a spider mounted on the shaft within the cylinder and provided with blades operating therein, substantially as described.

700,154. MANUFACTURE OF GOLF-BALLS. FRANK H. RUSSELL, Hartford, Conn., assignor to The Russell Manufacturing Company, a Corporation of New Jersey. Filed Mar. 17, 1902. Serial No. 64,224. (No model.)



Claim.—1. A process in producing playing-balls, consisting in incasing a hollow sphere of rubber in a gutta-percha casing and then forcing a fluent mass into said sphere.

2. A process in producing playing-balls, consisting in covering a yielding sphere with a casing of gutta-percha, forcing a fluent mass into the interior of said sphere and hardening said mass to form a core.

3. A process in producing playing-balls, consisting in covering a hollow sphere of soft rubber with a gutta-percha casing, reducing material to a fluent condition, forcing it into said sphere so as to expand the latter, and causing said material to harden so as to form a core.

4. A process in producing playing-balls, consisting in incasing a soft-rubber envelop in gutta-percha, and expanding both envelop and casing by the injection of molten material into the latter.

5. A process in producing playing-balls, consisting in providing a rubber sphere with a gutta-percha casing, injecting heated gutta-percha into said casing, and causing said injected gutta-percha to harden and form a core.

6. A process in producing a playing-ball, consisting in providing a highly-yielding sphere with a casing of gutta-percha, heating said casing, injecting plastic material into said sphere to an extent to expand both said sphere and said casing, causing said sphere during such injection so as to determine the shape of the ball, and causing said injected material to harden and form a core.

7. A process in producing a playing-ball, consisting in providing a hollow elastic sphere with a gutta-percha casing, forcing plastic material into said sphere to such an extent as to expand both said sphere and said casing and cause said sphere to be compressed between said injected material and said casing, and maintaining the pressure upon said injected material until both the casing and the injected material harden.

8. A process in producing a playing-ball, consisting in heating a rubber sphere with gutta-percha, placing the ball thus formed in a mold, heating the gutta-percha casing, and forcibly injecting molten material into said sphere to an extent to compress the gutta-percha casing and place said sphere under compression between said injected material and said casing.

9. A process in producing a playing-ball, consisting in including a hollow rubber sphere in a casing of gutta-percha, including said casing in a larger mold, forcibly injecting fluid material into said sphere to an extent to expand both said sphere and said casing to the limits of the mold, and also to compress said sphere between said injected material and said casing, and hardening said casing and said injected material while the pressure upon the latter is maintained.

10. A process in producing a playing-ball, consisting in loosely including a hollow rubber sphere in a casing consisting of at least partially of gutta-percha, including said casing loosely in a larger mold, forcibly injecting heated gutta-percha into said sphere to an extent to expand both said sphere and said shell to the limits of said mold, and maintaining the pressure upon said gutta-percha casing until both the latter and said casing become hard.

11. A process in producing a playing-ball, consisting in forming a hollow soft-rubber sphere with a vent, heating said sphere in a gutta-percha casing also provided with a vent, inserting a funnel through said casing and into said sphere, including said casing in a larger mold, heating said casing, heating gutta-percha, injecting said gutta-percha through said funnel into said sphere and forcing out the air through said vent, subjecting the gutta-percha to pressure to an extent to expand both said sphere and said casing to the limits of the mold, preventing the escape of gutta-percha through said vent during the application of pressure, causing the gutta-percha and the gutta-percha casing both to harden while the pressure is maintained, withdrawing the funnel, and plugging the vent.

700,155. MANUFACTURE OF GOLF-BALLS. FRANK E. KIMBALL, Hartford, Conn., assignor to the Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 17, 1898. Serial No. 18,567. (No model.)



Claim.—1. A process in producing playing-balls, consisting in including a hollow sphere of rubber in a harder shell and then forcing a fluent mass into said sphere.

2. A process in producing playing-balls, consisting in covering a yielding sphere with a shell of plastic material, forcing a fluent mass into the interior of said sphere and hardening said mass to form a core.

3. A process in producing playing-balls, consisting in covering a hollow sphere of soft rubber with a shell, reducing material to a fluent condition, forcing it into said sphere so as to expand the latter, and causing said material to harden so as to form a core.

4. A process in producing playing-balls, consisting in providing a soft-rubber envelope with a plastic shell, and expanding said envelope and shell by the injection of molten material.

5. A process in producing playing-balls, consisting in providing a rubber sphere with a plastic shell, injecting heated gutta-percha into said envelope, and causing said gutta-percha to harden and form a core.

6. A process in producing a playing-ball, consisting in providing a highly-yielding sphere with a shell of plastic material, heating said shell, injecting plastic material into said sphere to an extent to expand both said sphere and said shell, causing said sphere during such injection so as to determine the shape of the ball, and causing said injected material to harden and form a core.

7. A process in producing a playing-ball, consisting in providing a hollow elastic sphere with a shell, forcing plastic material into said sphere to such an extent as to expand both said sphere and said shell and cause said sphere to be compressed between said injected material and said shell, and maintaining the pressure upon said injected material until both the shell and the injected material harden.

8. A process in producing a playing-ball, consisting in heating a rubber sphere with celluloid, placing the ball thus formed in a mold, heating the celluloid, and forcibly injecting molten material into said sphere to an extent to compress the celluloid and place said sphere under compression between said injected material and said shell.

9. A process in producing a playing-ball, consisting in including a hollow rubber sphere in a shell of celluloid, including said shell in a larger mold, forcibly injecting fluent material into said sphere to an extent to expand both said sphere and said shell to the limits of the mold, and also to compress said sphere between said injected material and said shell, and hardening said shell and said injected material while the pressure upon the latter is maintained.

10. A process in producing a playing-ball, consisting in including a hollow rubber sphere in a plastic shell, including said shell in a larger mold, forcibly injecting heated gutta-percha into said sphere to an extent to expand both said sphere and said shell to the limits of the mold, and causing said shell and said injected material to harden while the pressure upon the latter is maintained.

11. A process in producing a playing-ball, consisting in loosely including a hollow rubber sphere in a shell consisting of at least partially of celluloid, including said shell loosely in a larger mold, forcibly injecting heated gutta-percha into said sphere to an extent to expand both said sphere and said shell to the limits of said mold, and maintaining the pressure upon said gutta-percha shell until both the latter and said shell become hard.

12. A process in producing a playing-ball, consisting in forming a hollow soft-rubber sphere with a vent, heating said sphere in a celluloid shell also provided with a vent, inserting a funnel through said shell and into said sphere, including said shell in a larger mold, heating said shell, heating gutta-percha, injecting said gutta-percha through said funnel into said sphere and forcing out the air through said vent, subjecting the gutta-percha to pressure to an extent to expand both said sphere and said shell to the limits of the mold, preventing the escape of gutta-percha through said vent during the application of pressure, causing the gutta-percha and the celluloid shell both to harden while the pressure is maintained, withdrawing the funnel, and plugging the vent.

700,156. DRAFTSMAN'S SCALE. ROBERT J. BROWN, Athol, Mass., assignor to The L. S. Starrett Company, Athol, Mass., a Corporation of Massachusetts. Filed Apr. 5, 1900. Serial No. 11,568. (No model.)



Claim.—1. The improved sliding scale, comprising the body A having a middle portion graduated at the edges, and blank or ungraduated portions at the ends, and the slide B projecting centrally and equidistantly from said blank portions at each end of said scale, substantially as set forth.

2. The draftsman's sliding ruler or scale comprising a flattened body having a central graduated portion and blank or ungraduated portions at the ends, and transverse studs not in perforations in said blank portions and extending laterally and equidistantly therefrom on each side of said ruler, substantially as set forth.

3. A draftsman's ruler or scale comprising a flattened body having an intermediate portion graduated at the edges and a blank or ungraduated space at each end, and transverse studs passing through central perforations in said ungraduated spaces and extending laterally upon each side of said ruler, to support the same in an inclined position, substantially as set forth.

4. A draftsman's sliding ruler or scale, comprising a flattened body

having graduated edges and perforated at each end midway between said edges, and with rigid supporting studs or pins inserted in each perforation and extending outwardly on each side of said body to a distance equal to about half the width of the ends, so as, when used either side up, to maintain either edge in contact with the work by gravity, substantially as set forth.

700,157. WELLSHOOT OR OTHER INCANDESCENT BURNER. THOMAS J. BURR, Philadelphia, Pa., assignor to Wellschoot Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Nov. 18, 1891. Serial No. 25,394. (No model.)



Claim.—1. The combination in an incandescent burner of a rigid support, a flat spiral spring having its outer convolution attached to said support, a weighted burner-head supported and carried by the inner convolution of the spring, and a connection for supplying gas to said burner-head, substantially as described.

2. The combination in an incandescent burner, of a burner-head provided with a weight, a flat spiral spring which normally supports and carries the burner-head and retains its general transverse shape, and a tubular connection for supplying gas to said burner-head, substantially as described.

3. The combination in an incandescent burner, of a terminal spring-supported burner-head, and means supported independently of said spring for supplying a mixture of air and gas to said head, and a yieldingly-supported follower for said burner-head, substantially as described.

4. The combination in an incandescent burner, of a burner-head, a flat spiral spring for supporting and carrying said head, a Bunsen tube, and a yieldingly-supported follower for the burner-head, substantially as described.

5. The combination of a spring-supported burner-head and a yieldingly-supported follower, substantially as described.

6. The combination in an incandescent burner, of a rigid support, a flat spiral spring having its outer convolution attached to said support, a weighted burner-head supported and carried by the inner convolution of the spring, and a Bunsen tube extending into the base of said burner-head, substantially as described.

7. The combination in an incandescent burner, of a rigid support, a flat spiral spring, a weighted burner-head suitably supported by said spiral, a Bunsen tube extending into the base of said burner-head, and a yieldingly-supported follower for the burner-head, substantially as described.

8. The combination in an incandescent burner, of a rigid support provided with a groove, a flat spiral spring having its outer convolution seated in said groove, a burner-head carrying a mantle, a heavy body secured to the base of the burner-head and supported and carried by the inner convolution of the spring, and a connection for supplying gas to the burner-head, substantially as described.

9. The combination in an incandescent burner, of a weighted burner-head, a mantle carried thereby, a Bunsen tube extending into the base of the burner-head, a terminal spring supporting said burner-head and a yieldingly-supported follower for the burner-head, the arrangement being such that the burner-head is normally contained in axial relation to the spring, substantially as described.

10. The combination in an incandescent burner, of a mantle, a burner-head constructed to carry the mantle, a heavy body secured to the base

of said burner-head, a peripherally-contained flat spiral spring the inner convolution of which carries said heavy body and constitutes its sole support, and a Bunsen tube extending into the burner-head, substantially as described.

11. The combination in an incandescent burner, of a mantle, a burner-head constructed to carry the mantle, a heavy body secured to the base of said burner-head, a flat spiral spring the inner convolution of which carries said heavy body and constitutes its sole support, a Bunsen tube extending into the burner-head, and a spring-pressed follower for the burner-head, substantially as described.

12. The combination of a burner-head having a mantle, a weight constructed to carry the burner-head, a suitable casing having an annular groove or cut, a flat spiral spring whereof the outer convolution takes into said groove and whereof the inner convolution contains said weight, a connection for supplying a mixture of air and gas to the burner-head, and a spring-pressed follower, substantially as described.

13. The combination of a spring-supported burner-head, a spring-supported follower, and a loose lip-and-groove connection between the two, substantially as described.

700,158. TRUNK-STRAP. ORVILLE A. STUBBS, Norfolk, Va., assignor, by direct and mesne assignments, of two-thirds to Samuel E. Greene, Norfolk, Va. Filed July 20, 1891. Serial No. 70,008. (No model.)

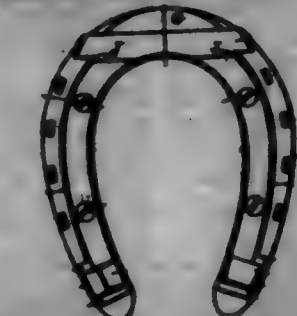


Claim.—1. In combination, a lever member provided at one end with a recess, a strap fastened to the opposite end of the lever member, a catch member mounted upon the end portion of the strap fastened to the lever member and having a hook-shaped projection to engage fit within the above-mentioned recess of the lever member and positive interlocking means between the recessed end of the lever member and the hooked end of the catch member to secure the lever member when folded upon the catch member, substantially as specified.

2. In combination, a lever member having a recess at one end, and a notch and inner shoulder at the outer side of the said recess, a strap having an end portion fastened to the opposite end of the lever member, and a catch member mounted upon the end portion of the strap fastened to the lever member and having a hook-shaped projection to engage fit within the above-mentioned recess at the outer end of the lever member, said hook-shaped projection having a transverse slot for the passage of the strap, the latter passing through the notch at the outer side of the said recess, substantially as set forth.

3. The herein-described fastener comprising a lever member consisting of side bars, an intermediate and a terminal cross-bar, a plate connected to the upper or outer edges of the side bars and having a transverse slot opposite the intermediate cross-bar, the outer end of the lever member having a recess, an outer side of the recess having a notch and inner shoulder, a strap having an end portion folded around the terminal cross-bar and having its opposite end portion adjustably connected with the intermediate cross-bar, and a catch member consisting of a plate having a transverse slot at one end and a hook-shaped projection at its opposite end, and formed at its outer side with a transverse slot and at its inner side with a straight shoulder having an opening to receive the hook-shaped end of the lever member, substantially as set forth.

700,159. HORSESHOE. CHRISTIAN STRONG, Trenton, N. J. Filed Mar. 4, 1898. Serial No. 56,000. (No model.)



Claim.—1. In a duplex horseshoe, the hoof-plate having a downward-extending rib or flange formed by a single continuous web extending entirely along the inner edge of said hoof-plate, along the heel ends, thence forwardly along the outer edges, thence inwardly to form shoulders or ribs, and thence forwardly, intermediate between the inner and outer edges of the flanks of said hoof-plate, substantially as set forth.

3. The hoof-plate having a downward-extending rib or flange formed by a single continuous web extending entirely along the inner edge of said hoof-plate, along the heel ends, thence forwardly along the outer edges, thence inwardly to form shoulders or offsets, and thence forwardly, immediately between the inner and outer edges of the flanks of said hoof-plate to terminal points which are in a line with that part of the said rib or flange which is located at the extreme toe end of the inner edge of the said hoof-plate, substantially as set forth.

4. The hoof-plate having the downward-extending rib or flange formed by a single continuous web extending entirely along the inner edge and heel ends of said hoof-plate, thence forwardly along the outer edges, thence inwardly to form shoulders or offsets, and thence forwardly, these parts of said rib or flange which are located at the heel ends, and which form the shoulders or offsets being thickened or reinforced, substantially as and for the purpose set forth.

5. The hoof-plate having the downward-extending rib or flange formed by a single continuous web extending entirely along the inner edge and heel ends of said hoof-plate, thence forwardly along the outer edges, thence inwardly to form shoulders or offsets, and thence forwardly to points on a line with that part of the said rib or flange which is located at the extreme toe end of the inner edge of said hoof-plate, the latter being also provided at its extreme toe end with a downward-extending leg, in combination with the wear-plate having heel-calls extending beyond the outer edges of its flanks, and a toe-call the ends of which extend beyond the flanks of said wear-plate, substantially as and for the purpose set forth.

700,160. DENTAL MALL. JAMES W. TRAYNOR, San Francisco, Cal. Filed Jan. 25, 1902. Serial No. 91,160. (No model.)



Claim.—1. A device of the class described consisting of a pair of collets, a tool-holder having a portion thereof movable through said collets, an armature slidably mounted on said holder and in said collets and electrical connection.

2. A device of the class described consisting of aligned collets, a tool-holder movable in said collets, an armature slidably mounted on said holder and yieldingly held in said collets, and electrical connections so that movement of the holder in opposite directions will alternately energize said collets.

3. A device of the class described consisting of a collet, a tool-holder, electrical contact devices operated by movement of said holder, and an armature slidable on said tool-holder and adapted to effect said holder for the purpose set forth.

4. A device of the class described consisting of collets, a tool-holder protruding from said collets, a pin passing through said holder, thimbles encircling said holder and on opposite sides of said pin, and springs adapted to bear on said thimbles and return said pin to a normal position, and an armature in said collets and electrically connected to effect said holder.

5. A device of the class described consisting of collets, a tool-holder, a rod on said holder, contact devices in the path of said rod, a spring-yoke adapted to removably engage said contact devices, and electrical connections between the several parts.

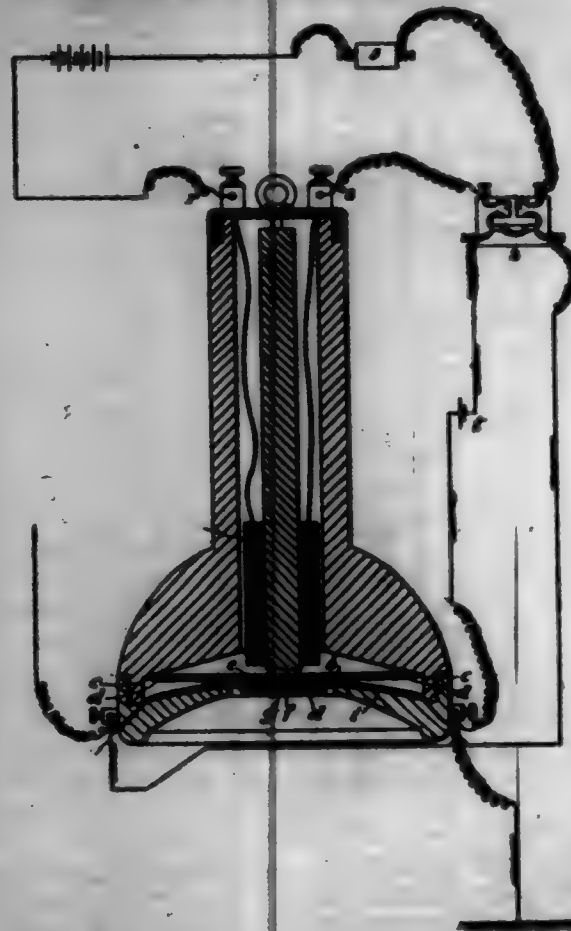
6. A device of the character described, consisting of collets, a tool-holder having a portion thereof movable through said collets, electrical contact devices to meet with said collets, a yielding element between said contact devices movable by the said tool-holder to alternately energize the collets, and an armature slidable on the tool-holder, and electrical connections.

7. In a device of the character described, the combination with a pair of collets, a tool-holder movable through said collets, pistons arranged apart upon the tool-holder, an armature slidable within the said collets and adapted to engage the said pistons, and electrical connections.

8. A device of the class described, consisting of aligned collets, a tool-holder, an armature operated by said collets and having a movement independent of the said tool-holder, electrical means for energizing

said collets and means whereby the movement of the said holder will cause the said collets to be energized alternately.

700,161. TELEPHONE RECEIVER FOR WIRELESS SIGNAL APPARATUS. THOMAS TOSCANI, Geneva, Switzerland, assignor to Paul Galt, Geneva, Switzerland. Filed May 24, 1902. Serial No. 17,702. (No model.)



Claim.—1. In a telephonic signal-receiving apparatus for Hertzian rays, the combination with the electromagnet employed therein, of an armature, a disk of insulating material connected to but insulated from said armature and having a recess therein, coating powder retained in said recess, electrical conductors in contact with said coating powder and binding-posts to which their ends are connected, an electric circuit with terminals connected to the electromagnet, a relay and an electric circuit in which the relay is embodied with terminals connected to the binding-posts, and an aerial line and a line to ground also connected to said binding-posts substantially as and for the purpose specified.

2. In a telephonic signal-receiving apparatus for Hertzian rays, the combination with the electromagnet employed therein, of a movable diaphragm comprising the armature of the electromagnet, a disk of insulating material provided with a centrally-placed recess and connected to and insulated from the said diaphragm, metallic coating powder placed within said recess and means for retaining the same therein, electrical conductors in contact with said coating powder, binding-posts to which the ends of said conductors are secured, an aerial wire connected to one binding-post and a ground connection to the other binding-post, a battery, a relay, and electrical connections comprising a circuit whose terminals are said binding-posts, a battery and a recorder in circuit with the electric magnet and which circuit is closed by said relay, substantially as and for the purpose set forth.

700,162. HYDRAULIC CRANE. EDGAR C. WILLY, Bedford, Va., assignor of two-thirds to Henry E. McWane, Lynchburg, Va., and George L. Carter, Bristol, Tenn. Filed Mar. 1, 1902. Serial No. 6,905. (No model.)

Claim.—1. In a motive-fluid crane, the combination with a jib having a trolley, of a series of motor mechanisms carried by the crane-mast, said motor mechanisms comprising means for respectively swinging the crane on its vertical axis, lifting the load, and operating the trolley, common means for distributing the motive-agent supply to all of the motors, and individual controlling means for each motor.

2. In a motive-fluid crane, the combination with a jib having a trolley, of a common distributing valve-casing, a series of motor mechanisms carried by the mast and each having its supply and exhaust connected with said valve-casing, a load-lifting mechanism operable by one of said

motors, and means for swinging the jib and for operating the trolley, connected individually with the other motors, substantially as set forth.



3. In a motive-fluid crane, the combination with a jib carrying a trolley, of a load-lifting mechanism, a crane-swinging mechanism carried by the mast, a trolley-operating mechanism also carried by the mast, a main valve constituting a single source of supply to the motors of said load-lifting mechanism, the crane-swinging mechanism, and the trolley-operating mechanism, and operable to control directly the motor of the load-lifting mechanism, and independently-operable valves between said main valve and the motors for the crane-swinging and trolley-operating mechanisms, substantially as described.

4. In a motive-fluid crane, the combination with a jib carrying a trolley, of a main controlling-valve having a distributing-chamber and a single exhaust-passage, a load-lifting mechanism carried by the mast and having a motor which has its supply and exhaust connections controlled by the main valve, a crane-swinging mechanism also carried by the mast and including a motor which is connected with the distributing-chamber and exhaust of the main valve, and a trolley-operating mechanism also carried by the mast and having a motor likewise connected with the distributing-chamber and the exhaust of the main valve, the crane-swinging motor and the trolley-operating motor being controllable by individually-operable valves, substantially as set forth.

5. In a motive-fluid crane, the combination with the jib and the rotatable mast, of a series of motor mechanisms carried by the mast and comprising means for respectively swinging the crane on its vertical axis, lifting the load, and operating the trolley, a common distributing valve-casing connected with the several motor mechanisms and also carried by the mast, individual controlling means for each motor, and a single motive-fluid induction-pipe operatively connected with the said valve-casing, the pipe and the valve-casing being capable of relative rotation to communicate themselves in the turning movement of the mast, substantially as set forth.

6. In a motive-fluid crane, the combination with the rotatable mast, of a series of motor mechanisms mounted on and carried by the mast and comprising means for respectively swinging the crane on its vertical axis, lifting the load, and operating the trolley, a field-supply for all of said mechanisms, including a single distributing-casing having a single exhaust-passage, a controlling-valve arranged within the distributing-casing, a single motive-fluid induction-pipe communicating with said casing, and an automatic relief-valve also arranged in the same casing with said controlling-valve and interposed between the induction-pipe and the single exhaust-passage, substantially as set forth.

7. In a motive-fluid crane, the combination with the rotatable mast, of a series of motor mechanisms carried by the rotatable mast, and comprising means for respectively swinging the crane on its vertical axis, lifting the load, and operating the trolley, a common field-supply for all of said mechanisms, including a single distributing-casing, an individual controlling-valve for each motor mechanism, and an automatic relief-valve common to all of the controlling-valves of the system and arranged within the said distributing-casing, substantially as set forth.

8. In a motive-fluid crane, the combination with the jib and the rotatable mast, of a series of motor mechanisms carried by the rotatable mast and comprising means for respectively swinging the crane on its vertical axis, lifting the load, and operating the trolley, a common field-supply for all of said mechanisms, including a single distributing-casing, an individual controlling-valve for each motor mechanism, and an automatic relief-valve common to all of the controlling-valves, substantially as set forth.

9. In a motive-fluid crane, the combination with the rotatable mast, of a series of motor mechanisms carried by the mast and comprising means for respectively lifting the load, swinging the crane on its vertical axis, and operating the trolley, a single distributing valve-casing, a valve mounted in said casing for controlling the load-lifting mechanism, a relief-valve also arranged in said casing between the induction and exhaust ports, and separate valve connections between said distributing valve-casing and the motor mechanisms respectively for swinging the crane and operating the trolley, substantially as set forth.

10. In a motive-fluid crane, the combination with the horizontal stationary base, of an axially-rotatable crane-mast surmounting the base, a single upright crane-swinging motor mounted on and carried by the mast above the horizontal plane of the base, said crane-swinging motor having tackle connections respectively with the mast and with said stationary base, substantially as set forth.

11. In a motive-fluid crane, the combination with the stationary base, of an axially-rotatable mast surmounting the base, a single upright crane-swinging motor carried by the mast at a point above the stationary base, said motor comprising a double-acting cylinder, and a piston having tackle connections at opposite ends respectively with the mast and the stationary base, other mechanisms for respectively lifting the load and operating the trolley, and a common casing for distributing the motive-agent supply to the controlling valve-casings of all of the motors, substantially as set forth.

12. In a motive-fluid crane, the combination with the stationary base, and an axially-rotatable crane-mast surmounting the base, of a single upright crane-swinging motor mounted and supported directly on the mast at a point above the stationary base, the said motor comprising a cylinder, a piston having its rod extending through both ends of the cylinder, and tackle mechanism operatively connected with both ends of the piston-rod and having cables fastened respectively to the mast and to the stationary base, and means for controlling the admission and exhaust of the motive fluid to and from the cylinder, substantially as set forth.

13. In a motive-fluid crane, the combination with a stationary base, and a rotatable mast mounted thereon, of a single crane-swinging motor mounted on and supported by the rotatable mast, and separate cables respectively connected with opposite ends of the motor piston-rod, and also connected with the base.

14. In a motive-fluid crane, the combination with the stationary base, and an axially-rotatable mast arranged thereover, of a pair of spaced tiller-cherries bearing a fixed relation to each other and offset from one side of the mast at the lower end thereof, said cherries being arranged in close relation to each other and having the lower portions of their peripheries overhanging the periphery of the base and located in close proximal relation thereto, and a single crane-swinging motor supported directly upon and carried by the rotatable mast and having a pair of separate haulage-cables connected with the opposite ends of the motor piston-rod passing over the separate tiller-cherries, secured fast at their terminals to the stationary base, and extending respectively in opposite directions around the periphery of the latter, substantially as set forth.

15. In a motive-fluid crane, the combination with the stationary base, and an axially-rotatable mast arranged thereover, of a pair of adjacent, reversely-inclined tiller-cherries on the rotatable mast bearing a fixed relation to each other and offset from one side of the mast at the lower end thereof, said cherries being held in proximal relation to and having the lower portions of their peripheries overhanging and adapted to traverse the periphery of the said stationary base, and a single crane-swinging motor also carried by the mast and having a pair of separate haulage-cables connected with opposite ends of the piston-rod thereof and respectively passing around the separate tiller-cherries, and extending in opposite directions about the stationary base and attached directly to the latter, substantially as set forth.

16. In a motive-fluid crane, the combination of a stationary horizontal base having a peripheral groove, an axially-rotatable mast extending upward from the center of the base, a pair of adjacent reversely-inclined tiller-cherries carried by the rotatable mast and bearing a fixed relation to each other and offset from one side of the mast, at the lower end of the latter, said pair of cherries being in proximal relation to and having the lower portions of their peripheries overhanging the grooved periphery of the stationary base, and a single crane-swinging motor carried by the mast above the pair of cherries, and including separate and independent haulage-cables connected with opposite ends of the motor piston-

red, said separate cables being respectively attached to the mast and to the stationary beam, and also respectively passing around the idler-sheaves, so as to extend in opposite directions about the beam, substantially as set forth.

17. In a motive-fluid crane, the combination with the mast, the jib, and the trolley on the jib, of a plurality of motor mechanisms carried by the rotatable mast comprising means for respectively swiveling the crane on its vertical axis, lifting the load, and operating the trolley, the trolley-operating motor mechanism, having a double-acting piston, tackle connections between opposite ends of the piston-rod and the trolley, a motive-fluid-distributing device common to the several mechanisms, a four-way valve, and connections between said four-way valve and the motor-cylinders of the trolley-operating motor mechanism, substantially as set forth.

18. In a motive-fluid crane, the combination with the mast and jib, and a trolley on the jib, of a main controlling-valve having a distributing-chamber and a single exhaust, an induction-pipe operatively related to said main controlling-valve, an exhaust-pipe leading through the mast from the main controlling-valve, a lead-lifting mechanism carried by the mast and having its motor connected with said valve, a crane-swiveling motor carried by the mast and a trolley-controlling motor carried by the mast, and independent controlling-valves communicating with the distributing-chamber and exhaust of the main controlling-valve, and said valves also having operative connections with the crane-swiveling motor and the trolley-controlling motor, respectively, substantially as set forth.

19. In a motive-fluid crane, the combination with a rotatable mast, a jib carried thereby and a trolley movable on the jib, of a series of motors mounted on and carried by the mast, said motors comprising means for respectively swiveling the crane on its vertical axis, lifting the load, and operating the trolley, means for supplying motive power to all of the motors, and individual controlling means for each motor.

20. In a motive-fluid crane, the combination with the mast, and the jib having a trolley, three motors mounted on and carried by the mast, said motors each including essentially a rigidly-mounted cylinder, a piston, a valve and cable connections, one of the motors serving to swing the crane on its vertical axis, another acting to lift the load, and the third for operating the trolley, means for distributing a motive agent to the cylinders of each of the motors, and individual controlling means for each motor.

21. In a motive-fluid crane, the combination with a mast, and a jib and trolley carried thereby, of a series of motors comprising cylinders and pistons disposed vertically alongside the mast and supported thereon, said motors comprising means for respectively swiveling the crane on its vertical axis, lifting the load, and operating the trolley, and means for distributing a motive agent to each of the motor-cylinders, and controlling means for each motor.

22. In a motive-fluid crane, the combination with a rotatable mast, a jib carried thereby, and a trolley arranged to traverse the jib, of a double-acting motor comprising a cylinder mounted on the mast, a piston-rod, separate cables connected with opposite ends of the piston-rod and each having one end connected to a fixed part of the crane, and its opposite end connected with the trolley, and other motors also mounted on the mast, respectively for turning the mast and lifting the load.

700,168. WASTE-OIL-FILTERING APPARATUS. JOHN W. EVANS, Los Angeles, Cal., assignor of one-half to George A. Burwell, Jr., Denver, Colo. Filed Aug. 15, 1901. Serial No. 73,142. (No model.)



Claim.—1. In an oil-filter, the combination with an outer casing, provided with a flange surrounding the same on the inside, a suitable dis-

tance above its bottom, of a cushion supported by said flange, a receptacle resting on said cushion and comprising a bottom having a central opening, and an outer strainer portion, a stand-pipe whose lower extremity is open, said stand-pipe engaging said bottom and surrounding the central opening therein, a quantity of filtering material placed inside the receptacle, a strainer surrounding the stand-pipe and supported on the top of the receptacle, and a receptacle fitted into the upper part of the casing and communicating with the stand-pipe, the arrangement being such that a chamber for the filtered oil is left in the casing between the upper and lower receptacles.

2. The combination with an outer casing, surrounded by a flange on the inside, the flange being located a suitable distance above the bottom of the casing, of a cushion supported by said flange, a receptacle resting on said cushion and containing filtering material, a portion of the bottom of the receptacle consisting of a strainer, a strainer covering the top of the receptacle, a stand-pipe passed through the filter-receptacle said pipe being open at the bottom and communicating with the space below said receptacle, an enlargement attached to the top of the stand-pipe and fitted into the upper part of the casing, a strainer covering the top of the stand-pipe, filtering material located in the stand-pipe enlargement above the top of the stand-pipe, and a pipe communicating with the chamber in the bottom of the casing for the introduction of steam for the purpose of forcing out the filtered oil, the arrangement being such that there is a chamber for the filtered oil between the enlargement at the top of the stand-pipe and the filter surrounding its lower portion.

3. In an oil-filter, the combination with a casing, of a stand-pipe located therein, a funnel fitted into the casing and connected with the top of the stand-pipe, a filter surrounding the lower part of the stand-pipe and located a suitable distance above the bottom of the casing a plate located below the lower extremity of the stand-pipe, and suspended from the filter, a chamber for the filtered oil being left between the filter and the funnel, the arrangement being such that the oil poured into the funnel, passes downward through the stand-pipe and up through the filter in said chamber.

4. In an oil-filter, the combination with an outer casing of a cushion extending around the inside of the casing and supported thereon a suitable distance above its bottom, a filter resting on said cushion, a stand-pipe passed through the filter and communicating with the chamber below the latter, and a funnel fitted into the casing and communicating with the top of the stand-pipe, a chamber for the filtered oil being left around the stand-pipe between the funnel and the filter, the arrangement being such that the oil poured into the funnel passes through the stand-pipe into the chamber below the filter, and is forced through the filter into the chamber above, by the column of liquid in the stand-pipe, substantially as described.

5. In an oil-filter, the combination with a casing, a stand-pipe located therein and provided at the top with a funnel-shaped enlargement fitted into the casing, a filter surrounding the lower part of the stand-pipe, a chamber for the pure oil being left between the filter and the funnel, a plate attached to the filter below the lower extremity of the stand-pipe and a steam-pipe passed through the stand-pipe and terminating a short distance above the said plate whereby the steam is deflected outwardly as it enters the chamber below the filter.

REISSUES.

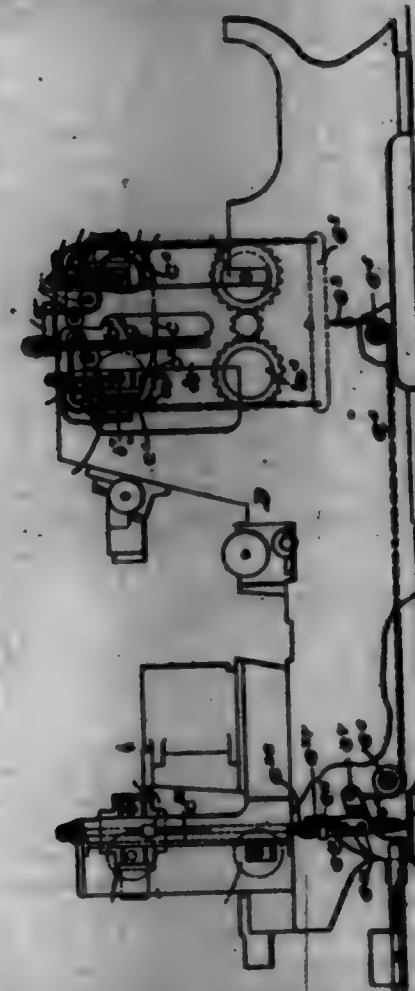
11,984. FINE-ROLLER. CHARLES W. H. MOON, Boston, Mass., assignor to The S. A. Webb Machine Company, Boston, Mass., a Corporation of Massachusetts. Filed Apr. 16, 1902. Serial No. 149,044. Original No. 696,207, dated Mar. 26, 1902.

Claim.—1. In a planing-machine, a plurality of upper feed-rolls, an adjustable carrier for supporting said feed-rolls on the frame of the machine, said feed-rolls being independently movable in said adjustable carrier, a single power-belt finally mounted on the frame of the machine and in engagement with said supporting means for adjusting the latter up and down while itself remaining vertically stationary, a weight and pressure-transmitting mechanism permitting said rolls to yield independently, including a connection from said weight to each of the upper feed-rolls, and means co-operating therewith, enabling the weight to give uniform tension or pressure to all of said rolls in all positions.

2. In a planing-machine, a pair of upper feed-rolls, an adjustable carrier (thereof), a weight located beneath the operating parts of the machine, and pressure-transmitting mechanism, including a chain, an equalizer, a chain-pulley fixed on said carrier, a chain-pulley movable relatively to said carrier, all co-operating with the chain, the equalizer and movable pulley yielding when a roll moves independently of the carrier.

3. In a planing-machine, a plurality of feed-rolls each movable up and down, a weight, connections between said weight and said several

rolls, including pressure-transmitting device for certain of said rolls, comprising means bearing down on the rolls, a pulley carried by said bearing-down means, and a chain passing over said pulley and connected with the weight for transmitting the pressure of the latter through said pulley and bearing-down means to the rolls.



4. In a planing-machine, a feed-roll, a movable carrier therefor, in which said feed-roll is movable up and down, a weight, two pressure-transmitting pulleys, one above the other, the upper pulley being movable independently of the lower pulley, a weight, and a chain connected to the weight and passing up over the upper pulley and over the lower pulley and up vertically to a fixed point of the frame of the machine to the weight.

5. In a planing-machine, a feed-roll, a movable carrier therefor in which said feed-roll is movable up and down, two pressure-transmitting pulleys, one above the other, the upper pulley being movable independently of the lower pulley, a weight, and a chain connected to the weight and passing up over the upper pulley and over the lower pulley and up vertically to a fixed point of the frame of the machine.

6. In a planing-machine, a feed-roll, a middle in which said feed-roll is journaled, vertical guide-frames in which said middle moves up and down, a pressure-transmitting device pivoted in said middle and provided with means for transmitting equal pressure to the opposite ends of said roll, the said roll being free to move up and down in said middle, a weight and a chain connection between said weight and said pivot device for transmitting the effect of said weight to said roll.

7. In a planing-machine, two feed-rolls placed end to end and mounted to move up and down, pivoted covers extending over said feed-rolls, a bar above said covers, a connection from said bar to the opposite ends of said rolls for the transmission of pressure from the bar to the rolls, connections between said covers and said bar, pulleys carried by said covers, a weight, and connections therefrom to said pulleys.

8. In a planing-machine, two feed-rolls placed end to end and mounted to move up and down, pivoted covers extending over said feed-rolls, contiguous journal-bases for supporting the adjacent journal ends of said two rolls, said bases extending above the rolls and said covers resting on said bases, a bar above said covers, a connection from said bar to the opposite ends of the rolls, connections between said covers and said bar, pulleys carried by said covers, a weight, and connections therefrom to said pulleys.

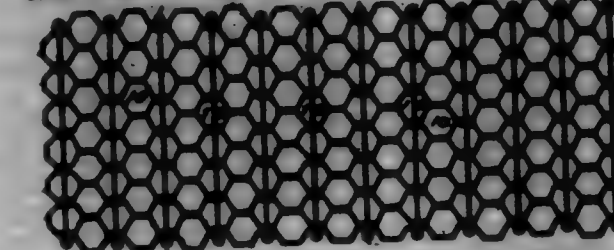
9. In a planing-machine, a feed-roll, a roll rigidly connected therewith and depending therefrom, a rigid bracket normally containing said roll and roll, a leg carried by said roll, a lever and weight pivoted intermediate its length to said leg and having its fulcrum at its end opposite

the weight, and an adjustable stop for regulating the downward movement of said leg.

10. In a planing-machine, a feed-roll vertically movable by the passage of timber, a weight connected thereto by a flexible connection, means for vertically adjusting said feed-roll, mechanism co-operating with said vertical adjusting means and said movable roll for changing the relative position of said roll and connection as the roll moves up and down independently of said adjustment, and including means maintaining uniform tension of said weight on said roll at all positions assumed by the latter.

11. In a planing-machine, a feed-roll vertically movable, a weight connected thereto by a flexible connection, pressure-transmitting pulleys relatively movable, said flexible connection passing over one of said pulleys and under the other, and means co-operating therewith enabling said weight to give uniform tension or pressure to said roll at all positions of its movement.

11,985. METAL DOOR-MAT. JOHN W. HANCOCK, Des Moines, Iowa, assignor to Hafferty Brothers, Marshalltown, Iowa. Filed Jan. 22, 1902. Serial No. 91,899. Original No. 697,573, dated Sept. 11, 1900.



Claim.—1. In a metal door-mat, the combination of the pivot-rod, the short pieces of flat metal bent laterally at their central portions and having their straight end portions perforated and pivotally mounted on the pivot-rod, the end portions of adjacent pieces overlapping each other across the pivot-rod and the outermost flange of the laterally-bent central portions of the short flat pieces being formed relatively long and arranged for mutual contact frictionally.

2. A flexible door-mat consisting of the pivot-rod, the short pieces of flat metal bent laterally at their central portions and having their end portions perforated and extended on a common plane and pivotally mounted on the pivot-rod, the end portions of adjacent pieces overlapping each other across the pivot-rod, the outermost flange of the laterally-bent central portions of the short flat pieces being formed relatively long and arranged for mutual contact frictionally, and end pieces pivoted on the outermost rods having the central portions conforming in contour to the pieces forming the body of the mat and the end portions bent on parallel planes, substantially as shown and described.

11,986. FURNACE-HYDRO-LAMP. EDWARD P. KENN, Alexandria, Va., assignor to the Kuhn Furnace-Hydro Lamp Manufacturing Company, a Corporation of Virginia. Filed Apr. 14, 1902. Serial No. 100,310. Original No. 698,199, dated Jan. 15, 1902.



Claim.—1. The combination in a furnace-hydro-lamp of a water-pen, a frusto-conical burner-pen of less diameter than the water-pen, so arranged therein as to leave an annular water-space between it and the water-pen, means for supporting the burner-pen within the water-pen as to leave a water-space between its bottom and the bottom of the water-pen in communication with the annular water-space, a body portion carrying a catalytic diaphragm and having its lower portion of a diameter greater than that of the burner-pen and extending down into the annular water-space, whereby the water contained in the water-pen is heated both by direct contact and by radiation from the catalytic diaphragm; substantially as described.

2. The combination in a furnace-hydro-lamp of a water-pen, a burner-pen of less diameter than the water-pen and so arranged therein as to leave an annular water-space between it and the water-pen, means for supporting the burner-pen as to leave a water-space between its bottom

and the bottom of the water-pan in communication with the annular water-space, a body portion carrying a catalytic diaphragm and having its lower portion extending down into the annular water-space, whereby the water contained in the water-pan is heated both by direct contact with the body portion and by radiation from the catalytic diaphragm; substantially as described.

3. In a formicohydro-lamp of the character described, the combination with the oxidizing-chamber and the burner arranged substantially as shown; of a platinum central diaphragm held within the oxidizing-chamber, a second platinum diaphragm disposed between the first diaphragm and the burner, said second diaphragm being of a less diameter than the first diaphragm, whereby to deflect the heat-rays from the first diaphragm, all being arranged substantially as shown and for the purposes described.

4. In a lamp of the character described, the combination with the burner having a burner-pan; of a casing having an oxidizing-chamber, a platinum diaphragm held in the said chamber, said casing extending up from the burner and adapted to normally rest with its lower edge surrounding the burner-pan, means for supporting the said casing to permit its being moved in a vertical plane to bring its entire lower edge in a plane above the burner-pan, whereby to permit of the insertion of a muffle-plate over the burner-pan, connecting device for joining the said casing detachably with the base, said connecting device including a pivotal joint to permit the said casing being swung laterally in a horizontal plane when the lower edge of the said casing is elevated in a plane above the burner-pan; substantially as shown and for the purposes described.

5. The combination in a lamp of the character described, with the burner-pan, and the oxidizing-chamber arranged above the pan; of an upper perforated platinum diaphragm extending entirely across the oxidizing-chamber and a lower platinum diaphragm of less diameter than the upper diaphragm, and means for supporting the lower diaphragm over the burner-pan, as specified.

6. The combination with the base, the burner-pan 2, the oxidizing-chamber, said chamber being open at the top and having a series of air-inlets at a point above the burner, of a platinum perforated diaphragm 3, held within the oxidizing-chamber at a point above the air-inlets and the perforated platinum diaphragm 7, held over the burner and at a point between the aforesaid air-inlets and the burner, as specified.

11,987. LOGGING-TRUCK. JOHN LUNNEY, Laurel, Miss, assignor to the Landry Wagon Company, Laurel, Miss. Filed Jan. 10, 1902. Serial No. 60,332. Original No. 664,214, dated Sept. 18, 1900.



Claim.—1. In a logging truck or cart, the combination, with an axle, wheel thereon and a pole or tongue extending forwardly from said axle, of a bolster secured to the axle, provided with a concave upper face, a pivoted cross-bar carried by the pole or tongue, a latch for the said cross-bar, and tongue connected with the said cross-bar, for the purpose specified.

2. In a logging truck or cart, the combination, with an axle, wheel loosely mounted on the axle, and a pole or tongue forwardly projected from the axle, of a bolster secured on the said axle, a cross-bar pivoted from one end on the pole or tongue, a latch for the opposite end of the cross-bar, a keeper carried by the said cross-bar, tongue, and a pliable and adjustable connection between the said keeper and said tongue, for the purpose specified.

3. A logging-truck, having a tongue, in combination with a cross-bar pivoted by one end to the tongue, means for locking said cross-bar in position transverse of the tongue, a chain-securing device on said cross-bar, a chain, and tongue adapted to engage a log, substantially as described.

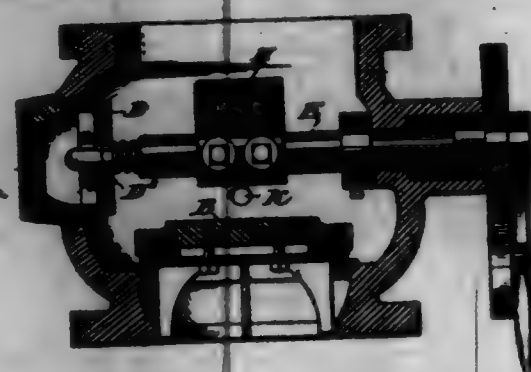
4. A logging-truck, having a tongue, in combination with a cross-bar pivoted by one end to the tongue, means for locking said cross-bar in a position transverse of the tongue, a slotted plate extending upwardly from said cross-bar and having its upper ends curved forwardly, the slot in said plate being adapted to snugly embrace a chain-link placed laterally thereon, a chain adapted to fit in said slot, and tongue secured to said chain and adapted to lie on the truck-bolter when in use, substantially as described.

5. A logging-truck having an A-shaped tongue, and draft-attaching means at the forward end thereof, in combination with a cross-bar pivoted by one end to one side of the tongue, releasable jacking means for the other end of the cross-bar and adapted to hold the cross-bar transversely of the tongue, chain-securing means upon the cross-bar, a chain, and tongue secured thereto and adapted to secure a log, substantially as described.

6. The combination with a logging-truck having a wheeled axle and a horizontally-extended pole or tongue attached thereto, of a horizontally-extended bar mounted at one end on the pole or tongue near one side thereof, a log-gripping device adapted to engage the log, a connection between the gripping device and the bar, and a latch engaging the free end of the bar to hold the same and operate near the side of the pole or tongue opposite the pivot of the bar.

7. The logging-truck wherein are combined an axle, low wheel thereon, a tongue extending forward from said axle, a bolster on the axle having its top extending approximately to the height of the wheel, and a grappling device secured to the tongue forward of the axle and carried over the top of the bolster and supported thereon, substantially as specified.

11,988. VALVE AND ALARM. FRANK GRAY, Chicago, Ill. Filed July 12, 1900. Serial No. 730,714. Original No. 626,161, dated May 18, 1900.



Claim.—1. In a pressure-stilling system, the combination with the main valve between the supply-pipe and the distributing-pipes, of alarm mechanism normally subject to and retained out of effective action by static pressure beyond said valve on the distributing side thereof, agencies for positively closing or locking said valve, and means whereby the effective manipulation of said agencies causes a variation in the pressure on said distributing side and a consequent sounding of the alarm.

2. In a pressure-stilling system, the combination with the main valve between the source of supply and the distributing-pipes, of alarm mechanism normally subject to and retained out of effective action by static pressure beyond said valve on the distributing side thereof, agencies for locking said valve in its rest, and means whereby the ineffectual movement of said agencies is immediately attended with an initial variation of pressure on said distributing side and consequent sounding of the alarm.

3. In a pressure-stilling system, the combination with a combined check-valve and shut-off valve, and a drain or release valve, manually-operated means for closing and locking the check-valve into a cut-off or shut-off valve, and connections which invariably open the drain or release valve concurrently with the closing and locking aforesaid, from the same point of manual operation, of an alarm or alarm operated by the reduction of pressure caused by the opening of the drain or release valve, whereby an alarm is invariably sounded whenever the pressure in the system is cut off.

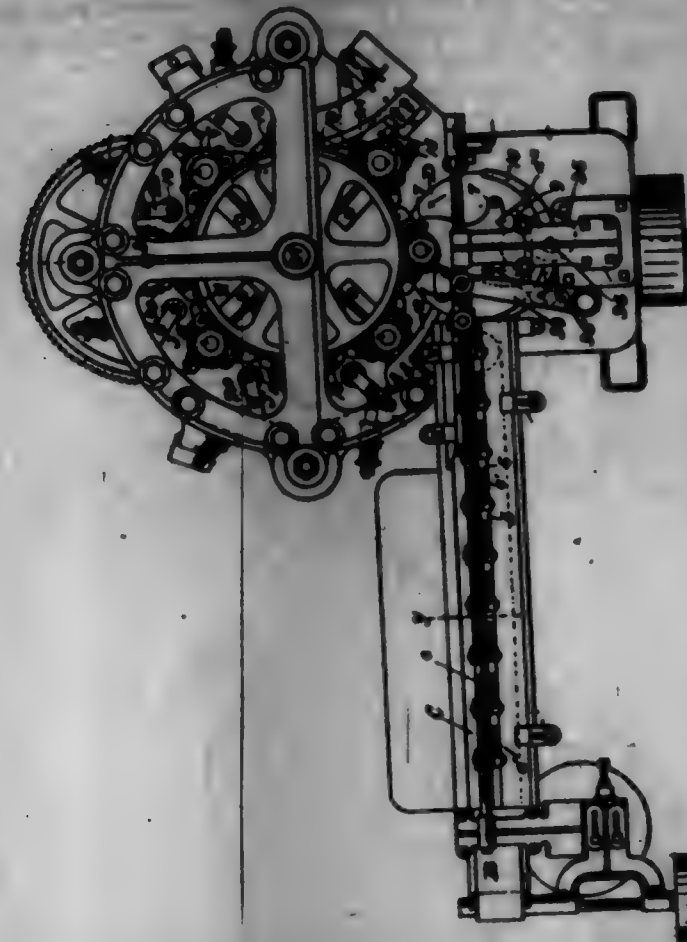
4. In a pressure-stilling system, the combination with a check-valve and a drain or release valve, and manually-operated means for positively closing and locking the check-valve into a shut-off valve, of connections unitarily controlled from the same point of manual operation, which cause the initial opening of the release-valve to accompany the ineffectual movement of said means for locking the check-valve, and an alarm or alarm immediately and positively set in action by the regulation of pressure attendant upon such initial opening.

5. In a self-contained piece of valve apparatus, a drain or release valve, a spindle or shaft upon which the drain-valve is mounted and by which it is operated, a check-valve, and means carried by the shaft or spindle which close and lock the check-valve, whereby it becomes a shut-off or cut-off valve.

6. In a self-contained piece of valve apparatus, a spring-pressed drain or release valve, a spindle or shaft to which said valve is affixed with capacity to slide lengthwise thereof, a check-valve located internally of said shaft, and a cam upon the shaft and acting against the check-valve, whereby the turning of the shaft closes and locks the check-valve and opens the drain-valve.

7. In a self-contained piece of valve apparatus, a spring-pressed drain or release valve, a spindle or shaft upon which the drain-valve is mounted and by which it is operated, and means carried by the shaft, having a very slight lead over the drain-valve, for positively closing and locking the check-valve, whereby the initial opening of the cam is immediately attendant upon the ineffectual closing of the other.

11,989. AUTOMATIC CAN-HEADING MACHINE. ANDREW W. LAYMOND, Alameda, Cal., assignor to the American Can Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 10, 1902. Serial No. 60,001. Original No. 660,600, dated Jan. 7, 1902.



Claim.—1. An automatic can-heading machine comprising conveyors by which the heads and bodies are separately introduced into the machine, and the heads placed upon the bodies, said can-head conveyor having notches or steps on its surface adapted to engage the rear edge of the head as the latter is advanced, means for advancing the heads on their conveyor and means for securing the heads and bodies.

2. In a can-heading machine, a can-head conveyor having a retainer bottom adapted to engage the rear edge of the head, in combination with means for advancing the heads along the conveyor.

3. An automatic can-heading machine, including superposed conveyors one of said conveyors having a retainer bottom adapted to engage the rear edge of the head as the latter is advanced, means for advancing the heads on their conveyor, a revolving table upon which the heads and bodies are delivered, means for centering the heads upon the bodies, and means whereby the heads and bodies are secured and the cans delivered from the machine, the operation throughout being entirely self-regulating.

4. In a can-heading machine, the combination of conveyors for the heads and bodies, a can-head conveyor including a retainer bottom to engage the rear edge of the head, means for advancing the heads, a table upon which the heads and bodies are received, guides and supports which receive and center the heads upon the bodies, and means by which the bodies and heads are united and secured.

5. In a can-heading machine, the combination of a can-body conveyor, a can-head conveyor having a retainer surface to engage the can-head, means for advancing the heads on their conveyor, a revolving table upon which the heads and bodies are delivered, and the heads centered upon the bodies, a pressure-plate by which the parts are united, and means for moving the cans of the heads and bodies.

6. In an automatic can-heading machine, an endless conveyor upon which the can-bodies are supported, a superposed conveyor carrying the can-heads, the latter conveyor having a retainer bottom adapted to engage the rear edge of the heads as the latter are advanced, a reciprocating means by which this advance is made, and means whereby the heads and bodies are united and secured.

7. In an automatic can-heading machine, a conveyor supporting the can-bodies, a superposed reciprocating conveyor supporting the can-heads, means by which the can-bodies may be automatically discharged from the conveyor in case the cans are fed thereon too rapidly, a revolving table upon which the bodies are received, guides or spindles upon this table and revolving therewith and whereby the bodies are held thereon and the can-heads are received and centered upon the bodies, and means by which the flanges of the heads and bodies are united in a tight joint.

8. In an automatic can-heading machine, a revolving table, means for delivering can-bodies thereon, guides or spindles against which the bodies are received and held in place, one of these spindles provided with projecting pins by which the entering can-heads are centered over and placed upon their respective bodies, means by which the head is pressed down upon the body, and means whereby cans unsupplied with heads are ejected from the spindles.

9. In an automatic can-heading machine, a revolving table, guides or spindles thereupon and revolving therewith, means by which can-bodies are delivered into the spindles, a reciprocating carrier delivering the can-heads upon the bodies, pins upon the spindles by which the centering of the heads and bodies is effected, a pawl upon the reciprocating rod of the can-head carrier whereby cans unsupplied with heads are ejected from the spindles.

10. In an automatic can-heading machine, a revolving table, conveyors by which can-bodies and can-heads are delivered simultaneously upon this table, spindles by which these bodies are held, projections upon certain of the spindles, whereby the heads are guided and centered upon the bodies, a fixed segmental plate under which the bodies and heads are passed, and the heads forced tightly upon the bodies, an annular groove in the bottom of the plate allowing the spindles to revolve freely therebeneath.

11. In an automatic can-heading machine, the combination with a revolving table upon which the can-bodies and can-heads are received, and the heads placed in position upon the bodies, of a revolving support upon which the cans are delivered from the said table, means for revolving these cans independently of the revolution of the said support, and means whereby the cans are carried, and a tension member connected to the arms and by which the rollers are held against the can and adjustment made for the cans in the revolution of the table, said rollers each performing only a part of the operation of centering.

12. In an automatic can-heading machine, a revolving support or drum, brackets upon the upper and lower portions of the drum and projecting horizontally beyond the circumference thereof, an upper and lower set of checks, connections with the drum-shaft whereby the upper checks are revolved, and means, including a centrally-located roller having one end connected with the lower check-spindle, and a cam-surface in the path of the other end of said roller whereby the lower checks may be made to approach the upper checks and hold securely same interposed between the lower checks and their respective upper checks.

13. In an automatic can-heading machine, a revolving support or drum, an upper and lower set of checks carried thereon outside of, and concentric with, the circumference of said drum, connections whereby the upper checks are made to revolve independently of the revolution of the drum, each of the lower checks provided with a lever, each centrally-located and having one end connected with the lower check-spindle by which a lower check may be lifted and made to hold a can firmly between it and its respective upper check, and means including a cam in the path of the other end of the lever for operating this lever.

14. In an automatic can-heading machine, a revolving support or drum, an upper and lower set of revolvable checks carried thereon, each of the lower checks connected with one end of a lever, which latter is centrally-located, and having its other end adapted to engage a cam whereby a lower check is lifted toward its respective upper check and a cam firmly held between the two checks, a bar on the spindle of each lower check and to which the upper end of the lever is connected, and a cushion between the bar and a fixed part adapted to relieve the jar when the bar is suddenly lifted.

15. In an automatic can-heading machine, a revolving support or drum, brackets upon the drum carrying an upper and lower set of checks, means by which the upper checks are revolved, the spindles of each of the lower checks made slidable in its journal, a collar upon each spindle, a bar upon the spindle and below the collar, a spring interposed between the collar and the bar, one end of a lever slidable in this bar, the lever centrally-located and having a roller upon its lower end which is adapted to engage, during the revolution of the drum, a cam and raise the lower check and bind the can held thereon against a respective upper check, causing the checks and can to revolve together.

16. The combination in an automatic can-heading machine with a revolving support or drum, of a means by which can-bodies with their can-heads in position may be delivered upon a lower set of checks and beneath an upper set of checks upon this drum, means by which the upper checks are revolved independently of the revolution of the drum, a centrally-located lever in connection with each of the lower checks, one end of which attaches to the spindle of the check and the other is provided with a roller adapted to engage an annular cam-plate upon the frame by the revolution of the drum, whereby the lower check is raised and the can brought in contact with the upper check, securely held and rapidly revolved, causing engaging and crimping the flanges of the can, means

by which the lower check is again dropped and the can delivered from the machine.

17. The can-heading machine, consisting in combination, of a horizontal endless conveyor upon which the can-bodies, having exterior and flanges, are carried, guides upon this conveyor, an automatic discharge gate at the inner end of the conveyor, a second conveyor superposed above the first, consisting of a reciprocating rod, flanges upon this rod adapted to engage the can-bodies, a rotatable bottom to this carrier by which the edges of the head are stopped and prevented from backward movement by the reciprocation of the rod and flanges, a guide by which the head is prevented from transverse or lateral displacement, a revolving table upon which the can-bodies are delivered, spiders thereon to hold and guide these bodies, the upper spider provided with pins which arrest the can-bodies, center them above the can-bodies and allow them to drop in place upon the latter; a fixed segmental pressure-plate under which the bodies and heads in position, now known as cans, are passed by the revolution of the table and its spider, and the heads firmly pressed down upon the bodies so as to bring their extending flanges in close contact; a pawl upon the end of the reciprocating rod extending over the table by which bodies unsupported with heads are ejected from the spider; guides by which the cans are led onto and centered upon lower checks upon a revolving drum, said checks turnable in journals upon their bracket-supports, each of these checks provided with a corresponding upper check, which latter is revolved independently of the revolution of the drum; a means by which the lower checks may be lifted and the cans held thereon forced against the upper checks and revolved, adjustable cammers engaging the flanges of the bodies and heads, certain of these cammers adapted to roll the cans, and certain of them adapted to flatten and finish the cans, and means for releasing the cans from the checks and delivering them from the machine.

18. The combination with a continuously-revolving can-carrier drum or support having a plurality or series of individually-rotating can-checks thereon, of a plurality or series of swinging arms or levers on the frame, at different positions around said continuously-revolving drum, and provided with a plurality or series of double-convex rollers for forming concave portions or steps of a double cam on the cans as they pass, each camming-roller engaging the can while the drum turns through a segment or one of its revolutions, substantially as specified.

19. The combination with a continuously-moving can-carrier, a plurality of rotating can-checks thereon, a plurality of double-convex rollers, and a plurality of swinging arms mounted on the stationary frame of the machine and adapted to move with the camming-rollers thereon out of the way of the cans as they pass, and hold the cans in engagement therewith, and double-convex rollers mounted on said swinging arms, substantially as specified.

20. The combination with a series of continuously-traveling rotating can-checks, of a series of double-convex rollers arranged in the path of the cans and engaging the cans successively as they pass, substantially as specified.

21. The combination with a continuously-moving can-carrier provided with a series of rotating can-checks of a plurality of double-convex rollers each performing a part of the camming operation and successively engaging the rotating cans as they pass, substantially as specified.

22. The combination with a continuously-driven can-carrier having a plurality of rotating can-checks thereon of a plurality of movable double-convex rollers each in turn engaging each can as it passes, substantially as specified.

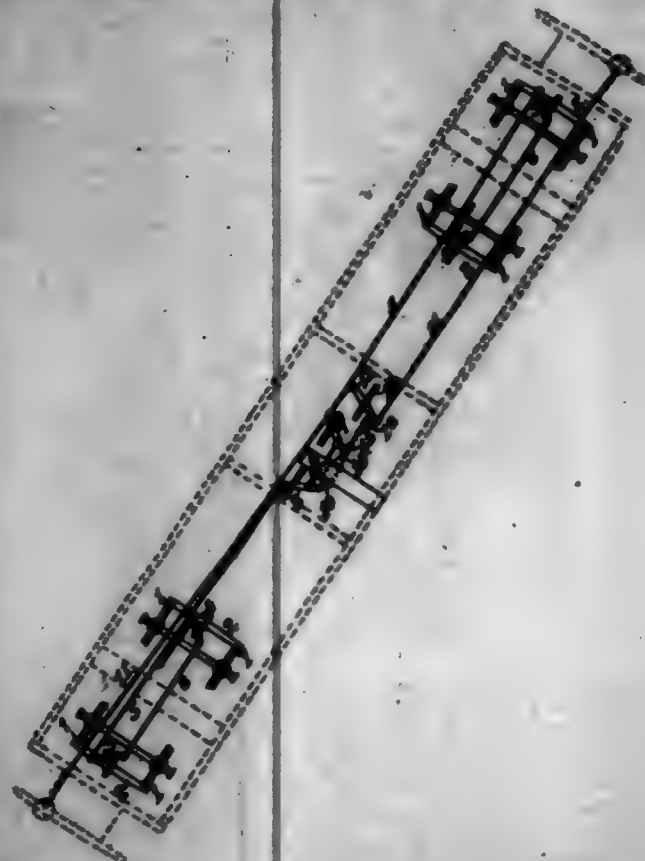
23. The combination with a continuously-traveling series of rotating can-checks with a series of camming-rollers arranged in the path of the cans for successive operation on each can as it passes in its traveling check, substantially as specified.

11,990. CAR-BRAKE. HENRY J. SMALL, Birmingham, Cal., assignor to the Westinghouse Air Brake Company, Pittsburgh, Pa. Filed Mar. 21, 1908. Serial No. 88,948. Original No. 510,203, dated Dec. 8, 1900.

Claim.—1. The combination, in a railroad-car brake, of a brake-cylinder, a brake-cylinder lever for actuating truck-brake levers at both ends of a car by fluid-pressure in said cylinder, a hand-brake lever, and connections from the hand-brake lever to the brake-cylinder lever and to hand-brake devices at each end of the car, said connections adapting the brake-cylinder lever to be operated by the hand-brake lever from either end of the car, and in the same direction as by the fluid-pressure in the brake-cylinder, substantially as set forth.

2. The combination, in a railroad-car brake, of a hand-brake lever, hand-brake devices at both ends of a car connected to said hand-brake lever, a fluid-pressure cylinder fitted with a piston and rod, a lever adapted to be actuated in the same direction, independently by either of the end hand-brake devices or by the piston-rod of the fluid-pressure cylinder, and connections coupling said lever to the hand-brake lever, substantially as set forth.

3. The combination, in a railroad-car brake, of a system of truck-brake levers for actuating connected brake-choses, a fluid-pressure brake apparatus coupled thereto, an independent hand-brake apparatus operated from either end of the car, and a flexible connection coupling the hand-brake apparatus with a member of the fluid-pressure brake apparatus having the capacity of independent movement relatively to the actuating piston-rod thereof, substantially as set forth.



4. The combination, in a railroad-car brake, of a system of truck-brake levers for actuating connected brake-choses, a fluid-pressure cylinder having a piston and rod, an intermediate connection coupled positively to one of said truck-brake levers, and coupled to the piston-rod with the capacity of independent movement, two hand-brake connecting-rods adapted to be actuated by manual power from either end of the car, and a flexible connection by which the hand-brake connecting-rods are coupled to the intermediate connection of the piston-rod and truck-brake lever, substantially as set forth.

5. The combination, in a railroad-car brake, of two systems of truck-brake levers, adapted to actuate connected brake-choses on trucks at opposite ends of a car, a fluid-pressure cylinder having a piston and rod, an intermediate connection coupled positively to a lever of each of said systems, and coupled to the piston-rod with the capacity of independent movement, two hand-brake connecting-rods coupled one to the other and adapted to be actuated by manual power applied at either end of the car, and a flexible connection by which the hand-brake connecting-rods are coupled to the intermediate connection of the piston-rod and truck-brake lever, substantially as set forth.

6. The combination, in a railroad-car brake, of a brake-chose, a brake-lever connected thereto, a fluid-pressure cylinder fitted with a piston and rod, a brake-cylinder lever coupled to said rod with the capacity of independent movement, and coupled positively to the lever of the brake-chose, a hand-brake connecting-rod, an independent hand-brake lever coupled thereto, and a flexible connection coupling said independent hand-brake lever to the brake-cylinder lever, substantially as set forth.

7. The combination, in a railroad-car brake, of a brake-chose, a brake-lever connected thereto, a fluid-pressure cylinder fitted with a piston and rod, a slotted cross-head fixed to said rod, a brake-cylinder lever coupled to the lever of the brake-chose, and traversing on the piston-rod cross-head, a hand-brake connecting-rod, an independent hand-brake lever coupled thereto, and a flexible connection coupling said independent hand-brake lever to the brake-cylinder lever, substantially as set forth.

8. The combination, in a railroad-car brake, of two systems of truck-brake levers, adapted to actuate connected brake-choses on trucks at opposite ends of a car, a fluid-pressure cylinder fitted with a piston and rod, a brake-cylinder lever having a fixed fulcrum, and coupled to a brake-lever of one of the trucks, a brake-cylinder lever having a fulcrum which is movable on an extension of the piston-rod, and coupled to a brake-lever of the other truck, a rod coupling said brake-cylinder levers one to the other, two hand-brake connecting-rods coupled one to the other and adapted to be actuated by manual power applied at either end of the car,

and a flexible connection by which the hand-brake connecting-rods are coupled to one of the brake-cylinder levers, substantially as set forth.

9. The combination, in a railroad-car brake, of two systems of truck-brake levers, adapted to actuate connected brake-choses on trucks at opposite ends of a car, a fluid-pressure cylinder fitted with a piston and rod, an intermediate connection coupled positively to a lever of each of said systems and coupled to the piston-rod with the capacity of independent movement, two hand-brake connecting-rods each adapted to be actuated by manual power applied at one end of the car, an independent hand-brake lever coupled to one of said hand-brake connecting-rods, an auxiliary brake-lever coupled to the other hand-brake connecting-rod and to the independent hand-brake lever, and a flexible connection coupling the independent hand-brake lever to the intermediate connection of the piston-rod and truck-brake lever, substantially as set forth.

DESIGNS.

85,904. HANDLE FOR SPOONS OR FORKS. FREDERICK H. PIERCE, Brooklyn, N. Y., assignor to George W. Shubler and Company, New York, N. Y., a firm. Filed Apr. 4, 1908. Serial No. 181,008. Term of patent 24 years.



Claim.—The design for the handle of a spoon or fork, substantially as shown and described.

85,905. HARPIN BRIDGE. EVELYN BRYSON, Chicago, Ill. Filed Mar. 14, 1908. Serial No. 88,448. Term of patent 24 years.



Claim.—The design for a harpin holder as herein shown and described.

85,906. STAMP OR ENVELOPE MOUNTING. MARCUS A. MCGRATH, Indianapolis, Ind. Filed Apr. 17, 1908. Serial No. 180,088. Term of patent 14 years.



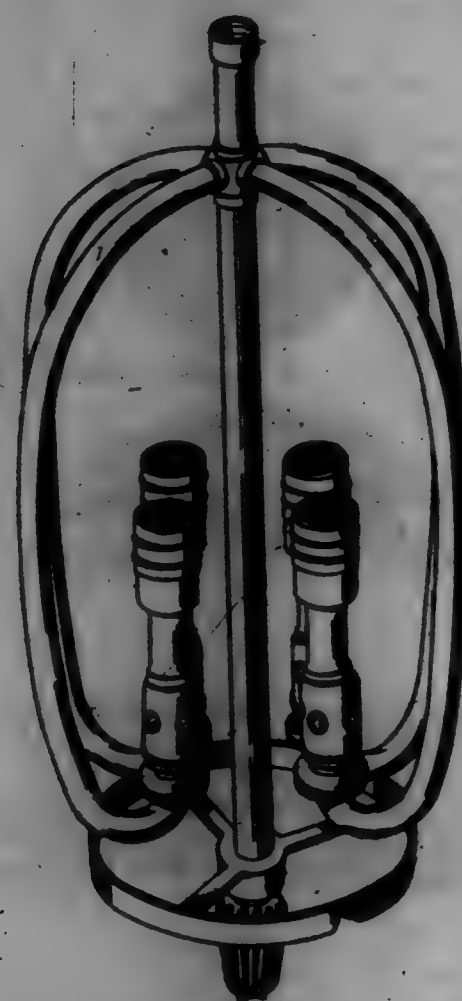
Claim.—The design for a stamp and envelope mounter as herein shown and described.

85,907. CUT-GLASS RECTANGLE. CARL V. REICHENBERGER, Hartford, Conn., assignor to the C. F. Maurice Company, Hartford, Conn., a Corporation of Connecticut. Filed Apr. 18, 1908. Serial No. 180,092. Term of patent 24 years.



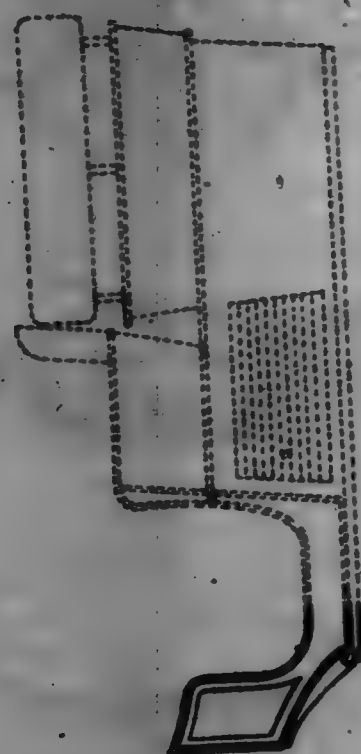
Claim.—The design for a cut-glass rectangle as herein shown and described.

85,908. LAMP-FIXTURE. THOMAS MOORE JAMISON, Memphis, Tenn. Filed Mar. 1, 1902. Serial No. 94,344. Term of patent 24 years.



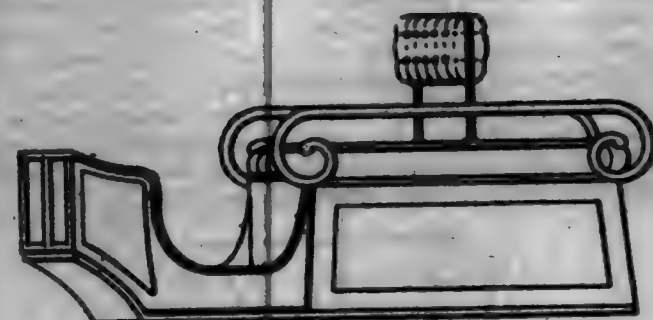
Claim.—The design for a lamp-fixture, substantially as shown and described.

85,909. VEHICLE-BODY. JOHN H. MAGALIAN, Somerville, Mass. Filed Feb. 12, 1902. Serial No. 94,345. Term of patent 7 years.



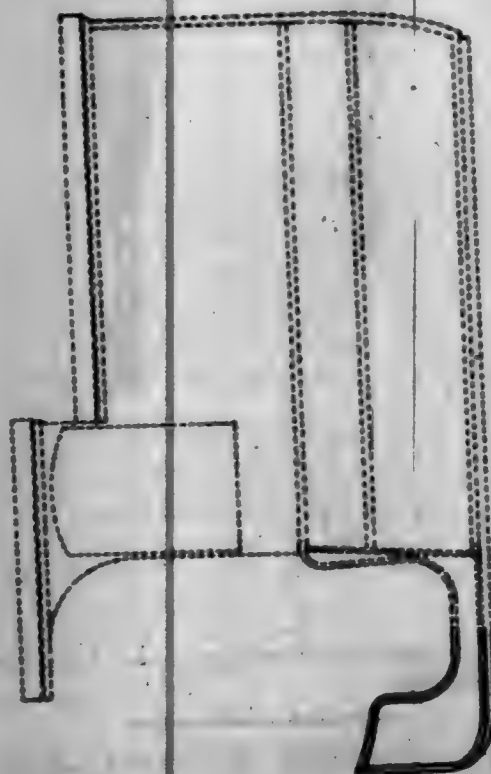
Claim.—The design for vehicle-body herein described and shown.

85,910. VEHICLE-BODY. JOHN H. MAGALIAN, Somerville, Mass. Filed Dec. 19, 1901. Serial No. 94,319. Term of patent 7 years.



Claim.—The design for vehicle-body as herein shown and described.

85,911. VEHICLE-BODY. JOHN H. MAGALIAN, Somerville, Mass. Filed Feb. 12, 1902. Serial No. 94,346. Term of patent 7 years.

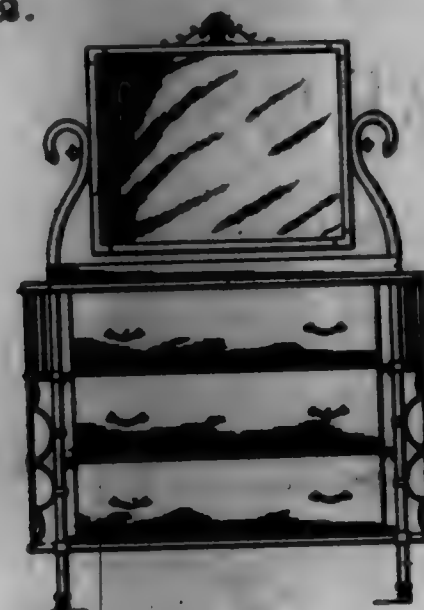


Claim.—The design for vehicle-body herein shown and described.

85,912. FURNITURE. CHARLES EDWARD EMMER, Louisville, Ky. Filed Apr. 7, 1902. Serial No. 101,540. Term of patent 7 years.



85,912.



Claim.—The design for a dresser as herein shown and described.

85,913. DRAPERY-TRIMMING. GEORGE S. BROWN, Philadelphia, Pa. Assignor to Brown & Brown Company, a Corporation of Pennsylvania. Filed Apr. 15, 1902. Serial No. 100,000. Term of patent 14 years.



Claim.—The design for a drapery-trimming substantially as shown and described.

85,914. FRIDGE. WILLIAM T. BROWN, Philadelphia, Pa. Filed Apr. 21, 1902. Serial No. 104,500. Term of patent 7 years.



Claim.—The design for a fridge, substantially as described and as shown in the accompanying drawing.

85,915. RUG. EDWARD E. BROWN, East Orange, N. J., assignor to John E. Brown and Edward Brown, partners trading as John Brown & Son, Philadelphia, Pa. Filed Apr. 22, 1902. Serial No. 104,501. Term of patent 24 years.



Claim.—The design for a rug, substantially as shown and described.

TRADE-MARKS

REGISTERED MAY 13, 1902

88,224. RIBBONS. LAM & WICKHAM, New York, N. Y. Filed Mar. 20, 1902.

CONQUEROR

The word "CONQUEROR." Used since January 11, 1900.

88,225. COTTON TEXTILES, INCLUDING SHIRTINGS AND SHIRTINGS. HOWARD L. STUBBS, New York, N. Y. Filed Mar. 17, 1902.

RAMOPA

The word "RAMOPA." Used since March 5, 1903.

88,226. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 1, 1902.



The representation of an archer carrying a bow with the string drawn back and the arrow in position to be discharged, the archer being mounted upon a galloping horse with a flowing mane and tail and the archer carrying a shaft of arrows. Used since April 16, 1901.

88,227. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 1, 1902.



The representation of a man mounted on a fish, the fish being in the act of flying or leaping out of a body of water. Used since April, 1900.

88,228. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 1, 1902.



The representation of a group of boys each standing in an upright position and carrying branches of foliage bearing leaves. Used since April 16, 1901.

MAY 13, 1902.

U. S. PATENT OFFICE.

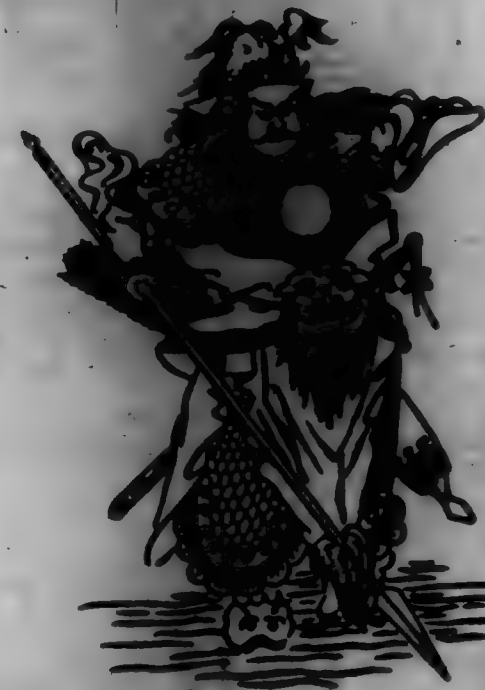
2511

88,229. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 4, 1902.



The representation of a lion or Chinese dragon, the latter having a wide-spread tail and represented as standing in an erect posture upon the upper surface of a platform and leaning upon a shield. Used since April, 1900.

88,230. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 4, 1902.



The representation of a Chinese Emperor of olden times, in which the person of the Emperor is shown as an erect figure dressed in mailed armor, having in his right hand a tufted spear and wearing a sword and belt of antique style. He also carries a shaft of arrows, has a flowing cape, and a flowing beard, and the head is surmounted with a crested or helmet provided with plumes. Used since April 16, 1901.

88,231. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 20, 1902.



The representation of a lion, eagle, and globe, the eagle being perched above the earth and grasping the globe in its claws and beneath it the lion is in an erect position, the whole with a background of natural scenery. Used since September 22, 1900.

88,232. COTTON FABRICS. WARD, HANNEY & Co., London, Eng. Filed Mar. 20, 1902.



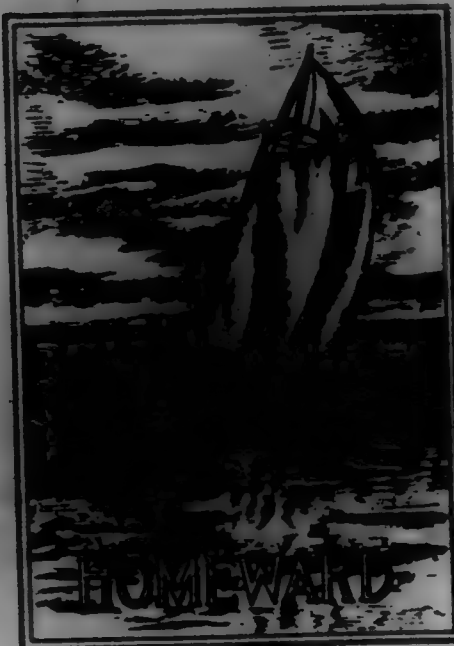
The representation of the announcement of the winning of a prize in the winner thereof in which the latter is represented as a Chinaman seated at a table, having his arms spread at the receipt of the news, which is represented as displayed upon a placard in the hands of a messenger, also dressed in Chinese fashion and who is represented in a kneeling posture. Used since April 16, 1901.

88,233. CERTAIN WARMED FABRICS. GENERAL WILSON, New York, N. Y. Filed Apr. 2, 1902.



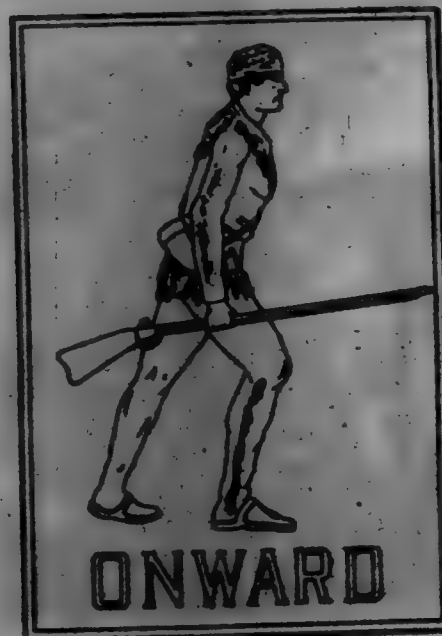
The representation of the stern portion of a sailing vessel and that of a helmsman having hold of the steering-wheel and looking calmly into the compass in front of him, a portion of the boom and sail of the vessel appearing overhead of the helmsman and the words "OLD RELIABLE" appearing in the lower portion of the picture. Used since December 1, 1901.

88,984. CERTAIN MARKED FABRIC. GEORGE WILSON, New York, N. Y. Filed Apr. 3, 1902.



The representation of a sailing ship on the water, and the word "HOMEWARD" appears printed on the water below the said representation, both the representation and word being included in a border. Used since January 1, 1902.

88,985. CERTAIN MARKED FABRIC. GEORGE WILSON, New York, N. Y. Filed Apr. 4, 1902.



The representation of a man in the business dress of a pioneer, with a powder-horn at one side, a gun in one hand, and in the act of stepping forward, and below this representation appears the word "ONWARD," all being included in a double-line border. Used since March 1, 1902.

88,986. CERTAIN MARKED FABRIC. GEORGE WILSON, New York, N. Y. Filed Apr. 4, 1902.



A picture entitled the "The Man Behind the Gun," the picture disclosing a portion of between-decks of a man-of-war, a gun, a gunner behind the gun in standing position, a helper at one side of the gun in kneeling position, a projectile-carriage in the foreground, and two men-of-war appearing at a distance through a port-hole. Used since December 1, 1901.

88,987. CORSETS. GEORGE WILSON, New Haven, Conn. Filed Feb. 4, 1902.

C/B

The letters and diagonal line "C/B." Used since January 1, 1877.

88,988. LEATHER GOODS AND SHOES. BROWN & WOODBURY & Co., Boston, Mass. Filed Mar. 20, 1902.

Triumph

The word "TRIUMPH." Used since March 1, 1902.

88,989. BOOKS AND PAPER. HARRY HUNT & SONS Co., Grand Rapids, Mich. Filed Oct. 20, 1901.

88,989.



The representation of a desert scene with a caravan in the foreground and pyramids, started vegetation, and the sun in the background. Used since April 12, 1901.

88,940. STEEL PENS. H. HYMAN & SONS, Birmingham, England. Filed Apr. 1, 1902.

SILVER SERIES.

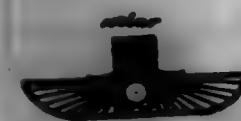
The words "SILVER SERIES." Used since March 1, 1902.

88,941. HYGIENIC AND FOUNTAIN PENS. J. GRADY & Co., New York, N. Y. Filed Apr. 4, 1902.

JUCO

The word "JUCO." Used since March 25, 1902.

88,942. GLASS TILES. THE SOLAR TILE CO., Cleveland, Ohio. Filed Mar. 24, 1902.



The word "SOLAR" and the representation of a winged sun associated with a rectangle covered with parallel lines and also having a small circle at its center. Used since September 1, 1900.

88,943. NUDE-BOILER. HENRY HUNT & SONS Co., Grand Rapids, Mich. Filed Apr. 20, 1901.

Princess

The word "PRINCESS." Used since March 26, 1902.

88,944. NUDE-BOILER. HENRY HUNT & SONS Co., Grand Rapids, Mich. Filed Apr. 20, 1901.

Queen

The word "QUEEN." Used since March 18, 1902.

88,945. REMEDIES FOR CURS OF RHEUMATISM, NEURALGIA, AND BRACHIAL. N. C. KANE & SONS, Brooklyn, N. Y. Filed Mar. 14, 1902.



A rectangular figure having three in the foreground the representation of a sailor leaning against the upright stock of an anchor partly buried in the sand, the background showing the sea. Used since February 1, 1902.

88,946. REMEDIES FOR CERTAIN MARKED DISEASES. THE HENRY HUNT & SONS Co., Grand Rapids, Mich. Filed Mar. 14, 1902.



The letters "E. T. B." and a border including the same. Used since March 10, 1902.

88,947. CERTAIN MARKED TOILET PREPARATIONS. THE VIOLETTA HUNT Co., New York, N. Y. Filed Mar. 12, 1902.



The representation of two cornucopias flanking each other and overflowing with powder, producing a bed of powder upon which a crown appears to rest. Used since January 15, 1902.

88,248. MEDICATED BATHING COMPOUND. JEAN HOLMES.
Havran, Ohio. Filed Nov. 2, 1901.



The representation of a Cuban landscape with a village in the background, with the sun above the village, a piece of open country in front of the village, four palm trees arranged in a group on the right of the picture, a rock in the foreground at the left, and a group of persons in an expectant attitude in the middle ground. Used since October 2, 1900.

88,249. OIL FOR MEDICINAL PURPOSES. BUCKING CEMENTAL COMPANY, Boston, Mass. Filed Feb. 1, 1902.

ESKE-MO



The hyphenated word "Es-Ke-Mo" and the picture of a standing figure represented as holding a cup in one hand, from which he is dropping liquid from a bottle held in the other hand, the hyphenated word "Es-K" appearing on the bottle. Used since November 1, 1901.

88,250. CHOCOLATE CONFECTIONS. H. D. FORD AND CO., INCORPORATED, Boston, Mass. Filed July 15, 1901.

QUALITY

The word "QUALITY." Used since September, 1897.

88,251. MINERAL WATER. BARNARD'S BOTTLES, New York, N. Y. Filed Apr. 6, 1902.

DEEPWOOD

The word "DEEPWOOD." Used since March 27, 1902.

88,252. WHISKIES AND CHAMPS. HENRI & BERTH, Albuquerque, N. Mex. Filed Mar. 22, 1902.

Alvarado Club

The words "ALVARADO CLUB." Used since November, 1901.

88,253. CHAIRS, CHAMBERS, AND CHAIRS. H. B. BELL, Berlin, Switzerland. Filed Jan. 2, 1902.



The representation of a female figure in a fancy costume, the left arm outstretched, holding a flower in the hand, and the right hand clasped behind the head. Used since January 1, 1902.

88,254. BUTTER, CHEESE, AND EGGS. HENRI & BERTH, Berlin, Switzerland. Filed Mar. 11, 1902.



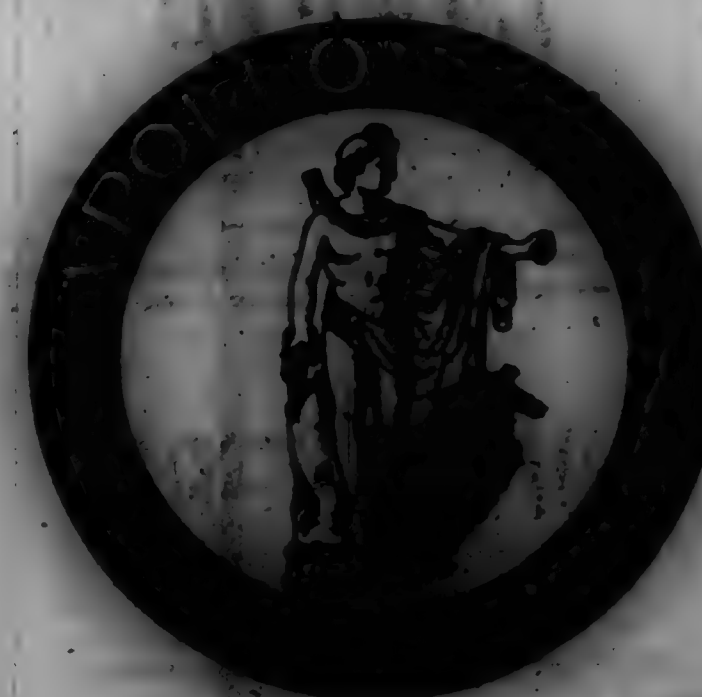
The representation of a four-leaf clover on a leaf of a tree appearing on a contrasting background bounded by intersecting circles, the background appearing within a rectangular dotted field containing spaced representations of a four-leaf clover. Used since January 1, 1902.

88,255. FLOUR. BROWN & ALLEN, York, Pa. Filed Apr. 2, 1902.

HALF & HALF

The two words "HALF & HALF." Used since 1901.

88,256. FLOUR. S. & P. FLOUR CO., Boston, Mass. Filed Apr. 7, 1902.



The word "APOLLO," together with the representation of a statue of the god Apollo and surrounding decorative circles. Used since May 25, 1901.

88,257. CERTAIN BAKED FOOD PRODUCTS. BUFFALO CEREAL COMPANY, Buffalo, N. Y. Filed Mar. 26, 1902.

WINNER

The word "WINNER." Used since March 1, 1902.

88,258. LEATHER PRESERVATIVE. JAMES JAMES PRESERVATIVE, Harrison, W. Va. Filed Jan. 15, 1902.

LEATHER LIFE

The words "LEATHER LIFE." Used since November 1, 1901.

88,259. CLEANING AND POLISHING SOLUTION. GRAMER & GRAMER, Buffalo, N. Y. Filed Apr. 7, 1902.

VARNUE

The word "VARNUE." Used since March 20, 1902.

88,260. SMALL. WILSON & SONS, New York, N. Y. Filed Apr. 12, 1902.

VIVOID

The word "VIVOID." Used since March 15, 1902.

88,261. SMALL. WILSON & SONS, New York, N. Y. Filed Apr. 12, 1902.

ULTROID

The word "ULTROID." Used since March 15, 1902.

88,969. SMALL. WHITING & BROWN, New York, N. Y. Filed Apr. 18, 1908.

RAVENOID

The word "RAVENOID." Used since March 15, 1908.

88,968. SMALL. WHITING & BROWN, New York, N. Y. Filed Apr. 18, 1908.

NICROID

The word "NICROID." Used since March 15, 1908.

88,964. SMALL. WHITING & BROWN, New York, N. Y. Filed Apr. 18, 1908.

CHROMOID

The word "CHROMOID." Used since March 15, 1908.

88,965. ASPHALT ROOFING. BARNES CLARKSON, Chicago, Ill. Filed Apr. 3, 1908.

VULCANITE

The word "VULCANITE." Used since March, 1908.

88,966. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

STONETIED

The word "STONETIED." Used since January 1, 1908.

88,967. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

WARRENE

The word "WARRENE." Used since January 1, 1908.

88,968. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

BITUROCK

The word "BITUROCK." Used since January 1, 1908.

88,969. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

BITUSTONE

The word "BITUSTONE." Used since January 1, 1908.

88,970. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

WARRO

LITHIC

The word "WARROLITHIC." Used since January 1, 1908.

88,971. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

WARREN

PHALT

The word "WARRENEPHALT." Used since January 1, 1908.

88,972. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

STONEPHALT

The word "STONEPHALT." Used since January 1, 1908.

88,978. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

ASPHALROCK

The word "ASPHALROCK." Used since January 1, 1908.

88,974. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

WARRENITE

The word "WARRENITE." Used since January 1, 1908.

88,975. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

ROCKPHALT

The word "ROCKPHALT." Used since January 1, 1908.

88,976. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

ROCKBOUND

The word "ROCKBOUND." Used since January 1, 1908.

88,977. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

BIG FOUR

The word "BIG FOUR." Used since January 1, 1908.

88,978. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

METALINE

The word "METALINE." Used since January 1, 1908.

88,979. HYGIENIC COMPOSITION OR CEMENT. WARREN ENGINEERING COMPANY, Boston, Mass. Filed Apr. 7, 1908.

BITUWARREN

The word "BITUWARREN." Used since January 1, 1908.

88,980. VARNISHES. REYNOLDS VARNISH & OIL CO., LONDON, Toronto, Canada. Filed Apr. 4, 1908.

ELASTILITE

The word "ELASTILITE." Used since July 20, 1908.

88,981. ANTI-INCORPORATING COMPOUND FOR STEAM-BOILERS. ADRIAN W. HANSEN, Philadelphia, Pa. Filed Mar. 15, 1902.

CHAMPION

The word "CHAMPION." Used since November, 1893.

88,982. CIGARETTES. HARRY GUNN, Chicago, Ill. Filed Apr. 24, 1902.

ABNER

The word "ABNER." Used since May 24, 1900.

88,988. BRILLIA. W. E. WILSON & Co. New York, N. Y. Filed Nov. 25, 1901.



The representation of an alligator in a pond. Used since February 5, 1901.

88,984. INSULATING TUBES OR TUBULAR COVERINGS FOR ELECTRIC WIRES. AMERICAN CABLE LACE CO., Chicago, Ill. Filed Feb. 20, 1902.



Spots of distinctive color produced by or applied to the external surface of an insulating tube or tubular covering for electric wires. Used since 1890.



LABELS

REGISTERED MAY 13, 1902.

9,131.—Title: "HUBERT MORRETT." (For Cigars.) A. C. HINCHMAN & Co., Chicago, Ill. Filed January 29, 1902.

9,132.—Title: "ROYAL STOCK." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed April 19, 1902.

9,133.—Title: "QUEEN CAROLINE." (For Cigars.) SENCOR BROS., Chicago, Ill. Filed April 5, 1902.

9,134.—Title: "OLD BACHELOR." (For Whisky.) PHIL BARDENHAGEN, St. Louis, Mo. Filed April 19, 1902.

9,135.—Title: "COCK KENTH CORRAL." (For Brandy.) CORNELIUS KENTH, Jr., Boston, Mass. Filed April 17, 1902.

9,136.—Title: "UNFERMENTED GRAPE JUICE." (For Grape-Juice.) BRUCE PIERCE, Coopers Plains, N. Y. Filed January 22, 1902.

9,137.—Title: "PREPARED CO-CO." (For Cocoa.) FARM-WORTH BROS. & Co., Boston, Mass. Filed January 21, 1902.

9,138.—Title: "PEACH BRAND." (For Confectionery.) JOHN E. FAIRBANKS, Reading, Pa. Filed April 21, 1902.

9,139.—Title: "QUEEN QUALITY." (For Laundry Starch.) QUEEN QUALITY STARCH CO., Fort Worth, Tex. Filed February 10, 1902.

9,140.—Title: "MINERVA LINE." (For Hair-Tonic.) THOMAS H. BOWLES, Brooklyn, N. Y. Filed April 17, 1902.

9,141.—Title: "CURE ALL LINIMENT." (For Liniment.) LEWIS E. WOOD, Bellingham, Mass. Filed April 21, 1902.

9,142.—Title: "THE UNIQUE RHEUMATIC FOOT PLASTER." (For Plasters.) JAMES WILLIAMS, Lynn, Mass. Filed January 22, 1902.

PRINTS

REGISTERED MAY 13, 1902.

903.—Title: "THE FIRST WIRELESS TELEGRAM." (For a Food.) AMERICAN LITHOGRAPHIC COMPANY, Buffalo, N. Y. Filed April 12, 1902.

904.—Title: "THE MARKET GIRL." (For Condensed Milk.) BORDEN'S CONDENSED MILK CO., New York, N. Y. Filed April 14, 1902.

905.—Title: "THE MARKET GIRL." (For Condensed Milk.) BORDEN'S CONDENSED MILK CO., New York, N. Y. Filed April 14, 1902.

906.—Title: "20TH CENTURY COMPLEXION BEAUTIFIER." (For a Toilet Preparation.) DANIEL H. ROWE, Toledo, Ohio. Filed April 10, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE VERLEY.

Decided September 11, 1901.

1. ANTICIPATION—COMMISSIONER—REJECTION UPON TWO REFERENCES—OZONE APPARATUS.

A claim covering an ozonizer in combination with a particular apparatus for producing currents of high frequency held lacking in patentable novelty in view of two prior patents, one showing an ozonizer in combination with one form of high-frequency apparatus and the other showing the particular high-frequency apparatus claimed in combination with different translating devices.

2. SAME—DOUBLE USE.

Held that the substitution of one old form of high-frequency apparatus for another in the production of ozone involves mere double use and not invention.

APPEAL from Examiners-in-Chief.

ELECTRICAL MACHINES.

Application of Albert Verley filed October 2, 1897, No. 653,809.

Messrs. Pollak & Mauro for the appellant.

ALLEN, Commissioner:

This is an appeal from the decision of the Examiners-in-Chief affirming the rejection by the Primary Examiner of the following claim:

In an electrical machine for producing ozone, the combination with the secondary circuit of a transformer, of a condenser connected in and adapted to be charged by said circuit, and an effervescence apparatus into which said condenser discharges its electricity, one plate of the condenser being metallically continuous with one plate of the effervescence apparatus, and the other plate of the condenser having an interruption or air-space in its connection with the other plate of the effervescence apparatus.

The references are patents to Tesla, June 23, 1891, No. 454,633; Tesla, November 3, 1891, No. 463,410; Tesla, September 28, 1896, No. 568,177.

The fundamental idea of this invention seems to be to use high-frequency currents for the production of ozone. The appellant makes use of a particular apparatus to produce the currents of high frequency and applies them to what is known as an "ozonizer."

It is old to apply currents of high frequency to an ozonizer to produce ozone, as disclosed in the patent to Tesla, No. 568,177, cited, and it is old to produce currents of high frequency by the same means as that described by the appellant, as shown by the other patents to Tesla, Nos. 454,633 and 463,410, cited, and therefore the only question presented for decision is: Was invention required to substitute the old form of high frequency apparatus for the apparatus used for the same purpose in

Tesla's Patent No. 568,177 in connection with an ozonizer?

In his Patent No. 568,177 Tesla recognized the fact that high-frequency currents were necessary for use with an ozonizer and described a particular apparatus which he intended to use to generate such currents. It would seem that after this disclosure any one skilled in the art would understand that any means disclosed in the art for producing the currents of the requisite character could be substituted for the particular means shown. That Tesla's previous devices produced currents of that character is apparent from the patents themselves and is furthermore indicated by Tesla in his Patent No. 568,177, wherein he states that the apparatus used by him is of the same general character as his previously-patented devices for producing high-frequency currents. After referring to his previous devices he says:

In my present improvement I have utilized appliances of this general character.

If there were any doubt whether the adaptability of Tesla's earlier devices to the production of ozone would be apparent to one skilled in the art, it would be dissipated by the reference in the ozone patent itself to those devices as being of the same general character as the one then used for the production of ozone. This reference would suggest the idea if it were not apparent from an inspection of the appliances disclosed.

In his Patent No. 454,633 Tesla happens to show his apparatus for generating currents of high frequency used for operating lamps; but it is obviously adapted for use with other translating devices requiring currents of high frequency, and that Tesla understood this is indicated by statements in the patent. To merely substitute it for the particular means shown in Patent No. 568,177 for the same purpose—viz., to produce currents of high frequency—would clearly not involve inventive thought.

The appellant argues that his device is the first one to practically and successfully produce ozone and that Tesla's devices are theoretical merely and not practical. This Office has no means to verify this contention. Whether or not Tesla has actually made devices which successfully produce ozone he has described to the public how it may be done, and his description would convey the same idea to those skilled in the art as to what means should

be employed as would the appellant's description. If one skilled in the art could produce a successful device from the appellant's description, it is believed that he could do so from the disclosure in Tesla's patents. The devices would be of the same construction if the apparatus for generating high-frequency currents of Patent No. 454,022 were used with the oscillator of Patent No. 538,177.

The decision of the Examiners-in-Chief is affirmed.

EX PARTE EICKEMEYER.

Decided April 26, 1902.

1. ASSIGNMENT—SUBJECT TO LICENSE—ISSUING PATENT TO ASSIGNEE.

Where an instrument is recorded in this Office transferring the invention "subject to a license," Held that the patent will not be issued to the assignee.

2. SAME—SAME—EFFECT OF LICENSE.

Where an instrument transfers an invention "subject to" a previous instrument referred to as a license, Held that without an inspection of the first instrument it cannot be determined whether or not the second conveys the entire title.

ON petition.

ELECTRIC LOCOMOTIVE.

Application of Rudolf Eickemeyer filed August 10, 1892, No. 442,722.

Mr. A. G. Davis for the applicant.

ALLEN, Commissioner:

This is a petition that the patent to be granted on the above-entitled application may be issued to the General Electric Company as assignee in view of certain assignments of record in the Patent Office.

It appears from the records of this Office that the application in question has been transferred by direct and mesne assignments to the General Electric Company. By these assignments all right, title, and interest in the invention, application, and Letters Patent is transferred to the latter company—

subject to a license as to hoisting apparatus granted by instrument dated June 14, 1893, made by the Eickemeyer and Osterheld Manufacturing Company, Rudolf Eickemeyer, Henry Osterheld, and Rudolf Eickemeyer, Jr., the Eickemeyer Dynamo Machine Company and Otis Brothers and Company, parties of the first part, and Duncan Smith as trustee, party of the second part.

Under the law (sec. 4893, R. S.) the Commissioner of Patents has discretionary authority to grant and issue patents to the assignee of the inventor or discoverer, provided that the assignment be first entered in the Patent Office. In the carrying out of this provision of the law Rule 26 of the Rules of Practice provides that—

In case of an assignment of the whole interest in the invention, or of the whole interest in the patent to be granted the patent will, upon request of the applicant, be assigned to the assignee.

It is clear from the provision of the statute and of the rule quoted above that the Commissioner may issue the patent to the assignee of the whole interest instead of to the inventor. It is equally clear that if the assignment be of an interest less than the whole there is no authority by which the patent may be granted to the assignee exclusively.

The question presented in the case now under consideration is: Do the assignments of record con-

vey the whole interest in the application and the patent to be granted therein to the General Electric Company?

In answering this question the difficulty is found in the words "subject to a license, etc.," as recited above. If this alleged license is of such a nature that neither the monopoly nor an undivided part thereof is conveyed, it does not affect the legal title to the invention or the patent to be granted therefor. (*Russell v. Kern*, 58 Fed. Rep., 382; *Waterman v. McKenzie*, 138 U. S., 302.) The mere fact, however, that the instrument is described in the various assignments as a license is not of itself sufficient to establish the real character of the rights covered by said instrument. This can be determined only by an inspection of the instrument in order that these rights may be ascertained. Should it appear upon such inspection that the rights are of such a nature as to convey the monopoly or any part thereof, it is clear that the General Electric Company cannot have the whole interest in the present application nor in the Letters Patent to be granted thereon.

The reference to this license in the assignments which are of record in this Office raises a doubt as to the exact interest which these assignments convey. They may or may not convey the whole interest. Under these circumstances this Office should not undertake to determine the nature of the rights conveyed by the assignments, but in the exercise of the discretionary power conferred by law should issue the patent to the applicant.

The petition is denied.

EX PARTE WORDEN.

Decided April 15, 1902.

DIVISION—TWO SPECIES—LIMITATION BEFORE ACTION ON MERITS.

When an application contains a generic claim and claims for two distinct species, a requirement that the claims be limited to a single species is equivalent to a requirement for division under Rule 41. This limitation should be made prior to any action on the merits.

ON petition.

SUGAR-CASHEWTS.

Application of Will J. Worden filed January 2, 1902, No. 80,181.

Mr. James J. Shesky for the applicant.

ALLEN, Commissioner:

This is a petition that the Examiner—be advised that applicant is entitled to an action on the merits of claim 1 before deciding which of two sets of specific claims he will prosecute in this application, and that the Examiner be directed to give such action.

It appears that the application contains a generic claim and claims for two distinct species of the invention covered by this generic claim. The Examiner has required a limitation of the claims to a single species before action on the merits.

This requirement is equivalent to a requirement for division under Rule 41. Hence the question whether or not action on the merits should be given prior to a compliance with the requirement for limitation of the claims is to be determined by Rule 41.

This rule provides that when the independence

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of the inventions is clear limitation will be made before any action on the merits; otherwise it may be made at any time before final action thereon, in the discretion of the Examiner.

It is not denied that the claims of the present application cover two distinct species, which cannot both be retained in the same case. It is clear, therefore, that the action of the Examiner requiring limitation before action on the merits was correct.

The petition is denied.

EX PARTE HOUGHTON.

Decided April 15, 1902.

1. LABELS—PRINTED MATTER—NOT REGISTERABLE.

A label which contains nothing more than an arrangement of printed matter naming and describing a medicine, together with directions for its use and the name and residence of the manufacturer, is not an artistic production and is not registrable.

2. SAME—ARBITRARY WORD—NOT ARBITRARY.

A label containing a new arbitrary word may be an intellectual production; but such a word does not render the label registrable.

3. SAME—ABSENCE OF ARTISTIC MERIT.

In the absence of artistic merit there is no provision for the registration of a label under the statute relating to copyrights, under which statute such registration is granted.

ON appeal.

LABEL FOR MEDICINAL PREPARATION.

Application of Alfred S. Houghton filed March 15, 1902, No. 2,616.

Mr. Houghton pro se.

ALLEN, Commissioner:

This is an appeal from the action of the Examiner refusing to register a label entitled "Dr. Houghton's Rheumalgine," to be used upon a medicinal preparation.

Registration has been refused because the label involves in its production nothing beyond the expected skill of the type-setter.

An inspection of the label shows that the objection is well taken. It contains nothing more than an arrangement of printed matter naming and describing the medicine, together with directions for its use and the name and address of the manufacturer. It is well settled that such a label is not registrable. (*Ex parte Baldwin*, 98 O. G., 1706; *ex parte Mahn*, 99 O. G., 1310.)

Applicant contends that the label is an intellectual production because of the word "Rheumalgine," which, he states, is of his own coinage, to convey the idea of a remedy opposed to rheumatic pain. However this may be, it is clear that this label is not an artistic production, and for this reason it is not registrable. As was said in *ex parte Mahn*, supra:

The law was designed to give protection to the maker of a new creation possessing artistic merit.

In the absence of artistic merit there is no provision for the registration of a label under the statute relating to copyrights, under which statute such registration is granted.

The action of the Examiner was correct and is affirmed.

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EX PARTE NICHOLS AND SHEPARD COMPANY.

Decided April 26, 1902.

TRADE-MARK—THE WORDS "RED RIVER SPECIAL" HELD NOT REGISTRABLE.

The words "Red River Special" held not to be registrable as a trade-mark for agricultural machinery on the ground that the words "Red River" are geographical and the word "Special" is indicative of grade or style, and therefore the mark is not as an entirety indicative of origin or ownership. (*Brown v. Trade-Marks*, sec. 340, 347; *ex parte Buffalo Pitts Co.*, 99 O. G., 309.)

ON appeal.

TRADE-MARK FOR AGRICULTURAL MACHINERY.

Application filed November 26, 1901, No. 64,561.

Mr. Rowford M. Smith for the applicant.

ALLEN, Commissioner:

This is an appeal from the refusal of the Examiner to register the words "Red River Special" as a trade-mark for agricultural machinery consisting of threshing-machines, clover-hullers, and grain-separators.

The Examiner refused to register the mark "Red River Special" on the ground that "the words 'Red River' are geographical and the word 'Special' is indicative of grade or style and therefore the mark" is not as an entirety indicative of origin or ownership.

An affidavit has been filed by the president of the company to the effect that the goods are manufactured at Battlecreek, Mich., and that the words "Red River Special" are used in an arbitrary and fanciful sense, that threshing-machines manufactured by the company are not built in any place or locality by the name of Red River and are not built for the purpose of being sold in such a place or locality, and that there is no place or locality by the name of Red River in which any threshing-machines are built.

The test as to the registrability of a mark which has geographical significance is whether the arbitrary or fanciful meaning of the mark so overcomes its geographical meaning that the mark would ordinarily be accepted in its arbitrary or fanciful sense and not as designating locality. (*Ex parte Monogue-Pidgeon Iron Company*, 97 O. G., 3084; *ex parte Huensfeld*, 98 O. G., 1968.) In order, therefore, to warrant the refusal of registration, the geographical meaning of the mark must be predominant. In the case of the words "Red River" the geographical meaning is predominant.

These words signify a parish in the State of Louisiana, a county in the State of Texas, and an important river flowing into the Mississippi, forming certain State and Territorial boundary-lines in the southern portion of this country, and the words "Red River of the North" signify another well-known river running from southern Canada through a portion of the northern part of this country. The Red River Valley of the North through which this river flows signifies a section of country noted for its agricultural products.

The words "Red River" cannot be said to have any other than a geographical meaning. There is no fanciful suggestion attaching to these words to overthrow their geographical significance.

The word "Special" alone is clearly not registrable. This is conceded by the appellant. The words "Red River" and the word "Special" not being registrable when used alone are not registrable when combined. (*Brown on Trade-Marks*, secn. 344, 347; *ex parte Buffalo Pitts Co.*, 80 O. G., 2009.)

The decision of the Examiner is affirmed.

VANDEN BERGH AND COMPANY v. BELMONT DISTILLERY COMPANY.

Decided April 22, 1902.

1. TRADE-MARK INTERFERENCE—BURDEN OF PROOF—REGISTRATION UNDER THE ACT OF 1870.

Where in a trade-mark interference one of the applicants had in 1870 registered the mark under the Invalid Trade-Mark Act of 1870, *Held* that he is not entitled to the date of that registration in deciding upon whom the burden of proof shall be placed.

2. SAME—REGISTRATION AS EVIDENCE OF OWNERSHIP.

Under the present trade-mark law registration is *prima facie* evidence of ownership, and therefore the opposing party must show use in the United States before its date; but this does not apply to registration under the old law, which has been held *non est*.

3. SAME—SAME—PRESENT LAW AND OLD LAW COMPARED—USE NOT REQUIRED.

Registration under the act of 1870 has merely the effect of a printed publication and conveys no presumption of use in this country, since that act did not require use as a condition precedent to registration.

APPEAL ON MOTION.

TRADE-MARK FOR SPIRITUOUS LIQUORS.

Application of Vanden Bergh and Company filed February 20, 1901, No. 63,735. Trade-mark to Belmont Distillery Company registered April 23, 1899, No. 16,504.

Messrs. Brice & Knauth for Vanden Bergh and Company.

Messrs. H. B. Wilson & Co. and Mr. W. H. Singleton for Belmont Distillery Company.

ALLEN, Commissioner:

This is an appeal by Vanden Bergh and Company from a decision of the Primary Examiner denying their motion to shift the burden of proof in the above-entitled interference to the Belmont Distillery Company.

The records show that this interference was declared on December 4, 1901, and that the applicants, Vanden Bergh and Company, and the registrant, Belmont Distillery Company, were made, respectively, the junior and senior parties thereto under the well-settled practice of this Office because of their respective dates of filing.

This relation between the two parties makes it incumbent upon the junior parties to be the first to take testimony.

In view of the fact that the senior party is a registrant and of the further fact that section 7 of the Trade-Mark Act approved March 3, 1881, provides "that registration of a trade-mark shall be *prima facie* evidence of ownership" it is essential for the applicant in order to be entitled to an award of priority to establish, among other things, a date of

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use of the trade-mark in the United States prior to the date of the other party's registration.

In this interference, however, the applicants and appellants, Vanden Bergh and Company, call attention to the fact that they registered the same mark for the same class of goods on April 23, 1870, under the Trade-Mark Act of 1870. They argue that this registration is a part of the records of this Office and should be recognized and entitles them to an award of priority should the opposing party take no testimony. They therefore contend that this registration of 1870 entitles them to be recognized as the senior party to this interference. The registration of 1870 was declared unconstitutional by the Supreme Court of the United States. (*Trade-Mark Cases*, 100 U. S., 82.) This registration therefore amounts to nothing more than a publication and can have no more force and effect as against the common-law trade-mark rights of another party than any other publication. It cannot have the effect of a registration under the act of 1881, as provided in section 7 of said act. Furthermore, the registration of 1870 conveys no presumption of use in the United States. The law then in force did not require as a condition precedent to registration use in the United States, but was satisfied by a mere intention to so use. Moreover, the records show that the applicants have their domicile abroad and there is no allegation of use in the United States prior to the date of filing of the present application.

The decision of the Examiner refusing to shift the burden of proof is affirmed.

HOFFSTETTER v. KAHN.

Decided April 22, 1902.

INTERFERENCE—NOTICES—RULE 97 REQUIRES DISCLOSURE BY TITLE OF INVENTION.

The requirement of Rule 97 that the notices of interference should disclose "the invention claimed" means that the invention claimed should be disclosed by its title.

ON REFERENCE.

AS COOKING-STOVE.

Application of Charles H. Hoffstetter for gas or vapor burners. Application of Lazard Kahn for gas cooking-stoves.

Mr. H. T. Fisher and Messrs. Blackwood Bros. for Hoffstetter.

Mr. James W. See and Mr. F. B. Brock for Kahn.

ALLEN, Commissioner:

A disagreement having arisen between the Examiner of Interferences and the Primary Examiner as to the construction of Rule 97, this interference is referred for decision under the provisions of Rule 99.

In the notices of interference prepared by the Primary Examiner the title of the invention of the opposing parties has not been disclosed. The Examiner of Interferences is of the opinion that one of the provisions of Rule 97 is that the notices should disclose to the opposing parties the titles of the inventions claimed. For this reason he held

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the notices in this case to be defective and "transmitted his objections to the Primary Examiner." (Rule 98.) The Primary Examiner is of the opposite opinion and promptly notified the Examiner of Interferences of his decision not to amend the notices. (Rule 98.)

The question involved is not one which can in any way affect the proper determination of the question of priority of invention or the rights of either party to this proceeding and for this reason is not of great moment. It merely involves the construction of the phrase "the invention claimed" in Rule 97.

The rule requires that the notices of interference shall disclose, among other things, "the ordinals of the conflicting claims and the invention claimed; and the issue."

The Primary Examiner is of the opinion that the invention claimed is disclosed by means of the issue, and therefore the requirement that the notices shall disclose "the invention claimed; and the issue" is a mere repetition.

The Examiner of Interferences is of the opinion that the rule requires the invention claimed to be disclosed by its title in addition to the issue and the counts thereof. It is the general rule of the Office in designating an application for a patent to refer to it by the name of the inventor, the title of the invention, the serial number, and its date of filing. In a notice of interference it would be manifestly improper to designate the application involved by its serial number and its date of filing. In view of this fact it is necessary to refer to the same by the only other available means of identification—namely, the name of the inventor and the title of the invention claimed. The rule specifically provides for a disclosure of the name of the inventor. It also provides for a disclosure of the invention claimed as well as for a disclosure of the issue. The issue of course is in one sense a disclosure of the invention claimed, but in many cases it would be impossible to tell the nature of the invention from a mere reading of the issue.

Many claims begin with the expression:

Is a device of the class described, the combination, etc.

In considering such a claim the disclosure of the title would be of material assistance in determining the nature and scope of the invention claimed.

The Primary Examiner states that—

It was the practice years ago to include in the notice of interference to each party, the title of the invention of the opposing party. Some Examiners may still continue to do so, but most of the Examiners have long since ceased to do so, and the notices with a useless recital of the title of the opposing party's invention.

In reply the Examiner of Interferences states:

There has been no violation of what is believed to be the requirement of the rule in this respect, and if in certain cases notices have been sent out from the Interference Division in which this requirement has not been complied with, it has been through inadvertence or oversight.

The requirement of Rule 97 that "the invention claimed" be disclosed means that the invention claimed should be disclosed by its title.

The objection made by the Examiner of Interferences to the notices is well taken, and they should be amended in conformity with this decision.

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DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

IN RE SWINBURNE.

Decided April 1, 1902.

1. FOREIGN PATENT—SECTION 4887, REVISED STATUTES—BAR TO PATENT HERE.

Where an application is filed in this country on April 22, 1898, for an invention patented in England and it appears that the application and provisional specification were filed in the British Patent Office on May 1, 1897, the complete specification was filed February 28, 1898, and was accepted June 1, 1898, and the patent was sealed and delivered August 16, 1898, *Held* that the application here cannot be allowed in view of section 4887, Revised Statutes.

2. SAME—SAME—DATE OF BRITISH APPLICATION—PROVISIONAL SPECIFICATION.

The time of filing the application in the British Patent Office accompanied only by the provisional specification must be taken as the date of the application for the foreign patent within the meaning of section 4887, Revised Statutes. (*Ex parte Smith*, 55 O. G., 2031, cited with approval.)

3. SAME—SAME—ORIGINAL PAPER REQUESTING PATENT.

Independent of the form or function of either specification that may be filed in connection with it the instrument entitled the application throughout the British patent law remains the initiatory step in the proceeding to obtain a patent under that law and must therefore fix the date from which the limitation of section 4887, Revised Statutes, begins to run.

4. SAME—SAME—PROVISIONAL SPECIFICATION AND CAVEAT CONSIDERED.

Held that the original paper called the "application" is not a mere introduction to the provisional specification and that the provisional specification is not the equivalent of a caveat under the United States law.

Mr. Hermann C. Wollereck and Mr. F. C. Somes for the appellant.

Mr. John M. Cott for the Commissioner of Patents.

SHEPARD, J.:

The appellant appeals from a decision of the Commissioner of Patents denying his application for a patent for an improvement in the process of treating sulfid ores.

The appellant holds a British patent for the same invention issued as of May 1, 1897. His application was filed in the United States Patent Office April 22, 1898.

The sole ground of refusal is that the present application was filed more than seven months after the filing of the application for the British patent.

Section 4887 Revised Statutes which regulates the subject reads as follows:

No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or claimed to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country.

Section 5 Part II, of the British Patent Act contains five clauses regulating applications for patents.

Clause (3) provides:

An application must contain a declaration to the effect that the applicant is in possession of an invention whereof he claims to be the true and first inventor, and for which he desires to obtain a patent; and must be accompanied by either a provisional or complete specification.

Clause (3):

A provisional specification must describe the nature of the invention, and be accompanied by drawings, if required.

Clause (4):

A complete specification, whether left on application or subsequently, must particularly describe and ascertain the nature of the invention, and in what manner it is to be performed, and must be accompanied by drawings, if required.

Clause (5):

A specification, whether provisional or complete, must commence with the title, and in the case of a complete specification must end with a distinct statement of the invention claimed.

Every application so made is referred to an Examiner who shall report whether the invention has been fairly described, etc., and whether the title sufficiently indicates the subject-matter of the invention. (*Idem* sec. 6.)

If the Examiner reports that the nature of the invention is not fairly described, or the application, specification and drawings are not in proper form, or that the title does not sufficiently indicate the subject-matter of the invention, the Comptroller shall require amendments. (*Idem* sec. 7.)

If a complete specification is not left with the application, the applicant has nine months within which to file the same; and if not so filed the application shall be decreed to be abandoned. (*Idem* sec. 8.)

When the complete specification is left within the time, the Comptroller shall refer both the provisional and the complete specification to an examiner to ascertain whether the latter has been prepared in the prescribed manner—

and whether the invention particularly described in the complete specification is substantially the same as that which is described in the provisional specification. (*Idem* sec. 9.)

When the application has been approved—a patent shall be sealed as soon as may be and not after the expiration of fifteen months from the date of application, except, &c. . . . (*Idem* sec. 12.)

Clause (3):

Every patent shall be dated and sealed as of the day of the application: Provided that no proceedings shall be taken in respect of an infringement committed before the publication of the complete specification. . . . (*Idem* sec. 13.)

It appears from the record, that on May 1, 1897, the applicant filed his application in the British Patent Office in the required form accompanied by a provisional specification describing the nature of his invention as required.

On February 28, 1898, he lodged in the Patent Office a complete specification in conformity with the requirements thereof. June 1, 1898, the complete specification was accepted and on August 16, 1898, a patent was sealed and delivered, dated, however, as of May 1, 1897, when the original application and provisional specification had been filed.

The decisions of the Patent Office tribunals in this case adopt, without further discussion, the conclusion of Mr. Commissioner Duell, in another case decided December 20, 1896, and from which there was no appeal, to the effect that the time of filing the application in the British Patent Office, accompanied only by the provisional specification, must be taken as the date of the application for the foreign patent within the meaning of section 4867 Revised Statutes above quoted. (*Ex parte Smith*, S. C. C. D., 1898, 278; 35 O. G. 2091.)

That decision, in which the question was fully discussed, meets with our approval after a careful consideration of its grounds in the light of the able argument that has been presented on behalf of the

appellant, and leaves little, if anything, to be said in support of its conclusion.

We think that no other meaning can reasonably be deduced from the language of the British statute than that the application therein provided for, which may be accompanied by only a provisional specification, at the option of the applicant, is the application for the patent which may thereafter be issued upon a complete specification. As was said by Mr. Commissioner Duell in the decision before cited:

The complete specification is merely an amplification of the provisional specification. The provisional specification differs from the complete specification in that the former must describe the nature of the invention and the latter must particularly describe and ascertain the nature of the invention and in what manner it is to be performed.

We find nothing in opposition to this view in the recent decision in the Chancery Division of the High Court of Justice in England, to which our attention has been invited. (*Pneumatic Tyre Co. Company, Ltd. v. East London Rubber Company*, Vol. XIV, No. 5; *Reports of Patents, Design and Trade Mark Cases*, p. 77.)

On the contrary it seems to be directly upheld by the following expression in the opinion in that case:

Undoubtedly, in a provisional specification you must find the nature of the invention, though it need not be described otherwise than roughly to show as it is fairly described. But the provisional specification need not describe the manner in which the invention is to be carried into effect.

The first step of the inventor in the proceeding to secure a patent is called, and referred to as the application, throughout the British statute regulating proceedings in the Patent Office. This application is nowhere confounded with the provisional specification that must accompany it, or the complete specification that may be filed within nine months thereafter. It is this application that is granted when the patent issues, and which by express provision controls its date. The contention that the original paper called the application is practically a mere introduction of the provisional specification of the British patent law, and that the latter so closely resembles the *caveat* in the United States law (R. S. 4902) that it must, therefore, be regarded merely as its equivalent, in the construction of our statute, is ingenious and plausible, but we cannot accord its soundness.

It may be conceded that the provisional specification which may be first filed with the application in the British Patent Office has some of the features of the *caveat* in our system; but these do not operate to convert the complete specification thereafter to be filed into the application for the patent, within the meaning of section 4867, Revised Statutes, any more than of the British statutes heretofore recited.

Independent of the form or function of either specification that may be filed in connection with, or in support of it, the instrument entitled, and referred to as, the application throughout the British patent law, remains the initiatory step in the proceeding to obtain a patent under that law, and must, therefore, fix the date from which the limitation of section 4867 Revised Statutes begins to run.

The decision appealed from is right and must be affirmed. It is so ordered, and, in addition, that this decision be certified to the Commissioner of Patents as required by law.

[Vol. 99, No. 7.]

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 99.—No. 8.

TUESDAY, MAY 20, 1902.

Price—\$5 per year.

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Total Issues. . . . 617
TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama.	2		Nebraska.	2	
Alaska Territory.			Nevada.		
Arizona Territory.			New Hampshire.		
Arkansas.	2		New Jersey.	21	1
California.	21	1	New Mexico Territory.		
Colorado.	10	2	New York.	55	11
Connecticut.	1		North Carolina.	3	
Delaware.	1		North Dakota.		
District of Columbia.	1		Ohio.	20	2
Florida.	1		Oklahoma Territory.		
Georgia.	4		Oregon.		
Hawaii Territory.			Pennsylvania.	24	1
Idaho.			Rhode Island.	5	1
Illinois.	24	4	South Carolina.		
Indiana Territory.	1		South Dakota.		
Indiana.	12	1	Tennessee.		
Iowa.	4		Texas.	6	
Kansas.	13		Utah.	1	
Kentucky.	2		Vermont.		
Louisiana.	2	2	Virginia.	2	
Maine.	2		Washington.	2	
Maryland.	4	1	West Virginia.		
Massachusetts.	13	2	Wisconsin.	23	
Michigan.	13	4	Wyoming.		
Minnesota.	7	2	U. S. Navy.		
Mississippi.	1				
Missouri.	16	1			
Montana.	2	1			
			Total to citizens of the United States.	617	44

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Austria-Hungary.	3		Netherlands.		
Barbados.			Newfoundland.		
Belgium.	1		New South Wales.		
Bermuda.			New Zealand.		
Brasil.			Norway.		
Canada.	9		Peru.		
Cape Colony.			Queensland.		
Chile.			Roumania.		
China.			Russia.		
Cocos Island.			Scotland.	3	
Colombia.			South African Republic.		
Cuba.			Spain.		
Denmark.	1		Sweden.	1	1
Egypt.	17	1	Switzerland.		
England.	6	1	Tasmania.		
France.	27	6	Victoria.		
Germany.			Western Australia.		
Haiti.					
India.	2				
Ireland.	1				
Italy.	1				
Mexico.	1		Total to citizens of foreign countries.	34	9

Changes in Classification.

(ORDER No. 1,472.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

Washington, D. C., May 20, 1902.

The following changes in classification are directed:
In Division V, class 54, Harvesters, the following subclasses are established:

- Binders—
- 190. Sheaf-carriers—
- Automatic-dump,
- Shock-formers—
- 121. Automatic—
- 122. Self-binding,
- 123. Hand.

In Division XXVI, class 173, Electricity, Motive Power, the following subclasses are established:

- Transmission of power—
- Direct—
- 225. Magnetic clutches.

F. I. ALLEN,
Commissioner.

Inks.

(ORDER No. 27.)

All applications, communications, and other instruments in writing or print, which should properly constitute a permanent record in this Office, must be prepared with a substantially permanent ink. Anilin and other perishable inks will not be accepted.

APPLICATIONS UNDER EXAMINATION.

Condition of Close of Business May 15, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
In arrears—Under one month.				
117	XXXIII. *Designs,†Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Apr. 26	May 2	46
106	II. Farm Stock, Products, etc., Lathes, Presses, Stationery, etc.	Apr. 24	Apr. 26	281
148	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Apr. 28	Apr. 29	188
206	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Apr. 18	Apr. 26	280
221	IX. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Apr. 16	Apr. 26	191
208	X. Carriages and Wagons.	Apr. 15	May 1	122
80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Apr. 15	Apr. 14	206
186	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Apr. 14	Apr. 20	188
261	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Apr. 14	Apr. 20	179
287	XV. Plastics, Paper-Making, Tanning, Cutlery, Glass, Fuel, Bread-Making, etc.	Apr. 14	Apr. 20	287
206	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Apr. 14	Apr. 20	217
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coals, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Apr. 14	Apr. 20	172
187	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Apr. 14	Apr. 20	281
44	XXV. Acoustics, Scaffolds, Bookbinders, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Apr. 14	Apr. 20	300
206	I. Tillage, etc., and Fences.	Apr. 14	Apr. 20	198
222	XXVII. Brushing and Scrubbing, Grating and Polishing, Laundry, etc.	Apr. 14	Apr. 20	210
224	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Apr. 14	Apr. 20	229
221	XXXIV. Railways, Railway-Motors, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Apr. 14	Apr. 21	218
Between one and two months.				
206	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Apr. 12	Apr. 20	195
200	XIV. Metal-Bonding, Ornamenting, and Personal Wear, Pottery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Apr. 12	Apr. 23	226
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Apr. 11	Apr. 22	166
200	VIII. Furniture, Store Fixtures, Beds, Kitchens and Table Appliances, and (Black-Overhead) Apparatus.	Apr. 10	Apr. 22	179
188	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Apr. 10	Apr. 22	244

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting of action.		No. of applications awaiting action.
		New.	Amended	
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Apr. 9	Apr. 8	408
128	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Apr. 7	Apr. 25	196
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Apr. 4	Apr. 2	208
100	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Mar. 24	Apr. 15	169
126	XXIX. Wood-Working Machines, Coopering and Booding.	Mar. 21	Apr. 1	227
<i>Between two and three months.</i>				
202	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Mar. 10	Mar. 5	208
240	VII. Velocipedes, Clutches, Fire-Engines, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Mar. 8	Apr. 29	202
246	XVIII. Steam-Engineering, etc.	Mar. 7	Mar. 12	417
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 1	Mar. 8	566
80	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 1	Mar. 1	475
149	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Mar. 1	Feb. 21	467
92	XII. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 20	Mar. 10	400
105	II. Boots and Shoes, Harness, Hoses and Belting, Leather Manufactures, Nailing and Stapling, Button-Making, and Whips.	Feb. 2	Mar. 21	400

Total number of applications awaiting action..... 9,312

Under one month.

*Designs.....	Apr. 24	Apr. 20	124
†Trade-Marks.....	Apr. 23	May 6	120
‡Labels and Prints.....	May 6	Apr. 22	18

Design Patents.

AN ACT to amend section forty-nine hundred and twenty-nine of the Revised Statutes, relating to design patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-nine hundred and twenty-nine of the Revised Statutes be, and the same is hereby, amended so as to read as follows:

"SEC. 4929. Any person who has invented any new, original, and ornamental design for an article of manufacture, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, the same as in cases of inventions or discoveries covered by section forty-eight hundred and eighty-six, obtain a patent therefor."

Approved May 2, 1902.

Hearings.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., May 16, 1902.

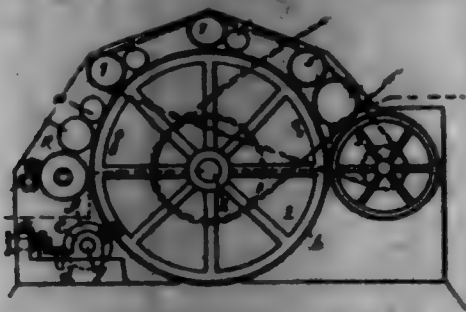
Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1902.

F. I. ALLEN,
Commissioner.

PATENTS

GRANTED MAY 20, 1902.

700,164. GRINDING ATTACHMENT FOR CARDING-MACHINES. JAMES AUGUSTUS DODGE, Wash. Filed May 22, 1901. Serial No. 41,388. (No model.)



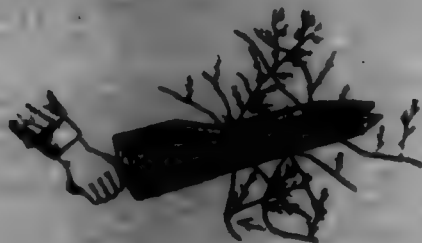
Claim.—1. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder covered with carding-cloth, a doffer, a tumbler, and a grinding device permanently located between the doffer and the tumbler and on the tumbler side of the cylinder and therebelow, and means to rotate said grinding device in the same direction with the cylinder, whereby the carding-cloth may be ground while the machine is doing its work.

2. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder covered with carding-cloth, a doffer, a tumbler, and a grinding device permanently located between the doffer and the tumbler and therebelow, whereby the carding-cloth may be ground while the machine is doing its work, said grinding device movable to and fro longitudinally of the cylinder, and toward and away from said cylinder.

3. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder, a doffer, a tumbler, a rotatable grinding device located between the doffer and the tumbler and therebelow, sliding bearings upon said bed carrying the shaft of said grinding device, bearing-blocks located beneath the sliding bearings, means to adjust the sliding bearings upon said blocks, and means to rotate said grinding device in the same direction with said cylinder, whereby the carding-cloth may be ground while the machine is doing its work.

4. In a carding-machine, the combination with a main carding-cylinder provided with a doffer and with a tumbler, of a grinding device permanently located adjacent to the portion of the cylinder free from the material being carded, between the doffer and the tumbler and therebelow, whereby the cylinder may be ground while the machine is doing its work.

700,165. CRANBERRY-PICKER. CHARLES H. BATHURST, Riverhead, N. Y. Filed Oct. 17, 1901. Serial No. 78,942. (No model.)



Claim.—1. A berry harvester or picker consisting of a single structure including a pan and forwardly-extending fingers said fingers being closed at the bottom and sides and open at the top, and communicating at their rear ends with said pan.

2. A berry harvester or picker consisting of a single structure including a pan having forwardly-extending upturned fingers at the front said fingers having a bottom, sides, and a pointed front end, and being open at the top and having their rear ends open to communicate with the pan.

3. A berry-harvester consisting of a pan or receiver, and fingers at the front portion thereof and closed at the sides and bottom and open at

the top, said fingers having the forward extremities of their sides converging to form a pointed end, and the upper edges of the forward portions of the sides inclining downwardly toward said end, and the rear portions of the fingers communicating with the pan.

700,166. PROJECTILE. OLIVER G. BOWMAN, Clinton, Iowa. Filed Feb. 19, 1902. Serial No. 69,346. (No model.)



Claim.—1. A projectile comprising two sections which are conical and hollow, hinges for joining the sections together and a weighted string secured to one section and wound about said sections for holding them together a predetermined time, and a figure inclosed and carried by the sections, adapted to disintegrate when released, as and for the purpose described.

2. A projectile comprising two conical sections having a circumferential groove, hinges connecting said sections, an elastic connection secured to each of the sections over their hinged portions, a string secured to one of the sections and wrapped in the groove, a weight, a string to which the weight is secured, said string being attached to one of the sections as stated, and a figure inclosed and carried by the projectile.

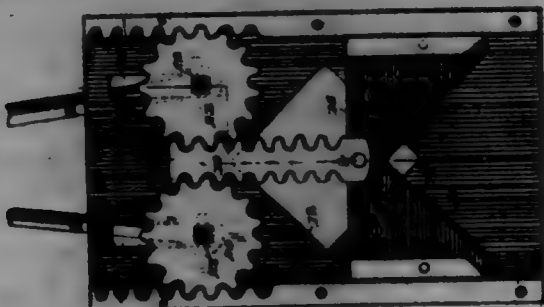
700,167. SPOOL-HOLDER FOR SEWING-MACHINES. JAMES BOWEN and GEORGE BUCKLEY, Sunderland, England. Filed June 12, 1902. Serial No. 739,086. (No model.)



Claim.—In combination with an arm of a sewing-machine and the spindle thereon to receive a bobbin, a rotatable disk carried by the arm around said spindle and retained stationary by the engagement of a gripping device carried by it with the spindle, a rotatable disk of slightly larger diameter than the bobbin end and located in the recess in the stationary disk, said rotatable disk being provided with a split tube whereby

the bobbin is attached to it, a disk or washer between the bobbin and the rotatable disk and adapted to form a ledge covering the space between the rotatable disk and the fixed disk on which loose coils of thread are received, and a shield or guard carried by the stationary disk and arranged so as to partially surround the rotatable disk and the bobbin for preventing any loose coils forming at the upper part of the bobbin from falling outside of the disks, substantially as described.

700,168. DEHORNING INSTRUMENT. JOHN C. KNOWL, Jerseyville, Ill. Filed Sept. 24, 1900. Serial No. 30,974. (No model.)



Claim.—A dehorning instrument comprising two rectangular frame plates each provided near its center with a rectangular opening having one of its diagonals disposed parallel with the length of the plate, and with two longitudinal slots arranged near one end thereof, and in parallel relation with the sides of the plates, spacing-bars for holding the plates separated at the proper distance apart, the opposed faces of the bars at one end of the plates being formed into racks, and the remainder of the length of each bar being smooth to constitute a guide, a knife having a right-angled recess to coact with the said rectangular openings, and carrying slides to engage the smooth portions of the bars whereby the knife will be guided positively and will be held from any rocking movement, a double-toothed rack-bar carried by the rear portion of the knife and projecting normally beyond the rear ends of the plates, gears meshing with the racks of the spacing-bars and with the double rack-bar, square-shanked studs passing through the said gears and working in the slots in the frame-plates, and bifurcated operating-levers straddling the frame-plates and engaging the said studs, whereby positive pressure will be applied to the said gears equally on both sides thereof, thus to prevent any tendency to lateral strain thereon, which would tend to cause uneven meshing with the racks, substantially as and for the purpose specified.

700,169. INSTRUMENT FOR REMOVING FLOOR-BOARDS SINGLY. JAMES M. CANNACK, Summit, N. J. Filed Jan. 21, 1901. Serial No. 44,064. (No model.)



Claim.—An instrument for removing floor-boards singly, consisting of and comprising, a wooden handle; A, having comparatively thin blade B; and a transverse resistance-plate C, wide enough to resist the thrust of said blade, and the lower end of said handle having haffle-cushions D, substantially as, and for the purposes specified.

700,170. PUMP. JOHN CLANTY, Sellers Grove, Wis. Filed Aug. 17, 1901. Serial No. 73,268. (No model.)

Claim.—1. A deep-well pump comprising a valved piston and a lower valve, a piston-actuating rod extending through the lower valve and its seat, and a rod-supporting spring partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

2. A deep-well pump comprising a valved piston and a centrally-open lower valve the seat for which has a central depending barrel, a piston-actuating rod, a barrel-fitting plunger on the rod, and a rod-supporting spring partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

3. A deep-well pump comprising a valved piston and a lower valve, a piston-actuating rod extending through the lower valve and its seat, a flanged cup in which the rod is stopped, and a spiral spring having the upper end thereof engaged by the cup, this spring being partially contractive under dead-weight of the piston-rod and column of water in the pump above the piston.

4. A deep-well pump comprising a valved piston and a centrally-open lower valve having a depending tubular shank, a shank-engaging barrel the major portion of which depends from the valve-seat central of same, a plunger in the barrel having a rod provided with a head opposing the piston, and a rod-supporting spring, this spring being contractive under dead-weight of the piston-rod and column of water in the pump above said piston.



5. A deep-well pump comprising a valved piston, and a centrally-open lower valve the seat for which has a central depending barrel, a piston-actuating rod, a barrel-fitting plunger on the rod, a lower spiral spring of less resistance than dead-weight of the piston-rod and column of water in the pump above the piston, a spring-engaging flanged cup in which the plunger-rod is stopped, a housing in which the spring is seated and a circumferentially-apertured coupling connecting the housing with the cage for said valve.

700,171. CASH-REGISTER. JAMES P. ORRILL, Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 3, 1900. Serial No. 633,014. (No model.)

Claim.—1. In a cash-register, the combination with two independently-mounted banks of counters, each comprising a series of independent counters, of a registering mechanism, devices for throwing the counters into connection with the registering mechanism, and means connecting the counters of the respective banks whereby when a counter of one bank is brought into connection with the registering mechanism for subsequent operation, the counters of the remaining bank are rendered inoperative in connection with their throwing device.

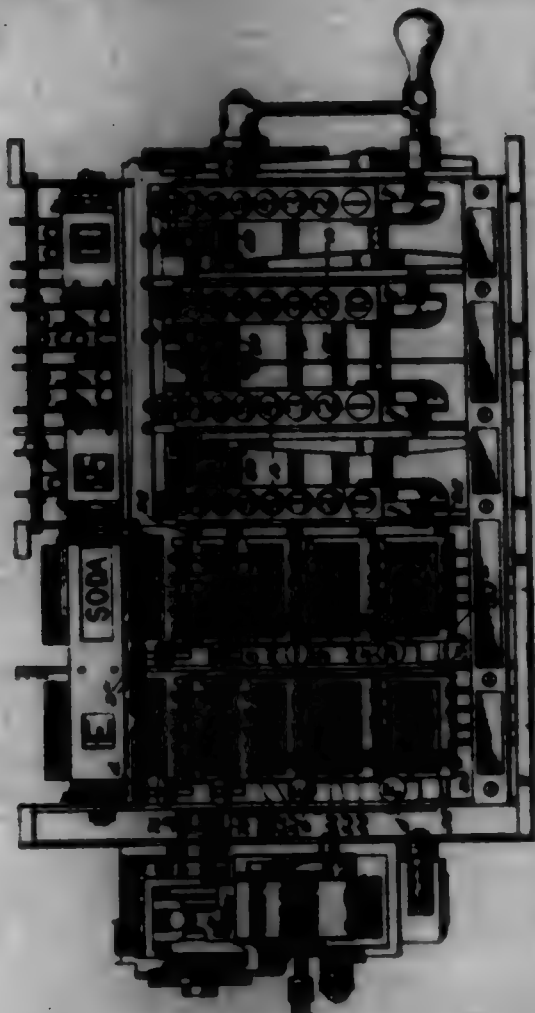
2. In a cash-register the combination with registering and printing mechanism, of a plurality of special counters arranged to be brought into connection with the registering mechanism at will and means connected to the special counters whereby a special printing device for a certain counter may be operated without throwing the counter into operative position.

3. In a cash-register the combination with a registering mechanism, of a series of counters having special printing devices for designating the operated counters and arranged to be brought into connection with the registering mechanism at will, and means adapted to be operated by a number of said counters for rendering the remainder inoperative in connection with the registering mechanism but operative in connection with the special printing device.

4. In a cash-register the combination with a registering mechanism, of a plurality of counters having special indicators and arranged to be thrown into connection with the registering mechanism at will, and means whereby the indicator of a certain counter may be set without throwing that counter into connection with the registering mechanism.

5. In a cash-register the combination with a registering mechanism, of a counter controlled by a special key, a slide carrying device through which the counter may be thrown into operative position and a second special key arranged to move said slide to prevent the operation of said counter through its key.

6. In a cash-register, the combination with a registering mechanism, of special counters controlled by special keys, a slide arranged to be operated by a number of said keys, and movable counter-throwing devices mounted on said slide and arranged to be operated by a number of said keys so that the counters of said latter keys will be thrown or not according to the position of the slide.



7. In a cash-register the combination with the registering mechanism, of a counter a slide carrying a pivoted pawl, a special key arranged to normally strike said pawl and then throw the counter into connection with the registering mechanism, and another key for moving said slide to remove the pawl out of the path of its keys.

8. In a cash-register the combination with the registering mechanism, of a plurality of special counters keys for bringing said counters into connection with the registering mechanism, a slide for establishing or breaking the connection between a portion of said keys and their counters, and another slide arranged to be operated by a number of the keys and connected to the first-mentioned slide.

9. In a cash-register the combination with the operating mechanism and a counter, a special key or other means for establishing an operative relation between said counter and the operating mechanism, a second counter, a second special key for establishing an operative relation between the second counter and said operating mechanism, a printing device arranged to print whenever said counter is brought into operative relation with the operating mechanism, means controlled by said first-mentioned special key for unlocking the operating mechanism, means controlled by said second special key for disestablishing or preventing operative relation between said first-mentioned counter and the operating mechanism, and a printing device arranged to print whenever said first-mentioned special key is operated.

10. In a cash-register, the combination with a registering mechanism and a totaling-counter, of a series of special counters and their keys, and means co-operating with a number of said special keys whereby when any of the same is operated the counters of the keys not connected to said means are rendered inoperative in connection with their keys without preventing the operation of the latter and the totaling-counter is also rendered inoperative.

11. In a cash-register, the combination with a totaling-counter, of two independent banks of special counters, keys for throwing the counters of the special banks into operative position at will, locking devices for the machine controlled by one of said special banks of keys and means operated by the remaining special bank for throwing the totaling-counter and the counters of the companion special bank out of operative position.

12. In a cash-register, the combination with a registering mechanism, of an indicator, a series of keys, a lever for operating said indicator,

a spring connected to said lever, a stop for limiting the movement of said lever and means connected to the keys for putting the springs under tension to operate the lever and moving said stop.

13. In a cash-register, the combination with a registering mechanism, of a series of flexible shafts operated by the same, special counter-operating devices arranged to be operated by said shafts and means for moving said shafts into or out of connection with said devices.

14. In a cash-register, the combination with a register mechanism, of a series of shafts operated by the same, a movable frame, a series of auxiliary shafts mounted in said frame and flexibly coupled to the first-mentioned shafts special counter-operating devices arranged to be operated by the auxiliary shafts and means for moving the frame to different positions to break or make the connection with the operating devices.

15. In a cash-register, the combination with a registering mechanism, of a series of rack-segments for operating the same, a plurality of flexible shafts having pinions meshing with said segments, a series of special counter-operating gear-wheels, other pinions on the flexible shafts and means for moving said shafts to bring said latter pinions into mesh with the gear-wheels or disengage them from the same.

16. In a cash-register, the combination with a registering mechanism, of a series of keys, a pivoted plate arranged to be engaged by a portion of said keys, pivoted levers adapted to be operated by the remainder of said keys to move the pivoted plate and a printing device arranged to be operated by the pivoted plate being moved different distances by the respective keys.

17. In a cash-register, the combination with a plurality of counters arranged in the banks of an operating mechanism, keys for throwing any one of the counters into mesh with the operating mechanism, and a slide arranged to be operated by the keys of one bank to render the counters of the remaining banks inoperative.

18. In a cash-register, the combination with a plurality of counters arranged in banks, of an operating mechanism, keys for throwing any one of the counters into mesh with the operating mechanism, a slide co-operating with one bank of keys and adapted to be moved by the operation of the same, a second slide co-operating with another bank of keys, counter-operating pawls mounted on said slide and normally lying in the path of the keys and means connecting the two slides whereby the movement of the first-mentioned slide will withdraw the pawls from the paths of their respective keys.

19. In a cash-register the combination with the registering mechanism, of the keys, a detent-plate arranged to engage an operated key and hold it in operative position, means for moving the detent-plate to release the keys near the end of the registering operation, means for locking the detent as soon as said keys are released and for releasing it upon the completion of the registering operation.

20. In a cash-register, the combination with a registering mechanism, of a plurality of keys, a locking frame or detent for said keys, a lock for the registering mechanism means for releasing the locking-frame, devices connecting the locking-frame and lock for operating the latter upon the movement of the former and means for preventing more than one operation of the locking-frame during a single operation of the machine.

21. In a cash-register, the combination with a registering mechanism, of a series of special counters, keys for forcing said special counters into connection with the registering mechanism, a locking frame or detent for said keys and projections on said frame for positively forcing the counters out of connection with the registering mechanism.

22. In a cash-register, the combination with a registering mechanism, of a plurality of keys, a locking frame or detent for said keys, a pivoted arm arranged to be operated by said frame, an independently-movable pawl on said arm adapted to engage said frame, and a machine-locking pawl arranged to be operated by said arm.

23. In a cash-register, the combination with an operating mechanism, of a series of counters, a movable frame having projections which positively force the counters away from the operating mechanism and keys arranged to force the respective counters into engagement with the operating mechanism.

24. In a cash-register, the combination with a plurality of keys, of an indicator, a pivoted lever connected to the same, a rod connected to said lever, a spring surrounding said rod and engaging said lever and means connecting the keys and spring for putting the latter under greater or less tension according to the key operated.

25. In a cash-register the combination with the operating mechanism and a totaling-counter, of two banks of special counters, two banks of special keys for establishing an operative relation between the special counters and the operating mechanism at will, locking devices for the entire operating mechanism controlled by the keys of one of said banks and means operated by the keys of the other bank to prevent or disestablish the operative relation between the counters of said other bank and the operating mechanism.

26. In a cash-register the combination with a plurality of keys, of

an indicator, a spring connected to the indicator, and means connecting the keys and spring whereby the latter is put under different degrees of tension independently of the movement of the indicator to move the latter to a greater or less extent.

37. In a cash-register the combination with a plurality of keys, of an indicator, a spring connected to the indicator, means connecting the keys and spring for putting the latter under different degrees of tension independently of the movement of the indicator, and a locking device for the indicator released by the operation of the machine.

38. In a cash-register the combination with a plurality of keys, of an indicator, a spring connected to the indicator, a stop device connecting the keys and the spring and adapted to put said spring under different degrees of tension independently of the movement of the indicator and also limit the movement of said indicator.

39. In a cash-register the combination with the driving mechanism comprising a segment or its equivalent arranged to receive a differential movement according to the value of the operated key, a series of special counters, a series of gears arranged to actuate the special counters, and a series of flexible shafts each bearing two pinions, one at either end, one of the pinions on each shaft being in permanent mesh with the said segments respectively and the pinions upon the opposite ends of said shafts being arranged to be thrown into or out of engagement with the gears to actuate the special counters, substantially as described.

40. In a cash-register, the combination with the registering mechanism, of a plurality of movable transfer-frames, a plurality of counters, the wheels of which are each provided with a ratchet-wheel, a plurality of transfer-arms arranged to be engaged by said transfer-frames and moved in one direction, pawls mounted on said arms and engaging said ratchet-wheels, and means connected to the counter-wheels for moving said arms positively in an opposite direction.

41. In a cash-register, the combination with a plurality of operating-gears, of a movable frame, operating devices mounted on the frame and arranged to be brought into connection with the gears, locking devices for the operating-gears and means connecting the locking devices and the movable frame so that the locking devices will engage the gears when the operating devices are disengaged from the same and vice versa.

42. In a cash-register the combination with the totalling-counter and normally locked operating mechanism, of a special counter, a special key co-operating therewith to establish an operative relation between said counter and the operating mechanism, a second special counter, a second special key co-operating with said second counter to normally establish an operative relation between said second special counter and the operating mechanism, and means whereby when the said first-mentioned special key is operated subsequently to said second special key the operating mechanism will be thereby unlocked, but said second counter will not be brought into registering relation with the operating mechanism even though its special key remains depressed.

43. In a cash-register the combination with the normally locked operating mechanism, of a special counter, a special key co-operating therewith to bring said special counter into operative relation with the operating mechanism, a second special counter, a second special key co-operating therewith and arranged to bring the same into operative relation with the operating mechanism, and means whereby when the first-mentioned special key is operated subsequently to said second special key the counter which co-operates with said second special key will be brought into operative relation with the operating mechanism, while the counter which co-operates with said first-mentioned special key will be prevented from operative relation with said operating mechanism even though its special key remains depressed.

44. In a cash-register the combination with the registering mechanism and a totalling-counter normally in operative engagement with the registering mechanism, of a special counter and key, a second special counter and key and means whereby when said second special counter is brought into operative relation with the registering mechanism the other special counter and the totalling-counter are both prevented or disconnected from such operative engagement with the registering mechanism even though the key of this latter special counter remains depressed.

45. In a cash-register the combination with operating devices, of a movable frame, a series of shafts mounted on said frame and flexibly connected to said operating devices, gears on said shafts, counter-operating gears and means for moving the frame to bring the gears together or separate them.

46. In a cash-register the combination with operating means, flexible shafts operated by the same, counter-operating devices arranged to be operated by said shafts and means for moving said shafts into or out of connection with said devices.

47. In a cash-register the combination with a registering mechanism of a series of special counters and keys and means connected to a number of said special counters whereby when any one of the same is operated the remaining counters not connected to said means are rendered inoperative irrespective of the action of their keys.

48. In a cash-register the combination with registering and printing mechanism, of a plurality of special counters, keys arranged to cut the respective counters, and also a corresponding printing-type and means for disestablishing the relation between the keys, and the counters so that said keys will cut the types only.

49. In a cash-register the combination with the registering mechanism, of a plurality of independent counters, independent operating-keys for the respective counters, for moving the same into engagement with the registering mechanism, an operating device interposed between one of said keys and its counter for moving the latter and means for withdrawing said device when the other key is operated.

50. In a cash-register the combination with registering and printing mechanisms, of a series of keys arranged to control said registering and printing mechanisms and means whereby said keys may be rendered inoperative as with respect to the registering mechanism but still be capable of controlling the printing.

51. In a cash-register the combination with a series of keys, of a locking-detent for the same, a latch for the machine, a trip-arm for operating said latch arranged to be actuated by the detent, and movable means mounted on said arm and co-operating with the detent to allow movement of the same in one direction but prevent movement in an opposite direction.

52. In a cash-register the combination with a series of keys, of a locking-detent for the same, a latch for the machine, a trip-arm for operating said latch, arranged to be actuated by the detent, and a movable locking device mounted on said arm and arranged to engage the detent after the latter has been operated to prevent a second operation during the same operation of the machine.

53. In a cash-register having a printing attachment, the combination with a special counter, and means to designate by printing upon a paper strip whenever operative relation is established between said special counter and the operating mechanism, of a second counter, and means arranged so that when operative relation is established between the operating mechanism, and said second counter, the first-mentioned counter will be released or held from operative relation therewith, but the said printing means will not be affected thereby.

54. In a cash-register, the combination with registering and printing mechanisms, of a special key controlling a special counter, a second special key controlling both a second counter and printing device, and means whereby upon the first-mentioned special key being operated subsequently to the said second special key, its co-operating printing mechanism will be adjusted to printing position, but operative relation will not be established between its counter and the operating mechanism.

55. In a cash-register, the combination with registering and printing mechanisms, of a special key controlling a special counter, a second special key controlling a special counter, and a co-operating printing device and means whereby when the said second special key is operated previously to the said first-mentioned special key, both the counter controlled by said special key and its printing device will be in operative position, but upon the subsequent operation of said first-mentioned key before the registering mechanism is actuated, the counter co-operating with the said second special key will be released or held from operative position.

56. In a cash-register, the combination with the registering and printing mechanism, of a special key controlling a special counter, a second special key controlling a second special counter and a printing device, and means whereby when said first-mentioned key is operated its co-operating counter will be put into operative relation with the registering mechanism and also the counter controlled by the second special key will be put out of operative relation so that on the subsequent operation of said second key its counter will not be moved into operative relation with the registering mechanism.

57. In a cash-register, the combination with the registering mechanism, and a main or totalling counter, of a special key controlling a counter and an indicator, a second special key controlling a second counter and a second indicator, and means whereby when said first-mentioned key is operated the counter and indicator will be moved or adjusted to operative position and the counter co-operating with said second special key will be moved or held from such operative relation, though its indicator will not be affected.

58. In a cash-register, the combination with the driving mechanism of two banks of special counters, keys for said counters and means connecting said banks and so arranged that the throwing of a counter in one of said banks will prevent an operative relation being established between the counters of the other bank and the registering mechanism without preventing the operation of the keys of this latter bank.

59. In a cash-register, the combination with the registering mechanism of a special key 4 arranged normally to establish an operative relation between its special counter and the registering mechanism, a second special key 3 arranged to do likewise for a second special counter, and means to prevent a subsequent establishment of an operative relation

between the registering mechanism and the special counter until after the registering mechanism has been actuated.

50. In a cash-register, the combination with the registering mechanism, of special keys 4, a counter controlled by the special key 4, a slide 65 carrying operating devices for the counter, and means actuated by a second special key 3, to move the slide and release the counter, substantially as described.

51. In a cash-register, the combination with the registering mechanism, of a counter controlled by a key 4, a slide 65 carrying a pawl or lever 63 arranged to be moved by the key so as to contact with the counter and throw the latter into mesh with the registering mechanism, a special key 3, and means actuated thereby for moving the slide 65 to release the counter.

52. In a cash-register, the combination with the registering mechanism, of the counter normally out of operative engagement with the driving mechanism, means carried on a slide 65 for operating the counter, a special key 3 and a slide 69 arranged to be actuated by the key 3 and to simultaneously move the slide 65 to release the counter from operative relation.

53. In a cash-register, the combination with a registering mechanism and a totaling-counter movable into connection with the registering mechanism, of a special counter, a second special counter similarly movable, and means for throwing the said second special counter into operative engagement with the registering mechanism and for simultaneously releasing the special counter and totaling-counter, or for preventing an operative relation being established between said last-mentioned counter and the registering mechanism prior to the succeeding actuation of the machine.

54. In a cash-register, the combination with a registering mechanism, of a counter and an indicator, a special key controlling the counter and indicator, a second special key controlling a second counter and a second indicator, and means operated by the second special key for preventing the operation of the counter of the first-mentioned key but allowing the operation of its indicator.

55. In a cash-register, the combination with a registering mechanism, of a plurality of counters having special indicators and arranged to be thrown into connection with the registering mechanism at will and a slide operated to prevent certain counters being thrown into connection with the registering mechanism without affecting the setting of the indicators of said counters.

56. In a cash-register, the combination with a registering mechanism, of an indicator, a series of keys, a stop for the indicator arranged to be set by the keys, a spring for operating the indicator also arranged to be set by the keys and means for locking the indicator during the setting movements of the keys and subsequently releasing it upon the operation of the registering mechanism.

57. In a cash-register, the combination with two independently-mounted banks of counters, of counter-operating devices, means for actuating said devices when the counters are moved into connection therewith, and devices connecting the respective banks of counters whereby when a counter in one bank is brought into connection with the operating device the counters in the remaining bank are prevented from being brought into such connection.

700,172. CAR-TRUCK. HOWARD CLAY, Newark, N. J., assignor to Voss and Clay Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Feb. 23, 1900. Serial No. 33,672. (No model.)

Claim.—1. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

2. In a truck, the series of elliptic parallel springs at each side of the truck to receive the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

3. In a truck, the series of elliptic parallel springs at each side of the truck to receive the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the

facing portions of their ends, combined with the roller-bearings confined within said pockets and each extending from the pocket of one spring into the adjacent pocket of the adjacent parallel spring, and upon which roller-bearings the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.



4. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may travel with said bolster, said roller-bearings having heads at their ends to confine and guide them; substantially as set forth.

5. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each having elongated concave pockets with curved end portions in the facing sides of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

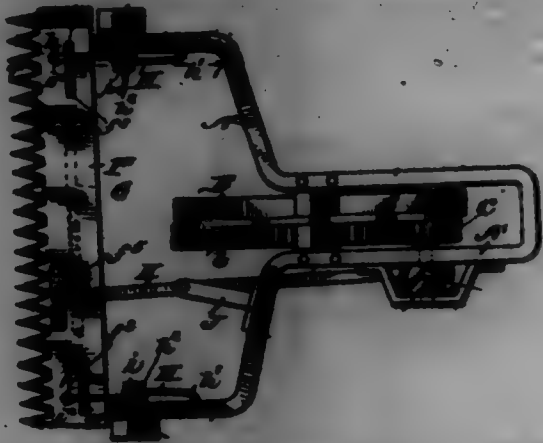
6. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves, combined with roller-bearings confined between the facing sides of the ends of said springs and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

7. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves, combined with bearings confined between the facing sides of the ends of said springs and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

700,178. LAWN-MOWER. HOWARD E. CLAYTON, Lansdale, Pa. Filed Aug. 17, 1901. Serial No. 72,368. (No model.)

Claim.—1. In a mowing-machine the combination of a frame having a drive-wheel held thereon, a finger-bar held on the forward portion of the frame, a cutter-bar positioned thereon, springs held on the frame

and adapted for engagement with the cutter-bar, a spring-bar carried by the cutter-bar and adapted for engagement with the finger-bar, balls interposed between the said springs and bars, substantially as shown and described.



2. In a cutter apparatus for moving-machines, the combination of a finger-bar having slots arranged therein, a cutter-bar arranged upon the finger-bar, a flat spring having its ends protruding through the slots in the said finger-bar and having a recess arranged in its upper face, and an anti-friction-ball held in the said recess and adapted to bear against the said finger-bar whereby the said bars are held together, substantially as shown and described.

3. In a moving-machine, the combination of a frame having a finger-bar secured thereto, of a cutting-bar held upon the said finger-bar, springs carried by the said frame and having their forward ends enlarged and recessed, anti-friction-balls held in the said recesses and adapted to bear against the said cutter-bar, the said cutter-bar having slots adapted to receive studs arranged on the said finger-bar and means carried by the said frame for operating the cutter-bar, substantially as shown and described.

4. In a moving-machine, the combination of a frame, a drive-wheel journaled therein, supporting-wheels journaled in the said frame, a cutting device arranged on the said frame in advance of the said supporting-wheels, springs held upon the journals of the supporting-wheels, and having one end engaging the cutting device, and the opposite ends engaging the frame, substantially as shown and described.

5. In a moving-machine, the combination of a frame, having a bracket held thereon, a drive-wheel having gear-teeth journaled in the said frame, a shaft carrying a sprocket-wheel and cam-wheel journaled in the said frame and bracket, supporting-wheels journaled on the said frame, a finger-bar arranged on the said frame in advance of the said supporting-wheels, the said bar having longitudinal slots arranged therein, a cutting-bar having a spring-bar held thereto, the ends thereof protruding through the said slots, an anti-friction-ball interposed between the said spring-bar and finger-bar, the said cutting-bar also having slots adapted to receive studs carried by the said finger-bar, springs coiled upon the journals of the said supporting-wheels, each having one end held to the frame, the opposite end thereof having a socket formed therein and adapted to hold an anti-friction-ball, the said balls engaging the cutting-bar, and a lever held in a bracket carried by the frame, and adapted for engagement with the said cam-wheel and cutting-bar, substantially as shown and described.

6. In a cutting device for moving-machines, the combination of a finger-bar and cutter-bit, each having a recess formed in their contiguous surfaces and near their rear edges, anti-friction-balls held in the said recesses and of such size as to separate the said bars at the rear edges and throw the opposite edges into contact, substantially as shown and for the purposes specified.

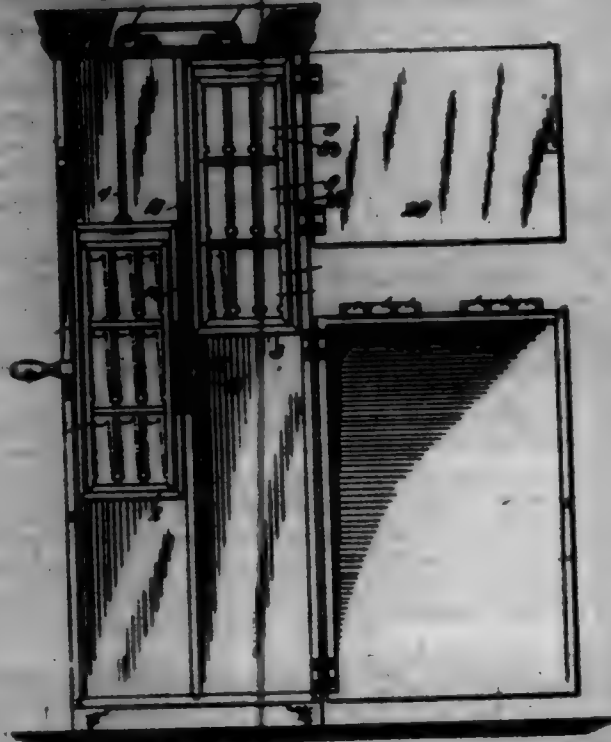
700,174. CANNETT-BENEL. ROBERT J. CUPPLAND, Toronto, Canada.
Filed July 8, 1899. Serial No. 728,128. (No model.)

Claim.—1. A cabinet-desk comprising a desk-top, and a moving bookcase having a series of book-compartments, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.

2. A cabinet-desk comprising a desk-top, and a vertically-moving bookcase having a series of book-compartments, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.

3. A cabinet-desk comprising a desk-top, and a moving bookcase having a series of book-compartments, the desk-top and bookcase being

so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top, means to prevent the removal of a book when not on a level with the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.



4. A cabinet-desk comprising a desk-top, and a vertically-moving bookcase having a series of book-compartments, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top, means to prevent the removal of a book when not on a level with the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.

5. A cabinet-desk comprising a desk-top, a cord, and a vertically-moving bookcase suspended behind the desk-top by said cord and having a series of book-compartments, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with and opposite the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.

6. A cabinet-desk comprising a desk-top, a cord, and two moving bookcases suspended on opposite ends of said cord and having a series of book-compartments, the desk-top and bookcases being so combined and arranged that the bookcase may be moved so as to bring their compartments on a level with and opposite the desk-top, means to prevent the removal of a book when not on a level with and opposite the desk-top, and means for holding the books on the desk-top to prevent the removal of the books therefrom except into the bookcase.

7. A cabinet-desk comprising a desk-top, a cord, and two vertically-moving bookcases suspended on the opposite ends of said cord behind and facing the desk-top so as to move simultaneously in opposite directions, and each having a vertical series of book-compartments.

8. A cabinet-desk comprising a desk-top, a cord, and two vertically-moving bookcases suspended on the opposite ends of said cord behind and facing the desk-top so as to move simultaneously in opposite directions, and each having a vertical series of book-compartments, and means to prevent the removal of a book when not on a level with and opposite the desk-top.

9. A cabinet-desk comprising a desk-top, a cord, and two vertically-moving bookcases suspended on the opposite ends of said cord behind and facing the desk-top so as to move simultaneously in opposite directions, and each having a plurality of vertical series of book-compartments, and a stationary casing including the moving bookcases.

10. A desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top.

11. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a moving bookcase having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse.

12. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a moving bookcase having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse, and means to prevent the removal of a book from its compartment except to a way of the desk-top.

13. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a vertically-moving bookcase arranged behind the desk-top and having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse.

14. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a moving bookcase suspended behind the desk-top by a cord and having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse.

15. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a vertically-moving bookcase arranged behind the desk-top and having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse, and means to prevent the removal of a book from its compartment except to a way of the desk-top.

16. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a vertically-moving bookcase suspended behind the desk-top by a cord and having a series of book-compartments, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein, whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse, and means to prevent the removal of a book from its compartment except to a way of the desk-top.

17. The combination of a bookcase and a desk-top with books designed to fit in the bookcase and be removable therefrom upon the desk-top, said books and the desk-top having interlocking means whereby when a book is removed from its case upon the desk-top it enters into engagement with the desk-top, and means to prevent the removal of a book from its case except upon the desk-top.

18. The combination of a bookcase and a desk-top with books designed to fit in the bookcase and be removable therefrom upon the desk-top, the books of said books and the desk-top having interlocking means whereby when a book is removed from its case upon the desk-top it enters into engagement with the desk-top, and means to prevent the removal of a book from its case except upon the desk-top.

19. A closed casing having a moving bookcase therein and provided with an opening through which books in the moving case may be withdrawn, in combination with a desk-top arranged in proximity to said opening and having means to engage the books when withdrawn from their case and so prevent the removal of the books from the desk-top except into the bookcase.

20. The combination of a bookcase having a series of book-compartments and a desk-top, the bookcase and desk-top being arranged for changing their relative position so that the desk-top may come into proper position with respect to the book-compartments for the withdrawal of the books from said compartment directly upon the desk-top, the desk-top being provided with means for engaging the books to prevent their removal from the desk-top except into the bookcase.

21. The combination of a bookcase having a series of book-compartments and a desk-top, the bookcase and desk-top being arranged for changing their relative position so that the desk-top may come into proper position with respect to the book-compartments for the withdrawal of the books from said compartment directly upon the desk-top, means for connecting the books with the desk-top to prevent the books from being lifted

from the desk-top, and means to bar the withdrawal of a book from its compartment except into connection with the desk-top.

22. A cabinet-desk comprising a desk-top, and a moving bookcase having a series of book-compartments, said compartments being formed in one or more separate removable cases, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top, the desk-top being provided with means for engaging the books to prevent their removal from the desk-top except into the bookcase.

23. A cabinet-desk comprising a desk-top, and a moving bookcase having a series of book-compartments, said compartments being formed in one or more separate removable cases, the desk-top and bookcase being so combined and arranged that the bookcase may be moved so as to bring its compartments on a level with and opposite the desk-top, and means to prevent the removal of a book when not on a level with the desk-top, the desk-top being provided with means for engaging the books to prevent their removal from the desk-top except into the bookcase.

24. A cabinet-desk comprising a desk-top, and two vertically-moving bookcases suspended on the opposite ends of a cord behind the desk-top and each having a series of book-compartments, said compartments being formed in one or more separate removable cases, and means to prevent the removal of a book when not on a level with the desk-top, the desk-top being provided with means for engaging the books to prevent their removal from the desk-top except into the bookcase.

25. A cabinet-desk comprising a desk-top having one or more ways in which a book may move back and forth, and having means constructed to engage each book to prevent it from being lifted from the desk-top; and a vertically-moving bookcase arranged behind the desk-top and having a series of book-compartments, said compartments being formed in one or more separate removable cases, the desk-top and bookcase being so arranged that the bookcase may be moved so as to bring its compartments on a level with the desk-top and in line with the ways therein whereby the books of the different compartments may be removed from their compartments directly to a way of the desk-top or the reverse, and means to prevent the removal of a book from its compartment except to a way of the desk-top.

26. The combination of a desk-top, a book movable thereon, and interlocking means adapted and designed to movably connect the book with the desk-top and prevent it from being lifted therefrom.

27. The combination of a desk-top, a book movable thereon, and interlocking means adapted and designed to movably connect the book with the desk-top and prevent it from being lifted therefrom, and a bookcase to receive the book and having means to prevent the removal of the book, except into connection with the desk-top so as to connect the books with the desk-top.

700,175. AUTOMOBILE. CHARLES CURTIS, Shannon, Ill. Filed Oct. 5, 1900. Serial No. 32,111. (No model.)



Claim.—1. In a vehicle, the combination with a suitable running-gear, of an axle, a bearing-ring vertically pivoted upon the axle, a wheel journaled upon the bearing-ring and having a portion extending within the case, a driving-shaft and a universal joint connecting the driving-

shaft to the hub within the ring concentric with the wheel and substantially in the pivotal axis of the ring; substantially as described.

2. The combination with an axle, a bearing-ring diametrically pivoted to the axle, the hub, H, journaled upon the bearing-ring, and having the inwardly-curved web, A', the shaft, I, journaled in the axle and having the forked collar, K, and the bearing-block, J, in the pivotal axis of the ring and the center of the hub, said block being provided with pivot-pins pivoted to the hub and collar respectively at right angles to each other, with a washer for clamping said pins in place and means for securing the washer tightly upon said pins; substantially as described.

3. The combination, in a four-wheeled vehicle, of a suitable framework, front and rear wheels, devices for turning both front and rear wheels with relation to the framework to steer the vehicle and means for disengaging one set of wheels from the steering devices and engaging them with other portions of the vehicle, so as to prevent their oscillation with respect to the vehicle; substantially as described.

4. In a vehicle, the combination with the body, and front and rear wheels, adapted to be operated to steer the vehicle, of the rock-shaft, O', connected at its respective ends to the front and rear wheels and provided with a clutch adapted to engage that portion of the shaft which is connected to one set of wheels, alternately with the other portion and with the vehicle and steering devices connected with said other portion and adapted to rock the shaft; substantially as described.

5. In a driving-gear for a four-wheeled vehicle, the combination with a divided driving-shaft, of a loose driving-wheel at the point of division, radially-journaled pinions in said driving-wheel, gears secured to the two portions of the shaft and meshing with said pinions, brake-wheels upon the respective portions of the shaft containing radial pinions, loose gears upon the opposite sides of said brake-wheels, meshing with the pinions in the latter, suitable connections between said loose gears and the respective four wheels of the vehicle and suitable brakes applied to the brake-wheels; substantially as described.

700,176. STOOL OR BENCH. BENJAMIN R. GARDNER, Providence, R. I. Filed July 2, 1901. Serial No. 98,308. (No model.)



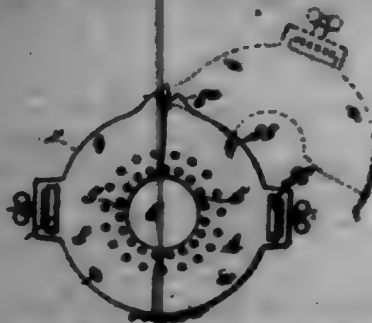
Claim.—A stool consisting of the combination of a tubular barrel, two heads having central apertures of the same diameter as the inside of said barrel, bushings fitting tightly in said barrel, and having inwardly-beveled heads cut down to the level of the surface of the bushing on one or more sides to form projections, there being recesses made in the outside of each head around the hole to receive these parts of the head of the bushing not cut away, substantially as described.

700,177. SWEATER-GARMENT. BENJAMIN H. GROSS, Utica, N. Y., assignor to Avalon Knitwear Company, Utica, N. Y. Filed Mar. 15 1900. Serial No. 98,309. (No model.)



Claim.—The combination in a sweater garment consisting of the upper band portion of the forward and rear parts separated by side vents and provided with button or other detachable connecting devices at said vents, the said rear part consisting of overlapping flaps, strings attached to the edges of said flaps and passing through eyes in the band of said rear portion adjacent to said side vents, and brought to the rear and tied, substantially as set forth.

700,178. DEVICE FOR ASSEMBLING THE ROLLERS OF ROLLER-BEARINGS. EDGAR F. CROFTON, Vicksburg, Miss. Filed Aug. 28, 1901. Serial No. 72,918. (No model.)



Claim.—1. A device for the purpose described comprising two connected heads, each of which is made in two separable parts having a central recess and provided with inward-extending pins, and means for adjusting one of said heads toward and from the other.

2. A device for the purpose described comprising two connected heads, each of which is made in two separable parts having a central recess and provided with inward-extending pins, the pins on one head being yielding.

3. A device for the purpose described comprising two connected heads, each of which is made in two separable parts having a central recess and provided with inward-extending pins, the pins on one head being yielding, and means for adjusting one of said heads toward and from the other.

4. A device for the purpose described comprising two connected heads, each of which is made in two separable parts having a central recess and provided with inward-extending pins, the pins on one head being yielding, and a series of pointed thumb-screws carried by each head.

5. A device for the purpose described comprising two connected heads, each of which is made in two separable parts having a central recess and provided with means for detachably engaging a series of rollers.

6. A device for the purpose described comprising two connected heads, each of which is made in two recessed parts having a hinge connection and provided with means for detachably engaging a series of rollers.

7. A device for the purpose described comprising two connected heads each of which is made in two separable parts having a central recess, one of said heads carrying a series of stationary pins and the other of said heads comprising connected parallel plates having a series of spring-controlled pins mounted thereon.

8. A device for the purpose described comprising two connected heads each of which is made in two separable parts having a central recess, one of said heads carrying a series of stationary pins and pointed thumb-screws and the other of said heads comprising connected parallel plates having a series of spring-controlled pins and a series of pointed thumb-screws mounted thereon.

9. A device for the purpose described comprising two heads each of which is made in two separable parts having a central recess, a series of inward-extending pins carried by each of said heads, one of said heads being provided on opposite sides with apertures, bars connected at one end to opposite sides of the other head and having their opposite ends passed through said apertures, and set-screws for engaging each end, whereby one of said heads may be adjusted toward and from the other.

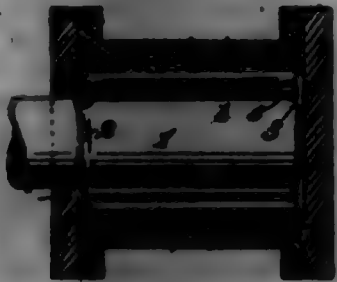
10. A device for the purpose described comprising two connected heads each of which is made in two separable parts, one of said heads carrying a series of stationary pins and the other of said heads comprising a flanged plate having screw-threaded pins extending outward from its flange, a cover-plate resting on said flange and apertured to pass over said pins, nuts on said pins for securing the cover-plate in place, and a series of spring-controlled pins mounted in said plates, the combination operating as set forth.

11. In a device for the purpose described, the combination with the head 2 carrying the fixed pins, the head 1 comprising connected parallel plates having screw-threaded and non-circular apertures, respectively, and a coiled spring located between said plates and having at one end a screw-threaded projection engaging in said screw-threaded aperture and at its opposite end a pointed non-circular projection extending through said non-circular aperture, substantially as described.

700,179. JOURNAL-BOX AND ROLLER-BEARING FOR RAILWAY-CAR AXLES. EDGAR F. CROFTON, Vicksburg, Miss. Filed Aug. 28, 1901. Serial No. 72,909. (No model.)

Claim.—1. The combination with a railway-car axle having a circumferential groove near its end and having the edge of its end rounded, of a plurality of rollers arranged around the axle and having enlarged concave shoulders on their opposite ends which overhang the rounded end

of the axle and engage said circumferential groove, said concave shoulders diverging from the adjacent portions of the axle, and a casing including said rollers, substantially as described.



2. The combination with a railway-car axle having a circumferential groove near its end and having the edge of its end rounded, of a series of rollers arranged around the axle and having enlarged concave shoulders at their opposite ends which overhang the rounded end of the axle and engage said circumferential groove, a second series of rollers arranged around and contacting with the first-named series and having rounded ends lying between the enlarged concave shoulders of the first-named rollers, said rounded ends and concave shoulders diverging from one another, and a casing including said rollers, substantially as described.

3. The combination with a railway-car axle having a circumferential groove near its end and having the edge of its end rounded, of a series of rollers arranged around the axle and having enlarged concave shoulders at their opposite ends which overhang the rounded end of the axle and engage said circumferential groove, a second series of rollers arranged around and contacting with the first-named series and having rounded ends lying between the concave shoulders of the first-named rollers, and a contractible sleeve including said rollers and provided with inwardly-projecting concave shoulders on its opposite ends which overhang the rounded ends of the outer rollers, said rounded ends and concave shoulders diverging from one another, substantially as described.

4. The combination with a railway-car axle having a circumferential groove near its end and having the edge of its end rounded, of a series of rollers arranged around the axle and having enlarged concave shoulders at their opposite ends which overhang the rounded end of the axle and engage said circumferential groove, a second series of rollers arranged around and contacting with the first-named series and having rounded ends lying between the concave shoulders of the first-named rollers, and a contractible sleeve including said rollers and comprising a plurality of segmental sections provided on their adjacent edges with interlocking tongues, the ends of said sections having inwardly-projecting concave shoulders overhanging the rounded ends of the outer rollers, substantially as described.

5. The combination with a railway-car axle, of a plurality of rollers arranged around the axle, a contractible sleeve surrounding said rollers and comprising a plurality of segmental sections provided on their adjacent edges with interlocking tongues, a two-part journal-box including said sleeve, and means for clamping said two-part box about the sleeve, substantially as described.

6. The combination with a railway-car axle, of a journal-box mounted on the axle and comprising two half-boxes, said half-boxes being provided on their inner-adjacent edges with vertically-projecting and interlocking slotted lugs, tapered lugs loosely fitted in said slotted lugs, means for adjusting said lugs endwise in said lugs to draw the half-boxes together, and means for yieldingly holding said lugs in their adjusted positions whereby they will be automatically tightened in said lugs to compensate for wear of the parts, substantially as described.

7. The combination with a railway-car axle, of a journal-box mounted on the axle and comprising two half-boxes provided on their inner-adjacent edges with vertically-projecting and interlocking slotted lugs, tapered lugs fitted loosely in said slotted lugs and provided at their smaller ends with threaded stems, nuts screwed over said stems, and coiled springs arranged on said stems between said nuts and the adjacent lugs, substantially as described.

8. The combination with a railway-car axle, of a journal-box mounted on the axle and comprising two half-boxes provided on their adjacent edges with vertically-projecting slotted lugs, the lugs of one half-box loosely fitting between the corresponding lugs of the other box, and said inner-adjacent edges of the boxes being mortised upon their inner sides between the lugs for the reception of the ends of the opposing lugs, tapered lugs fitted in the slotted lugs, means for adjusting said lugs endwise in the lugs to draw the half-boxes together, and springs arranged to automatically draw said lugs tightly to their ends in the lugs to compensate for wear of the parts, substantially as described.

9. The combination with a railway-car axle, of a journal-box mounted on the axle and comprising two half-boxes provided with means for clamping them about the axle, the inner face of one of said half-boxes being provided with longitudinal grooves near its edge for the reception

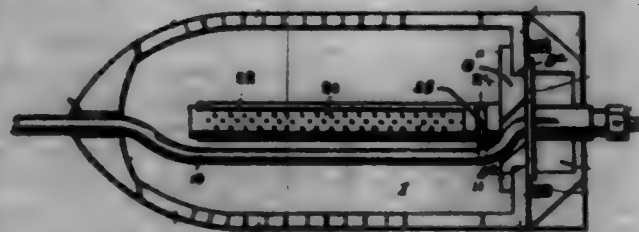
of a fibrous packing and the inner face of the other half-box being provided with longitudinal serrated ribs arranged to project into said grooves and engage and hold the packing against displacement, substantially as described.

10. The combination with a railway-car axle, of a journal-box mounted on the axle and comprising two half-boxes provided with means for clamping them about the axle, said half-boxes being provided on their adjacent faces with conical recesses for the reception of a sleeve and at their ends with inwardly-projecting semi-circular flanges including said sleeve, the inner face of one of said boxes being provided with longitudinal grooves for the reception of a fibrous packing, and the inner face of the other half-box being provided with longitudinal serrated ribs arranged to project into said grooves and engage and hold the packing, and antifriction-rollers arranged in the box between said flanges, substantially as described.

11. The combination with a railway-car axle, of a journal-box comprising two half-boxes provided with means for clamping them about the axle, said half-boxes being provided on their opposite ends with continuous grooves for the reception of fibrous packing, and end caps fitted against the ends of the half-boxes and provided on their inner faces with serrated ribs projecting into said grooves and engaging and holding the packing therein, substantially as described.

12. The combination with a railway-car axle, of a journal-box comprising two half-boxes provided with means for clamping them about the axle, and caps clamped against the ends of the half-boxes, the outer end cap being imperforate and the inner end cap being provided centrally with an aperture for the reception of the axle, the wall of said aperture being provided with an internal annular groove for the reception of fibrous packing, and transverse ribs formed in the bottom of said groove, substantially as described.

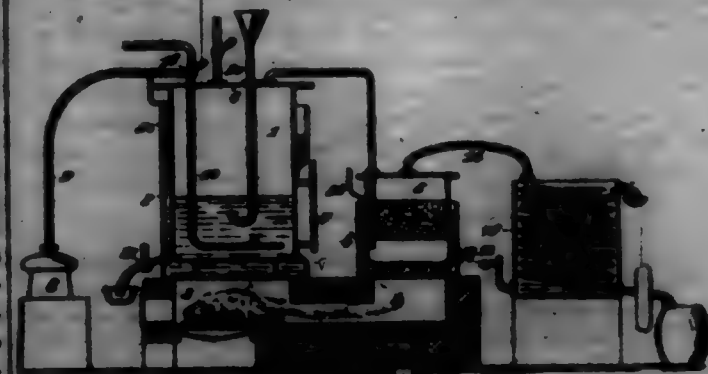
700,180. COMBINED RAD-IRON AND VAPOR-STOVE. JAMES H. GUNTER, Louisville, Ky., assignor of one-third to Clarence Hale, Louisville, Ky. Filed June 7, 1901. Serial No. 62,575. (No model.)



Claim.—1. A combined rad-iron and vapor-stove, comprising a base, and a burner secured to the base and consisting of an outer bifurcated casing having longitudinal upper and lower slots, and an inner cylinder having rows of perforations and rotatable and fitting snugly within the bifurcated casing so as to expose the rows of perforations to either of the longitudinal slots.

2. A combined rad-iron and vapor-stove, comprising a base, and a burner secured to the base and consisting of an outer bifurcated casing having longitudinal upper and lower slots, and a transverse slot, and an inner cylinder, having rows of perforations and a lower working in the transverse slot, whereby the inner cylinder is adapted to be rotated so as to expose the rows of perforations to either of the longitudinal slots.

700,181. PROCESS OF REFINING OIL. EDWARD DUBILLET, La Garenne-Colombe, France. Filed June 14, 1901. Serial No. 64,466. (No specimens.)

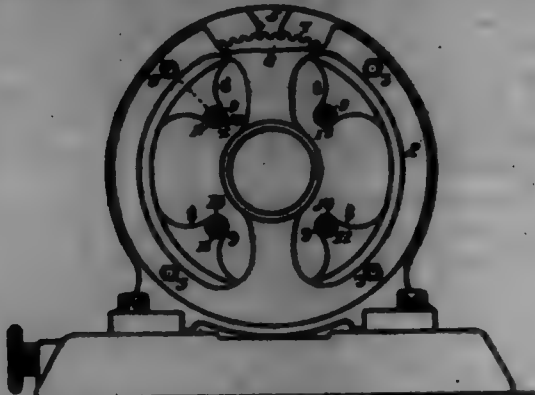


Claim.—1. A process for refining oil and the like, which consists in passing a current of alcohol vapors through the oil, then in passing a current of steam through the oil, and finally in filtering the oil so treated, substantially as described.

2. The process for refining oil and the like, which consists in dis-

oil in basin, passing successive currents of alcoholic vapors and a current of steam and in filtering the oil after said treatment, substantially as described.

700,182. BRUSH-HOLDING RING FOR DYNAMOS OR MOTORS.
FREDERICK R. DUNCAN, Akron, Ohio. Filed Feb. 21, 1900. Serial No. 25,127. (No model.)



Claim.—1. The combination in a dynamo or motor, with the case and brush, of a rabbeted groove in said brush concentric with the axis of the armature, an opening into said groove, and a toothed ring resting in said groove bearing brush-rod, substantially as shown and for the purpose specified.

2. The combination in a dynamo or motor and brush of a rabbeted groove in said brush concentric with the axis of the armature, an opening into said groove, a reversible toothed ring resting in said groove bearing insulated brush-supporting rods, and bushings mounted on said rods, substantially as and for the purpose specified.

700,188. WHEEL. JOHN DE ROUX, Uniontown, Pa. Filed Aug. 2, 1900. Serial No. 25,733. (No model.)



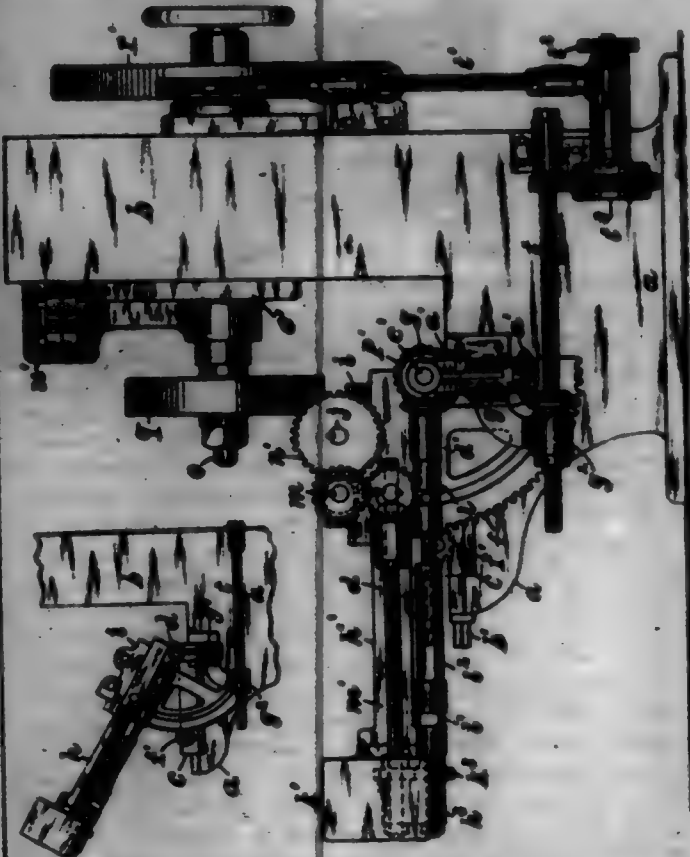
Claim.—1. In a wheel, a hub, an oil-box surrounding the hub, longitudinal partitions in said oil-box dividing the same into a series of completely closed compartments excepting that there are contracted oil passages or ports formed in each of the partitions at the base thereof which constitute the only means of communication between said compartments, the floor of one or more of the compartments having a contracted opening for feeding oil to the axle, and means by which the oil-box may be supplied with oil; substantially as described.

2. In a wheel, a rim, a hub, an oil-box surrounding said hub, spokes connecting said oil-box and rim, the spokes extending through the oil-box and dividing the same into a series of completely closed compartments excepting that there are contracted oil passages or ports formed in each of the spoke extensions which constitute the only means of communication between said compartments, the floor of one or more of the compartments having a contracted opening for feeding oil to the axle, and means by which the oil-box may be supplied with oil; substantially as described.

700,184. GEAR-CUTTING ENGINE. FRED L. SHREVE and HENRY F. SHREVE, Newark, N. J., assignors to Gould & Macfarland, Newark, N. J., a Corporation of New Jersey. Filed May 3, 1901. Serial No. 25,194. (No model.)

Claim.—1. A gear-cutter having the horizontal bed *a*, the table *c* adjustable upon the bed, the hinge-plate *d* jointed upon the table and the outer-plate *e* pivoted upon said hinge-plate, the bearing *g* attached to said table and supporting the driving-shaft *f* in line with the joint of the hinge-plate, a horizontal bearing *g'* connected with the bearing *g* and a horizontal driving-shaft *h* on the shaft *f* extended through said bearing and

connected by gearing with the shaft *f*, whereby the motion of the driving-shaft can be imparted to the cutter when the hinge-plate is adjusted at various angles upon the table, substantially as herein set forth.



2. A gear-cutter having a table with a hinge-plate jointed thereon and supporting a cutter-plate with a cutter-head and feed-gearing for reciprocating the same, a bearing attached to the table with a driving-shaft in line with the joint of the hinge-plate, and a train of gearing connecting the driving-shaft with the feed-gearing and with the cutter-spindle, as and for the purpose set forth.

3. A gear-cutter having gearing with change-wheels to control the shifting of the blank, a bed with table adjustable upon the bed, a hinge-plate jointed upon the table, with a cutter-plate supported upon said hinge-plate and a cutter-head movable upon the slide carrying a cutter-spindle and cutter to cut the blank, a bearing fixed to the table and supporting a driving-shaft in line with the joint of the hinge-plate, and separate trains of gearing connecting the driving-shaft respectively with the cutter-spindle and with the change-wheels to control the shifting of the blank.

4. A gear-cutter having gearing with change-wheels to control the shifting of the blank, a bed with table adjustable upon the bed, a hinge-plate jointed upon the table with outer-plate supported upon said hinge-plate, and a cutter-head movable upon the slide carrying a cutter-spindle and cutter to cut the blank, a screw with gearing to reciprocate the cutter-head, a bearing fixed to the table and supporting a driving-shaft in line with the joint of the hinge-plate, and separate trains of gearing connecting the driving-shaft respectively with the cutter-spindle, the feed-screw of the cutter-head, and the change-wheels to control the shifting of the blank.

5. A gear-cutter having gearing with change-wheels to control the intermittent shifting of the blank, a bed *a* with table *c* adjustable upon the bed, the outer-plate *e* pivoted upon the table and adjustable angularly, the outer-head *i* movable upon the slide and carrying the cutter-spindle *j*, the feed-screw *k* with gearing at the outer end of the outer-plate to reciprocate the cutter-head, the bearing *d'* attached to the table and supporting the shaft *l* parallel with the side of the table, a train of gearing connecting said shaft with the change-wheels to control the intermittent shifting of the blank, and a separate train of gearing connecting the shaft with the feed-screw *k*, and provided with the universal joint *l'* to compensate for the angular adjustment of the outer-plate, substantially as set forth.

6. A gear-cutter having gearing with change-wheels to control the shifting of the blank, the table *c* adjustable upon the bed *a*, the outer-plate *e* pivoted upon the table *c* and adjustable angularly, the outer-head *i* movable upon the slide and carrying the cutter-spindle *j*, the feed-screw *k* with gearing at the outer end of the outer-plate to reciprocate the cutter-head, the horizontal bearings *g* and *d'* attached to the table, with the driving-shaft *f* supported in the bearing *g*, and the shaft *l* supported in the bearing *d'* and connected with the shaft *f*, and having the universal joint *l'* connected with the feed-screw gearing, the bearings *g* and *d'* connected

with the bearing *g*, and the shaft *i* mounted in the bearing *g'* and connected with the shaft *e*, the whole arranged and operated substantially as herein set forth.

7. A gear-cutting, having the bed *a* and column *b* with means to support and rotate the blank, the table *c* adjustable upon the bed, the hinged plate *d* with joint *e* upon the table, the segments *f* with gearing to elevate the hinged plate, the bearing *g* secured to the table in line with the joint *e* for carrying the driving-shaft, the outer-slide and outer-head supported upon the hinged plate, and separate trains of gearing connecting the driving-shaft *e* respectively with the change-wheels to control the shifting of the blank, and with the cutter, substantially as herein set forth.

8. A gear-cutting having the bed *a* with table *c* adjustable thereon, and provided with joint *e* and bearing *g* carrying the driving-shaft *e'* in line with the joint *e*, the hinged plate *d* having the outer-slide *k* adjustably pivoted thereon, the outer-head *i* carrying outer-spindle *j*, the feed-screw *h* with gearing at its forward end to reciprocate the outer-head, and the shaft *l* having the bearing *d'* upon the hinged plate, and the bearing *h'* upon the outer-slide and provided with the universal joints as set forth, connections between the shaft *l* and the feed-screw gearing, and gearing connecting the same shaft with the outer-spindle *j*, whereby the outer-slide may be adjusted laterally and the hinged plate adjusted vertically and the moving parts driven by connection with the shaft *e'*.

9. A gear-cutting adapted for cutting worm-gears and bevel-gears as set forth, and having the bed *a*, the adjustable table *c*, the hinged plate *d*, the outer-slide *k* and the outer-head *i* carrying the spindle *j*, the bearing *g* fixed upon the table and carrying the driving-shaft *e* in line with the joint of the hinged plate, a train of gearing connecting the driving-shaft with the outer-spindle, and change-wheels, as *m*, interposed in such train to vary the speed of the outer-spindle, as and for the purposes set forth.

10. A gear-cutting having a worm-wheel, a worm and change-wheels to control the shifting of the blank, and provided with the bed *a*, the adjustable table *c*, the hinged plate *d* jointed to the table, the outer-slide *k* and the outer-head *i* carrying the spindle *j*, the bearing *g* fixed upon the table and carrying the driving-shaft *e* in line with the joint of the hinged plate, a train of gearing connecting the said driving-shaft with the worm, and change-wheels interposed between the driving-shaft and worm, to vary the speed of the worm in shifting the blank.

11. A gear-cutting having the bed *a* and column *b* with mandrel-bearing supporting worm-wheel and worm *n* as set forth, the table *c* adjustable upon the bed, the hinged plate *d* with joint *e* upon the table and the outer-head and slide supported upon the hinged plate as set forth, the bearing *g* secured to the table in line with the joint *e* for carrying the driving-shaft *e'*, and a train of gearing connecting the driving-shaft with the worm and including the horizontal shaft *i* adapted to slip through one of the driving-wheels to compensate for the various adjustments of the table *c* upon the bed.

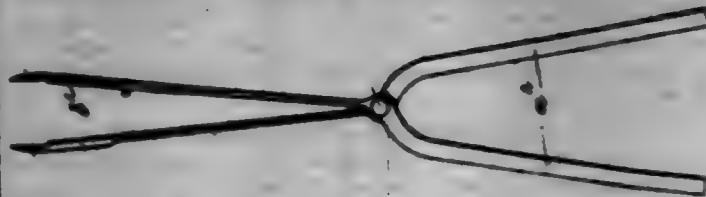
12. A gear-cutting having a horizontal bed supporting a outer-slide with a outer-head movable upon the same and feed-gearing for reciprocating the head, the gear-case *h'* upon the forward end of the slide containing the feed-gearing, a driving-shaft with connection to each gearing, the bevel-gears *e* mounted upon the outer-head and connected with the cutter, and the shaft *m'* connected with the feed-gearing and extended through one of the bevel-gears *e*, to drive the cutter in the various positions of the outer-head, substantially as herein set forth.

13. A gear-cutting having a worm-wheel, a worm and change-wheels to control the shifting of the blank, and provided with the bed *a*, the adjustable table *c*, the hinged plate *d* jointed upon the table, the outer-slide and outer-head supported upon the hinged plate, the bearing *g* fixed upon the table and carrying the driving-shaft *e'* in line with the joint of the hinged plate, and a train of gearing connecting the said driving-shaft with the worm, each train embracing the bevel-gears *e'* and the splined shaft *i* extended through one of the said gears to rotate the worm in the different adjusted positions of the table *c*, substantially as herein set forth.

14. A gear-cutting having the bed *a* and column *b*, the mandrel-bearing adjustable thereon, and having an arm projected parallel with the bearing and a bracket adjustable upon the arm to support the end of the mandrel, the hinged plate *d* with outer-slide and outer-head supported thereon, gearing to elevate the hinged plate and an adjustable connection between the outer-slide and the arm to hold the cutter firmly in relation to the blank.

15. A gear-cutting having the bed *a* and column *b*, the mandrel-bearing adjustable upon the column and provided with auxiliary bearing *a'* with arm *c* held adjustably therein, and the bracket adjustable upon the arm to support the mandrel, the hinged plate with outer-slide and outer-head supported thereon, gearing to elevate the hinged plate, and the pivot-link *m* connecting the outer ends of the outer-slide and the arm adjustably, to hold the cutter firmly up to the blank when the outer-slide is inclined.

700,185. LARDING-PIN. HERMANN MUMER, Greifeld, Germany.
Filed Feb. 25, 1901. Serial No. 42,742. (No model.)



Claim.—A larding-pin composed of a pair of pivotally-connected jaws having jaws, and of removable pointed caps adapted to be fitted over said jaws, substantially as specified.

700,186. WHEEL OR RAIL TREAD. BUREAU W. EVANS, New York, N. Y. Filed Dec. 2, 1901. Serial No. 84,447. (No model.)



Claim.—1. The wheel or rail tread comprising a series of part-cylindrical protuberances contiguously arranged and diagonally disposed with respect to the face of the wheel, substantially as described.

2. The wheel or rail tread comprising a series of part-cylindrical protuberances formed upon the periphery of the wheel and integral therewith, the said part-cylindrical protuberances being contiguously arranged and diagonally disposed with respect to the face of the wheel, substantially as described.

3. The wheel or rail tread comprising a series of part-cylindrical protuberances contiguously arranged and diagonally disposed with respect to the face of the wheel, the outer portions of the said protuberances being crossed by milled cuttings perpendicular to the sides of the wheel, substantially as described.

4. The wheel or rail tread comprising a series of part-cylindrical protuberances contiguously arranged and diagonally disposed with respect to the face of the wheel, the outer portions of the said protuberances being milled, substantially as described.

700,187. MAIN VALVE FOR FIRE-EXTINGUISHING SYSTEM. HENRY EVERHART, Cincinnati, Ohio. Filed Nov. 2, 1901. Serial No. 81,922. (No model.)



Claim.—1. A main-valve mechanism for a fire-extinguishing apparatus, consisting of a housing communicating at one end with a water-supply pipe and at the other with a sprinkler-pipe system, a valve contained in this housing and a vent for it in this latter and against which it is normally held by air under pressure contained in the sprinkler-pipe system, that part of the valve-surface exposed to the action of the water and in contact therewith having an independent movement on the valve without affecting the position of this latter and being held in normal position by a yielding pressure.

2. A main valve for fire-extinguishing apparatus to be interposed between an air-charged sprinkler-pipe system and a water-supply pipe therefor and intended to normally prevent such supply, the same being provided with an elastic cushion on that side of it which is in contact with the water and subject to the pressure thereof, such cushion being capable of a movement independent of the valve and without affecting at such time the position thereof.

3. A main valve for fire-extinguishing apparatus to be interposed between an air-charged sprinkler-pipe system and a water-supply pipe therefor and intended to normally prevent such supply, the same having a housing on the water side and a head fitted thereto with an elastic pressure and in a manner to be capable of a movement independent of the valve and without affecting at such time the position thereof.

4. A main valve for fire-extinguishing apparatus to be interposed between an air-charged sprinkler-pipe system and a water-supply pipe therefor and intended to normally prevent such supply, the same having two seating-contacts at 14 and 15, a housing 24 between them and an elastically-supported head 23 therein.

5. Is a valve mechanism for fire-extinguishing apparatus involving an air-charged sprinkler-pipe system and a water-supply pipe therefor, the combination of a valve-housing interposed between the two and in communication with each, two valve-seats therein, a valve for them adapted to have simultaneously seating-contact with both seats and bolts 25 accessible from the outside whereby the position of one of these valve-seats may be adjusted within the valve-housing.

700,188. GAS-PURIFIER GRID. CHARLES R. FARMER, JR., Toledo, Ohio. Filed Aug. 7, 1901. Serial No. 71,175. (No model.)



Claim.—1. A grid for a gas-purifier composed of comparatively wide bars or slats having their edges in the same horizontal plane, overlapping and vertically spaced apart, making horizontal or nearly horizontal gas-passages, substantially as described.

2. A grid for a gas-purifier composed of comparatively wide transversely-inclined bars or slats having their edges in the same horizontal plane, overlapping and vertically spaced apart, and having means at their lower edges for arresting or holding the purifying material at the angle of repose, substantially as described.

3. In a gas-purifier, the combination with inclined supporting-seats and spacing-risers of wide transversely-inclined overlapping bars, or slats, having horizontal gas-passages between them, substantially as described.

4. A bar or slat for a purifier-grid having flat opposite sides and a head or flange perpendicular to its face, at one edge, substantially as described.

5. A bar or slat of a purifier-grid having in its face near one edge a longitudinal depression, and at its edge a head or flange rising above the bottom of said depression, substantially as described.

6. A bar or slat of a purifier-grid having longitudinal beads or flanges projecting from its opposite faces at or near its opposite edges, substantially as described.

7. In a gas-purifier box, the horizontally-placed curved strips having inclined seats and spacing-risers, in combination with the transversely-inclined overlapping bars, or slats, substantially as described.

8. A bar or slat of a purifier-grid having in its face, near one edge, a longitudinal depression, the bottom of which is inclined downward and outward, and a longitudinal head rising above the bottom, substantially as described.

9. In a purifier-box, the grids composed of overlapping bars or slats inclined upward and inward from opposite sides of the box for directing gas from the sides toward the interior of the purifier material, substantially as described.

10. A bar or slat of a purifier-grid longitudinally beveled at the edge of one face and having in its opposite face near the same edge a longitudinal depression, and at its edge in such face a head or flange rising above the bottom of said depression.

700,189. BUFFING-ROLL. ALFRED E. FOWLER, Central Falls, R. I., assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed Aug. 12, 1901. Serial No. 71,200. (No model.)



Claim.—1. A buffing-roll having, in combination, a core, a covering-pad consisting of a sheet of yielding material wound around the core, and means for removably securing the ends of said sheet to the core, substantially as described.

2. A buffing-roll having, in combination, a core, a covering-pad consisting of a sheet of yielding material substantially rhomboidal in shape wound around the core, and means for removably securing the ends of said sheet to the core, substantially as described.

3. A buffing-roll having, in combination, a core, a covering-pad consisting of a sheet of yielding material substantially rhomboidal in shape provided with thin projecting end strips wound around the core, and clamps engaging said end strips for removably securing said sheet to the core, substantially as described.

4. A covering-pad for a buffing-roll consisting of a sheet of yielding material substantially rhomboidal in shape provided with thin projecting end strips, substantially as described.

5. A covering-pad for a buffing-roll consisting of a sheet of yielding material substantially rhomboidal in shape and a thin backing-sheet projecting beyond the ends of said sheet, substantially as described.

6. A covering-pad for a buffing-roll consisting of a sheet of yielding material substantially rhomboidal in shape adapted to be wound around the core of a buffing-roll and provided at its ends with means whereby it may be removably secured thereto, substantially as described.

7. A buffing-roll having, in combination, a core, a covering of abrasive material, a clamp mounted in the end of the core arranged to clamp the covering of abrasive material, a clamp-extending ring rotatably mounted on the end of the core, and means for locking said ring, substantially as described.

8. A buffing-roll having, in combination, a core, a covering of abrasive material, a clamp mounted in the end of the core arranged to clamp the covering of abrasive material, a clamp-extending ring rotatably mounted on the end of the core, ratchet-teeth on the end of the core and a pawl carried by said ring arranged to engage the ratchet-teeth, substantially as described.

700,190. ART AND PROCESS OF CONVERTING PEAT INTO FUEL. JAMES O. GREEN and HARRY T. MARSH, Whitewater, Wis. Filed Sept. 12, 1901. Serial No. 71,201. (No specimens.)

Claim.—The art or process of converting peat into a compact non-flammable substance for use as fuel by drying, and then simultaneously grinding heating and compressing substantially as herein described.

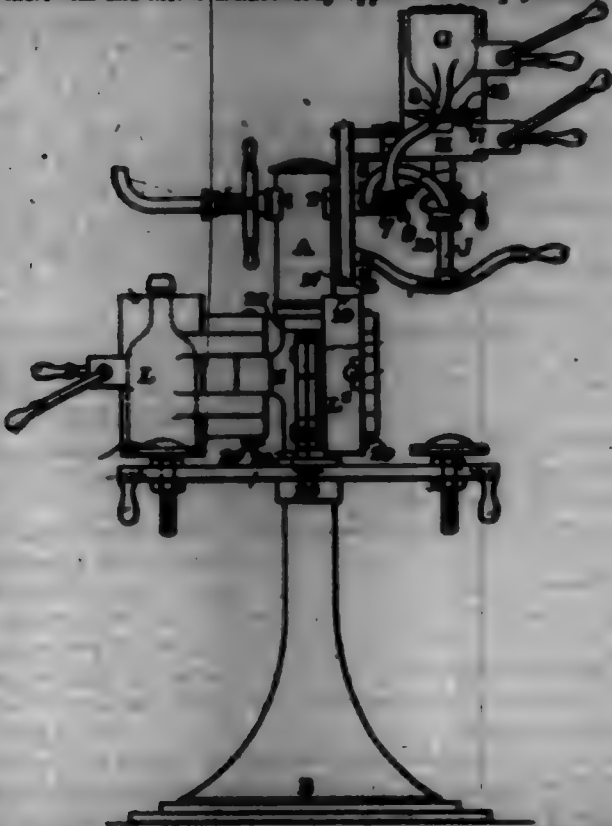
700,191. MACHINE FOR MAKING GLASS BOTTLES. LEONARD GEORGE, London, England, assignor to Globe Bottle Machine Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 12, 1900. Serial No. 38,518. (No model.)

Claim.—1. The combination, in a machine for making glass bottles, of a vertical pillar; a blasted neck-mold, a blasted parison-mold and means for admitting air supported by said pillar and reversible together on a horizontal axis, the halves of said parison-mold being movable apart and upwardly into another plane after inversion; blasted finishing body-molds the parts of which in succession are movable horizontally on a vertical axis into the positions vacated by those of said parison-mold beneath the common neck-mold, finishing bottom-molds coacting in succession with a body-mold and said neck-mold, and supports for said body-molds and bottom-molds movable horizontally around said pillar and supported thereby.

2. The combination, in a machine for making glass bottles, of a vertical pillar; a blasted neck-mold, a blasted parison-mold, a mouth-forming and air-admitting plunger and a combined plunger-support and conduit, supported by said pillar and reversible together on a horizontal axis, the halves of said parison-mold being movable apart and upwardly into another plane after inversion, blasted finishing-molds the parts of which in succession are movable horizontally on a vertical axis into positions vacated by those of said parison-mold beneath the common neck-mold, finishing bottom-molds coacting in succession with a body-mold and said neck-mold and supports for said body-molds and bottom-molds movable horizontally around said pillar and supported thereby.

3. The combination, in a machine for making glass bottles, of a vertical pillar; a blasted neck-mold a blasted parison-mold and means for

admitting air, supported by said pillar and reversible together on a horizontal axis, the halves of said parison-mold being movable apart and upwardly into another plane after inversion; a pair of finishing body-molds and bottom-molds pivotally supported by said pillar in juxtaposition to the inverted neck-mold and movable horizontally in succession into alignment therewith and into a diametrically opposite delivery position.



4. The combination, in a machine for making glass bottles, of a vertical pillar; a hinged neck-mold, a hinged parison-mold, a mouth-forming and air-admitting plunger and a combined plunger-support and air-conduit supported by said pillar and reversible together on a horizontal axis, the halves of said parison-mold being separable to expose the partly-formed bottle depending from the neck-mold; and adjacent finishing body-molds and bottom-molds supported by said pillar and movable on its vertical axis into successive alignment with the inverted neck-mold, for cooperation therewith in completing successive bottles.

5. The combination, in a machine for making glass bottles, of a head-casting neck-mold composed of parts separable laterally to release the finished bottle, and provided with spring-detents projecting from its end face, and interchangeable parison-molds and finishing body-molds composed of laterally-separable parts engaging with said detents to align themselves in succession with said neck-mold.

6. The combination, in a machine for making glass bottles, of a head-casting neck-mold composed of parts separable laterally and reversible on a horizontal axis, a parison-mold composed of laterally-separable parts and reversible with said neck-mold, a finishing body-mold composed of laterally-separable parts interchangeable with those of said parison-mold, spring-detents retaining the other molds successively in alignment with said neck-mold, and handles by which the resistance of said detents is overcome.

7. The combination, in a machine for making glass bottles, of a horizontal air-tube, a face-plate turning on the axis of said air-tube, a pair of laterally-separable neck-mold parts and a hand-lever carried by said face-plate, a pair of parison-mold parts separable on the axis of said air-tube, a combined plunger-support and air-conduit supported by said air-tube, and a mouth-forming and air-admitting plunger actuated by said hand-lever.

8. The combination, in a machine for making glass bottles, of a head-casting neck-mold reversible to suspend the partly-formed bottle, a plurality of finishing body-molds pivotally supported in their working plane and movable in succession into and out of alignment with the reversed neck-mold, for completing successive bottles, and a vertical pillar supporting the whole and around which said body-molds revolve.

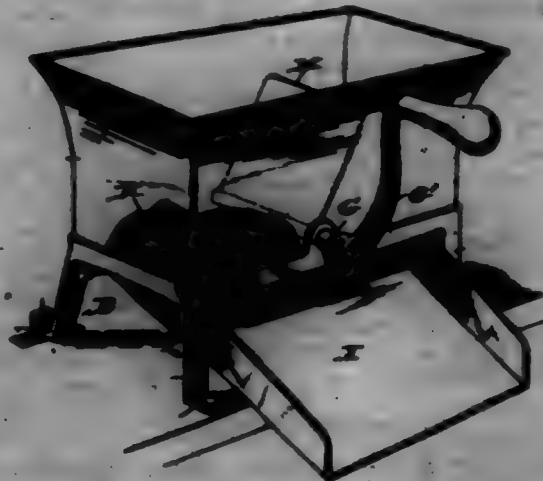
9. The combination, in a machine for making glass bottles, of a head-casting neck-mold composed of parts separable horizontally to release the finished bottle, a plurality of finishing body-molds, open at both ends, movable successively into alignment with said neck-mold and each composed of horizontally-separable parts, a plurality of bottom-molds engaging with the lower ends of said body-molds respectively, and movable horizontally therewith after the blowing is completed, and a supporting-pillar common to said neck-mold, body-molds and bottom-molds, and around which said body-molds and said bottom-molds revolve, substantially as hereinbefore specified.

700,192. AGRICULTURAL UTENSIL. EDUARD H. GUNDEL, Cologne, Germany. Filed Mar. 20, 1901. Serial No. 65,749. (No model.)



Claim.—An agricultural implement for extracting roots without damaging the same, consisting of a pair of arms, pivoted together above the ground and having the ends below the pivot bent inwardly toward each other and a set of straight prongs mounted at each end and having the members of one set engaging between those of the other in the manner and for the purpose substantially as described.

700,193. VEGETABLE-STRAINER. GEORGE H. GUNDEL, Rochester, N. Y. Filed Feb. 22, 1901. Serial No. 65,694. (No model.)



Claim.—1. In a device of the character described, a receptacle having a screen-bottom, a shaft extending through the receptacle above the screen-bottom and adjacent thereto, and a flat plate secured to the shaft, the screen curving by engaging with the plate to prevent the complete rotation thereof, substantially as shown and described.

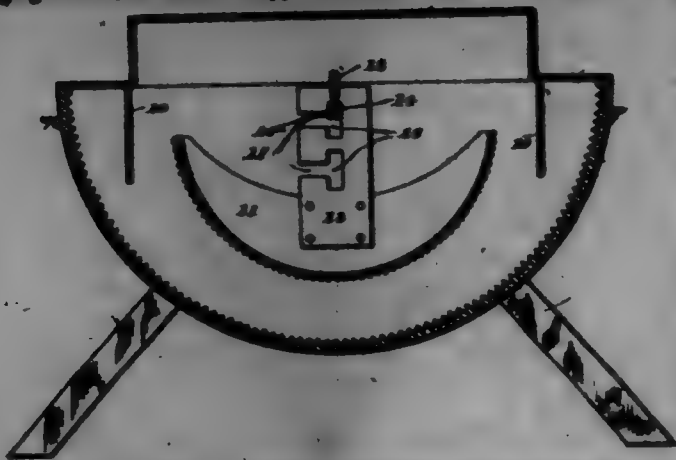
2. In a device of the character specified, a receptacle having open top and bottom and formed with a band about its bottom, a removable screen-bottom on said band, a shaft mounted transversely of the receptacle and substantially midway between its ends above the screen-bottom and adjacent thereto, a flat plate secured to said shaft, the screen curving to prevent the complete rotation of the plate by engaging the same, and means for actuating said shaft, substantially as shown and described.

700,194. WASHING-MACHINE. EDWARD D. HARRISON, Vancouver, Wash. Filed Feb. 4, 1902. Serial No. 92,989. (No model.)

Claim.—1. In a washing-machine, the combination with a frame and a rotatable oscillating tub supported thereby, of a bar supported by the frame and extending across the tub, hangers detachably engaging the bar and a vertically-adjustable, non-oscillating rubber band to the lower ends of the hangers within the tub.

2. In a washing-machine, the combination with an oscillating tub mounted on hollow trunnions, of a stationary bar extending through the

transverse and across the ends-box, non-oscillating hangers detachably engaging the bar, and a rubber supported by the hangers within the ends-box.



3. In a washing-machine, the combination with an oscillating ends-box having an angular bar across the ends, of a removable, vertically-movable rubber supported in the ends-box by hangers, said hangers having angular slots receiving the bar, whereby oscillation of the rubber is prevented but vertical movement permitted.

700,195. THILL-COUPLINE. MATHEW L. HIGGINS and WILLIAM W. REVELL, PHOTO. & D. Filed Jan. 22, 1902. Serial No. 99,865. (No model.)



Claim.—1. In a thill-coupling, a clip formed with a projecting arm, a spring-actuated angular rocking arm pivoted to the first-mentioned arm, one side of the angular rocking arm engaging the ears upon the clip, the other being bent at right angles to the respective sides parallel with the ears, substantially as shown and described.

2. In a thill-coupling, a clip formed with a plate projecting at one side thereof, an angular rocking arm pivoted to the said plate, a spring secured to the plate, the said spring engaging the said rocking arm, one side of the angular arm engaging the ears upon the clip, the other being bent at right angles to the respective sides of the arm parallel with the ears, substantially as shown and described.

3. In a thill-coupling, a clip having a flat projecting arm, a spring-actuated angular arm pivoted to the said flat arm, one side of the angular arm being bent at right angles to the respective sides, the other resting upon the ears, and of an antirattler formed upon that portion which rests upon the ears, substantially as shown and for the purpose set forth.

700,196. STARCHING-MACHINE. EDWARD B. HENOLD, Anderson, Ind. Filed Aug. 17, 1901. Serial No. 72,400. (No model.)



Claim.—1. In a starching-machine the combination of the starch-pot, a drum mounted therein, having a closed body and longitudinal channels in its periphery extending from end to end, a woven-wire fabric covering the said drum, a fabric on the outside of said wire fabric, a plurality of rollers parallel with the drum and mounted between said drum and the bottom of the pot, and an endless belt mounted on rollers supported on

each side of said drum, said belt passing between the under side of said drum and the series of rollers in the bottom of the pot, substantially as set forth.

2. In a starching-machine the combination of a drum having a closed body to exclude starch from its interior, a woven-wire sleeve surrounding the periphery of the drum and supported out of continuous contact with said periphery by longitudinal ribs or corrugations, and windings of loose pile fabric around said woven-wire sleeve, substantially as set forth.

3. A starch-pot, a drum suspended therein, a plurality of rollers between the drum and the bottom of the pot, independent frames on either side of the pot to support the rollers, said frames consisting of a bent bar for each having shaft-bearings for the shafts of the rollers and eyes at the ends of the bars, eyebolts connected to the ends of the frames, cups through which the eyebolts pass, said cups having springs to support the eyebolts and means for regulating the tension of the springs, said cups being supported by wrist-pins from the sides of the pot and an endless belt passing around the rollers.

4. In a starching-machine, a starch-pot, a drum, a plurality of rollers, an endless belt passing around the rollers and a pair of frames to support the rollers, said frames being elastically supported at their ends whereby they will be drawn with a yielding pressure toward the drum and said frames being hinged to the supports to permit swinging adjustment of the frames in vertical planes and means for adjusting the ends of the frames independently of each other.

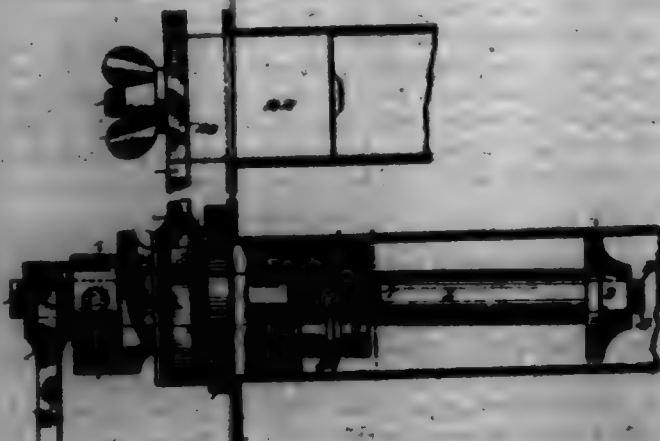
5. A starch-pot, a drum, a plurality of rollers, an endless belt passing around the rollers, a pair of frames to support the rollers consisting of bent bars having indentations on their inside edges to form bearings for the roller-shafts, eyebolts pivotally secured to the ends of the frames, said bolts being screw-threaded, cups supported by horizontal pivots the eyebolts passing through the cups, nuts on the projecting threaded ends of the eyebolts and springs between the nuts and the bottoms of the cups around said eyebolts.

6. In a starching-machine, a drum having a closed body to exclude starch from its interior, a corrugated sleeve removably secured to the periphery of the drum, a woven-wire sleeve surrounding and removably secured to the corrugated sleeve and windings of a loose-pile fabric around the woven-wire sleeve.

7. In a starching-machine, a starch-pot, a drum adjustable vertically, rollers parallel with the drum between the drum and the bottom of the pot and adjustable to and from the drum said rollers being below the axis of the drum, a roller above the axis of the drum at the front of the machine and adjustable in a plane oblique to the horizontal, a second roller above the axis of the drum on the opposite side of the latter from the obliquely-adjustable roller and adjustable horizontally, and a belt passing around all of the rollers.

8. In a starching-machine, a starch-pot, a drum, rollers below the axis of the drum and parallel therewith said adjustable to and from the drum, a roller above the axis of the drum and adjustable in an oblique plane, a roller on the opposite side of the drum from the obliquely-adjustable roller said last roller adjustable in a horizontal plane and being above the axis of the drum, a third roller outside of and parallel with the second and horizontally-adjustable roller and a belt passing around all of the rollers and between the rollers and the drum.

700,197. TURN-CUTTER. WALTER HENRY, Chicago, Ill. Filed Apr. 22, 1901. Serial No. 64,966. (No model.)



Claim.—1. A device of the character described, comprising a rotatable spindle carrying a cutter, a concentric bearing at one end of the spindle, an eccentric bearing at the opposite end, and means for limiting the rotation of the spindle.

2. A device of the character described, comprising a rotatable spindle carrying a cutter, a concentric bearing at one end of the spindle, an eccentric bearing at the opposite end thereof, means for limiting the re-

tion of the spindle, and means for controlling the distance of its insertion into a tube.

2. A device of the character described, comprising a rotatable spindle having a reduced inner end and an outer polygonal end, an intermediate outer, a circular rotatable bearing mounted concentrically upon the reduced end of the spindle, a circular bearing mounted concentrically upon the outer portion of the spindle and carrying a step projection, and a step device fitted to the polygonal end of the spindle and located in the path of the step projection.

4. A device of the character described, comprising a rotatable spindle having an outer polygonal end, an intermediate outer, a rotatable bearing mounted upon the spindle between the outer and the polygonal end thereof, and carrying a step projection, and a step device carried by the polygonal end of the spindle and arranged in the path of the step projection whereby to limit the rotation of the spindle.

5. A device of the character described, comprising a rotatable spindle having an outer polygonal end, an intermediate outer, a rotatable bearing mounted upon the spindle between the outer and the polygonal end thereof, and having a step projection, and a step device having a polygonal opening fitting the outer end of the spindle and provided with means for rigidly securing it to the said end.

6. A device of the character described, comprising a rotatable spindle, having a lateral outer, a bearing rotatably mounted upon the spindle at the outer side of the outer, and an arm connected to the bearing, and having a lateral projection adapted to enter an adjacent line and thereby hold the arm and bearing against rotation.

7. A device of the character described, comprising a rotatable spindle, having a lateral outer, a bearing rotatably mounted upon the spindle at the outer side of the outer, and provided with a polygonal portion, and a holding-arm, having a wrench-head adapted for detachable engagement with the polygonal portion of the bearing, and also provided with a lateral projection to enter a line and hold the arm and bearing against rotation.

8. A device of the character described, comprising a rotatable spindle, having a lateral outer, a bearing rotatably mounted upon the spindle at the outer side of the outer, and provided with a polygonal portion, and an arm disposed at substantially right angles to the spindle, and having a terminal wrench-head for detachable engagement with the polygonal portion of the bearing, and an opposite terminal lateral projection, which is adjustable longitudinally upon the arm.

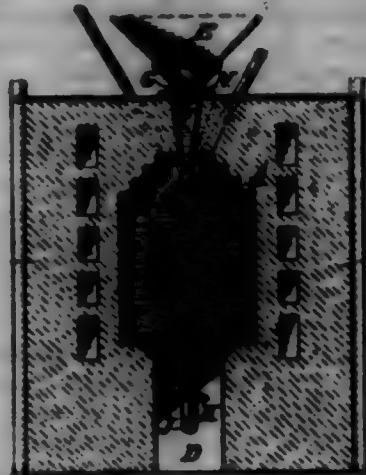
9. A device of the character described, comprising a rotatable spindle, having a lateral outer, a bearing rotatably mounted upon the spindle at the outer side of the outer, and provided with a polygonal portion, and a holder-arm, having a terminal wrench-head for detachable engagement with the polygonal portion of the bearing, the opposite end of the arm having a longitudinal slot, and a lateral projection adjustable longitudinally in the slot.

10. A device of the character described, comprising a rotatable spindle, having a polygonal outer end, an intermediate circular enlargement or collar, having a marginal recess, a collar mounted in the recess and projected outwardly beyond the margin of the collar, a circular rotatable bearing mounted concentrically upon the inner end of the spindle, a sleeve-bearing mounted concentrically upon the spindle between the collar and the polygonal portion of the spindle, the inner end portion of the sleeve being cylindrical in shape and of substantially equal diameter with the inner bearing, the outer end portion of the sleeve being polygonal in shape, and having an outer terminal longitudinal step projection, there being an intermediate outwardly-directed marginal flange between the cylindrical and polygonal portions of the bearing-sleeve, a step-collar removably fitted to the polygonal end of the spindle, and provided with a marginal step projection lying in the path of the step projection of the bearing-sleeve, and also having a set-screw to engage the spindle, the polygonal end of the spindle projecting beyond the collar for the reception of an operating device, in combination with a holder-arm for the sleeve-bearing, consisting of an arm having a terminal bifurcation or wrench-head adapted for detachable engagement with the polygonal portion of the bearing-sleeve, and having an opposite terminal lateral projection extending toward the inner end of the spindle and adapted to be entered into a line to hold the arm and bearing against rotation.

11. A device of the character described, comprising a rotatable spindle, having an intermediate lateral outer an inner terminal concentric bearing, and an outer concentric bearing, both bearings being of substantially the same diameter, and having correspondingly-inclined bearing-openings for the reception of the spindle, whereby the latter is inclined across the longitudinal axis of a tube when in operative position.

700,198. FURNACE FOR BURNING FINE FUEL. RICHARD REINHOLD, Berlin, Germany. Filed Oct. 23, 1901. Serial No. 73,303. (No model.)

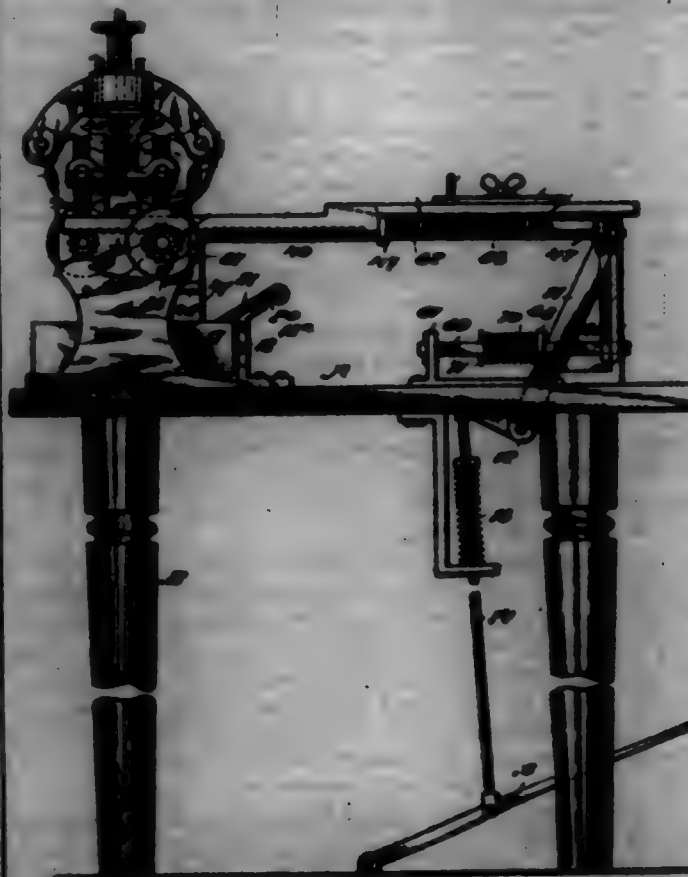
Claim.—1. A furnace for burning fine fuel comprising a combustion-chamber having a feed-opening at the top, and pipes crossing the combustion-chamber at different levels below the feed-opening, and also insulating the combustion-chamber and the pipes which cross it.



2. A furnace for burning fine fuel comprising a combustion-chamber having a contracted upper end, a grate placed in a contracted chamber below the combustion-chamber, a feed-hopper for feeding fine fuel into the upper end of the combustion-chamber, and water-pipes for the circulation of water in the combustion-chamber which cross the combustion-chamber at different levels and which also insulate the crossing pipes and are contracted in area at the upper end of the combustion-chamber.

3. A furnace for burning fine fuel comprising a combustion-chamber having a feed-opening at the top, a grate at the bottom of the combustion-chamber, water-pipes crossing the combustion-chamber at different levels directly below the feed-opening and in different vertical planes in the combustion-chamber, and water-pipes surrounding the crossing pipes which extend from top to bottom of the combustion-chamber.

700,199. DEVICE FOR SEALING ENVELOPES. ALFRED REYNOLDS, Brooklyn, N. Y., assignor of three-fifths to Alexander McIntosh and Ernest Radloff, New York, N. Y. Filed Jan. 12, 1903. Serial No. 24,512. (No model.)



Claim.—1. In an envelop-sealing machine, a sealing device, a maintaining device, and operating mechanism for the sealing device acting to first take and temporarily detain the envelop and then seal the same, as set forth.

2. In an envelop-sealing machine, a sealing device, a maintaining device, means for delivering an envelop to the sealing device, and mechanism for operating the sealing device, the operation of the said mechanism being so timed relatively to the delivery means that the envelop will be

temporarily held by the sealing device prior to the sealing of the same, as set forth.

3. In an envelop-sealing machine, a sealing device, a moistening device, an envelop-holder, the said holder and sealing device being movable relatively toward and from each other, and means whereby when the holder and sealing device are moved toward each other an envelop will be delivered to the sealing device and held thereby until the said parts have moved away from each other and again start to move toward each other when the envelop will be sealed, as set forth.

4. In an envelop-sealing machine, sealing-rollers, means for feeding an envelop to the said rollers, means for moistening the envelop before it is sealed by the rollers, and mechanism for operating the rollers to cause them to draw an envelop between them, the operation of each mechanism being so timed relatively to the feeding means that the envelop will be detained between the rollers after it has been moistened thereby and before it is discharged therefrom, as set forth.

5. In an envelop-sealing machine, sealing-rollers, means for holding the envelop, said envelop-holding means and the sealing-rollers being movable relatively toward and from each other, and means for turning the sealing-rollers during the movement of the parts toward each other, whereby the said rollers will be operated to discharge the envelop at each time, said rollers being stationary during the movement of the rollers and the envelop-holding means apart, whereby the envelop when caught by the rollers will be temporarily detained during the movement of the envelop-holder and rollers away from each other, as set forth.

6. In an envelop-sealing machine, sealing-rollers, an envelop-holder, the holder and sealing-rollers being movable relatively toward and from each other, means for turning the sealing-rollers during the movement of the parts toward each other, said rollers being stationary during the movement of the holder and sealing-rollers apart, and a moistening device carried by one of the said parts for applying moisture to the envelop prior to its entrance between the said rollers, substantially as described.

7. In an envelop-sealing machine, sealing-rollers, a carrier for the envelopes movable toward and from the sealing-rollers, means for operating the sealing-rollers as the carrier moves toward the said rollers, the said rollers being stationary during the movement of the carrier away from the rollers, and a moistening device carried by the carrier for applying moisture to the envelop prior to its entrance between the sealing-rollers, substantially as described.

8. In an envelop-sealing machine, sealing-rollers, an envelop-carrier movable toward and from the sealing-rollers, means for operating the sealing-rollers as the carrier moves toward said rollers, the rollers being stationary during the movement of the carrier away from the sealing-rollers, and a moistening-roller yieldingly mounted under the carrier at its front edge, substantially as described.

9. In an envelop-sealing machine, sealing-rollers, a platen in front of and adjacent to the lower sealing-roller, an envelop-carrier movable toward and from the said rollers, a moistening device carried by the carrier and coacting with the platen to moisten the envelop, and means for operating the sealing-rollers and carrier, substantially as described.

10. In an envelop-sealing machine, sealing-rollers, a platen in front of and adjacent to the lower sealing-roller, an envelop-carrier slidable toward and from the rollers, a pivoted moistening device carried by the carrier and coacting with the platen to moisten the envelop, and means for operating the sealing-rollers from the carrier, substantially as described.

11. In an envelop-sealing machine, sealing means, a moistening-pad in front of and below the sealing means, a carrier slidable toward and from the sealing means, a moistening-roller carried by the carrier, and means for bringing said pad and roller into contact on the outward movement of the carrier, substantially as described.

12. In an envelop-sealing machine, sealing means, a moistening-pad in front of and below the sealing means, an envelop-carrier slidable toward and from the sealing means, a moistening-roller pivotally mounted on the under side of the carrier, means for holding the roller close to the under side of the carrier in the delivery movement of said carrier and releasing the same to allow it contact with the moistening-pad at the end of said delivery movement, and means for returning the roller to its normal position on the return movement of the carrier, substantially as described.

13. In an envelop-sealing machine, sealing-rollers, a moistening-pad below and in front of the said rollers, an envelop-carrier slidable toward and from the sealing-rollers, a moistening-roller yieldingly mounted in a support pivoted to the under side of the carrier, device for holding the roller close to the under side of the carrier in the delivery movement of the same, and releasing the same to allow the roller to contact with the moistening-pad at the end of the said delivery movement of the carrier, and means for returning the roller-support to its normal position on the return movement of the carrier, substantially as described.

14. In an envelop-sealing machine, the combination with sealing-rollers, an envelop-holder, the sealing-rollers and holder being movable

relatively toward and from each other, a ratchet-wheel fixed to the shaft of one of the sealing-rollers, a pinion loose on the shaft of the said sealing-roller and carrying a pawl engaging the ratchet-wheel, and a rack by means of which the said loose pinion is driven whereby the feed-rollers will be driven when the parts are moved toward each other and remain stationary when said parts are moved apart, as and for the purpose set forth.

15. In an envelop-sealing machine, the combination of sealing-rollers, a ratchet-wheel fixed to the shaft of one sealing-roller, a pinion loose on the shaft of said roller and carrying a pawl engaging the ratchet-wheel, an envelop-carrier movable toward and from the feed-rollers, and a rack carried by the carrier and meshing with the said pinion, substantially as and for the purpose set forth.

16. In an envelop-sealing machine, a pair of sealing-rollers, a ratchet-wheel fixed to the shaft of one of said rollers, a pinion loose on the shaft of the said roller and carrying a pawl engaging the ratchet-wheel, a second pair of sealing-rollers in rear of the first pair, a pinion fixed to the shaft of one of the second pair of rollers, an envelop-carrier movable toward and from the feed-rollers, and a rack carried by the carrier and meshing with the pinions of the said rollers, substantially as described.

17. In an envelop-sealing machine, the combination of sealing-rollers, a moistening device, an envelop-holder, said holder and sealing-rollers being movable relatively toward and from each other, and an adjustable gage on the holder, whereby the holder is adapted for various sizes of envelopes and provides means for holding an envelop thereon with its edge projecting beyond the edge of the holder to facilitate its entrance between the rollers, substantially as described.

18. A pair of sealing-rollers, a table mounted to reciprocate to and from said sealing-rollers, an actuating mechanism common to both the table and the rollers, and a moistening-roller carried by the table and having movement to and from the table in a vertical direction.

19. A pair of sealing-rollers, a table having reciprocating movement to and from the space between the sealing-rollers, a moistening-roller located beneath the table, and having pivotal connection therewith, the moistening-roller being normally held close to the under side of the table, and a trip device for the said moistening-roller, as described.

20. In a sealing device for envelopes, pairs of sealing-rollers, tension devices for the said rollers, actuating devices for said rollers and a movable table connected with said actuating devices, a tank adapted to contain liquid, a moistening device located within said tank and extending out therefrom, a moistening-roller pivoted beneath said table, adapted to travel with the table to the sealing-rollers and having movement downward in direction of the moistening device, the moistening-roller being normally close to the under side of the table, and a trip mechanism for the moistening-roller, substantially as described.

21. In a machine for sealing envelopes, a pair of sealing-rollers, one being located above the other, means imparting movement to the sealing-rollers, a table connected with the said rollers, adapted to carry an envelop, a frame pivotally mounted beneath the said table, a moistening-roller carried by the said frame, means for raising and lowering the moistening-roller, a tank located beneath the sealing-rollers, and an absorbent material located within said tank and extending therefrom, which absorbent material is adapted to be engaged by the moistening-roller at its downward movement, as specified.

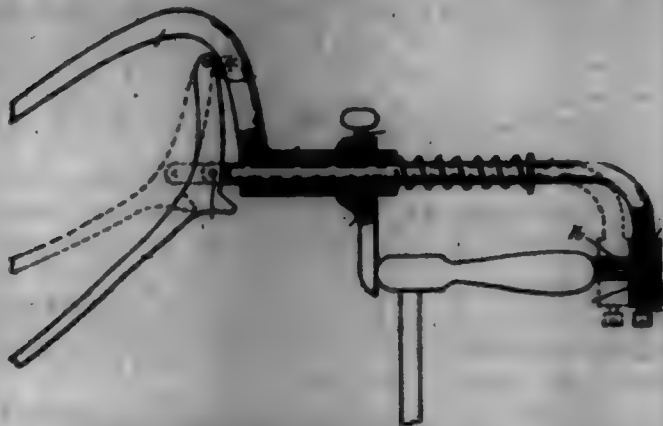
22. In a machine for sealing envelopes, a duplicate pair of sealing-rollers, a table adapted to carry an envelop, having movement to and from the sealing-rollers, an actuating mechanism for the table and the sealing-rollers, a spring-controlled frame pivoted to the table, a locking and trip mechanism for the said frame, a moistening-roller carried by the frame, and a moistening device adapted to be engaged by the moistening-roller on its downward movement, said moistening-roller having a movement with the table toward the sealing-rollers and a downward movement to the moistening device together with an upward movement to the said table, as set forth.

700,200. TONGUE-REGULATING TOOL. FRANKLIN BOVIER, Detroit, Mich. Filed May 6, 1901. Serial No. 68,994 (No model.)

Claim.—1. In a tongue-regulating tool, the combination with a stationary jaw, of complementary handle-sections at one side of said jaw, the latter being carried by one of the sections, an outer movable jaw upon the opposite side of and spaced from the stationary jaw, an operative connection between said movable jaw and the other handle-section, and a plurality of inwardly-extending pointed projections carried by the movable jaw.

2. In a tongue-regulating tool, the combination with a stationary jaw, of complementary handle-sections at one side of the jaw and extending downwardly in angular relation thereto, a connection between said jaw and one of the handle-sections, a movable jaw upon the opposite side of and spaced from the stationary jaw, an operative connection between said

movable jaw and the complementary handle-section, and a plurality of inwardly-extending pointed projections carried by the movable jaw.

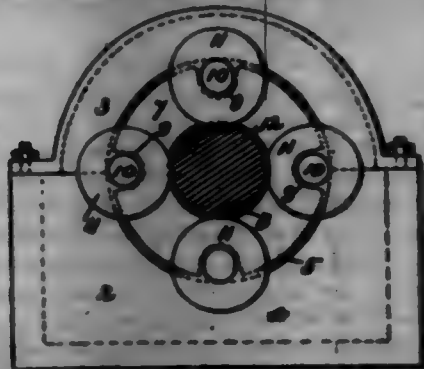


2. Is a tool-regulating tool, the combination with the pivoted handle-section, of a tubular head carried by one of said sections, an inner stationary jaw mounted upon and fixedly secured to the head, an outer movable jaw carrying a plurality of inwardly-extending pointed projections and provided with a shank extending through and adapted to be reciprocated within the tubular head, and a connection between the inner shank end and the other handle-section.

4. Is a tool-regulating tool, the combination with an arched handle-section terminating at its outer end in a forwardly-projecting tubular head, of a complementary handle-section pivoted to the arched section, a stationary jaw adjustably secured upon the head, a shank extending through and beyond the tubular head carrying a jaw at its outer end, a plurality of pointed projections extending inward from the jaw on the shank, a connection between the inner shank end and the complementary handle-section, and a spring upon the shank acting normally to spread the jaws.

5. Is a tool-regulating tool, the combination with a stationary jaw, of complementary handle-sections at one side of said jaw, the latter being carried by one of the sections, an outer movable jaw upon the opposite side of, and mounted for reciprocation in substantially parallel alignment with, said stationary jaw, an operative connection between the movable jaw and the complementary handle-section, and inwardly-extending pointed projections carried by the said movable jaw.

700,201. ANTI-FRICTION ROLLER-BEARING. HERMAN HOFF, New York, N. Y., assignor of one-half to Fred F. Harris, New York, N. Y. Filed July 17, 1901. Serial No. 68,097. (No model.)



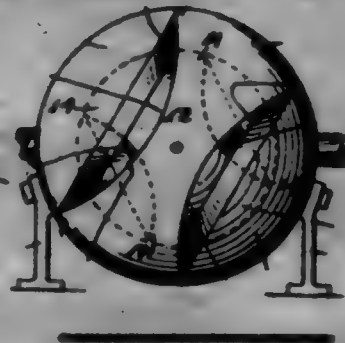
Claim.—In a roller-bearing, the combination with a journal-box having a pair of circular flanges thereon, of a pair of carrier-rings having a series of semicircular notches in their peripheries, rollers each provided with a spindle and a disk on each end, said spindles being journaled in said notches and located to run on said circular flanges as raceways to keep the rollers clear from contact with the box, and a shaft extending through said rings and bearing wholly on said rollers, substantially as described.

700,202. MECHANICAL MOVEMENT. FREDERICK W. JAMES, New York, N. Y. Filed July 11, 1901. Serial No. 67,882. (No model.)

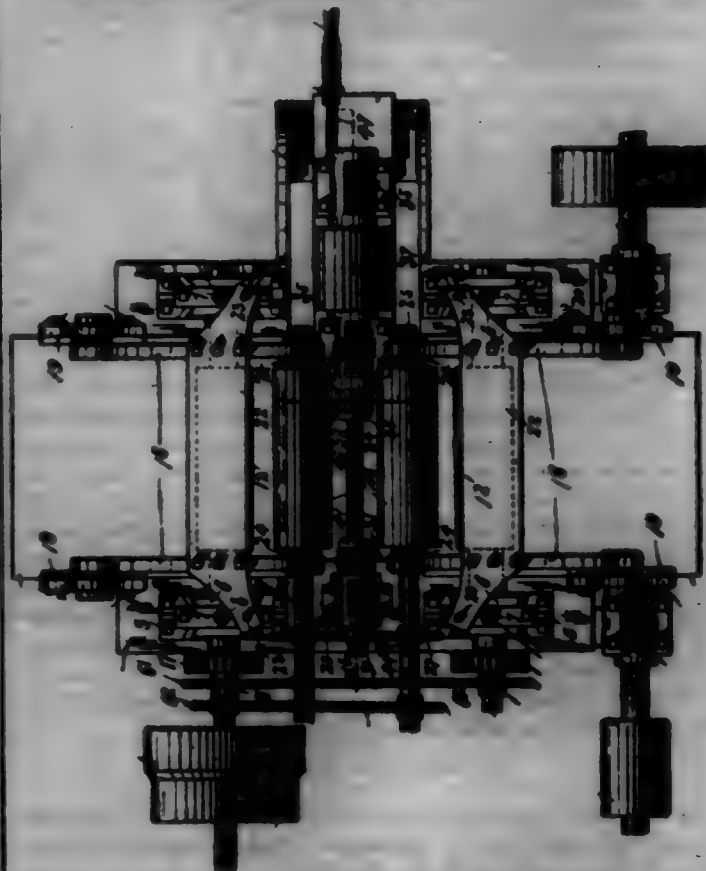
Claim.—1. A mechanical movement comprising a rotary shaft having a plurality of projecting arms mounted upon the same and positioned at different distances from the shaft; said projecting arms being mounted to turn with the shaft and to have a movement at an angle to the plane of their rotation, and end abutments adapted to conform to the arms, substantially as described.

2. A mechanical movement comprising a rotary shaft having a plurality of independent projecting arms mounted upon the same and positioned at different distances from the shaft; said projecting arms being mounted to turn with the shaft and to have a movement at an angle to

the plane of their rotation, and end abutments adapted to conform to the arms, substantially as described.



700,203. GANG-EDGER. CHARLES JOHNSON, Minneapolis, Minn., assignor of one-half to Arthur R. Rogers, Minneapolis, Minn. Filed Nov. 5, 1901. Serial No. 61,174. (No model.)



Claim.—1. The combination with means for feeding the boards, of a spindle formed by two shaft-sections which telescope one into the other and are connected for common rotation, independent bearings for said two shaft-sections, a saw carried by each shaft-section, and means for adjusting one of said shaft-sections with respect to the other to vary the saws.

2. In a gang-edger, the combination with means for feeding the boards, of a telescopically-adjustable rotary spindle, one section of which is fixed against endwise movement, a saw carried by each spindle-section, and an adjustable bearing-head in which said adjustable spindle-section is mounted, means for adjusting the bearing-head, and means for driving said spindle, substantially as described.

3. In a gang-edger, the combination with means for feeding the boards, of a telescopically-adjustable rotary spindle, the sections of which have sliding spline-and-follower engagement and one section of which is fixed against adjustment, a saw carried by each spindle-section, a pulley on the adjustable spindle-section, an adjustable bearing-head in which said adjustable spindle-section is mounted, and a screw for adjusting the said head, substantially as described.

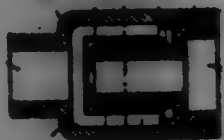
700,204. BOLT-LOCK. OLIVER JOSE, Kansas City, Kans. Filed Apr. 13, 1901. Serial No. 66,483. (No model.)

Claim.—The combination with a car-truck, embodying vertical angular-headed bolts 10, a plate 5 through which said bolts extend and interposed between said heads and the top of the truck, plates underlying the truck and provided with threaded holes receiving the threaded ends of said bolts, vertical bolts at opposite sides of the truck extending through said plate and having angular heads resting upon said plate, and threaded ends engaging the underlying plates, a plate 11, upon the first-named plate and provided with openings snugly fitting the heads of the truck-bolts and engaging the heads of the other bolts to prevent them from

turning, slotted pins extending up through the first-named plate and plate 11, and having their heads underlying the first-named plate, and wedge-shaped cutters or keys engaging said slots and the upper side of said plate 11, to clamp said plate tightly down upon the first-named plate, substantially as described.

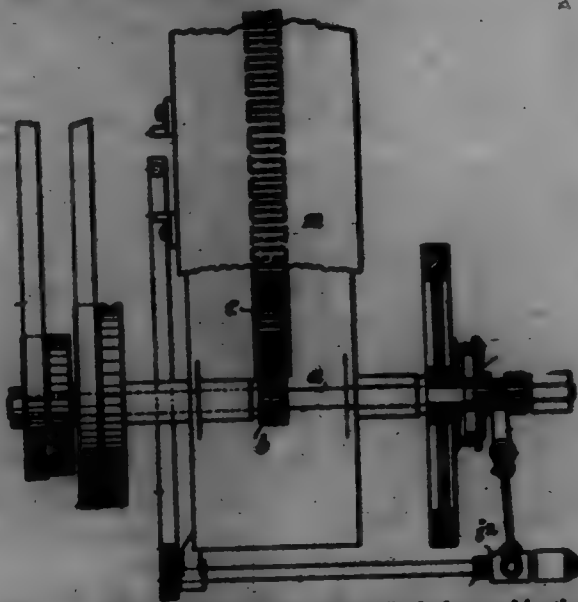


700,205. GAS-BURNER. PETER KELLER and PHILIPP SCHLIER, Chicago, Ill., assigners, by direct and mesne assignments, to said Keller and Lisa Entemann, Chicago, Ill. Filed Feb. 19, 1901. Removed Apr. 17, 1902. Serial No. 168,423. (No model.)



Claim.—A device for regulating the flow of gas comprising a base provided with an upwardly-extending nipple, an exterior groove in said nipple adjacent its lower end, a central opening in said base and through said nipple, a fluted cylindrical cap adapted to fit loosely over said nipple, prongs on the lower end of said cap extending into said groove, a casing adapted to be mounted on said base and over said cap, and a central opening in the upper wall of said casing of less diameter than said cap, the latter being adapted to be raised by successive pressure of gas and strike the upper wall of said casing, thereby partially closing said central opening and decreasing the flow of gas therethrough, said cap by reason of its corrugations preventing the flow of gas from being entirely shut off at any time, substantially as described.

700,206. AUXILIARY REVERSING-GEAR FOR MACHINE-TOOLS. HERMANN E. A. KIEHNHARDT, Chemnitz, Germany. Filed Dec. 27, 1901. Serial No. 97,482. (No model.)



Claim.—1. In a device of the class described, the combination with the slide and the driving-shaft operatively connected thereto with means for driving said shaft in either direction, of a fly-wheel mounted to rotate independently of said shaft, means for rotating said fly-wheel in a direction reverse to the forward motion of the shaft, and means for connecting said fly-wheel to the shaft when reversing the movement of the same.

2. The combination with the slide and driving-shaft operatively connected therewith, with means for rotating it in either direction, of a fly-wheel loosely journaled on said shaft and means for automatically coupling and uncoupling said fly-wheel to and from said shaft near the extremities of the movement of the slide.

3. The combination with the slide and driving-shaft operatively connected therewith with means for driving it in either direction, of a fly-wheel journaled on said shaft with means for driving it, clutch mechanism for connecting said fly-wheel to and disconnecting it from the shaft, a movable bar extending into proximity to the slide, stops or abutments on the slide for moving the bar as the slide approaches either extremity of its movement, and means whereby the movement of the bar operates the clutch mechanism.

4. The combination with the slide and driving-shaft operatively connected thereto with means for driving it in either direction, of a fly-wheel loose on said shaft, means for driving the same, a clutch for connecting said wheel to and disconnecting it from the shaft, a movable bar extending into proximity to the slide, abutments on the slide for engaging the bar as the slide approaches either extremity of its stroke, and yielding connections between said bar and clutch whereby the movement of the bar operates the clutch without shock.

700,207. COMBINED RHEOSTAT AND HEATER. MAX G. KIMMEL, Chicago, Ill., assigner, by mesne assignments, of one-half to Heubner Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 4, 1901. Serial No. 77,593. (No model.)



Claim.—1. In a combined electric rheostat and heater, a stick or rod of resistance material having openings therethrough at various intervals, non-corrusive contacts, and means passing through said openings for securing said contacts to said rod, as and for the purpose set forth.

2. In a combined electric rheostat and heater, a non-metallic stick or rod forming the resistance material, non-corrusive contacts, and pins or studs passing through said stick or rod for clamping said contacts thereto, as and for the purpose set forth.

3. In an apparatus of the class described, an insulating-plate, a resistance stick or rod mounted thereon, a series of contact-points, a series of non-corrusive contacts applied to said stick or rod and each in electrical connection with the contact-point, and a contact arm or lever operating over said contact-points, as and for the purpose set forth.

4. In an apparatus of the class described, an electric circuit including a pivoted contact-arm or lever, a resistance stick or rod, a series of non-corrusive contacts in electrical connection therewith, said contact arm or lever operating over said contact-points, whereby the resistance of said arm may be varied, as and for the purpose set forth.

5. In an apparatus of the class described, an electric circuit including a pivoted contact arm or lever, a resistance stick or rod, a series of contact-points in independent electrical connection therewith, said contact arm or lever operating over said contact-points, and an automatic retaining device or detent operating to engage and lock said arm or lever, as and for the purpose set forth.

6. In an apparatus of the class described, a resistance stick or rod, an opening formed therethrough, a pin or stud arranged to pass through said opening and provided at one end with a head and having its other end threaded, a nut mounted upon said threaded end and operating to clamp said pin or stud to said resistance-stick, and a contact-point in electrical connection with said pin or stud, as and for the purpose set forth.

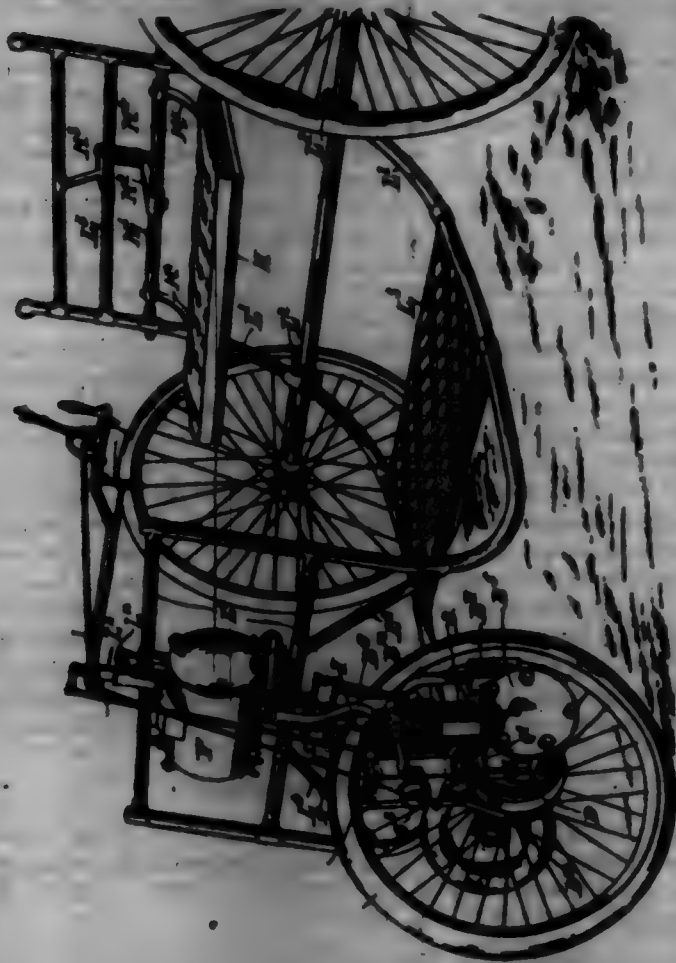
7. In an apparatus of the class described, a non-metallic resistance stick or rod having an opening therethrough, a pin or stud passing through said opening and provided with a head at one end and threaded at the other end, a nut mounted upon said threaded end, and non-corrusive contact washers or plates interposed between said head and nut and said stick or rod, and a contact-point in electrical connection with said pin or stud, as and for the purpose set forth.

700,208. WIRE CLOTHES-PIN. LAUREL LAFR and WHITEHEAD TRENKLE, Pittsburg, N. H. Filed Nov. 14, 1901. Serial No. 98,464. (No model.)

Claim.—A wire clothes-pin consisting of two arms *b* connected by an integral vertical spring *a*, the arm *b* being provided with the horizontal spring *c* and the upturned vertical hook *b'*; and the arm *c* being provided with the horizontal and loop *d* to couple with the hook *b'* substantially as and for the purpose set forth.



700,209. MOTOR DRIVING APPARATUS FOR CYCLES. HENRY J. LAWSON, London, England, assignor to Charles R. Flint, trustee, New York, N. Y. Filed Jan. 31, 1906. Serial No. 2,481. (No model.)



Claim.—1. In a motor driving apparatus the combination with a driving-wheel, of a hollow axle or hub therefor, fixed exterior bearings carrying the hub, means for securing said bearings to a rigid frame, a motor mounted on one side of the driving-wheel, a driving-shaft projecting from the motor into the hub of the driving-wheel, but not supporting the vehicle, a bearing within said hub for one end of the motor-shaft, a fixed bearing for the other end of the shaft, means for securing the fixed bearing to a rigid frame, and speed-gear interposed between the motor-shaft and hub of the driving-wheel.

2. In a motor driving apparatus, the combination with a driving-wheel, of a hollow axle or hub therefor, fixed exterior bearings carrying the hub, means for securing said bearings to a rigid frame whereby the vehicle is supported directly on the hub, a motor mounted on one side of the driving-wheel, a driving-shaft free from the weight of the vehicle projecting from the motor through the hub of the driving-wheel and having bearings therein, a fly-wheel mounted on that end of the shaft remote from the motor, fixed bearings at each end of the shaft, means for securing these bearings to a rigid frame, and speed-gear interposed between the shaft and the hub of the driving-wheel at a point intermediate of the bearings for the hub, substantially as set forth.

3. In a motor driving apparatus the combination with a driving-wheel of a hollow axle or hub therefor, fixed bearings carrying the hub, means for securing said bearings to a rigid frame, a motor mounted on each side of the driving-wheel, a driving-shaft projecting from each motor into the hub of the driving-wheel, bearings within said hub for one end of each motor-shaft, fixed bearings for the other end of each shaft, means for securing these last bearings to a rigid frame, and speed-gear interposed between each shaft and the hub of the driving-wheel at points intermediate of the bearings for the hub, substantially as set forth.

4. In a motor driving apparatus, the combination with a driving-wheel of a hollow axle or hub therefor, a motor mounted on each side of

the driving-wheel, a driving-shaft projecting from each motor into the hub of the said driving-wheel, bearings within the hub for one end of each motor-shaft, fixed bearings for the other end of each shaft, means for securing these bearings to a rigid frame, a pinion mounted flat on each driving-shaft, projections on the ends of the hub proper of the driving-wheel, extensions to the hub, projections on these extensions, means for connecting the extensions and hub, spur-wheel mounted between the hub and extensions carried by the projections on each and gearing with the pinions on the driving-shaft, fixed bearings for the extensions, means for securing these bearings to a rigid frame, internally-toothed wheels free to revolve on portions of the rigid frame and engaging the spur-wheels of the motor, and brake-bands whereby the internally-toothed wheels may be controlled, substantially as set forth.

5. In a motor driving apparatus the combination with a driving-wheel of a hollow axle or hub therefor, a motor mounted on one side of the driving-wheel, a driving-shaft projecting from the motor into the hub of the said driving-wheel, a bearing within the hub for one end of the motor-shaft, a fixed bearing for the other end of the shaft, means for securing said fixed bearing to a rigid frame, a pinion flat on the motor-shaft, a projection on one end of the hub proper, an extension to the hub, a projection on this extension, means for connecting the extension and hub, a spur-wheel mounted between the hub and extension carried by the projections on each and gearing with the pinions on the driving-shaft, a fixed bearing for this extension, a fixed bearing for that end of the hub remote from this extension, means for securing both bearings to a rigid frame, an internally-toothed wheel free to turn on a portion of the rigid frame outside the fork and engaging the spur-wheel of the motor-shaft and a brake-band whereby the internally-toothed wheel may be controlled, substantially as set forth.

6. In a motor driving apparatus the combination with a driving-wheel of a hollow axle or hub therefor, a motor mounted on one side of the driving-wheel, a driving-shaft projecting from the motor through the hub of the road-wheel, bearings for the same, a fly-wheel mounted on that end of the shaft remote from the motor, a pinion flat on the motor-shaft outside the hub a projection on one end of the hub proper, an extension to the hub, a projection on this extension, means for connecting the extension and hub a spur-wheel mounted between the hub and extension carried by the projections on each and gearing with the pinions on the driving-shaft, a fixed bearing for this extension a fixed bearing for that end of the hub remote from this extension, means for securing these bearings to a rigid frame, an internally-toothed wheel free to turn on a portion of the rigid frame and engaging the spur-wheel of the motor-shaft and a brake-band whereby the internally-toothed wheel may be controlled, substantially as described.

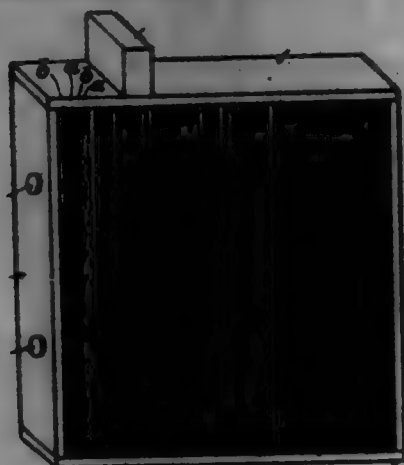
7. In a motor driving apparatus the combination with a driving-wheel of a hollow axle or hub therefor, fixed bearings for the hub, means for securing said bearings to a rigid frame, a motor mounted on one side of the driving-wheel, a driving-shaft projecting from the motor through the hub of the driving-wheel, and removable longitudinally therefrom, an extension on one side of the hub of the driving-wheel which projects through the hub-bearing on that side, a bearing within the hub for one end of the driving-shaft, a fixed bearing at the other end of the driving-shaft, means for securing this last bearing to a rigid frame, a pinion mounted detachably on that end of the driving-shaft remote from the motor, and speed-gear interposed between the said pinion and the hub extension, substantially as set forth.

8. In a motor driving apparatus, the combination with a driving-wheel of a hollow axle or hub therefor, fixed bearings for the hub, means for securing said bearings to a rigid frame, a motor mounted on one side of the driving-wheel, a driving-shaft projecting from the motor through the hub of the driving-wheel, an extension on one side of the hub of the driving-wheel which projects through the bearing on that side, a bearing within the hub for one end of the driving-shaft, a fixed bearing at the other end of the driving-shaft, means for securing this last bearing to a rigid frame, a fly-wheel and pinion mounted detachably on that end of the driving-shaft remote from the motor, so that the motor thereby becomes detachable, and speed-gear interposed between the said pinion and the hub extension, substantially as set forth.

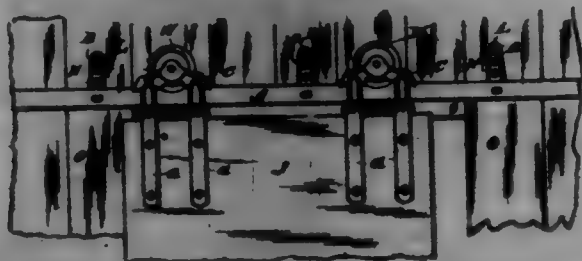
700,910. STORAGE BATTERY. LEVI W. LOWMEYER, Boston, Mass., assignor to Jowett Storage Battery Company, Pittsfield, Mass., a Corporation of Maine. Filed Feb. 11, 1906. Serial No. 62,545. (No model.)

Claim.—The improved element for storage batteries comprising a number of thin sheets or strips of metal assembled together and composed alternately of oxidizable and unoxidizable, or difficultly-oxidizable sheets or strips all in contact with one another, the said oxidizable strips being adapted to be converted into active material by chemical or electrolytic treatment, and the strips of unoxidizable or difficultly-oxidizable

metal holding between them the layers of native material and thereby supporting the same, substantially as described.



700,211. DOOR-HANGER. WILLIAM LOUGHEE, Fairfield, Iowa. Filed Sept. 12, 1900. Serial No. 29,002. (No model.)



Claim.—1. The combination of a track arranged to have its outer side, its upper and lower edges and the upper and lower portions of its inner side free for the passage of a hanger therealong, a frame having a grooved wheel journaled in its upper end, a guiding device in its lower end adapted to pass below and behind the lower portion of the track, and a pivotal connection for a door below the track, said pivotal connection being located with respect to the guide in a different vertical plane but in substantially the same horizontal plane with the lower part of said guide.

2. The combination of a track of the character described, a hanger-frame having a grooved wheel journaled in its upper end, a guiding device in the central portion of its lower end adapted to pass below and behind the lower portion of the track, and a pivotal connection for a door on each side of said guide, the same being located on substantially the same horizontal plane as the lower part of said guide.

3. The combination of a track of the character described, a hanger-frame having a grooved wheel journaled in its upper end, a guiding device in the central part of its lower end adapted to pass below and behind the lower portion of the track, and pivotal connections for a door on each side of said guide, said pivots being set outside of the vertical plane of the periphery of said wheel.

4. The combination of a track of the character described, a hanger-frame having a grooved wheel journaled in its upper end, a loop in the lower end of the frame below the track and a clevis-shaped strap adapted to hang loosely in said loop and embrace the opposite sides of a door.

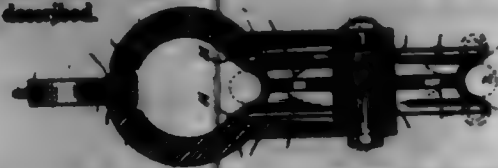
5. The combination of a track of the character described, a hanger-frame having a grooved wheel journaled in its upper end, a guiding device in the central portion of its lower end adapted to pass below and behind the lower portion of the track, a loop in the lower end of the frame below the track on each side of the guide, and clevis-shaped straps adapted to hang in said loops and embrace opposite sides of a door.

6. The combination of a track of the character described, a hanger-frame having a horizontally-disposed top part carrying a wheel and two vertically-set side parts connected therewith, said side parts extending below the track and terminating in loops, and having a horizontally-disposed brace connecting them together below the track, a guiding device on the upper edge of said brace between the side parts and adapted to pass below and behind the lower portion of the track, and means for pivotally connecting said loops to a door.

700,212. FULLEY. WILLIAM LOUGHEE, Fairfield, Iowa. Filed Apr. 20, 1901. Serial No. 52,103. (No model.)

Claim.—1. A pulley-frame consisting of adjoining sides having their upper ends approximately horizontal and securely joined together, each side having a central vertical rib and two vertically-disposed side ribs having their outer edges outwardly rounded in horizontal section, and their

lower ends merged into a circular-shaped horizontally-disposed rib or plate intersecting the middle portion of the central rib, the merged plate and ribs being downwardly and outwardly curved to form guards, and then inwardly contracted and joined to the lower end of the central rib, substantially as described.



2. The combination of a pulley-frame, an annular iron thimble fixed in said frame, and a sheave having a hole in its hub with shifted or hardened flues, and adapted to run on said thimble, substantially as described.

3. The combination of a pulley-frame having recesses in the inner faces of its lower ends, a tapering thimble having a short section of its large end cut down to the same size as the small end, and both ends being adapted to fit in said recesses, and a wheel with a tapering hole in its hub adapted to run on said tapering thimble, substantially as described.

4. The combination of a pulley-frame having recesses in the inner faces of its lower ends, a tapering thimble having a short section of its large end cut down to the same size as the small end, and both ends being adapted to fit in said recesses, a wheel with a tapering hole in its hub adapted to run on said tapering thimble, and a bolt passing through said frame and thimble, substantially as described.

5. In a hoisting-pulley, a cast-iron swivel-eye having a tubular neck, and a flange on said neck to hold it in position in the pulley-frame, substantially as described.

6. In a hoisting-pulley, a cast-iron swivel-eye having a tubular neck and upper and lower flanges on said neck, the main part of said eye consisting of a body joined to the upper end of the neck and a web encircling said body and joined to the upper flange and to the sides of the neck above it, substantially as described.

7. The combination of a cast-iron swivel-eye having a tubular neck and upper and lower flanges on said neck, a two-part pulley-frame adapted to fit and turn on said neck between said flanges, and a sheave journaled in the lower part of said frame, substantially as described.

8. In hoisting-pulley, a sheave having a groove for a rope, the sides of which groove are set at an angle to each other, the bottom of the groove being filled out to form the segment of a circle and the edges of the groove being rounded off on the segment of a circle, said circle being of a size with respect to the size of the groove to leave a substantial part of the flues of the angle between them.

700,218. THUMB-LATCH FOR ADJUSTMENT-LEVER. JAMES MACFARLAN, Chicago, Ill., assignor to the McCormick Harvesting Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 20, 1900. Serial No. 41,156. (No model.)



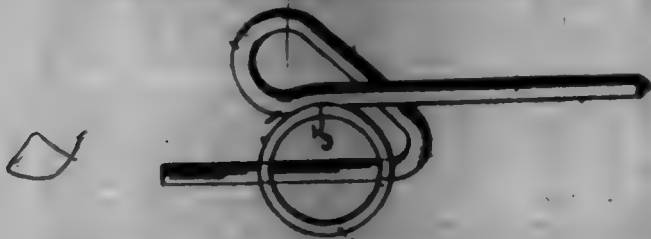
Claim.—1. A thumb-latch blank formed of sheet metal having a thin flat body and extensions in the plane of each body portion adapted to be pivotally connected to the lever and to the detent or pawl, and having a lug or projection arranged to extend in angular relation with respect to the plane of the body of said latch to engage the lever to limit the movement of said latch relative to said lever, as and for the purpose set forth.

2. A thumb-latch blank formed of sheet metal, having a thin flat body provided with extensions in the plane of each body to form means for pivotally attaching said latch to the lever and to the pawl or detent, said body provided with angular lugs arranged to engage the lever to limit the movement of said latch relative to said lever, as and for the purpose set forth.

3. A thumb-latch blank formed of sheet metal, having a thin flat body provided with extensions in the plane of each body, forming means of attaching said latch to the lever and to the pawl or detent, said body having lugs or wings arranged on opposite sides of the point of attachment of the latch to the lever and projecting in angular relation with respect to the plane of the body of each latch to engage the lever to limit the movement of each latch relative to each lever, as and for the purpose set forth.

4. A thumb-latch blank formed of sheet metal, having a thin flat body provided with extensions arranged in the plane of the body thereof to form means of attaching the same to the lever and in the detent or pawl, said latch provided with an integral lip forming a spring, as and for the purpose set forth.

700,214. HARROW. JAMES HANTRAIL, New Island, Ill. Filed Apr. 28, 1901. Serial No. 57,011. (No model.)



Claim.—1. The combination with a support, of an implement suitably bent to form a loop and provided with a shank, the shank adapted to be secured to said support and said loop snapping satisfactorily over said support, as and for the purpose set forth.

2. The combination with a support having transverse openings, of an implement provided with a shank adapted to be driven through such openings, said implement being formed into a loop arranged to snap over the exterior surface of said support when said shank is driven into place in said support, as and for the purpose set forth.

3. The combination with a holder, of an implement provided with a shank, said holder adapted to receive and rigidly hold said shank, said implement provided with a loop arranged to yieldingly grip the exterior surface of said holder, as and for the purpose set forth.

4. The combination with a support, of an implement provided with a shank terminating in a portion bent sharply into angular relation with said shank and terminating in a loop, the normal distance between said shank and the adjacent surface of said loop being less than the length of the exterior radius of said support, whereby when said shank is driven into said support said loop yieldingly snaps over the exterior surface of said support, as and for the purpose set forth.

5. The combination with a support, of an implement having a shank and an operating-stem, said implement between said shank and stem being bent in angular relation with respect to said shank and also into a loop, the radius of said loop being larger than the radius of curvature of said bend, whereby when said shank is driven into said support the loop yieldingly snaps over the exterior surface of said support, as and for the purpose set forth.

6. The combination with a tubular section having transverse openings therethrough, of an implement having a shank and a working stem, said implement between said shank and stem being bent into angular relation with respect to said shank, said angular portion terminating in a loop, as and for the purpose set forth.

7. In a harrow, a framework, supports mounted therein, said supports provided with transverse openings, and spring harrow-teeth formed with shanks adapted to be driven into said transverse openings, said shanks terminating in an angular portion, said angular portion being bent into a loop to form an operating-stem, said loop arranged to yieldingly snap over the exterior surface of said support when the shank is driven home.

700,215. WHEEL. JAMES HANTRAIL, New Island, Ill., assignor to McCormick Harvesting Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 27, 1901. Serial No. 57,009. (No model.)

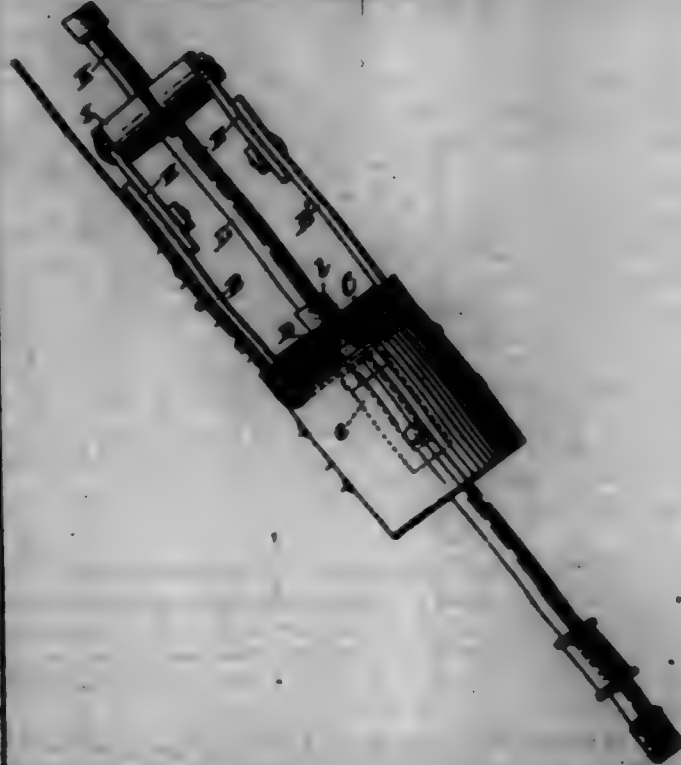


Claim.—1. A wheel composed of sheet-metal disks or plates, each of said plates or disks being bent outwardly or away from each other at the outer peripheries thereof, said outwardly-bent portions being bent or doubled back upon themselves to project in opposite directions, thereby forming laterally-extending flanges, the reversely-bent or doubled-back portions of one of said disks or plates having its edge turned over upon and under the laterally-extending flange of the other of said plates or disks, as and for the purpose set forth.

2. A wheel composed of sheet-metal disks or plates, each of said plates or disks being bent outwardly or away from each other at the outer peripheries thereof, said outwardly-bent portions being bent or doubled

back upon themselves to project in opposite directions, thereby forming laterally-extending flanges, one of said flanges to constitute the tread portion of the wheel, said flanges being arranged to engage and lock with each other, as and for the purpose set forth.

700,216. PIPE-GRAB. VALENTINE MATULA, Belmont, Tex., assignor of one-half to William Lee Foster, Belmont, Tex. Filed Nov. 27, 1901. Serial No. 52,914. (No model.)



Claim.—1. In a pipe-grab, a cylinder, standards attached thereto, a rope-held pivoted to the free ends of said standards, jaws hinged to said cylinder, means to hold the upper edges of said jaws against said standards, and means to swing said jaws from engagement therewith, substantially as shown and described.

2. In a pipe-grab, a cylinder, standards attached thereto, a rope-held pivoted to the free ends of said standards, jaws hinged to said cylinder, a leaf-spring attached to said cylinder and bearing against each said jaw, and means to lift said jaws, substantially as shown and described.

3. In a pipe-grab, a cylinder, standards attached thereto, a rope-held pivoted to the free ends of said standards, jaws hinged to said cylinder, a leaf-spring attached to said cylinder and bearing against each said jaw, a slidable plate mounted on said cylinder having a portion shaped to bear against said jaws to lift them, and means to limit the upward movement of said plate, substantially as shown and described.

4. In a pipe-grab, a cylinder, standards attached thereto, a rope-held pivoted to the free ends of said standards, jaws hinged to said cylinder, a leaf-spring attached to said cylinder and bearing against each said jaw, a slotted plate slidably mounted on said cylinder, and projections at each side of said plate having slanting upper surfaces to bear against the bottoms of said jaws, substantially as shown and described.

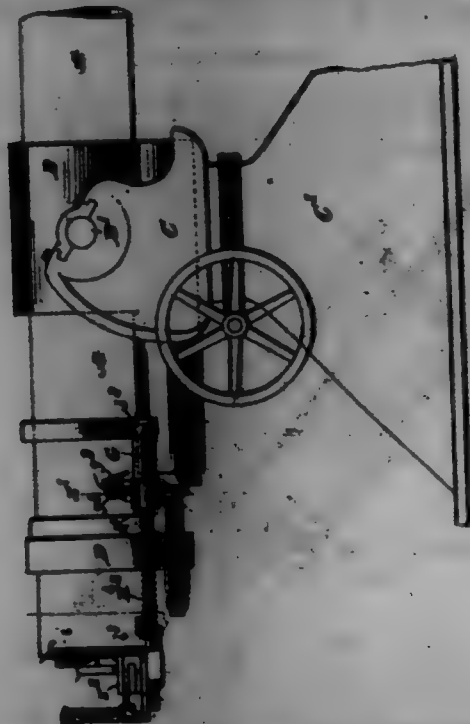
5. In a pipe-grab, a cylinder, standards attached thereto, one of said standards spaced apart from the inner side of said cylinder, a longitudinally-slotted plate slidably mounted between said cylinder and said standard, angular projections on each side of said plate, jaws hinged to said cylinder, means to hold said jaws against said standards, and means to raise said slotted plate to swing said jaws from said standards, substantially as shown and described.

6. In a pipe-grab, a cylinder, standards secured thereto, one of said standards spaced apart from the inner side of said cylinder, a longitudinally-slotted plate slidably mounted between said cylinder and said standard, angular projections on each side of said plate, a rope attached to said plate, ends pivoted to said standards and connected by a bolt for attaching the rope for raising and lowering the grab, jaws hinged to said cylinder, and a leaf-spring secured to said cylinder bearing against each jaw, substantially as shown and described.

700,217. BREACH-LOADING GUN. JOHN F. HENNS and EDWARD A. STEIN HANNAH, South Bethlehem, Pa., assignors, by mesne assignments, to Bethlehem Steel Company. Filed Nov. 7, 1900. Serial No. 606,744. (No model.)

Claim.—1. In a breach-loading gun having a fluid-containing receptacle-cylinder and a piston, in combination with breech mechanism, a cylinder and piston device mounted on the gun-body for operating such mechanism

ism, and means whereby pressure from the recoil-cylinder is transmitted directly to the operating-cylinder, substantially as and for the purpose described.



2. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with a breech mechanism, a movable device for operating the latter including a piston, a cylinder for the piston mounted on the gun-body, and means whereby pressure from the recoil-cylinder is delivered directly to said other cylinder, substantially as and for the purpose set forth.

3. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with a breech-closing device, and means for moving it to cause it to be locked and unlocked, means mounted on the gun-body and actuated by pressure of fluid from the recoil-cylinder transmitted during counter-recoil, to cause the breech-closing device to be unlocked, substantially as and for the purpose shown.

4. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with a breech-closing device and means mounted on the gun-body for causing the breech device to be locked, and connections between the recoil-cylinder and the locking means, whereby power derived from the pressure of fluid taken from the recoil-cylinder during counter-recoil, causes locking of the breech, substantially as and for the purpose described.

5. In a breech-loading gun, in combination with the breech mechanism thereof, a recoil-cylinder containing fluid, the piston in said cylinder connected with the gun-body, the recoil-spring, a movable device mounted on the gun-body actuated by fluid from the cylinder, under pressure during the return of the piston after recoil, and operative connections between such device and a movable part of the breech mechanism whereby the latter is unlocked during counter-recoil, substantially as and for the purpose described.

6. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston moving therein and connected with the gun-body, in combination with movable breech mechanism, a second cylinder mounted on the gun-body and in communication with the recoil-cylinder, a piston in the second cylinder, and connections between the latter piston and the breech mechanism, whereby the movements of said second piston unlock and open the breech mechanism, substantially as and for the purpose described.

7. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston moving therein and connected with the gun-body, in combination with the movable breech mechanism of the gun, a second cylinder mounted on the gun-body and in communication with the recoil-cylinder, a piston in the second cylinder, moved in one direction by pressure of fluid under pressure from the recoil-cylinder, connections between the latter piston and the breech mechanism, and a spring acting to move the second piston in a direction opposite to that in which it is moved by the fluid under pressure from the fluid causing the unlocking and opening of the breech mechanism and its movement by the spring closing and locking said mechanism, substantially as and for the purpose described.

8. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with the breech-plug mechanism for unlocking and withdrawing the plug, that remains inoperative during recoil, a second cylinder and piston mounted on the gun-body, connections between the same and the said plug-operating mechanism, and means whereby

by fluid under pressure is transmitted from the recoil-cylinder to the other cylinder during counter-recoil, substantially as and for the purpose set forth.

9. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with the breech-plug mechanism for unlocking and withdrawing the plug that has no movement relative to the gun-body during the recoil of the latter, a second cylinder and piston mounted on the gun-body, connections between the same and said plug-operating mechanism, a spring acting to move the recoil-piston forward, and connections between the two cylinders, whereby, during the action of said spring, fluid is transmitted from the recoil-cylinder to the other cylinder, substantially as and for the purpose shown.

10. In a breech-loading gun having a fluid-containing recoil-cylinder and a piston, in combination with the breech-plug mechanism for unlocking and withdrawing the plug that has no movement relative to the gun-body during the recoil of the latter, a second cylinder and piston mounted on the gun-body, connections between the same and said plug-operating mechanism, means whereby fluid under pressure is transmitted from the recoil-cylinder to the other cylinder during counter-recoil, and a valve for controlling the exit of fluid from said second cylinder, substantially as and for the purpose set forth.

11. In a breech-loading gun, the combination of a recoil-cylinder and piston, one of which is connected to the gun-mount and the other of which is attached to the gun, an operating-cylinder and its piston for the breech mechanism one of which is attached to the gun and the other of which is attached to the breech mechanism, and means for conveying fluid which connects the recoil-cylinder with the operating-cylinder, substantially as and for the purpose described.

12. In a breech-loading gun, the combination of a recoil-cylinder that is carried by the gun-mount, a piston for said recoil-cylinder which piston is attached to the gun, an operating-cylinder also attached to the gun and connected with said recoil-cylinder, and a piston in said operating-cylinder and connected to the breech mechanism, substantially as and for the purpose described.

13. In a gun, in combination with a fluid-containing recoil-cylinder, the piston moving therein and connected with the gun-body so as to be moved by the recoil thereof, the recoil-spring, the hollow piston-rod having its bore connected with the interior of the cylinder by a suitable fluid-conducting passage or port, a second cylinder connected with the bore of the piston-rod by suitable fluid-conducting passages, a piston moving in the second cylinder, and adapted to be moved in one direction by the pressure of fluid in its cylinder, and spring mechanism acting to return the piston after such movement, substantially as and for the purpose described.

14. In a gun, in combination with a fluid-containing recoil-cylinder, the piston moving therein and connected with the gun-body, so as to be moved by the recoil thereof, the recoil-spring, the hollow piston-rod having its bore connected with the interior of the cylinder by a suitable fluid-conducting passage or port, a second cylinder connected with the bore of the piston-rod by suitable fluid-conducting passages, a piston moving in the second cylinder, and adapted to be moved in one direction by the pressure of fluid in its cylinder, spring mechanism acting to return the piston after such movement, a movable valve to check the flow of fluid from the second cylinder, and means for moving said valve, substantially as and for the purpose described.

15. In a gun, in combination with a fluid-containing recoil-cylinder and a hollow piston moving therein and connected with the gun-body so as to be moved by the recoil thereof, a recoil-spring compressed by the movement of the piston, during recoil of the gun, a hollow piston-rod having its bore connected with that in the piston, a second cylinder connected with the recoil-cylinder by suitable fluid-conducting connections, a piston moving in the second cylinder adapted to be moved in one direction by the pressure of fluid in its cylinder, and spring mechanism to return said piston after it has been moved by the fluid, substantially as and for the purpose described.

16. In a gun, in combination with the gun-body, a hollow piston and piston-rod, connections between said rod and the gun-body, a recoil-cylinder in which the piston moves, containing fluid and provided with suitable ports or by-passes to allow passage of the fluid by the piston, a recoil-spring compressed by the movement of the piston, during recoil of the gun, and acting to return the piston after the recoil is completed, a second cylinder connected with the bore of the piston-rod by fluid-conducting connections, and a movable head moved by the pressure of fluid in the second cylinder, substantially as and for the purpose described.

17. In a breech mechanism for guns, the combination of a breech-block that is adapted to be closed by a rotary motion, a rear radially mounted on said breech-block, and a cam in the path of the rear and adapted to move the rear as the breech is closed, substantially as described.

18. In a breech mechanism for guns, in combination with the breech-

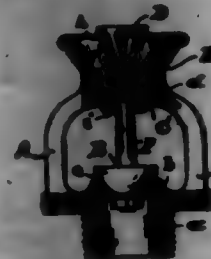
casing plug adapted to be locked in its breech-closing position by rotation, a spring-pressed firing-pin having a notched part, a spring-pressed firing-pin-holding ear, rotating with the plug, and having a trigger-engaging shoulder, a trigger around to which the ear-shoulder is brought by the locking rotation of the plug, and which has a nose to engage the ear-shoulder, either or both the ear-shoulder and the trigger-nose being beveled, so that, if the trigger is held pulled before the breech-plug is moved into locking position to carry its nose into the path of the ear-shoulder, the engagement of the trigger-nose and shoulder will cause the ear to be tripped to release the firing-pin, as the rotation of the plug, to cause its locking, is being completed, and a spring device to hold the trigger spring normally in position to keep its nose out of the path of the ear-shoulder, substantially as and for the purpose described.

19. In combination with the means for releasing the firing device of a recoil-mounted gun, the firing-lanyard connected with such device, a suitable guide for the lanyard directed on a part moving with the gun-body, to which guide the lanyard runs forward from the firing-device-releasing means, and a second guide over which the lanyard runs directed on a part stationary with reference to the recoiling part of the gun, each second guide being directed to the rear of the first guide, so that the lanyard runs rearward to it from the latter guide, substantially as and for the purpose described.

20. In a breech-loading gun, in combination with the breech-plug adapted to be locked in breech-closing position by axial rotation, a spring-pressed firing-pin having a radial arm with a cocking-notch, a spring-pressed ear moving with the breech-plug, as the latter is rotated, and having a nose to engage the notch on the firing-pin arm and a trigger-engaging shoulder, a cocking-ring journaled upon a bearing moving with the plug and having a cam-face to rotate the arm of the firing-pin, means for holding said ring from rotating with the plug, a trigger for tripping the ear after the plug has been rotated far enough to lock it from opening by the pressure brought upon it when the gun is fired, and a spring acting to hold the trigger normally urging to keep its ear-engaging nose out of the path of the ear-shoulder, substantially as and for the purpose described.

21. The combination of a gun mounted to recoil, a firing-lanyard, and a guide for said lanyard fixed with reference to the movement of the gun under recoil, and directed so that the lanyard runs forward from said guide to the gun when the latter is in its firing position, whereby when the gun moves rearward under recoil, there is no pull on the lanyard in the hands of the gunner, substantially as and for the purpose described.

700,218. AUTOMATIC FIRE-EXTINGUISHER. HARRY C. HENCKS, Cleveland, Ohio, assignor to Samuel W. Parsons, Cleveland, Ohio. Filed Feb. 27, 1901. Renewed Mar. 12, 1902. Serial No. 97,992. (No model.)



Claim.—1. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug having a screw-threaded connection with and extending through said collar, and a valve held in position on its seat by said plug and otherwise unimpeded in its opening movement in any direction.

2. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug removably mounted within said collar and plug extending through said collar, and a valve having a portion of its stem passing into said plug and normally positioned thereby.

3. A fire-extinguisher nozzle comprising a frame having a collar, a combustible plug removably mounted within and extending through said collar, said plug having a constricted passage-way therethrough, and a valve having a stem the outer end of which is enlarged and normally seats against the constricted portion of said passage-way, whereby said valve will be held to its seat and be positioned by said plug.

4. A fire-extinguisher nozzle comprising a frame, a combustible plug removably mounted therein, said plug having a flared outer end, and an independent igniter within said flared end.

5. In a fire-extinguisher nozzle, the combination with a valve-seat and frame, of a combustible plug carried by the frame, a valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction, and an initial igniter protected solely by said plug.

6. In a fire-extinguisher nozzle, a valve and valve-seat, a combustible valve-positioning device, and an igniter carried by said stem.

7. In a fire-extinguisher nozzle, a valve and stem, a combustible valve-positioning device having a central opening to receive the end of the valve-stem, and an igniter carried by said stem and extending through the said opening.

8. In a fire-extinguisher nozzle, the combination with a frame and a valve, of a combustible valve-positioning plug carried by the frame and having a central opening, the forward portion of which is flared, and an igniter located within the flared portion.

9. In a fire-extinguisher nozzle, the combination with a valve-seat and frame, of a combustible plug carried by the frame, and a valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction.

10. A combustible valve-positioning plug for fire-extinguisher nozzles having means for positioning the valve and having its rear portion forward with peripheral screw-threads, the forward portion being flared to afford a rigid initial combination.

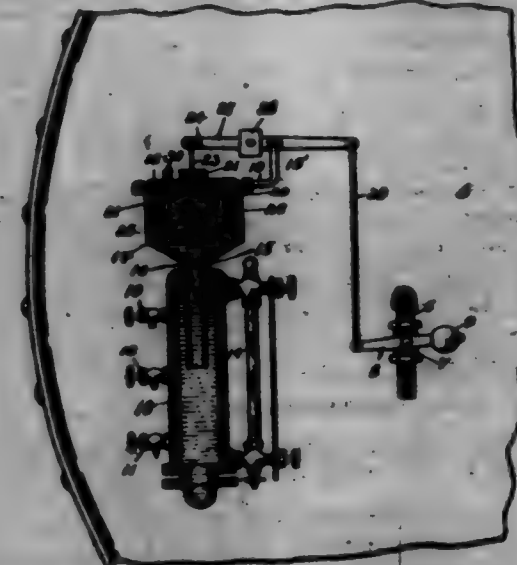
11. A fire-extinguishing contrivance comprising a frame, a valve, an inflammable plug and an independent initial igniter for said plug carried by the valve-stem, the said frame containing a part terminating in a valve-seat and being adapted for connection with water-supply pipes, and the plug being removably connected with said frame and retaining the stem of said valve to its seat, all constructed and arranged substantially in the manner as and for the purpose set forth.

12. In a fire-extinguisher the combination with the valve and supporting structure thereof, of a combustible plug having connection with said structure and retaining the valve to its seat and an independent igniting medium positioned within and protected by the upper portion of said plug, all constructed and arranged substantially as and for the purpose set forth.

13. In a fire-extinguisher nozzle, the combination with a valve-seat and a frame, of a combustible plug carried by the frame, a valve held in position on said seat by said plug and otherwise unimpeded in its opening movement in any direction, and a combined lock and guard member carried by said plug.

14. In a fire-extinguisher the combination of the frame A, valve B, an inflammable plug C, initial igniter D carried by the valve-stem and a combined lock and guard member E, all constructed and arranged substantially as and for the purpose set forth.

700,219. FINE-REGULATOR. THOMAS R. HOGUE, Newton Center, and GEORGE E. TURNER, Waltham, Mass. Filed Aug. 28, 1901. Serial No. 77,791. (No model.)

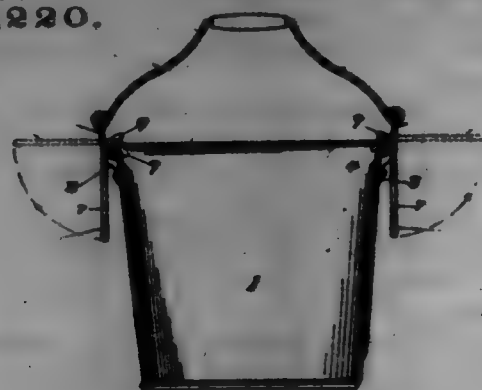


Claim.—The combination with the column 10, the gage pipe, or tube, 16 extending therein and furnished with the float-chamber 17, the cover 18 for said chamber, and the elongated stuffing-box and guide 20 secured in a perforation of said cover, of the basket 26 having the weighted bottom 25, the stem 23 rigidly secured in said bottom and working through the stuffing-box 20, and controlling connections for connecting said stem 23 with a supply-valve.

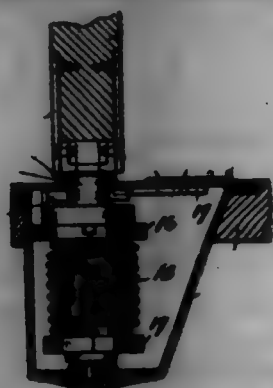
700,220. MILK-PAIL SUPPORTER. ARTHUR J. MORELL and LOUIS W. BENTONVILLE, Minneapolis, Minn.; said MORELL assignor to said BENTONVILLE. Filed Dec. 14, 1901. Serial No. 98,196. (No model.)

Claim.—The combination with a pail and its ear, the ears having their edges suitably recessed; of pail-supporters, comprising body portions extending outward from the ears and downwardly-bent portions extending inward from the ears, arranged to engage the ears in said recesses and to bear upon the top portion of the pail, substantially as set forth.

700,220.



700,221. FLOOR-HINGE. THOMAS S. MORAN, Chicago, Ill. Filed Mar. 27, 1901. Serial No. 53,088. (No model.)



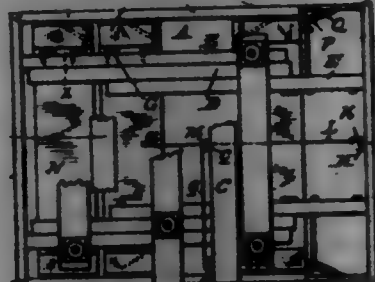
Claim.—1. In a floor rotatable hinge, the combination with the hinge-plate of a pair of interlocking elements associated therewith, one of which elements is fixed with respect to the plate and the other of which is disposed adjacent thereto and projects above the floor and is adapted to be moved by the foot of the operator into and out of locking engagement with the fixed element whereby the door is maintained open or permitted to close.

2. In a floor rotatable hinge, the combination with the hinge-plate and its containing casing of a fixed lateral projection carried by said plate and a sliding member carried by the top plate of the casing adapted to be moved into and out of lateral engagement with said projection to maintain the door open or permit it to close.

3. In a floor rotatable hinge, the combination with the hinge-plate of a series of fixed lateral projections carried by said plate and a sliding member disposed adjacent the plate and adapted to be moved into and out of lateral engagement with one of said projections, in the manner and for the purpose described.

4. In a floor-hinge, the combination with the hinge-plate and its containing casing of a pin extending transversely through said plate immediately below the top plate of the casing and projecting laterally therefrom, a slotted plate slidably secured to the under face of the top plate and movable into and out of engagement with the projecting ends of said pin, and means disposed on top of said top plate, connected with said slotted plate, adapted to be actuated by the foot of the operator.

700,222. EXTENSION-TABLE. CHARLES W. MUM, Detroit, Mich. Filed Feb. 16, 1901. Serial No. 42,861. (No model.)



Claim.—1. In an extension-table, the combination with the stationary section comprising a top and side rails, of an extension-section provided with a top or leaf and a side rail both adapted to be stored in the space enclosed by the top and sides of said stationary section, and means for automatically moving said extension side rail into alignment with said fixed side rail upon the movement of said extension top or leaf into the plane of said fixed top.

2. In an extension-table, the combination with the stationary section comprising a top and side rails, of an extension-section provided with a top or leaf and a side rail, both adapted to be stored in the space enclosed

by the top and side rails of said stationary section, and means for automatically moving said extension side rail into or out of alignment with said stationary side rail upon the corresponding movement of said extension top or leaf in or out of the plane of said stationary top.

3. In an extension-table, the combination with the stationary section comprising a top and side rails, of an extension-section having a leaf permanently carried thereby, an extension side-rail section corresponding to said leaf and hinged thereto, means for raising and lowering said leaf to move the same into or beneath the plane of said stationary top, and means operated thereby for swinging said side rail correspondingly in or out of alignment with said fixed side rail, whereby said extension-rail is automatically folded and stored by the extension of the table.

4. In an extension-table, the combination with the stationary section comprising a top and side rails, of an extension, a leaf carried thereby, a swinging link connection between said leaf and said extension-section permitting of raising and lowering of the former, an extension side-rail section hinged to said leaf and a connection between said swinging link and said hinged side-rail section, whereby the latter is turned into alignment with the fixed side rail or folded for storing by the corresponding raising or lowering of said leaf.

5. In an extension-table, the combination with stationary and extension sides, comprising extension-slides and an end rail of a leaf carried by said extension-section and having a swinging connection therewith whereby it may be raised or lowered, a bell-crank lever carried by said extension and rail having one arm in engagement with said leaf, a rod connected to the other arm of said bell-crank, and having a sliding engagement with said stationary section, and a stop for limiting the movement of said rod when the table is being extended whereby said bell-crank lever is actuated to swing said leaf upward into the plane of the stationary top.

6. In an extension-table, the combination with a stationary section and a movable top or leaf adapted to be stored therein, of a side-rail section carried by said leaf and movable in relation thereto from a position permitting of storing top a position complementary to said stationary section and means for automatically operating said extension side rail by the movement of said leaf.

7. In an extension-table, the combination with stationary and extension sections, of a rod longitudinally and centrally arranged being fixedly connected to one of said sections and having a sliding engagement with the other, a clamping-lever for locking said rod from its sliding movement, an operating-rod for said lever extending to the side of the table, and a crank-arm for actuating said rod and lever and locking the same in position for clamping.

8. In an extension-table, the combination with a stationary section and a movable top or leaf, of a side-rail section carried by said leaf and means for automatically moving said side-rail section relative to said leaf by the movement of the latter relative to said stationary top.

700,228. STEAM-CONDENSING SYSTEM. JOHN D. MORAN, Oswego, N. Y. Filed Oct. 21, 1900. Renewed Oct. 22, 1901. Serial No. 79,541. (No model.)

Claim.—1. A steam-condensing system having the single centrifugal pump provided with suction-pipes to the condenser and cooling-tower and a single discharge through which the water drawn from said tower and said condenser is elevated to the top of the cooling-tower, substantially as described.

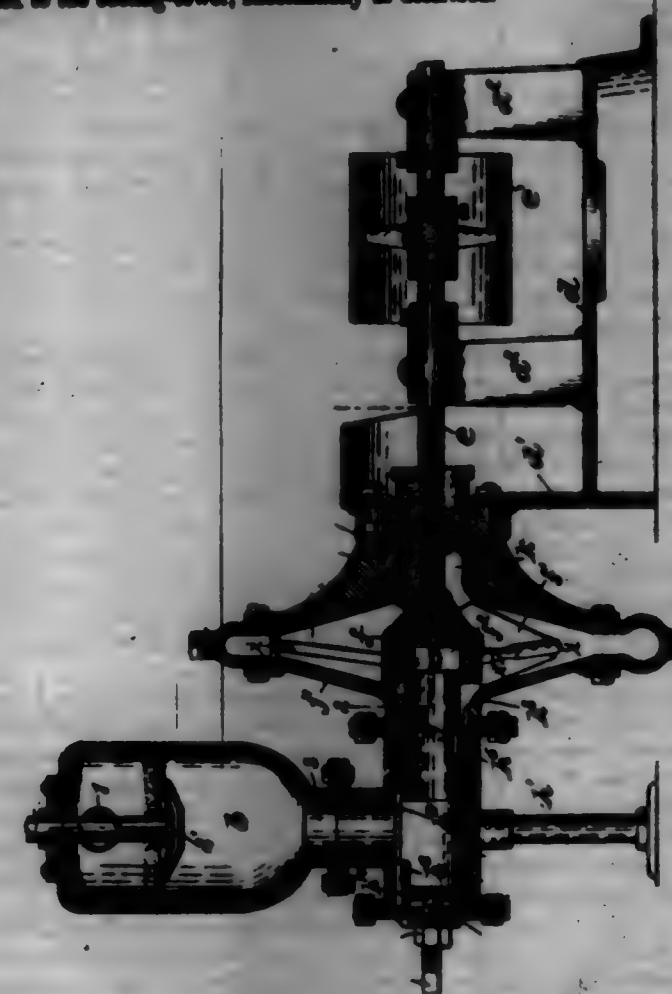
2. A condensing system comprising a steam-condenser, a cooling device for the injection-water, and a single centrifugal pump maintaining the circulation of the cooling-water and the injection-water, and maintaining the partial vacuum in the condenser, substantially as described.

3. A steam-condensing system comprising a cooling-tower for the injection-water, a cooling-water circuit therefor, a steam-condenser, an injection-water circuit including the condenser, and a centrifugal pump included in both the cooling-water and injection-water circuits and maintaining the circulation thereof and maintaining vacuum on and the partial vacuum in the condenser, substantially as described.

4. A steam-condensing system comprising a condensing-water-cooling device, a condenser, a condensing-water pipe thereto from said cooling device, a centrifugal pump having a suction-dust opening into the condenser, and another suction-dust for the cooling-water from said cooling device, and a discharge communicating with the cooling device through which all the water drawn from said condenser and said cooling device is forced to maintain the circulation back through the cooling device and condenser, substantially as described.

5. In a steam-condensing system, a cooling-tower for the condensing-water, a condenser into which the exhaust-steam and injection-water are discharged, and a centrifugal pump having a high suction-power dust communicating with the interior of said condenser and another suction-power dust to the cooling-tower and for the cooling-water, and a common dis-

charge-dust through which the water from said suction-dusts is elevated back to the cooling-tower, substantially as described.



6. In a condensing system, a centrifugal pump having a case and a rotating runner therein provided with a series of radiating suction-passages at their outer ends discharging into the casing by centrifugal action, an axial suction-dust to the inner ends of said passages, a steam-condenser having its interior in direct suction communication with said dust and through the same with said passages, another suction-dust into the casing and through which said dust is maintained by the centrifugal action of the runner itself, a water connection to said dust, and a common discharge from the pump-casing, substantially as described.

7. In a condensing system, the combination of a condenser, a centrifugal pump comprising a casing having a discharge dust or opening, a rotary runner in said casing arranged to act centrifugally on the water therein to force the same under pressure through said discharge, said runner provided with a central water-chamber and radiating suction-passages therefrom at their outer ends discharging into the casing, an axial suction journal-pipe discharging into said chamber, a suction-dust from said pipe opening directly into said condenser, and a fluid-tight packing or joint for said journal-pipe, substantially as described.

8. In a condensing system, the combination of a condenser, a cooling-tower, a centrifugal pump having a casing provided with a discharge, a rotary runner in the casing arranged to act centrifugally on the water therein to force the same under pressure through said discharge, a suction-dust opening into the interior of the casing and connected by a liquid-passage to said cooling-tower, said runner having a central water-chamber, radiating suction-tubes at their inner ends opening into said chamber and at their outer ends discharging under centrifugal action into said casing, a hollow journal opening into said chamber and a suction-dust from said journal to said condenser, whereby the suction-tubes have direct suction communication with said condenser, substantially as described.

9. In a condensing system, the combination of a steam-chamber, a centrifugal pump comprising a casing and a rotary runner therein, said runner having a hollow journal rotating therewith, and a series of radiating suction-tubes rigid with the runner and at their outer ends discharging into said casing and at their inner ends having liquid and suction communication with said hollow journal, a suction-dust from said chamber to said hollow journal, and a coupling between said dust and said journal and in which said journal retains comprising a packing-joint within the coupling and around the journal, substantially as described.

10. In an exhaust-steam-condensing system comprising a cooling-tower and condenser, a centrifugal pump included in the cooling-water circuit and in the condensing-water circuit, in combination with suction and discharge dusts, whereby the single pump maintains the circulation of the cooling-water and the condensing-water and creates the partial vacuum in the condenser, and whereby said cooling-water and conden-

ing-water are both drawn into and communicated in and discharged from the single pump, substantially as described.

11. The combination, in a condensing system, of a steam or vacuum chamber, a centrifugal pump having a casing with a discharge and a rotary centrifugally-acting runner in said casing having radiating suction-passages at their outer ends discharging into the pump-casing, an axial suction-pipe rotating with the runner and with which the inner ends of said passages have suction and liquid communication, a rigid coupling into which said pipe projects and in which it rotates, a suction-dust from said coupling to said chamber, and a packing-joint in the coupling forming a liquid-tight joint between the same and said rotating axial suction-pipe, substantially as described.

12. In combination, in a condensing system, a bed-plate, a centrifugal pump casing covered thereto, a head of said casing having a central opening, a horizontal coupling closed at its outer end and having its open inner end rigidly secured to said casing-head around said opening therein, a support for said coupling, a condenser-chamber rigidly secured on said coupling and having the suction opening or passage thereto, and a rotary runner-head in said casing and creating suction through said coupling and condenser to draw the liquid therefrom into the pump-casing and discharge the same therefrom under pressure, substantially as described.

13. In combination, in a condensing system, a condenser, a centrifugal pump, having a casing with a discharge, and a rotary runner having outwardly-extending suction-passages discharging into the casing, a hollow journal rigid with the runner and in direct liquid and suction communication with the inner ends of said passages, a tube or casing in direct liquid and suction communication with said condenser and said hollow journal and into which said journal extends, and a packing-joint in said casing and around said journal, substantially as described.

14. A condensing system comprising in combination, a centrifugal pump shell having a fixed casing rigid with and extending laterally therefrom, a condenser mounted on and discharging into said casing, a rotary runner in the shell having a hollow journal projecting and opening into said casing, said runner provided with suction-passages discharging into the shell and in direct suction and liquid communication with said journal, substantially as described.

15. A condensing system comprising in combination, a centrifugal pump shell having a fixed casing rigid therewith, a diaphragm-condenser opening into said casing, a rotary runner in said shell having driving means and a hollow journal extending into said casing and in direct liquid and suction communication with said condenser, said runner having suction-passages discharging into said shell and having direct liquid and suction communication with said hollow journal, whereby said runner creates the necessary vacuum in said diaphragm-condenser, substantially as described.

16. A steam-condensing system having a single pump provided with suction-dusts acting on the condenser and cooling device and a single discharge through which the water drawn from said cooling device and from said condenser is discharged and whereby the circulation is maintained in the cooling and condenser circuits, substantially as described.

17. A condensing system comprising a condenser having a steam-inlet, a water-inlet and a discharge, in combination with a centrifugal pump having a discharge, and having a suction-dust in direct suction communication with said discharge of said condenser whereby the single pump draws the water and vapors from said condenser and maintains a partial vacuum therein, substantially as described.

18. A condensing system comprising a centrifugal pump having a discharge-dust, in combination with a condenser mounted on the pump-casing, said casing having a suction-dust from the pump in direct suction communication with said condenser, whereby the single pump draws the water and vapors from the condenser and maintains a partial vacuum therein, substantially as described.

19. A condensing system comprising a cooling device, a steam-condenser, and a single pump included in the cooling-water and condenser-water circuits and maintaining the circulation of the water in said circuits and the partial vacuum in the condenser, substantially as described.

20. A condensing system comprising a centrifugal pump having independent suction-dusts and a runner creating different degrees of suction through said dusts, said pump having a single discharge, in combination with a condenser in direct suction communication with one of said dusts, and a cooling device communicating with the other dust, substantially as described.

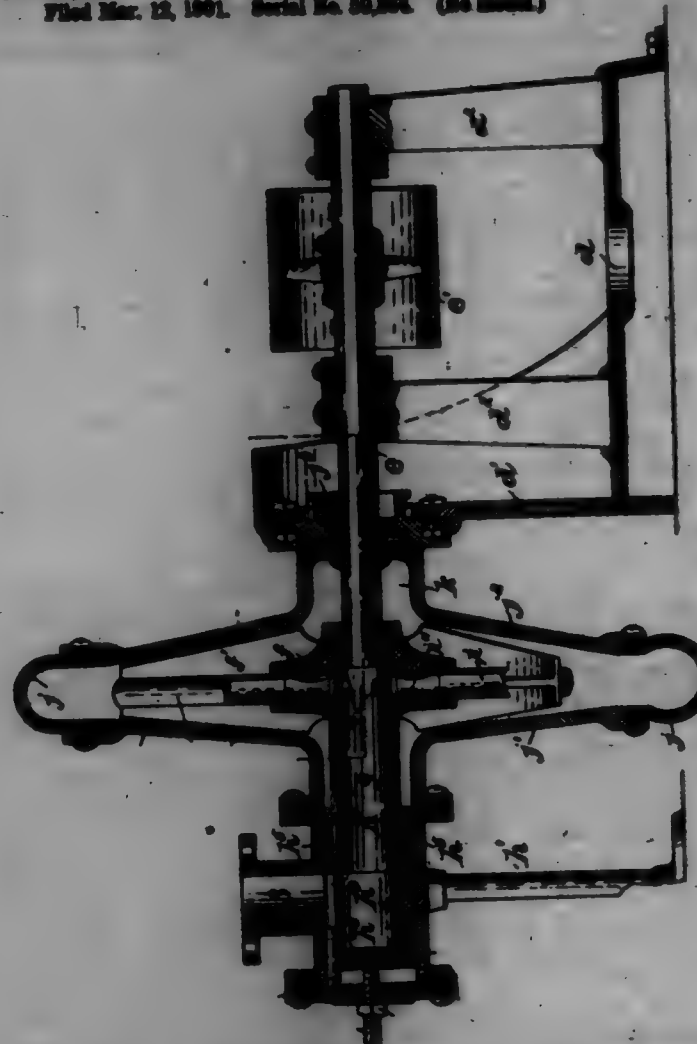
21. In a condensing system, a condenser, in combination with a centrifugal pump having a runner with suction-dusts in direct suction communication with said condenser, whereby the single pump draws the water and vapors from the condenser and maintains the partial vacuum therein, substantially as described.

22. A condensing system comprising a centrifugal pump having a runner with suction-dusts discharging into the pump-casing, a steam-chamber in direct suction communication with said chamber, whereby the partial vacuum is maintained therein, said pump having another suction-dust opening through its casing independently of said runner, a water-circuit

maintained through said casing-dust, said pump having a single discharge, substantially as described.

23. In a condensing system, the combination with a condenser of a centrifugal pump in direct action communication with said condenser, whereby the single pump maintains the partial vacuum therein and draws the water and vapors therefrom, substantially as described.

700,224. CENTRIFUGAL PUMP. JOHN D. McRAE, CHICAGO, ILL.
Filed Mar. 12, 1901. Serial No. 22,224. (No model.)



Claim.—1. In a centrifugal pump, a pump-casing having a discharge, a rotary pump-runner exteriorly formed with runner-arms to act centrifugally on the liquid in the casing and force the same through said discharge, said casing forming an annular water-space circumferentially around said runner, said runner provided with a series of suction-tubes of substantially uniform area and form in cross-section throughout and at their outer ends discharging into said annular water-space, and an axial suction-dust in direct action communication with the inner ends of said tubes, substantially as described.

2. In a centrifugal pump, in combination, a casing having a suction-opening and a discharge, and a rotary runner therein comprising a hollow hub, radiating arms or blades rigid with the hub, and suction-tubes arranged along said arms and at their inner ends opening into said hub, and an axial suction-pipe opening into and rigid with said hub, substantially as described.

3. A centrifugal pump comprising a casing, and a rotary runner acting on the liquid in the casing, to force the same therefrom under centrifugal pressure, said runner provided with radiating suction-passages at their outer ends discharging into the casing, an axial suction-pipe or duct in liquid and action communication with the inner ends of said passages, said passages formed at their inner ends with curved contracted portions, substantially as described.

4. In combination, in a centrifugal pump, a casing having a discharge, a rotary pump-runner exteriorly formed to drive the water centrifugally and circulate the same within said casing, and provided with outwardly-extending suction-passages consisting of suction-tubes of substantially uniform area and form in cross-section throughout and having exposed outer ends opening directly into the space around said runner, and an axial suction-dust to the inner portions of said passages, substantially as described.

5. A centrifugal pump comprising a casing having a discharge and a suction dust opening directly into the interior thereof, a rotary pump-runner in the casing exteriorly formed to act centrifugally on the liquid within the casing and force the same through said discharge, said runner

provided with outwardly-extending suction-passages at their outer ends discharging directly into the casing, and a suction-dust in direct action communication with the inner ends of said suction-passages, substantially as described.

6. In a centrifugal pump, the combination of a pump-casing having a circumferential discharge, a rotary runner in the casing comprising a hub and runner-arms formed to act centrifugally on the water in the casing in driving the same outwardly to and around the circumferential portion of the casing, suction-tubes secured in the hub between said arms and extending outwardly along said arms and at their outer ends discharging into the circumferential portion of the casing, a hollow suction-journal in direct action communication with the inner ends of said tubes, a suction-dust in communication with said journal, and a tight joint for said journal, substantially as described.

7. In a centrifugal pump, the combination of a pump-casing having a discharge, and a suction-dust opening directly into the interior of the casing, a rotary pump-runner exteriorly formed to act centrifugally on the water in the casing to create suction through said inlet and drive the water through said discharge, a suction-dust rigid with and extending from said casing, said runner provided with a hollow suction-journal extending into and rotating in said dust and with suction-passages at their outer ends discharging into the circumferential portion of the casing and at their inner ends in direct action communication with said journal only, and a tight joint in said dust and around said journal, whereby water is drawn into the casing through said inlet and also through said journal and passages, substantially as described.

8. In combination, a supporting-frame, a centrifugal-pump casing having an end opening, an outwardly-extending coupling secured thereto having a closed outer end and an induction-opening, a rotary runner, a drive-shaft therefor, a hollow journal rigid with the runner and projecting into said coupling, said runner having radiating suction-passages communicating with said journal, a packed joint in said coupling around said journal, and adjusting means for said joint extending to the exterior of said coupling, substantially as described.

9. In a centrifugal pump, in combination, a casing having a discharge, a rotary runner therein comprising a hub having radiating arms and a shaft, a hollow journal rigid with said hub and provided with a packed joint, and radiating suction-tubes rigid with the hub and arranged between and extending longitudinally of said arms, the outer ends of the tubes discharging into the casing and the inner ends thereof opening into said journal.

10. In a centrifugal pump, the combination of a pump-casing having a discharge, a rotary pump-runner comprising a hub, an axial suction-dust, outwardly and rearwardly extending runner-arms and a series of suction-tubes at their inner ends secured in the hub in action communication with said dust and from thence extending outwardly along and conforming to the front faces of said arms, said casing forming a water-space circumferentially around said runner, the outer ends of said tubes opening directly into said space, substantially as described.

11. In a centrifugal pump, in combination, a rotary runner having a hollow journal and a series of suction-tubes at their inner ends in direct action and liquid communication with said journal and having their open outer ends projecting beyond the outer diameter path of the runner itself, substantially as described.

12. In a centrifugal pump, the combination of a runner comprising outwardly-projecting runner-arms and rigid suction-tubes at their inner ends in direct action communication with a suction-dust, the outer open ends of the tubes projecting beyond the circle in which the outer ends of said arms move, and each cut off at an angle, substantially as described.

13. In combination, in a centrifugal pump, a pump-runner having an axial suction-dust and a series of outwardly-extending suction-passages opening into the pump-casing at their outer ends and at their inner ends opening into said suction-dust, each suction-passage having an internal oppositely tapered or curved contraction.

14. In combination, in a centrifugal pump, a rotary pump-runner having a hollow hub with a supply or suction dust-thereinto and outwardly-projecting suction-passages at their inner ends communicating with said dust and at their inner portions provided with oppositely-tapered or double-cone obstructed suction nozzles or portions, substantially as described.

15. A centrifugal-pump runner comprising a hollow hub with radiating runner-arms and having a shaft and a hollow journal, a suction-dust receiving said journal, a packed joint in said dust for said journal, and a series of inwardly-projecting removable suction-tubes between said arms and at their inner ends secured in said hub, substantially as described.

16. In a centrifugal pump, in combination, a pump-casing having a circumferential water-space and a discharge, a rotary pump-runner exteriorly formed to act centrifugally on the liquid in the casing and drive the liquid to and circulate the same in said space, said runner provided with suction-passages of substantially uniform area and form in cross-section

tion throughout having longitudinally-exposed tube-like outer ends discharging directly into said space, and a suction-dust in direct action communication with the inner ends of said passages, substantially as described.

17. In combination, a centrifugal-pump shell, a casing rigid with and extending laterally therefrom, a rotary pump-runner having a hollow journal in said casing, a packed joint in said casing for said journal, a gland in the casing for said joint, gland-adjusting means extending to the exterior of the casing, a suction-dust to the casing and said journal, said runner having radiating suction-passages communicating with said journal and discharging into the pump-shell, substantially as described.

18. In combination, a centrifugal-pump shell having a laterally-projecting casing, a rotary pump-runner having a hollow journal in said casing and suction discharge-passages from the journal opening into the shell, a packed joint within the casing around said journal, a gland on the journal, means holding the gland against rotation, a dust opening into said casing opposite said gland, said gland having an inlet-opening establishing liquid and action communication from said dust through said journal, and an adjusting-bolt passing through the casing to longitudinally adjust the gland, substantially as described.

19. In a centrifugal pump, the combination of a pump-casing having a circumferential water-space or shell with a discharge, a rotary pump-runner in said casing, surrounded by said water-space, and comprising a hub and outwardly-projecting runner-arms, said runner provided with a projecting hollow journal and a series of suction-passages at their inner ends opening into said journal and at their outer ends projected beyond said arms and discharging directly into said water-space within the casing, a suction-dust in direct action communication with the outer end of the journal, and a joint around an intermediate portion of said journal and shutting off direct communication between said dust and the interior of the pump-casing, substantially as described.

20. In a centrifugal pump, the combination of a pump-casing having a discharge, a coupling extending axially from said casing and having a suction-opening, a pump-runner in said casing and formed exteriorly to act centrifugally on the liquid in the casing and from the same therefrom through said discharge, said casing having a suction-dust opening directly thereto at the exterior of said runner, said runner formed with suction-passages at their outer ends discharging into the casing, a hollow journal in action communication with the inner ends of said passages, said journal and fitting snugly in said coupling and at its outer end in direct action communication with said suction-opening of said coupling, and a packing in said coupling and around said journal, substantially as described.

21. In combination, a centrifugal-pump casing having a discharge, a rotary runner having suction-dusts discharging into the casing and a hollow journal discharging to the inner ends of said passages, an inlet-dust, a coupling therefrom to said hollow journal placing the journal in direct action communication with said dust and a packed joint between the journal and coupling and comprising an adjustable gland in the coupling and receiving said journal and held against axial movement, and having a side inlet-opening, substantially as described.

22. In a centrifugal pump, the combination of a pump-casing having a circumferential water-space with a discharge, a rotary pump-runner fixed in the casing and surrounded by said space and exteriorly formed to force the water in the casing centrifugally into said space and circulate the same therein, said runner provided with a hollow journal and with radiating suction-passages at their inner ends opening into said journal and having their outer ends projected beyond the outer circle of movement of said runner and discharging directly into said water-space, a supply or suction dust opening to said hollow journal, and a liquid-tight joint around said journal, substantially as described.

23. A centrifugal pump having its runner provided with a hollow suction-journal, a casing having an inlet-part, said journal projecting into said casing and having an inlet-opening therein, a packed joint in the casing for said journal comprising a gland in which the journal rotates, means for holding the gland against axial movement, and means accessible from the exterior of the pump for adjusting the gland longitudinally of the journal, substantially as described.

24. In combination, a casing, a rotary pump-runner therein having a projecting hollow suction-journal, a T-coupling secured to the casing and receiving the journal, packing in the coupling around the journal, a sleeve in the coupling embracing the journal for adjusting the packing, and a screw from the exterior of the coupling for adjusting said sleeve longitudinally, substantially as described.

25. In combination, a centrifugal-pump casing having a coupling secured to a head thereof with a closed outer end and an annular internal shoulder, a pump-runner having a hollow suction-journal projecting into said casing, packing in the coupling around said journal and at said shoulder, a sleeve in the coupling around said journal and opposing said packing and having a side inlet-opening and a closed outer end, a pin passing through said end to the outer end of the coupling, and a screw adjustable through the outer end of the coupling and engaging said pin, substantially as described.

26. A centrifugal-pump runner having radiating suction-passages provided with contracted suction-nozzles at their inner ends, and a suction-dust discharging to the inner ends of said passages, substantially as described.

27. A centrifugal-pump runner having radiating suction-passages and separate suction-nozzles or contracted sections included therein, and an axial suction-dust discharging to said passages, substantially as described.

28. A centrifugal-pump runner comprising radiating suction-passages at their outer ends discharging centrifugally into the pump-casing and an axial supply-dust to their inner ends, separate contracted suction nozzles or nozzles included in said passages and means for securing the same, whereby various nozzles can be used interchangeably with the same passages, substantially as described.

29. A centrifugal-pump runner having an axial supply-dust, and radiating suction-passages opening into said dust, separate contracted pipe sections or nozzles in said passages, and outwardly-projecting suction-tubes at their inner ends secured in said passages in outward communication of said nozzles, substantially as described.

30. A centrifugal-pump runner having a hollow hub formed with radial passages, shoulders at the inner ends thereof, two-sections in said passages at their inner ends abutting against said shoulders, and outwardly-projecting suction-tubes at their inner ends removably secured in said passages and abutting against said sections, substantially as described.

31. A centrifugal-pump runner having a hollow hub with an axial suction-dust, rigid radiating runner-arms and outwardly-extending suction-tubes arranged between said arms and creating suction in and drawing the liquid from said dust through the centrifugal action caused by the rapid rotation of the runner, said tubes at their inner ends independently and removably secured in said hub, substantially as described.

32. A centrifugal-pump runner, having a hollow hub and an axial supply-dust therein, and outwardly-projecting suction-tubes therefrom having removable contracted suction-sections located in said hub, whereby the tubes can be employed with or without said sections.

33. In a centrifugal pump the combination of a pump-casing having a circumferential discharge and a suction-dust opening directly into said casing, a rotary pump-runner rotating close to the walls of the casing and creating suction through said dust by centrifugal action on the liquid in the casing at the exterior of the runner, a hollow journal for said runner, a suction-dust in direct communication therewith, a packed joint around said journal, said runner having radiating suction-passages at their outer ends discharging into the circumferential portion of the pump-casing and at their inner ends all in communication with said hollow journal and radiating suction-passages that off from action communication except through said hollow journal.

34. A centrifugal pump comprising a casing having a discharge and an axial suction-dust opening into the interior of the casing at the exterior of the runner, and a rotary runner in the casing, exteriorly formed to centrifugally drive the water in said casing to create suction through said axial dust, and having suction-passages throughout discharging centrifugally into the casing, and a suction-dust discharging into and supplying said passages, the capacity of said passages being different from that of said casing suction-dust, substantially as described.

35. In a centrifugal pump, the combination of a pump-casing having a discharge, a rotary pump-runner therein and comprising radiating runner-arms acting centrifugally on the water in the casing to force the same therefrom under pressure and create suction therein, said runner provided with a hollow journal, a suction-dust in which said journal rotates, said runner formed with radiating suction-passages arranged longitudinally of said arms with their outer ends and portions exposed at the front faces of said arms and discharging directly outwardly about at the ends of the arms and with their inner ends in direct action communication with said hollow journal, substantially as described.

36. In a centrifugal pump, the combination of a pump-casing, a pump-runner in the casing having radial suction-passages at their outer ends discharging into the casing, a hollow journal rigid with the runner and in communication with the inner ends of said passages, a T-coupling secured to the casing, said journal extending longitudinally into one branch of the T, another branch of the T forming a suction-opening, a packed joint in said first-mentioned branch of the T and around said journal, a bushing arranged longitudinally in said coupling and around and projecting beyond the journal end and having an opening establishing action communication between said journal and said suction-opening of the T, and means for adjusting said bushing longitudinally of said journal, substantially as described.

37. In a centrifugal pump, the combination of a pump-casing, a T-coupling secured thereto, a pump-runner in the casing having a hollow journal projecting into and provided with a tight joint in one of the branches of said T, a bushing arranged longitudinally in said coupling around said journal and maintaining said joint, said bushing having a side opening

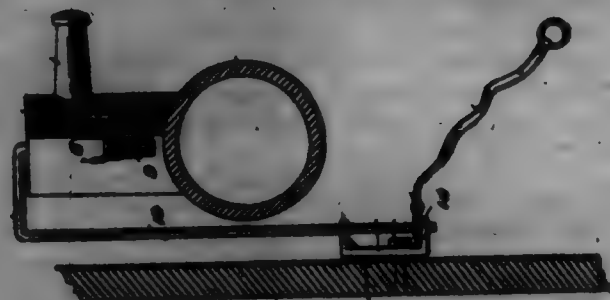
opposite the intermediate branch of said T, a dent secured on said side branch of the T, the remaining branch of the T being closed and provided with means for adjusting said bushing, substantially as described.

39. In a centrifugal pump, the combination of a pump-casing having a discharge and a lateral extension with a supply-opening, a rotary pump-runner in the casing exteriorly formed to centrifugally drive the water in the casing and force the same through said discharge, said runner having outwardly-extending outlet-passages discharging into the casing and a hollow outlet-journal discharging into said passages and extending longitudinally into said extension, a packed joint for said journal, a longitudinally-slidable bushing fitted on and projecting beyond said journal and through which motion communication is maintained between said journal and said opening said bushing fitted snugly within and approximately throughout the length of said extension, and means for adjusting said bushing, substantially as described.

40. In a centrifugal pump, the combination of a pump-casing, a rotary pump-runner therein having a hollow outlet-journal and provided with outlet-passages at their inner ends in direct motion communication with said journal and at their outer ends opening outwardly directly into the interior of said casing beyond the outer circle of movement of the runner itself, the planes of said discharge-openings of said passages being inclined in the circle in which said discharge ends of the passages move, substantially as described.

41. In a centrifugal pump, the combination of a pump-casing having a discharge, a rotary pump-runner therein, said casing forming a water-space circumferentially around said runner, said runner exteriorly formed to act centrifugally on the water in the casing in driving the same therefrom through said discharge, and provided with outwardly and rearwardly curved tapered outlet-passages at their outer ends opening outwardly directly into said water-space so that the water therein sweeps transversely across said open ends as the runner rotates, an axial outlet-dust in motion communication with the inner ends of said outlet-passages and means shutting off said outlet-dust from communication with the casing interior except through said passages, substantially as described.

700,225. AUTOMATIC UNLATCHING DEVICE FOR ANIMALS AND FIRE ESCAPE AND EXTINGUISHER. GEORGE P. NEAL, Bismarck, Ind. Filed Aug. 7, 1901. Serial No. 71,398. (No model.)



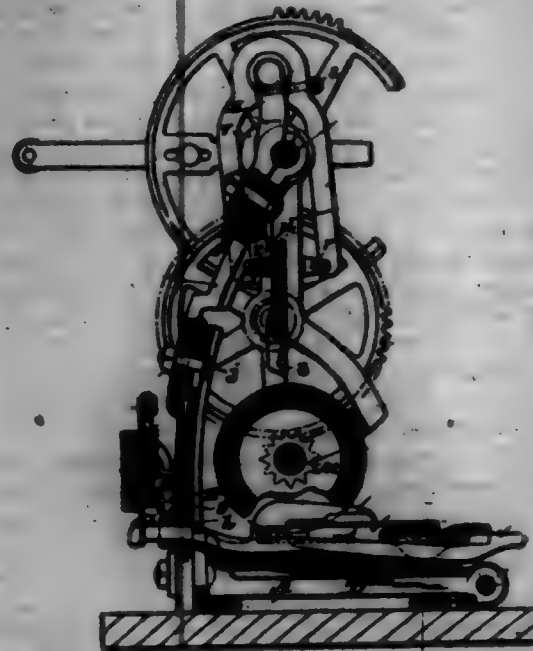
Claim.—1. In a device of the class described, the combination with a cup or cylinder having a nozzle, and means for delivering water-pressure to said cup, of a piston movable in said cup or cylinder in response to the pressure, a piston-rod connected to the piston, a locking-rod rigidly connected to the piston-rod, outside the cup or cylinder and a hanger-ring holder through which the locking-rod passes, said locking-rod being adapted to secure the hanger, the nozzle being so disposed that the piston passes the opening in same and permits the flow of water after the hanger-ring has been unlatched.

2. In a device of the class described, the combination with a water supply pipe, of a cup or cylinder having a nozzle and having its outer end closed and being screw-threaded to the pipe at its other end and provided with legs whereby it can be screwed into position, a hanger-ring holder having eyes, a piston movable in the cup or cylinder and a piston-rod connected to the piston, a locking-rod slidable through the eyes and a screw-rod rigidly connected to the piston-rod and the locking-rod, said parts being so disposed and related that the water-pressure lifts the piston and moves the locking-rod and after the piston has passed the nozzle the water-pressure flows out therefrom.

700,226. GRINDING-MACHINE. MICHAEL W. HENRI, Port Washington, Wis., assignor to Western Implement Company, Port Washington, Wis. Filed Dec. 30, 1901. Serial No. 57,708. (No model.)

Claim.—1. A grinding-machine comprising a base, a bracket in spring-controlled pivotal connection with the base, a tilt-frame hanging in the bracket under arms of the same, a frame-controlling lever, a standard, a swing-arm in connection with the standard, a grinding device hanging in the swing-arm, grinding device drive-gear having the main wheel thereof provided with a rounded end eye branch having a base, a swing-arm in connection with the standard having notched opposite side legs and another leg ahead of these, and an open-end link adjustable to engage the standard-branch base and notched legs of the swing-arm outside of an eccentric constituting part of the drive-gear or to engage the standard-branch eye outside of said arm against the leg ahead of these, and

thereof provided with an eccentric, and a rocker outside of the eccentric in connection of its ends with said arm and a branch of said standard.



2. A grinding-machine comprising a base, a bracket in spring-controlled pivotal connection with the base, a tilt-frame hanging in the bracket under arms of the same, a lever on said base opposing a cam-bar of the frame and provided with legs arranged to face opposite sides of a bracket-bar, a standard, a swing-arm in connection with the standard, a grinding device hanging in the arm over the clamp consisting of said bracket, tilt-frame and lever, and means for imparting rotary motion to the grinding device simultaneous with an oscillation of said arm.

3. A grinding-machine comprising a base, a bracket in pivotal connection with the base, a tilt-frame hanging in the bracket under arms of the same, a lever on said base opposing a cam-bar of the frame and provided with legs arranged to face opposite sides of a bracket-bar, a standard, a step in pivotally-adjustable connection with the standard opposite said bracket, a spring in adjustable tension connection with the step and connected to said lever, a swing-arm in connection with said standard, a grinding device hanging in the arm over the spring-controlled clamp consisting of the standard bracket, tilt-frame and lever, and means for imparting rotary motion to the grinding device simultaneous with an oscillation of said arm.

4. A grinding-machine comprising a standard in rotative one adjustable on the other, an arbor seated in the upper standard-section, a detachable branch of the standard constituting a clamp for the arbor, a swing arm on said arbor, a grinding device hanging in the swing-arm, means for imparting rotary motion to the grinding device simultaneous with an oscillation of said arm, and a sickle-bar clamp arranged under said grinding device.

5. A grinding-machine comprising a base, a sickle-bar clamp in pivotal connection with the base, a standard, a fork in pivotally-adjustable connection with the standard and having its arms at an acute angle to each other, the lower arm being arranged to oppose the clamp; a clamp-controlling spring in adjustable tension connection with the upper arm of the fork, a swing-arm in connection with said standard, a grinding device hanging in the arm over the clamp, and means for imparting rotary motion to the grinding device simultaneous with an oscillation of said arm.

6. A grinding-machine comprising a base, a sickle-bar clamp in pivotal spring-controlled connection with the base, a standard, a swing-arm constituting a grinding-device hanger in connection with the standard, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a swing-arm rocker engageable with the eccentric, but translatable to constitute a support for said arm and parts therewith in stationary position.

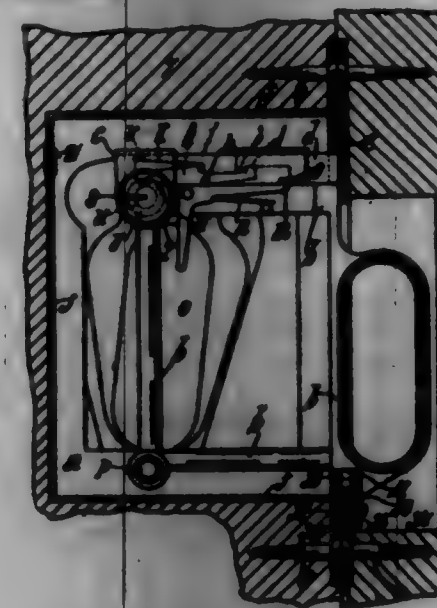
7. A grinding-machine comprising a standard and drive-gear, a swing-arm in connection with the standard, and an open-end link adjustable in connection with a standard branch and said arm to straddle an eccentric of the drive-gear or to clear said eccentric and hold the standard arm stationary.

8. A grinding-machine comprising a drive-gear, a standard provided with a rounded end eye branch having a base, a swing-arm in connection with the standard having notched opposite side legs and another leg ahead of these, and an open-end link adjustable to engage the standard-branch base and notched legs of the swing-arm outside of an eccentric constituting part of the drive-gear or to engage the standard-branch eye outside of said arm against the leg ahead of these, and

9. A grinding-machine comprising a standard provided with an arbor-seat, an arbor-clamp attachable to the standard, a swing-arm on the arbor that is held in its seat by said clamp, a grinding device hanging in the swing-arm, means for imparting a rotatory motion to the grinding device, a stop on the standard limiting play of the swing-arm under hand control, and a sickle-bar clamp arranged under said grinding device.

10. A grinding-machine comprising a standard, a swing-arm in connection with the standard, a grinding device hanging in the swing-arm, a sickle-bar clamp arranged under the grinding device, a spur-wheel having a pinion-hub loose on a lateral base of said arm, a pinion on the grinding-device arbor in mesh with said spur-wheel, an eccentric-hub-driving spur-wheel loose on an arbor constituting the swing-arm axis, an open-end link straddle of a standard branch and the eccentric-hub, and legs on the eccentric arm engaging branches of the link.

700,227. LOCK FOR SLIDING DOORS. AUGUSTUS NEWELL, Pasadena, Cal., assignor to the Perfect Sliding Door Company, Los Angeles, Cal., a Corporation of California. Filed Oct. 13, 1900. Serial No. 33,989. (No model.)



Claim.—1. In a lock, the combination of a frame; a latch pivoted in said frame and provided with a substantially horizontal way; a sliding bolt carried in said way; a stop to intercept the bolt to prevent the latch from rising when the bolt is in latching position; said bolt being arranged to be rotated to escape the stop to allow the latch to be lifted for unlatching.

2. In a lock, the combination of a frame; a latch pivoted in the frame and furnished with a horizontal way and with a catch; a sliding bolt to slide along said way; a stop on said frame above said way to intercept the bolt to prevent the latch from rising when the bolt is in latching position; a ward pivoted to the bolt under the catch carried by said latch, and furnished with a catch to engage said latch-carried catch; and a spring to normally hold the ward in catching position.

3. In a lock, the combination of a frame; a latch pivoted in said frame and furnished with a horizontal way and with a catch; a sliding bolt to slide along said way and provided with a stop; a stop on said frame above the way to intercept the bolt to prevent the latch from rising when the bolt is in latching position; a ward pivoted to the bolt under the catch carried by said latch, and furnished with a catch to engage said latch-carried catch; a spring to normally hold the ward in catching position; and a dog to normally engage the bolt to intercept the stop thereon.

4. In a lock, the combination of a pivoted latch furnished with a way; a bolt to slide in said way and furnished with a stop; and a spring-pressed dog pivoted to said latch to normally engage said bolt and intercept the said bolt-stop.

5. In a lock, the combination of a latch furnished with a hollow way and with a circular key-shaft way; a cylindrical key-shaft fitted in the key-shaft way and seated longitudinally from end to end, and furnished with a peripheral groove to correspond with the hollow way; a bolt sliding in said hollow way and peripheral groove; a key to enter the longitudinal slot to throw the bolt, and furnished with a stop to project outside the slot; and a key-stopping ring on the key-shaft and fitting against the latch to intercept the stop of the key, to stop the key in position for appropriately engaging the bolt.

6. The combination with a latch and a bolt sliding in said latch, of a cylindrical key-shaft to rotate in said latch, and furnished with a peripheral groove to receive said bolt; and a ring around the key-shaft to form a stop to limit the insertion of the key substantially as set forth.

7. The combination of a latch; a bolt sliding on said latch; a key-shaft seated longitudinally and furnished with a peripheral groove to receive the bolt; a key for the longitudinal slot of the key-shaft to engage the bolt to withdraw it when turned in one direction, and to engage the bolt to expel it from the key-shaft when turned in the other direction; and a catch to normally hold the end of the bolt in the path of the key and release said bolt to allow its expulsion.

8. In a lock furnished with a gravity-latch; a main catch-plate adapted for attachment to the door-post and furnished with a sliding latch-plate.

9. In a lock, the combination of a catch-plate furnished on its side with a stud; a latch-plate furnished with a slot fitted on said stud; and a cover in the stud to hold the latch-plate in position.

10. In a lock, the combination of a catch-plate; a latch-plate at the rear of said catch-plate and furnished with a slot; and a cover inserted through the slot for adjustably securing the latch-plate on the catch-plate.

700,228. CHARCOAL-BRATER. THOMAS O'BRIEN, Paris, France. Filed Feb. 12, 1902. Serial No. 98,971. (No model.)



Claim.—1. In a portable stove, the combination of a metallic casing closed at its lower end and open at its upper end, and having an opening adjacent to its bottom; a pot of fire-resisting material arranged in the casing and on the bottom thereof, and having a grate at an intermediate point of its height, and an opening below said grate, registered with the opening in the casing, and also having the exterior flange snugly fitting in the casing, and the exterior recess below said flange and above the grate whereby the space D is formed, a suitable cover on the casing, and a damper connected to the casing for controlling the opening therein.

2. In the portable stove described, the combination of a metallic casing closed at its lower end and open at its upper end, and having an opening adjacent to its bottom, and a leg on its side adjacent to its upper end; said leg being provided with a vertically-disposed hydraulic-chamber, a cover having a depending stud adjacent to its perimeter, journaled in the leg-hole-slot of the leg, and provided at its lower end with an enlargement, a handle connected to the casing, a damper also connected to the casing, and arranged to control the opening therein, and a pot of fire-resisting material arranged in the casing and on the bottom thereof, and having a grate at an intermediate point of its height, and an opening below said grate, registered with the opening in the casing, and also having the exterior flange snugly fitting in the casing, and the exterior recess below said flange and above the grate whereby the space D is formed.

700,229. PROCESS OF MAKING SOAP. THOMAS FAIRHALL, Alexandria, Egypt. Filed Aug. 13, 1902. Serial No. 57,894. (No specimens.)

Claim.—The process described consisting in mixing cold cotton-seed oil and flour containing gluten together, allowing the mixture to stand and then mixing with the said mixture caustic soda, substantially as described.

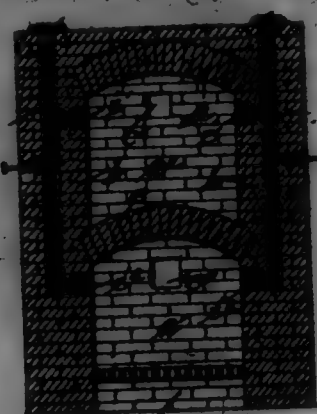
700,230. FURNACE. WILIAM W. FRISLEY, Efforton, Iowa. Filed Feb. 10, 1902. Serial No. 98,984. (No model.)

Claim.—1. In combination, a furnace having a ceiling and a fire chamber, an arch forming the division-wall between said chambers extending entirely from the rear wall of the furnace to the front wall thereof, a filling and discharge opening in said front wall, extension of the side walls of the fire-chamber projecting beyond the front wall of the furnace, and an inclined grate located in the projecting walls of the fire-chamber and extending in advance of the front wall of the furnace.

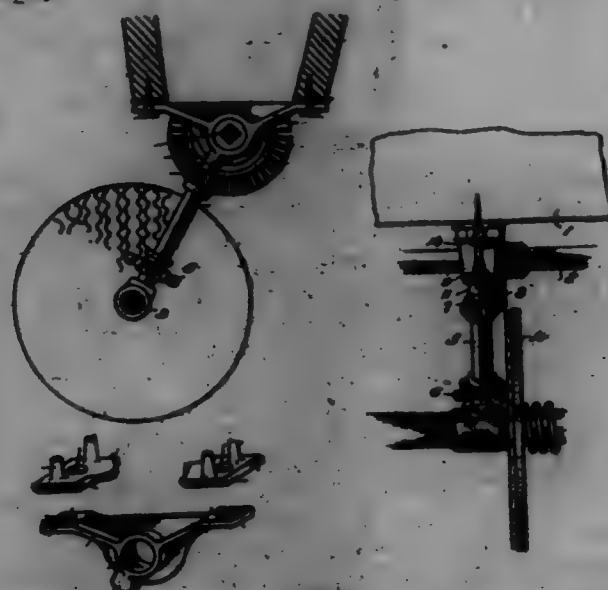
2. In combination is a furnace provided with a fire and a ceiling chamber, an arch forming the division-wall between the same, an inclined grate in the fire-chamber in advance of said arch and a fire located in each side wall of the furnace in communication with each of said chambers, and with the exterior of the furnace, substantially as described.

3. In combination is a furnace having a fire and a ceiling chamber, an arch forming the division-wall between the same, an inclined grate in the fire-chamber in advance of said arch, and a fire located in each side

wall of the furnace in communication with each of said chambers, said flue extending through the top of the furnace, a damper located on said top and a damper arranged in each flue between said chambers, substantially as described.



700,281. GRAIN-DRILL. CHARLES E. PETERSON, Springfield, Ohio, assignor to the Thomas Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Apr. 12, 1902. Serial No. 108,986. (No model.)



Claim.—1. In a grain-drill, the combination, with a hopper provided with grooved locking-plates on its under side, and a distributor-chest and driving-shaft therefor provided with bevel-gearing, of a bearing-block having bearings for the said shaft, said bearing-block being slotted and adapted to engage the grooves of the locking-plates, and screws passing through the slots and into the hopper, substantially as described.

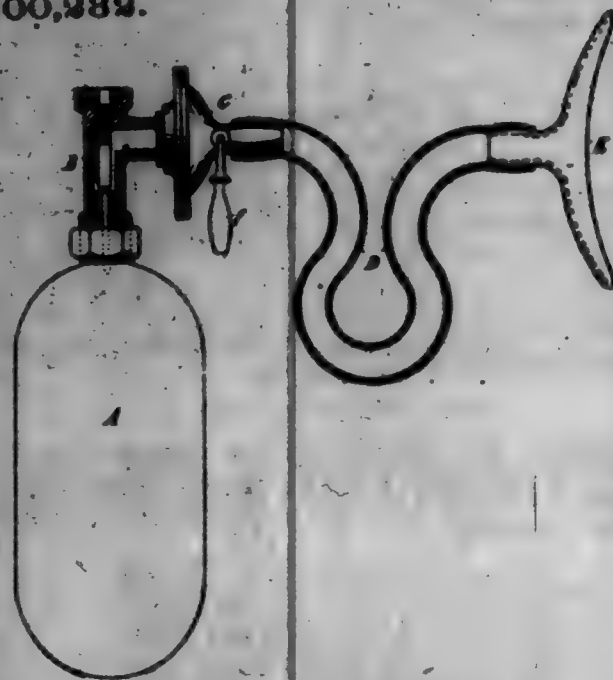
2. In a grain-drill, the combination, with a hopper having grooved locking-plates secured to its under side, of a distributor-chest and a driving-shaft therefor provided with a bevel-gearing, a bearing-block provided with bearings for said shaft and having slotted legs provided with ribs to engage the grooves of the locking-plates, and fastening-screws passing through said slots into the hopper, substantially as described.

3. In a grain-drill, the combination, with a hopper, of locking-plates having grooves on their under sides and provided with pins to enter the hopper and an intermediate aperture, a distributor-chest and driving-shaft provided with bevel-gearing, a bearing-block having bearings for said shaft and having slotted legs provided with ribs to engage the grooves of the locking-plates, and fastening-screws passing through the slots and through the apertures in the locking-plates into the hopper, substantially as described.

700,282. PORTABLE INHALING APPARATUS. JEAN PLANCHET, Lyons, and Louis BOUTHERELAY, Paris, France. Filed Mar. 18, 1902. Serial No. 98,290. (No model.)

Claim.—A portable inhaling apparatus specially adapted for diminishing the effects of sea-sickness, consisting of a steel vessel containing pure oxygen under pressure and provided with a tap *b* for filling and closing it, each tap being formed in such a way as to be only capable of being opened or closed by means of a special key, an expander *c* connected with a branch of the tap *b* for regulating the pressure of the escaping gas, and provided with a handle or key *f* easily accessible to the person using the apparatus, and a flexible tube *d* having at its free end a mask *e* adapted to fit over the nose and mouth of the patient, substantially as described.

700,282.



700,283. BERTH GUARD AND LADDER. JAMES FLANN, Cincinnati, Ohio. Filed Feb. 3, 1902. Serial No. 92,671. (No model.)



Claim.—1. In a berth guard and ladder, the combination substantially as set forth, of an upper berth, vertical postions at the head and foot of the berth, provided with attaching devices, a certain-roll above the upper berth, a ladder provided with hooks at its ends to engage said attaching devices when the ladder is disposed horizontally, fastenings at the front edge of the berth to engage the ladder when disposed vertically, a resilient band near each end of the ladder taking about the certain-roll when the ladder is disposed above the upper berth, rolls for the ladder, openings in a rail for each band, with a connection *E* of the rail between the openings supporting the ladder from the band, a recess in the rail for each band permitting the loops of the bands to be slipped within the rail when the ladder is so disposed horizontally at the upper berth or vertically as stated, and also arranged for having the bands slipped outwardly about the certain-roll for supporting the ladder above the upper berth substantially as described.

2. In a berth guard and ladder, the combination substantially as set forth, of an upper berth, a certain-roll above the same, the hollow ladder-ladder-rails *H*, the holes *P*, *Q*, and connecting-piece *R* near each end of the ladder-rail, the thimbles *S* taking into the holes and protecting the leather, and the resilient bands *M* *N* taking about the certain-roll and connecting-piece *R* and into the hollow rails through said holes *P*, *Q*, each band having a hook *N* and a hole *O*, constructed and arranged for slipping the loops of the bands within the hollow rail and for opening the band and slipping the same about the certain-roll above the upper berth and thereby fastening the ladder thereto.

independent of the said rail-chest, said stiffening-bars bolted together at their middles and secured to the overreaching galvanized ends of the said rail-chest, substantially as described.

700,284. POST. LEONARD A. PRATT, Bay City, Mich. Filed Nov. 8, 1901. Serial No. 91,664. (No model.)

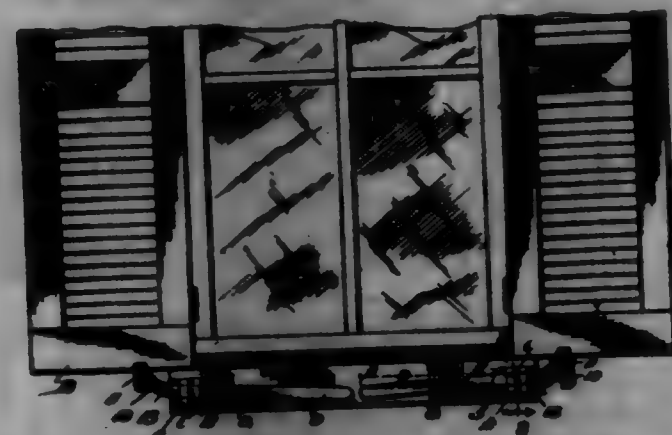


Claim.—1. In a device of the kind described, a wire bent back upon itself to form two members one of which is crimped and the other provided at intervals with loops formed by twisting the wire, for the purpose set forth.

2. In a device of the kind described, a wire bent back upon itself to form two members one of which is crimped throughout its length and the other provided at intervals with loops formed by twisting the wire, for the purpose set forth.

3. In a cement fence-post, reinforcing means comprising in combination a crimped wire extending longitudinally parallel with one side of the post and embedded therein; and a substantially straight member embedded in and extending parallel with the opposite side of the post, said second member being formed of wire bent at intervals to form loops which extend outside the surface of the post, substantially as and for the purpose set forth.

700,285. SHUTTER-PARTNER. GEORGE F. RAIN, Bryerton, Pa. Filed Aug. 9, 1901. Serial No. 71,465. (No model.)



Claim.—In a window-shutter fastener, the combination of a bracket, *2*, secured to the window-sill, said bracket having depressed ends *3*, and a raised central portion *4*, and an integral step *13*; and an unbalanced lever *5* pivotally mounted between the portions *4* and *5* of the bracket formed of a single flat metallic strip having a straight inner end, *2*, a portion *12*, beyond the pivot curved upwardly in the direction of its width, and an outer end portion, *11*, downwardly inclined in a plane transverse to the width of the lever, said lever being arranged with its straight portion extending to substantially the middle of the window below the plane of movement of the shutter, and its inclined portion normally intercepting the plane of movement of the lower edge of the shutter at a point beyond the sill, whereby it operates to automatically hold the shutter in open position; substantially as described.

700,286. HARVESTER-HEEL. CHARLES A. A. RAIN, Chicago, Ill., assignor to Deering Harvester Company, Chicago, Ill. Filed Jan. 6, 1902. Serial No. 93,760. (No model.)

Claim.—In a harvester-heel, a sheet having radial arms, radial-arms secured to said arms as: extending grainward beyond the said radial arms, a series of stiffening-bars radiating from a common center and wholly



700,287. COMBINED FOLDING WARDROBE AND DRESSER. HENRY J. RAINBOLD, Canton, Mo. Filed Aug. 24, 1901. Serial No. 73,126. (No model.)



Claim.—A combined wardrobe and dresser comprising a casing forming the dresser and one side wall of the wardrobe, a section *12* forming the other side wall of the wardrobe, a top and a bottom each formed of a plurality of sections hinged together and to the side walls and adapted to fold inwardly upon themselves, a back formed of hinged sections adapted to fold outwardly and backwardly against the said casing, and a front formed of two doors one of which is hinged to the said casing and adapted to fold against the front thereof, and the other of which is hinged to the section *12* and folds against the outside thereof.

700,288. DELIVERY MECHANISM. GEORGE F. REAR, New York, N. Y., assignor to Robert Hoe, New York, N. Y. Filed June 1, 1901. Serial No. 92,723. (No model.)

Claim.—1. The combination with sheet-advancing means, of a plurality of deliveries, a switch, and means for setting the switch so as to cause a plurality of sheets to be directed in succession to one delivery and then a plurality of sheets in succession to another delivery, substantially as described.

2. The combination with sheet-advancing means, of a plurality of deliveries, a switch, and means for automatically setting the switch so as to cause a plurality of sheets to be directed in succession to one delivery and then a plurality of sheets in succession to another delivery, substantially as described.

the sheet from the cylinder when communication between the channel and the chamber has been interrupted, substantially as described.

16. The combination with a rotating cylinder having a station-ary channel, of a stationary part having an air-chamber with which the channel communicates, means for interrupting the communication between the channel and chamber, and means acting upon the sheet between its ends to throw it off the cylinder when communication between the channel and the chamber has been interrupted, substantially as described.

17. The combination with a rotating cylinder having a station-ary channel, of a stationary part having an air-chamber with which the channel communicates, means for interrupting the communication between the channel and chamber, and means acting upon the forward edge of the sheet and means acting upon the sheet between its ends to remove it from the cylinder when communication between the channel and the chamber has been interrupted, substantially as described.

18. The combination with a rotating cylinder having a plurality of station-ary channels near its periphery, of a stationary head having an air-chamber therein with which the channels communicate, means for interrupting the communication between the channels and the air-chamber, arms carried by the cylinder and arranged to operate upon the sheet when communication between the air-chamber and station-ary channels is interrupted, and a stationary cam for throwing the arms into operation, substantially as described.

19. The combination with a rotating cylinder having a station-ary channel therein, of a stationary cylinder-head having an air-chamber with which the channel communicates, a block mounted in the head and arranged to close the station-ary channel, and an adjusting and locking pin extending through the slot and serving to position the block, substantially as described.

20. The combination with a rotating cylinder having a plurality of station-ary channels arranged near its periphery, of a head having a circular air-chamber with which the channels communicate, and an arc-shaped block located in the chamber and serving to close the channels successively as they pass it, substantially as described.

21. The combination with a rotating cylinder having a plurality of station-ary channels arranged near its periphery, of a head having a circular air-chamber with which the channels communicate, an arc-shaped block located in the chamber and serving to close the channels successively as they pass it, and means for adjusting the block, substantially as described.

22. The combination with a rotating cylinder having a plurality of station-ary channels arranged near its periphery, of a head having a circular air-chamber with which the channels communicate, an arc-shaped block located in the chamber and serving to close the channels successively as they pass it, and a pin-and-dot connection for adjusting the block and locking it in position, substantially as described.

23. The combination with a pair of cutting-cylinders, one of said cylinders having a plurality of station-ary channels, of a stationary head provided with an air-chamber with which the channels communicate, means for interrupting the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

24. The combination with a pair of cutting-cylinders, one of which is provided with a plurality of station-ary channels, of a stationary head having an air-chamber with which the channels communicate, an adjustable block located in said chamber and serving to interrupt the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

25. The combination with a pair of cutting-cylinders, one of which is provided with a plurality of station-ary channels, of a stationary head having a circular air-chamber with which the channels communicate, means for interrupting the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

26. The combination with a pair of cutting-cylinders, one of which is provided with a plurality of station-ary channels, of a stationary head having a circular air-chamber with which the channels communicate, adjustable means for interrupting the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

27. The combination with a pair of cutting-cylinders, one of which is provided with a plurality of station-ary channels, of a stationary head having a circular air-chamber with which the channels communicate, an adjustable block for interrupting the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge

of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

28. The combination with a pair of cutting-cylinders, one of which is provided with a plurality of station-ary channels near its periphery, of a stationary head having a circular air-chamber with which the channels communicate, an adjustable block for interrupting the communication between the chamber and the channels, a sheet-receiver, a stripper acting upon the forward edge of the sheet, and pivoted delivery-arm, said arm and stripper operating to deliver the sheet to the sheet-receiver, substantially as described.

700,940. HUGHES PATENT SYSTEM. LOUIS HUGHES, London, Eng. Filed July 24, 1891. Serial No. 99,612. (No model.)



Claim.—1. In a signal system, a signal-controlling wheel, another wheel having a movement into and out of operative connection with the first-named wheel, an electric device for causing the movement of said second-named wheel, an electric circuit in which the electric device is arranged, and a circuit-closer therefor, substantially as specified.

2. In a block-signal system, a semaphore, a wheel with which the semaphore connects, ratchet-teeth on said wheel, a shaft on which the ratchet-teeth are mounted, an electric device for causing the movement of said ratchet-wheel to engage the teeth of the first-named wheel, an electric circuit in which said electric device is arranged, and a circuit-closer therefor, substantially as specified.

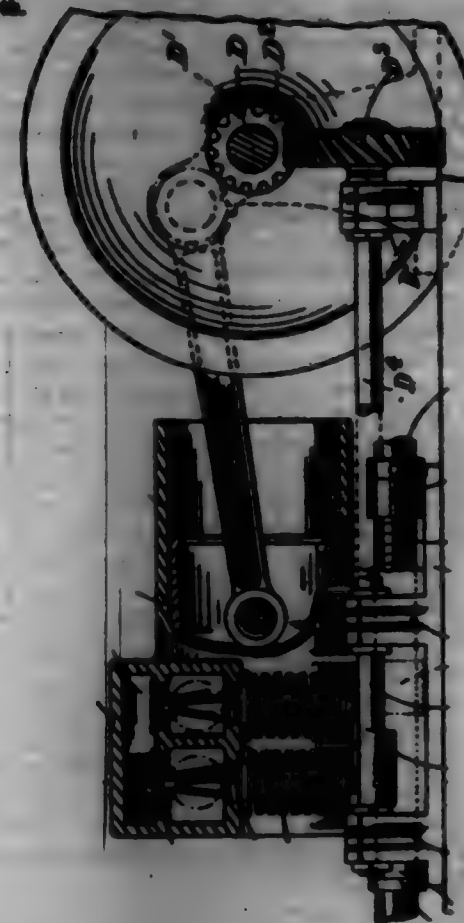
3. In a block-signal device, a semaphore, a wheel for operating said semaphore, the said wheel being provided with a notch in its periphery, ratchet-teeth on opposite sides of said wheel, a shaft on which the wheel is mounted, ratchet-wheels mounted to rotate on said shaft and also having a longitudinal movement thereof, the said ratchet-wheels being at opposite sides of the first-named wheel, and adapted to engage with the ratchet-teeth thereof, solenoids, arms for said solenoids, connections between said arms and the ratchet-wheels, and electric circuits in which the solenoids are arranged, and circuit-closers operated by a car for closing the circuits, substantially as specified.

4. In an electrical-controlled block-signal system, signal device at the ends of the block, and electric motors for causing movement of said signal in one direction, an electric circuit in which said motors are arranged, and circuit-closers at each end of the block, each circuit-closer consisting of a part adapted to be engaged by a flange of a car-wheel, a contact movable with said part, and a fixed contact with which the first-named contact is designed to engage, substantially as specified.

700,941. INTERNAL-COMPRESSION ENGINE. WILLIAM J. BARN, Portland, Ind. Filed Dec. 26, 1891. Serial No. 97,898. (No model.)

Claim.—In a four-cycle explosion-engine, the combination of a working cylinder, a support for the cylinder, a piston to the cylinder, means

for sliding the cylinder upon its support relatively to the piston, a crank-shaft carried by the support, means for operatively connecting the piston with the crank-shaft, a valve to admit fuel to the cylinder, a cam graduated in the direction of its axis of rotation for operating the valve, means for operatively connecting one of these members with the cylinder so that movement of the cylinder causes different portions of the cam to co-operate with the valve, means for operatively connecting the cam with the crank-shaft, and means for maintaining this operative connection when the cylinder is moved upon its support, substantially as and for the purpose set forth.



700,942. LOCK. OWY T. ROBERTS, Orlando Beach, Cal. Filed Jan. 13, 1898. Serial No. 99,641. (No model.)



Claim.—1. In a lock, a plurality of interchangeable dogs having notches, a bolt-controlling latch adapted to enter the same, and means for independently operating said dogs to move them into locking and unlatching positions, said dogs being removably supported by said operating means.

2. In a lock, a plurality of removable combination-dogs having notches, a bolt-controlling latch adapted to enter the same and means for independently moving said dogs to locking and unlatching positions.

3. A combination-dog comprising a reversible polygonal plate having in each of its edges an unlatching-notch, and a carrier in which said dog may be adjusted to prevent any one of the notches in alignment with the bolt-controlling means.

4. A combination-dog comprising a reversible polygonal plate having in each of its edges a single notch arranged in such relation that a notch representing any desired numeral may be adjusted for co-operation with the bolt-controlling mechanism, and mechanism for supporting and adjusting said plate.

5. In a lock, a plurality of combination-dogs, carrying-frames therefor, finger-pieces secured to each of said frames, and means for holding said frames in any position to which they may be adjusted.

6. In a lock, a plurality of combination-dogs, carrying-frames therefor, finger-pieces secured to each of said frames, guiding-plates having shouldered slots, and pins carried by the frames and adapted to said slots.

7. In a lock, a plurality of combination-dogs, bolt-controlling mechanism adapted to co-operate therewith, a series of carrying-frames for said dogs, finger-pieces and pins carried by said frames, and guiding-plates having sliding slots for the reception of said pins.

8. In a lock, a plurality of combination-dogs, bolt-controlling mechanism adapted to co-operate therewith, carrying-frames for said dogs, finger-pieces and pins carried by said frames and guiding-plates having slots for the reception of said pins, each of said slots being arranged to form a series of seating-recesses for the pins, substantially as specified.

9. In a lock, the combination of the lock-casing, bolt-controlling mechanism arranged therein, a bolt, a removable casing extending within the main casing, means for locking said removable casing within the lock-casing when the bolt is in locking position, a series of combination-dogs guided by said removable casing and co-operating with the bolt-controlling mechanism, and means for operating said dogs.

10. In a lock, the combination of the lock-casing, bolt-controlling mechanism arranged therein, a bolt, a removable casing extending within the main casing, means for locking said removable casing within the lock-casing when the bolt is in locking position, a plurality of combination-dogs guided by said removable casing and co-operating with the bolt-controlling mechanism, carrying-frames carried by the removable casing and supporting said dogs, slotted guiding-plates arranged above and removable with the removable casing, and finger-pieces secured to the carrying-frames, said carrying-frames having pins for engagement in the slots of the guiding-plates.

11. In a lock, the combination of the lock-casing, a bolt and bolt-controlling mechanism arranged therein, a removable casing carried by the lock-casing, a series of partitions arranged in said cylinder and having sliding notches for the reception of an element of the bolt-controlling mechanism, combination-dogs arranged within the spaces between the partitions, an independent carrying-frame for each of said dogs, finger-pieces carried by said frames, projecting pins extending from said frames, slotted guiding-plates arranged on the upper portion of the removable casing, the pins being adapted to enter said slots and to be locked therein in an adjusted position.

12. In a lock, the combination of the lock-casing, a partition therein dividing said lock-casing into two compartments, a bolt and bolt-controlling mechanism disposed in one of said compartments, a removable casing having a projecting lug or boss, a locking-finger carried by the bolt for engagement therewith, a series of locking-dogs carried by the removable casing and means for independently adjusting said dogs, substantially as specified.

13. In a lock, the combination with a bolt, of means for effecting the longitudinal movement of the same, a locking-arm adapted to engage with and hold the bolt at both extremes of movement, a latch secured to and movable with the locking-arm, a combination-controlled device for permitting the movement of the latch and arm to unlatching position, and means controlled by the bolt for moving said latch out of contact with the combination-controlled device when the bolt is moved to locked and unlatched position.

14. In a lock, the combination with a manually-operated bolt, of a combination device comprising a series of movable elements each having a notch, a latch adapted to move into the series of notches when the latter are in alignment, a locking-arm operably controlled by the latch for locking said bolt at both extremes of movement, and means controlled by the bolt and its connected parts for moving said latch away from the notches when the bolt is moved to locking or unlatching position.

15. The combination with a manually-operated bolt having a locking-disk, of a combination device comprising a series of movable elements each having a notch, a pivoted latch independent of the bolt and adapted to move into the series of notches when the latter are in alignment, a locking-arm operatively connected to the latch and movable therewith to unlock the bolt, and an engaging finger carried by said bolt and adapted to engage with the latch to move the locking-arm into engagement with the locking-disk of said bolt, substantially as specified.

16. In a lock, the combination with a movable bolt having a pair of locking slots or notches, a locking-arm adapted to engage therewith, a combination device comprising a series of movable elements each having a notch, a pivoted latch carrying the locking-arm and adapted to move into the series of notches when the latter are in alignment, a pivoted lever connected to the bolt, and a link connecting said lever to the latch and adapted to move the latter from the notches and to force the locking-arm into engagement with the bolt when the latter is moved to unlatching position.

17. In a lock, the combination with a movable bolt having a pair of locking slots or notches, a locking-arm adapted to engage therewith, a combination device comprising a series of movable elements each having a notch, a pivoted latch carrying the locking-arm and adapted to

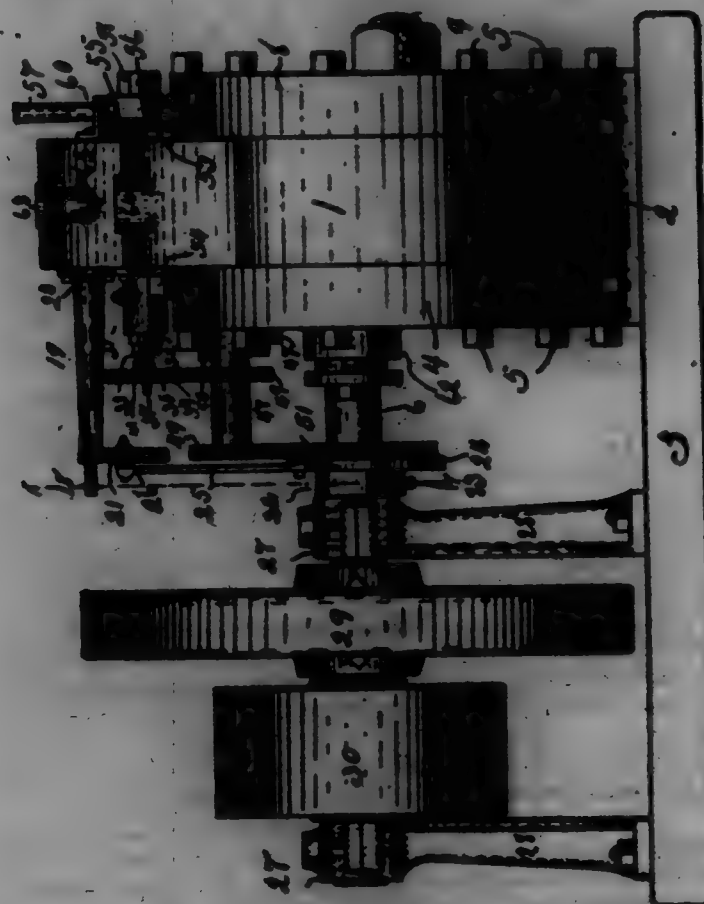
move into the series of notches when the latter are in alignment, a spring adapted to operate on said latch, a pivoted lever connected to the bolt, a secondary lever connected to and movable with said pivoted lever, a U-shaped arm extending from the secondary lever to a point outside the lock-casing, a finger-piece arranged at the end of said arm, holding-legs for said finger-piece, a link connecting the pivoted lever to the latch and adapted to move the same from the notches and to force the locking-arm into engagement with the bolt when the latter is moved to unlatching position, and a finger carried by the bolt and also adapted to operate on said pivoted latch, substantially as specified.

18. In a lock the combination of the lock-casing, a bolt and bolt-operating mechanism contained therein, a removable casing carried by the lock-casing and containing a combination device adapted to cooperate with the bolt-operating mechanism, legs formed in the adjacent faces of the removable casing and lock-casing, and a locking arm or finger carried by the bolt and adapted to pass between said legs.

19. In a device of the class specified, a grooved keeper, a bolt adapted thereto, means for operating said bolt, the engaging end of the bolt being provided with a head or tip of a width less than the width of the grooves of the keeper.

20. In a device of the class specified, a stationary conical member having a keeper at its outer end, a lock-casing carrying said member, a bolt adapted to the casing, means for moving the bolt, a movable semi-circular member pivoted to the lock-casing and in engagement with the bolt, the opposite end of said movable member being adapted to engage in the keeper of the stationary member.

700,248. ROTARY EXPLOSIVE-ENGINE. SAMUEL S. ROSS, Amherst City, Cal. Filed Mar. 20, 1902. Serial No. 700,700. (No model.)



Claim.—The herein-described combined explosive-engine comprising the cylinder, the rotary piston arranged therein, and fixed on a shaft, the passages 12 communicating with the interior of the cylinder at opposite sides of the piston, the exhaust-passages 64, the passages 18; the said passages 12, 64, and 18, intersecting at common points, the passage 16, the supply-passages 63, for gas, the cut-off valve 17 interposed between the passages 63 and 16, and having a crank on its stem, the explosion-chamber 51, the hollow rocking valve 19 and communicating at passage 16 and the lower end of the passages 12, 18 and 64 and coupling between the adjacent ends of the passages 12, 18 and 64 and coupling the points of intersection thereof, the eccentric fixed on the piston-shaft, the strap surrounding said eccentric and adjustably connected to the crank on the stem of the valve 17, the lever 57 connected with the rocking valve 52, and suitable means for igniting explosive mixture in the chamber 51, all substantially as specified.

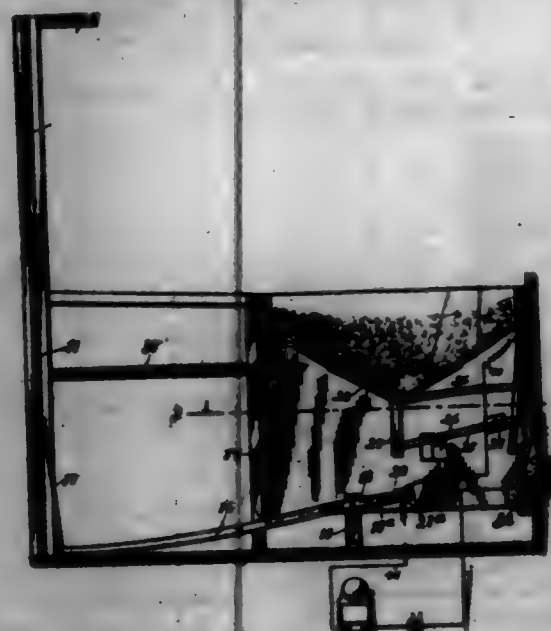
700,244. PROCESS OF PRODUCING ALLOYS OR COMPOUNDS OF COPPER AND TITANIUM. ALBERT J. ROSS, New York, N. Y., assignor of one-half to James MacLaughlin, Tarrytown, N. Y. Filed Dec. 10, 1900. Serial No. 20,251. (No specimens.)

Claim.—1. The process of producing alloys of metals assembled in the metallic state with metals in oxygenated state which consists in providing a bath of molten reducing metal the heat of the formation of whose acid is at a given temperature greater than that of the acid oxygenated metal; introducing into said bath the said metals assembled in the metallic state and reducing them therein to a molten condition; introducing into said bath the said metals in oxygenated state, and developing in the charge a temperature sufficiently high to lower the requisite reaction between said reducing metal and the oxygen of the oxygenated metal leaving the liquid metallic residuum of the latter to become alloyed with the liquid metallic which were introduced in the metallic state, substantially as and for the purposes described.

2. The process of producing alloys of metals assembled in the metallic state with metals in oxygenated state, which consists in introducing into a bath of aluminum and of molten metals in the metallic state molten together the oxygenated metal and then developing in the charge a temperature sufficiently high to insure the requisite reaction between the molten aluminum and the oxygen of said metals in the oxygenated state leaving the metallic residuum of said last-mentioned metals to become alloyed with the said liquid metallic which was introduced in its metallic state into the charge other than aluminum, while the latter combines with the oxygen of said oxygenated metals and as an aluminum slag containing also other impurities of the charge is separated from the metallic alloy obtained, substantially as and for the purposes described.

3. The process of producing an alloy or compound of copper and titanium which consists in introducing into a bath of aluminum and copper molten together, titanium and then developing in the charge a temperature sufficiently high to insure the requisite reaction between the said molten aluminum and the oxygen of the titanium acid leaving the molten titanium to become alloyed with the molten copper while the aluminum combines with the oxygen of the said titanium acid and as an aluminum slag containing also other impurities of the charge is separated from the said alloy of copper and titanium, substantially as and for the purposes described.

700,245. TRAP-NEST. WILLIAM SMITH, Chicago, Ill. Filed Jan. 20, 1902. Serial No. 20,250. (No model.)



Claim.—1. In a device of the character described, in combination, a nest-compartment, a movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, and means controlled by the egg deposited in the nest for holding the nest when depressed from rising.

2. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door, connection between the door and the nest, a movable pocket in the bottom of the nest, means actuated by the pocket for holding the nest when depressed from rising, an indicator, and means also actuated by the pocket for operating the indicator.

3. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the compartment, connection between the door and the nest whereby movement of one will actuate the other, a movable pocket in the bottom

of the nest, a detent, and an arm actuated by the movable pocket for engaging the detent to hold the nest when depressed from rising.

4. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the compartment, a lever connection between the nest and the door whereby movement of one will actuate the other, a movable pocket in the bottom of the nest, a counterbalance-lever to which the pocket is pivoted, a pivoted arm, connection between the arm and the pocket, and a detent engaged by the arm to hold the nest when depressed from rising.

5. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door adapted to close the entrance to the compartment, a lever connected at one end to the door and having its opposite end extending in the path of the nest, a movable pocket in the bottom of the nest, a pivoted lever connected to the pocket, a counterbalance-weight on the lever, a pivoted loop actuated by the pocket, an indicator hinged to the wall of the nest-compartment, a lever actuated by the loop for operating the indicator, and a detent engaged by the loop for holding the nest when depressed from rising.

6. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, means for holding the nest when depressed from rising, an alarm, an electric circuit therefor, and means controlled by the movable nest for closing the circuit.

7. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, means for holding the nest when depressed from rising, a battery, a contact-plate, connection between the battery and the plate, connection between the battery and the means for holding the nest whereby the circuit is closed when the nest is held in its lowered position, and an alarm in the connection.

8. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, a movable pocket in the bottom of the nest, means actuated by the movable pocket for holding the nest when depressed from rising, an alarm, an electric circuit therefor, means controlled by the movable pocket for closing the circuit, and an indicator controlled by the means actuated by the movable pocket.

9. In a device of the character described, in combination, a nest-compartment, a vertically-movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, a movable pocket in the bottom of the nest, a counterbalance-lever to which the pocket is pivoted, a pivoted arm, connection between the arm and the pocket, an indicator hinged to the wall of the compartment, a lever actuated by the arm for operating the indicator, a detent engaged by the arm for holding the nest when depressed from rising, a battery, a plate located at the side of the detent, connection between the battery and the plate, connection between the battery and the pivoted arm, and an alarm in one of said connections, the parts being so disposed that when the arm engages the detent the circuit will be closed and the alarm rung.

10. In a trap-nest, in combination, a nest-compartment, a movable nest therein, a door closing the entrance to the nest-compartment, connection between the nest and the door whereby movement of one will actuate the other, a movable pocket in the nest, and means controlled by the pocket for holding the nest when moved from returning to its original position.

11. In a trap-nest, in combination, a nest-compartment, a movable nest therein, a door for the nest-compartment, means actuated by the nest for closing the door, and means controlled by the egg deposited in the nest for holding the nest when moved from returning to its original position.

12. In a trap-nest, in combination, a nest-compartment, a vertically-movable nest therein, a door for the nest-compartment, means actuated by the nest for closing the door, means actuated by the egg deposited in the nest for holding the nest when depressed from rising, an indicator, and means controlled by the movable nest for operating the indicator.

13. In a device of the character described, in combination, a vertically-movable nest having an independently-movable egg-pocket, yielding supports for each member, an electric signal, a switch in the circuit thereof, and means actuated by the independent movement of the said members for closing the circuit.

14. In a trap-nest, in combination, a nest-compartment, a movable nest therein, a door for the nest-compartment, means actuated by the nest for closing the door, an indicator, an alarm, and means controlled by the movable nest for operating the indicator and for closing the circuit to actuate the alarm.

15. In a device of the character described, in combination, a nest-

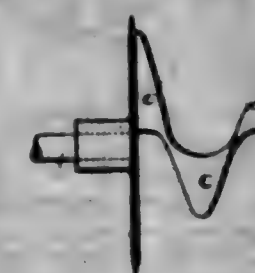
compartment, a nest therein and having a movable bottom, an alarm, an electric circuit, and a lever controlled by the movable bottom and for closing the circuit to actuate the alarm.

700,248. FLEXIBLE COUPLING. CHARLES L. SHULLS and SAMUEL A. SHULLS, Chicago, Ill. Filed Sept. 14, 1891. Serial No. 21,022. (No model.)



Claim.—In a flexible coupling, a divided shaft, a disk on each of the ends of said divided shaft, said disks facing each other, two lugs projecting at a right angle from the face of each disk, said facing disks connected by means of two curved bars having an extremity-arm on each end, and each arm bent at an angle of thirty-five degrees and engaging a lug on said facing disks, substantially as specified.

700,247. ROTARY FLOW. JOHN SCOTT, Edinburgh, Scotland. Filed Jan. 7, 1902. Serial No. 21,774. (No model.)



Claim.—1. A device of the class described comprising a disk having a helically-shaped blade projecting from one face thereof and tapered in the direction of its outer end.

2. A device of the class described comprising a disk having a helically-shaped blade projecting from one face thereof and continuously tapered in the direction of its outer end.

3. A device of the class described comprising a circular supporting-disk having a beveled cutting edge and a blade projecting laterally therefrom, said blade being bent into helical form of changing radius.

4. A device of the class described comprising a supporting-disk having a beveled cutting edge, said disk having a blade projecting therefrom, said blade being bent to form a helix of gradually-decreasing radius.

5. A device of the class described comprising a supporting-disk having a beveled cutting edge, said disk having a tapered blade projecting therefrom, said blade being bent to form a helix of gradually-decreasing radius.

700,248. WATER-TUBE BOILER. JAMES A. SCOTT, Yonkers, N. Y. Filed June 12, 1901. Serial No. 64,354. (No model.)

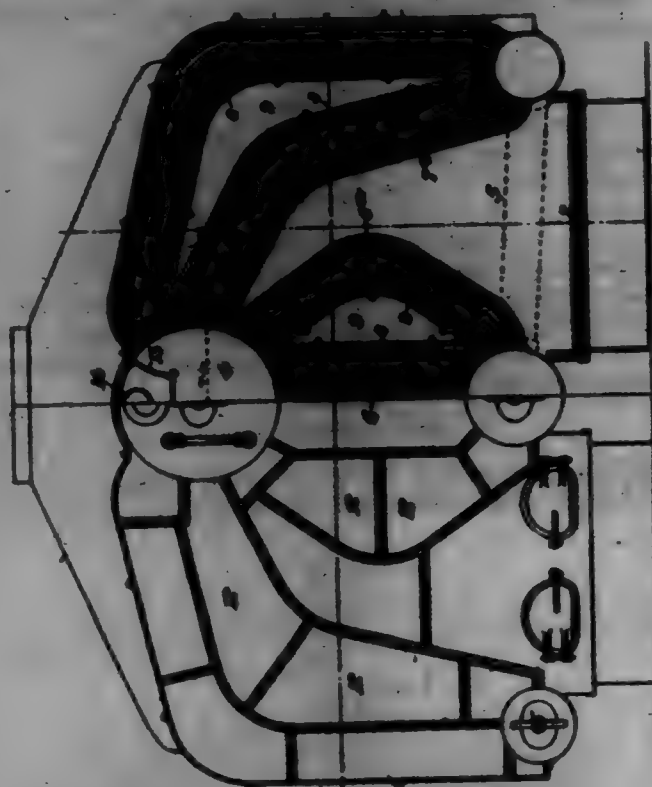
Claim.—1. A water-tube boiler having a group of tubes extending upwardly to the steam-drum and separated into two divisions, and having a tight, hollow casing between said divisions, said casing being closed at its end and extending from one end of the outer boiler-casing the major part of the distance to the other end of the boiler-casing, whereby the gases are compelled to flow from one end to the other in one section or division of the group of tubes, and in the opposite direction in the other division thereof, substantially as set forth.

2. A water-tube boiler having its groups of tubes subdivided throughout a part of their depth by spaces to afford access for cleaning and the like, and casings within said spaces which bar the entrance thereto of the gases, whereby the latter are barred from direct passage through the mass of tubes, substantially as set forth.

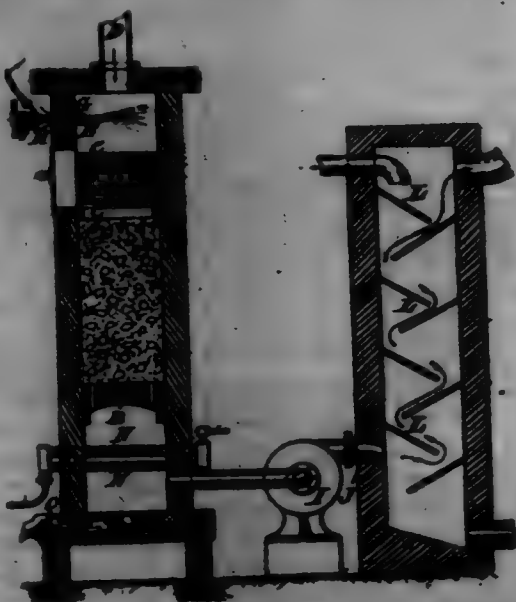
3. A water-tube boiler having two outer water-drums, a central water-drum, grates between the outer and central water-drums, a steam-drum above and over the central water-drum, heat water-tubes connecting the outer water-drums with the steam-drum, upright water-tubes connecting the central water-drum with the steam-drum, and casings subdividing the groups of tubes for the major portion of the depth of the generator to compel the gases, on their way to the stack, to circulate in opposite directions through said subdivisions, substantially as set forth.

4. A water-tube boiler having two outer water-drums, a central water-drum, grates between the outer and central water-drums, a steam-drum above and over the central water-drum, water-tubes connecting the outer water-drums with the steam-drum, water-tubes connecting the central water-

drawn with the steam-drum, the furnace-tubes forming a wall or crown-sheet for the major part of the length of the boiler compelling the gases to enter the clusters of tubes at one end and pass among the tubes to the other end into the uptake, and a casing subdividing the central group and covering the outer groups, said casing being removable to allow access for cleaning the tubes, all combined substantially as set forth.



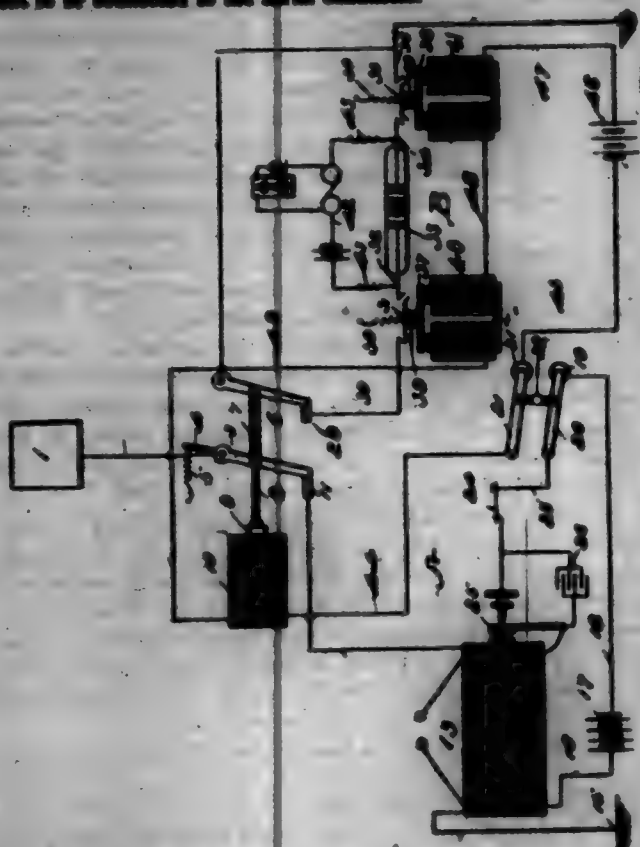
700,249. APPARATUS FOR MAKING SULFURIC ACID. ANTHONY H. G. SCHILLER, Paris, France. Filed Dec. 20, 1899. Serial No. 59,982. (No model.)



Claim.—An apparatus for manufacturing concentrated sulfuric acid, comprising a vertically-arranged casing formed of suitable bricks, a perforated partition at the bottom part and within said casing, a thick layer of pumice-stone and asbestos supported on said partition, a series of perforated plates, at the top part and, within the casing, layers of spongy platinum on said perforated plates, a mixing-chamber above the latter, a pipe connected to said chamber for the introduction of sulfuric acid thereto, a steam-pipe discharging steam into the chamber, an air-admission aperture through which said steam-pipe extends, means for regulating the quantity of steam admitted into the chamber with the transmitting or receiving apparatus, and means for forcing the mixed gases from said chamber through the various layers contained in the casing, substantially as and for the purpose set forth.

700,250. WIRELESS TELEGRAPHY. HARRY BUCHHEIM, Philadelphia, Pa., assignor to Gustave P. Gehring and American Wireless Telephone and Telegraph Company, Philadelphia, Pa. Filed July 21, 1901. Serial No. 70,250. (No model.)

Claim.—1. In a wireless-telegraph system, the combination in a terminal station, of an aerial conductor, a transmitting instrument, a receiving instrument, an electro-magnetically-operated and spring-retained means connected to the conductor, and a switch to make a circuit, which energizes the said means to connect the transmitting instrument to the aerial conductor, the spring of other means causing the receiving instrument to be connected to the aerial conductor.



2. A terminal station of a wireless-telegraph system, comprising an aerial conductor, a pair of levers insulated from each other and adapted to swing in unison, one being connected to said conductor, means for operating said levers, a transmitting apparatus, a receiving apparatus, and a switch for controlling a circuit to operate said levers to connect the transmitting or the receiving apparatus with the aerial conductor.

3. A terminal station of a wireless-telegraph system comprising an aerial conductor, two independent insulated means adapted to move in unison and having one connected with its aerial conductor, a transmitting apparatus, a receiving apparatus, and means for controlling a circuit to operate said before-mentioned means to connect the transmitting or the receiving apparatus with the aerial conductor.

4. A terminal station of a wireless-telegraph system comprising an aerial conductor, a pair of levers insulated from each other and adapted to swing in unison, one of said levers being connected to the conductor, a transmitting apparatus, a receiving apparatus, and means for controlling a circuit to operate said levers to connect the transmitting or receiving apparatus with the conductor.

5. A terminal station of a wireless-telegraph system comprising an aerial conductor, a pair of pivoted levers connected by insulation, one of said levers being connected to the conductor, a transmitting apparatus, a receiving apparatus, and electro-magnetic means in said circuit operated simultaneously with the solenoid for cutting the receiving-station out when the transmitting-station is being operated.

6. A terminal station for a wireless-telegraph system comprising a single aerial conductor, a transmitting instrument, a receiving instrument, means for connecting either one of said instruments to the conductor, means for throwing into operation said first-mentioned means, and another means in circuit with the first-mentioned means operated when the transmitting instrument is connected with the aerial conductor to cut the receiving instrument out.

7. A terminal station for a wireless-telegraph system comprising an aerial conductor, a transmitting apparatus, a receiving apparatus having a coherer, a relay-circuit and a sounder-circuit, electro-magnetically-operated means for connecting the aerial conductor with the transmitting or receiving apparatus, another electro-magnetically-operated means in the same circuit as the one above mentioned energized when the transmitting apparatus is connected with the conductor for cutting the coherer, relay-circuit and sounder-circuit out, and manually-operated means for causing said electro-magnetically-operated means to be energized.

8. A terminal station of a wireless-telegraph system comprising an aerial conductor and two ground-conductors, a transmitting apparatus, a receiving apparatus, a pair of levers for connecting the transmitting ap-

paratus or the receiving apparatus to the aerial conductor, a circuit made when the transmitting apparatus is connected to the aerial conductor, and electro-magnetically-operated means for cutting out the receiving apparatus when the transmitting apparatus is connected with the aerial conductor.

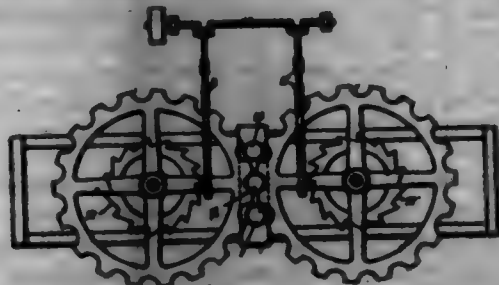
9. A terminal station of a wireless-telegraph system comprising an aerial conductor, a transmitting apparatus, a receiving apparatus, a pair of pivoted levers adapted to be operated to connect the transmitting or receiving apparatus to the aerial conductor, a circuit, a solenoid and a pair of electro-magnets located in said circuit, a switch for connecting said circuit to energize the solenoid to operate the levers and connect the transmitting apparatus with the aerial conductor, and switch-points operated simultaneously by the electro-magnets to cut out the receiving apparatus.

700,251. LOCK FOR ADJUSTABLE BALL-BEARING COVER. ARTHUR C. SMITH, Milwaukee, Wis., assignor to Automobile and Cycle Parts Company, Cleveland, Ohio, a Corporation of New Jersey. Filed June 10, 1901. Serial No. 69,983. (No model.)



Claim.—The combination of an axle having a longitudinal groove and an adjustable cone secured on said axle and having a plurality of equally-spaced notches, with a locking-washer having an inwardly-extended tongue, which takes into said groove, and an outwardly-extended tongue adapted to engage with one of said notches, the angular distance between said tongues being substantially equal to the angle represented by the following formula: $X = \frac{1}{2} \frac{1}{n}$, substantially as and for the purpose specified.

700,252. PENCE-POST-MAKING MACHINE. GEORGE E. SMITH and FRANK T. BAKER, Athens, Mich. Filed Sept. 6, 1901. Serial No. 74,982. (No model.)



Claim.—1. The combination, in a machine for making penny-posts of plastic material, of a metallic flask and a frame at each end of said flask, a reciprocating plunger guided in said frame at each end of said flask, wheels at each side of said flask and having notches in their peripheries which embrace said flask as described, and means for moving the wheels with a step-by-step movement, whereby the flask is fed along and the ends of the posts are compressed by the plungers while the flask is held by the wheels, substantially as described.

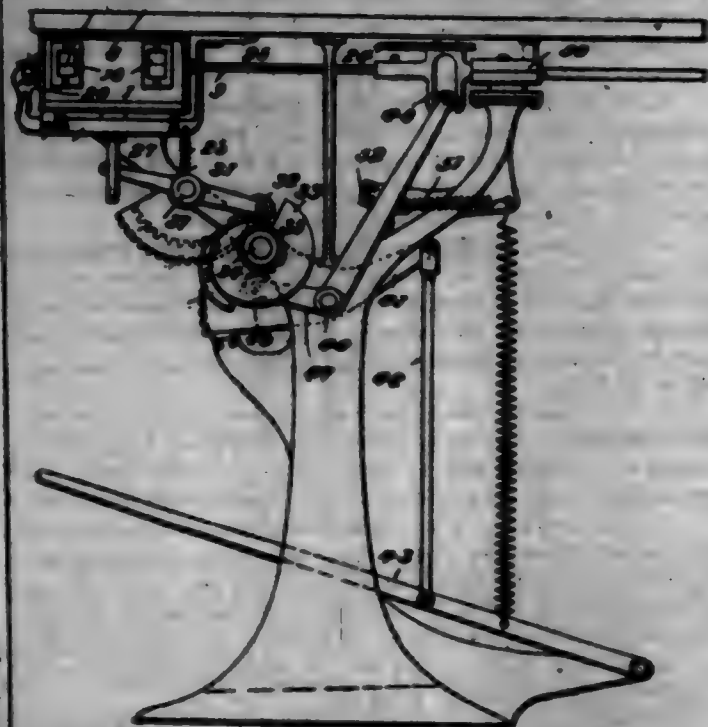
2. The combination of the post-making flask open at both ends, the plungers closing into said flask, wheels at each side of the flask having notches in their rims by which the flask is supported, partly inclined, and carried forward, and clutch-and-pawl mechanism by which the wheels are rotated with a step-by-step movement, substantially as described.

3. In a machine as described, an open-ended flask composed of two hollow metallic sections, a back and rib forming the connection at one side of the sections, and a rib on each part held in place by a grooved band, at the opposite side of the sections, in combination with rotating notched wheels for feeding said flask forward, and plungers for applying and pressure to the sections of the flask, all combined.

4. In a machine for making concrete penny-posts, a hollow sectional flask, open at both ends, and means for holding the flask-sections together, means for feeding the flask and contents forward with a step-by-step movement, and reciprocating plungers at each end of the flask, to enter and compress the material therein, all combined substantially as described.

700,253. CIGARETTE-MAKING MACHINE. FRANK SMITH, New York, N. Y., assignor of one-half to Charles A. Brantley, New York, N. Y. Filed May 12, 1901. Serial No. 69,113. (No model.)

Claim.—1. In a cigarette-making machine, means for forming and compressing the tobacco comprising two complementary members, means for moving both members synchronously toward and away from each other, and means for ejecting the tobacco after it is so formed and compressed and while retained by said members, as set forth.



2. In a cigarette-making machine, a support for the tobacco, means for forming and compressing the tobacco comprising two complementary members mounted on said support, means for moving both members synchronously toward and away from each other transversely of the support, and means for ejecting the tobacco after it is so formed and compressed and while retained by said members, as set forth.

3. In a cigarette-making machine, means for forming and compressing the tobacco, mechanism for actuating the same, means for moving each forming and compressing means downwardly while being actuated by said mechanism, and means for ejecting the tobacco at the termination of the downward movement of each forming and compressing means, as set forth.

4. In a cigarette-making machine, means for forming and compressing the tobacco comprising two complementary members, means for transversely moving both members synchronously toward and away from each other, means for moving each forming and compressing means downwardly simultaneously with their transverse movement toward each other, and means for ejecting the tobacco at the termination of the downward movement of each member, substantially as set forth.

5. In a cigarette-making machine, a member comprising complementary forming and compressing jaws, means for synchronously moving both jaws laterally toward and away from each other, and means for ejecting the tobacco from the jaws after it is so formed and compressed and while retained by the jaws.

6. In a cigarette-making machine, a member comprising forming and compressing jaws normally open, means connected to each jaw for actuating them laterally, means for moving both jaws vertically or at right angles to their lateral movements, said actuating means operating on the jaws during each vertical movement, and means for ejecting the tobacco from the jaws at the termination of the first vertical movement.

7. In a cigarette-making machine, a member comprising forming and compressing jaws normally open, toggle-arms connected to each jaw, means for moving both jaws vertically, said toggle-arms actuating the jaws during each vertical movement, and means for ejecting the tobacco from the jaws at the termination of the first vertical movement.

8. In a cigarette-making machine, a member comprising a support, means for moving the same vertically, two forming and compressing jaws movable with said support and also laterally toward and away from each other, and toggle-arms acting on each jaw for effecting the lateral movements thereof during the vertical movements of the support, as set forth.

9. In a cigarette-making machine, a member comprising forming and compressing jaws normally open, toggle-arms connected to each jaw, a bed-plate on which the jaws are mounted and on which they are designed to move laterally, means for raising and lowering said bed-plate, said toggle-arms actuating the jaws during each movement of the bed-plate, and means for ejecting the tobacco from the jaws at the termination of the lowering movement of the bed-plate, as set forth.

10. In a cigarette-making machine, a member comprising two jaws normally open, a casing wherein the latter are located, means for moving

the jaws vertically, means for moving the jaws toward and away from each other during each vertical movement, an ejector, and means for projecting the mass through the casing and jaws when the latter are at the end of their downward vertical movement, as and for the purpose set forth.

11. In a cigarette-making machine, a molder comprising forming and compressing jaws, means for moving both jaws laterally first toward each other and then slightly apart, and means for ejecting the tobacco while the jaws are in the last-mentioned position.

12. In a cigarette-making machine, a molder comprising forming and compressing jaws, toggle-arms secured to each jaw, means for moving the jaws vertically so that the toggle-arms will move them laterally first toward each other and then slightly apart, and means for ejecting the tobacco while the jaws are in the last-mentioned position.

13. In a cigarette-making machine, a molder comprising forming and compressing jaws, means for moving the jaws laterally, first toward each other, and then slightly apart, the ejector conforming in cross-section to the space between the jaws when in the last-mentioned position, and means for moving such ejector longitudinally between the jaws, substantially as set forth.

14. In a cigarette-making machine, a molder comprising forming and compressing jaws having knife-like edges, the edge of one jaw being arranged to overlap the edge of the other, and means for moving said jaws laterally toward and away from each other, substantially as set forth.

15. The combination with the box having openings in its ends, the bed-plate, and the two side jaws, of means for lowering and raising said bed-plate and jaws, the toggle-arms secured to said jaws and to the box for moving the former laterally during their vertical movements, the ejector conforming in cross-section to the space between the jaws when lowered and also to the openings in the box, and means for moving the ejector longitudinally, substantially as set forth.

16. In a cigarette-making machine, flexible guides for the tobacco, jaws beneath and to which each guide are connected, said jaws being normally open, and means for moving the jaws laterally toward and away from each other, as set forth.

17. In a cigarette-making machine, guides for the tobacco, jaws beneath each guide, means for moving the jaws and the guides vertically, means for moving the jaws laterally during each vertical movement, said jaws being opened to receive the tobacco when at the limit of their upward movement, and means with which said jaws are brought in line when at the limit of their downward movement, for ejecting the tobacco therefrom, as set forth.

18. The combination with the box, the bed-plate and the forming and compressing jaws mounted on the latter, of means for synchronously moving said jaws laterally, the flexible plates secured at their inner edges to said jaws, and the guides for said plates at the sides of the box, substantially as set forth.

19. In a cigarette-making machine, the combination with the molder, of the outlet-spout, having a bearing for a paper tube, a lever having a flexible portion, a spring for holding said portion normally in engagement with said spout for retaining a paper tube thereon, an ejector for forcing the tobacco from the molder through the spout, and mechanism for positively disengaging the said flexible portion from the spout, first, as the ejector reaches the limit of its discharge movement, and, second, when the machine is completing the final cycle of its movements, substantially as set forth.

20. The combination with the molder, the spout, and the ejector, of the lever, a spring acting thereon, a flat spring carried by each lever for holding a paper tube on said spout, and mechanism for actuating the ejector and engaging said lever to free said spring from contact with the spout as the ejector reaches the limit of its discharging movement, substantially as set forth.

21. The combination with the bed-plate, and springs normally holding the same raised, of the jaws, means for lowering the bed-plate as against the tension of the springs, said jaws being movable with said bed-plate, toggle-arms connected to said jaws for moving them laterally as they travel with the bed-plate, the ejector-rod, and means for moving the latter longitudinally between the jaws, as set forth.

22. The combination with the table having an opening therein, of the molder located beneath said opening comprising forming and compressing mechanism normally held elevated and open to receive the charge of tobacco, a vertically-movable support for such mechanism, an outlet-spout and ejector located in line beneath the upper or normal level of said mechanism, and means for actuating the ejector when the forming and compressing mechanism is in line therewith, substantially as set forth.

23. The combination with the table having an opening therein, of the molder located beneath said opening comprising forming and compressing mechanism normally open to receive the charge of tobacco, flexible guide-plates secured to each mechanism, means for actuating the latter after the tobacco is received therein, and an ejector and its operating mechanism located wholly beneath the table, substantially as set forth.

24. The combination with the table having an opening therein, and the molder located beneath said opening comprising an inclosure, forming and compressing mechanism therein, flexible guide-plates secured to each mechanism, and means for raising and lowering said mechanism and plates in the formation of the cigarette-core, of an ejector-rod movable longitudinally through said molder on a line beneath the point of discharging said forming and compressing mechanism, and mechanism located wholly beneath the table for first actuating the molder and then the ejector, substantially as set forth.

25. The combination with the molder comprising a vertically-movable support and forming and compressing jaws carried thereby, of a lever for actuating said support, means for moving such jaws during such actuation, a cam for operating said lever, a longitudinally-movable ejector-rod located beneath the normal upper position of the support, an actuating-lever for such ejector-rod, a second cam for operating such lever, a foot-rod, and mechanism actuated thereby for operating said cam, substantially as set forth.

700,254. SCALE. CHARLES S. BRIDGES, Detroit, Mich. assignor of one-half to George H. Paine, Detroit, Mich. Filed May 27, 1901. Re-nued Mar. 17, 1902. Serial No. 30,657. (No model.)



Claim.—1. A scale-bearing comprising a bearing-block, a casing therefor adapted to be engaged therewith by an endwise movement, and a support for said block having a pin or bar extending transversely of and bearing upon said block and adapted to hold said casing and block from endwise displacement in relation to each other.

2. A scale-bearing comprising a transversely-grooved bearing-block, a casing embracing said block and adapted to be in engagement therewith by an endwise movement, said casing having apertures in its sides adapted to register with said groove in the block, and a support embracing said casing and block having a transverse bar or pin for engaging said transverse groove, said bar or pin forming a pivotal bearing for said block.

3. A scale-bearing comprising a transversely-grooved bearing-block, a casing embracing said bearing-block by an endwise movement and having apertures in its sides for registering with said groove, and an imperforate portion opposite the side of said groove; a bifurcated support for embracing the sides of said block and casing and a pin passing through said support and grooves in said block whereby the latter has a pivotal bearing on said pin and whereby said casing is held from endwise movement and forms a retainer for preventing disengagement of said block from said support.

4. A scale-bearing comprising a bifurcated support, an inclosed bearing-block embraced by said support, and a transverse pin or bar in said support forming a pivotal bearing for said block; said block being provided with a transverse groove for engaging with said pin and the casing for said block having apertures in its sides registering with said groove but extending inward beyond the bottom of said groove whereby said pin will have its supporting-bearing upon the block only and will hold said casing from endwise movement.

5. In a scale a stay-rod having a hooked lower end, a bearing-block and a casing therefor, the latter fitting within said hook and a pin for pivotally connecting said casing to said hook adapted to lock said block in engagement with said casing.

700,255. FLOWERS. JOHN L. BULLIVANT, North Carrollton, Minn. Filed Sept. 30, 1901. Serial No. 73,728. (No model.)



Claim.—1. A reversible plowshare comprising two wings substantially triangular in shape, said wings being outwardly in form as seen

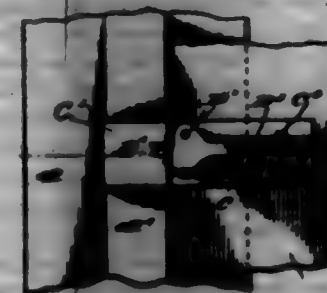
angle, the meeting edges of the wings forming the cutting edge of the share, substantially as and for the purpose set forth.

2. A reversible plowshare comprising two flaring wings substantially triangular in shape and provided with points, one of said points having a flange opposite to that of the other, substantially as and for the purpose described.

3. A reversible plowshare comprising two wings substantially triangular in shape, said wings flaring outwardly to form an acute angle, the meeting edges of the wings forming the cutting edge of the share, and oppositely-directed points upon the share, substantially as and for the purpose specified.

4. A reversible plowshare substantially triangular in shape and comprising two outwardly-flaring wings, said wings flaring together at an acute angle and the meeting edges thereof forming the cutting edge of the share, and independently-projecting points substantially connected to the share and one of said points having a flange opposite to that of the other, substantially as and for the purpose set forth.

700,256. FARMER FOR BACKINGS IN PICTURE-FRAMES. JAMES L. TAYLOR, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 30,700. (No model.)



Claim.—1. In a backing-frame for frames, in combination, a body portion adapted to fit within the rear face of the frame; a latch pivotally secured to said body portion, said latch having a point on one side of its pivot, adapted to engage the lower edge of the frame to prevent the removal of the backing from the frame; and a fixed locking projection for holding the latch in engagement with the frame.

2. In a backing-frame for frames, in combination, a body portion adapted to fit within the rear face of the frame; a thumb-latch pivotally secured to said body portion, said latch having a point on one side of its pivot, adapted to engage the lower edge of the frame to prevent the removal of the backing from the frame; a projection upon the back surface of said pivot, adapted to be engaged by the thumb or finger of the operator and a fixed locking projection for holding the latch in engagement with the frame.

3. In a backing-frame for frames, in combination, a body portion adapted to extend across the corner of the frame; and a locking-latch pivotally mounted on said body portion near one end thereof, which latch is provided with a point extending to one side of said pivot, adapted to engage the lower edge of the frame to hold said end of the body portion in position relatively to said frame and prevent the removal of the backing from the frame.

4. In a backing-frame for frames, in combination, a body portion adapted to fit within the rear face of the frame; a latch pivotally mounted on said body portion, said latch having a point extending to one side of said pivot, adapted to engage the lower edge of the frame when said latch is turned upon its pivot, to prevent the removal of said backing; means consisting with said latch for holding the body portion in position relatively to the frame and a fixed locking projection for holding the latch in engagement with the frame.

5. In a backing-frame for frames, in combination, a body portion adapted to extend across the corner of the frame; and a locking-latch pivotally mounted on said body portion near each end thereof, which latches are adapted to engage the frame.

6. In a backing-frame for frames, in combination, a body portion adapted to extend across the corner of the frame; a latch pivotally mounted on said body portion near each end thereof, which latches are adapted to penetrate the substance of the frame when they are turned upon their pivots; and a locking projection for holding the latches in engagement with the frame.

7. In a backing-frame for frames, in combination, a body portion adapted to extend across the corner of the frame; a latch pivotally mounted on said body portion near each end thereof, each of which latches is provided with a point extending outward from said pivot and adapted to penetrate the substance of the frame when the latch is turned upon its pivot; a fixed locking projection for holding each of the latches in engagement with the frame; and a projection extending from one of said latches adapted to be grasped by the operator.

700,257. CHIP-BREAKER FOR WOODWORKING-MACHINES. JOHN R. TUCKER, Cincinnati, Ohio, assignor to J. A. Fay & Ryan Company, Cincinnati, Ohio, a Corporation of West Virginia. Original application filed May 20, 1901. Serial No. 30,413. Divided and this application filed Dec. 20, 1901. Serial No. 37,022. (No model.)

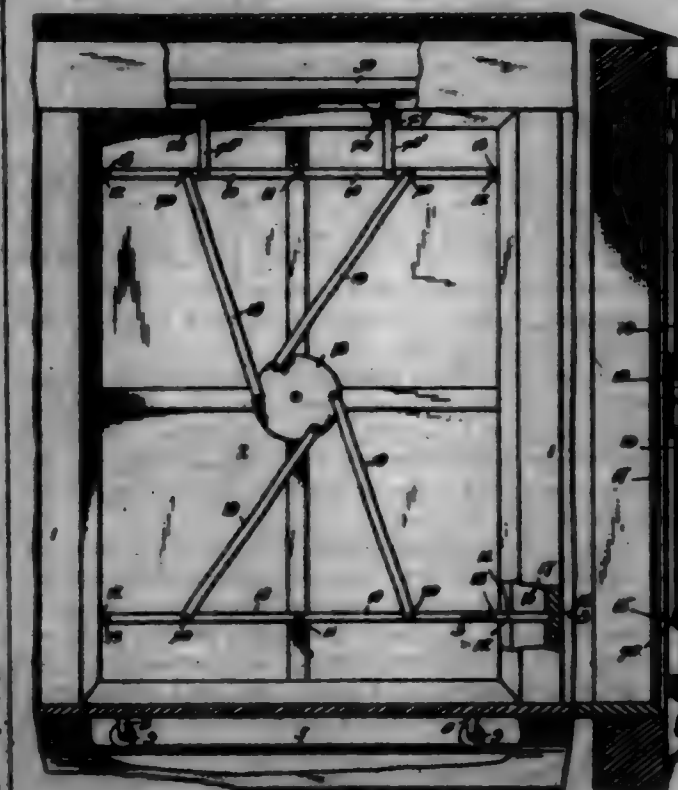


Claim.—1. In a woodworking-machine, the combination with a cutter-head, of a chip-breaker therefor, and a pressure device for the chip-breaker, with means for permitting the sidewise movement of the pressure device transversely of the chip-breaker, substantially as described.

2. In a woodworking-machine, the combination of a chip-breaker, means for permitting the same to swing, a lever for the chip-breaker, a weight for the lever, a spring interposed between the lever and the chip-breaker, and means for permitting the sidewise movement of the lever with relation to the chip-breaker, substantially as described.

3. In a woodworking-machine, the combination of a chip-breaker, a swinging frame therefor, a rod for supporting the swinging frame, means for permitting sliding sidewise of the swinging frame upon the rod, a weighting device for the chip-breaker, with means for permitting the sidewise movement of the weighting device for exerting pressure from the weighting device upon the chip-breaker at different points across the latter, substantially as described.

700,258. SEAL-LOCK. JOHN R. TUCKER, American, Ga. Filed Apr. 13, 1901. Serial No. 30,740. (No model.)



Claim.—1. A lock comprising a pair of oppositely-disposed swinging locking-bars pivoted at their lower adjacent ends to fixed supports, the outer terminal locking-bolts pivotally connected to the outer ends of the bars and extending longitudinally thereof and arranged in alignment with the same when in their engaging position, and operating mechanism pivotally connected with the swinging bars at points between the ends thereof, substantially as described.

2. A lock comprising a pair of oppositely-disposed locking-bars pivoted at their inner ends to fixed supports, the outer terminal locking-bars pivotally connected to the outer ends of the bars and extending longitudinally thereof and arranged in alignment with the same when in their engaging position, a rotatable tumbler, links pivoted to the tumbler and similarly connected to the locking-bars at points between the ends thereof, substantially as described.

3. A lock comprising the upper and lower horizontally-disposed locking-bars provided with linear terminal pivotal supports, the horizontally-disposed outer terminal locking-bars pivoted to and extending longitudinally of the said bars and arranged in alignment with the same when in their engaging position, a central tumbler, links extending from the central tumbler to the locking-bars at points between the ends of the latter, and the vertically-movable arms arranged above the upper locking-bars and pivoted to the same at points between the ends thereof, substantially as described.

4. In a lock, the combination with a keeper, of a spindle, a handle fixed to the spindle and adapted to be oscillated to rotate the same, and a reciprocating locking-bolt mounted on the handle and extending through and arranged to project beyond the spindle and adapted to engage the keeper, whereby the handle is locked, substantially as described.

5. A lock, having a rotatable spindle, a combined stop and bearing-plate having a central opening for the projection therethrough of the spindle, an enlarged recess formed in the outer side of the plate and about the spindle-opening, the marginal wall thereof being provided with a pair of spaced stop-sockets, opposite stop projections upon the plate and corresponding with the notches, and a crank-handle fixedly connected to the projected end of the spindle and movable in an arcuate path limited by the stop projections, and having an endwise-movable locking bar or bolt for engagement with the respective notches or sockets to lock the handle at opposite limits.

6. A lock, having a rotatable spindle, a combined stop and lock-plate, having a spindle-receiving opening, an enlarged recess formed around the opening and in the outer face of the plate, the walls of the recess having a pair of spaced notches or sockets, the outer face of the plate also being provided with a quadrant-shaped recess intersecting the former recess, the opposite walls of the segmental recess forming stop-shoulders corresponding to the notches or sockets, and a handle which is hollow and is fixedly connected to the outer projected end of the spindle, said handle traveling in the segmental recess and limited by the opposite walls thereof, and also provided with an internal endwise-movable locking-bolt, that works through a diametric opening in the spindle and is adapted to take into the respective sockets to lock the handle at opposite limits.

7. In a lock, the combination with a keeper, of an oscillatory handle provided with a tubular portion forming a casing and having a coil-receiving opening and a coil-exposing opening, a reciprocating bolt provided with a coil-carrying chamber, and a sleeve mounted on the handle and connected with and adapted to reciprocate the bolt and provided with openings adapted to register with the openings of the casing, substantially as described.

8. In a lock, the combination with a keeper, of an oscillatory handle, a reciprocating bolt mounted within the handle and carried by the same and adapted to engage the keeper, said bolt being provided with a coil-carrying chamber, and the said handle being provided with coil-receiving and coil-exposing openings, and an automatically-operating locking device arranged to engage the coil when the bolt is in its engaging position, substantially as described.

9. A lock, having a slidable locking-bolt, a casing therefor, a frangible coil carried by the bolt, and a spring-actuated locking device mounted within the casing and constructed to snap automatically into locked engagement with the coil at the forward limit of the bolt, the casing having a coil-receiving opening, and a coil-exposing opening located at the locked limit of the coil.

10. A lock, having a slidable locking-bolt, a casing therefor, the outer end portion of the bolt which is within the casing being reduced, and provided in its inner side with a coil-receiving notch, a plug fitted fixedly within the casing and occupying the space provided by the reduced portion of the bolt, the outer portion of the inner face of the plug having a recess corresponding to the notch in the bolt, a coil-engaging spring-actuated latch mounted within the recess, the inner end portion of the plug having a lateral opening, and a frangible coil carried in the coil-receiving notch of the bolt and movable therewith to a position opposite the opening in the plug at the locked limit of the bolt, the latch being constructed to snap into engagement with the outer end portion of the coil at the locked limit of the bolt, the casing having a coil-receiving opening aligned with the coil-receiving notch of the bolt in the withdrawn limit thereof, and a coil-exposing opening aligned with the similar opening in the plug, to permit of access to the coil for breaking the same.

11. A lock, having a slidable locking-bolt, a casing therefor, a frangible coil carried by the bolt and having an interlocked engagement with the casing at the locked limit of the bolt, the casing having a coil-receiving opening and a coil-exposing opening at the opposite limits of the coil, and a rotatable adjusting-sleeve mounted upon the casing, and operatively connected to the bolt for sliding the latter in opposite directions.

12. A lock, having a slidable locking-bolt, a tubular casing therefor, having opposite coil-receiving and coil-exposing openings, and a longitudinal slot, a frangible coil carried upon the end of the bolt within the casing and adjacent to the openings therein, and a rotatable sleeve mounted exteriorly upon the casing, and having a spiral internal groove or slot, a projection upon the bolt and working in the slot of the casing and in the slot or groove of the sleeve, whereby a rotation of the latter will cause the bolt to move endwise, the sleeve having a coil-receiving opening corresponding to the similar opening in the casing at the withdrawn limit of the bolt, and a coil-exposing opening corresponding to the similar opening of the casing at the locked limit of the bolt.

13. A lock, having a rotatable part, a tubular crank-handle connected thereto, and provided with an internal locking-bolt, a frangible coil carried by the bolt, and a locking device for engaging the coil when the bolt is in its engaging position, substantially as described.

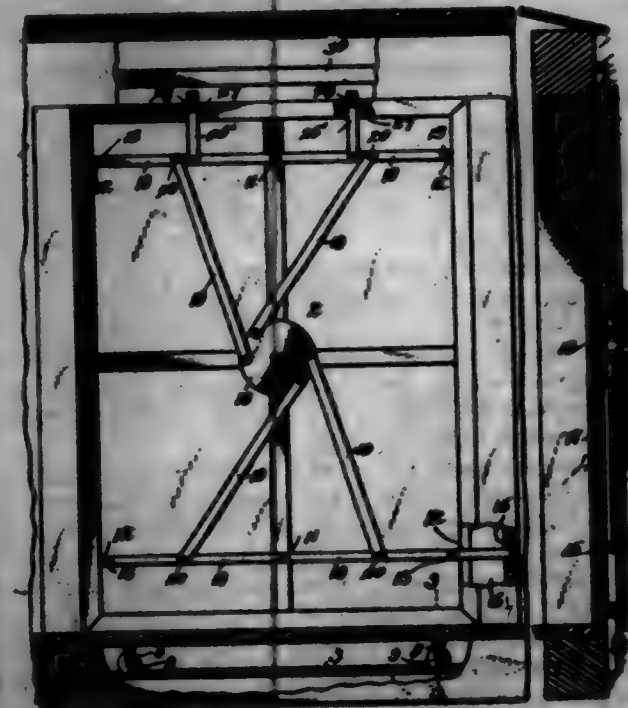
14. A lock, having a rotatable part, a tubular crank-handle connected thereto, an internal slidable locking-bolt within the handle, a frangible coil carried by the bolt and within the handle, and engaging the same and the handle when the bolt is in its engaging position, a rotatable belt-adjusting sleeve mounted externally upon the handle, and having an internal spiral groove or slot, and a projection upon the bolt and received within the groove or slot of the sleeve, the handle having a slot for the slidable reception of the projection, and the sleeve and handle having corresponding coil-receiving openings which are aligned at the withdrawn limit of the bolt, and corresponding coil-exposing openings which are aligned at the locked limit of the bolt.

15. A lock, comprising a casing, an endwise-slidable locking-bolt within the casing and having a coil-receiving notch in one side thereof, the inner side of the handle also having a coil-receiving notch which is aligned with the corresponding notch of the bolt in the locked position thereof, and means for moving the coil laterally from the bolt so as to fit partly in both notches and thereby form an interlocked connection between the bolt and the handle.

16. A lock, comprising a casing, having a coil-exposing opening, the inner side of which is provided with a marginal notch, an endwise-movable bolt within the casing, and having one side provided with a coil-receiving notch that is aligned with the notch and opening of the casing in the locked position of the bolt, and means for moving the coil laterally from the bolt and to fit partly in the notches of the bolt and the casing, thereby to form an interlocked connection between the bolt and the casing.

17. A lock, comprising a casing, having a coil-exposing opening, the inner side of which is provided with a marginal notch, an endwise-movable bolt within the casing, and having one side provided with a coil-receiving notch that is aligned with the notch and opening of the casing in the locked position of the bolt, and means for moving the coil laterally from the bolt and to fit partly in the notches of the bolt and the casing, thereby to form an interlocked connection between the bolt and the casing.

700,259. GAR-DOOR. JOHN R. THOMSON, American. Original application filed Apr. 13, 1901. Serial No. 55,748. Divided and this application filed Aug. 25, 1902. Serial No. 72,363. (No model.)



Claim.—1. The combination of a doorway or frame having a beveled inner marginal portion, a laterally-movable door, and a lock having a slidable frame-engaging door-chilling device, which is constructed for diagonal engagement with the beveled portion of the frame to force the

door laterally outward, during the unlatching of the lock, substantially as described.

2. The combination of a door-frame, a track carried thereby, a laterally-movable door, and a lock provided with a slidable device arranged when moved outward to engage the door-frame to force the door outward and to engage the track, said device when moved inward being withdrawn from the track, substantially as described.

3. The combination of a door-frame having a beveled inner marginal portion, a track carried by the frame and arranged adjacent to the beveled portion, a slidable and laterally-movable door, a bolt upon the door, and a frame-engaging door-chilling device operatively connected with the lock and having an anti-latch-valve for engagement with the beveled portion of the frame during the unlatching of the door, and a forced portion constructed for automatic slidable engagement with the track when the door has reached the outward limit of its movement, substantially as described.

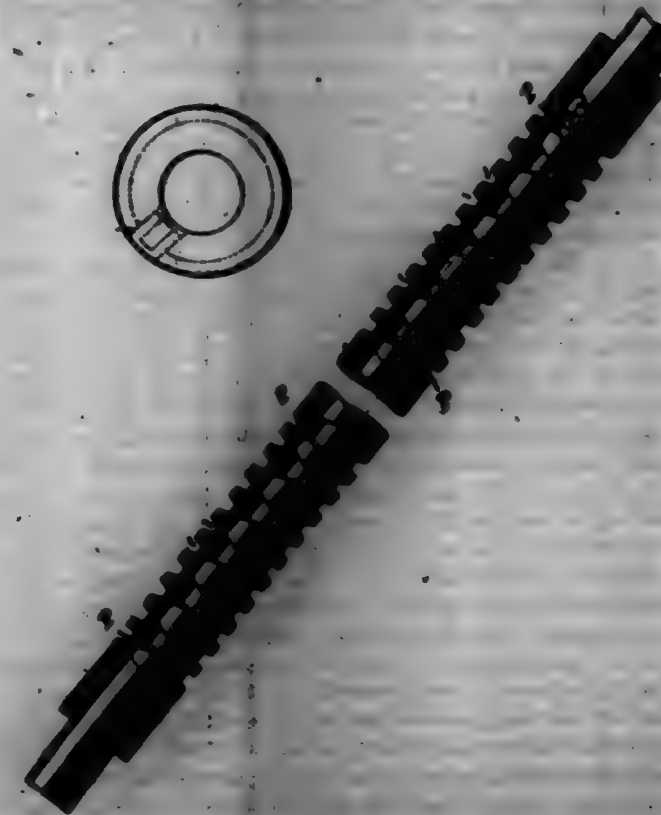
4. The combination of a door-frame having a beveled portion, a laterally-movable door having a swinging locking-bar, and a frame-engaging door-chilling device pivotally connected to the swinging locking-bar and constructed for engagement with the beveled portion of the frame during the outward swing of the locking-bar to force the door laterally outward, substantially as described.

5. The combination of a door-frame, a track, a laterally-movable door, a swinging locking-bar, and a frame-engaging door-chilling device operated by the locking-bar and arranged to engage the frame during the outward movement of the locking-bar to force the door outward, said device being also carried by such movement into engagement with the track, substantially as described.

6. The combination of a door-frame, a slidable and laterally-movable door provided at its bottom with a recess, a track located beneath the door, a hanger hinged in the recess and arranged to run on the track at the bottom of the door, an upper track, and a device arranged to move inward and outward to and from the upper track and adapted in its outward movement to engage the door-frame to move the door outward, substantially as described.

7. The combination with a door-frame having a keeper, of a laterally-movable door, a lock thereon having a slidable locking-bolt provided with a beveled outer end constructed for engagement with the keeper during the outward movement of the bolt to draw the door laterally inward, and a frame-engaging door-chilling device slidably mounted on the door and operatively connected with the lock for engagement with the frame to force the door outward, substantially as described.

700,260. THE INSTRUCTING DEVICE FOR PRINTING. FRANKLIN. JOHN THOMSON, New York, N. Y., assignor to John Thomson Press Company, New York, N. Y., a Corporation of New Jersey. Filed July 1, 1901. Serial No. 62,715. (No model.)



Claim.—In a printing-press, the combination with the change-bar, hollow screw and crescent, of the change arrow-shaft, the duplex thread, or threads, of which are cut away, as at P, to effect a relatively slow reversal of the change-bar, substantially as described.

700,261. RIVETING MECHANISM. JAMES L. THOMSON, Cayuga, N. Y., assignor to J. L. Thomson Manufacturing Company, New York, N. Y., a Corporation of New York. Filed July 11, 1901. Serial No. 67,386. (No model.)



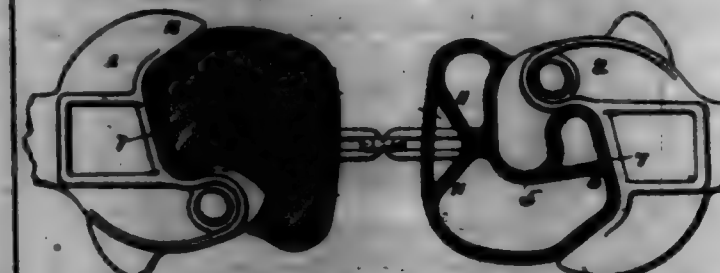
Claim.—1. The combination of a stationary head supporting the riveting mechanism, an anvil secured to said head, a plunger guided in the head in line with the anvil, toggle-arms pivoted respectively to the head and to the plunger, a lever fulcrumed on the head and operating the toggle-arms, guides on the lever and on the head and lateral extensions on the toggle-arms engaging said guides and controlling the direction of the movement of the toggle-arms as set forth.

2. The combination of the head supporting the riveting mechanism, an anvil secured to the head adjustably for rivets of different lengths, a plunger guided in the head in line with the anvil, a rivet-supporter interposed between the plunger and anvil, toggle-arms pivoted respectively to the head and to the plunger, a lever fulcrumed on the head and operating said toggle-arms, guides on the lever and on the head and lateral extensions on the toggle-arms engaging said guides and controlling the direction of the movement of the toggle-arms as set forth.

3. The combination of the head supporting the riveting mechanism, an anvil secured to the head adjustably for rivets of different lengths, a plunger guided in the head in line with the anvil, a lever pivoted at one end to the upper part of the head, a curved guide-groove in the side of the pivoted end of the lever, a similar guide-groove in the lower portion of the head, a toggle-arm pivoted to the upper part of the head and formed at its lower end with a lateral extension terminated with a leg engaging the guide-groove in the lever, and a toggle-arm pivoted at its upper end to the lower end of the first-mentioned toggle-arm and connected at its lower end to the plunger and formed therewith with a lateral extension terminating with a leg engaging the guide-groove in the head substantially as shown and set forth.

4. The combination of the head supporting the riveting mechanism, the anvil secured to the head adjustably for different lengths of rivets, the spring-arms terminating with rivet-supporting fingers over the anvil, the plunger guided in the head in line with the anvil, the lever pivoted at one end to the upper part of the head and formed with a cam facing toward the head and with a guide-groove parallel with said cam, a guide-groove in the lower portion of the head, toggle-arms pivoted respectively to the upper part of the head and to the plunger and bearing at their junction on the cam of the lever, a lateral extension formed on the lower end of the upper toggle-arm and terminated with a leg engaging the guide-groove in the lever, and a lateral extension formed on the lower end of the lower toggle-arm and terminated with a leg engaging the guide-groove in the head, all constructed and combined as shown and set forth.

700,262. CAR-COUPLING. JAMES THOMSON, Columbus, Ohio, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Filed June 2, 1901. Serial No. 62,792. (No model.)



Claim.—1. A connecting device for car-couplings comprising buffing-blocks adapted for removable attachment to the coupling-heads and a flexible device connecting said buffing-blocks, and permitting the front ends of said blocks to bear against each other.

2. A connecting device for car-couplings, comprising heads to be removably connected with the knuckles of the couplings, and a flexible device connecting said heads.

3. A connecting device for car-couplings comprising heads adapted to be removably attached to the knuckles of the couplings, said heads constructed to project forwardly beyond the knuckles and constitute buffers, and a connection between said heads.

4. A connecting device for car-couplings, comprising two heads adapted to be mounted on the couplings, one head constituting an abutment for the other, and a device attached at its respective ends to said heads.

5. A connecting device for car-couplings, comprising two heads adapted to be removably supported by the couplings and project beyond the same to form buffing-blocks, each head having a flaring recess in its forward end and a connector, attached at its respective ends at the base of the flaring recess in the respective heads.

6. A connecting device for car-couplings, comprising two blocks constructed to conform to the contour of the front ends of the draw-heads, each block having a portion projecting beyond the knuckle and having a buffing-flare, and a device connecting said blocks.

7. A connecting device for car-couplings, comprising buffing-blocks constructed to be removably attached to the knuckles of the draw-heads and project beyond the same and a device connecting said buffing-blocks in a manner to permit them to come together.

8. A connecting device for car-couplings comprising auxiliary heads to be removably connected with the couplings, said heads having outer buffing-flares and means connecting said heads.

9. A connecting device for car-couplings comprising auxiliary heads adapted to be removably secured to the pivoted knuckles of the couplings, and provided with buffing-flares and means connecting said heads.

10. A connecting device for car-couplings comprising removable heads each supported by a coupling, each head having a part approximately filling the space between the inner face of the knuckle and the adjacent surface of the coupling, and also provided with a buffing-flare in advance of the knuckle, and means connecting said removable heads.

700,263. BRIDGE FOR PAINT-BRUSHING. GEORGE C. TRAMER, Philadelphia, Pa. Filed July 27, 1901. Serial No. 60,362. (No model.)



Claim.—1. A bridge for brushwork comprising a strip of fabric having oppositely-blended ends and cyclists arranged adjacent to the edges of the strip and cyclists arranged adjacent to the top of the strip at the center thereof, a hawing wire or cord attached to one end of the bridge-strip and adapted to be passed through the cyclists for the purpose of drawing the ends of the bridge-strip together, and a staple for fastening the opposite end of the wire to the brush-head, and a wire passing through the central cyclists and a staple for securing the said wire to the brush-head, substantially as set forth.

2. A bridge for brushwork comprising a strip having oppositely-blended ends and provided with cyclists adjacent to the said ends and the cyclists adjacent to the upper edge of the strip at the center of the same, an underlapping strip attached to one end of the bridge-strip, a hawing-wire being adapted to be passed through the end cyclists for the purpose of drawing the ends of the bridge-strip together, a staple for securing the opposite end of said hawing-wire, and a wire adapted to be passed through the central cyclists, the ends of the wire being secured to the brush-head by means of a staple, substantially as shown and described.

700,264. ROLL-HOLDING CAMERA. RALPH E. THOMSON, Chicago, Ill. Filed May 2, 1901. Serial No. 59,360. (No model.)



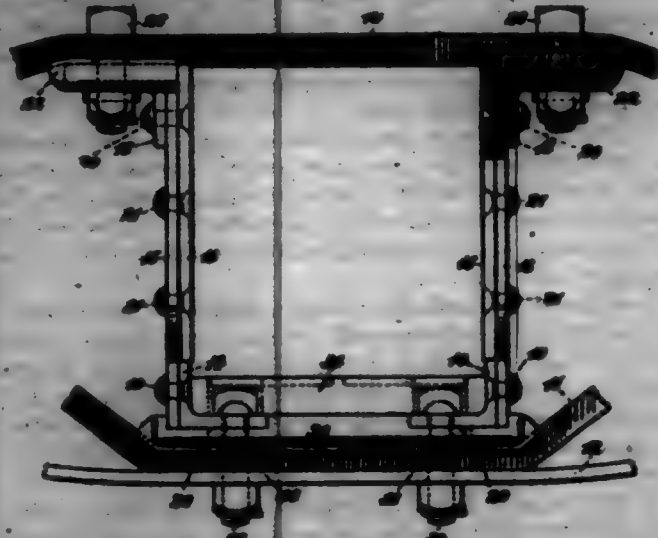
Claim.—1. In a camera, a spindle adapted to pass longitudinally through the film-spool and form the axis of rotation thereof, and a bracket supported upon one of the walls of the camera-box and adapted to be adjusted upon said bar to accommodate various sizes of spoils; substantially as described.

2. In a camera, the combination with a rotatable spindle, of a bracket adapted to support the film-spool, secured to the camera-box and longitudinally adjustable upon said spindle, non-rotatable with respect thereto and a clutch sliding upon said spindle, non-rotatable with respect thereto and engaging the spindle; substantially as described.

3. In a camera, the combination with a vertically-adjustable bracket adapted to support the film-spool, of a spindle forming the axis of rotation of said spool, and extending without the camera in the form of a knob by means of which the spool may be rotated, a clutch longitudinally movable upon said spindle but non-rotatable with respect thereto, and adapted to positively engage the spool, and a spring to hold said clutch in engagement with the spool; substantially as described.

4. In a camera, the combination with a camera-box, of a spindle adapted to receive the film-spool, a bracket for supporting the spindle, a screw-threaded pin secured in the bracket and extending out through a suitable slot in the wall of the box, and a nut upon the end of the pin to covering the bracket in place; substantially as described.

700,265. CART-TRUCK. BENJAMIN W. TUCKER, Newark, N. J. assignor to Edward G. Newark, N. J. Filed Mar. 13, 1902. Serial No. 59,374. (No model.)



Claim.—1. In a cart-truck, the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to the side frames with a free space left intermediate these portions of the vertical flanges of said beams disposed intermediate the side frames, the horizontal flanges of said upper and lower transverse-beams being projected in opposite directions; substantially as set forth.

2. In a cart-truck, the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to the side frames with a free space left intermediate these portions of the vertical flanges of said beams disposed intermediate the side frames, the horizontal flanges of said upper and lower transverse-beams being projected in opposite directions, combined with plates interposed between the upper and lower bars of said side frames and secured to the vertical flanges of said beams; substantially as set forth.

3. In a cart-truck, the side frames having the upper and lower bars, the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to said bars, and outer plates 15 secured to the vertical flanges of said beams intermediate said bars, combined with the inner plates 16 affording proper surfaces for the bolsters and connected by rivets or bolts with said outer plates; substantially as set forth.

4. In a cart-truck, the side frames having the upper and lower bars, the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to said bars, and plates secured to and connecting the vertical flanges of said beams, combined with the caps 22 for sliding in securing the beams 13 to said upper bar, and bolts 23 passing through said caps, said upper bar and said transverse, said caps being recessed at their upper side to pass upon the edges of said upper bar and recessed at their lower side to receive the ends of said beams 13; substantially as set forth.

5. In a cart-truck, the side frames having the upper and lower bars, and the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to said bars, combined with the base-block 30 recessed at its upper side to receive the said beams 14 and at its lower side to engage the lower bar of the side frame, and bolts 22 passing through said lower bar, said base-block and said beams 14; substantially as set forth.

6. In a cart-truck, the side frames having the upper and lower bars, and the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to said bars, combined with the base-block 30 recessed at its upper side to receive the said beams 14 and at its lower side to engage the lower bar of the side frame, bolts 22 passing through said lower bar, base-block and beams 14, and the plate 34 mounted upon said base-block and affording a cushion for the bolsters, said plate 34 being recessed to receive the heads of said bolts 22, the latter being thereby secured to said base-block and plate in position; substantially as set forth.

7. In a cart-truck, the angle-iron upper and lower transverse-beams 13,

14, secured at their ends to the side frames with a free space left intermediate these portions of the vertical flanges of said beams disposed intermediate the side frames, the horizontal flanges of said upper and lower transverse-beams being projected in opposite directions, combined with plates interposed between the upper and lower bars of said side frames and secured to the vertical flanges of said beams, said plates having extensions projecting inward laterally beyond the side frames and secured to the vertical flanges of said transverse-beams; substantially as set forth.

8. In a cart-truck, the angle-iron upper and lower transverse-beams 13, 14, secured at their ends to the side frames with a free space left intermediate these portions of the vertical flanges of said beams disposed intermediate the side frames, the horizontal flanges of said upper and lower transverse-beams being projected in opposite directions, and the ends of said free space being curved and adjacent to said side frames; substantially as set forth.

9. In a cart-truck, the side frames having the upper and lower bars, parallel upper transverse-beams secured at their ends to said upper bars and having horizontal members projecting toward the ends of the truck, and parallel lower transverse-beams secured at their ends to the lower bars of the side frames and having horizontal members projecting toward the transverse center of the truck, the inner edges of the upper beams being about on a vertical line with the outer edges of the lower beams, combined with plates connecting the said upper and lower transverse-beams at their ends and portions at each side of the center of the side frames, leaving a clear space for the bolsters and its parts; substantially as set forth.

700,266. ROCKING-CHAIR. CARL H. WAGNER, Chicago, Ill. Filed Jan. 4, 1902. Serial No. 59,377. (No model.)



Claim.—1. In a folding rocking-chair, the combination with a seat-frame and a back-frame pivotally connected together, of a pair of rockers, a pair of rear braces pivoted at their lower ends to the rockers and pivotally connected near their upper ends with the seat-frame near the rear end thereof, a second pair of braces pivoted at their lower ends to the rockers, forward of said first-named braces, and pivotally connected at their upper ends with the back-frame, each last-named pivotal connection being in rear of the pivotal connection of the first-named braces with the seat-frame when the chair is in position for use, means for limiting the backward movement of said second-named pair of braces, and a movable brace extending from each of said second-named pair of braces to the seat-frame, substantially as specified.

2. In a folding rocking-chair, the combination with a seat-frame and a back-frame pivotally connected together, of a pair of rockers, a pair of rear braces pivoted at their lower ends to the rockers and pivotally connected near their upper ends with the seat-frame near the rear end thereof, a second pair of braces pivoted at their lower ends to the rockers, forward of said first-named braces, and pivotally connected at their upper ends with the back-frame, each last-named pivotal connection being in rear of the pivotal connection of the first-named braces with the seat-frame when the chair is in position for use, a stop to limit the forward movement of the said second-named pair of braces, and a movable support for the front portion of the seat-frame, substantially as specified.

3. In a folding rocking-chair, the combination with a seat-frame and a back-frame pivotally connected together, of a pair of rockers, a pair of rear braces pivoted at their lower ends to the rockers and pivotally connected near their upper ends with the seat-frame near the rear end thereof, a second pair of braces pivoted at their lower ends to the rockers, forward of said first-named braces, and pivotally connected at their upper ends with the back-frame, each last-named pivotal connection being in rear of the pivotal connection of the first-named braces with the seat-frame when the chair is in position for use, steps formed by the projecting upper ends of said first-named pair of braces, against which the second-named pair of braces are adapted to come in contact, and a movable support for the front portion of the seat-frame, substantially as specified.

4. In a folding chair, the combination of a seat-frame, a back-frame pivotally connected therewith, a pair of rear braces pivotally connected near their upper ends with the seat-frame, near the rear end thereof, a pair of front braces pivotally connected at their upper ends with the back-frame, means for limiting the backward movement of said pair of front braces, braces connecting the front portion of the seat-frame with said front braces, and means for preventing the lower portions of said front and rear braces from spreading, substantially as described.

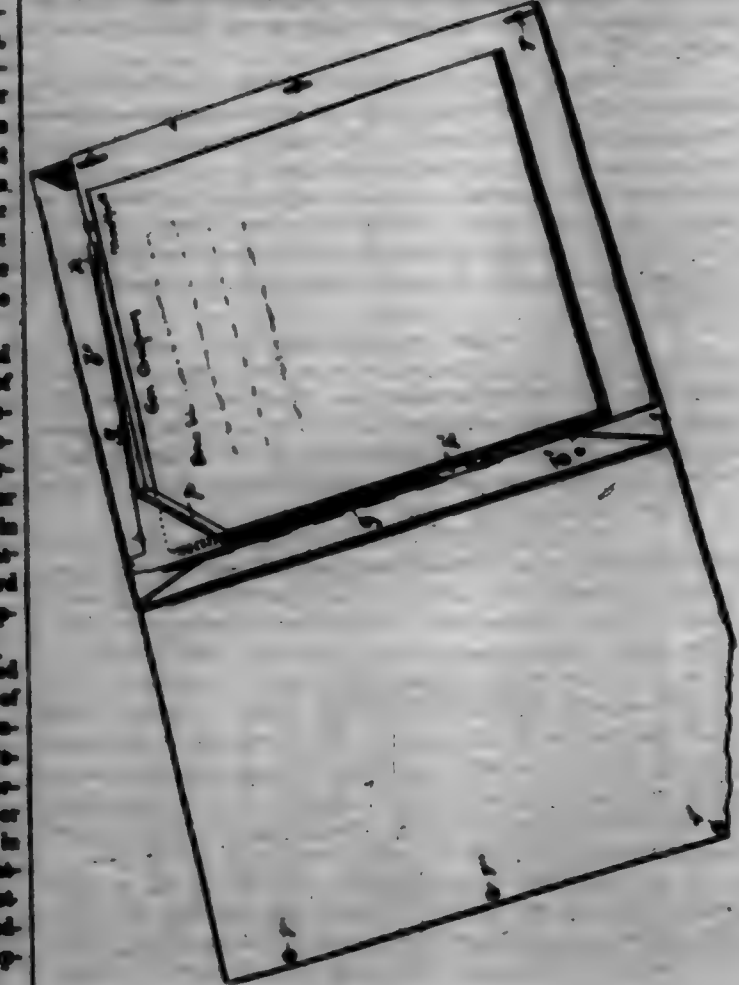
5. In a folding chair, the combination of a seat-frame, a back-frame pivotally connected therewith, a pair of rear braces pivotally connected near their upper ends with the seat-frame, near the rear end thereof, a pair of front braces pivotally connected at their upper ends with the back-frame, means for limiting the backward movement of said pair of front braces, braces connecting the front portion of the seat-frame with said front braces, and means connecting the front and rear braces at each side of the chair together, substantially as described.

6. In a folding chair, the combination of a seat-frame, a back-frame pivotally connected therewith, a pair of rear braces pivotally connected near their upper ends with the seat-frame, near the rear end thereof, a pair of front braces pivotally connected at their upper ends with the back-frame, means for limiting the backward movement of said pair of front braces, braces connecting the front portion of the seat-frame with said front braces, and means pivotally connecting the front and rear braces at each side of the chair together, substantially as described.

7. In a folding chair, the combination of a seat-frame, a back-frame pivotally connected therewith, a pair of rear braces pivotally connected near their upper ends with the seat-frame, near the rear end thereof, a pair of front braces pivotally connected at their upper ends with said back-frame, the upper ends of said front braces extending above the upper ends of said rear braces when the chair is in position for use, means for limiting the backward movement of said pair of front braces, braces connecting the front portion of the seat-frame to said front braces, and means connecting the lower portions of the front and rear braces at each side of the chair, substantially as described.

8. In a folding chair, the combination of a seat-frame, a back-frame pivotally connected therewith, a pair of rear braces pivotally connected near their upper ends with the seat-frame, near the rear end thereof, a pair of front braces pivotally connected at their upper ends with the back-frame, means for limiting the backward movement of said pair of front braces, braces connecting the front portion of the seat-frame with said front braces, and rockers pivotally connected to the front and rear braces at each side of the chair, substantially as described.

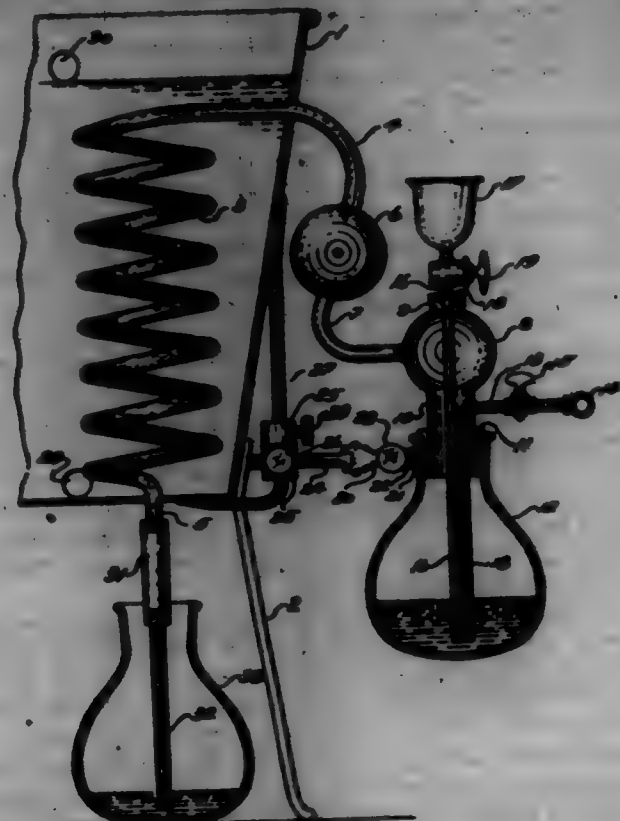
700,267. DOCUMENT-FILE. EDWARD S. WATSON, New York, N. Y. Filed Mar. 24, 1901. Serial No. 59,368. (No model.)



Claim.—1. A filing-back for documents, provided with a spring-clip having spring-guides extending from the clip approximately along at least one edge of the said back for guiding the papers, substantially as set forth.

2. A temporary back for filing documents, provided with a clip, one member of which is movable relatively to the said back and provided with means for pressing and securing the documents along a diagonal line, and spring-guides extending between the said clip member and the said back, substantially as set forth.

700,968. CHEMICAL APPARATUS. JOHN A. WHITMAN, Chicago, Ill. Filed Oct. 20, 1891. Serial No. 93,593. (No model.)



Claim.—1. A chemical apparatus comprising a condenser; a chamber communicating with said condenser and having a tubular extension; a resilient sleeve mounted on said extension and forming therewith a hollow stopper; and a steam-pipe entering said extension above the stopper part, passing out through the interior of the stopper, and having a valve outward of its entering part.

2. A chemical apparatus comprising a condenser; a chamber communicating with said condenser and having a tubular extension; a resilient sleeve mounted on said extension and forming therewith a hollow stopper; a receptacle outside of said extension having a pipe entering said extension above the stopper part, passing out through the interior of the stopper; and a steam-pipe entering said extension above the stopper part, passing out through the interior of the stopper, and having a valve outward of its entering part.

3. A chemical apparatus comprising a condenser; a chamber communicating with said condenser and having a tubular extension; a resilient sleeve mounted on said extension and forming therewith a hollow stopper; a steam-pipe entering said extension above the stopper part, passing out through the interior of the stopper, and having a valve outward of its entering part; and an outer clamp adapted to coast with said stopper in engaging and supporting a flask.

4. A chemical apparatus comprising a condenser; a rigid pipe extending downwardly and outwardly from said condenser and rigidly supporting a chamber at its outer end; said chamber having a depending tubular extension provided with a resilient sleeve forming therewith a hollow stopper; a clamp secured to the lower part of said condenser and having jaws acting toward the side of said stopper and adapted to coast with said stopper in engaging and supporting a flask; a receptacle outside of said extension having a pipe entering said extension above the stopper part, and passing out through the interior of the stopper, and having a valve controlling the passage through said pipe; and a steam-pipe entering said extension above the stopper part, passing out through the interior of the stopper, and having a valve outward of its entering part.

5. A chemical apparatus comprising a chamber having an outlet-passage in its side, said chamber having a neck extending above same adapted to receive a stopper; a depending tubular extension on said chamber having on its lower end a resilient sleeve forming therewith a stopper;

a flask removably fitting the stopper end of said extension; a receptacle above said neck having a pipe passing through said neck and tubular extension to the bottom of the flask and having a valve above said neck controlling the passage through said pipe; a stopper securing said pipe in said neck; and a second pipe, independent of the outlet-passage and independent of the other pipe and said receptacle, entering said extension above the stopper part of same, passing through the interior of said extension to the bottom of the flask, and having a valve outward of its entering part.

6. A chemical apparatus comprising a suitably supported condensing-tank, a condensing-coil therein having a supply-pipe extending outwardly and downwardly from said tank, the chamber 6, pipe 7 and chamber 8 rigidly connected and supported by said tank in the relative positions shown, said chamber 6 having a depending tubular extension, and a resilient sleeve mounted on said extension and forming therewith a hollow stopper adapted to engage and support a distillation-flask substantially as shown.

700,969. STREET-CAR FENDER. CHARLES C. WINE, Kansas City, Mo., assignor of one-half to James R. Lockwood, Kansas City, Mo. Filed Nov. 1, 1891. Serial No. 93,778. (No model.)



Claim.—1. A street-car fender, comprising a curved track, pivoted to operate vertically, a box mounted to slide thereon transversely of the car-track, a fender-frame rigidly connected to said box, a basket secured to the front end of the axle, journal-bones secured near the rear end of said frame, an axle journaled in said bones, and wheels mounted on said axle, and adapted to travel upon the car-track rails, substantially as described.

2. A car-fender, comprising a slotted segmental tubular track pivoted to operate vertically, a box mounted on said track, and provided with rollers engaging the same internally and externally, the transverse of said internal rollers projecting through the slots of the track, and a wheel-supported frame rigidly secured to said box and provided at its front end with a basket, substantially as described.

3. A car-fender, comprising a slotted segmental tubular track adapted for connection with a car, a box upon said track, rollers journaled in said box and within the track, rollers journaled in said box and engaging the front or rear sides of the track, and a wheel-supported frame secured to said box and provided with a basket at its front end, substantially as described.

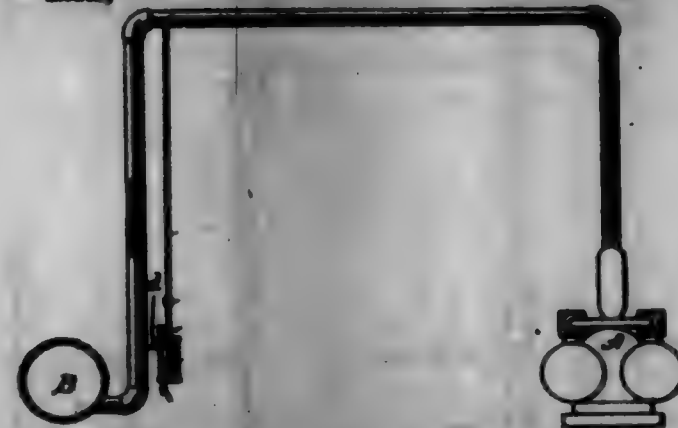
4. A car-fender, comprising a curved track, pivoted to work vertically, a box slidably mounted on the track, a wheel-supported frame provided with a basket at its front end, and a cross-bar at its rear end having a curved portion fitting against the front side of the box, an arched brace connecting the side of the wheel-supported frame, rollers-plates secured to the ends of the box and having depending arms engaging the front side of the cross-bar of the wheel-supported frame, and plates secured to the upper and lower sides of the box and provided with braces-

arms connected at their front ends to the middle of said arched brace, one of said plates having a vertical portion bearing against the front side of said cross-bar of the wheel-supported frame, substantially as described.

5. A car-fender, comprising a curved track pivoted to the car to work vertically, a box slidably mounted thereon, a wheel-supported frame connected at its rear end to said box, an arch connecting the side of said frame near its front end, a brace connecting the center of said arch with the front end of said frame and depressed near its front end to a plane below that of the wheel-supported frame, and a basket secured upon said arch and that portion of the wheel-supported frame in advance of the arch and overlying said brace, substantially as described.

6. A car-fender, comprising a curved track pivoted in the car to work vertically, a box slidably mounted on said track, a wheel-supported frame secured at its rear end to said box and provided at its front end with a basket, longitudinal braces for said wheel-supported frame, provided with openings, journal-bones fitting in said openings, and having vertical movement with relation thereto, an axle journaled in said journal-bones and wheels mounted on said axle, and adapted to run upon the car-track, substantially as described.

700,970. MEANS FOR LUBRICATING HYDRAULIC CYLINDERS. LOUIS E. H. WINE, Baltimore, Md., assignor of one-half to R. E. Moore, Baltimore, Md. Filed July 20, 1891. Serial No. 73,857. (No model.)



Claim.—The combination with a hydraulic cylinder and the supply-pump having a pipe supply connection thereto, of an oil cup or receptacle, a pipe connection from one end of said cup to the hydraulic cylinder, and an independent pipe connection from the other end of said cup to said supply-pump, substantially as described.

700,971. RULING-MACHINE. ARTHUR H. WHITMAN, West Medford, Mass., assignor to Library Bureau, Boston, Mass., a Corporation of Massachusetts. Filed Aug. 31, 1891. Serial No. 73,967. (No model.)

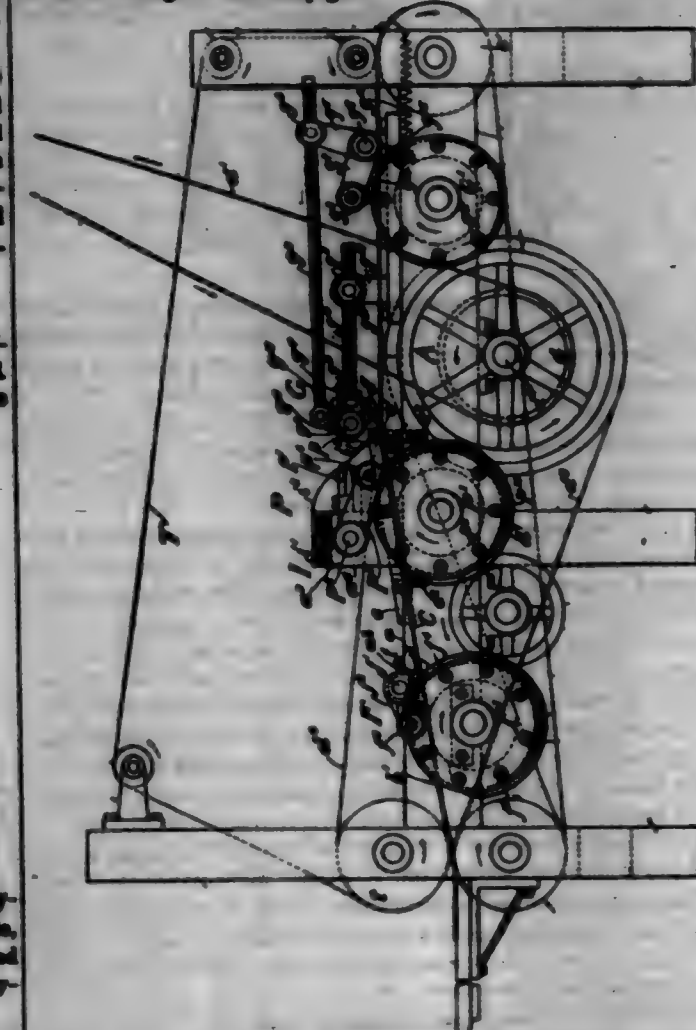
Claim.—1. In a ruling-machine, the combination of a blank-conveyor, a penholder and a stop-gate relatively adjustable one to the other and each movable to and from the conveyor, the stop-gate behind the penholder, pens carried by the penholder, means for intermittently moving the penholder and the stop-gate to and from the conveyor, and mechanical connections whereby the movements of the stop-gate to and from the conveyor are made to precede the movements of the penholder to and from the conveyor, respectively.

2. In a ruling-machine, the combination of a blank-conveyor, a penholder and a stop-gate relatively adjustable one to the other and each movable toward and from the conveyor, the stop-gate behind the penholder, pens carried by the penholder, adjustable means for intermittently moving the penholder and the stop-gate to and from the conveyor, whereby the movements of the stop-gate to and from the conveyor are made to precede the movements of the penholder to and from the conveyor, respectively.

3. In a ruling-machine, the combination of a blank-conveyor, a penholder and a stop-gate, each movable to and from the conveyor, the stop-gate behind the penholder, pens carried by the penholder, means for intermittently moving the penholder and the stop-gate to and from the conveyor, a front gate, situated in front of the penholder, means for moving the front gate to and from the conveyor, and mechanical connections whereby the movements of the stop-gate to and from the conveyor are made to precede the movements of the penholder to and from the conveyor, respectively, the front gate being timed to move from the conveyor before the stop-gate descends thereon, by an interval not greater than the time occupied by a point on the conveyor in passing from the front gate to the stop-gate.

4. In a ruling-machine, the combination of blank-conveyor, a penholder and a stop-gate, each movable to and from the conveyor, the stop-gate behind the penholder, pens carried by the penholder, means for in-

termittently moving the penholder and the stop-gate to and from the conveyor, a front gate, situated in front of the penholder, adjustable means for intermittently moving the penholder, stop-gate, and front gate to and from the conveyor, whereby the movements of the stop-gate to and from the conveyor are made to precede the movements of the penholder to and from the conveyor, respectively, the front gate being timed to move from the conveyor before the stop-gate descends thereon, by an interval not greater than the time occupied by a point on the conveyor in passing from the front gate to the stop-gate.



5. In a ruling-machine, the combination of a blank-conveyor, a penholder, a stop-gate, a carriage therefor movable and adjustably mounted on the machine-frame, the stop-gate behind the penholder, pens carried by the penholder, means for intermittently moving the penholder and the stop-gate to and from the conveyor, and mechanism whereby the movements of the stop-gate to and from the conveyor are made to precede the movements of the penholder to and from the conveyor, respectively.

6. In a ruling-machine, the combination of a blank-conveyor, penholder and pens, stop-gate, adjustable supporting-bar therefor, brackets for said bar, adjustable actuating-link for the stop-gate, pen-arms and stop-gate arms, and connections therefrom to the penholder and stop-gate, respectively, whereby the movements of the stop-gate and penholder are made to alternate, substantially as described.

7. In a ruling-machine, the combination of a blank-conveyor, a penholder and a stop-gate, each movable to and from the conveyor, the stop-gate behind the penholder, pens carried by the penholder, and a side gate provided with a leading-in guide and a straightening edge, located over the conveyor close to the same end in front of the stop-gate.

700,972. SPINNING. JAMES WINNER, New Hartford, Conn. Filed Apr. 12, 1891. Serial No. 54,005. (No model.)



Claim.—1. An improved thread-guide for a spinning-machine comprising an annular body part and two arms, on the body part of the guide, located substantially opposite to each other on said body part.

2. In combination in a ring-spinner, a ring supported in operative relation to a spindle and having a groove in its inner surface, and a thread-guide located in said groove with a plural number of arms, located opposite to each other and projecting from the body part of the guide and with eyes or loops for the passage of the thread.

3. An improved thread-guide for a spinning-machine comprising an annular body part and a plural number of arms projecting on opposite sides thereof, one arm being longer than the other on the opposite side of the body part, and eyes or loops formed in the arms for the passage of a thread.

700,373. RADDER, EDWIN R. WHEARE, Attleboro Falls, Mass., assignor to V. E. Washburn and Company, Attleboro Falls, Mass., a firm composed of Edwin W. Washburn and Edwin R. Wheare. Filed Feb. 17, 1902. Serial No. 94,413. (No model.)



Claim.—1. A hedge comprising a frame having a central portion separated along its upper and lower edges from the main body and bent back from the surface plane of said main body, and projections extending rearwardly from the frame below said central portion.

2. A hedge comprising an ornamental frame portion having a recessed panel open along its upper and lower edges and connected at its ends to the frame portion and rearwardly-extending projections formed in the material of the frame below said panel.

3. A hedge comprising an ornamental frame, having a recessed panel open along its upper and lower edges, projections or supports extending rearwardly from the frame below said panel, and a filling inserted through the open edges of the panel and supported on said projections.

4. A hedge comprising a frame, having a recessed panel open along its upper and lower edges and connected at its ends with the frame portion, and a fastening-pin secured to the back of the frame above said panel.

5. A hedge comprising a frame, having a recessed panel open along its upper and lower edges and connected at its ends with the frame portion, a fastening device arranged on the frame above said panel, and a ribbon having its upper portion looped over the panel and secured.

6. The combination with the frame 5 having the back plate 6 separated therefrom along its upper and lower edges and connected at its ends and the rearwardly-extending projections 10 10 of the ribbon 14 secured to said back plate 6 as described, and the transparent protective medium 15 extending through the openings between the back plate and the frame and supported on the projections 10 10.

700,374. LACE HOOK AND CLASP. HERBERT R. WILSON, Rochester, N. Y. Filed Sept. 20, 1901. Serial No. 75,864. (No model.)



Claim.—1. A lace hook and clasp consisting of a cap-piece articulating with an eyelet, each eyelet and cap-piece connected together by means of a stem hinged to each cap-piece, and a spring operating to hold each cap-piece relatively to each stem either in its open or closed position as desired, each cap-piece carrying two projections arranged to mesh on each side of each stem.

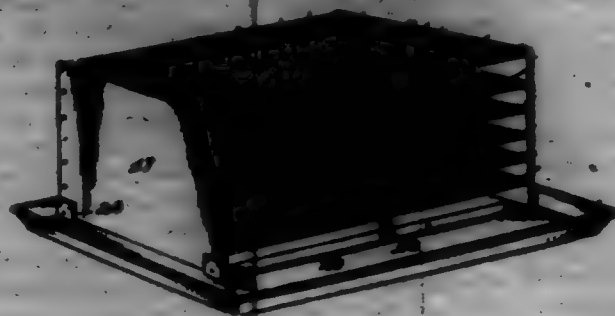
2. A lace hook and clasp consisting of a cap-piece articulating with an eyelet, each eyelet and cap-piece connected together by means of a stem hinged to each cap-piece, and a spring operating to hold each cap-piece relatively to each stem either in its open or closed position as desired, a discontinuous flange on each cap-piece with the two ends thereof arranged to mesh on each side of each stem.

700,375. CRUDE-OIL BURNER. NORMAN T. WILSON, Fort Worth, Tex. Filed Apr. 22, 1901. Serial No. 68,985. (No model.)

Claim.—1. The improved oil-burner, comprising a series of superposed shelves having an air-space between them, each shelf having oil-passages formed in it, whereby oil will be distributed, and suitable supports for holding said shelves in position, said shelves all being hinged at one edge, and means for securing the opposite edges of said shelves, substantially as specified.

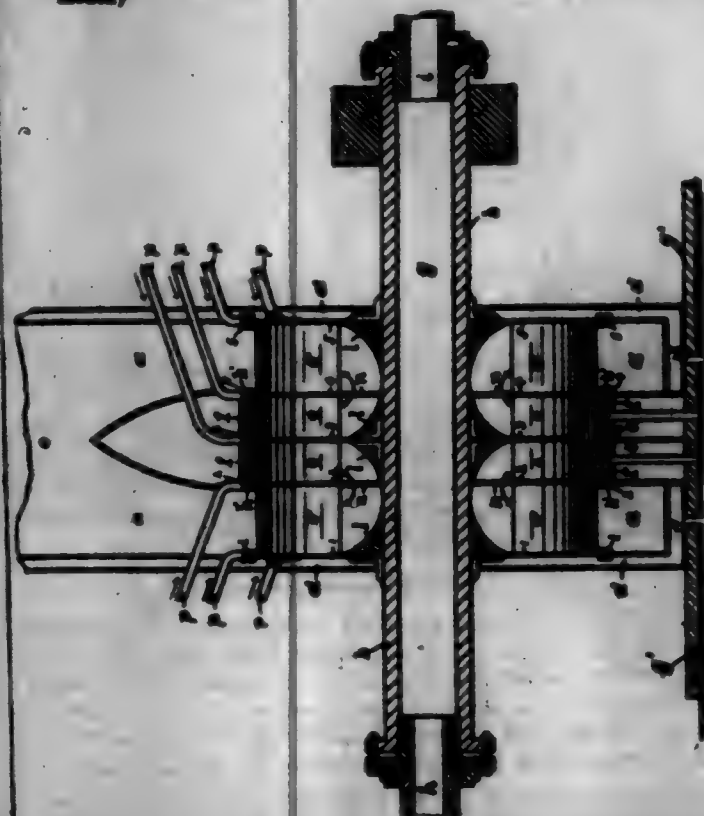
2. The improved oil-burner, comprising a series of superposed shelves having an air-space between them, each shelf having oil-passages formed in it, whereby oil will be distributed, suitable supports for holding said shelves in position, said shelves being hinged at one edge, a rod,

and a series of screws for securing the opposite edges of said shelves, substantially as specified.



3. The improved oil-burner, comprising a series of superposed shelves having an air-space between them, each shelf having oil-passages formed in it, whereby oil will be distributed, suitable supports for holding said shelves in position, said shelves all being hinged at one edge, means for securing the opposite edges of said shelves, and a distributing-pipe mounted upon the upper shelf, substantially as specified.

700,376. COOLING MEANS FOR ROTARY MOTORS. LISA WILSON, Brooklyn, N. Y. Filed July 26, 1901. Serial No. 68,719. (No model.)



Claim.—1. In a rotary motor driven by highly-heated gas, the combination, with the motor-wheel, of a casing having a peripheral water-jacket and a supply, to the points of proximity of the wheel and casing, of pure or distilled water which will not deposit a crust or scale.

2. In a rotary motor driven by highly-heated gas, the combination, with the motor-wheel, of a casing having the cheeks or channels A arranged to form guides for the edges of the motor-wheel disks to revolve in, and each channel being provided with a supply of cooling fluid, substantially as herein set forth.

3. In a rotary motor driven by highly-heated gas having a revolving motor-wheel provided with return-disks, the combination therewith of channels or guides in which the edges of said exhaust-disks revolve, each channel provided with a cooling fluid, substantially as herein set forth.

4. In a rotary motor, the combination, of the exhaust-jacket a and the casing f, and the primary motor-blades c with channels or guides for the disks of the motor-wheel to revolve in, the disks 1, 3 and 5 closely secured to the shaft, the other disk or disks secured to the shaft by arms permitting the passage of gas between them, the blades secured to their respective disks, and means for projecting cooling fluid upon the various parts, substantially as and for the purposes set forth.

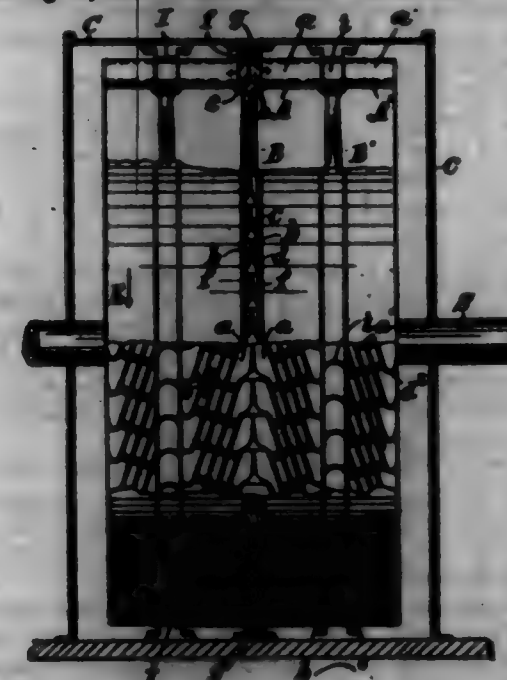
5. In a rotary motor, the combination of the exhaust-jacket a, the return or exhaust blades c, and the casing f, and the primary motor-blades c with channels or guides for the disks of the motor-wheel to revolve in, the disks 1, 3 and 5 in a wheel provided with return or exhaust blades, closely secured and disk 3 in a wheel without return or exhaust blades, closely secured

to the shaft, the other disk or disks secured to the shaft by arms permitting the passage of gas between them, the blades secured to their respective disks, the curved spaces i applied to the shaft between it and the inner ends of the blades to guide the exhaust-gas from the primary motor-blades c around the space toward the exhaust-jacket or toward the inner ends of the return-blades c, if the wheel is provided with return-blades, the gas passing through these blades to the exhaust-jacket a and means for projecting a cooling fluid upon the various parts, substantially as herein set forth.

6. In a rotary motor, the combination of the exhaust-jacket a, the return or exhaust blades c, and the casing f, a water-jacket and the primary motor-blades c with channels or guides for the disks of the motor-wheel to revolve in, the disks 1, 3 and 5 in a wheel provided with return or exhaust blades, and disk 3 in a wheel without return or exhaust blades, closely secured to the shaft, the other disk or disks secured to the shaft by arms permitting the passage of gas between them, the blades secured to their respective disks, and pipes provided to deliver cooling fluid to the various parts, substantially as herein described.

7. In a rotary motor, the combination of an exhaust-jacket, a wheel having return or exhaust blades, a motor-wheel surrounded by a casing, an explosion-chamber provided with an outlet or nozzle arranged to deliver the products of explosion to the motor-blades, and a pipe supplied with suitable cooling fluid arranged to project such fluid into the said outlet or nozzle as over the heated gases before their impact on the motor-blades.

700,377. GAS IMPACT-ENGINE. LISA WILSON, Brooklyn, N. Y. Filed Aug. 14, 1901. Serial No. 71,598. (No model.)



Claim.—1. A gas impact-wheel having a series of numerous closed channels upon its periphery disposed in the general direction of its desired rotation, the channels having inlets arranged upon the periphery and outlets upon the edge of the wheel, and a nozzle arranged upon said periphery to project gas into the inlets, substantially as herein set forth.

2. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the periphery, and outlets upon the edges of the wheel, and one or more nozzles arranged around said periphery to project gas into the inlets, substantially as herein set forth.

3. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the periphery, and outlets upon the edges of the wheel, a stationary guard over the inlets and one or more nozzles inserted through the guard around the said periphery to project gas into the inlets.

4. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the periphery, and outlets upon the edges of the wheel, a stationary guard over the inlets and one or more nozzles inserted through the guard around the said periphery to project gas into the inlets.

5. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and outlets upon the edges of the wheel, one or more nozzles arranged around said peripheral line to project gas into the inlets, and the channels being formed in sectional parts extended from one edge of the wheel to the other, said parts being adapted to fit together upon the surface of the wheel.

6. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and outlets upon the edges of the wheel, one or more nozzles arranged around said peripheral line to project gas into the inlets, and the channels being formed in sectional parts extended from one edge of the wheel to the other and curved at their outlets to reflect the movement of the escaping gas.

7. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and outlets upon the edges of the wheel, one or more nozzles arranged around said peripheral line to project gas into the inlets, and the channels being arranged in pairs with a common inlet at their junction, and the partition c in each inlet to divide the gas projected therefrom.

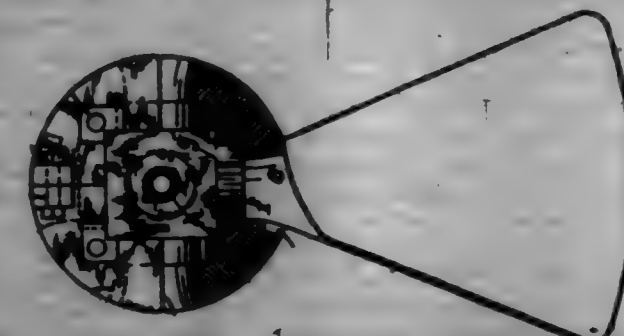
8. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and outlets upon the edges of the wheel, one or more nozzles arranged around said peripheral line to project gas into the inlets, the channels being arranged in pairs with a common inlet at their junction, the partition c in each inlet being formed with the shoulder d at each side, and the divergent portion of each channel extending from each shoulder forwardly in the direction of the desired rotation.

9. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and outlets upon the edges of the wheel, one or more nozzles arranged around said peripheral line to project gas into the inlets, the channels being arranged in pairs with a common inlet at their junction, the partition c in each inlet being formed with the shoulder d at each side, the divergent portion of each channel extending from each shoulder forwardly in the direction of the desired rotation, and the outlet of the channels upon the edges of the wheel being reflexed, substantially as and for the purposes set forth.

10. A gas impact-wheel formed with the drum-sections A and A' having the closed channels a and a' formed thereon as set forth, the channels a being disposed at opposite divergent inclinations to the center line of the drum A and curved backwardly at their outer ends, and the channels a' being inclined and extending from one edge across and upon the periphery of the drum A', the rings I contained between the adjacent ends of the channels a and a' with the intermediate curved deflection f therein forming closed reflexed passages adapted to reverse the movement of the gases as set forth, a guard surrounding the inlets of the channels a situated around the periphery upon the center line of the drum A, and one or more nozzles extended through each guard to supply the channels with the gases.

11. A gas impact-wheel having two series of numerous closed channels disposed at opposite divergent inclinations upon its periphery in the general direction of its desired rotation, with inlets arranged upon the same peripheral line, and continuous annular guard-chucks f projected at the exterior sides of the inlets, with a stationary guard g attached to the casing and fitted between the chucks f, and one or more nozzles extended through each stationary guard to supply the inlets with the gases.

700,378. REVERSELY CURVED PROPELLER. LISA WILSON, Brooklyn, N. Y. Filed Sept. 20, 1901. Serial No. 75,871. (No model.)



Claim.—1. A screw-propeller having a hub with some flanges, the hub attached to the propeller-shaft, propeller-blades having each a base provided with a flange having teeth and fitted to its respective cast, a collar secured upon the cast over each of said flanges, said flanges extended through the collar parallel with the shaft and engaged with the teeth on their respective several flanges, the propeller-shaft being hollow, and a screw fitted within the end of the shaft and having a bolt attached to

the racks, and a shifting-rod attached to and extended from the sleeve through the interior of the shaft to shift the sleeve as required.

2. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with a flange having teeth and fitted to its respective seat, a collar secured upon the seat over each of such flanges, appliances to limit the arc through which the blades can turn on the seat, and racks extended through the collars parallel with the shaft and engaged with the teeth upon their respective several flanges, and means for moving the racks to turn the respective blades upon their seats simultaneously.

3. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with teeth and fitted to its respective seat, and their shanks flared from the flanges toward the blades, a collar secured upon each seat and fitted to embrace the flange and flaring portion of the shank, and racks extended through the collars parallel with the shaft and engaged with the teeth on their respective several flanges, with means for moving the racks to turn the respective blades on their seats simultaneously.

4. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with a flange having teeth and fitted to its respective seat, a collar secured upon the seat over each of such flanges and fitted to admit a rack to engage with the teeth upon its respective flange, racks extended through the collars parallel with the shaft and each rack engaged with the teeth upon its respective flange, a sleeve attached to the racks to shift them simultaneously parallel with the shaft, and stops applied respectively to the blades and to the collar to contact at the extremes of the desired arc turning movement to limit it and to support the blades at such extreme positions independently of the rack.

5. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with teeth and fitted to each seat, and their shanks flared from the flanges toward the blades, a collar secured upon each seat and fitted to embrace the flange and flaring portion of the shank, and racks extended through the collars parallel with the shaft and engaged with the teeth on the respective several flanges, with means for moving the racks to turn their respective blades on their seats, a segmental recess in the collar adjacent to the shank and a stud upon the shank to contact with the ends of such recess and limit the arc turning movement of the blades, substantially as herein set forth.

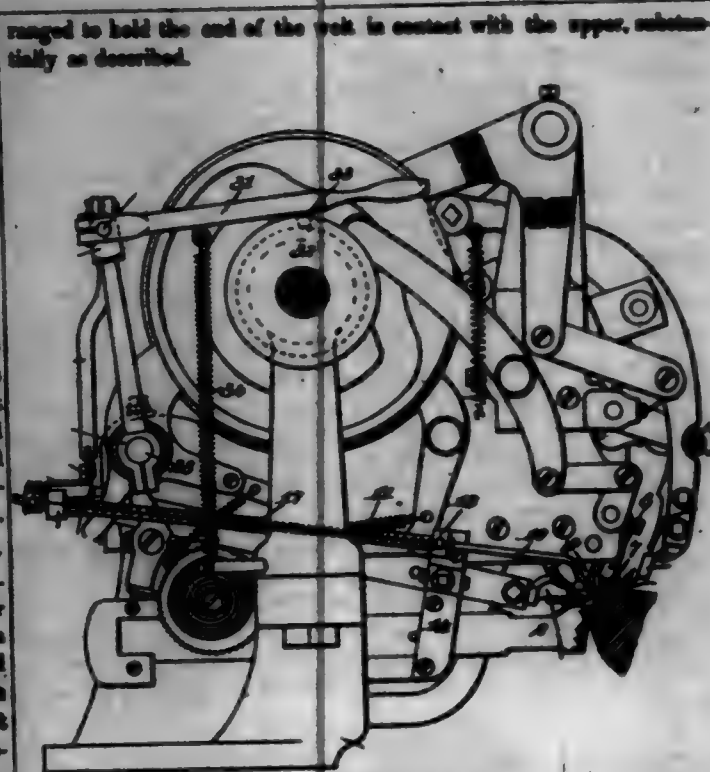
6. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with a flange having teeth and fitted to its respective seat, a collar secured upon the seat over each of such flanges, appliances to limit the arc through which the blades can turn on their seat, and racks extended through the collars parallel with the shaft and engaged with the teeth upon their respective several flanges, and means for moving the racks to turn the respective blades upon their seats simultaneously, each collar being divided and each segment thereof fitted to the flange and shank of its respective blades, the contiguous parts of the divided collar being provided with flanges and bolts for clamping them together and to the hub.

7. A screw-propeller having a hub with seats thereon, the hub attached to the propeller-shaft, propeller-blades having each a base provided with teeth and fitted to each seat, and their shanks flared from the flanges toward the blades, a collar secured upon each seat and fitted to embrace the flange and flaring portion of the shank, and racks extended through the collars parallel with the shaft and engaged with the teeth on their respective several flanges, and means for moving the racks to turn the respective blades on their seats simultaneously each collar being divided and each segment thereof fitted to the flange and shank of its respective blades, the parts of the collars between and bearing on adjacent blades being formed in one piece and fitted to the hub, the respective flanges and shanks, and the contiguous parts of the divided collars being provided with flanges and bolts for clamping them together and to the hub, whereby all the segments are united to one another and to the hub, substantially as and for the purposes set forth.

8. The combination, with a propeller-shaft, of a series of propeller-blades mounted on hubs thereon, each blade having a base provided with teeth, and adapted to be held but capable of turning upon the hub, a roller for covering each base upon the hub and adapted to admit racks to engage the teeth upon the bases of the blades, the racks being extended from one screw-propeller to another parallel with the shaft through the hubs of the collars, and means for moving the racks five and six to turn the blades upon all the propellers simultaneously through the desired arc.

700,979. WIRE-SWINGING MACHINE. BRADIS E. WHELEY, Lynn, Mass. Filed Dec. 13, 1900. Serial No. 30,701. (No model.)

Claim.—1. A web-coring machine, having, in combination, stitch-forming mechanism, a web-guide, and a web-holder constructed and arranged to move with the shoe and to hold the end of the web in contact with the upper, substantially as described.



2. A web-coring machine, having, in combination, stitch-forming mechanism, a web-guide, and a web-holder constructed and arranged to move with the shoe and to hold the end of the web in contact with the upper, substantially as described.

3. A web-coring machine, having, in combination, stitch-forming mechanism, a web-guide, a web-holder constructed and arranged to move with the shoe and to hold the end of the web in contact with the upper, and means for automatically throwing the web-holder out of operative position after a predetermined number of operations of the stitch-forming mechanism, substantially as described.

4. A web-coring machine, having, in combination, stitch-forming mechanism, a web-guide, a web-holder constructed and arranged to move with the shoe and to hold the end of the web in contact with the upper, means under the control of the operator for moving said web-holder into operative position and means for automatically throwing said web-holder out of operative position after a predetermined number of operations of the stitch-forming mechanism, substantially as described.

5. A web-coring machine, having, in combination, stitch-forming mechanism, a web-guide, a web-holder constructed and arranged to move with the shoe and to hold the end of the web in contact with the upper, and means for moving the web-holder into and out of operative position, substantially as described.

6. A web-coring machine, having, in combination, stitch-forming mechanism including a needle, a web-guide on one side of the needle and a web-holder on the opposite side of the needle, substantially as described.

700,980. APPARATUS FOR UNLOADING VEHICLES. OTIS H. WOODWORTH, Buffalo, N. Y. Filed Nov. 27, 1901. Serial No. 61,899. (No model.)

Claim.—1. A vessel having its hold provided in its bottom with discharge-openings, gates applied to said openings, a permanent secondary bottom arranged between the bottom of the hold and the main bottom of the hull and forming with the latter bottom an intervening water-chamber, a tunnel or tunnels arranged in said water-chamber underneath said discharge-openings, and a discharge conveyor or conveyors arranged to pass through said tunnel or tunnels, substantially as set forth.

2. A vessel having its hold provided with a hopper-bottom containing discharge-openings, gates applied to said openings, a permanent secondary bottom arranged between said hopper-bottom and the main bottom of the hull and forming with the latter an intervening water-chamber, walls or partitions extending lengthwise through said water-chamber on opposite sides of said discharge-openings, and forming a discharge tunnel or tunnels, said tunnel or tunnels having an inclined end portion which rises above the water-line and opens through the end of the vessel, and a conveyor or conveyors arranged in said tunnels, substantially as set forth.

3. A vessel having its hold provided with a hopper-bottom containing discharge-openings which are located on opposite sides of the hold, gates applied to said openings, a permanent secondary bottom arranged between said hopper-bottom and the main bottom of the hull and forming with the latter a water-chamber, a main central head extending through the height of said water-chamber, and two pairs of walls arranged on opposite sides of said head and extending from the main to the second-

ary hull-bottom and forming discharge-tunnels, said tunnels being located underneath the discharge-openings of the hopper-bottom, and conveyors arranged in said tunnels, substantially as set forth.



700,981. PARACHUTE-KITE. OLIVER V. WYATT, Marlow, Ind. Filed Mar. 2, 1902. Serial No. 66,467. (No model.)



Claim.—1. As a new article of manufacture, an attachment for a kite-string consisting of a wire loop adapted to be connected into the string and having a laterally-extended switch-arm disposed to cause articles carried upon said string to be automatically released therefrom, substantially as described.

2. Is an attachment for kite-strings, a wire loop having means for connection into the path of the string and with a rearwardly-extending loop-band disposed to support the string, a switch-arm extending forwardly and forming a continuation of said loop-band and projecting laterally from said loop, whereby the string is supported, and means provided for guiding articles from said string upon said switch-arm, substantially as described.

3. Is an attachment for the kite, a wire loop adapted to be connected into the string and having a laterally-extended switch-bar, a toy having an open hook disposed to engage the kite-string and adapted to be conducted upon said switch-bar and to be discharged therefrom, substantially as described.

4. Is an attachment for kite-strings, a wire loop having means for connection into the path of the string, a rearwardly-extending loop-band disposed to support the string, a switch-arm extended forwardly of said loop-band and forming a continuation thereof and projected laterally from said loop, and toys having hooks disposed to engage said string, and adapted to be conducted upon and discharged from said switch-bar, substantially as described.

700,982. SPRAYING DEVICE. HERBERT REINHARDT and JAMES REINHARDT, Brooklyn, N. Y. Filed Feb. 2, 1901. Serial No. 61,816. (Model.)

Claim.—1. A device of the class herein described comprising a liquid-receptacle having its bottom arranged at an angle to the side walls thereof; a delivery-tube within said receptacle and held against movement with respect thereto, the said tube projecting somewhat outwardly from said receptacle at the top thereof and terminating in a single delivery end; means whereby communication between the opposite end of said delivery-tube and variable points along and contiguous to the apex of the angle aforementioned of said receptacle, is established; and a one-nozzle air-pump situated to deliver air under pressure at the delivery end of said delivery-tube.

from said receptacle at the top thereof and terminating in a single delivery end; means whereby communication between the opposite end of said delivery-tube and variable points along and contiguous to the apex of the angle aforementioned of said receptacle, is established; and a one-nozzle air-pump situated to deliver air under pressure at the delivery end of said delivery-tube.



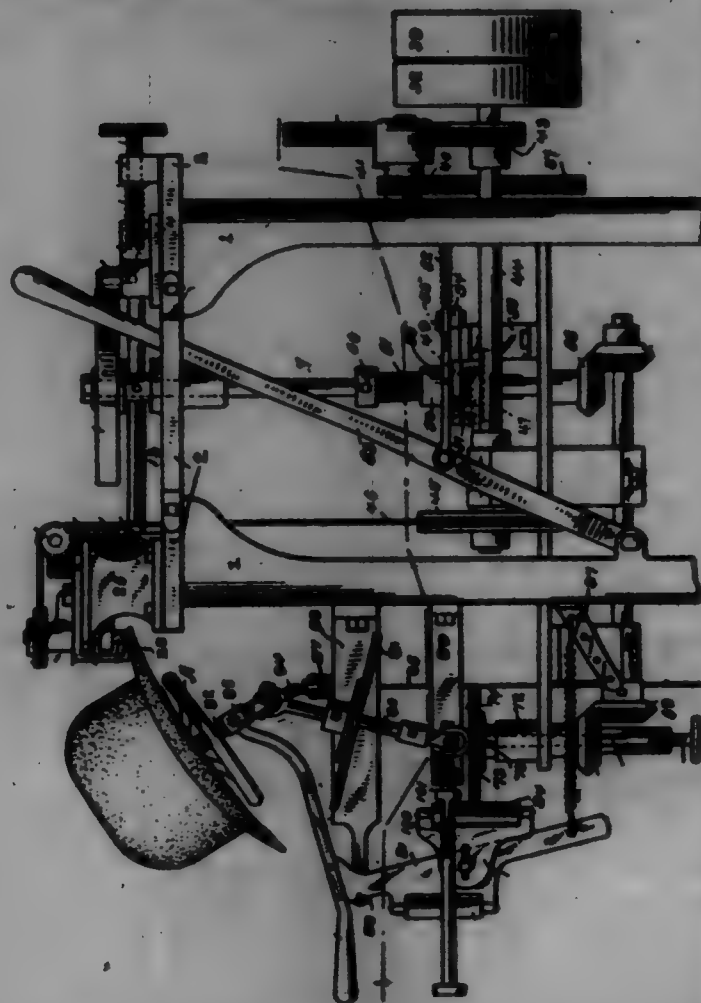
2. A device of the class herein described comprising a liquid-receptacle having its bottom portion arranged at an angle to the side walls thereof; a main delivery-tube within said receptacle, the said tube having its delivery end projecting somewhat outwardly from the liquid-receptacle, and having at its opposite end a plurality of minor members, the latter all communicating with said main delivery-tube and situated so that the intake ends thereof will occupy variable points along and contiguous to the apex of the angle aforementioned of said receptacle; and an air-pump situated to deliver air under pressure at the delivery end of said main delivery-tube.

3. A device of the class herein described comprising a liquid-receptacle having its bottom portion arranged at an angle to the side walls thereof; a delivery-tube within said receptacle, the said tube having its delivery end projecting somewhat outwardly from the liquid-receptacle, and having its opposite end branched and arranged to receive the contents of said receptacle at variable points along and contiguous to the apex of the angle aforementioned of said receptacle; and an air-pump situated to deliver air under pressure at the delivery end of said delivery-tube.

4. A device of the class herein described comprising a liquid-receptacle having its bottom portion arranged at an angle to the side walls thereof; a main delivery-tube within said receptacle, the said tube having its delivery end projecting somewhat outwardly from the liquid-receptacle, and having at its opposite end a plurality of branched minor members, the latter all communicating with said main delivery-tube and situated so that the intake ends thereof will occupy variable points along and contiguous to the apex of the angle aforementioned of said receptacle; and an air-pump situated to deliver air under pressure at the delivery end of said main delivery-tube.

5. A device of the class herein described comprising a liquid-receptacle having its bottom arranged at an angle to the side walls thereof; a delivery-tube within said receptacle and held against movement with respect thereto, the said tube projecting somewhat outwardly from the liquid-receptacle at the top thereof and terminating in a single delivery end; means whereby communication between the opposite end of said delivery-tube and variable points along and contiguous to the apex of the angle aforementioned of said receptacle, is established; and a one-nozzle air-pump situated to deliver air under pressure at the delivery end of said delivery-tube.

700,988. HAT-PARING MACHINE. BLANK & ALVORD, Danbury, Conn., assignors of one-half to Michael J. Dayin, Danbury, Conn. Filed Sept. 25, 1901. Serial No. 70,051. (No model.)



Claim.—1. In a hat-paring machine, the combination of a stationary foot, means for maintaining the curled hat-brim in constant contact with said foot, the rotary cutter, and means for advancing and retracting said cutter at predetermined times and in direct proportion to the varying width of the curl of the hat-brim, substantially as set forth.

2. In a hat-paring machine, the combination of a stationary foot, means for revolving the hat in a predetermined oval circuit, whereby constant contact is maintained between said foot and the curl of the brim, the outer-supporting carriage, the cutter journaled in said carriage, means for revolving said cutter, and means for reciprocating said carriage simultaneously with the revolution of the hat and to a degree predetermined by the varying width of the curl of the hat-brim, substantially as set forth.

3. In a hat-paring machine, the combination of the stationary foot, the rotary cutter, means for reciprocating said cutter to a degree predetermined by the varying width of the curl of the hat-brim, means for supporting the hat and for revolving the same in an oval circuit predetermined by the general oval shape of the brim whereby said brim is maintained in constant contact with said foot, and means for varying the plane of the revolution of the hat whereby the raised sides and depressed ends of the brim are acted upon by the cutter in the same horizontal plane, substantially as set forth.

4. In a hat-paring machine, the combination of a stationary foot, means for revolving the hat in an oval circuit predetermined by the general oval shape of the brim whereby all parts of the curl of the brim are presented to said foot in the same vertical plane, means for tilting the hat upwardly and downwardly during its revolution whereby the ends and sides of the curled brim are maintained in the same horizontal plane when presented to said foot, the cutter, and means for advancing and retracting said cutter during the revolution of the hat and in a degree predetermined by the varying width of the curl of the brim, substantially as set forth.

5. In a hat-paring machine, the combination of the stationary foot, the rotary shaft composed of gimbal-jointed sections and having its two upper members inclined in opposite directions, the hat-block carried by the uppermost member, means for swaying said shaft in opposite directions during its revolution whereby the hat will be revolved in an oval circuit and the curled brim maintained in constant contact with said foot, and a cutter having a variable reciprocation during the paring operation, substantially as set forth.

6. In a hat-paring machine, the combination of the stationary foot, the shaft 32 normally inclined away from said foot and carrying at its upper end the hat-block, the vertical shaft 71, the shaft 80 inclined to-

ward the vertical cross-plane of said foot and having its ends gimbal-jointed respectively with the shafts 83 and 71, the cam carried by the shaft 80, the stationary bracket 84, means for resiliently keeping said cam normally in contact with a plane surface of said bracket whereby the revolution of said shaft will cause the hat to be swayed in a plane substantially parallel with the vertical cross-plane of said foot, the hand-lever revolved to the shaft 71, the carriage depending rigidly from said lever and capable of tilting and reciprocating movements, the friction-roller supported by said carriage, the cam carried by the shaft 71, and the spring whereby said roller is maintained in contact with said cam, whereby the revolution of said shaft will cause the hat to be swayed in a plane substantially at right angles to the vertical cross-plane of said foot, substantially as set forth.

7. The combination of a series of gimbal-jointed shafts, one end shaft being engaged with power-transmitting means while the other end shaft supports the hat, and means for swaying the hat-supporting shaft in opposite planes, substantially as set forth.

8. The combination of the rotary shaft incapable of any swaying movement, the cam carried by this shaft, the oppositely-inclined shafts connected with each other and with the first-mentioned shaft by gimbal-joints, the hat-support on the upper shaft, the cam carried by the middle shaft, means for resiliently maintaining this cam against a stationary surface, the lever revolved to the top shaft, the carriage secured to and depending from said lever, the rollers supported by said carriage, the horizontal guide-rods between which said rollers and carriage extend, and means for maintaining a constant resilient contact between one of these rollers and the first-mentioned cam, whereby combined rotary and swaying movements are given to the hat, substantially as set forth.

9. In a hat-paring machine, the stationary foot cut away as described and gradually tapering down to a thin edge at the extreme front, in combination with means for keeping the curl of the hat-brim always hooked over said foot and in close contact therewith, the rotary cutting-tool journaled in a swiveling carriage immediately above said foot and adapted to pierce the curl of the brim when said carriage is lowered and capable of operating within the cut-away portion of said foot, and means for advancing and retracting said carriage to a degree determined by the varying width of the curl of the brim, substantially as set forth.

10. The combination of the shaft 71, the cam carried thereby, the stationary guide-rods one of which is provided with rack-teeth, the carriage having outer and taper rollers depending between said rods, the spring whereby the lower roller is normally kept in contact with said cam, and the pawl capable of sliding on said rack-teeth, whereby when said pawl is moved outwardly and engaged with said teeth the lower roller will be held beyond the field of said cam, substantially as set forth.

700,984. PROCESS OF MORDANTING ANIMAL FIBER. OTTO F. ARNER, New York, N. Y. Filed Mar. 4, 1900. Serial No. 672,000. (No specimens.)

Claim.—1. In the production of a mordant on animal fiber for dyeing, the process of treating the fiber with a solution of free chromic acid, the treatment taking place at such temperature as will not of itself substantially produce an oxidation of the fiber under treatment.

2. The process of producing a mordant on animal fiber for dyeing, which consists in first treating the fiber with a solution of free chromic acid, and, second, in thereafter treating the fiber with a suitable reducing agent, the treatment taking place at such temperature as will not of itself substantially oxidize the fiber under treatment.

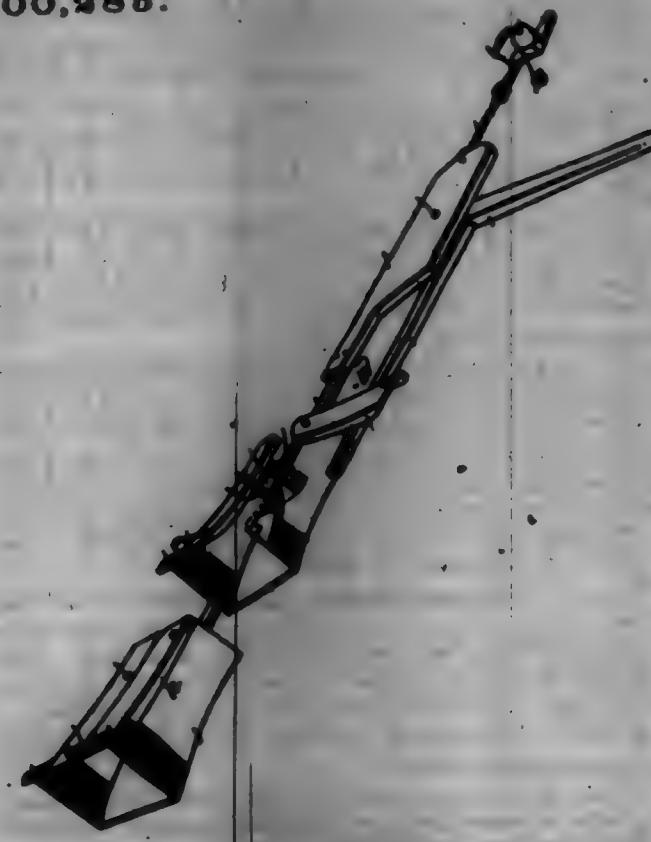
700,985. WIRE-STRETCHER. JAMES V. ASHMORE, Clinton, N.Y. Filed Dec. 12, 1901. Serial No. 26,000. (No model.)

Claim.—1. A wire-stretcher comprising a support, a lever fulcrumed on the support, the longitudinally-arranged beam provided with means for engaging a fence-wire, the short and long reciprocating bars connecting the inner and outer beams with the lever and pivoted to the latter at opposite sides of the fulcrum thereof, and guides extending from the support and from the inner bar and receiving the long reciprocating bar, substantially as described.

2. A wire-stretcher comprising the beams arranged in alignment and each provided with a movable wall-section pivoted at one end and arranged to swing outward, a latching device for latching the other end of the wall-section, a lever fulcrumed on the support, and bars connected with the beams and with the lever, substantially as described.

3. A wire-stretcher comprising a support, a lever fulcrumed thereon, the longitudinally-arranged beams having movable wall-sections, spring-actuated clamping-degs mounted within the beams and having chains or handle portions extending through slots thereof, bars connecting the beams with the lever, and a clamp connected with the support, substantially as described.

700,986.



700,986. LEO MEASUREMENT AND REDUCTION. RUSSELL L. ARNER, Fayetteville, W. Va. Filed May 24, 1902. Renewed Apr. 17, 1903. Serial No. 126,301. (No model.)



Claim.—In a manner-gage, the combination, with a two-part casing, each part of which is provided with a room, of a train of gearing in one of the rooms, one end of which is provided with a spur-wheel which extends through the wall of the room in position to be in engagement with the lumber being measured, a shaft at the other end of the train of gearing projecting through the bottom of the room in the other part of the casing, a toothed wheel and a pointer on the projecting end of said shaft, a catch for engaging with the toothed wheel, the free end of which projects through the side of the casing, a dial under the pointer, and a spring for returning the toothed wheel and pointer to their normal position, substantially as described.

700,987. AUTOMATIC VEHICLE-BRAKE. JAMES E. ARNER, Caldwell, Minn. Filed Apr. 6, 1901. Serial No. 54,978. (No model.)



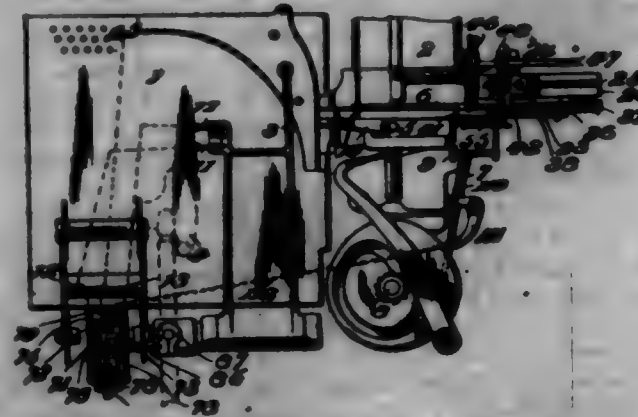
Claim.—1. In an automatic vehicle-brake, the combination with a sliding draft-bar, of a brake-beam carrying shoes, springs holding said brake-beam with the shoes in engagement with the wheels, the over-levers, an operative connection between one end of said levers and the brake-beam, forwardly-extending rods pivotedly connected with the other end of said levers, a coupling-bar movable upon the tongue of the vehicle and to which the rods are connected at their opposite ends, and to which the draft-bar is pivotedly connected, substantially as described.

2. In an automatic vehicle-brake, the combination of straps secured to the rear ends of the beams and projecting rearwardly therefrom a brake-beam movable in said straps and carrying brake-shoes, springs connected at their respective ends to the ends and mid brake-beam, a rearwardly-extending arm centrally secured to the cross-bar of the beams, levers intermediate pivoted to said arm, links connecting one end of said levers, to the brake-beam, operating-rods pivotedly connected to the opposite ends of said levers and extending forwardly, a coupling-bar to

which the forward ends of the rods are connected, and a sliding draft-bar mounted upon said coupling-bar, substantially as described.

3. In an automatic vehicle-brake, the combination with the slotted tongue and draft-bar, of a coupling-iron having a stem projecting through the slot in the tongue and also through the draft-bar, a slotted strap or plate attached to the tongue and extending across the draft-bar, a slotted plate arranged upon the slotted strap having a link pivotedly connected thereto, a nut secured upon the stem of the coupling-iron and adapted to hold the slotted plate in place upon the slotted strap, a lever connected to the link, the rods connected to the rear end of the coupling-iron, spring-actuated brake-beams, the levers connected to the said brake-beams and to the operating-rods, substantially as set forth.

700,988. AUTOMATIC LEADER FOR TYPE-SETTING MACHINES. JOHN S. BARNETT and MARSH C. DRAKE, Philadelphia, Pa., assignors, by mesne assignments, to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Nov. 9, 1901. Serial No. 81,716. (No model.)



Claim.—1. A controller for type-composing machines provided with special leading-signals for controlling the insertion of leads; substantially as described.

2. A controller for type casting and composing machines provided with leading-signals compounded of justification-designating signals and a selected signal; substantially as described.

3. In a type-composing machine provided with line-assembling devices and a controller, and in combination therewith a leading mechanism responsive to signals contained in the controller and governed thereby; substantially as described.

4. In a type-composing machine the combination with the line-assembling devices, of a leading mechanism and a controller in the form of a perforated record-strip, the latter governing the action of said leading mechanism; substantially as described.

5. In a type casting and composing machine governed in action by a perforated record-strip, the combination with said record-strip and the galley or line-assembling mechanism, of a leading mechanism provided with controlling devices responsive to said record-strip, substantially as described.

6. In an automatic type casting and composing machine whose action is governed by a controller, the combination with the line-assembling or galley mechanism and a controller, of an automatic leading mechanism provided with means for throwing it into and out of action, and device responsive to selected signals of the controller acting upon said leading mechanism to automatically govern the delivery of leads to the galley; substantially as described.

7. In an automatic type casting and composing machine the combination of the following elements, to wit: a controller provided with signals representing justification and leads; a galley mechanism responsive to the justification-signals; and a leading mechanism deriving motion from the galley mechanism and controlled, as to operation, by the lead-signals of the controller; substantially as described.

8. In an automatic type casting and composing machine the combination of the following elements, to wit: a controller provided with justification and lead-signals; a galley mechanism responsive to the justification or lead-signals; and a leading mechanism responsive to the lead-signals or justification signals but deriving its motion from the galley mechanism; substantially as described.

9. In a type-composing machine the combination of the following elements, to wit: a controller provided with lead-signals in addition to the normal signals; a galley or composing mechanism for assembling lines of type; a leading mechanism; means for actuating said leading mechanism; and means governed by the controller for automatically interrupting or discontinuing the leader-extending device at a period subsequent to the delivery accompanying the lead-signal; substantially as described.

10. In a galley mechanism for type-composing machines the com-

bination with the galley, and line-transferer, of a movable galley-blade normally closing the entrance to the galley and provided with a longitudinal channel, a lead-feeder delivering into said channel, and a pusher working in said channel to transfer the lead to the galley; substantially as described.

11. In a galley mechanism for type-composing machines, the combination with the galley, line-carrier and line-transferer, of a galley-blade movable substantially perpendicular to the path of the line-transferer and provided with a longitudinal channel, a lead-feeder device discharging into said galley-blade, and a pusher moving in unison with the line-carrier to advance a lead opposite the galley as the line-carrier returns after delivering a line to the galley; substantially as described.

12. In a lead-feeding mechanism for type-composing machines the combination with the lead receptacle or channel and a pusher for discharging the leads therefrom, of a cut-off located opposite the discharge-opening and comprising a bar supported to move outwardly and upwardly under the pressure of the lead being discharged and held in contact therewith by spring-pressure so as to prevent the escape of superposed leads; substantially as described.

13. In a lead-feeding attachment for type-composing machines the combination with a lead receptacle or channel provided with a discharge orifice or slot and a shouldered pusher working therethrough and engaging the lowermost lead, of a cut-off supported on links to move both vertically and outwardly with respect to the discharge-orifice and provided with an elastic tension member holding it toward said discharge-orifice; substantially as described.

14. In a lead-feeding attachment for type-composing machines the combination, to form an adjustable lead holding and feeding attachment, of the following elements, to wit: a bed-plate; two flanged bearings or uprights of which one is adjustably secured to the bed-plate and each is provided with a transverse bar forming the bottom of the lead-channel; a discharge-orifice immediately above said bar; a shouldered pushing-blade attached to a bar supported in guides on each bearing; a pivoted cut-off bar mounted on each bearing; and actuating devices common to the two pushing-blades; substantially as described.

15. In a galley mechanism for type-composing machines the combination with a vertically-reciprocating longitudinally-channelled blade at the entrance to the galley, of a lead-feeder attachment located to one side of the galley and above said blade in position to deliver the leads into the latter; substantially as described.

16. In a galley mechanism for type-composing machines the combination with the vertically-movable longitudinally-channelled blade at the entrance to the galley, of a lead-feeder located to one side of the galley and above said blade for delivering leads to the latter, actuating device for said lead-feeder connected to the galley-blade, and a pusher reciprocating within the galley-blade; substantially as described.

17. In a galley mechanism for type-composing machines the combination with the galley and the lead-feeder, of a galley-blade provided with a longitudinal channel open at the top rear end and for the reception of the leads and open at the bottom at the opposite end for the discharge of the leads, and a pusher working in said channel; substantially as described.

18. In a galley mechanism for type-composing machines, the combination with the channelled galley-blade, of the pusher supported on a way attached to said blade and connected to its driving mechanism through a yielding trip device; substantially as described.

19. In a galley mechanism for type-composing machines the combination with the slide actuating the line-carrier and the reciprocating channelled galley-blade, of a lead-feeder, connected to and operating in unison with the galley-blade, and a lead-transferer working in the galley-blade and connected to and operating in unison with the line-carrier slide; substantially as described.

20. In a lead-feeding attachment for the galley mechanism of a type-composing machine such as described, the combination with the lead-feeder, the pusher mounted and reciprocating upon the galley-blade and the slide for actuating the line-carrier, of the link pivoted at one end to said slide and at the other to said pusher, said two points of attachment being in a line transverse to the direction of motion of the galley-blade, whereby as the latter is elevated the pusher will be rotated slightly; substantially as described.

21. In a lead-feeding attachment for the galley mechanism of a type-composing machine, the combination with the pusher carried by the galley-blade and the slide from which said pusher receives longitudinal motion, of the link pivoted to said slide and provided with a shoulder and a spring-actuated latch for engaging a pin on the pusher; substantially as described.

22. In a type-composing machine whose action is governed by a controller containing leading signals, the combination of a leading attachment or mechanism provided with a switching device for throwing it into or out of action, and an automatic signal-interpreter intermediate said

switching device and the controller, whereby the latter determines the times and intervals of leading; substantially as described.

23. In a type-composing machine, the combination of the following elements, to wit: a leader; actuating device for said leader including a switch for throwing the same into or out of action; a controller; and means for actuating said switch from said controller; substantially as described; whereby the insertion of leads is governed automatically by said controller.

24. In a type-composing machine containing a galley or line-assembling mechanism, and a lead-supplying attachment therefor, the combination with the latter, of actuating devices controlled by a switch, a perforated controller, and a pneumatic signal-interpreter intermediate said switch and the controller; substantially as described.

25. In a type-composing machine the combination of the following elements, to wit: line-assembling device including a galley, a line-carrier, a line-transferer and a galley-blade; a leading attachment for inserting leads between adjacent lines provided with an actuating mechanism including a disengaging device for suspending the action of the leader; a switch adapted to be engaged by the line-carrier mechanism for actuating said disengaging member to stop or start the leader; and means for actuating said switch; substantially as described.

26. In a type-composing machine the combination of the following elements, to wit: a galley or line-assembling mechanism; a lead-feeder provided with actuating means including a disengaging device for throwing the leader into and out of action; a switch-bar for actuating said disengaging device; means for raising the switch; and a movable member—such as arm 112—for engaging the switch to operate the disengaging device; substantially as described.

27. In a type-composing machine the combination with the disengaging device for controlling the action of the lead-feeder, of a switch-bar pivoted to a link on that it can oscillate about either of two centers and provided with two shoulders; a reciprocating member—such as arm 112—for engaging the shoulders on the switch-bar, to reciprocate the latter; and means for tilting said switch-bar to withdraw one of its shoulders from the path of the said reciprocating member; substantially as described.

28. In a type-composing machine the combination of the following elements, to wit: a leader whose actuating device is connected to a driving member through a link capable of both longitudinal and rotary motion; a link partaking of the rotary motion of said link; a switch-bar pivoted to said link and provided with an engaging shoulder at each side of its point of attachment to the link; a reciprocating member—such as bar 112—adapted to engage the shoulders on the switch-bar when projected into its path; and means for tilting said switch-bar to withdraw one shoulder from the path of said member; substantially as described.

29. In a type-composing machine and in combination with the disengaging device of the leader-actuating mechanism, of the switch-bar pivoted to one end of a link and provided with engaging shoulders for co-operating with a movable driving member, such as bar 112, and a clamping-lever pivoted to the switch-bar to one side of the point of attachment to the link and adapted to be projected into the path of the said driving member; substantially as described.

30. In a type-composing machine the combination of the following elements, for interpreting and transmitting signals from the controller to the leader, to wit: a reciprocating primary driving member; a driven member adapted to be coupled with said driving member; a second driving member coupled with the driven member; and means for coupling up the primary driving and driven members, and the second driving member with its driven member; substantially as described.

31. In a type-composing machine the combination of the following elements, to wit: a primary driving member; a driven member adapted to be coupled with said driving member; a plurality of secondary driving members coupled with said driven member; a piston controlling the engagement of the said driven member and the primary driving member; and separate pistons for controlling the engagement of said secondary driving members with their transmitting members; substantially as described.

32. In a type-composing machine, as a means for interpreting and transmitting signals from the controller to the leader, the combination of the following elements, to wit: a primary driving member—such as pin P2; a driven member adapted to be coupled to said driving member—such as through link 84; a plurality of secondary driving members—such as links 82—coupled to said driving member; pistons controlling the engagement of said driven and secondary driving members; and an oscillating transmitting member—such as cross-head 73—with which said secondary driving members co-operate; substantially as described.

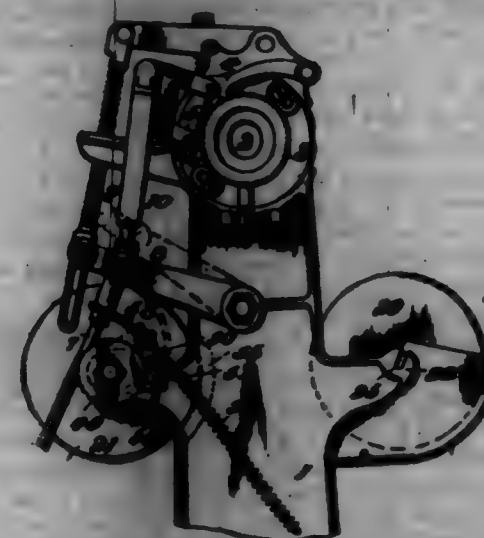
33. In a type-composing machine, the combination with the leader-controlling device, of a pivoted cross-head, two reciprocating members—such as links 82—normally disconnected from said cross-head but each

provided with means for shifting it into engagement therewith; a reciprocating driver and a driven member—such as link 84—normally disconnected from said driver and provided with means for shifting it into engagement therewith and for transmitting motion to the two reciprocating members.

34. In a type-composing machine, as a means for transmitting signals from the controller to the leader, the combination of the following elements, to wit: an oscillatory cross-head whose arms are provided with retaining catches; three links connected to reciprocating members; a driving member; and a plurality of pistons, one for each link, operating through the links to connect the one to the driving member and the others to engage the catches and shift the position of the cross-head; substantially as described.

35. In a type-composing machine the combination of the following elements, to wit: an oscillatory cross-head; a reciprocating link opposite each arm of the cross-head and movable into and out of engagement therewith; a reciprocating driving member overlying said links and forming a stop therefor; a third link detachably connected to said driving member and connected to the first-mentioned links through a yielding connection; and means for independently shifting each of said links from normal position into engagement with their opposing members; substantially as described.

700,289. RECORD-STRIP-FEEDING MECHANISM. JOHN S. RANNEY, Philadelphia, Pa., assignor, by mesne assignments, to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Dec. 2, 1901. Serial No. 61,717. (No model.)



Claim.—1. In a record-strip-feeding mechanism the combination with the feeding device engaging the strip to advance the latter, of a supply-spool provided with leads and a concave holder provided with shoulders for positioning the spool, the periphery of the heads of said spool being maintained by gravity in frictional contact with said holder; substantially as described.

2. In a record-strip-feeding mechanism the combination with the strip-feeding device, of a concave trough or receptacle where and pieces are cut away to fit the side pieces of the frame and provided with heads engaging bearings in the frame; substantially as described.

3. In a record-strip-feeding mechanism, the combination with the strip-feeding device, of a winding-spool and actuating device therefor including a motor-spring and a tension-restorer, the latter reciprocating in unison with the feeding device, to restore the initial tension of the spring for each feed movement; substantially as described.

4. In a record-strip-feeding mechanism the combination with strip-feeding device, and a winding-spool, of actuating mechanism for said spool, the same including a ratchet, a motor-spring for advancing the spool, and a retarding device actuated by the feeding device, to restore the initial tension of the motor-spring after each advance of the feeding device; substantially as described.

5. In a record-strip-feeding mechanism the combination with record-strip-feeding device and a winding-spool of actuating device for said spool, the same comprising a ratchet-wheel, a pawl, a motor-spring for advancing said pawl, an arm connected to the feeding device and reciprocating in the path of the pawl-carrier, said arm being located in advance of the pawl-carrier and engaging the latter to move it in opposition to the motor-spring; substantially as described.

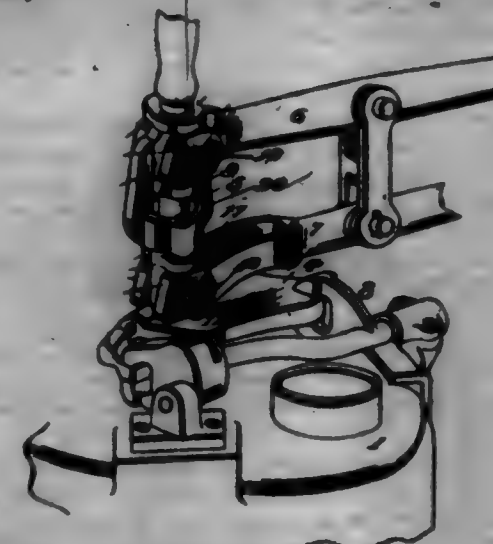
6. In a record-strip-feeding mechanism the combination of the following elements, to wit: a spring-actuated center-pin; a revolvable head having a center bearing in alignment with said pin and one or more locking-perforations to one side of said center bearing; a spool provided with a journal-bearing to receive said center-pin and a spring-actuated reel mounted

ed within the spool and provided with a center-pin and a locking-pin; substantially as described.

7. In a record-strip-feeding mechanism the combination with the frame, the spring-actuated center-pin, the rotary head, and the spool provided with a bearing in one end and a reel provided with a center-pin and locking-pin movable through the opposite end of the spool, of the guides fixed to the frame and curving to position the spool preliminary to the entrance of the center-pin and movement of the reel into engagement with the rotary head; substantially as described.

8. As a new article of manufacture a winding-spool for record-strip-feeding mechanisms, the same comprising a tubular body provided at one end with a center bearing, a reel provided at one end with a center-pin and a locking-pin resting in apertures in one head of the body, while the opposite end of the reel comprises the center bearing in the other end of the body, and a spring engaging said reel to hold it retracted within the body; substantially as described.

700,290. PUMP-ACTUATING MECHANISM FOR TYPE-SETTING. JOHN S. RANNEY, Philadelphia, Pa., assignor, by mesne assignments, to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Dec. 2, 1901. Serial No. 61,648. (No model.)



Claim.—1. In a metal-injecting mechanism such as described, the combination with the pump-cylinder and piston-rod, each provided with rollers or shoulders, of the actuating-lever and the slides pivoted to said levers and engaging the rollers on the pump-cylinder and piston-rod respectively; substantially as described.

2. In a metal-injecting mechanism such as described, the combination with the cylinder and piston-rod and the connected forced actuating-levers of the sheet fitted to transverse guides on the cylinder and piston-rod, respectively, and each provided with a conical radial recess and central pin engaging a conical radial bearing and central recess on one branch of each actuating-lever; substantially as described.

3. In a metal-injecting mechanism such as described, the combination with the cylinder, piston-rod and actuating-levers therefor, of the guides applied to the cylinder and engaging the piston-rod to resist lateral motion; substantially as described.

4. In a metal-injecting mechanism, such as described, the combination with the piston-rod and cylinder of the pump and the connected actuating-levers whose forced engaging ends embrace the cylinder and piston-rod, respectively, and engage opposite collars thereon, of guides carried by the cylinder in the plane of movement of the forced engaging ends of the levers, said guides engaging the piston-rod on opposite sides thereof beyond the cylinder; substantially as described.

700,291. RECORD-STRIP-FEEDING MECHANISM OF AUTO-MATIC TYPE-CASTING OR OTHER MACHINES. JOHN S. RANNEY, Philadelphia, Pa., assignor, by mesne assignments, to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Dec. 2, 1901. Serial No. 61,648. (No model.)

Claim.—1. In a record-strip-feeding mechanism the combination with the cross-bar, pin-wheels and air-bar, of two tension-rollers, the one in front and the other in rear of the cross-bar and both gravitating toward said cross-bar; substantially as described.

2. In a record-strip-feeding mechanism the combination with the cross-bar, feed-wheels and air-bar, of two tension-rollers, one in front and the other in rear of the cross-bar, said rollers being supported to gravitate toward the cross-bar at points below the axis of the feed-wheels; substantially as described.

3. In a record-strip-feeding mechanism the combination with the cross-bar, feed-wheels and movable air-bar, of two gravitating tension-rolls located on opposite sides of the cross-bar and supported so as to permit lateral displacement of either or both ends under the action of the record-strip, substantially as described.



4. In a record-strip-feeding mechanism the combination with the feeding device and cross-bar and the air-bar movable toward and from the latter, of two levers pivoted upon the air-bar and each supporting a roller in position to engage the record-strip on one side of the feeding device; substantially as described.

5. In a record-strip-feeding mechanism the combination with the pivoted air-bar, of two supplemental tension-rolls and levers for said rolls each comprising two independent supporting-plates separately and adjustably pivoted upon the air-bar, to permit lateral displacement of each roll at either end thereof; substantially as described.

6. In a record-strip-feeding mechanism the combination with the cross-bar feed-wheels and laterally-movable air-bar, of feeding or supplemental tension-rolls each loosely journaled in a hanger pivotally connected to the air-bar at a point intermediate the front and rear walls of the air-bar, whereby said rolls are caused to approach by gravity to exert pressure upon the record-strip and to yield laterally at either end, substantially as described.

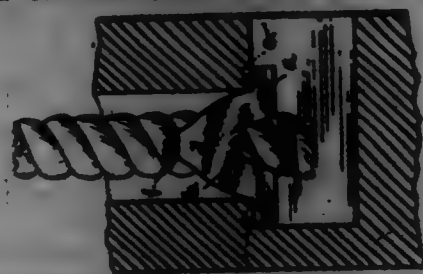
7. In a record-strip-feeding mechanism the combination with the pivoted air-bar, of a plate detachably applied thereto, a rod supported on said plate, a dependent hanger pivotally attached to said rod at a point to one side of the axis of the air-bar, a roll mounted in said hanger, and a link or links pivotally connected to the frame and hanger and operating to swing the latter upon its supporting-rod as the air-bar is withdrawn from the cross-bar; substantially as described.

8. In a record-strip-feeding mechanism the combination with the pivoted air-bar, of a plate detachably applied thereto, a rod supported on said plate, a dependent hanger pivotally attached to said rod at a point to one side of the axis of the air-bar, a roll mounted in said hanger, and a link or links pivotally connected to the frame and hanger and operating to swing the latter upon its supporting-rod as the air-bar is withdrawn from the cross-bar; substantially as described.

9. In a record-strip-feeding mechanism the combination of the following elements, to wit: a cross-bar; feed-wheels; a pivoted air-bar; two levers, each carrying a tension-roll, dependent from and pivotally attached to the air-bar, one of said levers extending over the air-bar in position to be engaged by the latter when moved away from the cross-bar; and a link or links connecting the opposite lever to the frame in a manner to cause its elevation when the air-bar is retracted; substantially as described.

10. As a new article of manufacture a supplemental tension attachment for record-strip-feeding mechanism such as described, the same comprising a bed-plate or frame adapted for attachment to a pivoted air-bar on its supports; a rod mounted on said frame; two levers pivotally suspended from said rod and each comprising two independent plates provided with open bearings for the reception of a roll; a rod engaging enlarged openings in the plates constituting one of said levers; links engaging said last-named rod; and another rod engaging said links and adapted to engage bearings on the frame forming the support for the air-bar to which the attachment is to be applied; substantially as described.

700,992. RACE-GOOD PARTNER. PAUL R. GOOD, San Francisco, Cal. Filed Dec. 10, 1901. Serial No. 65,512. (No model.)



Claim.—1. The herein-described rack-and-pinion formed of a single piece of metal comprising a U-shaped body having a central aperture

in the bottom; side portions extending perpendicularly to the bottom part and having spurs on their outer ends projecting laterally; and prongs on the sides of the body beyond the side portions, standing upwardly in planes parallel with the side portions.

2. The herein-described blank, having the following parts integral with one another: the body part having the central aperture *a*, the cross *d*, terminating in pointed ends; the prongs *e* on the sides of the cross; and the prongs *g*; said parts forming when bent a U-shaped structure, substantially as described.

700,998. MACHINE FOR GRINDING KNIVES, PRINCIPALLY THOSE OF SAUSAGE-MACHINES OR THE LIKE. OTTO BERNER, Berlin, Germany. Filed Apr. 2, 1901. Serial No. 66,045. (No model.)

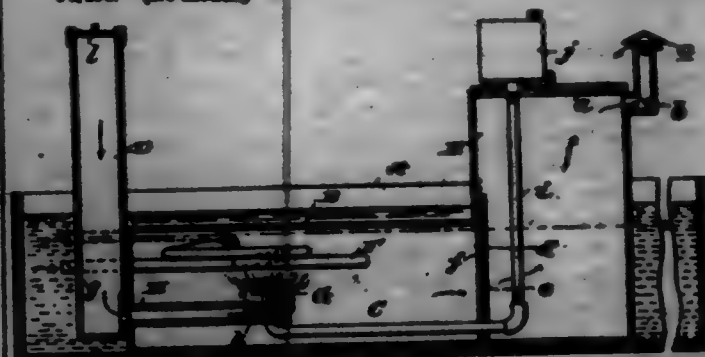


Claim.—1. In a machine for grinding knives of the class described, the combination with a grinding-wheel, means for displacing said wheel in an axial direction and means for revolving said wheel, of a knife-holder consisting of a disk revolvably mounted at an angle to the grinding-wheel, means for moving said disk in a longitudinal and transverse direction, means for limiting the movement of said disk, means for holding said disk against revolution in the desired position, and means for adjustably holding the knife to be ground on said disk, substantially as described.

2. In a machine for grinding knives of the class described, the combination with a grinding-wheel, means for displacing said wheel in an axial direction and means for revolving said wheel, of a knife-holder consisting of a disk revolvably mounted on a support, means for moving said support in a longitudinal and transverse direction, a stop for limiting the movement of said support, a bolt adapted to engage holes in said disk for holding the latter against revolution in the desired position, a right and left handed screw in said disk, clamping-screws on said screw, the jaws of which project beyond the surface of the disk and engage and adjustably hold the knife to be ground substantially as described.

3. In a machine for grinding knives of the class described, the combination with a grinding-wheel, a shaft carrying said wheel, means for displacing said wheel and shaft in an axial direction, consisting of a lever pivoted eccentrically to a disk, and a shaft carrying said disk, said shaft being geared in a shaft carrying an operating-wheel, and means for rotating the grinding-wheel/shaft, consisting of a pulley thereon, connected in said operating-wheel, of a knife-holder consisting of a disk revolvably mounted on a support, and at an angle to the grinding-wheel, means for moving said support in a longitudinal and transverse direction, a stop for limiting the movement of said support, a bolt adapted to engage holes in said disk for holding the latter against revolution in the desired position, a right and left handed screw in said disk, clamping-screws on said screw, the jaws of which project beyond the surface of the disk and engage and adjustably hold the knife to be ground, substantially as described.

700,994. TANK-RAISER. EMERY E. BROWN, Haverbury, and ALBERT L. GUYTON, Boston, Ind. Filed Feb. 17, 1902. Serial No. 64,490. (No model.)

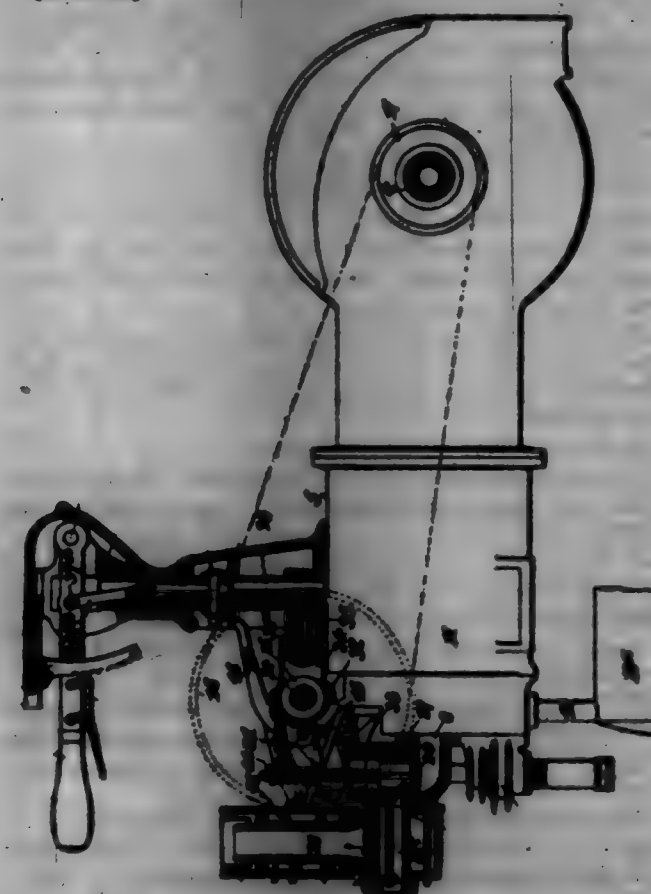


Claim.—1. In the tank-raiser described, the combination with the body comprising the combustion-chamber, the air-inlet line rising from one end of the combustion-chamber, the air-outlet line of larger diameter than the inlet-line rising from the opposite end of the combustion-chamber and connected by the opening *d* with the interior thereof, and the horizontal flange communicating with the air-inlet line and extending therefrom into the combustion-chamber and having discharge-apertures in their inner sides adjacent to their free ends; of the water-receptacle disposed in the combustion-chamber, pipes leading from said receptacle through the body and designed for the passage of water to and from

the receptacle, a burner disposed in the combustion-chamber, below the water-chamber and in a plane between the discharge-apertures of the horizontal air-supply tubes, and the damper normally occupying the opening *d* and having the aperture *f* in its upper portion.

2. In the tank-raiser described, the combination with the body comprising the combustion-chamber, the air-outlet line communicating with the interior of and rising from one end of the combustion-chamber, the air-inlet line rising from the opposite end of the combustion-chamber, and the horizontal flange communicating with the air-inlet line and extending therefrom into the combustion-chamber and having discharge-apertures in their inner sides adjacent to their free ends; of the water-receptacle disposed in the combustion-chamber, pipes leading from said receptacle through the body and designed for the passage of water to and from the receptacle, and a burner disposed in the combustion-chamber below the water-chamber and in a plane between the discharge-apertures of the horizontal flange.

700,995. FOUR-STROKE PETROLEUM-MOTOR. EDWARD A. BENTLEY, Stockholm, Sweden. Filed Apr. 2, 1901. Serial No. 64,982. (No model.)



Claim.—1. In a hydrocarbon-motor, in combination, inlet and exhaust valves, a device in control each of said valves, axially-shiftable means to operate said device and means to retard the action of the inlet-valve, to automatically increase the quantity of hydrocarbon vapor to form an explosive mixture richer in hydrocarbon, substantially as described.

2. In a hydrocarbon-motor, in combination, inlet and exhaust valves, a device to control each of said valves, axially-shiftable means to operate said device, means to simultaneously admit air and hydrocarbon, and means to throttle the inlet-valve and thereby automatically control the means for the admission of air and hydrocarbon, substantially as described.

3. In a hydrocarbon-motor, in combination, inlet and exhaust valves, a lever acting on each valve, axially-shiftable means operating said levers and means to shift the same, a vaporizer external to the engine and communicating with the inlet-valve, means operated from the cam-shifting means to additionally lead the inlet-valve and an auxiliary valve to admit both air and hydrocarbon to the vaporizer, automatically operated by the degree of vacuum and controlled by the inlet-valve to automatically proportion the air and hydrocarbon, substantially as described.

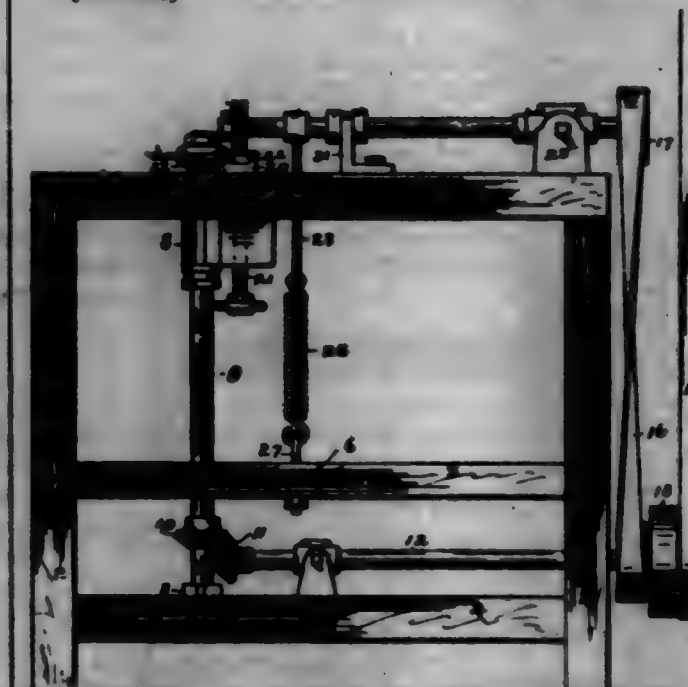
4. In a hydrocarbon-engine, in combination, inlet and exhaust valves, means surrounding them, a driven cam-shaft axially shiftable, means thereon shiftable under the lever controlling the exhaust-valve, whereby said valve can be held open, opened at every other stroke and opened at every fourth stroke and means to vary the lead on the inlet-valve.

5. In a hydrocarbon-engine, in combination, an inlet and an exhaust valve, and a valve controlling gas under pressure, means controlling them, a driven cam-shaft axially shiftable, means thereon to operate the inlet, exhaust and pressure-gas valves, and hand-operated means to additionally lead the inlet-valve and shift the cam-shaft at will, substantially as described.

6. In a hydrocarbon-engine, in combination, an air-inlet and an exhaust valve, and one controlling gas under pressure, a vaporizer external to the engine and arranged to deliver combustible through the inlet-valve simultaneously with air, a valve in the vaporizer controlling the simultaneous inlet of hot air and liquid hydrocarbon and operated by motion, a driven cam-shaft axially movable, means for varying the lead on the inlet-valve and for shifting the cam-shaft to cause the engine to operate on a two or four stroke cycle, or to maintain the exhaust-valve open, substantially as described.

7. In a hydrocarbon-engine, in combination, a spring-held air-inlet valve and an exhaust-valve, and one controlling gas under pressure, a vaporizer external to the engine and arranged to deliver combustible through the inlet-valve simultaneously with air, a valve in the vaporizer controlling the simultaneous inlet of hot air and liquid hydrocarbon, and operated by motion, a driven cam-shaft axially movable, a rack connected to said shaft, a pinion in gear therewith, a hollow shaft secured to the pinion, a hand-lever arranged to rotate the shaft, a collar on the shaft operated by the hand-lever, and a lever pivoted to take under said collar and additionally lead said valve when the collar is depressed, substantially as described.

700,996. MACHINE FOR SPLITTING BARK-STRIPS. EDWARD L. BROWN, Martinsville, Ind. Filed June 24, 1901. Serial No. 65,573. (No model.)



Claim.—1. A reversible cutter beveled on one side to a cutting edge, a guideway having one end adjacent to the beveled side of the cutter and adjustable in its distance from the cutting edge, and reversible feed-disks on the end of a vertically-tilting shaft to feed the material between the bearing-plate and cutter, said feed-disks being automatically adjustable to accommodate material of varying thickness.

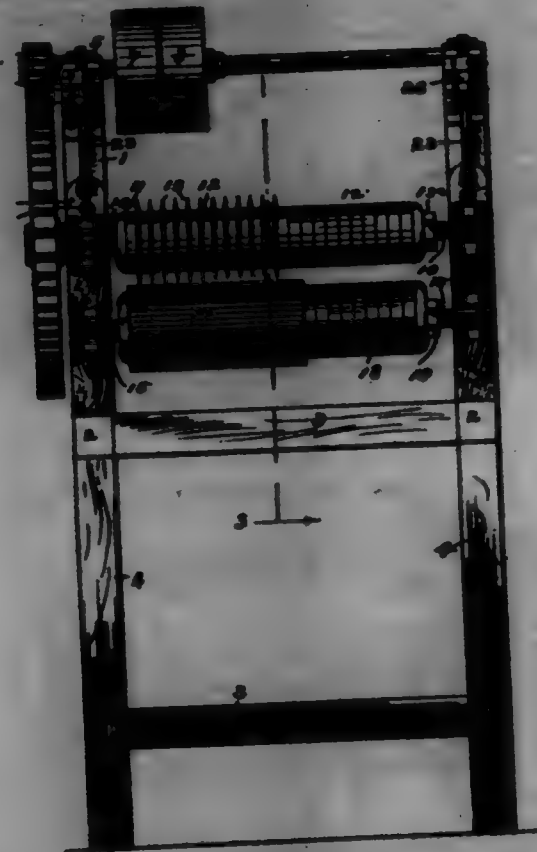
2. A table, a reversible vertical shaft projecting through said table, a circular disk mounted on the top of said shaft having its under edge beveled to form an upper cutting edge, a feed-box having one end located under the cutter to hold the material up thereon, means for adjusting said end toward and from the cutter, a horizontal reversible shaft terminating at one end above the feed-box and cutter, said shaft having a vertical rocking adjustment, elevated feed-disks mounted on said end of the horizontal shaft, and yielding means for drawing the end of the shaft having the cutters, down toward the feed-box with a predetermined pressure.

3. In a splitting-machine, a vertical reversible shaft having a cutter at its upper end, a feed-box leading to said cutter, the end of said feed-box forming a bearing for the material under the cutter, a screw for adjusting said bearing end of the feed-box, a horizontal reversible shaft pivoted to afford a vertical adjustment of its lower end, a spring to draw the shaft toward the feed-box, a tension device to regulate the force of the spring, and feeding-disks on the end of the shaft over the feed-box.

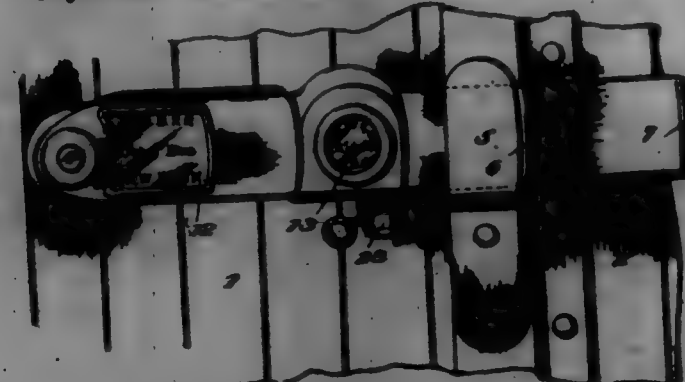
700,997. MACHINE FOR CUTTING BARK INTO STRIPS. EDWARD L. BROWN, Martinsville, Ind. Filed June 24, 1901. Serial No. 65,573. (No model.)

Claim.—A frame having a pair of vertical posts, a shaft having a lower end and a fixed pulley mounted on the top of the two posts, a second shaft mounted on said posts below the first shaft, cog-wheels connecting the two shafts, the journal-bases of the second shaft being adjustable vertically, means for holding the adjustment consisting of a threaded bolt

attached to each of the two boxes, one on the bolt and a pair of fixed ears, one on either side of said nut to prevent vertical movement of the nut, a fixed collar on the second shaft circular cutters with washers between each cutter, mounted on the second shaft and a nut on a threaded portion of the second shaft to tighten the cutters and washers against the fixed collar, a board having kerfed end to receive the cutters in the kerf and act as a cleaner to the cutters, a third shaft supported by the posts also having a fixed collar, a metal cylinder mounted on the third shaft against the fixed collar, a nut on a threaded portion of the shaft and washers between the nut and the metal cylinder and inclined tables leading to and from the said cylinder.



700,298. SEAL-LOCK. FERRY BROWN, Wilmington, Del. Filed May 24, 1901. Serial No. 61,750. (No model.)



Claim.—1. In a seal-lock, a hump, means for locking said hump, a seal-mechanism, means comprising a rack and pinion for unlatching said hump and operating said seal-mechanism, substantially as described.

2. In a seal-lock, a hump, a lock thereon, a rotary seal-mechanism, and means comprising a rack and pinion for unlatching said hump and for rotating said seal-mechanism, substantially as described.

3. In a seal-lock, a hump, a lock thereon comprising a bolt, a rotary seal-mechanism, and a pusher for positively rotating said seal-mechanism and withdrawing said bolt, substantially as described.

4. In a seal-lock, a hump, a casing containing a rotary seal-mechanism, a sliding bolt arranged to lock said hump to said casing, and a pusher arranged to positively rotate said seal-mechanism and operate said bolt, substantially as described.

5. In a seal-lock, a hump, a casing containing a rotary seal-mechanism, a sliding bolt arranged to lock said hump to said casing, a pusher arranged to operate said bolt, and a rack and pinion between said pusher and said seal-mechanism, whereby a movement of said pusher to act on the bolt rotates the said seal-mechanism, substantially as described.

6. In a seal-lock, a casing supporting a seal-mechanism, a cover arranged to clamp a seal over said seal-mechanism, and a hump arranged to cover and protect said seal and the aforesaid cover, substantially as described.

7. In a seal-lock, a casing supporting a seal-mechanism and having a projecting ring or rim, a pivoted cover arranged to close over said ring or rim and clamp the seal thereon, and a hump arranged to cover and protect said seal and aforesaid cover, substantially as described.

8. In a seal-lock, a casing containing a seal-mechanism, a pivoted hump arranged to be swung into operative position with said casing, a bolt locking said casing and pivoted hump, and a pusher moving in a path at right angles to the movement of said bolt and arranged to operate said seal-mechanism and withdraw said bolt, whereby the pivoted hump may be swung away from said casing, substantially as described.

9. In a seal-lock, a casing supporting a seal-mechanism and having a bolt-receiving recess therein, a hump carrying a spring-actuated bolt arranged to enter said recess, and a pusher carried by said casing arranged to operate said seal-mechanism and unlock said bolt, substantially as described.

10. In a seal-lock, a casing supporting a rotary seal-mechanism and having a bolt-receiving recess therein, a hump carrying a spring-actuated bolt arranged to enter said recess and lock the hump to the casing, and a pusher carried by the casing and arranged to rotate the seal-mechanism and unlock the bolt, substantially as described.

11. In a seal-lock, a casing supporting a seal-mechanism and having a bolt-receiving recess therein, a hump carrying a spring-actuated bolt arranged to enter said recess, a pusher carried by said casing and arranged to operate said seal-mechanism, and a bolt-operated element between the pusher and the bolt, substantially as described.

12. In a seal-lock, a casing secured to the car-door, and supporting a seal-mechanism and having a recess therein for supporting a way-card, an opening over the seal-mechanism, a cover for clamping a seal over said seal-mechanism, and a hump arranged to be locked to said casing and having eight-openings therein arranged over said recess for the way-card and the seal, substantially as described.

13. In a seal-lock, a casing having a seat for a seal, a seal-mechanism having a pinion contained within the casing and a half carried on the opposite side of the casing, and means for operating said pinion, substantially as described.

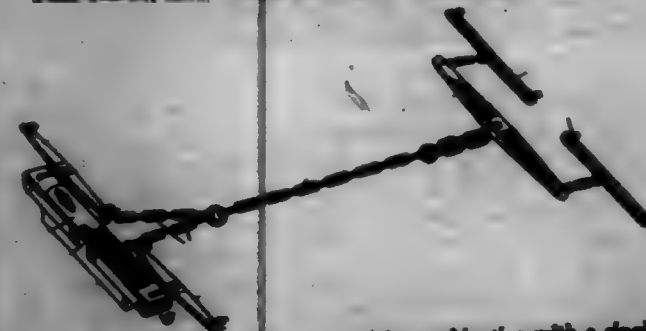
14. In a seal-lock, a casing having a seat for a seal, a pinion and means for operating it carried within the casing, one of the trunnions for the pinion projecting through the casing and carrying a seal-mechanism, substantially as described.

15. In a seal-lock, a casing having a seat for a seal, a pinion and means for operating it carried within the casing, one of the trunnions for the pinion projecting through the casing and carrying a seal-mechanism, and a cover arranged to clamp a seal on said seat over the seal-mechanism, substantially as described.

16. In a seal-lock, a casing supporting a seal-mechanism and seal, a recess for a way-card, and a hump having eight-openings exposing said seal and way-card and provided with a flange projecting over the casing to protect the said seal and card, substantially as described.

17. In a seal-lock, a casing containing a seal-mechanism, a hump carrying a bolt for locking said hump to said casing, and a pusher for operating said seal-mechanism and bolt, substantially as described.

700,299. DRAFT-EVENER. EDWARD BROWN, Boring, Iowa. Filed Oct. 30, 1901. Serial No. 59,642. (No model.)

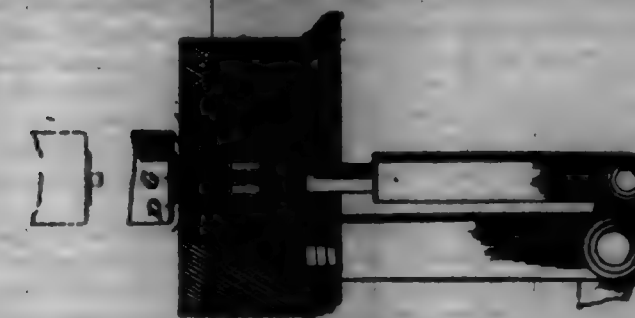


Claim.—1. In a draft-evening, and in combination with a dielectric and equalizing-levers cooperating therewith, bolts of approximately T form having arms at the ends of their cross-heads either to enter the equalizing-levers and prevent pivotal movement thereof or to embrace the edges thereof and limit their pivotal movement, substantially as set forth.

2. In a draft-evening, and in combination with a dielectric, a plate paralleling the dielectric and connected thereto, and equalizing-levers arranged between the dielectric and the said plate, T-shaped bolts pivotally connecting the equalizing-levers with the plate and dielectric and having arms at the ends of their cross-heads either to embrace opposite edges of the said plate and equalizing-levers or to enter corresponding openings formed in the said plate and equalizing-levers, substantially as set forth.

3. A draft-evening comprising a dielectric having a centrally-disposed lug, a plate paralleling the dielectric and spaced therefrom by the said lug, equalizing-levers located between the said plate and dielectric, dielectric applied to the outer ends of the equalizing-levers, a draft-chain having connection with the inner ends of the said equalizing-levers, and T-shaped bolts connecting the equalizing-levers to the said plate and dielectric and provided with arms at the ends of their cross-heads to embrace the edges of the equalizing-levers or to enter corresponding openings in the said plate and equalizing-levers, as and for the purpose set forth.

700,300. ART OF MAKING JUSTIFIED MATRICES. ARTHUR W. CATHAM, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Sept. 24, 1901. Serial No. 70,801. (No model.)



Claim.—1. The hereinbefore-described improvement in the art of forming matrices for type and the like which consists in spacing, condensing and hardening the body and face of the blank by pressure, to form and gauge its dimensions and flatten the impression-surface, and subsequently driving the character-punch a determined distance into the flattened surface while the blank is supported on all surfaces except that in which the drive is made.

2. The hereinbefore-described improvement in the art of forming justified matrices for type and the like which consists in subjecting the blank to pressure in an isolating die-cavity containing a punch, to simultaneously form the centering-cavity, flatten the matrix-receiving surface, and expand the blank to gauge, justifying the character-punch with reference to the walls of the cavity in which said compression is effected, and finally driving said character-punch to a predetermined depth in the previously-flattened face of the blank while supported in the die.

3. The hereinbefore-described improvement in the art of forming matrices which consists in containing and hardening the matrix-blank and burnishing the matrix-receiving surface and subsequently driving the matrix impression in said burnished surface as and for the purpose set forth.

4. The hereinbefore-described improvement in the art of forming matrices which consists in subjecting the blank to pressure within an isolated die-cavity to form and harden it, burnishing the matrix-receiving surface while the material is under elastic tension within the die by a movement of one of the die-surfaces, and subsequently forming the drive in said burnished surface.

5. The hereinbefore-described improvement in the art of forming matrices for type-setting machines which consists in first forming a blank longer than the finished matrix and smaller in cross-section; subjecting said blank to longitudinal pressure between insulating walls to compress, harden and shape it; burnishing the surface of the blank; and driving the character-punch into said burnished surface to form the matrix-cavity.

6. The hereinbefore-described improvement in the art of forming matrices which consists in compressing and burnishing the blank and driving the matrix-cavity while the blank is contained and supported in the compression-die.

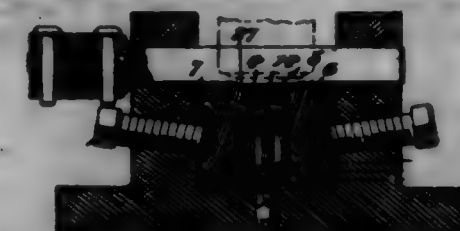
7. The hereinbefore-described improved step in the art of forming matrices, which consists in burnishing the matrix-surface by a movement imparted to one of the walls or surfaces of the die-cavity in which the compression of the blank is performed.

700,301. DIE MECHANISM FOR MATRICES. ARTHUR W. CATHAM, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, New York, N. Y., a Corporation of Virginia. Filed Jan. 31, 1902. Serial No. 70,802. (No model.)

Claim.—1. In a die mechanism such as described, the combination with a die and a compression-plunger, of a movable planishing-surface forming one wall of the die-cavity, as set forth.

2. In a die mechanism such as described, the combination of a die, a compression-plunger and an opening laterally-movable abutment or slide acting both as a wall of the die-cavity and a planishing medium for the face of the blank, substantially as described.

3. In a die mechanism such as described, the combination with the die and compression-plunger of a movable slide closing one end of the die and an impressing punch or plunger, substantially as described.



4. In a die mechanism such as described, the combination with the plunger and plates of a power-press, of a die supported on the plates and adjustable laterally of the plunger, a compression-plunger fixed to and working in one end of said die, a plate or cover for the opposite end of the die movable transversely of the latter, and a character-punch secured to the press-plunger in line with the die; substantially as described.

5. In a die mechanism such as described, the combination of the perforated die-block, the die located in one end thereof, the tubular support, the compression-plunger, the plunger-supporting sleeve and the disk engaging the rear end of said compression-plunger; substantially as described.

6. In a die mechanism such as described and in combination with the die, its compression-plunger and the opening abutment or plate closing one end of the die, of a plunger-actuating mechanism adapted to effect successive advance movements of the plunger for first compressing and then ejecting the blank; substantially as described.

7. In a die mechanism such as described, the combination of the following elements, to wit: a stationary die; a character-punch in alignment with the opening in said die, a slide movable laterally of the die intermediate the latter and the character-punch, said slide forming one wall of the die-cavity, a compression-plunger movable within the die opposite said slide; and actuating mechanism competent to advance the compression-plunger and reciprocate the slide; substantially as described.

8. In a die mechanism such as described, the combination of the following elements, to wit: a stationary die; a slide closing one end of said die; a compression-plunger in alignment with the opening in the opposite end of the die; and a cam connected through transmitting devices to said compression-plunger, said cam being provided with two gradients of progressively increased prominences separated by a concentric section to produce a dwell between successive advance movements of the plunger; substantially as described.

700,302. RAILWAY BLOCK-SIGNALING SYSTEM. WHITEHEAD H. CHAPMAN, Boston, and WILLIAM FENNER, Lynn, Mass. Filed May 3, 1901. Serial No. 59,573. (No model.)

Claim.—1. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism for each signal, means at both ends of the block for rendering said mechanism operative to set both signals, locking devices for said signals, actuating mechanism therefor, and means at both ends of the block for rendering said mechanism operative to actuate the locking devices to release the signals, substantially as described.

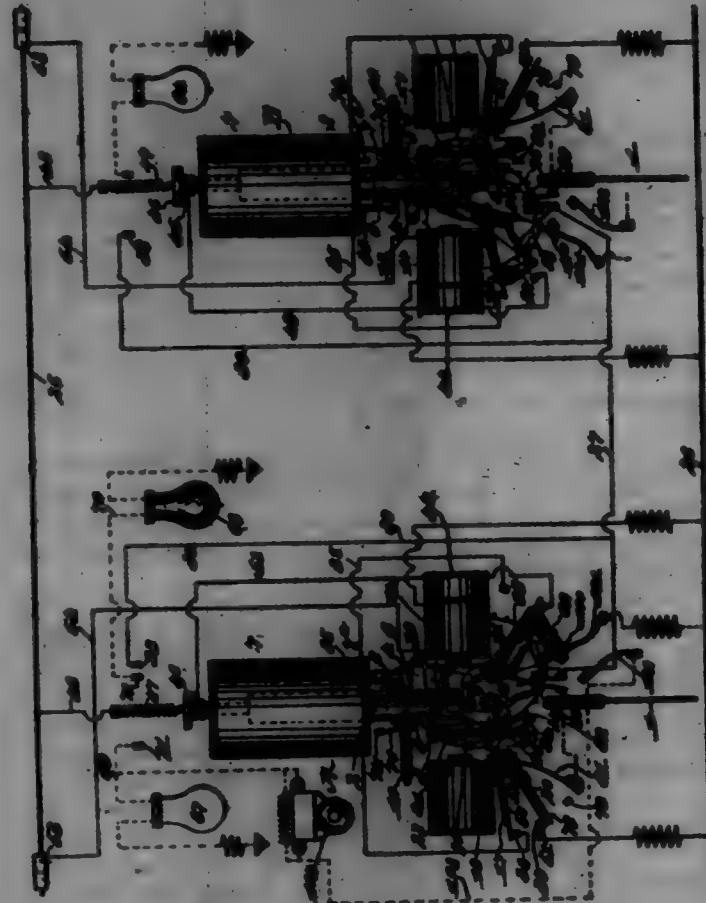
2. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism for each signal, means at each end of the block for rendering the actuating mechanism of the signal at the other end operative to set a signal, and means actuated by the setting of one signal for rendering the actuating mechanism of the other signal operative to set a signal, substantially as described.

3. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an opening-magnet for each signal, means at both ends of the block for rendering said magnets operative to set both signals, locking devices for said signals, actuating mechanism therefor, and means at both ends of the block for rendering said mechanism operative to actuate the locking devices to release the signals, substantially as described.

4. A railway block-signal system, having, in combination, a signal, an opening-magnet therefor, a circuit including said magnet, controlled means for closing said circuit, and a magnet in said circuit for maintaining said circuit closed, substantially as described.

5. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an opening-magnet for each signal, circuits for said magnets, circuitous in said circuits, actuating means therefor, means at each end of the block for rendering said actuating means operative to close the circuit of the magnet at the other end and means actuated by the setting of one signal for rendering said actuating means operative to close the circuit of the opening-magnet of the other signal, substantially as described.

6. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, means at each end of the block for rendering the magnet at the other end operative to set a signal, and means actuated by the setting of one signal for rendering the magnet of the other signal operative, substantially as described.



7. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, means for closing said circuits, and a locking device for one of the signals acting to control the means for closing the circuit of the magnet of the other signal, substantially as described.

8. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, means at one end of the block for rendering the magnet at the other end operative to set a signal, and a locking device for said signal acting to render the magnet of the other signal operative, substantially as described.

9. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, a single line-wire, circuits for said magnets including said line-wire, means for closing said circuits, and means actuated by the setting of one signal for controlling the means for closing the circuit of the magnet of the other signal, substantially as described.

10. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, an electromagnet for actuating each locking device to release a signal, means for closing a circuit including one of said magnets and means controlled by said magnet for closing a circuit including the other magnet, substantially as described.

11. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a single controller acting to control the return of both signals to normal position, means operating independently of the controller for rendering said mechanism operative to set both signals and means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of the signals until the last car leaves the block, substantially as described.

12. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, means for actuating said locking device to release the signals, a controller, and means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of said locking device until the last car leaves the block, substantially as described.

13. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, a locking device for said signal, means for actuating said locking device to release the signal, a controller, means rendered operative by one entering the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

14. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, a locking device for said signal, means for actuating said locking device to release the signal, a controller, means rendered operative by one entering the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

15. A railway block-signal system, having, in combination, a signal, means for actuating said signal when a car enters the block, a locking device for said signal, means including a magnet for actuating said locking device to release the signal, a circuit for said magnet, means for closing said circuit at one point when a car leaves the block, a controller acting to open and close said circuit at another point, and means for actuating the controller in a direction to open said circuit when a car enters the block and for actuating the controller in a direction to close said circuit when a car leaves the block, substantially as described.

16. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, a locking device for said signal, means including a magnet for actuating said locking device to release the signal, a circuit for said magnet, means for closing said circuit, a step-by-step controller, and means for actuating said controller in a direction to maintain said circuit open when a car enters the block and for actuating the controller in a direction to prevent the closing of said circuit when a car leaves the block, substantially as described.

17. A railway block-signal system, having, in combination, a signal movable from normal to a plurality of positions, actuating mechanism therefor and means for determining the position to which the signal is moved by said mechanism, substantially as described.

18. A railway block-signal system, having, in combination, a target rotatable in opposite directions from normal position to display either side, means for rotating the target and means for determining the direction of rotation, substantially as described.

19. A railway block-signal system, having, in combination, a target, a rod for actuating said target provided with right and left spiral grooves, means for moving the rod longitudinally and means for engaging either groove to cause the rod to rotate in either direction, substantially as described.

20. A railway block-signal system, having, in combination, a target, a rod for actuating said target provided with right and left grooves, means for moving the rod longitudinally, means for engaging either groove to cause the rod to rotate in either direction, two loop-circuits and means actuated by the rod to close one circuit when the rod is rotated in one direction and to close the other circuit when the rod is rotated in the opposite direction, substantially as described.

21. A railway block-signal system, having, in combination, a signal, an operating-magnet therefor, a circuit including said magnet, an electromagnet for closing said circuit, means for maintaining said circuit closed, and means actuated by the setting of the signal to break said circuit, substantially as described.

22. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, circuits for said magnets, means for closing said circuits, means at the entering end of the block for rendering said means operative to close the circuit of the magnet at the distant end, means actuated by the setting of the signal at the distant end, and means actuated by the setting of the signal at the entering end to break the circuit of the magnet at the distant end, substantially as described.

23. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, an operating-magnet for each signal, a line-wire, circuits for said magnets including said line-wire, means for closing said circuits, means at each end of the block for controlling the closing of the circuit of the magnet at the other end, and means actuated by the setting of either signal for controlling the closing of the circuit of the magnet of the other signal, substantially as described.

24. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, means for moving each signal from normal to either of two positions, and means at each end of the block for rendering said means operative to move the signals to different positions, substantially as described.

25. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, a magnet for actuating each locking device to release the signal, a controller, means rendered operative by one entering the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

26. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, a magnet for actuating each locking device to release the signal, a controller, means rendered operative by one entering the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

27. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, a controller acting to control the return of the signal to normal position, means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

28. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, means for actuating said locking device to release the signal, a controller, and means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of the signal until the last car leaves the block, and means for actuating the controller when a car enters the block, substantially as described.

29. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, means for actuating said locking device to release the signal, a controller at each signal acting to control the return of both of said locking devices, actuating mechanism therefor, and means at both ends of the block for rendering the actuating mechanism of both signals operative to set the signals, and to render the actuating mechanism of one of the controllers operative, and means actuated by the setting of the signals for preventing the return of the other controller, substantially as described.

30. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, actuating mechanism therefor, a locking device for each signal, means for actuating said locking device to release the signal, a controller at each signal acting to control the return of both of said locking devices, actuating mechanism therefor, means at both ends of the block for rendering the actuating mechanism of both signals operative to set the signals, and to render the actuating mechanism of one of the controllers operative, and means actuated by the setting of the signals for preventing the return of the other controller, substantially as described.

31. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, means for rendering said mechanism operative to set the signal, means for rendering the signal, a controller for said rendering means, and means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of the signal until the last car leaves the block, substantially as described.

32. A railway block-signal system, having, in combination, a signal at each end of a track-section or block, means for successively setting said signals and means for successively restoring said signals, substantially as described.

33. A railway block-signal system, having, in combination, a signal, actuating mechanism therefor, means for rendering said mechanism operative to set the signal, means for rendering the signal, a controller for said rendering means, and means rendered operative by one entering and leaving the block for actuating the controller to prevent the return of the signal until the last car leaves the block, substantially as described.

700,808. VERTICAL GRAIN-SCALE. FRANK E. GLASER, New York, N. Y. Filed Apr. 29, 1898. Serial No. 57,964. (No Model.)

Claim.—1. The combination of a vertically-movable load-receiver, scale-weights connected therewith, a supplemental weight, a catch arranged in the path of the supplemental weight and adapted to support the same, means for tripping the catch, and a tension device consisting of an adjusting-curve pivoted to the catch, and a coiled spring mounted on the adjusting-curve and engaging the same and the catch, substantially as described.

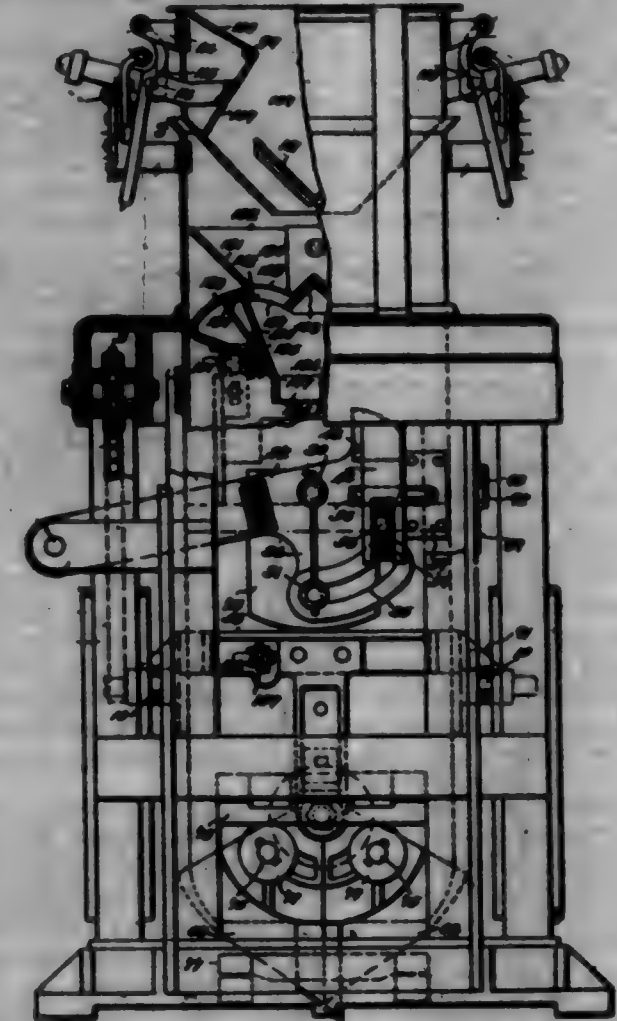
2. The combination of a frame or casing, a vertically-movable load-receiver, scale-weights connected therewith, a supplemental weight, a catch for supporting the supplemental weight, means for tripping the catch, and a tension device consisting of an adjusting-curve mounted in a threaded opening of the frame or casing and loosely passing through the catch, washers mounted on the adjusting-curve and located at opposite sides of the catch, and a spring engaging the curve and the catch, substantially as described.

3. The combination of a vertically-movable load-receiver, a frame or casing, scale-weights connected therewith, a supplemental weight, a catch pivotedly mounted at its upper end on the frame or casing and arranged to support the supplemental weight, an adjusting-curve mounted in a threaded opening of the frame or casing and passing through the catch, a spring disposed on the adjusting-curve and engaging the catch, and means for tripping the catch, substantially as described.

4. In a scale, the combination of a vertically-movable load-receiver, a latch for locking the scale out of operation, a reciprocating operating-bar arranged horizontally and engaging the catch, and means for automatically lifting the bar when the same is reciprocated, whereby the bar will be automatically disengaged from the latch, substantially as described.

5. In a scale, the combination of a vertically-movable load-receiver,

a latch for locking the scale out of operation, said latch being arranged to swing, and provided with a leg, and a bar detachably engaging the leg and arranged to be lifted out of such engagement when the latch swings, substantially as described.



6. In a scale, the combination of a vertically-movable load-receiver, a latch for locking the scale out of operation, said latch being capable of swinging and provided with a leg, and a bar engaging one side of the leg and arranged to be engaged by the opposite side of the leg when the latch swings, whereby the latch will be tripped automatically, substantially as described.

7. In a scale, the combination of a vertically-movable load-receiver, a latch for locking the scale out of operation, said latch being capable of swinging and provided with a leg, and a bar provided with a shoulder engaging one side of the leg, said bar being adapted to be lifted out of such engagement by the leg when the latch swings, substantially as described.

8. In a scale, the combination of a vertically-movable load-receiver, a pivotally-mounted latch for locking the scale out of operation, said latch being provided with a guide and having a transversely-disposed leg arranged at a slight inclination when the latch is in its engaging position, a bar passing through the guide and having a shoulder engaging the upper edge of the leg, and means for yieldingly mounting the bar, substantially as described.

9. In a scale, the combination of a vertically-movable load-receiver, a latch for locking the scale out of operation, said latch being provided with a leg, a bar disposed approximately horizontally and arranged above and engaging the leg, a spring connected with and adapted to return the bar, and means for limiting the movement of the same, substantially as described.

10. The combination of a vertically-movable load-receiver, a fixed bracket or support arranged above the same, movable cut-off located at opposite sides of the bracket or support and provided with weighted arms adapted to close the cut-off automatically, latches for holding the cut-off open, and means carried by the load-receiver for tripping the latches and for lifting the arms to open the cut-off, substantially as described.

11. The combination with a vertically-movable load-receiver, of a chute or hopper located above the load-receiver, the substantially V-shaped bracket or support 101 mounted within the chute or hopper, the cut-off hingedly mounted within the chute or hopper at opposite sides of the bracket or support and provided with means for automatically closing them, latches for holding the cut-off open, and tripping devices carried by the load-receiver for engaging the latches, substantially as described.

12. The combination of a vertically-movable lead-receiver, a supply chute or hopper having a contracted or tapered lower portion, the V-shaped breaker or support arranged within the supply chute or hopper and spaced from the breaker or support, cut-off mounted at opposite sides of the latter, and means operated by the lead-receiver for opening and closing the cut-off, substantially as described.

13. The combination of a vertically-movable lead-receiver, a supply chute or hopper having oppositely-inclined lower portions, the inclined deflector arranged within the supply chute or hopper, the V-shaped breaker mounted within the chute or hopper and spaced from the inclined lower portions of the same to provide opposite passages, cut-off hinged at the lower edges of the inclined deflector, and means operated by the lead-receiver for opening and closing the cut-off, substantially as described.

14. The combination of a vertically-movable lead-receiver, a cut-off, a latch arranged to hold the cut-off open and provided with an arm or lever having an inclined edge, and provided above the same with a recess, and a tripping device arranged to engage the inclined edge, substantially as and for the purpose described.

15. The combination of a vertically-movable lead-receiver, a cut-off having a weighted arm, a latch pivoted at its upper end and arranged to hold the weighted arm in an elevated position, a lever or arm connected with and spaced from the catch and provided with an inclined edge, and a tripping device carried by the lead-receiver and arranged to engage the inclined edge, substantially as described.

16. The combination of a vertically-movable lead-receiver, a supply chute or hopper, cut-off mounted within the chute or hopper and provided with weighted arms, the latch pivoted at opposite sides of the chute or hopper and arranged to hold the arms elevated and provided with depending arms or levers, the tripping devices carried by the lead-receiver and arranged to engage the arms or levers, and the lifting device carried by the said lead-receiver and arranged to engage the weighted arms of the cut-off, substantially as described.

17. The combination of a vertically-movable lead-receiver provided at the top with an entrance-opening, a valve pivoted to the lead-receiver and arranged to swing inward and outward to vary the size of the entrance-opening, the pivoted cut-off mounted on the lead-receiver and arranged on the exterior of the valve and adapted to swing inward and outward over the same, and means arranged to be engaged by the cut-off for opening and closing the same, substantially as described.

18. The combination of a vertically-movable lead-receiver provided at the top with an entrance-opening, an adjustable valve or cut-off pivotedly mounted and arranged to vary the size of the said opening, a ratchet-wheel connected with the valve or cut-off, a pawl for locking the ratchet-wheel against movement in either direction, and an automatically-operating cut-off for covering the opening when the lead-receiver moves downward, substantially as described.

19. The combination of a vertically-movable lead-receiver provided at the top with an entrance-opening, the automatically-operating oscillatory valve arranged to swing inward and outward to cover and uncover the said opening, and provided with an arm, and means arranged to be engaged by the arm for opening and closing the cut-off when the lead-receiver moves upward and downward, substantially as described.

20. The combination of a vertically-movable lead-receiver provided with an entrance-opening, a hinged valve mounted on the lead-receiver and arranged to swing inward and outward to cover and uncover the said entrance-opening, said valve being provided with an arm rigid with it, and fixed stops arranged in the path of the arm and located above and below the same, whereby the valve is automatically opened and closed when the lead-receiver moves upward and downward, substantially as described.

21. The combination of a vertically-movable lead-receiver provided with an entrance-opening, a movable cut-off mounted on and carried by the lead-receiver and provided with an arm, and steps arranged to be engaged by the arm when the lead-receiver moves upward and downward, one of the steps being disposed vertically and forming a track for holding the cut-off in its closed position, substantially as described.

22. The combination of a vertically-movable lead-receiver provided at its top with opposite openings, oscillating cut-off arranged to cover and uncover the said openings and provided with arms, steps arranged to engage the arms to open the cut-off, and vertical tracks arranged to engage the arms and close the cut-off, and maintain the same in such position during the major portion of the vertical movement of the lead-receiver, substantially as described.

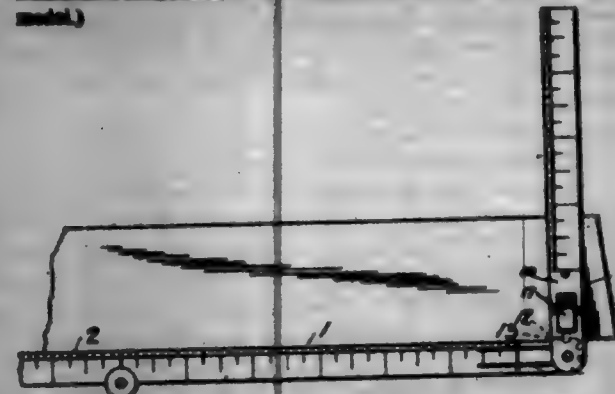
23. The combination of a vertically-movable lead-receiver provided at its top with opposite openings, oscillating cut-off provided with arms, a plate or frame having vertical flanges forming tracks and arranged to be engaged by the arms, and adjustable stops mounted on the plate or frame and arranged to engage the arms, substantially as described.

24. The combination of a vertically-movable lead-receiver, a tapered

chute provided with a spreader, a neck located below the spreader and extending beyond the same to form opposite openings, the oscillating cut-off mounted beyond the neck and arranged to cover and uncover the said openings, and means for actuating the cut-off, substantially as described.

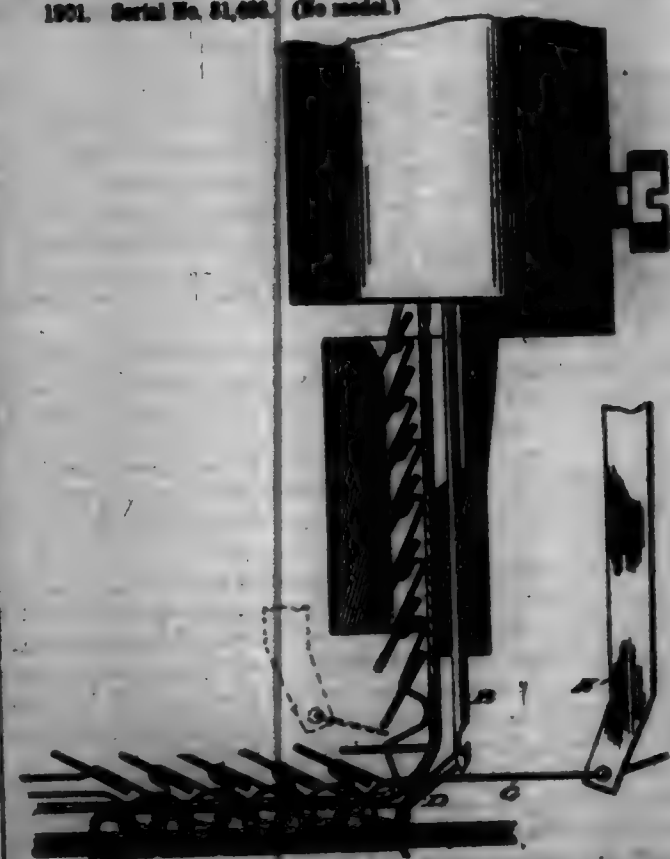
25. The combination of a vertically-movable lead-receiver, a tapered chute mounted within the same, a spreader arranged at the bottom of the chute, a neck spaced from the chute to form trays and extended beyond the spreader, the adjustable cut-off or valve arranged to extend inward over the neck, and the automatically-operating cut-off arranged to close the openings at the top of the neck, substantially as described.

700,804. CORNERED RULE AND SQUARE. FRANK J. COOPER, Columbia Falls, Me. Filed July 20, 1901. Serial No. 70,111. (No model.)



Claim.—The combination with an ordinary two-foot rule having on the outer end of one of its hinged members a head with a notched head, and shoulders on opposite sides of the head formed at the intersection of said head and said rule, the shoulders being partly vertical and partly curved, and an outer member of the rule having at its inner portion a recess a spring-latch with a bolt mounted in the recess, of an indicator consisting of two plates with curved inner ends secured to the inner end of the outer member of the rule, a rectangular opening in one of the plates for the passage of a projection of the latch to operate the latch so that the bolt thereof will coast with the notches of the head of the rule, and the inner curved ends of the plates of the indicator pivoted on opposite sides of the head of the rule whereby said vertical and curved shoulders formed at the intersection of the head and its head coast with the curved ends of the plates and the inner vertical edge thereof, substantially as specified.

700,805. MACHINE FOR FIXING SPANGLER MATERIAL TO TEXTILE FABRIC. ROBERT CURRIE, Paris, France. Filed Nov. 7, 1901. Serial No. 81,000. (No model.)



Claim.—1. In a sewing or embroidering machine for attaching spangled material to fabric, the combination with stitch-forming mechanism

for a passage or conduit through which the spangled material passes to the fabric, said conduit being of elongated cross-section to prevent the spangled material from becoming twisted and to present the same in proper position for the binding-thread to pass between the spangles, and a thread-carrier passing a binding-thread around the spangled material between the spangles and around the stitches formed by the stitch-forming mechanism.

2. In a sewing or embroidering machine for attaching spangled material to fabric, the combination with a hollow needle-bar through which the spangled material is adapted to pass, a needle carried thereby and co-operating stitch-forming mechanism, of a hollow nipple below the needle-bar through which the spangled material passes from the needle-bar to the fabric, the passage through the needle-bar and nipple being of elongated cross-section to prevent the spangled material from becoming twisted and to present the same in proper position for the binding-thread to pass between the spangles, and a thread-carrier passing a binding-thread around the spangled material between the spangles and around the stitches formed by the stitch-forming mechanism.

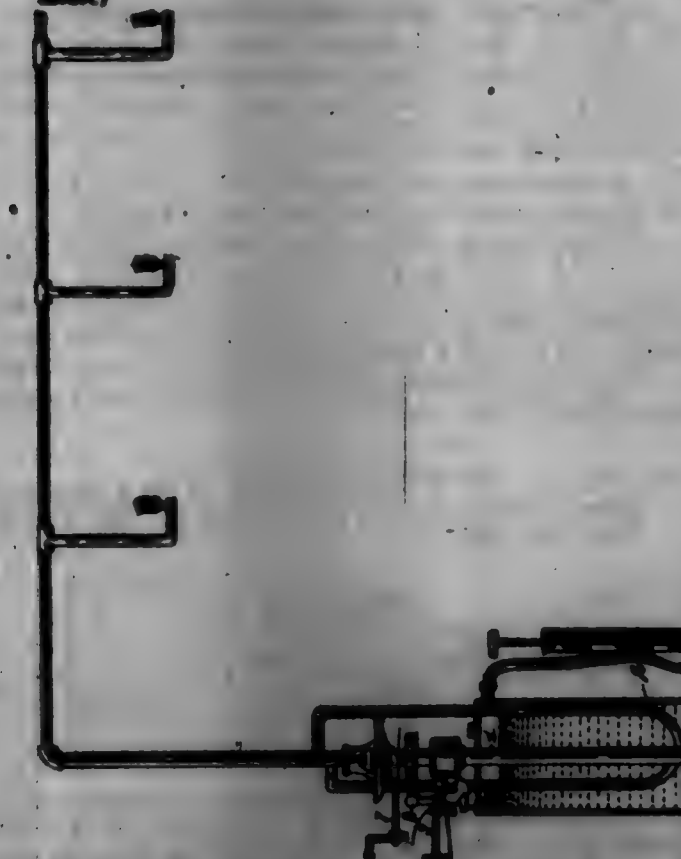
3. In a sewing or embroidering machine for attaching spangled material to fabric, the combination with a hollow needle-bar, a needle carried thereby and co-operating stitch-forming mechanism, of a reel above said bar on which the spangled material is wound, a roller or pulley over which the spangled material passes to the passage through the needle-bar which is of elongated cross-section to prevent the spangled material from becoming twisted, and a thread-carrier passing a binding-thread around the spangled material between the spangles and around the stitches formed by the stitch-forming mechanism.

700,806. COIN-DELIVERY MACHINE. ADAM M. GASTNER, Philadelphia, Pa. Filed Aug. 28, 1901. Serial No. 72,000. (No model.)



Claim.—In a coin-delivery machine on attachment to the coin-chute consisting of a triangular piece of metal having its one side flat and its other side thickest in its center and sloping to its edges and fastened to said chute directly above the mouth of said chute, substantially as described and shown.

700,807. CARBURIZER. GEORGE C. DEHN and JEREMIAH A. RAHMER, Butler, Ind. Filed Feb. 15, 1901. Serial No. 47,672. (No model.)



Claim.—1. In a gasless-gas generator, the combination of a generator, a feed-pipe leading therefrom, a carbide-burner in operative relation

tion to said generator, a shield over the latter, and a service-pipe having its lower end disposed opposite the discharge of the generator and above said shield, substantially as described.

2. The combination of a generator, a reservoir for gasoline, a feed-pipe leading from said reservoir to said generator, a carbide-burner disposed under the generator, a shield above the latter and through which the vapor discharge of the generator passes, and a service-pipe having its lower end disposed above said shield opposite and above said vapor discharge of said generator, said service-pipe passing through the body of gasoline in the said reservoir, substantially as described.

700,808. CONVEYER-BELT. JAMES H. DODGE, Philadelphia, Pa., assignor to the Link Belt Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Aug. 27, 1901. Serial No. 72,000. (No model.)



Claim.—1. A conveyor-belt made of two or more independent endless sections arranged side by side, the abutting edges of the said sections being hinged together, substantially as described.

2. A conveyor-belt made of two or more independent endless sections arranged side by side, the abutting edges of the said sections being hinged together by a flexible hinge so that it will pass around the head wheels of the conveyor, substantially as described.

3. A conveyor-belt made of a central endless section and two side endless sections, said sections being flexible and the abutting edges of said sections being hinged together, substantially as described.

700,809. PISTON FOR GAS OR OTHER MOTORS. HERMAN E. BORN, Furberg, Germany, assignor to The Firm of Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, A.-G., Furberg, Germany. Filed Dec. 15, 1900. Serial No. 700,000. (No model.)



Claim.—1. In combination, the cross-head, the semi-cylindrical removable and interchangeable guiding portions carried thereby, a short shaft integral with said cross-head extending axially rearward therefrom, a rear piston portion threaded on said shaft and packing-rings carried thereby, substantially as described.

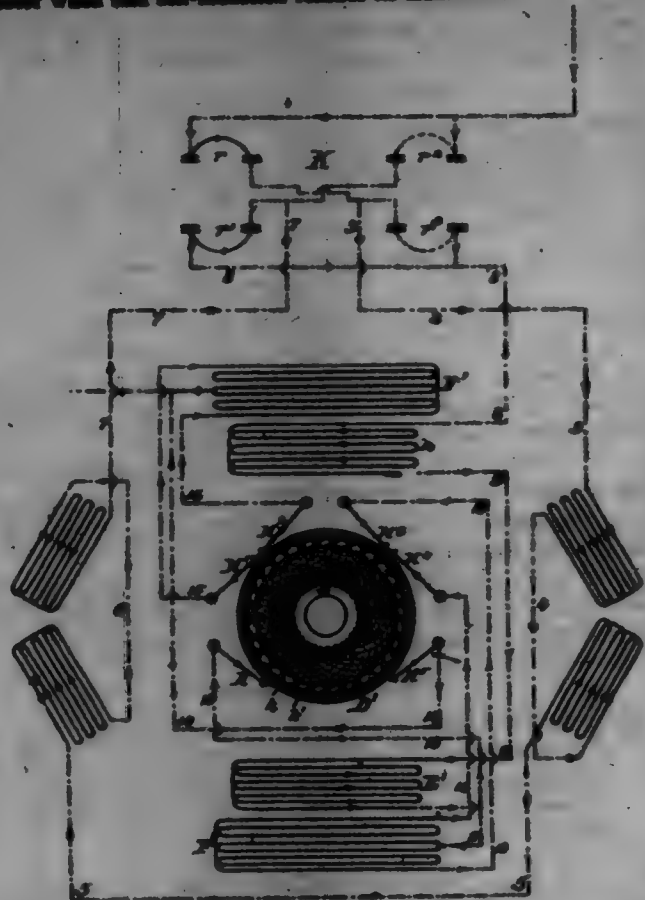
2. In combination, a cross-head, a guiding and a packing cylinder, said guiding-cylinder consisting of a plurality of segmental sections removably secured to the cross-head and a connection between the packing-cylinder and the cross-head, substantially as described.

700,810. ALTERNATING-CURRENT ELECTRIC MOTOR AND CONTROLLING MEANS THEREFOR. RUDOLF ROHMERT, Yonkers, N. Y.; Rudolf Rohmeyer, Jr., Carl Rohmeyer, and Mary T. Rohmeyer executors of said Rudolf Rohmeyer, deceased. Filed Aug. 15, 1901. Serial No. 68,722. (No model.)

Claim.—1. In an alternating-current motor, provided with multipole magnetic field-circuit; an armature provided with coils connected in series in a closed circuit, and occupying recesses in the periphery of the armature-core; counterbalancing field-coils of high resistance within the influence of the magnetic field-circuit, said counter field-coils comprising short-circuited windings surrounding the said field-circuit, closely adjacent to and overlying portions of the counter-coils.

2. The combination with an alternating-current motor provided with

a suitable commutator and appropriate brushes relatively mounted on the armature-shaft, of a circuit-breaker and controlling mechanism for said brushes and circuit-breaker, accessible to the operator, the motor organization being such that when the motor is at full speed, the operator by relatively moving the brushes toward their insipidative position will deprive the motor of its driving power by increasing the self-induction of the motor, the circuit-breaker opening for cutting off the current from the motor when said self-induction reaches its maximum.



3. The combination with an alternating-current motor, provided with relatively-mounted brushes, adapted by variations in position to start, stop, and reverse the motor, of a circuit-breaker, a set of counter field-coils interposed between similarly-magnetized cheeks and located closely adjacent to the armature, and controlling mechanism accessible to the operator for relatively varying the position of the brushes, as for stopping and reversing, and also for reversing the current in the counter field-coils by variation in the position of the circuit-breaker.

4. In an alternating-current electric motor, the combination of a motor-armature, and a multipolar electromagnet embodying a series of iron cheeks in several pairs, each pair of which is embraced by a short-circuited coil.

5. In an alternating-current electric motor, the combination with a suitable armature, of a multipolar field-magnet, constructed in separable sections, each containing different magnets which are provided with counter field-coils for preventing self-induction of the armature.

6. In an alternating-current electric motor, the combination with a suitable armature, of a multipolar electromagnet embodying separated masses of laminated iron, each mass composed, longitudinally recessed, and parallel with the others, and separate rectangular field-coils, each of which at its sides comprise recesses in two separated adjacent masses of field-iron, and serves as the exciting medium for two separated magnets.

7. In combination, an alternating-current motor having an armature provided with a commutator, a tilting cut-out or switch for said motor, a controlling-shaft accessible to the operator, commutator-brushes relatively operated for starting, stopping, and reversing; the cut-out or switch, intermediate shunting and gearing relatively coupling the controlling-shaft to the brushes, and a cam-lever coupled to the tilting cut-out, and caused by said shunting to vibrate with appropriate lost motion, as between the rotation of the controlling-shaft and the operation of the cut-out.

700,811. TREATMENT OF COMPLEX AND REFRACTORY ORES. FRANK HALLERMAN, London, England, assignor to the Hallerman Reduction, (New Process) Limited, London, England. Filed Feb. 18, 1906. Serial No. 5,315. (No model.)

Claim.—1. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, positively drawing off the fumes and gases, and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

2. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

3. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

4. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

5. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

6. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

7. The process of treating complex and refractory ores containing lead, silver and zinc, which consists in smelting the raw ores, drawing off the fumes and gases and charging them with water to condense and mix them therewith, cutting out the lead, silver and part of the zinc compounds from the resulting liquor, as a dudge, separating and drying the dudge, fusing the dudge with impure caustic alkali containing sulfide, thereby precipitating the lead in metallic form, separating the lead, treating the residual molten mass to recover zinc, and treating the liquor from which the dudge was separated with said caustic soda, thereby precipitating zinc, and converting the caustic soda into sodium carbonate, and recovering the sodium carbonate, substantially as described.

700,812. NON-REFILLABLE BOTTLE. BARNES A. FARMER and HERMAN R. KERN, Astoria, Ala. Filed Aug. 21, 1906. Serial No. 11,302. (No model.)



Claim.—1. The combination with a bottle, of a cylindrical case arranged in the neck thereof, a valve seated in the cylindrical case, a stopper also arranged in the said cylindrical case and projecting above same, the upper portion of said stopper having an opening adjacent to the top, the lower portion of the stopper having a tube arranged therein, a plug

located in the tube, and the wire connected to the plug and passing out through the opening adjacent to the top of the stopper, substantially as described.

2. The combination with a bottle, of a cylindrical case arranged in the neck thereof, a valve seated within the case, a stopper located also within the case and projecting above the case, said stopper having a tube adapted to receive the upper end of the valve-stem, a plug located in said tube and having a wire connected thereto, said wire passing out through an opening arranged adjacent to the top of the stopper, the upper portion of the stopper having a series of inclined ledges arranged upon the exterior thereof, and a cap fitted upon the neck of the bottle and having the depending flange adapted to be embedded in cement contained between the neck of the bottle and the cylindrical case, substantially as and for the purpose described.

700,813. CORE FOR CASTING GEAR-WHEELS. LUTHER E. FAWCETT, Philadelphia, Pa.; Harry J. Fawcett, administrator of said Luther E. Fawcett, deceased. Filed Oct. 2, 1901. Serial No. 77,598. (No model.)



Claim.—1. The combination of a core having a central body or stem, an annular rim, a transverse web connecting the body with the rim, at or near one end of the latter, and lateral ribs connecting the rim, at or near its opposite end, with the body, a key-block seated in the web of the core, supports for maintaining the core and key-block in normal form and location, and said ribs and lateral ribs formed in the core.

2. The combination of a core having a central body or stem, a transverse web, and a print at one end, a center support fitted in and projecting from the body of the core at the end opposite the print, a stop or bearing in which said center support is fitted, and a key-block seated in the web of the core.

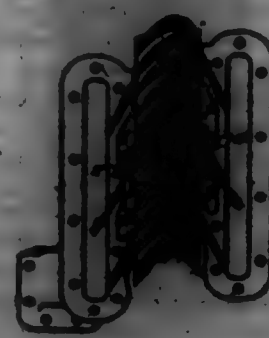
3. The combination of a core having a central body or stem and a transverse web, a key-block seated in the web of the core and having internal spaces or passages, a center support fitted in and projecting from the body of the core, and a stop-core fitted in the web of the core and in one of the passages of the key-block.

4. The combination of a core having a central body or stem and a transverse web, a key-block seated in the web of the core and having internal spaces or passages, a main vent extending throughout the major portion of the length of the body of the core, and a lateral vent formed in the web of the core and connecting one of the internal spaces of the key-block with the main vent.

5. The combination of a core having a central body or stem and a transverse web, a key-block seated in the web of the core, and a strip of refractory material, an asbestos paper or the like, fitted in the core adjacent to the key-block.

6. The combination of a core having a central body or stem and a transverse web, a key-block seated in the web of the core, a main vent extending throughout the major portion of the length of the body of the core, and a lateral vent formed in the web of the core and leading from the main vent.

700,814. STEAM-TURBINE. JOHN S. FARMER, New York, N. Y. Filed Jan. 21, 1908. Serial No. 62,080. (No model.)



Claim.—1. In combination with a water or steam turbine, the main and exhaust-grooves alternating and placed opposite each other around the periphery on each side of a turbine wheel.

2. The combination with a water or steam turbine, the main and exhaust-grooves alternating and placed opposite each other on both sides of turbine wheel or wheels.

3. In combination with a water or steam turbine one or more turbine wheels having buckets extending radially and parallel on each side adapted to discharge into the same bucket or set of buckets.

4. In combination with a water or steam turbine, the main and exhaust-grooves alternating and placed opposite each other around the periphery on each side of a turbine wheel, the main adjusted to direct energy against parts of turbine wheel in such a manner that when the wheel is at a standstill the energy discharged will act independently against the wheel and exhaust but when the wheel is turning at a given speed the energy discharged from opposite main will collide and act componently against the wheel, substantially as described and for the purpose set forth.

5. In combination with a water or steam turbine the casing, one or more turbine wheels with buckets fitted steam-tight therein, ridges of main and exhaust-grooves alternating and placed opposite each other on both sides of turbine wheel or wheels in such a manner that the kinetic energy emitted from opposite main will collide when wheel is turning but will exhaust when wheel is at a standstill as described and set forth in the foregoing specification.

700,815. GRAIN-DRILL. WILLIAM FRYER, Middletown, Ohio. Filed Mar. 14, 1908. Serial No. 64,338. (No model.)



Claim.—1. In a grain-drill, the combination of the feed-shaft, the main axle, and changeable-speed gearing intermediate between the shaft and axle, the axle being divided or formed in two sections, and the gearing being duplicated for each section.

2. In a grain-drill, the combination of the feed-shaft, the main axle, the latter being divided into two separate sections, a, a', a driving-gear on each section, a gear on the feed-shaft, and an adjustable gear connection between each driving-gear, and the corresponding gear on the feed-shaft.

3. In a grain-drill, the combination of the feed-shaft, the main axle, the latter being divided into two separate sections, a, a', a driving-gear g on each section, pinions b, b' on the feed-shaft, one for each gear g, and counter-shafts c, c, connecting the driving-gears g with the pinions on the feed-shaft, the counter-shafts having adjustable pinions i adapted to be adjusted on or to mesh with different rows of teeth on the gears g.

700,816. BALL-COOK. FRED F. PLANN, Worcester, Mass. Filed Apr. 22, 1891. Serial No. 64,186. (No model.)



Claim.—1. In a flushing-tank, the combination of a valve, a float in connection with the valve, a spring, at one end in operative connection with the float and at the other end in engagement with an adjustable abutment, means connecting with the abutment whereby the spring is progressively compressed during the rise of water in the tank substantially as set forth.

2. In a flushing-tank, the combination of a valve, a float in connection with the valve, resilient means to submerge the float for a predetermined interval in opposition to the buoyant force of the rising water, an adjustable abutment connecting with said resilient means, a rider operatively connected with the abutment and the valve to contract the said resilient means as and for the purpose set forth.

3. In a flushing-tank, the combination of a valve, a float and float in connection therewith, a spring operatively surrounding said float, an adjustable and movable abutment in contact with one end of the spring, means whereby the abutment is actuated to contract said spring as and for the purpose set forth.

4. In a flushing-tank, the combination of a valve, a float and float in connection therewith, a spring surrounding said float and in operative connection therewith, to submerge said float against the buoyant force of the flowing water, an adjustable and movable mechanism loosely held upon the float and cooperating with the valve and spring to contract said spring and then submerge the float substantially as set forth.

5. In a flushing-tank, the combination with a valve-stem of an elastic gland, a loose washer, provided with arms, bearing against said gland, operating means for said valve-stem, one or more lugs secured to said valve-stem-opening means, and bearing against said washer-arms to expand said gland substantially as described.

700,817. CORSET. LOUISA S. FOWLER, Chicago, Ill. assignor to the H. W. Gannard Company, Chicago, Ill. Filed Oct. 24, 1891. Serial No. 64,179. (No model.)



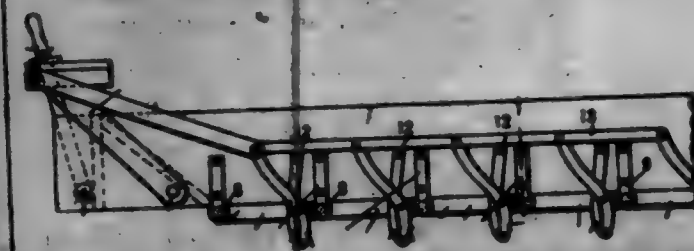
Claim.—1. A corset comprising a body, four fastening-strips of stiff resilient material arranged so as to be substantially parallel, the outer pair being permanently connected with the body, the inner pair being provided with means for detachably connecting their adjacent edges, each of the inner pair having rigidly secured along its outer edge a series of projecting eyes, each of the outer pair having rigidly secured along its inner edge a corresponding series of projecting eyes, and lacing for adjust-

ably connecting the eyes of each of the inner strips with the eyes of the adjacent outer strip; said eyes on each consisting of a loop 6 lying substantially in the plane of the fastening-strip to which same is secured, but being twisted from each plane to give a free lead to said lacing, substantially as shown.

2. A corset comprising a body, a pair of flat fastening-strips of stiff resilient material each secured to an adjacent part of the garment, each of said strips having rigidly secured to the edge adjacent to the other strip a series of projecting eyes, and suitable lacing connecting the eyes on one strip with those on the other; said eyes on each consisting of a loop 6 lying substantially in the plane of the fastening-strip to which same is secured, but being twisted from each plane to give a free lead to said lacing, substantially as shown.

3. The corset-fastening comprising a fastened strip of stiff resilient material having a series of projecting eyes rigidly secured to one edge, said eyes each consisting of a wire loop, rounded in cross-section, having its ends fastened on opposite faces of the strip and secured together through said strip, said loop lying substantially in the plane of said strip, but being twisted from each plane, to give a free lead to a lacing, substantially as shown.

700,818. PUMPING-VEHICLE. ALBERT FOWLE, Alexandria, Ind. assignor of one-half to Harvey A. Moore, Indianapolis, Ind. Filed Oct. 18, 1891. Serial No. 73,094. (No model.)



Claim.—1. In a dumping-vehicle, the combination with the body, of a swinging section forming a portion of the bottom thereof, a lever pivoted between its ends to the free end of one of said sections, a link pivoted upon the body and having pivotal connection with one end of said lever, and means for swinging said lever.

2. In a dumping-vehicle, the combination with the body, of a plurality of swinging sections forming the bottom thereof, a plurality of levers each pivoted between its ends to the free end of one of said sections, a plurality of links pivoted upon the body and each pivotally connected to one end of a lever, a bar connecting the opposite ends of all the levers, and means for shifting said bar.

3. In a dumping-vehicle, the combination with the body, of a plurality of swinging sections forming the bottom thereof, a plurality of levers each pivoted between its ends to the free end of one of said sections, a plurality of links pivoted upon the body and each pivotally connected to one end of a lever, a bar connecting the opposite ends of all the levers, a seat pivoted upon the body, a connection between said seat and the bar, and means for holding said seat in its normal position.

4. In a dumping-vehicle, the combination with the body, of a plurality of swinging sections forming the bottom thereof, a plurality of levers each pivoted between its ends to the free end of one of said sections, a plurality of links pivoted upon the body and each having a pivotal connection with one end of an adjacent lever, and means for swinging said levers simultaneously, the arrangement being such that when the sections are thrown into alignment the pivotal point of a link, its point of connection with its lever, and the point of connection of said lever with its section will lie in a substantially straight line.

5. In a dumping-vehicle, the combination with the body, of a plurality of swinging sections forming the bottom thereof, a plurality of levers each pivoted between its ends to the free end of one of said sections, a plurality of links pivoted upon the body and having a pivotal connection with one end of the adjacent lever, the arrangement being such that when the sections are thrown into alignment the pivotal point of the link, its point of connection with its lever, and the point of connection of said lever with its section will lie in a substantially straight line, a bar connecting the opposite ends of all of the levers, a seat pivoted upon the body, and a link connecting said seat and bar, substantially as and for the purpose set forth.

6. In a dumping-vehicle, the combination with the body, of a plurality of swinging sections forming the bottom thereof, a plurality of levers each pivoted to the free end of one of said sections, a plurality of links pivoted upon the body and each having a pivotal connection with an adjacent lever, and means for swinging the said levers simultaneously, the arrangement being such that when the sections are thrown into alignment the pivotal point of each link, its point of connection with its lever, and the point of connection of said lever with its section will lie in a substantially straight line.

7. In a dumping-vehicle, the combination with the body, of a swinging section forming a portion of the bottom thereof, a lever pivoted to the free end of said section, and a link pivoted upon the body and having a pivotal connection with said lever, the arrangement being such that when the swinging section is in normal position the pivotal point of the link, its point of connection with the lever, and the point of connection of said lever with the section will lie in a substantially straight line.

700,819. APPARATUS FOR MOVING HEAVY BODIES. CHARLES V. FOWLER, Los Angeles, Cal. Filed June 17, 1891. Serial No. 64,187. (No model.)



Claim.—1. The apparatus or device for moving heavy bodies consisting of a drum or cylinder of much larger diameter than the reel of the apparatus, the rope wound partly upon the drum and partly upon the reel, the two ropes, one of the ends of each of which is fastened to the reel-drum, and the other end of which ropes is fastened to the axle of the drum, the handle-hoist carried upon the axle of the drum or which the weight or heavy body to be lifted is attached, all operating together in the manner and for the purpose substantially as hereinbefore described.

2. The combination of the drum, the reel, the handle for rotating the reel, the prolonged axle of the drum, the rope connecting the prolonged axle of the drum to the flange of the reel, the handle-hoist carried by or upon the axle of the drum, also the carrier or idler wheel for supporting the drum and its mechanism, all operating together in the manner and for the purpose substantially as set forth.

3. The combination of the drum, the reel, the handle for rotating the reel, the prolonged axle of the drum, the rope connecting the prolonged axle of the drum to the flange of the reel, the handle-hoist carried by or upon the axle of the drum, also the carrier or idler wheel for supporting the drum and its mechanism, all operating together in the manner and for the purpose substantially as set forth.

4. The apparatus or device suspended vertically from the frame carrying the winding-reel, consisting of the drum, the rope wound partly upon the drum and partly upon the winding-reel connecting the drum and winding-reel together, and the two ropes whose upper ends are attached to the flange of the apparatus, with their lower ends attached to the prolonged axle of the drum; also the handle-hoist carried upon the prolonged axle of the drum, all operating together in the manner and for the purpose substantially as set forth.

700,820. WHEAT-GRINDER FOR LOCOMOTIVE ENGINES. CHARLES E. FOX, Chesham, N.H. Filed July 12, 1891. Serial No. 64,171. (No model.)



Claim.—1. In combination with a steam-boller, a plurality of vertical or inclined tube units placed within the combustion-chamber and

each including two parallel headers at the top and two parallel headers at the bottom, said headers united by a plurality of tubes, and the upper portions of said tubes and the upper headers being above the normal water-level, and the lower headers communicating with the water-space and the upper headers communicating with the steam-space of the boiler.

2. In a steam-boller of ordinary locomotive type, the combination, with the fire-box of an inclined crown-sheet extending above the normal water-line, and a series of vertical or inclined water-tubes placed within the fire box the lower ends of the tubes in communication with the water-jacket of the fire-box and the upper terminals of same arranged to discharge upon and down the crown-sheet for the purpose of protecting same from the action of heat, substantially as set forth.

3. In a steam-boller of the ordinary locomotive type, the combination of an inclined crown-sheet extending above the normal water-level with transverse and longitudinal dam-plates erected thereon and preferably forming a part of the heating throat, for the purpose of entrapping thereon a portion of the water discharged upon the upper end of the crown-sheet and flowing down over the same, substantially as set forth.

4. In a steam-boller of the locomotive type, the combination of a fire-box, a series of vertical or inclined water-tubes heated therein, a manifold between the mid series of water-tubes and the rear tube-sheet, and a pocket or funnel-shaped receptacle forming a pendant extension of the manifold for receiving clinker or unburned particles of the fuel, and suitable gate or cut-off arrangement for discharging the contents thereof at pleasure, substantially as set forth.

5. In a steam-boller of the ordinary locomotive type, a fire-box including converging cheeks above and below, forming an inclining shell of irregular shape, said fire-box having its upper side provided for the purpose of inserting and removing a system of vertical or inclined water-tubes attached as part of the steam-generating apparatus, substantially as set forth.

6. In a steam-boller of the modified type hereinbefore described, the combination of a water and steam jacketed fire-box, a series of inclined water-tubes accessible at the top, through an opening piercing the boiler, a removable cover-plate over said opening, a system of water-tubes extending above and below the normal water-line and communicating with the steam and water spaces of the boiler respectively, a haffle-plate for deflecting the extended water carried thereby upward into the steam-space, a cylindrical forward extension containing the upper ends of the tubes and joined to the front lag of the fire-box, a manifold provided at the lower part of the shell near its junction with the fire-box, smaller openings or hand-holes in the lag of the boiler for giving access to the interior of the tube-sections constructed and arranged as and for the purpose hereinbefore set forth.

7. In a fire-box boiler of the type indicated, a fire-box provided with a system of independent laterally-adjustable tube units each consisting of upper and lower "headers" connected by a series of parallel tubes in the common axial plane of the headers, each upper header connected at one end with the steam-space and each lower header being connected at the relatively opposite end with the water-space, in combination with a forward extension of the boiler provided with submerged flues communicating with the combustion-chamber of the fire-box, substantially as set forth.

8. In a fire-box boiler of the type indicated, a fire-box provided with a system of laterally-adjustable tube units inclined forward and connecting above and below in the steam and water spaces of the fire-box, and a series of refractory plates or tiles carried between and upon the lower headers of the tube units, constituting with said headers a haffle-plate to carry the latent products of combustion backward and thence upward around the rear ends of the headers, and thence forward across and between the tubes to the smoke-flues of the forward cylindrical extension of the boiler, substantially as set forth.

700,821. CONVERTING APPARATUS. FREDERICK E. PRINCE, San Francisco, Cal. Filed Sept. 4, 1891. Serial No. 74,394. (No model.)

Claim.—1. The combination is a conveying apparatus of parallel pairs of supporting-cables, supports over which said cables pass, winding-drum around which the cables are movable, trolleys suspended and movable upon the cables, other cables passing around sheaves in said trolleys and a burden-carrier suspended by said cables between the parallel cables, and means by which said burden-carrier may be moved transversely between the parallel cables.

2. The combination is a conveying apparatus of pairs of parallel cables, supports over which said cables pass, trolleys suspended and movable upon the cables, mechanism by which said cables are moved to cause the trolleys to travel outwardly or inwardly in unison, a burden-carrier, supplemental cables from which the carrier is suspended between the parallel cables, and means for extending the supplemental cables to move the carrier transversely between the parallel cables.

3. The combination is a conveying apparatus of two sets of parallel

lateral inboard and outboard cables, trolleys with which said cables are connected from opposite sides whereby said trolleys are movable in unison, a burden-carrier and supplemental cables by which it is suspended between the parallel cables, guide-sheaves upon the trolleys and upon the fixed supports, and winding-drums by which the supplemental cables are actuated to move the burden transversely, or to raise or lower it.



4. The combination in a conveying apparatus of two pairs of parallel inboard and outboard cables, with division-pulleys over which they pass, trolleys movable one upon each of said parallel cables, and with opposite sides of which the ends of the cables are connected whereby the trolleys are moved in unison, and a burden-carrier and supplemental cables by which it is suspended between the trolley-carriers, and means by which the cables are actuated to raise or lower the burden or to move it transversely between the parallel cables.

5. The combination with pairs of parallel cables and their actuating mechanism, and trolleys suspended and movable upon the cables, of supplemental cables connected to the trolleys, a burden-carrier connected to the latter cables, and means for actuating the supplemental cables to cause the burden-carrier to be moved transversely between the parallel cables.

6. The combination in a conveying apparatus of two sets of parallel inboard and outboard cables, winding-drums by which the cables are driven and the trolleys moved in unison in either direction, supplemental winding-drums and supplemental cables connected and movable thereby, guide-sheaves upon the towers and the trolleys, and a burden-carrier connected to the supplemental cables and located between the main cables, and capable of being moved transversely thereby between the parallel cables.

7. The combination in a conveying apparatus of two sets of inboard and outboard cables and winding-drums operable in unison to move the cables, trolleys to which the cables are connected at opposite sides, and supplemental cables passing over sheaves in each of the trolleys, a burden-carrier suspended from the supplemental cables, winding-drums, guide-sheaves, and connections whereby the "fall" is operated without a standing cable.

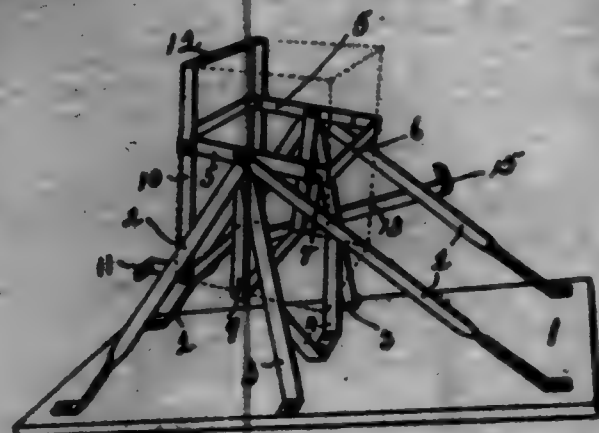
8. The combination in a conveying apparatus of parallel traveling cables, trolleys connected and movable in unison therewith, a pair of cables passing over sheaves in the trolleys, and thence extending inward toward each other, a burden-carrier suspended from the last-named cables and movable transversely to points between the parallel cables, and mechanism actuating the cables whereby the burden is raised, transferred and deposited.

700,822. GAN-BOLGER. LEONARD FINE, Farmington, Cal. Filed Sept. 19, 1901. Serial No. 74,888. (No model.)

Claim.—1. The combination of a frame, a can-holder pivotally mounted in the frame, and a locking-lever fulcrumed on the frame and having a lateral arm arranged to engage the rear wall of a can in the holder.

2. The combination of a frame, a can-holder pivotally mounted at a point off its vertical center in the frame, whereby it tends to pitch in one direction, a retaining-ball 12 pivotally connected to the upper rear por-

tion of the holder, and means for normally holding the holder against pitching forwardly.



3. In a can-holder the frame 2, 3, the yoke 9 pivoted to said frame, the ball 5 pivoted to said frame and having the member 6 hinged thereto, the ball 10 attached to the ball 5, the stop 11 attached to said ball, and the retaining-ball 12, in combination, all arranged and operating substantially as shown and described and for the purposes set forth herein.

4. In a can-holder, the combination with two frames rigidly fixed to a board or platform of a can-supporting yoke 9 and ball 5 pivoted to said frame, said ball 5 having the hinged member 6, the stop 11 adjustably attached to the yoke or ball, the ball 12 pivoted to the ball 5, and the ball 13 14 15 pivoted to the post 3, all arranged and operating substantially as shown and described and for the purposes specified.

700,828. FACHS-GARRETT. WHITFIELD S. GILSON, New York, N. Y. Filed Feb. 13, 1902. Serial No. 94,732. (No model.)



Claim.—1. In a package-carrier the combination of a container; a hinged closure therefor at one end; a station-indicator carried by said closure and consisting of a plate having station characters thereon, and an aperture disk rotatably mounted on said plate; and means for locking the closure by the rotation of said disk.

2. In a package-carrier the combination of a container; a hinged closure therefor at one end; a station-indicator carried by said closure and consisting of a plate having station characters thereon, and an aperture disk rotatably mounted on said plate; means for locking the closure by the rotation of said disk; and a common handle for the closure and for the indicator.

3. In a package-carrier the combination of a cylindrical container; a circular hinged closure therefor at one end; a station-indicator carried by said closure, said indicator consisting of a series of station characters marked on said closure, and an aperture disk rotatably mounted on the closure so as to expose any given station character through its aperture, and having a notch in its periphery; an inwardly-projecting lug on the container at its closure end and designed to pass through the notch in said disk when the closure is moved into closed position and, when the said disk is thereafter rotated, to hold the closure in closed position.

4. In a package-carrier the combination of a cylindrical container; a circular hinged closure therefor at one end arranged to fit within the end of said container; a station-indicator carried by said closure, said indicator consisting of a series of station characters marked on said closure, and an aperture disk rotatably mounted on the closure so as to expose any given station character through its aperture, said disk being slightly larger in diameter than the closure, and having a notch in its periphery; an inwardly-projecting lug on the container at its closure end and designed to pass through the notch in said disk when the closure is moved into closed position and, when the said disk is thereafter rotated, to hold the closure in closed position.

5. In a package-carrier the combination of a cylindrical container; a circular hinged closure therefor at one end; a station-indicator carried by said closure, said indicator consisting of a series of station characters

marked on said closure, and an aperture disk rotatably mounted on the closure so as to expose any given station character through its aperture, and having a notch in its periphery; an inwardly-projecting lug on the container at its closure end and designed to pass through the notch in said disk when the closure is moved into closed position and, when the said disk is thereafter rotated, to hold the closure in closed position; and a common handle for the closure and for the indicator.

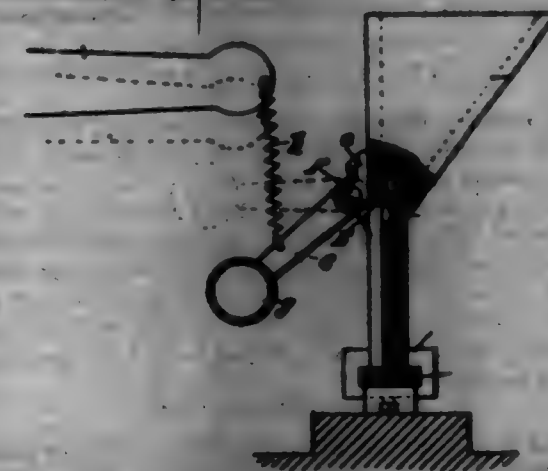
6. In a package-carrier the combination of the cylindrical container 1; a hinged closure-plate 4 having station characters thereon; an aperture disk 9 having a notch 11; a lug 8; a handle 6 and ball 7, substantially as set forth.

700,824. SAGE-BOLGER. EDWARD E. GRAY, Chicago, Ill. Filed May 21, 1902. Serial No. 17,302. (No model.)



Claim.—An actuating device, consisting of a rectangular plate of flexible sheet metal, having an integral tongue cut and stamped up therefrom and disposed at an angle thereto, the free end of the tongue being bent in a plane substantially at right angles to the plate, to facilitate the insertion and removal of the device between the vibrating sash and an adjacent part of a window, substantially as described.

700,825. PENDING DEVICE FOR MINERAL-WORKING MACHINERY. THOMAS S. HALL, New Haven, Conn. Filed May 14, 1902. Serial No. 62,222. (No model.)



Claim.—1. In a device of the class specified, the hopper supported at the bottom, a substantially vertical shaft forming a continuation of the hopper-mouth, a shaft journaled on the hopper, a weighted arm for causing said shaft to turn normally in one direction, means for intermittently raising said arm, and fingers secured to said shaft and adapted to normally interrupt the opening from the hopper into the chute.

2. In a device of the class specified, the combination with the hopper, a shaft journaled thereon, and fingers secured to said shaft and adapted to be brought into contact with the contents of the hopper, of means for causing said shaft to rotate comprising a weighted lever secured to said shaft and a spring connection between said lever and a superimposed intermittently-moving member.

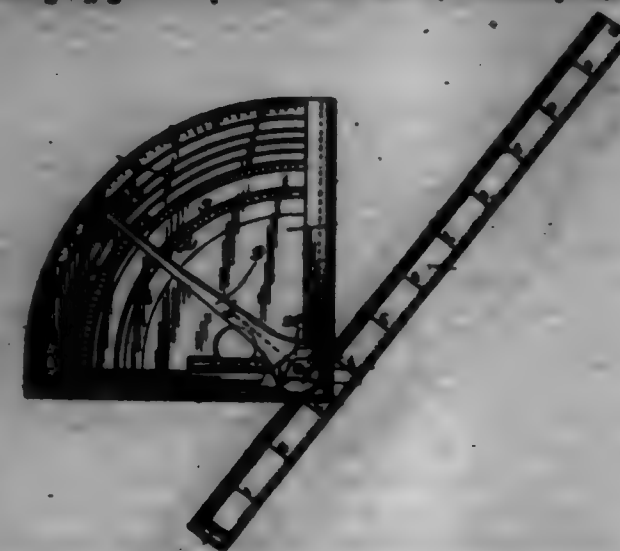
3. In a device of the class specified, the hopper supported at the bottom and opening into a substantially vertical chute, means for periodically interrupting the opening from the hopper to the chute, a plunger adapted to move longitudinally of the chute at the bottom thereof, and a spring-actuated guard-plate normally closing the end of the chute opposite the plunger, substantially as described.

700,826. COMBINED MINERAL-PROTRACTOR, SQUARE AND PITCH-BOARD. BENJAMIN D. HARRIS, West Gardner, Mass. Filed Dec. 24, 1901. Serial No. 57,194. (No model.)

Claim.—1. In a device of the character described, the combination with the segmental part having a scale and working edges, of an index-arm having a beam pivoted at the vertex portion of said part and formed with a vane, a blade having a groove and adapted to rest in said vane, a clamping-block mounted upon the beam and having a tongue to engage said groove, means for holding the block against turning, and means for causing the block in clamping position to fix the blade to the arm, substantially as described.

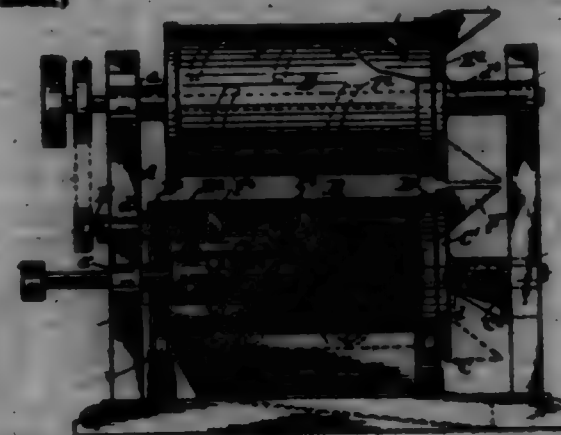
2. In a device of the character described, the combination with the segmental part having a scale and working edges; of an index-arm having a beam pivoted at the vertex portion of said part and formed with a

vane, a blade having a groove and adapted to rest in said vane, a clamping-block mounted upon the beam and having a tongue to engage said groove, a screw passing downwardly through the beam and segmental part and carrying a clamping-nut, and a second screw passing upwardly through the beam and clamping-block, said screws having an interlocking engagement to prevent rotation thereof, substantially as described.



3. In a device of the character described, the combination of the segmental part provided at its vertex portion with a socket or depression and in its working edges with grooves communicating with said depression, an index-arm having a beam pivoted to turn in the socket or depression, a blade adapted to fit and slide in either of the aforesaid grooves in the working edges, and means for clamping the blade to the beam of the index-arm, substantially as set forth.

700,827. APPARATUS FOR CLEANING COFFEE-BERRIES. WILLIAM A. HARRISON, San Francisco, and HENRY J. HARRISON, Oakland, Cal., assignors to Geo. W. Corwell Company, San Francisco, Cal., a Corporation of California. Filed Jan. 14, 1901. Serial No. 68,167. (No model.)



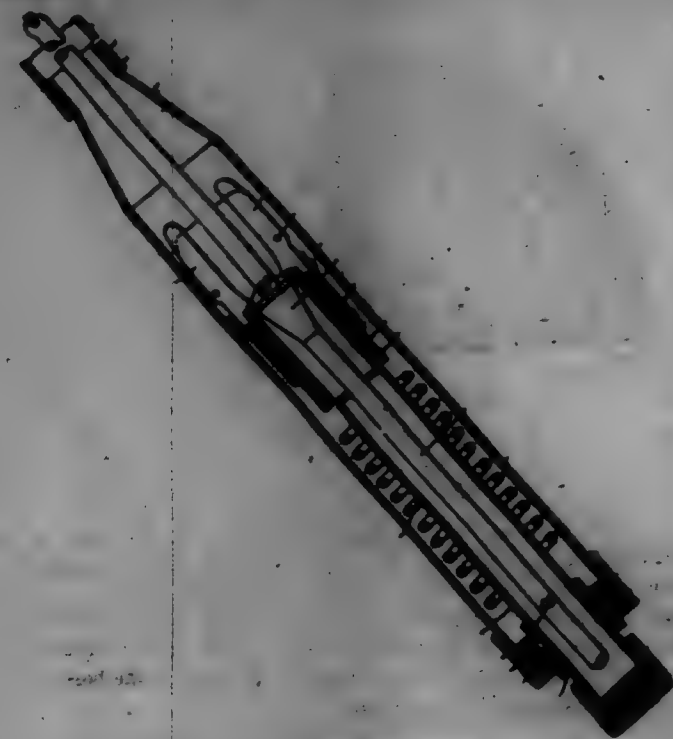
Claim.—1. The combination with a mixing-cylinder, of a separating-cylinder, means for imparting rotation to said cylinder, a rotatable head for each cylinder capable of movement independently of the cylinder, a shaft carried by each head adapted to be adjusted therewith to discharge material from the mixing-cylinder into the separating-cylinder, and means for holding the heads against movement, substantially as described.

2. In combination substantially as described a mixing-cylinder, means for rotating the same, a separating-cylinder adjacent to the mixing-cylinder, a head formed with an internal gear-ring at one end of the separating-cylinder, gearing between said head and mixing-cylinder, the rotating means for the mixing-cylinder adapted to simultaneously rotate the separating-cylinder, and an independently-rotatable head at the free end of the separating-cylinder adapted to be adjusted to afford an inlet and an outlet for the material to be treated, substantially as described.

3. In combination substantially as described, a mixer and a separator located therebetween, independently-rotatable heads at adjacent ends of said mixer and separator arranged in substantial alignment, and means on the heads adapted to be adjusted therewith to discharge material from the mixer into the separator.

700,828. TOOL FOR OIL-WEELS OR ARTESIAN WELLS. ANDREW H. HARRINGTON, Covington, Ohio, assignor of two-thirds to W. E. Hunt and E. W. Stevenson, Marietta, Ohio. Filed Aug. 22, 1901. Serial No. 72,224. (No model.)

Claim.—1. In a device of the character described, an outer casing, an upper and a lower section comprising the inner casing, a spring encircling said lower section and secured to the upper section, a plunger-rod operating through the inner casing, and means carried by the upper section for engaging said plunger-rod, said means being operated by the outer casing for automatically releasing said plunger-rod, substantially as described.



2. In a device of the character described, an outer cylindrical casing carrying a cone-shaped portion at its upper end, an upper and a lower section comprising the inner casing mounted within the outer casing and having a coil-spring secured to each, spring-pressed jaws carried by the upper end of the inner casing, and a plunger-rod carrying a cone-shaped enlarged portion for engagement with said jaws, substantially as described.

3. In a device of the character described, the combination of an outer cylindrical casing carrying a cone-shaped portion at its upper end, an upper and a lower section comprising the inner casing, a coil-spring surrounding said lower inner casing connected at the lower portion thereof, and extending to the lower portion of the outer casing, the other end of said spring being rigidly secured to the lower portion of the upper inner casing, spring-pressed jaws secured in said upper inner casing, and a plunger-rod carrying a cone-shaped enlarged portion for engagement with said jaws, substantially as set forth.

4. In a device of the character described, an outer casing having an inner casing secured therein, the inner casing comprising two sections having a spring connected to each, a plunger-rod operating through the inner casing, spring-pressed jaws carried by one of said sections, and means carried by the plunger-rod for engagement with said jaws, said jaws being actuated by said outer casing for releasing the plunger-rod, substantially as described.

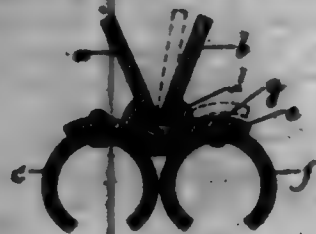
5. The combination with a plunger-rod operating through an outer casing, of an inner casing in the outer casing and through which the plunger-rod operates, the inner casing comprising two sections surrounded by a spring the ends of which are secured to said sections, means carried by one of said sections for engagement with the plunger-rod, said means being operated by the outer casing for releasing the plunger-rod, substantially as described.

6. In a device of the character described, an outer casing surrounding an inner casing, with a plunger-rod operating through both, the inner casing comprising a lower section secured to the outer casing, and an upper section movable with the plunger-rod, a spring having its ends secured to the said sections, means carried by the upper section for engagement with the plunger-rod, the said means being actuated by engagement with the outer casing, substantially as described.

700,899. FASTER FOR SATONELLA, FURMAN, JR. AND KIRK, and JAMES KIRK, Offenbach-on-the-Main, Germany, assignors to THE FIRM OF R. F. HUBEL, Offenbach-on-the-Main, Germany. Filed Feb. 25, 1900. Serial No. 93,993. (No model.)

Claim.—1. In a fastener for catches, pins and the like, the combination with a frame consisting of two halves, of two plates or wings, one of which is secured to one half of the frame, a hinge between said plates to which is secured to one half of the frame, a hinge between said plates to which the other plate is secured, said latter plate having an aperture adapted to be engaged by a catch or pin on the second half of the frame, substantially as described.

2. In a fastener for catches, pins and the like, the combination with a frame consisting of two halves, of two plates or wings, one of which is secured to one half of the frame, a hinge between said plates to which is secured to one half of the frame, a hinge between said plates to which the other plate is secured, said latter plate having an aperture adapted to be engaged by a catch or pin on the second half of the frame, substantially as described.

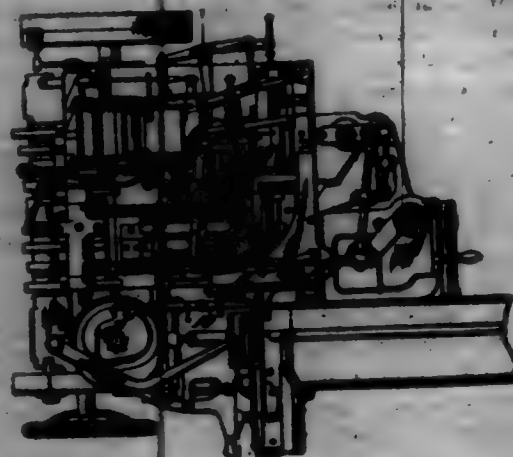


3. In a fastener for catches, pins and the like, the combination with a frame consisting of two halves, of two plates or wings, one of which is secured to one half of the frame, a hinge between said plates to which is secured to one half of the frame, a hinge between said plates to which the other plate is secured, said latter plate having an aperture adapted to be engaged by a catch or pin on the second half of the frame, substantially as described.

4. In a fastener for catches, pins and the like, the combination with a frame consisting of two halves, of two plates or wings, one of which is secured to one half of the frame, a hinge between said plates to which is secured to one half of the frame, a hinge between said plates to which the other plate is secured, said latter plate having an aperture adapted to be engaged by a catch or pin on the second half of the frame, substantially as described.

5. In a fastener for catches, pins and the like, the combination with a frame consisting of two halves, of two plates or wings, one of which is secured to one half of the frame, a hinge between said plates to which is secured to one half of the frame, a hinge between said plates to which the other plate is secured, said latter plate having an aperture adapted to be engaged by a catch or pin on the second half of the frame, substantially as described.

700,880. MACHINE FOR COMPOSING TABULAR MATTER. HARVEY C. INGRAM, Philadelphia, Pa., assignor, by mesne assignments, to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Oct. 24, 1901. Serial No. 78,968. (No model.)



Claim.—1. A mechanically-justified record strip or controller for automatic type-composing machines formed or provided with a plurality of type-designating signals or perforations arranged in series, each of the latter representing a line of composition divided into sections of predetermined lengths and preceded by its appropriate justification signal or perforation, and a special line-signal intermediate adjacent series of type-designating signals or perforations, substantially as described.

2. A record strip or controller for setting up mechanically-justified lines in an automatic type-composing machine in which the type-designating signals or perforations representing a line are separated by justification-designating signals or perforations and the lines are operated by justification-designating signals or perforations and a galley-signal; substantially as described.

3. In an automatic type-composing machine governed by a record strip or controller containing justification and type designating signals or perforations serially arranged to produce mechanically-justified lines of com-

position, and a special line-signal intermediate adjacent lines, the combination with said record strip or controller of a galley-trip mechanism actuated by the justification signal and responsive to the special line-signal, whereby each line as composed may be divided into separately-justified sections and the latter assembled into a line prior to its transfer to the galley; substantially as described.

4. In a machine of the character described for producing mechanically-justified lines of type and assembling said lines in columns, the combination with the justification-designating device and a galley-starting mechanism responsive to the combined action of said designating device but to neither one alone, of a record strip or controller provided with means for simultaneously actuating said designating device to start the galley mechanism at the end of a line and transfer the latter to the galley, substantially as and for the purpose specified.

5. In a machine such as described, the combination with a plurality of justification-designating levers and a galley-starting lever, of intermediate transmitting devices central to the movements of either designating-lever alone or as far as the starting of the galley mechanism is concerned, but responsive to the joint action of said designating-levers.

6. In an automatic type-composing machine wherein the selection of type and composition and justification of the lines is governed by a record strip or controller containing designating signals or perforations, the combination therewith of a record strip or controller wherein type-designating signals or perforations are serially arranged in the order of composition, and separated into series representing consecutive sections and complete lines, the lines by character justification-designating signals and the sections by normal justifying-designating signals, and a galley-controlling mechanism central to the normal justification-signals but responsive to the character justification-designating signals, substantially as and for the purpose specified.

700,881. GRAB-CLIPPER AND MATCH-LIGHTER. BENNETT R. JACK, Chicago, Wis., assignor of one-half to Herman Mueller, Horton, Wis. Filed Aug. 21, 1901. Serial No. 74,988. (No model.)



Claim.—1. In combination a hopper to contain matches, a grooved roller to receive matches from the hopper and deliver the same, a rough plate in the path of movement of the heads of the matches being delivered, and a delivery-champ in the path of movement of the roller to receive the matches therefrom, substantially as described.

2. In a mechanism of the class described, the combination with a suitable support, of a roller mounted therein, means for supplying articles thereto, means on said roller for carrying a single article, means for rotating said roller for delivering the article carried thereby, and automatic means for oscillating said roller after each delivery, substantially as described.

3. In a mechanism of the class described, the combination with a suitable support, of a roller mounted therein, means on said roller for carrying an article, means for supplying articles to said roller, means for rotating said roller for delivering the article carried thereby, and means for receiving the article to be delivered and removing the same from said roller and carrying the same to the point of delivery, substantially as described.

4. In a mechanism of the class described, the combination with a suitable framework, of a roller mounted therein, an article-containing hopper arranged above said roller, means on said roller for receiving a single article from said hopper, means for rotating said roller, a delivering-arm pivotedly mounted in said framework, and means for swinging said arm into the path of movement of said article for receiving and carrying the same to the point of delivery, substantially as described.

5. In a mechanism of the class described, the combination with a suitable framework, provided with a supply-receptacle, of a roller mounted in said framework and communicating with said receptacle, means on said roller for receiving an article from said receptacle, means for rotat-

ing said roller for removing the article from said receptacle, and auxiliary means for removing said article from said roller and carrying the same to the point of delivery, substantially as described.

6. In combination a hopper for containing matches, a grooved roller for receiving them therefrom, a shaft carrying the roller, a disk on the shaft, lateral legs on the disk, means for rotating the shaft, a clamp to receive the matches carried by the roller, and means operated by the lateral legs for bringing the clamp into operative receiving position, substantially as described.

7. In combination, a hopper for containing matches, a shaft, a grooved roller carried thereby to receive matches from the hopper, a disk on the shaft, radial arms on the shaft, a vertical plunger, a leg thereon to engage the arms, a clamp to receive the matches from the roller, and means for moving the clamp into receiving position and returning it to delivery position, substantially as described.

8. In combination, a hopper for containing matches, having an open bottom, a grooved roller mounted under the hopper, means for rotating the roller forward to deliver a match, and spring-controlled means for automatically oscillating the roller after each delivery for returning the matches in the hopper, substantially as described.

9. In combination, a hopper for containing matches, having an open bottom, a shaft, a grooved roller thereon under the hopper, a plunger, connections between the roller and plunger for rotating the roller forward by the depression of the plunger, and means for imparting several backward-and-forward partial rotations to said roller during the upward movement of the plunger, substantially as described.

10. In combination, a hopper for containing matches, having an open bottom, a shaft, a grooved roller upon the shaft under the hopper, a plate on the shaft, radial arms on said plate, a plunger, a lateral projection or leg thereon, a vertically-slidable rod having its upper end bent into the path of movement of the lateral leg and its lower end bent into the path of movement of the radial arm, the contact of the lateral leg during its downward movement with the arm of the plate serving to rotate the shaft and roller forward to deliver a match, and its contact with an arm and the upper end of the vertical rod serving to reciprocally rotate the roller during the upward movement of the plunger and leg, substantially as described.

11. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein, a roller fixed to said shaft, radial arms carried by said shaft, means for engaging one of said arms for swinging the same and the shaft for a portion of a rotation, means for engaging another of said arms for swinging the same and said shaft in an opposite direction for returning the roller to the initial position after the first operation, and means for delivering a single article at each initial operation of the roller, substantially as described.

12. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein, a delivery-roller arranged on said shaft, radial arms extending from said shaft and secured thereby, a vertically-movable rod mounted in said framework, means carried thereby for engaging one of said radial arms of said shaft, and auxiliary means for imparting a return rotation to said shaft after the operation of said vertical rod whereby the said roller will be oscillated, substantially as described.

13. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein, a delivery-roller carried thereby, radial arms secured to said shaft, means for engaging said arms for swinging the same in one direction, means for swinging the same in another direction whereby the delivery-roller will be oscillated, a delivering-arm pivotedly supported in said framework, and means for swinging said arm in position to receive an article from the said roller, substantially as described.

14. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein, a delivery-roller carried by said shaft, a disk also carried by the shaft provided with laterally-projecting legs, a delivering-arm pivotedly supported in said framework and having one end thereof extending into the path of movement of said legs, and means for rotating said shaft for delivering an article to said delivering-arm, substantially as described.

15. In a mechanism of the class described, the combination with a suitable framework, of a shaft supported therein, means carried by said shaft for operating an article from a series of similar articles, a delivering-arm pivotedly mounted in said framework, and means carried by said shaft for swinging said delivering-arm into position for receiving the article separated, substantially as described.

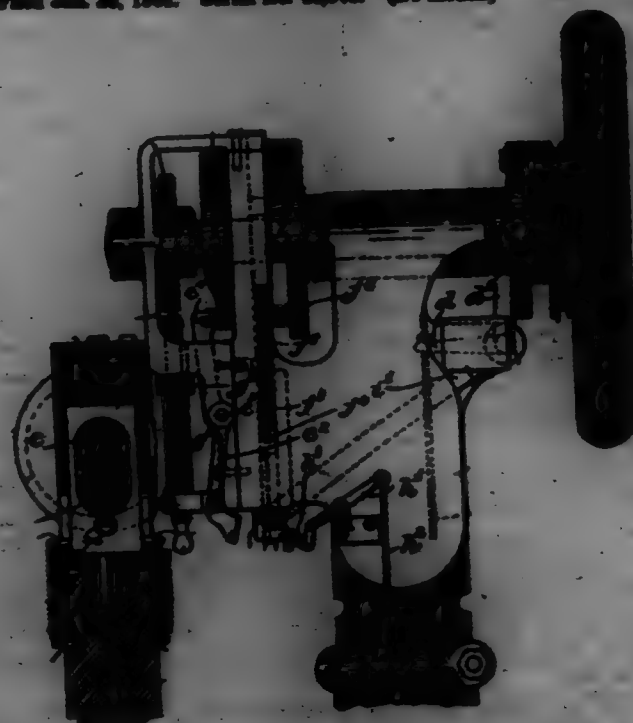
16. In a mechanism of the class described, the combination with a suitable framework, of a shaft supported therein, article-delivering means carried by said shaft and designed to be operated by the rotation thereof, radial arms extending from said shaft, a vertically-movable rod mounted in said framework and provided with means designed to engage one of said arms at each downward movement of said rod, whereby said shaft

is designed to be forwardly rotated, the construction being such that downward movement of said rod will move the next succeeding radial arm into the path of the movement of said engaging means, whereby the said next succeeding arm is designed to be engaged and swung in an opposite direction with the upward movement of said rod to that of its former movement with the downward movement of said rod, and auxiliary means for engaging another of said radial arms for swinging the same in the direction of its initial movement after the second movement thereof, substantially as described.

17. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein and carrying article-delivering means, radial arms secured to said shaft, a vertically-movable rod arranged in said framework, a lag projecting laterally from said rod adapted to contact with one of said radial arms with the downward movement of said rod for swinging said arm forwardly and bringing the next succeeding radial arm into the vertical plane of said rod whereby a return movement of the lag is designed to strike the next succeeding arm and swing the same in an opposite direction to the forward movement, and auxiliary means for again swinging the shaft in the direction of its forward movement during the return of said vertical rod to its normal position, substantially as described.

18. In a mechanism of the class described, the combination with a suitable framework, of a shaft mounted therein, radial arms fixed to said shaft, a vertically-movable rod arranged in said framework, a lag extending laterally from said rod, adapted to contact with one of said radial arms, a bent rod slightly supported in said framework and having one end extending in the vertical plane of and above said lag, and the other end normally extending into the path of movement of said radial arms, said bent rod being free to move downwardly by its own weight with the downward movement of the lag, and means limiting the movement of said bent rod, substantially as described.

700,882. PULLING-OVER MACHINE. JAMES E. JAMISON, Lynn, Mass., assignor, by mesne assignments, to United Shoe Machinery Company, Paterson, N. J., and Boston, Mass., a Corporation of New Jersey. Filed Jan. 20, 1904. Serial No. 64,572. (No model.)



Claim.—1. A pulling-over machine having a gripper one jaw of which is fixed, and an automatically-operated member for forcing the last away from the gripper to stretch the upper, said automatically-operated member being located at a distance from the gripper to permit the last to be reeled on said member by the operator to manually control the amount of stretch.

2. A pulling-over machine having a gripper one jaw of which is fixed, an automatically-operated member for forcing the last away from the gripper to stretch the upper, and means for automatically operating the movable jaw of the gripper, the said automatically-operated member being located at a distance from the gripper to permit the last to be reeled on said member by the operator to manually control the amount of stretch.

3. A pulling-over machine having a gripper for the edge of the upper, one jaw of the gripper being fixed, an abutment against which the bottom of the last is held by the operator, and means for supporting the abutment, the said abutment being located at a distance from the gripper to permit the last to be reeled thereon by the operator to manually control the amount of stretch.

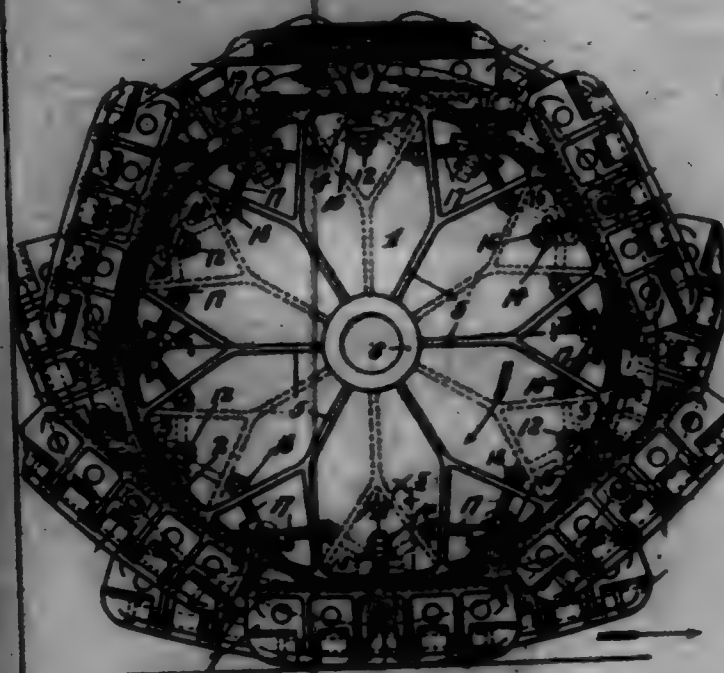
4. A pulling-over machine having a gripper for the edge of the upper, an abutment against which the bottom of the last is held by the operator, and relatively to which the last may be moved to lay the edge of the upper over the last, and means for moving the abutment to free the last away from the gripper, the said abutment being located at a distance from the gripper to permit the last to be reeled by the operator to manually control the amount of stretch.

5. A pulling-over machine comprising an automatic gripper one jaw of which is fixed, automatic means cooperating with said gripper to stretch the upper, relatively to which means the last is movable in a direction lateral to the direction of pull, and automatic mechanism for forcing the upper to the last.

6. A pulling-over machine comprising a stationary wiper, a gripper, a device cooperating with the gripper to stretch the upper and movable in a direction to stretch said upper while held by the gripper, and means for automatically operating said gripper and said stretching device.

7. A pulling-over machine comprising upper-stretching mechanism and a stationary wiper, mechanism for forcing the upper to the last, and a gage pivoted to said wiper and bodily movable into inoperative position above the plane of said wiper to permit the stretching mechanism to operate on the shaft of the partially-formed shoe.

700,883. TREAD FOR WHEELS. WILLIAM L. JONES, Chicago, Ill. Filed Sept. 21, 1904. Serial No. 78,014. (No model.)



Claim.—1. The combination with a wheel, of a tread therefor comprising a series of shoes mounted for rolling engagement with the periphery of said wheel, and reversely-extending pairs of flexible connections attached at their inner ends to the said wheel, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, substantially as described.

2. The combination with a wheel having a peripheral shoe-guiding flange, of a series of shoes mounted for rolling engagement with the periphery of said wheel and guided by said flange, and reversely-extending pairs of flexible connections attached at their inner ends to said wheel, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, substantially as described.

3. The combination with a wheel, of a series of shoes having rolling engagement with the periphery of said wheel, loosely-pivoted retaining-balls connecting the central portions of said shoes to the periphery of said wheel with freedom for rocking movements, and reversely-extending pairs of flexible connections attached at their inner ends to said wheel, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, substantially as described.

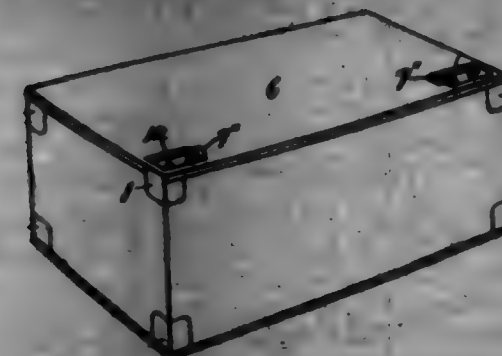
4. The combination with a wheel having a peripheral shoe-guiding flange, of a series of shoes having rolling engagement with the periphery of said wheel and guided by said flange, and reversely-extending pairs of flexible connections attached at their inner ends to the periphery of said wheel with freedom for rocking movements, and reversely-extending pairs of flexible connections attached at their inner ends to said wheel, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, substantially as described.

5. The combination with a wheel having peripheral shoe-guiding flange, of shoes in staggered arrangement guided by said flange, and retaining-balls loosely pivoted to the central portions of said shoes and passed through the periphery of said wheel, substantially as described.

6. The combination with a wheel, of a series of shoes having rolling engagement with the periphery of said wheel, reversely-extending pairs of flexible connections attached at their inner ends to said wheel, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, and means for adjusting said flexible connections to take up slack, substantially as described.

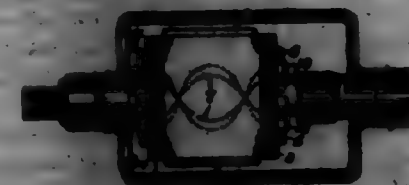
7. The combination with a wheel having a peripheral shoe-guiding flange, of a series of shoes mounted for rolling engagement with the periphery of said wheel and guided by said flange, and reversely-extending pairs of flexible connections attached at their inner ends to said wheel at their inner ends, following the periphery thereof at their intermediate portions and attached at their outer ends to the opposite free ends of said shoes, substantially as described.

700,884. COMBINED FASTENER AND COVER-CLAY FOR BOXES. JOHN C. GARDNER, Albany, Kansas, Kansas City, Mo. Filed Sept. 2, 1904. Serial No. 74,809. (No model.)



Claim.—A combined spring-fastener and cover-clay for boxes, comprising a casing having three plates arranged in three planes and secured to a corner of the box, a stretched upwardly-extending elastic integral with said casing, an opening in the lid of the box to receive said elastic when the lid is closed, a housing secured to the lid over said opening, and a spring-bolt in said housing, said bolt having a slot therein to receive said elastic, substantially as described.

700,885. MEANS FOR VENTILATING CORES FOR ELECTRICAL APPARATUS. JOHN B. KIMBLE, New York, N. Y. Filed May 21, 1904. Serial No. 61,509. (No model.)



Claim.—1. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends therethrough, said dust extending in the general direction of and being so positioned with respect to the axis of rotation of the core that a current of air is caused to flow through it when the core is rotated, the mouth of the dust being so shaped as to cause air to flow therethrough, substantially as described.

2. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts which extend in the general direction of and are so positioned with respect to the axis of rotation of the core that currents of air are caused to flow through them when the core is rotated, the mouths of the dusts being so shaped as to cause air to flow into the dusts, substantially as described.

3. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends therethrough, the axis of said dust extending in the general direction of but not being parallel with the axis of rotation of the core, and said dust having a mouth so shaped as to cause air to flow into it, substantially as described.

4. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts which extend therethrough, the axes of said dusts extending in the general direction of but not being parallel with the axis of rotation of the core, substantially as described.

5. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust the axis of which extends in the general direction of but is not parallel with the axis of rotation of the core, and said dust having a mouth so shaped as to cause air to flow into it, substantially as described.

6. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts, the axes of which extend in the general direction of but are not

parallel with the axis of rotation of the core, and said dusts having mouths so shaped as to cause air to flow into them, substantially as described.

7. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust extending therethrough, the axis of said dust extending in the general direction of but not being parallel with the axis of rotation of the core, and said dust having a mouth so shaped as to cause air to flow into it, substantially as described.

8. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts extending therethrough, the axes of which extend in the general direction of but are not parallel with the axis of rotation of the core, and said dusts having mouths so shaped as to cause air to flow into them, substantially as described.

9. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends in the general direction of and is so positioned with respect to the axis of rotation of the core that a current of air is caused to flow through it when the core is rotated, substantially as described.

10. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends therethrough, said dust extending in the general direction of and being so positioned with respect to the axis of rotation of the core that a current of air is caused to flow through it when the core is rotated, substantially as described.

11. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts which extend in the general direction of and are so positioned with respect to the axis of rotation of the core that currents of air are caused to flow through them when the core is rotated, substantially as described.

12. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts extending therethrough, said dusts extending in the general direction of and being so positioned with respect to the axis of rotation of the core that currents of air are caused to flow through them when the core is rotated, substantially as described.

13. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends in the general direction of and is so positioned with respect to the axis of rotation of the core that a current of air is caused to flow through it when the core is rotated, the mouth of the dust being so shaped as to cause air to flow therethrough, substantially as described.

14. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a dust which extends therethrough, said dust extending in the general direction of and being so positioned with respect to the axis of rotation of the core that a current of air is caused to flow through it when the core is rotated, the mouth of the dust being so shaped as to cause air to flow therethrough, substantially as described.

15. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts which extend in the general direction of and are so positioned with respect to the axis of rotation of the core that currents of air are caused to flow through them when the core is rotated, the mouths of the dusts being so shaped as to cause air to flow into the dusts, substantially as described.

16. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated to form a plurality of dusts extending therethrough which extend in the general direction of and are so positioned with respect to the axis of rotation of the core that currents of air are caused to flow through them when the core is rotated, the mouths of the dusts being so shaped as to cause air to flow into the dusts, substantially as described.

17. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in a helical direction, whereby as the core rotates a current of air is caused to flow through the dust thus formed, substantially as described.

18. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in a helical direction, whereby as the core rotates currents of air are caused to flow through the dusts thus formed, substantially as described.

19. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in a helical direction so as to form a dust extending therethrough, whereby as the core rotates a current of air is caused to flow through the dust thus formed, substantially as described.

20. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in helical directions so as to form a plurality of dusts extending therethrough, whereby as the

core rotates currents of air are caused to flow through the ducts thus formed, substantially as described.

21. A rotating core or similar rotating part for use with electrical apparatus the material of said core being perforated in a helical direction, whereby as the core rotates a current of air is caused to flow through the duct thus formed, and the mouth of the duct being so shaped as to cause air to flow into the duct, substantially as described.

22. A rotating core or similar rotating part for use with electrical apparatus the material of said core being perforated in helical directions, whereby as the core rotates currents of air are caused to flow through the ducts thus formed, and the mouths of the ducts being so shaped as to cause air to flow into the ducts, substantially as described.

23. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in a helical direction so as to form a duct extending therethrough, whereby as the core rotates a current of air is caused to flow through the duct thus formed, and the mouth of the duct being so shaped as to cause air to flow into the duct, substantially as described.

24. A rotating core or similar rotating part for use with electrical apparatus, the material of said core being perforated in helical directions so as to form ducts extending therethrough, whereby as the core rotates currents of air are caused to flow through the ducts thus formed, and the mouths of the ducts being so shaped as to cause air to flow into the ducts, substantially as described.

25. A rotating core or similar rotating part for use with electrical apparatus having a helical duct located therein, the axis of the helix formed by the duct being coincident with the axis of rotation of the core, substantially as described.

26. A rotating core or other similar rotating part for use in electrical apparatus having a plurality of helical ducts located therein, the axis of the helices formed by said ducts being coincident with the axis of rotation of the core, substantially as described.

27. A rotating core or other similar rotating part for use in electrical apparatus having a plurality of helical ducts extending therethrough, the axis of the helices formed by said ducts being coincident with the axis of rotation of the core, substantially as described.

28. A rotating core or similar rotating part for use with electrical apparatus having a helical duct located therein, the axis of the helix formed by said duct being coincident with the axis of rotation of the core, and the mouth of said duct being so shaped as to cause air to flow into the duct, substantially as described.

29. A rotating core or other similar rotating part for use in electrical apparatus having a plurality of helical ducts located therein, the axis of the helices formed by said ducts being coincident with the axis of rotation of the core, and the mouths of said ducts being so shaped as to cause air to flow into the ducts, substantially as described.

30. A rotating core or other similar rotating part for use in electrical apparatus having a plurality of helical ducts extending therethrough, the axis of the helices formed by said ducts being coincident with the axis of rotation of the core, and the mouths of said ducts being so shaped as to cause air to flow into the ducts, substantially as described.

31. A rotating core or other similar rotating part for use in electrical apparatus comprising a plurality of perforated disks mounted on a shaft, said disks being so arranged that the perforations form a helical duct or ducts, substantially as described.

32. A rotating core or similar rotating part for use in electrical apparatus comprising a plurality of perforated disks mounted on a shaft, said disks being so arranged that the perforations form a helical duct or ducts extending through the core, substantially as described.

33. The combination with the casing of an electrical apparatus, such as a motor, generator or rotary transformer, of a rotating core mounted therein, the material of said core being perforated to form a helical duct or a plurality of such ducts, and means for admitting air to and permitting it to escape from the casing, substantially as described.

34. The combination with the casing of an electrical apparatus, such as a motor, generator or rotary transformer, of a rotating core mounted therein, the material of said core being perforated to form a helical duct or a plurality of helical ducts extending therethrough, and means for admitting air to and permitting it to escape from the casing, substantially as described.

35. The combination with the casing of an electrical apparatus, such as a motor, generator or rotary transformer, of a rotating core mounted therein, the material of said core being perforated to form a helical duct or a plurality of such ducts, the mouths of the ducts being so shaped as to cause air to flow into the ducts, and means for admitting air to and permitting it to escape from the casing, substantially as described.

36. The combination with the casing of an electrical apparatus, such as a motor, generator or rotary transformer, of a rotating core mounted therein, the material of said core being perforated to form a helical duct or a plurality of helical ducts extending therethrough, the mouths of the ducts being so shaped as to cause air to flow into the ducts, and means

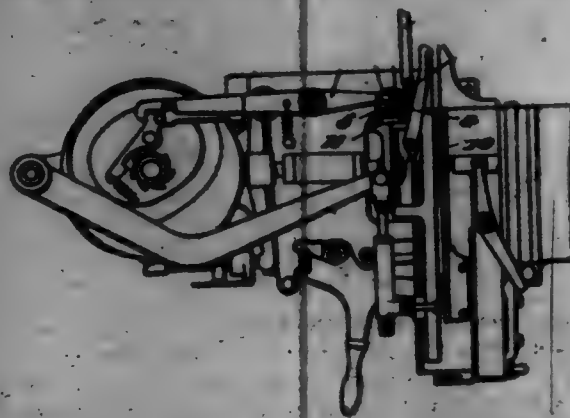
for admitting air to and permitting it to escape from the casing, substantially as described.

37. The combination with the casing of an electrical apparatus, such as a motor, generator or rotary transformer, of a rotating core mounted therein, the material of said core being perforated to form a helical duct or a plurality of helical ducts extending therethrough, the axis of the helices formed by the ducts being coincident with the axis of rotation of the core, and the mouths of said ducts being so shaped as to cause air to flow into the ducts, and means for admitting air to and permitting it to escape from the casing, substantially as described.

38. A disk for use with a rotating core or similar rotating part of electrical apparatus, said disk being perforated and the material of said disk adjacent to the perforation being forced outward to form a vane to direct air into the perforation, substantially as described.

39. A rotating core or other similar rotating part for use in electrical apparatus comprising a plurality of perforated disks, the perforations of which are arranged to form a helical duct or ducts, the material of the said disks adjacent the perforations being forced outward to form vanes to direct air into the perforations, substantially as described.

700,886. TYPE-COMPOSING MACHINES FOR TABULAR MATTER. WILLIAM KEMP, JR., New York, N. Y., assignor to Lanston Monotype Machine Company, New York, N. Y., a Corporation of Virginia. Filed Jan. 28, 1902. Serial No. 90,902. (No model.)



Claim.—1. In an automatic type-composing machine the combination with means for forming a line of type in successive justified sections and a galley in which successive sectionally-justified lines are assembled in column, of means for automatically transferring each complete sectionally-justified line to said galley; substantially as described.

2. In a type-composing machine provided with mechanism for automatically composing and justifying successive sections of type and assembling said sections as a complete line, and in combination therewith a line-transfer provided with means for automatically actuating the same upon the completion of each line, whereby successive sectionally-justified lines are assembled in column form, as and for the purpose specified.

3. In a type-forming machine provided with means for automatically forming successive type in the order of composition and assembling them in sectionally-justified lines and in combination therewith a column holder or galley and a line-transfer provided with means for automatically delaying its action until the plurality of sections composing each line have been separately formed, justified and assembled in line; substantially as described.

4. In a type-composing machine such as described the combination with the type-composing line-section justifying and line-assembling mechanism and a column-forming galley, of a line-transfer provided with a timing mechanism for defining the periods of line-transfer.

5. The combination with a type-composing machine provided with type-assembling and line-section justifying means, and a galley mechanism including a line-transfer and a trip or starting device thereof, of an adjustable or variable automatic timing mechanism for actuating the trip or inaugurating the movement of the starting device; substantially as described.

6. In a type-composing machine such as described, the combination with the justifying device and the galley-trip controlling the line-transfer, of an automatic timing mechanism intermediate the justifying device and the galley-trip for controlling the periods of line-transfer; substantially as described.

7. In a type-composing machine such as described, wherein the line-assembling and section-line justification are automatically governed by a controller and in combination therewith, a galley mechanism provided with a line-transfer, a starting device controlling the action of said line-transfer and a timing mechanism for said starting device governed by said controller; substantially as described.

8. In a type-composing machine such as described provided with a controller, type-ascending and line-justifying mechanism, a galley mechanism including a line-transfer and a trip thereof, and in combination therewith an automatic timing mechanism modifiedly acted upon by the controller to actuate said trip; substantially as described.

9. In a type-composing machine such as described, the combination with a galley trip-lever, of a ratchet-wheel mounted on said lever and provided with a shoulder for engagement therewith, a retracting-spring and stop for said ratchet-wheel, and a reciprocating pawl engaging said ratchet-wheel; substantially as described.

10. In a type-composing machine such as described provided with a controller, a justifying mechanism and a galley mechanism furnished with a trip-lever and in combination therewith a ratchet-wheel mounted on said trip-lever and provided with a shoulder for engagement therewith, and an actuating-pawl controlling the advance movements of said ratchet-wheel, said pawl reciprocating in unison with a portion of the justifying mechanism to effect an advance of the ratchet-wheel each time the justifying device are set for a new column; substantially as described.

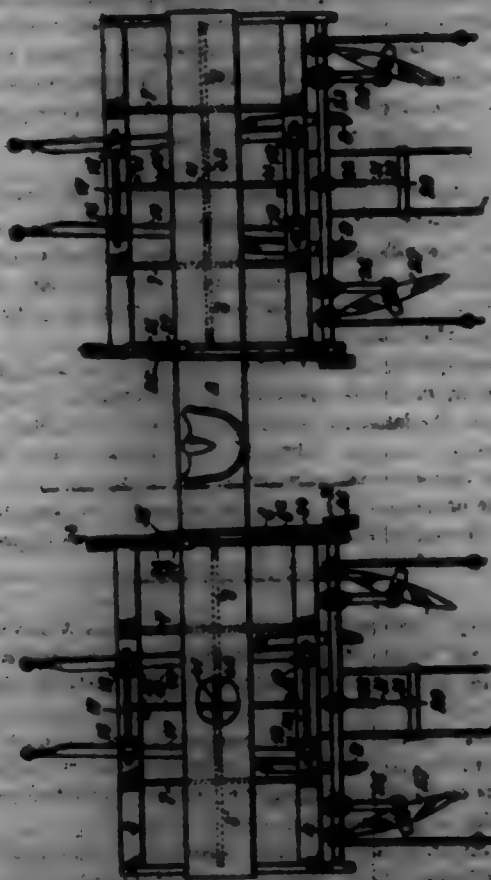
11. In a type-composing machine such as described, and in combination with the galley trip-lever thereof, a ratchet-wheel carried by said lever and provided with a shoulder for engaging the same, a retracting-spring, back-stop and holding-pawl for said ratchet-wheel, and a reciprocating pawl engaging said ratchet-wheel; substantially as described.

12. In a type-composing machine such as described, and in combination with the trip-lever for cutting in action the line-transfer, a ratchet-wheel mounted on said lever and provided with a shoulder for engaging the same, a retracting-spring back-stop and holding-pawl for said ratchet-wheel, an actuating-pawl and a trip connected to the line-transfer and engaging the holding-pawl to withdraw the latter; substantially as described.

13. In a type-composing machine such as described and in combination with its justification-wedge-shifting lever and the trip-lever controlling the line-transfer, of a timing mechanism for said line-transfer the same including a pawl receiving motion from the justification-wedge lever, a ratchet-wheel mounted on the said trip-lever and adapted to engage the latter and move it after a predetermined number of reciprocations of the pawl have taken place; substantially as described.

14. In a type-composing machine such as described, and in combination with the justifying mechanism and line-transfer trip-lever, a timing mechanism for said line-transfer, the same comprising an intermittingly-acting driving member deriving motion from the justifying mechanism, and a driven member engaging the trip-lever, to actuate the latter, after a predetermined number of advance movements; substantially as described.

700,887. TWO-BOW CULTIVATOR. LUDWIG KILMER, Kansas City, Mo. Filed Feb. 22, 1898. Serial No. 99,416. (No model.)



Claim.—1. In a cultivator comprising two bows secured together by a cross-plank, shafts journaled at the rear ends of the bows and pro-

vided with shovel-beams, loop-bars secured to the adjacent ends of the bows, through which the cross-plank operates, levers pivotedly secured to the upper portions of the loop-bars, means for retaining the levers in any desired position, crank-arms secured to the adjacent ends of the shafts, and connecting-bars pivotedly secured at their opposite terminals to the levers and the crank-arms, substantially as described.

2. In a cultivator of the class described, loop-bars secured to the adjacent ends of the bows, beams secured to the rear ends thereof, shafts journaled therein carrying disks, cranks secured to the adjacent ends of said shafts, levers fulcrumed to the upper portions of the loop-bars, and connecting-bars pivotedly secured at their opposite ends to the cranks and the levers, substantially as described.

3. In a cultivator of the class described, loop-bars secured to the adjacent ends of the bows, journaled shafts mounted on the bows carrying suitable cultivating appliances, cranks secured to the adjacent ends of said shafts, levers fulcrumed to the loop-bars, and connecting-bars pivotedly secured at their opposite ends to the cranks and the levers, substantially as described.

4. In a cultivator, a cross-plank, gangs adjustably pivoted to the same, standards extending downwardly from the gang-frames, runners bent upwardly at their opposite ends and secured to the lower terminals of the standards, carrying-wheels mounted upon stub-shafts projecting from the rear standards just in the rear of the center of gravity of the machine, and means for adjusting the cross-plank so that all or any portion of the weight of the machine may be balanced on said wheels, substantially as described.

700,888. CALENDER-ROLLER. JOHANNES KLEINOWITZ, Germany, assignor to FIRM of Joh. Kleinowitsch & Co., G.m.b.H., Rheinh. Frank, Germany. Filed Feb. 12, 1899. Serial No. 47,945. (No model.)



Claim.—1. Calender-roller for smoothing purposes and for producing impressions, in which the covering forming the operative surface of the roller is composed of layers of different kinds of fibrous material.

2. A calender-roller comprising a mandrel, a covering forming the operative surface of the roller composed of several layers of different material alternating with each other, and means for holding said layers on the mandrel, substantially as described.

700,889. ROASTING-FURNACE. FRANK KLEINOWITZ and WILLIAM J. EVANS, Greentide, Mont. Filed Aug. 2, 1899. Serial No. 29,357. (No model.)

Claim.—1. In a furnace of the class described, a hearth, a roof therefor, a hopper thereabove having a constricted opening, means for rotating the material to be treated in the opening of said hopper consisting of rotary stirrer-arms projected from the upper outer edge of said hopper to the discharge-opening thereof, and separate means for feeding the material from said hopper to said hearth, substantially as set forth.

2. A roasting-furnace having a hearth and roof, a central vertical stirring-shaft therein, a stirring-arm arranged on said shaft beneath and near said roof and extending over the hearth, and an upward projection on said arm in position to remove accretions from the roof, substantially as set forth.

3. In a furnace having a plurality of hearths, a rotatable hollow shaft passing through the hearths, a series of hollow arms radiating from said shaft and extending into the several hearths, an inner water-feed pipe located within and rotatable with the shaft, a series of branches or distributing-pipes leading from said feed-pipe and communicating with the interior of the hollow arms for returning the water of circulation through the hollow shaft to a point adjacent to the feed end of the feed-pipe, substantially as set forth.

4. In a furnace having a plurality of hearths, a rotatable hollow shaft passing through the hearths, a series of hollow arms radiating from said shaft and extending into the several hearths, an inner water-feed pipe closed at the bottom, located within the shaft and rotatable therewith, a series of branches or distributing-pipes leading from said feed-pipe and communicating at their outer ends with the interior of the hollow arms, for returning the water of circulation through the hollow shaft to a point adjacent to the feed end of the feed-pipe, substantially as set forth.

5. In a roasting-furnace, a rotatable shaft, one or more arms carried thereby, flanges formed on either side of said shaft and a series of rotatable stirring-teeth embracing said flanges, substantially as set forth.

6. In a roasting-furnace, a rotatable shaft, one or more hollow arms carried thereby, said arms having a substantially plane bottom and fur-

ing peripheral walls, an inner water-feed pipe within the shaft, a series of branches or distributing-pipes leading from said feed-pipe and communicating with the interior of the hollow arms for returning the water of circulation through the arms and through the shaft to a point adjacent to the feed end of the feed-pipe, and causing the ascending currents of the water to follow the flaring walls of said hollow arms, substantially as set forth.



7. In a roasting-furnace, a rotatable shaft, one or more arms carried thereby, said arms having a flat bottom and peripheral upwardly-flaring walls, lateral flanges forming extensions of said bottom, and a series of stirring-teeth extending said flanges, substantially as set forth.

8. In a roasting-furnace having a plurality of hearths, a rotatable shaft passing through the hearths, arms radiating from said shaft, a series of stirring-teeth carried by said arms, a feed-bopper for the upper hearth, and a plurality of discharge flaps or passages leading from said upper hearth whereby uniform drying results are insured, substantially as set forth.

700,840. ELECTRICAL OUTLET-BOX. HENRY KRAMER, Brooklyn, N. Y. Filed Mar. 24, 1902. Serial No. 100,100. (No model.)

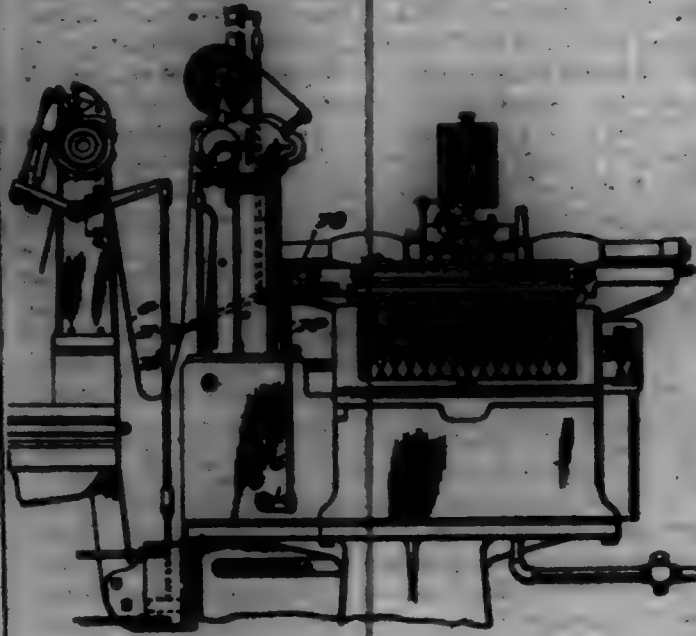


Claim.—1. An electrical outlet-box, having a split connecting-neck, one part of the neck being formed integral with the body of the box, and the other separate, and means for clamping them together, the side wall of the box at the outlet-opening being cut away, as and for the purpose described.

2. An electrical outlet-box having a split connecting-neck, one part of the neck being formed integral with the body of the box, and the other separate, and means for clamping them together, the side wall of the box at the outlet-opening being cut away, and a filling-piece being provided for said cut-away portion, substantially as described.

3. An electrical outlet-box having its side wall cut away at the outlet-opening, with a split connecting-neck, one part integral with the box, and the other a separate part which carries a filling-piece for the cut-away portion of the side wall, all substantially as described.

700,841. TYPE-COMPOSING MACHINE. TOLBERT LANGRISH, Washington, D. C., assignor to Linotype Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Original application filed Mar. 6, 1901, Serial No. 60,170. Divided and this application filed Feb. 2, 1902. Serial No. 90,000. (No model.)



Claim.—1. In a machine such as described, the combination with a controller-composing mechanism and a type-composing mechanism, of a speed-controller acted upon by the controller or record-strip and acting upon the type-composing mechanism; substantially as described.

2. In a composing-machine comprising a controller, a controller-composing mechanism, and a type-composing mechanism the latter governed by the signals of the controller and in combination therewith a speed-controller for the type-composing mechanism and actuating device therefor engaged by the controller for varying the speed of the type-composing mechanism, substantially as described.

3. In a composing-machine such as described, the combination of the following elements, to wit: a manually-operated controller-composing mechanism; a power-driven automatic type-composing mechanism; a controller connecting the said composing mechanisms; and means operated upon by the controller for varying the speed of the type-composing mechanism; substantially as described.

4. In a composing mechanism such as described, the combination of the following elements, to wit: an automatic type-composing mechanism; a controller governing said type-composing mechanism; a controller-composing mechanism arranged to deliver the controller directly to said type-composing mechanism; a speed-controller for the type-composing mechanism; and a governing member for said speed-controller engaged by the controller at a point intermediate said controller-composing and type-composing mechanism; substantially as described.

5. In a composing-machine such as described, the combination of the following elements, to wit: type-composing mechanism; an electric motor therefor; controller-composing mechanism; a speed-controller, such as a rheostat, connected to said motor; and a control system or mechanism for said speed-controller in position to be acted upon by the controller or record-strip; substantially as described.

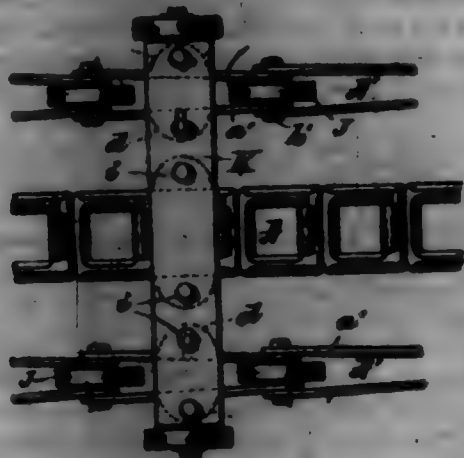
6. In a composing-machine such as described, the combination with a type-composing mechanism governed by a controller and provided with feed devices for the latter located in proximity to the galley, of a controller-composing mechanism delivering the controller directly to the feed devices of the type-composing mechanism and located in front of the latter so that the operator at the controller-composing mechanism may supervise and superintend the running of the type-composing mechanism.

700,842. CHAIN CONVEYER. GREGORY W. LEVALL, New York, N. Y. Original application filed Nov. 12, 1900, Serial No. 60,000. Divided and this application filed Sept. 27, 1902. Serial No. 91,000. (No model.)

Claim.—1. In a conveyer, the combination with a chain formed of articulating links having side bars, of anti-friction-wheels attached to the side bars of the chain intermediate of the joints or articulating parts thereof, substantially as set forth.

2. In a conveyer, the combination with a chain formed of articulating links having side bars, the side bars of certain of the links being provided, between their ends, with supporting-wings, of anti-friction-wheels, and

wheel-carriers therefor supported by the said wings of the chain-links, substantially as set forth.



3. In a conveyor, the combination with a chain formed of articulated links, of antifriction supporting-wheels for the chain connected directly with the links thereof and arranged laterally outside of or beyond the sides of the chain, substantially as set forth.

4. In a conveyor, the combination with a chain composed of articulated links having side bars, of antifriction-wheels adapted to support the chain, the said wheels being attached to the side bars intermediate of the articulating parts of the chain and being arranged outside of or beyond the side edges of the chain, substantially as set forth.

5. In a conveyor, the combination with a chain formed of articulated links, certain of which are provided with wings which are arranged in a plane above that of the links, of antifriction-wheels and wheel-carriers therefor supported upon said wings and extending across the links, whereby the wheel-carriers are supported in such position as not to interfere with the teeth of the driving or sprocket wheels, substantially as set forth.

6. In a conveyor, the combination with a chain formed of articulated links having side bars, certain of which are provided with wings which are arranged in a plane above that of the links, of antifriction-wheels for supporting the chain and carriers for the said wheels secured to the said wings, the said carriers being formed with depending bracket-arms carrying axles for the wheels, substantially as set forth.

7. In a conveyor, the combination with a chain-link having wings, a supporting-wheel, and a carrier for the wheel, having an attaching-plate adapted to be secured to the said wings, the said plate being formed with a hole *c* and a slot *d* for the passage of the attaching means, whereby the carrier is adapted for use with links of different sizes, substantially as set forth.

8. In a conveyor, the combination with a chain-link formed with wings, of an antifriction supporting-wheel, and a carrier for the wheel having a plate adapted to rest upon and be secured to the said wings, the carrier being provided with a bracket and axle for the wheel, and also with flanges which engage with the opposite sides of one of the wings, substantially as set forth.

9. In a conveyor, the combination with a chain-link having opposite side bars formed with wings, a carrier-wheel arranged to one side of the chain-link, and a support or carrier for the wheel secured to the wings of both of the side bars of the link, whereby the wheel is supported from both sides of the chain, substantially as set forth.

10. In a conveyor, the combination with a chain formed of articulated links, certain of which are formed with wings, of antifriction supporting or bearing wheels for the chain adapted to lie outside of the edge of the chain, reversible carriers for the wheels adapted to rest upon and be supported by the wings of the chain-links, and means for securing the said wheel-carriers to the wings of the chain-links, substantially as set forth.

11. In a conveyor, the combination of a plurality of parallel lines of chain formed of articulated links, cross-pieces connecting the lines of chain, and rollers or wheels arranged in the transverse planes of the said connecting cross-pieces, and outside of the edges of the lines of chain, substantially as set forth.

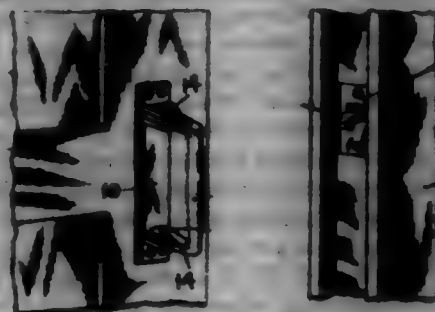
12. In a conveyor, the combination of a plurality of lines of chain formed of articulated links having side bars, certain of the side bars of the links being provided with wings, cross-pieces connecting the lines of chain and supported upon the said wings, supporting-wheels for the chains and carriers for the wheels also supported by the said wings, substantially as set forth.

13. A conveyor comprising a line of drive-chain, and parallel lines of supporting-chains and cross-pieces secured to the said line of chain, substantially as set forth.

14. A conveyor, comprising a line of drive-chain, lines of supporting-chains parallel thereto, cross-pieces uniting the said lines of chain, and supporting-wheels carried by the chain in line with the cross-pieces

and intermediate the joints or articulating parts of the chains, substantially as set forth.

700,848. OPERATING AND LATCH-RELEASING MECHANISM FOR SLIDING DOOR. WILLOW S. LINCOLN, Worcester, Mass. Filed Feb. 27, 1901. Serial No. 68,997. (No model.)

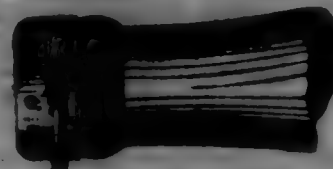


Claim.—1. In an operating and latch-releasing mechanism for sliding doors, the combination of an operating-handle pivotally mounted upon the sliding door, a sliding cam-piece or latch-releaser mounted in the sliding door and connected to be moved by the operating-handle, and a latch pivotally mounted in the door-casing, said parts being arranged so that when the operating-handle is pulled to open the door, the releaser will first disengage the latch, after which the door may be drawn open, substantially as described.

2. In an operating and latch-releasing mechanism for sliding doors, the combination of a latch-cock mounted in the door, a sliding inclined-coded latch-releaser or bolt, two operating-handles pivotally mounted on opposite sides of the sliding door and connected to move the latch-releaser, and a latch pivotally mounted in the door-casing in position to engage the latch-cock, said parts being arranged so that when either operating-handle is pulled to open the door, the releaser will first disengage the latch from its cock, after which the door may be drawn open, substantially as described.

3. In an operating and latch-releasing mechanism for sliding doors, the combination of a latch-cock-piece mortised into a sliding door, and having a face-plate for receiving screws to hold the same in place, a sliding latch-releaser mounted in the latch-cock-piece, operating-handles pivoted in brackets upon opposite sides of the door and having inwardly-projecting fingers engaging a notch in the latch-releaser, and a gravity-latch mounted in a pivot-place which is mortised into the door-casing and which is provided with a face-plate for receiving the screws for holding the same in place, said parts being arranged so that when either operating-handle is pulled to open the door, the releaser will first disengage the latch, after which the door may be drawn open, substantially as described.

700,844. BOTTLE-STOPPER. GEORGE LAFFMANN, Brooklyn, N.Y. assignor to Charles L. Curtis, Brooklyn, N.Y. Filed Nov. 16, 1900. Serial No. 38,711. (No model.)



Claim.—1. In a bottle-stopper, the combination of a bottle having a circumferential rim or flange, a cap having a crown-piece and depending flange, transversely-aligning apertures in said flange, and a boy having two parallel arms, each of which arm is adapted to be passed transversely through two of said apertures, and beneath the said rim or flange of the bottle to bind the cap on the bottle, substantially as described.

2. In a bottle-stopper, the combination with the bottle having a circumferential rim or flange, a cap having a crown-piece and depending flange, a plurality of aligning apertures in said cap, and a boy, comprising two parallel arms, each of which is adapted to be passed transversely through two of said apertures and a resilient disk between the bottle and the crown-piece, substantially as described.

3. In a bottle-stopper, the combination with a cap having a circular and depending flange provided with aligned and tangentially-disposed apertures, a bottle-stopper having a circumferential rim or flange, and a boy having parallel arms or prongs, each arm or prong extending tangentially through the apertures and under said rim.

4. As a new article of manufacture, a bottle-stopper comprising a cap-like cap having a crown-piece and a depending flange with a plurality of aligned apertures formed therein on each side, and a boy having parallel arms or prongs each of which passes through two of the aligned apertures, as set forth.

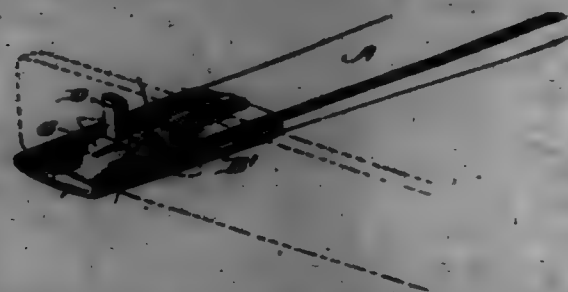
5. As a new article of manufacture, a bottle-stopper comprising a

cap-like cap having a crown-piece and depending flange, a plurality of transversely-extending and closing apertures formed in the flange and diametrically disposed relatively to each other, and a key comprising two parallel arms or prongs and a connecting cross-bar, each prong being adapted to be passed through two of said closing apertures, as set forth.

6. A bottle-stopper comprising a cap-like cap, having a crown and a depending flange, and holes formed in the flange diametrically disposed relative to each other, an outwardly-extending flange or channel formed in the flange between each set of apertures, and a key comprising parallel arms or prongs and a connecting cross-bar adapted to pass through said closing apertures, and lie in said flange, as set forth.

7. The combination with a bottle, of a flanged cap for the mouth thereof, the neck of the bottle and the flange of the cap being provided with matching grooves, a wire having parallel arms located intermediate between the neck and cap and locking the cap to the bottle by lying partly in each groove, and an opening through the flange of the cap into its groove, through which the wire can be withdrawn from its locking position, with both grooves, substantially as described.

700,845. TUG-FASTENER. JAMES L. LEECH, Inventor. Filed Oct. 4, 1901. Serial No. 77,732. (No model.)



Claim.—The combination with a whistle, the end of which is grooved longitudinally, of a ferrule or thimble arranged thereon, said ferrule or thimble having an opening adapted to align with the groove in the whistle, bearing-recesses produced adjacent to the end of the said opening, a lag arranged at the end of the opening, the pivot passing through the lag and resting in the bearing-recesses, a spring secured within the ferrule, the free end bearing against the flattened end of the lag, the upper face of the ferrule or thimble being forced upwardly to accommodate the free end of the spring and serve as a stop-shoulder for the lag, substantially as above and described.

700,846. ELECTRIC RAIL-BOND. WILLIAM J. LEO and JAMES R. BOLGER, Inventors. Filed Feb. 26, 1902. Serial No. 91,002. (No model.)



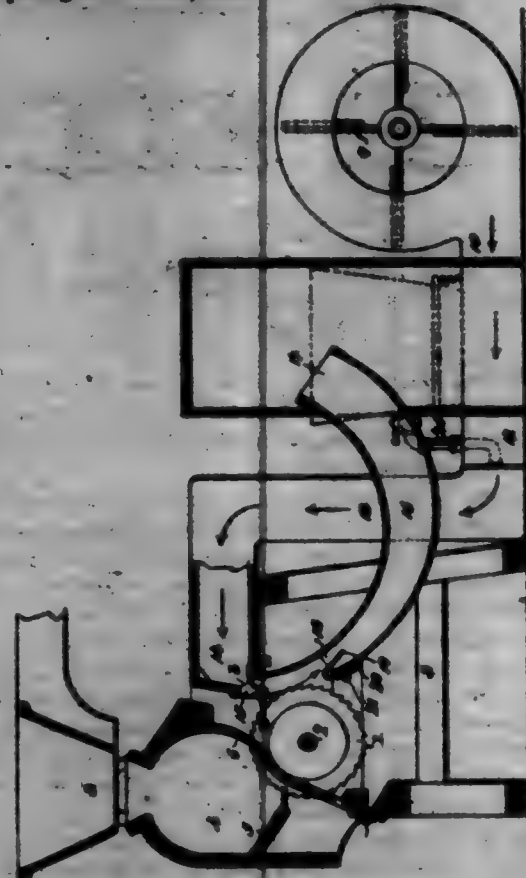
Claim.—1. In a device of the class described the combination with rails, of a fish-plate provided at its lower face with a longitudinal groove, an electric rail-bond consisting of a thin copper plate seated in the groove and entirely filling the same throughout its entire length and interposed between the rails and the fish-plate, said fish-plate forming a casing or housing for the electric rail-bond and supporting the same at the upper and lower edges thereof throughout the entire length of the same, substantially as described.

2. In a device of the class described, the combination of the rails provided at their ends with perforations arranged in pairs, fish-plates arranged at opposite sides of the rails and provided with elongated openings arranged in pairs, an electric rail-bond consisting of a thin copper plate provided at its ends with elongated openings registering with the end perforations of the rails and with the inner openings of the fish-plates, said electric-rail-bond being snugly seated and secured within a groove of the inner face of one of the fish-plates and entirely filling the same throughout its entire length, whereby it forms a rigid structure with the said fish-plates and is supported and protected by the same, and the bonding devices, passing through the said perforations and openings, substantially as described.

700,847. COTTON-GIN. ROBERT B. LAMBERT, STUART, TEX. Filed Oct. 2, 1901. Serial No. 51,912. (No model.)

Claim.—1. In a cotton-gin, an off-shoot chute curved in a vertical plane and of less cross-section at its intake than at its outlet end, an adjustable approximately U-shaped metal-board having one member projecting into the intake end of the chute, and means for holding the metal-board at the desired adjustment.

2. In a cotton-gin, the combination with the saw, of an off-shoot chute having its lower side terminating short of the saw, an approximately U-shaped metal-board carried by the said lower side and disposed below the axis of the saw, and having one member projecting into the intake end of the chute, and a blast-mechanism having an elongated discharge-mouth opening toward the chute.



3. In a cotton-gin, the combination with the saw and the condenser, of an off-shoot chute approximately horn-shaped in side elevation, the smaller end constituting the intake and being disposed adjacent to the saw, and the larger end constituting the discharge and communicating with the condenser, the lower side of the intake terminating short of the saw presenting thereby a passage to permit escape of seeds and dirt, an adjustable approximately U-shaped metal-board carried by the lower side of the intake and having one member projecting into the chute, and blast-mechanism disposed above the saw and discharging in the direction of the chute.

4. In a cotton-gin, an off-shoot chute curved in a vertical plane and of less cross-section at its intake than at its outlet end, a bracket carried by the intake end of the chute, an approximately U-shaped metal-board having one member projecting into the intake end of the chute and the other in engagement with the bracket, and means carried by the bracket for holding the metal-board at the desired adjustment.

5. In a cotton-gin, the combination with the saw, of an off-shoot chute having its lower side terminating short thereof, having thereby an open space to permit escape of seeds and dirt, an approximately U-shaped metal-board carried by the lower end of the chute and having one member projecting into the intake end thereof, a condenser communicating with the chute, blast-mechanism, a head disposed adjacent to the saw and communicating with the blast-mechanism, a headboard partially enclosing the discharge end of the head, and a blast-mechanism carried to the head-board and to the lower side of the head and discharging toward the chute.

6. In a cotton-gin, the combination with the saw, of an off-shoot chute, an approximately U-shaped metal-board carried by the chute and having one member projecting into the intake end thereof, a condenser communicating with the chute, blast-mechanism, a head disposed adjacent to the saw and communicating with the blast-mechanism, a blast-mechanism carried by the head, and pressure-equalizing mechanism connected with the blast-mechanism.

7. In a cotton-gin, an off-shoot chute, an approximately U-shaped metal-board having one member projecting into the intake end thereof, blast-mechanism discharging in the direction of the chute, and pressure-equalizing mechanism connected with the blast-mechanism.

700,848. COLOR-READING WOOD. SAMUEL LYON, Hamburg, Germany. Filed Feb. 11, 1902. Serial No. 92,495. (No specimens.)

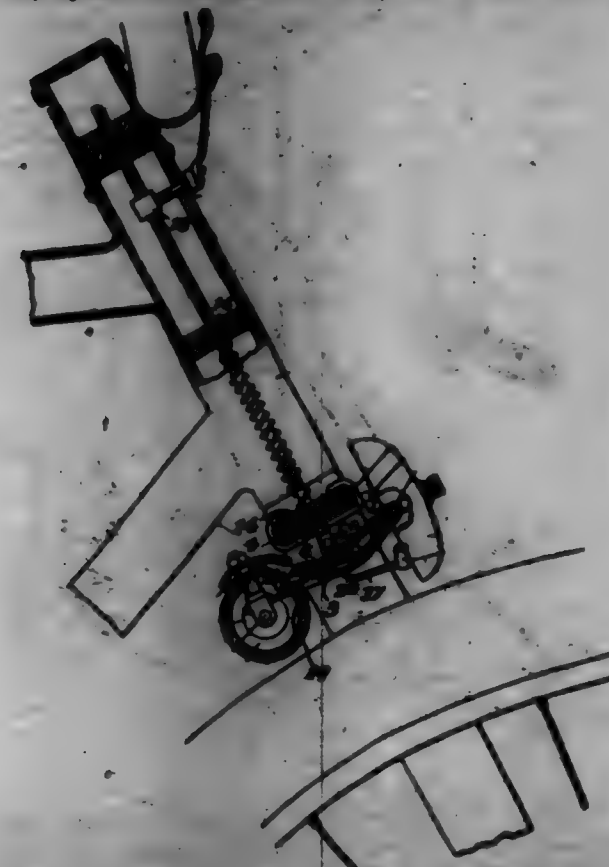
Claim.—1. The herein-described die for pyrographic decoration in which parts are projected so as to contact with the material sufficiently to char parts of the design, and the parts of the die immediately adjacent

to said charring parts are arranged at angles that vary according to the surfaces bounding the charred portions of the contemplated design are intended to contract or expand as to light and shade with said charred portions, substantially as and for the purpose set forth.



2. The herein-described die for pyrographic decoration in which parts are projected so as to contact with the material sufficiently to char parts of the design, the parts of the die immediately adjacent to said charring parts are arranged at angles that vary according to the surfaces bounding the charred portions of the contemplated design are intended to contract or to expand as to light and shade with said charred and each portion of the die as are intended to produce areas of uniform tint of any shade, being maintained at a uniform distance from the surface acted upon, substantially as and for the purpose set forth.

700,849. BRAKE AND HILL FOR VEHICLES. GEORGE E. MADSEN, Hayward, Cal. Filed Nov. 4, 1901. Serial No. 91,002. (No model.)



Claim.—1. The combination in a bicycle-brake of clamps, means for securing them to the bicycle-head, a plate interposed with relation to said clamps, and having a furled outer end, a roller journaled between said furled end and including a central core, an elastic sleeve surrounding the core and metal bands upon the ends of the core, said sleeve having the portion between the bands of less diameter than said bands, and provided with a spiral wrapping of cord, a pressure-plate having ends adapted to press upon the metal end bands of the roller in opposition to the pressure of the central portion of the tire, a spring acting upon said plate to hold the sleeve normally out of contact with the roller, a guided rod connected to the plate, and extending upwardly, and a brake-lever for actuating the rod.

2. The combination in a bicycle-brake of a clamp, means by which it is secured to the bicycle-head, a plate pivotally mounted at one end and having its other end furled, a roller journaled between said furled end and including a core having a reduced central portion and an elastic sleeve fitting said reduced portion, and metal bands on the ends of the core, means whereby the roller is pressed into contact with the tire, a pressure-plate to engage said end bands of the roller and means for actuating said pressure-plate, a bell carried by the first-mentioned plate, a hammer interposed to the plate, and a pin carried by the roller and engaging said arm, and means for moving the hammer to act upon the bell.

3. The combination in a bicycle-brake of a clamp, means by which it is secured to the bicycle-head, a plate pivotally mounted at one end and having its opposite end furled, a roller mounted in the furled end and of the plate having insulate ends and an elastic intermediate portion to be forced

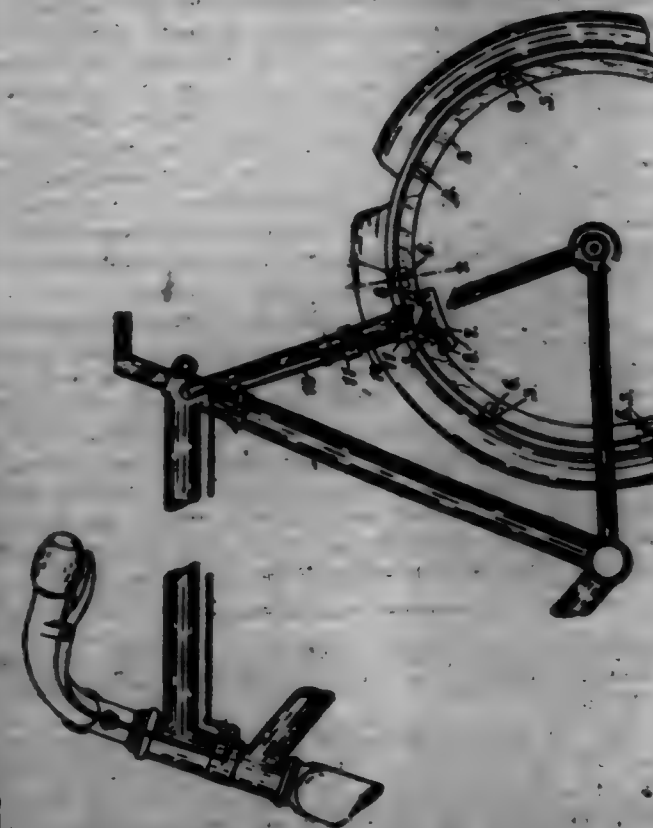
into contact with the tire, a furled pressure-plate having ends to engage the insulate ends of the roller and means for actuating the pressure-plate to press the elastic portion of the roller into contact with the tire, a bell and its actuating-hammer, and a pin carried by the roller for actuating the hammer substantially simultaneously with the application of the brake-lever to the tire.

4. In a bicycle-brake the combination of a plate pivotally mounted at one end and having a furled opposite end and a roller mounted in said furled end and comprising a core the central portion of which is of less diameter than the ends, metal bands upon said ends and an elastic sleeve upon the reduced central portion, said sleeve wound transversely around said sleeve between said ends and forming the bearing-surfaces of the roller, a pressure-plate interposed at one end and carrying a shoe at the other end, to engage said metal bands, and a means for depressing the plate to cause it to force the curved surface of the roller into contact with the wheel-tire.

5. The combination in a bicycle-brake of a clamp, two levers, one above the other and independently movable, and a single axis about which both levers are movable, a roller journaled in the lower lever and adapted to press upon the wheel of the machine, said roller having a core with reduced central portion and metal bands upon the ends, and a yielding surface upon the reduced portion, a shoe carried by the upper lever, and adapted to press upon the end bands of the roller, an interposed spring by which the levers are normally separated, a rod connected with the upper lever and means for applying pressure whereby the roller is first brought into contact with the wheel, and the shoe subsequently caused to press upon the roller.

6. The combination with a bicycle of a clamp, superposed levers fulcrumed thereto, a roller journaled in the lower lever and adapted to contact with the wheel, said roller including a central core with a reduced portion between its ends and metal bands upon said ends, and a yielding surface on said reduced portion, a shoe carried by the upper lever above the roller and adapted to press on said bands, a spring by which the levers are normally separated, a bell and a furled hammer-lever, a pin upon the roller contacting with said lever, and a means for applying pressure through the upper lever whereby the roller is first placed in contact with the wheel to sound the bell, and a further pressure forces the shoe into contact with the roller.

700,850. BICYCLE-BRAKE. ALBERT HAIN, Fowlesham, Cal. Filed Jan. 6, 1902. Serial No. 91,002. (No model.)



Claim.—1. The combination in a bicycle-brake of a rim interposed out of and interior to the felly of the wheel, lag and belt connections between the rim and felly and securing one to the other, a brake-shoe opposing upwardly against the rim and engaging the latter at right angles with the axis of the machine, and means for operating the brake-shoe.

2. The combination with a bicycle-wheel of lugs fixed at intervals within the wheel-felly and having channels upon the exterior edge, a rim fitting said channels and bolted thereto, having its inner periphery of smaller diameter and clear of the lugs and felly, a brake-shoe curved to fit said inner periphery having guide-lugs upon opposite sides, a guided

slidable rod connected with the shoe and connections between said rod and a hand-lever by which the shoe may be forced into contact with the interior of the rim.

3. The combination with a bicycle-wheel of a rim, legs fixed to the interior of the wheel-hub by which the rim is supported within the hub and at one side of the wheel-spokes with the inner periphery independent thereof, a brake-shoe curved to fit said periphery having guides upon each side, a rod guided and slidable upon a wheel-frame having arms by which it is united with the brake-shoe, a bell-crank lever, a cord connecting it with the slidable rod, a hand-lever at the bicycle-hand and a cord connecting it with the bell-crank lever whereby the brake-shoe may be caused to press against the interior of the smaller rim and at right angles with the wheel-shaft.

700,851. STOPPER FOR MILLER-TUBES OR HOLLOW SHAFT.
ING. HENRY T. HANSEN, Chicago, Ill. Filed Aug. 14, 1901. Serial No. 73,015. (No model.)



Claim.—1. The combination with a hollow metallic member, of a stopper therein comprising an expandable head formed in sections, compressible material covering the joints between adjoining sections of the head, and means for expanding the head and the compressible material.

2. A stopper for boiler-tubes or hollow shafting, comprising an expandable head formed in sections and having an opening extending longitudinally therethrough, a wedge member within the opening, a clamp or stem carried by the wedge projecting beyond the head, a clamping member upon the clamp, compressible material intermediate said clamping member and the head, and means upon the clamp for drawing the wedge and clamp together to expand the head and the compressible material.

3. A stopper for metallic tubing comprising an expandable head formed in sections and having a tapering opening extending longitudinally therethrough, a wedge within the opening carrying a clamp or stem threaded at its free end, a clamping-plate loosely secured upon the clamp, a ring of compressible material intermediate the plate and the head, and a nut engaging the clamp and bearing against the plate.

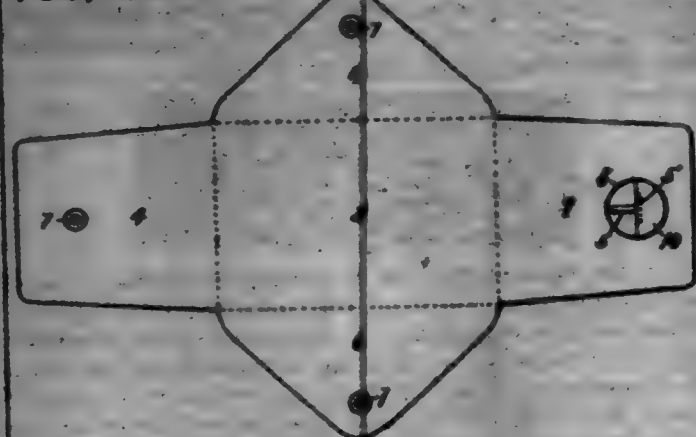
4. A stopper for boiler-tubing or hollow shafting, comprising an expandable head formed in sections and having a tapering conical opening extending centrally and longitudinally therethrough, a conical wedge fitting within the opening, said wedge contacting with the walls of the opening throughout the entire length of the latter and having a flaring section at its outer end abutting against the edges of the head-sections, a clamp or stem integral with the wedge and projecting beyond the head, a conical clamping-plate loosely secured upon the clamp, a ring of compressible material intermediate the head and the plate and a nut threaded upon the free end of the stem adapted to bear against the plate.

700,852. REVERSIBLE ENVELOP OR WRAPPER. WILLIAM MARTIN, Kansas City, Mo. Filed June 22, 1901. Serial No. 68,561. (No model.)

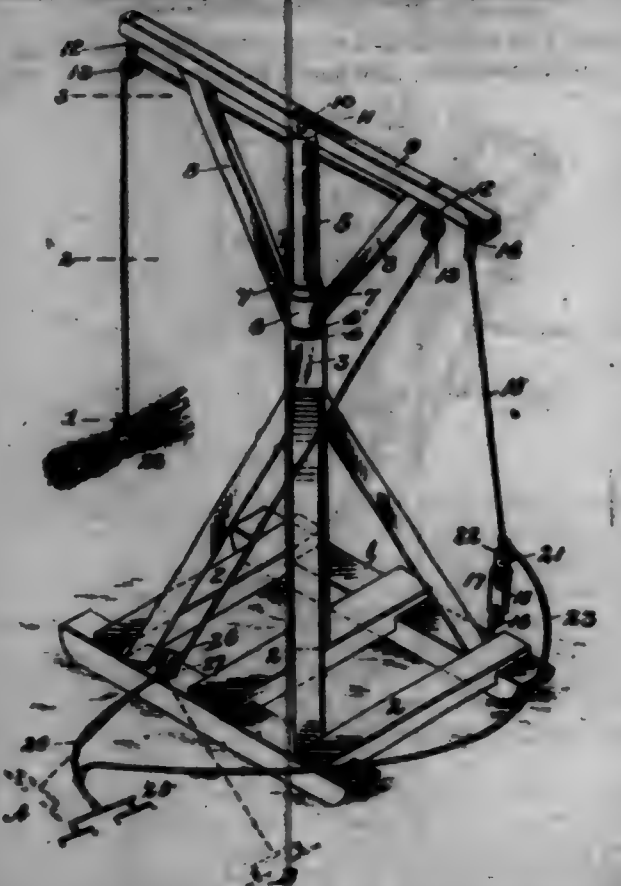
Claim.—1. In a reversible envelop or wrapper comprising four flaps, three of said flaps having a perforation in each, an opening in the flap not so perforated, and a flexible metallic fastener secured to said flap and projecting into said opening when unrolled, said fastener comprising a middle foot portion *B'* and a pair of tongues *B*, and being so located with respect to the perforations in the other flaps that said tongues may be inserted through all of said perforations, when the envelop is folded in either direction, substantially as described.

2. A reversible envelop or wrapper comprising three flaps *A*, *B*, *C* provided with perforations *7*, a flap *D*, a flap *E* cut therefrom and folded back upon said flap *D*, leaving an opening *8*, and a flexible metallic fastener comprising a middle foot portion *B'* and a pair of tongues *B* projecting through the fold of said flap *E*, the foot portion *B'* lying between said flaps *D* and *E*, substantially as described.

700,853.



700,853. CRANE. GEORGE C. HATFIELD, San Francisco, Wash. Filed Mar. 11, 1900. Serial No. 97,397. (No model.)



Claim.—1. The combination of a base-frame, consisting of side rails 1, and cross-beams 2; a braced central post 3, having about two-thirds of the way from its base, a shoulder 4, and resting on said shoulder, a collar 4'; the balance of said post terminating in a cylindrical bearing 5; a collar 6, encircling said cylindrical bearing 5, and resting on said collar just named; arm-cockets 7, extending upwardly and at an angle of about forty-five degrees from said post; arms 8, secured in said cockets, and extending upwardly at the same angle; a swinging beam 9, secured horizontally to the upper ends of said arms 8, and at right angles to said post; a bolt 11, passing through a perforation 10, in the beam 9, and into the upper end of the cylindrical bearing 5; a lock 17, secured to one corner of the beam; a cable, one end secured to the tongue part 21, of said lock, and the other to one end of the beam; a hoisting-cable 24, having a double-throw secured to its free end; said cable passing under a pulley 13, secured to one end of the beam 9, and over another pulley 12, secured in the other end of said beam, and thence downwardly, and adapted to be secured to a sling or grapple-hook, and an operating-cable having one end secured to the hoisting-cable, near the double-throw, the other end secured to the upper end of the tongue part 21, of the lock, substantially as shown and described and for the purposes set forth.

2. The combination of a base-frame; a vertical central braced post, having some distance from its lower end, a shoulder; a collar bearing resting on said shoulder, the balance of said post terminating in a cylindrical bearing; a collar journaled on said cylindrical bearing and resting on said collar bearing; arms extending upwardly at right angles from said collar; a swinging beam secured horizontally to the upper ends of said arms; a bolt passing down through the center of said beam into the top of said cylindrical bearing; a lock secured to one corner of said beam; a cable, one end secured to the tongue part of said lock and the other to

one end of said swinging beam; a hoisting-cable, having a double-throw secured to one end, said cable passing under a pulley secured to the base-frame, passing thence up over pulley secured to the under face of said cross-beam, and thence downwardly, and adapted to be secured to a sling or grapple-hook, and an operating-cable, one end secured to the hoisting-cable and the other to the upper end of the tongue part of the lock, substantially as shown and described and for the purposes set forth.

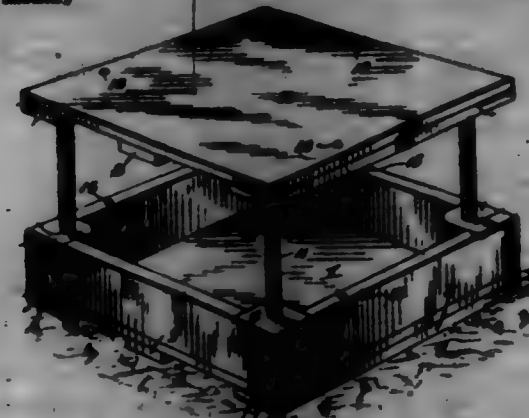
700,854. HANDLE. WILLIAM E. HAYTHAM, Lancaster, Mass. Filed Mar. 2, 1900. Serial No. 68,440. (No model.)



Claim.—1. A handle for the purpose described having a bore extending therethrough, a spring located within said handle and adapted to be connected to the valve chain or cord, means for positively preventing the withdrawal of the spring from the handle in one direction, said spring exerting its energy to prevent its movement through the handle in the opposite direction, substantially as set forth.

2. A hollow handle for the purpose described, a spring located within the hollow handle and provided at one end with a spring-arm adapted to bear against the interior wall of the handle and limit the movement of the spring in one direction and afford means for the connection of the valve cord or chain, said spring being provided at its other end with a head to limit the movement of the spring in the opposite direction and thereby prevent the withdrawal of said spring through said handle when the handle is grasped and pulled down, substantially as set forth.

700,855. COMBINED BOX OR CHEST AND TABLE. FRED L. KIRCHMILL, New York, N. Y. Filed Aug. 14, 1901. Serial No. 73,100. (No model.)



Claim.—1. In a device of the character described, the combination of a box-body having corner-openings, a cover therefor having corner-cockets, and standards insertible symmetrically through said openings and into said cockets to support the cover above the box-body, the lower ends of said standards having nuts to also hold the box-body at an elevation above the surface on which the standards rest, substantially as set forth.

2. In a device of the character described, the combination of a box-body having corner-openings, a cover therefor, formed with corresponding cockets, and standards adapted to be inserted upward through said openings and to be fitted at their upper ends in said cockets to support the cover at an elevation above the box-body, said standards being provided at their lower ends with shoulders for the body to rest upon, substantially as specified.

3. In a device of the character described, the combination of a box-body having corner-openings, wear-plates reinforcing said openings, upturned brackets above the openings, a cover therefor, formed with corresponding cockets, wear-plates reinforcing and closing the cockets at their inner ends, and standards adapted to be inserted upward through said openings, and brackets, and to be fitted at their upper ends in said cockets to support the cover at an elevation above the box-body, said standards being provided at their lower ends with shoulders for the body to rest upon, substantially as specified.

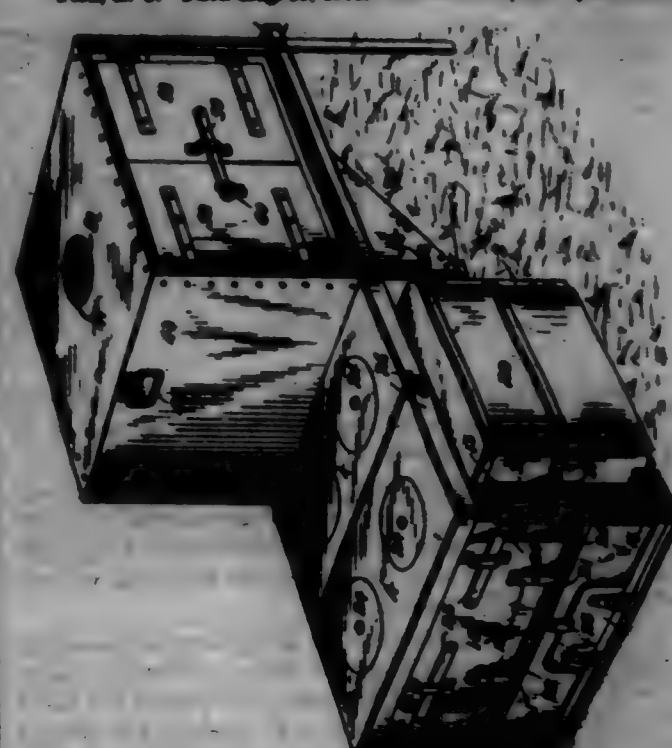
4. In a device of the character described, the combination of a box-body having corner-cockets, a cover having corresponding cockets, removable standards adapted to be fitted in said cockets to support the cover at an elevation above the box-body, and upturned brackets on said box-body adapted to receive and support said standards, substantially as in the manner set forth.

5. In a device of the character described, the combination of a box-body having corner-cockets, standards adapted to be removably fitted at

their lower ends in said cockets, and a reversible cover adapted to be removably supported upon said standards in a reversed position and having cockets to receive the upper ends of said standards, substantially as described.

6. In a device of the character described, the combination of a box-body provided with corner-cockets and bolt-openings, a removable reversible cover provided with corresponding cockets and bolt-openings, removable standards adapted to support the cover in reversed position above the box-body and to be fitted in said cockets, and bolts adapted to be passed through said bolt-openings to secure the cover to close the box-body upon the removal of the standards, substantially as set forth.

700,856. COLLAPSIBLE CAMP-STOVE. FRED L. KIRCHMILL, New York, N. Y. Filed Aug. 14, 1901. Serial No. 73,100. (No model.)



Claim.—1. In a collapsible camp-stove, a stove-body formed of side and end plates and a top, bolts having their threaded shanks projecting loosely through openings in the side and end plates, a curved plate-spring secured intermediate of its ends to the end walls between said openings and carrying said bolts, and nuts engaging the shanks of the bolts and holding the ends of the plate-spring under tension whereby, upon the disengagement of the nuts, the said ends of the spring will be freed and retract the bolts, substantially as described.

2. In a collapsible camp-stove, a stove-body formed of side and end plates and a top, bolts having their threaded shanks projecting loosely through openings in the side and end plates, springs fixed to the end walls and engaging the bolts, and nuts upon the bolts and holding the springs under tension whereby, upon the disengagement of said nuts, the springs will retract the bolts, substantially as specified.

3. In a collapsible camp-stove, a side wall, an end wall provided with an offsetting flange, said side wall and flange being provided with registering openings, a spring-plate centrally secured to said flange, bolts carried by the ends of said spring-plate and adapted to project through said openings, and nuts to engage the bolts and hold the ends of the springs under tension whereby, upon the disengagement of the nuts, the said ends of the springs will be freed and retract the bolts, substantially as set forth.

4. In a camp-stove, a stove-body comprising side walls provided with angle-braces, and walls adapted to rest against said angle-braces, and having angle-braces extending around their edges, means for connecting the side and end walls, and a top formed of sections having angle-iron flanges which fit in slots in the side walls and rest upon the flanges on the end walls, substantially as described.

5. In a collapsible camp-stove, detachable side and end walls, the side walls being provided with slots and the end walls with offsetting flanges, and a top having a flange to engage the slots and to rest upon the flanges of the end walls, substantially as described.

6. In a camp-stove, a stove-body provided with draft-openings, doors for closing said openings, a fire-interchangeable to cooperate with either draft-opening, and an oven adapted to be supported by the fire, substantially as described.

7. In a camp-stove, a stove-body having draft-openings formed in its opposite end walls, and a slidable fire to cooperate with either of said draft-openings, substantially as described.

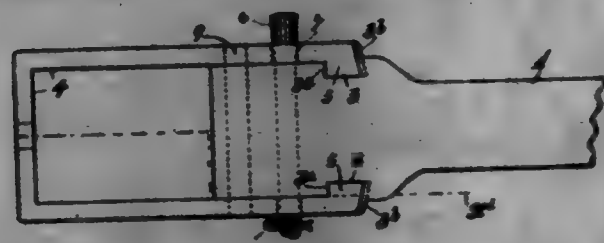
8. In a camp-stove, a stove-body having a draft-opening, a fire

adapted to cooperate therewith, a supporting-plate to rest upon the flange, a drum supported by said plate, and an oven in said drum, substantially as described.

9. In a camp-stove, a stove-body having a draft-opening, a flue adapted to cooperate therewith, said flue being removable and foldable, a plate supported by the flue and having a smoke-passage, a drum or casing carried by said plate, and an oven within the casing, substantially as described.

10. A collapsible camp-stove comprising side and end walls and a top, said parts being detachably connected and the side walls provided with draft-openings, a flue interchangeable to cooperate with either draft-opening, a supporting-plate to rest upon the flue, a drum adapted to be supported by the plate, and an oven in said drum, substantially as and for the purpose specified.

700,857. YOKES AND DRAFT-BAR FOR COUPLINGS. ROBERT MORRIS, La Crosse, Wis. Filed Feb. 10, 1902. Serial No. 63,366. (No model.)



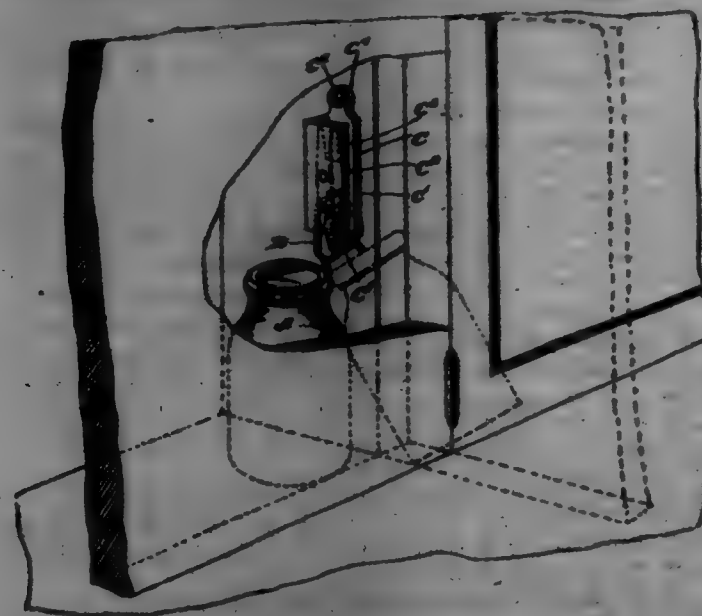
Claim.—1. A draft-bar and cooperating yoke or stirrup connected by dovetailed engagements which receive draft strain and prevent the prongs of said yoke from spreading, substantially as described.

2. The combination with a draft-bar having transversely-extended and tapered dovetailed ends, of a draft-yoke having transversely-extended and tapered dovetailed ribs fitting said ends, and a bolt passed through said draft-bar and the prongs of said yoke for holding said parts together, substantially as described.

3. The combination with a draft-bar having transversely-extended and tapered dovetailed ends, a draft-yoke having transversely-extended and tapered dovetailed ribs fitting said ends, and a tapered bolt passed through perforations in said draft-bar and in the prongs of said yoke and tending to force said ribs tightly into said ends, substantially as described.

4. The combination with the draft-bar 1 having the tapered transversely-extended dovetailed ends 3 and vertical perforations 8 of the yoke 4 having the perforations 7 and provided with the tapered dovetailed ribs 5 which fit in said ends 3, and the tapered bolt 6 passed through said perforations 7 and 8 and tending to force said ribs 5 tightly into said ends 3, substantially as described.

700,858. LOCK FOR MILK-RECEPTACLE. FRANK HOLLER, Philadelphia, Pa. Filed Sept. 24, 1901. Serial No. 76,368. (No model.)



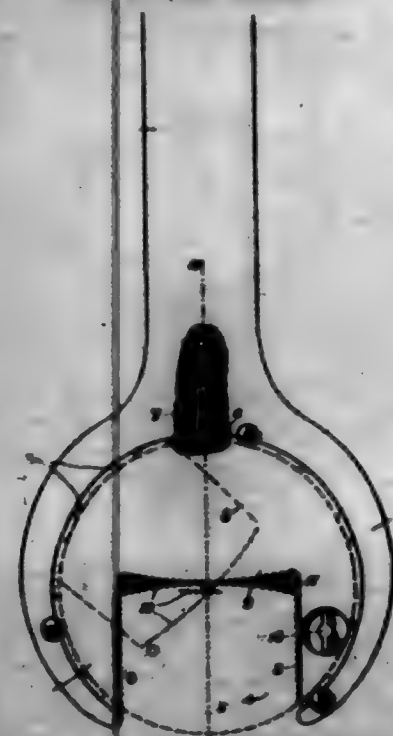
Claim.—1. In a lock for milk-receptacles, a lock-casing consisting of two members arranged parallel with one another, a space between said members, said space being open at each end and one side, the other side being closed by the connection between the two members, a spring-catch arranged in the space between the two members, the said lock-casing adapted to be so placed upon the door or door-jamb that the open side

of the lock will be closed when the door is closed, a loop secured to the milk-receptacle, said loop adapted to be inserted from below in the space between the two members and be locked in place by the spring-catch, substantially as and for the purpose specified.

2. In a device of the character described, a lock consisting of two members lying parallel with one another, a space between said members, said space being open at the top, bottom and one side and closed at the other side by the connection between the two members, said lock adapted to be secured to the door or door-jamb in such a position that the open side of the lock will be closed when the door is closed, a spring secured to the inner face of the outer member, said spring turned back upon itself at each end so as to form spring-catches, said spring-catches being normally in spring contact with the inner face of the inner member, a loop secured to the milk-receptacle and extending upward therefrom, said loop adapted to be inserted between the two members of the lock and forced upward past the spring-catches for the purpose of locking the receptacle in place, substantially as and for the purpose set forth.

3. In a lock for milk-receptacles, a lock-casing consisting of two members arranged parallel with one another, a space between said members, said members being connected together along one side, the lock adapted to be so placed upon the door or door-jamb that the door when closed will close the open side of the space between the two members, a strip of spring metal secured at the center to the inner face of one of the members, the ends of the spring-strip being bent back upon itself, the said ends being in spring contact with the inner face of the opposite member to which the strip is secured, substantially as and for the purpose specified.

700,859. WAREHOUSE. JAMES D. McFARLANE, JR., San Francisco, Cal., assignor of one-half to John Bruckman, San Francisco, Cal. Filed Oct. 23, 1901. Serial No. 59,551. (No model.)



Claim.—1. The combination in a warehouse of a large hall having an enlarged head, and a jaw consisting of two independently-revoluble jaw members mounted in said head.

2. The combination in a warehouse of a handle, and a revoluble jaw carried thereby, said jaw consisting of a plurality of slotted disk jaws independently revoluble in relation to each other.

3. The combination in a warehouse of a handle, a revoluble jaw mounted thereon, an opening in said jaw for the admission of the pipe or other article to be engaged, and an independently-revoluble jaw for contracting said opening to engage articles of various sizes.

4. The combination in a warehouse of a handle, a revoluble jaw mounted thereon and adapted to be actuated by the collision of the handle, said jaw consisting of independently-revoluble members and jaw-openings in these members which are adapted to contract to admit an article to be engaged.

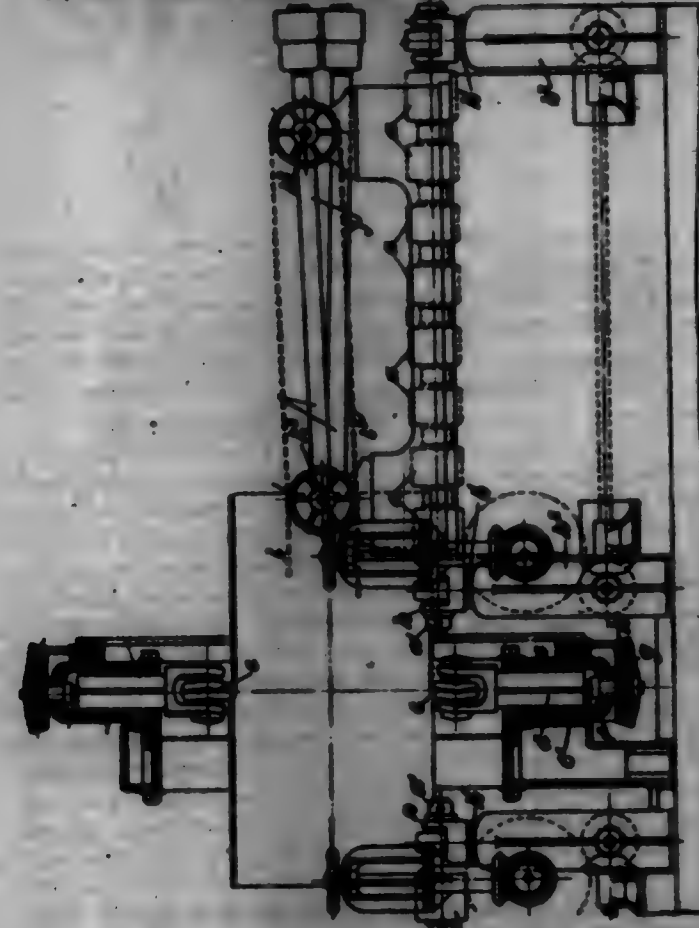
5. The combination in a warehouse of a handle having an enlarged head, a circular opening in said head, a circular jaw mounted in said opening, said jaw consisting of two members, one carried by and rotatable independently of the other, and means by which said members may be revolved in unison.

6. The combination in a warehouse of a handle having an enlarged head, a circular revoluble jaw set into said head, said jaw consisting of members rotatable independently of each other, jaw-openings in said

members adapted to contract, and means for rotating one of said members in contact with said jaw-opening.

7. The combination in a warehouse of a handle having a circular opening, revoluble jaw members mounted in said opening, one of said members adapted to be driven by the collision of the handle, the other of said members carried by but rotatable independently of the other member, and means for locking said members so that each independent movement is prevented.

700,860. MANUFACTURE OF STEAM-GENERATOR SHELLS. CYLINDERS, &c. RALPHUS F. MOTTEN, Babbitt, England. Filed June 19, 1906. Serial No. 54,899. (No model.)



Claim.—1. The process of manufacturing seamless metal cylinders of large size, and of the diameter and also thickness required, consisting of first producing a perforate seamless blank or billet from which the cylinder is to be made, then rolling said blank or billet circumferentially and increasing its external diameter until it is of larger size than the cylinder required, and then reducing this excessive size by rolling it circumferentially at points all around simultaneously from one end to the other, while it is being revolved axially.

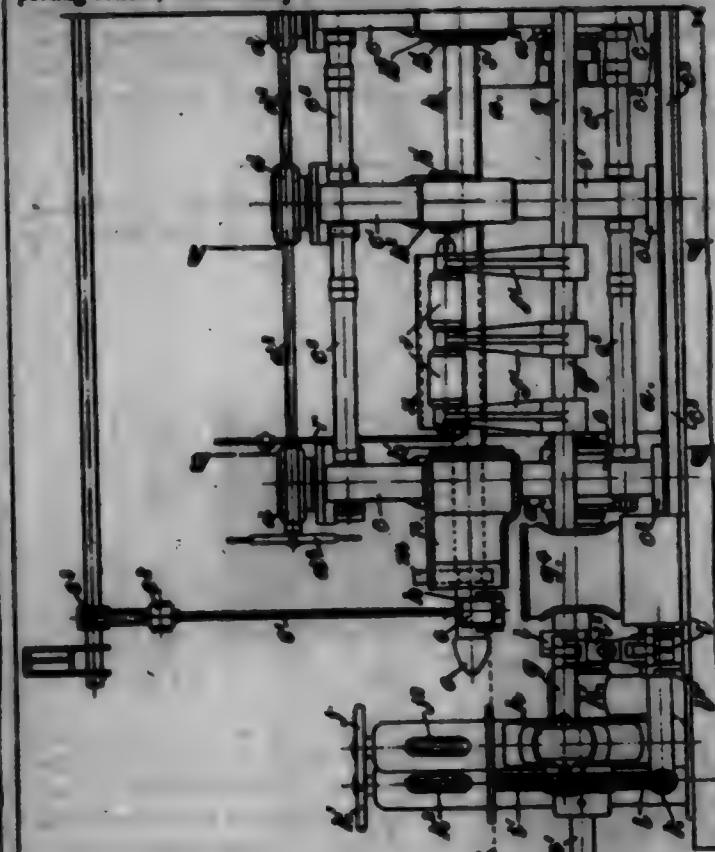
2. The process of manufacturing seamless metal cylinders of large size, and of the diameter and also thickness required, consisting of first producing a perforate seamless blank or billet from which the cylinder is to be made, then rolling said blank or billet until it is of larger diameter than the finished cylinder but of the required thickness, and then subsequently reducing the diameter by rolling it externally at points all around, in substantially the same transverse plane of said cylinder, from one end to the other, while it is being revolved axially whereby the excess of metal caused by the reduction is transferred into a longitudinal extension.

700,861. MACHINE FOR MAKING SEAMLESS TUBES OR ROLL-LOW ARTICLES. RALPHUS F. MOTTEN, Babbitt, England. Filed Aug. 14, 1904. Serial No. 71,022. (No model.)

Claim.—1. In a machine for rolling hollow cylinders circumferentially, and internally and externally, the combination of a large horizontal lower driven roller; an upper small non-driven loose roller directly above the lower roller, for rolling on the internal surface; vertical positive adjusting means, for adjusting the top roller positively and keeping it parallel, in relation to the lower roller; external side supporting-rollers on either side, for supporting the sides of the hollow cylinder, connected together and adapted to be moved simultaneously in opposite upward directions away from the vertical plane of the machine, in the rolling operation, whereby the side supporting-rollers support the body at parts near the horizontal diametrical plane constantly, as this plane shifts during the increase of diameter of the body; substantially as set forth.

2. In a machine for rolling hollow cylinders circumferentially, and inter-

nally and externally, the combination of a large horizontal lower driven roller; an upper small non-driven loose roller directly above the lower roller, for rolling on the internal surface; vertical positive adjusting means, for adjusting the top roller positively and keeping it parallel, in relation to the lower roller; external side supporting-rollers on either side, for supporting the sides of the hollow cylinder, connected together and adapted to be moved simultaneously in opposite upward directions away from the vertical plane of the machine, in the rolling operation, whereby the cylinder is supported at either side at parts near the horizontal diametrical plane; and means for tilting the axes of said side-supporting rollers; substantially as set forth.



3. In a machine for rolling hollow cylinders circumferentially, and internally and externally, the combination of a large horizontal lower driven roller; an upper small non-driven loose roller directly above the lower roller, for rolling on the internal surface; vertical positive adjusting means, for adjusting the top roller positively and keeping it parallel, in relation to the lower roller; external side supporting-rollers on either side, for supporting the sides of the hollow cylinder, connected together and adapted to be moved simultaneously in opposite upward directions away from the vertical plane of the machine, in the rolling operation, whereby the cylinder is supported at either side; and means for tilting the axes of said side-supporting rollers; substantially as set forth.

4. A machine for rolling cylinders circumferentially, comprising rollers adapted to roll on the interior and exterior surface of the said cylinder, having their axes parallel to one another, one of the said rollers being adjustable in relation to the other, and guide or supporting rollers for supporting the body externally, and means for inclining the axes of the guiding-rollers so as to be inclined in relation to the axes of the rolling-rollers; for the purposes set forth.

5. In a machine for rolling hollow cylinders circumferentially, by peripheral internal and external rolling, supporting-rollers *f*, means whereby said supporting-rollers are caused to act on the exterior of the body being rolled, and to move in an oblique direction outward and away from the rolling-rollers, whereby each body is supported on its opposite sides near the axial plane which lies at right angles to the plane in which the axes of the rolling-rollers lie, as the body increases in diameter; substantially as described.

6. In a machine for rolling hollow cylinders circumferentially by internal and external peripheral rolling, internal and external rolling-rollers, means for causing the internal roller to be moved longitudinally through the base of the cylinder, and having a tool on the end of said internal roller which passes through the cylinder, adapted to act on the interior surface of the cylinder, when being passed through it; substantially as and for the purposes specified.

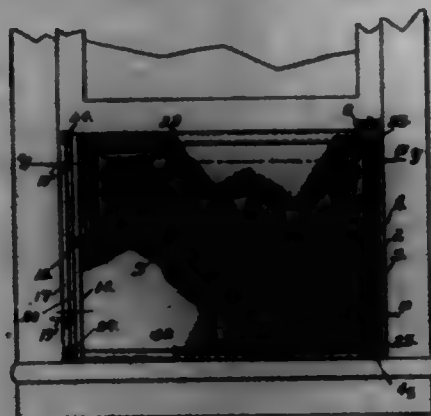
7. In a machine for rolling hollow cylinders by peripheral internal and external rolling, lower and upper rollers *a* & *b*, bearings or frames *c* & *d*, and bearings carried thereby, external supporting-rollers *f*, shafts *g* carrying the rollers *f*, and adjusting means connected with the shafts *g* by which the inclination of these shafts and rollers *f* are changed and set as required; substantially as and for the purposes set forth.

8. In a machine for rolling hollow cylinders, internal and external peripheral rolling-rollers, external side-supporting rollers, shafts carrying said supporting-rollers, and movable supports carrying bearings for said shafts and serving to vary the inclination of said shafts, substantially as described.

9. In combination with the large supporting-roller, the roller above the same, the side rollers, the shafts upon which said side rollers are supported and a swinging lever for supporting one end of the said shaft with means for operating the lever to change the inclination of the shaft.

10. In combination, the supporting-roller, a roller centrally arranged above the same, the side rollers to bear upon the outside of the tubes, arms carrying the side rollers, shafts for supporting said arms, said shafts being arranged to turn for adjusting the arms and rollers, swinging levers at one end of the shafts for supporting the same adjustably so that their inclination may be changed and means for turning the shafts to adjust the rollers, substantially as described.

700,862. ADJUSTABLE WINDOW-SCREEN. OTTO EHRMAN, West Berkeley, Cal. Filed Jan. 12, 1902. Serial No. 90,016. (No model.)



Claim.—1. An adjustable window-screen consisting of a spring-actuated screen-roll, means for attaching it to one side of a window-frame, means upon the opposite side of the frame by which the screening may be engaged and held in opposition to the spring, and laterally-adjustable bars connecting the bar at one side of the window-opening with the roller-support at the opposite side.

2. An adjustable window-screen, consisting of a casing, a spring-actuated screen-roll journaled therein, said casing adapted to be secured upon one side of the window-frame, means upon the opposite side of the frame by which the end of the screening may be engaged and held in opposition to the spring, and upper and lower folding bars connecting the bar at one side of the opening with the roller-casing at the opposite side.

3. In an adjustable window-screen the combination of a casing, a hollow roller having a central shaft projecting from one end and about which said roller is turnable, a slot in said roller a spring secured at one end to the shaft and the other end fixed in said slot, a cap through which the shaft passes, said cap fixed to and turnable in unison with the roller, perforations in the cap and shaft, a pin adapted to be passed through said perforations whereby the tube and shaft may be locked together, and the former prevented from turning, a flexible screening wound upon said roller, and bars pivotally connected to the casing and adapted to extend transversely across the window-opening, and a bar attached to the screening and with which the transverse bars are adapted to connect.

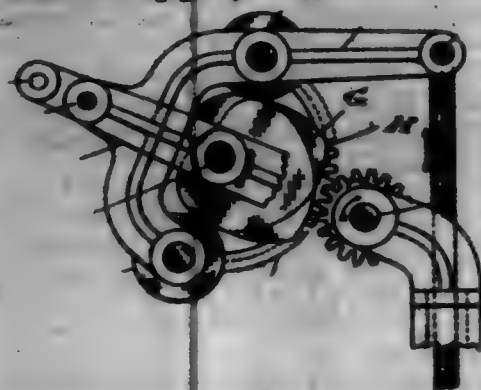
4. The combination in an adjustable window-screen of a casing, a spring-actuated screen-roller therein, means for attaching said casing to the side of a window-frame, a slot in said casing through which the screening is drawn, a bar exterior to the casing and to which the end of said screen is attached, means upon the opposite side of the window-frame by which said bar may be engaged and the screen held in opposition to the tension of the spring, and pivotally-mounted longitudinally-extensible bars adapted to connect the bar at one side of the window-opening with the roller-casing at the opposite side.

5. The combination of a flexible screening, a spring-actuated roller upon which said screening is carried, a movable support for said roller, said support adapted to be detachably secured to a window-frame, means upon the opposite side of said frame with which the end of said screening may be engaged, said means consisting of a bar having a flange projection thereon, and adjustable lateral guides connecting said bar and roller-support.

700,863. MACHINERY FOR CONVERTING MOTION. HENRY C. HENRY, Port Wayne, Ind. Filed Aug. 1, 1901. Serial No. 79,464. (No model.)

Claim.—1. In mechanism of the class described, a main frame shaped

to support the various parts; a movable frame so supported on the main frame that it may be moved in a vertical plane; and a plunger-rod secured to the said movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other.



2. In mechanism of the class described, a main frame shaped to support the various parts; a movable frame so supported on the main frame that it may be moved in a vertical plane; and a plunger-rod secured to the said movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and rollers journaled on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other.

3. In mechanism of the class described, a main frame shaped to support the various parts; a movable frame so supported on the main frame that it may be moved in a vertical plane; and a plunger-rod secured to the said movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other, the cams being so shaped as to give a comparatively slow up motion and a comparatively quick down motion of the movable frame.

4. In mechanism of the class described, a main frame shaped to support the various parts; a movable frame so supported on the main frame that it may be moved in a vertical plane; and a plunger-rod secured to the said movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and rollers journaled on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other, the cams being so shaped as to give a comparatively slow up motion and a comparatively quick down motion of the movable frame.

5. In mechanism of the class described, a main frame; a movable frame pivoted on the main frame; and a plunger-rod pivoted to the movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other.

6. In mechanism of the class described, a main frame; a movable frame pivoted on the main frame; and a plunger-rod pivoted to the movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other, the cams being so shaped as to give a comparatively slow up motion and a comparatively quick down motion of the movable frame.

7. In mechanism of the class described, a main frame; a movable frame pivoted on the main frame; and a plunger-rod pivoted to the movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and rollers journaled on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other.

8. In mechanism of the class described, a main frame shaped to support the various parts; a movable frame so supported on the main frame that it may be moved in a vertical plane; and a plunger-rod secured to the said movable frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame, one engaged by the under side of one cam and the other engaged by the upper side of the other; a gear-wheel fixed on the cam-shaft; a driving-shaft journaled on the main frame; and a pinion fixed on the driving-shaft and meshing with the said gear-wheel.

9. In mechanism of the class described, a main frame shaped to support the various parts; a movable frame so supported on the main frame that it may be reciprocated, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame engaged by the said cams to reciprocate the said frame.

10. In mechanism of the class described, a main frame; a movable frame adjustably pivoted on the said main frame, in combination with a shaft journaled in the main frame; two cams secured to the said shaft in different planes; and projections on the movable frame engaged by the said cams.

11. In mechanism of the class described, a main frame; and a movable frame so supported that it may be reciprocated, in combination with a shaft journaled in the main frame; and two cams secured to the shaft in different planes, the movable frame being adapted to be reciprocated by the said cams.

700,864. RETAILER BOOK-CRISTING. WILLIAM F. ECKHART and JOHN E. ECKHART, Nevada, Mo. Filed Jan. 2, 1902. Serial No. 94,396. (No model.)



Claim.—1. A ridge-roll provided with a hollow flange or gutter, in combination with a crest interlocked with the walls of the flange.

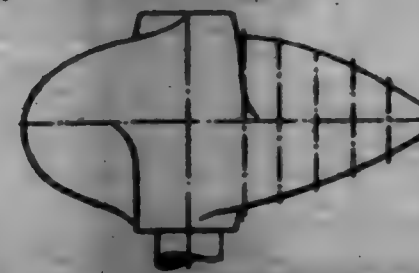
2. A ridge-roll provided with a longitudinally-disposed gutter terminating short of the ends thereof, and a crest having its lower portion interlocked with the walls of the gutter.

3. A ridge-roll provided in its top with a downward-extending gutter, in combination with a crest having its lower edge reduced in length and interlocked with the walls of the gutter.

4. A ridge-roll provided with a longitudinally-disposed gutter terminating short of the ends thereof, and a crest having its lower edge reduced in length to correspond with that of the gutter and interlocked therewith.

5. A ridge-roll provided with a longitudinally-disposed gutter terminating short of the ends thereof, and a transversely-corrugated crest having its lower edge reduced in length to correspond with that of the gutter and interlocked therewith.

700,865. SKEW-PROPELLER. CHARLES A. PARSONS, New-Castle-upon-Tyne, England. Filed Dec. 22, 1900. Serial No. 69,774. (No model.)



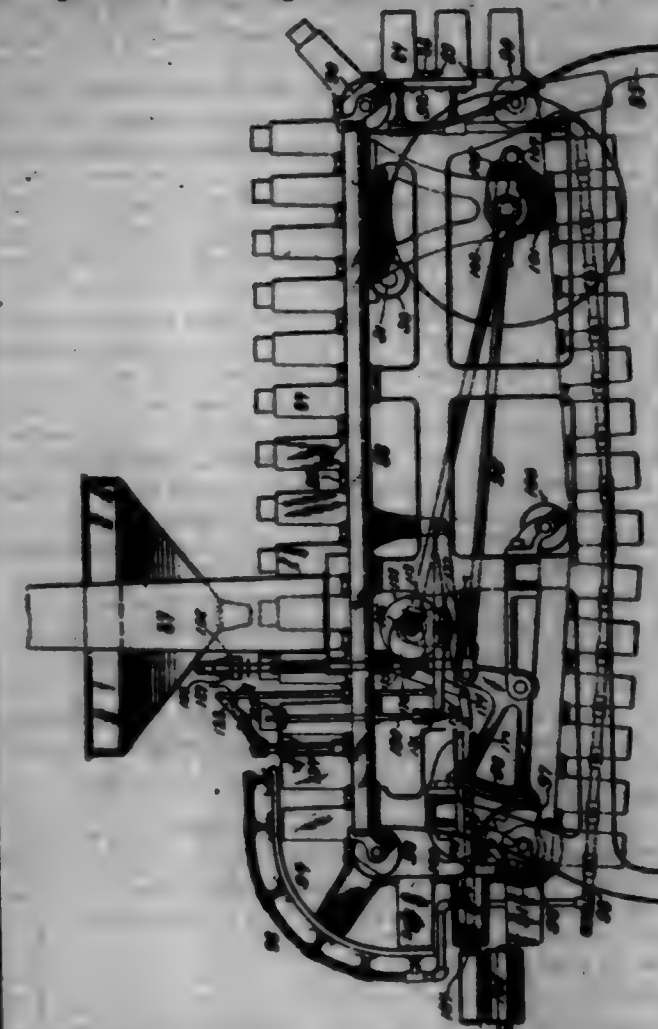
Claim.—1. A screw-propeller provided with blades constructed with a reduced pitch toward their tips, the reduction commencing from about one-half to two-thirds outward from the blade-root, substantially as described.

2. A screw-propeller having vanes secured to the propeller-hub behind the blades, substantially as described.

700,866. MACHINERY FOR PACKING MERCHANTS. BERNARD L. PATTERSON, Durham, N.C. Filed Feb. 26, 1902. Serial No. 99,199. (No model.)

Claim.—1. In an organized apparatus for the manufacture and filling of packages, the combination of printing mechanism adapted to print a continuous web or sheet; a cutter to cut a blank therefrom; scoring or indenting devices to mark the lines of folding; folding mechanism adapted to give form to the package and to close its end; a delivery device for removing the bag from the forming mechanism; a carrier to receive the same; means for charging the bag with a predetermined quantity of material; and mechanism for sealing the filled bag or package.

2. In a machine for making bags or packages, the combination of means for feeding a continuous web; a knife or cutter for covering a blank therefrom; folding devices for forming said blank into a bag or package, the same comprising fixed walls 24, 26, pattern-block or form 27, fixed end-folder 27, side-folders 32, 33, end-folders 54, 55 and 57, and mechanism for imparting motion to said folders; a carrier to receive the bags or packages; and a stripper for removing the bags or packages from the forming device and delivering them to the carrier.



3. In combination with mechanism adapted to fold and connect bag material into the form of bags or packages, an endless chain of package-holders each adapted to contain and completely surround one bag or package; means for causing a travel of the carrier-chain; and heating jets or nozzles located along the path of the carriers and serving to heat them as they pass.

4. In combination with a bag or package forming mechanism, an endless carrier-chain provided with cells or boxes each adapted to contain and completely surround one bag or package; a bed or table over which said cells or boxes pass; and a heating-pipe extending along the line of travel of the boxes and the bed and serving to heat the boxes and the bed or table.

5. In a machine for forming, filling and sealing bags or packages, the combination of bag or package folding and connecting mechanism; an endless chain of boxes each to receive one of said bags or packages; a table or bed over which said boxes move; a guard beneath which the boxes move; and means for heating the boxes, table and guard; whereby all the lines of joining or connecting of the bags or packages may be hot and dried.

6. In a machine for forming bags or packages, the combination of a mold or forming-chamber having walls 34 and 35, movable bottom 54, and fixed end-folder 47; form or pattern-block adapted to extend into said rim end of the forming-chamber; end-folders 54 and 55; side-folders 32 and 33, and mechanism substantially such as described for actuating the several folders.

7. In a mechanism for filling material into the form of a bag or package, the combination of walls 24 and 25, pattern-block or form 27, right side-folder 32; pivoted side-folder 33; and means for holding the folder 33 normally above the level of folder 32.

8. In combination with walls 24 and 25; form or pattern-block 27; sliding head 40 provided with folder 32; sliding head 40 provided with yielding folder 33; spring 50 for elevating the folder 32; and head or plunger for depressing said folder after the same has moved inward to lay the outer fold of the bag or package upon the inner one.

9. In a machine for forming bags or packages, the combination of a mold or forming-chamber; a support for a bag-blank above said chamber;

10. In combination with a forming-chamber and with a support for a bag or package blank; a paste-receptacle; a paste-roll carried thereby; a yielding support for the paste-receptacle serving to hold it and its roll normally away from the blank; a lever connected with said receptacle and serving to move the same toward the blank; and a form or pattern-block adapted to bear upon the blank and carry it into the forming-chamber, and also to act upon the lever of the paste-receptacle to move and hold said receptacle toward the blank until the movement of said form or block is nearly completed.

11. In combination with walls 84 and 85; folders 33 and 33; turn or pattern-block 57 provided with leg 46; lever 41; counterbalance 42; paste-receptacle 30; paste-roller 40; and lever 44 connected with and serving to depress the paste-receptacle.

12. In combination with a form or pattern-block and means for folding a blank about the same; a fixed guide; a head movable upon said guide, provided with an open fork; a movable and piece applied to the form or pattern-block; a rod carrying said and piece, extending through the form or pattern-block, and provided with a cross-pin; means for moving the sliding head along the guide; and means for elevating and lowering the pattern-block, and piece and rod to carry the pin of the latter into and out of engagement with the fork of the sliding head.

13. In combination with a forming-chamber; form or pattern-block 57; and piece 56; rod 50 provided with pin 60; sliding head 38 carrying the pattern-block; elevating link and lever 61 and 62; cam 64; guide 76; sliding head 77 provided with an open fork lever 78 connected with head 77; draw-rod 79; lever 89; and cam 92, all substantially as shown and described.

14. In a packing-machine, the combination of a bag-holder; a presser-head adapted to enter a bag or package within said holder; and a paste-roller or paste-applying device carried by said head and adapted to apply paste within the bag-mouth.

15. In combination with a bag or package holder as 84, a presser-head 108 containing a paste-chamber; and a paste-roller having one side extending into said chamber and the other protruding therefrom to deliver paste within the mouth of a bag in the act of pressing the material therein.

16. In combination with a bag or package holder; a printing mechanism adapted to print a continuous strip; a bed or table between said printing mechanism and the holder; and a presser-head adapted to act in conjunction with the edge of said table to cut or shear a sheet from the printed strip and to carry it into the bag or package.

17. In combination with a suitable bag-holder; levers 129 and 130 provided respectively with yielding folding-blades 123 and 123; toggle 131 connecting said levers; and a cam for straightening and breaking said toggle to actuate the blades.

18. In a packing-machine, the combination of a packer or chambered measuring-wheel; a cylindrical shell or hopper containing said wheel; a pinion carried by the shaft of said wheel; a pawl-and-ratchet connection between the wheel-chest and pinion; a rack for turning said pinion; a cam for actuating said rack; and an adjustable connection between the cam and rack, whereby the throw of the rack can be varied to determine the extent of rotation and consequent delivery of the wheel.

19. In combination with a measuring-wheel and means for rotating the same; a scale-pan beneath the wheel; a dribbling-roll; friction driving-gear for said roll; a dog or detent for holding the dribbling-roll out of action; a connection between the scale-pan and the detent whereby the descent of the latter is caused to throw the detent to locking position; and an arm actuated by the wheel-rotating mechanism and serving to withdraw the detent as the wheel completes its movement.

20. In combination with a measuring-wheel provided with pinions and having its shaft provided with a ratchet-wheel, a pinion loosely mounted upon said shaft and provided with a dog or pawl to engage said ratchet-wheel; a rack for imparting motion to said pinion; a radius-bar; a cam for moving said radius-bar; and a rod connecting the radius-bar and the rack and adjustably connected with the latter, whereby the throw of the rack may be varied to move one or more than one of the pinions of the measuring-wheel at will to the delivery or discharge opening, substantially as set forth.

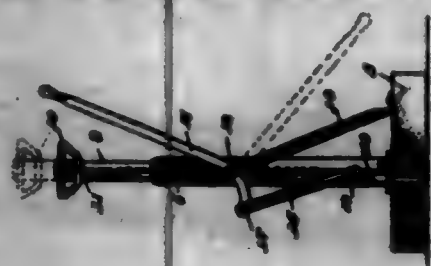
21. In combination with the scale-pan provided with doors or gates and with operating-levers 154 therefor; radius-bars 155 and 157; connecting-rod 156; lifting-spring 158, and depressing-pin 159 carried by wheel or 144.

22. In combination with a wheel having measuring-chambers, a ratchet-wheel; a pawl-carrier; a pawl mounted upon said carrier; and

means for varying the throw of the pawl-carrier to cause the pawl to ride back over a greater or less number of teeth of the ratchet, and to advance the wheel in discharge a corresponding number of chambers, substantially as shown and described.

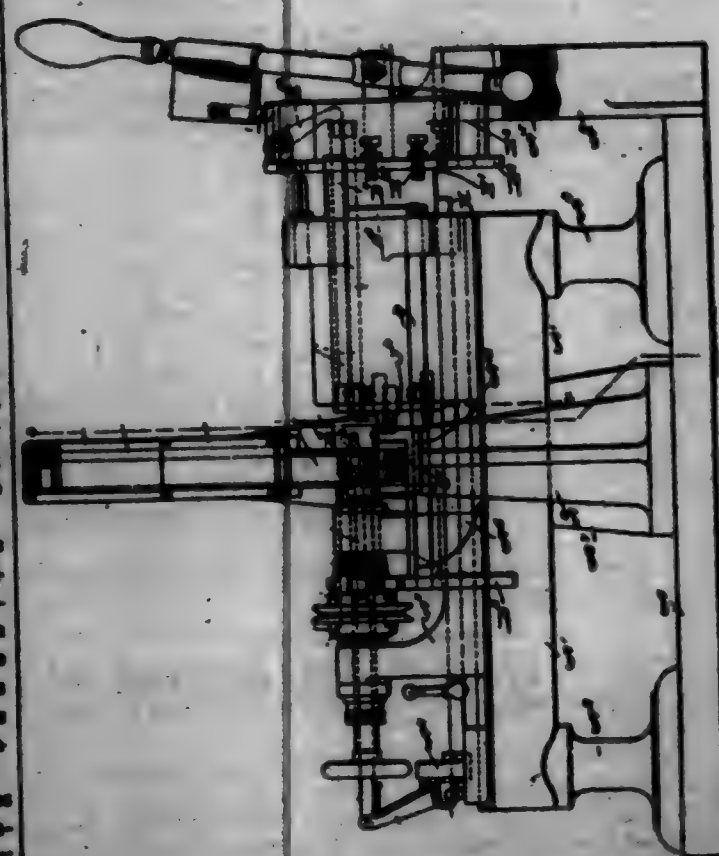
23. In combination with a rotary drum or wheel provided in its circumference with receiving chambers or pockets; a ratchet-wheel having a common axle with said drum and arranged to move in unison therewith; a pawl-carrier; a pawl movable with said carrier and adapted to engage the ratchet-wheel; a rack meshing with and serving to rotate said carrier-wheel; a lever for imparting motion to said rack; an adjustable connection between the rack and the actuating-lever; and a cam for moving the actuating-lever, all substantially as described, whereby the throw of the pawl-carrier may be varied to determine the number of chambers or pockets of the measuring-wheel brought to the delivery-point at each stroke.

700,867. WAGON-JACK. EDGAR A. PETER, Detroit, La. Filed Oct. 21, 1898. Serial No. 734,341. (No model.)



Claim.—A lifting-jack comprising in combination a base 5, carrying a standard 6, provided with side flanges 7 and 8, the lifting-jack 9 slidably secured between the said flanges, the edge of said bar being beveled to correspond with the inner walls of said flanges, the sliding head 10 adjustably held on the said bar 5, the pin 11 for securing the head, said pin engaging the perforation 12, the pin 14 secured upon the bar 5 and projecting through the slot 13, said pin 14 engaging the flange-bar 15 at one end and the curved lever 16 secured at 15, and the beam-bar 18 connecting the standard and base, and all arranged and adapted to operate substantially as shown and described.

700,868. DRILLING OR LIKE MACHINE. FRANK E. PIERCE, Herley, England, assignor to Lamson Moseley Machine Company, Washington, D. C., a Corporation of Virginia. Filed June 5, 1891. Serial No. 63,395. (No model.)



Claim.—1. In a drilling or similar machine the combination of the following elements, to wit: a revolving work-holding spindle; a feed-rod;

a reciprocating revolvable turret provided with blank and tool holders; an ejector for the feed-rod; an ejector for the turret tool-holder; and means controlled by the movements of the turret for alternately actuating said ejectors, the one for passing the blank from the feed-rod to the turret during one reciprocation of the latter, and the other for passing the blank from turret to spindle during a subsequent reciprocation of the turret; substantially as described.

2. In a drilling or similar machine the combination with a revolving work-carrying spindle provided with an ejector, and a feed-rod also provided with an ejector, of a longitudinally-reciprocating intermittently-revolvable turret provided with one or more tool-holders and a plurality of blank-holders, and actuating device for said ejectors for simultaneously effecting the transfer of blanks from the roadway and the spindle to the turret during one reciprocation of the latter; substantially as described.

3. In a drilling or similar machine the combination with a revolving work-carrying spindle provided with an ejector, and a blank-holding roadway also provided with an ejector, of a reciprocating and intermittently-revolvable turret provided with one or more tool-holders and a plurality of blank-holders, each of the latter furnished with an ejector, and actuating device for said ejectors deriving motion from the turret, for simultaneously transferring blanks from the roadway and the spindle to the turret during one reciprocation of the latter, and for simultaneously discharging one of said blanks and transferring the other to the spindle during the succeeding reciprocation of the turret; substantially as described.

4. In a drilling or similar machine the combination with a work-holding spindle connected to its driving-wheel through a clutch, of a revolvable and reciprocating turret acting both as a tool-holder and a blank-transferer, and means intermediate said turret and clutch for controlling the application of the latter, to stop the spindle during the transfer of the blank and start it in action for the application of the tool; substantially as described.

5. In a drilling or similar machine the combination with a revolving work-carrying spindle provided with an ejector, a blank holding and feed roadway and an ejector therefor, and a blank-receiving roadway, of a reciprocating and intermittently-revolvable tool-carrying turret provided with a plurality of blank-holders, an ejector for each of said blank-holders, and actuating device intermediate the turret and said ejectors, for effecting the transfer of blanks from the feed-ro roadway and the spindle to the turret and from the latter to the spindle and receiving roadway; substantially as described.

6. In a drilling or similar machine the combination with a revolving work-carrying spindle, of a reciprocating and intermittently-revolvable turret provided with a plurality of work-holders, a registering device controlling the position of the turret during its reciprocatory movement, ejectors carried by the work-holders, and an actuating means for said ejectors also carried by the turret and adapted to be engaged by the registering device at one stage of the rotary movement of the turret; substantially as described.

7. In a drilling or similar machine the combination with a revolvable work-holding spindle and its ejector, a feed-rod provided with an ejector, and a reciprocating and intermittently-revolvable tool-carrying turret provided with blank-holders, of a clutch engaged by the turret and opening through lever on the spindle-ejector and the feed-rod ejector to simultaneously discharge blanks into the turret work-holders, substantially as described.

8. In a drilling or similar machine, the combination with a revolvable work-holding spindle, a driving-pulley therefor, and a reciprocating and intermittently-revolvable turret, of a spring-actuated friction-clutch intermediate the driving-pulley and work-holding spindle, and a latch controlled by the turret in its movements and acting upon the clutch mechanism to disengage the spindle and arrest the latter in position to receive or deliver a blank; substantially as described.

9. In a drilling or similar machine the combination with a revolvable spindle and a reciprocating and intermittently-revolving turret, of a driving-pulley mounted between clutch-sections of the spindle, a spring for closing said clutch-sections, a detent for engaging one of said clutch-sections to open the clutch and arrest the spindle, a blank-retainer carried by the spindle and means for actuating said detent and retracting said blank-retainer, substantially as and for the purposes set forth.

10. In a drilling or similar machine the combination with a revolvable work-holding spindle, a driving-pulley therefor, a clutch intermediate said pulley and spindle, a blank-holder, and a reciprocating and intermittently-revolving turret, of an ejector for said spindle, means for actuating the spindle, retracting the blank-holder, and actuating the ejector, substantially as described.

11. In a drilling or similar machine the combination with a reciprocating and revolvable turret provided with a series of catches or ratchet-teeth, of an actuating-lever connected to the axle of the turret, and pivotally located in a plane transverse to the axis of the turret, and pivotally connected to the latter, said lever bearing a pawl or pin for engaging the catches on the turret, substantially as described.

12. In a drilling or similar machine the combination with a revolvable work-holding spindle, a feed-ro roadway, a receiving-ro roadway provided with a pusher, and ejectors for said spindle and feed-ro roadway, of a longitudinal reciprocating intermittently-revolvable turret provided with tool-holders and a plurality of blank-holders, the latter furnished with ejectors, a driving-pulley and clutch for the spindle, and actuating device controlled from and responding to the movements of the turret, for arresting and releasing the spindle, moving the ejectors and reciprocating the pusher; substantially as and for the purposes set forth.

13. In a drilling or similar machine the combination with a revolving work-holding spindle and reciprocating and intermittently-revolvable turret provided with one or more tool-holders and a transfer-blank holder, of a feed-ro roadway and a revolvable stick or galley provided with a blank-holding detent and adapted to cooperate with said roadway in the delivery of the blanks contained therein; substantially as described.

14. In a drilling or similar machine the combination with a revolving work-holding spindle and a reciprocating and intermittently-revolvable turret provided with one or more tool-holders, a blank-holder, and an ejector for the latter, of a receiving-ro roadway and a stick or galley detachably connected with said roadway and communicating with the receiving-chamber thereof; substantially as described.

15. In a drilling or similar machine, the combination with a feed race or compartment, a delivery race or compartment, and a revolvable spindle, having a blank-holding compartment in one end, of a turret having two blank-holding compartments, and a tool said turret being capable both of revolving on and of reciprocating in the direction of its axis, to transfer a blank from the feed-compartment to the spindle-compartment and from the spindle-compartment to the delivery-compartment and to place its tool in and withdraw it from operative position during each complete revolution, substantially as described.

16. In a drilling or similar machine, the combination with a turret capable both of revolving and of reciprocating motions of a casing and a pin, adapted to engage in slots in a flange on the turret to limit the reciprocation of the latter to predetermined points in its revolution, substantially as described.

17. In a drilling or similar machine, the combination with a turret capable of revolving upon and reciprocating in the direction of its axis, of an actuating-lever operating in two planes at right angles to each other for communicating said motion to the turret, substantially as described.

18. In a drilling or similar machine, and in combination, a casing E, a cylindrical turret having catches E', a handle F F', having one end working in a fixed guideway A', and with a pin F' adapted to engage the catches, the handle being pivotally connected with the turret so as to both reciprocate it endwise and revolve it in one direction within the casing, substantially as described.

19. In a drilling or similar machine a revolvable and reciprocating turret carried in a casing and having two blank-holding compartments in its face in combination with an ejecting-rod for each compartment connected by a bar E', and a lever operated by a pin E' to push each rod into its corresponding compartment during a forward movement of the turret, substantially as described.

20. In a drilling or similar machine the combination with a revolvable spindle and a revolvable and reciprocating turret, of a clutch-body secured to the spindle and having a conical friction-surface, a sleeve secured upon said clutch-body and provided with a conical friction-surface, a pulley located between said friction-surfaces, a pin carried by the clutch-body and projecting through a slot in the sleeve, a spring acting on said sleeve to rotate it in a direction to cause the engagement of the conical friction-surfaces with the pulley, an offset on the sleeve, a catch for said offset, and actuating device connected with the turret for causing said catch to engage the offset when the turret is in one position of adjustment; substantially as described.

21. In a drilling or similar machine the combination with a revolvable spindle having a blank-compartment opening in one end and a clutch mechanism and controlling device therefor, of a cap having an opening similar to the opening in the spindle end, a spring the tension of which normally holds the cap so that its opening does not coincide with the spindle-opening, an offset on the cap, and a catch to engage with the offset and cause the two openings to coincide synchronously with the arrest of the spindle, substantially as described.

22. In a drilling or similar machine and in combination, a revolvable spindle having a blank-compartment in one end and a spring-controlled clutch, a turret having two blank-holding compartments and one or more cutting-tools and capable of revolving upon and also of reciprocating in the direction of its axis when either a compartment or a tool coincides with the spindle-compartment, a flange on the turret the periphery of which forms a cam-surface, a rocking shaft, two arms on the rocking shaft one engaging the cam-surface the other carrying a catch adapted to engage an offset on the spindle-clutch, substantially as described.

23. In a drilling or similar machine and in combination, a feed-compartment and ejecting-rod G', a hollow revolvable spindle having a blank-

compartment in one end and an ejecting-rod within the spindle, a shaft H capable of reciprocation and a lever of which one end engages with a collar on the shaft A, while the other engages the delivery-compartment ejecting-rod, a second lever similarly engaged with the shaft H and the spindle ejecting-rod, and a flange on a reciprocating turret which engages one end of the shaft H during the forward movement of the turret causing the levers to drive the ejecting-rods into their respective compartments, substantially as described.

34. In a drilling or similar machine, the combination with a delivery-compartment having a spring-controlled ejecting-blade, of a reciprocating turret having a beveled pin on its front face adapted to drive the blade into the delivery-compartment longitudinally thereof during a forward movement of the turret, substantially as described.

700,869. UNIVERSAL JOINT. ALBERT A. FEXLEY, Birmingham, Mass. Filed July 20, 1901. Serial No. 70,011. (No model.)

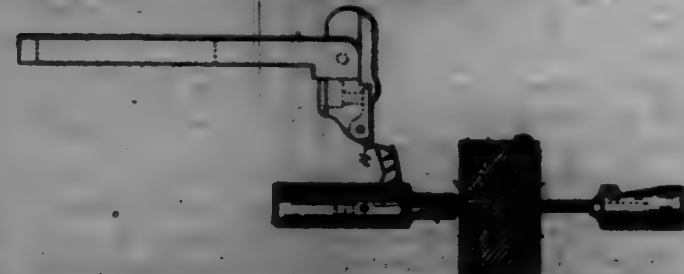


Claim.—1. In combination with a shaft having a chamber in one end, a split socket 12 provided with a shaft and having slots in its sides, a second shaft having a ball at one end adapted to fit said socket, external pins on said ball to register with said slots, and means to secure said shaft in said chamber, substantially as shown and described.

2. In combination with a shaft having a chamber in one end, a split socket 12 provided with a shaft and having slots in its sides, a second shaft having a ball separated therefrom by a neck 11, said ball being adapted to fit said socket, external pins on the ball to register with said slots, and means to secure said shaft in said chamber, substantially as shown and described.

3. In combination, in a universal joint, a shaft chambered at one end, a second shaft having a pin-provided ball 11 at one end, and a dotted socket 12 comprising two halves provided with shaft-sections adapted to enter the recess in the first shaft, and means to secure said shaft-sections in said recess, said socket arranged to receive said ball with its pins in the shaft-slots, being being attached to said first shaft, substantially as shown and described.

700,870. PILL-MACHINE. WILLIAM RABER, St. Louis, Mo. Filed Sept. 18, 1901. Serial No. 70,002. (No model.)



Claim.—1. A compressor-die for pill-machine, comprising a casing, a die-plunger adjustably mounted in the casing, a spreading plunger and means for operating the same, substantially as specified.

2. A compressor-die for pill-machine, comprising a casing, a die-plunger adjustably mounted in the casing, an upwardly-moving plunger operating through the casing, and a spreading plunger for compressing the material, substantially as specified.

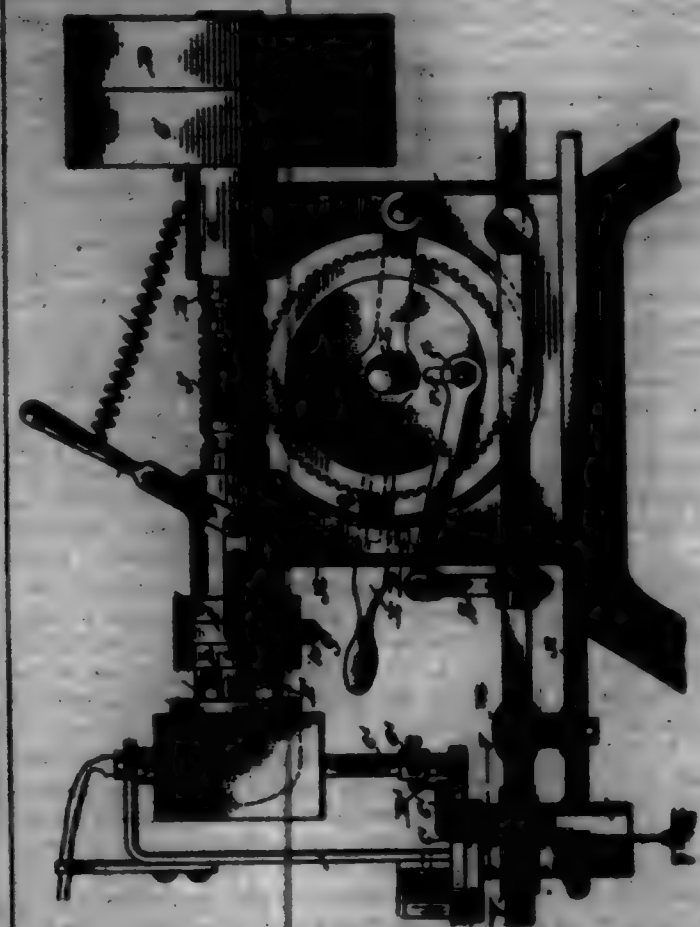
3. A compressor-die for pill-machine having a casing provided with a receiving-chamber, a die-plunger adjustably mounted in the chamber, a plunger operating through the casing for releasing the pill from the chamber, a plunger for compressing and forming the pill in the chamber, and means for spreading the same when released from the chamber, substantially as specified.

4. In a device of the class described, comprising a vertically-reciprocating plunger adapted to spread when released from the pressure-chamber, a casing for receiving the plunger for compressing the material to form the pill, and means for releasing the pill from the chamber at the upward movement of the plunger, substantially as specified.

700,871. PILL-MACHINE. GRANT H. RABER, St. Louis, Mo. Filed Sept. 9, 1901. Serial No. 70,003. (No model.)

Claim.—1. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

2. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.



3. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

4. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

5. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

6. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

7. In a pill-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

frame, and the links disposed at opposite sides of and extending in the same direction as the spindle, and connecting the ends of the lever and opposite sides of the yoke.

7. In a hat-machine, the combination of a frame, a primary shaft having a hat-support thereon, and also having a worm, a worm-wheel adapted to receive motion from said worm, and having a radial slot, and a wrist-pin adjustably secured therein, a reciprocating bar, a link interposed between and pivotally connected to the bar and the wrist-pin, and adjustable toward and from the center of the worm-wheel, a device for operating on work on the support, and means carrying said device and adapted to receive motion from the reciprocating bar.

700,872. GARMENT-HOOK. THOMAS DE QUARTER, Philadelphia, Pa. Filed Nov. 4, 1901. Serial No. 51,000. (No model.)



Claim.—1. A garment hook embodying a shank and a bill, and a plurality of bands existing at different points longitudinally of the structure and extending from said shank to said bill, the innermost band serving to engage an eye and being in the normal operation of the hook impossible to aid eye, and an inner and an outer band adapted to confine in position a shank securing thread passed between them.

2. A garment hook having a shank and a bill existing in approximately parallel planes, and having an eye passage between them, a strain receiving band extending across the distal end of said eye passage, and impossible to an eye entering said passage, and a member extending approximately perpendicularly to the planes of the shank and bill, and arranged at a point longitudinally of the hook a sufficient distance to the front of said band to afford space between itself and said band for a shank securing thread, substantially as set forth.

3. A garment hook having a shank and a bill, existing in approximately parallel planes, and having an eye passage between them, a strain receiving band extending across the distal end of said eye passage and impossible to an eye entering said passage, and a member extending approximately perpendicularly to the planes of the shank and bill, and arranged at a point a sufficient distance, longitudinally of the hook, to the front of said band to afford space between itself and said band for a shank securing thread, the respective ends of said last named member carrying into the hook structure.

4. A wire garment hook having a shank and a bill, arranged to form an eye passage between them, a band connective or continuous of said shank and bill, and a tongue wire member extending along the shank and having a head or portion extending from the shank to the bill and so disposed as to be out of line, viewed from the side of the hook, with the band first referred to, the innermost of said bands extending across the distal end of said eye passage and being impossible to an eye entering said passage, and the space between said bands containing a shank securing thread, substantially as set forth.

5. A wire garment hook comprising a shank formed of two wire lengths, a bill formed of two wire lengths, said shank and bill existing in approximately parallel planes, bands connective of the wire lengths of the shank and those of the bill, an additional member existing in part in proximity to the members of the shank and in part in proximity to the members of the bill, and embodying a strain receiving band extending across an eye passage between the shank and bill which band exists at a point clear to the rear end of the structure than are the bands first referred to, and is impossible in the normal operation of the parts to an eye entering said passage, substantially as set forth.

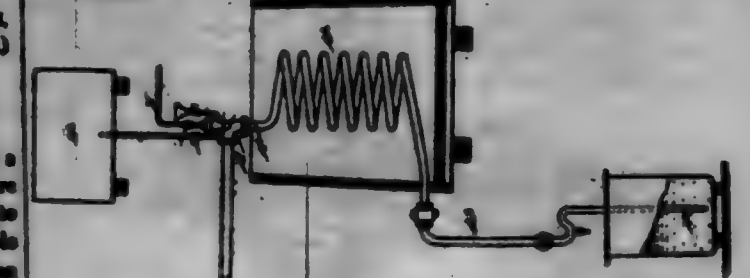
6. A wire garment hook comprising a shank formed of two wire lengths, a bill formed of two wire lengths, said shank and bill existing in approximately parallel planes, bands connective of the wire lengths of the shank and those of the bill, an additional member existing in part between the members of the shank and in part between the members of the bill and comprising a strain receiving band existing at a point clear to the rear end of the structure than are the bands first referred to, the ends of wire forming said additional member embodying also a locking projection, substantially as set forth.

7. A garment hook comprising two shank members, two bill members, two bands connective of said shank and bill members respectively, a member extending along the shank to a point near the outer portion of the latter and thence across the eye passage formed between the shank and bill, to a point between the two bill members referred to, the head of the member last referred to being clear to the rear end of the hook than are the bands first referred to, and constituting a strain receiving band to engage the complementary member of the fastening, and also serving to prevent the sliding rearwardly of a shank securing thread engaged with the outer and portions of the shank members.

8. A garment hook having a shank and a bill arranged to approximately parallel planes, between which shank and bill exists an eye pas-

sage, a strain receiving member extending from the shank to the bill at the distal end of said passage, which member is in the normal operation of the hook impossible to an eye entering said passage, and a shank securing thread opening or cut arranged at the front end of the hook beyond the eye passage, the member or members forming or defining which opening or cut are arranged in a plane approximately perpendicular with respect to the planes of the shank and bill.

700,873. DISTILLING APPARATUS. JOHN S. BAKER, Brooklyn, N. Y., assignor to W. H. K. Hale, Gustaf, N. Y., and Curtis W. Kirschtner, Englewood, N. J. Filed June 4, 1901. Serial No. 60,000. (No model.)



Claim.—1. In an apparatus of the character described, a condenser-coil, a pipe leading from a retort, an elbow connecting said pipe and the coil, a bend on said elbow, a tapered casing detachably mounted on said bend, a jet-nozzle extending into said casing and connected with a source of steam-supply, a pipe connecting said casing with an elevated tank, and a pipe also connected to said casing and with an open funnel, all substantially as and for the purposes specified.

700,874. DISTILLING APPARATUS. JOHN S. BAKER, Brooklyn, N. Y., assignor to W. H. K. Hale, Gustaf, N. Y., and Curtis W. Kirschtner, Englewood, N. J. Filed June 21, 1901. Serial No. 60,000. (No model.)



Claim.—1. In a distilling apparatus, a vapor-pipe leading from the retort to the worm, combined with a chamber of greater cross-sectional area than said pipe interposed in the same between the retort and worm, and a series of open-work trays in said chamber said trays having alternately-arranged flaps, as and for the purposes specified.

2. In a distilling apparatus, a retort, a vapor-pipe therefrom, a chamber of greater cross-sectional area than said pipe and to which said pipe leads, a downward extension of said pipe within said chamber, a vapor-pipe of less cross-sectional area than said chamber leading from the upper portion of the latter to the worm, and a plurality of receptacles within the chamber above the lower end of the extension and having alternately-arranged flaps, all combined and arranged to serve substantially as described.

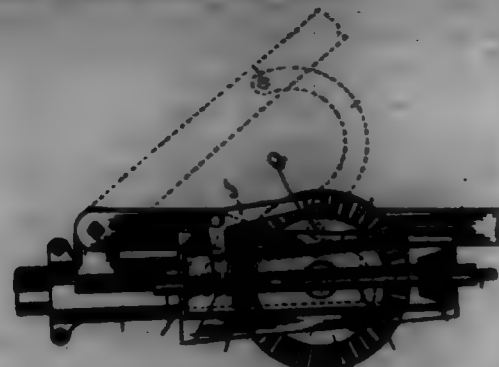
3. In a distilling apparatus, a retort, a vapor-pipe therefrom, a chamber of greater cross-sectional area than said pipe and to which said pipe leads, a downward extension of said pipe within said chamber, one or more open-work trays located in said chamber with their counter troughs alternately arranged and adapted to support and prevent a combining agent to the vapor in said chamber, and a vapor-pipe of less cross-sectional area than said chamber leading from the upper portion of the latter to the worm, all combined and arranged to serve substantially as herein specified.

4. The retort A, vapor-pipe A' and chamber B, the extension H within said chamber, the open-work trays H' H' located in the latter one above the other, each comprising a series of counter troughs H'' having the member H''', the flaps to the uppermost tray coinciding with the chamber space between adjacent troughs on the lowermost, the vapor-pipe A' leading from the upper portion of said chamber to a worm, the binged bottom B' for said chamber, and a pipe D leading therefrom, all combined substantially as and for the purposes herein specified.

5. A retort, a chamber, a vapor-pipe connecting the two and having an extension within said chamber, open-work trays located in said chamber one above the other, each comprising a series of counter troughs hav-

ing smaller line, the line on the one corresponding with the smaller space between adjacent trays on the next adjacent, a vapor-pipe leading from the upper portion of the chamber to a worm, and an outlet from the bottom of said chamber, all substantially as described.

700,875. ELEVATOR-DOOR-OPERATING MECHANISM. HAROLD BOWYER, Chicago, Ill., assignor to the Harbott-Bowyer Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 20, 1901. Serial No. 35,305. (No model.)



Claim.—1. In an elevator-door-operating mechanism, the combination with a door, power mechanism for operating the same including a rotatable shaft, a rotating part driven therefrom, and eccentric connections between said rotating part and door, whereby the door when operated is moved at constantly-varying speed, as and for the purpose set forth.

2. The combination with a door, of operating mechanism therefor including a rotatable shaft, a rotating part driven therefrom, eccentric connections between said door and rotating part, and means for controlling the operation of said rotating part, as and for the purpose set forth.

3. The combination with a door, of an operating mechanism therefor including a rotatable shaft, a rotating part driven therefrom, an arm or lever connected to the door, and a link eccentrically connected to said rotating part and having connection with said arm or lever, as and for the purpose set forth.

4. The combination with a door, of an arm or lever connected thereto, a rotatable shaft, a rotating part adapted to be driven therefrom, a link connected to said arm or lever and eccentrically connected to said rotating part, and means controllable from the car for operating said rotating part, as and for the purpose set forth.

5. The combination with a door, a gear, a rotatable shaft, driving connections intermediate said shaft and gear for imparting relative movement to said gear, a link pivotally connected eccentrically to said gear, and connections between said link and door, as and for the purpose set forth.

6. The combination with a door and a rotatable shaft, of a rotatable gear adapted to be driven from said shaft, a link pivotally connected eccentrically to said gear, an arm connected to the door and to which said link is also connected, the point of connection of said link to said gear and arm being in substantial alignment with each other and with the axis of rotation of said gear when the door is in closed or opened position whereby the door is locked, as and for the purpose set forth.

7. The combination with a door, power mechanism for operating the same and including a rotatable shaft, a rotating part driven therefrom, connections between said rotating part and door for moving the same into closed or opened position, said connections operating in starting the door from a position of rest to move the door with a steadily-increasing speed, and at a steadily-decreasing speed as the car approaches its limit of movement, and means for controlling the operation of said power mechanism, as and for the purpose set forth.

8. The combination with a door, power mechanism for operating the same including a driving-shaft, pinions mounted on said shaft, a gear co-operating with said pinions, a link pivotally connected eccentrically to said gear, and connections between said link and door, as and for the purpose set forth.

9. The combination with a door, power mechanism for operating said door, including a gear, driving-pinions for said gear, connections between said gear and door, said gear provided with a blank space in the gear-face thereof, whereby it is brought to rest, as and for the purpose set forth.

10. The combination with a door, of a continuously-revolving shaft, pinions mounted upon said shaft, a gear, means for operatively connecting said gear and shaft through said pinions, a portion of the teeth of said gear being omitted, and connections between said gear and door, as and for the purpose set forth.

11. The combination with a door, of an operating mechanism therefor, including a gear having a portion of the teeth omitted therefrom, a

continuously-revolving shaft, pinions mounted thereon, means whereby said pinions complete operative connection between said gear and shaft, a link pivotally connected to said gear, and connections between said link and door, as and for the purpose set forth.

12. The combination with a door, of operating mechanism therefor, including a rotatable gear, a rotating shaft, pinions actuated thereby and forming operative connections between said shaft and gear, means for governing the operative connections between said pinions and gear, whereby either one or the other of said pinions are made operative with respect to said gear, and stops for arresting the movement of said gear, as and for the purpose set forth.

13. The combination with a door, of an operating-gear therefor, said gear provided with legs, pinions for actuating said gear, and means arranged to be engaged by said legs for arresting said gear at proper positions with reference to said pinions, as and for the purpose set forth.

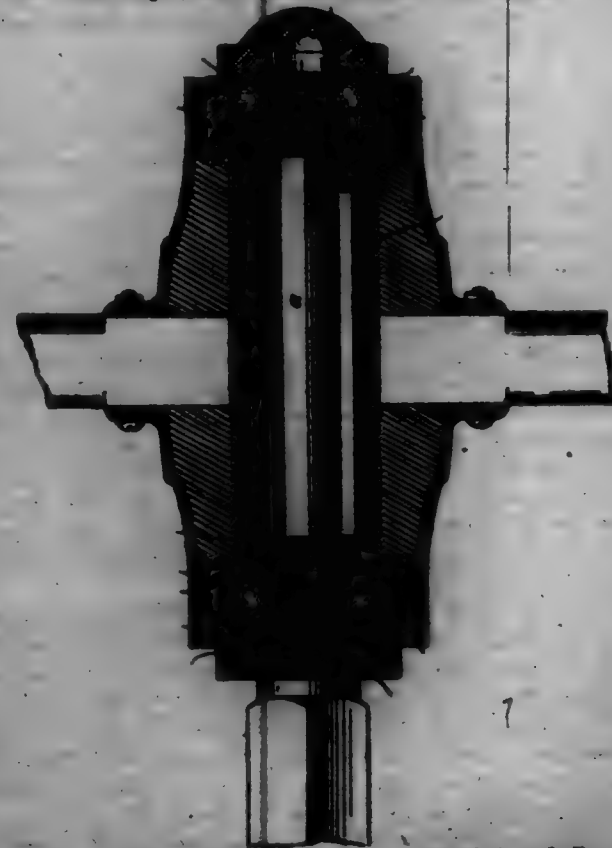
14. The combination with a door, an operating-gear therefor having a portion of the teeth thereof omitted, pinions for actuating said gear, whereby said gear is arrested when the blank portion thereof arrives opposite an actuating-pinion, and means for maintaining said gear in position to hold said blank portion out of engagement with the operating-pinion, as and for the purpose set forth.

15. In an apparatus of the class described, the combination with a door-operating mechanism therefor, including a rotatable gear having a portion of the gear-teeth thereof omitted to form a blank space, driving-pinions for said gear, said gear provided with notches or seats in the periphery thereof, and means arranged to enter said notch or seat to maintain said gear in position to hold said pinions out of engaging relation with respect to said gear, as and for the purpose set forth.

16. The combination with a door, of operating mechanism therefor, including a shaft, a sleeve mounted upon said shaft for rotation therewith, but capable of longitudinal movement thereon, means controllable from the car for shifting said sleeve upon said shaft, a gear, pinions, the shifting of said sleeve affecting the operative connection of one or the other of said pinions with said gear, a link pivotally connected eccentrically to said gear, and connections between said link and door, as and for the purpose set forth.

17. The combination with a door, of mechanism for operating the same, including a gear, a rotatable shaft, a sleeve mounted upon said shaft for rotation therewith, but capable of longitudinal movement thereon and carrying pinions arranged when said sleeve is shifted to be brought respectively into engaging relation with respect to said gear, means for controlling the shifting movements of said sleeve from the car, a link pivotally connected at one end eccentrically to said gear, and means connected to the other end for operating the door, as and for the purpose set forth.

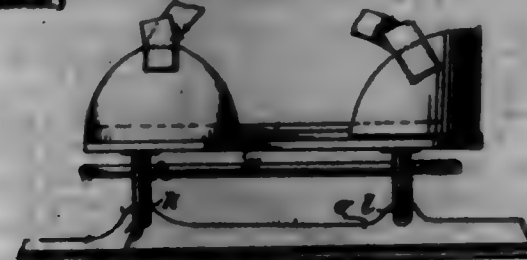
700,876. WHEEL-STOP. EDGAR A. RYAN, Rochester Springs, Mo. Filed July 6, 1901. Serial No. 67,299. (No model.)



Claim.—The combination of an axle, a wheel-hub encircling it, bearing device for mounting the lower end of the hub to turn on the axle, a plug fastened on the outer extremity of the axle and tapered toward its

outer end, a cap secured in the outer end of the wheel-hub to close it and including the plug, and bearing-balls held in the cap and running between it and the tapered surface of the plug.

700,877. GUMMED ROAD AND ICE SKATE. JULIUS SAUER, HANNOVER, GERMANY. Filed Dec. 2, 1900. Serial No. 32,108. (No model.)

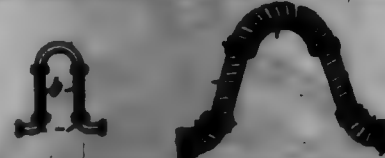


Claim.—1. In an improved combined road and ice skate in combination with the base and customary means for attachment of the skate to the foot; two pairs of vertical bars attached to the base; a metal hoop interconnecting and clamping the aforesaid bars in their relative position; a pair of detachable axles supported in transverse bores in the vertical bars, means for securing said axles against rotation in their bearings and a pair of balls adapted to be received between the vertical bars and rotatable on the aforesaid axles, substantially as described and shown.

2. In an improved combined road and ice skate in combination with the base and customary means for attachment of the skate to the foot; two pairs of vertical bars attached to the base; a metal hoop interconnecting and clamping the aforesaid bars in their relative position; a pair of detachable axles supported in transverse bores in the vertical bars, means for securing said axles against rotation in their bearings and a skating-blade adapted to be received centrally between the vertical bars and to be secured in position by means of the aforesaid axles, substantially as described and shown.

3. In an improved combined road and ice skate in combination with the base and customary means for attachment of the skate to the foot; two pairs of vertical bars attached to the base; a metal hoop interconnecting and clamping the aforesaid bars in their relative position; a pair of detachable axles supported in transverse bores in the vertical bars; means for securing said axles against rotation in their bearings and a pair of balls and a skating-blade adapted to be interchanged, and to be received and supported between the vertical bars by means of the aforesaid axles, substantially as described and shown.

700,878. PIPE-COMPRESSOR. KARL SCHMIDT, Dresden, Germany. Filed Feb. 12, 1901. Serial No. 67,072. (No model.)



Claim.—1. In a pipe-compressor, the combination of stiff pipes and flexible pipe members as disposed to one another that the axis of the pipe whose longitudinal movement is to be compensated does not coincide with that of the one to be subjected to bending and means for limiting the bending of the flexible pipe.

2. The combination of stiff pipes with straight, or approximately straight, flexible pipe members and stiff form-pieces, connecting the said flexible pipe members.

3. In combination with a pipe-compressor, rods disposed transversely to the flexible pipes, with clamping shoulders for preventing excessive bending strains in the flexible pipes.

4. In combination with a compressor, a support with legs or the like, between which the connecting-flanges or special legs on the pipes are positioned, to prevent bending in a plane perpendicular to the direction of motion, and excessive tensile and compressive strains in the flexible pipes.

5. In combination with a compressor, a support with indentations for receiving the connecting flanges or legs on the pipes, for preventing bending of the flexible pipes in a plane perpendicular to the direction of motion and excessive tensile and compressive strains in the flexible pipes.

6. In combination with a compressor, a support with legs or the like, arranged in the direction of the axis of the piping, between which legs the connecting flanges or legs on the pipes come to rest, to prevent excessive bending of the flexible pipes.

7. In combination with a compressor, a support with indentations arranged in the direction of the axis of the piping, in which the flanges or legs on the pipes come to lie, to prevent excessive bending of the flexible pipes.

8. In combination with a compressor, a support with legs or the like, arranged in the direction both of the axis of the flexible pipe, and of the axis of the expanding piping, between which the connecting flanges or legs on the pipes are held, to prevent sagging, and excessive tensile and compressive strains and excessive bending of the flexible pipe.

9. In combination with a compressor, a support with indentations arranged in the direction of both the axis of the pipe to suffer bending as well as the axis of the pipe expanding, into which the connecting flanges or legs on the pipes are put, to prevent sagging, and excessive tensile and compressive strains and excessive bending of the flexible pipe.

10. The combination with a flexible compressor, of a support provided with rollers to facilitate the movement of the piping and means to restrain an excessive movement of the piping.

11. In combination with a flexible compressor, a support provided with a clamping device for fixing one point of the piping, so that its motion may take place toward one side only and rollers to facilitate the said motion.

700,879. AMALGAMATING-MACHINE. GEORGE C. BERRY, Columbus, Ohio. Filed June 20, 1901. Serial No. 66,692. (No model.)



Claim.—1. In an amalgamating-machine, the combination with a casing having an inlet-opening and outlet extension, said casing being adapted to contain a body of mercury and a rotating amalgamating-body within said casing adapted to run through said mercury, of an elevating device contained in said outlet extension, said elevating device comprising outer and inner wheels and a traveling apron connecting said wheels and means whereby a shaking or vibratory movement is imparted to said elevator, and a movable amalgamating device interposed between said rotating body and elevating device, substantially as specified.

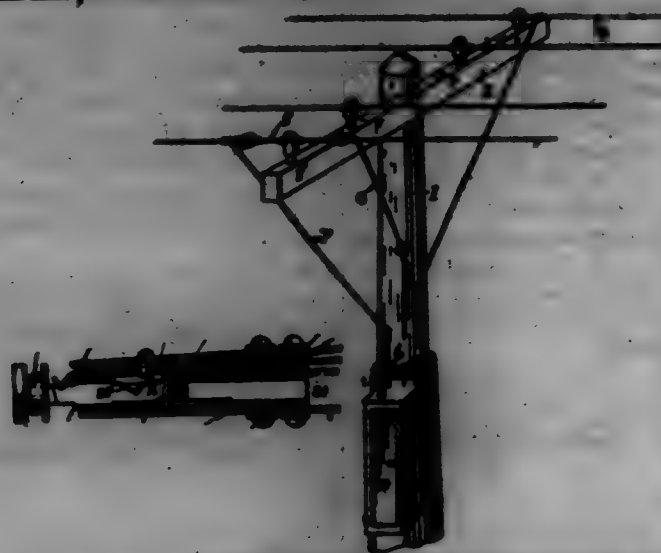
2. In an amalgamating-machine, the combination with a casing having an inlet-opening and outlet extension and adapted to contain a body of mercury, of a rotating amalgamating-body within said casing to run in said mercury, an elevating device located in said outlet extension, means for operating said elevating device, and an interposed traveling amalgamating-carrier having transverse mercury-cups, as and for the purpose specified.

700,880. TELEPHONE OR TELEGRAPH SYSTEM. EDGAR SMITH, West Lafayette, Ind. Filed Sept. 17, 1900. Serial No. 59,364. (No model.)

Claim.—1. In a telephone and telegraph system, a spring-jack including a pair of contact-strips normally in contact, and a pair of contact-strips normally isolated but capable of alternative connection with one strip of the first pair after it is separated from the other strip of the first pair.

2. In a telephone and telegraph system, a spring-jack including a pair of contact-strips normally in contact, a pair of contact-strips nor-

mally isolated, and a plug that separates the first pair of contact-strips and while entering connects one of the first pair with one of the second pair and when in place leaves the later separated but connects one only of the first pair with the other strip of the second pair.



3. In a telephone or telegraph system, a jack having two springs engaged by the plug when inserted, and two conducting-strips not engaged by the plug, one of said springs being connected with one of the strips while the jack is not in use and disconnected while in use, and momentarily connected with the other strip while the plug is being inserted in the jack.

4. In a telephone or telegraph system, a jack having two springs engaged by the plug when inserted and two conducting-strips not engaged by the plug, one of said springs being connected with one of said strips when the jack is not in use, and adapted to be held away from said strip by the plug when inserted and momentarily connected with the other strip as the plug is being inserted, and insulating means whereby said strip is disconnected by the other spring when it is engaged by the plug.

5. In a telephone and telegraph system, the two wires of a circuit, one of which wire is broken or separated, a spring-jack having a pair of contact-strips normally in contact with each other and connected with the respective ends of the broken wire and a pair of contact-strips normally isolated but capable of alternate connection with one strip of the first pair after it is separated from the other strip of the first pair, and a connection between said second pair of strips and the unbroken wire of the circuit.

6. A telephone or telegraph system including the two wires of a circuit, one of which wire is broken, a jack, having two springs adapted to be engaged by the plug, when inserted and two conducting-strips not engaged by the plug, one of said springs being connected with one of the strips while the jack is not in use and disconnected while in use and momentarily connected with the other strip while the plug is being inserted in the jack, wires leading from said connecting spring and strip to the members of the broken circuit-wire, a battery, wires leading from the other spring and strip to the battery, and a wire from the battery to the unbroken circuit-wire.

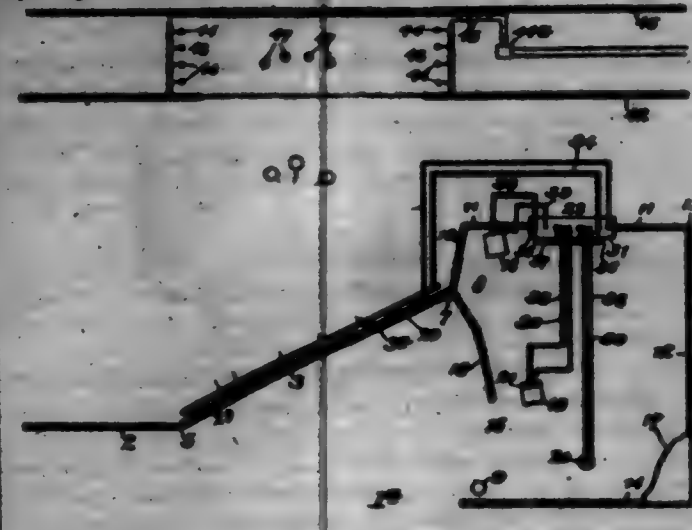
700,881. THEATRICAL APPLIANCE. JOHN W. GERRARD, New York, N. Y., assignor to himself and John Louis Sherman, New York, N. Y. Filed Dec. 26, 1900. Serial No. 41,500. (No model.)

Claim.—1. In a theatrical appliance of the class described, a transparent reflecting-screen arranged upon the stage at an angle with the plane of the front of the stage, said transparent reflecting-screen being provided with a framework backing, a compartment arranged at one side of said screen, lighting means for said compartment, lighting means arranged rearwardly of said screen, and controlling means whereby the lighting means for said compartment and the lighting means rearwardly of said screen may be varied in relative power.

2. In a theatrical appliance of the class described, a transparent screen arranged vertically upon the stage at an angle with the plane of the front of the stage, said screen being provided with a framework backing, lighting means arranged forwardly of said screen, lighting means arranged rearwardly of said screen, and controlling means whereby said lighting means forwardly of said screen and said lighting means rearwardly of said screen may be varied in relative power.

3. In a theatrical appliance of the class described, a transparent screen arranged vertically upon and obliquely transversely of the stage, a cabinet arranged at one side of the stage and adjacent the side edge of said transparent screen farthest from the front of the stage, a framework or frame screen arranged rearwardly of said transparent screen, lighting means for said cabinet, lighting means arranged rearwardly of said trans-

parent screen, lighting means arranged rearwardly of said framework or frame screen, and controlling means for each of said lighting means whereby the power of said several lighting means may be relatively varied.



4. In a theatrical appliance of the class described, a transparent screen arranged vertically upon and obliquely transversely of the stage, and a framework or frame screen arranged rearwardly of said transparent screen, lighting means arranged rearwardly of said transparent screen, lighting means arranged rearwardly of said framework or frame screen, and controlling means for each of said lighting means whereby the power of said several lighting means may be relatively varied.

5. In a theatrical appliance of the class described, a transparent reflecting-screen arranged vertically upon the stage at an angle with the plane of the front of the stage, said transparent reflecting-screen being provided with a framework backing, substantially described and for the purpose specified.

6. In a theatrical appliance of the class described, a transparent reflecting-screen arranged vertically upon and obliquely transversely of the stage, said transparent screen being provided with a framework backing, and a framework or frame screen arranged rearwardly of said transparent screen and transversely of the stage.

700,882. SOUND-REPRODUCING APPARATUS. EDWARD D. SHARP, Cincinnati, Ohio. Filed Sep. 16, 1901. Serial No. 58,115. (No model.)



Claim.—1. A horn composed of two dome-shaped plates of metal united at their lower edges, and having a series of tubes arranged in one or more horizontal rows near its lower edge as herein shown and described.

2. In combination with the dome-shaped horn provided with a series of tubes arranged in one or more horizontal rows near its lower edge, the dome-shaped horn composed of two sheets or plates of metal united so as to be water-tight and provided with suitable inlets and outlets, said horn being of such shape and size as to completely envelop the horn and have a space all around between it and the horn for the passage of the products of combustion, substantially as and for the purpose set forth.

700,883. FISH-BOAT. GEORGE S. SMITH and FRANK T. SMITH, Athens, Mich. Filed Aug. 29, 1901. Serial No. 73,704. (No model.)

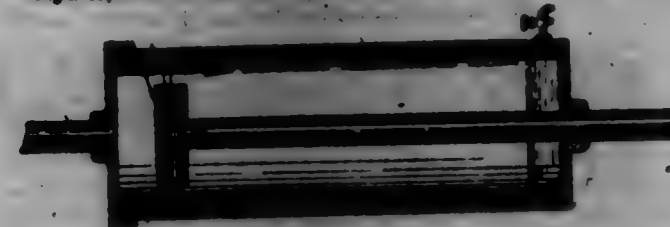
Claim.—1. A composite frame-post consisting of a sheet-metal link with wire loops connected to one side bar thereof and projecting outwardly, and a cement covering for said link and wire except the outer head or light of the loops.



2. A composite frame-post consisting of a sheet-metal link having its side bars corrugated transversely, a connected series of wire loops attached to one of the side bars of the link and projecting outwardly, and a composition covering the link and all but the outer extension or light of the wire loops.

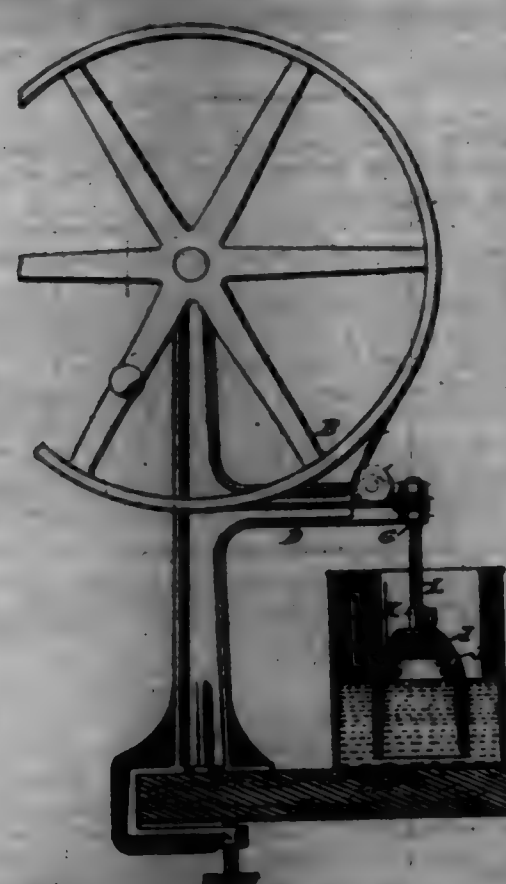
3. A composite frame-post having a sheet-metal channel formation composed of a tapered metallic link corrugated transversely, a series of connected wire loops rigidly secured to one bar of the link and projecting therefrom, and a composition covering for the link extending nearly to the outer turn of the loops, all substantially as described.

700,884. SEPARATOR. EDWARD C. SHARPE, Victor, Colo. Filed Sept. 28, 1901. Serial No. 73,590. (No model.)



Claim.—In a separator for drilling-machine actuated by compressed air, the combination with a casing having at its lower end a draw-off flange, an inlet compressed-air pipe secured to the top of the casing, an outlet air-pipe secured to the bottom thereof and extending into the casing, a head formed on the upper end of said outlet-pipe having elongated laterally opposite straight open ends, said pipes and said head being of such relative size that the compressed air forced through the inlet-pipe is deflected on the elongated ends of the head to fill the casing before the compressed air is permitted to find an exit through said open ends of said head and then into and out of said outlet-pipe, substantially as specified.

700,885. CHURN. EDWARD H. SWENHAM, Kansas City, Mo. Filed July 12, 1901. Serial No. 61,254. (No model.)



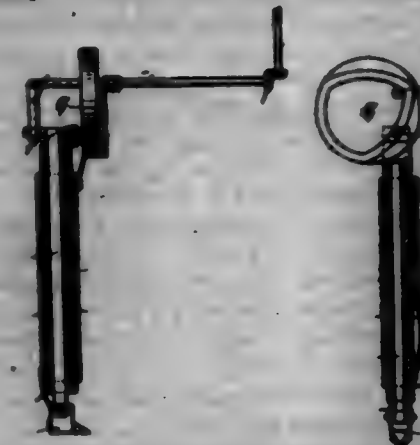
Claim.—1. In a churn, the combination of a bell-shaped whip open at its lower end, and provided with a relatively small opening in its upper face above the line of immersion; and a flexible shaft connected to the upper end of the whip and forming its sole means of support; and means for rotating said shaft.

2. In a churn, the combination of a bell-shaped whip, open at its lower end and having a series of downwardly-inclined openings formed in its upper end; and a flexible shaft connected to the upper end of the whip and forming its sole means of support; and means connected to said shaft for imparting rotary motion thereto.

3. In a churn, the combination of a bell-shaped whip, open at its lower end, and having a series of downwardly-inclined openings in its upper end; and a flexible shaft connected to the upper end of the whip and forming its sole means of support; a spindle connected to said shaft, said spindle being mounted in fixed bearings; a pulley carried by said spindle; and means for imparting motion thereto.

4. In a churn, the combination of a receptacle; a whip having imperforate side walls mounted therein; means for imparting rotary motion to said whip and causing it to move about in the receptacle in an irregular path; and means for permitting air to pass into the interior of the whip and out through the bottom of the same.

700,886. AUTOMATIC SWITCH. JAMES A. TARDON and THOMAS C. OGDEN, London, Canada. Filed Mar. 14, 1901. Serial No. 61,439. (No model.)



Claim.—1. In an automatic switch, the combination of a head-block, two independent plungers vertically movable therein, a pivoted foot carried by one of said plungers, a cam-wheel and connections between said cam-wheel and each of said plungers for reciprocating the same.

2. In an automatic switch, the combination of a head-block, two independently-movable plungers working therein, a pivoted foot carried by the innermost plunger, a cam-wheel, connections between the same and the plungers, for reciprocating the latter, and a spring acting on said foot to keep it normally in a predetermined position, as set forth.

3. In an automatic switch, the combination of a head-block, two independently-movable plungers therein, a pivoted foot on one of the plungers, a cam-wheel with grooves, a projection on the outer plunger movable in said grooves and an effect on the other plunger actuated by means on the shaft of said cam-wheel, as set forth.

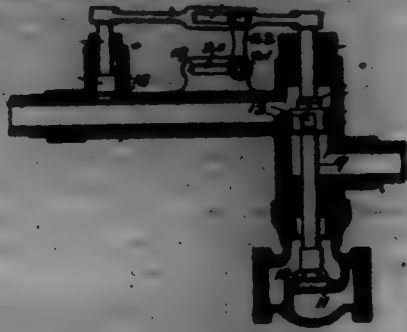
4. In an automatic switch, the combination of a head-block supported from the car-truck, and having socket square at its upper end and oblong at its lower end, plungers in said head-block, one within the other, a spring in the head-block bearing against the outermost plunger, lateral projections on said plungers, and a cam-wheel and connections for engaging both of said projections to operate the plungers, as set forth.

5. In an automatic switch, the combination of a head-block having socket square at its upper end and oblong at its lower end, two independently-movable plungers within the head-block, one within the other, a spring in the head-block acting on the outermost plunger, lateral projections on the plungers at their upper ends, a cam-wheel and connections for engaging the said projections to operate the plungers, the outer plunger being square and the inner one round and working in a correspondingly-shaped socket in the outer plunger and springs on opposite sides of the pin that engages the projection of the inner plunger, all substantially as shown and described.

700,887. VALVE-CONTROLLING MECHANISM FOR AUTOMATIC WATER-METER. JAMES TRACY and WILLIAM A. BRADLEY, Allegheny, Pa., assignors by direct and mesne assignments, to the Buffalo Automatic Instantaneous Water Meter Co., Allegheny, Pa., a Corporation of Pennsylvania. Filed Apr. 12, 1901. Serial No. 61,611. (No model.)

Claim.—1. In a water-meter, the combination with a casing having gas inlet and outlet and water inlet and outlet, of a valve controlling communication between the gas inlet and outlet, a perforated hollow piston seated between the water inlet and outlet and controlling communication between the same through its ports, said valve and piston being connected to move in unison and said piston being exposed to and moved from its

out by, a preponderance of water-pressure on one of its sides to thereby open the gas-valve and also establish communication between the water inlet and outlet, a second piston, arranged on the outlet side of the first piston as to be actuated in one direction by back pressure, a lever connected with said second piston and with the first piston and valve, and an adjustable fulcrum for said lever.



2. In a water-heater, the combination with a casing having gas inlet and outlet and water inlet and outlet, and a valve controlling communication between the gas inlet and outlet, of a piston having a lateral part arranged between the water inlet and outlet and controlling communication between the same through its ports, said piston being connected with said valve and exposed to and operated in one direction by the water-pressure thereunder, a chamber arranged on the outlet side of said piston, a piston in said chamber exposed to and operated in one direction by the back pressure, and a connection between said pistons whereby they are caused to operate simultaneously and in reverse directions.

3. In a water-heater, the combination with a casing having a gas inlet and outlet and a water inlet and outlet, of a valve controlling communication between said gas inlet and outlet, a piston connected with said valve and controlling communication between the water inlet and outlet, said piston having a lateral part through which said communication takes place and embracing means by which the size of the part is adjusted to thereby determine the extent of movement of the piston and valve, and a returning means for the piston and valve.

4. In a water-heater, the combination with a casing having a gas inlet and outlet and a water inlet and outlet, a valve controlling communication between said gas inlet and outlet, and a stem carrying said valve, of a piston mounted on said stem and actuated by water-pressure to raise the same, said piston having lateral ports and embracing means for adjusting the size of its ports to thereby determine the extent of movement of said piston and valve and controlling communication between the water inlet and outlet through said ports, and a returning means for said piston and valve, said returning means acting in opposition to the main water-pressure to which said piston is exposed.

5. In a water-heater, the combination with a casing having a gas inlet and outlet and a water inlet and outlet, a valve controlling communication between said gas inlet and outlet, and a stem carrying said valve and projecting therefrom into the space between said water inlet and outlet, of a piston attached to said stem and operating in said space as to control communication between said water inlet and outlet, said piston being arranged to be exposed to main pressure and comprising two hollow cup-shaped members each provided with ports and attached to said stem and having a relative adjustment of its members on said stem by which the size of the ports may be changed and the extent of movement of the stem varied, means for fixing the piston in adjusted position on said stem, and means controlled by back pressure for lowering said stem and thereby returning said piston and valve to their respective seats.

6. In a water-heater, the combination with a casing having a gas inlet and outlet and water inlet and outlet, a valve controlling communication between said gas inlet and outlet, and a stem carrying said valve and projecting therefrom into the space between said water inlet and outlet, of a piston operating in said space as to control communication between said water inlet and outlet, said piston being arranged to be exposed to main pressure and comprising two hollow cup-shaped members each having lateral ports, one of said members being arranged within the other and both having their closed upper ends flared upon said stem, and means controlled by back pressure for lowering said stem and thereby returning said piston and valve to their respective seats.

7. In a water-heater, the combination with a casing having gas inlet and outlet and water inlet and outlet, and a valve controlling communication between the gas inlet and outlet, of a stem carrying said valve and projecting therefrom into the space between the water inlet and outlet, a piston attached to said stem and operating in said space as to control communication between said water inlet and outlet, said piston being arranged to be exposed to main pressure and comprising two hollow cup-shaped members each provided with ports and attached to said stem and having a relative adjustment of its members on said stem by which the size of the ports may be changed and the extent of movement of the stem

varied, means for fixing the piston in adjusted position on said stem, and means controlled by back pressure for lowering said stem and thereby returning said piston and valve to their respective seats, said returning means comprising a piston arranged on the water-outlet side of the ported piston as to be exposed to back pressure in advance of said ported piston, and a connection between said pistons whereby they are caused to operate simultaneously and in reverse directions, one from the other.

8. In a water-heater, the combination with a casing having tubular extensions adapted for connection with inlet and outlet water-pipes and provided with a piston-rod between said extensions, a gas-chamber fitted to said casing below the inlet to said casing and having an inlet and an outlet, a valve in said chamber for controlling communication between the inlet and outlet of said gas-chamber, a rod carrying said valve and projecting through said casing to a place above the same, a hollow ported piston attached to said stem and controlling communication between said tubular extensions through its ports, a chamber applied to the outlet extension, a piston in said chamber having a stem projecting through the same, a leg upon said extension having an elongated slot, a lever having its ends engaged with said rod and stem and provided with an elongated slot between its ends, a link upon which said lever is pivoted, and means cooperating with said slot in the leg and lever for actuating said link adjustably thereon.

700,888. TEMPORARY BINDER. ROBERT A. THOMAS, St. Louis, Mo., assignor to the Huber & Trussell Manufacturing Company, St. Louis, Mo., a Corporation. Filed July 21, 1900. Serial No. 24,272. (No model.)



Claim.—In a temporary binder, the combination of a pair of covers, hinge-arms pivotally united and coated in said covers, prongs carried by said arms, a plate secured to each of said arms, and strips providing connections between corresponding hinge-arms on the same side of the hinge; said covers being secured between said plates and strips, substantially as described.

700,889. ARTIFICIAL FUEL. ALEXANDER R. TUCKER, Birmingham, Ala., and OLIVER GUY, Birmingham, England. Filed Oct. 4, 1891. Serial No. 77,872. (No specimens.)

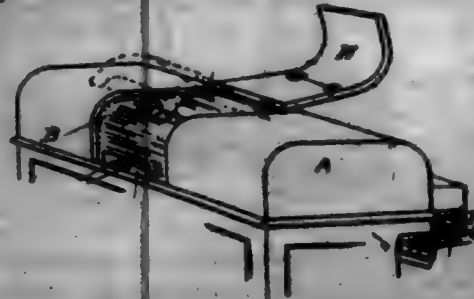
Claim.—1. Blocks or briquets of artificial fuel consisting in part of an agglutinant formed from the molten matter of sage-yielding plants, as set forth.

2. In blocks or briquets of artificial fuel, the combination with crushed or finely-divided fuel of an agglutinant composed of the non-fibrous part of the molten matter of sage-yielding plants, as set forth.

3. In blocks or briquets of artificial fuel, the combination with crushed or finely-divided fuel of an agglutinant composed of sage-flour, as set forth.

4. In blocks or briquets of artificial fuel, the combination consisting of crushed or finely-divided fuel, an agglutinant formed from the molten matter of sage-yielding plants, and oblongness matter, as set forth.

700,890. AUTOMATIC PIANO OR ORGAN PLAYER. BENJAMIN L. WATSON, Corinth, Mo. Filed Mar. 1, 1902. Serial No. 98,198. (No model.)



Claim.—1. In an automatic player, a transparent sliding cover provided with an opening in the top and a recess in the front wall, said cover

adapted to cover the working mechanism of the instrument and a removably-attachable apron adapted to fit on the rear wall of the player and rest upon the keys of the instrument to be played.

2. In an automatic player, a transparent cover, an opening in the top and a recess in the front wall near the bottom thereof, said cover adapted to cover the rolls and mechanism of the instrument and a removably-attachable apron consisting of a vertical wall, a horizontal ledge and a clamping device for holding the same on the back of the player.

3. In an automatic player, a suitable casing having a cover attached thereto, a supplemental transparent cover with a recess in the front wall near the bottom thereof and means for holding said supplemental cover in place, an apron removably attached to the rear wall of the player, said apron consisting of a vertical wall, a horizontal shelf angularly disposed to said wall and situated near the bottom thereof and spring-clamps for holding said vertical wall against the rear wall of the player.

4. In an automatic player, a suitable casing having an opening therein, a cover attached to said casing and adapted to cover said opening, a supplemental transparent cover removably attached to said casing and beneath said cover, said supplemental cover being provided with a recess in the front wall at or near the bottom, means for allowing said supplemental cover to be opened and to hold the same in place, a removably-attachable depending apron consisting of a vertical wall, a horizontal shelf angularly disposed thereto and situated near the bottom thereof and a clamping device on said vertical wall for holding it to the wall of a player.

5. In an automatic player, a suitable casing having an opening therein, a cover over said opening, a supplemental transparent cover removably attached to said casing and beneath said cover, said supplemental cover being provided with a recess in the front wall at or near the bottom, a removably-attachable depending apron consisting of a vertical wall, a horizontal shelf angularly disposed thereto and situated near the bottom thereof, clamping devices on said vertical wall adapted to hold said apron in position and allow the keys of an instrument to be played without interfering with the action thereof.

700,891. CARD-INDEX FILE. GEORGE F. WATTS, Chicago, Ill. Filed July 24, 1901. Serial No. 68,616. (No model.)



Claim.—1. A card-index file having an adjustable angle-block, cards provided with slots extending both vertically and horizontally; a pair of rods, whereof one is revolvably supported in the card-receptacle and forms a guide for the angle-block, and the other of said rods is connected to said guide-rod above the same for entering the slots within the cards, and means for throwing said retaining-rod laterally about the guide-rod as an act.

2. A card-index file comprising a casing, a drawer sliding therein, cards provided with slots extending both vertically and horizontally; a retaining-rod mounted in said drawer and capable of lateral motion for retaining or releasing the cards, said rod having a part projecting beyond the inner extremity of said drawer; and a locking-block secured to said casing, said block having an oblique face for engaging and laterally shifting said retaining-rod to retain said cards.

3. In a card-index file, the combination with the casing and drawer sliding therein, of an adjustable angle-block, cards provided with slots having both horizontal and vertical portions, a guide-rod for said angle-block journaled in the drawer, arms extending from said guide-rod, a retaining-rod carried by said arms and capable of lateral motion for engaging and releasing said cards, said retaining-rod projecting beyond the inner extremity of said drawer, and a locking-block having an oblique face adapted to engage said retaining-rod, whereby said rod is laterally shifted when said drawer is pushed home.

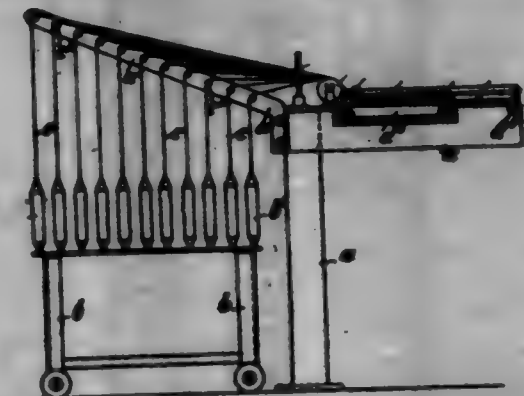
4. In a card-index file, the combination with the card-receptacle of an angle-block, a rod for guiding the same, a spring secured thereto, a sleeve hinged to said block and loosely enclosing said guide-rod, and said spring forcing said sleeve against said rod for cramping the latter to thereby prevent the travel of said angle-block, a lever mounted in said angle-block, said lever being connected to said sleeve for raising the same free from said rod, and means for operating said lever.

5. In a card-index file the combination with the card-receptacle of an angle-block, a rod for guiding the same, a spring secured to said block, a sleeve hinged to said block and loosely enclosing said guide-rod, said spring forcing said sleeve against said rod for cramping the latter to thereby prevent the travel of said angle-block, a lever mounted in said block,

and pivoted between its walls, a rod connecting said lever to said sleeve for raising the latter free from said rod and a button secured to said lever, said button and sleeve-operating rod being on opposite sides of the lever-pivot, whereby the pressing of said button releases said sleeve.

6. In a card-index file, the combination of a drawer for containing the cards, a spring for locking said drawer, cards provided with slots having portions extending horizontally and vertically, an adjustable angle-block, a guide-rod for said angle-block journaled in the side of the drawer, arms extending from said guide-rod, a retaining-rod carried by said arms and capable of lateral motion for engaging and releasing said cards, said retaining-rod projecting beyond the inner extremity of said drawer, a locking-block secured to said casing, and having an oblique face for shifting said guide-rod, a sleeve hinged to said angle-block and loosely enclosing said guide-rod, a spring secured to said angle-block and operating upon said sleeve to force the latter against said rod, a lever pivotedly mounted in said angle-block, a hand-operated button attached to said lever, and connections between said lever and said sleeve whereby the latter may be released from the guide-rod.

700,892. MATCH-MACHINE. KARL WINNBERG, Rudolfsburg, Germany. Filed Apr. 7, 1900. Serial No. 11,906. (No model.)



Claim.—1. In a match-machine of the class described the combination of a portable frame, spears carried thereby, a stationary frame having arms which carry guide-rollers for the threads coming from the spears, a wax-trough having guide-rollers in front and draw-clips at its end for the passage of the threads, a steam-bar, a cooling-bar having draw-clips at its end, a cooling-bar furnished with a fan, means to guide the threads, a pair of endless chains passing around pulleys at the ends of a frame and guided by angle-irons secured to the top and bottom parts of said frame, conveyor-bars having clamping-springs hinged to one end of them and catches fixed to the other end of the same, an arm pivoted to the frame and connected by a rod to a cam adapted to impart oscillating movement to said arm for engaging the end of the clamping-spring with said catches, substantially as specified.

2. In a match-machine of the class described the combination with a pair of endless chains to which intermittent motion is imparted, conveyor-bars having clamping-springs hinged to them for holding the match-threads thereon, and catches locking the springs upon the bars, of an upper shaft held by its ends in slotted guides and connected by rods to lever-arms bearing upon cams, and a lower shaft pivoted to levers connected by rods to said lever-arms for imparting opposite movement to said levers, substantially as specified.

3. In a match-machine of the class described the combination with a pair of endless chains passing around pulleys at the ends of a frame and guided by angle-irons at the top and bottom parts of said frame, conveyor-bars having clamping-springs hinged to one end of the bars and catches fixed to the other end of the same, of square heads arranged on one end of the bars and furnished with pins, guide-bars secured to the frame and forming a sliding surface for the heads, said guide-bars being provided with notches and pins, with which the square heads and pins engage in the forward movement of the conveyor-bars, substantially as specified.

4. In a match-machine of the class described the combination, with a pair of endless chains passing around pulleys at the ends of the frame and guided by angle-irons at the top and bottom parts of said frame, conveyor-bars having clamping-springs hinged to one end of the bars and catches fixed to the other end of the same, a trough containing ignition material, eccentric-rolls attached thereto and made in two parts connected by arms engaging with right and left handed screw-threads, and eccentrically adapted to impart reciprocating movement to said trough, substantially as specified.

5. In a match-machine of the class described the combination, with a pair of endless chains passing around pulleys at the ends of a frame and guided by angle-irons at the top and bottom parts of said frame, conveyor-bars having clamping-springs hinged to one end of the bars and catches fixed to the other end of the same, of hook-shaped levers pivoted

in brackets on the frame, crank-disks connected by rods to said levers, and by bevel-gear to the driving-shafts of the machine to release the clamping-springs from said catches, substantially as specified.

6. In a match-machine of the class described the combination, with a pair of endless chains passing around pulleys at the ends of a frame and guided at the top and bottom parts of said frame, conveyor-bars having clamping-springs hinged to one end of the bars and catches fixed to the other end of the same, a channel adapted to be moved upward and downward in guides on the frame, lever-arms bearing upon same on the driving-shafts and connected to the channel by rods, substantially as specified.

700,898. CANAL-BOAT. DANIEL H. WRIGHT, Buffalo, N.Y. Filed Dec. 13, 1891. Serial No. 85,797. (No model.)



Claim.—1. A boat comprising spaced keelsons and transverse floor-timbers, lining-plates disposed with their edges adjacent the keelsons and means removably connected with the keelsons and bearing against the plates for holding the latter against the floor-timbers.

2. In a boat, the combination with a keelson and floor-timbers connected thereto, of a lining disposed removably against the floor-timbers and with its edges adjacent the keelson, and means engaged with the keelson and bearing against the lining to hold the latter against the floor-timbers.

3. A boat comprising a keelson and floor-timbers lying at right angles thereto, a lining disposed against the floor-timbers with its edge adjacent the keelson, means removably engaged with the keelson and disposed against the lining to hold the latter against the floor-timbers, and packing disposed between the holding means and the lining.

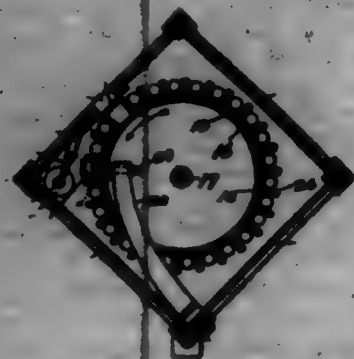
4. A boat comprising a keelson having floor-timbers lying at an angle thereto, a lining disposed against the floor-timbers with its edge adjacent the keelson, a strip disposed in the angle between the lining and keelson and having its free edge adjacent the lining beveled in the direction of the keelson, packing disposed between the beveled face and the lining and the keelson, and means for holding said strip in said angle.

5. A boat comprising a keelson having floor-timbers lying at right angles thereto, a lining disposed against the floor-timbers with its edge adjacent the keelson, a strip disposed in the angle between the lining and keelson and having its free edge adjacent the lining beveled in the direction of the keelson, packing disposed between the beveled face and the lining and the keelson, means for holding the strip in said angle, and a metallic bulkhead disposed at each end of the boat.

700,894. VENDING-MACHINE. SAMUEL A. WILSON, Chicago, Ill., assignor, by direct and mesne assignments, to Standard Vending Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 20, 1891. Serial No. 73,299. (No model.)

Claim.—1. The combination in vending apparatus, of a holder for the article being vended having pockets with rigid divisions between them, a delivery-opening at which the cigars are delivered, means for causing the successive exposure of the pockets at the opening, and a package for the cigars having pockets corresponding to the pockets of the holder, and having the divisions between its pockets recessed so they will sit over the divisions on the holder, substantially as specified.

2. The combination in vending apparatus, of a holder for the article being vended having pockets with rigid divisions between them, a delivery-opening at which the cigars are delivered, means for causing the successive exposure of the pockets at the opening, and a package for the cigars having pockets corresponding to the pockets of the holder, and having the divisions between its pockets recessed so they will sit over the divisions on the holder, substantially as specified.

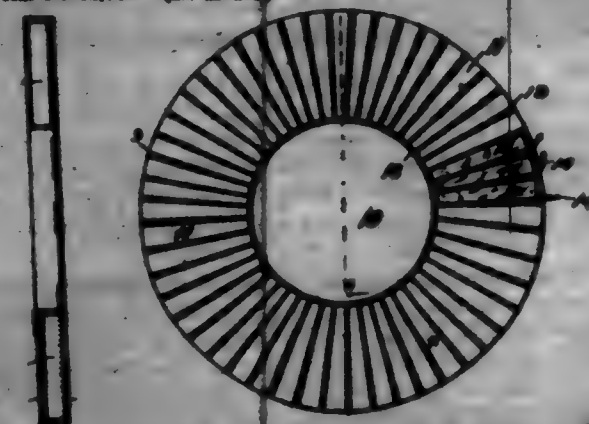


3. The combination in vending apparatus, of a package provided with pockets in which the articles to be sold are placed, and a holder or support for said package having pockets receiving the pockets of the package, substantially as specified.

4. The combination in vending apparatus, of a package provided with exterior pockets in which the articles to be sold are placed, and a circular holder or support for the package also having exterior pockets fitting the under surface of the package, substantially as specified.

5. The combination in vending apparatus, of a package containing the articles to be sold in pockets or divisions and a holder adapted to receive and support said package and provided with pockets or divisions corresponding to the pockets or divisions of the package, said holder being movable and acting to present the pockets of the package successively at the delivery-opening of the apparatus, substantially as specified.

700,895. CIGAR-PACKAGE. SAMUEL A. WILSON, Chicago, Ill., assignor, by direct and mesne assignments, to Standard Vending Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 20, 1891. Serial No. 85,800. (No model.)



Claim.—1. The package for articles to be vended in a vending-machine, consisting of a circular flat disk or plate and hollow divisions attached to the side of the disk and forming the pockets for the articles to be vended, the disk being adapted to permit the entry within said divisions of the division-plates upon the holder of the vending-machine, substantially as specified.

2. The package for articles to be vended in a vending-machine, consisting of a circular flat disk or plate and hollow divisions attached to the side of the disk and forming the pockets for the articles to be vended, that portion of the disk under the divisions being of a diameter which will permit the entry within the divisions of the division-plates of the holder of the vending-machine, substantially as specified.

3. The cigar-package consisting of a flat disk or plate provided with individual pockets for the cigars on its side, said disk being notched out under each division between the pockets, substantially as specified.

4. The cigar-package consisting of a flat circular disk or plate with individual pockets for the cigars on its side, and a ring 18 closing the inner ends of the pockets, substantially as specified.

5. The closed cigar-package consisting of the flat disk having cigar-pockets 11 on its side, the ring 18 closing the inner ends of the pockets, and the cover 19, 20, closing the side and outer ends of the pockets, substantially as specified.

6. The cigar-package consisting of a flat disk or plate provided with individual pockets for the cigars on its side, said disk being notched out under each division between the pockets, and the divisions being also recessed or hollow to permit the entrance within them of the divisions upon the holder of the vending-machine, substantially as specified.

7. The package herein described, consisting of a connected series of pockets made of flexible material and bent into endless form, a disk 10 to which the pockets are attached, a ring 18 closing the inner ends of the pockets, and an annular flanged cover clipped over the pockets and secured to the disk substantially as specified.

8. The package herein described, consisting of a connected series of pockets made of flexible material and bent into endless form, a disk 10 to the outer portion of which the pockets are attached leaving the center of the disk uncovered, means for closing the inner ends of the pockets, and a cover for the pockets having its center cut out so as not to conceal the center of the disk, substantially as specified.

9. The cigar-package herein shown consisting of an endless series of pockets arranged radially around a central opening, a plate forming a back to the pockets and also closing said opening, and a cover closing the front of the pockets without covering said central opening, substantially as specified.

700,896. DANFEL. ROBERT WYTHE, Hannover, Germany. Filed June 22, 1891. Serial No. 85,810. (No model.)



Claim.—1. The combination of a stove having an exit-flue and a draft-opening with a damper in said exit-flue having a hollow spindle extending through the walls thereof and communicating with the external air, said spindle being provided with an aperture within the exit-flue, and said flue being provided with a plate adapted to close said aperture when the damper is opened, a pivoted draft-door adapted to close said draft-opening and carrying a rack and a rod connected to said damper-spindle and provided with a gear-sector adapted to mesh with the rack on the draft-door.

2. In a damper for stoves, the combination of a stove having an exit-flue and a draft-opening with a damper in said exit-flue, having a hollow spindle extending through the walls thereof and communicating with the external air, said spindle being provided with an aperture within the exit-flue, and a plate in said exit-flue adapted to close said aperture when the damper is opened, a rod connected to said hollow spindle and pivoted in the stove-bottom, a gear-sector mounted on said rod and carrying an arm, and a pivoted draft-door, adapted to close the draft-opening and carrying a rack which meshes with the gear-sector when the rod is rotated to move the door laterally, the said door being raised when engaged by the arm carried by the gear-sector, substantially as described.

700,897. PERAMBULATOR. SAMUEL F. WITTEBOW, Cincinnati, Ohio. Filed Oct. 21, 1891. Serial No. 73,464. (No model.)

Claim.—1. A perambulator or carrier comprising a receptacle for retaining a child, wheels suitably mounted and connected with said receptacle, and mechanism connected with said receptacle whereby the same may be wheeled or carried while in operative condition, substantially as and for the purpose specified.

2. A perambulator or carrier comprising a receptacle provided with a seat, wheels suitably mounted and connected with said receptacle, and mechanism for throwing the perambulator into or out of wheeling condition, and whereby the same may be controlled or carried while in operative condition, substantially in the manner and for the purpose described.

3. A perambulator or carrier comprising a receptacle, wheels, means whereby said receptacle may be carried, or controlled when wheeling, and pockets or guards adapted to inclose the wheels for the purpose herein specified.

4. A receptacle mounted on wheels, means for controlling or carrying said receptacle, and pockets or guards wherein the wheels may be inclosed, substantially in the manner and for the purpose described.

5. A perambulator or carrier consisting of a receptacle provided with a seat, wheels suitably mounted and connected with said receptacle, guards for said wheels, and means whereby the perambulator may be thrown

into wheeling condition, and controlled, or vice versa and carried, substantially in the manner and for the purpose described.



6. A perambulator or carrier, consisting of a receptacle mounted on wheels, means for controlling or carrying said receptacle, guards adapted to inclose the wheels, and mechanism whereby the relative position of the parts may be varied, substantially in the manner set forth and described.

7. A perambulator comprising a basket having a seat, wheels arranged below said basket, mechanism slidably connected with said basket whereby the perambulator is controlled and the position of the wheels regulated, pockets on said basket into which the wheels may be drawn, substantially as and for the purpose described.

8. A perambulator or baby-carriage comprising a basket with a rigid handle, pockets on said basket, wheels adjustably secured to said basket, with mechanism for locking the wheels in their adjusted position, and a second handle loosely secured to the basket whereby the perambulator may be propelled, substantially as and for the purpose described.

9. A perambulator or baby-carriage, consisting of a basket formed to provide a seat therein, and having a rigid or auxiliary handle, pockets formed on the lower end of said basket, wheels adjustably secured to said basket and adapted to be drawn into said pockets, means for locking the wheels in their adjusted position, and a handle loosely secured to said basket adapted to be thrown at any angle to said basket, mechanism for locking said handle in the desired position, and slots in the pockets through which the ends of said handle may pass, substantially as shown and for the purpose described.

10. A perambulator or baby-carriage comprising a basket with a rigid handle, pockets on said basket, wheels secured to hangers having slidable connection with the basket, mechanism for locking the hangers in the desired position, and a second handle loosely secured to the basket and having connection with the hangers whereby the position of the hangers may be changed and the perambulator propelled, substantially as shown and in the manner described.

700,898. CULINARY VESSEL. LEVI ANGLER, Lebanon, Pa. Filed Nov. 12, 1891. Serial No. 81,971. (No model.)



Claim.—A horizontally-closed culinary vessel having a smooth end on its upper end forming one member of a right joint, a rubber adjacent

shorter, and an external concentric projection adjacent to said end and inclined on its lower edge; in combination with a cover having a seat forming the opposite member of said joint, an annular projection engaging said rib on the vessel, and legs projecting from the cover and engaging the inclined edge of said concentric projection.

700,399. PROCESS OF ELECTRICALLY PULVERIZING METALS. PAUL BART, Paris, France. Filed Apr. 11, 1901. Serial No. 88,318. (No specimen.)



Claim.—1. A process for pulverizing metals, which consists in first, causing the metal to flow in streams, then passing electric currents through the length thereof, and then breaking said streams at a point in the flow traversed by the electric current to enable the current to act on the metal on each break of the circuit, substantially as described.

2. A process for pulverizing metals, which consists in melting the metal, causing the same to flow in streams, passing currents of electricity through said streams of sufficient intensity to contract said streams until the same are completely cut off to enable the currents to act on the metal on each break of the circuit, substantially as described.

700,400. BRAKE. FREDERICK BUCKER, New York, N. Y. Filed Sept. 3, 1901. Serial No. 74,008. (No model.)



Claim.—1. The combination of a brake, a socket-piece mounted thereon to carry a handle, an extension-piece projected forward from the socket-piece, a guide forward at the front end of the extension-piece, and a camper adjustably held in the guide.

2. The combination of a brake, a guide held thereby, and a bar adjustably fitted in the guide, said bar having its ends projected beyond the guide, for the purpose specified.

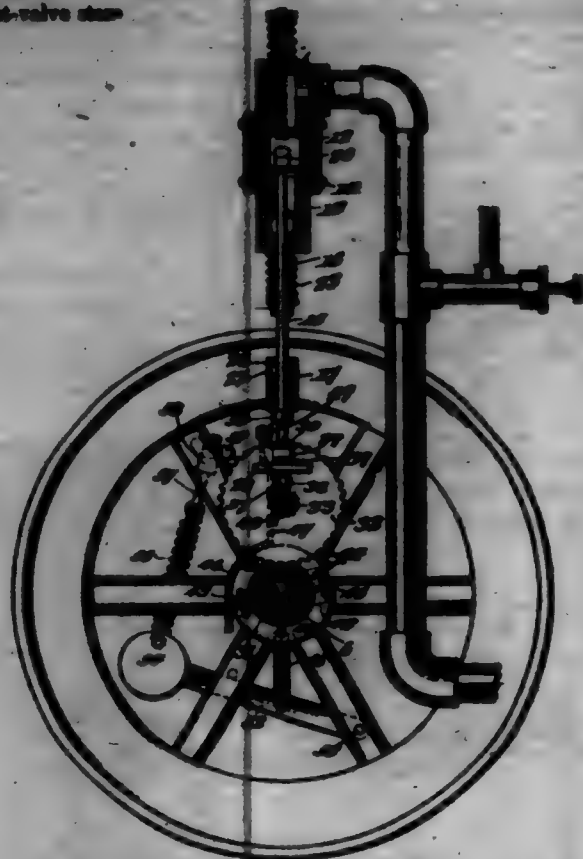
700,401. SPEED-REGULATOR FOR EXPLOSIVE-ENGINE. EDWARD A. F. BRADY, Lansing, Mich. Filed July 10, 1901. Serial No. 66,398. (No model.)

Claim.—1. In an engine, the combination with the exhaust-valve; of a stem for said valve carrying a member of an electrical lighting device, means for holding the valve normally closed and also for holding the members of the igniter in contact, mechanism for imparting a reciprocating and an oscillatory movement to the valve-stem, and a governor operated by excessive speed of the crank-shaft of the engine for holding the valve opened and rendering the igniter inactive.

2. In an engine, the combination with the exhaust-valve and crank-shaft; of pivotally-mounted segments rotatable with the crank-shaft, a centrifugal governor-arm for operating the segments, a rocker-arm actuated by said segments, a catch carried by rocker-arm and another catch on the exhaust-valve stem with which the first-named catch is adapted to engage for holding the exhaust-valve open.

3. In an engine, the combination with the exhaust-valve, exhaust-valve stem and crank-shaft; of a pair of segments embracing the crank-shaft and rotatable therewith, said segments having an interlocking engagement with each other as to move them in more simultaneously outward or inward, a centrifugal governor-arm operatively connected with one of the segments, a rocker-arm having a portion thereof arranged in the path of the segments, a catch carried by said governor-arm, and a governor-catch adapted to cooperate therewith and mounted on the exhaust-valve stem.

governor-catch adapted to cooperate therewith and mounted on the exhaust-valve stem.



4. In an engine, the combination with the exhaust-valve, exhaust-valve stem and crank-shaft; of semicircular segments pivotally mounted on and rotatable with the crank-shaft, said segments having an interlocking engagement at one side of the crank-shaft and a yielding connection at the opposite side of the crank-shaft, a centrifugal governor-arm rotatable around the crank-shaft and operatively connected with one of the segments, a rocker-arm actuated by the segments and carrying a catch, and a governor-catch on the exhaust-valve stem adapted to cooperate with the catch on the rocker-arm.

5. In an engine, the combination with the exhaust-valve, exhaust-valve stem and crank-shaft; of a pair of segments embracing the crank-shaft and rotatable therewith, said segments being pivotally mounted and having an interlocking engagement at one end, a yield-spring yieldingly connecting the opposite ends of the segments, a rocker-arm having a portion thereof arranged in the path of the segments, a catch on said arm, a governor-catch coacting therewith and carried by the exhaust-valve stem, a governor-arm a resistance-spring associated with the governor-arm, and means for adjusting the tension of said spring.

700,402. GAS-REGULATOR. WILLIAM F. BENTON, Broomfield, Iowa. Filed Nov. 20, 1901. Serial No. 61,610. (No model.)



Claim.—1. A tubular regulator, consisting of one piece of sheet metal the longitudinal edges of which are united together.

2. A gas-regulator comprising a structure tubular throughout its entire length, consisting of one piece of sheet metal the longitudinal edges of which are brought in contact and united together and having the side bearings pressed from and made integral therewith.

3. A gas-regulator comprising a structure made of a single plate of sheet metal, tubular throughout its entire length, the longitudinal edges of which are brought in contact and united together and having the side bearings pressed from and made integral therewith.

4. A gas-regulator comprising a true-shape structure, tubular throughout its entire length, consisting of a single piece of sheet metal the longitudinal edges of which are brought in contact and united together.

5. A gas-regulator comprising a structure, tubular throughout its entire length, consisting of a single piece of sheet metal the longitudinal edges of which are brought in contact and united together and having the central bearing-plate pressed from and made integral therewith.

6. A gas-regulator comprising a structure made of a single plate of sheet metal the longitudinal edges of which are brought in contact and united together and tubular throughout its entire length, and having a central bearing-plate pressed from and made integral therewith.

7. A gas-regulator comprising a structure, tubular throughout its entire length consisting of a single piece of sheet metal the longitudinal edges of which are brought in contact and united together and having the side bearings made integral therewith.

8. A gas-regulator comprising a structure made of a single plate of sheet metal the longitudinal edges of which are brought in contact and united together and tubular throughout its entire length, and having side bearings pressed from and made integral therewith.

9. A gas-regulator comprising a structure, tubular throughout its entire length consisting of a single plate of sheet metal the longitudinal edges of which are brought in contact and united together and having the truck-column guides pressed from and made integral therewith.

10. A gas-regulator comprising a structure made of a single plate of sheet metal, the longitudinal edges of which are brought in contact and united together and tubular throughout its entire length, and having a truck-column guide pressed from and made integral therewith.

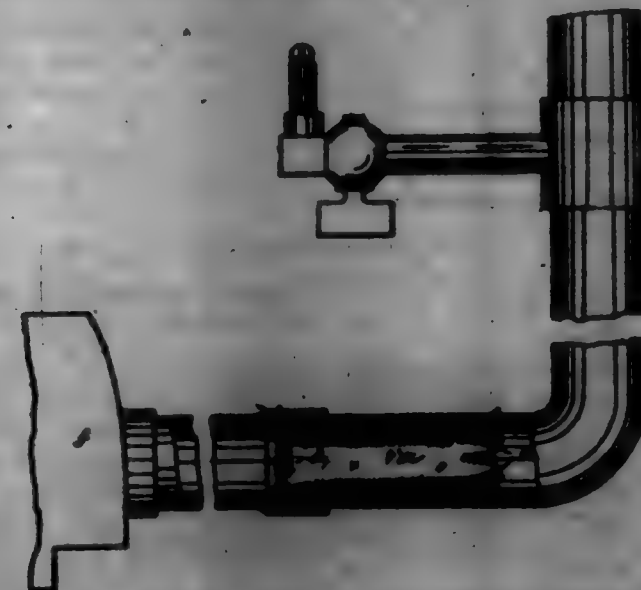
11. A gas-regulator comprising a structure tubular throughout its entire length, consisting of a single plate of sheet metal having the longitudinal edges thereof brought in contact and united together and having the central bearing-plate, the side bearings, and the truck-column guides thereof made integral therewith.

12. A gas-regulator comprising a structure made of a single plate of sheet metal, the longitudinal edges of which are brought in contact and united together and tubular throughout its entire length, and having a central bearing-plate, side bearings and truck-column guides pressed from and made integral therewith.

13. A gas-regulator comprising a true-shape structure, tubular throughout its entire length consisting of a single plate of sheet metal the longitudinal edges of which are brought in contact and united together and having the central bearing-plate the side bearings, and the truck-column guides thereof made integral therewith.

14. A gas-regulator comprising a true-shape structure, made of a single plate of sheet metal the longitudinal edges of which are brought in contact and united together and tubular throughout its entire length, and having a central bearing-plate, side bearings, and truck-column guides pressed from and made integral therewith.

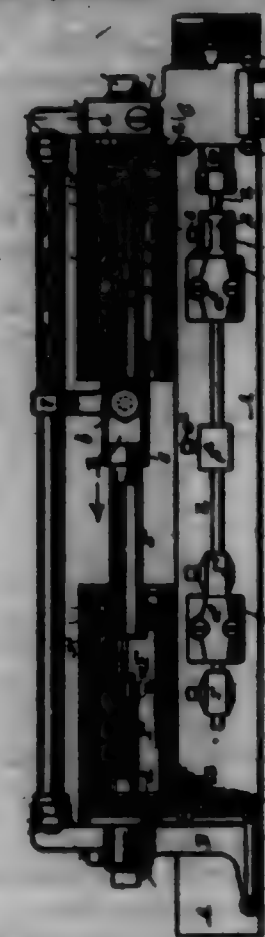
700,403. GAS-PRESSURE REGULATOR. DAVID L. BARK, New York, N. Y., assignor of one-half to Jacob Lederer, New York, N. Y. Filed Feb. 7, 1902. Serial No. 61,651. (No model.)



Claim.—1. A gas-regulator composed of a flexible tubular casing having a dilated transversely-extending base and a dilated transversely-extending head, to form two sets of outwardly-opening valves, substantially as specified.

2. A gas-regulator composed of a flexible tubular casing having a flat radially-dilated base and a bulged radially-dilated head, to form two sets of outwardly-opening valves, substantially as specified.

700,404. DOOR-OPERATING MECHANISM. WILLIAM A. BRADY and JAMES S. BRADY, Chicago, Ill., assignors to the Braden Supply & Repair Company, Chicago, Ill., a Corporation. Filed Nov. 6, 1900. Serial No. 738,585. (No model.)



Claim.—1. In apparatus of the character described, the combination of two oppositely-arranged, open-ended cylinders, pistons within said cylinders rigidly connected together by a common piston-rod, an operating connection for a door or device to be shifted, secured at one end to said piston-rod intermediate said pistons, and a valve common to both of said cylinders for controlling the alternate admission of fluid under pressure thereto.

2. In apparatus of the character described, the combination of two oppositely-arranged, open-ended cylinders, pistons within said cylinders rigidly connected together by a common piston-rod, an operating connection for a door or device to be shifted, secured at one end to said piston-rod intermediate said pistons, an admission and exhaust channel for each of said cylinders and a valve common to both cylinders for controlling the alternate admission and exhaust of fluid under pressure through said channels.

3. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of oppositely-arranged pistons connected to said part or cross-head, cylinders wherein said pistons are contained, suitable casings at the ends of said cylinders provided with admission and exhaust channels and a bellows rod extending between said casings, substantially as described.

4. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons connected to said part or cross-head, cylinders wherein said pistons are contained, suitable channels for delivering fluid under pressure to said cylinders, escape-channels for exhausting fluid from said cylinders and adjustable throttling-valves for regulating the flow through said exhaust-channels.

5. In apparatus of the character described, the combination of two oppositely-arranged, open-ended cylinders, pistons within said cylinders rigidly connected together by a common piston-rod, an operating connection for a door or device to be shifted, secured at one end to said piston-rod intermediate said pistons, the outer ends of said cylinders being provided with ports for the admission and exhaust of fluid under pressure, a valve-chamber having inlet and exhaust passages, channels leading from said valve-chambers to the ports of each of said cylinders, and a valve in said chamber for controlling the flow of fluid under pressure through said channels.

6. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons connected to said part or cross-head, cylinders wherein said pistons are contained, admission and

exhaust channels for delivering fluid under pressure to said cylinders, hollow piston-rods whereby said pistons are carried, hollow plugs extending into the cylinders and adapted to enter the piston-rods and suitable connections between said hollow plugs and the exhaust-channels, substantially as described.

7. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of oppositely-arranged open-ended cylinders, pistons within said cylinders having piston-rods connected with said part or cross-head, a casing at the outer end of each of said cylinders provided with admission and exhaust channels, a tubular rod connecting said casings, a valve for controlling the flow of fluid under pressure to and from said cylinders and a trigger for operating said valve, substantially as described.

8. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons on either side of and connected to said part or cross-head, single-acting cylinders wherein said pistons are contained, admission and exhaust channels for delivering fluid under pressure to and from each of said cylinders, a valve-chamber provided with a casing to which the admission and exhaust channels lead, a valve common to both of said cylinders for controlling the flow of fluid under pressure through said channels, and a valve-rod and means for shifting said rod to operate said valve, substantially as described.

9. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons connected to said part or cross-head, cylinders wherein said pistons are contained, admission and exhaust channels for delivering fluid under pressure to and from said cylinders, a valve-chamber provided with a casing to which the admission and exhaust channels lead, a valve for controlling the flow of fluid under pressure through said channels, a valve-rod connected to said valve, a cylinder through which said valve-rod passes, said cylinder being connected by a suitable channel with the fluid-pressure supply and a piston within said cylinder connected to the valve-rod, substantially as described.

10. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons on either side of and connected to said part or cross-head, single-acting cylinders wherein said pistons are contained, admission and exhaust channels for delivering fluid under pressure to and from said cylinders, a valve-chamber provided with a casing to which the admission and exhaust channels lead, a valve common to both of said cylinders for controlling the flow of fluid under pressure through said channels, a valve-rod connected to said valve, a trigger attached to said valve-rod, suitable bearings for said valve-rod and suitable stops upon said rod, substantially as described.

11. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons connected to said part or cross-head, cylinders wherein said pistons are contained, a casing at the outer end of each of said cylinders provided with admission and exhaust channels for delivering fluid under pressure to and from said cylinders, one of said casings being provided with a valve-chamber having a valve therein and a removable valve-rod attached to said casing, substantially as described.

12. In apparatus of the character described, the combination with a suitable part, such for example as a cross-head, adapted to be connected with the door or device to be shifted, of pistons connected to said part or cross-head, hollow rods whereby said pistons are carried, cylinders wherein said pistons are contained, casings at the outer ends of said cylinders provided with admission and exhaust channels and hollow plugs extending through said casings and adapted to enter said hollow piston-rods, said hollow plugs being provided with ports communicating with the exhaust-channels, substantially as described.

13. In apparatus of the character described, the combination with a cylinder and a piston therein adapted to operate a door or other device to be shifted, of channels for the admission and exhaust of fluid under pressure to and from said cylinder, a valve-chamber, a valve therein for controlling the flow through said channels, and a valve-rod removably secured to said valve-chamber, said valve-rod having passages therein connecting said valve-chamber to said channels.

14. In a door-operating device, the combination of a cylinder, a piston therein for actuating a door or other device to be shifted, two ports opening into one end of said cylinder, means for closing one of said ports during the exhaust-stroke of the piston and an adjustable throttling-valve for the other of said ports, whereby the movement of the shifted part will be controlled.

15. In a door-operating device, the combination of a cylinder, a piston therein for actuating a door or other device to be shifted, two ports opening into one end of said cylinder, outwardly-closing check-valve for

one of said ports for closing the latter during the exhaust-stroke, whereby the movement of the shifted part will be controlled.

16. In a door-operating device, the combination with the cylinder and a piston therein for actuating a door or other device to be shifted, of two ports opening into said cylinder through which the motor fluid escapes during the exhaust-stroke of said piston, one of said ports arranged to be closed before the piston has completed its exhaust-stroke, whereby the movement of the shifted part will be controlled.

17. In a door-operating device, the combination with the cylinder and a piston therein for actuating a door or other device to be shifted, of two ports opening into said cylinder through which the motor fluid escapes during the exhaust-stroke of said piston, one of said ports being mounted on the end of a tubular extension within said cylinder, a hollow piston-rod for said piston into which said extension enters, the other of said ports opening into the end of said cylinder and provided with an adjustable throttling-valve, whereby the movement of the shifted part will be controlled.

18. In a door-operating device, the combination with the cylinder and a piston therein for actuating a door or other device to be shifted, of two ports opening into said cylinder through which the motor fluid escapes during the exhaust-stroke of said piston, one of said ports being mounted on the end of a tubular extension within said cylinder, a hollow piston-rod for said piston into which said extension enters, the other of said ports opening into the end of said cylinder and provided with an adjustable throttling-valve, whereby the movement of the shifted part will be controlled.

19. In a shifting device for doors and the like, the combination with a cylinder and a piston therein, of three ports opening into one end of said cylinder, one of said ports provided with an outwardly-closing check-valve for closing the latter during the exhaust-stroke of the piston, means for closing another of said ports before the piston has completed its exhaust-stroke, whereby the escape of the motor fluid during the last part of the exhaust-stroke will only take place through the remaining port.

20. In a shifting device for doors and the like, the combination with duplicate cylinders and pistons therefor, of three ports opening into the outer ends of each of said cylinders, one of the ports of each of said cylinders being provided with an outwardly-closing check-valve for closing the latter during the exhaust-stroke of the piston therein, another of said ports in each of said cylinders being located intermediate to said check-valve and arranged to be closed by the piston therein before it has completed its exhaust-stroke, and the remaining port in each cylinder being provided with an adjustable throttling-valve, whereby the movement of the part to be shifted in each direction will be controlled.

21. In a shifting device for doors and the like, the combination with duplicate, single-acting cylinders and pistons therein rigidly connected together by a common hollow piston-rod, of three ports opening into the outer ends of each of said cylinders, one of the ports in each cylinder being provided with an outwardly-closing check-valve, another of said ports being mounted upon the inner end of tubular extension within said cylinders, said extensions being adapted to enter said hollow piston-rod, and the remaining port in each cylinder being provided with an adjustable throttling-valve, whereby the movement of the part to be shifted in both directions will be controlled.

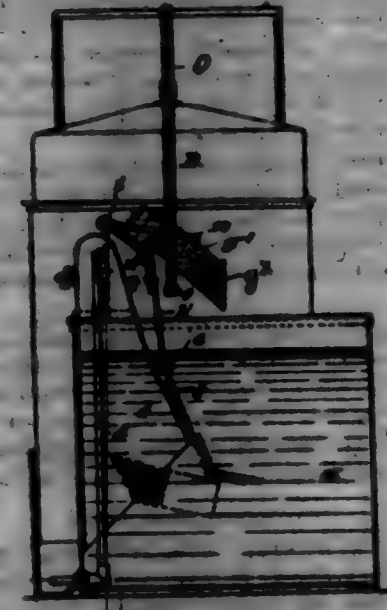
22. In a shifting device for doors and the like, the combination with a cylinder and a piston therein, a valve-chamber, a valve therein controlling the admission and exhaust of fluid under pressure to and from said cylinder, a valve-rod therefor, a chamber surrounding said rod, and a piston within said chamber secured to said rod, there being an opening leading from said valve-chamber to said piston-chamber, whereby the valve is automatically operated in one direction by the fluid-pressure.

700,405. ACETYLENE-GAS-GENERATING APPARATUS. FRIEDRICH DUCHER, Mannheim, Germany. Filed May 3, 1902. Serial No. 14,102. (No model.)

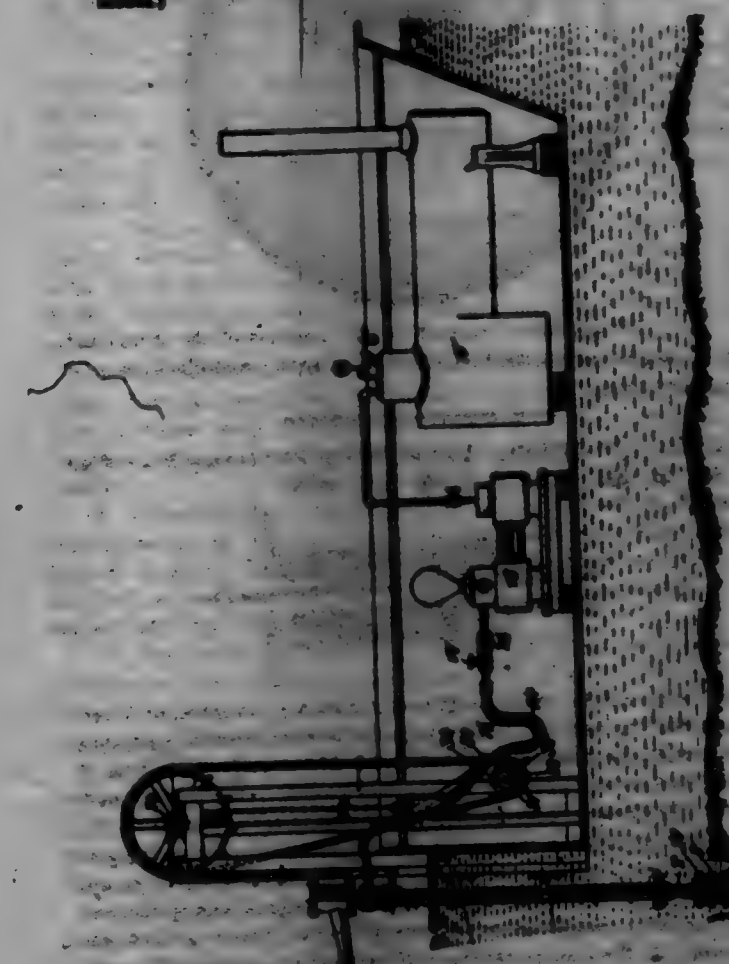
Claim.—1. In the improved acetylene-gas-generating apparatus, the combination with a water-tank and a shaft journaled in walls of said tank, of a series of carriers loosely mounted on said shaft, having holes in their upper ends and adapted to receive a series of interchangeable carbide-holders, another shaft journaled above the first-mentioned shaft, a series of suitable catches on the upper shaft arranged to engage the holes in said carriers and to be successively disengaged therefrom by the rotating of said shaft, means for actuating the upper shaft during the down movement of the gas-holder, and means for raising the carbide-holders after the operation, substantially as set forth.

2. In the improved acetylene-gas-generating apparatus, the combination with a water-tank and an inclined partition extending downwardly from the top of said tank and forming a gas-collecting head, of a shaft journaled in the walls of the latter, a series of carriers loosely mounted on said shaft, having holes in their upper ends and adapted to receive carbide-holders, a second shaft journaled above the partition, a series of curved

catches progressively increasing in length and arranged on said upper shaft and engaging the holes in the loosely-mounted carriers, a bridged rotating-rod secured on the first-mentioned shaft and upon which drop the levers in operation, means for rotating the lever-carrying shaft, and means for transmitting the down movement of the gas-holder to the upper shaft, substantially as set forth.



700,406. HYDRAULIC DREDGE. GEORGE L. COOPER, New York, N. Y. Original application filed June 3, 1901, Serial No. 62,502. Divided and this application filed Aug. 23, 1902. Serial No. 73,392. (No model.)



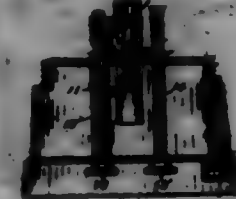
Claim.—1. In a dredge, excavator and elevator, a stand-pipe comprising a head-section, an injector-section, an intermediate section, and a discharge-pipe having an outlet therefrom, and a supplemental tubular section projected above the outlet in the discharge-pipe, substantially as set forth.

2. A dredge, excavator and elevator comprising a stand-pipe, a suitable shaft, two horizontally-located pipes communicating at their lower ends with the stand-pipe and rigidly secured to the stand-pipe at their upper ends, a suitable support and means for adjustingly rotating the stand-pipe to the support comprising guide-bushes through which the stand-pipe are fixed to slide, substantially as set forth.

3. In combination, a dredging, excavating and elevating apparatus

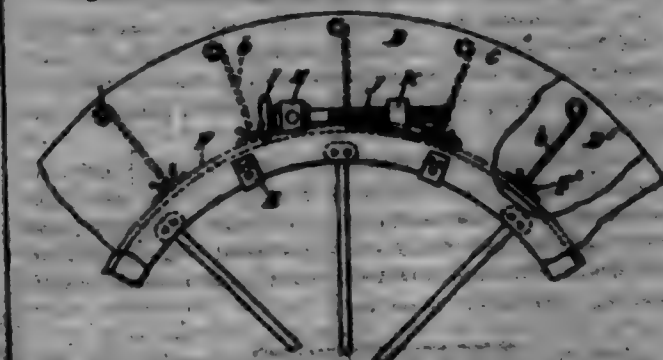
and means for adjusting it comprising a suitable framework, a cross-shaft mounted therein, a sprocket-wheel fixed on the shaft, a counterbalance-weight, a chain passing over the said sprocket and connecting the counterbalance-weight with the apparatus, a large sprocket fixed on said cross-shaft, a small sprocket having an operating crank-handle and a sprocket-chain connecting the last-named two sprockets, substantially as set forth.

700,407. MINER'S SAFETY-LAMP. ARMA H. BARKS and FRANK E. BARKS, Scranton, Pa. Filed July 13, 1902. Serial No. 24,117. (No model.)



Claim.—The herein-described magnetic locking device for miner's lamps consisting in combination with the bowl of said lamp, of a chamber in one side of said bowl, a spring-controlled sliding pin within said chamber, one end of said pin projecting upward and arranged to engage with a recess in the body of the lamp to which the said bowl is to be attached for the purpose of locking it therein, and the other end of said pin provided with a comparatively large-diameter armature lengthened so as to cover both poles of a horseshoe-magnet and slidable within the chamber, the bottom of said chamber provided with a suitable closure, whereby the sliding pin may be drawn downward by the action of an electromagnet when the lamp is placed in close relation to such magnet, for the purpose of disengaging the locking device, and at the same time preventing any physical contact with the armature or pin from without, substantially as specified.

700,408. TIDAL MOTOR. EDWARD W. DUNSTON, Englewood, England. Filed Mar. 10, 1902. Serial No. 97,495. (No model.)



Claim.—1. In a device of the character described, a wheel, rings carried by the wheel and adjustable thereon, and buckets mounted in the wheel and rings.

2. In a device of the character described, a wheel, a ring carried by the wheel and adjustable thereon, and buckets pivoted in the ring and loosely seated on the wheel.

3. In a device of the character described, a wheel, rings adjustable thereon, buckets pivoted in the rings and angle-strips on the periphery of the wheel between which the ends of the buckets are loosely held.

4. In a device of the character described, a wheel having a flat periphery with an annular flange on its inner side, a ring on each side of the periphery, cross-bars connecting the rings and slidably bearing on the flange, buckets pivoted to the rings and loosely seated on the periphery of the wheel, and means for adjusting the rings on the wheel.

5. In a tidal motor, a raft or divided barge, an underfoot wheel mounted thereon, buckets carried by the wheel and means for discharging the water from the bottom of all of the buckets of the wheel.

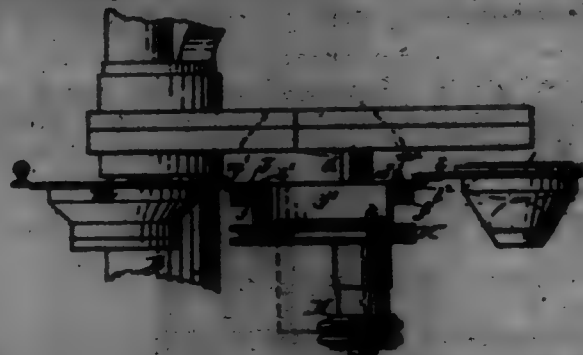
700,409. MICROSCOPE. SAMUEL V. BERNHARD, Buffalo, N. Y., assignor to Spencer Lens Company, Buffalo, N. Y. Filed Sept. 4, 1901. Serial No. 74,885. (No model.)

Claim.—1. In a microscope, the combination with a substage-arm movable toward and from the optical axis of the instrument, of illuminating device pivotedly connected with said substage-arm so as to swing in a plane substantially at right angles to that of the arm, substantially as set forth.

2. In a microscope, the combination with a substage-arm movable toward and from the optical axis of the instrument, of a diaphragm pivotedly connected to said arm, and a condenser pivotedly connected to said arm so as to swing in a plane substantially at right angles to that of the arm, substantially as set forth.

3. In combination, a dredging, excavating and elevating apparatus

3. In a microscope, the combination with a stage, and a substage-arm movable toward and from the optical axis of the instrument and toward and from said stage, of illuminating device pivotally connected to said arm so as to swing in a plane substantially at right angles to that of the arm, substantially as set forth.



4. In a microscope, the combination with a substage-arm movable toward and from the optical axis of the instrument, of a diaphragm carried by said arm, and an illuminating device pivotally connected to said arm so as to swing in a plane substantially at right angles to that of the arm, substantially as set forth.

5. In a microscope, the combination with a substage-arm movable in a horizontal plane toward and from the optical axis of the instrument, of a separate frame secured to said arm, and an illuminating device pivotally connected to said frame, substantially as set forth.

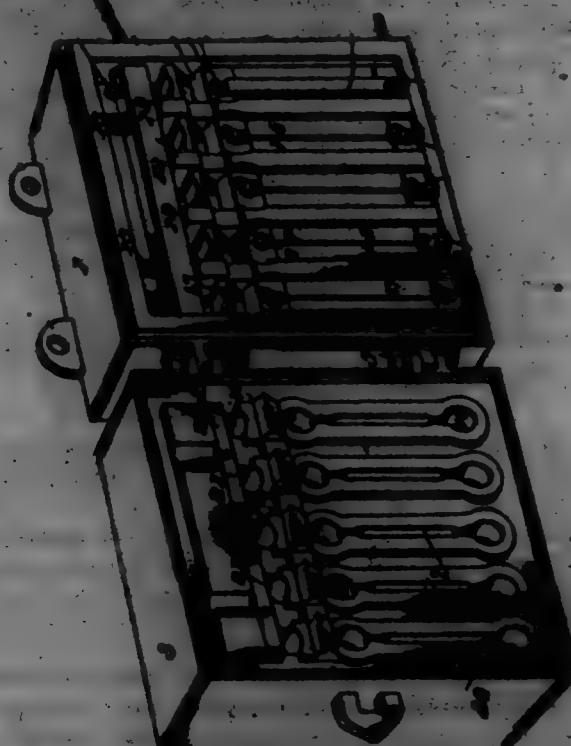
6. In a microscope, the combination with a substage-arm movable toward and from the optical axis of the instrument, of a separate frame secured to said arm, a diaphragm pivotally connected to said frame, and a condenser pivotally connected to said frame, substantially as set forth.

7. In a microscope, the combination with a substage-arm having a ring-shaped part, of a frame supported on said part and having a flange extending down through the opening thereof, a diaphragm secured to said flange, a diaphragm pivotally connected to said frame, and a condenser pivotally connected to said frame, substantially as set forth.

8. In a microscope, the combination with a substage-arm movable toward and from the optical axis of the instrument, of a condenser pivotally connected thereto, and a diaphragm pivotally connected to said arm and adapted to be swung over said condenser concentric therewith, substantially as set forth.

9. In a microscope, the combination of a stage, a substage-arm connected with the stage by a vertical pivot to swing laterally toward and from the optical axis of the instrument, a condenser, and a diaphragm connected to opposite sides of said arm by horizontal pivots to swing in a vertical plane over the arm toward and from a position concentric with the optical axis, substantially as set forth.

700,410. PIPAL-PUMP OUT-OUT. CHARLES J. DORRIS, Salt Lake, Utah. Filed Oct. 12, 1901. Renewed Oct. 14, 1901. Serial No. 71,501. (No model.)



Claim.—1. In an electric cut-out, a series of fins, a bar normally connected to each fin, a second bar adapted to be connected with any

fin at will, a key for effecting said connection, a one provided with a series of lugs, and a series of blocks adjustably positioned for the attachment of the fins, non-conducting fins situated in a direct line between the ends of the fins and said bars, said conductive blocks being provided with grooves to receive the fins, and non-conducting material separating the blocks.

2. In an electric cut-out, a series of fins, a bar normally connected to each fin, a series of fins, means for putting said fins in direct connection, a rib situated in one part and adapted to prevent transportation of metal upon the bearing out of a fin, and a groove corresponding to the rib situated in the other part of the bar, the rib being seated in the groove when the parts are closed.

3. In an electric cut-out, a series of fins, a bar normally connected to each fin, a second bar adapted to be connected with any fin at will, a key for effecting said connection, conductive blocks or parts adjustably positioned for the attachment of the fins, non-conducting fins between the blocks and said bars, and non-conducting elements between said blocks, said elements extending from one of the bars to the other.

4. In an electric cut-out, a series of fins, a bar normally connected to each fin, a second bar adapted to be connected with any fin at will, a key for effecting said connection, conductive blocks or parts adjustably positioned for the attachment of the fins, non-conducting fins between the blocks and said bars, and non-conducting elements between said blocks, said elements extending from one of the bars to the other.

700,411. HAND-SAW. RICHARD F. DOWNEY, Milwaukee, Wis., assignor to the Automatic Portable Sawing Alloy Company, Milwaukee, Wis. Filed Aug. 17, 1901. Serial No. 71,502. (No model.)



Claim.—A hand-saw, provided for the reception of the thumb and finger of the user, in combination with pivoted spring-controlled flaps for closing the same.

700,412. SLITCH. RAY E. FISHER, East Orange, N. J. Filed Sept. 24, 1901. Serial No. 71,503. (No model.)



Claim.—1. The combination with a stationary member, of a carrier movable longitudinally relative to said stationary member, a gripping device carried by said carrier and movable transversely of the line of movement of the carrier, and a part on said stationary member for moving said gripping device transversely, substantially as set forth.

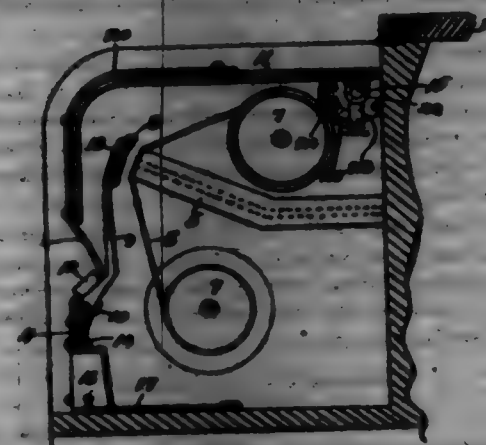
2. The combination with a casing having an inclined face, of a carrier in said casing, a spring for moving the same in one direction, an operating device for moving the same against the action of said spring, and a gripping device carried by said carrier and moved by said inclined face transversely of the line of movement of said carrier, substantially as set forth.

3. The combination with a casing having a hole in one end and an inclined face, of a spring-powered carrier in said casing having a bar or bar in alignment with the hole in the end of the casing, said bar being in contact with said hole, gripping device carried by said bar and working on said inclined face, and an operating part for said carrier, substantially as set forth.

4. The combination with a casing having a hole in one end and a central internal face, of a carrier in said casing having a bar or bar in alignment with the hole in the end of the casing and a part extending with said bar, an operating device for said carrier projecting through an opening in the opposite end of the casing and having a hole aligned with

the bore in the carrier, and a coil-spring surrounding said stem and confined between the carrier and the end of the casing, substantially as set forth.

700,413. SELF-PLAYING INSTRUMENT. BLAISEN E. FISHER, Chicago, Ill., assignor to Fortuna Organ Company, Detroit, Mich., a Corporation of Michigan. Filed Nov. 24, 1901. Serial No. 71,504. (No model.)



Claim.—1. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means adapted to be put in operation while playing automatically and serving to prevent the air from entering the range-passages when they are uncovered by the perforations in the main-chest, substantially as specified.

2. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means operable by hand while playing automatically and serving to prevent the air from entering the range-passages when they are uncovered by the perforations in the main-chest, substantially as specified.

3. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means for controlling different tracker-range openings and adapted to be positioned against the chest and over the tracker-range during the automatic playing, and thus to enclose the air from the range or any portion or portions thereof desired, substantially as specified.

4. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of a series of means adapted to be positioned at will over the tracker-range and each covering and enclosing the air from a plurality of the range-passages, substantially as specified.

5. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means for enclosing the air from the tracker-range passages when uncovered by the perforations of the chest, such means being operable by finger-keys, substantially as specified.

6. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means operable by finger-keys for enclosing the air from the range-passages when uncovered by the chest, and an inner cover for the chest and its rollers, acting also to support said keys, substantially as specified.

7. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means for sealing portions of the tracker-range, and an inner cover 11 by which said means are supported, substantially as specified.

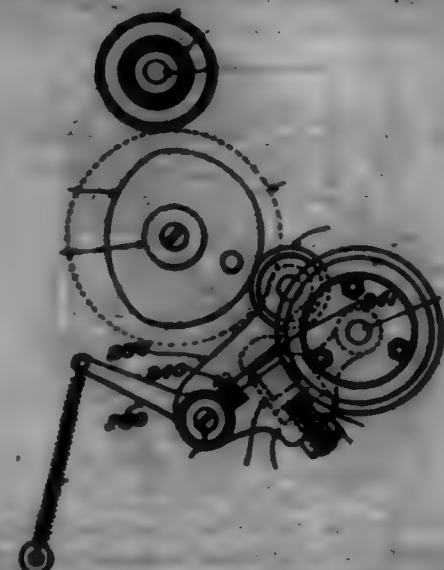
8. The combination with the main-chest and tracker-range of a self-playing instrument or playing attachment, of means for sealing portions of the tracker-range, and a hinged inner cover by which the said means are supported and moved out of the way when changing the chords, substantially as specified.

9. The combination in a self-playing instrument or playing attachment, of a main-chest, main-chest rollers and tracker-range located in a well in the instrument or attachment, an outer cover for closing the well when the instrument or attachment is not being used, an inner cover for the well adapted to support the rollers made by the rollers, and sealing device supported by said cover and acting to seal portions of the range, substantially as specified.

700,414. FRISHER AND BELLS SEVEN FOR FORTY-THREE AND CAMELBACK MACHINES. JAMES FRISHER, Worcester, R. I. Original application filed Jan. 28, 1901. Serial No. 61,699. Divided and this application filed Apr. 1, 1901. Serial No. 71,505. (No model.)

Claim.—1. In combination, the printing-roll, the taking-roll, a carrier for said taking-roll, means to press the taking-roll toward the printing-

roll, a cam rotating in unison with the printing-roll, a movable member intermediate the surface of said cam and said carrier, means to hold said member in continuous contact with the surface of said cam while the taking-roll is in contact with the printing-surface of the printing-roll, and a yielding cushion between said carrier and movable member to relieve the shock when the two come together after being separated, substantially as described.



2. In combination, the printing-roll, the taking-roll, a carrier for said taking-roll, means to press the taking-roll toward the printing-roll, a cam rotating in unison with the printing-roll, a movable member intermediate the surface of said cam and said carrier, a spring interposed between said carrier and said movable member and operating to hold said member in continuous contact with the surface of said cam while the taking-roll is in contact with the printing-surface of the printing-roll, and a yielding cushion between said carrier and movable member to relieve the shock when the two come together after being separated, substantially as described.

3. In combination, the printing-roll, the taking-roll, a carrier for said taking-roll, means to press the taking-roll toward the printing-roll, a cam rotating in unison with the printing-roll, a movable member intermediate the surface of said cam and said carrier, means to hold said member in continuous contact with the surface of said cam while the taking-roll is in contact with the printing-surface of the printing-roll, a yielding cushion between said carrier and movable member to relieve the shock when the two come together after being separated, and means to adjust the said cushion in the plane of movement of the carrier and movable member, substantially as described.

4. In combination, the printing-roll, the taking-roll, a carrier for said taking-roll, means to press the taking-roll toward the printing-roll, a cam rotating in unison with the printing-roll, a movable member intermediate the surface of said cam and said carrier, a spring interposed between said carrier and said movable member and operating to hold said member in continuous contact with the surface of said cam while the taking-roll is in contact with the printing-surface of the printing-roll, a yielding cushion between said carrier and movable member to relieve the shock when the two come together after being separated, and means to adjust the said cushion in the plane of movement of the carrier and movable member, substantially as described.

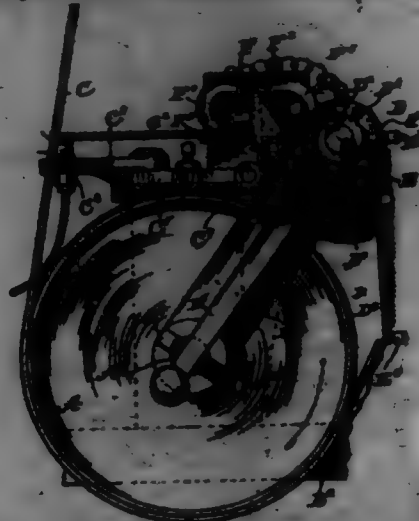
5. In combination, the printing-roll, a cam rotating in unison therewith, the taking-roll, an arm carrying the said taking-roll, an arm operated by the said cam, a yielding cushion between the two arms, and a spring tending to separate the two arms, substantially as described.

6. In combination, the printing-roll, a cam rotating in unison therewith, the taking-roll, an arm carrying the said taking-roll, an arm operated by the said cam, a yielding cushion between the two arms, means to adjust the said cushion in the plane of the two arms, and a spring tending to separate the two arms, substantially as described.

700,415. AUTOMATIC BRAKE AND POWER-SHIFTING MECHANISM. JOHN F. GARR, Kansas, Wis., assignor to the Kansas Manufacturing Company, Kansas, Wis., a Corporation of Wisconsin. Filed Aug. 28, 1901. Serial No. 71,506. (No model.)

Claim.—1. The combination with a shaft and a wheel fixed immovably upon said shaft, of mechanism for applying power to said wheel, mechanism for shifting said two-continued mechanism, and a brake normally held out of engagement with a periphery which is in working relation with said shaft and arranged to operate said shifting mechanism when said brake moves into action, the portion of said brake between its support and said periphery being of increasing thickness, substantially as described.

2. The combination with a shaft and a power-pulley and an idle pulley mounted upon said shaft, of belt-shifting mechanism and brake mechanism normally held out of engagement with said power-pulley, and adapted to actuate said belt-shifting mechanism when said brake mechanism moves into action, the portion of said brake between its support and said periphery being of increasing thickness, substantially as described.



3. The combination with a shaft and a wheel fixed immovably upon said shaft, of mechanism for applying power to said wheel, mechanism for shifting said last-mentioned mechanism, and a brake normally held out of engagement with a periphery which is in working relation with said shaft and arranged to actuate said shifting mechanism when said brake moves into action, and electric mechanism for releasing said brake, substantially as described.

4. The combination with a shaft and a power-pulley and an idle pulley mounted upon said shaft, of belt-shifting mechanism and brake mechanism normally held out of engagement with said power-pulley, and arranged to actuate said belt-shifting mechanism when said brake mechanism moves into action, and electric mechanism for releasing said brake, substantially as described.

5. The combination with a shaft and a wheel fixed immovably upon said shaft, of mechanism for applying power to said wheel, mechanism for shifting said last-mentioned mechanism, and a brake normally held out of engagement with a periphery which is in working relation with said shaft and arranged to actuate said shifting mechanism when said brake moves into action, the portion of said brake between its support and said periphery being of increasing thickness, and means for manually shifting the support of said brake mechanism away from said periphery, when said brake is to be reset, substantially as described.

6. The combination with a shaft and a power-pulley and an idle pulley mounted upon said shaft, of belt-shifting mechanism and brake mechanism normally held out of engagement with said power-pulley, and adapted to actuate said belt-shifting mechanism when said brake mechanism moves into action, the portion of said brake between its support and said periphery being of increasing thickness, and means for manually shifting the support of said brake mechanism for the purpose of releasing and resetting said brake, substantially as described.

7. The combination with a shaft and a wheel fixed immovably upon said shaft, of mechanism for applying power to said wheel, mechanism for shifting said last-mentioned mechanism, and a brake normally held out of engagement with a periphery which is in working relation with said shaft and adapted to actuate said shifting mechanism when said brake moves into action, and electric mechanism for releasing said brake, and means for manually shifting the support of said brake mechanism away from said periphery, when said brake is to be reset, substantially as described.

8. The combination with a shaft and a power-pulley and an idle pulley mounted upon said shaft, of belt-shifting mechanism and brake mechanism normally held out of engagement with said power-pulley, and arranged to actuate said belt-shifting mechanism when said brake mechanism moves into action, and electric mechanism for releasing said brake, and means for manually shifting the support of said brake mechanism for the purpose of releasing and resetting said brake, substantially as described.

9. The combination with a wheel or pulley, A, of an eccentric brake, a relatively fixed shaft supporting said brake, a spring tending to move said brake into action, an armature making reliable engagement with said brake for holding the latter out of action against the force of said spring, and electromagnets for shifting said armature, and a belt-shifter located in suitable relation to said brake to be actuated when the latter moves into action, substantially as described.

10. The combination with a shaft, A², and a fixed and a loose pulley located thereon, of a belt-shifting mechanism comprising a belt-crank,

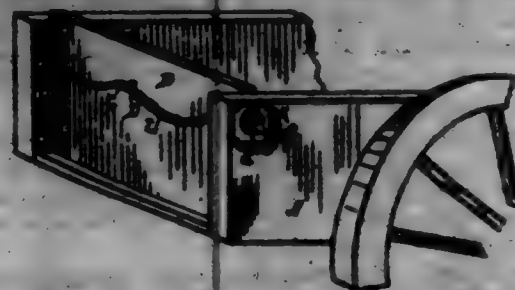
and a brake having a shoe held normally out of engagement with said power-pulley and placed in suitable relation with one arm of said belt-crank to actuate the latter when said brake-shoe is moved into action, substantially as described.

11. The combination with power-shifting mechanism and brake mechanism arranged in suitable relation to each other, of electric mechanism for controlling said brake mechanism, and an automatic switch for reversing the condition of said electric mechanism, when said shifting mechanism and said brake mechanism have been actuated, substantially as described.

12. The combination with power-shifting mechanism and brake mechanism arranged in suitable relation to each other, of electric mechanism for controlling said brake mechanism, and an automatic switch for breaking the circuit upon which said electric mechanism is located, after said power-shifting mechanism and said brake mechanism have been actuated, substantially as described.

13. The combination with the belt-shifting mechanism comprising the yoke, U, bar, O, and links, O', of a brake, a suitable connection between said brake and said bar, and electric mechanism for controlling said brake, and an electric switch suitably coupled to said belt-shifting mechanism, substantially as described.

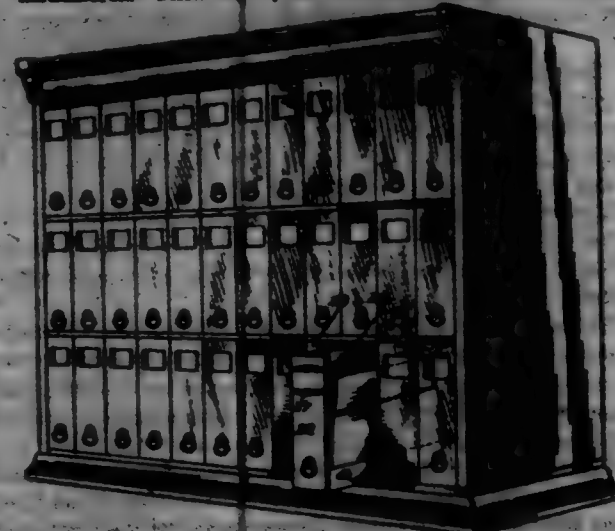
700,416. TAIL-BOARD FASTENING FOR WAGONS. JOHN R. GRABER, Dubuque, Iowa, assignor of one-half to James G. Allyn, Dubuque, Iowa. Filed Mar. 7, 1902. Serial No. 97,141. (No model.)



Claim.—1. The combination of a wagon-box, tail-board, a chain fastened to the center of said tail-board and provided with over-throwers upon its outer ends, a casing attached to the wagon-box, and a bar within the casing adapted to engage the ends of the chain, for the purpose shown.

2. The combination of a wagon-box, tail-board, a chain fastened to the center of the tail-board and provided on each end with an eyebolt, a casing attached to the wagon-box and formed of the plates I and K and a bar G set within the casing and adapted to engage the eyebolt upon the chain, for the purpose shown.

700,417. LETTER-FILE AND CARRIER. WALLACE S. GRABER, Kirkland, Ill. Filed Oct. 24, 1901. Serial No. 79,606. (No model.)



Claim.—1. The file and cabinet consisting of the cabinet provided with horizontal partitions or strips having depending flaps or guards on the under side thereof, said flaps or guards set back from the outer edges of the horizontal portions, and a number of files each formed with one open side and arranged so that the closed side of one file shall be the open side of the adjoining file, each file having its front end wall extended above its side wall and formed with a shoulder below its top edge so as to have the extended portion bear against the face of the depending flaps or guards and the shoulder to lie below the under side of the depending flaps, substantially as described.

2. A cabinet paper-file having one open side with its front end wall extended above the closed side of the file, means for holding the contents

of the file in place, and a cross-strip extending across the open side of the lower end of the file, the top edge of said strip being below the middle portion of the file, substantially as described.

3. A cabinet paper-file having one open side with a cross piece or strip across its lower portion and a front and a rear wall and open top, its front and rear walls being extended above the closed side of the file, and a frictionally-held swinging clasp or clamp for holding the contents of the file in place, said clasp adapted to be swung over to the rear of the closed side of said file to form a support therefor, substantially as described.

4. A cabinet paper-file having one open side and provided with a swinging resilient clasp or clamp of greater width than the space between the end walls of the file whereby it is adapted to be held in clamping position by frictional contact with a part of the file, said clasp being pivotally secured to the file near its upper portion to adapt it to be swung to the rear of the closed side of the file to constitute a support for holding the file in an inclined position, substantially as described.

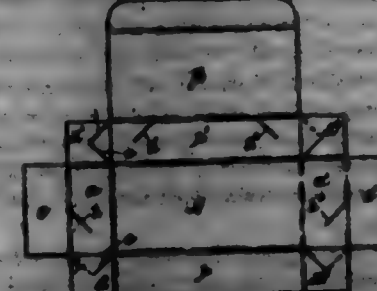
5. A cabinet paper-file having one open side and front and rear end walls, the rear end wall having an inclined cut-away portion, and a swinging resilient clasp or clamp adapted to be held in clamping position by frictional contact with a part of the file, a part of said clasp lying adjacent to the inclined cut-away portion of the rear end wall of the file, whereby the finger may be inserted between said part of the clasp and the cut-away portion of the end wall for the purpose of releasing the clasp substantially as described.

6. A cabinet paper-file having one open side and having the upper portion of the closed side slanted, in combination with a swinging clasp or clamp having its side extended at an angle to its ends so as to adapt its ends to lie in the slanted portions of the closed side when the clasp or clamp is swung to the rear of the closed side with the side of the clasp in position to support the file in an inclined position, substantially as described.

7. A cabinet paper-file having an open and a closed side, and means for bearing against the contents of the file to hold them in place, said means being adapted to be swung over to the rear of said closed side to form a support for the file, substantially as described.

8. A cabinet paper-file having one open and a closed side, and a swinging clasp or clamp adapted to be swung over to the rear of the closed side to form a support for the file, said clasp having its side extended at an angle to its ends, and the ends forming a rest for the file when the clasp is swung over to the rear of the closed side of said file, substantially as described.

700,418. PAPER BOX. WALTER S. HAM, Dayton, Ohio. Filed Dec. 18, 1901. Serial No. 65,364. (No model.)



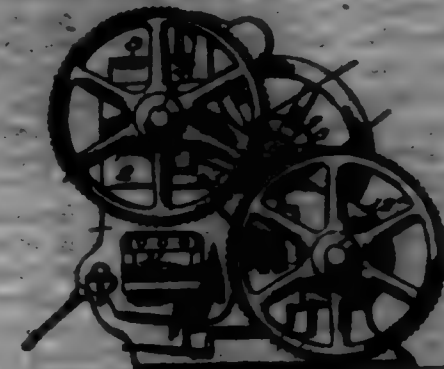
Claim.—1. In a paper box, a corner-lock consisting of slats formed in the sides thereof, a substantially rectangular-shaped locking-flap at each corner intermediate the sides, each flap being diagonally slatted and secured so as to be folded upon itself, threaded through its respective slit in the side and unfolded in the inside of the box, against the bottom and into the corner of the box, forming a combined corner lock and brace, substantially as specified.

2. In a paper box, a corner-lock consisting of slats formed in the sides thereof, a substantially rectangular-shaped locking-flap at each corner intermediate the sides, each flap having a diagonal slit at its inner corner, and a secured line formed on said flap whereby the flap can be doubled upon itself, threaded through its respective slit in the side and unfolded in the inside of the box against the bottom and into the corner of the box, forming a combined corner lock and brace, substantially as specified.

3. In a paper box, a corner-lock consisting of slats formed in the sides thereof, a substantially rectangular-shaped locking-flap at each corner intermediate the sides, each flap being provided with a slit extending through its inner corner toward the middle of the flap and a secured line extending from the end of the slit obliquely toward an adjacent corner of the flap, whereby the secured end of the flap can be folded outwardly upon itself and threaded through its respective slit in the side and unfolded in the inside of the box against the bottom and into the corner of the box, forming a combined corner lock and brace, substantially as specified.

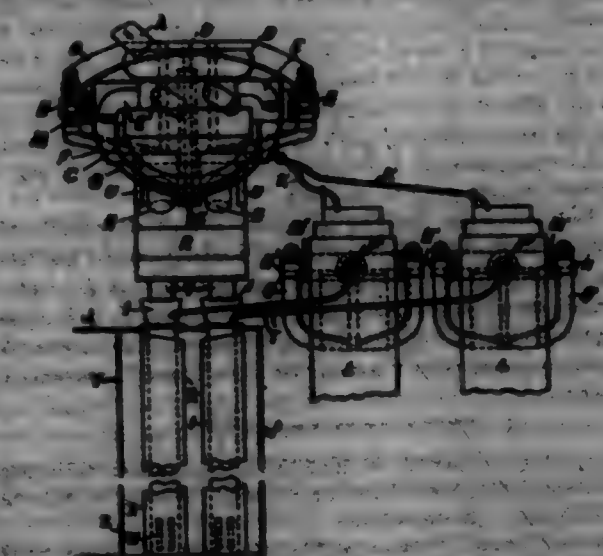
4. In a paper box a corner-lock consisting of slats formed in the sides thereof, a substantially rectangular-shaped locking-flap intermediate the slatted sides, each flap having a slit and a secured line converging inwardly from the base of the locking-flap and terminating at a point of intersection in the middle portion of the flap, whereby the slatted portion of the flap may be folded upon the body of the flap along said secured line, the doubled flap threaded through its adjacent side slit and unfolded upon the interior of the box, forming a corner-lock, substantially as specified.

700,419. ORIENTED SHAP-RENTAL CUTTING, COPIING, AND UPSETTING MACHINES. DAVID HARRISON, Canton, Ohio. Filed Aug. 2, 1902. Serial No. 87,966. (No model.)



Claim.—The combination of a frame provided with a shaft, having located therein a reciprocating plunger, a sliding head connected to the plunger, a plunger connected to the sliding head, the parallel shafts 5 and 13¹ having mounted on said shaft wheels 6 and 12, clutch mechanism for throwing the shafts in and out of gear and means for imparting reciprocating motion to the plunger and to the sliding head, substantially as and for the purpose specified.

700,420. APPARATUS FOR PURIFYING WATER. ARTHUR HANER, London, England. Filed Nov. 14, 1901. Serial No. 62,671. (No model.)



Claim.—1. In a water purifying or treating system the combination with solution-making vessels, and vessels for dividing and distributing the crude water of glass-like for freely expanding and maintaining the solution-making vessels at all times in a horizontal position, substantially as described.

2. In a water purifying or treating system, the combination with the vessels for dividing and distributing the crude water, and for making and delivering the treating agents, of glass-like supporting and maintaining the dividing and distributing vessels at all times in a horizontal position when their supports are subjected to movement, substantially as described.

3. In a water purifying or treating system, the combination with the vessels for dividing and distributing the crude water, and for making and delivering the treating solutions, of glass-like for freely expanding and maintaining these vessels in a horizontal position when their supports are subjected to movement, and flexible means to convey the water to and from the respective vessels or devices and to afford the necessary play to the same, substantially as described.

4. In a water purifying or treating system, the combination with the vessels for dividing and distributing the crude water, and for making and delivering the treating solutions, of glass-like for freely expanding and maintaining these vessels in a horizontal position when their supports are

subjected to movement, and a wide-mouthed hopper or funnel shaped receiving device adapted to receive and deliver the liquid from the distributing vessel to where required and to afford the necessary play thereto, substantially as described.

5. In a water purifying or treating system, the combination with a vessel for dividing and distributing the crude water, of glands for freely suspending and maintaining the same in a horizontal position when their support is subjected to movement, a stationary receiving vessel, and means for receiving and delivering the divided streams to the stationary vessel and adapted to afford the necessary play to the distributing vessel, substantially as described.

6. In an apparatus for the treatment or purification of water, the combination with a support subject to movement, of receiving vessels for the crude water and solution, rigidly secured to said support, solution-making vessels, distributing devices for receiving crude water and subdividing the same, glands for normally maintaining the distributing devices and solution-making vessels in a horizontal position, pipes connecting the distributing devices with the solution making and receiving vessels respectively, and pipes connecting the solution-making vessels with the receiving vessels, substantially as described.

7. In a feed-water purifying or treating system, the combination with a vessel for dividing and distributing the crude water, of means for freely suspending and maintaining the same in a horizontal position when subjected to movement, and a hopper or funnel-shaped receiver adapted to receive and deliver the divided streams to where required, and to afford the necessary play to the distributing vessel, said receiver being partitioned into compartments for the separate streams, substantially as described.

8. In a feed-water purifying or treating system, the combination with a bowl-shaped tank, a trough surrounding it divided into compartments, and a rotatable distributor for delivering the water to the several subdivisions of the tank, of delivery-pipes on the under part of the tank connected with the respective divisions of the tank, glands for freely suspending and maintaining the distributor in a horizontal position when subjected to movement, and means for receiving and delivering the divided streams to where required and adapted to afford the necessary play to the distributor, substantially as described.

9. In a feed-water purifying or treating system, the combination with the treatment-tank, of a vessel for dividing or distributing the crude water, solution-making apparatus, means for freely suspending and maintaining said distributing and solution-making apparatus in a horizontal position when subjected to movement, flexible pipes adapted to take a fraction of the water from the distributing to the solution-making apparatus, and from the latter to the treatment-tank, and means for receiving and delivering the larger remaining portion of the water from the distributing vessel to the treatment-tank, and adapted to afford the necessary play to said distributor, substantially as described.

10. In a feed-water purifying or treating system, the combination of treatment-tank Y having internal partition Y' making tubes I and tubes X, means for dividing or distributing the crude water, and for making and delivering the treating materials or solutions, glands H, I, K, P, adapted to support and maintain said vessels in a horizontal position when subjected to movement, receiver R, and flexible pipes K and T, substantially as described.

700,491. PROCESS OF MANUFACTURING FEAT HERRING.
HERZ HERRING, Washburn-Buckley, Germany. Filed Dec. 2, 1901. Serial No. 56380. (No specimens.)

Claim.—A process of manufacturing post supports for fuel, which consists in incorporating salt of lime and acid of tungsten with post while the latter is in its molten state, pressing and molding the compound into briquets, substantially as described.

700,492. METHOD OF MANUFACTURING FOR RAILWAY-CARS.
JAMES J. HANCOCK and FREDERICK H. HANCOCK, Milwaukee, Wis., assignors, by direct and mesne assignments, to the HANCOCK and WILLIAM H. HANCOCK, Chicago, Ill. Filed Mar. 13, 1902. Serial No. 57,380. (No model.)

Claim.—1. In a railway draft-rigging, the combination of the draft-bar or center sill, of side plates or stop-ends fitting between and secured thereto, a draw-bar having an extension or draft-iron in line therewith fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar in frictional sliding engagement with one of the horizontal sides of said draw-bar extension or draft-iron, double-leaf friction-plates on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, substantially as specified.

2. In a railway draft-rigging, the combination with the draft-bar or center sill, of side plates or stop-ends fitting between and secured thereto, a draw-bar having an extension or draft-iron in line therewith and fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar and in frictional sliding engagement with one of the sides of said draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, substantially as specified.

3. In a railway draft-rigging, the combination with the draft-bar or center sill, of side plates or stop-ends fitting between and secured thereto, a draw-bar and a draft-iron in line therewith and fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar and in frictional sliding engagement with one of the sides of said draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, substantially as specified.

4. In a railway draft-rigging, the combination of a draw-bar with a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, substantially as specified.

5. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, substantially as specified.

6. In a railway draft-rigging, the combination with a draw-bar of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, substantially as specified.



iron against said stationary friction surface or plate, the double-leaf friction-plates on the draft-iron being a snug fit and on the other a loose fit with the double-leaf friction-plates on the draft-iron so that one of the springs may be partially compressed before the other comes into action in both pulling and pushing, substantially as specified.

7. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of said draft-iron, a plurality of double-leaf friction-plates on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, the double-leaf friction-plates of and for one of said blocks being of a less angle than the double-leaf friction-plates of and for the other friction-block, substantially as specified.

8. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of said draft-iron, a plurality of double-leaf friction-plates on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, one of said friction-blocks coming into action after the spring of the other is partially compressed and the double-leaf friction-plates of the block coming last into action, being of a greater angle than those of the other friction-block, substantially as specified.

9. In a railway draft-rigging, the combination with a frame or casting fitting between and secured to the draft-bar and center sill of a car and having thereon a stationary friction surface or plate, of a draw-bar, a draft-iron in line with the draw-bar and having one of its sides in frictional sliding engagement with said friction surface or plate on said frame or casting and having on its opposite side double-leaf friction-plates, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing the draft-iron against said stationary friction surface or plate on the frame, said spring, friction-block, draft-iron and stationary friction surface or plate being all directly behind the draw-bar and in the line of draft, substantially as specified.

10. In a railway draft-rigging, the combination with a frame having thereon a horizontal friction surface or plate of a draw-bar, a draft-iron in line with the draw-bar and having its lower side in frictional sliding engagement with said stationary friction surface or plate on the frame and provided on its opposite side with a pair of double-leaf friction-plates, a pair of transversely-movable friction-blocks having corresponding double-leaf friction-plates and vertically-arranged springs acting against said friction-blocks and centrally pressing the draft-iron against said stationary friction surface or plate on the frame, said springs, friction-blocks, draft-iron and stationary friction surface or plate being all directly behind the draw-bar in the line of draft, substantially as specified.

11. In a railway draft-rigging, the combination with a draft-iron in line with the draw-bar and having a straight friction-plate on its lower side, and double-leaf friction-plates on its upper side, a stationary straight friction-plate supporting the draft-iron and in frictional sliding engagement therewith, a transversely-movable friction-block having double-leaf friction-plates in engagement with said friction-plate on the draft-iron, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, said draft-iron, friction-plate, friction-block and spring being all directly behind the draw-bar and in the line of draft and adapted to be mounted between the draft-bar and center sill of the car, substantially as specified.

12. In a railway draft-rigging, the combination of the draft-bar and center sill, of side plates or stop-ends fitting between and secured thereto, a draw-bar having an extension or draft-iron in line therewith fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar in frictional sliding engagement with one of the horizontal sides of said draw-bar extension or draft-iron, double-leaf friction-plates on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, said stationary friction-plate being removably secured to the side plate or stop-ends and having extension or projections at its ends engaging corresponding notches or projections on the stop-ends, substantially as specified.

13. In a railway draft-rigging, the combination of the draft-bar and center sill, of side plates or stop-ends fitting between and secured

thereto, a draw-bar having an extension or draft-iron in line therewith fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar in frictional sliding engagement with one of the horizontal sides of said draw-bar extension or draft-iron, double-leaf friction-plates on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, said side plates or stop-ends having guide-ways in which said friction-block reciprocates transversely to the draft-iron, substantially as specified.

14. In a railway draft-rigging, the combination with the draft-bar and center sill, of side plates or stop-ends fitting between and secured thereto, a draw-bar and a draft-iron in line therewith and fitting between said side plates or stop-ends, a stationary friction-plate in line with the draw-bar and in frictional sliding engagement with one of the sides of said draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, said friction-blocks being independently movable and the side plates or stop-ends having a separate guide-way for each of said blocks, substantially as specified.

15. In a railway draft-rigging, the combination of a draw-bar with a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, said stationary friction-plate being removably secured to the side plate or stop-ends and having shoulders or steps engaging corresponding shoulders or steps on the side plates or stop-ends, substantially as specified.

16. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, said friction-blocks each having a rectangular base fitting corresponding guide-ways in the side plates or stop-ends, substantially as specified.

17. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, said friction-blocks each having a rectangular base fitting corresponding guide-ways in the side plates or stop-ends, and provided with a dovetail slot to receive the spring, substantially as specified.

18. In a railway draft-rigging, the combination with a draw-bar, of a draft-iron in line therewith, a stationary friction surface or plate in line with the draw-bar and in frictional sliding engagement with one of the sides of the draft-iron, a plurality of double-leaf friction-plates on the opposite side of the draft-iron from said stationary friction-plate, a transversely-movable friction-block having corresponding double-leaf friction-plates, and a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction surface or plate, said friction-blocks each having a rectangular base fitting corresponding guide-ways in the side plates or stop-ends and said stationary friction-plate being removably secured to the side plate or stop-ends, and having shoulders or steps engaging corresponding shoulders or steps on the side plates or stop-ends, substantially as specified.

700,493. MOTOR ENGINE. JAMES S. HANCOCK, Milwaukee, Wis., assignor of one-half to C. A. HANCOCK, Washburn, Iowa. Filed Nov. 20, 1901. Serial No. 54,661. (No model.)

Claim.—A rotary engine comprising a cylinder rigidly mounted; a

chance to said input-chamber and means of leading steam from past-chamber to said expansion-chamber substantially as specified.



700,424. PUMPS-ENGINE. EDWARD VAN BORN, New York, N. Y.
Filed Jan. 9, 1901. Serial No. 61,957. (No model.)



Claim.—1. In a sliding-valve, the combination with the handle and the spool, of a frictional connection between the handle and the spool, comprising a shaft having a loose gear mounted thereon and friction-disk carried by the shaft to engage each side of said gear, and means for interengaging the loose gear with the spool.

2. In a sliding-valve, the combination with the spool having a gear, of a shaft carrying friction-disk, a gear loose upon the shaft between the friction-disk, and means with the spool-gear, whereby both faces of the loose gear serve to locking contact.

3. In a sliding-valve, the combination with the spool and the handle, of a hollow shaft carrying friction-disk and a loose gear between the disk, means for axially adjusting one of said friction-disk, and means for interengaging the loose gear with said spool.

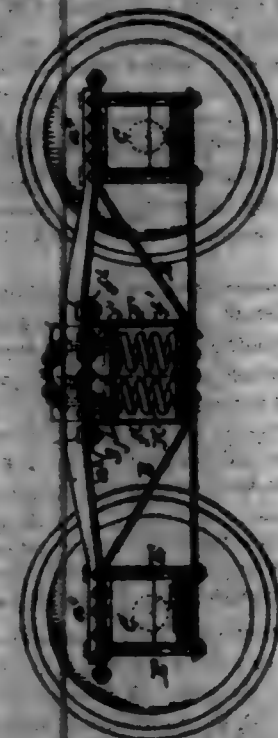
4. In a sliding-valve, the combination of a pivot having a tubular shaft mounted thereon, said shaft carrying a fixed friction-disk, a longitudinally-movable friction-disk and a loose gear between the friction-disk to be engaged thereby, a nut upon the hub of the movable disk to adjust the same, a handle on the shaft for rotating the same, a spool, and means for interengaging the loose gear with the spool.

700,425. CAR-TRUCK. HENRY E. KUTNER, Buffalo, N. Y.
Filed Nov. 27, 1901. Serial No. 61,957. (No model.)

Claim.—1. A side frame for diamond car-trucks having a lower arch-bar, and an upper arch-bar formed from a single piece of metal, and composed of a longitudinal top plate and vertical webs extending downwardly from the edges of said plate and provided at their lower edges with outwardly-extending flanges which are riveted to the end portions of the lower arch-bar, substantially as set forth.

2. A side frame for diamond car-trucks having a lower arch-bar, and an upper arch-bar formed from a single piece of metal, and composed of a longitudinal top plate and vertical webs extending downwardly from the edges of said plate and provided at their lower edges with outwardly-extending flanges which extend around the ends of the bar and which are riveted to the end portions of the lower arch-bar, substantially as set forth.

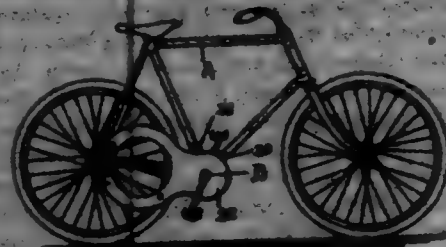
bar, substantially as set forth.



4. The combination with the side frame of a car-truck each having an upper arch-bar or compression member formed from a single piece of metal and composed of a longitudinal top plate and vertical webs extending downwardly from the edges of said plate and provided at their lower edges with outwardly-extending flanges, of a transverse member of a bottom plate, parallel webs extending upwardly from the edges of said plate and formed integral therewith and provided at their upper edges with outwardly-extending flanges, substantially as set forth.

5. The combination with the side frame of a car-truck each having an upper arch-bar or compression member formed from a single piece of metal and composed of a longitudinal top plate and vertical webs extending downwardly from the edges of said plate and provided at their lower edges with outwardly-extending flanges, of a transverse member of a bottom plate, parallel webs extending upwardly from the edges of said plate and formed integral therewith and provided at their upper edges with outwardly-extending flanges, said plates which are bolted or riveted to the flanges of the transverse webs and to the flanges of said upper arch-bar, substantially as set forth.

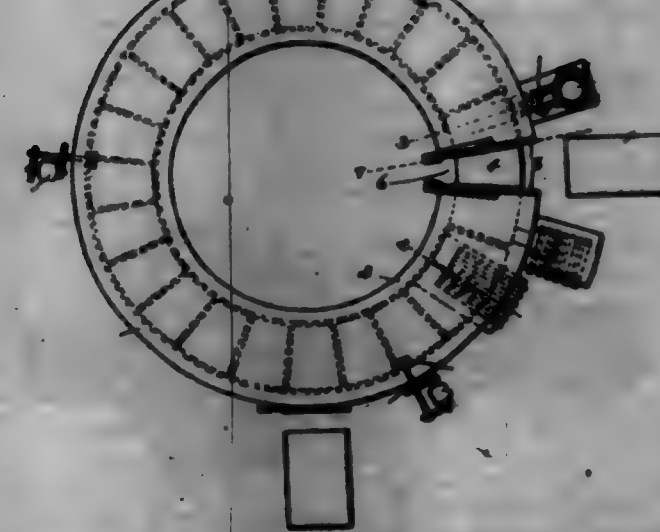
700,426. BICYCLE. IRVING W. KUTNER, Worcester, Mass.
Filed Oct. 14, 1901. Serial No. 61,957. (No model.)



Claim.—1. In a bicycle, the combination of a crank-shaft gear, a rear-wheel gear, an intermediate rim-gear connecting the crank-shaft gear and rear-wheel gear, and gears having their working faces grooved to receive a supporting-ring, which supporting-ring includes the intermediate gear, substantially as described.

2. In a bicycle, the combination of a grooved crank-shaft gear 10, a grooved rear-wheel gear 11, a supporting-ring 15 engaging said grooves, a rim-gear 20 journaled on a single set of bearing-balls 19 inside of the supporting-ring 15, and an open-centered casing 12 including said gear, substantially as described.

3. In a bicycle, the combination of a grooved crank-shaft gear 10, a grooved rear-wheel gear 11, a supporting-ring 15 engaging the grooves in said gears, a rim-gear 20 journaled on a single set of bearing-balls 19 inside of the supporting-ring 15, means for adjusting said supporting-ring 15 to take up wear, and an open-centered casing 12 including said gear, substantially as described.



Claim.—1. An improved bar comprising a tunnel having inlet and discharge openings, plate-carrying means within the tunnel, a flue beneath the tunnel-floor, a stack communicating with the tunnel and flue, and means for supplying heat to the tunnel and flue, substantially as shown and described.

2. An improved bar comprising a tunnel having inlet and discharge openings, plate-carrying means within the tunnel, a flue beneath the tunnel-floor, means adjacent the tunnel-inlet opening for supplying heat to the tunnel and flue, and a stack adjacent the tunnel-outlet opening having separate connections with the flue and tunnel, substantially as shown and described.

3. An improved bar comprising a circular tunnel having a transverse opening or interruption forming a discharging-space, the tunnel being provided with an inlet-opening and with heating means, an endless plate-carrier movable in the tunnel and traversing the said discharging-space, mechanism for actuating the conveyor, and means for closing the tunnel at opposite ends of the discharging-space with a portion of the conveyor in said space, substantially as shown and described.

4. An improved bar comprising a circular tunnel having a transverse opening or interruption forming a discharging-space, the tunnel being provided with an inlet-opening and with heating means, an endless series of plate-carriers movable in the tunnel, means for actuating the carrier, the length of the said tunnel-discharging space being the same as the length of any one of the carriers, and doors movable between the carriers for closing the tunnel at opposite ends of the discharging-space, substantially as shown and described.

5. An improved bar comprising a circular tunnel having a transverse opening or interruption forming a discharging-space, the tunnel being provided with an inlet-opening and with heating means, an endless series of plate-carriers movable in the tunnel, means for actuating the carrier, and means for closing the tunnel at opposite ends of the discharging-space with the discharging-carrier intermediate the closing means, substantially as shown and described.

6. An improved bar comprising a circular tunnel having an inlet-opening, an endless series of segmental-shaped plate-carriers movable in the tunnel, means for actuating the carrier, means for heating the tunnel, the tunnel being formed with a vertical opening or interruption corresponding in outline to any one of the carriers, and doors movable between the carriers for closing the tunnel at opposite ends of the said discharging-opening, substantially as shown and described.

7. An improved bar comprising a circular tunnel formed with an inlet-opening, an endless series of segmental-shaped carriers movable in the tunnel, means for actuating the carrier, the tunnel being formed with a transverse segmental-shaped opening or interruption corresponding in size to any one of the carriers, doors at opposite ends of said opening for closing the tunnel with a carrier positioned within said space for discharging, a horizontal flue beneath the tunnel-floor having its inlet and between the tunnel inlet and outlet openings, a stack adjacent the tunnel-outlet with which the tunnel and flue communicate, and means for supplying heat to the flue and tunnel, substantially as shown and described.

700,428. GLASS-DELIVERING APPARATUS. WASHINGTON B. KITE, Harrisville, Pa. Filed Sept. 4, 1901. Serial No. 74,265. (No model.)



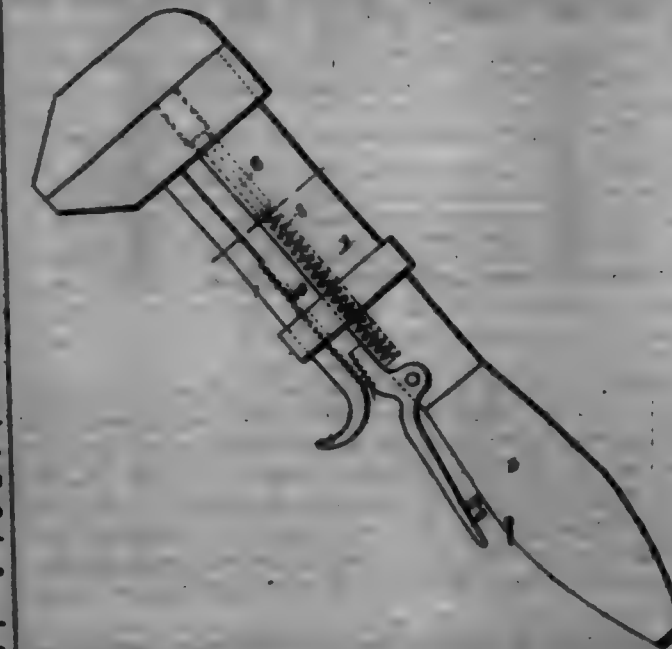
2. The combination of a glass-furnace constructed with a plurality of ports, connected tracks leading to said ports, and a plurality of glass-removing devices movable on the tracks and common to all of said ports.

3. The combination of a glass-furnace constructed with a plurality of ports, a track leading from each of said ports, a single track operatively connected to each of said first-mentioned tracks, and a plurality of glass-removing devices common to all of said tracks and furnace-ports.

4. The combination of a glass-furnace constructed with a delivery-port and auxiliary ports, the latter being at opposite sides of the delivery-port, a plurality of ladling devices, ladle-conveying means, a main track-way for the latter extending from the delivery-port, and auxiliary ways extending from the main track-way to each of the auxiliary ports.

5. The combination of a furnace constructed with a delivery-port and an auxiliary port at each side of the delivery-port, a main overhead track extending from the delivery-port, a track extending from each of the auxiliary ports and communicating with the main track, trolley-carriages movable interchangeably over said tracks, and a ladling device carried by each carriage.

700,429. WRENCH. HENRY KITE and EDWARD J. LINDBERG, Harrisburg, Pa., assignors of one-third to Franklin P. Booth, Pittsburgh, Pa. Filed Sept. 20, 1901. Serial No. 77,912. (No model.)



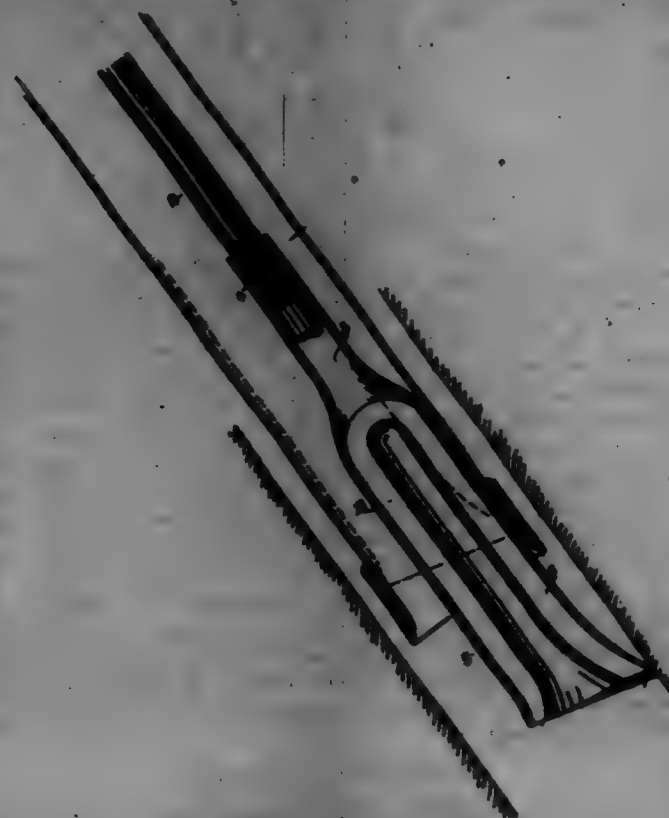
Claim.—1. A wrench consisting of the shank, the rigid jaw on the shank, the sliding jaw on the shank, the vertical spring-pin connected to the sliding jaw and arranged in the shank, the stem or arm depending from the sliding jaw and provided with teeth, the guiding-strip, and the grasping-lever fulcrumed to the shank and having teeth on its upper end to engage the teeth on the depending shank.

2. In a wrench, the combination of the shank carrying the rigid jaw, the sliding jaw mounted on the said shank, the stem or arm depending from the sliding jaw having teeth on its inner face, the lever fulcrumed to the shank and having a grasping lower portion and teeth on the upper portion to engage the teeth of the said shank.

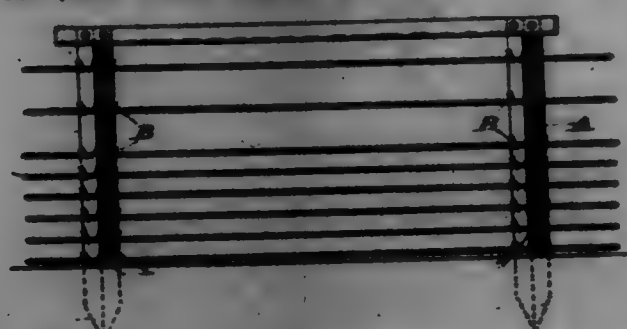
700,430. COMBINATION KEY AND READER. GEORGE A. LANE, LaGrange, Cal., assignor of one-half to Joseph F. Martin, LaGrange, Cal. Filed Sept. 20, 1901. Serial No. 77,129. (No model.)

Claim.—A drill consisting of a body portion having its lower end inclined to relation to the axis of said body, the rear portion of said end surface being plane to form an inclined flat heel, and the forward or toe portion of this same inclined lower surface of the drill having oppositely-

beveled surfaces forming a cutting edge, and tapered grooves upon the sides of said drill, said grooves being widest and deepest at the lower end of the drill, and said beveled lower surface extending from the edge of the long side of the drill to a point between and rearward of the center of the grooves, substantially as herein described.



700,481. FENCE-POST. CHARLES LEAM, Kingston, Ark. Filed Dec. 4, 1901. Serial No. 94,678. (No model.)



Claim.—1. In a fence the combination of a triangular post driven into the ground, having holes drilled through near its top in pairs on lines parallel to lines marking the altitude of the triangle from each side thereof, each pair of holes being drilled on a different plane from the other pairs of holes, bars formed integral with each edge of the post adapted to be clamped over the line-wires of the fence, and a board fastened to one edge of the post by means of wire nails passing through said board and holes drilled through the top of said post, substantially as shown and described.

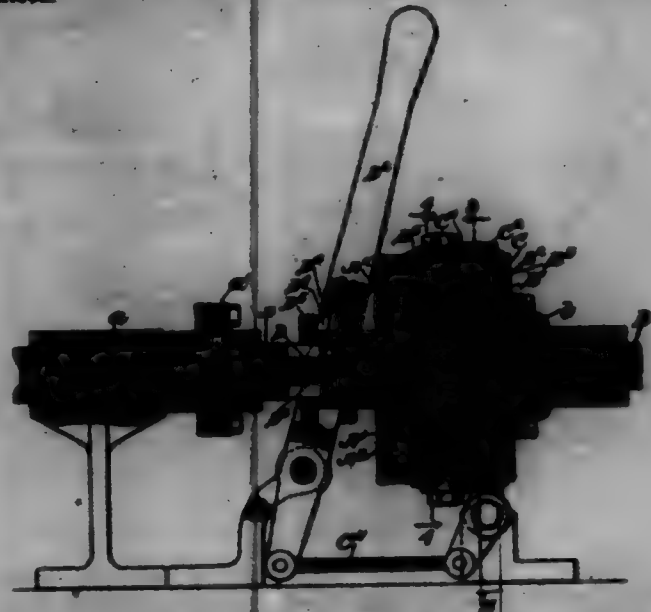
2. In a fence, the combination of a post, triangular in cross-section, driven into the ground and having holes drilled through near its top in pairs on lines perpendicular to the opposite side of said post, each pair of holes being drilled on a different plane from the other pairs of holes, bars formed integral with each edge of the post to be alternately used to clamp the line-wires of the fence, said bars being closer together near the base of the post, and a board fastened to one edge of the post by means of wire nails passing through said board and said holes drilled near the top, said nails being clamped against said post, substantially as shown and described.

700,482. REVERSING MECHANISM. JAMES LAMONT, Quincy, Mass., assignor of one-half to Helen M. Fry, Boston, Mass. Filed Feb. 13, 1902. Serial No. 95,597. (No model.)

Claim.—1. In a reversing mechanism the combination of two bevel-gears, a clutch arranged between said gears for directly connecting the same, a support, one or more intermediate gears engaging said bevel-gears carried by said support, means for engaging and disengaging said clutch, and means for holding and releasing said support, substantially as described.

2. In a reversing mechanism the combination of a hollow shaft, a

bevel-gear secured thereto, a second bevel-gear, a clutch between said gears for directly connecting the same, a rod mounted in said shaft for operating the clutch, a support mounted to rotate with said gear, one or more intermediate gears engaging said bevel-gears carried by said support, and means for holding said support stationary, substantially as described.



3. In a reversing mechanism the combination of a hollow shaft, a second shaft, mechanism for driving one shaft from the other but in a reverse direction, clutch-shoes secured to the hollow shaft, a clutch-shoe surrounding said shaft and connected to said second shaft, a lever for operating said shaft, a rod mounted in said hollow shaft, and a cam for operating said lever carried by said rod, substantially as described.

4. In a reversing mechanism the combination of two bevel-gears, a cylindrical clutch-shoe secured to one gear, clutch-shoes secured to the other gear, a drum surrounding said gears, an intermediate gear engaging said gears carried by said drum, an adjustable cam within said clutch-shoes for operating the same, one of said clutches having an opening in line with said cam, and said above and drum having openings arranged to be brought into alignment with said cam, substantially as described.

5. In a reversing mechanism the combination of gears A¹, B¹, a clutch-shoe B² secured to gear B¹, a split sleeve A² secured to gear A¹, means for expanding the split sleeve A², a support D¹, intermediate gear C carried thereby, and means for holding said support stationary, substantially as described.

6. In a reversing mechanism the combination of disks A¹, B¹, gears A², B² secured thereto, clutch-shoes A³, B³, means for expanding sleeve A³, drum C, gear C, carried thereby, and means for holding drum C stationary, substantially as described.

7. In a reversing mechanism, the combination of gears A¹, B¹, a support C¹, intermediate gear C carried thereby, clutch-shoe B² and split sleeve A², a lever E¹ provided with legs B², the parts of sleeve A² having recesses between them in which the legs B² are located, a rod D¹, a cam D² on said rod for engaging the arm E of the lever E¹, substantially as described.

700,488. CONVEYER-CHAIN FOR MATCH-MACHINES. EDWARD H. LOWMEYER, Jr., Darby, Pa., assignor to Emma M. Thomas, Martin B. Brichman, and Harry K. Beck, Philadelphia, Pa., copartners trading as P. C. Thomas and Company, Philadelphia, Pa. Filed Mar. 4, 1902. Serial No. 94,678. (No model.)



Claim.—1. A conveyor for a match-machine consisting of lengthwise connecting-links, combined with a series of transverse composite bars secured to the links and each consisting of a bar of stamped sheet metal having a series of apertures, and a second bar of sheet metal bar-

ing a series of loops arranged through the apertures of the perforated bar to form supports for the match-sticks and in which the loops support the match-sticks on one side and the surfaces on the face of the perforated bar above and below the loops support the match-sticks on the other side.

2. A composite match-stick-supporting bar for a conveyor consisting of a sheet-metal bar having a bent flange for strength and its body formed with a series of apertures, combined with a second sheet-metal bar having a series of outwardly-projecting lapped portions passed through the apertures to form match-stick guides.

3. A composite match-stick-supporting bar for a conveyor consisting of a sheet-metal bar having a bent flange for strength and having its body formed with a series of apertures, combined with a second sheet-metal bar having a series of outwardly-projecting lapped portions passed through the apertures to form match-stick guides I and having their edges flaring outward as at I.

4. A composite match-stick-supporting bar for a conveyor consisting of a sheet-metal bar having a bent flange for strength and having its body formed with a series of apertures and grooves K above and below the apertures, combined with a second metal bar having a series of outwardly-projecting lapped portions extending through the apertures to form guides I in line with the grooves K for the match-sticks.

5. A composite match-stick-supporting bar for a conveyor consisting of a sheet-metal bar having a bent flange for strength and its body formed with a series of apertures the upper and lower edges of which flare backward as at K, combined with a second metal bar having a series of outwardly-projecting lapped portions extending through the apertures to form match-stick guides.

6. A composite match-stick-supporting bar consisting of a sheet-metal bar having a series of apertures and vertical guiding portions transversely to its length above and below said apertures, combined with a metal strip of less width than the bar and formed with a series of loops and attached to the sheet-metal bar and forming outwardly-projecting lapped portions over the apertures and in line with the guiding portions thereof, whereby the match-stick is properly held and guided.

7. A composite match-stick-supporting bar consisting of a bar having a series of perforations combined with metal lapped portions passed through the apertures to form a series of loops extending from the face of the bar for holding the match-sticks.

8. A composite match-stick-supporting bar consisting of a bar having a series of perforations and vertical guide-grooves in its body above and below the apertures transversely to the length of the bar combined with metal lapped portions passed through the apertures to form a series of loops extending from the face of the bar for holding the match-sticks and in line with the vertical guide-grooves.

9. A match-stick-supporting bar for a conveyor consisting of a sheet-metal bar the intermediate body of which is provided with perforations, combined with a second bar bent into a series of projecting portions I extending through the apertures and forming match-stick guide-apertures J bounded on one side by said projecting portions and on the other side by the body of the sheet-metal bar above and below the apertures.

10. In a conveyor for a match-machine, a section comprising the rack-bar B having legs C, combined with the composite supporting-bars for the matches each having flanges D¹ apertures I and slots d into which the rack-bar B and bar E having loops I extending through the apertures, and in which the flanges D¹ rest against the legs C of the rack-bar.

11. In a conveyor for a match-machine, a section comprising the rack-bar B having legs C, combined with the composite supporting-bars for the matches each having flanges D¹ apertures I and slots d into which the rack-bar B and bar E having loops I extending through the apertures, the flanges D¹ resting against the legs C of the rack-bar, and a spring G pressing against one of the composite supporting-bars and lapped over the legs C of the rack-bar for holding them in the slots d of the said supporting-bars.

700,484. REDUCING-VALVE. GEORGE W. LANE, Chicago, Ill. Filed Aug. 19, 1901. Serial No. 71,861. (No model.)

Claim.—1. In a reducing-valve the combination with the valve-casing and pressure-diaphragm arranged therein, of a slide-valve arranged to control the admission of liquid to the valve-casing, an operating member operatively connecting said slide-valve with the pressure-diaphragm and a toggle mechanism arranged to force the valve positively against its seat as it approaches its closed position.

2. In a reducing-valve the combination with the valve-casing and pressure-diaphragm arranged therein, of a slide-valve arranged to control the admission of liquid to the valve-casing, an operating member directly connecting the pressure-diaphragm with said slide-valve so that said parts move together positively, and an oscillatory member pivotally mounted within the valve-casing and operatively connected with said slide-valve

to move with the latter; the location of the pivotal axis of said oscillatory member and its operative connection with the slide-valve being arranged to force the slide-valve positively toward its seat as it approaches its closed position in its movement with the pressure-diaphragm.



3. In a reducing-valve, the combination with the valve-casing, of a pressure-diaphragm arranged to extend across the interior of the casing, an inlet-pipe opening into the casing through a valve-seat arranged in a plane substantially at right angles to the plane of the diaphragm, a slide-valve mounted in ways to reciprocate across said seat in a direction parallel with the direction of movement of the diaphragm in its vibration, an operating-stem operatively connected with the control portion of said diaphragm and directly engaging in its opposite end said slide-valve, a toggle member pivotally mounted at one end within the valve-casing and flexibly connected at its opposite end with the valve-operating mechanism, the pivotal axis of said toggle member being so located relatively to its point of connection with the valve-operating mechanism that said latter point moves through an arc which approaches the valve-seat as the valve is brought to its closed position, and a spring arranged to normally force said valve into opening position.

4. In a reducing-valve the combination of a valve-casing provided with a removable wall having the form of a cover-cap, a pressure-diaphragm arranged to extend across the interior of the casing at the point of juncture between the cover-cap and body of the casing, an inlet-pipe opening through a part of the side wall of the casing below the diaphragm and extending substantially at right angles thereto, a valve-seat block mounted upon the interior of the casing and provided with a port arranged in register with said inlet-pipe, ways formed in said valve-seat block, a slide-valve arranged to slide therein and provided upon its side remote from the valve-seat with a lug or projection, an operating-stem connected with the control portion of the diaphragm and having a recessed end portion operatively connected with the projection of the slide-valve, and a spring-bellows connected with said end and cap within which the upper end of said operating-stem is arranged to project, a coiled spring arranged within said barrel to act upon the operating-stem, means for adjusting the tension of said spring, and a toggle mechanism operatively connected with said slide-valve and casing to force the latter positively against its seat as it approaches its closed position, substantially as described.

5. In a reducing-valve the combination with the valve-casing provided with an inlet-pipe opening through one side thereof of a slide-valve arranged to reciprocate across said seat, and a toggle-lever pivotally mounted at one end within said casing at a point remote from, and substantially opposite said inlet-pipe and having its vibrating end operatively connected with said slide-valve by means of a dot-and-pin connection, whereby the valve is free to move away from its seat during its opening movement, but is forced positively to its seat as it approaches a closed position, and means for reciprocating said valve and pin, substantially as described.

6. In a reducing-valve the combination with the valve-casing provided with an inlet-pipe opening through one side thereof of a slide-valve arranged to reciprocate across said seat, and a toggle-lever pivotally mounted at one end within said casing at a point remote from, and substantially opposite said inlet-pipe and having its vibrating end operatively connected with said slide-valve by means of a dot-and-pin connection, whereby the valve is free to move away from its seat during its opening movement, but is forced positively to its seat as it approaches a closed position, and a spring arranged to act upon said toggle member to counterbalance the weight of the latter, and connected parts moving therewith, substantially as described.

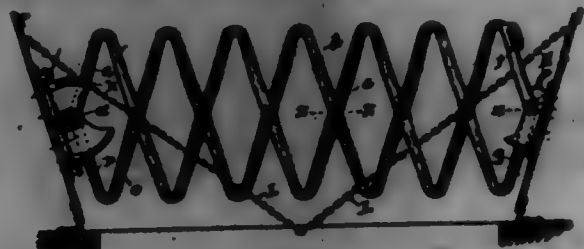
700,485. RINGER. JAMES MADISON, Boston, Mass. Filed Aug. 11, 1901. Serial No. 71,861. (No model.)

Claim.—A hinge having flattened quills adapted to yieldingly engage with each other as described; a pin passing through said quills and having a button on each end; an inwardly-projecting shoulder upon each quill; two springs adapted to engage respectively with the said but-

tree and shoulders whereby the said hinges each become a right or left hand one, substantially as and for the purpose set forth.



700,486. DOOR-GUARD. DE WITT C. HENNER, Cincinnati, Ohio.
Filed Jan. 12, 1901. Serial No. 48,948. (No model.)



Claim.—1. In a safety gate or guard for hatchway-door, a gate or guard attached to a door at one end, and a hook having parallel sides adapted to engage with the other end of said guard, substantially as set forth.

2. In a safety gate or guard for hatchway-door, a brace hinged thereto, and a folding gate or guard pivoted at one end to said brace near its center, said gate being carried by the brace, substantially as set forth.

3. In a door-guard, a hinge attached to the door, a lay-tongue gate pivoted to said hinge by the end pivot of its central line, and means for engaging the free end of the gate when extended, substantially as specified.

4. In a door-guard, a hinge attached to a collar-door, a lay-tongue gate, the central and pivot of which is pivoted to said hinge, and a catch fixed to said collar-door adapted to engage the outer end of the gate when collapsed and folding inwardly against the door, substantially as specified.

5. In a door-guard, a hinge attached to a collar-door, a folding gate pivoted to the hinge, and means attached to the door adapted to engage the hinge and limit the lateral swing of the gate, substantially as specified.

6. In a door-guard, a hinge attached to the door, a folding gate pivoted to said hinge, a lay attached to the door adapted to be engaged by the lay-bar when the gate is folded in and released when the gate is extended, whereby the hinge stays in its bearings, and device attached to the door and hinge respectively adapted to interlock when the gate is swung to its central position and extended outwardly, substantially as specified.

7. A door-guard consisting of an extensible gate pivoted to a hinge which is in turn pivoted to a swinging door, and means connected to said hinge and door whereby the hinge is dropped automatically and locked against the hinge action, when the gate is extended, substantially as specified.

8. In a door-guard, a swinging door, a hinge attached thereto, a lay-tongue gate, the central joint of the first link-sections of said gate being pivoted to said hinge, means on the said door for engaging and retaining the free end of the gate when contracted and folded inward against the side of said door, and means on the opposite door for engaging and retaining the free end of the gate when extended across the aperture to be guarded, substantially as specified.

9. In a door-guard, a plate, a guard-hinge attached thereto, composed of oppositely-projected limbs, a folding gate pivoted between the limbs of said hinge, and interlocking device on said plate and hinge adapted to engage when the gate is swung to a predetermined position, substantially as specified.

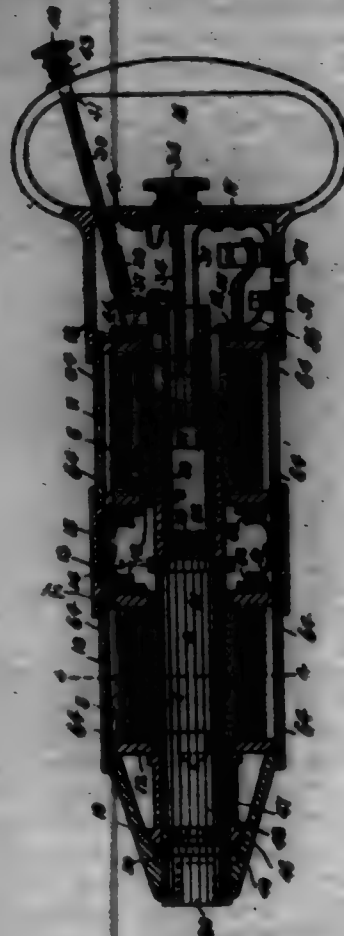
700,487. APPARATUS FOR ELECTRICALLY OPERATING
TOOL. CHARLES R. HOOKER, Chicago, Ill., and CHARLES J. KELLY, Syracuse, Ind. Filed Apr. 11, 1900. Serial No. 12,494. (No model.)

Claim.—1. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids and to communicate a succession of blows to a tool, and independent and separated magnetic shields for said solenoids to concentrate the lines of force on the core, substantially as described.

2. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids and to communicate a succession of blows to a tool, said core being magnetically insulated from the solenoids, and independent and separated magnetic shields for said solenoids to reduce the air-gap and concentrate the lines of force on the core, substantially as described.

3. In an electrical apparatus for operating a tool, the combination

with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a non-magnetic sleeve between the core and each solenoid, and magnetic shields around the solenoids and insulated from each other, substantially as described.



4. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a magnetic shield surrounding each solenoid and a non-magnetic connection between the shields, substantially as described.

5. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a magnetic shield around each solenoid, and a non-magnetic cylinder forming a connection between the shields, substantially as described.

6. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, and electric circuits for alternately energizing the same, of removable contact connections in the circuit leading to one of the solenoids and arranged between said solenoids to engage terminals on the adjacent ends thereof for making permanent electrical connections between the two solenoids, substantially as described.

7. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids and electric circuits for alternately energizing the same, of removable contact connections in the circuit leading to one of the solenoids and consisting of spring-metal devices arranged between said solenoids and engaging terminals on the adjacent ends thereof for making permanent electrical connections between the two solenoids, substantially as described.

8. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be operated by and through said solenoids, electric circuits for alternately energizing the solenoids, a non-magnetic mechanical connection between the solenoids and removable electric connections in the circuit leading to one solenoid and engaging the terminals thereof for making permanent electrical connections between the solenoids, substantially as described.

9. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core arranged to be reciprocated by and through said solenoids, a magnetic shield around each solenoid, a non-magnetic connection between the shields, electric circuits for alternately energizing said solenoids and electric connections in the circuit leading to one solenoid carried by the non-magnetic connection between the shields and consisting of spring contact-fingers engaging terminals on the adjacent ends of the solenoids, and adapted to be removed with the non-magnetic connection, substantially as described.

10. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids and a magnetic core adapted to be recip-

rocated thereby, of curved contacts on the adjacent ends of the solenoids, a non-magnetic connection between the solenoids and contact device carried by said non-magnetic connection and arranged to engage the curved contacts on the solenoids, substantially as described.

11. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids and provided with a hollow or recessed section and a circuit maker and breaker at said hollow or recessed section, substantially as described.

12. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, said core being recessed or hollow at one end thereof, substantially as described.

13. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, said core comprising a solid section and a hollow end section, and a circuit maker and breaker at said hollow end section, substantially as described.

14. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, said core consisting of a solid section and a tubular section connected with said solid section, and a circuit maker and breaker at said tubular section, substantially as described.

15. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core arranged to be reciprocated by and through said solenoids, and having a recessed or hollow section, and a switch device operating in the hollow section of the core for switching the current alternately through the solenoids, substantially as described.

16. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids and having a recessed or hollow section, a movable contact carried by the hollow section of the core and stationary contacts arranged to be alternately engaged with said movable contact as the core is reciprocated for switching the current alternately through the solenoids, substantially as described.

17. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, a tubular contact device carried by said core, and stationary contacts arranged within said tubular contact and adapted to engage therewith alternately as the core reciprocates to switch the current alternately through the solenoids, substantially as described.

18. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, a tubular contact device carried by said core and partly insulated laterally, and stationary contact devices arranged within the tubular movable contact device and adapted to engage therewith to switch the current alternately through the solenoids, substantially as described.

19. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, a tubular contact device carried by the core, and an adjustable stationary contact device arranged to engage with said movable tubular device, substantially as described.

20. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, a tubular contact device carried by the core, a fixed stationary contact arranged to engage with the movable member and a stationary longitudinally-adjustable contact arranged to engage with the movable contact on the latter reciprocates and adapted to be adjusted to limit the reciprocating movement of the core, substantially as described.

21. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through the solenoids, a tubular contact device partly insulated laterally and carried by the core, a fixed contact device arranged within the tubular movable contact to engage therewith, an adjustable stationary contact also arranged within the tubular movable contact, and means for holding the said adjustable contact from revolving with it as being adjusted longitudinally, substantially as described.

22. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids, a tubular movable contact device partly insulated laterally and carried by the core, a stationary contact 20 arranged to engage with the movable contact, a stationary contact 30 and a supporting-rod for said latter contact provided with a threaded end as

resists the contact, whereby said contact may be adjusted longitudinally by rotating the rod, substantially as described.

23. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids, of a magnetic core adapted to be reciprocated by and through said solenoids and having a recessed or hollow end section, a tubular contact device secured in the hollow end of the core and reciprocating therewith, and stationary contacts arranged within the tubular movable contact and adapted to engage therewith, substantially as described.

24. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids and having a recessed or hollow end section, a tubular contact device secured in the hollow end of the core and reciprocating therewith, a contact 20, a support for said contact, an insulated plate arranged within the tubular movable contact and above the support for the contact 20, a contact 30 resting upon said insulating-plate, a supporting-rod having a threaded end to receive the contact 30 and its other end projecting through the apparatus and adapted to be rotated to adjust the contact 30 on the end thereof longitudinally, substantially as described.

25. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a non-magnetic connection between the solenoids, a cap arranged at one end of the apparatus, and a tool-holder supported by said cap, substantially as described.

26. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a cap at one end of the apparatus, a sleeve secured in said cap and adapted to receive the core, and a tool-holder movably carried by the cap and adapted to be operated by the core, substantially as described.

27. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a hollow headpiece arranged at one end of the apparatus, and a circuit-clear device arranged in said hollow headpiece and adapted to be operated from the outside thereof to close the circuit and start the apparatus in operation, substantially as described.

28. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a hollow headpiece, contacts 54, 55 limited within said hollow headpiece, and a circuit-clear operating through the headpiece and adapted to engage said contacts, substantially as described.

29. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a hollow headpiece at one end of the apparatus, contacts 54, 55 arranged within said headpiece, a circuit-clear for engaging said contacts, curved contact devices 56, 57 and contact-fingers 58, 59, substantially as and for the purpose described.

30. In an electrical apparatus for operating a tool, the combination with a pair of aligned solenoids adapted to be alternately energized, of a magnetic core arranged to be reciprocated by and through said solenoids, a magnetic shield around each solenoid, a non-magnetic connection between the shielded solenoids, a cap connected to the outer end of one of said shields and a headpiece connected to the outer end of the other shield, substantially as described.

31. An electrical apparatus for operating a tool, comprising a pair of aligned solenoids adapted to be alternately energized, a magnetic core arranged to be reciprocated by said solenoids, a cylindrical magnetic shield insulating each solenoid, a cylindrical non-magnetic connection between the shields, a cap at the outer end of one shield, a hollow headpiece in the outer end of the other shield and a handle carried by said headpiece, substantially as described.

32. An electrical apparatus for operating a tool, comprising a pair of aligned solenoids adapted to be alternately energized, a magnetic core arranged to be reciprocated by said solenoids, a magnetic shield insulating each solenoid and concentrating the lines of force on the core, a non-magnetic connection between the solenoids, a hollow headpiece, contact device arranged within said headpiece and a switch device carried by the core, substantially as described.

33. An electrical apparatus for operating a tool, consisting of a body comprising a non-magnetic cylinder, a shielded solenoid connected to each end of said cylinder, a magnetic core, electric circuits for alternately energizing the solenoids to reciprocate the core, a hollow headpiece, a handle connected to said headpiece and a switch device carried by the core and operating in the hollow headpiece, substantially as described.

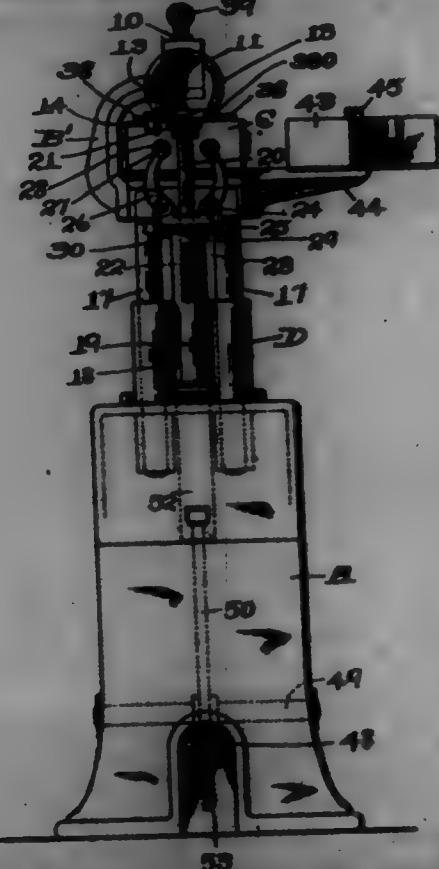
34. The combination with a core for operating a tool and means for

extending the core, of an insulating casing comprising a central cylinder having annular shoulders 14, 15 thereon, and cylinders 10, 11 arranged in the ends of the central cylinder and abutting against the shoulders thereon, substantially as described.

35. An electrical apparatus for operating a tool, consisting of a body comprising two solenoids each of which is provided with a magnetic shield including its ends and outer surface, a non-magnetic connection between said solenoids to maintain them in proper alignment, electrical circuits for alternately energizing said solenoids, and a magnetic core adapted to be reciprocated by the solenoids, substantially as described.

36. The combination with a core and means for reciprocating the same, of an insulating casing comprising a central cylinder, a cap, a hand-piece having a handle, and cylinders arranged between the central cylinder and cap and the hand-piece and central cylinder and all connected together, substantially as described.

700,488. BOTTLE-LABELLING MACHINE. FREDERICK HUBER, Worcester, Mass., assignor of one-half to John E. Hubert, Worcester, Mass. Filed Oct. 8, 1901. Serial No. 24,261. (No model.)



Claim.—1. In a labelling-machine, the combination of bottle-clamping mechanism, label gunning and picking-up fingers, and means for operating said fingers to move transversely with respect to the position of a bottle, to bring a label into place, and for withdrawing said fingers axially with respect to the bottle while the clamping mechanism acts to hold the label in place.

2. In a labelling-machine, the combination of the jaw forming the top member of the clamping mechanism, the sliding carrier carrying the lower member of the clamping mechanism, and wiping-rollers, the said lower member of the clamping mechanism being arranged to have a lost motion relatively to the carrier, and label-picking-up fingers mounted to turn on an axis and to slide axially of the bottle, substantially as described.

3. In a labelling-machine, the combination of the upper jaw of the clamping mechanism, a carrier carrying the lower jaw of the clamping mechanism, and wiping-rollers, a pivoted bracket, a sliding piece arranged on the pivoted bracket, and label-picking-up fingers carried by the sliding piece, substantially as described.

4. In a labelling-machine, the combination of the clamping mechanism, the pivoted bracket 34, the sliding piece 35 fitted thereon, the label-picking-up fingers 36 37 pivoted thereon, and the handle 38 for operating said fingers, substantially as described.

5. In a labelling-machine, the combination of the clamping mechanism, the wiping-rollers, the pivoted bracket 34, the sliding piece 35 fitted thereon, the label-picking-up fingers 36 37 pivoted to said sliding piece, the handle 38 for operating said fingers, and a spring 40 for holding said handle and fingers in normal position, substantially as described.

6. In a labelling-machine, the combination of the bottle-clamping mechanism, the wiping-rollers, the pivoted bracket 34, the sliding piece 35 thereon carrying the label-picking-up fingers 36 37, the locking de-

vise for locking the fingers in position relatively to the bottle, and connections so that the fingers will withdraw axially of the bottle, substantially as described.

7. In a labelling-machine, the combination of the bottle-clamping mechanism, the label-bar arranged at one side thereof, the label-carrying fingers, a pump-fountain, and connections so that the label-carrying fingers can be operated to take a label from the label-bar, bring the same in position relatively to the bottle, so that the clamping mechanism will then clamp the label intermediate of the fingers, and so that the fingers can then be withdrawn axially of the bottle, substantially as described.

8. In a labelling-machine, the combination of the clamping mechanism, the pivoted bracket 34, the piece 35 fitted to slide thereon, and carrying the label-picking-up fingers 36 37, a spring-pulled lever 54 for holding the label-fingers in their normal position, and a catch for engaging the lower end of said lever to lock said label-fingers in proper position relatively to the bottle, and to hold them so that they will withdraw axially of the bottle, substantially as described.

9. In a labelling-machine, the combination of the bottle-clamping mechanism, the pivoted bracket 34 carrying the sliding piece 35 having the label-picking-up fingers 36 37, the spring 46 for turning the bracket 34 to normal position, the spring-pressed bell-crank lever 54 for holding the label-fingers in their forward position, and the pivoted catch 56 arranged to lock the label-carrying fingers so that the same will withdraw axially of the bottle, substantially as described.

10. In a labelling-machine, the combination of the bottle-clamping mechanism, the pivoted bracket 34 carrying the sliding piece 35 having the label-picking-up fingers 36 37, the spring 46 for turning the bracket 34 to normal position, the spring-pressed bell-crank lever 54 for holding the label-fingers in their forward position, and the pivoted catch 56 having the extension 61 arranged to lock the label-carrying fingers in position relatively to the bottle, so that they will be constrained to withdraw axially thereof, the extension 61 preventing the forward movement of the sliding piece 35 until the fingers have swung to one side, substantially as described.

11. In a labelling-machine, the combination of the upper jaw of the clamping mechanism, the carrier carrying the lower jaw of the clamping mechanism, connections for raising and lowering the carrier, the pivoted bracket 34, the piece 35 fitted to slide thereon, and carrying the label-carrying fingers 36 37, a catch arranged to hold the label-fingers in proper position relatively to the bottle, and an extension 61 from the carrier arranged to withdraw the fingers axially of the bottle, substantially as described.

12. In a bottle-labelling machine, the combination of the upper jaw of the clamping mechanism, the sliding carrier carrying the lower jaw thereof, connections for raising and lowering the carrier, the spring-controlled pivoted bracket 34, the sliding piece 35 fitted thereon and carrying the label-carrying fingers 36 37, a spring-actuated bell-crank lever 54 for holding the sliding piece in its forward position, the pivoted catch 56 for engaging the lower end of the bell-crank lever and locking the label-carrying fingers in proper position relatively to the bottle, and an extension 61 for engaging the lower end of the bell-crank lever, lifting the same up to withdraw the label-carrying fingers axially of the bottle, and to lift the said bell-crank lever clear of the catch 56, whereby the bracket 34 and sliding piece 35 can turn to normal position, substantially as described.

13. In a bottle-labelling machine, the combination of the bottle-clamping mechanism, the label-carrying fingers 36 37 for bringing a label in proper position, and cams 39 39' on said label-carrying fingers for preventing the bottle from striking the label, substantially as described.

700,489. IRONING-MACHINE. JAMES J. O'BRIEN, St. Louis, Mo. Filed Oct. 7, 1901. Serial No. 77,706. (No model.)

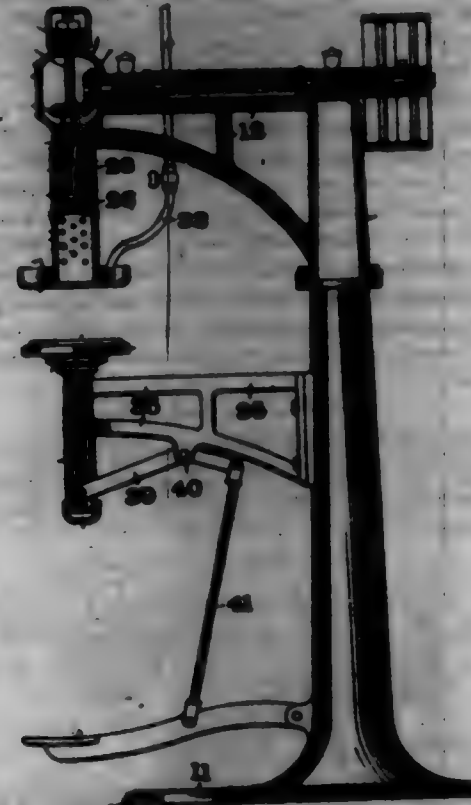
Claim.—1. In an ironing-machine, the combination with an ironing-board, of a rotary iron adapted to cover the entire working face of said board, and means for moving said board and iron into contact.

2. In an ironing-machine, the combination with an ironing-board, of a rotary iron having its working face at right angles to its axis and adapted to cover the entire working face of said board, and means for moving said board and iron into contact.

3. In an ironing-machine, the combination with a standard, of an arm carried thereby, a shaft journaled in said arm, an oscillation-bearing having its movable part secured to said shaft, a sleeve attached to the movable part of said bearing, a rotary iron carried by said sleeve, and a filling of non-heat-conducting material in said sleeve.

4. In an ironing-machine, the combination with a standard, of an arm carried thereby, a shaft journaled in said arm, an oscillation-bearing having its movable part secured to said shaft, a sleeve carried by the movable part of said bearing, a rotary iron carried by said sleeve, a cap within said sleeve, and a filling of non-heat-conducting material within said cap.

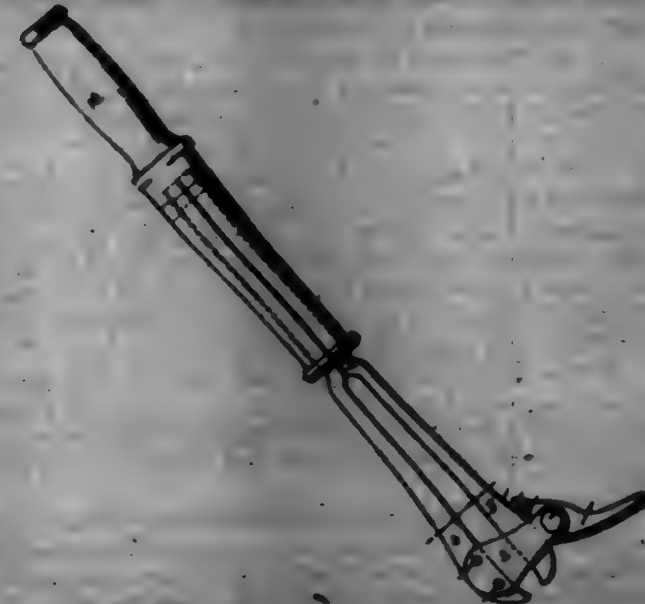
5. In an ironing-machine, the combination with a rotary iron, of a bearing for said iron, a table cooperating with said iron, a burner for heating said iron, a perforated metal sleeve supporting said iron and protecting said bearing, and a filling of non-heat-conducting material in said sleeve.



6. In an ironing-machine, the combination with a rotary iron, of a movable table cooperating with said iron, a support for said table, and an extensible guard connecting said table and support.

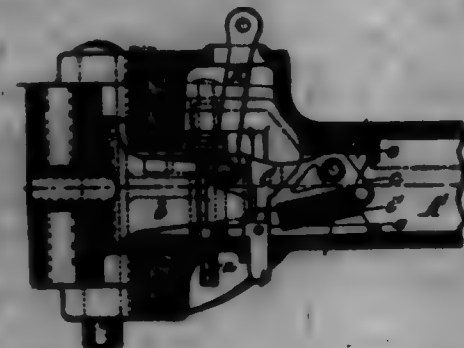
7. In an ironing-machine, the combination with a standard, of an arm rigidly carried thereby, a rotating iron carried by said arm and having its working face at right angles to its axis, said iron being mounted to be immovable laterally, a second arm rigidly carried on said standard, a table mounted on said arm, said table being immovable laterally under the iron, and operating means for forcing said iron and table into contact.

700,440. NAIL-PULLER. WILLIAM FRANK, Flintville, Conn., assignor of two-thirds to William H. Woodruff and Norman A. Barnes, Flintville, Conn. Filed Aug. 21, 1901. Serial No. 73,573. (No model.)



Claim.—1. In a nail-puller, the combination with the rear and forward jaws thereof, the outer edge of the rear jaw being convex, of two plates rigidly secured by their forward ends to the opposite faces of the forward jaw and extending rearwardly beyond the outer edge of the rear jaw which is free to move between them, a pivot passing through the projecting rear ends of the plates, and a flange upon the said pivot and shaped to rest at its ends rather than between the same, its upper end being formed with a cam cooperating with the said convex outer edge of the rear jaw at a point above the greatest convexity thereof to force the said jaw downward under the nail, as well as toward the other jaw, and the lower end of the said flange constituting a fulcrum upon which the entire device turns as upon a center.

700,441. CAR-COUPLING. WILLIAM F. EDWARDS, Buffalo, N. Y., assignor to Gould Coupler Company, New York, N. Y., a Corporation of West Virginia. Filed Nov. 14, 1901. Serial No. 63,002. (No model.)



Claim.—1. The combination with the draw-head, and the knuckle, of a pivoted lock arranged lengthwise of the draw-head, a pivot-block to which said lock is pivoted, means for holding said block against displacement, and a spring carried by said block and acting rearwardly against the rear portion of said lock, substantially as set forth.

2. The combination with the draw-head, and the knuckle, of a pivoted lock arranged lengthwise of the draw-head, a pivot-block to which said lock is pivoted, means for holding said block against displacement, and a spring carried by said block and arranged in front of the rear end of the lock and acting to hold the front end of the lock in locking position, substantially as set forth.

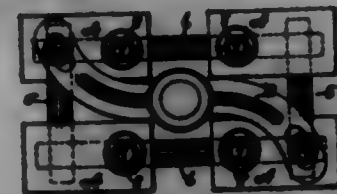
3. The combination with the draw-head and the knuckle, of a pivoted lock arranged lengthwise of the draw-head, and a pivot-block to which said lock is pivoted and which has a recess extending thereto adjacent to said lock-pivot, means for holding said block against displacement, and a spring arranged in the recess in said block and acting against a part of said lock which is arranged adjacent to said recess, substantially as set forth.

4. The combination with the draw-head, and the knuckle, of a pivoted lock arranged lengthwise of the draw-head, a pivot-block to which said lock is pivoted and which has a recess extending thereto forwardly from its rear portion, means for holding said block against displacement, and a spring located in the recess in said block and acting against a part of said lock which is arranged opposite to said recess, substantially as set forth.

5. The combination with the draw-head, and the knuckle having a tailpiece provided with a lateral extension, of a horizontally-acting knuckle-lever for opening the knuckle, and a pivotal support for said knuckle-lever arranged adjacent to one side of the draw-head to form a shoulder in front of the lateral extension of the tailpiece when the knuckle is closed, substantially as set forth.

6. The combination with the draw-head, and the knuckle having a tailpiece provided with a lateral extension, of a horizontally-acting knuckle-lever for opening the knuckle, a pivot for the knuckle-lever, and a post for the said pivot adjacent to one side of the draw-head and arranged to form a shoulder in front of the lateral extension of the tailpiece when the knuckle is closed, substantially as set forth.

700,442. ADJUSTABLE FORMER-BLOCK FOR FORMING PAIR BOXES. BENJAMIN BARNES, Springfield, Mass. Filed Jan. 4, 1902. Serial No. 58,419. (No model.)



Claim.—1. An extensible and contractile former-block, consisting of the combination of the four blocks having red-sockets and yoke-receiving recesses in the line of the said sockets, with the adjusting-rods and yokes, substantially as described.

2. An extensible and contractile former-block, consisting of the combination of the four blocks having yoke-receiving recesses and red-sockets provided with the said wall 10 at the end, with the adjusting-rods arranged to bottom on the said wall 10, and yokes on the said rods for tightening the same, substantially as described.

3. The combination of the four blocks having red-sockets provided with the said wall 10 at the end, with the adjusting-rods internally threaded, the adjusting-rods fitted in the end of the said red and means for securing the said rods in their sockets, substantially as described.

700,448. CONCRETE-AND-METAL SKELETON FOR BUILDING PURPOSES. Otto Rupp, Bremen, Germany. Filed July 25, 1901. (No model.)



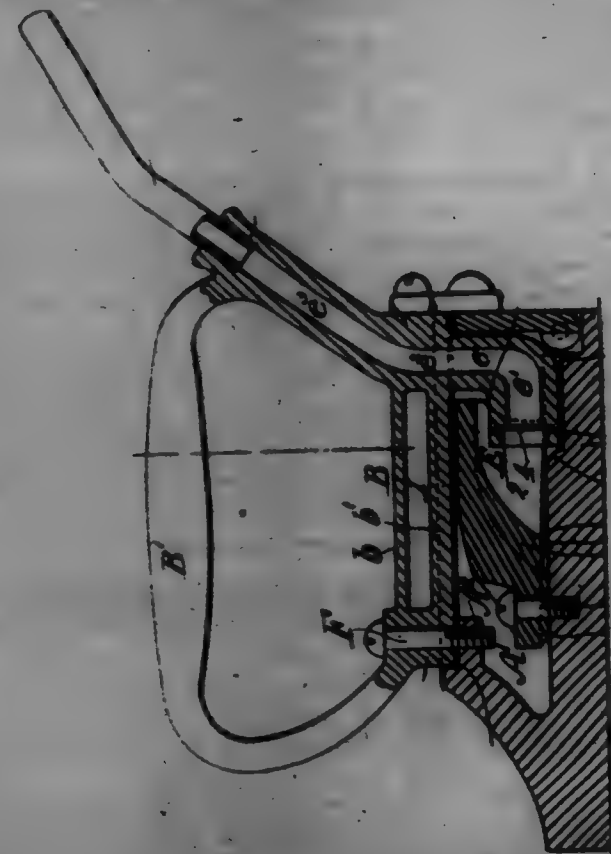
Claim.—1. The combination with a series of lengths of wire, of distribution-supports extending transversely to said wires, the said wires engaging two faces of said distribution-supports, the said distribution-supports adapted to be turned upon their longitudinal axis whereby the tension of the said wires may be adjusted, substantially as described.

2. In combination with a series of wires, of distribution-supports having two faces thereof engaged by said wires whereby the said supports may be turned on their longitudinal axis and the tension of the wires adjusted, substantially as described.

3. In combination with primary wires engaging two faces of the primary distributing-supports, of secondary distributing-supports engaged by the primary distributing-supports, secondary wires engaged by said secondary support whereby the tension of both is effected by the turning of the primary support upon its longitudinal axis, substantially as described.

4. In combination with a primary series of lengths of wire, of a secondary series of lengths of wire extending transversely to the said primary series, secondary distribution-supports engaging said secondary series, primary distribution-supports engaging said secondary supports and being engaged by said primary series of wires, whereby said primary supports may be turned on their longitudinal axis and adjustment of both series of wires effected, substantially as described.

700,444. RAD-IRON. CHARLES H. SHEPARD, New York, N. Y., assignor to Geo. H. Shepard, New York, N. Y. Filed July 19, 1901. Serial No. 68,977. (No model.)



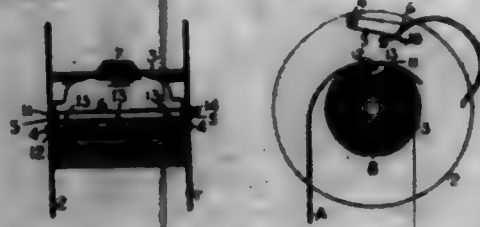
Claim.—1. As a blast-iron, the combination, of the recessed body having a groove in its bottom, the interior channel around the upper edge of its walls and which is open at the top and rear end, the removable cover embodying the upper and lower plates having the air-space and the integrally-formed pillars between them, the integral burner embodying the inlet-channel, the vertical duct and the horizontal discharge-opening having the annular shoulder and annular groove for engaging a screen, and the asbestos packing between the body and cover, with the arched deflector having the central rib, the bottom openings and the front recesses, substantially as shown and described.

2. As a blast-iron, the combination, with the recessed body having a groove in its bottom, an interior channel around the upper edge of its walls and which is open at the top and rear end, the removable cover embodying the upper and lower plates having the air-space and the in-

tegrally-formed pillars between them, the integral burner embodying the inlet-channel, the vertical duct and the horizontal discharge-opening having the annular shoulder and annular groove, and a malleable and normally concave woven-wire disk within the said groove, and lying flat against the said shoulder; of an arched deflector having openings for discharge of flame on its bottom edges and recesses also for discharge of flame on its front edge and having a central rib for splitting the flame, substantially as shown and described.

3. As a blast-iron, the combination, of the recessed body having the interior channel around the upper edge of its walls and which is open at the top and rear end, and means for closing the rear opening, and the removable cover embodying the upper and lower plates having the air-space and the integrally-formed pillars between them, the integral burner embodying the inlet-channel, the vertical duct and the horizontal discharge-opening having the annular shoulder and the annular groove for engaging a screen, with the arched deflector having the central rib, the bottom openings and the front recesses, substantially as shown and described.

700,445. TYPE-WRITING MACHINE. CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Macmaster & Beach, Inc., N. Y., a Corporation of New York. Filed Mar. 4, 1901. Serial No. 68,968. (No model.)



Claim.—1. In a ribbon-spool, the combination with a pair of flanges and a core, of a ball arranged between the spool-flanges and pivoted thereto, said ball having a cross-blade or ledge 9 provided with notches or openings, a recess in the core having an abrupt face opposed to said ledge, and impaling-needles projecting from said abrupt face opposite said notches or openings.

2. In a ribbon-spool, the combination with a pair of flanges and a core, of a clamp consisting of opposite arms 5 which are pivoted at their outer ends to the flanges, a cross-piece 6, and an extended finger 7 which curves around the core of the spool and is adapted to retain the clamp in working position.

3. In a ribbon-spool, the combination with a pair of flanges and a core, of a clamp consisting of opposite arms 5, which are pivoted at their outer ends to the flanges, a cross-piece 6, and an extended finger 7 which curves around the core of the spool and is adapted to retain the clamp in working position, said core having a recessed portion 8 formed in its periphery for engaging the tip of said finger.

4. In a ribbon-spool, the combination of a pair of flanges, a core, a ball comprising a cross-piece and arms 5 whose outer ends are pivoted to the flanges, a series of openings in said cross-piece, and a series of impaling-points fixed in the core opposite said openings.

5. In a ribbon-spool, the combination with a pair of flanges and a core, of a clamp arranged between the flanges and comprising a cross-piece and arms whose outer ends are pivoted to the flanges, said cross-piece having a portion 9 which is bent at an angle to the cross-piece in as in form a ledge, a row of notches or openings 10 formed in said ledge, a longitudinal recess formed in the spool-core, and a series of impaling-points fixed in said recess opposite said notches or openings.

6. In a ribbon-spool, the combination with a pair of flanges and a core, of a longitudinal recess formed in the core and having an abrupt face, and a clamp pivoted upon the spool-flanges and having a part which enters said recess and cooperates with said abrupt face to clamp the ribbon.

7. In a ribbon-spool, the combination with a pair of flanges and a core, of a ribbon-clamp comprising arms 5, cross-piece 6, ledge 9, and locking-finger 7, all formed from a single piece of sheet metal, and means upon the core for cooperating with said clamp to hold the ribbon.

8. In a ribbon-spool, the combination with a pair of flanges and a core, of a ribbon-clamp comprising arms 5, cross-piece 6, ledge 9 and locking-finger 7, all formed from a single piece of sheet metal, and means upon the core for cooperating with said clamp to hold the ribbon, one of said arms 5 having a finger-piece 14 which projects through an opening 15 in the longitudinal spool-flange.

9. In a ribbon-spool, the combination with a pair of flanges and a core, of a ball-like clamp whose opposite arms are pivoted at their outer ends to the inner sides of the flanges, means upon the core for cooperating with said clamp to hold the ribbon, said finger-piece upon one of the ball-arms which projects through a slot formed in the longitudinal spool-flange.

10. In a ribbon-spool, the combination of a core having a recess, an impaling-pin projecting into said recess, and a device for carrying the end of the ribbon into said recess and impaling it upon said pin.

11. In a ribbon-spool, the combination of a core having a recess, an impaling-pin projecting therethrough, and a swinging ball-like clamp adapted to carry the ribbon into said recess and from it upon said pin.

12. In a ribbon-spool, the combination of a core having a recess, a swinging clamp adapted to carry the end of the ribbon into said recess, and an impaling point or points for holding the ribbon in said recess.

13. In a ribbon-spool, the combination of a core having a recess, a swinging clamp adapted to carry the ribbon therethrough, an impaling point or points adapted to hold the ribbon in said recess, and means for holding the carrying portion of said clamp within said recess.

14. In a ribbon-spool, the combination of a core having a recess, a swinging clamp adapted to carry the ribbon therethrough, an impaling point or points adapted to hold the ribbon in said recess, and means on said clamp for embracing said core and holding said clamp in working position.

700,446. PRESERVING COMPOUND. RAYMOND C. SHAW, Portland, Me. Filed Feb. 26, 1902. Serial No. 68,967. (No specimens.)
Claim.—A preserving compound consisting of sulfur, magnesia, charcoal, melasse, chalk and zinc, substantially as described.

700,447. PICTURE-PROJECTING APPARATUS. GEORGE W. SMITH, Evanston, Ill. Filed June 20, 1900. Serial No. 68,967. (No model.)



Claim.—1. An optical projecting apparatus, embracing an incandescent, a slide-holder therein, said incandescent being provided with a space or passage outside of the slide-holder to permit the passage of the light around the same, a condensing-lens in said passage or space, an object-lens, a source of light, and reflectors located both in advance and at the rear of the plane of said slide-holder, whereby light from said source of light may be thrown on both sides of a picture in said slide-holder.

2. An optical projecting apparatus, comprising an incandescent, a slide-holder therein, said incandescent being provided with a space or passage outside of the slide-holder, to permit the passage of the light around the same, a condensing-lens in said passage or space, an object-lens, a source of light, and reflectors located both in advance and at the rear of the plane of said slide-holder including one or more obliquely-arranged reflectors adapted to change the course of the rays of light, whereby light from said source of light may be thrown on both sides of a picture held in said holder.

3. An optical projecting apparatus, comprising an incandescent, a slide-holder therein, said incandescent being provided with a space or passage outside of the slide-holder, to permit the passage of the light around the same, a condensing-lens in said passage or space, an object-lens, a source of light, reflectors located at the rear and in front of the plane of the slide-holder including one or more reflectors arranged obliquely to change the direction of the rays of light and a condensing lens or lenses interposed between the source of light and the said slide-holder.

4. An optical projecting apparatus comprising a slide-holder, an objective lens, a source of light located at one side of and in front of the slide-holder, a reflector to throw light upon the front face of an opaque picture in the slide-holder and the other at the rear of the slide-holder, said latter reflector operating to throw light through a transparent picture in the said slide-holder.

5. An optical projecting apparatus comprising a slide-holder, an objective lens, a source of light located in front of and at one side of the slide-holder, a reflector located in position to throw light upon the front face of an opaque picture in the slide-holder, two condensing-lenses one

at the rear of the source of light and the other at the rear of the slide-holder and two oblique reflectors located at the rear of said condensing-lenses, said oblique reflectors being constructed to throw light through a transparent picture in said slide-holder.

700,448. ADDRESS DEVICE. MORRIS A. SMITH, Cedar Rapids, Iowa. Filed Jan. 2, 1902. Serial No. 68,968. (No model.)



Claim.—1. In an adding device of the class described, the casing, a graduated register-disk working within and outside of the casing, a reciprocating plunger carrying an actuating member cooperating with the disk to impart thereto a step-by-step movement, and a single resting device arranged to yieldingly hold the actuating member in engagement with the disk and also to yieldingly thrust the plunger in the direction of its reciprocation.

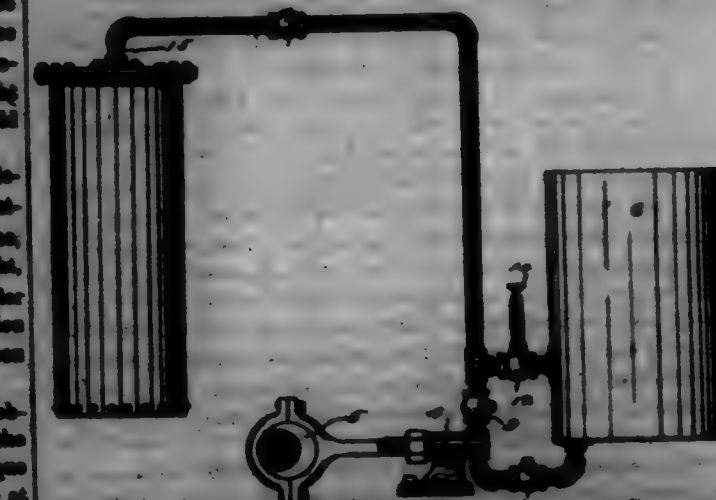
2. In an adding device of the class described, the casing, a graduated register-disk rotatably mounted within the casing and constituting a register-disk, a reciprocating plunger having an exposed pressure-point and carrying at its inner end an actuating-dog rigid therewith and having a side point engaging the register-teeth of the disk, means for yieldingly maintaining the dog in engagement with the register-teeth, and a release-button also rigidly connected with the plunger and projecting to a point anterior of the casing.

3. In an adding device of the class described, the casing, a graduated register-disk working within and outside of the casing and provided with register-teeth, a reciprocating plunger having an exposed pressure-point and carrying at its inner end an actuating-dog whose point engages the register-teeth of the disk, and a single resting-spring cooperating with the plunger and dog, and arranged at an angle to provide for yieldingly pressing the dog in a lateral direction and also for thrusting the plunger in a longitudinal direction.

4. In an adding device of the class described, a casing having a longitudinal guideway, a dot, and an end opening, a guide-tube projecting beyond one end of the casing, a graduated register-disk working within the said guideway and through the end opening of the casing, said disk having register-teeth, a plunger-stem extending through the casing and guide-tube and provided with an exposed pressure-point, said plunger-stem also carrying at its inner end a dog whose point cooperates with the register-teeth of the disk, a single resting-spring cooperating with the plunger-stem and its dog, and a release-button rigidly connected with the plunger and having its shank arranged to work within the dot in the casing.

5. In an adding device of the class described, the combination of the casing having at one side thereof a longitudinal guideway, a graduated register-disk mounted within the casing and fitting the guideway thereof, means for actuating said disk, and a coiled friction-spring seated within the register-disk upon the side opposite the guideway and having one end entering a pressure against the adjacent wall of the casing.

700,449. FINE-WATER REGULATOR. CHRISTOPHER H. BRUNNEN, Windsor, Conn. Filed July 1, 1901. Serial No. 68,969. (No model.)



Claim.—A feed-water system consisting of a vertically-arranged tubular shell, a feed-water pipe with one end closed and an opening through its side, extending vertically into the shell, a float with a control opening, the walls of which opening fit the exterior of the feed-water pipe, that is adapted to move up and down the feed-water pipe so that the walls of its control opening will close and open the opening through the side of the feed-water pipe, a pump connected with the feed-water pipe, a con-

section from the feed-water pipe to a supply-tank each side of the pump, a check-valve in the feed-water pipe each side of the pump, and an adjustable relief-valve located in the connection from the feed-water pipe to the supply-tank that is between the pump and the feed-valve shell, substantially as specified.

700,450. VEHICLE RUNNING-GEAR. GEORGE W. H. GUNN, Windsor, Conn. Filed Aug. 31, 1901. Serial No. 74,088. (No model.)



Claim.—1. A running-gear consisting of a rear axle, a fixed front axle, a spring located above and supported by the front axle, reaches extending forwardly from the rear axle and terminating near the front axle, a yoke connecting the front ends of the reaches and supported by the spring on the front axle, and flexible braces extending from the reaches to the outer ends of the front axle, substantially as specified.

2. A running-gear consisting of a rear axle, a fixed front axle, a spring located above and supported by the front axle, reaches extending forwardly from the rear axle and terminating near the front axle, a yoke connecting the front ends of the reaches, and supported by the spring on the front axle, and flexible braces extending from the reaches to the outer ends of the front axle, substantially as specified.

3. A running-gear consisting of a rear axle, a fixed front axle, a spring located above and supported by the front axle, reaches extending forwardly from the rear axle and terminating near the front axle, an upwardly-extending yoke connecting the front ends of the reaches, and supported by the spring on the front axle, and flexible braces extending from the reaches to the outer ends of the front axle, substantially as specified.

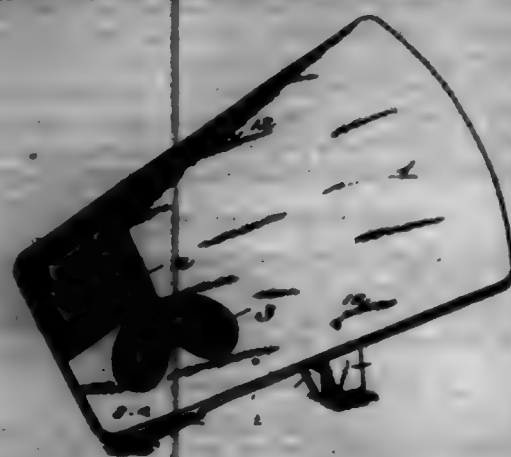
4. A running-gear consisting of a rear axle, a fixed front axle, a spring located above and supported by the front axle, reaches extending forwardly from the rear axle and terminating near the front axle, an upwardly-extending yoke connecting the front ends of the reaches, a pivotal connection between the yoke and the spring on the front axle, and flexible braces connecting the reaches with the outer ends of the front axle, substantially as specified.

5. A running-gear consisting of a rear axle, a fixed front axle, a spring located above and supported by the front axle, reaches extending forwardly from the rear axle and terminating near the front axle, an upwardly-extending yoke connecting the front ends of the reaches, a pivotal connection between the yoke and the spring on the front axle, and flat bars that yield vertically but not horizontally, connecting the reaches with the outer ends of the front axle, substantially as specified.

6. A vehicle having a rear axle, a fixed front axle, side springs mounted on the rear axle, a cross-spring located above and supported by the

front axle, reaches extending forwardly from the rear axle and terminating near the front axle, an upwardly-extending yoke connecting the front ends of the reaches, a pivotal connection between the yoke and the cross-spring, flexible bars connecting the reaches with the outer ends of the front axle, and a body supported at the front end by the cross-spring and at the rear end by the side springs, substantially as specified.

700,451. MATCH-SAFE. GEORGE E. STATER, Portsmouth, Ohio. Filed Dec. 10, 1901. Serial No. 58,418. (No model.)



Claim.—1. A match-safe comprising an elongated plate having a match-slot in its lower portion, a match-tray holder secured to the under side of the plate adjacent to the match-slot, means formed integral with the tray-holder for preventing the withdrawal of the match-tray, and a bracket secured to the plate adjacent to its upper end for supporting the said plate in an inclined position.

2. A match-safe comprising an elongated plate having a transverse match-slot opening into a finger-aperture formed in its lower portion, a tray-holder secured to the under side of the plate adjacent to the match-slot to receive and retain the lower end of a match-tray, and a supporting-stand secured to the plate, having formed in its upper portion means for supporting the upper end of the match-tray.

3. A match-safe comprising an elongated plate having a match-slot formed in its lower portion, a tray-holder secured to the under side of the plate adjacent to the match-slot, a bracket secured to the said plate adjacent to its upper end, a bracket having shoulders in alignment with the bottom of the tray-holder and adapted to support the upper end of the match-tray.

4. A match-safe comprising a plate having a transverse match-slot opening into a finger-aperture formed in its lower portion, a match-tray holder having prongs formed integral therewith adapted to be inserted into the plate to secure the holder in position, and a bracket for holding the safe in an inclined position.

5. A match-safe comprising a plate having a transverse slot opening into a finger-aperture formed in its lower portion, a tray-holder secured to the under side of the plate adjacent to the match-slot, means to prevent the withdrawal of the match-tray and a bracket for supporting the match-tray secured to the plate adjacent to its upper end and having its upper end provided with a support for the upper end of the said match-tray.

6. A match-safe comprising a plate having a match-slot formed in its lower portion, a match-tray holder formed with prongs adapted to be inserted into the plate to secure the holder in position, an integral prong on the upper edge of the tray-holder for preventing the withdrawal of the tray and means for holding the safe in position.

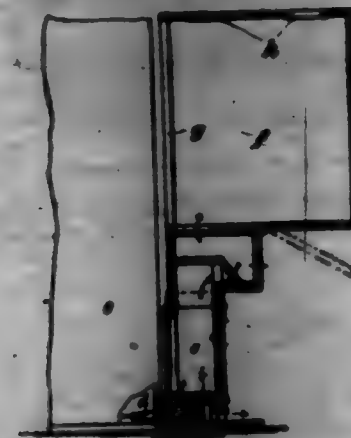
700,452. BEEHIVE CATCHER. RUDOLF SCHMIDT, Berlin, Germany. Filed July 10, 1901. Serial No. 68,048. (No model.)

Claim.—1. A bee-hive catcher comprising a lower trap-compartment communicating with the hive and provided with an exit-opening in line with such communication, a trap-board pivoted intermediate its ends in said compartment, and means for causing said trap-board to pivot in position to permit, or to prevent, respectively, the passage of the bees through said exit, substantially as described.

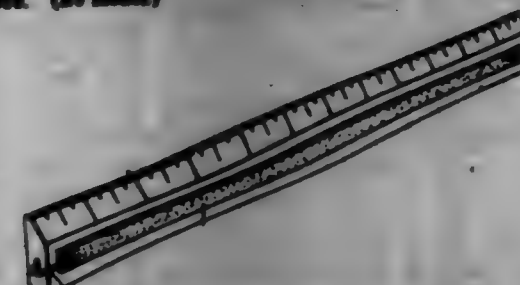
2. A bee-hive catcher comprising a lower trap-compartment communicating with the hive and provided with an exit-opening in line with such communication, a trap-board pivoted intermediate its ends in said compartment, a hinged side to said compartment having a vertical slot, and a spring-latch in said slot whereby the trap-board may be held in position to permit or prevent the passage of the bees through said exit, substantially as described.

3. A bee-hive catcher comprising a lower compartment, an intermediate queen and drone compartment, and an upper compartment, the

lower compartment communicating with the hive and with the intermediate compartment by openings to permit the passage of the whole swarm and the intermediate and upper compartments communicating by means of openings to permit of the workers only, the lower compartment having an exit-opening in line with its communication with the hive, a trap-board pivoted in the lower compartment, and means whereby said trap-board may be set and held in position to permit, or prevent, the passage of the swarm through said exit, substantially as described.

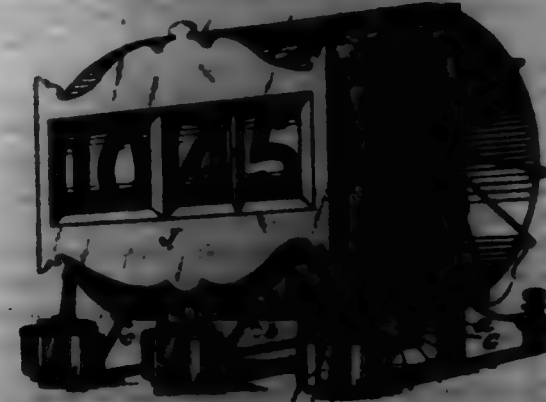


700,453. RULE, BOOK-HOLDER, AND MARKER COMBINED. THOMAS D. THOMAS, Hoboken, Iowa. Filed Jan. 31, 1902. Serial No. 81,308. (No model.)



Claim.—A book-holder comprising a straight rigid bar having perforations in its ends and on elastic cord or tape having hooks at its ends as shown and described for the purposes stated.

700,454. SECONDARY ELECTRIC CIRC. SAMUEL P. THOMAS, New Haven, Conn. Filed Feb. 25, 1901. Serial No. 68,298. (No model.)



Claim.—1. In a device of the character described, a drum, a plurality of projections on said drum, a movable frame, a locking-arm carried by said frame adapted to engage one of said projections, a propelling-arm carried by said frame adapted to rotate said drum by the same movement which releases said locking-arm, an electromagnet for moving said frame, and an electric circuit for controlling said magnet, and means for making and breaking said circuit through one of said projections.

2. In combination, a drum, an electric circuit, a circuit-closer, an electromagnet in said circuit, means to normally lock said drum from rotation, means to first put said drum under a relative tension while said drum is locked and then release said drum and allow the same to rotate, means to stop the rotation of said drum after a certain amount of rotation, and means to control said electric circuit.

3. In combination, a drum, a plurality of projections thereon, a pivoted frame, a locking-arm carried by said frame and normally engaging one of said projections, a propelling-arm carried by said frame arranged to coast with said projections to move said drum, an electromagnet for moving said frame, an electric circuit for controlling said electromagnet and means for opening and closing said circuit.

4. In combination, a drum, a plurality of projections at the rim of

said drum, a pivoted frame, a locking-arm rigidly mounted on said frame and normally engaging one of said projections, a flexible propelling-arm mounted on said frame adapted to press against said drum, and means to operate said frame.

5. In combination, a drum, a plurality of projections thereon, a pivoted frame, a locking-arm rigidly mounted on said frame and normally engaging one of said projections, a flexible propelling-arm rigidly mounted on said frame adapted to coast with said projections to rotate said drum, and means to operate said frame.

6. In a device of the character described, a drum, a plurality of projections on said drum, a movable frame, a locking-arm carried by said frame adapted to engage one of said projections, a flexible propelling-arm carried by said frame adapted to rotate said drum by the same movement which releases said locking-arm, and means for operating said frame.

7. In combination, a drum, a plurality of projections thereon, a pivoted frame, a locking-arm rigidly mounted on said frame and normally engaging one of said projections, a flexible propelling-arm mounted on said frame adapted to coast with said projections to rotate said drum, and an electromagnet for operating said frame.

8. In combination, a drum, a plurality of independent projections at the rim of said drum one of said projections being an electric conductor insulated, another projection being insulated, a normally open electric circuit, one terminal of which is said insulated projection, another terminal of said circuit comprising a circuit-closing blade which lies in the path of movement of said projections on said drum, an electromagnet in said circuit and means operated by said electromagnet to rotate said drum.

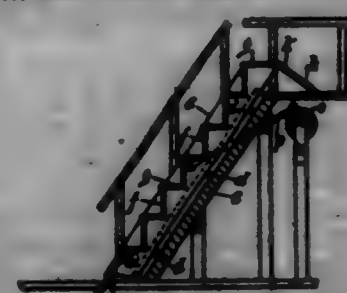
9. In combination, a drum, a plurality of projections carried by the frame of said drum one of said projections being an electric conductor insulated, another projection being insulated, a normally open electric circuit one terminal of which is said insulated projection, another terminal of said circuit comprising a flexible circuit-closing blade which lies in the path of movement of said projections on said drum, an electromagnet in said circuit and means operated by said electromagnet to rotate said drum.

10. In combination, a drum, a plurality of projections thereon, means to normally lock said drum from rotation, means to bear against and move said projections, both of said means being rigidly secured together and having a common pivot, an electromagnet to move said means, and an electric circuit for energizing said magnet and means for making and breaking said circuit through said projections.

11. In combination, a drum, a plurality of projections thereon, means to normally lock said drum from rotation, means to bear against and move said projections, both of said means having a common pivot, an electromagnet to move said means, and an electric circuit for energizing said magnet and means passing through at least one of said projections.

12. In combination, a drum, a plurality of projections thereon, a spring-pressed pivoted frame, a locking-arm rigidly mounted on said frame and normally engaging one of said projections, a flexible propelling-arm rigidly mounted on said frame adapted to coast with said projections to rotate said drum, and means to operate said frame.

700,455. STAIRWAY. GEORGE C. TILTON, Quincy Island, N. Y. Filed Sept. 28, 1901. Serial No. 78,484. (No model.)



Claim.—1. In a stairway, the combination with a reciprocating stair-section, guides or ways therefor, means whereby it is reciprocated and a stair-lading, of a child in constant communication between said stair-section and said lading, substantially as described.

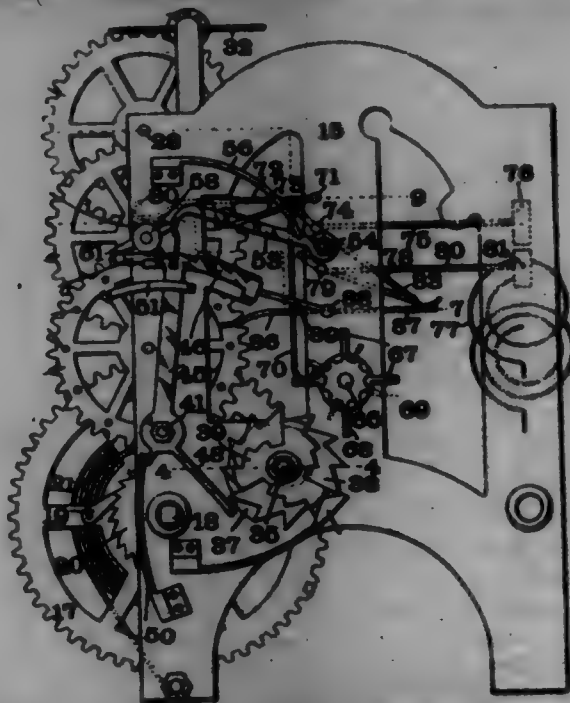
2. In a stairway, the combination with a reciprocating stair-section, guides or ways therefor, means whereby it is reciprocated and a stair-lading, of a child hinged to said section and maintained in constant contact with said lading, substantially as described.

3. In a stairway, the combination with a reciprocating stair-section, guides or ways therefor, means whereby it is reciprocated and top and bottom stair-ladings, of a child hinged to the top end of said stair-section and maintained in constant contact with said top lading and a swinging child carried by the lowermost end of said stair-section and moving in a slot in said bottom lading, substantially as described.

4. In a stairway, the combination with a reciprocating stair-section, guides or ways therefor, means whereby it is reciprocated and a top and a bottom stair-lading, of a hand-carried by and reciprocating with

raid stair-section and shields in constant communication between the top and the bottom of said stair-section and the top and the bottom landing respectively, substantially as described.

700,456. CLOCK STRIKING MECHANISM. ARTHUR TOMPKINS, JR. Louis, Mo. Filed Nov. 5, 1900. Serial No. 38,646. (No model.)



Claim.—1. In a striking mechanism for clocks, a gang for sounding the hours, a gang for sounding quarter-hours, a meter, operating connections between said meter and gangs, an hour-controlling mechanism, a separate and independently-movable quarter-hour-controlling mechanism, means for actuating both said controlling mechanisms during each quarter-hour, and means actuated by the movement of one of said controlling mechanisms for shifting said operating connections from one gang to the other.

2. In a striking mechanism for clocks, a gang for sounding the hours, a gang for sounding quarter-hours, a controlling device for each of said gangs, a quarter-hour small-wheel for one of said controlling devices, an hour small-wheel for the other of said controlling devices, said small-wheels being independently pivoted on a common axis, and an actuating device provided with three arms for actuating said quarter-hour small-wheel and one arm for actuating both small-wheels.

3. In a striking mechanism for clocks, a gang for sounding the hours, a gang for sounding fractions of hours, a meter, operating connections between said meter and gangs, a pair of controlling-racks for said gangs, a pair of independently-movable detents for said racks, means for simultaneously disengaging said detents from said racks, means for independently returning said racks, and means for automatically shifting said operating connections from one gang to the other after the return of the first rack.

4. In a striking mechanism for clocks, a gang for sounding the hours, a gang for sounding fractions of hours, a meter, operating connections between said meter and gangs, a pair of controlling-racks for said gangs, a pair of independently-movable detents for said racks, a pin carried by one of said detents and extending beneath the other, means for moving said pin and thereby simultaneously disengaging said detents from said racks, means for independently returning said racks, and means for automatically shifting said operating connections from one of said gangs to the other after the return of the first rack.

5. In a striking mechanism for clocks, a gang for sounding hours, a gang for sounding quarter-hours, a meter, operating connections between said meter and gangs, a pair of controlling-racks for said gangs, a pair of independently-movable detents for said racks, means for simultaneously disengaging said detents from said racks, means for independently returning said racks, and means actuated by the return of the first of said racks for shifting said operating connections from one of said gangs to the other.

700,457. SHAFI-COUPLES. ARTHUR E. TOWNE, JR. Boston, Pa. Filed Feb. 10, 1902. Serial No. 15,000. (No model.)

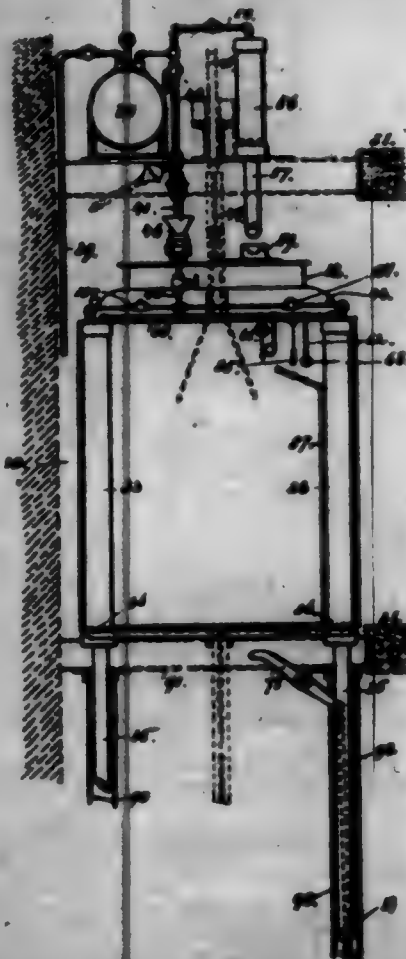
Claim.—1. A coupling for shafts, rods and the like, comprising a notional sleeve tapering from a middle point toward its extremities and having longitudinal grooves in its outer side, series of rings or bands fitted upon the tapering and portions of the sleeve, and lugs seated in the said grooves and having their ends portions upset, substantially as set forth.

2. The herein-described coupling for shafts, rods and the like com-

prising a notional sleeve tapering upon its outer side from a middle point toward its extremities and having longitudinal grooves, series of rings or bands for each end portion of the sleeve and having their openings of varying size and tapering to conform to the taper of the sleeve, and lugs fitted in the said grooves and having their ends ends upset, substantially as specified.



700,458. SAFETY APPLIANCE FOR ELEVATORS. SHARMA R. TRAFF. New York, N. Y. Filed Oct. 19, 1901. Serial No. 78,708. (No model.)



Claim.—1. The car, the cushioning-cylinder thereon having elastic gaskets and having the projecting piston-rod, and means for relieving the pressure in said cylinder when said fluid is compressed thereby by the piston, combined with steps normally out of the path of said piston-rod, and means operable from the car for effecting the movement of said steps into the path of said piston-rod for arresting the car; substantially as set forth.

2. The car, and the cushioning-cylinder thereon containing elastic gaskets and having the projecting piston-rod, combined with the series of steps normally out of the path of said piston-rod, lever mechanism for controlling said steps, and an arm connected with the car and adapted, when moved from its normal position, to engage said lever mechanism for effecting the movement of the proper step into the path of said piston-rod, for receiving said rod and arresting the car; substantially as set forth.

3. The car, and the cushioning-cylinder thereon mounted at opposite points thereon and having the downwardly-projecting piston-rod, said cylinder containing elastic gaskets and having the steps disposed along the elevator-shaft and normally out of the path of said rod, and means operable from the car for moving said steps into the path of said piston-rod for arresting the car; substantially as set forth.

4. The car, and the cushioning-cylinder thereon mounted at opposite points thereon and having the downwardly-projecting piston-rod, combined with the series of steps disposed at opposite points along the elevator-shaft and normally out of the path of said rod, lever mechanism also arranged at opposite points along the elevator-shaft for controlling said steps, and arms connected with the car and adapted when moved from their normal position to engage said lever mechanism for effecting the movement of the

proper steps into the path of said piston-rod for receiving said rod and arresting the car; substantially as set forth.

5. The car, the cushioning-cylinder thereon mounted at opposite points thereon and having the downwardly-projecting piston-rod, and the pipe 60 connecting said cylinders and affording free communication from one cylinder to the other, combined with steps disposed along the elevator-shaft and normally out of the path of said rod, and means operable from the car for moving said steps into the path of said piston-rod for arresting the car; substantially as set forth.

6. The car, the cushioning-cylinder thereon and having the downwardly-projecting piston-rod, the reservoir for compressed air, and means for automatically charging said cylinder from said reservoir upon the ascent of the car, combined with a step adapted when in the proper position to receive the end of said piston-rod and effect the stoppage of said car; substantially as set forth.

7. The car, the cushioning-cylinder thereon having the downwardly-projecting piston-rod, the reservoir for compressed air, the valve 41 leading to said cylinder and having the valve 42 and valve-stem 43, the pipe leading to said cylinder and the funnel 46 on said pipe and adapted on the ascent of the car to pass over the end of said valve and unseat said valve for enabling the automatic charging of said cylinder from said reservoir, combined with a step adapted when in the proper position to receive the end of said piston-rod and effect the stoppage of said car; substantially as set forth.

8. The car, the cylinder thereon containing air and having the projecting piston-rod, and the valve 43 within reach of the attendant in the car for establishing communication between the interior of said cylinder and the atmosphere, combined with a step adapted when in the proper position to receive the end of said piston-rod and effect the stoppage of said car; substantially as set forth.

9. The car, the cylinder thereon having the downwardly-projecting piston-rod, the reservoir for compressed air, means for charging said cylinder from said reservoir, the pump for charging said reservoir, and means connected with the car-holding device for actuating said pump, combined with a step adapted when in the proper position to receive the end of said piston-rod and effect the stoppage of said car; substantially as set forth.

10. The car, and the cushioning-cylinder thereon having the downwardly-projecting piston-rod, combined with the several steps 79 along the line of the elevator-shaft, the hinged beam 90 containing said steps, the sliding beam 100 loosely connected with said steps, means for normally holding said steps out of the path of said piston-rod, and means operable from the car for moving one of said steps into the path of said piston-rod for arresting the car; substantially as set forth.

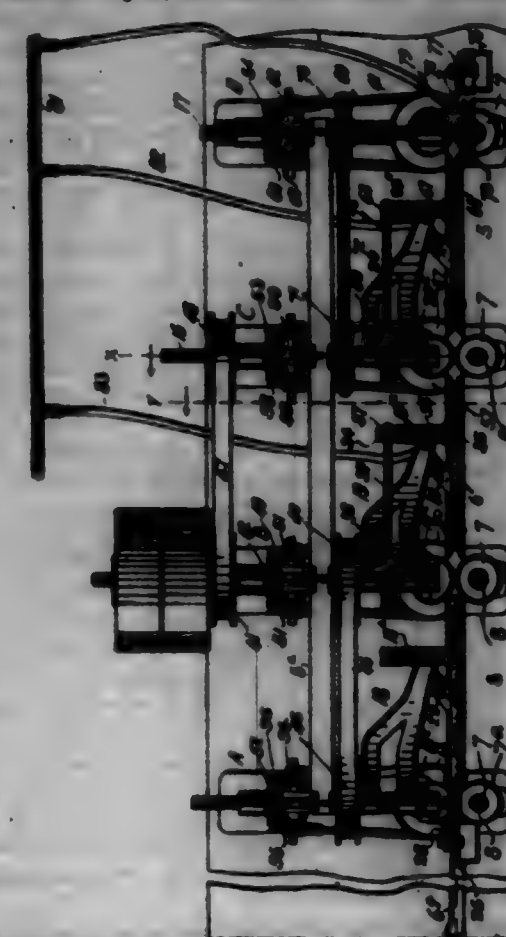
11. The car, the cushioning-cylinder thereon having the downwardly-projecting piston-rod, the vertical beam 80 along the elevator-shaft, and the transverse beam 81 in said shaft, combined with the several steps 79 along said shaft, the hinged beam 90 containing said steps and supported by said beam 80, the hinged beam 100 connected with said steps and passing around said beam 80 above and adapted to rest on said beam 81, and means operable from the car for moving one of said steps into the path of said piston-rod for arresting the car; substantially as set forth.

12. The car, and the cushioning-cylinder thereon having the downwardly-projecting piston-rod, combined with the step 79 at the side of the elevator-shaft and normally out of the path of said piston-rod, the lever 96 having the arm 102 to hold the said step out of the path of said piston-rod and an arm 97 to move said step into the path of said piston-rod, and means operable from the car for actuating said lever 96; substantially as set forth.

13. The car, and the cushioning-cylinder thereon having the downwardly-projecting piston-rod, combined with the step 79 at the side of the elevator-shaft and normally out of the path of said piston-rod, the lever 96 having the arm 102 to hold the said step out of the path of said piston-rod and an arm 97 to move said step into the path of said piston-rod, the transverse rod 95 connected at one end with said lever 96, the bell-crank lever 94 to which the other end of said rod 95 is connected, the vertical rod 93 connected with said lever 94, the pivoted lever 92 to which the upper end of said rod 93 is connected, and means carried by the car for engaging under proper conditions said lever 92 and causing the latter to effect the operation of said lever 96; substantially as set forth.

14. The car, the cushioning-cylinder thereon having the downwardly-projecting piston-rod, the pivoted plate 98 carried by the car, the rod 71 pivoted to said plate, the arm 75 carried to said rod, the pivot-arm engaging said plate, and means for raising said plate when said pivot-arm is released therefrom for the purpose of projecting the arm 75 beyond the edge of said car, combined with steps normally out of the path of said piston-rod, and means operable from said car when the latter is projected outward for effecting the movement of said steps into the path of said piston-rod; substantially as set forth.

700,459. EDGE-TRIMMING MACHINE. ARTHUR A. TOWNE, BOSTON, Osh. Filed May 13, 1901. Serial No. 80,000. (No model.)



Claim.—1. The combination with a suitable framework, of a guide-track having vertical flanges forming a way adapted to receive edgewise the article to be trimmed, means for causing the article to travel along the track in a plane substantially vertical, and a vertically-adjustable edge-trimming wheel arranged to engage the article during such movement, and means for adjusting said wheel.

2. In an edge-trimming machine, the combination of a supporting guide-track provided with a way adapted to support the article to be trimmed in a substantially vertical plane, vertical feed-rollers located adjacent the track and arranged to cause the article to be trimmed, to travel along said track, a vertically-adjustable edge-trimming wheel located in the plane of the track-guideway, means for adjusting said wheel, and a movable support for the said wheel whereby the latter may accommodate itself to articles of varying width.

3. In a machine of the class described, the combination of a guide-track, provided with upwardly-projecting flanges having breaks at intervals, feed-rollers located at said breaks and arranged to cause the article to travel along the guide-track, and an edge-trimming wheel located in the plane of the guide-track.

4. In an edge-trimming machine, the combination of a track having a guideway adapted to support the article to be trimmed in a substantially vertical plane, means for causing the article to travel along said track, a vertically-adjustable maintaining device located in the plane of the guideway, and a vertically-adjustable edge-trimming device located in the same plane, and suitable means for adjusting the maintaining and edge-trimming devices.

5. In an edge-trimming machine, the combination of a track having a vertical guideway, means for causing the article to be trimmed to travel along said guideway in a plane substantially vertical, a vertically-adjustable maintaining-belt arranged in the plane of the track-guideway, vertically-adjustable edge-trimming means also located in the plane of the said guideway and arranged to engage the edge of the article after it leaves the maintaining-belt, and means for adjusting the maintaining and edge-trimming means.

6. In an edge-trimming machine, the combination of a guide-track constructed and arranged to support the article to be trimmed in a substantially vertical plane, a vertically-adjusting yoke, a pulley carried by said yoke and located in the plane of the guide-track, an endless maintaining-belt passed around said pulley, and suitable edge-trimming means located in the rear of the maintaining-belt.

7. In a machine of the class described, the combination of a supporting-guide for the article to be trimmed, means for causing the article to travel along said guide, an edgewise yoke carrying an inclined position, its free extremity being downward, a pulley mounted on the free extremity of said yoke, an endless maintaining-belt passing around the pul-

ley, and a guide-chose connected with the yoke and forming a runway for the maintaining-belt.

8. In a machine of the class described, the combination of a supporting-guide for the article to be treated, means for causing the article to travel along said guide, a swinging arm, a pulley mounted on the free extremity of said arm, a maintaining-belt passing around said pulley, a guide-chose connected with the swinging arm and surrounding the belt forming a runway therefor, the guideway of the chose being open from below to allow the article to engage the belt which is supported from above by the guide-chose.

9. In a machine of the class described, the combination of a supporting-guide-track having vertical flanges forming a guide for the article to be treated, means for causing the article to travel along said track in a substantially vertical plane, an adjustable, vertically-oscillating yoke-arm, a pulley mounted on the free extremity of said arm in the plane of the article to be treated, and a belt passed around the pulley in the plane of the track-guideway.

10. In a machine of the class described, the combination of a supporting-guide-track, means for causing the article to travel along said track in a plane substantially vertical, an endless maintaining-belt traveling in the plane of the article to be treated, said belt being vertically adjustable, means for adjusting the belt, a liquid-receptacle, and a wheel dipping into said receptacle and arranged to engage the belt for moistening purposes.

11. The combination with a suitable frame, of a supporting-guide-track, means for causing the article to travel along said track in a plane substantially vertical, an adjustable, vertically-oscillating arm, and an edge-ironing wheel mounted on said arm in the plane of the article to be treated.

12. The combination with a suitable frame, of a supporting-track mounted thereon, means for causing the article to travel along said track, an oscillating yoke-arm, an edge-ironing wheel mounted on the free extremity of said arm, and a guide-chose connected with said arm, its upper part being closed and normally downwardly inclined from the front toward the rear, to facilitate the raising of the yoke-arm to accommodate itself to articles of different width.

13. The combination with a suitable frame, of a supporting-guide-track mounted thereon, an oscillating yoke-arm mounted on the frame, a guide-chose connected with said arm in the plane of the guide-track, and an edge-ironing wheel mounted on the yoke in the plane of the track.

14. In an edge-ironing machine, the combination with a suitable frame, of a guide-track mounted thereon, said track being constructed and arranged to support the article to be treated in a plane substantially vertical, a vertically-oscillating yoke-arm also mounted on the frame, a set-bolt threaded in the frame and engaging the yoke-arm for purposes of adjustment, and an edge-ironing wheel mounted on said arm in the plane of the article on the track.

15. In an edge-ironing machine, the combination with a suitable frame, of a guide-track mounted thereon, said track being constructed and arranged to support the article to be treated in a substantially vertical plane, two vertically-adjustable edge-ironing wheels mounted in the plane of the article on the guide-track, one in front of the other, and having their edge-ironing peripheries differently fashioned for the purpose set forth, and means for adjusting the edge-ironing wheels.

16. In an edge-ironing machine, the combination with a frame, of a supporting-guide-track mounted thereon, said track being constructed and arranged to support the article to be treated in a plane substantially vertical, and a pair of vertical feed-rollers cooperating with the track, spindles upon which the said rollers are mounted, a hinged bar for one of the spindles, a bushing through which the last-named spindle passes, and a spring engaging said bushing and cooperating with the hinged bar to allow the roller to yield in the performance of its function.

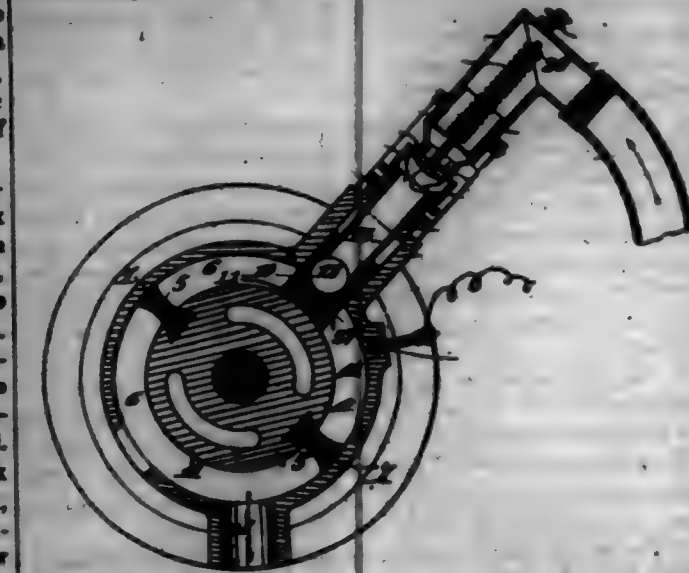
17. In an edge-ironing machine, the combination with a suitable frame, of a supporting-guide-track mounted thereon, feed-rollers arranged in pairs along said track, an endless maintaining-belt arranged in the plane of the guide-track, a guide-chose forming a runway for said belt, an edge-ironing wheel located in the plane of the track, an oscillating yoke-arm upon which said wheel is mounted, and a guide-chose located in the plane of the track and wheel and cooperating with both.

18. In an edge-ironing machine, the combination with a suitable frame, of a guide-track mounted thereon, said track being constructed and arranged to support the article to be treated in a plane substantially vertical, vertical feed-rollers arranged along said track, an endless moving belt located in the plane of the article on the track, edge-ironing wheels also located in the plane of the article on the track, and suitable means for operating the feed-rollers, the belt and the ironing-wheels.

700,460. ROTARY MOTOR. ROSS VAN BUREN, Broun, Ind. Filed Feb. 7, 1901. Serial No. 44,244. (No model.)

Claim.—1. In the improved rotary motor, the combination with an outer cylindrical casing and a shaft extending centrally and loosely through

the same, of an inner cylinder keyed on said shaft, a plurality of rectangular plates secured to the periphery of said inner cylinder, a suitable valve-box made in one piece with the outer casing, a slide-valve movably arranged in said valve-box and normally engaging the periphery of the inner cylinder; a suitable cam mechanism actuated by the shaft to move the slide-valve into its box at a given moment, passages in the slide-valve and in communication with the annular space between the inner cylinder and the outer casing; a fluid-admission tube connected to said passages, a normally closed valve in said tube and adapted to be opened by the pressure of the fluid, and an exhaust-opening in the outer casing, substantially as set forth.



2. In the improved rotary motor, the combination with the outer casing, a smaller inner cylinder rotatably mounted within said casing, and two rectangular plates projecting radially at the periphery of the cylinder and frictionally engaging the inner wall of the outer casing, of a slide-valve normally engaging the periphery of the inner cylinder, a longitudinal bore in said valve and parallel with the longitudinal axis of the cylinder, a plurality of passages leading from said bore and discharging into the space between the inner cylinder and the outer casing, a suitable cam mechanism to actuate the valve at a given moment, a conduit connecting the bore of the slide-valve to a supply of compressed fluid, and a normally closed valve in said conduit and adapted to be opened by the pressure of the fluid, substantially as set forth.

700,461. ELECTRIC RAILROAD-SIGNAL. WILLIAM D. VAN NEMER, Grand Rapids, Mich. Filed June 9, 1901. Serial No. 44,241. (No model.)



Claim.—1. In combination with a block of railway-track, an electric signal at each end of the block, a circuit and cut-out to operate each signal, a series of signals within the block, positive and negative wires to operate the last-named signals, a switch for each and signal to alternately connect the same, and one of the wires for the series of signals, two electromagnets at each switch to respectively shift the same, electric circuits for each magnet-coil, a circuit-closer adjacent to each and signal and in the circuit operating to open the circuit of said signal and to close the circuit of one of said wires, and a second circuit-closer adjacent to each signal, and in the circuit operating to close the circuit of the signal at the other end of the block and open the circuit of one of the said wires, and means for operating the said circuit-closers by the passage of a train, substantially as described.

2. In combination with a block of railway-track, an electric signal at each end of the block, an electric circuit to operate each signal, a switch

to open and close each circuit, an electromagnet and electric circuit to open each switch, an electromagnet and circuit to close each switch, a circuit-closer in each of the circuits to operate the switches, the two circuit-closers for each signal, being located at opposite ends of the block, substantially as described.

3. In combination with a block of railway-track, an electric generator and positive and negative lines connected to the generator, an electric signal at each end of the block, a circuit-closer to operate each signal, a series of signals within the block and connected in parallel between a positive and negative wire forming a circuit-closer, a switch for each and signal adapted to alternately close the said signal-circuit and the circuit through one of said wires, circuit-closers operating to shift the switch and close the said signal-circuit, circuit-closers in said circuit each located near the end of the block remote from the respective signal, and circuit-closers operating to open the said signal-circuit, each being located near the end of the block adjacent to the respective signal, and means for operating the circuit-closers by the passage of trains, substantially as described.

4. In combination with a railway-track, a train, signals, and electric circuits for operating the signals, circuit-closers in said circuits and located near the track, said closers consisting of insulated spring-electrodes, a vertically-movable plate to connect the same, a spring to depress the plate, and a cam-lever connected to the plate, and a shoe on the train adapted to engage the cam-lever and close the circuit, substantially as described.

5. In combination with a block, a train, electrically-operated signals, and electric circuits for operating the signals, an insulated plate between the tracks, insulated spring-electrodes in the circuit and attached to the plate, a vertically-movable belt, a plate on the belt, a spring surrounding the belt and depressing the same, a cam-lever pivoted to the belt and having a rounded lower end engaging the insulated plate, and a shoe on the train to engage the cam-lever and bring the plate in contact with the electrodes, substantially as described.

6. In combination with a track, a train, electrically-operated signals, and electric circuits to operate the signals, circuit-closers in said circuits and located near the track, a shoe on the train engaging and operating said circuit-closers and forming a part of an electric circuit, an electric bell and circuit-closer on the train whereby the bell is caused to ring whenever the shoe contacts a circuit-closer near the track, substantially as described.

7. In combination with a block of railway-track, an electrical generator, a series of electrically-operated signals at intervals within the block, a positive and a negative wire to operate said signals and each independently connected to the generator, means for connecting and disconnecting each wire to the generator, and operated by the passing train whereby one wire is connected and disconnected by trains going in one direction and the other wire connected and disconnected by trains going in the opposite direction, substantially as described.

8. In combination with a block of railway-track, an electric generator and main circuit, a series of electrically-operated signals within the block, a line connected to the positive side of the main circuit and to one side of the signals, a line connected to the negative side of the main circuit and to the other side of the signals, and means for closing the respective lines as a train enters the respective ends of the block, and means for opening the said lines as the said trains leave the track, whereby both lines are connected and the signals operated whenever two trains approach each other within the block, substantially as described.

700,462. BOTTLE-CLOSURE. JAMES H. VAN NEMER, Cambridge City, Ind. Filed Mar. 17, 1902. Serial No. 44,240. (No model.)



Claim.—1. In a bottle-closure, the combination, substantially as set forth, of a bottle having a cylindrical and a subjacent tapering portion in the base of its neck and having the exterior of its neck screw-threaded and having a side outlet-part from the tapering portion of the base, a plug fitting the cylindrical and tapering portion of said base and having in its lower end an axial part and a transverse part adapted to align with the outlet-part of the neck, a cap screwed upon the neck of the bottle and engaging over the top of the plug, and a stem secured into the top of the plug and projecting upwardly therefrom and provided with means by which it and the plug may be rotated.

2. In a bottle-closure, the combination, substantially as set forth, of a bottle having a cylindrical and a subjacent tapering portion in the base of its neck and having the exterior of its neck screw-threaded and having

a side outlet-part from the tapering portion of the base, a plug fitting the cylindrical and tapering portion of said base and having in its lower end an axial part and a transverse part adapted to align with the outlet-part of the neck, a cap screwed upon the neck of the bottle and engaging over the top of the plug, and a stem secured into the top of the plug and projecting upwardly therefrom and provided with means by which it and the plug may be rotated.

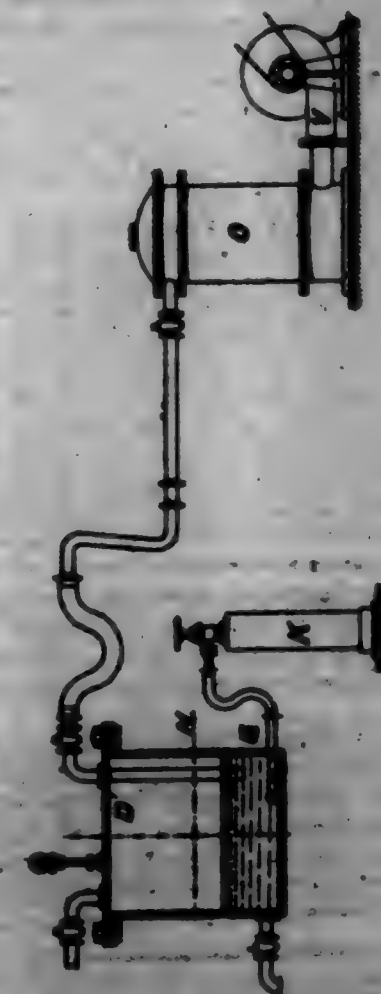
3. In a bottle-closure, the combination, substantially as set forth, of a bottle having a cylindrical and a subjacent tapering portion in the base of its neck and having the exterior of its neck screw-threaded and having a side outlet-part from the tapering portion of the base, a plug fitting the cylindrical and tapering portion of said base and having in its lower end an axial part and a transverse part adapted to align with the outlet-part of the neck, a cap screwed upon the neck of the bottle and engaging over the top of the plug, a self-jacket secured upon the tapering portion of the plug, longitudinal ribs upon the tapering portion of the plug and engaging the interior of said jacket, and a projection from the top of the plug to serve in turning the plug.

700,463. INSULATOR FOR ELECTRIC CIRCUITS. WILLIAM J. WALTERS, Boston, Mass. Filed Jan. 20, 1902. Serial No. 44,239. (No model.)



Claim.—The insulator above described with its saucer-shaped body and centrally-projecting sleeve united by ribs integral with the sleeve and saucer.

700,464. MANUFACTURE OF STERILIZED CARBONATED WATER. THEODORE WEYL, Charlottenburg, near Berlin, Germany, assignor to Siemens & Halske, Aktien-Gesellschaft, Berlin, Germany. Filed Feb. 7, 1902. Serial No. 44,238. (No specimens.)

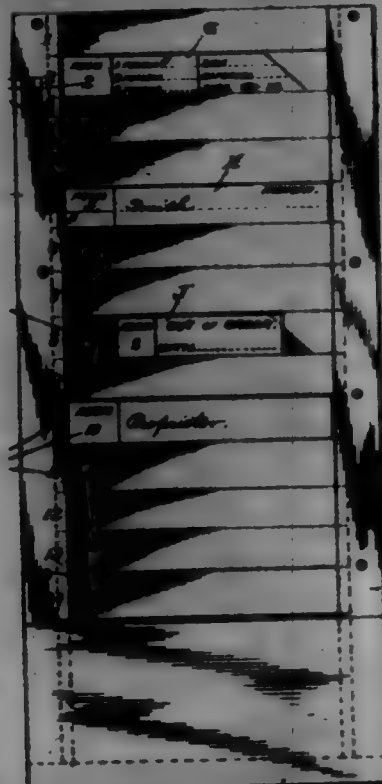


Claim.—1. The process of manufacturing sterilized carbonated liquid, which consists in first introducing into the liquid to be treated, carbonic acid, and then introducing therein steam under constant pressure

until a greater quantity of essence is absorbed than corresponds to the coefficient of absorption at ordinary pressure.

2. The process of manufacturing sterilized carbonated mineral water, which consists in introducing, into the water to be treated, carbonic acid and essence under contained pressure until tested samples show the extinction of organic life, and then, while continuously maintaining the pressure, transferring the water to storage vessels.

700,465. SYSTEM OF DEVICES FOR KEEPING HOTEL ACCOUNTS. JOHN WILLY, Chicago, Ill. Filed Mar. 26, 1901. Serial No. 58,236. (24 model.)



Claim.—1. In a system of devices for keeping hotel accounts, and room and guest records, the combination of a suitable rack having a series of numbered pockets, one for each room, with a permanent room-card adapted to be inserted in each pocket containing information and marks or signs applicable to the room in question, and a guest's card adapted to be inserted in the same pocket and containing information and marks or signs applicable to the particular guest in connection with the room in question, said room-cards and guest-cards of different colors, each of said cards containing matter which distinguishes it from the other cards and assigns it to its peculiar duty or service.

2. In a system of devices for keeping hotel accounts, and room and guest records, the combination of a suitable rack having a series of numbered pockets, one for each room, with a permanent room-card adapted to be inserted in each pocket containing information and marks or signs applicable to the room in question, and a guest's card adapted to be inserted in the same pocket and containing information and marks or signs applicable to the particular guest in connection with the room in question, said room-card cut away at one corner to facilitate the removal of the guest-card, each of said cards containing matter which distinguishes it from the other cards and assigns it to its peculiar duty or service.

3. In a system of devices for keeping hotel accounts, and room and guest records, the combination of a suitable rack having a series of numbered pockets, one for each room, with a series of room-cards, one for each pocket, a series of guest-cards for said pockets where required, and a series of condition-cards for said pockets where required, said cards differing among themselves in color, each of said cards containing matter which distinguishes it from the other cards and assigns it to its peculiar duty or service.

4. In a system of devices for keeping hotel accounts, and room and guest records, the combination of a rack having numbered pockets, one for each room, with a series of room-cards one for each pocket, and a series of condition-cards for said pockets where required, said condition-cards cut away so as when in position to expose a part of the room-card, each of said cards containing matter which distinguishes it from the other cards and assigns it to its peculiar duty or service.

700,466. MINING-MACHINE. HARRIS B. WYLER, Paris, Ark. Filed Apr. 26, 1901. Serial No. 14,997. (No model.)

Claim.—1. A mining-machine comprising a fixed main frame, separate supporting devices adapted for interchangeable connection with the

main frame, and a drill-carriage constructed and arranged for connection with the supporting devices interchangeably for pivotal movement in different planes at angles to each other.



2. Is a mining-machine, the combination with a main frame including rails, of a carrier slidably engaged with the rails, a drill-carriage mounted upon the carrier for pivotal movement, and provided with drill-actuating mechanism comprising a manually-operable element, means connected with said manually-operable element for moving the carriage pivotally and means for advancing the carrier along the rails and including a pedal disposed in proximity to the manually-operable element of the drill-actuating mechanism, whereby one man may operate the drill, swing the carriage and advance the carrier.

3. A mining-machine comprising a drill-carriage having a drill provided with operating means, said carriage being adapted for interchangeable mounting to oscillate in different planes, a reciprocating pawl operably connected with the drilling mechanism, and a rack mounted in operative relation to the pawl for engagement thereby to move the carriage pivotally, said rack being removable to permit pivotal movement of the carriage in a different plane.

4. A mining-machine comprising a drill-carriage having a drill provided with operating means, said carriage being adapted for interchangeable pivotal mounting to oscillate in different planes, opposing racks, opposing pawls adapted for alternate engagement with their respective racks and operably connected with the drilling mechanism for movement over the racks, and means for throwing the pawls alternately into operative relation to their respective racks.

5. A mining-machine comprising a carriage adapted for pivotal movement, a drill mounted upon the carriage for movement therewith and having operating mechanism, opposing racks, opposing pawls operably connected with the drill-actuating mechanism for engagement with the racks to pivotally move the carriage, and means for moving the pawls alternately into engagement with their respective racks.

6. A mining-machine comprising a carriage adapted for pivotal movement, a drill mounted upon the carriage for movement therewith and having operating means comprising a shaft, a lever pivoted upon the carriage and having cam connection with the shaft for oscillation thereby, opposing pawls mounted upon the lever, opposing racks for engagement by the pawls alternately to pivotally move the carriage in opposite directions, and means for moving the pawls alternately into operative relation to their respective racks.

7. A mining-machine comprising a main supporting-frame including uprights and connecting-rails, a carrier slidably engaged with the rails to permit the carrier to be advanced and retracted, separate supporting devices adapted for interchangeable connection with the carrier, and a drill-carriage constructed and arranged for connection with the supports interchangeably for pivotal movement in different planes lying at angles to each other.

8. A mining-machine comprising a main supporting-frame including uprights and connecting-rails, a carrier slidably engaged with the rails to permit the carrier to be advanced and retracted, separate supporting devices adapted for interchangeable connection with the carrier and at both ends thereof, and a drill-carriage constructed and arranged for connection with the supports interchangeably for pivotal movement in different planes at angles to each other.

9. In a drilling mechanism, the combination with a pivotally-mounted drill-carriage and a reciprocating drill mounted therein, of a rack adjacent to the carriage, a cam-shaft mounted in the carriage and provided with a cam, a lever engaged with the cam and having a pawl in operative relation to the rack to rotate the carriage when the lever is actuated, said shaft having means for engagement with the drill to retract it, means for moving the drill forwardly when released by its retracting means, and means for actuating the shaft.

10. In a drilling mechanism, the combination with a pivotally-mounted carriage and a reciprocating drill mounted therein, of racks disposed adjacent to the carriage and having their teeth arranged in opposition, a shaft mounted in the carriage and provided with a cam, a lever pivoted on the carriage and engaged with the cam for oscillation thereby, pawls carried by the lever for alternate engagement with their re-

spective racks, means for actuating the shaft and means for throwing the pawls alternately into operative relation to their respective racks.

11. In a drilling mechanism, the combination with a pivotally-mounted drill-carriage and a reciprocating drill mounted therein, of opposing racks disposed adjacent to the carriage, a shaft mounted in the carriage and provided with a cam, a lever pivoted on the carriage and engaged with the cam for oscillation thereby, a rocker mounted on the lever, pawls pivoted to the lever and having connection with the rocker for movement thereby to alternately engage their respective racks, means for actuating the rocker, a finger on the drill, a crank on the cam-shaft adapted to engage the finger to swing the drill in one direction, means for retracting the drill when released by the crank, operating-levers for the cam-shaft, and hand-levers connected with the operating-levers for retracting the shaft.

12. A mining-machine comprising a reciprocating drill-rod provided with a lug, a trip-shaft having a trip for engagement with the lug to retract the drill-rod, means for retracting the rod, a crank-shaft provided with double cranks, intermeshing gears upon the crank-shaft and trip-shaft, a handle for one element of each crank, and a rocking lever connected with the second element of each crank.

13. A mining-machine comprising a pivoted carriage, a reciprocating drill mounted in the carriage and provided with a lug, a trip-shaft mounted in the carriage and having a trip for engagement with the lug to retract the drill, means for retracting the drill when released by the trip, means for operating the trip-shaft, and means operably connected with the trip-shaft for moving the carriage pivotally.

14. A mining-machine comprising a pivoted carriage, a reciprocating drill mounted in the carriage, a trip-shaft having a trip for engagement with the drill to retract it, means for retracting the drill when released by the trip, a rack, a pivoted lever operably connected with the trip-shaft for pivotal movement thereby, and a pawl carried by the lever in operative relation to the rack to move the carriage pivotally.

15. A mining-machine comprising a main frame including upper and lower members and uprights removably connected thereto, said uprights having pivot-bearings, a removable pivot-rod engaged with the upper and lower members, and a drill-carriage mounted on the rod removably and adapted for pivotal connection with the uprights.

16. A mining-machine comprising a main frame including upper and lower members and uprights removably connected thereto, a removable pivot-rod engaged with the upper and lower members, a drill-carriage adjustably mounted on the pivot-rod and removable therefrom, said uprights being adapted for attachment to the side of the carriage and adapted for pivotal connection with the carriage when the pivot-rod is removed.

17. A drill-bit for mining-machines, comprising a rectangular stock having two pairs of diverging teeth at one end thereof, the points of said teeth lying without the planes of the side faces of the stock, each of the teeth being pyramidal in form, having rectangular bases and being disposed with the mutually-adjacent edges of their bases on two lines, lying in the same plane and intersecting each other at right angles, said teeth being clear of one another from base to point, substantially as described.

18. A machine of the class described comprising a main frame, a carrier mounted for longitudinal movement in said main frame, a drill-carriage and removable pivotal supports, disposed at right angles to each other, to mount said carriage on said carrier, whereby said carriage may be pivotally mounted to be swung either horizontally or vertically, substantially as described.

19. In a machine of the class described, the combination of a relatively fixed support, a carrier movable longitudinally thereon, and means including a pedal-lever to advance said carrier, a drill-carriage mounted for pivotal movement on said carrier, and a drill-actuating mechanism in said carrier and having hand-levers, whereby the carrier may be advanced, and the drill operated by a single operator manually, substantially as described.

20. In a machine of the class described, the combination of a relatively fixed support, a carrier movable longitudinally thereon, and means, including a pedal-lever, to advance said carrier, a drill-carriage, mounted for pivotal movement on said carrier, a drill-actuating mechanism in said carriage, and having hand-levers, and means operated by said drill-actuating mechanism, to automatically swing said drill-carriage pivotally, whereby the carrier may be advanced, the drill-carriage pivotally swung, and the drill mechanism simultaneously operated manually by a single operator, substantially as described.

21. In a machine of the class described, the combination of a main frame, a carrier mounted for longitudinal movement in said main frame, a drill-carriage and removable pivotal supports, disposed at an angle to each other, to mount said carriage on said carrier, whereby said carriage may be pivotally mounted to be swung in correspondingly-angled planes, and a reciprocating drill and operating mechanism, thereby, with which said carriage is provided, substantially as described.

22. In a machine of the class described, the combination of a relatively fixed support, a carrier movable longitudinally thereon, means to advance said carrier, a drill-carriage mounted for pivotal movement on said carrier, and a drill-actuating mechanism in said carrier and lever with which said carrier-advancing means and drill-actuating mechanism are provided, whereby they may be operated manually, by a single operator, substantially as described.

700,467. PAPER-BAG-MAKING APPLIANCE. DANIEL ARNOLD, Cleveland, Ohio, assignor to the Union Paper Bag Machine Company, Philadelphia, Pa. Filed Jan. 13, 1902. Serial No. 58,237. (No model.)



Claim.—1. In a paper-bag-making appliance, a mandrel comprising a pair of thin blades disposed contiguously to each other at one portion and thence having a tapering divergence, the width of the blades being equal to that of the plaited tube to be dealt with, and the greatest distance between the blades being in correspondence with the fully-open condition of the tube, said blades having narrowed prolongations from their point of greatest divergence, and said narrowed prolongations having a tapering convergence, substantially as set forth.

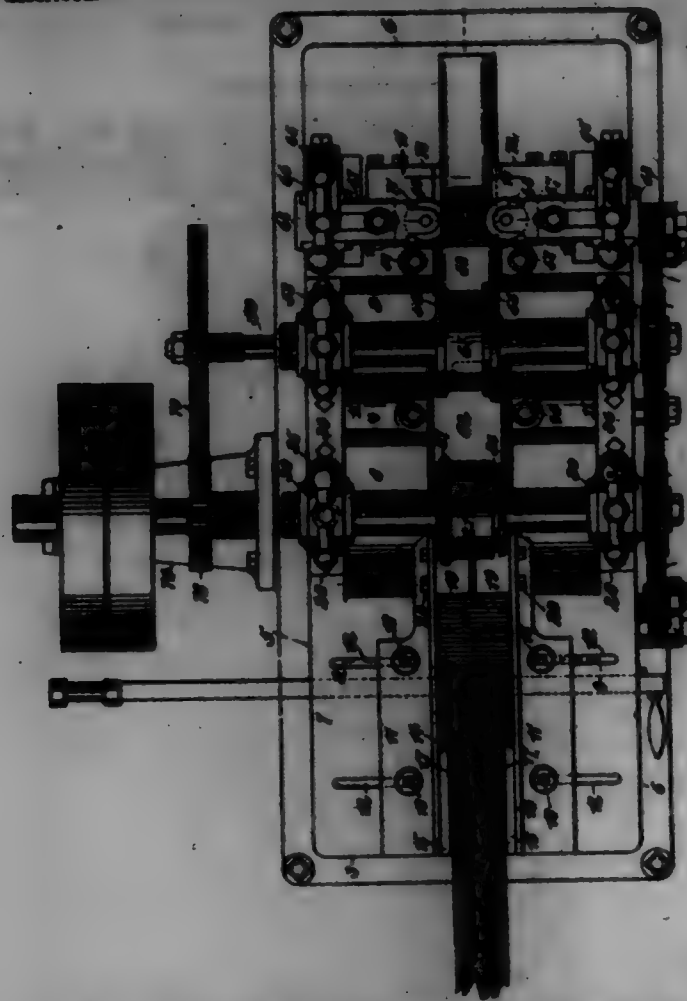
2. In a paper-bag-making appliance, a mandrel comprising a pair of thin blades disposed contiguously to each other at one portion and thence having a tapering divergence, the width of the blades being equal to that of the plaited tube to be dealt with, and the greatest distance between the blades being in correspondence with the fully-open condition of the tube, said blades having narrowed prolongations from their point of greatest divergence, and said narrowed prolongations having a tapering convergence, the convergence of said narrowed prolongations beginning at a point some distance forward of the junction between the wide and narrow portions of the blades, substantially as set forth.

700,468. MACHINE FOR COVERING SHEETS OF THINER WITH METAL. WILLIAM P. APPELHANS, New Haven, Conn., assignor to Daniel Finkel Co. and Loring Company, a Corporation of New Jersey. Filed Dec. 22, 1901. Serial No. 17,383. (No model.)

Claim.—1. In a machine of the character described, the combination with a suitable frame, of a pair of sheath-formers mounted in the forward part thereof and adapted to approximately shape the edges of the metal, the upper former being constructed in one piece and the lower former consisting of two dies and an intermediate roller, blades in which said sheath-formers are detachably secured, and means mounted on said frame and adapted to complete the bending and shaping of the edges of said metal, substantially as described.

2. In a machine of the character described, the combination with a suitable frame, of a pair of sheath-formers mounted in the forward part of said frame and located one above the other, an upper former constructed in one piece and removably secured to the upper shaft, a lower former consisting of two dies and an intermediate roller removably secured to the

lower shaft, said rollers being constructed and arranged to bend the edges of a metal strip to approximately fit around the tongue and into the groove of a wooden strip, and means secured to said frame whereby the bending and locking of the metal in the wooden strip are completed, substantially as described.



2. In a machine of the character described, the combination with a suitable frame, of a pair of shaft-formers mounted in the forward part of said frame and adjustable located one above the other, the upper of said formers being constructed in one piece and provided on its surface and near one edge thereof with a head and near its opposite end with a groove, said lower former consisting of two dies and the other with a groove, one of said dies being provided with a flange and the other with a groove, said formers being constructed and arranged to bend the edges of the metal into approximately the shape of a tongue and groove, and means secured to said frame whereby the bending and locking of the edges of the metal are completed, substantially as described.

4. In a machine of the character described, the combination with a suitable frame, of a pair of formers mounted in the forward part of said frame and located one above the other, said formers being constructed and arranged to bend the edges of a metal strip into approximately the shape of the tongue and groove of a wooden strip, a pair of rollers mounted in said frame and back of said formers and located one above the other, the upper of said rollers being provided on its ends with downwardly-projecting flanges, and the lower roller having its surface provided with teeth or corrugations, and means secured to said frame whereby the bending and locking of the edges of the metal strip to the wooden strip are completed, substantially as described.

5. In a machine of the character described, the combination with a suitable frame, of a pair of shafts adjustably mounted in the forward part of said frame and located one above the other, rollers removably secured to said shafts, a stationary guide-chase secured to said frame and back of said shafts, and provided on its edges with downwardly-extending flanges and at one corner with a wedge-shaped strip, a pair of shafts adjustably mounted in said frame in the rear of said guide-chase and located one above the other, rollers secured to said last-mentioned shafts, and means secured to said frame whereby the bending and locking of the edges of the metal strip are completed after passing between said rollers and under said guide-chase, substantially as described.

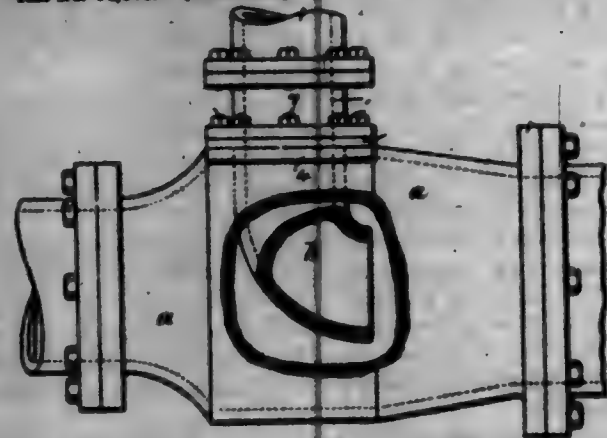
6. In a machine of the character described, the combination with a suitable frame, of a pair of shaft-formers located in the forward part of said machine and one above the other, said formers being vertically adjustable toward or away from each other, a pair of rollers located in the rear of said shaft-formers and one above the other, said rollers being vertically adjustable toward or away from each other, a pair of horizontal rollers mounted on the rear end of said frame and horizontally adjust-

able toward or away from each other, and means secured to said frame and between said rollers whereby the latter are assisted in bending, shaping and locking the edges of the metal strip, substantially as described.

7. In a machine of the character described the combination with a suitable frame, of a pair of rollers mounted in said frame and adapted to partially shape both edges of the metal, a stationary guide-chase adapted to bend downwardly one of said shaped edges of the metal strip, a second pair of rollers adapted to bend downwardly both edges of said metal, a stationary guide-chase located in the rear of said last-mentioned rollers and adapted to continue the bending of both of said edges of said metal, a third pair of rollers adapted to partially lock said shaped edges of the metal around the edges of the timber, and stationary guides located in the rear of said machine and adapted to completely lock the edges of said metal around the edges of said timber, substantially as described.

8. In a machine of the character described, the combination with a suitable frame, of several pairs of rollers adjustably mounted in said frame and adapted to partially bend, shape and lock the edges of the metal, a forward guide-chase secured to the frame and in the rear of the first pair of said rollers, said chase being provided with a downwardly-extending projection at one edge thereof for bending the corresponding edge of the metal strip, a rear guide-chase provided with shoulders adapted to bend both edges of said metal, and guide-formers located in the rear of said rollers and adapted to assist in locking the metal to the timber, substantially as described.

700,469. BLOW-OFF NOZZLE FOR PAPER-MILL MACHINERY.
JAMES H. BAKER, Saratoga Springs, N. Y., assignor to Baker and Sherrin Company, a Corporation of New York. Filed Sept. 16, 1901. Serial No. 74,672. (No model.)



Claim.—1. A blow-off nozzle for paper-mill machinery, comprising a cast body adapted to be connected in the line of piping from the pulp-digester to the blow-tank and having an opening in the surface thereof and a bend passing down into the cast body through said opening with the orifice of the bend in the center of the cast body and set toward the blow-tank, and means for connecting the bend to the cast body and for connecting to the bend a pipe for supplying water, substantially as set forth.

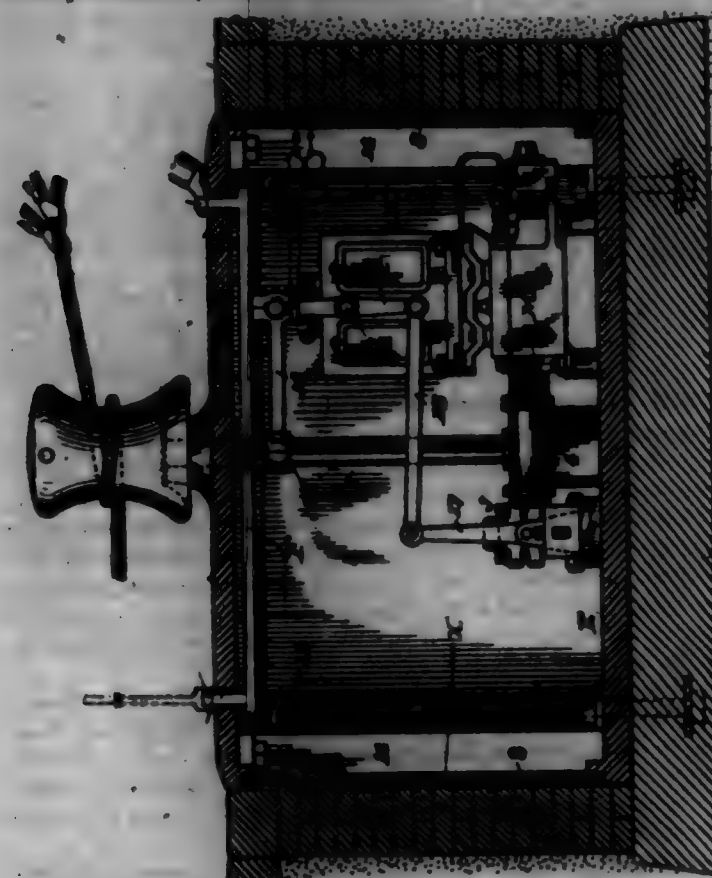
2. A blow-off nozzle for paper-mill machinery comprising a cast body having flanged ends and tapered toward the ends with the openings in the ends of different apertures, an opening in the side of the body, and a flange around the opening, a bend passing through said opening and having a flange resting on the lower flange with the orifice of the bend coming at the center of the cast body and opening in the direction toward the larger end of the cast body and toward the pipe extending to the blow-tank, and means for connecting the bend to the cast body and for connecting to the bend a supply-pipe for water, substantially as set forth.

3. A blow-off nozzle for paper-mill machinery, comprising a cast body having flanged ends and tapered toward the ends with the openings in the ends of different apertures, an opening in the side of the body and a flange around the opening, a bend passing through said opening and having a flange resting on the lower flange with the orifice of the bend coming at the center of the cast body and opening in the direction toward the larger end of the cast body and toward the pipe extending to the blow-tank, and a double-flanged nipple resting upon the flange of the bend and bolts for connecting the parts together, and a pipe for supplying water to the bend connected in the double-flanged nipple, substantially as set forth.

700,470. SHIFTING DEVICE FOR PIERES, &c. WILLIAM D. BALDWIN, New York, and AUGUST BUNDE, Yonkers, N. Y., assignors to Otto Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Dec. 17, 1901. Serial No. 88,388. (No model.)

Claim.—1. The combination with the footway of a pier or embankment, of a capstan connected with a shaft extending downward through said footway, a motor connected to operate said shaft and provided with a

control device for stopping, starting, and reversing the motor, and a stopping and starting device having projections extending upward through the footway in different positions, substantially as and for the purpose set forth.



2. The combination with the footway of a pier or embankment, of a capstan arranged above the footway, a shaft connected to the capstan extending below the footway, a motor connected to rotate said shaft and provided with stopping, starting, and reversing means, and a stopping and starting device arranged to be actuated by the foot of the operator upon the footway, substantially as and for the purpose set forth.

700,471. MANUFACTURE OF NITROCELLULOSE AND GASEIN COMPOUND. CHARLES BERNARD, Paris, France. Filed Feb. 4, 1902. Serial No. 92,712. (No specimens.)

Claim.—1. The herein-described process of producing a homogeneous compound of nitrocellulose and cascin, which consists in forming a plastic mass of the cascin in one of its solvents, the latter being an aqueous solution, replacing the water, in part, from the said plastic mass with a liquid solvent of nitrocellulose, then removing the excess of liquid from the plastic mass, and finally incorporating with the mass of cascin a mass of plastic nitrocellulose and kneading the same to form a homogeneous compound.

2. The herein-described method of producing a homogeneous compound of nitrocellulose and cascin, which consists in forming a plastic mass of the cascin with an aqueous solution of borax, then removing the surplus water, then immersing the mass in alcohol to displace a part of the water absorbed by the cascin, then removing the excess of liquid from the mass, then incorporating the mass of cascin thus prepared with a mass of plastic nitrocellulose and kneading the whole into a homogeneous compound.

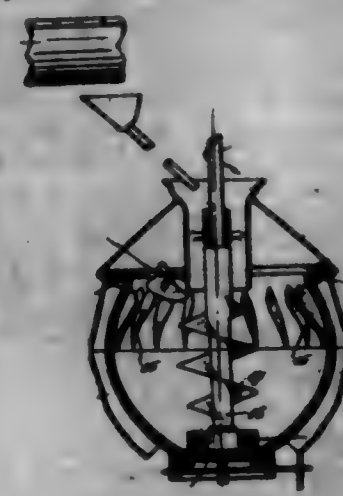
3. The homogeneous compound of nitrocellulose and prepared cascin above described.

700,472. APPARATUS FOR TREATMENT OF GRAIN PREPARATORY TO GRINDING. GUGLIELMO RANIERI, Milan, Italy. Filed May 18, 1900. Serial No. 717,900. (No model.)

Claim.—1. In an apparatus of the kind specified, a vessel provided with a central feed, and an inclined lid or cover, means for causing the grain to pass centrally downward within said vessel and upwardly along the sides thereof, means for throwing the grain upwardly against said lid, a peripheral channel at the upper end of said vessel provided with outlet-pipe, and means for moving the grain within said channel toward said pipe.

2. In an apparatus of the kind specified, a vessel provided centrally with a tube extending into its upper end, a central shaft provided with a screw adapted to move the grain centrally toward the bottom of the vessel, blades upon the lower face of said vessel, a peripheral channel at the upper end of said vessel provided with outlet-pipe, a rotatable wing or fan at the upper end of said vessel, a central lid or cover on said vessel,

and a rotatable scraper situated within and adapted to traverse said peripheral channel.



700,473. WATCHCASE. EDWARD BLAY, Brooklyn, N. Y., assignor to Dubois Watchcase Company, Brooklyn, N. Y., a Corporation of New York. Filed Jan. 20, 1902. Serial No. 91,555. (No model.)



Claim.—1. In a watchcase, the combination with a movement-ring provided with two grooves, and with a separating flange or head, of a head snapping into one of said grooves, a lock lid hinged to said movement-ring and snapping into the other of said grooves and over and upon said separating-flange, a front lid hinged to said movement-ring and having its edge fitting against the edge of said lock lid, and lock and fly springs contained within said movement-ring and having their ends projecting through the latter to engage with said front lid, substantially as described.

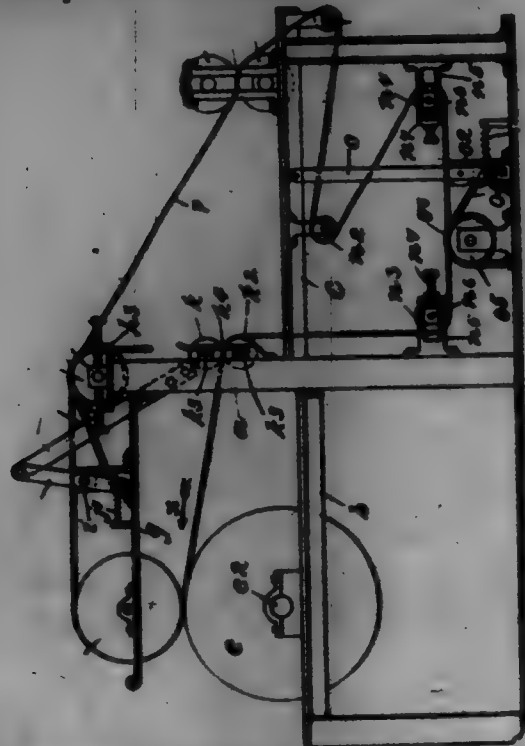
2. In a watchcase, the combination with a movement-ring provided with two grooves, and with a separating flange or head, of a head snapping into one of said grooves, a lock lid hinged to said movement-ring and snapping into the other of said grooves and against said separating-flange, a front lid hinged to said movement-ring and having its edge fitting against the edge of said lock lid, a pendant secured to said movement-ring opposite said hinge, and lock and fly springs contained within said movement-ring, the former being provided with a lock fitting in a recess formed in the edge of said movement-ring at one side of the pendant, and the latter with a lip or projection extending through an opening formed in said movement-ring opposite the pendant, substantially as described.

700,474. RIVETING-BELT FEED OR CARRYING APPARATUS. EDWARD H. BUNCE, Monticello, N. J., assignor of one-half to Fred S. White, Monticello, N. J. Filed Jan. 9, 1902. Serial No. 85,581. (No model.)

Claim.—1. An apparatus of the class described provided with a plurality of carrying-rollers between some of which said over or around others of which an endless belt is passed, and a supplemental guide-roller over which the said belt is passed and one end of which is provided with a swiveling support and the other end of which is mounted in a swiveling support, substantially as shown and described.

2. An apparatus of the class described provided with a plurality of carrying-rollers between some of which said over or around others of which an endless belt is passed, and a supplemental guide-roller over which the said belt is passed and one end of which is provided with a swiveling support and the other end of which is mounted in a swiveling support, said swiveling support being provided with a flexible clamp which is passed over one of the carrying-rollers adjacent thereto, and said roll-

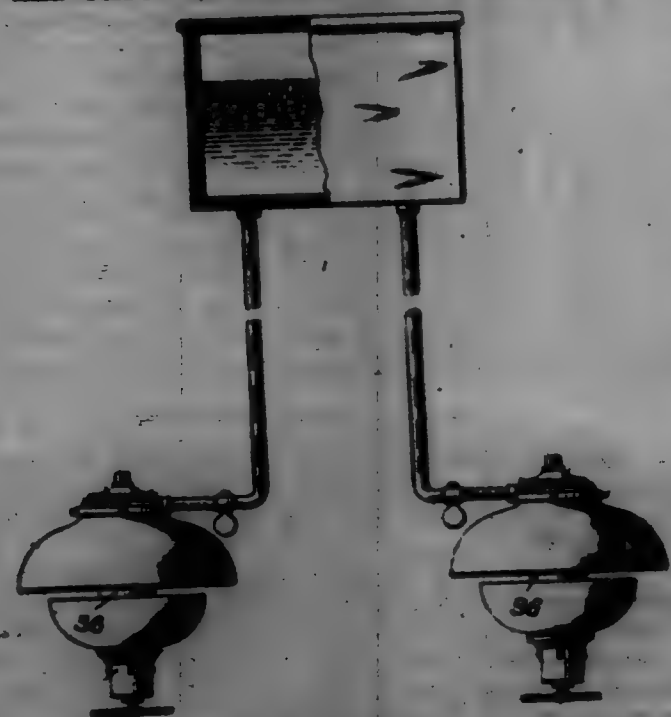
are being provided with a band, at their ends, against which said strap rests, substantially as shown and described.



3. An apparatus of the class described provided with a plurality of carrying-rollers between some of which and over or around others of which an endless belt is passed and a plurality of belt-retaining rollers over which the belt is passed, one end of said belt-retaining rollers being mounted in a swinging support, and said swinging supports being provided with flexible straps which are passed over a carrying-roller adjacent thereto, and said carrying-rollers being provided with a flexible band against which said strap rests, substantially as shown and described.

4. An apparatus of the class described provided with a plurality of carrying-rollers, a belt mounted thereon and a belt retaining or guiding roller over which the belt is passed, one end of the belt retaining or guiding roller being mounted in a swinging support, and the other end thereof in a curved support, and said swinging support being provided with a flexible strap which is passed over the carrying-roller adjacent thereto, said carrying-roller being provided with an elastic band, at the end thereof, against which said strap rests, substantially as shown and described.

700,475. HYDROCARBON-LAMP. THOMAS M. BLAIR, Northboro, Mass. Filed Feb. 7, 1902. Serial No. 704,795. (No model.)



Claim.—1. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a burner arranged to be fed by vapor from said vaporizing-chamber, a pipe connected to the vaporizer to supply oil thereto, a valve controlling the flow of oil in said pipe, and a diaphragm exposed to the pressure generated in the vaporizing-chamber, and connected to operate said valve to increase the flow as said pressure falls and to diminish said flow as the pressure increases.

2. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a pipe connected to the vaporizer to supply oil thereto, a valve controlling the flow of oil in said pipe, and a diaphragm forming the top of the vaporizing-chamber, and connected to operate said valve to increase the flow as the pressure in the vaporizing-chamber falls, and to diminish said flow as the pressure increases.

3. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a regulating-valve automatically controlling the supply of oil to the vaporizing-chamber, a pipe or tube between the vaporizing-chamber and burner, a valve controlling the passage of vapor through said pipe, and operating means for closing both valves to shut off the supply to the vaporizing-chamber and the passage of vapor to the burner, substantially as described.

4. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a burner arranged to be fed by vapor from said vaporizing-chamber, a pipe connected to the vaporizer to supply oil thereto, a valve controlling the flow of oil in said pipe, means operating from the pressure generated in the vaporizing-chamber for controlling the valve, and thereby the supply of oil, and operating means for positively closing said valve.

5. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a supply-pipe, a regulating-valve automatically controlling the supply of oil for the vaporizing-chamber, a connection between the vaporizing-chamber and burner, a valve controlling the passage of vapor through said connection, and suitable operating means arranged to open and close both valves, so that when the valves are open, the valve controlling the supply will be free to work, to automatically regulate the supply of oil, substantially as described.

6. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber located above the burner, a tube extending from the chamber to the burner, a mantle arranged around the tube, a valve controlling the supply admitted to the vaporizing-chamber, a rod extending from said valve through said tube, and operating means at the bottom of the lamp for said rod, substantially as described.

7. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a tube extending from the chamber to the burner, a mantle arranged around the tube, an automatically-operating valve controlled by the pressure in the chamber for regulating the supply of oil, a rod extending from said valve through said tube, and operating means at the bottom of the lamp arranged to open and close said valve, and to leave said valve, when open, free to automatically operate, substantially as described.

8. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a tube extending from the chamber to the burner, a mantle arranged around the tube, a valve controlling the supply to the chamber, a rod extending from said valve through said tube, and operating means for said rod at the bottom of the lamp, substantially as described.

9. The combination is a hydrocarbon-lamp, of a burner, a vaporizing-chamber, a tube extending from the vaporizing-chamber to the burner, a mantle arranged around the tube, an automatically-operating valve controlled by the pressure in the chamber for regulating the supply of oil, a valve controlling the passage of vapor from the chamber to the burner, a rod extending from said valve through said tube, and operating means for said rod arranged to open and close said valve, and to leave the oil-supply valve free to automatically operate when open, substantially as described.

10. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder flexibly connected to the oil-supply, and movably mounted in said chamber, a valve, and a diaphragm connected to said cylinder.

11. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder flexibly connected to the oil-supply, a valve, a diaphragm connected to move said cylinder, and positive operating connections for said valve.

12. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder arranged in said chamber, and flexibly connected to the oil-supply, a yoke carrying two valves, one engaging the cylinder, and the other regulating the passage of vapor from the chamber, and operating means for said yoke, substantially as described.

13. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder therein flexibly connected with the oil-supply, a diaphragm connected to said cylinder, a yoke carrying two valves, one engaging said cylinder, and the other controlling the passage of vapor from the vaporizing-chamber, and operating means for said yoke, substantially as described.

14. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder therein flexibly connected with the oil-supply, a diaphragm connected to said cylinder, a tube extending from said chamber, a yoke carrying two valves, one engaging said cylinder, and the other engaging the end of said tube, and operating means for said yoke extending through the tube, substantially as described.

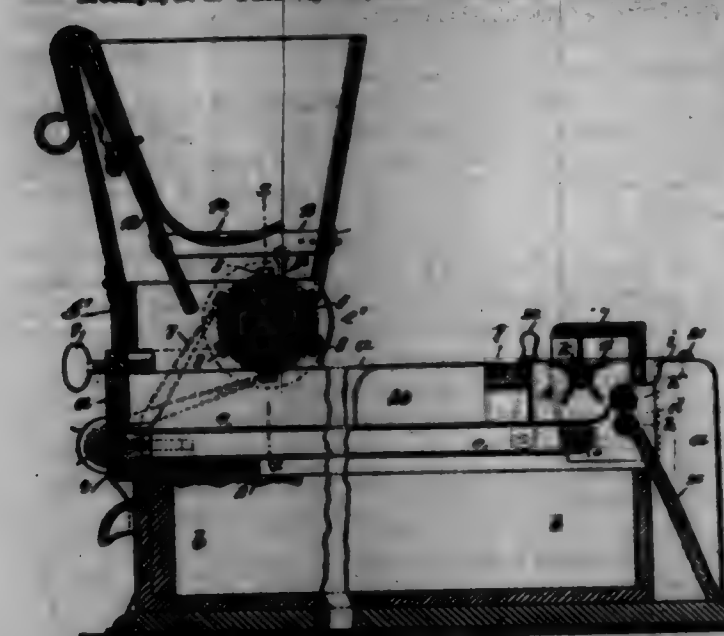
15. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a movable cylinder therein flexibly connected with the oil-supply,

and having a valve-seat on top thereof, and a valve seated therewith and having a pin projecting into said cylinder, substantially as described.

16. The combination is a hydrocarbon-lamp, of a vaporizing-chamber, a cylinder arranged therein, and flexibly connected to the oil-supply, a diaphragm connected with said cylinder, a yoke carrying two valves, one engaging said cylinder, and the other controlling the passage of vapor from said chamber, a tube extending from said chamber, a rod extending through said tube and connected to said yoke, and an operating-handle at the bottom of said tube, substantially as described.

17. In a vapor-burning lamp, on oil-tank, a vaporizer connected to receive oil therefrom, and a burner arranged to be fed by vapor from said vaporizer, and to heat said vaporizer, in combination with a regulating-valve controlling the flow of oil from the tank into the vaporizer, and a regulator for said valve controlled by the varying pressure of vapor in the vaporizer for moving the valve to increase the flow as said pressure falls, and to diminish said flow as the pressure increases.

700,476. PEA-SHELLING MACHINE. THEODORE BOHMER, Brooklyn, N. Y. Filed Sept. 10, 1901. Serial No. 71,571. (No model.)



Claim.—1. In a pea-shelling machine, the combination with the case and the conveyor or endless belt, rollers therefor and means for operating the conveyor, of a hopper, a feeding-cylinder journaled in the hopper, and a device pivotally connected to and extending across the hopper and having its free edge adjustable in relation to the cylinder for regulating the delivery-opening at the base of the hopper and a stirrer-rod extending over the upper edge of the hopper and movable over the surface of the pivotally-connected device, substantially as and for the purposes set forth.

2. In a pea-shelling machine, the combination with a case, a conveyor or endless belt, rollers around which the case passes, and means for operating the conveyor, of a hopper, a cylinder transversely of the hopper and journaled therein and having projections from the surface thereof, which open the upper edge of the case receiving the hopper and on which the hopper moves longitudinally of the case, pulleys upon the shaft of the cylinder and the shaft of one roller of the conveyor and a belt around the pulleys and an adjusting-cover or equivalent device for moving the hopper bodily upon the case and applying tension to the belt, substantially as set forth.

3. In a pea-shelling machine, the combination with a case, of a conveyor or endless belt, rollers therefor, rolls for slipping the pods, gears connecting said rolls and connecting the same with one roller of the conveyor, bearing-plates let into the sides of the case and in which the said rolls and roller at one end of the conveyor are all journaled, whereby said parts are collectively held to the sides of the case and may be bodily removed therefrom, substantially as set forth.

4. In a pea-shelling machine, the combination with the case, a conveyor or endless belt, rollers therefor, rolls for engaging the pods and means for connecting and operating the parts, of a roller having radially-placed flexible blades notched at spaced-apart intervals, a support therefor and a gear connecting the same operatively with the roller, substantially as set forth.

5. In a pea-shelling machine, the combination with the case, a conveyor or endless belt, rollers therefor, rolls for engaging the pods and means for connecting and operating the parts, of a roller having radially-placed flexible blades notched at spaced-apart intervals, a support therefor and a gear connecting the same operatively with the roller, a cover over said roller, a transverse bar adjacent thereto

and fingers extending from the transverse bar and acting to turn the pods on the conveyor and the bar to arrange the pods into single depth so that the pods are presented uniformly to the said roller, substantially as set forth.

6. In a pea-shelling machine, the combination with the case, a conveyor or endless belt, rollers therefor, rolls for engaging the pods and means for connecting and operating the parts, of flanged side plates, a roller journaled in said side plates and having a gear on the end meshing with the gears of the operative rolls, said roller having longitudinal radially-placed flexible blades notched at spaced-apart intervals, a transverse bar secured between the said side plates, separator-fingers at right angles to said bar and lengthwise of the case between the sides thereof, substantially as and for the purposes set forth.

7. In a pea-shelling machine, the combination with the case, a conveyor or endless belt, rollers therefor, rolls for engaging the pods and means for connecting and operating the parts, of flanged side plates, a roller journaled in said side plates and having a gear on the end meshing with the gears of the operative rolls, said roller having longitudinal radially-placed flexible blades notched at spaced-apart intervals, a transverse bar secured between the same side plates, separator-fingers at right angles to said bar and lengthwise of the case between the sides thereof, and pins 21 on the sides of the case for engaging the said side plates at one end, and latch-bars pivotally connected to the sides and adapted to engage the flanged side plates at their other ends for connecting the same to the case of the machine, substantially as set forth.

700,477. COMBINED SKIRT AND DRAWERS. LILLIAN A. BOWMAN, San Francisco, Cal. Filed July 31, 1901. Serial No. 70,491. (No model.)



Claim.—1. An undergarment consisting of a pair of drawers and a back skirt disposed entirely at the rear of the drawers, the latter and said back skirt having a common body portion.

2. An undergarment consisting of a pair of open drawers, and an undivided skirt member arranged solely at the back thereof, said drawers and back skirt member constituting parts of the same pattern-piece and having a common body portion.

3. An undergarment consisting of a pair of open drawers and a back half-skirt combined, the same being formed from a pattern-piece having front drawers forming crotch and crotch and lapped from the waist-line to a point between the legs.

4. An undergarment consisting of a pair of open drawers and a back half-skirt member combined, said drawers and half-skirt member being formed from a pattern-piece having front drawers forming crotch and crotch, lapped and bound from the waist-line to a point between the legs and down to the point where the trimming on the skirt begins.

5. An undergarment consisting of a pair of open drawers having a closed front, and an undivided back half-skirt formed from a single piece of goods.

6. An undergarment consisting of a pattern-piece having a back half-skirt member extended into outer and inner leg-crotch and to form complete drawers including body portion and legs disposed in front of and uncovered by the skirt member, the latter hanging on a bias fold extending from the waist of the drawers-legs to the waist-line of the garment.

700,478. SLIPEE-HOLDER. HERMAN C. GARDNER, Westland, Iowa. Filed Jan. 17, 1902. Serial No. 93,527. (No model.)

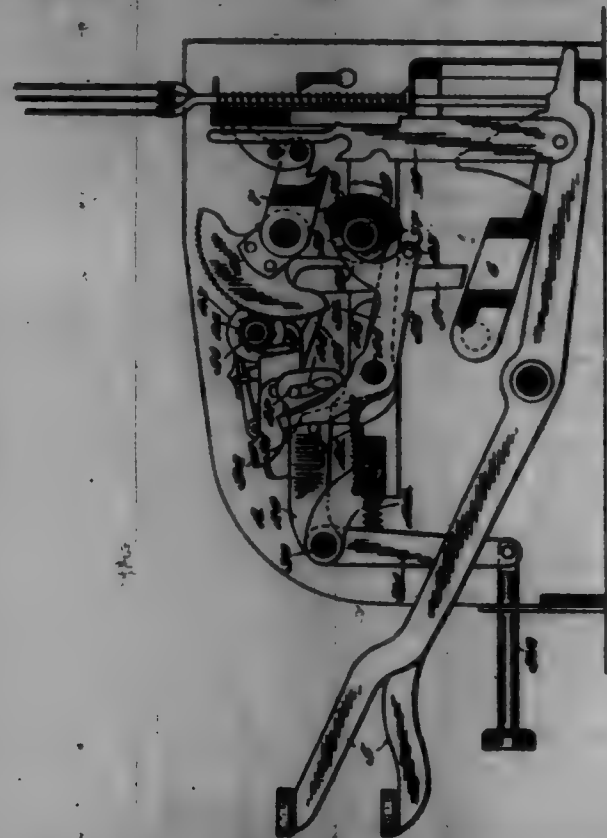
Claim.—1. An improved article of manufacture, the slipee-holder consisting of a spring-band divided transversely and having its edges provided with sections arranged diagonally opposite each other, the outer

sides of the band being beveled at each notch; and the under side of the band being left flat opposite each notch, as shown and described.



2. The improved sleeve-holder consisting of a spring-steel band divided transversely and having its edges provided with notches which are curved and form obtuse angles with the intervening straight portions, the latter being directly opposite the notches on the other side of the band, as shown and described.

700,479. CASH-REGISTER. THOMAS GARNETT, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Sept. 3, 1900. Serial No. 28,414. (No model.)



Claim.—1. In a cash-register, the combination with a series of amount or value keys, of racks operated by said keys, a counter mounted on a movable frame and normally disengaged from said racks, a special key and connections for positively throwing the counter into operative engagement with the racks and means for compelling the operation of the special key before the operation of the amount or value keys.

2. In a cash-register, the combination with a counter mounted on a movable frame, of a series of value-keys and connections for operating said counter, means for throwing the counter out of operative engagement with said connections upon each operation of the machine, and a special key which must be operated before each operation of the machine to positively move the counter into operative engagement.

3. In a cash-register, the combination with a counter mounted on a movable frame, of a series of keys and connections for operating said counter, means for throwing the counter out of operative position upon each operation of the machine, a special key arranged when operated to positively move the counter into operative relation with the key connections, and a lock for the key connections operated by said key.

4. In a cash-register, the combination with a series of operating-keys, of a series of racks operated by the same, a counter mounted on a movable frame and arranged to be moved into connection with said racks, a special key, and a clotted lever operated by said key and engaging a projection of the counter-frame.

5. In a cash-register, the combination with a series of operating-keys, of a series of racks operated thereby, a counter mounted on a movable frame and arranged to be moved into connection with said racks, a pin on said counter-frame, a lever having a cam-disk into which said pin projects, and a special key for operating said lever to throw in the counter.

6. In a cash-register, the combination with a series of operating-keys and connections, of a series of racks operated by the same, a counter mounted on a movable frame and arranged to be moved into connection with said racks, a cam-disk lever arranged to engage said frame for throwing the counter, a key for operating said lever and a latch for said lever controlled by the key connections.

7. In a cash-register, the combination with a series of operating-keys, of a series of racks operated by the same, a counter mounted on a movable frame, a rotation-shaft, connections between the keys and shaft, a special key for positively throwing the counter into engagement with the racks, and a latch for the rotation-shaft arranged to be operated by the special key to unlock the operating-keys.

8. In a cash-register, the combination with a series of operating-keys, of a series of racks operated by the same, a counter mounted on a movable frame and arranged to be moved into connection with the racks, a lever for throwing said frame, a key for operating said lever, a latch for holding said lever in its operative position and a lock for said lever.

9. In a cash-register, the combination with a series of amount or value keys and connections, of a series of racks operated thereby, a counter mounted on a movable frame and arranged to be thrown into connection with said racks, a lever for throwing said counter, a key for operating said lever, a pin mounted on said lever, a locking-lever co-operating with said pin to release the key connections and to act as a detent for the throwing-lever.

10. In a cash-register, the combination with an operating mechanism, of a counter arranged to be thrown into connection therewith, a cam-disk lever arranged to throw said counter, a key for operating said lever and means for preventing two operations of the lever during a single operation of the operating mechanism.

11. In a cash-register, the combination with an operating mechanism, of a counter, a rotation-shaft independent of the counter and carrying a cam, a lever for throwing the counter into engagement with the operating mechanism, and a lock for said lever arranged to be operated by said cam.

12. In a cash-register, the combination with an operating mechanism, of a counter, a lever for throwing the counter into engagement with the operating mechanism, a stop-lever for preventing the operation of said throwing-lever, a lock-lever arranged to act as a detent for the throwing-lever, and means for operating said lever.

13. In a cash-register, the combination with a series of keys, of a series of racks operated thereby, a counter mounted on a movable frame and arranged to be brought into engagement with said racks, a pin on the counter-frame, a pivoted lever having a cam-disk into which said pin projects, and a key for operating said lever.

14. In a cash-register, the combination with a series of keys, of a series of racks operated thereby, a counter mounted on a movable frame and arranged to be moved into connection with said racks, a pin mounted on the counter, a throwing-lever having a cam-disk into which said pin projects, a pin mounted on said throwing-lever and two spring-drawn levers co-operating with said pin, one for locking the pin in its elevated position and the other for preventing its elevation.

15. In a cash-register, the combination with an operating mechanism, of a counter arranged to be moved into connection therewith, a pivoted lever for throwing said counter, and a latch-lever arranged to engage and alternately lock the throwing-lever and the operating mechanism.

16. In a cash-register, the combination with a series of operating-keys, of a series of racks operated thereby, a counter mounted on a movable frame and arranged to be moved into connection with the racks, a pivoted lever for throwing said frame, a lock-lever for temporarily holding said pivoted lever against operation and a lock-lever for holding said pivoted-lever in its normal position when operated.

17. In a cash-register, the combination with a counter, of a series of operating-keys and connections for operating said counter, a special key and cam-lever for throwing in the counter upon the operation of the key, and a detent means for holding the cam-lever in its operative position arranged to be operated by a movable part of the machine.

18. In a cash-register, the combination with a series of amount or value operating keys, of counter-operating devices co-operating therewith, a counter arranged to be thrown into connection with said devices, a special key and connections for so throwing said counter when said special key is operated, and a latch for preventing operation of the value-keys until said special key and connections are fully operated.

19. In a cash-register, the combination with a counter pivoted with a projecting lug, of a series of value-operating keys, and connections for operating the counter, a special key, and a lever connected to said key and having a cam-disk to rotate the counter-lug for positively throwing the counter into operative position.

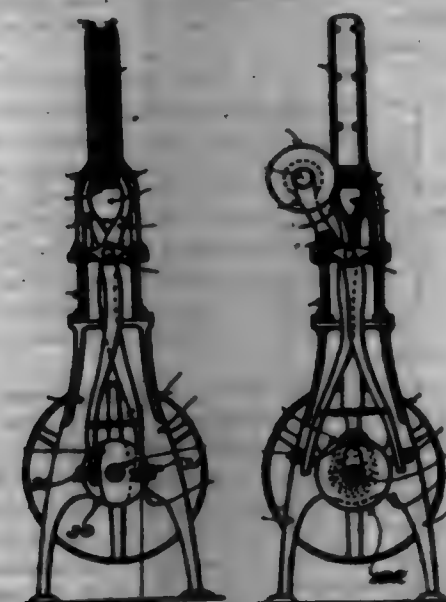
20. In a cash-register, the combination with a counter, of a series of operating-keys and connections for operating the counter when said keys are operated, spring-operated means for throwing the counter out of operative position upon each operation of the machine, and a special key which must be operated before each operation of the operating-keys to bring the counter into operative position.

21. In a cash-register, the combination with a counter mounted on a movable frame, of a series of keys and connections for operating said

counter, a special key for positively throwing the counter into operative position, means for turning the counter to zero and devices arranged to be operated by said means for locking the counter in its inoperative position.

22. In a cash-register, the combination with a series of amount or value keys, of operating devices controlled by the keys, a counter arranged to be brought into engagement with said operating devices, devices for normally locking the amount or value keys, and a special key arranged to bring the counter and operating devices into operative engagement and to unlock the amount-keys.

700,480. MACHINE FOR MAKING SPOOL-BLANKS. JAMES W. CHAMBER, Auburn, Me. Filed Aug. 14, 1900. Serial No. 28,392. (No model.)



Claim.—1. An organized machine for forming spool-blanks and the like, comprising, essentially, guides for stock prepared in stick form, the reciprocating trough-shaped feeder provided with dogs to engage the stock within said feeder in the advance of the feeder, the outer-head to shape the end portion of the stick, the tool to form the central hole in each end portion, the movable clamp members to engage with the stock adjacent the outer-head, cam mechanism to operate the said movable clamp members, and means to cover the finished blank, substantially as described.

2. An organized machine for forming spool-blanks and the like, comprising, essentially, guides for stock prepared in stick form, the reciprocating trough-shaped feeder provided with dogs to engage the stock within said feeder in the advance of the feeder, the outer-head to shape the end portion of the stick, the tool to form the central hole in each end portion, the movable clamp members to engage with the stock adjacent the outer-head, cam mechanism to operate the said movable clamp members, the supplementary clamp to engage the fresh piece of stock within the said feeder and hold the same during the return movement of the feeder and means to cover the finished blank, substantially as described.

3. An organized machine for forming spool-blanks and the like, comprising, essentially, guides for stock prepared in stick form, the reciprocating trough-shaped feeder provided with dogs to engage the stock within said feeder in the advance of the feeder, the outer-head to shape the end portion of the stock, the angler to bore the central hole in each end portion, means to rotate and to advance said outer-head and angler, the movable clamp member to engage with the stock adjacent the outer-head, cam mechanism to operate the said movable clamp members, and means to cover the finished blank, substantially as described.

4. An organized machine for forming spool-blanks, containing, in combination, guides for stock prepared in stick form, the reciprocating feeder, the clamp to hold the stick while being operated upon, the supplementary clamp to hold the fresh stick during the receding movement of the feeder, the outer-head to turn the end portion of the stick, an angler to bore a central hole in each end portion, and a cover to cover the blank from the end of the stick, substantially as described.

5. The combination with the outer-head, and its hollow shaft, of the tube within the said shaft and having the split and with external flange, the angler within the said tube, and means to move the tube endwise within the shaft to compress it upon the angler, substantially as described.

700,481. PORTABLE RIVETING, OR APPARATUS. PATRICK J. CHAMBER, Belfast, Ireland. Filed Apr. 13, 1901. Serial No. 28,397. (No model.)

Claim.—1. In a portable riveting, punching and like apparatus, the combination of a cylinder, a shaft having a hammer-head at its end adapted to be guided in the ends of said cylinder, a piston air-tightly packed in said cylinder, a compression-spring between said shaft and said piston, means for forcing back said shaft intermittently against the action of said spring and piston, and means for holding said apparatus upon the work-piece, substantially as set forth.



2. In a portable riveting, punching and like apparatus, the combination of a support-frame, means for holding said frame upon the work-piece, a shaft having a hammer-head at its end and slidably mounted in said frame, means for imparting a backward movement to said shaft, a cylinder at rear of said shaft, a piston fitting in said cylinder, a compression-spring between said piston and said shaft, an inwardly-opening valve upon said cylinder and a spring in said cylinder at rear of said piston, whereby the piston is caused to rebound after compression, so that air is permitted to enter the cylinder through the valve to replace any that may have escaped during compression.

3. In a portable riveting, punching and like apparatus, the combination of a support-frame, means for holding said frame upon the work-piece, a guide mounted in said support-frame, a shaft having a hammer-head at its end and mounted in said guide, a compression-spring at the rear of said shaft, a piston at the rear of said spring, an air-compression cylinder in which said piston fits, an inwardly-opening valve on said cylinder, and means for intermittently forcing back said shaft against the pressure of the spring and the compressed air.

4. In a portable riveting apparatus comprising a riveter and a holding-up device adapted to be separately held upon the work-piece by non-mechanical means, the combination of a shaft having a hammer-head at its end, an air-compression cylinder, a piston in said cylinder in connection with said shaft, means for intermittently forcing back said shaft against the action of said piston, means for forcing forward said shaft after each backward movement, a holder in said holding-up device, means for pressing forward said holder, and an air-chamber behind said holder whereby it is forced toward the work-piece to support the rivet.

5. In the holding-up device of a riveting apparatus, the combination of a support-frame, means for holding said frame upon the work-piece, a cylinder in said frame, a holder adapted to fit in said cylinder and directly connected with a holding-up head, a spring adapted to force said holder out of said cylinder, and an inwardly-opening valve on said cylinder whereby air may enter to replace any air which may have escaped when the holder was forced backward.

6. In a portable riveting, punching and like apparatus, the combination of a support-frame, a cylindrical guide-chamber / mounted in said support-frame, a shaft having a hammer-head at its end and adapted to slide in said guide-chamber, a spring at rear of said shaft, a piston at rear of

mid spring, a cylinder in which said piston fits, an inlet-valve *j*, and means for intermittently pressing back said shaft against the action of said spring and piston.

7. In a portable riveting, punching and like apparatus, the combination of a support-frame *p*, a cylindrical guide-cylinders *l* mounted to said support-frame, a shaft having a hammer-head at its end adapted to slide in said guide-cylinders, means for imparting a backward movement to said shaft, a spring *g* at rear of said shaft, a piston *h* at rear of said spring, a cylinder in which said piston fits, an inlet-valve on said cylinder, and a spring in said cylinder at rear of said piston *h*, whereby the piston is caused to rebound after a compression so that air may be caused to enter by the valve to replace any air that may have escaped during compression.

8. In a holding-up device for a diving apparatus the combination of a support-frame *u*, a cylinder *v* mounted in said support-frame, a bellows fitting in said cylinder, a holding-up head *a* attached to said bellows, an inwardly-opening valve *f* in said cylinder, and a spring adapted to force said bellows outwardly from said cylinder, whereby the bellows always rebounds in the cylinder after compression and causes air to enter through the valve *f* to replace any air that may have escaped during compression.

700,489. FRANK AND KILL. ARTHUR E. DOWELL, Washington, D. C., and WILLIAM E. HALLIMAN, Pittsburgh, Pa. Filed July 6, 1891. Serial No. 67,312. (No model.)



Claim.—1. The combination in a drier, of a series of tunnels, an uptake at one end of the drier, and means for heating the tunnels; with vapor-flues in the side walls of the several tunnels, opening at bottom into the bottom of the tunnels, and at top into the uptake, substantially as described.

2. The combination in a drier, of a series of tunnels, an uptake at one end of the drier, and means for heating the tunnels and uptake; with downward vapor-flues in the opposite side walls of each one of the tunnels opening at bottom into the bottom of the tunnels, and at top into the uptake, substantially as described.

3. The combination in a drier, of a series of tunnels, an uptake at one end thereof, and valved uptake-outlets connecting the tunnels with the uptake; with downward-flues in the walls and partitions between each one of the tunnels communicating at their lower ends with the bottoms of the tunnels and at their upper ends with the uptake, substantially as described.

4. The combination in a drier, of a series of tunnels, an uptake at one end thereof, valved openings connecting the tops of tunnels directly with the uptake, and means for heating the tunnels; with vertical flues in the side walls of each one of the tunnels communicating at their lower ends with the bottoms of the tunnels and at their upper ends with the uptake, substantially as described.

5. The combination of a series of tunnels an uptake at one end thereof, having a smoke-chamber extending over the tunnels, and means for heating the tunnels; with downward vapor-flues in the partitions between the tunnels below the uptake, and flues communicating at bottom with the bottoms of the tunnels and extending up into the smoke-chamber, for the purpose and substantially as described.

6. The combination of a series of tunnels, an uptake at one end thereof having a smoke-chamber extending over the tunnels, valved openings directly connecting the tops of tunnels with the uptake, and means for heating the tunnels; with vertical vapor-flues in the walls and partitions between each one of the tunnels below the uptake, and flues communicating at bottom with the bottoms of the tunnels and extending up into the smoke-chamber, for the purpose and substantially as described.

7. In a drier, the combination of a series of drying-tunnels, an uptake at one end thereof, and vertical flues in the opposite side walls of each one of the tunnels communicating at top with the uptake and at bottom with the lower portions of the tunnels.

8. In a drier, the combination of a tunnel, a furnace at the discharge end thereof, an uptake at the receiving end thereof and smoke-flues under the tunnel extended to said communicating with the uptake; with opposite vertical flues extending through the vertical division-walls of the tunnel at the receiving end of the drier communicating at their lower ends directly with the lower part of the tunnel, and at top with the uptake, substantially as described.

9. The combination of a series of tunnels, furnaces at one end thereof, an uptake at the other end thereof, and smoke-flues leading from the furnaces to the uptake; with flues extending through the walls and partitions of the tunnels at the uptake end of the tunnel, communicating at bottom with the bottoms of the tunnels and at top with the uptake, substantially as described.

10. The combination of a tunnel, a furnace at one end thereof, an uptake at the other end thereof, and a smoke-flue exterior to the tunnel leading from the furnace to the uptake, and an outlet from the top of the tunnel to the uptake; with vertical flues in the opposite side walls of the tunnel communicating at their lower ends directly with the tunnel near the floor thereof, and at top with the uptake, substantially as described.

11. In a drier the combination of a series of drying-tunnels, an uptake at one end thereof, openings directly connecting the top of the tunnels with the uptake, and vertical flues in the partitions between the tunnels communicating at top with the uptake, and at bottom with the lower portions of the tunnels.

12. In a drier, the combination of a series of tunnels, furnaces at the discharge end thereof, an uptake at the receiving end thereof, openings connecting the top of the tunnels with the uptake, and smoke-flues under the tunnels and extended to and communicating with the uptake; with vertical flues extending through the partitions between the tunnels at the receiving end of the drier communicating at bottom with the lower parts of the tunnels, and at top with the uptake, substantially as described.

13. The combination of a series of tunnels, furnaces at one end thereof, an uptake at the other end thereof, an opening connecting the top of the tunnels with the uptake, and smoke-flues exterior to the tunnels leading from the furnaces to the uptake; with vertical flues located therein the walls and partitions of the tunnels at the uptake end of the tunnels, communicating at bottom with the bottoms of the tunnels and at top with the uptake, substantially as described.

14. The combination of a series of tunnels an uptake at one end thereof having a smoke-chamber extending thereover, and furnaces at the other end thereof, and flues leading under the tunnels from the furnaces and connecting with the smoke-chamber by exterior flues; with vapor-flues in the side walls of each one of the tunnels below the smoke-chamber communicating at bottom with the bottoms of the tunnels, and extending up into the smoke-chamber, substantially as described.

15. The combination of a series of tunnels, an uptake at one end thereof having a smoke-chamber extending thereover, and vertical smoke-flues at the sides of the tunnel communicating with the uptake by extensions at their upper ends; furnaces at and below the other ends of the tunnels, and smoke-flues leading from said furnaces beneath the tunnels and connecting with said vertical smoke-flues; with vapor-flues in the walls of partitions between the tunnels having their lower ends opening into the bottoms of the tunnels, and their upper ends extended upwardly into and communicating with the smoke-chamber, substantially as described.

16. The combination of a series of tunnels, an uptake at one end thereof having a smoke-chamber extending thereover, and furnaces at the other end thereof, and flues leading under the tunnels from the furnaces and connecting with the smoke-chamber by exterior flues, and valved openings in the roof of the tunnels directly connecting the latter with the smoke-chamber; with vertical vapor-flues in the walls of said partitions between the tunnels below the smoke-chamber communicating at bottom with the bottoms of the tunnels, and extending up into the smoke-chamber, for the purpose and substantially as described.

17. The combination of a series of tunnels, an uptake at one end thereof, having a smoke-chamber extending thereover, and vertical smoke-flues at the sides of the tunnel communicating with the uptake by extensions at their upper ends projecting into the smoke-chamber; furnaces at and below the other ends of the tunnels, and smoke-flues leading from said furnaces beneath the tunnels and connecting with said vertical smoke-flues; with valved openings in the roof of the tunnels to allow upward of vapors into the smoke-chamber, and vertical vapor-flues in the walls of and between the tunnels having their lower ends opening directly into the tunnels near the floor thereof, and their upper ends extended upwardly into and communicating with the smoke-chamber, substantially as described.

700,488. EAR-LABEL. HENRY T. BERRY, Salt Lake City, Utah. Filed Aug. 29, 1891. Serial No. 72,715. (No model.)



Claim.—1. An ear-label, comprising a two-membered clip having corresponding perforations, a fastening to be projected through the perforations, one end of the fastening being pointed and adapted to be upset against one outer side of the member, and a tag carried by the opposite end of the fastening.

2. An ear-label comprising a tag, a cutting-ferrule carried thereby, and a combined cyrst and rivet for holding the ferrule assembled with the tag.

3. An ear-label comprising a tag, a cutting-ferrule carried thereby, a rivet for holding the ferrule assembled with the tag, an cyrst on the rivet, and a pendant engaging the cyrst.

4. An ear-label comprising a two-membered tag, a cutting-ferrule carried by one of the members of the tag, and a pointed rivet passing through the ferrule and through the other member of the tag to hold the two members assembled.

5. A device of the character described, consisting of a substantially V-shaped clip having opposite corresponding perforations, a pointed fastening to project through the perforations, one end of the fastening having a head to limit the forward movement thereof, and the opposite end being constructed to be upset against the adjacent outer side of the clip, and means for connecting a tag member to the head end of the fastening.

6. A device of the character described, comprising a substantially V-shaped clip having terminal corresponding slots, one of which is longer than the other, and a flat fastening device to be inserted endwise through the long slot and finally the other slot, the intermediate portion of the fastening being flat and having one end reduced and pointed, the opposite end being enlarged to form a head for limiting the forward insertion of the fastening, the pointed end of the latter being constructed to be upset against the adjacent outer face of the clip.

7. A device of the character described, comprising a substantially V-shaped clip having corresponding terminal perforations, a cutting-ferrule located between the members and aligned with the corresponding perforations, a fastening device to be inserted through the perforations and the ferrule, one end of the fastening being pointed and adapted to be upset against the outer face of the adjacent portion of the clip, and the opposite end of the fastening having a split ring, and a tag having an eye in its engagement with the split ring.

700,484. PUMP-HEAD. HENRY H. BERRY, Marion, Pa. Filed Feb. 12, 1892. Serial No. 65,790. (No model.)

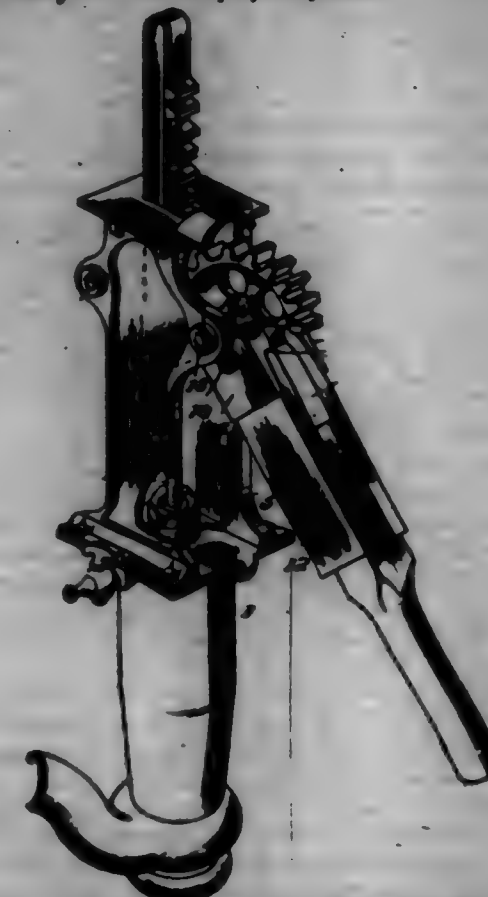
Claim.—1. In pump-operating mechanism, and in combination with a shaft-bar connected with the pump-rod, and a toothed segment co-operating therewith and having an integral cheek with nuts in opposite sides, a handle, and plates secured to opposite sides of the handle and having extended portions provided upon their inner faces with projecting portions to interlock with the nuts in the sides of the abovedescribed cheek by a sliding movement, said handle being readily detachable from the shaft of the toothed segment, substantially as set forth.

2. In pump-operating mechanism, and in combination with a shaft-bar connected with the pump-rod, and a toothed segment having an integral cheek, legs at opposite sides of the said cheek and having their outer ends cut away upon their inner sides to form spaces, and a handle having spaced extensions to interlock with and embrace opposite sides of said cheek and adapted to have the terminal portions of said extensions enter the spaces formed by the cut-away portions of the legs, substantially as specified.

3. In pump-operating mechanism, and in combination with the segment for actuating the pump-rod provided with a cheek, legs secured to opposite sides of the cheek at the inner end thereof and having the sides adjacent to the cheek cut away for a short distance from their outer ends, the side walls formed by the cut-away portions being outwardly inclined, a handle, and plates secured to opposite sides of the handle and having extended portions to embrace opposite sides of the abovedescribed cheek and interlock therewith, the outer sides of the extended parts of the plates being inclined to conform to the inclined side walls of the cut-away portions of the legs, substantially as set forth.

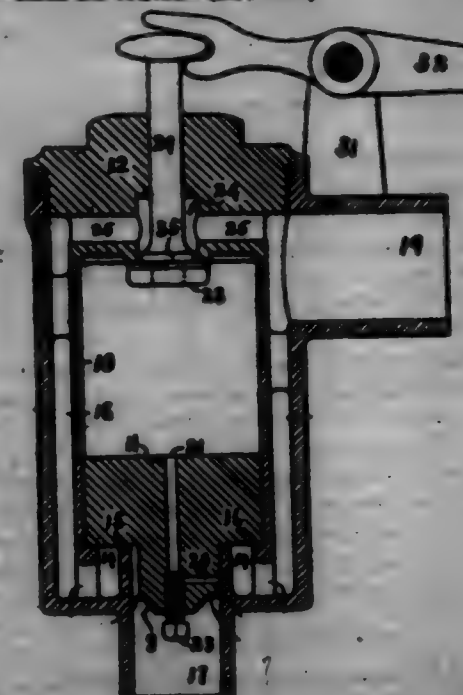
4. In pump-operating mechanism, and in combination with the segment for actuating the pump-rod having an integral cheek, hubs and journals, legs secured to opposite sides of the cheek and having their inner ends rounded to receive a portion of the hubs and having the sides adjacent to the cheek cut away for a short distance from their outer ends, a handle, and plates secured to opposite sides of the handle and adapted to

interlock with the sides of the cheek by a sliding movement and adapted to have their ends enter the spaces formed by the cut-away parts of the legs, substantially as and for the purpose specified.



5. In pump-operating mechanism, and in combination with the segment for actuating the pump-rod and having an integral cheek and integral hubs and journals, legs secured to opposite sides of the cheek and having their inner ends rounded to receive portions of the hubs and having the sides adjacent to the cheek cut away for a short distance from their outer ends, the side walls of the cut-away parts being outwardly inclined, a handle, and plates secured to opposite sides of the handle and having projecting portions to embrace opposite sides of the cheek and interlock therewith and having their outer sides inclined to conform to the inclined walls of the cut-away parts of the legs, substantially as specified.

700,485. FLUSH-VALVE. JAMES J. FINNEY, Chicago, Ill., assignor of one-half to Joseph H. Chandler, Chicago, Ill. Filed Apr. 25, 1892. Serial No. 714,761. (No model.)



Claim.—1. In a flush-valve provided with a piston for opening and closing said valve, the combination with means for adjusting the closing speed of said piston, and means for automatically retarding the latter portion of each closing speed of said piston, of means for maintaining a uniform but reduced flow of water during the retarded portion of the closing movement.

2. In a flush-valve adapted to be connected to a service-pipe and arranged to be operated by the pressure of water in said service-pipe, a valve-body providing an interior chamber, a piston movable in said chamber, and serving to open and close said valve, a passage-way having one end communicating with the water under pressure in said service-pipe and the other end communicating with the chamber over said piston, means whereby a flow of water from the service-pipe through said passage-way will serve to move said piston to a closing position, and means whereby the amount of flow from the service-pipe through said passage-way will be reduced when the piston is near its closing position.

3. In a flush-valve adapted to permit a predetermined amount of flow direct from a service-pipe to a closet-bowl and arranged to be operated by the pressure of water in said service-pipe, a piston serving to close said valve and provided with an opening therethrough, means whereby a flow of water from said service-pipe through said opening serves to move said piston to a closing position, and means whereby the amount of flow from the service-pipe through said opening is reduced when the piston is near its closing position.

4. In a flush-valve adapted to be connected to a service-pipe which supplies water under pressure, a piston arranged to open and close said valve, a passage-way through which water flows under pressure from said service-pipe to said piston to close said valve, means for adjusting the area of said passage-way so as to regulate the flow of water therethrough, and means for automatically reducing the flow through said passage-way during the latter part of the closing movement of said piston.

5. In a flush-valve provided with a chamber and an opening thereto, a piston in said chamber for closing said opening, said piston being provided with a projection on one side and said projection being provided with an opening extending to the opposite side of the piston so as to permit water to flow from one side to the other, and means whereby the amount of flow through said opening is largely reduced during a portion of the time when said projection is entering the opening to said chamber.

6. In a flush-valve mechanism, the combination with a casing having inlet and outlet openings, of a chamber located therein, a piston-valve sliding in said chamber, open passage-ways leading from said chamber at one side of said valve to inlet and outlet openings, lower passage-ways leading from said chamber at the other side of the valve to the inlet and outlet openings, means normally closing one of said lower passage-ways, and means whereby the other of said lower passage-ways is partially closed by said valve at a predetermined point in the closing movement thereof.

7. The above-described flush-valve which consists of a closed chamber containing a sliding piston and a suitable relief-valve and is provided with suitable water-passage leading to both sides of said piston and so arranged that the passage leading to one side is normally open and the passage leading to the other side is partially closed by the piston at a predetermined point during the return of the valve to its rest, whereby the tendency to hammer is overcome, and means substantially as described whereby a uniform afterflow is caused to take place for a predetermined period after the closing of said passage.

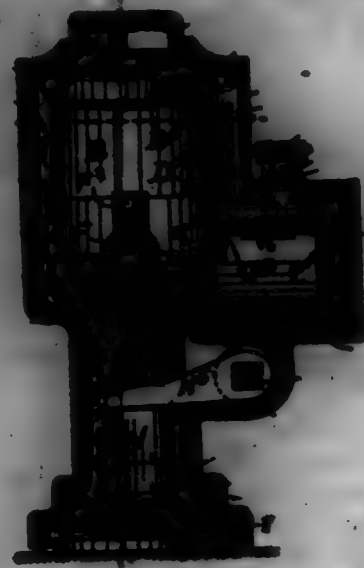
8. In a flush-valve mechanism, the combination with a casing having inlet and outlet openings, of a chamber located therein, a piston-valve sliding in said chamber, open passage-ways leading from said chamber at one side of said valve to the inlet and outlet openings, lower passage-ways leading from said chamber at the other side of said valve to the inlet and outlet openings, a relief-valve for opening and closing one of said lower passage-ways, and means whereby the other of said lower passage-ways is partially closed at a predetermined time during the closing movement of said valve.

9. In a flush-valve mechanism, the combination with a casing having inlet and outlet openings, of a chamber located therein, a piston-valve sliding in said chamber, a valve-seat at one end of said chamber, open passage-ways of substantially equal area in cross-section leading from said seat to the inlet and outlet openings, lower passage-ways leading from the chamber at the opposite side of the valve to the inlet and outlet openings, one of which is constantly open, a regulating device in said open lower passage-way, and a relief-valve by which the other of said lower passage-ways is normally closed.

700,486. FLUSH-VALVE. JAMES J. FURRY, Chicago, Ill. Filed Aug. 20, 1898. Serial No. 52,388. (No model.)

Claim.—In a flush-valve provided with a piston for opening and closing said valve, the combination with means for moving said piston so as to maintain during a portion of its closing movement a reduced and uniform flow of water, of means for shutting off such flow of water prior to the final closing action of said piston, substantially as described.

700,486.



700,487. FLUSH-VALVE. JAMES J. FURRY, Chicago, Ill. Filed May 27, 1898. Serial No. 62,071. (No model.)



Claim.—1. In a flush-valve, the combination with a piston for opening and closing said valve, and an enclosing chamber provided with water-passage leading to both sides of said piston and so arranged that the passage leading to one side is normally open and the passage leading to the other side is partially closed during the closing movement of said piston, of an adjustable device for regulating the flow of water through the passage when left open by said piston, and a second adjustable device for regulating the flow of water through the same passage when partially closed by said piston.

2. In a flush-valve, the combination with a piston for opening and closing said valve, and an enclosing chamber provided with two passage-ways extending from a water-supply to the space over said piston and so arranged that one of said passage-ways is automatically closed by the said piston at a predetermined point in its closing movement, of an independently-adjustable device in each passage-way for regulating the flow of water through the said passage-ways.

3. In a flush-valve, a piston arranged to open and close said valve, an adjustable device for regulating the speed of the closing movement of said piston, means for automatically retarding the latter part of said closing movement, and a second adjustable device for regulating the amount of such retardation.

4. In a flush-valve adapted to permit a flow of water from a service-pipe to a closet-bowl, a valve-body provided with passage-way for water whereby the pressure of water in said service-pipe operates to close said valve, a movable piston arranged to open and close said valve, means whereby the closing movement of said piston operates to close the inlet to said passage-way so as to cause a retardation of the valve-closing movement, and an adjustable device whereby the amount of such retardation may be regulated.

5. In a flush-valve adapted to be opened and closed by water-pressure, the combination with a piston arranged to be moved by such pressure so as to cause such opening and closing, and a valve-body in which said piston operates, said valve-body being provided with passage-ways through which the water-pressure acts to close said valve and said passage-ways being located so as to be closed by said piston before the closing of the valve, of means for permitting water to flow to said passage-

way from a different point, and means for regulating the amount of the last-mentioned flow.

700,488. COMBINATION DOOR-KNOB AND KEY. JOHN W. FERRIS, Denver, Colo., assignor of one-half to John R. A. Haynes, Denver, Colo. Filed June 17, 1891. Serial No. 64,912. (No model.)



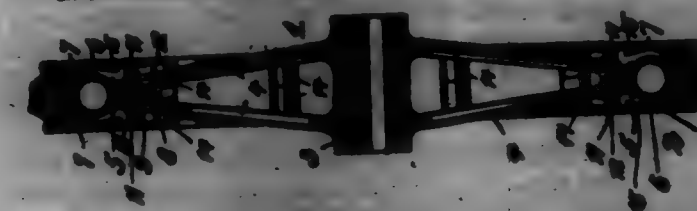
Claim.—1. In a device of the class described, the combination with the inner and outer knobs and a hollow spindle connecting the same, of a shaft extending through the hollow spindle and projecting entirely through the outer knob and having the threaded outer portion, the exterior rotary thumb-piece 33 having a threaded opening receiving the threaded portion of the shaft, the threaded shaft 34 arranged on the threaded portion of the shaft within the outer knob and extending through the same and abutting against and forming a stop for the exterior thumb-piece, and ball-ringing mechanism connected with the shaft and operated by the same, substantially as described.

2. In a device of the class described, the combination with inner and outer knobs and a connecting-spindle, of a plate arranged within and detachably secured to the inner knob, a bracket mounted on the plate and provided with an opening, a central gear-wheel arranged in the opening, a shaft secured to the central gear-wheel and extending to the outer knob and provided with means for rotating it, an eccentrically-arranged spindle or pivot, a rotary hammer provided with a central piston, an eccentrically-arranged gear-wheel meshing with the central piston and provided with a piston meshing with the central gear-wheel, and a brace supporting the pivot or spindle, substantially as described.

3. In a device of the class described, the combination of the inner knob composed of inner and outer sections, the inner section having its shank interiorly threaded, a plate provided with a threaded stem engaging the said shank, a bracket mounted on the plate and having an opening, a support secured to the bracket and supporting the outer section of the inner knob and provided with a pivot or spindle, a hammer mounted on the pivot or spindle, a gear-wheel arranged in the opening of the bracket, gearing connecting the piston and the said gear-wheel, and a shaft connected with the gear-wheel, substantially as described.

4. In a device of the class described, the combination of the inner and outer sections of the inner knob, the plate detachably secured to the inner section, the bracket mounted on the plate, the longitudinal support secured at its outer end to the outer section of the inner knob and provided at its inner end with a pivot centrally secured to the bracket, a rotary hammer mounted on the pivot, a centrally-arranged gear-wheel arranged within the bracket, an eccentrically-arranged pivot or spindle, an eccentrically-arranged gear-wheel having a piston meshing with the centrally-arranged gear-wheel, a piston carried by the hammer and meshing with the eccentrically-arranged gear-wheel, and the triangular brace mounted on the bracket and supporting the pivot or spindle, substantially as described.

700,489. VEHICLE-WHEEL. DANIEL H. HAYNES, New York, N. Y. Filed Mar. 7, 1898. Serial No. 67,118. (No model.)



Claim.—1. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-threads, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending laterally over the said resilient ring and hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the said guide-plates together; and a link pivotally connected at one end to one of said spokes and at the other end to one of the said guide-plates, substantially as described.

2. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-threads, of a combining device, comprising a resilient ring, engaged by the outer face of said rim,

a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, and guide-plates secured to the said tire-rim and projecting laterally over the said resilient ring and hub-rim, and engaging the laterally-projecting ears or bearing-threads of said spokes; and a link connecting the said members together, substantially as set forth.

3. In a wheel, the combination with a tire member comprising a tire-rim, and a tire supported directly thereby upon its outer periphery, of a combining device, comprising a resilient ring, supported directly against the inner periphery of the said tire-rim, an independent hub member comprising a hub, spokes and a rim, the said rim engaging, at its outer periphery, the said combining device; and a connection of one point only, between the said members, connecting the said members relatively together.

4. In a wheel, the combination with a tire member comprising a tire-rim, and a tire supported directly thereby upon its outer periphery, of a combining device, comprising a resilient ring, supported directly against the inner periphery of the said tire-rim, an independent hub member comprising a hub, spokes and a rim, the said rim engaging, at its outer periphery, the said combining device; and a link connecting the said members together, substantially as set forth.

5. In a wheel, the combination with a tire member comprising a tire-rim, and a tire supported directly thereby upon its outer periphery, of a combining device, supported directly against the inner periphery of the said tire-rim, an independent hub member comprising a hub, spokes and a rim, the said rim engaging, at its outer periphery, the said combining device; and a link connecting the said members together, substantially as set forth.

6. In a wheel, the combination with a tire member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending laterally over the said resilient ring and hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a connection between one of the spokes only and the said tire member.

7. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending laterally over the said resilient ring and hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a link connecting the said members together, substantially as set forth.

8. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending laterally over the said resilient ring and hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a link pivotally connected at one end to one of said spokes and at the other end to one of the said guide-plates securing-bolts, substantially as specified.

9. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates, consisting each of a plurality of arms 7 secured to the said tire-rim, and a continuous ring 12 connected to said arms, the inner diameter of said rings 12 being less than the inner diameter of the said hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the said guide-plates together; and a connection between one of the spokes only and the said guide-plates.

10. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates, consisting each of a plurality of arms 7 secured to the said tire-rim, and a continuous ring 12 connected to said arms, the inner diameter of said rings 12 being less than the inner diameter of the said hub-rim, and bolts, arranged within the hub-rim and between the said spokes, for securing the said guide-plates together; and a link pivotally connected at one of its ends to one of said spokes and at the other of its ends to said guide-plates.

11. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-threads, of a combining device, comprising a resilient ring, engaged by the outer face of said rim,

11. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-faces, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and projecting inwardly over the said resilient ring and hub-rim, and engaging the laterally-projecting ears or bearing-faces of said spokes, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a connection at one point only, between the said members, connecting the said members relatively together.

12. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-faces, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and projecting inwardly over the said resilient ring and hub-rim, and engaging the laterally-projecting ears or bearing-faces of said spokes, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a link pivotally connected at one of its ends to said tire member and at the other of its ends to said hub member.

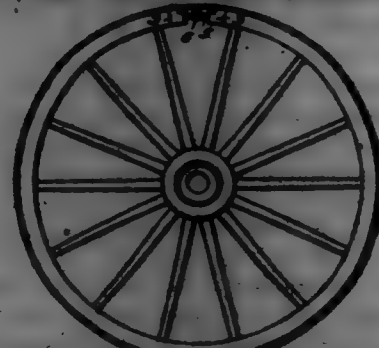
13. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, the inner periphery of which directly engages the said resilient ring, and guide-plates extending inwardly from said tire-rim and engaging said hub member laterally, said guide-plates also having portions laterally projecting therefrom to engage said hub member radially upon a two extended movement of one member with respect to the other; and a link connecting the said members together.

14. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, the spokes provided at substantially their outer ends with laterally-projecting ears forming bearing-faces, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, and guide-plates secured to the said tire-rim and projecting inwardly over the said resilient ring and hub-rim, and engaging the laterally-projecting ears or bearing-faces of said spokes, said guide-plates also having portions laterally projecting therefrom to engage the radial edges of said hub-member ears or bearing-faces, upon a two extended movement of one member with respect to the other; and a link connecting the said members together, substantially as set forth.

15. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending inwardly over the said resilient ring and hub-rim, said guide-plates having spring-pieces between them, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a link connecting the said members together, substantially as set forth.

16. In a wheel, the combination with a hub member comprising a hub, spokes and a rim, of a combining device, comprising a resilient ring, engaged by the outer face of said rim, a tire member comprising a tire-rim, the inner periphery of which directly engages the said resilient ring, guide-plates secured to the said tire-rim and extending inwardly over the said resilient ring and hub-rim, said guide-plates having interlocking spring-pieces extending laterally between them, and bolts, arranged within the hub-rim and between the said spokes, for securing the inner ends of the said guide-plates together; and a link connecting the said members together, substantially as set forth.

700,490. TIRE-TIGHTENER. FRANK HERR, Goodenot, Kans. Filed Jan. 28, 1901. Serial No. 48,054. (No model.)



Claim.—A tire-tightener comprising metal sockets to receive the meeting ends of a wood felly and an oppositely-threaded bolt the opposite ends of which are seated in correspondingly-threaded apertures in the adjacent end walls of the sockets; said sockets being split and provided with transverse clamping-bolts.

700,491. SAFETY SPEED-LIMITING MEANS. GARNETT W. REBER, Indianapolis, Ind., assignor to Reber's Novelty Company, Indianapolis, Ind. Filed Oct. 14, 1901. Serial No. 73,547. (No model.)



Claim.—1. A mechanism including a driving-wheel, a driven wheel operated by means of the driving-wheel, a driven shaft, an isolating case attached to the driven shaft, and a controller located in the case and operatively connecting the driven wheel with the driven shaft, whereby the driven shaft may be actuated by the driven wheel and its rate of speed limited to a lesser proportional rate of that of the driven wheel.

2. A mechanism including a driving-wheel, a driven wheel operated by means of the driving-wheel, a driven shaft, an isolating case, a wedge member mounted on the shaft and having operative connection with the driven wheel, and a wedge member located in the case and adapted to contact with the wedge member, whereby the driven shaft may be actuated and the speed rate thereof limited to a fractional part of the speed to which the driven wheel may attain.

3. A mechanism including a driving-wheel, a driven shaft, a driven wheel, an isolating case, a wedge member mounted so as to move longitudinally on the driven shaft and operatively connected with the driven wheel, a wedge-block mounted in the isolating case and having sliding contact with the wedge member, and a spring pressed between the wedge-block and the rim of the isolating case, whereby the driven shaft may be actuated and its speed limited to a fractional part of the speed of the driven wheel.

4. A mechanism including a driving-wheel, a driven shaft, a driven wheel, a controller comprising a wedge member, a case having a flange extending substantially in the wedge member, wedge-blocks in the case, and springs in the case engaging the wedge-blocks, whereby the driven wheel may impart variable-speed motion to the driven shaft.

5. A mechanism including a driving-wheel, a driven shaft, a driven wheel operated by means of the driving-wheel, a spring operating so as to elastically hold the driven wheel against the periphery of the driven shaft, a wedge member movable on the driven shaft and operatively connecting with the driven wheel, wedge-blocks engaging with the wedge member, springs for the wedge-blocks, and a case including and supporting the wedge-blocks and the springs and attached to the driven shaft, whereby the velocity of the driven shaft may be limited to a predetermined rate relative to the rate of speed of the driven wheel.

6. A speed-limiting means including a driving-wheel, a driven shaft, a driven wheel operated by means of direct contact with the periphery of the driving-wheel and mounted revolvably on the driven shaft, a spring operating to elastically force the driven wheel constantly against the driving-wheel, a central wedge member operatively connected with the driven wheel, an isolating case attached to the driven shaft, and controlling mechanism mounted in the case and coacting with the central wedge member, whereby the driven shaft may be actuated at variable speeds by the driven wheel and the velocity of the driven shaft limited.

7. An electricity-generating machine comprising a main base, an armature-shaft, a driven pulley relative to the armature-shaft, an isolating case adjustably attached to the armature-shaft and provided with induced power-controlled mechanism whereby the driven pulley may be linked to the armature-shaft and speed-controlled means whereby the driven pulley may be released from connection with the armature-shaft, a driving-wheel in contact with the relative driven pulley, and a cushion for absorbing the thrust imparted by the driven wheel to the driven pulley.

8. In an electricity-generating machine, a fixed main base, a movable base upon the main base, journal-bearings supported by the movable base, a generator-shaft mounted rotatively in said bearings, the spring acting against the movable base, a driven wheel mounted rotatively on the generator-shaft, a driving-wheel in constant contact with the driven wheel, and automatically-controlled mechanism whereby the driven wheel is caused to have intermittent operative contact with the generator-shaft, in combination with a gas-engine and clutch-rod connecting the gas-engine with the generating-machine.

9. In an electricity-generating machine, the combination with a driving-wheel and a driven shaft, of a driven wheel relative to the driven shaft and operated by means of the driving-wheel, a supporting-case adjustably secured to the driven shaft, a controller in the case and coacting therewith and also with the driven wheel, whereby the driven shaft may be actuated and the speed rate thereof limited to a fractional part of the speed to which the driven wheel may attain.

10. In an electricity-generating machine, the combination with a gas-engine having a relative wheel, of a generator-shaft provided with a sleeve movable longitudinally on the shaft and having a frictional contact-face, a driven wheel mounted rotatively on the generator-shaft and having variably-framed contact with the frictional contact-face of the sleeve-shaft, and also having constant contact with the relative wheel of the gas-engine, and means whereby the force of the contact between the movable sleeve and the driven wheel may be automatically graduated.

11. In an electricity-generating machine, the combination with a driving-wheel, a driven wheel having a frictional contact-face, a generator-shaft, means for generating and conducting a current, a gas-engine having a relative wheel in constant operative connection with the driven wheel, and a controlling mechanism, of a movable connector having a frictional contact-face adapted to engage the contact-face of the driven wheel and partially support the driven wheel in operative connection with the controlling mechanism, whereby the driven wheel may impart variable rates of speed to the generator-shaft.

12. In an electricity-generating machine, means for generating and conducting an electric current, a driven shaft, a driven wheel, a relatively fixed bearing at one side of the driven wheel, a relatively movable bearing at the opposite side of the driven wheel, in combination with an automatically-operated controller coacting with the movable bearing, whereby the driven wheel may be caused to have intermittent operative connection with the driven shaft, and a driving-wheel having operative connection with the driven wheel.

13. In an electricity-generating machine, the combination with a driving-wheel, of a base, a driven shaft supported by means of the base, a driven wheel relative to the driven shaft and driven by means of the driving-wheel, a supporting-case adjustably secured to the driven shaft, a controller supported in the case and coacting therewith and also with the driven wheel whereby the driven shaft may be actuated and its velocity limited to a lesser rate than that of the driven wheel, and a cushion interposed operatively between the driving-wheel and the base whereby the thrust of the driving-wheel against the generating-machine may be absorbed.

14. In an electricity-generating machine, the combination of a main base, journal-bearings supported substantially by the base, a generator-shaft mounted rotatively in the bearings, a driven wheel having a plurality of friction-faces and mounted rotatively on the generator-shaft, friction members having operative connection with the generator-shaft and also with one of the plurality of friction-faces, automatically-controlled mechanism whereby the friction members may be caused to have intermittent operative contact with the friction-faces, whereby the driven wheel may impart variable rates of speed to the generator-shaft, in combination with a gas-engine, having a driving-wheel in operative connection with one of the plurality of friction-faces, and clutch-rod connecting the gas-engine with the generating-machine.

15. In an electricity-generating machine, a driven shaft, an isolating case attached to the driven shaft, a driven wheel mounted rotatively on the driven shaft, a movable locking device adapted to engage the driven pulley, and a controller mechanism operating against the locking device and also within the case and against the front and the flange or rim thereof, in combination with means for generating and conducting an electric current, and a gas-engine having a relative wheel in operative connection with the driven wheel.

16. In an electricity-generating machine, the combination of a driven shaft, a driven wheel relative to the driven shaft, means connected with the driven shaft whereby electricity may be generated, a sleeve mounted so as to move longitudinally on the driven shaft and having a friction-face in operative connection with the driven wheel, means whereby the sleeve may be automatically moved to and from the driven wheel and having a supporting member adjustably secured to the driven shaft, whereby the driven wheel may impart variable-speed motion to the driven shaft, in combination with a gas-engine, clutch-rod connecting the gas-engine with the generating-machine, and a driving-wheel connected operatively to the driven wheel.

17. In an electricity-generating machine, the combination of a driving-wheel, a driven shaft, a driven wheel relative to the driven shaft and having an elastic rim in contact with the periphery of the driving-wheel, a sleeve movable longitudinally on the driven shaft and rotatively thereon and having a friction-face in operative connection with the driven wheel, a supporting member secured to the driven shaft, automatically-operated means carried by the supporting member and operatively connected with the sleeve, whereby the driven shaft may be actuated by the driven wheel and the thrust thereof absorbed, and the velocity of the driven shaft limited to a predetermined rate relative to the peripheral speed of the driving-wheel, with a gas-engine actuating the driven wheel, and clutch-rod connecting the gas-engine with the generating-machine.

18. In an electricity-generating machine, a driving-wheel, a driven shaft, a driven wheel relative to the driven shaft and having the periph-

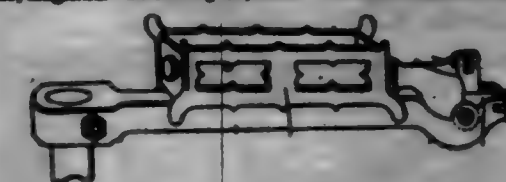
ery thereof in contact with the periphery of the driving-wheel, a supporting member secured to the driven shaft, and movable members having frictional contact-faces normally connecting the driven wheel to the supporting member whereby the driven wheel may rotate the driven shaft and whereby the driven wheel may be disconnected from the driven shaft, in combination with a gas-engine actuating the driving-wheel, and clutch-rod connecting the gas-engine with the generating-machine.

19. In an electricity-generating machine, the combination of a driven shaft, means for generating electricity connected with the driven shaft, a driven wheel relative to the driven shaft and having a frictional contact-face, a controlling mechanism, and a movable connector having a frictional contact-face adapted to engage the contact-face of the driven wheel in operative connection with the controlling mechanism, whereby the driven wheel may impart variable rates of speed to the driven shaft, with a gas-engine, a driving-wheel actuated by the gas-engine and connected with the driven wheel, and clutch-rod connecting the gas-engine with the means for generating electricity.

20. In an electricity-generating machine, the combination of the main base, the generator-shaft, the generator connected with the generator-shaft, the driven wheel relative to the generator-shaft, the groove in the periphery of said wheel, the supporting member secured to the generator-shaft, and the controller mechanism operatively connecting the supporting member with said driven wheel, with the gas-engine, the driving-wheel operatively connected with said driven wheel, and the clutch-rod connecting the gas-engine with the generator.

21. In an electricity-generating machine, the combination of the generator-shaft, the generator connected with said shaft, the supplemental extension-shaft having the socket connected detachably to said generator-shaft, the driven wheel relative to said extension-shaft, the supporting member secured to said extension-shaft, the movable connector and the controller connected with the supporting member and adapted to engage the movable connector, with the gas-engine, the driving-wheel actuating the driven wheel, and the clutch-rod connecting the gas-engine with the generator.

700,492. PEDAL FOR VEHICLES. EDWARD W. REBER, Chester, England. Filed July 17, 1902. Serial No. 28,924. (No model.)



Claim.—1. The combination, with a crank and a pedal-shaft provided to the outer end of the crank, said crank having a longitudinal slot in its outer end and a second longitudinal slot at an angle to the first and in the plane of movement of the pedal-shaft, of a wing projecting from said pedal-shaft and entering the said second slot, a slot in said wing registering with the first slot of the crank when the shaft is in lowered position, a locking-bar pivoted at one end to one side of the crank and adapted to swing in the first slot across the second, a screw-threaded projection on the opposite end of the locking-bar, and means for connecting said projection with the crank, substantially as set forth.

2. The combination, with a crank and a pedal-shaft pivoted to the outer end of the crank, said crank having a longitudinal slot in its outer end and a second longitudinal slot at an angle to the first and in the plane of movement of the pedal-shaft, of a wing projecting from said pedal-shaft and entering said second slot, a slot in said wing registering with the first slot of the crank when the shaft is in lowered position, a locking-bar pivoted at one end to one side of the crank and adapted to swing in the first slot across the second, a screw-threaded projection on the opposite end of the locking-bar and projecting beyond the side of the crank, and a locking-out on said projection, substantially as set forth.

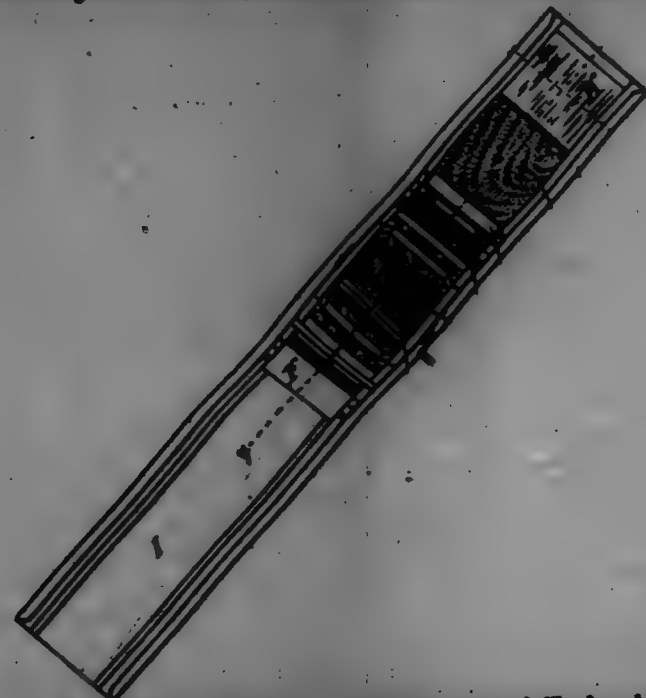
700,493. GRADING APPARATUS. GEORGE A. REBER, the Franchise, Cal. Filed Mar. 12, 1902. Serial No. 57,955. (Model.)

Claim.—1. In a machine for leveling road-surfaces, the combination with the traveling roller for receiving a design from one board and transferring it to another, of a blinding-brush mounted so as to follow the said roller in its transferring operation.

2. In a machine for leveling road-surfaces the combination of a base, a traveling structure mounted thereon, a roller suspended and revolvable in said structure and an adjustable blinding-brush also mounted in said traveling structure.

3. In a machine for leveling road-surfaces, the combination of a base, a traveling structure mounted thereon, a roller-frame vertically movable in said traveling structure and carrying a roller, a spreader hinged to the traveling structure and a scraper also hinged thereto.

4. In a machine for imitating wood-grain, the combination of a base, a traveling structure mounted thereon, a roller-frame vertically movable in said traveling structure and carrying a roller, a spreader hinged to the traveling structure, a scraper also hinged thereto and a blinding-brush.



5. In a machine for imitating wood-grain, a trough-like base having guides, and provided with means for supporting two boards simultaneously and upon substantially the same plane, a frame, a structure movable in said guides, and an adjustable roller, an adjustable spreader and an adjustable scraper all carried by said movable structure.

700,494. ELECTRIC HEATER. WALTER R. HERRMAN, Joplin, Mo., assignor of one-half to Edward R. Harris, Joplin, Mo. Filed Feb. 11, 1901. Serial No. 44,929. (No model.)



Claim.—A heater comprising a tapered shell or casing consisting of a body and a cover, each provided in its side with openings for the circulation of air, the meeting edges of one end of the body and of the cover being each provided with a recess, the two forming an opening, a bed of loose filamentous material inclosed by the casing and through which air is free to circulate, an incandescent electric lamp nested in the said material and having its stem seated in the opening formed by the registering recesses of the body and cover, and projecting beyond the end of the casing, and spring fastening means for holding the body and cover assembled, substantially as described.

700,495. ELECTRODES FOR ARC-LAMPS. ROBERT HARTER, Berlin, Germany. Filed Feb. 24, 1902. Serial No. 28,414. (No model.)

Claim.—1. As a new article of manufacture an arc-lamp electrode of carbide, having a covering-envelope impervious to water to protect the electrode against the decomposing action of the moisture of the air.

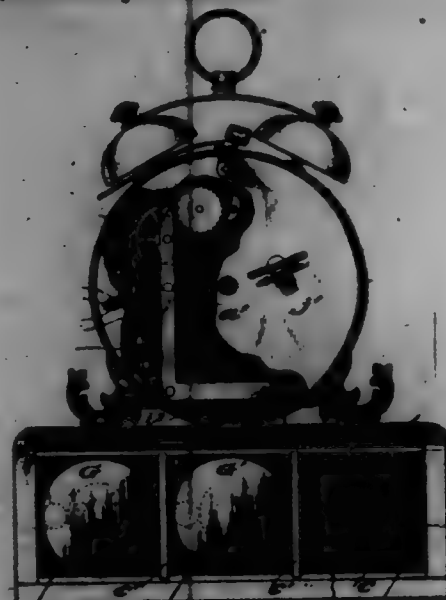
2. As a new article of manufacture, an arc-lamp electrode of carbide having a solid metal envelope protecting the carbide from moisture, substantially as described.

3. As a new article of manufacture an arc-lamp carbide electrode having a protective envelope of aluminum.

700,496. ELECTRIC FIRE-ALARM. CONRAD HENKE, New York, N. Y. Filed Sept. 3, 1900. Serial No. 24,609. (No model.)

Claim.—1. The combination with a clock having an alarm-train, of a lamp and battery, two circuits in series therewith and in circuit with each other, a spring-arm, adjacent to the driving-spring of the alarm-train, a fixed contact-point with which the spring-arm makes contact upon the unwinding of the driving-spring, a manually-controlled contact, the arm, post and manually-controlled contact being located in one of the

aid circuit-circuit, and a manually-controlled contact located in the other circuit-circuit, substantially as described.



2. The combination with a clock having an alarm-train, of a battery and a lamp, a spring-arm adjacent to the driving-spring of the alarm-train, a fixed contact-point with which the spring makes contact upon the unwinding of the driving-spring, and a manually-controlled contact, the battery, lamp, arm, post and manually-controlled contact being in the same circuit, substantially as described.

3. The combination with a clock, of a hollow base therefor, a series of battery elements contained in the base, an electric lamp located upon the base, and having its one terminal connected to one terminal of the battery, a switch-point located upon the base connected to the opposite terminal of the lamp, two contact-points with which the switch-point makes contact and connected to the opposite terminal of the battery, a spring-arm and a contact-post connected between one of the contact-points and the said last-named terminal of the lamp, and an alarm-train having a driving-spring, released by the clock for bringing the spring-arm and the post into contact, substantially as described.

4. The combination with a clock and a hollow base therefor, of a framing forming a series of compartments, contained in the base, a clock, a lamp, a switch-point and two contact-points all mounted on the base, a spring-actuated alarm-train contained in the clock and released by the time-train thereof, two contact-points located at the same end of each compartment, a battery-cell contained in each compartment and having the elements thereof in contact with the contact-points in that compartment, a spring contact-arm and contact-post therefor adjacent to each other and to the driving-spring of the alarm-train, and conductors passing between the top of the base and the top of the casing and connecting a contact in one of the compartments with one of the contact-points upon the base and with the spring-arm, connecting the opposite point upon the base with the contact-post, and connecting, through the lamp, a contact-point in one of the compartments with the switch-point, substantially as described.

700,497. ELECTRIC BATTERY. CONRAD HENKE, New York, N. Y. Original application filed Aug. 9, 1900. Serial No. 24,597. Revised and this application filed Apr. 1, 1901. Serial No. 28,380. (No model.)



Claim.—1. As a new and improved article of manufacture the heretofore-described battery-cell having two elements, and having a centrally-disposed contact-point and a surrounding annulus upon one end thereof, substantially flush with each other and connected respectively with the several elements, the contact-point and annulus forming terminals of the respective elements of the cell, substantially as described.

2. As a new and improved article of manufacture, the heretofore-described battery-cell consisting of two elements, one element being centrally located and the other element surrounding the first-named element and being concentric therewith, and a button and a surrounding annulus, substantially flush with each other, and connected to the central and concentric elements respectively, substantially as described.

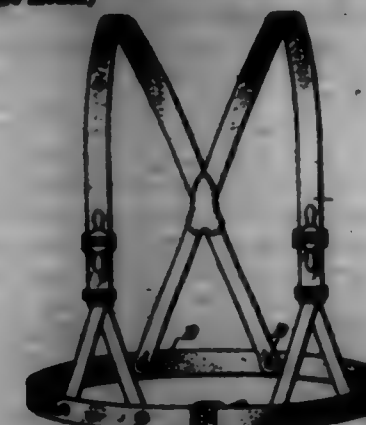
3. As a new and improved article of manufacture, the heretofore-described battery-cell, consisting of a cup-shaped cell forming one element

of the battery and inclosing another element centrally located therein, the open end of the cell being closed by a coating of insulating material separating the said element, the cell being surrounded by an annulus electrically connected to the other element, and a button upon the upper end of the centrally-located element, the button being substantially flush with the annulus, from which it is separated, substantially as described.

4. The heretofore-described battery-cell having two elements, and having upon one end thereof a centrally-disposed point and a surrounding annulus, substantially as described, connected respectively to the several elements of the cell, the point and annulus forming terminals of the respective elements of the cell and being adapted to bear upon terminals of an external circuit, and to electrically connect the elements of the cell therewith, as and for the purpose set forth.

5. As a new and improved article of manufacture, the heretofore-described battery-cell with positive and negative elements, having a centrally-disposed contact-point and a surrounding contact-plate upon one end thereof, the surrounding contact-plate being formed by an annulus, the central point and the surrounding annulus being connected one to the positive and the other to the negative element of the cell, and forming terminals of the said elements, substantially as described.

700,498. GARMENT-SUPPORTER. WILLIAM S. BUCKNER, Meriden Park, Mass. Original application filed Dec. 26, 1901. Serial No. 27,542. Revised and this application filed Apr. 4, 1902. Serial No. 28,428. (No model.)

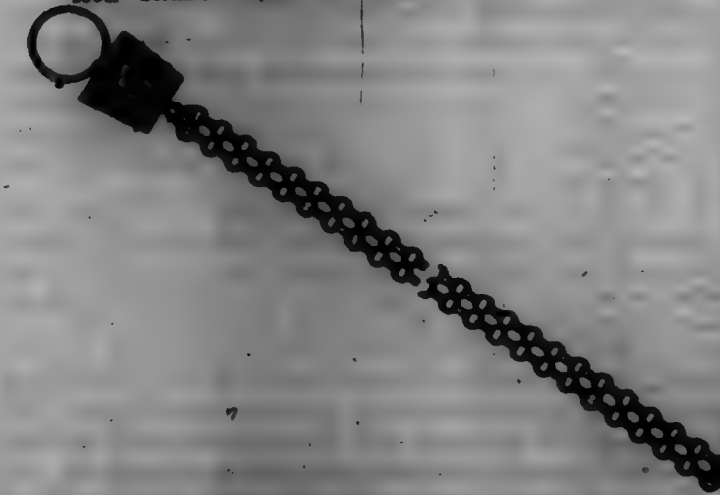


Claim.—1. As an article of manufacture, a garment-supporter comprising shoulder-straps, a band adapted to encircle the wearer, a button for connecting said shoulder-straps and said band, an extension for said button to the outside of said band to which outside garments may be attached, substantially as described.

2. As an article of manufacture, a garment-supporter comprising shoulder-straps, a band adapted to encircle the wearer, a button for said shoulder-straps and said band, and means of connection for the outside of said band adjacent said button adapted to connect with a loop by which the outer garments may be attached, substantially as described.

3. As an article of manufacture, the combination of a band adapted to encircle the waist of a wearer, a button secured to said band adapted to connect with a suspender-loop, a clasp projection from said band adjacent said button and a buttonhole-loop extending with said clasp and adapted to be attached to a button, substantially as described.

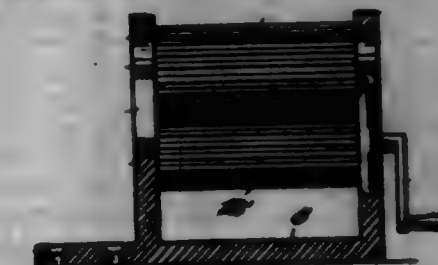
700,499. BOTTLE-CLEANER. DAVID E. IRVIN, Boston, Mass., assignor of one-half to Jonathan Chase, Boston, Mass. Filed Aug. 2, 1901. Serial No. 78,041. (No model.)



Claim.—1. A bottle-washer comprising a stopper and a looped or doubled chain attached to the said stopper.

2. A bottle-washer comprising a stopper, a wire passing therethrough, and a looped or doubled chain attached to the said wire, the wire being secured from retraction by having the upper portion thereof bent to form a handhold.

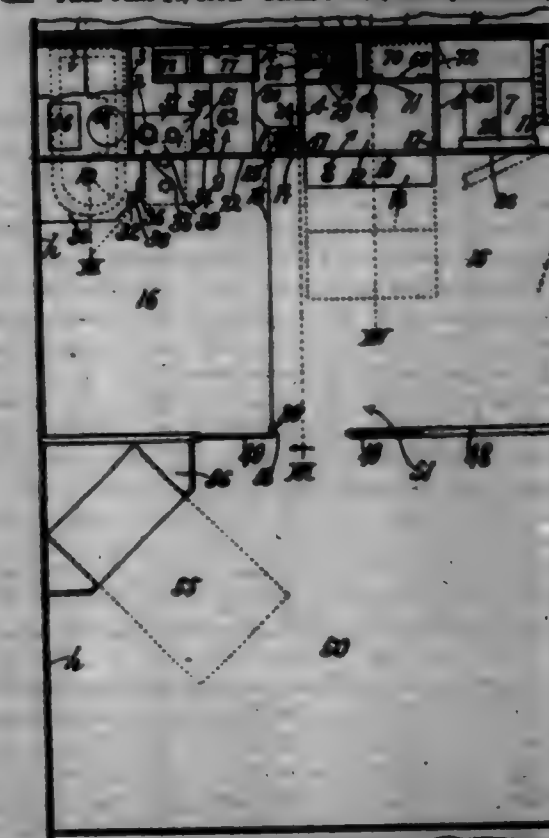
700,500. STEAK-THENDER. WARREN W. JACOBUS, Little Canada, N. Y. Filed Jan. 29, 1902. Serial No. 31,794. (No model.)



Claim.—1. A device of the class described consisting of a base and uprights formed integral, said uprights having vertical slots having end bearing-surfaces, a roller disposed between the uprights and having transverse engagement with the upper bearing-surfaces, one slot having its lower portion enlarged to permit of passage of the roller therethrough and a second roller having a crank formed integral therewith, said roller having a transverse slot at one end and engaged with the lower end of one slot and having an enlarged bearing at its opposite end engaged with the enlargement of the other slot.

2. A device of the class described comprising spaced uprights having longitudinal slots having end bearings, the bearing at one end of the slot being enlarged and grooved circumferentially, corrugated roller having transverse engagement with the upper bearing of the slot, and a second roller having an enlarged bearing at one end and curved in cross-section and engaged in the grooved bearing and having a transverse slot at its opposite end engaged with the other slot, the second roller being corrugated and having a crank for rotating it.

700,501. APARTMENT-HOUSE. WILLIAM C. JAMES, Chicago, Ill. Filed June 17, 1901. Serial No. 24,947. (No model.)



Claim.—1. A compartment-section for a house comprising a case divided by partitions to form at one end a toilet-compartment, at the other end a nursery and clothes and coat storage closet; and between the toilet-compartment and the closet, a bed-holding compartment, and a kitchen and pantry compartment; a bath-tub of greater length than the depth of the toilet-compartment, mounted in said toilet-compartment to slide out and in; a combined clothes-rack and coat-hanger interchangeably mounted in the closet end and on the top of the outboard bath-tub for interchangeability as a clothes-rack and tub; a bed pivoted in the bed-holding compartment; an upright curtain mounted in the compartment-section, to be drawn out to form a partition in any apartment of which the face of the compartment-section forms a side, to divide each apartment into two

rooms, one of which rooms is thereby adapted for a bed-room, living-room and back parlor, while the other room is adapted for a toilet, bathroom and bed-room.

2. A compartment-eccles for a house, comprising a case divided by partitions to form at one end a toilet-compartment, at the other end a secretary and clothes and coat storage closet, and between the toilet-compartment and the closet, a bed-holding compartment and a kitchen and pantry compartment; a bath-tub of greater length than the depth of the toilet-compartment mounted in said toilet-compartment to slide out and in; a combined clothes-rack and coat-hum interchangably mounted in the closet and on the top of the outdrawn bath-tub for interchangable use as a clothes-rack and coat-hum; a bed pivoted to fold into the bed-holding compartment and furnished with a shelf to form a bed when the case is lowered, the bottom of said bed being formed to close the front of the bed-holding compartment and to imitate a fireplace; a door to close the kitchen-compartment; and an upright curtain mounted in the kitchen-compartment to be drawn out through an opening in said compartment-eccles to form a partition in any apartment of which the face of the compartment-eccles forms a side.

3. A compartment-eccles for a house, comprising a case divided by partitions to form at one end a toilet-compartment and at the other end a closet; a secretary forming a door for the closet; a bed-holding compartment next to the closet; a bed pivoted to fold into the bed-holding compartment and to form an ornamental closure for the front of said compartment; a kitchen-compartment; a bath-tub of greater length than the depth of the toilet-compartment, mounted in said toilet-compartment to slide out and in; a portable window-seat furnished with a chamber to receive the projecting end of the bath-tub when the bath-tub is slid into the toilet-compartment, said window-seat being formed next to the kitchen-compartment in an oblique head; a door to close the kitchen-compartment and formed in two leaves hinged together, one of said leaves being of the width of one side of said head, and the other leaf hinged to the edge of said first-named leaf; a stove fastened to said first-named leaf to be swung into and out of the kitchen-compartment; and an upright curtain mounted in the kitchen-compartment and adapted to be outdrawn to form a partition in any apartment of which the face of the compartment-eccles forms a side.

4. A compartment-eccles for a house, comprising a case divided by partitions to form at one end a toilet-compartment and at another end a bed-holding compartment; a bed pivoted to fold into the bed-holding compartment; toilet appliances to slide into the toilet-compartment; and an upright curtain mounted in said compartment-eccles, to be outdrawn therefrom to form a partition between the toilet and the bed in any apartment of which the face of the compartment-eccles forms a side.

5. A compartment-eccles for a house, comprising a case divided by partitions to form at one end a bed-holding compartment and at another end a kitchen-compartment; a bed pivoted to fold into the bed-holding compartment and to form an ornamental closure therefor; a door to close the opening into the kitchen-compartment; and an upright curtain mounted in the compartment-eccles to be outdrawn therefrom to form a partition between the bed and the kitchen-compartment in any apartment of which the face of the compartment-eccles forms a side.

6. A compartment-eccles for a house, comprising a case divided by partitions to form a bed-holding compartment and a kitchen-compartment adjacent to each other; a ventilating-well behind the bed-holding compartment, divided into two upright air-passages; an opening leading into one of said passages from the kitchen-compartment, said passages being close to the bed-holding compartment, an opening being provided between the bed-holding compartment and the other air-passage; means for closing said last-named opening; and a bed pivoted to fold into the bed-holding compartment to form an ornamental closure for said compartment.

7. A compartment-eccles for a house, comprising a case divided by partitions to form a bed-holding compartment and a closet-compartment adjacent thereto; a ventilating-well behind the bed-holding compartment; openings being provided between the ventilating-well and the bed-holding compartment and closet respectively; means for closing said openings; a door for the closet; and a bed pivoted to fold into the bed-holding compartment to form a closure for the same.

8. An apartment-house comprising walls to form one or more pairs of double apartments, the double apartments of each pair being furnished respectively at one end with a compartment-eccles, the apartments of each pair of double apartments being arranged with their compartment-eccles abutting; plumbing connections between the abutting compartment-eccles; and plumbing-fittings in said compartment-eccles respectively and connected with said plumbing connections.

9. An apartment-house comprising walls to form a double apartment and furnished at one end with a main partition to cut off a compartment-eccles at that end of said double apartment; a plurality of sub-partitions extending from said main partition to the end wall of the com-

partment to form with said partition and the walls of the compartment-eccles cut off by said partition, a closet, a bed-holder, a pantry and kitchen, and a bath-tub and washstand holder; a bath-tub and a wash-bowl and fixtures in said bath-tub and bed-holder and the bath-tub and washstand holder to extend across the apartment, substantially as and for the purposes set forth.

10. A house, comprising the walls of an apartment, a cross-partition and subpartitions at one end of said apartment to form a closet and bed-storing compartment, a bed-holder, a kitchen and pantry compartment, and a toilet-compartment; a bed pivoted in the bed-holder and having its under side formed with a shelf projection to constitute a support for the bed when the bed is down, and a shelf when the bed is folded up into the holder; a ventilating-well being formed between the bed-holder and the end wall of the apartment; a vertical partition dividing said well into two upright passages; valved openings being provided between one of said passages and the closet-compartment and the bed-holder respectively; a valved opening being provided between the other side and the kitchen and pantry compartment; a door for the closet formed in a secretary; a door for the kitchen-compartment; a bath-tub for the bath-tub holder; an upright spring-controlled curtain at the compartment-forming partition; and means for fastening the free end of said curtain in upright position at the opposite wall of the apartment.

11. An apartment-house comprising walls to form an apartment; a cross-partition and subpartitions at one end of said apartment to form a closet and bed-storing compartment, a bed-holder, a kitchen and a pantry compartment, and a toilet-compartment; a bed pivoted in the bed-holder and having its under side formed with a shelf projection to constitute a support for the bed when the bed is down and a shelf when the bed is folded into the holder; a ventilating-well being formed between the bed-holder and the end wall of the apartment; a vertical partition dividing said well into two upright passages, valved openings being provided between one of said passages and the closet-compartment and the bed-holder respectively; means in the upright passage which communicates with the closet-compartment for holding clothes for drying; perforated shelves in the other passage which communicates with the kitchen-compartment; a swinging bracket mounted to swing into and out of the well front and into the kitchen-compartment; a bath-tub mounted to slide into and out of the toilet-compartment; a cut-draw capable of being stored in the closet-compartment and adapted to be applied to the top of the bath-tub when drawn out and furnished at one end with a folding leg to rest upon the floor to support the foot of the cut-bed, said cut-bed being furnished on its under side with legs for supporting clothes of the cut-bed to air the same when in the closet.

12. In an apartment-house, a double apartment furnished at one side with a partition forming a number of compartments; a curtain to temporarily separate one of the apartments into two rooms; a bed-holder and bed being in one of said rooms; a movable bath-tub in the other of said rooms adapted to move into and out of one of the compartments of the end of said room; plumbing appliances to receive the discharge from the bath-tub and to allow the bath-tub to move freely; and a seat to sit over the outer end of said bath-tub to conceal the same.

13. In an apartment-house, a row of compartments, one of said compartments being arranged to receive a movable bath-tub and another of said compartments being provided with a receptacle for a cut-bed frame; a bath-tub in the bath-tub compartment and the cut-bed frame interchangably adapted for the cut-bed-frame compartment and for the bath-tub, said frame being adapted to fit upon the bath-tub when the same is drawn out from its compartment.

14. An apartment-house furnished with walls to form an apartment and at one end of said apartment, partitions and subpartitions to form a plurality of compartments, one of said compartments forming a bed-holder and bed-holding compartment, an air-passage; a valved opening between the bed-holder compartment and the air-passage; and a bed-frame fitting in the bed-holder and having its bottom formed in an imitation mantelpiece, the shelf of which is adapted to form a support for the bed when the same is lowered into position for use; the bottom of said bed forming a closure for the said opening.

15. An apartment-house furnished at one end of one of its apartments with a bath-tub-holding compartment; a bath-tub to slide into and out of said compartment and being of greater length than the chamber of the compartment; a sliding case furnished with a wash-bowl and sliding into said compartment above the bath-tub; water-applying fixtures in the wall of the bath-tub compartment above the sliding case; a chair formed with a chamber beneath to rest closed at front and side to chamber the protruding end of the bath-tub; and having a back hinged to said case and arranged to stand up to conceal the drawer and water-fixture, and to fold down upon the bath-tub to allow the case to be slid out.

16. In an apartment-house, a compartment-eccles furnished with a kitchen-compartment and a ventilating-well; a door for the ventilating-

well; a swinging bracket on said door; and a water-holder on said swinging bracket.

17. In an apartment-house, a compartment-eccles furnished with a ventilating-well and a bed-holder compartment in front of said well; a door communicating between the bed-holding compartment and the well; and a bed pivoted in said bed-holder to fold up and close the opening thereof.

18. In an apartment-house, a bed-holding compartment having an extension below the level of the floor of the compartment; and a bed pivoted in said compartment to extend into said room when brought into upright position.

19. The combination with the apartment-floor and the bed-holding compartment extending above and below said floor, of a bed pivoted to swing into and out of said compartment and furnished in its bottom with a recess to receive the edge of the floor to cover the joint between the floor and the bed when the bed is in upright position.

20. In an apartment-house, a bath-tub-receiving compartment; a trough below said compartment; a trap and cover communicating leading from said trough; and a bath-tub to slide in said compartment above said trough and furnished with a discharge-pipe to discharge into said trough.

21. In an apartment-house, a ventilating-well furnished with funnel-shaped shelves, substantially as and for the purposes set forth.

22. In an apartment-house, a compartment-eccles forming one end of an apartment and provided with a kitchen-compartment and a double-headed door for closing said compartment, and a stove fastened to the cabinet of said door to be swung into and out of the kitchen-compartment.

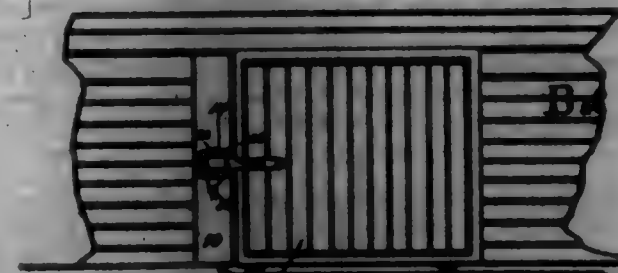
23. In an apartment-house, a door closing one of the compartments and furnished on its inner side with a removable panel and a table with a hinged top of smaller size than the removable panel of the door, and means for connecting the table-top and the door-panel to thereby form a table of larger dimensions.

24. A door furnished with a panel-holder; a removable panel in said holder furnished with a back; means for retaining said panel in said panel-holder; a table furnished with a hinged top of smaller dimensions than the panel, and also furnished with means to receive the back of the panel; the several parts being constructed and arranged to bring said table below said back to receive the same when the table-top is tilted and to lift the panel from the holder when the table-top is brought to horizontal position.

25. The combination of an upright panel-holder; a panel for said holder; a table furnished with a hinged top; and an attachment for connecting said hinged top with the panel to lift the same from the holder, substantially as set forth.

26. The combination of a panel-holder; a panel for said holder; a stand; and an attachment for connecting the top of the stand with the panel to lift the same from the holder.

700,502. SEAL-LOCK. HENRY T. JONES, Long Island, Queens County, N. Y. Filed July 25, 1904. Serial No. 69,692. (No model.)



Claim.—1. A device of the class described comprising a hoop provided with a head having an opening, a tubular staple-bolt provided with a head adapted to pass through said opening and having a vertically-arranged eye or passage formed therein, a frangible seal comprising a head portion and a shank, the latter being adapted to pass through said eye or passage and a spring-operated latch-bolt mounted in said staple-bolt and adapted to engage the shank of the seal, and a securing-pin connected with the hoop and adapted to be passed through the head of the staple-bolt, substantially as shown and described.

2. A device of the class specified comprising a hoop provided with a head having an opening, a tubular staple-bolt provided with a head adapted to pass through said opening and having a vertically-arranged eye or passage formed therein, a frangible seal comprising a head portion and a shank, the latter being adapted to pass through said eye or passage and a spring-operated latch-bolt mounted in said staple-bolt and adapted to engage the shank of the seal, the shank of the seal being also provided with a triangular notch or recess and the head of the latch-bolt being beveled on the upper side thereof, substantially as shown and described.

700,503. PLASTER AND GROUTING. JAMES R. JONES, Jackson, Miss. Original application filed May 7, 1901, Serial No. 69,128. Divided and this application filed Sept. 13, 1904. Serial No. 70,577. (No model.)



Claim.—1. Is a plaster, a hopper, a seed-conducting tube or boot, a valve within the said tube or boot having a section extending out therefrom, and a wheel mounted to revolve in the hopper, provided with projections adapted to engage with the projecting portion of the valve, whereby the said valve is operated by the said wheel and the valve brought in position to temporarily hold the seed in the said tube and dump the same at the proper moment, as described.

2. In plaster and the machines, a frame, a receptacle located upon said frame, said receptacle being provided with a partition forming chamber therein, an outlet for the larger chamber, which chamber is adapted to receive a fertilizing material, a distributing-wheel provided with pockets mounted to revolve in the outlet portion of said larger chamber, a portion of the periphery of the wheel extending beyond said outlet, a finger secured to a wall of each of the said pockets, a seed-distributing tube, and a retaining-valve located within the said seed-distributing tube and operated by the fingers located in the pockets of the fertilizer-distributing wheel, as set forth.

700,504. LIGHTER. THOMAS W. JONES, Brooklyn, N. Y. Filed Jan. 7, 1905. Serial No. 69,725. (No model.)



Claim.—1. In combination, a ceiling-booth, a registering device located at a distance therefrom and consisting of a slotted table, a series of registering-wheels, an actuating-lever connected to said wheels and having its forward end terminating under the slot in the table, and means for normally pressing said lever toward said slot, and a chain connecting said registering device with the booth and having its receiving and terminating end close to the forward end of said lever, the lower edge of the chain terminating directly under the slot and the upper wall of the chain terminating short of the slot and being bulged upward at 14, whereby the return of said lever after each registering action will inject the chain but registered into the tube and back to the ceiling-booth.

2. In an apparatus of the class described, the combination of a registering apparatus, a check-calling booth, a check-receiving hopper arranged at a distance therefrom, a retaining-chain for returning the checks from the receiver to the ceiling-booth, and means at the register for positively impelling each check after it is received through said chain to the ceiling-booth.

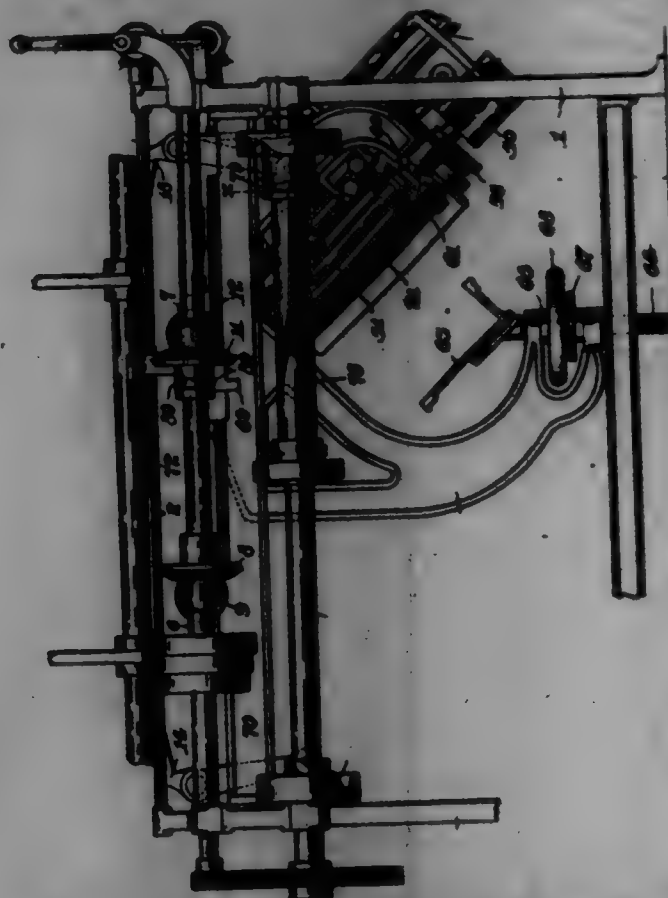
3. In combination, a ceiling-booth, a check-receiving and registering device located at a distance from said booth, a chain connecting the registering device with the booth, and a check-impelling device connected

to the registering device and adapted to positively impel each sheet through the chute back to the booth after it is registered.

4. In combination with a sheet-calling booth, a sheet-registering device located at a distance therefrom, a connecting-chute arranged substantially horizontal, a lever adapted to be actuated by the sheet in the act of registering, said lever being arranged substantially in line with the receiving end of said chute and close thereto, and means for normally returning said lever after it is moved by the sheet, said action serving to inject the sheet into the chute and back to the booth.

5. In combination, a sheet-calling booth, a registering device located at a distance therefrom and consisting of a sheet table, a series of registering-wheels, an actuating-lever connected to said wheels and having its forward beveled end terminating under the slot in the table, means for normally pressing said lever toward said slot, a chute connecting said registering device with the booth and having its receiving end terminating under the slot in the table and close to the beveled nose of said lever, whereby the return of said lever after each registering action will inject the sheet into the chute and return it to the sheet-calling booth.

700,505. PAPER-FOLDING MACHINE. HOWARD E. KIM, Philadelphia, Pa., assignor to the CHAMBERLAIN BROTHERS COMPANY, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Aug. 7, 1898. Serial No. 720,463. (No model.)



Claim.—1. In a folding-machine, the combination with the main frame, a set of horizontal folding-rollers therein, and means for rotating said rollers, of a frame adjustable toward and from said rollers, horizontal folding-rollers mounted in said frame, a set of inclined rollers also mounted in said frame, means for concurrently actuating said horizontal and inclined rollers, carrying-tapes leading from the first-named set of horizontal rollers to the second set, guide-rollers for said tapes on the adjustable frame, carrying-tapes extending from the latter set of rollers adjacent to and parallel with the inclined folding-rollers, guide-rollers for said latter tapes on the said adjustable frame, and means for bodily adjusting said frame, substantially as described.

2. In a folding-machine, the combination with the inclined folding-rollers and their supporting and operating parts, of a guide or supporting plate above and adjacent to said rollers, means whereby a previously-folded sheet is fed onto said plate, a stop or abutment bar on said plate, a push-rod, means whereby it is caused to act against the edge of the sheet to adjust the same, and means whereby the sheet is delivered to the said rollers and folded thereby, together with means for adjusting said stop-bar and push-rod in a direction parallel with the movement of the incoming sheet, substantially as described.

3. In a folding-machine, the combination with the final folding-rollers and their supporting and operating parts, of a guide-plate supported above and adjacent to said rollers, means whereby a previously-folded sheet is fed onto said plate, a side stop-bar for said sheet, a frictional de-

vice adjacent to said bar adapted to act on the upper edge of the sheet, a push device adapted to act upon the edge of the sheet and push the same to a prescribed position of adjustment, and means whereby the sheet is delivered to said rollers and folded thereby, substantially as described.

4. In a folding-machine, the combination with the final folding-rollers, and their supporting and operating parts, of a guide-plate supported above and adjacent to said rollers, means whereby a previously-folded sheet is fed onto said plate, a stop-bar, a frame on which it is pivotally mounted, means whereby said bar may be fixed in positions of lateral adjustment, a push bar adapted to slide upon said plate and act against the edge of the sheet, mechanism supported by said frame for reciprocating said bar, a support for said frame, means for bodily adjusting the latter, and means for actuating said reciprocating mechanism, together with means whereby the sheet is delivered to said rollers and folded thereby, substantially as described.

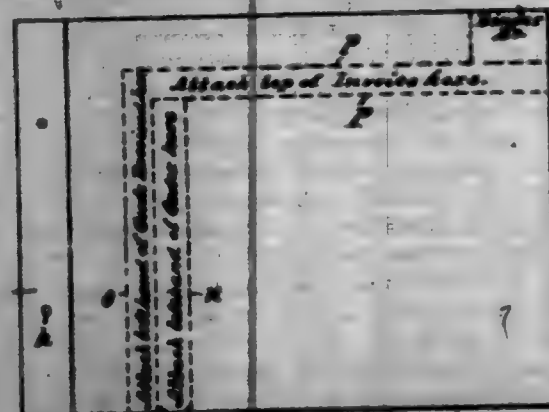
5. In a folding-machine, the combination with the final folding-rollers and their supporting and operating parts, of two parallel guides or supports arranged above and adjacent to said rollers, means whereby previously-folded sheets are fed onto the respective guides, a common stop-bar for the sheets on said guides or supports, the block provided with dovetail grooves, the push-rod whose outer ends are provided with dovetail engaging said grooves, the legs on said rods, the thumb-screws passing through said legs and into said block for adjusting the relative positions of said push-rods to said block, means for reciprocating said block and rods to adjust the sheet laterally upon said guides, and means whereby said sheets are delivered to the said rollers and folded thereby, substantially as described.

6. In a folding-machine, the combination with the final folding-rollers, and their supporting and operating parts, of two parallel guides or supports arranged above and adjacent to said rollers, means whereby previously-folded sheets are fed onto the respective guides, a common stop-bar for the sheets on said guides or supports provided with laterally-projecting flanges or projections against which the upper surfaces of the sheets on said guides are adapted to impinge, and push-rods movable upon the respective guides or supports and adjacent to said flanges or projections, and means whereby said sheets are delivered to said rollers and folded thereby, substantially as described.

7. In a folding-machine, the combination with the main frame, of a frame adjustably mounted thereon, the final folding-rollers mounted at an angle or inclination on said latter frame, means for operating said rollers, means whereby previously-folded sheets are fed above said rollers, means whereby said sheets are delivered between said rollers and folded thereby, a vertically-adjustable packing-trough mounted on said frame below and adjacent to said rollers and adapted to receive the finally-folded sheets, means for horizontally adjusting said frame, and means for vertically adjusting said trough, substantially as described.

8. In a folding-machine, the combination with the main frame, of a frame adjustably mounted thereon, the final folding-rollers mounted at an angle or inclination on said latter frame, means for operating said rollers, means whereby previously-folded sheets are fed above said rollers, means on said adjustable frame for sideways and adjusting the sheets in respect to the rollers, means whereby said sheets are delivered between said rollers and folded thereby, a vertically-adjustable packing-trough mounted on said frame below and adjacent to said rollers and adapted to receive the finally-folded sheets, means for horizontally adjusting said frame, and means for vertically adjusting said trough, substantially as described.

700,506. SHEET FOR SERIAL WINDOWS. ARTHUR O. KITTREDGE and ROBERT B. KITTREDGE, Jersey, N. J., assignors to the Account, Audit & Assessment Company, Limited, New York, N. Y., a Corporation of New Jersey. Filed Aug. 8, 1898. Serial No. 727,714. (No model.)



Claim.—1. As a new article of manufacture, the loose sheet for a serial binder having one edge thickened to compensate for attached papers and each thickened edge perforated for the purpose set forth, and

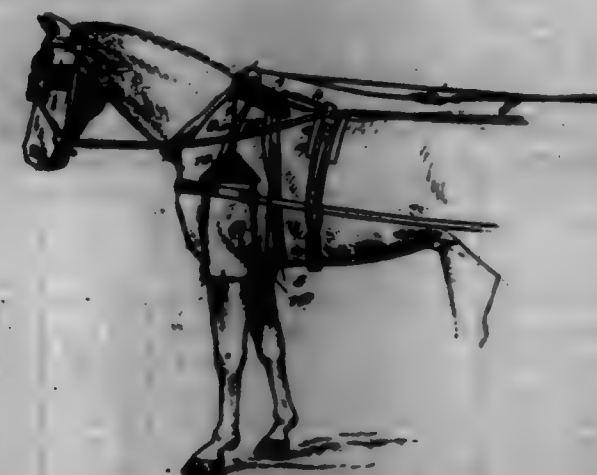
the surface of the sheet having adjacent to its upper edge and adjacent to the thickened edge the gummed spaces arranged at right angles to one another, whereby such papers when attached project at right angles over one another.

2. As a new article of manufacture, the loose sheet for a serial binder having one edge thickened to compensate for attached papers and each thickened edge perforated for the purpose set forth, the surface of the sheet having lines at right angles to each other adjacent to the upper edge and adjacent to the thickened edge to guide the application of papers to the sheet, and gummed spaces adjacent to each line for the attachment of the papers, whereby such papers when attached project at right angles over one another.

3. As a new article of manufacture, the loose sheet for a serial binder having one edge thickened to compensate for attached papers and each thickened edge perforated for the purpose set forth, the surface of the sheet having lines at right angles to each other adjacent to the upper edge and adjacent to the thickened edge to guide the application of papers to the sheet, and inscriptions adjacent to each line for directing the attachment of the papers, whereby such attached papers project at right angles over one another, substantially as herein set forth.

4. As a new article of manufacture, the loose sheet for a serial binder having one edge thickened to compensate for attached papers and each thickened edge perforated for the purpose set forth, the surface of the sheet having lines at right angles to each other adjacent to the upper edge and adjacent to the thickened edge to guide the application of papers to the sheet, gummed spaces adjacent to each line for the attachment of papers, whereby such papers when attached project at right angles over one another, and one of the outer corners of the sheet having a space indicated for a serial number, and for the purpose set forth.

700,507. HORSE-BOPPLE. MAX ELIEN, Denver, Colo. Filed July 22, 1901. Serial No. 60,006. (No model.)



Claim.—1. A horse-bopple, comprising checkins, a supporting-rod, means for securing the supporting-rod to a horse, a gripping device on the middle, draw-ropes extending through said gripping device and extending downward at opposite sides of a horse, means for releasing the gripping device, weights attached to said downwardly-extended portions, connections between said weights and the checkins, and draw-lines extended from the middle at opposite sides, the said draw-lines passing loosely through the eyes of one checkin at a side and engaging with the checkin of the other side, substantially as specified.

2. A horse-bopple, comprising a saddle adapted to fit over the withers of a horse, a breast-strap attached to the saddle, a body-strap attached to the saddle, a gripping device carried by the saddle, means for releasing the gripping device, draw-ropes extended through said gripping device and extended downward at opposite sides, weights attached to said opposite sides, checkins having connection with the weights, and means for drawing the checkins toward each other upon a downward movement of said saddle, substantially as specified.

3. A horse-bopple, comprising a saddle, a casing arranged on said saddle and having a gripping-jaw, a movable jaw in the casing, a draw-rope having connection with the movable jaw, draw-ropes passing between the jaws, weights attached to said ropes, checkins attached to the weights, and means for drawing the checkins toward each other on falling, substantially as specified.

4. A horse-bopple, comprising a saddle, a supporting-rod, means for securing the supporting-rod to a horse, a gripping device on the middle, means for releasing the gripping device, draw-ropes extended through said gripping device and extended downward at opposite sides of the horse, connections between said draw-ropes and the checkins, and draw-lines extended from the middle at opposite sides, the said draw-lines passing

loosely through the eyes of the checkins at one side and engaging with the checkins at the other side, substantially as specified.

5. A horse-bopple, comprising a saddle adapted to engage over the withers of a horse, a gripping device on the saddle, means for releasing the gripping device, draw-ropes extended through said gripping device and extended downward at opposite sides, weights attached to said downwardly-extended portions, the said weights having wide or broad base portions, checkins for engaging around the horse's legs, and straps extended from the said weights to engagement with the front and rear portions of the checkins, substantially as specified.

700,508. COMPOUND OR MULTIPLE-CYLINDER ENGINE. ISAAC ELIEN, Louisville, Ky. Filed May 22, 1901. Serial No. 61,468. (No model.)



Claim.—1. The combination of an oscillating cylinder having a ported transverse, with an oscillating steam-valve controlling the ports in said transverse and means for oscillating said valve simultaneously with but oppositely to the cylinder.

2. The combination with an oscillating cylinder having its inlet and outlet ports leading through one of its transverse, with an oscillating main valve fitted against the transverse and controlling the ports therein and means for oscillating said valve simultaneously with but oppositely to the cylinder, substantially as described.

3. The combination of an oscillating cylinder having a transverse and ports leading through said transverse, with a main-valve casing over the transverse, a rocking valve in said casing controlling the ports in the transverse, and means for oscillating said valve simultaneously with but oppositely to the transverse, substantially as described.

4. The combination of a valve-casing having a steam and an exhaust chamber, a cylinder, its ports, communicating with the valve-chamber, and a crank-shaft operated from the piston in said cylinder, with a valve within the valve-chamber having an inlet-chamber continuously communicating with the steam-supply and an outlet-port passing through the steam-space of the valve-casing but not communicating therewith, and an exhaust-chamber exterior to the steam-space with which said exhaust or outlet part of the valve communicates continuously, and means for oscillating said valve, substantially as described.

5. The combination of a cylinder, its ports extending through the cylinder-transverse, a valve-chamber over said ports and a crank-shaft operated from the piston in said cylinder, with a valve within the valve-chamber covering the said ports and having an inlet-chamber continuously communicating with the steam-supply and an outlet-port passing through the steam-space of the valve-casing but not communicating therewith, and an exhaust-chamber exterior to the steam-space with which said exhaust or outlet part of the valve communicates continuously, and means for oscillating said valve from said crank-shaft, substantially as described.

6. The combination of the cylinder, its opposite ports, a steam-chamber surrounding the outlet of said ports, and an exhaust-chamber exterior to the steam-chamber, with an oscillating valve in said steam-chamber covering the mouths of said cylinder-ports, said valve having inlet and outlet ports adapted to register alternately and successively with the cylinder-ports, the inlet-part of the valve being continuously in communication with the steam-space and the outlet-part of the valve extending through the steam-chamber to the exhaust-chamber, and means for operating said valve.

7. The combination of the cylinder, its opposite ports, a steam-chamber surrounding the outlet of said ports, and an exhaust-chamber exterior to the steam-chamber, with an oscillating valve in said steam-chamber, having inlet and outlet ports adapted to register successively and alternately with the cylinder-ports, said valve-inlet part continuously in communication with the said steam-chamber, and said valve-outlet part extending through the steam-chamber and communicating only with the exhaust-chamber, and means for operating said valve.

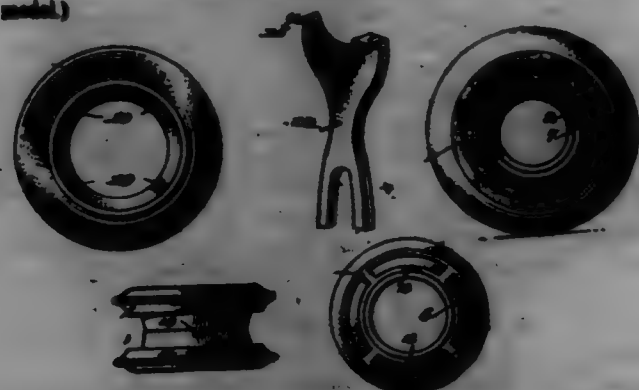
8. The combination of the main shaft, the gear thereon, the opposite fixed side plates, the oscillating cylinders journaled in and between said plates, the crank-shafts for the cylinders journaled in said plates, the pistons on said shafts meshing with said gear the cylinder-plates, the piston-rods connecting the pistons directly to adjoining crank-shafts, and the steam-ports leading through the transverse of the cylinders, and the combined steam supply and exhaust valve having inlet and exhaust ports adapted to register successively with the cylinder-ports, substantially as and for the purpose described.

9. The combination of an oscillating cylinder having steam inlet and exhaust ports leading through one of its transverse, a valve-casing fitted over said transverse, having a main steam-chamber and an exterior exhaust-chamber, a valve in said casing extending through the exhaust and steam chambers; said valve having one chamber always communicating with the steam-space, and another chamber extending through the steam-space and communicating with the exhaust-chamber only, said valve-chambers having ports in their inner ends adapted to alternately register with the cylinder-ports, and means for oscillating said valve, substantially as described.

10. The combination of the main shaft, the drum and gear loosely mounted thereon, the opposite side plates, the oscillating cylinders hung between said plates, the crank-shafts for the cylinders journaled in said plates, the pistons on said shafts meshing with said gear the cylinder-plates, the piston-rods connecting the pistons directly to adjoining crank-shafts, and the steam inlet and outlet ports leading through one transverse of each cylinder, and the steam supply and exhaust valve co-operating with the ported transverse, substantially as and for the purpose described.

11. The herein-described engine comprising a main shaft, a gear and drum or fly-wheel loosely mounted thereon, a pair of plates fixed thereon, a series of crank-shafts journaled in said plates, pistons on said shafts meshing with said gear, an oscillating cylinder for each shaft journaled between said plates, the cylinder-plates and piston-rods, and the cylinder-ports extending through the outermost transverse of each cylinder; with the valve-casings attached to the outer plate over the cylinder-transverse, the steam and exhaust chambers in said valve-casings, the valves in said chambers constructed substantially as described, and the valve-actuating devices connected to and operated by the respective crank-shafts, for the purpose and substantially as described.

700,509. DOLLER, ALBERT F. KNAGGER and HERMAN O. WALK. Invention. Wm. Filed Sept. 16, 1901. Serial No. 75,304. (No model.)



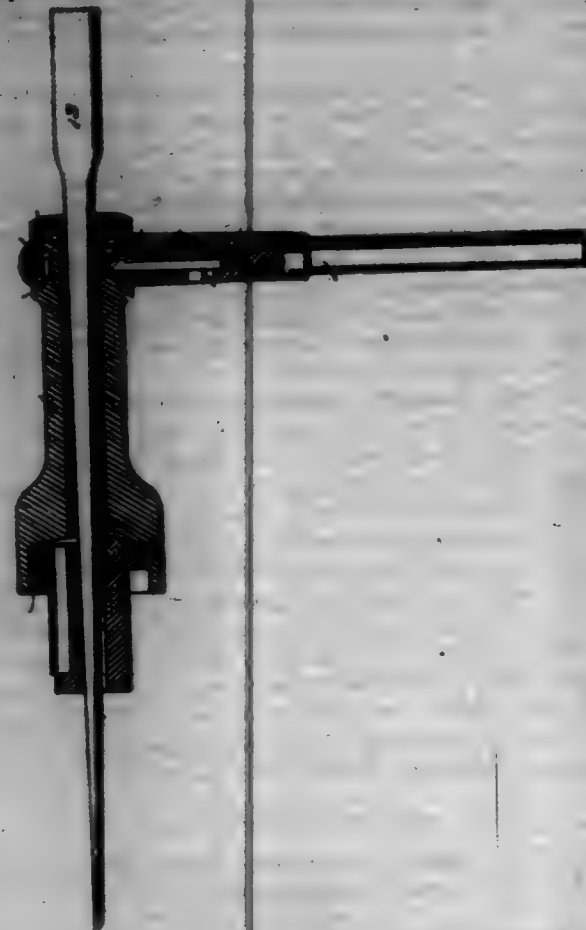
Claim.—1. A roller comprising separable sections each formed with an annular groove on its inner face, and one of said sections having a threaded sleeve extending into the other section, legs diametrically arranged on the said sleeve adapted to fit in corresponding recesses in the opposite section, a yielding tire flanged to fit said grooves, and an internally-threaded ring fitting on the threaded end of the sleeve.

2. A roller comprising separable sections each formed on its inner face with an annular groove, and one of said sections having a threaded sleeve extending into the other section, a rubber tire formed with annular flanges fitting said grooves, radial legs on the sections to prevent movement of the tire except with the roller, and means for preventing the roller-sections from independent rotary movement.

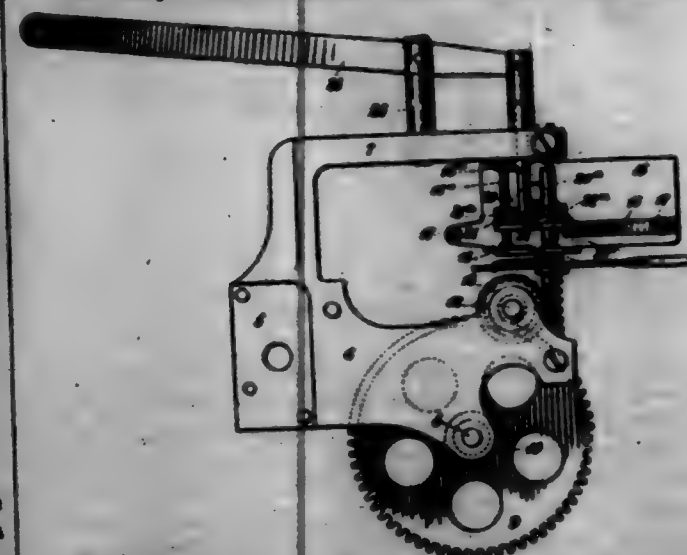
700,510. TUBE-EXPANDER. ELWOOD L. KIMBLE. Invention. W. Va. Filed June 8, 1901. Serial No. 68,088. (No model.)

Claim.—In a tube-expander, the combination with a tubular handle of a head thereon having a recess in the end thereof, a tubular expander proper having distal ends extending from the inner end thereof, a head at one end of said expander proper extending over the end of the distal, rollers adapted to be inserted longitudinally under the head and into the distal, said head being fixed in the recess in the handle whereby longitudinal movement of the rollers is prevented, means for locking the head in the recess, a mandrel extending through the handle and the expander proper, and means for revolving the handle.

700,510.



700,511. FAN-GOVERNOR. HENRY KOEN, Railway, N. J., assignor to Regina Motor Box Company, Railway, N. J., a Corporation of New Jersey. Filed July 4, 1901. Serial No. 67,088. (No model.)



Claim.—1. The combination with the governor-spindle of a frame held to turn with the spindle, wings pivoted to the frame at a distance from the spindle, springs connecting said wings and a shifting mechanism turning with the wings and movable thereon for changing the center of gravity of the wings.

2. The combination with the governor-spindle of a frame held to turn with said spindle, wings pivoted to said frame at a distance from the spindle, shifting members carried by the wings and adapted to change the location of the center of gravity thereof and means for adjusting said shifting members.

3. The combination with the governor-spindle of a frame held to turn with said spindle, wings pivoted to the frame at a distance from the spindle, shifting means movable on the wings toward and from the pivots of the wings and mechanism for changing the position of said shifting means.

4. The combination with the governor-spindle of a frame held to turn with the spindle, wings pivoted to the frame at a distance from the spindle, shifting means movable on the wings toward and from their pivots and an operating-slide connected with said shifting means and movable parallel with the governor-spindle.

5. The combination with the governor-spindle of a frame held to rotate therewith, wings pivoted to said frame at a distance from the spindle

the shaft axis parallel with the spindle, shifting means movable on the wings toward and from their pivots, and an operating-slide connected with said shifting means and movable lengthwise upon the governor-spindle and upon the wing-pivots.

6. The combination with the governor-spindle and means for rotating it, of a frame held to turn with said spindle, wings pivoted to said frame at a distance from the spindle, springs connecting said wings, and a shifting device for moving the attached ends of the springs toward and from the pivots of the respective wings.

7. The combination with the governor-spindle and means for rotating it, of a frame held to turn with said spindle, wings pivoted to said frame at a distance from the spindle, springs connecting said wings, and means carried by the wings, for adjusting said springs.

8. The combination with the governor-spindle and means for rotating it, of a frame held to turn with said spindle, wings pivoted to said frame at a distance from the spindle, springs connecting said wings, each wing having a slot or slitway extending toward and from its pivot, pins or attaching members movable in said slitways and each connected with one end of a spring, and a shifting device for moving said attaching members in or out.

9. The combination with the governor-spindle and means for rotating it, of a frame held to turn with said spindle, wings pivoted to said frame at a distance from the spindle, springs connecting said wings, a slide movable parallel with the governor-spindle, means for operating said slide, and a shifting device, actuated by the movement of the slide, for moving the attached ends of the springs toward and from the pivots of the respective wings.

10. The combination with the governor-spindle and means for rotating it, of a frame held to turn with the spindle and provided with bars extending parallel with the spindle, a slide movable lengthwise of said bars, means for actuating the slide, wings pivoted to said frame, springs connecting the wings, and a shifting device operated by the movement of the slide, for moving the spring ends toward or from the pivots of the respective wings.

11. The combination with the governor-spindle and means for rotating it, of a frame held to turn with the spindle and provided with bars extending parallel with the spindle, a slide movable lengthwise of said bars, means for actuating the slide, wings pivoted to said frame, attaching devices movable toward and from their pivots, springs each of which has one end secured to a wing directly and the other end to the attaching device on the other wing, and a shifting device, operated by the movement of the slide, for moving the said attaching devices toward or from the pivots of the respective wings.

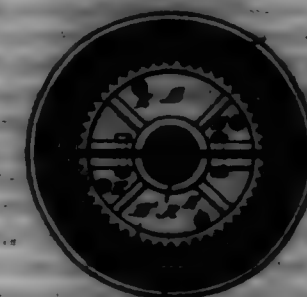
12. The combination with the governor-spindle and means for rotating it, of a frame held to turn with the spindle and provided with bars extending parallel with the spindle, a slide movable lengthwise of said bars, and of the spindle, and provided with grooved collars at the spindle and bars, an actuating device for moving the slide, provided with a projection engaging the collar at the spindle, wings pivoted to the frame, bell-crank levers fulcrumed on the wings and provided with projections engaging the collar at the bars, and springs connecting the wings and each having one end controlled by said bell-crank lever to vary the working tension of the springs.

700,512. PROCESS OF MAKING SULFURIC ACID AND SULFUR ANHYDRIDE. GUSTAVUS KRAMER and EDUARD H. VAN BUREN. Invention. Invented in the State of Germany, assigned to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-am-Main, Germany, a Corporation of Germany. Filed Mar. 4, 1902. Serial No. 68,081. (No specimens.)



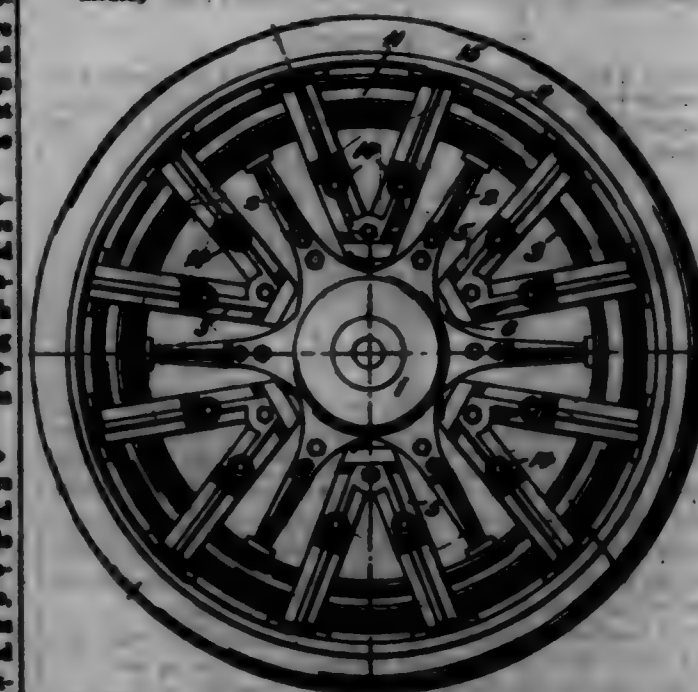
Claim.—The herein-described process of making sulfuric acid and sulfur anhydride with simultaneous combination of the unsulfated sulfur dioxide contained in the burnt pyrites, which consists in bringing pyrites-burner gases at a low temperature into contact with burnt pyrites containing free sulfur dioxide, whereby sulfur dioxide is fixed by the burnt pyrites and in then applying a higher temperature the fixed sulfur dioxide being again separated as sulfuric anhydride, substantially as set forth.

700,513. ROLL. JENNIS P. LAWRENCE, Patent. N. J. Filed June 29, 1901. Serial No. 68,086. (No model.)



Claim.—A roll, comprising conical sections placed together edge to edge so as to form wheel members, endless bands of resilient material encircling said wheel members in such manner as to secure a plurality of said wheel members together and also to press together the conical sections in each wheel member, bolts disposed substantially at right angles to the axis of said wheel members for further securing together the conical sections of each wheel member, and longitudinal rods passing through all of said wheel members parallel with the axis thereof for the purpose of clamping said wheel members together.

700,514. VEHICLE-WHEEL. GEORGE S. LAM, Invention. N. J., assignor to Wheel Within Wheel Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 1, 1901. Serial No. 68,778. (No model.)



Claim.—1. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, the said spokes having portions thereof located between the said hub-sections to form spacing-pieces therefor, and secured to the said hub-sections.

2. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having an annular cushioning device between them, the hub member comprising two hub-sections, each having a plurality of oppositely-disposed radial arms, a spacing-piece between each of the said opposed radial arms, said spacing-piece comprising the inner ends of spokes, bolts connecting the hub-sections together and passing through said spacing-pieces, and a rim supported by the opposite ends of said spokes.

3. In a wheel, the combination with a hub, spokes and a rim, of a tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising separable members arranged on either side of the said annular cushioning device, and connecting the said floating plate and tire-rim together, and an intermediate guide-plate between the floating plate and the hub.

4. In a wheel, the combination with a hub, spokes and a rim, of a tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising, each, two members connected together, and connecting said floating plate and said tire-rim, said members arranged on opposite sides of said annular cushioning device, and an intermediate guide-plate between the floating plate and the hub.

5. In a wheel, the combination with a hub, spokes and a rim, of a tire-rim, an annular cushioning device between the tire-rim and the first

mid rim, a floating plate, spokes comprising each two members, one member of each spoke secured to the mid floating plate and mid tire-rim, and arranged to pass on one and the same side of said annular cushioning device, and the other spoke member removably secured to the first mid spoke member, and arranged upon the opposite side of said cushioning device, whereby the two members of said mid spokes surround said cushioning device; and an intermediate guide-plate between the floating plate and the hub.

6. In a wheel, the combination with a hub, spokes and a rim, of a tire-rim, an annular cushioning device between the tire-rim and the first mid rim, a floating plate, spokes radiating from said floating plate, each spoke comprising two members, secured together, and together surrounding the said cushioning device, the mid spokes having each two divergent branches, and secured at the outer ends of the mid branches to the mid tire-rim; and an intermediate guide-plate between the floating plate and the hub.

7. The combination in a wheel comprising two members, of a hub comprising two hub-sections, spacing-pieces between them and secured thereto, said spacing-pieces comprising the inner ends of spokes, a rim to which the outer ends of said spokes are secured, said hub, spokes and rim comprising one of said wheel members; a tire-rim, a floating plate located within said hub, spokes connecting said floating plate with said tire-rim, said spokes comprising separable members, the mid tire-rim, floating plate and hub-named spokes comprising the other of said wheel members; an annular cushioning device between the rim of said first-named wheel member and the tire-rim of the other mid wheel member, and located between the mid separable spoke-sections, and an intermediate guide-plate between the mid hub and the mid floating plate.

700,515. VEHICLE-WHEEL. GEORGE S. LEE, Hawthorne, N. Y., assignor to Wheel Within Wheel Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 9, 1901. Serial No. 84,917. (No model.)



Claim.—1. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central orifice adapted to receive a projection upon the other hub-section, and the mid other section provided with a central projection adapted to pass through said orifice; and a locking device between the first mid hub-section and the projection of the other mid hub-section.

2. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central orifice adapted to receive a projection upon the other hub-section, and the mid other section provided with a central projection adapted to pass through said orifice; and a nut mounted upon the projection of the one section, and engaging the other mid section.

3. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central orifice adapted to receive a projection upon the other hub-section, and the mid other section provided with a central projection adapted to pass through said orifice, said central projection having a portion concentric of the axis of the hub, whereby the two hub-sections are held together against relative rotation; and means whereby the mid sections are held together against relative movement longitudinally of their axis of rotation.

4. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central orifice adapted to receive a projection upon the other hub-section, and the mid other section provided with a central projection adapted to pass through said orifice; mid central projection having a portion concentric of the axis of the hub, whereby the two hub-sections are held together against relative rotation; and a nut mounted upon the projection of the one section and engaging the other mid section.

5. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of

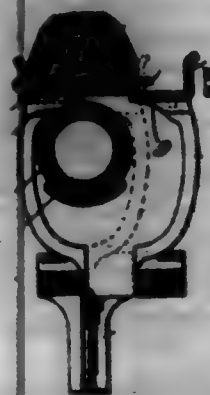
spokes, and a rim, one of said hub-sections provided with a central projection adapted to pass through an orifice in the other section, and having a shouldered portion, and the mid other section provided with a central orifice to receive such shouldered projection, and a nut mounted upon the projection of the one section, and engaging the other mid section.

6. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central projection adapted to pass through an orifice in the other section, and having a shouldered portion concentric of the axis of the hub, and the mid other section provided with a central orifice to receive such projection, and a nut mounted upon the projection of the one section, and engaging the other mid section.

7. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central projection adapted to pass through an orifice in the other section, and having two projecting ears, and the mid other section provided with a central orifice to receive such projection and having recesses to receive the said ears, and a nut mounted on the projection of the one section and engaging the other mid section.

8. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, a plurality of spokes, and a rim, one of said hub-sections provided with a central orifice adapted to receive a projection upon the other hub-section, and the mid other section provided with a central projection adapted to pass through said orifice; and a locking device between the first mid hub-section and the projection of the other mid hub-section; the said spokes being straight-line compression-spokes and arranged in pairs, each pair converging from the opposite hub-sections to the mid rim.

700,516. VEHICLE-WHEEL. GEORGE S. LEE, Hawthorne, N. Y., assignor to Wheel Within Wheel Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 31, 1901. Serial No. 87,961. (No model.)



Claim.—1. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the tire member comprising a plurality of spokes having portions removable therefrom, and a rim secured to said spokes having a removable flange, said flange having the removable portions of said spokes secured thereto.

2. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having an annular cushioning device between them, the tire member comprising a plurality of spokes having portions removable therefrom, said spokes having the removable portions of the spokes opposite thereto, surrounding the mid annular cushioning device, a rim secured to said spokes, and having a removable flange, said flange having the removable portions of said spokes secured thereto, and bolts for securing the removable flange and the removable spoke portions to the mid rim and spokes.

3. A wheel comprising two relatively movable members, one a tire member, and the other a hub member, and having an annular cushioning device between them, the tire member comprising a rim and a plurality of spokes connected thereto, said spokes arranged to surround said cushioning device and leveled away at their outer central portions so as to form a support for said cushioning device at various points around the circle, but to permit said cushioning device to bear directly against the inner face of said rim.

4. In a wheel, the combination with a hub, spokes, and a rim, of an outer tire-rim, an annular cushioning device located between, and bearing directly against, said rim and the inner face of said tire-rim, a floating

plate, and spokes surrounding said cushioning device and connecting said floating plate and said tire-rim together.

5. In a wheel, the combination with a hub, spokes, and a rim, of an outer tire-rim, an annular cushioning device located between, and bearing directly against, said first-named rim and the inner face of said tire-rim, a floating plate, and spokes connecting said floating plate and said tire-rim together, said spokes surrounding said cushioning device, and engaging same at various points around the circle.

6. In a wheel, the combination with a hub, spokes, and a rim, of an outer tire-rim having a removable flange, a floating plate, a plurality of spokes secured to the said tire-rim and to said floating plate, said spokes having each a removable portion, all of which said portions are secured to the mid removable rim-flange, an annular cushioning device arranged between, and adapted to bear directly against, the mid first-named rim and the inner face of said outer tire-rim, a plurality of bolts through the outer tire-rim, securing the removable flange thereto, and a plurality of bolts securing the removable portions of the spokes to the main portions thereof.

700,517. LAMP-HANGER. THOMAS LUDWIG and LEONARD L. WHITE, Wheeling, Pa. Filed Sept. 8, 1891. Serial No. 74,821. (No model.)



Claim.—1. In a lamp-hanger, the combination with a spring-actuated drum, of a supporting-cord adapted to be wound thereon, a guide-finger independent from the drum and adapted to move longitudinally thereof, in contact with the cord wound thereon, and means independent of the drum for imparting yielding pressure of the guide-finger against the cord-windings; substantially as specified.

2. In a lamp-hanger, the combination with a spring-actuated drum, of a supporting-cord adapted to be wound thereon, a guide-finger independent from the drum and adapted to move longitudinally thereof, and a spring for normally forcing said guide toward one edge of said drum; substantially as specified.

3. A lamp-hanger comprising a frame, a spring-actuated drum rotatably mounted therein, a supporting-cord wound upon said drum, a cross-bar at one side of said drum, a guiding-finger adapted to contact with said cord and slidably mounted upon said cross-bar, and a spring for pressing said finger in one direction; substantially as specified.

4. A lamp-hanger comprising a frame, a spring-actuated drum rotatably mounted therein, a supporting-cord wound upon said drum, a cross-bar at one side of said drum, a guiding-finger adapted to contact with said cord and slidably mounted upon said cross-bar, a spring for pressing said finger in one direction, an opposite corresponding guide-finger upon the opposite side of the drum, a spring for pressing said opposite finger in the direction opposite to that of the first-mentioned finger; substantially as specified.

5. A lamp-hanger comprising a frame, a spring-actuated drum rotatably mounted therein, a supporting-cord wound upon said drum, a cross-bar at one side of said drum, a guiding-finger adapted to contact with said cord and slidably mounted upon said cross-bar, a spring for pressing said finger in one direction, an opposite corresponding guide-finger upon the opposite side of the drum, a spring for pressing said opposite finger in the direction opposite to that of the first-mentioned finger, and guide-recesses supported by the frame adjacent to the longitudinal center of said drum; substantially as specified.

6. In a lamp-hanger, the combination with a supporting-drum, a cord adapted to be wound thereon and passed therethrough, of a spider having arms adapted to be removably secured to said drum and carrying the outer end of the actuating-spring for the drum at a distance from the inner face thereof, a spindle for said drum to which the opposite end of said spring is secured, and means for securing said spindle against rotation; substantially as specified.

7. In a lamp-hanger, the combination with a supporting-drum and

cord adapted to be wound thereon, of a spider having arms adapted to be secured to said drum and carrying one end of the actuating-spring for the drum at a distance from the inner face thereof, a spindle for said drum to which the opposite end of said spring is secured, a frame for said drum having legs opposite one end of said spindle, and a securing-pin passed through said legs and spindle; substantially as specified.

8. A lamp-hanger comprising a frame, a spring-actuated drum centrally mounted therein, cross-bars at opposite sides of said drum, a supporting-cord extending from the opposite edge portions of said drum, guide-fingers slidably mounted upon said cross-bars, and a coiled spring surrounding said cross-bars and adapted to force said fingers toward the opposite ends of the drum; substantially as specified.

9. A lamp-hanger comprising a frame, a spring-actuated drum centrally mounted therein, cross-bars at opposite sides of said drum, a supporting-cord extending from the opposite edge portions of said drum, guide-fingers slidably mounted upon said cross-bars, a coiled spring surrounding said cross-bars and adapted to force said fingers toward the opposite ends of the drum, and oppositely-disposed guide-recesses carried by said frame at each side of said drum and at the longitudinal center thereof; substantially as specified.

700,518. BOTTLE-MAKING AND WASHING MACHINE. CHAS. E. LADD, Cleveland, Ohio. Filed Jan. 3, 1902. Serial No. 93,992. (No model.)



Claim.—1. In bottle-makers, a suitable tank, an endless bottle-carrier, endless tracks supporting the carrier at all points in its travel and rollers supporting the carrier on the tank and arranged to guide the lead and prevent friction, substantially as described.

2. The tank and the endless tracks thereon, an endless carrier supported at its edges on said tracks, and stationary parts around which the carrier is wound, substantially as described.

3. The tank and the endless tracks thereon, in combination with an endless carrier having rollers traveling on said tracks the entire length of the carrier, substantially as described.

4. In bottle-washing machines, an endless carrier comprising chains at its edges and cross-pieces connecting said chains constructed in very bottles, endless tracks in which said chains travel, rollers to support the said chains throughout the entire length of their travel on said tracks, and drive-wheels engaging said chains and moving the carrier, substantially as described.

5. The tank and the endless tracks thereon constructed to support a series of rollers, in combination with an endless carrier engaged at its edges on said tracks and rollers supporting the carrier thereon, and drive mechanism in the line of said tracks engaging the said carrier between said rollers, substantially as described.

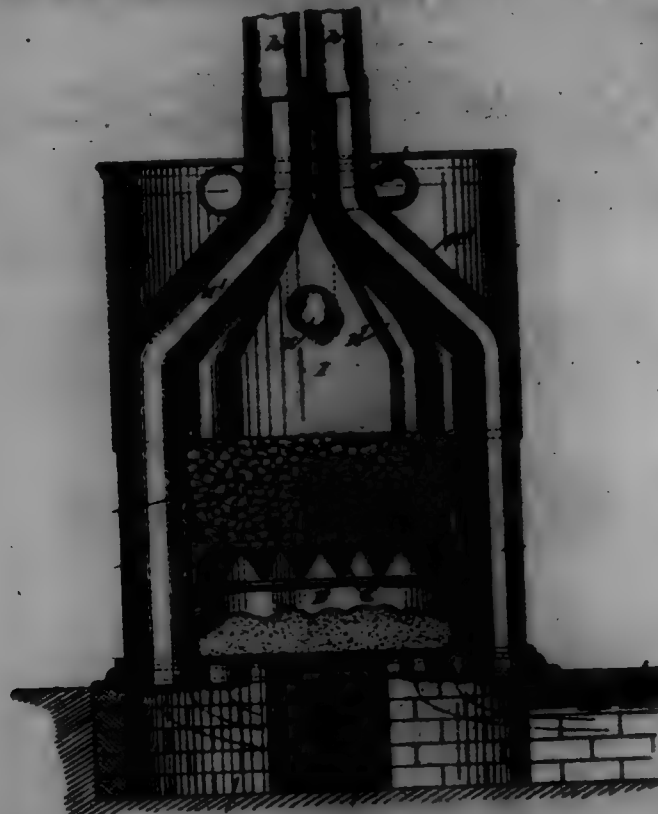
6. The tank and the endless tracks thereon having a separate sec-

tion at one of its ends and means to adjust said separate section to lengthen or shorten the line of travel, substantially as described.

7. The tank having two compartments, the endless track supported on said tank and extending to the division-wall between said compartments and in position to discharge into the rear compartment, in combination with an endless carrier on said tank provided with bottle-holding receptacles constructed to discharge the bottles by gravity, and means to confine the bottles in their receptacles terminating at the edge of said second compartment, substantially as described.

8. The tank having a side recess extending laterally beyond the body of the tank and open thereto, in combination with an endless carrier and supports therefor arranged to bring the carrier over the portion of the tank having said side recess and then closing the space entered by said recess from the top, substantially as described.

700,519. AIR-HEATER. ARTHUR H. LOVEDAY, Dallas, N. J. Filed Dec. 17, 1901. Serial No. 88,306. (No model.)



Claim.—1. An air-heater, having a series of air-tubes, each connected at one end with a cold-air-supply chamber, and at the other end with a distributing-pipe for conducting the heated air to a room, the said air-tubes being arranged side by side and extending around the fire-box, and sub-pit and forming a combustion-chamber above the fire-box, as set forth.

2. An air-heater, having a series of air-tubes, each connected at one end with a cold-air-supply chamber, and at the other end with a distributing-pipe for conducting the heated air to a room, the air-tubes having their lower portions extending along the outside of the fire-box and sub-pit, and the upper portions bent inwardly into contact with each other to form a drum or combustion-chamber above the fire-box and thence extended vertically, as set forth.

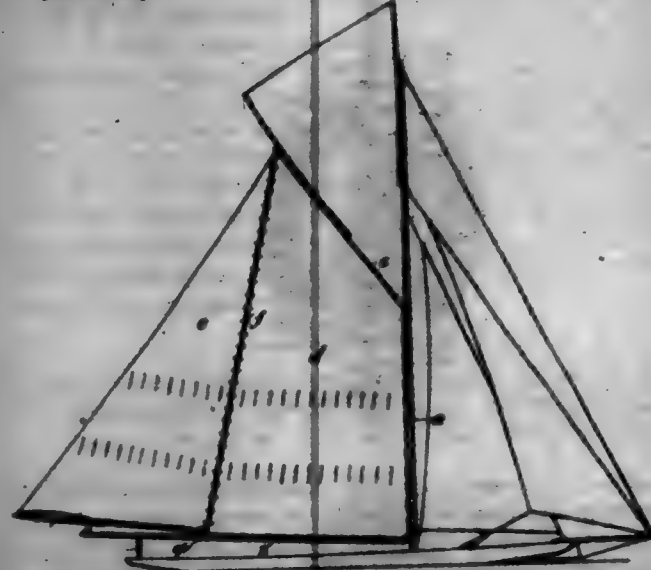
3. An air-heater, having a series of air-tubes, each connected at one end with a cold-air-supply chamber, and at the other end with a distributing-pipe for conducting the heated air to a room, the air-tubes having their lower portions extending along the outside of the fire-box and sub-pit, and the upper portions bent inwardly into contact with each other to form a drum or combustion-chamber above the fire-box and thence extended vertically, and a shell surrounding the air-tubes above the fire-box to form a heating-chamber between the shell and the outer sides of the upper bent portions of the air-tubes, as set forth.

4. An air-heater, having a series of air-tubes, each connected at one end with a cold-air-supply chamber, and at the other end with a distributing-pipe for conducting the heated air to a room, the air-tubes having their lower portions extending along the outside of the fire-box and sub-pit, and the upper portions bent inwardly into contact with each other to form a drum or combustion-chamber above the fire-box, a shell surrounding the air-tubes above the fire-box to form a heating-chamber between the shell and the outer sides of the upper bent portions of the air-tubes and through the top of which the upper ends of the air-tubes extend, and a smoke-flue leading from the combustion-chamber and extending through the said heating-chamber, as set forth.

5. An air-heater, comprising a cold-air-supply chamber, a base-plate set over the said chamber, a fire-box and sub-pit on the said base-plate, and a series of air-tubes opening through the base-plate into the cold-air-supply chamber, the air-tubes extending upwardly along the outside of the sub-pit and fire-box, to then extend inwardly and upwardly into contact with each other to form a combustion-chamber over the fire-box and thence extended vertically, as set forth.

6. An air-heater, comprising a fire-box, an sub-pit below the fire-box, a series of air-tubes extending along the outside of the sub-pit and fire-box and then bent inwardly into contact with each other above the fire-box to form a combustion-chamber above the same, the lower ends of the tubes being open for connection with a cold-air chamber and their upper ends adapted to be each connected with a distributing-pipe, a shell surrounding the upper portion of the said tubes and forming a heating-chamber around the same and through the top of which the upper ends of the air-tubes extend, and a smoke-flue leading from the combustion-chamber and extending into the heating-chamber to the front of the same and thence out through the rear thereof, as set forth.

700,520. SAIL FOR MARINE VESSELS. RICHARD LINDQUIST, Laguna de Turkey, Mexico. Filed July 24, 1901. Serial No. 88,308. (No model.)



Claim.—1. The combination with a mast, a boom and a gaff, of a sail in two parts, connected at their adjacent vertical edges, the main part of the sail being fastened to the boom and mast and having a square head running along and fastened to the gaff, and the other part having a jib-head fastened to the peak of the gaff, and an auxiliary boom adjustably mounted on the main boom, to which auxiliary boom the foot of the said other sail part is fastened.

2. The combination of a boom, an auxiliary boom arranged to swing thereon, means for independently trimming said booms, and a sail formed in two parts respectively connected with the said booms.

700,521. PROCESS OF DYING BY INDOLE. SUMNER LORAN, Trans. near Lake, Austria-Hungary. Filed July 11, 1901. Serial No. 87,304. (No specimens.)

Claim.—1. The process of dyeing textile material, which consists in first treating the whole of the material with a mordant containing naphthol, then printing portions of the material with a dye mixture containing the said dye and a reserve, so that the required color is formed on the material, then dyeing the material with indigo, and finally treating it with acid, substantially as set forth.

2. The process of dyeing textile material, which consists in first treating the whole of the material with a mordant containing naphthol and ferrocyanide of potassium, then printing portions of the material with a dye mixture containing the said dye and a reserve, so that the required color is formed on the material, then dyeing the material with indigo, and finally treating it with acid, substantially as set forth.

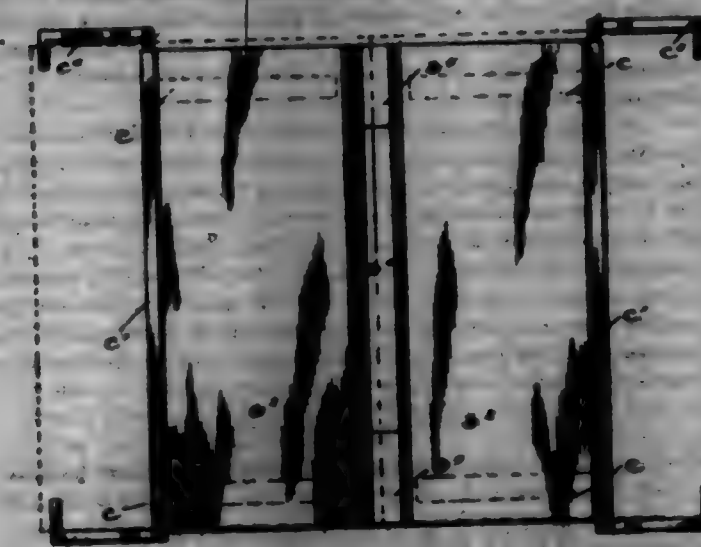
700,522. EXTENSIBLE TROUGH. FREDERICK MAGNUS, Elmsted, N. J. Filed Aug. 5, 1901. Serial No. 79,894. (No model.)

Claim.—An extensible trough comprising a plurality of counterpart sheet-metal semicircular trough-sections, having their upper opposite edges bent at right angles and being provided at each end with an inwardly-extending rib forming upon the outside a groove, in combination with two counterpart semicircular end panels provided with peripheral grooves adapted to receive the inwardly-extending ribs of aforementioned trough-

sections, an upper strengthening-bar extending across and beyond each end panel, each bar being provided with end perforations, U-shaped loop-bars extending within aforementioned grooves anteriorly of each end trough-section, the upper ends of said loop-bars extending through said upper strengthening-bars and being secured by means of suitable nuts, a packing-strip interposed between the united ends of said trough-sections where they join one another, a semicircular grooved strip disposed laterally above each point of union between two trough-sections to receive the aforementioned inwardly-extending ribs of the uppermost trough-section, a transverse spacer-bar provided with downwardly-extending cam adapted to bear against said semicircular ribs at the upper ends, said spacer being provided with extending perforated ends and a U-shaped intermediate loop-bar within the groove of the outer trough-section, passing through the perforated ends of said spacer and being suitably secured in the manner set forth.



700,523. REVOLVING BOOK-SUPPORTER. ORAN A. HANSEN and JERAM B. BURNHAM, Washington, D. C., assignors of one-fourth to Richard J. Burnham, Washington, D. C. Filed Feb. 25, 1902. Serial No. 85,289. (No model.)



Claim.—1. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, to adapt it to books of different widths, and means carried by the extensible slides for clamping the leaves at the corners thereof, said means being adjustable transversely to said slides.

2. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, and spring leaf-clamping devices, carried by the extensible slides and adjustable transversely thereto.

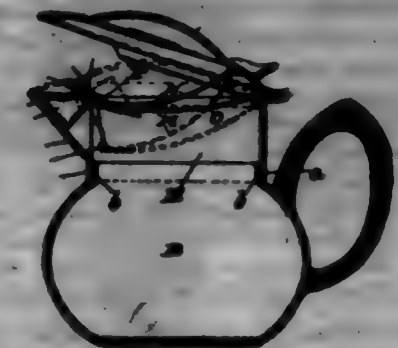
3. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, an adjustable leaf-clamping device slidable in the upper end of each extensible slide, and a leaf-clamping device carried at the lower end of each extensible slide.

4. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, and an adjustable leaf-clamping device slidable in the upper and lower end of each extensible slide, whereby books of different lengths may be supported, and the lower edge of the book brought close to the surface of the object upon which the device is placed.

5. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, said slide consisting of a rectangularly-bored tube provided with arms adapted to slide in guide-ways on the rest, and leaf-clamping devices carried by the extensible slides and adjustable transversely thereto.

6. In a book-supporter, the combination with a suitable base, of a rest for the book, an extensible slide at each side of the rest, said slide consisting of a rectangularly-bored tube having arms adapted to slide in guide-ways on the rest, and spring leaf-clamping devices having arms slidable in the ends of the extensible slides.

700,524. STRIP-PITCHER. ROBERT J. HANCOCK, Rochester, N. Y. Filed Jan. 29, 1902. Serial No. 91,912. (No model.)



Claim.—1. A pitcher or other vessel provided with a spout having a supplemental spout conforming to the spout in said vessel and pivoted thereto, and means for positively operating said supplemental spout, substantially as shown and described.

2. A pitcher or other vessel provided with a lid, a spout, a supplemental spout pivoted thereto and connected to said lid by an arm and adapted to be automatically and simultaneously operated by the opening and closing of said lid, substantially as shown and described.

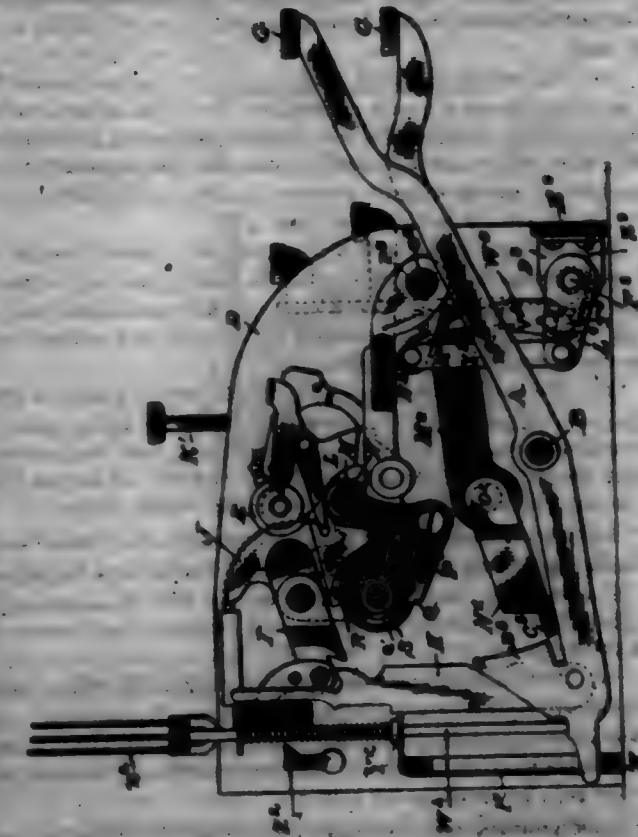
3. A pitcher or other vessel provided with a lid, a spout, a supplemental spout pivoted thereto and connected to said lid by an arm and adapted to be automatically and simultaneously operated by the opening and closing of said lid, substantially as shown and described.

4. A pitcher or other vessel provided with a spout, a supplemental spout pivoted thereto having a flange adapted to rest on the top thereof, and means for operating said supplemental spout, substantially as shown and described.

5. A pitcher or other vessel provided with a lid, a spout, a supplemental spout pivoted thereto having a flange adapted to rest on the top thereof, and means connecting said lid and supplemental spout, whereby when the lid is opened or closed thereby it simultaneously operates said spout, substantially as shown and described.

6. A pitcher or other vessel provided with a spout, a supplemental spout pivoted thereto provided with an arm carrying a link, a lid provided with an arm the free end of which is pivoted to said link, substantially as shown and described.

700,525. CASH-REGISTER. ALEXANDER W. HARR, Dayton, Ohio, assignor, by mesne assignments, to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Jan. 29, 1902. Serial No. 887,198. (No model.)



Claim.—1. In a cash-register, the combination with a registering mechanism, of a key-coupler, a special key-lever having a rigid projection arranged to be moved into the path of the coupler without engaging it, and a series of cam-bays adapted to operate said coupler.

2. In a machine of the character described the combination with a

series of cam or numbered keys and a registering mechanism, of a series of special keys, indicators cooperating respectively therewith and arranged to be set for movement to indicating position by the operation of said special keys, means controlled by the cam-keys for registering and indicating the amount of the transaction and expending the indicator previously set by the operation of the special keys, and locking means controlled by the special keys to prevent the operation of the cam or numbered keys until a special key has been operated.

3. In a cash-register, the combination with a registering mechanism, of a pivoted key-coupler, a special key-lever pivoted concentrically to the coupler and formed with a rigid projection that may be moved into the path of the same without engaging it, a key for setting said lever and a series of amount-keys for operating said coupler.

4. In a cash-register, the combination with a registering mechanism, of a pivoted key-coupler, a special key-lever pivoted concentrically to the coupler and so formed that it may be moved into the path of the same without engaging it, a special key for operating said lever, a special indicator cooperating with said lever and a series of amount-keys arranged to operate said coupler.

5. In a cash-register, the combination with a registering mechanism, of a key-coupler, a special key-lever having a hook and a notched portion whereby it may be moved into cooperative relation with the coupler without engaging it, a series of amount-keys for operating said coupler, and a special key for setting the special key-lever.

6. In a cash-register, the combination with a registering mechanism, of a series of amount-keys, a number common to all of said keys and arranged to be moved by the same, special key-levers arranged to be coupled to said number, special keys for setting said levers, and a lock for said common number, arranged to be operated by the special keys.

7. The combination with the type-carrier, of a sliding plate having inclined slots, means connecting said type-carrier and plate, vertically-sliding bars X having finger-pieces for depressing them and pins which project into the inclined slots, and a detent plate or wing G cooperating with notches F formed in the bars X.

8. The combination with a type-carrier, of a sliding plate having inclined slots, means connecting said type-carrier and plate, a series of special keys having projections which enter the slots of said plate, a detent plate or wing cooperating with said keys, a series of cam-keys and means operated by the cam-keys for disengaging the detent-plate from the special keys.

9. The combination with a type-carrier of a series of special keys for operating the same, a series of cam-keys, a movable member common to said cam-keys and provided with a locking projection, a pivoted locking-lever arranged to engage said projection, a rock-shaft carrying said lever, and projections mounted on the special keys and adapted to rock said shaft.

10. The combination with a type-carrier, of a series of special keys for operating the same, a series of cam-keys, a movable member common to said cam-keys, and provided with a locking projection, a locking-lever arranged to engage said projection, a rock-shaft carrying said lever and provided with an operating-rib and pins mounted on the special keys so as to engage said rib and rock the shaft.

11. The combination with a type-carrier of a series of special keys for operating the same, a locking-plate for holding said keys in their depressed position, a series of cam-keys, a movable member common to all of the cam-keys, and a cam mounted on the same, and arranged to engage and operate the locking-plate.

12. The combination with a series of cam-keys, of a series of special keys, means for preventing the operation of a cam-key until a special key is operated, devices for locking the special keys in their depressed position, a movable member common to all of the cam-keys, and a cam mounted on said member and adapted to operate the locking devices.

13. The combination with a series of cam-keys, of a series of special keys, the detent-plate G cooperating with the special keys, the universal bar N operated by the cam-keys and provided with an extension-arm, the plate L pivoted on the arm and formed with the cam N cooperating with the detent G.

14. The combination with a series of cam-keys, of a series of special keys, the special key-levers A, the universal bar N, a series of nested sleeves extending across the machine, means connecting said sleeves to the special keys at one end and devices mounted on said sleeves at their opposite ends for operating the keys A.

15. The combination of the special type-wheel N, the shaft F geared thereto and provided with the pinion T, the sliding plate V provided with the inclined slot X and having the rack U meshing with the pinion T, the vertically-sliding key-bar E provided with finger-pieces for depressing them against the resistance of their resetting-springs E' and having the pin Y cooperating with the slot X in the plate V, the detent-plate G cooperating with the notches F in the key-bar E, and means actuated by the cam-keys of the machine to disengage the detent-plate from the notches in the key-bar.

16. The combination of the special type-wheel N, the shaft F geared thereto and provided with the pinion T, the sliding plate V provided with the inclined slot X and having the rack U meshing with the pinion T, the vertically-sliding key-bar E provided with finger-pieces for depressing them against the resistance of their resetting-springs E' and having the pin Y cooperating with the slot X in the plate V, the detent-plate G cooperating with the notches F in the key-bar E, and means actuated by the cam-keys of the machine to disengage the detent-plate from the notches in the key-bar.

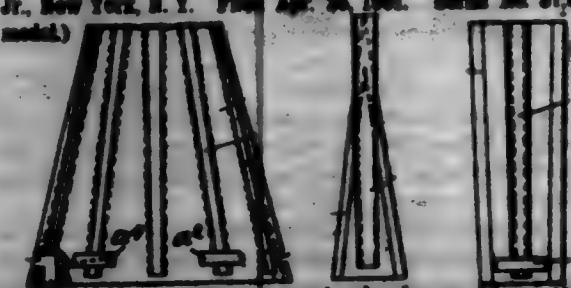
17. The combination of the special type-wheel N, the shaft F geared thereto and provided with the pinion T, the sliding plate V provided with the inclined slot X and having the rack U meshing with the pinion T, the vertically-sliding key-bar E provided with finger-pieces for depressing them against the resistance of their resetting-springs E' and having the pin Y cooperating with the slot X in the plate V, the detent-plate G cooperating with the notches F in the key-bar E, the universal bar N of the machine operated by the cam-keys A thereof and provided with the forwardly-extending arm M, and the plate L pivoted upon the arm M and provided with the cam K cooperating with the pin J upon the detent-plate G for the purpose described.

18. The combination, with the cam-keys and the universal bar N operated thereby and provided with the forwardly-extending arm M, of the vertically-sliding key-bars E of the special keys, the rock-shaft T adapted to be rocked by the depression of any one of said bars, and the arm W carried by said rock-shaft and cooperating with a projection M' on the arm M.

19. The combination, with the cam-key levers A, and the universal bar N cooperating therewith, of the special key-levers A' also cooperating with the bar N, the indicator-rod and indicator cooperating with the bar N, the indicator-rod and indicator cooperating with said levers A', the special keys, and the rock-shaft and sleeves provided at one end with arms or projections cooperating with the special keys and at their opposite ends with arms or projections cooperating with the key-levers A' for the purpose described.

20. The combination, with the cam-key levers A and the universal bar N cooperating therewith, of the special key-levers A' also cooperating with the bar N, the indicator-rod and indicator cooperating with the bar N, the indicator-rod and indicator cooperating with said levers A', the special keys, the rock-shaft T and the sleeves thereon, the plate N carried by said shaft and sleeves and cooperating with the pin K upon the key-bar E, the shaft F and sleeves thereon, connected respectively to the shaft F and the sleeves, and the arms Q that upon the shaft F and in sleeves and cooperating with the levers A', for the purpose described.

700,526. GRINDING OR CRUSHING HEAD. VOLNEY W. MARR, JR., New York, N. Y. Filed Apr. 26, 1901. Serial No. 57,507. (No model.)



Claim.—1. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves in the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core, and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, substantially as described.

2. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom, made wider at their upper ends than at their lower ends and having an abutting shoulder at their lower ends, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves in the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, substantially as described.

3. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves in the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, and means for locking one set of external segments to the core, substantially as described.

4. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves in the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, and transversely-disposed keys interspersed between the segments and core for locking said segments to the core, substantially as described.

5. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves in the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, transversely-disposed keys interspersed between the segments and core for locking said segments to the core, and means for holding said keys in place, substantially as described.

6. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, key-receiving recesses crossing alternate grooves provided with entrance thereto, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and also having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, and transversely-disposed keys contained in said key-receiving recesses, substantially as described.

7. A grinding or crushing head comprising a central core having a number of dovetailed grooves extending from the top to a point near the bottom each having an abutting shoulder at its lower end, key-receiving recesses crossing alternate grooves provided with entrance thereto, a set of external segments, made wider at the bottom than at the top, placed on said core and having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, and another set of external segments, made wider at the top than at the bottom, placed on said core and also having longitudinal dovetailed ribs fitting the dovetailed grooves of the core, the several segments of said sets being alternately disposed about the core and abutting together, and the lower ends of the ribs abutting against the abutting shoulders at the lower ends of the grooves, transversely-disposed keys contained in said key-receiving recesses, and means for closing the entrance to said key-receiving recesses and for locking the keys in place, substantially as described.

700,527. DOOR-SECURE. DANIEL J. HATHORN, Hingham, Mass. Filed Feb. 27, 1902. Serial No. 55,595. (No model.)



Claim.—A door-latch comprising an anchor-plate and a latched stop, the anchor-plate being provided with a gauge-plate struck up therefrom and the stop with a finger to engage said gauge-plate and to hold the stop in a horizontal position, substantially as set forth.

700,528. BREATHER WITH NASAL ATTACHMENT. GEORGE H. MAHER, Washington, D. C. Filed Nov. 4, 1901. Serial No. 51,525. (No model.)

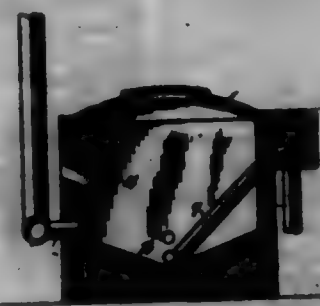


Claim.—In an inhaler or respirator, the combination with the nose-spring and pad-carrying frame, of the interposed pads secured in said pad-carrying frame upon their inner faces near the rear portion of said pad-carrying frame, an open pocket of textile fabric secured to said nose-spring and to said pad-carrying frame and extending below the entrance to the nostrils of the wearer; and an absorbent material adapted to receive a curative medicament and to permit of inhalations and exhalations of the latter without permitting the medicament absorbent material to enter and obstruct the entrance of the nostrils; substantially as specified.

700,529. FLUXING AND SEPARATING COMPOUND. ABRAHAM D. MILLER, Mount Pleasant, Pa. Filed Mar. 12, 1901. Serial No. 52,905. (No specimen.)

Claim.—1. A fluxing and separating compound consisting of asbestos and a flux.
2. A fluxing and separating compound consisting of asbestos and borax.
3. A fluxing and separating compound consisting of asbestos, a flux, and an oxygen-furnishing agent.
4. A fluxing and separating compound consisting of asbestos, borax, and an oxygen-furnishing agent.
5. A fluxing and separating compound consisting of asbestos, borax, and potassium permanganate.
6. A fluxing and separating compound consisting of asbestos, a flux, and potassium permanganate.

700,530. PROCESS OF TREATING ORS. ABRAHAM D. MILLER, Mount Pleasant, Pa. Filed Mar. 12, 1901. Serial No. 51,508. (No specimen.)



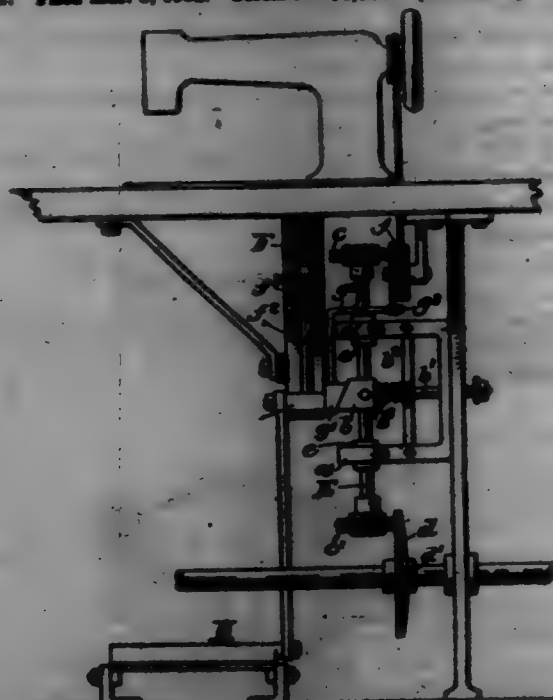
Claim.—1. That process for the treatment of ors which consists in mixing the ore with asbestos and a flux and in subjecting the ore thus treated to the action of heat.
2. That process for the treatment of ore which consists in mixing the ore with asbestos and a flux and in subjecting the ore thus treated to the action of an oxygen-furnishing agent and heat.
3. That process for the treatment of ore which consists in mixing the ore with asbestos and a flux, and in subjecting the ore thus treated to the action of heat in the presence of oxygen furnished both mechanically and by chemical reaction.
4. That process for the treatment of ore which consists in mixing the ore with asbestos, a flux and potassium permanganate of potash, and in subjecting the ore thus treated to the action of heat.

700,531. COOLING AND AIRATING DEVICE. JOHN C. MILLER, Canton, Ohio. Filed Apr. 26, 1901. Serial No. 57,525. (No model.)

Claim.—A mill-cooler comprising a frusto-conical wall, an inverted flared top forming a slightly-inclined and comparatively broad supporting and mill-distributing surface, a frusto-conical spirally-stopped partition upon the interior of said vessel and forming a serpentine passage for the circulation of a cooling liquid, an inverted flared partition closing the top of the said partition and forming with the top of the cooling vessel a shallow passage communicating on all sides with said serpentine passage and also forming a comparatively broad and slightly-inclined plane surface for the flow thereover of the cooling liquid, a tube for supplying the cooling medium to the lower end of the spiral passage, a discharge-tube connecting said shallow passage with the interior of the partition, a mill-receiver having a discharge-orifice, a stationary cone upon the top of the cooling vessel and projecting into said orifice, supports between the receiver and top of the cooling vessel, and turnbuckles carried by said supports for adjusting the receiver up and down to vary the position of the cone within said orifice, substantially in the manner set forth.



700,582. POWER-TRANSMITTER. SAMUEL MILLER, New York. N. Y. Filed Mar. 5, 1908. Serial No. 98,535. (No model.)



Claim.—1. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, and means for moving the cam whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks, substantially as described.

2. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, a friction device connected to and operating with said cam, and means for moving the cam whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks substantially as described.

3. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, a U-shaped frame pro-

vided with forked or Y-shaped ends, within which the said bearings move, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, and means for moving the cam whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks substantially as described.

4. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, a U-shaped frame provided with forked or Y-shaped ends, within which the said bearings move, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, a friction device connected to and operating with said cam, and means for moving the cam whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks substantially as described.

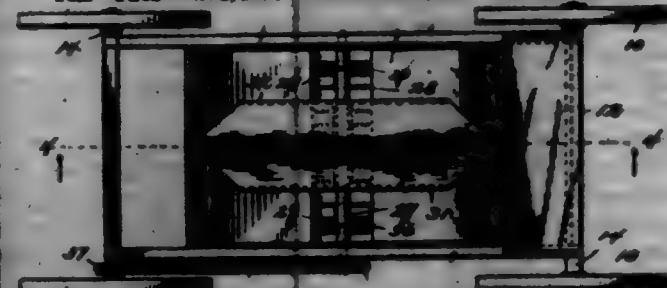
5. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, a cam connected to said cam and provided with a brake apparatus adapted to cooperate with the driven disk, and means for moving the cam and brake whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks and the brake withdrawn, substantially as described.

6. A power-transmitter located entirely below the work-table, comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, a braking device connected to and operating with said cam, means for moving the cam whereby the transmitter-shaft is shifted laterally and the friction-wheels brought into contact with the driving and driven disks, and means connecting the driven disk with a sewing-machine, substantially as described.

7. A power-transmitter located entirely below the work-table, comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, a U-shaped frame provided with forked or Y-shaped ends, within which the said bearings move, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, means for moving the cam whereby the transmitter-shaft is shifted and the friction-wheels brought into contact with the driving and driven disks, and means connecting the driven disk with the sewing-machine, substantially as described.

8. A power-transmitter comprising a driving-disk, a driven disk, a transmitter-shaft provided with movable bearings, a U-shaped frame provided with forked or Y-shaped ends, within which the said bearings move, friction-wheels on said shaft, a wedge-faced block connected to and movable with said shaft, a cam adapted to cooperate with the wedge-faced block, a rod connected to said cam and provided with a brake apparatus adapted to cooperate with the driven disk, and means for moving the cam and brake whereby the transmitter-shaft is moved laterally and the friction-wheels brought into contact with the driving and driven disks and the brake withdrawn, substantially as described.

700,588. FERTILIZER-DISTRIBUTOR. WILLIAM F. HARR, Mass. Tol. Filed June 1, 1901. Serial No. 68,732. (No model.)

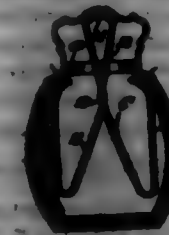


Claim.—In a fertilizer-distributor, the combination with a wheeled truck; of a hopper for the fertilizing material, said hopper being supported on the truck-frame, a conical trough forming the bottom of the hopper and provided with a series of discharge-openings extending transversely of the machine, an agitator-shaft within the trough, means for driving said shaft, and a cut-off or head comprising disks which slope transversely of the machine and are provided on their lower edges with vertical slots removably fitted in the central portion of the hopper over the agitator-shaft whereby the centrally-arranged discharge-openings are covered and the fertilizer directed toward the end openings.

700,584. GRANULATING ATTACHMENT FOR SALT-SHAKERS. JAMES A. MILLER, JR., New York, N. Y. Filed Feb. 26, 1908. Serial No. 98,716. (No model.)



Claim.—1. In a sub-chamber, a cap having an attached agitator on a shaft of spring-wire, the wire being bent upon itself to form intermediate downwardly-extending members crossing one another with an open twist, and upwardly-extending side members, as and for the purpose set forth.



2. In a sub-chamber, a cap and an agitator attached to the under face of the cap, said agitator being constructed of spring-wire of suitable gage bent upon itself to form an upper loop, and intermediate members extending downward from the ends of the loop, crossing one another with an open twist, and side members carried up from the lower ends of the intermediate members to a point opposite the twist, the upper ends of the side members having an inward curve, as and for the purpose specified.

3. As an improved article of construction, an agitator for the caps of sub-chambers and similar vessels, consisting of a piece of spring-wire of suitable gage bent upon itself to form an upper loop member, intermediate members extending downwardly from the ends of the loop member crossing each other with an open twist, and side members extending from the lower ends of the intermediate members to a point near the twist, the side members being opposite each other and having their upper ends inwardly and upwardly curved, as and for the purpose set forth.

4. The combination with a cap for a sub-chamber or similar vessel, of an agitator constructed of spring-wire and comprising an upper loop member, intermediate members extending downwardly from the ends of the loop member, crossing one another with an open twist, and upwardly-extending side members having their upper extremities inwardly curved, and a plate for attaching the agitator to the cap, which plate is provided with a central channel receiving the loop member of the agitator, and with apertures adjacent to said channel, for the purpose described.

700,585. GAS-HEATER. EDWARD A. MARR, Elizabeth, N. J. Filed Apr. 11, 1901. Serial No. 68,594. (No model.)



Claim.—1. In a gas-heater, the combination of an hollow gas-pipe, an open-bottom hollow cylinder surrounding the same, a removable cover on this cylinder having a central nozzle and side perforations, and a conical open-bottom hollow cylinder, of larger diameter partly surrounding and extending above the first, and a reticulated-diaphragm burner at the top of this cylinder.

2. In a gas-heater, the lower cylinder open at bottom and having supporting-legs, brackets extending outward from the side of said cylinder, the upper larger cylinder removably supported on said brackets and extending the upper portion only of the lower cylinder, and a removable reticulated diaphragm and flanged ring fitting the top of said upper cylinder, substantially as described.

3. In a gas-heater, the combination of the cylindrical mixing-chamber, a reticulated diaphragm at the top thereof and a flanged ring retaining the same, and a separately-removable metallic deflector-plate sup-

ported above said diaphragm by legs connected to the plate and resting on the flange-ring, substantially as described.

4. In a gas-heater, the combination of the cylindrical mixing-chamber, a reticulated diaphragm held by a removable flanged ring at the top thereof, an auxiliary reticulated ring-burner above the diaphragm, with open gas-passages below, and a cover above said auxiliary ring-burner, substantially as described.

5. In a gas-heater, the combination of the mixing-chamber, a reticulated diaphragm at the top thereof, a ring-burner of reticulated material above said diaphragm and having an outwardly-turned flange at its lower edge and a space below the same, and a cover for said ring-burner.

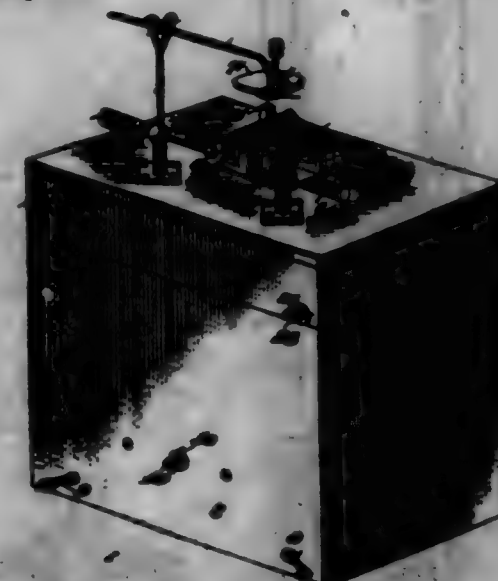
6. In a gas-heater as described, the combination with the mixing-chamber having a reticulated diaphragm at the top, of a ring-burner of reticulated material supported above the diaphragm, having a space between, a flange extending outwardly from the base of said ring-burner, and a cover for said ring-burner, as set forth.

7. In a gas-heater, the combination with the mixing-chamber having a reticulated diaphragm at the top, of a ring-burner of reticulated material and having legs by which the same may be removably supported from the chamber, leaving an open gas-passages below said ring, and a cover for said ring-burner.

8. In a gas-heater, the combination with the mixing-chamber having a reticulated burner, of an auxiliary ring-burner of reticulated material supported above said diaphragm, and a separately-removable deflector-plate above said ring-burner.

9. In combination with the mixing-chamber and reticulated diaphragm at the top, a separately-removable deflector-plate of sheet metal having notched edges and supporting-legs to rest on the top of said chamber.

700,586. APPARATUS FOR DEMONSTRATING THE PHENOMENA OF ELECTRICITY. EDWARD J. MARR, and DAVID G. MARR, Graham, Pa. Filed Nov. 22, 1901. Serial No. 68,968. (No model.)



Claim.—1. In an apparatus of the class set forth, the combination of frictional electrical generating devices, Leyden jars provided with upwardly-extending adjustable insulated rods and having contact devices engaging the inner linings thereof, transmitting attachments between the rods and the frictional generating devices, a disk held in suspended relation to one of the said rods, and an object supported by the other rod under the said disk.

2. In an apparatus of the class set forth, the combination of electrical generating means, accumulators having transmitting devices therefor in operative proximity to portions of said generating means, connecting devices extending upwardly from said accumulators, a casing inclosing the apparatus and having a removable slide with contact-strips thereon, a switch-bar for connecting said contact-strips and operative from the exterior of the casing, resilient conductors in the bottom of the casing having the opposite terminals respectively in contact with said strips and with devices extending downwardly from the bottom portions of the accumulators, a disk held in suspended relation to one of the accumulators, and an object supported by a portion of the other accumulator and located under the disk.

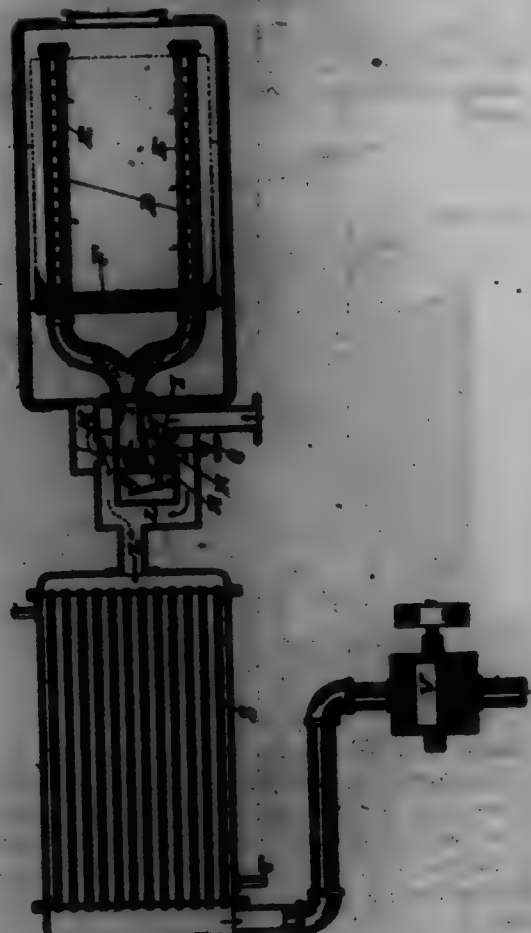
3. In an apparatus of the class set forth, the combination of static electrical generating devices, one part of which has accumulators thereon, exteriorly-adjustable equalizing-combs, Leyden jars having transmitting devices in operative proximity to the generating devices, a disk adjustably supported by a portion of one of the Leyden jars, and an object adjustably supported by the other Leyden jar under said disk.

4. In an apparatus of the class set forth, the combination of static electrical generating device, Leyden jars having translating attachments in operative proximity to the said generating device, conductors adjustably extending upwardly from the Leyden jar and having upper terminal heads, electrodes slidable through and rotatable with the said heads, a disk suspended by one head, and an object held by the opposite head under the disk.

5. In an apparatus of the class set forth, the combination of static electrical generating device, a pair of Leyden jars having translating devices in operative proximity to said generating device, insulating-tubes extending upwardly from the top portions of the said jars, conducting-rods adjustable in the said tubes and having heads at their upper ends, the said rods being rotatable, electrodes horizontally disposed and slidably mounted in the said heads, and devices supported by the said heads in such relation that an electrical spark will be caused to pass from one to the other.

6. In an apparatus of the class set forth, the combination with static electrical generating and storage device, of members projecting upwardly from the said storage device, an upright held by one of said members, a weighted balance-arm suspended in the upper portion of said upright, a dial held by one end of the balance-arm, a metal plate mounted on the other member, and an object disposed on the metal plate under the said dial and having a conductor in the upper portion thereof.

700,587. APPARATUS FOR GENERATING SULFUR DIOXIDE
JOHN D. MOORE, NEW YORK, and FRED M. HANSEN, BROOKLYN, N. Y.; said Moore assignor to the Clayton Fire Extinguishing & Dismantling Company, a Corporation of West Virginia. Filed May 22, 1891. Serial No. 81,348. (No model.)



Claim.—1. In an apparatus for generating sulfur-dioxide gas, the combination with a generator in which the gas is produced by the action of air on a suitable substance in a heated state, of a system of outgoing and intake pipes, a valve in the intake-pipe for controlling the passage through the same, and a second valve, in operative connection therewith, for simultaneously controlling the admission of outside air into the intake, and a pump connected with the system of pipes, as set forth.

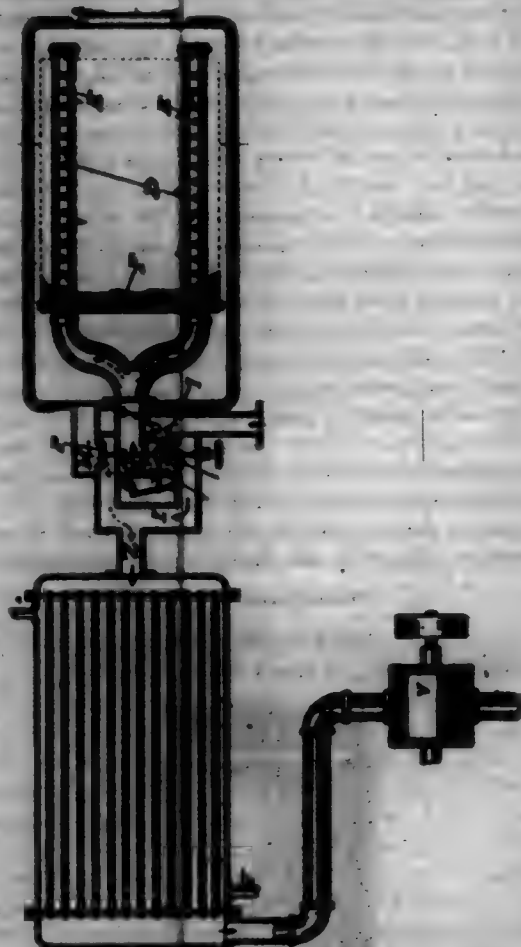
2. In an apparatus for generating sulfur-dioxide gas, the combination with a generator in which the gas is produced by the action of air on a suitable substance in a heated state, of outgoing and intake pipes connected by a pipe or passage forming a by-pass, a valve mechanism for simultaneously controlling the passage through the intake-pipe and the admission of outside air thereto, and a second valve mechanism for simultaneously controlling the passage through the outgoing pipe and the by-pass connection of the intake-pipe therewith, as set forth.

3. In an apparatus for generating sulfur-dioxide gas, the combination with a generator of the kind described, outgoing and intake pipes, a by-pass connection between the same, a valve adapted to simultaneously

close the inlet and outlet of the generator and open communication through the by-pass, a cooling device in the circuit of said pipes, and means for maintaining a circulation of gas through the same, as set forth.

4. In an apparatus for generating sulfur-dioxide gas, the combination with a generator consisting of a receptacle for containing the substance to be burned, and having inlet and outlet pipes for the circulation of air and gas through the same, the receptacle being surrounded and protected by an adiabatic covering to prevent the radiation of heat, a by-pass connection between the inlet and outlet pipes, and means for maintaining a circulation of gas through the circuit of said pipes, as set forth.

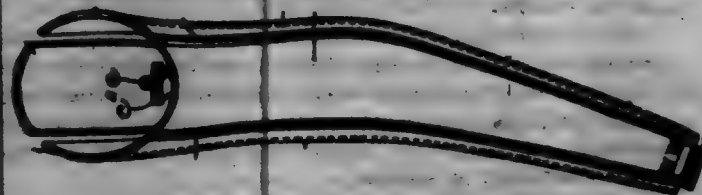
700,588. METHOD OF CHARGING COMPARTEMENTS WITH GAS
JOHN D. MOORE, NEW YORK, and FRED M. HANSEN, BROOKLYN, N. Y.; said Moore assignor to the Clayton Fire Extinguishing & Dismantling Company, a Corporation of West Virginia. Filed May 22, 1891. Serial No. 81,348. (No model.)



Claim.—1. The method of rapidly producing in closed compartments an atmosphere of sulfur-dioxide gas for fire-extinguishing or disinfectant purposes, which consists in heating the gas-producing substance in a suitable generator, bringing into union with the gas and sulfur vapor issuing from the generator, and while still in a highly-heated state, a sufficient proportion of atmospheric air to convert the uncombined sulfur into gas, and forcing the resulting gas through the system of piping which conveys it to the compartment, as set forth.

2. The method of rapidly producing in closed compartments an atmosphere of sulfur-dioxide gas for fire-extinguishing or disinfectant purposes, which consists in heating a gas-producing substance in a suitable generator, forcing air through the generator and bringing into union with the gas and vapor issuing therefrom, and while still in a highly-heated state, an additional quantity of outside air, sufficient only in amount to convert the uncombined sulfur into gas, cooling the resulting gases and conveying them to the compartment, as set forth.

700,589. ADJUSTABLE SLIDE-POKE HARRY C. MORAS, NEWTON, MASS. Filed Dec. 6, 1891. Serial No. 84,772. (No model.)



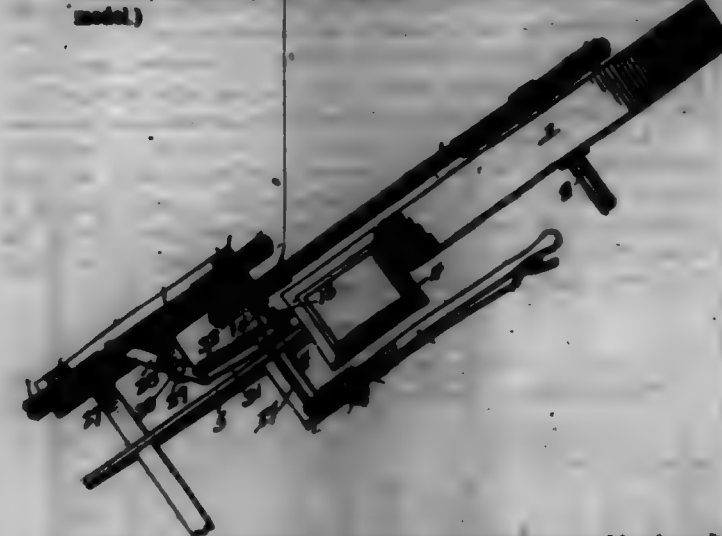
Claim.—1. A tubular slide-form composed of a plurality of tapering longitudinal sections collectively forming a longitudinally-divided arm-shaped tube, each section being externally convex in cross-section the radii

of cross-sectional curvature gradually increasing from its lower to its upper end, and adjustable connections between said sections whereby the diameter of the tube may be varied.

2. A tubular slide-form composed of a plurality of tapering longitudinal sections collectively forming a longitudinally-divided arm-shaped tube, each section being externally convex in cross-section, the radii of cross-sectional curvature gradually increasing from its lower to its upper end and a plurality of sets of adjustable connections between said sections, whereby the diameter of the tube may be varied at either end portion.

3. A tubular slide-form composed of a plurality of longitudinal sections collectively forming a longitudinally-divided arm-shaped tube, inwardly-projecting slotted arms affixed to said sections and having their inner ends overlapped, and clamps engaged with the overlapped ends of said arms within the tube.

700,540. ATTACHMENT FOR CORE-PLANTER JAMES R. HULDER, RANDELVILLE, IND. Filed Dec. 6, 1891. Serial No. 84,948. (No model.)



Claim.—1. In a planter of the class set forth, the combination with a seed box or hopper provided with valve mechanism, of a fork disposed in advance of said valve mechanism and pivoted at an intermediate point, a spring attached to the fork to return it to normal position, a bolt movable through the fork and provided with a vertically-disposed tappet having a length greater than the distance between the members of the fork and adapted to slide over side edge portions of the fork and off the ends of the latter, and mechanism for actuating the said bolt.

2. In a planter of the class set forth, the combination with a seed-box having valve mechanism, of a horizontally-disposed reciprocating fork pivoted at an intermediate point and connected to said valve mechanism, the bifurcated extremity of the fork being projected outwardly and elevated above the plane of the device for holding it, a spring attached to the lower extremity of the fork to return the same to normal position, a bolt movable through the bifurcated extremity of the fork and provided with a vertically-disposed tappet which engages the side edge portions of the bifurcated extremity of the fork and moves over and around the ends of said extremity, the said bolt being located outside of the adjacent portion of the machine and the tappet of greater vertical extent than that of the bifurcated extremity of said fork, and mechanism connected to the carrying-wheel of the machine for actuating the said bolt.

700,541. FLOW ATTACHMENT HERMAN E. HANSON, DETROIT, MICH. assignor to the Waukegan Flow Company, St. Clair, Mich. Filed Aug. 21, 1891. Serial No. 78,971. (No model.)

Claim.—1. The combination with a plow, of a hanger-bar carrying a wheel mounted on one side of the plow-beam, a second hanger-bar provided with a grooved horizontal web mounted on the opposite side of the plow-beam, on axle, carrying a wheel, engaging the groove in said horizontal web, means for adjusting said axle laterally in said groove, and means for clamping said hanger-bars to the plow-beam.

2. The combination with a plow, of a pair of clamps located on each side of the plow-beam, a pair of hanger-bars secured between said clamps and plow-beam, one of said hanger-bars having an axle formed integral therewith for carrying a wheel, the other said hanger-bar provided with a grooved horizontal web provided with bolt-holes, a perforated axle, carrying a wheel, engaging said groove, the perforations in said axle adapted to align with the bolt-holes in said horizontal web for securing the lateral adjustment of said axle.

3. The combination with a plow of a pair of perforated hanger-bars carrying wheels located on each side of the plow-beam, clamps having lugs engaging in said perforations, and tie-bolts for tying said clamps and axle-hangers together on the plow-beam.

4. The combination with a plow of a pair of hanger-bars carrying wheels located on each side of the plow-beam, clamps engaging said hanger-bars, tie-bolts mounted above and beneath the plow-beam and engaging said clamps, and a wedge adapted to be inserted between said upper tie-bolt and plow-beam for securely attaching the said hanger-bars to the plow-beam.



5. The combination with a plow, of a pair of hanger-bars carrying axles and wheels located on each side of the plow-beam, clamps engaging said hanger-bars, tie-bolts mounted above and beneath the plow-beam and engaging said clamps, and a corrugated wedge adapted to be inserted between said upper tie-bolt and plow-beam for securely attaching the said hanger-bars to the plow-beam, substantially as described.

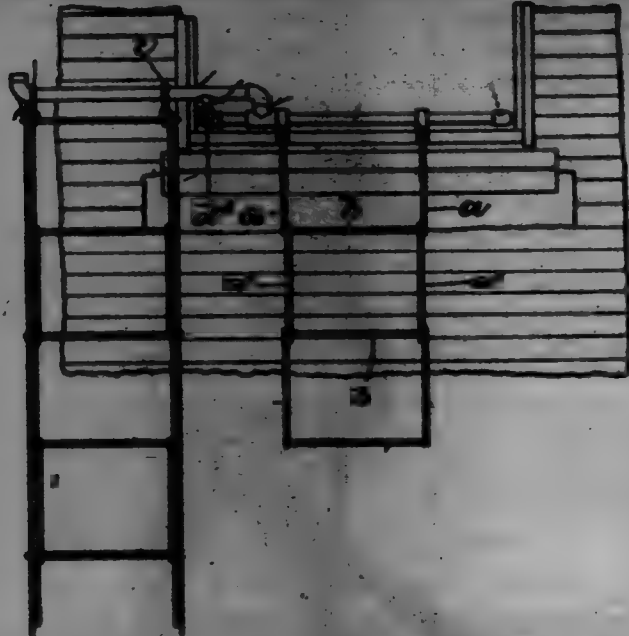
700,542. LADDER JAMES C. MCCORMACK, MAINE, assignor of two-thirds to WILLIAM E. JACOBS and WILLIAM E. ROBERTSON, MAINE. Filed June 15, 1891. Serial No. 84,573. (No model.)



Claim.—1. A folding fire-escape ladder comprising side bars, connecting-rungs, the side bars being composed of sections which are hinged or jointed to the rungs, and are provided with stop-shoulders arranged to abut together and hold the sections in angular relation to each other when the ladder is extended, and flexible, inextensible cords attached to and extending between the alternate hinge-joints of the side bars, said cords cooperating with the stop-shoulders in maintaining the angular relation of the sections.

2. A folding fire-escape ladder comprising side bars each composed of sections having hinge-shoulders and stop-shoulders at their ends, rungs extending between said bars their ends constituting hinge-plate members engaged with said hinge-shoulders, said stop-shoulders being arranged to abut together when the ladder is extended and hold the side-bar sections in angular relation to each other, whereby outer and inner angles are provided, the inner angles being adapted to bear against the wall of a building and hold the outer angles and the rungs connected therewith at a distance from said wall, and flexible inextensible cords affixed to and extending between the plate members of the outer angles, said cords cooperating with the stop-shoulders in maintaining the angular relation of the side-bar sections.

700,548. FIRE-ESCAPE. JAMES C. McFARLAN, Malden, Mass., assignor of TWO-THIRDS to WILLIAM S. JONES and WILLIAM H. McFARLAN, Malden, Mass. Filed Oct. 12, 1891. Serial No. 79,978. (No model.)



Claim.—1. In a fire-escape, a ladder-support consisting of a bar having arms adapted to extend through a window-opening in a building-wall and formed to engage the inner side of the wall, the said arms supporting the bar in a horizontal position outside the window-opening, a ladder-engaging arm hinged at one end to said bar at a point between the ends of the latter and adapted to swing horizontally to one side of the window-opening to extend the arm and locate the ladder out of the line of a lower window or series of windows, and supporting members on the arm and bar, arranged to support the arm between its hinged and swinging ends when the arm is extended.

2. In a fire-escape, a ladder-support comprising a bar having arms adapted to extend through a window-opening in a building-wall and formed to engage the inner side of the wall and support the bar horizontally outside the opening and a ladder-engaging arm hinged at one end to the bar at a point between the ends of the latter and adapted to be extended by a horizontal swinging movement to one side of the window and arm having a downwardly-projecting foot between its hinged and swinging ends, while the bar has a cast which supports said foot when the arm is extended, said cast and foot having interlocking members which prevent the base swinging of the extended arm.

3. In a fire-escape, a ladder-support comprising a bar having arms adapted to extend through a window-opening in a building-wall and formed to engage the inner side of the wall and support the bar horizontally outside the opening, and a ladder-engaging arm hinged at one end to the bar at a point between the ends of the latter and adapted to be extended by a horizontal swinging movement to one side of the window, said arm having a downwardly-projecting foot at its swinging end and while the bar has a cast arranged to engage said foot when the arm is not extended.

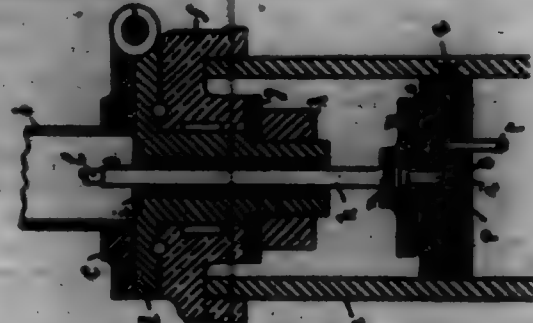
4. In a fire-escape the combination of a ladder-support comprising a bar having arms adapted to extend through a window-opening in a building-wall and formed to engage the inner side of the wall and support the bar horizontally outside the opening, and a ladder-engaging arm hinged at one end to the bar at a point between the ends of the latter and adapted to be extended by a horizontal swinging movement to one side of the window, a ladder suspended from said arm, and one or more ladder rungs or steps suspended from said bar, said rungs or steps enabling a person to reach the ladder on the extended arm substantially as described.

700,544. METHOD OF CONNECTION OF CURRENT-COLLECTING OR TROLLEY POLES. PHILIP McFARLAN, THOMAS BLUNT, and BENJAMIN BARON, Liverpool, England; said BLUNT and BARON assignors to said McFARLAN. Filed Jan. 14, 1892. Serial No. 80,042. (No model.)

Claim.—1. In an electric-current-collecting or trolley pole, the combination with a headpiece, of a pole connected therewith, a conductor secured and insulated in said headpiece, a plate attached to said conductor, and a second plate facing the first plate and contacting therewith through a plurality of bearing-balls.

2. In an electric-current-collecting or trolley pole, the combination with a standard, of a headpiece to which the pole is connected, a cap on the top of the standard, bearings for the headpiece in said cap, a conducting-rod secured and insulated in said headpiece, an insulated conductor connected to said conducting-rod and to the current-collector on the end of the pole, a plate on the lower end of the conducting-rod, a second plate

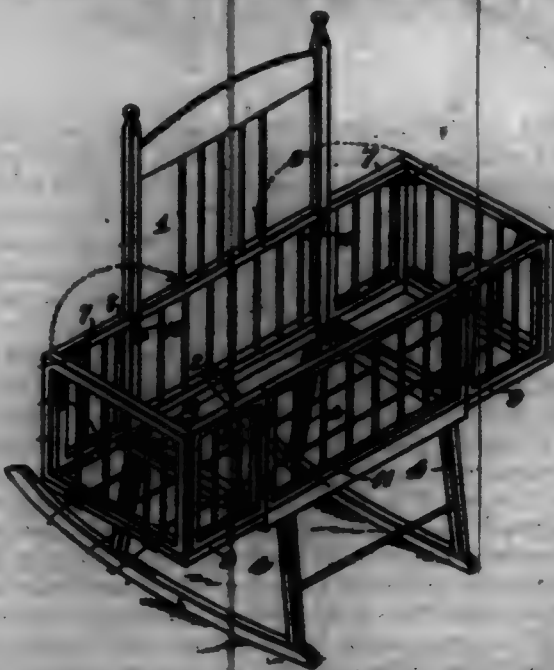
opposite the first and rigidly mounted and insulated in the standard, balls between said plates, and a conductor for carrying away the current from the said second plate.



3. In an electric-current-collecting or trolley pole, the combination of a reversible headpiece to which the pole is attached, a conducting-rod mounted in insulation in said headpiece, and electrically connected to the current-collector, a plate attached to said conducting-rod, a second plate facing said first plate and fixed in insulation in the standard, and balls between said plates, whereby electric contact is established between them, and in whatever position the head may be said contact is kept constant.

4. The combination of the headpiece of the pole of which the pole is attached, a conducting-rod mounted in insulation in said headpiece, a plate attached to said conducting-rod, a plate mounted in insulation in the standard, and balls between said plates, whereby the current from the collector is conveyed to the working parts of the vehicle in whatever position the head may be.

700,545. CORNER CHAIR AND CRADLE. ARTHUR HANSEN, Flushing, Mass. Filed Mar. 7, 1892. Serial No. 80,126. (No model.)

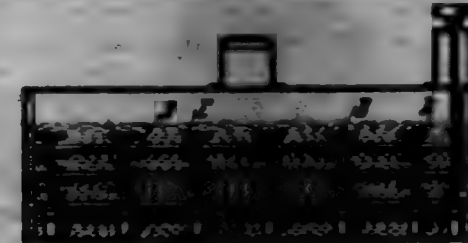


Claim.—1. In a cradle, the combination with a rocking-chair having a back and seat, of frames hinged to the sides of said back, frames hinged to the sides and the front of said bottom, frames hinged to the sides of the said bottom hinged to the sides of said bottom, and means for connecting said frames together to form a cradle-bar, substantially as described.

2. In a cradle, the combination with a rocking-chair having a back and seat, of a pair of frames one hinged to each side of said back and adapted to extend in the plane thereof or to be folded back in contact therewith, a pair of frames one hinged to each side of said bottom, said frames being adapted to extend in the plane of said bottom or to stand at right angles thereto to form same, a pair of frames hinged to the sides of said last-mentioned frames and adapted to form the ends of the cradle or to be folded down in contact with said frames, a frame hinged to the front of said bottom and adapted to stand up at right angles thereto or to be folded down in contact therewith, and a pair of frames hinged to the opposite sides of said last-mentioned frame and adapted to extend in the plane thereof or to be folded up in contact therewith and means for securing said frames together, substantially as described.

700,546. WATER-HEATER AND STEAM-GENERATOR. CHAS. HALLMAN, Cranford, N. J. Filed Jan. 3, 1892. Serial No. 80,214. (No model.)

Claim.—1. A boiler provided with a fastening-roll, a driving or main axle, axle driven by the main axle and having a bearing in the fastening-roll, and water-impelling device carried by the driven axle.



2. A boiler provided with a fastening-roll and pillow-block, a driving or main axle extended longitudinally through the boiler, axle placed transversely to and driven by the main axle and supported in said fastening-roll and pillow-block, water-impelling device on said transverse axle, and driving gears and shaft for the main axle, said boiler having a stuffing-box chamber for the passage of said last-mentioned shaft.

700,547. RANGE-FINDER. JOHN WILSON, Larchmont, N. Y. Filed Jan. 24, 1892. Serial No. 80,252. (No model.)



Claim.—1. A range-finder comprising a base, a telescope rigidly attached thereto, a telescope mounted thereon at an angle to said first-mentioned telescope, means of moving the second-mentioned telescope toward and away from the one first mentioned and of simultaneously adjusting the focal distance between the eyepieces of the first-mentioned telescope and the object-glass of the other one as the distance between the two telescopes is changed, means of throwing the rays received through the movable telescope into the fixed telescope and a scale to record the distance between the two telescopes and thereby that of the object viewed.

2. A range-finder comprising a base, a telescope rigidly attached thereto, a telescope mounted thereon at an angle to said first-mentioned telescope, means of adjusting said angle, means of moving the second mentioned telescope toward and away from the one first mentioned and of simultaneously adjusting the focal distance between the eyepieces of the first-mentioned telescope and the object-glass of the other one as the distance between the two telescopes is changed, adjustable means of throwing the rays received through the movable telescope into the fixed telescope and a scale to record the distance between the two telescopes and thereby that of the object viewed.

3. In a range-finder the combination of a base with a telescope rigidly attached thereto, a telescope mounted thereon at an angle to said first-mentioned telescope, means of moving the second-mentioned telescope toward and away from the one first mentioned and of simultaneously adjusting the focal distance between the eyepieces of the first-mentioned telescope and the object-glass of the other one as the distance between the two telescopes is changed, a prism adapted to divert the rays re-

ceived through the movable telescope toward the fixed telescope, a prism adapted to divert the rays received through the first-mentioned prism to the eyepiece of the right telescope, adjustable tubes connecting the first-mentioned prism both with the movable telescope and the other prism, and a scale to record the distance between the two telescopes and thereby that of the object viewed.

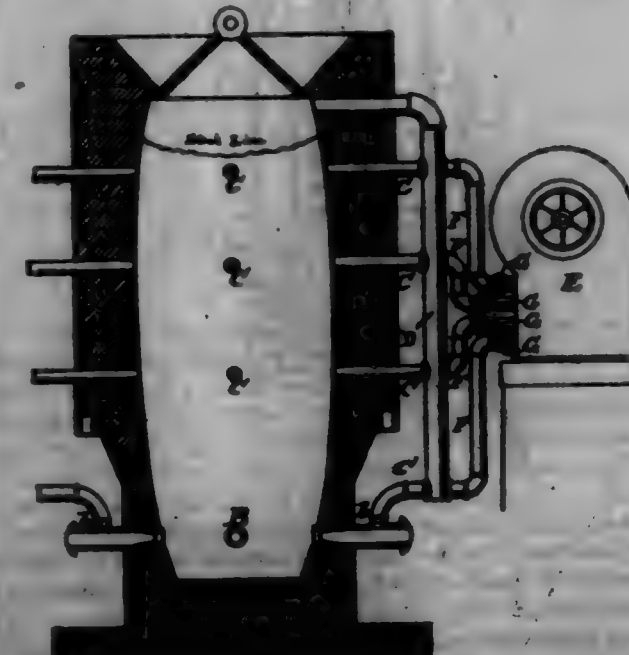
700,548. CORNER-SUPPORT FOR PICTURE-FRAMES. JOHN T. HANSEN, New York, N. Y. Filed Jan. 11, 1892. Serial No. 80,253. (No model.)



Claim.—1. The combination with a picture and a transparent covering therefor, of corner-supports having adjustable eyes projecting outwardly therefrom, a flexible supporting element threaded through the said eyes and surrounding the picture and covering, and a hanger secured to said flexible device.

2. The combination with a picture and a transparent covering therefor, of corner-supports and fasteners comprising bodies with pairs of inwardly bent hooks on adjacent edges and adjustable eyes interconnecting the said hooks, a chain threaded through the said eyes and surrounding the picture and covering, and a hanger attached to the upper part of the said chain.

700,549. BLAST-FURNACE. FRANK C. HODGSON and JAMES MITCHELL, Lorain, Ohio. Filed Feb. 15, 1892. Serial No. 80,256. (No model.)



Claim.—In combination with a blast-furnace, a dust-collecting pipe, a series of injecting-pipes inserted through the walls of the furnace, at intervals from top to bottom, and connected transversely with said dust-pipe, and means, substantially as described, connected to said injecting-pipes for forcibly injecting the dust into the furnace, substantially as and for the purpose set forth.

700,550. MUSIC-BOX. GEORGE OTTO and FREDERICK SCHMIDT, Jersey City, N. J. Filed Jan. 14, 1891. Serial No. 80,260. (No model.)

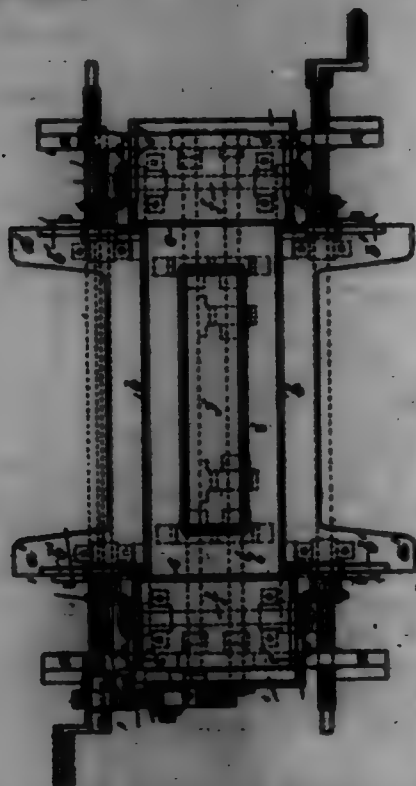
Claim.—1. In a mold-box, the combination with a casing, of a wood casing-board secured at its edge to the casing, a metal base-plate secured directly on said casing-board, a metallic comb on said base-plate, and means for picking the teeth of the comb, substantially as herein shown and described.



2. The combination with a casing, of a casing-board secured at its edge to the casing, a metal base-plate secured directly on the casing-board, a metallic comb on said base-plate, means for picking the teeth of the comb, and a auto-disk-operating gear secured to the casing entirely independent of the casing-board and base-plate, substantially as herein shown and described.

3. The combination with a casing, of a wood casing-board secured at its edge to the casing, a metal base-plate secured directly on the casing-board, a metallic comb on said base-plate, means for picking the teeth of the comb, a motor secured to the casing entirely independent of the casing-board and base-plate, a disk-rotating gear operated from said motor, the base-plate and casing-board having slots through which said driving-gear extends, substantially as herein shown and described.

700,551. MACHINE FOR MOLDING ARTIFICIAL STONE.
JOHN F. PALMER, Brooklyn, N. Y. Filed Feb. 14, 1902. Serial No. 94,012. (No model.)



Claim.—1. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and ends, with a series of inter-gearing shafts corresponding in number to the number of mold-box sides and ends, and with racks and pinions for transmitting motion from the shafts to said sides and ends, substantially as specified.

2. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and ends, with a series of inter-gearing shafts arranged concentric to the mold-box, pinions mounted upon said shafts, racks engaged by the pinions, and means for connecting said racks to the sliding sides and ends, substantially as specified.

3. In a machine for molding artificial stone, the combination of a rectangular mold-box having sliding sides and ends, with four inter-gearing shafts arranged in a rectangle concentric to said mold-box, pinions mounted upon said shafts, two series of racks engaged by said pinions and extending at right angles to each other, and means for connecting said racks to the sliding sides and ends, substantially as specified.

700,552. CUTTER-HEAD BIT. EMERY A. PARSON and BLAKE S. SHIMES, Milton, Pa., assignors to Samuel J. Shimer and Sam. Milton, Pa. Filed Feb. 21, 1902. Serial No. 92,168. (No model.)

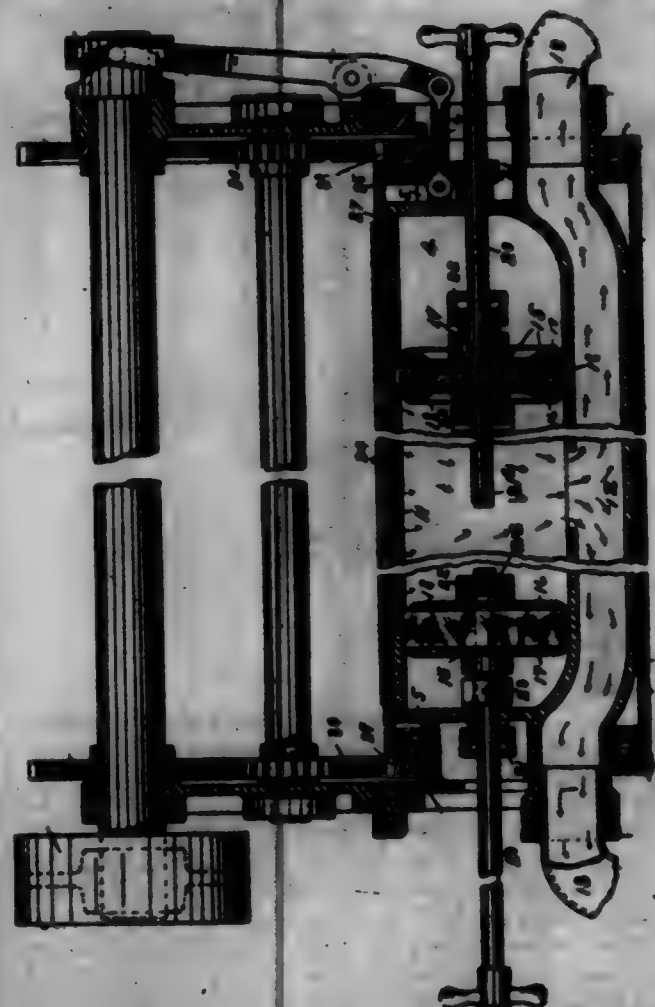


Claim.—1. A bit for cutter-heads comprising a body having a curved cutting edge and a heel formed on an embroken curve which is parallel to and a counterpart of the curve of the cutting edge, the curve of said heel being adapted to form a pattern by which to grind the said cutting edge, substantially as described.

2. A bit for cutter-heads comprising a cylindrical body having a curved cutting edge and a curved heel, the curve of said heel being parallel to the curve of said cutting edge and adapted to form a pattern for grinding the said cutting edge, substantially as described.

3. A cutter-head bit comprising a cylindrical body having a cutting edge conforming to a portion of the curve of intersection of the surfaces of two non-parallel intersecting cylinders and a heel formed on a curve parallel to the curve of said cutting edge, substantially as described.

700,553. PAPER-MAKING MACHINE. HOWARD PARKER, Bellevue Falls, Va. Filed Sept. 12, 1900. Serial No. 20,408. (No model.)



Claim.—1. In combination in a machine for paper-making machines, a series of links bearing plates and forming a carrier and motion apparatus operatively mounted with relation to said carrier and means for driving the carrier and maintaining a positive contact between its several sections as they pass over the motion apparatus, substantially as described.

2. The combination in paper-making machinery with the motion apparatus and the traveling forming-crown of a carrier interposed between the motion apparatus and the traveling crown, said carrier comprising links connected in pairs by perforated plates, substantially as described.

3. The combination in paper-making machinery with the motion apparatus and the traveling forming-crown of a carrier interposed between the motion apparatus and the forming-crown, said carrier comprising links connected in pairs by perforated plates, and means for controlling the openings between the plates as they pass over the motion apparatus.

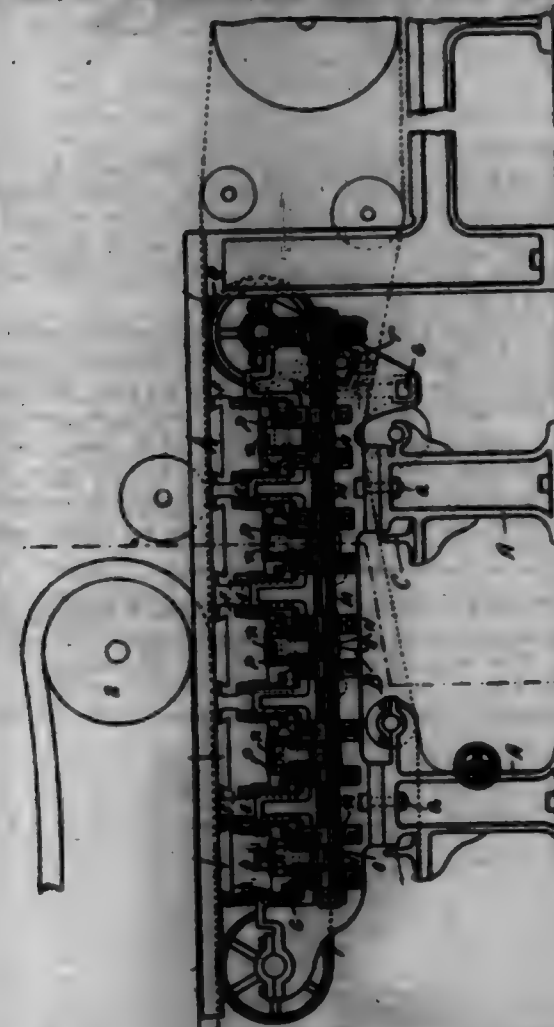
ing the openings between the plates as they pass over the motion apparatus.

4. The combination in paper-making machinery with the motion apparatus and the traveling forming-crown of a carrier interposed between the motion apparatus and the traveling crown, said carrier comprising links connected in pairs by perforated plates, and a yielding material secured to the opening edges of said plates, as and for the purposes specified.

5. In combination in a device of the class specified, an endless carrier comprising a series of links and perforated plates, racks formed upon the links, gears for positively driving said links in a fixed relation to each other, and a motion-box operatively mounted with relation to said carrier, substantially as described.

6. In combination in a device of the class specified, an endless carrier comprising a series of links and perforated plates, racks formed upon the links, gears for positively driving said links in a fixed relation to each other, and a motion-box operatively mounted with relation to said carrier, and adapted to have a movement crosswise thereof.

700,554. PAPER-MAKING MACHINE. HOWARD PARKER, Bellevue Falls, Va. Filed June 12, 1901. Serial No. 65,142. (No model.)



Claim.—1. A motion apparatus for paper-making machines, and means for imparting a reciprocating motion to said motion apparatus.

2. The combination in paper-making machinery with the forming-crown and the motion apparatus located in operative relation thereto and a carrier-belt interposed between said crown and said motion apparatus, of means for causing a relative movement between the forming-crown and the motion apparatus in a direction transverse to the direction of movement of the forming-crown.

3. In a paper-making machine, the traveling forming-crown, and the motion apparatus located in operative relation thereto, and means for imparting a reciprocating motion to the motion apparatus in a direction transverse to the direction of movement of the forming-crown.

4. In a machine of the class specified, the forming-crown and motion apparatus arranged in operative relation thereto, said motion apparatus being made up of elements, and means for imparting a reciprocating movement to said elements in consecutive relation to each other.

5. In combination in a paper-making machine, a traveling forming-crown, a motion apparatus located in operative relation thereto and having a perforated top, and a perforated traveling carrier located between the forming-crown and the motion apparatus, substantially as described.

6. In combination, in a paper-making machine, the traveling forming-crown, the motion apparatus located in operative relation thereto and

having a perforated top, a perforated traveling carrier between the forming-crown and the motion apparatus, and means for causing a relative movement between the motion apparatus and the carrier, in a direction transverse to the direction of movement of the carrier.

7. In a machine of the class specified, the combination with the forming-crown and the motion apparatus, of a traveling belt located between the forming-crown and the motion apparatus, and a shifting device for automatically maintaining said belt in its proper position, substantially as described.

8. In a machine of the class specified, the combination with a frame supporting the motion apparatus, the motion apparatus located in said frame and the forming-crown, of a carrier-belt interposed between the motion apparatus and the forming-crown, and means for automatically controlling the position of the carrier-belt.

9. In a machine of the class specified, the combination with the frame supporting the motion apparatus, the motion apparatus located in said frame, and a forming-crown of an endless carrier-belt traveling over drums mounted on the frame, a roll mounted in yielding bearings in operative relation with one of the drums, and means for moving the bearings of said roll, substantially as described.

10. In a machine of the class specified, the combination with the frame supporting the motion apparatus, and the motion apparatus located in said frame, of an endless belt traveling over a drum mounted on the frame, a roll mounted in yielding bearings in operative relation with said drum, and means for moving the bearings of said roll, substantially as described.

700,555. PROCESS OF DETERMINING THE HEATING CAPACITY OF COMBUSTIBLES. SAMUEL W. PARK, Urbana, Ill. Filed Dec. 24, 1901. Serial No. 67,195. (No specimen.)



Claim.—1. The herein-described process of determining the heating capacity of combustibles, which consists in mixing sodium peroxide with the combustible in a closed vessel under ordinary atmospheric pressure, placing the vessel in a body of water, igniting the mixture, permitting a reaction of the mixture so that the ultimate products of the reaction will be solid substances, and taking the temperature of the water before and after the reaction.

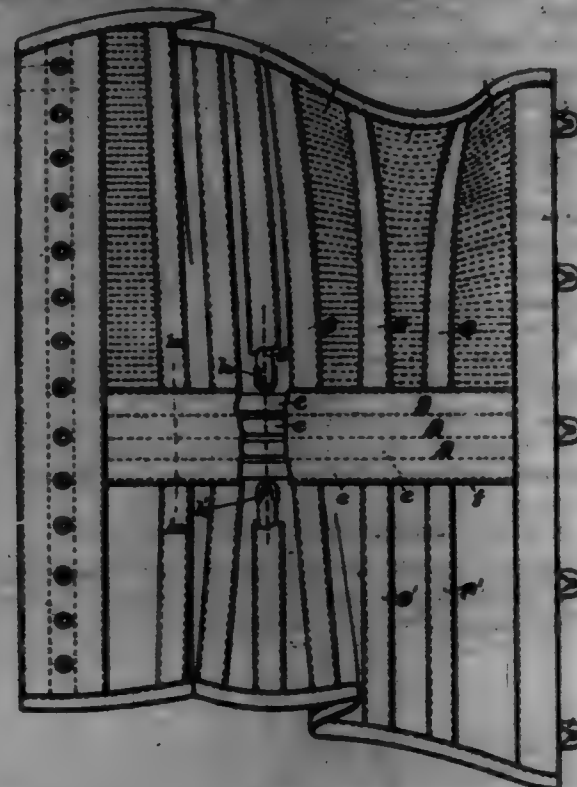
2. The herein-described process of determining the heating capacity of combustibles, which consists in mixing together in a closed vessel the combustible, sodium peroxide, and other superoxidized substances which yield a maximum amount of oxygen, placing the vessel in a quantity of water, igniting the mixture, permitting a reaction of the mixture from said ignition so that the products thereof will be solid substances, and taking the temperature of the water before and after the reaction.

3. The process of determining the heating capacity of combustibles, which consists in mixing definite organic substances, as herein described, with sodium peroxide, and the combustible in a closed vessel, placing the vessel in a body of water, igniting the mixture, permitting a reaction of the mixture from said ignition, and taking the temperature of the water before and after the reaction.

4. The process of determining the heating capacity of combustibles in a closed vessel with definite organic substances, sodium peroxide, and

other superoxidized substances, placing the vessel in a body of water, igniting the mixture, permitting a reaction thereof from such ignition so that the products of the reaction will be solid substances, and taking the temperature of the water before and after the reaction.

700,556. CORSEY, ARTHUR E. PARKER, Boston, Mass. Filed Jan. 2, 1902. Serial No. 22,614. (No model.)



Claim.—A corset composed of two side sections or halves, each having continuous stiffening members at its front and rear edges extending from the upper to the lower end of the corset, a plurality of horizontal stiffening members arranged edge to edge and extending between said vertical members at the waist portion of the corset, flexible connections between the horizontal members, said horizontal members and connections constituting elongated hinges at the waist portion of the corset, two series of shorter vertical stiffening members extending from said hinges, one to the upper and the other to the lower end of the corset, and two series of metallic sockets attached to the body of the corset at opposite edges of said hinges, the series above the hinges being closed at their lower ends, while the series below the hinges are closed at their upper ends, one series of sockets opposing downward movement of the shorter vertical stiffening members above the hinges, while the other series of sockets oppose upward movement of the shorter vertical stiffening members below the hinges.

700,557. ROTARY ENGINE. THOMAS J. FERRIS, Koshconong, Mo. Filed Feb. 10, 1902. Serial No. 18,468. (No model.)



Claim.—1. In a rotary engine, the combination with a casing provided with admission and exhaust ports, and a shaft; of a piston comprising heads fixed to the shaft, a series of independent radial vanes extending between the heads and forming a series of radial pockets, a piston-disk loose upon the shaft to have axial play and disposed between the heads, said disk being formed with slots for the passage of the vanes, and means controlling the rotation of the disk in a plane at a diagonal angle to the plane of rotation of the shaft and heads, substantially as described.

2. In a rotary engine, a piston-disk provided with a central opening

and slots radiating therefrom, a shaft extending through the central opening, heads fixed to the shaft on opposite sides of the disk and having sockets in their inner faces, bearing-bases on the disk seated in said sockets, said bases having flaring bases allowing the piston to wobble on the shaft, radial vanes extending through the slots and between the heads and forming a series of radial pockets, a casing including the ports, and means controlling the rotation of the disk in a plane at a diagonal angle to the plane of rotation of the shaft and heads, substantially as and for the purposes described.

700,558. ANIMAL-PUMP. RICHARD H. FINNEY and DUNCAN A. JONES, New York, N.Y. Filed Jan. 27, 1902. Serial No. 91,000. (No model.)



Claim.—1. In an animal-pump, the combination with a curved metallic body-plate terminating at its forward end in integral upwardly-extending diverging arms, of a neckband adapted to be connected to the arm ends, a securing band or strap for the rear end of the plate, and a depending pole member pivoted to the plate for free swinging movement in a forward direction.

2. In an animal-pump, the combination with an oblong metallic plate curved about its longitudinal axis to conform to the exterior of the body of the animal, of diverging arms integral with the plate and extending upwardly from the forward end of the latter, a neckband connecting the arm ends, a securing-band for the rear portion of the plate, a vertically depending pole-bar having pivotal connections with the plate and provided with diverging prongs or arms, and a bearing-carriage formed on the inner end of said bar, substantially as and for the purposes set forth.

700,559. FIRE-LENS LAMP. EDWARD D. BROWNE, Bristol, Conn., assignor to the Liberty Bell Company, Bristol, Conn., a Corporation. Filed Oct. 7, 1901. Serial No. 77,804. (No model.)



Claim.—1. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a drag or brake for restraining the turning of said cylinder, a single actuating device for turning said cylinder for producing the desired frictional contact between said drag or brake and winding-cylinder, and means for connecting and disconnecting said actuating device and winding-cylinder, substantially as described.

2. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a drag or brake for restraining the turning of said cylinder, a crank or arm for turning said cylinder, a detachable connection between said crank or arm and said cylinder, said crank or arm arranged to apply the drag or brake when disconnected from the cylinder, substantially as described.

3. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for turning said cylinder, a knob or handle carried by and arranged to turn in said crank or arm and a detachable connecting mechanism actuated by the turning of said knob or handle, substantially as described.

4. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for turning said cylinder, a knob or handle arranged to turn in said crank or arm, and means supported by said crank or arm and controlled by the knob or handle arranged to connect said crank or arm to the cylinder upon a turning of said crank or arm in one direction and to disconnect said crank or arm from the cylinder upon a turning of the crank or arm in the reverse direction while holding the knob or handle, substantially as described.

arranged to connect said crank or arm to the cylinder upon a turning of said crank or arm in one direction and to disconnect said crank or arm from the cylinder upon a turning of the crank or arm in the reverse direction while holding the knob or handle, substantially as described.

5. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for turning said cylinder, a sliding spring-pressed pawl carried by the crank or arm for connecting said crank or arm to the cylinder, and a knob or handle carried by said crank or arm and connected to said spring-pressed pawl for withdrawing the pawl and disconnecting the crank or arm from the cylinder, substantially as described.

6. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for turning said cylinder, a detachable connecting mechanism between the crank or arm and cylinder, a pawl-and-ratchet device for actuating the detachable connecting mechanism, and a knob or handle for turning said crank or arm and actuating said pawl-and-ratchet mechanism when turned in a reverse direction to disconnect said crank or arm from the winding-cylinder, substantially as described.

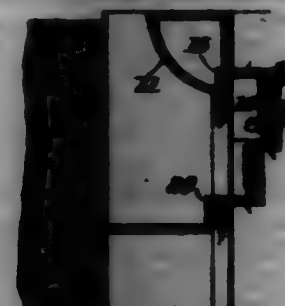
7. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for actuating said cylinder, a knob or handle mounted to turn in the free end of said crank or arm and a detachable connecting mechanism arranged to be operated to disconnect the crank or arm from the winding-cylinder by the turning of the knob or handle, substantially as described.

8. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm for turning said cylinder, a sliding spring-pressed pawl for connecting said crank or arm with the cylinder, a knob arranged to freely turn in said crank or arm, a ratchet secured to the inner end of said knob, and a spring-pawl connecting the sliding pawl with said ratchet, substantially as described.

9. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder mounted to turn therein, a crank or arm detachably connected with said cylinder, a drag or brake for restraining the turning of said cylinder, said drag or brake arranged to be applied by lateral force applied to the crank or arm when disconnected from the winding-cylinder, substantially as described.

10. In a fire-lens lamp, in combination, a supporting-frame, a winding-cylinder and its shaft mounted to turn therein, a crank or arm detachably connected with the shaft for turning said cylinder, and fixed rollers carried by said shaft upon opposite sides of the crank or arm and arranged to frictionally engage said crank or arm when lateral force is applied thereto to restrain the turning of said winding-cylinder, substantially as described.

700,560. GRATE-FRONT AND FIREBOX. JOHN J. RELL, New York, N.Y. Filed Jan. 22, 1902. Serial No. 91,000. (No model.)



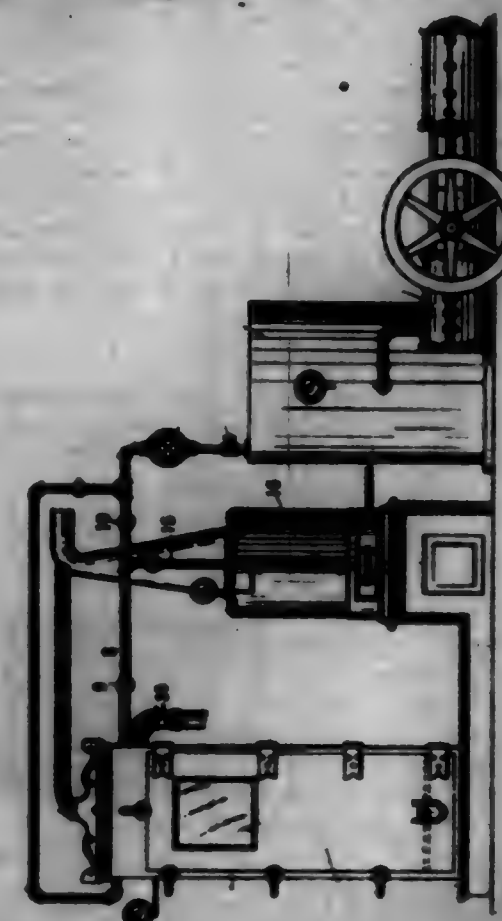
Claim.—1. In a device of the character described, the combination with end plates having a connecting-plate, of sections carrying means for limiting their movement in relation to each other, a top plate normally resting in the rear of said connecting-plate and adapted to engage the uppermost section, and means for movably mounting said sections within the end plates, substantially as described.

2. In a grate and fire-box, the combination of end plates and a connecting-plate, of an uppermost section carrying a flange and a lowermost section, and a second flange at its lower end, of a top plate movably secured at the upper end of the connecting-plate adapted for engagement with said uppermost section, said uppermost-section being movably mounted to the end plates, and means for adjusting the uppermost section, substantially as described.

3. The combination with the end plates having vertical slots therein and a connecting-plate having a horizontal slot therein, of a casing formed integral with said connecting-plate, a top plate carrying flanges secured in said casing, an uppermost section carrying T-heads engaging in said vertical slots, a flange formed integral with the lower end thereof, and a lowermost section carrying a flange for engagement with the flange of the uppermost section, and a flange on the lower end of said lowermost section, substantially as described.

4. The combination with a pair of end plates spaced apart and having vertical slots formed therein, and a horizontal plate having a horizontal slot therein secured to the said end plates at their upper portions, of a casing formed integral with the said horizontal plate upon its rear face, a top plate having depending flanges at its opposite sides seated within the said casing, sections formed with end flanges fitting in the said vertical slots, each of said sections carrying means for limiting their movement in relation to each other, and adapted to telescope one within the other when lowered, said top plate adapted to be drawn outwardly and fit over the upper edge of the upper section, substantially as described.

700,561. MEDICAL CABINET. WENDELL S. ROWLEY and LAWRENCE R. FERRIS, Indianapolis, Ind. Filed Aug. 6, 1901. Serial No. 78,851. (No model.)



Claim.—1. In a medical cabinet, the combination with the cabinet, of an air-compressor, a supply-pipe leading therefrom, an adjustable pressure-reducing valve mounted therein, a series of branch pipes leading from said supply-pipe, a valve arranged in each of said branch pipes, a reduction-pipe connected to each valve, and a series of medicine-receptacles arranged one between each reduction-pipe and adjacent discharge-nozzle.

2. In a medical cabinet, the combination with the cabinet, of an air-compressor, a supply-pipe leading therefrom, an adjustable pressure-reducing valve mounted therein, a series of branch pipes leading from said supply-pipe, a valve arranged in each of said branch pipes, a reduction-pipe connected to each valve, a series of discharge-nozzles discharging into the cabinet, and a series of medicine-receptacles removably mounted between each reduction-pipe and adjacent discharge-nozzle.

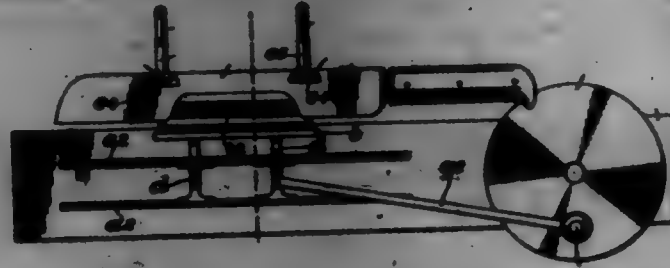
3. In a medical cabinet, the combination with a cabinet, of an air-compressor, a supply leading therefrom, a valve arranged in said supply-pipe, a reduction-pipe connected to said valve, a discharge-nozzle discharging into the cabinet, and a medicine-receptacle mounted between the reduction-pipe and discharge-nozzle.

4. In a medical cabinet, the combination with the cabinet, of an air-compressor, a supply-pipe leading therefrom, a series of branch pipes leading from said supply-pipe, a valve arranged in each of said branch pipes, a reduction-pipe connected to each valve, a series of discharge-nozzles discharging into the cabinet, and the series of medicine-receptacles removably mounted between each reduction-pipe and adjacent discharge-nozzle.

700,562. KNIFE-SHARPENING DEVICE. ARTHUR F. RELL, New York, N.Y. Filed Jan. 2, 1902. Serial No. 92,545. (No model.)

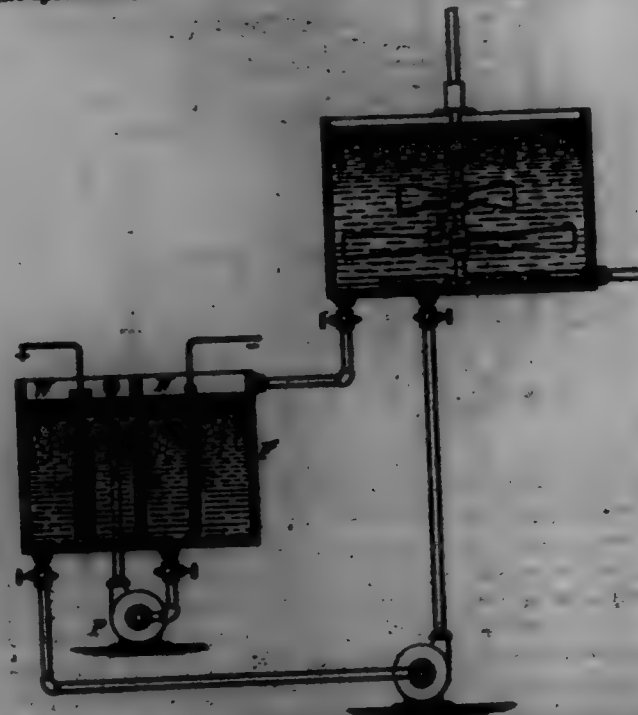
Claim.—1. A knife-sharpening device comprising a plate or support, parallel tracks or ways connected with one side of said support, a slide movable longitudinally of said tracks or ways and provided in the top thereof with a longitudinal opening which is V-shaped in cross-section, substantially as described.

tion, stones or disks placed in the opposite sides of said opening and at the opposite ends thereof, a crank-wheel connected with said plate or support and in operative connection with said disks, said plate or support being also provided with upwardly-directed members having downwardly-directed arms provided with vertically-adjustable jaws adapted to hold a knife-blade so that the edge thereof will pass between said stones or disks, substantially as shown and described.



2. A knife-sharpening device comprising a plate or support, parallel and longitudinal tracks or ways connected therewith, a slide movable longitudinally of said tracks or ways and provided at the top thereof with an opening, stones or disks placed in the opposite sides of said opening and at the opposite ends thereof and operated by an inclined screw, means for reciprocating said slide longitudinally of the plate or support and vertically-adjustable devices for mechanically holding a knife over said slide so that the blade will enter the space between the stones or disks, substantially as shown and described.

700,568. PROCESS OF EXTRACTING METALS FROM ORES AND SCRAP CONTAINING SAME. SAMUEL S. SARTER, Philadelphia, Pa. Filed July 10, 1902. Renewed Apr. 11, 1903. Serial No. 100,497. (No specimen.)



Claim.—1. The process of obtaining the metals, whose oxides form soluble compounds with the alkali-metal hydroxide, from any material in which these metals are present, said process consisting in treating said material with a solution formed by treating a caustic alkali with one of the halogens and decomposing the resulting solution in an electrolytic cell, the metal being deposited on a suitable cathode, substantially as described.

2. The process of obtaining from their solid ore metals whose oxides form soluble compounds with the alkali-metal hydroxide, said process consisting in dissolving the ore in a solution formed by treating a solution of a caustic alkali with any one of the halogens, and decomposing the resulting solution in an electrolytic cell, substantially as described.

3. The process of extracting from their solid ore metals whose oxides form soluble compounds with the alkali-metal hydroxide, said process consisting in dissolving said ore in a solution formed by treating a solution of a caustic alkali with a halogen and decomposing the resulting solution in the cathode-compartment of an electrolytic cell, the anode-compartment being separated therefrom, and containing a solution of caustic alkali, substantially as described.

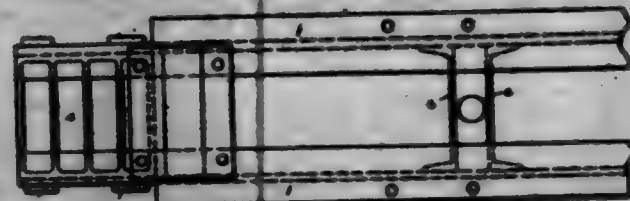
4. The process of extracting from their ore metals whose oxides are soluble in the alkali-metal hydroxide, said process consisting in dissolving said ore in a solution formed by treating a solution of caustic alkali with a halogen, decomposing the resulting solution in the cathode-compartment

ment of an electrolytic cell, and in the anode-compartment of said cell simultaneously regenerating a solution from which metal has previously been separated, said solution having been transferred from the cathode to the anode compartment before beginning the operation, substantially as described.

5. The herein-described process of extracting from their solid ore metals whose oxides form soluble compounds with the alkali-metal hydroxide, said process consisting in dissolving said ore in a solution of sodium hypochlorite and sodium hydroxide, separating the sulfur therein formed, and decomposing the remaining solution in the cathode-compartment of an electrolytic cell, substantially as described.

6. The process of extracting zinc from the solid ore of the same, said process consisting in dissolving said ore in a solution containing sodium hypochlorite and sodium hydroxide, separating the sulfur therein formed, decomposing the remaining solution in the cathode-compartment of an electrolytic cell, and simultaneously regenerating, in the anode-compartment of said cell, a solution of sodium hydroxide left in the cathode-compartment and transferred therefrom to the anode-compartment after a previous operation of the same cell, substantially as described.

700,564. TRUCK-MOUNTED. RALPH V. BARK, Johnstown, Pa. Filed Oct. 18, 1901. Serial No. 79,514. (No model.)



Claim.—An improved holder of the class described, comprising two I-beams parallel to each other, having their outside flanges at the ends cut away; plates secured on the outside of said ends to serve as guides for the truck-columns; adjustable couplings secured between the ends of the beams and adapted to receive the holder-springs; and a pair of channels secured between said beams intermediate the ends of said holder and adapted to receive the king-pins between them.

700,565. ADDITIVE AND PROCESS OF MAKING SAME. OTHMAR BURBAUGH and HANS F. BOESCHMANN, Ludwigshafen, Germany, assignors to the Badische Anilin & Soda-Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Jan. 15, 1901. Serial No. 48,771. (Specimen.)

Claim.—1. The process for the production of new azo coloring-matters by combining together 1,8-naphthalene-diamine-sulfate-acid, acetone and a dye body.

2. The process for the production of new azo coloring-matters by combining together 1,8,8'-naphthalene-diamine-sulfate-acid, acetone and a dye body.

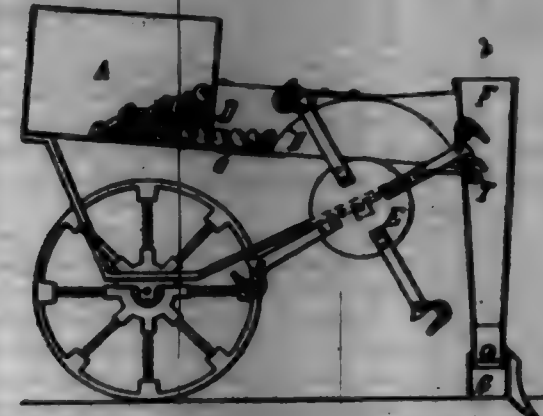
3. The new azo coloring-matter which can be derived from 1,8-naphthalene-diamine-sulfate-acid, acetone and a dye body, and which in the form of their sodium salts are soluble in water with a violet-red to blue color, and in concentrated sulfuric acid with a blue to green color; which dye wool violet-red to blue, and whose aqueous solution by the addition of hydrochloric acid produces a dark-violet to green precipitate, and which when boiled with dilute carbonate-of-soda solution, containing about one per cent. of Na_2CO_3 , or with dilute sulfuric acid, containing about five per cent. of H_2SO_4 , for ten minutes are not decomposed, substantially as hereinafter described.

4. The new azo coloring-matter which can be derived from 1,8,8'-naphthalene-diamine-sulfate-acid, acetone, and disodium-pyrazine-sulfate which in the form of its sodium salt is soluble in water with a blue color, and in concentrated sulfuric acid with a green color; which dye wool blue, and whose aqueous solution by the addition of hydrochloric acid produces a blue precipitate, and which when boiled with dilute carbonate-of-soda solution, containing about one per cent. of Na_2CO_3 , or with dilute sulfuric acid, containing about five per cent. of H_2SO_4 , for ten minutes is not decomposed, substantially as hereinafter described.

700,566. POTATO-PLANTER. FREDERICK SCHWAB, Leipzig, Klass-Schlesier, Germany, assignor to Max Steinberg, Leipzig, Germany. Filed July 9, 1901. Serial No. 67,578. (No model.)

Claim.—1. In a potato-planter a container provided with a partition dividing the same into a storage-compartment and a forward or spreading compartment in which the potatoes can spread into a thin layer of uniform thickness irrespective of the greater or less supply of potatoes in the storage-compartment, the lower edge of the partition being above the bottom of the container to thereby provide an opening, a curved portion

tion in said forward compartment, a wheel having arms provided with potato-carrying devices, and means adjacent to said curved portion for forcing superfluous potatoes from said potato-carrying devices and onto said curved portion.



2. In a potato-planter a container provided with a partition dividing the same into a storage-compartment and a forward or spreading compartment in which the potatoes can spread into a thin layer of uniform thickness irrespective of the greater or less supply of potatoes in the storage-compartment, the lower edge of the partition being above the bottom of the container to thereby provide an opening, a curved portion in said forward compartment, a wheel having arms provided with potato-carrying devices, means adjacent to said curved portion for forcing superfluous potatoes from said potato-carrying devices and onto said curved portion, a tube located to receive potatoes from said potato-carrying devices, and a valve made to swing or open and close in said tube in the direction transversely to the travel of the planter.

3. In a potato-planter, a container, a wheel having arms provided with potato-carrying devices, a tube having a valve, a lever disposed in the path of the arms and adapted to be operated thereby, and a connection between said lever and valve, said valve being made to open in the direction transversely to the travel of the planter so as to prevent the outgoing potato from rolling along the furrow.

4. In a potato-planter, a container, a wheel having arms provided with potato-carrying devices and a tube to receive the potatoes, a wall of the tube having a slot consisting of wide portions and an intermediate narrow portion one of said wide portions having fingers in the same.

5. In a potato-planter, a container having a plurality of communicating compartments, a potato-spreading space or portion in the forward compartment, a wheel having arms arranged to travel through the forward compartment, said arms having potato-carrying devices, a tube arranged to receive the potatoes from said potato-carrying devices and adapted for the passage of said arms, and means in the forward compartment to expel superfluous potatoes from said potato-carrying devices.

6. In a potato-planter, a container having a plurality of communicating compartments, a curved portion in the forward compartment, a wheel having arms arranged to travel through the forward compartment, said arms having potato-carrying devices, a tube arranged to receive the potatoes from said potato-carrying devices and adapted for the passage of said arms, means in the forward compartment to expel superfluous potatoes from said potato-carrying devices, and means for regulating the movement of the potatoes from the rear to the forward compartment.

7. In a potato-planter, a container for potatoes, provided with a partition for dividing the same into compartments the lower edge of the partition being above the bottom of the container to thereby provide an opening, a wheel located below the container and provided with arms, a tube at the forward end of the container and arranged transversely therein and the lower wall of the tube and the bottom of the container being adapted for the passage of said arms, potato-carrying devices on the arms, and means in said tube for positively discharging the potatoes from said potato-carrying devices as they enter the tube.

8. In a potato-planter, a container for potatoes, a tube, means for carrying the potatoes from the container to the tube, means in said tube for positively discharging the potatoes from the carrying means, a valve for said tube, formed of a wedge-shaped plate and made to open transversely of the direction of travel of the planter, a plowshare for the tube, and means for automatically opening said valve.

700,567. KIM. FRANK A. HERRICK, Buffalo, N. Y. Filed Feb. 24, 1902. Serial No. 82,100. (No model.)

Claim.—1. A bag having its staves provided with curved side edges and an integral tongue projecting from one of said side edges of each stave of equal size and thickness throughout which terminates near each end of the stave in abrupt shoulders, and a longitudinal groove in the other side edge of equal depth throughout corresponding in size and form to the

tongue and terminating in an abrupt shoulder at each end, substantially as set forth.



2. In a bag, head, a series of staves having transverse grooves in their inner faces forming chimneys for said heads and side tongue-and-groove connections which terminate at points beyond the transverse grooves and within the ends of the staves in abrupt opposed shoulders, substantially as described.

3. A bag having head, and a plurality of staves with chimneys in which the heads rest and interlocking tongues and grooves which extend beyond the chimneys and terminate within the ends of the staves.

700,568. CHIMNEY COWL OR VENTILATOR. HERMAN SURVANCE, New York, N. Y. Filed Dec. 13, 1901. Serial No. 64,061. (No model.)



Claim.—1. In a chimney-cowl, the combination, with a main trunk having openings in its side walls and side extension-wings, of a vertically-adjustable hood guided over said main trunk and side extension-wings, valves for closing said openings, and means for operating simultaneously said valves with the adjustment of said hood, substantially as set forth.

2. In a chimney-cowl, the combination, with a main trunk having openings in its side walls and side extension-wings, of a vertically-adjustable hood guided over said main trunk and side extension-wings, valves hinged at their bottom edges to the side walls of said main trunk, a spring-expanded means guided in said main trunk and supporting said hood, and means connected therewith for opening said valves simultaneously with the adjusting of said hood, substantially as set forth.

3. The combination, with a main trunk provided with openings in its side walls, of side extension-wings at the corners of the trunk, valves hinged to the side walls of said trunk and adapted to close the side openings in the trunk, a hood supported above the trunk, a spring-expanded guide-frame in said trunk connected with said hood, pivot-straps connecting the guide-frame with the valves, and a chain connected with the guide-frame for lowering the guide-frame and hood and closing the valves, substantially as set forth.

700,569. VALVE REVERSE FOR STEAM-HEATING SYSTEMS. JOHN A. BARNARD, Bayonne, N. J., assignor to WATSON WHEELER and Company, a Corporation of New Jersey. Filed Mar. 19, 1900. Serial No. 5,126. (No model.)



Claim.—In a valve device for a steam-heating system in which a cushion or lower pressure is produced in the return from the outlet of each valve device, the combination of a valve-body having an inlet and an outlet and a thoroughfare for the passage of water of condensation, an automatically-controlled valve-plate to control said thoroughfare, and an auxiliary check-valve also controlling said thoroughfare and arranged so as to be kept normally open by the cushion or lower pressure in the outlet of the valve-body.

700,570. INSULATOR-SUPPORTING ARM. JOHN R. SHARP, Ocala, N. Y., assignor of one-half to Norton D. Bartin, Ocala, N. Y. Filed Dec. 28, 1901. Serial No. 87,315. (No model.)



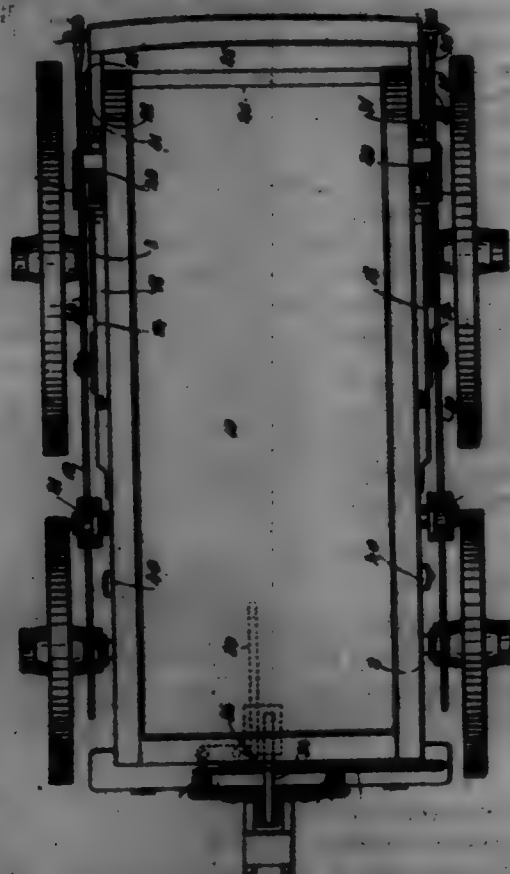
Claim.—1. An insulator-supporting arm consisting of a prolonged metallic plate formed transversely with a horizontal central portion and with stiffening-flanges depending from the edges of said central portion, in combination with an insulator mounted on the horizontal central portion of the arm, bars disposed across the bottom of the arm and bearing on the bottom edges of the flanges, and bolts tying the insulator to said bars.

2. An insulator-supporting arm consisting of a prolonged metallic plate formed transversely with a horizontal central portion and with longitudinal flanges depending from the edges of the central portion, bars disposed across the bottom of the flanges and provided with shoulders engaging the sides of the flanges, and bolts tying the insulator to said bars as set forth.

3. An insulator-supporting arm consisting of a prolonged metallic plate formed transversely with a rest in its center and with longitudinal flanges depending convergently from the edges of the rest, in combination with the insulator mounted on said rest, bars disposed across the bottom of the flanges, and bolts tying the insulator to said bars.

4. As an improved article of manufacture, an insulator-supporting arm formed of a prolonged metallic plate bent transversely into the shape of flanges depending from a straight central portion, the flanges of the attaching portion of the arm being parallel and the flanges of the free end portions being converging downward as set forth and shown.

700,571. DUMPING-VEHICLE. HENRY F. SHENK, Brooklyn, N. Y. Filed Feb. 12, 1902. Serial No. 93,002. (No model.)



Claim.—1. In a dumping-vehicle, a bed-frame, a body mounted to slide on the bed, a tail-board for the body, supporting-bars for the tail-board and carried by the body, and rollers on the bed with which the bars engage, substantially as specified.

2. In a dumping-vehicle, a rearwardly and downwardly inclined bed, a body, rollers carried by said body and engaging on said bed, supporting-bars attached to the bed and engaging over said rollers, a locking-latch mounted to swing on the forward end of the bed, a device carried by the body for engaging with said latch, and an opening-lever having connection with said latch, substantially as specified.

3. In a dumping-vehicle, a bed-frame comprising side rails inclined downward and rearward, a body, rollers carried by said body and engaging on said side rails, a tail-board, angular supporting-bars for said tail-board, the said bars being mounted to swing on the journals of the said rollers, and rollers mounted on said side rails and engaging with the forward portions of said bars, substantially as specified.

4. In a dumping-vehicle, a downwardly and rearwardly inclined bed, a body, rollers carried by said body and engaging on said bed, the said rollers having flanges on their outer sides to engage against the outer sides of the bed, a tail-board extending of two hinged sections, angular supporting-bars for said tail-board, the said bars being mounted on the journals of the rollers, rollers on the bed for engaging with the forward portions of said bars, and locking devices for the tail-board, substantially as specified.

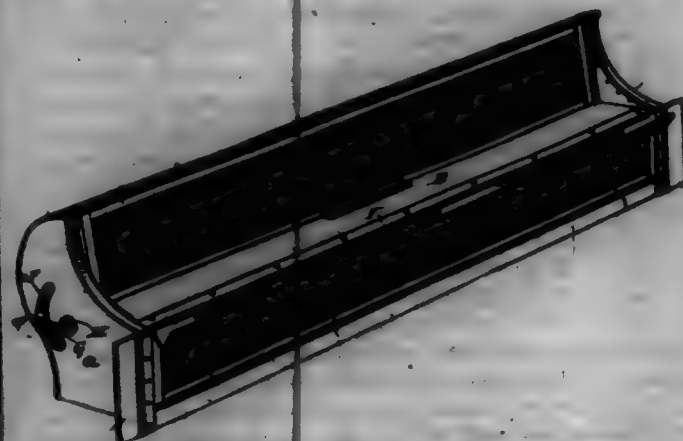
5. In a dumping-vehicle, a bed inclined downward and rearward, a body, rollers carried by said body and engaging on the bed, a tail-board, angular supporting-bars for said tail-board, the said bars being mounted on the journals of the rollers, rollers mounted on the bed for engaging the forward portions of the bars, plates on the ends of the tail-board, and weighted hooks mounted on the body for engaging with said plates, substantially as specified.

6. In a dumping-vehicle, a bed inclined downward and rearward, a body mounted to slide on said bed, a locking-latch at the forward end of the bed, a roller carried by the body for engaging with said locking-latch, and a rearward-bar attached to the front portion of the bed and engaging with the upper side of said roller, substantially as specified.

7. In a dumping-vehicle, a bed, a body mounted to slide on said bed and to tilt on the same, springs supporting the rear portion of the bed, the said springs being extended rearward to form buffers for the body when moved to its dumping position, and link connections between the rear ends of the springs and the bed, substantially as specified.

8. In a dumping-vehicle, a downward and rearwardly inclined bed-frame comprising side rails, a body, rollers carried by said body for engaging on the said side rails, the forward portions of the side rails being extended upward to a point substantially on a line with the tops of the rollers, a tail-board, means for locking the tail-board to the body, and means movable with the body for disengaging the tail-board from the locking means, substantially as specified.

700,572. VENTILATOR. HARRY M. SMITH, West River Fall, Wt. Filed Jan. 31, 1901. Serial No. 45,478. (No model.)



Claim.—1. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece, and extending from end to end of the casing, and having its inner edge terminating short of the back piece, and beneath the bent-over upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated.

2. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece and extending from end to end of the casing, and having its inner

edge terminating short of the back piece, and beneath the bent-over upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated, and a device carried at the outer edge of the horizontal partition, and adapted for supporting the lower edge of a window.

3. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece and extending from end to end of the casing, and having its inner edge terminating short of the back piece and beneath the bent-over upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated, a rock-shaft at the inner edge of the horizontal partition, said shaft having one end extended outwardly and provided with a hand-crank, a gate-valve within the casing and mounted on the rock-shaft, and means carried by the end of the casing for making the hand-crank rotate in adjusted position.

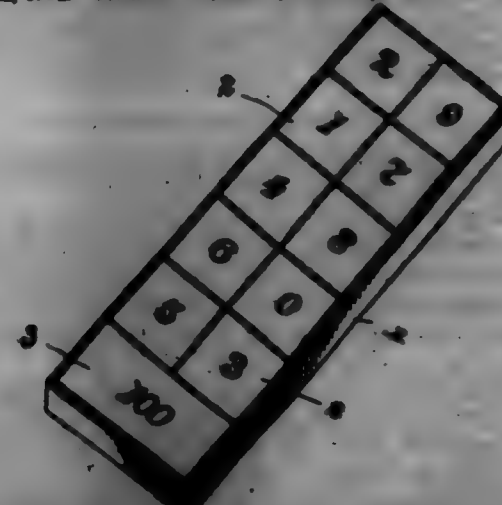
4. In a ventilator, a casing consisting of a bottom piece, end pieces, a back connected to the bottom piece and having its upper edge extending forward of the back of said bottom piece, and a partition extending longitudinally of said casing and from the front thereof toward the back; all arranged so that air may enter said casing between the bottom and the partition and leave between the partition and the upper edge of the back; and a gate within said casing whereby the passage of air through said casing may be wholly or partially checked as desired.

5. In a ventilator, a casing consisting of a bottom, ends and a back having its upper edge extending slightly toward the front of said casing, a partition arranged above the bottom and extending longitudinally thereof with its inner edge terminating short of the back and beneath the upper edge of the back; said parts arranged to form an opening for air admission between the partition and the bottom and an opening for air escape between the partition and the upper edge of the back; movable means in said casing for wholly or partially checking the passage of air through the ventilator, and mechanism for holding said means in different positions.

6. In a ventilator, a casing consisting of a bottom, ends and a back having its upper edge extending slightly toward the front of said casing, a partition arranged above the bottom and extending longitudinally thereof with its inner edge terminating short of the back and beneath the upper edge of the back; said parts arranged to form an opening for air admission between the partition and the bottom and an opening for air escape between the partition and the upper edge of the back; movable means in said casing for wholly or partially checking the passage of air through the ventilator, and mechanism for holding said means in different positions.

7. In a ventilator, a casing consisting of a bottom, ends and a back having its upper edge extending slightly toward the front of said casing, a partition arranged above the bottom and extending longitudinally thereof with its inner edge terminating short of the back and beneath the upper edge of the back; said parts arranged to form an opening for air admission between the partition and the bottom and an opening for air escape between the partition and the upper edge of the back; and movable means in said casing for wholly or partially checking the passage of air through the ventilator.

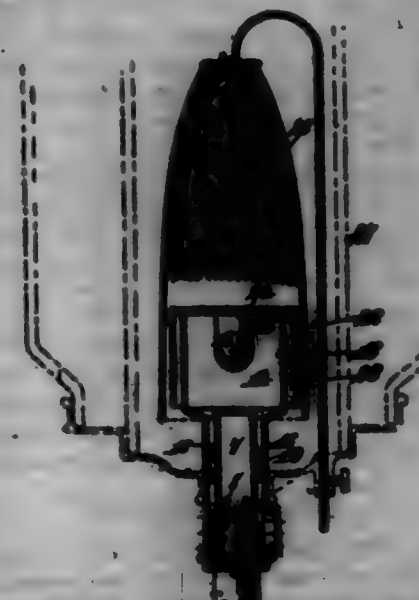
700,573. FUELER. WARREN R. SMITH, Marlboro, Mass. Filed Aug. 28, 1901. Serial No. 72,064. (No model.)



Claim.—In a fueler, a box containing two blocks, one for each burner, adapted to coast one hundred in to a addition; blocks 1, 2, 3, 4, 5,

6, 7 being so disposed in two columns that when added their total will be equal to the blocks 8, 9, 10 in the order stated, and the blocks 9, 10 in the order stated, disposed beneath the blocks 8, 9, whereby the sum total of 190 is obtained.

700,574. INCANDESCENT GAS-BURNER. CLARENCE W. TAYLOR, West City, Iowa. Filed Mar. 18, 1902. Serial No. 93,002. (No model.)



Claim.—1. In an incandescent gas-burner, the combination with a mantle and a burner-tube provided with air-inlets, of a mixing-tube having a portion thereof surrounding said burner-tube and provided with an enlarged portion arranged above the burner-tube forming a gas and air mixing chamber, said lower portion of the mixing-tube forming air-passages between the same and the burner-tube and further provided with air-inlets, and a cap mounted upon the enlarged portion of the mixing-tube and adapted to form independent air-passages between the said enlarged portion and the inner face of the side walls of the cap.

2. In an incandescent gas-burner, the combination with a mantle and a burner-tube provided with air-inlets, of a mixing-tube having a portion thereof surrounding said burner-tube and provided with an enlarged portion arranged above the burner-tube forming a gas and air mixing chamber, said lower portion of the mixing-tube forming air-passages between the same and the burner-tube and further provided with air-inlets, a cap mounted upon the enlarged portion of the mixing-tube and adapted to form independent air-passages between the said enlarged portion and the inner face of the side walls of the cap, and means arranged in the burner-tube and operated by the mixing-tube for regulating the supply of gas.

3. In an incandescent gas-burner, a mixing-tube constructed of an upper and lower portion of different diameters, the smaller of which is provided with a vertical groove at the bottom and the larger of which forms a gas and air mixing chamber, and a cap mounted upon the said larger portion of said mixing-tube and adapted to form an air-passages between the same and said larger portion.

4. In an incandescent gas-burner, the combination with a burner-tube connected to a gas-supply and provided with air-inlets, of a mantle arranged in the said tube for regulating the supply of gas through a mixing-tube surrounding the said burner-tube and having its upper portion forming a mixing-chamber and its lower portion adapted to engage said regulating means for operating it, and a cap mounted upon the upper portion of the mixing-tube and adapted to form an air-passages between the mixing-tube and the wall thereof.

5. In an incandescent gas-burner, the combination of a nipple connected to a gas-supply and provided with a peripheral flange and a shoulder, a burner-tube mounted upon said shoulder and provided with air-inlets, a rotatable mixing-tube mounted upon said flange, surrounding said burner, provided with air-inlets and forming air-passages between the burner and inner face of said mixing-tube, said mixing-tube forming in its upper portion the gas and air mixing chamber, a cap mounted upon the upper portion of the mixing-tube to form an air-passages, and means arranged in the burner-tube and operated by the mixing-tube for regulating the supply of gas to the burner.

6. In an incandescent gas-burner, a burner-tube, a rotatable mixing-tube surrounding said burner-tube and forming air-passages between the same and the inner face of said mixing-tube, and a plate arranged in the burner-tube and operated by the mixing-tube for regulating the supply of gas.

7. In an incandescent gas-burner, the combination with a burner-

tube connected to a gas-supply, of a rotatable mixing-tube surrounding the same and having its upper portion terminating in a gas and air mixing chamber and its lower portion formed with an offset, a plate arranged in the burner-tube and adapted to regulate the supply of gas and a stud integral with the plate and engaging in the offset of the mixing-tube so as to cause the operation of the plate when the said mixing-tube is rotated.

8. In an incandescent gas-burner, the combination with a burner-tube provided with beads, of a rotatable mixing-tube surrounding the burner-tube and engaging the beads for retaining it in a uniform position, air-passages formed between the burner-tube and the mixing-tube, air-inlets provided in the mixing-tube, a plate arranged in the burner-tube for regulating the supply of gas, and means carried by the plate and engaged by the mixing-tube for causing the operation of the plate when the mixing-tube is rotated.

9. In an incandescent gas-burner, a nipple connected to a gas-supply and provided with an annular shoulder and a peripheral flange, a perforated diaphragm connected to the top of the nipple, a burner-tube connected to the nipple and engaging the shoulder thereof, said burner-tube provided with a slot, air-inlets above the said slot and a plurality of beads, a rotatable mixing-tube surrounding the burner-tube and mounted upon the flange of the nipple, said mixing-tube provided with air-inlets and an offset, a plate mounted upon the diaphragm and adapted to regulate the supply of gas therethrough, and a stud integral with the plate extending through the slot of the burner-tube into the offset of the mixing-tube and adapted to cause the operation of said plate when the mixing-tube is rotated.

700,575. SOLDERLESS SIDE SEAM FOR THE CASE. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pathefr's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Feb. 2, 1902. Serial No. 92,302. (No model.)

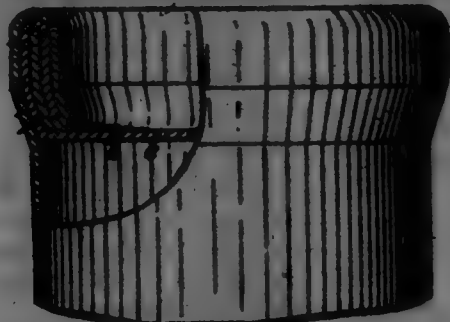


Claim.—1. A solderless side seam formed with a series of transversely-extending depressions extending substantially from end to end of the seam, and also formed with a longitudinal portion thereof extending also substantially from end to end of the seam depressed out of the plane of the parallel immediately-contiguous portion of said seam, substantially as described.

2. A solderless side seam having a longitudinal depression extending substantially from end to end thereof, the bottom of said depression being transversely indented, substantially as described.

3. A solderless side seam having a longitudinal depression extending substantially from end to end of said seam and also having a series of transverse depressions crossing said longitudinal depression, substantially as described.

700,576. SOLDERLESS END SEAM FOR THE CASE. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pathefr's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Feb. 2, 1902. Serial No. 92,303. (No model.)



Claim.—1. A sheet-metal vessel having a head inclosed within the vessel-body and provided with a flange snugly fitting the same, the edge portions of said body and flange being bent back so as to form themselves and a portion of said vessel below the head and comprising coincident portions of the head and body having the form of a hand-like conical frustum, substantially as described.

2. The combination of a body member and a head member inclosed within said body member and having a flange snugly fitting within the same, coincident portions of the body and the flange of said head being

formed as a hand-like conical frustum, and means for maintaining pressure on the head-member in the direction of that portion of the body member which has the conical frustum form, substantially as described.

3. The combination of a body member and a head member inclosed within said body member and having a flange snugly fitting within the same, one of said members having its edge portion bent around the edge portion of the other and tending to force the head member longitudinally of the vessel, a part of the vessel which comprises coincident portions of the body and head being formed as a hand-like conical frustum so disposed that the body portion offers resistance against movement of the head portion, substantially as described.

700,577. SOLDERLESS SIDE SEAM FOR THE CASE. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pathefr's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Feb. 2, 1902. Serial No. 92,302. (No model.)



Claim.—1. A sheet-metal vessel provided with a side seam and having contiguous and parallel longitudinal beads formed the one in one longitudinal edge portion of the seam of said vessel and the other in the adjacent portion of the body of the vessel, substantially as described.

2. A sheet-metal vessel provided with a side seam and having the longitudinal edge portion of said side seam and the portion of the metal of the body of the vessel immediately adjacent to and parallel with said edge portion bent inwardly to form a longitudinal depression in said vessel, substantially as described.

3. A sheet-metal vessel provided with a side seam and having the edge portions of said side seam depressed out of the plane of the adjacent portion of the material forming the body of the vessel, substantially as described.

4. A sheet-metal vessel provided with a side seam and having the portion of the metal thereof which comprises the contiguous portions of the seam and body of the vessel pressed inwardly from end to end of said vessel, substantially as described.

700,578. END SEAM FOR THE CASE. WALTER THOMPSON, Toronto, Canada, assignor, by mesne assignments, to the Pathefr's Sanitary Can Company, Paterson, N. J., a Corporation of New Jersey. Filed Mar. 18, 1902. Serial No. 97,472. (No model.)



Claim.—1. A sheet-metal vessel having the edge portions of its head and body bent back upon themselves to produce an annular roll-like flange, said flange being provided with substantially transverse spaced indentations, substantially as described.

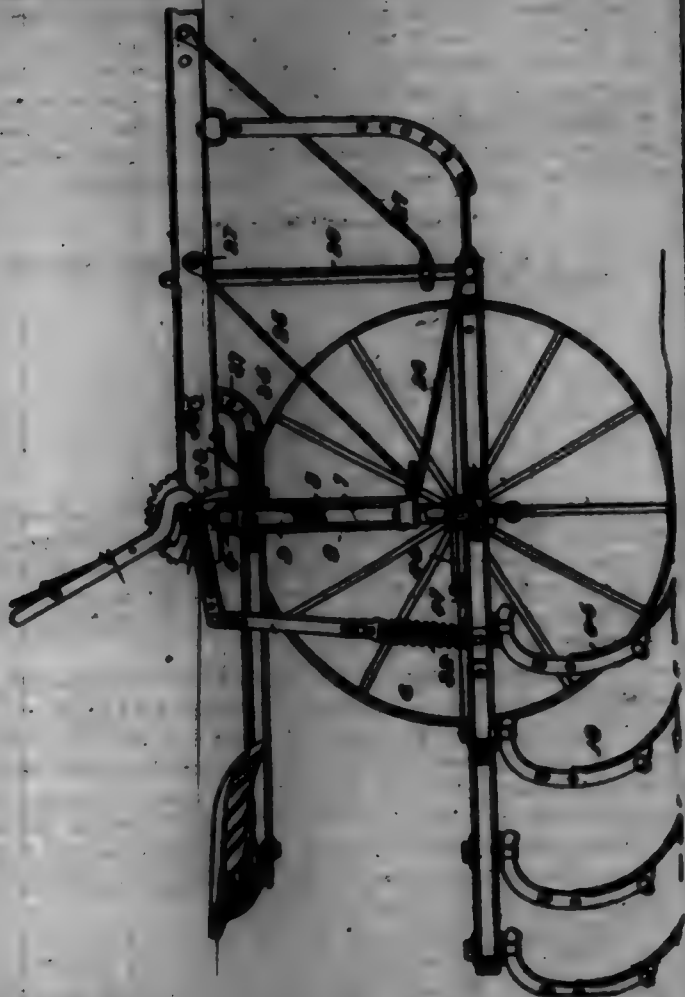
2. A sheet-metal vessel having an annular flange and head forming the end portion thereof, said flange and head being provided with substantially transverse indentations, substantially as described.

700,579. CULTIVATOR. MARCUS J. YOUNG, Buffalo, N. Y. Filed Nov. 11, 1901. Serial No. 31,912. (No model.)

Claim.—1. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being capable of being shifted laterally, means connected to each inner shovel for normally holding them in working line relative to the other shovels of their respective gangs, and means for acting on each former means for shifting laterally the inner shovels, as set forth.

2. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being capable of being shifted laterally, means connected to each inner shovel for normally holding them in working line relative to the other shovels of their respective gangs, means for acting on each former means for shifting laterally the inner shovels, and means connecting each inner shovel to their respective gangs whereby all of the shovels of a gang may move vertically in unison, as set forth.

3. In a straddle-row cultivator, in combination, two gangs, the inner shovels of each gang being shiftable laterally independently of the other shovels thereof, mechanism connected to each inner shovel for shifting the same laterally, means for causing the shifting mechanisms to move in unison, the shifting mechanisms of the two gangs being so arranged relatively that when the inner shovel of either gang is moved laterally the position of the inner shovel of the other gang remains practically unchanged, as set forth.



4. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being shiftable laterally independently of the other shovels thereof, mechanism carried by each gang connected to the inner shovel thereof for shifting the same laterally, a connection between each mechanism of the two inner shovels, and actuating means, each shifting mechanism of the two gangs being so arranged relatively that when the inner shovel of either gang is moved laterally the position of the inner shovel of the other gang remains practically unchanged, as set forth.

5. The combination with the gangs, the inner shovel of each gang being shiftable laterally independently of the other shovels thereof, of shifting devices connected to each of the inner shovels, foot-levers connected to each device, and a connection between the two devices, each device of the two gangs being so arranged relatively that in the movements thereof but one shovel at a time will be shifted laterally, substantially as set forth.

6. The combination with the gangs, the inner shovel of each gang having a separate drag-bar capable of moving laterally, of shifting devices pivoted to each drag-bar and carried by the gangs, levers connected to each device, and a connection between the two levers, substantially as set forth.

7. The combination with the gangs, the inner shovel of each gang having a separate drag-bar capable of moving laterally, of shifting devices pivoted to each drag-bar, a guide for each device on each gang, two foot-levers connected each to one of the shifting devices, and a connection between the two foot-levers, substantially as set forth.

8. The combination with the gangs, the inner shovel of each gang having a separate drag-bar capable of moving laterally, of shifting devices for the inner shovel of each gang, each device being pivotally connected to each shovel, guides on the gangs for each device, the latter when moving in each guide effecting the shifting of their respective shovels only throughout a portion of each movement, a connection between the two shifting devices, and means for actuating the latter, said shifting devices being so arranged relatively that as the inner shovel of one gang is shifted laterally to narrow the cut of each gang the inner shovel of the other gang remains practically unmoved, as set forth.

9. In a straddle-row cultivator, in combination, two gangs, the in-

ner shovel of each gang being shiftable laterally independently of the other shovels thereof, carrying-wheel, axle therefor having pivot-spindles, and means for shifting the wheel and the inner shovel simultaneously, as set forth.

10. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being shiftable laterally independently of the other shovels thereof, carrying-wheel, axle therefor having pivot-spindles, means connecting the inner shovel of each gang to one of the axles, and means for shifting the wheel and the inner shovels simultaneously, as set forth.

11. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being shiftable laterally independently of the other shovels thereof, carrying-wheel, axle therefor having pivot-spindles, means connected to each inner shovel for shifting the same laterally, connections between each means and the axle, said shifting means being so arranged relatively that as the inner shovel of one gang is shifted laterally to narrow the cut of each gang the inner shovel of the other gang remains practically unmoved, and means for simultaneously shifting the wheel and the shifting means of the two inner shovels, substantially as set forth.

12. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being so mounted that it may be shifted laterally independently of the other shovels thereof, carrying-wheel, pivoted axle therefor, and means for simultaneously shifting laterally the carrying-wheel and the inner shovels, as set forth.

13. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being so mounted that it may be shifted laterally independently of the other shovels thereof, carrying-wheel, pivoted axle therefor, means for shifting laterally the inner shovels, and means connected to the last-mentioned means and to the axle for shifting the wheel and the shifting means of the inner shovels simultaneously, as set forth.

14. In a straddle-row cultivator, in combination, two gangs, the inner shovel of each gang being capable of being shifted laterally independently of the other shovels, means connecting each inner shovel to their respective gangs whereby all the shovels of a gang may move vertically in unison, carrying-wheel, axle therefor having pivot-spindles, means for shifting laterally the inner shovels, and means connected to the last-mentioned means and to the axle for shifting the wheel and the shifting means of the inner shovels simultaneously.

15. The combination with the gangs, the inner shovels of which are independently shiftable, of means movable on each gang for so shifting the inner shovels, foot-levers connected to each means, carrying-wheel, axle having pivot-spindles to which each foot-lever is connected, and a connection between each foot-lever, substantially as set forth.

16. The combination with the gangs, of levers for raising and lowering the same, a seat for the operator, and a support therefor itself supported by said levers and so connected thereto as to equalize the weight of and aid in lifting the gangs, as set forth.

17. The combination with the gangs, of levers for raising and lowering the same, a seat for the operator, a support for each seat, and means interconnecting the seat-support and the levers whereby each support is itself supported by the levers so that the weight of the operator is utilized to offset the weight of and aid in lifting the gangs, as set forth.

18. The combination with the gangs, of levers for raising and lowering the same, a seat for the operator, a lever on which each seat is mounted, and a support for each seat-lever connected to and supported by said levers at points adjacent the fulcrum thereof as to utilize the weight of the operator to offset that of the gangs and aid in lifting the latter, as set forth.

19. The combination with the gangs, of the levers for raising and lowering the same, a seat for the operator, a lever on which each seat is mounted, a cross-rod forming a support for each lever, links supporting said cross-rod at its ends, said links being pivoted each to one arm of the lever adjacent thereto, the other arm of each lever being connected to its respective gang, substantially as set forth.

20. The combination with the cultivator-frame, and the gangs, of the levers, connections between each lever and the gangs, of a seat-lever fulcrumed on said frame, a cross-rod supported by said levers and in turn supporting said seat-lever, the connections of the cross-rod to said levers being adjacent to the fulcrum thereof, whereby the weight of the operator is communicated to the levers for equalizing the weight of the gangs, as set forth.

21. In a straddle-row cultivator, the combination with the frame having spaced-apart tongue-bars, of a yoke secured to, and depending from, said tongue-bars and capable of being vertically adjusted, means for binding and holding each yoke to each bar, and the gangs loosely secured at their forward ends to each yoke, as set forth.

22. In a straddle-row cultivator, the combination with the frame, of the yoke, means for adjustably securing the yoke to the frame, drag-gangs having drag-bars loosely hinged on lower portions of said yoke, and the

controlling-levers on the frame connected to the gangs, substantially as set forth.

23. The combination with the tongue having spaced-apart bars, of the yoke mounted between and adjustably secured to said bars, said yoke having lower outwardly-extended portions, the gangs loosely secured to said outwardly-extended portions, the controlling-levers, and connections between said levers and the gangs, substantially as set forth.

24. The combination with the spaced-apart bars, of the yoke between said bars having notches in its vertical portions, said bars having hooked ends provided with teeth for engaging such notches, said yokes having lower outwardly-extended portions, the gangs loosely secured to said outwardly-extended portions, the hand-levers, and connections between the latter and the gangs, substantially as set forth.

25. In a straddle-row cultivator, the combination with the frame, of the gangs pivoted at their forward ends, and means connecting the gangs to the frame at points intermediate the length of the gangs, such means being constructed to prevent lateral movement of the gangs, as set forth.

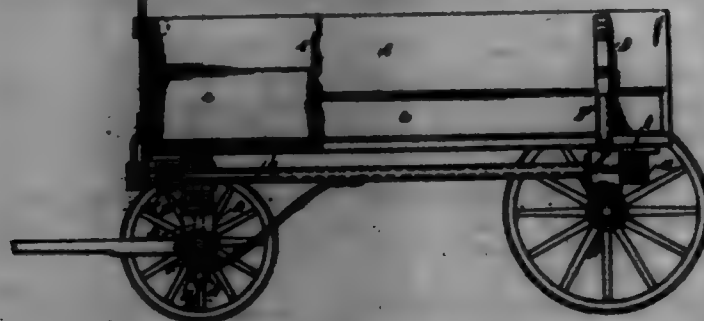
26. In a straddle-row cultivator, the combination with the yoke having outwardly-extended portions, of the gangs loosely secured to such portions, and means connecting the gangs to the frame at points intermediate the length of the gangs, such means being constructed to prevent lateral movement of the gangs, as set forth.

27. In a straddle-row cultivator, the combination with the frame, the wheels and the pivot-axles, of the gangs pivoted at their forward ends, and a non-flexible link secured to each gang at a point intermediate its length and also secured to the frame, the connection between the links and the gangs permitting the latter to move vertically, but not laterally substantially as set forth.

28. In a straddle-row cultivator, the combination with the frame having depending slotted portions, the wheels and the axles, of the gangs pivoted at their forward ends, and non-flexible links connecting each slotted portion with the gangs at points intermediate the lengths of the latter for preventing lateral movement thereof and allow them to move vertically, as set forth.

29. In a straddle-row cultivator, the combination with the frame and the yokes, of the gangs secured at their forward ends to the yokes, the carrying-wheels, axles therefor having pivot-spindles, hangers for such spindles adjustably mounted on the frame, dotted plates carried by the frame in line with the axles, links connecting the gangs to such dotted plates, the lower ends of each gang being shiftable laterally independently of the other shafts thereof, and means for shifting each inner shaft, substantially as set forth.

700,580. VEHICLE. JOHN TOWNSEND, Hastings, N.H. Filed Feb. 27, 1903. Serial No. 85,988. (No model.)



Claim.—1. In a dumping-wagon, the combination of a transversely-movable bottom adapted to open or close the bottom of the box as it is operated, two bolsters upon which said bottom is supported, means located at each bolster and connected with the bottom whereby it may be moved transversely to open and close the same, and reaches connecting the bolsters, said reaches being separated, substantially as described.

2. In a dumping-wagon, the combination of a transversely-movable bottom adapted to open or close the bottom of the box as it is operated, means connected with the bottom whereby it may be moved transversely and returned to its original position, and bolsters upon which the bottom is supported, reaches connecting the bolsters, said reaches being separated so that the space between them shall be as wide as the opening in the box, substantially as described.

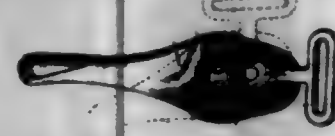
3. In a dumping-wagon, the combination of a transversely-movable bottom adapted to open or close the bottom of a box, bolsters upon which the bottom is supported, reaches connecting the bolsters consisting of tubes; shafts traversing the tube reaches and journaled in the bolsters, spur-gearing upon the shafts, and racks upon the movable bottom, and means for actuating the shafts to rotate them in either direction, substantially as described.

4. The combination of a wagon, gearing consisting of two axles and wheels and fixed bolsters mounted upon the rear axle, a rocking, swiveling

bolster mounted upon the front axle, reaches connecting the front and rear bolsters, said reaches being separated a distance equal to, or more than one-third of the width of the wagon, a king-bolt connecting the front bolster and front axle and diverging braces ending below the front axle and passing upwardly and rearwardly and fixedly connected to the reaches, substantially as described.

5. The combination of a wagon, gearing consisting of two axles and wheels, and fixed bolsters mounted upon the rear axle, a rocking swiveling bolster mounted upon the front axle, reaches connecting the front and rear bolsters, said reaches being separated a distance equal to or more than one-third of the width of the wagon, a king-bolt connecting the front bolster and front axle, and diverging braces ending below the front axle and passing upwardly and rearwardly and fixedly connected to the reaches, and a hemispherical bearing between the bolster and the front axle, and centrally traversed by the king-bolt, substantially as described.

700,581. SNAP-HOOK. ALBERT J. TOWNE, Santa Ana, Cal. Filed Mar. 7, 1903. Serial No. 87,554. (No model.)



Claim.—1. An improved snap-hook of the class described, comprising two hooks or jaws having flat cheeks which are placed in contact, an eccentric arranged in a corresponding opening in one of the cheeks and having transverse as specified, and a strap-loop which is rotatably connected with one of said transverse and rigidly connected with the other, substantially as shown and described.

2. The improved snap-hook of the class described, composed of two hooks having flat cheeks, one of which is provided with a lengthwise slot and a circular opening, a pivot passing through said slot and the opposite hook, and an eccentric disk arranged in the said circular opening and having transverse one of which extends through and is rotatable in the opposite cheek, and a strap-loop which is rotatably connected with one of said transverse and rigidly connected with the other, whereby, when said loop is thrown upward from the normal position, the said hooks are separated in the manner shown and described.

3. An improved snap-hook of the class described, composed of two jaws or hooks proper, which are pivotally connected, and an eccentric which is applied to the cheeks below the said pivot, and a strap-loop rigidly connected with one of the transverse of said eccentric, substantially as shown and described.

4. The eccentric attachment for a twin snap-hook consisting of a disk having transverse arranged eccentrically, and aligned as shown and described, whereby the device is adapted for operation in connection with hooks and a strap-loop in the manner specified.

700,582. TRIP-SUPPORT FOR HORNS OF TALKING-MACHINE. LOUIS F. VALLENTINE, New York, N. Y., assignor to Universal Talking Machine Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 13, 1903. Serial No. 88,584. (No model.)

Claim.—1. In a horn-supporting apparatus for talking-machines, the combination of the vertically-extending standard or support and base therefor, the horn-supporting fork, the swinging arm pivoted on said support and adapted to carry the sound-box and small end of the horn on the inner end, the right arm extending from the upper portion of the support and means for attaching the other end of said right arm to a talking-machine case.

2. In a horn-supporting apparatus for talking-machines, the combination of the vertically-extending standard or support and base therefor, the horn-supporting fork, the swinging arm pivoted on said support and adapted to carry the sound-box and small end of the horn on the inner end, the right arm extending from the upper portion of the support and means for attaching the other end of said right arm to a talking-machine, said standard being vertically extensible.

3. In a horn-supporting apparatus for talking-machines, the combination of the vertically-extending standard or support and base therefor, the horn-supporting fork, the swinging arm pivoted on said support and adapted to carry the sound-box and small end of the horn on the inner end, the right arm extending from the upper portion of the support and means for attaching the other end of said right arm to a talking-machine case, said standard, swinging arm and right arm being all adjustable lengthwise.

4. In a horn-supporting apparatus for talking-machines, the combination of the vertically-extending standard or support and base therefor,

the horn-supporting fork, the swinging arm pivoted on said support and adapted to carry the sound-box and small end of the horn on the inner end, the right arm extending from the upper portion of the support and means for attaching the other end of said right arm to a talking-machine case, said right arm having a hinged connection to the vertical standard, whereby the same may be folded together when the arm is detached from the talking-machine case.



5. In a horn-supporting apparatus for talking-machines, the combination of the vertically-extending standard or support and base therefor, the horn-supporting fork, the swinging arm pivoted on said support and adapted to carry the sound-box and small end of the horn on the inner end, the right arm extending from the upper portion of the support and means for attaching the other end of said right arm to a talking-machine case, said standard, swinging arm and right arm being all adjustable lengthwise and detachably connected together.

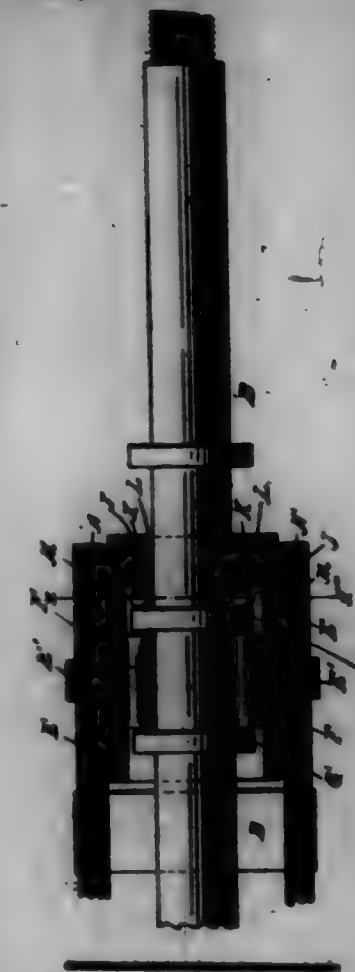
700,583. AXLE-BEARING. THOMAS F. VAN LUYK, Oshkosh, Wis., assignor of one-half to Thomas George Hurley, Oshkosh, Wis. Filed Aug. 21, 1902. Serial No. 73,708. (No model.)

Claim.—1. The combination of a rotary axle having two collars G, G' thereon, an axle-box H having transverse F at right angles to said axle, a series of rollers F surrounding said axle between the collars thereof and rolling upon the interior surface of said axle-box, a series of balls M surrounding the axle exterior to one of said collars, a metallic washer J on the other side of the balls closing the recessway thereof and forming a thrust-bearing for said shaft, a thick resilient washer K surrounding the axle outside of the washer J and forming both a dust-excluding means and a resilient support for said washer J, an annular disk L curved into the outer end of said axle-box to clamp said washers in place, and a pedestal having a pair of sheet-plates A, A' in which said transverse are mounted.

2. An axle-bearing comprising a rotary axle having a journal, a pair of collars spaced apart upon and carried by said journal, an axle-box having a cylindrical inner flange surrounding said journal, a series of cylindrical rollers forming bearings between said journal and said axle-box and confined by said collars, a series of balls surrounding said journal exterior to one of said collars, a metallic annular disk on the opposite side of said balls closing the recessway thereof, a resilient packing outside of said disk, and means for confining said resilient packing in said axle-box, whereby said packing forms substantially a dust-excluding means around said journal and a springing support for said bearing-disk.

3. An axle-bearing comprising a rotary axle having a journal, a pair of collars spaced apart upon and carried by said journal, an axle-box having a cylindrical inner flange surrounding said journal, a series of cylindrical rollers forming bearings between said journal and said axle-box and confined by said collars, a series of balls surrounding said journal exterior to one of said collars, a metallic annular disk on the opposite side of said balls closing the recessway thereof, a resilient packing outside of

said disk, and an annular disk screw-threaded into the outer open end of said bearing-box, whereby to retain said bearing-disk and resilient packing in place, substantially as described.



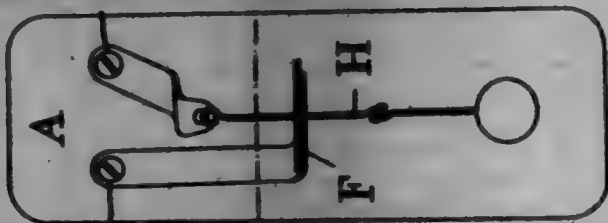
700,584. BAKING-CUP CLEANER. MARCEL VAUTOUR and HERMAN FRIEDSTADT, Fishersville, Mass. Filed Apr. 30, 1901. Serial No. 87,957. (No model.)



Claim.—1. In a device for cleaning baking-cups, the combination of a vertical spindle, a cleaning-head comprising a support on the upper end of said spindle, with scraping blades or knives pivotally connected at their upper ends thereto, a wire extending from each scraping blade or knife through the spindle, a spring tending to throw each blade or knife outwardly, a stop on each of said wires for limiting the outward motion of its knife, and means for rotating the spindle.

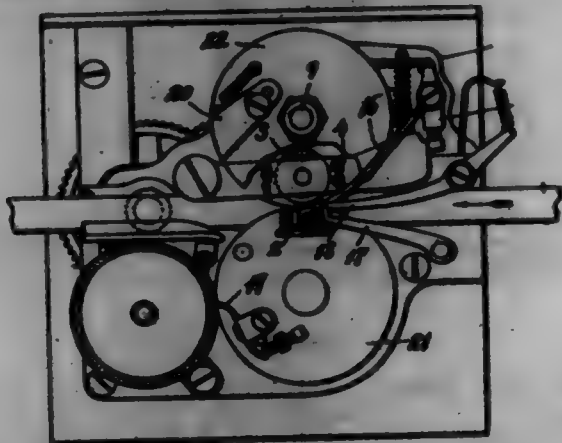
2. In a device for cleaning baking-cups, the combination of a socket a spring-supported spindle having a spiral groove, a pin or screw engaging the groove, and a cleaning-head mounted on the end of said spindle, and comprising a support, cleaning blades or knives pivoted at their upper ends thereto, a guide-wire extending from each cleaning blade or knife through the spindle, a spring mounted on each of said guide-wires tending to swing its blade or knife outwardly, and a stop on each of the guide-wires for limiting the outward motion of its cleaning blade or knife.

700,585. ELECTRIC ALARM. BERN VIAL, Fils, Lyons, France.
Filed July 31, 1901. Serial No. 70,331. (No model.)



Claim.—A circuit-closing device, consisting of two contact-pieces, one above the other, a washer of conducting material supported on the lower contact-piece, and a compound pendulum suspended from the upper contact-piece, the upper member of said pendulum being made of conducting material and passing through said washer and the lower member being connected thereto below the washer, substantially as set forth.

700,586. MAIL-MARKING MACHINE. HENRY E. WATTS, Boston, Mass. Filed Jan. 12, 1902. Serial No. 80,414. (No model.)



Claim.—In a mail-marking machine, a member of a printing-couple yieldingly held out of printing position, means for intermittently and positively moving said member into printing position when no letter is passing, and letter-controlled means to lock said member in printing position.

700,587. COMBINED CAP-VEIL AND EYE-CHIELD. HARRY L. WALKER, Providence, R. I., assignor of one-half to Walter H. Brown, Inghild and Charles H. Lawton, Freetown, R. I. Filed Feb. 21, 1902. Serial No. 80,008. (No model.)



Claim.—1. The combination with a cap, of a visor, an eye-chield consisting of lenses and a frame with horns or projections from its two upper corners, and a metallic lining-plate attached to said visor and provided with bent slotted ears with which said horns or projections of the eye-chield are engageable, substantially as shown.

2. The combination with a cap, of a visor, an eye-chield consisting of lenses and a frame with horns or projections, and a metallic lining-plate attached to said visor and having integral bent slotted ears with which said horns or projections of the eye-chield are engageable, substantially as described.

3. The combination with a cap, of a visor, an eye-chield consisting of lenses and a frame with horns or projections, and a metallic lining-plate attached to said visor and provided with a hook on its inner edge and

with two bent slotted ears on its opposite ends with which ears, respectively, said horns or projections are engageable, substantially as specified.

4. The combination with a cap, of a visor, an eye-chield consisting of lenses and a frame with horns or projections and a metallic lining-plate attached to said visor and provided with an integral hook on its inner edge and with two integral bent slotted ears on its opposite ends with which ears, respectively, said horns or projections are engageable, substantially as set forth.

5. In combination with a cap, a visor, an eye-chield consisting of lenses and a frame having two horns or projections which are rectangular in cross-section, and a metallic lining-plate attached to said visor and provided with two bent earpieces at its opposite sides, each of which earpieces has a slot which in its inner part is straight and of a width slightly in excess of the thickness of said horns or projections and in its outer part is adapted to allow said horns or projections to turn therein ninety degrees, substantially as shown.

6. In combination with a cap, a visor, an eye-chield consisting of lenses and a frame with horns or projections, said two guides adapted to allow said horns or projections first to slide and then to partially turn therein, and provided with locking means adapted to prevent the swinging of said eye-chield when in its wearing position, substantially as described.

700,588. TRUNK. BRAINE WALSH, Lonsington, N. Y. Filed Feb. 2, 1902. Serial No. 80,308. (No model.)

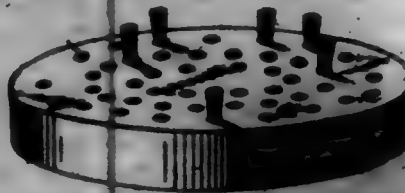


Claim.—1. A trunk provided with a body, a slidable drawer arranged to be drawn through the front of the body, and cushion-blocks of resilient material secured directly to the closed back portion of the drawer, on the outside thereof, and adapted to strike against the solid back part of the trunk-body, said cushion-blocks extending practically from the bottom to the top edge of the drawer and said blocks at opposite corners of the drawer being of uniform thickness.

2. As a new article of manufacture, a trunk provided with slidable drawers, each having a bottom secured across the exposed front thereof, the drawer-front and the bottom having recesses formed in their opposing faces and adapted to produce concealed handholds.

3. As a new article of manufacture, a trunk comprising a body having a hinged cover and a series of solid partitions forming a series of compartments, drawers fitted in certain compartments and having recessed fronts, recessed bottoms secured to the drawer-fronts across the recesses therein, other bottoms fastened to the outside of the trunk in alternate relation to the partitions therein and in coincident position to the bottoms of the drawers, covers for said drawers, and buffers attached to the inner corners of the drawers.

700,589. GAME. ELMER E. WHEAT, Whittier, N. J. Filed Apr. 5, 1901. Serial No. 80,567. (No model.)

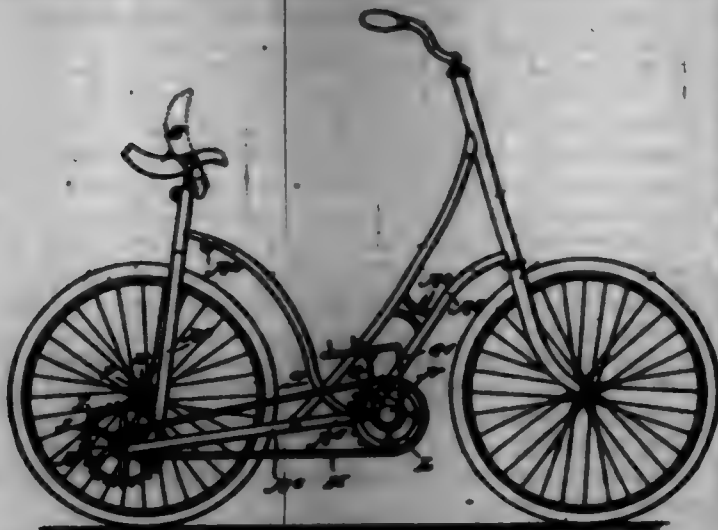


Claim.—1. A game apparatus comprising a separable box or scoop (A) having holes through a wall thereof, and a page (B) adapted to be thrust through

the holes, and a freely-moving object within the box, said object having holes therein adapted to engage one of the page.

2. A game apparatus comprising a two-part separable box having perforations through the outer wall thereof, indicating characters made adjacent to the perforations and wholly on the inside of the box so as not to be seen from without, and a series of removable page adapted to be thrust through the holes.

700,590. **BIKYLE.** HENRY C. WHEAT, Buffalo, N. Y. Filed Mar. 1, 1901. Serial No. 48,457. (No model.)

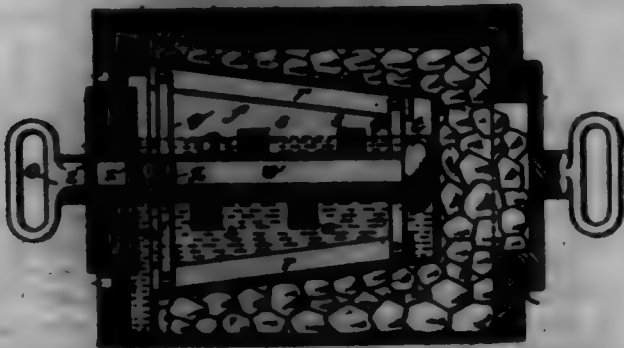


Claim.—1. A bicycle comprising a front wheel, a rigid frame having a horizontal lower rear brace A^1 , the rear brace or fork A^2 , having its ends extended in alignment and constituting journals, sprocket-wheels mounted on said journals, corresponding front sprocket-wheels, a transverse front shaft B , journaled in the front portion of the frame, endless traveling tracks running on the rear sprocket-wheels, the rear running wheel journaled in the rear fork above the lower brace, and a gear connection between each running wheel and one of the rear sprocket-wheels, substantially as shown and described.

2. A bicycle comprising a rigid frame having a lower brace, a front wheel, a rear wheel, a rear fork journaled on lower brace, the rear wheel journaled in each rear fork above the fulcrum, means for holding the rear fork in any forward-and-back adjustment, sprocket-wheels mounted on journals formed on the lower ends of the rear fork, a front shaft and sprocket-wheel therein, endless tracks running on the sprocket-wheels, and gearing connecting the rear wheel and tracks, substantially as shown and described.

3. A bicycle comprising a frame which is fulcrumed on the front axle, and the rear fork or middle-post, which is adjustable forward and back and fulcrumed at the rear end of the steered frame, the rear wheel journaled on the mid fork at a point above its fulcrum, and having a pinion on its axle, a gear-wheel meshing with the said pinion and having its axle coincident with the fulcrum of the rear fork, a shaft H arranged transversely between the running wheels, and endless tracks running on sprocket-wheels arranged on said shaft and other sprocket-wheels journaled on the rear fork, substantially as shown and described.

700,591. **ICE-CREAM FRITTER.** ROBERT E. C. WHEAT, New York, N. Y. Filed June 10, 1901. Serial No. 48,500. (No model.)



Claim.—1. The combination of a longitudinally-revoluble vessel, a cream-can suspended in the same having a closed bottom and an open top, an ice-receptacle surrounding the bottom and sides of the cream-can and revoluble therewith, openings provided with covers in the ends of the exterior vessel one of which gives access to the ice-receptacle and the other to the cream-can—the cover of the latter opening consisting of an exterior annular part, a perforated center part and packing-rings between

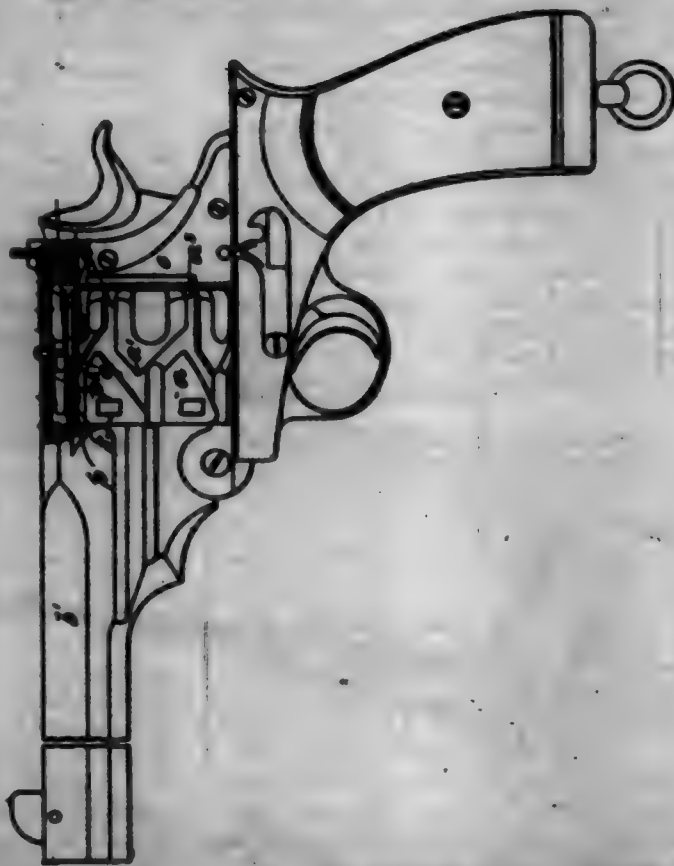
the two parts of the cover—a rotatable rod passed down through the perforation in the center part of the cover and adapted to be rotated independently of the cover, disks secured on the rod against the upper and under sides of the two parts of the cover that rotate with the rod, and scrapers connected with the rod in the cream-can, substantially as specified.

2. In an ice-cream freezer the combination of a frame, an exterior revoluble vessel provided with transverse pivots that rest in bearings in the said frame and on which the said vessel is revolved, a cream-can having a closed bottom and open top and right-angled flanges projected from the top and fastened to the side walls of the exterior vessel near one end thereof, an ice-receptacle surrounding the bottom and sides of the cream-can, screw-threaded openings in the ends of the vessel one of which gives access to the ice-receptacle and the other to the cream-can, a flanged screw-threaded cover for the opening into the ice-receptacle, a cover for the opening over the cream-can consisting of an annular part and a center perforated part—the outer periphery of the annular part being screw-threaded and the inner periphery grooved—and the outer periphery of the center part also grooved, packing-rings fitted into the grooves of the center and annular parts and bearing against each other, a screw-threaded rotatable rod provided with a handle passed down into the cream-can through the perforation in the center plate of the cover, and clamping-disks secured on the said rod against the upper and under sides of the cover, and scrapers and dashers connected with the said rotatable rod inside of the cream-can, substantially as specified.

3. In ice-cream freezer a cover for the opening into the cream-can consisting of an annular part having its outer periphery screw-threaded and its inner periphery grooved, a perforated center part having its outer periphery grooved, packing-rings in the grooves of the center and annular parts that bear against each other, a screw-threaded rod passed through the perforation in the center part and clamping-disks secured on the rod against the upper and lower sides of the center part, packing-rings and annular part of the cover, substantially as specified.

4. In an ice-cream freezer the combination with the cream-can of a cover consisting of an annular part having its outer periphery screw-threaded and its inner periphery grooved, a perforated center part having its outer periphery grooved, packing-rings in the adjoining grooves of the center and annular parts that bear against each other, a two-part screw-threaded rotatable and detachable rod passed down into the cream-can through the perforation in the cover, disks secured to the upper part of the rod against the upper and lower sides of the cover, cream-arms connected with the lower part of the rod, scrapers connected with the ends of the cream-arms adjacent to and parallel with the walls of the cream-can and dashers connected directly with the lower part of the rod, substantially as specified.

700,592. **REVOLVER-FIREARM.** WILLIAM J. WHITING, Haverhill, near Birmingham, England. Filed May 27, 1901. Serial No. 48,108. (No model.)



Claim.—1. In a revolver, the combination with a removable cylinder provided with recesses, of a cylinder-locking catch adapted to en-

curatively engage said recess, and a hand-operated pusher for acting on said catch to disengage mine from the said cylinder-recess, substantially as set forth.

2. In revolver-firearm; the combination with a removable cylinder having a series of peripheral recesses, of a spring-catch adapted to successively engage said recesses, and a pusher working through the barrel-chamber of the revolver and acting upon said catch for the purpose of disengaging the same from the said cylinder-recesses, substantially as herein described and also as set forth.

3. In revolver-firearm; the combination with a cylinder-locking catch; of a cylinder-alignment device, and a means for disengaging both catches simultaneously from the cylinder, substantially as herein described and also as set forth.

4. In automatic revolver-firearm; the combination with a cylinder having a series of peripheral recesses alternating with forward channels, of a catch and lock-work mechanism acting both as a cylinder-lock and a direction device, a second catch for retaining the cylinder in alignment with the barrel when the barrel is opened, and a means for simultaneously disengaging both catches from the cylinder, substantially as herein described and also as set forth.

5. In revolver-firearm; the combination with a cylinder, having peripheral recesses, of a combined cylinder lock and alignment device, which automatically engages with one of the said recesses of the cylinder when the revolver is opened, but is lifted out of such engagement when the revolver is closed, the same also being provided with a pusher-releasing means arranged and acting substantially in the manner herein described.

6. In revolver-firearm; the combination with a cylinder locking and alignment device, of a cylinder provided with a series of separated lugs, successively engaging with a recess, sinking or shoulder on the under side of the barrel-chamber, for the purpose of preventing the withdrawal of the cylinder, substantially as herein described and also as set forth.

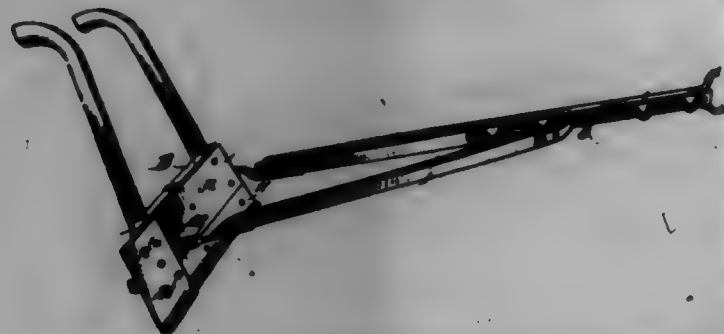
700,593. LOOM-REED. RICHARD WILSON, Darmstadt, Germany. Filed Aug. 18, 1901. Serial No. 73,305. (No model.)



Claim.—1. A reed having at one end transposed rows of dents, and separate bridges made to respectively engage or unite each row, said dents being transposed or separated to such an extent that throughout a portion of the reed a space is formed between the dents in the plane of the reed so as to allow the warp-threads in this part to lie free at one side of each dent and thereby prevent compression and consequent friction of the threads, substantially as described.

2. A reed having at one end transposed rows of dents, and separate bridges made to respectively engage or unite each row, said dents being transposed or separated to such an extent that throughout a portion of the reed a space is formed between the dents in the plane of the reed so as to allow the warp-threads in this part to lie free at one side of each dent and thereby prevent compression and consequent friction of the threads said dents being arranged in rows to insure diminished friction and allow narrowing of the contracted ends of trapezoidal reeds, substantially as described.

700,594. ROAD-SCRAPER. THOMAS WILSON, Meyers Falls, Wash. Filed Aug. 9, 1901. Serial No. 71,472. (No model.)



Claim.—1. The combination of the scraper-blade, a main and an auxiliary draft-beam, means for connecting the auxiliary beam to the main beam, and means for connecting the rear of the auxiliary draft-

beam at different points along the blade, whereby to adjust the said auxiliary beam transversely of the direction of draft.

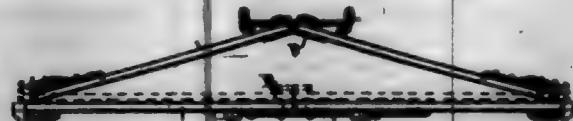
2. The combination of the scraper-blade, a main draft-beam connected therewith, an auxiliary draft-beam, means for connecting the forward end of the auxiliary draft-beam with the main beam at different points along the main beam, and means for connecting the rear end of the auxiliary draft-beam with the blade at different points along the blade, whereby to adjust said rear end transversely of the direction of draft.

3. In road-scraper, the combination, with a blade or shovel, handle connected therewith, draft device located at the ends of the blade or shovel, a main draft-beam connected with the draft device at one end of the blade or shovel, and an auxiliary draft-beam having adjustable connection with the main draft-beam and a connection with the draft device at the opposite end of the main blade or shovel, for the purpose set forth.

4. In road-scraper, the combination, with a main blade or shovel, handle attached thereto, and draft device located at the ends of the said main blade or shovel, of an auxiliary draft device connected with the main blade or shovel, an auxiliary or extension blade or shovel, attached at one end to the main blade or shovel, a main draft-beam connected with one end of the main blade or shovel and an auxiliary draft-beam having adjustable connection with the main draft-beam and with the auxiliary draft device carried by the main blade or shovel, for the purpose set forth.

5. The combination of a scraper-blade, a main draft-beam connected with one end of the blade, an auxiliary draft-beam connected with the main beam, a connection for the auxiliary draft-beam and blade at that end of the blade opposite to that with which the main draft-beam is connected, and a second connection for the auxiliary beam and the blade at a point intermediate the ends.

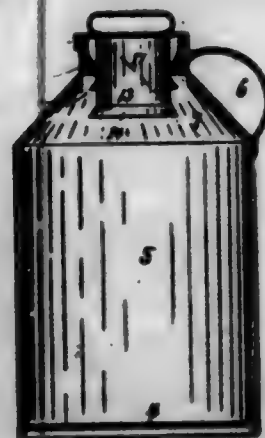
700,595. BARNETT-STRETCHER. JOHN H. YOUNG, East Troy, Pa. Filed July 18, 1901. Serial No. 63,746. (No model.)



Claim.—1. A tresser stretcher and crupper comprising an extendible under frame made in two parts held together by elastic straps, a flexible upper frame made in two parts joined together by hinges, coupling devices at the ends of said frames whereby the frames are joined together and at the same time the ends of the tressers are clamped therebetween, and clamping devices at the sides.

2. A tresser stretcher and crupper comprising an extendible under frame in two parts united by elastic connections, a flexible upper frame, eyes projecting upward from the ends of the under frame, pins to engage said eyes at the ends of the upper frame, and clamping devices at the sides.

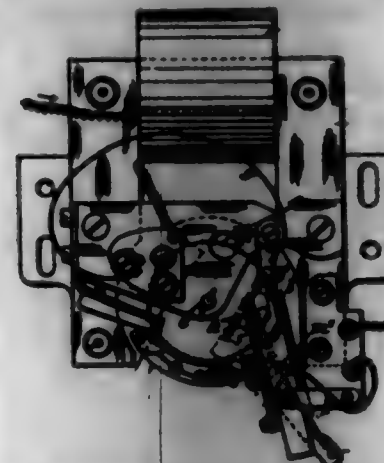
700,596. MILK-CAN. OLA E. ARLAND, St. Paul, Minn. Filed June 20, 1900. Serial No. 731,308. (No model.)



Claim.—1. The combination with a milk-can of a cover having a handhold secured to its upper side, and a milk-measure secured to its under side; said measure being adapted to enter entirely down into the neck of the can, and having a flaring top, and near its bottom end enlarged to fill the neck of the can.

2. The combination with a milk-can, of a cover closing the neck of the can and having a handle at its upper side and a milk-measure secured with its bottom end to the under side of the cover, and adapted to enter into the neck of the can; said measure having a hollow guard all around upon its outer side to receive any milk running from the edge toward the bottom end of the measure, substantially as shown and described.

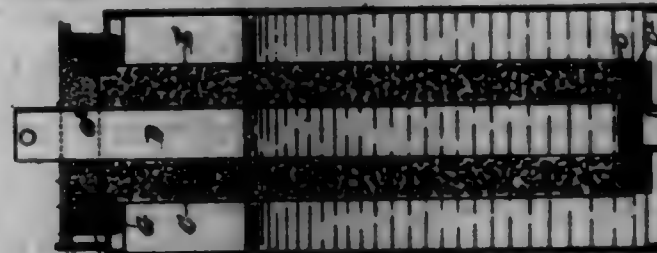
700,597. APPARATUS FOR ELECTRICALLY WINDING UP DRIVING-SPRINGS. HENRIK LARSEN, Christiansburg, Germany. Filed Feb. 22, 1901. Serial No. 74,328. (No model.)



Claim.—1. In an apparatus for electrically winding up driving-springs, the combination with an electromagnet, of an armature arranged to swing between the magnet-poles, a contact pin or stud movable with said armature, a tilting device or lever making and breaking electrical contact with the said stud, a driving-spring arranged to be placed under tension by the movement of said armature when the latter is attracted by the said magnet; and a controlling device or stud, moving with said armature, for assisting the tilting motion of the said tilting device or lever, and for keeping the same from being thrown back by sparking, substantially as and for the purpose set forth.

2. In an apparatus for electrically winding up driving-springs, the combination, with an electromagnet, of an armature arranged to swing between the magnet-poles, a contact pin or stud movable with said armature, a tilting device or lever making and breaking electrical contact with the said stud, a driving-spring arranged to be placed under tension by the movement of said armature when the latter is attracted by said magnet, a controlling-stud movable with said armature, and an insulating-roller carried by said stud to strike the tilting lever for assisting its tilting motion and for keeping the same from being thrown back by sparking, substantially as and for the purpose set forth.

700,598. PRIMARY BATTERY. WILLIAM H. BATE, Louisville, Ky., assignor to Scott's American Electric Co., Louisville, Ky., near Paris, France. Filed Mar. 21, 1901. Serial No. 63,180. (No model.)



Claim.—1. In a galvanic cell, the combination with the inner vessel of a cover having an internal annular recess adapted to receive the edge of said inner vessel, said cover moreover comprising an external annular frame, having an internal lip thereon over which said edge can be folded, and insulating winding material for securing said inner vessel within said annular frame, substantially as described.

2. In a galvanic cell, the combination of a detachable cover, the inner porous vessel connected to said cell, of a collar on the upper part of the casing of the cell, of an interrupted screw-thread on said collar, of a ring on said cover, of an interrupted screw-thread on said ring adapted to engage with the said screw-thread on the collar, of a packing-ring carried by said collar, of a shoulder on said cover adapted to bear against said packing-ring, and of means for retaining the interrupted screw-threaded ring in its closed position, for the purpose specified.

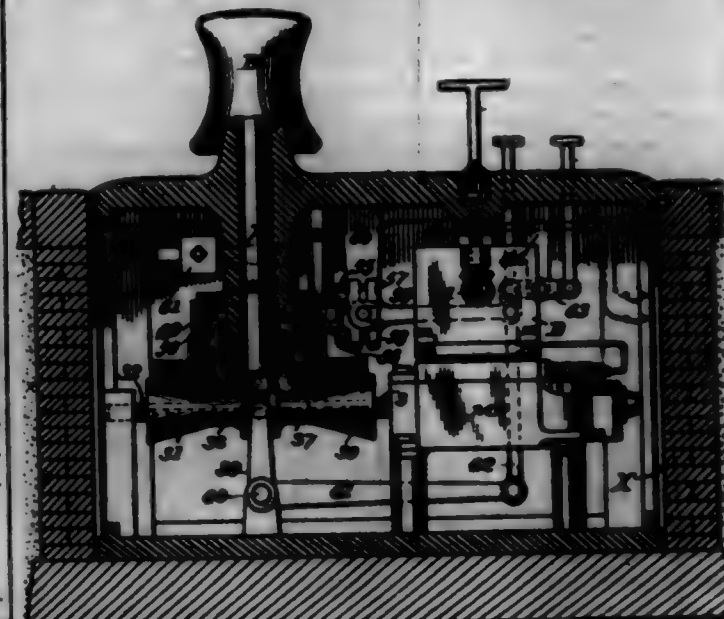
3. In a galvanic cell, the combination of a detachable cover, an internal lip thereon, an inner porous vessel or chamber in the form of a cone, a neck or casing containing one of the electrodes, means for tightly securing the upper part of said neck or casing to the lip on the cover, a collar on the outer casing of the cell, of an interrupted screw-thread on said collar, a ring on said cover, an interrupted screw-thread on said ring, a packing-ring carried by said collar and a shoulder on said cover adapted to bear against said packing-ring, and of means for retaining the interrupted screw-threaded ring in its closed position, for the purpose specified.

4. In a galvanic cell, the combination of a detachable cover, an internal lip thereon, an inner porous vessel or chamber in the form of a cone,

neck or casing containing one of the electrodes, means for tightly securing the upper part of said neck or casing to the lip on the cover, a collar on the outer casing of the cell of an interrupted screw-thread on said collar, a ring on said cover, an interrupted screw-thread on said ring, a packing-ring carried by said collar, a shoulder on said cover adapted to bear against said packing-ring, corrugations on said cover, and a clip on said outer casing of the cell adapted to engage with said corrugations, substantially as and for the purpose specified.

5. In a galvanic cell, the combination with the detachable cover, the inner porous vessel or chamber the means for securing the upper part of said porous vessel or chamber to the cover and the means for hermetically but detachably connecting the cover to the outer casing of the cell; of an internal projection on the bottom of said outer casing of the cell, and of a block of insulating material at the bottom of the inner porous vessel or chamber said block having a recess for the reception of said internal projection, substantially as and for the purpose specified.

700,599. SHIFTING DEVICE FOR PIER, &c. WILLIAM D. BALDWIN, New York, and AUGUST BUNN, Yonkers, N. Y., assignors to Otto Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Dec. 17, 1901. Serial No. 80,322. (No model.)



Claim.—1. The combination with a capstan arranged above the footway of a pier or embankment, and with a shaft extending downward into a vault below the footway, of a motor adapted to rotate in one direction, a pair of driving-pulleys upon the shaft of the motor, a driving-disk carried by the shaft of the capstan, means for shifting the pulleys to bring one or the other into engagement with the disk, and control devices for regulating the speed and stopping and starting the motor and for shifting the pulleys, substantially as set forth.

2. The combination with the footway of a pier or embankment, of a capstan arranged above the same, a shaft extending through the footway to a vault below the same and provided with a driving-disk, a motor adapted to rotate in one direction, driving-pulleys driven therefrom and adapted to be shifted alternately into and out of engagement to drive the said disk, a control device for stopping and starting and regulating the speed of the motor having an operating device above the footway, a brake device, means extending above the footway for shifting the driving-pulleys, and connections between said means and the brake device, substantially as set forth.

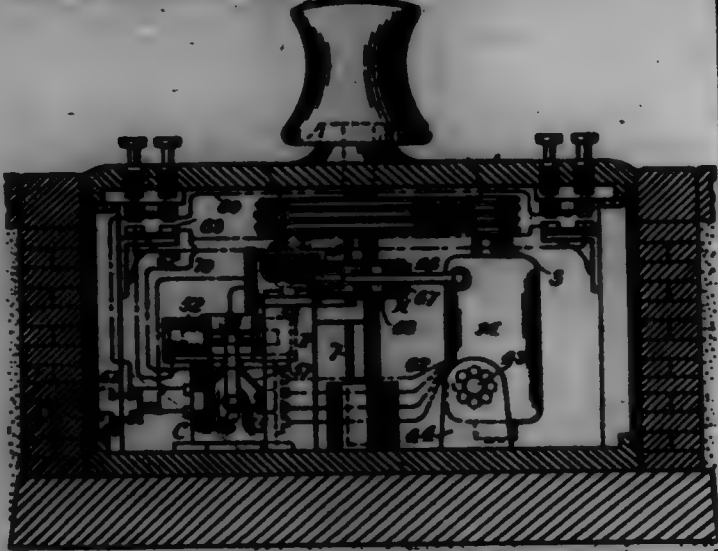
3. The combination with the footway of a pier or embankment, of a capstan, driving-disk, motor, pulleys driven from the motor and adapted to be alternately brought into action to drive the disk in opposite directions, means for shifting the pulleys extending to the footway, a brake device, and connections between the brake device and the means for shifting the pulleys, substantially as set forth.

700,600. SHIFTING DEVICE FOR PIER, &c. WILLIAM D. BALDWIN, New York, and AUGUST BUNN, Yonkers, N. Y., assignors to Otto Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Dec. 17, 1901. Serial No. 80,324. (No model.)

Claim.—1. The combination with a capstan, of a shaft secured thereto and extending downward into a vault or chamber, a friction-drum on said shaft, a driving-engine having a shaft carrying a friction-pinion, and means for shifting the position of the engine to carry the friction-pinion into and out of engagement with said drum, substantially as set forth.

2. The combination with a capstan, of a shaft extending downward

therefrom and carrying a friction-drum, a motor carrying a friction-pinion, said motor being pivotally supported to swing the pinion away from the drum, and means for swinging the motor to bring the pinion into engagement with the drum, substantially as set forth.



2. The combination with a capstan, of a shaft extending downward therefrom and carrying a friction-drum, a motor carrying a friction-pinion, said motor being pivotally supported to swing the pinion away from the drum, means for swinging the motor to bring the pinion into engagement with the drum, and a control device adjacent to the capstan to operate said means, substantially as set forth.

4. The combination with a capstan, of a shaft secured thereto and extending downward into a vault or chamber, a friction-drum on said shaft, an electric driving-engine having a shaft carrying a friction-pinion, and an electric motor for shifting the position of the engine to carry the friction-pinion into and out of engagement with said drum, substantially as set forth.

5. The combination with a capstan, of a shaft secured thereto and extending downward into a vault or chamber, a friction-drum on said shaft, an electric driving-engine having a shaft carrying a friction-pinion, an electric motor for shifting the position of the engine to carry the friction-pinion into and out of engagement with said drum, a series of switches, and a control device adjacent to the capstan for operating said switches, substantially as set forth.

6. The combination with a capstan, of a shaft secured thereto and extending downward into a vault or chamber, a friction-drum on said shaft, an electric driving-engine having a shaft carrying a friction-pinion, an electric motor for shifting the position of the engine to carry the friction-pinion into and out of engagement with said drum, a series of switches, and control devices adjacent to the capstan for operating said switches, substantially as set forth.

7. The combination with a shaft supporting a capstan at one end and carrying a friction-drum, of an electric-motor engine having a shaft carrying a friction-pinion and movable to and from said drum, an electric motor for shifting the engine, a reversing-switch, an electric motor for shifting said switch, and means for operating the switch-controlling motor from different positions adjacent to the capstan, substantially as set forth.

8. The combination with a shaft supporting a capstan at one end and carrying a friction-drum, of an electric-motor engine having a shaft carrying a friction-pinion and movable to and from said drum, an electric motor for shifting the engine, a control device for stopping, starting and reversing the engine, an electric motor for actuating the control device, and means for putting the control-device motor into and out of operation from different points adjacent to the capstan, substantially as set forth.

9. The combination of a capstan, shaft, friction-gears, movable electric engine, electric motor for shifting the engine and controlling the passage of current thereto, and a brake connected to the engine to be released as the gears are brought into engagement, substantially as set forth.

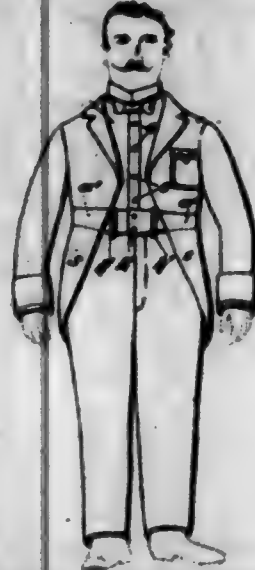
10. The combination with a capstan, motor-engine, gear, and electric control device, of solenoids and cores connected to actuate the control device, and means adjacent to the capstan for making and breaking at will circuits including the solenoids, substantially as set forth.

11. The combination with a capstan, motor-engine, gear, and electric control device, of solenoids and cores connected to actuate the control device, a brake and solenoid for operating the same, and means adjacent to the capstan for making and breaking at will circuits including the solenoids, substantially as set forth.

12. The combination with a capstan, movable engine, gear, control device, and electric motor for shifting the engine and actuating the control device, of a plurality of circuit-breakers arranged adjacent to the capstan to make and break the circuits including the said motor, substantially as set forth.

13. The combination with a capstan, shaft, friction-drum, movable engine, and friction-pulley, of a solenoid having a core connected to the engine, and a brake device connected with the parts operated from said solenoid, substantially as set forth.

700,601. COMBINATION-GARMENT. GEORGE KALSHOF, Weimar, Germany. Filed Dec. 18, 1900. Serial No. 40,364. (No model.)



Claim.—1. A combination-garment consisting of a shirt and trousers, the shirt having a false front to simulate a coat or jacket, a tailpiece connected to the back of the garment made to represent the tail of a coat or jacket, and a belt to surround the garment, substantially as set forth.

2. A combination-garment consisting of a shirt and trousers, the shirt having a false front to simulate a coat or jacket, and a tailpiece detachably connected to the back of the garment and made to represent the tail of a coat or jacket.

700,602. PROCESS OF MAKING DETERGENT. GEORGE BARR, Leeds, England. Filed Sept. 12, 1901. Serial No. 78,598. (No specimen.)

Claim.—1. A process of manufacturing a detergent powder consisting in mixing olein and a suitable cereal, then adding caustic alkali of suitable strength, and then exposing said mass to the atmosphere until the free alkali becomes carbonated.

2. A process of manufacturing a detergent powder consisting in mixing in water olein and a cereal, adding an alkali thereto, and then exposing the mass to the atmosphere for the purpose set forth.

3. A process of manufacturing a detergent powder consisting in thoroughly mixing a suitable cereal and olein, then adding to the mixture and thoroughly incorporating therewith caustic alkali, and then suitably exposing the mixture to the atmosphere.

4. A process of manufacturing a detergent powder consisting in suitably mixing oatmeal and olein, then adding to the mixture and thoroughly incorporating therewith caustic alkali of a sufficient strength, and then suitably exposing the mixture to the atmosphere until the free alkali becomes carbonated.

5. A process of manufacturing a detergent powder consisting of mixing olein and oatmeal together, incorporating in the said mixture an alkali, and then exposing said mass to the atmosphere, for the purpose set forth.

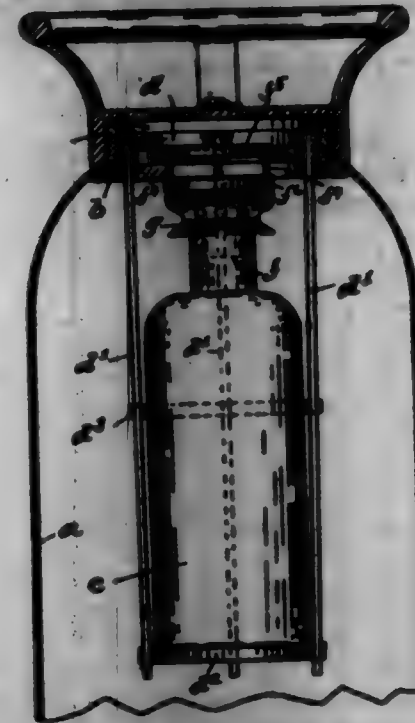
700,603. FIRE-EXTINGUISHER. WILLIAM H. BARTON, Boston, Mass. Filed Oct. 24, 1901. Serial No. 78,562. (No model.)

Claim.—1. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate freely movable toward and from its seat, and a support for said valve-plate attached to the neck or end of said bottle, substantially as described.

2. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage, a tubular slip-throat into the outlet of said bottle formed or provided at its extremity with a valve-out, and supported by a plate *f*, resting on the bottle, a disk movable toward and from said seat and means attached to said plate for supporting and guiding said disk, and means for attaching said plate to the bottle, substantially as described.

3. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate therefor, and a valve-plate support attached to said bottle having guides for supporting and guiding said valve-plate, substantially as described.

4. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate therefor, and valve-plate support attached to said bottle having guides on which said valve-plate slides, substantially as described.



5. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate therefor, and a valve-plate support attached to said bottle having means for limiting the movement of the valve-plate away from its seat, substantially as described.

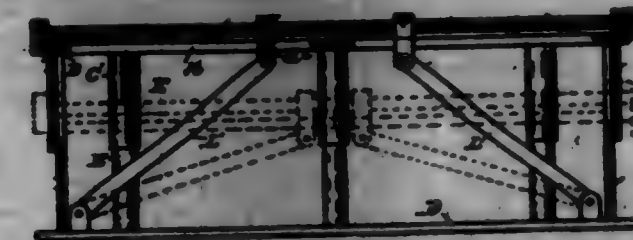
6. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate freely movable toward and from its seat, and a support for said valve-plate having a plurality of spring-actuating flaps which clip over a lip on the end of the bottle, substantially as described.

7. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate freely movable toward and from its seat, and a support for said valve-plate having a plurality of spring-actuating flaps which clip over a lip on the end of the bottle, substantially as described.

8. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-out, a valve-plate freely movable toward and from its seat, and a support for said valve-plate having a plurality of spring-actuating flaps which clip over a lip on the end of the bottle, substantially as described.

9. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage, a tubular slip-throat into the outlet of said bottle formed or provided at its extremity with a valve-out, and formed integral with a plate *f* which rests on the end of the bottle, a disk movable toward and from said seat, guide-rods projecting from said plate which guide said disk and a clip supported by said rods for limiting the movement of said disk away from its seat, and a plurality of spring-actuating flaps on said plate which clip over the lip on the end of the bottle, substantially as described.

700,604. LOOSE-LEAF LEDGER. JAMES BARKER, Detroit, Mich. assignor to Charles F. Barker, Detroit, Mich. Filed May 31, 1901. Serial No. 40,364. (No model.)



Claim.—1. In a loose-leaf ledger, the combination with the top and bottom covers, of connecting-pieces intermediate the covers, a series of ledger-leaves loosely connected to the parts, and means for causing the sides of the leaves after their insertion within the ledger.

2. In a loose-leaf ledger, the combination with the top and bottom covers, of telescoping parts connecting the covers, a central guide at

each side of the ledger and intermediate the covers, and means for adjusting said guide transversely of the covers.

3. In a loose-leaf ledger, the combination with the top and bottom covers, connecting-pieces therebetween, a central guide at one side of the ledger, the guide members being adjustably secured to the upper and lower covers, respectively, and adjusting-screws revolved upon the covers for operating the guide.

4. In a loose-leaf ledger, the combination with the ledger-covers each having a plurality of threaded apertures formed therein in proximity to the rear edge, the apertures in one cover being of less diameter than the corresponding apertures in the complementary cover, of threaded plugs engaging within the apertures flush with the outer sides of the covers and projecting beyond the opposite inner sides, and tubular post-connections threaded upon the projecting portions of the plugs, the sections on one cover telescoping with the sections on the complementary cover.

700,605. SMOKE-CONSUMING FURNACE. CHARLES H. BARR, St. Louis, Mo. assignor of one-fourth to Matthias Gruber, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 58,595. (No model.)



Claim.—1. In combination with a furnace, a steam-pipe adapted to deliver steam to the combustion-chamber of said furnace, a normally closed valve in the steam-pipe, a pressure-meter for opening said valve provided with a constantly open exhaust-port, a reservoir having an inlet for fluid under pressure and an outlet in communication with the valve-meter, a door for the furnace and means act into operation by the opening of said door for bringing into communication, the inlet and the reservoir and cutting off communication between the reservoir and the pressure-meter and by the closing of the door for cutting off communication between the inlet and the reservoir and providing communication between the latter and the pressure-meter.

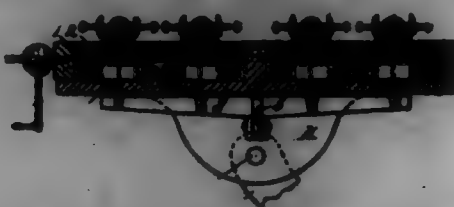
2. In combination with a furnace, a steam-pipe adapted to deliver steam to the combustion-chamber of said furnace, a normally closed valve in the steam-pipe, a pressure-meter for opening said valve provided with a constantly open exhaust-port, a reservoir having an inlet for fluid under pressure and an outlet in communication with the valve-meter, a reciprocating valve, a door for the furnace and means controlled by the opening of the door for moving said valve in one direction to bring into communication said inlet and said reservoir and out of communication between said reservoir and said pressure-meter, and by the closing of the door for moving said valve in the opposite direction to open communication between the reservoir and the pressure-meter and out of communication between the inlet and said reservoir.

3. In combination with a furnace, a steam-pipe adapted to deliver steam to the combustion-chamber of said furnace, a valve-stem, a normally closed valve in the steam-pipe and actuated by said stem on one end thereof, a diaphragm within a suitable housing and secured to the other end of said stem, and adapted to open said valve, a constantly open ex-

best-port in said housing, a reservoir having an inlet for fluid under pressure, and an outlet in communication with said housing, a door for the furnace and means actuated by the opening of said door for bringing into communication the inlet and the reservoir and cutting off communication between the reservoir and the housing, and by the closing of the door for cutting off communication between the inlet and the reservoir, and providing communication between the reservoir and the housing.

4. In combination with a furnace, a steam-pipe adapted to deliver steam to the combustion-chamber of said furnace, a normally closed valve in the steam-pipe, a pressure-motor for opening said valve provided with a constantly open exhaust-port, a reservoir having an inlet for fluid under pressure and an outlet in communication with the valve-motor, pressure-controlled means for bringing into communication said inlet and reservoir and cutting off communication between the reservoir and the pressure-motor, when water is admitted to said inlet and cutting off communication between said inlet and the reservoir and providing communication between the reservoir and the pressure-motor when water is cut off from said inlet, a valve for controlling admission of water to said inlet, a rock-shaft connected to said valve and cam-arm carried by said shaft, in line with the outward swing of the furnace-door.

700,606. MOLD FOR COLLAR-BUTTONS. JOHN E. BARRER, Detroit, Mich. Filed May 14, 1900. Serial No. 14,572. (No model.)



Claim.—1. In a two-part mold consisting of duplicate halves, a central longitudinal bar in each half in which are formed the gate and runners, bars in each half adjacent to said bar and having a series of recesses and grooves forming molds each connected with one of said runners, and means for clamping the two parts of the mold together.

2. In a two-part mold consisting of duplicate halves hinged together at one end, a series of sets of longitudinal mold-bars in each half, each set consisting of a central bar in which are formed a gate and runners, and bars at each side of said bar having a series of recesses forming molds, one opposite each of said runners, clamping-bars engaging the outer bars of each half of the mold, means for drawing said clamping-bars toward each other to clamp the mold-bars, and curved clamping-arms pivoted to one half of the mold and adapted to engage the other half to hold the faces of the mold in contact.

3. In a mold for irregular forms, a flask formed with a central longitudinal rib on the face of the cope portion thereof, and a corresponding rib on the drag; bars having recesses forming the molds, extending parallel with said ribs and at each side thereof; clamping-bars engaging the outer mold-bars and forming the sides of the cope and drag; rods secured to the clamping-bars at one side of said flask, extended through the mold-bars, the ribs, and the clamping-bars at the opposite side of the flask, and screw-threaded at their opposite ends; and crank-handles having internally-screw-threaded heads to receive the rods and engage the clamping-bars.

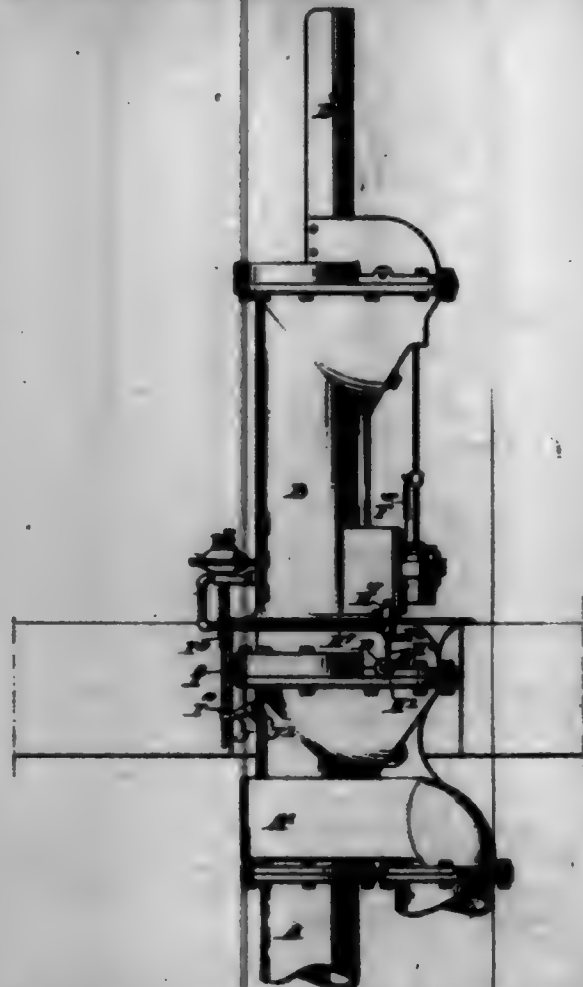
4. In a two-part mold, a series of longitudinal bars forming each half and provided with recesses forming the molds, and gate-bars longitudinally grooved to form gates and grooved laterally to form runners, a two-part flask to receive and hold said mold and gate-bars, and pins extending through said flask and engaging said gate-bars to raise the same above the surface of the mold and open the cast articles.

5. In a two-part mold, sets of longitudinal mold-bars forming each half of the mold, gate-bars longitudinally grooved to form gates adjacent to each set of mold-bars, a two-part flask adapted to receive said mold and gate bars, pins secured to the bottom of said gate-bars and extended through openings in the drag of the flask, a bar having recesses to receive the outer end of said pins, extending transversely across the drag, and levers pivoted to the drag to rotate said bar.

6. In a two-part mold, a flask consisting of a drag portion, means for rigidly supporting said drag in a position inclined from the vertical, a cope portion hinged to the drag at its lower end, clamping-bars on the cope and drag forming the sides of the flask and provided with transverse openings, curved clamping-arms pivoted to the drag at one end and provided with clamping-curves at their opposite ends to engage ribs on the cope and hold the halves of the flask together, and a mold portion consisting of central longitudinal ribs provided with transverse openings, on the drag and cope, sets of bars at each side of said ribs consisting of a central gate-bar longitudinally grooved to form a gate and provided with an elongated transverse opening, and mold-bars at each side thereof pro-

vided with transverse openings, rods secured at one end within the openings in said clamping-bars at the side of the flask and extended through the mold openings in said ribs, mold-bars, elongated openings in said gate-bars and the mold openings in the clamping-bars at the opposite side of said flask, crank-handles on the outer ends of said rods, pins secured at one end to the gate-bars and extended through the drag, transverse bars having recesses to receive the outer ends of said pins, and levers pivoted to the drag and adapted to operate the said pins.

700,607. SENDING APPARATUS FOR PNEUMATIC-DESPATCH SYSTEMS. ROBERT C. ROBINSON, Philadelphia, Pa. Filed July 31, 1901. Serial No. 70,366. (No model.)



Claim.—1. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them and means actuated by the insertion of a carrier into the sender for connecting the sender with an air-receptacle having substantially the pressure of the transmission-tube for the purpose of equalizing pressure on the inner gate.

2. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them, means actuated by the insertion of a carrier into the sender for connecting the sender with an air-receptacle having substantially the pressure of the transmission-tube for the purpose of equalizing pressure on the inner gate and means for admitting atmospheric pressure to the sender actuated by the passage of the carrier from the sender.

3. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them and means actuated by the insertion of a carrier into the sender for connecting the sender with the transmission-tube for the purpose of equalizing pressure on the inner gate.

4. In a pneumatic-despatch system a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them, means actuated by the insertion of a carrier into the sender for connecting the sender with the transmission-tube for the purpose of equalizing pressure on the inner gate and means for admitting atmospheric pressure to the sender actuated by the passage of the carrier from the sender.

5. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open

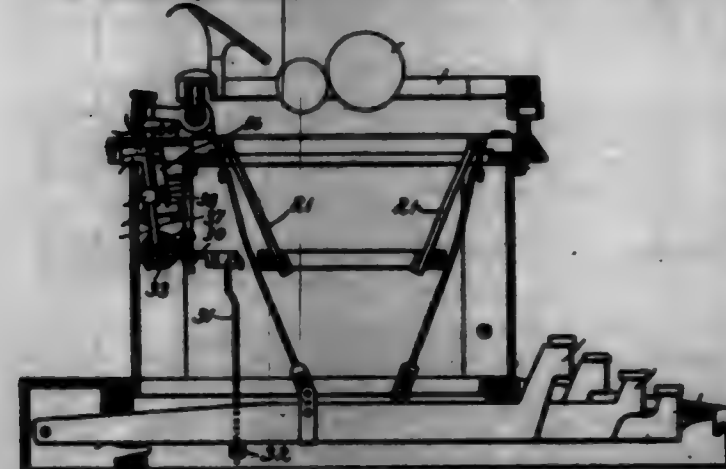
under the pressure of an inserted carrier, a valve mechanism arranged in one position to connect the sender with an air-receptacle having substantially the pressure of the transmission-tube and in another position to connect the sender with atmospheric pressure, means actuated by the insertion of a carrier into the sender to shift said valve to the first position and means actuated by the passage of the carrier from the sender to shift said valve to the second position.

6. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, a valve mechanism arranged in one position to connect the sender with an air-receptacle having substantially the pressure of the transmission-tube and in another position to connect the sender with atmospheric pressure, means actuated by the opening and closing of the outer gate in shift said valve to the first position and means actuated by the opening and closing of the inner gate to shift said valve to the second position.

7. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them, means actuated by the insertion of a carrier into the sender for connecting the sender with an air-receptacle having substantially the pressure of the transmission-tube for the purpose of equalizing pressure on the inner gate, means for admitting atmospheric pressure to the sender actuated by the passage of the carrier from the sender, and a restricted orifice in the atmospheric connection whereby the restoration of atmospheric pressure in the sender is made gradual.

8. In a pneumatic-despatch system, a sender connected to a transmission-tube in combination with outer and inner gates adapted to open under the pressure of an inserted carrier, means for closing said gates when the carrier has passed them means actuated by the insertion of a carrier into the sender for connecting the sender with an air-receptacle having substantially the pressure of the transmission-tube for the purpose of equalizing pressure on the inner gate, a lock for holding a gate closed out in operation by the passage of the carrier from the sender and a time-measuring device for withdrawing said lock.

700,608. SPACING ATTACHMENT FOR TYPE-WRITING MACHINES. BENJ. V. STARK, Boston, Mass. Filed July 16, 1900. Serial No. 24,706. (No model.)



Claim.—1. A type-writing machine having a plurality of keys each having a stroke of unvarying length, a paper-holding device, a feeding mechanism for causing the paper-holding device to be fed a single space, and means whereby the depression of any one of the keys may cause said paper-holding device to be fed a double space.

2. A type-writing machine having means controlled by each of the keys for causing the paper-holding device to be fed automatically a single or a double space at the will of the operator, by a variation in the period of depression of any one of the keys.

3. A type-writing machine having means for feeding the paper-holding device a double space upon maintained depression of each key.

4. A type-writing machine having a plurality of type-keys each having a stroke of unvarying length, a paper-holding device, means for feeding said device, and an component controlled by each key for causing said device to be fed a single or a double space at the will of the operator.

5. A type-writing machine having a plurality of type-keys each having a stroke of unvarying length, and means whereby a line of words made up of single-spaced letters, said words separated by blank spaces, may be printed by the actuation of the type-keys without recourse to an independent spacing key or bar.

6. A type-writing machine having a plurality of type-keys each having a stroke of unvarying length, a paper-holding device, means for feeding said device and an component controlled by each of the type-keys

for permitting the feeding of said device, said component having a stop movable automatically into and out of operative position to vary the length of the feeding movement of said device.

7. A type-writing machine having a plurality of type-keys each having a stroke of unvarying length, a paper-holding device, means for feeding said device, and an component having a stop for permitting said device to be fed one space, and having a stop controlled by each key for permitting said device to be fed a double space.

8. A type-writing machine having an attachment consisting of mechanism for permitting the carriage to be fed a double space, or a single space automatically, upon the maintained depression of each single key.

9. An attachment for a type-writing machine comprising a movable stop adapted to be secured to the pawl-carrier of said machine to limit the movement of the pawl, and means automatically operated upon the depression of each key for moving said stop out of and into operative relation to said pawl.

10. An attachment for a type-writing machine comprising a non-yielding pawl, a yielding pawl, a pawl-carrier, a movable stop adapted to be moved to the pawl-carrier to limit the movement of the yielding pawl, means for moving said stop in one direction, and means for moving it and returning its movement in the other direction.

11. A type-writing machine having a carriage-feeding component controlled by each type-key, said component being provided with a movable stop adapted to permit the carriage to move a single space or a double space and an automatic timing regulator for said stop.

12. A type-writing machine having a carriage-feeding component controlled by each type-key, and having alternately-operable stops for varying the feeding movement of the carriage, whereby said carriage may be fed automatically a single space or a double space on the depression of each key.

13. A type-writing machine having a carriage-feeding component, said component including a double-space stop, and a single-space stop adapted to be moved upon each depression of each key into and out of operative position, and a series of keys, each of which operates said spacing-component.

14. A type-writing machine having a carriage-feeding component, a stop thrown into one position by the actuation of each type-key to limit the movement of the carriage to a single space, and means for returning said stop to another position, to permit the carriage to move a double space.

15. A type-writing machine having a series of letter or type keys, a paper-holding device, and means controlled by the duration of depression of each key for imparting a differential movement to the paper-holding device.

16. The combination with an component for a type-writing machine, of a movable stop for varying the operation of said component, said movable stop being operable a predetermined period of time at each actuation of the component, whereby the carriage may be fed automatically a single space or a double space according to the duration of depression of the key.

17. The combination with an component including a carrier actuated by any of the type-keys and having a stationary pawl and a movable pawl, of a movable stop thrown into one position with relation to the movable pawl at each actuation of a type-key, and means for automatically returning the stop to another position, whereby the carriage may be fed automatically a single space or a double space according to the duration of depression of the key.

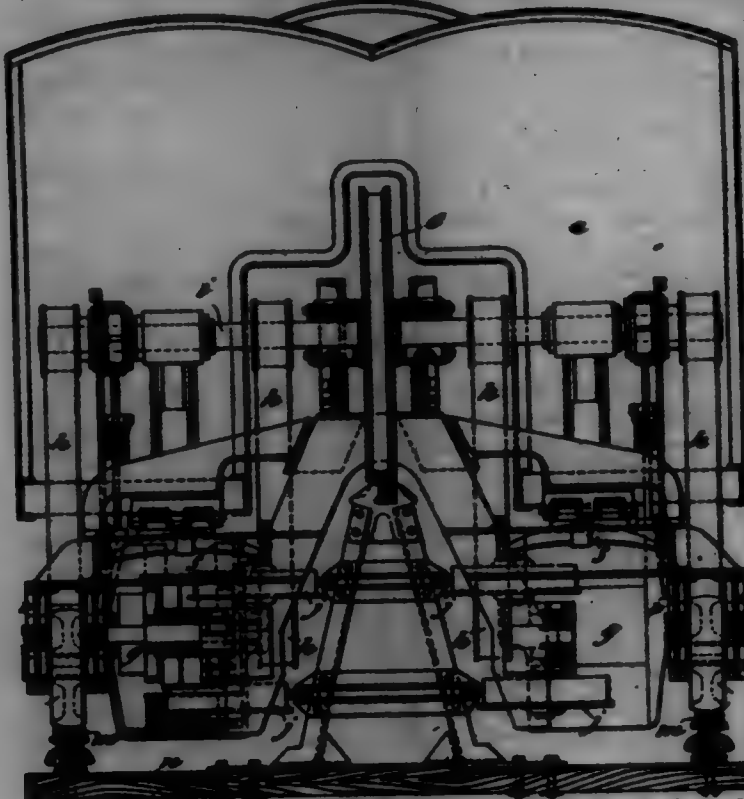
18. An attachment for a type-writing machine having a movable stop to limit the movement of a portion of the component, means for moving said stop to operative position and timed means for returning said stop to inoperative position, whereby the carriage may be fed automatically a single space or a double space according to the duration of depression of the key.

19. In a type-writer, a letter-key in combination with a reactionary device for causing a variable movement of the paper-carriage, said reactionary device being operated by said letter-key and being adjustable as to the duration of its action, whereby the carriage may be fed automatically a single space or a double space according to the duration of depression of the key.

20. In a type-writer, the combination with the paper-carriage and component mechanism, of a reactionary device operable by the depression of any one of a plurality of letter-keys, whereby said keys, when depressed, for an abnormal period of time, cause a movement of the paper-carriage of abnormal length.

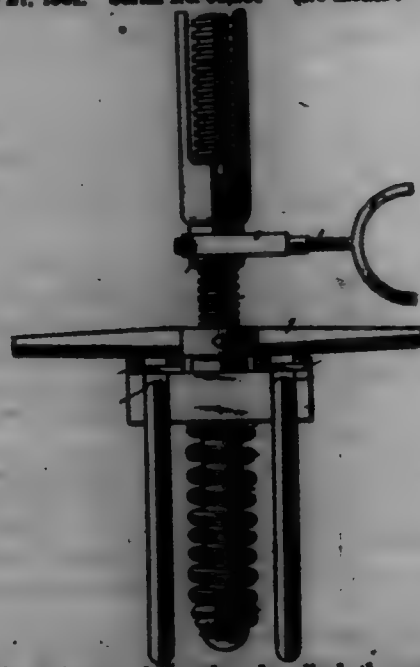
21. A type-writing machine having a plurality of type-keys, each having a stroke of unvarying length, and an component provided with a single yielding pawl adapted to engage a toothed bar and stops operable upon the depression of each of the type-keys at any time for permitting the pawl to yield a single space or a double space, and thereby permit the feeding of the carriage a single space or a double space.

700,609. ELECTRICALLY-PROPELLED VEHICLE FOR SINGLE-RAIL ELEVATED RAILWAYS. FRED S. REER, Trichinopoly, England. Filed Feb. 24, 1902. Serial No. 95,408. (No model.)



Claim.—An electrically-propelled vehicle for a single-rail elevated railway, comprising a body for accommodation of passengers, pivoted and mounted on spring-actuated angle-rollers on bogies, which carry in the middle driving-wheels and at the sides electric motors connected by chain gear to the driving-wheels which also carry at the side spring-actuated lateral guide-wheels and conducting-wheels pressed by springs on a conducting-rail mounted on insulators, substantially as described.

700,610. TEMPER-SCREW. GEORGE F. REA, Shreveville, W. Va. Filed June 27, 1901. Serial No. 64,260. (No model.)



Claim.—In a device of the class described, the combination of a temper-screw having a threaded upper portion and provided with an extended lower portion forming a smooth shank, the latter being provided at its lower end with a head, the cross-head slidably mounted on the smooth shank of the temper-screw and capable of movement longitudinally thereof, vertical links located at opposite sides of the shank and supported by the cross-head, and a combining-spring located between the links and arranged on the smooth shank and interposed between the head thereof and the said cross-head and yieldingly supporting the latter, substantially as and for the purpose described.

700,611. STOVEPIPE-THIMBLER. BRUCE DILLINGER, South Whitley, Ind. Filed Jan. 14, 1902. Serial No. 68,069. (No model.)

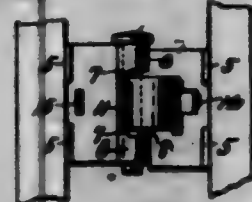
Claim.—1. A stovepipe-thimble, composed of the circular plate or disk, the pipe-section or sleeve passing therethrough and having its ends

split, the adjusting-plate carried by said ends, the ring or band surrounding the projecting end of the thimble, the adjusting device for said band, and the cap or cover secured over and upon the adjusting device and having a portion engaging the adjusting-bolt to secure the cover in place.



2. A stovepipe-thimble, consisting of the split pipe-section or sleeve, the adjusting-plate engaging the split portions of the sleeve, the band surrounding the split sleeve and having an adjusting-bolt engaging its free ends, and a cover having a flange engaging the bolt to secure the cover over the adjusting device.

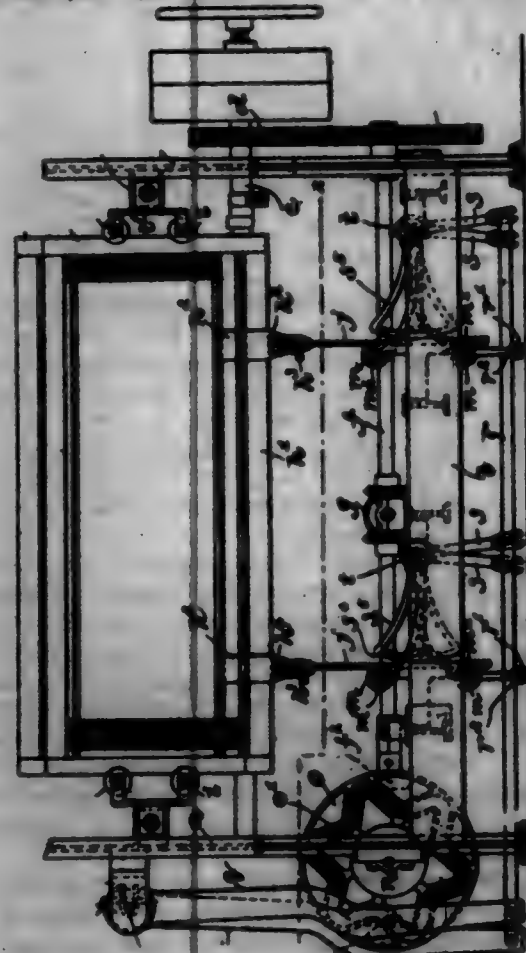
700,612. KIPPER. ARTHUR W. BARNETT, Owen, Ind., assignor of one-third to H. H. Bond, Louisville, Ky. Filed Jan. 7, 1902. Serial No. 64,110. (No model.)



Claim.—1. In a hinge the combination of two pivoted leaves having knuckles provided with shoulders located to interlock when the hinge is open, a curved notched tongue carried by one of said leaves which is constructed to engage an aperture in the other of said leaves when said shoulders interlock, substantially as described.

2. In a hinge the combination of two pivoted leaves, one of said leaves having a curved tongue provided with a square notch, the other of said leaves having an aperture therein located to be engaged by said tongue when the hinge is closed, said leaves having shoulders thereon which are constructed to interlock and permit the said square notch in said tongue to drop and engage the lower side of said aperture, substantially as described.

700,613. HARNES-MOTION FOR LOOMS. THOMAS BRYAN and MERRILL O. BRYAN, Portland, R. I., assignors to Bryn-More Company, Portland, Me., a Corporation of Maine. Filed July 13, 1901. Serial No. 62,796. (No model.)



Claim.—1. A harness-motion for looms, comprising a heddle-frame, a cam-actuated jack, and rack and segment mechanism interposed between said jack and said frame for positively actuating the latter.

2. A harness-motion for looms, comprising a heddle-frame, one or more depending racks attached to said frame, guides for said frame, one or more toothed segments engaging said rack or racks, a pivoted jack or lever attached to said segment or segments, and a cam for actuating said jack.

3. A harness-motion for looms, comprising a heddle-frame, means engaging the ends of said frame for guiding it vertically, and cam-actuated mechanism connected to said frame for moving it positively first in one direction and then in the other, all of the connections between the cam and the frame being rigid or inflexible.

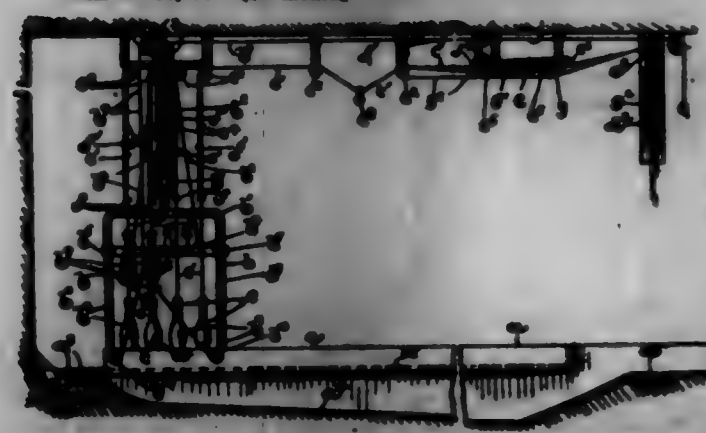
4. A harness-motion for looms comprising a heddle-frame, guides for said frame, one or more bell-cranks connected to said frame, a cam-actuated jack connected to said bell-crank or bell-cranks to reciprocate said frame.

5. A harness-motion for looms, comprising a heddle-frame, means for guiding said frame, a pivoted jack, means connecting said jack with said heddle-frame, and a cam having a star-shaped cam-groove for actuating said jack, all of the connections between the cam and the frame being rigid or inflexible.

6. A harness-motion for looms comprising a heddle-frame, a cam having a cam-groove, a pivoted jack having a projection entering said groove, one or more bell-cranks located below the said heddle-frame and connected thereto, and a connecting-rod connecting said jack with said bell-crank or bell-cranks, substantially as described.

7. A harness-motion for looms comprising a heddle-frame, a rack connected to said heddle-frame, a guide for said rack, a toothed segment engaging said rack and holding it in the said guide, and means for actuating said segment.

700,614. PIN SETTING OR RESETTING DEVICE FOR BOWL-ING-ALLEYS. EDWARD D. BURN, Cleveland, Ohio. Filed Nov. 1, 1901. Serial No. 64,786. (No model.)



Claim.—1. In a pin setting and resetting device the combination of an alley, a platform arranged at the rear end of said alley, vertical guides arranged at the sides of said platform, a plate mounted so as to slide freely between said guides, openings formed in said plate and corresponding to the position of the pins on said platform, means for normally holding said plate suspended above said platform and means for causing said plate to approach said platform, substantially as described and for the purpose set forth.

2. In a pin setting and resetting device the combination of a platform, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by said pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of the said platform, locking devices for holding the ropes against the pull of the weights, means for releasing said locking devices when the pins become displaced from their normal positions, vertical guides arranged at the sides of said platform, a plate arranged to slide vertically in said guides, means for normally holding said plate at an elevation above said platform and means for causing said plate to approach said platform, substantially as described and for the purpose set forth.

3. In a pin setting and resetting device, the combination of a platform, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by said pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of the platform, buttons secured on said ropes, a plate arranged above said ropes, and provided with projections adapted to engage said buttons, a trigger arranged below said plate, and means for causing the said trigger to release the buttons from said plate, substantially as described and for the purpose set forth.

4. In a pin setting and resetting device the combination of a plat-

form, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by said pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of the platform, buttons secured on said ropes, a plate arranged above said ropes and provided with projections adapted to engage said buttons, a trigger arranged below said plate, and means for causing the said trigger to release the buttons from said plate, a stop for limiting the travel of said buttons when released from said projections and means for replacing said buttons in engagement with said plate, substantially as described and for the purpose set forth.

5. In a pin setting and resetting device the combination of a platform, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of the platform, buttons secured on said ropes, a plate arranged above the said ropes and provided with projections adapted to engage said buttons, a trigger arranged below said plate, blocks strung upon said ropes and operatively connected with said trigger, and buttons secured on said ropes above said blocks and arranged to engage said blocks when the said pins are moved from their normal positions, substantially as described and for the purpose set forth.

6. In a pin setting and resetting device, the combination of a platform, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by said pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of the said platform, locking devices for holding the ropes against the pull of the weights, means for releasing said locking devices when the pins become displaced from their normal positions, indices secured to said weights and arranged to indicate the positions of the respective pins, a frame located at the front end of said alley constituting a guideway for the said weights, a movable bottom arranged in said frame to support said weights when in their lowest positions and means for lifting said bottom so as to restore the said weights to their normal positions, substantially as described and for the purpose set forth.

7. In a pin setting and resetting device the combination of a platform, pins arranged upon and normally supported by said platform, pulleys mounted above said platform, ropes secured to said pins and supported by said pulleys, counterbalancing-weights secured to the free ends of said ropes above the level of said platform, a frame located at the front end of said alley constituting guideways for said weights, a movable bottom arranged in said frame to support said weights when in their lowest positions, buttons secured on said ropes, a plate arranged above said ropes, and provided with projections adapted to engage said buttons, a trigger arranged below said plate, blocks strung upon said ropes and operatively connected with said trigger, buttons secured on said ropes, above said blocks and arranged to engage said blocks when the pins are in their normal positions, vertical guides arranged at the sides of the platform, a plate arranged to slide vertically in said guides and form a stop to limit the upward movement of the said pins, means for holding said plate at an elevation above said platform, means for causing said plate to approach said platform, means for causing the first-mentioned button to come into engagement with the said first-mentioned plate and means for lifting the said weights to their normal positions, all arranged substantially as described and for the purpose set forth.

700,615. RAILWAY-SWITCH. EDWIN R. CANNELL, Watling ton, B. C. Filed Jan. 2, 1902. Serial No. 64,911. (No model.)

Claim.—1. In an automatic device for operating railway-switches, the combination of a pair of fulcrumed contact-levers, a slotted fulcrumed lever-plate positioned lengthwise the railway and connected to the switch-frags, and a chain of levers connecting the contact-levers with said plate.

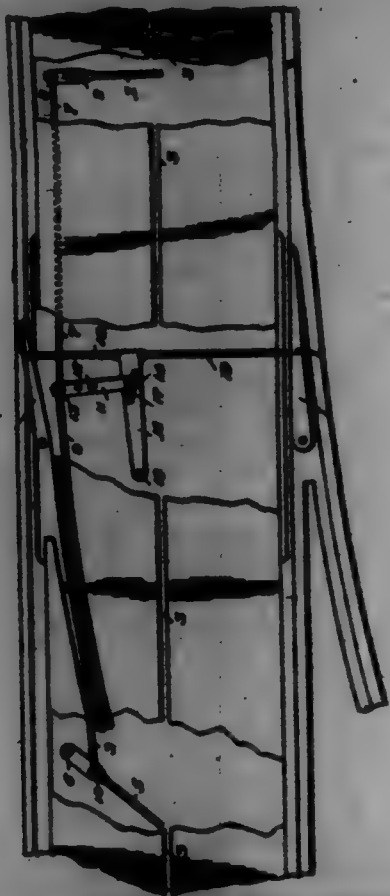
2. In a device for operating railway-switches, the combination with the fulcrumed chain of levers, of the pivoted lever-plate having a diagonal slot and operated by one of the levers of said chain, and the arms connecting the lever-plate with the switch-frags.

3. In a device for operating railway-switches, the combination with the pivoted slotted lever-plate, links connecting the plate with the switch-frags, and the fulcrumed lever having a stud or pin working in the slot of the said plate, of the fulcrumed contact-levers, and the levers connecting the contact-levers with the pin-lever.

4. The combination, with the switch-frags, the levers, and the links, of a pivoted lever-plate connected to the frags by said links, and having a slot in which one of the fulcrumed levers is operated to move the plate and work the frags.

5. In a device for operating railway-switches, the combination of the contact-levers at right angles to the railway, a pivoted lever-plate lengthwise the railway and connected to the switch-frags, the links connecting to the contact-levers, and the lever pivotedly connecting the links together and fulcrumed so as to give the free end of the lengthwise lever a transverse movement.

6. In an automatic device for operating railway-switches, the combination of the contact-levers at right angles to the railway, a diagonally-slotted plate lengthwise the railway and connected to said levers, and connections from the switch-frogs to the said plate so that the movement of the latter will work the frogs.



7. The combination with the contact slotted levers, and the links one of which is pivoted to one of said levers at one side of its fulcrum-point, and the other of which is pivoted to the other of said levers at the other side of its fulcrum-point, of a lever crosswise the railway and operated by the said links, and a diagonally-slotted plate lengthwise the railway and operated by the cross-lever to work the switch-frogs.

700,618. PROCESS OF CONVERTING CELLULOSE INTO FERMENTABLE SUGAR. ALEXANDER CLAMER, Aachen, Germany. Filed Mar. 23, 1901. Serial No. 82,414. (No specimens.)



Claim.—1. The process for converting cellulose into fermentable sugar which consists in subjecting the moist material to the action of sulfuric anhydride vapors and then suitably boiling the mass thus obtained with water.

2. The process for converting cellulose into fermentable sugar which consists in suitably heating the moist material, subjecting the material to the action of sulfuric anhydride vapors, and then suitably boiling the mass thus obtained with water.

3. The process for manufacturing fermentable sugar which consists in subjecting moist sawdust to the action of sulfuric anhydride vapors, and then suitably heating and boiling the mass thus obtained with water.

4. The herein-described process for manufacturing fermentable sugar, which consists in suitably heating moist sawdust, subjecting the material to the action of sulfuric anhydride and then boiling the mass in an open vessel with water.

700,617. KNIFE. STEPHEN R. CHAMBER, Middletown, Pa. Filed Jan. 12, 1902. Serial No. 82,403. (No model.)



Claim.—1. A knife having a blade with a sharpened edge extending the full length thereof and terminating in a point from which a convex blunt edge extends upwardly and rearwardly, a forwardly-projecting sharpened spur intersecting with the rear terminal of the said convex blunt edge, a concave serrated back portion, a serrated recess in the back portion, and a handle adjacent to the forward extremity of which the said serrated recess is located.

2. As an improved article of manufacture, a knife-blade having a sharpened edge and a concave back which is serrated its full length and has a serrated recess near the rear terminal thereof.

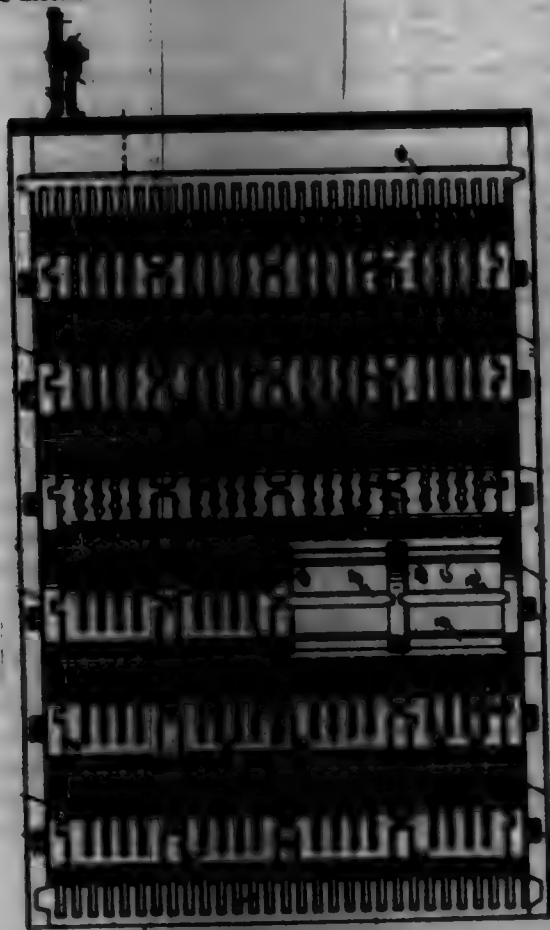
700,618. GRATE. CHARLES T. COE, New York, N. Y. Filed Aug. 2, 1901. Serial No. 71,284. (No model.)

Claim.—1. In a grate, the combination with a supporting-frame, of rocking frames mounted in said supporting-frame, and each consisting of supporting-bars, division-plates, and a strengthening-web connecting said division-plates, leaves or sections mounted on said rocking frame and between said division-plates, and means for rocking said frames, substantially as described.

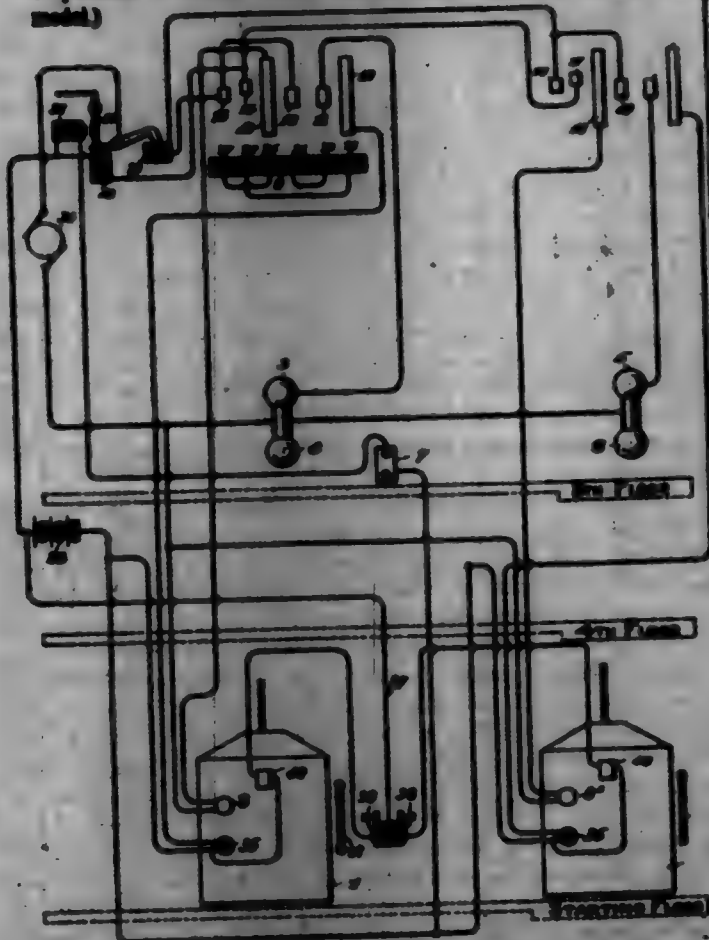
2. In a grate, the combination with a supporting-frame, of rocking frames mounted in said supporting-frame and each consisting of supporting-bars, division-plates, and a strengthening web or plate connecting said division-plates, and leaves or sections mounted in said rocking frames and between said division-plates, said leaves having their edges resting upon the supporting-bars of said rocking frame and provided with lugs or projections fitting in recesses formed in said division-plates, substantially as described.

3. In a grate, the combination with a rocking frame, said frame consisting of longitudinal parallel supporting-bars, division-plates cast integral with said bars, and provided with recesses, and a strengthening plate or web connecting the lower edges of said division-plates, the end plates

of said rocking frame being provided with concave legs or projections forming bearings for said frame, of leaves or sections, adapted to fit in said frame and on said supporting-bars, and provided with legs or projections on their ends to fit in said recesses in said division-plates, substantially as described.



700,619. ELEVATOR SIGNAL DEVICE. SAMUEL R. COLLIER, New York, N. Y., assignor to Elevator Supply & Repair Company, a Corporation of Illinois. Filed Feb. 10, 1902. Serial No. 98,308. (No model.)



Claim.—1. In a building having a plurality of floors in combination a plurality of elevator-cars passing said floors, a relatively independent circuit to each car, a signal on each car controlled by the circuit to that car, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

2. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent and normally open circuit to each car, a signal on each car controlled by the circuit to that car and operative on the closing of its circuit, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

3. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent and normally open circuit to each car, a signal on each car controlled by the circuit to that car and operative on the closing of its circuit, and a switch in each circuit located at the "starting-floor" for closing said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

4. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent and normally open circuit to each car, a signal on each car controlled by the circuit to that car and operative on the closing of its circuit, said signal being "made" only so long as its circuit is closed, and a switch in each circuit located at the "starting-floor" for closing said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

5. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent circuit to each car, an audible signal on each car controlled by the circuit to that car, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

6. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a source of electromotive force, a relatively independent circuit to each car in parallel from said source of electromotive force, a signal on each car controlled by the circuit to that car, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars.

7. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent circuit to each car, a signal on each car controlled by the circuit to that car, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor wherever said cars may be in their travel and independently of the signals on the other cars.

8. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, a relatively independent circuit to each car, a signal on each car controlled by the circuit to that car, and means located at the "starting-floor" and controlling said independent circuits, whereby the signal on any car may be operated from said floor and independently of the signals on the other cars, and signal devices also at the "starting-floor" automatically indicating the location of the different cars in their travel.

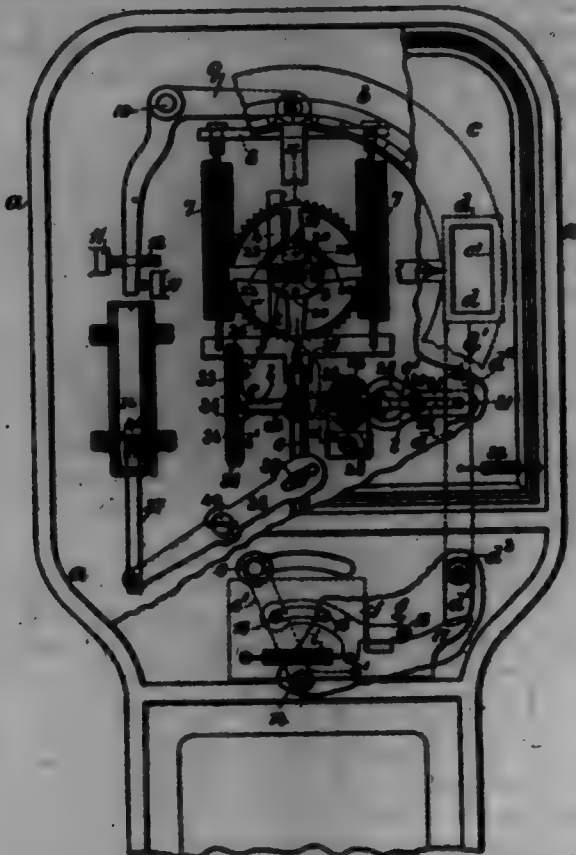
9. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, each of said cars being provided with a signal to indicate an intending passenger, means located at different floors to cause said signals to be operated, a relatively independent and normally open circuit to each car, a second signal on each car controlled by the circuit to that car and operative on the closing of its circuit, said latter signal being "made" only so long as its circuit is closed, and means located at the "starting-floor" and controlling said independent circuits, whereby a signal may be transmitted from said floor to any of said cars independently of the other cars.

10. In a building having a plurality of floors in combination, a plurality of elevator-cars passing said floors, each of said cars being provided with a signal to indicate an intending passenger, means located at different floors to cause said signals to be operated, a relatively independent and normally open circuit to each car, a second signal on each car controlled by the circuit to that car and operative on the closing of its circuit, said latter signal being "made" only so long as its circuit is closed, and means located at the "starting-floor" and controlling said independent circuits, whereby a signal may be transmitted from said floor to any of said cars independently of the other cars, and signal devices also located at the "starting-floor" and visible to the starter, for visibly indicating at all times the location of each car.

700,620. WEIGHING-MACHINE. EDGAR H. COOK, Brooklyn, N. Y. Filed June 6, 1901. Serial No. 63,308. (No model.)

Claim.—1. In a weighing-machine, the combination with the weighing mechanism and an indicator-dial, of a pneumatic retarding device connected to the case of the weighing-machine, and a rocking bar pivoted to the case connected at one end to the pneumatic device and at the other

end to the vertical rod of the weighing-machine for controlling the oscillatory movement of the dial, substantially as set forth.



2. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein and a shutter for normally covering the opening, of a pneumatic device for controlling the oscillatory movement of the weighing mechanism and indicator-dial, a hand-operated mechanism for effecting the movement of the shutter, and devices actuated by the movement of the shutter and acting in connection with the movement of the indicator-dial when the shutter is moved to discover the weight, substantially as and for the purposes set forth.

3. In a weighing-machine, the combination with the indicator-dial, the springs and other parts of the weighing mechanism and the vertical rod extending therefrom to the platform of the weighing-machine, of a plunger-rod connected to the case of the weighing-machine and placed vertically therein, a pivot-post 40 also upon said case, a rocking bar 38 mounted upon said pivot-post and having a longitudinal mortise at one end, a pin 39 passing through the mortise of said bar into the vertical bar of the weighing-machine to connect the parts, a piston in the plunger-rod, and a rod 37 connected thereto and pivotally connected to the rocking bar, substantially as and for the purposes set forth.

4. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, and a shutter for normally covering the opening, and a hand-operative mechanism for actuating the shutter, of a device for engaging the shutter and holding the same away from the opening in the face, and a yielding device connected to the axis of the indicator-dial and adapted to be engaged by the abutment shutter-holding means, substantially as set forth.

5. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a toothed wheel mounted upon the axis of the indicator-dial, means for limiting the movement of the same and for providing a yielding movement thereof in opposite directions with reference to said axis, and means substantially as described operated by the shutter-arm for simultaneously engaging the said toothed wheel and holding the shutter away from the opening in the face, substantially as set forth.

6. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a toothed wheel loosely mounted upon the axis of the indicator-dial, means for connecting said toothed wheel to said axis and for providing a limited movement of the toothed wheel in relation thereto, means for yieldingly connecting the said toothed wheel to

the said axis and which means provides for the movement of the said toothed wheel in relation to the said axis in either direction a distance agreeing with the limiting movement of the abutment means, and means substantially as described operated by the shutter-arm for simultaneously engaging the said toothed wheel and holding the shutter away from the opening in the face, substantially as set forth.

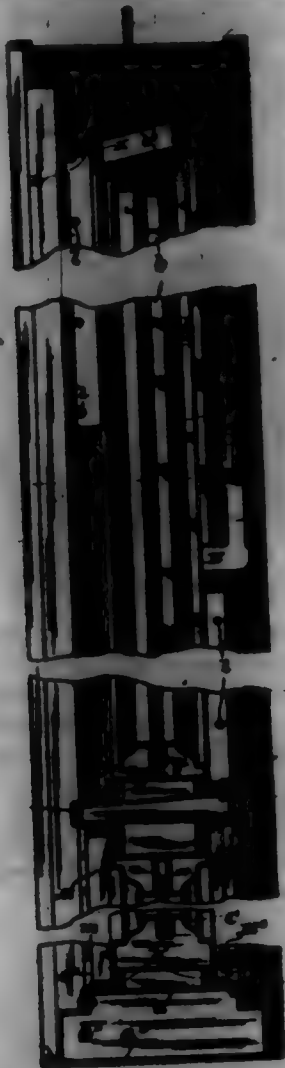
7. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a hub of stepped form in cross-section secured to the axis of the indicator-dial, a toothed wheel loose upon the said stepped hub and having oppositely-placed mortises, and screws passing through the mortises into the said hub for securing the toothed wheel to the hub, and yet providing for a predetermined movement in opposite directions proportioned to the length of the said mortises, a pin upon the said toothed wheel, and pins at opposite points in the periphery of the said hub, and helical springs connected at one end to the pin of the toothed wheel and at their other ends to the pins of the said hub, whereby the toothed wheel is free to turn in either direction in extent equal to the length of the said mortises, putting one of the said springs under tension and by which the toothed wheel is returned to its normal position, the said springs acting together to maintain the toothed wheel in a predetermined relation to the said axis of the indicator-dial, and means substantially as described operated by the shutter-arm for simultaneously engaging the said toothed wheel and holding the shutter away from the opening in the face, substantially as set forth.

8. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a toothed wheel mounted upon the axis of the indicator-dial, means for limiting the movement of the same and for providing a yielding movement thereof in opposite directions with reference to said axis, a pivotal arm, a latch-rod on the arm of the shutter engaging a slot in said pivotal arm, a rocker-bar pivoted to the said arm, and means for maintaining the relation of the pivotal arm to the rocker-bar, a device connected to the rocker-bar adapted to engage the toothed wheel and a device forming a continuation of the rocker-bar and adapted to engage the latch-rod of the shutter-arm whereby the shutter-arm is held by the latch-bar and is released therefrom, substantially as set forth.

9. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a toothed wheel mounted upon the axis of the indicator-dial, means for limiting the movement of the same and for providing a yielding movement thereof in opposite directions with reference to said axis, a pivotal arm 1 carried by an upright of the case and mortised at one end, a latch-rod connected to the shutter-arm and at one side of the said arm passing into the said mortise, a rocker-bar pivotally connected to the said arm, a tooth 27 carried by said rocker-bar and adapted to engage the teeth of the toothed wheel, a latch-bar pivoted to one end of the rocker-bar, and a spring for actuating the same, a latch-rod upon the free end of the latch-bar adapted to engage the latch-rod of the shutter-arm, and spring-acting devices connecting the pivotal arm and the rocker-bar and also the latch-bar in relation to one another, substantially as set forth.

10. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivotal shutter-arm for the shutter, and a hand-operative mechanism for swinging the shutter-arm and shutter, of a toothed wheel mounted upon the axis of the indicator-dial, means for limiting the movement of the same and for providing a yielding movement thereof in opposite directions with reference to said axis, an arm 1 connected by a screw-rod pivotally to an upright 2 of the case, said arm 1 being provided at one end with a mortise 25 having a portion of circular form and a portion with parallel edges, a latch-rod 31 on the shutter-bar 3 projecting from one side of said shutter-bar into said mortise, auxiliary arm 1' extending in opposite directions from the opposite end of the said arm 1, a rocker-bar 4 and a screw-rod 34 for pivotally connecting the same to the arm 1, said bar 4 having a mortised portion 26 encircling the screw-rod 34, and an adjustable removable tooth 27 connected to the rocker-bar 4 above the screw-rod 34, a spring-actuated latch-bar 5 pivoted at one end of the rocker-bar 4, a latch-rod 28 on the free end of said latch-bar adapted to engage the latch-rod 31 of the shutter-arm, a screw-rod 35 extending through the opposite end of the rocker-bar 4, and springs 33, 34 connected at one end to the said screw-rod 35 and at the other ends to studs in prolongations of the auxiliary arm 1', substantially as and for the purposes set forth.

700,621. METAL WINDOW. ARTHUR W. COOPER, Chicago, Ill.
Filed Feb. 2, 1902. Serial No. 55,122. (No model.)



Claim.—1. A hollow or tubular sheet-metal window-frame member embracing a trough-shaped inner part and an outer part or wall, said inner and outer parts being joined at their edges by the bending of the margins of one part over the margins of the other part, so as to form flanges which extend outwardly from the side faces of the frame.

2. A hollow or tubular sheet-metal window-frame member embracing a trough-shaped inner part having outwardly-bent margins, and an outer part or wall, the side edges of which are bent around and interlocked with the said outwardly-bent margins of the inner part so as to form flanges which extend outwardly from the side faces of the frame.

3. A hollow or tubular sheet-metal window-frame member embracing a trough-shaped inner part having outwardly-bent margins, and an outer part or wall the side margins of which are bent around the outwardly-bent side margins of the inner part, said outer part or wall being bent near its side margins to provide shoulders which are parallel with and fit against the inner faces of the side walls of the trough-shaped member.

4. A tubular sheet-metal cash-frame bar consisting of an inner trough-shaped member, and an outer trough-shaped member the side walls of which are parallel with and adapted to fit between the side walls of the inner member; the margins of the inner and outer members being bent outwardly and folded together so as to form laterally-projecting flanges in the outer margin of the bar.

5. A tubular sheet-metal cash-frame bar consisting of an inner trough-shaped part, the margins of which are bent outwardly, and an outer trough-shaped member the side walls of which are parallel with and fit between the side walls of the inner member, the said side walls of the outer member being bent outwardly and folded around the outwardly-bent margins of the inner member to secure said members together.

6. The combination with a window-frame, of a sheet-metal cash, consisting of an inner trough-shaped part and an outer trough-shaped part, the side walls of which are parallel with and fit within the side walls of the inner part; the margins of said inner and outer parts being bent outwardly and joined by folding the margin of one part over the margin of the other part so as to form outwardly-projecting flanges on the cash, and steps on the frame, consisting of metal strips, the inner margins of which are separated by a space from the frame so as to constitute a groove to receive the flanges on the cash.

7. The combination with a tubular sheet-metal cash provided with a marginal recess or groove, the side walls of which are formed by the outer parts of the side walls of the cash-frame, of a weather-strip secured against

one of the side walls of the groove and having a flexible edge which projects beyond the edge of the cash.

8. The combination with a tubular sheet-metal cash consisting of two trough-shaped members fitted one within the other and forming a marginal groove, of a weather-strip secured to the side walls of said groove and having a flexible edge which projects beyond the margin of the cash.

9. The combination with a tubular sheet-metal cash, consisting of two trough-shaped parts, fitted one within the other with their side walls in contact and secured together by the folding or interlocking of their side margins, of a weather-strip secured to the side wall of said groove, and having a flexible edge which projects beyond the margin of the cash.

10. The combination with a tubular sheet-metal cash provided with a marginal recess or groove, of a weather-strip consisting of a folded strip of flexible material, and a folded metal strip embracing the edges of the flexible strip, said weather-strip being secured to one of the side walls of the groove with the fold of the flexible strip projecting beyond the margin of the cash.

11. The combination with a tubular sheet-metal cash consisting of two trough-shaped parts inserted one within the other with their side walls in contact with each other, and forming a marginal groove in the cash, and two weather-strips secured one to each side wall of the said groove and provided with flexible edges which project beyond the margin of the cash.

12. The combination with a frame having flat inner faces and cash-steps thereon, of a cash having a tubular sheet-metal frame provided with a marginal groove, the side walls of which are formed by the outer parts of the side walls of the tubular cash-frame, and a weather-strip secured to one of the side walls of the groove and having a flexible edge adapted for contact with the inner face of the frame when the cash is in place therein.

13. The combination with a frame and a pivoted cash, of holding means for holding the cash in its open position, comprising a toothed bar and a detent adapted to engage the said bar, said holding means including parts which are held in operative relation by solder or fusible metal and which, upon the solder becoming fused by heat, become disconnected and release the cash.

14. The combination with a pivoted cash, of holding means for holding the cash in its open position, embracing a toothed segment attached to the cash concentrically with the pivotal axis thereof and a spring-pressed detent; said holding means embracing parts which are held in operative relation by solder or fusible metal.

15. The combination with a pivoted cash, of a notched segment on the cash and a spring-pressed detent adapted to engage the said segment; the said detent consisting of two parts which are joined by solder or fusible metal.

16. The combination, with a pivoted cash, of a notched segment, the teeth of which are secured thereto by solder or fusible metal, and a spring-pressed detent consisting of two parts joined by solder or fusible metal.

17. The combination, with a pivoted cash, of a holding device embracing a toothed segment which is rigidly attached to the cash and is located in a plane outside of the margin of said cash, and a detent adapted to engage the said segment, said holding device embracing parts which are held in operative relation by solder or fusible metal.

18. The combination with a tubular sheet-metal frame, of a cash pivoted to the frame and a holding device for the frame embracing a toothed segment attached to one end to the cash and located in a plane outside of the margin of the cash, said frame being provided with an aperture through which the segment enters the same, and a spring-pressed detent on the frame adapted to engage said notched segment, said holding means embracing parts which are held in operative relation by solder or fusible metal.

19. The combination with a cash, of means for pivotally supporting the same, embracing a bracket attached to the cash and a pivot-rod attached to said bracket, and means for holding the cash in its open position, embracing a toothed segment attached to the said bracket concentrically with the said pivot-rod, and a spring-pressed detent adapted for engagement with the said segment.

20. The combination with a cash, of means for pivotally supporting the cash and holding it open, embracing a bracket, a pivot-rod attached thereto, a toothed segment and a segment-supporting arm; said bracket, segment and supporting-arm being formed of a single casting.

21. The combination with a pivoted cash, of a toothed holding-segment, a spring-pressed detent having the form of a bolt, one end of which is adapted to engage the segment and a casing in which the detent slides, the end portion of the bolt which engages the teeth of the segment being attached to the body part thereof by a soldered joint.

22. The combination with a pivoted cash, of a toothed holding-segment, the teeth of which are made separated from each other and are separately attached to the segment by solder, and a spring-pressed detent

adapted to engage the said segment; the end portion of said segment which engages the teeth of the segment being attached to the body part thereof by solder.

25. The combination with a sheet-metal ash-tray, provided with a marginal groove, of a bracket and a pivot-rod attached to said bracket; said bracket being provided with an integral attaching-plate which is secured within the groove in the ash-tray by attachment to one of the side walls of the said groove.

26. The combination with a tubular sheet-metal ash-tray, consisting of two trough-shaped parts, fitted one within the other with their side walls in contact and forming a marginal groove in said ash-tray, of a pivot-rod and a bracket for connecting the pivot-rod with the ash-tray, said bracket having an integral attaching-plate which is secured to the ash-tray within said groove by attachment to the side walls of the said trough-shaped parts; said side walls being notched for the passage of the bracket.

27. The combination with a metal ash-tray, of a hollow sheet-metal mullion, and connectors adapted to enter the ends of the mullion and having stems which enter and are secured to the ash-tray.

28. The combination with a hollow sheet-metal ash-tray, provided with grooves to receive the ends of the glass, of a sheet-metal mullion and connectors adapted to engage the ends of the mullion and having flat-sided stems adapted to fit within the grooves in the ash-tray.

29. The combination with a hollow sheet-metal ash-tray consisting of inner and outer trough-shaped parts, one of which fits within the other, said frame having U-shaped parts which form glass-receiving grooves, of a sheet-metal mullion, and connectors adapted to engage the ends of the mullion and provided with flat-sided stems adapted to fit within the glass-receiving grooves, and screws inserted through the outer trough-shaped parts of the frame and engaging said stems.

30. The combination with a metal ash-tray, of a hollow sheet-metal mullion having flattened central and lateral parts, and connectors having the shape adapted to enter the ends of the mullion, and stems which enter and are secured to the ash-tray.

31. The combination with a hollow or tubular sheet-metal ash-tray, the upper cross-bar of the frame having a U-shaped part to receive the ends of the glass which extends outwardly into contact with the outer wall of said cross-bar, and the lower cross-bar of the frame having a U-shaped part which is separated by a space from the outer wall of the cross-bar, a sheet-metal mullion, a connector for the upper end of the mullion having a flat side or stem which abuts against the inner wall of the U-shaped part of the ash cross-bar and is secured to the said cross-bar by a screw passing through the outer wall of said cross-bar and through said U-shaped part and a connector for the lower end of the mullion provided with a flat-sided stem which passes through an aperture in said U-shaped part and abuts at its end against the outer wall of the said lower cross-bar and is secured to the said cross-bar by a screw which passes through the said outer wall thereof.

32. A pivoted, tubular sheet-metal ash-tray, consisting of inner and outer trough-shaped members inserted one within the other and joined at their edges; the lower cross-bar of the ash-tray being provided with an outwardly and downwardly extending flange formed by extension of the marginal parts of both members, which are joined by folding at the outer edge of said flange.

33. The combination with a window-frame, of a sheet-metal ash consisting of inner and outer parts the side margins of which are bent outwardly and folded together to form marginal flanges at both sides of the ash, and steps extending around the frame at the inner and outer faces of the ash, said steps consisting of metal strips secured to the ash at their outer margins and separated by a space at their inner margins from the frame so as to form grooves to receive the outwardly and inwardly extending flanges in the ash, the steps at the inner side of the ash being detachably secured to the frame.

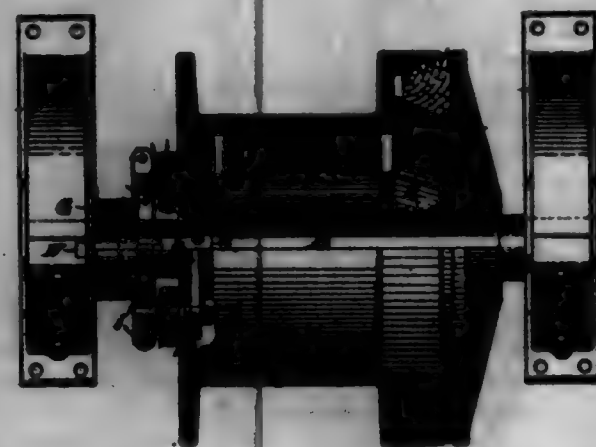
34. The combination with a window-frame, of a sheet-metal ash consisting of inner and outer parts, the side margins of which are bent outwardly and folded together to form marginal flanges at both sides of the ash, and steps extending around the outer face of the ash, said steps consisting of metal strips secured to the frame at their outer edges and separated by a space from the frame at their inner edges so as to form a groove to receive the flange on the ash; the step at the bottom or sill member of the frame having its inner edge adapted to bear against the outer face of the lower cross-bar of the ash to prevent the entrance of water between the ash and sill.

35. The combination with a sheet-metal window-frame, and a ash having an outwardly-extending marginal flange, of steps or the frame consisting of metal strips bent into U form and secured to the frame with their edges directed toward the ash.

36. The combination with a tubular sheet-metal frame, of a ash-tray, and means for securing said tray to the frame consisting of one soldered to the inner face of the frame, and screw-bolts inserted through

the stop and engaging the said nuts, said screw-bolts having heads which bear against the outer faces of the stop.

700,629. CLUTCH-OPERATING MECHANISM. HARRY E. GUNN, Brooklyn, N. Y. Filed Dec. 2, 1900. Serial No. 34,008. (No model.)



Claim.—1. In a clutch mechanism the combination with a shaft and fixed and movable clutch members mounted thereon, of an abutment-collar fixed to the shaft, a loose collar between the abutment-collar and the movable clutch member, a screw supported by said loose collar, a nut upon the screw, means for causing the relative rotation of nut and screw, and a thrust-bearing between nut and movable clutch member.

2. In a clutch mechanism the combination with a shaft and fixed and movable clutch members on the shaft, of an abutment fixed to the shaft, a clutch-operating screw outside of and non-rotatable with the shaft, a nut for said screw, means for causing relative rotation of nut and screw, and thrust-bearings transmitting the thrust of said screw and nut respectively to the abutment and movable clutch member.

3. In a clutch mechanism the combination with a shaft and fixed and movable clutch members mounted thereon, of an abutment-collar fixed to the shaft, a loose collar between the abutment-collar and the movable clutch member, a screw supported against rotation by said loose collar, a nut upon the screw, means for turning said nut and a thrust-bearing between nut and movable clutch member.

4. In a clutch mechanism the combination with a shaft, a fixed and a movable clutch member carried by said shaft, and an abutment-collar secured to the shaft, of a non-rotating collar on the shaft between the abutment-collar and the movable clutch member, screws and nuts carried by said non-rotating collar and thrust-bearings transmitting the pressure of said screws and nuts respectively to the abutment-collar and to the movable clutch member, said means for causing relative rotation of screws and nuts.

5. In a clutch mechanism the combination with a shaft, and fixed and movable clutch members on the shaft, of an abutment-collar secured to the shaft, a non-rotatable collar about the shaft between the abutment-collar and the movable clutch member, screws supported against rotation by said non-rotating collar, nuts upon the screws, thrust-bearings transmitting the pressure of said nuts and screws respectively to the movable clutch member and the abutment-collar, and means adjustably secured to said nuts to turn them.

6. In a hoisting-engine, the combination with a power-driven shaft, a drum loosely mounted thereon, a clutch member fixed to the shaft, and means for frictionally engaging said clutch member with the drum to drive it, of an exterior abutment upon the shaft, nuts and screws exterior of and having a fixed position relative to the shaft, and substantially parallel with the shaft, means for causing relative rotation of nuts and screws, said nuts and screws having thrust-bearings respectively upon the drum and shaft-abutment.

7. In a clutch mechanism the combination with a shaft, and fixed and movable clutch members on the shaft, of an abutment-collar secured to the shaft, a loose collar about the shaft between the abutment-collar and the movable clutch member, said loose collar having a pin engaging the shaft-support or other fixed member to prevent turning of the collar, threaded pins or screws supported against turning by said loose collar, nuts on said screws, operating-levers adjustably coupled to said nuts to turn them, and thrust-bearings interposed respectively between the loose collar and abutment and between the nuts and removable clutch member.

8. In a hoisting-engine the combination with a power-driven shaft, a drum loosely thereon, and a friction driving connection between shaft and drum operated by movement of the drum lengthwise the shaft, of an abutment-collar secured to the shaft, a collar loosely surrounding the shaft between the abutment-collar and the drum, a pin connecting said loose collar and the shaft-support to prevent rotation of the collar, screws carried

by the abutment-collar and extending lengthwise the shaft, nuts on said screws, thrust-bearings respectively between the loose abutment-collar and between the nuts and drum, and levers clamped upon the nuts whereby they may be turned to operate the friction mechanism.

9. In a hoisting-engine the combination with a power-driven shaft, a drum loosely thereon, and a friction driving connection between shaft and drum operated by movement of the drum lengthwise the shaft, of an abutment-collar secured to the shaft, two loose and non-rotating collars upon the shaft between the drum and the abutment-collar, threaded pins carried by one of said loose collars and freely passing through the other, nuts upon said pins engaging said other loose collar, thrust-bearings between said collars and the abutment-collar and drum respectively, and levers secured to said nuts to turn them, and to thereby separate the loose collars.

10. In a clutch mechanism the combination with a shaft, of fixed and movable clutch members mounted on said shaft, a support or abutment rotating with said shaft and adjacent said movable clutch member, a non-rotating collar on said shaft between said movable clutch member and said support or abutment, said collar being split or separable to permit its removal from said shaft, and to thereby allow movement of the movable clutch member on said shaft and separation of said clutch members, and a screw-nut outside of the shaft periphery and adapted when given relative rotation to exert pressure between said abutment and the movable clutch member to operate the clutch, and means for rotating said screw.

700,628. EYEGLASS. AUGUSTUS R. COTTER, San Antonio, Tex. Filed Oct. 21, 1901. Serial No. 79,467. (No model.)



Claim.—1. The eyeglass herein described provided with the spring-bow, with the ear-bow to bear under the frontal bone, the nosepieces provided with eyes, the spring-plates adjustably supported at one end and free at their other ends and provided near their free ends with slots for the eyes on the nosepieces and the nosepieces being provided with portions clamping the springs all substantially as described whereby the nosepieces will be given a tension toward each other by the spring-plates and will slide along the said spring-plates substantially as set forth.

2. The combination with the opposite glasses and the longitudinally-movable nosepieces, of spring-plates adjustably supported at one end and free at their other ends and provided near their free ends with slots for the eyes on the nosepieces and the nosepieces being provided with portions clamping the springs all substantially as described whereby the nosepieces will be given a tension toward each other by the spring-plates and will slide along the said spring-plates substantially as set forth.

3. In eyeglasses the combination with the opposite glasses, of the nosepieces, the spring-plates for actuating the nosepieces and along which the nosepieces are slidable longitudinally, and spring-carriers for the outer ends of the nosepieces substantially as set forth.

4. In eyeglasses the combination of the spring-plates, the nosepieces held to and slidable along the spring-plates, and spring-connections between the nosepieces and their respective glasses substantially as set forth.

5. Eyeglasses provided with nosepieces which are movably longitudinally or in the direction of their lengths, and with springs independent of the bow-spring for actuating such nosepieces substantially as set forth.

6. An eyeglass provided with ear-bow devices to bear under the frontal bone and also provided with spring-actuated nosepieces arranged to yield longitudinally and toward and from each other and with devices along which the nosepieces are movably substantially as set forth.

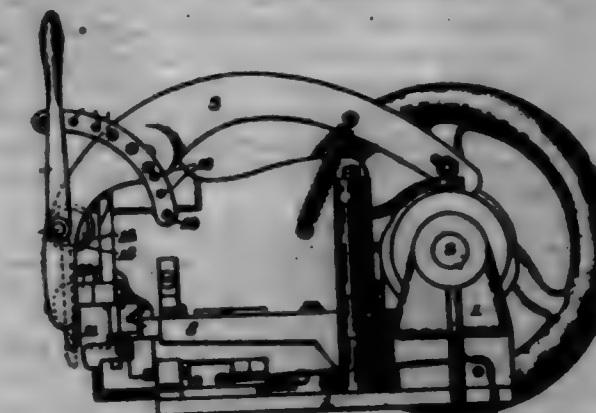
7. The combination of lenses, nosepieces arranged between said lenses and movable longitudinally, springs independent of the bow-spring for actuating the nosepieces and connections between the nosepieces and their respective lenses, substantially as set forth.

8. The combination with the lenses, of the springs extending between said lenses and yielding laterally toward and from the same, and nosepieces movable longitudinally along the said springs and arranged to be actuated thereby, and connections between the glasses and the nosepieces whereby the springs actuate the nosepieces longitudinally and laterally substantially as set forth.

700,624. SELF-ADJUSTING MACHINE. CLARENCE F. GUNN, North Abington, Mass., assignor to Standard Shoe Machinery Company, East Orange, N. J., a Corporation of New Jersey. Filed Feb. 14, 1900. Serial No. 61,800. (No model.)

Claim.—1. In a sole-trimming machine, the combination with a trimming-knife, of a movable guide-support co-operating with the work, a guide arranged to move upon said support, an eccentric journaled in the guide-support arranged to control the movement of the guide, and means for operating the eccentric.

by and bodily movable with the guide-support for adjusting the guide at substantially right angles to the plane of movement of the trimming-knife.



2. In a sole-trimming machine, the combination with a trimming-knife, of a movable guide-support co-operating with the work, a guide arranged to move upon said support, an eccentric journaled in the guide-support arranged to control the movement of the guide, and means for operating the eccentric.

3. In a sole-trimming machine, the combination with a trimming-knife, of a movable guide-support co-operating with the work, a guide arranged to move upon said support, an eccentric journaled in the guide-support arranged to control the movement of the guide, means for operating the eccentric, and means for limiting the movement of said eccentric, both of which means are carried by the guide-support.

4. In a sole-trimming machine, the combination with a trimming-knife, of a movable guide-support co-operating with the work, a reciprocating guide mounted upon said support, means carried by the guide-support and bodily movable therewith for moving said guide to vary the distance between its end and the trimming-knife, and stops also carried by the guide-support for limiting the movement of the guide in either direction.

5. In a sole-trimming machine, the combination with a trimming-knife, of a movable guide-support co-operating with the work, a reciprocating guide mounted upon said support, means carried by the guide-support and bodily movable therewith for moving the guide to vary the distance between its end and the trimming-knife, and adjustable stops also carried by the guide-support for limiting the movement of the guide in either direction whereby the width of the sole outside the upper may be varied.

6. In a sole-trimming machine, the combination with a trimming-knife, of a movable support co-operating with the work and provided with guide-supporting grooves, a guide mounted in said grooves and adapted to be moved to vary the distance between its working end and the trimming-knife, and a cam journaled in the support and coacting with the guide to control the movement thereof.

7. In a sole-trimming machine, the combination with a trimming-knife, of a movable support co-operating with the work and provided with guide-supporting grooves, a guide mounted in said grooves and adapted to be moved to vary the distance between its working end and the trimming-knife, a cam journaled in the support and coacting with the guide to control the movement thereof, an arm operable to move the cam, and adjustable stops for limiting the movement of the cam, said arm and stops being carried by the guide-support.

8. In a sole-trimming machine the combination of a trimming-knife, a guide-support, a guide arranged to be moved endwise in said support, an eccentric cam journaled in the guide-support arranged to control the movement of said guide, and vary the relative positions of its working end and the trimming-knife during the trimming operation, and means under the control of the operator for moving said cam, and limiting-stops for regulating the extent of movement of said guide.

9. In a sole-trimming machine the combination of a trimming-knife, a pivoted feeding-lever, a reciprocating gage mounted in the working end of said feeding-lever, a cam for moving said guide endwise to vary the distance between its working end and the trimming-knife, an arm for controlling the movement of the cam, said cam and arm being carried by the feeding-lever, a segmental plate secured to said feeding-lever and provided with a series of pin-bolts, and stop-pins adapted to be interchangeably mounted in said holes to vary the movement of said cam.

10. In a sole-trimming machine the combination of a trimming-knife, a guide-support, a guide arranged to be moved endwise in said support, and means wholly carried by and bodily movable with the guide-support under the control of the operator whereby the relative position of said guide and trimming-knife may be varied during the trimming operation.

11. The combination with a trimming-knife, of a feeding-lever, an independently-movable guide mounted upon the lever, and means carried by the lever for actuating the guide.

12. The combination with a trimming-knife, of a feeding-lever, an independently-movable guide mounted upon the lever, and an eccentric carried by the lever for actuating the guide.

13. The combination with a trimming-knife, of a feeding-lever, a guide movable upon the lever, a shaft journaled in said lever, and an eccentric mounted upon the shaft and coacting with the guide.

14. The combination with a trimming-knife, of a feeding-lever, a guide movable upon the lever, a shaft journaled in said lever, an eccentric mounted upon the shaft and coacting with the guide, and a lever carried by the shaft.

15. The combination with a trimming-knife, of a feeding-lever, a guide movable upon the lever, a shaft journaled in said lever, an eccentric mounted upon the shaft and coacting with the guide, a lever carried by the shaft, and means for limiting the movement of the lever.

16. The combination with a trimming-knife, of a feeding-lever, a guide movable upon the lever, a shaft journaled in said lever, an eccentric mounted upon the shaft and coacting with the guide, a lever carried by the shaft, and adjustable means for limiting the movement of the lever.

17. The combination with a trimming-knife, of a feeding-lever, a guide movable upon the lever, a shaft journaled in said lever, an eccentric mounted upon the shaft and coacting with the guide, and a lever carried by the shaft.

18. The combination with a trimming-knife, of a lever divided at its end to form arms, a guide movably mounted upon the arms, and an eccentric journaled between the arms and coacting with the guide.

19. The combination with a trimming-knife, of a lever, a guide movably mounted upon the lever and provided with an L-shaped slot, and an eccentric having its periphery entering and substantially conformed to the slot.

20. The combination with a knife, of a lever divided at its end to form arms, a guide movably mounted upon the arms, an eccentric journaled between the arms and coacting with the guide, and means for rotating the eccentric carried by the lever.

700,695. AUTOMATIC CAR-COUPLING. JOHN BARKER, Batherglan, Scotland. Filed Jan. 10, 1901. Serial No. 42,708. (No model.)



Claim.—1. In a car-coupler, the combination with the jaws having pin-openings formed through the walls thereof, and a pin enter tension adapted to enter said openings, of a springing member connected to the coupler, and a counterbalanced pin-holder pivoted to said member and normally depending between the jaws to close the openings in the walls thereof and to prevent the pin from moving to coupled position.

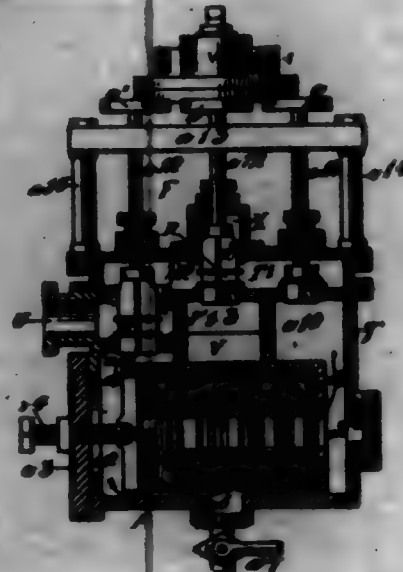
2. In a car-coupler, the combination with jaws having pin-openings formed therein, and a coupling-pin under tension adapted to enter said openings, of a cross-bar for operating the pin, a sleeve or collar having a limited movement on the cross-bar, and a counterbalanced pin-holder pivoted to the sleeve or collar and normally depending between the jaws to close the openings in the walls thereof, and to prevent the pin moving to coupled position.

3. In a car-coupler, the combination of the jaws having pin-openings therein and a cross-bar, of a coupling-pin under tension adapted to enter said openings, a cross-bar connected to the coupling-pin, a link pivoted between the jaws, a pin-link carried by the said link, and a pawl carried by the cross-bar to operate the pin-link and engaging within the recess of the jaws to lock the pin in its withdrawn position.

4. In a car-coupler, the combination with the jaws having pin-openings formed in the walls thereof, of a coupling-pin under tension entered in one of said openings, a counterbalanced pin-holder pivoted over and depending between said jaws to prevent the pin passing through the said openings into coupled position, the cross-bar G, the sleeve or collar loosely mounted on said cross-bar, said counterbalanced pin-holder being carried by said sleeve or collar, a bracket connecting the cross-bar and coupling-pin, a recess A' at the inner end of one of the jaws and a projecting lip or flange A' formed at the inner end of the other jaw, the pawl P pivoted to said cross-bar adapted to fall behind the lip or flange A' on the inner end of the jaws, thereby locking the coupling-pin in the coupled position.

700,696. FINE-WATER-FILTER AND KEATER. JAMES DAVIS, Chicago, Scotland. Filed Sept. 17, 1901. Serial No. 78,717. (No model.)

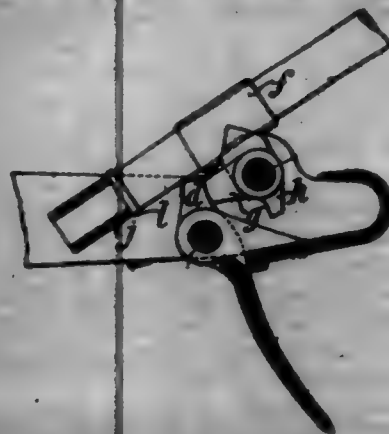
Claim.—1. A fine-water-filtering apparatus, comprising a casing having an opening at one end, a filtering device adapted to be inserted into said casing, a cover adapted to close said casing, a screw passing through said cover, an inlet-chamber, a sediment-collector, a blow-off, an outlet-chamber, valve-chests T, T' and X, double-faced valves P and R, a single valve S arranged in said chests and suitably supported wheels and spindles in operative connection with said valves, substantially as shown and described.



2. A fine-water-filtering apparatus, comprising a casing having an opening at one end, a filtering device adapted to be inserted into said casing, a cover adapted to close said casing, a screw passing through said cover, an inlet-chamber, a sediment-collector, a blow-off, an outlet-chamber, valve-chests T, T' and X, double-faced valves P and R, a single valve S arranged in said chests and suitably supported wheels and spindles in operative connection with said valves, said filtering device being composed of inlet-gratings R, outlet-gratings O and filter-discs D arranged in series and forming inlet to the water to be filtered, and outlet to the filtered water, substantially as shown and described.

3. In an apparatus of the class described a filter-casing, a filtering device adapted to be placed therein; valve-chests T, T' and X in said casing, double-faced valves P and R and a single-faced valve S arranged in said chests, means for operating said valves, an inlet in communication with one of said valve-chests, a heater in communication with said inlet, and an outlet also in communication with one of said valve-chests, whereby water may be heated, or filtered, or both, or neither, as desired, substantially as shown and described.

700,697. SUB-CARRIER. KARE BERNHARD, Pilsen, Austria-Hungary, assignor to Pilsen of Maschinenbau, Aktiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Filed Dec. 26, 1901. Serial No. 57,587. (No model.)



Claim.—1. In a gun-carriage, the combination with the trail and its shoe, of a spade pivotedly connected in the shoe and provided with suitable projecting means, and means pivotedly mounted in the shoe and engaging the projecting means of the spade for retaining the latter in its operative position.

2. In a gun-carriage, the combination with the trail thereof and its shoe, of a spade pivotedly connected to the shoe and provided with suitable projecting means, means pivotedly connected with the shoe and engaging the projecting means of the spade for retaining the latter in its operative position, and means carried by the trail to limit the movement, in one direction, of the spade.

3. In a gun-carriage, the combination with the trail thereof and its shoe, of a spade pivotedly connected to the shoe and provided with suitable projecting means, a bolt secured to the shoe, a sleeve mounted upon said bolt and provided with means adapted to engage the projecting means of the spade for retaining the latter in its operative position, and means for operating the said sleeve.

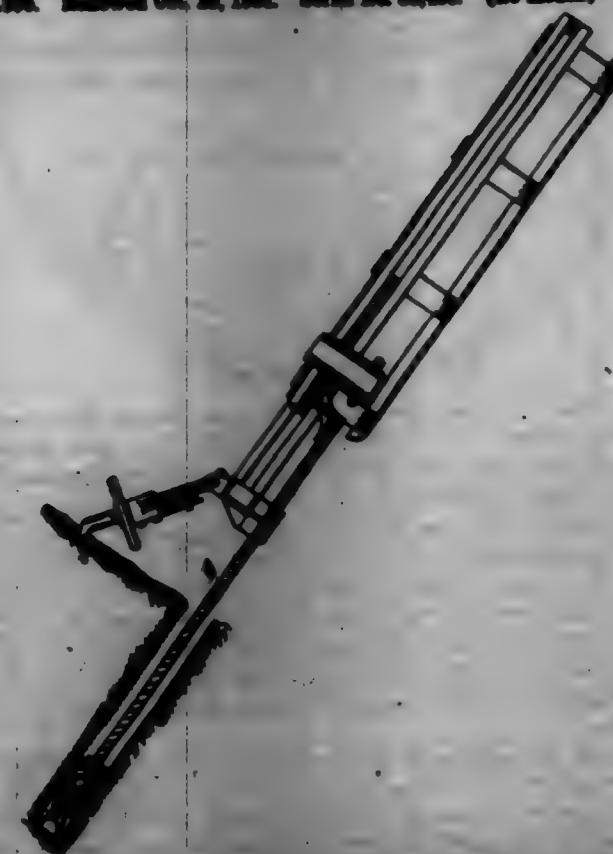
able projecting means, a bolt secured to the shoe, a sleeve mounted upon said bolt and provided with means adapted to engage the projecting means of the spade for retaining the latter in its operative position, and means for operating the said sleeve.

4. In a gun-carriage, the combination with the trail thereof and its shoe, of a spade pivotedly connected with the shoe and provided with suitable projecting means, a bolt secured to the shoe, a sleeve mounted upon said bolt and provided with means adapted to engage the projecting means of the spade for retaining the latter in its operative position, means for operating the said sleeve, and means carried by the trail for limiting the movement, in one direction, of the spade.

5. In a gun-carriage, the combination with the trail thereof and its shoe, of a spade pivotedly connected with the shoe and provided with suitable projecting means, a bolt secured to the shoe, a sleeve mounted upon said bolt and provided with means adapted to engage the projecting means of the spade for retaining the latter in its operative position, and a handle secured to the said sleeve for operating it.

6. In a gun-carriage, the combination with the trail thereof and its shoe, of a spade pivotedly connected with the shoe and provided with suitable projecting means, a bolt secured to the shoe, a sleeve mounted upon said bolt and provided with means adapted to engage the projecting means of the spade for retaining the latter in its operative position, means extending through the said sleeve for operating it, said trail provided with a wheel adapted to receive one end of the means extending through the sleeve.

700,698. MINING-MACHINE. HENRY A. DUNN, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Oct. 14, 1901. Renewed Oct. 22, 1901. Serial No. 29,490. (No model.)



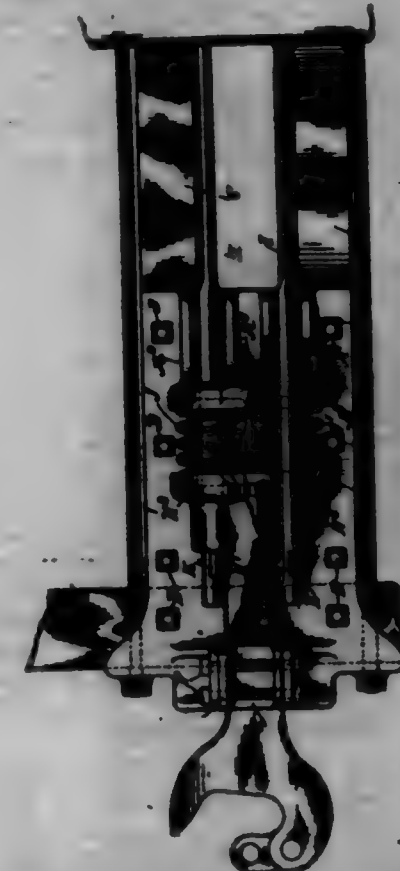
Claim.—The combination with the bed, the carriage, resting upon and sliding along the bed and the horizontally-extending chain having cutters mounted upon and advanced by the carriage, of the rotating holder mounted at the front of the carriage, and adapted to engage with the horizontal wall of the end-belt, and a support for said rotary holder adapted to be adjusted in position vertically, substantially as set forth.

700,699. DRAFT ATTACHMENT FOR RAILROAD-CARS. HERMAN J. BERNHARD, Vicksburg, Miss., assignor of said title to Leon Hahn, Vicksburg, Miss. Filed Dec. 26, 1901. Serial No. 58,688. (No model.)

Claim.—1. A draft attachment for railroad-cars, comprising a draft-coupling for attachment to the end and side sills of the car-body, a depending carry-iron on one end of the said draft-coupling, a depending apertured bracket on the other end of the draft-coupling, a draw-bar resting on the said carry-iron and having an apertured lug, draft-rods extending through the said bracket and lug, and springs held between the said bracket and lug, the draft-rods extending through the springs, and the latter being seated on seats formed on the opposing faces of the bracket and lug, as set forth.

2. A draft attachment for railroad-cars, comprising a draft-coupling

for attachment to the end and side sills of the car-body, a depending carry-iron on one end of the said draft-coupling, a depending apertured bracket on the other end of the draft-coupling, a draw-bar resting on the said carry-iron and having an apertured lug, draft-rods extending through the said bracket and lug, springs held between the said bracket and lug, the draft-rods extending through the springs, and the latter being seated on seats formed on the opposing faces of the bracket and lug, and lugs held on the outer ends of the draft-rods to abut against the outer end of the lug on the draw-bar, as set forth.



3. A draft attachment for railroad-cars, comprising a draft-coupling arranged for attachment to the car-sills, depending arms on the forward end of the draft-coupling, a carry-iron supported between the arms, a depending bracket on the rear end of the draft-coupling and formed with longitudinal apertures and spring-cuts, a draw-bar supported on the carry-iron and having its shank provided with a lug having apertures and spring-cuts in alignment with the apertures and spring-cuts on the draft-coupling bracket, springs extending between the said bracket and the said lug and seated on the seats thereof, draft-rods extending through the said registering apertures, spring-cuts and springs, and lugs held on the ends of the draft-rods and adapted to abut against the forward end of the lug, as set forth.

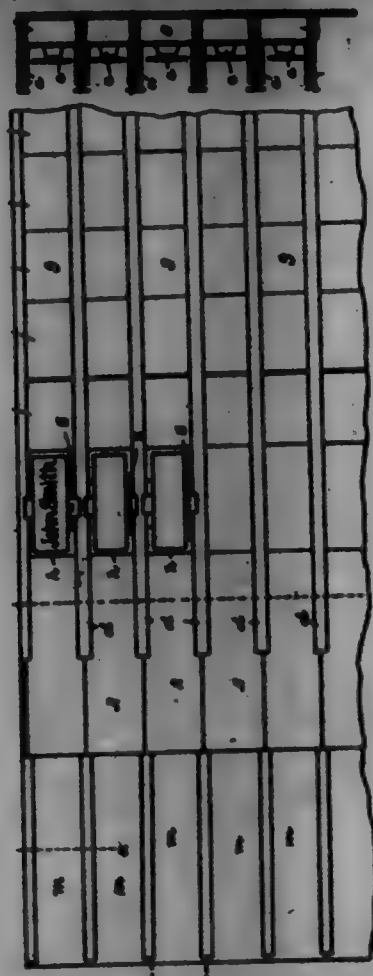
4. A draft attachment for railroad-cars provided with a draft-coupling, comprising a base-plate fitting against the under side of the end sill and the side sill, a flange extending upward on the forward end of the base-plate for attachment to the front face of the end sill, depending arms on the front end of the base-plate for supporting a carry-iron, a bracket depending from the rear end of the base-plate and having longitudinal apertures and spring-cuts, and a cross-piece having side flanges and rising longitudinally from the base-plate at the rear end thereof for attachment to the side sills of the car-body, as set forth.

5. A draft attachment for railroad-cars, comprising a base-plate fitting against the under side of the end sill and the side sill and provided at its forward end with an upwardly-projecting flange for attachment to the front face of the end sill and with a depending apertured bracket having slots in its front face, and with an upwardly-extending cross-piece connected with the base-plate by side flanges, a draw-bar working between the arms and resting on the carry-iron, the rear end of the draw-bar having an apertured lug having slots around the apertures, draft-rods extending through the apertures of the bracket and lug and having surrounding the rods with their ends in the slots of the said bracket and lug, as set forth.

6. In a draft attachment for railroad-cars, a draft-coupling secured to the end and side sills of a car and provided at its front end with an upwardly-projecting flange and depending arms having a roller mounted between them and at its rear end with a depending apertured bracket, a draw-bar having its shank working in the guideway and provided with an apertured lug at its rear end, draft-rods extending through the apertures of the bracket and lug and provided at their ends with steps for engaging

aid leg, and springs surrounding the rods between said leg and bracket, as set forth.

700,680. ACCOUNT-BOOK. **HERMAN L. DUNHAM**, Fayetteville, Ark. Filed July 10, 1901. Serial No. 67,771. (No model.)



Claim.—1. In an account-book, a section-plate formed of trough-shaped sections secured laterally together, in combination with a series of movable sections placed in said trough-shaped sections, and strips forming leaves carried by said movable sections, substantially as and for the purposes described.

2. The combination with a section-plate having a series of flanged, hollow, sections secured laterally together, of movable sections placed in said hollow sections, strips provided with springs and placed in said movable sections, strips forming leaves carried by said movable sections, and fixed pins adapted to removably retain said spring-strips and said leaves in place.

3. The combination with a section-plate, formed of hollow parallel sections, secured laterally together and provided with flanges *d*, of a series of movable sections, strips *e*, provided with springs, leaves having columns marked on them, carried by said movable sections, and sliding covers adapted to be moved on said parallel sections, substantially as shown.

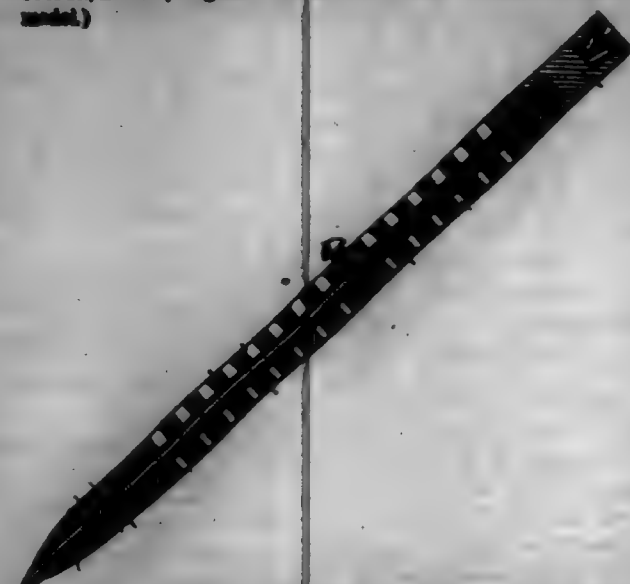
4. The combination with a section-plate comprising a series of trough-shaped devices, secured laterally together, of a series of name-plates, each of which is hinged at one edge to a flange of said section-plate, the opposite edge of the name-plate being removably secured by means of a removable pin passed through holes in projections on said section-plate, substantially as and for the purposes described.

700,681. MODIFIED MILK AND PROCESS OF OBTAINING SAME. **Hans von Bornemann**, Frankfurt-on-the-Main, Germany, assignor to the Fortworte, vorm. Heister, Lueden & Brining, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Dec. 4, 1900. Serial No. 53,993. (No specimens.)

Claim.—1. The herein-described process of treating cow's or goat's milk to render it more digestible by infants and invalids, which consists in adding a rennet ferment to the milk, whereby the same is separated into whey and a curd coagulate, and then mechanically breaking up said coagulate into fine flakes so that only fine flakes remain in suspension in the whey, substantially as set forth.

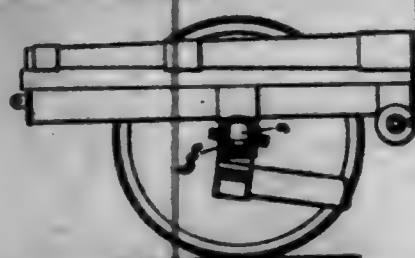
2. As a new product, cow's or goat's milk, containing whey, and a curd coagulate in fine flakes held in suspension in said whey, said milk resembling the original milk in composition, taste and appearance, substantially as set forth.

700,682. LEAD-PENCIL. **DAVID DUNHAM** and **VERNEY J. COOPER**, London, England. Filed Feb. 5, 1908. Serial No. 98,000. (No model.)



Claim.—A lead-pencil consisting of a tubular pencil part to carry a usual loose lead, a closed tapered part on point end of pencil, a point-cap to fit on same and to compress the closed part to place the lead, a series of transverse holes in pencil part, a peg to insert in each hole to prevent the loose lead from being pushed in by writing, all substantially as hereinbefore described.

700,688. MEANS FOR SECURING CENTER PIVOTS TO AXLES IN GUNS. **GUNTER BERGMANN**, Mannheim, Germany. Filed Jan. 5, 1908. Serial No. 98,914. (No model.)



Claim.—1. Means for securing the center pivot of guns consisting of a ring formed of separable segments seated in a space formed by grooves in the center pivot and pivot-bearing, substantially as described.

2. Means for securing the center pivot of guns consisting of a center pivot provided with a peripheral groove, a pivot-bearing having a groove opposite the peripheral groove, and a ring formed of separable segments seated in the space formed by said grooves, substantially as described.

3. In a pivot-bearing for guns, a pivot having a peripheral groove, a pivot-bearing having a groove opposite said peripheral groove and an arched in the pivot-bearing for admitting segments into the space formed by said grooves, for forming a segmental ring therein, substantially as described.

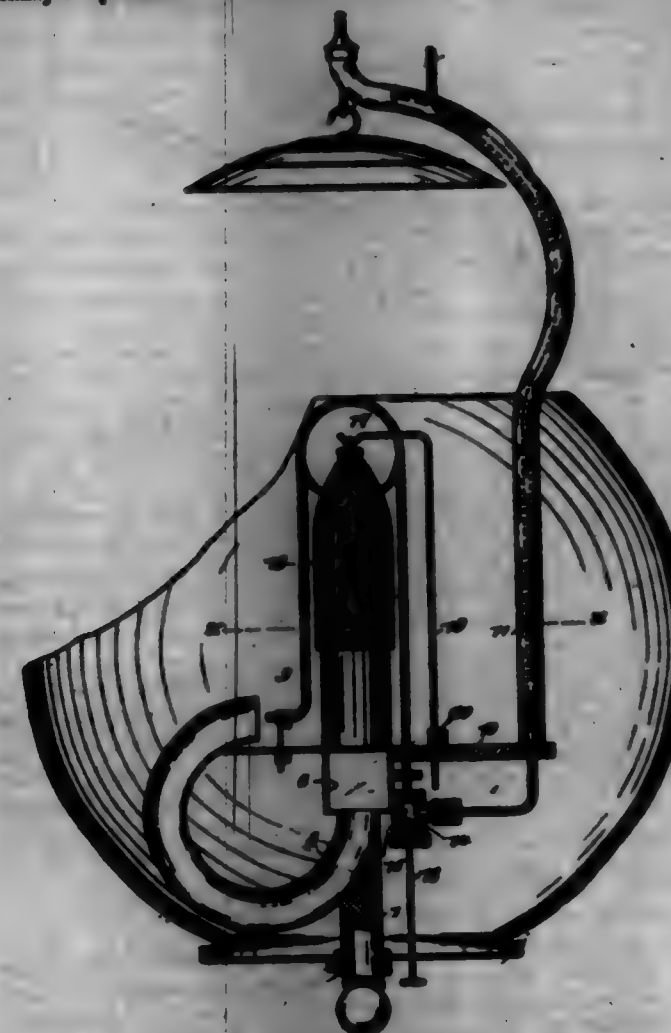
4. A pivot-bearing for guns comprising a pivot provided with a peripheral groove, a pivot-bearing provided with a groove opposite said peripheral groove, an opening in the pivot-bearing to admit segments to be inserted into the space formed by said grooves to form a segmental ring, said segments being provided with internally-curve-threaded openings to facilitate their removal, and a screw-threaded plug for closing the opening in the pivot-bearing, substantially as described.

700,684. INCANDESCENT VAPOR-BURNER. **BRADDOCK L. FOX**, Warren, Ind. Filed June 16, 1901. Serial No. 63,114. (No model.)

Claim.—1. A vapor-burner, comprising a mixing-chamber, a burner having communication therewith, a gas and air mixing tube extending from the lower portion of the said chamber and curved upward and inward toward the burner with its open end adjacent to said burner, a platform extending from the mixing-chamber, an oil-supply pipe, a valve-casing below the platform and into which the supply-pipe leads, a valve in said casing, and an oil-tube leading upward from the valve-casing through the platform along one side of the burner and thence down the other side and having its end bent outward and supported from the platform opposite the open end of the mixing-tube, said oil-tube being provided with a coil at the upper portion over the burner for converting the oil into gas when heated, as set forth.

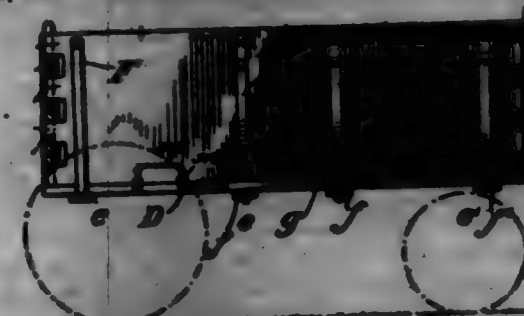
2. A vapor-burner, comprising a gas and air mixing chamber, a curved mixing-tube extending from said chamber and having its open upper end terminating adjacent to the burner, as set forth or platform co-

located outward from the burner, a tubular supporting device extended upward from said arm or platform, a supply-pipe for oil extending through said supporting device, a valve-casing with which said supply-pipe communicates, a tube extended upward from said valve-casing and having a generating-coil at its upper portion above the burner, the opposite open end of said tube being opposite the opening in said mixing-tube, and a valve for controlling the passage of oil to the said generating-tube, substantially as specified.



3. A vapor-burner, comprising a globe-carrying post, a mixing-chamber carried by the post, and communicating with the burner, a mixing-tube extending from the bottom of the mixing-chamber and curved upward and inward toward the burner with its open end adjacent to the said burner, a lateral arm extending from the mixing-chamber, a tubular support for the burner, said support extending upward from the arm, an oil-pipe extending through the said support, a valve-casing connected to the mixing-chamber and with which the oil-pipe communicates, a valve in said casing, and a generating-tube extending from the valve-casing up along one side of the burner and thence down the other side, and having its open end opposite the mixing-tube, said generating-tube being provided with a coil above the burner, as set forth.

700,685. WAGON-BODY. **JOHN W. FROST**, Lakeland, Minn. Filed Nov. 12, 1901. Serial No. 51,951. (No model.)



Claim.—1. In a wagon-body, the combination with the bottom sides and ends, the sides and ends each having a detachable connection with each other, and a cross-bar secured to the bottom at about the center thereof with its ends projecting beyond the sides and provided at its ends with a projection on its upper face, of a triangular brace finally secured to each side and provided at its base with an inwardly-extending projection, the base of the brace resting loosely on the projecting ends of the cross-bar with their projections extending under the bottom into sockets or U-shaped

keepers, the said braces being restrained from lateral movement by the projections of the bar, substantially as shown and described.

2. In a wagon-body, the combination with the bottom sides and ends, the sides and ends each having a detachable connection with each other, a pair of spaced cross-bars secured to the bottom at about the center thereof and projecting beyond the sides and a bar connecting the ends of the cross-bars, of a pair of triangular braces secured to each side and each provided at its base with an inwardly-extending projection, the base of the brace resting loosely on the projecting ends of the cross-bar inside of the bar connecting said cross-bars and having their projections extending under the bottom into sockets or U-shaped keepers substantially as shown and described.

3. In a wagon-body the combination with the bottom, of sides and ends, the sides and ends each being constructed of iron and provided with a plurality of spaced and aligned eyes formed by bending integral extensions thereof into loop shape as shown, which loops interlock with each other when the parts are assembled, of independent U-shaped securing-braces, each comprising vertical members entering the interlocked eyes of the sides and ends locking them together, and a horizontal member of a length equal to the distance apart of the sides of the body whereby the said sides will be locked against lateral movement when the securing-brace is in position, all substantially as shown and described.

4. In a wagon-body the combination with the bottom, of sides and ends having detachable connection with each other, and a cross-bar secured to the bottom at about the center thereof with its ends projecting beyond the sides and provided at its ends with a projection on its upper face, of a triangular brace finally secured to each side and provided at its base with an inwardly-extending projection, the base of the brace resting loosely on the projecting ends of the cross-bar with their projections extending under the bottom into sockets or U-shaped keepers, the said braces being restrained from lateral movement by the projections of the bar, and lock devices at either side of the braces supported in keepers on the sides and adapted to engage or enter sockets on the bottom substantially as described.

700,686. KINDERGARTEN LOOM. **FRANCIS A. PORTER**, New York, N.Y. Filed Feb. 6, 1908. Serial No. 98,708. (No model.)



Claim.—1. A loom having end bars provided with bars and the bars on one of the bars extending entirely through the same and the bar that has the bars extending entirely through the same also having a longitudinal groove, rods the ends of which are fitted in said bars, and a stop for said rods fitted in said groove.

2. A loom having end bars provided with bars and one of the bars extending entirely through the same and the bar that has the bars extending entirely through the same also having a longitudinal groove, the ends of which are fitted in said bars, a stop for said rods slidable in said groove, and guiding means for said stop.

3. A loom having end bars provided with bars and the bars on one of the bars extending entirely through the same and the bar that has the bars extending entirely through the same also having a longitudinal groove, the ends of which are fitted in said bars, a stop for said rods slidable in said groove and staples clamping said stop.

4. A loom having end bars provided with bars and rods fitted in the bars, the bars being of greater number in the respective bars than

the rods and extending transversely of the base and the horns of one of the horns extending entirely through the same, and said bar that has the horns extending entirely across the same having a longitudinal groove, and a step for said rods in said groove.

5. A beam having end bars provided with horns and the horns on one of the horns extending entirely through the same and the bar that has the horns extending entirely through the same also having a longitudinal groove, the ends of which are fitted in said horns, a step for said rods fitted in said groove, and headed studs carried by the end bars, for receiving the washers.

700,687. INITIAL FINGER-RING. FREDERICK S. PEY, JR., St. Louis, Mo. Filed Mar. 15, 1902. Serial No. 96,394. (No model.)

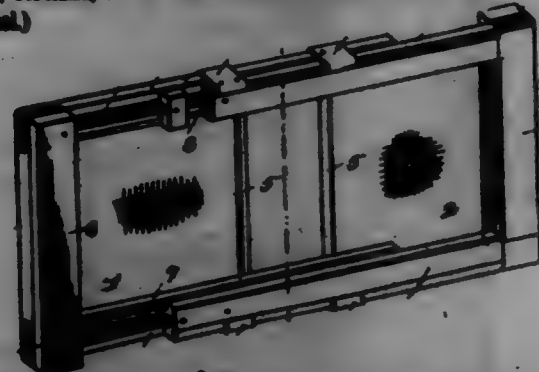


Claim.—1. The combination with a finger-ring provided with apertures, of an initial and hinged arms carried by said initial adapted for introduction through said apertures to interlock with each other beneath the band of the ring, substantially as described.

2. The combination with a finger-ring, provided with apertures, of an initial, arms hinged to said initial adapted for introduction through said apertures, one of said arms being provided with an orifice and a stud carried by the other arm adapted to enter said orifice to hold said arms in interlocked position when folded together within the ring, substantially as described.

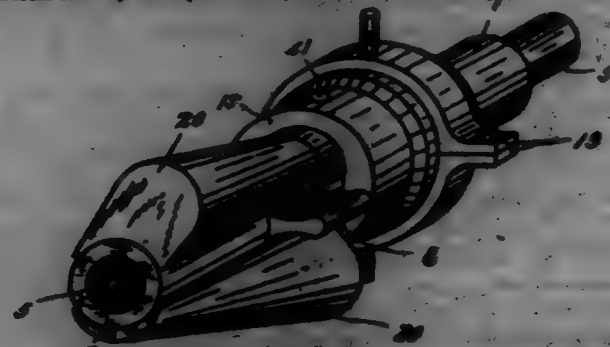
3. The combination with a finger-ring having a counterbore and a stud carried by said counterbore, of an initial and hinged arms carried by said initial, one of said arms being provided with an orifice and a stud carried by the other of said arms adapted for introduction into said orifice when the arms are in folded condition within the band of the ring, substantially as described.

700,688. EXTENSIBLE WINDOW-SCREEN. WILLIAM J. GREENHART, Cortland, N. Y. Filed Feb. 25, 1900. Serial No. 703,771. (No model.)



Claim.—An article of manufacture, an extensible window-screen consisting of two sections slidably connected together, one upon the other, said sections having grooves in the inner adjacent faces of the side rails, registering with each other, rollers loosely arranged in said grooves, and steps for retaining the rollers in the grooves.

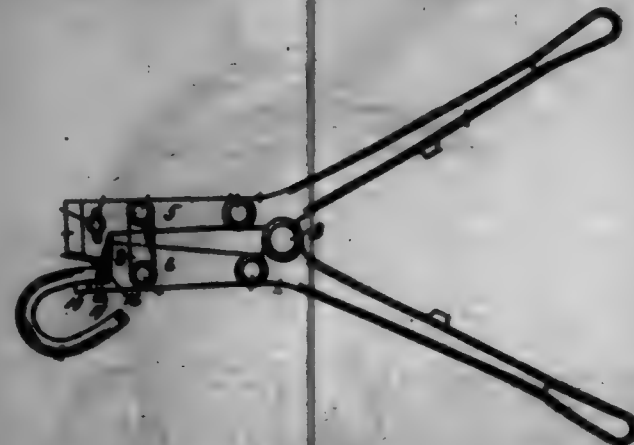
700,689. REVERSIBLE DEVICE FOR ENGINE. ROBERT E. HARRIS and HENRY P. WALLER, Twin Valley, Minn. Filed Aug. 31, 1901. Serial No. 73,582. (No model.)



Claim.—The combination with a shaft or rotary member having the legs 8, 9 and the sliding collar 15, of the eccentric 10 having the

11 in which said legs 8, 9 are mounted, the reversibly-tapered cam 20 movable with said sliding collar and acting on said eccentric to adjust the same to and from concentricity with its axis of rotation, and an eccentric-rod driven by said eccentric, substantially as described.

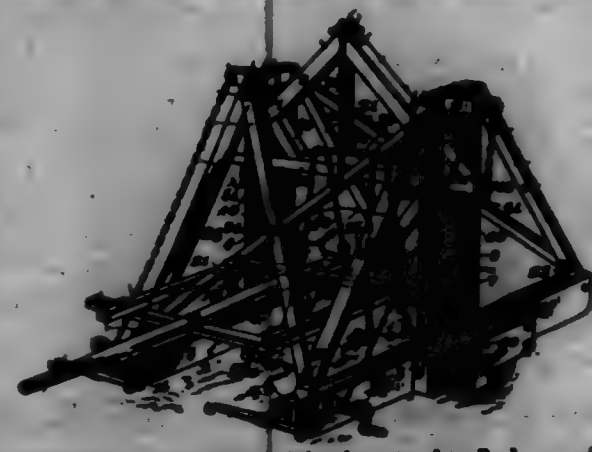
700,640. BURNISHING-DAKE SHARPENER. GEORGE W. HALL, ST. LOUIS, Mo. Filed Sept. 20, 1901. Serial No. 78,708. (No model.)



Claim.—1. In a device for the purpose set forth, the combination of the operative handle, the arms pivoted thereto, the pivotal links connecting said arms, one of said arms having a jaw at its forward end, a movable knife coated in said jaw, the other of said arms having a projecting table extending into the path of said knife and having means for securing a burr thereon.

2. In a device for the purpose set forth, the combination of the operative handle pivoted together and having projections extending beyond the point of pivot, operative arms pivoted to the projections of the handles, links connecting said arms and pivoted at their opposite ends thereto, a jaw in the outer end of one of said arms, a knife mounted in said jaw and adjustably secured therein, a table projecting from the other of said arms in the path of said knife, and a set-screw in said table adapted to engage and confine the end of the burr.

700,641. COMBINED STUMP-PULLER AND TREE-TRANSPLANTER. WILLIAM A. HARRIS, Bardwell, Ky., assignor, by direct and mesne assignments, of two-thirds to Francis Martin Haganscamp, Bardwell, Ky. Filed July 11, 1901. Serial No. 67,572. (No model.)



Claim.—1. An apparatus of the character described, comprising opposite side, upright guides rising from the side, a lifting-beam movable between the guides, inclined corner-braces between the side and the respective upright guides, a substantially horizontal tongue-frame connected to the upright guides and the front inclined braces, a tongue carried by the frame, and a wheel connected to the front end of the side.

2. An apparatus of the character described, comprising opposite side, frames rising therefrom, lifting means mounted upon the frame, and front and rear corner braces adjustably connecting the opposite frames, the members of each pair of corner braces having a pivotal connection at their point of crossing, and also provided at their opposite ends with adjustable connections with the respective frames.

3. An apparatus of the character described, comprising opposite side, intermediate upright guides rising from the side, lifting means working between the guides, inclined braces between the tops of the guides and the opposite ends of the respective side, and front and rear corner braces adjustably connecting the respective side and upright guides, the members of each pair of corner braces having a pivotal connection at their point of crossing and the opposite ends of the members having connections with and adjustable longitudinally of the respective inclined braces.

4. In an apparatus of the character described, the combination of opposite side, intermediate upright guides rising therefrom, a lifting-beam working between the guides, lifting-jacks mounted upon the side and beneath the lifting-beam, pulleys carried by the upper ends of the guides, drums mounted upon and portions of the side, cables working over the respective drums and having their opposite ends connected to the adjacent ends of the lifting-beam and the corresponding drums, crank-handles for the drums, inclined braces extending from the tops of the guides to the opposite ends of the respective side, front and rear pairs of corner braces, the members of each pair of corner braces having a pivotal connection at their point of crossing, and the opposite ends of the members having adjustable connections with the respective inclined braces, a tongue-frame connected to the front inclined braces and the upright guides, a tongue carried by the frame, and a wheel connected to the front end of the side.

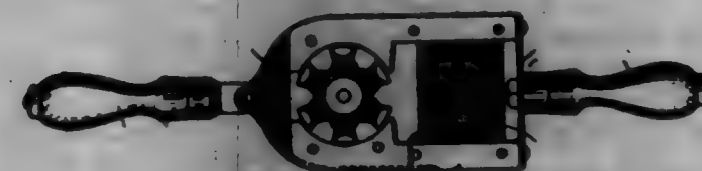
5. An apparatus of the character specified, comprising supporting-side, upright guides carried thereby, a lifting-beam movable between the guides, corner-braces connecting the side with the uprights, and adjustable cross-braces connecting the corner-braces.

6. An apparatus of the character specified, comprising supporting-side, upright guides carried thereby, a lifting-beam movable between the guides, corner-braces connecting the side and the uprights, adjustable cross-braces connecting the corner-braces, and a tongue connected with the uprights and the corner-braces.

7. A device of the character specified, comprising supporting-side, upright guides carried thereby, and a lifting-beam movable between the guides, said beam comprising a base-beam connected to the side and braces, struts interposed between the latter beams and the base-beam, a check-block bearing against the lower ends of the struts, and clamping means bearing against the bottom of the base-beam and the apex of the end beams.

8. A device of the character specified, comprising two supporting-side each composed of two members slidably spaced apart and closed at their lower ends by filling blocks, the chambers thus formed constituting receptacles for tools, cartridges, &c., upright guides having their lower ends secured between the side members, a lifting-beam movable between the guides, and means for operating the beam.

700,642. BURNISHING OR POLISHING MACHINE. ORIN A. HANCOCK, Wolcott, Minn., assignor to Charles A. Griskey and George Bernard, Boston, Mass. Filed Aug. 12, 1901. Serial No. 71,812. (No model.)



Claim.—1. A portable buffing or polishing apparatus, comprising an electric motor, a buffer carried and operated by said motor, and a handle pivotally attached to said motor whereby the buffer may be manually pressed against the material to be buffed or polished.

2. A portable buffing or polishing apparatus, consisting of an electric motor, oppositely-disposed handles attached to said motor whereby it may be easily manipulated, one of said handles being pivotally connected, and a chuck carrying a buffer and carried by the armature-shaft of said motor, substantially as described.

3. A portable buffing or polishing apparatus consisting of an electric motor having cross-bars attached to the pole-pieces at opposite sides of the armature of the motor, handles attached to said cross-bars, and a chuck carrying a buffer and carried by the armature-shaft of said motor, substantially as described.

700,643. TIME-POUNCE. ORIN A. HANCOCK, Boston, Mass., assignor to Fred. Krupp, Boston, Mass. Filed May 15, 1900. Serial No. 14,722. (No model.)



Claim.—1. In a time-pounce, the combination of a spindle and a powder-ring mounted to turn about said spindle, and said spindle having its rotational axis at the portion adjacent to the powder-ring reduced sufficiently

to insure lateral spreading of said reduced portion against the powder-ring by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

2. In a time-fuse of the character specified, the combination of a spindle, a cap fitted to the outer end of the spindle and provided with a yielding bearing engaging the adjacent part of the fuse, and a powder-ring mounted to turn about said spindle, and said spindle having its rotational axis at the portion adjacent to the powder-ring reduced sufficiently to insure spreading of the spindle at said reduced portion by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

3. In a time-fuse of the character specified, the combination of a spindle, a cap fitted to the outer end of the spindle and provided with a thin, circumferential vent or bearing engaging the outer end powder-ring, and an inner powder-ring adapted to turn about said spindle, and said spindle having its rotational axis at the portion adjacent to the inner powder-ring reduced sufficiently to insure spreading of the spindle at said reduced portion by the inertia of the several parts on firing; whereby the inner powder-ring is jammed and prevented from turning, substantially as described.

4. In a time-fuse, the combination of a spindle and a powder-ring mounted to turn about said spindle, and said spindle being hollowed out to reduce the rotational axis at the portion thereof in contact with the powder-ring sufficiently to insure lateral spreading of said reduced portion against the powder-ring by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

700,644. FLUID-REGULATING DEVICE. JAMES HARRISON, Springfield, Vt. Filed Jan. 21, 1901. Serial No. 64,972. (No model.)



Claim.—1. A fluid regulating or measuring device comprising a two-part casing having a chamber formed between them, measuring means including a fluid-operated member located in one section of the casing, a valve independent of said member and located in said chamber, and means passing through the other section of said casing for operating said valve.

2. A fluid regulating or measuring device comprising a casing having a plurality of chambers with independent movable elements therein, inlet and outlet ducts leading from said chambers, and having their mouths arranged about a common center, and a centrally-located inlet-control, and an eccentric valve governing the passage of fluid through said ducts in succession.

3. A fluid regulating or measuring device comprising an expanding compartment having a resilient wall, means for permitting the ingress and egress of fluid into and out of said chamber, a continuously-rotatable valve operable independently of movement of the resilient wall, and an adjustable wall for said chamber having a boss for limiting the play of said resilient wall.

4. A fluid regulating or measuring device comprising an expanding compartment having a resilient wall, means for permitting the ingress and egress of fluid into and out of said compartment, a continuously-rotatable valve operable independently of movement of the resilient wall, a pin arranged to limit the play of said resilient wall, and an adjustable central pin adapted to engage the first-mentioned pin for adjusting it.

5. A fluid regulating or measuring device comprising an expanding compartment having a resilient wall, means for permitting the ingress and egress of fluid into and out of said chamber, a valve operable independently of the said resilient wall, a continuously-rotatable shaft on which the valve is eccentrically mounted, and a spring interposed between said valve and said shaft for holding said valve against its seat.

6. A fluid regulating or measuring device comprising a casing having two oppositely-disposed chambers each provided with a diaphragm which divides it into two expanding compartments, steps for limiting the movement of said diaphragms, and means for simultaneously adjusting said steps.

700,645. FLUID-REGULATING DEVICE. JAMES HARTNER, Springfield, Vt. Filed Jan. 21, 1901. Serial No. 64,974. (No model.)



Claim.—1. A fluid-regulating device comprising a cylinder having a loose differential piston, ducts leading to opposite ends of the cylinder to deliver fluid thereto, a pressure-chamber, an independent outlet, and a valve controlling the passage of fluid to said ducts, and permitting the escape of the fluid under augmented pressure to the said pressure-chamber, and of the fluid under lower pressure to said independent outlet.

2. A fluid-regulating device comprising a cylinder having a loose differential piston, a common inlet for both ends of the cylinder, independent outlets for the said cylinder ends, and a single valve for controlling the passage of fluid through said inlet and outlet.

3. A fluid-regulating device comprising a cylinder having a loose differential piston, a common inlet for both ends of the cylinder, a conduit for the fluid delivered under high pressure, a waste-conduit for the fluid delivered under low pressure, and a single valve for controlling the passage of fluid through said inlet and outlet.

4. A fluid-regulating device comprising a cylinder having a loose differential piston, suitable valve mechanism for supplying fluid to the opposite ends of said cylinder, separate ducts controlled by the valve mechanism, for conducting from the cylinder the low-pressure and the high-pressure fluid, and means consisting of a rigid adjustable stop for limiting the movement of said piston, and thereby varying the volume of the discharged fluid.

5. A fluid-regulating device comprising a casing having a plurality of cylinders with loose independent pistons therein, a single valve operable independently of movement of the pistons for permitting the ingress and egress of fluid into and out of said cylinders on both sides of the pistons, and provision for limiting the play of said pistons including members projecting through the cylinder ends, and a cap adjustably attached to said casing and having an inner face against which said members may abut.

6. A fluid-regulating device comprising a plurality of cylinders having loose differential pistons, a common accumulator-chamber for the high-pressure fluid, a common exhaust for the low-pressure fluid, and a common valve for said cylinders.

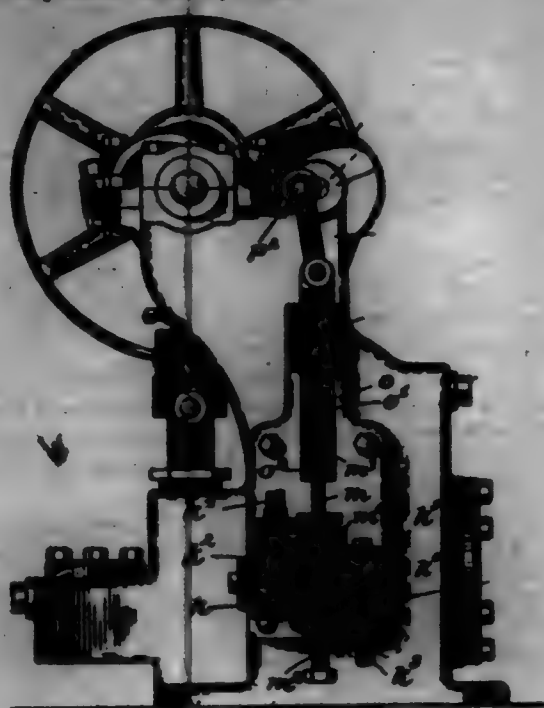
7. A fluid-regulating device comprising a plurality of cylinders having loose differential pistons, a common outlet for the high-pressure fluid, a common inlet for the low-pressure fluid, a common inlet to the cylinders to deliver fluid to both sides of the pistons, and an eccentric valve common to all of said cylinders.

8. A fluid-regulating device comprising a plurality of cylinders with differential pistons, a valve-seat having parts for the cylinders arranged in two concentric rows, an escape-port within the inner row of parts, an inlet-port between the said rows of parts, a common accumulator or discharge chamber, and an eccentric valve having two concentric chambers, substantially as described.

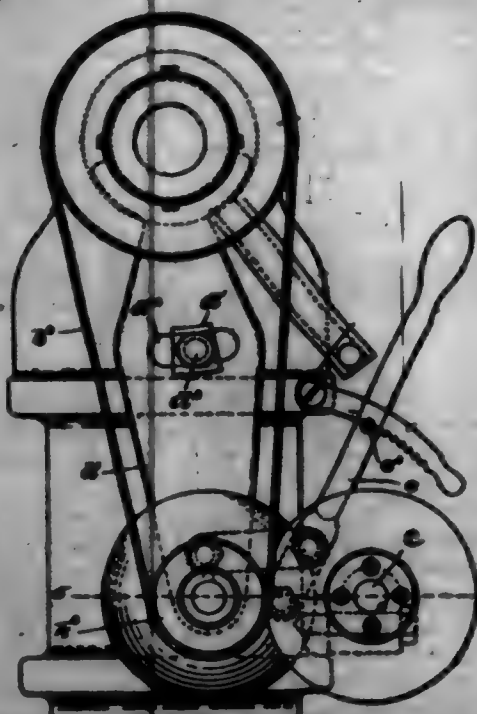
9. A fluid-regulating device comprising a plurality of cylinders with differential pistons, a valve-seat having parts for the cylinders arranged in two concentric rows, an escape-port within the inner row of parts, an inlet-port between the said rows of parts, a common accumulator or discharge chamber, and an eccentric valve having two concentric chambers, substantially as described.

700,646. FLUID-OPERATING DEVICE. JAMES HARTNER, Springfield, Vt. Filed Jan. 21, 1901. Serial No. 64,975. (No model.)

Claim.—A pump comprising a cylinder, having inlet and outlet valves, a headed piston operating in said cylinder, a supplementary hollow rod in which said piston is telescoped, a spring in said rod bearing against the head of said piston, and a latching in said rod for loosely engaging the head of said piston, whereby the motion-stroke of said piston is positive, and its operative stroke is yielding.



700,647. POWER-TRANSMISSION MECHANISM. JAMES HARTNER, Springfield, Vt. Filed Feb. 12, 1901. Serial No. 67,007. (No model.)



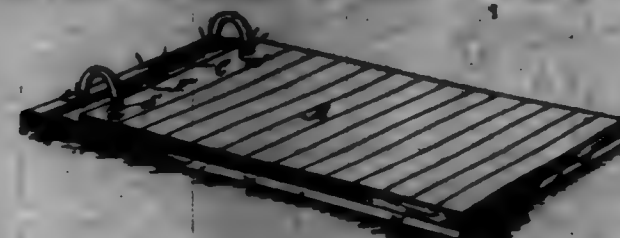
Claim.—1. The combination with a driving-shaft and a driven shaft, of an interposed friction mechanism comprising two friction members, one of which is bodily movable in line radial to the axis of the other member, said members having parallel ends and having concave and convex faces respectively, whereby the point of contact between said faces may be advanced toward the periphery of one member and simultaneously toward the axis of the other member, means for giving said movable member its described movement, and a device for holding said member at any desired position.

2. The combination with a driving-shaft and a driven shaft arranged in parallel, of a support movable about the axis of the driving-shaft, a friction member on said support, power-transmitting mechanism between said friction member and said driving-shaft, a friction member on the driven shaft, means for moving said support toward and from the driven shaft, and a ratchet for holding said support in any desired position.

3. The combination with a driving-shaft, of a support oscillatory about the axis of the said shaft, a head-lever connected to said support to oscillate it, a manually-operated ratchet for holding said head-lever in any desired position, a driven shaft parallel to the driving-shaft, a friction member on said driven shaft, and a friction member on said support, whereby the motion-stroke of said piston is positive, and its operative stroke is yielding.

the member on said driven shaft, and a friction member on said support actuated by the driving-shaft, and adapted to be brought into operative relation to said driven friction member to actuate the same at any of a variety of different speeds.

700,648. NOTE-BOOK. ALBERT L. HANSEN, Norfolk, Va. Filed Jan. 2, 1902. Serial No. 68,976. (No model.)



Claim.—1. The improvement in note-books herein described, comprising the base-plate deposed or hinged off at its opposite edges, provided with openings through which the ends of the bows may be passed and with fixed posts adjacent to said openings, the bows fitting alongside said fixed posts, and devices for securing the bows in connection with the base-plate, substantially as set forth.

2. In a device, substantially as described, the combination with the base-plate, of the half-round posts thereon, the bows having half-round transverse lapping alongside the said posts, and means for securing the bows, substantially as set forth.

3. The combination with the base-plate, and the posts thereon, of the bows interlocking with the posts, and devices for securing the bows to the base-plate, substantially as set forth.

4. The combination with the base-plate having openings through which the ends of the bows may project, the bows projecting at their ends through said openings and latch devices for securing the bows to the base-plate, substantially as set forth.

5. The combination with the base-plate having openings for the ends of the bows, and the posts adjacent to said openings, of the bows lapping alongside the posts and projecting through the openings in the base-plate, and latch devices beneath the base-plate for securing the bows, substantially as set forth.

6. The combination with a base-plate having openings for the ends of the bows and posts adjacent to said openings, the bows fitting alongside and interlocking with the posts and projecting through the openings in the base-plate, and the latch-plate beneath the base-plate and movable into and out of engagement with the bows, substantially as set forth.

7. The combination with the base-plate and the posts thereon, and notched in their upper ends, of the bows provided at its ends with transverse fitting alongside the posts and at the upper ends of said transverse shoulders having projections entering the notches of the posts, and means for securing the bows, substantially as set forth.

8. The combination of the base-plate provided with openings for the ends of the bows, the bows projecting at its ends through said openings, and the latch-plate beneath the base-plate and arranged to secure the bows, substantially as set forth.

9. The combination of the base-plate provided in its under side with a groove, and having openings for the ends of the bows, the bows projecting at its ends through said openings and the latch-plate opening in the groove in the under side of the base-plate and movable into and out of engagement with the bows, substantially as set forth.

10. The combination with the base-plate provided with openings for the bows and adjacent thereto with posts, the bows fitting at its ends alongside said posts and projecting through the openings in the base-plate, and the latch beneath the base-plate for securing the bows, substantially as set forth.

11. In a note-book, the combination of the base-board, provided with a transverse undercut groove, and the base-plate fitted to said groove and movable into and out of the same and provided with bows arranged transversely the length of the base-plate for securing the note-books, substantially as set forth.

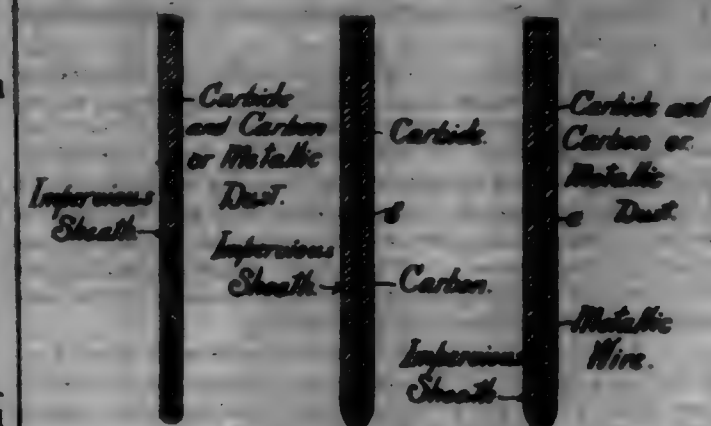
700,649. REMEDIES FOR ANOXYGEN. ROBERT HANSEN, Berlin, Germany. Filed Feb. 24, 1902. Serial No. 69,000. (No model.)

Claim.—1. An an-oxygen cathode, consisting of cathodic decomposable by water and conducting substance incorporated in the body of the cathode, and a superficial coating of a body impervious to water.

2. An an-oxygen cathode, consisting of cathodic decomposable by water and conducting substance incorporated in the body of the cathode and a superficial coating of a body impervious to water.

3. An an-oxygen cathode, consisting of cathodic decomposable by water and conducting substance incorporated in the body of the cathode and a superficial coating of a body impervious to water.

4. An an-oxygen cathode, consisting of cathodic decomposable by water and carbon mixed therewith and a metallic wire embedded in the cathode, and for the purpose described.



700,650. ELECTRIC LAMP. OSWALD HUMBER, New York, N. Y. Filed Aug. 9, 1900. Renewed Jan. 17, 1902. Serial No. 60,120. (No model.)



Claim.—1. In an electric lamp, the combination with a series of compartments and a cover therefor, of a battery-cell located in each compartment, each cell having an anode of conducting material upon its one end connected with one element of the cell and surrounding the terminal of the other element which is centrally located in respect to the anodes and the same end of the cell, and contact-points contained in the compartments and so disposed as to contact with the anodes and terminals of the central elements of the several cells respectively, substantially as described.

2. In an electric lamp, the combination with a series of compartments and a cover therefor closing the ends of the compartments, of a battery-cell located in each compartment, each cell having an anode of conducting material upon its one end connected with one element of the cell and surrounding the other element thereof, which has a central element centrally located in respect to the cell, and spring-contact points so located in the ends of the compartments that the anodes and central elements of the several cells are held in contact with the respective contact-points by the cover, substantially as described.

3. In an electric lamp the combination with a casing having a series of metallic compartments and a metallic cover therefor closing the ends of the compartments, of an insulating lining in the said compartments, a battery-cell located in each compartment, each cell consisting of a cup-shaped vessel forming one element of the cell and another element centrally located therein, the open end of the vessel being closed by a coating of insulating material, the casing being surrounded by an anode electrically connected thereto, a lamp having its one terminal in electrical connection with the battery vessel in an end compartment and its opposite terminal in connection with the casing, a contact located in the said end compartment and making contact with the central element of the cell placed therein, two spring-contacts in one or more of the other compartments, making contact with the anodes and the central element of the cells contained therein respectively, a spring-contacts in the

last compartment of the casing making contact with the annulus of the battery contained therein, the said contact-points connecting the several battery-cells in series, and a contact-maker adapted to connect the central element of the cell in the last compartment with the casing, substantially as described.

4. The combination with a suitable conducting apertured casing, of a battery-cell contained therein, an insulating-lining between the cell and casing having overlapping apertured edges, the apertures in which register with each other and with the aperture in the casing, a conducting-strip partly contained within the lining of the casing and partly between the overlapping edges of the lining, an electric-lamp bulb having its one terminal in electrical connection with the casing and its other terminal projecting through the casing and insulating-lining into contact with said strip, and means for closing the circuit between the casing and the other element of the battery, substantially as described.

5. A lamp-casing consisting of a central rod having a threaded upper end and a series of metallic compartments grouped around it and secured thereto, a head secured to one of the compartments and containing a lamp-bulb, a cover for the said casing consisting of a metallic sheet with flanged sides to fit upon the exposed edges of the compartments, and a knob curving upon the central rod and forcing the cover into place, substantially as described.

6. The combination with a casing consisting of a plurality of compartments to receive battery-cells, a lamp-bulb means contained in one of the compartments for connecting one terminal thereof to one element of one of the cells, a cover for the casing, means carried by the cover for connecting the several cells together, and means for closing the circuit between the cells and the opposite terminal of the lamp-bulb, substantially as described.

7. The combination of a battery-casing having nested spring-pressed contact-points therein at one end thereof, and a battery-cell contained in the casing and having its two elements terminating respectively in a button and a surrounding annulus adapted to contact with the contact-points, substantially as described.

8. The combination in a battery-casing, of two spring-pressed contact-points, consisting each of a half of wire, at one end thereof and adjacent to each other and an insulating-cover for each of the contact-points consisting of a section of elastic tubing, substantially as described.

9. In an electric lamp the combination of a battery-cell having two elements and having a centrally-disposed contact-point and a surrounding annulus upon the same end thereof, substantially flush with each other, and connected respectively with the several elements of the cell, and a casing for the cell having contacts to contact with the central part and surrounding annulus of the cell, substantially as described.

700,851. NUT-LOCK. WILLIAM D. HUGHES, Greenville, N. Y., assigner of one-half to John T. Williams, Brooklyn, N. Y. Filed Oct. 12, 1901. Serial No. 79,357. (No model.)



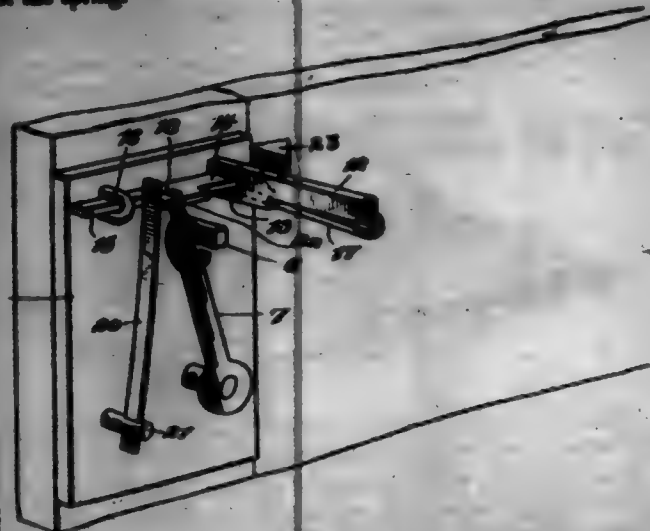
Claim.—The combination with a nut, a bolt carrying a nut, and a lock-plate having a longitudinal groove and secured upon the bolt between the nut and nut, of a washer secured upon the bolt between the lock-plate and nut, the washer having its ends bent at right angles to fit in the groove and provided with an enlarged bearing-surface against which the nut bears preventing the washer from tilting upon the bolt and to hold the flanges in the groove, legs upon the washer, and a locking-bar having a nut-receiving opening and secured upon the legs.

700,852. BURGLAR-ALARM. CURRY JAMES, ALBANY, W. V. Filed Dec. 31, 1901. Serial No. 97,304. (No model.)

Claim.—1. A device of the class described comprising relatively fixed and movable contacts having means for holding them in normal and yieldable engagement, and a pivoted member connected with the movable contact for moving and releasing it when said member is moved pivotally, said pivoted member projecting at an angle to the path of movement of the movable contact for engagement by a door to move and hold it with the contacts out of engagement.

2. A device of the class described comprising a base having a fixed contact thereon, a pivoted contact-arm disposed for engagement with the fixed contact, a slide-bar with which the arm is connected, a spring engaged with the slide-bar to hold it yieldably with the contacts in engagement, a post, and a link pivoted to the post and to the slide-bar and arranged for engagement by a door to move and hold it against the action of the spring.

3. A device of the class described comprising a base having a fixed contact thereon, a movable contact-arm disposed for engagement with the fixed contact, a slide-bar with which the arm is operatively connected, a post in which the slide-bar is slidably engaged, a link pivoted to the post and slide-bar and adapted for engagement by a door to press it rearwardly, and a spring connected to the slide-bar and disposed to hold it yieldably with the contacts in engagement.



700,853. COVER FOR TUNNELS OR OTHER VEHICLES. FRANK L. JONES, Richmond, Va. Filed Oct. 3, 1901. Serial No. 77,992. (No model.)



Claim.—1. A cover for vessels comprising a cap having a thickened portion pendant therefrom and an opening or slot in said thickened portion the walls of said opening or slot forming gripping-jaws.

2. A cover for vessels comprising an elastic cap, a central portion pendant therefrom, a thickened portion at the lower end of the central portion, said thickened portion forming an annular ring or band and being of less diameter than the upper portion of the cap, a slot or opening in said ring or band, the side walls of said slot or opening forming gripping-jaws.

3. A cover for vessels comprising an elastic cap having a thickened lower portion, an enlargement or swell in said thickened portion, a slot or opening in said enlargement or swell, and jaws adjacent to said slot or opening adapted to grasp a spoon or other article.

4. A cover for vessels comprising an elastic cap, enlargements or swells in its periphery, a slot or opening in said enlargements or swells, and gripping-jaws adjacent to the slot or opening adapted to grasp a spoon or other article.

5. A cover for vessels comprising an elastic cap, provided with a vertical slot or slit in its periphery, forming gripping-jaws adapted to receive and grasp a spoon or other article.

6. A cover for vessels comprising an elastic cap, having a thickened lower end, an enlargement or swell in the periphery of said thickened end, a vertical slot or opening in the edge of said enlargement, a circular opening in the rear of said vertical slot and communicating therewith, and jaws adjacent to the vertical slot and circular opening, adapted to receive and secure a spoon or other article, the said cap being adapted to tightly grasp the upper edge of a vessel and render the same air-tight substantially as shown and described.

7. A cover for vessels comprising an elastic cap, a flange projecting horizontally therefrom, a slot or opening in said flange, elastic side walls

adjacent to said slot or opening forming elastic jaws to receive and grasp a spoon or other article.

8. A cover for vessels comprising an elastic cap, having a lower thickened edge, an enlargement or swell in said thickened portion, a vertical slot having beveled or rounded front faces, an enlarged opening in rear of said vertical slot, and communicating therewith, and elastic gripping-jaws adjacent to said vertical slot and opening, substantially as shown and described.

9. A cover for vessels comprising an elastic cap, an integral swell or enlargement in the periphery thereof, and slot or opening in said swell or enlargement forming gripping-jaws, adapted to receive and grasp a spoon or other article.

700,854. COLLAPSEABLE BARREL. DAVID E. JONES, Rockymount, N. C., assigner of one-half to Edmund E. Carr, Rockymount, N. C. Filed Jan. 25, 1902. Serial No. 91,841. (No model.)



Claim.—1. In a collapseable barrel, the combination with a body portion, of heads supported thereby, chains passing around said body portion and secured thereto, levers pivoted to said body portion and hooks carried by the levers and adapted to engage the links of said chains, substantially as described.

2. In a collapseable barrel, the combination with heads, of a body portion formed of staves, chains connecting said staves, levers carried by the staves adjacent one end of the chains, and hooks carried by the levers and adapted to engage the opposite links of the chains, substantially as described.

3. In a collapseable barrel, the combination with heads, of a body portion formed of staves, chains connecting said staves, pivoted levers carried by the staves adjacent the ends of the chains, hooks carried by the levers and adapted to engage the links at the opposite ends of said chains, and means for holding said levers in a downward position, substantially as described.

4. In a collapseable barrel, the combination with a body portion formed of staves, heads carried thereby, chains connecting said staves, detachable means for drawing the ends of the chains together, the said staves having openings on the outside of the heads, bolts passing through said openings and having one end screw-threaded, a clamping-nut on said screw-threaded end, and a pivoted head carried by the opposite end of the said bolt, substantially as described.

5. In a collapseable barrel, the combination with heads, of a body portion supporting said heads, said body portion composed of staves connected together by chains, pivoted levers carried by the staves adjacent the ends of the chains, hooks carried by the levers above their pivotal points and adapted to engage the opposite links of the chains, and spring-catches carried by the staves and adapted to hold the levers in a downward position, substantially as described.

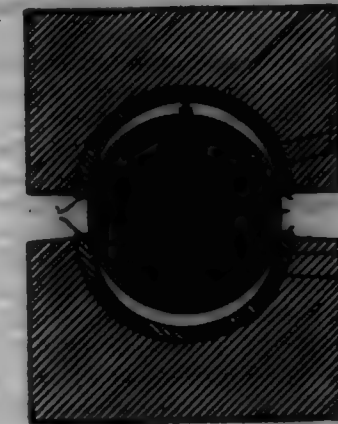
6. In a collapseable barrel, the combination with heads, of a body portion composed of staves connected together by chains, removable clamping-bolts passing through the staves and extending transversely across the heads on the outside thereof, pivoted levers carried by the staves adjacent the ends of the chains, hooks pivotally connected to the levers above their pivotal points and adapted to engage the opposite ends of the chains and spring-catches carried by the staves back of the levers and adapted to hold the levers in a downward position, substantially as described.

7. In a collapseable barrel, the combination with heads, of staves forming a body portion, heads supported by said staves, chains passing around said staves and arranged with three links opposite each stave, staples securing the two outside links in each stave, pivoted levers carried by the staves adjacent the ends of the chains, hooks carried by the levers and

adapted to engage the opposite ends of the chains, and spring-catches adapted to hold the levers in a downward position, substantially as described.

8. In a collapseable barrel, the combination with heads, of staves forming a body portion and supporting said heads, chains passing around said staves, and arranged with three links opposite each stave, staples securing the two outside links to each stave, and means for drawing the ends of said chains together, substantially as described.

700,855. MANUFACTURE OF GOLF-BALLS. BRADSHAW KEMP-SMALL, Boston, Mass., assigner to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Nov. 14, 1901. Serial No. 83,500. (No model.)



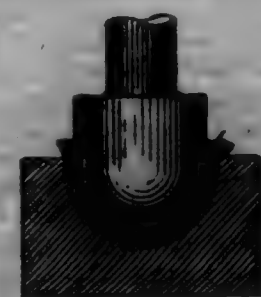
Claim.—1. A process in producing a playing-ball, consisting in applying a jacket of fibrous material to a core of solid material, insulating said jacket and core in segments of plastic material, heating and forcing said segments together so as to form a weld between them, and maintaining the impression while the shell cools and hardens.

2. A process in producing a playing-ball, consisting in winding twice or the like around a solid nucleus or core of elastic material, making a shell in segments of plastic material which approximate their final form, heating said segments and compressing them upon said wound nucleus or core so as to weld said segments together, and maintaining the compression while the welded segments cool and harden.

3. A process in producing a playing-ball, consisting in winding several layers of twice or the like around a core consisting of gutta-percha, heating said segments and forcing them together over said wound core so as to weld them to each other and also to place said core under compression, and maintaining the compression of the shell upon the core while the shell cools and hardens.

4. A process in producing a playing-ball, consisting of making a core consisting largely or wholly of gutta-percha, providing the same with a retaining-jacket of fibrous material, making cellular segments, heating said segments, forcing them over said jacketed core, welding them together, compressing the core, and maintaining the compression until the shell hardens.

700,856. SHELL-BLANK FOR PLAYING-BALLS. BRADSHAW KEMP-SMALL, Boston, Mass., assigner to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 19, 1902. Serial No. 84,578. (No model.)



Claim.—1. A partial shell for a playing-ball, comprising a layer of plastic material lined with fabric.

2. A half-shell for a playing-ball, comprising layers of plastic material and layers of fabric in alternation, one of said fabric layers forming a lining for the half-shell.

3. A partial shell for a playing-ball, consisting of cellular fabric in which fabric is embedded.

4. A hemispherical shell-blank consisting of cellular fabric having a lining of fabric.

5. A hemispherical shell-blank consisting of piles of cellular fabric and piles of fabric, one of said fabric piles forming a lining for the shell, and all of said piles being compressed together.

6. A process in forming a shell-blank, consisting in compacting together under heat and pressure a ply of fabric and a ply of celluloid, maintaining the pressure until the celluloid cools and hardens, capping the material under heat and pressure, and maintaining the pressure until the celluloid cools and hardens.

7. A process in forming a shell-blank, consisting in compacting together under heat and pressure a ply of fabric and a ply of celluloid, maintaining the pressure until the celluloid cools and hardens, capping the material under heat and pressure, maintaining the pressure until the celluloid cools and hardens, and trimming off the surplus material.

8. A process in producing a playing-ball, consisting in compacting under heat and pressure piles of celluloid and alternate piles of fabric, maintaining the pressure until the celluloid cools and hardens, capping the material under heat and pressure, and maintaining the pressure until the celluloid rehardens.

9. A process in forming a partial shell for a playing-ball, consisting in capping under heat and pressure piles of fabric and celluloid, and maintaining the compression until the shell hardens.

10. A process in forming a half-shell for a playing-ball, consisting in capping under heat and pressure piles of fabric and celluloid, maintaining the compression until the shell hardens, and cutting off the surplus material.

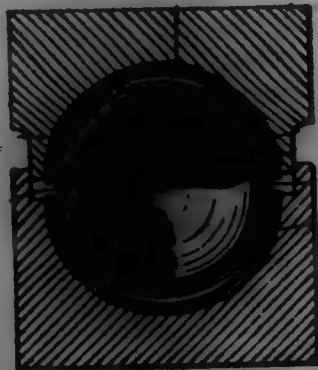
11. A process in producing a shell-segment for a playing-ball, consisting in capping under heat and pressure piles of celluloid and alternate piles of fabric, and maintaining the pressure until the shell hardens.

12. A process in forming shell-blanks for playing-balls, consisting in capping piles of fabric and plastic material under heat and pressure so that the fabric forms a lining for the cap, and maintaining the pressure until the plastic material hardens.

13. A process in forming shell-blanks for playing-balls, consisting in capping piles of fabric and celluloid under heat and pressure so that the fabric forms a lining for the cap, and maintaining the pressure until the celluloid hardens.

14. A process in forming hemispherical shell-blanks for playing-balls, consisting in capping piles of fabric and celluloid under heat and pressure so that the fabric forms a lining for the cap, maintaining the pressure until the shell hardens, and trimming off the surplus material.

700,657. MANUFACTURE OF GOLF-BALLS. BREMER KEMP-
SHALL, Boston, Mass., assignor to The Kumpshall Manufacturing Com-
pany, a Corporation of New Jersey. Filed Mar. 19, 1908. Serial No.
60,977. (No model.)



Claim.—1. A process in producing a playing-ball, consisting in including a core of springy material in previously-formed spherical segments of fabric and plastic material, providing said segments with a cementing-coat, placing over said coating an outer layer of spherical segments, bringing said plastic material to a plastic condition, subjecting the whole to compression, and maintaining the compression while the shell hardens.

2. A process in producing a playing-ball, consisting in including a core of springy material in previously-formed spherical segments of fabric and plastic material, providing said segments with a cementing-coat, said segments being so placed that the joint in one layer runs crosswise of the joint in the other layer, bringing the plastic layers to a plastic condition, and subjecting the whole to compression.

3. A process in producing a playing-ball, consisting in including a core of springy material in previously-formed spherical segments of fabric and seasoned celluloid, coating said segments with a layer of green celluloid, placing over said coating an outer layer consisting of spherical segments of celluloid and fabric, heating said layers, subjecting the whole to compression, and maintaining the compression while the shell hardens.

4. A process in producing a playing-ball, consisting in including a core of springy material in previously-formed spherical segments of celluloid and fabric, covering said segments with a layer of celluloid, placing thereover a layer consisting of spherical segments of celluloid and fabric, subjecting the whole to heat and compression, and maintaining the compression while the celluloid cools and hardens.

5. A process in producing a playing-ball, consisting in including a core of springy material in previously-formed spherical segments of seasoned celluloid and fabric, coating said segments with a layer of green celluloid, placing over said coating an outer layer consisting of spherical segments of celluloid and fabric, the joint or seam in one layer running crosswise of the joint or seam in the other layer, heating said layers, and subjecting the whole to compression.

6. A process in producing a playing-ball, consisting in applying layers of celluloid and woven fabric to a core of springy material, subjecting the ball thus formed to heat and compression, and maintaining the compression while the shell hardens by cooling.

7. A process in producing a playing-ball, consisting in applying successive layers, each consisting of fabric and plastic material, upon a spherical core, cementing said layers together, and subjecting the whole to compression.

8. A process in producing a playing-ball, consisting in applying layers of plastic material and woven fabric to a core of springy material, subjecting the ball thus formed to heat and compression, and maintaining the compression while the shell hardens by cooling.

9. A process in producing a playing-ball, consisting in applying successive layers of fabric and celluloid upon a spherical core, cementing said layers together, and subjecting the whole to heat and compression.

10. A process in producing a playing-ball, consisting in forming a plurality of sets of hemispherical segments of celluloid and fabric, placing said segments upon a core of springy material so as to form a plurality of alternating celluloid and fabric layers, subjecting the whole to heat and compression, and maintaining the compression while the shell hardens by cooling.

11. A process in producing a playing-ball, consisting in forming hemispherical segments of celluloid and fabric, placing said segments upon a core of gutta-percha so as to form a plurality of layers, the joint or seam in one layer crossing a joint or seam in another layer, placing an incompletely-cured coating of celluloid between said layers, subjecting the whole to heat and compression to an extent to compress said core, and maintaining the compression while the shell cools and hardens.

12. A process in producing a playing-ball, consisting in including a core in a shell composed of successive layers of plastic material and fabric, at least one of said layers being previously formed and consisting of spherical segments, bringing the plastic layers to a plastic condition, subjecting the whole to compression, and maintaining the compression while the shell hardens.

13. A process in producing a playing-ball, consisting in including a core in previously-formed sets of hemispherical segments of plastic material compounded with fabric, so as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed to heat and compression.

14. A process in producing a playing-ball, consisting in including a core in previously-formed sets of segments of plastic material and fabric, so as to make a shell, the segments being so placed that the joint in one layer crosses the joint in another layer, heating the plastic material, subjecting the whole to compression so as to weld the segments together at their edges, and maintaining the compression while the shell cools and hardens.

15. A process in producing a playing-ball, consisting in including a core in layers previously compounded of celluloid and fabric, at least one set of said layers consisting of spherical segments, subjecting the whole to heat and compression, and maintaining the compression while the shell hardens.

16. A process in producing a playing-ball, consisting in including a core in previously-formed layers each consisting of segments of celluloid and fabric, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed or assembled to heat and compression.

17. A process in producing a playing-ball, consisting in including a core of springy material in shell layers, at least one of said layers being previously formed and consisting of spherical segments of plastic material and fabric, bringing the plastic material to a plastic condition, subjecting the whole to compression to such an extent as to compress said core, and maintaining the compression while the shell hardens.

18. A process in producing a playing-ball, consisting in including a core consisting largely of gutta-percha in layers each consisting of previously-formed segments of plastic and textile material, the segments being so placed that the joint in one layer crosses the joint in another layer, subjecting the ball thus formed or assembled to heat and also compression to such an extent as to compress said core, and maintaining the compression until the shell cools.

19. A process in producing a playing-ball, consisting in including a core of gutta-percha in shell layers of celluloid and fabric, at least one of said layers being previously formed and consisting of spherical seg-

ments, heating the celluloid, subjecting the whole to compression, and maintaining the compression while the celluloid cools and hardens.

20. A process in producing a playing-ball, consisting in inserting a core of gutta-percha in previously-formed segments consisting of both celluloid and fabric as to make a shell consisting of a plurality of layers, the segments being so placed that the joint in one layer crosses the joint in another layer, and subjecting the ball thus formed or assembled to heat and compression, as to weld the segments at their edges.

21. A process in producing a playing-ball, consisting in inserting a springy core, in previously-formed spherical segments compounded of fabric and celluloid, coating said segments with cement, placing over said coating an outer layer of spherical segments of fabric and celluloid, and subjecting the whole to heat and compression.

22. A process in producing a playing-ball, consisting in inserting a core with a shell built up of fabric and celluloid, heating and compressing the shell, and maintaining the compression while the shell cools.

23. A process in producing a playing-ball, consisting in inserting a yielding core in a shell composed of at least two layers of celluloid and at least one intervening layer of woven fabric, and heating and compressing the shell.

700,658. PLAYING-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 28, 1902. Serial No. 92,582. (No model.)



Claim.—1. A playing-ball comprising an inner sphere of metal and an outer sphere of celluloid, one of said spheres having integral hole and the other of said spheres having pin engaged by said hole.

2. A playing-ball comprising an inner metallic sphere having pin, and an outer celluloid sphere having integral hole which project into said pin.

3. A playing-ball comprising a hollow metal sphere provided with pin, and a celluloid shell open said sphere, said shell having integral hole which enter said pin.

4. A playing-ball, comprising a hard hollow core, a metal sphere thereon, and a hard shell interlocking with said sphere.

5. A playing-ball, comprising a core, a metal sphere thereon, and a celluloid shell interlocking with said sphere.

700,659. MANUFACTURE OF PLAYING-BALLS. BRADSHAW KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 27, 1902. Serial No. 100,236. (No model.)



Claim.—1. The process herein described of making playing-balls, which consists in applying in alternation laminae of plastic and fibrous materials to a suitable core, causing said plastic material to soften or harden upon the ball, and finally completing the ball by compression.

2. The process herein described of making playing-balls, which consists in applying in alternation laminae of plastic and fibrous materials to a suitable core, causing each of said plastic laminae before the next fibrous lamina is applied, and finally compressing the structure.

3. A process in producing a playing-ball, consisting in coating a yielding core with celluloid solution, hardening said coating, and applying thereto a lamina of fibrous material.

4. A process in producing a playing-ball, consisting in coating a yielding core with celluloid solution, hardening said coating, applying thereto a lamina of fibrous material, subjecting the core thus formed to heat and compression, and maintaining the compression while the shell cools.

5. A process in producing a playing-ball, consisting in applying to a

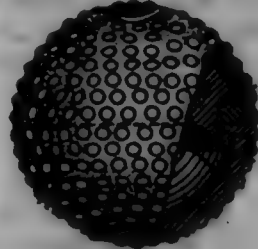
previously-formed sphere a lamina of fibrous material coating said lamina with celluloid solution, hardening said coating, subjecting the ball thus formed to heat and compression, and maintaining the compression while the shell cools.

6. A process in producing a playing-ball, consisting in applying to a core in alternation laminae of fabric and laminae of material in a plastic condition, allowing each plastic lamina to harden before applying the next lamina, and then compressing and heating the whole.

7. A process in producing a playing-ball, consisting in applying successive layers of celluloid alternating with fabric upon a core, said celluloid being applied in plastic condition and hardened or softened upon the ball, and then subjecting said layers to simultaneous pressure and heat, and maintaining the pressure until the celluloid hardens.

8. A process in making a playing-ball, consisting in applying to a core, a plurality of layers one after another of fluid or plastic material, hardening one layer before another is applied, alternating said layers with laminae of fabric, subjecting the whole to heat and compression, and maintaining the compression while the shell cools.

700,660. GOLF-BALL. BRADSHAW KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 11, 1902. Serial No. 102,604. (No model.)



Claim.—1. A playing-ball comprising a shell, a core having an annular groove, and a ring within the groove and along the joints of the shell and adapted to interlock the joint.

2. A playing-ball comprising a core having an annular groove, a plurality of shell-segments surrounding the core, and a ring located within the groove and interlocking the joints of the shell-segments.

3. In a playing-ball, interlocking means for the shell-segments comprising a continuous ring having flanges forming an annular groove and adapted to receive portions of the shell material of abutting edges of the shell.

4. A playing-ball comprising a spherical core, an annular groove in said core, a continuous ring in said groove, said ring having flanges and shell-segments interlocking the core and having their joints located between said flanges.

5. A playing-ball comprising a plurality of shell-segments holding a core under compression, and an independent ring adapted to internally interlock abutting edges of the shell-segments.

6. A playing-ball comprising hemispherical shell-segments enclosing a core under compression, and an independent ring having flanges adapted to interlock adjoining edges of the shell.

7. In a playing-ball, the combination of a filling, a shell thereon formed of plastic material, said segments being welded together, and a device applied to said segments and clenching them together.

8. In a playing-ball, the combination of a filling, a shell thereon formed of plastic material, said segments being welded together, and a device applied to said segments within said shell and clenching them together.

9. A playing-ball comprising a core and a shell thereon formed of segments of plastic material, said segments being welded together, and a device connecting said segments and interlocked with each thereof.

10. In a playing-ball, the combination with a springy core of a shell thereon formed of segments of plastic material, said segments being both welded and mechanically locked together.

11. In a playing-ball, the combination with a springy core of a celluloid shell thereon, said shell consisting of segments which are both welded and mechanically locked together.

12. In a playing-ball, the combination with a core of a shell thereon formed of segments of plastic material, said segments being welded together, and a device connecting said segments and locking into each thereof.

700,661. TRACTION-WHEEL. JOHN A. KIMMET, Jennings, La. Filed Aug. 21, 1901. Serial No. 74,012. (No model.)

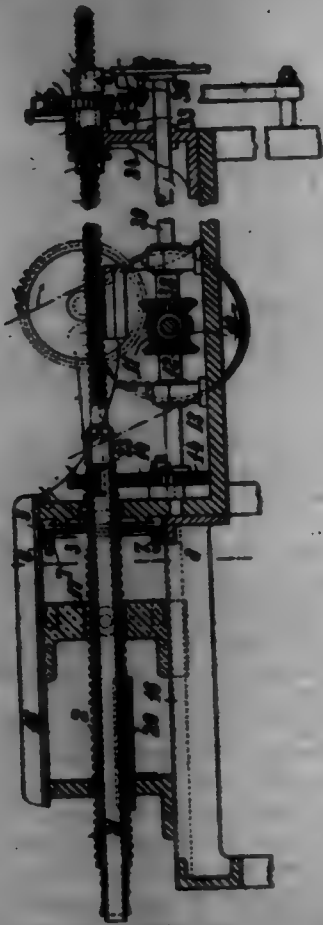
Claim.—1. The combination with a traction-wheel rim formed with horizontally-angled openings, of a plurality of traction-chees each having arms extending at a right angle thereto, said arms adapted to extend through said openings, means for securing said chees in their folded position against the wheel-rim, and means for holding said arms against the inner side of the wheel-rim to project said chees.

2. The combination with a traction-wheel rim formed with horizontally-aligned openings, of a plurality of adjustable shoes each comprising a plate provided with arms extending through said openings, and each having a projecting eye, hooks for engaging said eyes, and catches adapted to engage the ends of said arms to secure the shoes in their projected position.



3. The combination with a traction-wheel rim formed with horizontally-aligned openings, of a plurality of adjustable shoes, each comprising a plate having arms extending through said openings, means for securing said shoes in their folded position against the wheel-rim, and catches pivotally secured to the inner side of the wheel-rim to engage said arms.

700,662. MACHINE FOR UPSETTING TUBES WITH ANNULAR CORRUGATIONS FOR RENDERING THEM FLEXIBLE. FRIDRICH W. KOTLER, Vienna, Austria-Hungary, assignor to Firm of Reinhardt & Bock, Vienna, Austria-Hungary. Filed Oct. 31, 1901. Serial No. 89,937. (No model.)



Claim.—1. In a machine of the class described, dies adapted to take into the corrugations of the tube and means to move the dies toward one another to upset the corrugations, substantially as set forth.

2. In a machine of the class described, two sets of dies adapted to take into the corrugations of the tube and means to move one set toward the other in the direction of the tube length to upset the corrugations, substantially as set forth.

3. In a machine of the class described, two pairs of dies adapted to be moved between the corrugations of the tubes and means to move one pair of dies toward the other in the direction of the tube length, substantially as set forth.

4. In a machine of the class described, two pairs of dies, means to move the dies into and out of engagement with the tube, and a reciprocable platen to move one pair of dies toward the other to upset the corrugations between them, substantially as set forth.

5. In a machine of the class described, two pairs of dies, one die of each pair located at one side of the tube, two cams each simultaneously moving two dies, means to yieldingly hold one pair of dies distanced from the other, and a reciprocable platen to move one pair of dies toward the other in the direction of the length of the tube, substantially as set forth.

6. In a machine of the class described, two pairs of dies, means to move them into and out of engagement with the tube, a platen to move one pair of dies in the direction of the length of the tube and means to intermittently feed the tube forward, substantially as set forth.

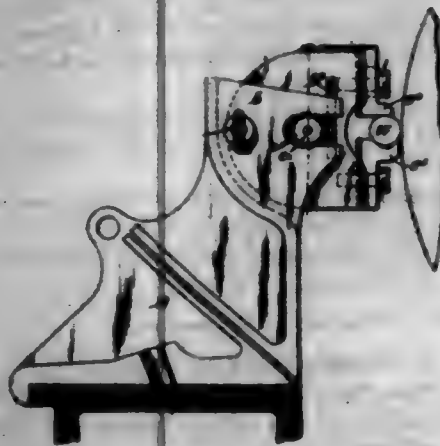
7. In a machine of the class described, a driving-shaft, a platen represented therefrom, dies to engage the tube, means to move the dies into and out of engagement with the tube and gear-driven from the driving-shaft, and means also gear-driven from the driving-shaft to intermittently position the tube with respect to the dies, substantially as and for the purpose set forth.

8. In a machine of the class described, the combination with dies and a platen acting thereon to upset the corrugations of a tube; of means to intermittently feed the tube to the dies comprising a screw-spindle, longitudinally movable, a nut thereon, a ratchet-wheel to move the nut and a pawl to intermittently move the ratchet-wheel, substantially as set forth.

9. In a machine of the class described, the combination with dies and a platen acting thereon to upset the corrugations of a tube; of an intermittently-operated feed device comprising a screw-spindle longitudinally movable, a sleeve, a two-part nut engaging the screw and carried by the spindle, a ratchet-wheel on the sleeve and means to intermittently move said ratchet-wheel, substantially as set forth.

10. In a machine of the class described, a driving-shaft, dies to engage the tube, means gear-driven from the driving-shaft to move the dies into and out of engagement with the tube, a platen to force the dies together lengthwise of the tube, a longitudinally-movable screw-spindle, a sleeve, a two-part nut carried thereby, and a ratchet-wheel thereon, a lever, a pawl thereon engaging the ratchet-wheel, a disk rotatable from the driving-shaft and a pin on said disk adapted to periodically move said lever and pawl to actuate the ratchet-wheel and nut to move the screw, substantially as set forth.

700,668. WORK-REST FOR GRINDING-MACHINES. ABRAHAM B. LARSEN, Waynesboro, Pa. Filed Feb. 12, 1902. Serial No. 89,787. (No model.)



Claim.—1. A work-rest for grinding-machines comprising a pivoted weight carrying bearing-blocks to engage the work mounted to oscillate on its pivot and move horizontally.

2. A work-rest comprising a pivoted weight with bearing-blocks to engage the work, said work-rest being mounted to practically balance on its pivot and move horizontally.

3. A work-rest for grinding-machines comprising a weight mounted on an axis to oscillate and to move horizontally and having bearing-blocks formed to engage the work to firmly secure said rest to move therewith.

4. A work-rest for grinding-machines comprising a pivoted weight having bearing-blocks thereon to engage the work, one of said blocks being held to the work by a yielding pressure, substantially as set forth.

5. A work-rest for grinding-machines, comprising a weight pivoted to oscillate and to move toward and from the grinding-wheel having two bearing-blocks thereon one of which has a face to embrace a part of the work and the other of which is held to the opposite side by a yielding pressure.

6. A work-rest comprising a pivoted weight balanced on its pivot and mounted to move horizontally to accommodate the work and having bearing-blocks to engage the work and hold said rest thereon, whereby the weight of said rest is added to the work to prevent vibration, while yielding freely to the surface of the work.

7. A work-rest for grinding-machines comprising a weight with bearing-faces engaging the work, said weight being mounted to swing and move horizontally.

8. A work-rest comprising a weight mounted to practically balance on its axis and to move horizontally and having bearing-blocks which are adapted to engage the work to hold said rest securely thereon during the operation.

9. In a work-rest the combination, of the frame, the weight mounted on rollers in a horizontal way in said frame, and the bearing-blocks adapted to engage the work to secure the weight thereon, substantially as set forth.

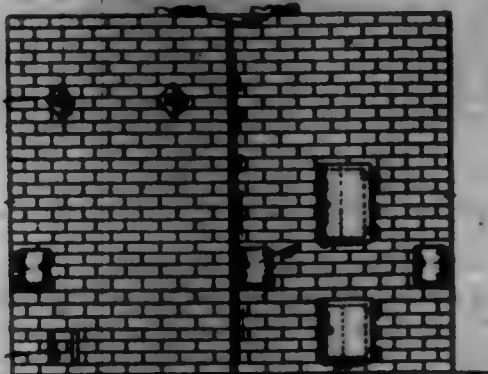
10. In a work-rest the combination, of the frame, the weight mounted on an axis in wheels, which wheels are mounted to run in horizontal ways in said frame, and blocks having flanges to engage the work and secure the rest thereon, substantially as set forth.

11. In a work-rest for grinding-machines, the combination, of the pivoted weight, the bearing-blocks, and the clamp for holding said weight rigid when desired, substantially as set forth.

12. In a grinding-machine, the combination, of the frame, the weight mounted on wheels on its axis in horizontal ways in the frame the bearing-block rigid with said weight to engage one side of the work, and the bearing-block mounted to be held to the other side of the work by a yielding pressure, substantially as set forth.

13. A work-rest comprising a pivoted balanced weight provided with means for holding it to the work.

700,664. HOT-AIR FURNACE. MAISON LEE and WILLIAM W. BRYAN, Agents, Ind., assignors to WILLIAM H. PIERCE, Agent, Ind. Filed Mar. 22, 1901. Serial No. 58,362. (No model.)



Claim.—1. In a hot-air furnace, metal plates set into the walls thereof forming a cold-air chamber, a combustion-chamber and a hot-air chamber, tubes traversing said combustion-chamber having their tops larger in area than their bottoms and extending above the floor of the hot-air chamber, a layer of clay having a wire-netting interposed therein covering the floor of said hot-air chamber to the level of the top of the hot-air tubes, a sheet of asbestos superposed over said clay, and openings cut in said asbestos over each tube having their edges turned down and held in the mouth of said tubes, substantially as shown and described.

2. In a hot-air furnace, metal plates set into the walls thereof forming a cold-air chamber, a combustion-chamber and a hot-air chamber, tubes traversing said combustion-chamber having their tops larger in area than their bottoms, a sheet of asbestos in said hot-air chamber covering the ends of said tubes, openings cut in said asbestos over the mouth of each tube, the edges of said openings turned down around the mouth of said tubes, and metal washers secured in the mouth of the tube to hold the edges of said openings therein, substantially as shown and described.

3. In a hot-air furnace, metal plates set into the walls thereof forming a cold-air chamber, a combustion-chamber and a hot-air chamber, a fire-pot in the combustion-chamber having vertically-extended walls to carry the products of combustion upward, smoke-flues interior of the side and rear walls and running horizontally therein near the floor of the combustion-chamber, and openings into said chamber to draw the products of combustion downward, substantially as shown and described.

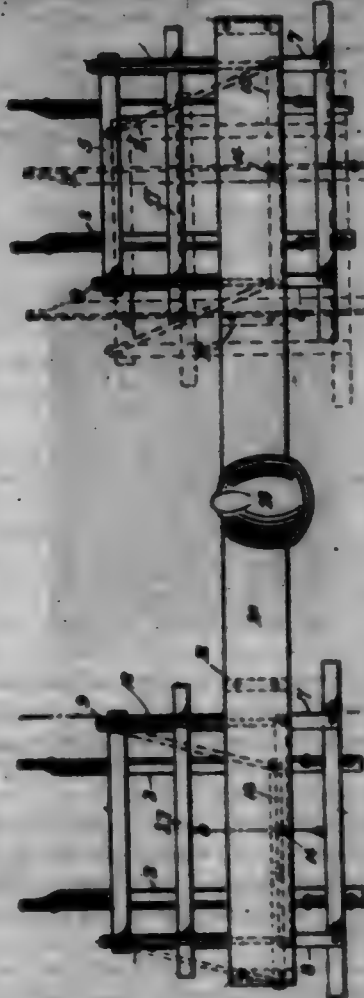
4. In a hot-air furnace, a cold-air chamber, a hot-air chamber and a combustion-chamber, tubes connecting said cold-air and hot-air chambers, a sheet of asbestos in said hot-air chamber covering the ends of said tubes, openings cut in said asbestos over the mouth of each tube, the edges of said openings turned down and held in the mouth of said tubes, as and for the purposes shown and described.

5. In a hot-air furnace, the combination of a cold-air chamber at the base, an ash-pit therein inclosed on three sides by said cold-air chamber, a combustion-chamber containing a fire-pot having vertically-extended walls, a hot-air chamber over said combustion-chamber, tubes traversing said combustion-chamber for conveying air from the cold to the hot air chamber and heating during transit, said tubes surrounding the fire-pot on three sides and having the upper parts thereof flaring over the fire-pot, and horizontal flues in the side and rear walls of the furnace opposite the base of the combustion-chamber with outlets into said combustion-chamber, substantially as shown and described.

6. In a hot-air furnace, the combination with a cold-air chamber, a combustion-chamber and a hot-air chamber of horizontal smoke-flues in the side and rear walls of the combustion-chamber and situated near the base thereof, and openings from said smoke-flues into the combustion-chamber, the total area of the openings in each wall being equal to the

area of the plane through each smoke-flue cut at right angles to its direction, substantially as shown and described.

700,665. LINTER-CULTIVATOR. AUGUST LINDGREN, Moline, Ill., assignor to the Moline Plow Company, a Corporation of Illinois. Filed Feb. 18, 1902. Serial No. 94,607. (No model.)



Claim.—1. In a linter-cultivator the combination with a plurality of cultivating-frames, of a transverse connecting-bar, and a pivotal link connection between the frames and the bar.

2. In a linter-cultivator the combination with a plurality of frames, of a transverse connecting-bar, links jointed at their forward ends to the frames, and a jointed connection between the opposite ends of the links and the bar.

3. In a linter-cultivator the combination with a plurality of cultivating-frames, of a transverse connecting-bar, and parallel links connecting each frame with the bar.

4. In a linter-cultivator the combination with the cultivating-frames, of a transverse bar, parallel links connected at their front ends to the frames, and a connecting device joining the rear ends of the links and having a pivotal connection with the cross-bar.

5. In a linter-cultivator the combination with a plurality of frames, of a transverse connecting-bar, pairs of links jointed at one end to the frames, and a rod pivotally connecting the opposite ends of the links and pivoted between its ends to the cross-bar.

6. In a linter-cultivator the combination with a plurality of frames, of a transverse bar comprising two boards spaced apart, links jointed at their front ends to the frames and extending at their rear ends between the boards, and a jointed connection between the links and the boards.

7. In a linter-cultivator the combination with a plurality of frames having vertical bearings, of links having their forward ends extending vertically and mounted in the bearings and extending rearward, a transverse bar common to the frames, and jointed connections between the links and the bar.

8. In combination with a plurality of frames having transverse supporting-bases thereon, a transverse cross-bar and connecting-links jointed respectively to the frames and the bar and resting between their ends on the transverse supporting-bases.

9. In a linter-cultivator the combination with the cultivating-frame provided with a fixed transverse supporting-bar, of two end links jointed at their front ends to the frame and resting between their ends on the fixed bar, and a transverse cross-bar jointed to the rear ends of said links.

10. In a linter-cultivator the combination with a plurality of frames, of a transverse connecting cross-bar, links connecting the bar and frame and movable transversely with reference to the frame, and a fixed sup-

part on which the links rest between their ends; whereby the cast-bar is contained so as to yield vertically.

11. In a later-cultivator the combination with a plurality of cast-bar-frames, of a transverse cast-bar, and connecting devices between the frames and the bar having a free pivotal motion on a vertical axis.
12. In a later-cultivator the combination with a plurality of cast-bar-frames, of a transverse cast-bar, and connecting devices between the frames and the bar having a free pivotal motion on a vertical axis situated in front of the cast-bar.

700,666. STORAGE BATTERY. LEVI W. LAMAR, Boston, Mass., assignor to Fletcher W. Jewell, Boston, Mass. Filed Mar. 1, 1891. Serial No. 49,447. (No model.)

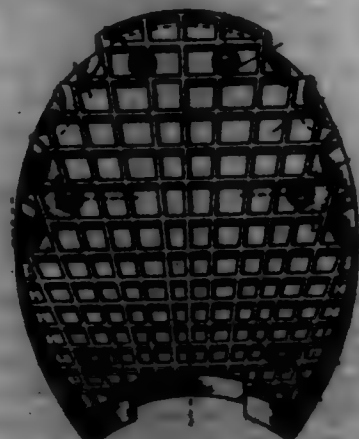


Claim.—1. In a storage-battery plate, in combination, the series of strips 10, 10, of conducting material, fitted for the reception of the supporting-rod, supporting-rod, also of conducting material tapering lengthwise, fitting within the slit of the said strips, and making contact with the edges of the slits, substantially as described.

2. In a storage-battery plate, in combination, the series of strips 10, 10, of conducting material having raised slotted bases, with the base of one strip fitting within the corresponding indentation of the next adjacent strip, and supporting-rod of conducting material tapering lengthwise, passing through the slits in the strips, and making contact with the edges of said slits, substantially as described.

3. In a storage-battery plate, in combination, the series of strips 10, 10, of conducting material having raised slotted bases, with the base of one strip fitting within the corresponding indentation of the next adjacent strip, and supporting-rod, of conducting material tapering lengthwise, passing through the slits in the strips, and making contact with the edges of said slits, substantially as described.

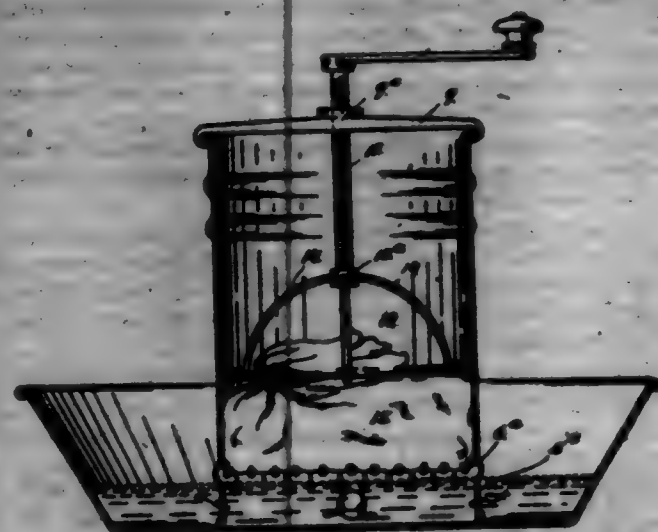
700,667. BASKET. ANTHONY M. HANSEN, Chicago, Ill. Filed Sept. 26, 1891. Serial No. 78,972. (No model.)



Claim.—1. The combination with a basket formed on its under surface with a depending frame or flange, of a plurality of pins depending from the under surface of the shoe, said pins being split longitudinally at their lower ends, bases surrounding the upper ends of the pins, and an elastic pad fitting said frame corrugated on its under surface and formed with openings to receive said pins and with recesses around said openings to receive said bases and the distended ends of the pins.

2. The combination with a basket formed on its under surface with a depending frame or flange, of a corrugated elastic pad having on edge flange fitting upon said frame, and formed with openings and with recesses around said openings on both its upper and under surfaces, and securing-pin projecting from the shoe within the frame and split at their lower ends, and strengthening-bases at the upper ends of the pins, said split pins being adapted to be clamped upon the pad.

700,668. FRUIT-JUICE EXTRACTOR. CLARA PARK, Denver, Colo. Filed Feb. 12, 1899. Serial No. 64,985. (No model.)



Claim.—1. In a device for extracting fruit-juice, the combination with a receptacle having a bottom provided with openings to allow the juice of the fruit to pass through, a cross-piece mounted on top of the receptacle and provided with a threaded opening, a plunger adapted to enter the receptacle and provided with an opening in its base through which the mouth of the nut or bag containing the fruit, may be drawn, and adapted to close said mouth, and a screw-stem connected with the plunger and threaded in the cross-piece at the top of the receptacle, substantially as described.

2. In a fruit-juice extractor, the combination with a receptacle having a bottom provided with openings, said bottom being raised above the lower bottom edge of the side walls of the receptacle, a cross-piece removably mounted on top of the receptacle and having a threaded opening, retaining device mounted on the receptacle to receive the cross-piece on-tressline, a screw-stem threaded in the cross-piece, and a plunger made fast to said stem, the plunger having an opening to receive the mouth of the nut containing the fruit, and constructed to close said mouth during the fruit-extracting operation, substantially as described.

3. In a device of the class described, the combination with a receptacle having a bottom composed of parallel wires raised above the lower edge of the side wall, which is provided with openings beneath the said bottom, a plunger adapted to enter said receptacle, the plunger having an opening adapted to receive and close the mouth of a nut, a screw-stem attached to the plunger, and a cross-piece mounted on the receptacle, in which cross-piece the screw-stem is threaded, substantially as described.

4. In a fruit-extractor, the combination with a receptacle having a bottom opening to allow juice to pass through, a plunger adapted to enter the receptacle, having parallel cross wires or plates, and an opening to receive the mouth of the nut containing the fruit, a screw-stem attached to said plunger, and a cross-piece or bar mounted on the upper edge of the receptacle, in which cross-piece the screw-stem is threaded.

5. The combination of a receptacle having a bottom provided with openings, a plunger adapted to enter said receptacle, and composed of a base, a hub and upwardly-projecting arms connecting the base and hub; a screw-stem attached to the hub, and a cross-piece mounted on top of the receptacle and in which place the screw-stem is threaded.

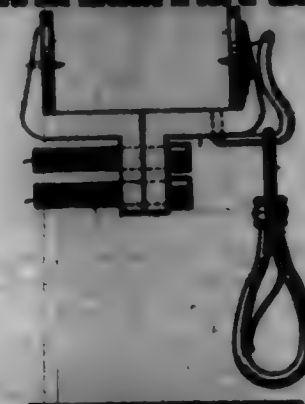
6. In a fruit-juice-extracting device, the combination of a receptacle having a bottom opening to allow the fruit-juice to pass through, a plunger located in said receptacle above said bottom, a screw-stem attached to the plunger, a cross-piece mounted on top of the receptacle whose upper edges are beveled, the cross-piece having hooks engaging said bevel, and provided with a threaded opening through which the screw-stem passes, and springs located on opposite sides of the top of the receptacle and adapted to receive the cross-piece extrinsically and retain the said piece in place, the head of the top of the receptacle being set away to permit the removal of the cross-piece, substantially as described.

7. In a fruit-juice extractor, the combination of a receptacle, having a bottom composed of parallel wires, a plunger located in said receptacle above the bottom and composed of an outer ring connected by parallel cross-wires, a small ring located between the cross-wires, a hub located above the cross-wires, and curved arms connecting the outer ring and the hub; a screw-stem attached to the hub, a cross-piece mounted on top of the receptacle, in which place the screw-stem is threaded, and a crank attached to the upper extremity of said stem, substantially as described.

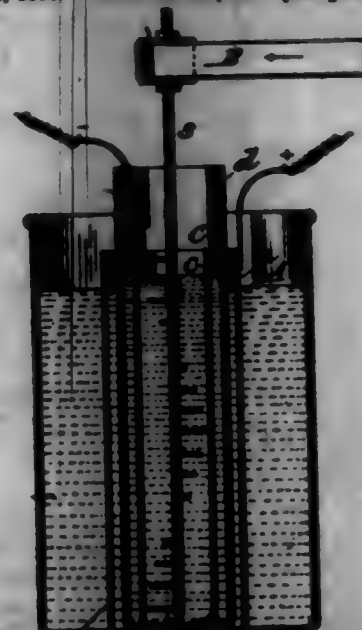
700,669. STOP-VALVE FOR BARRED-CHAINS. JOHN B. BARNES, Denver, Colo. Filed Sept. 22, 1891. Serial No. 78,988. (No model.)

Claim.—A stop-valve attachment for barbed-chains comprising

two corresponding clamping members having depending parallel parts, horizontal parts extending outwardly in opposite directions from the upper extremities of the depending parts, and at right angles to the latter, parallel opposing parts extending upwardly from the horizontal parts, disks applied to the respective upwardly-projecting parts, rivets holding the respective disks in place and protruding on the faces of the disks to form holding-heads, and covers passing through registering openings formed in the depending parts and threaded in one of said parts.



700,670. ELECTROLYTIC REDUCTION OF NITRO OR OTHER COMPOUNDS. MAX BUCHNER, Mannheim, Germany, assignor to The Firm of C. F. Reibinger & Söhne, Mannheim-Walldorf, Germany. Filed Nov. 18, 1898. Serial No. 737,494. (No specimens.)



Claim.—1. The process of reduction which consists in introducing a substance capable of being reduced by tin into an electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of tin.

2. The process of reducing a nitro compound which consists in introducing such compound into an electrolyte capable of dissolving tin, and passing a current through the same in the presence of tin.

3. The process of reduction which consists in introducing a substance, capable of being reduced by tin into an electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of a tin cathode.

4. The process of reducing a nitro compound which consists in introducing such compound into an electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of a tin cathode.

5. The process of reduction which consists in introducing a substance capable of being reduced by tin into an electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of tin and at the same time stirring and cooling.

6. The process of reduction which consists in introducing a substance capable of being reduced by tin into an electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of tin and at the same time stirring and cooling.

7. The process which consists in introducing a substance, which is reducible, and an anion into an acid electrolyte capable of dissolving tin, and passing an electric current through the same in the presence of a tin cathode.

8. The process which consists in introducing a substance which is reducible to an anion into an alkaline acid electrolyte capable of dissolving tin and passing an electric current through the same in the presence of a tin cathode while stirring and cooling.

9. The process which consists in introducing a nitro compound to be reduced into a cathode-bath containing hydrochloric acid and in which is arranged a tin cathode and passing an electric current through the bath.

10. The process which consists in introducing a nitro compound to be reduced into an alkaline cathode-bath containing hydrochloric acid, and in which is arranged a tin cathode, passing an electric current through said bath and stirring and cooling the same.

11. The process which consists in introducing a nitro compound into a bath containing a stannous compound and hydrochloric acid and having a cathode arranged therein and passing an electric current through the bath while stirring and cooling the same.

12. The process which consists in introducing a nitro compound into a cathode-bath containing hydrochloric acid and a stannous salt and having a cathode arranged therein, and passing an electric current through the bath while stirring and cooling.

700,671. REDUCTION OF ARSO COMPOUNDS. MAX BUCHNER, Mannheim, Germany. Filed Sept. 24, 1898. Serial No. 73,500. (No specimens.)

Claim.—1. The process of reducing arsenic compounds which consists in passing an electric current through such arsenic compounds dissolved or suspended in an electrolyte fluid capable of dissolving tin in the presence of tin, the arsenic compound and tin being arranged in the cathode-compartment.

2. The process of reducing arsenic compounds which consists in passing an electric current through such arsenic compounds dissolved or suspended in an electrolyte fluid containing tin, the arsenic compound and tin being arranged in the cathode-compartment.

3. The process of reducing arsenic compounds which consists in passing an electric current through such arsenic compounds dissolved or suspended in an electrolyte fluid capable of dissolving tin in the presence of tin and at an elevated temperature, the electrolyte fluid being capable of dissolving tin and the tin and arsenic compound being arranged in the cathode-compartment.

4. The process of reducing arsenic compounds which consists in passing an electric current through such arsenic compounds dissolved or suspended in an electrolyte fluid capable of dissolving tin containing tin and at an elevated temperature, the arsenic compound and tin being arranged in the cathode-compartment.

5. The process of reducing arsenic compounds which consists in charging the cathode-space of an electrolytic cell with a mixture of the arsenic compound with hydrochloric acid and water and passing the electric current there-through in the presence of tin.

6. The process of reducing arsenic compounds which consists in charging the cathode-space of an electrolytic cell with a mixture of the arsenic compound and powdered tin with water and hydrochloric acid and then passing the electrolytic current through the mixture.

700,672. REDUCTION OF NITRO COMPOUNDS. MAX BUCHNER, Mannheim, Germany. Filed Sept. 24, 1898. Serial No. 73,501. (No specimens.)

Claim.—1. The process of reduction which consists in introducing a reducible substance into the acid electrolyte contained in the cathode-space of an electrolytic cell and passing a current through the same in the presence of copper, the electrolyte being one capable of reducing the copper to the tin condition.

2. The process of reducing a nitro compound which consists in introducing such compound into the acid electrolyte contained in the cathode-space of an electrolytic cell and passing a current through the same in the presence of copper, the electrolyte being one capable of reducing the copper to the tin condition.

3. The process of reduction which consists in introducing a reducible substance into the acid electrolyte contained in the cathode-space of an electrolytic cell and passing a current through the same in the presence of a copper cathode, the electrolyte being one capable of reducing the copper to the tin condition.

4. The process of reducing a nitro compound which consists in introducing such compound into the acid electrolyte of the cathode-space of an electrolytic cell and passing an electric current through the same in the presence of a copper cathode, the electrolyte being one capable of reducing the copper to the tin condition.

5. The process of reduction which consists in introducing a reducible substance into an acid cathode-bath containing a compound of copper and passing an electric current through said bath, the electrolyte being one capable of reducing the copper to the tin condition.

6. The process of reduction which consists in introducing a reducible substance into an acid cathode electrolyte and passing an electric current through the same in the presence of copper and at the same time stirring and cooling, the electrolyte being one capable of reducing the copper to the tin condition.

7. The process which consists in introducing a substance which is

reducible to an amine into an acid cathode-bath in which is arranged a copper cathode and passing an electric current through the same.

8. The process which consists in introducing a substance which is reducible to an amine into an alcoholic-acid cathode-bath in which is arranged a copper cathode and passing an electric current through the same while stirring and cooling.

9. The process which consists in introducing a nitro compound to be reduced into a cathode-bath containing hydrochloric acid and in which is arranged a copper cathode to the action of an electric current.

10. The process which consists in introducing a nitro compound into a cathode-bath containing a cuprous compound and hydrochloric acid and having a cathode arranged therein and passing an electric current there-through.

11. The process which consists in introducing a nitro compound into a cathode-bath containing hydrochloric acid and a cuprous salt and having a cathode arranged therein, and passing an electric current there-through while stirring and cooling.

700,678. MANUFACTURE OF CERAMIC PRODUCTS. MAX BOEHRER, Mannheim, Germany. Filed Apr. 24, 1901. Serial No. 57,364. (No specimens.)

Claim.—1. The process of manufacturing ceramic products, which consists in combining previously-melted aluminium oxide with a plastic ceramic substance.

2. The process of manufacturing ceramic products for chemical purposes, which consists in mixing comminuted previously-melted aluminium oxide with comminuted plastic substances, such as kaolin.

3. The process of manufacturing ceramic products for chemical purposes, which consists in mixing comminuted previously-melted aluminium oxide with a plastic ceramic substance, such as kaolin, and adding to the whole the requisite amount of water.

4. The process of manufacturing ceramic products, which consists in mixing divided previously-melted aluminium oxide with a comminuted ceramic substance, such as kaolin, then adding the requisite amount of water and molding or forming the mixture into the required shapes.

5. The process of manufacturing ceramic products, which consists in mixing divided previously-melted aluminium oxide with a comminuted ceramic substance, such as kaolin, then adding the requisite amount of water and molding or forming the mixture into the required shapes and drying the mixture.

6. The process of manufacturing ceramic products, which consists in mixing divided previously-melted aluminium oxide with a comminuted ceramic substance, such as kaolin, then adding the requisite amount of water, molding or forming the mixture into the required shapes, drying and firing or burning the same.

7. The process of manufacturing ceramic products for chemical purposes, which consists in mixing together two parts by weight of comminuted previously-melted aluminium oxide with substantially one part by weight of divided kaolin and adding the requisite amount of water to form a plastic mass.

8. The process of manufacturing ceramic products for chemical purposes, which consists in mixing together two parts by weight of comminuted previously-melted aluminium oxide with substantially one part by weight of divided kaolin, adding the requisite amount of water to form a plastic mass and molding and drying the whole.

9. The process of manufacturing ceramic products for chemical purposes, which consists in mixing together two parts by weight of corundum powder with about one part by weight of levigated kaolin, adding the requisite amount of water, molding, drying and firing the mass.

10. As a new ceramic compound, previously-melted aluminium oxide mixed with a plastic ceramic substance, such as kaolin in the proportions substantially as hereinbefore set forth.

11. A new ceramic compound for chemical purposes consisting of corundum mixed with kaolin in the proportions substantially as hereinbefore set forth.

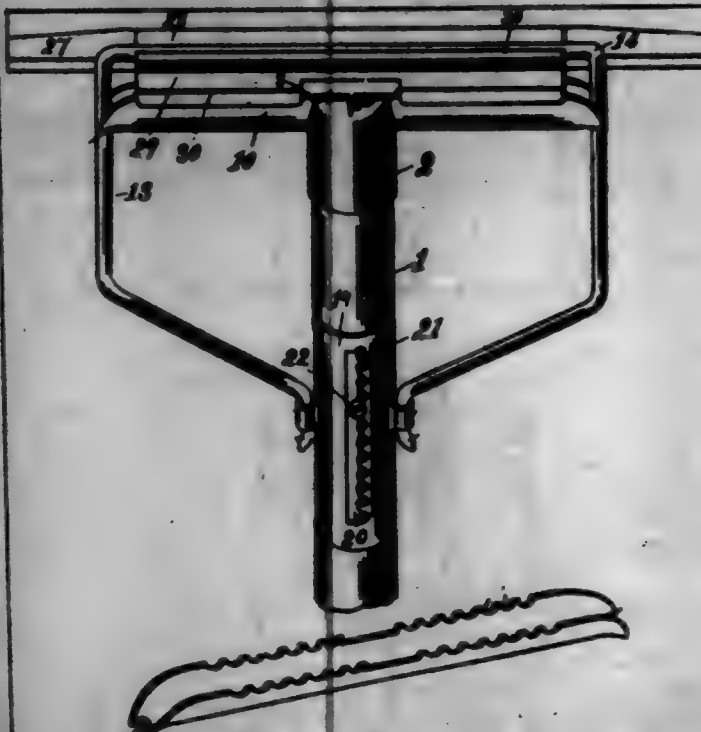
700,674. GARMENT. JAMES H. BURY, Springfield, Mass., assignor, by means assignment, to Cuno Shirt Coat Company, New York, N. Y., a Corporation of New York. Filed Sept. 4, 1900. Serial No. 24,908. (No model.)

Claim.—A coat comprising a portion *a*, arranged to be normally closed over the breast from the neck downward a depending back portion *b*, two complementary front flaps formed by cutting away the lower part of the front portion *a*, and an abdominal shirt portion *c* secured at its upper edge to the inside of the front portion *a*, and adapted to be worn inside of the trousers, substantially as described.

700,674.



700,675. MOP-HEAD. EDWARD R. CAMPBELL, Bakersfield, Cal., assignor of one-half to Melville H. Wangerheim, Bakersfield, Cal. Filed Feb. 2, 1902. Serial No. 92,436. (No model.)



Claim.—1. In a mop-head, the combination with the cross-head and yoke, of a ring to which the ends of the yoke are attached, and a handle, said ring and handle having thereon, the one a series of ratchet-teeth, and the other a stud for engaging said teeth, the ratchet-teeth pointing tangentially or laterally and being freed from said stud by a rotary relative movement of the ring and handle, substantially as described.

2. In a mop-head, the combination with the cross-head, yoke and handle, of a runner secured to the yoke, said runner having thereon a rack having teeth pointing laterally or tangentially, and a stud on said handle to engage said rack, substantially as described.

3. In a mop-head, the combination with a cross-head, yoke and handle, of a runner comprising a piece having a rack formed thereon, and having ears, and a band having ears, the ends of the yoke being hooked to engage the ears of said piece and band, and a stud on said handle engaging said rack, substantially as described.

4. In a mop-head, in combination with the handle, yoke, and means for regulating the yoke, a cross-head comprising a cross-piece formed of sheet metal bent into a U shape to form a trough, and a flange or sleeve stamped out of sheet metal and bent into a cylindrical form, two of its edges being brought around close to each other, and the whole being secured to the handle, the upper end of the sleeve so formed being bent over on opposite sides toward each other to form hooks passing over opposite edges of the trough, substantially as described.

700,676. ELECTRIC ELEVATOR. JOSEPH CHANDLER, Minneapolis, Minn., assignor of one-half to Patrick H. Morley, Minneapolis, Minn. Filed Sept. 2, 1901. Serial No. 74,300. (No model.)

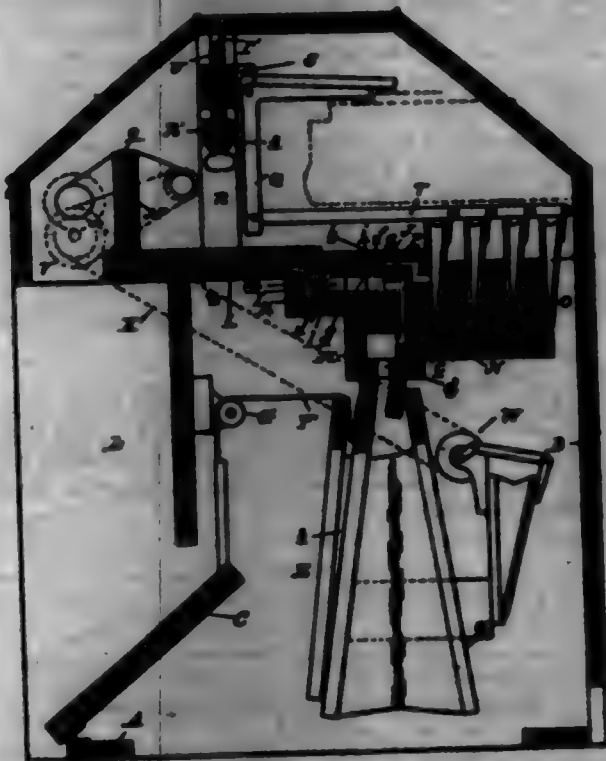
Claim.—1. In an electric elevator, the combination with the wheel thereof, and the endless rope operating the same, of a crank-pin affixed in the said wheel, a connecting-rod mounted thereon, a spring actuating the said connecting-rod, and a stop for limiting the travel of the said pin, arranged substantially as shown and for the purposes specified.

2. In an electric elevator, the combination with the wheel thereof, and an electric switch actuated thereby, of a crank-pin affixed in the said wheel, a connecting-rod journaled thereon, a spring actuating the said

connecting-rod, and a stop to limit the travel of the said crank-pin; substantially as shown and for the purposes specified.



700,677. SELF-PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS. JAMES CORVILL, Detroit, Mich., assignor to FAYARD Organ Company, Detroit, Mich., a Corporation of Michigan. Filed May 31, 1901. Serial No. 92,612. (No model.)



Claim.—1. In a self-playing attachment for musical instruments, the combination of a base and wind-pumping device mounted thereon, of an action above said base, a series of key-actuating levers, and a common means for adjusting said levers to different horizontal planes for playing of any height within the range of the adjustment thereof, and maintaining at all points of adjustment their operative connection to the action.

2. In a self-playing attachment for musical instruments the combination of a base and wind-pumping device mounted thereon, of a pneumatic-action above said base, the series of key-actuating levers or strikers, a bar to which said levers are fulcrumed, a common means for vertically adjusting said bar to any height above the base within the range of adjustability, while maintaining the strikers in operating position and in operative connection with the action.

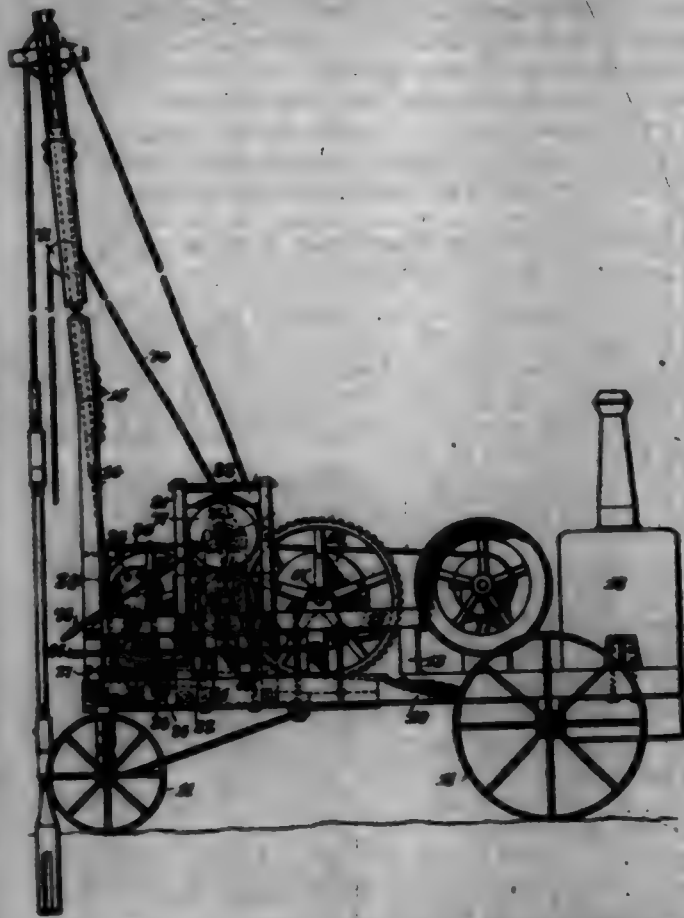
3. In a self-playing attachment for musical instruments the combination of a base, wind-pumping device mounted thereon, a casing extending upward from said base, a pneumatic-action located therein, a series of key-actuating strikers in operative relation to said action, and a common means for adjusting said strikers to any operating heights from the base, within the range of adjustability, such adjusting means holding the parts at every point of adjustment.

4. In a self-playing attachment for musical instruments the combination of a base, a wind-pumping device thereon, a casing, an action in the casing, a series of key-strikers adapted to be operated by the action

and a common support for said strikers adjustable to any operating height above the base within the range of the adjustability thereof.

5. In a self-playing attachment for musical instruments, the combination of a casing, an action therein and wind-pumping device, of a series of key-actuating levers, a common fulcrum-bar upon which said levers are supported and means for adjusting said fulcrum-bar and thereby the levers to any height within the range of the adjustability thereof, and a connection between the levers and the operating device of the action which is maintained at all points of adjustment.

700,678. DRILLING-MACHINE. ROBERT M. DOWNE, Beaver Hills, Pa., assignor to the Keystone Driller Company, Beaver Hills, Pa. Filed Apr. 24, 1901. Serial No. 97,216. (No model.)



Claim.—1. In a drilling-machine, the combination with a pivoted walking-beam for operating a drill, of means for oscillating the walking-beam, and a counterbalance for the walking-beam, comprising means for opposing a torsional resistance to the movement of the walking-beam, said means having its axis of oscillation substantially coincident with that of the pivot of the beam.

2. In a drilling-machine, the combination with a pivoted walking-beam for operating a drill, of means for oscillating the walking-beam, and a counterbalance for the walking-beam, comprising means for opposing a torsional resistance to the movement of the walking-beam, said means engaging the walking-beam contiguous to its pivot and having its axis of oscillation substantially coincident with that of the pivot of the beam.

3. In a drilling-machine, the combination with a pivoted walking-beam for operating a drill, of means for oscillating the walking-beam, and a counterbalance for the walking-beam, comprising means for opposing a torsional resistance to the movement of the walking-beam, said means engaging the walking-beam on opposite sides of its pivot and having its axis of oscillation substantially coincident with that of the pivot of the beam.

4. In a drilling-machine, the combination with a pivoted walking-beam for operating a drill, of means for oscillating the walking-beam, and a counterbalance for the walking-beam, comprising means for opposing a torsional resistance to the movement of the walking-beam, said means including flexible devices engaging the beam on opposite sides of its pivot, the axis of oscillation of each flexible device being coincident with that of the pivot of the beam.

5. In a drilling-machine, the combination with a pivoted walking-beam for operating a drill, of means for oscillating the walking-beam, and a counterbalance for the walking-beam, comprising means for opposing a torsional resistance to the movement of the walking-beam, said means including flexible devices engaging the beam on opposite sides of its pivot, the axis of oscillation of each flexible device being coincident with that of the pivot of the beam, and means for regulating the tension of the flexible devices.

6. In a drilling-machine, the combination with spaced supports, of a pivoted walking-beam located between the supports, and means for opposing torsional resistance to the movement of the walking-beam, said means comprising a rope or cable secured to the spaced supports and having portions engaging the beam on opposite sides of its pivot, the terminals of said rope or cable being adjustably secured together whereby its tension may be regulated.

7. In a drilling-machine, the combination with spaced supports, of a walking-beam pivoted between the supports, and a flexible element extending across the space between and connected to the supports, said element extending transversely of and engaging the walking-beam to form a resistance against the movement of the same.

8. In a drilling-machine, the combination with spaced supports, of a walking-beam pivoted between the supports, a flexible counterbalance element extending across the space between and connected to the supports, said element being located transversely of and engaging the walking-beam to form a resistance against the movement of the same, and means for regulating the tension of said counterbalance.

9. In a drilling-machine, the combination with spaced supports, of a walking-beam pivoted between the supporting-bars, a flexible element connected to said supports, said element extending transversely of and engaging the walking-beam on opposite sides of its pivot to form a resistance against the movement of said beam in either direction, and means for regulating the tension of said counterbalance.

10. In a drilling-machine, the combination with spaced supporting-bars, of bearings located on the opposing faces of said bars, a walking-beam located between said bars and having its pivot mounted in the bearings thereof, and a flexible element also secured to the bearings and arranged transversely across and secured to the beam to form a resistance against the movement of the same.

11. In a drilling-machine, the combination with spaced supporting-bars, of bearings located on the opposing faces of said bars, a walking-beam located between the bars and having its pivot mounted in said bearings, a flexible rope also secured to the bearings and arranged transversely across the beam, said rope being secured to the walking-beam on opposite sides of its pivot, and means for adjustably securing the ends of the rope together to regulate the tension of the same.

12. In a drilling-machine, the combination with spaced supports, of a pivoted walking-beam located between the supports, and a flexible rope or cable secured at its opposite ends to the supports, said rope or cable being located across and secured to the walking-beam.

13. In a drilling-machine, the combination with spaced supports, of a walking-beam pivoted intermediate for ends and located between the supports, and a flexible rope or cable having portions arranged transversely across the walking-beam on opposite sides of its pivot, said portions being secured to the supports.

14. In a drilling-machine, the combination with a pivoted walking-beam, of an operating-wheel for the walking-beam provided with a plurality of spaced sockets, a plate journaled upon the wheel at one side of its axis of rotation and adapted to pass over the sockets, a crank-pin carried by the plate, a pitman connecting the walking-beam and the crank-pin, and means carried by the plate and engaging the sockets for securing the crank-pin to said plate and holding the plate against movement on the wheel.

15. In a drilling-machine, the combination with a pivoted walking-beam, of an operating-wheel for the walking-beam, a plate journaled upon the wheel at one side of its axis of rotation, said wheel being provided with a plurality of sockets located in concentric relation to the journal-axis of the plate, and concentric to the journal-axis of the wheel, a crank-pin carried by the plate and movable into and out of alignment with the journal-axis of the wheel, a pitman connecting the walking-beam to the crank-pin, and a set-screw passing through the crank-pin and the plate and movable into and out of the sockets of the wheel, whereby said plate and wheel are held against relative movement.

16. In a drilling-machine, the combination with a frame including a derrick, of a rigid push-rod located longitudinally of and slidably mounted upon the derrick, a crown-pulley carried by the push-rod, a walking-beam having a detachable pivotal connection with the lower end of the rod, said rod being capable of a lateral movement when detached, a stationary support for the rod when detached, said support being located upon the frame, and means for oscillating the walking-beam.

17. In a drilling-machine, the combination with a driving-shaft, of a reel, means for operatively connecting said shaft and reel, said means including a clutch, the two members of which are mounted on the driving-shaft, one of said members being loosely mounted and having a geared connection with the reel, the other being arranged to turn with the shaft and slidable into and out of engagement with the first-named member, a brake for holding the loosely-mounted member against movement, and a lever having connection with the slidable member and the brake to successively move one into and the other out of operative position.

18. In a drilling-machine, the combination with a driving-shaft, of a reel, means for operatively connecting said shaft and reel, said means including a clutch, the two members of which are mounted on the driving-shaft, one of said members being loosely mounted and having a geared connection with the reel, the other being arranged to turn with the shaft and slidable into and out of engagement with the first-named member, a brake for holding the loosely-mounted member against movement, said brake comprising a pair of standards located on opposite sides of the member, a pivoted controlling-lever, a link connection between the controlling-lever and the slidable member of the clutch, and a toggle connection between the brake-standards and the link.

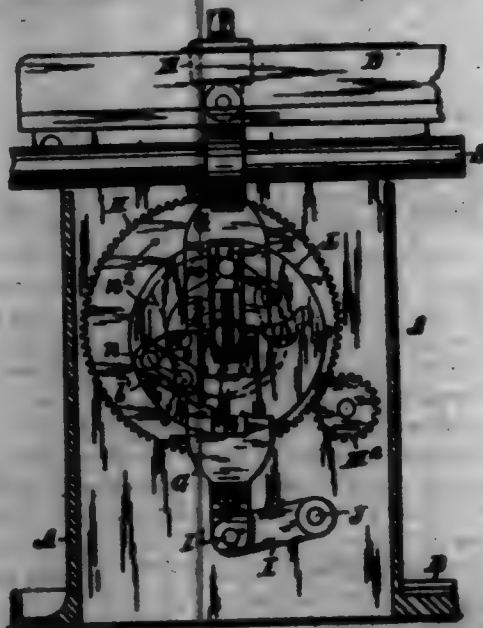
19. In a drilling-machine, the combination with a driving-shaft, of a reel, means for operatively connecting said shaft and reel, said means including a clutch comprising two elements mounted upon the driving-shaft, a movable brake for holding the reel against movement when uncoupled from the shaft, a pivoted operating-lever having connection with the clutch and brake, whereby said clutch and brake may be successively moved respectively into and out of operative relation, and means for adjusting the brake to compensate for wear.

20. In a drilling-machine, the combination with a reel, of a brake for the reel including a peripheral rim having a connection with said reel and movable therewith, a pair of standards located on opposite sides of the rim, a controlling-lever, toggle-links pivotally connected to the standards and to each other, and another link connected to both toggle-levers at their juncture and to the controlling-lever.

21. In a drilling-machine, the combination with a supporting-frame, of a driving-shaft and a driven shaft both journaled upon the frame and located in substantial parallelism, said driven shaft having a reel, means for operatively connecting the shafts, said means including a clutch comprising separate members both of which are mounted upon one of the shafts, one of said members being loosely mounted and having a geared connection with the other shaft, the other member being arranged to turn with the shaft and slidable into and out of engagement with the first-named member, a brake for holding the loosely-mounted member against movement, and common controlling means connected to the brake and movable clutch member for successively moving the brake into and the slidable clutch member out of their respective engagements and vice versa.

22. In a drilling-machine, drill-operating mechanism including a walking-beam, a pivot extending transversely across said beam, a counterbalance comprising a flexible element also extending transversely across the beam, and a keeper-block secured to the beam and embracing both the pivot and the counterbalance to hold them in place upon said beam.

700,679. GRANT-PLANE OR ANALOGOUS TOOL. EMERY E. BERNHARDT and FRED L. BERNHARDT, Newark, N. J., and BLAIR G. BERNHARDT, Elmhurst, N. Y., assignors to Gould & Bernhardt, Newark, N. J., a Corporation of New Jersey. Filed June 12, 1901. Serial No. 64,572. (No model.)



Claim.—1. In a crank-planner or shaping-machine having a reciprocating ram, the combination, with a driving-disk and an eccentric crank-plate fitted to the face of said disk, the disk and plate being overhung from the same bearing and the crank-plate being furnished with a crank-pin and connections to a reciprocating ram, of pins projected respectively from the driving-shaft and the crank-plate and connected by a link, whereby the uniform motion of the driving-disk produces a variable motion of the crank-plate, substantially as herein set forth.

2. In a crank-planner or shaping-machine having a reciprocating ram,

the combination, with a driving-disk and an eccentric crank-plate fitted to the face of each disk, the disk and plate being overhung from the same bearing and the crank-plate being furnished with a crank-pin and connections to a reciprocating ram, of a pin projected from the outer side of the crank-plate, a link pivoted thereon and a slot in the crank-plate with pin upon the link projected through each slot and attached to the driving-disk, whereby the uniform motion of the driving-disk produces a variable motion of the crank-plate.

3. In a crank-placer or shaping-machine having a reciprocating ram, the combination, with a driving-disk having peripheral teeth to rotate the same, and an eccentrically-pivoted crank-plate fitted to the face of each disk, and having a crank-pin with block pivoted thereon, the ram D with pitman G pivoted positively thereto and having slot G' fitted to the crank-pin block, and the laterally-projecting link I jointed to the bottom of the pitman and to a fixed bearing upon the frame, as and for the purpose set forth.

4. In a crank-placer or shaping-machine, the combination, with the driving-disk and eccentric plate linked thereto, as set forth, and having the crank-pin with block pivoted thereon, of the ram D having the pitman G pivoted positively thereto and having slot G' fitted to the crank-pin block, K, the laterally-projecting link I jointed to the bottom of the pitman and to a fixed bearing upon the frame, and the upper end of the pitman having the eye J' held at a uniform distance from the bottom of the ram by the pitman connection thereto, and adapted for the passage of a shaft or work-piece to the tool, substantially as herein set forth.

5. In a crank-placer or analogous tool having a work-table with a feed-screw to feed each table, and an oscillating lever to actuate each feed-screw, the combination, with each part, of a disk having a cam-groove face, a bearing projected at right angles to the disk, a feed-shaft fitted to the bearing and provided with feed-crank and crank-pin upon its outer end connected with the oscillating lever, and the shaft having upon its inner end an arm with block or roll fitted to the cam-groove, substantially as herein set forth.

6. In a crank-placer having a reciprocating ram in the top and slot-planes for reciprocating the same, the combination with the ram and pitman, of a bearing upon the frame at one side of the pitman, the driving-disk journaled in such bearing and provided adjacent to the frame with the cam-groove J, the eccentric plate fitted to its face and provided with crank-pin connected to each pitman, and the means for actuating a feed mechanism by the driving-disk, comprising the bearing J' fitted detachably to the frame with an aperture in the frame at the inner end of each bearing, the feed-shaft fitted to the bearing and provided with feed-crank and crank-pin upon its outer end and the shaft being extended into each aperture and provided with an arm having a block fitted to the cam-groove, whereby the feed-crank is oscillated by the arm at each rotation of the driving-disk, substantially as herein set forth.

7. In a crank-placer or shaping-machine having a ram, a slotted pitman, a driving-disk and connections from the disk to each pitman for reciprocating the ram, the combination, with the frame, of a bearing, the driving-disk journaled in such bearing and provided with a cam-groove adjacent to the frame, a feed-shaft bearing fitted detachably, and the frame having an aperture at the inner end of each bearing, a feed-shaft with arm adjusted in each aperture and having upon the end a crank-pin with curved block fitted to the cam-groove, the detachable bearing permitting the insertion of the block in the groove and the driving-disk then serving to oscillate the feed-shaft as required.

8. A crank-placer or analogous tool having a rotating driving-shaft and a feed-screw with oscillating lever to actuate the same, the combination, with each part, of a disk having cam-groove in its face, said groove being partly concentric and partly with a flat curve connected abruptly to the ends of the concentric portion, a bearing projected at right angles to the disk, a feed-shaft fitted to the bearing and provided with feed-crank and crank-pin upon its outer end connected with the oscillating lever and the shaft having upon its inner end an arm with crank-pin having block fitted to the cam-groove, and the block provided upon its inner side with a notch to pass the two angles or corners of the groove, substantially as herein set forth.

9. In a crank-placer or shaping-machine having a cross-head with movable table to support the work and feed-screw to actuate each table with ratchet-gearing upon the feed-screw to rotate the same, the combination, with a reciprocating ram and pitman pivoted thereto, of a bearing with plate at one side of each pitman, a bearing in each plate with driving-disk journaled therein, and an eccentric crank-plate fitted to the face of each disk with crank-pin connected to the pitman as set forth, a cam-groove in the driving-disk on the side next to the frame-plate, an aperture in the frame-plate for a feed-crank adjacent to each groove, a bearing fitted detachably to the frame-plate over each aperture, the feed-shaft in each bearing with arm having a roll or block fitted to the cam-groove, and the feed-shaft having an adjustable crank-pin with connec-

tion to the ratchet-gearing upon the cross-head, the whole arranged and operated substantially as herein set forth.

10. In a crank-placer or analogous tool having a main frame with cross-head or table adjustable vertically thereon, a feed-screw upon each cross-head or table, ratchet-gearing upon the cross-head or table to turn the feed-screw, an oscillating lever to actuate each ratchet-gearing with steps to regulate its movement, a feed-shaft upon the frame with a crank-pin to actuate the ratchet-gearing, a link connecting the crank-pin with the oscillating lever, and a friction sliding joint interposed between the feed-shaft and feed-screw, whereby the steps automatically vary the operation of the link upon the oscillating lever when the table is raised or lowered upon the frame.

11. In a crank-placer or analogous tool having a main frame with cross-head or table adjustable vertically thereon, and a feed-shaft having means for oscillating the same, and a crank-pin to actuate the feed-screw, the combination, with each part, of ratchet-gearing to drive each feed-screw, a vibrating stud connected with each ratchet-gearing, steps to limit the opposite movements of each stud, and a link connecting each stud with the feed-crank pin and having a friction sliding joint between its extremities whereby the steps automatically change the length of the link when the table is raised or lowered upon the frame, substantially as herein set forth.

12. In a crank-placer having a ram with means for reciprocating the same, and a cross-head adjustable vertically beneath the ram with table to support the work-piece, and a fixed bearing upon the frame in the rear of each cross-head with feed-shaft and crank as set forth, the combination, with the cross-head and each feed-shaft, of the feed-screw upon the cross-head, ratchet-gearing to drive each feed-screw, a vibrating stud upon an oscillating lever connected with each ratchet-gearing, steps upon the cross-head to limit the opposite movements of each stud, and a link connecting each stud with the feed-crank pin and having a friction sliding joint between its extremities, whereby the steps automatically change the length of the link when the cross-head is raised or lowered upon the frame.

13. In a crank-placer or shaping-machine having an extension-base and a cross-head above the same with table movable thereon, the combination, with each part, of a rail secured to the extension-base and having a rib extended from one edge of the rail over the upper surface of the table, and a leg or standard projected from the table and offset laterally to rest upon the rail beneath such rib.

14. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same, with a cross-head adjustable vertically above such base, of a rail secured upon such base and provided with means for varying the height of its opposite ends, to set it level or parallel with the cross-head, a table movable upon the cross-head, and a leg fitted to the top of the rail and vertically movable upon the table to compensate for the height of the table above the rail.

15. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same with a cross-head adjustable vertically above such base, of a rail secured upon such base and provided with means for varying the height of its opposite ends to set it level, a table movable upon the cross-head, an adjustable leg fitted to vertical guides upon the table and having a level foot upon its lower end adapted as a gage for setting the rail, substantially as herein set forth.

16. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same with a cross-head adjustable vertically above such base, of a rail secured upon such base and provided with means for varying the height of its opposite ends, a rectangular box-table movable upon the cross-head with a recess in its front side and vertical guides within such recess, a leg adjustable within such guides and provided with means for clamping it when adjusted, and such leg having a level foot at the bottom for setting the rail, substantially as herein set forth.

17. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same with the cross-head adjustable vertically above such base, of a rail secured upon such base and provided with means for varying the height of its opposite ends, a rectangular box-table movable upon the cross-head and projected beyond the front edge of the base, a rail secured removably upon the front edge of the base and provided with means for varying the height of its opposite ends as set forth, the table having a recess in the front with vertical guides over the said rail, and having the leg fitted adjustably to such guides to rest upon the rail, substantially as herein set forth.

18. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same with the cross-head adjustable vertically above such base, of a rail secured upon such base and provided with means for varying the height

of its opposite ends, a rectangular box-table movable upon the cross-head and projected beyond the front edge of the base, the base having slots in its upper surface and a rail secured detachably upon the front edge of the base by bolts fitted to such slots, and the box having a recess in the front with a leg secured therein and adjustable vertically to rest upon the rail, substantially as herein set forth.

19. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base upon the front corner of the same, with a cross-head adjustable vertically above such base, of a table upon the cross-head with leg vertically movable upon the same, a rail secured upon the bed to support such leg and provided with means for pressing it upwardly against the under side of the leg to prevent the vibration of the table, substantially as herein set forth.

20. In a crank-placer or shaping-machine having an extension-base and a cross-head above the same with table movable thereon, the combination, with such parts, of a rail-bed secured to the extension-base, a rail attached to such bed, a screw for setting such rail parallel with the cross-head, and a leg upon the table to contact with the rail and vertically adjustable to compensate for the elevation of the cross-head, substantially as herein set forth.

21. In a crank-placer or shaping-machine having an extension-base and a cross-head above the same with table movable thereon, the combination, with such parts, of a rail-bed secured to the extension-base, a rail attached to such bed, a leg upon the table with means for adjusting it vertically to contact with the rail in various locations of the cross-head, and vertical screws for raising the rail upon its bed to assist in such compensation, and operating also to set the rail parallel with the cross-head and to press the rail against the bottom of the leg to prevent the vibration of the table.

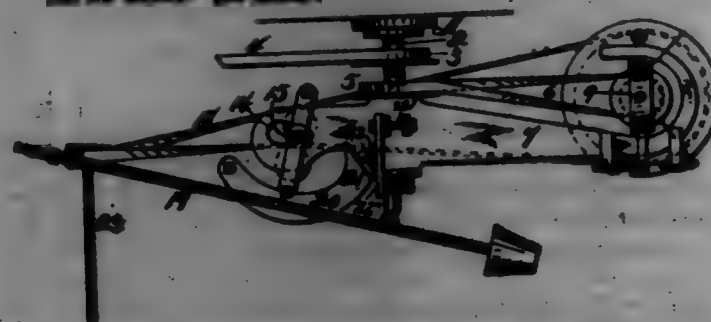
22. In a crank-placer or shaping-machine having an extension-base and a cross-head above the same with table movable thereon, the combination, with such parts, of a rail-bed secured to the extension-base, and having vertical guides as set forth, a rail fitted to such vertical guides and having ribs to clamp the same, the two screws fitted to the rail-bed and rail to vary the height of its opposite ends, as and for the purpose set forth.

23. In a crank-placer or shaping-machine, the combination, with a shaping-machine having an extension-base and a cross-head above the same with table movable thereon, of a leg projected from the table and a rail supported upon the base to sustain such leg, the rail having a seat to support the leg, and a rib elevated above such seat to protect the same from abrasion.

24. In a crank-placer or shaping-machine, the combination, with a shaping-machine having an extension-base and a cross-head above the same with table movable thereon, of a leg projected from the table and a rail supported upon the base to sustain such leg, the rail having a seat to support the leg, a rib fitted above such seat to form a foot-rest, and a gutter between such rib and seat to receive dirt and grit as and for the purpose set forth.

25. In a crank-placer or shaping-machine, the combination, with the machine-frame having an extension-base at the front, with a cross-head adjustable vertically above such base, and table movable horizontally upon such cross-head, of a rail secured upon such base and provided with means for positively varying the height of its opposite ends to set it level or parallel with the cross-head, and a projection from the table to rest upon such rail.

700,680. AUTOMATIC BELT-SHIFTER. HOMER L. FANCHER, Baldwinville, N. Y., assignor to the Fancher Machine Company, Baldwinville, N. Y., a Corporation of New York. Filed Mar. 27, 1901. Serial No. 22,121. (No model.)



Claim.—1. The combination with a pivotally-mounted body, of an oscillatory frame mounted upon one end of the body, fast and loose pulleys mounted on said frame, a belt for driving said pulleys, a swing-frame mounted upon the other end of the body and means actuated by the swing-frame for oscillating the other frame and thereby shifting the belt from one pulley to the other.

2. The combination with a pivotally-mounted body, of an oscillatory frame mounted upon one end of the body, fast and loose pulleys

mounted on said frame, a belt for driving said pulleys, an additional pulley mounted on the frame and actuated by the fast pulley, a second belt driven by said additional pulley, a swing-frame mounted upon the other end of the body, an idler carried by the swing-frame and arranged to engage the additional belt whereby said additional belt is tensioned by the movement of the swing-frame for oscillating the former frame and thereby shifting the driving-belt from the loose to the tight pulley.

3. The combination with a pivotally-mounted body provided with a slot, of a swing-frame having a movable bearing in said slot, idlers in said frame, a shoulder on said body engaged by the frame as said frame is swung for moving the bearings in said slot and thereby shifting the position of the idlers and a belt engaged by said idlers.

4. The combination with a pivotally-mounted body provided with a slot, of a swing-frame having a movable bearing in said slot, idlers in said frame, a shoulder on said body engaged by the frame as said frame is swung for moving the bearings in said slot and thereby shifting the position of the idlers, an oscillatory frame mounted on the body, fast and loose pulleys mounted on the frame, a belt for driving said pulleys, an additional pulley mounted on the oscillatory frame and driven by the fast pulley, and a second belt driven by the additional pulley and engaged with said idlers, whereby the change in position of the swing-frame rocks the oscillatory frame and thereby shifts the driving-belt from one pulley to the other.

5. The combination with a vertical rotatable shaft having a pulley, of a body pivoted on the shaft, an oscillatory frame upon one end of said body, a shaft journaled on the frame, fast and loose pulleys on the shaft, a driving-belt driven from the former pulley for driving the fast and loose pulleys, an additional pulley mounted upon the second shaft, a swing-frame upon the other end of the body, idlers mounted on the swing-frame, a belt driven from the additional pulley and engaged with said idlers whereby as the swing-frame is moved the idlers act upon the driven belt to rock the oscillating frame for automatically shifting the driving-belt from one pulley to the other.

6. The combination with a suitable support, an oscillatory frame carrying fast and loose pulleys and a driven pulley, of a swing-frame, an additional pulley carried by the swing-frame, a belt for transmitting power from the driven pulley to the latter pulley, a driving-belt for the fast and loose pulleys and means provided on the swing-frame and acting upon the driven belt whereby the movement of the swing-frame rocks the oscillating frame and shifts the driving-belt from the fast to the loose pulley and vice versa.

7. The combination with a support having oppositely-arranged bearings, of an oscillatory frame pivoted between said bearings, a shaft journaled on the frame and provided with tight and loose pulleys, a belt for driving said pulleys and means for rocking the oscillating frame and thereby shifting the driving-belt from one pulley to the other.

700,681. COMBINED DOOR KNOBS AND HELL. JOHN W. FERRIS, DENVER, Colo., assignor of one-half to MISS R. A. HAYNES, DENVER, Colo. Filed Dec. 9, 1900. Serial No. 55,245. (No model.)



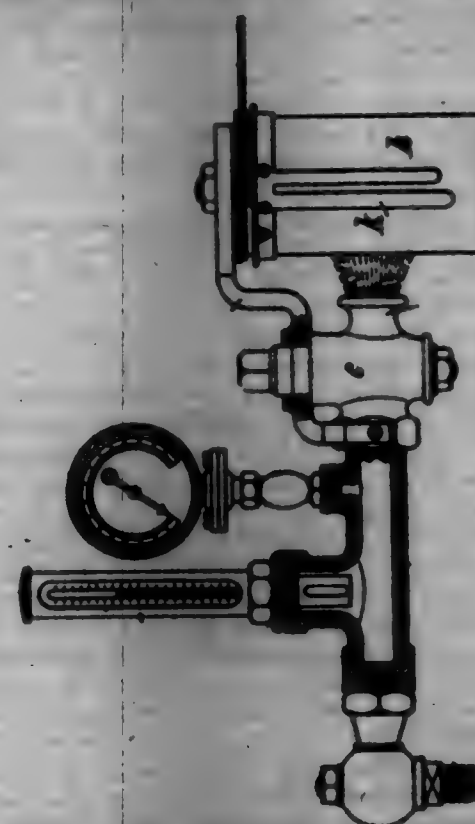
Claim.—1. In a device of the class described, the combination of an inner knob composed of inner and outer sections, a bracket connect-

ing the sections, a reciprocating spring-actuated rod provided with an opening, and a resilient bell-crank lever (subdivided on the bracket and provided at one arm with a head, the other arm of the bell-crank lever being extended through the opening of the reciprocating rod and arranged to engage the latter when the rod is moved inward, whereby the swing of the bell-hammer is limited, the rod-engaging arm of the bell-crank lever being also arranged to engage the bracket to limit the movement of the bell-crank lever when the rod is moved outward, substantially as described.

2. A device of the class described comprising an inner knob having a bell, a bracket mounted within the inner knob, a reciprocating rod adapted to be pushed inward, a coiled spring connected with the rod and with the bracket and adapted to throw the former outward, a pivot or stud mounted on the bracket, and a resilient bell-crank lever provided at its angle with a coil arranged on the pivot or stud, said bell-crank lever being provided at one arm with a head and having its other arm connected with the rod and arranged to engage the latter to limit the movement of the rod and the bell-hammer, substantially as described.

3. A device of the class described comprising an inner knob having a bell, a reciprocating rod adapted to be pushed inward and provided with an aperture, a spring for throwing the rod outward, and a resilient bell-crank lever provided at one arm with a head, the other arm of the bell-crank lever being approximately L-shaped and operating in the aperture of the rod and arranged to engage and limit the movement of the latter, substantially as described.

700,682. LUBRICANT-INDICATOR. PAUL C. R. GOSCH, Hamburg, Germany, assignor of one-half to FIRM OF FRANK SANDER, Hamburg, Germany. Filed July 26, 1901. Serial No. 60,724. (No model.)



Claim.—1. Apparatus such as described, comprising a tube connectible with the steam-space of a power-cylinder, a needle at the free end of said tube, and means for moving a record-card across the needle in front of the same, for the purpose set forth.

2. Apparatus such as described, comprising a tube connectible with the steam-space of a power-cylinder, a needle at the free end of said tube, the latter provided with a pressure-gauge, a thermometer, and with a stop-cock on the needle side of said device, and means for moving a record-card across the needle in front of the same, for the purpose set forth.

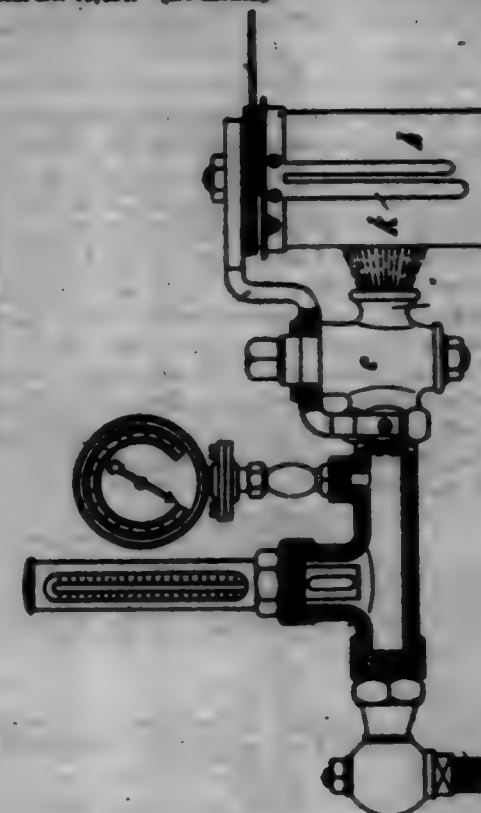
3. Apparatus such as described, comprising a tube connectible with the steam-space of a power-cylinder, a needle at the free end of said tube, the latter provided with a pressure-gauge, a thermometer, and with a stop-cock on the needle side of said device and means for moving a record-card across the needle in front of the same, for the purpose set forth.

4. Apparatus such as described, comprising a tube connectible to a steam-cylinder, a needle at the free end of said tube and a record-card carrier adapted to oscillate in front of said needle, whereby the card will be moved across the jet of steam to have a permanent oil-record on the card to indicate the distribution and quality of the oil in the cylinder, for the purpose set forth.

5. Apparatus such as described, comprising a tube having a steam

connection at one end, a needle and a stop-cock controlling it at the other end, a thermometer and a pressure-gauge intermediate the ends, and an indicator-drum to carry a record-card adapted to be oscillated in front of said needle, for the purpose set forth.

700,683. METHOD OF TESTING LUBRICANTS. PAUL C. R. GOSCH, Hamburg, Germany, assignor of one-half to FIRM OF FRANK SANDER, Hamburg, Germany. Original application filed July 26, 1901. Serial No. 60,724. Divided and this application filed Oct. 21, 1901. Serial No. 70,452. (No model.)



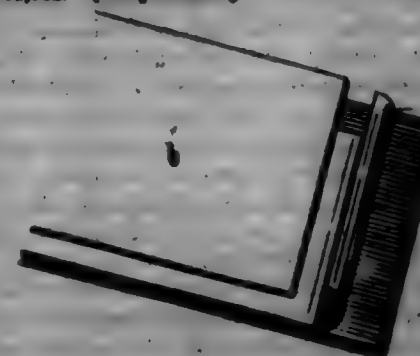
Claim.—1. The herein-described method, which consists in causing a jet of fluid from the power-cylinder of a motive-fluid-operated engine to impinge upon a surface moving across said jet and capable of indicating the relative quantity of lubricant mixed with the steam of said jet, substantially as and for the purpose set forth.

2. The herein-described method, which consists in causing a jet of fluid from the power-cylinder of a motive-fluid-operated engine to impinge upon a surface moving across said jet in synchronism with the movements of the engine-piston and capable of indicating the relative quantity of lubricant in said jet, substantially as and for the purpose set forth.

3. The herein-described method, which consists in causing a jet of fluid from the power-cylinder of a fluid-operated engine to impinge upon a surface capable of visibly indicating and recording the lubricant therein and moving across said jet, and simultaneously indicating the pressure under which the jet is produced, substantially as and for the purpose set forth.

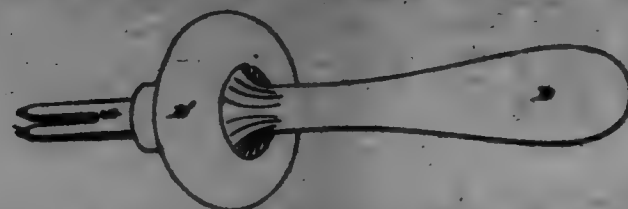
4. The herein-described method, which consists in causing a jet of fluid from the power-cylinder of a motive-fluid-operated engine to impinge upon a surface oscillating in front of the jet in synchronism with the reciprocations of the engine-piston, said surface capable of visibly indicating and recording the lubricant forced thereon, substantially as and for the purpose set forth.

700,684. PHOTOGRAPHIC ROLL-FILM. ROBERT KAMMIGER, Berlin, Germany, assignor to Action Gesellschaft für Aufn. Photographie, Berlin, Germany. Filed Feb. 28, 1900. Renewed Mar. 19, 1900. Serial No. 59,002. (No specimens.)



Claim.—Photographic roll-film having a coating, impermeable to water, on the wrapper or covering, which comes into direct contact with the emulsion film.

700,685. WINDING IMPLEMENT. HARRY HAYVILL, Los Angeles, Cal. Filed Aug. 14, 1891. Serial No. 72,005. (No model.)



Claim.—1. A winding implement comprising a twisted blade centrally and rigidly mounted in the front end of a handle and having its longitudinal center line coincident with the longitudinal center line of the handle, and a handle having a globular enlargement on the front and thereof extending equally in all directions in a line at right angles from the longitudinal center line of the handle, said enlargement forming a fulcrum whereby a cord in the blade may be pried out of the ground.

2. In a winding implement, a handle thereof having a globular enlarged front end, said enlargement extending equally around the longitudinal center line of the handle and a portion extending rearwardly from said enlarged portion, adapted to be grasped by the hand, in combination with a blade therefor centrally and rigidly mounted in the front end of the handle with its longitudinal center line coincident with the longitudinal center line of the handle.

700,686. VEHICLE-WHEEL. DANIEL H. HAYWOOD, New York, N. Y., assignor to the Wheel Within Wheel Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 1, 1898. Serial No. 94,505. (No model.)



Claim.—1. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, a tire supported by said channel tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes arranged on either side of the said annular cushioning device, and connecting the said floating plate and the tire-rim together, said spokes having portions which engage the sides of the outwardly-flaring flanges of the tire-rim; and an intermediate guide-plate between the floating plate and the hub.

2. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, a tire supported by said channel tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes arranged on either side of the said annular cushioning device, and connecting the said floating plate and the tire-rim together, said spokes having portions which engage the sides of the outwardly-flaring flanges of the tire-rim, the outside of which portions are substantially flush with the extreme outside edges of the said outwardly-flaring flanges; and an intermediate guide-plate between the floating plate and the hub.

3. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, a tire supported by said channel tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes arranged on either side of the said annular cushioning device, and connecting the said floating plate and the tire-rim together, said spokes having portions which engage the sides of the outwardly-flaring flanges of the tire-rim, bolts passing through the said spokes, the channel tire-rim and the tire; and an intermediate guide-plate between the floating plate and the hub.

4. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, a tire supported by said channel tire-rim, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes arranged on either side of the said annular cushioning device and connecting the said floating plate and the tire-rim together, said spokes having portions which engage the sides of the outwardly-flaring flanges of the tire-rim, the outside of which portions are substantially flush with the extreme outside edges of the said outwardly-flaring flanges, bolts passing through the said spokes, the channel tire-rim and the tire; and an intermediate guide-plate between the floating plate and the hub.

5. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, and adapted to support a tire, an annular cushioning device between the tire-rim and the first

said rim, a floating plate, spokes comprising each two members secured together and arranged upon opposite sides of the said annular cushioning device, said spokes secured at their inner ends to the floating plate and at their outer ends engaging the inner face of the channel tire-rim and also engaging the sides of the outwardly-flaring flanges thereof; and an intermediate guide-plate between the floating plate and the hub.

6. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim having outwardly-flaring flanges, and adapted to support a tire, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising each two members secured together and arranged upon opposite sides of the said annular cushioning device, said spokes secured at their inner ends to the floating plate and at their outer ends engaging the inner face of the channel tire-rim and also engaging the sides of the outwardly-flaring flanges thereof, bolts passing through the said spokes, the channel tire-rim and the tire; and an intermediate guide-plate between the floating plate and the hub.

7. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim adapted to support a tire, said channel tire-rim having outwardly-flaring separable flanges, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising each two members secured together and arranged upon opposite sides of the said annular cushioning device, said spokes secured at their inner ends to the floating plate and at their outer ends engaging the inner face of the channel tire-rim and also engaging the sides of the outwardly-flaring flanges thereof; and an intermediate guide-plate between the floating plate and the hub.

8. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim adapted to support a tire, said channel tire-rim having outwardly-flaring separable flanges, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising each two members secured together and arranged upon opposite sides of the said annular cushioning device, said spokes secured at their inner ends to the floating plate and at their outer ends engaging the inner face of the channel tire-rim and also engaging the sides of the outwardly-flaring flanges thereof, bolts passing through the said spokes, the channel tire-rim and the tire; and an intermediate guide-plate between the floating plate and the hub.

9. In a wheel, the combination with a hub, spokes and a rim, of a channel tire-rim adapted to support a tire, said channel tire-rim having outwardly-flaring separable flanges, an annular cushioning device between the tire-rim and the first said rim, a floating plate, spokes comprising each two members secured together and arranged upon opposite sides of the said annular cushioning device, said spokes secured at their inner ends to the floating plate and at their outer ends engaging the inner face of the channel tire-rim and also engaging the sides of the outwardly-flaring flanges thereof, the outside faces of said spokes being substantially flush with the extreme outside edges of the said outwardly-flaring flanges, their bolts passing through the said spokes, the channel tire-rim and the tire, flush with the said bolts, recessed into said spokes; and an intermediate guide-plate between the floating plate and the hub.

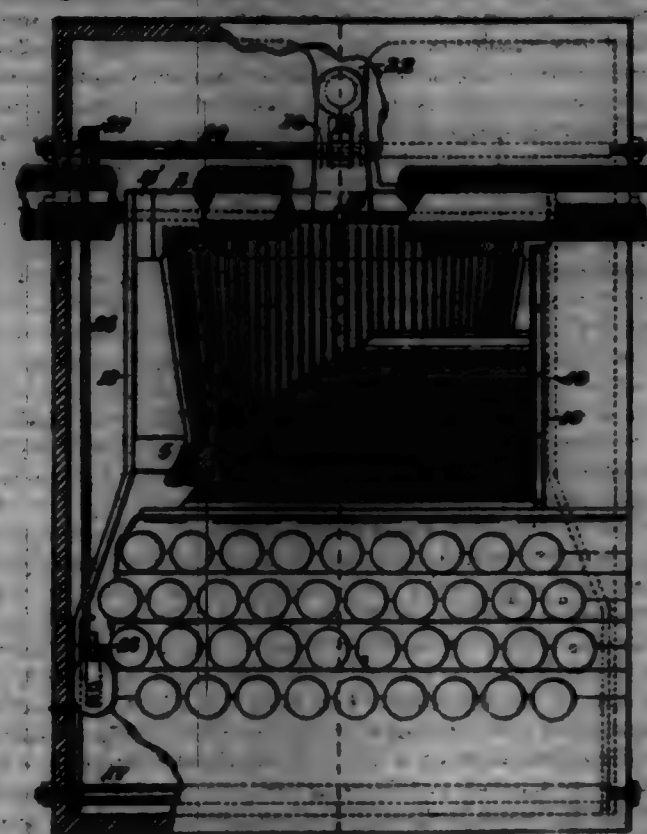
10. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, spokes and a rim, the said hub-sections having grooves therein, the grooves in one section being at right angles to the grooves in the opposite section, the said tire member including a floating plate having grooves at right angles therein; together with two intermediate guide-plates, each comprising an annular disk having projecting tongues thereon, arranged at right angles to each other upon opposite sides thereof, the said guide-plates disposed between the floating plate and the hub-sections, with the tongues thereof engaging the grooves in the said floating plate and hub-sections.

11. A wheel comprising two relatively movable members, one a tire member and the other a hub member, and having a cushioning device between them, the hub member comprising two hub-sections, spokes and a rim, the said hub-sections having a plurality of parallel grooves therein, the grooves in one section being at right angles to the grooves in the opposite section, the said tire member including a floating plate having a plurality of parallel grooves at right angles therein; together with two intermediate guide-plates, each comprising an annular disk having two sets of parallel projecting tongues thereon, the sets arranged at right angles to each other upon opposite sides thereof, the said guide-plates disposed between the floating plate and the hub-sections, with the tongues thereof engaging the grooves in the said floating plate and hub-sections.

700,687. WRITING-MACHINE. EDWARD R. RICE, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y., a Corporation of New York. Filed Apr. 24, 1891. Serial No. 67,562. (No model.)

Claim.—1. In a writing-machine, the combination of a platen, a

segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections hinged at their rear ends to the type-bars and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths and means acting upon the flaring connections intermediate their ends for flexing them to pull the type-bars to the printing-point with an increasing velocity.



2. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths and means acting upon the flaring connections intermediate their ends for flexing them to pull the type-bars to the printing-point with an increasing velocity.

3. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, and means acting upon the flaring connections intermediate their ends for flexing them to pull the type-bars to the printing-point with an increasing velocity.

4. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, and means acting upon the flaring connections intermediate their ends for flexing them to pull the type-bars to the printing-point with an increasing velocity.

5. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links united by a universal joint and hinged at its rear end to its type-bar and at its front end to a fixed plate or part of the frame and extending in a substantially straight line from the type-bar to its point of connection to the frame and means acting from above the flaring connections to flex them and pull the type-bars to the printing-point with an increasing velocity, the straight-line arrangement of the flaring connections offering the least resistance obtainable at the commencement of their flexure.

6. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections hinged at their rear ends to the type-bars and at their front ends

hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, finger-pieces arranged in transverse rows above the flaring connections and connections between the finger-pieces and the flaring connections intermediate the ends of the latter to flex them downwardly on the depression of the finger-pieces and thereby pull the type-bars to the printing-point with an increasing velocity.

7. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and hinged at their rear ends to the type-bars and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, finger-pieces arranged in transverse rows above the flaring connections and connections between the finger-pieces and the flaring connections intermediate the ends of the latter to flex them downwardly on the depression of the finger-pieces and thereby pull the type-bars to the printing-point with an increasing velocity.

8. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, finger-pieces arranged in transverse rows above the flaring connections and connections between the finger-pieces and the flaring connections intermediate the ends of the latter to flex them downwardly on the depression of the finger-pieces and thereby pull the type-bars to the printing-point with an increasing velocity.

9. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, finger-pieces arranged in transverse rows above the flaring connections and connections between the finger-pieces and the flaring connections intermediate the ends of the latter to flex them downwardly on the depression of the finger-pieces and thereby pull the type-bars to the printing-point with an increasing velocity.

10. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links arranged end to end and united by a universal joint and connected at their rear ends to the type-bars by universal joints and at their front ends hinged to the frame in lines lying in different transverse vertical planes, the flaring connections being divided into series of unequal lengths, finger-pieces arranged in transverse rows above the flaring connections and connections between the finger-pieces and the flaring connections intermediate the ends of the latter to flex them downwardly on the depression of the finger-pieces and thereby pull the type-bars to the printing-point with an increasing velocity.

11. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each hinged at its rear end to its type-bar and at its front end to a fixed plate or part of the frame and extending in a substantially straight line from the type-bar to its point of connection to the frame and means acting from above the flaring connections to flex them and pull the type-bars to the printing-point with an increasing velocity, the straight-line arrangement of the flaring connections offering the least resistance obtainable at the commencement of their flexure.

12. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each composed of two links united by a universal joint and hinged at its rear end to its type-bar and at its front end to a fixed plate or part of the frame and extending in a substantially straight line from the type-bar to its point of connection to the frame and means acting from above the flaring connections to flex them and pull the type-bars to the printing-point with an increasing velocity, the straight-line arrangement of the flaring connections offering the least resistance obtainable at the commencement of their flexure.

13. In a writing-machine, the combination of a platen, a segmental type-bar support arranged in a plane below the platen, type-bars pivoted thereto and normally lying toward the front of the machine, flaring connections each connected by a universal joint at its rear end to its type-

type-bar to the printing-point with an increasing velocity, the straight-line arrangement of the flexing connections offering the least resistance obtainable at the commencement of their flexure, and means for at will changing the relation of the plates and type-bar support.

43. In a writing-machine, the combination of a plate, a segmental type-bar support arranged in a plane below the plate, type-bars pivoted therein and normally lying toward the front of the machine, a series of links of substantially equal length pivoted in different transverse lines at or near the front of the machine, a series of links hinged to the rear ends of the first-named links and operatively connected at their rear ends to the type-bars, finger-plates, devices which, on the depression of the finger-plates act upon the flexing connections intermediate the ends to flex the corresponding pairs of links and pull the type-bars to the printing-point with an increasing velocity, and means for at will changing the relation of the plate and type-bar support.

44. In a writing-machine, the combination of a plate, a segmental type-bar support arranged in a plane below the plate, type-bars pivoted therein and normally lying toward the front of the machine, flexing connections extending from front to rear of machine under the type-bars and connected at their rear ends to the type-bars and each connected at its front end to a fixed plate or part of the frame, finger-plates arranged in transverse rows in front of the type-bars and above the flexing connections, and vertically-movable connections between the finger-plates and flexing connections, whereby, on the depression of a finger-plate the corresponding flexing connection is forced downwardly and the type-bar pulled to the printing-point with an increasing velocity.

45. In a writing-machine, the combination of a plate, a segmental type-bar support arranged in a plane below the plate, type-bars pivoted therein and normally toward the front of the machine, flexing connections, each composed of two links hinged together, extending from front to rear of the machine under the type-bars and connected at their rear ends to the type-bars and each connected at its front end to a fixed plate or part of the frame, finger-plates arranged in transverse rows in front of the type-bars and above the flexing connections, and vertically-movable connections between the finger-plates and flexing connections, whereby, on the depression of a finger-plate, the corresponding flexing connection is forced downwardly and the type-bar pulled to the printing-point with an increasing velocity.

46. In a writing-machine, the combination of a vertically-movable finger-plate, a link lying below it and substantially in a plane at right angles to the line of movement of the finger-plate and having one end connected to a fixed part of the frame, a second link operatively connected to the part to be extended and united with the free end of the first-named link by a hinge-joint, and means directly interposed between the finger-plate and the first-named link to depress the latter and thereby cause the second-named link to approach said fixed part of the frame.

47. In a writing-machine, the combination of a vertically-movable finger-plate, a link lying below it and substantially in a plane at right angles to the line of movement of the finger-plate and having its front end connected to a fixed part of the frame, a second link operatively connected at one end to the part to be extended and at the other end united by a hinge-joint, to the rear end of the first-named link, and a device interposed between the finger-plate and the hinge-joint acting the two links to depress said joint and thereby cause the second-named link to approach said fixed part.

48. The combination of a pivotal type-bar, its actuating connection consisting of two links united at their adjacent ends by a hinge-joint and arranged substantially in a plane at right angles to the line of movement of the type-bar, the rear end of one link being operatively connected with the type-bar and the front end of the other link with a fixed part of the frame, and the links being so disposed that the hinge-joint is in a plane slightly below the plane in which the two links lie, a push-pin finger-plate arranged above the said actuating connection and a device actuated by the finger-plate to further depress said hinge-joint and thereby throw the type-bar to the printing-point with a minimum initial resistance and an increasing resistance and velocity.

49. The combination of a plate, a type-bar segment mounted at right angles to the horizontal plane of the machine, type-bars mounted therein, connections for operating the type-bars having their rear ends arranged in an arc corresponding substantially to the curve of the segment and their front ends connected in similar transverse rows, finger-plates arranged above each connection and means for using open said connections intermediate their ends when the finger-plates are depressed to actuate the type-bars.

50. The combination of a plate, a type-bar segment mounted at an angle to the horizontal plane of the machine, type-bars mounted therein, connections of unequal length for operating the type-bars having their rear ends arranged in an arc corresponding substantially to the curve of the segment and their front ends mounted in similar transverse rows at different distances from the plate, finger-plates arranged above each con-

nection and means for using open said connections intermediate their ends when the finger-plates are depressed to actuate the type-bars.

51. The combination of a plate, a type-bar segment mounted at an angle to the horizontal plane of the machine, type-bars mounted therein, flexing connections of unequal length for operating the type-bars having their rear ends operatively connected directly to the type-bars in a curve corresponding with the curve of the segment and their front ends each connected to a fixed plate or part of the frame and arranged in similar transverse rows, and means for flexing each connection to operate the type-bars, said connections being respectively so arranged that when flexed their rear ends are caused to approach each fixed point.

52. The combination of a plate, a type-bar support, type-bars pivoted therein in a curve whose radial plane is at an angle to the horizontal plane of the machine, a series of independent fixed parts or plates attached to the frame near the front of the machine and arranged in transverse rows at different distances from the plate, flexing type-bar-operating connections of unequal length extending between each fixed plate and the type-bars, and means for using on each flexing connection intermediate their ends, to thereby cause their rear ends to approach said fixed points.

53. The combination of a plate, a type-bar support, type-bars pivoted therein in a curve whose radial plane is at an angle to the horizontal plane of the machine, a series of fixed parts or plates arranged in rows in similar segmental curves and at different distances from the plate, flexing type-bar-operating connections operatively connected with the type-bars at their rear ends and at their front ends to each fixed plate and consisting of jointed links, and means for flexing each connection to actuate the type-bars, said connections being so disposed that when flexed their rear ends approach each fixed point.

54. The combination of a plate, a type-bar support, type-bars pivoted therein in a curve whose radial plane is at an angle to the horizontal plane of the machine, a series of fixed parts or plates arranged in rows in similar segmental curves and at different distances from the plate, flexing type-bar-operating connections operatively connected with the type-bars at their rear ends and at their front ends to each fixed plate and consisting of jointed links, finger-plates arranged above said flexing connections, and devices of different lengths interposed between the finger-plates and said flexing connections intermediate their ends, the connections being so disposed that when flexed their rear ends approach each fixed point.

55. The combination of a plate, a type-bar support, type-bars pivoted therein in a curve whose radial plane is at an angle to the horizontal plane of the machine, flexing type-bar-operating connections composed of links arranged end to end and united by a hinge-joint and operatively connected at their rear ends to the type-bars and at their front ends to fixed parts of the frame arranged in similar curves transverse to the machine at different distances from the plate, each flexing connection converging from front to rear, a series of finger-plates arranged over each connection and means controlled by the finger-plates for flexing the connections, the latter being so disposed that when flexed their rear ends approach their front ends.

56. The combination of a plate, a segmental type-bar support, arranged below the plate with its concave face upward, type-bars pivoted therein, flexing type-bar-operating connections operatively connected with the type-bars at their rear ends and extending to the front of the machine in divergent lines and in similar concave or trough-like formation and there connected to fixed parts of the frame, finger-plates arranged above each connection in horizontal lines at different heights, and means on the depression of the finger-plates operating on each connection intermediate their ends to actuate the type-bars.

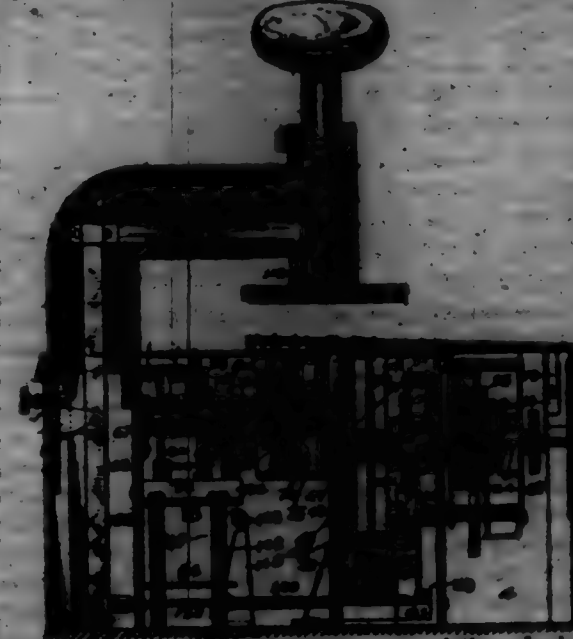
57. In a writing-machine, the combination of a plate, a segmental type-bar support arranged in a plane below the plate, a type-bar pivoted therein and normally lying toward the front of the machine, a flexing connection operatively connected at its rear end to the type-bar and extending toward the front of the machine and there connected to rest about a fixed part of the frame, a finger-plate arranged in front of the type-bar and over the flexing connection, and a connection between the finger-plate and the flexing connection, intermediate the ends of the latter, whereby it is flexed, on the depression of the finger-plate, to throw the type-bar to the printing-point with an increasing velocity.

700,888. **WHEATLEY, JR.** EDWARD E. HARR, BROOKLYN, and JAMES M. SWEETMAN, YONKERS, N. Y., assignors to Mechanical Improvements Company, New York, N. Y., a Corporation of New York. Filed Oct. 12, 1901. Serial No. 73,000. (No model.)

Claim.—1. The combination of a clock-movement and a printing-wheel mounted on the minute-arter of the clock-movement and comprising a rigid hub and a rigid rim elastically connected to the hub.

2. The combination of a clock-movement, and a marking-rim elastically mounted on the minute-arter of the clock-movement.

3. The combination of a clock-movement, a hub secured to the minute-arter thereof, a series of springs secured at their inner ends to the hub, and a rigid marking-rim secured to the outer ends of the springs.



4. The combination of a clock-movement, a printing-wheel fixed to the minute-arter thereof and comprising a rigid hub, a rigid marking-rim and elastic connections between the two, and a plate and an abutment arranged respectively on opposite sides of said rim.

5. In a time-stamp, the combination of a plate, a clock-movement, a clock-rotated shaft, a printing-wheel having a hub rigidly attached to said shaft and a printing-connection cooperating with said plate and means which afford a movement of the rim of said wheel independently of its hub and shaft.

6. In a time-stamp, the combination of a plate, a printing-wheel cooperating therewith, a clock-movement including a shaft upon which the hub of said wheel is rigidly mounted, and means which afford a movement of the printing-connection of said wheel independently of said shaft.

7. In a time-stamp, the combination of a plate, a printing-wheel cooperating therewith, a clock-movement including a shaft which carries said wheel, and means which afford a movement of the printing-connection of said wheel radially or toward and from said shaft.

8. In a time-stamp, the combination of a plate, a printing-wheel cooperating therewith, a clock-movement including a shaft upon which said wheel is mounted and adapted to turn for a limited distance, means which afford a movement of the rim of said wheel radially or toward and from said shaft, and means for limiting the radial movement of said rim.

9. In a time-stamp, the combination of a plate, a printing-wheel cooperating therewith, a clock-movement including a shaft upon which said wheel is directly mounted to turn therewith in order to expose different printing-surfaces on the wheel, and spring-supporting means which afford a movement of the printing-connection of said wheel toward and also radially or toward and from said shaft.

10. In a time-stamp, the combination of a clock-movement, a right arbor operated by said clock-movement, a printing-wheel mounted upon said arbor to rotate therewith and to turn thereon, means which afford a movement of said wheel radially or toward and from the arbor, and a plate which cooperates with the printing-wheel, whereby the force of the impact between the plate and printing-wheel will not be transmitted to the arbor.

11. In a time-stamp, the combination of a clock-movement, an arbor operated by said clock-movement, a printing-wheel, a radially-acting spring connection between the rim of said wheel and the arbor, and a plate which cooperates with the printing-wheel, whereby the force of the impact between the plate and printing-wheel will not be transmitted to the arbor, and the arbor is capable of rotating a limited distance independently of the said rim.

12. In a time-stamp, the combination of a clock-movement, an arbor operated by said clock-movement, a printing-wheel surrounding said arbor and having springs interposed between its printing-rim and its hub, a plate cooperating with the printing-wheel, and means for limiting the movement of the printing-rim independently of the arbor.

13. In a time-stamp, the combination of a clock-movement, an arbor operated by said clock-movement, a printing-wheel operatively connected to said arbor, said printing-wheel having a plurality of said springs interposed between its printing-rim and said arbor, a plate cooperating with the printing-wheel, and an abutment independent of the clock-movement and against which the rim of the printing-wheel is adapted to be forced by the plate.

14. In a time-stamp, the combination of a clock-movement, a right arbor operated by said clock-movement, a printing-wheel mounted directly on said arbor, means which afford a movement of said wheel in every direction independently of the arbor, a plate which cooperates with the printing-wheel, whereby the force of the impact between the plate and printing-wheel will not be transmitted to the arbor, and whereby the arbor may turn for a limited distance independently of the printing-connection of said wheel, and means for limiting the said independent movement of said printing-wheel in a direction transverse to said arbor.

15. In a time-stamp, the combination of a plate, a clock-movement, a right arbor operated by said clock-movement, a right printing-connection which is mounted concentrically on and is carried directly by said arbor, and means which permit the printing-connection to move for a limited distance in any direction independently of said arbor.

16. In a time-stamp, the combination of a plate, a clock-movement, a printing-connection which surrounds and is directly connected to the minute-arter of said clock-movement, and means for affording a movement in any direction of said printing-connection independently of the minute-arter for a limited distance, so that the shock due to the impact between the plate and printing-connection will not be transmitted to said arbor, and so that the arbor can rotate for a limited distance independently of said printing-connection.

17. In a time-stamp, the combination of a plate, a hand-operated plunger for said plate, a clock-movement, a minute-printing surface which surrounds and is directly connected to the minute-arter of said clock-movement, means for affording a transverse and rotary movement of said printing-connection independently of the minute-arter for a limited distance, so that the shock due to the impact between the plate and printing-connection will not be transmitted to said arbor, a second independently-operable hand-printing surface, and means operatively connected to said minute-arter for moving said last-mentioned printing-connection.

18. In a time-stamp, the combination of a plate, a clock-movement, a minute-printing surface which surrounds and is mounted concentrically upon the minute-arter of said clock-movement, springs which connect said printing-connection to said arbor to afford a movement of said printing-connection independently of the minute-arter for a limited distance in every direction so that the shock due to the impact between the plate and printing-connection will not be transmitted to said arbor, and so that the arbor may turn for a limited distance independently of said printing-connection, on hand-printing wheel and operative connections between the hand-printing wheel and the minute-arter for giving a partial rotation to the hand-wheel for each complete rotation of the minute-wheel.

19. In a time-stamp, the combination of a plate, a clock-movement, and minute and hour printing wheels which are connected to and supported by the minute-arter of said clock-movement and surround the same, each of said wheels comprising means for affording a movement of the printing-connection thereof independently of the minute-arter, so that the shock due to the impact between the plate and printing-connection of said wheels will not be transmitted to the minute-arter.

20. In a time-stamp, the combination of a plate, a clock-movement, minute and hour printing wheels which are connected to and supported by the minute-arter of said clock-movement, each of said wheels comprising means for affording a movement of the printing-connection thereof independently of the minute-arter, so that the shock due to the impact between the plate and the printing-connection of said wheels will not be transmitted to the minute-arter, and date-printing wheels supported independently of and disconnected from said minute and hour printing wheels.

21. In a time-stamp, the combination of a plate, a clock-movement, a printing-wheel which is operatively connected to the minute-arter of said clock-movement and which comprises means for affording a movement of the printing-connection of said wheel independently of the minute-arter for a limited distance so that the shock due to the impact between the plate and printing-connection will not be transmitted to said minute-arter, a day-printing wheel supported independently of said minute-wheel, and hand-operated means for rotating the day-printing wheel to change the day thereon.

22. In a time-stamp, the combination of a plate, a clock-movement, minute and hour printing wheels which are operatively connected to the minute-arter of said clock-movement and which comprise each means for affording a movement of the printing-connection of said wheel independently of the minute-arter for a limited distance so that shock due to the impact between the plate and printing-connection will not be transmitted to said minute-arter, day, month and year printing wheels supported independently of and disconnected from said minute and hour wheels, and hand-operated means for rotating the day, month and year printing wheels to change the position of the printing characters thereon to agree with those on the automatically-operated minute and hour wheels.

23. In a time-stamp, the combination of a clock-movement, a hub secured to the minute-arter thereof, a minute-marking rim elastically con-

needed to said hub, a sleeve surrounding said arbor, a hub mounted on said sleeve, and an hour-marking rim electrically connected to said sleeve-mounted hub, and means controlled by the minute-arbor for turning said hour-marking rim and hub one step for each complete rotation of the minute-marking rim and hub.

24. In a time-stamp, the combination of a clock-movement, time-wheel actuated thereby, dating-wheel, vertically-sliding key-stem, and wheel-actuating device interposed between the respective dating-wheel and stem and a platen for obtaining an impression from all of said wheels.

25. In a time-stamp, the combination of a clock-movement, time-wheel actuated thereby, independently-mounted dating-wheel arranged in alignment with said time-wheel, vertically-sliding key-stem, and wheel-actuating device interposed between the respective dating-wheel and stem and a platen common to all of said wheels.

26. In a time-stamp, the combination of a clock-movement, time-wheel connected to the minute-shaft thereof, dating-wheel mounted on an independent parallel shaft, mechanism for rotating said dating-wheel and vertically-sliding key-stem for actuating said mechanism, and means for taking an impression simultaneously from all of said wheels.

27. In a time-stamp, the combination of a clock-movement, a time-printing wheel connected to the minute-arbor thereof and having an electrically-supported rim, a set of independently-mounted dating-wheels arranged adjacent to said time-printing wheel and with the opposite marking portion thereof arranged below the plane of the marking portion of the time-printing wheel, a platen common to all of said wheels and adapted during the printing stroke to depress the rim of the time-printing wheel so that its effective marking portion comes into substantially the same plane as the effective marking portions of the dating-wheels, and means for holding the descent of the rim of the said time-marking wheel during the said printing stroke.

28. In a time-stamp, the combination of a clock-movement, hour and minute printing wheels operatively connected to an arbor of said clock-movement, resilient connections between the rim and hub of each wheel, whereby the printing-carbons in the set of printing may receive a movement independent of said arbor, other adjusting key-actuated dating-wheels mounted independently of and disconnected from said first-mentioned printing-wheels, and a platen common to all said wheels.

29. In a time-stamp, the combination with hour and minute wheels, of a set of concentric dating-wheels, a pawl-and-ratchet mechanism connected with each dating-wheel and a set of vertically-sliding finger levers or stems for operating said pawl-and-ratchet mechanisms.

30. In a time-stamp, the combination of a shaft mounted to turn in suitable bearings, a ratchet-wheel and a dating-wheel secured to said shaft, a sleeve surrounding said shaft and provided with a second dating-wheel and a second ratchet-wheel, a second sleeve surrounding the first-mentioned sleeve and provided with a third dating-wheel and a third ratchet-wheel and a key-operated pawl engaging with each of said ratchet-wheels.

31. In a time-stamp, the combination with minute and hour printing wheels, a clock-movement for driving them, and a manually-actuated dating-wheel, of a counting mechanism for registering the number of times the dating-wheel has been actuated.

32. In a time-stamp, the combination of a clock-train, printing members, having characters indicating the time of day, progressively actuated by the clock-train so that, at any time, the characters thereon at the printing-point indicate the time, a platen, hand-operated means for, at any time, during a predetermined period of use, effecting pressure between the platen and the printing members for taking an impression of said characters, and means actuated by the clock-train for preventing such impression at the termination of the predetermined period of use.

33. In a time-stamp, the combination of a clock-train, printing members, having characters indicating the time of day, progressively actuated by the clock-train so that, at any time, the characters thereon at the printing-point indicate the time, a platen, hand-operated means for, at any time, during the predetermined period of use, effecting pressure between the platen and the printing members for taking an impression of said characters, means actuated by the clock-train for preventing such impression at the termination of the predetermined period of use and hand-operated device for throwing said last-mentioned means out of action to permit the taking of impressions during a further period of use.

34. In a time-stamp, the combination of a clock-train; printing mechanism controlled thereby and comprising members having characters indicating the time of day progressively actuated by the clock-train so that, at any time, the characters thereon at the printing-point will indicate the time and hand-operated means for, at any time during a predetermined period of use, effecting an impression from said characters and a locking device also controlled by the clock-train for holding said hand-operated means against movement at the termination of the predetermined period of use.

35. In a time-stamp, the combination of a clock-train; printing mechanism controlled thereby and comprising members, having charac-

ters indicating the time of day, progressively actuated by the clock-train so that at any time the characters thereon at the printing-point will indicate the time, and hand-operated means for, at any time during a predetermined period of use, effecting an impression from said characters; a locking device also controlled by the clock-train for holding said hand-operated means against movement at the termination of the predetermined period of use; and means for unlatching the locking device to permit the taking of impressions for a further period of use.

36. In a time-stamp, the combination with the clock-movement and the printing mechanism of a locking means thereby controlled by the clock-movement, a day-printing wheel included in said printing mechanism, and means connected with said day-printing wheel for advancing it one step and simultaneously unlatching the said locking means.

37. In a time-stamp, the combination with the clock-movement and the printing mechanism, of an automatically-operated mechanism for locking the printing mechanism out of operation, and a key-actuated mechanism for unlatching said mechanism and for simultaneously rotating one of the dating-wheels of the printing mechanism.

38. In a time-stamp, the combination with the clock-movement, the printing-wheel, and the platen, of a locking mechanism connected to the clock-movement and also to the platen for locking the latter against printing movement at a predetermined time.

39. In a time-stamp, the combination with the clock-movement, the printing-wheel, and the platen, of a locking mechanism controlled by the clock-movement and connected to the platen and operated at a predetermined time to lock the latter against movement, and means connected with the day-printing wheel for unlatching said locking mechanism at the same time that the day-wheel is rotated.

40. In a time-stamp, the combination with the clock-movement, the printing-wheel and the platen, a spring-detent locking mechanism, and a latch controlled by the clock-movement for preventing the said locking mechanism from acting until a predetermined time.

41. In a time-stamp, the combination with the clock-movement, printing-wheels and the platen, of a spring-actuated locking mechanism, a latch for holding said locking mechanism out of action, and a cam operated by the clock-movement for acting upon said latch at a predetermined time and causing it to release the spring-actuated locking mechanism and engage it with the said platen.

42. In a time-stamp, the combination with a clock-movement, printing-wheels and a platen, of a plunger carrying said platen, a bar or bar adapted to engage said plunger, a lever for operating said bar or bar, a spring-pressed rod connected to said lever, a locking-lever adapted to hold said rod, and a cam connected to the clock-movement for acting on the last-mentioned lever and releasing said spring-pressed rod so as to cause the bar or bar to engage with the plunger.

43. In a time-stamp, the combination with the clock-movement, the printing-wheel and the platen and its plunger of a locking bar or bar, a lever for moving the same, a spring-pressed rod controlling said lever, a locking-lever, a cam for acting upon the latter, a day-wheel key for turning the day-wheel, and extensions from said key to said spring-pressed rod for rotating the spring-actuated locking mechanism simultaneously with the rotating of the day-wheel.

44. In a time-stamp, the combination with the clock-movement, printing-wheels and the plunger and its platen, of a locking bar or bar, a lever for moving the same, a spring-pressed rod for actuating said lever, a locking-lever, a cam for actuating the latter, a key for turning the day-wheel, a wedge-rod connected with said key and a release-rod connected with said spring-pressed rod for rotating the locking mechanism.

45. In a time-stamp, means for automatically locking the platen against movement, and means for unlatching the platen when the printing-date of the stamp is changed.

46. In a time-stamp, the combination with a series of printing-wheels, some of which are actuated automatically by the time-movement and others by hand operation, the platen carrying with said wheels, and time-controlled mechanism for locking said platen, of means controlled by one of the hand-operated wheels for unlatching the platen and rotating the locking mechanism.

47. In a time-stamp, the combination of a clock-movement, printing mechanism, means for automatically locking said printing mechanism out of operation, hand-operated means for rotating said printing mechanism, and means controlled by said rotating means for automatically releasing the locking means.

48. In a time-stamp, the combination of a clock-movement, printing mechanism, and means for automatically locking said printing mechanism out of operation once in every twenty-four hours, hand-operated means for rotating said printing mechanism to change the day to be printed, and means controlled by said rotating means for automatically releasing the locking means.

49. In a time-stamp, the combination of a clock-movement, print-

ing-carbon, a hand-operated platen, and automatically-operated means for locking the platen against movement.

50. In a time-stamp, the combination of a clock-movement, printing-carbon, a hand-operated platen, and automatically-operated means controlled by the clock-movement for locking the platen against movement once in every twenty-four (24) hours.

51. In a time-stamp, the combination of a clock-movement, printing-carbon, a hand-operated platen, automatically-operated means for locking the platen against movement at a fixed time, and hand-operated means for unlatching the platen.

52. In a time-stamp, the combination of a clock-movement, printing-carbon, a hand-operated platen, automatically-operated means for locking the platen against movement, and means for automatically unlatching said platen when the printing-date of the stamp is changed.

53. In a time-stamp, the combination of a clock-movement, a printing-carbon, the setting of which is controlled by said clock-movement, a printing-carbon which is set by hand, a platen which cooperates with said printing-carbon, automatically-operated means controlled by the clock-movement for locking said platen against movement at twelve o'clock midnight, and hand-operated means for releasing said locking means.

54. In a time-stamp, the combination of a clock-movement, a printing-carbon, the setting of which is controlled by said clock-movement, a printing-carbon which is set by hand, a platen which cooperates with said printing-carbon, automatically-operated means controlled by the clock-movement for locking said platen against movement at twelve o'clock midnight, and means which are controlled by the setting of the hand-set printing-carbon to automatically release the locking means.

55. In a time-stamp, the combination of a clock-movement, a time-printing wheel which is automatically operated by said clock-movement, a day-printing wheel which is hand set or actuated, a platen which cooperates with said printing-wheels, means controlled by the clock-movement for locking said platen at twelve o'clock midnight, hand-operated means for setting said day-wheel, and means controlled by said hand-operated means for releasing said lock, whereby when the day-wheel is changed the locking means will be automatically released.

56. In a time-stamp, the combination with a clock-movement and the hour-marking wheel thereof, of a cam on the minute-shaft, a spring-pressed pawl-carrying lever adapted to be raised and released by said cam, a ratchet-wheel connected to said hour-marking wheel, a toothed wheel attached to said ratchet-wheel, a spring-pressed detent member having an arm or extension which is engaged in the path of vibration of the said pawl-carrying lever and so as to be depressed thereby to disengage the said detent when the hour-wheel is to be turned.

57. In a time-stamp, the combination of a clock-movement, printing-wheels which are moved automatically by said clock-movement, an ink-ribbon and a spring-supported ribbon-guide which normally maintains the ink-ribbon out of contact with the printing-wheels.

58. In a time-stamp, the combination with a clock, of printing-wheels, means for automatically rotating said wheels from said clock, a spring paper-support, and a ribbon-guide carried by said support.

59. In a time-stamp, the combination with a clock, of printing-wheels, means for automatically rotating said wheels from said clock, an operable spring paper-support, and a ribbon-guide carried by said support and adapted to guide the ribbon across the aperture in said support, the construction and arrangement being such that the ribbon is normally maintained by said guide away from the face of the printing-wheels and the wheels are actuated to come through the aperture in said support.

60. In a time-stamp a centrally-supported printing-wheel having a rigid marking-rim which is electrically connected to its center of rotation and adapted to move bodily independently of its center, combined with a time mechanism by which the wheel is driven.

61. In a time-stamp a centrally-supported printing-wheel having a rigid marking-rim which is electrically connected to its center of rotation so as to permit a bodily movement of said rim independently and transversely of its center, combined with a time mechanism by which the wheel is driven.

62. In a time-stamp a printing-wheel having a rigid hub, a rigid marking-rim, and electric connections between the hub and rim for causing the latter to move independently of the former, combined with a time mechanism by which the wheel is driven.

63. In a time-stamp a printing-wheel comprising a rigid hub, a rigid marking-rim, and spring-actuated connections therebetween, combined with a time mechanism by which the wheel is driven.

64. In a time-stamp, the combination of a centrally-mounted printing-wheel having a marking-rim connected to its center so as to have a movement independent thereof, means for halting the movement of the rim during the printing action, and a suspension or clock mechanism of which drives the printing-wheel.

65. In a time-stamp, the combination of a centrally-mounted printing-wheel having a marking-rim connected to its center so as to have a

movement independent thereof, a platen for then moving the rim, an actuator for halting the movement of the rim when actuated by the platen, and a spring-driven clock the mechanism of which drives the printing-wheel.

66. In a time-stamp, the combination of a bodily-movable, electrically and centrally mounted printing-rim, a platen for moving the rim, an actuator for halting said movement under the blow of the platen, and a spring-driven clock that drives the printing-wheel.

67. In a time-stamp, the combination of a clock having an ordinary spring-driven, a printing-wheel driven by the clock coincidentally with the minute-hand thereof and having upon its periphery raised time-indicating characters or types, an impression-platen and means whereby impact of the platen upon a type is combined radially to prevent material transmission of the shock of impact to the driving-shaft of the wheel.

68. In a time-stamp, the combination of a clock having an ordinary spring driving-drum, a printing-wheel driven by the clock coincidentally with the minute-hand thereof and having time-indicating characters or types upon the periphery each of which is electrically supported both with reference to its movement radially and the turning movement of the wheel and a platen between which and the face of the types impressions may be taken upon an interrupted shaft whereby the driving-shaft of the wheel is combined against shock of impact between the platen and the types and the turning movement of the wheel-shaft is not arrested at the moment of any such impression.

69. In a time-stamp, the combination of a time mechanism, a printing-wheel driven thereby and having upon its periphery raised time-indicating characters or types and resiliently-acting means interposed between the types and time mechanism acting to combine radial strain of impact against the types and to permit the uninterrupted movement of the time mechanism during the moment when an impression is being taken from any type.

70. In a time-stamp, the combination of a clock-movement, printing-wheels driven thereby, a casing within which the movement and wheels are contained having a cover with an opening for the printing-wheels and an operable ribbon-carrying guide, normally spring-supported to hold the ribbon out of contact with the wheels and readily attached at one edge to the cover, whereby the ribbon-guide and the contiguous part of the cover afford a guide for directing the paper into position when pushed along the face of the cover.

71. In a time-stamp, the combination of a time mechanism, a printing-wheel driven thereby and comprising a rim with type or characters thereon and a yielding connection between the rim and center which cushions the wheel-shaft against radial shocks and permits a continued movement of its center and the driving clock mechanism at the moment an impression is taken, a spring-supported ribbon-guide normally holding the ribbon out of contact with the wheel and an impression-platen.

72. In a time-stamp, the combination with minute and hour printing wheels, a clock-movement for driving them, a detent for locking them against reversed rotation and a manually-actuated dating-wheel of a counting mechanism for registering the number of times the dating-wheel has been actuated.

700,680. THREE RAIL CONNECTION FOR ELECTRIC RAIL-WAYS. CHARLES H. BROWN, Baltimore, Md., assignor of one-half to Harold P. Brown, Hagerstown, Md. Filed June 21, 1901. Serial No. 69,909. (No model.)

Claim.—1. The combination with consecutive parts of a main conductor having their contact-faces disposed in different directions, of a movable contact-piece and means for directing it into engagement with the said contact-faces during its movement along the consecutive parts of the main conductor, substantially as set forth.

2. The combination with consecutive parts of a main conductor having their contact-faces disposed in opposite directions, of a movable contact-piece and means for directing it into contact with the two oppositely-disposed faces of the parts of the conductor as it moves continuously along them, substantially as set forth.

3. The combination with consecutive parts of a main conductor, one of the parts being depressed below another and having their contact-faces oppositely disposed, of a movable contact-piece and means for directing it into contact with the oppositely-disposed faces of the parts of the conductor as it moves continuously along them, substantially as set forth.

4. The combination with consecutive parts of a main conductor, one depressed below the other and having their contact-faces oppositely disposed, of a downwardly-biased guide connecting the said parts of the conductor and a contact-rod adapted to engage the guide as it moves continuously along the conductor, the said rod being yieldingly supported to permit it to be driven by the guide into contact with the depressed part of the conductor, substantially as set forth.

6. The combination with consecutive parts of a main conductor located upon opposite sides of a track and movable contact-pieces arranged to move along the opposite sides of the track, of means under the control of a contact-piece on one side of the track for throwing a contact on the opposite side of a track into contact with the conductor, substantially as set forth.



6. The combination with consecutive parts of a main conductor located upon opposite sides of a track, of intermediate mechanism arranged to set the conductor on one side of the track in position to make contact, before contact is broken on the opposite side of the track, substantially as set forth.

7. The combination with consecutive parts of a main conductor located upon opposite sides of a track, one of the said parts being provided with a movable portion, of a device connected with said movable portion and arranged to be operated to throw the movable portion into position to make contact before contact is broken at the track, substantially as set forth.

8. The combination with consecutive parts of a main conductor located upon opposite sides of a track, one of the parts being depressed below the other and provided with a movable portion, of a device at the opposite side of the track from the movable portion and under the control of a contact-piece on that side of the track, to operate the said movable portion of the conductor to throw another side into engagement with the depressed part of the conductor, substantially as set forth.

9. A sliding contact-piece composed of harder and softer metals alternately disposed and exposed at its contact-face, substantially as set forth.

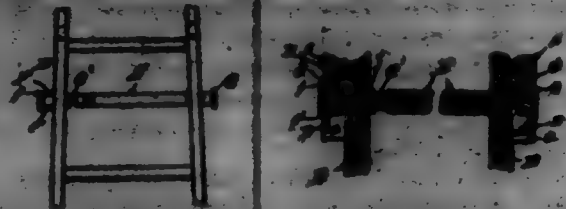
10. A sliding contact-piece comprising harder and softer metals alternately disposed, the harder metals being arranged obliquely to the longitudinal axis of the piece and exposed on its contact-face, substantially as set forth.

11. A sliding contact-piece having oppositely-disposed contact-faces, a vertically-movable shoe-support and means for holding the vertically-movable support under pressure to force the shoe into engaging contact both upwardly and downwardly, substantially as set forth.

12. A sliding contact-piece, a plurality of rods for supporting the shoe, each rod being provided with a spring, a support and means interposed between the support and the spring and rod for holding the shoe under the pressure of the spring in each of two opposite directions, substantially as set forth.

13. A sliding contact-piece support comprising a primary support, a rod connected with the shoe free to move relatively to said support, a spring surrounding the rod, washers located intermediate of the spring and the primary support at the opposite ends of the spring and free to move relatively to the rod, and adjustable stops on the rod forming abutments for the washers but free to move relatively to the primary support, substantially as set forth.

700,690. SWITCHING LATCH. JAMES P. HOGAN, JR., JR., assignor to American Manufacturing Co., a partnership consisting of Geo. C. Hoad and Charles W. Rogers, JR., JR. Filed Nov. 13, 1900. Serial No. 22,022. (No model.)



Claim.—1. The combination in a sectional ladder of one section the end of which overlaps the side of the end of another section, a loose rotatable ring mounted on the overlapping section, a fixed collar on one end of said ring adapted to engage one side of the overlapping section, and a fixed laterally-rotatable non-rotatable collar on the opposite end of said rotatable ring adapted to engage the other side of the overlapping section, substantially as and for the purpose set forth.

2. In a sectional ladder, the combination of overlapping ends having U-shaped recessed flanges, a fixed collar on the outer face of said flange, a loose rotatable ring extending through one side bar and having a collar on its outer end adapted to enter the recessed plate at one side of the ladder section, and a screw-thread on its inner end, a non-rotatable sleeve extending through the other side bar and having a collar on its outer end adapted to enter the recessed plate at the other side of the ladder-section, and an internal screw-thread on its inner end to receive the screw-thread on the lower end of the loose ring, substantially as and for the purpose set forth.

3. The combination in a sectional ladder, of side-bar sections having slots in their upper ends adapted to engage the round O in an overlapping section A provided with slots in the lower end thereof, a cam-tumbler plate D on the outside of each of the slots a, a loose rotatable round E extending through and beyond one of the side bars of the section B and having a beveled roller c on its outer end adapted to enter the recess d on the plate D at one side of the ladder-section A, and a screw-thread c' on its inner end, a non-rotatable sleeve F extending through and beyond the other side bar of the section B and having a beveled roller c' on its outer end adapted to enter the recess d on the plate D at the other side of the ladder-section A, and an internal screw-thread in its inner end adapted to receive the screw-thread c' on the loose ring E, substantially as and for the purpose set forth.

700,691. GARAGE-FASTENER. EDWIN E. BARNETT, Mechanicsville, Md., assignor to Peter H. Hartman and Anthony Barnett, Mechanicsville, Md., and Samuel G. Olson, Reading, Pa. Filed Oct. 15, 1901. Serial No. 79,182. (No model.)



Claim.—1. As a new article of manufacture, a carpet-fastener comprising a strip, and hinged jaws arranged at intervals and provided with engaging portions extending through the strip, substantially as described.

2. As a new article of manufacture, a carpet-fastener comprising a strip, and jaws hinged at the back of the strip and arranged at intervals and extending forward over the strip and provided with front carpet-engaging portions, substantially as described.

3. A carpet-fastener comprising a strip, and a series of clamps arranged at intervals on the strip, each clamp being provided with a hinged jaw having an engaging portion extending through the carpet and the strip and projecting beyond the bottom of the latter, whereby it is adapted to be embedded in the floor, substantially as and for the purpose described.

4. A carpet-fastener comprising a strip, and clamps arranged at intervals, each clamp consisting of a base-plate extending across the bottom of the strip and provided with an upwardly and inwardly extending front portion arranged on the upper face of the strip, and a jaw hinged to the base-plate at the back of the strip and extending forwardly over the top of the strip and having a carpet-engaging outer or front portion, substantially as described.

5. A carpet-fastener comprising a strip, and clamps arranged at intervals, each clamp consisting of a base-plate extending across the bottom of the strip and provided with an upwardly and inwardly extending front portion arranged on the upper face of the strip, and jaws hinged to the base-plate at the back of the strip and extending forwardly over the top of the latter and provided at its outer or distal end with a depending engaging portion extending through the base-plate and the strip and adapted to engage a carpet, substantially as described.

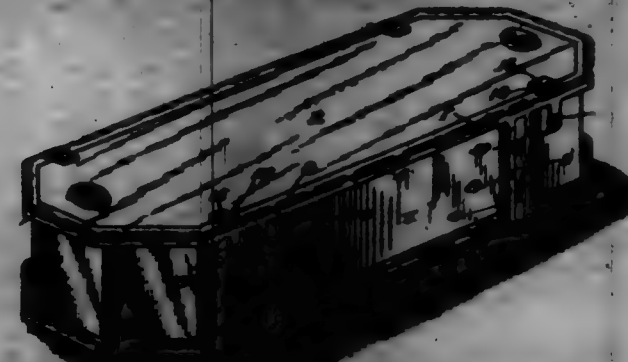
6. In a carpet-fastener, a carpet-engaging clamp composed of a base-plate provided with an inwardly and upwardly extending front portion,

and base-plate being also provided in its front and bottom portions with openings, and a clamping-jaw hinged to the back of the base-plate and provided with an engaging portion depending from the jaw and arranged to extend through the said openings, substantially as described.

7. In a carpet-fastener, a clamp composed of a base-plate, and a jaw hinged at the back of the base-plate and having a depending front portion adapted to engage the carpet and extending through an opening of the base-plate and engaging the latter, said depending front portion being also extended below the base-plate and adapted to be embedded in the floor, where its engagement with the latter will assist in retaining it in engagement with the base-plate, substantially as described.

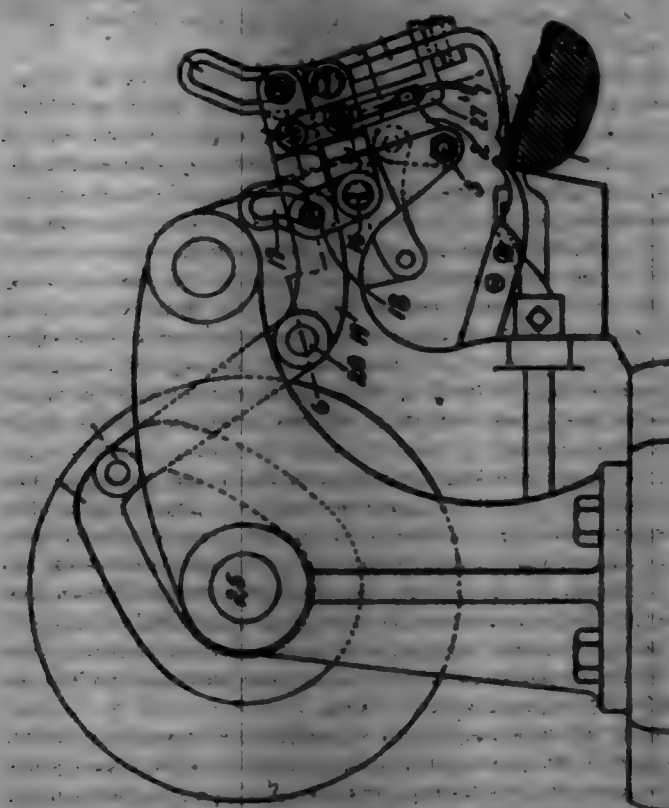
8. In a carpet-fastener, a carpet-engaging clamp composed of a base-plate provided with an inwardly and upwardly extending front portion, said base-plate being also provided in its front and bottom portions with aligned openings, and a clamping-jaw hinged to the back of the base-plate and provided with an engaging portion depending from the jaw and arranged to extend through the said openings to engage the floor, and provided with a notch forming a shoulder for engaging the front portion of the base-plate, substantially as described.

700,692. GARAGE. CHARLES E. JENNISON, Vancouver, Ind., assignor of one-half to P. H. Walton and C. C. Walton, Windsor, Ind. Filed Nov. 13, 1901. Serial No. 22,022. (No model.)



Claim.—In a cabinet of the character described, the combination with the body portion thereof, provided at its upper and lower edges with integral molding-heads and with intermediate base-ports having dovetail grooves open at their lower ends and closed at their upper ends, of handle-attaching base mounted in said grooves and dovetailed in cross-section, substantially as set forth.

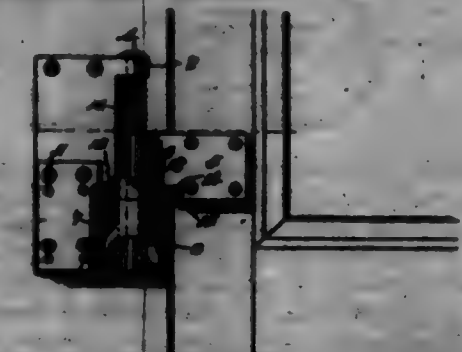
700,693. SEWING-MACHINE. THOMAS E. KERR, Boston, Mass., assignor to Tongue Lock Sewing Machine Company, a Corporation of Maine. Filed Oct. 1, 1901. Serial No. 77,212. (No model.)



Claim.—A machine of the character specified comprising loop-forming mechanism including an oscillating hooked needle adapted to draw a loop through an upper and through the "between substance" of a sole,

and hold the loop over the sole, a loop-spreader composed of two members which can move laterally in opposite directions to expand and contract the spreader, and spreader-actuating mechanism having provisions for moving the spreader as a whole to cause it to enter and recede from the loop and move toward and from the sole, and for sliding the said members laterally to expand and contract the spreader, substantially as described.

700,694. HINGE. RICHARD E. LE MAR, Palmyra, N. Y., assignor to John W. Dunham and Joseph E. Dunham, Palmyra, N. Y. Filed July 3, 1901. Serial No. 67,888. (No model.)



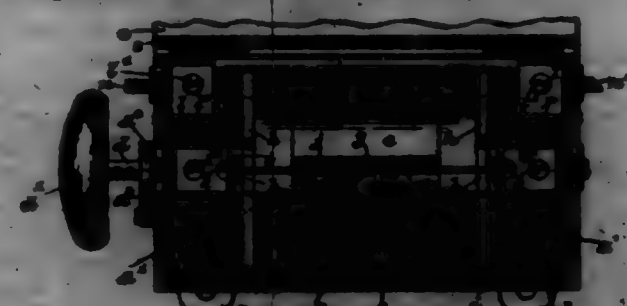
Claim.—1. A hinge, comprising a fixed member provided with opposite eyes, a plate passed through the eyes, a movable member having an eye located between the former eyes and receiving the plate, said movable member having a vertical sliding movement and a swinging movement upon the plate, and an independently-adjustable cam device disposed concentrically with respect to the plate and having an upwardly-inclined portion lying in the path of the swinging movement of the movable member, the highest point of the cam portion terminating in a notch or seat for the reception of a portion of the movable member.

2. A hinge, comprising a fixed member, a swinging and vertically-movable member, and a vertically-adjustable independently-mounted cam located in the path of the swinging movement of the movable member.

3. A hinge comprising a fixed member, a swinging and vertically-movable member, and an independently-adjustable substantially conical member having its upper edge located in the path of the swinging movement of the movable member and inclined to form a cam edge, the opposite ends of the member being formed into attaching elements.

4. In a hinge, the combination of a fixed member having opposite eyes, a movable member having an eye located between the opposite eyes, a plate passed through the eyes, the movable member having a pivotal and a sliding movement upon the plate, a helical spring embracing the plate and bearing in opposite directions against the upper eye of the fixed member and the eye of the movable member, the latter having a roller mounted at its lower edge, and an independently-mounted cam device consisting of a conical part located concentrically with the plate, having its upper edge in the path of the roller at a point between the ends of the plate, and provided with an inclined or cam portion which terminates at its highest point in a notch or seat, the opposite ends of the conical part being extended into attaching elements.

700,695. MULTIPLE-POLE BOX. JAMES B. LITTLE, Baltimore, Md., assignor of one-third to William G. Gooding, York, Pa. Filed Aug. 28, 1901. Serial No. 73,978. (No model.)



Claim.—The herein-described multiple-pole device, comprising a cylindrical box, a, provided at one side with an opening, g; a vent-block, v, fitted in said opening and provided with a concave inner face, v'; a cylindrical roller mounted in said box and spaced from the end thereof, and whose circumference conforms to and contacts with said concave face, v', and has a plurality of longitudinal depressions, g', substantially right-angled face-bearing plates attached to the ends of said roller and provided with contact-lugs projecting toward the ends of the box; flex-wires held by said plates and extending through said depressions, g, whereby the concave inner face, v', and the surrounding walls of the respective depressions may separate one flex-wire from the others; contacts, l, secured

in said bar on opposite sides of and in alignment with said vent-blank; and carbon terminals mounted to slide in said casings and spring-pressed outwardly into engagement with one set of contact-taps at a time, as set forth.

700,696. FIRE-EXTINGUISHER. ROBERT H. MARTIN, Dayton, Ky., assignor to the American Chemical Fire Extinguisher Company, Cincinnati, Ohio, a corporation of Ohio. Filed June 2, 1900. Serial No. 14,896. (No model.)



Claim.—1. In a chemical fire-extinguisher, the combination, with an alkali and an acid receptacle, of a holder for the acid-receptacle to contain same in a fixed position submerged within and below the surface of the liquid in the alkali-receptacle, a weighted diving-bell sealing device for said acid-receptacle, and means to permit said sealing device to drop away from the mouth of said receptacle when the fire-extinguisher is inverted without displacement from said acid-receptacle, substantially as shown and described.

2. In a chemical fire-extinguisher, the combination with the alkali and acid receptacles, of a holder for the acid-receptacle to contain same in fixed position within the alkali-receptacle, and a bell-mouthed cover for the acid-receptacle provided with a rod, and an arm on the holder to guide same, whereby the cover may be prevented from displacement when the receptacles are inverted, substantially as described.

3. In a fire-extinguisher, the combination with a liquid-holding tank, of an acid-bottle and a weighted diving-bell sealing device therefor adapted to be submerged within and below the surface of the liquid in said tank, the said sealing device adapted to fall away from the acid-bottle when the tank is inverted, substantially as described.

4. In a fire-extinguisher, the combination with a liquid-holding tank, of an acid-bottle and a weighted diving-bell sealing device therefor, adapted to be submerged within and below the surface of the liquid in said tank, the said sealing device adapted to fall away from the acid-bottle when the tank is inverted, substantially as described.

700,697. RAY-PRESS. RAY W. HENNER, Ann Arbor, Mich., assignor of one-half to Percy W. Henner, Ann Arbor, Mich. Filed Dec. 28, 1891. Serial No. 66,957. (No model.)



Claim.—1. In a ray-press, the combination of a plunger operating longitudinally of the frame of the machine, means for actuating said plunger,

for, a connecting-rod between said plunger and a walking-beam, a perpendicular operating plunger actuated by the walking-beam, said walking-beam being divided into two parts and having a spring interposed between the two parts uniting the separation of the two parts at the pivotal center of motion, whereby the perpendicular plunger is enabled to yield on encountering an undue resistance, substantially as described.

2. In a ray-press, a frame containing therein a hopper or tank to receive the material to be packed, a packing-chamber into which said material is compressed, a roller in advance of the top of the said chamber to assist in guiding and transferring the material into the packing-chamber, the roller having a relatively larger diameter than said being mounted upon a fixed axis, a yielding spring or springs mounted above and impinging against said roller whereby said roller is enabled to not only rotate but swing toward the edge of the cover of the packing-chamber, substantially as and for the purpose described.

3. In a ray-press, the combination of a longitudinally operating plunger, means for actuating said plunger, a connecting-rod between said plunger and a walking-beam, a perpendicular operating plunger actuated by the walking-beam, a walking-beam divided into two parts, said parts having at one point a pivotal connection, and at the other point an elastic resistance tending to prevent their separation, substantially as and for the purpose specified.

700,698. TAP-ROCKER. RUSSELL H. MONTGOMERY, South, E. J. Filed Oct. 14, 1891. Serial No. 71,701. (No model.)



Claim.—1. A tap-holder comprising a case having a tap-opening, a rotary spring-actuated tap-holding drum in the case, a friction-surface for the drum, an axially-movable member and a spring operating to force the drum into frictional engagement with said surface, said member having an extension adapted to be engaged by one of the end walls of the case whereby the compression of said wall moves the member against the action of its spring to release the drum.

2. A tap-holder comprising a case having a tap-opening, a hollow bearing, a friction-surface, a spring-tensioned brake member movable axially in the bearing, a spring-actuated drum normally impinged between the friction-surface and brake member and carrying a tap-movable through said opening, and a yielding portion forming part of the case arranged to be compressed against the brake member to move the same against the action of its spring to release the drum.

3. A tap-holder comprising a case, opposite disks within the case, a hollow bearing projecting from one of the disks, a spring-actuated drum mounted on the bearing and carrying a tap, a friction-surface between the drum and one of the disks, a brake member and its actuating spring between the drum and other disk to normally hold said drum in engagement with said surface, and means on the case to engage and move the brake member against the action of its spring to release the drum.

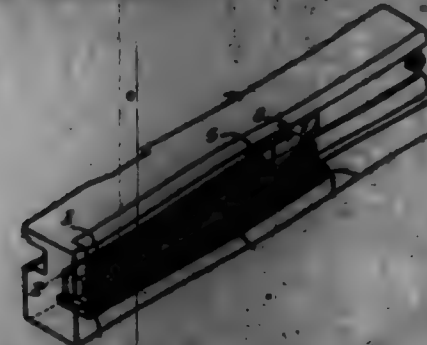
4. A tap-holder comprising a case having a tap-opening, a bearing within the case having longitudinal slots, a spring-actuated drum rotatably mounted on said bearing and carrying a tap to be wound thereon, a part having lateral arms mounted in said bearing, said arms adapted to rest normally in frictional contact with one face of the drum and means for forcing said arms out of frictional contact with the drum for the purpose specified.

5. A tap-holder comprising a case having a tap-opening, a bearing within said case having longitudinal slots, a spring-actuated drum rotatably mounted on said bearing and carrying a tap adapted to be wound thereon, a part having lateral arms mounted in said bearing, said arms engaging with the slots and resting normally in frictional contact with one of the faces of the drum, a spring mounted on said part, one end engaging with said arms and the other end with the wall of the case for the purpose of holding said arms in frictional contact with the drum for the purpose specified.

6. A tap-holder comprising a case having a tap-opening, a tubular bearing within said case having longitudinal slots, a spring-actuated drum rotatably mounted on said bearing and carrying a tap adapted to be wound thereon, a part having an axially-extending arm adapted to be engaged by the adjacent wall of the case and lateral arms mounted in said bearing, said arms engaging with said slots and resting normally in frictional contact with one of the faces of the drum, a spring mounted

of an aid post within the bearing, one end engaging with the said drum and the other end against the wall of the case for the purpose specified.

700,699. TYPE-JUSTIFYING MACHINE. FRANK MCCLINTOCK, Mount Vernon, N. Y., assignor, by mesne assignments, to Shreve & Hoyt and Peck House, New York, N. Y. Filed June 11, 1891. Serial No. 64,184. (No model.)



Claim.—1. The combination with the face-plate, of the line-holder arranged to travel thereon, having suitable type-cases and provided with a movable and adjustable face-plate, by means of which the type-cases may be enlarged or made smaller at its base as it will so as to receive type characters of any desired size.

2. The combination with the face-plate, of the line-holder arranged to travel thereon, having a suitable type-case the side wall of which is beveled at the base, as or to act on the face of each character as it is inserted in the type-case.

3. The combination with the face-plate, of the line-holder arranged to travel thereon, having a suitable type-case and provided with a movable and adjustable face-plate, the side wall of which is beveled at the base, as or to act on the face of each type character, as it is inserted in the type-case, and by means of which the type-cases may be enlarged or made smaller at will so as to receive type characters of any desired size.

4. The combination with the face-plate of the line-holder arranged to travel thereon, and a movable plate forming the bottom and side of the type-channel supported on the line-holder by pins arranged to slide in suitable openings therein, and provided with device for actuating the plate; and suitable springs for holding the plate normally in an advanced position with respect to the line-holder.

5. The combination with the face-plate, of the line-holder arranged to travel thereon; and a movable plate forming the bottom and side of the type-channel supported on the line-holder in suitable channels at either end and having screw-pins arranged to slide in openings therein, and provided with means for actuating the same; and suitable springs for holding the plate normally in an advanced position, with respect to the line-holder.

700,700. TYPE-JUSTIFYING MACHINE. FRANK MCCLINTOCK, Mount Vernon, N. Y., assignor, by mesne assignments, to Shreve & Hoyt and Peck House, New York, N. Y. Filed June 11, 1891. Serial No. 64,185. (No model.)

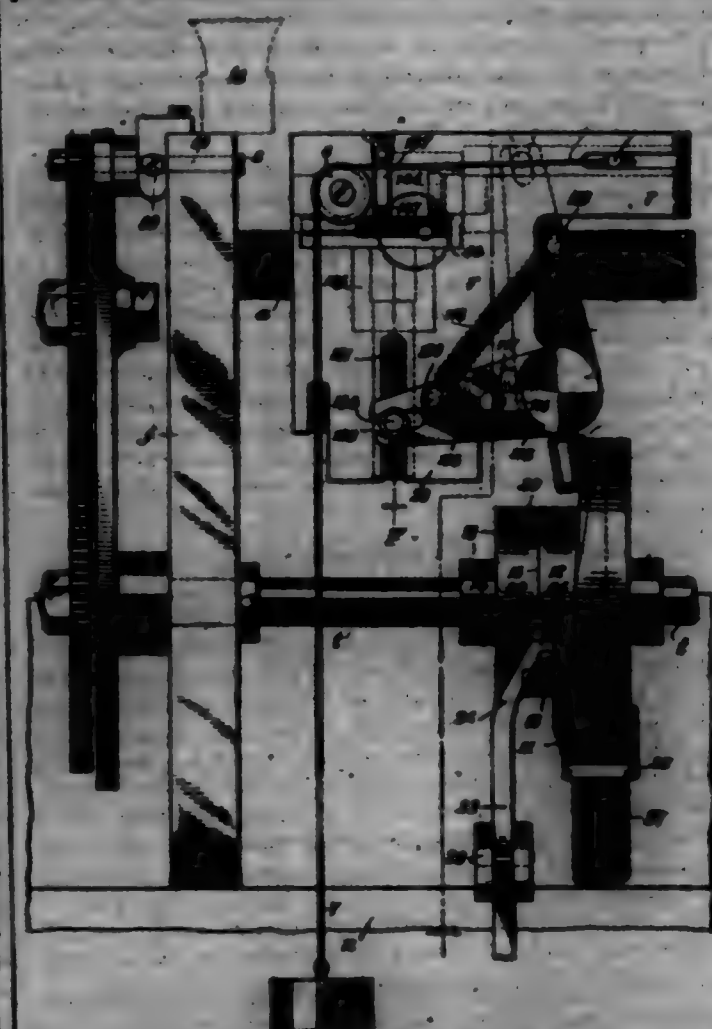
Claim.—1. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; means for holding and guiding the thin end of the space-bar; means for holding the rear end of the space-bar while this is being done; means for driving the space-bar still further to its final position; and means for withdrawing the holding device from the rear end of the space-bar when the operation is completed.

2. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; means for holding the rear end of the said space-bar while this is being done; means for driving the space-bar still further to its final position; means for withdrawing the holding device from the rear end of the space-bar when the operation is completed; and means for advancing the rear end of the space-bar after releasing, as or to cause the space-bar to assume its proper position in the line-holder.

3. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; means for thereupon advancing the forward end of the space-bar a certain distance, and for holding the rear end of the said space-bar while this is being done; means for driving the space-bar still further to its final position; and means for withdrawing the holding device from the rear end of the space-bar when the operation is completed.

4. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same for a certain distance; means for then arresting the same; means for thereupon advancing

ing the forward end of the space-bar a certain distance, and for holding the rear end of the said space-bar while this is being done; means for driving the space-bar still further to its final position; means for withdrawing the holding device from the rear end of the space-bar when the operation is completed; and means for advancing the rear end of the space-bar after releasing, as or to cause the space-bar to assume its proper position in the line-holder.



5. In a type-justifying machine the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; means for holding and guiding the thin end of the space-bar; means for holding the rear end of the space-bar while this is being done; means for driving the space-bar still further to its final position; and means for withdrawing the holding device from the rear end of the space-bar when the operation is completed.

6. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; a spring-lever, operated by the space-bar-opening device, for holding and guiding the space-bar during the operation of insertion; means for thereupon advancing the forward end of the space-bar a certain distance and for holding the rear end of the space-bar while this is being done; means for driving the space-bar still further to its final position; and means for withdrawing the holding device from the rear end of the space-bar when the operation is completed.

7. The combination of a sliding plate arranged to slide vertically in suitable ways in the end plate; a space-bar-elevating plate, attached to and sliding vertically with the same; means for actuating the same substantially as described, and a spring device, substantially as described, retained by the wedge when it rises, for moving the rear end of the wedge forward after the operation of insertion has been completed.

8. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then arresting the same; means for holding and guiding the thin end of the space-bar; means for holding the rear end of the space-bar while this is being done; means for driving the space-bar still further to its final position; means for withdrawing the holding device from the rear end of the space-bar when the operation is completed; and a spring device, substantially as described, retained by the space-bar when it rises, for moving the rear end of the space-bar forward after the operation of insertion has been completed.

9. The combination of a sliding space-bar driven, arranged to slide horizontally on the end plate; means substantially as described, for operating the same; and a spring-lever, operated by the arm of the space-bar-opening device, for holding and guiding the space-bar during the operation of insertion.

10. The combination of a sliding plate, arranged to slide vertically in suitable ways in the end plate; a space-bar-cleaving plate, attached to and sliding vertically with the same; a sliding space-bar driver, arranged to slide horizontally on the end plate; a bell-crank lever, attached to the frame-plate, engaging at one end with the vertically-sliding cleaving-plate, and at the other end with the horizontally-moving space-bar driver; means substantially as described, for causing the space-bar driver to be held in a constantly-advanced position; and means, actuated at the will of the operator, for causing one arm of the lever to raise the cleaving mechanism and the other arm to retract the space-bar driver, and to thereupon advance the space-bar driver and lower the cleaving-plate, substantially as described.

11. The combination of a sliding plate, arranged to slide vertically in suitable ways in the end plate; a space-bar-cleaving plate, attached to and sliding vertically with the same; a sliding space-bar driver, arranged to slide horizontally on the end plate; a pivoted bell-crank lever composed of two independent arms held together by a spring, attached to the frame-plate, engaging at one end with the vertically-sliding cleaving-plate, and at the other end with the horizontally-moving space-bar driver; means substantially as described, for causing the space-bar driver to be held in a constantly-advanced position; and means, actuated at the will of the operator, for causing one arm of the lever to raise the cleaving mechanism and the other arm to retract the space-bar driver, and to thereupon advance the space-bar driver and lower the cleaving-plate, substantially as described.

12. The combination of a sliding plate, arranged to slide vertically in suitable ways in the end plate; a space-bar-cleaving plate, attached to and sliding vertically with the same; a sliding space-bar driver, arranged to slide horizontally on the end plate; a bell-crank lever, attached to the frame-plate, engaging at one end with the vertically-sliding cleaving-plate, and at the other end with the horizontally-moving space-bar driver; means substantially as described, for causing the space-bar driver to be held in a constantly-advanced position; and means, actuated at the will of the operator, for causing one arm of the lever to raise the cleaving mechanism and the other arm to retract the space-bar driver, and to thereupon advance the space-bar driver and lower the cleaving-plate, and for stopping the movement of the parts, at desired intervals, substantially as described.

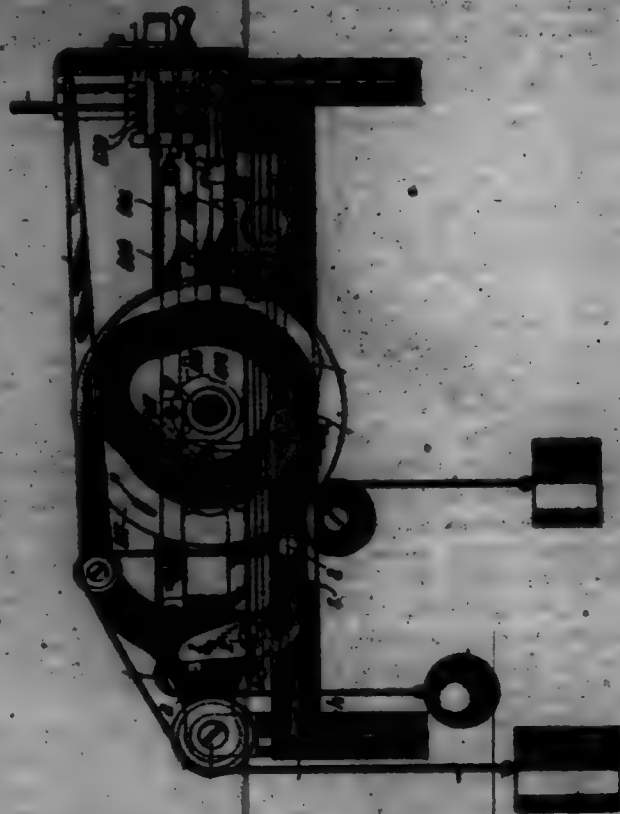
13. The combination of a sliding plate, arranged to slide vertically in suitable ways in the end plate; a space-bar-cleaving plate, attached to and sliding vertically with the same; a sliding space-bar driver, arranged to slide horizontally on the end plate; a bell-crank lever, attached to the frame-plate, engaging at one end with the vertically-sliding cleaving-plate, and at the other end with the horizontally-moving space-bar driver; means substantially as described, for causing the space-bar driver to be held in a constantly-advanced position; a suitable type-cam; a rotating shaft, actuated from a suitable source of power; a toothed collar, secured to the said driving-shaft, the distance between the teeth of which are properly proportioned with respect to the revolutions of the type-cam; a cam rotating loosely on said driving-shaft; a roller attached to the bell-crank lever, and arranged to be moved by the movement of the said cam; a clutch mechanism for causing the cam to rotate with the fixed collar through a single revolution; and means for throwing the clutch mechanism into engagement at the will of the operator.

14. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; means for driving the same a certain distance; means for then retracting the same; means for thereupon advancing the rear end of the space-bar while this is being done; means for driving the space-bar still further into its final position; means for holding the forward end of the said line-holder while being so driven forward, and for holding it in its final position, and means for withdrawing the holding device from the rear end of the space-bar when the operation is completed.

15. In a type-justifying machine, the combination of an independent wedge-shaped space-bar; a spring-lever, operated by the space-bar-operating device, for holding and guiding the space-bar during the operation of insertion, provided at the end with a half-edged projection for driving down any preceding space-bar which has not been properly inserted in place, and means for advancing the space-bar substantially as described.

16. In a type-justifying machine, the combination of the frame-plate provided with the opening opposite the line-holder into which the front end of the space-bar projects, the rear end of which is beveled so as to force the end of the space-bar engaged therewith positively forward, a line-holder arranged to travel on said plate; space-bars inserted horizontally across the line-holder, and means substantially as described for inserting the space-bars one by one through the line-holder.

700,701. TYPE-JUSTIFYING MACHINE. FRANK McCLINTOCK, Mount Vernon, N. Y., assignor, by mesne assignments, to Edwin C. Hoyt and Felix Rosen, New York, N. Y. Filed June 11, 1901. Serial No. 64,188. (No model.)



Claim.—1. The combination of a movable space-bar divided longitudinally into compartments containing spaces of the different class used; the dotted front plate on said space-bars, having beveled position-walls; a space-jacking bar having its lower edge beveled and adapted to eject a single space from any one of the space-compartments; a space-jacking lever composed of two arms, one of which is pivoted to the bed of the machine at one end and carries the space-jacking bar at the other end, and the other of which is pivoted to the first arm, and is limited in motion by a stop and is provided on its outer end with a roller engaging the actuating-cam; device for holding the two arms of the lever normally in a rigid position; and an actuating-cam upon the rotating justifying-shaft, substantially as described.

2. The combination of a space-jacking lever composed of two arms, one of which is pivoted to the bed-plate of the machine and carries the space-jacking bar, and the other of which is pivoted to the first arm and is limited in its movement by a stop at one end and provided at its other end with a roller engaging with the actuating-cam, and device for holding the two arms of the lever normally in a rigid position and releasing the upper arm in case of any obstruction to the normal movement of the lever.

3. The combination of a space-rack; device for jacking the space therefrom, substantially as described; a rotating justifying-shaft; a suitable cam attached to and rotating with the said shaft; a lever for actuating the space-jacking device, composed of two arms, one of which is pivoted to the bed-plate of the machine and actuates the space-jacking device, and the other of which is pivoted to the first arm, is limited in its movement by a stop at one end, and is provided at its other end with a roller engaging with the cam on the justifying-shaft; and device for holding the two arms of the lever normally in a rigid position and releasing the upper arm in case of any obstruction to the normal movement of the lever.

700,702. PICTURE-EXHIBITOR. THOMAS T. McNEVART, Fayetteville, N. C., assignor of three-fourths to James E. Williams, Fayetteville, N. C. Filed July 15, 1901. Serial No. 65,208. (No model.)

Claim.—1. In a picture-exhibitor, the combination with the revolving carrier having hub portions, and members 34, projected radially from the hub, and members 34 having plates 34', projected inward in a plane with the longitudinal axis of the carrier; of the U-shaped holders formed of flexible material, having edges 35', to slip into or off of members 34', for the purposes described.

2. In an exhibitor of the character described the combination with the object-carrier, and a lamp-circuit; of a drive mechanism for the carrier, said drive mechanism having a governor device connected with and operated by the drum mechanism for controlling the lamp-circuit, whereby to cut out the lamp in case of stoppage of the drive mechanism or for any cause, for the purposes specified.

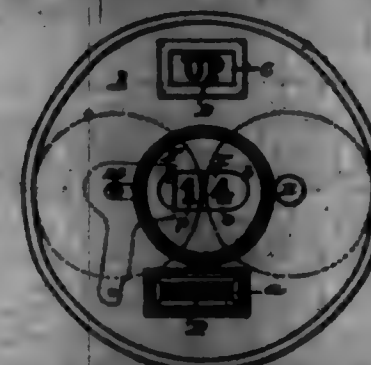
3. In an exhibitor as described the combination with the object-car-

rier and the lamp-circuit, and a motor mechanism for driving the object-carrier; of an automatically-adjustable contact-maker connected with and operated by the motor normally out of electrical circuit held to cooperate with the motor, and adapted to make contact and close the lamp-circuit when the motor is put into operation, and break the circuit when the motor stops, as set forth.



4. The combination with the object-carrier, and the motor mechanism, and the electric-light circuit within the casing; of governor device cooperating with the motor mechanism, said governor device including a suitable disk and a contact-maker for the electric-lighting current in the casing, said contact-maker having a spring-held member adapted to be engaged by the suitable governor-disk when the object-carrier motor mechanism is cut into motion, all being arranged substantially as above and for the purposes described.

700,703. FARE-REGISTER. ARTHUR E. FURMAN, Brooklyn, N. Y., assignor to Sterling Supply & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Feb. 7, 1902. Renewed Oct. 26, 1902. Serial No. 66,541. (No model.)



Claim.—1. In a fare-register of the type heretofore specified, the combination of an actuator, means for transmitting registering action therefrom including a separable connection, an actuator mechanism and permanent and trip registers so actuated, a disconnecting-lever for breaking said connection, and means for locking said actuator and therewith said bell mechanism and said permanent register when the trip-register is disconnected and for locking said lever when said actuator is out of its normal position of rest.

2. In a fare-register, the combination with a trip-register of a reciprocating actuator, intermediate mechanism for transmitting the registering action including a separable connection, a disconnecting-lever having a catch portion, and a double-acting lock in the form of an L-shaped lever having an overhanging end and a shoulder behind the same to coast with said catch portion, the other end of the locking-lever projecting in the path of said actuator when the trip-register is disconnected and causing therewith to render the disconnecting-lever locked by said overhanging end when the actuator is out of its normal position of rest.

3. In a fare-register, the combination of a permanent register, a trip-register, an actuator common to both, transmitting mechanism comprising a separable connection between said trip-register and the remainder, a pressing-spring for maintaining said connection, a disconnecting-lever for breaking the connection, and a springless actuator-lock in the form of a lever having an overhanging end and to coast with said disconnecting-lever.

4. In a fare-register, the combination of bell mechanism, a trip-register, an actuator common to both, transmitting mechanism comprising a separable connection between said trip-register and the remainder,

a pressing-spring for maintaining said connection, a disconnecting-lever for breaking the connection, and a springless actuator-lock in the form of a lever having an overhanging end and to coast with said disconnecting-lever.

5. In a fare-register of the type heretofore specified, the combination of an actuator mechanism, a permanent register, a trip-register and provided with one member of a two-stop in combination with a disconnecting-lever which moves said wheel axially and is provided with the other member of said two-stop.

6. In a fare-register of the type heretofore specified, a disconnecting-lever provided with one member of a two-stop in combination with a trip-register wheel provided with a two-stop member which normally revolves clear of the stop member on said lever, and movable axially by said lever to disconnect the trip-register and bring said stop member into one and the same plane.

7. In a fare-register of the type heretofore specified, the combination with the disconnecting-lever of an actuator-lever actuated thereby, a direction-indicator having its spindle provided with a star-wheel concentric with a cam portion having rounded ridges, and a spring-pressed pallet engaging with said cam portion to assist the component-lever.

8. In a fare-register, the combination of a direction-indicator rotating step by step on a horizontal spindle which carries a star-wheel having a cam portion with rounded ridges, an actuator-lever engaging on a pivot parallel to said spindle, means for oscillating the component-lever to effect the initial and final movements of the indicator, and a spring-pressed pallet engaging with said cam portion to effect an intermediate secondary movement.

9. In a fare-register of the type heretofore specified, the combination with a disconnecting-lever having an actuator extension of a direction-indicator having its spindle provided with a star-wheel comprising a cam portion with rounded ridges, an actuator-lever worked by said extension and engaging with said star-wheel to effect the initial and final movements of the indicator, a spring-pressed pallet engaging with said cam portion to effect a secondary intermediate movement of the indicator, and a spring engaging with said extension, substantially as heretofore specified.

700,704. DEVICE FOR TIGHTENING OR LOOSENING BOLTS OF TANKS, VANS, OR CLAMSHIPS. L. PARKER, Los Angeles, Cal. Filed June 17, 1901. Serial No. 64,508. (No model.)



Claim.—The device for tightening and loosening the heads of tanks, vans or analogous vessels, consisting of the combination of a hoop or band, movable, adjustable and flexible legs, the handles, and the legs, respectively carried upon each end of said hoop or band, the wedges in the handles, the legs being formed at their lower ends with an upturned nose to press the wedge within each box or handle relatively with the legs, the tightening screws and nuts, the upper ends of the legs being formed as upturned receptacles for the nuts and tightening-screws, all operating together in the manner used for the purposes substantially as set forth.

700,705. SHOE-GRINDER. CHARLES L. FORTSON, Fulton, N. C., assignor of one-half to William E. Smith, Lyons, Iowa. Filed Aug. 4, 1901. Serial No. 18,897. (No model.)



Claim.—The combination of levers pivoted intermediate their ends, the one end of one of the levers extending at an angle to the length of said lever and provided with a stretcher-band, and the corresponding end

of the other lever being formed with an extended curved portion which curves in the direction toward the stretcher-band, substantially as set forth.

700,706. STOVE-RASH FASTENER. EDWARD C. GUNST, Minneapolis, Minn. Filed Oct. 26, 1902. Serial No. 24,092. (No model.)



Claim.—A stove-rash fastener comprising a plate to be secured upon the window-frame, and provided with a stud and a lug having an outwardly-turned cam-face, in combination, with a spring-arm that slides automatically upon said stud when the rash is pushed open and having a hook at one end and a loop at the other and pivoted at an intermediate point upon the rash, said hook engaging said stud and said loop engaging the stud and flange said arm when the rash is open to hold the hook firmly upon said stud, and said loop being adapted to receive said lug and slide over its cam-face and draw the rash to its rest when said arm is drawn in and turned down over said stud to close the rash, substantially as described.

700,707. FILE. ALFRED A. RAYMOND, Chicago, Ill. Filed July 28, 1901. Serial No. 68,614. (No model.)



Claim.—1. In an expanding file-core, the combination with the longitudinal sections thereof, of hinges uniting the said sections and permitting relatively longitudinal movement thereof, whereby the said sections may be separated or collapsed, substantially as described.

2. In an expanding file-core, the combination with the longitudinal sections thereof, of hinges uniting the said sections and permitting relatively longitudinal movement thereof, whereby the said sections may be separated or collapsed, and a key for maintaining the sections of the file-core in a separated relation, substantially as described.

3. In an expanding file-core, the combination with the longitudinal sections thereof, of hinges uniting the said sections and permitting relatively longitudinal movement thereof, whereby the said sections may be separated or collapsed, one of the said sections being provided with a transverse section of upon which the other section may bottom when the said sections are in a separated relation, substantially as described.

4. In an expanding file-core, the combination with the longitudinal sections thereof, of hinges uniting the said sections and permitting relatively longitudinal movement thereof, whereby the said sections may be separated or collapsed, and a key for maintaining the sections of the file-core in a separated relation, one of the said sections being provided with a transverse section of upon which the other section may bottom when the said sections are in a separated relation, substantially as described.

5. A file-core having its tip longitudinally movable with respect to the remainder of the file-core, and having telescoping engagement therewith, substantially as described.

6. A tapering file ending or shell formed in relatively longitudinally movable lengths, substantially as described.

7. A tapering file ending or shell formed in relatively longitudinally movable telescoping lengths, substantially as described.

8. A tapering file-core having a tip exterior to said ending and longitudinally movable relatively thereto, substantially as described.

9. A tapering file-core having its tip longitudinally movable with respect to the remainder of the file-core, and having telescoping engagement therewith, substantially as described.

10. The combination with an expanding file-core, of a shell or ending adapted to surround said core, and a tip against which said core is adapted to press, said shell and tip being longitudinally movable relatively to each other, substantially as described.

11. The combination with an expanding file-core, of a tapering shell or ending adapted to surround said core, and a tip against which said core is adapted to press, said shell and tip being longitudinally movable relatively to each other, substantially as described.

12. The combination with a shell or ending, of an expanding file-core composed of longitudinal sections, means interposed between said sections, whereby upon the relatively longitudinal movement of the same the sections of the file-core may be expanded or collapsed, and a tip against which said core is adapted to press, covering the end of said ending and longitudinally movable relatively thereto, substantially as described.

13. A tapering file ending or shell formed in relatively longitudinally movable lengths, in combination with a filling of concrete or similar material, substantially as described.

14. A composite file composed of a tapering sectional shell or ending filled with concrete or similar material, substantially as described.

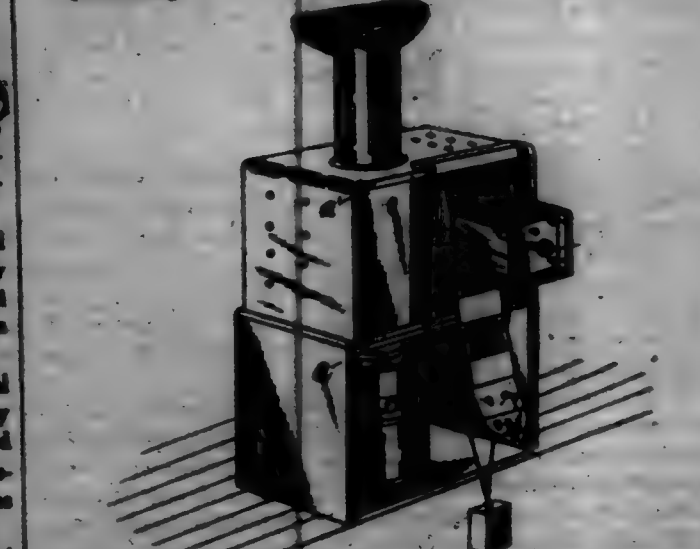
700,708. COIL-DRUM. HARRY BOWMAN, Philadelphia, Pa. Original application filed Feb. 15, 1901. Serial No. 65,968. Divided and this application filed Oct. 16, 1902. Serial No. 73,473. (No model.)



Claim.—1. A coil-drum consisting of a non-conducting surrounding, wires passing therein from opposite ends, plugs connected to said wires and located by the surrounding, and particles of carbon and a series of steel balls located in the space between the plugs.

2. A coil-drum consisting of a non-conducting surrounding, conducting-wires entering therein, plugs mounted therein and connected to said wires and forming a pocket therebetween, and particles of granulated carbon and steel balls located in said pocket.

700,709. PICTURE-PROJECTING APPARATUS. GEORGE W. SMITH, Evanston, Ill., and WILLIAM A. SCHUBERT, St. Paul, Minn.; said Schubert assignor to said Smith. Filed June 24, 1901. Serial No. 64,662. (No model.)



Claim.—1. A picture-strip for projecting apparatus comprising a plurality of picture-sections, and interposed sections of flexible material which allow the pictures to be placed in overlapped relation when fixed in the same direction, said sections consisting of narrow parts located at the sides of the strips and offering central spaces through which the pictures are exposed as the strip is unfixed.

2. A kinesiograph comprising a picture-strip which consists of a plurality of picture-sections bearing a series of pictures of the same scene or object and connected by interposed flexible sections of such length as to allow the picture-sections to be placed in overlapped relation when fixed in the same direction, supporting means for the folded strip, and pressing means acting against the rear of the folded strip when said picture-sections are exposed.

these and is their overlapped or folded position to hold the section which forms the face of the folded strip in position for projection and to advance the next section as shown in front of them as successively removed, the parts being so arranged that the strip may be rapidly unfixed and the picture-sections quickly exposed in succession by drawing upon the forward end of the strip so as to give the combination of motion in the projected pictures.

3. A kinesiograph comprising a picture-strip comprising a plurality of sections bearing a series of pictures of the same scene or object and connected by interposed flexible sections of such length as to allow the picture-sections to be placed in overlapped relation when fixed in the same direction, a magazine adapted to support the picture-sections when in their overlapped relation, and pressing means acting against the rear of the picture-strip to hold the picture-section which is at the front face of the folded strip in position for projection and to advance the next section as shown in front of them as successively removed, the parts being so arranged that the strip may be rapidly unfixed and the picture-sections quickly exposed in succession by drawing upon the rear end of said strip, so as to give the combination of motion in the projected pictures.

4. The combination with a projecting apparatus, of a holder adapted to contain a picture-strip, said holder being provided with an exit-disk for the picture-strip wider at its middle than at its end, and a movable pressure means to advance the picture-strip toward the exit-disk.

5. A kinesiograph comprising a holder adapted to contain a folded picture-strip, a wall or plate provided with a picture-opening and in which said picture-holder is attached, said holder being provided adjacent to the wall with an exit-disk, a pressure means for moving the pressure toward said opening to advance the folded strip so its end is withdrawn through said disk, thereby enabling the picture-strip to be rapidly withdrawn from the holder to expose the pictures on the strip in quick succession and thereby give the combination of motion in the projected pictures.

6. A kinesiograph comprising an object-lens, a source of light, a reflector in advance of said source of light, a picture-strip holder adapted to contain a folded picture-strip, an inclosure provided with a wall or plate containing a picture-opening in position to be illuminated by rays from said reflector, said picture-holder being secured to the said wall or plate in position to contain the folded picture-strip against the said opening and being provided with an exit-disk located adjacent to the said wall or plate, a pressure means for actuating the pressure acting to advance the same and the folded strip toward the said opening and to bring the pictures on the strip rapidly into place for projection when the strip is drawn rapidly from the holder to successively expose the pictures on the strip and to thereby give the combination of motion in the projected pictures.

7. A kinesiograph comprising an object-lens, a source of light, a reflector in advance of the source of light, a holder adapted to contain a folded picture-strip, an inclosure provided with a rear wall containing a picture-opening in position to be illuminated by the rays from said reflector, said holder being attached to said wall in position to hold the folds of the picture-strip against said opening and being provided with an exit-disk for the picture-strip located adjacent to said wall, guide-strips on said wall arranged at either side of said opening in position to engage the side edges of said picture-strip, a pressure, and actuating means for the pressure operating to advance the pressure and the folded strip toward the wall so the folds of the strip are rapidly withdrawn from the holder to successively expose the pictures on the strip and thereby give the combination of motion in the projected pictures.

700,710. WOVEN-WIRE-PRISM MACHINE. FRED SCHUBERT, Evanston, Ill. Filed Aug. 20, 1901. Serial No. 73,417. (No model.)

Claim.—1. In a frame-machine, the combination with a carriage, of a vertically-movable twister-head thereon, provided with means for carrying a quantity of wire, and means for moving the head vertically comprising automatic means for rotating the head periodically, substantially as and for the purpose set forth.

2. In a frame-machine, the combination, with a carriage, of a vertically-movable, dotted twister-head mounted thereon, provided with a wire-carrier, and means for moving the head vertically and periodically rotating it enough more than one or more complete revolutions to cause the slots in the wire to assume diametrically opposite positions relatively to the moving wire.

3. In a frame-machine, the combination, with a carriage, of a vertically-movable twister-head mounted thereon, a wire-carrier detachably connected with the head, the sides of which are provided with flexible fingers, a head movably held by said fingers, and means for moving the head vertically and rotating it at different horizontal strands of the frame.

4. In a frame-machine, the combination, with a carriage, of a vertically-movable twister-head mounted thereon, a wire-carrier detachably connected with the head, the sides of which are slotted longitudinally to

form flexible fingers at one end, the fingers usually standing out beyond the plane of the sides and having their tips bent forward, a head around the fingers to draw them toward as it is moved longitudinally toward the tips, a head adapted to be clamped between said tips, and means for moving the twister-head vertically and rotating it at different horizontal strands of the frame.



5. In a frame-machine, the combination, with a carriage, of a vertically-movable, longitudinally-slotted twister-head mounted thereon, a wire-holder secured to one end of the head concentrically to its axis and in communication with said perforation, and means for moving the head vertically and rotating it at different horizontal strands of the frame.

6. In a frame-machine, the combination, with a carriage, of a vertically-movable rotary twister-head, means for rotating the head at the different horizontal wires of the frame, a lock for holding the head against rotation, and a longitudinally-movable releasing apparatus for the lock.

7. In a frame-machine, the combination, with a carriage, of a vertically-movable dotted twister-head, a slotted bar through the head, the ends of which are slotted to register with the slots of the head, a chain for engaging with the head and holding the head against rotation, and means for moving the head between the horizontal wires of the frame and rotating it around them.

8. In a frame-machine, the combination, with a carriage, of a vertically-movable, longitudinally-slotted twister-head thereon, a slotted bar through the head, the ends of which are slotted to register with the slots of the head, a slide for engaging with the ends of the bar, and means for operating the slide.

9. In a frame-machine, the combination, with a carriage, of a vertically-movable twister-head, a chain for rotating the head and carrying it from one to the other of the horizontal wires of the frame, a wheel in engagement with said chain, and a lock for holding said wheel against rotation when the head is being moved from one to the other of the horizontal wires of the frame.

10. In a frame-machine, the combination, with a carriage, of a frame mounted to move vertically thereon, a peripherally-grooved twister-head in the frame, one end of which is provided with sprocket-teeth, a sprocket-wheel journaled on the frame, provided with a lock for periodically locking it against rotation, and a sprocket-chain for rotating the head and moving it from one horizontal wire to the other of the frame.

11. In a frame-machine, the combination, with a carriage, of a frame mounted to move vertically thereon, a twister-head in the frame provided with sprocket-teeth, a lock for holding the head against rotation, a sprocket-wheel on the frame provided with a stop, a pawl for engaging with said stop, a sprocket-chain in engagement with the wheel and head, and means for locking the head against rotation as it is being moved from one horizontal wire of the frame to another.

12. In a frame-machine, the combination, with a carriage, of a frame

mounted to move vertically thereon, a twister-head, and a sprocket-wheel on the frame, a slide and a pawl for locking the head and the wheel relatively against rotation, the slide being provided with a projection, a spring-actuated pin on the pawl for engaging with the projection, and a sprocket-chain for rotating the wheel and head and carrying them from one horizontal wire of the frame to the other.

13. In a frame-machine, the combination, with a carriage, of a frame mounted to move vertically thereon, a twister-head and a sprocket-wheel on the frame, means for locking the head and wheel against rotation, a slide for releasing said locking mechanism, a sprocket-chain for rotating the head and wheel and carrying them from one of the horizontal wires of the frame to another, and means for shifting the slide at the limit of the vertical movement of the frame.

14. In a frame-machine, the combination, with a carriage, of a frame mounted to move vertically thereon, a slotted twister-head and a sprocket-wheel on the frame, a slotted bar through the head and a pawl for the wheel, a slide provided with fingers and an inclined projection, the fingers being adapted to engage with the ends of the bar, a spring-actuated pin on the pawl for engaging with said projection, a sprocket-chain for operating the head and wheel, and means for shifting the slide at the limit of the vertical movement of the frame.

15. In a frame-machine, the combination, with a carriage, of a twister-head, a slide and a sprocket-wheel thereon, the wheel being provided with a cam, levers for moving the slide longitudinally, one end of each of which is adapted to be moved by the cam, and a chain for rotating the head and wheel and moving them from one horizontal wire of the frame to the other.

16. In a frame-machine, the combination, with a carriage provided with guides, a vertically-movable frame on the guides, a two-part twister-head, and a sprocket-wheel on the frame, one of the parts of the head being provided with sprocket-teeth and the other part with a wire-carrier, a sprocket-chain for rotating the wheel and head, and locking mechanism for holding them against rotation while they are being carried from one of the horizontal wires of the frame to another.

17. In a frame-machine, the combination, with a carriage, of a vertically-movable twister-head thereon, means for operating the head, two bars adapted to be placed upon opposite sides of the horizontal wire of the frame in position for engaging with the cam, and means for simultaneously moving said bars toward and from each other.

18. In a frame-machine, the combination, with a carriage, of a vertically-movable twister-head thereon, means for operating the head, two bars in the frame, one of which is provided with notched planes for engaging with the respective horizontal wires of the frame, interlocking levers for simultaneously moving the bars toward and from each other, and a foot-lever for operating said levers.

19. In a frame-machine, the combination, with a carriage provided with three sprocket-wheels, two of which are arranged in a vertical line and the other one is provided with a handle, a chain around said wheels, a vertically-movable frame on the carriage provided with a twister-head and a sprocket-wheel in position to engage with the vertical portion of the chain, and means for periodically locking the head and wheel against rotation and causing them to be moved from one horizontal wire of the frame to another.

20. The combination of a carriage provided with wheels and with guides; a sprocket-chain trained upon said wheels; means for driving said sprocket-chain; a traveling frame mounted upon the guides; a sprocket-wheel carried by the traveling frame and meshing with the sprocket-chain and provided with a catch for a pawl; a rotary twister mounted in the traveling frame and provided with a sprocket-wheel meshing with the sprocket-chain and also provided with oppositely-arranged radial slots to receive the horizontal strands of the frame; a spool-holder mounted on the twister at one side of the axis thereof; a pawl mounted in a traveling frame to engage the catch of the sprocket-wheel; a spring for holding the pawl in engagement with the sprocket-wheel; a belt for operating said pawl; a cam-disk for operating said belt; a slide mounted on the twister to register therewith and provided with slots on opposite sides of the twister to register respectively with the radial slots of the twister, the portion between said slots of the slide being of greater width than the portion of said slots of the twister, said said slide being arranged to engage the cam-disk to operate it in different directions.

21. In a woven-wire-frame machine, the combination of a traveling carriage; a twister-carrier arranged to move up and down in said carriage along the plane of the strands held by said twister; a rotary twister provided with means for carrying a wire at one side of the axis of said twister, said twister being arranged with slots on opposite sides of its axis; successive strands held by said twister; means for moving the twister in the plane of said strands; and means for rotating the twister to twist a wire around said strands, respectively, and to alternately bring one and the other of

the slots into position successively to receive the successive strands as the work proceeds.

22. In a woven-wire-frame machine, the combination with a traveling twister, of a sprocket-chain led around stationary wheels; a twister-carrier furnished with a twister; a sprocket-wheel engaging with the sprocket-chain for rotating said twister; a sprocket-wheel engaging with said chain for driving the twister-carrier; and means for holding a wire stationary in the path of said twister.

23. The combination of a twister-carrier consisting of two members a and b mounted upon guides and provided in their adjacent ends with bearings c and d ; a rotary twister provided with longitudinal grooves e and f and with an annular groove g into which the bearings c and d are adapted to slip the twister to hold it in the twister-carrier; a slide h arranged diametrically across the twister and provided with two members i and j to register with the longitudinal grooves e and f of the rotary twister and provided at its ends with shoulders k which limit the movement of the slide in the rotary twister; means for holding a wire in said twister; means for holding a wire around in the path of said twister; and means for rotating the twister around the strand.

700,711. **WIRE-SEPARATOR.** FRANKLIN E. WATSON, CHICAGO, ILL., assignor, by mesne assignments, of one-half to E. O. Malt and Robert J. Powell, Baltimore, Md. Filed May 8, 1901. Serial No. 68,957. (No model.)



Claim.—1. In an ore-separator, the combination with a casing, of a stop-flange located in the casing, and a rotating-roller carried by the flange and spaced from the inner face of the casing to form a holding-pocket, said roller being provided with an escape-opening.

2. In an ore-separator, the combination with a casing, of a stop-flange located in the casing, and a rotating-roller carried by the flange and spaced from the inner face of the casing to form a holding-pocket, said roller being provided with an inclined escape-opening.

3. In an ore-separator, the combination with a casing, of an annular stop-flange located in the casing, a rotating-roller carried by the flange and spaced from the inner face of the casing to form a holding-pocket, and wings carried by said rotating-roller and projecting into the pocket.

4. In an ore-separator, the combination with a casing, of an annular stop-flange located in the casing, a rotating-roller carried by the flange and spaced from the inner face of the casing to form a holding-pocket, said roller being provided with an escape-opening, and a wing carried by said rotating-roller, said wing being located contiguous to the escape-opening and projecting into the pocket.

5. In an ore-separator, the combination with a rotatable casing, of an annular stop-flange located in the casing, a rotating-roller carried by the flange and spaced from the inner face of the casing to form an annular pocket, said roller being provided with a plurality of inclined escape-openings, and inclined wings carried by the rotating-roller and arranged adjacent to the escape-openings, said wings projecting from both faces of the roller.

6. In an ore-separator, the combination with a rotatable casing, of an annular stop-flange located in the casing, a rotating-roller carried by the flange and spaced from the inner face of the casing to form an annular pocket, said roller being provided with a plurality of inclined escape-openings, and inclined wings carried by the rotating-roller and arranged adjacent to the escape-openings, said wings projecting from both faces of the roller.

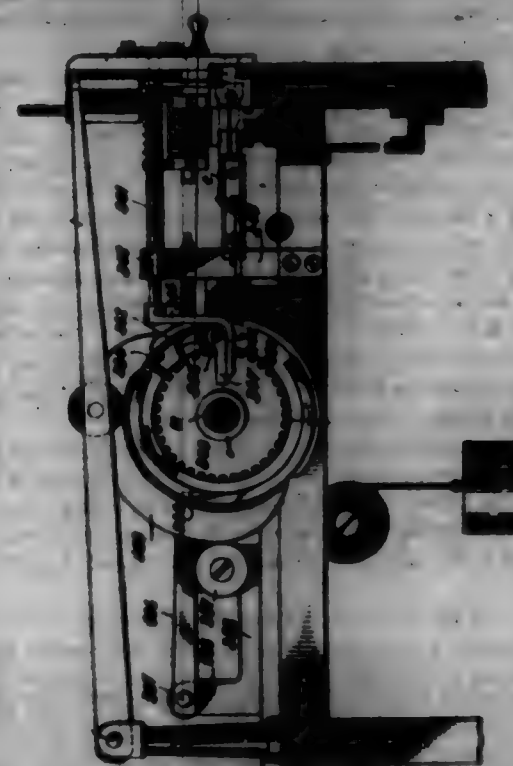
7. In an ore-separator, the combination with an open-ended rotatable casing carrying journals at its ends, of an intermediate annular stop-flange arranged upon the interior of the casing, an annular rotating-roller carried by the stop-flange and spaced from the casing, said roller being provided with inclined escape-openings, inclined wings carried by the roller and projecting from both faces thereof, and other-ways located longitudinally upon the inner face of the casing and projecting into the space between the roller and the casing-wall.

8. In an ore-separator, the combination with an open-ended rotatable casing carrying journals at its ends, of an intermediate annular stop-flange arranged upon the interior of the casing, an annular rotating-roller carried by the stop-flange and spaced from the casing, said roller being provided with inclined escape-openings, inclined wings carried by the roller and projecting from both faces thereof, and other-ways

located longitudinally upon the inner face of the casing, and projecting into the space between the roller and the casing-wall.

9. In an ore-separator, the combination with a casing, of a stop-flange located in the casing, a rotating-roller carried by the flange and spaced from the inner face of the casing to form a pocket, said roller having a plurality of openings therethrough, a plurality of wings carried by the flange and disposed within the pocket, and a rib located longitudinally upon the inner face of the casing and having one end arranged within the pocket.

700,712. **MACHINE FOR JUSTIFYING TYPE.** JOHN WATSON, BROOKLYN, N. Y., assignor, by mesne assignments, to Edwin C. Hoyt and Felix Rosen, New York, N. Y. Filed June 20, 1901. Serial No. 68,958. (No model.)



Claim.—1. The combination of a rotating shaft driven from a suitable source of power; a cog-wheel on said shaft; an annular ring running loosely on said shaft, surrounding said cog-wheel; a pivoted dog controlled by a spring in the periphery of the ring, arranged to engage with the cog-wheel; a cam upon the shaft, engaging with a block upon the bar, arranged to hold the bar normally out of operation except when the block is moved off of the cam by the rotation of the shaft; mechanism, substantially as described, actuated by the foremost space-bar in the line-holder, for throwing the dog in and out of engagement at the proper instant; and means for preventing the mechanism from returning to normal position while each space-bar is being withdrawn from the line-holder.

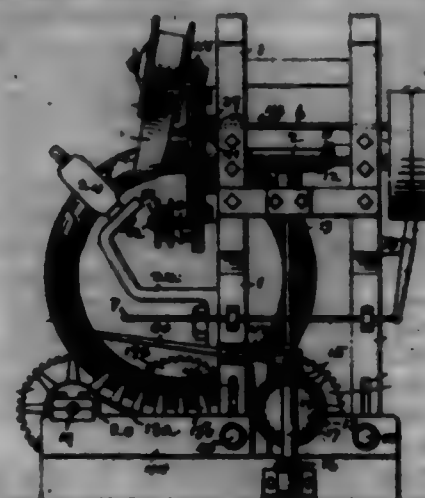
2. The combination of a rotating shaft driven from a suitable source of power; a cog-wheel on said shaft; an annular ring running loosely on said shaft, surrounding said cog-wheel; a pivoted dog controlled by a spring in the periphery of the ring, arranged to engage with the cog-wheel; a cam upon the shaft, engaging with a block upon the bar, arranged to hold the bar normally out of operation except when the block is moved off of the cam by the rotation of the shaft; mechanism, substantially as described, actuated by the foremost space-bar in the line-holder, for throwing the dog in and out of engagement at the proper instant, and a cam-ring of suitable length, attached to the face of the cam along its periphery, for holding the end of the bar lever out of engagement with the connecting mechanism during a complete revolution of the cam.

700,718. **MACHINE FOR JUSTIFYING (SETUP) TYPE.** GEORGE F. WATSON and GEORGE H. WATSON, WASHINGTON, D. C., assignors of one-half to Wright and Collins Wire Cloth Company, Worcester, Mass., a corporation. Filed Jan. 5, 1901. Serial No. 68,959. (No model.)

Claim.—1. In a machine for covering coils of wire, the combination of means for supporting a coil of wire in a vertical position and on its lower edge, a fixed annular track for a rotating spool-carrier placed above said coil-support, said track having on its lower side a gap to receive the coil of wire with said gap in the vertical plane of said coil-support and a carrier adapted to rotate on said annular track, substantially as described.

2. In a machine for covering coils of wire, the combination of means for supporting a coil of wire in a vertical position and on its lower edge,

a fixed annular track for a rotating spool-carrier placed above said coil-support, said track having on its lower side a gap to receive the coil of wire, with said gap in the vertical plane of said coil-support and a carrier adapted to rotate on said annular track, said carrier having a gap to receive the coil of wire, means for rotating said carrier, and means for stopping said carrier with its gap corresponding with the gap in said track, substantially as described.



3. The combination of means for supporting and rotating the coil of wire to be covered, an annular carrier for carrying the covering material around the coil of wire, means for rotating said carrier, a stopper for controlling the rotation of said carrier, a projection on said carrier, and a movable stop arranged to be carried into the path of said projection synchronously with the movement of said stopper, substantially as described.

4. The combination of means for supporting and rotating the coil of wire to be covered, an annular carrier for carrying the covering material around the coil of wire, means for rotating said carrier, a projection on said carrier, and a movable stop arranged to be carried into the path of said projection, substantially as described.

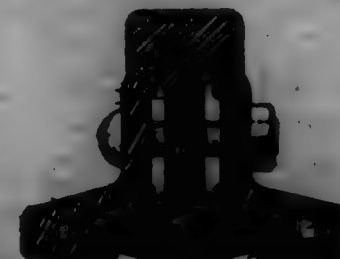
5. The combination of means for supporting the coil of wire on its edge in an upright position, means for rotating the coil, a pair of rolls bearing against the sides of the coil near its upper edge to maintain it in an upright position, an annular track including one side of the coil, a carrier rotating in said track, and means for rotating said carrier, substantially as described.

6. The combination of means for supporting the coil of wire on its lower edge and in an upright position, means for rotating the coil, means for maintaining the coil in an upright position, an annular track including one side of the coil, a carrier rotating in said track, and means for rotating said carrier, substantially as described.

7. In a machine for covering coils of wire, the combination with a fixed annular track for a rotating carrier including the coil to be covered, a pair of rolls and a belt carried by said rolls and forming the support for the coil and means for raising and lowering said rolls to bring the inclined section of the coil concentric with said annular track, substantially as described.

8. In a machine for covering coils of wire, the combination with rotating covering mechanism, of a coil-support consisting of a pair of pulleys having parallel, horizontal axes, and a notched belt carried by said pulleys, said belt having a gripping upper surface whereby the notched edges of the belt engage the sides of the coil, substantially as described.

700,714. **RAILWAY-RAIL JOINT.** FRANK C. ANDERSON, CHICAGO, ILL., assignor of two-thirds to George W. Hoyt and Goodwin F. Hoyt, Chicago, Ill. Filed Mar. 13, 1901. Serial No. 68,960. (No model.)



Claim.—1. In railway-rail joints, the combination of the abutting ends of the rails, a low wedge-plate fitted to the under sides of said abutting ends of the rails, said low wedge-plate being beveled on its under side and thinned gradually toward its edges, fish-plates applied to each side of the abutting rails with their upper edges bearing against the under side of the head of the rail and having foot-plates of the same length as the fish-plate and base wedge-plate, said foot-plates bearing on the ap-

per side of the foot of the rail and extended around the outer edge thereof beneath the base wedge-plate and having their upper sides beveled to conform to the level of the wedge-plate, and clamping-bolts passed through said fish-plates and rails for uniting the parts, substantially as described.

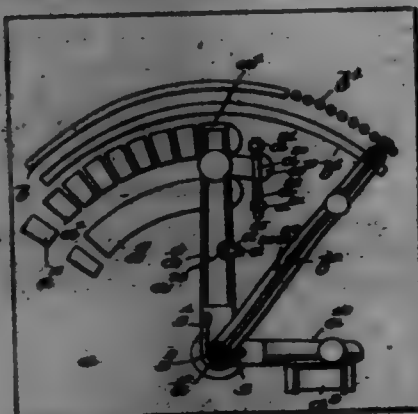
2. In railway-rail joints, the combination of the shunting ends of the rails, a fish-plate applied to each side thereof with its upper edge bearing on the under side of the foot of the rail and having a footpiece bearing on the upper side of the foot of the rail and extended around the outer edge thereof to the under side with a beveled upper side, at its inner end, a base wedge-plate fitted to the under side of the foot of the rail with an upward flange at one side and having beveled under sides engaging the beveled sides of the under parts of the footpieces, and clamping-bolts passed through said fish-plates and rails for uniting the parts, substantially as described.

3. In railway-rail joints, the combination of the shunting ends of the rails, a fish-plate applied to each side thereof with its upper edge bearing on the under side of the foot of the rail and having a footpiece bearing on the upper side of the foot of the rail and extended around the outer edge thereof to the under side with a beveled upper side as its inner end, a base wedge-plate fitted to the under side of the foot of the rail with a downward corner to engage the lower side of the footpiece and having beveled under sides engaging the beveled sides of the under parts of the footpieces, and clamping-bolts passed through said fish-plates and rails for uniting the parts, substantially as described.

4. In railway-rail joints, the combination of the shunting ends of the rails, a fish-plate applied to each side thereof with its upper edge bearing on the under side of the foot of the rail and having a footpiece bearing on the upper side of the foot of the rail and extended around the outer edge thereof to the under side with a beveled upper side at its inner end, a base wedge-plate fitted to the under side of the foot of the rail with an upward flange at one side and with downward corners at the opposite side to engage the lower side of the footpiece and having beveled under sides engaging the beveled sides of the under parts of the footpieces, and clamping-bolts passed through said fish-plates and rails for uniting the parts, substantially as described.

5. In railway-rail joints, the combination of the shunting ends of the rails, a base wedge-plate fitted to the under sides of said shunting ends of the rails, said base wedge-plate being beveled on its under side and thinned gradually toward its edges, fish-plates applied to each side of the shunting rails with their upper edges beveled and bearing against the beveled under side of the foot of the rail and having footpieces of the same length as the fish-plates and base wedge-plates, said footpieces bearing on the upper side of the foot of the rail and extended around the outer edge thereof beneath the base wedge-plate and having their upper sides beveled to conform to the level of the wedge-plate all of said bevels having the same angle, and clamping-bolts passed through said fish-plates and rails for uniting the parts, substantially as described.

700,715. OPERATING MECHANISM FOR MOTOR-ELECTRICITY. JAMES I. AYER, Milton, Mass., assignor to the American Electric Company, Boston, Mass., a Corporation of Massachusetts. Filed Feb. 17, 1902. Serial No. 94,261. (No model.)



Claim.—1. In a device of the kind described, armature-control mechanism, field-control mechanism, means for locking said armature-control mechanism in short-circuit position, and means preventing the operation of said field-control mechanism until the armature-control mechanism has arrived at said short-circuit position.

2. In a device of the kind described, a rheostat, comprising a field-control lever and resistance therefor, an armature-control lever and resistance therefor, and means for positively moving the field-lever back to neutral position when the armature-lever is moved back to neutral position.

3. In a device of the kind described, armature-control mechanism, field-control mechanism, the latter requiring movement independent of the former for placing it in operative position, and a locking device for

locking the said two mechanisms together until the armature-control mechanism has been moved to short-circuit position.

4. In a device of the kind described, armature-control mechanism, field-control mechanism, the latter requiring movement independent of the former for placing it in operative position, a locking device for locking said two mechanisms together until the armature-control mechanism has been moved to short-circuit position, and means for then automatically unlatching said two mechanisms to permit said independent movement of said field-control mechanism.

5. In a device of the kind described, armature-control mechanism, field-control mechanism, means for locking said armature-control mechanism in short-circuit position, said field-control mechanism being operable independently of said armature-control mechanism when the latter is locked, and means controlled by the motor-circuit for automatically shifting said field-control mechanism and unlatching said lock upon interruption of said motor-circuit.

6. In a device of the kind described, field-control mechanism including a lever and a series of resistances, armature-control mechanism including a lever and a series of resistances, and means under the electrical control of the motor-circuit for automatically shifting said field-lever to cut out the field resistance before movement of the armature-lever.

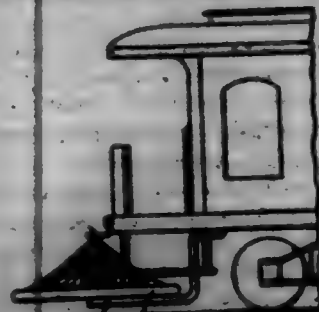
7. In a device of the kind described, field-control mechanism including a lever and a series of resistances, armature-control mechanism including a lever and a series of resistances, means under the electrical control of the motor-circuit for automatically shifting said field-lever to cut out the field resistance before the movement of the armature-lever, and means cooperating therewith for withdrawing the field-lever and putting it into inoperative condition until the armature-lever has been put in short-circuit position for again starting the motor.

8. In a device of the kind described, a rheostat including field resistance, armature resistance, and independently-movable levers therefor, means for locking said two levers together excepting when the armature-lever is in its short-circuit position, and means for automatically unlatching said levers when the armature-lever is moved to its short-circuit position.

9. In a device of the kind described, an armature-control lever, resistance therefor, a spring-actuated device held under tension by the passage of current in the motor-circuit, a field-control lever, and resistance therefor included in a short field-winding, said field-control lever being located between said armature-control lever and said spring device, interruption of the remaining current of said spring-actuated device permitting the latter to shift said field-control lever for cutting out the field resistance before movement of the armature-control lever.

10. In a device of the kind described, resistance in a short field-winding, armature resistance, independent levers therefor coaxially mounted, and automatic means for shifting said levers, said shifting means engaging and shifting the field-control lever for cutting out its resistance, before engaging and starting the armature-control lever.

700,716. FEEDER. ALEXANDER BOW, Atlanta, Ga. Filed Sept. 18, 1901. Serial No. 75,508. (No model.)



Claim.—1. In a feeder, a wheel and means for mounting same rotatably on the front of the conveyance near the roadway, in combination with a conical apron above said wheel and in operative relation thereto.

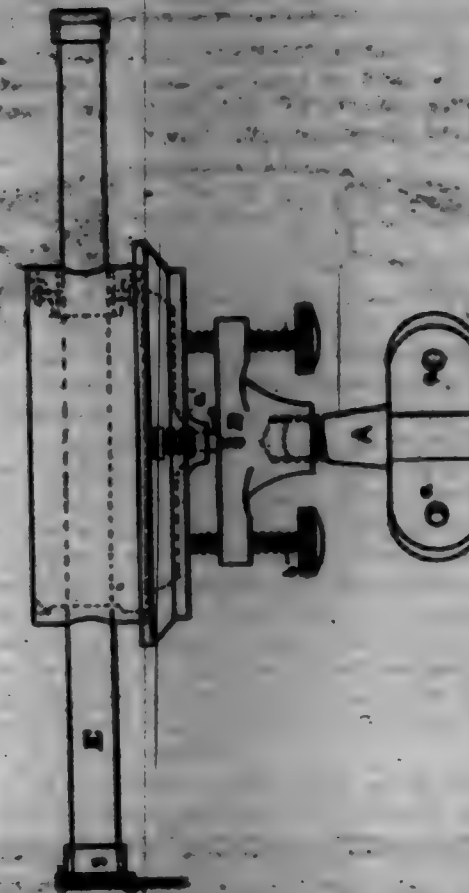
2. In a feeder, a wheel provided with a hub abnormally long on one end, a conical apron secured by its lower edge to said wheel and by its upper end to said hub near its distal end and means for rotatably mounting said wheel on the front of the conveyance and just above the roadway.

700,717. HITCHING AND THERAGING LEVEL. RAYMOND A. BOWEN, Atlanta, Ga. Filed Feb. 12, 1901. Serial No. 57,008. (No model.)

Claim.—1. In a leveling instrument, a sighting-tube and means for leveling same, and a right-adjointing device consisting of a plate secured to one end of said tube, and a disk rotatably mounted on said plate having a series of holes therein at different radial distances adapted to register with said tube.

2. In a leveling instrument, a sighting-tube and means for leveling

same, and a right-adjointing device consisting of a plate secured to one end of said tube, and a disk rotatably mounted thereon having a series of holes therein at different radial distances and a hook adapted to engage said disk for locking the same.



3. In a leveling instrument, a sighting-tube and means for leveling same, and a right-adjointing device consisting of a plate secured to one end of said tube and a disk rotatably mounted on said plate and having a series of holes therein, at different radial distances, and means for locking same consisting of a spiral-spring coil having its end bent laterally into contact with and within said disk and a return-band projecting on the other side and adapted to engage the disk.

4. In a leveling instrument, a sighting-tube having a clevis end and its upper side, means for leveling said sighting-tube, on a smaller turret provided with parallel edges and fitting said end and having, at diametrically opposite points, apertures, one of which is elongated vertically, and a sighting-tube located in the aperture in said turret and adjusting-covers located in one of said apertures for the purpose of adjusting said tube.

700,718. MINING-CAR. DANIEL I. BOWEN, Birmingham, Ala., assignor of one-half to Arthur H. Brown, Birmingham, Ala. Filed Aug. 12, 1901. Serial No. 71,705. (No model.)



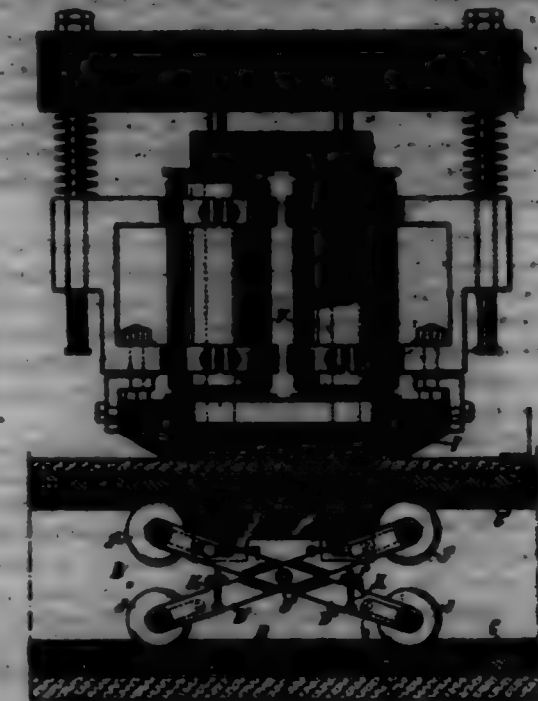
Claim.—1. In a mining-car, the combination of a body, substantially U-shaped cross-section to the body and provided with laterally-projecting spindles located above the plane of the bottom of the body, wheels mounted upon said axles, and spring-metal braces secured to the axles and provided with engaging members for detachable connection with the sides of the body, substantially as described.

2. In a mining-car, the combination of a body, axles supporting the body, wheels mounted upon said axles, and braces extending from the axles and detachably connected with the sides of the body to prevent swaying of said body, substantially as described.

3. In a mining-car, the combination of a body, axles supporting the body, wheels mounted upon said axles, and braces extending from the axles and having spring-chaps to engage the sides of the body to prevent swaying of said body, substantially as described.

REISSUES.

11,991. ELECTRIC-RAILWAY SYSTEM. GEORGE I. CAMPBELL, New York, N. Y., assignor to the International Electric Traction Company, New York, N. Y., a Corporation of West Virginia. Filed Mar. 27, 1891. Serial No. 68,128. Original No. 693,511, dated Aug. 31, 1896.



Claim.—1. In an electric-railway system, a conduit having a sectional main conductor, a trolley mounted to travel in said conduit in contact with said sectional conductor and carrying an armature arranged to be acted upon by the magnets of a moving car to cause the trolley to slide along the conduit, a sectional surface conductor separated from and external to said conduit and electrically connected with the sectional main conductor by the interior of the conduit, and a contact-piece on the car for contact with the said sectional surface conductor, substantially as shown and described.

2. In an electric-railway system, a conduit containing a main conductor consisting of two separated members, one of which is connected with a source of electricity and the other of which is external, a trolley mounted to travel on the two members of the said main conductor to electrically connect the members, a sectional surface conductor at one side of the said conduit and electrically connected with the external member of the main conductor and a contact-piece moving with the car and in engagement with the said sectional surface conductor, substantially as shown and described.

3. In an electric-railway system, a conduit having continuous and sectional main-conductor members, a trolley mounted to travel in said conduit in contact with said conductor members and carrying an armature arranged to be acted on by the magnets of a moving car, the said trolley being capable of opening up or falling in to establish or break connection with the members of the main conductor in the conduit when the trolley is under magnetic influence or not, a sectional surface conductor separated from and external to said conduit and electrically connected with the sectional main-conductor member in the interior of the conduit and a contact-piece on the car for contact with said surface conductor, substantially as shown and described.

4. In an electric-railway system, a closed conduit, if conductor connected with a source of electricity extending along the bottom of the conduit, a sectional conductor extending along the top of the conduit, a trolley mounted to travel in the conduit to connect the conductors at the top and bottom of the same, a sectional surface conductor external to and separated from said conduit and means to electrically connect the sections of said surface conductor with the sections of said sectional conductor at the top of the conduit.

5. In an electric-railway system, a conduit carrying a main conductor, a trolley mounted to travel therein and capable of opening up or falling in to establish or break connection with the members of the main conductor in the conduit when the trolley is under magnetic influence or not, and a trolley-support for the said trolley and thrown into action when the trolley falls up, to support the trolley in an upright position in the conduit, substantially as shown and described.

6. In an electric-railway system, a trolley capable of making connection between two conductors when the trolley is under magnetic influence and arranged to break connection between the conductors when the magnetic influence ceases, and means for supporting the trolley in its

upright position when connection between the conductors is broken, substantially as described.

7. In an electric-railway system, a trolley capable of making connection between two conductors when the trolley is under magnetic influence, and arranged to break connection between the conductors when the magnetic influence ceases, said trolley having members comprising two pivoted members connected with each other at or near their middle by a transverse pivot and adapted to open up or fold, substantially as set forth.

8. In an electric-railway system, a trolley capable of making connection between two conductors when the trolley is under magnetic influence, and arranged to break connection between the conductors when the magnetic influence ceases, said trolley having members pivotedly connected with each other to open or fold, and a trolley-support carried by one of the members, and adapted to be actuated by the other member when the members fold, to hold the trolley in an upright position.

9. In an electric-railway system, a conduct having internal conductors, a trolley mounted to travel in said conduct, said trolley having pivoted members adapted to open up to establish connection between said conductors and to fold up or close to break the connection between said conductors, and a support for the trolley furnished on the frame and moved into active position by the closing of the trolley members, substantially as shown and described.

10. In an electric-railway system, a conduct having internal conductors, a trolley mounted to travel in said conduct, said trolley having pivoted members adapted to open up to establish connection between said conductors and to fold up or close to break the connection between said conductors, and a support carried by one of the members, and adapted to be actuated by the other member on the closing of the trolley, to bring the support in engagement with the lower surface of the conduct, to support the trolley in an upright position when folded and out of engagement with one of the conductors, substantially as shown and described.

11. In an electric-railway system, a trolley comprising a frame having pivoted members, bottom and top wheels on said members, and an armature slidably mounted on said members, substantially as shown and described.

12. In an electric-railway system, a trolley comprising a frame having two members pivotedly connected with each other at or near their middle, wheels journaled on the ends of said members, and an armature carried by the upper portions of the members, substantially as shown and described.

13. In an electric-railway system, a trolley comprising a frame having two members pivotedly connected with each other at or near their middle, wheels journaled on the ends of said members, and an armature carried by the upper portions of the members, the armature having a sliding connection with said portions, substantially as shown and described.

14. In an electric-railway system, a trolley comprising a frame having two members pivotedly connected with each other at or near their middle, wheels journaled at the ends of the said members, and a support for the trolley carried by said frame, and adapted to be moved into an active position when the two pivoted frame members close, substantially as shown and described.

15. In an electric-railway system, a trolley comprising a frame having two members pivotedly connected with each other at or near their middle, wheels journaled at the ends of the said members, and a support for the trolley carried by said frame, and adapted to be moved into an active position when the two pivoted frame members close, said support consisting of levers pivoted to the lower portions of the frame members, and extending with one end into the path of the upper frame members, substantially as shown and described.

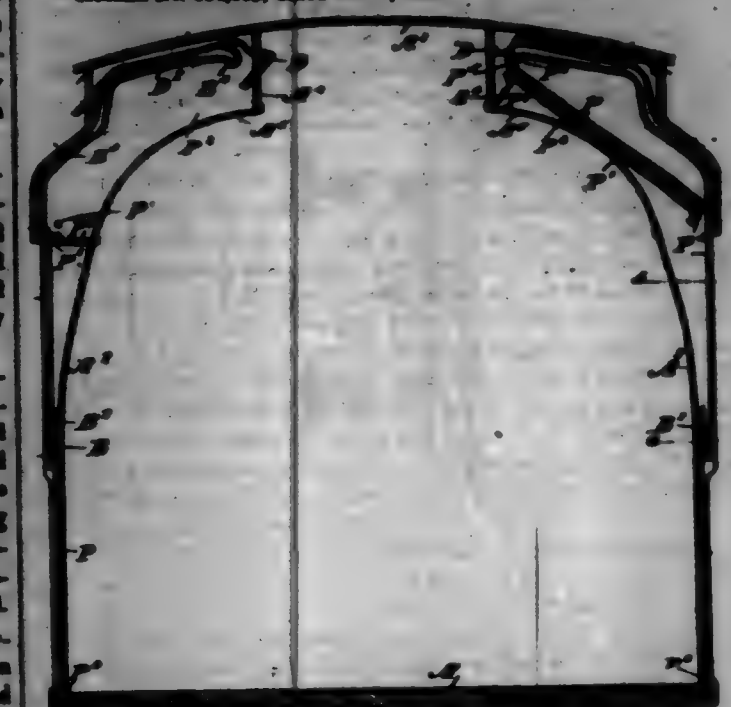
16. In an electric-railway system, a conduct carrying a conductor, a trolley arranged to travel in said conduct and comprising a frame having pivoted members free to swing into an open or closed position, and an armature for the magnets on the car, the said armature being carried by the upper portion of the members of the trolley-frame and having side flanges, substantially as described.

17. In an electric-railway system, a conduct containing a main conductor comprising upper and lower members, each having a longitudinal groove in its inner face, a trolley comprising a frame having pivoted members, bottom and top wheels on said members and adapted to travel in the groove in the conductor, and an armature carried by the members of the trolley-frame the said armature being formed on its top with a central portion fitting loosely in the groove of the upper member of the conductor, and also having side flanges extending to the sides of the said member of the conductor, whereby the armature presents a large top surface to the influence of the magnets on the car, substantially as described.

18. In an electric-railway system, a conduct carrying a conductor, a trolley arranged to travel in the conduct and having members pivotedly connected with each other to open or close, and a trolley-support consisting of levers furnished on the lower portions of the members to swing in a transverse direction, the upper or lower ends of said levers extending in the path

of the corresponding upper portion of the frame members and adapted to be engaged thereby to swing the levers outward when the frame members close, the outer or free ends of said levers being adapted to engage the sides of the conduct when the levers are swung outward, substantially as described.

11,999. CONVERTIBLE CAR. JOHN O'LEARY, Coburn, N. Y., assignor, by direct and license assignments, of Five-sixths to Le Roy Vermeulen, Coburn, N. Y. Filed Mar. 21, 1902. Serial No. 90,299. Original No. 694,993, dated Jan. 1, 1901.



Claim.—1. In a convertible car, the combination with the dashed roof, grooved roof-supporting ribs, and a series of inflexible slide-panels vertically movable in the rib-grooves; of a corresponding series of storage-chambers extending from one side of the car approximately to the top of the back of the car, substantially as described.

2. In a convertible car, the combination with a series of upwardly and inwardly inclined storage-chambers adjacent to the roof of the car; severally provided with oppositely-located apertures and inwardly inclined slideways; of a corresponding series of inflexible panels vertically movable in slideways in the vertical side walls of the car and severally provided with guides movable in the respective inclined chamber-slideways, substantially as described.

3. In a railway-car, the combination with a chamber extending from the raised deck to the side of the car; of a pair of ventilator-valves, one opening from the chamber through the upper side wall of the car exteriorly of the car, and the other opening from the chamber through the side wall of the deck interiorly of the car; and a connecting-link between the two valves, substantially as described.

4. In a convertible car, the combination with a pair of vertically-movable mutually-lapping panels; of a pair of panel-supporting ribs, each rib having, intermediate of its lower and upper ends, separate slideways for the respective panels, which slideways merge into each other and gradually increase in width and incline inwardly from the merging point toward the top of the car, substantially as described.

5. In a convertible car, the combination with a series of upwardly and inwardly inclined storage-chambers, adjacent to the car-roof; of a corresponding series of inflexible slide-panels each vertically movable in slideways gradually increasing in width from a point to the side wall of the car about midway of its top and bottom, to the mouth of the uppermost storage-chamber, where they correspond in width with such mouth, and a horizontal projection on the upper edge of a movable panel for closing the mouth of the chamber, substantially as described.

6. In a convertible car, having a dashed roof, the combination with an inclined dash-chamber extending upwardly and inwardly from the side of the car and provided at its outer and lower end with a downwardly-opening mouth, of a guideway extending in an irregular path from a point near the mouth of such chamber in close proximity to the outer and upper wall of such chamber approximately to the top of the deck; panel-supporting vertical ribs, and an approximately straight and inflexible panel provided with a guide on its upper end movable along said guideway, substantially as described.

7. In a convertible open and closed car, the combination of the sliding window casings and panels, one of said parts being formed with an abutment for the other to bear against and for maintaining one part from the other as they are raised, and means for supporting the casings and

panels in the space between the chamber-walls in the top of the car, substantially as described.

8. In a convertible open and closed car, the combination of the sliding window casings and panels, one of said parts being formed with an abutment for the other to bear against and for maintaining one part from the other when they are raised, and means for supporting the casings and panels in the space between the ceiling and roof of the car, substantially as described.

9. In a convertible open and closed car, the combination of the sliding window casings and panels, one of said parts being formed with an abutment having a recess to receive a portion of the other, so that the parts may be moved together and one be supported from the other when stored in the space between the ceiling and roof of the car, substantially as described.

10. In a convertible open and closed car, the combination of the sliding window casings and panels, members formed with ways to guide said parts when sliding; a plate or roller secured to one of said parts; and members formed with ways in the space between the ceiling and roof of the car to receive said plate and rollers for guiding said parts in said space, substantially as and for the purposes described.

11. In a convertible open and closed car, the combination of the sliding window casings and panels, means for maintaining said parts in a chamber in the upper part of the car; and ventilating-openings formed in the opposite walls of said chamber communicating respectively with the external atmosphere and with the interior of the car, and communicating with each other through said chamber, substantially as described.

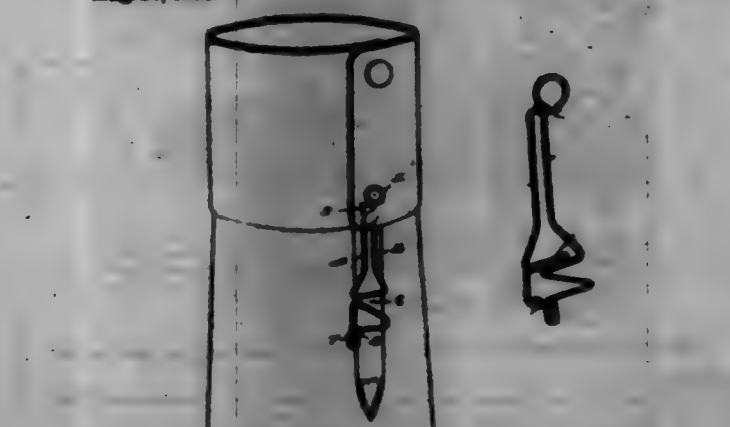
12. In a convertible open and closed car, the combination of the sliding window casings and panels, means for maintaining said parts in the space between the ceiling and roof of the car, and ventilating-openings formed in the ceiling and in the portion of the car outside of said space and communicating with the space between the ceiling and roof, substantially as and for the purposes described.

13. In a convertible open and closed car, the combination with the car-body having a panel-receiving recess or chamber extending inwardly from the side wall of the car, and side ribs provided with panel supporting and guiding grooves leading to said chamber; of an inflexible panel; means for guiding said panel along the grooved ribs and into and out of said chamber; and means for supporting said panel in an inclined position in said chamber.

14. In a convertible open and closed car, the combination with the car-body having a panel-receiving recess or chamber extending inwardly from the side wall of the car, and side ribs provided with panel supporting and guiding grooves leading to said chamber; of a plurality of inflexible panels; means for guiding said panels along the grooved ribs and into and out of said chamber, and means for supporting said panels in inclined position, one above another, in said chamber.

15. In a convertible car, the combination with the car-body having open sides, and a plurality of posts extending vertically across the open sides, and severally provided with vertical slideways and adapted to close the several intervals between the posts, a chamber in the upper part of the car adapted to receive the panels when raised; and provided with ventilating-apertures in its walls, means for retracting and controlling the ventilation through such apertures; and a movable bottom for said chamber, substantially as described.

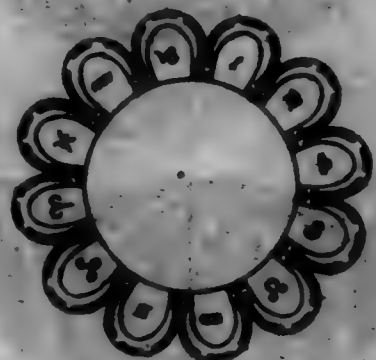
11,998. CUFF-HOLDER. WILLIAM THURMAN, Northport, Odo. Filed Apr. 9, 1902. Serial No. 148,126. Original No. 681,273, dated Aug. 27, 1901.



Claim.—A cuff-holder comprising a single piece of resilient wire bent to form a loop and diverging arms, the loop being offset from the plane of said arms, inwardly-projecting overlapping bands in said arms, constituting clamps to engage the shirt-sleeve, a loop at the end of one of said arms and a head at the end of the other arm for connecting said arms detachably.

DESIGNS.

85,916. POCKET-TIME OR SIMILAR ARTICLE. GEORGE A. KESTY-SUMMIT, Newark, N. J. Filed Jan. 26, 1902. Serial No. 91,299. Term of patent 7 years.



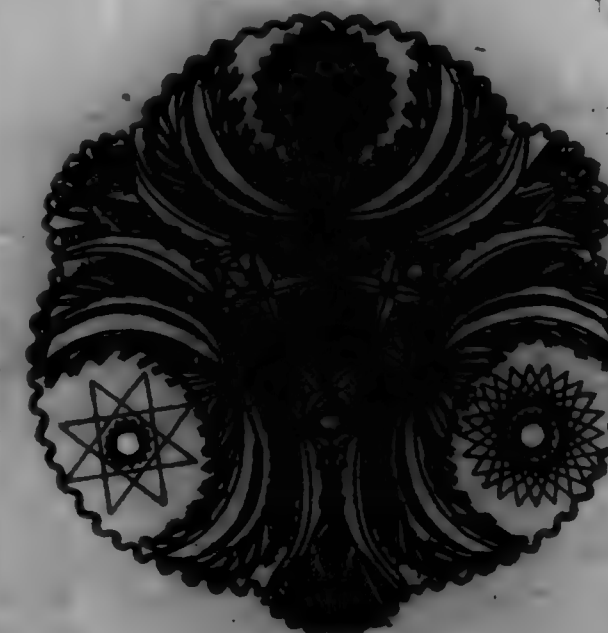
Claim.—The design for a pocket-piece or similar article substantially as shown and described.

85,917. CARD PLATE OR HOLDER. ORLANDO A. BROWNE, New York, N. Y., assignor to Standard Furniture Company, New York, N. Y., a Corporation of New York. Filed Mar. 20, 1902. Serial No. 100,000. Term of patent 14 years.



Claim.—The design for a card plate or holder, substantially as shown and described.

85,918. GLASS BOWL. EDWARD J. Egan, Chicago, Ill. Filed Apr. 20, 1902. Serial No. 104,596. Term of patent 24 years.

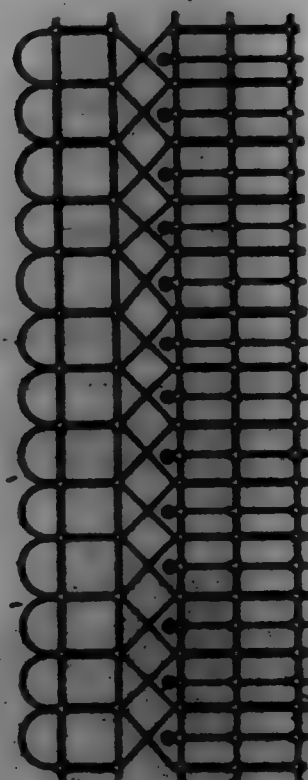


85,918.



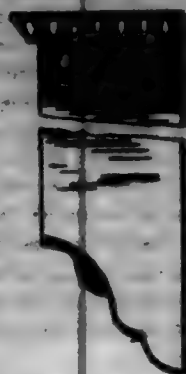
Claim.—The design for a glass dish, substantially as herein shown and described.

85,919. WIRE FENCE. JAMES F. BARNES, Fort Worth, Tex. Filed Jan. 21, 1902. Serial No. 80,750. Term of patent 14 years.



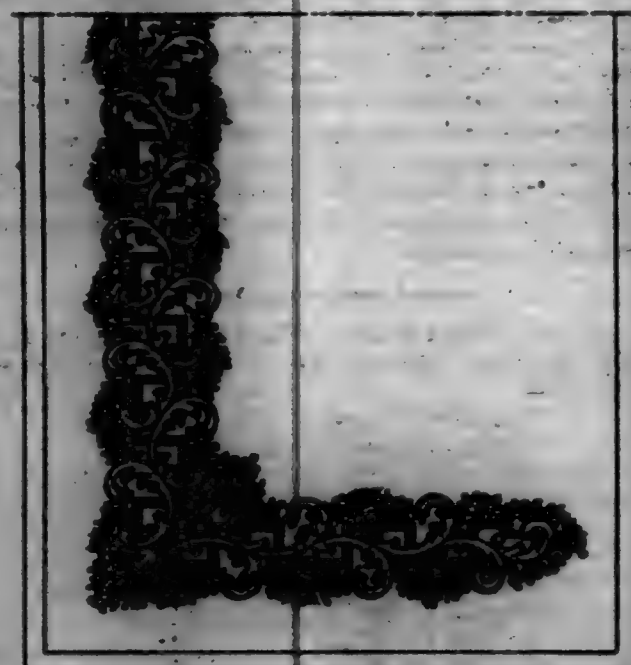
Claim.—The design for a wire fence, as herein described and illustrated in the accompanying drawing.

85,920. GAMING FIVE HOLDING COATS, UMBRELLAS, OR ALBERT A. HOLMES, Marshall, Mich. Filed Dec. 12, 1901. Serial No. 80,751. Term of patent 7 years.



Claim.—The design for a gaming five holding coats, umbrellas, or albert a. holmes, Marshall, Mich., substantially as shown and described.

85,921. LACE CURTAIN. ARTHUR BROWN, Philadelphia, Pa., assignor to Joseph H. Brown, Philadelphia, Pa. Filed Apr. 14, 1902. Serial No. 100,000. Term of patent 7 years.



Claim.—The design for a lace curtain, substantially as shown and described.

TRADE-MARKS

REGISTERED MAY 20, 1902.

88,385. TRANSPARENT WRAPPING-PAPER. HENRY LAMON, NEW YORK, N. Y. Filed Apr. 3, 1902.

JAPANIN

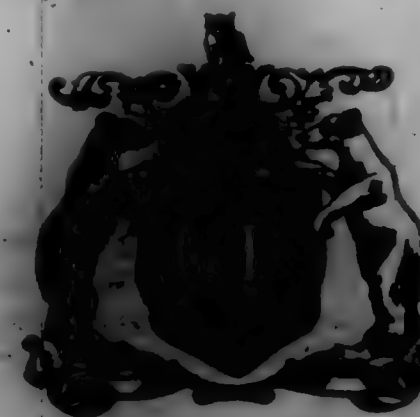
The word "JAPANIN." Used since October 15, 1896.

88,386. BOTTLE-CAP. HENRY LAMON, NEW YORK, N. Y. Filed Apr. 14, 1902.



The letters and character "H & L" and a surrounding diamond-shaped figure. Used since February 1, 1901.

88,387. CERTAIN MARKED FIVE SOON. GEORGE A. FROST, St. Paul, Minn. Filed Dec. 21, 1901.



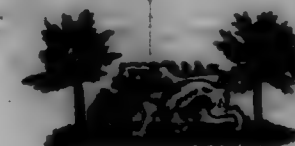
The representation of a shield upon a background of fur, having upon its face a Greek cross with diagonal cross-lines and the symbol "G & F" above it, and a scroll of conventionalized foliage ornamented by a small wolf-like animal, at each side a bear in standing position, and below it a scroll. Used since September 1, 1901.

88,388. CERTAIN MARKED FIVE SOON. LAUREL COTTON MANUFACTURING CO., Lowell, Mass. Filed Dec. 12, 1901.



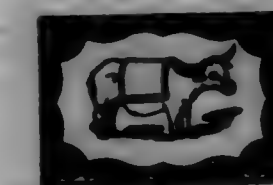
The conventional representation of a Chinese sun surrounded by a border. Used since September, 1901.

88,389. CERTAIN MARKED FIVE SOON. ARTHUR OTTO MEYER, Hamburg, Germany. Filed June 12, 1901.



The representation of a horrible sun of Chinese type holding a globe with one paw and flanked at either side by a palm-tree. Used since August 11, 1900.

88,390. CERTAIN MARKED FIVE SOON. ARTHUR OTTO MEYER, Hamburg, Germany. Filed June 12, 1901.



The representation of a water-buffalo enclosed by a shield-like border. Used since April 20, 1901.

88,391. WOOL, COTTON, HALF-WOOL, SILK, AND HALF-SILK FABRICS EXCEPT SILK VELVETS, AND COTTON, WOOL, AND SILK THREADS AND FIBERS. ARTHUR OTTO MEYER, Hamburg, Germany. Filed June 12, 1901.



The representation of an ornamented key arranged in the center of a horrible shield. Used since May 6, 1905.

88,292. CERTAIN HAIRED EYE BOWNS. ARTHUR OTTO MEYER. Hamburg, Germany. Filed June 12, 1901.



The representation of an anchor, on the cross-bar of which are seated two parrots facing each other. Used since February 8, 1895.

88,298. COTTON FABRIC. WARD, HANBURY & Co., London, England. Filed Mar. 4, 1902.



The representation of the head of a rhinoceros arranged above a shield divided into two fields, the upper one displaying a sunburst and the lower one downward-projecting flames, the whole being arranged above a ribbon displaying the motto "POST HOC PROPTER HOC." Used since March, 1898.

88,294. BOOTS AND SHOES. HANCO, BROTHERS & Co., Marshall, Minn. Filed Apr. 14, 1902.

THE UTILITY

The words "THE UTILITY." Used since April 5, 1902.

88,295. BOOTS AND SHOES. WILSON & WHITEHEAD, Campbell, Mass. Filed Apr. 7, 1902.

Waukerz

The word "WAUKERZ." Used since 1887.

88,286. LIQUID KEMERY FOR THE CURE OF FILM. CHARLES A. FURBER, Boston, Mass. Filed Jan. 4, 1902.



The letters "C A P" arranged in monogram form. Used since January 1, 1900.

88,297. MEDICATED TABLETS FOR THE CURE OF CERTAIN NAMED DISEASES. JAMES D. CLARK, Pueblo, Colo. Filed Mar. 2, 1902.

Lithron

The word "LITHRON." Used since June, 1899.

88,298. TOILET ORANGE OINTMENTS AND SOAP. IRVING A. HOLMES & Co., Brooklyn, Mich. Filed Mar. 21, 1902.

LANAZOIN

The word "LANAZOIN." Used since July 10, 1901.

88,299. ANTISEPTIC. SOCIÉTÉ ANONYME DES PRODUITS CHIMIQUES INDUSTRIELS, Lyons, France. Filed Oct. 30, 1901.

HERMOPHENYL

The word "HERMOPHENYL." Used since March 18, 1901.

88,300. GELATIN AND PREPARATIONS OF GELATIN. MILLIGAN & HIGGINS GUM CO., New York, N. Y. Filed Apr. 3, 1902.

WHITE-FROST

The words "WHITE FROST." Used since March 7, 1902.

88,301. MINERAL WATER. WINDOL MINERAL WATER COMPANY, Indianapolis and Warsaw, Ind. Filed Feb. 28, 1902.



The word "WINDOL" and a medallion bearing the representation of the head and shoulders of an Indian maiden, surrounded by a landscape scene comprising rocks and trees with wigwags in the background. Used since June, 1901.

88,302. BREAKFAST-FOOD, CRACKERS, AND BISCUITS. GARDNER'S BREAD CO., Lansing, Michigan. Filed Apr. 21, 1902.

EAT-A-BISCUIT

The hyphenated word "EAT-A-BISCUIT." Used since February 25, 1902.

88,303. WHEAT-FLOUR. FRANKLIN & ATTENSON, Minneapolis, Minn. Filed Apr. 2, 1902.

PAUL REVERE

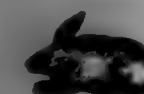
The words "PAUL REVERE." Used since February 21, 1902.

88,304. SOAP. NEW ORLEANS SOAP CO., LANSING, New Orleans, La. Filed Feb. 14, 1902.



The words "WHITE RABBIT" and the representation of a white rabbit. Used since January 24, 1902.

88,305. SOAP. NEW ORLEANS SOAP CO., LANSING, New Orleans, La. Filed Mar. 26, 1902.



The representation of a rabbit. Used since January 29, 1902.

88,306. LAUNDRY SOAP. HENRIKSON SOAP WORKS, Detroit, Mich. Filed Aug. 17, 1901.



The pictorial representation of the landing of Odette, as represented by an ancient statue containing the landing party, with the figure of Odette conspicuously shown standing in the bow, together with the flag of Louis XIV displayed over his head. Used since July 22, 1901.

88,307. CORN-OIL AND CORN-OIL CAKE. NATIONAL BRAND COMPANY, New York, N. Y. Filed Apr. 28, 1902.



The word "DIAMOND" and the representation of a diamond-shaped figure. Used since 1897.

88,308. PETROLEUM LUBRICATING AND LUBRICATING OILS. THE OILS COMPANY, New York, N. Y. Filed Apr. 10, 1902.



Mail-Coat

The monogram "QW" accompanied with the compound word "MAIL-COAT." Used since May 27, 1901.

88,309. CERTAIN HAIRED VARIETIES. GARDNER'S BREAD CO., Lansing, Michigan. Filed Mar. 14, 1902.

KISMET

The word "KISMET." Used since January 1, 1902.

88,310. THERMOMETER, JOURNAL GLASSWARE AND INSTRUMENTS. BROWN, DUNSTON & CO., New York, N. Y. Filed Apr. 14, 1902.

KOHINOOR

The word "KOHINOOR." Used since March 15, 1902.

88,811. **UWANTA.** STRASSER & CO., New York, N. Y. Filed Apr. 18, 1902.

Uwanta.

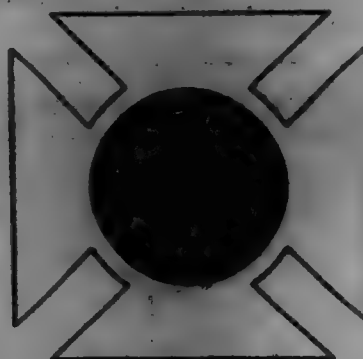
The word "UWANTA." Used since March 10, 1902.

88,812. **CHINA AND BARTHELEMY.** ARNOLD Goss Meyer, Hamburg, Germany. Filed June 12, 1902.



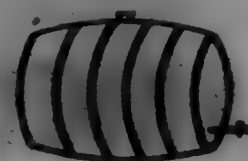
The representation of a palm-tree and an anchor placed across the trunk of the tree. Used since June 5, 1902.

88,813. **SHARKEN WARE.** A. GROSS, HAWAIIAN COMPANY, St. Louis, Mo. Filed Apr. 7, 1902.



A Maltese cross, in the center of which is a red circular figure. Used since January 1, 1901.

88,814. **CERTAIN NAMED OUTLINE.** DANIEL FRANK, Cologne, Germany. Filed Dec. 24, 1901.



The representation of a barrel. Used since July, 1900.

88,815. **CERTAIN NAMED RED-BOTTOMS AND BOTTLE.** THE NATIONAL SPRING BED-COMPANY, New-Britain, Conn. Filed Apr. 12, 1902.

RIP VAN WINKLE.

The word "RIP VAN WINKLE." Used since February, 1902.

THE MORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

88,816. **LORD DERBY.** THE CHURCHMAN & CO., Omaha, Neb. Filed Apr. 7, 1902.

LORD DERBY

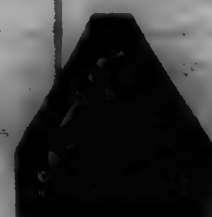
The word "LORD DERBY." Used since January 1, 1902.

88,817. **VERMILION.** NEW YORK BROWN & FLEMING CO., Ltd., New York, N. Y. Filed Jan. 12, 1902.



The representation of a crown-shaped view of a bottle-top where the fastenings are embedded, having thereon a clock-dial and the word "ON TIME TO THE MINUTE." Used since July 1, 1901.

88,818. **MOVING-MACHINE.** BARNES PATENT COMPANY, Chicago, Ill. Filed Apr. 12, 1902.



The representation of a detached half-section of a cutter-bar, seen from the top, and which has the two diverging ribs on the upper surface toward the center thereof and substantially parallel to the beveled cutting edges of the half-section. Used since February, 1902.

88,819. **RAVING-SULLEY PERILLA.** BARNES & COMPANY, New York, N. Y. Filed Dec. 24, 1901.

R-B-S

The letters "R-B-S." Used since June 1, 1901.

88,820. **WINE.** GROSS & COMPANY, Stockholm, Sweden. Filed Feb. 11, 1902.



The representation of a peninsula as a wave-line, from which small slender-balls are projected. Used since January 21, 1901.

LABELS

REGISTERED MAY 20, 1902.

9,143.—Title: "MALT WHEAT BISCUIT." (For a Food Product.) LAMBERT Good Food Co., Ltd., Marshall, Mich. Filed April 22, 1902.

9,144.—Title: "FLOTO'S BREAKFAST DRINK." (For Coffee Substitute.) THEODORE D. FLOTO, Brooklyn, N. Y. Filed April 22, 1902.

9,145.—Title: "BLUE LABEL PURE RYE WHISKY." (For Whisky.) C. F. SULLIVAN & Co., Boston, Mass. Filed April 22, 1902.

9,146.—Title: "O. L. TAYLOR PURE RYE WHISKY." (For Whisky.) C. F. SULLIVAN & Co., Boston, Mass. Filed April 22, 1902.

9,147.—Title: "SPECIAL RESERVE." (For Whisky.) CHOTT, VINCENT & Co., Baltimore, Md. Filed April 24, 1902.

9,148.—Title: "BALLOU'S ROSEGAY CIGARE." (For Cigars.) C. E. BALLOU, Blandinsville, Ill. Filed April 9, 1902.

9,149.—Title: "KING SETL." (For Cigarettes.) A. COSTAKIS, San Francisco, Cal. Filed April 15, 1902.

9,150.—Title: "TOURADIF CANADIAN BOOT GREASE." (For Boot-Grease.) DAVID T. ABERCROMBIE, Newark, N. J. Filed April 22, 1902.

9,151.—Title: "EUCA LINE." (For Medicine.) IRVIN McGARRON ADAMS, New York, N. Y. Filed March 19, 1902.

9,152.—Title: "SALALGIN." (For Medicine.) DIXON & DELPOMME, Chicago, Ill. Filed April 24, 1902.

9,153.—Title: "HYDRASTOIDS." (For Medicine.) DIXON & DELPOMME, Chicago, Ill. Filed April 24, 1902.

9,154.—Title: "SPEEDY CURE." (For Medicine.) SNEYDY CURE REMEDY COMPANY, Coatesville, Pa. Filed July 28, 1900.

9,155.—Title: "COCA-CALISAYA." (For a Medicinal Preparation.) A. J. & G. E. COLEMAN, Boston, Mass. Filed April 22, 1902.

9,156.—Title: "TERRA GLYCOLINE." (For Position.) THE F. DORRIS COMPANY, Milwaukee, Wis. Filed April 24, 1902.

9,157.—Title: "CALDER'S SAPONACEOUS DENTINE." (For Dentifrice.) CHARLES A. CALDER, AUGUSTUS W. CALDER, and RICHARD A. ROBERTSON, Providence, R. I., executors and trustees of Albert L. Calder, deceased. Filed April 24, 1902.

9,158.—Title: "TENDERFOOT." (For Foot-Powder.) NEW ENGLAND CHEMICAL CO., Torrington, Conn. Filed April 22, 1902.

9,159.—Title: "DR. DANIEL'S VETERINARY CARBO-NE-GUB." (For a Disinfectant.) DR. A. C. DANIEL, Inc., Boston, Mass. Filed April 22, 1902.

PRINTS

REGISTERED MAY 20, 1902.

5006-8-1

None.

1502

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

FREDERICK C. FREDERICK AND FREDERICK.

Decided April 26, 1902.

1. INTERFERENCE—MOTION TO DISOLVE—NON-COMPLIANCE WITH RULES.

A motion to dissolve an interference brought after testimony has been taken and unaccompanied by a motion to transmit to the Primary Examiner and by no excuse for the delay is not brought in accordance with the rules and has no standing.

2. SAME—SAME—JOINT APPLICATION AND SOLE APPLICATION OF ONE OF JOINT APPLICANTS.

When an interference is declared between a joint application and a sole application of one of the joint applicants, the question of priority necessarily resolves itself into a determination as to whether the entity composed of the joint applicants ever made the invention at all. A motion to dissolve, therefore, which sets up as a reason for dissolution that the record shows that the joint applicants never made the invention is irregular, since it seeks to obtain a decision on the very question which is to be decided at final hearing.

On petition.

IT IS THE ORDER OF THE COMMISSIONER

Application of Alonso D. Frederick filed July 3, 1901, No. 31,334. Application of John C. and Alonso D. Frederick filed December 11, 1900, No. 30,578.

Mr. Thomas G. Orwig for Alonso D. Frederick.
Mr. J. R. Nottingham for John C. and Alonso D. Frederick.

ALLEN, Commissioner:

This is a petition from a decision of the Examiner of Interferences denying a motion to dissolve the above-entitled interference. The petitioner requests that—

* * * the Examiner be instructed to the effect that the motion has standing and should be heard upon its merits notwithstanding all the objections he has made to it.

It appears that this interference was declared between the joint application of Frederick and Frederick and the sole application of A. D. Frederick, one of the joint applicants. The preliminary statements were approved October 12, 1901. Testimony was taken by the respective parties and final hearing was set for March 24, 1902. On March 6, 1902, the motion to dissolve was filed by A. D. Frederick, the sole applicant. This motion was brought in view of certain facts appearing in the preliminary statements of the parties and in the answer by

J. C. Frederick in his response to cross-question 20, which facts, it is alleged, tend to prove that the invention was made by A. D. Frederick alone and that it is not a joint invention made by Frederick and Frederick.

The Examiner of Interferences held that the motion had no standing and denied the same. Thereupon the present petition was taken by A. D. Frederick.

It is clear from this statement of the facts appearing in the record that the motion to dissolve is, in effect, a motion based upon the ground that the party Frederick and Frederick has no right to make the claim in issue, and the alleged bar is created upon the disclosure in the interference proceedings.

Rule 123 provides that motions which deny a party's right to make the claim should be made, if possible, within twenty days after the approval of the preliminary statements and that they should be accompanied by a motion to transmit the same to the Primary Examiner. When motions to dissolve are filed outside this limit, a showing in excuse of the delay should be filed therewith.

Petitioner has complied with none of these requirements. Not only was his motion filed long after the period fixed by the rule had expired, but there was no motion to transmit filed therewith; nor was any excuse given for not presenting the motion earlier. Upon these grounds alone the holding that the motion has no standing was proper. It appears, however, that the motion is based upon matters arising out of the interference proceedings and sets up as a reason for dissolution that the record shows that Frederick and Frederick are not, in fact, joint inventors. In other words, this motion seeks to obtain a decision on the very question which is to be decided upon final hearing, for in an interference of this kind between an application of joint inventors and a sole application of one of them the question of priority necessarily resolves itself into a determination as to whether the entity composed of the joint applicants had ever made the invention at all. (*Kohler v. Kohler and Chambers*, 48 O. G., 247.) It is the purpose of such an interference proceeding to develop the facts and the truth as to this point. The decision

in a case of this kind should be made in the regular way and not in the way proposed by petitioner. The decision of the Examiner of Interferences that the motion to dissolve has no standing was correct, and it is accordingly affirmed.

EX PARTE LANDENBERGER.

Decided May 15, 1902.

RETURN OF FEE—ERROR IN JUDGMENT—CAVEAT.

Where a caveat is filed which fails to clearly disclose the invention, Held that the fee will not be returned as paid by mistake. An error in judgment does not warrant the return of a fee.

ON petition.

FOUNT-BAR FOR LACE-KNITTING MACHINES.

Caveat of Gustav A. Landenberger filed March 20, 1902.

Mr. Ed. A. Kelly for the applicant.

ALLEN, Commissioner.

This is a petition that the filing fee paid in the above-entitled case be returned under the provisions of Rule 300 on the ground that it was paid by mistake. It appears from the record that after this caveat was filed the Examiner wrote a letter stating that the disclosure therein was insufficient to satisfy the provisions of Rule 188 and was not sufficiently clear to enable the Office to determine whether notice should be given the caveator in case of an interfering application. He further said:

The caveator should illustrate the application of his device to the existing machine which he seeks to improve, and he should fully describe its operation; or if he is not able at this time to describe the operation he should describe the manner in which he is seeking to accomplish the particular function which he has conceived for his apparatus.

Instead of complying with this requirement the caveator filed this petition for a return of the fee. He states that he believed that a statement of the broad purpose of his invention was sufficient to entitle him to notice of any application having in view the same broad purpose and that therefore the caveat was filed and the fee paid by mistake. He states, further, that he is unable to furnish the description of the invention as suggested and that he wishes to file an application as soon as his invention is completed.

It is apparent that the mistake, if any, was as to the effect which the caveat would have when filed. The rules set forth the requirements as to caveats, and in every case the inventor must determine for himself whether his ideas are sufficiently matured to enable him to convey a clear idea of the invention to others by a written description. It must be apparent to every one that a caveat which does not convey any certain idea of the invention is ineffective. If the applicant in this case has made a mistake, it is one of judgment in supposing that the caveat would disclose his ideas so that they could be understood. Such mistakes do not come within the provisions of the statute and Rule 300 relating to the return of money. (See *ex parte Ayres*, 51 O. G., 1944; *ex parte Hallberg*, 88 O. G., 1306; *ex parte Arakellon*, 85 O. G., 1077.)

The petition is denied.

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DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE CARNEGIE STEEL COMPANY, LIMITED, v. THE CAMBRIA IRON COMPANY.

Decided May 5, 1902.

1. PATENTS—JONES—MIXING PIG METAL—VALID AND INFRINGED. Letters Patent No. 404,414, granted to William R. Jones on June 4, 1889, for a method of mixing molten pig metal, Held valid and infringed. (Decision below, 98 F. R., 880, reversed.)

2. PROCESS—ANTICIPATION—ONE STEP NEW.

Where the patentee's process of mixing molten metal drawn from several blast-furnaces includes retaining at all times a substantial quantity of molten metal in the mixer and this step is what adds value to the process and makes it a success, Held not anticipated by mixing devices in which the metal might be retained when the users did not contemplate such use or understand its advantage.

3. SAME—SAME—SAME—RESULT LONG SOUGHT FOR.

Where the manufacturers of steel had spent years in endeavoring to find out a process for accomplishing the results of this invention which is but a step from what they already knew, it is surprising with the wisdom which comes after the fact that they did not discover it.

4. SAME—SAME—PROCESS NOT ANTICIPATED BY APPARATUS.

To anticipate a process patent it is necessary not only to show that the prior patent might have been used to carry out the process, but that such use was contemplated or that it would have occurred to an ordinary mechanic in operating the device.

5. SAME—SAME—APPARATUS AND PROCESS DISTINGUISHED.

A mechanical patent is anticipated by a prior device of like construction and capable of performing the same function, but it is otherwise with a process patent. A process patent can only be anticipated by a similar process.

6. SAME—SAME—FUNCTION OF MACHINE.

If a process is the mere function of a machine, another machine capable of performing the same function might be an anticipation; but this is not because a process can be anticipated by a mechanism, but because the mere function of a machine is not patentable as a process at all.

7. CONSTRUCTION OF CLAIM—SPECIFICATION CONSIDERED—CLAIM BROAD IN THREE.

The second claim apparently extends to the art of mixing all molten metals; but the claim of a patent must always be explained by and read in connection with the specification, and when so considered this claim clearly includes metal from blast-furnaces. It is not rendered void by the possibility of its including cupola metal.

8. SUFFICIENCY OF DESCRIPTION—PATENT ADDRESSED TO THOSE SKILLED IN THE ART.

The specification of the patent is not addressed to lawyers or even to the public generally, but to the manufacturers of steel, and any description which is sufficient to apprise them in the language of the art of the definite feature of the invention and to serve as a warning to others of what the patent claims as a monopoly is sufficiently definite to sustain the patent.

9. SAME—NEED NOT DESCRIBE WHAT IS OLD IN THE ART.

A patentee in describing his invention may assume that what is already known in the art is understood and may begin at the point where his invention begins and describe what he has made that is new and what it replaces of the old.

10. DISCLAIMERS—PROPERLY ADMITTED AFTER ARGUMENT.

Where after the argument the plaintiff was permitted to file a disclaimer to certain statements in the specification which were broader than the claims when construed as contended for, Held that the admission of the disclaimer was proper.

11. SAME—MAY REFER TO SPECIFICATION AS WELL AS CLAIM.

The power to disclaim is a beneficial one and ought not to be denied except when it is resorted to for a fraudulent and deceptive purpose. A disclaimer may extend to a part of the specification as well as to a claim.

12. SAME—CANNOT CHANGE INVENTION CLAIMED—REMARK.

A disclaimer the purpose of which is to reform or alter the description of the invention or convert the claim for one thing into something else is objectionable, since patents can only be amended for mistakes of this kind by a referee.

13. STIPULATION—CONTRARY TO EVIDENCE—NOT BINDING AFTER NOTICE.

Where a stipulation was signed to the effect that the amount of molten metal in the defendant's mixer varies from nothing to its full capacity, but upon the facts being more fully ascertained notice was given by the plaintiff that the stipulation in so far as it was contrary to the evidence would be repudiated, Held that the stipulation is not binding.

14. SAME—MAY BE REPUDIATED UPON PROPER NOTICE.

While a stipulation is undoubtedly admissible in evidence, it ought not to be used as a pifall, and where the facts subsequently developed show with respect to a particular matter that it was inadvertently signed counsel may upon giving notice in sufficient time to prevent prejudice to the opposite party repudiate any fact inadvertently incorporated therein.

ON writ of certiorari to the United States Circuit Court of Appeals for the Third Circuit.

STATEMENT OF THE CASE.

This was a bill in equity filed in the Circuit Court for the Western District of Pennsylvania by the Carnegie Steel Company against the Cambria Iron Company, for an injunction and the recovery of damages for the infringement of Letters Patent No. 404,414, issued June 4, 1889, to William R. Jones, of whom plaintiff was the assignee, for a "method of mixing molten pig metal."

In his specification the patentee declares that the—

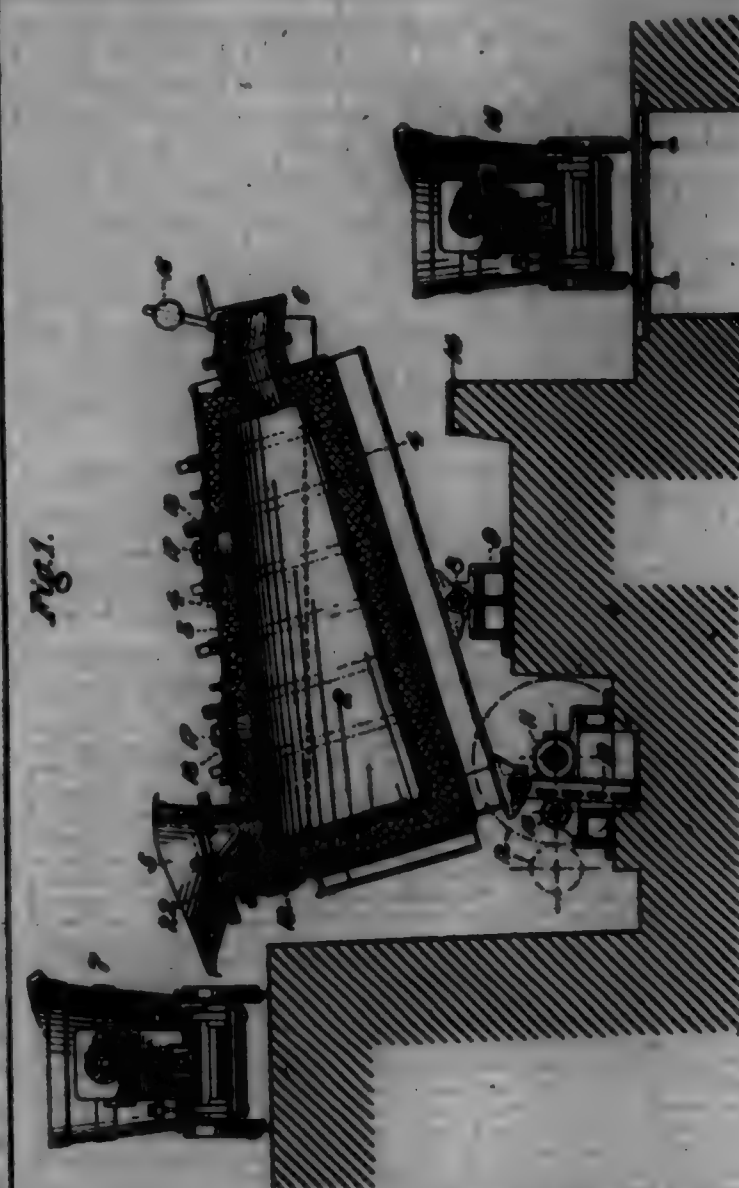
primary object of my invention is to provide means for refining the product of steel works uniform in chemical composition. In practice it is found that metal tapped from different blast-furnaces is apt to vary considerably in chemical composition, particularly in silicon and sulfur, and such lack of uniformity is observable in different portions of the same cast, and even in different portions of the same pig. . . . The consequence of this tendency of the silicon and sulfur to segregate or form pockets in the crude metal is that the product of the refining process in the converters or otherwise in like manner lacks uniformity in these elements, and therefore often causes great inconvenience and loss, making it impossible to manufacture all the articles of a single order of homogeneous composition. Especially is this so in the process of refining crude iron ladles from the smelting-furnaces and charged directly into the converter without remelting in a cupola, and, although such direct process possesses many economic advantages, it has on this account been little practiced.

For the purpose of avoiding the practical evils above stated, I use in the refining process a charge composed not merely of metal taken at one time from the smelting-furnaces, but of a number of parts taken from different smelting-furnaces, or from the same furnace at different casts, or at different periods of the same cast, and subject the metal before its final refining to a process of mixing, whereby its particles are diffused or mingled thoroughly among each other, and the entire charge is practically homogeneous in composition, representing in each part the average of the unequally diffused and segregated elements of silicon and sulfur originally contained in each of the several parts or charges. By proceeding in this way not only is each charge for the refining-furnace or converter homogeneous in itself, but, as it represents an average of a variety of uniform constituent parts, all the charges of the converter from time to time will be substantially uniform, and the products of all will be homogeneous.

To this end my invention may be practiced with a variety of forms of apparatus—for example, by merely receiving in a charging-ladle a number of small portions of metal taken from several ladles or receiving vessels containing crude metal obtained at different times or from different furnaces, the mixing being performed merely by the act of pouring into the charging-ladle, and other like vessels may be employed. (The claims in this case were subsequently disclaimed.) I prefer, however, to employ the apparatus shown in the accompanying drawings, and have made it the subject of a separate patent application, Serial No. 281,078, and, without intending to limit the invention to the use of that specific apparatus, I shall describe it particularly, so that those skilled in the art may intelligently employ the same. My invention is not limited to its use in connection with converters, since similar advantages may be obtained by casting the metal from the melting vessel into pigs for use in converters, puddling-furnaces, or for any other use to which pig-iron may be put in the art. (This paragraph subsequently disclaimed.)

(The apparatus is represented by the drawing here inserted.)

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Referring now to the drawings, 2 represents the reservoir here mentioned. It consists of a covered hollow vessel having an outer casing 3, of iron or steel, which is suitably braced and strengthened by interior beams and tie-rods, as shown in the drawings. The whole exterior of the vessel is lined with fire-brick or other refractory lining, which should be of sufficient thickness to retain the heat of the molten contents of the vessel and to prevent chilling thereof. The vessel is strongly braced and supported by braces and tie-rods, and may be of any convenient size, holding, say, one hundred tons of metal, (more or less,) and its shape is preferably such as shown in the drawings, being rectangular, or nearly so, in cross-section and an irregular trapezium in longitudinal section, one end being considerably deeper than the other. At the top of the deeper end, which I call the "rear" end, is a hopper 4, into which the molten metal employed in charging the vessel is poured, and as the front end is a discharge-spout 5, which is so located that the bottom of the spout is some distance above the bottom of the vessel—any two feet in a hundred-ton tank, and more or less, according to the capacity of the vessel—the purpose of which is that when the metal is poured out of the spout a considerable quantity may always be left remaining and unpoised, and that whenever the vessel is replenished there may already be contained in it a body of molten metal with which the fresh addition may mix. I thus secure, as much as possible, uniformity in character of the metal which is fed to and discharged from the tank, and cause the fluidity and quality of the successive tapplings to be very gradual.

For convenient use of the apparatus I have found it best to so arrange it that it be adapted to receive its charges of metals from cars or bogies 7, which run on an elevated track at about the level of the normal position of the hopper 4, and to discharge its contents into similar cars or bogies 8 on a track below the spout 4. In order to facilitate the charging and discharging of the metal, the vessel is put on journals or bearings 9, which have their bearings in suitable pedestals 10, and its rear end is provided with descending rock-holes 11, which are pivotedly connected with the bottom of the mixing vessel 2 and are in gear with pinions 12, the shaft of which is connected by a suitable engine 13 with the driving mechanism of a suitable engine. The pinions are held in gear with the rock-holes by idler wheels or rollers 14. As the journals or bearings are located on a transverse line somewhat in advance of the center of gravity of the vessel, it tends by its own weight to tilt backward into the position shown in Fig. 1, but may be returned to a level position by driving the pinions 12, and thus raising the rock-holes 11 until the front part of the bottom of the vessel comes in contact with a rest or stop 15.

The mode of operation of the apparatus is as follows: When the vessel is in the backwardly-tilted position shown in Fig. 1, it is ready to receive a charge of metal from the car 7. Before introducing the first charge, however, the mixing vessel should be heated by internal combustion of coke or gas, and

when the walls of the vessel are sufficiently hot to hold the molten metal without chilling it it is charged repeatedly from the cars 7 with metal obtained either from a number of furnaces or at different times from a single furnace. The charges of metal introduced at different times into the vessel, though differing in quality, mix together, and when the vessel has received a sufficient charge its contents constitute a homogeneous molten mass, whose quality may not be precisely the same as that of any one of its constituent charges, but represents the average quality of all the charges. If desired, the commingling of the contents may be aided by stirring or shaking of its liquid contents. The molten chamber being deeper at its rear than at the front end, as before described, and its normal position when not discharging metal for the purpose of casting being with the bottom inclined upward toward the front or discharging end, and the bottom of the spout being situated above the bottom of the vessel at its forward end, it is adapted to receive and hold a large quantity of molten metal without its surface rising high enough to enter the discharge-spout.

The discharge-spout 5 is furnished with a movable cover operated by a weighted lever 11, which, when closed, serves to exclude the outside air and prevent a draft of air through the vessel and the consequent rapid cooling of the molten contents. If care is exercised in lowering the cover closed, the metal can be kept in a fluid condition for a long time, the heat being kept up by repeated fresh charges of molten metal, and, if necessary or found desirable, by burning gas introduced by a pipe or pipes into its interior.

After the vessel is properly charged, the metal is drawn off into the cars 15 from time to time, as it is needed, by opening the door or cover 18 of the spout 5 and driving the engine 12, so as to elevate the rear end of the vessel and tilt it forward, and thus to discharge any required amount of its contents in the manner before explained into the cars 15, which are transported to the converters, or the metal is cast into pigs or otherwise used. (Italics disclaimed.) The tilting of the vessel does not, however, drain off all the contents thereof, a portion being prevented from escaping by reason of the elevated position of the spout 5, and as the vessel is replenished from time to time each new charge mixes with parts of previous charges remaining in the vessel, by which means any sudden variations in the quality of the metal supplied to the converter is avoided. Instead of discharging the metal into the cars 15 and carrying it in the cars to the converters or casting-house, the vessel 2 may be so situated relatively to the other parts of a furnace plant as to deliver its contents immediately to the converters or other place where it is to be utilized. I find it in practice very advantageous to employ two or more mixing vessels constructed substantially as I have described, and to draw a portion of each converter charge from each of the mixing vessels. My invention is, however, not limited to the employment of two or any specific number of such vessels.

I shall now describe, briefly, other parts of the apparatus which are desirable and important in its practical use.

At the top of the vessel 2 are manholes 17, designed to permit of access to its interior for the purpose of repairing or fixing the lining. These holes are provided with suitable covers 18 to exclude cold drafts of air from entering the interior. There is also a hole 19 at the rear end of the vessel near the top, through which a rammer may be inserted for the purpose of assisting or accelerating the melting of the molten metal, and at the other end, at the level of the bottom of the interior, there are holes 20, provided with suitable spouts to enable all the molten contents to be drawn off when it becomes necessary to do so. (See Fig. 1.) The holes 20 should be provided with suitable stoppers.

I claim—
1. In the art of refining iron directly from the smelting-furnace, the process of equalizing the chemical composition of the crude metal by thoroughly commingling or mixing together the liquid-metal charge and subsequently refining the mixed and equalized charge, substantially as and for the purposes described.

2. In the art of mixing molten metal to secure uniformity of the same in its constituent parts preparatory to further treatment, the process of introducing into a mixing-receptacle successive portions of molten metal of uniform or their non-metallic constituents, (sulfur, silicon, &c.) removing portions only of the composite molten contents of the receptacle without entirely draining or emptying the same, and successively replenishing the receptacle with fresh uniform additions, substantially as and for the purposes described.

The answer set up the invalidity of the patent by reason of an insufficient specification, anticipation, want of novelty and abandonment, and also denied infringement.

Upon a hearing upon the pleadings and proofs, the circuit court held with the plaintiff, and found that the process was patentable; that it was not anticipated; that it was of great utility and importance, and that defendant had infringed the second claim. (89 Fed. Rep., 731.)

A decree having been entered for an injunction and an account of profits and damages, in accordance with this opinion, the case was carried to the court of appeals, which ordered the decree of the circuit court to be reversed, and the case remanded to that court with direction to dismiss the bill. (96 Fed. Rep., 850.) Whereupon plaintiff applied for and was granted this writ of certiorari.

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Mr. Thomas B. Reed, Mr. P. C. Knox, Mr. T. B. Kerr, and Mr. T. W. Bakewell for the petitioner.
Mr. James I. Kay, Mr. P. T. Dodge, and Mr. F. T. Chambers for the respondent.

Mr. JUSTICE BROWN delivered the opinion of the Court.

Steel is a product, or, perhaps, more accurately, a species of iron, refined of some of its grosser elements, intermediate in the amount of its carbon between wrought and cast iron, and tempered to a hardness which enables it to take a cutting edge, a toughness sufficient to bear a heavy strain, an elasticity which adapts it for springs and other articles requiring resiliency, as well as a susceptibility to polish, which makes it useful for ornamental and artistic purposes.

Pig-iron, which was the original basis for the manufacture of all iron and steel, is made by the reduction of iron ore in large blast-furnaces, which are filled with layers of ore, charcoal or coke and flux. By the agency of this the iron is melted out and falls to the bottom of the furnaces, is drawn out through openings for that purpose into canals, and finally into molds, where it solidifies into what are termed pigs. Prior to the invention of Sir Henry Bessemer, steel was manufactured from a pig-iron base by a tedious and expensive process of refining in furnaces adapted to that purpose. The process was so costly that steel was little used except for cutlery and comparatively small articles, and was practically unknown in the construction of bridges, rails, buildings and other structures, where large quantities of iron were required.

In 1856, Bessemer discovered a process of purifying iron without the use of fuel, by blowing air through a molten mass of pig-iron placed in a refractory-lined vessel called a converter, whereby the silicon, carbon and other non-metallic constituents were consumed, and the iron thus fitted for immediate conversion into steel by recarbonization. The present process of recarbonization was a supplementary invention of Mushet, who accomplished it by the introduction of ferromanganese, or spiegeleisen, while the iron in a molten state was issuing from the converter, in which it had been purified, and was thus converted into steel. The process of running molten metal from blast-furnaces into pigs and remelting them in cupola-furnaces for use in a converter was termed the indirect process, and was generally used prior to the Jones invention.

His process is thus described by Bessemer in his patent of 1860:

The most important of these operations consist in melting the pig metal, transferring it in the molten state to the converting vessel, blowing air through it, and converting it into a suitable metal, mixing the metal so converted with a certain quantity of metal, raising the metal so converted with a certain quantity of metal, pouring the mixed metal into a fluid measuring vessel, and pouring it from thence through a suitable valve into ingots or other molds, and the removal therefrom of the ingots or other cast masses when solidified.

This invention of Bessemer, simple as it appears, may be said not only to have revolutionized the manufacture of steel, and to have introduced it into large constructions where it had never been seen before, but to have created for it uses to which ordinary iron had been but illy adapted.

While in the Bessemer specification of 1860 it is said—

the iron to be used for the purposes of my present invention may be conveyed by a gutter in a fluid state direct from the smelting-furnace where it has been obtained from the ore—

without the expense and delay incident to the intermediate cupola process, practical experience, in this country at least, showed that the refining of iron without first casting it into pigs, selecting or mixing the pigs and remelting them, was attended with such expense that the entire abandonment of the practice was seriously considered. The difficulty was in the material variations between different portions of the same cast, and even different parts of the same pig,—an irregularity which was increased when the metal was drawn from several furnaces. There was added to this frequent changes in the character and composition of the ore, coke and limestone flux with which the furnace was charged. The consequence was that the non-uniform chemical composition of the metal from the molten blast-furnaces yielded products of steel, such as rails and beams, which were not only irregular chemically, but of irregular and uncertain final condition—some sound, others of imperfect strength and full of flaws.

These irregularities were in a measure obviated, not only by a careful selection of pigs beforehand, but by the necessity of employing open receiving ladles or reservoirs into which the product of one or more cupola-furnaces was drawn off into such reservoirs, which were made large enough to hold the product of two or three furnaces, and from which the molten metal was withdrawn into the converters. Had the amount required for the converters in each case been the exact product of one or more cupolas, no reservoirs would have been necessary, but as the demand was variable, a storage of molten metal was required to retain the product of one or more cupolas, until it was required for the converters. Of course, as the product of two or more furnaces was drawn off into these receiving-ladles, there would be some intermixing of those products, although the receiving-ladles do not appear to have been used for that purpose, the operators relying more particularly upon the careful selection of pigs beforehand, to obtain the requisite uniformity for conversion into steel. The ladles being open at the top, the molten metal could not long be retained in them, and in the best practice it was so arranged that the withdrawal from the reservoir were made every few minutes, and without regard to the amount left in the reservoir after each withdrawal. It will be borne in mind that the object in either case, whether by direct or indirect process, is to obtain, as far as possible, a uniform product of iron for the converter.

These results (said one of the witnesses, (Kennedy,) speaking of the process used before that of Jones) are not obtained by the practice of taking metal from two blast-furnaces by running a train of ladles in front of them and tapping into each ladle half a charge and following it from a second furnace. By such practice, of course, there is some independent equalization of the composition of each ladle or of the ladles of each group, but it adds no further advantage, and in fact would not obviate the difficulties of direct metal working. It does not enable the converter manager to control the character of each charge from the character of the preceding charge, and would therefore ex-

hibit the uncertainty of operation and the irregularity of the product which the Jones method avoids.

It had long been an object of manufacturers that steel should be made directly from the molten metal, as it comes from the blast-furnaces, without having to pass through the intermediate or cupola process, which involved the casting of the furnace metal into pigs. These, after becoming cold, were assorted, broken up, recharged and remelted in a cupola-furnace, and then placed in a converter for conversion into steel. By this cupola process a product, practically uniform in character and suitable for further treatment in the converters, was secured, but at the expense (more than sixty cents per ton) of rehandling and remelting the iron as it came from the blast-furnaces, in cupolas, and the contamination of the metal with sulfur evolved from the coke in the process of remelting. The obstacles connected with this method and the difficulties attendant upon the use of the direct process are thus comprehensively set forth by Mr. Julian Kennedy, one of the experts:

Ever since the invention of the Bessemer process it has been well recognized that great economies could be attained by transferring the molten metal from the blast-furnace to the converter without allowing it to solidify. Until within a few years, however, this direct process, as it has been called, has not been generally used. It is easy to see why this was the case. The fluctuations in the chemical composition of the metal from the blast-furnace was too great to allow that degree of uniformity of product in the Bessemer steel produced from it, which is absolutely necessary in the case of steel rails, for example, which must be as reliable as human skill can make them, and where no reasonable expense can be spared to make them perfectly safe and trustworthy. A very few broken rails in a track, with the damage to property and human life which this might cause, would far more than offset any possible saving in a year's work, due to the use of the direct process. For this reason the practice, until within comparatively recent years, has been to cast the metal in pigs, then to analyze it and reject any portion not closely approximating a rigid specification in its chemical composition, and to select, mix and then melt the approved metal in cupola-furnaces. By this means very great uniformity of chemical composition of the remelted metal can be obtained, and good and reliable steel made from it with regularity and certainty.

Speaking of a time when the direct process (before that of Jones had been in use for several years) he said:

After studying the results which had been obtained at the Edgar Thompson works and elsewhere in the use of the direct process, I consulted with Mr. James Gayley, and we agreed that in the building of a new works it would not be profitable to use direct metal, but that on the contrary the direct metal resulting from the irregularity in the product were so great that it would be better to go to the expense of building and using cupola-furnaces. We did not then perceive any means adequate to overcome these direct metal results.

The difficulties connected with the prior devices are also stated in an article by Mr. Holley, published in 1877, from which we extract the following paragraphs:

Third. The embarrassing feature of the direct process is the irregularity in the heat—that is to say, in the silicon of the charge—resulting in the large amount of scrap due to too little of this element, and in the increased number of second quality rails due to too much of it; while in France, where three to five per cent. of manganese is the heating ingredient, there may always be an excess of this latter element without injuring the quality of the steel, although the variation of heat is here, also, a serious difficulty. In other words, it has not yet been possible to work the blast-furnace with sufficient regularity to realize approximately the theoretical advantages of the direct process.

Fourth. The obvious remedy is to mix a number of blast-furnace charges, so as to reduce the irregularity to a minimum. Two systems of doing this are on the eve of trial: the one is simply mixing a few charges in a tank that the metal will be drawn out before it chills; the other is to store a large number of charges in a heated tank—that is to say, in an immense open-hearth furnace.

A few words of history may be of interest. Mr. Bessemer's early intention was to use blast-furnace metal direct. The earlier Bessemer practice, especially that in Sweden, was with metal right from the blast-furnace. But this practice did not make headway, except where there was from three to five per cent. of manganese in the pig blown, for reasons just mentioned; so that

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while it soon became standard at Furness and elsewhere in France, as well as in Sweden, and to some extent in Germany, yet in England it was not only unused but pronounced impracticable so late as September, 1874.

This difficulty, and it seems to have been so serious as to render the direct process commercially impracticable, Jones sought to remedy and did remedy by creating a covered reservoir of molten metal between the blast-furnaces and the converters, in which should always be maintained a large quantity of metal, happily termed by the district judge a dominant pool, which should be drawn off in small quantities at a time, and replenished by a like quantity of metal from the blast-furnaces. In this way, while the metals taken from the several blast-furnaces might differ in their heat and constituent elements, yet being received and mixed with the molten metal in the dominant pool, they were, when discharged from the reservoir, approximately, though not perfectly, uniform, the original variations having been lost in their mixture with the dominant pool.

It is therefore plain [says the district judge in his opinion] that with a mixer thus organized, it is possible to have wide variations in the composition of the blast-furnace metal charges added, and at the same time the successive withdrawals from the Bessemer converter show quite small and gradual changes of composition. The heat of the dominant mass is affected by the incoming charges just from the blast-furnaces, but the heat of such addition, whether relatively high or low, must mingle with, be modified by, and average with, the heat of the larger and dominating mass.

It is not insisted that this method gave absolutely uniform results—

nor [says the witness Fry] did the inventor, as I understood him, comprehend such, but, on the contrary, he recognized the practical impossibility of rendering uniform a continuous supply of metal, and desired only to reduce the abrupt changes of the several portions added to the gradual changes of the portions withdrawn, and this is what he worked out from his invention in a thoroughly practical way.

While the patent in suit is for a process and not for a mechanism, the process will be the more easily understood by a reference to the apparatus above reproduced, which consists of a reservoir, or closed receptacle, commonly termed a "mixer" lined with fire-brick of sufficient thickness to retain the heat of the molten iron, and of such size and strength as to be capable of receiving and retaining a large amount—"say one hundred tons"—of molten iron. This reservoir is mounted upon journals, and is adapted to be tipped so as to receive at one end molten metal from the blast-furnaces, carried to it in cars, and by being tipped in the other direction, to discharge the same into similar cars, in which it is carried to the converter. The essence of the invention lies in the fact that the tip is so regulated by a stop that the reservoir can never be wholly emptied, but a "considerable quantity" of metal always remains—a dominant pool, into which successive additions are received.

That the invention is one of very considerable importance is attested by the fact that it was not only put into immediate use in the Edgar Thompson works at Braddock, then owned by the plaintiff, but has since been adopted by all the leading steel manufacturers in this country, and by many similar works in Europe, where the patent was sold for ten thousand pounds. Mr. Carnegie, one of the witnesses, says of it:

There were both advantages and disadvantages [in the direct process used prior to Jones's invention], but the disadvantages

were so great, that we often debated whether to abandon the process or not. We found it impossible to get a uniform quality of rails, as well as by the cupola method. . . . When we were still anxiously struggling with the problem, and undecided whether to continue or abandon it, Captain Jones . . . told us that he believed he had invented a plan which would solve the problem. . . . We thought so well of the idea—I was as convinced of its reasonableness—that I directed him to go ahead with his invention. . . . Captain Jones did so, and almost from that day our troubles ended. He had scored a tremendous success; another step forward was taken in the manufacture of steel, and we are using the invention to-day. . . . Without this invention I believe that we should have abandoned the mode of running direct from the blast-furnaces. Above all things, the manufacturer has to regard the uniformity of product, the quality of rails, and this uniformity cannot be obtained without Jones's invention, as far as I know.

It is true that what is termed the direct process was used in connection with the Bessemer invention in some foreign countries, notably Sweden and France, with more or less success; due to the peculiar character of the ores used in those countries; but such attempts in this country had proven practically failures, and had been abandoned. In regard to this the witness Kennedy said:

The Jones method has made the direct process, which was attended with great danger and difficulties before the date of his invention, a thoroughly practicable and successful one. Instead of it being a question of great doubt whether to run the metal direct to the converter or vessel it, as it was up to the time of Jones's invention, we now would now think of building a new works, containing both blast-furnaces and converters, without arranging to mix the metal by the Jones method, which not only effects an immense saving in the cost of operating the works, but makes a uniformly good product to be made, and also a purer product than can be obtained from cupola metal, which is abundant and is contaminated by sulfur from the coals which constitutes the fuel of the cupola.

Indeed, the value of the process is not wholly denied, though much depreciated, by the defendant, which relies rather upon the fact that it was well known in the art, and that so far as it is described in the Jones specification and drawings it was not infringed by it.

1. We now proceed to an examination of the question of *anticipation*, in support of which a number of English patents are produced, which will be briefly considered: First, the British patent to Taberner of 1856, the object of which was, as stated by the patentee in his specification—

to dispense with the necessity of employing one or more large furnaces, and to use in lieu thereof several small furnaces, the combined capacities whereof are equal to that of one or more large furnaces, and to cause these small furnaces to discharge their contents at short intervals of time into one large reservoir, from which the molten metal may be drawn for casting from.

The principal features in this invention consist in directing the blast to the body or belly of the furnace, as well as to the hearth thereof, for the purpose of fusing or melting the entire mass of ore in the furnace simultaneously, or nearly so. . . . The mode hitherto practiced in smelting-furnaces has been to direct blasts into the hearth only thereof, thereby requiring several hours to smelt or fuse the contents of a large furnace.

The specification is somewhat blind, and it is difficult to see what definite or valuable result is obtained by the use of several small instead of one large furnace, except perhaps a quicker heating and less delay in its practical operations; but it is sufficient for the purposes of this case to say of it that it contains no suggestion of a mixing of different casts for the purpose of obtaining a more uniform product, and that the invention has no relation to a further treatment or refining. It does contemplate the use of a reservoir, but there is no suggestion of a reservation in such reservoir or a quantity of molten metal. It is not denied that the use of a reservoir from which molten metal may be drawn long antedated the Jones patent. But the best that can be said of the Taberner patent is

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that, if the reservoir had been of sufficient size and properly constructed so as to never be completely emptied, it might have been adapted to carry out the Jones process; but there is no evidence that it was ever so constructed, or that the production of a uniform discharge from the reservoir was contemplated. That it could not have been intended for the purpose of carrying out the Bessemer process, or any other process, for the use of blast-furnace metal in a converter, is evident from the fact that the patent was nearly simultaneous with the Bessemer patent, of the existence of which the patentee appears to have been entirely ignorant.

The English patent to Deighton of 1873, for "improvements in the arrangement and mode of working an apparatus for the manufacture of Bessemer steel," contains the closest approximation to the principle of the Jones invention. If this does not anticipate, none does. The primary object of the patent seems to have been to prevent the loss of time while the converters are being cooled and relined or repaired, and again prepared for work, by providing that the converting vessel shall be so arranged that it can be readily detached from its actuating mechanism and lifted bodily out of its bearings by a suitable crane, or other lifting mechanism, and a spare converter substituted in its place.

There is, however, a further provision in the patent, as follows:

Instead of manufacturing Bessemer iron or steel from pig-iron, which has to be melted in cupolas, my invention also consists in taking the molten metal directly from the blast-furnace to the converter, in which case I prefer to arrange the Bessemer plant in a line at a right angle to a row of two or more blast-furnaces, and place a vessel to receive the molten metal tapped from two or more blast-furnaces to get a better average of metal which will be more suitable for making Bessemer steel or metal of uniform quality, the vessel or receiver being placed on a weighing-machine so that any required weight may be drawn or tapped from it and charged into the converter.

The specifications provide for manufacturing Bessemer steel directly from the smelting-furnace by employing gates or channels for molten metal from each furnace, leading to a reservoir, which is placed low enough to give fall for the molten metal to flow from the blast-furnace to this reservoir, which forms a receptacle for mixing the molten metal from two or more of the smelting-furnaces. From the reservoir, the mixed molten metal is tapped and flows down the swivel-trough into the converter. By placing the reservoir on a weighing-machine, it can be readily ascertained when the exact quantity required has been tapped from it into the converter.

The sixth claim of the patent is for—
the system or mode of arranging and working Bessemer converters with a receiver or receptacle for mixing the molten metal from two or more smelting-furnaces to get a more uniform quality of metal, substantially as hereinafter described and illustrated by the drawings.

While Deighton seems to have conceived the idea that uniformity of product was necessary to the successful use of the direct process, and might be attained by mixing the discharge from several blast-furnaces in an open reservoir, standing between the furnaces and the converter, the dominant idea of the Jones invention, that a constant quantity of molten iron should always be kept in each reservoir to serve as a basis for such mixture and an equalizer of the different discharges, does

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not seem to have occurred to him. As the discharge-pipe was located at the bottom of the reservoir, it was certainly possible to empty it entirely, and the testimony in the case indicates that this was the natural method of operation. If this were so, then the reservoir accomplished nothing beyond the mixing of each batch of metal introduced into it from the different blast-furnaces. There is nowhere in the specification a suggestion of supplying to and withdrawing from the reservoir small amounts at a time, a constant quantity of metal being retained in the reservoir for the purpose of equalizing the different products of the blast-furnaces. While the Deighton reservoir, if a cover had been added to it, might perhaps have been utilized for that purpose, there is no evidence that such use ever occurred to the inventor. Indeed, the absence of a cover to the reservoir is evidence, even to a non-expert, that it was not contemplated that a permanent quantity of molten iron should be retained in it, since a radiation of heat would thereby be produced and the contents skulled or crusted over with a layer of refuse iron or slag. The testimony is clear that the Jones process cannot be carried on in an open reservoir, and the absence of a cover is conclusive that it is not so used.

It is insisted, however, that defendants have demonstrated, by practical experimentation with a plant constructed according to the specification of the Deighton patent, that the results are practically the same as those obtained by the Jones process. This plant, however, was constructed after suit brought, long after the Deighton patent had been allowed to expire, and with no opportunity afforded the plaintiffs to inspect the plant or witness its operation. The tank was fitted with a cover, and a constant pool of molten metal retained in it; but this was not the Deighton process, but the Jones process adapted to the Deighton device. Were this evidence admissible at all, we are satisfied that it is met by the fact that if the Deighton patent had been adaptable to the Jones process, it is scarcely possible that its merits should have failed to seize upon the attention of manufacturers, who would have brought the patent into general use, instead of allowing it to lapse for the non-payment of a comparatively small fee. As something in the nature of the Jones process was needed to enable steel to be manufactured directly from the product of blast-furnaces, the utility of the Deighton patent for that purpose would at once have been recognized and its success assured. But evidently that patent was not the final step in the accomplishment of the mixing process. It contributed nothing to the art of manufacturing steel, and, although issued in 1873, was allowed to lapse in 1876, after an apparently unprofitable existence for three years, by reason of the non-payment of the stamp duty necessary to keep it alive. It is sufficient to say of it that it fails to disclose, fully and precisely, the essential features of the process covered by the Jones patent. (*Walker on Patents*, sec. 54; *Seymour v. Osborne*, 11 Wall., 516, 555; *The Caywood Patent*, 97 U. S., 704.)

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Although Deighton was an employee of the Moss Bay Company of Workington, England, if any attempt were made by this company to make use of his process, it evidently amounted to nothing, since one of the writers, Snelius, contributing to the *Journal of the Iron and Steel Institute*, 1878, says:

One great drawback to the direct-casting process was that you could not always get your metal at the exact time you wanted it. He believed that it would be found that the great advantage to the Bessemer works in America had been the intermediate receiving-ladle, which was designed by Mr. Holley, and which was universally used there, although it was never used in England. The Moss Bay Company attempted to modify the thing some time ago, and put up a heating-furnace; but that, to his mind, was a step in the wrong direction. Anyhow, the thing had failed, and no one in England, so far as he knew, was using any intermediate receiver between the blast-furnace and the converter.

This defense presents the common instance of a patent which attracted no attention, and was commercially a failure, being set up as an anticipation of a subsequent patent, which has proved a success, because there appears to be in the mechanism described a possibility of its having been, with some alterations, adaptable to the process thereafter discovered. As hereinafter observed, a process patent can only be anticipated by a similar process. It is not sufficient to show a piece of mechanism by which the process might have been performed.

In the American patents to Durfee, Nos. 118,997 and 122,312, both of 1871, the desirableness of manufacturing steel directly from the blast-furnace is recognized, and in his second patent he says:

That in the manufacture of steel by the pneumatic or Bessemer process, a great saving of fuel and iron, of wear and tear of furnaces, and of labor would be effected were it possible to make uniformly good products of the desired temper by converting the crude iron immediately as it is tapped from the blast-furnace in which it is made. This plan has been and may still be practiced to a considerable extent, but it has been found that by reason of the irregular working of blast-furnaces, and the consequent varying character and quality of the crude iron produced, it was always very difficult and in most cases impossible to secure such uniformity in the converted metal as was essential to success in the business. Hence, at several establishments where the plan of taking the fluid iron as it was tapped from the blast-furnaces and pouring it at once into the converter has been practiced, it has been abandoned, the proprietors preferring to incur the expense of handling and remelting the crude iron after it had been cast into pigs in order thus to secure the advantage of carefully selecting and mixing the materials for each charge to be converted.

He proposed to accomplish this by using a reverberatory gas-furnace, into which the crude iron from the blast-furnace is poured, and in which it may be mixed with other irons, and so treated as to insure uniformity. Pig-iron of different qualities, or any metals or metalloids or fluxes can be added and mixed with the metal as may be necessary to bring it to the required character. The process is so manifestly different from that described by Jones that it demands no further attention. If it were put in practice at all, it seems to have proved a failure, as, although an English patent was taken out by Durfee, it was allowed to lapse by reason of the non-payment of the stamp duty.

Two American patents to James P. Witherow, No. 315,587 and No. 327,425, both issued in 1885, are pressed upon our attention. In the second patent, the only one necessary to notice, he restates the advantages of the direct process and the difficulties theretofore encountered in its practical operation.

In the manufacture of steel by the pneumatic process, the converters are charged with molten metal, the product of the blast-furnace. This metal is usually cast in the form of pigs, then remelted in the cupola as needed before being charged into the converter. . . . It is very desirable to take advantage

of the molten condition of the metal as it comes from the blast-furnace for its use in the converter, because thereby the remelting of the metal and the expense of the conversion of a pig into molten metal may be avoided. The charge of the converter is from one to five tons, and the casting of a blast-furnace runs usually from ten to fifty tons. The difficulty of using the molten metal from the furnace in the converter consists in keeping the large quantity of metal from the latter in a proper molten condition for use in the former.

He proposed to remedy this by a reservoir provided with a suitable cover and with twyers—which blow down upon the surface of the metal for the purpose of maintaining its heat and fluidity.

As this reservoir was apparently adapted to hold only a single cast, and therefore must be emptied before another cast was received into it, it was impossible that Witherow intended by its use to practice the Jones process. There is no suggestion anywhere in the patent of a desire to retain a quantity of metal in the reservoir to serve as a basis for mixing the various products of the blast-furnace, which was the dominant idea of the Jones patent. To anticipate a process patent, it is necessary not only to show that the prior patent might have been used to carry out the process, but that such use was contemplated, or that the leading idea of the Jones patent of maintaining a dominant pool in the reservoir was such a use of the Witherow patents as would have occurred to an ordinary mechanic in operating his device. Whether the reservoir in the Witherow patent was partly or fully emptied, seems to have been a matter of complete indifference to the inventor, and the idea of maintaining a constant quantity therein seems to have never been conceived by him. His design seems to have been merely to provide a reservoir for the storage of the large quantity of metal from the blast-furnace, and to maintain its heat until the comparatively small quantities required in the converters had been drawn off for use. As he states in his specification:

The metal is usually tapped from a blast-furnace once in every six hours, and the quantity thus cast is many times in excess of the charge of a converter, [which] is from one to five tons. [While] the cast of a blast-furnace runs usually from ten to fifty tons. [While] the metal is tapped from the blast-furnace once in every six hours, the time between charges in the converter is usually twenty minutes and upward, and the metal in the furnace must be kept in condition to be tapped from time to time into the converter as needed.

This appears to have been the whole object of the invention.

The same remark may be made of all these prior devices. While all contemplate the reservoir between the blast-furnaces and the converters, such reservoir is used for storage and for such incidental steps toward uniformity as the necessary mixing of the different products of the blast-furnace would lead to, while in none of them is there a provision for supplying and withdrawing from the mixer such quantities of metal at a time and the retention of a considerable quantity of metal in the reservoir as a necessary prerequisite to that uniformity of product which was recognized as the great desideratum and was the constant effort of manufacturers to secure. Granting that some of these devices may have been made use of to carry out the Jones process, none of them in practical operation seems to have been effective to secure the desired result. A process patent, such as that of Jones, is not anticipated by mechanism which

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might with slight alterations have been adapted to carry out that process, unless, at least, such use of it would have occurred to one whose duty it was to make practical use of the mechanism described. In other words, a process patent can only be anticipated by a similar process. A mechanical patent is anticipated by a prior device of like construction and capable of performing the same function; but it is otherwise with a process patent. The mere possession of an instrument or piece of mechanism contains no suggestion whatever of all the possible processes to which it may be adapted. (*New Process Fermentation Co. v. Maus*, 39 O. G., 1419; 122 U. S., 418, 426.) If the mere fact that a prior device might be made effective for the carrying on of a particular process were sufficient to anticipate such process, the absurd result would follow that, if the process consisted merely of manipulation, it would be anticipated by the mere possession of a pair of hands.

True, if the process were the mere function of a machine, another machine capable of performing the same function might be an anticipation; but this is not because a process can be anticipated by a mechanism, but because, as we have held in several cases, the mere function of a machine is not patentable as a process at all. (*Cornings v. Burden*, 15 How., 352; *Ridson Locomotive Works v. Medart*, 71 O. G., 751; 138 U. S., 68.)

To enable the Jones process to be successfully carried out it is necessary (1) that the intermediate reservoir or mixer should be of large size, "say one hundred tons" capacity; (2) that it be covered to prevent the access of cold air from without; (3) that it be provided with a stop, so that it may not be tilted so far as to be emptied of its contents; (4) that a quantity of molten metal so large as to absorb all the variations of the product of the blast-furnace received into it and thus to unify the metals discharged into the converters, be constantly retained in it. None of the prior patents or processes to which we are referred meets these requirements. Indeed, it is scarcely too much to say that none meets more than one of them. When we add to this that none of them was ever used, or was ever susceptible of being used, without material alteration, to carry out the Jones process, it is evident that the defense of anticipation by prior patents rests upon a slender foundation.

Certain discussions, reported in the *Journal of the British Iron and Steel Institute*, are relied upon as embodying a description of the Jones process. Running through all these discussions, there is the same idea of the difficulties experienced in the practical carrying out of the direct process by reason of the want of uniformity in the different products of the blast-furnaces, and the possibility of remedying this and thereby doing away with the expense of remelting the pig-iron in cupolas by a mixture of such products in a reservoir intermediate the furnaces and the converters; but the dominant idea of the Jones patent, of maintaining a permanent and large quantity of molten metal in the mixer for that purpose, does

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not seem to have occurred to any of the writers upon the subject. Through all these papers, there is an admission of practical failure in the efforts theretofore made to obviate the difficulty, and a half-expressed hope that American ingenuity might ultimately solve the problem. Some of the expressions, taken by themselves, seem to foreshadow the Jones idea; but there was nothing in any of these discussions that filled the requirement of the law, (R. S., sec. 4896,) of a description in a publication sufficient to anticipate the patent.

In some of the very works where attempts had been made to adopt a direct process, they were abandoned as unprofitable, and the Jones invention subsequently adopted. The witness, David Evans, manager of certain iron-works in England and Wales, sums up his testimony in the following answer:

Prior to the invention of Captain Jones several firms used the direct process, but the results were not very satisfactory, as explained before, through want of uniformity. The results obtained gave a large number of defectives. But since the adoption of the mixer at the various works where I have been engaged, we have reduced the defective or second-class rails fully one-half, and also saved the remelting.

Indeed, it is stated by several of these writers that the adoption of the Jones invention reduced the defective rails to something like half of what they were before.

Our attention is also challenged to certain unpatented practices, among which is one known as the Whitney foundry practice for the casting of car-wheels, wherein the metal is tapped from three cupolas into an open reservoir of eight to ten tons capacity, permitted to mix and even up in it, and the charges withdrawn to be cast into car-wheels, the reservoir being maintained half-full. The practice was to run the metal from the cupola-furnaces into the reservoir-ladle until it was nearly full, then to begin pouring out charges into the casting-ladles, while still continuing to pour metal into the ladle from the furnaces, the ladle being kept approximately full during the working day, when it was emptied and refilled on the following day. Aside from the fact that this process has only to do with cupola metal, uniformity in which was largely secured by a careful selection of the pig-iron charged into the cupola-furnaces, and had no reference whatever to the direct process of charging converters with the product of blast-furnaces, it appears that, while Whitney recognized the fact that the charges of iron from the cupolas when run together into the ladle would mix, it appears that with this running together of the different charges, the mixing operation ended. The maintenance of a permanent pool, and the constant pouring in and out in ladles—the essence of the Jones invention—had nothing to do with the process. Indeed, it may be doubted whether the mixing of the cupola metal was of any substantial value. Evidently it suggested to no one the Jones process. It is now too late to insist that it would have been suggested to any mechanic of ordinary skill and intelligence. But if the Whitney practice were primarily for the purpose of mixing, and were adequate for that purpose when

court did not seem to look upon it as the turning point of the case, nor do we regard it as at all decisive. It seems to assume that the second claim can only be met by evidence of absolute uniformity of product, whereas all that is claimed is a uniformity in the constituent parts of molten metal preparatory to further treatment. In other words, to make it fit for further treatment in the converters, without the necessity of remelting in the cupola-furnaces. Or, as stated by the district judge:

It is therefore plain that with a mixer thus operated, it is possible to have wide variations in the composition of the blast-furnace metal charges added, and at the same time the successive withdrawal for the Bessemer converter show quite small and gradual changes of composition. The heat of the detained mass is affected by the incoming charges from the blast-furnace, but the heat of such addition, whether relatively high or low, must mingle with, be modified by and average with the larger and dominant mass.

With regard to this portion of the opinion, counsel for defendant observes:

The judge of circuit court, having lost sight of the statutory requirements as to a full, clear and concise statement of the invention, and having persuaded himself that it was his judicial duty to find a way if possible to protect the Carnegie Company in its monopoly of what Mr. Gayley and his colleagues claim ought to have been the invention described in the patent, adopted the ingenious view that the patent was to be construed as though it disclosed and covered two inventions, one having for its object to obtain a product substantially uniform in its contained silicon and sulfur, and the other having for its object the improvement in the operation of bessemerizing iron which is incident to an avoidance in the successive charges of abrupt variations in contained silicon.

We have not, however, been able to persuade ourselves that the two processes are so alternative and inconsistent with each other as to render them mutually destructive, or to justify counsel in charging the district judge with an abdication of his judicial duty of deciding the case according to what he believed to be the law and the facts. We dismiss the subject with the simple observation that much more seems to have been made of it than it deserves, and that a reference to the second claim shows its object was to secure uniformity of the molten metal in its constituent parts preparatory to its further treatment, by which further treatment we are to understand the bessemerizing process of converting metal into steel, and that any step in that direction would necessarily lead to an avoidance of abrupt variations in silicon and sulfur, while such avoidance of abrupt variations would in their turn only tend toward a greater uniformity of product.

Some criticism was made upon the action of the court in permitting a disclaimer of certain clauses in the specification, printed above in *Italics*, which was made after the argument and upon the petition of the plaintiff—

that at the hearing of this cause it was taken by surprise by the argument of the defendant that the portions of the specification now disclaimed enlarged the scope of the invention of the said Letters Patent beyond what your petitioner believes to be the import of the claims thereof.

Upon the hearing defendant seems to have insisted that certain portions of the specifications were broader than the second claim. Those parts of the specification therefore were disclaimed. As we had occasion to observe in *Sessions v. Romadka*, (59 O. G., 989; 145 U. S., 29)—

the power to disclaim is a beneficial one, and ought not to be denied except where it is resorted to for a fraudulent and deceptive purpose.

In that case the plaintiff was permitted to enter a disclaimer of all the claims but the one in suit, [Vol. 92,

the patentee having included in the patent more devices than properly could be the subject of a single patent. In the case under consideration the disclaimer was not of a claim but of certain statements in the specification, which if retained might be construed to have the effect of illegally broadening the second claim. The first statement disclaimed was that the invention might be practiced by merely receiving a number of small portions of metal taken from different ladles, the mixing being performed merely by the act of pouring into the charging-ladle. The use of the word "merely" ignored the steps embodied in the second claim, where the mixing is not performed by merely pouring together the several charges into a ladle, but by maintaining a permanent quantity of metal in the reservoir, to which charges were alternately added and from which they were withdrawn. The other clauses were intended to disclaim the casting of the metal into pigs. We think there is no force in the criticism that a disclaimer may not extend to a part of the specification, as well as to a distinct claim. (*Husbut v. Schilling*, 47 O. G., 1067; 180 U. S., 456; *Schilling v. Gunther*, 17 Blatch., 66; *Schwarzwalder v. New York Filter Company*, 26 U. S. App., 547.) Had the purpose of the disclaimer been to reform or alter the description of the invention, or convert the claim from one thing into something else, it might have been objectionable, as patents can only be amended for mistakes of this kind by a reissue. But the disclaimer in this case appears to have been made to obviate an ambiguity in the specification, and with no idea of obtaining the benefit of a reissue. If the clauses had the effect of broadening the patent the disclaimer removes the objection. If they did not, the disclaimer could do no harm, and cannot be made the subject of criticism.

It is insisted, too, that there is no mention in the second claim of a dominant pool, and that the words—

removing portions only of the composite molten contents of the receptacle without entirely draining or emptying the same, and successively replenishing the receptacle with fresh uniform additions—

are satisfied by leaving a quantity of iron, however small, in the reservoir, and that it really includes nothing that was not well known before. It is true that neither the size of the reservoir nor the amount of metal to be left therein, after each discharge is made into the converter, is specified, but it is stated in the specification that this reservoir may be of any convenient size—

holding, say, one hundred tons of metal (more or less)—

with the bottom of the discharge-spout some distance above the bottom of the vessel—

say, two feet in a hundred-ton tank, and more or less according to the capacity of the vessel, the purpose of which is that when the metal is poured out of the spout a considerable quantity may always be left remaining and unpoured, and that whenever the vessel is replenished there may already be contained in it a body of molten metal with which the fresh additions may mix.

Though the size of the reservoir and the considerable quantity left therein as a dominant pool might have been described more definitely, (but perhaps at the risk of an infringement being avoided by one using a receiver of a different size

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containing a different quantity,) we think it is impossible to read this patent without gathering from it the dominant idea of Jones not to describe a reservoir for storage, with or without incidental mixing, but to provide a receptacle the main, if not the sole, object of which is to preserve therein a large and constant quantity of molten iron as a basis for a gradual unification of the product of several blast-furnaces, or of several casts from the same furnace, and herein distinguishing it from all prior inventions. The specification of the patent is not addressed to lawyers, or even to the public generally, but to the manufacturers of steel, and any description which is sufficient to apprise them in the language of the art of the definite feature of the invention, and to serve as a warning to others of what the patent claims as a monopoly, is sufficiently definite to sustain the patent. He may assume that what was already known in the art of manufacturing steel was known to them, and, as observed by Mr. Justice Bradley, in *Webster Loom Co. v. Higgins*, (31 O. G., 2031; 105 U. S., 580, 586:)

He may begin at the point where his invention begins, and describe what he has made, that is new, and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings.

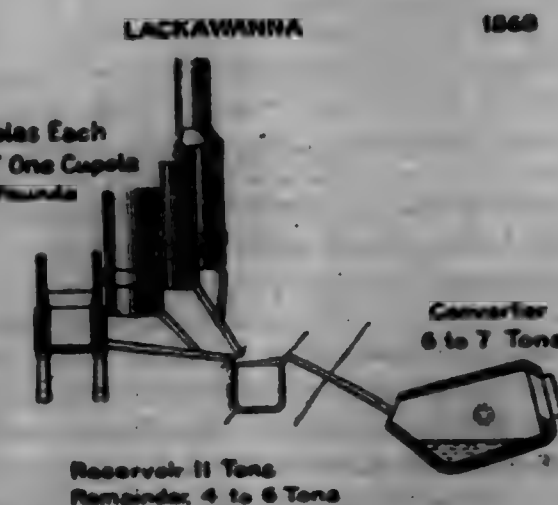
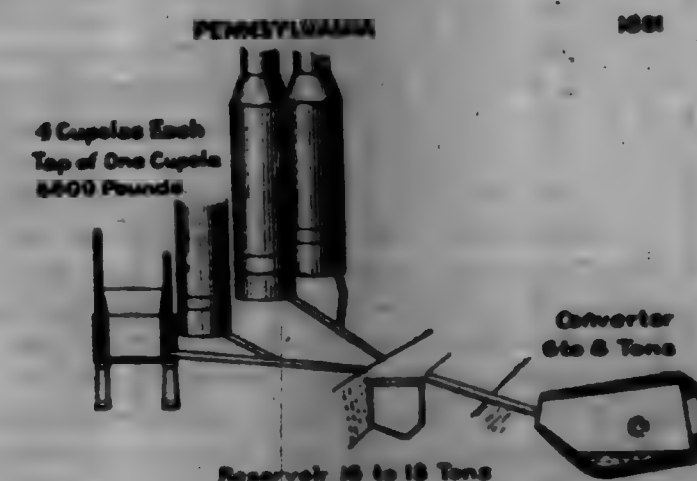
We think this second claim not only describes with sufficient clearness the purpose of the patent to secure uniformity of the molten metal in its constituent parts preparatory to further treatment, but read with the specification sufficiently describes the process by which this uniformity may

be secured, by always preserving in the reservoir a sufficient quantity of molten metal to secure such uniformity of product. It is undoubtedly true that the storage feature appeared more prominently in the specification which was first rejected upon the ground that it was not sufficiently differentiated from prior patents, than in that which was finally accepted, but there is nothing to indicate that Jones did not understand from the first that the distinguishing feature of his invention was the preservation of a considerable quantity of iron in the reservoir.

3. The question of *infringement* only remains to be considered, and, in the view we have taken of the prior devices, presents no serious difficulty. The court of appeals was of opinion that—

the defendant's reservoir, or accumulating-ladle complained of, is the same in principle as one which has been in use at the Cambria works ever since Bessemer steel was first manufactured there, with only this difference, that at first it was used at cupola, now at furnace.

If such were the fact, of course defendant would not be open to the charge of infringement. Undoubtedly it has the right to make use of all prior devices, and particularly such as had been used at its own manufactory. In order to understand the device made use of by the defendant prior to the Jones invention, we reproduce herewith two small but easily understood cuts, taken from its brief, showing the character of the ladle known as the Bessemer intermediate ladle, used by it and generally by all American mills manufacturing steel by the Bessemer process.



It appears elsewhere in the testimony that the intermediate reservoir or ladle was from fifteen to eighteen tons capacity, and the converter from six to eight tons; that the molten metal was tapped from the cupolas into the reservoir and withdrawn for the converter, and as the intermediate ladle held considerably more than the amount of metal necessary to charge a converter, there was some incidental mixing; but the main and perhaps the only purpose of the reservoir was for storage, and that if any quantity of metal were left in the reservoir it was by accident rather than by design. It will be noticed, too, that the reservoir was open at the top. It does not appear to have been made use of in carrying out what is known as the direct process, the difference being that the cupola

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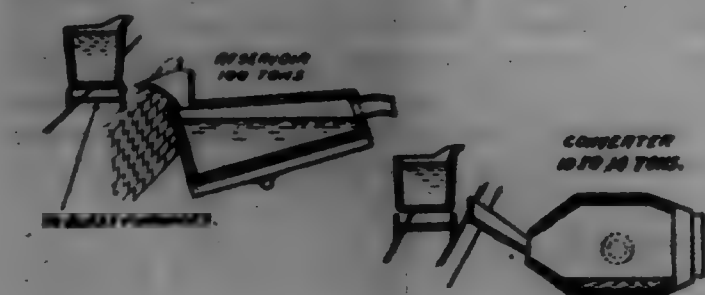
practice furnished a metal for the Bessemer converter that was uniform in composition, or practically so, while the direct metal was largely variable in composition.

The testimony further shows that, after the installation of the Jones mixer at the Edgar Thompson works, Mr. Morgan, the defendant's mechanical engineer, visited and inspected these works and obtained information as to their practical operation, and was advised by the superintendent as to the location and proper size of the mixer and its contiguity to the converters. Mr. Morgan does not deny this conversation, although he qualifies it by saying that he thought the Jones apparatus had grave defects. Shortly after this visit, and in the latter part of 1895, defendant installed an ap-

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paratus of its own for the operation of the direct process, which is herewith produced upon a small

1870h LADLE
BLAST FURNACE
TAP 10 TO 150
TONS.



tie-shaped vessel of about three hundred tons capacity, arranged to tilt, and having a spout at either side for receiving and pouring out the metal. The metal was brought to the mixer and poured in at one end, and through a spout on the other side, was poured into a ladle, which supplied the Bessemer converters. The metal was supplied both from blast-furnaces and cupolas, the former furnishing about two-thirds, the latter about one-third of the metal used; but the metal from the cupola system was delivered by a ladle to the converter direct, and not through the reservoir. The metal from the blast-furnace entered the reservoir in about fifteen-ton ladle lots, and was withdrawn in approximately twelve-ton lots. The chief engineer of the company states that—
in accordance with the natural way of using the reservoir, it is ordinarily kept well filled up.

That in the practical operation of the mixer or reservoir a large quantity of iron was retained for mixing purposes is evident from the fact that a chalk-mark was made on the side of the mixer, which was not allowed to run below the floor, as a guide to the men who rotated or tilted the mixer, since, if the mark went below the floor and out of sight, they could not tell how much iron was left in the mixer. Under these instructions not to allow the chalk-mark to go below the floor there was retained in the mixer about one hundred and seventy-five tons of molten metal, amply sufficient for the purposes stated in the Jones patent. Its principle of construction was similar to that of the Jones mixer, and its operation identical. Indeed, defendant's engineer himself says:

With the exception of additions of cupola metal I do not know that there is any material difference between our practice and that described in the second claim—

of the Jones patent. We agree, in the opinion of the circuit court, that—

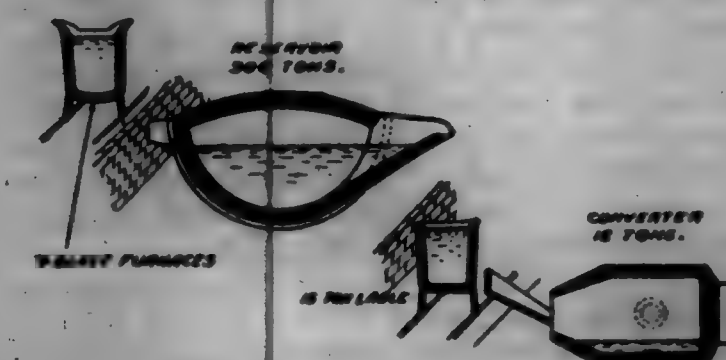
It is quite clear, in view of these facts, that infringement takes place. That initial mixing rather than storage is the purpose of the reservoir is shown by the fact that the cupola metal is not stored, but served direct in ladles to the converter plant. And that the homogeneous mixture, once obtained, is used as a dominant pool to produce a graduated, non-errupt product, is shown by the chalk-line minimum limit of one hundred and seventy-five tons. With such a permanent dominant pool in constant use, we are clear that respondent's practice infringed the second claim of the Jones patent in both letter and spirit.

If the contents of the mixer used by defendant were allowed habitually to become empty in carrying out its process, there would be no infringement; but all the evidence contradicts this. In

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scale, and in comparison with the Jones process. It consisted of a covered refractory lined and tur-

20 TON LADLE
BLAST FURNACE TAP
20 TO 40 TONS.



the Jones practice this cannot be done, since the mixer cannot be tilted beyond a certain point. In the defendant's mixer it can be done, but is not, since the operator is not allowed to tilt it beyond a certain point gaged by a chalk-mark. This seems to be the only foundation for the charge so frequently reiterated, and in varying language, that the methods in use before the Jones process deprived that process of all novelty, and if novelty existed it was by reason of the varying modes of executing such methods; the inference from this being that as the Jones method was old, it could only be treated as new because of the conduct of individuals in applying the method and their intentions, and that this reduces itself to the proposition that the Jones patent rests upon the mere intention or minds of persons. If we understand this argument correctly, it is that the prior method contemplated storing only, and the mixing was but an incident, while the Jones patent contemplates mixing as its main object and storage only as an incident.

This proposition that the application of this patent depends upon the individual intent of the operator overlooks the essential nature of a process patent. The directions and specifications of such a patent are addressed to those engaged and skilled in the art. It professes to disclose a method of procedure, not the particular instrumentality that may be employed. It may be, as suggested, that one person may, and in ignorance of the patented method, make use of a reservoir merely as such, and without any desire to avail himself of the patented process; but such a fact would not deprive the discoverer of the process of the protection of his patent. Such a supposed case might present a question of fact for a court or jury, and if it were made to appear that the party charged with infringement had, as in this case, changed the instrumentalities used by him after a new method had been disclosed, and particularly if he had for the first time used a special device necessary to that process, a jury might well refuse to believe and find that the defendant was only following the old methods of procedure, and not seeking to avail himself of the plaintiff's invention.

But we think the difference in the two processes may be illustrated by a very simple example: Let

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us imagine a reservoir containing, say, three quarts, and filled with one quart each, of three liquids of different constituent parts, and withdrawn for further treatment at the rate of one or two quarts at a time. Necessarily there would be some incidental mixing, but it would occur at once that the main object of the reservoir was a retention of a sufficient quantity of the mixture to supply the receptacle for further treatment, and if no necessity existed for a longer retention of the liquid in the reservoir, it could be very quickly emptied by two discharges into the receiving vessel. Now, let us substitute for this reservoir a cask of, say, sixty quarts, into which the liquids of different constituent parts are poured in at one end from a multitude of receptacles, and discharged at the other end after remaining a certain time in the cask, and that this cask could not be tilted so far but what a quantity of liquid would be left within it amounting, say, to half its capacity. Now, if there be no distinction between these two operations there would be little left to the Jones process, the very vitality of which consists in the size of the cask relative to the ladles and the mixing of the various liquids poured into it before they are withdrawn.

If, as insisted by the defendant and found by the court of appeals, the reservoir now used is the same in principle as the one which had been in use at the Cambria Iron Works ever since the Bessemer steel was first manufactured there, and the same were adequate for the purposes of the direct process, why was any change made? Therein we think the court of appeals made its most serious error. The defendant had an unquestioned right to manufacture steel, as it had been accustomed to do; but instead of that it abandons the Bessemer uncovered ladle of twelve to eighteen tons, and adopts a covered refractory-lined reservoir of three hundred tons capacity, and makes use of it, not as before, for the storage of cupola metal, but for the mixing of blast-furnace metal according to the direct process. This, too, was done immediately after Mr. Morgan's visit to plaintiff's works.

It is true that with the growth of the production of furnaces from fifty tons a day in 1873 to four or five hundred tons in 1885 all apparatus would naturally be increased in size; but why was the open reservoir theretofore used for cupola metal provided with a cover and enlarged in its capacity from fifteen to three hundred tons—twenty-fold, while the converter was little more than doubled in size? Why was it so operated that one hundred and seventy-five tons were left in the mixer as a dominant pool; if no infringement were contemplated? In the face of these facts the question so earnestly pressed by the defendant, whether the "method of mixing molten metal," covered by the second claim, was one for securing a substantial homogeneous composition of metal, to the end of getting a practically uniform product, or was one simply for the purpose of preventing sudden variations in the compositions of successive small portions drawn from the reservoir, without attaining substantial uniformity, loses most of its signifi-

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cance. We do not know how the process can be better described than in the specification itself:

To provide means for rendering the product of steel-works uniform in chemical composition.

The variations in such composition are said to be "particularly in silicon and sulfur," and the process to be one of mixing, whereby the particles of metal—

are diffused or commingled thoroughly among each other, and the entire charge is practically homogeneous in composition, representing in each part an average of a variety of uniform constituent parts, all the charges of the converter from time to time will be substantially uniform.

This, denuded of all hypercriticism, is the object of the Jones invention, which seems to be the only one yet devised for carrying on what is known as the direct process. If it be true that this process cannot be carried on without infringing the Jones patent, he is certainly entitled to a monopoly of the invention. If it can be, then every method theretofore known for carrying on such process was open to the defendant. But we think the change from the Bessemer intermediate ladle to the Jones mixer was a radical one, and was made for a purpose. That purpose was clearly the adoption of the Jones process.

It is true that before the facts were fully ascertained, a stipulation was signed to the effect that the—

amount of molten metal in said mixer (defendant's) varies from nothing to its full capacity, depending on the supply and demand, the supply being generally sufficient to keep the mixer more than half full of molten metal, which metal remains molten therein.

It appears, however, that upon the facts being more fully ascertained, notice was given that in so far as the stipulation varied from the facts appearing in the testimony of defendant's expert, it would be repudiated, and particularly that portion wherein it was said—

that the amount of the molten metal in the mixer varies from nothing to its full capacity.

As it clearly appears from the mouths of defendant's own witnesses (notably Mr. Morgan) that, in the usual operation of the mixer, the ordinary amount of metal kept in the reservoir was more than one-half its capacity, we think that plaintiff's case should not be prejudiced by this stipulation. Stipulations are ordinarily entered into for the purpose of saving time, trouble or expense, and in this case it recites that—

as defendant's counsel is expected to sail for Europe in a few days and may not be back for about four months, it is therefore stipulated by counsel for both parties, to save delay, as follows.

But while the stipulation is undoubtedly admissible in evidence it ought not to be used as a pit-fall, and where the facts subsequently developed show, with respect to a particular matter, that it was inadvertently signed, we think that upon giving notice in sufficient time to prevent prejudice to the opposite party, counsel may repudiate any fact inadvertently incorporated therein. This practice has been frequently upheld in this and other courts. (*The Hiram*, 1 Wheat., 440; *Hurt v. Hollingsworth*, 100 U. S., 100, 104; *Malin v. Kinney*, 1 Caines, 117; *Barry v. Mut. Life Ins. Co.*, 53 N. Y., 586.)

In short, we are clearly of opinion that the reservoir now in use is used for entirely different pur-

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process from the intermediate Bessemer ladle formerly employed; that the process carried on with it is identical with the Jones invention, and that its primary, if not its sole use, is for mixing purposes, with necessarily incidental storage, while the Bessemer intermediate ladle was solely used for storage, with little, if any, thought of the advantages to be gained by an incidental mixing.

Discarding now all that does not bear directly upon the validity of the Jones patent, and dropping all superfluity of words, let us determine exactly what Jones has contributed, if anything, to the art of making steel. He undoubtedly found reservoirs of small size in use in which were poured from receiving-ladles enough molten metal to fill them, and from which a sufficient amount was discharged to supply a converter, usually about half the size of the reservoir. But in all these cases the fact whether any particular amount of metal was left in the reservoir was treated as a matter of indifference or accident, although there must have been necessarily some incidental mixing; and probably the metal as it ran into the converters approximated more nearly to uniformity than when it ran into the reservoir. The former methods were adequate for cupola metal, uniformity in which had been largely secured by a careful selection and breaking up of the pigs, but it had not proved a success for blast-furnace metal, except that it had been used to a very limited extent in foreign countries where the peculiar character of the iron ore had rendered it possible to carry on a direct process, although apparently by methods quite other than those employed by Jones. The principal step employed by Jones was to magnify the capacity of the reservoir about twenty-fold, provide it with a cover, and to arrange that it should not be tilted beyond a certain point, in order that a "considerable quantity" of molten metal might be retained in it for a sufficient time to accomplish a pretty thorough mixing, but little change having been made in the meantime in the size of the receiving-ladles and converters. As the reservoir was designed to hold a large quantity of metal for a considerable time it must have been covered to obviate the contents being eroded over or sculled.

As soon as this method had proven to be successful by employment at the Edgar Thompson works, and had become so well known as to attract the attention of other manufacturers of steel, it found a ready sale, was adopted by all the leading manufacturers in this country, and was sold for use abroad for about fifty thousand dollars.

It should be borne in mind that this process was one not accidentally discovered, but was the result of a long search for the very purpose. The surprise is that the manufacturers of steel, having felt the want for so many years, should never have discovered from the multiplicity of patents and of processes introduced into this suit, and well known to the manufacturers of steel, that it was but a step from what they already knew to that which they had spent years in endeavoring to find out.

It only remains now for the wisdom which comes after the fact to teach us that Jones discovered nothing, invented nothing, accomplished nothing.

We cannot better conclude this opinion than by the following extract from the opinion of Mr. Justice Bradley in *Webster Loom Co. v. Higgins* (21 O. G., 2081; 105 U. S., 580, 591):

But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. . . . Now that it has succeeded, it may seem very plain to say one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produces a new and beneficial result, never attained before, it is evidence of invention.

The decree of the circuit court of appeals is therefore reversed and the case remanded to the Circuit Court for the Western District of Pennsylvania for further proceedings consistent with this opinion.

DISSENTING OPINION.

Mr. Justice WHITE, with whom concurs Mr. Chief Justice FULLER, Mr. Justice HARLAN and Mr. Justice BREWER, dissenting.

To elucidate the reasons which constrain me to dissent, it is deemed essential to give a more outline of the processes by which iron and steel were made prior to June 4, 1889, when the patent in suit was issued, in so far as such processes in some aspects concern the manufacture of steel by what is known as the Bessemer method, to which the Court now declares the patent in suit solely relates.

Into the stack of a smelting-furnace iron ore, with suitable fluxing material and fuel, was introduced. In the operation of the furnace the ore was reduced to a metallic state by the oxidizing action of carbon or gas containing carbon. This metallic iron melted in the lower part of the furnace, taking up a proportion of carbon and other ingredients, dropping to the bottom of the hearth as molten pig-iron. The earthy impurities combined with the flux, and were also melted and descended into the hearth, resting upon the top of the molten metal. The molten metal was drawn from the hearth from time to time by tapping, and the molten impurities, combined with the flux, forming a cinder, were also drawn from the hearth at a higher level. As the molten iron was tapped it was run out into molds and came to be known as pig-iron or pigs. These pigs were not of uniform composition, because of the varying quantity of the constituents contained in the ore and the chemical changes wrought by irregularities incidental to the operation of the furnace.

To make foundry-castings, pigs were selected, broken up, charged into a cupola-furnace, reduced to a molten state, and the liquid was drawn off into a receiving-ladle. From this the quantity desired was tipped into a smaller vessel, known as a casting-ladle, and was poured into the molds. Where more than one cupola-furnace was employed each was tapped and the metal poured through a groove into a receiving-ladle, common to the furnaces,

where it was held for use, and drawn as required into a casting-ladle and carried to the molds, as already mentioned.

In 1855 and 1856, Sir Henry Bessemer obtained various patents covering his discovery for producing malleable iron and steel by forcing currents of air through molten iron. The appliances described was a refractory-lined vessel, called by Bessemer a converting vessel, which came to be designated as the converter or the vessel. Without going into detail, it suffices to say that, for various reasons the method of Sir Henry Bessemer proved not to be as advantageous as had been expected. Indeed, it was not until Mushet patented a method of decarbonizing iron by completely blowing it and adding ferromanganese or spiegelstein in a molten state that the difficulty of producing steel was solved and the process of Sir Henry Bessemer was rendered practical. Despite, however, the fact that Mushet's discovery was of immense value and rendered Bessemer's conceptions a commercial success, Mushet allowed his patent-right to lapse through neglect to pay the requisite fees in the third year; and (to quote the language of the author of the article on Iron, contained in *Encyclopædia Britannica*, 9th ed., Vol. 12, p. 342)—

in consequence his name is all but forgotten in connection with his improvement on Bessemer's own process, the combination being indelibly termed "Bessemerizing."

In the manufacture of steel by the Bessemer-Mushet process two methods were followed: one termed the indirect, the other the direct. In the indirect, pigs were charged into a reverberatory furnace, for which, at a later date, a cupola-furnace was substituted. In such furnace the pigs were melted and run into ladles or reservoirs, and thence the molten iron was conveyed to the converter for the necessary treatment. Without attempting to give accurately the variations in the size and consequent capacity of cupola-furnaces and converters, it is unquestioned that the quantity of molten metal which could be drawn at a single tapping from the cupola was usually not adequate to supply a full charge to the converter. It followed that ordinarily more than one cupola-furnace was used to supply a converter, and that the tappings from such cupolas were drawn into a common reservoir or ladle, and there stored until required to be carried to the converter. Indeed, irrespective of the necessity of storing the tappings, growing out of the difference between the capacities of the vessels in question, such storage was additionally required in order that the operation might be continuous, in case of delay resulting from accident to the converter or otherwise.

In the direct process the capacity of blast-furnaces greatly exceeded that of cupola-furnaces. The molten iron was tapped directly from the blast-furnace into a number of receiving reservoirs or ladles, and carried for treatment to the converter.

On October 31, 1888, William B. Jones made application for two Letters Patent, one stated to be for a new and useful improvement in apparatus "for mixing molten pig metal," the other for a

process declared to be "a new and useful improvement in methods of mixing molten pig metal." The application for the first or apparatus patent was several times rejected, and, after various amendments, was finally allowed. This patent may be dismissed from view, as it is not involved in this controversy. The first application for the process patent—which is the patent under consideration in this case—was rejected. Thereupon a new and amended application was presented. This was also rejected, when a second amendment was made, and the application was finally allowed.

As the opinion of the Court has reproduced the specifications and claims of the patent, it is unnecessary to repeat them in detail, and therefore a mere outline of them is now given. The patent was entitled "Method of mixing molten pig metal." The primary object of the invention was stated to be—

to provide means for rendering the product of steel-works uniform in chemical composition.

It was also stated that—

my invention is not limited to its use in connection with converters, since similar advantages may be obtained by casting the metal from the mixing vessels into pigs for use in converters, puddling-furnaces, or for any other uses to which pig-iron may be put in the art.

It was further stated that—

my invention may be practiced with a variety of forms of apparatus—for example, by merely receiving in a charging-ladle a number of small portions of metal taken from several ladles or receiving vessels containing crude metal obtained at different times or from different furnaces, mixing being performed merely by the act of pouring into the charging-ladle, and other like means may be employed.

It was, however, declared that it was preferable to use the device covered by the apparatus patent, and a description of the same was set out. That device, may be thus described: It consisted of a covered tilting tank of large size, "holding, say, one hundred tons of metal (more or less)," lined so as "to retain the heat of the molten contents of the vessel and to prevent chilling thereof," with receiving and charging spouts, a gas heating appliance contained in the discharging-spout, and so constructed that, after being fully charged with molten metal, drawn from the furnaces into ladles and poured into the reservoir, as the metal was poured out for use a considerable residue would remain in the reservoir to mix with an incoming charge.

The patent embodied two claims which read as follows:

1. In the art of refining iron directly from the smelting-furnace, the process of equalizing the chemical composition of the crude metal by thoroughly commingling or mixing together the liquid-metal charge and subsequently refining the mixed and equalized charge, substantially as and for the purposes described.

2. In the art of mixing molten metal to secure uniformity of the same in its constituent parts preparatory to further treatment, the process of introducing into a mixing-receptacle successive portions of molten metal containing in their non-metallic constituents, (sulfur, silicon, etc.,) removing portions only of the composite molten contents of the receptacle without entirely draining or emptying the same, and successively replenishing the receptacle with fresh ununiform additions, substantially as and for the purposes described.

On December 2, 1893, the Carnegie Steel Company, Limited, which had acquired full title to the Jones patents, commenced the present suit against the Cambria Iron Company, for an alleged infringement of the foregoing process patent. The defenses made by the answer were substantially a

denial of infringement, and an averment of want of patentable novelty.

After the evidence for the defendant was all in and several witnesses had been examined in rebuttal, the complainant, on March 30, 1897, stated—
that at the hearing of the case he will urge infringement of the second claim only of the patent in suit.

At the close of all the evidence the complainant filed what is termed a "Petition for Disclaimer," praying that the court would receive in evidence a certified copy of a disclaimer of portions of the specifications, which on that day had been sent to the Patent Office for filing. The trial court admitted the disclaimer in evidence. The portions of the specifications covered by the disclaimer are printed in Italics in the patent as reproduced in the opinion of the Court. The disclaimer need not be further noticed at this time.

It was shown beyond question that in November, 1895, the defendant had erected at its works a reservoir of the capacity of about three hundred tons, for the storage of molten metal drawn from its blast-furnaces, the metal so stored being held in the reservoir for the purpose of treatment in the converters. This reservoir was described by a witness in the following condensed manner:

It was cylindrical in shape, with slightly convex ends, and in turning (for the purpose of pouring out the metal) it revolved upon the center of the cylinder. It is supported upon cradles of rollers and the motion is imparted to the reservoir by hydraulic cylinders.

As this case, as already stated, does not involve the Jones apparatus patent, no question of infringement of the mechanical device embraced in such patent can possibly arise. In this reservoir the molten metal as tapped from the furnaces was stored continuously and the reservoir was drawn upon with like continuity to supply molten metal for treatment in the converters. While it is not asserted that the use of the reservoir, as just stated, caused the metal stored therein to become uniform in its chemical constituents, it is conceded that the method pursued counteracted the inconvenience of sudden variations in the metal as drawn for converter purposes.

There is controversy, however, whether the defendant, in reservoiring its molten metal, irrespective of the supply and demand, intentionally retained in the reservoir a considerable residuum. From the view taken by me, however, it is unnecessary to pass on this contention, since the principles deemed by me applicable to the case will be wholly unaffected, even if it be conceded that the defendant in operating its reservoir, in filling it with molten metal and in drawing the same off for use in the converter, designedly held in the reservoir a considerable residuum of molten metal in order that the metal which was subsequently charged into the reservoir might commingle with that retained.

The cause was decided by the circuit court in favor of the complainant. The court held: That the second claim of the patent referred alone to metal direct from the blast-furnace intended to be bessemerized in a converter, and that the object was, not the obtaining, by mixing, a molten metal

substantially uniform in its chemical constituents, but the avoidance of abrupt variations between the various charges supplied to the converter. The patent was construed as not contemplating the mixing of batches of metal, that is, the filling up of the apparatus and a drawing down to a "residue" before replenishing. The gist of the Jones idea was stated to be—

the creation and maintenance of a great pool of metal between the blast-furnace and converters, through which all the incoming and outgoing metal must pass—

by which means abrupt variations were prevented, although neither a uniform molten metal nor a uniform product was thereby obtainable. Indeed, the court said:

In Jones, uniformity is a non-essential; in fact, a non-attainable attribute of product, and is a necessary non-sequens of material used.

While the court found that reservoiring was well known in the art at the time the Jones patent was obtained, and that mixing necessarily resulted from such reservoiring, it held that the Jones method was patentable, because the reservoiring known to the art contemplated storage, and not the prevention of abrupt variations; that although a mixing of the metals was of course the inevitable result of the reservoiring, such fact did not preclude the validity of the Jones patent, because prior to its grant the mixing arising from reservoiring was incidental to storage, while under the Jones method the storage was incidental to the mixing. The court said:

Now that mixing of some character took place in the ladle during these operations, that where it took place the resultant was a homogeneous average of all constituent ingredients contained, are facts to gainsay which would be to question nature's laws; but the indisputable fact remains that such mixing was accidental, eccentric, and non-systematic, and, therefore, not of a systematic, regular, functional type or for a systematic, functional purpose.

A decree was entered reciting that the patent in question was valid as to the second claim thereof; that the defendant—

by reason of the use of a certain method of mixing molten pig metal, as in the said complainant's bill set forth, has infringed the said recited Letters Patent as to the second claim thereof, and has violated the exclusive rights of the said complainant thereunder.

It was adjudged that recovery be had of the gains and profits made by the defendant and the damages sustained by complainant, and a master was appointed to ascertain the amount of such gains, profits and damages. The defendant was, in general terms, enjoined from any further infringement of the second claim of the Letters Patent and of the exclusive rights of complainant thereunder.

An appeal was taken to the circuit court of appeals. That court held that the second claim of the patent did not cover the retention in reservoiring of a considerable residuum, even though the same was designated as a dominant pool, and if it did that the method was not patentable in view of the state of the art, and that the proceedings in the Patent Office demonstrated that this was in effect conceded by Jones. It was decided that the defendant had the right to reservoir its molten metal, and that its method of doing so did not infringe the patent. The court decided that the disclaimer was not warranted by the statute, but that

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in any event it was ineffective to alter the true meaning of the patent. Thereupon the decree of the circuit court was reversed.

This Court now reverses the decree of the circuit court of appeals, adopts the views of the circuit court, and in effect affirms the decree of that court. The Court expressly upholds the theory of a dominant pool, and decides that the Jones patent related, not to the obtaining of uniform molten metal by mixing in a reservoir, and a resultant uniform product, but solely to the procuring by means of reservoiring, molten metal which would not abruptly vary in its chemical constituents when drawn from the reservoir for use in a converter. The opinion of this Court now, as did that of the circuit court, expressly concedes that reservoiring of molten metal was well known in the art at the time the Jones patent was applied for, and that mixing was the inevitable result of such reservoiring, but it is decided that this fact did not operate to deprive the Jones method of novelty or to relieve the defendant from the charge of infringement.

My mind is unable to assent to the construction which the Court affixes to the patent, and as it is conceded that the method used by the defendant does not infringe, unless the patent has the import which the Court has given to it, the reasons for my dissent would perhaps be most directly made manifest by stating what seems to me to be the true construction of the patent. Doing so, however, is for the moment precluded for two reasons: 1. Because to my mind it seems that even if it be granted, *arguendo*, that the patent is susceptible of the construction which the Court has placed upon it, on the face of the opinion, the conclusion reached is wrong; in other words, the opinion of the Court to me seems self-destructive. 2. Because if the concession of the Court be accepted, that reservoiring and mixing were well known in the art, then it follows, from a consideration of the record, that the patent, as construed by the Court, was wanting in patentable novelty. That is to say, if the admissions of fact made in the opinion of the Court are right, its conclusion is demonstrated by the record to be unsound.

Let me briefly advert to the opinions of this Court and of the circuit court, to point out the reasons which constrain to the first proposition just stated. The circuit court concluded that the reservoiring of molten metal from cupola and blast furnaces for use in casting or in converters was well known to the art at the time the Jones patent was applied for. It also declared as follows:

That mixing of some character took place in the ladle during these operations; that where it took place the resultant was a homogeneous average of all constituent ingredients contained, are facts to gainsay which would be to question nature's laws.

But this was held not to establish that at the time the Jones method was patented that method as now construed was known to the art or had been anticipated, because, in the prior practice, the mixing "was accidental, eccentric and non-systematic, and therefore not of a systematic, regular, functional type, or for a systematic, functional purpose," that such mixing was incidental to storage,

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while in the Jones method storage was incidental to mixing. This Court approvingly adopts and elaborately restates these views.

Now, my reason does not enable me to conceive how, consistently with the view of the prior state of the art as to mixing and reservoiring which is admitted, the conclusion as to the patentability of the Jones method as construed can be sustained.

It would seem to be beyond question that, as it is held that the mixing resulting from the storage as practiced prior to the grant of the Jones patent, was the resultant, as stated, of a well-known law of nature, it must follow that the qualifying words "accidental, eccentric, non-systematic, and functional type or purpose" could only relate to the conduct of the persons who practiced the method prior to the Jones patent. This must be, unless it can be said that a well-known law of nature was accidental, eccentric, non-systematic and non-functional. The qualifications then applying, not to the law of nature, but to the conduct of parties, the reasoning must come to this: Although the method attributed to the Jones patent was well known to the art at the time that patent was issued, and hence it was intrinsically wanting in patentable novelty, nevertheless such method must be held to have embodied invention because the well-known practice was carried out by individuals in a varying and irregular manner. But this is only to say that while the Jones method was old, it must be treated as new because of the conduct of individuals in applying the method and their intentions. And this reduces itself to the proposition that the Jones patent as construed covered the mere intention or mind of persons. The reasoning is equally applicable to the distinction which is asserted to exist between storing and the mixing incidental thereto, and mixing with incidental storage. The mere form of expression cannot create a distinction where none exists, or destroy a law of nature. As by me it cannot be conceived that various charges of molten metal can be stored in a common reservoir without resulting mixing, it follows necessarily, by the law of diffusion of fluids, the mixing is the secondary result arising from and created by the primary act of storage. It is impossible that the secondary force can be caused to become the first and creating power by a mere collocation of words. If, then, the distinction has significance, as of course it must have, since the Court makes it the basis of its decision, it can only mean this, that those who practiced the reservoiring of molten metal before the grant of the Jones patent mainly contemplated storage, and did not in their minds take into view the inevitable mixing, which would arise therefrom by a law of nature; therefore, in the minds of the person so reservoiring the storage was the primary and the mixing the incidental consequence. But, on the contrary, as those reservoiring metal after the Jones patent must be considered to have contemplated, first, the advantages resulting from mixing, therefore, in their minds, the mixing is the principal and the storage the ac-

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cessory. But this is only again to say that while the Jones method was old it is to be treated as new because it covered the intention of those who stored metal for the purpose of use.

Aside from this, it seems to me the concession that the placing of molten metal in a reservoir for use as required was well known at the time the Jones patent was issued, is inconsistent with the ruling now made, that the Jones patent validly embraced the retention in a reservoir of a mass of such metal, now described by the Court as a dominant pool. The elementary import of the right to reservoir, as applied not only to molten metal, but other fluids, is the storing of the fluid for use as required, and this implies the drawing off as desired, the replenishing at will, and the keeping of such residuum or reserve supply as may be deemed best. It may not be doubted that to say that one who stores fluid for use is obliged whenever he draws any off to draw all off before replenishing, is to say that such party has not the right to reservoir. If it be meant by the Court that the right to reservoir carries with it the right to draw off or to retain at will, unless the person reserving intends to retain a residuum for a particular purpose, the reasoning reduces itself again to the proposition that the Jones patent covers, not the process described therein, but the mind and intention of the individual who may exercise the right to reservoir molten metal. That is to say, my reason does not enable me to understand how the right to reservoir can be admitted, and yet such right be at once denied by a construction of the patent which imposes qualifications on the right to reservoir, which, in effect, renders its beneficial exercise impossible. In other words, I fail to see how the exclusive right can be conferred to do the very thing which the Court admits was well known at the time the patent to Jones was issued. The conflict which my mind perceives between the facts admitted upon the face of the opinion and its conclusion is expressly pointed out by the opinion itself, where it is said:

If the contents of the mixer used by the defendant were allowed habitually to become empty in carrying out its process there would be no infringement.

That is, if in the use of its reservoir the defendant did not habitually retain a residuum there would be no infringement. But the admission that the occasional use of a residue would be no infringement concedes that the patent did not embrace the right to use a residue, for if it was covered by the patent it would be an infringement to avail of it even occasionally. Thus it must follow that the exclusive right which the Court upholds is expressly declared to relate, not to the process, but to the mere habit of the defendant.

For the purpose of demonstrating the second proposition previously adverted to, let me now recur to the state of the art as depicted by the record, in order to point out that even if the Jones patent embodied the process which the Court now attributes to it, that process was wanting in patentable novelty. In doing this, for convenience, the subject is thus divided: (a) the use of molten

metal drawn from cupolas for foundry purposes, before the invention of Bessemer, as well as the foundry practice and the bessemerizing practice by the indirect process after such invention and before the grant of the Jones patent; (b) the direct process of making steel from blast-furnace metal prior to the grant of the Jones patent.

FOUNDRY AND INDIRECT BESSEMER PRACTICE BEFORE THE GRANT OF THE JONES PATENT.

1. *The Whitney Car-Wheel Practice.*—At the Whitney car-wheel works in Philadelphia, commencing in 1847, remelted pig metal from several cupola-furnaces was tapped at intervals into a large reservoir-ladle, having a capacity of from twelve to fifteen tons. From this the molten metal was poured into charging-ladles having a capacity of but six hundred pounds. A considerable residue was always maintained in the reservoir-ladle. The principal purpose, as testified to by witnesses having personal knowledge of the subject, was to secure, as a consequence of the mixing resulting from the reservoiring, the production of a practically uniform product. Excerpts from the testimony of John R. Whitney contain a clear statement on the subject:

When the (large) ladle was nearly full we began to pour from it into smaller ladles, each one of which held enough for one wheel; if it was an ordinary-size wheel it held enough for two wheels; and if the wheels were smaller ones it held enough for two or three. As that drew the molten iron from the ladle and the iron continued to melt, the ladle was constantly being filled from the cupolas, and it was kept full until all the iron charged in the three cupolas was melted and the bottoms dropped. Then the iron was continued to be poured out of the large ladle until it was all used, these two methods making the uniform mixture; that is, we mixed it in a solid state, first by our charges and then in the molten state in the large ladle.

As the mixture (of selected iron) was charged into each cupola, as I have stated, it was made up of iron from various furnaces, some iron having one quality and some another. As it melted in each cupola, it did not all melt at the same time, and if we had drawn it directly from the cupola into the small ladles from which we poured the wheels, one wheel might have been poured out of very hard iron, another wheel out of very soft iron, and so every shade between. There would have been no uniformity in our work. But by taking it from the three cupolas, all melting the same charges of iron, and collecting them in a molten state, the inequalities of melting were all overcome and a uniform product produced.

2. *The Wheeling Foundry Practice.*—Kirk on *Foundry of Metals*, 1875, thus describes a foundry practice, (italics not in original):

In melting iron I should recommend melting it hot, and as fast as possible. A quantity of molten iron should be kept in the cupola or in a large ladle, so as to give the different brands of iron a chance to mix. In most all the foundries at Wheeling, W. Va., the cupolas are never stopped in from the time the blast is put on until the bottom is dropped. A large ladle is set on trestles in front of the cupola, in such a manner that the iron can run into it from the cupola and be poured out into the smaller ladles at the same time. The iron is all run out of the cupola as fast as it is melted, and is mixed in a large ladle. I think this is a good way of mixing iron. See alloy.

3. *The Altoona Practice.*—At the Altoona wheel-works of the Pennsylvania Railroad, from 1871, the cupola metal was designedly stored and mixed. The early reservoir-ladle, of seven tons capacity, received the metal from two cupolas, and was thus described:

A. The ladle turns on two transoms and has chains leading from these transoms down to the hydraulic cylinder shown on the drawing, one chain being wound in one direction on one transom and other being wound in the other direction on the other transom, and the two chains being connected at opposite ends of the piston-rod.

In describing the regular way of working each day the witness said, (italics not in original):

In the first place each cupola is charged with about forty tons of metal. We charged about forty tons in each cupola; then

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after we have this done we put the blast on and begin to melt, and as soon as now the lad in the cupola is filled up with molten metal we tap it out into the receiving ladle or reservoir, which fills the reservoir about one-half full, then we stop the cupolas up again until the iron raises to the eye-hole, then they are tapped again, and this second tap generally fills the reservoir; then after the reservoir is full, we begin to pour the metal out into smaller ladles, then send it around to the molders for pouring into the wheel-molds.

The custom was to empty the receiving ladle about one-half; then hold the remainder of iron in the reservoir until the cupolas were ready to be tapped again; and after the reservoir is full we start and pour out into the smaller ladles again. The receiving-ladle at all times is kept about one-half full, and it is this full when we tap the metal ladle it from the cupola.

In the *London Engineering* for 1877, describing the practice pursued at Altoona, when a ten-ton receiving-ladle was used, it was said:

It was found advisable to employ a ladle of so large a capacity because by doing so a more complete mixture of the different irons is effected than would be the case if a smaller vessel were employed.

And the methods of using cupola metal for foundry purposes above described were early applied to making Bessemer steel by the indirect process. The following excerpt from the testimony of a witness clearly states the subject:

A. I. Holley, who built the Troy works, and made his first conversion in 1855, introduced into this original plant a tipping accumulating-ladle resting on scales. This ladle was patented by Bessemer in 1858, English Patent 186, alluded to in the previous answer, but apparently was an American invention. It was introduced in some form or other in all the American works, and was used almost always in duplicate, holding about two heats each, or many cupola-tappings. In the last works built in St. Louis by Holley, in 1876, there were three of these ladles. In all American works these ladles were turning or tipping ladles, and were placed on scales to weigh the converter charges.

In 1877, describing the Vauxhall works, a plant designed and erected under Mr. Holley's supervision, that gentleman said, (*London Engineering*, Vol. 23, 1877):

The cupola-ladle facilitates the distribution of metal to the vessels. They form a reserve which enables the melting-department and the converting-department to work independently of each other within limits. This advantage was not appreciated fully until the large productions of the last few years were attempted. Should any delay occur in melting, or preparing a vessel, or from any cause, the melting-department keeps right on, for these ladles will hold an vessel charge, which may be stored and converted when the converting-department is ready for them. Cast-iron will "live" in these tipping-ladles, when covered with charcoal, for several hours. But it is necessary to put these ladles upon weighing-machines, so that either uniform vessel charges may be run out, or so that special charges may be proportioned to each charge as are run out.

These ladles were variously named. Holley called them cupola-ladles, interposed ladles and reservoirs. Hunt described them as "intermediate accumulating-ladles."

A witness thus testified respecting the extent of use in this country of the receiving-ladle as follows:

Early American steel-works, commencing with Troy in 1854, Pennsylvania in 1857, Cleveland in 1858, Cambria and Union in 1871, Martin Chicago in 1873, Jones and Bessemer in 1875, Edgar Thompson and Lehigh in 1876, and Vauxhall in 1876, used receiving-ladles, two in number, holding about two heats each, with the exception of Bethlehem, which used a single ladle on a car to mix taps from four cupolas, and Vauxhall, which used three receiving-ladles, holding two heats each. These ladles were used for storing and measuring the heats.

It is shown that from 1870 to 1880 the capacity of the accumulating-ladle used at the works of the defendant was 23,000 pounds, and the converter charge 15,000 pounds, leaving 12,500 pounds in the ladle after a charge was supplied to the converter. The cupola-taps of from 4,000 to 6,000 pounds passed into and filled such ladle.

Describing the mode of use of the ladle, Price, a witness, said:

It was the custom to have in the ladle an amount of metal equal to the difference between the converter charge and the

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full ladle capacity. . . . This ladle was again filled to its full capacity by retapping the cupola.

The metal from the several cupolas necessarily varied from time to time considerably, both in chemical and physical conditions; at those the metal being such from one or two of the cupolas that in themselves they would be unfit for converter use. But by the means which was effected by the intermediate ladle, the metal from this one, or the two, cupolas, would be averaged with the better-adapted metal for converting from the others.

Speaking of the beneficial effects resulting from the use of the accumulating-ladle at the works of the defendant, another witness (Cabot) said:

The mixing of cupola metal at Cambria was accomplished by the tapping of a number of cupola-furnaces into one large receiving-ladle, from which converter charges were poured off, and the supply in this ladle again increased by further tapping. The practice at the Vauxhall steel works was similar to that. The purpose was to obtain a supply of metal for the converters to equalize the different streams of metal from the different cupolas, and that was its effect. It accomplished that.

Yet another witness (Hunt) declared:

It was recognized as one of the great features of the intermediate ladle, that it made the work so much more uniform in results from mixture or evening up of the various grades of pig-iron used.

What distinction can be drawn between these methods and the patent as now construed? This Court and the circuit court did put aside the Whitney method on the ground that it provided for obtaining absolute uniformity of product, while the Jones method was held to provide simply for avoidance of abrupt variations. While it is clear that a method which had for its purpose merely the prevention of abrupt variations would not necessarily include one for the obtaining of a uniform product, how a method of reservoiring molten metal as such metal is produced in the furnace and drawing it off from the reservoir for use, which produced uniformity of product as the result of the reservoiring, can be said not to have embraced the prevention of abrupt variations, is to my mind absolutely unthinkable, since the greater must necessarily include the lesser. For, of course, as there cannot be abrupt variations in the constituent elements of a molten metal which is uniform, it must follow that a process of reservoiring which in the continuous operation of a plant will obtain a uniform metal must necessarily exclude abrupt variations in the quality of the metal.

The Court now, in addition, disposes not only of the Whitney practice but of the others to which reference has just been made, by certain general considerations which it is held applies to them all. These considerations are, first, an assertion that although all such practices included reservoiring and the incidental mixing arising therefrom, none of them contemplated mixing as a necessary and inherent attribute, and none of them embraced the retention in the reservoir of a considerable mass of metal, a dominant pool, as a part of the process of reservoiring; and, second, as the practices in question related to molten metal drawn from cupolas, therefore they did not establish that reservoiring and mixing were known to the art so far as concerns the molten metal drawn directly from blast-furnaces.

The first proposition, it is submitted, is absolutely in conflict with the express and uncontroverted proof in the record, as manifested by the references which I have already made. Let me

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recur to the practices under consideration to show that this is the case. Take the Whitney practice as testified to by Whitney. After saying that withdrawals were not made from the reservoir until "it was nearly full," and describing the drawing off of the molten metal from the reservoir, he said:

And (as) the iron continued to melt (in the cupolas) the ladle was constantly being filled from the cupolas, and it was kept full until all the iron charged in the three cupolas was melted and the furnace dropped.

The witness thus clearly showed not only the constant retention of molten metal in the reservoir, but that such retention was recognized in the practice as essential to secure "desired uniformity of molten metal." I cannot see how there can be doubt on this subject, in view of the fact that the witness added:

If we had drawn it (the molten metal) directly from the cupola into the smaller ladles from which we pour the wheels, one wheel might have been poured out of very hard iron, and another wheel out of very soft iron, and so every shade between. There would have been no uniformity in our work. But by taking it from the three cupolas, all melting the same charges of iron, and collecting them in a molten state, the inequalities of melting were all smoothed and a uniform product produced.

Take the wheel-foundry practice as portrayed in Kirk's publication. The statement is made that—"a quantity of molten iron should be kept in the cupola, or in a large ladle, so as to give the different brands of iron a chance to mix."

Again:

The iron is all run out of the cupola as fast as it is melted, and is mixed in a large ladle.

The publication thus clearly pointed out the advisability of retaining a residuum in the cupola or in the reservoir, for the purpose of better mixing.

Recurring to the Altoona practice, doubt on the subject seems to me to be in reason impossible. It is not gainsaid that such practice embraced reservoiring and mixing. It cannot, it is submitted, be affirmed that it did not embrace the retaining in the reservoir of a large residuum of metal for the express and necessary purpose of making the mixing more perfect, if the proof as to the practice pursued is not wholly disregarded. What was that practice? When the metal in the cupolas began to melt, it was drawn off into the reservoir until the reservoir was half-full; then the withdrawals from the cupolas were stopped. But the metal in the half-full reservoir was not, however, then made use of. Why was it not so used, although ready in the reservoir? The answer is, because it was deemed best, in order to obtain beneficial results from mixing, to hold the half-full reservoir for a subsequent tapping therein from the furnace, of a quantity of molten metal sufficient to fill the reservoir. Only when the reservoir was thus filled did they commence to draw the metal therefrom, and when by such use the quantity in the reservoir was reduced to about one-half, then the drawing off was stopped, so as to retain about the one-half until there was a further replenishing from the furnace, and thus the operation continued. Now, by a mere affirmation, it can be held that the process which has just been described did not contemplate the constant retention of a considerable residuum in the reservoir, is to my mind inexplicable. Let me quote again

from the record the uncontradicted testimony as to the practice in question:

The custom was to empty the receiving-ladle about one-half; then hold the remainder of iron in the reservoir until the cupolas were ready to be tapped again; and after the reservoir is full we start and pour out into the smaller ladles again. The receiving-ladle at all times is kept about one-half full, and it is this full when we tap the metal into it from the cupolas.

The irresistible conclusion thus arising from this proof is, it seems to me, rendered if possible clearer, when it is recalled that as early as 1877 the *London Engineering*, in a reference to this practice, declared:

It was found advisable to employ a ladle of so large a capacity, because by doing so a more complete mixture of the different irons is effected than would be the case if a smaller vessel were employed.

And what has just been said applies equally to the practice of making Bessemer steel from cupola-furnaces. That the excerpts which I have given on this subject clearly show that mixing by the use of a residuum was the result of the employment of the accumulating-ladle, and a result that was well known and intended, it seems to me cannot be gainsaid. How the Jones method, as construed, can be declared to have been novel—because in cupola metal there was no variation requiring mixing—in face of the fact that the very patent which is sustained, in various forms of expression, expressly declares that such variation exists, is not by me comprehended.

Besides, the proposition involves an unsound deduction, since it in effect not only disregards the fact that the practices in question were availed of with the avowed purpose of correcting the inequalities found to exist in cupola metal, but also the erroneous assumption that there could be patentable novelty in merely applying to blast-furnaces the well-known practices as to cupola metal.

It may well be conceded, without affecting the case, that the variation is greater in metal drawn from blast-furnaces than in that drawn from cupolas, but this mere difference in the degree of variations between the two affords no ground for construing the Jones patent in such a way as to cause it to cover the well-known prior methods.

Nor does the example given in the opinion of the Court for the purpose of illustrating the difference which is found to exist between the practices to which I have referred, and the Jones patent, as now construed, enable my mind to discover the difference. The Court says, (italics mine):

Let us imagine a reservoir containing, say, three quarts, and filled with one quart each of three liquids of different constituent parts, and withdrawers for further treatment at the rate of one or two quarts at a time. Necessarily there would be some incidental mixing, but it would occur at once that the main object of the reservoir was a retention of a sufficient quantity of the mixture to supply the receptacle for further treatment, and if no necessity existed for a longer retention of the liquid in the reservoir, it could be very quickly emptied by two discharges into the receiving vessel. Now, let us substitute for this reservoir a tank of, say, sixty quarts, into which the liquids of different constituent parts are poured in at one end and from a multitude of receptacles, and discharged at the other end after remaining a certain time in the tank, and that this tank could not be tilted so far but what a quantity of liquid would be left in it amounting, say, to half its capacity. Now, if there be no distinction between these two operations, there would be little left to the Jones process, the very novelty of which consists in the size of the tank relative to the ladles and the mixing of the various liquids poured into it before they are withdrawn.

In the first place, this example fails to notice the fact that in the accumulating-ladle the metal was received from several—in some instances as many

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as four or five cupolas—and that in practice a residuum was constantly maintained, and for the purpose of mixing, and that these ladles could not be drained of metal unless there was an intention to do so. The only distinction afforded by the example is that resulting from the difference in sizes of the two supposed receptacles in which the mixing was accomplished. But this would reduce the patentable novelty in the Jones process to the size of the reservoir. Indeed, it is so expressly stated, since in the opinion it is declared that—

there would be little left of the Jones process, the very vitality of which consists in the size of the tank relative to the ladles and the mixing of the various liquids poured into it before they are withdrawn.

The mixing having been disposed of by what I have already said, it follows that the "very vitality" of the patent is found to be the size of the tank relative to the ladles, which in reason is a direct abandonment of the whole theory of a dominant pool previously expounded as the source of vitality in the patent. But the size of the reservoir—called by the Court a tank—relative to the capacity of the plant, is clearly shown not to have been novel, by what has been previously said, and will be further demonstrated beyond peradventure by the consideration which it is now proposed to give to—

THE MANUFACTURE OF BESSEMER STEEL BY THE DIRECT PROCESS.

The use of the direct process for bessemerizing, it would seem, was at once resorted to on the Continent of Europe, and there is testimony in the record giving rise to the inference that the greater uniformity of the ores used in the blast-furnaces on the Continent caused such processes to be there at once quite successful. However, it may not be doubted that on the Continent the use of a reservoir or accumulating-ladle sometimes obtained, and the advantage which it afforded of bringing about a desirable mixture of the metals from several furnaces was known. Thus Kohn, in the *Journal of the Iron and Steel Institute*, 1871, speaking of the practice at Terrenure, in France, said:

The iron is first run into a ladle, as explained by Mr. Monette, and so taken to the converter. The ladle is brought to the back of one furnace, and half-filled; it is then run to the next furnace and filled up. In this way the Terre Noire Company always obtains a mixture of the metals, and therefore the greatest regularity is secured through the rest of the work. The furnaces are kept in regular working order, and by carefully managing the charges of the blast-furnaces and watching them as much as possible, the practical result is that there is no inconvenience as regards the furnaces themselves in tapping frequently. The same thing is done at Mr. Schneider's plant at Creusot, but he believed they do not there go so far as to mix the iron.

In England, the direct process was not made use of until about 1877, and it is known that this largely resulted from the fact that the Bessemer plants in the early use of the process were not connected with blast-furnaces.

In this country, though the manufacture of Bessemer steel was commenced in the early sixties, and in one or two of the early experimental plants a brief use was made of direct metal, the indirect process was in general use until the year 1883, when the first large plant equipped for direct use of blast-furnace metal began operations at the new South

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Chicago works of the Illinois Steel Company, and later in the same year the Edgar Thompson works (the Carnegie Company), with five new furnaces, also commenced such work. These plants were still producing steel by the direct process, with the use of the accumulating-ladle when the Jones patent was granted in 1880, and it was not until the year 1886 that a large storage-tank was installed at the South Chicago works.

A number of patents having relation to the making of steel by the Bessemer direct process were from time to time granted before the Jones patent was issued, and I shall now notice the most important of such inventions, as also some other publications embodied in the literature of the art.

In the British patent to Deighton of 1873, the purpose of the inventor, among others, was declared in the specifications to be to keep a steel-works plant or apparatus in nearly uninterrupted work, thus very considerably increasing the production of such plant. It was said:

Instead of manufacturing Bessemer iron or steel from pig-iron which has to be melted in cupolas, my invention also consists in taking the molten metal directly from the blast-furnace or the converter, in which case I prefer to arrange the Bessemer plant in a line at a right angle to a row of two or more blast-furnaces, and place a vessel to receive the molten metal tapped from two or more blast-furnaces to get a better average of metal which will be more suitable for making Bessemer steel or metal of uniform quality, the vessel or receiver being placed on a weighing-machine so that any required weight may be drawn or tapped from it and charged into the converter.

The apparatus was then described in detail, and consisted of blast-furnaces, arranged in a line, with channels from each furnace to a common reservoir or mixer, and with a connection from the mixer to a converter, so that the molten metal in running from the blast-furnaces might go into the reservoir and be mixed, and might be drawn off as desired to the converter. It was stated that the receiving vessel—

is placed low enough to give fall for the molten metal to flow from the blast-furnaces to this reservoir, which forms a receptacle for mixing the molten metal from two or more of the smelting-furnaces. From the reservoir in the mixed molten metal is tapped and flows down the vertical through a into the converter. By placing the vessel on a weighing machine it can be readily ascertained when the exact quantity required has been tapped from it into the converter.

In 1885, a few years prior to the grant of the Jones patent, two United States patents were issued to James P. Witherow, 1, for Apparatus for the Manufacture of Iron and Steel; and, 2, Steel Plant Appliance, which patent showed a blast-furnace, an intermediate storage vessel of large size and a converter. In brief, the purpose of the Witherow reservoir apparatus was to receive and store the molten metal for the purpose of preventing the detention incident to the necessity of discharging the contents of the blast-furnaces when there is no converter ready to receive it. The advantage of the large storage-receptacle was thus stated in the specification of one of the patents:

The metal is usually tapped from a blast-furnace once in every six hours, and the quantity thus run is many times in excess of the charge of a converter. . . . The charge of a converter is from one to five tons, and in the case of a blast-furnace usually runs from ten to fifty tons. . . . The time between charges of the converter is usually twenty minutes and upward, and the metal from the furnace must be kept in condition to be tapped from time to time into the converter as needed.

The evidence establishes that the Deighton and Witherow reservoirs were, each, of a capacity of one hundred tons.

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Commenting, in June, 1877, upon the merits and demerits of the use, then just commenced in England, of direct metal—that is, the conversion of molten metal direct from the blast-furnace, without remelting in a cupola or storing it in a large reservoir—A. L. Holley said, (Italics mine):

It has not yet been practicable to work the blast-furnace with sufficient regularity to realise approximately the theoretical advantages of the direct process.

Fourth. The obvious remedy is to mix a number of blast-furnace charges, so as to reduce the irregularity to a minimum. Two systems of doing this are on the eve of trial: the one is simply mixing in few charges in a tank (that the metal will be drawn out before it cools); the other is to store a larger number of charges in a heated tank—that is to say, in an immense open-hearth furnace.

The first of these two systems of mixing would seem to be that embodied in the following portion of Mr. Holley's description of the West Cumberland practice:

In order to get a more uniform metal, Mr. Stiles is about trying the experiment of placing a twenty-ton ladle on a hydraulic lift at the "A" pit, so arranged as to store, mix and pour, say, three six-ton to seven-ton blast-furnace taps, or to mix blast-furnace and cupola metal. I doubt this body of metal will "live" if the ladle is thickly lined and not covered. Mr. Stiles has another object also; tapping half or a third of a vessel heat out of the blast-furnace—in other words, tapping so often—wears out the tap-hole more rapidly; slag gets into the walls and weakens them. It is preferable in every way, as blast-furnace men well understand, to tap a full hearth. At the same time improvements in working the furnace are gradually developing. More care is taken as to the selection of ores, the size of ore and limestone, the distribution of materials in the furnace, the temperature of the blast, and all elements of uniformity.

Uniform results in the Bessemer department can hardly be expected, unless a number of blast-furnace charges are mixed. This would seem to be the theoretical solution of the problem.

The second of the two systems of mixing is undoubtedly the one then being erected at Moss Bay, England, viz., a sixty-ton reverberatory coal-fired furnace or two forty-ton furnaces. The ladles of blast-furnace metal were to be "tapped out into the large reverberatory furnace," in which "it is the intention to store and keep hot some sixty tons of iron from all the blast-furnaces." This method, for some reason not stated, perhaps an economical one, was not successful. Mr. Holley, in the article just noticed, referring to the arrangements in connection with the use of this "large furnace," said:

The complex manipulations due to the arrangement described seem likely to take unnecessary amount of time and labour.

After reviewing the practice in the various English and Continental steel-works using direct metal, Mr. Holley summed up his conclusions, and recommended the American works to continue for the present to select and remelt the pig metal, and continue their efforts for some time "in the preliminary department of the direct process—to increasing our uniformity of blast-furnace working and product." We excerpt the following passages from the conclusions contained in the report:

Fourth. But if the storage of a large quantity of iron in a reverberatory furnace or other reservoir should prove successful, then a few blast-furnaces making even an irregular product, and, if necessary, working in connection with cupolas, would largely economise the Bessemer manufacture.

In fact, this mixing of irregular irons on a very large scale, thus avoiding the expensive niceties of ore selection and the necessity of many furnaces, is the theoretical key to the situation. When the way to its successful adoption is demonstrated the direct process will undoubtedly have great advantages, even over the present practice on the Continent, which employs many ganiferous ores. But until this large-scale mixing is developed it should not appear that the use of our comparatively irregular blast-furnace and part cupola metal can result in any substantial saving.

But the mixing problem is not such a difficult one. A small amount of flame spread over a large surface of metal should

certainly keep it hot for a long time, seeing that the metal will keep hot in a ladle exposed to air for an hour or more. And should there be any trouble about stopping the tap-hole in a large storage-furnace, it would not be a very difficult or expensive matter (considering the Patent revolving-hearth experience) to tip the whole hearth to pour a charge.

Without stopping to comment in detail upon all the matters just referred to, there can be no question that they demonstrate that if the vitality of the Jones patent depends upon the size of the reservoir, it was clearly anticipated. They also further establish that the advisability of the use of a large reservoir for the purposes of storage and mixing was well known, and that it was deemed to be an obvious and desirable expedient is also apparent.

It is not denied that the Deighton and Witherow patents each provided for a reservoir, the former (Deighton) laying stress upon the advantages resulting from the mixing in such reservoir. Both patents, it seems to me, in effect contemplating as they did the continuous operation of the plant and in view of the relative capacities of the furnace or furnaces, the reservoir, and the converters, necessarily embraced the presence in the reservoir of a considerable residuum, without which residue the proposed continuity was impossible. As it is to me apparent, I do not stop to refer to the testimony showing that this must necessarily be the case. The argument that the Deighton reservoir had no cover, and therefore it is not the Jones process, ignores the fact that Jones in his process patent does not provide for the operation of his method in a covered receptacle, but, on the contrary, in the specifications of that patent, it is declared that the process may be carried on in a charging-ladle, an uncovered receptacle. Further, it is to be borne in mind that the record overwhelmingly establishes that it was a well known expedient to cover a ladle or other receptacle for molten metal when the metal was required to be retained longer than the customary time. The inappositeness of the suggestion that the Deighton patent ought not to be given any weight as showing the state of the art, because the patentee allowed the patent to lapse for the non-payment of fees, cannot be better illustrated than by this case, when it is recalled that the patent to Mushet, which made bessemerizing commercially practicable, was allowed to lapse because the Patent Office fees were not paid.

The demonstration of want of novelty in the patent as construed which arises from the previous considerations entirely disposes of the case, as it is, as already observed, conceded that unless the patent means what it is now held to mean, there was no infringement by the defendant. It is to me equally clear, however, that even if the state of the art be, *arguendo*, put out of view, the patent cannot be held to signify what it is now decided to mean, & without repudiating the true meaning of the patent, which is—properly deducible from the proceedings in the Patent Office, that is, the file-wrapper and contents, and without refusing to give effect to the express declarations and admissions of the patentee (Jones) as to the significance of the patent, which is also shown by the proceedings in question; and, & without misconceiving and mis-

constraining the patent. Let me briefly demonstrate these propositions.

As I have said at the outset, the application for the patent in suit when first made was rejected by the Patent Office, on the ground of the prior state of the art, as evidenced by the Witherow patents and the Kirk publication. An amended application was thereupon filed, which beyond all question eliminated from the patent all claim to an exclusive right to reservoir or store the molten metal. When this amendment was presented to the Patent Office, counsel for the applicant submitted a written argument to demonstrate the patentability of the method covered by the amended application, in which no reference whatever was made to the importance of a residue, whether of small or considerable size, but the purpose of the inventor was thus declared, (*Italics mine*):

To have a receptacle capable of holding metal in a molten condition, into which metal it may be, from several blast-furnaces, is run from time to time and from which metal is drawn for treatment in the converters, or otherwise, as required. This continuous pouring into and drawing out of a common receptacle produces such a mixture of the charges as results in a uniform average quality of metal, whether treated in the converters or used for casting without such treatment, as is very desirable, but has hitherto been found unobtainable.

But the amended application was rejected, and the Examiner—evidently having in mind the statement in the argument of counsel above referred to—called the attention of the applicant to the fact that the continual pouring into and drawing out of the molten metal to produce a mixture was anticipated by the Kirk publication. The Examiner said, (*Italics mine*):

The process, as now claimed, seems to be fully met by the description in Kirk's metal-founding, heretofore referred to, which states that the metal is run continuously from the cupola and mixed in the ladle, from which it is tapped into the smaller ladle. See also the additional references of British patents No. 122, Brennan, March 22, 1891, page 2, lines 25-26, and No. 1,225, Stewart, May 12, 1892, page 2, lines 2 and 10.

When it is borne in mind that the Kirk publication thus referred to provided expressly for a continuous inflowing and outdrawing of the metal, and besides expressly said—

a quantity of molten metal should be kept " " " " as as to give the different brands of iron a chance to mix—

the conclusion cannot by me be escaped that the Examiner pointed out to Jones that the conception of a continuous inflow and outflow, and the keeping of a residue for the purpose of mixing, was not patentable.

The presumption cannot be indulged in that the amendment was not intended to obviate the objection on account of which the Patent Office had rejected the application, and, moreover, it cannot be assumed that the Patent Office issued the patent for a method which it declared was not patentable. But now the patent is construed by the Court as covering the continuous flowing into and withdrawal from a reservoir of molten metal, and as alone referring to the prevention of abrupt variations in the metal drawn from the reservoir for use in a converter, while Jones himself declared to the Patent Office that the patent as amended related to metal drawn (from a reservoir) for treatment in a converter or otherwise, as required. Besides it was expressly stated that what the patent contemplated was the production of a uniform

quality of metal, intended for further treatment in the converters or to be used for casting without such treatment. It is submitted that this demonstrates that the construction now given by the Court to the patent is directly repugnant to the meaning which Jones affixed to it, and besides is in conflict with the ruling of the Patent Office, in which Jones acquiesced, and upon which the patent was issued; and, therefore, that the construction which the patent now receives amounts, it seems to me, to a grant by judicial decision of a new and different patent from that which the Patent Office allowed.

Conclusive as is the view just stated, it is made, if possible, more so if the correct construction of the patent be ascertained. This it is proposed to demonstrate by an analysis of the patent as originally applied for, by a consideration of the amendments made to it, and by its text in its final form. Considering these matters, it will, I think, appear that the patent was not, as now held to be, solely one for the prevention of abrupt variations in the metal drawn from the receptacle for use in a converter. On the contrary, the true purport of the patent was this and this only: the selection of separate portions of molten metal, pouring the same into a reservoir, mixing such aggregated portions of molten metal thoroughly until it, the commingled metal, became uniform, so that the equalized metal might be used, not alone in the making of steel in a converter, but in any other process of making steel, in a foundry, or in any other mode where a uniform product was desired. Having thus provided for equalizing the contents of the reservoir when filled with selected metal and mixing had been accomplished, the patent contemplated that this equalized molten metal present in the reservoir should be drawn off for any desirable purpose down to an undetermined residue, so that when a fresh supply of selected metal was charged into the reservoir the metal thus newly supplied might be mixed with the residuum and thus not only a further supply of equalized metal might be obtained, but also, as a result, abrupt variations between the freshly-equalized metal and that of the preceding batch discharged from the reservoir, would be avoided.

To demonstrate the correctness of this construction, which, as already shown, was undoubtedly the view taken by the Patent Office, let me come to consider the application for the patent, the amendments and the patent as granted.

The application, as originally filed, contained a statement of the primary object of the invention, which is excerpted in the margin.*

*The primary object of the invention is to provide means for insuring uniformity in the product of a Bessemer-steel works or similar plant, in which the metal from more than one (subsequently amended to read "one or more") blast-furnace is employed to charge the converters. The product of the different furnaces, or of the same furnace at different times, varies in quality, the variation depending on the kind of ore employed, and on many other conditions well known to those skilled in the art, so that when the converters are charged at one time with the output from one furnace, and at another time with the output from another furnace or furnaces, the manufactured steel lacks uniformity in grade. To avoid this I employ suitably constructed reservoirs or vessels, into which the molten metal from

This was followed by a statement of the secondary objects designed to be attained, as follows:

My invention, however, is not limited to its use in connection with converters, since similar advantages may be obtained by casting the metal from the mixing vessel into pigs for use in converters, puddling-furnaces or for any other use to which pig-iron may be put in the art.

A description was then given of the apparatus, which it was previously stated had been invented "for practicing my invention," and the mode of operation of such apparatus was stated. The claim read as follows:

The process hereinbefore described, which consists in storing charges of molten metal in a covered receptacle provided with a heat-retaining lining, removing portions only of the molten contents of the said receptacle without entirely draining or emptying the same, and successively replenishing the receptacle with fresh additions of molten metal, whereby the character of the several charges of metal so treated is equalized; substantially as described.

Considering the application as thus made, what support does it lend to the theory now announced that it was the purpose of the Jones invention merely to prevent abrupt variations between each charge of metal drawn from a reservoir for treatment in a converter? Such purpose is nowhere declared, unless it be inferred from certain statements in the patent descriptive of the mode of operation of the appliance covered by the apparatus patent, to which, hereafter, I shall more particularly advert. The conception that the patent solely related to abrupt variations in metal drawn from a reservoir and supplied to a converter, is absolutely excluded by the fact that the secondary object is pointed out to be to secure a pig metal so uniform in its chemical constituents that it might be used "in puddling-furnaces or for any other use to which pig-iron might be put in the art." It cannot be conceived that the patent provided for making the metal uniform in the reservoir, and, by the same language, provided merely against the occurrence of abrupt variations in the equalized metal when drawn off to a converter. If made uniform, there could not, in the nature of things, be abrupt variations. It being then certain that the process patent, as originally filed, in and of itself not only contained even no intimation of the claim which the Court now attributes to the patent, it must follow that if the patent covered such a claim, it was one not in the mind of Jones, but must have been in some way evolved in the passage of the application through the Patent Office.

This original application, as I have said, was rejected by the Patent Office, as being "completely anticipated" by the Witherow patents, and reference was made to the Kirk publication.

To meet this objection a change was made by which the assertion of an exclusive right to store

the blast-furnaces is put, the vessels being of proper capacity to hold a considerable charge of metal from a single furnace, or from a number of furnaces, and being adapted to retain the metal in a molten state for sufficient time to enable the different charges to mix and become homogeneous. The advantage which I then obtain is securing uniformity and homogeneity in the total product will be readily understood by those familiar with the operations of a steel-works and the frequent loss which is caused by the lack of such uniformity. Such apparatus possesses also an additional advantage in that it makes it possible to dispense with cupola-furnaces for remelting the pigs preparatory to charging the converters. The metal may be tapped from the blast-furnaces into ladles or trucks, carried to and discharged into the mixing reservoir or vessel, and there retained in a molten state until sufficient metal has been accumulated to charge the converters.

charges of molten metal was eliminated, the amendment being as follows:

The process hereinbefore described, which consists in treating successive charges of molten metal into a covered receptacle provided with a heat-retaining lining, removing from time to time from said receptacle for subsequent treatment a portion only of its molten contents, and successively replenishing such receptacle with fresh additions of molten metal, for the purpose of equalizing the character of the several charges of metal drawn therefrom, substantially as described.

Accompanying this paper was the argument of the attorney, already referred to, in which it was expressly declared, as has been seen, that the patent related to uniformity of molten metal for further treatment in converters, or otherwise; that is, as declared in the argument, the obtaining of a metal of such uniform quality that it might not alone be used in converters, but might be "used for casting without such treatment."

As the application, as amended, was asserted to embody a claim for the continuous operation of a plant by reservoiring metal, by inflowing and outflowing, with mixing, a method construed by the Patent Office as identical with that described in the Kirk publication, the patent, as already stated, was again rejected. It was again amended, and, as thus finally amended, the patent was allowed. The new amendments consisted, first, of a substituted statement of the primary object of the invention, which is excerpted in the margin.* It will be observed, from the concluding sentence in the first paragraph, that it was clearly implied that the applicant deemed that inequalities were present in cupola metal as well as in blast-furnace metal.

There was substituted for the single claim as

*The primary object of my invention is to provide means for rendering the product of steel-works uniform in chemical composition. In practice it is found that metal tapped from different blast-furnaces is apt to vary considerably in chemical composition, particularly in silicon and sulfur, and such lack of uniformity is observable in different portions of the same cast, and even in different portions of the same pig. (Here follows table of analyses said to have been made of metal contained in different ladle charges from one cast of a blast-furnace.) . . . The consequence of this tendency of the silicon and sulfur to segregate or form pockets in the crude metal is that the product of the refining process in the converters or otherwise is like manner lacks uniformity in these elements, and therefore of ten causes great inconvenience and loss, making it impossible to manufacture all the articles of a single order of homogeneous composition. Especially is this so in the process of refining crude iron taken from the smelting-furnace and charged directly into the converter without remelting in a cupola, and, although such direct process possesses many economic advantages, it has on this account been little practiced.

For the purpose of avoiding the practical evils above stated, I use in the refining process a charge composed not merely of metal taken at one time from the smelting-furnace, but of a number of parts taken from different smelting-furnaces, or from the same furnace at different casts, or at different periods of the same cast, and subject the metal before its final refining to a process of mixing, whereby its particles are diffused or mingled thoroughly among each other, and the entire charge is practically homogeneous in composition, representing in each part the average of the unequally diffused and segregated elements of silicon and sulfur originally contained in each of the several parts or charges. By proceeding in this way not only is each charge for the refining-furnace or converter homogeneous in itself, but, as it represents an average of a variety of uniform constituent parts, all the charges of the converter from time to time will be substantially uniform, and the products of all will be homogeneous. To this end my invention may be practiced with a variety of forms of apparatus—for example, by merely receiving in a charging-ladle a number of small portions of metal taken from several ladles or receiving vessels containing crude metal obtained at different times or from different furnaces, the mixing being performed merely by the act of pouring into the charging-ladle, and other like means may be employed. I prefer, however, to employ the apparatus shown in the accompanying drawings, and have made it the subject of a separate patent application, Serial No. 220,672, and, without intending to limit the invention to the use of that specific apparatus, I shall describe it particularly, so that others skilled in the art may intelligently employ the same.

originally presented and amended the two claims embodied in the patent as finally issued, and which have been previously set out.

It plainly results from the amendment that it was drawn to meet the objection of the Examiner and to make clear the fact that the character of the mixing contemplated by the Jones process was not that resulting from a continuous operation of a reservoir by the inflowing and outdrawing of metal with a constant retention of a residuum, but was a distinct character of mixing by thorough commingling of batches of metal, in order to produce in a reservoir a molten metal which would be homogeneous and uniform, of a character deemed to be unattainable by the continuous process; the purpose of securing this reservoir of uniform metal being to obtain a mixed metal so uniform in its chemical constituents that it might be, with greater advantage than theretofore, subjected to further treatment in the converters or be run into pigs, which, by reason of the uniform quality of the metal, might then be used for any purpose where such a metal was desired. In other words, the amendment was drawn for the purpose of satisfying the Patent Office that the method which was claimed should not be rejected, because the prior art provided against mere variations in the metal drawn from the reservoir, as the patent went further and described a process of mixing which would bring about the greater result of a uniform molten metal and consequent uniform product.

This conclusion is rendered clear by the fact that the amended application not only retained in substance all the prior declarations as to the purpose of obtaining a uniform mixed molten metal, and as to the use of such uniform metal, in converters or otherwise, but emphasized the same by adding the following:

To this end my invention may be practiced with a variety of forms of apparatus. For example, by merely receiving in a charging-ladle a number of small portions of metal taken from several ladles or receiving vessels containing crude metal obtained at different times or from different furnaces, the mixing being performed merely by the act of pouring into the charging-ladle, and other like means may be employed.

And to make the object of the amendment perfectly clear, the prior description of the method was supplemented by stating that the—

commingling of the contents may be aided by agitation of the vessel on its trunnions, so as to cause the stirring or shaking of its liquid contents.

True it is that on the trial below the complainant presented a disclaimer, which the Court now upholds, by which he sought to eliminate from the patent the amendments which had been inserted to meet the objections of the Patent Office Examiner, and which indubitably fixes the meaning of the patent. I do not deem it necessary, however, to stop to refer to authorities to show that a disclaimer which, in effect, has for its object the making of a new patent by striking out the essential representations upon which the patent was granted, is without legal warrant. This, it is submitted, is the obvious result of the antithesis to which the opinion of the Court refers.

But even if the patent as it is now made over, as I think, by the effect which is given by the Court

to the disclaimer, be alone considered, it plainly results that the patent as so changed did not contemplate, as now decided, solely the prevention of abrupt variations in the metal drawn from the reservoir for use in the converter, since the patent yet provides:

Instead of discharging the metal into the cars it and carrying it in the cars to the converters or casting-house, the vessel 1 may be an adjunct relative to the other parts of a furnace plant so to deliver its contents immediately to the converters or other place where it is to be utilized.

I fail to see how it can be held, even giving the fullest effect to the disclaimer, that the patent provides only for metal to be supplied to a converter, when it expressly points out that the metal may be used "in the casting-house, in the converters or other place where it is to be utilized."

I come now to the statements found in the patent to which I have previously alluded, which the Court thinks give support to the claim that the patent had reference merely to the avoidance of abrupt variations in metal supplied to the converters. The statements thus relied upon are contained in that portion of the patent where the mode of operation of the appliance covered by the apparatus patent is described. These passages are excerpted in the margin.*

*Referring now to the drawings, 2 represents the reservoir before mentioned. It consists of a covered hollow vessel having an outer casing, 2, of iron or steel, which is suitably braced and strengthened by interior beams and tie-rods, as shown in the drawings. The whole exterior of the vessel is lined with fire-brick or other refractory lining, which should be of sufficient thickness to retain the heat of the molten contents of the vessel and to prevent chilling thereof. The vessel is strongly braced and supported by braces and tie-rods, and may be of any convenient size, holding, say, one hundred tons of metal, (more or less,) and its shape is preferably such as shown in the drawings, being rectangular, or nearly so, in cross-section and an irregular trapezium in longitudinal section, one end being considerably deeper than the other. At the top of the deeper end, which I call the "rear" end, is a hopper, 3, into which the molten metal employed in charging the vessel is poured, and at the front end is a discharge-spout, 4, which is so located that the bottom of the spout is some distance above the bottom of the vessel—say two feet in a hundred-ton tank, and more or less, according to the capacity of the vessel—the purpose of which is that when the metal is poured out of the spout a considerable quantity may always be left remaining and unpoored, and that whenever the vessel is replenished there may already be contained in it a body of molten metal with which the fresh addition may mix. Thus secured, as much as possible, uniformity in character of the metal which is fed to and discharged from the tank, and cause the fluctuations in quality of the successive loadings to be very gradual.

The mode of operation of the apparatus is as follows: When the vessel is in the backwardly-inclined position shown in Fig. 1, it is ready to receive a charge of metal from the cars 5. Before introducing the first charge, however, the mixing vessel should be heated by internal combustion of coke or gas, and when the walls of the vessel are sufficiently hot to hold the molten metal without chilling it it is charged repeatedly from the cars 5 with metal obtained either from a number of furnaces or at different times from a single furnace. The charges of metal introduced at different times into the vessel, though differing in quality, mix together, and when the vessel has received a sufficient charge its contents constitute a homogeneous molten mass, whose quality may not be precisely the same as that of any one of its constituent charges, but represents the average quality of all the charges. If desired, the commingling of the contents may be aided by agitation of the vessel on its trunnions, so as to cause the stirring or shaking of its liquid contents. The mixing chamber being deeper at its rear than at the front end, as before described, and its normal position when not discharging metal for the purpose of casting being with the bottom inclined upward toward the front or discharging end, and the bottom of the spout being situated above the bottom of the vessel at its forward end, it is adapted to receive and hold a large quantity of molten metal without its surface rising high enough to enter the discharge-spout.

After the vessel is properly charged, the metal is drawn off into the cars 6 from time to time, as it is needed, by opening the door or cover 15 of the spout 4 and driving the engine 11, so as to elevate the rear end of the vessel and tilt it forward, and thus to discharge any required amount of its contents in the manner before explained into the cars 6, which are transported to the converters, or the metal is cast into pigs or otherwise used. The tilting of the vessel does not, however, drain off all the contents thereof, a portion being prevented from emptying by reason of

When the passages in question are properly considered, it becomes, I submit, incontrovertible that, instead of sustaining, they are antagonistic to the construction which has been given by the Court to the patent, and hence sustain the construction which has been presented in this dissent.

Referring to the excerpted matter in the margin, it will be seen that in the second paragraph is described the mode of filling the reservoir. Various portions of metal, termed "charges," are drawn "either from a number of furnaces or at different times from a single furnace," and such charges are introduced into the reservoir until the vessel is full, that is, to use the language of the patent, until a "sufficient charge" has been supplied to the reservoir, the result being, as stated in the patent, that the charges of metal thus accumulated in the reservoir "constitute a homogeneous molten mass, whose quality may not be precisely the same as that of any one of its constituent charges, but represents the average quality of all of the charges." Thus it appears that the patentee had in mind the cure of the inequalities or variations present in the "charges" of metal poured into the reservoir to make up the "sufficient charge," and thereby to cause such sufficient charge "to constitute a homogeneous molten mass, whose quality may not be precisely the same as that of any one of its constituent charges, but represents the average quality of all the charges." And the production of this homogeneous mass, it is further observed, "may be aided by the agitation of the vessel on its trunnions, so as to cause the stirring or shaking of its liquid contents." Manifestly, not only the obtaining of the homogeneous molten mass is absolutely incompatible with the theory that the patent related to mere variations, but the statement about the agitation of the vessel on its trunnions is likewise a negation that the conception of the patent related to the continuous inflowing and outflowing of molten metal from the reservoir. The construction now put upon the patent by the Court disregards the provision that the variation which was to be cured was that existing between the "charges" as they were poured in, and assumes—contrary to the language of the patent—that the purpose was to cure variations which would exist in the mass of molten metal, when, by a sufficient charge, the reservoir had been filled. And this, although it is expressly declared in the patent that by the operation of the reservoir, in the mode described, the variations existing in the metal before the pouring in would be destroyed by the mixing, which would cause the mass from which withdrawals were to be made to become homogeneous.

The error becomes more manifest upon an examination of the last of the excerpted paragraphs, wherein is contained directions as to the with-

drawals of the equalized metal from the sufficient charge, that is, the filled reservoir of equalized metal and the replenishing of the reservoir with new charges to make another sufficient charge. It will be seen that the patent contemplated the discharge of the mass of homogeneous metal by tilting the tank down to a residue, and that no reference is made to replenishing the reservoir until provision is made for the retention of a residue. Then the reservoir is to be replenished by the addition of new charges which mix with these parts of previous charges, which have been equalized and which remain in the reservoir as a residue. Obviously, in this subsequent addition of charges it was intended that a "sufficient charge" of metal should be contained in the reservoir, which, when thoroughly mixed, would form another homogeneous mass of molten metal, it being declared "by which means any sudden variations in the quality of the metal supplied to the converter is avoided." "By which means" is clearly meant the bringing into existence of the homogeneous mass referred to in the patent. In other words, the patent points out that by making all the "constituent charges" of a "sufficient charge" homogeneous there would be no variations in the withdrawals from that equalized mass. And this is besides made more manifest by the following sentence in which attention is called to the fact that the equalized metal thus drawn off might be carried to the converters or be cast into pigs without treatment in the converters.

Moreover, turning to the first paragraph in the excerpt, it will be perceived that it is stated that the operation of the mixer as described will—

secure, as much as possible, uniformity in the character of the metal which is fed to and discharged from the tank, [meaning the equalized mass.] and cause the fluctuations in the quality of the molten metal to be very gradual.

That is to say, the patent contemplated that each distinct full reservoir or sufficient charge, constituting a batch of metal, would be homogeneous in itself and substantially uniform in its chemical constituents, and the successive "sufficient charges" or "full reservoirs" would, by means of the residuum, vary but slightly between each other. The words "successive tappings" can have no other meaning than successive batches, for it is impossible to conceive that they could refer to the separate withdrawals of metal taken from one full reservoir or sufficient charge, because it had been declared that the "constituent charges" of each full reservoir of metal by the operation described would become homogeneous; that is, practically uniform.

Certainly, this construction of the patent gives effect to all of its provisions, and harmonizes with its plain letter, while the contrary construction, now approved by the Court, reads out of the patent the repeated statements as to the purpose of the patent being to secure a uniform molten metal and disregards the fact that the patent expressly provides that what it aims to secure is such uniform metal as is fit not only for use in converters but for castings and any other mode by which such

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a metal can be utilized. Certainly, what has been previously stated is a demonstration that the construction previously given by me accords with the express declaration made by the patentee when he applied for his patent, and is strictly in harmony with the action of the Patent Office in allowing the patent. It is equally clear that the construction of the patent, which has been by me elucidated, is besides in accord with the conception entertained by the Patent Office of the meaning of the patent long after it had been issued. Thus, the Commissioner of Patents, in a report bearing date January 1, 1898, reviewing the advance in the industrial arts, said, (Italics mine):

A process now commonly used in steel manufacture is that of Patent No. 404,114, January 4, 1889, to Jones, in which he described a means of getting a uniform product of metal by mixing together in a suitable receptacle, batches of metal from different furnaces, so that the mixture when drawn off will be the average of the different charges.

As the views hereinbefore expressed sufficiently make manifest the reasons for my dissent, it is unnecessary to stop to notice many matters considered in the opinion of the Court. Lest, however, if they are not referred to, it may be assumed that assent is given to them, the more important of such statements are briefly adverted to. First, it is said that the making of steel by the direct process was commercially impracticable before the grant of the Jones patent, and that that patent operated a revolution in the art. The proposition, in my opinion, finds no support in the record. On the contrary, it is affirmatively established that not only on the Continent but in England and in this country, long prior to the grant of the Jones patent, Bessemer steel was made by the direct process, upon a large scale, continuously and successfully. So far as revolution in the art is concerned by the alleged enormous saving rendered possible by the use of the Jones method, it is not perceived how such a statement is compatible with the unquestioned proof in the record that, although the complainants at their Edgar Thompson works erected several of the Jones mixers about the time of the grant of the Jones patent, they did not introduce them into their other works until more than seven years afterward. Indeed, to my mind it is established by the record that the Jones method, when put into practical operation by the

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complainant, proved not to be a commercial success, and the apparatus was continued in use despite this fact because of the means which it afforded of securing on a larger scale the benefits of storage hitherto well known in practice, and that the use of this larger storage vessel became more and more advantageous as the capacity of blast-furnaces was enlarged and improvements took place in the mode of their operation.

The statement that upon the grant of the Jones patent the so-called mixer was at once adopted by steel-works generally in this country is also unwarranted by the facts in evidence, which establish without any conflict that storage-reservoirs of like capacity to that of the Jones apparatus were in use at the time of the hearing of this cause in but three steel-works in the United States outside of those operated by the complainant, and that their introduction long after the grant of the Jones patent in such outside works is shown to have been coincident with the increase in blast-furnace output and the necessity which had thus arisen for greater reservoir capacity to hold the enormous supply of molten metal which was then being produced by the operation of blast-furnaces. The record, moreover, establishes that in the works in question, where long after the grant of the Jones patent large reservoirs were first employed, this was done not because better results were secured by means of mixing than had been obtained by the mixing theretofore resorted to, but because the larger output of blast-furnaces pointed to the necessity for the construction of a larger reservoir than those previously employed.

The effect of the decision now rendered it seems to me is, therefore, to put the patentee in a position where, without invention on his part, and without the possession by him of lawful Letters Patent, he is allowed to exact tribute from the steel and iron making industry, whenever those engaged in such industry desire to increase their plants or to more conveniently and satisfactorily conduct their operations so as to keep pace with the natural evolution of modern industrial development.

I am authorized to say that the CHIEF JUSTICE, Mr. Justice HARLAN and Mr. Justice BREWER concur in this dissent.

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PATENTS GRANTED		1872
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TRADE-MARKS		1872
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COMMISSIONER'S DECISIONS—		1872
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Patents	1871—No. 700,719 to No. 701,376, inclusive.
Designs	1—No. 28,385 to No. 28,387, inclusive.
Trade-Marks	1—No. 28,388 to No. 28,390, inclusive.
Labels	1—No. 28,391 to No. 28,393, inclusive.
Prints	1—No. 28,394 to No. 28,396, inclusive.
Reissues	1—No. 11,394 to No. 11,397, inclusive.

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	1	Nebraska	1	1
Alaska Territory	1	1	Nevada	1	1
Arizona Territory	1	1	New Hampshire	1	1
Arkansas	1	1	New Jersey	1	1
California	1	1	New Mexico Territory	1	1
Colorado	1	1	New York	1	1
Connecticut	1	1	North Carolina	1	1
Delaware	1	1	North Dakota	1	1
District of Columbia	1	1	Ohio	1	1
Florida	1	1	Oklahoma Territory	1	1
Georgia	1	1	Oregon	1	1
Hawaii Territory	1	1	Pennsylvania	1	1
Idaho	1	1	Rhode Island	1	1
Illinois	1	1	South Carolina	1	1
Indiana Territory	1	1	South Dakota	1	1
Iowa	1	1	Tennessee	1	1
Kansas	1	1	Texas	1	1
Kentucky	1	1	Utah	1	1
Louisiana	1	1	Vermont	1	1
Maine	1	1	Virginia	1	1
Maryland	1	1	Washington	1	1
Massachusetts	1	1	West Virginia	1	1
Michigan	1	1	Wisconsin	1	1
Minnesota	1	1	Wyoming	1	1
Mississippi	1	1	U. S. Navy	1	1
Missouri	1	1	Total to citizens of the United States	1	1
Montana	1	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Austria-Hungary	1	1	Netherlands	1	1
Barbados	1	1	Newfoundland	1	1
Belgium	1	1	New South Wales	1	1
Bermuda	1	1	New Zealand	1	1
Brasil	1	1	Norway	1	1
Canada	1	1	Porto Rico	1	1
Cape Colony	1	1	Queensland	1	1
Chile	1	1	Roumania	1	1
China	1	1	Russia	1	1
Cocos Island	1	1	Scotland	1	1
Colombia	1	1	South African Republic	1	1
Cuba	1	1	Spain	1	1
Denmark	1	1	Spain (Australia)	1	1
Egypt	1	1	Sweden	1	1
England	1	1	Switzerland	1	1
France	1	1	Tasmania	1	1
Germany	1	1	Victoria	1	1
Haiti	1	1	Western Australia	1	1
India	1	1	Total to citizens of foreign countries	1	1
Ireland	1	1			
Italy	1	1			
Japan	1	1			

Design Patents.

AN ACT to amend section forty-nine hundred and twenty-nine of the Revised Statutes, relating to design patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-nine hundred and twenty-nine of the Revised Statutes be, and the same is hereby, amended so as to read as follows:

Sec. 4929. Any person who has invented any new, original, and ornamental design for an article of manufacture, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, the same as in cases of inventions or discoveries covered by section forty-eight hundred and eighty-six, obtain a patent therefor.

Approved May 8, 1902.

Hearings.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., May 15, 1902.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August 1902.

V. L. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 30, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
In arrears—Under one month.				
217	XXXIII. "DESIGNS," TRADE-MARKS, LABELS AND PRINTS, Options, and Photographs.	May 6	May 10	64
140	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	May 1	May 8	176
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	May 1	May 7	268
280	X. Carriages and Wagons.	Apr. 28	May 5	112
282	VIII. Furniture, Store Furniture, Beds, Kitchens and Table Articles, and Check-Controlled Apparatus.	Apr. 24	May 8	268
280	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Apr. 21	May 7	260
281	XXXII. Acoustics, Electric Signaling, Holography, Recordors, and Registers.	Apr. 21	May 7	217
105	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Apr. 21	May 7	176
287	XV. Plastics, Paper-Making, Fanning, Outfitters, Glass, Fuel, Bread-Making, etc.	Apr. 21	May 6	228
280	XXXVI. Curtains, Shades, and Screens, Drafting, Drivers, Measuring Instruments, and Wind-Wheels.	Apr. 21	May 6	228
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins and Leather, Oils, Fats, and Olive, Fanning, etc.	Apr. 21	May 6	177
281	XXXIV. Railways, Railway-Engines, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Apr. 21	May 6	286
232	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Apr. 21	May 6	286
129	XXX. Paper Manufactures, Letters and Gas-Fittings.	Apr. 21	May 5	280
44	XXXIII. Acoustics, Registers, Recordors, Drafting, and Signs, Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Apr. 21	May 5	218
246	I. Tillage, etc., and Fences.	Apr. 21	May 5	108
246	XIV. Metal Bending, Ornamenting, and Furniture, Wear, Farming, Guided Bolt Locks, Pumps, Wire-Working, Sheet-Metal Ware, Making, etc.	Apr. 21	May 5	202
128	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Apr. 21	May 1	265
280	XXVII. Grinding and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 21	Apr. 20	190
30	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Elevating, Iron Structures, Conveyors, Hoisting, etc.	Apr. 21	Apr. 20	270
128	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Marine Shipping and Storing Vessels, Refrigeration, etc.	Apr. 21	Apr. 21	279
Between one and two months.				
128	III. Wood-Working, Arms and Ammunition, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Apr. 19	May 8	128
285	XII. Elevators, Journal-Rolls, Pulleys and Shafts, and Machine Elements.	Apr. 19	May 7	260

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
128	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilets.	Apr. 14	May 8	158
27	XXVI. Electricity, Generation, Conductors, Motor Power, Medical and Surgical, and Electric Railways.	Apr. 14	Apr. 29	173
128	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Apr. 5	Apr. 16	268
100	XXII. Fire-Arms, Ordnance, Fire-Engines, Navigation.	Mar. 21	Apr. 25	175
128	XXIX. Wood-Working Machines, Coopering and Moulding.	Mar. 20	Apr. 22	266
240	VII. Velocipedes, Hitches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Mar. 21	May 6	266
<i>Between two and three months.</i>				
246	XVIII. Steam-Engineering, etc.	Mar. 17	May 12	467
246	XIV. Artisans and Oil Wells, Butchering, Milk, Stone-Working, Threshing, and Vegetable Cultures and Crushers.	Mar. 15	Mar. 17	266
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 10	Mar. 8	101
80	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 5	Mar. 5	100
142	V. Farm Arts, Book-Binding, Harp, Musical Instruments, and Music.	Mar. 1	Mar. 14	68
28	XXI. Textiles, Cording, Knitting, Spinning, Weaving, etc.	Feb. 26	Mar. 15	267
<i>Between three and four months.</i>				
105	XI. Boots and Shoes, Harness, Hoes and Belling, Leather Manufactures, Nailing and Stapling, Button-Making, and Whips.	Feb. 5	Apr. 12	449
Total number of applications awaiting action.....				3,974

Under one month.

Designs.....	May 1	May 8	196
Trade-Marks.....	May 8	May 10	163
Labels and Prints.....	May 15	May 17	26

Revision of Trade-Mark Rules.

(ORDER NO. 1,461.)

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

Washington, D. C., April 2, 1902.

Rule 21, subdivision (3), governing the registration of trade marks, is hereby amended to read as follows:

(b) A statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used, and if the applicant be a corporation it must set forth under the laws of what State or nation incorporated.

F. L. ALLEN,
Commissioner.

Index.

(ORDER NO. 17.)

All applications, communications, and other instruments in writing or print, which should properly constitute a permanent record in this Office, must be prepared with a substantially permanent ink. Aids and other perishable aids will not be accepted.

PATENTS

GRANTED MAY 27, 1902.

700,719. WATER-GLASS RECEPTACLE FOR RAILWAY CARS.
PATRICK A. ALLEN and JOHN W. McKINNEY, Toledo, Ohio. Filed Jan. 14, 1898. Serial No. 92,073. (No model.)

Claim.—1. In a water-cistern of the class described, the combination, with a bowl and a chute arranged beneath said bowl in such manner as to receive deposits directly therefrom and expel them through an opening provided for that purpose, of a tank attached to the side of said chute and independent thereof, an opening provided between said chute and tank, a gate in said opening and adapted when open to close passage in chute and cause deposits to enter said tank, substantially as described.

2. In a water-cistern, the combination of a bowl, a chute arranged directly beneath said bowl, a tank arranged at the side of said chute, the said chute adapted to be used independently of said tank and to expel contents directly therefrom without first entering tank, inlet and outlet openings provided in said tank, gates in said openings, the gate in said inlet-opening being adapted, when in open position, to close passage in chute and cause deposits to enter said tank, and means for opening and closing said gates.

3. In a water-cistern adapted to be used on railway-cars, the combination, with a bowl and a chute directly connected to said bowl and having two outlet-openings, of a tank arranged at the side of said chute and having an inlet and outlet opening, said inlet-opening communicating with one of said outlet-openings in said chute, a valve in each of said openings in tank and each adapted to alternately open outwardly, the said valve in the inlet-opening of said tank being adapted when open to close passage in chute and cause deposits to enter tank, and means, comprising equal-arms on said valves, a rod connecting said arms and a lever attached to and adapted to manipulate said rod, provided to operate said valves.

4. In a water-cistern, the combination of a bowl, a straightway chute contiguous to said bowl and having a direct outlet-passage, a tank, having inlet and outlet openings, attached to the side of said chute and adapted to be used only when it is desired to retain the contents, gates in said openings, one of said gates adapted to swing outwardly and downwardly and close the passage in said chute in such manner as to cause contents to change their course, when being expelled through, and enter said

tank, and means provided for causing the gate in said outlet-passage to open outwardly and upwardly, substantially as described.

5. In a water-cistern of the class described, the combination with a bowl and straightway chute, of a tank having a circular and forwardly-inclined floor, said tank being provided with a passage communicating with said chute and an outlet-passage, valves adapted to alternately open and close said passages, the valve in said inlet-passage adapted to open outwardly and downwardly and close passage in said chute and means for operating said valves, said means comprising arms attached to said valves, a rod connecting said arms, and a lever pivoted to floor of car and connected with said rod, substantially as specified.

6. In a water-cistern of the class described, the combination with a bowl, a straightway chute projecting downwardly therefrom and having an opening in its side, of a retaining-reservoir having inlet and outlet passages, said inlet-passage communicating with opening in side of said chute, a forwardly-inclined floor in said tank, a shaft mounted at the forward end of said floor, a valve on said shaft and adapted to close the chute when in open position and cause deposits to enter said reservoir through the said inlet-passage, a shaft on the rear of said tank, a stem secured to said shaft, a valve on said stem and adapted to swing in the outlet-opening in said tank, and means for alternately opening and closing said valve, substantially as specified.

7. In a water-cistern, the combination of a bowl, a straightway chute connected directly with said bowl and having a direct and indirect discharge-opening, a tank contiguous to said bowl and having an inlet and outlet opening, through said opening, with bowl, an independent outlet-opening provided in said tank, valves mounted in the openings in said tank, one of said valves being adapted to open outwardly and upwardly and the other to open outwardly and downwardly and close direct discharge-opening in chute, and means provided for operating said valves.

8. In a water-cistern, the combination, with a bowl, of a receptacle having a direct outlet-opening in a vertical line with said bowl and a second outlet-opening at an angle to said bowl, valves mounted adjacent to said openings, the said valves being adapted to simultaneously close said openings and retain matter in said receptacle.

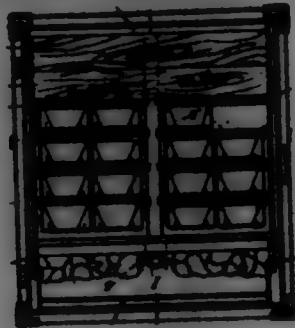
9. In a water-cistern, the combination, with a bowl, of a receptacle contiguous to said bowl and having two compartments, one of said compartments being in a vertical line with said bowl and adapted to receive matter directly therefrom and having a direct outlet-opening, the other compartment having a downwardly and outwardly declined floor and an outlet-opening at its lower extremity, a valve interposed between the said compartments and adapted when open to close outlet in the said vertical compartment and cause the matter received from said bowl to enter the said other compartment and be retained therein by means of a valve mounted in the said opening at its lower extremity, and means for opening and closing said valve, substantially as described.

700,720. IMPROVED LAMP. WILLIAM E. ARNOLD, Watsonville, Cal. Filed May 2, 1891. Serial No. 81,821. (No model.)

Claim.—1. A lamp of the character described with top, bottom and three sides fixed together, the door hinged thereto, an lamp located near the top with a short side in front, three sides extending higher up, a center opening through bottom of lamp, a rim surrounding center opening, a cap placed above center opening, a movable front attached to sides of lamp in such a way as to be raised up to open the front, a drain-tube attached to the bottom of lamp, a covering of wood or other suitable material, a trap and discharge-pipe connecting therewith, a flexible tube extending through the cover, substantially as described.

2. A refrigerator-car having sides, top, bottom, and door, an lamp and drain-tube, sides at the sides having portions of their length removed for the free circulation of air, central upright pipes, sides at

ceded to said central piece spaced from each other to permit circulation of air and trays sliding on said slides, substantially as described.



3. A refrigerator-case having sides, top, bottom and door, an ice-pan and drainage-tube, slides supported at the sides and spaced therefrom to permit free circulation of air, central upright piece, slides on said central piece spaced therefrom with the like object, and trays sliding on said slides, substantially as described.

4. A refrigerator-case comprising an ice-pan located near the top with a short side in front and three sides of greater height, a movable front attached to the sides of the ice-pan so that it can be raised to open the front, a central opening through the bottom of the ice-pan, a drainage-tube therefrom, and a trap and discharge-pipe connected therewith, substantially as described.

5. A refrigerator-case comprising an ice-pan, slides, trays on said slides, grooved upright side pieces near the door of the case, and strips of suitable flexible material corresponding in height to the height between the slides, the ends of said strips being inserted in said grooves, and movable thereby by flexing or springing the strips from said grooves whereby the strips may be removed from the grooves without sliding the same up or down, substantially as described.

700,721. REFRIGERATOR-CASE. WILLIAM E. ANNE, WILSON, Cal. Filed July 4, 1901. Serial No. 67,505. (No model.)



Claim.—1. In a refrigerator-case, the combination with upright supports having a plurality of series of sockets, the sockets of one series being spaced at different intervals from those of another series, of hangers having one end removably inserted in said sockets, rails through which the other ends of the hangers pass to support the same, and trays sliding on said rails, substantially as described.

2. In a refrigerator-case, the combination of supports having downwardly-inclined sockets, wire hangers having downwardly-bent portions in said sockets, rails in which the other ends of said hangers are inserted, and trays sliding on said rails, substantially as described.

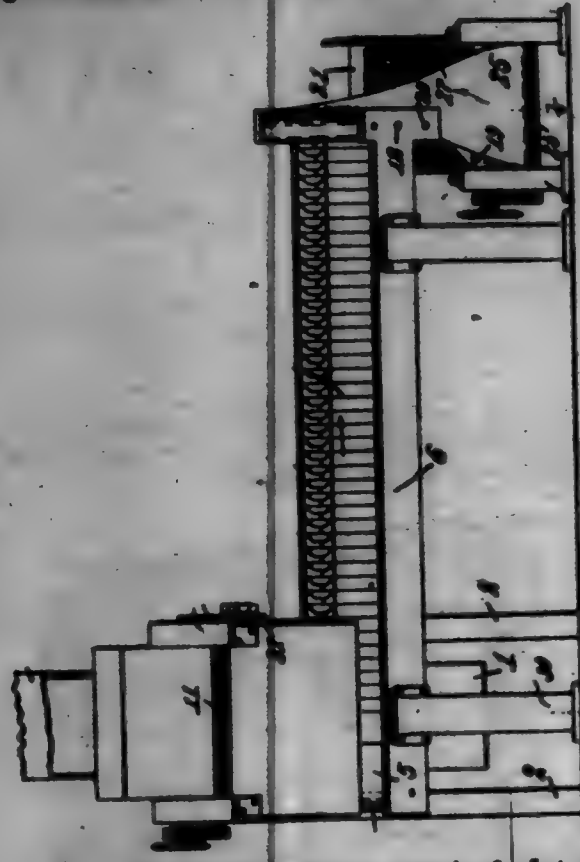
3. In a refrigerator-case, the combination of trays, vertical supports therefor, guides in which said supports slide, and springs for resiliently sustaining said supports, substantially as described.

700,722. PAPER-BAG-DELIVERY DEVICE. DANIEL APPEL, Cincinnati, Ohio, assignor to the Union Paper Bag Machine Company, Philadelphia, Pa. Filed Jan. 12, 1902. Serial No. 69,099. (No model.)

Claim.—1. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, and a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls.

2. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path

and into the bite of the second rolls, and mechanism for automatically shifting said switch from one to the other of its positions.



3. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a surface adapted to receive the bags from the second pair of rolls and having a discharging declination toward the normal path of bags discharged by the first pair of rolls.

4. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a fifth roll cooperating with a roll and adapted to discharge bags toward the normal path of discharge from the first pair of rolls, and means for receiving bags from the second pair of rolls and delivering them opposite and forward to the action of the fifth roll.

5. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a fifth roll cooperating with a roll and adapted to discharge bags toward the normal path of discharge from the first pair of rolls, and a surface adapted to receive bags from the second pair of rolls and having a discharging declination to the bite of the fifth roll.

6. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a fifth roll cooperating with one of the rolls of the second pair and adapted to discharge bags toward the normal path of discharge of the first pair of rolls, and means for receiving bags from the second pair of rolls and delivering them opposite and forward by the action of the fifth roll.

7. The combination, substantially as set forth, of a first pair of co-

operating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a fifth roll cooperating with one of the rolls of the second pair and adapted to discharge bags toward the normal path of discharge of the first pair of rolls, and a surface adapted to receive bags from the second pair of rolls and having a discharging declination to the bite of the fifth roll.

8. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a traveling apron having its inner surface engaging one of said rolls and its outer surface engaging the other of said rolls, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, and a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls.

9. The combination, substantially as set forth, of roll mechanism adapted to advance and discharge a succession of paper bags in a downward direction and foremost, an endless receiving-apron disposed below said roll mechanism and having a declination transverse to its line of travel and adapted to receive the bags coming from the roll mechanism, and an upwardly-projecting wall extending along the lower edge of said receiving-apron and adapted to be engaged by the foremost ends of the bags and to maintain the bags upon the apron.

10. The combination, substantially as set forth, of roll mechanism adapted to advance and discharge a succession of paper bags and foremost, an endless horizontal receiving-apron adapted to receive the bags and having a downward curve at the portion where the bags are to be discharged, and an endless retaining-apron running contiguous to the downwardly-disposed portion of the receiving-apron and adapted to hold the descending bags to the receiving-apron.

11. The combination, substantially as set forth, of roll mechanism adapted to advance and discharge a succession of paper bags and foremost, an endless horizontal receiving-apron adapted to receive the bags and having a downward curve at the portion where the bags are to be discharged, an endless retaining-apron running contiguous to the downwardly-disposed portion of the receiving-apron and adapted to hold the descending bags to the receiving-apron, the retaining-apron and the cooperating portion of the receiving-apron having a quarter-twist, and a receiving-box at the discharge-point of the two aprons.

12. The combination, substantially as set forth, of roll mechanism adapted to advance and discharge a succession of paper bags and foremost, carrying-rolls for endless aprons, a receiving-apron adapted to receive the paper bags from the roll mechanism as an overlapping series of bags disposed transversely on the apron, a receiving-box disposed at the discharge-point of said receiving-apron and having an end wall substantially tangent to the tail roll of the apron at the point of bag discharge therefrom, and a retaining-apron cooperating with the discharge portion of the receiving-apron.

13. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, and a receiving-apron adapted to receive the bags in succession as they come either from the second pair of rolls or direct from the first pair of rolls.

14. The combination, substantially as set forth, of a first pair of cooperating rolls adapted to advance and discharge a succession of paper bags and foremost, a second pair of rolls disposed to one side of the normal path of the bags discharged by the first rolls, a movable switch disposed between said two pairs of rolls and adapted in one position to be out of the normal path of the bags discharged by the first rolls and in another position to be in that path and deflect the bags out of the normal path and into the bite of the second rolls, a receiving-apron adapted to receive the bags in succession as they come either from the second pair of rolls or direct from the first pair of rolls, and mechanism for automatically moving said switch.

15. The combination, substantially as set forth, of an inclined receiving-box adapted to receive a pile of paper bags, a lower end wall for said box adapted to support the pile of bags, and roller and apron mechanism adapted to advance a succession of bags and foremost and then side edge foremost and deliver them side edge foremost upon said end wall under the pile of bags in said box.

700,723. HAY-LOADING APPARATUS. THOMAS F. BERRILL, Port Wayne, Ind. Filed Mar. 17, 1902. Serial No. 68,541. (No model.)



Claim.—1. In a hay-loading apparatus a hay wagon or truck; a gear-wheel fixed upon one of the rear wheels of said truck; a pair of rotatable shafts in transverse arrangement carrying upon one end thereof gear-wheels in co-operative arrangement with the said gear, as described; winding-drums fixed on said shafts respectively; a traveling bar suspended above said wagon by means of draft-cables; two pairs of draft-cables having their upper ends secured to said bar and extending in opposite directions over suitable guides to the said drums respectively, to which their other end is secured and upon which they are adapted to be wound; and means for shifting the said drum-shaft gears into engagement with the said actuating-gear for the purpose described.

2. In combination with a hay-wagon, a hay-loading apparatus consisting of a driving-gear fixed upon one rear wheel of the said wagon as shown; rotatable transverse shafts carrying upon one end thereof gear-wheels adapted to be thrown, one at a time, into engagement with the said gear, as described; winding-drums fixed on said shafts respectively; a traveling leader-bar suspended above the wagon by the draft-cables; draft-cables having one end secured to said drums and the other end secured to the said traveling bar, and adapted to move the same to and fro above the said wagon under the impulse of the said gears; means for normally securing said gears out of engagement; and means for holding said gear-wheels into engagement with the said actuating-gear.

3. A hay wagon or truck carrying upon one of its rear wheels a fixed driving gear-wheel; transverse drums adjustably mounted in laterally-adjustable bearings and carrying upon one end thereof a fixed gear-wheel adapted to be shifted into mesh with said driving-gear; means for normally holding said wheels out of such engagement; means for shifting the said wheels into an actuating engagement with the said gear; a traveling leader-bar provided with a series of lines for grasping and moving the hay as described, and suspended above the wagon by means of forward and rear draft-cables; and draft-cables having one end secured to the said drums respectively, and having the other end secured to the said bar as described, and adapted to actuate the bar.

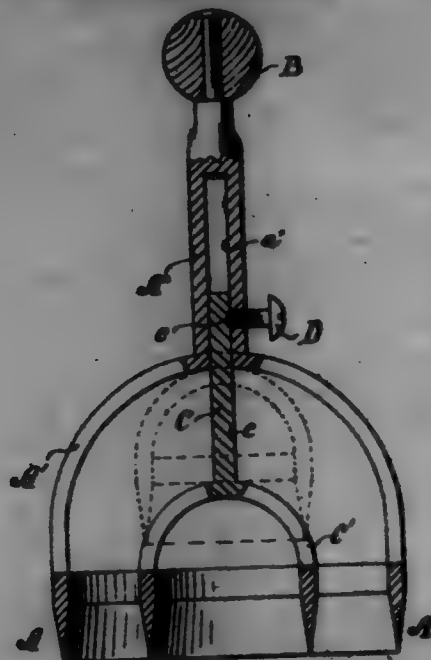
4. In a hay-loading apparatus a pair of rotatable drums in parallel arrangement carrying upon one end thereof a gear-wheel; a driving-gear adapted for an actuating engagement with the said wheels as described; means for normally securing said wheels out of such engagement; means for causing said wheels when desired, to be in actuating engagement with the said gear; a traveling leader-bar suspended by forward and rear actuating draft-cables; and draft-cables having one end secured to said bar and the other end secured to said drums upon which they are adapted to be wound.

700,724. SWAGE-MACHINE. BENJAMIN F. BLISS, Pawtucket, R.I.; John S. Bliss, assignors of said Benjamin F. Bliss, deceased. Filed Apr. 3, 1902. Renewed Mar. 20, 1902. Serial No. 69,572. (No model.)



Claim.—The herein-described swage-block having its edges and sides provided with a plurality of forming-rollers; a journal 2 formed on each end of said block; a series of radiating grooves 20 formed on each end of the block adjacent to said journals, in combination with supporting end sections 4 having bearings 5 in the upper ends thereof; flanges 9 located adjacent to said bearings and adapted to cooperate with the radial grooves 20, and a clamping-rod 7 and means to rotate said rod whereby the sections 4 may be drawn tightly into engagement with the ends of the swage-block or released, as desired, substantially as specified and for the purpose set forth.

700,725. FOOD-CUTTER. JOHN A. DEAN, Mayger, Oreg. Filed May 20, 1901. Serial No. 66,211. (No model.)



Claim.—In a combined chopper and cutter, the combination with the blade A, formed with the arched brace A', and the tubular extension A'; of the inner knife C, concentric with the said knife A, formed with the bifurcated brace C', and spindle C, indented with pin c, and arranged to engage, and pass through the hollow of the cylindrical extension A'; a handle B, upon the upper end of said cylindrical extension; and the set-screw D, threaded in said cylindrical extension A', and engaging the pin c, in said spindle C, all substantially as and for the purpose set forth.

700,726. PIANO ATTACHMENT. GARSON L. C. BAKER, Duluth, Minn., assignor of one-half to Hugh F. Allen, Duluth, Minn. Filed Apr. 22, 1901. Serial No. 67,008. (No model.)



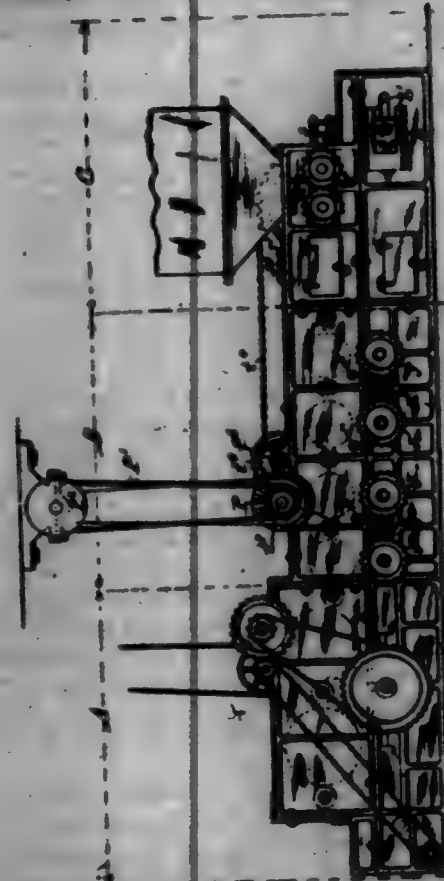
Claim.—1. The combination with a piano, of a series of independent sound-controlling and intensifying devices arranged in juxtaposition to the sound-

ing-board thereof, and having at their ends means for securing the same in position, sound-transmitting strips interposed between the said sound-controlling-board and said sound-containers, and means for adjusting each of said sound-containers independently of the others.

2. The combination with a piano, of a series of independent sound-containers and intensifiers arranged in juxtaposition to the sounding-board thereof, each of said sound-containers and intensifiers being of semicircular cross-sectional contour, and having at their ends means for securing the same in position, sound-transmitting strips interposed between the said sound-controlling-board and said sound-containers, and means for adjusting each of said sound-containers independently of the others.

3. The combination with a piano having a series of brackets secured to the back thereof, of a series of independent sound-containers and intensifiers arranged in juxtaposition to the sounding-board thereof, each of said sound-containers and intensifiers being of semicircular cross-sectional contour, and having at one end means for securing the same in position and having at their opposite ends curved-threaded cheeks adapted to pass through the said brackets, sound-transmitting strips interposed between the said sound-controlling-board and said sound-containers, and nuts on the ends of the said curved-threaded cheeks whereby each of said sound-containers can be adjusted independently of the others.

700,727. APPARATUS FOR TREATING GARBAGE. EDWIN B. BUCHHEIT, Syracuse, N. Y. Filed Sept. 2, 1901. Serial No. 74,748. (No model.)



Claim.—1. In combination with the supporting-roller, a series of separate and independently-movable compressing-rollers disposed contiguously side by side, and guards disposed to engage the front and rear peripheral faces of the compressing-rollers to maintain said rollers in operative position over the supporting-roller as set forth.

2. In combination with the supporting-roller, a series of separate and independently-movable compressing-rollers disposed contiguously side by side, and a corresponding series of separate and independently-movable guard-rollers disposed to engage the peripheries of the compressing-rollers and maintain said rollers in operative position on the supporting-roller as set forth.

3. In combination with the supporting-roller, a series of separate and independently-movable compressing-rollers disposed contiguously side by side, shafts disposed in front and rear of said compressing-rollers and parallel with the axis of the supporting-roller, and a plurality of guard-rollers mounted revolvably independent of each other on said shafts and arranged in series corresponding to the series of compressing-rollers and in range therewith as set forth.

4. The combination with the longitudinally-traveling conveyor provided with ducts for discharging the compressed material and a plurality of rollers supporting said conveyor at intervals of its length, of compressing-rollers riding by gravity upon the conveyor, and guards disposed to

engage the front and rear faces of the compressing-rollers and maintain said rollers in operative position over the supporting-roller as set forth.

5. The combination with the longitudinally-traveling conveyor provided with discharging-ducts, and a plurality of rollers supporting said conveyor at intervals of its length, of a corresponding plurality of series of compressing-rollers riding by gravity upon the conveyor, the rollers of each series being disposed contiguously side by side and revolvable independent of each other, shafts disposed between the successive series of compressing-rollers and parallel with the supporting-roller, and a corresponding series of separate and independently-revolvable guard-rollers mounted on each of said shafts as set forth.

6. The combination with the longitudinally-traveling conveyor provided with discharging-ducts and a plurality of rollers supporting said conveyor at intervals of its length, of a corresponding plurality of series of separate and independently-revolvable compressing-rollers riding by gravity upon the conveyor, the rollers of each series being disposed contiguously side by side and with their tracks in lines intermediate the tracks of the adjacent series, shafts extending between the successive series of compressing-rollers and parallel with the supporting-roller, and guard-rollers mounted on said shafts and revolvable independently of each other as set forth.

700,728. BINOCULAR STETHOSCOPE. ROBERT G. H. BOWLER, Boston, Mass. Filed Mar. 5, 1901. Serial No. 64,804. (No model.)



Claim.—1. A binocular stethoscope comprising a diaphragm-receiver adapted to be applied to the patient to be examined, ear-tubes communicating with said receiver, and a "bell" forming part of the communication between said ear-tubes and said receiver, and detachably connected with the latter, substantially as described.

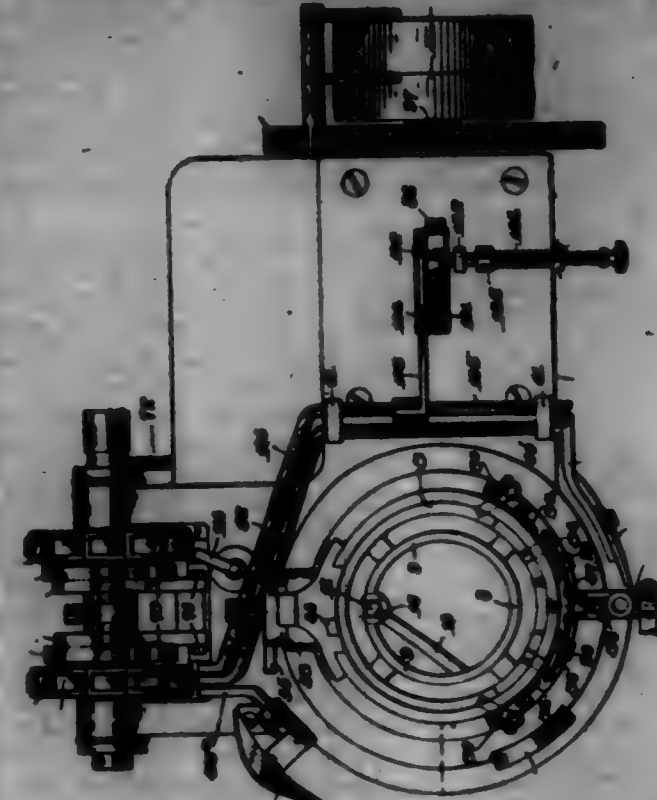
2. A binocular stethoscope comprising a diaphragm-receiver as provided with the right sound-conducting tube b, the "bell" c, a rigid tube e inserted into the mouth of said "bell" and detachably connected therewith, a flexible tube d connecting the rigid tube c with the sound-conducting tube of the receiver, and ear-tubes in communication with said "bell," substantially as described.

700,729. CHAIN-PUMP. LEO A. BRIGGS, Chatham, Ohio, assignor, by license assignment, to Leo A. Briggs, Jr., and Edward J. Briggs, trading under firm-name of Chatham Pump Company, Chatham, Ohio. Filed Sept. 17, 1903. Serial No. 601,578. (No model.)



Claim.—A tube having a longitudinal cam extending along one side and forming an exterior discharging-rib, and having at its opposite side an outwardly-bent portion forming a longitudinal strengthening-rib within the tube and also forming inside the tube a longitudinal channel, substantially as set forth.

700,730. CIRCULAR-KNITTING MACHINE. HENRY BRUNTON, Philadelphia, Pa. Filed Oct. 25, 1900. Serial No. 706,043. (No model.)



Claim.—1. In a knitting-machine, the combination with the bed-plate and the needle-cylinder, of a support for the latter provided with clamping-jaws, and a shaft provided with an eccentric portion interposed longitudinally between the edges of said jaws, substantially as described.

2. In a knitting-machine, the combination with the bed-plate and the needle-cylinder, of a support for the latter, comprising a ring provided with a projecting upper portion split vertically and horizontally to afford two expansible jaws, and a vertical shaft journaled in the lower portion of the ring and extended between the opposing edges of said jaws, each extended portion being fastened to afford an elongated eccentric or cam, substantially as described.

3. The combination with the cam-carrier, its knitting-cams, a normally active depressing-pickup, and a normally active elevating-pickup, of a movable member mounted on said carrier and adapted to engage and render inactive the depressing-pickup, and to release the same and permit it to return to action, and a yielding latch on said member adapted to be moved thereby into and from the path of the elevating-pickup, substantially as described.

4. The combination with the cam-carrier, its knitting-cams, a normally active depressing-pickup, and a normally active elevating-pickup, of a movable member mounted on said carrier and adapted to engage and render inactive the depressing-pickup, and to release the same and permit it to return to action, a vibratory latch or dog pivoted on said member and movable thereby into and from the path of the elevating-pickup, and a spring to maintain said latch or dog in a normal position in respect to said member, substantially as described.

5. The combination with the cam-carrier, its knitting-cams, a normally active depressing-pickup, and a normally active elevating-pickup, of a slide on said carrier adapted to engage and render inactive the depressing-pickup, and to release the same and permit it to return to action, and a yielding latch on said member adapted to be moved thereby into and from the path of the elevating-pickup, a rock-shaft, and a connection between the same and said slide, substantially as described.

6. In a knitting-machine, the combination, with a cam-carrier, its knitting-cams, a set of normally active depressing-pickups, and a set of normally active elevating-pickups, of two oppositely-movable slides one of which is provided with portions which coast with and control the active and inactive positions of one pickup of each set, and the other of which slides is provided with a portion which controls the active and inactive positions of the remaining depressing-pickup, and with a yielding latch or dog which is movable into and from the path of the remaining elevating-pickup, together with means for actuating said slides, substantially as described.

7. In a knitting-machine, the combination with a cam-carrier, of two oppositely-actuated cams thereon movable in a horizontal plane into and from the interior of the carrier, outwardly-extending stems on said cams, springs to maintain the same normally retracted, and a rocking head movable in a vertical plane and provided on its inner face with berths or cam portions which take against the outer ends of the respective stems, substantially as described.

8. In a knitting-machine, the combination with the cam-cam, of two oppositely-inclined cams thereon movable into and from the interior of the carrier, outwardly-extending stems on said cams, springs to maintain the cams normally retracted, and a rocking head movable in a plane at right angles to the path of said cams and provided on its inner face with bevels or cam portions which take against the outer ends of said stems, a fixed cam adapted to coast with said head to set it in a neutral position, a tappet-arm on said head, trip mechanism, and means whereby it may be moved into and from the path of said cam, substantially as described.

9. In pattern mechanism for knitting-machines, the combination with a rock-shaft, and means for actuating the same, of two independently-movable ratchet-wheels thereon, pattern devices adapted to be intermittently actuated by said wheels, arms affixed to said shaft carrying pawls adapted to coast with the respective wheels, and means whereby the said pawls may be moved into and out of action in alternate succession.

10. In pattern mechanism for knitting-machines, the combination with a rock-shaft, and means for actuating the same, of two independently-movable ratchet-wheels thereon, pattern devices adapted to be intermittently actuated by said wheels, arms affixed to said shaft carrying pawls adapted to coast with the respective wheels, rock-levers loosely mounted on said shaft and provided with cam-like arms movable below and from the respective pawls to render the latter idle and active in alternate succession, and means for shifting said levers in opposite directions to each other at predetermined intervals.

11. In pattern mechanism for knitting-machines, the combination with a rock-shaft, and means for actuating the same, of two independently-movable ratchet-wheels thereon, pattern devices adapted to be intermittently actuated by said wheels, arms affixed to said shaft carrying pawls adapted to coast with the respective wheels, rock-levers loosely mounted on said shaft and provided with cam-like arms movable below and from the respective pawls to render the latter idle and active in alternate succession, reciprocating slides, a rock-lever connected with said slides and adapted to move them longitudinally in opposite directions to each other, and means for operating said lever.

12. In a knitting-machine provided with narrowing and widening mechanism, the combination with the needle-cylinder, the cam-cylinder, the driving-shaft geared with the latter, flat and loose pulleys on said shaft, a driving-belt, a skipper therefor, means whereby said skipper is held normally adjacent to the loose pulley, means whereby it may be temporarily held adjacent to the flat pulley, a reciprocating rotary mechanism, gearing between the same and the flat pulley, a clutch whereby the said reciprocating mechanism and the flat pulley may be thrown into and out of action in respect to the shaft in alternate succession, means whereby said clutch normally locks the flat pulley to the shaft, a latch device whereby said clutch may be temporarily engaged with the reciprocating mechanism, a rock-shaft, means for actuating the same, two independently-movable ratchet-wheels on said rock-shaft, pattern mechanism adapted to be intermittently actuated by said wheels, arms on said rock-shaft carrying pawls adapted to coast with the respective wheels, oppositely-movable devices coasting with said pawls to render the latter active and idle in alternate succession, operative connections between said devices and the clutch, operative connections between said latch device and one of said pattern mechanism, and trip devices between the other pattern mechanism and the skipper mechanism.

13. In a knitting-machine, provided with narrowing and widening mechanism, the combination with the needle-cylinder, the cam-cylinder, the driving-shaft geared with the latter, flat and loose pulleys on said shaft, a driving-belt, a skipper therefor, means whereby said skipper is held normally adjacent to the loose pulley, a pinion fixedly connected with the latter pulley, a secondary shaft, a wheel on the latter geared with said pinion, a crank on said secondary shaft, a radius-bar connected therewith carrying a sector, a pinion loosely mounted on the main shaft and geared with said sector, a clutch, means whereby it is normally held in position to lock the flat pulley to the shaft, a latch device whereby said clutch may be temporarily engaged with the pinion last named, a trip device for the skipper, a trip device for the said latch, and pattern mechanism for actuating said trip devices at predetermined intervals.

14. In a knitting-machine, provided with narrowing and widening mechanism, the combination with the needle-cylinder, the cam-cylinder, the driving-shaft geared with the latter, flat and loose pulleys on said shaft, a driving-belt, a skipper therefor, means whereby said skipper is held normally adjacent to the loose pulley, a pinion fixedly connected with the latter pulley, a counter-shaft, a wheel on the latter geared with said pinion, a crank on said counter-shaft, a radius-bar connected therewith carrying a sector, a pinion loosely mounted on the main shaft and geared with said sector, a clutch, means whereby it is normally held in position to lock the flat pulley to the shaft, a latch device whereby said clutch

may be temporarily engaged with the pinion last named, a rock-shaft, operative connections between the same and the radius-bar, independently-movable ratchet-wheels on said rock-shaft, pattern mechanism adapted to be intermittently actuated by said wheels, arms on said rock-shaft carrying pawls adapted to coast with the respective wheels, means for rendering said pawls active and inactive in alternate succession, operative connections between said latch and one of said pattern mechanism, and trip devices between the other pattern mechanism and the skipper mechanism.

15. In a knitting-machine, the combination with the cam-cylinder and the needle-cylinder having provision for vertical adjustment, of a driving-shaft, gearing between the same and the cam-cylinder, means for imparting continuous rotary movement to said shaft, means for imparting reciprocating rotary movement to said shaft, a clutch member whereby either of said means may be thrown into or out of action in respect to the shaft, as desired, a hand-lever for controlling said clutch member, a rock-shaft connected therewith, and adapted to be rocked thereby, a vertically-swinging lever constructed and arranged to effect the adjustment of the needle-cylinder, and means on said rock-shaft coasting with said lever to control the position thereof when the rock-shaft is actuated.

16. In a knitting-machine, the combination with the cam-cylinder, the needle-cylinder, and a vertically-movable support for the latter cylinder, of a driving-shaft, gearing between the same and the cam-cylinder, means for imparting continuous rotary movement to said shaft, means for imparting reciprocating rotary movement to said shaft, mechanism whereby either of said means may be rendered active or inactive in respect to the shaft, a lever adapted to coast with the movable support, a rock-shaft, a link connection between the same and the said lever, and mechanism for actuating said shaft at predetermined intervals.

17. In a knitting-machine, the combination with the cam-cylinder, the needle-cylinder, and a vertically-movable support for the latter cylinder, of a driving-shaft, gearing between the same and the cam-cylinder, means for imparting continuous rotary movement to said shaft, means for imparting reciprocating rotary movement to said shaft, mechanism whereby either of said means may be rendered active or inactive in respect to the shaft, a lever adapted to coast with the movable support, a rock-shaft, an adjustable arm on one end of said shaft, means for adjusting the same, a connection between said arm and the lever, and pattern mechanism for actuating said rock-shaft at predetermined intervals.

18. In a knitting-machine provided with narrowing and widening mechanism, the combination with the needle-cylinder, the cam-cylinder, the driving-shaft geared with the latter, flat and loose pulleys on said shaft, a driving-belt, a skipper therefor, means whereby said skipper is held normally adjacent to the loose pulley, means whereby it may be temporarily held adjacent to the flat pulley, a reciprocating rotary mechanism, gearing between the same and the flat pulley, a clutch whereby the said reciprocating mechanism and the flat pulley may be thrown into and out of action in respect to the shaft in alternate succession, means whereby said clutch normally locks the flat pulley to the shaft, a latch device whereby said clutch may be temporarily engaged with the reciprocating mechanism, a trip device for the skipper, a trip device for the said latch, and pattern mechanism for actuating said trip devices at predetermined intervals, together with means for temporarily locking the clutch in idle position.

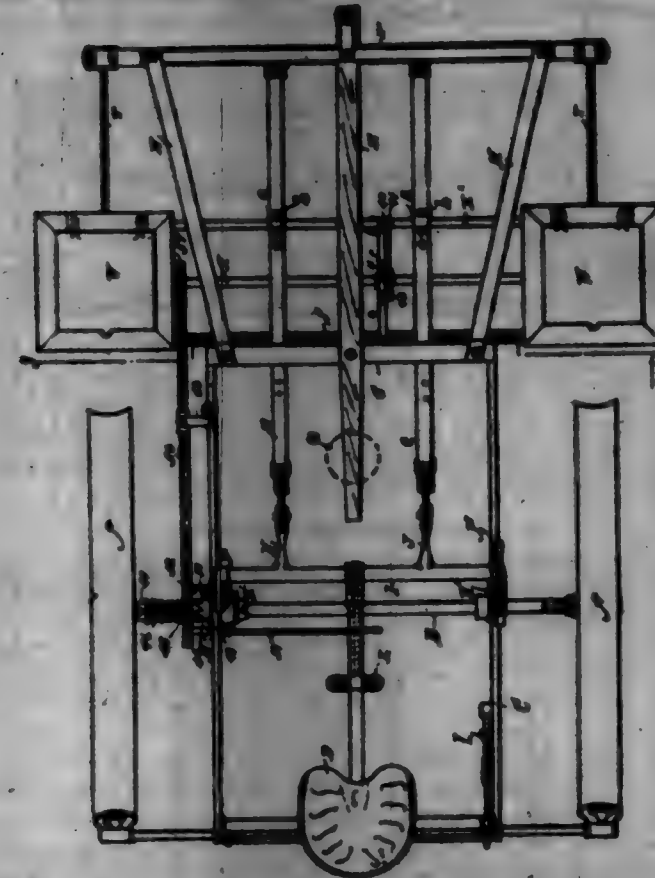
700,781. CORN-PLANTER. GEORGE W. BRYAN, Springfield, Ohio. Filed Sept. 24, 1902. Serial No. 26,892. (No model.)

Claim.—1. In a corn-planter, the combination, with a main frame structure provided with supporting and covering wheels, of a draft-pole rigidly secured to said frame structure, an auxiliary frame carrying furrow-opening and seed-dropping devices and pivotally connected at its front end with the frame structure, a lever mounted on the frame structure, and connecting means between said lever and the auxiliary frame for raising and lowering said auxiliary frame, said connecting means comprising a spring, substantially as described.

2. In a corn-planter, the combination with a pair of wheels, of a main shaft mounted therein, a frame structure carried by said main shaft, a tongue fixedly connected with said frame structure, a frame carrying dropper mechanism and pivoted at its forward end to said frame structure, a spring connected with said frame structure at its forward end, a pivoted bar carried by said frame structure, a lever connected with said bar, a link connected with said spring and with said bar, whereby when said lever is raised and lowered said spring is also raised and lowered, and means for fixedly connecting said dropper-mechanism frame with said spring, all substantially as shown and described.

3. In a corn-planter, the combination with supporting-wheels, of an axle rotated by said supporting-wheels, a frame structure mounted on said axle having a pole fixedly connected therewith, a frame carrying dropper mechanism and pivoted at its forward end to said frame structure, a pair of spring-bars, one end of each of which is also secured to said frame

structure, means for fixedly connecting said spring-bars with said dropper-mechanism frame, and adjustable means for connecting the inner ends of said spring-bars with said frame structure, whereby said dropper mechanism may also be adjusted, all substantially as shown and described.



4. In a corn-planter, the combination with a pair of supporting and driving wheels, of a main shaft mounted in said wheels and operated thereby, a frame structure supported by said shaft, a pivoted cross-bar also supported by said shaft having a pair of arms extending forward therefrom, and a foot-lever extending backward therefrom, a frame carrying dropper mechanism and pivoted at its forward end to said frame structure, a pair of springs connected with said frame structure at their forward ends, means for rigidly connecting said dropper-mechanism frame with said springs, a pair of links connected with the respective spring-bars and also with the respective arms, and a hand-lever also connected with said cross-bar, whereby said spring-bars may be raised and lowered by hand, and also by foot-power, all substantially as shown and described.

5. In a corn-planter, the combination with a frame structure, of a pair of spring-bars connected thereto at their forward ends, a frame carrying dropper mechanism and pivoted to said frame structure at its forward end, means for rigidly connecting said dropper-mechanism frame with said spring-bars, a dropper-shaft and a valve-operating shaft carried by said dropper mechanism, means for operating said dropper-shaft, means carried by said dropper-shaft for operating said valve-operating shaft, and a hand-lever connected with said spring-bars for elevating and lowering said dropper-mechanism frame, all substantially as shown and described.

6. In a corn-planter, the combination, with a main frame structure, provided with a rotating axle having supporting and covering wheels, and a draft-pole rigidly secured to said frame structure, of an auxiliary frame provided with furrow-opening and seed-dropping devices and pivotally connected at its front end to the main frame structure, means mounted on the main frame structure for raising and lowering said auxiliary frame, check-rod and hand operating devices carried by the auxiliary frame for actuating the seed-dropping mechanism, connecting mechanism between the main axle and the seed-dropping mechanism whereby the latter may be operated from the former, and means for throwing said connecting mechanism into and out of operation, substantially as described.

7. In a corn-planter, the combination with a dropper-shaft, of a lever, means for connecting said lever with said dropper-shaft to operate said shaft in one direction, said lever having a ball-and-socket joint therein and a bifurcated end, a pair of rollers, a check-rod wire adapted to pass over said rollers and through the bifurcated end of said lever, and means for swinging said rollers and said bifurcated lever out of contact with said check-rod wire, all substantially as shown and described.

8. In a corn-planter, the combination with dropper mechanism, a dropper-shaft rotatably mounted therein, a lever pivotally supported thereby, said lever having to upper and bifurcated, a ball-and-socket joint in said bifurcated lever, whereby said bifurcated lever may rotate, a pivoted frame structure, a pair of rollers carried thereby, a check-rod wire adapted

to pass over said rollers and through the bifurcated end of said lever, and means for holding said roller-frame in wire-supporting position and for releasing said roller-frame, whereby said rollers will swing out of wire-supporting position, at the same time the bifurcated end of said lever rotating to also release said check-rod wire, all substantially as shown and described.

9. In a corn-planter, the combination with a dropper mechanism, of a check-rod device mounted at each end of said dropper mechanism, a pivoted bifurcated lever carried by said check-rod device having a ball-and-socket joint therein, a roller-frame pivoted to said check-rod device, a pair of rollers carried thereby, a check-rod wire adapted to extend over said rollers and be supported thereby and extend through the bifurcated end of said lever, a trip device for holding said roller-frame in position for said wheels to support said wire and for releasing said roller-frame, whereby said rollers, as also said bifurcated lever, disengage from said check-rod wire, said lever being operated in one direction by said check-rod wire, and a spring for operating said lever in the opposite direction, all substantially as shown and described.

10. In a corn-planter, the combination, with a main frame structure provided with longitudinally-slotted bearings, of supporting and covering wheels provided with a rotating axle mounted in said bearings, an auxiliary frame carrying furrow-opening and seed-dropping devices and pivoted at its front end to the main frame structure, and operating mechanism connecting said seed-dropping devices and the axle, the said axle being mounted to yield longitudinally in its bearings, and springs for returning said axle to its normal position, substantially as described.

11. In a corn-planter, the combination with a pair of carrying-wheels having a main axle mounted therein and adapted to rotate therewith, of a frame structure having yieldable bearings within which said main axle is mounted, dropper mechanism pivoted to said frame structure, a dropper-shaft carried by said dropper mechanism, a sprocket-wheel mounted thereon, a sprocket-wheel mounted on said main axle, a sprocket-chain for connecting said sprocket-wheels with each other, said bearings yielding to permit said dropper mechanism to also yield without unduly stretching said sprocket-chain, all substantially as shown and described.

12. In a corn-planter, the combination with a pair of carrying-wheels having a main axle mounted therein, a frame structure mounted on said axle, a pivoted shaft carried by said frame structure, a pair of arms projecting from said shaft in a forward direction, and a foot-lever projecting from said shaft in a rearward direction, a hand-lever secured to said pivoted shaft, a toothed segment, a pawl carried by said hand device engaging with said toothed segment for holding said hand device in any desired position, whereby said pivoted bar is held in any desired position, dropper mechanism, a pair of spring-bars secured to said frame structure at one end and connected with said arms at their other ends, and means for rigidly connecting said dropper-shaft with said spring-bars, whereby when said foot-lever and said hand-lever are operated said dropper mechanism is elevated or lowered, all substantially as shown and described.

700,782. PLANIMETER. RICHARD W. BRYAN, Southport Hill, England. Filed Oct. 5, 1901. Serial No. 78,000. (No model.)

Claim.—1. A planimeter comprising a tracing-arm, an index-roller, and means for automatically varying the inclination of the axis of the said index-roller to the said tracing-arm to compensate for variation in a diagram-track.

2. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, an index-roller connected to the said tracing-arm so as to be moved partly rectilinearly and partly radially therewith, and means for automatically varying the inclination of the axis of the said index-roller to the said tracing-arm to compensate for variation in a diagram-track.

3. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, an index-roller connected to the said tracing-arm so as to be moved partly rectilinearly and partly radially therewith, and a cam for varying the inclination of the axis of the said index-roller to the said tracing-arm to compensate for variation in a diagram-track.

4. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, an index-roller connected to the said tracing-arm so as to be moved partly rectilinearly and partly radially therewith, and a cam and a spring for varying the inclination of the axis of the said index-roller to the said tracing-arm to compensate for variation in a diagram-track.

5. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, a planimeter-arm connected to the said tracing-arm so as to move therewith about the pivotal axis thereof, a frame or holder joined to the said planimeter-arm, an index-roller mounted in the said frame or holder, and means for varying the inclination of the axis of the said index-roller to the said planimeter-arm to compensate for variation in a diagram-track.

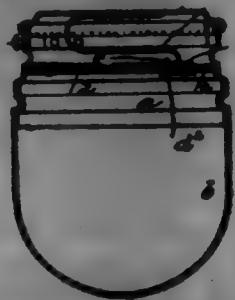
6. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, a planimeter-arm connected to the said tracing-arm so as to move therewith about the pivotal axis thereof, a frame or holder joined to the said planimeter-arm, an index-roller mounted in the said frame or holder, and a cam for varying the inclination of the axis of the said index-roller to the said planimeter-arm to compensate for variation in a diagram-scale.



7. A planimeter comprising a pivotally-mounted tracing-arm, means for guiding the pivot of the said arm rectilinearly, a planimeter-arm connected to the said tracing-arm so as to move therewith about the pivotal axis thereof, a frame or holder joined to the said planimeter-arm, an index-roller mounted in the said frame or holder, and a cam and a spring for varying the inclination of the axis of the said index-roller to the said planimeter-arm to compensate for variation in a diagram-scale.

8. A planimeter comprising a tracing-arm, a rectilinearly-guided frame or carrier to which the said arm is pivoted, a planimeter-arm carried by the said frame or carrier, an index-roller, a frame or holder in which the said roller is mounted, means for varying the inclination of the said frame or holder to the said planimeter-arm, and wheels on which the said frame or carrier is and which are arranged on opposite sides thereof.

700,788. POCKET-SPITTOON. RICHARD BUNYER, Brooklyn, and JAMES HARR, New York, N. Y. Filed Sept. 7, 1901. Serial No. 74,000. (No model.)



Claim.—1. A pocket-spittoon having a lid, a hook on the lid, a hinged valve, and a rearwardly-projecting arm on said valve which is adapted to be engaged by the hook, substantially as specified.

2. A pocket-spittoon having an annular body, a flexible bag secured to the lower side thereof, a lid for closing the annular body, a valve for closing the bag, a spring-hook on the lid, and a rearwardly-projecting arm on the valve which is adapted to be engaged by said hook, substantially as specified.

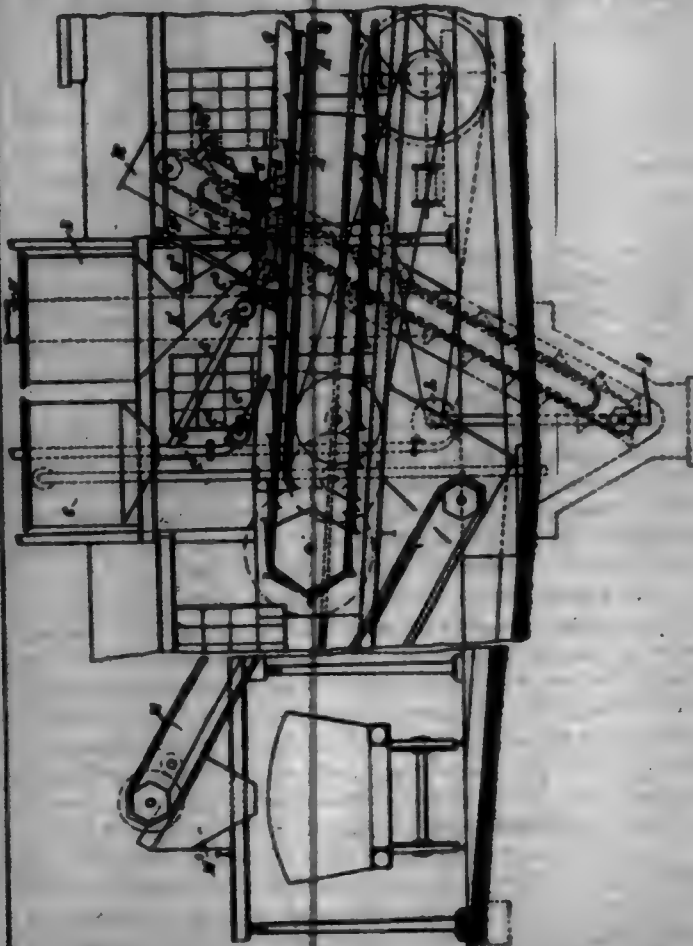
700,784. BURIAL-Vault. ALVAN R. BURKE, Salem, Mass. Filed Sept. 24, 1901. Serial No. 73,998. (No model.)

Claim.—1. A concrete burial-vault having an extended portion integral with a wall, a conduit formed within said extended wall establishing communication between the interior and exterior of the vault, and a check-valve in said conduit for preventing the ingress of foreign matter into said vault through said conduit.



2. A concrete burial-vault having an integral upward extension above one wall terminating at the level of the ground, a conduit located within said extension and the wall, extending upward from the interior of said vault into the extension and thence downward through the wall, and terminating at the exterior of the wall near the bottom thereof, and a check-valve located within said conduit, substantially as described.

700,785. APPARATUS FOR WASHING COAL, COKE, &c. CURTIS B. BUNYER, Chicago, near Durham, England. Filed Apr. 18, 1901. Serial No. 65,000. (No model.)



Claim.—1. In a coal-washing apparatus in which the heavy impurities or dirt are discharged at the higher end of the slope of a sloping endless belt moving toward that end while the washed coal is floated down toward the other end, a dip in said belt near the last-named end for causing the washing-water to be there comparatively at rest, in order that the fine parts of the washed coal held in suspension, may deposit there in combination with means for raising the washed coal from said dip, substantially as set forth.

2. In a coal-washing apparatus in which the dirt or heavy impurities are discharged at the upper end of a sloping endless belt, having motion toward said end, a trough in which said belt travels, means for washing the coal and floating the washed coal down the slope of the belt, a dip in said belt at or near the lower end of its slope, and means for raising the washed coal from said dip, substantially as and for the purpose set forth.

3. In a coal-washing apparatus, the combination of a sloping endless belt, a trough in which said belt has motion toward the higher end of the slope, means on the lower or under side of the belt for coupling said trough, means near the higher end of the slope of the belt for supplying coal and water thereto in regulated quantities, and a receptacle of

said higher end of the belt for receiving the impurities, substantially as set forth.

4. In a coal-washing apparatus the combination of a sloping endless belt moving toward the higher end of the slope means near that end for supplying coal and water in regulated quantities to the upper web of the belt, a set of transversely-arranged valves at the coal-supply end and another set of such valves between said end and the water-supply end substantially as and for the purpose set forth.

5. In a coal-washing apparatus the combination of a sloping endless belt moving toward the higher end of the slope, a dry-coal-supply hopper, near that end with means for regulating the delivery of coal therefrom a feed-plate or trough receiving the coal from the coal-hopper, a water-supply tank nearer that end, a pipe therefrom with regulating-cock and cut-cocks which discharge washing-water onto the coal in said feed-trough, another pipe from said supply-tank with regulating-cock and cut-cocks which discharge washing-water onto the belt nearer the water-tank, a set of transversely-arranged valves at the coal-supply end and another set of such valves between the two water-supply ends, substantially as and for the purpose set forth.

6. In a coal-washing apparatus the combination of a sloping endless belt moving toward the higher end of the slope, means substantially as described near that end for supplying coal and water in regulated quantities to the upper web of the belt, a dip in the belt at the other end of the belt, a trough at said dip, a settling-wall for receiving from the lower end of the slope of the belt the overflow water with matter suspended therein, an elevator for raising the slurry therefrom and delivering it into the belt for being re-washed, a pump-well receiving the overflow water from the settling-wall, a pump to convey the water therein to the water-supply tank, and an overflow-pipe from the latter to the pump-well substantially as set forth.

7. In a coal-washing apparatus, the combination of the sloping endless belt moving toward the higher end of the slope, means for delivering coal to said belt near the said higher end of the slope, means for supplying water to the belt and floating the coal down the slope, an elevator near the bottom of said slope for raising the washed coal from the belt, said elevator having a hinged bottom riding on said belt and a settling-wall for receiving from the lower end of the slope the overflow-water and matter held in suspension therein, substantially as and for the purpose set forth.

8. In a coal-washing apparatus, a sloping endless belt having motion toward the higher end of the slope, means for feeding the coal to be washed to said belt at or near said higher end, a dip in the belt near the lower end of the slope causing the wash-water to be there comparatively at rest; in combination with an elevator for raising the washed coal from said dip, and means for adjusting the height of the elevator relatively to the dip, substantially as and for the purpose set forth.

700,786. MILLING-MACHINE CUTTER. JOHN F. CAGELL, Baltimore, Md., assignor to C. H. Margenthaler Company, Baltimore, Md., a Corporation of Delaware. Filed May 14, 1901. Serial No. 65,577. (No model.)



Claim.—1. In a milling-cutter the combination of a body-piece having a series of longitudinal channels on its outer surface, longitudinally-adjustable cutting-blades within said channels and having their cutting edges extending outwardly beyond the periphery of the body-piece, each blade having a plain beveled surface on its forward side, and locking-curveds extending into the body and having tapering portions adapted to engage the beveled surfaces of the blades.

2. In a milling-cutter the combination of a body-piece having a series of longitudinal channels on its outer surface, longitudinally-adjustable cutting-blades within said channels and having their cutting edges extending outwardly beyond the periphery of the body-piece, each blade having a base projecting forwardly from the blade, said base having a plain beveled surface on its forward side, and locking-curveds extending into the body and having tapering portions adapted to engage the beveled surfaces of the blades.

3. In a milling-cutter, the combination of a body-piece having a series of longitudinal channels on its outer surface, longitudinally-adjustable

cutting-blades in said channels, and adjusting-curveds extending longitudinally into the body-piece adjacent to the blades, said curveds and blades being connected to mutually engage, whereby the blades may be adjusted in either direction by turning the curveds.

4. In a milling-cutter, the combination of a body-piece having a series of longitudinal channels on its outer surface, longitudinally-adjustable cutting-blades in said channels, each blade having a transverse groove on its rear side near one end, and adjusting-curveds extending longitudinally into the body in the rear of the blades, each curved having a flange engaging the slot in an adjacent blade.

5. In a milling-cutter, the combination of a body-piece having a series of channels on its outer surface, cutting-blades in said channels, each having a plain beveled surface on one side and a transverse groove near one end, adjusting-curveds extending longitudinally into the opposite ends of the body adjacent to the blades, each adjusting-curved having a head engaging the groove in the adjacent blade, and locking-curveds having tapering heads adapted to engage the beveled surfaces of the blades.

6. In a milling-cutter, the combination of a body-piece having a series of longitudinal channels on its outer surface, adjustable cutting-blades within said channels, each blade having a plain beveled surface on one side and a transverse groove near one end, adjusting-curveds extending longitudinally into the body adjacent to the blades, each adjusting-curved having a flange engaging the groove in the adjacent blade, and locking-curveds having tapering heads adapted to engage the beveled surfaces of the blades.

7. In a milling-cutter, the combination of a body-piece having a series of longitudinal channels on its outer surface, cutting-blades in said channels, each blade having a transverse groove near one end, the consecutive blades having their grooved ends at opposite ends of the body-piece, and adjusting-curveds extending longitudinally into the body-piece adjacent to the blades, each curved having a flange engaging the transverse groove in the adjacent blade.

8. In a milling-cutter, the combination of a body-piece having a series of longitudinal channels on its outer surface, cutting-blades in said channels, each blade having a plain beveled surface on one side and having a transverse groove near one end, and the consecutive blades having their grooved ends lying at opposite ends of the body, adjusting-curveds extending longitudinally into the body adjacent to the blades each curved having a flange engaging the groove in the adjacent blade, and locking-curveds having tapering heads adapted to engage the beveled surfaces on the blades.

9. A longitudinally-adjustable milling-cutter blade having a transverse groove or recess near one end and a base projecting forwardly from the blade, said base having a continuous beveled face 4 on its forward side, substantially as described.

700,787. METAL GATE. WILLIAM R. CANTRELL, Chicago, Ill., assignor to Frank A. Anderson, Chicago, Ill. Filed Feb. 12, 1902. Serial No. 65,757. (No model.)

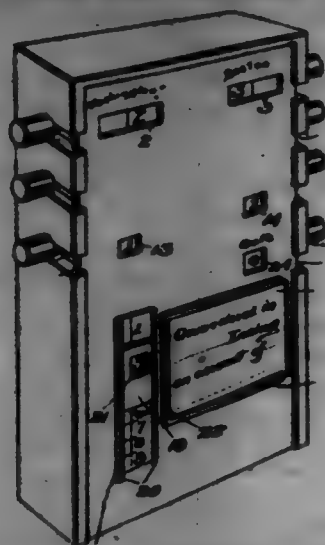


Claim.—1. A gate comprising the ribbed metal stile, each stile having its upper and lower ends bent horizontally and laterally away from the body of the gate and constituting retainers for pin-like supports, a series of tension-wires uniting the stiles, and a ribbed metal strut having one end forked into upwardly and downwardly bent branches, substantially as described.

2. In a gate the combination of two ribbed metal stiles, each stile having its upper and lower ends bent laterally and vertically perforated, a series of tension-wires uniting said stiles and a ribbed metal strut having one end forked into upwardly and downwardly bent branches secured to one of the stiles, substantially as described.

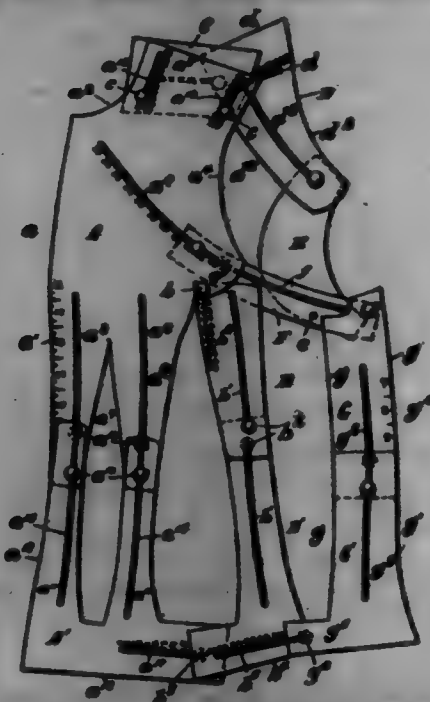
3. In a gate, the combination of two ribbed metal stiles, each stile having its upper and lower ends bent laterally and vertically perforated, a series of tension-wires uniting said stiles and a ribbed metal strut secured to said stiles, with gate-supporting posts and a gravity-latch pivoted to one of said posts and having its lower end over the lateral extension of the stile, substantially as described.

700,788. SCREW-BOARD. JOHN B. CARTER, Council Bluffs, Ark. Filed Aug. 28, 1901. Serial No. 73,766. (No model.)



Claim.—A device of the class described comprising a casing provided in its front with apertures and having open bearing-recesses at opposite sides, said casing being also provided with an intermediate bar having opposite bearings, the ribbon-receiving rolls arranged in pairs and provided with inner and outer journals arranged in the said bearings and in the bearing-recesses, the removable front arranged in suitable ways of the sides of the casing, the independently-movable rolls having inner and outer journals detachably arranged in the bearings of the intermediate bar and in the bearing-recesses, the elastic bands arranged on the outer journals and frictionally engaging the inner and the walls of the open outer bearing-recesses and retaining the rolls in their adjusted positions and permitting the same to be released when sufficient force is applied, a cord-holder mounted on the casing, and a guide arranged at the front of the casing and having a slide, substantially as and for the purposes described.

700,789. ADJUSTABLE DRUM-CHART. JENNIE H. GOSWORTHY, Fall River, Mass. Filed Dec. 12, 1901. Serial No. 86,728. (No model.)



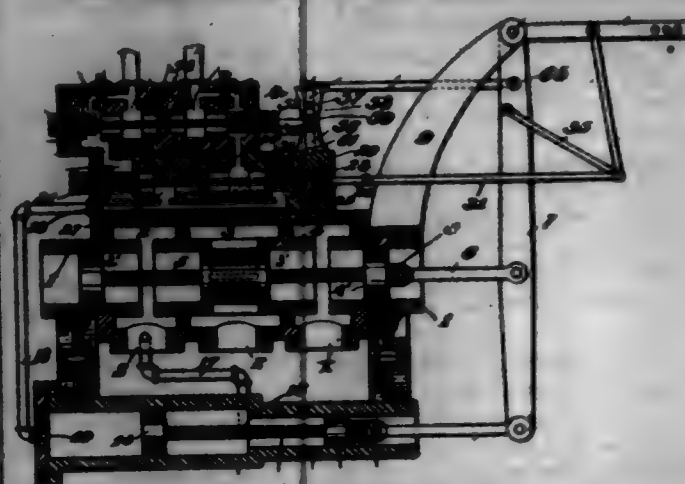
Claim.—1. A form for drafting a bedrock-front, comprising the main template A having the notch *a'* and the slots *a*, *a'*, *a''*, the plate A' having arms *a''* *a'''* slidably connected with the plate A and having the slots *a''* *a'''*, the plate B, pivoted to the plate A and having the slot *b*, and the graduated *b'*, the plate B' having the slots *b'*, *b''* and slidably connected with the plates A' and B', the plate C slidably connected with the plate A by the slots *a''*, the plate D slidably transverse on the plate D, the plate F slidably in the slot *c'* and pivotally connected with the plate B, the plate G pivotally attached to the plate F, and the plate G' slidably attached to the plate G and the plate H, the slots *c'*, *c''* and *d* being graduated for best-measure, and the slot *b'* for waist-measure.

2. A form for drafting the back of a bodice, comprising the plate K, the plate K' slidably lengthwise thereon, the plate L slidably laterally on the plate K, the plate L' slidably lengthwise on the plate L, the plate M slidably laterally on the plate K and in a lengthwise direction on the

plate L, and the plate M', pivoted to the plate K' and slidably on the plate M, the adjustment of the plates L and M being according to best-measure.

3. A form for drafting sleeves for garments, comprising a concentric-shaped plate R, containing longitudinal slots *r*, *r'*, an elbow-shaped plate S having a longitudinal slot in each arm, two longitudinally-adjustable curved plates T, T', pivotally attached to the plate R and pivotally and adjustably to the plate S, a plate U pivoted to the pivot of the plate T, plates V, W, adjustable respectively along the plates S and U, and each provided with a lateral arm, said arms being adjustably connected to a short plate X constituting an adjustable extension of the plate V, and an L-shaped plate Y similarly adjustable on the plate W and having its lateral arm adjustably connected with the plate X.

700,740. HYDRAULIC-VALVE MECHANISM. WILLIAM F. COLE, Worcester, Mass., assignor to Fisker Elevator Company, Worcester, Mass. Filed Mar. 1, 1900. Serial No. 673,167. (No model.)



Claim.—1. In an elevator, the combination with the car, of motor means for running said car, controlling means adapted to be operated from the car, and an automatic quick-starting, slow-stopping device adapted to permit of a quick start and to regulate the suddenness of stopping whereby the car will be brought to rest gradually.

2. The combination with the main three-way valve, of means for opening and closing said valve in either direction, and automatic means for regulating the opening and closing movements at different rates of speed.

3. The combination with the main valve for controlling the passage of fluid under pressure, of means for opening and closing said valve, and automatically-operated quick-opening, slow-closing means connected with said main valve, whereby the speed of opening and the speed of closing the main valve are regulated within independent limits, substantially as described.

4. In a hydraulic elevator, the combination with a main valve, of a valve-motor, pilot-valve mechanism, and an opening and closing regulating means operated by movement of the main valve, whereby a quick opening and slow closing of the main valve are effected.

5. The combination with the main valve for controlling the passage of fluid under pressure, of motor means for opening and closing said main valve, secondary valve mechanism for controlling the motor means, and hydraulic opening and closing regulating means for automatically regulating the velocity at which the main valve may be opened and the velocity at which the main valve may be closed at independent rates, substantially as described.

6. In a hydraulic elevator, the combination with a main three-way valve which is adapted to be closed when in its middle position, of means for opening and closing said valve, and regulating means operated automatically by said main valve and adapted to accomplish a quick opening and slow closing of said valve.

7. The combination with a main valve for controlling the passage of fluid under pressure, of means for operating said valve, and means for regulating the speed of opening and the speed of closing the main valve at independent rates, comprising enlarged and contracted water-passages and automatic means for controlling the flow of fluid through said passages, substantially as described.

8. The combination with the main valve for controlling the passage of fluid under pressure, of means for opening and closing said valve, speed-regulating means comprising separate passages for the flow of fluid in the operations of opening and closing the main valve in either direction, and automatic means adapted to regulate the flow of fluid through said passages, whereby the mechanism of opening and closing the main valve in either direction can be regulated within independent limits.

9. The combination with the three-way valve which is adapted to

be closed when in its middle position, of means for opening and closing said valve, of an opening and closing regulator comprising fluid-passages through which fluid must flow when the main valve is moved, and automatic means for controlling the flow of fluid through said passages, whereby the velocity of opening and the velocity of closing of the main valve in either direction may be regulated at independent rates of speed.

10. In a device for controlling the rate of speed in opening and closing a three-way valve in either direction, the combination with a cylinder, having in connection therewith, a contracted passage and an enlarged passage, of automatically-operated valve mechanism adapted to close said enlarged passage to the flow of fluid upon one movement of the main valve and open said enlarged passage to the flow of fluid upon the other movement, whereby upon one movement the flow of fluid has a free passage and upon the other movement a restricted passage, substantially as described.

11. The device for controlling the speed of opening and closing a valve, comprising a cylinder having in connection therewith enlarged passages, means for alternately closing said passages to the flow of fluid upon the different movements of the main valve, and contracted passages through which the fluid may flow when the enlarged passages are closed, substantially as described.

12. The combination with a main three-way valve for controlling the supply and discharge of fluid under pressure, of means for opening and closing said valve in either direction, and automatic regulating means for offering to the force applied to move said valve, resistance, different as between different movements of the main valve, substantially as described.

13. The combination with a main three-way valve for controlling the passage of fluid under pressure, of means for opening and closing said valve in either direction, and automatic means for offering to the force applied to open and close the main valve a resistance, different as between the opening and closing movements of said valve, substantially as described.

14. The combination with an elevator-valve which is adapted to be closed when in an intermediate position and opened when moved in either direction from said position, a valve-actuating member connected to said valve for moving same, means for permitting comparatively free movements of said actuating member in either direction from an intermediate position, and for correspondingly restricting the speed at which said actuating member may be returned from its extreme position.

15. The combination with an elevator-valve which is adapted to be closed when in an intermediate position and opened when moved in either direction from said position, a valve-actuating member connected to said valve for moving the same, means for permitting comparatively free movements of said actuating member in either direction from an intermediate position, and for correspondingly restricting the speed at which said actuating member may be returned from either extreme position.

16. The combination with the main three-way valve for controlling the passage of fluid under pressure, of an automatic opening and closing regulating mechanism applied to the main valve independent of the opening-handle and operating means connected with the main valve independent of the opening-handle and operated by the movement of the main valve whereby the valve is closed in either direction more gradually than it is opened, substantially as described.

17. The combination with a three-way valve, of fluid-pressure operated motor means for moving said valve, means for controlling said fluid-pressure comprising a throttling-valve, means for automatically operating said throttling-valve which are connected to said main valve and are adapted to move said throttling-valve so that said main valve is moved faster from a closed to an open position than from an open to a closed position.

18. The combination with a three-way valve, of motive means for moving said valve, means for controlling said motive means, and automatic regulating means comprising enlarged and contracted passages and valve mechanism for said passages, whereby the velocity of movements of the main valve may be regulated at different rates, substantially as described.

19. The combination with a main valve, of a valve-motor for moving said valve, a pilot-valve for controlling the action of the valve-motor, a throttling-valve adapted to regulate the flow of fluid to and from the valve-motor at different rates of speed, and automatic operating mechanism for said throttling-valve, substantially as described.

20. The combination with a main hydraulic valve, of a valve-motor adapted to move the main valve, the secondary or pilot valve for controlling the direction of the flow of fluid to the valve-motor, and the throttling-valve applied to the parts of the pilot-valve and connecting mechanism to the main valve-motor, whereby the main valve may be opened more rapidly than it is closed, substantially as described.

21. The combination with a main valve, of a valve-motor for mov-

ing said valve, a throttling-valve on the supply-passage to the motor, and a throttling-valve on the discharge-passage from the motor, of connections between said throttling-valves, whereby when either passage is throttled the other passage is open, and connections to a reciprocating part of the main valve mechanism, whereby the throttling-valves are automatically operated, substantially as described.

22. In a device for controlling the speed of opening and closing a valve, the combination with a valve-cylinder provided with an enlarged supply-passage and an enlarged exhaust-passage, of valve-pistons to control said passages, connections between said pistons whereby the passages are alternately opened and closed, contracted passages which are open when said enlarged passages are closed, and means for operating said pistons, substantially as described.

23. The combination with the main hydraulic valve, of a valve-motor for opening and closing said valve, a pilot-valve for controlling the flow of motive fluid to the valve-motor, and a throttling-valve connected with the parts of the pilot-valve to regulate the flow of motive fluid to and from the valve-motor, and adapted to be automatically operated by the movement of the main valve to throttle that part of the pilot-valve through which fluid must flow to cause the motor to close the main valve and at the same time to open that part of the pilot-valve through which fluid would flow to cause the valve-motor to open the main valve, substantially as described.

24. The combination with a main valve, of a motor for moving said valve, a pilot-valve, and a throttling-valve having contracted passages continuously open to the supply and exhaust passages of the pilot-valve, and enlarged passages also open to said supply and exhaust, said enlarged passages adapted to be alternately closed by movements of the main valve, and valve-pistons and connections for closing said enlarged passages, substantially as described.

25. The combination with a main valve, of a valve-motor and a pilot-valve, of a throttling-valve applied to the supply and discharge parts of said pilot-valve and automatically operated by a connection to a reciprocating part of the main valve, whereby the main valve is opened more rapidly than it is closed, substantially as described.

26. The combination with a main valve, of a valve-motor for moving said valve, a pilot-valve for controlling the action of the valve-motor, and a throttling device on the supply and exhaust of the pilot-valve comprising a valve-cylinder provided with an enlarged supply-passage and an enlarged exhaust-passage, of valve-pistons for closing said passages, connections between said pistons whereby said passages are alternately opened and closed, and contracted passages which are open when either of said enlarged passages is closed, and connections to the main valve mechanism whereby the throttling device is automatically operated, substantially as described.

27. In an automatic throttling device, the combination with a throttling-valve, of the reciprocating mechanism of the main valve, and setting means for the throttling-valve comprising connections to a reciprocating part of the mechanism moved by the valve-motor, whereby a slight movement of the main valve near its middle position sets the throttling-valve, substantially as described.

28. In an automatic throttling device for a valve-motor, the combination with a valve-motor, of a throttling-valve, of a valve-stem, of a cam element engaging said valve-stem, and connections from a reciprocating part of the mechanism moved by the valve-motor to the cam element, substantially as described.

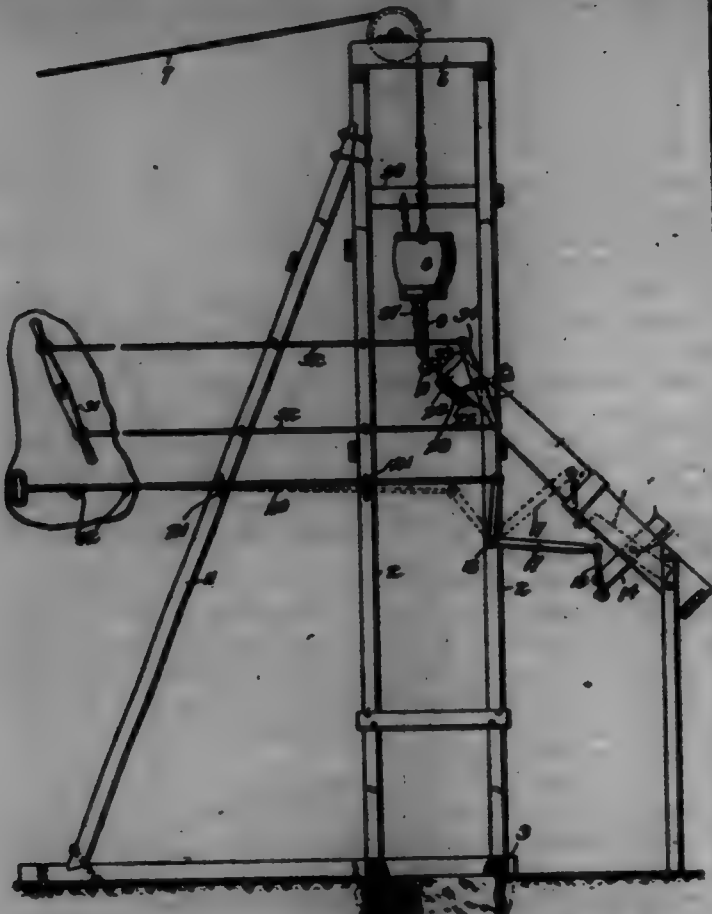
29. In an automatic throttling device for a valve-motor, the combination with a valve-motor, of a throttling-valve, of the throttling-valve stem, of a journalled cam element connected to said valve-stem, of a rod connected at one end to a reciprocating part of the mechanism moved by the valve-motor and at the other end adapted to engage the cam element, and means for guiding said rod, substantially as described.

700,741. ORS BUCKET, DUMPER, AND CRUTCH. LOUIS COLLIER, Grapeland, Cal., assignor of two-thirds to Alfred E. Farber, Grapeland, Cal., and Joseph H. Thrall, Wellington, Kans. Filed Feb. 4, 1902. Serial No. 68,664. (No model.)

Claim.—1. In combination with a hoisting means and a tilting bucket raised and lowered thereby, said bucket having a bottom suspended from its bottom, a fixed chute having a trap in the bottom thereof, means to operate the trap, a pivotally-mounted dump-section at the upper end of the chute, said dump-section having means to cooperate with the bottom and dump the bucket, and means to act the pivotal dump-section, substantially as described.

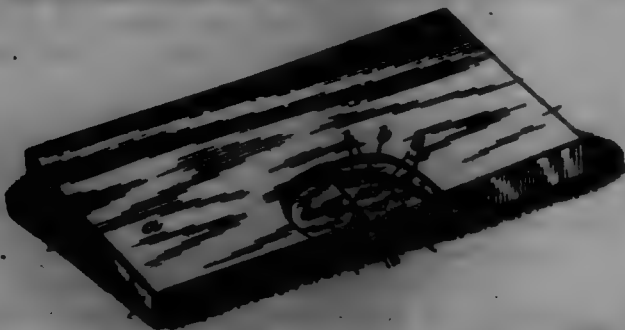
2. In combination with a hoisting means and a tilting bucket raised and lowered thereby, said bucket having a bottom suspended from the bottom, a chute, a pivotally-mounted dump-section at the upper end of the chute and having means to cooperate with the bottom and dump the bucket, a rock-shaft having a crank connected to the dump-section, and

provided further with a weighted arm to move the dump-section out of the path of the bucket, and means to move the dump-section into the path of the bucket, substantially as described.



3. In combination with a hoisting means and a tilting bucket raised and lowered thereby, a chute, a dump-section pivotally mounted at the upper end of the chute, said dump-section and bucket having coacting means to tilt the latter and dump its contents into the chute, a rock-shaft having a crank connected to the dump-section and a weighted arm to normally turn the dump-section out of the path of the bucket, and means, connecting the dump-section to a fixed point, to limit the play of the dump-section, substantially as described.

700,742. BOX OR PACKAGE. FRANK P. GERT, Marion, Pa. Filed Mar. 14, 1908. Serial No. 96,576. (No model.)



Claim.—1. A wrapper for chocolate and other commodities, the same comprising a sheet of absorbent material and a sheet of perforated paraffin-paper interposed between the commodity and the sheet of absorbent material, substantially as described.

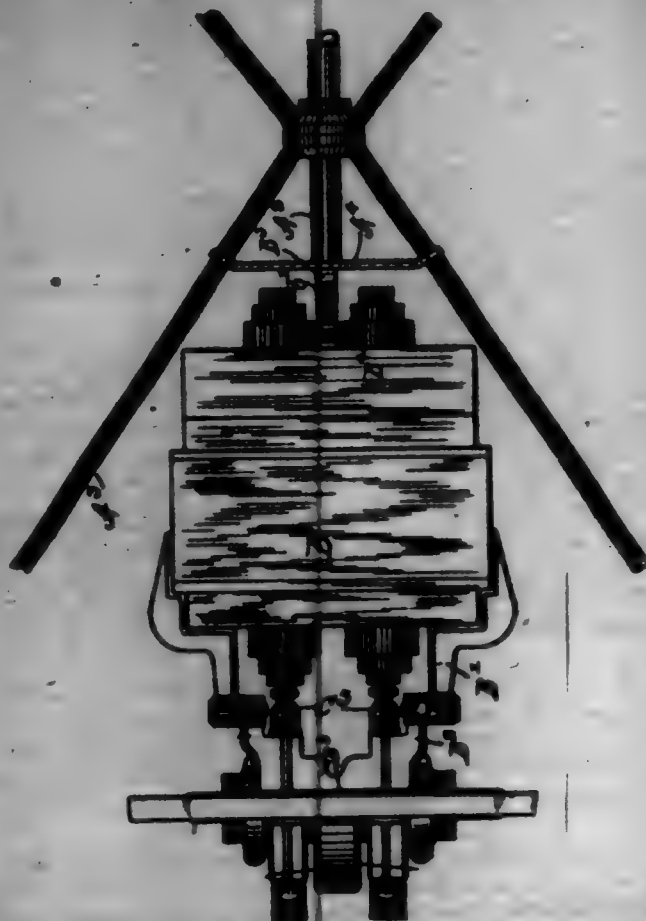
2. A wrapper for chocolate and other commodities, the same comprising a compound sheet having an outer hard or glazed surface and an inner absorbent surface and a sheet of perforated paraffin-paper interposed between the commodity and the absorbent surface of the compound sheet, substantially as described.

700,748. MOTOR-VEHICLE. WALTER A. CROWDER, Chicago, Ill. Filed June 26, 1908. Serial No. 96,948. (No model.)

Claim.—1. In a motor-vehicle, the combination of a vehicle-frame comprising a transverse frame member, a reach which terminates short thereof and trans-rod or struts which connect said reach with said transverse frame member, a motor pivoted to said transverse frame member at one side and connected to the reach of the frame at its opposite side, substantially as described.

2. The combination with a vehicle-frame comprising a reach which terminates short of the axle and trans-rod or struts which connect said

reach with a transverse frame member; of a motor pivoted to said transverse frame member at one side and yieldingly connected to the end of the reach at its opposite side, substantially as described.



3. The combination with a vehicle-frame comprising a transverse frame member, a reach which terminates short of said transverse frame member and trans-rod or struts which connect said reach with said transverse frame member, of a motor pivoted to said transverse frame member at one side and yieldingly connected to the end of the reach at its opposite side, said connection comprising an arm on said motor and a head on the reach, a pin rigidly secured in one thereof which engages a hole or opening in the other and a cushion beneath the arm on said motor, substantially as described.

4. In a motor-vehicle, the combination of a vehicle-frame comprising an axle-support, a reach which terminates short of said axle-support and trans-rod or struts which connect said axle-support and said reach, an axle revolvably mounted in suitable bearings in said axle-support, a motor pivoted to said axle-support at one end and yieldingly connected to the end of the reach at its opposite end and flexible driving connection between said motor and said axle, substantially as described.

5. In a motor-vehicle, the combination of a vehicle-frame comprising an axle-support, an axle revolvably mounted therein, a reach which terminates short of said axle-support, and trans-rod or struts which connect said axle-support with said reach, arms on said axle-support, a motor pivoted to said arms at one end and yieldingly connected to the end of the reach at its opposite end, said connection comprising an arm on said motor, a head on said reach, a pin in one thereof which engages a hole or opening in the other and a cushion beneath the arm on said motor, and a flexible driving connection between said motor and said axle, substantially as described.

6. In a motor-vehicle, the combination of a revolvable axle, a motor pivotally supported at one end adjacent to said axle eccentrically thereto, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and driving connection between said pinion-shaft and the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

7. In a motor-vehicle, the combination of a revolvable axle, a motor pivotally supported at one end adjacent to said axle eccentrically thereto, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is splined, cushions against which the ends of said pinion shaft and flexible driving connection between said pinion-shaft and the motor-shaft, substantially as described.

8. In a motor-vehicle, the combination of a revolvable axle, a motor pivotally supported at one end adjacent to said axle eccentrically thereto, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is splined, cushions against which the ends of said pinion shaft and flexible driving connection between said pinion-shaft and

the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

9. In a motor-vehicle, the combination of a revolvable axle, a motor pivoted at one end adjacent to said axle concentrically thereto and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the motor-shaft, substantially as described.

10. In a motor-vehicle, the combination of a revolvable axle, a motor pivoted at one end adjacent to said axle concentrically thereto and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and flexible driving connection between said pinion-shaft and the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

11. In a motor-vehicle, the combination of a revolvable axle, a motor pivoted at one end adjacent to said axle concentrically thereto and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is splined, cushions against which the ends of said pinion abut and flexible connection between said pinion-shaft and the motor-shaft, substantially as described.

12. In a motor-vehicle, the combination of a revolvable axle, a motor pivoted at one end adjacent to said axle concentrically thereto and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is splined, cushions against which the ends of said pinion abut and flexible driving connection between said pinion-shaft and the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

13. In a motor-vehicle, the combination of an axle-support, an axle revolvably mounted in suitable bearings therein, a motor pivoted upon said axle-support at one end concentrically to said axle, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the motor-shaft, substantially as described.

14. In a motor-vehicle, the combination of an axle-support, an axle revolvably mounted in suitable bearings therein, a motor pivoted upon said axle-support at one end concentrically to said axle, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

15. In a motor-vehicle, the combination of an axle-support, an axle revolvably mounted in suitable bearings therein, a motor pivoted upon said axle-support at one end concentrically to said axle, and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the motor-shaft, substantially as described.

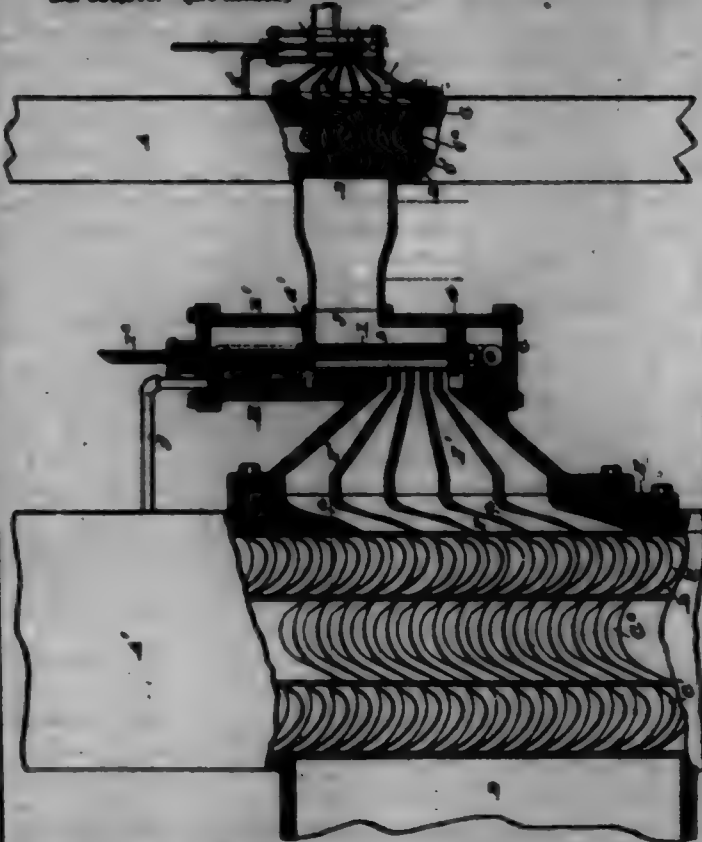
16. In a motor-vehicle, the combination of an axle-support, an axle revolvably mounted in suitable bearings therein, a motor pivoted upon said axle-support at one end concentrically to said axle and yieldingly supported at its opposite end, a gear secured to said axle, a pinion which engages said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the motor-shaft consisting of a universal joint the transverse axis of which coincides with the pivotal axis of said motor, substantially as described.

17. In a motor-vehicle, the combination of a vehicle-frame comprising an axle-support, a reach which terminates short of said axle-support and trans-rod which connect said reach and said axle-support, a motor pivoted to said axle-support at one end and yieldingly connected to the reach of the vehicle at its opposite end, said connection comprising an arm on said motor, a head on the reach, a pin rigidly secured in one thereof which engages a hole or opening in the other and a cushion beneath the arm on said motor, an axle revolvably mounted in suitable bearings in said axle-support, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is secured and flexible connection between said pinion-shaft and the shaft of the motor, substantially as described.

18. In a motor-vehicle, the combination of a vehicle-frame comprising an axle-support, a reach which terminates short of said axle-support and trans-rod which connect said reach and said axle-support, a motor pivoted to said axle-support at one end and yieldingly connected to the reach of the vehicle at its opposite end, said connection comprising an arm on the motor, a head on the reach, a pin in one thereof which engages a hole or opening in the other and a cushion on which the arm on the motor rests, an axle revolvably mounted in suitable bearings in said axle-support, a gear secured to said axle, a pinion which engages with said gear, a shaft to which said pinion is splined, cushions against which

the ends of said pinion abut and flexible driving connection between said pinion-shaft and the shaft of the motor, substantially as described.

700,744. ELASTIC-FLUID TURBINE. CHARLES E. CUNY, New York, N. Y., assignor, by mesne assignments, to Curtis Steam Turbine Company, a Corporation of West Virginia. Filed Jan. 12, 1898. Serial No. 694,378. (No model.)



Claim.—1. The sectional nozzle for elastic-fluid turbines herein described, consisting of a number of separate complete nozzle-sections each having a contracted throat, and a supply-chamber anterior to and larger than said throat, each section being brought close together at their discharge ends, whereby the several separate jets or streams merge into a substantially single jet or stream at the points of discharge, substantially as set forth.

2. The sectional nozzle for elastic-fluid turbines herein described, consisting of a number of separate complete nozzle-sections each having a contracted throat, a supply-chamber anterior to and larger than said throat, and a discharging portion posterior to said throat, said sections being brought close together at their discharge ends, whereby the several separate jets or streams merge into a substantially single jet or stream at the points of discharge, substantially as set forth.

3. The sectional nozzle for elastic-fluid turbines herein described, consisting of a number of separate complete nozzle-sections each having a contracted throat, a supply-chamber anterior to and larger than said throat, and a discharging portion posterior to and enlarging beyond said throat, each section being brought close together at their discharge ends, whereby the several separate jets or streams merge into a substantially single jet or stream at the points of discharge, substantially as set forth.

4. In an elastic-fluid turbine, a sectional nozzle consisting of a number of separate complete nozzle-sections each having a contracted throat, a supply-chamber anterior to and larger than said throat, and a discharging portion posterior to and enlarging beyond said throat, each section being brought close together at their discharge ends, whereby the several separate jets or streams merge into a substantially single jet or stream at the points of discharge, in combination with means for admitting the elastic fluid to or shutting it off from more or less of said nozzle-sections, substantially as set forth.

5. In an elastic-fluid turbine, a sectional nozzle consisting of a number of separate complete nozzle-sections each having a contracted throat, a supply-chamber anterior to and larger than said throat, and a discharging portion posterior to and enlarging beyond said throat, each section being brought close together at their discharge ends, whereby the several separate jets or streams merge into a substantially single jet or stream at the points of discharge, in combination with a number of separate supply-passages, a valve-case with ports for each separate passage, and a valve in each valve-case opening and closing said ports progressively, substantially as set forth.

6. In an elastic-fluid turbine, a delivery-nozzle comprising sections substantially alike in form and in angle of delivery and brought close together at their discharge ends, whereby the jets or streams from adjacent

sections merge into a substantially single jet or stream at the points of discharge, in combination with means for admitting the elastic fluid to or shutting it off from more or less of said sections, substantially as set forth.

7. In an elastic-fluid turbine, a delivery-nozzle comprising sections substantially alike in form and in angle of delivery and brought close together at their discharge ends, whereby the jets or streams from adjacent sections merge into a substantially single jet or stream at the points of discharge, in combination with a plurality of separate supply-passages extending back from said nozzle-sections, and means for admitting the elastic fluid to or shutting it off from more or less of said supply-passages, substantially as set forth.

8. In an elastic-fluid turbine, the combination with two or more shells having movable vanes and receiving the elastic fluid in succession, of a delivery-nozzle for each shell comprising sections substantially alike in form and in angle of delivery and brought close together at their discharge ends, whereby the jets or streams from adjacent sections merge into a substantially single jet or stream at the points of discharge, valves for admitting the elastic fluid to or shutting it off from more or less of the sections of each nozzle, and means for moving said valves coordinately, substantially as set forth.

9. In an elastic-fluid turbine, the combination with two or more shells having movable vanes and receiving the elastic fluid in succession, of a delivery-nozzle for each shell comprising sections substantially alike in form and in angle of delivery and brought close together at their discharge ends, whereby the jets or streams from adjacent sections merge into a substantially single jet or stream at the points of discharge, a plurality of separate supply-passages extending back from the sections of said nozzle, valves for admitting the elastic fluid to or shutting it off from more or less of the supply-passages of each nozzle, and means for moving said valves coordinately, substantially as set forth.

10. In an elastic-fluid turbine, the combination with two or more shells containing movable vanes and receiving the elastic fluid in succession, of delivery-nozzles of successively-greater cross-sectional area for the two or more shells, each of said delivery-nozzles comprising sections brought close together at their discharge ends, a plurality of supply-passages for the sections of each nozzle, valve mechanisms acting to open and close each supply-passages, each valve mechanism having successively a greater movement for the same degree of regulation, and means causing the valve mechanisms to work coordinately so that the two or more nozzles shall be proportionately opened and closed, substantially as set forth.

11. In an elastic-fluid turbine, the combination of a number of separate supply-passages and separate complete nozzle-sections proportioned for the degree of conversion of pressure into velocity required for condensing-work, and a number of separate supply-passages and separate complete nozzle-sections proportioned for the degree of conversion of pressure into velocity required for non-condensing work, and valves for closing the supply-passages to one set of nozzle-sections when the supply-passages to the other set of nozzle-sections are opened, substantially as set forth.

12. In an elastic-fluid turbine, the combination of a number of separate supply-passages and separate complete nozzle-sections proportioned for the degree of conversion of pressure into velocity required for condensing-work, and a number of separate supply-passages and separate complete nozzle-sections proportioned for the degree of conversion of pressure into velocity required for non-condensing work, valves for closing the supply-passages to one set of nozzle-sections when the supply-passages to the other set of nozzle-sections are opened, and a governing or controlling valve common to the supply-passages of both sets of nozzle-sections for controlling the admission of elastic fluid to the set of nozzle-sections in operation, substantially as set forth.

13. In an elastic-fluid turbine, a delivery-nozzle comprising a number of sections brought close together at their discharge ends, each having a throat and diverging side walls beyond the throat, each side wall being formed by partitions separating the sections which are thicker at the throats than at the discharge ends of the sections, substantially as set forth.

14. In an elastic-fluid turbine, separate supply-conduits leading from a source of fluid-supply under pressure to two or more expansion delivery-passages delivering the fluid to the same set of buckets, in combination with valve mechanism automatically actuated by a speed-governor for admitting the fluid to and excluding it from the supply-conduits in succession, the valve mechanism opening and closing each conduit successively by degrees, substantially as set forth.

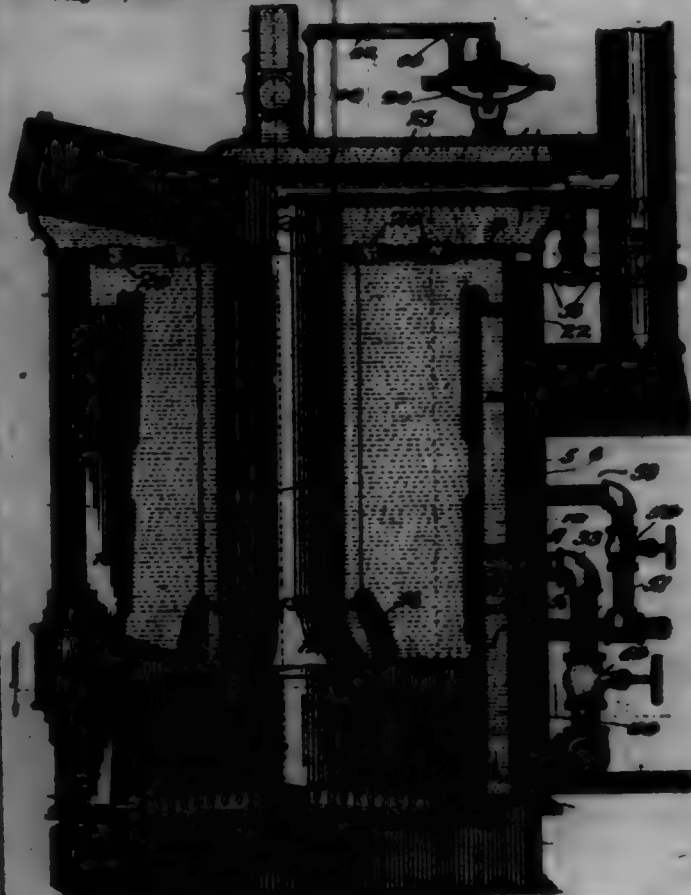
15. In an elastic-fluid turbine, a nozzle the cross-sectional perimeter of whose throat is curved, said nozzle having a rectangular discharging end in combination with a rotating turbine-wheel, substantially as set forth.

16. In an elastic-fluid turbine, a nozzle whose throat has a curved cross-sectional perimeter and having expanding or diverging walls which gradually draw into a rectangular form at the discharging end of the nozzle, substantially as set forth.

17. In an elastic-fluid turbine, a sectional nozzle, the throats of the several sections having a curved cross-sectional perimeter, and the discharge ends being rectangular, in combination with a rotating turbine-wheel, substantially as set forth.

18. In an elastic-fluid turbine, a sectional nozzle, the throats of the several sections having a curved cross-sectional perimeter and opening into expansion delivery-passages whose diverging walls gradually draw into a rectangular form at their discharge ends, substantially as set forth.

700,745. KEATER, JAMES DANIEL and WILLIAM H. COOK, Chicago, Ill., assignors of one-third to H. S. BOSTON, Chicago, Ill. Filed July 13, 1901. Serial No. 66,139. (No model.)



Claim.—1. In a heater, the combination of a suitable base, an outer casing, an outer water-chamber within said casing and separated therefrom by a fire-space, said casing and outer water-chamber having corresponding removable vertical sections at one portion thereof, an inner water-chamber, a central fuel-magazine, and draft-regulating means.

2. In a heater, the combination of a suitable base, an outer casing having a curved front, substantially tangential sides, and a removable rectangular rear section, an outer water-chamber separated from said casing by a fire and having a removable rear section adapted to be removed after removal of the rear section of the casing, an inner water-chamber, a fuel-magazine, and draft-regulating means.

3. In a heater, the combination of a suitable base, an outer casing having a rectangular-shaped removable rear wall-section, an outer water-chamber separated from said casing by a fire-space and having a removable rear section provided with inwardly-projecting water-stubs, an inner water-chamber and fuel-magazine, and draft-regulating means.

4. In a heater, the combination of a suitable base, an outer casing having a removable rear section, an outer water-chamber within said casing and separated therefrom by a fire-space, said water-chamber having a removable rear section provided with inwardly-projecting water-stubs, an inner water-chamber with which said stubs conform and which is itself provided on its front side with water-stubs, and draft-regulating means.

5. In a heater, the combination of a suitable base, a circular grate oscillatory in a horizontal plane, an adjacent grate having a concavity receiving the adjacent portion of said circular grate and itself pivoted on a horizontal axis, an outer casing having a rectangular-shaped removable rear wall-section, an outer water-chamber having a rectangular-shaped removable rear section, said water-chamber being separated from said casing by a fire-space, a baffle-plate covering the rear portion of said fire, vertical partitions in said fire at the front ends of the forward projections of said baffle-plate, a smoke-stack connected with said fire beneath said baffle-plate, an inner water-chamber between which and said outer water-chamber the products of combustion may pass upwardly, space being preserved to permit the products of combustion to pass over the upper end of said inner water-chamber and downwardly through the front portion of said fire, a fuel-magazine, and draft-regulating means.

6. In a heater, the combination of a suitable base, a superimposed casing provided with a rectangular-shaped rear section, a circular grate oscillatory in one plane, a grate oscillatory in another plane and suitably mounted to revolve the adjacent portion of said circular grate, an outer water-chamber separated from said casing by a flue, a baffle-plate covering the rear portion of said flue, vertical partitions in said flue at the front ends of the forward projections of said baffle-plate, an inner water-chamber and fuel-magazine, a smoke-stack having one communication with said fuel-magazine and another with said flue beneath said baffle-plate, dampers regulating the passage from the fuel-magazine and from said flue to said smoke-stack, and a removable fire-pot located at the base of said magazine.

7. In a heater of the character described, the combination of a suitable base, a circular grate and a casing having a substantially straight rear edge, an outer casing having a removable rear section, an outer water-chamber separated from said casing by a flue-space, said water-chamber comprising two curved sections connected at their front portions and a rear rectangular-shaped section connected with the rear portions of said first-named sections, an inner water-chamber and fuel-magazine, a baffle-plate covering the rear portion of said flue, vertical partitions in said flue at the front ends of the forward projections of said baffle-plate and extending downwardly to near the base of the heater, space being preserved at the upper portion of said outer water-chamber to permit gases to pass over said chamber into said flue at the front portion thereof, a smoke-stack connected with said magazine and with the rear portion of said flue beneath said baffle-plate, and dampers regulating the passage from said magazine and said flue to said smoke-stack.

8. In a heater, the combination of a suitable base, a suitable casing and a central fuel-magazine chambered to receive water, a lower chamber being provided for supplying one hot-water circuit, and an upper chamber for supplying another circuit.

9. In a heater, the combination of a base, a grate, an outer casing, an outer water-chamber separated from said casing by a flue, a baffle-plate covering the rear portion of said flue, vertical partitions in said flue and extending from said baffle-plate to near the lower portion of the flue, a dome located some distance above said outer water-chamber and in communication therewith, an inner water-chamber and fuel-magazine, said inner water-chamber being in communication with said dome, a smoke-stack communicating with said magazine and with the rear portion of said flue beneath said baffle-plate, and dampers regulating the passage from said magazine and said flue to said smoke-stack.

10. In a heater, the combination of a base, a grate, an outer casing, an outer water-chamber separated from said casing by a flue, a baffle-plate covering the rear portion of said flue, vertical partitions in said flue and extending from said baffle-plate to near the lower portion of the flue, a dome located some distance above said outer water-chamber and in communication therewith, an inner water-chamber and fuel-magazine, said inner water-chamber being in communication with said dome and divided horizontally to afford a separate chamber at its base, a heating-circuit connected with said dome, an independent hot-water-supply circuit connected with said hot-water chamber, a smoke-stack having communication with said magazine and with said rear portion of the flue beneath the baffle-plate, and dampers controlling the passage from said magazine and said flue to said smoke-stack.

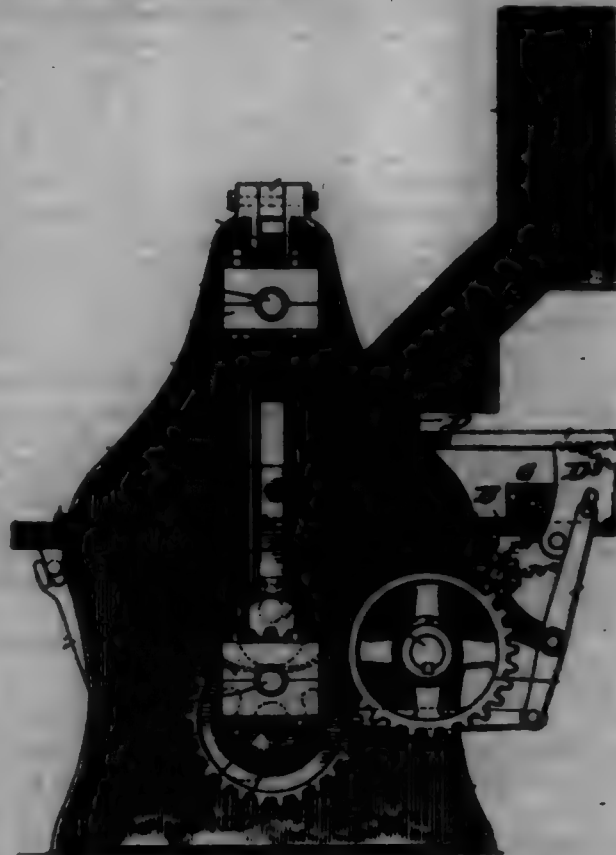
11. In a heater, the combination of a base, a casing provided with a removable rear section, an outer water-chamber separated from said casing by a flue and having a removable rear section, said rear section having a horizontal dividing-wall affording an independent lower chamber, a baffle-plate covering the rear portion of said flue, vertical partitions depending from said baffle-plate, a dome located above said water-chamber, an inner water-chamber and fuel-magazine, a smoke-stack having communication with said magazine and with the rear portion of said flue beneath said baffle-plate, and dampers controlling the passage from said magazine and said flue to said smoke-stack.

12. In a heater, the combination of a base, a grate, an outer casing, an outer water-chamber separated from said casing by a flue, an inner water-chamber provided peripherally with vertically-extending water-lugs and affording a fuel-magazine, a baffle-plate covering the rear portion of said flue, vertical partitions depending from said baffle-plate, a smoke-stack communicating with said fuel-magazine and with the rear portion of said flue beneath said baffle-plate and dampers controlling the passage from said magazine and said flue to said smoke-stack.

13. In a heater, the combination of a base, an outer casing, an outer water-chamber separated therefrom by a flue, a baffle-plate covering the rear portion of said flue, vertical partitions in said flue, a dome located above said water-chamber and communicating with said water-chamber, an inner water-chamber communicating with said dome, a separate water-chamber at the base of said inner water-chamber, pipes leading therefrom, a circuit connected with said dome, a valve communication between one of said pipes and said dome, a separate water-chamber at the base of

said outer water-chamber, direct-pipes connected with said last-named separate water-chamber, and a valve communication between said last-named separate water-chamber and said outer water-chamber.

700,746. MACHINE FOR HOLDING BRICKS OR BLOCKS.
CHARLES S. DAVEN, Boston Harbor, Mass. Filed Aug. 1, 1902. Serial No. 70,567. (No model.)



Claim.—1. In a machine of the kind described, the combination with a vertically-movable mold-box, of a laterally-movable plate adapted to be moved beneath the lower end of the mold-box, a horizontally-movable feed-box adapted to be moved across the upper end of the mold-box for the purpose of filling the said mold-box, the upwardly-movable plunger adapted to be projected through the plate and into the lower end of the mold-box, the downwardly-movable plunger adapted to be projected into the upper end of the mold-box, and means for operating the mold-box, plate, feed-box, lower and upper plungers, substantially as shown and described.

2. In a machine of the kind described, the combination with the mold-box movable vertically, of a plate having openings therein, the said plate being adapted to be moved horizontally beneath the mold-box, a downwardly-movable plunger and an upwardly-movable plunger, said upwardly-movable plunger being adapted to be projected through the plate into the lower portion of the mold-box, the upper end of said upwardly-movable plunger being tapered or beveled, together with means for moving the mold-box, plate and upper and lower plungers, substantially as shown and described.

3. In a machine of the kind described, the combination with the main frame having a bed-plate, of a plunger working upwardly through the said bed-plate, a plate slidably arranged upon the bed-plate, said plate having one or more openings through which the upwardly-movable plunger is adapted to project, a mold-box movable vertically and adapted to normally rest upon the plate, a downwardly-acting plunger, and means for operating the mold-box, plate, and the upper and lower plungers, substantially as shown and described.

4. In a machine of the kind described, the combination with the main frame having a bed-plate, the central portion of which has one or more openings produced therein, a plunger working upwardly through the said central portion, a plate having one or more apertures intermediate its ends and provided with a flange at one end, two or more of said plates being adapted to be arranged in series upon the bed-plate, the mold-box adapted to rest upon one of the die-plates, the downwardly-movable plunger, the sliding bar adapted to contact with one of the die-plates for the purpose of operating upon the series of die-plates, and means for moving the upper and lower plungers, mold-box, and sliding bar, substantially as shown and described.

5. In a machine of the kind described, the plate having one or more openings, said plate having a flange at one side, substantially as and for the purpose described.

6. In a machine of the kind described, the combination with the

main frame, of a mold-bar having castings connected to its opposite ends, said castings working in vertical guideways produced in the main frame, the ends of the said castings having strap-loops attached thereto, and provided with an anti-friction-bearing device, a rotary shaft having cams at its opposite ends adapted to operate in the strap-loops and upon the ends of the castings, whereby the mold-bar is raised and lowered, substantially as shown and described.

7. In a machine of the kind described, the combination with the main frame having a bed-plate formed with one or more openings, of a plunger adapted to be projected through the said openings, a sleeve to which the plunger is attached, and a rotary shaft arranged within the sleeve and carrying one or more cams adapted to operate upon the said sleeve whereby the plunger is raised or lowered, substantially as and for the purpose described.

8. In a machine of the kind described, the combination with the main frame having an apertured bed-plate, of a mold-bar having castings at one end working through guideways in the main frame and carrying strap-loops at their lower ends, and provided with anti-friction-bearing devices, the plates having openings adapted to correspond with the openings in the bed-plate, the plunger adapted to be projected through the bed-plate and plate and into the lower end of the mold-bar, the sleeve to which the plunger is attached, the rotary shaft having oppositely-disposed cams, one set of cams being adapted to raise and lower the mold-bar, the other set being adapted to raise and lower the plunger, and means for rotating the shaft carrying the cams, substantially as shown and described.

9. In a machine of the kind described, a series of mold-bars arranged side by side, plates interposed between the said bars, angular castings connected to the end bars, the lower ends of said angular castings carrying anti-friction-rollers and having strap-loops attached to the said ends, substantially as shown and described.

10. The combination with the main frame, having a bed-plate, of a vertically-movable mold-bar, a downwardly-acting plunger, two or more plates, one of which is adapted to rest beneath the mold-bar to receive the blocks or bricks, the slide-bar adapted to contact with the empty plate, said empty plate being adapted to engage the loaded plate, and means for operating the plunger, mold-bar, and sliding bar, substantially as shown and described.

700,747. GARNETT. BRASS DAVE, New York, N. Y. Filed Oct. 2, 1900. Serial No. 31,700. (No model.)



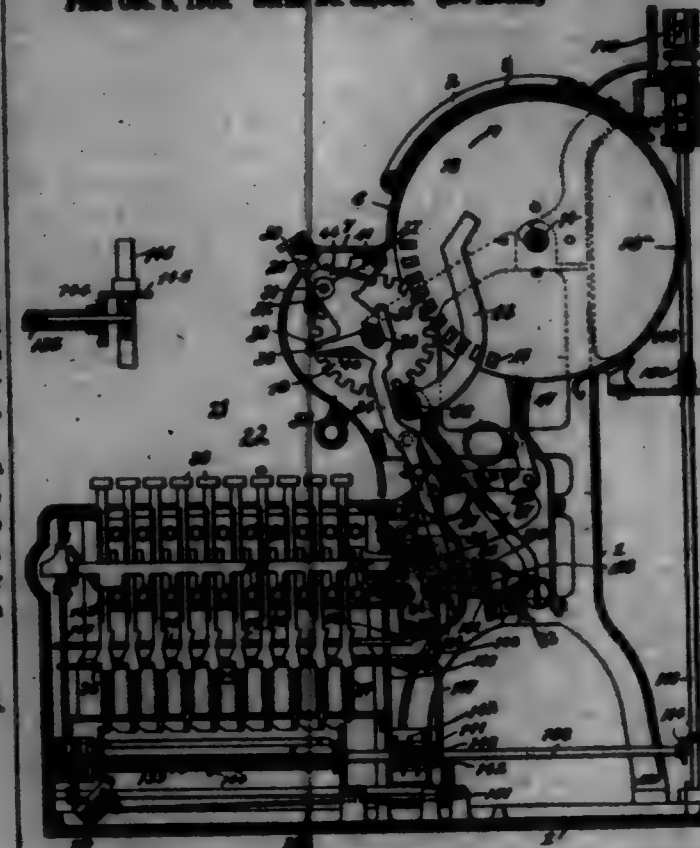
Claim.—1. A trousers having a yielding snugly-fitting waist portion, side openings interspersed therein and formed with inner and outer flaps open the front and rear portions of the trousers, flaps open the outer flaps adapted to engage suitable fastenings on the inner flaps, buckles secured to the opposite portions of the trousers from the outer flaps for holding them in proper position, and yielding means secured to the trousers at the rear of the waist portion, the structure being such that the buckles at the side will be capable of drawing up the yielding means at the sides and back of the trousers, substantially as described.

2. A yielding waist portion for trousers, comprising a waistband, side flaps interspersed therein, and yielding adjustable means for holding said flaps closed, a yielding strap at the rear of the trousers, made up of two elastic sections secured to the trousers and a double loop or buckle for

joining the ends of said sections, and an ordinary fly interspersed in the front of the waist and means at the side flaps for drawing up the yielding means at the sides of the trousers and at the rear of the trousers to make the same fit snugly though with a yielding pressure upon the wearer, substantially as described.

3. A garment having a waist-closure formed with openings at the sides, means for relieving the strain upon the wearer and yet holding the garment snugly around the wearer's waist, and means for preventing the same sagging at any point, substantially as described.

700,748. COMBINE MECHANICAL GARNER AND KESNTER. BRASS DAVE, New York, N. Y. Filed Oct. 2, 1900. Serial No. 31,700. (No model.)



Claim.—1. In a mechanical cipher, the cipher-receiving wheel consisting of paired plates having ledges formed thereon, and a stop-plate arranged between said ledged plates, substantially as set forth.

2. In a mechanical cipher, the cipher-receiving wheel consisting of paired plates having ledges formed thereon, and a recessed stop-plate arranged between said ledged plates, substantially as set forth.

3. In a mechanical cipher, the combination of a series of cipher-receiving wheels, notched controlling-wheels therefor, oscillating controlling-levers for said controlling-wheels and holding-pawls for said controlling-wheels having an oblique lip bridging the notches of the controlling-wheel, substantially as set forth.

4. In a mechanical cipher, the combination of an operating-shaft, a main operating handle or lever and a detachable connection between said handle or lever and shaft whereby the said handle or lever may be removed when desired to prevent malice or accidental interference with the machine.

5. In a mechanical cipher, the combination of an operating-shaft, a main handle or lever, an operating-eccentric and a ratchet-wheel and pawl connection between said handle and eccentric whereby the operative action of the handle is limited to a single direction.

6. In a mechanical cipher, the combination of cipher-wheels, oscillating controlling mechanism therefor provided with an oscillating shaft, a rotary handle, an operating-eccentric connected to said handle, a secondary lever and two ratchet connections therefrom to the eccentric and to the oscillating shaft to produce an oscillating movement of the latter by a rotary movement of the handle.

7. In a mechanical cipher, the combination of cipher-wheels and an operating-lever shaft, the said lever having strap-shaped portions embracing said shaft and arranged to act as spacers for the several wheels, substantially as set forth.

8. In a mechanical cipher, the combination of cipher-wheels, their shaft, a spring-arm on said shaft having the inclined portion as shown, an oscillating controlling-shaft, and an arm on said controlling-shaft having a portion adapted to engage said spring-arm, substantially as set forth.

9. In a machine of the character described, the combination of a main operating handle or lever, a locking device therefor, a series of cipher-

wheels, controlling device therefor comprising a set of inclined oscillating-levers, a purchase or numeral keyboard, selecting mechanism intermediate between the same and the controlling mechanism of the cipher-wheels, locking mechanism for said purchase or numeral keyboard, means controlled by the said cipher-wheel-controlling mechanism for unlatching said purchase or numeral keyboard and means controlled by the said purchase or numeral keyboard for unlatching said main handle or lever, substantially as set forth.

10. In a machine of the character described, the combination of the cipher-wheels, their controlling mechanism including oscillating controlling-levers, a purchase or numeral keyboard, selecting mechanism intermediate between said purchase or numeral keyboard and said controlling mechanism, a locking device for said keyboard for locking the keys in operated position and means controlled by the said controlling-levers for unlatching said locking device, substantially as set forth.

11. In a machine of the character described, the combination of a series of cipher-wheels, controlling mechanism therefor, a purchase or numeral keyboard comprising in addition to the numeral-keys special or department keys selecting mechanism intermediate between the said purchase or numeral keyboard and the said controlling mechanism, locking mechanism for said purchase or numeral keyboard, and means controlled by the said special or department keys for unlatching said mechanism, substantially as set forth.

12. In a machine of the character described, the combination of a series of cipher-wheels, controlling mechanism therefor comprising oscillating controlling-levers, a purchase or numeral keyboard comprising in addition to the purchase or numeral keys special or department keys, selecting mechanism intermediate between said purchase or numeral keyboard and said controlling mechanism, locking mechanism for said special or department keys, mechanism controlled by said special or department keys for unlatching said locking mechanism, locking mechanism for said special or department keys, and mechanism controlled by said controlling-levers for unlatching said department-key-locking mechanism, substantially as set forth.

13. In a machine of the character described, the combination of the cipher-wheels, controlling mechanism therefor comprising oscillating-levers, a purchase or numeral keyboard, selecting mechanism intermediate between said purchase or numeral keyboard and said controlling mechanism, a main operating handle or lever, the said purchase or numeral keyboard comprising in addition to the ordinary purchase or numeral keys special or department keys, locking mechanism for said purchase or numeral keys, mechanism controlled by said special or department keys for unlatching said locking mechanism, locking mechanism for said special or department keys, mechanism controlled by said controlling-levers for unlatching said department-key-locking mechanism, mechanism for locking said main handle or lever, and mechanism controlled by said purchase or numeral keys for unlatching said main handle or lever locking mechanism, substantially as set forth.

14. In a machine of the character described, the combination of a series of cipher-wheels, controlling and selecting mechanism therefor, said selecting mechanism including a permutation-shaft, a purchase or numeral keyboard having operative connection with said shaft, a main operating handle or lever, and locking mechanism therefor having operative connection with said permutation-shaft whereby the operation of the purchase or numeral keys will unlock said operating handle or lever, substantially as set forth.

15. In a machine of the character described, the combination of cipher-wheels, operating and locking mechanism therefor, said operating mechanism including a main handle or lever and mechanism intermediate between said main handle or lever and said locking mechanism whereby the said main handle or lever unlocks the said locking mechanism preliminary to operating the said cipher-wheels.

16. In a machine of the character described, the combination of cipher-wheels having operating and locking mechanism, the locking mechanism including a locking-pawl, a purchase or numeral keyboard, selecting mechanism controlled thereby and controlling the said cipher-wheels, and mechanism controlled by said selecting mechanism for causing the unlatching of the cipher-wheels by the operation of their operating mechanism.

17. In a machine of the character described, the combination of cipher-wheels, operating and locking mechanism therefor comprising a locking-pawl, and a lifting member therefor operated by the said operating mechanism, a purchase or numeral keyboard, and selecting mechanism controlled thereby and controlling the operation of said operating mechanism.

18. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of tumblers or push-bars controlled thereby, a yoke adapted to engage and control the said bars to normal position, a main operating handle or lever and a restoring device controlled thereby for engaging said yoke, substantially as and for the purpose set forth.

19. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of locking-plates therefor for holding any key depressed in its depressed position, a main operating handle or lever and means controlled thereby for operating all of said locking-plates simultaneously to release the keys in the initial movement of the handle, substantially as set forth.

20. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of sliding locking-plates adapted to hold any key depressed in its depressed position, an operating-yoke therefor, an oscillating shaft controlling said operating-yoke, a restoring-bar adapted to operate said oscillating shaft, and a main handle or lever operating said restoring-bar, substantially as set forth.

21. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of cipher-wheels, mechanism controlled by said purchase or numeral keyboard and controlling said cipher-wheels, a main handle or lever and mechanism operated by said handle or lever for unlatching said purchase or numeral keyboard and restoring the said controlling mechanism to normal position.

22. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of cipher-wheels, selecting device therefor controlled by said purchase or numeral keyboard, and including permutation device, a main operating handle or lever, and mechanism controlled thereby for restoring said permutation device to normal position.

23. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of cipher-wheels, selecting device therefor controlled by said purchase or numeral keyboard, and including special five-dollar-and-twenty-five-cent permutation device, a main operating handle or lever, and mechanism controlled thereby for restoring said special five-dollar-and-twenty-five-cent permutation device to normal position.

24. In a machine of the character described, the combination with the purchase or numeral keyboard, the tumblers or push-bars and the permutation device, of the main operating handle or lever, and a restoring-bar operated thereby and mechanism controlled by said restoring-bar for restoring to normal position the purchase or numeral keyboard, the tumblers or push-bars, and the permutation device.

25. In a machine of the character described, the combination with a purchase or numeral keyboard, push-bars or tumblers controlled thereby, special permutation device for said push-bars or tumblers including rotating toothed wheels, shafts carrying said wheels, spring retaining devices for holding said shafts in any predetermined position, a series of cipher-wheels and controlling device therefor, a main operating handle or lever, and mechanism intermediate between said controlling device and said permutation device and intermediate between said main handle or lever and said permutation device whereby said controlling device and said handle or lever alternately operate said permutation device.

26. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of tumblers or push-bars controlled thereby, a series of auxiliary tumblers, certain of which hold the main tumblers or push-bars normally in elevated position, and means controlled by the said keyboard for shifting the said auxiliary tumblers to depress said normally-elevated push-bars or tumblers, substantially as set forth.

27. In a machine of the character described, the combination of a purchase or numeral keyboard, a series of push-bars or tumblers controlled thereby, a series of auxiliary tumblers, separate series of shafts or levers controlled by the several rows of keys in said keyboard, and mechanism substantially as described for connecting the two-rows of one row with one of the shafts of the next higher row of keys.

28. In a machine of the character described, the combination of a series of cipher-wheels, a series of controlling-wheels therefor, and their operating mechanism, a series of selecting device adapted to engage said operating mechanism, means for supporting said selecting mechanism on said operating device when so engaged, means for operating said selecting device and means for operating said controlling-wheels, substantially as set forth.

29. In a machine of the character described, the combination of a series of cipher-wheels or devices, two-part operating-shafts therefor arranged substantially at right angles, shaft-yokes in adjacent ends of the two parts of said shafts and mechanism controlled by said keyboard for causing the operation or engagement of said shafts, substantially as set forth.

30. In a combined mechanical cipher, the combination of a series of cipher-wheels, an indicator, a rotary main handle or lever, and oscillating mechanism for operating both said indicator and series of cipher-wheels, operatively connected with said main handle or lever, substantially as set forth.

31. In a machine of the character described, the combination of a purchase or numeral keyboard, indicator-wheel, shafts operating said wheels and having connection including shaft mechanism with said purchase or numeral keyboard, a locking-plate for the purchase or numeral

keys having operative connection with said clutch mechanism, substantially as set forth.

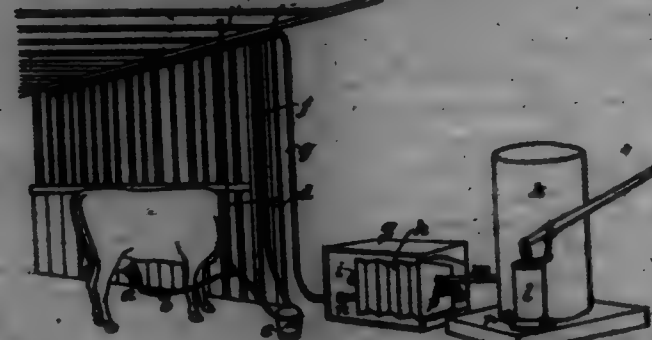
22. In a machine of the character described, the combination with the indicators and their operating-shafts, of clutch-pistons having teeth formed with parallel-sided bases and triangular outer ends, substantially as and for the purposes set forth.

23. In a machine of the character described, the combination of a purchase or numeral keyboard, the indicator-wheel, operating-shafts for said wheels, a locking-plate for the keys of said keyboard controlled by special or department keys of said keyboard and connecting mechanism between said locking-plate and indicator mechanism whereby the operation of said special or department keys unlocks the keyboard and sets the indicator mechanism in position for operation, substantially as set forth.

24. In a machine of the character described, the combination of a purchase or numeral keyboard, indicator-wheel, a series of shafts controlled by said keyboard, clutch mechanism for connecting and disconnecting the same from the indicator, a series of rack-bars connected to said shafts, a rotary shaft having arms adapted to successively engage said rack-bars and return them to normal position, a reciprocating bar or rod having ratchet-and-pawl connection with said rotary shaft and a rotary main handle or lever connected to and adapted to operate said reciprocating bar or rod.

25. In a machine of the character described, the combination of said wheels, indicator mechanism, recorder mechanism and means for controlling and operating the said several devices concurrently comprising a main operating-handle and controlling and purchase lever, substantially as set forth.

700,749. COW-MILKER. FRANK M. DUVEN, Thompson, Iowa, assignor to himself and Alva L. Hoover, Waterloo, Iowa. Filed Feb. 3, 1902. Serial No. 92,637. (No model.)



Claim.—1. In a cow-milker, the combination with a milk-receiver, an air-exhausting device, a collapsible tension-regulating chamber located intermediate said two elements, and tubular connections between the various elements; of tubes along the axial center of said chamber connected at their outer extremities with its ends and telescoping at their inner ends, the smaller tube being perforated within the chamber and the larger being perforated on its exterior, a plug-valve sliding within the larger tube, and means for pushing it normally inward so as to close the openings in this tube, the valve being pushed outward by the smaller tube when the chamber collapses.

2. In a cow-milker, the combination with a milk-receiver, an air-exhausting device, a collapsible tension-regulating chamber located intermediate said two elements, and tubular connections between the various elements; of a casing within which said chamber is located, springs connecting the ends of the casing with the ends of the chamber and tending to distend the latter, telescoping tubes within the chamber, the smaller being secured to one end and having perforations in its body and the larger passing through the other end and having perforations outside said chamber and its outer end closed, a sliding plug-valve within said larger tube adapted to be pushed outward by the smaller tube when the chamber is collapsed, and an expansive spring between said plug and the closed outer end of the larger tube.

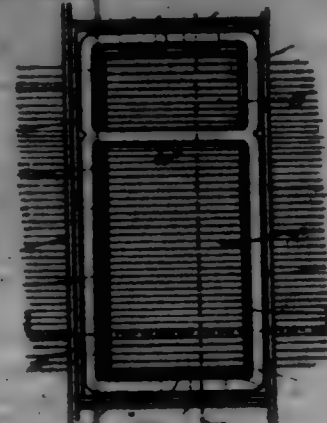
700,750. PRINTING FURNITURE. EDWARD C. BOGHEMERT, St. Paul, Minn. Filed Jan. 21, 1902. Serial No. 92,638. (No model.)

Claim.—1. A border for printing, the base of which is provided with openings, and clamping-plugs mounted for sliding in said openings and extending in length the width of the sides thereof whereby they are adapted to extend beyond the opposite sides of the base.

2. A border for printing, the base of which is integral and rectangular, a plurality of the sides of said base being provided with openings, and clamping-plugs mounted and adapted to slide within the openings and of a length slightly exceeding the width of the base, whereby the plugs are adapted to extend beyond the opposite sides of the same.

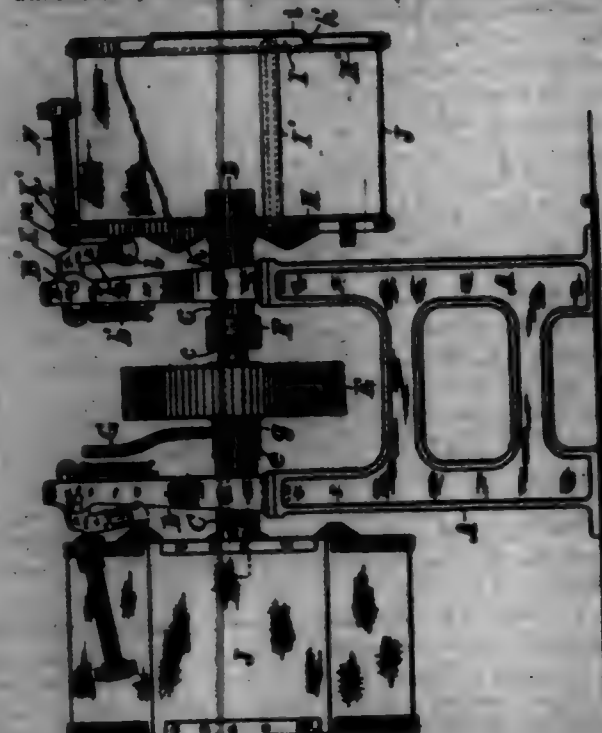
3. A border for printing, the base of which is rectangular, said base

being provided at one side and end with an opening, and clamping-plugs mounted to loosely slide in said openings and of a length slightly exceeding the width of the base, whereby said plugs are adapted to project at opposite sides of the base.



4. A border for printing, the same comprising a base provided with circular openings and cylindrical clamping-plugs seated loosely and adapted to slide therein, said plugs exceeding in length the width of the base, whereby they are adapted to extend beyond the opposite sides thereof.

700,751. SAND-SIFTER. CLARENCE BERNHARDT, Newark, N. J. Filed Dec. 21, 1900. Serial No. 741,126. (No model.)



Claim.—1. In a sand-sifter having the frame with screen overlying at the side, an upwardly-projecting standpipe having a knocker pivoted thereon, and means for vibrating the knocker toward the periphery of the screen, the combination, with the stand of the knocker pivoted on the standpipe, of a knocker-arm jointed to each stand substantially in the plane of each pivot in such manner as to permit variations of the location of the blow delivered by the arm, substantially as herein set forth.

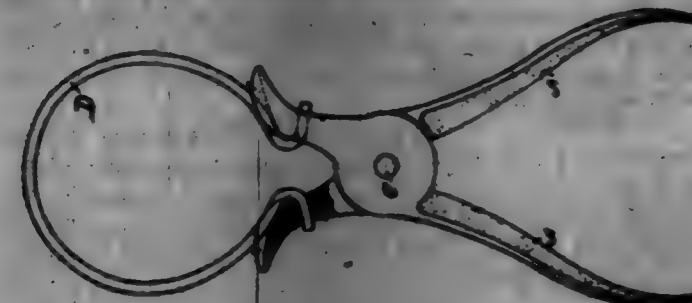
2. In a sand-sifter having the frame with bearings and shaft extending across the same with screens overlying at both ends and knockers actuated by the screens to beat their peripheries, the combination, with the shaft, of a clutch secured thereto, a pulley fitted loosely to the shaft, and means for engaging the pulley with the clutch whereby a continuously-running belt upon a single pulley operates the two screens at pleasure simultaneously.

3. In a sand-sifter, the combination, with a frame having bearings, and a shaft extending across the same and a screen overlying at the side of the frame, of a standpipe projected outwardly from the bearing with knocker-arm pivoted thereon to vibrate to and from the periphery of the screen, and the knocker-arm being adjustable laterally at various angles from its pivotal point, to vary the location of the blow upon the screen.

4. In a sand-sifter having the frame with bearings and shaft extending across the same with screens overlying at both ends and knockers actuated by the screens to beat their peripheries, the combination, with the shaft, of a clutch secured thereto and one of the bearings, and the opposite bearing having the clutch on its inner face, the lower pulley mounted between the bearings with hub adapted to engage each clutch, the spring on the pulley and clutch apart, and the double-curved

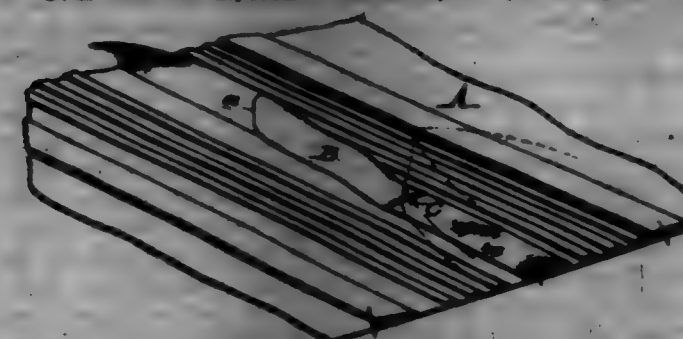
lever G having eye g in contact with the pulley and provided with beveled leg c to engage the clutch a on set forth, whereby the pulley can be engaged with the clutch by an operator at either side of the machine.

700,752. COVER-WRENCH. JAMES E. BRYAN, Milwaukee, Wis. Filed June 12, 1901. Serial No. 94,266. (No model.)



Claim.—A cover-wrench for fruit-jars, comprising two pivotally-connected clamping-levers, having grooved, outwardly diverging short arms provided with transverse apertures for the reception of the ends of the clamping-band; a circular clamping-band having its ends extending through, and elastically retained in, said apertures, and having intermediate portions thereof located by said grooves, whereby as said band is contracted around the cover, the surplus portion of the ends in their contracted position is free to pass through said apertures and the band is permitted to close in a circular position around the cover, while at the same time the outer ends of said diverging short arms are brought into contact with said clamping-band and the base of contact of said arms is increased, whereby the tendency of the cover to incline in either direction, as the cover is turned, is avoided, substantially as set forth.

700,753. BOX-PLATING DEVICE. FRANK E. PARKER, Brooklyn, N. Y. Filed Jan. 12, 1902. Serial No. 92,643. (No model.)



Claim.—1. A box-plate device comprising a body having one portion to open the plate vertically and a second portion to spread the plate transversely and lay it upon the body of the fabric.

2. A device for forming box-plate device comprising a body portion having one end to open the plate and having a rear portion or heel flattened or widened transversely and adapted to spread the plate laterally and lay it upon the body of the fabric.

3. A device for forming box-plate device comprising a body capable of being inserted into the plate and substantially filling the same transversely, and movable therethrough, said body having a flattened bottom or base-line and curved sides joining at the top to form a longitudinal central rib or edge adapted to fit the fold of the plate.

4. A device for forming box-plate device comprising a body capable of being inserted into the plate and substantially filling the same transversely, and adapted to be moved therethrough, said body having its opposite ends flattened, one in a plane at right angles to the other, one of said ends forming a wedge-shaped toe and the other a flattened heel.

5. A device for forming box-plate device comprising a body capable of being inserted into the plate and substantially filling the same transversely, and adapted to be moved therethrough, said body having its opposite ends flattened and disposed one at right angles to the other, to form a wedge-shaped front end, or toe, and a flattened rear end, or heel, said body having a flattened bottom and sides curvilinearly curved and joining each other along a longitudinal central line at the top or upper surface.

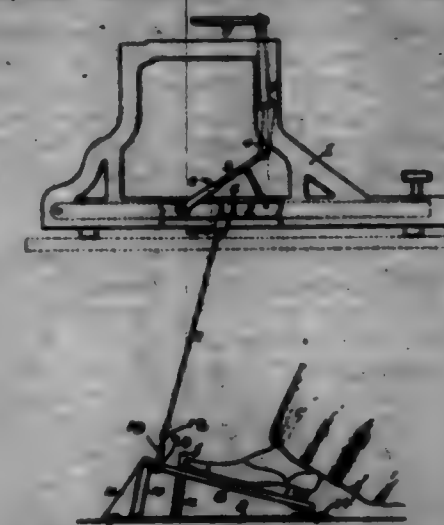
700,754. BOX-REVEALING BOTTLE. DANIEL F. FRIEDMAN, PAUL H. BRYAN, and HENRY KIMMEL, Walkerton, Ind.; and J. Edgar assignor of one-half of his right to William L. Wallace, Walkerton, Ind., and Ira J. Krichbaum, Tipton, Ind. Filed May 29, 1901. Serial No. 92,268. (No model.)

Claim.—A non-refillable bottle having a contracted neck for the reception of a valve, and an annular groove on the inner surface of the neck

above the contracted portion, in combination with a solid stopper having its periphery provided with a plurality of vertically-arranged tortuous passages, said passages substantially double V-shaped, an annular groove in the periphery of the stopper so arranged as to horizontally divide the tortuous passages thereby leaving one V-shaped passage above the groove and the other below it, a ball-spring within said groove, the ball-spring projecting beyond the periphery of the stopper and engaging with the groove in the bottle-neck.



700,755. TYPE-WRITER ATTACHMENT. JOHN S. PLAMMER, Bangor, Me. Filed Dec. 11, 1901. Serial No. 92,654. (No model.)



Claim.—A type-writer attachment comprising a foot-power adapted to be placed on the floor in any convenient position, composed of a base, an upright portion, side pieces and a stop, formed thereon, a triangular bracket and rectangular integral base, a spring, a flat-lever hinged to said base, a hooked, screw-threaded pin, operating in a screw-threaded recessed and headed bolt, in combination with a flexible metallic clamp, adapted to clamp a shift-key, and a flexible connection between said clamp and said pin, all substantially as described and for the purposes set forth.

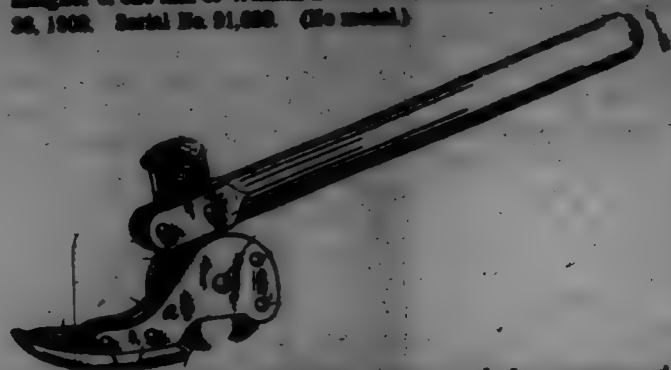
700,756. NAIL-PULLER. EDWARD C. FOWLER, Fort Smith, Conn., assignor of one-half to William A. Starnes, Canton, Conn. Filed June 3, 1901. Serial No. 92,671. (No model.)



Claim.—1. In combination, the frame composed of two correspondingly-shaped parts, the fixed jaw pivoted between and to the two parts of the frame, the filling-piece pivoted between and to the two parts of the frame, the curved-headed movable jaw pivoted between and to the two parts of the frame, and the two pins projecting laterally from the two sides of the movable jaw, all substantially as described.

2. In combination, the frame composed of two correspondingly-shaped parts, the fixed jaw pivoted between and to the two parts of the frame, the filling-piece pivoted to and between the two parts of the frame, the curved-headed movable jaw pivoted between and to the two parts of the frame, and the two pins projecting laterally from both sides of the movable jaw, substantially as described.

700,757. NAIL-FULLER. EDWARD C. FOWLER, Fortville, Conn., assignor of one-half to William E. Blum, Canton, Conn. Filed Jan. 28, 1908. Serial No. 91,089. (No model.)

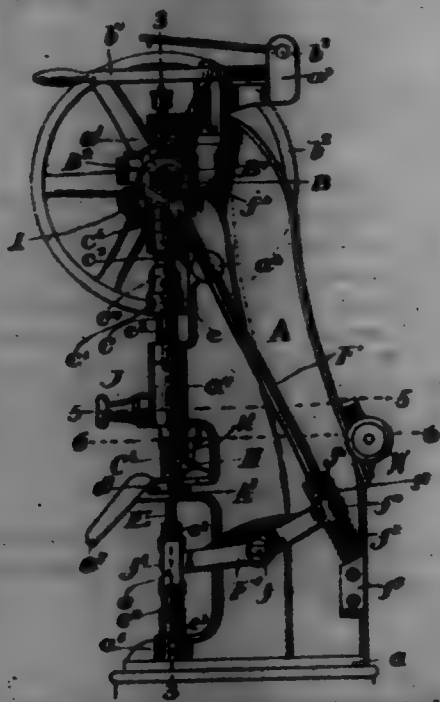


Claim.—1. In combination, the frame composed of two correspondingly-shaped parts having fulcrum extensions, the fixed jaw pivoted between and to the two parts of the frame, the filling-piece pivoted between and to the two parts of the frame, the curved-headed movable jaw pivoted between and to the two parts of the frame, and the handle having forked and embracing and riveted to the movable jaw and extended in a direction substantially the opposite of that of the fulcrum extension.

2. In combination, the frame composed of two correspondingly-shaped parts having fulcrum extensions, the fixed jaw pivoted between and to the two parts of the frame, the filling-piece pivoted to and between the two parts of the frame and carrying the bearing-piece, and the handle having forked and embracing and riveted to the movable jaw and extended in a direction substantially the opposite of that of the fulcrum extension.

3. In combination, the frame composed of two correspondingly-shaped parts having fulcrum extensions, the fixed jaw pivoted between and to the two parts of the frame, the filling-piece pivoted between and to the two parts of the frame, the curved-headed movable jaw pivoted between and to the two parts of the frame, the lateral projection of integral with the movable jaw, and the pin projecting from both sides of the movable jaw.

700,758. TARTLET-MACHINE. WILLIAM FRANK, Chicago, Ill. Filed Sept. 6, 1906. Serial No. 739,451. (No model.)



Claim.—1. The combination with the oscillating feeder, H, and the operating-lever, I, of the spring-pressed pin, i', guided in the lever and bearing upon the feeder to hold it in proper position; substantially as described.

2. The combination with the frame and driving-shaft, the die-table and the die, of the oscillating feeder upon the table, the lever, I, spring-pressed to bring the feeder over the die, the connections between the two ends of the operating-lever, I, and the driving-shaft for moving the feeder away from over the die and a movable stop adapted to be brought into the path of the lever to prevent the feeder from swinging over the die; substantially as described.

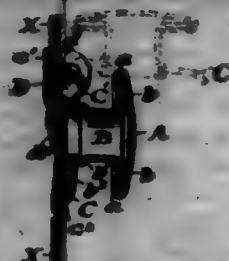
3. In a machine of the class described, the combination with a suitable frame, a die-table thereon, a driving-shaft journaled therein, upper and lower vertically-guided compressors supported thereby, a horizontally-oscillating feeder, a vertically-oscillating lever operated by the driving-shaft, actuated at its lower end and a curved flange upon the feeder adapted to engage the lever; substantially as described.

4. In a machine of the class described, the combination with a horizontally-oscillating feeder, of a pivot-pin therefor, having a circumferential groove and an eccentric locking-pin journaled in the frame adjacent to the pivot-pin, the eccentric portion of said locking-pin being adapted to oscillate into or out of the groove in the pivot-pin; substantially as described.

5. The combination with the table and die, of the pin, d, entering one table and bearing upon the die, the plate, e', carrying the pin at one end and having a shoulder bearing upon the table at the other and the screw, d', threaded in the table and clamping the plate, e', thereon; substantially as described.

6. The combination with the frame and driving-shaft, of the compressor-rod, U, guided therein, the head, c, upon the compressor-rod, the rod, c', guided in the frame to prevent the turning of the compressor-rod, the block, c'', eccentrically journaled upon the shaft and the piston, c''', secured in the block and having a ball-and-socket joint, with the head, c; substantially as described.

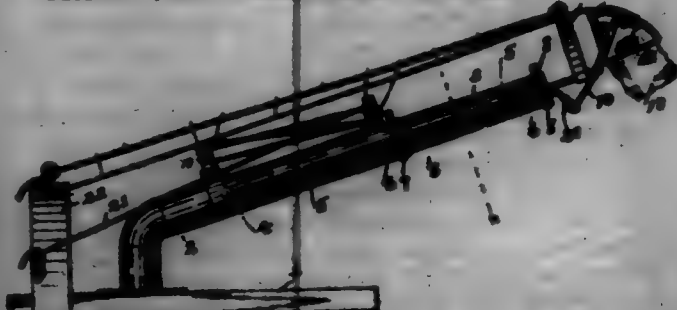
700,759. BUTTON. JOHN G. FREEDMAN, Berdonsville, N. J. Filed Aug. 20, 1908. Serial No. 24,612. (No model.)



Claim.—1. In a button, the combination with the head A; of the tubular shank B, provided with the annular flange B', in fixed relation with said head; the pin-plate C, in fixed relation with said shank; the flange C', upon said plate C, in longitudinal relation with said shank; two plates c, aligned upon the respective opposite extremities of said flange C'; the clamp-bar D, lying upon said plates c, and provided with the free edge d', opposed to the cavity in said shank in diametrical relation with said flange B'; substantially as set forth.

2. In a button, the combination with the head A; provided with the flange a; of the tubular shank B, having the flange B', fixed within said flange a; the circumferential shoulder B'', upon said shank; the pin-plate C, fixed upon said shank B, in contact with said shoulder B'; the annular flange B'', upon said shank opposed to said shoulder B'; and arranged to retain said plate C, in fixed relation with said shank B; the flange C', upon said plate C, in longitudinal relation with said shank B, and extending in a plane inclined with respect to the axis of said shank; two plates c, aligned upon said flange C', the clamp-bar D, provided with the free edge d', in opposition to said flange B'; and opposite legs d, on the respective extremities of said clamp-bar hingedly engaged with said plates, substantially as set forth.

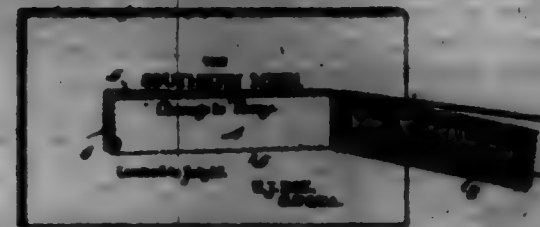
700,760. WIND-WACKER. MICHAEL OLIVER, Oorobah, Ind. Filed Oct. 2, 1908. Serial No. 81,248. (No model.)



Claim.—In a wind-wacker, the combination with the inclined stack-tube comprising sections 2 and 3 one telescoping within the other, of rods 5 on opposite sides of said tube, a slidable yoke 4 on said rods and with which the rear ends of said rods are rigidly connected, said rods slidably supported in connection with both of said tubes, a yoke-frame 14 connecting the outer portions of said rods, a rod connecting the latter with a fixed frame portion in rear of the lower tube section, a head-frame connected with the outer end portions of said rods and a head connected therewith and means for imparting a sliding motion to said head-supporting rods, substantially as specified.

700,761. RAILWAY-TICKET. JOHN GOSWELL, Sandusky, Wis., assignor of one-half to Ralph P. Perry, Sandusky, Wis. Filed July 20, 1907. Serial No. 70,114. (No model.)

Claim.—1. A railway-ticket comprising a body having a destination-point indicated thereon, an opaque shield covering such indication, and a flange applied to the body over the shield, the body, shield and flange being weakened to present a detachable tongue bearing the destination indication.



2. A railway-ticket comprising a body having a destination-point indicated thereon, a staining-strip applied over such indication, and a flange applied to the body and covering the strip, the body, strip and flange being weakened to present a detachable tongue which carries the destination indication.

3. A ticket comprising a body having the destination for which it is issued indicated at an intermediate point, a strip of staining material applied over the destination indication, and a covering-strip applied over the face of the ticket and the staining-strip, the ticket-body, staining-strip and covering-strip being longitudinally perforated for a portion of the length of the said parts and the longitudinal perforations at one end being intersected by a line of transverse perforations to form a tongue which carries the destination indication.

4. A ticket having a tongue at an intermediate point therein normally covered by a staining-strip and a covering-strip, the tongue carrying the destination indication of the ticket, the tongue and the staining and covering strips being weakened so as to be separable along two edges and one end.

5. A railway-ticket comprising a body having a destination-point indicated thereon, a staining-strip applied over such indication, and a flange applied to the body and covering the strip and bearing printed matter such as the name of the road issuing the ticket, the body, strip and flange being weakened to present a detachable tongue which carries the destination indication.

700,762. VENTILATOR-FLUE. THOMAS J. GOSWELL, Lampasas, Tex. Filed July 20, 1901. Serial No. 60,232. (No model.)



Claim.—1. In a flue, an outer shell formed of separable sections capable of being united to form a flue and an inner shell composed of separable sections also capable of being united to form a flue of smaller diameter than said outer shell, the parts of each shell being adapted to be nested or packed one within the other.

2. In a flue, an outer shell of separable sections capable of being united to form a flue, an inner shell of separable sections capable of being united to form a flue of smaller diameter than said outer shell, and annular collars uniting said separable shells detachably, whereby said sections and collars may be separated and nested or packed, substantially as shown and described.

3. In a flue, an outer shell of separable sections capable of being united to form a flue, an inner shell of separable sections capable of being united to form a flue of smaller diameter than said outer shell, a central

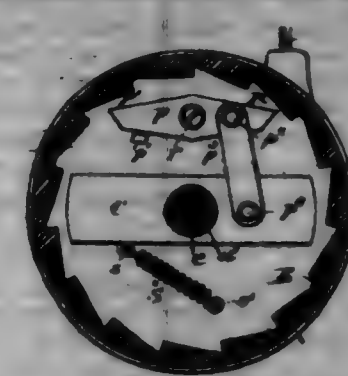
separable rain-shield engaging and coupling-flue and extending over said main flue, and an extension-flue formed of separable sections and engaging said rain-shield and said coupling-section, substantially as shown and described.

4. In a flue, an outer shell of separable sections capable of being united to form a flue, an inner shell of separable sections capable of being united to form a flue of smaller diameter than said outer shell, a central separable rain-shield extending over said main flue and with its smaller end turned outward and engaging said coupling-section, and an extension-flue formed of separable sections and with the lower edge turned and engaging the outwardly-turned edge of said rain-shield, substantially as shown and described.

5. In a flue, a flue formed of separable sections capable of being united to form a flue and separated and nested and packed one within the other, and a rain-shield cap composed of separable sections and located above said flue, substantially as shown and described.

6. In a flue, a flue formed of separable sections capable of being united to form a flue and separated and nested and packed one within the other, and a rain-shield cap having clips adapted to be separably engaged by said flue-sections, substantially as shown and described.

700,768. TROLLEY-CATCHER. ALBERT W. HAN, Longmeadow, N. Y. Filed Oct. 26, 1901. Serial No. 73,626. (No model.)



Claim.—1. The combination of a reel, its winding-spring, a clutch, whereof one member is stationary, the other carried by the reel and loosely mounted thereon, in such manner that the inertia of the said reel-carried clutch member moves it into clutch with the stationary clutch member when the relative speed of the reel is suddenly increased.

2. The combination of a reel, its winding-spring, a clutch, whereof one member is stationary, the other carried by the reel and loosely mounted thereon, in such manner that the inertia of the said reel-carried clutch member moves it into clutch with the stationary clutch member when the relative speed of the reel is suddenly increased, and a yielding connection between the reel and the clutch member carried thereby.

3. In a trolley-catcher, the combination with a reel mounted on a fixed support, a winding-spring for the reel, a clutch, whereof one member is stationary and the other member is movably mounted on the reel and comprises a loosely-mounted clutch-actuator, the clutch-actuator a yielding connection between the said actuator and the reel, the several parts arranged so that the inertia of the clutch-actuator changes the relative positions of the actuator and reel when the relative speed of the reel is suddenly increased, and moves the clutch members together.

4. In a trolley-catcher, the combination with a reel, mounted on a fixed support, a winding-spring for the reel, a clutch, whereof one member is stationary, and the other member is movably mounted on the reel and comprises a clutch-actuator, the clutch-actuator, consisting of a piece loosely mounted concentrically with the reel, a yielding connection between the actuator and the reel, the several parts arranged so that the inertia of the clutch-actuator changes the relative positions of the actuator and the reel and moves the clutch members together when the relative speed of the reel is suddenly increased.

5. In a trolley-catcher, the combination with a reel mounted on a fixed support, a winding-spring for the reel, a clutch, whereof one member is stationary with and the other member is movably mounted on the reel and comprises a clutch-actuator, the clutch-actuator, consisting of a piece loosely mounted concentrically with the reel, a yielding connection between the actuator and the reel, the several parts arranged so that the inertia of the clutch-actuator changes the relative positions of the actuator and the reel and moves the clutch members together when the relative speed of the reel is suddenly increased.

6. The combination, in a trolley-catcher, of the reel, winding-spring, stationary support, reel thereon, part mounted on the reel and connected to an inertia-controlled part-actuator, the said part-actuator, consisting of a bar loosely mounted on a hub attached to and concentric with the reel, and a spring connecting the reel and actuator-bar, whereby the part is normally held clear of the reel, substantially as described.

7. The combination of a reel, its winding-spring, a clutch, whereof one member is stationary, the other carried by the reel, loosely mounted thereon, and balanced with respect to centrifugal force, in such manner that the inertia of the said reel-carried clutch member moves it into clutch with the stationary clutch member when the relative speed of the reel is suddenly increased.

8. The combination of a reel, its winding-spring, a clutch, whereof one member is stationary, the other carried by the reel, loosely mounted thereon, and balanced with respect to centrifugal force, in such manner that the inertia of the said reel-carried clutch member moves it into clutch with the stationary clutch member when the relative speed of the reel is suddenly increased, and a yielding connection between the reel and the clutch member carried thereby.

9. In a truck-catcher, the combination with a reel mounted on a fixed support, a winding-spring for the reel, a clutch, whereof one member is stationary, and the other member is movably mounted on the reel in balance with respect to centrifugal force, and comprises a loosely-mounted clutch-estimator, the clutch-estimator, a yielding connection between the said estimator and the reel, the several parts arranged so that the inertia of the clutch-estimator changes the relative positions of the estimator and reel when the relative speed of the reel is suddenly increased, and moves the clutch members together.

10. In a truck-catcher, the combination with a reel mounted on a fixed support, a winding-spring for the reel, a clutch, whereof one member is stationary and the other member is movably mounted on the reel and comprises a clutch-estimator, the clutch-estimator, consisting of a piece loosely mounted concentrically with the reel in balance with respect to centrifugal force, a yielding connection between the estimator and the reel, the several parts so arranged that the inertia of the clutch-estimator changes the relative positions of the estimator and the reel and moves the clutch members together when the relative speed of the reel is suddenly increased.

700,764. COVER FOR COOKING UTENSILS. HARRY E. BARRY, Wallerston, Ind. Filed July 1, 1891. Serial No. 68,712. (No model.)



Claim.—1. The combination with a cooking vessel and its lid, of a cover for the vessel provided with a ball-holder adapted to swing in a plane at right angles to the movement of the ball, said holder having a spring-clip to engage the ball and form a constructive engagement about the same.

2. In a device of the class described, a cover for cooking vessels provided with a ball-holder hinged to the cover at a point off of the center of the same, said holder formed from spring-wire bent into substantially U-shaped form, and provided with an inwardly-depending spring-clip adapted to engage the ball, said clip having a narrow neck, through which the ball is sprung.

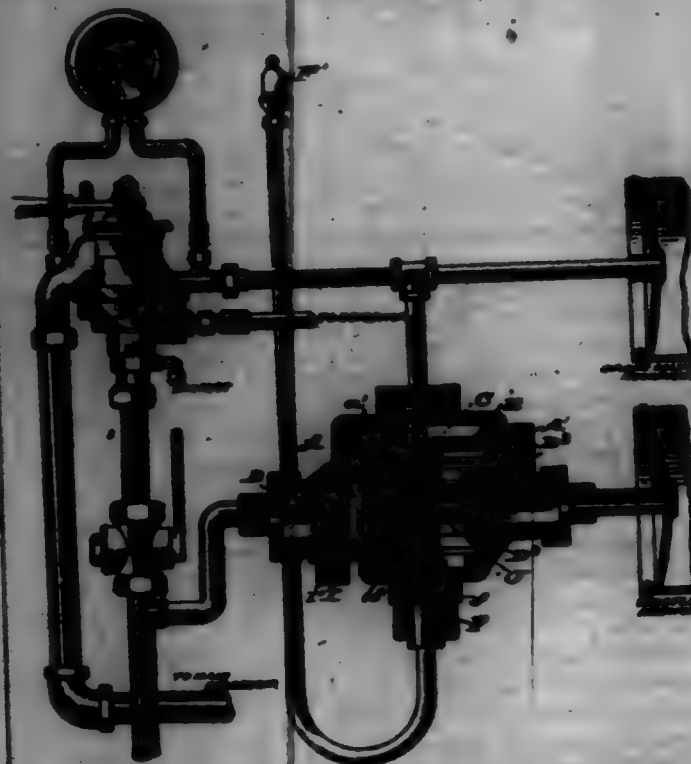
3. In a device of the class described, a cover for cooking vessels provided with a ball-holder hinged to the cover at a point off of the center of the same, and adapted to swing in a plane at right angles to the ball of the vessel, said ball-holder having a resilient vane formed therein which engages the ball to form a constructive engagement about the same.

700,765. TRAIN SIGNALING APPARATUS. WILLIAM A. HARRIS and EDWARD S. E. HARRIS, Greenville, S. C. Filed Aug. 5, 1891. Serial No. 70,595. (No model.)

Claim.—1. In an apparatus substantially as described the combination of the casing, the whistle-valve piston having a port through which the pressure may pass to recharge the whistle-reservoir, and the whistle-valve, movable with respect to its piston and having a portion which is arranged to be adjusted to position to restrict the said port for the passage of pressure when the whistle-valve piston is moved downward substantially as set forth.

2. In an apparatus substantially as described, a whistle-valve having a piston and a valve proper operating therein and formed to provide a combined whistle-valve and release-valve arranged at one end to control the whistle-port and operating at its other end to restrict the passage of air in reestablishing the pressure in the whistle-reservoir when the brakes are put in release substantially as set forth.

3. In an apparatus substantially as described the combination of a casing, the whistle-reservoir communicating with the casing, the whistle-valve having a piston operating in the casing above the connection of the whistle-reservoir and provided with a port for the passage of pressure to said reservoir and with a tubular stem, and the valve proper operating in said tubular stem and arranged at one end to restrict the whistle-port and at its other end to control the port in the whistle-piston when the brakes are put in release substantially as set forth.



4. In an apparatus substantially as described the whistle-valve piston having a port for the passage of pressure and the whistle-valve proper arranged at one end to operate upon said port and having at each end means whereby to permit a restricted flow of pressure through the port when the valve proper is closed to said port substantially as set forth.

5. In an apparatus substantially as described the combination of the casing having the whistle-port, the whistle-valve having a piston provided with a port, and a valve proper movable with relation to the piston, arranged at one end to control the whistle-port and at its other end to operate upon the port in the piston and made of such length as to fit snugly between the whistle-port and the whistle-valve piston when the latter is adjusted to its lowermost position substantially as set forth.

6. The combination of the casing having a cylinder for the whistle-valve piston, the whistle-valve piston having a valve-surface within its rim co-operating with a seat in the casing, and provided with a control port for the passage of pressure to the whistle-reservoir, the casing being provided with means for venting the air from the space indicated by the cut-off portion of the piston, and the whistle-valve proper arranged at one end to control the whistle-port and at its other end to control the port in the piston substantially as set forth.

7. In an apparatus substantially as described the combination of the casing having means for connection with the whistle-valve reservoir and with the train-line, the whistle-valve piston having a port for the passage of pressure from the train-line to the whistle-reservoir and a valve connected with said piston and arranged to restrict such passage of pressure when the brakes are put in release substantially as set forth.

8. In an apparatus substantially as described the combination of the casing, the whistle-valve piston having a port for the passage of pressure to the whistle-valve reservoir, and the whistle-valve proper having a portion by which to control said port, and the main piston arranged to control the whistle-valve in all operations of the brakes substantially as set forth.

9. In an apparatus substantially as described the combination of the casing, the whistle-piston, the main piston made of greater area than the whistle-piston and means whereby the main piston will be caused to travel down and control the whistle-piston in all operations of the brakes substantially as set forth.

10. In an apparatus substantially as described the combination of the casing, the whistle-valve piston, the main piston arranged to control the whistle-valve piston, the equalizing-reservoir, and the whistle-valve reservoir, passages being provided whereby the pressure in the equalizing-reservoir will operate on the side of the main piston next to the whistle-valve while the pressure from the whistle-reservoir will operate on the opposite side of said main piston whereby the main piston will be caused

to travel toward the whistle-valve in all operations of the brakes substantially as set forth.

11. In an apparatus substantially as described the combination of the casing having means for connection with the whistle-reservoir and with the train-line, the whistle-valve, means whereby the whistle-valve may be opened to permit the venting of the whistle by pressure from the whistle-reservoir, and a device operated by the pressure from the whistle-reservoir whereby to hold the whistle-valve closed by such pressure when the parts are operated except for venting the whistle and refilling the whistle-reservoir after brakes are put in release, whereby the pressure in the whistle-reservoir may be used at one time to vent the whistle and at another time to prevent any venting of the whistle substantially as set forth.

12. In an apparatus substantially as described, the combination of the casing, the main valve, the whistle-valve, and connection whereby pressure may operate in all applications of the brakes to move the main valve toward the whistle-valve, substantially as set forth.

13. In an apparatus substantially as described, the combination of the casing, the main valve, the whistle-valve, connection whereby pressure from the whistle-reservoir may operate on the side of the main piston opposite the whistle-valve, the said main piston being arranged to move downward in all applications of the brakes and to hold the whistle-valve to its seat and to open up the passage for the pressure to the main line when so moved down substantially as set forth.

14. In an apparatus substantially as described, the combination of the casing, the whistle valve and piston and the main piston, constructed when moved downward from its normal position to open the passage for the pressure from the whistle-reservoir to the main line, substantially as set forth.

15. In an apparatus substantially as described, the combination of the casing, the whistle-valve, the main piston, by which to control the whistle-valve in all applications of the brakes, and means for limiting the upward movement of the main piston beyond its normal position, said main piston being provided with a passage for the pressure, which passage will be opened when the main piston is depressed below its normal position, substantially as set forth.

16. In an apparatus substantially as described, the combination of the casing, the whistle piston and valve, the main piston arranged to move downward and control the whistle-valve in all operations of the brakes, and means for preventing the upward movement of the main piston above its normal position, substantially as set forth.

17. In an apparatus substantially as described, the combination of the casing, the whistle-reservoir, the whistle-valve, the main valve, the equalizing-reservoir, and connection whereby pressure from the equalizing-reservoir will operate below the main piston and pressure from the whistle-reservoir will operate above the main piston, substantially as set forth.

18. In an apparatus substantially as described, the combination of the casing, the whistle-valve, the main piston arranged to control the whistle-valve, the emergency-valve, opening toward the train-line, the equalizing-reservoir and connection whereby the emergency-valve will be opened by the equalizing-reservoir pressure, substantially as set forth.

19. In an apparatus substantially as described, the combination of the casing, having means for connection with the train-line, the equalizing-reservoir and the whistle-reservoir, the whistle-valve, the main piston, means for admitting the pressure from the equalizing-reservoir below the main piston, the emergency-valve controlling the passage of pressure from below the main piston to the main line, and means for admitting pressure from the whistle-reservoir above the main piston, substantially as set forth.

20. In an apparatus substantially as described, the combination of the casing having cylinders for the main piston and for the whistle-valve piston and means for connection with the train-line, the equalizing-reservoir and the whistle-reservoir, the main piston arranged to control the whistle-valve piston in the application of the brakes, the whistle-valve piston having a portion for the passage of pressure, and the whistle-valve proper movable with respect to its piston and having a portion which may be adjusted to position to restrict the passage of pressure through the port in the whistle-valve piston substantially as set forth.

21. In an apparatus substantially as described, the combination of the casing, the whistle-valve piston having a port for the passage of pressure through it and the whistle-valve proper arranged at one end to control the whistle-port and at its other end to control the port in the piston and having said and grooved for the gradual passage of pressure past it when adjusted into contact with the port substantially as set forth.

22. In an apparatus substantially as described, the combination of the casing having means for connection with the whistle-reservoir and the train-line, the whistle-valve having a piston, the main piston arranged to control the whistle-valve, and means whereby pressure from the whistle-reservoir may be admitted below the whistle-valve piston and above the main piston, substantially as set forth.

23. The combination, in an apparatus substantially as described, of the casing, the whistle-valve having a piston provided with a port for the passage of pressure, and a valve proper arranged at one end to control the whistle-port and at its other end to control the port for the passage of pressure, and the main piston having a tubular stem arranged to bear upon the valve-piston and actuated for the passage of pressure, and provided within the said stem with a valve arranged to control the port in the whistle-valve piston, substantially as set forth.

24. A signal apparatus substantially as described having a whistle-valve, a main piston having a tubular stem and a valve operating therein, and provided within said stem with a passage or passages through which pressure may operate from the whistle-reservoir to the main line in the applications of the brakes, substantially as set forth.

25. In an apparatus substantially as described, the combination of the casing having means for connection with the train-line, the equalizing-reservoir, and the whistle-reservoir, and provided with cylinders for the main piston and the whistle-valve piston, and having ports or passages for the pressure from the whistle-reservoir below the whistle-valve piston and above the main piston and for the passage of pressure from the equalizing-reservoir below the main piston, and from the train-line to a point above the whistle-valve piston, and also a passage for the pressure below the main piston to the train-line, the emergency-valve for controlling the latter passage, the main piston having the tubular stem and the valve operating therein, and the whistle-valve having a piston and the valve proper, all substantially as set forth for the purposes set forth.

26. In an apparatus substantially as described, the combination of the casing, the whistle-valve and its piston having a port for the passage of pressure, the main piston having a tubular stem and a valve operating therein, and having within said tubular stem a passage for the pressure and at the lower end of the stem means for the exit of such pressure to the main-line, and connection for the passage of pressure from the whistle-reservoir to a point above the main piston and below the whistle-piston, all substantially as described, whereby pressure may pass from the train-line through the whistle-valve piston to the whistle-reservoir in recharging the latter, and may pass from the whistle-reservoir through the tubular stem of the main piston in equalizing pressure in the train-line and whistle-reservoir in the application of the brakes, substantially as set forth.

27. In an apparatus substantially as described, the combination of the casing having a cylinder for the whistle-valve piston and a cylinder for the main piston, and having an emergency port or passage leading from the lower portion of the latter cylinder to communicate with the train-line, the emergency-valve controlling said port and opening toward the train-line, the whistle-valve and its piston, the main piston, the whistle-valve reservoir, the equalizing-reservoir, a connection whereby the pressure in the equalizing-reservoir may pass to operate below the main piston, and a connection whereby the pressure in the whistle-reservoir may operate above the main piston, substantially as set forth.

28. The combination of the casing having a cylinder for the main piston and an emergency-passage leading from the lower end of said cylinder to the train-line, and a controlled port or passage leading to the lower portion of said cylinder from the equalizing-reservoir, whereby in the emergency application, the pressure may pass from below the main piston to the train-line, more rapidly than it can be applied through the said controlled passage, the main piston, the whistle-valve, and means whereby pressure may pass from the whistle-reservoir to a point above the main piston, substantially as set forth.

29. In an apparatus substantially as described the combination of the casing the whistle-valve piston having a port for the passage of pressure and a whistle-valve proper having a portion arranged to restrict said port in the application of the brakes, the main piston, and connection whereby pressure from the whistle-reservoir may be admitted to operate above said main piston substantially as set forth.

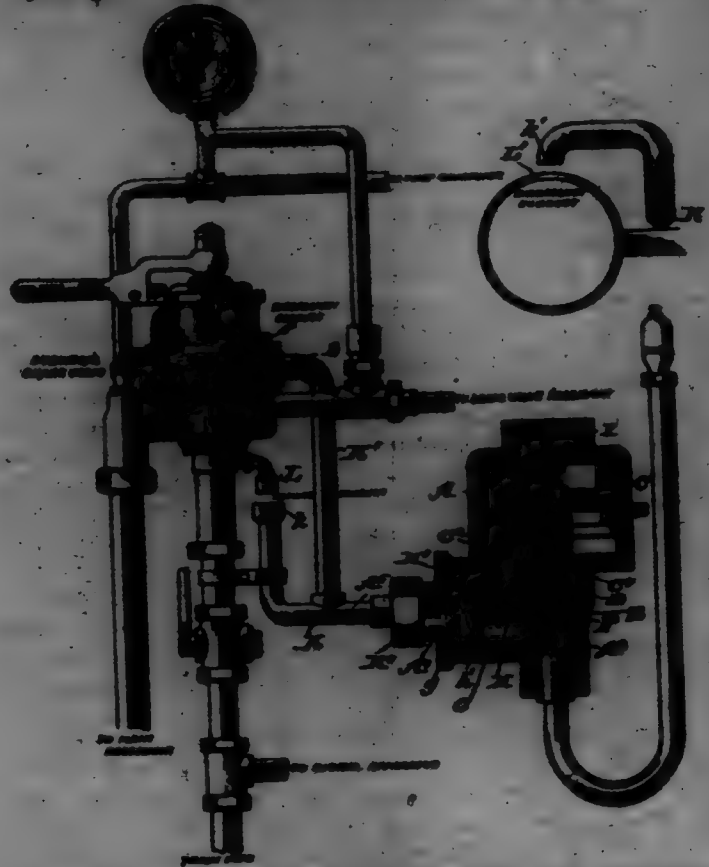
30. The combination in an apparatus substantially as described of the casing, the whistle-reservoir, the whistle-valve and its piston, the main piston arranged to move toward the whistle-valve in all applications of the brakes, and connection whereby pressure from the whistle-reservoir may be admitted above the main piston whereby to effect such downward movement thereof substantially as set forth.

700,766. TRAIN SIGNALING APPARATUS. WILLIAM A. HARRIS and EDWARD S. E. HARRIS, Greenville, S. C. Filed Aug. 5, 1891. Serial No. 70,596. (No model.)

Claim.—1. In an apparatus substantially as described, the combination of the casing, the whistle-valve, an intercepting-valve by which to prevent the passage of pressure to the whistle, and means by which the said intercepting-valve may be automatically operated by pressure independently of that controlled by the whistle-valve.

2. The combination of the casing, the whistle-valve, and an inter-

capturing device arranged beyond the whistle-valve and adapted to prevent the passage of pressure to the whistle when the whistle-valve is open in certain operations, and means by which the said intercepting-valve may be operated by the exhaust from the engineer's brake-valve.



3. The combination of the casing, the whistle-valve, and an intercepting-valve arranged to prevent the passage of pressure to the whistle when the whistle-valve is open in certain operations, said intercepting-valve being provided with a passage for the pressure from the whistle-valve reservoir when the said intercepting-valve is adjusted to intercepting position and with means for operation by such pressure.

4. The combination of the casing having a cylinder for the piston of the intercepting-valve, the whistle-valve, the intercepting-valve and means whereby the intercepting-valve may be operated by the exhaust from the engineer's brake-valve.

5. The combination with the casing having a cylinder for the piston of the intercepting-valve, whistle-part D and a valve-seat F and provided with a passage E, and the intercepting-valve arranged for operation by the exhaust-pressure from the engineer's brake-valve and having a piston engaging in the cylinder of the casing, and a tubular stem operating in the chamber E and provided with a valve portion to fit the seat F and a port communicating with its bore and arranged for registration with the whistle-part D.

6. In an apparatus substantially as described, the combination of the casing having a cylinder for the piston of the intercepting-valve and an opening G leading to said cylinder, the whistle-valve, the intercepting-valve having a piston operating in the cylinder of the casing and provided with a portion by which to shut off the passage of pressure to the whistle and also provided at its outer end with a plug-valve to close the opening G leading to the cylinder for the said intercepting-valve piston.

7. In an apparatus substantially as described, the combination with the casing, the whistle-valve and connections whereby said whistle-valve will be caused to move upward in the service and emergency applications of the brakes by the engineer's brake-valve, and means operated by the exhaust-pressure from the engineer's brake-valve whereby to prevent the passage of pressure to the whistle in the said service and emergency applications of the brakes.

8. An apparatus substantially as described, comprising the casing, the whistle-valve, the engineer's brake-valve, and means operated by the exhaust-pressure from the engineer's brake-valve by which to prevent the sounding of the whistle in the service and emergency applications of the brakes by the operation of the engineer's brake-valve.

9. The combination in an apparatus substantially as described, of the casing, the whistle-valve, the engineer's brake-valve, connections whereby the whistle-valve will be opened in the service and emergency applications of the brakes by the engineer's brake-valve, and a device operated by the exhaust-pressure from the engineer's brake-valve and arranged to shut off the passage of pressure to the whistle when the whistle-valve is open in the service and emergency applications of the brakes by the engineer's brake-valve.

10. The combination of the engineer's brake-valve, and the train-line, of the signal having a casing, a connection between said signal and the train-line for the passage of train-line pressure between the train-line and signal, the whistle-valve, the intercepting device by which to prevent the passage of pressure to the whistle in the service and emergency applications of the brakes by the operation of the engineer's brake-valve and connections whereby the exhaust from the engineer's valve in such applications will operate the intercepting device to position to shut off the passage of pressure to the whistle.

11. The combination of the engineer's brake-valve, the signal apparatus including a whistle-valve, and an intercepting device arranged to shut off the passage of pressure to the whistle when the whistle-valve is opened in certain operations of the apparatus, and means whereby the intercepting device will be operated by the exhaust-pressure from the engineer's brake-valve in the service and emergency applications of the brakes, said means being disconnected or free of any direct connection with the exhaust-ports of the engineer's brake-valve whereby the said exhaust-pressure will operate the intercepting device and yet may be discharged freely into atmosphere etc.

12. An apparatus substantially as described, having the whistle-valve and provided with means operated by the exhaust-pressure from the engineer's valve in the emergency and service applications of the brakes whereby to prevent the passage of pressure to the whistle.

13. A signal apparatus comprising the casing, means connecting said casing with the train-line whereby it may be influenced by variations in pressure in said line, and controlling device for the whistle including an intercepting device arranged for operation by the exhaust from the engineer's brake-valve and adapted when so operated to prevent the passage of pressure to the whistle.

14. The combination with the signal-casing and the whistle-valve, of the intercepting-valve arranged for initial operation by the exhaust-pressure from the engineer's brake-valve, and means whereby the said intercepting-valve may be held by the whistle-reservoir pressure in the position to which it is adjusted by the said exhaust-pressure.

15. The combination of the signal-casing, the whistle-valve, the intercepting-valve arranged to control the whistle-part and provided with a valve portion to shut off the passage of pressure to the whistle and the passage for the pressure from the whistle-reservoir, said intercepting-valve being also provided with a piston for operation by the exhaust from the engineer's brake-valve and with a valve portion for shutting off the passage of the exhaust-pressure to said piston after the initial movement of the intercepting-valve.

16. The signal apparatus comprising the casing, the whistle-valve arranged to be adjusted to open position in all operations of the brakes and in all signaling operations, and an intercepting device arranged between the whistle-valve and the whistle and adapted for operation, in the emergency and service applications of the brakes by the engineer's brake-valve, to position to shut off the passage of pressure to the whistle.

17. A signal device provided with means arranged for operation by the exhaust from the engineer's brake-valve, in the service and emergency applications of the brakes whereby to intercept the air passing from the signal-valve to the signal and to prevent the operation of the signal by any operation of the engineer's brake-valve in the application of the brakes.

18. The combination with the engineer's brake-valve and a signal apparatus, of a pipe or pipes leading from said signal and opening adjacent to the exhaust port or ports of the engineer's brake-valve whereby the exhaust-pressure discharging from said port will operate upon the air in said pipe, and device in the signal apparatus arranged for operation by such exhaust-pressure.

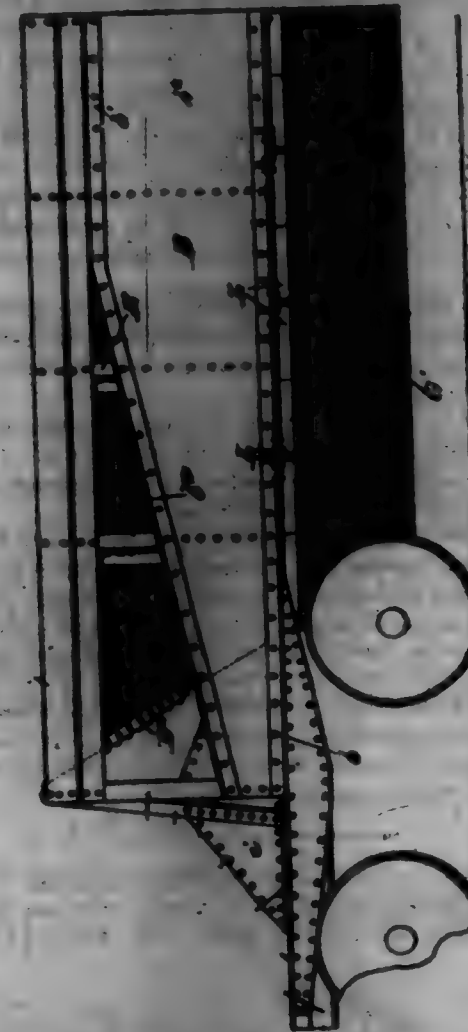
19. A signal apparatus provided with means for operation by the exhaust-pressure from the engineer's brake-valve combined with the engineer's brake-valve having the exhaust ports and pipes connected with the signal and opening opposite the exhaust-ports of the engineer's brake-valve and spaced apart from said ports whereby the gust of air exhausted from said ports will operate the device in the signal and there will be no choking of the exhaust.

20. The combination of the engineer's brake-valve, the train-line, the signal having a casing, a whistle-valve and an intercepting-valve operating between the whistle-valve and the whistle, connection between the casing and the train-line whereby the whistle-valve will move upward in all applications of the brakes, and connections whereby the intercepting-valve will be operated by the exhaust-pressure from the engineer's valve.

700,767. HETALLEN CAR. HARRY S. HARR, Chicago, Ill., assignor to the Hopper Patent Car Company, Chicago, Ill., a Corporation of Illinois. Filed July 2, 1899. Serial No. 722,284. (No model.)

Claim.—1. In a car of the class described, the combination of an open unobstructed body-supporting frame, composed of transverse

beams at or near the ends, and side plate-girders rigidly connected to and resting on the top of said beams, substantially as described.



2. In a car of the class described, the combination with a body, of supporting-frame composed of transverse beams at or near the ends of the body, and side plate-girders connected rigidly to and resting on the top of said beams, said body being entirely supported from said beams and side girders, substantially as described.

3. In a car of the class described, the combination of a combined end sill and body-bolster arranged transversely of the car at or near each end thereof, side plate-girders supported at or near their ends by and rigidly connected to the top of the combined end sill and bolster, and a bottom portion supported by the side girders, substantially as described.

4. In a car of the class described, the combination of a combined end sill and body-bolster arranged transversely of and at or near each end of the car, a hopper portion, side plate-girders supported at their ends upon the combined sill and bolster and supporting the hopper, and intermediate longitudinal plate-girders supported at their ends upon the combined sill and bolster to assist in supporting the hopper, substantially as described.

5. In a car of the class described, the combination of a combined end sill and body-bolster arranged transversely of and at or near each end of the car, a hopper portion and two beam-girders supported at their ends upon the combined sill and bolster and formed of two side plate-girders, two intermediate plate-girders, means for securing them—the side and intermediate girders—together at or near their lower portions and supporting the hopper and a portion of the sloping side or bottom of the hopper, substantially as described.

6. In a car of the class described, the combination of a car-floor or bottom portion, side plate-girders supporting the same, a combined end sill and body-bolster arranged transversely of the car in position to be supported by the truck and secured to and below the ends of the side plate-girders to support the same and transmit the loading strains to said girders, and means for transversely loading the bolster, substantially as described.

7. In a car of the class described, the combination of a car-floor or bottom portion, two side plate-girders supporting the same, a combined end sill and body-bolster arranged transversely of and secured to and below the ends of the side plate-girders to support the same and transmit the loading strains to said girders, and a longitudinal strap member secured to each end of said combined end sill and bolster to assist them in carrying the loads, substantially as described.

8. In a car of the class described, the combination of a car-floor or bottom portion, two side plate-girders supporting the same, a combined

end sill and body-bolster arranged transversely of and secured to the ends of the side plate-girders to support the weight thereof and transmit the loading strains to said girders, draft-rigging-supporting members secured to and extending out and down from the combined sill and bolster, and means for securing said draft members in loading strains and vertical strains, substantially as described.

9. In a car of the class described, the combination with a body portion of supporting side plate-girders, having their upper edges bent to fit the adjacent portions of the body, and connecting members at the ends between the girders.

10. In a car of the class described, a combined end sill and body-bolster formed of two longitudinal members separated at their central portion and brought together at their ends, a spiral plate secured between the longitudinal members at each end and extending upwardly therefrom, a transverse member with its ends secured to the vertical plates, and a strut between the transverse and longitudinal members, substantially as described.

11. In a car of the class described, a combined end sill and body-bolster formed of metal plates vertically disposed and extending longitudinally thereof, angle-irons secured to the upper and lower edges of the same with their flanges extending outwardly therefrom and from the center in a horizontal plane, the longitudinal vertically-disposed members being separate at their transverse center and their flat vertical portions being bent toward each other and secured together at their ends, substantially as described.

12. In a car of the class described, two side plate-girders, one on each side, for supporting the body of the car longitudinally, each girder having a single plate-body and an independent flanged rail on each side at the bottom forming a self-contained side girder, substantially as described.

13. In a car-body-supporting frame, the combination of a side girder for each side formed of an outer girder having a metal plate-body and separate flanged metal rails united in the metal plate-body at the top and bottom edges thereof and an intermediate stop-girder having a metal plate-body and separate flanged metal rails united in the bottom edges thereof, and a cross-support at each end forming an end sill and body-bolster consisting of a metal plate-body and separate flanged metal rails united to the metal plate-body at the top and bottom edges on the outer face thereof, substantially as described.

14. In a car of the class described, the combination of a portion acting as an end sill and body-bolster, consisting of a cross-support formed by metal plates and independent top and bottom flanged rails on the outer face of the plates and located transversely of the car at each end, two side plate-girders, each consisting of a single metal plate-body, a flanged independent rail on each side of the metal plate-body at the bottom and a flanged independent metal rail on the outer face of the plate-body at the top, each girder supported at its ends only by the combined end sill and body-bolster, and a hopper-shaped car-body seated by the side girders, substantially as described.

15. In a car of the class described, the combination of a combined end sill and body-bolster consisting of a cross-support formed of metal plates, each plate having at the top and bottom on its outer face an independent flanged rail riveted thereto and located transversely of the car at or near each end, a hopper-shaped car-body having its sides and ends inclined, two side plate-girders supported at their ends by the combined end sill and body-bolster, each girder consisting of a single metal plate-body, an independent flanged rail at the bottom of the plate-body on each side and riveted thereto, an independent flanged rail at the top of the plate-body and riveted thereto forming a self-contained plate-girder on each side of the car supporting the hopper-shaped car-body, and intermediate stop-girders, each consisting of a single metal plate-body and an independent flanged rail on each side at the bottom riveted to the plate-body, supported at the ends by end sill and body-bolster, and furnishing a support for the hopper-shaped car-body against outward sagging or bending, substantially as described.

16. In a car of the class described, the combination of a combined end sill and body-bolster arranged transversely of and at or near each end of the car and consisting of metal plates, each plate having at the top and bottom on the outer face an independent flanged metal rail riveted thereto, a hopper-shaped car-body having inward-sloping sides and ends and two beam-girders supported at their ends upon the combined end sill and body-bolster and formed of two side plate-girders and two intermediate plate-girders, each side plate-girder consisting of a single metal body and an independent flanged metal rail on each side at the bottom and an independent flanged metal rail at the top of the plate-body and riveted thereto, and each stop-girder consisting of a single metal plate-body and an independent flanged metal rail on each side of the metal plate-body at the bottom and riveted thereto, and means for securing the side plate-girders and stop-girders together to the other at the bottom, for the beam-girders to support the hopper floor or bottom, substantially as described.

17. In a car of the class described, the combination of a car-floor or bottom portion, two side plate-girders supporting the same, a combined end sill and body-bolster arranged transversely of and secured to and below the ends of the side plate-girders to support the same and transmit the loading strains to said girders, and a longitudinal strap member secured to each end of said combined end sill and bolster to assist them in carrying the loads, substantially as described.

18. In a car of the class described, the combination of a car-floor or bottom portion, two side plate-girders supporting the same, a combined

17. In a car of the class described, the combination of a car-body, two side plate-girders supporting the car-body, each consisting of a single metal plate-body and an independent flanged metal rail at the bottom of the metal plate-body on each side and riveted thereto and an independent flanged metal rail at the top of the metal plate-body on the outer face and riveted thereto, and a combined end sill and body-bolster arranged transversely of and secured to the ends of the side plate-girders for supporting the girders and transmitting buffing strains thereto, substantially as described.

18. In a car of the class described, the combination of a car-body, two side plate-girders supporting the car-body, each consisting of a single metal plate-body and an independent flanged metal rail at the bottom of the metal plate-body on each side and riveted thereto and an independent flanged metal rail at the top of the metal body on the outer face thereof and riveted thereto, a combined end sill and body-bolster arranged transversely of and secured to the ends of the side plate-girders and furnishing a support for the girders and transmitting buffing strains thereto, and a draft-bumper at each end of the car projecting from the combined end sill and body-bolster and extending the combined end sill and bolster in carrying the load, substantially as described.

19. In a car of the class described, the combination of a car-body, two side plate-girders supporting the body, each consisting of a single metal plate-body and independent flanged metal rails at the top and bottom of the plate-body and riveted thereto for each girder to have a rail at its top and a rail on each side at the bottom to be self-contained and support the weight of the body and load, a combined end sill and body-bolster arranged transversely of and secured to the ends of the side plate-girders supporting the girders at the ends and transmitting buffing strains to the girders, a draft-bumper at each end of the car projecting outward from the combined end sill and bolster, and means for securing each draft-bumper in resisting sidewise and vertical strains, substantially as described.

20. In a metal car, the combination with side plate-girders, of body-bolsters to which the side girders are secured, a car-body rigidly held between the side girders, reinforcing-standard secured to the side girders and upper edge of the body, and independent connecting-braces between the bolster and body and the side plate-girders and body, substantially as described.

21. The combination with side plate-girders, of end sills rigidly connecting the ends of the girders, a body supported between the girders and braces extending from the upper and lower portions of the end sills to the end of the body, substantially as described.

22. The combination with a side supporting-plate, of an obliquely-arranged hopper-plate riveted thereto at a point above the lower edge of the side plate, and a bracing member inside of said side supporting-plate and having a portion adapted to brace the hopper-plate, substantially as described.

23. The combination with a side supporting-plate, of an obliquely-arranged hopper-plate riveted thereto at a point above the lower edge of the side plate, and a bracing member inside of said side supporting-plate and having a portion adapted to brace the hopper-plate, an angle-bar secured to the lower edge of the side plate, and vertical posts secured to the side plate, substantially as described.

24. The combination with side girders, of an end sill, corner-posts supported directly by said end sill and secured to said side girders, and a car-body whose sides are supported by said side girders and whose ends are supported by said corner-posts, substantially as described.

25. The combination with a metal car-body, of side girders, an end sill connected directly to said side girders, angle corner-posts secured to said girders and supported by said end sill, and where upper ends are connected to said car-body, substantially as described.

26. In a car of the class described the combination with a body, of a bolster or end sill, draft-rigging members and the plates P and P' extending from the end members to the body.

27. In a car of the class described, the combination with a body, of a bolster, a draft-rigging member, the brace-plates, P, P', and the horizontal plates P', P'.

28. The combination with a car-body having an overhanging end, of a transverse bolster, corner-posts connected to said bolster and to said overhanging end, a structure supported by said bolster and extending forwardly, and braces for the central portion of said inclined end supported by said forwardly-extending structure and connected to the overhanging end of the car-body, substantially as described.

29. In a car, the combination with side plate-girders, and body-bolsters supporting said plate-girders, of an inclined bottom and supports for said inclined bottom springing from and rigidly secured to said bolsters, substantially as described.

30. In a car of the class described, the combination of a combined end sill and body-bolster arranged transversely of and at or near each end of the car, a hopper portion, and side plate-girders supported by said combined end sill and bolsters at each side of the hopper portion and con-

nected to form in effect one girder, said hopper portion being supported by said side plate-girders, substantially as described.

31. In a hopper-bottom car, a draft-beam extending forwardly from the bolster, the outer end of the draft-beam depending on the overhanging part of the car-body for its vertical support, substantially as described.

32. In a hopper-bottom car, a body-bolster composed of an upper and a lower part, the lower part being bolted down, and also being riveted to the end of the draft-beam, substantially as described.

33. In a car, the combination with a car-body having an overhanging front part, of a bolster, a draft member extending forward from said bolster, and a connection from said draft member to the overhanging part of said car-body for supporting said draft member, substantially as described.

34. In a metal car, the combination with a car-body, of side body-girders extending longitudinally and comprising in their construction plate-girders, a portion of the walls of the car-body, and transverse connections, substantially as described.

35. In a metal car, the combination with a car-body, of side body-girders extending longitudinally and each comprising in its structure a plurality of plate-girders, a portion of the walls of the car-body, and transverse connections, substantially as described.

36. In a car of the class described the combination with the body, of supporting means therefor, a sill or bolster, a cross-piece such as C' on the body and a brace between the cross-piece and the bolster.

37. In a hopper-bottom car, a draft-beam extending outward from the bolster the outer portion of the draft-beam depending on an overhanging part of the car-body for its vertical support.

38. In a hopper-bottom car a draft-beam extending forward from the bolster and a connection between the draft-beam and an overhanging portion of the car-body whereby the draft-beam is supported in its position by the said overhanging portion of the car-body.

700,768. GILLES SYSTEM FOR MOTOR-VEHICLES. WILLIAM A. HANSEN AND JAMES W. FARRAR, WRITERS, CHICAGO, ILL.; said Hansen assignor to said Farrar. Filed June 25, 1902. Serial No. 21,642. (No model.)



Claim.—1. In a motor-vehicle provided with a hydrocarbon-motor, the combination of a relief-valve for the motor-cylinder, a lubricating-oil valve, a connection between said valves whereby the one may be closed when the other is open, and means for operating said valves.

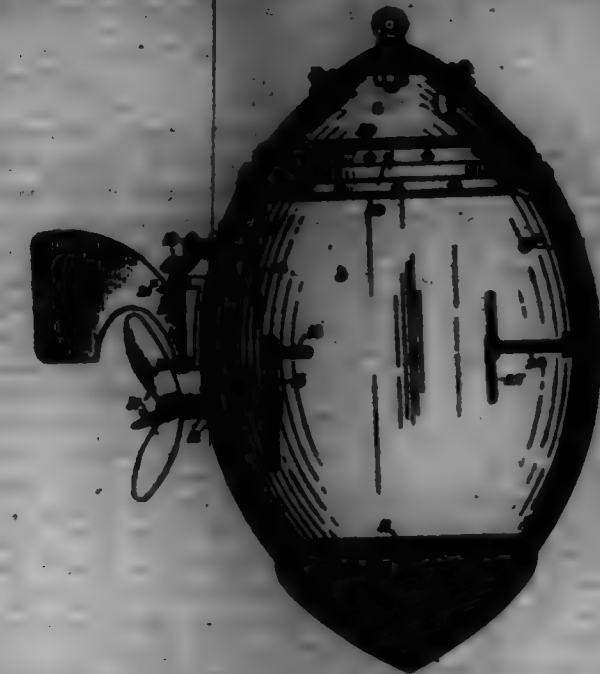
2. In a motor-vehicle provided with a hydrocarbon-motor, the combination of a cylinder relief-valve, a cylinder-oiling valve, a connection between said valves whereby one may be closed when the other is open and vice versa, and means for operating the valves.

3. In a motor-vehicle provided with a hydrocarbon-motor, the combination of a cylinder relief-valve, a series of lubricating-oil valves, and connections for simultaneously operating all of said valves, said connections being arranged to simultaneously open the relief-valve and close the oil-valves or, vice versa, to close the relief-valve and open the oil-valves.

4. In a motor-vehicle provided with a hydrocarbon-motor, an oil-tank provided with a series of oil-outlets, a common valve for all of said outlets, a cylinder relief-valve, and connections between the relief-valve and the said oil-valve so arranged that the relief-valve must be opened when the oil-valve is closed, and vice versa.

5. In a motor-vehicle provided with a hydrocarbon-motor, the combination of the cylinder relief-valve, the cylinder-lubricating valve, and the multiple valve controlling the outlet of oil-passages, of connections between said valves, and a hand-lever conveniently arranged and connected to operate all of said levers simultaneously.

700,769. DIVING VESSEL. THOMAS E. HAMAN, VANCOUVER, CANADA. Filed Dec. 29, 1901. Serial No. 57,692. (No model.)



Claim.—1. A diving vessel constructed in hollow oval form of a transparent material in two main parts which form a continuance of the general shape; a metallic joint-ring suitably connected to each part and having a curved connection pin within the other; a clamping eye attached to the center of the upper end; means for conveying air to within the vessel and for allowing the same to escape; a floor on the interior of the lower end; a propeller-shaft rotatable in a suitable gland-packed bearing in the wall of the vessel, each shaft having exterior to the vessel a propeller secured to it, and within, a means for rotating the shaft; a shield to protect the lower end; and a ballast-weight whereby the vessel may be submerged while suspended from above water.

2. In a diving vessel in hollow oval form, made of transparent material in two main parts, said parts uniting to form a cylindrical shape, the plane of division being horizontal and at right angles to the length of the device; a metallic joint-ring suitably connected to each part and adapted to screw one into the other; said device being susceptible of being submerged while suspended from above the surface of the water; and having means for a limited stability below water; a rubber pivotally movable in bearings in a bracket attached to the shell of the vessel; a shaft to actuate each rubber from the interior of the vessel; bevel-wheels rotatably connecting each shaft with the pivot or pin of the rubber; and means within the vessel of actuating each shaft and turning the rubber as desired.

3. In a diving vessel of hollow oval form constructed of suitable transparent material in two main parts having a curved junction toward the upper end; the lower part being constructed of metallic segments of the transparent material secured together by joint frames; the interposition of an elastic non-conducting material wherever the transparent material of the shell is joined to the metal of the frames or attachments; an exterior shield to the lower end; means whereby the vessel may be suspended during submersion; and means whereby it may be moved about and directed within a limited area.

4. A diving vessel, comprising a hollow body of transparent material, formed of two sections detachably joined, a propelling and steering mechanism therefor, and means for operating said mechanism, located within the hollow body, substantially as above and for the purposes described.

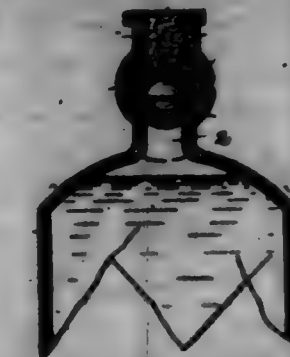
5. A diving vessel, comprising a body having a hollow oval form, adapted, when in its normal position, to hang with its axis in a vertical position, said body including a detachably-held upper end, having means for connecting with the suspending cord or cable, and an air supply and

exhaust pipe members attached to the said detachably-held upper end, for the purposes specified.

6. A diving vessel, comprising a hollow body, consisting of a bottom part having a floor or stand, an upper part detachably joined to the bottom part, by means of a suitable joint-ring suitably attached to each part and having threaded portions adapted to be revolved one into the other; a hand-shield for the lower end of said body; air supply and exhausting devices connected with the upper part; a driving and steering means at one side operable from within the body, and a grapple-engaging means at the other side including devices located within the body for cutting said grapple-engaging means to connect with or be disconnected from the grapple, as set forth.

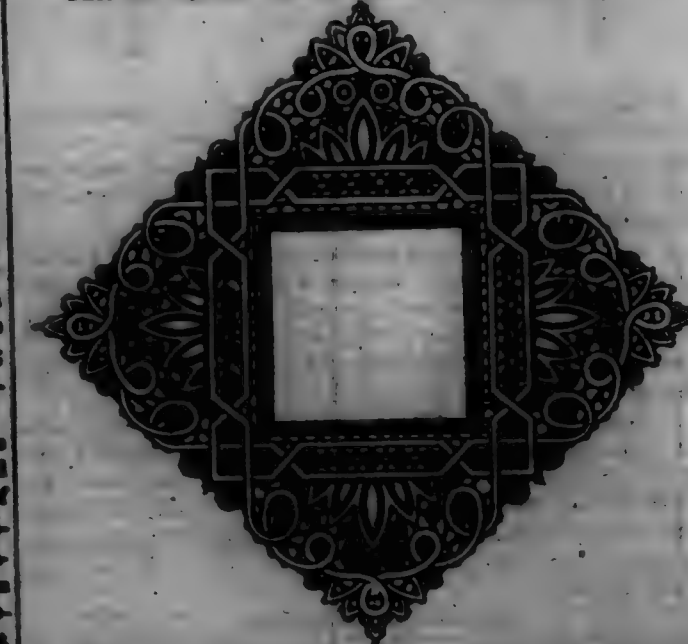
7. A diving vessel, constructed in hollow oval form of transparent material, adapted to be suspended from a support above the water, with its axis normally in a vertical position, said body being formed in two parts, an upper and a lower, the lower being the larger, and the line of separation taking place on a plane at right angles to the axis; a propeller and rubber mechanism, centrally located at one side of said body, one above the other; and grapple means centrally located at the opposite side, and means for manually operating said device, as set forth.

700,770. BUB-BLE-LESS BOTTLE. FREDERICK J. HERRING, WILMINGTON, DE. Filed Nov. 22, 1902. Serial No. 57,721. (No model.)



Claim.—A bottle having a contracted neck 2 merging into a spherical portion which has an annular groove centrally about its circumference; a ball-stopper within said spherical portion and seated over the contracted portion of the neck, the circumference of said stopper having a circumferential groove, and a filling intermediate the lower wall of the spherical portion of the neck and said stopper, as set forth.

700,771. LACE-PAPER DOLLY. JOHN KINN, NEWARK, N.J. Filed Feb. 12, 1903. Serial No. 58,000. (No model.)



Claim.—1. A lace-patterned lace-paper dolly having situated within its border a substantially square design each of whose corners will lie equidistant from the two corners of the outer border of the dolly nearest to them, the edges of the lace substantially square design being formed in lace fabric than the portions of the dolly immediately outside of them.

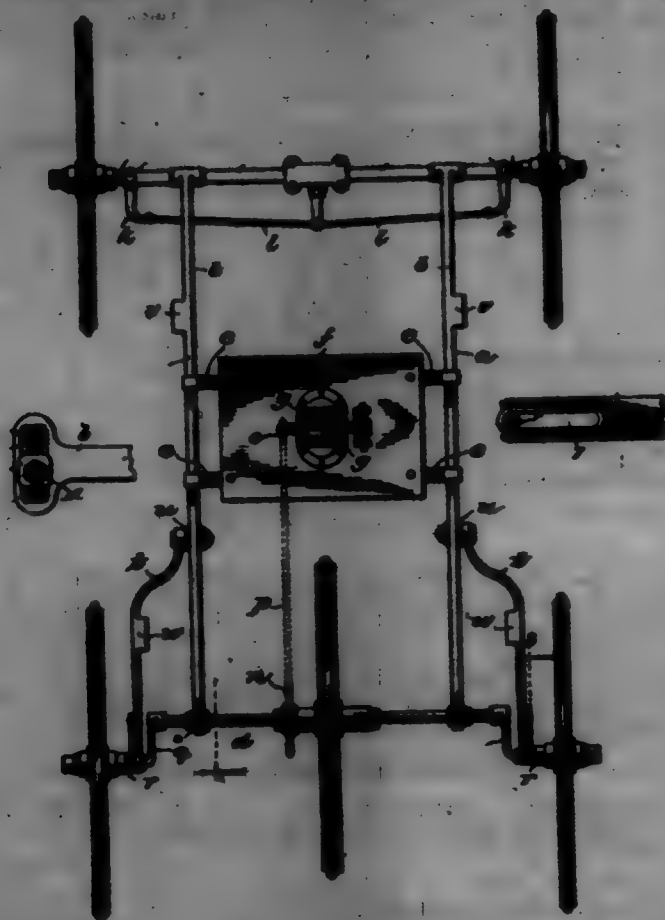
2. A lace-paper dolly having situated within its outer border a substantially square design whose corners touch or approach near to the outer border of the dolly, the edges of the lace substantially square design being formed in lace fabric than the portions of the dolly immediately outside of them.

3. A four-sided leaf-paper dolly having situated within its outer border a substantially square design whose corners bisect the sides of the dolly and whose edges are formed so that they are less pliable than the portions of the dolly immediately outside of them.

4. A four-sided dolly of leaf-paper of such a design that a substantially square design is formed therein whose corners bisect the sides of the dolly and whose sides are formed enough stiffer than the portions of the dolly immediately outside of them to form bending edges.

5. A four-sided dolly of leaf-paper of such a design that a substantially square design is formed therein so that each corner of the inner design will be equidistant from the two corners of the outer border of the dolly nearest to them, the edges of the inner substantially square design being formed less flexible than the portions of the dolly immediately outside of them.

700,772. MOTOR-VEHICLE. BENJ. C. HUNT, Chicago, Ill. Filed Dec. 28, 1891. Serial No. 57,345. (No model.)



Claim.—1. In a vehicle of the class described, the combination of a main-frame portion, a bell-crank axle rockingly mounted in the rear and thereof, a central driving-wheel on each axle, and two rear supporting-wheels, rotatably mounted upon the bell-cranks of each axle, substantially as described.

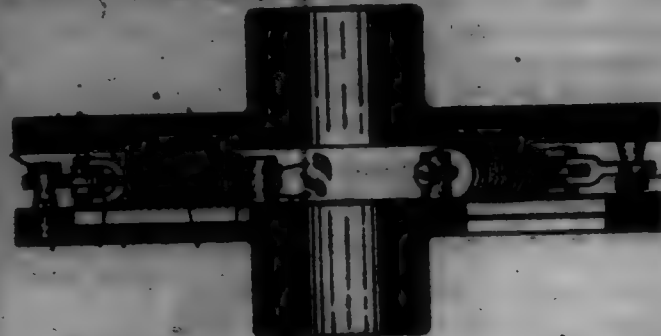
2. In a vehicle of the class described, the combination of a main-frame portion, an axle rockingly mounted in the rear part thereof, a central driving-wheel loosely mounted upon each axle, two rear supporting-wheels rotatably mounted upon the bell-cranks of each axle, and means for pivotally connecting the bell-cranks with the main frame, substantially as described.

3. In a vehicle of the class described, the combination of a main-frame portion provided with front steering and guiding wheels, a bell-crank axle rockingly mounted in the frame at the rear part thereof and provided with two rotatable trailing wheels one on each of the bell-cranks, a central driving-wheel loosely mounted upon the center of each rear axle, and means pivotally connecting the bell-cranks with the main frame, substantially as described.

700,773. SPRING SHAFT-COUPLING. GUNTER C. HUNT, JR., Gunterville, Ind. Filed Mar. 10, 1891. Serial No. 57,345. (No model.)

Claim.—1. In a spring-coupling for shafts, the combination, substantially as set forth, of a driving and a driven flange, a stud projecting from the driving-flange toward the driven flange, a stud projecting from the driven flange toward the driving-flange, a normally flexed toggle having its extremities pivoted at said studs, and a spring connected with said toggle and serving to elastically resist the change of figure of the toggle under the influence of the driving strain.

2. In a spring-coupling for shafts, the combination, substantially as set forth, of a driving and a driven flange, a stud projecting from the driving-flange toward the driven flange, a stud projecting from the driven flange toward the driving-flange, a normally flexed toggle having its extremities pivoted at said studs, and a spring connected with said toggle and serving to elastically resist the change of figure of the toggle under the influence of the driving strain.



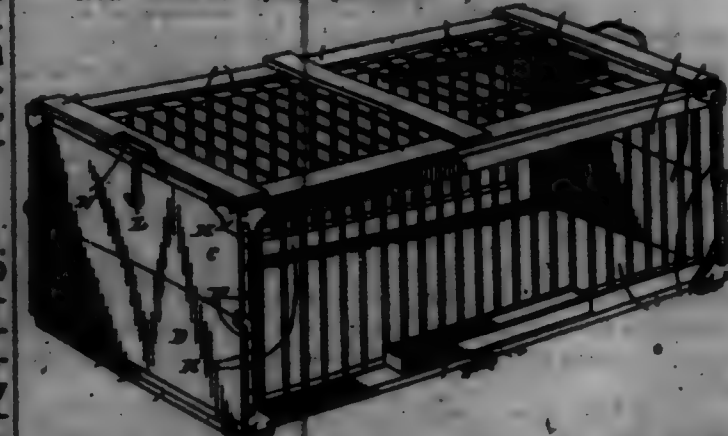
3. In a spring-coupling for shafts, the combination, substantially as set forth, of a driving and a driven flange, a stud projecting from the driving-flange toward the driven flange, a stud projecting from the driven flange toward the driving-flange, a normally flexed toggle having its extremities pivoted at said studs, and a helical spring having one of its ends attached to the intermediate pivot of the toggle and having its other end attached to one of said flanges, said spring serving to elastically resist the change of figure of the toggle under the influence of the driving strain.

4. In a spring-coupling for shafts, the combination, substantially as set forth, of a first flange, a second flange, a circular series of studs projecting from the first flange toward the second one, a circular series of studs, alternating with the first-mentioned studs and projecting from the second flange toward the first one, a series of inwardly-flexed toggles disposed between said flanges and having their forward extremities pivoted to studs of the first flange and their rearward extremities pivoted to studs of the second flange, a third circular series of studs carried by one of the flanges in a circle within the series of toggles, and helical springs having their inner ends attached to said third series of studs and having their outer ends connected to the intermediate pivots of the toggles.

5. In a spring-coupling for shafts, the combination, substantially as set forth, of a first flange, a second flange, studs projecting from the first flange toward the second flange, brackets carried by the first flange and engaging the outer projections of said studs, studs carried by the second flange and projecting toward the first flange, inwardly-flexed toggles with one of their extremities pivoted to said last-mentioned studs and their other extremities pivoted to the first-mentioned studs between the first flange and the brackets, inner additional studs carried by one of said flanges, and helical springs having their inner ends connected with said inner studs and having their outer ends connected with the intermediate pivots of said toggles.

6. In a spring-coupling for shafts, the combination, substantially as set forth, of a first flange, a second flange, studs projecting from the first flange toward the second flange, studs projecting from the second flange toward the first flange, inwardly-flexed toggles having members of unequal length and having one of their extremities attached to the first-mentioned studs and their other extremities attached to the last-mentioned studs, inner studs carried by one of said flanges, and helical springs having their inner ends attached to said inner studs and having their outer ends attached to intermediate pivots of said toggles.

700,774. FOLDING CRATE. WILLIAM C. HOLMES, Pittsburgh, Pa. assignor of one-half to Daniel Olmsted, Pittsburgh, Pa. Filed Dec. 24, 1890. Serial No. 46,914. (No model.)



Claim.—1. In a folding crate comprising the top, bottom, sides, and ends, the ends being composed of sections hinged together, the corner-

plates attached to the top and bottom and to which the end sections are pivotally connected, said corner-plates extending above the bottom and below the top, the sides of the crate being hinged to the top of the crate and adapted to swing downwardly and outwardly, the corner-plates limiting such outward movement of the sides, substantially as described.

2. A folding crate having a top, bottom, ends and sides, said sides being hinged to the under face of the top and adapted to open downwardly and outwardly, and a trough carried upon the outer face of the side adjacent to its lower end.

3. A folding crate comprising the top, bottom, ends and sides, the corner-plates, the straps attached to the ends, pivoted to the plate and to each other, each end being formed of hinged sections, and means for securing the crate in an open or folded position.

700,775. COMBINED RUBBER AND BUTTER-WORKER. THOMAS A. BOWEN, Orono, Minn. Filed Nov. 1, 1891. Serial No. 59,725. (No model.)



Claim.—1. The combination, with a revoluble drum, of rollers arranged therein and substantially parallel to each other, the axis of one roll being substantially coincident with the axis of the drum at one end of the drum, and the axis of the other roll being substantially coincident with the axis of the drum at the other end of the drum, means for operating said rolls, and means for operating said rolls.

2. The combination, with a revoluble drum, of a pair of rolls arranged in said drum, the axis of one roll being substantially coincident with the axis of the drum at one end of the drum, and the axis of the other roll being substantially coincident with the axis of the drum at the other end of the drum, means for revolving said drum, and means for revolving said rolls, substantially as described.

3. The combination, with a revoluble drum, of cross-heads arranged in said drum and each provided with a rotatable hub extending through a central opening in the head of the drum, a pair of rolls mounted in said cross-head, one of said rolls having a journal extending through the cross-head hub at one end of the drum, and the other roll having a journal extending through the cross-head hub at the other end of the drum, and means connected with said journals for driving said rolls.

4. The combination, with a revoluble drum, of cross-heads arranged in said drum, each of said cross-heads provided with a hub, projecting centrally through the head of the drum, means for locking said hub and cross-heads to the heads of the drum or to the frame of the machine, substantially as described.

5. The combination, with a revoluble drum, of cross-heads arranged therein, hubs or said cross-heads projecting centrally through the heads of the drum, a pair of rolls mounted in said cross-heads, the journal of one roll projecting through one of the cross-heads and its hub and a journal of the other roll projecting through the other cross-head and its hub, means for locking said cross-heads and hubs to the drum or to the frame of the machine, substantially as described.

frame of the machine, means for revolving said drum, and means for revolving said rolls, substantially as described.

6. The combination, with a revoluble drum, of cross-heads arranged within said drum, means extending centrally through the heads of the drum for supporting said cross-heads, a pair of rolls mounted in said cross-heads, each of said rolls having one of its journals extending through one head of the drum, means for revolving said drum, and means connected with said roll-journals for revolving said rolls.

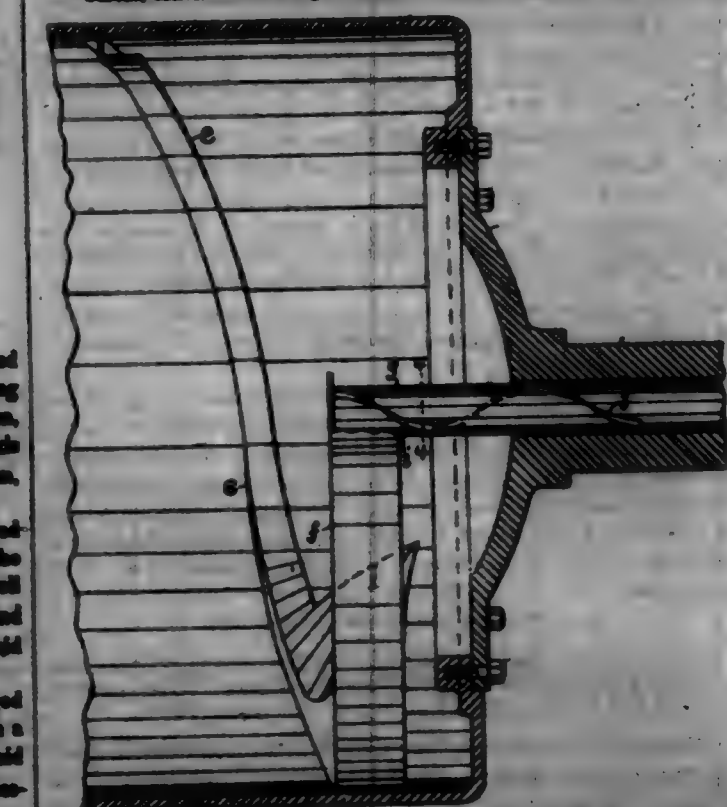
7. The combination, with a revoluble drum, of cross-heads arranged in said drum and each having a hub projecting centrally through one head of the drum, a pair of rolls mounted in said cross-heads, one of said rolls having a journal extending through one of said hubs and the other roll having a journal extending through the other hub, means for revolving said drum, and means for connecting said journals with said drum, whereby said rolls may be simultaneously rotated from said drum, substantially as described.

8. The combination, with the revoluble drum, of the cross-heads mounted therein and each provided with a hub extending through a central opening in the head of the drum, a clutch arranged upon each of said hubs and adapted to lock the cross-head and hub to the drum or to the frame of the machine, means for revolving said drum and means for revolving said rolls while said cross-heads are held stationary, substantially as described.

9. The combination, with a revoluble drum, of cross-heads arranged in said drum and each having a hub projecting centrally through one head of the drum, a pair of rolls mounted in said cross-heads, one of said rolls having a journal extending through one of said hubs and the other roll having a journal extending through the other hub, beveled gears connected to said journals and means for operating said gears, substantially as described.

10. The combination, with the revoluble drum of the cross-heads provided with central hubs extending through the heads of the drum, a sliding clutch arranged to lock said cross-head to the drum or to the machinery-frame and rotatable rolls arranged to said drum and mounted in said cross-heads, substantially as described.

700,776. DRYING CAN OR CYLINDER. ALFRED A. HUTTON, St. Louis, Mo. Filed Aug. 5, 1891. Serial No. 70,914. (No model.)



Claim.—1. The combination with a drying can or cylinder provided with a hollow transverse, of a reservoir communicating with said transverse, a spirally-arranged open gutter or conductor on the lower side of the can or cylinder communicating with said reservoir, and means within said hollow transverse for conducting the discharge of water of condensation, substantially as described.

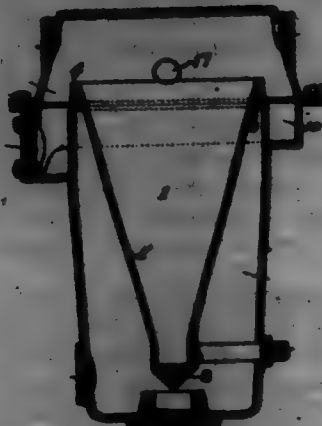
2. The combination with a drying can or cylinder provided with a hollow transverse, of a curved reservoir communicating with said transverse, a spirally-arranged open gutter or conductor on the lower side of the can or cylinder communicating with said reservoir and a spirally-arranged web or rib within said hollow transverse, substantially as described.

3. The combination with a drying can or cylinder provided with a hollow transverse, of a reservoir communicating with said transverse, a spirally-arranged open gutter or conductor on the lower side of the can or cylinder communicating with said reservoir, and a spirally-arranged web or rib within said hollow transverse, substantially as described.

arranged open gutter or condenser on the lower side of the can or cylinder communicating with said reservoir, and a web or rib within the hollow transverse and extended across the outlet-mouth of said reservoir, substantially as described.

4. The combination with a drying can or cylinder provided with a hollow transverse and with means for conveying water of condensation within the can to said hollow transverse, of means for conducting the discharge of the water of condensation through said hollow transverse, substantially as described.

700,777. CARBURETOR. EDWARD R. BROWN, Tipton, Ind. Filed Aug. 12, 1905. Renewed Oct. 2, 1905. Serial No. 77,816. (No model.)



Claim.—1. In a carburetor for gas-engines, an open, substantially conical chamber with downwardly-converging walls, air-pass leading to and from said conical chamber, a receiving and distributing trough located at or near the top of the converging walls of said conical chamber, means of introducing oil to and withdrawing same from said conical chamber, an exhaust-chamber of larger diameter than, and receiving said conical chamber, an annular escape-part at the top of said exhaust-chamber, an annular channel formed about the top of said exhaust-chamber, into which said escape-part leads, a port in the outer wall of said channel, means of admitting the condensed, exhaust products of a gas-engine to said exhaust-chamber, means of generating preliminary heat in the exhaust-chamber, about the walls of the generating-chamber; all constructed, combined and operating substantially as shown and described.

2. In a carburetor for gas-engines, a carbureting-chamber with downwardly-converging walls, an oil receiving and distributing trough located at the top of said carbureting-chamber, a cover superimposed above said carbureting-chamber, parts in said cover, adapted for the passage of air therethrough, an exhaust-chamber adapted to receive and envelop said carbureting-chamber, a port leading to said exhaust-chamber, a passage leading from said exhaust-chamber of greater circumference than said of the same area as said inlet-port, all constructed and combined substantially as shown and described.

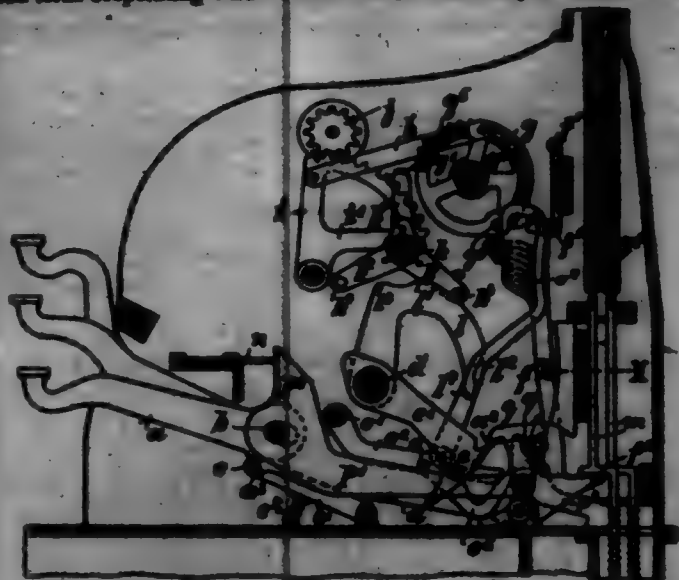
3. In a carburetor for gas-engines, the combination of an exhaust-chamber, an inlet-part leading to said chamber, an escape-part leading from said chamber, an annular channel formed about said exhaust-chamber with which said escape-part communicates, a port communicating from said annular channel to the atmosphere; all so combined, located and proportioned as to draw or suck the steam of the exhaust of the gas-engine to which said carburetor is attached, substantially as shown and described.

700,778. CARBURETOR. EDWIN E. JAMES, Westend, Germany, assignor to Dr. Paul Mayer & Co., Berlin, Germany. Filed Aug. 12, 1905. Serial No. 77,807. (No model.)

Claim.—1. In a carburetor of the like and in combination, a plurality of pusher-bars having hammer-shaped heads, lay-levers to which said bars are pivoted, an adding mechanism, a special reversible stir for each set of lay-levers having a bar and adapted to drive the adding mechanism, a coupler for all the lay-levers, and a swinging frame for each set of lay-levers, the pusher-bars during the rotation of the stir touching always with one side surface the corresponding stir and with the other side the bar of the stir, substantially as described.

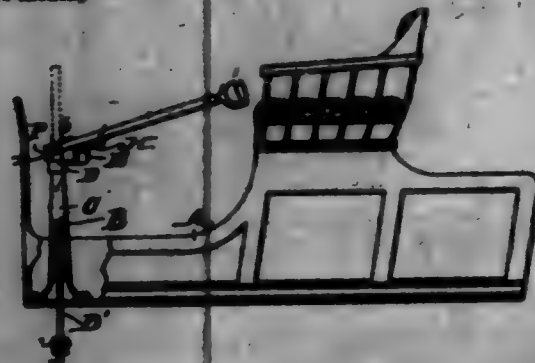
2. In a carburetor of the like and in combination, a plurality of pusher-bars having hammer-shaped heads, lay-levers to which said bars are pivoted, an adding mechanism, a special reversible stir for each set of lay-levers adapted to drive the adding mechanism, a coupler for all the lay-levers, and a swinging frame for each set of lay-levers, the pusher-bars during the rotation of the stir touching always with one side surface the corresponding stir and with the other side the bar of the stir, substantially as described.

3. In a carburetor of the like and in combination, a plurality of pusher-bars having hammer-shaped heads, lay-levers to which said bars are pivoted, an adding mechanism, a special reversible stir for each set of lay-levers adapted to drive the adding mechanism, a coupler for all the lay-levers, and a swinging frame for each set of lay-levers, the pusher-bars during the rotation of the stir touching always with one side surface the corresponding stir and with the other side the bar of the stir, substantially as described.



4. In a carburetor of the like and in combination, a plurality of pusher-bars having hammer-shaped heads, lay-levers to which said bars are pivoted, an adding mechanism, a special reversible stir for each set of lay-levers adapted to drive the adding mechanism, a coupler for all the lay-levers, and a swinging frame for each set of lay-levers, the pusher-bars during the rotation of the stir touching always with one side surface the corresponding stir and with the other side the bar of the stir, substantially as described.

700,779. STEERING APPARATUS FOR VEHICLES. ALBERT W. KENT, Boston, Mass. Filed Dec. 17, 1905. Serial No. 46,000. (No model.)



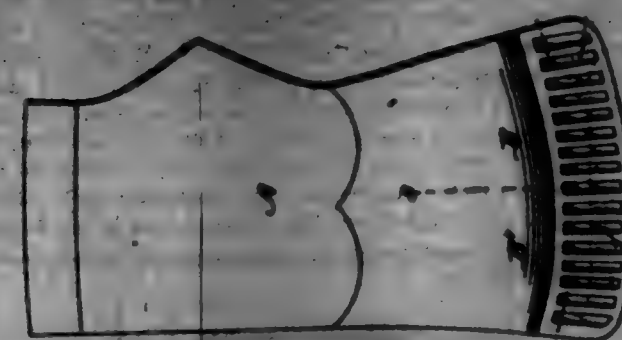
Claim.—1. In a wheeled vehicle, an upright shaft connected to the running-gear and a vertical shaft or extension of such shaft connected to the vehicle-body and telescoping with said upright shaft, for relative longitudinal without independent rotary movement, in combination with a steering-bar horizontally pivoted on such vertical extension, and with an adjustable locking device therefor, said extension having no vertical movement independent of the vehicle-body, substantially as set forth.

2. In a wheeled vehicle, a vertical shaft connected to the running-gear, a tubular vertical extension telescoping therewith, and a hollow column or guard surrounding such extension, and fixed to the vehicle-body, in combination with a steering-bar pivoted to said shaft, an adjustable locking-piece carried on said bar, and a lateral arm extending from said column or guard and notched marginally to engage such locking-piece when desired, substantially as set forth.

3. In a wheeled vehicle, a vertical shaft pivotedly connected to the running-gear, a metallic guard surrounding such shaft and a lateral arm notched marginally and supported by said column or guard, in combination with a tubular steering-bar connected to said shaft, a locking-piece mounted in a recess in said tubular bar and a movable rod or tube within such bar serving to operate said locking-piece, substantially as set forth.

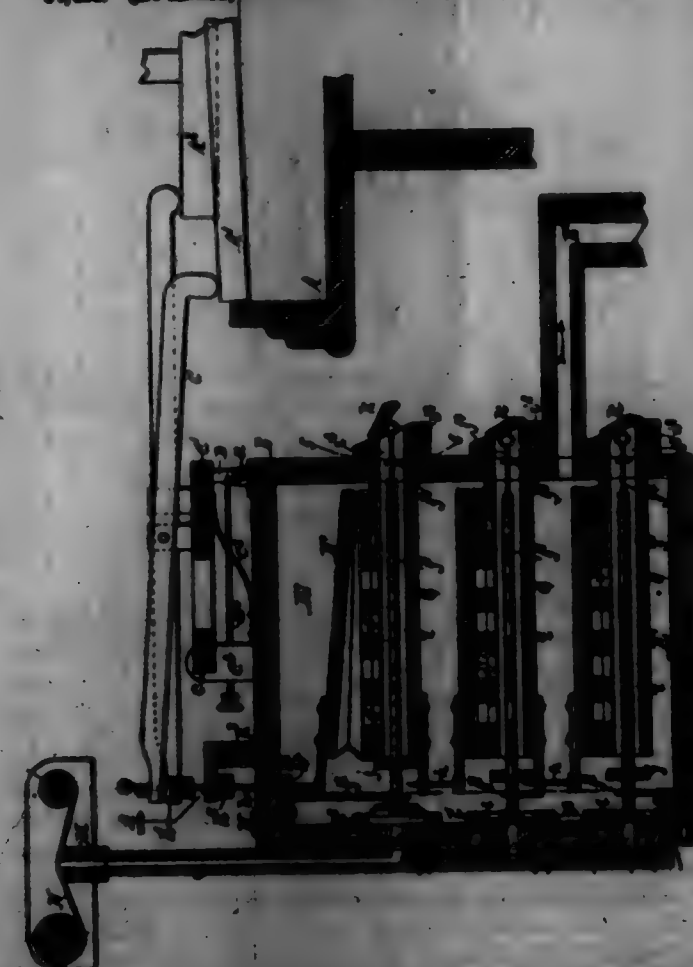
4. In a wheeled vehicle, a vertical shaft connected to the running-gear, a hollow column or guard surrounding such shaft and a lateral arm or flange, notched marginally, adjacent to said guard, in combination with a steering-bar connected to said shaft by a horizontal pivot so as to oscillate such shaft by a lateral movement and to swing vertically without moving it, and with a suitable spring permitting horizontal movement of the steering-bar but controlling its vertical movement, substantially as set forth.

700,780. AX-HEAD. CALVIN EMM. WATSON, Pa. Filed Oct. 2, 1905. Serial No. 77,878. (No model.)



Claim.—As an improved article of manufacture an ax-head having a series of parallel grooves produced in its opposing faces adjacent to the cutting edge, said opposing faces being ground away above the series of grooves, and the intervening ridge portion extending across the upper ends of the grooves, substantially as set forth.

700,781. AUTOMATIC JOURNAL INSTRUMENT. EDWARD E. KLEIN, North Tonawanda, N. Y. Filed July 3, 1905. Serial No. 67,600. (No model.)



Claim.—1. The combination with a wind-chest having an opening of a sound-controlling member, a pneumatic communicating with said wind-chest, a cylinder operated by said pneumatic and passing through the opening of the wind-chest, and a collapsible coil applied to said opening and consisting of a tube having transverse bellows folds, said tube being secured at one end to the wind-chest and provided at its other end with a closed head which is caused to said cylinder, substantially as set forth.

2. The combination with a wind-chest and a movable sound-controlling member, of a motor-pneumatic for said member arranged in the wind-chest, an air-channel arranged parallel with said pneumatic, communicating with the latter and opening at its lower end into the wind-chest and at its upper end into the atmosphere, oppositely-opening valves applied to the lower and upper ends of said channel, a valve-rod movable lengthwise in said channel and arranged to open said valves alternately, and an actuating device for said rod, substantially as set forth.

3. The combination with a wind-chest and a movable sound-controlling member, of a motor-pneumatic for said member arranged in the wind-chest, an air-channel arranged parallel with said pneumatic, communicating with the latter and opening at its lower end into the wind-chest and at its upper end into the atmosphere, a valve controlling the outer end of said channel, a valve-rod extending lengthwise through said channel and arranged to engage said valve for opening it, a second valve

controlling the inner end of said channel and carried by said rod, and an actuating device for said valve-rod, substantially as set forth.

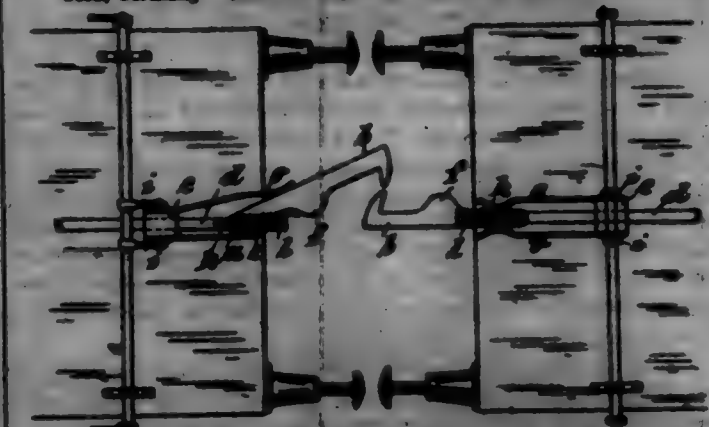
4. The combination with a wind-chest and a movable sound-controlling member, of a motor-pneumatic for said member arranged in the wind-chest, an air-channel arranged parallel with said pneumatic, communicating with the latter and opening at its lower end into the wind-chest and at its upper end into the atmosphere, a valve controlling the outer end of said channel, a valve-rod extending lengthwise through said channel and arranged to engage said valve for opening it, a second valve controlling the inner end of said channel and carried by said rod, an air-chamber having a flexible diaphragm arranged to engage said valve-rod, and a truss having a dust leading to said air-chamber, substantially as set forth.

5. The combination with a wind-chest and a movable sound-controlling member, of a motor-pneumatic for said member arranged in the wind-chest, an air-channel arranged lengthwise on the outer side of said pneumatic and provided in its upper side with a dust leading into the pneumatic, the lower end of said channel opening into said wind-chest and its outer end opening into the atmosphere, oppositely-opening valves applied to the ends of said channel, a sliding valve-rod arranged lengthwise in said channel, carrying the inner valve of the channel and arranged to open the outer valve thereof when the inner valve is closed, an air-chamber having a flexible diaphragm arranged to engage said valve-rod, and a truss having a dust leading to said air-chamber, substantially as set forth.

6. The combination with a wind-chest and a movable sound-controlling member, of a motor-pneumatic for said member arranged in the wind-chest, an air-channel communicating with said pneumatic and opening at its lower end into said chest and at its upper end into the atmosphere, oppositely-opening valves applied to the ends of said channel, a valve-rod movable lengthwise in said channel, carrying the inner valve of the channel and provided at its outer end with an adjustable stem arranged to bear against the outer valve of said channel, and an actuating device for said valve-rod, substantially as set forth.

7. The combination with a wind-chest having a removable front plate, of a board or support arranged horizontally in the wind-chest and provided with a series of horizontal air-channels which open at their front ends into the wind-chest and at their rear ends into the atmosphere, a series of motor-pneumatics arranged upon said channelled board and communicating with the channels thereof, valves applied to the front and rear ends of each of said channels, a valve-rod for operating said valves arranged in each channel and extending beyond the front and thereof, and air-chambers carried by the removable front plate of the wind-chest and provided with flexible diaphragms which are arranged to operate said valve-rod, substantially as set forth.

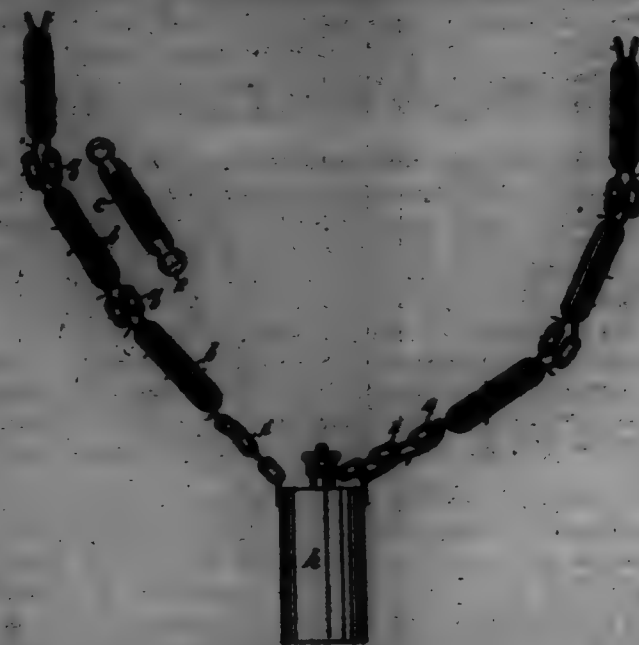
700,782. SIDE COUPLING FOR RAILROAD-CARS. FLEISS KERN, Elm, Germany. Filed Feb. 2, 1905. Serial No. 68,900. (No model.)



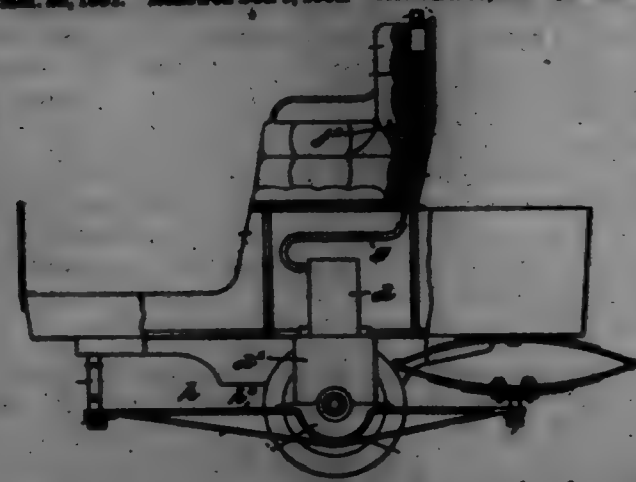
Claim.—In a side coupling for railroad-cars, the combination of a square bar d, arranged underneath the car, sliding pieces c, adapted to be longitudinally displaced by lever mechanism (outside of the car, horizontal coupling-hooks b, pivoted in a slot of the bar, the said hooks having clamping impact-surfaces and being provided with lateral elevations or shoulders / against which the springs e, arranged upon the said sliding pieces, are adapted to bear, upon the forward movement of the sliding pieces c, whereby the coupling-hooks are laterally displaced, and of counter-springs e adapted to bring back and retain the hooks in a parallel position with the bar d, all essentially as and for the purpose set forth.

700,788. GALVANO-ELECTRO-THERAPEUTIC CHAIR. ADOLF KLEIN, Berlin, Germany, assignor to The Firm of Handelsgeellschaft Adolf Winter, Berlin, Germany. Filed Mar. 19, 1905. Serial No. 68,970. (No model.)

Claim.—In a galvanic-electric therapeutic chain, the combination of a plurality of chain-links, each consisting of a copper and a zinc cup separated by a moisture-absorbing material, the like poles of the galvanic elements, formed by the links, being connected to each other, with a galvanic dry battery inserted between two adjacent links of the chain, the poles of which battery are connected to the like poles of the chain, substantially as described and for the purpose set forth.



700,784. AUTOMOBILE. ALBERT L. KELL, Camden, N. J. Filed Mar. 22, 1901. Renewed Dec. 9, 1901. Serial No. 55,269. (No model.)



Claim.—1. In an automobile or similar motor-vehicle, a frame, consisting of longitudinally-arranged transverse members, each brace, consisting of an upper horizontal member, bowed or belled downward to receive the bearings of an explosive-engine, and a lower arch-like member opening the ends of the upper horizontal member and supporting the bowed portion thereof, a front and rear axle connected by said frame, a body supported directly upon the axles, an oil tank or receptacle supported on said body, an engine supported directly by the frame, and a flexible connection between the tank and the engine, substantially as and for the purpose described.

2. In an automobile or similar motor-vehicle, a frame, consisting of transverse-like braces arranged to connect the axles of the vehicle, each brace being downwardly bowed, an engine having its bearings supported by the bowed portion of the braces, a body supported directly upon the axles and disconnected from the frame, a tank or receptacle carried by the body, mixing and explosion chambers for the engine, projecting upward from the engine into the body of the vehicle and a flexible connection extending from the mixing and explosion chambers to the tank or receptacle, substantially as and for the purpose described.

3. In an automobile or similar motor-vehicle, a frame provided with braces arranged to connect the axles of the vehicle, an engine supported by said braces, a body carrying a tank or receptacle, mixing and explosion chambers for the engine extending therefrom into the body of the vehicle, and a flexible connection from the mixing or explosion chambers to said tank or receptacle, substantially as and for the purpose described.

700,785. MUFFLER FOR ENGINES OR OTHER MACHINES. ALBERT L. KELL, Camden, N. J. Filed Mar. 22, 1901. Renewed Dec. 9, 1901. Serial No. 55,261. (No model.)

Claim.—1. A muffler, comprising a tube constituting the main body of the muffler, a frusto-conical tube extending one end of said tube with the exhaust-pipe and constituting an expanding-chamber for the exhaust-gases, a partition located at the inlet end of the expanding-chamber and within the body of the muffler, said partition having a series of openings, each of which is substantially equal in cross-sectional area to the area of the exhaust-pipe, and a series of tapered tube-like fingers extending within the body of the muffler from the openings in said partition, the area of the conical outlet of the fingers being substantially equal to the area of the inlet of one of said fingers, and the inlet of one of said fingers being arranged in alignment with the exhaust-pipe, substantially as and for the purpose described.



2. A muffler, comprising a tube constituting the main body of the muffler, a partitioned partition closing the outlet end of said body, a frusto-conical tube connecting the entrance end of said body with the exhaust-pipe, a partition arranged at or near the entrance end of said body and provided with a series of openings corresponding to the opening in the exhaust-pipe, one of said openings being in alignment with the exhaust-pipe and a series of tapered tubes projecting from the openings in the partition into the body of the muffler, the area of the conical outlet of said fingers being approximately equal to the area of the exhaust-pipe opening, substantially as and for the purpose described.

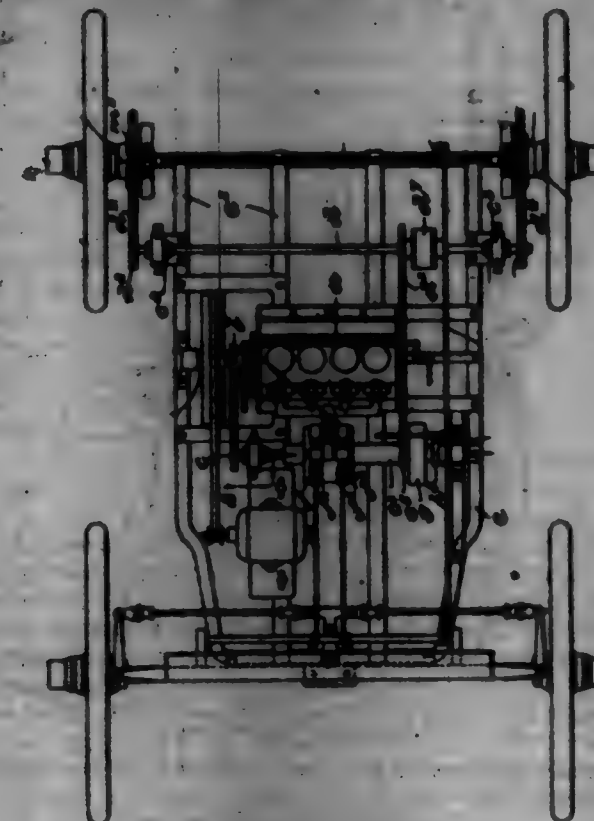
3. A muffler, comprising a tube constituting the main body of the muffler, a frusto-conical tube connecting one end of said body to the exhaust-pipe, a partition located between the frusto-conical tube and the body of the muffler, said partition having a series of openings each corresponding in area to the area of the exhaust-pipe outlet, and a series of tapered open-ended tubes extending from said openings into the body of the muffler, the walls of each tapered tube being perforated, substantially as and for the purpose described.

4. A muffler, comprising a tube constituting the main body of the muffler, a frusto-conical tube connecting one end of said body with the exhaust-pipe, a partition arranged within the main body adjacent to the frusto-conical tube, said partition having openings each corresponding in area to the area of the exhaust-outlet, a series of tapered tubes projecting from the openings into the main body of the muffler, a second partitioned partition and a second series of tapered tubes projecting therefrom and corresponding in the first partition and first series of tapered tubes, said second partition and tapered tubes being arranged within the main body of the muffler and intermediate of the first, substantially as and for the purpose described.

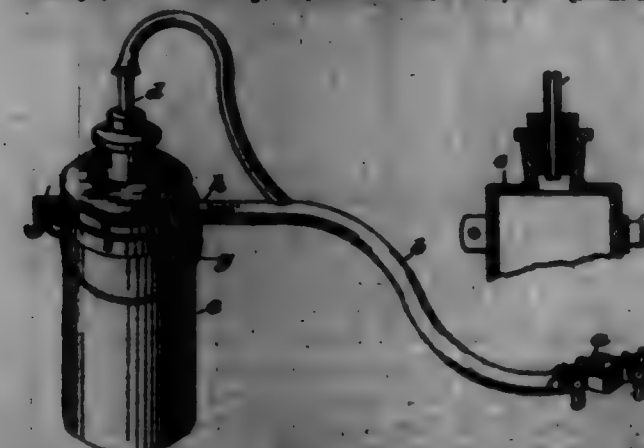
700,786. DRIVEN MECHANISM FOR AUTOMOBILES. ALBERT L. KELL, Camden, N. J. Filed Apr. 2, 1901. Renewed Dec. 9, 1901. Serial No. 55,262. (No model.)

Claim.—In an automobile, a shaft driven directly by the main driving-shaft, a cleave surrounding the driven shaft, a sprocket-wheel carried

to said cleave, a housing carried by said cleave, a disk carried by the driven shaft, a split ring secured to said disk, and extending within the housing, a toggle connection between the free ends of said ring and means for expanding said toggled connection to clamp the band and disk to the housing, substantially as and for the purpose described.



700,787. LIQUID-SOAP CONTAINER. LEWIS G. LAMMART, Brooklyn, N. Y. Filed Apr. 25, 1901. Serial No. 57,450. (No model.)



Claim.—1. A liquid-soap container, the same consisting of a receptacle for the soap, pivoted to permit its opening upward, a closure for said opening fixed in each position as normally to close the same, and a device carried upon said receptacle for tilting the same, substantially as and for the purpose described.

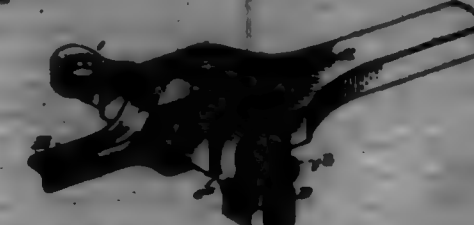
2. In a liquid-soap container, the combination of a bracket, a collar carried thereby on a substantially horizontal pivot, a tilting device upon said collar, a receptacle held by said collar, and a closure carried by the prolongation of said bracket, against which the weight of the receptacle causes the latter to be normally closed, substantially as described.

3. In a liquid-soap container, the combination of a bracket, a collar carried thereby on a substantially horizontal pivot, a receptacle held by said collar, and a closure fixed in each position that the weight of said receptacle normally forces the opening of the latter against said closure, substantially as described.

700,788. KEY-LOCK FOR DOOR. HOWARD R. LEVITT, Montclair, N. J., and JOHN W. FULTON, Apple River, Ill. Filed Jan. 24, 1902. Serial No. 57,282. (No model.)

Claim.—1. The combination with the connection members A and B, having sliding bolt-openings; of the bolt U having a bifurcated outer end, the latch D having a shaft pivotedly hung on the said outer end, and a weighted extension, and the washer E having a bolt-opening, a prong member provided with a disk engaging with the bolt-opening, the inner side of said washer having means projecting over and engaging the

member A to prevent it from swinging on or with the bolt, as shown and described.



2. The combination with the parts A and B, and the bolt U, said bolt having a bifurcated extension; of the latch D, pivotedly hung on said bifurcated bolt end and having a weighted outer end, adapted to be swung into longitudinal alignment with the bolt, and the washer E apertured to loosely hang on the bolt, said washer having a slotted opening with its bolt-opening, and having on its inner face projections to engage the opposite edges of the member A, all being arranged substantially as shown and for the purpose described.

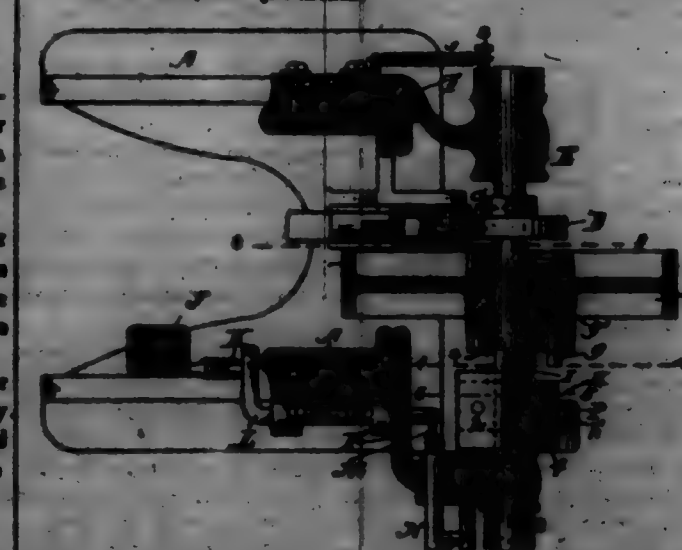
700,789. ORG-CHUTE AND TRAP-DOOR. JOHN A. LEBALL and HENRY MATTHEW, Two Harbors, Minn. Filed Dec. 27, 1901. Serial No. 57,598. (No model.)



Claim.—1. In a mechanism for regulating the flow of ore or material in transporting same from one receptacle to another, the combination of two rods extending from the top of a pocket down to the lower end of the same and there secured, suitable trap-doors being secured on said rods, said doors being provided with suitable pins or projections, suitable cog-wheels being secured on the upper end of said rods, said cog-wheels intermeshing with each other, a suitable lever being secured on one of said rods, a suitable stopper to engage said lever, a smaller cog-wheel intermeshing with one of the main cog-wheels secured on the rods, said smaller cog-wheel being actuated by a lever, substantially as described and shown.

2. In a mechanism for regulating the flow of ore or material from a pocket or other receptacle, the combination of rods provided in or about the sides of a pocket, extending from the top to the bottom of same, doors being secured on the lower end of said rods and suitable cog-wheels being provided at the upper end of said rods, said cog-wheels intermeshing each other, a smaller cog-wheel intermeshing one of said large cog-wheels, both of said cog-wheels being operated by a lever, which lever engaging a suitable stopper, a suitable sliding-bar provided with a series of projecting pins preferably placed at right angles, substantially as described and shown.

700,790. MECHANISM FOR OPERATING MACHINES FOR ATTACHING BUTTORS. DR. THOMAS LOWN, Boston, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed May 24, 1902. Serial No. 17,795. (No model.)



Claim.—1. In mechanism for operating machines for attaching buttors, or for other purposes, the combination of a constantly-driven mechanism; a toggle-joint lever; means for operating said lever, said means being normally out of operative connection with the driven mechanism; and a suitable-actuated power snap-mechanism for positively moving said means into operative connection with the driven mechanism, said mechanism automatically preventing a movement in excess of a single revolution of the driven mechanism, regardless of the position of the toggle.

2. In mechanism for operating machines for attaching buttons, or for other purposes, the combination of a constantly-driven mechanism; a toggle-joint lever; means for operating said lever, said means being normally out of operative connection with the driven mechanism; and a treadle-actuated power stop mechanism for positively moving said means into operative connection with the driven mechanism, said connection being held substantially non-yielding during the major portion of the revolution of the driven mechanism, said mechanism substantially preventing a movement in excess of a single revolution of the driven mechanism, regardless of the position of the treadle.

3. In mechanism for operating machines for attaching buttons, or for other purposes, the combination of a constantly-driven mechanism; a toggle-joint lever; means for operating said lever, said means being normally out of operative connection with the driven mechanism; a treadle-actuated power stop mechanism for positively moving said means into operative connection with the driven mechanism; and means for automatically disengaging said connection at a predetermined point in the revolution of the driven mechanism irrespective of the position of the treadle.

4. In mechanism for operating machines for attaching buttons, or for other purposes, the combination of a constantly-driven mechanism; a toggle-joint lever; means for operating said lever, said means being normally out of operative connection with the driven mechanism; a treadle-actuated power stop mechanism for positively moving said means into operative connection with the driven mechanism; and means for automatically disengaging said connection at a predetermined point in the revolution of the driven mechanism irrespective of the position of the treadle, said means being operated at a plurality of points.

5. In a mechanism for operating machines for attaching buttons, or for other purposes, a toggle-joint lever having a treadle pocket or notch, a treadle in said pocket and power-driven mechanism mounted to intermittently impart a movement to said lever, said mechanism being independent of and having no positive connection with said toggle, whereby the lever may be moved independently by treadle or power-driven mechanism.

6. In a mechanism for operating machines for attaching buttons, or for other purposes, a treadle-actuated stop mechanism comprising a splined driving-shaft and a loose hub-toothed pulley on said shaft, in combination with an ejector and treadle-actuated sliding latched dog automatically held in operative position during the greater portion of the rotation of the shaft, and tooth-disengaging mechanism operating automatically regardless of the position of the treadle; substantially as shown and described.

7. In a mechanism for operating machines for attaching buttons, or for other purposes, a treadle-actuated stop mechanism comprising a splined driving-shaft, and a loose hub-toothed pulley on said shaft, in combination with a sliding dog latched to said shaft, springs for normally holding said dog out of engagement with said pulley, a plate having a dog-receiving depression, a treadle-actuated ejector-rod U, and means for automatically disengaging said dog and pulley regardless of the position of the treadle, substantially as shown and described.

8. In a mechanism for operating machines for attaching buttons, or for other purposes, a stop mechanism comprising a splined driving-shaft, a loose hub-toothed pulley on said shaft, in combination with a sliding dog latched to said shaft and having a cam-lug A, a cam-plate having a dog-receiving depression and a lug-engaging cam, and an ejector whereby said shaft makes one and but one revolution at each stroke of the ejector, substantially as shown and described.

9. In a mechanism for operating machines for attaching buttons, or for other purposes, a stop mechanism comprising a splined driving-shaft, a spring-actuated cam-pin A, and a loose hub-toothed pulley mounted on said shaft, in combination with a sliding dog latched to said shaft and normally held in inoperative position, a cam-plate having a dog-receiving depression, and a treadle-actuated ejector-rod U, substantially as shown and described.

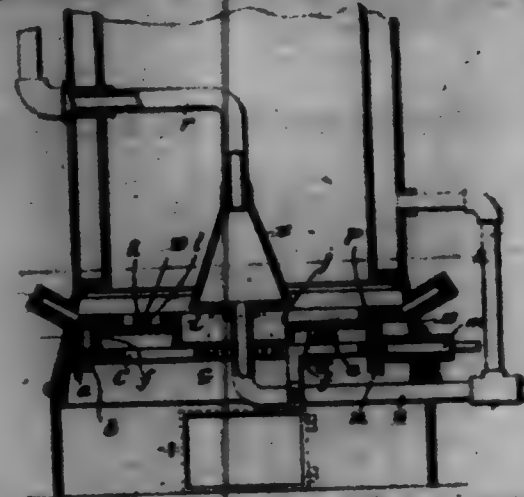
10. In a mechanism for operating machines for attaching buttons, or for other purposes, a toggle-joint lever and a roller C, thereon, in combination with a driven shaft, a cam fixed on said shaft, a spring-pin B slidable thereon, a power stop mechanism for driving the shaft, comprising a loose hub-toothed pulley, a sliding latched dog normally held in inoperative position, a cam-plate having a dog-receiving depression, and a treadle-actuated ejector-rod, all substantially as shown and described.

11. In a mechanism for operating machines for attaching buttons, or for other purposes, a toggle-joint lever and a buffer C carried thereby, in combination with a power-driven cam, said buffer being adapted to operate on the active face of said cam, substantially as shown and described.

12. In a mechanism for operating machines for attaching buttons, or for other purposes, a treadle-actuated stop mechanism comprising a splined driving-shaft, a loose pulley having a spring-pressed tooth in its hub, in combination with an ejector and treadle-actuated sliding latched dog normally held out of engagement with said tooth and automatically held latched in operative position during the greater portion of the re-

vision of the shaft, and tooth-disengaging mechanism operating automatically regardless of the position of the treadle, substantially as shown and described.

700,791. HEATER. CLARENCE C. LEONARD, Halifax, Canada. Filed Oct. 24, 1901. Serial No. 73,572. (No model.)



Claim.—A water-heater comprising a fire-pot, a grate at the base of the fire-pot, provided with a large, central opening, the hollow, cone-shaped, combined water-chamber and fuel support and deflector arranged in the center of the fire-box with its reduced upper end and its lower end so arranged with respect to the central opening in the grate as to permit the escape of ashes and prevent the escape of fuel through said opening, a water-supply pipe connected to the wall of the heater and the combined water-chamber and fuel support and deflector, and a discharge-pipe also connected to said water-chamber and fuel support and deflector and the wall of the heater.

700,792. MAGAZINE-CAMERA. DAVID A. LOWTHIAN, London, England. Filed Oct. 31, 1901. Serial No. 59,627. (No model.)



Claim.—1. A means for loading and unloading photographic cameras with plates comprising a case adapted to contain the plates placed alternately together with their backing-sheets and having its front side formed from a flexible strip of non-elastic material so attached as to be easily torn away from the case in order to uncover the foremost plate therein, and a camera provided at its back end with a door for introducing and with a shelf for supporting the said case and further provided with a bar sliding light-tightly therein so placed as to admit of receiving the plates after their exposure, the said sliding bar being provided with a sliding lid, as set forth.

2. A photographic camera comprising a transversely-arranged shelf d forming a ledge for supporting the plates, a bar c—with movable lid c'—sliding light-tightly within the camera between the bottom thereof and the shelf d and adapted to contain the plates after exposure, a door e formed to allow access to the plate-holding compartment formed between the walls of the camera and the shelf d in combination with a case c adapted to be placed on the shelf d within the camera and to contain plates e placed alternately with their backing-sheets f and having a front side formed from a flexible strip g of non-elastic material attached to the case by covering-strips h of weaker material than the strip g, which strip g is doubled on itself in order that its free end may be passed over the shelf d to protrude from the camera and on being pulled uncover the first plate ready for exposure, as set forth.

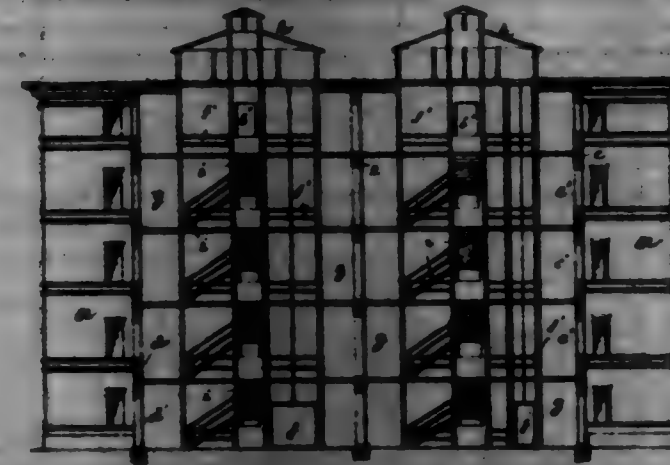
700,793. PROCESS OF STIFFENING AND MAKING IMPERVIOUS TO WATER STARCH-FILLER AND IRONED LAUNDRY-FINISHED CLOTHING OF ROBIN OF COLLARS, CUFFS, &c. HENRY A. HALL, New York, N. Y., assignor to the American Company, Albany, N. Y., a Corporation of New York. Filed Apr. 22, 1902. Serial No. 56,062. (No specimens.)

Claim.—1. The process above described for increasing the stiffness of a starch-filled and laundry-finished collar, cuff, &c., by means of soluble cotton and so that said stiffness arising from the presence of said soluble cotton may readily be removed from the same by washing in heated alkaline water, the same consisting in forcing, under pressure of suitable revolving flexible rollers, into the substance of the body of said starch-filled and laundry-finished article a solution of soluble cotton and amylose, acetone, &c., in condition of consistency described and freeing the surface of said article from all appearance of said solution, substantially as herein described.

2. The process above described for increasing the stiffness of a starch-filled and laundry-finished collar, cuff, &c., and making the body of the same impervious to perspiration and to water, in natural condition, and so that the said stiffness and imperviousness, arising from the presence of said soluble cotton, may readily be removed from the body of the said article by heated alkaline-water washings, the same consisting in forcing, (under pressure of suitable revolving flexible rollers,) into the substance of the starch-filled and laundry-finished body, of the article, a solution of soluble cotton and amylose, acetone, &c., in condition of consistency described and freeing the surface of the article from all appearance of said solution, substantially as described.

3. The product of the herein-described process, the same consisting of a collar, cuff, &c., having a starched and ironed and laundry-finished body of fabric which is stiffened over normal laundry-produced stiffness and made impervious to perspiration and water, in natural condition, by means of soluble cotton contained in a suitable quantity in the combined substance of the body of said article, but wholly absent, in appearance from the surface of the same, and adapted to be wholly removed from said body by heated alkaline-water washings as practiced for washing soiled articles, substantially as described.

700,794. BUILDING. JOHN A. MARTIN-COOK, Arlington, N. Y., assignor of one-half to Thomas R. Inman, New York, N. Y. Filed Feb. 12, 1902. Serial No. 54,728. (No model.)



Claim.—A building composed of two rows of obliquely-set wings, opening each other, and forming intermediate halls, exterior walls connecting adjoining wings at their angles, a light-shaft within the center of each hall, a surrounding continuous landing, and a staircase within the light-shaft induced by the landing, substantially as specified.

700,795. LINE SPREADER AND GUIDE. THEODORE E. HATHAWAY, Milwaukee, Wis., assignor to Hiram L. Lewis & Adams and Samuel J. Hall, Waterbury, Conn., and David G. Webster, Oyster, N. J., a Partnership. Filed Sept. 23, 1901. Serial No. 71,002. (No model.)



Claim.—1. A spreader or guide for a line or strap, consisting of side bars or members, each provided at a corresponding end with an extension projecting laterally at an angle therefrom, the said extensions being pivoted together, and each extension being prolonged laterally beyond the pivotal point, said prolongations adapted to register and overlap each other, when the side bars or members are made to approach each other, a roller being located at the opposite ends of the side bars or members, said roller being rotatably engaged with the side bars or members, when said side bars or

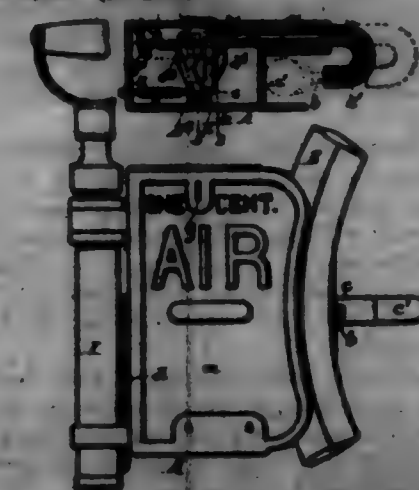
members are made to approach each other, and said roller being disengaged from the side bars or members when the latter are turned on their pivot away from each other, and means constructed to releasably engage the extensions, when the side bars or members are turned in a direction to cause the extensions to approach each other, and the prolongations thereof to overlap.

2. A spreader or guide for a line or strap, consisting of side bars or members each provided at a corresponding end with a slotted extension projecting laterally at an angle therefrom, the said extensions being pivoted together, and the opposite end of each side bar or member provided with an inwardly-extending stud, a roller provided with an axial opening which the studs are adapted to engage, when the side bars or members are turned in a direction to bring the studs toward each other, and a strap, or other securing means, adapted to be passed through the slot of the extension, when the side bars or members are turned in a direction to cause the extensions to approach each other and the respective slots to register.

3. A spreader or guide for a line or strap, consisting of side bars or members each provided at a corresponding end with a slotted extension projecting laterally at an angle therefrom, the said extensions being pivoted together, a roller located at the opposite ends of the side bars or members, said roller being rotatably engaged with the side bars or members, when said side bars or members are made to approach each other, and said roller being disengaged from the side bars or members when the latter are turned on their pivot away from each other, and a strap, or other securing means, adapted to be passed through the slot of the extension, when the side bars or members are turned in a direction to cause the extensions to approach each other and the respective slots to register.

4. A spreader or guide for a line or strap, consisting of side bars or members each provided at a corresponding end with an extension projecting laterally at an angle therefrom, the said extensions being pivoted together, and each extension being prolonged laterally beyond the pivotal point, said prolongations adapted to register and overlap each other when the side bars or members are made to approach each other, and the opposite end of each side bar or member provided with an inwardly-extending stud, a roller provided with an axial opening which the studs are adapted to engage when the side bars or members are turned in a direction to bring the studs toward each other, and means constructed to releasably engage the extensions, when the side bars or members are turned in a direction to cause the extensions to approach each other and the prolongations thereof to overlap.

700,796. ONE-CONTROLLED TIME-INFLATOR. RAYMOND S. HOLTMAN, Buffalo, N. Y. Filed Dec. 24, 1900. Renewed Oct. 7, 1901. Serial No. 77,008. (No model.)



Claim.—1. The combination with a wheel-holding jaw or rack, of an air-supply conduit, an air-delivery nozzle which is movable toward and from said jaw or rack, means for guiding said nozzle, and a one-controlled mechanism whereby the supply of air to said nozzle is controlled, substantially as set forth.

2. The combination with a wheel-holding jaw or rack, of an air-supply conduit, an air-delivery nozzle which is movable toward and from said jaw or rack, means for guiding said nozzle, a valve arranged in the air-supply conduit, and a one-controlled mechanism whereby said valve is opened, substantially as set forth.

3. The combination with a wheel-holding jaw or rack, and a one-controlled valve which controls an air-supply conduit, of a movable air-delivery nozzle, which is connected with said conduit and which is movable toward and from the jaw to be inflated, and a spring whereby the nozzle is yieldingly held in its forward or backward position, substantially as set forth.

4. The combination with a wheel-holding jaw or rack, of an air-

supply conduit, an air-delivery nozzle having its discharge end movable toward and from the mouth of said jaw or rack for locking the wheel in the same, means for guiding the discharge end of said nozzle, a valve which controls the flow of the air to said nozzle, and a coin-controlled mechanism whereby said valve is opened, substantially as set forth.

5. The combination with a wheel-holding jaw or rack, of an air-supply conduit, a sliding air-delivery nozzle arranged on one side of said jaw or rack and having a bent discharge end which flows the mouth of said jaw or rack, means for guiding said nozzle, a valve which controls the flow of the air to said nozzle, and a coin-controlled mechanism whereby said valve is opened, substantially as set forth.

6. The combination with a wheel-holding jaw or rack and a fixed air-supply conduit connected therewith, of a sliding air-delivery nozzle arranged on one side of said jaw or rack and having a bent discharge end which flows the mouth of said jaw or rack, means for guiding said nozzle, a flexible pipe connecting said fixed conduit with said nozzle, a valve which controls the flow of the air to said nozzle, and a coin-controlled mechanism whereby said valve is opened, substantially as set forth.

7. The combination of a wheel-holding jaw or rack, an air-delivery nozzle movable toward and from said jaw or rack, air-supply means controlled by the movement of said air-delivery nozzle, and coin-controlled mechanism whereby the movement of said delivery-nozzle is controlled, substantially as set forth.

700,797. OIL-ATOMIZER. HARRY P. MOHR, Chicago, Ill., assignor of one-half to James G. Long, Chicago, Ill. Filed July 17, 1901. Serial No. 28,197. (No model.)



Claim.—1. A lubricating device for steam-engines and like machinery, comprising in combination a steam-pipe, an oil-atomizer comprising a feed-pipe, a conical member having the surface exposed to the direct action of the steam, and a receptacle in the upper part of said member into which the oil is adapted to be fed and from which it flows to the outer exposed surface of the conical part of the member, substantially as described.

2. The combination with a steam-pipe, of an oil-atomizer therein comprising a feed-pipe, and a conical member having an exposed surface and an upturned lower edge or rim to retard and evenly distribute the oil from said surface of the member, substantially as described.

3. The combination with a steam-pipe, of an oil-atomizer therein comprising a feed-pipe, and a conical member having a depression in its upper end into which the oil is fed and an upturned rim at its lower end, substantially as described.

4. The combination with a feed-pipe, of a bell-shaped member, a connecting-joint to secure the said member to the pipe, the member having a depression in its top over which the end of the feed-pipe terminates, and openings from the edge of said depression to the surface of the bell-shaped member, substantially as described.

5. The combination with a feed-pipe, of an angle-joint connected therewith, a conical member having a depression in its top, threaded into the lower end of said joint, registering grooves in the threaded portions of both parts, the said pipe terminating over said depression, whereby oil from the pipe first drops into the receptacle and then overflows and passes through the grooves to the outer surface of the cone, substantially as described.

6. The combination with a feed-pipe, of an angle-joint connection secured thereto, a conical part secured in the lower opening of said connection, said part having a depression or pan in its upper end and an upturned lower edge, and communicating passages from the edge of said depression or pan to the outer surface of said cone, substantially as described.

7. A steam-engine lubricator comprising in combination with a steam-pipe leading to the parts to be lubricated, of a spraying device located in said steam-pipe and having a spraying-surface exposed on all sides to the action of the passing steam and out of contact with the side walls of

the pipe, the lower edge of said surface being formed to prevent the collection of the unexpended oil in drops, a feed-pipe to conduct the lubricating-oil to said spraying device, and means also within the steam-pipe for detaining the oil before feeding it to the spraying-surface whereby the oil is heated, substantially as described.

8. In a steam-engine lubricator, the combination with a steam-pipe leading to the steam-cylinder, of an oil-atomizer located within the pipe comprising an inclined spraying-surface adapted to be wholly exposed to and heated by the passing steam to substantially the temperature of steam and upon which surface the oil is adapted to be fed in a film-like condition, and means for retarding the passage of the oil through the atomizer whereby it is heated to substantially the temperature of steam before reaching said spraying-surface, the lower edge of said surface being formed to prevent the gathering of the unexpended oil in drops, substantially as described.

9. A steam-engine lubricator, comprising in combination a steam-pipe leading to the cylinder of the engine, and an oil-atomizer within the pipe comprising a hollow conical member exposed on its inner and outer surfaces to the direct action of the steam, a feed-pipe to supply the oil to the atomizer, and means for detaining the oil for a short period before it reaches the exposed surface of said member, substantially as described.

10. In an oil-atomizer, the combination with a conical spraying member having an exposed outer surface, a cap for the reception of the oil before it reaches said surface, and a raised rim at the lower edge of said surface, substantially as described.

11. The combination with an oil-fed pipe, an angle-joint connection secured thereto, a hollow conical part secured in the lower opening of said connection, said part having a depression in its upper end, and communicating passages from said depression to the upper part of the outer surface of said cone, substantially as described.

12. The combination with a vertical portion of a steam-pipe in which the steam passes downwardly, of a feed-pipe extending at right angles into the steam-pipe, an elbow-joint fitted to the extended end of the feed-pipe and turned downward, the end of said feed-pipe being slanted so as to terminate substantially over the center of the downward opening of said elbow, a conical part secured into said lower end of the elbow and having a depression in its upper end into which the oil from the feed-pipe is adapted to fall, and passages leading from the depression to the surface of the cone, substantially as described.

700,798. COUPLING FOR HOSE-PIPES. J. J. MOHR, JR., Boston, England. Filed July 2, 1901. Serial No. 28,198. (No model.)



Claim.—1. A coupling for hose and pipes comprising in its construction a body, a number of legs projecting therefrom, a revolving collar placed behind the body, a number of latches operated by said collar to engage the opposite part of the coupling and springs to move said collar in one direction, substantially as described.

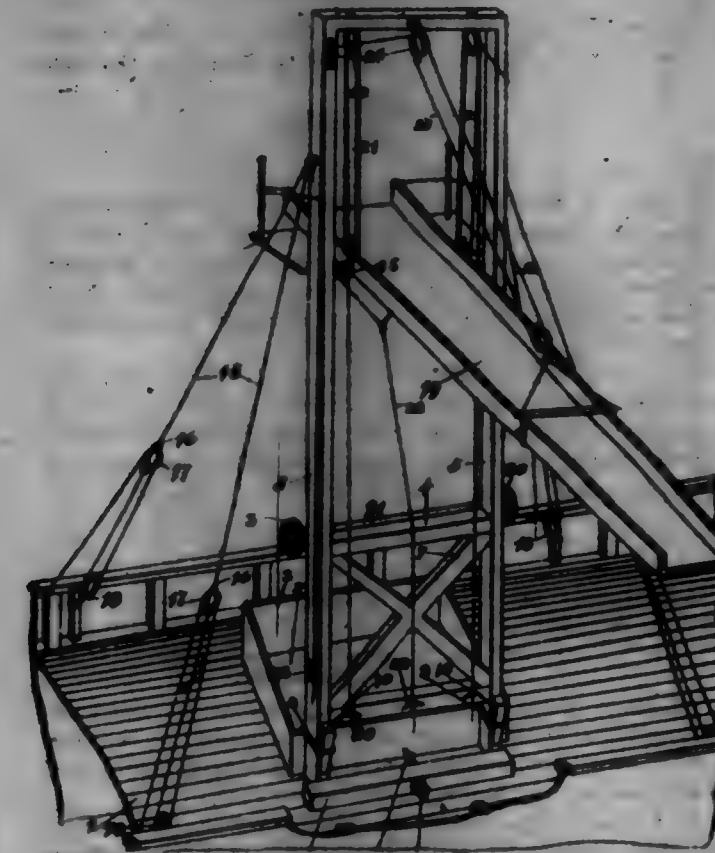
2. In a coupling for hose and pipes the combination with the body a and a number of legs projecting longitudinally therefrom provided with recesses as in their base, of a movable ring *f* to which the latches *g* are attached and springs *c* placed behind the latches *g* in the recesses *a* to operate them substantially as described.

700,799. APPARATUS FOR UNLOADING SHIP'S CARGOES. ARTHUR HILLMAN, San Francisco, Cal. Filed Nov. 21, 1901. Serial No. 28,199. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-rope attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end of the chute, and means for supporting said chute from the upper end of the frame, substantially as described.

2. In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-rope attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end

of the chute, means for supporting said chute from the upper end of the frame, and means for adjusting the elevation and inclination of said chute, substantially as described.



3. In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-rope attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end of the chute, means for supporting said chute from the upper end of the frame, and wheels attached to said frame, substantially as described.

4. In an apparatus of the character described, the combination of a frame, means for removably supporting the frame in an upright position, a chute, means for supporting the chute from the upper end of the frame, and a platform secured beneath the upper end of the chute and projecting beyond the side of the chute to form a support for an operator, substantially as described.

5. In an apparatus of the character described, the combination of a frame comprising side pieces, a top piece, and a connection between the lower portions of said side pieces, a chute extending through the frame in the space between said top piece and connection, means for adjusting the position of said chute in said space, and a wheel-axle secured upon said frame at one end of said space, said axle having wheels freely rotatable on its ends, substantially as described.

700,800. MULTIPLEX-TELEGRAPH CIRCUIT. LAWRENCE A. McCAHNT, Brooklyn, N. Y. Filed Nov. 15, 1901. Serial No. 28,712. (No model.)

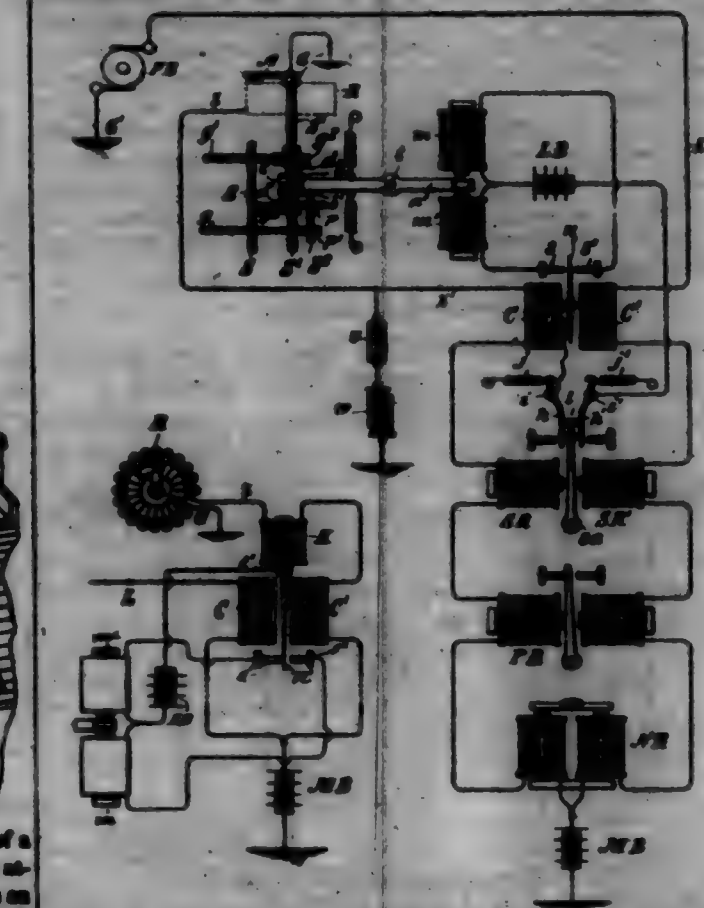
Claim.—1. In a multiplex-telegraph circuit, the combination of a circuiting instrument, consisting of electromagnets, an armature, common to said magnets, contact-arm, a contact-post, separating the latter, and the adjustable springs, co-operating with said contact-arm, with the controlling instrument and its local circuit, and means actuated by said local circuit, for varying the resistance of the artificial line, substantially as set forth.

2. In a multiplex-telegraph circuit, the combination of a circuiting instrument, consisting of electromagnets, an armature, common to said magnets, the contact-arm, a contact-post, separating the latter, and the adjustable springs, co-operating with said contact-arm, with the controlling instrument and its local circuit, and the main and artificial line, and means actuated by said controlling instrument, for varying the resistance of the artificial line, substantially as set forth.

3. In a multiplex-telegraph circuit, the combination of a circuiting instrument, consisting of electromagnets, an armature, common to said magnets, contact-arm, contact-post, and adjustable springs, with the controlling instrument, its local circuit, the local magnets, in said local circuit, and the automatic circuit, all substantially as and for the purpose set forth.

4. In a multiplex-telegraph circuit, the combination of a circuiting instrument, consisting of electromagnets, an armature, common to said magnets, the contact-arm, a post, separating the latter, and the adjustable

springs, co-operating with said contact-arm, with the controlling instrument and its local circuit, the main battery, the receiving instrument, the main and artificial line and condenser, and means in said artificial line, operated by said controlling instrument for varying the resistance of the artificial line, substantially as set forth.



5. In a multiplex-telegraph circuit, the combination of a controlling instrument, having coils of wire, a needle, common to said coils and provided to an electromagnet, local contact-stops, for said needle, and said magnet, connected in the artificial line, with the local circuit, the local magnets, in said circuit, the main battery, the main and artificial line, and means in said artificial line for adjusting the resistance of the latter, that the resistance of the main line and artificial line are always equal, all substantially as and for the purpose set forth.

700,801. UNDERGARMENT. EDWARD FRIEDMAN, Montreal, Canada. Filed Mar. 24, 1902. Serial No. 28,801. (No model.)



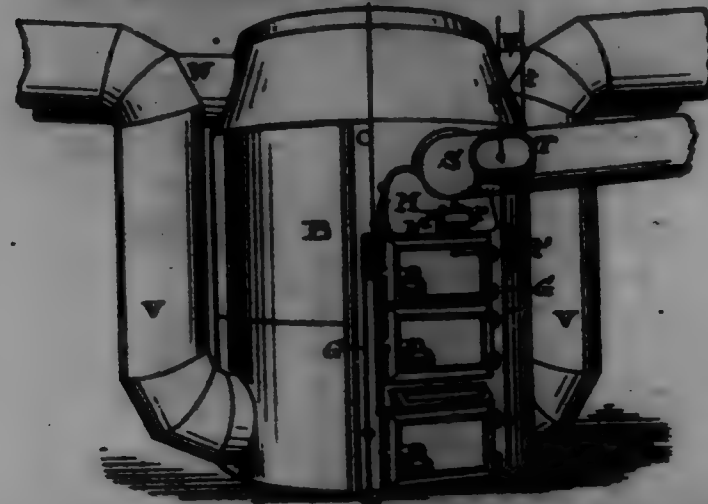
Claim.—1. In an undergarment, the combination, substantially as set forth, of a pair of sleeves having rear neck-flaps connected together and formed each with a breast-diagonal, a body having a back united to the lower edge of said rear neck-flaps and having a front with diagonal side margins adapted to underlie the breast-diagonals of the sleeves, and triangular gussets secured in the lower rear portions of the sleeves and to the back of the body.

2. In an undergarment, the combination, substantially as set forth, of a pair of sleeves having rear neck-flaps connected together and formed each with a breast-diagonal, a body having a back united to the lower edge of said rear neck-flaps and having a front with diagonal side margins adapted to underlie the breast-diagonals of the sleeves, and triangular gussets secured in the lower rear portions of the sleeves and to the back of the body, said breast-diagonals having lips formed at their bases and curved to the bases of the diagonal side margins of the front of the body.

3. In an undergarment, the combination, substantially as set forth, of a pair of sleeves having rear neck-flaps connected together and formed each with a breast-diagonal, a body having a back united to the lower edge of said rear neck-flaps and having a front with diagonal side margins adapted to underlie the breast-diagonals of the sleeves, triangular gussets connected in the inner rear portions of the sleeves and to the back of the body, and draw-strings secured to the upper extremities of the diagonal side margins of said body-front and adapted to adjust the distance between them.

4. In an undergarment, the combination, substantially as set forth, of a hip portion having a rear opening with separated vertical margins convexly curved toward each other, an inner flap having a convexly-curved margin secured to one of said first-mentioned margins, and an outer flap having a convexly-curved margin secured to the other one of said first-mentioned margins.

700,802. HEATING-FURNACE. HERBERT J. FOSTER, Ashland, Ohio. Filed July 23, 1901. Serial No. 69,574. (No model.)



Claim.—1. In a house-heating apparatus the combination of a combustion and heat-radiating chamber, consisting of a sheet-metal box A, a grate-frame D in the rear part of said box, a fireplace on said grate-frame, a fuel-receiving and coking chamber forward of said fireplace, a perforated draft-chamber over said coking-chamber, a vertical baffle-plate over said perforated chamber, and a head on the front beneath the smoke-pipe, and openings in the heater into said head, all constructed to operate substantially as described.

2. In a house-heating apparatus, a combustion and heat-radiating chamber consisting of a sheet-metal box A, a grate-frame D in the rear part of said box, a fireplace on the grate-frame, a fuel-receiving and coking chamber forward of said fireplace, a perforated draft-chamber over said coking-chamber, a vertical baffle-plate over said perforated chamber, and a head on the front beneath the smoke-pipe, in combination with the outer casing B the cold-air down-draft-pipe V, connected to lower end of said casing, and the hot-air-conducting pipes W connected to the doors of said casing, constructed to operate substantially as described.

700,808. PENCIL ATTACHMENT. ABRAHAM I. ORLANDY, Des Moines, Ia. Filed Aug. 9, 1901. Serial No. 71,948. (No model.)



Claim.—In a pencil attachment, the combination with the hollow cylinder A, formed with flange A', and longitudinal slot H; of the tube B, formed with the socket A and flange B', the back D, and the rod A', covering said back to the part B', of the said tube B; and said back and said tube adapted and arranged, to be placed in said hollow cylinder, with the flange B', resting on one of the flanges A', so

that said back can be rolled in and revolved out of said cylinder, through said slot H; substantially as shown and specified.

700,804. HAT-PIN RETAINER. GRANVILLE F. PARKER, Hampton, N. Y. Filed Nov. 14, 1901. Serial No. 52,168. (No model.)



Claim.—1. The combination in a hat-retainer of an eyelet having upon one end a flaring guiding-flange, and provided upon its other end with a screw-threaded shank; a nut fitting the said shank; a pin passing through said eyelet and said nut; and a spring arranged within the said nut, and normally projecting into the path of the said pin, substantially as described.

2. In a hat-retainer an eyelet consisting of a flaring guide-flange and tubular screw-threaded shank; a nut fitting the said shank; a hat-pin arranged in said eyelet; and a coiled spring arranged in said nut and projecting into the path of the said pin, and adapted by its tension to secure the said pin in position.

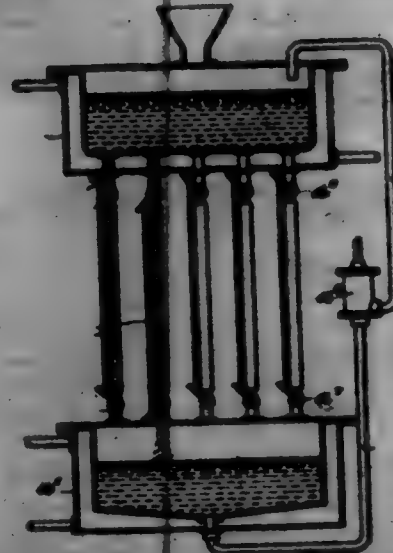
700,805. CAPSULE. GEORGE H. PARKER, Germantown, Pa. Assignor to Benjamin T. Abbott, Hyde, New York, N. Y. Filed Aug. 22, 1900. Serial No. 57,664. (No model.)

Claim.—1. A capsule, comprising an outer tube of compressible relatively tough material, an inner tube of gelatinous material, the inner tube adapted to contain a filler material and both tubes being flattened at their ends to insure the filler material.

2. A capsule, comprising an outer tube of compressible relatively tough material, an inner tube of gelatinous material, the inner tube adapted to contain a filler material and both tubes being flattened at their ends to insure the filler material, and the said tubes intermediate of their ends being flattened to form intermediate closures.

3. A capsule, comprising an outer tube of compressible but tough material, an inner tube of gelatinous material, the inner tube adapted to contain a filler material, the ends of the tubes being flattened to form closures and both tubes being flattened intermediate of their ends to form intermediate closures and points.

700,806. MANUFACTURE OF CAPSULES. GEORGE H. PARKER, Germantown, Pa. Assignor to Benjamin T. Abbott, Hyde, New York, N. Y. Original application filed Aug. 22, 1900. Serial No. 57,664. Revised and this application filed Oct. 9, 1901. Serial No. 71,957. (No model.)

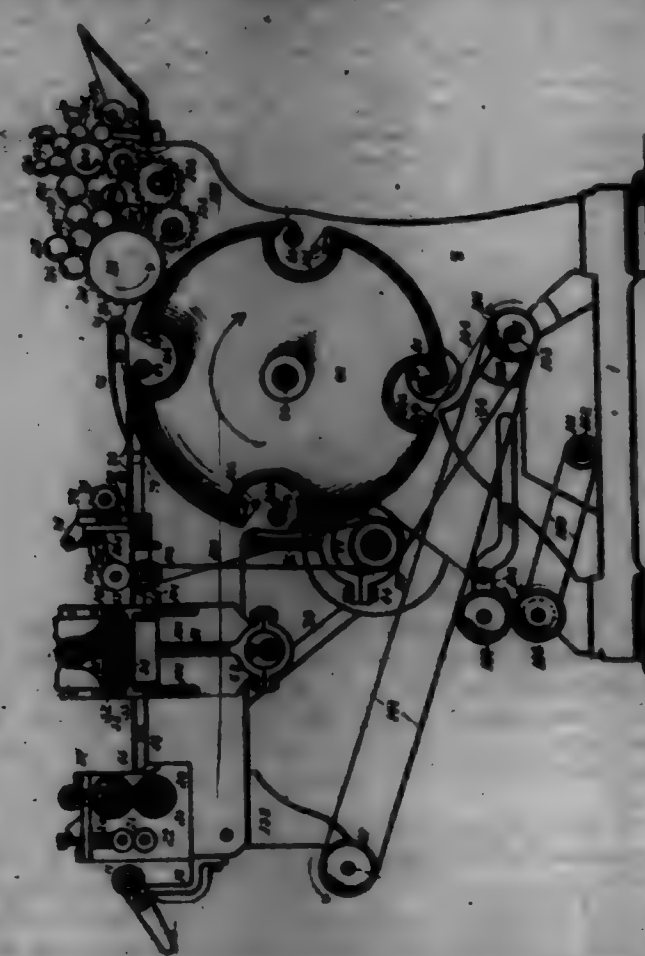


Claim.—1. The method of making capsules, which consists first, in subjecting the interior of a tube of flexible and tough material to a gelatinous coating applied in a liquid or semifluid condition, and in then cooling and thereby hardening the interior coating.

2. The method of making capsules, which consists in first providing a tube of tough, flexible material, impermeable to the atmosphere, and in then hardening said tube by cooling the same.

3. The method of making capsules, which consists in forming a tube of tough, flexible material, then coating its interior with a gelatinous material applied in a liquid condition, then cooling and hardening the interior coating of said tube and finally subjecting the tube to heat prior to rolling the same under pressure.

700,807. MACHINE FOR MAKING IMPRESSIONS. GEORGE H. PARKER, Germantown, Pa. Assignor to Benjamin T. Abbott, Hyde, New York, N. Y. Filed Dec. 22, 1900. Serial No. 54,310. (No model.)



Claim.—1. A machine for the manufacture and printing of blanks involving a rotating impression-drum, a suitably-linked form-roller to bear on the periphery of said drum, device for feeding paper in a continuous strip forward, suitable mechanism for punching and shearing said continuous strip before reaching said drum, said punching and shearing mechanism being adjustable with relation to each other and to said drum, and means to convey operating power to said shearing and punching mechanism, substantially as shown and described.

2. In a machine of the class described consisting of an impression-drum, a suitably-linked printing-roller to convey impressions onto blanks passing around said drum, a paper-straightener adapted to receive the paper in a continuous strip from a roll and remove any bends therein, coiling-rolls to impress longitudinal indentations on said strip of material, a pair of feed-rollers adapted to be operated intermittently by means of a roller-clutch and punching and shearing device to operate on said strip of material, substantially as shown and described.

3. A machine for the manufacture and printing of blanks involving a rotating impression-drum, a suitably-linked form-roller to bear on the periphery of said drum, device for feeding paper in a continuous strip forward, suitable mechanism for punching and shearing said continuous strip before reaching said drum, said punching and shearing mechanism being adjustable with relation to each other and to said drum, and means to convey operating power to said shearing and punching mechanism, substantially as shown and described.

4. In a machine of the class described consisting of an impression-drum, a suitably-linked printing-roller to convey impressions onto blanks passing around said drum, a paper-straightener adapted to receive the paper in a continuous strip from a roll and remove any bends therein, coiling-rolls to impress longitudinal indentations on said strip of material, a pair of feed-rollers adapted to be operated intermittently by means of a roller-clutch, means to convey operating power to said shearing and punching mechanism, substantially as shown and described.

5. In a machine of the class described consisting of an impression-drum, a suitably-linked printing-roller adapted to make impressions upon blanks passing around said drum, a paper-straightener adapted to receive a strip of paper, a die-plate on said punch, sliding ways mounted on the under face of said die-plate, a depending integral strip on said die-plate, a plate bearing a series of punches to slide in said ways and abut against said depending strip, actuating device to rotate said last-mentioned plate freely against said strip, and a handle on said punch-bearing plate to remove the same when desired, substantially as shown and described.

6. In a machine of the class described consisting of an impression-drum, a suitably-linked printing-roller to convey impressions onto blanks passing around said drum, coiling-rolls to impress longitudinal indentations on an advancing strip of material, intermittently-operated feed-rolls to feed forward said strip, a reciprocating cross-head, a removable punch bearing a plate slidably attached to said cross-head to produce impressions of cuts on said strip of material, substantially as shown and described.

7. In a machine of the class described consisting of an impression-drum, a suitably-linked printing-roller to convey impressions onto blanks passing around said drum, a paper-straightener adapted to receive the paper in a continuous strip from a roll and remove any bends therein, coiling-rolls to impress longitudinal indentations on said strip of material, a pair of feed-rollers adapted to be operated intermittently by means of a roller-clutch, a series of dies to receive and contain said paper after leaving said rollers, punching mechanism to operate on said strip of material intermittently, dies to convey said strip from said punching device, a shearing device to cover said strip of material and a series of dies to convey and contain said material from said shearing device to said drum, substantially as shown and described.

8. A machine for the manufacture and printing of blanks involving a rotating impression-drum, a suitably-linked form-roller to bear on the periphery of said drum, device for feeding paper in a continuous strip forward, suitable mechanism for punching and shearing said continuous strip before reaching said drum, said punching and shearing mechanism being adjustable with relation to each other and to said drum, and means to convey operating power to said shearing and punching mechanism, a series of dies to receive the covered pieces of material between the shearing mechanism and the impression-drum, a number of spring-fingers adapted to press upon said material while on said dies during and immediately following said shearing operation, and a cam-operated arm to operate said spring-fingers, substantially as shown and described.

9. The combination in a machine for the manufacture and printing of blanks involving a rotating impression-drum, device for feeding paper in a continuous strip forward, two series of feeding-rolls for feeding forward a strip of material at a definite speed, one series whereof is capable of regulation as to speed, the other series being mounted on a shaft having an eccentric portion and capable of being rotated to cause a separation between said series, a lever adapted to rotate said upper shaft and cause such separation, substantially as shown and described.

10. The combination in a machine of the class designated, of rotating printing device, a frame to contain said printing device, horizontal brackets projecting from said frame, a housing for punching mechanism adjustably mounted on said brackets, a gear mounted in said housing, a main driving-shaft mounted in the frame of said machine, a gear mounted thereon, and an adjustable gear adapted to mesh with the gear of the main shaft and the gear in said housing whenever said housing is moved on said brackets, substantially as shown and described.

11. The combination in a machine for printing paper blanks for forms, of a rotating printing device, a frame to contain said printing device, horizontal brackets projecting from said frame, and an adjustable shear mechanism mounted on said brackets, a housing to contain said shear, a pair of rack-teeth on said shear, a transverse shaft mounted in the housing of said shear, pinions mounted on said transverse shaft to mesh in said rack-teeth, a crank mounted on the end of said transverse shaft, a longitudinally-adjustable connecting-rod attached to said crank and means to pass the rotation of said connecting-rod, substantially as shown and described.

700,808. ELECTRIC FURNACE. WILLIAM R. PARKER, Chicago, Ill. Filed July 23, 1901. Serial No. 69,585. (No model.)

Claim.—1. In an electric furnace the combination with a tubular positive electrode and gas-burning device extending through the walls of said electrode mediate its ends, of a suitable negative electrode.

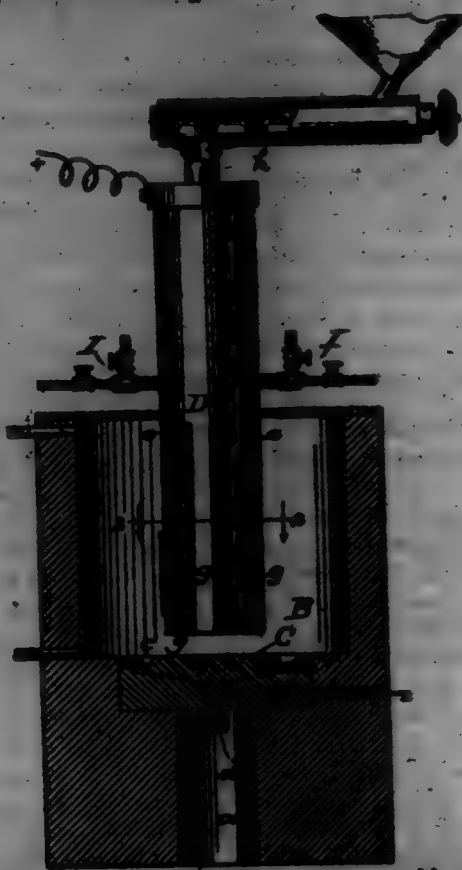
2. In a furnace the combination with a tubular positive electrode having several terminals at its cooling end, and gas-burning device extending through the walls of said electrode mediate its ends, of a suitable negative electrode.

3. In an electric furnace the combination with a tubular positive electrode, and gas-burning device inserted through the walls and entering the base of the same, mediate its ends, of a negative electrode, and a drain therethrough for carrying off the molten products of the furnace.

4. In a furnace the combination with a tubular positive electrode, and gas-burning device inserted through the walls and into the base of the same mediate its ends, of a negative electrode having a gutter in its upper surface and a drain leading from said gutter.

5. In a furnace the combination with a tubular positive electrode, and gas-burning device inserted through the walls and into the base of the same mediate its ends, of a negative electrode having a chamber gutter concentric but greater in diameter than said positive electrode, and having a drain leading from said gutter.

6. In a furnace the combination with a tubular positive electrode having several terminals at its arcing end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a drain therethrough.



7. In a furnace the combination with a tubular positive electrode having several terminals at its arcing end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a gutter in its upper surface, and a drain leading from said gutter.

8. In a furnace the combination with a tubular positive electrode having several terminals at its arcing end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a circular gutter and its upper surface concentric to but greater in diameter than said positive electrode.

9. In a furnace the combination with a longitudinally-adjustable tubular positive electrode having several terminals at its arcing end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a drain therethrough.

10. In a furnace the combination with a longitudinally-adjustable tubular positive electrode having several terminals at its arcing end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a gutter in its upper surface, and a drain leading from said gutter.

11. In a furnace the combination with a longitudinally-adjustable tubular positive electrode having several terminals at its end, and gas-burning devices inserted through the walls of and into the bore of the same, of a negative electrode having a circular gutter and its upper surface concentric to but greater in diameter than said positive electrode.

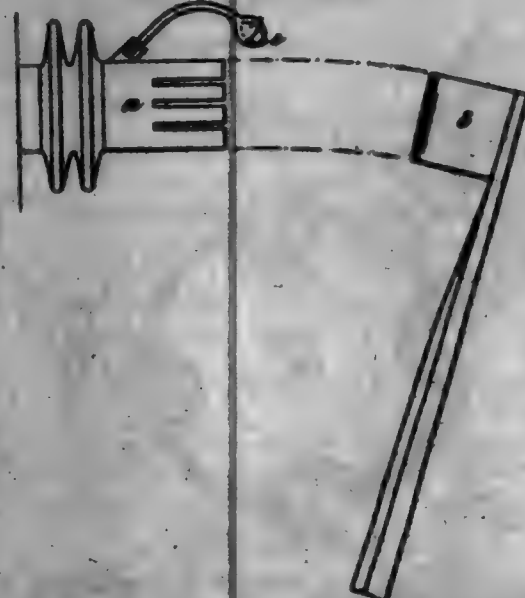
700,809. MEANS FOR EXTINGUISHING ARCS IN ELECTRICAL APPARATUS. HERALD W. CARTER, London, England. Filed Mar. 28, 1901. Serial No. 85,094. (No model.)

Claim.—1. The combination with an electric circuit designed to carry current of considerable tension and between parts of which an electric arc of destructive dimension is liable to be set up, of a self-contained blow-out device arranged external to the parts between which an electric arc is liable to be set up and adapted to be automatically brought into action by the heat of an arc of undue dimension and to blow out such arc.

2. The combination with an electric circuit designed to carry current of considerable tension and between parts of which an electric arc of destructive dimension is liable to be set up, of a self-contained blow-out device arranged external to the parts between which an electric arc is liable to be set up and comprising a vessel charged with blast-producing material and arranged to have its contents liberated as a jet or blast by the action of the heat of an arc of undue dimension.

3. The combination with an electric circuit designed to carry current of considerable tension and between parts of which an electric arc of destructive dimension is liable to be set up, of a blow-out device comprising a vessel containing an explosive charge and having a normally

closed fusible end arranged to be opened by the heat of an arc of undue dimension and partial of the sudden liberation of a jet or blast from said vessel.



4. The combination with an electric circuit designed to carry current of considerable tension and between parts of which an electric arc of destructive dimension is liable to be set up, of a blow-out device comprising a vessel charged with fluid under pressure and having a normally closed fusible end arranged to be melted by the action of an arc of undue dimension and to cause the issuing jet or blast of fluid to blow out the arc.

5. The combination with an electric circuit designed to carry current of considerable tension and between parts of which an electric arc of destructive dimension is liable to be set up, of a blow-out device arranged external to the parts between which an electric arc is liable to be set up and comprising a conducting vessel that is in electrical connection with such circuit and contains a blast-producing charge adapted to be liberated as a jet or blast by the action of an arc of undue dimension, and in blow out such arc.

6. The combination with an electric fuse, of a self-contained blow-out device arranged external to the parts between which an electric arc is liable to be set up and adapted upon the melting of the fuse conductor or conductors and the setting up of an arc of undue dimension, to be brought into action to discharge a jet or blast of fluid against such arc.

7. In an electric fuse, the combination with the fusible conductor or conductors therein, of a self-contained blow-out device arranged external to the parts between which an electric arc is liable to be set up and comprising a closed vessel containing an explosive charge and arranged to be opened and its contents liberated in the form of a jet or blast by the heat of an arc of undue dimension set up by the melting of the fusible conductor or conductors.

8. In an electric fuse, the combination with the fusible conductor or conductors therein, of a blow-out device comprising a metal vessel containing an explosive charge, said vessel being in electrical connection with one end of said fusible conductor or conductors and arranged to be heated and its contents liberated in the form of a jet or blast by an arc of undue dimension set up by the melting of the said fusible conductor or conductors.

9. In an electric fuse, the combination with a fusible conductor or conductors of self-contained blow-out device comprising closed vessels containing, in themselves an explosive charge, arranged at or near the opposite ends of the fusible conductor or conductors, and adapted to be opened and their contents liberated by the heat of an arc of undue dimension set up by the melting of the fusible conductor or conductors.

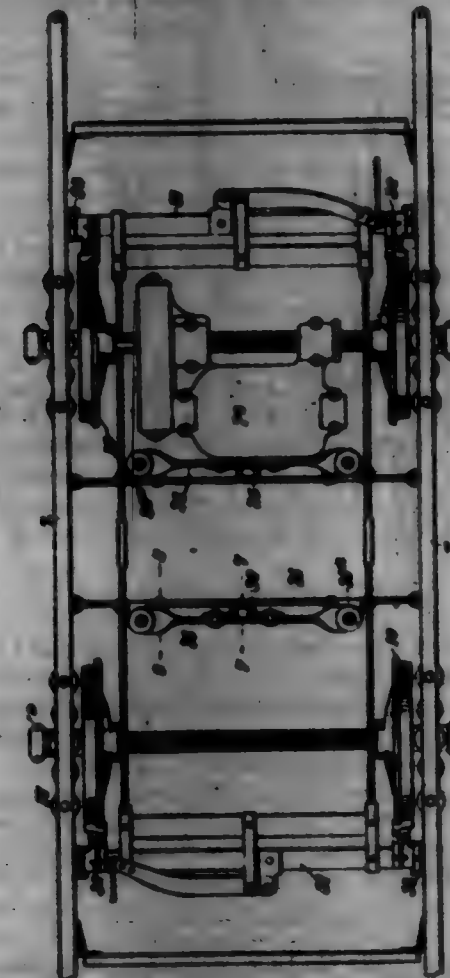
10. In an electric fuse, the combination with a fusible conductor or conductors of blow-out device comprising vessels having an explosive charge, arranged at or near the opposite ends of the fusible conductor or conductors, and adapted to be opened and their contents liberated by the heat of an arc of undue dimension set up by the melting of the fusible conductor or conductors, said vessels being each in electrical connection with said fusible conductor or conductors.

11. In an electric fuse, the combination with a fusible conductor or conductors of blow-out device comprising vessels charged with compressed fluid and having fusible ends the ends arranged in proximity to the ends of said fusible conductor or conductors, substantially as described for the purpose specified.

700,810. CARTRIDGE. EDGAR FERRISS, New York, N. Y. Filed July 18, 1901. Serial No. 86,000. (No model.)

Claim.—1. In a cartridge, the combination with a side frame, comprising

prising pedestal, a beam connecting such pedestals together at or about their vertical centers, and extension-beams, and under trans-beams connected to the pedestals and supporting said end extension-beams, each of the said end extension-beams being provided with a socket upon its upper surface; of a top chord or rail, provided with a socket on its under side; a partial elliptic spring the rear end of which is secured in the socket on the end extension-beam and the front end of which is inserted in the socket on the top chord or rail; and brackets or stops projecting upwardly from said end extension-beam and downwardly from said top chord or rail, and adapted to engage and calipers to prevent longitudinal motion of said top chord or rail with reference to said side frame.



2. In a car-truck, the combination with a side frame comprising pedestals, beams 11 and 12 connecting the pedestals together, and extension-beams, and under trans-beams connected to the pedestals and supporting said end extension-beams; of a top chord or rail; partial elliptic springs actuated on said end extension-beams near the points of attachment of the under trans-beams to the end extension-beams; sockets on the top chord adapted to receive the extended front ends of the said partial elliptic springs and sockets on the said end extension-beams adapted to receive the rear ends of the said partial elliptic springs, whereby the strain of the load at the ends of the truck is transmitted through said springs, under trans-beams and lower horizontal connecting beams 13, thus relieving a substantial trans extending beyond the normal ends of the truck frame; and brackets or stops projecting upwardly from said end extension-beams and downwardly from said top chord or rail, and adapted to engage and calipers to prevent longitudinal motion of said top chord or rail with reference to said side frame.

3. In a car-truck, the combination with the top chord or rail and the end beam, of a leaf or partial elliptic spring mounted on the end beam, a socket also mounted on the end beam and receiving the rear horizontal portion of said spring and provided with a groove in its face above the spring, and a bracket secured to the rail and having a depending portion adapted to slide in the groove of said socket, the front end of said spring being curved in elliptic form and extending outward and suitably connected to the rail.

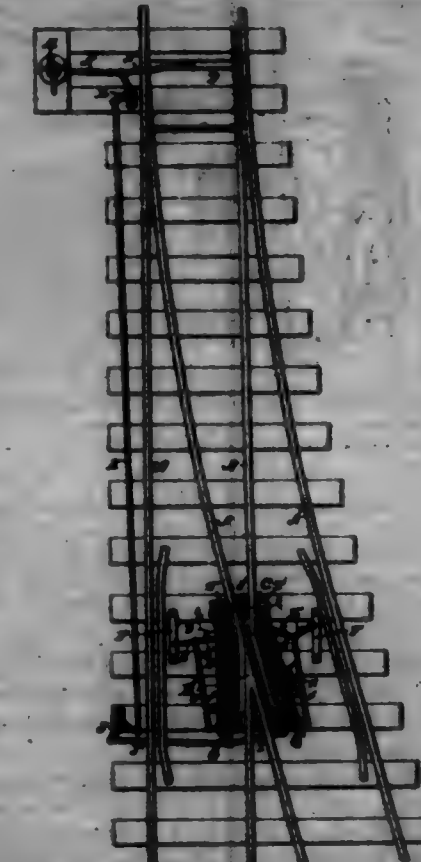
4. The combination with the top chord or rail and the extended end beam, of a partial elliptic spring actuated on the end beam, a socket on the end beam to receive the rear portion of said spring and provided with a groove in its vertical face, a bracket secured to the rail and having a depending portion which slides in the groove of said socket and a socket attached to the top chord to receive the extended front end of the partial elliptic spring and which is adapted to slide in said socket, substantially as set forth.

5. In a car-truck, a beam for supporting the rear of the same having a strap or casting 20 riveted thereto and provided with an opening

coinciding with the opening in the beam, whereby said beam is reinforced and an elongated bearing for the rear of the motor is provided.

6. The combination with the side beams of the truck frame and cross-beam 20 rigidly secured in pockets to said side beams, of a pair of brackets secured to said cross-beam, and a motor-suspension bar 25 spring-supported on said brackets and having riveted thereto the plate or casting 30 having an elongated opening coinciding with the opening in the bar 20, substantially as set forth.

700,811. SWITCH AND FROG. JAMES S. PENNY, Baltimore, Md., assignor, by mesne assignments, to Burlington O. Road, Carter Road, N. H. Filed Aug. 20, 1901. Serial No. 73,546. (No model.)



Claim.—1. In a railway frog and switch, the combination of the usual fly-rails; the fixed frog-point B; the movable lower rail A, A' bent outwardly at an angle to fit the sides of the point when shifted from side to side; a sleeve d' between said rails to hold them properly spaced; a bolt d through said sleeve; hollow studs on the sides of the rail through which said bolt d extends; caps on the studs; springs within the caps for holding the rails with a strong pressure against the sleeve d'; a yoke D under the rails at the angle of the same; studs E bolted to the outside of said rail opposite said yoke; caps F to reciprocate over said studs with springs within the same; flanges E' secured to said caps; bolts a through said caps into the studs E; toggle-joints connected to the yoke at each side and to bars F secured to the ties within the outer rails; rods H, H, connected to said toggles; bell-crank levers connected to said rods H coupled together by a suitable rod; and connections therefrom to the switch-stand, all operating, substantially as described for the purpose specified.

2. In a railway frog and switch, the combination of the usual fly-rails; the fixed frog-point B; the movable lower rail A, A' bent outwardly at an angle to fit the sides of the point when shifted from side to side; a sleeve d' between said rails to hold them properly spaced; a bolt d through said sleeve; hollow studs on the sides of the rail through which said bolt d extends; caps on the studs; springs within the caps for holding the rails with a strong pressure against the sleeve d'; a yoke D under the rails at the angle of the same; studs E bolted to the outside of said rail opposite said yoke; caps F to reciprocate over said studs with springs within the same; flanges E' secured to said caps; bolts a through said caps into the studs E; suitable connections to said yoke from the switch-stand to shift the same from side to side for the purpose specified.

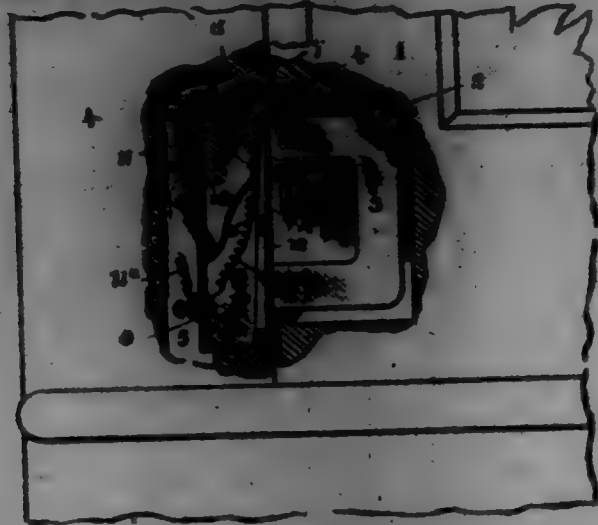
3. In a railway frog and switch the combination of a fixed frog-point; movable rails to each side thereof bent at an angle corresponding to said point, adapted to fit either side; a spacer between said rails to hold them apart; a yoke extending beneath the rails with spring-pressure device to permit the rails to yield outwardly; suitable guides for the ends of the rails; a toggle-joint at each end of the yoke; and suitable connections from said toggle-joints to the switch-stand to throw the rails from side to side and lock the same in position, for the purpose specified.

4. In a railway frog and switch, the combination of a fixed frog-

point; movable rolls to each side thereof; a yoke for the rolls with spring engagement to the side of the rolls to permit them to yield laterally outward; a toggle-joint at each end of the yoke; and suitable connections from said toggle-joints to the switch-stand to throw the rolls from side to side, for the purpose specified.

5. In a railway flag or switch, the combination of a fixed frog-point; movable rolls to each side bent at an angle corresponding to said frog; a yoke for the rolls; toggle-joints at each end of said yoke with connections for actuating the same, for the purpose specified.

700,812. ELECTRIC ALARM. GUY M. PETER, Oak Lake City, Wash. Filed June 1, 1901. Serial No. 62,734. (No model.)



Claim.—1. In a circuit-closer the combination of a stationary casing, electric circuits arranged within the casing, an armature pivotedly mounted in the casing, a spring mounted on the armature to normally hold it in contact and thereby close the circuit, a movable member, a magnet therein with which the armature contacts to hold the circuit open in normal position when the magnet is engaged with the armature and whereby the circuit is closed when the magnet and movable member are moved away from the armature.

2. A burglar-alarm comprising a stationary member and a movable member, in combination with a magnet secured to the movable member, an armature and electric connections secured to the other member, said magnet attracting the armature to hold the circuit open, a spring for retracting the armature to close the circuit when the magnet is moved from the armature, and a screw bearing on the end of said spring to regulate the tension thereof.

3. In a burglar-alarm, the combination with a window-frame having a recess therein, of electric circuits arranged therein, an armature pivotedly mounted in said recess, means to normally hold the armature in contact, a window-latch having a recess, and a magnet located therein with which the armature contacts to hold the circuit open.

4. In a burglar-alarm, the combination with a window-frame carrying an armature and electric-circuit connection, a window-latch carrying a magnet with which the armature contacts to hold the circuit normally open in one position of said frame, and a spring for retracting the armature to close the circuit when the magnet is moved out of engagement therewith.

700,813. STAIR-ROUTING MACHINE. FRANK V. PHILLIPS, Waukegan, Ill., assignor to the Smith and Phillips Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 7, 1900. Serial No. 24,728. (No model.)

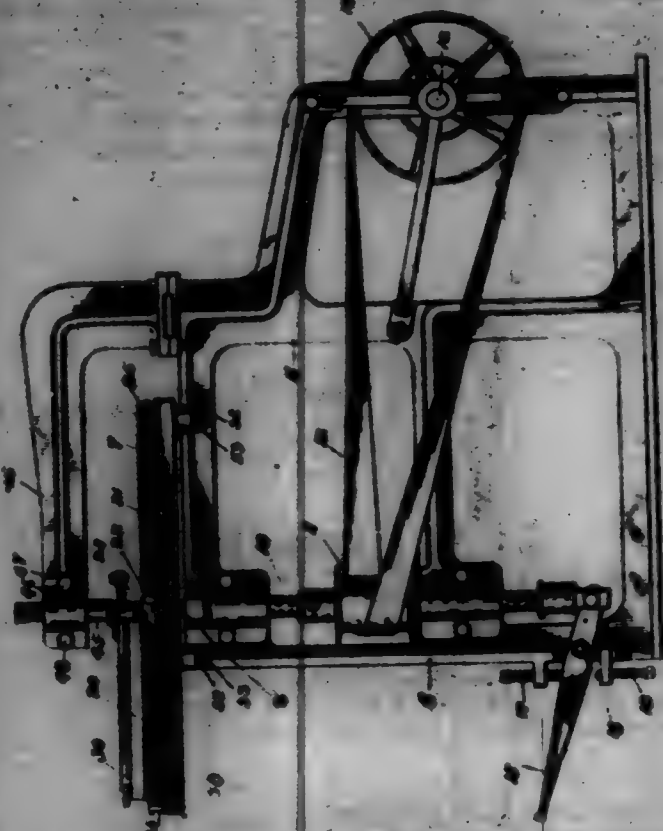
Claim.—1. The combination with a stationary table, the work-supporting rollers 20 and 21, and a cutter movable vertically upward through the table, the rollers being arranged in alignment with the cutter and with each other, of the pattern-frame adapted to be secured to the upper surface of the stringer and means for guiding the movements of the stringer in accordance with the pattern, substantially as specified.

2. The combination with the table of a stair-cutting machine of rollers 20 and 21, the ring 22, and posts 23, substantially as specified.

3. The combination with the table and cutter of a stair-cutting machine of rollers 20 and 21 at opposite sides of the cutter, a ring 22 surrounding the cutter, and posts 23, the rollers being journaled in the ring and posts, substantially as specified.

4. The combination with the table and cutter of the stair-cutting machine, of rollers 20 and 21 journaled in removable supports and supporting the stringer, the rollers being independent of each other and located in alignment with the cutter and with each other and at opposite sides of the cutter, substantially as specified.

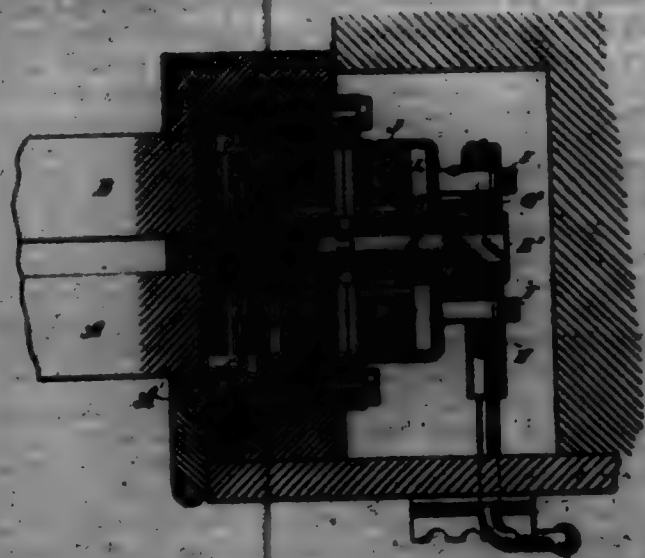
5. The combination with the table and cutter of a stair-cutting machine of the work-supporting rollers 20 and 21, and the ring 22 secured to the table around the outer opening and carrying both to intercept the shavings and as a support to said rollers, substantially as specified.



6. The pattern-frame for stair-routing consisting of two L-shaped pieces, one of which is provided with right-angled projections at its extremities to which the other piece is joined by bolts passing through elongated slots and by which means the pieces are rigidly held in their relative positions; substantially as specified.

7. The combination with the table and cutter, of removable rollers for supporting the sheet, a removable ring encircling the cutter and supporting the rollers at their inner ends, and removable posts supporting the outer ends of the rollers, substantially as specified.

700,814. SAFE-BALANCE. GEORGE A. FRANK and WILLIAM R. COOPER, New Britain, Conn., assignors to F. & P. Curtis, New Britain, Conn., a Corporation of Connecticut. Filed Feb. 27, 1902. Serial No. 35,092. (No model.)



Claim.—1. In a device of the character described, a platen, a spring anchored at one end and secured at its other end to said platen or an extension thereof, a second platen concentric with the first-mentioned platen and another spring, said second spring being anchored at one end and secured at its other end to said second platen or an extension thereof, and means to engage and disengage said platens.

2. In a device of the character described, a platen, a spring anchored at one end and secured at its other end to said platen or an extension thereof, a second platen concentric with the first-mentioned platen and another spring, said second spring being anchored at one end and secured at its other end to said second platen or an extension thereof, means to

engage and disengage said platens, and means to lock said platens against rotation.

3. In a device of the character described, a platen, a spring anchored at one end and secured at its other end to said platen or an extension thereof, a second platen and another spring, said second spring being anchored at one end and secured at its other end to said second platen or an extension thereof, and a clutch device carried by each of said platens one of said clutch devices being movable laterally of said platens to engage or disengage the other clutch device.

4. In a device of the character described, a platen, a spring anchored at one end and secured at its other end to said platen or an extension thereof, a second platen and another spring, said second spring being anchored at one end and secured at its other end to said second platen or an extension thereof, and a clutch device carried by each of said platens one of said clutch devices being movable laterally of said platens to engage or disengage the other clutch device, a locking-clutch carried by said movable clutch device and a stationary member adjacent said locking-clutch adapted to receive and hold the latter against rotation.

5. In a device of the character described, a pair of platens, a shaft extending from one and a drive extending from the other and surrounding said shaft, a second drive mounted on the end of said shaft and free to shift longitudinally thereon but not to rotate independently thereof, clutch-teeth at the adjacent ends of said drives, means to shift said second drive, and means to lock said second drive and thereby both of said platens when said teeth and locking means are in disengaged operative engagement.

6. In a device of the character described, a pair of platens, a shaft extending from one and a drive extending from the other and bearing upon said shaft, a second drive on that portion of said shaft extending beyond said first drive, said second drive being longitudinally but not rotatably mounted relatively to said shaft, long clutch-teeth at the adjacent ends of said drives and short clutch-teeth on another portion of said second drive, and a stationary member bearing short teeth to mesh with said short teeth on said second drive to lock all of said parts when both of said drives are interlocked.

7. In a device of the character described, a pair of platens, a shaft extending from one and a drive extending from the other and bearing upon said shaft, a second drive on that portion of said shaft extending beyond said first drive, said second drive being longitudinally but not rotatably mounted relatively to said shaft, long clutch-teeth at the adjacent ends of said drives and short clutch-teeth on another portion of said second drive, and a stationary member bearing short teeth to mesh with said short teeth on said second drive to lock all of said parts when both of said drives are interlocked.

8. In a device of the character described, a pair of platens, means for interlocking the same, said means including a reversible member, a circular rotatable rack carried thereby and a platen in mesh therewith, the axis of said rack being at an angle to the axis of said platen.

9. In a device of the character described, a pair of platens, means for interlocking the same and locking said interlocked platens with a stationary part, springs connected with said platens and with a suitable stationary part, and a wall in mesh with each of said platens and windows carrying said racks.

10. In a device of the character described, a pair of toothed platens, a rack for each of said platens, a clearance-space between said platens about equal to the thickness of one of said racks.

11. In a device of the character described, a pair of toothed platens, a rack for each of said platens, a clearance-space between said platens about equal to the thickness of one of said racks, and interlocking means for said platens.

700,815. DEVICE FOR SUPPORTING AND DELIVERING PAPER FOR WRAPPING OR BINDING PURPOSES. ROBERT H. PETER, Oak Lake City, Wash., assignor, by direct and mesne assignments, to National Specialty Manufacturing Co., Jersey City, N. J. Filed Aug. 1, 1901. Serial No. 24,028. (No model.)



Claim.—1. In an apparatus for supporting and delivering paper for wrapping or binding purposes, the combination with the holder for a roll

of paper, and a maintaining device, of a feed-guide for directing the paper to the maintaining device comprising a swinging guide-plate having side flanges near its delivery end, a transverse rod upon which said plate is suspended, and a counterweight, substantially as set forth.

2. In an apparatus for supporting paper for wrapping or binding purposes arranged to deliver independent strips of paper, the combination of the roll-holder for the strips of paper, a maintaining device, a counter-weight, a plurality of independent movable paper-feed guides, one for each strip of paper, arranged on a single shaft, and independent controlling means, one for each paper-guide arranged to normally hold the delivery end of the guide away from the maintaining device, substantially as set forth.

700,816. DEVICE FOR SUPPORTING AND DELIVERING PAPER FOR WRAPPING OR BINDING PURPOSES. ROBERT H. PETER, Oak Lake City, Wash., assignor, by direct and mesne assignments, to National Specialty Manufacturing Co., Jersey City, N. J. Filed Apr. 1, 1901. Serial No. 24,028. (No model.)



Claim.—1. The combination of a holder for a roll of paper, a device for maintaining the surface of the paper, and a swinging frame over which the paper passes arranged normally to hold the paper away from the maintaining device, and to yield to allow the paper to engage there-with when the paper is drawn off the roll, substantially as set forth.

2. The combination of a holder for a roll of paper, a device for maintaining the surface of the paper, and a device which automatically moves the paper away from the maintaining device, arranged between the paper-holder and the maintaining device, substantially as set forth.

3. The combination with a holder for paper and a device for maintaining the surface of the paper, of a frame pivoted between its ends and having one end weighted and the other end arranged to support the paper and normally hold it away from the maintaining device, substantially as set forth.

4. The combination of a support for a roll of paper, a water-holder, a maintaining-roller mounted therein, and a knife arranged to sever the paper after it has passed beyond the maintaining-roller, the cutting edge of the knife when in position to sever the paper acting against the inner edge of the front wall of the water-holder, whereby when the knife severs the paper it leaves the end of the main body of paper projecting slightly beyond the maintaining-roller and in proximity thereof, substantially as set forth.

5. The combination of a support for a roll of paper, a roller for maintaining the surface of the paper, a knife for severing the paper adjacent to the said roller, and means for moving the free end of the paper which is adjacent to the surface of the maintaining-roller away therefrom, substantially as set forth.

6. The combination of a holder for a roll of paper, a maintaining-roller, a movable frame over which the paper passes arranged on one side of the maintaining-roller and arranged to normally hold the paper from contact with said roller, and a knife for covering the paper arranged on the side of the maintaining-roller opposite the said movable frame, substantially as set forth.

7. The combination of a support for a roll of paper, a water-holder, the rollers M, L, mounted in the water-holder, a weighted swinging frame over which the paper passes arranged to hold the paper away from the roller M, and the knife arranged to cover the paper on the side of the roller L opposite to the said swinging frame, substantially as set forth.

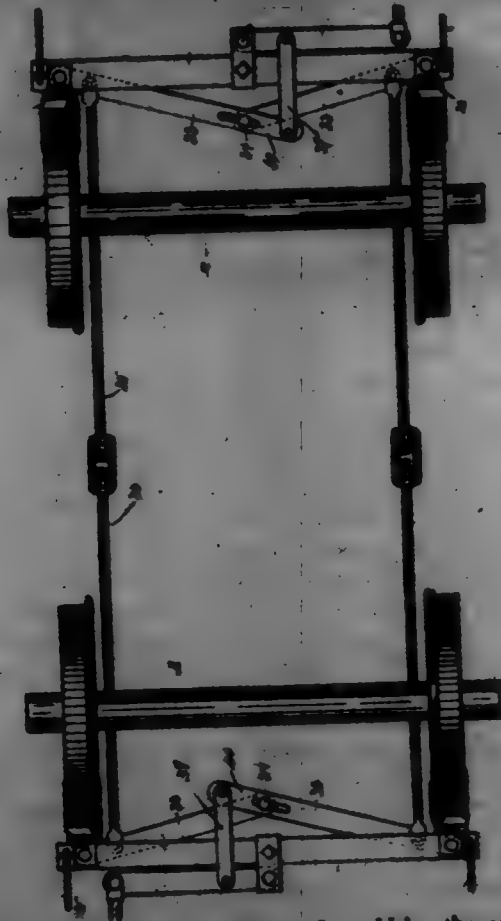
700,817. SUGAR-GRATE. JOHN C. FORTNEY, Columbus, Ohio. Filed May 12, 1902. Serial No. 62,522. (No model.)

Claim.—In a sugar-grate, the combination of a floor-section, side and end sections hinged thereto, said side and end sections each consisting of a frame enclosing a plurality of vertically-arranged slots, transverse rods extending said slots and the alternate slots formed with the openings 11 and means for detachably connecting said side and end sections, catch-plates 12 on one of said side sections and a strap 22 on the opposite section, upright catch-bars 23 affixed to a vertical side extension of the floor-section, a strap 27 projecting from the opposite vertical side extension of the floor-section, a key 13, lock-bars 14 on one side thereof and a hinged lever 15 depending from the opposite side, substantially as specified.

700,817.



700,818. BRAKE MECHANISM FOR RAILWAY-CARR. GEORGE W. FOWELL, Green Island, N. Y. Original application filed Feb. 9, 1901. Serial No. 44,954. Divided and this application filed Oct. 2, 1901. See also No. 77,904. (No model.)



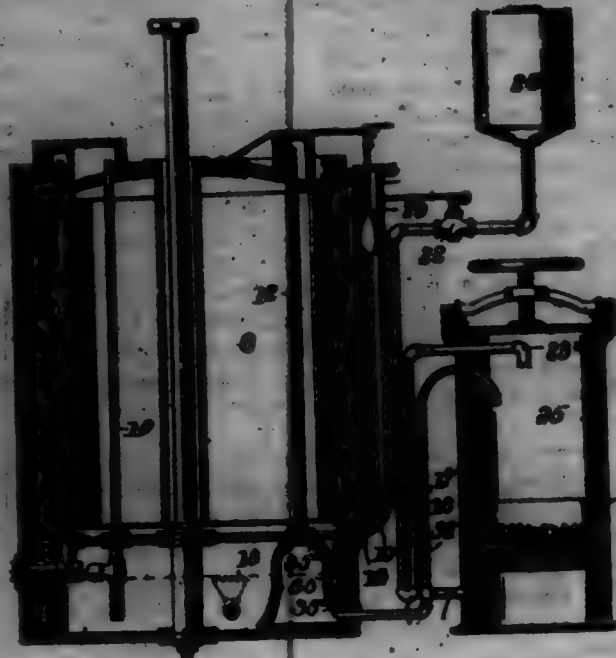
Claim.—1. In a brake mechanism for vehicles, the combination with the truck-frame and a pair of wheels provided with bearings in said frame; of brake-chess engageable with said wheels respectively; a shoe-supporting brake-beam movably supported on said frame; a pair of levers pivoted at their outer ends upon the outer ends of said brake-beam and having their inner ends pivotally connected together, and their intermediate portions connected with a rotating medium; a brake-operating lever pivoted at one end to the middle of the brake-beam; and a link connecting said operating-lever with one of the levers of said pair, substantially as described.

2. In a brake mechanism for vehicles, the combination with the truck-frame; and axles and wheels provided with bearings in said frame; of brake mechanism at each end of the truck comprising brake-chess engageable with the wheels at each end respectively; a shoe-supporting brake-beam movably supported on said frame; a pair of levers pivoted at their outer ends upon the outer ends of said brake-beam and having their inner ends pivotally connected together; a brake-operating lever pivoted at one end to the middle of the brake-beam; and a link connecting said operating-lever with one of the levers of said pair; and links connecting each of the levers of said pair with its corresponding lever on the same side at the opposite end of the truck, substantially as described.

700,819. ACETYLENE-GAS GENERATOR. JOHN GUNY and JAMES A. RAIN, Cleveland, Ohio. Filed Sept. 5, 1901. Serial No. 74,369. (No model.)

Claim.—1. In an acetylene-gas apparatus, the combination with a generator, a condensing-chamber thereunder, and generator, of a pipe leading from the generator to the condensing-chamber, said pipe having connection with the generator at both the top and bottom thereof forming gas and water passages therefrom.

2. In an acetylene-gas apparatus, in combination, a generator, a gas-generator, a condensing-chamber, a washing device in the condensing-chamber comprising a receptacle open at the bottom the lower edge of which extends below the water-level in the condensing-chamber, a pipe from the generator entering the receptacle below the water-level, connection between the pipe and the generator at both the bottom and the top thereof, whereby the pipe acts both as a gas-pipe and a drain-pipe for the generator, and a pipe communicating from the receptacle to the generator.



3. In an acetylene-gas apparatus, the combination with a generator, a valved water-feed pipe therefor, and a rising-and-filling gasometer, of a rod connected to the gasometer to rise and fall therewith and to the valve of the water-pipe to operate the same, said rod having a twisted portion to open the valve and portions above and below the twisted portion to close the valve.

4. In an acetylene-gas apparatus, in combination, a rising-and-filling gasometer, a gas-generator, a water-supply pipe therefor, a rod connected to the gasometer, a spiral projection on the rod, a lever having sliding engagement with the spiral and adapted to be operated thereby according to the rise and fall of the rod, a valve in the water-supply pipe, and connections between the lever and the valve to open and close the valve.

5. In an acetylene-gas apparatus, in combination, a rising-and-filling gasometer, a gas-generator connected thereto, a water-supply pipe for the generator, a valve in the pipe, a revolvable slotted plate, a twisted rod connected to the gasometer and adapted to rise and fall therewith, said rod extending through the slot in the plate and being adapted to turn the plate by engagement of the twist with the slot, connections between the plate and the valve whereby a movement of the plate operatively opens and closes the valve according to the fall and rise of the gasometer.

6. In an acetylene-gas apparatus, in combination, a gasometer adapted to rise and fall, a gas-generator, a water-supply pipe therefor, a valve in said pipe, a pivoted cylinder on an arm projecting from the cylinder and connected to the valve, a cap on the upper end of the cylinder having a slot, a twisted rod extending through said slot and connected to the gasometer to rise and fall with the same, whereby the twist of the rod passing through the slot will cause the cylinder to turn on its pivot and to open or close the valve.

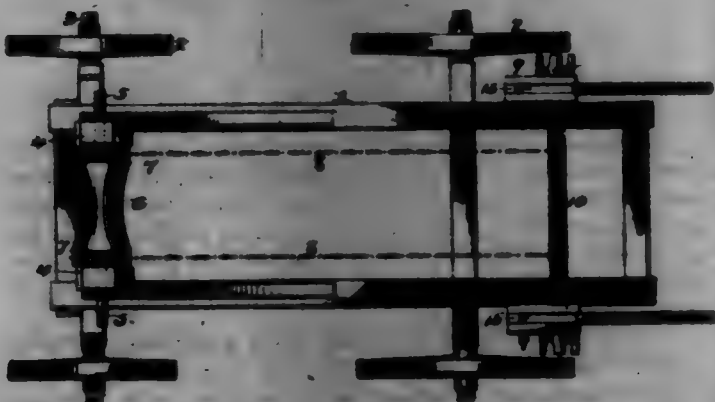
700,820. TREE-PROTECTOR. ALLEN RALSTON, Nashville, Tenn. Filed Feb. 10, 1902. Serial No. 93,363. (No model.)



Claim.—A tree-protector comprising a flexible body portion, rods connected to the upper and lower edges of the body portion, and said rods

mounted to the body portion intermediate its upper and lower edges, each of said rods projecting beyond the ends of the body portion and formed with eyes, and rods engaged with the eyes of said rods and each having angularly-projected registering eyes, vertical stakes secured to the upper and lower rods and having their lower ends projecting below the lower edge of the body portion, and a removable driving-stake adapted to be inserted through the angularly-disposed eyes and with the first-named driving-stake to be driven in the ground and then anchor the body portion in position around the tree-trunk, substantially as and for the purpose specified.

700,821. APPARATUS FOR TRANSPLANTING TREES. DAVID RALSTON, Altonhurst, N. J., assignor of two-thirds to J. M. Ralston and E. H. Ralston, Altonhurst, N. J. Filed Jan. 7, 1901. Serial No. 62,418. (No model.)



Claim.—1. A transplanting comprising a frame, a drum, a shaft in rear of the drum, chains adapted at one end for attachment to a tree and secured at the rear end to said shaft, the intermediate portions of the chains passing over the drum to rotate it, and a ratchet device for rotating said shaft to wind the chains thereon, turn the drum and pull the tree over the same.

2. A transplanting comprising a frame, a drum revolvably mounted thereon, a shaft revolvably mounted on the frame in rear of the drum, a ratchet-wheel secured on said shaft, a lever, a dog connected to the lever for rotating the ratchet-wheel when the lever is operated, a pawl adapted to engage the ratchet-wheel and prevent return thereof, pulleys rigid with the ends of said drum, chains secured to the shaft and passing over the said pulleys to rotate the drum and hook on the ends of the chains adapted to be joined together beneath the roots of a tree.

3. A transplanting comprising a frame, a drum revolvably supported at one end of the frame, a shaft revolvably supported on the frame in rear of the drum, grooved pulleys secured to the ends of the drum, chains secured to the shaft and passing over the pulleys to rotate the drum and simultaneously pull a tree over the same, hooks on the ends of the chains adapted to be joined together beneath the roots of a tree, and ratchet-blocks, each having a series of notches for the reception of a crowbar, on the shaft.

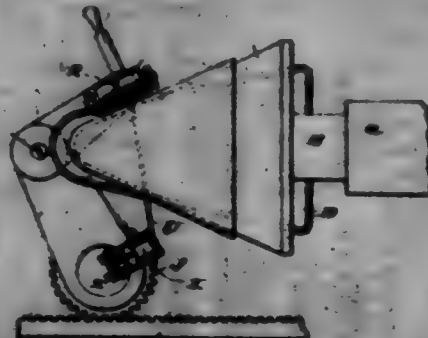
4. In an apparatus for transplanting trees, the combination with a body mounted on wheels, of standards secured to said body near one end thereof, a shaft supported in said standards and projecting beyond the same at both ends, a drum secured on said shaft between the standards, grooved pulleys secured to rotate with the drum, another shaft revolvably supported on said body in rear of the first-mentioned shaft, chains secured to said last-mentioned shaft and passing over the pulleys so as to rotate the drum and simultaneously pull a tree over the same, said chains being adapted to be attached to a tree, means for rotating said shaft, and ratchet-blocks, each having a series of notches for the reception of a crowbar for attachment to either of said shafts for governing the speed of rotation of said shafts.

5. In a transplanting, the combination with a frame, of a drum mounted thereon provided with rigid pulleys, a shaft in rear of the drum, chains wound on said shaft and passing over said pulleys so as to rotate the drum and pull a tree over the same when the shaft is rotated and ratchet-blocks located on the shaft in rear of the drum and each block having recesses for the reception of a crowbar, substantially as and for the purpose herein set forth.

700,822. HAY-THRESHING MACHINE. CHARLES E. BARNES, Barnbury, Conn. Filed Sept. 2, 1901. Serial No. 74,542. (No model.)

Claim.—1. The combination of a frame, a hat-support, means for rotating said hat-support, a horizontal series of levers supported by and having a vertical pivot on the frame whereby they are enabled to swing in a horizontal plane, a device for operating on a hat on the support, carried by the outer of said levers, and movable in a horizontal plane forwardly at one side of the hat-support, across the tip of the support and rearwardly at the opposite side of the support, means for holding the said device to the hat on the support, and means for swinging the levers on the vertical pivot and in a horizontal plane.

rearwardly at the opposite side of the support, means for holding the said device to the hat on the support, and means for swinging the levers on the vertical pivot and in a horizontal plane.



2. The combination of a frame, a hat-support, means for rotating the support, a horizontal series of levers supported by and having a vertical pivot on the frame whereby they are enabled to swing in a horizontal plane, a horizontally-disposed roller carried by the outer of said levers, and movable in a horizontal plane forwardly at one side of the hat-support, across the tip of the support, and rearwardly at the opposite side of the support, and means for swinging the levers on the vertical pivot and in a horizontal plane.

3. The combination of a frame, a hat-support, means for rotating the support, a horizontal series of levers supported by and having a vertical pivot on the frame whereby they are enabled to swing in a horizontal plane, a horizontally-disposed roller carried by the outer of said levers, and movable in a horizontal plane forwardly at one side of the hat-support, across the tip of the support, and rearwardly at the opposite side of the support, means for swinging the levers on the vertical pivot and in a horizontal plane, and means for yieldingly pressing the roller against the hat on the support incident to its movement around the same.

4. The combination of a frame, a hat-support, means for rotating the support, a horizontal series of levers supported by and having a vertical pivot on the frame, an upright spindle pivoted on the outer of the levers so as to rest on its axis, a horizontally-disposed roller mounted in said upright and movable through the medium of the levers in a horizontal plane forwardly at one side of the hat-support, across the tip of the support, and rearwardly at the opposite side of the support, means for swinging the levers on the vertical pivot and in a horizontal plane, and a weight connected with the spindle-support of the roller for yieldingly pressing the roller against a hat on the support.

5. The combination of a frame, a hat-support, means for rotating the support, a horizontal series of levers supported by and having an upright, tubular pivot journaled in the frame, one or more sheaves on the inner portion of the lower lever, an upright spindle pivoted on the outer of the levers so as to rest on its axis, a horizontally-disposed roller mounted in said upright and movable through the levers in a horizontal plane around the support, means for swinging the levers in a horizontal plane on their pivot, a cord connected to the spindle supporting the roller and passed around the sheave or sheaves and down through the tubular pivot, and a weight on said cord.

6. The combination of a cone-shaped hat-support, means for rotating the same, and a roller for pressing against a hat-support; said roller being made up of sections rotatable independent of each other.

7. The combination of a cone-shaped hat-support, means for rotating the same, a horizontally-disposed roller arranged to press against a hat on the support and comprising a plurality of sections rotatable independent of each other, means for moving said roller in a horizontal plane forwardly at one side of the support, across the tip of the same, and rearwardly at the opposite side of the support, and means for yieldingly pressing the roller against a hat on the support incident to each movement.

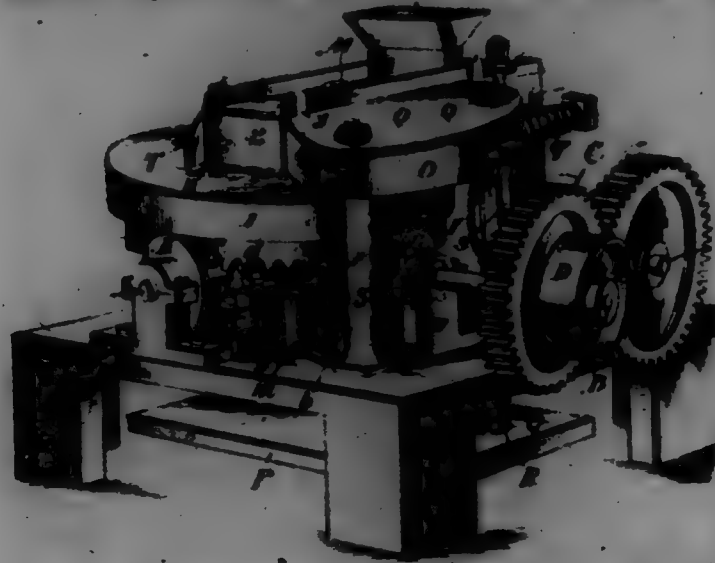
700,823. BRICK-PRESS. CHARLES W. RETHMAN, Toledo, Ohio, assignor of one-half to Louis T. Penney, Toledo, Ohio. Filed Sept. 12, 1901. Serial No. 74,543. (No model.)

Claim.—1. In a brick-press, the combination of a platform or supporting-frame, a head-block supported above said platform, fastening-bolts inserted through the head-block and the platform, a resistance-plate on the lower ends of the bolts, springs coiled around the bolts between the platform and the resistance-plate, a mold-wheel arranged below the head-block, and means for pressing a brick in the mold-wheel against the head-block.

2. The combination of a rotary mold-wheel, means for forming and pressing a brick therein, a rake arranged above the mold-wheel to remove the finished brick, a lever connected with and adapted to rotate the rake, a tappet-disk having a pin adapted to impinge against the lower end of said lever, and means for operating the tappet-disk.

3. In a brick-press, the combination of a rotary mold-wheel, a head-

block above the same, a vertically-movable mold-bottom in the mold-wheel, means for raising said mold-bottom, and a movable plate in the lead-block adapted to receive the pressure of the raised mold-bottom.



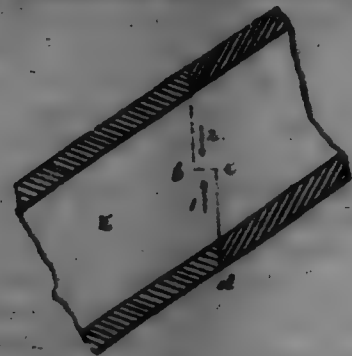
4. The combination of a rotary mold-wheel, vertically-movable mold-bottom therein, a plunger adapted to raise a mold-bottom to press a brick, a second plunger adapted to further raise the mold-bottom, means for operating the said plungers, and a supporting-plate between the plungers to prevent dropping of the mold-bottom.

5. In a brick-press, the combination of a rotary mold-wheel, a slide below the same, a vertically-movable plunger mounted in the slide and adapted to act on the movable mold-bottom in the mold-wheel, a cam fitted in said plunger, and means for raising said cam.

6. The combination of the mold-wheel having an annular rack on its outer side, a driving-shaft carrying a pinion meshing with said annular rack, a compressing-plunger, a cam on the end of the driving-shaft fitted in said plunger, an expelling-plunger, a shaft having a cam fitted in said plunger, and a pinion on said shaft meshing with the annular rack-bar on the mold-wheel.

7. The combination of the mold-wheel having mold-cavities provided with guiding-ribs on their walls and with steps near their lower ends, and movable mold-bottoms fitted loosely in the mold-cavities having notches engaging the ribs and shoulders engaging said steps.

700,824. SECTIONAL GAS-RETORT. GEORGE F. KEMPER, Station, Germany. Filed Mar. 12, 1901. Serial No. 91,996. (No model.)



Claim.—1. A retort divided transversely into sections, the end of each section formed by planes at an angle to the axis of the retort, and offset between the planes to form locking members, substantially as described.

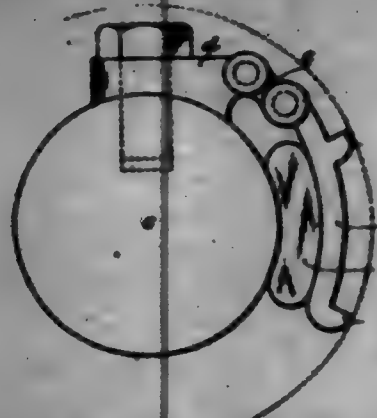
2. A retort divided transversely into sections, the end of each section formed by parallel planes cutting the axis of the retort, an angle to form two abutting flanges and an offset between the two flanges, substantially as described.

3. A retort divided transversely into sections, the end of each section formed by parallel planes cutting the axis of the retort, and an offset between the planes at about its medial line, substantially as described.

4. A retort divided transversely into sections, the end of each section formed by two pairs of parallel planes, said pairs of planes at an angle to each other and to the axis of the retort, and an offset between the planes of a pair, substantially as described.

5. A retort divided transversely into sections, the end of each section formed by two pairs of parallel planes, cutting the retort to its vertical medial line, said pairs of planes at an angle to each other and to the axis of the retort, and an offset between the planes of a pair at about the lateral medial line, substantially as described.

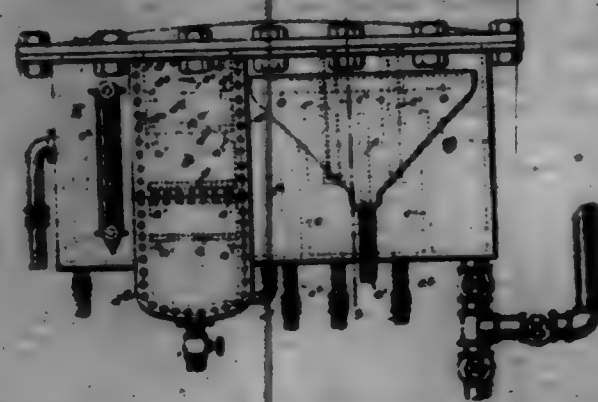
700,825. TOOL FOR FINISHING METAL SURFACES OR THE LIKE. SAMUEL LITTELL, JR., Philadelphia, Pa., assignor to W. A. Newman, Portland, Philadelphia, Pa. Filed Feb. 12, 1901. Serial No. 65,891. (No model.)



Claim.—1. In a tool of the character described, a support, a curved or arc-shaped head provided on its inner face with cutting or scraping edges and normally arranged concentric with the periphery of the support, means for flexibly connecting one end of the tool to the periphery of the support so as to permit the tool to swing concentrically to the support and resilient means interposed between the inner face of the tool and the support.

2. In a tool of the character described, a scraping-tool comprising a curved plate provided on its outer face with scraping edges, a central support, a resilient means interposed between the plate and the support, and a link for connecting one end of said plate to said support and thereby permitting the plate to swing concentrically toward or away from the periphery of the support.

700,826. WATER-PURIFYING APPARATUS. JAMES BOAR, Portsmouth, Va. Filed Feb. 12, 1901. Serial No. 92,728. (No model.)



Claim.—1. In a water-purifying apparatus a settling-compartment provided with a valve-controlled outlet and a series of baffles-plates whereby the water is caused to travel the length of the compartment in a tortuous path, and with an overflow-opening which extends practically the length of the compartment and is located above the normal level of the water therein, substantially as and for the purposes hereinbefore set forth.

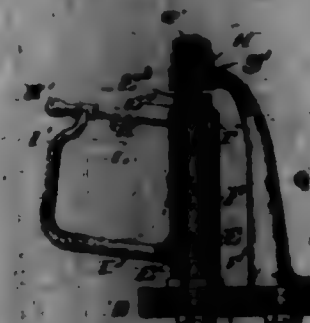
2. A water-purifying apparatus consisting of a settling-compartment, a filter-compartment and a purified-water receptacle or compartment, communicating one with the other in the order named, an inlet-pipe leading the water to be purified into the settling-compartment, an outlet-pipe for leading off the purified water from the purified-water receptacle, valves for controlling the flow of water through the several compartments and an overflow-opening formed in and extending practically the length of the settling-compartment at a point above the normal level of the water therein, substantially as and for the purposes hereinbefore set forth.

3. A water-purifying apparatus composed of a tank having a removable cover and divided lengthwise by cross-partitions into a settling-compartment, a filter-compartment and a purified-water compartment, communicating with each other in the order named, valves for controlling the flow of water, inlet and outlet pipes, removable side plates on the filter-compartment, baffles-plates in the settling-compartment, and an overflow-opening formed in and extending practically the length of the settling-compartment and located above the normal level of the water therein, substantially as and for the purposes hereinbefore set forth.

700,827. SWIVEL-BLOCK. ALBERT E. BELMONT, Cambridge, Mass. Filed Aug. 2, 1901. Serial No. 70,791. (No model.)

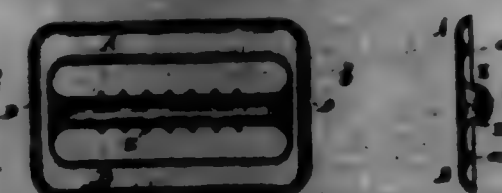
Claim.—1. A swivel-block comprising a vertical spindle provided

with means for rigidly affixing it to an outtrigger-shaft, said spindle being provided near its lower end with a conical collar and screw-threaded at its upper end, a sleeve mounted on said spindle and carrying an out-pipe (equipped with an approximately horizontal arm provided at its free end with a vertical arm, and a pivoted latch connecting the upper end of the vertical arm to the sleeve, said sleeve being provided at its opposite ends with conical recesses or bearings, the lower of said bearings fitting the conical collar on the spindle, a cone adjustably fitted on the upper threaded end of the spindle and fitting the upper conical bearing in the spindle, a check-rod fitted on the spindle over the cone, and a post provided with means for fixing its lower end to the outtrigger-shaft, the spindle and connected at its upper end to the upper end of the spindle, substantially as described.



2. In combination with a shaft or beam, an outtrigger-shaft D, secured at one end to the shaft or beam by means and having a spindle K, secured to said shaft and a revolute pivotally arranged on said spindle, a post (L), secured to said shaft and to the upper end of the spindle K, and a brace or stay (H), secured at its end to the spindle K, and at its lower end to the opposite portion of the shaft or beam substantially as and for the purpose set forth.

700,828. SUSPENSION-BUCKLE. MAX ROSEN, New York, N. Y. Filed Mar. 1, 1901. Serial No. 92,828. (No model.)



Claim.—1. A suspension-buckle composed of a single piece of sheet metal, having three parallel bars united by end bars, the intermediate bar being in a plane behind that of the two adjacent bars and having open ends, the end bars having their inner edges bent inward and toward the intermediate bar to form clamping edges, the open ends of the intermediate bar being inclined upward and outward and in the direction toward the front face of the buckle, substantially as set forth.

2. A suspension-buckle constructed of a single piece of sheet metal and having the top and bottom bars A and B, the inner edges of which are inclined inward, the intermediate bar C is in a plane behind that of the bars A and B, and having open ends which are inclined upward and outward toward the face of the buckle, the end bars D having their outer edges bent over on the rear, substantially as set forth.

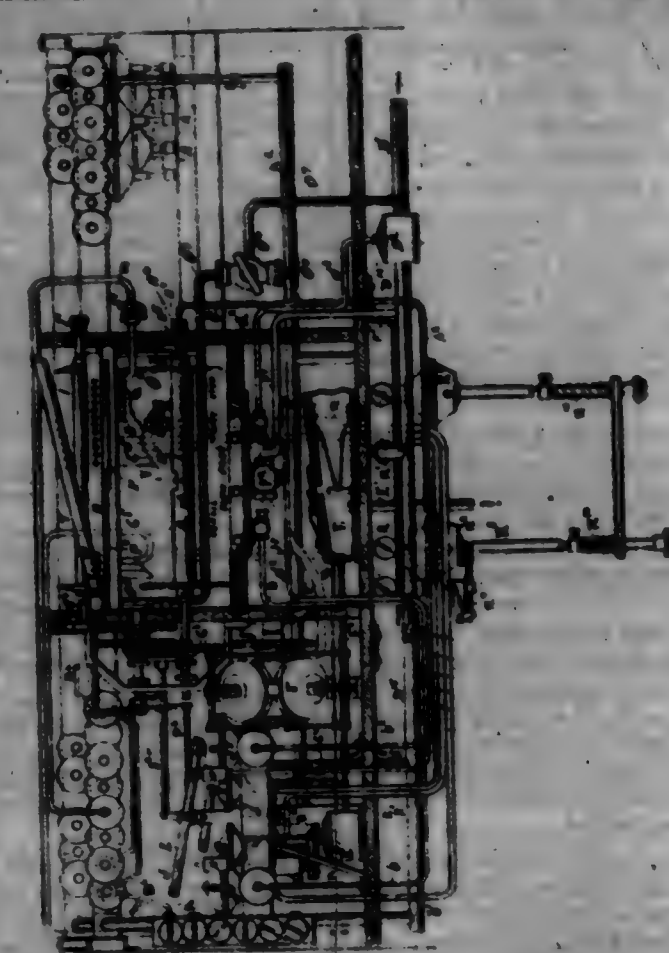
3. A suspension-buckle constructed of a single piece of sheet metal and having the top and bottom bars A and B, and the intermediate bar C in a plane behind that of the bars A and B, and having open ends which are inclined upward and outward toward the face of the buckle, the end bars D having their outer edges bent over on the rear, and the curved parts E uniting the end bars with the end parts of the bar C, substantially as set forth.

700,829. SELF-PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS. HENRY B. HARRIS, New York, N. Y., assignor to The Firm of Loewy and Company, New York, N. Y. Filed Apr. 27, 1901. Serial No. 92,794. (No model.)

Claim.—1. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a reversing-gear for said sheet-rolling mechanism, pneumatic mechanism for operating the reversing-gear and means for pneumatically controlling the reversing-gear from a roller of the sheet-rolling mechanism, substantially as herein shown and described.

2. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a reversing-gear for said sheet-rolling mechanism, pneumatic mechanism for operating the reversing-gear and means for pneumatically controlling the reversing-gear from a roller of the sheet-rolling mechanism, substantially as herein shown and described.

3. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a driving-gear, a reversing-gear and means for controlling the reversing-gear pneumatically from a roller of the sheet-rolling mechanism, substantially as herein shown and described.



4. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a driving-gear, a reversing-gear, pneumatic mechanism for operating the reversing-gear and means for pneumatically controlling said reversing-gear from a roller of the sheet-rolling mechanism by the unrolling of the sheet, substantially as herein shown and described.

5. In a self-playing attachment for musical instruments, the combination with two note-sheet rollers, one of said rollers having a dust extending from one end to the surface of the roller, a driving-gear, a reversing-gear, pneumatic mechanism for operating the reversing-gear, and a pneumatic connection between the said pneumatic mechanism and the said dust in the roller, substantially as herein shown and described.

6. In a self-playing attachment for musical instruments, the combination with two note-sheet rollers, one of said rollers having a dust extending from one end to the surface of the roller, a tubular bearing for that end of the roller having the dust, a driving-gear, a reversing-gear, pneumatic mechanism for operating the reversing-gear and a pneumatic connection between the said tubular bearing and the pneumatic mechanism for operating the reversing-gear, substantially as herein shown and described.

7. In a self-playing attachment for musical instruments, the combination with two note-sheet rollers, one of said rollers having a dust extending from one end to the surface of the roller, a spring-pressed tubular bearing for that end of the roller having the dust, a driving-gear, a reversing-gear, pneumatic mechanism for operating the reversing-gear and a pneumatic connection between the said tubular bearing and the pneumatic mechanism for operating the reversing-gear, substantially as herein shown and described.

8. In a self-playing attachment for musical instruments, the combination with two note-sheet rollers, one of said rollers having a dust extending from one end to the surface of the roller, a tubular spring-pressed bearing for one end of the said roller, a resilient bearing for the other end, a driving-gear, a reversing-gear, pneumatic mechanism for operating the reversing-gear and a pneumatic connection between the said tubular bearing and the pneumatic mechanism for operating the reversing-gear, substantially as herein shown and described.

9. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a driving-gear for this rolling mechanism, a compressed-air-cumulating tube, a valve in said tube, a motor-tube, a valve in said motor-tube, a reversing-gear for the rolling

mechanism, means operated with said reversing-gear for controlling the valves in the compressed-air tube and suction-tube and pneumatic mechanisms connected with said compressed-air tube and suction-tube, substantially as herein shown and described.

10. In a self-playing attachment for musical instruments, the combination with a note-sheet-rolling mechanism, of a driving-gear for this rolling mechanism, a compressed-air tube, a valve in the same, a suction-tube, a valve in the same, a separate tube connected with the casing of each of said valves, a controlling-valve in the end of each of said tubes, a reversing-gear for the roller-driving mechanism, means connected with the reversing-gear for actuating the valve in the end of the said tube and pneumatic mechanism connected with the compressed-air tube and the suction-tube, substantially as herein shown and described.

11. In a self-playing attachment for musical instruments the combination with a series of pneumatic mechanisms, means for moving said valves by motion, a compressed-air-conducting tube, connected with the pneumatic mechanisms, a suction-tube connected with the valve mechanisms of said pneumatic mechanisms, a valve in the suction-tube, a valve in the compressed-air-conducting tube, a note-sheet-moving mechanism, a driving-gear for the same, a reversing-gear and means connected with the reversing-gear for controlling the valves in the suction-tube and in the compressed-air-conducting tube, while reversing, substantially as herein shown and described.

12. In a self-playing attachment for musical instruments the combination with a tracker-bar having ducts and a chamber connected with each duct, of a tube extending to said chamber, a suction-tube and a compressed-air tube and a three-way cock connecting the tube extending to said chamber with the suction-tube and the compressed-air tube, substantially as herein shown and described.

13. In a self-playing attachment for musical instruments, the combination with a tracker-bar having ducts and a chamber connected with each duct, of means for drawing air from said chamber and means for conducting compressed air into said chamber, substantially as herein shown and described.

14. In a self-playing attachment for musical instruments, the combination with a tracker-bar having ducts, of tubes connected with the ducts, a three-way cock connected with each of a series of such tubes and means in each tube, between the ends of tracker-bar ducts and the three-way cock for closing each duct or tube connected therewith, substantially as herein shown and described.

15. In a self-playing attachment for musical instruments, the combination with a tracker-bar having ducts, and additional ducts extending from the first-mentioned ducts, means for opening and closing said additional ducts automatically by a note-sheet moved over the tracker-bar, substantially as herein shown and described.

16. In a self-playing attachment for musical instruments, the combination with a tracker-bar having ducts and additional ducts extending from the first-mentioned ducts, of means for opening and closing said additional ducts automatically by a note-sheet moved over the tracker-bar, substantially as herein shown and described.

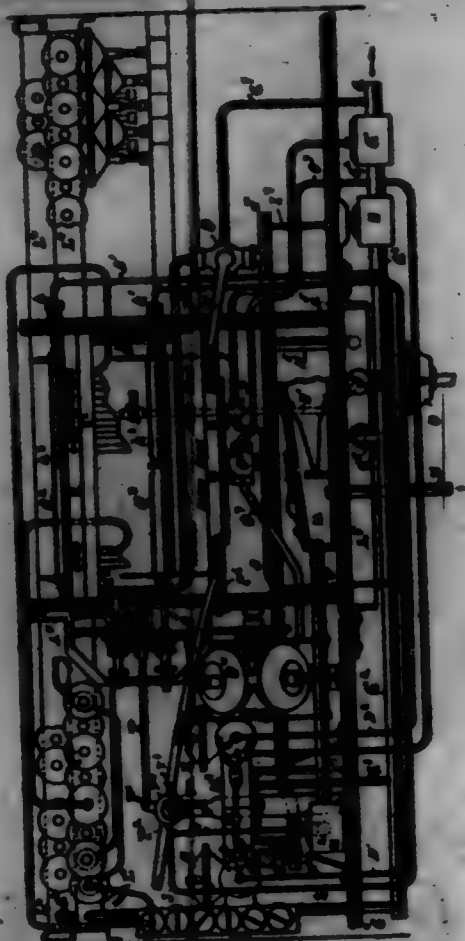
17. In a self-playing attachment for musical instruments, the combination with a pedal-operating bar, of a pneumatic mechanism for operating said bar, a tracker-bar, a tube extending from the said pneumatic mechanism to the tracker-bar and a three-way cock in said tube, substantially as herein shown and described.

18. In a self-playing attachment for musical instruments, the combination with a series of pneumatic mechanisms to be operated by compressed air, of valve mechanisms for said pneumatic mechanisms, means for operating said valves by motion, a compressed-air-conducting tube, a valve-casing connected with said tube, a valve in said casing controlling said compressed-air-conducting tube, a suction-tube, a valve-casing connected therewith, a valve in the same controlling the suction-tube, a note-sheet-rolling mechanism, a reversing-gear for the same, a tube connected with the valve-casing of the compressed-air tube, a tube connected with the valve-casing of the suction-tube and means for opening or closing said two tubes together automatically, which means are operated with the reversing-gear, substantially as herein shown and described.

700,880. PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS. HARRY H. SALTER, New York, N. Y., assignor to The Firm Ludwig and Company, New York, N. Y. Filed June 17, 1921. Serial No. 94,895. (No model.)

Claim.—1. In a playing attachment for musical instruments, a pneumatic mechanism composed of a casing, a rod in the same, means in the casing for moving the rod lengthwise by compressed air, a valve for admitting compressed air into said casing, a spring acting on said valve to prevent the same and means for counteracting said spring by motion, and means for automatically destroying said motion, in time, substantially as herein shown and described.

2. In a playing attachment for musical instruments, a pneumatic mechanism composed of a casing, means in the same for moving a rod lengthwise by compressed air, a rod in said casing, a valve for admitting compressed air into said casing, a spring acting on said valve to prevent the same and means for counteracting said spring by motion, substantially as herein shown and described.



3. In a playing attachment for musical instruments, a pneumatic mechanism composed of a casing, means in the same for moving a rod lengthwise by compressed air, a rod in said casing, a valve for admitting compressed air into said casing, a spring acting on said valve to prevent it and a diaphragm and suction-tube for counteracting said spring, substantially as herein shown and described.

4. In a playing attachment for musical instruments a pneumatic mechanism composed of a casing, means in the same for moving a rod lengthwise by compressed air, a rod in said casing, a valve for admitting compressed air into said casing, a motion device for actuating the valve, and a spring for moving the valve, substantially as herein shown and described.

5. In a playing attachment for musical instruments a pneumatic mechanism composed of a chamber, a suction-duct connected with said chamber, a diaphragm in the chamber, a valve-stem impinging on said diaphragm and a spring for moving the diaphragm adversely to the spring, substantially as herein shown and described.

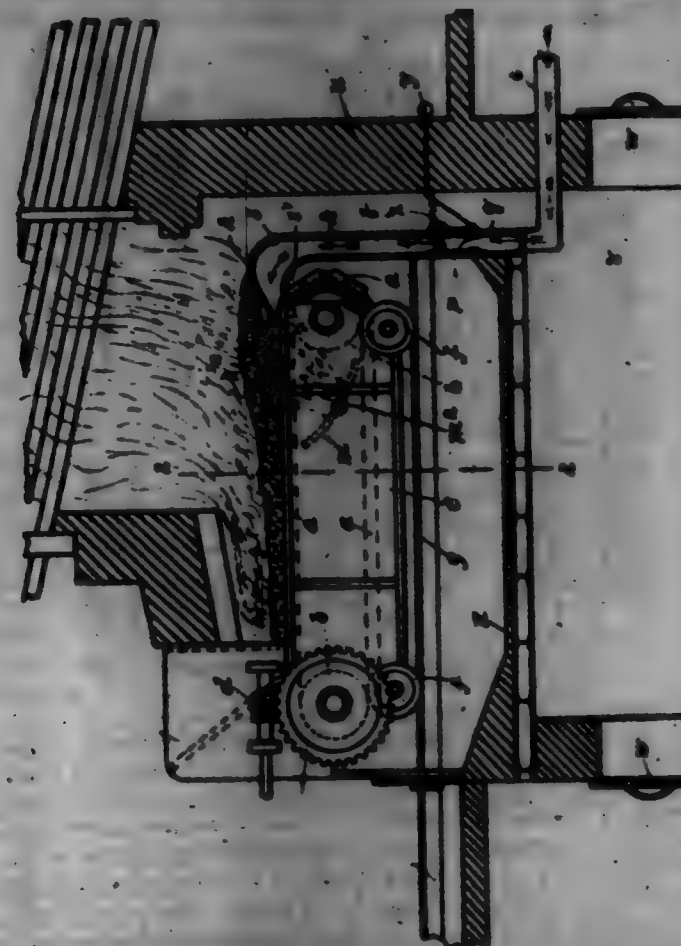
6. In a playing attachment for musical instruments a pneumatic mechanism composed of a chamber, a suction-duct connected with said chamber, a diaphragm in the chamber, means for admitting atmospheric air to one face of the diaphragm, a spring for pressing said diaphragm adversely to the pressure of the atmospheric air and a valve-stem impinging against the diaphragm, substantially as herein shown and described.

7. In an automatic playing attachment for musical instruments, the combination with a series of pneumatic mechanisms to be operated by compressed air, of valves for the same, means for controlling said mechanisms by motion, a compressed-air-supply tube, a valve-casing in said tube, a valve in said casing and means for controlling said valve by motion, a suction-tube, a valve-casing in the suction-tube, a valve in the same, and a tube extending from the valve-casing in the compressed-air tube to the suction-tube, substantially as herein shown and described.

8. In an automatic playing attachment for musical instruments the combination with a series of pneumatic mechanisms to be operated by compressed air, of valves for the same, means for controlling said mechanisms by motion, a compressed-air-supply tube, a valve-casing in said tube, a valve in said casing and means for controlling said valve by motion, a suction-tube, a valve-casing in the suction-tube, a valve in the same, and a tube extending from the valve-casing in the compressed-air tube to the suction-tube, substantially as herein shown and described.

700,881. FULLER. PNEUMATIC RECORDING. Chicago, Ill. Filed Apr. 20, 1921. Serial No. 57,897. (No model.)

Claim.—1. In a furnace, the combination with a traveling chain grate, of a wind-box at the rear of the furnace provided with upper and lower openings between which the grate is disposed, so that air is blasted through the grate in both directions, substantially as described.



2. In a furnace, the combination with a traveling chain grate, of a wind-box at the rear thereof projecting above the grate and having its upper end constituting a lodging-place for the accumulated fuel, the air passing through the wind-box serving to cool the metal thereof, whereby the wind-box may withstand the temperature of the burning fuel, a passage being provided between the wind-box and the bridge-wall of the furnace, through which ashes from the fuel may pass, an ash-pit being provided beneath the furnace for receiving the ashes, and a door for closing the said passage-way to the ash-pit when the ashes are to be removed, substantially as described.

3. In a furnace, the combination with a traveling chain grate, of a wind-box at the rear thereof projecting above the grate and having its upper end constituting a lodging-place for accumulated fuel, the air passing through the wind-box serving to cool the metal thereof, whereby the wind-box may withstand the temperature of the burning fuel, the upper part of the wind-box being formed with a pivotal section, substantially as described.

4. In a furnace, the combination with a traveling chain grate, of a wind-box at the rear thereof projecting above the grate and having its upper end constituting a lodging-place for accumulated fuel, the air passing through the wind-box serving to cool the metal thereof, whereby the wind-box may withstand the temperature of the burning fuel, substantially as described.

5. In a furnace, the combination with a traveling chain grate, of a traveling carriage for supporting the same, a deflecting-plate located between the stretches of the chain grate and mounted upon the side walls of the said frame, and means at the rear of the furnace for directing a blast of air upon the said deflecting-plate, which thereupon serves to redirect the blast of air upwardly through the fuel, substantially as described.

6. In a furnace, the combination with a traveling chain grate, of means at the rear thereof for directing a blast of air upon the fuel, the front of the furnace being provided with cooling means and a duct beneath the traveling chain grate forming, with the front of the furnace, means for cooling the same, and constituting a support for receiving the fuel falling through the grate before it is consumed, an ash-pit provided beneath the duct, and a passage-way at the rear of the grate through which ashes from the grate may fall into the ash-pit, substantially as described.

7. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for placing fuel upon the grate, a wind-box at the rear of the furnace provided with means at its upper end constituting an abutment or lodging-place against which fuel may be accumulated to more readily permit its consumption, and a deflecting-plate for directing the blast of air upwardly through this accumulated fuel, substantially as described.

8. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for placing fuel upon the grate, and a wind-box at the rear of the furnace provided with means at its upper end constituting an abutment or lodging-place against which fuel may be accumulated to more readily permit its consumption, substantially as described.

9. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for feeding fuel upon the grate, means for creating a forced blast at the rear of the furnace upon the fuel, and a deflecting-plate co-operating with the blast-creating means and serving to direct the blast of air upwardly through the fuel, substantially as described.

10. In a furnace, the combination with fuel-supporting means, of means at the front of the furnace for placing fuel upon the fuel-supporting means, a wind-box at the rear of the furnace constituting an abutment against which the fuel may be gathered, and a deflecting-plate located below the fuel, the said wind-box serving to direct a blast of air upon the deflecting-plate, the latter serving to deflect the blast of air up through the fuel, substantially as described.

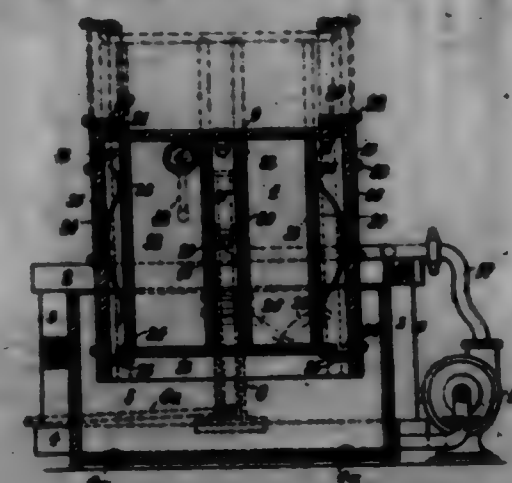
11. In a furnace, the combination with a traveling chain grate, of a traveling carriage for supporting the same, an adjustable deflecting-plate located between the stretches of the chain grate and mounted upon the side walls of the said frame, and means at the rear of the furnace for directing a blast of air upon the said deflecting-plate, which thereupon serves to redirect the blast of air upwardly through the fuel, substantially as described.

12. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for placing fuel upon the grate, a wind-box at the rear of the furnace provided with means at its upper end constituting an abutment or lodging-place against which fuel may be accumulated to more readily permit its consumption, and an adjustable deflecting-plate for directing the blast of air upwardly through this accumulated fuel, substantially as described.

13. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for feeding fuel upon the grate, means for creating a forced blast at the rear of the furnace upon the fuel, and an adjustable deflecting-plate co-operating with the blast-creating means and serving to direct the blast of air upwardly through the fuel, substantially as described.

14. In a furnace, the combination with a traveling chain grate, of means at the front of the furnace for feeding fuel upon the grate, means for creating a forced blast at the rear of the furnace upon the fuel, and an adjustable deflecting-plate co-operating with the blast-creating means and serving to direct the blast of air upwardly through the fuel, substantially as described.

700,882. APPARATUS FOR DYING. Dr. PAUL SCHMIDT, Berlin, Germany. Filed Feb. 4, 1922. Serial No. 82,226. (No model.)



Claim.—1. In an apparatus for drying, bleaching, washing and otherwise treating textile materials by liquids in combination with a fluid rot containing the liquid, a tub 1 containing the material to be treated with the liquid, said tub being supported on a lifting apparatus capable of lowering the same into basin or raising it out of it, while the lifting-gear itself is carried on a frame 2, 3, 4 on which 5 for the purpose of withdrawing the raised tub together with the lifting-gear away from the basin 1, as described and illustrated.

2. In a combination with the tub 1 a frame 2, 3, 4, pressure-cylinders 6 fixed on girders 4 of said frame, pistons 7 in said cylinders, forced bearings 8 formed at the top of pistons 7 to carry the tub 1 on pins 9 projecting from the two opposite sides of the tub, a bracket 11 extending from the side of one of the pistons 7, a spindle 12 carried in said bracket, a spur-wheel 10 keyed to the end of pin 9 and gearing into a pinion 11 on spindle 12, a crank 13 at the end of spindle 12, a pipe 14 leading into the pressure-cylinder 6, the whole as described and illustrated and for the purpose set forth.

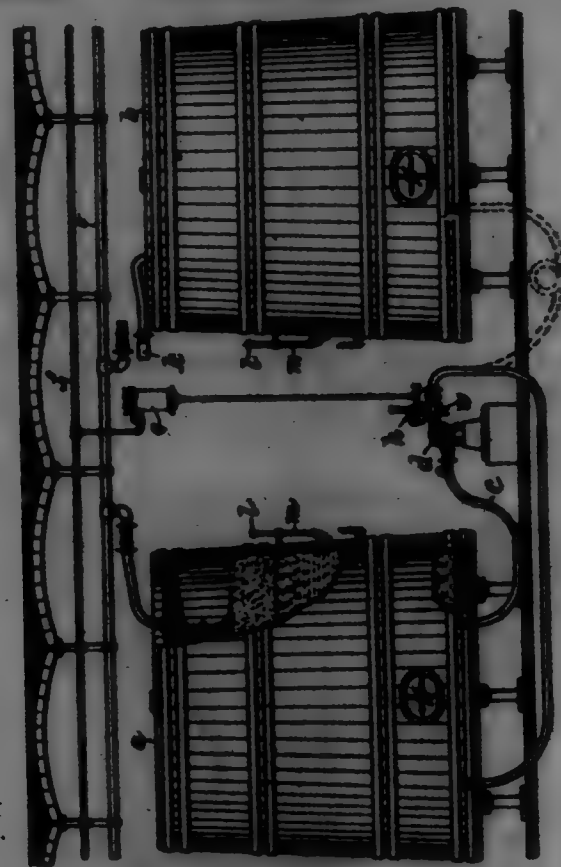
3. In an apparatus for drying, bleaching, washing and otherwise

treating textile materials by liquids in combination with a basin 5, a pump 17, a flexible tube 17 and a movable tab 1, said tube 17 being connected at one end to the basin of a gulchman 16 leading into the interior of said tub the whole as described and illustrated and for the purpose set forth.

4. In an apparatus for dyeing, bleaching, washing and otherwise treating textile material with liquids, in combination with a tub 1 perforated diaphragm 20, 20 in the middle of the same and forming a chamber 21 between them for introducing the liquid therein and two spaces 22 at both sides of this chamber, false perforated covers 23 for each of these spaces, closing-covers 18, 19, pump-glasses 25 fitted in said covers 18, 19 respectively, levels 20 along the edges of said covers fitting to corresponding levels 21 along the respective edges of the tub 1, fastening-covers 22 for pulling the covers 18, 19 tight against the edges of the tub, the whole as described and illustrated and for the purpose set forth.

5. In combination with the tub 1 having outlets 24 between the bottom 23 and the covers 18 and 19, the throttle-valves 25 actuated by levers 26, bolts 27 and quadrants 28, for regulating the width of the outlet of the liquid from the tub back into the vat, the whole as described and illustrated.

700,888. MANUFACTURE OF FERMENTED LIQUORS. JOHN SHERMAN, New York, N. Y. Filed Feb. 22, 1902. Serial No. 94,898. (No model.)



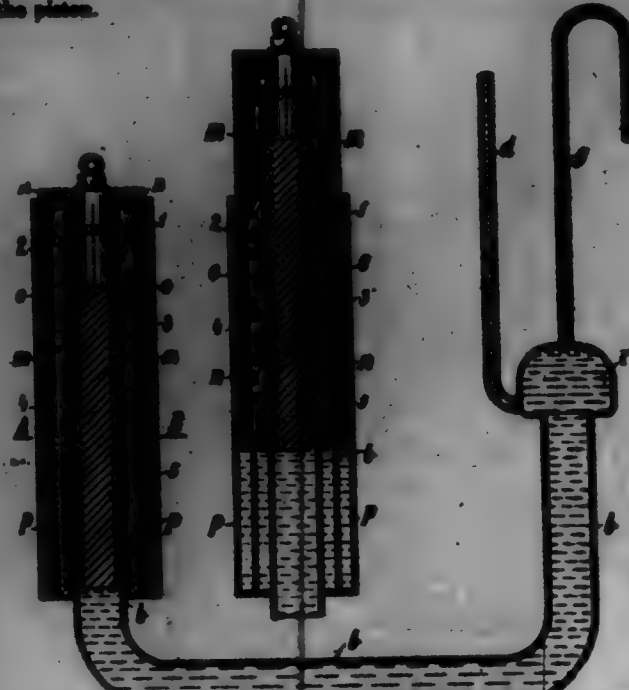
Claim.—1. The improvement in the art of manufacturing fermented liquor which consists in carrying on the first or main fermentation in a closed vessel, separating the liquor with the active yeast from the waste yeast and foreign matter, transferring the liquor carrying in suspension the yeast for further use to another vessel, separating, in the second vessel, the liquor from such yeast, and removing the liquor and introducing other liquor to be fermented into the second vessel without removing the yeast therefrom.

2. The improvement in the art of manufacturing fermented liquor which consists in carrying on the first or main fermentation in a closed vessel, separating the liquor with the active yeast from the waste yeast and foreign matter transferring the liquor carrying in suspension the yeast for further use to another closed vessel, separating, in the second vessel, the liquor from such yeast, and removing the liquor and introducing other liquor to be fermented into the second vessel without removing the yeast therefrom, and carrying the liquor introduced with the yeast as soon as a rise in the temperature manifests itself.

700,884. PACKING FOR PRESSURE-PYTONS. ALBERT BIRALL, Manchester, Germany. Filed Sept. 16, 1901. Serial No. 75,593. (No model.)

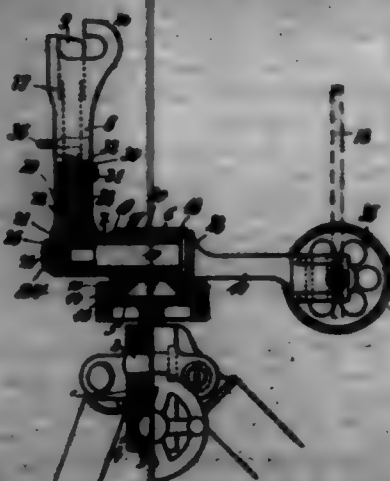
Claim.—1. The combination with a pressure-cylinder and a plurality of cylinders α connected concentrically to said pressure-cylinder, of a piston adapted to be reciprocated in said pressure-cylinder, a plurality of other cylinders β connected concentrically to said piston and adapted

to be reciprocated therewith in the annular space respectively formed by the cylindrical cylinders α and cooling liquid as disposed in said annular space as to severally seal each from the next and to provide a combined columnar pressure exceeding that equivalent to the length of the stroke of the piston.



2. The combination with a pressure-cylinder and a plurality of cylinders α connected concentrically to said pressure-cylinder, a piston adapted to be reciprocated in said pressure-cylinder, a plurality of other cylinders β connected concentrically to said piston and adapted to be reciprocated therewith in the annular space respectively formed by the cylindrical cylinders α and cooling liquid as disposed in said annular space as to severally seal each from the next and to provide a combined columnar pressure exceeding that equivalent to the length of the stroke of the piston.

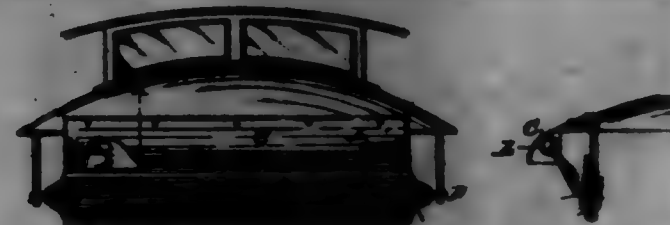
700,885. FUSE-PIVOT FOR MORTAR-FUSE. JAMES T. GUNN, London, England, Denmark. Filed Sept. 16, 1901. Serial No. 75,594. (No model.)



Claim.—In combination with the stand, a pivot-rod 1 supported thereon, a pivot-foot 4 pivoted within the stand, a worm 3 for operating the pivot-foot, a platform carried by the pivot-foot, a pivot-rod 6 supported on the platform, an arm 7 pivoted in the pivot-rod, an arm 10 inserted within the arm 7, said arm being arranged to support the weapon and having between them and the pivot-rod 6 control friction-surfaces 17, 18, 19 and 20, means for adjusting the frictional contact between said surfaces including a resilient device and an adjusting device, the said arm 7 having an upwardly-extending branch in the form of a fork provided with hook-shaped bearings 24, a movable locking-disk 9 carried by the upwardly-extending portion of the arm 7 and cooperating with the hook-shaped bearings, the said arm 10 being provided with the steering-disk 11, a rotary body 12 journaled therein, an elevation-rod 13 supported by said rotary body, and means for adjusting the elevation-rod, substantially as described.

700,886. ILLUMINATED SIGN. CHARLES G. SWIFT, Boston, Mass., assignor to Alfred G. Feltus and Marie L. Feltus, copartners doing business as A. G. and M. L. Feltus, a firm of Boston, Mass. Filed Feb. 11, 1902. Serial No. 95,899. (No model.)

Claim.—1. In an illuminated sign, light-receiving surface, a shaded background therefor comprising a series of shadow-forming projections, and a light in front and to one side of said background, said projections being transversely disposed with relation to the rays of the light and adapted to intercept the rays to said background, substantially as described.



2. In an illuminated sign, light-receiving surface, a shaded background therefor comprising a series of parallel shadow-forming projections, and a light in front and to one side of said background, said projections being transversely disposed with relation to the rays of the light and adapted to intercept the rays to said background, substantially as described.

3. In an illuminated sign, light-receiving surface, a shaded background therefor comprising a series of shadow-forming projections, and a light, said light-receiving surface being slightly inclined with relation to said background and toward the light, substantially as described.

4. In an illuminated sign, light-receiving surface, a shaded background therefor consisting of a board provided with a series of angular shadow-forming ridges, and a light in front and to one side of said board, said ridges being transversely disposed with relation to the rays of the light and adapted to intercept the rays to said background, substantially as described.

5. In an illuminated sign, light-receiving surface, a shaded background therefor consisting of a board provided with a series of angular shadow-forming ridges, and a light, said light-receiving surface being slightly inclined with relation to said board and toward the light, substantially as described.

6. In an illuminated sign, light-receiving character upon a shaded background said background consisting of a board having a corrugated surface, and a light in front and to one side of said board, the corrugations of said surface facing toward the light at an angle such that the narrow faces of the corrugations receive the light and are out of the range of vision from a point of observation in front of the sign, while the broad faces of the corrugations are shaded from the light and are within the range of vision from said point of observation, the faces of the said light-receiving character being slightly inclined with relation to the said board and toward the light, substantially as described.

7. In an illuminated sign, light-receiving character upon a shaded background, said background consisting of a board having a corrugated surface, and a light in front and to one side of said board, the corrugations of said surface facing toward the light at an angle such that the narrow faces of the corrugations receive the light and are out of the range of vision from a point of observation in front of the sign, while the broad faces of the corrugations are shaded from the light and are within the range of vision from said point of observation, the faces of the said light-receiving character being slightly inclined with relation to the said board and toward the light, substantially as described.

8. In an illuminated sign, light-receiving surface, a shaded background therefor comprising a series of transverse shadow-forming projections, and a light in front and to one side of said sign, the shadow-forming projections which are more remote from the light being spaced at greater intervals than the projections nearer the light, substantially as described.

700,887. SOLID-RUBBER VEHICLE-TIRE. FRANK A. SHERRILL, Akron, Ohio. Filed Jan. 15, 1902. Serial No. 95,900. (No model.)



Claim.—1. An improved solid-rubber vehicle-tire having a rounded tread portion, with lateral flanges on each side of the base, and a downwardly-curved base, and having embedded transverse wires or rods curved downward, in the center from near the center of the rubber tire on each side to the base, thence diagonally upward to the upper inner angle of the flanges and the, substantially as shown and described.

2. An improved solid-rubber vehicle-tire having a tread portion, a base, and lateral flanges on each side of the base, having at intervals embedded transverse wires or rods curved downward in the center from near the center of the rubber on each side to the base, thence diagonally upward to the upper parts of the flanges, substantially as shown and for the purpose specified.

3. The combination with a metallic tire having lateral, inward flanges forming channels, of a rubber tire adapted to rest in said metal tire having lateral flanges to fit said channels, and having at intervals, embedded wires or rods in planes transverse to said rubber tire centrally curved downward from near the center of the rubber on each side to the base, and thence diagonally upward into the flanges near their upper faces, substantially as shown and described.

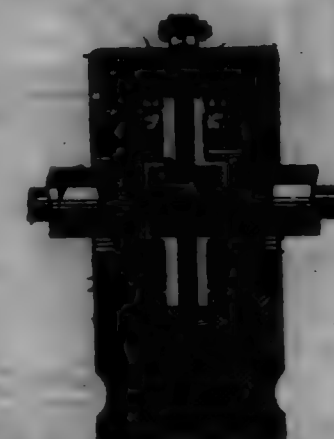
700,888. ATOMIZER. OTTO J. SCHMIDT, Philadelphia, Pa., assignor to Rhodes Lockwood, William H. Lockwood, and Rhodes C. Lockwood, copartners under firm-name of Devision Rubber Company Boston, Mass. Filed May 2, 1901. Serial No. 94,817. (No model.)



Claim.—1. An atomizer made up of a bulb; a receptacle fitting into the mouth of the bulb and having a sliding engagement therewith and a passage through its walls communicating at the lower end of the receptacle with the interior of the bulb and opening at its upper end into the upper interior portion of the receptacle to permit the passage of air under pressure from the bulb to the upper interior end of the receptacle when the bulb is compressed; and a spraying device at the free end of the receptacle, having a pipe depending within the receptacle.

2. An atomizer made up of a bulb; a double-walled receptacle, having a space between the walls and an aperture through the outer wall at the lower end thereof and an aperture through the inner wall at the upper end thereof; a spraying device at the mouth of the receptacle, having its liquid-pipe depending within the inner wall of the receptacle; all organized and arranged, substantially as shown and described, to permit the passage of air under pressure from the bulb to the upper interior end of the receptacle, when the bulb is compressed.

700,889. MAGNETIC CLUTCH. FRANK L. SHERRILL, Calumet, Ill., assignor to Sherrill & Sherrill, Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Sept. 5, 1901. Serial No. 75,595. (No model.)



Claim.—The combination with two rotatable parts mounted to rotate in opposite directions, of an intermediate freely-rotatable part, causing series of pole-pieces on each of the first two parts arranged in juxtaposition to similar series of pole-pieces on the intermediate part, a fourth annular part extending around the rotatable parts, and coils of wire inclosed between the fourth part and rotatable parts and extending circumferentially in proximity to each of the two sets of pole-pieces, whereby the freely-rotatable part will be rotated in the one direction or the other according as one or the other of the coils is energized.

700,840. PNEUMATIC TIRE. RICHARD SMITH, Vernon Beach, near Bangor, England, assignor to John Smith, Troy, N. Y., and Harry Smith, New York, N. Y. Filed Apr. 22, 1902. Serial No. 100,500. (No model.)

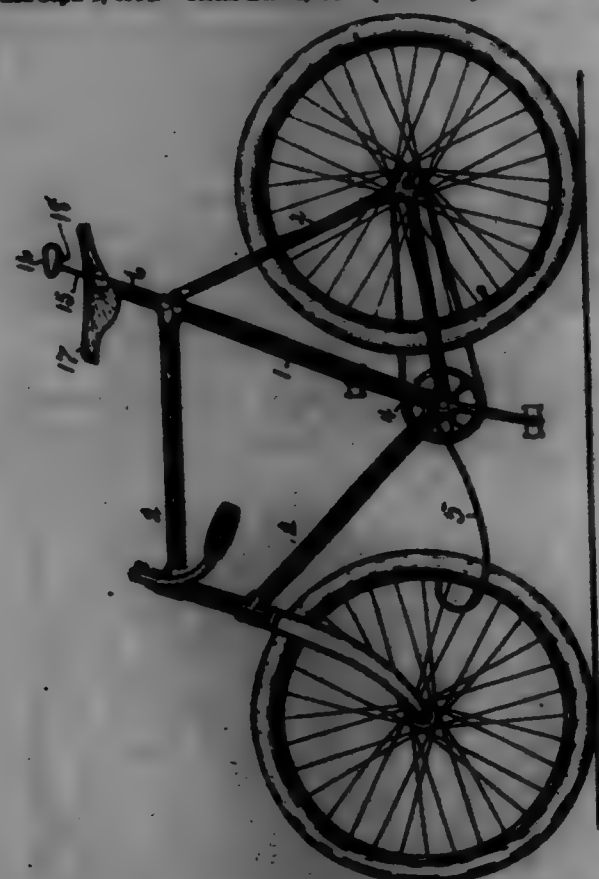


Claim.—1. In a vehicle-tire, the combination with an annular disc including having an outermost convex tread, and an innermost concave

lined annular seat; of a flattened metallic armor-band extending around the interior of the tire in engagement with the flattened seat on the shoe and wholly inclosed within the shoe; an inner removable air-tube of circular cross-section; and a separate cradle-band interposed between said inner tube and armor-band and having a flattened outer surface engageable with said armor-band and a concaved inner surface adapted to receive and support said circular inner tube, said armor-band and cradle-band being adapted to be maintained in position between said shoe and inner tube by inflation of said inner tube, substantially as described.

2. In a vehicle-tire, the combination with an annular outer tube having an unbroken increased tread, and an interiorly-located flattened annular seat; of a flattened metallic armor-band extending around the interior of the tire in engagement with the flattened seat on said outer tube; an inner air-tube of circular cross-section inclosed within the outer tube; and a separate cradle-band interposed between said inner tube and armor-band and having a flattened outer surface engageable with said armor-band and a concaved inner surface adapted to receive and support said circular inner tube; and a fabric lining for said outer tube covering said seat and inclosing said armor-band, cradle-band and inner tube, substantially as described.

700,841. BICYCLE-PUMP. RUSSELL F. SMITH, Stockton, Cal. Filed Sept. 9, 1901. Serial No. 74,781. (No model.)



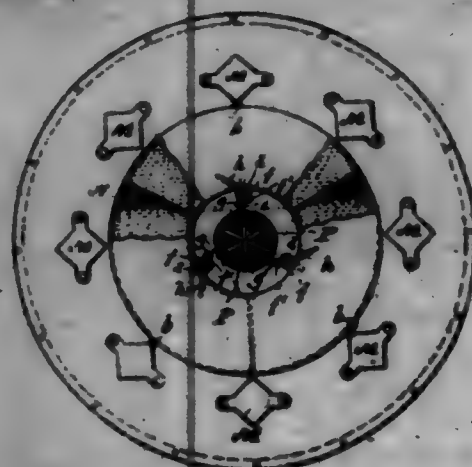
Claim.—1. In a bicycle-pump of the class described, the combination: a frame-tube formed to compose the pump barrel or body and having its lower end closed, a nipple to receive the hose, a middle-post having its top end closed with two small openings arranged therein, and adjustably secured in the top end of the pump-barrel, a plunger-rod inserted into one of said openings and having a suitable plunger attached thereto, a suitable clamp rigidly attached to the hose and adapted to engage the plunger-rod and protrude into the opening 9 and the arm 13 attached to said middle-post, all arranged and operating substantially as shown and described and for the purposes set forth herein.

2. In a bicycle-pump, the combination with a suitable pump-barrel formed in the frame and provided with a suitable plunger and plunger-rod of the middle-post 6 inserted in the top of the pump-barrel and having the top end closed but the openings 9 and 9', the hose secured to said plunger-rod by the spring-clamp 19 and introduced into the opening 9, the cap 10 seated over the end of the said middle-post 6 and having the side 11 flattened, the springs 12 secured to the side 11, the shield 13 rigidly attached to the plunger-rod and adapted to engage with the springs 12, all arranged and operating substantially as shown and described and for the purposes specified.

700,842. PNEUMATIC WALKING-DRUM. RUSSELL F. SMITH, Stockton, Cal. Filed Dec. 24, 1902. Serial No. 83,828. (No model.)

Claim.—1. A rotary pneumatic walking-drum having a series of air-distributing flues arranged therein at intervals of a circle, a correspond-

ing series of independent counterbalanced gates in pivotal connection with an air-chamber wall of the drum to severally control the inlet ends of the respective flues, and steps on said partition arranged to limit automatic play of each gate.



2. A rotary pneumatic walking-drum having a central exhaust-air flue, a water-reservoir carried by the drum, and means for automatic distribution of the water from the reservoir to the interior of the drum at recurrent intervals.

3. A rotary pneumatic walking-drum, having a central exhaust-air flue, a water-reservoir carried by the drum and divided by radial partitions into compartments, a perforated pipe leading from each reservoir-compartment along said flue, valve mechanism controlling the pipes, and means whereby said mechanism is automatically actuated to open and close said pipes at recurrent intervals.

4. A rotary pneumatic walking-drum having a central exhaust-air flue, a water-reservoir carried by the drum and divided by radial partitions into compartments, a perforated valve-controlled pipe leading from each reservoir-compartment along said flue, each valve-stem being exposed and provided with a crank, a spring arranged with relation to each crank to resist swing of same in the direction necessary to meet the corresponding valve, and a stationary wiper in the path of the valve-stem cranks to actuate the same against spring resistance.

5. A rotary pneumatic walking-drum having a central exhaust-air flue, a water-reservoir carried by the drum and divided by radial partitions into compartments, a perforated valve-controlled pipe leading from each reservoir-compartment along said flue, each valve-stem being exposed and provided with a crank, a spring arranged with relation to each crank to resist swing of same in the direction necessary to meet the corresponding valve, a stationary bracket, and a plate in adjustable connection with the bracket to constitute a wiper in the path of the valve-stem cranks.

6. A rotary pneumatic walking-drum, having a central exhaust-air flue, an annular water-reservoir on a drum-head surrounding the inlet air-nozzle that projects from said head, and means for automatic distribution of the water from the reservoir to the interior of the drum at recurrent intervals.

7. A rotary pneumatic walking-drum having a forward air-chamber a central air-exhaust flue and air-distributing flues concentric with the exhaust-flue, counterbalanced pivoted gates each arranged to control the inlet end of an air-distributing flue, a water-reservoir carried by the drum and divided by radial partitions into compartments, a perforated valve-controlled pipe leading from each drum-compartment along the air-exhaust flue, and means for automatically opening and closing the pipe-valves.

700,848. MACHINE FOR SHAPING BOXES. WINFIELD S. SMITH, Fairview, N. J., assignor of one-half to Philip Stanley Smith, Philadelphia, Pa. Filed Nov. 27, 1901. Serial No. 88,898. (No model.)

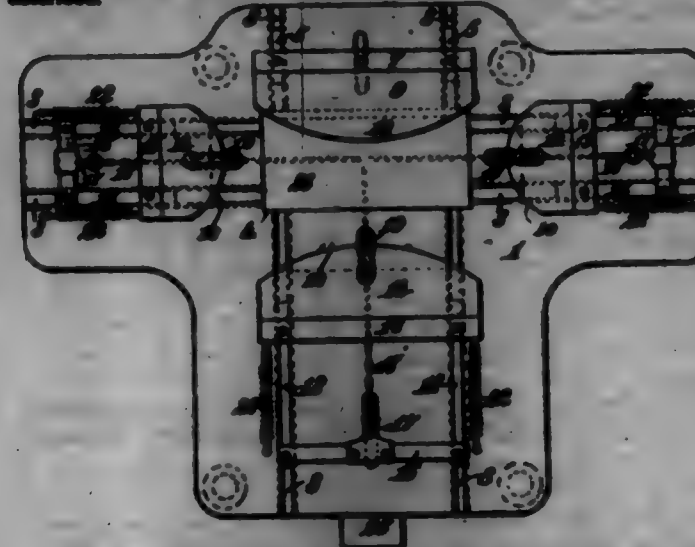
Claim.—1. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, substantially as described.

2. In a machine for shaping boxes, the combination with a support for the box, of means for pressing the sides and ends of the box inward beyond the position they are designed to normally assume in the finished box, substantially as described.

3. In a machine for shaping boxes, the combination with a support for the box, of means for simultaneously pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, substantially as described.

4. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, and means being constructed to apply the pressure first at a point central of said sides and gradually approaching the ends thereof, substantially as described.

and means being constructed to apply the pressure first at a point central of said sides and gradually approaching the ends thereof, substantially as described.



5. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to apply the pressure first at a point central of said sides and gradually and progressively applied to each side of the center to the ends of said sides, substantially as described.

6. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to apply the pressure to the upper edges of said sides, substantially as described.

7. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to apply the pressure to the upper edges of said sides, substantially as described.

8. In a machine for shaping boxes, the combination with a movable support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

9. In a machine for shaping boxes, the combination with a movable support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

10. In a machine for shaping boxes, the combination with a sliding and-filling support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

11. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

12. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

13. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

14. In a machine for shaping boxes, the combination with a support for the box, of means for pressing opposite sides of the box inward beyond the position they are designed to normally assume in the finished box, said means being constructed to drop the box from between the pressure-blocks when the latter are retracted, substantially as described.

15. In a machine for shaping boxes, the combination with a support for the box, of a stationary pressure-block detachably fixed on one side of the box-support, a movable pressure-block detachably arranged on the opposite side of the box-support, means for moving the movable pressure-block toward the box-support, and means for automatically retracting the movable pressure-block, substantially as described.

16. In a machine for shaping boxes, the combination with a support for the box, of a stationary pressure-block arranged on one side of the box-support, movable pressure-blocks arranged on the remaining sides of the box-support, means for moving the movable pressure-blocks toward the box-support, and means for automatically retracting the movable pressure-blocks, substantially as described.

17. In a machine for shaping boxes, the combination with an open-topped table, of a box-support arranged in said aperture, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for moving the pressure-blocks toward the box-support to press the box, means for automatically retracting the pressure-blocks, and mechanism actuated during the retractile movement of the pressure-blocks for releasing the box-support to permit it to drop and discharge the box, substantially as described.

18. In a machine for shaping boxes, the combination with an open-topped table, of a box-support hinged at one side in said aperture, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for moving the pressure-blocks toward the box-support, means for automatically retracting the pressure-blocks, and mechanism actuated by the retractile movement of the pressure-blocks for releasing the box-support whereby the latter may swing downward and discharge the box, substantially as described.

19. In a machine for shaping boxes, the combination with an open-topped table, of a box-support hinged at one side in said aperture, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for moving the pressure-blocks toward the box-support, means for automatically retracting the pressure-blocks, means actuated by the retractile movement of the pressure-blocks for releasing the box-support to permit it to swing downward to discharge the box, and means for automatically restoring the box-support to normal position, substantially as described.

20. In a machine for shaping boxes, the combination with an open-topped table, of a box-support hinged at one side in said aperture and provided on its under side with a pendant cam, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for moving the pressure-blocks toward the box-support, means for retracting the pressure-blocks, a pusher-bar arranged to engage the pendant cam to raise the box-support, a spring for moving the pusher-bar in the proper direction to raise the box-support, and mechanism actuated by the retractile movement of the pressure-blocks for withdrawing the pusher-bar to permit the box-support to swing downward, substantially as described.

21. In a machine for shaping boxes, the combination with an open-topped table, of a box-support hinged at one side in said aperture and provided on its under side with a pendant cam, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for moving the pressure-blocks toward the box-support, means for retracting the pressure-blocks, a pusher-bar arranged to engage the pendant cam, a hook on the opposite end of the pusher-bar, an oscillatory latch movable with one of the pressure-blocks and arranged to engage and withdraw the pusher-bar to drop the box-support when the pressure-blocks are retracted, a spring for moving the pusher-bar in a direction to raise the box-support, and a cam arranged in the path of the latch and operating to oscillate the latch and release the pusher-bar, substantially as described.

22. In a machine for shaping boxes, the combination with an open-topped table, of a box-support hinged at one side in said aperture and provided on its under side with a pendant cam, pressure-blocks slidably arranged on the table so as to be moved toward and from the box-support, means for retracting the pressure-blocks, a pusher-bar arranged to reciprocate in a suitable support and adapted to engage at one end the pendant cam, a hook on the opposite end of the pusher-bar, an oscillatory latch movable with one of the pressure-blocks and provided at one end with a hook adapted to engage the hook on the pusher-bar and withdraw the latter to drop the box-support, a spring for drawing said latch into engagement with the pusher-bar, an adjustable cam arranged in the path of the latch and operating to cause the latter to release the pusher-bar, and a spring for moving the pusher-bar in a direction to raise the box-support, substantially as described.

23. In a machine for shaping boxes, the combination with a table provided with a box-support, of sliding carriages movably arranged in ways on the table so as to be moved toward and from the box-support, and carrying pressure-blocks, a treadle, flexible connections between the treadle and said carriages and operating when the treadle is depressed to

move the carriages and pressure-blocks toward the box-support, and springs for retreating the carriages and pressure-blocks, substantially as described.

34. In a machine for shaping boxes, the combination with a table provided with a box-support, of sliding carriages movably arranged in ways in the table so as to be moved toward and from the box-support, pressure-blocks removably carried by said carriages, a treadle, flexible connections leading from the treadle to the carriages, guide-pulleys over which the flexible connections pass, said treadle operating when depressed to move the carriages and pressure-blocks toward the box-support, and springs for retreating the carriages and pressure-blocks, substantially as described.

35. In a machine for shaping boxes, the combination with a table provided with a box-support and having grooved ways extending at right angles to the box-support, blocks movably arranged in said ways and carrying cross-bars, each of said cross-bars being provided on its inner face with a longitudinal dovetailed groove, pressure-blocks each having attached to its outer edge a dovetailed strip, said strips being removably fitted in said grooves, a treadle and intermediate connections for moving the pressure-blocks toward the box-support, and springs arranged to move the pressure-blocks away from the box-support, substantially as described.

36. In a machine for shaping boxes, the combination with a support for the box, of carriages arranged to move toward and from the support, a pressure device carried by each carriage, each pressure device comprising separate blocks adjustable toward and from each other, and means for moving said pressure devices toward the box-support with a positive pressure.

37. In a machine for shaping boxes, the combination with a support for the box, of pressure devices arranged to move toward and from the support, each pressure device comprising separate blocks adjustable toward and from each other, and means for moving said pressure devices toward the box-support with a positive pressure.

38. In a machine of the class described, a pressure-block formed of independently-adjustable sections, each section having a pressing-face constructed to press the side of a box inward beyond the position said side is designed to assume in the finished box.

39. In a machine of the class described, a pressure-block formed of independently-adjustable sections, each section having a pressing-face constructed to press the side of a box inward beyond the position said side is designed to assume in the finished box, and means for adjusting said sections toward and from each other.

40. In a machine of the class described, a pressure-block comprising a fixed central section, and adjustable end sections.

41. In a machine of the class described, a pressure-block comprising a fixed central section and adjustable end sections, and means for moving the end sections toward and from the central section.

42. In a machine of the class described, a pressure-block having an outwardly-curved pressing-face adapted to press the side of a box inward beyond the position it is designed to assume in the finished box.

43. In a machine of the class described, a pressure-block having a convex pressing-face adapted to press the side of a box inward beyond the position it is designed to assume in the finished box.

44. In a machine of the class described, a pressure-block having a curved or convex edge the outer side of which is undercut or recessed.

45. In a machine for shaping boxes, means arranged to rest upon the sides of the box and bend said sides inward beyond the position they are designed to assume in the finished box.

46. In a machine for shaping paper boxes, means arranged to rest upon the sides of the box and bend said sides inward beyond the position they are designed to assume in the finished box, and means for actuating said bending means.

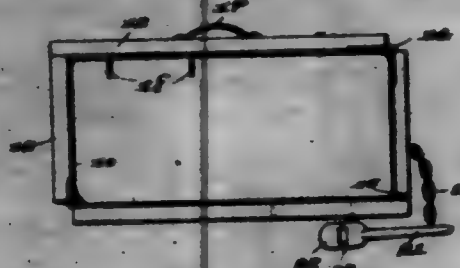
47. In a machine for shaping boxes, means for simultaneously bending opposite sides of the box inward beyond the position they are designed to assume in the finished box.

48. In a machine for shaping boxes, the combination with a support for the box, of means for bending opposite sides of the box inward beyond the position they are designed to assume in the finished box, and means for actuating said bending means.

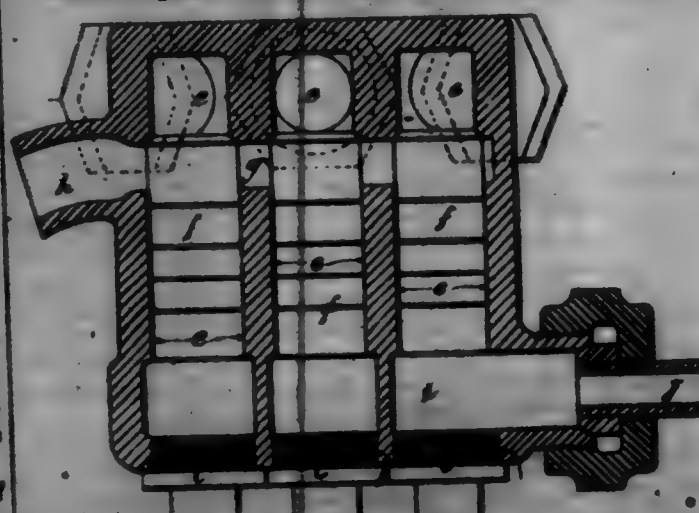
700,844. MAIL-POUCH. GARRETT F. SUMNER, Alhambra, Iowa.
Filed May 17, 1891. Serial No. 68,894. (No model.)

Claim.—The combination with a flexible mail-pouch open at one end, of two rigid side pieces 12, and two rigid end pieces 13, said side pieces being of a length substantially twice that of the end pieces, and said pieces being hinged together to form when open a rectangular figure and being secured to the open top of the pouch, whereby when closed the side pieces will overlap each other for a considerable portion of their length, one of said side pieces having two slots therein, two staples secured to the other side piece to enter and project through said slots when the frame is closed, a pin having a rounded end to pass through one of

the staples and having its other end flattened and slotted to permit the other staple to project through it, a chain for connecting said pin with the frame and lock to pass through the latter staple when the staple has been projected through the slot in the pin for the purpose stated.



700,845. CYLINDER RELIEF-VALVE. ALEXANDER STEWART, London, England. Filed Sept. 21, 1901. Serial No. 78,022. (No model.)



Claim.—1. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, as set forth.

2. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, a series of openings in said casting, one opposite each chamber and each closed by a cover-plate, as set forth.

3. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, and arranged in an annular row, as set forth.

4. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, and arranged in an annular row, and centrally-disposed means for actuating the casting to its support, as set forth.

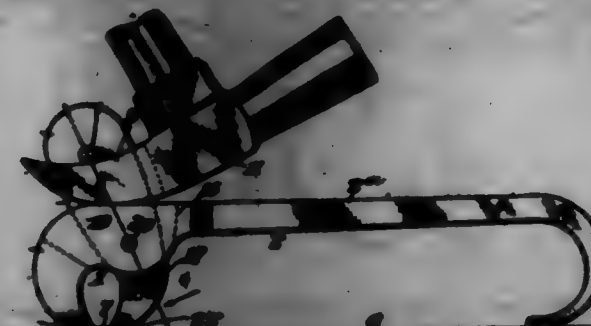
5. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, a steam-supply, pipe connections between said steam-supply and steam-chamber, and a three-way cock, one branch being connected to the steam-supply, one to the steam-chamber and the third to waste, as set forth.

6. A relief-valve arrangement for locomotive and other engines, com-

prising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage and, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, and arranged in an annular row, centrally-disposed means for actuating the casting to its support, and a steam-supply, pipe connections between said steam-supply and steam-chamber, and a three-way cock, one branch being connected to the steam-supply, one to the steam-chamber and the third to waste, as set forth.

7. A relief-valve arrangement for locomotive and other engines, comprising a series of chambers, a passage leading from one end of each chamber to a space to be relieved, a common steam-chamber into which the other ends of the series of chambers open, a relief-passage, located in said series of chambers, a series of valves which control communication between said chambers and the relief-passage, said chambers and relief and steam passages being formed in one casting, and arranged in an annular row, centrally-disposed means for actuating the casting to its support, a series of openings in said casting, one opposite each chamber and each closed by a cover-plate, and a steam-supply, pipe connections between said steam-supply and steam-chamber, and a three-way cock one branch being connected to the steam-supply, one to the steam-chamber and the third to waste, as set forth.

700,846. NAIL-PULLER. IRVING W. STUBBS, Oyster Bay, New York. Filed July 21, 1901. Serial No. 78,104. (No model.)



Claim.—1. An improved nail-puller, comprising a body member adapted to rest upon the work and embodying a fixed jaw, and a movable jaw carried by said body member in opposition to said fixed jaw and provided with a projecting portion adapted to be engaged by a hammer or other implement whereby the latter may be operatively borne upon said body member to grip the jaws in engagement with the nail and to exert the activity to extract the nail.

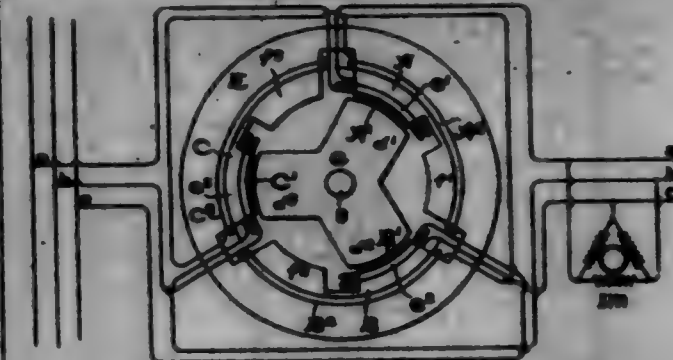
2. An improved nail-puller, comprising a body member adapted to rest upon the work and embodying as one end a fixed jaw, and a pivoted jaw carried by said body member in opposition to said fixed jaw and provided with a projecting portion which extends above the body member and is adapted to be engaged by a hammer or other implement whereby the latter may be operatively borne upon said body member to grip the jaws in engagement with the nail and to exert the activity to extract the nail.

3. The combination, with a nail-puller, comprising a body member adapted to rest upon the work and embodying a fixed jaw, and a movable jaw carried by said body member in opposition to said fixed jaw and provided with a projecting portion which extends above the body member; of a draw-hammer the bifurcation of the claw of which are caused to straddle said projecting portion of said movable jaw whereby the head of the hammer may be operatively borne upon said body member to grip the jaws in engagement with the nail and to exert the activity to extract the nail.

4. An improved nail-puller, comprising an elongated body member adapted to rest upon the work and embodying at its respective ends a fixed jaw and a curved flat, said body member being chambered vertically adjacent to said fixed jaw to form cheeks, and a movable jaw pivoted between said cheeks and arranged in opposition to said fixed jaw, said movable jaw being provided with a projecting portion which extends above the body member and is adapted to be engaged by a hammer or other implement whereby the latter may be operatively borne upon said body member to grip the jaws in engagement with the nail and to exert the activity to extract the nail.

700,847. REGULATOR FOR ALTERNATING-CURRENT CIRCUITS. CHARLES F. SUMNER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 16, 1897. Serial No. 68,922. (No model.)

Claim.—1. In a regulator for alternating-current circuits, the combination of a core structure comprising relatively movable members, with compensator-coils so arranged thereon that by adjustment of the said core structure a magnetic circuit can be closed through both portions of the respective compensator-coils, or through a single portion only.



2. In a regulator for polyphase circuits, the combination of a core structure composed of external and internal parts, angularly adjustable with reference to each other around an axis, compensator-coils connected at intermediate points to the regulated circuit, and arranged upon the core structure in such a manner that a magnetic circuit can be closed through both parts of the respective compensator-coils, or through a single part only, by adjustment of the core structure, as set forth.

3. The combination of a stationary core part, an adjustable core part, and a compensator-winding, the two parts of which occupy different angular positions on two of said core parts, as set forth.

4. In a regulator for alternating-current circuits, the combination of a core structure comprising two relatively adjustable members, one of said members provided with two sets of polar projections, and the other with a single set, and compensator-coils having portions embracing the polar projections of one member; the polar projections of the other member being unrounded.

5. In a regulator for alternating-current circuits, two relatively adjustable members, one of said members having two sets of polar projections and the other having only a single set, in combination with compensator-coils, each comprising a series portion and a shunt portion, the series portions of said coils embracing the polar projections of one set, the shunt portions embracing the polar projections of a second set, and the third set being unrounded.

6. The combination of an alternating-current circuit, a branch circuit, a compensator-winding through which the second circuit is connected with the first circuit, and means for adjusting the parts making up the core of the regulator so that the series and shunt portions of the compensator-winding may be placed in inductive relation to one another, and gradually withdrawn from inductive relation by opening the magnetic circuit of the series portion of the compensator-winding and simultaneously closing the magnetic circuit of the shunt portion, as set forth.

7. The combination in a regulator for polyphase circuits, of a core structure composed of external and internal parts adjustable with reference to each other around an axis, a compensator-coil for each phase, part of which is in series and part in shunt with the load on the corresponding branch of the regulated circuit, and means for adjusting the core structure so as to put the series and shunt branches of the compensator-coils in inductive relation with one another for lower voltage in the regulated circuit, and at another time gradually withdraw them from inductive relation until at maximum voltage the shunt branches of the compensator-coils stand in a closed magnetic circuit, and are practically idle, while the series branches of the compensator-coils stand in a practically open magnetic circuit, as set forth.

8. In a regulator for alternating-current polyphase circuits, the combination of a core structure, compensator-coils having series and shunt branches with relation to a regulated circuit, and means for varying the magnetic circuit through the series and shunt branches of the compensator-coils such that (a) said series and shunt branches may be in inductive relation in a closed magnetic circuit; (b) the series branch may have its magnetic circuit closed and that of the shunt open; (c) the shunt branch may have its magnetic circuit closed and that of the series open; as set forth.

9. In a regulator for polyphase circuits, the combination of a core or core, a compensator-coil for each phase of the circuit having a portion in series and another portion in shunt with the regulated circuit, and means for varying the mutual inductance between the shunt and series portions of the coils, and also their self-inductance in order to change the distribution of voltage between different portions of said coils, as set forth.

10. The combination with an alternating-current source, of a regulator character consisting of a compensator-coil connected across the main circuit and having a series and shunt portion between which the motor

connection is made, a magnetic core structure for the compensator-coil, and means for regulating the voltage at the motor-terminals by varying the mutual induction and self-induction of the series and shunt branches of the compensator-winding.

700,848. VARIABLE-SPEED GOVERNOR. WILLIAM J. HULL, Toronto, Canada. Filed Apr. 22, 1926. Renewed Apr. 18, 1928. Serial No. 108,322. (No model.)



Claim.—1. A variable-speed governor comprising a crank attached to a revolving support held in suitable bearings, a spring-controlled arm pivoted to said crank, a leg placed in the path of movement of said arm so as to operate said spring-controlled arm at each revolution of said revolving support, as described, a guiding-plate placed in the path of movement of said arm so as to guide the movement of said arm above or below said plate as the speed of the support rises or falls, and means in the path of said arm, being operated by same, for regulating the speed of said revolving support, as set forth and for the purpose specified.

2. A variable-speed governor comprising a crank attached to a revolving support held in suitable bearings, a spring-controlled arm pivoted on said crank, a leg placed in the path of movement of said arm so as to operate said spring-controlled arm at each revolution of said revolving support, as described, a guiding-plate placed in the path of movement of said arm so as to guide the movement of said arm above or below said plate as the speed of the revolving support rises or falls, means for varying the position of said guiding-plate relative to the path of movement of said arm for increasing or diminishing the speed of said revolving support, and means in the path of said arm, being operated by same, for regulating the speed of said revolving support, as set forth and for the purpose specified.

3. A variable-speed governor comprising a crank attached to a revolving support held in suitable bearings, a spring-controlled arm pivoted on said crank, a leg placed in the path of movement of said arm so as to operate said spring-controlled arm at each revolution of said support, as described, a guiding-plate placed in the path of movement of said arm so as to guide the movement of said arm above or below said plate as the speed of the said support rises or falls, automatic means for varying the position of said guiding-plate relative to the path of movement of said arm for increasing or diminishing the speed of said revolving support, and means in the path of said arm, being operated by same, for regulating the speed of the said revolving support, as set forth and for the purpose specified.

4. A variable-speed governor comprising a crank attached to a revolving support held in suitable bearings, a spring-controlled arm pivoted on said crank, a leg placed in the path of movement of said arm so as to operate said arm at each revolution of said revolving support, and a spring-controlled guiding-plate in the path of movement of said spring-controlled arm incapable of offering frictional resistance to the motion of said arm in case of contact between said arm and said spring-controlled plate, as set forth and for the purpose specified.

700,849. HASEL. HENRY H. GREGG, Chicago, Ill. Filed Sept. 26, 1901. Serial No. 78,900. (No model.)



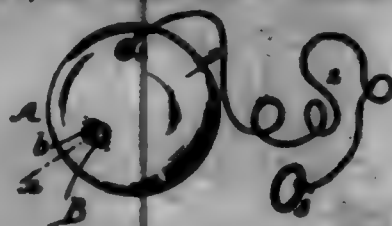
Claim.—1. An oscill comprising a front plate, a back plate hinged to said front plate and foldable against same, and a bifurcated brace extend-

ing said back plate, hinged to said front plate at each side of said back plate and on an axis transverse to the axis of said back plate, said brace being foldable against the front plate, and adapted when turned on its axis to a position away from said front plate to hold said back plate in a plane disposed transversely to the plane of the front plate.

2. An oscill comprising a front plate; a card having a cross or cross therein, having its part on one side of the cross connected to the back of the front plate, and having its other part extending free therefrom and adapted to be turned on said cross either outwardly from, or against, said front plate; and a second card having a slot therein adapted to receive the free part of said first card, having a score or cross therein extending transversely to said slot, having its part on one side of said cross connected to the back of said front plate at each side of the free part of said first card, and having its other part extending free from said front plate and adapted when moved outwardly from the front plate to hold the free part of said first card in said slot and brace same outwardly from said front plate.

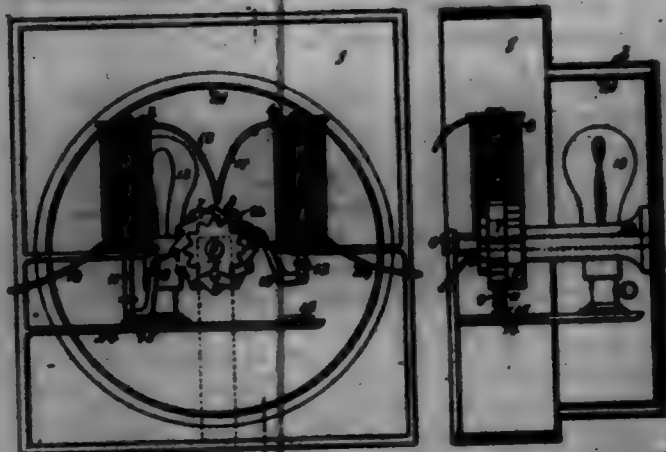
3. An oscill comprising a front plate, a back rest having one edge hinged to said front plate on a vertically-disposed axis, a brace having a slot extending longitudinally into same for a considerable distance from one edge, said brace being placed with its slot cradling said back rest and being hinged to said front plate at each side of said back rest and in such position that when the brace is folded against the front plate its slot will lie along the hinged edge of said back rest and permit same to be folded against said front plate.

700,850. MURAL BALL. JULIAN STONE, Boston, Mass.; Rachel Stone administratrix of said Julian Stone, deceased. Filed May 1, 1926. Renewed Oct. 2, 1928. Serial No. 77,768. (No model.)



Claim.—In a mural ball the combination with the hollow spherical case A, the flange a, projecting into said case, the ring 1, integral with the outer surface of said case, the ring 2, and the cord 2, connecting said rings, as specified, of the tube B, fixed at b, having collar c, and held, projecting into said case, by said flange a, enclosing said flange a, resting on said collar c, the outward-projecting tongue d, upon the inner end of said tube B, the case a, the rod-plate e, in said case, resting vibrating in said plate, and the annular groove f, in said case, enclosing the edge of said rod-plate, and said tongue, and holding the parts in position all substantially as and for the purpose set forth.

700,851. AUTOMATIC SIGNAL. RALPH L. STONE, Waterloo, Iowa. Filed July 25, 1926. Serial No. 68,571. (No model.)



Claim.—1. The combination with a frame standing above a trolley-way, a direct-clear supported thereby, a pair of movable blocks also supported by the frame and the second of which in either direction is adapted to be lifted by a passing trolley-wheel, and circuits through the direct-clear and blocks adapted to be opened and closed by the movements of the latter; of a conducting-plate supported by the frame adjacent one block, a register substantially such as herein shown and described, and a circuit leading from said plate through the actuating mechanism of the register, all as and for the purpose set forth.

2. In a register for railway-signals, the combination with the case having a box provided with a plurality of openings, the rotary dial having a plurality of rows of figures adapted to simultaneously expose the

same numerals through the different openings, a star-wheel fixed on the shaft of said dial, and a spring bearing on said wheel so as to limit the movement of said dial to an intermittent rotation; of a pair of oppositely-disposed rotatable wheels mounted on said shaft, two electromagnets in circuit with mechanisms at the ends of a track-section, devices at the latter points for sending currents alternately through said magnets as a car enters and leaves the track-section, and parts connected with the magnet-structures for turning said dial in opposite directions, all substantially as described.

3. In a register for railway-signals, the combination with a case, a rotary dial therein, and a pair of oppositely-disposed rotatable wheels on the dial-shaft; of two electromagnets located within the case and in circuit with elements at remote points, buffer-blocks located below the lower ends of said magnets and upon which their cores rest when the magnets are deenergized, and parts pivoted to said cores and having flanges adapted to rest on said blocks to hold their tips positively out of engagement with said rotatable wheels.

4. In a register for railway-signals, the combination with a case, a rotary dial therein having a star-wheel on its shaft, a tension-spring bearing on said star-wheel, and a rotatable wheel fixed on said shaft; of a pawl having an offset in its body, a block on which said offset rests when the pawl is depressed whereby its tip is held out of engagement with the rotatable wheel, and means for raising the remote end of the pawl to lift its offset off the block and engage it tip with said rotatable wheel.

700,852. INTERCONVERTIBLE BED OR COUCH. DAVID G. GOUCH, New York, N. Y. Filed Jan. 23, 1926. Serial No. 8,462. (No model.)



Claim.—1. An interconvertible bed or couch, comprising a main frame, side frames, an independent depressible foot device for each side frame, and independent connections between said foot device and said side frames, whereby each side frame may be elevated independently of the other, the said independent foot device being adjacent to each other and movable in parallel planes, whereby they may be simultaneously operated when desired.

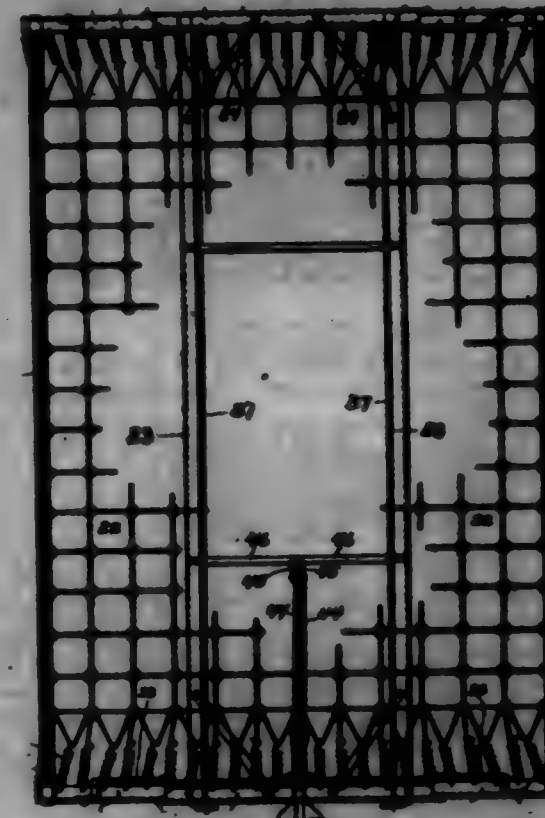
2. An interconvertible bed or couch, comprising and standards, a main frame, side frames adapted to be raised to horizontal position, lever mechanisms for operating said side frames and an independent foot device for actuating the lever mechanism of each of the side frames, said foot devices being projected through parallel slots in one of the said end standards, and being arranged whereby they may be engaged simultaneously by the foot.

700,853. COUCH-BED. DAVID G. GOUCH, New York, N. Y. Filed Feb. 19, 1926. Serial No. 4,345. (No model.)

Claim.—1. A couch-bed comprising a main frame and end standards each having legs bent outwardly at their lower ends and connected by a cross-brace, said legs and brace of each standard being formed from a single strip of angle-iron, presenting a flat horizontal web connecting the lower ends of the legs.

2. A couch-bed comprising and standards each formed of angle-iron bent to constitute two legs and a lower cross-brace presenting a flat horizontal web connecting the lower ends of the legs, on end bar across and

connecting the upper ends of said legs of each standard, longitudinal side bars connecting said standards, braces connecting said side bars with the lower portions of said end standards and braces connecting said side bars with the said end bar.



3. A couch-bed consisting of angle-iron end bars; an end standard for each end bar, each standard consisting of a lower angle-iron cross-bar bent to form legs which curve inward and upward and are secured at their ends to the said end cross-bar, said cross-bar presenting a flat horizontal web connecting the lower ends of the legs, side bars connecting the legs of the standards, and a spring mattress or fabric secured directly to end standard between the said end bar.

4. A couch-bed consisting of a main frame comprising angle-iron end bars, angle-iron legs bolted directly to said end bars and suitably braced together by a lower cross-bar integral therewith, and having a flat horizontal web, and side bars connecting the said legs; a side frame consisting of end bars pivoted to the ends of the first-mentioned side bars, and a side bar connecting the outer ends of the pivoted end bars; a spring mattress or fabric stretched between and connected directly to the end bars of the main and the side frames; and mechanism for supporting said side frame when raised to horizontal position.

5. A couch-bed comprising a main frame, swinging side frames, depressible foot devices for raising said side frames independently of each other, means for holding said side frames raised, and independent mechanisms for permitting the lowering of said side frames, independently of each other, the said foot devices being adjacent to each other and movable in parallel planes, whereby they may be simultaneously operated when desired.

6. A couch-bed comprising a main frame, swinging side frames, depressible foot devices for raising said side frames independently of each other, the said foot devices being adjacent to each other and movable in parallel planes, whereby they may be simultaneously operated when desired, and independent latch mechanism for said side frames, whereby one side frame may be dropped independently of the other.

7. A couch-bed comprising a main frame, a swinging side frame, lever mechanisms at each end of the bed for supporting the side frame when elevated, pivoted latches at the ends of the bed for engaging said lever mechanisms, said latches each having a tapering depending and portion and a socket, said sockets being oppositely disposed, and means connecting the upper end of one latch with the lower end of the other, whereby they may be simultaneously operated.

700,854. TANK-BRATHE. JOEL STAMM, Bern, Korea. Filed May 28, 1921. Serial No. 61,667. (No model.)

Claim.—The herein-described tank-brathe comprising a shallow hollow base having an opening in its top and a rim extended vertically from the said opening, a hollow body having its lower end fitted within the said rim and covered thereto and formed with an inner flange, a ring removable through the hollow body and having an outer flange at its upper end to rest upon the inner flange at the lower end of the hollow body

and hold the ring suspended within the upper portion of the hollow base, an outlet-pipe connected to the top of the base at one side of the hollow body, and a cover fitted to the upper end of the hollow body and having damper-controlled openings, substantially as described.



700,855. CASTING DENTAL PLATE. WILLARD STRIMMER, Chicago, Ill. Filed June 12, 1901. Serial No. 64,481. (No model.)

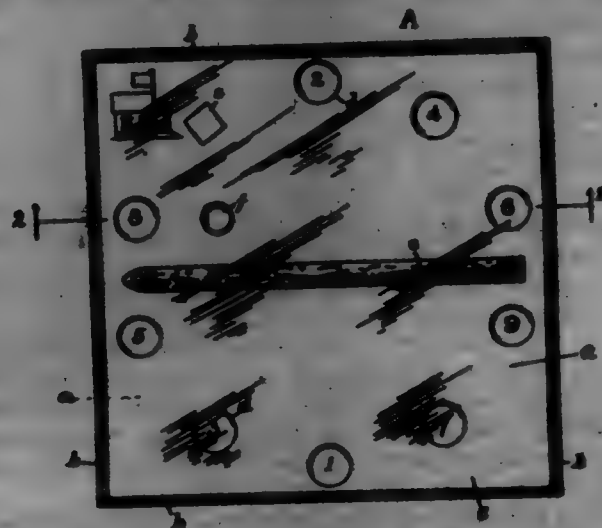


Claim.—1. In a mold for casting metal, a flask provided with a neck and containing an investment the neck approximately as large as the flask, in horizontal measurement, and a pouring-channel in the neck flaring at the top and tapering thence in both diameters through the neck and into the investment in the flask to the upper edge of the matrix.

2. In a mold for casting metal, a flask provided with a neck and containing an investment, and a wide pouring-channel tapering in both of its diameters, through the neck and into the investment in the flask, to the upper edge of the matrix as herein set forth.

3. A device for casting metal consisting in a flask with a plane top made in two members means for binding said members together, vertical ribs at the top of each member, an investment in said flask containing the mold, and a tapering channel leading thence, a neck with a plane bottom and approximately the same size as the flask in horizontal measurement, recesses in the neck to engage the said ribs on the flask and a pouring-channel through the neck gradually tapering in both of its diameters to the channel in the investment in said flask, substantially as herein set forth.

700,856. GAME APPARATUS. WARREN G. TALBOT, Providence, R. I. Filed Nov. 2, 1901. Serial No. 59,998. (No model.)

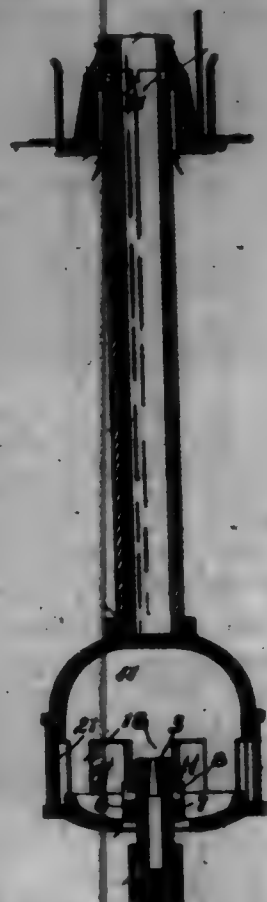


Claim.—The game-covered board A herein described, the same comprising the square base a provided with a center or median line c and having a series of stations d located equidistantly from the center of the base and arranged around the outer edge thereof, and further having the stations arranged with respect to said center line whereby the latter equally divides the series of stations, and a movable disk f adapted to enter or cover the said stations upon properly manipulating the box, substantially as described.

700,857. INCANDESCENT GAS-BURNER. IRVING R. TAYLOR, Buffalo, N. Y. Filed Jan. 2, 1902. Serial No. 59,998. (No model.)

Claim.—1. In a burner of the type described, the combination with the exteriorly-threaded supply-tube, and the nipple; of the mixing-chamber whose bottom is slightly dished and provided with a central opening, and a transverse strip within and connected with said bottom, passing

across and narrower than said opening, and provided with a threaded hole concentric with each opening and adapted to engage the supply-tube.



2. In a burner of the type described, the combination with the supply-tube and nipple; of a mixing-chamber comprising two members, perforated lugs on the lower member, fingers on the upper member provided with perforations adapted to align with those in said lugs, and pins entering the aligned perforations with their lower ends standing against said supply-tube.

3. In a burner of the type described, a mixing-chamber comprising two members, perforated lugs on the lower member, spaced fingers on the upper member two of which are provided with perforations adapted to align with those in said lugs, a damper surrounding and adapted to turn around said fingers and having similar diametrically opposite perforations, and pins insertible through the aligned perforations in the two members and adapted to stand within the perforations of the two members.

4. In a burner of the type described, a mixing-chamber comprising two members, perforated lugs on the lower member, fingers on the upper member provided with perforations adapted to align with those in said lugs, pins entering the aligned perforations, and removable means for holding said pins with their heads flush with the outer face of the upper member.

5. In a burner of the type described, the combination with the supply-tube and nipple; of a mixing-chamber comprising two members, perforated lugs on the lower member, spaced fingers on the upper member two of which are provided with perforations adapted to align with those in said lugs, a damper surrounding said fingers and having similar diametrically opposite perforations, and pins entering the aligned perforations with their lower ends standing against said supply-tube.

6. In a burner of the type described, the combination with the mixing-chamber having air-inlet openings in its sides and also in its bottom, and a damper for regulating the size of the side openings; of a strip passing across but narrower than the bottom opening, a source of gas-supply entering the bottom of said chamber and passing through said strip, a long cylindrical mixing-flue rising from its top and of smaller diameter than said chamber, and the burner-head at the upper end of said flue.

7. In a burner of the type described, the combination with the gas-supply, the mixing-flue, and the burner-head; of the mixing-chamber comprising a dished lower member and a dome-shaped upper member into the space of which later said flue is threaded, a transverse strip integral with and extending across the interior of the lower member which latter is provided with a hole of greater diameter than the width of the strip and remaining always open to admit some air, lugs at the extremities of this strip, spaced fingers depending from the upper member and adapted to pass outside the lugs, means for adjustably connecting the latter with two of said fingers, and a damper for adjusting the size of the openings between said fingers.

8. In a burner of the type described, the combination with the burner-head, the mixing-flue, and the mixing-chamber comprising upper and lower

members with side openings and a damper therefor; of a transverse strip integral with and extending across the interior of the lower member which latter is provided with a hole of greater diameter than the width of the strip and remaining always open to admit some air, the gas-supply passing through said strip, and means at the extremities of the latter for detachably connecting the members of the mixing-chamber.

9. In a burner of the type described, the combination with the mixing-chamber having adjustable air-inlet openings, and a source of gas-supply; of a mixing-flue rising from said chamber and having notches in its upper extremity, and a burner-head comprising a solid casing having at its lower end a cylindrical bore surrounding and larger than the flue and at its upper end a tapered base adapted to rest at the extremity of the flue whereby additional air is admitted into the flue radially through said notches.

10. In a burner of the type described, the combination with the mixing-chamber having adjustable air-inlet openings, and a source of gas-supply; of a mixing-flue rising from said chamber and having notches in its upper extremity, and a burner-head having a gallery at its lower end, and an interior bore larger at its lower end than the exterior of said flue, thence tapering inward so as to rest at the upper end of the flue whereby additional air is admitted through said notches, then shouldered, and terminating at its upper end in a smaller bore.

700,858. AIR PURIFYING AND COOLING APPARATUS. RICHARD H. THOMAS, Chicago, Ill. Filed Apr. 18, 1901. Serial No. 56,097. (No model.)



Claim.—1. An air washing and drying apparatus comprising a chamber having a tank communicating therewith and adapted to hold a liquid, rollers disposed to dip into the tank, rollers disposed at the top of the chamber, rollers disposed between the first and second series of rollers, a wringer coating with one of the rollers, an absorbent material extending transversely throughout the width of the chamber and passed over the rollers to move in places at angles to the liquid-level of the tank, and air-chutes disposed to convey air to and from the chamber for passage through the absorbent material, whereby the air will be first washed and then dried.

2. A device for washing and drying air comprising a chamber having a liquid-holding tank, and absorbent material extending throughout the width of the chamber, guide-rollers disposed to direct the material first through the tank and then backwardly and forwardly thereabove, and a wringer coating with one of the rollers, said chamber having air inlet and outlet openings to permit of passage of air to through and from the absorbent material, whereby it may be first washed and then dried.

700,859. AIR PURIFYING AND COOLING APPARATUS. RICHARD H. THOMAS, Chicago, Ill. Filed May 21, 1901. Serial No. 61,366. (No model.)

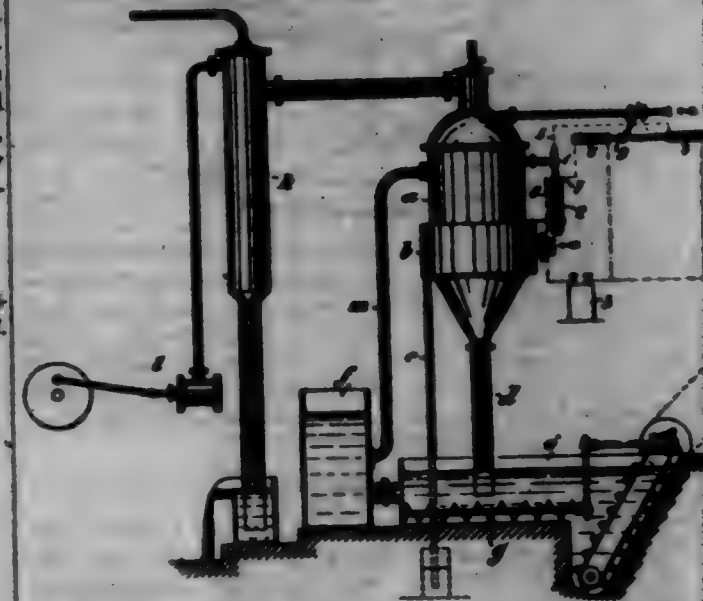


Claim.—1. An air purifier and cooler comprising a chute having alternating series of baffle-plates, the plates of one series having troughs at their upper edges and the plates of the other series having troughs at their lower edges, said series being disposed one behind another and dis-

ing longitudinally in the same direction, and means for discharging a wall of water transversely of the chute and in advance of the plates.

2. An air purifier and cooler comprising a chute having a casing at one side and on the interior thereof, alternating series of baffle-plates projected into the casing, the plates of one series having troughs at their upper edges and the plates of the other series having troughs at their lower edges, said series being disposed one behind another and discharging longitudinally in the same direction, means for discharging a wall of water in advance of the plates, and means for forcing the casing of water.

700,860. VACUUM APPARATUS FOR BOILING BRINE. RICHARD H. THOMAS, Chicago, Ill. Filed July 13, 1900. Serial No. 52,680. (No model.)



Claim.—1. In apparatus for boiling brine the combination with a pan provided at its lower end with a tubular extension, a brine vessel open to the atmosphere and arranged below said extension to receive the same, means for heating the pan and means for creating a vacuum in the pan, of an air-cock connected with the vacuum-space of the pan, a manometer in communication with said space, two normally open circuits for operating said cock, a pair of contacts under the control of said manometer for completing one circuit when the vacuum in the pan is caused to rise above the normal degree, another pair of contacts under the control of said manometer for closing the other circuit when the vacuum in the pan is caused to fall below the normal degree, and a source of electricity connected with said circuits, substantially as and for the purpose described.

2. In apparatus for boiling brine the combination with a brine vessel open to the atmosphere, a pan provided at its lower end with a tubular extension located in said vessel, means for heating the pan and means for creating a vacuum in the latter, of an air-cock communicating with the top part of the pan, a solenoid for opening and a solenoid for closing said cock, a source of electricity, connection between said solenoids and source of electricity, a movable contact placed in said connection and controlled by the quicksilver of a manometer communicating with the pan, and stationary contacts arranged in said connection for cooperation with said movable contact to alternately close the circuits of said solenoids, substantially as and for the purpose described.

3. In apparatus for boiling brine the combination with a brine vessel open to the atmosphere, a pan provided at its lower end with a tubular extension located in said vessel, means for heating the pan and means for creating a vacuum in the latter, of an air-cock communicating with the top part of the pan, a solenoid for opening and a solenoid for closing said cock, a source of electricity connected at one pole to both of the said solenoids, a tube communicating with the vacuum-space of the pan, a vessel containing quicksilver and arranged to receive the lower end of said tube, an electric contact arranged in said tube and connected with one of the solenoids, another electric contact arranged in said vessel and connected with the other solenoid, and a third electric contact so arranged as to permanently dip into the quicksilver of said vessel and connected with the other pole of said source of electricity, substantially as and for the purpose described.

700,861. TOY. HENRY P. WALKER, Fort Madison, Iowa. Filed Feb. 5, 1902. Serial No. 52,708. (No model.)

Claim.—1. A toy comprising a base, an upright post carried thereby, a rotatable platform supported by the post and forming a rotational driving-surface, a driving-shaft having a wheel-handle forming a counter-

weight, means for supporting said shaft, a disk secured to the shaft and adapted to frictional contact with the under side of the reversible platform, said disk having a portion of its periphery flattened or cut away at a point diametrically opposite to said crank-handle, the superior weight of that half of the disk opposite the cut-away portion, together with the weight of the crank-handle curving on a counterbalance to normally maintain the disk out of contact with the platform.



2. A toy comprising a base, a pair of strips of metal bent into loop form and secured to said base, a driving-shaft supported by said strips, an upright post 11 having its lower end adapted in a base-socket and partly supported by one of said strips, a reversible platform having a central opening for the passage of the said post, an upper strip carried by the platform and having a socket for the reception of said post, and a driving-disk carried by the driving-shaft and adapted for contact with the under side of said reversible platform.

700,862. CONVERTIBLE HARROW AND LAND-ROLLER. HENRY L. WALKER, Ripley Station, Ky., assignor of one-half to John W. Tamm, Ripley Station, Ky. Filed July 20, 1901. Serial No. 70,150 (No model.)



Claim.—1. The combination of a flexible body comprising a series of bars and flexible connections between them, said body being disposed in cylindrical form, and heads in said cylindrically-formed body, said heads having projecting spurs and the bars of said flexible body having openings to receive said spurs, substantially as described.

2. In a convertible harrow and land-roller, a flexible body for the purpose set forth, comprising a series of bars disposed side by side, and provided with transverse aligned openings, a flexible element extending through said openings and connecting said bars together, and flexible connecting elements, on one side of said bars and connecting them together, substantially as described.

700,863. DOOR FOR MAIL-WAGGON. WILLIAM E. WAGGONER, South Bend, Ind. Filed Sept. 20, 1901. Serial No. 73,561. (No model.)



Claim.—1. In a mail-wagon, the combination with the door or doors having an opening formed therein, of a vertically-swinging door hinged at its bottom to the edge of said opening by a spring-hinge to normally hold the supplemental door closed, and means to lock the supplemental door, substantially as specified.

2. In a mail-wagon, the combination with the door or doors having

an opening formed therein, of a vertically-swinging sub-door hinged to the edge of the opening in the door proper, a spring-hinge to normally hold the sub-door closed, said sub-door arranged to be held at right angles to the door to provide a shelf within the mail-wagon, substantially as described.

700,864. DETACHABLE ALARM FOR KETTLES. BURNHAM WHITTIER, Boston, Mass., assignor of one-half to Louis Jacobson, Cambridge, Mass. Filed Mar. 26, 1902. Serial No. 90,593. (No model.)

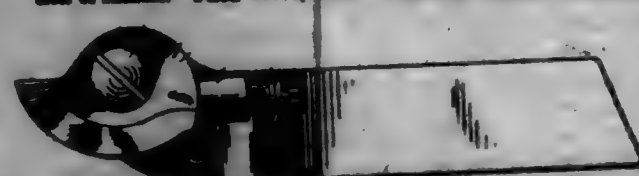


Claim.—1. As a new article of manufacture, a detachable alarm for kettles consisting of a tubular stem having a discoidal whistle attached to one end thereof, a support having a post for the whistle in one end and a hole through which said stem passes, said stem projecting beyond the opposite end of said support, the end of the projecting portion being screw-threaded and a clamping-nut on said screw-threaded end, substantially as described.

2. As a new article of manufacture, a detachable alarm for kettles comprising a pair of centrally-perforated concave disks which are oppositely arranged and connected at their edges to form a chamber, a support having a post in one end in which one of said disks is located, and a hole which passes through it from end to end, a tube having a circumferentially-flanged end, said tube extending through the hole of said support and the perforation of the adjacent disk, the flanged end of said disk being located in said chamber and its opposite end projecting beyond said support and being screw-threaded, and a nut on said threaded end, substantially as described.

3. As a new article of manufacture, a detachable alarm for kettles comprising a pair of centrally-perforated concave disks which are oppositely arranged and connected at their edges to form a chamber, one of said disks having an annular lip surrounding its perforation, which projects into said chamber, a support having a post in one end in which said latter disk is located and a hole which passes through it from end to end, a tube having a circumferentially-flanged end, said tube extending through the hole of said support and the perforation of the adjacent disk, the flanged end being located within the chamber and its opposite end projecting beyond the support and being screw-threaded, and a nut on said threaded end, substantially as described.

700,865. CUTTING-TOOL. SAMUEL WELSH and JOHN ARMSTRONG, Chicago, Ill., assignors to Armstrong Bros. Tool Co., a Corporation of Illinois. Filed Oct. 1, 1901. Serial No. 77,903. (No model.)



Claim.—1. A thread-cutting tool having a curved and beveled edge of uniform width, a pivot to which each edge is concentric and being located between the cutting edge and the center of the circle of which each edge is an arc, and a cutting-flare radial to the pivot.

2. A thread-cutting tool having a pivot-aperture, and a cutting-flare and a bearing-flare relatively on opposite sides of each aperture, the periphery of the cutter extending back from the cutting-flare on an arc-struck from a center more remote than the pivot-aperture and the bearing-flare extending in the opposite direction from the cutting-flare approximately on a concave curve relatively to the pivot-aperture.

3. In a thread-cutting tool, in combination, a stock, a cutter pivotally secured to the stock and having a cutting-flare radial to the pivot, a portion of the periphery of the cutter being the cutting edge and extending backwardly from the cutting-flare and a portion of the periphery of the cutter being a bearing-flare, each two portions being on opposite sides of the pivot and concentric therewith, the said pivot being located between the cutting edge and the center of the circle of which each edge is an arc and the bearing-flare gradually approaching the pivot from its end nearest the rearward end of the cutting edge, and an adjustable member carried by the stock and engaging the bearing-flare.

4. A thread-cutting tool provided with a pivot-aperture and a cutting-flare radial to the pivot-aperture, a portion of the periphery of the tool being a cutting edge and a portion thereof being a bearing-flare, both

of each peripheral portion being concentric to the pivot-aperture and the line of the cutting edge extending from the cutting-flare and gradually approaching the pivot-aperture as it recedes from the cutting-flare.

700,866. DARNING-LAMP. EDNA R. WHITE, Stillman Valley, Ill. Filed July 31, 1902. Serial No. 72,044. (No model.)



Claim.—1. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two series of harness-loops extending transversely across the darning-frame near the middle thereof, the opening in each of said loops extending substantially at right angles to the line of the series to which the loop belongs, said loops being normally substantially closed at all sides; a pivotal support for each of said series of harness-loops; and means for applying power to move said series in opposite directions upon their said pivots.

2. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two series of harness-loops, the opening in each of said loops extending substantially at right angles to the line of the series to which the loop belongs, said series extending transversely across the darning-frame near the middle thereof, said loops being normally substantially closed at all sides; a pivotal support for each of said loop series; and a thumb-piece for each series, for moving the same.

3. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two tilting plates at opposite ends of said frame, which plates face each other; a series of loops on each of said plates on the adjacent edges thereof, which loops are in eye form, normally substantially closed at all sides; and a thumb-piece for each tilting plate adapted to move the same.

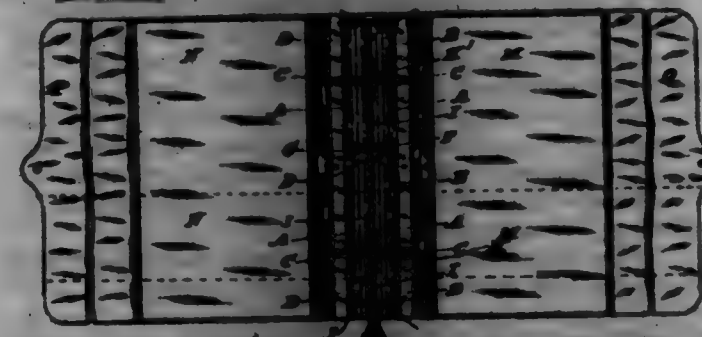
4. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two series of harness-loops, the opening in each of said loops extending substantially at right angles to the line of the series to which the loop belongs, said series extending transversely across the darning-frame near the middle thereof, said loops being normally substantially closed at all sides; a pivotal support on the frame on opposite sides thereof, for each of said series of loops; and means for applying power to move said series in opposite directions upon their said pivots.

5. In a darning apparatus, in combination, an elliptical frame for holding the fabric to be darned; two series of harness-loops, said loops being in eye form, normally substantially closed at all sides; a tilting plate for supporting each of said series of loops; and a pivot and a thumb-piece for each of said plates.

6. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two tilting plates pivotally mounted on opposite sides of said frame; a series of harness-loops on each of the adjacent edges of said plates, said loops being in eye form, normally substantially closed at all sides, the loops of one series alternating in position with those of the other series; and a thumb-piece for each of said tilting plates, for moving said plate.

7. In a darning apparatus, in combination, a frame for holding the fabric to be darned; two tilting plates therefor, which plates face each other, each of which is provided with an upturned rear end, and is pivotally mounted near one end of said frame; and a series of harness-loops fixed upon the front edge of said tilting plates, the loops of one series alternating in position with the adjacent loops of the other series.

700,867. DEVICE FOR HOLDING REMOVABLE LEAVES. RALPH C. WHITMAN, Los Angeles, Cal. Filed Jan. 24, 1902. Serial No. 81,570. (No model.)



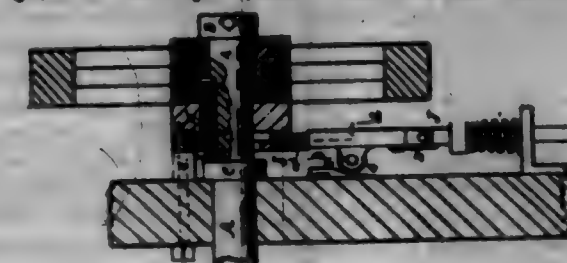
Claim.—1. The device for holding or binding together other the form or manner of a book, leaves or removable sheets of paper, said device consisting of an expandable back portion with flat top portions where-in one or more rings each having internal teeth are carried joints for engaging the rings to be opened and closed and a shaft or bar with a handle

the capable of having both a sliding and rotating movement imparted to it, said shaft having steps thereon and pistons operating in internal teeth or toothed recesses in each of the one or more opening and closing rings, the said device also containing toggle-jointed levers connected pivotally to the top portions of the back, said toggle-jointed levers being operated by the screw-like movable bar and handle, one of said toggle-jointed levers having a stud engaging with a grooved roller on said shaft or bar, for opening and closing said rings, the grooved roller also the springs connecting the upper parts of the back, all operating in the manner and for the purposes substantially as hereinbefore described.

2. The combination consisting of the flexible back, the flat top portions of said back the one or more internally-toothed opening and closing rotatably-mounted rings held in said back, the sliding and rotatable bar and handle, the steps on said bar, the pistons on said bar, the grooved roller on said bar, the toggle-jointed levers and stud operated by said bar and grooved roller, the bearings for said bar and toothed pistons, the covers or sides of the device and the flexible outer portions of said covers, also the spiral springs, all operating together in the manner and for the purposes substantially as hereinbefore described.

3. The combination consisting of the flexible back, one or more jointed opening and closing rotatably-mounted toothed rings held in said back, the sliding and rotatable bar and handle, the steps on said bar, the pistons on said bar, the grooved roller on said bar, the toggle-jointed levers and stud operated by said bar and grooved roller, the bearings for said bar and pistons, the opening and closing rotatably-mounted rings, the covers or sides of the device and the flexible outer portions of said covers, all operating together in the manner and for the purposes substantially as hereinbefore described.

700,868. DRIVING MECHANISM. OTTO WELTMEYER, Brooklyn, N. Y. Filed Apr. 17, 1901. Serial No. 60,199. (No model.)



Claim.—In mechanism of the class described, a driving-shaft provided with a spring-key, a driving-wheel having key-seat cavities formed therein for the reception of the screw-like key, a clutch-collar rabbeted to form a keyway, a stationary segment-plate secured to the frame of the machine, a second segment-plate secured to the treadle, joined to the stationary segment at one end, and provided with an opening at the junction of the opposite ends for the passage of the key, the outlet of said passage having means for covering the same, substantially as set forth.

700,869. ELECTRODE. KARL A. WILKE, Chicago, near Hamburg, Germany. Filed Sept. 22, 1900. Serial No. 30,600. (No model.)



Claim.—1. A flat electrode for secondary batteries comprising a carrier formed of a suitable material, provided with a substantially helical groove and an active material in said groove, substantially as and for the purpose set forth.

2. An electrode-carrier composed of a suitable material and provided with a plurality of substantially helical ribs, and lateral projections formed on said ribs at opposite sides of the electrode, substantially as and for the purpose set forth.

3. An electrode-carrier composed of a suitable material and provided with a plurality of ribs arranged to form a multiplex helix, and lateral projections at opposite sides of the electrode at each turn of the helix, substantially as and for the purpose set forth.

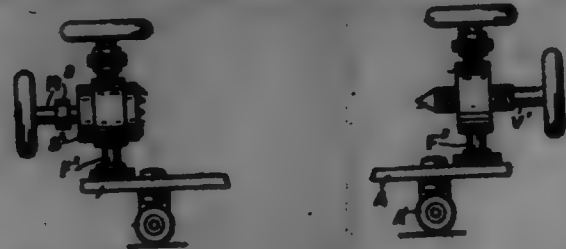
4. A flat electrode-carrier composed of a suitable material and having inclined ribs arranged in the form of a multiplex helix, substantially as and for the purpose set forth.

5. An electrode-carrier composed of ribs of a suitable material inclined in opposite directions on opposite sides of the electrode, connected at their crossing and lateral ends on each inclined rib, substantially as and for the purpose set forth.

6. An electrode-carrier composed of ribs of a suitable material inclined in opposite directions on opposite sides of the carrier, a plate between the series of ribs, said ribs and plate connected at their crossing-points and lateral ends on each inclined rib, substantially as and for the purpose set forth.

7. An electrode-carrier comprising a plate, inclined ribs on one side thereof inclined in one direction and similar ribs on the opposite side inclined in an opposite direction, and lateral ends on each inclined rib, the plate being cut away between said ends, substantially as and for the purpose set forth.

700,870. SAWHILL AND PLAMER. EDWARD E. WILLARD, Edgway, Pa. Filed July 2, 1897. Serial No. 643,374. (No model.)



Claim.—1. A rotary log-champ consisting of a cylinder journaled to rotate in a suitable bearing, a flange formed on or firmly attached to the inner end of the cylinder and provided with teeth designed to secure and contain one end of a log when it is pressed against them, while the other end of the log is supported by any suitable center on which it may rotate, and so constructed that the log may at the same time be pressed and firmly held against the toothed flange of the cylinder; at the outer end of the journaled cylinder a washer recessed to receive the projecting end of the cylinder and having a hole in its center through which passes the shaft of a clamp-curve which is fitted to work in a threaded hole extending through the cylinder, the screw-shaft being provided with a collar formed on or firmly attached to the shaft outside of the washer, and designed to press against the washer and draw it toward the cylinder, in the manner and for the purpose described.

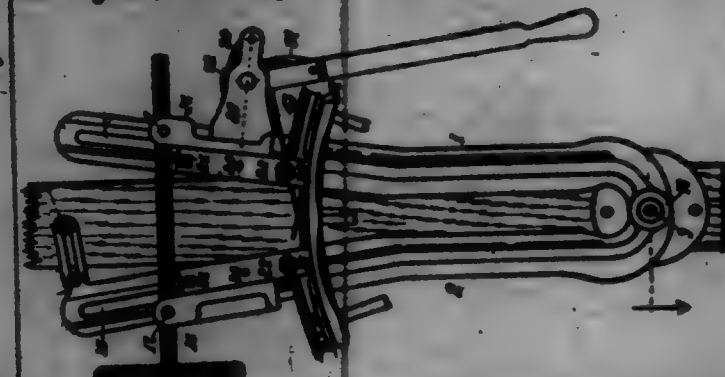
2. A rotary log-champ consisting of a flanged cylinder journaled to rotate in a suitable bearing, a threaded hole in the center of the cylinder through which a clamp-curve with a corresponding thread passes; the screw having journaled to its inner end a disk provided with teeth which may, by rotating the screw, be pressed firmly against and into one end of a log to secure and contain it, while the other end is supported by any suitable center on which it may rotate, and by which it may be pressed and held against the teeth of the disk; a set-screw being fitted to press against the journaled cylinder to prevent it from rotating when so desired, as shown and described.

3. A rotary log-champ consisting of a flanged cylinder journaled to rotate in a suitable bearing, a threaded hole in the center of the cylinder through which a clamp-curve with a corresponding thread passes and works, the clamp-curve rotated by means of a hand-wheel attached to its outer end and having journaled to its inner end a disk provided with strong teeth which may, by rotating the screw, be pressed firmly against and into the end of a log, a set-screw passing through a threaded hole in the bearing and pressing against the cylinder to prevent the cylinder from rotating when so desired; and alternatively and in combination with the same, another rotary log-champ consisting of a cylinder journaled to rotate in a suitable bearing, a flange formed on, or firmly attached to, the inner end of the cylinder and provided with teeth designed to secure and contain one end of a log when it is pressed against them; at the outer end of the cylinder, a washer recessed and constructed to slide a short distance along the journaled part, a hole through its center in which a clamp-curve freely rotates and retains it in place; the journaled cylinder having a threaded hole through its center in which the clamp-curve, actuated by a hand-wheel at its outer end and provided with a corresponding thread, passes and works; the clamp-curve also provided with a collar firmly attached and designed to press against the washer and draw it toward the cylinder when the clamp-curve is rotated and in this manner to clamp the cylinder and prevent it from rotating when so desired, substantially as shown and described.

4. A rotary log-champ consisting of a longitudinal bar having firmly fastened near its ends flanged cylinders fitted to bearings in which they may freely rotate; at the outer end of one of the cylinders a washer, recessed and constructed to slide a short distance along the journaled part, a hole through its center in which a clamp-curve freely rotates; the screw working in a threaded hole through the center of the cylinder in draw the washer toward the cylinder and prevent the cylinder from rotating when so desired; a threaded hole through the other journaled cylinder in which a clamp-curve works having a disk at its inner end in which it is journaled to rotate, the disk having a hole through which the longitudinal bar is passed on which it slides when the screw is rotated, substantially as shown and described.

700,871. RUBBER-TIRE-CUTTING MACHINE. JOHN E. WILKINS, ALBANY, N.Y. Filed Dec. 12, 1899. Serial No. 643,375. (No model.)

Claim.—1. In a rubber-tire-cutting machine, the combination of arms mounted to rock on the axle line of the wheel to be fitted, and bearing longitudinally-adjustable wire-gripping devices, at their free ends, and means for drawing said free ends bearing said devices toward each other, substantially as shown and described.



2. In a rubber-tire-cutting machine, the combination of arms mounted to rock on the axle line of the wheel to be fitted, and bearing longitudinally-adjustable wire-gripping devices, at their free ends, and means for drawing said free ends bearing said devices toward each other, substantially as shown and described.

3. In a rubber-tire-cutting machine, the combination of arms mounted to rock on the axle line of the wheel to be fitted, bearing wire-gripping devices on their free ends, means for drawing said free ends toward each other, and independently-acting windlasses to severally draw said wires, substantially as shown and described.

4. In a rubber-tire-cutting machine, the combination of two arms mounted to rock on the axle line of the wheel to be fitted, bearing longitudinally-adjustable wire-gripping devices on their free ends, means for drawing said free ends toward each other, and independently-acting windlasses to severally draw said wires, substantially as shown and described.

5. In a rubber-tire-cutting machine, the combination of two oppositely-disposed arms mounted to rock on the axle line of the wheel to be fitted, provided in their outer portions with ways, radial to their line of movement, and bearing wire-gripping devices longitudinally adjustable therein, and means for causing said arms to approach each other, substantially as shown and described.

700,872. SUSPENDED-BUCKLE. HARRY E. WILSON, Lockhaven, Pa. Filed Oct. 20, 1901. Serial No. 79,985. (No model.)



Claim.—1. In suspension, the combination with the webbing band doubled upon itself and having a terminal loop, one portion of which is located against the adjacent face of the main band of webbing, of a buckle comprising a base-frame that is located wholly within the terminal loop and is open to permit the opposite portions of said terminal loop being pressed together, a cross-bar joined to the opposite edges of the base and extending across the outer face of one side of the loop and the main band of webbing, and a locking-tongue pivoted upon the cross-bar and having an offset tooth that projects into the open portion of the frame and presses the band of webbing and the adjacent portion of the terminal loop through the base and against the opposite portion of said terminal loop whereby a yielding cushion is formed for the webbing band.

2. In a buckle, the combination with a base, of a pivot-bar extending across and spaced from the base, and a tongue pivoted upon the bar and comprising a looped wire coiled about said bar, the terminals of said tongue being intended to constitute teeth that meet with the base.

3. In a buckle of the class described, the combination with a frame having a contracted neck, and a pivot-bar extending transversely across the neck, of a tongue pivoted upon the bar and comprising a looped wire, the terminals of which constitute a pair of web-engaging teeth that are located on opposite sides of the neck.

4. In a buckle of the class described, a frame having a contracted neck provided with outstanding arms, a cross-bar connecting the terminals of the arms and spaced therefrom, and a tongue pivoted upon the cross-bar and comprising a looped wire, the terminals of which are coiled about the cross-bar and the ends being bent to form teeth that are located on opposite sides of the neck and meet with the outstanding arms thereof.

5. In a buckle of the class described, a wire frame comprising a base having a neck and oppositely-extending outstanding arms provided with offset portions constituting teeth, the terminals of said arms being con-

structed by a cross-bar which extends transversely of and is spaced from the neck, and a tongue pivoted upon the cross-bar and comprising a looped wire having its end portions coiled about said bar and its terminals bent to form teeth that are movable into and out of the said neck in the axis of the frame.

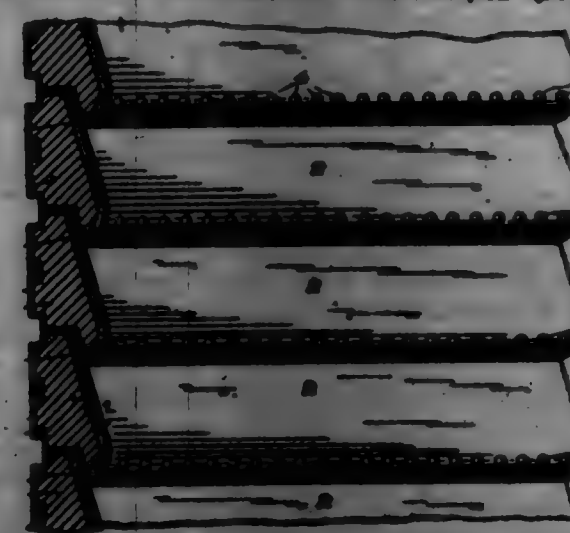
6. In a buckle of the class described, the combination with the frame having a cross-bar provided with an intermediate offset leg, of a tongue pivoted upon the cross-bar and comprising a looped wire, the end portions of which are coiled about said bar and its terminals being bent to form holding-teeth, said terminals being bent to form holding-teeth, said terminals being bent to form holding-teeth, said terminals being bent to form holding-teeth.

7. In a buckle of the class described, the combination with a frame having a cross-bar, of a tongue pivoted upon the cross-bar and comprising a looped wire, the end portions of which are coiled about said bar and the terminals being bent to form holding-teeth, said terminals being doubled upon themselves to form blunt engaging ends.

8. In suspension, the combination with the webbing band doubled upon itself and having a terminal loop, one portion of which is located against the adjacent face of the webbing, of a buckle comprising a base located wholly within the terminal loop and having a contracted neck that carries outstanding arms, said arms extending to the opposite side edges of the loop, a cross-bar that connects said arms and extends transversely across the outer face of one side of the loop and the band of webbing to be held, said cross-bar being arranged in a lower plane than the outstanding arms, and a locking-tongue pivoted upon the cross-bar and comprising a looped wire, the terminals of which constitute teeth that are located on opposite sides of the contracted neck and are arranged to force the portions of the band and loop beneath them into the space on opposite sides of the contracted neck and into engagement with the outstanding arms.

9. In a buckle of the class described, the combination with a base-frame having a contracted neck and outstanding arms, of a cross-bar secured in the outstanding arms and spaced from the contracted neck, and a tongue pivoted upon the cross-bar and having teeth which are located solely upon opposite sides of the neck, said teeth being of sufficient length to project into the space on opposite sides of the neck and beyond the plane of the adjacent face of said neck, whereby a band of webbing passed between the tongue and base will be pressed by the teeth into the spaces on opposite sides of the contracted neck and into engagement with said neck.

700,878. FIREPROOF SHUTTER. DOUGLAS, JR. JAMES G. WILSON, New York, N. Y. Filed Feb. 6, 1902. Serial No. 95,710. (No model.)



Claim.—1. As an improved article of manufacture, a fireproof shutter comprising an inner core or portion of wood and an exterior sheathing of metal having its outer face perforated, substantially as set forth.

2. As an improved article of manufacture, a shutter or door having a core of wood or the like and a sheathing of metal, the face of said metal having a plurality of perforations, substantially as set forth.

3. As an improved article of manufacture, a rolling or sliding shutter formed of wooden slats or bars and sheathings of metal around said slats or bars, said metal sheathings having in their outer faces perforations whereby communication is established between the outside air and the wooden core, substantially as set forth.

700,874. HEATING STOVE OR FURNACE. HENRY F. WILSON, Kansas City, Mo., assignor of one-half to HENRY SHANNON and BEN E. BOONER, Kansas City, Mo. Filed Jan. 21, 1897. Serial No. 643,376. (No model.)

Claim.—1. The combination, with a stove or furnace body, of a flue thereunder, a tube connecting one end of said flue to the lower front

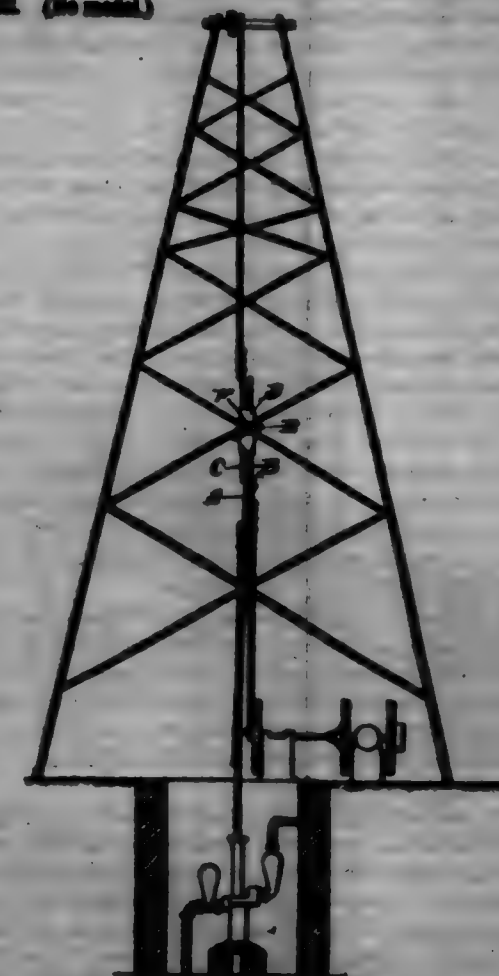
portion of the body, a vertical flue connected to the opposite end of said flue, a chamber communicating with the upper back portion of the body and with said vertical flue, an opening in said chamber for a stovepipe, and a damper in said chamber, said damper being so movable as to cut off said chamber from the stove-body when in one position and to open communication therebetween when in a different position; substantially as described.



2. The combination, with a stove or furnace body, of a plurality of flues thereunder, a tube connecting the front ends of said flues to the lower front portion of the body, a plurality of vertical flues connected at their lower ends to the rear ends of said flues, a chamber communicating with the upper back portion of the body and with said vertical flues, an opening in said chamber for a stovepipe, and a damper in said chamber, said damper being so movable as to cut off said chamber from the stove-body when in one position, and to open communication therebetween when in another position, substantially as described.

3. The combination, with a stove or furnace body, of a plurality of flues thereunder, a tube connecting one end of said flues to the lower portion of said body, a plurality of vertical flues connected at their lower ends to the rear ends of said flues, a chamber communicating with the upper back portion of the body and with said vertical flues, an opening in said chamber for a stovepipe, and a damper in said chamber, said damper being so movable as to cut off said chamber from the stove-body when in one position, and to open communication therebetween when in another position, substantially as described.

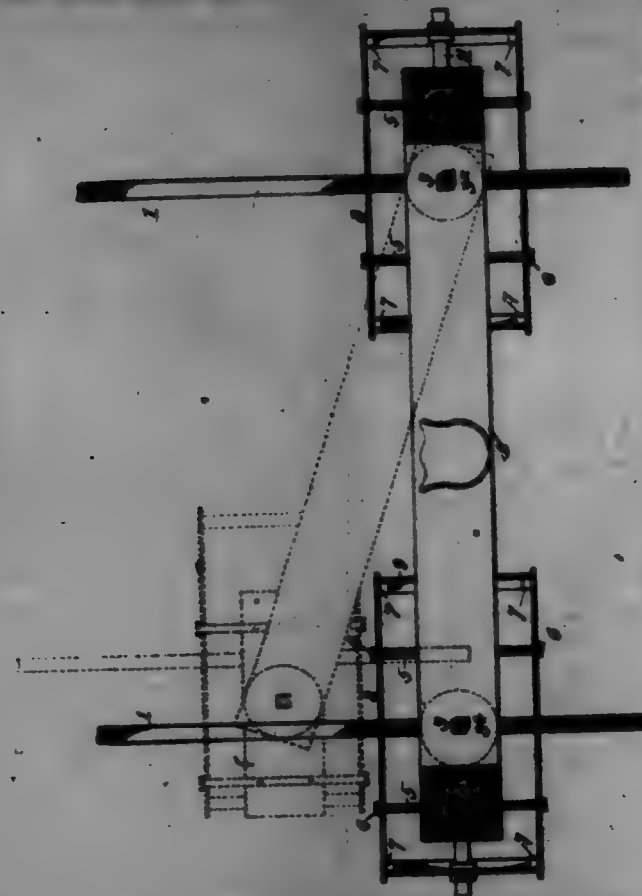
700,875. CRANE. DAVID L. WATSON, Chicago, Ill., assignor to Theodore Watson Bros., Chicago, Ill. Filed Apr. 2, 1901. Serial No. 64,382. (No model.)



Claim.—1. In a crane the combination of the guide D and the lower E carrying the yoke F provided with the jaws b and c with the pulley A and the pulleys B and C provided with slots or notches substantially as described.

2. In a crane the combination of the guide D and the lower E provided with the jaws b and c and the steps ff with the pulley A and the pulleys B and C provided with slots or notches substantially as described.

700,876. CULTIVATOR. WILLIAM J. WENWALL, Kansas City, Mo., assignor of one-half to C. A. Frank, Kansas City, Mo. Filed Jan. 27, 1902. Serial No. 91,022. (2a added.)



Claim.—1. In a cultivator, a suitable frame, wheels supporting the same, a transverse shaft supported by said frame rearward of said wheels, beams and hanger-guards supported at their upper ends from said shaft and movable with the latter, said beams and hanger-guards extending at an angle to each other, cultivating appliances supported from said beams, a lever for operating said shaft and thereby synchronously raising said cultivating appliances and lowering said hanger-guards or lowering said cultivating appliances and raising said hanger-guards, and means for securing said lever in the desired adjustment.

2. In a cultivator, a pair of wheel-supported frames equipped with cultivating appliances and means for operating the latter, planks mounted to slide transversely of the machine in said frames, and a cast-plank pivotally connecting said sliding planks.

3. In a cultivator, a pair of wheel-supported frames equipped with cultivating appliances and means for operating the latter, planks mounted in said frames and free to move laterally but not forwardly or rearwardly thereof, parallel bars secured to said planks and engaging said wheel-supported frames, and a cast-plank pivotally connecting said sliding planks.

4. In a cultivator, a pair of wheel-supported frames, equipped with cultivating appliances and means for operating the latter, planks within said frames and adapted to slide laterally thereof, parallel bars secured to said planks and engaging the wheel-supported frames and provided with enlargements or heads for preventing the planks sliding forwardly or rearwardly in said wheel-supported frames, and a cast-plank pivotally connecting said sliding planks.

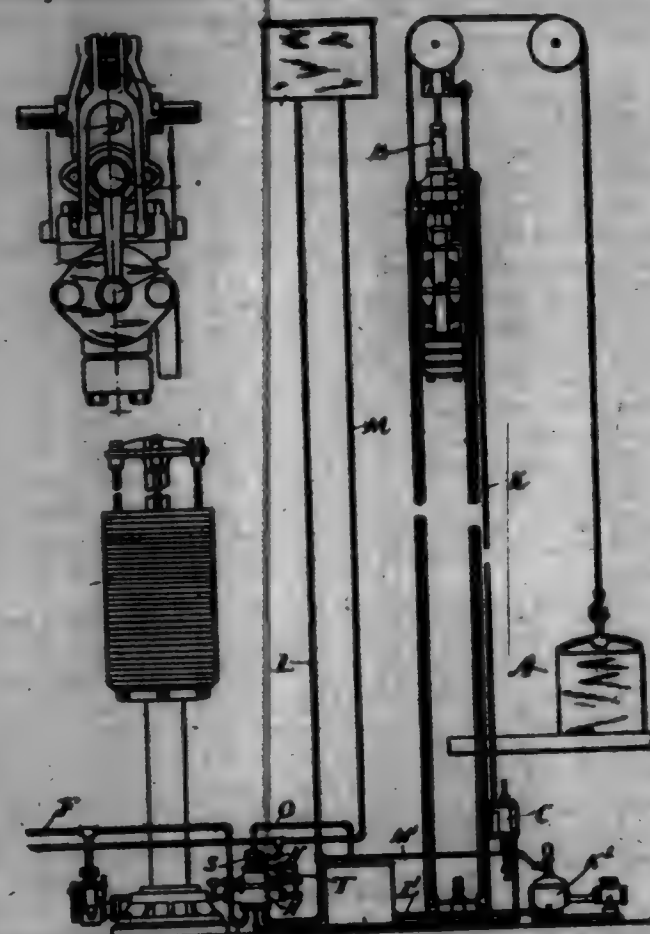
5. In a cultivator, a pair of wheel-supported frames equipped with cultivating appliances and means for operating the latter, said frames embodying front and rear transverse bars, planks adapted to slide laterally of said frames and provided with sets of parallel bars at opposite sides of their centers, said bars engaging the upper and lower edges of the transverse bars of the wheel-supported frames, and a cast-plank pivotally connecting said sliding planks.

6. In a cultivator, the combination of wheel-supported frames equipped with cultivating appliances and means for operating the latter, planks arranged to slide laterally of and supported by said frames, tongues hinged to the under side of said planks and projecting forwardly therefrom, and a cast-plank pivoted at its opposite ends upon said bolts above said sliding planks.

700,877. VALVE MECHANISM FOR HYDRAULIC ELEVATORS. HERMAN F. WITTE, Chicago, Ill., assignor to the Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Sept. 5, 1899. Serial No. 724,024. (2a added.)

Claim.—1. In a hydraulic-elevator hoisting mechanism, a hoisting-cylinder, a reversing-valve for controlling the supply to and exhaust from

said cylinder of an operating medium at high pressure, a discharge-tank for said hoisting-cylinder, a power-cylinder, a piston arranged therein and connected to said reversing-valve for actuating the latter, pipes delivering from said discharge-tank into both ends of said power-cylinder, whereby an operating medium at low pressure is delivered into either end of said power-cylinder to operate said piston in both directions, a pilot-valve for controlling said pipes, and means for returning the exhaust from said power-cylinder into said discharge-tank, as and for the purpose set forth.



2. In a hydraulic-elevator hoisting mechanism, a circulating system for a high-pressure operating medium, a main or reversing valve for controlling said system, a power-cylinder, a piston operating therein, a low-pressure hydraulic supply, pipes delivering from said supply into said power-cylinder, a pilot-valve arranged to control the admission of said low-pressure medium to either end of said power-cylinder at will, to operate said piston in either direction, and means whereby the discharge of said low-pressure operating medium is returned into the circulating system, as and for the purpose set forth.

3. In a hydraulic-elevator hoisting mechanism, a circulating system for a high-pressure operating medium, a main or reversing valve for controlling said system, a power-cylinder, a piston operating therein, a low-pressure hydraulic supply, pipes delivering from said supply into said power-cylinder, a pilot-valve arranged to control the admission of said low-pressure medium to either end of said power-cylinder, manually-operated means for moving said pilot-valve in either direction to open either end at will of said power-cylinder to the source of low-pressure supply to operate said piston in either direction, connections between said piston and said reversing-valve, and means actuated by the movement of said reversing-valve for moving said pilot-valve to close communication with the source of low-pressure supply of said cylinder and to open said cylinder to exhaust, as and for the purpose set forth.

4. In a valve mechanism for elevators, a main reversing-valve arranged to control the supply of high-pressure, operating medium to and from the hoisting-motor, in combination with a cylinder, a piston arranged therein and connected to said reversing-valve for operating the latter, a valve-chest, a low-pressure hydraulic supply, pipes delivering from said supply to said chest, an exhaust-pipe also communicating with said chest, ports arranged to open communication between said chest and each end of said cylinder, a pilot-valve for controlling said ports, manually-operated device for moving said valve to open said ports, and means operated by the movement of said piston for automatically moving said pilot-valve to close said ports and to open said cylinder-to-exhaust, as and for the purpose set forth.

5. In a valve mechanism for hydraulic elevators, a hoisting mechanism, a main or reversing valve arranged to control the supply of high-pressure, operating medium to and from the hoist-motor, a power-piston for operating said valve, a cylinder in which said piston operates, a source of low-pressure hydraulic supply for said power-cylinder, ports arranged

to deliver into each end of said power-cylinder and to each side of said piston, a pilot-valve for controlling said ports, manually-operated device for moving said pilot-valve in either direction to open either end of said power-cylinder to the source of low-pressure supply, and means actuated by the movement of said piston for moving said pilot-valve to close said cylinder to the source of low-pressure supply and to open the same to exhaust, as and for the purpose set forth.

6. In a valve mechanism for elevators, a main valve arranged to control the supply and discharge of a high-pressure operating medium to and from the hoisting-motor, in combination with a cylinder, a piston operating therein, connections between said piston and main valve for operating the latter, a pilot-valve, ports controlled by said pilot-valve, said ports leading to a different and independent source of supply from that of the hoisting-motor, means for manually moving said pilot-valve in either direction at will to open said cylinder to its independent source of supply, and means actuated by the movements of said piston when said pilot-valve is moved in either direction for automatically moving said pilot-valve in the opposite direction to close said cylinder to its source of supply and to open the same to exhaust, as and for the purpose set forth.

700,878. PHOTOGRAPHIC SHUTTER. ANDREW WILLIAMS, Rochester, N. Y. Filed Oct. 22, 1901. Serial No. 70,714. (Model.)



Claim.—1. A photographic shutter for making a series of graded exposures comprising, in combination with shutter-blades, mechanism for determining the duration of said various exposures, and motor mechanism for the shutter-blades, said mechanism being independent of each other, and a controlling-body common to both, substantially as shown and described.

2. A photographic shutter adapted to make a series of graded exposures ranging from brief duration to instantaneous, having mechanism comprising, in combination with shutter-blades, a retarding device for determining the duration of the various exposures, and motor mechanism for the shutter-blades independent of the retarding device, and a controlling-body common to both, substantially as set forth.

3. A photographic shutter for making both time and bulb exposures, having, in combination with shutter-blades, a master-arm with intermediate mechanism for moving the shutter-blades, a pair of detents for engaging said arm one for both exposures and the other for time exposures, and a release-lever for the exposure mechanism adapted to control both of said detents, substantially as set forth.

4. A photographic shutter for making exposures of different duration, having shutter-blades and mechanism for operating them, and a retarding mechanism acting independently of said shutter mechanism and a thumb-lever for setting said shutter mechanism, said thumb-lever being independent of the shutter mechanism, substantially as shown and described.

5. A photographic shutter for making exposures of different duration, having shutter-blades and mechanism for operating them, and retarding mechanism acting independently of the shutter mechanism and a spring-actuated thumb-lever for setting the shutter mechanism, said thumb-lever being adapted to return to its normal place while the mechanism is set and at rest without affecting said mechanism, substantially as shown and described.

6. A photographic shutter for making a series of exposures graded as to duration, having, in combination with shutter-blades and mechanism for operating them, a setting-lever, and retarding mechanism for determining the duration of the exposures, said retarding mechanism acting independently of the shutter mechanism and being adapted to set in motion the shutter mechanism independent of the setting-lever, substantially as set forth.

7. A photographic shutter for making a series of exposures graded as to duration, having, in combination with shutter-blades and mechanism for operating them, a retarding mechanism for the shutter mechanism acting independently of the shutter mechanism and adapted to be actuated by the shutter mechanism while moving to effect an exposure, substantially as described.

8. A photographic shutter for making a series of exposures graded as to duration, having, in combination with shutter-blades and mechanism for operating them, a retarding mechanism acting independently of the shutter mechanism and actuated by the shutter mechanism and a release-lever for the exposure mechanism, the latter making a part of its return motion independent of the retarding mechanism, substantially as described.

9. A photographic shutter for making a series of exposures graded as to duration, having, in combination with shutter-blades and mechanism for operating them, retarding mechanism for the exposure mechanism, actuated by the latter, and a release-lever for the exposure mechanism, there being an interval of time between the action of the release-lever upon the exposure mechanism and the action of the latter upon the retarding mechanism, substantially as set forth.

10. A photographic shutter for making a series of exposures graded as to duration, having, in combination with shutter-blades and mechanism for operating them, a retarding mechanism for determining the duration of the exposures, and means for controlling said exposure mechanism, the latter and the retarding mechanism acting independently of each other, substantially as set forth.

11. A photographic shutter adapted to make exposures of different duration, having shutter-blades and mechanism for operating them, a series of detents for the shutter mechanism, and a release-lever to successively engage the detents to control singly and release the shutter mechanism, substantially as set forth.

12. A photographic shutter adapted to make exposures of different duration, having shutter-blades and mechanism for operating them, a pair of detents for the shutter mechanism, and a release-lever controlling singly all of said detents and adapted for operating them moving in one direction to engage one detent and in the opposite direction to engage the other, substantially as shown and described.

13. A photographic shutter adapted to make exposures of different duration, having shutter-blades and mechanism for operating them, and a series of cam-follower detents for the shutter mechanism held to move in parallel planes, and a release-lever adapted to be actuated to neutralize the detents singly, substantially as and for the purpose specified.

14. A photographic shutter adapted to make exposures of different duration, having shutter-blades and mechanism for operating them, and a series of cam-follower detents for the shutter mechanism, and a release-lever adapted to be actuated by hand or by both pressure, said lever having a series of projections one to engage each of the detents, substantially as specified.

15. A photographic shutter adapted to make exposures of different duration, having shutter-blades and mechanism for operating them, a primary detent and two detents for the shutter mechanism, and a release-lever constructed to control singly all of said detents and adapted for actuating the several detents independently, with means for holding the two detents out of action, substantially as described.

16. A photographic shutter adapted to make exposures of different duration, having shutter-blades and motor mechanism therefor, a series of detents for the shutter mechanism, comprising two thin detents, and a release-lever to actuate the detents singly, with means for bringing the two detents successively into action, substantially as and for the purpose set forth.

17. A photographic shutter adapted to make exposures of different duration, having shutter-blades and motor mechanism therefor, including a pivoted arm, a series of cam-follower detents adapted to engage said arm at different points in its movement, and a release-lever constructed to control singly all of said detents and adapted for controlling the detents, substantially as stated.

18. A photographic shutter adapted to make time, bulb, and graded exposures, comprising shutter-blades and mechanism for operating them, and retarding mechanism for the shutter mechanism, and companion detents for the shutter mechanism to effect time and bulb exposures respectively, and a controlling-body common to both detents and the retarding mechanism, substantially as shown and described.

19. A photographic shutter adapted to make time, bulb, and graded exposures, comprising shutter-blades and mechanism for operating them, and retarding mechanism for the shutter mechanism, and companion detents for the shutter mechanism to effect time and bulb exposures respectively, and a controlling-body common to both detents and the retarding mechanism, said controlling-body being adapted to hold both detents in motion or to allow them to move into action successively, and to hold the retarding mechanism out of action, substantially as and for the purpose specified.

20. A photographic shutter adapted to make time, bulb, and graded exposures, comprising shutter-blades and mechanism for operating them, and retarding mechanism for the shutter mechanism, and companion detents for the shutter mechanism to effect time and bulb exposures respectively, and a controlling-body common to both detents and the retarding

mechanism said controlling-body being adapted to be moved to simultaneously hold said detents and the retarding device out of action, substantially as specified.

21. A photographic shutter adapted to make time, bulb, and graded exposures, comprising shutter-blades and mechanism for operating them, and retarding mechanism for the shutter mechanism, and composition detents for the shutter mechanism to effect time and bulb exposures respectively, and a controlling-body common to both detents and the retarding mechanism, said controlling-body being adapted to hold the retarding mechanism out of action while the detents act, substantially as set forth.

22. A photographic shutter adapted to make time, bulb, and graded exposures, comprising shutter-blades and mechanism for operating them, and retarding mechanism including an eccentric arm, for the shutter mechanism, and a controlling-body common to both said mechanisms engaging the eccentric arm, there being detents for the shutter mechanism engaged by said controlling-body, the latter having in part the form of an eccentric and in part the form of a mutilated disk, substantially as shown and described.

23. A photographic shutter adapted to make graded exposures, having shutter-blades and mechanism for operating them, and a retarding device for controlling the exposure mechanism, and a spring for returning the retarding device to its normal place, substantially as shown and described.

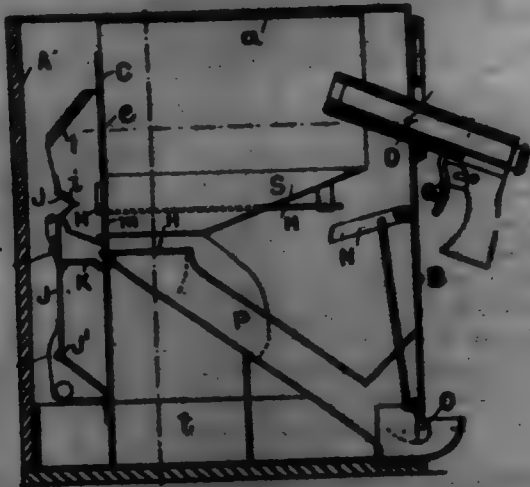
24. A photographic shutter adapted to make graded exposures, having shutter-blades and mechanism for operating them, and a retarding device for the shutter mechanism comprising an arm pivoted at one end, an air-pump, and a lever carried by said arm to operate the pump, and means for turning the arm to prearranged positions, and to operate said lever, substantially as and for the purpose set forth.

25. A photographic shutter adapted to make graded exposures, having shutter-blades and mechanism for operating them, and a retarding device for the shutter mechanism comprising a pivotal arm, an air-pump, and a lever carried by said arm movably connected with the air-pump, with means to move the lever independent of the carrying-arm, substantially as set forth.

26. A photographic shutter adapted to make graded exposures, having shutter mechanism, and retarding mechanism for controlling the shutter mechanism, comprising a pump-barrel with plunger therein, a pivoted arm and means to control it, a lever held pivotally by said arm and connected with said plunger, and means independent of the pivoted arm to move the lever through distances varying according to the position of the pivoted arm, substantially as and for the purpose specified.

27. A photographic shutter adapted to make graded exposures, having shutter mechanism, and retarding mechanism comprising a pivoted arm for controlling the shutter mechanism, and means including a graduated scale and indicator therefor, for controlling the pivoted arm, substantially as set forth.

700,879. GAME APPARATUS. HENRY WOOLFE, Gloucester, England. Filed June 7, 1901. Serial No. 68,088. (No model.)



Claim.—1. A game apparatus for practicing shooting comprising a pistol, a target arranged opposite thereto, a tray arranged in front of the target to receive projectiles which fall from the target, falling to pass through the bull's-eye, means behind the target for collecting projectiles passing through the bull's-eye and returning them to the operator, and means operated by the person removing the projectile for permitting the projectile which has passed through the bull's-eye to pass out upon the said tray, substantially as described.

2. A toy shooting apparatus comprising a pistol pivoted to a casing, a target in front of the pistol provided with a hole or slot, a hinged tray arranged to receive projectiles which fall to pass through said slot, a chute beneath the hinged tray communicating with a receptacle outside the cas-

ing, and receptacle within the casing for receiving projectiles which have passed off the tray laterally, substantially as described.

3. A toy shooting apparatus comprising a pistol, a target opposite thereto, a hinged tray adjacent to the target, a counterweighted arm connected to said tray, a box at the back of the target, a spring-plate having a projection fitting into a cut-away portion of the box, the free end of said arm engaging a hole in said box, a bar closing the passage from the box to the tray, and means for raising the bar so as to free the said passage, substantially as described.

4. A toy shooting apparatus comprising a projectile-ejecting means, a target arranged opposite thereto, a tray hinged in front of the target, a receptacle at the back of the target, a hinged spring-plate projecting inside the said receptacle and locking the said hinged tray, a minute-controlling arm blocking a minute-aperture in the target, a ball-crank lever, and an arm for operating the same, substantially as described.

5. A toy shooting apparatus comprising a pistol, a target opposite thereto having a slot formed therein, a tray provided with an arm for controlling the same, chains leading from the target, a receptacle at the rear of the target, a spring-plate arranged in said receptacle, an arm for blocking the said slot, a ball-crank lever, and an arm for operating the same, a receptacle for return projectiles, and a receptacle for retaining other projectiles within the apparatus, substantially as described.

6. A toy shooting apparatus or game mechanism, comprising a casing including a target, means for discharging missiles at the target, the center of the said target being provided with an aperture through which successful shots may pass, means operated by the weight of the missile for permitting the successful shots to pass to the outside of the said casing so as to return them to the party shooting, and means for preventing the return of unsuccessful shots to the operator, substantially as described.

7. A game apparatus comprising an enclosing casing, an apertured target mounted therein, a pivoted shooting mechanism mounted in the wall of the casing and capable of being aimed at the target, means opposite the aperture of the target for collecting the missiles of successful shots and returning them to the player, means for catching unsuccessful shots and depositing some of them permanently within the apparatus while others are left in such a position that a successful shot may cause them to be delivered outside the apparatus, substantially as described.

700,880. STEAM-SEPARATOR. WARREN W. WRAY, Lowell, Mass. Filed Jan. 12, 1905. Serial No. 68,461. (No model.)



Claim.—1. A steam-separator constructed with a case open at its extremities, forming an interior chamber, a perforated baffling-cylinder extending through said chamber, and a baffling-cone having its points projecting in opposite directions longitudinally of the cylinder forming a deflecting-diaphragm within the cylinder intermediate of the ends thereof, said case formed with a discharge-orifice.

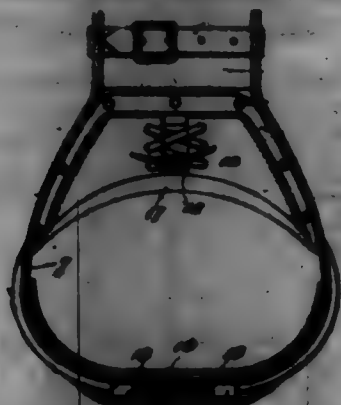
2. A steam-separator constructed with a case open at its extremities forming an interior chamber, a perforated baffling-cylinder extending through said chamber into which steam may enter at either end, and a double-pointed baffling-cone located within the cylinder intermediate of the ends thereof the points of the cone extending toward both ends of the cylinder longitudinally thereof said case provided with a discharge-orifice.

3. A steam-separator constructed with a case open at its extremities forming an interior chamber, a perforated baffling-cylinder within the chamber, and formed integral with said case into which steam may enter in either direction, and a double-pointed baffling-cone within said cylinder constructed to deflect steam entering into either end of the cylinder, the points of the cone extending toward both ends of the cylinder longitudinally thereof, said case formed with a discharge-orifice.

4. A steam-separator constructed with a case open at its extremities forming an interior chamber, a perforated baffling-cylinder within said chamber and formed integral with said case into which steam may enter in either direction, and a hollow conical device having cone-shaped points extending toward the two ends of the cylinder to deflect steam entering

the cylinder in either direction, said cone-shaped points formed with openings at the extremities thereof, and deflecting devices engaged in said openings, said cone formed with a discharge-orifice.

700,881. STIRRUP. ISAAC YERGEN, Chester, N. H. Filed Aug. 21, 1901. Serial No. 73,081. (No model.)



Claim.—1. In a stirrup, the combination of a stirrup frame or body, and a hinged upright frame arranged at the back of the stirrup frame or body and conforming to the general configuration of the same and pivotally connected with the said stirrup frame or body at the bottom thereof, whereby it is adapted to swing downward and rearward to release the feet of a rider, substantially as described.

2. In a stirrup, the combination of a stirrup frame or body, an upright frame arranged at the back of the stirrup frame or body and consisting of an anterior lower portion hinged to the bottom of the stirrup frame or body at the lower free thereof, and an upper portion arranged substantially within the stirrup frame or body, said upright frame covering the stirrup frame or body and engaging the same, substantially as described.

3. In a stirrup, the combination of a stirrup frame or body, an upright frame arranged at the back thereof and hinged to the bottom of the same, and the transverse top piece extending across the upright frame and having a curved lower edge, substantially as described.

4. In a stirrup, the combination of a stirrup frame or body, an upright frame hinged to the bottom of the stirrup frame or body and provided with a flattened upper portion, the transverse top piece secured to the flattened portion of the upright frame, and a spring for holding the upright frame normally in such position, substantially as described.

700,882. FASTENER FOR JAR-COVERS. JAMES P. YOUNG, Monmouth, N. J. Filed June 7, 1901. Serial No. 68,000. (No model.)



Claim.—1. In a jar-closure, a ball secured to the jar, a cover, a hemispherical elevation thereon having a groove in which said ball is adapted to seat, a slotted lever mounted on said ball, and a groove in said cover in which said lever works to seat and unseat the ball, substantially as shown and described.

2. In a jar-closure, recesses in the sides of the jar, a ball pivoted therein, a cover having a grooved apex to receive said ball, a slotted lever mounted on said ball, and the cover provided with a bearing-orifice to assist said lever in seating and unseating the ball, substantially as shown and described.

3. In a jar-closure, a ball pivoted in the sides of the jar, a cover having a hemispherical elevation thereon, a groove in said elevation having the center of its base raised and rounding toward the ends of the groove, a slotted lever mounted on said ball and adapted to seat in said groove having a raised base, and a groove at the apex of said hemispherical elevation at right angles to said first-mentioned groove in which said ball is adapted to seat, substantially as shown and described.

4. In a jar-closure, a ball pivoted in the sides of the jar, a cover hav-

ing a hemispherical elevation thereon, a groove in said elevation having its base slanting upwardly to the center, a slotted lever to seat in said groove, having a transverse bar at one end, mounted on said ball, and a groove at the apex of said hemispherical elevation at right angles to said first-mentioned groove in which said ball is adapted to seat, substantially as shown and described.

5. A jar-closure consisting of a cover having a hemispherical elevation thereon, a groove in said elevation having its base slanting upwardly from each end to the center, a slotted lever mounted on said ball, a groove at the apex of said hemispherical elevation at right angles to said first-mentioned groove, and a ball to seat in said groove at the apex of said hemispherical elevation, in combination with a jar having recesses for the reception of the ends of said ball, substantially as shown and described.

6. In combination with a jar having its top edge slanting inwardly, a cover to seat on said slanting edge having an annular depending flange to fit inside the mouth of the jar, a hemispherical elevation on said cover having a grooved apex, a ball pivotally secured in the sides of said jar adapted to seat in said groove, a slotted lever mounted on said ball, and a groove in said cover in which said lever works to seat and unseat said ball, substantially as shown and described.

700,888. SUSPENDER. ALFRED H. ZIMMER, Boston, Mass. Filed Aug. 18, 1901. Serial No. 73,387. (No model.)



Claim.—1. In a suspender, a loop end or fastening-piece for buttoning the suspender in position, having at its upper end or middle part a holding-piece of thin, strong fabric immovably secured thereto, a web end of the suspender adjacent thereto, a non-metallic connection passed about said middle part of said loop end and including said fastening-strip and secured thereto by lines of stitches or equivalent means.

2. In a suspender, a loop end or fastening-piece for buttoning the suspender in position, having at its upper end or middle part a holding-piece of thin, strong fabric, an unyielding clamping-clip for holding the two in immovable relation, a web end of the suspender adjacent thereto, a non-metallic connection passed about said middle part of said loop end and including said fastening-strip and secured thereto by lines of stitches or equivalent means.

3. In a suspender, a loop end or fastening-piece for buttoning the suspender in position, having at its upper end or middle part a holding-piece of thin, strong fabric immovably secured thereto, a web end of the suspender adjacent thereto, a non-metallic connection passed about said middle part of said loop end and including said fastening-strip and secured thereto by lines of stitches or equivalent means, and means for preventing said loop end and said connection from moving laterally on each other.

4. The combination with the web of a suspender, a loop end or fastening-piece for buttoning purposes, and a connecting-piece secured to the suspender-web and passing about the middle of the loop end, of the herein-described means for transferring the strain from the loop end to the suspender-web and retaining the said loop end in position and preventing lateral movement thereof relatively to said connecting-piece, said means consisting of a piece of thin, strong material immovably fastened to the middle part of the loop end and connecting-piece and extending upwardly therefrom, said upwardly-extending end being permanently secured between the adjacent sides of the connecting-piece.

700,884. PYROXYLIN COMPOUND. RUDOLF STAHL, Berlin, Germany. Filed Nov. 17, 1900. Serial No. 34,000. (No specimens.)

Claim.—A new pyroxylin or nitrocellulose composition containing pyroxylin or nitrocellulose with a compound ester of carbonic acid and monosubstituted hydrocarbon of the aromatic series (of the group including diphenylcarbonate, triphenylcarbonate, and triphenylmethylcarbonate.)

700,885. PYROXYLIN COMPOUND. RUDOLF STAHL, Berlin, Germany. Filed July 2, 1901. Serial No. 68,913. (No specimens.)

Claim.—1. The process of manufacturing pyroxylin compounds which consists in combining nitrated cellulose with one or more members

of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) as described.

2. The process of manufacturing pyroxylin compounds which consists in combining nitrocellulose with one or more members of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) and working the resulting mixture up into the material, as specified.

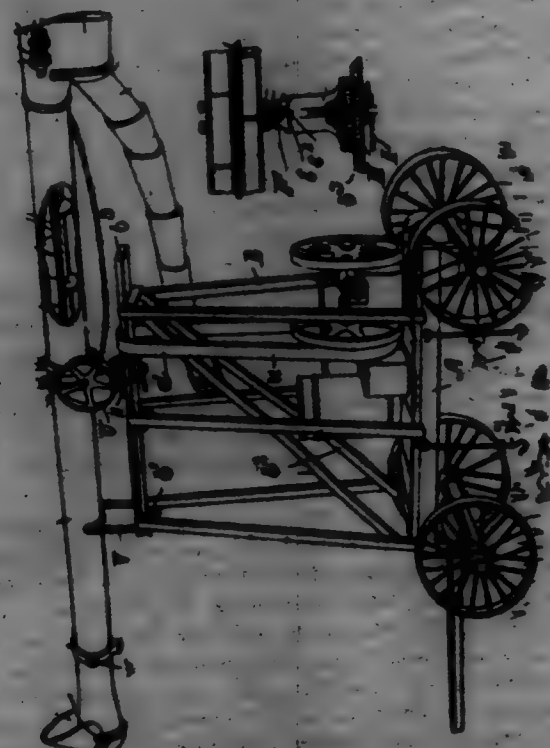
3. The process of manufacturing pyroxylin compounds which consists in combining nitrocellulose with one or more members of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) and an auxiliary solvent, as specified.

4. As a new article of manufacture a solid composition to be used as a material in the arts and trades and composed essentially of nitrocellulose, and one or more members of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) as specified.

5. As a new article of manufacture, a solid composition to be used as a material in the arts and trades and composed essentially of nitrocellulose, and one or more members of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) substantially as described and in the proportions specified.

6. As a new article of manufacture, a solid composition to be used as a material in the arts and trades and composed essentially of nitrocellulose, and one or more members of the compound esters of phosphoric acid and monoxygenated hydrocarbons of the aromatic series (consisting essentially of triphenylphosphate, triisopropylphosphate and trimethylphosphate,) and an auxiliary solvent, as specified.

700,886. APPARATUS FOR HANDLING GRAIN. ARTHUR A. KIRBY, Winnipeg, Canada. Filed Feb. 4, 1901. Serial No. 46,966. (No model.)



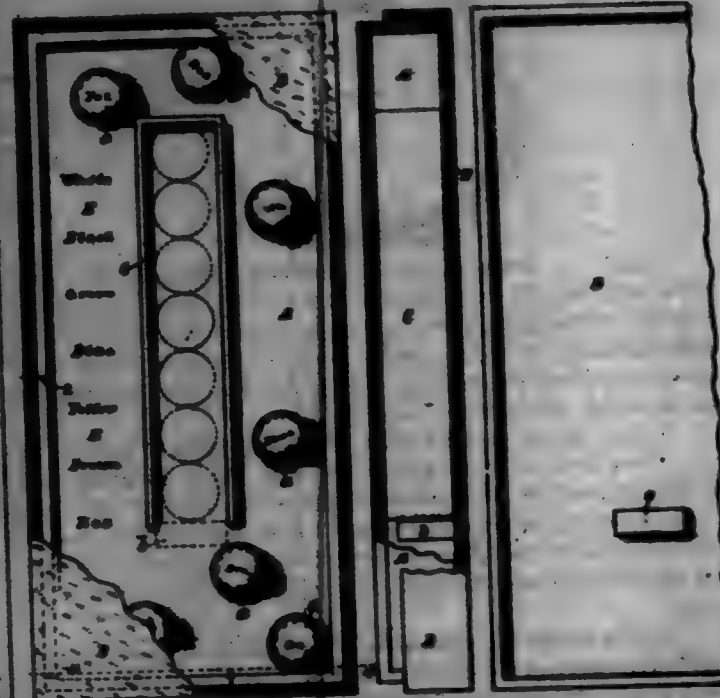
Claim.—1. In a portable elevator for grain and the like, the combination with the truck, and supporting-frame, of a tube, enclosing bands in which said tube is adjustably held, bolts for tightening said enclosing bands, a curved plate covered to said enclosing bands, and having a projection on its under side in which is a circular hole, a shaft or spindle passing through said hole, bearings in which said shaft is journaled, a bearing-frame supporting said bearings, a block on which said bearing-frame is firmly secured, a platform to which said block and bearings are pivotally attached, and, means for raising grain and the like in said tube, as and for the purpose specified.

2. In a portable elevator for grain and the like, the combination with the truck and supporting-frame, of a tube having a suitable flexible casing about it, the bearings in which each tube is suitably supported, a bearing-frame supporting said bearings, a block on which each bearing-frame is firmly secured, a platform, a belt passing loosely through said platform

and covered into said block or bearing-frame, and means for raising grain and the like in said tube, as and for the purpose specified.

3. In a device of the class described, the combination with the cylindrical elevating-tube, the longitudinal partition located therein and the pair of sprocket-chains and their upper and lower sprockets, of flat and substantially semicircular conveying buckets or scoops attached to said chains at intervals, substantially as described.

700,887. GAME DEVICE. GEORGE F. BARNES, Patuxent, N. Y., assignor of one-fourth to Frank Railway, Patuxent, N. Y. Filed Jan. 26, 1901. Serial No. 60,292. (No model.)



Claim.—1. A game device comprising a hollow rectangular body or inclosing case with plain floor or bottom, having a rectangular aperture substantially central within the body, with a space around all sides thereof, said aperture being open at one end and closed at the other with the closed end nearer the end of the case than its open end and spheres, as marbles, in the body adapted to roll around and within said inner aperture, the spheres or marbles being of different colors, and a table of said color with the body, substantially as shown and described.

2. A rectangular case having substantially central longitudinal aperture open at one end, a plurality of spheres in said aperture and a cover for said case having open its under side a depending block disposed at its longitudinal center and adapted when the cover is in place to coincide with and close the open end of said aperture, substantially as shown and described.

3. A game device comprising a hollow rectangular body longer than wide, a rectangular aperture longer than wide formed longitudinally within the body with its side imperforate and parallel with the sides of the body, said aperture being closed at one end and open at the other with its end wall imperforate, there being space all around the inner aperture, the walls of the latter and of the body being equal in height, and a series of spheres adapted to roll upon the floor of the body, substantially as described.

700,888. FLUID FOR PROMOTING COMBUSTION. TIMOTHY BATTENIN, Genoa, Italy. Filed Dec. 26, 1901. Serial No. 71,964. (No specimens.)

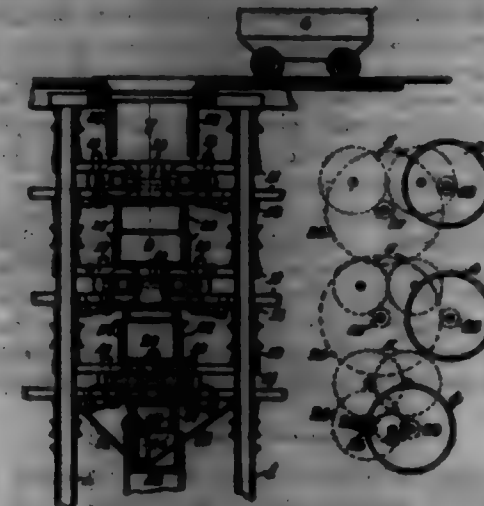
Claim.—A fluid for promoting combustion which comprises a solution consisting of one part by weight of nitrate of sodium and two parts by weight of carbonate of sodium, substantially as specified.

700,889. RETRACTING AND REFINING ASPHALTUM. ALVIN F. L. BELL, Carpinteria, Cal., assignor to The Alcatraz Company, San Francisco, Cal., a Corporation of West Virginia. Filed May 18, 1901. Serial No. 64,403. (No model.)

Claim.—1. In asphaltum extracting and refining apparatus, a vertical series of crushing-rollers arranged in pairs, laterally-adjustable bearings for said rollers, horizontal channel-beams 11 above and below said bearings supporting the same, struts 14 between the bearings, adjustable through-bolts 15 passing through the webs of the channel-beams outside the bearings, and transverse chimes or packing 16 for adjusting the horizontal distance between said rollers, substantially as specified.

2. In asphaltum extracting and refining apparatus, a pair of col-

lating rollers, each provided with spaced rows of removable spaced teeth borne in channelled sections 21 in said rollers, and through-rolls 22 engaging grooves in said teeth and said sections, for holding the teeth in position, the teeth of one roller being located opposite the spaces of the other roller, whereby the said teeth intermesh, substantially as specified.



3. In asphaltum extracting and refining apparatus, a pair of col-lating rollers, horizontal channel-beams 11 for supporting the bearings of said rollers above and below, sliding bearings borne on said channel-beams, through-bolts 15 passing through the webs of the channel-beams outside the bearings, struts 14 between the bearings, transverse chimes 16, and followers 17, overlapping the bolts 15, said bolts and followers provided with holes for the insertion of pins to prevent the bolts from working out, substantially as specified.

4. In asphaltum extracting and refining apparatus, a series of crushing and disintegrating rollers arranged in pairs, one above the other, the rolls of each successive pair from above downward being nearer together than those of the preceding pair, said rollers being mounted in movable and adjustable bearings that slide between horizontal beams forming a part of the main frame and projecting laterally beyond the same on each side, whereby the said rollers may be moved out laterally, clear of the main frame while supported thereon, substantially as specified.

5. In asphaltum extracting and refining apparatus, a pair of col-lating rollers, removable spaced teeth suitably arranged in each roller, with annular interspaces, said teeth of one roller being located opposite the spaces of the other roller to intermesh, means for adjusting the distance between said rollers, and adjustable stationary carriages located between each ring of teeth in the interspaces, to keep said interspaces clear, substantially as specified.

700,890. CAN-TESTING MACHINES. HENRY C. BLAKE, Oakland, Cal. Filed June 14, 1901. Serial No. 64,507. (No model.)

Claim.—1. In a machine of the character described, a pair of colliding-troughs arranged side by side, a pair of supporting members for each trough, and means for adjusting either pair of said supporting members independently of the other pair to adjust one of the troughs independently of the other, substantially as described.

2. In a machine of the character described, a pair of colliding-troughs arranged side by side, a pair of supporting-plates for the ends of each trough, the adjacent plates at the respective ends of the trough being arranged to slide thereon upon the other, and means for adjusting each of said plates independently of the other plates, substantially as described.

3. A tubular open-ended colliding-trough having a single narrow longitudinally-arranged slot terminating at points intermediate of the ends of the trough, and a closure 17 for the open end of the trough, substantially as described.

4. A tubular colliding-trough having a single narrow longitudinally-arranged slot terminating at points intermediate of the ends of the trough, a fill-opening at one end of the trough, an auxiliary fill-opening in the body of the trough, and a feed-pipe 11 leading into said auxiliary fill-opening, substantially as described.

5. In a can-and-colliding machine, a heater comprising a hollow trough upon which the cans to be operated upon are adapted to run and having sides inclined outwardly and upwardly, a plurality of burners disposed longitudinally of said trough and beneath the lower central portion thereof, said trough being of a width less than the length of the cans to permit the heating of both ends of said cans simultaneously, and a heat non-conducting filling in the trough and arranged to underlie the central portion of the cans, substantially as described.

6. In a can-and-colliding machine, a heater comprising a disengaged support for the cans to be operated upon and provided with upwardly and outwardly inclined sides and a flat upper surface upon which the cans are

adapted to run, and a plurality of burners disposed longitudinally of said trough and beneath the lower central portion thereof, said trough being of a width less than the length of the cans to permit the heating of both ends of said cans simultaneously, substantially as described.



7. In combination, a slotted tubular heater, and a correspondingly-slotted colliding-trough seated in said heater and provided with lateral projections along its upper portion and engaging the edges of the tube surrounding the slot in the latter, substantially as described.

8. In combination, a slotted tubular heater, a correspondingly-slotted colliding-trough, and means for supporting the colliding-trough in the heater comprising longitudinally-disposed shoulders 17 at the upper portion of the sides of the former bearing upon edges 18 of the latter, substantially as described.

9. In combination, a slotted tubular heater, a correspondingly-slotted colliding-trough seated in said heater and provided with lateral projections engaging the edges of the heater surrounding the slot in the latter, and a series of burners arranged longitudinally of the tubular heater beneath the same and projecting slightly therethrough through suitable apertures formed in the bottom thereof, substantially as described.

700,891. CAN-TESTING APPARATUS. HENRY C. BLAKE, Oakland, Cal. Filed Nov. 22, 1901. Serial No. 65,060. (No model.)

Claim.—1. In a can-testing apparatus, the combination with a rotatable wheel, of anchor-disks attached to and carried by the rotatable wheel, means for placing the open end of the can to be tested in contact with said anchor-disk so as to cause the can to adhere thereto, and device whereby an outward pressure is exerted upon the can held by the disk.

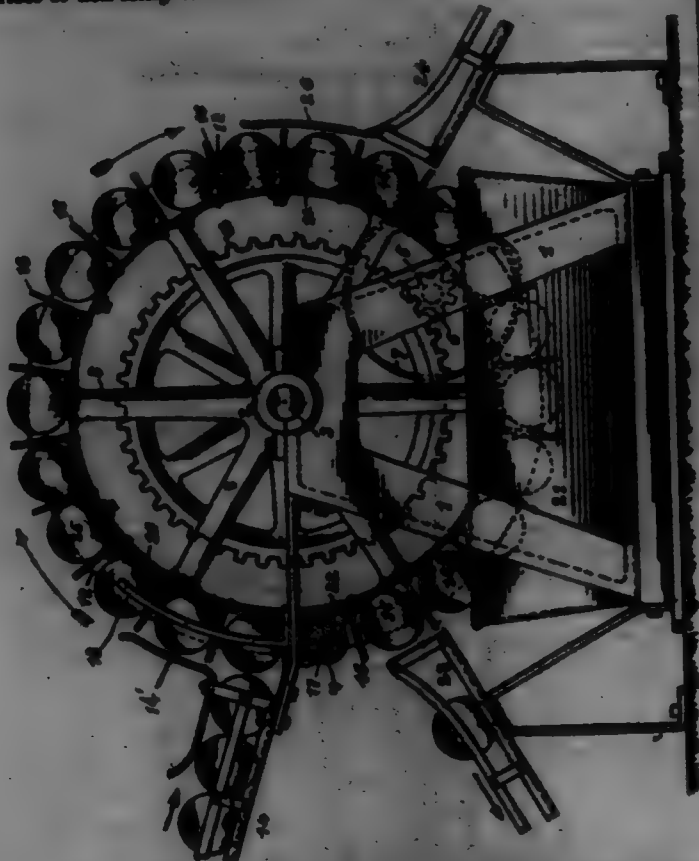
2. A can-tester comprising an anchor-disk and means for placing the open end of a can to be tested in contact with said anchor-disk, whereby the disk is compressed by each movement so that when the pressure is released the disk will expand and cause a vacuum within the can, and device for exerting an outward pressure to the held can.

3. In a can-tester, the combination with the anchor-disk, of a spring-pressed valve arranged therein, said valve designed to bear against the open end of the can to be tested and to exert an outward pressure thereon.

4. The combination with the anchor-disk, of a spring-pressed valve arranged therein so as to bear against and to exert an outward pressure to the can being tested, and means for placing the open end of the can to be tested in contact with the anchor-disk.

5. The combination with a rotatable wheel, means for imparting rotation thereto, the can-holding rings arranged to cap ends of the rotatable wheel and moving in unison therewith, can-held disks by which cans are delivered to said holding-rings, device whereby the cans are held in place,

a series of anchor-disks attached to the rotatable wheel, device by means of which the can is forced against its anchor-disk, device for exerting an outward pressure to the cans being tested, and means for releasing the perfect or non-leaky cans.

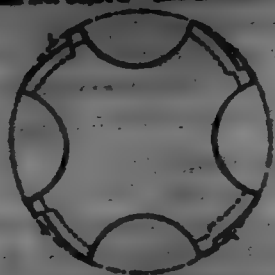


6. The combination with rotatable mechanism, a series of anchor-disks carried thereby, means whereby the open end of the can to be tested is placed in contact with the anchor-disk, spring-held valve for exerting an outward pressure upon the held can, and device whereby the perfect or non-leaky cans are removed from the anchor-disks.

7. In a can-tester, the combination with rotatable mechanism, a series of anchor-disks attached thereto which receive and hold the cans, means for exerting a constant out pressure upon the held cans, a bath through which the cans are conveyed so as to wash same, and means whereby the tested cans are removed from the anchor-disks.

8. The combination with a can-tester, of a series of compressible anchor-disks attached thereto, and means whereby an outward pressure is exerted upon the can held by the disk.

700,893. TAP FOR CUTTING SCREW-THREADS. CHARLES E. BLACKBURN and GEORGE J. FORTIN, Wolverhampton, England. Filed Jan. 2, 1900. Serial No. 88,574. (No model.)



Claim.—The herein-described tap provided with threaded portions separated by flanges, each threaded portion having a cutting edge and a heel, the threads being "bashed off" toward the heel and said heel parts being of substantially the same diameter as the cutting-edge parts, as and for the purpose set forth.

700,898. GAS-CHUCK FOR BURNER OR SIMILAR BURNERS. FRANK M. BROWN, Brooklyn, N. Y. Filed Dec. 11, 1901. Serial No. 88,487. (No model.)



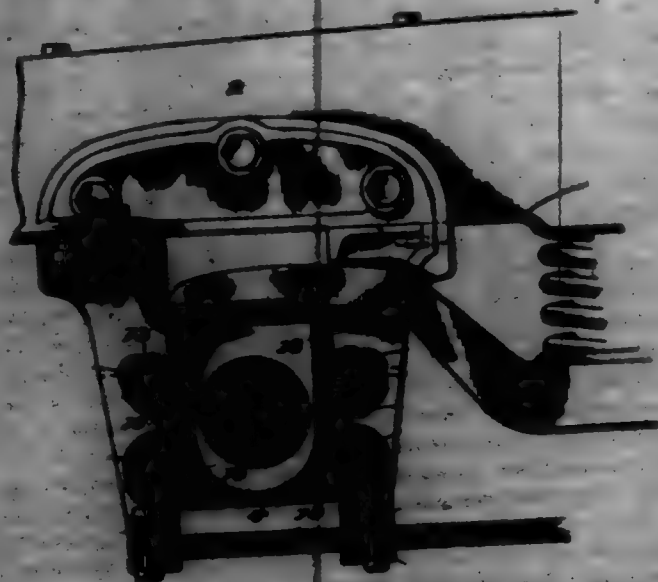
Claim.—1. In a Bunsen burner the combination of a burner-tube provided with air-holes, a hollow check adapted to close the end below the air-holes and having an upwardly-extending threaded and hollow stem provided with a needle-valve, a gas-regulating cap embodying a seat for the needle-valve threaded to the stem and a flange on the cap, the flange

being accessible from the exterior through the air-holes in the tube, where by the supply of gas may be regulated without affecting the supply of air.

2. In a Bunsen burner the combination of a burner-tube provided with air-holes, a hollow check adapted to close the end of the tube below the air-holes, passage-ways for the gas through the check, a needle-valve extending upwardly from the check, a gas-regulating cap threaded to the check embodying a seat for the needle-valve, said cap being located opposite the air-holes in the tube whereby it may be actuated through them, and the supply of gas regulated without affecting the supply of air.

3. In a Bunsen burner the combination of a burner-tube provided with air-holes, a hollow check adapted to close the end of the tube below the air-holes and provided with threads for attachment to a gas-fitter, an upwardly-extending threaded stem provided with passage-ways for the gas and a needle-valve, a perforated gas-regulating cap threaded to the stem and adapted to inclose the gas-passages in it and provided with a seat for the needle-valve through which the gas escapes into the burner-tube, the parts being so proportioned and arranged that when assembled the cap is accessible and may be manipulated through the air-holes in the tube for cutting off the supply of gas without affecting the supply of air.

700,894. PEDISTAL. FERRY BROWN, Wilmington, Del. Filed Feb. 26, 1901. Serial No. 88,598. (No model.)



Claim.—1. In a device of the character described, a pedestal, a journal-box, and a wearing-plate interposed between the pedestal and box and having horizontal flanges to hold the same in position and vertical flanges to take the wear off the flanges of the said journal-box, substantially as described.

2. In a device of the character described, a journal-box, a pedestal-standard comprising two sides connected by a web, and an anti-friction-roller supported between said web and said journal-box, substantially as described.

3. In a device of the character described, a pedestal-standard comprising two sides connected by a web having a pocket formed therein, and an anti-friction-roller supported in said pocket, substantially as described.

4. In a device of the character described, a journal-box having flanges, a pedestal-standard comprising two flanged sides connected by a web, an anti-friction-roller supported between said web and said box, and a wearing-plate interposed between the flanges of said box and the flanges of said pedestal sides, substantially as described.

5. In a device of the character described, a pedestal and journal-box, an anti-friction-roller supported by the pedestal and a wearing-plate attached to the box, the said wearing-plate having horizontal flanges thereon to hold the same in position and vertical flanges to take the wear off of the flanges of said box.

6. In a device of the character described, a pedestal-standard having an integral loop for the attachment of the tie or brace rod.

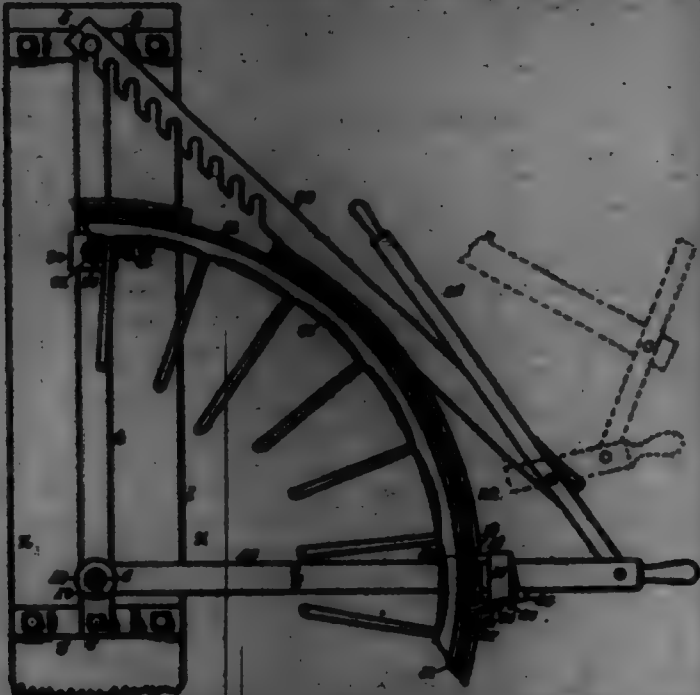
7. In a device of the character described, pedestal having standards and integral loops on the ends of said standards, and a tie or brace rod secured in said loops.

8. A pedestal having integral pockets for anti-friction-rollers and loops for the attachment of the tie or brace rod.

700,895. JOINT-CLOSER FOR RUBBER-TIRE-GETTING MACHINES. JESSE A. BROWN, Akron, Ohio, assignor to the Goodyear Tire and Rubber Company, Akron, Ohio. Filed July 31, 1901. Serial No. 78,482. (No model.)

Claim.—1. In a machine for bringing together the ends of vul-

rubber tire, the combination with a pivot to support a wheel-hub, of a lever pivoted at one end on said pivot bearing a sliding block, having rollers to press the sides of said tire, means for causing said rollers to approach and recede from each other, and bars secured to said block, substantially radial to said wheel having sliding stops thereon with blades to pass under said tire, substantially as shown and described.



2. The combination in a machine for bringing together the ends of solid-rubber vehicle-tires, of a frame, a journal for the wheel secured thereto, a lever pivoted at one end on said pivot bearing a sliding block, having rollers to press the sides of said tire in the wheel-channel and compressing it laterally to force its fulcrum forward, substantially as shown and described.

3. In a machine for bringing together the ends of solid vehicle-tires, the combination with a supporting post or frame bearing near its top an anchor-pin, and below it a pivot for the wheel, of a lever pivoted on said wheel-pivot and bearing a longitudinally-movable block bearing rollers to compress the sides of the tire, and blades to slide under and raise said tire in advance of said rollers, in combination with a second lever pivoted to said first lever near its free end and also pivoted to the free end of a bar, attached at its opposite end to said anchor-pin, substantially as shown and described.

4. In a machine for bringing together the ends of solid-rubber vehicle-tires, the combination with a supporting post or frame bearing a pivot for the wheel with means for centering the wheel thereon, of a lever pivoted on said wheel-pivot bearing a longitudinally-movable block having rollers to compress the sides of the tire and blades to slide under and raise said tire in advance of said rollers, and a second lever pivoted to said first lever, mounted on a movable fulcrum connected with said frame and adjustable with reference thereto, substantially as shown and described.

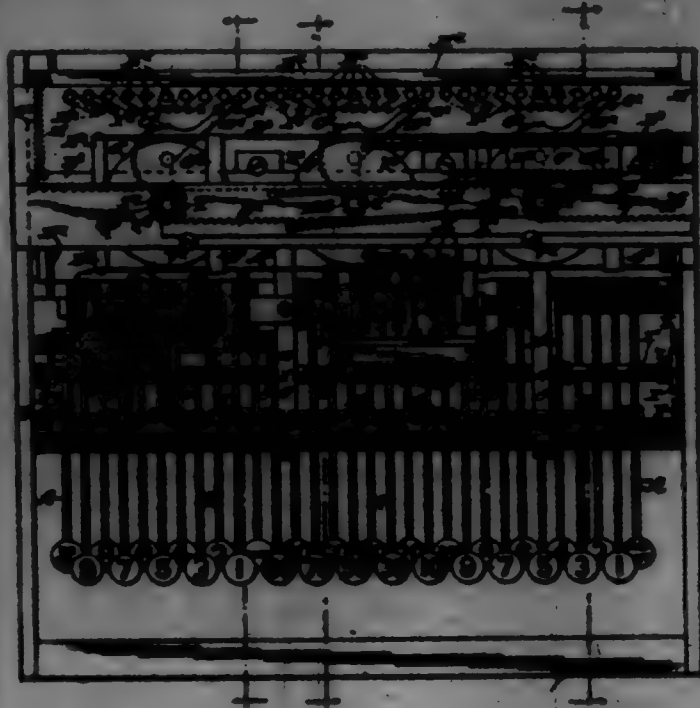
5. In a machine for bringing together the ends of solid-rubber vehicle-tires, the combination with a supporting post or frame, having a pivot for the wheel-hub, and an anchor-pin, of a lever pivoted on the wheel-pivot, and bearing a longitudinally-adjustable slide having means for raising, compressing and forcing forward the fulcrum of the tire, of an auxiliary lever pivoted to the free end of said first lever and pivoted on a pin in a bar adjustably connected with said anchor-pin, substantially as shown and described.

6. An improved machine for bringing together the ends of solid-rubber vehicle-tires consisting of a supporting post or frame bearing an off-center bar with a pivot for the wheel, and an anchor-pin; a lever pivoted on said wheel-pivot, with a sliding block thereon having rocking-bars having reversible rollers to compress the sides of the tire, and means for rocking said bars to cause said rollers to approach or recede from each other, and parallel bars adapted to approach and recede from each other having slides bearing blades to pass under and raise said tire; a bar having notches to engage said anchor-pin, and a lever pivoted on the free end of said bar and pivoted near the free end of said first lever, substantially as shown and described.

700,896. CASH-REGISTER. THOMAS GANNETT, Dayton, Ohio, assignor, by means of attorneys, to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 14, 1895. Serial No. 65,705. (No model.)

Claim.—1. In a cash-register the combination with a series of operating-levers, of rotary indicators, devices for operating the indicators to turn the same forward past the point at which they are to be arrested

upon their return, means for returning the indicators and graduated means operated by the levers for arresting and holding the indicators at the proper points in their return movements while the levers return to normal position.



2. In a cash-register the combination with a series of operating-levers, of rotary indicators, devices for operating the indicators to turn the same forward past the point at which they are to be arrested upon their return, means for returning the indicators and means arranged to be actuated by the levers for arresting the indicators upon their return movements independently of the movements of the levers.

3. In a cash-register, the combination with a series of operating-levers, of a series of rotary indicators arranged to be moved forward upon one stroke of the levers and back again upon the reverse stroke, and graduated arresting devices actuated by the forward stroke of the levers to arrest the indicators at the proper points in their return movements.

4. In a cash-register, the combination with a series of operating-levers, of a series of rotary indicators arranged to be moved forward upon one stroke of the levers and back again upon the reverse stroke, and graduated means actuated by the levers for arresting and holding the indicators at the proper points in their return movements while the levers return to normal position.

5. The combination of the key-levers A having the fingers G provided with the laterally-projecting studs J arranged in graduated order, the pivoted frame I having the longitudinal and transverse slots b c co-operating in the manner described with the studs J, the rack K moving with the frame I, the movable registering-frame carrying a registering-wheel having a pinion adapted to cooperate with the rack K, and means for moving said frame to and from position for the rack and pinion to co-operate with each other.

6. The combination, with the special key-levers, of the shaft D' and the sleeves located thereon, the depending arm G' co-operating with the studs H' upon the key-levers, the special registers C', and means intermediate said shaft and sleeves and special registers for causing the operation of the special key-levers to estimate such special registers, substantially as described.

7. The combination of a plurality of operating-levers, an oscillatory indicator-wheel, a spring operating to yieldingly hold said wheel in and return it to initial position, means intermediate said wheel and the operating-levers for causing the operation of any one of the levers to turn the wheel from initial position, and a plurality of stops co-operating with the levers and adapted to be projected by them into the path of the indicator after the latter has been moved from initial position past the stop to be operated so as to arrest said indicator upon its return.

8. The combination of a plurality of operating-levers, an oscillatory indicator-wheel, a spring operating to yieldingly hold said wheel in and return it to initial position, means intermediate said wheel and the operating-levers for causing the operation of any one of the levers to turn the wheel from initial position, a plurality of stops co-operating with the levers and adapted to be projected by them into the return-path of the indicator after the latter has been moved from initial position, means for holding the projected stop in such position after the release of the corresponding operating-lever, and means for releasing said stop upon the operation of another key and projection of another stop.

9. The combination of a plurality of operating-levers, an oscillatory indicator-wheel, a spring operating to yieldingly hold said wheel in and

return it to initial position, means intermediate end wheel and the operating-levers for causing the operation of any one of the levers to turn the wheel from initial position, a plurality of reciprocating stop-rods carrying steps adapted to be projected into the return-path of the indicator after the same has been moved from initial position, a movable supporting-bar cooperating with projections upon each stop-rod to hold the projected steps in position, and means intermediate said bar and the operating-levers for moving said bar to release the projected steps.

10. The combination of a plurality of operating key-levers, an indicator-wheel, a spring for yieldingly holding said wheel in and returning it to initial position, means intermediate said wheel and the key-levers for causing the operation of any one of the latter to move the wheel from initial position, a plurality of vertically-sliding stop-rods adapted to be lifted by the operation of the respective key-levers and each carrying a step adapted when the rod is lifted by its corresponding key-lever to project into the return-path of the indicator-wheel which has been moved from initial position by the operation of the key-lever, a movable supporting-bar cooperating with the stop-rods to hold the operated rods in elevated position, and means intermediate said bar and the key-levers for moving said bar to release the elevated rods.

11. The combination of a plurality of operating key-levers furnished on a horizontal axis, an indicator-wheel turning upon a vertical axis, a spring operating to yieldingly hold the indicator-wheel in and return it to initial position, means intermediate the wheel and key-levers for causing the operation of any one of the latter to turn the wheel from initial position, and a plurality of steps adapted to be projected by the operation of the corresponding key-levers into the path of the indicator-wheel after the same has been moved forward past the step so that said step arrests it upon its return stroke.

12. The combination of a plurality of operating key-levers furnished on a horizontal axis, an indicator-wheel turning upon a vertical axis, a spring operating to yieldingly hold the indicator-wheel in and return it to initial position, means intermediate the wheel and key-levers for causing the operation of any one of the latter to turn the wheel from initial position, a plurality of steps adapted to be projected by the operation of the corresponding key-levers into the return-path of the indicator-wheel, means for temporarily holding the projected steps in such position, and means actuated by the key-levers for releasing the projected step upon the operation of another key-lever and projection of another step.

13. The combination of a plurality of operating key-levers furnished on a horizontal axis, an indicator-wheel turning upon a vertical axis, a spring operating to yieldingly hold the indicator-wheel in and return it to initial position, means intermediate the wheel and key-levers for causing the operation of any one of the latter to turn the wheel from initial position, a plurality of vertically-sliding stop-rods each carrying a step adapted to be projected into the return-path of the indicator-wheel when lifted by the corresponding key-lever, a movable supporting-bar cooperating with projections upon the stop-rods to hold the lifted rods in elevated position, and means intermediate said bar and the key-levers for moving the bar to release the elevated rods.

14. The combination of the key-levers A, the pivoted frame I co-operating therewith and carrying or moving the rack A', the vertical spindle E' having the pinion S' meshing with the rack A', the indicator-wheel P turning on a vertical axis, a connection between the spindle E' and wheel P by which the spindle E' turns the wheel P, the vertically-sliding rod E' carrying the steps P, the pivoted supporting bar or wing K' co-operating with projections upon the rod, and means intermediate the bar K' and levers A for disengaging the bar from the projections on the rod.

15. The combination of the key-levers A, the pivoted frame I co-operating therewith and carrying or moving the rack A', the vertical spindle E' having at its lower end with the pinion S' meshing with the rack A' and provided at its upper end with the projecting arm U' having the end V', the indicator-wheel P turning on the same vertical axis as the spindle E' and having its rod or sleeve X' provided with the arm W' co-operating with the end V' on the arm U' of the spindle E', a spring tending to hold the wheel P in initial position and return it thereon, the lever G' provided at one end with a rack meshing with the pinion S' on the wheel hub or sleeve X', and having at its opposite end the arm D' the vertically-sliding rod E' provided with the collar G' having the arm E' carrying the steps P adapted to be projected into the path of the arm D', the pivoted supporting bar or wing K' co-operating with the collar G' on the rod E', and means intermediate said bar and the key-levers A for causing the operation of the latter to disengage the bar from the collar G'.

16. In a cash-register the combination with a series of operating-levers, of a series of rotary indicators, a frame actuated by the levers for operating the indicators, a slidable connection between the frame and in-

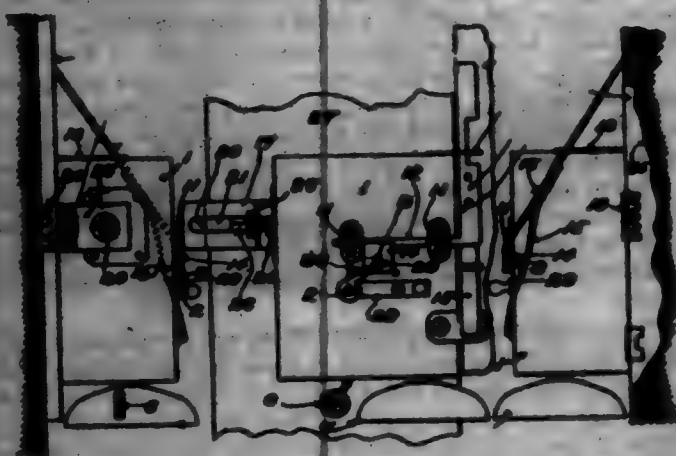
dicator, spring means for returning said indicators when operated, and devices act by the levers for arresting the indicators at the proper points in their backward movements independently of the movements of the frame.

17. In a cash-register, the combination with a series of operating-levers, of a series of rotary indicators means moved by the levers for rotating said indicators forward, means for returning said indicators, and devices act by the levers for arresting and holding said indicators at the proper points in their backward movements while the levers return to normal position.

18. The combination of the plurality of groups of key-levers A, the two sets of indicator-wheels O' P' actuated thereby and mounted on vertical axes one above the other, the two wheels being fast upon the same spindle as to turn together, the sliding rack-bar S' meshing at its opposite ends with the pinions E' T' turning with the end wheels in opposite sets, the sliding rack-bar X' meshing at its opposite ends with the pinions T' S' upon the other end wheels of the opposite sets, and the springs W' and S' connected to the bars S' and X', respectively, whereby the upper and lower wheels of each pair are connected together and move in unison.

19. The combination of the plurality of groups of key-levers A, the indicator-wheel P co-operating with the respective groups of key-levers, the transversely-sliding cross-plate A' mounted in front of the wheel P, a spring tending to hold said plate in position to expose the numbers upon the indicator-wheel, the lever J' co-operating with said cross-plate, the universal bar or frame F' overlying the key-levers A, and the vertically-sliding rod E' pivotally connected at its lower end to the frame F' and provided at its upper end with the arm M' co-operating with the end L' upon the lever J' to shift the cross-plate A' in position to hide the indicator-wheel.

700,897. SUBALAR-ALARM. JOHN G. A. CASE, Arlington, Mass.
Filed Jan. 16, 1908. Serial No. 68,126. (No model.)



Claim.—1. In combination with a gong or bell, a striker, mechanism for actuating the striker, a housing therefor, a bent lever one arm of which is journaled in bearings attached to the housing, and provided with a catch which is adapted to engage with the striker-actuating mechanism to hold it in restraint, a spring which tends to hold the lever in a position for the catch to be disengaged when the lever is free to respond to the spring and with the unjournaled arm of said lever extending diagonally rearward beyond the rear face of the housing in such manner that when the housing is attached to a door or to one end of a window the rear end of said lever may be caused to engage with the jamb of the door or with the opposite end of the window when the door or window is closed and hold the lever against the tension of its spring in position to cause the catch to restrain the striker, said spring tending the lever and disengaging the catch when the door or window is opened, substantially as described.

2. In combination with a gong or bell, a striker, mechanism for actuating the striker, a housing therefor, a bent lever one arm of which is journaled in bearings on the housing, and provided with a catch which is adapted to hold the striker mechanism in restraint, a spring which tends to hold the lever in a position for the catch to be released, and an adjustable clamp whereby the device may be clamped to a door or to a window-cash with the free end of the lever bearing upon the door-jamb or upon the opposite window-cash while the door or window is closed thereby causing the catch to restrain the striker, the lever being freed by the opening of the door or window so that it responds to the action of the spring and releases the catch, the clamp holding the device on the door or window both when closed and open, substantially as described.

3. In combination with a gong or bell, a striker, mechanism for actuating the striker, a housing, a bent lever one arm of which is journaled in bearings in the housing, a detent on the lever which is adapted to en-

gage the striker mechanism, the unjournaled arm of the lever extending rearwardly of the housing, means for fastening the housing to the stile of a door or the rail of a window-cash, the projecting free end of the lever pressing upon the door-jamb or upon the opposite cash when the door or window is closed thereby turning the lever in its bearings and causing the detent to hold the striker in restraint, and a spring which when the door or window is opened will turn the lever in the opposite direction and release the detent, substantially as described.

4. In combination with a gong or bell, a striker, mechanism for actuating the striker, a housing, a bent lever one arm of which is journaled in bearings in the housing, a detent on the lever which is adapted to engage with the striker mechanism, the unjournaled arm of the lever extending rearwardly of the housing, means for fastening the housing to the stile of a door or the rail of a window, the projecting free end of the lever pressing upon the door-jamb or upon the opposite cash when the door or window is closed, thereby holding the lever in a position where the said detent will engage the said pin, and a spring which when the door or window is opened will turn the lever in its bearings and release the striker mechanism, substantially as described.

5. In combination with a gong or bell, a striker, mechanism for actuating the striker, a housing, a bent lever one arm of which is journaled in bearings in the housing, a detent on the lever which is adapted to engage the striker mechanism, the unjournaled arm of the lever extending rearwardly of the housing, means for fastening the housing to a door or to a window-cash, the projecting free end of the lever pressing upon the door-jamb or upon the opposite window-cash when the door is closed thereby holding the detent in engagement with the striker-actuating mechanism, and a spring which when the door or window is opened will turn the lever in the opposite direction and release the detent whereby the striker mechanism becomes operative, the closing of the door or window again setting the detent and shutting off the alarm, substantially as described.

700,898. ELECTRODES FOR ELECTRIC ACCUMULATORS. EDWARD J. CLARK, Stratford, England. Filed Jan. 4, 1908. Serial No. 68,126. (No model.)

Claim.—An accumulator-plate, consisting of a frame, a series of vertical rods crossing the same, a series of trough-shaped horizontal plates practically integral with said rods and a mass of plumbic acid held by said trough-shaped plates, the latter being rolled into said shape on said acid, thereby compressing and holding the latter substantially as set forth.

700,899. TROLLEY-WHEEL. JOHN H. CLARK, Urbana, Ohio.
Filed Sept. 11, 1901. Serial No. 74,000. (No model.)



Claim.—The combination of a trolley-wheel provided with an axle rotatable with said trolley-wheel, a trolley-band consisting of members spaced one from the other and each of the members provided with a chamber, there being a groove located in the inner face of the band members and communicating with the chambers, axle-bases located in the grooves and over the openings and means for holding the axle-bases in fixed position, substantially as and for the purposes specified.

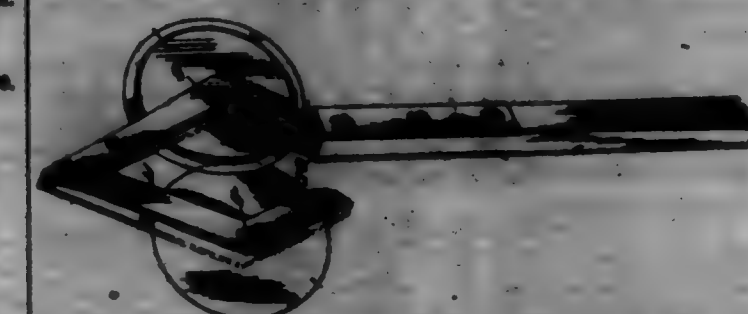
700,900. STREET-SWEEPER. GEORGE COMBART, Goshport, N. Y.
Filed Jan. 6, 1908. Serial No. 68,126. (No model.)

Claim.—In a street-sweeper, the combination with an ordinary wagon box or body and its running-gear, of a transverse shaft journaled upon the upper rear end of said box, a swinging frame independent of the wagon frame or box and comprising side bars connected by suitable cross-pieces and mounted to swing upon the transverse shaft, the rear ends of said bars projecting beyond the rear end of the wagon-box and the front ends thereof being extended forwardly on opposite sides of the body and terminating in lever-arms, levers depending from the rear ends of the side bars, a shaft mounted in the levers and carrying a suitable brush, an endless conveyor-frame mounted to swing upon the

transverse shaft, means connecting the lower end of the conveyor-frame with the brush-shaft, whereby said conveyor-frame is mounted to swing with the sweep-frame, an endless conveyor carried by the conveyor-frame, gearing between the transverse shaft and endless conveyor for operating the latter, gearing between the transverse shaft and running-gear of the vehicle and between the brush and running-gear for driving said transverse shaft and brush, and means for engaging the lever-arms when the latter are depressed to hold the swinging frame and brush mechanism elevated, substantially in the manner described.



700,901. PRUNING IMPLEMENT. ALFRED CHASE OF ALBANY, N. Y.
Filed Oct. 16, 1901. Serial No. 75,000. (No model.)



Claim.—1. In a pruning implement, a lanceolate-shaped frame having a space at its lower end for the reception of the branch or part to be removed, and oppositely-disposed cooperating rotary cutters journaled to the side bars of the frame at their point of flexure, substantially as set forth.

2. In a pruning implement, a frame composed of side bars each comprising oppositely-inclined parts, said bars being joined at their upper ends and spaced apart at their lower ends, and one of the side bars being extended to form a chuck, a pole attached to the said chuck, and oppositely-disposed cooperating rotary cutters journaled to the side bars at their point of flexure substantially as set forth.

3. In a pruning implement, a head or frame of lanceolate shape composed of spaced complementary side members or parts, filling-pieces secured between the said members, and oppositely-disposed cooperating rotary cutters located in the space between the side bars of the said members, substantially as specified.

4. The herein-described pruning implement comprising a pole or shaft, a lanceolate-shaped head or frame composed of spaced side members or parts, each composed of side bars having portions oppositely inclined, the bars being spaced at one end and one set of bars having extensions forming chucks embracing opposite sides of the pole and secured thereto and having other portions to extend over the upper end of the pole, filling-pieces secured between the members or parts, and cooperating rotary cutters journaled between the side bars of the head at the angle formed between the oppositely-inclined parts, substantially as specified.

700,902. MOTOR-VEHICLE FRAME. WALTER A. CHURCH.
Chicago, Ill. Filed June 23, 1901. Serial No. 65,942. (No model.)



Claim.—1. A vehicle-frame comprising front and rear axle supports, upwardly-extending arms thereon, side bars connecting said arms on said axle-supports and struts or braces which connect said side bars with said axle-supports, substantially as described.

2. A vehicle-frame comprising front and rear axle supports, upward and downward projections thereon, side bars which connect said upward projections and struts or braces which connect said side bars with the downward extensions of said axle-supports, substantially as described.

3. A vehicle-frame comprising front and rear axle supports, upward projections thereon, downward projections thereon outside of said upward projections, side bars which connect the upward projections on said front and rear axle supports and struts or braces which connect said side bars with the downward projections of said axle-supports, substantially as described.

4. In a vehicle-frame, the combination of an axle-support, an axle pivoted thereto, downward projections on said axle-support provided with vertically-disposed slots which embrace said axle, a side of each of said slots being formed by a plate removably secured to said axle-support, substantially as described.

5. A vehicle-frame comprising front and rear axle supports, upwardly-extending arms thereon, side bars which connect said arms and springs hung from said arms, substantially as described.

6. A vehicle-frame comprising front and rear axle supports, side bars which connect said axle-supports, upward projections on said axle-supports, springs hung from said upward projections, the relation of parts being such that the tops of said springs are substantially on a line with the points of connection to said upward projections on said axle-supports, substantially as described.

7. A vehicle-frame comprising front and rear axle supports, upward projections thereon and springs hung from said upward projections, the relation of parts being such that the tops of said springs are substantially on a line with their points of connection to the upward projections on said axle-supports, substantially as described.

8. A vehicle-frame comprising front and rear axle supports, side bars which connect said axle-supports, an axle pivoted to the front-axle support, downward projections on said front-axle support provided with vertically-disposed slots which embrace said axle and struts or braces which connect said side bars with the downward projections on said front-axle support, substantially as described.

9. A vehicle-frame comprising front and rear axle supports, upward projections thereon, rigid connection between said front and rear axle supports, an axle pivoted to said front-axle support, guides on said front-axle support which embrace said axle and springs hung from the upward projections on said front and rear axle supports, substantially as described.

10. The combination with an axle-support provided with spherically-grooved openings, bearing-bones provided with grooves in their external surfaces, the bottoms of said grooves forming sections of spheres fitted to and adapted to be secured in the spherically-grooved openings in said axle-support, the portions of said axle-support which enter said grooves in said bearing-bones being thinner than the width of said grooves and an axle mounted in said bearing-bones, substantially as described.

700,903. GARMENT. BASIL BROWN, New York, N. Y. Filed Dec. 23, 1901. Serial No. 65,943. (No model.)

Claim.—1. A garment having a waist-closure formed with openings at the sides, overlapping flaps at said openings, means for drawing the

flaps one above the other to take up slack at the waist without bunching or puckering and means for holding the inner flap up in position, substantially as described.



2. A garment having a waist-closure formed with side openings, overlapping flaps at said openings, and means for adjusting or drawing in the waist at the said openings, said means having a yielding portion insuring a snug fit, the flaps preventing any puckering or bunching of the garment at these points, substantially as described.

3. A garment having a waist-closure formed with side openings, inner and outer flaps at said openings, means for holding the inner flap from dropping or sagging out of position, and means attached to the outer flap for taking in any slack in the waist portion of the garment and adjusting it to suit the person of the wearer of the garment, substantially as described.

4. A garment having a waist-closure formed with side openings, inner and outer flaps arranged at these openings, a yielding connection joining the inner flap and the inner face of the outer flap for yieldingly holding the said inner flap in position and permitting said flap to accommodate itself to the adjustment of the outer flap, and means for adjusting the outer flap to draw the waist of the garment snugly about the body of the wearer, substantially as described.

5. A garment having a waist portion formed with openings having inner and outer flaps, a yielding strap secured to the inner flap at one end and extending between the lining and goods of the outer flap where it is attached at its other end to the said outer flap, and means for adjusting the outer flap so as to take up slack in the waist, the yielding strap of the inner flap accommodating itself to such an adjustment and maintaining the parts in a smooth position, substantially as described.

6. A garment having a waist portion with side openings formed therein, inner and outer flaps at the said openings, the outer flaps overlying the inner flaps to a considerable extent, a yielding means for holding the inner flap in proper position so as not to pucker or wrinkle beneath the other flap, and a yielding means for holding the outer flap in proper position, substantially as described.

7. A garment having a waist portion formed with side openings, inner and outer flaps arranged at these openings, an elastic strap secured to the inner flap and connecting it with the inner face of the outer flap, a strap secured to the outer flap, a buckle or other fastening for engaging said strap, a yielding means connecting said buckle with the goods of the trousers, the inner yielding straps yielding in correspondence with the adjustment of the outer yielding buckle connection, substantially as described.

8. A garment having a waist-closure formed with suitable openings, inner and outer flaps at said openings, means for opening the outer flaps in place, and bands or straps for covering the inner flaps in position corresponding always with the adjustments and arrangement of the outer flaps, substantially as described.

9. A garment having a waist-closure having an opening, inner and outer flaps covering the opening, an elastic connection joining the inner flap with the opposite side of the opening, and means for adjusting the outer flap.

10. A garment having a waist-closure having an opening, inner and outer overlapping flaps covering the opening, elastic connection joining the inner flap to the opposite side of the opening, and elastic means for adjusting the outer flap.

11. A garment having a waist-closure having side openings, inner and outer overlapping flaps covering each opening, an elastic connection joining the inner flap to the opposite side of each opening, and elastic means for adjusting the outer flap.

700,904. GRAVE-MARKER. JAMES A. DELANEY, Chicago, Ill.
Filed Aug. 12, 1901. Serial No. 72,974. (No model.)

Claim.—1. A device of the class described, comprising a front plate

having an aperture extending entirely through it, a transparent pane covering the aperture, and a back plate fitting within the aperture and adapted to secure a card in the same, and provided with arms extending beyond the aperture and detachably fastened to the front plate, said back plate being provided with a rearwardly-extending leg adapted to receive a post or support, substantially as described.



2. A device of the class described comprising a front plate having an aperture and provided at its back with a recess surrounding the aperture and having an angular inner portion and a beveled outer portion, a holder adapted to receive a card and arranged in the angular inner portion of the recess, a beveled back plate fitting within the beveled portion of the recess and provided with extensions, fastening devices detachably securing the extensions of the back plate to the front plate, and a post or support, substantially as described.

700,905. RAY-STACKER. SILVSTER C. DUNHAM, Vol. Ives.
Filed Oct. 12, 1899. Serial No. 22,985. (No model.)



Claim.—A ray-stacker comprising a ground-frame composed of a pair of runners disposed on converging lines, cross-bars rigidly connecting the runners, a shaft mounted in bearings on the upper side of the runners at the wide end thereof, a fork-frame secured to the shaft on the outer side of the runners and provided at its upper end with a fork comprising fixed and movable flaps, a guy-rope secured to the center portion of the ground-frame and to the fork-frame, a shaft mounted in bearings in the upper side of the runners near the center thereof, a rocking frame carried by the shaft and disposed on the inner side of the runners and of the fork-frame, a cross-bar carried by the fork-frame on which the said rocking frame is adapted to bear, ropes secured to the opposite side portions of the front end of the rocking frame and the upper portion of the fork-frame, and operating-rope having their ends secured to the upper portion of the rocking frame and extended laterally from one side of the front end of the ground-frame and passed alternately through pulleys on the front end of the latter frame and the upper end of the rocking frame, substantially as and for the purpose specified.

700,908. TYPE-WRITING CLAVIER. CHARLES HOWARD, Brooklyn, N. Y. Filed Sept. 12, 1901. Serial No. 73,383. (No model.)

Claim.—1. A type-writing clavier, comprising a series of key-levers and sounding mechanism common to all of said series of key-levers and adapted to be actuated by any one of them.

2. A type-writing clavier, comprising a series of key-levers, and a spring-clicker adapted to be operated by any key-lever of the series and to sustain the force of a blow on the keys.

3. A type-writing clavier, comprising a casing, key-levers supported therein, a copy-holding bracket comprising a yoke having its arms pivoted to the ends of the casing and adapted to be folded down and surround the key-levers, and a stop on the end of the casing for holding the bracket in position to support a copy.



4. A type-writing clavier, comprising a casing, key-levers supported therein, a copy-holding bracket pivoted at its ends to the ends of the casing, a stop projecting from the casing for holding the bracket in an inclined position and a plate or rest upon the casing and cooperating with the bracket to support a copy.

5. In a type-writing clavier, the combination with a frame or cradle, of a key-lever mounted in said cradle, a spring-clicker operated by the lever when depressed and a spring normally holding the lever out of engagement with the clicker.

6. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, key-levers fulcrumed near their ends on the shaft, springs holding the long ends of the levers elevated and a platform on the cradle supporting the short ends of the levers and allowing the keys on the long ends of the levers.

7. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, a series of key-levers fulcrumed near their inner ends on said shaft, springs holding the long ends of the levers elevated, a platform limiting the downward movement of the short ends of the levers and means allowing the keys on the long ends of the levers, and adjustable means for limiting the depth of movement of the keys.

8. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, a series of key-levers fulcrumed near their inner ends on said shaft, springs holding the long ends of the levers elevated, an aligning-platform limiting the downward movement of the short ends of the levers, and a stop adjustably secured to the cradle and adapted to limit the upward movement of the short ends of the levers.

9. In a type-writing clavier, the combination with a frame or cradle, of a key-lever fulcrumed near its inner end in said cradle, a rod extending transversely above said lever, a transverse bar on the cradle in rear of said rod, a spring bearing between its ends on said rod, its short end disposed beneath the bar and its long end bent at right angles and provided with a hook engaging the lower edge of the long end of the key-lever.

10. In a type-writing clavier, the combination with a cradle, and a series of key-levers fulcrumed near their inner ends therein, of a spring-clicker secured to the cradle beneath the key-levers, a frame secured to the cradle and limiting the upward movement of the clicker, a rod bent at its ends and pivotally secured to the cradle, springs holding said rod against the lower edge of the levers and individual springs holding the several key-levers above the clicker.

11. In a type-writing clavier, the combination with a cradle, and a series of key-levers fulcrumed near their inner ends therein, of a spring-clicker secured to the cradle beneath the key-levers, a rod bent at its ends and pivotally secured to the cradle and adapted to operate the clicker when a key-lever is operated, springs holding said rod against the lower edge of the levers, individual springs holding the several key-levers elevated and one of said key-levers arched or bowed to avoid contact with the rod.

12. In a type-writing clavier, the combination with a series of key-levers, of a bell, and means intermediate of the bell and one of the key-levers for sounding the bell only when said key-lever is depressed.

13. In a type-writing clavier, the combination with a casing and a series of key-levers supported therein, of a bell in said casing, a spring-lever in said casing, a knocker on one end of the spring-lever, and a flak connecting the other end of said spring-lever with one of said key-levers.

14. In a type-writing clavier, the combination with a casing, of key-levers supported in the casing, spacing-bar levers also supported in the casing and carrying a spacing-bar, a dial on the casing, a ratchet-wheel for turning the dial to register with a fixed pointer, a lever fulcrumed between its ends in the casing, a dog on one end of the casing to turn the ratchet-wheel a distance of one tooth each time the lever is operated, and a link connecting the other end of the lever with one of the spacing-bar levers.

15. In a type-writing clavier, the combination with a casing of a frame therein, a shaft supported in the frame and projecting through the casing, a dial secured on the shaft in front of the casing, a ratchet-wheel on the shaft in the casing, a spring friction-brake engaging said shaft, a lever fulcrumed between its ends in said casing, a pivoted dog carried by one end of the lever and in engagement with the teeth of the ratchet-wheel, a spacing-bar lever projecting out of the casing and a link connecting said levers.

16. In a type-writing clavier, the combination with a casing, of a frame therein, a shaft supported in the frame and projecting through the casing, a dial secured on the shaft in front of the casing, a fixed pointer registering with the dial, a ratchet-wheel on said shaft in the casing, a dog for turning said wheel, a spacing-bar for operating said dog, another dog for preventing the turning of the ratchet in but one direction and a button on the center of the dial for manually turning the same.

700,907. HAT-REST. GEORGE EDWARDS and JOHN EDWARDS, Stockport, England. Filed Apr. 26, 1901. Serial No. 87,095. (No model.)



Claim.—1. In a hat-rest, the pillar *a*, the hat-supporting rings *d* formed with the forked arm ends *e* directly pivotally connected to the said pillar and the springs *f* secured to the latter adjacent to the said forked ends, the said forked ends being cranked to bear against the said pillar and the said springs to engage and retain the said hat-rings in their lowered and raised position respectively, all combined substantially as and for the purpose set forth.

2. In a hat-rest having the pillar *a* and the hat-supporting rings *d* with the forked ends *e* directly pivotally connected to the said pillar, the cockets *g* on the said forked ends, the pin *h* on the ring-arm *c*, received by the said cocket, and means for rotarily adjusting the latter in the said cocket to allow of tilting the said hat-rings, all combined substantially as and for the purpose set forth.

3. In a hat-rest having the pillar *a* and the hat-supporting rings *d* with forked ends *e* directly pivotally connected to the said pillar, the pivots *i* on the said forked ends receiving the said ring-arms and the springs *f* secured to the said pillar adjacent thereto, the said pivot allowing the said hat-rings to be moved laterally and the said springs serving to engage and hold the same in position, all combined substantially as and for the purpose set forth.

700,908. ACETYLENE-GAS GENERATOR. ALFRED C. BISHOP, St. Louis, Mo. Filed June 5, 1901. Serial No. 88,178. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a generator-tank, a carbide-holder, a feed-valve arranged to control the out-

let from said carbide-holder, a spring-pressed diaphragm having connection with said feed-valve and subject to pressure from the gas in said generator-tank, a gasometer arranged in communication with said generator-tank, a gas-receiving pipe in said gasometer, a water-seal member mounted on said gas-receiving pipe, a gasometer-bell and means to elevate the water-seal member on the descent of the bell and permit it to descend on the rise of the bell, whereby a constant gas-pressure is maintained in the bell and the gas-pressure in the generator, by which the diaphragm is operated, varies according to the amount of gas in the bell.

2. In an acetylene-gas generator, the combination with a generator comprising a tank and a carbide-holder, of a feed-valve arranged to control the outlet from said carbide-holder, a spring-pressed diaphragm having connection with said feed-valve and subject to pressure from the gas in said generator-tank, a gasometer arranged in communication with said generator-tank, a gas-receiving pipe in said gasometer, a water-seal member mounted on said gas-receiving pipe, a pivoted lever connected in said member and a gasometer-bell arranged to engage said lever on the descent of the bell and permit it to descend on the rise of the bell, whereby a constant gas-pressure is maintained in the bell and the gas-pressure in the generator, by which the diaphragm is operated, varies according to the amount of gas in the bell.

700,909. FOUNTAIN-PEN. WILLIAM S. FRASER, New York, N. Y., assignor to Fraser & Geyer Co., New York, N. Y., a Corporation of New York. Filed July 18, 1901. Serial No. 88,711. (No model.)



Claim.—1. In a fountain-pen, the combination with the barrel or casing, of a rotary pen-operating member mounted within the upper open end of the barrel and having its outer end within the plane of, but exposed through, the said open end, the said outer end of the rotating member being shaped to receive a separate and independent rotating device.

2. In a fountain-pen, the combination with the barrel or casing, of a rotary pen-operating member mounted within the upper open end of the barrel or casing and having its outer end within the plane of, but exposed through, the said open end, a removable cap for the lower end of the casing or barrel and interlocking connections for separably connecting the cap and the said upper end of the rotary member for rotating the latter; substantially as described.

3. In a fountain-pen, the combination with the barrel or casing, of a rotary pen-operating member mounted within the upper end of the barrel or casing and having a socket in its outer end accessible through the upper open end of the said casing or barrel, and a removable cap for the lower end of the casing or barrel having a nipple of a size to snugly fit said socket and form a frictional connection therewith; substantially as described.

4. A fountain-pen comprising the barrel or casing, a pen-carrying rod or member therein, a tubular crown-plug forming the upper end of the barrel or casing, a spirally-grooved head operatively connected with the pen-carrying rod and provided with a shank having a rotary operating member lying wholly within the outer end of said tubular plug and provided in its outer end with a conical socket, and a cap removably fitting the lower end of the barrel or casing and provided with a conical nipple to frictionally engage the said socket and rotate the spirally-grooved head; substantially as described.

5. In a fountain-pen, the combination with the barrel or casing provided at its lower end with a removable cap, of a rotary operating member wholly within the upper end of the barrel, but exposed through the upper end thereof, and means for frictionally connecting the said removable cap with the said rotary operating member and comprising a nipple and socket shaped for frictional engagement, whereby when the said co-

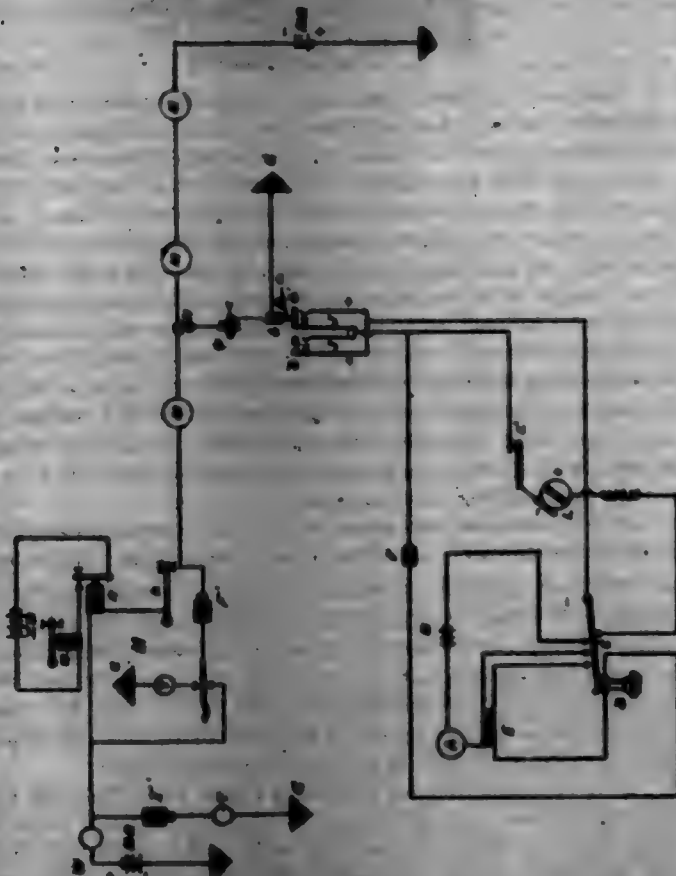
coupling member has been sufficiently rotated the connection between it and the cap will slip; substantially as described.

700,910. PITMAN CONNECTION. JOHN CLINE, Kenton, Ohio.
Filed Dec. 22, 1901. Serial No. 84,908. (No model.)



Claim.—A pitman-rod having an articulate coupling comprising a coupling member having a socket formed with teeth, a yoke whose jaws are provided with beaks to engage said teeth, one of said jaws being fixed and the other pivoted, and a belt passing through the beaks and teeth, substantially as described.

700,911. SIGNAL FOR COMPOSITE TELEGRAPHIC AND TELEPHONE TRANSMISSION. EDWIN L. GRAHAM, Carthage, N. Y. Filed Jan. 24, 1902. Serial No. 91,000. (No model.)



Claim.—1. The method of transmitting intelligence which consists in superposing on a current of fixed direction an unidirectional pulsating current, thereby unbalancing the current of fixed direction in one half and reinforcing it on the other half of the circuit, substantially as specified.

2. The method herein described for signaling which consists in superposing upon a current, a current which compounds or acts in conjunction with the first-named current to effect a signal, substantially as specified.

3. The method herein described for signaling which consists in superposing upon a current a current acting in opposition thereto, substantially as and for the purpose specified.

4. The method herein described for signaling on a current of fixed direction, the same consisting in superposing thereon a direct pulsating current of such slow frequency as will operate the line-relays, substantially as specified.

5. The method herein described for signaling on a current of fixed direction, which consists in superposing thereon a direct pulsating current of opposite direction, substantially as and for the purpose specified.

6. The method herein described for signaling on a current of fixed direction, which consists in superposing thereon a direct pulsating current without impairing the integrity of the line-wire of the current of fixed direction, substantially as specified.

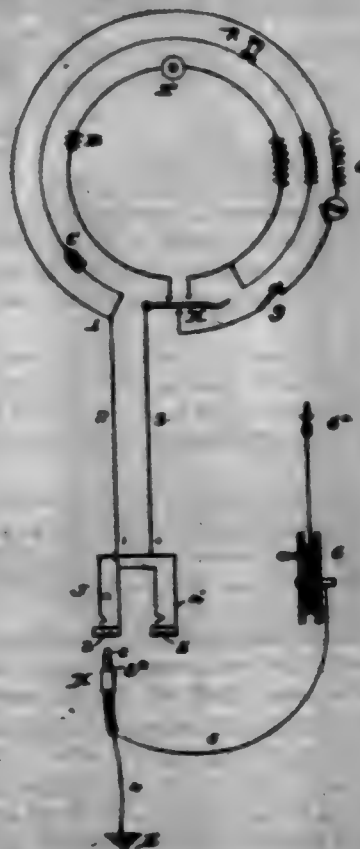
7. The method herein described for changing the direction of the signal, said signal being produced by superposing a direct pulsating current upon a current of fixed direction, which consists in reversing or changing the direction of the direct pulsating current.

8. The method herein described for signaling over a circuit normally energized by current of fixed direction, which consists in directing over said circuit in multiple relation therewith, intermittently-transmitted direct currents, and thereby unbalancing one portion of said circuit, substantially as specified.

9. The method herein described for signaling over a telegraphic circuit, which consists in directing over said circuit in multiple relation therewith intermittently-transmitted direct currents, and thereby unbalancing one portion of said circuit, substantially as specified.

10. The method for signaling over a telegraphic circuit, which consists in directing over said circuit in multiple relation therewith, intermittently-transmitted direct currents of either polarity, and thereby unbalancing alternative portions of said circuit, substantially as specified.

700,912. SIGNALING AND TELEPHONING APPARATUS. EDWIN L. GRAHAM, Carthage, N. Y. Filed Jan. 24, 1902. Serial No. 91,100. (No model.)



Claim.—1. The combination in a signaling and telephoning apparatus, of a receiver-circuit, a generator-circuit, and means common to both circuits for detachably connecting said circuits with a telegraph-line wire without impairing the integrity of said line-wire; substantially as and for the purpose specified.

2. The combination in a signaling and telephoning apparatus, of a transmitter-circuit, a receiver-circuit having a condenser interposed therein, a generator-circuit, and means common to all of said circuits for detachably connecting said circuits with a telegraph-line wire without impairing the integrity of said line-wire; substantially as and for the purpose specified.

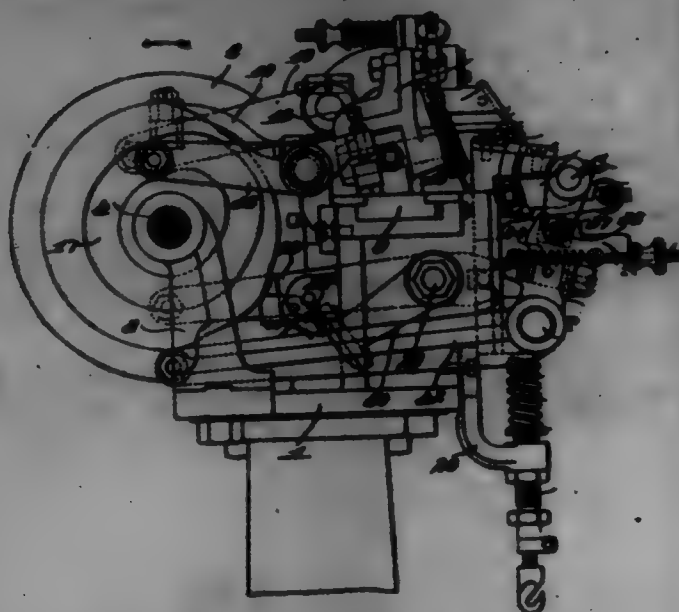
3. The combination in a signaling and telephoning apparatus, of a receiver-circuit having a condenser interposed therein, a generator-circuit, means for merging said circuits in a single circuit adapted to connect said circuits with a telegraph-line, and a reel for reeling up said connecting-wire, substantially as and for the purpose specified.

4. In a signaling and telephoning apparatus, the combination of a transmitter-circuit, a receiver-circuit, and a generator-circuit, a receiver-hook having a hook-switch common to all of said circuits, a receiver, and a receiver-lock, whereby the receiver is held, and the common switch controlled when the receiver is in position on its hook, substantially as specified.

5. The combination with the transmitter-circuit and the receiver-circuit, of a receiver-hook having a hook-switch common to said circuits, a receiver, and a receiver-lock which holds the receiver and controls the hook and hook-switch when the receiver is in position on the hook, substantially as and for the purpose specified.

6. In a signaling and telephoning apparatus, the combination with signaling and telephoning circuits, of a single connection common to said circuits, and a circuit-pole provided with a snap or clamp adapted to electrically connect the same with a telegraph-wire, substantially as and for the purpose specified.

700,918. STITCH-SEPARATING MACHINE. JOHN R. HADWAY, Brockton, Mass. Filed June 2, 1901. Serial No. 68,798. (No model.)



Claim.—1. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, means co-operating with the stitches to determine the location of the indentations and means for actuating the tools to indent the work, substantially as described.

2. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, means for adjusting the tools for operation upon work of different thicknesses, and means for positively actuating the tools to indent the work, substantially as described.

3. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, and means controlled by the thickness of the work for positively actuating the tools to produce indentations of the same depth in work of different thicknesses, substantially as described.

4. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, means controlled by the work for automatically adjusting the tools for operation upon work of different thicknesses, and means for actuating the tools to indent the work, substantially as described.

5. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, one of said tools acting to move the work into position to be acted upon by the other tool, and means for actuating the tools, substantially as described.

6. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, means for locating each tool in a stitch interval whether the stitches are of uniform or varying length and means for actuating the tools to indent the stitch intervals, substantially as described.

7. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, means for actuating one tool to indent and feed the work, means for locating the other tool in a stitch interval during the feeding of the work, and means for actuating said tool to indent the work, substantially as described.

8. A stitch-separating machine, having, in combination, an indenting-tool arranged to operate on one side of the work, a yieldingly-mounted work-support, an indenting-tool mounted on said work-support arranged to operate on the opposite side of the work, means for actuating the tools to indent the work and means for locking the work-support during the indenting action of the tools, substantially as described.

9. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of the work, acting successively to form indentations therein, and means for actuating the tools, substantially as described.

10. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of a finished seam, means for locating each tool in a stitch interval whether the stitches are of uniform or varying length and means for actuating the tools to indent said intervals, substantially as described.

11. A stitch-separating machine, having, in combination, a combined indenting and feeding tool located on one side of the work and an indenting-tool located on the opposite side of the work, and mechanism for actuating the tools, substantially as described.

12. A stitch-separating machine, having, in combination, a tool acting on the stitches to feed the work and an indenting-tool located on the

opposite side of the work and movable with the work, and means for actuating the tools, substantially as described.

13. A stitch-separating machine, having, in combination, a combined indenting and feeding tool located on one side of the work, an indenting-tool located on the opposite side of the work, means for yieldingly holding the indenting-tool against the work during a portion of the feeding movement, and means for actuating the tools, substantially as described.

14. A stitch-separating machine, having, in combination, an indenting-tool, a tool-carrier mounted to slide in the direction of the feed by the engagement of the work with the tool, means for holding the tool yieldingly against the work, means for feeding the work, and means for actuating the tool to indent the work, substantially as described.

15. A stitch-separating machine, having, in combination, two indenting-tools arranged to operate on opposite sides of a finished seam, and means for actuating the tools to indent the intervals between the stitches and to feed the work, substantially as described.

700,914. HYDROCARBON-BURNER. JOHN F. HARTY, Montreal, Ind. Filed Oct. 18, 1900. Serial No. 68,801. (No model.)



Claim.—1. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, a supply-pipe and an injector-tube, the latter discharging into the mixing-chamber, said body portion embracing a rising shell which surrounds the upper part of the mixing-chamber, the wall of said shell being provided with a passage which extends at its upper end near the point of combustion and communicates with the injector-tube, and said supply-pipe having a tubular part which enters a second passage in the wall of said shell and terminates adjacent to the point of combustion of the burner, said second passage being constructed to provide outside of the tubular part a conduit which communicates with the first-mentioned passage and through which with the injector-tube, and the tubular part communicating at its upper end with said conduit, and said supply-pipe fitting detachably within an opening in the body portion, and the tubular part being connected with the supply-pipe so as to be removable therefrom from the body portion.

2. A hydrocarbon-burner comprising a body portion provided with a centrally-located mixing-chamber, a supply-pipe and an injector-tube, the latter discharging into the mixing-chamber, said supply-pipe having a tubular part which enters a vertical passage formed in the wall of the mixing-chamber and terminating adjacent to the point of combustion of the burner, said passage being constructed to provide outside of the tubular part a conduit which communicates with the injector-tube, the tubular part communicating at its upper end with said conduit and the passage having a roughened interior to increase its radiating-surface.

3. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, a supply-tube and an injector-tube, which latter discharges into said mixing-chamber, said body portion embracing a rising shell which surrounds the upper end of the mixing-chamber and said supply and injector tubes communicating with each other through the medium of a tortuous vaporizing and superheating passage formed in the wall of said shell and embracing two similar parts, each consisting of an outer and an inner passage which have communication with each other at the upper ends thereof and the two parts of the tortuous passage communicating with each other near the lower ends thereof through an opening formed in the body of the burner.

4. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, a supply-tube and an injector-tube, the latter discharging into the mixing-chamber, said body portion embracing a rising hollow shell which surrounds the upper part of the mixing-chamber, said shell being provided in its wall with upwardly-directed passages which terminate adjacent to the point of combustion of the burner, and the supply and injector tubes having tubular parts which enter said passages and communicate at their upper ends with conduits formed in the passages and surrounding the tubular parts, said conduits being connected by a communicating passage.

5. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, a supply-tube and an injector-tube, which latter discharges into said mixing-chamber, said supply and injector tubes communicating with each other through the medium of a tortuous vaporizing and superheating passage, said passage embracing two similar parts, each consisting of an outer and an inner passage which have communication with each other at their upper ends, and one of which is provided with a roughened inner wall, the two parts of the tortuous passage communicating said each other near the lower ends thereof.

6. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, and with a passage extending at its upper end near the point of combustion, an injector-tube discharging into the mixing-chamber and communicating at its end remote from the mixing-chamber with said passage, and a supply-pipe fitting detachably within an opening in the body portion and provided with a reduced part which enters a passage in the body portion, said reduced part being connected with the supply-pipe and located in alignment therewith so as to be removable from the body portion with said pipe and communicating at its upper end near the point of combustion with said passage, and the passage communicating at its lower end with the first-mentioned passage and the injector-tube.

7. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, an injector-tube discharging into the mixing-chamber, said body being provided with a supply-passage which terminates near the point of combustion and adapted for connection with a supply-pipe, and the injector-tube being provided at its upper end with a reduced portion which enters a second elongated passage in said body and is located concentrically therein, said reduced portion communicating at its upper end near the point of combustion with said second passage, and said second passage communicating through a small connecting-passage with the supply-passage of the burner.

8. A hydrocarbon-burner provided with a mixing-chamber, a supply-pipe and an injector-tube, the latter discharging into the mixing-chamber, said injector-tube having a reduced part which enters a passage formed in the wall of the mixing-chamber and terminates adjacent to the point of combustion of the burner, said passage being constructed to provide outside of the tubular part a conduit which communicates with the supply-pipe, the tubular part communicating at its upper end with said conduit and said passage having a roughened inner wall.

9. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, and with a passage extending at its upper end near the point of combustion, an injector-tube discharging into the mixing-chamber and communicating at its end remote from the mixing-chamber with said passage, and a supply-pipe communicating with a reduced part which enters a second passage in the body portion, said reduced part communicating at its upper end near the point of combustion with said second passage and said second passage communicating at its lower end with the first passage and through which with the injector-tube.

10. The combination with the body of a hydrocarbon-burner provided with an annular depending shell or jacket, which latter is provided in its wall with an opening, of a plate curved to conform to the curved surface of said jacket adapted to close said opening, said plate depending loosely from a support projecting from the jacket, whereby it is swung by its weight to its lowermost position, and means on said support acting when the plate is swung downwardly to move the same closely against the jacket-wall.

11. The combination with the body of a hydrocarbon-burner provided with an annular depending shell or jacket, which latter is provided in its wall with an opening, of a curved plate pivoted to a support projecting from the jacket, and a conical projection on the support radially outside the plate with respect to the axis of the jacket, the pivot-opening in the plate being made larger than the pivot-support inside said conical projection whereby, when the plate is swung upwardly, the pivoted end thereof moves outwardly and outwardly over said conical projection, said plate when released swinging downwardly by gravity into its closing position, and the conical projection causing the plate to be moved inwardly against the jacket-wall.

12. The combination with the body of a hydrocarbon-burner provided with a supply-pipe, and a flange or jacket depending from the body, which latter is provided with a slot to pass over said supply-pipe, of a plate depending loosely from said supply-pipe adapted to cover said slot and curved to correspond to the outer curved surface of said flange or jacket, said plate being free to swing to its lowermost position by its own weight when released, and means on said support acting when the plate is swung downwardly to move the plate closely against said jacket.

13. A hydrocarbon-burner comprising a body portion provided with a mixing-chamber, a supply-tube and an injector-tube connected with vaporizing and superheating passages in said body portion, said injector-tube discharging into the mixing-chamber, an auxiliary heating-coil located below the said injector-tube and provided with a wick comprising a wire covered with an absorbent material and coiled in spiral form.

14. A wick for the purpose set forth and comprising a wire covered with an absorbent material and coiled in spiral form.

15. A wick for the purpose set forth comprising a wire covered with an absorbent material, said wick being coiled in spiral form and shaped into a ring.

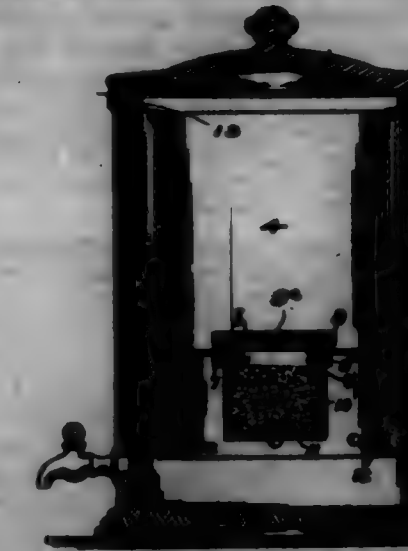
700,915. WICKS FOR LAMP AND TEXTILE FANES. EDWARD HARTMAN, Rochester, Penna. Filed Apr. 9, 1901. Serial No. 68,802. (No specimen.)

Claim.—1. A fabric adapted to produce a voltaic action by contact with the human body, comprising threads made of textile material twisted with an electropositive metal, threads made of textile material twisted with an electronegative material, and pure textile threads isolating the electropositive material from the electronegative.



2. A fabric adapted to produce a voltaic action by contact with the human body, comprising threads made of textile material twisted with aluminum threads made of textile material twisted with copper, and pure textile threads isolating the electropositive material from the electronegative.

700,916. FILTER. CHARLES E. HARTMAN, Wheeling, Pa. Filed July 9, 1901. Serial No. 67,848. (No model.)



Claim.—1. In a filter, the combination with a casing divided by a partition into two chambers one for filtered and the other for unfiltered water, a screened opening in said partition, a receptacle for filtering material secured to partition below the screened opening therein and a series of absorbent sheets removably secured over said screened opening.

2. A filter comprising a water-chamber having a bottom therein, filtering material supported by said bottom and chains or cords secured to the upper end of the filter and hooks on the free ends of said chains or cords to hook over the edge of a receptacle and support the filter.

3. In a filter, the combination with a water-chamber having a bottom with an opening therein covered by a screen, of a ring secured on said bottom around the opening therein, a series of sheets of absorbent in said ring, a clamping-ring securing a cloth covering over said absorbent sheets, a screw-threaded ring secured around the opening on the under side of the bottom, and a receptacle for filtering material secured onto said last-mentioned ring and having convex wire-mesh bottom.

4. A filter comprising a receptacle for unfiltered water, means therein for filtering the water, and chains secured to the top of the filter and hooks on the chains for supporting the filter in a receptacle.

700,917. BED-BRACE. JOHN E. HARTMAN, Adams, Pa. Filed Dec. 11, 1901. Serial No. 68,810. (No model.)



Claim.—1. In a brace of the class described, the combination of a relatively fixed member having means to engage a beam-rod, a revol-

lin cam member detachably mounted on the fixed member, said cam member having peripheral brace-wire-engaging means, and means to lock the revolvable cam member against reverse rotation, substantially as described.

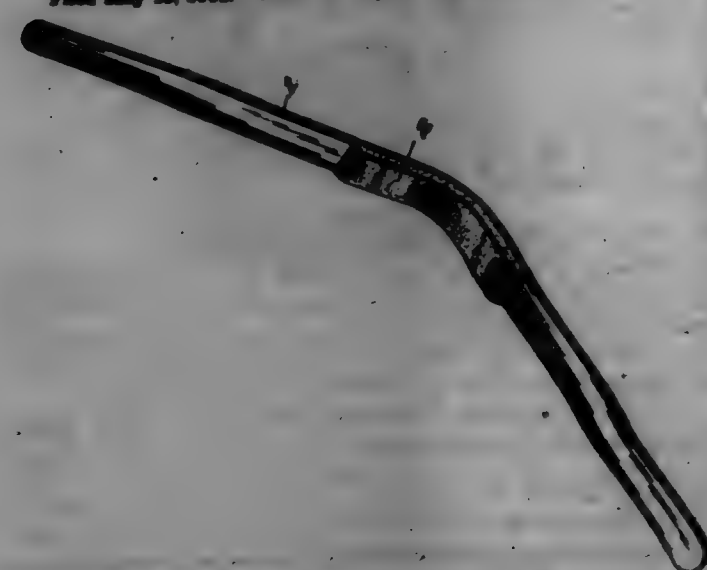
2. In a brace of the class described, the combination of a relatively fixed member having means to engage a brace-wire, a revolvable cam member detachably mounted on the fixed member, said cam member having peripheral brace-wire-engaging means, means to lock the revolvable cam member against reverse rotation, and a lever to operate said cam member, the lever and the lever having mutually-engaging means to detachably secure the lever to the cam member, substantially as described.

3. A brace comprising a hook member having a slot extending through the greater portion thereof and provided with hooks at one end, a cam member adapted to extend into said slot between said hooks, one of said hooks being provided with means for engaging the upper face of said cam member.

4. A brace comprising a hook member having a slot extending through one end thereof, hooks disposed on said divided end, a spring-actuated dog extending through the shank of one of said hooks and projecting into said slot, a cam member journaled in said hooks and having match-teeth adapted to be engaged by said dog.

5. A brace comprising a hook member having a slot extending through one end thereof, hooks disposed on said divided end, a spring-actuated dog extending through one of said hooks and projecting into said slot, a cam member disposed in said slot and journaled in said hooks, ratchet-teeth disposed on said cam member and adapted to be engaged by said dog, catches in said cam member, and means for engaging said catches for rotating said cam member.

700,918. CORBET-STRELL. ALVIN A. HARVEY, Birmingham, N. Y.
Filed May 15, 1901. Serial No. 69,343. (No model.)



Claim.—A corset-steel of the usual construction, having a reinforcement of rubber connected its entire length to the central portion of the steel so as to be immovable thereon, the reinforcement being of a greater thickness than the steel so as to render the same bendable therewith when said steel and rubber come together, substantially as specified.

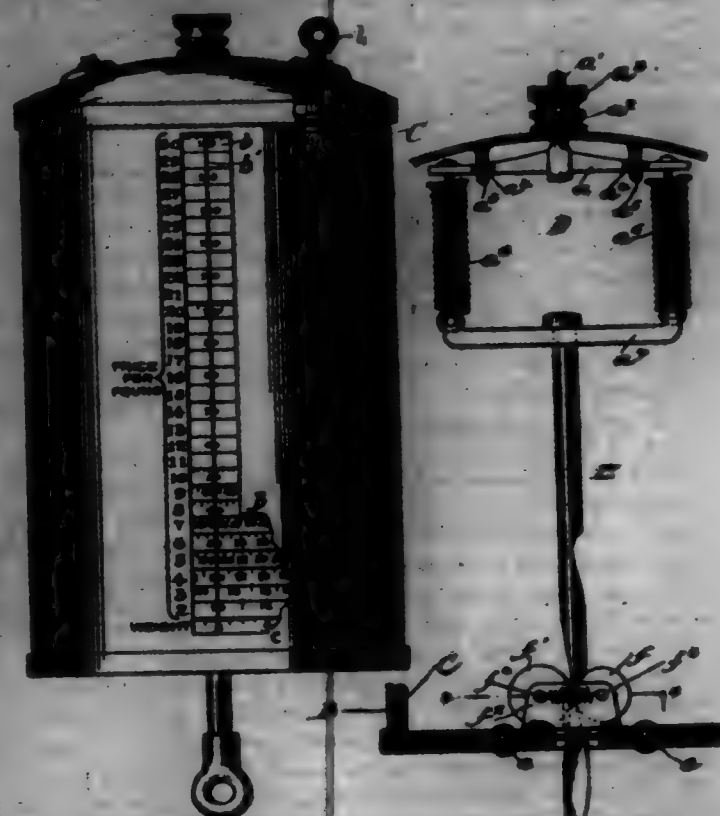
700,919. COMPUTING-SCALE. ARTHUR B. HAYDEN, Chicago, Ill., assignor to Computing Scale Company of America, a Corporation of New Jersey. Filed Sept. 8, 1900. Serial No. 739,576. (No model.)

Claim.—1. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index, a vertical rotatable computing-cylinder journaled in said casing, provided with cost computations, a spring-supported lead-bearing and cylinder-revolving rod suspended from said casing, and connecting means between rod and computing-cylinder, whereby by longitudinal movement of the rod rotary movement is imparted to said cylinder, substantially as and for the purpose set forth.

2. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index, a vertical rotatable computing-cylinder journaled in said casing, provided with cost computations, a spring-supported lead-bearing and cylinder-revolving rod non-rotatably suspended from said casing, and connecting means between said rod and computing-cylinder, whereby longitudinal movement of the rod produces rotary movement of the cylinder, substantially as and for the purpose set forth.

3. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index,

a vertical rotatable computing-cylinder journaled in said casing, provided with cost computations, a spring-supported lead-bearing and cylinder-revolving rod non-rotatably suspended from said casing, said rod being provided with a spiral, and rollers journaled in said cylinder and engaging said spiral, whereby longitudinal movement of the rod turns the cylinder, substantially as and for the purpose set forth.



4. In a spring-balance scale, a suitably-supported non-rotatable casing provided with a vertical slot, a price-index on a margin of said slot, a vertical computing-cylinder journaled in said casing, ball-bearings between the bottom of said cylinder and the bottom of said casing, a lead-supporting rod passing through central perforations in the bottom of said casing and cylinder, and provided with a spiral, spring connection between said rod and the top of said casing, and rollers journaled on the inner surface of the bottom of said cylinder and contacting with said spiral, whereby longitudinal movement of the rod produces rotary movement of the spiral, substantially as and for the purpose set forth.

5. In a spring-balance scale, a suitably-supported non-rotatable casing provided with a vertical slot, a price-index on a margin of said slot, a vertical computing-cylinder journaled in said casing, a lead-supporting rod extending within said cylinder, a spring lead-hanger D provided with a non-rotatable top cross-piece having a threaded stem C equipped with nuts and provided also with means for preventing rotation, said hanger D having spring connection with said rod, and connections between rod and cylinder, whereby the rod is moving longitudinally turns the cylinder, substantially as and for the purpose set forth.

6. In a spring-balance, the combination of a non-rotating frame providing an external casing and having means for supporting it from above, weighing-springs secured at their upper ends to rigid parts of said frame, a vertically-movable runner which is suspended from the lower ends of said springs and is provided with depending means to support the load, a short-drum rotatably mounted within said casing on a vertical axis and having external horizontal rows of value-indicating figures computed at different rates, said casing having a sight-opening through which portions of said value-indicating rows may be seen, and corresponding value-indicating figures on the outer face of said frame adjacent to the value-indicating rows on the short-drum, and mechanism for translating the vertical movement of the runner into the rotary movements of the short-drum.

7. In a spring-balance, the combination of an external non-rotating frame adapted to be supported from above, weighing-springs secured at their upper ends to rigid parts of said frame, a vertically-movable runner which is suspended from the lower ends of said springs and is provided at its lower end with means to support the load beneath it, a short-drum rotatably mounted within said frame on a vertical axis and having external horizontal rows of value-indicating figures computed at different rates, said external frame being apertured whereby portions of said value-indicating rows may be seen, and corresponding value-indicating figures on the outer face of said frame adjacent to the value-indicating rows on the short-drum, and mechanism for translating the vertical movements of the runner into the rotary movements of the short-drum, substantially as specified.

8. In a spring-balance, the combination of an external non-rotating frame, weighing-springs supported from said frame, a vertically-movable runner which is suspended from said springs and is provided at its lower end with means to support the load beneath it, a short-drum rotatably mounted within said frame on a vertical axis and having external horizontal rows of value-indicating figures computed at different rates, said external frame being provided with a vertical aperture, whereby portions of said value-indicating rows may be seen, and corresponding value-indicating figures on the outer surface of said frame adjacent to said aperture and corresponding with said value-indicating rows on the short-drum, and mechanism for translating the vertical movements of the runner into the rotary movement of the short-drum.

9. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index, a vertical rotatable computing-cylinder journaled in said casing and provided with circumferential rows of cost computations, a central vertical spiral-equipped motor-transmitting rod, a spring supported from the casing, a motor-transmitting friction member engaging said spiral, one of said motor-transmitting devices being supported by said spring to move vertically and the other connected with said cylinder to transmit rotary motion to said cylinder, and a lead-pan supported from said spring-supported motor-transmitting member, substantially as and for the purpose set forth.

10. In a price-scale, the combination of an outer cylinder having an opening in one face thereof, a second cylinder rotatably mounted in said first cylinder, notations upon one of said cylinders to indicate the weight of an article and its total price and correlated notations on the other cylinder to indicate the price per unit of weight, a rod for suspending the article being weighed fixed against rotation, and a cover connection intermediate said rod and the rotatable cylinder.

11. In a price-scale, the combination of an outer cylinder having an opening in one face thereof, a second cylinder rotatably mounted in said first cylinder, notations upon one of said cylinders to indicate the weight of an article and its total price and correlated notations on the other cylinder to indicate the price per unit of weight, a rod for suspending the article being weighed fixed against rotation, said rod being provided with a cover-thread throughout a portion of its length, and rollers carried by the rotatable cylinder and bearing directly upon said cover-threaded portion of the rod.

700,920. COMPUTING-SCALE. ARTHUR B. HAYDEN, Chicago, Ill., assignor to Computing Scale Company of America, a Corporation of New Jersey. Filed Apr. 9, 1901. Serial No. 64,067. (No model.)



Claim.—1. In a spring-balance computing-scale, a vertically-disposed computing-cylinder, in combination with a cylinder-actuating rod provided with a spiral, a rod-actuating vertically-movable non-rotatable cross-head engaging said spiral, and a lead-support beneath and suspended from said cross-head, substantially as described.

2. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index, a vertically-disposed rotatable computing-cylinder in said casing, the casing being provided with cost computations, a cylinder-actuating rod journaled in said casing and provided with a spiral, a spring-support, a spring-actuated cross-head, a lead-support connected with said spring and a vertically-movable non-rotatable cross-head disposed vertically above and moving with said lead-support and serving to actuate said rod, substantially as described.

3. In a spring-balance computing-scale, the combination of a suitably-supported vertical non-rotatable casing provided with a price-index,

a vertical rotatable computing-cylinder in said casing provided with cost computations, a vertically-disposed cylinder-actuating rod supporting said cylinder and journaled in said casing, said rod being provided with a spiral, a spring-support standard within said cylinder and supported from the bottom of said casing, a spring supported thereby, a vertically-movable cross-head supported from said spring and having engagement with the spiral of said rod for imparting rotary movement to said rod, and a spring-supported lead-pan, substantially as described.

4. The combination of a suitable frame or casing provided with a price-index, a vertically-disposed computing-cylinder provided with cost computations, a spiral-equipped cylinder-actuating rod supporting said cylinder and having adjustable bearings at the ends of said casing, a spring-support standard within said cylinder and supported from said casing, a spring supported thereon, a vertically-movable cross-head engaging the spiral of said rod and serving to rotate the rod, and a spring-supported lead-receiving pan or platform, substantially as described.

5. In a spring-balance computing-scale, a suitable casing, a computing-cylinder, a spring-support standard of adjustable height supported within said casing, a spiral-equipped cylinder-actuating rod supporting said cylinder and journaled in said casing, a spring connected with said standard, a vertically-movable cross-head engaging the spiral of said rod and serving to rotate said rod, and a spring-supported lead-receiver vertically beneath and actuating said cross-head, as described.

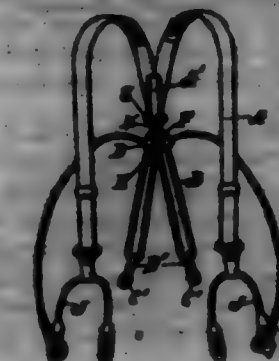
6. In a spring-balance computing-scale, the combination of a suitably-journaled vertically-disposed spiral-equipped cylinder-actuating rod, a computing-cylinder fixed to rotate therewith, a spring-support, a vertically-movable cross-head within said cylinder and having engagement with the spiral of said rod and serving to rotate said rod, and a spring-supported lead-receiver moving with said cross-head, substantially as described.

7. In a computing-scale, the combination of a suitably-journaled vertically-disposed spiral-equipped cylinder-actuating rod, a computing-cylinder fixed to rotate therewith, a spring-support, a spring, a vertically-movable cross-head, a friction-bearing between said cross-head and spiral of said rod, and a spring-supported lead-receiver vertically beneath and actuating said cross-head, substantially as described.

8. In a spring-balance computing-scale, the combination of a suitably-journaled vertically-disposed spiral-equipped cylinder-actuating rod, a computing-cylinder fixed to rotate therewith, a spring-support, a spring, a vertically-movable cross-head provided with spiral-engaging means, a spring-supported lead-receiver, and a vertical guide for said cross-head, substantially as described.

9. In a scale, the combination of a casing, a spring-support standard supported from the lower end of said casing, a computing-cylinder including said standard, a spiral-equipped rod fixed to rotate with said cylinder, a spring, a vertically-movable cross-head engaging the spiral of said rod, a guide for said cross-head, a friction-bearing between said cross-head and guide and a spring-supported lead-receiver, substantially as described.

700,921. SHOWERING. HENRY T. HANCOCK, Los Angeles, Cal.
Filed Dec. 4, 1901. Serial No. 64,576. (No model.)



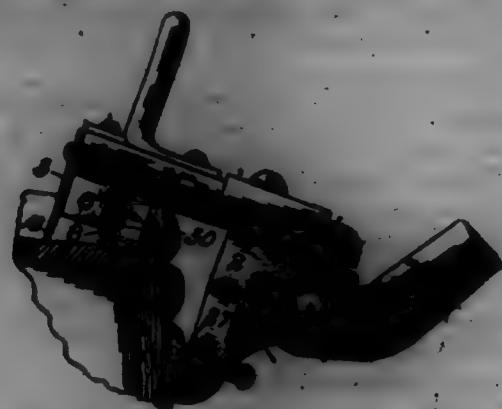
Claim.—1. The combination with a pair of shoulder-straps secured together at their rear ends, and having attached thereto a snap-hook; a cut-off ring adapted to engage said hook, having curved flange and engaging eyes; back tabs, having button-loops at their lower ends for engaging the back buttons, and having cord-engaging eyes on their upper ends; and an equalizing-rod, having button-loops for engaging the side buttons; the said cord passing from the side buttons up to and through the eyes on the cut-off ring, then down to and through the eyes on the back button-tabs, then up into a fastening on the cut-off ring; the said cord adapted to render freely through said eyes.

2. A pair of suspenders provided at their rear with a hook, a cut-off ring or loop, eye-tapes connected with the ring or loop, an equalizing-rod adapted to render freely through the eye-tapes, rear tabs provided at their lower ends with button-loops to button to the rear trousers-buttons and having at their upper ends eye-tapes adapted to receive the

equalizing-cord and to permit the same to run freely throughout, the equalizing-cord having button-loops for securing it to the side bottom.

3. The combination of the shoulder-strap, loop (I) connected thereto, cast-off ring or loop (F) detachably connected thereto, said cast-off ring or loop having eyelets thereon, equalizing-cord passed loosely through said eyelets, and button-loops (C, C', attached to the cord and loops D', D', loosely connected with the cord.

700,922. APPARATUS FOR APPLYING HOLDING-CLASPS TO BARRICADES. FRANKLIN B. HANCOCK, Louisville, Ky., assignor of two-thirds to CURTIS PAPA and ALFRED THURMAN PAPA, Louisville, Ky. Filed Aug. 28, 1901. Serial No. 73,000. (No model.)



Claim.—1. A clamp for the purpose described consisting of the main frame having side bars and the sliding frame within said bars guided by tongue-and-groove connection thereto, a pressure-bar and rollers on the sliding frame, the rollers being replaceable and serving as a fulcrum, a bracket on the main frame serving as a bearing-fulcrum, and means by which the sliding frame is moved lengthwise within the main frame, all combined.

2. In a clamp for the purpose described, the main frame having a pendant bracket provided with movable retaining-points, the sliding frame within the main frame and having a pressure-bar, a removable roller on this pressure-bar, and a lever having rack-and-pinion connection by which the sliding frame is moved within the main frame, all combined substantially as described.

3. In a clamp as described, the combination of the open-centered main frame, the open-centered sliding frame within the same, the pendant bracket on the main frame and a corresponding bar on the sliding frame, and a cap on the sliding frame substantially above the pressure-bar of the sliding frame, by which cap the upward projecting of the clasp may be prevented or overcome.

4. In a clamp as described, the combination of the outer frame and its supporting-handle, the lever connecting the side bars of said frame and provided with legs, the sliding frame, and means for causing the sliding frame within the main frame, substantially as described.

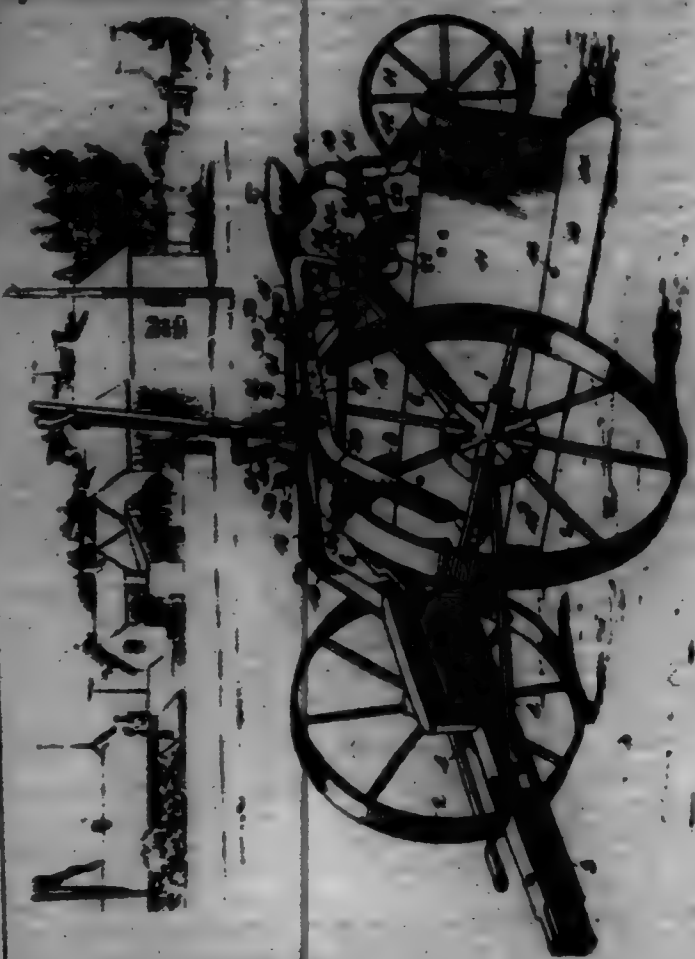
700,923. ROAD GRADER, GRAPHER, AND WRECKER. CHRISTOPHER HANCOCK, Houston, Tex. Filed Nov. 15, 1901. Serial No. 62,000. (No model.)

Claim.—1. A machine of the class described, comprising a front axle and supporting-wheels thereon, beams having standards adapted for the attachment of an earth-operating blade thereon, said beams having their front ends slidably and pivotally connected to said axle, a cross-bar to which said beams are slidably connected, a frame attached to said front axle, a supporting element for the rear end of said frame, a crank-shaft having its bearings on said frame, a lever to turn said crank-shaft, and a link connecting a crank of said shaft to said cross-bar, substantially as described.

2. In a machine of the class described, a frame comprising a pair of side bars having their front portions diverged forwardly and arched, a cross-bar connecting said arched front portions of said side bars, and a centrally-disposed longitudinal bar, having its front portion arched and connected to said cross-bar, the rear portion of said last-mentioned bar being disposed and secured between the rearwardly-extending portions of said side bars, substantially as described.

3. In a machine of the class described, a frame having forwardly-diverging side bars with arched front portions, a bearing secured between the rear ends of said side bars, a fork-frame, having a vertical spindle journaled in said bearing, a tail-wheel carried by said fork-frame, an axle to which the front ends of said side bars are connected, supporting-wheels on said axle, beams having standards adapted for the attachment of an earth-operating blade thereon, said beams being pivotally connected at their front ends to said axle, a bar connecting said beams together, a crank-

shaft journaled in bearings on said side bars, said crank-shaft having an operating-lever and cranks, and links connected to said bar and adjustably connected to said cranks, substantially as described.



700,924. TRACK-LAYING DEVICE FOR LOCOMOTIVES. DEAN HART HANCOCK, Austin, Tex. Filed June 20, 1901. Serial No. 65,001. (No model.)



Claim.—1. In a track-laying device, the combination with a road-bed, of a road-pipe projecting into the road-bed and having its inner end within the bed formed on a line or level, and means for forcing sand from the bed and through said pipe; substantially as described.

2. In a locomotive track-laying device, the combination with a road-bed, of road-pipes projecting into the road-bed and having their extreme inner ends on a line or level and ejecting devices arranged in said pipes intermediate of their length; substantially as described.

3. In a locomotive track-laying device the combination with the road-bed, of road-pipes projecting into the road-bed and having their extreme inner ends on a line or level with the point overhanging the opening of each pipe and ejecting devices arranged in said pipes intermediate of their length; substantially as described.

4. In a locomotive track-laying device, the combination with the

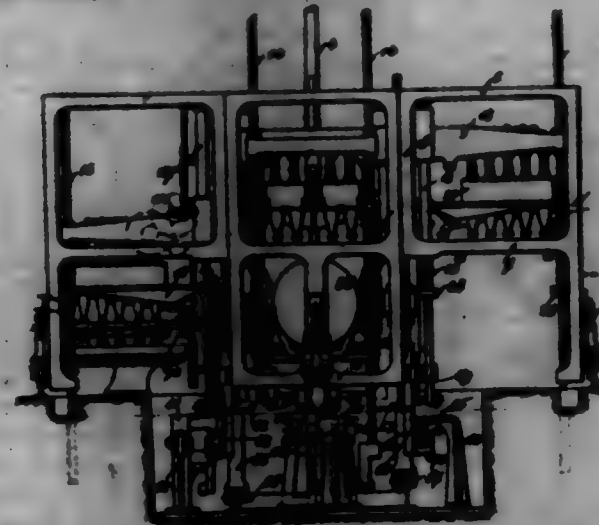
road-bed, of road-pipes communicating with the road-bed, hand-operated valves controlling the upper ends of said pipes, supplemental pipes communicating with the road-pipes below said valves and with the road-bed and ejecting devices arranged in said road-pipes at a point below their communication with said supplemental pipes; substantially as described.

5. In a locomotive track-laying device the combination with the road-bed, of road-pipes communicating with the road-bed, hand-operated valves controlling the upper ends of said pipes and provided with diaphragm passages, supplemental pipes communicating with the road-bed and with the road-pipes, and ejecting devices arranged in said road-pipes at a point below their communication with said supplemental pipes; substantially as described.

6. In a locomotive track-laying device the combination with the road-bed, of road-pipes communicating with the road-bed, hand-operated valves controlling the upper ends of said pipes, supplemental pipes projecting into the road-bed with their extreme inner ends beveled or on a line and communicating with the road-pipes, and ejecting devices arranged in said road-pipes at a point below their communication with said supplemental pipes; substantially as described.

7. In a locomotive track-laying device, the combination with the road-bed, of road-pipes communicating with the road-bed, hand-operated valves controlling the upper ends of said pipes and provided with diaphragm passages which are open when such valves are closed, supplemental pipes projecting into the road-bed with their extreme inner ends beveled or on a line and communicating with the road-pipes, and ejecting devices arranged in said road-pipes at a point below their communication with said supplemental pipes; substantially as described.

700,925. APPARATUS FOR RINSING BOTTLES. GUSTAVE KEMMEL, Paris, France. Filed Dec. 15, 1901. Serial No. 55,100. (No model.)



Claim.—1. An apparatus for rinsing bottles, comprising a rotary frame rotatable around a vertical shaft and comprising several compartments arranged at equal angles to receive the bottles, a series of bottle-brushes fitted up at a fixed point or station below the path of the bottles, a series of dirt-jets fitted up at a fixed point or station also below the path of the bottles, means to cause the rotary frame to revolve and to bring the compartments of the same to a stop above the said point where the said brushes and the said dirt-jets are stationed, and means to cause the bottles to move downward and upward around the said brushes and the said jets.

2. An apparatus for rinsing bottles, comprising a rotary frame provided with independently-movable beds supporting through the medium of springs framings to receive pigmy-hole-cams for the bottles and plates provided with apertures for holding the bottles, means to cause the said rotary frame to revolve intermittently by connecting the same with and disconnecting the same from a central driving-wheel, means for causing the beds to move downward and upward in their turn together with the said framings, cams, and plates, and series of vertical bottle-brushes and tubes ejecting water under pressure arranged at fixed points so that the bottles will move down into the said brushes and the said tubes.

3. In an apparatus for rinsing bottles having a rotary frame rotatable around a vertical shaft, the combination of a bed vertically movable in the said frame and serving to hold the bottles, of a crank-plate mounted on a rod vertically movable in the frame and resting on a circular path, of a pinion connecting the said bed with the crank-plate, of a bevel-pinion meshing with the said crank-plate, of the circular path in which the pinion meshes when the said rod rests in a means of the circular path.

4. In an apparatus for rinsing bottles having a rotary frame rotatable around a vertical shaft, the combination of vertical rods mounted in

the said frame, of slides movable on the said rods and provided with opening-pins, of a central driving-wheel, of springs to bring the said slides into movement with the said driving-wheel to cause the said rotary frame to revolve, of fixed cams and of collating cams arranged at fixed points to act on the said slides as to put them out of gear with the driving-wheel, of fixed buffer parts arresting the rotary motion of the slides when the latter are displaced by the said cams, and of means of causing the collating cams to rack in order to allow of the corresponding slides again coming into gear with the driving-wheel.

5. In an apparatus for rinsing bottles having a rotary frame rotatable around a vertical shaft, the combination of a bed vertically movable in the said frame, supporting through the medium of springs a framing to receive the bottle-cams and a plate provided with apertures for holding the bottles, of a series of spring-buffers carried by the bed above the bottles, of a crank-and-gear mechanism to cause the said buffers to revolve together with the bottles, and of a fixed beveled rack fixed to the said rotary frame and meshing with one of the wheels of the said gear to operate the said mechanism when the bed moves upward and downward.

700,926. VEHICLE. DEAN C. HANCOCK, Chicago, Ill. Filed Nov. 15, 1901. Serial No. 73,001. (No model.)



Claim.—1. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, and a steering-wheel independently mounted and operatively connected with said frame for steering the same, to permit vertical as well as lateral movement of said steering-wheel independently of said frame.

2. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, a steering-wheel independently mounted and operatively connected with said frame, and a driving-wheel independently mounted and operatively connected with said frame for driving the same and to permit vertical movement of said driving-wheel independently of said frame.

3. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, a steering-wheel independently mounted and operatively connected with said frame to permit vertical as well as lateral movement of said steering-wheel independently of said frame, a driving-wheel independently mounted and operatively connected with said frame for driving the same and to permit vertical movement of said driving-wheel independently of said frame, and a vehicle-body, in combination with supports for said body, whereby said body is supported by said frame and wheels and a reciprocating movement is permitted in the vertical movement of the supporting parts and the vertical movement of said supporting parts is divided between the said parts, and transmission of such motion to the body of said vehicle is diminished.

4. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, in combination with a supporting frame independently supported upon wheels for steering and for guiding the same, said frame operatively connected to permit independent vertical movement between said frames.

5. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, in combination with a supporting frame independently supported upon wheels for steering and for driving the same, flexible connections operatively connecting said frame to permit independent vertical movement between said frame, a vehicle-body, in combination with means for supporting said body, whereby the weight and support of said body is divided between said supporting parts and vertical movement and vibration of said supporting parts is divided and communicated between said parts and only partially transmitted to the body of said vehicle.

6. In a vehicle, a frame supported laterally by one or more wheels on each side of said frame operatively connected thereto to have an independent rotating movement in planes at right angles to the planes of their revolution, in combination with a supporting frame independently sup-

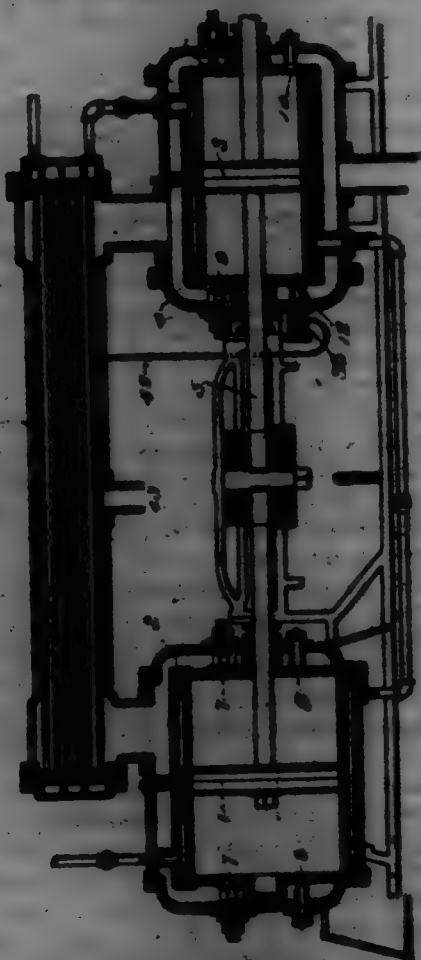
ported on wheels for steering and for driving the same, flexible connections operatively connecting said frames to permit independent vertical movement between said frames, a vehicle-body for said vehicle, means for supporting said body operatively connected with said frames, whereby the weight and support of said body are divided between and supported by said frames, and mechanism for driving said vehicle mounted upon one of said frames, whereby means for the support and application of the motor is provided independently of the other of said frames, and vibrations from said motor are not transmitted directly to the body of said vehicle.

7. In a vehicle of the class described, the combination of a frame portion carrying two wheels at each side thereof, a front steering-wheel pivotally secured to the frame portion so as to have a vertical as well as a lateral movement arranged at or near the longitudinal center of the vehicle, and a rear driving-wheel pivotally secured to the frame portion so as to have an independent vertical movement and arranged at or near the center of the vehicle, substantially as set forth.

8. In a vehicle of the class described, the combination of a main frame portion provided with two wheels at each side thereof independently pivotally secured thereto so as to have independent lateral movements, a supplementary frame portion carrying a front steering-wheel, and a rear driving-wheel arranged in the longitudinal center of the vehicle and pivotally secured to the main frame so as to permit each wheel to have independent vertical movements, substantially as described.

9. In a vehicle of the class described, the combination of a main frame portion provided with two wheels at each side thereof, means for pivotally securing each wheel to the main frame so as to permit them to have independent lateral movements, a supplementary frame portion arranged along the longitudinal center of the vehicle and provided with a front steering-wheel and a rear driving-wheel, connecting-rod mechanism pivotally connecting the front portion of the supplementary frame to the front portion of the main frame, and connecting-rod mechanism pivotally securing the rear portion of the supplementary frame to the rear portion of the main frame, substantially as described.

700,927. AIR-COMPRESSOR. HARRISON HILL, South Norwalk, Conn. Filed Aug. 17, 1901. Serial No. 73,348. (No model.)



Claim.—1. A compound air-compressor having cylinders, pistons, inlet and discharge valves and cylinder-interduct, means for opening a valve of the second cylinder, and a passage or connecting said interduct with the valve-opening means that the pressure in the cylinder-interduct controls the operation of the valve-opening means, substantially as specified.

2. A compound air-compressor having cylinders, pistons, inlet and discharge valves and cylinder-interduct, means tending to open an inlet-

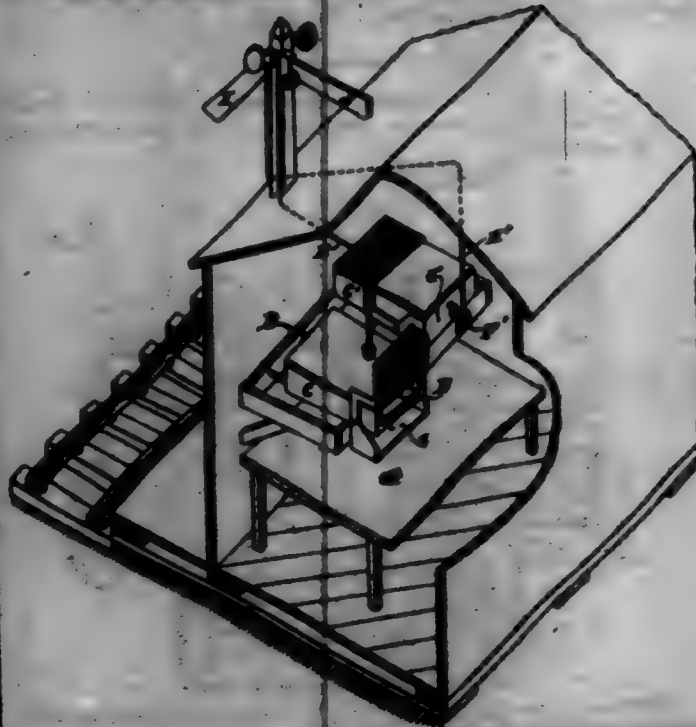
valve of the second cylinder, a passage or connecting said interduct with the chamber of said inlet-valve that the normal pressure in the cylinder-interduct is exerted oppositely to said holds in check the means tending to open said inlet-valve, substantially as specified.

3. In a compound air-compressor having cylinders, pistons, inlet and discharge valves and cylinder-interduct, a valve-piston, means for moving the valve-piston so it will open a valve of the second cylinder, and a passage or connecting said interduct with the valve-piston chamber that the normal pressure in the cylinder-interduct is exerted oppositely to and holds the means for moving the valve-piston, substantially as specified.

4. A compound air-compressor having cylinders, pistons, inlet and discharge valves and cylinder-interduct, a valve-piston, a spring for moving the valve-piston so it will open a valve of the second cylinder, and a passage or connecting said interduct with the valve-piston chamber that the normal pressure in the cylinder-interduct is exerted oppositely to and holds the means for moving the valve-piston, substantially as specified.

5. A compound air-compressor having cylinders, pistons, inlet and discharge valves and cylinder-interduct, a valve-piston, a spring for moving the valve-piston into contact with a portion of a valve of the second cylinder, and a passage or connecting said interduct with the valve-piston chamber that the normal pressure in the cylinder-interduct is exerted oppositely to and overcomes the spring, substantially as specified.

700,928. TRAIN-ORDER BOX. ISA C. HARRIS, Los Angeles, Cal. Filed Mar. 12, 1902. Serial No. 58,928. (No model.)



Claim.—1. In a gravity-operated semaphore having an operating-cord secured thereto, a sliding order-box to receive a stylus and order-blank, a hook below the same to engage an operating-cord, the cord adapted when hooked thereon to push in front of the box and prevent the box from being opened, a pivoted lock hinged to said box and adapted to close the end of the box when the box is in its closed position, and when the box is drawn out to assume a vertical position leaving the end of the box open and displaying a danger-indicating portion over the open end thereof.

2. A sliding train-order box to receive and hold train-orders in combination with means to operate a semaphore-arm comprising a cord secured at one end thereto and the other end adapted to be hooked onto a hook disposed below the order-box and when hooked to prevent the box being opened; a hook below the order-box; a pivoted lock on said box carrying at one end a closure for said box and a danger-indicating portion at the other end, the said lock adapted to cover the end of the box when the box is slid in and when the box is drawn out to remove the cover from the end of the box and to display the danger portion.

3. A sliding train-order box having a pivoted lock secured thereto, the said lock being provided at one end with a danger-display portion and at the other end with a closure for the box, the said lock being adapted when the box is pushed into the closed position to close the end of the box and to remove the danger-display portion from sight and when the box is drawn out to assume a vertical position in which the closure is removed from the end of the box, leaving it open, and the danger-display portion is displayed over the end of the box.

4. In a gravity-operated semaphore system for railways, a sliding train-order box, a hook below the end of the box, a semaphore-operating cord, secured at one end of the semaphore-arm and the other end adapted to be hooked to the hook, the hook so disposed below the end of the box

that the operating-cord will pass down in front of the bar and prevent the bar from being opened when the cord is locked, whereby the bar cannot be opened for use until the operating-cord is loose permitting the compartment to go to the danger position.

700,828. BED-BOTTOM. JOHN HOLT, San Francisco, Cal. Filed Apr. 4, 1901. Serial No. 54,570. (No model.)



Claim.—1. The combination in a bed-bottom of a frame consisting of end bars extending over the side rails of the bedstead, supporting-blocks resting upon the bedstead-rails having the outer ends flush with those of the end bars, side bars bolted through the inner ends of the blocks and the end bars and suspended therefrom interior to the bedstead-rails, a woven-wire fabric stretched longitudinally over the end bars and connected with the side bars, said fabric having its edges flush with the end bars and overhanging the bedstead-rails, strengthening devices consisting of elastic cables extending in pairs between the ends of the frame, links by which the members of each of said pairs are drawn toward each other, said pairs being so disposed that adjacent members of each pair overlap each other and cross to form supplemental supports intermediate between the center and the ends.

2. The combination in a bed-bottom of a frame, the end bars of which extend and are supported above the bedstead-rails by blocks interposed and resting upon said rails, side bars of said frame bolted through the inner ends of the blocks to the end bars and supported therefrom out of contact with the bedstead-rails, a woven-wire mattress stretched over the end bars having its edges projecting flush with the end bars and over the bedstead-rails, elastic cables stretched between the end bars in contact with the lower surface of the mattress, links by which the central portions of each of the pairs of cables are drawn toward each other whereby the adjacent members of each pair overlap in the form of elongated diamond shapes, and other links extending across the shorter diagonals of the overlapping members and approximately in line with the links by which the tension of each pair is maintained.

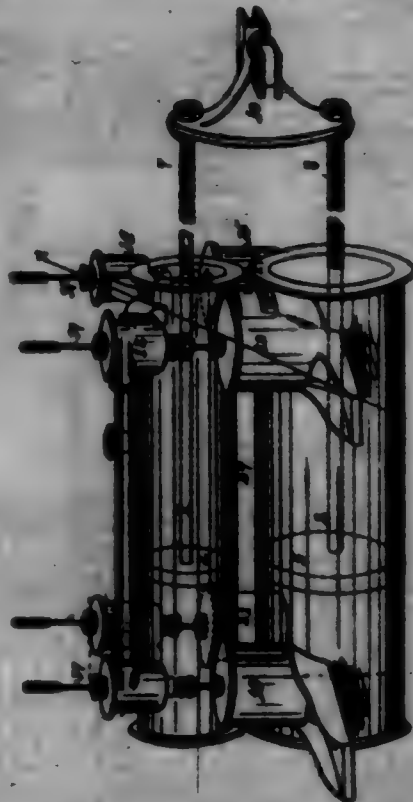
700,830. COMPOUND ENGINE. WILLIAM HOPKINS, Dubuque, Iowa; James Hopkins, successor of said William Hopkins, deceased, assignor to the Iowa Iron Works Co., Dubuque, Iowa, a Corporation of Iowa. Filed Oct. 12, 1901. Serial No. 72,593. (No model.)

Claim.—1. In a compound engine, a high and low pressure cylinder placed one above the other, two sets of valves seated on opposite sides of the cylinders, each set connected to a common stem, and means connected with the stems of the valves for operating said valves, for the purposes shown.

2. In a compound engine, two cylinders placed one above the other, a passage for the exhaust-steam from the high-pressure cylinder between the two cylinders, two sets of puppet-valves upon each side of the cylinders, each set connected to a common stem, and means, connected with said stems, for operating said valves, for the purposes shown.

3. In a compound engine, two cylinders the one a high-pressure and the other a low-pressure placed one above the other, a passage-way for the exhaust-steam from the high-pressure cylinder between the two cylinders, a set of valves connected to a common stem for introducing the fresh steam to the forward end of the high-pressure cylinder and the exhaust-steam into the forward end of the low-pressure cylinder, a set of

valves connected to a common stem on the opposite side of the rear of the cylinder for receiving the exhaust-steam from the high-pressure cylinder and transmitting it into said passage-way and also for receiving the steam from the low-pressure cylinder and discharging it, for the purposes shown.



4. In a compound engine two cylinders one a high-pressure and the other a low-pressure placed one above the other, a passage-way for the exhaust-steam between the two cylinders, a set of valves connected to a common stem for introducing the fresh steam into the rear end of the high-pressure cylinder and the exhaust-steam into the rear end of the low-pressure cylinder, and a set of valves connected to a common stem placed upon the opposite side near the forward end of the cylinder one for receiving the exhaust-steam from the high-pressure cylinder and transmitting it to the passage-way, the other for receiving the exhaust from the low-pressure and discharging it into the air, and means connected with the valve-stems for operating the same, for the purposes shown.

5. In a compound engine, a high and low pressure cylinder placed one above the other, a passage-way between the cylinders, two sets of puppet-valves, each set united to a common stem and seated upon one side of the cylinder for introducing the fresh and exhaust steam from both ends of the cylinders, two sets of puppet-valves each set connected to a common stem for receiving and discharging the exhaust from the cylinders and means connected with the valve-stems for operating the same, whereby the four upper valves receive the fresh steam and introduce it into the high-pressure cylinder and discharge the exhaust-steam into the passage-way from the high-pressure cylinder, and the four lower valves operate the piston in the low-pressure cylinder and discharge the exhaust-steam into the air.

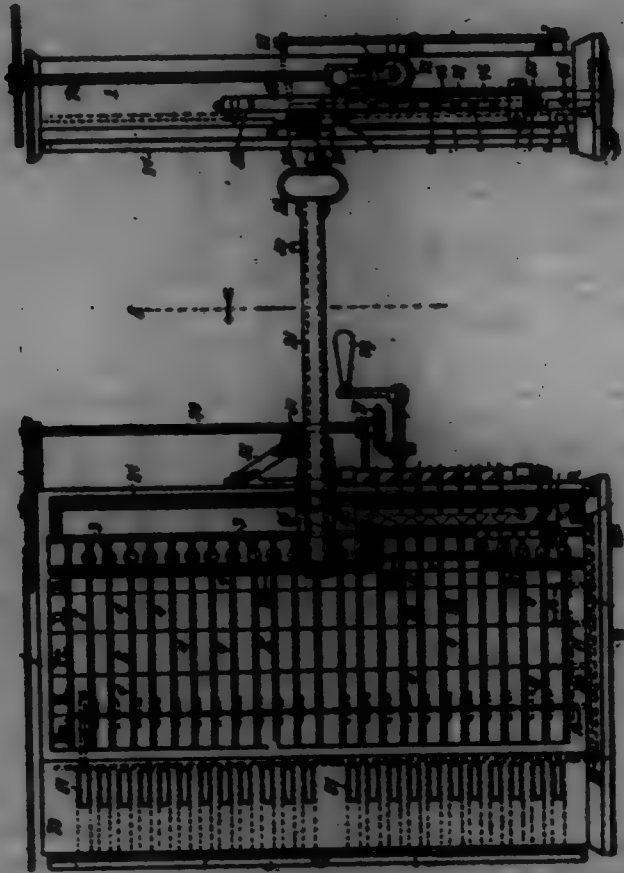
6. In a compound engine a high and low pressure cylinder one above the other, a passage-way between the said cylinders and eight puppet-valves each consisting of a casing, shoulder within the casing, a ball, a hollow circular valve and double valve-seat, two of said valves forming a set and each set connected to a common stem, and means connected with the stems for operating the said valves for the purposes shown.

7. A compound engine, consisting of two cylinders placed one above the other, a passage-way between the cylinders, two puppet-valves connected to a common stem and seated upon one side of the cylinder near the forward end, another set consisting of two valves and united to a common stem and seated upon the same side of the cylinder near the rear, two other sets of valves each set consisting of two valves united to a common stem, seated upon the opposite side of the cylinders and means connected with the stems of the valves for operating the same, whereby the four sets of valves operating the eight valves are operated by the valve-gear necessary for operating a single high-pressure cylinder.

700,981. VOTING-MACHINE. GEORGE L. BARK, Adrian, Mich., assignor of two-thirds to David H. Bark, Adrian, Mich. Filed Mar. 28, 1901. Serial No. 55,504. (No model.)

Claim.—1. In a voting-machine, the combination with a suitable frame, of a series of counters mounted therein, movable buttons adapted to rotate said counters, a channelled bar movable transversely of the frame,

an aligning-bar mounted upon said transversely-movable channelled bar and movable thereon, said aligning-bar engaging the channels of said movable bar, adapted to engage said movable buttons and carrying them simultaneously into alignment vertically of the frame.



2. In a voting-machine, the combination of a suitable frame having on its face spaces adapted to contain the names of candidates and a set of counting-gears for each candidate a series of horizontal channels dividing said spaces, a vertical channel communicating with and common to all of said horizontal channels, a series of movable buttons adapted to lie in said horizontal channels and to be moved from one horizontal channel to another through said vertical channel, said buttons being adapted to be carried from the horizontal channels into the vertical channel and means for restoring said buttons from the vertical channel into their respective horizontal channels.

3. In a voting-machine, the combination of a suitable frame, a series of registering-gears in the frame adapted to register the votes of candidates, a series of horizontal channels in the frame adjacent to said registering-gears, a series of buttons movable in said channels and adapted to actuate said gears, a vertical channel communicating with said horizontal channels, the buttons in said horizontal channels adapted to pass therefrom into said vertical channel and lie therein in a vertical row, a movable agent adapted to engage the buttons in the vertical channels and carry them upward into said horizontal channels and means for moving said agent.

4. In a voting-machine, the combination of a suitable frame, a series of registering-gears in said frame, a series of horizontal channels in the frame adjacent to said registering-gears, a vertical channel common to and communicating with all of said horizontal channels, a series of buttons movable in said horizontal channels and adapted to actuate said registering-gears, means for carrying the buttons from the horizontal channels into said vertical channel and means for restoring the buttons from said vertical channel into said horizontal channels.

5. In a voting-machine, the combination of a frame, a series of counting-gears in said frame, a series of horizontal channels adjacent to said counting-gears, a series of buttons movable in said channels and adapted to actuate said counting-gears, a vertical channel communicating with said horizontal channels whereby said horizontal channels are made to communicate through said vertical channel, a movable plate adapted to engage the buttons in said horizontal channels to carry them into said vertical channels, means for actuating said plate and means for disengaging the buttons from said vertical channel into said horizontal channels.

6. In a voting-machine, the combination of a suitable frame, a series of counting-gears in said frame, a series of horizontal channels in the frame adjacent to said counting-gears, a series of buttons movable in said channels adapted to actuate said gears, a vertical channel communicating with said horizontal channels, a series of spring-actuated plungers adapted to extend into said vertical channel in line with said horizontal channels, means for carrying the buttons upwardly in said vertical channel where-

by they are engaged by said plungers and directed into said horizontal channels.

7. In a voting-machine, the combination of a suitable frame, a series of movable registering-gears therein, a series of horizontal channels adjacent to said registering-gears, buttons movable in said channels adapted to place said registering-gears in a voting position, means for actuating the registering-gears when in a voting position, a movable tripping-frame connected with said gear-actuating means, a vertical channel communicating with said horizontal channels and adapted to contain the movable buttons in vertical alignment, a transversely-movable plate standing adjacent to said vertical channel contiguous to the buttons when lying therein and means connecting said plate with the movable tripping-frame.

8. In a voting-machine, the combination of a suitable frame, counting-gears in said frame, a slot adjacent to said counting-gears, a button movable in said slot adapted to engage said gears and carry them into engagement with an actuating voting-frame, said voting-frame being movable vertically, a pivoted dog adapted to engage said frame to raise it, a series of levers attached to said dog, a sliding bar carrying a rod adapted to engage said button and a projection on said bar adapted to engage one of the series of levers connected with said dog.

9. In a voting-machine, the combination with a suitable frame, of a series of registering-gears, a series of horizontal channels adjacent to said gears, buttons movable in said channels adapted to engage and actuate said gears, a vertical channel communicating with said horizontal channels adapted to contain said buttons in vertical alignment, a series of spring-actuated plungers extending into said vertical channel in line with said horizontal channels, a vertically-movable bar having inclined shoulders engaging said plungers, an arm pivoted to said vertically-movable bar, a horizontally-movable bar having a stop adapted to engage the free end of said arm to raise said vertically-movable bar, and a rod attached to said horizontally-movable bar adapted to engage said buttons.

10. In a voting-machine, the combination of a suitable frame having a series of horizontal slots in its face, a series of registering-gears adjacent to said slots, buttons movable in said slots adapted to actuate said gears, a vertical channel communicating with said horizontal slots adapted to receive the buttons from said slots, a horizontally-movable bar carrying a vertical rod adapted to engage said buttons, a gravity-pawl for locking said bar when drawn outwardly, a vertically-movable rack having a pin adapted to engage the buttons in said vertical slot, said rack having a second pin at its upper end adapted to engage said pawl and disengage it from said bar when said rack is down, and means for moving said rack vertically.

11. In a voting-machine, the combination of a frame or case, having channels in the face thereof, pins movable in said channels, a slide in the case at the front of said channels adapted to be engaged by a pin, a perforating-finger carried by said slide movable into contact with the inclined shoulder of a vertically-movable rod, a strip of paper adjacent to said perforating-finger and means for actuating said rod to carry the inclined shoulder against said finger and cause a perforation in said paper.

12. In a voting-machine, the combination of a frame, or case, having a horizontal channel therein, a button movable in said channel, a movable slide extending into the path of said-button, said slide carrying a perforating-finger pivoted therein, a strip of movable paper adjacent to said perforating-finger, means for moving said paper connected with said slide, an actuating device adapted to engage said finger when moved into a position to perforate said paper, a second slide adapted to cover an opening exposing said strip of paper and means for moving said second slide from said opening.

13. In a voting-machine, the combination of a case, registers mounted in said case, agents movable in the case adapted to control said registers, a record-strip, a movable slide carrying a perforator adapted to perforate said strip, said slide being adapted to be engaged by one of the movable agents in the case to place the perforator in operative position.

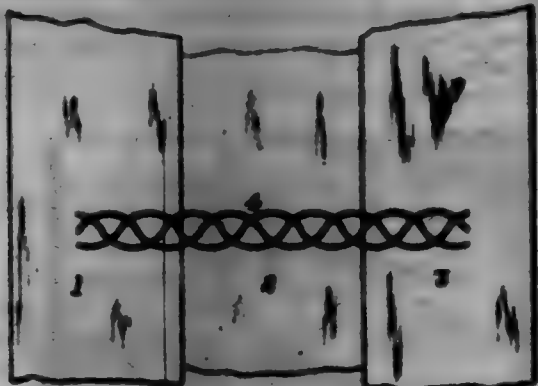
14. In a voting-machine, the combination of a case, registers in said case for recording the votes cast for the candidates on the several tickets, means for actuating said registers, a record-strip upon which may be written the name of a candidate for any office, means for making an indicating-mark by the name of the candidate written by the elector, through the operation of the register-actuating device and means to prevent voting for any other candidate for the same office except the one whose name is written on the record-strip.

700,982. WALL-TIE. CHARLES T. EMMER, Akron, Ohio. Filed Sept. 2, 1901. Serial No. 74,192. (No Model.)

(Main.—1. A wall-tie consisting of a plurality of interlocking wires in the form of a loose braid with the interstices between the wires of sufficient size to permit the entrance therein of cement or similar substance, substantially as shown and described.

2. An improved wall-tie consisting of a number, preferably three

wires, braided into a loose plait, and flattened between rolls, substantially as shown and described.



700,988. BUFFER FOR CUTTER-GUARDS. RICHARD E. LEWIS, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 71,800. (No model.)



Claim.—1. In a machine of the character specified, the combination with a cutter-bar and its guard, of an independent deflexor slidably connected to said guard, a bar located underneath the guard and supporting said deflexor and means for operating said deflexor, substantially as and for the purpose set forth.

2. In a machine of the character specified, the combination with a cutter-bar and its guard, of independent deflexors slidably connected to each of said guards, a bar located underneath the guards and supporting said deflexors, and means for operating said deflexors, substantially as and for the purpose set forth.

3. In a machine of the character specified, the combination with a cutter-bar and a series of guards therefor, of deflexors located adjacent to said guards, said deflexors being provided with spring-hooks, a bar supporting said deflexors and means for operating said deflexors, substantially as and for the purpose set forth.

4. In a machine of the character specified, the combination with a cutter-bar and a series of guards therefor, of deflexors located adjacent to said guards, a bar located underneath the guards and supporting said deflexors, means for adjusting said bar, and means for operating said deflexors, substantially as and for the purpose set forth.

5. In a machine of the character specified, the combination with a cutter-bar, a series of guards for said cutter-bar, and a deflexor-bar located underneath the guards carrying deflexors adjacent to the guards of the cutter-bar, of means comprising foot-treads or connections, for elevating the deflexor-bar, intermediate of said bar and treads, substantially as and for the purpose set forth.

700,984. APPARATUS FOR CONDENSING SMOKE, FUMES, AND GASES. WILLIAM E. JAMES, Denver, Colo., assignor to the Smoke Eliminator and Fume Condenser Company, Pacific, Colo. Filed Feb. 4, 1901. Serial No. 61,681. (No model.)

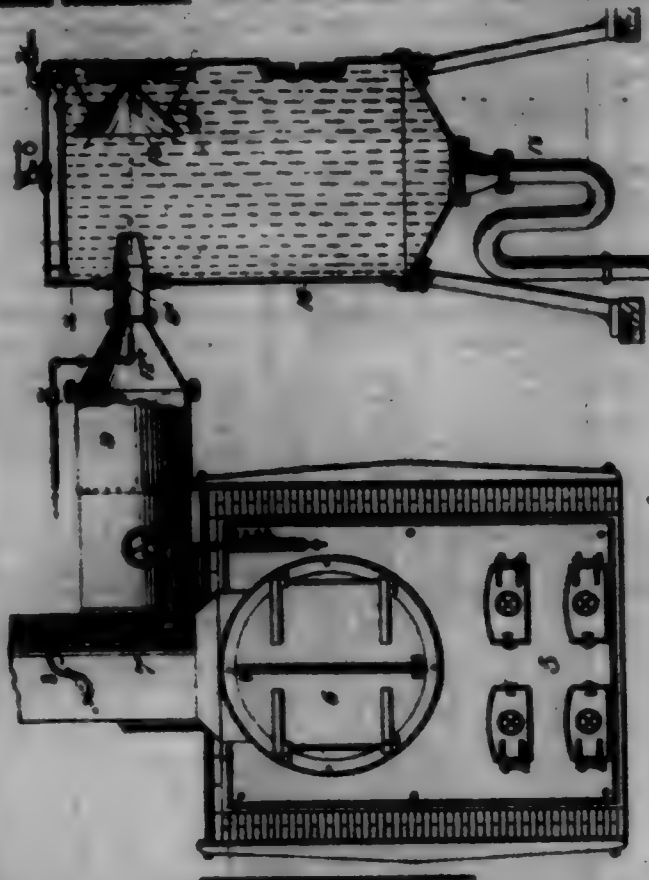
Claim.—1. In an apparatus for condensing smoke, fumes and gases, the combination of a condensing-tank, means for introducing water in the form of a spray into the tank, a conduit leading from the tank and communicating with the condensing-tank for discharging the products of combustion therefrom, means for introducing a jet of steam into the tank at the discharge extremity of the said conduit, to give the desired velocity, and means mounted on the wall of the tank directly opposite the discharge extremity of said conduit, for temporarily expanding said products in the tank to facilitate condensation, substantially as described.

2. In an apparatus of the class described, the combination of a tank, means located in its upper portion and connected with a supply source, for discharging water thereinto in the form of spray, a conduit leading from the tank and communicating with the tank, its discharge extremity being reduced in size, a steam-pipe entering the smoke-conduit, and arranged to introduce steam into the tank through the discharge extremity of the smoke-conduit, and a receiver mounted in the tank opposite the discharge extremity of the smoke-conduit, to facilitate condensation.

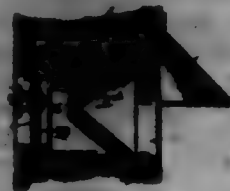
3. The combination of a condensing-tank, means for spraying water downwardly from the upper portion of the tank, a smoke-flue entering the tank below the water-spraying means, means for discharging a steam-jet into the tank through the discharge extremity of the smoke-flue, and an adjustable receiver mounted in the tank opposite the smoke-flue entrance, to facilitate condensation.

4. In a condensing apparatus, the combination of a tank provided with a suitable outlet at its bottom, a perforated pipe located in the upper

extremity for spraying water downwardly thereinto, means for discharging the products of combustion into the tank under pressure, and a funnel-shaped receiver located opposite the discharge for said products to facilitate condensation.



700,985. WINDOW-CASH VENTILATOR. JOHN JACOB, Chicago, Ill. Filed Jan. 15, 1902. Serial No. 80,720. (No model.)



Claim.—1. A window-cash ventilator comprising a tube adapted to extend through an opening in the cash member, and made of a length approximately equal to the width of the cash member, a diaphragm extending across the bore of the tube at the inner end thereof, a damper-plate engaging the diaphragm, a shaft affixed to the damper-plate and having relative engagement with said diaphragm and formed at its inner end to provide an operating knob or handle, said diaphragm and plate being provided with registering apertures which are adapted to be brought into and out of register by rotation of said plate, and a shield or hood projecting outwardly over the outer end of said tube.

2. A window-cash ventilator comprising a tube adapted to extend through an opening in the cash member, and made of a length approximately equal to the width of the cash member, a diaphragm extending across the bore of the tube at the inner end thereof, a relative damper-plate engaging the diaphragm, said diaphragm and plate being provided with registering apertures which are adapted to be brought into and out of register by rotation of said damper-plate and a shield or hood made integral with the upper margin of said tube and extending outwardly therefrom.

3. A window-cash ventilator comprising a tube adapted to extend through an opening in the window-cash, and made of a length approximately equal to the width of the cash member, a diaphragm contained within the tube and extending across the bore thereof, a relative damper-plate engaging the diaphragm, the diaphragm and damper-plate being provided with registering apertures which are adapted to be brought into and out of register by rotation of said damper-plate, and an operating knob or handle connected with said damper-plate and contained entirely within the bore of the tube.

4. The combination with a window-cash provided with a through-opening, of a ventilator comprising a diaphragm which extends across said opening, a movable plate engaging said diaphragm, said plate and diaphragm being provided with apertures which are adapted to be brought into and out of register by movement of said plate, and a contracted funnel-shaped casing located between said diaphragm and the outer end of said opening.

5. The combination with a window-cash provided with a through-opening, of a ventilator comprising a diaphragm which extends across said opening, a movable plate engaging said diaphragm, said plate and diaphragm being provided with apertures which are adapted to be brought into and out of register by movement of said plate, a constricted funnel-shaped casing located between said diaphragm and the outer end of said opening, and a shield or hood projecting from the outer face of said cash over said opening.

700,986. PUMP. ALFRED E. JOHNSON, Victor, Colo. Filed May 20, 1901. Serial No. 61,108. (No model.)



Claim.—1. In a pump, the combination of a cylinder composed of two overlapping parts shaped to form a cavity whose inner portion is curved and communicates with the cylinder-chamber, and whose outer extremity is exposed, a packing-gland adapted to enter said cavity between the cylinder parts, a plunger-stem, a hollow lower plunger connected with said stem, the said plunger being provided at its upper extremity with a valve-seat having openings separated by ribs, a closed upper plunger also connected with the valve-stem, bolts attached to the upper plunger and forming valve-seats independent of the plunger-stem, a valve composed of sections slidable vertically on said stem, the dividing-lines between the valve parts being arranged to coincide with the ribs of the valve-seat, to prevent leakage when the valve is seated, the upper part of the cylinder being provided with an opening to permit access to the mechanism within for the purpose of repair, and a door detachably connected with the cylinder for closing said opening.

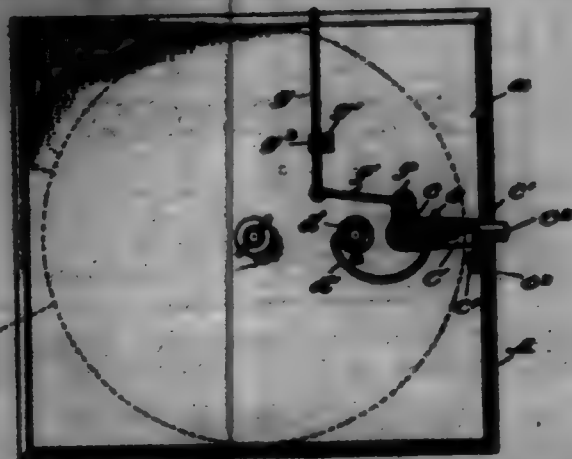
2. In a pump, the combination with a cylinder, of upper and lower plungers adapted to move therein, one plunger being closed and the other open, a stem with which the plungers are connected, the lower plunger having a valve-seat at its upper extremity, said seat having ribs separating openings, bolts attached to the upper plunger, a valve located between the plungers, arranged around the plunger-stem, and composed of sections slidable vertically on the bolts which form stems thereof, the divisions between the valve-sections, being arranged to coincide with the ribs between the openings of the valve-seat, the upper portion of the cylinder adjacent the valve, being provided with an opening to permit access to the mechanism within for purposes of repair, and a door detachably connected with the cylinder for closing said opening.

3. In a water-pump of the differential-plunger type, the combination with a cylinder, a plunger-stem, and upper and lower plungers connected with the stem, the lower plunger having a valve-seat at its upper extremity, of guide-stems detachably connected with one of the plungers, a valve composed of sections slidable on said stem and adapted to engage the valve-seat of the lower plunger, the upper portion of the cylinder having an opening to permit access to the mechanism within for purposes of repair, and a door normally closing said opening, the arrangement being such that the plungers are free to turn on their stem, to bring each valve-section and its guide-stem to a position opposite said door or opening in the upper part of the cylinder.

700,987. GRAMOPHONE-BRAKE. ROBERT E. JOHNSON, Philadelphia, Pa. Filed Aug. 8, 1906. Serial No. 51,578. (No model.)

Claim.—1. In a brake for gramophone turn-tables, the combination

with the turn-table, of a pivoted lever secured below the turn-table adjacent the periphery thereof, a friction-heel arranged on the free end of said lever in close proximity to the periphery of the turn-table, a spring connected at one end to the pivoted lever in front of its pivot and at its other end to the casing of the machine on a dead line with its connection with the pivoted lever, substantially as described.



2. In a brake for gramophones and the like, the combination with the turn-table, of a brake-lever pivoted to the frame of the machine below the turn-table, an upturned end formed on the free end of said brake-lever, a laterally-extending arm formed on said end having a friction-heel adapted to contact with the periphery of the turn-table, a spring pivoted to the brake-lever in front of its pivotal point, and having its other end secured to the machine-frame on a dead-center with its point of attachment to the brake-lever whereby on the moving of the brake-lever the spring is brought into action and the friction-heel thrown in frictional contact with the periphery of the turn-table, substantially as described.

3. In a brake for gramophones and the like, the combination with a revolving turn-table, of a lever pivoted to the frame of the machine below the turn-table, a friction-heel arranged on the free end of the lever in a plane with the periphery of the turn-table, a spring secured to said lever in front of its pivot having its other end secured to the machine on a dead-center with its point of attachment to the brake-lever, and means for automatically throwing said brake-lever off of its dead-center at predetermined times for the purpose described.

4. The combination of a revolvable turn-table, a sound-record carried thereby, a record-groove formed in said record, a pivotally-mounted reproducer-support, a reproducer carried thereby, means for shunting the reproducer laterally when the end of the record-groove has been reached, a pivoted brake-lever secured below the turn-table adjacent thereto, a friction-heel arranged on the free end of said lever, a spring adapted to hold the brake-lever in normal position and means connected with the reproducer-support for throwing the brake immediately after the reproduction has been completed, substantially as described.

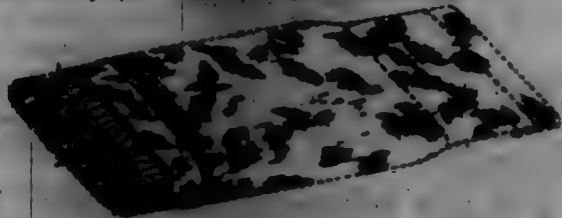
5. The combination of a revolvable turn-table, a sound-record carried thereby, a record-groove formed in said record, a pivotally-mounted reproducer-arm, a reproducer carried thereby, means for shunting the reproducer laterally when the end of the record-groove has been reached, a pivoted brake-lever secured below the turn-table adjacent thereto, a friction-heel arranged on the free end of said lever, a spring connected at one end to the brake-lever in front of its pivot and at its other end to the casing of the machine on a dead-center with its point of connection with the brake-lever, and mechanism connected with the brake-lever adapted to be operated by the reproducer-arm to throw the brake immediately after the reproduction has been completed, substantially as described.

6. The combination of a revolvable turn-table adapted to support a sound-record, a pivotally-mounted reproducer-arm, a reproducer carried thereby, means for shunting the reproducer laterally when the end of the record has been reached, a pivoted brake-lever secured below the turn-table adjacent thereto, a friction-heel arranged on the free end of said lever, a spring connected at one end to the brake-lever in front of its pivot and at its other end to the casing of the machine on a dead-center with its point of connection with the brake-lever, a lever-arm pivoted to the machine-casing having one end extending beyond the turn-table periphery, a link connection between the lever-arm and the brake-lever, and means carried by the reproducer-arm for tripping the lever-arm and automatically operating the brake to stop the turn-table immediately upon the completion of the reproduction, substantially as described.

7. The combination of a revolvable turn-table adapted to support the record, a pivotally-mounted reproducer, means for shunting the reproducer laterally when the end of the record-groove has been reached, a brake-lever pivoted to the frame of the machine below the turn-table, an upturned arm formed on the free end of said brake-lever having a friction-heel adapted to contact with the periphery of the turn-table, a spring secured to the brake-lever in front of its pivotal point having its other end

connected in the machine-frame on a fixed screw with its point of connection with the brake-lever, a projection, *f*, formed on the brake-lever, an arm, *g*, pivoted intermediate its length to the frame, a link connecting said arm with the leg, *f*, and a depending arm, *h*, carried by the reproducer adapted to engage the free end of the arm, *g*, after the reproduction has been completed, substantially as described.

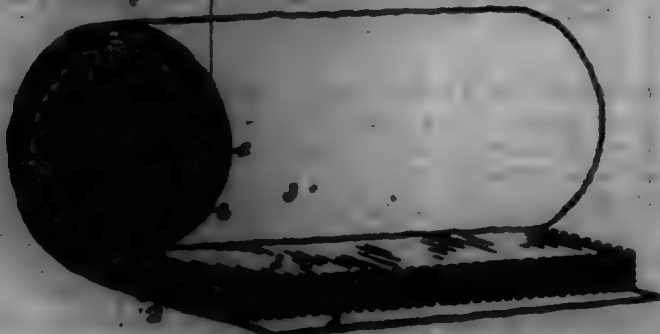
700,988. BANDAGE. ROBERT W. JOHNSON, New Brunswick, N. J.
Filed Mar. 1, 1902. Serial No. 94,599. (No model.)



Claim.—1. An absorbent bandage consisting of series of layers of rimped cellulose tissue or paper, a thicker layer of absorbent cotton above said rimped paper, another thick layer of non-absorbent cotton under said rimped paper, and a taffia covering including all the layers, substantially as described.

2. An absorbent bandage consisting of series of layers of rimped tissue-paper, a layer of absorbent cotton above said paper, a layer of non-absorbent cotton under said rimped paper, and a covering including all the layers, substantially as described.

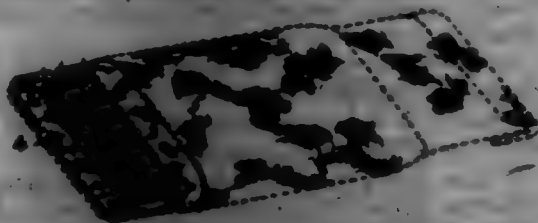
700,989. SURGICAL DRESSING. ROBERT W. JOHNSON, New Brunswick, N. J. Filed Mar. 1, 1902. Serial No. 94,599. (No model.)



Claim.—1. A surgical dressing consisting of series of layers of rimped cellulose tissue-paper, and a very thin bat of absorbent cotton between each layer of rimped paper and adhering thereto substantially as described.

2. A surgical absorbent dressing consisting of series of layers of rimped cellulose tissue-paper, and a thin bat of absorbent cotton between each layer of rimped paper in combination with a wrapper of tissue-paper impervious to air substantially as described.

700,940. BANDAGE. ROBERT W. JOHNSON, New Brunswick, N. J.
Filed Mar. 2, 1902. Serial No. 94,601. (No model.)



Claim.—An absorbent bandage consisting of series of layers of rimped cellulose tissue-paper, a very thin bat of absorbent cotton between each layer of rimped paper and adhering thereto, a thicker layer of absorbent cotton above said rimped paper, another thick layer of non-absorbent cotton under said rimped paper and a taffia covering including all the layers substantially as described.

700,941. PROCESS OF TREATING COPPER OR OTHER ORE FOR WITHDRAWING THEREOF METALS. NATHANIEL S. KERN, Arlington, N. J. Filed Mar. 1, 1902. Serial No. 94,595. (No specimens.)

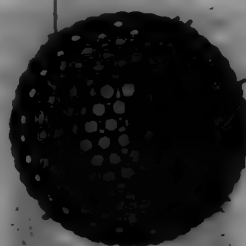
Claim.—1. The process of obtaining a reguline metal from its ore; which consists in powdering the ore; treating the powdered ore; treating the treated ore with a solvent of the metal; and electrolyzing the solution to deposit the metal therefrom, by passing it as an electrolyte, through a succession of two, or more, electrolytic cells, arranged so that

the cells are connected in electrical series with a source of electricity; the anodes insoluble; the electrodes of each cell in electrical multiple; and having gradually-increasing surfaces; whereby there is a gradual reduction of the current density as the metal of the electrolyte is deposited.



2. The process of electrolyzing a solution of a metal, to deposit the metal therefrom; which consists in passing it, as an electrolyte, through a succession of two, or more, electrolytic cells, arranged so that the cells are connected in electrical series with a source of electricity; the anodes insoluble; the electrodes of each cell in electrical multiple; and having gradually-increasing surfaces; whereby there is a gradual reduction of the current density as the metal of the electrolyte is deposited.

700,942. PLAYING-BALL. BRADMAN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 9, 1902. Serial No. 103,289. (No model.)



Claim.—1. A playing-ball comprising a core and a shell thereon; said core consisting of a mass of bits of rubber and being held under compression by said shell.

2. A playing-ball comprising a core and a shell of plastic material thereon; said core consisting of a mass of covered rubber threads or strips held under compression by said shell.

3. A playing-ball comprising a shell and a core; the latter consisting of windings or layers of tensioned rubber threads, and at least a considerable portion of said windings being covered, so that at least a large part of the threads are released and exert a constant expansive pressure upon said shell.

4. A playing-ball comprising a shell of plastic material and a core; the latter consisting of a mass of fragments of rubber threads, whose tendency is to shorten and thicken, said tendency being resisted by said shell.

5. A playing-ball comprising a shell and a core; the latter consisting of a mass of fragments of rubber threads or strips, the ends of said fragments being concealed, and said fragments exerting pressure upon said shell.

6. A playing-ball comprising a shell and a core; the latter consisting of windings or layers of tensioned rubber threads; said core being mutilated at different points, and many or all of the rubber threads being released by reason of said mutilation and tending constantly to expand said shell.

7. A playing-ball comprising a gutta-percha shell and a core; the latter consisting of windings or layers of tensioned rubber threads; said shell and core being mutilated at different points, and the rubber threads being released by reason of said mutilation, and tending constantly to expand said shell.

8. A playing-ball comprising a shell and core; the latter consisting of windings or layers of tensioned rubber threads, and at least a portion of said windings being covered, whereby at least some of the threads are released and exert a constant expansive pressure upon said shell; and the latter having closed apertures.

9. A playing-ball comprising a shell which consists of welded segments of plastic material, and a core; the latter consisting of windings or layers of tensioned rubber threads, and at least a portion of said windings being covered, whereby at least a portion of the threads are released and exert a constant expansive pressure upon said shell.

700,943. BALL-BALL. BRADMAN KIMBALL, Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 16, 1902. Serial No. 103,290. (No model.)

Claim.—1. A playing-ball comprising a soft-rubber sphere and a shell of plastic material thereon, strips of fabric extending continuously

around said sphere in different directions and being vulcanized thereto and said rubber sphere being held under compression by said fabric strips and shell.



2. A playing-ball comprising a soft-rubber sphere and a shell of celluloid thereon, strips of fabric extending continuously around said sphere in different directions and being vulcanized thereto, said rubber sphere being held under compression by said fabric strips and shell.

3. A playing-ball comprising a soft-rubber sphere and a shell of plastic material thereon, strips of fabric extending continuously around said sphere in different directions and being vulcanized thereto, and said rubber sphere being held under compression by said fabric strips and shell, the threads of said fabric strips extending diagonally of said strips.

700,944. PLAYING-BALL. **BRADEN KIMBALL,** Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 17, 1902. Serial No. 108,961. (No model.)



Claim.—1. A playing-ball comprising a cloth-covered rubber sphere in a state of expansion upon a solid core of gutta-percha; said cover consisting of hemispherical segments and a strip of fabric vulcanized upon each segment and reinforcing the joint therebetween.

2. A playing-ball comprising a sphere of soft rubber, a cover of fabric vulcanized thereon, and a shell formed of plastic material upon said sphere.

3. A playing-ball comprising a hollow sphere of soft rubber, a layer of fabric vulcanized upon one of its surfaces, and a hard shell formed of plastic material and cemented upon said sphere.

4. A playing-ball comprising a sphere of soft rubber, a layer of fabric vulcanized upon its outer face, and a shell formed of gutta-percha and filled by said sphere.

5. A playing-ball comprising a hollow sphere of soft rubber, hemispheres of fabric vulcanized thereon, a fabric strip closing the joint between said fabric hemispheres and vulcanized thereon, and a shell formed of plastic material holding said sphere under compression.

6. A playing-ball comprising a sphere of soft rubber, a layer of fabric vulcanized thereon, said sphere being distended by molten material injected thereto; and a plastic shell upon said sphere.

7. A playing-ball comprising a sphere of soft rubber, a layer of fabric vulcanized upon its outer face; said sphere being distended by plastic material injected thereto; and a shell of plastic material holding said sphere under compression.

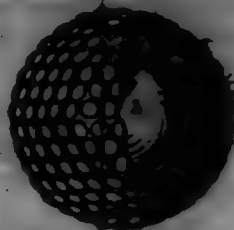
8. A playing-ball comprising a hollow sphere of soft rubber, hemispheres of fabric vulcanized thereon, a fabric strip closing the joint between said fabric hemispheres and vulcanized thereon, said sphere being distended by gutta-percha injected thereto; and a shell of gutta-percha upon said sphere.

9. A playing-ball comprising a sphere of soft rubber, a layer of fabric vulcanized thereon, said sphere being expanded upon a solid core of harder material than said rubber; and a shell formed of gutta-percha upon said sphere.

10. A playing-ball comprising a cloth-covered rubber sphere in a state of expansion upon a solid core of springy material, the rubber being vulcanized to the cloth, and a shell formed of plastic material upon said sphere.

11. A playing-ball comprising a cloth-covered rubber sphere in a state of expansion upon a solid core of gutta-percha, said cover consisting of hemispherical segments, a strip of fabric vulcanized upon each segment and reinforcing the joint therebetween, and a shell formed of gutta-percha and holding said sphere under compression.

700,945. GOLF-BALL. **BRADEN KIMBALL,** Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 21, 1902. Serial No. 108,962. (No model.)



Claim.—1. A playing-ball comprising a substantial shell which consists of windings of celluloid cord, said cord consisting of celluloid having a core of twine, and being wound continuously in different directions and compressed together.

2. A playing-ball comprising a filling and a shell thereon; said shell consisting of windings of cord, and said cord consisting of plastic material having a core of twine and being wound continuously in different directions and welded and packed together.

3. A playing-ball comprising a core and a continuous shell holding said core under compression; said shell consisting of compressed windings of cord, and said cord consisting of celluloid having a core of twine.

4. A playing-ball comprising a hard center piece, a soft-rubber sphere thereon, and a shell constructed of celluloid cord wound continuously in different directions and compressed; said cord consisting of celluloid having a core of twine.

700,946. FACING FOR GOLF-CLUBS. **BRADEN KIMBALL,** Boston, Mass., assignor to The Kimball Manufacturing Company, a Corporation of New Jersey. Filed Apr. 21, 1902. Serial No. 108,967. (No model.)



Claim.—1. A bevel-edge facing for a club consisting of piles of celluloid incorporated with piles of open-mesh fabric, said facing having the form of a tablet of suitable size to apply directly to the head of a club.

2. A bevel-edge, dovetail facing for a club consisting of piles of celluloid incorporated with fabric, said facing having the form of a tablet of suitable size to apply directly to the head of a club.

3. A dovetail facing for a club consisting of piles of celluloid incorporated with piles of fabric, the celluloid forming a surface over the edges of the facing, said facing having the form of a tablet of suitable size to apply directly to the head of a club.

4. A bevel-edge dovetail facing for a club consisting of piles of celluloid incorporated with piles of fabric, the celluloid forming a surface over the edges of the facing, said facing having the form of a tablet of suitable size to apply directly to the head of a club.

5. A facing for a club consisting of three piles of celluloid incorporated with two alternating piles of open-mesh fabric, said facing having the form of a tablet of suitable size to apply directly to the head of a club.

6. A facing for a golf-club consisting of layers of celluloid and fabric in alternation, said layers being incorporated together, and said facing being provided with one or more peg-holes, and having substantially the same area as the face of the club.

7. A facing for a club having three layers of celluloid and two layers of fabric incorporated therewith, the outer and inner layers consisting of celluloid, and said facing being provided with peg-holes, and having substantially the same area as the face of the club.

8. A dovetail facing for a golf-club consisting of a plurality of piles of celluloid and a plurality of alternating piles of fabric incorporated therewith, said facing being provided with peg-holes, and having substantially the same area as the face of the club.

9. A facing for a golf-club, consisting of a plurality of layers of celluloid, and at least one layer of fabric intervening between said celluloid layers, said facing being provided with peg-holes, and having substantially the same area as the face of the club.

700,947. SHAVING-STICK. BYRON T. KENDRICK, Boston, Mass., assignor to the J. T. Robertson Company, Manchester, Conn., a Corporation. Filed Mar. 5, 1901. Serial No. 49,300. (No model.)



Claim.—1. The improved shaving-stick herein described, consisting of a tubular case open at both ends, a cylindrical piece of soap fitting and movable in said tube, a cylindrical block having a circumferential groove and an annular metallic spring mounted in said groove and having a diameter exceeding that of said case, all combined and operating substantially as shown and for the purpose specified.

2. The improved shaving-stick herein described, consisting of a tubular case open at both ends and having an annular bead near one of its ends, a cylindrical piece of soap fitting and movable in said tube, a cylindrical block having a circumferential groove, an annular metallic spring mounted in said groove and having a diameter exceeding that of said case, and a cap covering the top of said case and in contact with said annular bead, substantially as specified.

700,948. BURIAL DEVER. RICHARD E. KENNY, Caldwell, Mich., assignor to the National Burial Device Company, Caldwell, Mich. Filed Oct. 24, 1900. Serial No. 74,503. (No model.)



Claim.—1. In a burial device, the combination of the lowering bolts or levers; a broad hook A made of sheet metal with a turned-up engaging portion A'; a broad hook B of sheet metal with a downwardly-turned engaging portion B', the metal being folded to form a shield B'' below the engaging-point of the hook B, a greater distance than the length of the engaging portion A' of the hook A, causing as specified.

2. In a burial apparatus, the combination with lowering straps or cords; of a hook having an upwardly-projecting engaging portion on one of said straps or cords; and a hook on the opposite end having a downwardly-projecting portion to support its point in an elevated position to permit the disengagement of the first hook when the tension is slackened.

3. In a burial apparatus, the combination of the lowering straps or cords; of a member having a downwardly-pointing hook portion; an opposite member having a hook adapted to engage said hook portion; and a support to hold the hook portion of said first member in an elevated position when the same is resting on the ground or floor, whereby said hooks will be disengaged when tension is slackened on the straps, for the purpose specified.

700,949. BLENDING-PIN FOR COWS. OTTO S. KLEINWASHER, St. Louis, Mo., assignor of one-half to Gilbert Smith, St. Louis, Mo. Filed Jan. 11, 1900. Serial No. 69,577. (No model.)



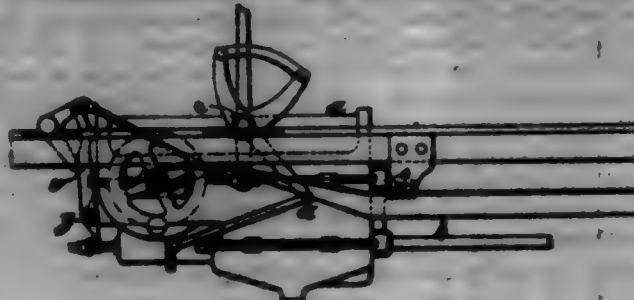
Claim.—1. In a pin of the class described, the combination of an outer wall, an inner wall concentric with said outer wall and extending from a greater elevation than the outer wall to provide an overlying circular runway, and a platform centrally located within the lower end of said outer wall, substantially as described.

2. In a pin of the class described, the combination of an outer wall, an inner wall concentric with said outer wall and extending from a greater elevation than said outer wall and separated from said outer wall to provide a chamber between them, and a platform centrally positioned within

the lower end of said outer wall to provide a circular runway between said outer wall and said platform, substantially as described.

3. In a pin of the class described, the combination of an outer wall, an inner wall extending from a greater elevation than the lower end of said outer wall, upper and lower separating-rings between said walls, whereby said walls are spaced to provide a chamber adapted to contain a filling material, and a platform centrally located within the lower end of said outer wall, and between which and said outer wall a runway is provided, substantially as described.

700,950. MOTOR-VEHICLE. ARTHUR G. KRAM, Paris, France, assignor to Ste. Auto des Antennes Stabissements Fumard et Lovenor, Paris, France. Filed Aug. 9, 1901. Serial No. 71,517. (No model.)



Claim.—1. The combination with a motor-car having a motor-shaft, a drive shaft, and intermediate motion-transmitting mechanism, of a brake for said mechanism, an operating-lever of said brake mounted directly on the casing of said mechanism, and means for suspending said casing movably relatively to the framing of the car, whereby the wedging of the shaft of said mechanism in its bearings is avoided.

2. The combination with a motor-car having a motor-shaft, a drive shaft, and intermediate motion-transmitting mechanism, of a casing for said mechanism, and supports *a* and *b* for said mechanism connected to the framing of the car whereby the easy and rapid removal of the mechanism from the framing of the car may be effected.

3. The combination with a motor-car having a motor-shaft, a drive shaft, and intermediate motion-transmitting mechanism, of a casing for said mechanism, and supports *a* and *b* for said mechanism connected flexibly to the framing of the car whereby the easy and rapid removal of the mechanism from the framing of the car may be effected, and whereby the wedging of the shaft of said mechanism in its bearings is avoided.

4. The combination with a motor-car having a motor-shaft, a drive shaft, and intermediate motion-transmitting mechanism, of a brake for said mechanism, an operating-lever of said brake mounted directly on the casing of said mechanism, and supports *a* and *b* for said mechanism connected flexibly to the framing of the car whereby the easy and rapid removal of the mechanism from the framing of the car may be effected, and whereby the wedging of the shaft of said mechanism in its bearings is avoided.

700,951. CURTAIN-FIXTURE. ALBERT LEACH, Brighton, Mass. Filed May 22, 1901. Serial No. 61,421. (No model.)



Claim.—1. A curtain-fixture, having, in combination, a roller, a spindle, a spring for actuating said roller, and a friction device for retarding the rotation of the roller actuated by the spring and constructed and arranged to increase the friction as the tension of the spring increases, substantially as described.

2. A curtain-fixture, having, in combination, a roller, a spindle, a spring connecting the roller and spindle, stop devices connected to the roller and spindle for limiting their relative rotating movement under the tension of said spring, and means for relatively adjusting the roller and spindle to vary the tension of said spring without changing the relative position of said stop devices, substantially as described.

3. A curtain-fixture, having, in combination, a roller, a spindle, a spring connecting the roller and spindle, a friction device, and connections between the friction device and roller for actuating the friction device when the roller is rotated on the spindle, constructed and arranged to be rendered inoperative by the operator while the curtain is wound upon the roller, substantially as described.

4. A curtain-fixture, having, in combination, a roller, a spindle, a spring connecting the roller and spindle, a screw-threaded sleeve mounted on the spindle and connected to the roller, a traveling nut mounted on the sleeve and connected to the spindle, and means for disconnecting the

roller and sleeve to allow a rotation of the roller to adjust the tension of the spring, substantially as described.

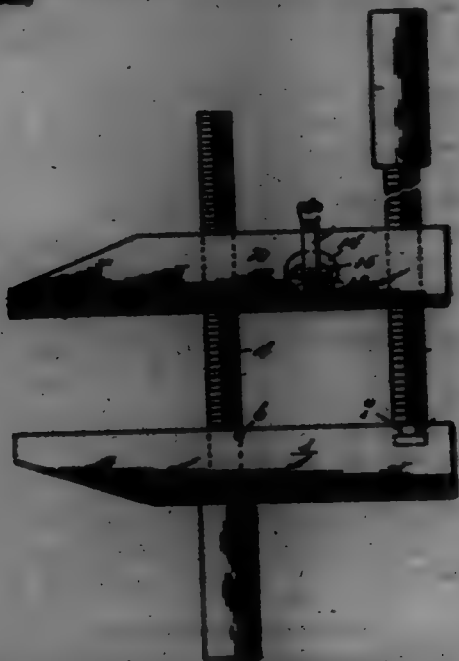
5. A certain fixture, having, in combination, a roller, a spindle, a spring connecting the roller and spindle, a screw-threaded sleeve mounted on the spindle and connected to the roller, a traveling nut mounted on the sleeve, and a friction device acting to retard the rotation of the roller actuated by said nut, substantially as described.

6. A certain fixture, having, in combination, a roller, a spindle, a spring connecting the roller and spindle, a screw-threaded sleeve mounted on the spindle and connected to the roller, a traveling nut mounted on the sleeve, a friction device acting to retard the rotation of the roller actuated by said nut, and means for disconnecting the roller and sleeve, substantially as described.

7. A certain fixture, having, in combination, a roller, a spindle, a screw-threaded sleeve mounted on the spindle and connected to the roller, a traveling nut mounted on the sleeve, a spring connecting the roller and nut, and a friction device mounted on the spindle and arranged to be engaged and actuated by the nut to retard the rotation of the roller, substantially as described.

8. A certain fixture, having, in combination, a roller, a spindle, a friction device and disconnectable means between the friction device and roller for actuating the friction device when the roller is rotated on the spindle constructed and arranged to be disconnected by the operator while the certain is wound upon the roller, substantially as described.

700,952. HAND-SCREW. CHARLES E. LINDSEY and LOUIS E. CHRISTIAN, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 71,405. (No model.)



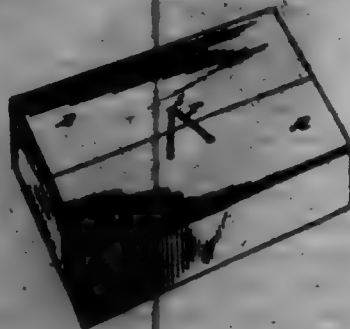
Claim.—In a hand-screw, the combination with (filary) and clamping screws; of a fixed jaw having a swivelled engagement with said screws, and a movable jaw having a threaded engagement with said screws, the movable jaw comprising sections adapted to be moved toward and away from each other and into and out of engagement with the screws, a U-shaped yoke slidably mounted in parallel apertures in the jaw-sections, the intermediate portion of the yoke lying in a recess in one of the sections, a cam filarment between the ends of the arms of the yoke and adapted to force the sections together, expansive springs coiled around the arms of the yoke and acting in opposite directions on the movable jaw-sections, and an auxiliary expansive spring mounted between the projecting ends of the movable jaw.

700,958. CARTON. ALBERT V. LOUIS, Innapert, F. R., assignor of two-thirds to Fred L. Puchard, Brooklyn, Mass., and Henry S. Stator, Brooklyn, Mass. Filed Aug. 12, 1901. Serial No. 71,905. (No model.)

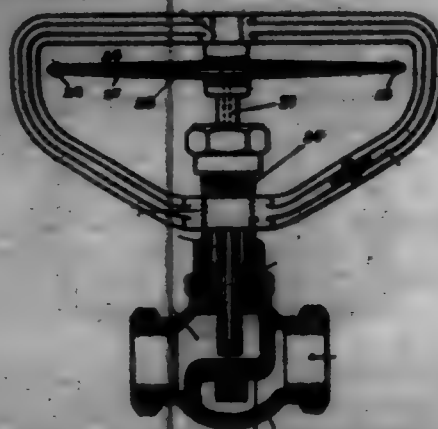
Claim.—1. As an article of manufacture, a carton consisting of two parts, A, B, of equal size, a hinged connection between the parts, a strip, D, fixed to one of the parts projecting beyond the same and arranged to enter the expansion part, and a fastener for the two parts consisting of a hooked member having its ends E projecting through the part A immediately below the strip D, substantially as described.

2. As an article of manufacture, a carton comprising two parts adapted to fit the one upon the other, a strip on the edge of one part projecting beyond the same, and a fastener for securing the parts together comprising a substantially V-shaped member having its apex offset and its free ends inserted through one of the parts of the carton and bent

down upon the inner face of the same, the other part of the carton having an opening therein for the reception of the offset portion of the fastener, substantially as described.



700,954. PRESSURE-REDUCING DEVICE. NATHANIEL LOWRANCE and JAMES G. BARNES, Boston, Mass., assignors to The Boston Chemical Fire Engine Manufacturing Company. Filed Apr. 21, 1900. Serial No. 12,700. (No model.)



Claim.—1. A pressure-reducing device comprising a casing having inlet and outlet chambers connected by a passage, a valve controlling said passage, an expansion-chamber external to the casing, a stem interposed between said chamber and the valve, and passing through the wall of the casing, a dash traversing said stem and connecting the interior of the expansion-chamber with the outlet-chamber, whereby the pressure in the expansion-chamber is controlled by that in the outlet-chamber, and means to bodily adjust said expansion-chamber axially of said stem.

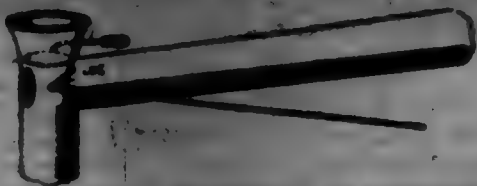
2. A pressure-reducing device comprising a casing having a valve-seat located between inlet and outlet chambers, a valve operating in connection with said seat, a stem for operating said valve, said stem being separate from the valve, an expansion-chamber with separable walls controlling said stem and adapted to close the valve by the separation of said walls, a yoke or frame connected with the casing and forming an outer abutment for said chamber being detachably secured to said chamber, and means to bring the pressure of the outlet-chamber to the interior of said expansion-chamber.

3. A pressure-reducing device comprising a casing having a valve-seat located between inlet and outlet chambers, a valve operating in connection with said seat, a stem for operating said valve, said stem being separate from the valve, an expansion-chamber consisting of two plates connected at their edges and one of said plates connected to the stem, the said plates having a springiness normally moving them together, the separation of said plates causing the valve to close, a yoke connected with the casing and attached to the outer plate, and means to bring the pressure of the outlet-chamber to the interior of said expansion-chamber.

4. A pressure-reducing device comprising a casing having a valve-seat located between inlet and outlet chambers, a valve operating in connection with said seat, a stem for operating said valve, said stem being separate from the valve, an expansion-chamber consisting of two plates connected at their edges and one of said plates connected to the stem, the said plates having a springiness normally moving them together, a yoke connected with the casing and attached to the outer plate, and a dash traversing said stem and connecting the outlet-chamber with the expansion-chamber, whereby the pressure in the expansion-chamber is controlled by that in the outlet-chamber.

5. A pressure-reducing device comprising a casing having a valve-seat located between inlet and outlet chambers, a valve operating in connection with said seat, a stem for operating said valve, an expansion-chamber with separable walls controlling said stem, a yoke or frame connected with the casing and forming an outer abutment for said chamber, means to bring the pressure of the outlet-chamber to the interior of said expansion-chamber, and means to adjust said yoke on the casing.

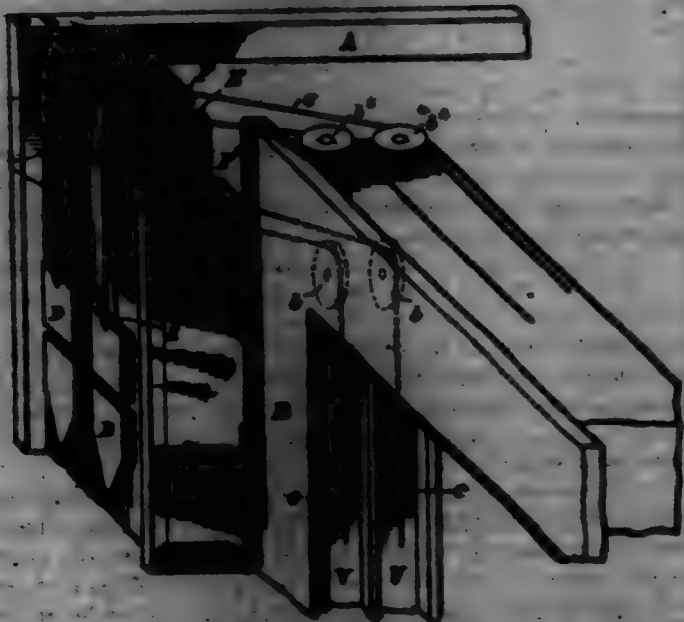
700,955. SMOKE AND CINDER CONVEYER. HARRY S. LOON, Bath, Me. Filed Mar. 7, 1901. Serial No. 59,199. (No model.)



Claim.—1. The conveyor herein shown and described consisting of the smoke-stack, the section of pipe leading from the smoke-stack, the funnel connected to the section for drawing in air, and the series of sections connected to the main section by a flexible connection, comprising the flexible tubes, the bands connecting the outer ends of the tubes to the conveyor-sections, the rings which move the inner ends of the flexible tubes having the flanges bolted together, the bands which secure the inner ends of the tubes to the flanged rings, and the coils arranged in the flexible tubes and retained in place by the flanged rings and the ends of the conveyor.

2. The combination of a smoke-stack provided at its front with an opening and an open plate, a pivoted damper mounted within the stack above said opening and plate, a lever extending from one side of said damper and carrying a weight, a crank extending from the opposite side and having bearing in the stack, said crank and lever being bent in opposite directions, and a connection attached to said crank and leading to the ash, all substantially as shown and described and for the purpose specified.

700,956. WINDOW. ARTHUR LOONAN, West New York, N. J. Filed Sept. 11, 1901. Serial No. 78,000. (No model.)



Claim.—1. In a window, the combination, with a window-casing, a window-frame fitting into said casing and hinged at one side thereto, slidable sashes arranged in said frame, and means for suspending each sash, consisting of guide-pulleys located respectively in the window-casing and on the window-frame, each weight and single end-cord attached at their ends to opposite sides of the sashes and guided over the pulleys of the casing and frame, substantially as set forth.

2. In a window, the combination, with a window-casing, of a window-frame hinged at one side to said casing, slidable sashes in said frame, and means for suspending said sashes, consisting of pulleys suitably arranged on said frame, and depending twin pulleys arranged in said window-casing, end-cords passing over said pulleys, and counterbalancing-weights for suspending said sashes, substantially as set forth.

3. In a window, the combination, with a window-casing, a window-frame hinged at one side to said casing, slidable sashes in said window-frame, pulleys arranged on the top of said frame adjacent each side, pulleys arranged in the hinged side of the frame adjacent the top thereof, depending twin pulleys provided in the window-casing opposite the last-mentioned pulleys in the frame, counterbalancing-weights provided with guide-pulleys and end-cords passing over the pulleys of the weight, casing and frame, and being attached to the opposite sides of the sashes, substantially as set forth.

4. In a window, the combination, with a window-casing, of a window-frame hinged at one side to said casing, slidable sashes in said frame, suitable pulleys arranged in the top and side of said frame, twin pulleys arranged in said window-casing, a box for housing said pulleys and journaled one above the other therein, a stationary bearing in said casing, one side of said bearing diverging from the pivotal center of the pulley-box.

counterbalancing-weights, one for each sash, and a single end-cord guided over pulleys and adapted to suspend each weight and sash, substantially as set forth.

700,957. SAFETY ATTACHMENT FOR VEHICLE. JAMES P. LOON, Bath, Me., assignor to ARTHUR LOONAN, Bath, Me. Filed Apr. 1, 1902. Serial No. 100,000. (No model.)



Claim.—A safety attachment for vehicles, comprising in combination with the shaft, a safety-strap having connections on its ends carrying eyes, straps passing through said eyes and engaging the shaft for adjusting the tension of said safety-strap, loops carried by the safety-strap adjacent its ends, and holdback-straps engaging in said loops and secured to the forward portion of the shaft, substantially as described.

700,958. CONTINUOUS-CIGARETTE MACHINE. FRANK J. LOONAN, Watertown, Conn. Filed May 10, 1901. Serial No. 59,199. (No model.)



Claim.—1. In a continuous-cigarette machine, the combination, with the belt-wheel A, A', and the flat belt D driven thereby, of the grooved shaping-wheel G arranged to press the filler directly upon the naked surface of the flat belt over the corner of the wheel A, means for stripping the tobacco from the belt and means for leading a tape and cigarette-wrapper beneath the filler adjacent to the wheel G when delivered from the belt, means for feeding the tobacco in the belt, and means operated upon

the surface of the belt for compressing and shaping the tobacco into an angular rod and delivering it to each shaping-wheel and belt, the whole operating to form a half-round filler and deliver the same to the wrapper and tape.

2. In a continuous-cigarette machine, the combination, with the belt-wheels A, A', and the flat belt B driven thereby, of two horizontal angularly-grooved wheels C, C', adapted to form a diamond-shaped filler-rod upon each belt, guides D to confine the tobacco delivered to the belt, the flat-faced presser-wheel E between the guides just preceding the horizontal wheels, guides F upon the belt beyond each horizontal wheel to determine the width of the filler-rod, the vertical round-grooved wheel G operating upon the naked surface of the belt between each guide over the center of the belt-wheel A to give a half-round shape to the filler-rod, the shoe F' for stripping the flat side of the filler-rod from the belt, and means for leading a tape and cigarette-wrapper beneath the filler adjacent to each shoe.

3. In a continuous-cigarette machine, the combination, with the belt-wheels A, A', and the flat belt B driven thereby, of two horizontal angularly-grooved wheels C, C', adapted to form a diamond-shaped filler-rod upon each belt, guides D to confine the tobacco delivered to the belt, the flat-faced presser-wheel E between the guides just preceding the horizontal wheels, guides F upon the belt beyond each horizontal wheel to determine the width of the filler-rod, the vertical round-grooved wheel G operating upon the naked surface of the belt between each guide over the center of the belt-wheel A to give a half-round shape to the filler-rod, a guard-plate H over the junction of the horizontal wheels C, C', and extending between the wheels E and G to confine the tobacco to the space between the horizontal wheels, the shoe F' for stripping the flat side of the filler-rod from the belt, and means for leading a tape and cigarette-wrapper beneath the filler adjacent to each shoe.

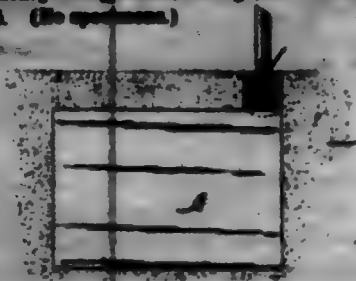
4. In a continuous-cigarette machine, the combination, with belt-pulleys and a flat-belt, of the horizontal angularly-grooved wheels C, C', meeting upon the surface of each belt, guides D for the tobacco upon the belt, the flat-faced presser-wheel E between the guides just preceding the horizontal wheels, guides F upon the belt beyond each horizontal wheel to determine the width of the filler-rod, a shaft for rotating the wheel E with bracket-bearing I projected over one of the horizontal wheels, a swinging arm J journaled upon each bearing and having the grooved wheel G journaled thereon and fitted between the guides F, and the guard-plate H fitted between the wheels E and G over the horizontal wheels and attached to the arm J, and means to secure each arm when adjusted, whereby the wheel G and the guard-plate may be lifted from the horizontal wheels or adjusted in their working position.

5. In a continuous-cigarette machine, the combination, with the belt-wheels A, A', and the flat belt B driven thereby, of two horizontal angularly-grooved wheels C, C', adapted to form a diamond-shaped filler-rod upon each belt, guides D to confine the tobacco delivered to the belt, the flat-faced presser-wheel E between the guides just preceding the horizontal wheels, with shaft i extending backwardly, the bearing I to contain each shaft, the arm J pivoted upon each shaft, the round-grooved wheel G journaled upon each arm and arranged to press the tobacco upon the naked surface of the belt, the gear-wheels upon the said arm connecting the shaft i with the grooved wheel G, a shoe for stripping the filler formed by the wheel G upon the belt, and means adjacent to each shoe for leading a tape and cigarette-wrapper beneath the filler.

6. In a continuous-cigarette machine, the combination, with the traveling flat-belt B, and the two horizontal angularly-grooved wheels C, C', arranged to form a diamond-shaped filler-rod upon each belt, of the guides D to confine the tobacco delivered to the belt, the flat-faced presser-wheel E between each guide close to the junction of the horizontal wheels with shaft E' extending backwardly, the bearing I to contain each shaft, the arm J pivoted upon each shaft, the round-grooved wheel G journaled upon each arm and fitted to press the tobacco upon the belt as it is discharged from the grooved wheels C, C', gearing upon the said arm connecting the shaft E' with each grooved wheel, the guard-plate H contained upon the said arm and held over the junction of the wheels C, C', between the wheels E and G, and means for securing the arm when the grooved wheel and the guard-plate are properly adjusted to the wheels C, C', substantially as herein set forth.

7. In a continuous-cigarette machine, the combination, with the belt-wheels A, A', and the flat belt B driven thereby, with the vertical grooved wheel G arranged over the center of the pulley A, and horizontal grooved wheels C, C', having their edges upon the surface of the belt just in advance of the wheel G, whereby the shafts c of said grooved wheels C, C', are at one side of the shaft a carrying the pulley A, the bearing c' of the shaft c adjustable to and from the wheel C', and the shaft a provided at opposite sides of the wheel A with the spiral gears a', and the vertical shafts c having the spiral gears c' connected with the spiral gears a', whereby the grooved wheels C, C', are driven directly from the shaft of the belt-wheel.

700,959. PROCESS OF UNITING BATTERY-PLATES. WILLIAM F. J. LOVI, Chicago, Ill., assignor of two-thirds to Hans Adam Schlecter and John Henry George Lutz, Chicago, Ill. Filed Feb. 14, 1901. Serial No. 47,575. (No specimens.)



Claim.—The process of joining metal plates by a connecting-bar which consists in first directing a fusing-blast into an inclosed space, and against the surfaces of said plates, which are exposed to the blast entering said space, to fuse the exposed parts of the plates, confining the fused metal in contact with the parts of said plates from which the metal was fused and thereafter pouring into said space molten metal which unites with the fused metal of the plates and forms the connecting-bar.

700,960. LOADING ATTACHMENT FOR HAND-TRUCKS. THOMAS J. LYNN, Chicago, Ill. Filed Feb. 28, 1901. Serial No. 48,000. (No model.)

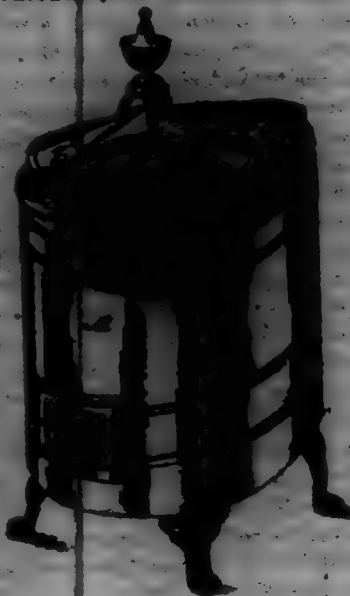


Claim.—1. An attachment for hand-trucks comprising a lever and means for pivotally attaching said lever to the truck-frame, said lever being adapted at its forward end to bear upwardly against the truck-frame, a spring engaging said lever and adapted to throw the lever upwardly when not in use, and a stop for limiting the upward throw of the lever under the action of said spring.

2. The combination with a hand-truck, of a lever pivoted between its ends to said truck-frame and bearing downwardly on the axle of the truck, which latter constitutes the fulcrum of the lever, said lever extending forwardly under and bearing upwardly against the frame of the truck and extending rearwardly from its fulcrum in position to be engaged by the feet of the person using the truck, a spring applied to the lever for holding the same in its upposition position and a stop for limiting the upward movement of the lever.

3. The combination with a hand-truck, of a pivoted lever adapted to bear downwardly against the axle which latter constitutes a fulcrum for the lever, said lever extending at its forward end under and bearing upward against the truck-frame, and extending at its rear end in position to be engaged by the feet of the operator, a spring applied to the lever for holding the same in its upposition position, and a stop for limiting the upward movement of said lever with the free end thereof separated a distance from the truck-frame, to be readily engaged by the feet of the operator.

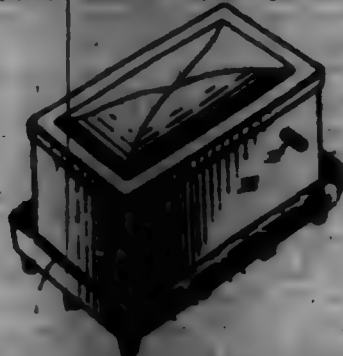
700,961. HEATING OR COOKING ATTACHMENT FOR STOVES. JOHN P. LYNN, Louisville, Mo. Filed Mar. 11, 1900. Serial No. 57,000. (No model.)



Claim.—1. In a heating or cooking attachment for stoves, the combination with a suitable oven or cooking-receptacle, of a support therefor, said support comprising a metal disk and a plurality of hangers extending up therefrom and terminating in hooks, said hangers being formed of strips of metal extending under the metal disk or support and secured thereto, substantially as and for the purpose described.

2. A heating or cooking attachment for stoves, comprising a support having upwardly-extending hooked hangers to engage the rim around the stove-opening, an oven or cooking-receptacle adapted to rest upon the support and provided with a swingable bail and an upwardly-extending rest therefor, and a suitable rack to rest upon the bottom of the oven or receptacle, substantially as and for the purpose set forth.

700,962. ANTRALINO-BEL. JOHN J. HANNEY, Attorney, Ind.
Filed Nov. 22, 1921. Serial No. 92,594. (No model.)



Claim.—1. An annealing-box including a stand or bottom provided with lifting wings or legs formed of projecting portions of the stand-plate and extending from the upper extremities of the stand sides in parts equal in thickness therewith and doubled over toward the sides, whereby combined lifting and reinforcing devices are provided, and a box-body.

2. An annealing-box stand formed of a blank having projecting portions at opposite edges thereof, the projecting portions bent over from the edges of the stand sides and forming combined lifting wings or legs and reinforcing-ribs for the stand sides.

3. An annealing-box stand and lifting-ribs thereof composed of a single malleable plate-blank having projecting portions at opposite edges thereof, all of uniform gage thickness, the projecting portions bent over in the form of inverted troughs.

4. In an annealing-box stand, the combination of the stand-body having the bottom and sides thereof composed of metal of uniform gage thickness, two of the sides having projecting portions extending from the edges thereof, and the lifting-wings consisting of said projecting portions turned over immediately at the edges of said sides.

5. In an annealing-box, the combination of the box-body, the stand-body formed of the blank having the projecting wings extending from opposite edges thereof, the lifting wings or legs consisting of said projecting wings bent over from said edges in the form of inverted troughs, and the supporting-legs, substantially as set forth.

700,968. BLANK-FURNACE TOP. PATRICK HENRIK, Louisville, Ohio.
Filed Apr. 12, 1921. Serial No. 92,595. (No model.)



Claim.—1. A blast-furnace having a shaft, a globe-shaped top on said shaft providing a substantially globe-shaped chamber having an unobstructed annular passage to the furnace-chamber, and a hopper projecting through said top and extending down into the globe-shaped chamber with its discharge and below the largest diameter of said globe-shaped chamber, whereby an enlarged space is provided to allow for the expansion of gases in an explosion.

2. A blast-furnace having a shaft, a globe-shaped top springing from said shaft providing a substantially globe-shaped chamber having an unobstructed annular passage to the furnace-chamber, a hopper projecting through said top and extending downward into the globe-shaped chamber

with its discharge and below the largest diameter of said globe-shaped chamber, whereby an enlarged space is provided to allow for the expansion of gases in an explosion, a gas-port extending through said globe-shaped top, and a downcomer connected to said port.

3. A blast-furnace having a masonry shaft, a metal shell around said shaft, a globe-shaped top springing from said shell and providing a substantially globe-shaped chamber having an unobstructed annular passage to the furnace-chamber, and a hopper projecting through said top and extending down into the globe-shaped chamber with its discharge and below the largest diameter of said globe-shaped chamber, whereby an enlarged space is provided to allow for the expansion of gases in an explosion.

4. A blast-furnace having a masonry shaft, a metal shell around said shaft, a globe-shaped top springing from said shell and providing a substantially globe-shaped chamber having an unobstructed annular passage to the furnace-chamber, a hopper projecting through said top and extending downward into the globe-shaped chamber with its discharge and below the largest diameter of said globe-shaped chamber, a gas-port extending through said globe-shaped top, and an explosion-door at the outer end of said gas-port.

5. A blast-furnace having a masonry shaft, a metal shell around said shaft, a globe-shaped metal top springing from the outside of said metal shell below the top thereof, and a refractory lining for said globe-shaped top, the lower edge of said lining projecting down between the globe-shaped metal top and the metal shell for the stack and lying outside the latter, whereby free expansion of the masonry shaft is permitted.

6. A blast-furnace having a masonry shaft, a metal shell around said shaft, the top of said shaft being formed of blocks having lips which are hooked over said shell, a globe-shaped metal top springing from the outside of said metal shell below the top thereof, and a refractory lining for said globe-shaped top, the lower edge of said lining projecting down between the globe-shaped top and metal shell for the stack and lying out of contact with the overhanging lips of the blocks on the top of the shaft.

7. A blast-furnace having a masonry shaft provided with an inclined upper flue, a metal shell around said shaft, a globe-shaped top springing from said shell and providing a substantially globe-shaped chamber having an unobstructed annular passage to the furnace-chamber, a hopper projecting through the top and extending downward in the globe-shaped chamber with its discharge and below the largest diameter of said globe-shaped chamber, a gas-port extending through said globe-shaped top and substantially in line with the inclined upper flue of the masonry shaft, and an explosion-door at the outer end of said gas-port.

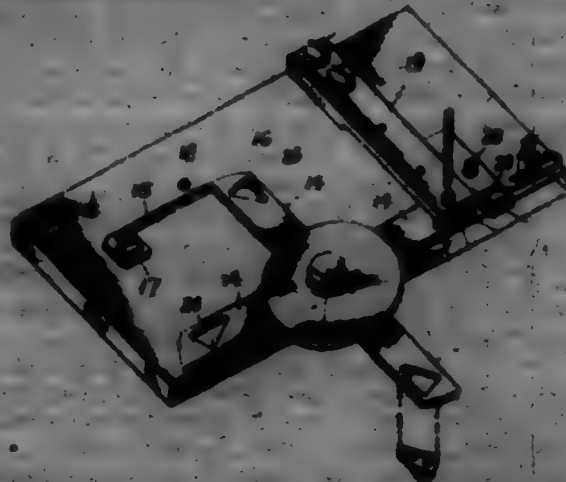
8. A blast-furnace having a masonry shaft the top of which is formed by one or more tiers of hollow cast-metal blocks, said blocks being below the discharge end of the hopper and the gas-ports.

9. A blast-furnace having a masonry shaft the top of which is formed by one or more tiers of interlocking hollow blocks.

10. A blast-furnace having a masonry shaft the top of which is formed of closed hollow cast-metal blocks provided with inclined upper flues, said blocks being below the discharge end of the hopper and the gas-ports.

11. A blast-furnace having a masonry shaft, and a metal shell around said shaft, the top of said shaft being formed of hollow blocks having lips which hook over said shell.

700,964. WORK-HOLDING ATTACHMENT FOR DRILLS.
GEOFFREY E. HUNTER, Worcester, Mass. Filed Dec. 20, 1921. Serial No. 92,596. (No model.)



Claim.—1. In a device of the class described, the combination of a table or plate and a rotary work-holder having a work-receiving socket, said parts being arranged so that by turning the rotary holder to bring its socket over the plate or table, a piece to be drilled may be first placed

In said outlet and then moved along over the table or plate to be presented in proper position to be acted upon by a drill, after which the continued rotation of the holder will carry the same off from the plate or table so that it may drop down through the outlet in the rotary holder.

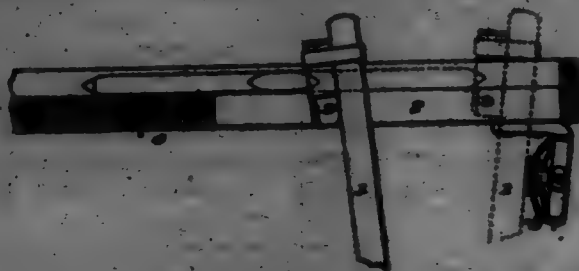
2. In a device of the class described, the combination of a rotary holder, and stopping device therefor, comprising a holding-stop arranged to prevent the holder to rotate past the same, and a positioning-spring tending to turn the holder back against the holding-stop.

3. In a device of the class described, the combination of a rotary holder, and stopping device therefor, comprising a holding-stop arranged to prevent the holder to rotate past the same, a positioning-spring tending to move the rotary holder back against the holding-stop, and means for moving the positioning-spring out of the path of the rotary holder.

4. In a device of the class described, the combination of a rotary holder comprising a plurality of arms, a holding-stop permitting the arms of the rotary holder to rotate past the same, a positioning-spring tending to move the rotary holder back against the holding-stop, and a cam for lifting the end of the positioning-spring out of the path of the rotary holder, to prevent the same to fly back into position to cooperate with a succeeding arm of the rotary holder.

5. In a device of the class described, the combination of a rotary holder having extending arms, each of which is provided with a work-receiving outlet, and stopping device therefor, comprising a holding-stop arranged to prevent the rotary holder to rotate past the same, and a positioning-spring arranged to engage the forward side of each piece of work as the same is brought into position, whereby said positioning-spring tends to turn the rotary holder back against the holding-stop, and also serves to guide the piece of work about to be acted upon.

700,965. PICKER-STICK BUFFER FOR LOOMS. FRANK A. HALL, Methuen, Mass., assignor of one-half to Grosvenor E. Hanson, Methuen, Mass. Filed Oct. 20, 1901. Serial No. 98,501. (No model.)



Claim.—1. A buffer device for the picker-sticks of looms consisting of a pneumatic rubber buffer of hemispherical form, a holder therefor, a convex button contacting with the crown of the buffer, a flexible strap-hanger attached to the back of the button having branches extending over said buffer and fastened to the holder thereof around the base of the buffer, a leather disk forming a backing for said strap and a curved centrally fastening together the button, the strap and the leather disk.

2. A buffer device for the picker-sticks of looms consisting of a pneumatic rubber buffer of hemispherical form, a holder therefor, a convex button contacting with the crown of the buffer, and a strap-hanger for the button having branches extending over said buffer and fastened to the holder around the base of the buffer, a disk forming a backing for the strap to receive the impact of the picker-stick and means for centrally fastening the impact-disk to the button and its strap-hanger.

3. In a loom and in combination, the race-ly, the picker-stick, a bracket depending from the race-ly, a hemispherical rubber buffer seated in the bracket, a button consisting of a convex button contacting with the crown of the rubber buffer, a flat leather surface forming a backing for the button, a strap covering the buffer and having buttonholes for fastening it to and around the rim of the bracket, and means for securing the button and the impact flat surface centrally to the strap.

4. A button-buffer device for the picker-sticks of looms consisting of a pneumatic rubber buffer of hemispherical form, a convex knob, a leather disk or flange forming a backing for the knob, and a leather strap-holder for the knob and the disk permitting movement thereof in a direction corresponding to the direction of movement of the picker-stick.

5. A button for receiving the impact of the picker-sticks of looms consisting of a convex knob, a leather disk or flange complementing the back of the knob and a flexible hanger or holder between the knob and the disk, and means for centrally fastening the parts together.

6. In a loom and in combination with the race-ly and the picker-stick, of a buffer device consisting of a bracket on the ly, an arched pneumatic rubber buffer, a convex button-button complementing the crown of the rubber buffer and a flexible hanger or holder for maintaining the convex surface of the buffer and of the button in contact under the impact of the picker-stick.

700,966. SEEDER. GEORGE HENSHAW and WILLIAM FARRER, Middletown, Ohio; said Henshaw assignor to said Farrer. Filed Dec. 9, 1901. Serial No. 98,502. (No model.)



Claim.—1. A seeding mechanism, comprising a seed-cup, having a discharge-passage leading therefrom, the wall of the said cup which is immediately above the entrance of the outlet-passage extending outwardly over the said passage so that seed which do not enter the passage cannot be caught and crushed but are free to yield and move along the seed-cup wall above the passage-entrance, substantially as described.

2. A seeding device, comprising a seed-cup having a discharge-passage leading therefrom, a guarding projection extending slightly into said passage at the entrance thereof, so that seed which are able to pass the said projection will easily travel through the said passage-way without danger of clogging, substantially as described.

3. A seeding mechanism, comprising a seed-cup having an outlet or discharge passage leading therefrom, means for carrying seed from the cup through said passage, the said passage-way increasing slightly in size from its inner end outwardly so that seed which once enter said passage have no chance of clogging therein, substantially as described.

4. A seeding device, comprising a cup having a discharge outlet-passage leading therefrom, a seed-wheel for carrying seed through said passage, the wall of said passage which opposes said wheel being rounded to prevent the possibility of seed being caught therein, substantially as described.

5. A seeding device, comprising a seed-cup having an outlet-passage leading from the lower end thereof, the said cup being enlarged in a conical manner above the entrance of said discharge-passage, and a seed-wheel for carrying the seed from the cup, the beveled portion of the cup preventing any clogging of the seed and causing them to be thoroughly cleaned therein by the action of the seed-wheel, substantially as described.

6. A seeding device, comprising a seed-cup, an outlet-passage leading therefrom, a seed-wheel journaled within the cup and formed with a flange having a curved inner seed-engaging surface, the said flange being provided with means for engaging the seed and carrying the same through the discharge-passage of the cup, substantially as described.

7. A seeding device, comprising a seed-cup formed with outlet-passages leading therefrom, the said passages having curved inner surfaces, a seed-wheel arranged so that its periphery will travel through said passages, the said seed-wheel being formed with laterally-extending peripheral flanges formed with curved inner surfaces opposing the curved inner surfaces of the discharge-passages, the said seed-wheel flanges being formed with a series of radially-arranged grooves or depressions in their curved surfaces for engaging the seed more positively, substantially as described.

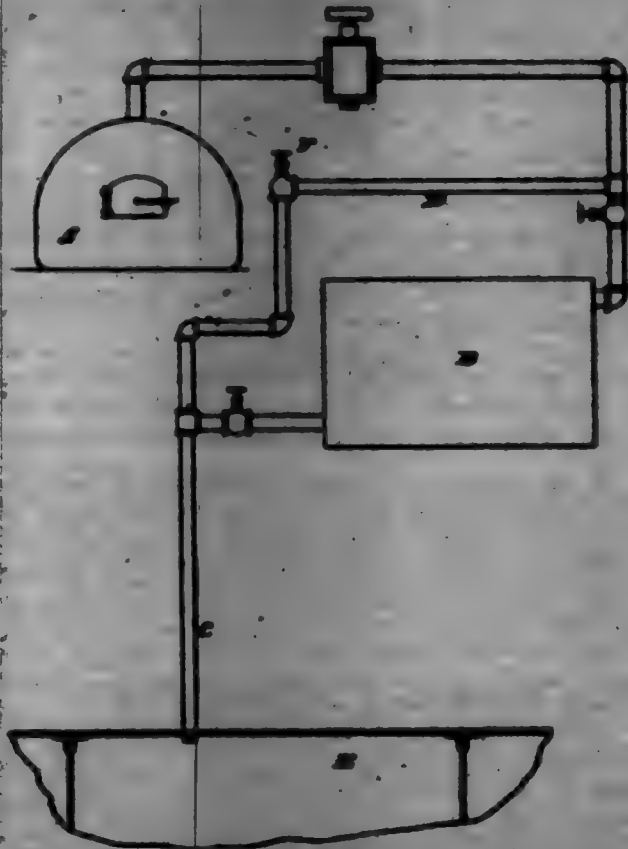
8. A seeding device, comprising a seed-cup formed with an enlarged portion at its lower end having a curved inner surface, a discharge passage-way leading from said enlarged portion, a guarding projection at the entrance of the passage-way arranged to divide the seed, permitting some to pass into the passage-way and others to travel around upon the inner curved surface of the enlarged portion of said cup, and a seed-wheel for continuously agitating the seed in the cup and carrying them out through the discharge passage-way, substantially as described.

700,967. METHOD OF EXTINGUISHING FIRE. JOHN R. MOORE, New York, and FRED M. HART, Brooklyn, N. Y.; said Moore assignor to the Clayton Fire Extinguishing & Distributing Company, a Corporation of West Virginia. Filed May 22, 1901. Serial No. 61,548. (No model.)

Claim.—1. The method of extinguishing fire in cotton-bales and similar combustibles, which consists in confining the combustibles in air-tight compartments, and producing and maintaining under pressure therein, an atmosphere containing a gas which is a non-supporter of combustion.

2. The method of extinguishing fire in cotton-bales and similar combustibles, which consists in confining the combustibles in air-tight compartments, forcing into the same a mixture of air and a gas which is a non-supporter of combustion until a pressure is produced therein and maintaining such pressure until the fire is extinguished.

3. The method of extinguishing fire in cotton-bales and similar combustibles, which consists in confining the combustibles in an air-tight compartment, and charging, under pressure, each compartment with a mixture of air and carbon-dioxide gas, as set forth.



4. The method of extinguishing fire in cotton-bales and similar combustibles, which consists in confining the combustibles in air-tight compartments, and, in case of fire therein, injecting into the compartments carbon dioxide from a supply of the same stored under pressure for immediate use, and then generating a further supply of carbon dioxide and forcing it together with air into the compartments as so to produce and maintain a pressure of gas therein, as set forth.

700,888. COOKING-BUCKET. JAMES H. McFARLAND, JR., San Francisco, Cal. Filed Aug. 13, 1901. Serial No. 71,999. (No model.)

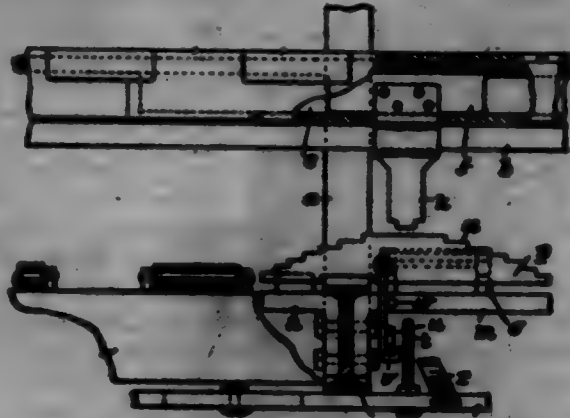


Claim.—1. A cooking-bucket comprising a body portion having a groove in its inner wall and provided with eyes adjacent thereto, a strainer-plate adapted for engagement with the groove, and latches each including spaced legs having a connecting spring portion, one leg of each latch being attached to the plate and the other leg having a terminal hook for engagement with the corresponding eye of the bucket, said plate, eyes and latches being entirely within the bucket to permit of application of a lid thereto.

2. A cooking-bucket having an inner groove in its wall and provided with eyes within the bucket and adjacent to the groove, and a strainer-plate engaged removably with the groove and having means for holding the strainer-plate yieldably in the groove, said means being within the bucket and removably engaged with the eyes.

3. A cooking-bucket comprising a body portion having a groove in its inner wall and provided with eyes, and a strainer-plate adapted for engagement of an edge thereof in the groove and having spring-latches attached thereto and each including spaced legs, one of which is attached to the plate and the other of which is removably engaged with the corresponding eye, said legs being connected by a resilient loop and the latches being arranged to lie entirely within the bucket to permit of application of a cover thereto.

700,889. STOP-MOTION FOR LOOMS. GRAMMIE R. WILLIAMS, Paterson, and JAMES R. JACOBSON, North Hudson, N. J. Filed Dec. 24, 1901. Serial No. 71,999. (No model.)



Claim.—1. In a stop-motion mechanism for narrow-loom looms, the combination, with the bottom, of a reciprocating part on the bottom movable transversely of the movement thereof, an elastic flexible member adapted to actuate the power-controlling mechanism of the loom, a detent normally holding said member retracted, and means, movable with said reciprocating part, for actuating said detent to release said member, substantially as described.

2. In a stop-motion mechanism for narrow-loom looms, the combination, with the bottom, of a reciprocating part on the bottom movable transversely of the movement thereof, an elastic flexible member adapted to actuate the power-controlling mechanism of the loom, a hook normally holding said member retracted, and engageable blocks, one of said blocks being movable with said reciprocating part and the other being connected to said hook, substantially as described.

3. In a stop-motion mechanism for narrow-loom looms, the combination, with the bottom, of a reciprocating part on the bottom movable transversely of the movement thereof, an elastic flexible member adapted to actuate the power-controlling mechanism of the loom, a hook normally holding said member retracted, and engageable blocks, one of said blocks being movable with said reciprocating part and the other being connected to said hook, the free end of one block which is adjacent the other having step-like projections, substantially as described.

4. In a stop-motion mechanism for narrow-loom looms, the combination, with the bottom, of a reciprocating part on the bottom movable transversely of the movement thereof, an elastic member adapted to actuate the power-controlling mechanism of the loom, a detent normally holding said member retracted, and means, movable with said reciprocating part, for actuating said detent to release said member, substantially as described.

5. In a stop-motion mechanism for narrow-loom looms, the combination of two parts adapted to impinge the one against the other to effect the stopping, one of said parts being adapted to move in a curved line and one of said parts, also, having the free thereof adjacent the other part provided with steps arranged in a curved line, substantially as described.

700,890. ADJUSTABLE SPEED-GEAR. JAMES H. McFARLAND, JR., San Francisco, Cal., assignor of one-half to John Breckman, San Francisco, Cal. Filed Sept. 22, 1904. Serial No. 71,999. (No model.)

Claim.—1. A driving mechanism comprising a shaft, a sleeve or said shaft, helical guides on said sleeve and of varying pitch, a clutch mechanism engaging said guides, and connections of said mechanism with a prime mover whereby the clutch is reciprocated to drive the sleeve and shaft.

2. In a driving mechanism, the combination of a shaft, a sleeve slidable thereon and turnable therewith, helical guides varying in pitch between their ends upon said sleeve, and a clutch mechanism engaging said guides and reciprocable in the line of the shaft.

3. In a driving mechanism, the combination of a shaft, a sleeve slidable thereon and turnable therewith, helical guides of varying pitch on said sleeve, part of said guides yielding to the right and the remainder to the left about said sleeve, and a clutch mechanism engaging said guides and adapted to reciprocate in the line of the shaft.

4. In a driving mechanism, the combination of a shaft, a sleeve slidable thereon and turnable therewith, helical guides of varying pitch on said sleeve, a clutch mechanism reciprocable in the line of the shaft, said clutch having members engaging said guides, said members acting alternately to drive the sleeve and to reverse freely therewith, and means for shifting said sleeve within said clutch mechanism.

5. In a driving mechanism, the combination of a shaft, a sleeve slidable thereon and turnable therewith, helical guides of varying pitch on said sleeve, a clutch mechanism including said sleeve, and reciprocable

thereon, means by which said clutch is prevented from turning, and connections between said clutch and guides whereby the sleeve and shaft are revolved.



6. In a driving mechanism, the combination of a shaft, a sleeve thereon, helical guides of varying pitch on said sleeve, a clutch including and reciprocable upon said sleeve, means by which said clutch is prevented from turning, said clutch comprising rotatable members, pins mounted in said members, said pins adapted to engage the helical guides to drive the sleeve and shaft when the clutch is reciprocated.

7. In a driving mechanism, the combination of a shaft, a sleeve thereon, helical guides of varying pitch on said sleeve, a clutch including and reciprocable upon said sleeve, said clutch comprising a frame, rotatable grip members in said frame, recesses on the inner periphery of said members, pins loosely mounted in said recesses, and said pins adapted to engage the helical guides to drive the sleeve and shaft.

8. In a driving mechanism, the combination of a shaft, a sleeve thereon, helical guides of varying pitch on said sleeve, a clutch including and reciprocable upon said sleeve, means by which said clutch is prevented from turning, said clutch having grip members rotatable in opposite directions, and pins carried by said members and adapted to engage the helical guides to drive the sleeve when the clutch is reciprocated.

9. A driving mechanism consisting in combination of a shaft, a sleeve slidable thereon and revolvable therewith, helical guides on said sleeve, said guides having a uniform progressive variation in pitch between their ends, a clutch including and reciprocable upon said sleeve, means by which said clutch is prevented from turning, rotatable grip members in said clutch and means upon said members for engaging said helical guides to drive the sleeve and shaft when the clutch is reciprocated, and means by which said sleeve may be moved upon the shaft to bring sections of said guides of greater or less pitch within the scope of the clutch.

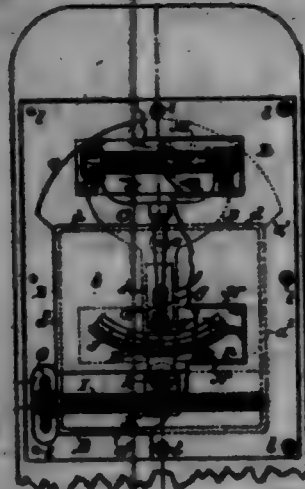
10. A driving mechanism comprising a shaft, a sleeve thereon, said sleeve and shaft revolvable in unison, one of said members slidable in relation to the other, helical guides of varying pitch on said slidable member, and a reciprocable clutch mechanism engaging said guides.

700,971. MASON'S PLUMB AND LEVEL. ANDREW L. MCKEY, HOLM, Cleveland, Ohio, assignor of one half to Charles F. Thomas, Cleveland, Ohio. Filed Mar. 7, 1901. Serial No. 80,192. (No model.)

Claim.—1. The combination of a mason's plumb-board with an opening therethrough containing a pivoted lever, a spirit-level attached to and supported by one end of the lever, a transverse screw with a nut adapted to engage the opposite end of the lever and swing it on its pivot and a thumb-wheel on the screw lying in the opening of the board and accessible from both sides thereof.

2. The combination of a mason's plumb-board having an aperture therethrough, a frame B, secured in said aperture, a bifurcated lever C, pivoted between the sides of said frame and carrying a spirit-level E, in its forks above the pivot, a transverse screw mounted in the frame and

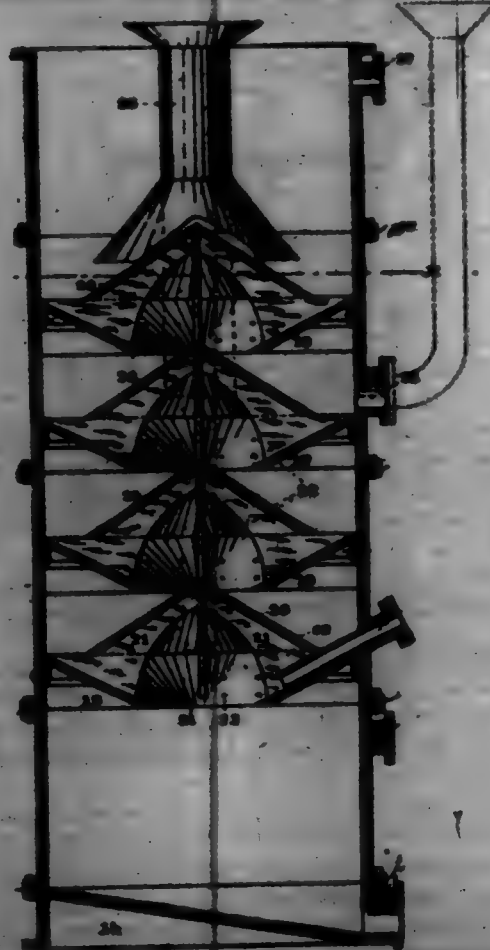
provided with a thumb-wheel, with a threaded sleeve on the screw and a plate G, slidably secured to the lower end of the lever and pivotally connected to the threaded sleeve substantially as heretofore set forth.



3. The combination of a mason's plumb-board having an aperture therethrough, a frame B, secured in said aperture, a bifurcated lever C, pivoted between the sides of said frame and carrying a spirit-level E, in its forks above the pivot, a transverse screw mounted in the frame and provided with a thumb-wheel, a threaded sleeve on the screw, a plate G, slidably secured to the lower end of the lever and pivotally connected to the sleeve, with a graduated indicated scale on each outer face of the frame B, and pointers attached to the lever with their free ends adjacent to the said scales, substantially as heretofore set forth.

4. The combination of a mason's plumb-board having an aperture therethrough, a frame B, secured in said aperture, a lever pivoted between the sides of said frame and carrying a spirit-level, a transverse screw mounted in the frame and provided with a thumb-wheel, a threaded sleeve on the screw with a pivoted sliding connection to the lower end of the lever, a graduated indicating-scale on each outer face of the frame B, and pointers attached to the lever having their free ends adjacent to the said scales, with metallic side plates L, to inclose the aperture in the board, each provided with an opening for the thumb-wheel and also glass openings before the spirit-level and the graduated scales, substantially as heretofore set forth.

700,972. APPARATUS FOR LIXIVIATING ORES. FARR HAWK, Argentine, Kans. Filed Apr. 2, 1904. Serial No. 80,193. (No model.)



Claim.—1. In a lixiviating apparatus, a lixiviating-column adapted to be filled with a leaching solution, and having a series of superimposed

and inclined heads and rings, alternating and preventing oppositely-inclined surfaces for the downward passage of air thereover, the said heads and rings being numerously perforated to permit the upward passage of gas therethrough, as and for the purpose set forth.

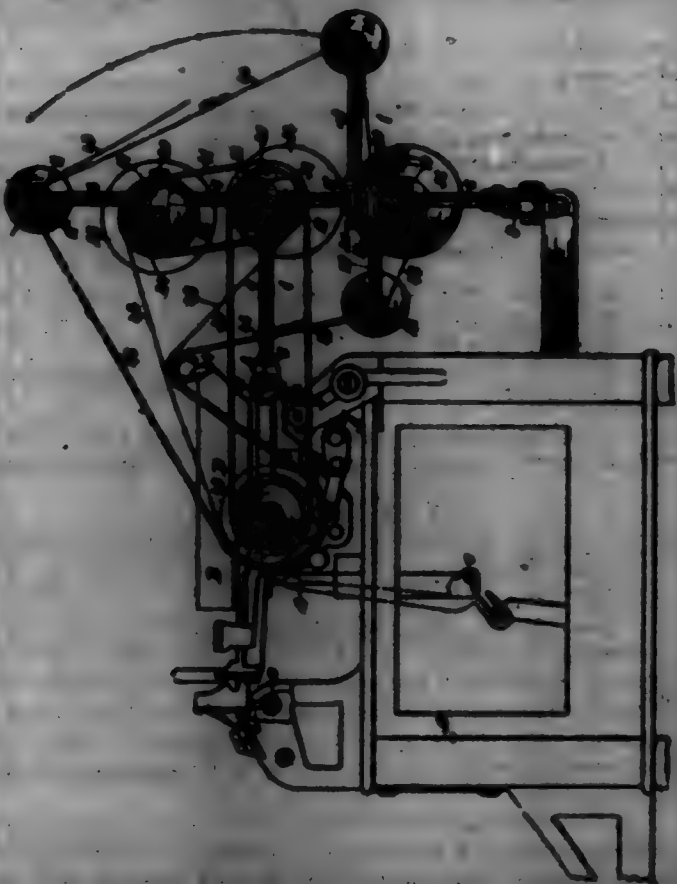
2. In a lifting apparatus, a lifting-column having a series of superimposed and inclined surfaces with means for feeding the air in at the top and withdrawing the sludge at the bottom, the said inclined surfaces having numerous perforations adapted to permit the upward flow of gas therethrough, together with an inflow for the liquid at the bottom and its discharge at the top, and an air or gas injecting device admitting air or gas to the column below the perforated surfaces, whereby there is a down feed of the air over the perforated and inclined surfaces within the lifting column, and an uprising of the air or gas through the perforations of the inclined surfaces and a successive passage of the same through the several layers of ore within the lifting column.

3. In a lifting-column a funnel-shaped ring in combination with a conical head supported in line with the ring, and with an open passage between the head and the ring and down through the center of the latter, the said head and ring having numerous perforations adapted to permit the upward passage of gas therethrough, substantially as and for the purpose set forth.

4. In a lifting-column, a numerously-perforated funnel-shaped ring in contact with the column-wall, in combination with a conical numerously-perforated head, and connecting parts therefor, all integral, the head-section being centrally located with respect to the opening through the ring-section, and with an open channel between the head and the ring and down through the center of the latter, substantially as and for the purpose set forth.

5. A lifting-column having a series of perforated and inclined surfaces or partitions located in the middle or lower part thereof and an upper section without such partitions, in combination with means for the inflow of the liquid at the bottom and its discharge at the top, together with means for the injection of air or gas into the bottom of the column, and a conducting pipe for said air or gas into the bottom of the column, and a conducting-pipe for said air or gas through the upper section of the column, whereby ore particles carried up in suspension by the agitated current of liquid settle out therefrom in the column below the liquid over-flow, as and for the purpose set forth.

700,978. TYPE-WRITING MACHINE. JAMES E. HARRIS, Buffalo, N. Y., assignor to the Wagner Typewriter Company, New York, N. Y., a Corporation of New York. Filed Apr. 28, 1901. Serial No. 87,008. (No model.)



Claim.—1. In a type-writing machine, the combination, with the carriage having a platen and a guide in the rear of the platen and at a higher level than the same, a copying-ribbon and a duplicate paper strip passing from said guide to the platen, additional guiding means for the paper and ribbon located in the rear of said guide and at a lower level

than the same, whereby the paper and ribbon will be kept in close contact with each other from the guide to the platen, and means for feeding the paper and the copying-ribbon.

2. In a front-strike type-writing machine the combination of a platen, a platen-carriage, an adjustable paper-supply reel operatively connected to travel with said carriage, an adjustable take-up reel operatively connected to travel with the carriage and situated on a higher horizontal plane than the supply-reel, whereby the operator will have an unobstructed view of the written matter as the paper passes from one reel to another, laterally-adjustable guide to said reels to accommodate different widths of paper, means for automatically turning the take-up reel as the paper is fed forward and means for supporting said reels independently of the carriage.

700,974. PUMPING-ENGINE. HERMAN FRIEDMAN, South Brooklyn, N. Y., assignor of one-half to F. W. Oshitt and Son, South Brooklyn, N. Y. Filed May 20, 1901. Serial No. 62,698. (No model.)



Claim.—1. A duplex pumping-engine comprising a series of water-cylinders and pistons therein and a series of steam-cylinders and pistons therein, each water-piston connected with a steam-piston and ducts controlled by said pistons, one steam-piston controlling the ducts leading to and from the other steam-piston.

2. A duplex pump comprising two series of cylinders, one series for water and the other series for steam, pistons in said cylinders, the water-pistons connected with the steam-pistons and ducts controlled by said pistons, one steam-piston operating to control the movements of another and the movements of the water-piston connected with the latter.

3. A pumping-engine comprising two pairs of twin cylinders, each provided with inlet and outlet ports similarly constructed, pistons in said cylinders, said pistons having ducts therein communicating with the ducts of the cylinders, the ducts in all the pistons being similarly disposed, the ducts in the pistons of one pair arranged in reverse order in the ducts in the pistons of the other pair, and pistons-rod connecting the pistons of one pair with the pistons of the other pair.

4. In a pumping-engine, the combination with two cylinders provided with two pairs of ducts, one pair of said ducts connecting the center of one cylinder with the ends of the other cylinder, and the other pair of ducts connecting the center of the last-mentioned cylinder with the ends of the first-mentioned cylinder, of a piston in each cylinder, each piston having two ducts near one end arranged at right angles to each other and each terminating at diametrically opposite points on the piston, each piston also having near its other end, two reversely-curved ducts.

700,975. MIRROR ATTACHMENT FOR THEATER-CHAIR.
 HARRY A. HENDERSON, Brooklyn, N. Y. Filed Jan. 20, 1902. Serial No. 91,395. (No model.)



Claim.—An inseparable mirror attachment for theater-chairs and in combination with an arm pivotally mounted on the back of the chair to swing horizontally and having an annular groove at its other end, a coupling stem or tip having its lower end tubular and formed with integral shoulders or protuberances on its interior walls frictionally engaging or binding the groove of the arm to automatically maintain the adjustment of said stem, and a mirror-frame pivotally connected to the upper end of said coupling stem or tip, the pivot having its ends upset to produce friction whereby the adjustment of the glass is maintained and the stem and the mirror rendered inseparable from each other and from the arm.

700,976. PAPER-HANGER'S COLORING-TOOL. — BERNARD CLEM, Hartford, Conn. Filed July 31, 1901. Serial No. 79,396. (No model.)



Claim.—1. In a paper-hanger's coloring-tool, a box adapted to contain the coloring substance, said box being open at the top, a woven fabric adapted to close the box at the bottom, covers adapted to fit over the top and bottom of the box, a holder adapted to hold said box, means for securing said box within the holder, substantially as and for the purpose specified.

2. In a device of the character described, a box adapted to contain coloring substance, said box being open at the top, a woven fabric adapted to close the bottom of the box, two covers, one adapted to fit over the top of the box and the other over the bottom of the same, a holder adapted to hold the coloring-box, means for securing the box within the holder and removing the same therefrom, a handle formed with the holder, a cavity formed within the handle, and a cap adapted to close said cavity, substantially as described and for the purpose specified.

3. In combination with a device of the character described, a coloring-box consisting of the outside of the rectangular frame, an interior rectangular frame adapted to fit within the outside frame, both the inside and the outside frame open at the top and bottom, a woven fabric secured to the interior frame, two covers, one adapted to fit over the top of the box and the other over the bottom of the same, transverse ribs formed upon the ends of the box, grooves formed in the holder into which said ribs are adapted to slide, substantially as and for the purpose set forth.

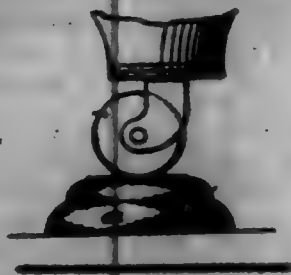
4. In combination with a device of the character described, a holder consisting of a handle, a side strip secured to said handle and extending out therefrom, a cross-piece formed with said side strip upon the end of the same, a side strip pivoted to the cross-piece, means for securing the free end of said pivoted strip to the handle, said side strips, cross-piece and handle adapted to form a rectangular opening into which the coloring-box is adapted to be inserted, transverse grooves formed upon the inner face of the cross-piece and handle, ribs formed upon the end of the coloring-box adapted to fit within said grooves, a cavity formed within the handle, and a cap adapted to fit over the end of the handle, substantially as described and for the purpose set forth.

700,977. SUPPORT FOR PIANO. — ANDREAS GRAM, Ephraim, Utah. Filed Apr. 10, 1901. Serial No. 54,175. (No model.)

Claim.—1. A cushion for the leg or foot of a piano or other musical instrument consisting of a mass of soft elastically-yielding material having a concave under surface and a crown-plate of metal imposed on said mass, substantially as herein described.

2. A cushion for the support of the leg or foot of a piano or other musical instrument consisting of a mass of soft elastically-yielding material having a concave under surface and a crown-plate of metal having a

concave upper surface imposed on said mass, substantially as herein described.



700,978. HAMMOCK. — RALPH E. PALMER, Middletown, Conn. Filed Feb. 20, 1902. Serial No. 94,921. (No model.)



Claim.—1. A hammock having its body bifurcated at its opposite ends, substantially as set forth.

2. A hammock having its body bifurcated at its opposite ends and a gore inserted between the branches at the end of the hammock, substantially as set forth.

700,979. COMPOSITION OF MATTER FOR WELDING STEEL.
 CHARLES PARSONS, Kalamazoo, Mich. Filed Aug. 12, 1901. Serial No. 71,582. (No specimens.)

Claim.—1. Boracic acid combined with small particles of iron or steel for welding.

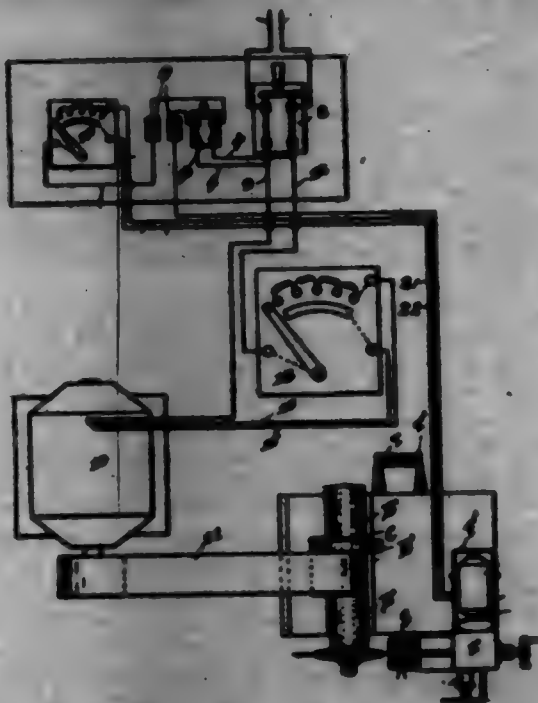
2. The combination of boracic acid, iron or steel, gelatin, and water, in the approximate proportions named above for a welding compound.

700,980. ELECTRIC SAWING-MACHINE. — CHARLES PARSONS, Newport, Ky., assignor to The Warr Frog Company, Cincinnati, Ohio, a Corporation. Filed Nov. 2, 1901. Serial No. 69,922. (No model.)

Claim.—1. In an electrical sawing-machine, a main motor-circuit, a cut-out switch, a controller in said circuit, a motor connected to a driving-shaft, a saw-shaft, in combination with a branch circuit connecting the main circuit between the controller and switch, said branch connection being provided with a switch and controller and in circuit with a feed-motor shaft geared to convey power to the feeding-sawings, substantially as specified.

2. In combination with a sawing-machine, a main power-circuit, a motor adapted to drive the saw-shaft, a controller in said circuit for regulating the power for the motor, a cut-out switch outside of the controller, a branch feed-motor circuit connecting with the main circuit between the switch and the controller, a feed-motor having its shaft connected by a train of belt gears to the feed-sawings, an electric controller in said branch circuit, whereby said switch is adapted to simultaneously cut out both motors, substantially as herein described.

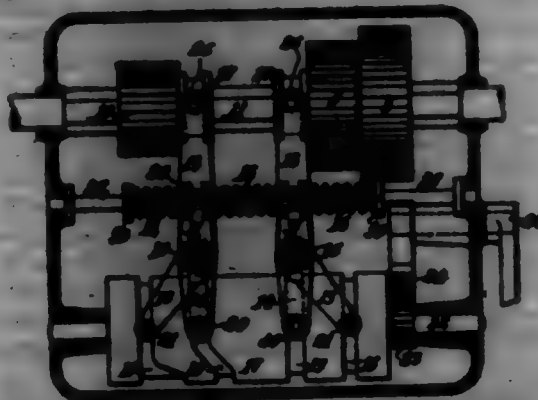
3. In combination with a sewing-machine consisting essentially of a main circuit, a motor-controller, a switch, a branch circuit having connection with the main circuit between said main switch and power-motor controller, a branch switch and feed-motor controller, a motor located in said branch circuit, a feed-carrage connected by a train of belt gears to the shaft of said motor in said branch circuit, device for storing up power with a forward movement of said carrage, means for unshipping the geared connection between said carrage and its motor-shaft, whereby the feed-carrage is automatically retracted independent of all the power driving device and of the energy transmitted by said circuit, substantially as described.



4. In machine-working machine employing a cutting-tool, a carrage for supporting and feeding the work to the tool, the combination thereof of a main electric circuit, a motor and controller for driving the cutting-tool, a switch for cutting in said main circuit, a branch circuit connected with the main circuit between the motor and switch, a controller and an electric motor in said branch circuit, said branch-circuit motor being geared to the feed-carrage whereby the feed may be regulated or the branch circuit may be cut out independent of the main circuit and both circuits simultaneously may be controlled by a single switch, substantially as described.

5. In combination with an electrical sewing-machine, a feed-motor located upon the frame of the machine having a geared connection with a feeding-carrage, a power-motor independent of said machine with device for transmitting motion to the aw-shaft, a main circuit in which said power-motor is located, a controller and a switch in said main circuit, a branch circuit connecting with the main circuit between the switch and controller thereof and in circuit connection with the feed-motor, a switch and controller in said branch circuit, substantially as described.

700,981. VARIABLE-SPEED CHARKING. SHAW DE FRANK, St. Maurice, France, assignor to SA de Frang, H. Collier Lonsard et Co., St. Maurice, France. Filed July 26, 1901. Serial No. 60,125. (No model.)



Claim.—1. In a gearing, the combination of a pair of toothed gears adapted to be moved relatively to each other in an axial direction for engagement or disengagement, said gears being normally out of engagement, and means for pressing said gears yieldingly toward each other to bring them into engagement.

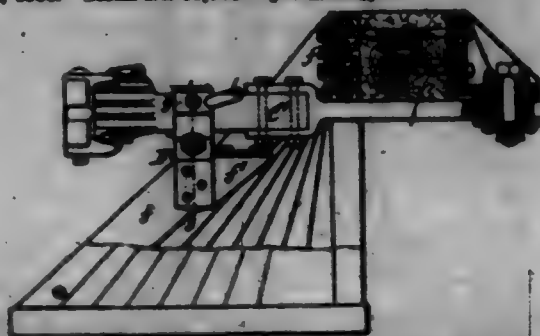
2. In a variable-speed gearing, the combination of a driving-shaft,

pinions carried thereby, a driven shaft, corresponding gears carried thereby and adapted to engage with said pinions to produce different speeds of the driven shaft, springs tending to bring said pinions into engagement with their corresponding gears, and means for releasing each of said springs in succession to bring its pinion into engagement with its corresponding gear.

3. In a variable-speed gearing, the combination of a series of springs 13, sliding blocks 20, levers 12 and 14 engaging said sliding blocks, and means for operating said levers 12 and 14 to disengage one of said springs and permit the others to operate.

4. In a variable-speed gearing, the combination of a driving-shaft, pinions carried thereby, a driven shaft, gears carried thereby, springs tending to bring said pinions into engagement with their corresponding gears, a common shaft, and cams carried thereby and adapted as said shaft is rotated continuously in one direction to bring the pinions successively into and out of engagement with their corresponding gears.

700,982. DRAW-BAR ATTACHMENT FOR LOCOMOTIVES. WILLIAM F. RICHARDS, Buffalo, N. Y., assignor to Gould Coupler Company, New York, N. Y., a Corporation of West Virginia. Filed Nov. 21, 1901. Serial No. 52,173. (No model.)



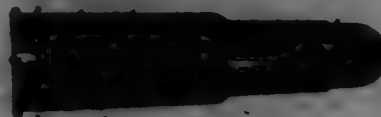
Claim.—1. The combination with a locomotive-pilot, of a guide-bar supported by said pilot, a draw-bar mounted to move laterally and having its forward end guided by said bar, spring-pockets slidably mounted on said bar, oppositely-arranged springs carried by said pockets, a stop between said pockets, and a rod or bar connected at its opposite ends to the outer ends of said springs and movable relative to said spring-pockets substantially as set forth.

2. The combination with a locomotive-pilot, and a draw-bar mounted to swing laterally, of a guide and supporting box for the forward end of said draw-bar attached to said pilot, guides on said box, oppositely-arranged spring-pockets slidably mounted in said guides, an abutment or stop between said spring-pockets, oppositely-arranged coiled springs seated in sockets in the outer sides of said spring-pockets, a rod or bar passing through said coiled springs and through openings in said spring-pockets, and stops or abutments at the opposite ends of said rod or bar engaging the outer ends of said coiled springs, substantially as set forth.

3. The combination with a locomotive-pilot and a draw-bar mounted to swing laterally, of a guide and supporting box secured to said pilot and having oppositely disposed guides and a centrally-disposed depending post or standard secured to the pilot, spring-pockets slidably mounted in said guides and having upwardly-projecting abutments arranged on opposite sides of said draw-bar and in their outer sides with sockets, a stop or abutment on said depending post between said spring-pockets, oppositely-arranged coiled springs having their inner ends seated in said sockets, and a rod or bar passing through openings in said spring-pockets and through said coiled springs, and stops or abutments at the opposite ends of said rod or bar engaging the outer ends of said coiled springs, substantially as set forth.

4. The combination with a locomotive-pilot, and a draw-bar mounted thereon to move laterally, of a guide-box for said draw-bar having a depending post, plates or bars rising from the lower part of said pilot to which said post is secured, a substantially U-shaped bracket arranged in rear of said guide-box and secured at its upper end to the upper part of said pilot and at its lower end to said plates or bars, said draw-bar passing between the arms of said bracket and through said guide-box, substantially as set forth.

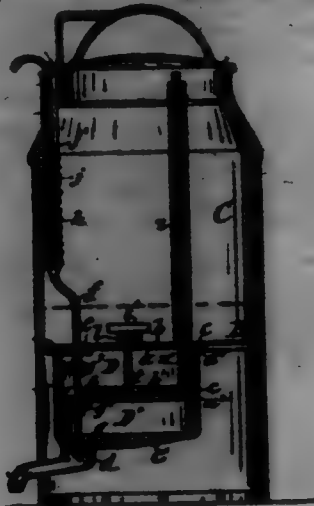
700,983. GUN-CARTRIDGE. WILLIAM H. BURGESS, Monticello, Tenn. Filed Sept. 20, 1901. Serial No. 51,509. (No model.)



Claim.—A cartridge comprising a tapering shell and contracted at its forward end, a tapering plug fitted into the rear end of the shell and

having the tapering opening adapted to receive the cap, the forward faces of said plug being concave and a projectile convex at both ends and fitting into the contracted end of the shell, the inner end of said projectile having a recess produced therein, and a wad arranged in contact with the rear end of the projectile, said wad having its front and rear faces concave and the explosive adapted to be contained in the shell between the concave face of the plug and wad, said wad being secured at the juncture of the main portion of the shell and the contracted forward end, substantially as described.

700,984. MEASURING-CAN. WILLIAM E. BROWN, Grafton, N. Y. Filed Sept. 20, 1901. Serial No. 70,984. (No model.)



Claim.—1. A can provided with measuring-compartments arranged one directly over the other, a discharge-spout attached to the bottom of the lower compartment, ports in the tops of the compartments and disposed in range with said discharge-spout, a stem passing vertically through said ports and to the discharge-spout, and valves attached to said stem and controlling the discharges through said ports and spout as set forth and shown.

2. A can provided with measuring-compartments arranged one above the other inside of the can and each of said compartments provided with an opening in its top, removable covers closing said openings, means for retaining the covers in their closed positions, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of the compartments, valves controlling the discharges through said ports and spout, and a stem carrying said valves to move them simultaneously as set forth.

3. A can provided with measuring-compartments arranged one above the other inside of the can and each of said compartments provided with an opening in its top, removable covers closing said openings, means for retaining the uppermost cover in its closed position, a prop interposed between said cover and adjacent cover to confine the latter in its closed position, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of the compartments, valves controlling the discharges through said ports and spout, and a stem carrying said valves to move them simultaneously as set forth.

4. A can provided with measuring-compartments arranged one above the other, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of said compartments, a stem passing through said ports, and valves attached to said stem and spaced to open the spout and close the ports in succession by the upward movement of the stem as set forth.

5. A can provided with measuring-compartments arranged one above the other, separate ventiducts extending from the tops of the compartments and disposed telescopically one within the other, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of the compartments, a stem passing through said ports, and valves attached to said stem and spaced to open the spout and close the ports in succession by the upward movement of the stem as set forth.

6. A can provided with measuring-compartments arranged one above the other, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of the compartments, a stem passing through said ports, valves attached to said stem and spaced to open the spout and close the ports in succession by the upward movement of the stem, and gages on the stem and can determining the positions of the valves as set forth.

7. A can provided with measuring-compartments disposed one above the other and each of said compartments provided with an opening in its top, removable covers closing said openings, discharge-ports in said covers, a discharge-spout attached to the lowermost compartment, guides determining the movement of the covers, a stem passing through said ports,

valves attached to said stem and spaced to open the spout and close the ports in succession, and gages on the stem and can determining the positions of the valves as set forth.

8. A can provided with measuring-compartments disposed one above the other and each of said compartments provided with an opening in its top, removable covers closing said openings, separate ventiducts extending from said covers and disposed telescopically one within the other, a discharge-spout attached to the lowermost compartment, discharge-ports in the lowermost cover, a stem passing through said ports, valves attached to said stem and spaced to open the spout and close the ports in succession by the upward movement of the stem, and gages determining the positions of the valves as set forth.

9. A can provided with measuring-compartments disposed one above the other, a discharge-spout attached to the lowermost compartment, discharge-ports in the tops of the compartments, a stem passing through said ports, a valve attached to the lower end of said stem for controlling the discharge through the spout, a spring forcing the stem downward to automatically close the spout, valves attached to the stem and spaced to open the discharge-ports in succession by the upward movement of the stem, and gages on the stem and can to determine the positions of the valves as set forth.

10. A can provided with measuring-compartments disposed one above the other inside of the can and each of said compartments provided with an opening in its top, removable covers closing said openings, ventiducts extending from said covers and arranged telescopically one within the other, means for retaining the cover of the uppermost compartment in its closed position, a prop interposed between the covers, a discharge-spout attached to the lowermost compartment, discharge-ports in the lowermost cover, guides determining the positions of the closed covers, a stem passing through the discharge-ports, a valve attached to the lower end of the stem to control the discharge through the spout, valves attached to said stem and spaced to open the discharge-ports in succession by the upward movement of the stem, a spring forcing the stem downward to automatically close the spout, and gages on the stem and can determining the positions of the valves as set forth and shown.

700,985. BALANCE VALVE. EDWIN E. BROWN, Rochester, N. Y. Filed July 20, 1904. Serial No. 26,187. (No Model.)



Claim.—1. In a balance valve, a cylinder having inlet and exhaust ports, a slide-valve for causing inlet and exhaust of steam to the ends of the cylinder, a steam-chest, a box secured to the back of slide-valve and a movable metallic packing supported on a base on said box and fitting the exterior of said box and against the steam-chest cover and having one or more grooves on its surfaces in contact with said box and said base and open passages from said grooves to the interior only of said box, substantially as described.

2. In a balance valve, a cylinder having inlet and exhaust ports, a slide-valve for causing inlet and exhaust of steam to the ends of the cylinder, a steam-chest, a box secured to the back of the slide-valve, and a movable metallic packing supported in a base on said box and fitting the exterior of said box and against the steam-chest cover and having one or more grooves on its surfaces in contact with said box, said base and said steam-chest cover, and open passages from said grooves to the interior only of said box, substantially as described.

3. In a balance valve, a cylinder having inlet and exhaust ports, a slide-valve for causing inlet and exhaust of steam to the ends of the cylinder, a steam-chest, a box secured to the back of the slide-valve, and a movable metallic packing supported on a base on said box and fitting steam-tight against the outer surface of the box and against the under surface of the steam-chest cover and upon said base, means for pressing said base upward against the steam-chest cover, said packing having grooves on the surfaces pressing against said box and said base, and open connections from said grooves to the interior only of the box, substantially as described.

4. In a balance valve, a cylinder having inlet and exhaust ports, a slide-valve for causing inlet and exhaust of steam to the ends of the cylinder, a steam-chest, a box secured to the back of the slide-valve, and a movable metallic packing supported on a base on said box and fitting steam-tight against the outer surface of the box and against the under surface of the steam-chest cover and upon said base, means for pressing said base upward against the steam-chest cover, said packing having

grooves on the surfaces pressing against the steam-chest cover, said box and said base, and open connections from said grooves to the interior only of the box, substantially as described.

700,986. RUBBER TUB. GEORGE D. SMITH, Buffalo, N. Y.
Filed May 14, 1901. Serial No. 60,366. (No model.)



Claim.—1. In an instrument of the character described, the combination of a tubular body having an enlarged air-reservoir, provided with an opening, and a contracted outlet end, and a diaphragm over said opening, substantially as set forth.

2. In an instrument of the character described, the combination of a tubular body having a substantially elliptical mouth portion, an enlarged air-reservoir, and a contracted outlet end, and a diaphragm over an opening in said air-reservoir, substantially as set forth.

3. In an instrument of the character described, the combination of a tubular body having a substantially elliptical mouth portion, an enlarged air-reservoir, and a tapering rear portion provided at its end with an inwardly-extending flange surrounding an outlet-opening, and a diaphragm over an opening in the air-reservoir, substantially as set forth.

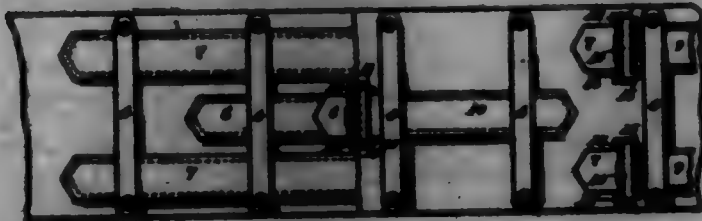
4. In an instrument of the character described, the combination of a tubular body portion provided with an opening and having a through-passage which is enlarged adjacent to said opening to form an air-reservoir and is contracted at its outlet end, a diaphragm over said opening, and a trumpet-shaped device surrounding said diaphragm, substantially as set forth.

5. The combination of a tubular body having an opening, of a diaphragm covering said opening, a ring to which said diaphragm is secured, and means for bending said ring to tension the diaphragm and for clamping the ring in place, substantially as set forth.

6. The combination with a tubular body having an opening surrounded by an inclined flange, of a diaphragm, a ring to which the same is secured and which rests on said inclined flange, and a trumpet having a screw-threaded engagement with a part carried by the body and acting to bend said ring on said inclined flange to tension the diaphragm, substantially as set forth.

7. The combination of a metallic tubular body having an opening intermediate of its ends, an inclined flange surrounding said opening, a screw-threaded ring secured to said flange, a diaphragm, a diaphragm-ring to which the diaphragm is secured and which bears at its outer edge on said inclined flange, and a trumpet secured into said screw-threaded ring and having a flange which bears on said diaphragm-ring at or near its inner edge, substantially as set forth.

700,987. HARVESTER-BELT. JAMES S. SEWELL, Bath, Ohio.
Filed Oct. 11, 1901. Serial No. 73,315. (No model.)



Claim.—1. An improved conveyor-belt for harvesters having external cross-ribs to convey the cut grain and racks of short transverse ridges less in length than the width of said belt on the inside to engage corrugations on the driving-roller, substantially as shown and described.

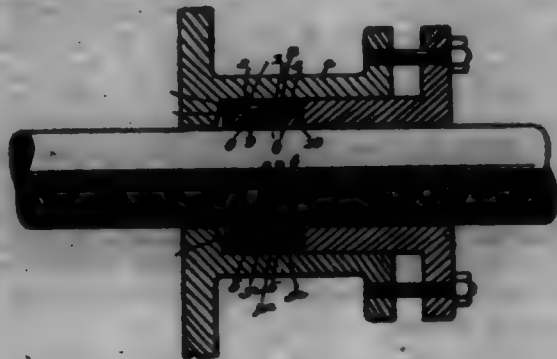
2. The combination with a conveyor-belt for harvesters having external cross-ribs and racks of short transverse ridges less in length than the width of said belt on the inside, of a driving-roller having lines of short corrugations to engage said ridges, substantially as shown and described.

3. An improved conveyor-belt having joining-ribs on one end situated back from the end and buckles on the other end, one whereof is at the end of the belt and the others back therefrom, with openings in said belt adjacent to said latter buckles to permit said straps to pass through from the inside to the buckles, substantially as shown and described.

700,988. METALLIC PACKING. DAVID F. SEATMAN, Baltimore, Md.
Filed Nov. 12, 1900. Serial No. 34,302. (No model.)

Claim.—1. The combination with a stuffing-box and a piston rod or shaft, of a plurality of contacting packing-rings, movable concentrically therein, independently of each other, each packing-ring comprising a series of radially-movable separable segments having radial meeting ends,

springs to press said segments inwardly, on radial lines and maintain said segments in contact with said piston rod or shaft, whereby said packing-rings are adapted to move concentrically in said stuffing-box to conform to any eccentricity or crookedness in the piston rod or shaft on which the packing-rings bear, and whereby each segment of each packing-ring is movable radially, independently of its fellows, to compensate for variations in the surface of the piston rod or shaft, the joints between the segments of said respective packing-rings being out of line with each other, substantially as described.



2. The combination with a stuffing-box and a piston rod or shaft, of a plurality of contacting packing-rings, movable concentrically therein, independently of each other, each packing-ring comprising a series of radially-movable separable segments having radial ends, springs to press said segments inwardly, on radial lines and maintain said segments in contact with said piston rod or shaft, whereby said packing-rings are adapted to move concentrically in said stuffing-box, to conform to any eccentricity or crookedness in the piston rod or shaft on which the packing-rings bear, and whereby each segment of each packing-ring is movable radially independently of its fellows, to compensate for variations in the surface of the piston rod or shaft, the joints between the segments of said respective packing-rings being out of line with each other, one segment of one packing-ring having a dovetail-pin projecting from one side thereof, and one segment of the other packing-ring having an opening to receive said dovetail-pin, said opening admitting of lost motion of said dovetail-pin therein, substantially as described.

3. The combination with a stuffing-box, of a plurality of contacting packing-rings movable concentrically therein, independently of each other, each packing-ring comprising a series of segments having radial ends, and flat springs bearing inward on said segments and said springs having offsets and said segments having notches in their outer edges engaged by said offsets, whereby the said packing-rings conform to any eccentricity or deviation from a straight line in the piston rod or shaft on which the packing-rings bear, and each segment of each packing-ring being movable radially, independently of its fellows, to compensate for variations in the surface of the piston rod or shaft, one segment of one packing-ring having a dovetail-pin, and the opposing segment of the adjacent packing-ring having an opening engaged by said dovetail-pin, said pin having lost motion in said opening, substantially as described.

700,989. AUTOMATIC FUSE-SWITCH FOR TELEGRAPH OR OTHER CIRCUITS. CLARENCE A. STANTON, Philadelphia, Pa.
Filed Aug. 20, 1901. Serial No. 73,548. (No model.)



Claim.—1. In an automatic lightning-arrester or fuse-switch, the combination of a branching main conductor, a separate fuse connected to each of the branches of the conductor and arranged at widely-separated points, a contact fixedly supported and holding the free end of one of the fuses whereby it is supported at both ends, a second main conductor, a spring-actuated movable contact-arm having a support connected with said second main conductor and located intermediate of the last-mentioned or fixed contact and the terminal of the other fuse and having its free end directed laterally away from the fixed contact and secured to the free end of the last-mentioned fuse to hold it taut with its length directed laterally away from the other fuse and so that said arm is held normally out of contact with the fixed contact of the other fuse whereby the arm moves laterally away from the normal direction of the length of the fuse holding it when said fuse is ruptured and makes contact with the fixed contact of the other fuse.

2. In an automatic lightning-arrester or fuse-switch, the combination

of a spring-actuated pivoted contact-arm E, a fine-clamp F near one end of the pivoted end of the contact-arm E, a fine G between said clamp and the free end of the contact-arm E so that the arm makes an acute angle with the fine, a contact J upon the opposite side of the pivoted end of the contact-arm and adapted to receive B when released from the fine G, a fine M connecting with the contact J, and two terminals of a divided circuit one connecting with the pivoted contact-arm E and the other connecting with both the clamp F and the fine M substantially as set forth.

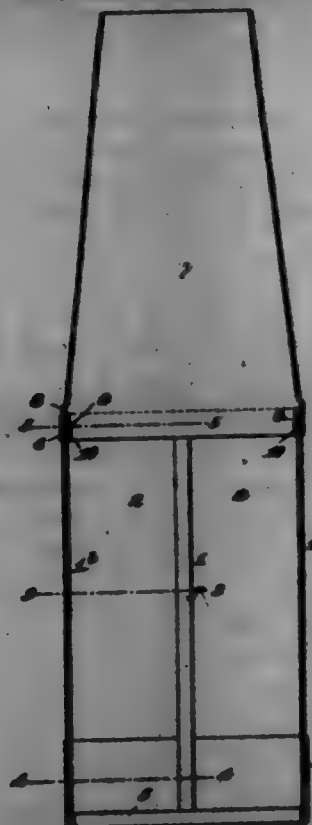
5. In an automatic lightning-arrester or fine-switch, the combination of a shape of insulating material, two terminal binding-posts secured thereon, two fine-clamps electrically connected with one of said binding-posts, a spring-actuated pivoted contact-arm also carried by the base and between the fine-clamps, an electric circuit between the contact-arm and the other of the terminal binding-posts, a fine-clamp carried upon the free end of the contact-arm, a fine between one of the fine-mentioned fine-clamps and the fine-clamp on the contact-arm making an acute angle with the length of the contact-arm, a contact for the contact-arm arranged on the base upon the opposite side of the arm relatively to the above-mentioned fine, a fine-clamp electrically connected with the contact-arm, and a fine between the last-mentioned fine-clamp and the other of the first-mentioned fine-clamps.

700,990. LIQUID-COOLING APPARATUS. EVA R. BROOKER, St. Louis, Mo., assignor to John Brocker, deceased. Filed July 21, 1899. Serial No. 725,094. (No model.)



Claim.—In a liquid-cooling apparatus, the combination of a tower containing checker-work partitions, liquid-distributing troughs arranged at the upper end of said tower and provided with outlets to permit the flow of liquid therefrom onto said partitions, delivery-troughs arranged transversely of said distributing-troughs and provided with apertures arranged to deliver liquid into said distributing-troughs, said apertures open on one side thereof to prevent clogging of the same, and liquid-receiving troughs arranged transversely of said delivery-troughs and provided with outlets adapted to discharge into said delivery-troughs.

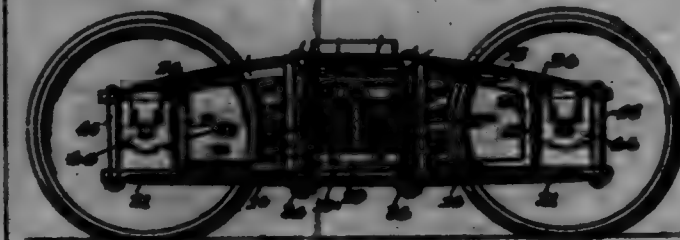
700,991. MICA CHIMNEY. ALBERT F. STUBBS, Oswego, N. Y., assignor to Sturtevant Company, Oswego, N. Y., a Corporation of New York. Filed Jan. 16, 1900. Serial No. 1,000. (No model.)



Claim.—As a new article of manufacture, a mica chimney comprising a series of vertical ribs S-shaped in cross-section, a series of ribs parallel to the ribs formed by said ribs, a head 4 at the bottom

end of the chimney having an upward flange 5 which engages the lower end of said ribs, a head 6 at the top of the ribs, said head being bent over upon the ribs, a plurality of legs or tongues 10 carried by the ribs and located within the upper head, and a metallic tapering upper portion for the chimney provided with a cylindrical lower part and coated within the mica chimney with a head 8 resting on the head 6 and having openings through which said legs or tongues are passed laterally, substantially as and for the purposes set forth.

700,992. BOLTLISS EAST-STEEL CAR-TRUCK. WM. B. STUBBS, Savannah, Ga. Filed July 6, 1901. Serial No. 67,303. (No model.)



Claim.—1. In a boltliss east-steel car-truck frame, the combination with the side frames each cut in a single piece and having a central transverse opening, of a transom having its ends fitted in said openings and hinged to the side frames, said transom being provided with rigid spring-cuts disposed at opposite sides of the longitudinal center of the side frames.

2. In a boltliss east-steel car-truck frame, the combination with the side frames, each cut in a single piece and having a central transverse opening, of a transom having its ends fitted into said openings and hinged to the side frames, said transom being provided with rigid spring-cuts disposed substantially in the plane of the bottom of the transom and at opposite sides of the longitudinal center of the side frames.

3. In a boltliss east-steel car-truck frame, the combination with the side frames, each cut in a single piece and having a central transverse opening, of a transom having its ends fitted in said openings and hinged to the side frames, said transom comprising side members and intermediate integral spring-cuts disposed substantially in the plane of the bottom edges of the side members and at opposite sides of the longitudinal center of the side frames.

4. In a boltliss east-steel car-truck frame, the combination with the side frames, each cut in a single piece and provided respectively with central transverse openings, of a transom formed in a single piece and having its ends fitted into said openings and hinged to the side frames, said transom having integral spring-cuts disposed at opposite sides of the side frames, and a truck-bolter having its ends extended into the openings on the side frames and provided with spring-cuts coincident with the spring-cuts of the transom.

5. In a boltliss east-steel car-truck, the combination with side frames, each cut in a single piece and provided respectively with central transverse openings, of a transom formed in a single piece and having its ends fitted into said openings and hinged to the side frames, said transom having integral spring-cuts disposed substantially in the plane of the bottom of the transom and located at opposite sides of the side frames, and a truck-bolter having its ends extended into the openings in the side frames and provided with spring-cuts disposed in a plane above the bottom of the bolter and coincident with the spring-cuts of the transom.

6. In a boltliss east-steel car-truck, the combination with the side frames each cut in a single piece, and provided respectively with central transverse openings, of a transom formed in a single piece and having its ends fitted in said openings and hinged to the frame, said transom having integral spring-cuts disposed substantially in the plane of the bottom of the transom and located at opposite sides of the side frames, and a truck-bolter having its ends extended into the openings in the side frames and provided with spring-cuts disposed in a plane above the bottom of the bolter and coincident with the spring-cuts of the transom.

7. In a boltliss east-steel car-truck, the combination with the side frames provided with central transverse openings, and a transom having its ends extended into said openings and hinged to the side frames, of a bolter having the form of a hollow casting and provided at its opposite ends with transverse diaphragms disposed in a plane between the top and bottom of the bolter and within the hollow casting, said diaphragms constituting spring-cuts disposed at opposite sides of the longitudinal center of the side frames.

8. In a boltliss east-steel car-truck, the combination with the side frames, each cut in a single piece and provided with a central transverse opening, of a transom having its ends extended into said openings and hinged to the side frames, said transom being provided with rigid spring-cuts disposed substantially in the plane of the bottom of the transom and at opposite sides of the longitudinal center of the side frames, said transom being also formed with terminal supports integral with the spring-cuts and spaced below the same.

9. In a boltliss east-steel car-truck, the combination with side frames, each cut in a single piece, and provided with a central transverse opening having its ends extended out to define a series of separated bearing-plates, of a transom having its ends fitted into said openings and hinged to the side frames, said transom being provided with separated bearing-plates disposed opposite the bearing-plates of the side frames.

10. In a boltliss east-steel car-truck, the combination with the side frames, each cut in a single piece and provided with a central transverse opening, the walls of the opening being curved out at the corners thereof and at intermediate points to define separated bearing-plates, of a transom having its ends extended into the openings in the side frames and provided with bearing-plates disposed opposite the bearing-plates of the side frames, said side frames and transom being hinged together.

11. In a boltliss east-steel car-truck, the combination with the side frames having central transverse openings, of a transom having open ends fitted into said transverse openings, the contacting faces of the transom and side frames having vertically-extending key-cuts, the key-cuts in the side frames being curved out intermediate of their ends, and keys fitted in said coinciding key-cuts.

12. In a boltliss east-steel car-truck, the combination with the side frames having a central transverse opening, of a transom having its ends extended into said openings, the adjacent surfaces of the side frames and transom each having spaced bearing-plates, and coincident key-cuts formed in the side frames and transom, the key-cuts in the side frames being curved out opposite the spaces between the adjacent bearing-plates.

13. In a boltliss east-steel car-truck, the combination with the side frames, each cut in a single piece and provided respectively with central transverse openings, and flat bearing-plates above said openings, of a transom having its ends extended into the openings and hinged to the side frames, a truck-bolter having its ends extended through the openings in the side frames and provided with thrust-flanges disposed to bear against the flat bearing-plates of the side frames, and springs interposed between the truck bolter and frame, said springs being located at opposite sides of the side frames.

14. In a boltliss east-steel car-truck, the combination with the side frames, each cut in a single piece and provided with a central transverse opening, of a transom having its ends extended into said openings and hinged to the side frames, said transom being provided with rigid spring-cuts disposed substantially in the plane of the bottom of the transom and at opposite sides of the longitudinal center of the side frames, said transom being also formed with terminal supports integral with the spring-cuts and spaced below the same, and with tie-bars extending between the sides of the transom in vertical alignment with the terminal supports in immediate bearing-plate contact against the upper edges of the openings in the side frames.

15. In a boltliss east-steel car-truck, the combination with the side frames, each cut in a single piece and provided respectively with central transverse openings and flat bearing-plates above said openings, of a transom having its ends extended into the openings and hinged to the side frames, said transom being provided with transverse tie-bars located in the plane of the side frames and disposed to bear against the upper walls of the transverse openings, a truck-bolter having its ends extended through the openings in the side frames and provided with thrust-flanges disposed to bear against the flat bearing-plates of the side frames and against the tie-bars of the transom, and springs interposed between the truck and bolter frame, said springs being located at opposite sides of the side frames.

16. In a boltliss east-steel car-truck frame, the combination with the side frames, each cut in a single piece and provided respectively with central transverse openings, of a transom formed in a single piece and having its ends fitted into said openings and extended beyond the side frames, said transom having integral spring-cuts disposed at opposite sides of the side frames, and a truck-bolter located within the transom and having its ends extended through the openings in the side frames, said truck-bolter being longitudinally coextensive with the transom and provided with spring-cuts coincident with the spring-cuts of the transom.

17. An car-truck comprising a combined upper member, a lower member having its ends substantially parallel and integral with the upper member, integral posts connecting the middle portions of the upper and lower members; and a spring-cut supported between said posts.

18. An car-truck comprising a combined upper member, a lower member having its ends substantially parallel and integral with the upper member, integral posts connecting the middle portions of the upper and lower members; and a spring-cut supported between said posts, the opposite faces of the posts and the contiguous faces of the upper and lower members being formed with spaced bearing-plates.

19. An car-truck comprising a combined upper member, a lower member having its ends substantially parallel and integral with the upper member, integral posts connecting the middle portions of the upper and lower members; and a spring-cut supported between said posts, the opposite faces of the posts and the contiguous faces of the upper and lower members being formed with spaced bearing-plates.

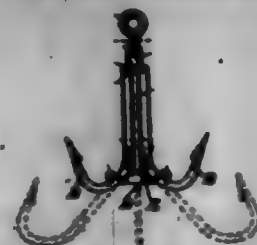
20. A transom comprising side members, and integral spring-cuts intermediate of the side members and extended beyond the ends thereof.

21. A transom comprising parallel side members, integral spring-cuts intermediate of the side members and extended beyond the ends thereof, and integral supports located below the spring-cuts.

22. A bolter having the form of a hollow casting and comprising substantially parallel side walls, a combined top wall, and integral spring-cuts extended between the side walls of the bolter at the opposite ends thereof and at points above the bottom of the bolter.

23. A bolter having the form of a hollow casting and comprising substantially parallel side walls, a combined top wall, the ends of which are disposed horizontally, and integral spring-cuts extending between the side walls substantially midway between the bottom of the bolter and the horizontal ends of the top wall.

700,998. EXPANDIBLE FISH-BOCK. ARTHUR TAYLOR, Boston, Mass. Filed Jan. 29, 1902. Serial No. 91,770. (No model.)



Claim.—1. An expandible fish-bock comprising a stem, an elastic head adapted to move along the stem, an expander on the stem to move within the head, and hooks held by the head and controlled by the expander, substantially as shown and described.

2. An expandible fish-bock comprising a stem, an elastic head adapted to move along the stem, an expander on the stem to move within the head, having peripheral loops or guides, and hooks held by the head and occupying the loops, substantially as set forth.

3. An expandible fish-bock comprising a central stem, a hollow elastic head adapted to move along the stem, the latter having an enlarged part to enter the head to form a frictional tension with the same, a series of hooks carried by the head, and an expander rigid with the stem to control the hooks, substantially as shown and described.

4. A multiple fish-bock comprising a stem having an enlarged part, a hollow elastic head divided at one end adapted to receive the enlarged part of the stem, a series of hooks held by the head, and an expander to control the hooks, substantially as shown and described.

5. An expandible fish-bock comprising a stem, an elastic head adapted to move along the stem, a bulged or curving expander on the stem the bulge of which is engaged by said head, said expander being formed with inclined radial loops equally spaced at its edge, and a series of hooks held by the head and occupying the respective loops, the hooks bearing against the expander, substantially as shown and described.

6. An expandible fish-bock comprising a stem, an elastic head adapted to move along the stem, an expander on the stem adapted to expand said head, and hooks held by the head and controlled by the expander, there being a yielding friction-bearing of the head against the stem, substantially as and for the purposes specified.

7. An expandible fish-bock comprising a stem, an elastic head adapted to move along the stem, an expander on the stem, and hooks held by the head and controlled by the expander, means being provided within the head to cause the stem and the head to act both independently, and together as one piece, substantially as and for the purposes specified.

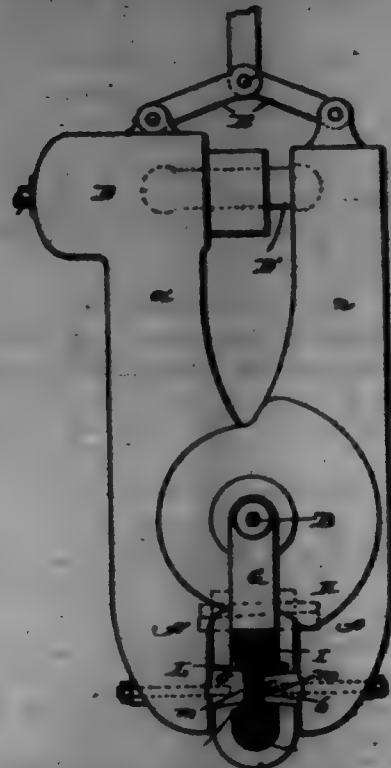
700,994. ALKYLING, SMOULING, AND BOWLING OF RAIL ENDS. FRANK D. TOWN and DANIEL R. BAKER, Baltimore, Md. Filed Feb. 18, 1901. Renewed Feb. 24, 1901. Serial No. 72,577. (No model.)

Claim.—1. The herein-described improvement in the art of joining adjacent ends of railroad-rails, consisting in applying cheeks thereto which are preliminarily heated in a welding heat and finally applying sufficient continued pressure to the outer opposite faces of the cheeks to weld the same together and simultaneously raise the heads of the rails into correct alignment; substantially as described.

2. The herein-described improvement in the art of joining the adjacent ends of railroad-rails consisting in applying cheeks thereto which are preliminarily heated to a welding heat, applying sufficient continued pressure to the outer opposite faces of the cheeks to weld said cheeks together and raise the head of the rail into correct alignment and restraining the vertical spreading of said rail ends at the point of surface alignment; substantially as described.

3. The herein-described improvement in the art of joining adjacent ends of railroad-rails consisting in applying a rigid mold to the rail-ends, applying cheeks which are preliminarily heated to a welding heat

to the opposite faces of the rail ends and finally applying sufficient continued pressure to the opposite faces of the cheeks to weld said cheeks together and spread the rail ends into contact with the web; substantially as described.



4. The herein-described method of joining adjacent ends of railroad rails consisting in perforating the webs of the rails near their ends, applying cheeks thereto which are preliminarily heated to a welding heat, applying sufficient continued pressure to the outer opposite faces of the cheeks to weld the rail ends together through the perforations in the webs and spread said rail ends vertically and restraining the spreading action of said rail ends to form a true wheel-rim; substantially as described.

5. The alignment of rail ends, consisting in placing the adjacent rail ends in a top and bottom clamp shaped to the required alignment, and forcing them into said clamp by pressure laterally applied to the said rail ends between the top and bottom of the clamp.

6. The alignment of rail ends, consisting in placing the adjacent rail ends in a top and bottom clamp shaped to the required alignment, heating said rail ends, and forcing them into said clamp, by pressure applied to said ends between the top and bottom of the clamp.

7. The alignment of rail ends and the securing of the same, consisting in placing the adjacent rail ends in a clamp shaped to the required alignment, securing metal plates against said rail ends thereto, and forcing said rail ends into said clamp.

8. The alignment of rail ends having apertures therein and the securing of the same together, consisting in placing the adjacent rail ends in a clamp shaped to the required alignment, welding heated metal cheeks placed against said rail ends together through said apertures by pressure applied thereto and heating said rail ends by heat from the said heated metal cheeks and the pressure applied thereto, and forcing said heated rail ends into said clamp by pressure laterally applied.

9. The alignment of rail ends having apertures therein and the securing of the same together, consisting in placing the adjacent rail ends in a clamp shaped to the required alignment, welding heated metal cheeks placed against said rail ends together through said apertures by pressure applied thereto and heating said rail ends by heat from the said heated metal cheeks and the pressure applied thereto, and forcing said heated rail ends into said clamp by pressure laterally applied.

10. The herein-described mode or method of joining adjacent ends of railroad rails consisting in applying heated cheeks thereto, and finally applying sufficient pressure to the outside surfaces of said cheeks to cause them to adhere to said rails, and to spread the ends thereof vertically, substantially as described.

700,995. AIR-FORGING DEVICE FOR ATOMIZING. CHARLES J. WALK, New York, N. Y., assignor to West Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 20, 1901. Serial No. 51,503. (No model.)

Claim.—1. In an air-forging device for atomizing, the combination with a door and its frame, of a swinging arm hinged to the frame, a cylinder and its piston, the cylinder-piston being pivoted to the door and the cylinder being pivoted to the swinging arm, substantially as set forth.

2. In an air-forging device for atomizing, the combination with a door and its frame, of a swinging arm hinged to the frame, a cylinder

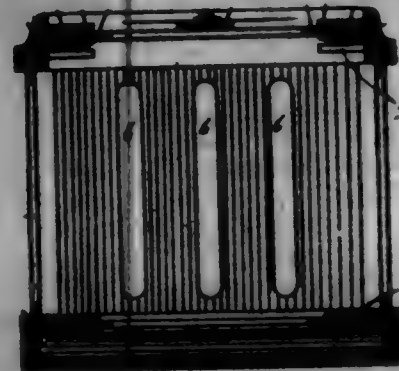
and its piston, the cylinder-piston being pivoted to the door and the said cylinder being at its opposite ends pivoted to and supported by the swinging arm, substantially as set forth.



3. In an air-forging device for atomizing, the combination with a door and its frame, of a spring-actuated swinging arm normally in engagement with the frame, a cylinder and its piston, the cylinder-piston being pivoted to the door, the said cylinder being at its opposite ends pivoted to and supported by the spring-actuated arm, substantially as set forth.

4. In an air-forging device for atomizing, the combination with a door and its frame, a bracket secured to the door, a swinging arm hinged to the door-frame, a cylinder and its piston, the cylinder-piston being hinged to said bracket, the said cylinder being pivoted to and supported by the swinging arm at its outer end, substantially as set forth.

700,996. SHIPPING CRATE. WILLIAM S. WILLIAMS, Clark Mills, N. Y. Filed May 25, 1900. Serial No. 17,951. (No model.)



Claim.—1. In a shipping-crate, vertically-slatted walls, upper and lower frame-bars, grooved in the direction of their length for receiving and holding the upper and lower ends of the slatted walls, a dotted bottom, and pieces slotted in the direction of their length for receiving and supporting the opposing ends of the bottom, grooves in the inner vertical faces of the upper frame-section, a slotted cover, a pivoted locking device pivoted to the cover and adapted to swing into engagement with the grooves in the vertical faces of the upper section of the frame, combined substantially as set forth, for the purpose stated.

2. In a shipping-crate, the combination of vertically-slatted walls or sides, bottom and top frame-sections both being in the form of the open molding and each provided with a groove in the direction of its length to receive and support the walls of the shipping-crate, slotted top and bottom, the grooved and pieces for supporting the ends of the top and bottom sections of the crate, oppositely-disposed grooves in the inner upper faces of the top frame-section, a pivoted locking device pivoted to the lid and constructed to swing into and out of engagement with the grooves for locking and unlocking the cover, combined substantially as set forth for the purpose stated.

3. A shipping-crate comprising the corresponding top and bottom rigid frames, vertical flexible side walls forming the covering connections between said top and bottom frames, each frame formed of bars rigidly secured together at their ends, the bottom frame-bars transversely beveled or inclined outwardly and downwardly at their inner edges and the top frame-bars correspondingly beveled at their outer edges so that the crates can be nested one on the other as described, a bottom secured in the bottom frame and comprising opposite side bars at the inner edges of and secured to the bottom frame-bars and flexible material extending and clasp its opposite edges secured to said side bars, said side walls at their upper and lower edges secured to and longitudinally of the frame-bars and having vertically-slanted openings, as described.

4. A shipping-crate comprising the rectangular corresponding top and bottom frames formed of open molding-bars so that the crates can be nested one on the other, the top frame having the lower angular corners 51, a bottom secured in the bottom frame, said frame grooved

throughout the lengths of their bars, and the flexible vertical walls formed of veneer sheets connecting said frames and secured throughout the lengths of their upper and lower edges in said grooves, said vertical walls formed with the vertical slots as described.

5. A shipping-crate comprising vertical walls, a rectangular bottom frame secured to said walls and consisting of bars secured rigidly together, and a bottom secured within said bottom frame and comprising side bars at and fitting the inner edges of opposite frame-bars and an elastic wall at its edges secured to the longitudinal edges of said side bars and formed with openings throughout, substantially as described.

6. A rectangular shipping-crate comprising a bottom and vertical walls all secured together, each wall composed of a panel consisting of two longitudinal bars having their opposite edges longitudinally grooved and one or more sheets of veneer between and connecting said bars and at its opposite edges fitted and secured in said grooves, substantially as described.

7. A rectangular shipping-crate comprising the vertical walls and a bottom all secured together, a cover, each of said elements formed by a panel having transverse openings and composed of edge bars longitudinally grooved at their opposite edges and one or more sheets of veneer extending between and connecting said bars and at its edges fitted and secured in said grooves, substantially as described.

8. A rectangular shipping-crate comprising vertical walls secured together, and a bottom having transverse openings and secured between the lower ends of the vertical walls and comprising side bars longitudinally grooved at their opposite edges and one or more thin sheets extending between said bars and at its edges fitted and secured in said grooves, substantially as described.

9. A rectangular shipping-crate having a bottom, a top frame, a bottom frame, each frame being of the same dimensions and formed by bars in the form of open molding rigidly secured together at their ends and the thin vertical veneer walls extending between and connecting said frames and at their ends edges inserted longitudinally directly into the top and bottom edges respectively of and secured in said bars, said walls being vertically slanted.

10. A shipping-crate having a bottom, and upper and lower frames connected by vertical walls secured thereto, and a cover composed of side bars adapted to fit within the upper frame and longitudinally grooved and a slatted wall connecting said side bars and at its edges fitted and secured in said grooves, substantially as described.

11. A rectangular shipping-crate comprising a bottom and vertical walls all secured together, each wall composed of a panel of two longitudinal bars having their opposite edges longitudinally grooved, and one or more sheets of veneer between and connecting said bars and at the opposite edges fitted and secured in said grooves, said bars secured together at their ends to form the upper and lower frames, the lower frame, at its inner edges beveled or inclined inwardly and outwardly, and the upper frame correspondingly beveled at its outer edges, so that the crates can nest one on the other, substantially as described.

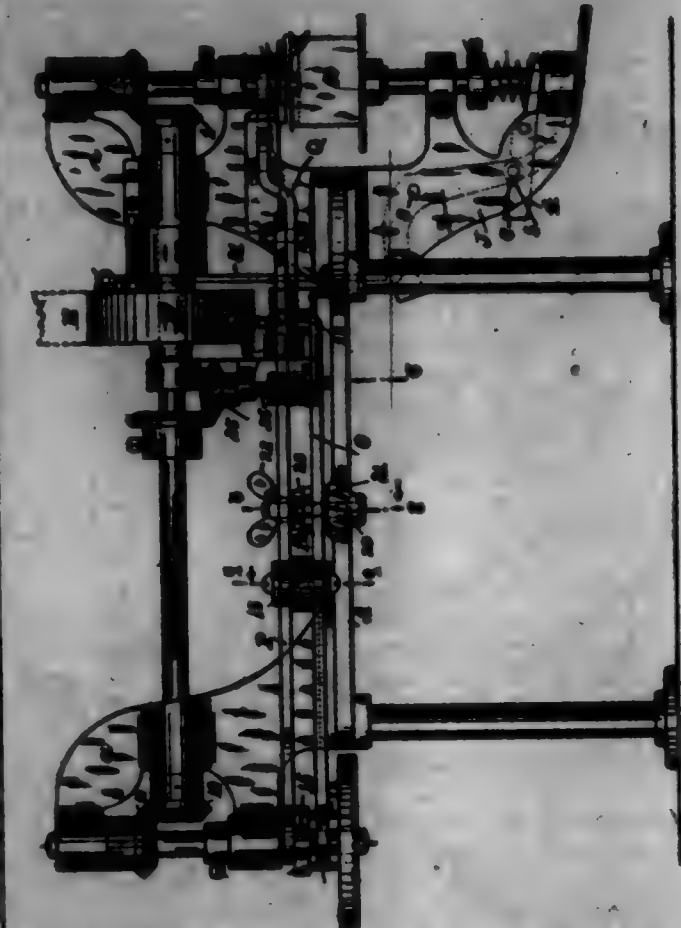
700,997. DOUBLE-SHAFTING MACHINE. ARTHUR F. WOLFE, Brooklyn, N. Y. Filed July 9, 1901. Serial No. 57,000. (No model.)

Claim.—1. In a machine for reaming boxes, the combination of two sets of compensating levers, a pair of reaming-levers fulcrumed to one set of said compensating levers, adjustable fulcrums carried by one set of levers, two cams adapted to engage respectively with said two sets of levers, means for laterally adjusting the fulcrum-carrying levers, means for moving the reaming-levers toward and from the form, and means for connecting the two sets of compensating levers, substantially as and for the purpose specified.

2. In a machine for reaming boxes, the combination of an upper and lower set of compensating levers, a pair of reaming-levers fulcrumed to the upper set of compensating levers and carrying reaming-rolls at their outer ends, rotary cams adapted to act on the inner ends of said reaming-levers for moving the reaming-rolls toward and from the box-form, adjustable fulcrums carried by the lower set of levers and to which the upper set of levers is pivoted, a cam-shaft, a cam adapted to engage with the lower set of levers, an upper cam slidably mounted on the shaft and adapted to be thrown into and out of contact with the upper set of levers, means for laterally adjusting the lower set of levers, and means for connecting and disconnecting the two sets of levers, substantially as and for the purpose specified.

3. In a machine for reaming boxes, the combination of two sets of compensating levers, a pair of reaming-levers fulcrumed to one set of said compensating levers, and carrying the reaming-rolls, cams adapted to act on said reaming-levers for moving the rolls to be moved toward and from the form, means for imparting a rotative movement of rotation to said cams from the driving-shaft of the machine, adjustable fulcrums for one set of levers carried by the other set of levers, two cams adapted to engage

respectively with said two sets of levers and one of said cams being adapted to be thrown into and out of engagement with its corresponding set of levers, means for laterally adjusting the fulcrum-carrying set of levers, and means for connecting the two sets of compensating levers, substantially as described.



4. In a machine for reaming boxes, the combination of an upper and lower set of compensating levers, a pair of reaming-levers fulcrumed to the upper set of compensating levers and carrying reaming-rolls at their outer ends, cams adapted to act on the inner ends of said reaming-levers, adjustable fulcrums carried by the lower set of compensating levers and to which the upper set of levers is pivoted, means adapted to engage respectively with the upper and lower sets of compensating levers and of which the upper cam is adapted to be thrown into and out of connection with the upper set of levers, means for laterally adjusting the lower set of levers, means for connecting and disconnecting the two sets of levers, a driving-shaft, a connection between said driving-shaft and the cams for the reaming-levers, a tumbler, a clutch mechanism, and operative connection between said tumbler and the clutch mechanism permitting the tumbler to be partially depressed for the purpose of pressing the box firmly against the form before the machine is set in motion, substantially as described.

5. In a machine for reaming boxes, the combination of two sets of compensating levers, a pair of reaming-levers fulcrumed to one set of said compensating levers, a cam adapted to act on said reaming-levers for moving their reaming-rolls to be moved toward and from the form, means for imparting a rotative and variable movement of rotation to said cams from the driving-shaft of the machine, adjustable fulcrums for one set of levers carried by the other set of levers, two cams adapted to engage respectively with said two sets of levers and one of said cams being adapted to be thrown into and out of engagement with its corresponding set of levers, means for laterally adjusting the fulcrum-carrying set of levers, and means for connecting the two sets of compensating levers, substantially as described.

6. In a machine for reaming boxes, the combination with the reaming-levers, of two sets of compensating levers actuated at one end by cams, and one set of said levers carrying the reaming-rolls, and means for coupling the two sets of levers together to act as a unit, substantially as described.

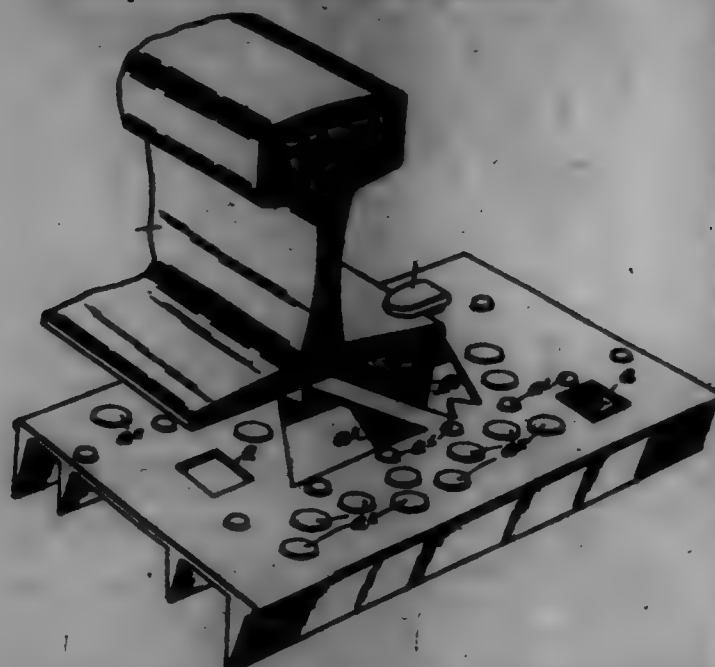
7. In a machine for reaming boxes, the combination with the reaming-levers, of two sets of compensating levers actuated at one end by cams, and said sets of levers being fulcrumed together, and one set carrying the reaming-rolls, means for coupling and uncoupling the levers at a point between the fulcrums and the connection with the reaming-levers, and means for laterally adjusting one set of levers about its fulcrum, substantially as described.

8. In a machine for reaming boxes, the combination with the reaming-levers, of two sets of compensating levers, two cams for actuating said

loven, of which the one can be adjustable toward and from the other while in continuous connection with the same, and means for coupling the two sets of lovens together to act as a unit, substantially as described.

9. In a machine for cleaning boxes, the combination with the cleaning-loven, of two sets of compensating lovens, of which the one set carries the cleaning-loven, two means for actuating said compensating lovens, of which the one can be adjustable toward and from the other while in continuous connection with the same, while the other can be movable to align the ends of its corresponding set of lovens, and means for coupling the two sets of lovens together to act as a unit, substantially as described.

700,998. THE PLATE. BENJAMIN WOLFAWTER, Chicago, Ill. Filed Sept. 30, 1891. Serial No. 77,007. (No model.)



Claim.—1. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface.

2. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface, and on its under surface with its engaging flanges.

3. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface, and holding prongs or flanges cut from the body of the plate and bent downwardly therefrom.

4. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface, and on its under surface with its engaging flanges arranged parallel with the side margins thereof, and holding prongs cut from the body of the plate between said flanges and bent downwardly therefrom.

5. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface, and on its under surface at or near the margins thereof with two its engaging flanges and with an intermediate flange or flanges depending from said plate between and parallel with said outer flanges, and holding prongs cut from the body of said plate and bent downwardly from the plate.

6. A plate provided on its upper surface with elevated parts, the upper surface of which constitutes the bearing-surface for the rail and on its lower part with rail-engaging flanges arranged parallel with the side margins of the plate, and holding prongs cut from the body of the said plate between said flanges and bent downwardly therefrom.

7. A plate provided on its lower surface with a plurality of parallel its engaging flanges and on its upper surface with separated protuberances, which form supporting-surfaces for the rail and which are located over one or more of the flanges.

8. A plate provided on its upper surface with a plurality of hollow separated protuberances, the upper surface of which constitutes the rail-bearing surface.

9. A plate provided on its lower surface with its engaging flanges and on its upper surface in its parts between said flanges with a plurality of separated protuberances, formed by striking upwardly the metal of the plate, and which form rail-supporting surfaces.

10. A plate provided on its upper surface with a plurality of separated protuberances, the upper surface of which constitutes the rail-bearing surface, and on its lower surface with rail-engaging flanges, certain of said protuberances being located on the plate over one or more of the

flanges, and others of said protuberances being located in the parts of the plate between the flanges and being struck up from the metal of the plate.

11. A rolled-metal plate provided with its engaging flanges which extend throughout the length of the plate parallel with the side margins thereof, and separated protuberances on the upper surface of the plate, the upper surface of which constitutes the rail-bearing surface, certain of said protuberances being located directly over the flanges and holding prongs cut from the body of the plate between said flanges and bent downwardly therefrom.

12. A rolled-metal plate provided with its engaging flanges, which extend throughout the length of the plate parallel with the side margins thereof, and separated protuberances on the upper surface thereof, of the upper surface of which constitutes the rail-bearing surface, certain of said protuberances being located directly over the flanges and being spaced along said flanges, and others thereof being located between the flanges and made hollow with their upper walls no thicker than the body of the plate.

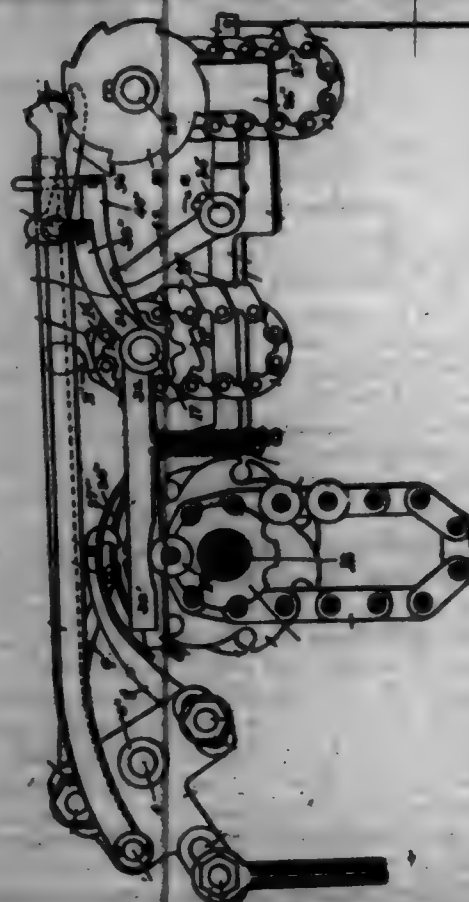
13. A rolled-metal plate provided with its engaging flanges which extend throughout the length of the plate parallel with the side margins thereof and adjacent to said margins, intermediate flanges parallel with said outer flanges, separated protuberances on the upper surface of the plate, the upper surface of which constitutes the rail-bearing surface, certain of said protuberances being located directly over the intermediate flanges and spaced at equal distances apart, and holding prongs cut from the body of the plate between said intermediate flanges and bent downwardly therefrom.

14. A rolled-metal plate provided on its upper surface with separated protuberances, the upper surface of which constitutes the rail-bearing surface, and prongs cut from the body of the plate and bent downwardly therefrom, said prongs being provided on their lower ends with bars.

15. A plate provided with means for attaching it to a tie, and provided on its upper surface with hollow separated protuberances, the upper walls of which constitute the bearing-surface of the plate, said protuberances being irregularly spaced upon the plate.

16. A plate provided on its upper surface with a plurality of separated circular protuberances.

700,999. MULTIPLE MECHANISM FOR LOCKING. HORACE WYMAN and ALBERT A. GORDON, JR., Worcester, Mass., assignors to GORDON & KNOLLEN Lock Works, Worcester, Mass., a Corporation of Massachusetts. Filed June 10, 1891. Serial No. 68,944. (No model.)



Claim.—1. In a lock, a main pattern-carrier with indicator, a change-lever adapted to be moved by said indicator, and pawls adapted to move the pattern-carrier in either direction, and means between said change-lever and said pawls to reverse the direction of movement of said main pattern-carrier, of a multiplier pattern-carrier carrying indicators to prevent the indication of said change-lever, and means said main pat-

tern-carrier to continue its movement in the same direction, substantially as shown and described.

2. In a lock, a main pattern-carrier, a pair of reversely-acting ratchet-wheels, on the shaft of said main pattern-carrier, and cooperating pawls to move said ratchet-wheels, of a main change-lever moved by indications on said main pattern-carrier, and intermediate connections between said lever and said pawls, to put either pawl into operative position with its respective ratchet-wheel, substantially as shown and described.

3. In a lock, the combination with a main pattern-carrier, a pair of reversely-acting ratchet-wheels on its shaft, and cooperating pawls to move said ratchet-wheels, and a main change-lever moved by indications on said main pattern-carrier, and intermediate connections between said lever and said pawls, to put either pawl into operative position with its respective ratchet-wheel, of a multiplier pattern-carrier, and intermediate connections between said two pattern-carriers, by means of which the main pattern-carrier is caused to stop at predetermined intervals, and a multiplier controlling-lever, and intermediate connections between said multiplier controlling-lever and said pawls, whereby said lever will put into an inoperative position either pawl, which may be at the time in operative position, substantially as shown and described.

4. In a lock, the combination of a main pattern-carrier, means for moving said main pattern-carrier either forward or backward, an auxiliary pattern-carrier, means under control of the main pattern-carrier for determining the operation of the auxiliary pattern-carrier, controlling device for controlling the movement of the main pattern-carrier, and means intermediate the auxiliary mechanism and said device for determining the operative or inoperative action of the main pattern-carrier.

5. In a lock, the combination of a main pattern-carrier, means for moving said main pattern-carrier either forward or backward, controlling-lever for controlling the operation of the main-pattern-carrier-actuating means, an auxiliary pattern-carrier, means under control of the main pattern-carrier for operating said auxiliary pattern-carrier, a multiplying-arm operable from said auxiliary pattern-carrier, a connector-lever in operative relation to said multiplying-arm, and means connected to said lever to move both controlling-levers to render inoperative the main-pattern-carrier-actuating means.

6. In a lock, the combination of a main pattern-carrier, means for moving it either backward or forward step by step to the extent desired, controlling-lever for determining the movement of the main pattern-carrier, a multiplier pattern-carrier controlled in its operation from the main pattern-carrier to determine the position of each of the controlling-levers, an auxiliary pattern-carrier also controlled in its operation from the main pattern-carrier, and means operable therefrom to act upon both controlling-levers to render inoperative the main-pattern-carrier-actuating means.

701,000. FILE-CABINET. CARL P. W. ANDER, Bridgeport, Conn. Filed July 31, 1891. Serial No. 73,571. (No model.)



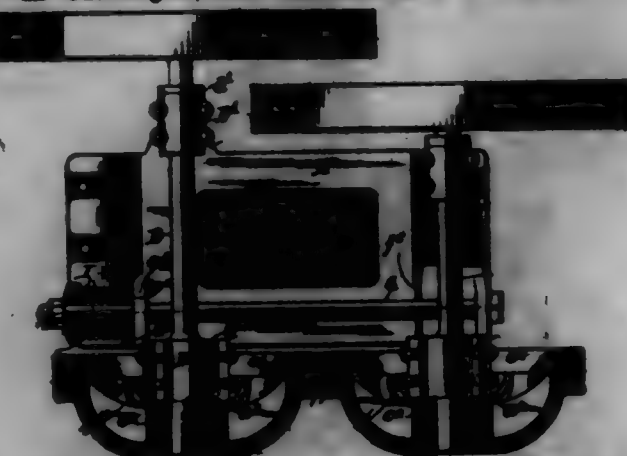
Claim.—1. In a device of the character described, the combination with side plates having inclined oblique hark, of rods for partition comprising downwardly-inclined flanges adapted to engage the hark and removable only with an upward and outward movement, and horizontal flanges extending directly outward from the upper edges of the inclined attaching device.

2. In a device of the character described the combination with side plates having upwardly-inclined oblique hark closed at the ends, of rods for partition comprising downwardly-inclined flanges adapted to engage the hark and removable only with an upward and outward movement, and horizontal flanges extending directly outward from the upper edges of the inclined flanges.

3. In a device of the character described the combination with side plates having upwardly-inclined oblique hark closed at the ends, of rods for partition comprising downwardly-inclined flanges adapted to engage the hark and removable only with an upward and outward movement, and

horizontal flanges extending directly outward from the upper edges of the inclined flanges, and rigid partition adapted to rest on the horizontal flanges.

701,001. ORB-CRUSHER. ROBERT E. AKIN, Whittey Harbor, N. S. W. Filed Aug. 12, 1891. Serial No. 73,493. (No model.)



Claim.—1. An orb-crusher comprising crushing-rolls acting against each other, whose working surfaces and bearings are in alignment with each other.

2. An orb-crusher comprising crushing-rolls acting against each other whose bearings and working surfaces are in alignment with each other and which are relatively so located that transverse planes passing centrally through said working surfaces will pass centrally through said bearings.

3. An orb-crusher comprising crushing-rolls which act against each other, shafts to which said rolls are attached, and bearings for said shafts of which those nearest the rolls are in alignment with the working surfaces of the rolls.

4. An orb-crusher comprising a main frame, disked or recessed crushing-rolls, shafts to which said rolls are attached and a bearing for each of said shafts mounted on said main frame at the recessed side only of its associated roll, said bearings being located in alignment with the working faces of said rolls.

5. An orb-crusher comprising a main frame, disked or recessed crushing-rolls, shafts to which said rolls are attached, a bearing for one of said shafts mounted on the main frame, a bearing for the other shaft movable upon said frame and means for yieldingly holding the said shafts and rolls in working relation to each other, the working faces of said rolls being in alignment with the bearings of said shafts.

6. An orb-crusher comprising disked or recessed crushing-rolls having bearings on one side thereof only which bearings are in alignment with the working faces of the rolls, and rings or shafts applied to the rolls and forming the working faces thereof.

7. An orb-crusher comprising crushing-rolls of disked or recessed form having bearings on one side thereof located in alignment with the working surfaces of the rolls, said rolls being provided on their concave surfaces with radial flanges or ribs adapted to create air-currents in a direction from the center to the periphery of the rolls when the latter are rotated.

8. An orb-crusher comprising a main frame, a bearing thereon which projects laterally from one side thereof, an arm pivoted to the frame and carrying a second bearing which projects laterally from one side of said arm, disked or recessed crushing-rolls mounted on said bearings, the working surfaces of which are in alignment with said bearings, and spring-actuated means acting on said pivoted arm and holding the rolls in working relation to each other.

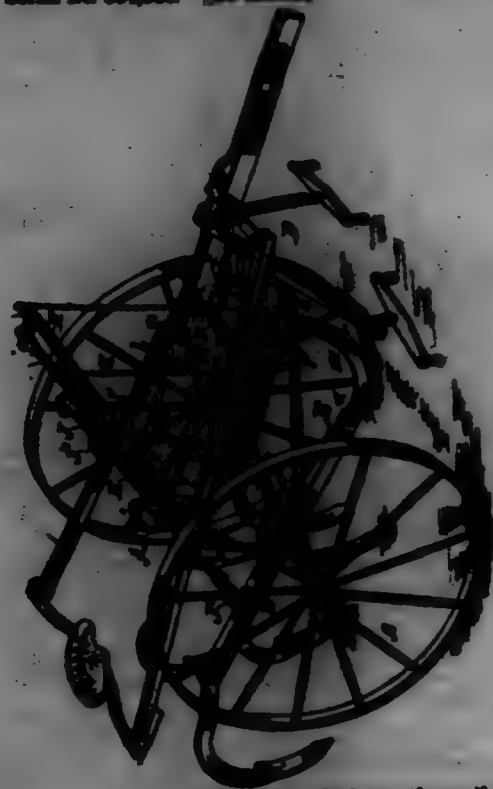
9. An orb-crusher comprising crushing-rolls which act against each other and bearings for said rolls arranged in alignment with the working faces thereof, said rolls being provided with integral hubs which turn in said bearings.

10. An orb-crusher comprising crushing-rolls which act against each other, shafts to which said rolls are attached and bearings for said shafts of which those adjacent to the rolls are in alignment with the working faces thereof, said rolls having integral hubs which extend through and turn in said bearings.

701,002. METHOD OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. JAMES E. DE ALMEIDA, London, England. Filed Mar. 14, 1892. Serial No. 64,894. (No specimens.)

Claim.—The process herein described for treating ores containing precious metals and consisting in adding the crushed ore to a solution of sodium chloride, sodium carbonate and potassium cyanide, then forcing through the mass a gaseous mixture of bromine and air and recovering the precious metals from the solution by any known means, such as electrolysis, or not both.

701,008. CULTIVATOR. JOHN B. BARTHELMEY, FORT, Ill., assignor to Avery Manufacturing Company, Fort, Ill. Filed June 6, 1898. Serial No. 894,588. (No model.)



Claim.—1. The combination of the main frame, the vertically-oving pivoted beam, the radius-bar pivoted to the main frame, the suspension-bar pivoted to the beam at points relatively near their rear ends, hinge-like devices for connecting the suspension-bars to the radius-bar, and the lifting-springs each exerting a lifting force upon one of the radius-bars by pulling upon one side of its pivot-end and by pushing upon the other side, substantially as set forth.

2. The combination of the main frame, the vertically-oving pivoted beam, the radius-bar or bars, H, extending upward from and pivoted to the main frame, the suspension-bar J pivoted to the beam at points relatively near their rear ends and detachably connected by hinge-like devices to the upper ends of the radius-bars, the yielding regulator, K, to govern the backward movement of the bars H and J, the lifting-springs, L, pulling forward on the bars or arms H, above their pivots, and the bars, M, connected to the springs L and bearing backward on the radius-bars below their pivots, substantially as set forth.

3. The combination of the main frame, the vertically-oving pivoted beam pivoted at its front end, the lifting-spring mechanism I, the radius-bar H hinged to and projecting upward from the main frame and connected to one end of the spring mechanism, L, the bar M connected to one end to the spring mechanism and at the other end to the arm H, all the suspension-bar J pivoted to the beam at a point in the rear of the front beam-pivot and extending upwardly therefrom and flexibly connected to the radius-bar H above the main frame, substantially as set forth.

4. The combination of the main frame, the vertically-oving pivoted beam pivoted at its front end, the suspension-bar J pivoted to the pivoted beam at a point in rear of the front beam-pivot and extending to a point above the main frame and adapted to swing forward, a stop to limit the forward motion of said bar J, a lifting-spring arranged to draw forward the bar J, means for connecting said spring with said bar, and the movable bar M connected with the spring and sliding to move the bar J in said forward direction, substantially as set forth.

5. The combination of the main frame, the vertically-oving pivoted beam pivoted at its front end, the suspension-bar, J, pivoted to the pivoted beam at a point in the rear of the front beam-pivot, the radius-bar, H, pivoted to the main frame and flexibly connected above said frame to the bar J, said bar, H and J, being adapted to be inclined forward and to be in approximately coincident planes, a stop limiting the movement of said bar, and a spring lifting mechanism connected to said bars substantially as described and comprising means for exerting force both forward and backward relatively to the main frame in effect the lifting, substantially as set forth.

6. In a cultivator, the combination of the beam, a radius-bar from which the beam is suspended, arranged to incline, from the vertical, toward the rear when the beam is in working position, and an approximately horizontal double-acting lifting spring mechanism connected at one end to the radius-bar near its fulcrum, whereby the efficiency of the spring increases, as to the direction in which its force is applied, during the first part of the lifting of the beam, substantially as set forth.

7. In a cultivator, the combination with the main frame, of the vertically-adjustable beam, the radius-arm, the suspension-rod connecting the beam and the radius-arm, and a double-acting lifting spring mechanism connected at one end with the radius-arm near its fulcrum, each connection moving away from a line which would include the fulcrum of the radius-arm and the other end of the spring, as the radius-arm is moved to lift the beam, substantially as set forth.

8. In a cultivator, the combination of the vertically-adjustable beam pivotally suspended at its forward end, a radius-arm, a suspension-rod connecting the beam and the radius-arm and a double-acting spring mechanism having a coiled lifting-spring connected at one end to the radius-bar, the relative disposition of the radius-bar and the spring being such that the efficiency of the spring, as to the direction in which its force is applied to the radius-bar, rapidly increases during the first part of the lifting operation, substantially as set forth.

9. The combination with a machine-frame, of a pivoted beam, a suspension-bar extending upwardly therefrom, a rocking lifting-lever pivoted upon the machine-frame and connected with the suspension-bar, a beam-lifting spring, and means whereby said spring acts upon said lever at two different points and in substantially opposite directions to rock the same and lift the beam.

10. In a cultivator of the hammock type, the combination of the main frame, the pivoted beam adjustable vertically and adapted to swing laterally at its rear end, the radius-bar or lever having a fulcrum on said frame and extending upward therefrom, means for suspending the beam from the upper part of said bar, a pulling member connected with said bar, and a pushing member connected with said bar, said members acting to give the beam an upward movement, and one of said members being a spring adapted to actuate the other member.

11. In a cultivator of the hammock type, the combination of the main frame, the pivoted beam connected with said frame to be adjustable vertically and swinging laterally, a radius-arm mounted on a fulcrum on said frame and extending upward therefrom to a relatively high point above said beam, means for connecting the beam and the upper part of said radius-arm, and two springs connected directly to, and above the fulcrum of, said radius-arm at different heights, the two lines of draft of said springs inclining toward each other and toward a point forward of the lower part of said radius-arm.

12. In a cultivator of the hammock type, the combination of the main frame, and axle, the pivoted beam connected with said frame to be adjustable vertically and swinging laterally, a radius-arm mounted on a fulcrum on said frame and extending upward therefrom to a point relatively high above said beam, suspension means connecting the beam with the upper part of the radius-arm, and suspension means being at the rear of the axle and movable laterally at their lower ends, an approximately horizontal beam-lifting spring connected with said radius-arm at a point near the fulcrum thereof, and a second and regulating spring acting on the beam when in the working position.

13. In a cultivator of the hammock type the combination of the main frame and the axle B, the pivoted beam connected with said frame to be adjustable upward and downward and swinging laterally, a radius-arm mounted on a fulcrum on said frame extending upward therefrom to a relatively high point above said beam, and movable forward from a position in rear of said fulcrum as the beam is lifted, means at the rear of said axle for connecting the beam and the upper part of said radius-arm, and a substantially horizontal spring having a connection with said radius-arm near its fulcrum to force the arm forward.

14. In a cultivator of the class described, the combination with the beam thereof, of the radius-arm, the lifting-spring arranged substantially horizontally and connected to the radius-arm near its fulcrum thereof, a second spring for regulating the shovels when at work, and means for throwing the regulating-spring entirely out of action after the beam commences its forward in opposite position, substantially as set forth.

15. In a cultivator of the class described, the combination of the beam, the radius-arm, the regulator-spring adapted to act upon the beam when in its working position, a lifting-spring, and device connecting one end of the lifting-spring with the radius-arm, the connection of such device with the radius-arm being movable to and away from a line which includes the fulcrum of the radius-arm and the end of the spring to which said connecting device are united, substantially as set forth.

16. In a cultivator of the class described, the combination with the frame and beam thereof, of beam-suspending devices mounted by a suitable fulcrum on said frame, a lifting-spring connected to said suspending devices, and adapted to vibrate to and from a line which is radial to the fulcrum of the suspending devices and includes the center end of the spring, a coiled spring connected to said suspending devices, and adapted to regulate the shovels when in their working position, and means for throwing said coiled spring out of operation when the beam is lifted, substantially as set forth.

17. In a cultivator of the class described, the combination with the

beam thereof and suspension-bar, of a radius-arm having two members projecting in different directions from its axis, a regulator-spring controlling the position of the shovels when at work and connected to one of the said members of the radius-arm, and a lifting-spring connected with the other member of said radius-arm, substantially as set forth.

18. In a cultivator of the class described, the combination with the beam thereof, of a radius-arm connected with the beam, a suspending rod for the beam, a spring, means for connecting the spring to the radius-arm on one side of its axis, means for connecting said spring to the radius-arm on the other side of its axis, whereby the spring can both push and pull around said axis, and a second spring connected to the beam-suspending device and adapted to control the shovels when in working position, substantially as set forth.

19. The combination of the main frame, the pivoted beam vertically adjustable relative to the frame, the radius-arm pivotally connected to the main frame and extending upward therefrom, means for suspending the beam from the said radius-arm, the arm H connected to the radius-arm, the sliding bar pivoted to the arm H and adapted to press backward substantially on the line of the pivot of the radius-arm, and also below B, and the spring connected at one end to the sliding bar, and at the other end connected with the radius-bar, substantially as set forth.

20. In a cultivator of the class described, the combination of the beam-suspending rod, the radius-arm on the frame having a connection with said rod and an arm or extension extending below its fulcrum, the beam lifting or elevating spring, and means for imparting pressure from the spring to the said arm or extension below the fulcrum to move the upper end of the radius-arm forward, substantially as set forth.

21. In a cultivator of the class described the combination with the beam pivotally supported at its front end, of a radius-arm, a beam-suspending rod pivoted to the beam at a point behind its front pivot and connected with the radius-arm, a lifting-spring, a pulling connection or attachment between one end of the spring and the radius-arm on one side of its fulcrum, and a pushing connection or attachment between the spring and the radius-arm and arranged to push on a line on the other side of the fulcrum from that on which the pulling connection operates, substantially as set forth.

22. In a cultivator, the combination with the frame, of a beam pivotally supported near its front end, a radius-arm, a suspension-bar connecting the upper end of the radius-arm and the beam at a point in rear of the front beam-pivot, the radius-arm and suspension-bar being arranged to swing, whereby the beam is adjusted vertically, and a lifting-spring having at each end movable operating means with the beam, whereby the force of the spring is applied from both its ends during the lifting operation, substantially as set forth for the purposes set forth.

23. The combination of the frame, the beam pivotally supported at its front end and vertically adjustable relative to the frame, a double-acting spring-lift mechanism for the beam, a movable support or attachment for one end of the spring, means connecting said support or attachment with the rear part of the beam, a movable support or attachment for the other end of the spring, and means for connecting the last said support or attachment also with the rear part of the beam at points behind the front beam-pivot, whereby the elastic force at each end of the spring is brought to bear upon the rear part of the beam, substantially as set forth.

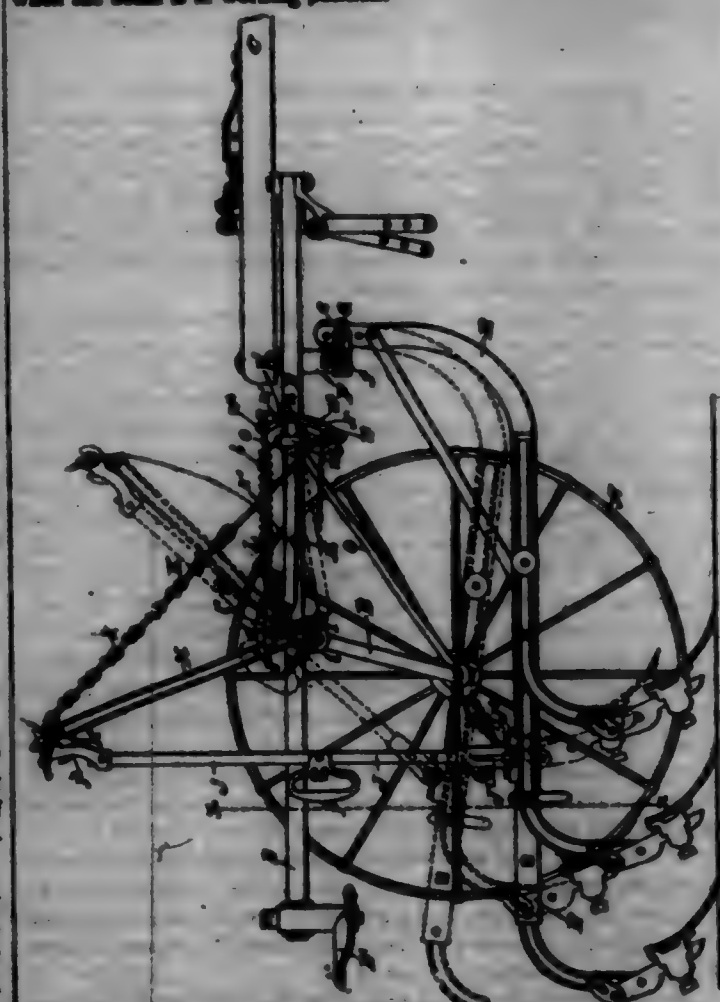
24. The combination of the main frame, the vertically-adjustable beam, the coupling interposed between the front end of the beam and the frame, a double-acting spring lifting mechanism connected with the rear end of the beam, and comprising a spring, a movable support or attachment for one end of the spring, and a movable support or attachment for the other end of the spring, a radius bar or arm pivoted to the main frame, means connecting the two movable spring supports or attachments to the radius-arm substantially as described, whereby the force of the spring as applied to the radius-arm through both of said supports or attachments tends to move it in one direction, and means independent of the said coupling for connecting the radius-arm to the cultivator-beam at a point in the rear of the coupling, substantially as set forth.

25. The combination of the main frame, the cultivator-beam pivotally supported at its front end, means for suspending the rear end of the beam whereby it is free to swing laterally, a double-acting spring lifting mechanism supported on the main frame and held against lateral movement, it comprising a spring and a movable support or attachment for each end of the spring, both of said supports being adapted to be moved by the spring, and means for connecting both of said spring supports or attachments with the beam at or near its rear end at points behind the front beam-pivot, substantially as set forth.

701,004. CULTIVATOR. JOHN B. BARTHELMEY, FORT, Ill., assignor to Avery Manufacturing Company, Fort, Ill. Filed June 6, 1898. Serial No. 894,581. (No model.)

Claim.—1. In a cultivator of the hammock type, the combination

of the main frame, the beam hinged thereto, a radius-bar or lever pivoted to and extending up from the frame, a suspension-bar connecting the radius-bar and beam, and a lifting-spring having two different connections with the radius-bar, through one of which connections it acts as a lifting-spring and through the other of which connections it acts as a regulator when the beam is in working position.



2. In a cultivator of the hammock type, the combination of the main frame, the beam hinged thereto, a radius-bar or lever pivoted to and extending up from the frame, a suspension-bar connecting the radius-bar and beam, a lifting-spring connected with the radius-bar, and means whereby said spring is also operatively joined with the beam through another connection than its first-mentioned connection with the radius-bar, to act as a regulator.

3. In a cultivator of the hammock type, the combination of the main frame, the beam hinged thereto, a radius-bar or lever pivoted to and extending up from the frame, a suspension-bar connecting the radius-bar and beam, a lifting-spring connected with the radius-bar, and means whereby said spring is connected operatively with the radius-bar at a point above its first-mentioned connection to act as a regulator.

4. In a cultivator, the combination of the main frame, a beam hinged thereto, a radius-bar pivoted to and extending up from the frame, a suspension-bar, regulating device comprising a spring for controlling the position of the beam while working, and means whereby said spring is also operatively connected with the radius-bar to serve as a lifting-spring.

5. In a cultivator, the combination of the main frame, a beam vertically adjustable relative to the frame, the upwardly-extending radius-bar pivotally connected with the frame, means for suspending the pivoted beam from the radius-bar at a point above the main frame, a regulating connection united with the radius-bar, comprising a spring and an intermediate movable member which limits the backward movement of the radius-bar, and another connection between said movable member and the beam whereby the spring also serves as a lifting-spring.

6. In a cultivator, the combination of the main frame, a pivoted beam vertically adjustable relative thereto, a pivoted radius-bar rising from the main frame, means for suspending the beam from the radius-bar, and a regulator comprising a spring and pivoted lever connected with the radius-bar for controlling the backward movement of the same, said spring being also arranged to exert lifting force upon the beam.

7. The combination of the main frame, the beam vertically adjustable relative thereto, the pivoted radius-bar extending upward from the frame, means for suspending the beam from the radius-bar, a regulating-spring connected with the radius-bar to limit its backward movement, said connection comprising a pivoted lever, a stop which limits the regulating action of the spring, and means whereby said spring is connected with the beam to exert a lifting force upon the same.

9. The combination of the main frame, the beam vertically adjustable relative thereto, a pivoted radius-bar extending upward from the beam, means for suspending the beam from the radius-bar, a connection with the radius-bar for limiting its backward movement, a lifting-spring for the beam, means whereby said spring is acted with said regulating connection to control the vertical movement of the beam when in working position and a positive stop for limiting the downward movement of the beam beyond a certain point.

10. The combination of the main frame, the pivot-beam vertically adjustable relative thereto, a radius-bar pivoted to the main frame, means for suspending the beam from the radius-bar, a connection for the beam and the radius-bar for controlling their movement when in working position, a spring for elevating the beam, means connecting the spring and said regulating connection whereby the latter is permitted to yield, and means for locking the radius-bar against the forward action of the spring when the parts are in working position.

11. The combination of the main frame, the beam vertically adjustable relative thereto, a pivoted radius-bar extending upward from the frame, means for suspending the beam from the radius-bar, a connection for the radius-bar and the beam when in working position, a link which tends to hold the parts in working position but yieldable to permit them to be lifted by the operator, and a spring connected both with the said regulating connection and the said link.

12. The combination of the main frame, the beam vertically adjustable relative thereto, the radius-bar, means for suspending the beam from the radius-bar, a lifting-spring connected with the radius-bar above its pivot, means connecting the spring with the radius-bar below its pivot whereby each end of the spring has an operative connection with the beam to lift the same, the connection for limiting the movement of the beam when in working position, and means joining the said regulating connection with the spring whereby the latter operates also as a regulating-spring.

13. The combination of the main frame, the beam vertically adjustable relative thereto, means for suspending the beam adjustably from a point above the main frame, and connected to the beam near the rear end thereof, a spring exerting force in one direction through the said rear suspending device to elevate the beam, means moving in the opposite direction and actuated by the spring to assist in elevating the beam, and a stop or holder for preventing the beam from moving downward beyond the desired limit, substantially as set forth.

14. The combination of the main frame, the beam vertically adjustable relative to the frame, means connected to the beam, near the rear end thereof, for suspending it from a point above the main frame, a spring exerting force from one of its ends, through the said rear suspending device, to elevate the beam, a sliding bar connected with the other end of the spring, and also with the beam-suspending device, and arranged, substantially as described, to lock each device against forward movement when the beam is in working position, and also serving, when the beam is being lifted to transmit to the suspending device the force of the spring from that end with which it is connected, to assist in lifting the beam, substantially as set forth.

15. The combination, in a cultivator, of the main frame, the vertically-adjustable beam, the radius-bar H connected to the beam, the bar I, the arm A, the regulator K connected to the radius-bar, and the spring connected with the regulator, and also with the said parts I and H, substantially as set forth.

16. The combination, in a cultivator, of the main frame, the vertically-adjustable beam, the means for suspending the rear end of the beam, the lifting-spring for exerting in one direction a lifting force upon the beam, means for transmitting from said spring power in the opposite direction also for lifting the beam, and the holder K connected with the said power-transmitting means, substantially as set forth.

17. The combination of the main frame, the vertically-adjustable beam, a radius-bar, means for suspending the rear end of the beam from the radius-bar, a spring drawing upon the radius-bar to lift the beam, a sliding bar M connected with the radius-bar, a holder K to limit the downward movement of the beam when in working position, and a lever N pivotally connected with the bar M, to which lever are connected both the spring and the regulator, substantially as set forth.

18. The combination of the main frame, the laterally-swinging, vertically-adjustable, cultivator-beam, beam-suspending device, a spring, a connection interposed between one end of the spring and the beam-suspending device, through which the spring is adapted to exert a lifting action on the beam when it is rising, and a connection between the other end of the spring and the beam-suspending device, adapted to regulate the beam when in working position, substantially as set forth.

19. The combination of the main frame, the laterally-swinging, vertically-adjustable, cultivator-beam, the beam-suspending device extending upward and swinging forward when the beam rises, and a combined lifting and regulating spring, having device connected operatively between

one end thereof and the beam through which the spring tends to hold the beam in working position, and device interposed between the other end thereof and the beam-suspending device through which the spring acts to lift the beam to its elevated position, substantially as set forth.

20. The combination of the main frame, the laterally-swinging, vertically-adjustable, cultivator-beam, a combined lifting and regulating spring, device interposed between one end of said spring and the beam-suspending device, through which the spring acts to lift the beam from its working position, and a chain interposed between the other end of the spring and the beam-suspending device and through which said spring acts to hold the beam in its working position, substantially as set forth.

21. The combination of the main frame, the laterally-swinging, vertically-adjustable, cultivator-beam, the radius-bar on the frame, the suspending rod or bar for the beam, the spring connected to said radius-bar, a supplemental vibrable lever connected to this spring, and means connected to said supplemental lever for holding it in position against the tension of the spring, substantially as set forth.

22. The combination of the main frame, the laterally-swinging, vertically-adjustable, cultivator-beam, the radius-bar on the frame, the spring connected to the radius-bar, a lever in front of the radius-bar and connected to the spring, said lever being adapted to vibrate and to move the forward end of the spring forward, substantially as set forth.

23. In a cultivator of the class described, the combination of the radius-bar, the beam-suspending rod, the spring (connected to the radius-bar, the vibrable lever in front of the radius-bar having one end connected to the spring and adjustable device connected to the other end of said lever for varying the action of the spring, substantially as set forth.

24. In a cultivator of the class described, the combination of the radius-bar, the beam-suspending rod, the spring, a chain connected to the radius-bar at a relatively high point extending downward, and connected with and receiving power from the spring, a swinging lever connected to the end of the spring, and a toothed bar for varying the position of the spring, substantially as set forth.

25. In a cultivator of the class described, the combination of the beam, the beam-suspending device, consisting of the radius-bar and the beam-suspending rod, the beam-lifting spring connected at one end to the said beam-suspending device, the hinged lever for the opposite end of the spring, and the holder K connecting the lever with the beam-suspending device, substantially as set forth.

26. In a cultivator of the class described, the combination with the beam thereof, of the radius-bar, means for connecting said beam and bar, the spring connected to the radius-bar at a point relatively remote from its fulcrum, and means connecting the spring to the radius-bar at another point relatively near the fulcrum, whereby said spring is adapted to both control the beam when in working position and to elevate it therefrom to its uppermost position, substantially as set forth.

27. In a cultivator of the class described, the combination with the beam thereof, of the radius-bar, the spring connected with the radius-bar near its fulcrum for lifting the beam, the connection interposed between the radius-bar and the said spring, and means for varying the connection between the regulating device and the spring, whereby the pull of the spring upon said device is adjusted, substantially as set forth.

28. In a cultivator of the class described, the combination with the beam thereof, of a radius-bar having two arms projecting in different directions from its axis, a spring, means for connecting said spring with one of the arms of said radius-bar, and means connecting the said spring with the other arm of said bar, one of said connections transmitting power from the spring for sustaining the beam in working position, and the other transmitting power from the spring for lifting the beam away from working position, substantially as set forth.

29. In a cultivator of the class described, the combination with the beam thereof, of a radius-bar having two arms projecting in different directions from its axis, a spring, means for connecting said spring with one of the arms of said radius-bar, means for connecting the said spring with the second arm of the radius-bar, and another and separate connection between the spring and the second arm of the radius-bar, substantially as set forth.

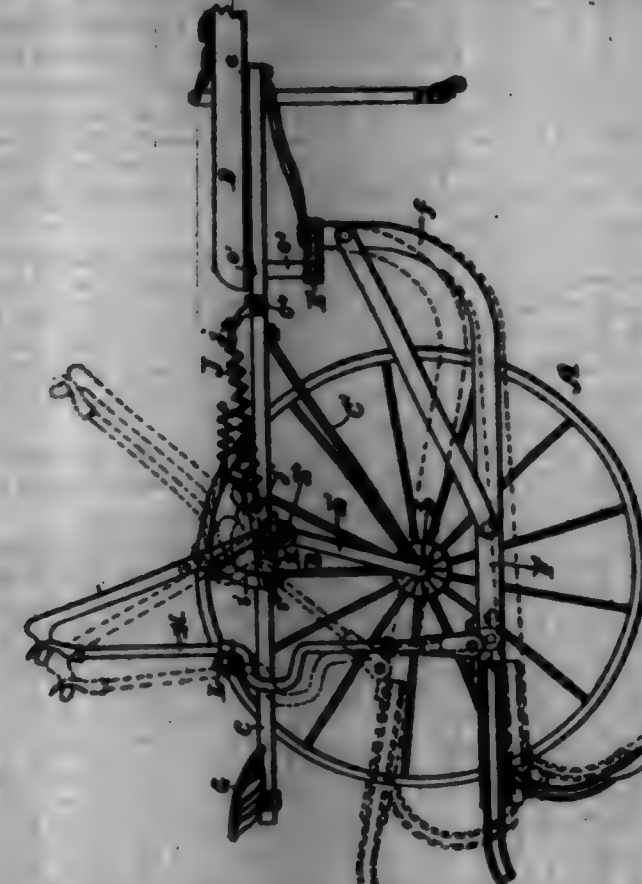
30. In a cultivator, the combination of the main frame, the beam pivoted thereto near its forward end, the beam-suspending device connected with the rear portion of the beam and consisting of a radius-bar pivoted to the frame and extending upward, and a suspension-rod between the radius-bar and the beam, a spring which serves to regulate the depth to which the shovel carried by the beam shall dig, a stop device arranged to determine the normal depth of digging, but which may be forced to permit deeper digging, and a positive stop for limiting the depression of the beam, substantially as set forth.

31. The combination of the frame, the vertically-adjustable beam, a radius-bar, means for suspending the beam from the said bar, a lifting-spring and locking means interposed between the radius-bar and the end of the spring remote from said bar, and arranged to lock or hold the

bar against forward movement when the parts are in working position, such lock being yieldable or breakable by the action of the operator in moving the parts to rising position, substantially as set forth.

32. The combination of the frame, the vertically-adjustable beam, means for suspending the beam from the frame, a lifting-spring, a movable connection between one end of the spring and the beam-suspending device and connection consisting of two parts or members hinged or pivoted together, a stop whereby said parts are rendered rigid relative to each other, whereby the spring may transmit its force through them to the beam, and connection between one of the said pivoted or hinged parts and the beam-suspending device and arranged to move said parts relative to each other upon their hinge or pivot against the action of the spring, substantially as set forth.

701,006. CULTIVATOR. JOHN R. BARTHOLOMEW, Perth, Ill., assignor to Avery Manufacturing Company, Perth, Ill. Filed Feb. 14, 1897. Serial No. 684,681. (No model.)



Claim.—1. In a cultivator, the combination with the frame and the pivot-beam having its rear end vertically adjustable and swinging laterally, of a lever having a fulcrum on and extending upward from said frame, means for suspending the beam from the upper part of said lever, and a longitudinally-extended forwardly-acting spring connected with the frame and with said lever at the rear of said fulcrum and acting substantially in line with said fulcrum when the beam is in working position.

2. In a cultivator, the combination of the main frame, the pivot-beam curved or extended upward at the front end and pivoted to the main frame in a relatively high horizontal plane, the rear end of the beam being vertically adjustable and adapted to swing laterally, the relatively long standard pivoted in the rear end of the beam and extended to points above the main frame, the lever pivoted to the main frame and extending to the upper end of the standard and flexibly connected thereto, and the horizontally-arranged spring having one end rigidly secured to the main frame at a fixed point in front of the lever, and the other end secured to a bar which is connected to the lever, said parts being arranged substantially as set forth, to have the beam relieved of the tension of the spring when the shovel are in their normal working position, substantially as set forth.

3. In a cultivator the combination of the main frame, the shovel-beam pivotedly connected with the frame and having its rear end adapted to swing vertically and laterally, the spring rigidly secured to the front part of the main frame and extending horizontally backward therefrom, a hinged lifting-lever extending upward from an axis on the main frame a connection between said lever and the beam, a bar interposed between the spring and the lifting-lever and connected with the lever in rear of its axis, and a stop for said bar arranged to bear against it when the shovel are in their normal working position, substantially as set forth.

4. The combination of the main frame, the bar or standard H, pivotally connected to the beam, the bar or lever I pivoted on an axis on the

main frame and extending directly upward from its axis and pivotally connected at its upper end to the bar H, one or more arms, i, extending backward from said bar or lever I, the spring J secured to the front part of the main frame and extending horizontally backward therefrom, the bar K connected to the spring and extending backward beyond the axis of the lever, I, and pivotally connected to the bar H, and a stop for the downward movement of the bar K, substantially as set forth.

5. In a cultivator, the combination of the main frame, the beam pivotally connected to the frame and having its rear end adapted to swing both laterally and vertically, a lever I, means connecting said lever to the rear end of the beam, the spring, the bar K between the spring and the lever adapted to lie in the line of the point of connection between the bar K and the lever I and the point of fastening for the spring, and a stop, as at P, for the bar K, substantially as set forth.

6. The combination with the main frame, the beam pivoted thereto and vertically adjustable, the lever I pivoted on the main frame and having an arm i extending rearward beyond its pivot, the standard connecting the rear part of the beam with the upper portion of the lever I, and a lifting-spring arranged substantially horizontally and connected with the said rearward-extending arm i, substantially as set forth.

7. In a cultivator, the combination of the main frame, the beam arranged to swing laterally and vertically, beam-suspending device pivoted on said frame, and a spring acting continuously in a forward direction upon the beam-suspending device and having its line of action, when the beam is in working position, in line with the pivot of said device, and having its line of action when the beam is elevated on a line concentric to the said pivot, substantially as set forth.

8. In a cultivator, the combination of the main frame, the beam arranged to swing laterally and vertically, beam-suspending device pivoted on said frame, a spring acting continuously in a forward direction upon the beam-suspending device and having its line of action, when the beam is in working position, in line with the pivot of said device, and having its line of action when the beam is elevated on a line concentric to said pivot, and a stop for arresting the movement of the spring when in its first-mentioned position, substantially as set forth.

9. In a cultivator, the combination of the main frame, the beam arranged to swing laterally and vertically, beam-suspending device pivoted on said frame, and comprising a lever pivoted on said frame and having an arm extending to the rear of the pivot, a spring acting continuously in a forward direction upon said arm and having its line of action when the beam is in working position near the line of the main pivot of said device, and having its line of action when the beam is elevated on a line concentric to said main pivot, and a stop for arresting the movement of the spring when in its first-mentioned position, substantially as set forth.

10. In a cultivator, the combination of the frame, the beam, the beam-suspending device pivoted to the frame, and a horizontally-arranged spring acting in one direction only disposed substantially as set forth in relation to the other parts, whereby it exerts tension upon the beam when below its normal working position to regulate the depth of the shovel and also upon the beam when above its normal working position, and a bar or lever actuated by the spring and adapted to relieve the suspending device of the force of the spring when the beam is in its working position and to apply the force of the spring to the beam when it is elevated above or depressed below the normal working position; substantially as set forth.

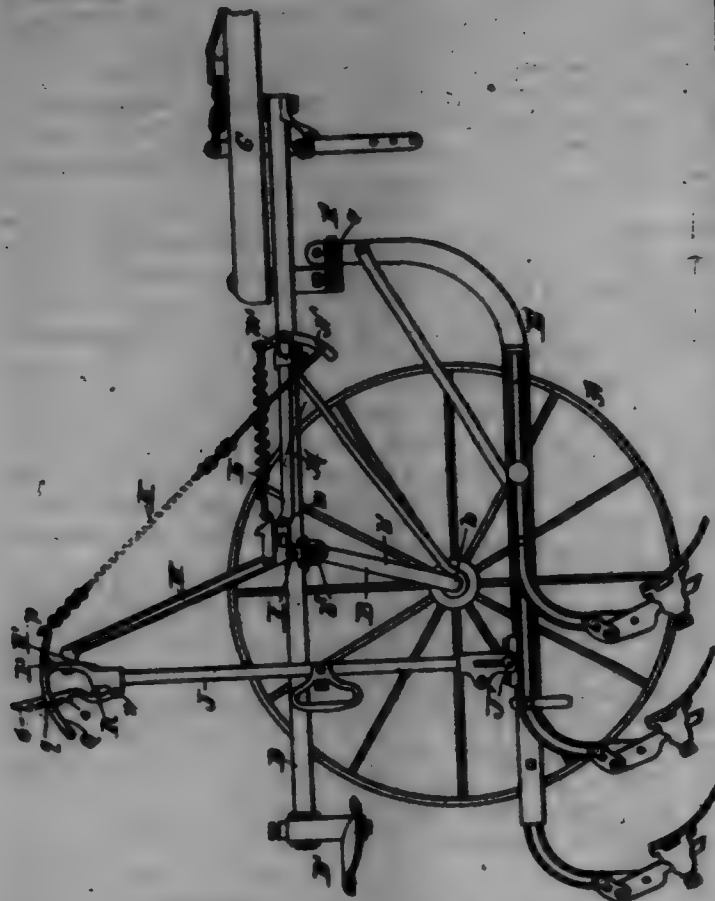
11. In a cultivator, the combination of the frame, the beam, the beam-suspending device pivoted to the frame, the spring, a fulcrum, and the bar K connected to the spring and to the beam-suspending device, and arranged to rest upon said fulcrum when the beam is in or near its normal working position and to move away from said fulcrum when the beam is remote from its working position, substantially as set forth.

12. In a cultivator the combination of a main frame, a pivot-beam having its rear end vertically adjustable and swinging laterally, a lifting device attached to the beam, a horizontally-extended spring connected to the lifting device and extending forward from the same to a suitable point of attachment, such as the frame, and arranged to have its tension increased as the beam descends, and means for arresting the vertical movement of the spring when the beam is in or near the working position.

13. In a cultivator, the combination of the main frame, the beam pivotally connected therewith and having its rear end adapted to swing as described, lifting device connected with the beam and fulcrumed on the frame, a bar or link connected with said lifting device, a horizontally-extended lifting-spring connected with said bar and extending forward from the same to a suitable point of attachment, such as the frame, and a stop or fulcrum for said bar adapted to arrest it as the beam reaches its normal working position.

701,006. CULTIVATOR. JOHN R. BARTHOLOMEW, Perth, Ill., assignor to Avery Manufacturing Company, Perth, Ill. Filed Feb. 14, 1897. Serial No. 684,681. (No model.)

Claim.—1. In a cultivator, the combination of a main frame, a plow-beam pivoted to the main frame, a two-part lifting device for the beam, the parts of which are movable as to each other, joined together by a hinge or flexible connection, means adjacent to said flexible connection for adjusting the normal working position of the beam, without separating the two parts of the lifting device, and a spring arranged substantially as set forth to have the adjusting device between the spring and the beam, as described.



2. In a cultivator, the combination of the main frame, the plow-beam pivoted to the main frame, the lifting-spring, a lifting-bar connected to the beam and having a permanent working connection with the spring, adjusting device interposed between the spring and the lifting-bar, and provided with means for manual adjustment at any time, whereby the normal working position of the beam can be varied without disconnecting the spring from the lifting-bar, substantially as set forth.

3. In a cultivator, the combination of the main frame, the plow-beam pivoted to the main frame, the lifting-bar connected to the beam, the spring, means for permanently connecting the spring to the lifting-bar having two parts flexibly connected together and movable relative to each other from one position to another without disconnecting the spring from the lifting-bar, and a lock for holding said two parts in either of several positions relative to each other for adjusting the normal working position of the beam, substantially as set forth.

4. In a cultivator, the combination of the main frame, the plow-beam pivoted to the main frame, the lifting-bar for the beam, the yielding holder for the lifting-bar which limits its backward movement, the spring arranged to draw upon the holder, and the adjusting device interposed between the spring and the lifting-bar and permanently connected both to the spring and the bar at all times of adjustment, whereby the operator can effect such adjustment without lifting the beam, substantially as set forth.

5. In a cultivator, the combination of the main frame, the plow-beam hinged to the main frame, the lifting-bar connected to the beam, the spring for drawing upon the lifting-bar and means interposed between the spring and the beam having a lock and a lever or bar controllable by the operator while in his seat, and said means being permanently connected both to the spring and to the beam, for adjusting the beam to and locking it in either of the several working positions without displacing the lifting-bar from its substantially working position, substantially as set forth.

6. In a cultivator, the combination of the main frame, the plow-beam hinged to the main frame, the lifting-bar, the spring for drawing upon the lifting-bar, and two movable bars interposed between the spring and the lifting-bar, and a lock for fastening the last two bars together in any of several positions, substantially as set forth.

7. In a cultivator, the combination of the main frame, the plow-beam hinged thereto, the lifting-bar, the means for supporting or holding the lifting-bar, and the bars or levers O Q interposed between the lifting-

bar and its holding device and provided with an adjustable lock, substantially as set forth.

8. In a cultivator, the combination of the main frame, the plow-beam having its rear end vertically adjustable, the lifting-bar, the support or holder for the lifting-bar, and the bars O and Q interposed between the lifting-bar and its support, one of said bars O and Q being provided with teeth and the other with a pin, substantially as set forth.

9. In a cultivator, the combination of the main frame, the plow-beam having its rear end vertically adjustable, the lifting-bar, the holder for the lifting-bar, and the bars O and Q permanently connected together and to the lifting-bar and provided with a ratchet-lock for sustaining the lifting-bar in any of several positions, substantially as set forth.

10. In a cultivator, the combination of the main frame, the plow-beam having its rear end vertically adjustable, the lifting-bar J extending from the beam to a point above the main frame, the holding-bar H, the spring connected to the said bars J and H, and a vibrating lever mounted on said bars J and H for adjusting the plow-beam vertically while the plow is in operation, substantially as set forth.

11. In a cultivator, the combination of the main frame, the plow-beam having its rear end vertically adjustable, the holding-bar H pivotally connected to the main frame and extending upward therefrom, the bar J pivotally connected to the bar H and to the plow-beam, the chain connected to the bars J and H and means permanently connected with and mounted on the bars J and H, and permanently connected with the chain for vertically adjusting the beam and locking it in different positions, substantially as set forth.

12. In a cultivator, the combination of the main frame, the plow-beam having its rear end vertically adjustable, the holding-bar H pivotally connected to the main frame and extending upward therefrom, the lifting-bar J flexibly connected to the holding-bar H, the lever Q pivotally connected to the bars J and H, the chain connected to the said lever, and the locking device interposed between the lever and the lifting-bar J, substantially as set forth.

13. In a cultivator, the combination with the vertically-adjustable plow-beam, of a holding-bar H, a lifting-bar J, the vibrating lever Q and the vibrating locking-bar O, substantially as set forth.

14. In a cultivator, the combination of the vertically-adjustable plow-beam, a holding-bar H, a lifting-bar J, a spring arranged to act on said bars to lift the beam from its working position, means connecting said spring to said bars through which the spring acts on the beam to hold it in its normal working position, and an adjusting device for varying the normal working position of the beam, substantially as set forth.

15. In a cultivator, the combination of the main frame, the plow-beam pivoted to the main frame, means for supporting the rear end of the beam, comprising the bars H and J, a spring for controlling said supporting means and the beam and having a reliable attachment at one end connecting it with the frame, a movable spring-support carried by the said supporting means, and device for adjusting the said spring-support on the beam-supporting means to vary the normal depth at which the shovel shall work, substantially as set forth.

16. In a cultivator the combination of a main frame, a plow-beam pivoted to the main frame, means for supporting the rear end of the beam comprising the rods H J, a supporting-spring, and means, comprising a pivoted member, through which the spring is connected with the said supporting means, arranged to change the effective length of the beam-supporting means by the moving of the said member while the machine is in operation, substantially as set forth.

17. In a cultivator, the combination of the main frame, a plow-beam pivoted to the main frame, means for supporting the rear end of the beam, comprising the rods or bars H and J, a supporting-spring connected with the beam-supporting means, and a hand-lever interposed between the spring and the beam and arranged to change the effective length of the beam-supporting means while the machine is in operation, substantially as set forth.

701,007. CULTIVATOR. JOHN R. BARTHOLOMEW, PAIR, III., assignor to Avery Manufacturing Company, Peoria, Ill. Filed Jan. 29, 1900. Serial No. 2,186. (No model.)

Claim.—1. The combination of the frame, the draft device, the supporting-wheel, adjustable relatively to the draft device and frame, the plow-beam, the double-coiling spring connected with the plow-beam, and the supplemental spring arranged to hold the plow-beam in its normal working position substantially as set forth.

2. The combination of the main frame, the draft device, the supporting-wheel, the plow-beam, the double-coiling spring arranged to lift the plow-beam irrespective of the lateral movements of the latter, and the supplemental spring adapted to lift the plow-beam independently of its lateral movements.

3. The combination of the main frame, the draft device, the plow-beam, the vertically-rocking hinge element for the plow-beam, the hori-

zontal, rocking hinge element for the plow-beam, the lifting-spring arranged to be approximately inactive when the beam is in working position, and the supplemental control-spring at the rear of said vertically-rocking hinge element, both of said springs bearing on the plow-beam without direct connection therewith, substantially as set forth.



4. The combination of the main frame, the draft device, the plow-beam, the vertically-rocking hinge element for the plow-beam, the horizontally-rocking hinge element for the plow-beam, the lifting-spring arranged to be approximately inactive when the beam is in working position, and having means whereby each end of the spring acts to lift the beam and the supplemental control-spring, both of said springs being connected to the said vertically-rocking hinge element for the plow-beam, substantially as set forth.

5. The combination of the main frame, the draft device, the plow-beam, the vertically-rocking hinge element for the plow-beam, the horizontally-rocking hinge element for the plow-beam, the lifting-spring connected to the vertically-rocking hinge element, a lever-like device connected to the said vertically-rocking hinge element, and a supplemental control spring connected to said lever-like device, substantially as set forth.

6. The combination of the main frame, the vertically-swinging laterally-movable plow-beam, and two spring holding devices for the beam at all times inactive relative to the lateral movement of the beam, but adapted to modify the vertical movements thereof, one adapted to exert its force, when the beam is in its working position, on a line approximately radial to the horizontal axis of the beam, and the other to exert its force at said time on a line remote from the radial and at the rear of said axis, substantially as set forth.

7. The combination of the main frame, the plow-beam hinged to the main frame, the spring lifting device for the beam at all times inactive relative to the lateral movements of the beam, and the supplemental control-spring, at all times inactive relative to the lateral movements of the beam, and having its end adjustably connected to the main frame independently of said lifting-spring, substantially as set forth.

8. The combination of the main frame, the plow-beam connected with said frame to swing vertically and laterally by horizontal and vertical hinges, and a beam-controlling spring at the rear of said hinges and held against lateral movement with the beam, said spring being inactive when the beam is elevated and active in the working position of the beam, to contain the beam vertically independent of its lateral movement.

9. The combination of the frame, the plow-beam the wheels adjustable relatively to the plow-beam, the crank-lever R, a lever-like bar O, a link connecting said parts and the link S connecting the crank-lever R to the wheels, substantially as set forth.

10. The combination of the main frame, the plow-beam, the wheels adjustable relatively to the plow-beam, the link R, the crank-lever R, the link Q, a lever-like device as at O pivoted to the main frame, and having a crank P pivoted to the link Q, substantially as set forth.

11. In a cultivator, the combination, with the plow-beam and the main frame, of a tubular hinge element for the beam as at O having a

crank or arm L for a lifting-spring, a crank or arm J for imparting power from a lifting-spring to the hinge element, and a crank arm or lever N for receiving a supplemental spring, substantially as set forth.

12. The combination of the main frame, the wheels adjustable longitudinally of the frame, the driver's seat, and the seat-support connected to the wheels for adjusting them, and having forward-extending arms adapted to bear against the main frame or against abutments thereon when the seat is in its lowest position, substantially as set forth.

13. The combination of the main frame the wheels adjustable longitudinally thereof, the seat and the seat-support hinged to the main frame and connected to said wheels for adjusting them, said seat-support being formed of the flat bars O, O, the laterally-turned bars P rigidly secured to the bars O and hinged to the main frame, said bars O extending forward of the hinge-axis and adapted to bear against the main frame or abutments thereon in front of said axis, substantially as set forth.

14. The combination of the main frame, the plow-beam connected with said frame to swing vertically and laterally by horizontal and vertical hinges, a beam-controlling spring at the rear of said hinges and held against lateral movement with the beam, said spring being inactive when the beam is elevated and active in the working position of the beam to contain the beam vertically independent of its lateral movement, and means for adjusting the suspension-point of said spring vertically.

15. The combination of the main frame, the plow-beam connected with said frame to swing vertically and laterally by horizontal and vertical hinges, a beam-controlling spring at the rear of said hinges and held against lateral movement with the beam, said spring being inactive when the beam is elevated and active in the working position of the beam to contain the beam vertically independent of its lateral movement, and the stretched plate W and rod W' for holding said spring at different heights.

701,008. CULTIVATOR. JOHN R. BARTHOLOMEW, PAIR, III., assignor to Avery Manufacturing Company, Peoria, Ill. Filed Nov. 5, 1900. Serial No. 25,471. (No model.)



Claim.—1. The combination of the plow-beam swinging laterally and movable vertically, the beam-coupling, the controlling-spring supported upon the beam-coupling and acting to sustain the beam when the latter is in working position, and a manual spring-controlling mechanism for said spring extending within reach of the operator in his working position substantially as set forth.

2. The combination of the laterally-swinging vertically-movable plow-beam, the coupling at the front end of the beam, the lifting-spring and the controlling-spring, said springs being arranged substantially as set forth, the one arranged to be inactive or approximately inactive when the beam is in working position, and the other arranged in front of the beam-coupling to be inactive when the beam is elevated from its working position.

abstent, an abutment or stop mounted to move toward and from the controlling-spring, and means for connecting the abutment positively with the main frame of the machine substantially as described.

3. The combination of the plow-beam adapted to be adjusted horizontally and vertically, and the laterally-adjustable control-spring acting upon the beam through the beam-coupling, substantially as set forth.

4. The combination of the laterally and vertically-acting plow-beam, the laterally-adjustable vertically-acting beam-coupling and the control-spring supported independently of the beam and arranged to swing bodily around the horizontal axis of the beam, substantially as set forth.

5. The combination of the vertically-acting plow-beam hinged to an axial support and the control-spring in front of said axial support and arranged to be inactive from the time when the beam leaves its operative or approximately horizontal position, and means for manually controlling the operative resistance of said control-spring from the operator's position, substantially as set forth.

6. The combination of the vertically-acting plow-beam hinged to an axial support, the control-spring and the relatively stationary abutment for said spring, the latter being arranged to be insensitive when the beam departs from its operative approximately horizontal position, and means for manually controlling from the operator's position the position of said abutment, substantially as set forth.

7. The combination of the vertically-acting plow-beam hinged to an axial support, the control-spring and the adjustable positive relatively stationary stop for the control-spring, substantially as set forth.

8. The combination of the vertically-acting plow-beam hinged to an axial support, a control-spring movable bodily up and down when the plow-beam moves vertically, a stationary abutment or stop against which the spring bears when the plow is in working position, and means for manually controlling from the operator's position the position of said abutment, substantially as set forth.

9. The combination of the vertically-acting plow-beam, the hinged-support for the plow-beam mounted on a horizontal axis, a control-spring the two oppositely-acting abutments for said spring both connected to the said hinged-support, and means extending to the operator's position for adjusting one of said abutments, substantially as set forth.

10. The combination of the vertically-acting plow-beam, the coupling on a horizontal axis, the control-spring and the two abutments for the spring both laterally adjustable substantially as set forth.

11. The combination of the plow-beam, the vertically-acting coupling for the beam, the control-spring, the abutment for the spring rigid with the coupling, the opposing abutments for the spring and means for confining the free end of the spring when the abutments are separated from each other, substantially as set forth.

12. The combination of the plow-beam, the vertically-acting coupling for the beam, the lifting-spring arranged to exert an upward force to lift the beam at the rear of the horizontal beam-pivot and a downward force at the front of said pivot, and the supplemental control-spring supported on the coupling independently of the beam, substantially as set forth.

13. The combination of the vertically-acting plow-beam, the control-spring adapted to exert lifting force upon the beam when the latter is in its working position, an abutment for one end of the spring, and two abutments for the other end of the spring, the latter abutments being separable when the spring is inactive, substantially as set forth.

14. The combination with the vertically-acting plow-beam and the control-spring supported independently of the beam and acting vertically upon the beam when it is in its operative position, of the adjustable stop-bar having a hinge connection with the beam and adapted to vary the position of activity of the spring, substantially as set forth.

15. The combination of the vertically-acting plow-beam, the abutment or stop movable with the plow-beam, the relatively stationary stop or abutment, yielding stop device between the two abutments, rigid stop device between the two abutments, and means for bringing the said stop devices alternately into action, substantially as set forth.

16. In a cultivator the combination of the main frame, the plow-beam swingable laterally and vertically, a coupling member between the beam and frame, two arms severally extending from said coupling, a control-spring between said arms for actuating the beam in working position, and an abutment for confining and releasing one of said arms.

17. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, and a manually-controlled compression control-spring acting to support said beam when the latter is in its working position and inactive when the beam is elevated.

18. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, and a manually-controlled compression control-spring for the beam situated in front of the horizontal pivot of the beam.

19. In a cultivator, the combination of the main frame, the plow-

beam pivoted thereto and swingable laterally and vertically, a manually-controlled compression control-spring for the beam, and an abutment on the main frame against which the spring is adapted to act when the beam is in working position, the spring being disconnectible mechanically from said abutment when the beam is in non-working position.

20. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring for said beam, and a manually-operated pressure-varying device supported on the frame, through which device said spring is controlled, said pressure-varying device being disconnectible mechanically from the spring, the latter remaining in place.

21. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, and a manually-controlled compression control-spring supported on the vertically-vibrating parts connected with the plow-beam and arranged to have both of its ends remain in substantially the same position relatively to the beam while the beam is up or down.

22. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a manually-controlled abutment on said frame, and a control-spring for the beam arranged to vibrate bodily around the horizontal axis of the beam, said spring acting against said abutment when the beam is in working position.

23. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring exerting downward pressure in front of the beam-pivot upon parts connected with the beam and acting to support the beam in working position, the beam being swingable laterally while subjected to said pressure, and manual device operative by the rear of the machine in its working position for regulating the working pressure of the spring.

24. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring acting downward in front of the horizontal pivot of the beam, and a lever controlled by the operator for exerting pressure or resistance upon one end of the spring and movable relatively to the spring to vary said pressure or resistance.

25. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring acting to regulate the beam when in working position, a vertically-vibrating abutment at one end of the said spring, and means for adjusting said abutment to vary the working pressure of the spring.

26. In a cultivator the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring acting downward forward of the horizontal pivot of the beam to regulate the latter in its working position, and means independent of the beam for manually varying the working pressure of said spring.

27. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto and swingable laterally and vertically, a compression control-spring acting downward forward of the horizontal pivot of the beam to regulate the latter in its working position, a movable abutment supported from said frame against which abutment the spring acts when the beam is in working position, and a hand-lever for adjusting said abutment to vary the working pressure of the spring.

28. In a cultivator, the combination of the main frame, the plow-beam pivoted thereto, swingable vertically and laterally, and adjustable laterally, and a manually-controlled compression control-spring acting to support the beam in working position, the controlling means of said spring comprising a laterally-adjustable abutment for the spring, said spring and abutment being separable by the elevation of the beam.

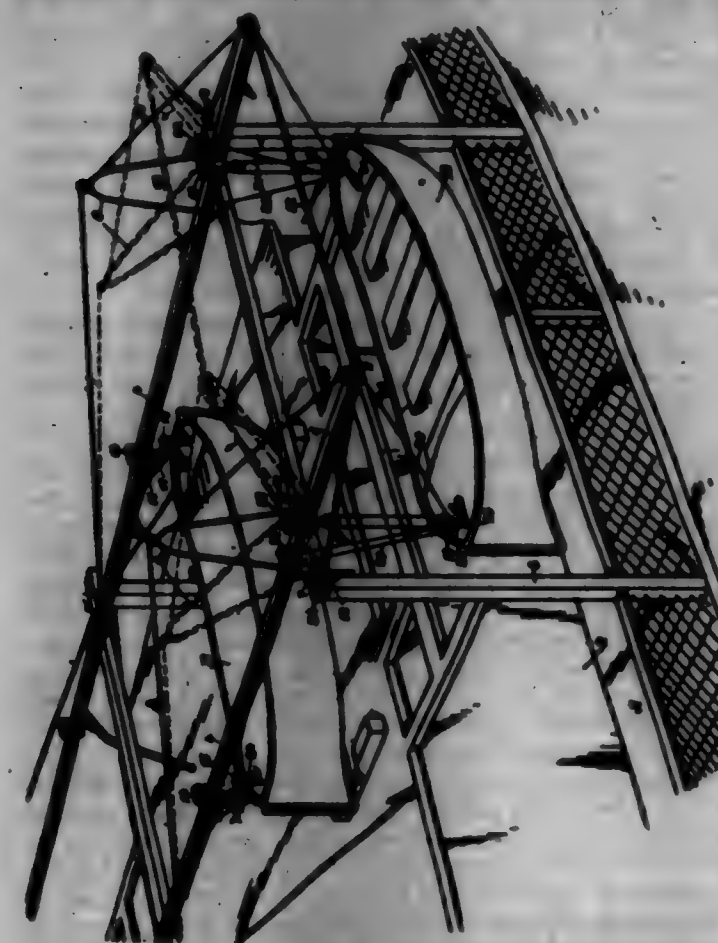
29. In a cultivator the combination of the beam-carrying arch-bar, the plow-beam mounted to swing vertically on a hinge or pivot, the lifting-spring arranged to exert a lifting force on the beam at the rear of said hinge, and the bar 45 engaged and forced downward by said spring, exerting a downward force at the front of said hinge to aid in containing the beam, and bearing backward at its upper part against the transverse portion of said arch-bar, substantially as set forth.

701,009. LIFE-BOAT-LAUNCHING DEVICE. JAMES W. BEE, San Francisco, Cal. Filed Oct. 10, 1901. Serial No. 73,191. (No model.)

Claim.—1. In a launching apparatus, the combination with track-rails, and supports therefor, of a trolley device mounted upon said rails and including a pivoted elevating member normally disengaged from the boat, and adapted to engage and suspend the boat.

2. In a launching apparatus, the combination with track-rails having hinged sections at the ends, and supports for said rails, of a trolley device to travel on the rails, and a pivoted lifting device normally at-

tached to the trolley, and disengaged from a boat and adapted to engage and elevate the boat and suspend it, substantially as described.



3. In a boat-launching apparatus, the combination of overhead tracks, track-sections on the end of said tracks, means by which said sections are supported at their outer ends so that said sections may be continuous with the tracks, boat-supporting trolley-chassis movable on said tracks and sections, and provided with a lever normally disengaged from the boat and adapted to engage and transport the latter, and means by which said sections may be folded back when not in use.

4. In a boat-launching apparatus, the combination with horizontal tracks and movable and extendable thereof, of trolley-chassis movable on said tracks, a lever pivoted on each of said trolley-chassis, said lever having a shorter back-arm, and a longer purchase-arm.

5. In a boat-launching apparatus, the combination of two tracks supported above the surface, pivoted and extendable of said tracks, frames pivoted above the tracks and connected to the outer end of said track-extensions, trolleys movable on said tracks and extensions and means by which the latter and their supports may be folded back when not in use.

6. In a boat-launching apparatus, the combination of two horizontal track-rails, movable track-sections on the ends of said rails, section-supports above said rails adapted to turn in unison with said sections, boat-trolley-carriers upon said rails, carriers upon the sections and means whereby a boat may be shifted from the carriers on the track to the carriers on the sections.

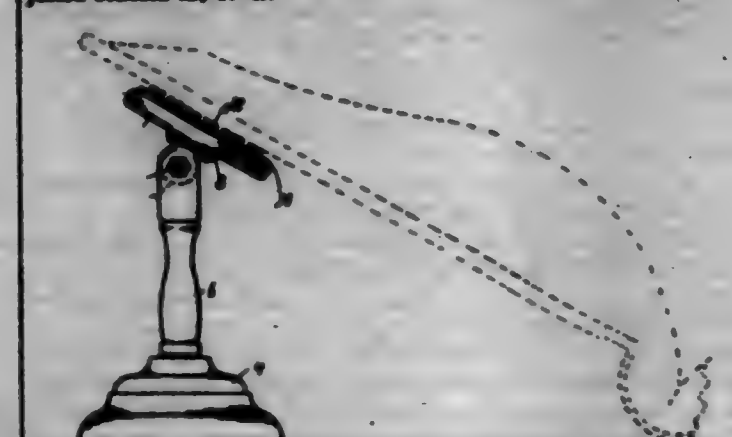
7. In a boat-launching apparatus, the combination of horizontal track-rails, trolley-carriers on said rails, pivoted extensions on the ends of said rails, means for supporting the ends of said extensions, trolley-chassis on the latter and a fall carried by said chassis having one end made fast to the outer ends of said extensions.

8. In a boat-launching apparatus, the combination of parallel trolley-ways separated a distance approximately the length of the boat to be launched, pivoted extensions on said ways, trolleys on said extensions, pivoted A-frames and connections of these frames with the ends of said extensions, said frames and extensions adapted to fold back upon the ways, a fall carried by each of said trolleys, one end of said fall being fast to the outer end of the extension, and a stop upon said standing portion whereby the trolley is forced toward the inner end of the extension when the boat is raised.

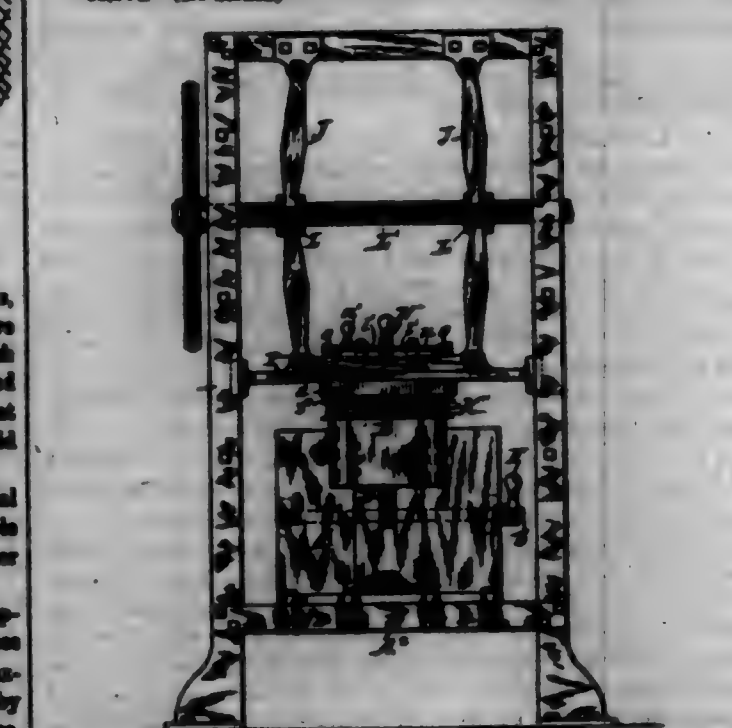
701,010. BOAT-SUPPORTER. JAMES W. BEE, San Francisco, Cal. Filed Feb. 12, 1902. Serial No. 67,600. (No model.)

Claim.—In a boat-supporter, the combination of an upward-acting standard, a supporting-bar at the lower end of said standard, a plate pivoted at the upper end of the standard upon a horizontal pivot, and a series of flexible fingers or prongs projecting beyond the upper surface of the plate, as to provide for the plate being insertible beneath the boat-cover at any position therebetween, the pivot of the plate per-

mitting said plate to automatically adjust itself against said under side of the boat-cover, and the flexible prongs or fingers releasably holding the boat-cover to the plate in any position to which said plate may be adjusted beneath the cover.



701,011. MACHINE FOR DOUBLE-SEAMING METAL SHEETS. CHARLES E. BROWN, Syracuse, N. Y. Filed Jan. 6, 1902. Serial No. 63,574. (No model.)



Claim.—1. A machine for double-seaming metal sheets, comprising a vertically-movable platen for supporting the sheets to be united, eccentric pivots supported on the main frame and carrying the platen, means for turning said eccentric to impart vertical movement to the platen, a press-follower facing said platen, dies introduced between the platen and follower and shaped to contain the edges of the sheets at successively-increasing angles, and means for applying pressure to the follower and folding and compressing the edges of the sheets on the dies.

2. A machine for double-seaming metal sheets, comprising a vertically-movable platen for supporting the sheets to be united, said platen disposed beneath and parallel with the platen and pivotedly supported on the main frame, eccentric of corresponding diameter fastened to said platen, parallel arms of equal length fixed to said platen, a rod connecting the free ends of said arms, means for imparting reciprocating motion to said rod, a press-follower facing said platen, dies introduced between the platen and follower and shaped to contain the edges of the sheets at successively-increasing angles, and means for applying pressure to the follower and folding and compressing the edges of the sheets on the dies.

3. A machine for double-seaming metal sheets, comprising a platen for supporting the sheets to be united, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheets carried on the platen and with an laterally-declined rim surrounding said recess, a vertically-movable auxiliary die disposed to said main die and having its edges shaped correspondingly to the above-mentioned rim to bend the flange of one sheet over the flange of the companion sheet and turn said flange jointly inward, means for imparting vertical movement to the above-mentioned auxiliary die, and means for applying pressure to the follower.

4. In a machine for double-seaming metal sheets, the combination

of a vertically-movable platen for supporting the sheet to be united, means for uniting said platen at different elevations, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheet carried on the platen and with an inwardly-sloped rim surrounding said recess, a vertically-movable auxiliary die disposed in said recess and having its edges sloped correspondingly to the aforesaid rim to bend the flange of one sheet over the flange of the companion sheet and turn said flanges jointly inward, means for imparting vertical movement to the aforesaid auxiliary die, and means for applying pressure to the follower.

5. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen for supporting the sheet to be united, mechanism imparting vertical movement to said platen, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheet carried on the platen and with an inwardly-sloped rim surrounding said recess, a vertically-movable auxiliary die disposed in said recess and having its edges sloped correspondingly to the aforesaid rim to bend the flange of one sheet over the flange of the companion sheet and turn said flanges jointly inward, means for imparting vertical movement to the aforesaid auxiliary die, and means for applying pressure to the follower.

6. In a machine for double-seaming metal sheets, the combination of a platen, a clamp securing to said platen the sheet to be united, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheet lying upon the top of the platen and with an inwardly-sloped rim surrounding said recess, a vertically-movable auxiliary die disposed in said recess and having its edges sloped correspondingly to the aforesaid rim, means for imparting vertical movement to said auxiliary die, and means for applying pressure to the follower as set forth.

7. In a machine for double-seaming metal sheets, the combination of a platen supporting the sheet to be united, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheet lying upon the top of the platen and with an inwardly-sloped rim surrounding said recess and grooves in the face of the recess beveled at corresponding edges and in corresponding directions, a vertically-movable auxiliary die contained yieldingly in the recess of the main die and having its edges sloped correspondingly to the aforesaid rim, wedge-plates interposed between said main and auxiliary dies, means for moving said wedge-plates into and out of the aforesaid grooves, and means for applying pressure to the follower as set forth.

8. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp securing to said platen the sheet to be united, means for imparting vertical movement to the platen, a press-follower facing said platen, a main die carried on the face of the follower and provided with a recess for receiving the sheet lying upon the top of the platen and with an inwardly-sloped rim surrounding said recess and grooves in the face of the recess beveled at corresponding edges and in corresponding directions, a vertically-movable auxiliary die contained yieldingly in the recess of the main die and having its edges sloped correspondingly to the aforesaid rim, wedge-plates interposed between said main and auxiliary dies, means for moving said wedge-plates into and out of the aforesaid grooves, and means for applying pressure to the follower as set forth.

9. In a machine for double-seaming metal sheets, the combination of a platen supporting the sheet to be united, a press-follower facing said platen, a main die fastened to the follower and provided with a recess for receiving the sheet lying upon the top of the platen and with an inwardly-sloped rim surrounding said recess and parallel grooves in the face of the recess beveled at corresponding edges and in corresponding directions, a vertically-movable auxiliary die contained yieldingly in the recess of the main die and having its edges sloped correspondingly to the aforesaid rim, wedge-plates interposed between the main and auxiliary dies, a bar connecting said plates to each other, means for moving said bar to carry the wedge-plates into and out of the aforesaid grooves, and means for applying pressure to the follower as set forth.

10. In a machine for double-seaming metal sheets, the combination of a platen supporting the sheet to be united, a press-follower facing said platen, a main die fastened to the follower and provided with a recess for receiving the sheet lying upon the platen and with an inwardly-sloped rim surrounding the recess, an auxiliary die contained yieldingly in the recess of the main die, springs holding the auxiliary die normally seated on the face of the recess, means for depressing the auxiliary die from said normal position, and means for applying pressure to the follower.

11. In a machine for double-seaming metal sheets, the combination of a platen supporting the sheet to be united, a press-follower facing said platen, a main die fastened to the follower and provided with a recess for receiving the sheet lying upon the platen and with an inwardly-sloped rim surrounding the recess, an auxiliary die contained yieldingly in said recess and having its edges sloped correspondingly to the rim of the main

die, springs holding the auxiliary die normally seated on the face of the recess, means for forcing the auxiliary die in a lateral direction, and means for applying pressure to the follower.

12. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp securing to said platen the sheet to be united, means for imparting vertical movement to the platen, a press-follower facing the platen, a main die fastened to the follower and provided with a recess for receiving the sheet lying upon the platen and with an inwardly-sloped rim surrounding the recess, an auxiliary die contained yieldingly in said recess and having its edges sloped correspondingly to the rim of the main die, springs holding the auxiliary die normally seated on the face of the recess, means for forcing the auxiliary die in a lateral direction, and means for applying pressure to the follower.

13. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp for securing to said platen the sheet to be united, means for imparting vertical movement to the platen, a press-follower facing the platen and provided with vertical perforations, a main die fastened to the follower and provided with perforations disposed concentric in relation to those of the follower, said main die provided in its under side with a recess for receiving the sheet lying upon the platen and with an inwardly-sloped rim surrounding the recess, an auxiliary die disposed yieldingly in said recess and having its edges sloped correspondingly to the aforesaid rim, bolts attached to the auxiliary die and extending through the aforesaid perforations and having their lower and portions fitted closely in the perforations of the main die and upper and portions reduced in diameter and beveled at their junctions with the lower and portions, springs forcing the said bolts upward, means for forcing the auxiliary die downward from the main die and means for applying pressure to the follower as set forth.

14. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp securing to said platen the sheet to be united, means for imparting vertical movement to the platen, a press-follower facing the platen and provided with vertical perforations, a main die fastened to the follower and provided with perforations disposed concentric in relation to those of the follower, the under side of said main die provided with a recess for receiving the sheet lying upon the platen and with an inwardly-sloped rim surrounding the recess, an auxiliary die disposed yieldingly in said recess and having its edges sloped correspondingly to the aforesaid rim, bolts attached to the auxiliary die and extending through the aforesaid perforations and having their lower and portions fitted closely to the perforations of the main die and their upper and portions, wedges projecting from the sides of the upper and portions, expansion-springs interposed between the top of the follower and heads of the bolts, movable wedge-plates interposed between the main and auxiliary dies, a lever for moving said wedge-plates, and means for applying pressure to the follower as set forth.

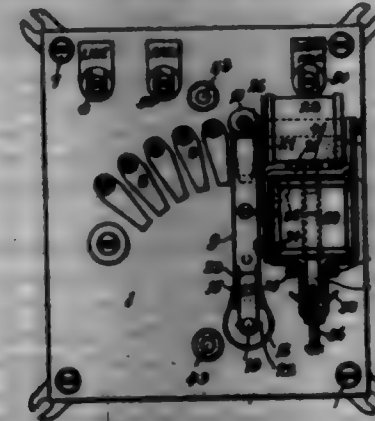
15. A machine for double-seaming metal sheets, comprising a platen for supporting the sheet to be united, a press-follower facing said platen, a main die fastened to the follower, an auxiliary die contained movably under said main die and shaped to partly fold the joining edges of the sheet, means for moving said auxiliary die to different operative positions, a final clamping-plate suspended from said frame, means for moving said plate to and from between the platen and main die, and means for applying pressure to the follower as set forth.

16. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp for securing to the platen the sheet to be united, means for moving the platen, a press-follower facing said platen, a main die attached to the follower, an auxiliary die contained movably under the main die and shaped to partly fold the joining edges of the sheet, means for moving the auxiliary die to different operative positions, guides attached to the follower, a frame mounted on said guides, a final clamping-plate suspended from said frame, means for moving said plate to and from between the platen and main die, and means for applying pressure to the follower as set forth.

17. In a machine for double-seaming metal sheets, the combination of a vertically-movable platen, a clamp for securing to the platen the sheet to be united, means for moving the platen, a press-follower facing said platen, a main die attached to the follower, an auxiliary die contained movably under the main die and shaped to partly fold the joining edges of the sheet, means for moving the auxiliary die to different operative positions, guides attached to the follower, a frame mounted on said guides, a final clamping-plate suspended from said frame, means for automatically moving said plate from the platen, means for forcing said plate between the platen and main die, and means for applying pressure to the follower as set forth.

701,012. RENOYAT. ROY W. BROWN and CHARLES A. RENOYAT, Milwaukee, Wis., assignors to Union Electric Manufacturing Company, Milwaukee, Wis., a Corporation. Filed Dec. 16, 1901. Serial No. 88,148. (No model.)

Claim.—1. In a frame for a rheostat, a sheet-metal member in double-L form provided with supporting-legs and adapted to support one or more magnets thereon.



2. In a frame for an electromagnet in a rheostat, a principal member consisting of a strip of sheet metal bent into double-L form having reversely-projecting and portions and a medial transverse portion at right angles thereto.

3. In a rheostat, a frame for an electromagnet and a solenoid, composed of two strips of sheet metal bent and riveted to each other so as to inclose a space and an offset therefrom at one side thereof, the frame of the offset projecting in one side of the space.

4. In a rheostat, a frame for an electromagnet and a solenoid, consisting of two strips of sheet metal bent and riveted to each other so as to inclose a space and an offset therefrom at one side thereof, and means integral with a strip of the frame for securing it to supporting means.

5. In a rheostat, a frame for an electromagnet and a solenoid, consisting of two strips of sheet metal bent and riveted to each other so as to inclose a space and an offset therefrom at one side thereof, and means integral with a strip of the frame for securing it to supporting means.

6. In combination in a rheostat, a strip of sheet metal bent in double-L form, and a plurality of magnets attached thereto one to a free terminal bar of the strip and the other to the medial transverse bar of the strip.

7. In combination in a rheostat, a strip of sheet metal bent in double-L form, a plurality of magnets attached thereto one to a projecting bar of the strip the other to the medial bar, and a swinging armature-hinged to the other projecting bar of the strip.

8. In combination in a rheostat, a strip of sheet metal bent in double-L form, a plurality of magnets attached thereto one to a projecting bar of the strip, the other to the medial bar, a swinging armature-hinged to the other projecting bar of the strip, and a tilting armature-hinged and supported on the last-mentioned bar of the strip.

9. In a rheostat, a switch-arm composed of a strip of sheet metal swaged into form with longitudinal strengthening ribs and with a carbon-holding frame.

10. A switch-arm for a rheostat struck up from sheet metal, and having marginal strengthening-ribs, and a carbon-holding frame.

11. In combination in a rheostat, a switch-arm struck up from sheet metal having marginal ribs and a carbon-holding frame, and a flat spring alongside the arm between said ribs and passing through a slot therefor in the arm and adapted to bear on a carbon in the carbon-frame.

12. In a rheostat, a switch-arm struck up from sheet metal and so mounted at one end as to be capable of swinging in an arc, a concentric ratchet also of sheet metal secured to the switch-arm and an armature-actuated hook engaging said ratchet rotatably.

13. In combination, a switch-arm for a rheostat struck up from sheet metal with marginal ribs and a carbon-holding frame, a flat spring secured to and parallel with the switch-arm between its marginal ribs, and an adjusting-screw turning in and through a struck-up bar on the switch-arm against the spring adapted to adjust the tension of the spring.

14. A rheostat-constructed up from sheet metal and having a rear wall and side walls with integral ears at the corners adapted for securing the rheostat to its support and with struck-up ribs on the side walls.

15. A resistance medium for a rheostat, consisting of a grid struck up from sheet metal in the form of a continuous strip having return-bends, a plurality of parallel medial sections, and parallel terminal sections provided with lateral recesses for receiving supporting-studs thereon.

16. A resistance medium for a rheostat, consisting of a grid struck up from sheet metal in the form of a continuous strip having return-bends and parallel adjacent longitudinal sections and having a longitudinal rib or ribs thereon.

17. In combination in a rheostat, an integral holding-frame member, and a plurality of independent electromagnets mounted on the inte-

gral frame member, the frame member serving to support the electromagnets and forming a part of the magnet-yokes of both electromagnets.

18. In a rheostat, a switch-arm composed of a strip of sheet metal swaged into form with strengthening-ribs and with a frame for a contact-piece.

19. In combination in a rheostat, a switch-arm struck up from sheet metal having a contact holding-frame, and a flat spring secured to the arm and serving the double purpose of an additional support for the arm and of a spring bearing on the contact member.

20. In a rheostat, a resistance medium swaged from sheet metal with strengthening-ribs.

21. A resistance medium for a rheostat, composed of a plurality of sheet-metal grids each grid consisting of a single strip of metal, the strips of all the grids being of uniform width but of varying thicknesses, and connected up electrically.

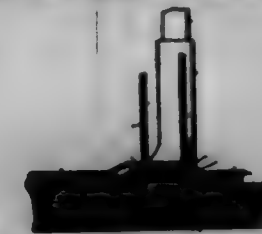
22. In a rheostat, a frame for a solenoid composed of strips of sheet metal cut and swaged into form and riveted to each other and including a substantially square space, and having a guideway for the solenoid-core extending from one side of the frame.

23. In a rheostat, a switch-arm composed of sheet metal swaged into form and having thereon a frame for a contact-piece.

24. In a rheostat, a switch-arm composed of two strips of sheet metal swaged into form and secured together, and a coiled spring between separated terminal portions of the two strips.

25. In a rheostat, a switch-arm composed of two strips of sheet metal swaged into form and secured together, and a coiled spring between separated terminal portions of the two strips.

701,018. CLOTH-GUIDE FOR SEWING-MACHINES. SARAH E. BARKER, Aurora, Ill. Filed Feb. 4, 1901. Serial No. 88,088. (No model.)



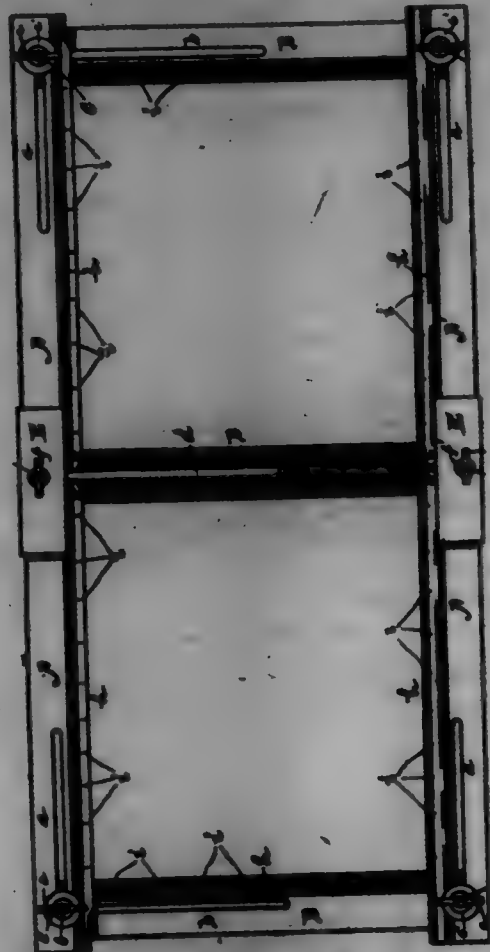
Claim.—1. An attachment for sewing-machines constructed to sew together the overlapping margins of two pieces of fabric or the like, comprising a presser-foot having one margin plain and provided at its other margin and adjacent to the needle-aperture of said foot with an integral inwardly-facing guide-shoulder, extending below the plane of the bottom face of the presser-foot and adapted to engage the folded margin of one of the pieces of fabric, and a guide-flange on the cloth-plate located in front of the presser-foot and at one side of the line of the needle, said flange having a guide-surface opposing the guide-surface of the presser-foot and adapted to engage the folded margin of the other piece of fabric, and the flange being provided with a horizontal part which extends laterally toward the guide-shoulder on the presser-foot and is located over and substantially parallel with the cloth-plate.

2. An attachment for sewing-machines constructed to sew together the overlapping margins of two pieces of fabric or the like, comprising a presser-foot having one margin plain and provided at its other margin with an integral, inwardly-facing guide-shoulder extending below the plane of the bottom face of the presser-foot and adapted to engage the folded margin of one of the pieces of fabric, and a guide-flange integral with and projecting above the cloth-plate and located in front of the presser-foot, said flange having an inwardly-facing guide-surface opposing the guide-shoulder of the presser-foot and adapted to engage the folded margin of the other piece of fabric and the flange being also provided with an integral horizontal part which extends laterally toward the guide-surface on the presser-foot and is located over and substantially parallel with the cloth-plate, the rear margin of said horizontal part of the flange being inclined and obliquely facing the guide-shoulder on the presser-foot.

701,014. CURTAIN-STRETCHER. CHARLES C. GARDNER, Chicago, Ill. Filed Dec. 9, 1901. Serial No. 88,180. (No model.)

Claim.—1. In a curtain-stretcher, the combination of divided side bars or rails edgewise folding a stiffening-plate for the joint of each side bar or rail overlapping the abutting ends of the bar or rail sections on each side of the joint, depending pins or pivots for each stiffening-plate, one pin or pivot at each end of the plate, the pins or pivots of one plate having a greater length than the thickness of the bar or rail and said pins or pivots being secured to the bar or rail and extending from side bar or rail to side bar or rail and crossing the bars or rails at the joints on the opposite face of the bar or rail to the stiffening-plate, clamping-bolts one for each end of the cross-brace or stiffening-bar, passing through the cross-brace or stiffening-bar, between the abut-

they ends of the sections of the side bar or rail, and through the stiffening-plate one bolt having a greater length than the combined thickness of the cross-brace or stiffening-bar and the two side bars or rails when folded, and tightening-nuts for the clamping-bolts, substantially as described.



2. In a certain-stretcher, the combination of divided side bars or rails edgewise folding each bar or rail at its shutting end having a rounded inner corner, a stiffening-plate for the joint of each bar or rail overlapping the shutting ends of the bar or rail sections on each side of the joint and having on each side depending edges or flanges engaging the side faces of the bar or rail, depending pins or pivots for each stiffening-plate, one pin or pivot at each end of the plate the pins or pivots of one plate having a greater length than the thickness of the bar or rail and each provided with a head, a cross-brace or stiffening-bar extending from side bar or rail to side bar or rail and crossing the bars or rails at the joints on the opposite face of the bar or rail to the stiffening-plate, clamping-bolts, one for each end of the cross-brace or stiffening-bar, between the shutting ends of the sections of the side bar or rail, and through the stiffening-plate, one bolt having a greater length than the combined thickness of the cross-brace or stiffening-bar and the two side bars or rails when folded, tightening-nuts for the clamping-bolts of the cross-brace or stiffening-bar, detachable end bars or rails and removable clamping-bolts for the crossing corners of the side bars or rails and the end bars, or rails for folding the divided side bars or rails edgewise one over the other and on the cross-brace or stiffening-bar and pinning the end bars or rails on the folded sections of the side bars or rails and thereby folding the stretcher, as a whole, in a compact form for shipment and storing away with the retaining-pins protected, substantially as described.

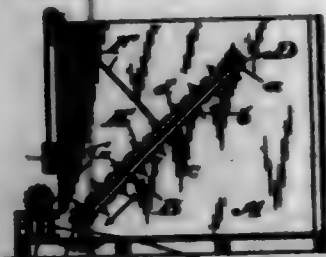
3. In a certain-stretcher, the combination of divided side bars or rails edgewise folding each bar or rail at its shutting end having a rounded inner corner, and a semicircular recess, a stiffening-plate for the joint of each bar or rail overlapping the shutting ends of the bar or rail sections on each side of the joint, depending pins or pivots for each stiffening-plate, one pin or pivot at each end of the plate, the pins or pivots furnishing a pivotal connection between the sections of the divided side bar or rail, permitting, in conjunction with the rounded inner corner at the shutting ends of the sections, the edgewise folding of the sections of the divided side bar or rail, a cross-brace or stiffening-bar extending from side bar or rail to side bar or rail and crossing the bars or rails at the joints on the opposite side of each bar or rail to the stiffening-plate, clamping-bolts one for each end of the cross-brace or stiffening-bar passing through the cross-brace or stiffening-bar and the semicircular recesses in the shutting ends of the sections of the side bar or rail and through the stiffening-plate, and tightening-nuts for the clamping-bolts, substantially as described.

4. In a certain-stretcher, the combination of divided side bars or rails edgewise folding each section of each bar or rail at the shutting ends having a rounded inner corner, a stiffening-plate for the joint of each side bar or rail overlapping the shutting ends of the bar or rail sections on each side of the joint and having on each side depending edges or flanges engaging the side faces of the bar or rail, depending pins or pivots at each end of the plate, the pins or pivots furnishing a pivotal connection be-

tween the sections of the divided side bar or rail, permitting, in conjunction with the rounded inner corner at the shutting ends of the sections, the edgewise folding of the sections of the divided bar or rail, a cross-brace or stiffening-bar extending from side bar or rail to side bar or rail and crossing the bars or rails at the joints on the opposite side of each bar or rail to the stiffening-plate, and clamping-bolts, one for each end of the cross-brace or stiffening-bar, passing through the cross-brace or stiffening-bar, between the shutting ends of the sections of the side bar or rail, and through the stiffening-plate, for drawing together the cross-brace or stiffening-bar and the shutting ends of the side bar or rail and forcing the stiffening-plate against the face of the bar or rail on each side of the joint, substantially as described.

5. In a certain-stretcher, the combination of divided side bars or rails edgewise folding each bar or rail at its shutting end having a rounded inner corner, a stiffening-plate for the joint of each bar or rail overlapping the shutting ends of the bar or rail sections on each side of the joint, depending pins or pivots for the stiffening-plate, one pin or pivot at each end of the plate and the pins or pivots of one plate having a greater length than the thickness of the bar or rail and each provided with a stop on its lower end, a cross-brace or stiffening-bar extending from side bar or rail to side bar or rail and crossing the bars or rails at the joints on the opposite face of the bar or rail to the stiffening-plate, clamping-bolts, one for each end of the cross-brace or stiffening-bar, passing through the cross-brace or stiffening-bar between the shutting ends of the sections of the side bar or rail and through the stiffening-plate, one bolt having a greater length than the thickness of the cross-brace or stiffening-bar and the two side bars or rails when folded, tightening-nuts for the clamping-bolts of the cross-brace or stiffening-bar, detachable end bars or rails and removable clamping-bolts for the crossing corners of the side bars or rails and the end bars, or rails for folding the divided side bars or rails edgewise one over the other and on the cross-brace or stiffening-bar and pinning the end bars or rails on the folded sections of the side bars or rails and thereby folding the stretcher, as a whole, in a compact form for shipment and storing away with the retaining-pins protected, substantially as described.

701,015. AUTOMATIC FEED FOR STRAW-BURNING FURNACE. JOHN A. COWAN, Calgary, Canada. Filed Dec. 17, 1900. Serial No. 48,301. (No model.)



Claim.—1. In an automatic feed for straw-burning furnaces, a box or cage for straw and an endless feed-apron suitably carried on a frame pivoted near the bottom and one side of the cage in combination with a suitably-supported transverse conveyor arranged in proximity to the outer side of the lower end of the apron; a feed-box adapted to receive straw from the transverse conveyor; and means for driving the apron and conveyor, substantially as and for the purpose specified.

2. In an automatic feed for straw-burning furnaces, a box or cage for straw and an endless feed-apron suitably carried on a frame pivoted near the bottom and one side of the cage; a cord attached at one end to the mid frame; a guide or pulley on the cage; and a counterbalancing-weight to which the other end of the cord is secured, in combination with a suitably-supported transverse conveyor arranged in proximity to the outer side of the lower end of the apron; a feed-box adapted to receive straw from the transverse conveyor; and means for driving the apron and conveyor, substantially as and for the purpose specified.

3. In an automatic feed for straw-burning furnaces, a box or cage for straw, an endless feed-apron, and a frame carrying and supporting said feed-apron and pivoted near the bottom and one side of the cage, whereby said frame and its endless feed-apron may automatically swing on its pivot and drop to the bottom of the cage as the straw is used up, in combination with means contained in said box or cage for receiving the straw from the apron and conveying it to the furnace, substantially as and for the purpose specified.

4. In an automatic feed for straw-burning furnaces, a box or cage for straw, an endless feed-apron, a frame pivoted near the bottom and one side of said cage and carrying and supporting said feed-apron, a guide or pulley on the cage, a cord connected with the mid frame and passing over said pulley and a counterbalancing-weight connected with the other end of said cord, in combination with means for receiving the straw from the apron and conveying it to the furnace, substantially as and for the purpose specified.

5. In an automatic feed for straw-burning furnaces, the combination of a box or cage for straw, transverse conveying means arranged in communication with the front part of the bottom of the cage, means to move straw in the cage to said conveying means and a feed-box arranged to receive straw from the said conveying means; the said conveying means forcibly pushing the straw in said feed-box, whereby the straw is compressed therein and is fed to the furnace in its compressed condition, substantially as and for the purpose specified.

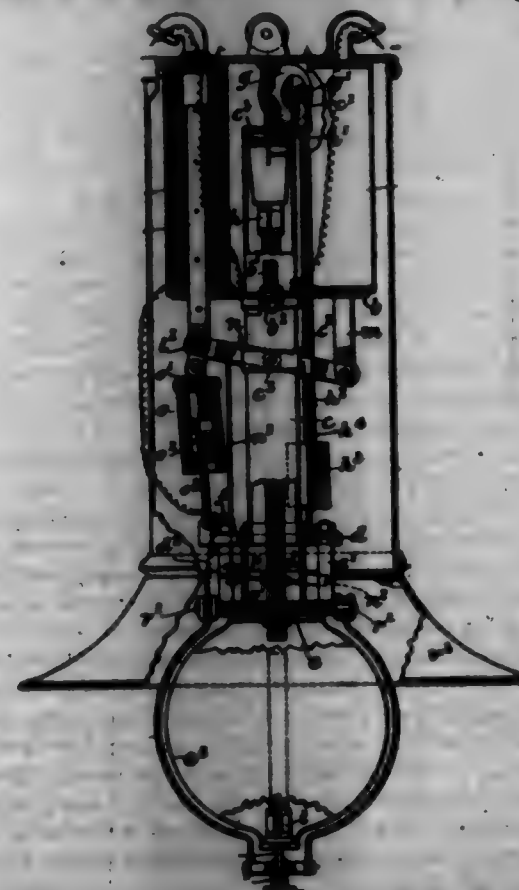
6. In an automatic feed for straw-burning furnaces, the combination of a box or cage for straw; a transverse curved-toothed conveyor arranged in communication with the bottom part of the cage; means to move straw in the cage to the conveyor; a feed-box arranged to receive straw from the conveyor; and a slotted tongue forming one side of the feed-box and adapted to strip the conveyor, substantially as and for the purpose specified.

7. In an automatic feed for straw-burning furnaces, a box or cage for straw; a transverse curved-toothed conveyor arranged in communication with the bottom part of the cage; means to move straw in the cage to the conveyor; a feed-box arranged to receive straw from the conveyor; and a slotted spring-tongue forming one side of the feed-box and adapted to strip the conveyor, substantially as and for the purpose specified.

8. In an automatic feed for straw-burning furnaces, a box or cage for straw; and an endless feed-apron provided with ribs and teeth inclined to one side, and suitably carried on a frame pivoted near the bottom and one side of the cage in combination with a transverse conveyor arranged in proximity to the outer side of the lower end of the feed-apron; a box adapted to receive straw from the transverse conveyor; and means for driving the apron and the conveyor so that the former delivers straw to the latter and the latter moves in the direction of inclination of the teeth of the apron, substantially as and for the purpose specified.

9. In an automatic feed for straw-burning furnaces, the combination of a box or cage for straw; means to move in the cage to the front part of the bottom of the cage; transverse conveyers arranged in communication with the mid part of the cage and so carried as to draw straw from the mid part of the cage between them; a feed-box adapted to receive straw from the conveyers; means for driving the different parts, substantially as and for the purpose specified.

701,016. ELECTRIC-ARC LAMP. JOHN L. DAVIES, Highbury, England. Filed Jan. 16, 1901. Serial No. 43,574. (No model.)



Claim.—1. The improved means of supporting the regulating-screw consisting of a crown-plate, insulating-spring fixed on the crown-plate, a coil-plate, side rods insulated from the coil-plate, and forcing the coil-plate toward the crown-plate substantially as described.

2. The combination with a grip device controlling the feed or descent of the upper carbon, of means for counterbalancing the upper-carbon holder, consisting of a double pulley, two flexible cords fixed to the

double pulley, the upper-carbon holder and the guided counterweight fixed to the cords substantially as described.

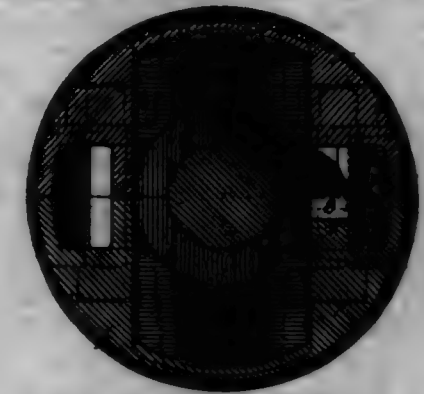
3. The means of suspending the lower-carbon holder and globe consisting of a fixed horizontal plate, insulated side rods pivoted by horizontal pivots to the horizontal plate, a bridge connecting the lower ends of the side rods, a tail-screw screwing in the bridge, a spring-plunger in the bridge, and the carbon-holder and globe-support resting on the plunger substantially as described.

4. The controlling mechanism consisting of the solenoid, solenoid-coils, lever, frame-tube, ring fixed on the frame-tube, screw-rod fixed in the ring and carrying on the fulcrum of the lever, and the coil or spiral springs attached to holes in the lever and connecting the lever to the solenoid-coils substantially as described.

5. The dash-pot arrangement for arc-lamps, consisting of the controlling-lever, the dash-pot cylinder, links connecting the cylinder to the controlling-lever, the lamp-frame, the dash-pot piston pivoted to the frame, and a ball-valve on the top of the dash-pot cylinder substantially as described.

6. The lamp-socket consisting of the crown-plate, a cylindrical casing fixed at its top to the crown-plate, an L-ring fixed to the bottom of the casing, a reflector and removable screw-bottom for fixing the reflector to the ring substantially as described.

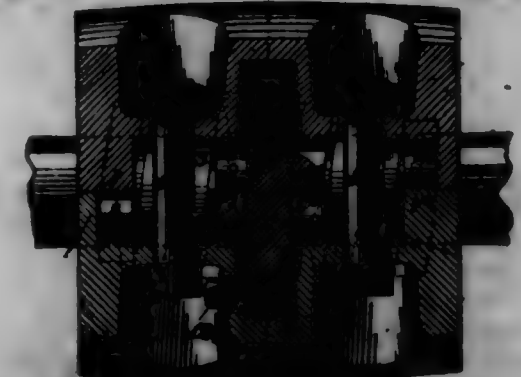
701,017. SHAFT-COUPLING. SAMUEL E. DENNEN, Pittsburgh, Pa. Filed July 20, 1901. Serial No. 70,214. (No model.)



Claim.—1. A shaft-coupling having in combination a sectional sleeve, coils arranged within the sleeve, the opposite ends of the coils bearing upon opposite sections and means for drawing the sections toward each other, and thereby reducing the diameter of the coils, substantially as set forth.

2. A shaft-coupling having in combination a sectional sleeve, coils arranged within the sleeve, one end of each coil having a bearing on one of the sleeve-sections, and adjustable bearings for the opposite ends of the coils arranged in the other section, and means for drawing the sections toward each other and thereby reducing the diameter of the coils, substantially as set forth.

701,018. SHAFT-COUPLING. SAMUEL E. DENNEN, Pittsburgh, Pa. Filed Sept. 2, 1901. Serial No. 74,005. (No model.)



Claim.—1. The combination of a case or shell, two gripping-coils arranged within the case or shell, each coil having one end engaging a portion of the case or shell, a lever engaging the other ends of the coils and means for shifting the lever, substantially as set forth.

2. The combination of a case or shell, two gripping-coils arranged within the case or shell, each coil having one end engaging a portion of the case or shell, a floating lever engaging the other ends of the coils and means for shifting the lever, substantially as set forth.

3. The combination of a case or shell, having oppositely-arranged abutments, means for adjusting one of said abutments, two gripping-coils arranged within the case or shell, one end of each coil having a bearing against said abutments, a floating lever engaging the other ends of the coils and means for shifting said lever, substantially as set forth.

4. The combination of a case or shell, two gripping-coils arranged within the case or shell and means for causing both coils to have an equal gripping action, substantially as set forth.

701,019. COUPLING FOR PIPES, &c. SAMUEL R. DIMICK, Pittsburg, Pa. Filed Oct. 21, 1901. Serial No. 79,487. (No model.)



Claim.—1. A coupling for pipes, &c., having in combination two coils externally tapered and threaded and a case or shell internally tapered in opposite directions and threaded to correspond to the threads on the coils, substantially as set forth.

2. A coupling for pipes, &c., having in combination two coils of opposite pitch externally tapered and having external right and left threads and a case or shell internally tapering in opposite directions and internally threaded to correspond with the threads on the coils, substantially as set forth.

3. A coupling for pipes, &c., having in combination two coils of opposite pitch externally tapered, and having external right and left threads, means for locking one end of each coil to the pipe, &c., and a case or shell internally tapering in opposite directions and internally threaded to correspond to the threads on the coils, substantially as set forth.

4. A coupling for pipes, &c., having in combination two coils of opposite pitch externally tapered and having external threads pitched in the same direction as the coils and a case or shell internally tapering in opposite directions and threaded to correspond with the threads on the coils, substantially as set forth.

701,020. COUPLING FOR PIPES, SHAFTS, &c. SAMUEL R. DIMICK, Pittsburg, Pa. Filed Jan. 26, 1902. Serial No. 91,506. (No model.)



Claim.—1. A coupling for pipes, &c., having in combination a sleeve or shell internally tapered in opposite directions and having helically-arranged ribs and two coils externally tapered and having adjacent turns separated to form spaces for the reception of the ribs in the sleeve, substantially as set forth.

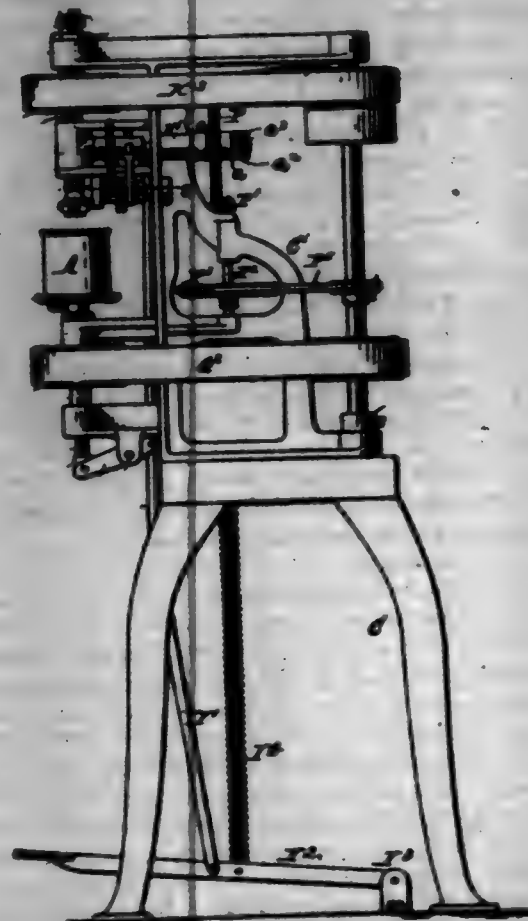
2. A coupling for pipes, &c., having in combination a sleeve internally tapered in opposite directions and having helically-arranged ribs, the ribs at one end having a pitch opposite that of the ribs at the other end, and right and left hand coils externally tapered and having adjacent turns separated to form spaces for the reception of the ribs in the sleeve, substantially as set forth.

701,021. CAP-CAPPING MACHINE. MICHAEL DUTY, Rochester, and FRANK GREEN, St. Johnsville, N. Y. Filed June 21, 1901. Serial No. 65,399. (No model.)

Claim.—1. In a cap-capping machine, the combination of a rotary support for the cap to be capped, a rotary crimping-mandrel arranged above said support and adapted to enter the depression of the cap, an upright rock-arm mounted on a horizontal pivot, a stationary support for said pivot, a crimping-roller mounted directly on said rock-arm below the pivot-line thereof to swing with the rock-arm downwardly and inwardly and upwardly and outwardly, and a rotary cam whereby said rock-arm is actuated to swing the crimping-roller downwardly and inwardly against the cap, substantially as set forth.

2. In a cap-capping machine, the combination of a rotary support for the cap to be capped, a rotary crimping-mandrel arranged above said support and adapted to enter the depression of the cap, upright rock-arm mounted on independent horizontal pivots, a stationary support for said pivots, preliminary and final crimping-rollers mounted, respectively, directly on said rock-arm below the pivot-line thereof to swing with the rock-arm downwardly and inwardly and upwardly and outwardly, actuating-arms on said rock-arm, a horizontal rotary shaft arranged between

said actuating-arms, and means on said shaft engaging said actuating-arms and actuating said rollers successively, substantially as set forth.



3. The combination of a crimping-mandrel, a cap-support, a crimping device movable toward and from said mandrel, an actuating device for said crimping device, a frictional driving mechanism for said actuating device, and a releasable stop device whereby said actuating device is held against further action when the crimping operation has been performed, and which is released for again starting said actuating device, substantially as set forth.

4. The combination of a crimping-mandrel, a cap-support, a crimping device movable toward and from said mandrel, a rotary cam for actuating said crimping device, a frictional driving mechanism for actuating said cam, a rotary stop controlling the movement of said cam, and a releasable stop against which said rotary stop engages when the crimping operation has been performed, substantially as set forth.

5. The combination of a crimping-mandrel, a cap-support, which is movable toward and from the same, a crimping device which is movable toward and from the mandrel, an actuating device for said crimping device, a frictional driving mechanism for said actuating device, a releasable stop device connected with the movable cap-support for holding the same in its operative position, and a stop device by which the further action of said actuating device is prevented when the crimping operation has been performed, substantially as set forth.

6. The combination of a crimping-mandrel, a cap-support, which is movable toward and from the same, a crimping device which is movable toward and from said mandrel, a cam for actuating said crimping device, a frictional driving mechanism for said cam, a locking-bar connected with the cam-support, a chipper-cam for releasing the locking-bar, and a stop on said cam for engaging against said bar and holding the actuating-cam against further rotation, substantially as set forth.

7. The combination of a crimping-mandrel, a cap-support which is movable toward and from the same, preliminary and final crimping devices which are movable toward and from said mandrel, a rotary cam-shaft, cam secured to said shaft for actuating said crimping devices, a frictional driving mechanism for said shaft, a locking-bar connected with said cam-support, and a chipper-cam also secured to said shaft and provided with a chipper-flute for releasing said locking-bar and with a stop-flange for engagement against said bar and preventing the further rotation of said cam-shaft, substantially as set forth.

8. The combination of a stationary frame, a crimping-mandrel, a cap-support which is movable in said frame toward and from the mandrel, a locking-bar connected with the cap-support, a stationary stop on said frame against which the locking-bar engages when the support is in its operative position, a crimping device which is movable toward and from said mandrel, and a chipper-cam by which the locking-bar is released from said stop when the crimping operation has been performed, substantially as set forth.

9. The combination of a stationary frame, a crimping-mandrel, a cap-support which is movable in said frame toward and from the mandrel, a locking-bar connected with the cap-support, a stationary stop on said frame against which the locking-bar engages when the support is in its operative position, a crimping-roller which is moved toward and from said mandrel, an actuating-cam for said roller, and a chipper-cam movable with said actuating-cam for releasing said locking-bar from said stop, substantially as set forth.

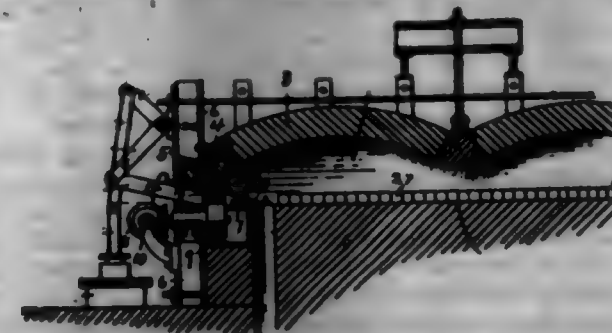
10. The combination of a crimping-mandrel, a crimping device movable toward and from said mandrel, a cap-support arranged below said mandrel and movable toward and from the same, an upright locking-bar movably connected near its lower end with said cap-support, a handle connected with the lower end of said locking-bar, a stop with which the upper end of said bar engages, and means for automatically releasing said bar from said stop, substantially as set forth.

11. The combination of a crimping-mandrel, a crimping device movable toward and from the same, a horizontal shaft provided with an actuating-cam for said crimping device, a cap-support arranged below said mandrel and movable toward and from the same, an upright driving-shaft, driving connections extending from said shaft to said mandrel and said cap-support, a frictional driving mechanism interposed between said driving-shaft and said cap-support, a locking device for supporting said cap-support in its operative position, and a chipper-cam for releasing said locking device, substantially as set forth.

12. The combination of a crimping-mandrel, a crimping device movable laterally toward and from the mandrel, a cap-support facing the mandrel, a rotary supporting-spindle for the cap-support, a loose connection by which the cap-support is attached to its spindle and which permits of a limited lateral movement of the cap-support on the spindle, and a coupling device by which the cap-support is rotated with the spindle, substantially as set forth.

13. The combination of a cap-support having an internal over-thread, a supporting-spindle which is provided with an external thread which fits loosely in the thread of the support and which is constructed with an upright groove, and a connecting-key which is attached to the support and movable into and out of said groove, substantially as set forth.

701,022. FURNACE. VICTOR E. HOWARD, Worcester, Mass., assignor to the Morgan Construction Company, Worcester, Mass., a Corporation. Filed Jan. 2, 1902. Serial No. 45,008. (No model.)



Claim.—1. In a furnace for heating billets provided with a transverse opening at the charging end of the furnace, of one or more supports for supporting the roof above said opening, one or more doors for closing said opening, with a space between said supports and said doors and an opening in one of the side walls of the furnace in alignment with said space for the introduction of a billet, substantially as described.

2. In a furnace for heating billets having a transverse opening at its charging end, of one or more supports for supporting the roof above said opening, one or more swinging doors for closing said opening, with a space intervening between said doors and said supports for the billet, and an opening in the side wall opposite said space for the introduction of said billet into said intervening space, substantially as described.

3. In a furnace for heating billets having an opening at its charging end transverse to the heating-chamber, supports for supporting the roof above said opening, doors for closing said opening, with an intervening space between said supports and said doors, an opening in one of the side walls of the furnace in alignment with said intervening space for the introduction of a billet, and a side-plate in said intervening space, substantially as described.

4. In a furnace for heating billets provided with a transverse opening in the end wall at the charging end of the furnace, supports for the roof at the charging end of the furnace, said supports extending across said opening, swinging doors for closing said opening, with an intervening space for a billet between said supports and said doors, an opening in one of the side walls of the furnace in alignment with said intervening space for the introduction of a billet, and a pushing mechanism by which the billet is pushed past said doors, substantially as described.

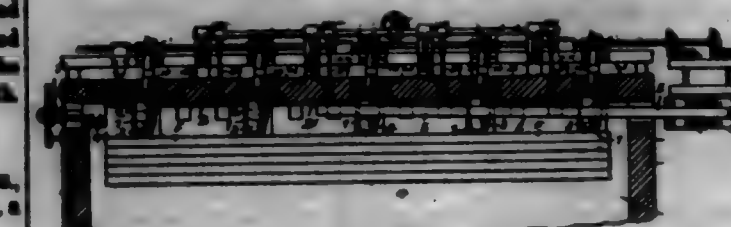
5. In a furnace for heating billets, having an opening in one of its side walls for the introduction of a billet by an endwise movement, of a side-plate in the path of the billet provided with openings for conveyor-rolls, and a series of conveyor-rolls located beneath said side-plate and projecting through said openings by which said billet is moved over said side-plate, substantially as described.

6. In a furnace for heating billets having an opening in one end of its side walls for the introduction of a billet by an endwise movement upon the floor of the furnace, said floor having openings for conveyor-rolls, of conveyor-rolls located in said openings and having their upper surfaces projecting slightly above the floor of the furnace by which said billet is moved over said floor, substantially as described.

7. The combination with a heating-chamber of a furnace, of a side-plate on the plane of the floor of the furnace, an opening in the side wall for the admission of a billet, a pushing mechanism acting through the end of the furnace for pushing the billets lengthwise the heating-chamber, and a swinging door between the heating-chamber and said side-plate, arranged to be raised by the action of the pushing mechanism, substantially as described.

8. The combination with a heating-chamber, of a roof 3, and a plate 5 supporting the end of said roof, upright beams 6 supporting said plate and forming a framework by which the end of said roof is supported, swinging doors hinged to said framework and extending into said heating-chamber to provide an intervening space A between said doors and said beams, means for introducing a billet into said intervening space, and a pushing mechanism for pushing the billet out of said intervening space into the heating-chamber, substantially as described.

701,023. FEEDING MECHANISM FOR BILLET-HEATING FURNACE. VICTOR E. HOWARD and RICHARD E. CARROLL, Worcester, Mass. Filed May 21, 1901. Serial No. 51,080. (No model.)



Claim.—1. The combination with the heating-chamber of a furnace for heating billets and provided with openings in one of its walls for the introduction of feed-rolls, of a series of feed-rolls journaled in bearings outside the heating-chamber and projecting into said chamber with their axes placed at an oblique angle with the wall of the heating-chamber, means for rotating said rolls and an opening for the admission of a billet in alignment with said rolls, substantially as described.

2. In a furnace for heating billets, the combination with a heating-chamber, of a series of feed-rolls arranged in a line parallel with the end wall of the furnace, an opening in the side wall of the furnace for the admission of billets in alignment with said line of rolls, and means for rotating said rolls to move the billets by an endwise motion transversely to the heating-chamber, said rolls having their axes at an oblique angle to said end wall, whereby the billets are crowded against the end wall by the rotation of the rolls, substantially as described.

3. The combination with the chamber of a billet-heating furnace having its end wall provided with a series of openings for the admission of feed-rolls, of feed-rolls having their free ends projecting through said openings into said heating-chamber with the upper surfaces of said rolls slightly raised above the floor of the chamber and a series of reciprocating pushing-bars for pushing the billets over the ends of said rolls upon the floor of the furnace, substantially as described.

4. The combination with the heating-chamber of a furnace having an end wall provided with a series of openings for the admission of feed-rolls into said heating-chamber, of a series of feed-rolls with their free ends inserted through said openings, and plates by which said openings are closed at the rear of said rolls, substantially as described.

5. In a furnace for heating billets, the combination with a heating-chamber having a wall provided with a series of openings for the admission of feed-rolls, of a casting including each of said openings and provided with interior inclined surfaces, a journal-bearing provided with a radial plate wedged between said inclined surfaces, whereby said bearing is held in said casting, a shaft journaled in said bearing and a roll carried by said shaft and projecting through the opening in the furnace-wall into said heating-chamber, substantially as described.

6. The combination with the heating-chamber of a billet-heating furnace having a wall provided with a series of openings for the admission of feed-rolls, of feed-rolls having their free ends projecting through said openings into said heating-chamber, and a series of reciprocating

pushing-bars alternating with said rolls for pushing the billets off the free ends of the rolls upon the floor of the furnace, substantially as described.

7. The combination with the heating-chamber of a billet-heating furnace having openings in its end wall, of a series of rotating shafts journaled outside said chamber, a series of feed-rolls carried by the ends of said shafts and having their free ends projecting through said openings into said chamber, with the body of said rolls cylindrical in shape and having their free ends beveled, and pushing mechanism for pushing the billets off the beveled ends of said rolls upon the floor of the heating-chamber, substantially as described.

8. The combination with the heating-chamber of a billet-heating furnace having a series of openings in its end wall for the admission of a series of feed-rolls, and having an opening in its side wall for the admission of a billet, of a series of conveyors outside the chamber and in alignment with said billet-admission opening, a series of feed-rolls within said chamber and opposite the openings in its end wall and in alignment with said billet-admission opening, and a pushing mechanism by which the billets are pushed off said feed-rolls, substantially as described.

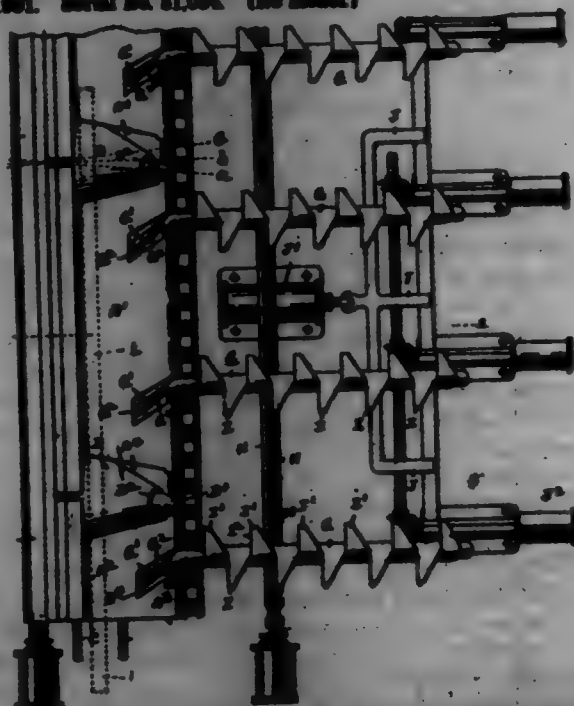
9. The combination with the heating-chamber of a billet-heating furnace having an end wall provided with openings for the insertion of feed-rolls, of a series of feed-rolls inserted in said chamber through said openings with their axes at an oblique angle to said end wall, whereby the billets are carried toward said end wall, and a metal plate supported by the end wall to receive the contact of the billets, substantially as described.

10. The combination with a rotating shaft journaled in bearings and having one end projecting beyond its journal-bearings, of a hollow feed-roll carried upon said journal-bearing and an interior radial flange on the open end of said roll with an annular space between said flange and said journal-bearing for the admission of water into said roll, substantially as described.

11. The combination with the heating-chamber of a billet-heating furnace having openings in its floor for the reception of feed-rolls, of shafts journaled outside said chamber and having their ends projecting into said openings in the floor of the heating-chamber, feed-rolls carried by the projecting ends of said shafts with their upper surfaces slightly raised above the floor of the heating-chamber, means for rotating said shafts and a pushing mechanism by which the billets are pushed off said feed-rolls upon the floor of the heating-chamber, substantially as described.

12. The combination with the heating-chamber of a billet-heating furnace, of a series of feed-rolls inserted in said chamber, means for driving said rolls, an opening in the wall of said chamber in alignment with said rolls, a yielding buffer placed opposite said admission-opening to limit the movement of the billets, and a pushing mechanism for pushing the billets off said rolls upon the floor of the heating-chamber, substantially as described.

701,024. CONVEYER FOR METAL RODS OR BARS. VICTOR E. BEVANS, Worcester, Mass., assignor to the Morgan Construction Company, Worcester, Mass., a Corporation of Massachusetts. Filed Nov. 4, 1891. Serial No. 81,094. (No model.)



Claim.—1. In a conveyor for metal rods or bars, the combination with a series of rotating conveyor-rolls arranged to support a bar thereon, of means whereby the axes of said rolls are shifted into a position on one side of a line at right angles to the line of longitudinal movement of

the bar, whereby a sidewise movement will be imparted to the bar toward one end of the conveyor-rolls, a side wall for limiting the sidewise movement of the bar toward the end of the conveyor-rolls, means whereby the axes of said rolls are shifted from their first position to a position on the opposite side of said right-angled line, whereby a sidewise movement will be imparted to the bar toward the opposite end of the conveyor-rolls, a second side wall for limiting the sidewise movement of the bar toward the opposite end of the conveyor-rolls, and means for preventing the reverse sidewise movement of the bar when the conveyor-rolls are again shifted to their first position, substantially as described.

2. In a conveyor for metal rods or bars, the conveyor-rolls, having means for rotating said rolls and having means for shifting the axes of said rolls from one angle with the line of longitudinal movement of the bar supported on said rolls to another and a different angle, whereby the bar will be moved toward either end of said rolls, means for limiting the sidewise movement of the bar as it is moved toward either end of said rolls, substantially as described.

3. The combination with a series of rotating conveyor-rolls capable of moving a bar longitudinally supported thereon, of means for changing the angle of the axes of the rolls with the line of longitudinal movement of the bar, whereby the bar is moved sidewise toward either end of said conveyor-rolls and side rolls by which the sidewise movement of the bar is limited in either direction, substantially as described.

4. The combination of a series of rotating, central conveyor-rolls having their upper surfaces arranged in the same plane in order to support a bar thereon said rolls having their axes placed obliquely to the line of longitudinal motion of the bar, whereby the bar is moved by a sidewise movement to either the larger or smaller ends of said rolls, said rolls being capable of having their axes shifted in order to reverse the sidewise movement of the bar, substantially as described.

5. The combination with a series of rotating conveyor-rolls for moving a bar longitudinally said rolls having a reduced section at one end forming a step and having their axes capable of being placed at an oblique angle to the line of longitudinal movement of the bar, whereby the bar is moved sidewise toward the reduced end of the conveyor-rolls and over said step, substantially as described.

6. The combination of a series of rotating, central conveyor-rolls having their small ends reduced in diameter forming steps, means whereby said rolls are shifted in position to bring their axes obliquely to line of longitudinal movement of a bar on said conveyor-rolls, whereby a bar is moved sidewise upon the reduced ends of said rolls, means for limiting the sidewise movement of said bar, a series of confining wings placed obliquely to their axes of oscillation and beneath a bar held on the reduced ends of said conveyor-rolls, and means for oscillating said wings, whereby a bar is lifted off said rolls, substantially as described.

7. In a rod or bar conveyor on endless driving-cable, a series of central rolls provided with grooves at their large ends with said grooved ends resting upon said driving-cable, oblique spindles attached to said central rolls rotating in sockets and capable of a rising-and-falling movement therein said sockets being held in vertically adjustable sleeves means for adjusting said sleeves and carrier-rolls by which said driving-cable is supported beneath said conveyor-rolls said rolls being capable of a horizontal, sidewise adjustment, substantially as described.

8. In a rod or bar conveyor the combination of a series of conveyor-rolls, a driving-cable beneath and supporting said rolls and carrier-rolls beneath and supporting said cable said conveyor-rolls being placed contiguous to said carrier-rolls, whereby said conveyor-rolls are maintained in substantially the same horizontal plane and are also allowed a slight yielding motion, substantially as described.

9. The combination with a series of conveyor-rolls of a series of oscillating inclined chills, wings projecting obliquely from the ends of said chills and normally beneath a bar or rod held on said conveyor-rolls and means for oscillating said chills in order to lift a bar off said rolls by the oscillating movement of said wings, substantially as described.

10. The combination with a series of conveyor-rolls, of a series of inclined chills journaled to bearings, wings projecting from the ends of said chills and obliquely thereon, said wings lying normally beneath a bar or rod supported on said conveyor-rolls, means for oscillating said wings having inclined bar-supporting surfaces when raised over which a bar is moved by gravity upon said inclined chills, substantially as described.

11. The combination in a rod or bar conveying mechanism, of a series of inclined chills journaled in bearings and having a series of arms projecting therefrom on opposite sides of said chills and arranged in horizontal rows, with the horizontal rows on one side of said chills alternating with the rows on the opposite side of the chills, with the upper sides of said arms forming steps for a bar in its downward movement by gravity over said inclined chills and the lower sides of said arms forming oblique angles to the chills and oscillating surfaces of greater inclination than the inclination of the chills, whereby an accelerated, sidewise movement is imparted

to a bar in its movement from one row of arms to another, and means for oscillating said chills, substantially as described.

12. The combination with a series of inclined chills and means for oscillating said chills, of a series of arms projecting from said chills and provided with inclined sides arranged to be brought beneath a bar as it is moved by gravity downwardly over said chills and to raise the bar by the oscillation of the chills, whereby an initial impulse is given to the bar at each series of arms, substantially as described.

13. The combination with a series of conveyor-rolls of a series of oscillating wings, said wings being placed obliquely to their axis of oscillation and held normally beneath a bar or rod supported on said conveyor-rolls and means for oscillating said wings, whereby a bar or rod is lifted off said conveyor-rolls, substantially as described.

701,025. GAS-BURNER. WILLIAM BLANDINE, Memphis, Tenn. Filed Aug. 31, 1891. Serial No. 74,817. (No model.)



Claim.—1. In a gas-burner for use with a mantle, the combination with a gas-supply pipe, an air-receiving chamber mounted thereon and means of regulating the supply of air admitted to said chamber, of an enlarged mixing-chamber, a reducing-cap closing same, a central nozzle extended upward from said cap, a burner-cap closing said nozzle having a single central hole and a gaseous disk supporting a baffle-plate in proximity to said hole, substantially as shown and described.

2. In a gas-burner for use with a mantle, the combination with a gas-supply pipe, a perforated disk over the end of said pipe, an air-receiving chamber mounted on said pipe and means of regulating the supply of air admitted to said chamber, of an enlarged mixing-chamber a reducing-cap closing same, a central nozzle of reduced diameter extending upward from said cap, a burner-cap closing said nozzle having a single central hole and a gaseous disk supporting a baffle-plate below said hole, all substantially as shown and described.

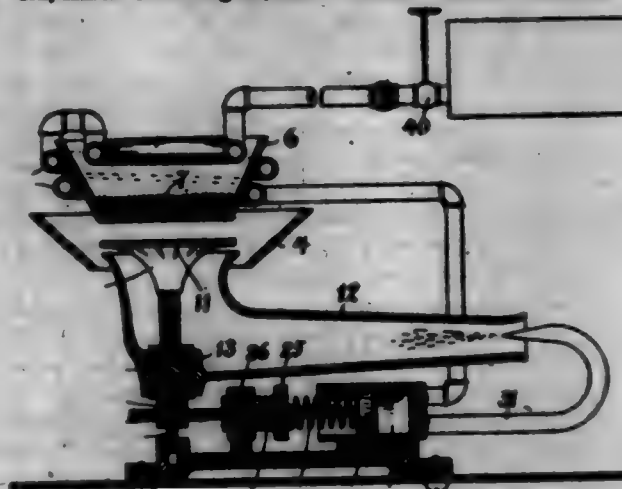
3. In a gas-burner, the combination with a gas-supply pipe, an air-receiving chamber mounted thereon, means of regulating the supply of air admitted to said chamber, a mixing-chamber above said air-receiving chamber and a discharge-nozzle, of a burner-cap closing the upper end of said nozzle, a single central hole through said cap a gaseous disk below said cap and a baffle-plate slightly larger than said hole held by said gaseous disk in close proximity to said hole, substantially as shown and described.

4. In a gas-burner, the combination with a gas-supply pipe, a perforated disk over the end of said pipe, an air-receiving chamber mounted on said pipe, air-inlet holes near the bottom and top of said chamber, a mixing-chamber above said air-inlet holes, a reducing-cap closing said chamber, and a short nozzle extending upward therefrom, of a burner-cap closing the upper end of said nozzle, a single central hole through said cap, a gaseous disk below said cap and a baffle-plate slightly larger than said hole held by said gaseous disk in close proximity to said cap, substantially as shown and described.

5. In a gas-burner, the combination with a gas-supply pipe, an air-receiving chamber mounted on said pipe, air-inlet holes near the bottom and top of said chamber, means of regulating the supply of air admitted

through said holes, an enlarged mixing-chamber above said air-inlet holes, a reducing-cap closing said chamber and a short nozzle extending upward therefrom, of a cap closing the upper end of said nozzle, a single central hole through said cap, a gaseous disk below said cap, a baffle-plate slightly larger than said hole, held by said gaseous disk in close proximity to same, substantially as shown and described.

701,026. HYDROCARBON-BURNER. GEORGE E. BLADY, Boston, Mass. Filed Aug. 30, 1891. Serial No. 72,884. (No model.)



Claim.—1. In a burner, the combination with the vapor-generator, of the mixing-chamber having an adjustable ignition-opening, and means, operated by the variations of pressure within the vapor-generator, to automatically proportion the extent of ignition-opening to said pressure, substantially as described.

2. In a burner, the combination with the vapor-generator, of the mixing-chamber receiving the vapor from the generator and provided with an adjustable ignition-opening, a vapor-receiver connected with said generator and means connected with said receiver to automatically adjust the extent of ignition-opening to accord with the vapor-pressure within said receiver and generator, substantially as described.

3. In a burner, the combination with the vapor-generator, of the mixing-chamber having an adjustable ignition-opening, an expandable vapor-receiver connected with said generator, and a rod reciprocated by said expandable receiver and constructed to open and close said ignition-opening, substantially as described.

4. In a burner, the combination with the vapor-generator, of the mixing-chamber receiving vapor from said generator and having a circular ignition-opening, a circular deflector therefor having a threaded stem turning in correspondingly-threaded bearings, an expandable vapor-receiver connected with the vapor-generator, and a rod reciprocated by said expandable receiver and constructed to rotate said stem and thereby raise and lower the deflector in accordance with the pressure within the generator, substantially as described.

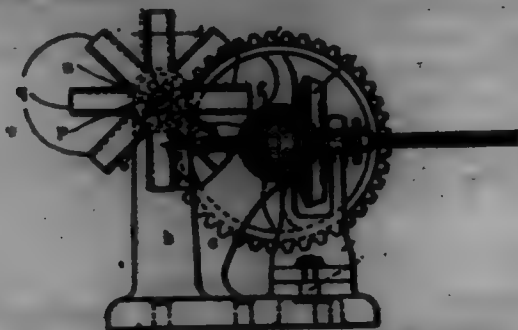
5. In a burner, the combination with the vapor-generator, of the mixing-chamber receiving vapor from said generator and having a circular ignition-opening, a circular deflector therefor having a threaded stem turning in correspondingly-threaded bearings, a piston rigid with said stem, an expandable vapor-receiver connected with said generator, a rod reciprocated by said receiver and having a rock-bar meshing with said piston, and a spring acting on said plunger against the vapor-pressure within it, substantially as described.

6. In a burner, the combination with the vapor-generator, of the mixing-chamber receiving vapor from said generator and having an adjustable ignition-opening, a vapor-receiving cylinder connected with said generator, a plunger within the cylinder constructed when reciprocated to open and close said ignition-opening, a helical spring acting against said plunger, and a threaded shoulder for said spring turning in a correspondingly-threaded fixed support, substantially as described.

7. In a burner, the combination with the vapor-generator, of the mixing-chamber receiving vapor from said generator and having a circular ignition-opening, a circular deflector therefor having a threaded stem turning in correspondingly-threaded bearings, a piston rigid with said stem, a cylinder receiving vapor from said generator, a plunger fitting in said cylinder and having a rock-bar meshing with said piston, an externally-threaded shoulder, a helical spring between said spring and plunger-head, and a fixed internally-threaded support for said shoulder, said shoulder being centrally apertured to receive and support the stem of said plunger, substantially as described.

8. In a burner, the combination with the mixing-chamber, of the deflector fixed to the ignition-opening thereof and movable into contact therewith, the contacting surface of said deflector being formed with outwardly-opening grooves, substantially as described.

701,027. PENCIL-SHARPENER. JAMES H. FARMER, Boston, and JOHN E. WARREN, Greenfield, N. H. Filed Apr. 4, 1901. Serial No. 64,378. (No model.)



Claim.—1. A pencil-sharpener comprising a supporting-frame, mechanism for holding the pencil, a rotary cutter-plate having two-edged knives projecting radially therefrom and adapted to make a drawing cut along the pencil, said cutter-plate being detachably and reversibly secured to a shaft, and mechanism for rotating the cutter-plate.

2. A pencil-sharpener comprising a supporting-frame, mechanism for holding the pencil, a rotary cutter-plate having two-edged knives projecting radially therefrom, said cutter-plate being detachably and reversibly secured to its shaft, and mechanism for rotating the cutter-plate.

3. A pencil-sharpener comprising a supporting-frame, mechanism for holding the pencil, a rotary cutter-plate having knives projecting radially therefrom, members with file-surfaces between said knives, and means for rotating the cutter-plate.

4. A pencil-sharpener comprising a supporting-frame; mechanism for holding the pencil; a rotary cutter-plate having knives projecting radially therefrom and adapted to make a drawing cut along the pencil; members with file-surfaces between said knives; and means for rotating the cutter-plate.

5. A pencil-sharpener comprising a supporting-frame; a pinion; a cutter-plate secured to the shaft of said pinion; a driving-gear that meshes with said pinion; said gear having a shaft; a standard; a rotary pencil-holder in said standard; and a pair of intermeshing bevel-gears, one fast upon the shaft of said driving-gear and the other fast to said rotary pencil-holder.

6. In a pencil-sharpener, a device for holding the pencil comprising a spring-metal sleeve having a yielding annular projection on its interior for securing the pencil near one end, and having its other end tapered and slitted and provided with screw-threads on its exterior, and a locking-nut which screws said screw-threads and to secure the pencil at said end.

7. In a pencil-sharpener, the combination of a supporting-frame; a driving-shaft rotatively mounted therein; a cutter provided with radially-projecting arms sharpened at both their edges and reversibly mounted on said driving-shaft; means for detachably securing said cutter to said driving-shaft; a pencil-holder mounted on said supporting-frame; and means for revolving a pencil in cutting contact with said cutter.

701,028. MOTOR-PEDAL. WILLIAM E. FARMER, Chicago, Ill. Filed Mar. 7, 1900. Serial No. 673,970. (No model.)



Claim.—1. The combination with a grooved supporting-spindle the groove of which is constructed to confine bearing-balls from endwise movement of the spindle, of a tubular body surrounding the spindle and provided with a cylindrical inner surface, bearing-balls in said groove in contact with the inner surface of said tubular body, an annular part having a bearing-shoulder removably secured within said body and adapted for contact with the balls to hold the tubular body from endwise movement relatively to the spindle.

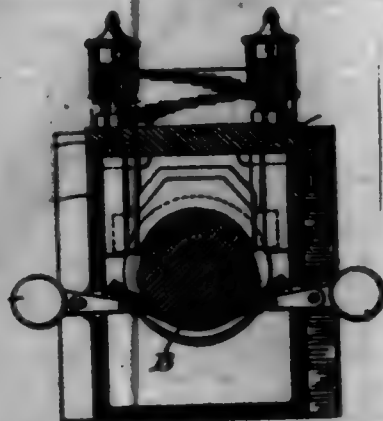
2. The combination with a supporting-spindle grooved at each end, the grooves of which are constructed to confine bearing-balls from endwise movement of the spindle, a tubular body surrounding the spindle and having a cylindrical bearing-surface, two sets of bearing-balls inserted in said grooves and bearing against the inner or cylindrical surface of the tubular body, and a sleeve movably secured within the tubular body between the two sets of balls and the ends of which form bearing-shoulders which bear against the balls.

3. A pedal, comprising a supporting-spindle provided with ball-grooves, a tubular body surrounding the spindle and having cylindrical inner surface, bearing-balls inserted in said grooves and bearing against the inner cylindrical surface of the tubular body, and a sleeve movably secured within the tubular body between the two sets of balls and the ends of which form bearing-shoulders to hold the sleeve from endwise movement, said body being provided with holes for the insertion of the balls, which holes are located in position to be covered by the sleeve when the same is secured in place within the tubular body.

4. The combination with a supporting-spindle provided at its ends with ball-grooves constructed to confine the balls from endwise movement of the spindle, a tubular body having a cylindrical inner bearing-surface, bearing-balls inserted in said grooves in contact with said cylindrical bearing-surface, said body being provided with holes for the insertion of the balls within said grooves when the spindle is contained in the body, and means engaging the balls when the parts are assembled to hold the body from endwise movement of the spindle, said means being constructed to close said holes.

5. The combination with a supporting-spindle provided at its ends with ball-grooves constructed to confine the balls from endwise movement of the spindle, balls inserted within said grooves, a tubular body slipped over the spindle having a cylindrical inner bearing-surface with which said balls have contact, a guide-flange at the outer end of the spindle designed to center the spindle in the tubular body when being inserted therein to prevent the escape of balls around the end of the spindle, and means for holding the body from endwise movement of the spindle.

701,029. DEVICE FOR LUBRICATING CAR-JOURNALS. JOHN E. GUN, Franklin, Pa. Filed Aug. 2, 1901. Serial No. 70,758. (No model.)



Claim.—1. The combination with a car-journal, of a journal-box, an oil-reservoir, and means for supporting said reservoir adjacent to the under side of the car-journal, said means comprising a counterweighted lever hinged directly to said reservoir and extending through, and fulcrumed on, one wall of the journal-box, substantially as described.

2. The combination with a car-journal, of a journal-box, an oil-reservoir within said journal-box, and a counterweighted yoke comprising a pair of arms which extend through and are fulcrumed in one wall of the journal-box, the inner ends of said arms being hinged to one end of the oil-reservoir, substantially as described.

3. The combination with a car-journal, of a lubricating-pad, means for yieldingly holding said lubricating-pad against the under surface of the car-journal, oil-receiving means extending laterally from said pad beyond said car-journal, an oil-cup mounted above said pad, and means for supplying oil from said oil-cup directly to said lateral extension, substantially as described.

4. The combination with a car-journal, of a lubricating-pad, means for holding said lubricating-pad yieldingly against the under surface of the car-journal, oil-receiving means extending laterally from said pad beyond said journal, and an oil-cup mounted above said pad, whereby oil may be fed from said oil-cup directly to said oil-receiving means, substantially as described.

5. The combination with a car-journal, of a journal-box, a lubricating-pad within said journal-box, means for yieldingly holding said pad against the under surface of said journal, oil-receiving means extending laterally from said pad beyond said journal, an oil-cup mounted upon said journal-box and means providing a passage leading from said oil-cup to a point within said journal-box, whereby oil may be dropped from said oil-cup directly to said oil-receiving means, substantially as described.

701,030. CAR-AXLE LUBRICATOR. JOHN E. GUN, Franklin, Pa. Filed Aug. 2, 1901. Serial No. 70,759. (No model.)

Claim.—1. The combination with a car-journal, of a journal-box,

an oil-receptacle, means extending laterally through the side of the journal-box for supporting said oil-receptacle, and means for conveying oil from said receptacle to the car-journal, substantially as described.

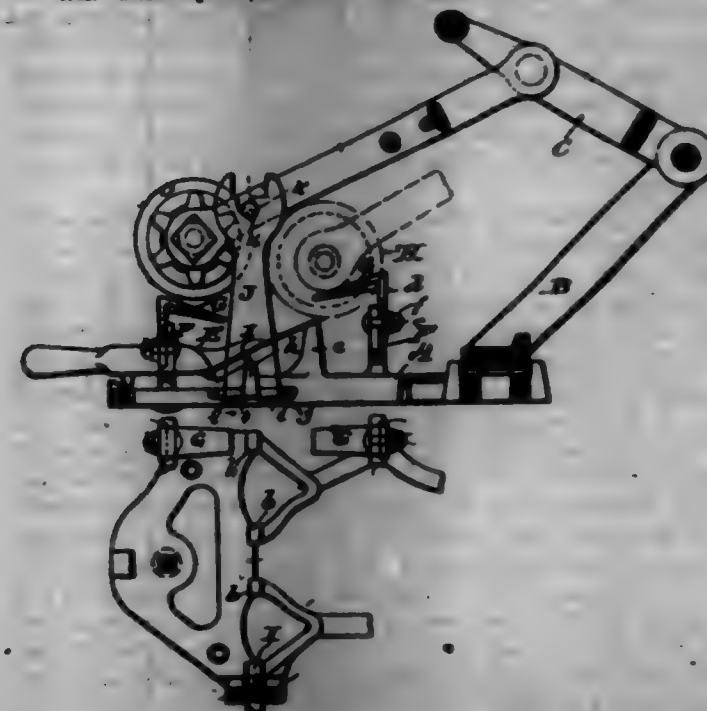


2. The combination with a car-journal, of a journal-box, an oil-receptacle, means extending laterally through the side of the journal-box for supporting said oil-receptacle adjacent to the car-journal, a lubricating-pad within said oil-receptacle, and means interposed between said pad and the bottom of said oil-receptacle for holding said pad in yielding contact with the car-journal, substantially as described.

3. The combination with a car-journal, of a journal-box, an oil-receptacle, means for supporting said oil-receptacle within said journal-box, said means comprising a supply-pipe extending from said oil-receptacle through the side of said journal-box, a lubricating-pad carried by said oil-receptacle, and means for holding said pad in contact with the car-journal, substantially as described.

4. The combination with a car-journal, of a journal-box, an oil-receptacle, a plurality of supply and supporting pipes extending from said oil-receptacle through one side of said journal-box, a lubricating-pad carried by said oil-receptacle, and means for holding said pad in contact with the car-journal, substantially as described.

701,031. GRINDING-MACHINE. JOHN GLENN, Port Washington, Wis. Filed Sept. 20, 1901. Serial No. 70,914. (No model.)



Claim.—1. A grinding-machine of the species described having the clamp end of its base provided with an inclined plane in the path of the reciprocative grinding-device carrier of the machine.

2. A grinding-machine of the species described having the clamp end of its base provided with inclined planes arranged in the path of the reciprocative grinding-device carrier of the machine to automatically lift the same when so desired in either direction of its travel.

3. A grinding-machine of the species described having the clamp end of its base provided with standards, and converging incline-plane brackets vertically adjustable on the standards in the path of a portion of the reciprocative grinding-device carrier of the machine.

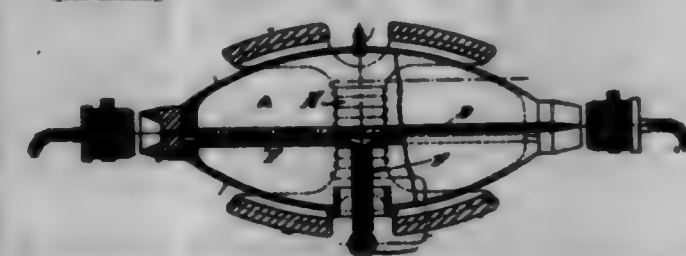
4. A grinding-machine of the species described having the clamp end of its base provided with partially-slotted and flanged standards, converging incline planes having depending apertured cheeks engaging the standards, bolts extending through the standard-slots and cheek-apertures, and nuts run on the bolts, said planes being in the path of a portion of the reciprocative grinding-device carrier of the machine.

5. A grinding-machine of the species described having the clamp end of its base provided with a lateral flange and an upright transverse

rib the upper outer end of which has the form of a vertical leg, and the grinding-device carrier of the machine provided with a lateral leg, the base-rib being for engagement with a lower end recess of a support engageable with the carrier-leg and of itself provided with legs that extend in under said flange, said support serving when in working position to temporarily hold the carrier and grinding device in stationary elevated position.

6. A grinding-machine of the species described provided with an attachment in the form of a support having an upper end seat for a lateral leg on the grinding-device carrier of the machine, a lower recess for the engagement of a base-rib of said machine inside an upper leg extension of the same, and lower end legs that extend under a lateral base-flange of the above-said machine when said engagement is effected, said support in working position serving to hold the carrier and grinding device of the machine in stationary elevated position.

701,032. LIGHTNING-ARRESTER FOR OVERHEAD WIRES. GIOVANNI GOLA, Genoa, Italy. Filed Dec. 10, 1901. Serial No. 66,967. (No model.)



Claim.—1. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged and consisting in a body having an outer surface for much larger than that of the same length of the line to be protected and a protecting-rib along the plane of its greatest section, and consisting earth-conductors.

2. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged, consisting in a hollow body having a very large outer surface and a protecting-rib along the plane of its greatest section, which latter is connected with the part of the overhead wire subjected to atmospheric discharges while its inward surface is connected with the part of the conductor which the apparatus is intended to protect, and earth-conductors arranged to cooperate with said rib.

3. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged consisting in a hollow body of magnetic material, having a very large outer surface which latter is connected with the part of the overhead wire subjected to atmospheric discharges, while its inward surface is connected with the part of the conductor, which the apparatus is intended to protect, a protecting-rib disposed along the plane of greatest section, and earth-conductors arranged to cooperate with said rib.

4. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged having the form of a hollow body whose radii of curvature very much differ between each other, these points where such radii are the smallest facing the earth-conductor, and a zinc frame around the longer radii of said body.

5. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged, having the form of a hollow body, whose inward surface is connected with the part of the circuit to be protected by means of a conductor having a small cross-section and whose direction abruptly changes, combined with a zinc frame on said body, and earth-conductors co-operatively arranged with relation to said frame.

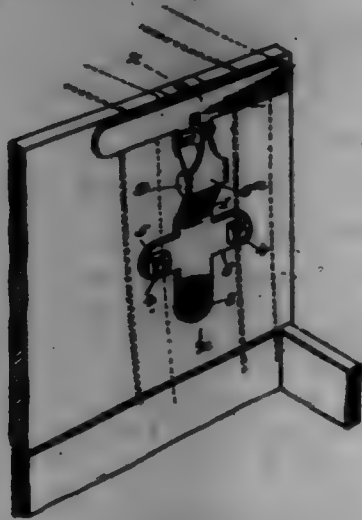
6. A lightning-arrester for overhead lines to be inserted in series into the line to be discharged, surrounded by a magnetic field intended to act on the lines of force of the electricity to be discharged so as to turn them aside from the part of the circuit to be protected, and earth-conductors disposed at the terminus of the larger section of said arrester.

701,033. REIN-HOLDER. JOHN GRANGER, Springfield, N. Mex., assignor to himself and John Rutherford, Springfield, N. Mex. Filed Feb. 21, 1902. Serial No. 64,000. (No model.)

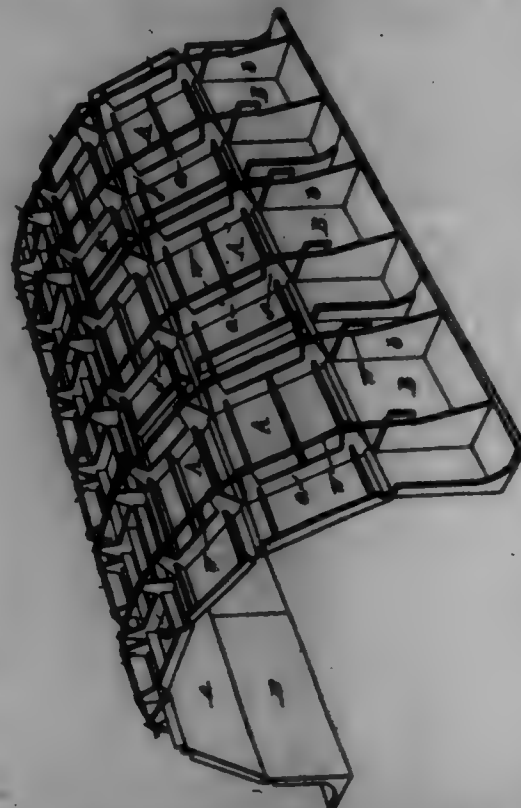
Claim.—1. A rein-holder comprising a shank portion of resilient metal, a clamping-plate extended in opposite directions from the upper end of said shank, and an operating-lever pivoted to the holder and having a cam-surface, substantially as specified.

2. A rein-holder comprising a shank of resilient metal, lateral extensions on said shank for receiving flange-like devices, a clamping-plate extended transversely at the upper end of the shank, an operating-lever having a cam-surface, said operating-lever being pivoted to the holder, and a wear-plate with which said cam-surface may engage, substantially as specified.

3. A run-holder comprising a shank portion of resilient metal, means for securing the same to a dashboard, a clamping-plate extended transversely at the free end of said shank, a lever pivoted to the shank and having a cam portion extended through an opening in said shank, and finger-pieces on opposite sides of said lever, substantially as specified.



701,084. METAL ARCH. RICHARD GRAY, Bloomington, Ill. Filed Jan. 2, 1902. Serial No. 53,246. (No model.)



Claim.—1. An arch made up of metallic plates adjustably connected with each other and bound together with flexible metallic bands.

2. An arch made up of metallic plates, adjustably connected at their inner faces, and bound together with twisted metallic bands at or near their outer faces.

3. The hinge connection between the plates of a metal arch at their edges comprising the head *k*; the undermost end of flange *a*; and the cover *m* with the enlargement *n* upon its upper surface; substantially as described.

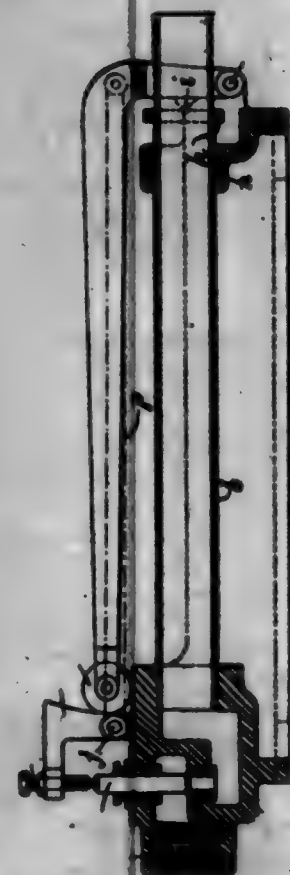
4. A metal plate, adapted to join other metal plates in an arch, so as to form an adjustable connection with them, and having transverse flanges with projections or notches adapted to receive and retain flexible bands.

5. In an arch made up of metallic plates, having transverse flanges; a twisted metallic tie between the ends of said flanges, for the purpose specified.

6. A band, comprising two or more strands of flexible metal applied to the members of a metal arch, and means for twisting said strands together.

7. As a part of a metal arch a foundation-piece, having members attached thereto adapted to receive and retain the ends of flexible metallic bands, in combination with flexible metallic bands.

701,085. STEAM-TRAP. JOHN H. HARRIS, Oldham, and THOMAS SPOONER, East Dulwich, England. Filed Sept. 12, 1901. Serial No. 73,571. (No model.)



Claim.—1. In a steam-trap of the character described, the combination of an elongated casing or base-support having a valve-box at one end and a guide at the other end; a thermostatic steam and water tube having one end secured to the casing at the valve-box end of the latter and having its other end loosely engaged with the guide at the opposite end of the casing, said tube communicating with the interior of the valve-box; a valve in the latter controlling the outflow of water of condensation; and operating connections between the movable end of the tube and said valve.

2. In a steam-trap of the character described, the combination of a suitable casing having a steam and water passage-way, a thermostatic tube connected at one end with the casing and communicating with the interior passage-way thereof, a valve in the latter controlling the outflow of water of condensation, a valve-actuating member engaged with the free end of the tube and extending to the opposite end thereof, and operating connections between said member and the valve, substantially as described.

3. In a steam-trap of the character described, the combination of a casing or support, a thermostatic steam and water tube, a valve controlling the condensation-outlet, a cam arranged to increase resistance to opening of said valve as said tube expands, and suitable connections between the tube and the cam operating upon the latter to increase cam-pressure on the valve with expansion of the tube, substantially as described.

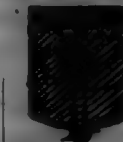
4. In a steam-trap of the character described, the combination of a casing or support, a thermostatic steam and water tube, a valve controlling the condensation-outlet, a roller-equipped lever coacting with the said tube, and a cam engaged by the roller and coacting with the valve, substantially as described.

5. In a steam-trap of the character described, the combination of a casing or support, a thermostatic steam and water tube having one end fixed and the other end free, a valve in the casing controlling the condensation-outlet, a lever engaged with the valve and compounded with a cam at the fixed end of the tube, said cam engaged with the valve, and connections between the said lever and the free end of the tube.

6. In a steam-trap the combination of a support or casing comprising a valve-box and having a steam and water passage-way leading thereinto, a thermostatic steam and water tube secured at one end to a part of said casing and slidingly engaged at the other end with another part of the casing, said tube communicating with the passage-way therein, a valve in the valve-box of the casing controlling outflow of water of condensation, and suitable connections between the free end of the tube and said valve, substantially as and for the purpose described.

7. In a steam-trap in combination a casing having a double water-collecting channel or passage therein, a collecting-tube with one end secured thereto a valve casing within the casing, means for transmitting the movement or thrust from the end of the collecting-tube to the valve spindle substantially as described.

701,086. WHEEL-RIM. WALTER S. HARTMAN, Montague, Pa. Filed Mar. 7, 1902. Serial No. 97,153. (No model.)



Claim.—The combination with a rim having a wide groove in its periphery and a narrow groove in the bottom of said wide groove, which narrow groove is connected to an oil-dust, of an absorbent strip mounted in said groove, substantially as described.

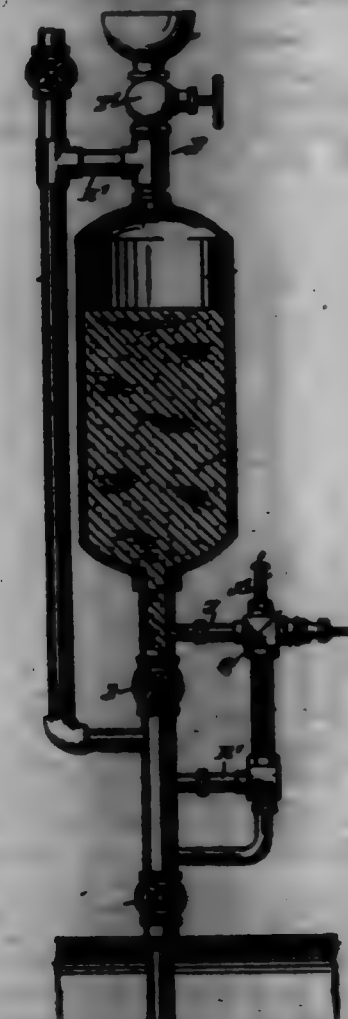
701,087. CONCREMENT. THOMAS J. REALE, Baltimore, Md. Filed Dec. 31, 1901. Serial No. 54,745. (No specimens.)

Claim.—1. The new article of manufacture herein described consisting of a union of finely-divided uncooked culms with flour, and the mass dried and reduced to a powdered state for the purpose set forth.

2. A powdered condiment for table and culinary use composed of uncooked culms and flour, substantially as described.

3. A condiment for table and culinary use, composed of uncooked culms and flour, the two substances being thoroughly incorporated, dried and reduced to powder, substantially as and for the purpose set forth.

701,088. FEEDER. GEORGE H. HILGREN, Chicago, Ill. Filed Nov. 13, 1901. Serial No. 52,599. (No model.)



Claim.—1. A feeder for feeding a liquid compound into the feed-water of a boiler, comprising a reservoir for containing the liquid compound, a pipe carrying the reservoir and opening into the feed-water below the water-level, a wash-out valve in the said pipe, a regulating needle-valve having connection with the pipe on opposite sides of the wash-out valve, and an equalizing steam-pipe connected with a steam-supply with the top of the reservoir and with the said pipe below the wash-out valve, as set forth.

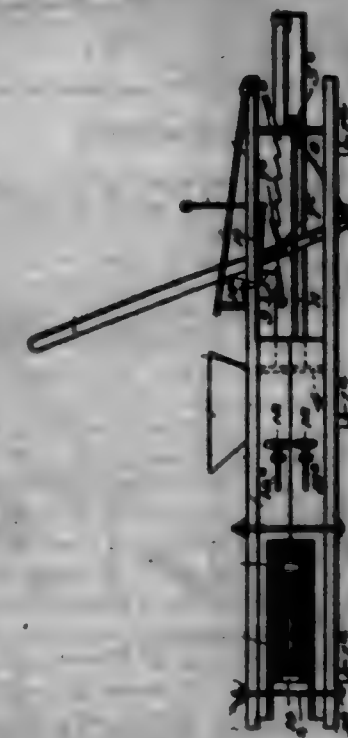
2. A feeder for feeding a liquid compound into the feed-water of a boiler, provided with a regulating-valve, comprising a body having a valve-seat, a needle-valve for engaging the said valve-seat, a rod mounted to turn, and carrying on the said needle-valve to move the latter to or from its seat, means for holding the needle-valve against turning, and a funnel leading from the bottom of the said body, as set forth.

3. A feeder for feeding a liquid compound into the feed-water of a boiler, provided with a regulating-valve, comprising a body having a valve-seat, a needle-valve for engaging the said valve-seat, a rod mounted

to turn, and carrying on the said needle-valve to move the latter to or from its seat, means for holding the needle-valve against turning, a funnel leading from the bottom of the said body, and a spring-pressed pin for cleaning the said funnel, as set forth.

4. A feeder for feeding a liquid compound into the feed-water of a boiler, comprising a reservoir for containing the liquid compound, a pipe carrying the reservoir and opening into the feed-water below the water-level, a wash-out valve in the said pipe, an equalizing-pipe connected with a steam-supply, with the top of the said reservoir and with the said pipe below the said wash-out valve, and a regulating-valve comprising a valve-body connected with the said pipe above the wash-out valve, an inlet-valve in the entrance-end of the said valve-body, a funnel in the bottom of the said valve-body, a glass tube connected with the valve-body and into which opens the said funnel, and a fitting carrying the said tube and connected with the said pipe below the wash-out valve, as set forth.

701,089. BAILING-DEVICE. EDWARD W. HILLIARD and HENRY HERRICK, Metropolis, Ill. Filed Jan. 24, 1902. Serial No. 51,105. (No model.)



Claim.—1. In a bailing device, the combination of a packing-box, a plunger, adapted to reciprocate therein, having a bar provided with teeth, a frame, a lever fulcrumed to said frame and connected to said plunger by a cable, and a link pivoted to said lever and adapted to engage said teeth, substantially as set forth.

2. In a bailing device, the combination of a packing-box, a plunger adapted to reciprocate therein, having a bar provided with teeth, a frame, a lever fulcrumed to said frame and connected to said plunger by a cable, a link pivoted to said lever adapted to engage said teeth, and a second link pivoted to said frame and adapted to also engage said teeth, substantially as set forth.

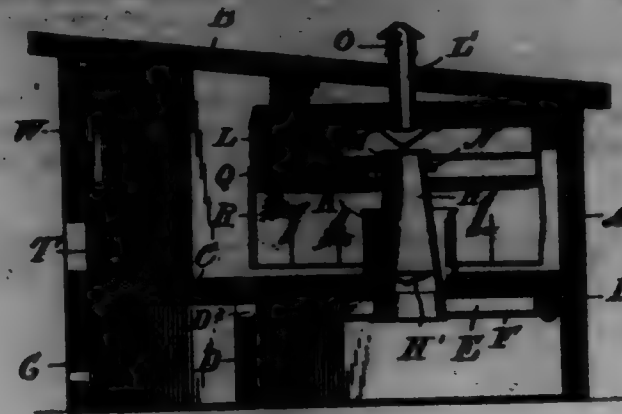
3. In a bailing device, the combination of a packing-box, a plunger adapted to reciprocate therein, having a bar provided with teeth, a frame, a lever fulcrumed to said frame and connected to said plunger by a cable, a link pivoted to said lever and adapted to engage said teeth, and a pin upon said lever adapted to engage said link and release it from the teeth, substantially as set forth.

4. The combination in a bailing device, of a packing-box, a plunger adapted to reciprocate therein, having a bar provided with teeth, a frame, a lever fulcrumed to said frame and connected to said plunger by a cable, a link pivoted to said frame and adapted to also engage said teeth, and a spring connected to said frame and said plunger, substantially as set forth.

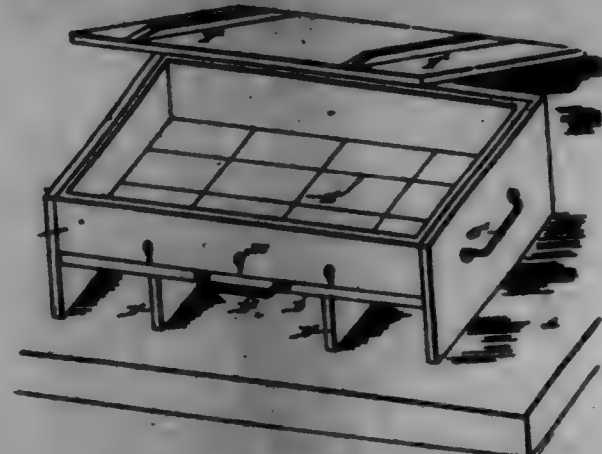
701,040. CHICKEN-BROODER. SAMUEL I. HANNEY, Oyster-Land, N. Y. Filed Aug. 17, 1901. Serial No. 72,085. (No model.)

Claim.—A chicken-brooder, comprising a casing, a brooding-chamber therein, cross-pieces *E*, *E'* and *D'* secured to the under surface of the bottom of said casing, a metallic plate secured to the under edge of said strips, and forming the top of a heater-containing compartment having impervious surrounding walls, and communicating passage-ways *F* with the brooding-chamber, a fresh-air chamber with apertures *G* in the wall of the casing, leading thereto, a partition *D* with elongated passage-

way D² cut through its upper portion above said metallic plate, said forcing means of communication between said fresh-air chamber and the heating-space intermediate said plate and the bottom of the breeding-chamber, an open-ended cylindrical shell K mounted in an aperture in the breeding-chamber, a heating-compartment in the upper portion of the casing, a funnel H communicating with the heater-containing compartment and said heating-compartment in the upper portion of the casing, with a passage-way intervening between said funnel and shell, whereby fresh heated air enters the breeding-chamber, as set forth.



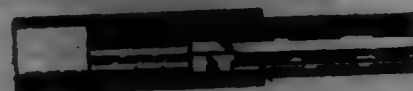
701,041. BUTTER-PRINTING APPARATUS. ORRIN A. HOOD, Vinces, Iowa. Filed Sept. 22, 1901. Serial No. 78,951. (No model.)



Claim.—1. In a butter-printing apparatus, the combination of a frame comprising an upper compartment closed on all four sides, open at the top and bottom, with separating cross-wires stretched across said upper compartment, and a lower compartment of larger area, open at one side, a platform fitting said lower compartment, and forming a removable bottom for the upper compartment, a tray adapted to fit at the bottom of the lower compartment when the platform is removed, and a follower fitting the upper compartment, and adapted to press the butter therein down across said wires, and separate the mass into blocks or prints, as described.

2. In a butter-printing apparatus, the herein-described printing-frame, comprising a rectangular box, open at the top and bottom and at the lower vertical half of one side, the upper portion of said box being of smaller area than the lower one so as to provide a ledge against which a removable bottom may bear, and a series of cross-wires stretched across the bottom of the said upper portion, with means substantially as described for fastening one end of each wire to the frame, and for drawing it at the other end.

701,042. TRIPOD. WILLIAM E. HOLMES, Brooklyn, N. Y. Filed June 3, 1901. Serial No. 62,993. (No model.)



Claim.—1. In a tripod, a leg, comprising an upper tubular section and series of lower tubular sections, the sections being arranged to telescope one within the other, the sections below the upper section having each a rib constructed in two members, a space intervening the said members, a sleeve secured interiorly at the bottom of the said sections of the legs with the exception of the lowermost section, each of said sleeves having a slot enlarged at its bottom, forming a shoulder adapted for engagement with the upper portion of the lower rib member of an entering section of the leg, as described.

2. In a tripod, a leg comprising an upper tubular section and series of tubular sections below the upper section, all of the said sections being

adapted to telescope, each section below the upper section having an exterior spring-sleeve at its upper end, and each section below the upper section being provided with an exterior longitudinal rib in two members, said members being separated yet in horizontal alignment, and a sleeve secured to the lower end of each section of the leg with the exception of the bottom section, the said sleeve being at the interior of the said sections and provided with a longitudinal slot comprising a longitudinal member and an enlargement at the lower end of said member, forming a shoulder, the said shoulder in the extended position of the sections of the leg being adapted to engage with the upper ends of the lower members of the ribs of said sections, as described.

3. A tripod, comprising a platform and a plurality of legs, said legs being made of tubes telescoping one within the other, the outer tubes being cylindrical and the inner tubes being provided with longitudinal ribs, all of said tubes excepting the inner one being provided with internal sleeves, and all except the outer one being provided with external sleeves, all of said sleeves being interrupted for the purpose of slidably engaging said ribs.

4. A tripod, comprising a platform, and a plurality of legs, said legs being made of tubes telescoping one within the other, the outer tubes being cylindrical and the inner tubes being provided with longitudinal ribs partially cut away to form jointed members, all of said tubes except the inner one being provided with internal sleeves and all except the outer one being provided with external sleeves, all of said sleeves being interrupted for the purpose of slidably engaging said ribs, said internal sleeves being also cut away to form jointed members mating the jointed members formed by cutting away the longitudinal ribs.

701,043. DRIVING DEVICE FOR SHAPES. JOHANN HOLZMANN, Hildes, Germany, assignor to Aktien-Gesellschaft Schaller Gruben- und Hüttenwerke, Gelsenkirchen, Germany. Filed Oct. 12, 1901. Serial No. 78,448. (No model.)



Claim.—1. A driving device, comprising a shaft, a driver-arm mounted to slide on and to turn with the shaft, friction-rollers journaled on the driver-arm, a revolvable driven wheel concentric with the shaft but independent thereof, and rods on the said wheel and adapted to engage the said friction-rollers, as set forth.

2. A driving device, comprising a shaft, a driver-arm mounted to slide on and to turn with the shaft, friction-rollers journaled on the said driver-arm, a revolvable driven wheel concentric with the shaft but independent thereof, means for driving the said revolvable wheel, and rods on the said wheel and adapted to engage the said friction-rollers to carry the driver-arm along and thereby rotate the shaft until the friction-rollers have the upper ends of the rods, as set forth.

3. A driving device comprising a shaft, a revolvable gear-wheel, an angular shaft extending through said gear-wheel and free to slide endwise,

a pair of longitudinal members rigidly secured upon said gear-wheel and revolvable therewith, a sleeve fixed upon said angular shaft, a pair of rollers connected with said sleeve and free to engage said longitudinal members, and means for actuating said gear-wheel.

701,044. PROCESS OF MAKING PHENYLAMIDOBENZYL-TRIAZOLE. EDUARD KOSCHKE, Frankfurt-on-the-Main, and HERMANN SCHWARZ, Höchst-on-the-Main, Germany, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Oct. 28, 1901. Serial No. 69,086. (No model.)

Claim.—The herein-described process of making phenylamidobenzyl-triazole, which consists in causing glyoxylic-acid chloride to act on aniline base, substantially as set forth.

701,045. METHOD OF MOVING TRAINS. CHARLES W. BROWN, Jersey City, N. J., assignor to himself and Sherwood S. Knapp and Herbert J. Knapp, Brooklyn, N. Y. Filed Feb. 4, 1902. Serial No. 82,028. (No model.)



Claim.—1. A railroad comprising a train-supporting section, a truck-supporting section on a level lower than the train-supporting section, a truck-supporting truck on said lower section, and suitable means carried by said truck for propelling same.

2. A railroad comprising a train-supporting section, a truck-supporting section, and another truck-section for supporting or shifting the first-named truck and train.

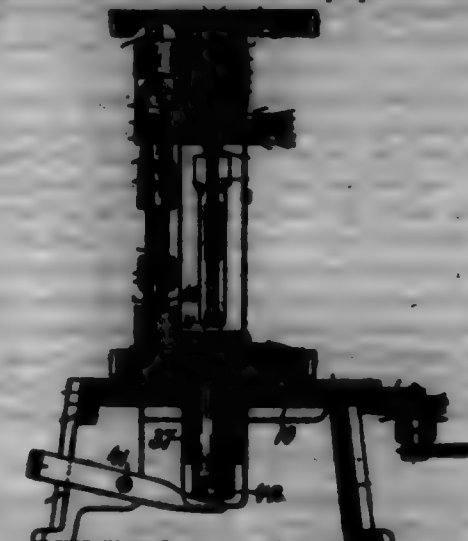
3. A railroad comprising train-supporting sections and truck-sections, the latter made to run in different directions and being placed on different levels from one another and from the first-named sections, one of the sections having a truck for supporting a train, and the other sections having a truck for supporting the first-named truck with train.

701,046. MACHINES FOR MARKING OR CUTTING LEATHER. CHARLES W. HOWLAND, Geneva, N. Y., assignor to the Standard Optical Company, a Corporation of New York. Filed Oct. 11, 1901. Serial No. 73,388. (No model.)

Claim.—1. In combination with a rotary support for the article to be cut or marked and having an independent lateral sliding movement, a rotary form synchronized with the rotation of the support and having parallel bearing-surfaces, a cutter or marker engaged with the article and means engaged with said surfaces to move the cutter toward and away from the axis of the form.

2. In combination, a laterally-slidable supporting member for the article to be cut or marked, a cutting or marking member, one of the members being movable relatively to the other to cut or mark the article, a form having parallel surfaces operating to control the position of the cutter on the article, and means to keep the cutting edge of the cutter in a plane tangential to the forming-line of the form.

3. A laterally-slidable support and a cutter or marker for the article to be cut or marked, one of the parts being movable relatively to the other for cutting or marking the article, a form having parallel surfaces operating to control the position of the cutter or marker, said cutter or marker having an independent rocking movement to change the direction of its axis, and means engaging with said surfaces to effect said rocking movement of the cutter or marker for the purpose set forth.



4. In combination with a form and a rotary support for the article to be cut or marked, a cutter or marker, means co-operating with the form to move the cutter relative to the axis of rotation of the support, and means to vary the angle of the axis of the cutter relatively to the surface of the article to be cut or marked for the purpose set forth.

5. A form and a laterally-sliding support for the article to be cut or marked, the form having parallel bearing-surfaces, connections having a universal joint therein to simultaneously rotate said parts, a cutter or marker and additional means engaging with said surfaces to change the position of the axis of one part relatively to the other.

6. A revolvable form and a revolvable support for the article to be cut or marked, means to revolve the parts simultaneously, a cutter or marker, and additional means to move the support relatively to the axis of revolution of the form.

7. In a less cutting or marking machine, a revolvable support for the form, a cutter or marker, and means having parallel surfaces and contact-points engaging therewith to move the support relative to the cutter or marker for the purpose described.

8. A sliding bed, a rotary form-support and a universal shaft connected to rotate the support, in combination with a cutter or marker for the form.

9. In combination, a sliding bed, a cutter or marker, a revolvable support for the article to be cut or marked mounted on the bed, in combination with a universal shaft connected to rotate the support and having one end movable with the sliding bed, and means to rotate the shaft.

10. In a less cutting or marking machine, a form and a laterally-slidable rotary form-support having a graduated center piece to indicate the direction of the major axis of the form, and a cutter or marker for the form controlled by the form.

11. In combination with a rotary form-support, a rotary member connected to rotate with the support, a form detachably mounted on said member, means movable independently of said form and member for holding the form in operative position, and a cutter actuated by the form for the purpose described.

12. In a less cutting or marking machine, a rock-shaft, a cutter-support secured to the rock-shaft and having an independent rocking movement relatively thereto, clamping means for holding the cutter-support in its adjusted position and a rotary form co-operating with means to hold the cutter in a plane tangential to the forming-surface of the form.

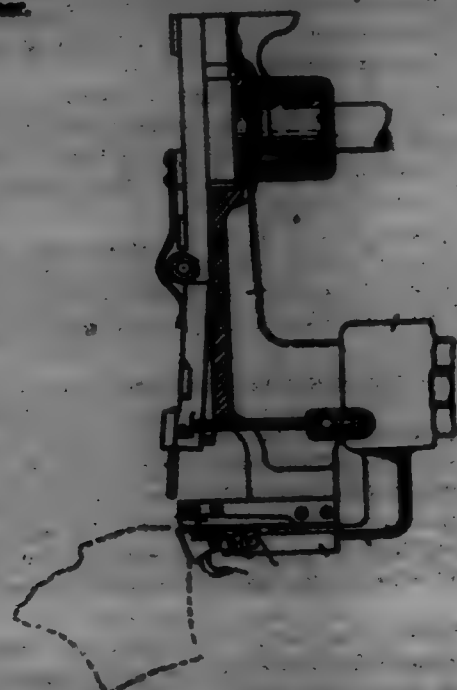
13. In combination with a rotary form having parallel forming-surfaces, an oscillating bracket, a rock-shaft mounted on the bracket, a cutter or marker secured to the rock-shaft, and means mounted on the rock-shaft and engaged with the surfaces at this point for oscillating the bracket and rocking the shaft in the bracket.

14. In combination, a rotary form-support, a rotary form, a laterally-sliding form-holder, means to actuate the support and form, a cutter or marker, and means actuated by the form for controlling the position of the cutter.

15. In combination with a rotary form-support, a holder for the less yieldingly mounted to move laterally and endwise for the purpose described.

16. A sliding bed carrying a rotary form-support, a form and a cutter, and driving means for the form suitably connected to the bed to rotate the support.

per at the heel end of the shoe, and means for automatically repressing said hammer.



4. A machine of the character described, comprising fastening mechanism, an abutment for the heel end of the last to rest against, and a hammer in said abutment.

5. A machine of the character described, comprising fastening mechanism, an abutment having a notched face for the heel end of the last to rest against, and a hammer having a head located in the notch when in its operative position.

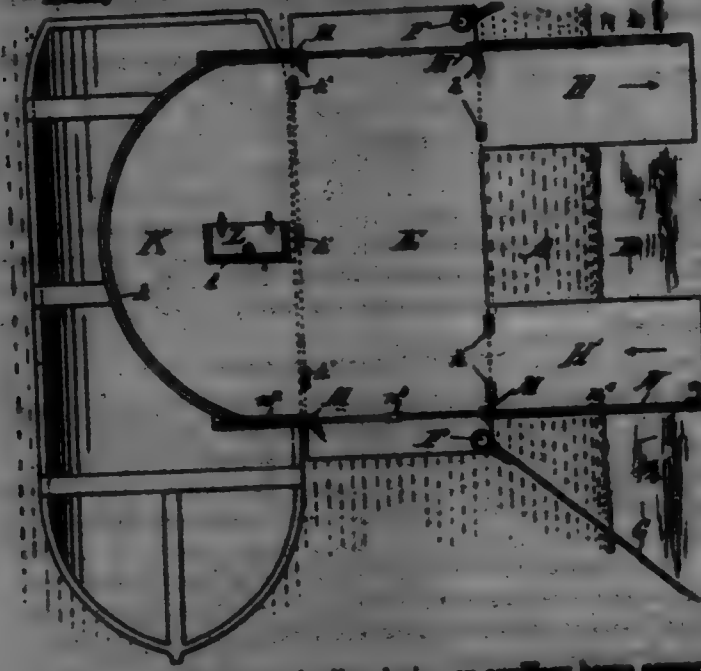
6. A machine of the character described, comprising fastening mechanism, an abutment for the heel end of the last, a hammer reciprocatory in a plane substantially at right angles to the said heel end of the last, and means for actuating said hammer.

7. A machine of the character described, comprising fastening mechanism, a hammer having a non-yielding flattened end and reciprocatory in a plane substantially at right angles to the heel end of the last, and means for actuating said hammer to cause its end to move laterally toward the sole of the last to lay the upper flat against the center.

8. A machine of the character described, comprising fastening mechanism, a hammer reciprocatory in a plane substantially at right angles to the heel end of the last, means for actuating said hammer, and provisions whereby said hammer may be swung bodily to its operative position.

9. A machine of the character described, comprising fastening mechanism, a hammer reciprocatory in a plane substantially at right angles to the heel end of the last, means for actuating said hammer, and provisions whereby the head of said hammer may be moved at an inclination to said plane.

701,058. BARGE-LOADING DEVICE. WILLIAM L. KILGUSSEY, Cape Girardeau, Mo. Filed Jan. 20, 1902. Serial No. 51,588. (No model.)



Claim.—1. In a barge-loading device, an auxiliary barge comprising a float adapted to be anchored to the shore in combination with a

gang-plank extending from one side thereof to the shore, a platform on the other side adapted to overhang the barge to be loaded, said gang-plank and platform being connected to the barge upon approximately the same level, uprights on opposite ends of the float, respectively, and tension members connecting the tops of said uprights with the outer margin of the platform, substantially as and for the purpose described.

2. In a barge-loading device, an auxiliary barge comprising in combination a float having a deck adapted for the passage of carts and the like thereover, a pair of gang-planks extending laterally from said deck at the ends thereof and adapted to reach the shore, a platform coextensive with and secured to the opposite side of the deck and having its outer margin adapted to overhang the hull of a barge to be loaded, uprights on opposite ends of the deck, respectively, and tension members connecting the tops of said uprights with the outer margin of said platform and the outer ends of said gang-planks, respectively, substantially as and for the purpose described.

3. In a barge-loading device, an auxiliary barge comprising in combination a floating body having a deck adapted for the passage of carts and the like thereover, anchoring devices therefor, a pair of gang-planks extending from the shore side thereof, and a hinged platform on the opposite side of the body the outer margin of which is adapted to overhang the barge to be loaded, substantially as described.

4. In a barge-loading device, an auxiliary barge comprising in combination a floating body having a deck adapted for the passage of carts and the like thereover, a pair of gang-planks extending from the shore side thereof, and a hinged platform on the opposite side of the body the outer margin of which is provided with a continuous upstanding curb and is adapted to overhang the barge to be loaded, substantially as described.

5. In a barge-loading device, the combination with an anchored float having a flat deck, of laterally-extending entrance and exit gang-planks connecting one side of said deck with the shore, and a laterally-extending platform connected with the opposite side of the deck, said platform having a curved outer margin adapted to overhang the hull of the barge to be loaded and further provided with an opening therethrough for the additional discharge of the load to the barge, substantially as and for the purpose described.

6. In a barge-loading device, the combination with a float having a flat deck and lateral extensions therefrom to the shore and over the barge to be loaded, respectively, of weights hung along the sides of the float below the water-line and serving to increase the stability and maintain the equilibrium thereof in the loading operation, substantially as described.

701,054. DOOR CHECK AND CLOSURE. MATTHEW KIMMELER, Oberdorf, Germany. Filed Jan. 28, 1901. Serial No. 44,578. (No model.)



Claim.—1. A door-closing device consisting essentially of a spring having divergent arms, one of which has its free end fitted on a fixed support, and a swinging lever connected with the free end of the other arm of the spring, the said spring having a loose connection with the door.

2. The combination of a supporting-bracket adapted to be secured to a fixed object, a U-shaped lever having one branch pivoted in said bracket, a pin fixedly mounted in said bracket, and a spring loosely connected with the door and having divergent arms, the end of one arm being fitted on the fixed pin and the end of the other arm being fitted on the free branch of the U-shaped lever.

3. The combination of a supporting-bracket adapted to be secured to a fixed object, a lever pivoted in said bracket, a spring adapted to be loosely connected with a swinging object as a door, gate or shutter having divergent arms, one of which has a fixed connection with the bracket and the other of which has its free end fitted on the free end of the lever, and a brake or checking device supported on the bracket and projecting into the path of the lever and the spring-arm connected therewith.

4. The combination of a supporting-bracket adapted to be secured to a fixed object, a lever pivoted thereon, a spring adapted to be loosely connected with a swinging object as a door, gate or shutter having diver-

gent arms, one of which has a fixed connection with the bracket, and the other of which is fitted on the lever, and a checking device adjustably mounted on the bracket and having a tongue depending into the path of the lever and the spring-arm fitted thereon.

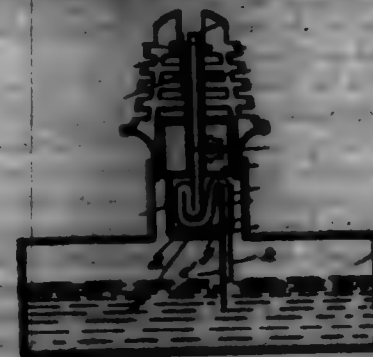
5. The combination of a supporting-bracket adapted to be secured to a fixed object, a lever pivoted thereon, a spring adapted to be loosely connected with a swinging object as a door, gate or shutter having divergent arms one of which has a fixed connection with the bracket and the other of which is attached to the end of the lever, a checking device extending into the path of the lever and the attached spring-arm and provided with projections on its upper side, and cut-overs engaging said projections and adapted to move the checking device on the supporting-bracket.

701,055. BOOK-COVER. FRANK C. KIMM, London, and THOMAS R. TOWLER, Woodford, England. Filed Nov. 18, 1901. Serial No. 52,112. (No model.)



Claim.—A book-cover comprising a body of flexible material, a cord extended around and against the edges thereof, an outer cover material secured to the outer surface of the body and having its extended edges turned over the cord and secured to the opposite surface of the body, thus holding the cord in place, and an inner cover material secured to said inner surface of the body and engaging with the overturned or overlapped portion, substantially as specified.

701,056. ATTACHMENT FOR LAMPS. LOUIS F. KIMMEL, Jr., Charleston, S. C. Filed Aug. 22, 1901. Serial No. 73,608. (No model.)



Claim.—1. The combination, with a lamp-burner, of a wick-holder which depends from the said burner and supports the coiled middle part of the wick clear of the oil, said wick-holder being provided with an upwardly-projecting member which holds the lower part of the wick stationary and permits its upper and middle portions to be raised and lowered, substantially as set forth.

2. The combination, with a lamp-burner provided with depending arms, of a wick-holder which engages with the said arms and supports the coiled middle part of the wick clear of the oil, said wick-holder being provided with an upwardly-projecting member which holds the lower part of the wick stationary and permits its upper and middle portions to be raised and lowered, substantially as set forth.

3. The combination, with a lamp-burner provided with a wick-tube, of a hinged gage-plate which projects to a predetermined extent above the top of the said wick-tube when raised, substantially as set forth.

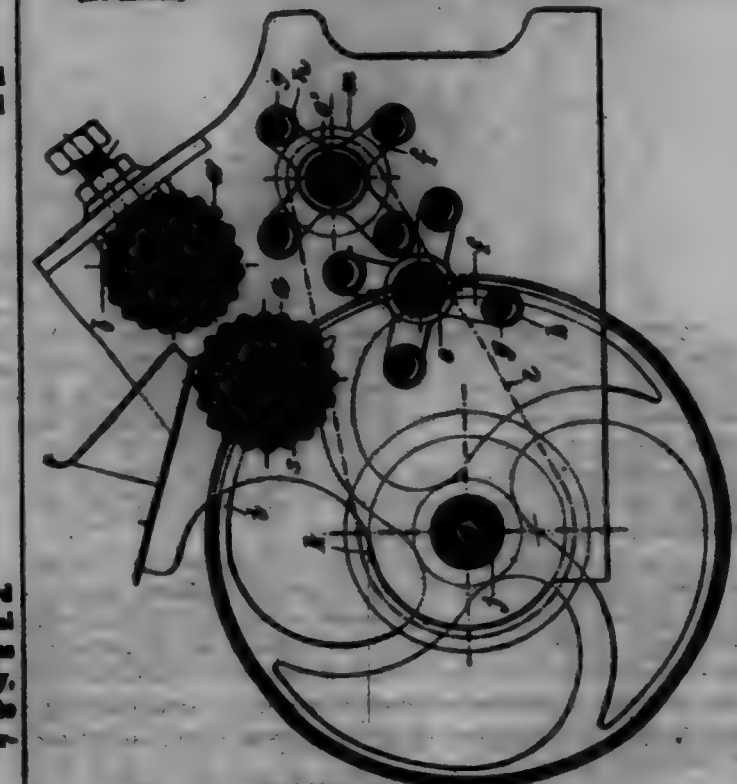
4. The combination, with a lamp-burner provided with depending arms, of a wick-holder engaging with the said arms and supporting the middle part of the wick, said wick-holder being provided with a gage-plate and flange above the gage-plate for holding the bottom end portion of the wick in position, substantially as set forth.

5. The combination, with a lamp-burner provided with depending arms having horizontal portions at their lower ends, of a wick-holder provided with flanges for holding the bottom end portion of the wick in position, a graduated gage-plate below the said flanges, and means for en-

gaging with the horizontal portions of the said arms, substantially as set forth.

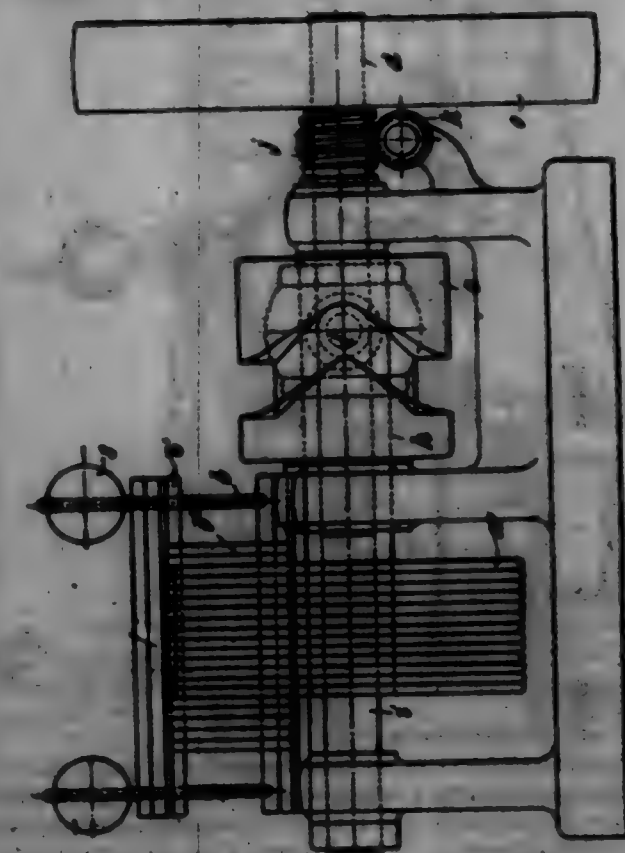
6. The combination, with a lamp-burner provided with depending arms, of a wick-holder formed of a strip of metal having its middle portion bent double and provided with notches for engaging with the said arms, said wick-holder being also provided with a gage-plate and means for holding the bottom end portion of the wick against the said gage-plate, substantially as set forth.

701,057. MACHINE FOR TREATING VEGETABLE-STEMS. JEAN A. LACROIX, Paris, France. Filed Mar. 14, 1901. Serial No. 51,109. (No model.)



Claim.—In a machine for treating vegetable-stems, a pair of oppositely-rotating rubbing devices, constructed of radial arms connected by parallel rods, and tubes or sleeves of rather greater internal diameter than the rods, and hanging loosely on the same so as to have a certain internal motion relatively to the rods, substantially as set forth.

701,058. SCUTCHING OR FIBER-PREPARING MACHINE. JEAN A. LACROIX, Paris, France. Filed Mar. 14, 1901. Serial No. 51,110. (No model.)



Claim.—In a stretching or fiber-projecting machine, the combination of a rotary longitudinally-shifting compressor-drum provided with transverse annular grooves, and a compressor-frame arranged above the said drum and pivoted relatively thereto, so as to rest on the drum, said frame being equipped, on the face adjacent the drum, with a plurality of closely-arranged wires, substantially as set forth.

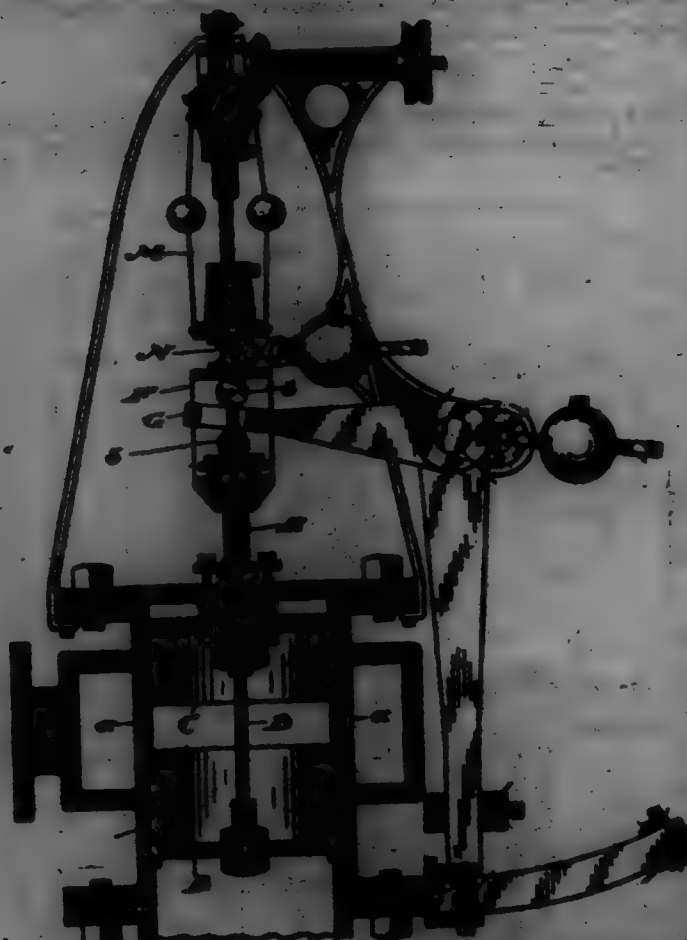
701,059. KEYHOLE-GUARD. LOUIS LAMBERT and ERNEST BERNARD, Geneva, Switzerland. Filed Mar. 4, 1898. Serial No. 94,918. (No model.)



Claim.—1. In keyhole-guards, the combination of a frame or plate having suitable openings and projections forming the fixed portion of the device, with a movable portion or bar intended to be applied upon the said frame or plate and containing suitable levers arranged to engage the said projections of the fixed portion, and with a safety-latch formed of corrugated sheet metal and arranged to disengage the said locking levers from the said studs or projections when it is engaged into the said bar, substantially as and for the purpose specified.

2. In keyhole-guards, the combination of a frame or plate having a suitable opening *a'* and one or more projections *a'* forming the fixed portion of the device, with a movable portion or bar as *b b'* intended to be applied upon the said frame or plate *a* and containing one or more locking levers *c* arranged to engage the said projections or studs *a'* of the plate *a* and with a safety-latch *f* formed of a piece of corrugated sheet metal intended to slide between the corrugated metal pieces *f* and *g* fixed to the bar *b b'*.

701,060. MARINE-ENGINE GOVERNOR. JOHN LEVY and THOMAS SARGENT, London, Canada. Filed Apr. 17, 1901. Serial No. 94,192. (No model.)



Claim.—In a device of the class described, the combination of a valve-chest provided with a suitable part or parts; two valves sliding therein and each adapted to open and close the said ports; a hollow valve-rod secured to one valve; a valve-rod secured to the other and extending

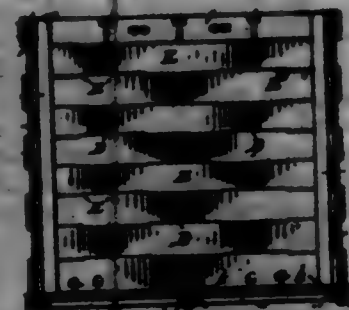
through the hollow valve-rod; an ordinary centrifugal governor connected with one valve-rod; a pendulum adapted to swing relative to the head of the valve in a fore-and-aft plane; and means whereby the relative motion of the pendulum and head when the valve-rod will operate the last-mentioned valve-rod, substantially as described.

701,061. CUTTER. FRANK I. LEVY, Detroit, Mich. Filed Oct. 16, 1901. Serial No. 75,559. (No model.)



Claim.—A cutter, comprising a bar forming a body portion, a handle for the bar, pins mounted loosely on the bar and extending transversely thereof, said pins being of uniform diameter to permit their free adjustment in the bar in direction longitudinally of the axis of pins, and the pins being of length considerably greater than the width of the bar, set-screws working in the bar and respectively engaging the pins adjustably to hold them, and cutting-teeth carried by the lower ends of the pins.

701,062. BASKET. CLAYTON F. LUDWIG, Detroit, Mich. Filed Mar. 2, 1902. Serial No. 94,414. (No model.)



Claim.—1. A basket, having sides formed of upright and spine woven in and out between said uprights and provided with sections in their edges adapted to interlock and prevent the longitudinal movement of said spines, one upon the other.

2. In a basket the combination with a bottom, a top rail consisting of a rectangular frame having recesses in its upper side, and the corresponding, of the sides having their upper ends curved downward and projecting through the recesses of the said rectangular frame, and their lower ends provided with heads to engage the lower face of the bottom, horizontally-arranged spines woven in and out between the said top rail, and having their ends secured to the posts, corner-strips secured to the said posts and covering the ends of the said strips, and tabs on the upper ends of the said top rail, whereby the sides and ends of the basket formed by the separate spines can be tightened independently of each other, substantially as described.

3. In a basket, the combination with a bottom, a top rail consisting of a rectangular frame having recesses in its upper side, and the corresponding, of the sides having their upper ends externally curved downward and projecting through the recesses of the said rectangular frame, and their lower ends provided with heads to engage the lower face of the basket-bottom, a filling for the sides and ends of the basket comprising horizontally-arranged spines woven in and out between the said top rail, certain of said spines provided with extended portions adapted to engage the adjacent strips, the filling constituting the sides being independent of those comprising the ends and having their ends secured to the said posts, corner-strips secured to the said posts and covering the ends of the said strips, and tabs on the upper ends of the said top rail, substantially as described.

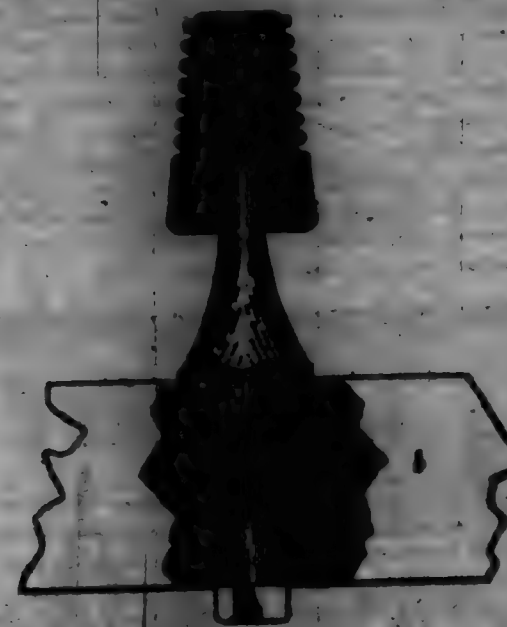
701,063. INSULATOR-PIN. FRANK E. LEVY, Victor, N. Y. Filed Mar. 15, 1901. Serial No. 92,459. (No model.)

Claim.—1. An insulator-pin comprising a metallic support having its upper end provided with lugs and an insulating-rod mounted thereon.

2. A pin comprising a metallic support having its central portion enlarged for the purpose of giving lateral support to the pin and having its upper end provided with lugs and an insulating-rod mounted thereon.

3. An insulator-pin comprising a metallic support having its upper

end connected as in or to prevent the rotation of the shackle thereon, said end being provided with lugs and an insulating-rod mounted on said support.



701,064. ROLLING-CHAIR. FRANK HARR, Madison, N. Y., assignor to E. A. Cook & Co., a partnership composed of E. A. Cook, R. J. Rogers, C. A. Brown, and H. W. Childs, Madison, N. Y. Filed Dec. 17, 1901. Serial No. 94,532. (No model.)



Claim.—1. In a device of the character described, for use in connection with a chair employing a hinged back-rest section, the combination with a toothed bracket adapted to be secured to a fixed part of the chair-frame and having tooth-guards arranged above the teeth, the ends of said guards overlapping and being spaced apart, and a latch pivoted in advance of the teeth and in advance of the tooth-guards, of a dog adapted to be pivoted to the back-rest section and to engage the pivoted latch, the tooth-guards, and to disengage into locked engagement with the teeth, substantially as set forth.

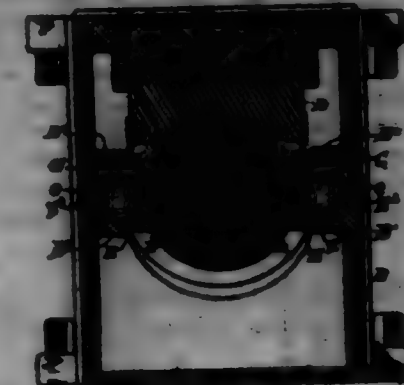
2. The combination with a relatively stationary member of an article, and a rotating member connected thereto, of a pawl carried by one of these parts and a ratchet device to be engaged by the pawl carried by the other, the said ratchet device having two ways or tracks for the pawl to move in, one side of one of the ways being provided with a series of teeth, and a separating-partition between the ways which is divided longitudinally to permit the passage of the pawl from one way to the other at a point between the ends of the said partition, and the ways being connected at one end of the partition to permit the pawl to pass around each end from one way to the other, substantially as set forth.

3. The combination with a relatively stationary member of an article, and a movable member connected thereto, of a pawl carried by one of these parts and a ratchet device carried by the other and arranged to be engaged by the pawl, the said ratchet device having two ways or tracks for the pawl to move in, and the ways being separated by a partition intermediate the ends of the partition, and one of the ways being provided with a series of teeth with which the pawl is adapted to engage, substantially as set forth.

4. The combination with a relatively stationary member of an article,

and a movable member connected thereto, of a pawl carried by one of these parts and a ratchet device carried by the other, the said ratchet device having two ways or tracks for the pawl to move in, one of the ways being provided with a series of teeth, a separating-partition between the ways, provided with cross-over-passages from one way to the other, arranged intermediate the ends of the partition, and a latch arranged at one of the ends of the partition and arranged to direct the pawl from one way to the other, substantially as set forth.

701,065. CAR-AXLE BOX AND BEARING. GEORGE W. HARRIS, Brooklyn, N. Y. Filed Feb. 24, 1900. Serial No. 94,099. (No model.)

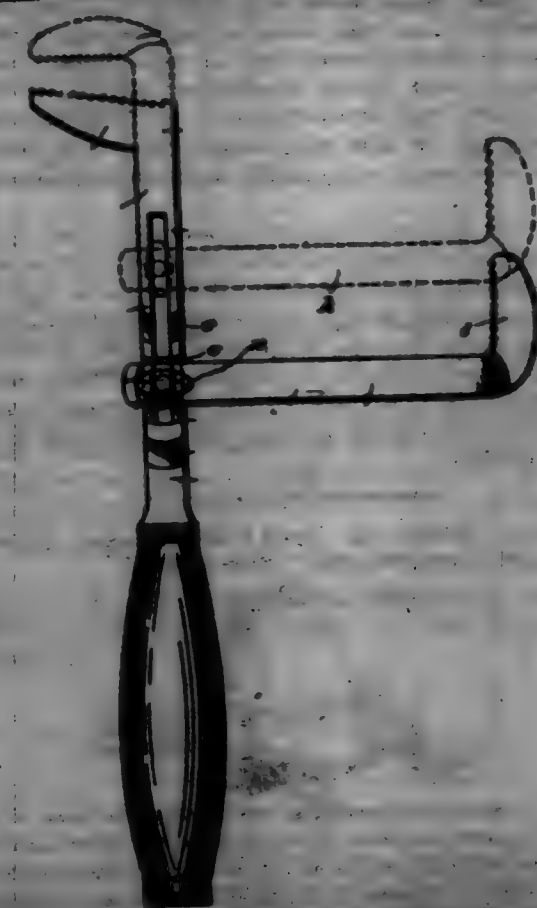


Claim.—1. In combination with a car-axle box, guiding and supporting ledges in its interior sides, side check-brasses in said ledges and a top beam, substantially as set forth.

2. In combination with a car-axle box, guiding and supporting ledges in its interior sides, side check-brasses in said ledges, and a top beam *D* formed with a head or flange *D'* adapted to retain the side check-brasses, all arranged to curve substantially as herein specified.

3. In combination with a car-axle box, guiding and supporting ledges in its interior sides, side check-brasses in said ledges and a top beam *D* formed with a head or flange *D'* adapted to retain the side check-brasses *E* and with clamping-pieces *G*, all substantially as herein specified.

701,066. PIPE-WRENCH. FREDERICK C. HARTMAN, Houston, Texas. Filed Mar. 12, 1900. Serial No. 94,197. (No model.)



Claim.—1. A pipe-wrench, comprising a longitudinally-slotted male-jaw bar, having transverse projections, a female-slotted movable-jaw portion, having perforations, and a connecting bolt and nut, substantially as specified.

2. In a pipe-wrench, the combination with the arc-grooved and longitudinally-slotted male-jaw bar, of the female-slotted movable-jaw portion having arc-shaped projections, and the connecting bolt and nut, substantially as specified.

3. A pipe-branch having its main bar longitudinally dotted, and provided with a series of transverse arc-shaped slots, a branch-chamber movable-jaw portion having arc-shaped projections, and perforations centered therein, and a connecting hub and nut, substantially as specified.

701,067. MOTOR. JAMES H. MAXWELL, Pittsburg, Pa. Filed Mar. 4, 1908. Serial No. 54,348. (No model.)



Claim.—1. In a motor, the combination of an outer casing having disposed therein partitions, inner casings carried by said partitions, said inner casings forming guideways, the outer casing carrying central shafts having mounted thereon sprocket-wheels, said sprocket-wheels carrying on endless chains, and in turn carrying propellers, substantially as described.

2. In a motor, the combination of an outer casing, having disposed therein partitions, an inner casing carried by said partitions, the said inner casing having suitably mounted therein sprocket-wheels carrying on endless chains and in turn carrying propellers, said propellers having secured to their forward ends arms carrying shafts, said arms being actuated by means of springs, the inner casing having suitable steam-inlets, and the inner and outer casings having suitable steam-outlets, substantially as described.

3. In a motor, the combination of an outer casing carrying partitions, said partitions carrying an inner casing which is formed in a manner as to form a guideway for the propeller, the upper part of said casing being constructed to allow the arms of the propeller to extend outwardly and the lower part of the casing being formed in such a manner as to pass the arms inwardly, allowing the propeller to pass through this constructed portion, the sprocket-wheels carrying suitable recesses for the admission of the propeller to the main pass around their periphery, substantially as described.

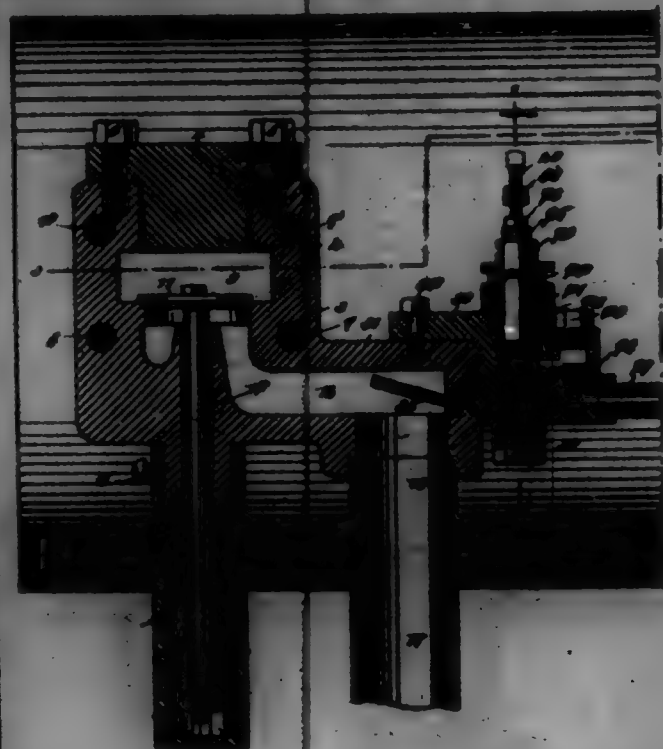
701,068. SPRING-CLIP. JAMES H. MAX, Allegheny, Pa. Filed Nov. 12, 1904. Serial No. 51,998. (No model.)



Claim.—A spring-clip comprising a circular metallic band, an outwardly-extending straight portion having a slot formed therein, extending into the circular band, a tongue formed integral with the other end of said circular band corresponding in width to said slot and extending at an angle to said straight portion engaging the outer end of said outwardly-extending straight portion, and an offset formed in said tongue and projecting into the outer end of said slot, substantially as described.

701,069. SPRING-CLIP FOR RING-BANDS. JAMES H. MAX, Allegheny, Pa. Filed Aug. 7, 1904. Serial No. 51,999. (No model.)

Claim.—A spray-pump for explosive-engines, comprising a hollow passage leading to the explosion-chamber, a pair of receptacles disposed adjacent to said passage and connected together by a neck, a piston fitting oil-tight into one of said receptacles and provided with a valve-stem, said valve-stem projecting loosely through said neck into the other receptacle, a valve mounted upon said valve-stem within said other receptacle, a tube connected with said receptacle containing said valve and with said passage leading to the explosion-chamber, said tube being disposed obliquely upward to prevent entry of air-bubbles into said receptacle, a lever for periodically depressing said piston, a cam for actuating said lever, a check-valve for preventing retrogression of the hydrocarbon liquid from said receptacle, and an elevated tank for supplying said liquid under constant pressure to said receptacle.



701,070. BURNING-BOTTLE. JAMES J. MURPHY, Chicago, Ill. Filed Oct. 2, 1901. Serial No. 71,490. (No model.)



Claim.—A burning-bottle, having a cylindrical body laterally rounded to facilitate cleaning, and a conical top having a cylindrical head adapted to receive and to hold the nipple; the said body being provided with an external threaded part and shoulder; the said top being provided with an internal threaded part and flanged shoulder adapted to engage the external threaded part of the said body and to extend slightly over the said external shoulder; and a ring adapted to pass over the external threads and to rest on the shoulder of said body and to be engaged and compressed by the flanged shoulder of the said top, and thus making a secure and tight union of the two parts of said bottle, as and for the purposes specified.

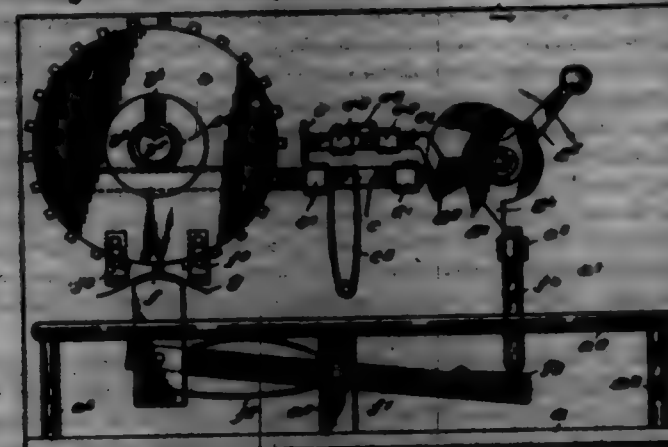
701,071. MARKING-MACHINE. RAYMOND H. MOUNT, Aberdeen, Wash. Filed June 4, 1908. Serial No. 63,698. (No model.)

Claim.—1. In a marking-machine, the combination of a shaft, a type-wheel loosely arranged thereon, a cam carried by the shaft and serving to rotate the wheel to the shaft, means for driving the shaft ground to axis, and taking and impression device working with the wheel.

2. In a marking-machine, the combination with a frame, of a shaft mounted therein to turn around its axis, a type-wheel arranged loosely thereon, a cam mounted on the shaft and serving to rotate the type-wheel to the shaft, means for driving the shaft, and an impression device working with the type-wheel.

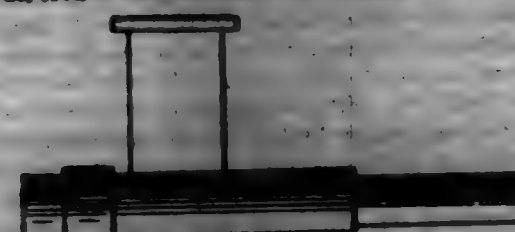
3. A marking-machine having a frame, a rotating type-form mounted thereon, a reciprocating bar having connection with the type-form to drive it, an ink device mounted to reciprocate toward and from the type-form, a piston also mounted to reciprocate toward and from the type-form, a reversible drive member, and three cams carried thereon, the same respectively actuating the reciprocating bar, the ink device, and the piston.

4. A marking-machine, having a frame, a rotating type-form, means for imparting movement to the type-form, an ink device, an impression device, a drive-shaft, and three cams on the drive-shaft, said cams respectively operating the means for imparting movement to the type-form, the ink device, and the impression device.



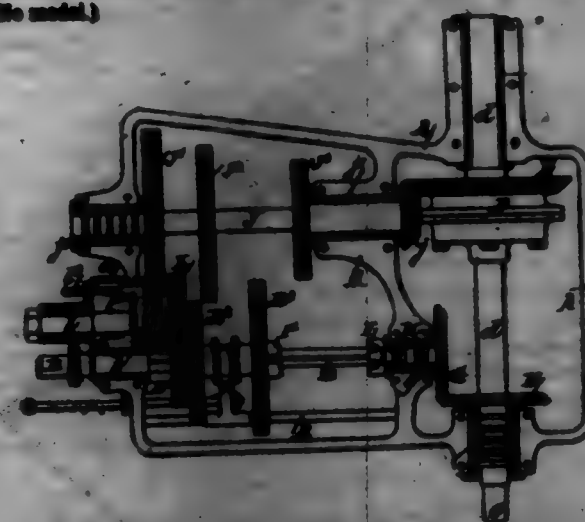
5. The combination with a frame, of a shaft arranged to turn thereon, a type-form on the shaft, a reciprocating bar connected with the shaft to turn it, a spring actuating the bar in one direction, an ink device movable toward and from the type-form, a spring actuating the ink device in one direction, an impression device, a spring actuating the impression device in one direction, and cams for actuating contrary to their springs, the bar, the ink device and the impression device.

701,072. FENCE. JAMES A. H. MOUNT, Leavenworth, Mo. Filed Jan. 28, 1908. Serial No. 61,789. (No model.)



Claim.—A device of the class described comprising a cylindrical casing having a longitudinal slot leading from one end thereof, a screw reversibly engaged with the ends of the casing and having bearings thereon, a shaft having spaced disks thereon, disposed within the casing with its ends engaged with the bearings, a disk and an end closure having each a strap-up loop, a helical spring disposed upon the shaft and having its ends engaged beneath the loops, and a tape attached to the shaft between the loops and passed outwardly through the slot.

701,073. SPEED AND DIRECTION CHANGING MECHANISM. RICHARD L. F. MOON, Paris, France. Filed Feb. 14, 1908. Serial No. 64,388. (No model.)



Claim.—1. A speed and direction changing mechanism for motor-vehicles, comprising a driving-shaft, a driven shaft, a clutch between the two, each clutch when in operation adapted to give the highest speed, type-wheel movable lengthwise on the driving-shaft, a second shaft geared to the driven shaft and spur-gears carried by said second shaft each adapted to gear with one of the lengthwise-movable spur-wheels of the driven shaft to produce varying speeds and a third spur-wheel adapted to mesh with one spur-wheel of each of the two shafts to reverse the speed, substantially as described.

2. A speed and direction changing mechanism for motor-vehicles, comprising a driven shaft, a clutch geared thereto, another shaft J, a number of spur-wheels carried by the latter shaft, which is also geared to the driven shaft, a driving-shaft, a sliding train of gear-wheels carried by the driving-shaft to gear one at a time with a spur-wheel of shaft J or to run free, or to engage with the clutch, according to the degree of lengthwise motion, in combination with a third shaft, a spur-wheel thereon also adapted to be moved lengthwise and adapted to gear with a spur-wheel of the shaft J, and with one on the driving-shaft, substantially as described.

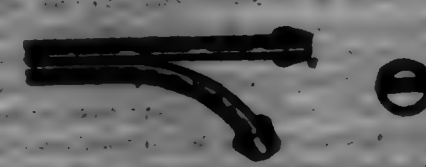
3. A speed and direction changing mechanism for motor-vehicles, comprising a driven shaft, a shaft geared thereto, having spur-gears, a driving-shaft having lengthwise-movable spur-wheels, a third shaft, a lengthwise-movable spur-wheel carried by the third shaft, a casing with a recess in its wall and bearings in the casing carrying said shafts, means for moving the spur-wheel of the third shaft into the recess formed in the casing-wall or into gear with spur-wheels of the other shafts, and means for moving the spur-wheel of the driving-shaft lengthwise, in combination with a clutch mechanism geared to the driven shaft and adapted to clutch the driving-shaft upon its extreme lengthwise movement at which time its spur-wheels are adapted to run free, substantially as described.

701,074. AIR CLEANING AND COOLING DEVICE. JAMES H. MOUNT, Toledo, Ohio. Filed Feb. 3, 1908. Serial No. 64,391. (No model.)



Claim.—The case A having the air and water inlet and outlet, the baffle-plate D having at its lower end the vertical portion d', the backward portion d'' forming the recess, channel or trough and the perforations or holes d''' extending in a line across the bottom of the baffle-plate, as set forth.

701,075. GATHERER OR LIKE INSTRUMENT. RICHARD P. MOUNT, Brooklyn, N. Y. Filed Feb. 12, 1908. Serial No. 64,712. (No model.)



Claim.—1. A surgical instrument of the character described comprising two half-round tubes secured together at their flat sides and forming an inlet-passage extending through the instrument and a return-passage lying adjacent to and to one side of said inlet-passage.

2. In a surgical instrument of the character described, comprising a pair of half-round tubes secured together at their flat sides and forming an inlet-passage and a return-passage lying adjacent to and to one side of said inlet-passage, said inlet-passage having an outlet at the lower end of the instrument and said return-passage having an inlet at the lower end of said instrument.

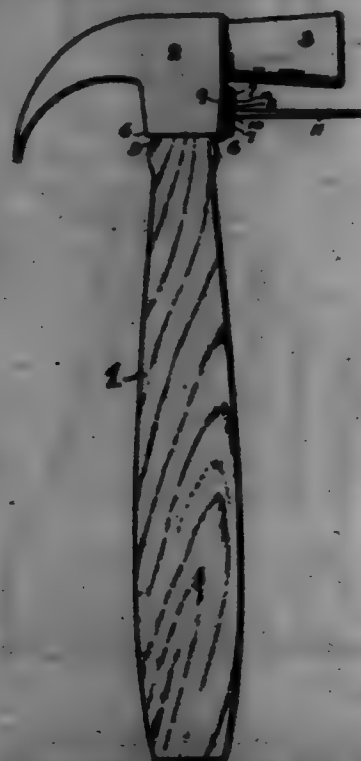
3. In a surgical instrument of the character described, comprising a pair of half-round tubes secured together at their flat sides and forming an inlet-passage extending through and an opening at the inner end thereof, a return-passage of greater capacity than the inlet-passage said return-passage lying adjacent to but on one side of said inlet-passage, said return-passage having an inlet at the inner end thereof separate from the opening at the inner end of said inlet-passage.

4. A surgical instrument of the character described comprising, a pair of half-round tubes secured together at their flat sides and forming an inlet-passage extending through the instrument, a return-passage lying adjacent thereto and at one side of said inlet-passage, and an outlet adjacent to the inner end of said instrument and leading from said inlet-passage, and an inlet adjacent to the inner end of the instrument and leading into the return-passage.

5. A surgical instrument of the character described comprising, a body portion, a double-walled partition within said body and extending from end to end thereof and dividing the same into two separate passages located side by side, and communication between said passages adjacent to the inner end of the instrument.

6. A surgical instrument of the character described, comprising, a pair of half-round tubes secured together at their flat sides to form a body portion of tubular form, a flat partition extending through said tubular portion and dividing the same into two separate passages one passage affording an inlet for a fluid and the other passage affording a return for a fluid.

701,076. NAIL-HELDER FOR HAMMERS. PATRICK H. McHURRY, Haver, N. J., assignor to William H. Coleman, Haver, N. J. Filed Nov. 21, 1901. Serial No. 65,005. (No model.)



Claim.—1. A device for holding nails to hammer-heads, comprising, a main body or base-plate, a rearwardly-extending member 16 on said body and a holding-arm 17 on said member 16 adapted to be arranged in the receiving-eye of the hammer-head and held between one of the inner surfaces of said eye and a portion of the inserted hammer-handle, for securing said device in position against the hammer-head, the said main body or base-plate being provided with a nail-receiving opening, said opening being wider at the bottom than at its outer edge for retaining a nail in position, substantially as and for the purposes set forth.

2. A device for holding nails to hammer-heads, comprising, a main body or base-plate, a rearwardly-extending member 16 on said body and a holding-arm 17 on said member 16 adapted to be arranged in the receiving-eye of the hammer-head and held between one of the inner surfaces of said eye and a portion of the inserted hammer-handle, for securing said device in position against the hammer-head, the said main body or base-plate being provided with a nail-receiving opening, and a pair of shoulders forming a wide opening for the reception of the head of the nail, substantially as and for the purposes set forth.

3. A device for holding nails to hammer-heads, comprising, a main body or base-plate, a rearwardly-extending member 16 on said main body and a holding-arm 17 on said member 16 adapted to be arranged in the receiving-eye of the hammer-head and held between one of the inner surfaces of said eye and a portion of the inserted hammer-handle, for secur-

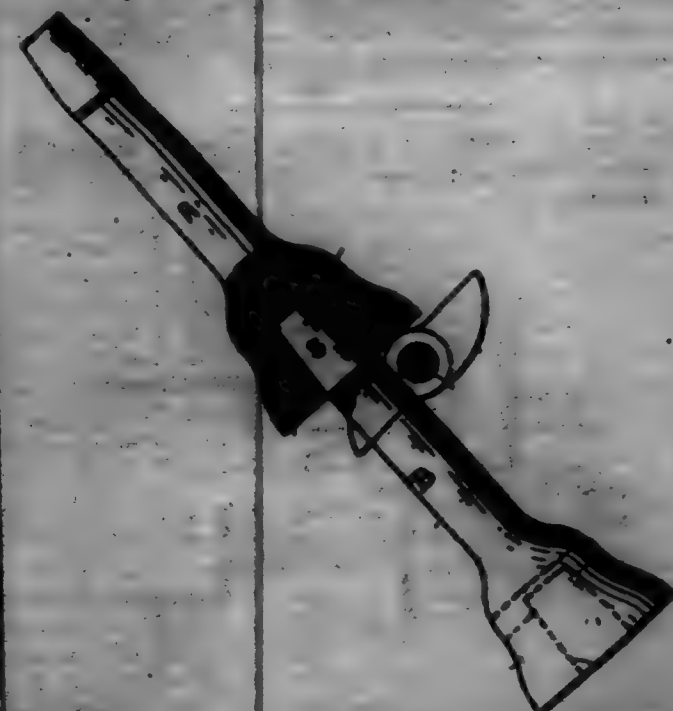
ing said device in position against the hammer-head, the said main body being provided with a nail-receiving opening having marginal edges 19 and 20 arranged at different inclinations to each other to provide a wide entrance for the nail and a narrow holding portion at the end of said opening, substantially as and for the purposes set forth.

4. A device for holding nails to hammer-heads, comprising, a main body or base-plate, a rearwardly-extending member 16 on said main body and a holding-arm 17 on said member 16 adapted to be arranged in the receiving-eye of the hammer-head and held between one of the inner surfaces of said eye and a portion of the inserted hammer-handle, for securing said device in position against the hammer-head, the said main body being provided with a nail-receiving opening having marginal edges 19 and 20 arranged at different inclinations to each other to provide a wide entrance for the nail and a narrow holding portion at the end of said opening, and a pair of shoulders forming a wide open portion for the reception of the head of the nail and a narrow open portion in which the shaft of the nail is fitted, substantially as and for the purposes set forth.

5. A device for holding nails to hammer-heads, comprising, a main body or base-plate, means for securing said main body or base-plate in position against a portion of the hammer-head, the said main body being provided with a nail-receiving opening having a pair of marginal edges arranged at different inclinations to each other to provide a wide entrance for the nail and a narrow holding portion at the end of said opening, but the angles of inclination of said marginal edges both being in an upward direction toward the hammer-head, when said nail-holding device is in position against the said hammer-head, whereby the narrow nail-holding portion is lower than the wide receiving-entrance to hold the inserted nail against accidental lateral displacement, substantially as and for the purposes set forth.

6. A device for holding nails to hammer-heads, comprising, a main body or base-plate, means for securing said main body or base-plate in position against a portion of the hammer-head, the said main body being provided with a nail-receiving opening having a pair of marginal edges arranged at different inclinations to each other to provide a wide entrance for the nail and a narrow holding portion at the end of said opening, but the angles of inclination of said marginal edges both being in an upward direction toward the hammer-head, when said nail-holding device is in position against the said hammer-head, whereby the narrow nail-holding portion is lower than the wide receiving-entrance to hold the inserted nail against accidental lateral displacement, and a pair of correspondingly-inclined shoulders forming a wide open portion for the reception of the head of the nail, substantially as and for the purposes set forth.

701,077. STAMP-STEM. WALTER H. McHURRY, Chicago, Ill. Filed Sept. 26, 1901. Serial No. 54,361. (No model.)



Claim.—1. A stem for stamps and analogous drop-hammers consisting of two or more sections adapted to be united in extension of each other, each section being adapted for connection with a hammer or stamp-head and being adapted at its opposite end for engagement with a similar stem-section, whereby said stem-sections may be interchangeably arranged, as and for the purposes set forth.

2. A stem for stamps and analogous drop-hammers comprising two sections united in extension of each other, the upper member being constructed to telescope on the lower member and a cam-surface formed

open the lower end of the telescoping member, as and for the purposes set forth.

3. In combination, a stamp-stem comprising two sections adapted to be united in extension of each other, each comprising an enlarged and conical lower and portion and a tapered upper and portion adapted for engagement with a socket similar to that at its lower end, a cam-surface upon the lower end of each stem-section and a cam or wiper located adjacent to one side of the stamp-stem and immediately below the lower end of the upper stem-section in position to engage the cam-surface thereof.

4. As a new article of manufacture, a stamp-stem section comprising a main body portion provided at one end with an enlargement provided with an inwardly-tapering axially-disposed socket, a transverse drift-aperture intersecting the upper end of said socket, a cam-surface formed at the lower end of said enlargement and a tapered opposite end portion adapted for engagement with a socket substantially similar to that provided in the opposite end of said section.

701,078. AUTOMATIC PAIL. HENRY OTTERMEYER, Baltimore, Md. Filed July 14, 1901. Serial No. 65,006. (No model.)



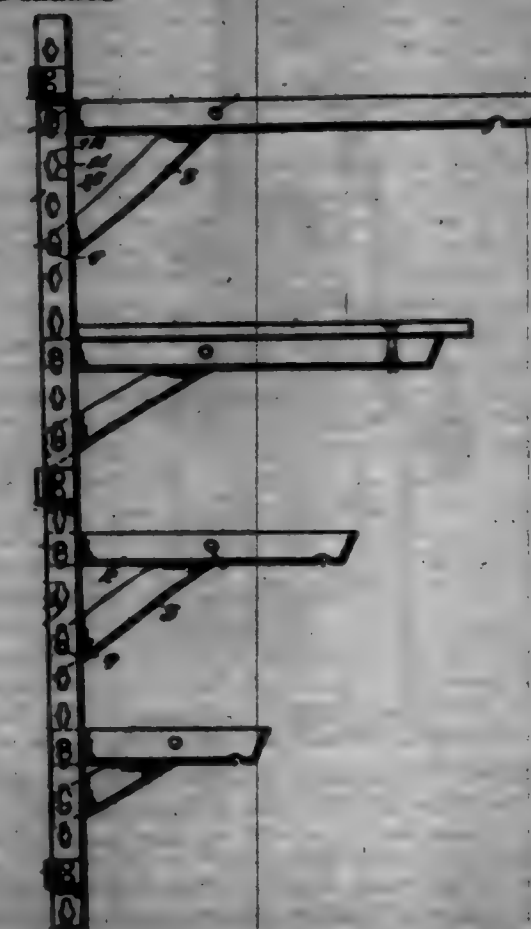
Claim.—1. An automatic bin, comprising power mechanism, including a driving-pulley; a casing for said mechanism; a standard rising from said casing and provided at its upper end with forwardly-extending brackets; spring-tensioned lifelines journaled in said brackets; a fin-supporting arm pivotally connected at one end to the upper end of said standard above said brackets and lifelines; a fin-shaft mounted in the free end of said arm and provided with fin-blades and a pulley; and an endless band passing around said shaft-pulley, over said tensioned lifelines, and around said driving-pulley, as set forth.

2. An automatic bin, comprising power mechanism, including a driving-pulley; a casing for said mechanism; a standard rising from said casing and provided with a longitudinal rearwardly-opening room, and also provided at its upper end with forwardly-extending brackets and a shoulder, 22', and side arm, 23', above said brackets; a fin-supporting arm pivotally mounted at one end between said arm and provided with a longitudinal strengthening-rib, 25, the said arm, when swung in one direction clamping against said shoulder and supported thereby, and when swung in the other direction, having its web received in said room; spring-tensioned lifelines journaled in said brackets; a fin-shaft mounted in the free end of said supporting-arm and provided with fin-blades and a pulley; and an endless band passing around said shaft-pulley, over said tensioned lifelines, and around said driving-pulley, as set forth.

701,079. ADJUSTABLE SHELF-BRACKET. WILLIAM C. FENNER, Troy, Ohio. Filed Dec. 6, 1901. Serial No. 64,994. (No model.)

Claim.—1. A device of the class described comprising a support, a vertically-adjustable bracket composed of a horizontal bar or lever and an inclined brace pivoted at its upper end to the bar or lever at a point between the ends thereof, and means for detachably interlocking the lower end of the bar or lever and the lower end of the inclined brace with the support and the bar or lever and the lower end of the inclined brace being maintained in interlocking with the support by the weight to which the bracket is subjected, substantially as described.

2. A device of the class described comprising a support, and a bracket composed of an inclined brace and a bar or lever pivoted between its ends to the brace and fulcrumed thereon, said bracket being detachably interlocked with the support, one of the parts being provided with a hooked end and the other part having an opening for the end, substantially as described.



3. A device of the class described comprising a support, and a bracket composed of an inclined brace and a bar or lever fulcrumed between its ends on the brace, said bracket being detachably interlocked with the support by means of studs and openings, one of the parts being provided with studs and the other part having openings composed of enlarged central portions and constricted upper and lower portions, substantially as described.

4. A device of the class described comprising a support, a bracket detachably interlocked with the support and composed of a horizontal bar or lever, and an inclined brace pivoted at its upper end to the bar or lever at a point between the ends thereof, said bar or lever being provided at its lower end with a notch, a shelf supported by the bar or lever, and a fastening device depending from the shelf at one side of the bar or lever and engaging the notch thereof, substantially as described.

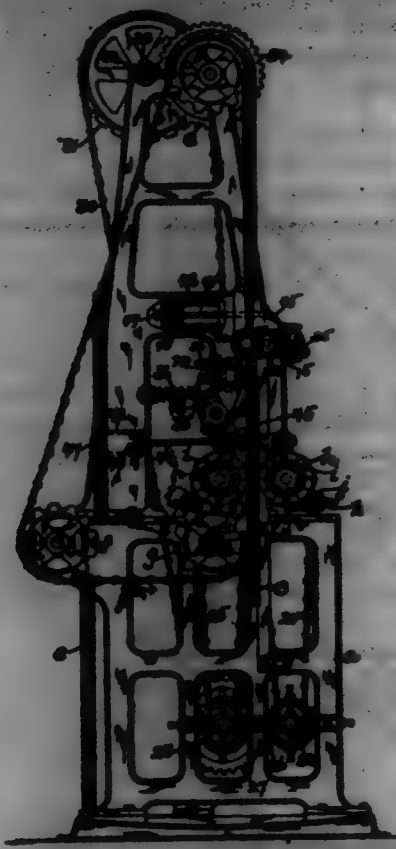
5. A device of the class described comprising a support provided with slots, knees connected with the support and designed to be secured to a wall or the like, and a bracket composed of a horizontal bar or lever having a stud detachably interlocked with one of the slots of the support, and an inclined brace pivoted at its upper end to the horizontal bar or lever and provided at its lower end with a stud interlocked with a slot of the support, substantially as described.

701,080. MACHINE FOR TREATING HIDES OR SKINS. FRANKLIN J. PIERCE, Worcester, Mass., assignor to Virginia Machine Company, Boston, Mass., a Corporation of West Virginia. Filed Mar. 7, 1902. Serial No. 67,698. (No model.)

Claim.—1. A machine of the character described, comprising a substantially flat support over the end of which a hide or skin may be folded to its opposite face of the support, an operating-roll normally in the path of movement of the said table or support and adapted to cut upon this portion of the skin which lies on the end of the support without shifting the said skin and for treating the portion of the skin lying on the side of the support, instrumentalities for making the said support and the said roll relatively movable, and means for rotating said roll while the latter is in engagement with the hide or skin.

2. A machine of the character described, comprising a work-support having approximately flat faces and an end, whereby a hide or skin may be doubled over the said end to lie against said faces, and one or more operating-rolls provided with helically-arranged blades or working edges located with relation to said work-support to engage and treat that portion of the hide or skin which is on the end of the support, means for moving one of said parts bodily with relation to the other, means for

holding the said roll in engagement with the hide or skin with a yielding pressure, and means for rotating said roll, substantially as described.



3. A machine of the character described, comprising a movable work-support over which the hide or skin is folded, means for moving said support, a rotatable member provided with helically-arranged working edges located in the path of movement of said support for trussing that portion of the hide or skin which lies on the end of the support and for trussing that portion of the hide or skin lying against the side of the support without shifting the skin and without plating the cheek portions of the skin, and means for operating said roll by power, while it is in engagement with said hide or skin.

4. A machine of the character described, comprising a work-support having two substantially flat faces, whereby a hide or skin may be folded about the end of the support to lie against said flat faces, and means for trussing the entire exposed area of said hide or skin, said means including power-driven rotatable rolls having helically-disposed working edges located with relation to said support to engage and act on the portion of the hide or skin folded about the end of the support, substantially as described.

5. A machine of the character described, comprising a traveling support, rotatable rolls normally intersecting the path of movement of said work-support in different planes at an angle to the path of movement of said support and provided with helically-disposed working edges, said rolls being movable in opposite directions out of the path of movement of said support, and means for rotating said rolls during the movement of the same with relation to the said support, substantially as described.

6. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, a rotatable roll having peripheral working edges, pivotally-mounted cranks or arms extending laterally with relation to the path of movement of said work-support and supporting said roll in position to act on the portion of the hide or skin folded over the edge of the work-support, gearing for rotating said roll movable with the cranks or arms, and means for driving said gearing.

7. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, means for moving said support, a rotatable working member located in the path of movement of the said support to act on the portion of the hide or skin lying on the edge of the support, pivotally-mounted supports for said rotatable working member, means movable with said pivotally-mounted supports for rotating said working member, and means for engaging said working member with the hide or skin with a yielding pressure.

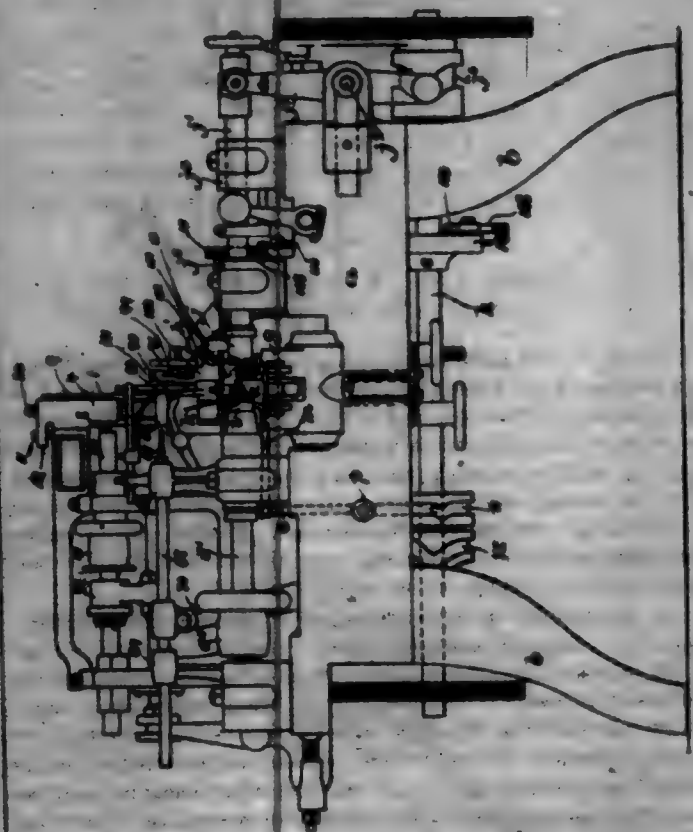
8. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, a rotatable roll provided with helically-arranged working edges, cranks or arms supporting said roll and pivotally mounted to move in the arc of a circle which intersects the path of movement of the work-support, gearing movable with said cranks or arms for rotating said roll, a spring to hold the operating-roll in engagement with the hide or skin with a yielding pressure, a rod on which said spring is placed, and a pivotally-mounted gate for said rod.

9. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, main operating cylinders or rolls to act on the sides of the hide or skin, means for rotating said cylinders or rolls, auxiliary operating cylinders or rolls for operating on the portion of the hide or skin lying on the edge or end of the table, supports for said auxiliary cylinders or rolls movable laterally with relation to the path of movement of said work-support, and mechanism for rotating said auxiliary rolls movable with the supports therefor.

10. A machine of the character described, comprising a movable work-support over which the hide or skin is adapted to be folded, a rotatable roll to act on the portion of the hide or skin on the edge or end of the table, pivotally-mounted hubs having cranks or arms which support said roll, mechanism movable with said cranks or arms for rotating said roll, means for holding the said roll in engagement with the hide or skin with a yielding pressure, and means for rotating the movement of the said roll into the path of movement of said work-support.

11. A machine of the character described, comprising a movable work-support over which the hide or skin is adapted to be folded, a rotatable roll to act on the portion of the hide or skin on the edge or end of the table, pivotally-mounted hubs having cranks or arms which support said roll, gearing movable with said cranks or arms for rotating said roll, a second set of cranks, 45, 46, extended from said hubs, a rod pivotally connected with the crank 35, a pivotally-mounted guide into which the free end of said rod is extended, a spring encircling said rod, a dash-pot provided with a piston, and a piston-rod pivotally connected with said piston and with the crank 45.

701,081. SPOOL-MACHINE. HENRY E. FISHER, Lincoln, Mo., assignor to John MacGregor, Lincoln, Mo. Filed Oct. 1, 1901. Serial No. 77,331. (No model.)



Claim.—1. In a spool-machine, the combination of blank-holding mechanism including means for grasping and releasing the blanks, and means for perforating the grouped blanks, mechanism for feeding the blanks singly to the boring mechanism, an inclined runway arranged to receive the bored blanks from the boring mechanism and conduct them by gravitation to a lower point, lath-center offset from the runway, means for transferring the blanks endwise from the lower end of the runway to a point outside the runway, and means for transferring the blanks sideways from said point to a point between the lath-center.

2. In a spool-machine, the combination of a boring mechanism comprising a fixed digging member, an inclined runway having its lower end located below the said fixed member, a vertically-movable digging member arranged to rise above said higher end and in digging a blank, a detent yieldingly held in position to arrest a bored blank in the upper portion of the runway and adapted to be raised with the movable digging member to release said bored blank, a reciprocating bit movable between

the digging member, and mechanism for feeding blanks between the digging member when the movable member is depressed, said blank fed between said members displacing the blank last bored and causing it to be engaged by said detent until the displacement of the detent caused by the upward movement of the movable digging member.

3. In a spool-machine, the combination of a fixed upper digging member internally recessed to form a presser-foot guide, a movable lower digging member, each member being recessed to form jaws, mechanism for reciprocating said movable member, a yielding presser-foot movable in said guide and adapted to bear yieldingly on a blank inserted between the two members and press the same against the jaws of the lower digging member, and a reciprocating bearing-bit movable between the two members.

4. In a spool-machine, the combination of a fixed upper digging member, a movable lower digging member, mechanism for reciprocating said movable member, a yielding presser-foot connected with the fixed member and adapted to bear yieldingly on a blank inserted between the two members, a detent offset to said presser-foot, and a reciprocating bearing-bit movable between the two members.

5. In a spool-machine, the combination of a fixed upper digging member, an inclined primary runway having its lower end located above the lower end of the fixed member and separated from the latter by a vertical space adapted to receive a blank, a secondary inclined runway having its higher end located below the said fixed member, a vertically-movable digging member arranged to rise above said higher end and in digging a blank, a reciprocating bit movable between the digging members, a reciprocating gate adapted to alternately open and close the space between the primary runway and the fixed digging member, a blank-feeding device movable with the said gate and adapted to force a dropped blank forward between the digging members when the movable member is depressed, and inclined tracks at the bottom of said space, adapted to hold the dropped blank against said feeding device by gravitation.

6. In a spool-machine, the combination of a fixed upper digging member, an inclined primary runway having its lower end located above the lower end of the fixed member and separated from the latter by a vertical space adapted to receive a blank, a secondary inclined runway having its higher end located below the said fixed member, a vertically-movable digging member arranged to rise above said higher end and in digging a blank, a reciprocating bit movable between the digging members, a reciprocating gate adapted to alternately open and close the space between the primary runway and the fixed digging member, a blank-feeding device movable with the said gate and adapted to force a dropped blank forward between the digging members when the movable member is depressed, means for raising and depressing the movable digging member, a pivoted lever carrying said gate and feeding device, and connections between the said movable digging member and lever, whereby the gate and feeding device are moved forward to close said space and feed a blank during the depression of the movable digging member and are moved backward to open said space during the ascent of the movable digging member.

7. In a spool-machine, the combination of an inclined runway having a fixed blank-arresting stop at its lower end, means for transferring the lowest blank endwise in a point outside the runway, lath-center offset from the runway, and means for transferring the said blank sideways to a point between the lath-center.

8. In a spool-machine, the combination of an inclined runway having a fixed blank-arresting stop at its lower end, a reciprocating slide having a pin and a pushing-shoulder movable across the runway to transfer the lowest blank endwise in a point outside the runway, lath-center offset from the runway, and means for transferring the blank sideways to a point between said lath-center.

9. In a spool-machine, the combination of an inclined runway having a fixed blank-arresting stop at its lower end, means for transferring the lowest blank endwise in a point outside the runway, lath-center offset from the runway, an oscillating carrier having jaws adapted to grasp the blank at the end of its endwise movement, and to transfer the blank to a point between the lath-center.

10. In a spool-machine, the combination of an inclined runway having a fixed blank-arresting stop at its lower end, means for transferring the lowest blank endwise in a point outside the runway, a fixed stop or abutment arranged to limit the endwise movement of the blank, lath-center offset from the runway, and means for transferring the blank sideways to a point between said center.

11. In a spool-machine, the combination of an inclined runway adapted to receive spool-blanks and having a fixed blank-arresting stop at its lower end, and openings in the lower portions of its sides, a reciprocating transferring device movable through said openings across the runway to move the lowest blank endwise out of the runway, said device comprising a pin and a pushing-shoulder behind the pin, and means outside the runway for grasping the blank at the end of its endwise movement.

12. In a spool-machine, the combination of an inclined runway adapted to receive spool-blanks and having a fixed blank-arresting stop at its lower end and openings in the lower portions of its sides, a transferring device movable through said openings to give the lowest blank an endwise movement out of the runway, said device comprising a pin and a pushing-shoulder behind the pin, a fixed stop or abutment outside the runway to limit the endwise movement of the blank, means for reciprocating said transferring device, said means having provision for giving the transferring device a yielding forward movement, lath-center offset from the runway, and means for transferring the blank sideways to a point between the lath-center.

13. In a spool-machine, the combination of an inclined runway adapted to receive spool-blanks and having a fixed blank-arresting stop at its lower end and openings in the lower portions of its sides, a reciprocating transferring device movable through said openings across the runway to give the lowest blank an endwise movement out of the runway, said device comprising a pin and a pushing-shoulder behind the pin, a yielding stop adapted to arrest the blank while the pin is entering its aperture and adapted to yield to the movement imparted to the blank by said shoulder, means for grasping and holding the blank at a point outside the runway, and a detent adapted to engage the blank after it reaches the end of its endwise movement and prevent it from being moved backward by the transferring device.

14. In a spool-machine, the combination of an inclined runway having a fixed blank-arresting stop at its lower end and a blank-outlet in the lower portion of one of its sides, means for transferring the lowest blank endwise through said outlet, lath-center offset from the runway, an oscillating carrier having jaws adapted to grasp a spool-blank projecting from said outlet, the path of said carrier extending between the lath-center, and the guard or guide-plates 89 and 91 located at opposite sides of said path and having shoulders or tracks 92 arranged to bear on the under side of the transferred blank, one of said plates having a blank-receiving opening in alignment with the blank-outlet of the runway, while the other plate presents a solid blank stop or abutment opposite said opening.

15. In a spool-machine, the combination of a fixed or holder equipped with rotatable turning-blades movable in a substantially horizontal path, lath-center adapted to hold a spool in the path of said blades and to rotate said spool, and an oscillating carrier-arm having blank-grasping jaws at its outer end, said jaws being movable by the oscillatory movement of the carrier-arm in a segmental path which is arranged to give the jaws a substantially vertical movement when they are approaching the lath-center, so that a spool which may have adhered to said center after the turning operation is freed downwardly by the jaws away from the turning-blades.

16. The combination with the lath-centers d and e, and the heads i and j, provided respectively with the knives k and k', of a pusher independently movable in the movable head j and adapted to project from the end thereof, and means for alternately locking and releasing said pusher, said means comprising a lever pivoted to said head j and having an arm projecting therefrom, a slide movable in guides carried by the head j and provided with a recessed upper edge on which said arm bears, and fixed stops arranged to limit the movement of said slide.

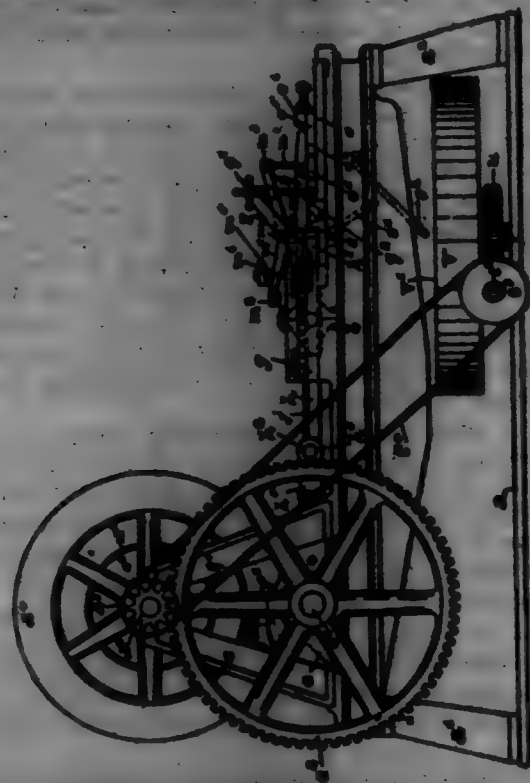
701,082. BENDING-MACHINE. CLARA FLEMING, Sylvania, and WILLIAM E. FISHER, Baltimore, Md., assignors to George F. Fisher, deceased. Filed Apr. 29, 1901. Serial No. 69,066. (No model.)

Claim.—1. In a machine for bending metal bars, the combination of a cross-head; means for reciprocating said cross-head; a die-block carried by said cross-head; two slides, one at either side of said cross-head and adapted to follow the ends of the bar; means for reciprocating said slides; brackets, g, provided with cross-roads, f, and also provided with arms, f', depending from said rods and adapted to form guides for the bar; and means for bending the bar around the die-block.

2. In a machine for bending metal bars, the combination of the reciprocating cross-head; the die-block carried thereby; two bell-crank levers each of which is fulcrumed at one side of said cross-head and said levers provided with inwardly-projecting forward ends adapted to be moved outwardly by the forward movement of said cross-head whereby the other ends of said levers are drawn inwardly to bend the bar around the die-block; and a spring-actuated rod secured to each lever forward of its fulcrum-point to restore said levers to the normal position.

3. In a machine for bending metal bars the combination of a cross-head having a crank; a cross-head; a connecting-rod connecting said crank and cross-head whereby the latter is reciprocated; a lever pivoted on said cross-head and reciprocating therewith; a stationary device for depressing the end of said lever; means for bending the metal bars; and means consisting with the pivoted reciprocating lever for guiding said bent bars.

4. In a machine for bending metal bars the combination of a cross-head; means for reciprocating said cross-head; a die-block reciprocated by said cross-head; bell-crank levers pivoted to the frame of the machine for bending a bar around the die-block; means on the cross-head for operating said bell-crank levers; spring-operated rods pivoted to said levers for restoring them to the normal position when the cross-head has been retracted; and means operated by the movement of the cross-head for ejecting the bent bar from the die-block.



5. In a machine for bending metal bars the combination of a cross-head; a lever pivoted to said cross-head and having an inclined forward end; a forked ejector carried by the forward end of said inclined lever; a die-block; means for bending the metal bar around the die-block; and a stationary device adapted to contact with the inclined forward end of said lever when the cross-head is retracted whereby the bent bar will be ejected from the die-block.

6. In a machine for bending metal bars the combination of a cross-head having a crank; a cross-head reciprocated by the crank; a die-block reciprocated by the cross-head; means for bending the bar around the die-block; means for ejecting said bent bar; a wheel revolvable in a horizontal plane and means connecting between the ejector and said wheel for discharging the bent bars onto said revolvable wheel.

7. In a machine for bending metal bars the combination of a cross-head; an ejector; a die-block; means for reciprocating said cross-head and die-block; a wheel revolvable in a horizontal plane beneath said machine and an inclined guide interposed between said wheel and the point of ejecting the bent bars whereby the bent bars after being ejected are guided onto said wheel.

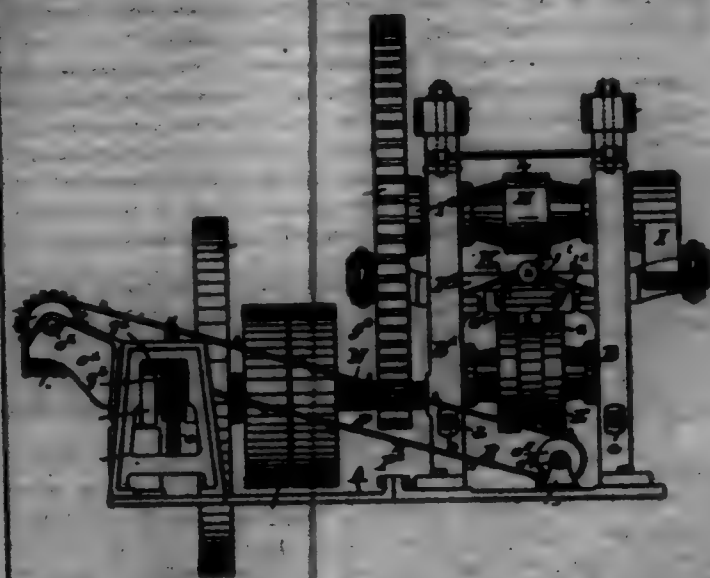
8. In a machine for bending metal bars, the combination with the bent bars provided with a discharge-opening, of means for bending the bar on said base; means whereby the bent bar will drop through said discharge-opening; a wheel mounted to revolve under said base with its rim in registry with said discharge-opening; and an inclined guide interposed between said rim and said discharge-opening and on which guide the bent bars slide from said opening onto said wheel-rim.

701,088. BENDING-MACHINE. OLGA FROST, Olynville, and WILLIAM E. BROWN, Baltimore, Md., administrators of George F. Frost, deceased. Filed Apr. 22, 1901. Serial No. 98,098. (No model.)

Claim.—1. In a press for the purpose described, the combination of two rolls mounted to revolve one above the other and the lower roll being vertically adjustable; a cross-head; means for reciprocating said cross-head; a die-holder pivotally connected at one end to said cross-head, with its other end supported on said lower roll; and a die-block carried by said die-holder, as set forth.

2. In a press for the purpose described, the combination of the standards, each provided with an upper and a lower journal-box, the lower boxes being provided with inclined bottom walls; a wedge beneath the inclined bottom wall of each lower box and said wedges provided with means whereby they may be moved to raise and lower the lower journal-boxes; two rolls mounted one above the other in said journal-boxes; a die mounted in the upper roll; a cross-head; a die-holder pivotally con-

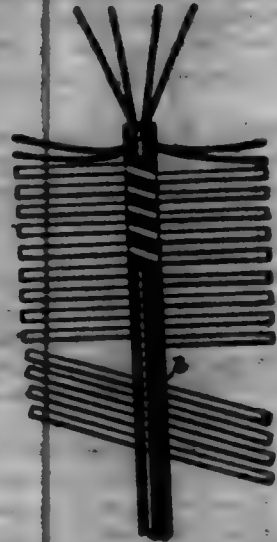
nected at one end to said cross-head, with its other end supported on said lower roll; and a die-block carried to the free end of said die-holder, as set forth.



3. The combination of the standards; an upper die-roll revolvable on a shaft between said standards; a driving-gear mounted on said shaft; a second roll beneath said die-roll; a main shaft extending crosswise of the machine and carrying a pinion which meshes with the gear on the upper die-roll shaft; a die-block adapted to be reciprocated between said rolls; an endless-belt conveyor traveling in front of said rolls and means connecting between the main shaft and conveyor for driving the latter.

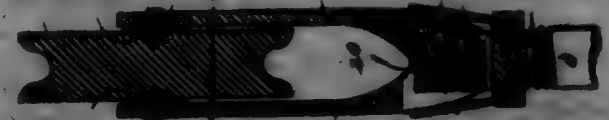
4. The combination of the standards; an upper die-roll mounted on a shaft between said standards; a gear-wheel mounted on said shaft; a second roll mounted beneath said die-roll and between said standards; a die-block adapted to be reciprocated between said rolls; a main driving-shaft extending crosswise of the machine and carrying a pinion which meshes with the gear-wheel on the die-roll shaft; an endless conveyor arranged to travel in front of said rolls; a counter-shaft mounted on the machine and connected with said main shaft as to be turned with the latter, said counter-shaft being provided with a worm; and a worm-gear on one of the conveyor-shafts meshing with said worm, as set forth.

701,084. MECHANISM FOR CLEANING BOTTLES. ANDREW A. FROST, Copenhagen, Denmark. Filed Sept. 28, 1901. Serial No. 77,109. (No model.)



Claim.—Improvement in brushes for cleaning bottles formed of strips of caoutchouc or other suitable material inserted in a spindle, characterized thereby, that the strips are inserted loosely in holes, which are bored obliquely through the spindle and arranged in such a manner that the upper point of each hole is in level with the lowest point of the next hole above, and so on.

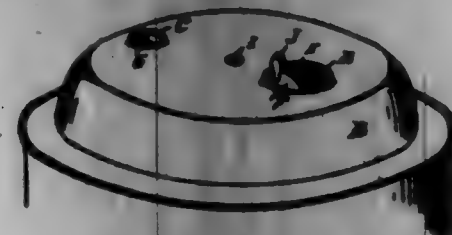
701,085. TROLLEY-WHEEL. JAMES FROST, JR., M. Filed Jan. 29, 1902. Serial No. 21,728. (No model.)



Claim.—The combination with a trolley-wheel, of a hub having hinged arms, a stem rigid with one of said arms, a sliding tapered sleeve

on the stem engaging the arm to clamp the wheel therebetween, and a jaw-set on the stem binding the sleeve.

701,086. CLOSURE. CHARLES FROST, Detroit, Mich., assignor, by mesne assignments, to Briggs Manufacturing Company, Detroit, Mich., a Corporation. Filed Sept. 6, 1901. Serial No. 74,691. (No model.)



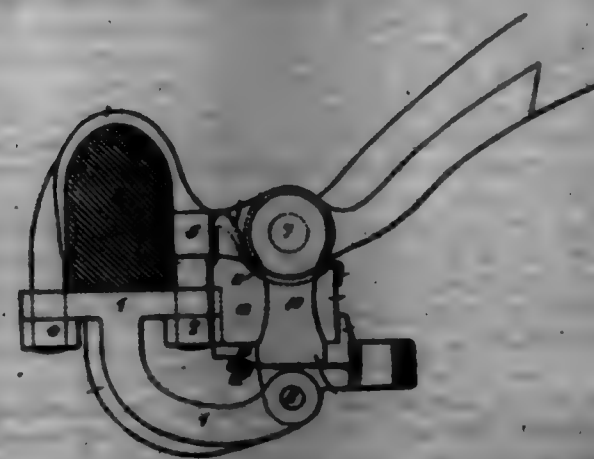
Claim.—1. The combination of a receptacle cover or top having a fill and a discharge opening therein, closures for said openings, a fixed support rigidly attached to and depending from the cover, a spring-carrier for both closures mounted upon the support in proximity to said cover for horizontal rotation, and means for actuating the carrier.

2. The combination of a receptacle cover or top having a fill and a discharge opening therein, closures for said openings, a support rigidly attached to and depending centrally from the cover, a spring-carrier for both closures overlaid upon the support for horizontal movement, and an actuating device for the carrier rigidly secured to the closure controlling the fill-opening.

3. The combination of a can cover or top having a discharge and a fill opening therein, the portions of the cover about the openings being struck up to form outwardly-extending annular flanges, a carrier-plate formed of spring metal pivoted centrally to the can-cover for horizontal rotation, raised caps at the ends of said integral with the carrier-plate, and a stud fixed upon the cap controlling the fill-opening and projecting through said opening, substantially as described.

4. The combination of a receptacle cover or top having a fill and a discharge opening formed therein, a single carrier-plate formed of spring metal pivoted centrally to and upon the under side of said cover or top for horizontal rotation, raised caps upon the plate ends adapted to be projected upwardly by the plate when rotated within said openings, and bearing normally against the under face of the cover or top when out of registration with the openings, and a stud upon one of the caps for rotating the carrier.

701,087. THILL-COUPPLER. RALPH E. SAFF, Worcester, Pa. Filed Feb. 8, 1902. Serial No. 22,598. (No model.)



Claim.—1. In a thill-coupling, the combination of the shaft, the coupling-bar for securing said shaft to the axle, means for connecting the same, clips carried by the shaft, a thill-eye held therein, means for connecting these parts, a yoke-piece having arms for holding the connecting means of the thill-eye in place, means for combining the thill-eye arranged between the latter and the yoke-piece, and an arm carried by the coupling-bar in which said yoke-piece is pivoted, said arm extending from the center of said coupling-bar and curved as to engage the yoke-piece in proper position, such construction permitting the use of an ordinary shaft with its usual hole and centering means.

2. The combination in a thill-coupling of the character described, of the shaft having clips carrying the thill-eye, a coupling-bar having a projecting arm, a yoke-piece pivoted to the projecting arm of the coupling-bar and having side arms to retain the coupling-plate in place, said yoke-piece having a depression between its side arms, a rubber pad for the thill-eye, and a bar for carrying said pad, said bar having a depression in the

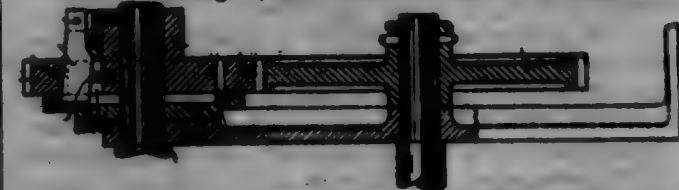
rear fitting the coupling-bar, and a projection in the bottom which fits the depression in the yoke-piece, all of said parts coacting and serving to position the bar carrying the pad with relation to the thill-eye.

3. The combination in a thill-coupling, of the shaft, a thill-eye secured therein, a rubber pad carried by the shaft, said shaft having a projecting portion, an inclining and supporting cup for said pad, said cup being recessed at the rear for the reception of the projecting portion of the shaft whereby the latter serves to position said cup, and a loose spring-plate interposed between said pad and the thill-eye, said plate having projections at the front and rear which extend over and engage the cup carrying the rubber pad, the cup being recessed at the rear to receive the rear projection of the plate.

4. In a thill-coupling, the combination of a rubber pad to combine the thill-eye, a cup or box in which said pad is mounted, an arched spring-plate carried in said cup beneath the pad, and means for adjusting said spring-plate from one side of the cup.

5. The combination in a thill-coupling, of the shaft, the thill-eye secured therein, a coupling-bar, a yoke-piece carried by said bar, a rubber pad interposed between said yoke-piece and the thill-eye, a bar carrying said pad, an arched spring-plate in said bar supporting the pad, and an adjusting-screw tapped into said bar and set so as to act upon one side of the spring-plate to cause the latter to raise the pad at the rear.

701,088. MECHANICAL MOVEMENT. ALBERT H. RAY, Ashland, Mass. Filed Aug. 11, 1900. Serial No. 24,398. (No model.)



Claim.—1. A mechanical movement comprising two concentric and directionally-movable elements one within the other, one driving and the other driven, and automatic radially-movable clutch mechanism interposed between said elements, whereby the one element is positively intermittently rotated at a speed equal to that of the other, and permitted to rest, alternately.

2. A mechanical movement comprising two unidirectionally-movable concentric elements one within the other, one driving and the other driven, and automatic radially-movable mechanism interposed between said elements, whereby during a continued rotation of the driving element, the driven element is for alternate periods of time, successively positively rotated and permitted to rest.

3. A mechanical movement comprising two unidirectionally-movable concentric elements one within the other, one driving and the other driven, a positive radially-movable clutch member, and a cam for automatically causing the rotation of said clutch member whereby during continued rotation of the driving element, the driven element is for alternate predetermined periods of time, rotated and permitted to rest.

4. A mechanical movement comprising two unidirectionally-movable concentric elements one within the other, one driving and the other driven, a radially-movable spring-pressed positive clutch member rotatable with the driving element and adapted to successively engage engaging portions of the driven element, and a stationary cam for causing the rotation of said clutch member; whereby during continued rotation of the driving element, the driven element is for alternate predetermined periods of time rotated and permitted to rest.

5. A mechanical movement comprising a driving-shaft, a driven wheel thereon having internal notches, a stationary cam, and a carrier within said wheel and having a radially-movable clutch member controlled by said cam, and adapted to be engaged with and released from the notches in the wheel.

6. A mechanical movement comprising two rotatable members mounted for peripheral cooperation, a driven shaft on which one of said members is mounted, a unidirectionally-rotating driving-shaft for the other member adapted to rotate while the driven shaft is at rest, and intervening power-transmitting mechanism, including coacting gears, whereby the driven shaft is automatically partially rotated by the driving-shaft for predetermined periods of time at a predetermined speed, with predetermined alternating periods of rest.

7. A mechanical movement comprising two rotatable members mounted for peripheral cooperation, a driven shaft on which one of said members is mounted, a driving-shaft rotatable while the driven shaft is at rest, gearing interposed between said shafts, and automatic clutch mechanism, whereby the driven shaft is partially rotated for predetermined periods of time with alternating periods of rest.

8. A mechanical movement comprising two rotatable members mounted for peripheral cooperation, a driven shaft on which one of said members is mounted, a driving-shaft for the other member rotatable while the

driven shaft is at rest, gearing connecting said shaft, a cam, and cam-controlled clutch mechanism between the gearing and one of said shafts, whereby the driven shaft is alternately partially rotated and held at rest.

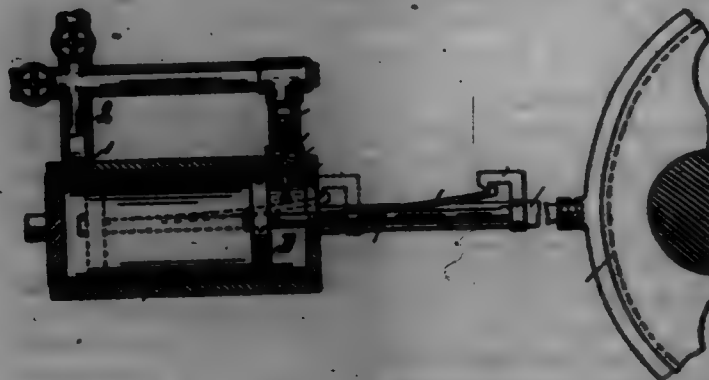
9. A mechanical movement comprising two rotatable members mounted for peripheral cooperation, a driven shaft on which one of said members is mounted, a driving-shaft for the other member rotatable while the driven shaft is at rest, gearing between said shafts and rigidly connected to one of said shafts, a carrier, an automatic clutch member adapted to intermittently connect the gearing with the other of said shafts, and means for positively disconnecting the clutch upon a partial rotation of the driven shaft.

10. The combination, with a couple of cooperating members mounted for peripheral cooperation, one of which is adapted to remain at rest at intervals during the rotation of the other member; of mechanism for causing the first-mentioned member to partially rotate intermittently in exact peripheral union with the other member, said mechanism including continuously-meshing gears interposed between said members, and an automatic clutch for intermittently connecting the gears with one of said members.

11. The combination, with a couple of cooperating members mounted for peripheral cooperation, one of which is adapted to remain at rest at intervals during the rotation of the other member; of mechanism for causing the first-mentioned member to partially rotate intermittently in exact peripheral union with the other member, continuously-meshing gears interposed between said members, a clutch member interposed between the gears and one of said members, and a cam for automatically controlling said clutch member at regular intervals.

12. The combination, with a couple of cooperating members, one of which is adapted to remain at rest at intervals during the rotation of the other member; of mechanism for causing the first-mentioned member to rotate intermittently in exact peripheral union with the other member, said mechanism including shafts supporting and rotating said members, continuously-meshing gears between said shafts, a clutch member carried by one of said shafts and adapted to intermittently and positively engage the gear thereon, and a stationary cam for automatically controlling said clutch member.

701,089. FLUID-PRESSURE REGULATOR. WALTER H. REAGAN, Peoria, Ill. Filed Mar. 20, 1901. Serial No. 63,392. (No model.)



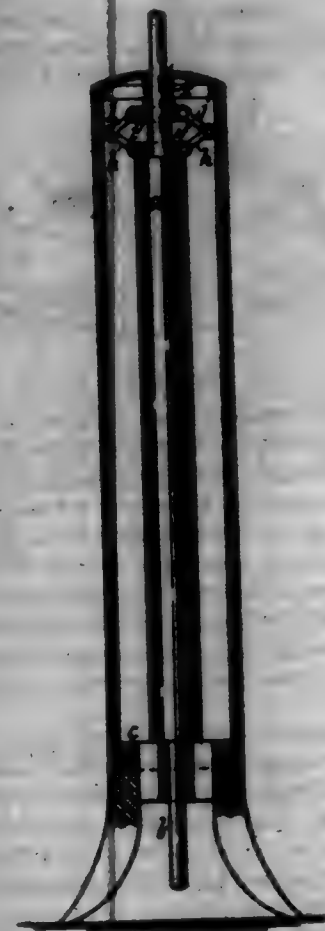
Claim.—1. The combination of an air-pump, a reciprocating arm adapted to engage the air-pump piston-rod to produce an intake, a catch, a part of which is on said arm and the other part upon said piston-rod, one part of said catch being movable relative to the part upon which it is located, said parts of said catch being adapted to engage each other to secure said reciprocating arm to said piston, and means controlled by the air-pressure adapted to act directly on the said relatively movable part of said catch to disengage it from the other.

2. In combination with an air-pump and its piston, a grooved piston-rod, a hooked spring extending lengthwise in said groove, a reciprocating slide provided with a hook adapted to engage the hooked spring, means for producing reciprocation of the slide, a disengaging device arranged to be actuated by the pressure of air produced by the pump and adapted to disengage the two hooks, substantially as described.

3. In combination with an air-pump and its piston, a spring lying lengthwise the piston-rod, means for reciprocating said piston-rod, a sliding block arranged to engage under the spring and between it and the piston-rod, and to regulate the tension of said spring, substantially as described.

4. In combination with an air-pump and its piston, a spring lying lengthwise the piston-rod, means for reciprocating said piston-rod, a sliding block arranged to engage under the spring and between it and the piston-rod, and to regulate the tension of said spring, and means for holding said block in place, substantially as described.

701,090. DEVICE FOR CENTERING PRINTERS' ROLLERS. HENRY A. REED, Brooklyn, N. Y. Filed Sept. 20, 1901. Serial No. 75,982. (No model.)



Claim.—1. A centering device for printers' rollers having a plurality of members adapted to engage the inner surface of a roll at separate places and yieldable means for exerting a constant pressure against said members to force their working ends against said surface.

2. A centering device for printers' rollers including a centering member and a backing carrying the centering member, means for detachably connecting said parts, and means acting against said centering member to normally increase the effective size thereof.

3. A centering device for printers' rollers including a backing and a ring on the same, said parts being detachably connected, and an adjustable centering member in connection with the backing and ring.

4. A centering device for printers' rollers comprising a backing, spreading-links for centering in a roll and means upon the backing to which said links are connected substantially as described.

5. A centering device comprising a backing, a series of links, and means upon the backing to which said links are connected and a spring made to spread all the links to secure uniform action or wear substantially as described.

6. A backing having a fixed and a slidable ring, a spring coiled about and braced against the backing and made to act on the movable ring, and links joined to one another and to the rings so as to be spread or expanded as the spring presses the rings toward one another substantially as described.

701,091. BELT-CLAMP FOR BUCKLES. LOUIS SAMARA, Brooklyn, N. Y. Filed Apr. 16, 1901. Serial No. 66,905. (No model.)



Claim.—As a new article of manufacture, a belt-clamp for buckles, consisting of an approximately rectangular plate provided at one end with forwardly-projecting spaced hooks for engaging the tongue-bar of the belt-buckle, at the other end with a loop projecting from its front face, through which loop the free end of the belt which is engaged by the buckle is adapted to be passed so as to overlap the clamp, and intermediate of its ends with two spaced slots forming a cross-bar having open front up therefrom and projecting from its front face, the said slots and cross-bar curving as a means for covering one end of the belt to the clamp with its free end lying in rear of the buckle when the clamp is in engagement with the buckle, as set forth.

701,092. LOUGH-LEAF LIDDER. FRANCIS S. SWEENEY, Chicago, Ill., assignor to Erik L. King, Chicago, Ill. Filed Feb. 27, 1902. Serial No. 65,945. (No model.)



Claim.—1. A device of the class described, in which is combined parallel sliding-plates, expansion-plates arranged at right angles thereto, a connecting-plate having obliquely-disposed slots therein extending from near opposite edges toward the middle, said slots upon said opposite expansion-plates, one set connecting with one and the other with the other of said obliquely-disposed slots, and means for moving said connecting-plate longitudinally in opposite direction.

2. The combination in a device of the class described, of parallel sliding-plates, sliding-slots arranged at right angles thereto, expansion-plates attached to said sliding-plates in planes parallel to the plane of said sliding-slots, a connecting-plate having obliquely-disposed slots therein extending from near opposite edges toward the middle, said slots upon said opposite expansion-plates, one set connecting with one and the other with the other of said obliquely-disposed slots, and an adjusting screw connected with said connecting-plate and revolvable in a stationary bearing.

3. The combination in a device of the class described, of parallel sliding-plates, sliding-slots arranged at right angles thereto, expansion-plates attached to said sliding-plates, a connecting-plate having obliquely-disposed slots therein extending from near opposite edges toward the middle, said slots upon said opposite expansion-plates, one set connecting with one and the other with the other of said obliquely-disposed slots, a sliding cross-bar connecting said expansion-plates, means for preventing the same from moving longitudinally thereof, and a screw revolvable in said cross-bar and in operative connection with said connecting-plate.

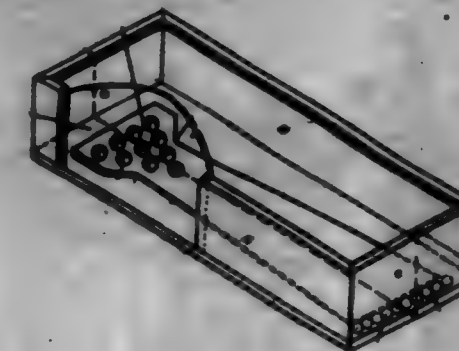
4. The combination in a device of the class described, of parallel sliding-plates, expansion-plates attached at right angles thereto and arranged in a common plane, a connecting-plate having slots therein arranged obliquely to each other, means for connecting said slots with said expansion-plates, slotted cross-bars loosely connected with said expansion-plates by means of suitable studs, and a screw arranged longitudinally of said expansion-plates, said screw being revolvable in one of said cross-bars and in operative connection with said slotted connecting-plate, and expansion back plates or shields.

5. The combination in a device of the class described, of parallel sliding-plates, expansion-plates attached at right angles thereto and arranged in a common plane, a connecting-plate having slots therein arranged obliquely to each other, means for connecting said slots with said expansion-plates, slotted cross-bars loosely connected with said expansion-plates by means of suitable studs, a screw arranged longitudinally of said expansion-plates, said screw being revolvable in one of said cross-bars and in operative connection with said slotted connecting-plate, and expansion back plates or shields.

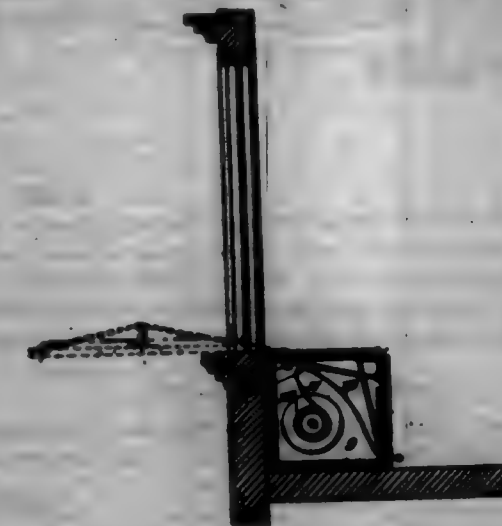
701,093. GAME OR PUZZLE. ANDREW J. TUCK, New Rochelle, N. Y. Filed Aug. 6, 1901. Serial No. 71,054. (No model.)

Claim.—A game or other transparent covered box the bottom of which is constructed on a horizontal surface with gutters descending from either side of the box of the plane around the outer end of the box, similar to the plane of a bowling-alley, with the exception that the gutters are so constructed that the lower edge of either of them as it approaches the outer end, comes so near the cone-shaped hollows that the distance

between the edge of the gutter and the edge of the hollows is less than one-half the diameter of the balls, and less than one-half the diameter of the hollows, and in which the inverted-cone-shaped hollows are so arranged that the distance between the edges of any two of them is less than the diameter of the balls, and less than their own diameter; in connection with ten balls intended to be used in the game of bowling as set forth.



701,094. FIRE-ESCAPE. JAMES STRANAHAN and FRED J. STRANAHAN, Cynthiana, Ind. Filed May 2, 1901. Serial No. 62,417. (No model.)



Claim.—1. In a fire-escape, the combination with a reel and means for regulating the movement thereof, of an extender comprising two hinge-connected sections, and two members fastened respectively to the sections and having interlocking parts, for the purpose specified.

2. The combination of two hinge-connected sections, and two sections fastened respectively to said hinge-connected sections, the two sections having interlocking parts to hold the hinge-connected sections rigid when extended.

3. In a fire-escape, the combination of a box having two of its side walls connected together by a hinge and one of said walls being connected by a hinge to the body of the box, a drum and regulating device mounted in the box, a rope carried on the drum and guided over the hinge-connected walls thence when said walls are thrown outward, and trans-sections respectively carried on the hinge-connected sections of the box, said trans-sections having interlocking parts connected together when the hinge-connected walls of the box are thrown into the extended position.

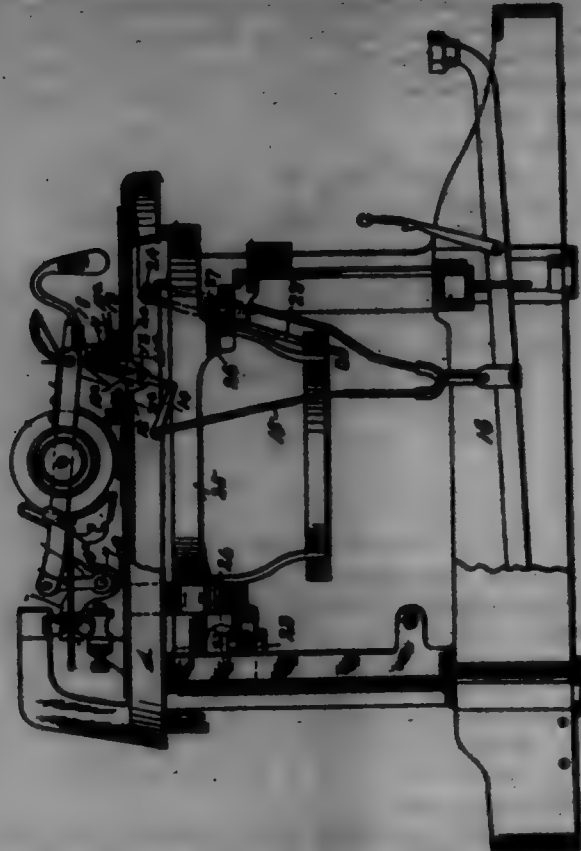
4. The combination of a drum, a rotary shaft carrying it, a dog-carrier fastened to the shaft, a dog mounted on the carrier, a shaft mounted stationary in alignment with the rotary shaft, a clutch member loose on the stationary shaft and isolating the dog-carrier and dog, said dog working with the interior of the clutch member, weighted arm pivoted on the clutch member, and having brake-fingers, a stationary member forming a braking-surface with which the brake-fingers coast, and springs actuating the weighted arm to hold them yieldingly against centrifugal motion.

701,095. PLATE-CHIFT. ELMER S. SUMNER, Milton, Pa. Filed Feb. 22, 1902. Serial No. 63,965. (No model.)

Claim.—1. In a plate-chift, the combination with a carriage bearing a plate, of a rack shaft having arms pivotedly connected to said carriage, levers bearing hooks engaging said rack-shaft, catches for moving said rack-shaft in place, a shift-key and means for connecting said key to said carriage to shift said plate, substantially as described.

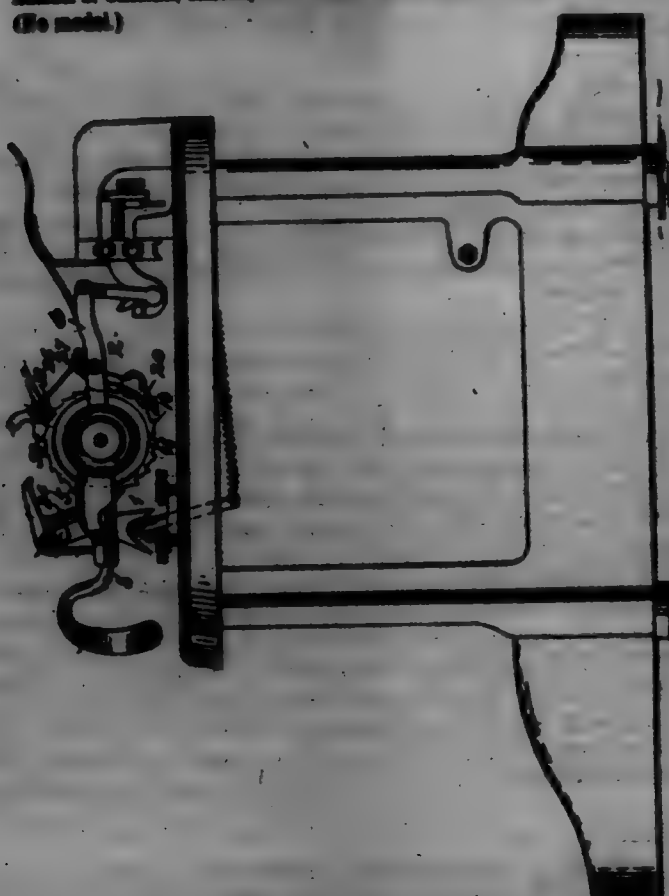
2. In a plate-chift, the combination with a carriage, of guide-bar, a cable mounted on said guide-bar, and a V-shaped guide mounted on said

carriage and embracing said guide-bar, one of the arms of said guide being pointed to form an index for said scale, substantially as described.



3. In a platen-shift, the combination with a carriage-frame bearing a platen, four pivoted arms of equal length supporting said carriage-frame, said arms being so inclined that the fall of one side of the carriage is compensated by the rise of the other side so that the axis of the platen is in the same horizontal plane after the shift as it was initially, substantially as described.

701,096. LINE-SPACING MECHANISM FOR TYPE-WRITERS. RALPH S. GUNTER, Milton, Pa. Filed Feb. 3, 1902. Serial No. 68,176. (No model.)



Claim.—1. In a spacing device, the combination with a platen, of a ratchet bearing teeth having concave inclines, a rack-arm, an above-pawl carried by said rack-arm and comprising a tail and a hooked bill, said tail being located to come in contact with said rack-arm to limit the movement of said pawl, and means for actuating said rack-arm, substantially as described.

2. In a spacing device, the combination with a platen bearing a

ratchet having concave teeth, of a bar bearing a rack-arm, an above-pawl having a tail located to come in contact with said arm to limit the movement of said pawl, said pawl having a hooked bill designed to engage said concave teeth to hold said platen against rotation when said tail is in contact with said arm, and means for actuating said rack-arm, substantially as described.

701,097. WINDOW FRAME AND CASE. HENRY G. SMITH, Cambridge, Mass., assignor to Smith-Warren Company, Boston, Mass., a Corporation of Massachusetts. Filed Jan. 2, 1902. Serial No. 68,188. (No model.)



Claim.—1. In a sheet-metal window-cash the alternate rolls and stiles of which form a spiral connection with each other, clips extending from the sides of one and slotted openings in the sides of the other adapted to receive said clips that a spiral connection may be formed between roll and stile substantially as described.

2. A metallic window-cash, each roll of which has extending from its side flange the clips δ^2 , stiles having the slot δ^1 cut therein to receive said clips δ^2 , and a series of clips extending from stile and roll above and adapted to engage the corresponding rolls and stiles so that an interlocking spiral connection may be formed between the same, substantially as described.

3. In a metallic window, a casing having a reinforcing division-plate, a detachable flange-plate adapted to receive the inner edge of said division-plate, means connecting with said casing and providing a runway for the same substantially as described.

4. In a metallic window, a casing having a back plate, two flange-forming side plates, a reinforcing division-plate, and a detachable flange-plate receiving in a head-forming means the inner edge of said division-plate and by its edges turning to make attachment with the side plate above said, providing a gateway for the same substantially as described.

5. A window-cash having a shoe to press against the window-frame, a spring communicating with said shoe that the same may bear with a yielding pressure against said window-frame, a rear stop for the rotation of said spring, held to the window-frame by flexible solder, and means for increasing or diminishing the projection of said shoe from said spring that the tension of the spring upon the shoe may be correspondingly increased or diminished, substantially as described.

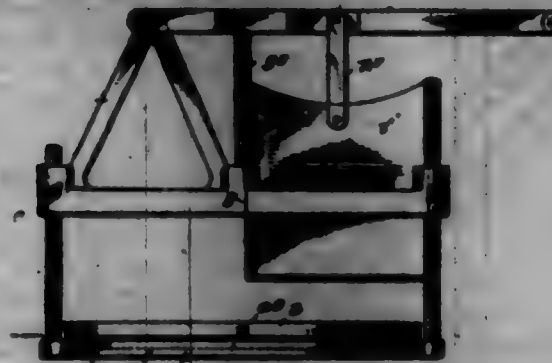
6. A window-cash having a shoe to press against the window-frame, a spring communicating with the said shoe that the same may bear with a yielding pressure against the window-frame, a rear stop for the rotation of said spring, held to the cash by flexible solder over an opening therein, and means for varying the tension of said spring upon said shoe consisting of a bolt and nut, the same so acting as a means of communication between the spring and the shoe above said, that as the bolt is turned out or in the distance between the shoe and the spring is increased or diminished which results as the shoe presses against the window-frame in a corresponding increase or diminishing of the tension of the spring upon the shoe, substantially as described.

7. In a window having an overbalanced cash, a means for connecting the cash with the cord or chain supporting the overbalancing-weight, which means consists of a hook within the side cash-roll making a pivotal connection with its inner side then proceeding upward and outward to make a detachable connection with the weight-bearing cord or chain through an opening in the outer side of the cash-roll, substantially as described.

701,098. CHERRY-CUTTER. WILLIAM J. SPILLER, Pullman, Wash., assignor of one-half to John W. Spiller, Pullman, Wash. Filed May 10, 1901. Serial No. 68,189. (No model.)

Claim.—1. In a cherry-cutter, a support, a revolvable table mounted on the support, a segmental scale carried by the support, an arm mounted on the pivot of the table and extending over the scale, a stop adjustably secured on the scale and between which and the end of the scale the arm is adapted to be moved to permit the table to be turned a predetermined distance at each movement of said arm, and a dog pivoted to the center

end of the arm and having a curved face adapted to engage the table to lock the arm thereon, as set forth.



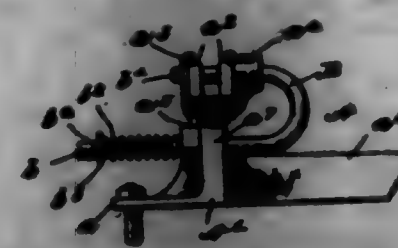
2. In a cherry-cutter, a base provided with stanchions on its upper face, a cross-head mounted on the stanchions above the base and provided at its center with a stanchion projecting from its upper face, and a reciprocating knife having guided movement on the stanchion of the cross-head and one of the stanchions of the base, as set forth.

3. In a cherry-cutter, a base provided with stanchions projecting from its upper face, one of the stanchions being longitudinally grooved, a slotted cross-head adjustably secured on the stanchions and provided at its center with a longitudinally-grooved stanchion on its upper face, a knife mounted in the groove of the said stanchions and the slot of the cross-head, a pivoted lever on the cross-head, and a link connecting the lever with the knife, as set forth.

4. A cherry-cutter, comprising a base, provided with stanchions, a cross-head adjustably supported on the stanchions above the base, and provided with a stanchion at its center, a reciprocating knife having guided movement in one of the stanchions of the base and the stanchion of the cross-head, a revolvable table mounted on the base, a scale carried by the base, an adjustable stop on the scale, and an arm connected with the base and extending over the scale, as set forth.

5. A cherry-cutter, comprising a base provided with stanchions on its upper face, a slotted cross-head adjustably mounted on the stanchions and provided at its center with a stanchion, a reciprocating knife working in the slot of the cross-head and having guided movement in the stanchion of the said cross-head and one of the stanchions of the base, a revolvable table mounted on the base, a scale carried by the base and provided with an adjustable stop, an arm mounted on the pivot of the table and extending over the scale, and means for locking the arm to the table, as set forth.

701,099. SPRING-CLAMP THROUGH-GRABBLE FOR HARVESTERS. JOHN F. STEWART, Chicago, Ill. Filed Nov. 14, 1901. Serial No. 68,178. (No model.)



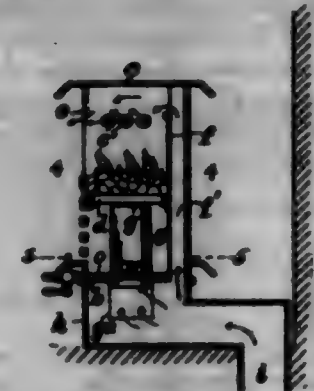
Claim.—1. In a harvester, the guide-revolving platform, the one platform having the flanged bar δ , means whereby it may be grasped by a latching device, a bar, as δ , also secured to the said platform and having means by which the end of the tongue may be securely connected to δ , the tongue having the attachment at its rear end adapted to engage the said bar δ , and also having upon its middle provided with a spring-latch adapted to support and engage the said bar δ , substantially as described.

2. In a harvesting-machine, a latch adapted to connect one part of said machine to another part of said machine, consisting of the body A , secured to one portion of the machine, and having a nut to receive another portion of said machine to be held thereby and having a latch consisting of the U-shaped bolt B , upon one of the legs of said U-shaped bolt the spring C , and the other leg D of the said U-shaped bolt guided in the said body, thus forming the latch, substantially as described.

701,100. GAS-BURNING-GRUVE. SAMUEL STEWART, Newark, N. J. Filed May 14, 1901. Serial No. 68,180. (No model.)

Claim.—1. In a gas-burner having a series of upright tubular burners, the combination, with the casing having sides, back, top and bottom, and front provided with opening e as set forth, and air-chamber A extended under the bottom, of the horizontal grate d supporting a bed of terracotta fragments as set forth, the series of upright tubular burners having each the cylindrical body g extended through the bottom of the casing, and projected upwardly nearly to the grate, a gas-pipe c extended through each cylindrical body to support the burner and provided with gas-jet as set forth, and each burner having the flame-screen f upon the top and the perforated shell g' upon the bottom extending downwardly into the air-chamber, whereby the gas and air are mixed in the several burners, and a series of flames are applied to the under side of the grate to render its contents incandescent, substantially as herein set forth.

each the cylindrical body g extended through the bottom of the casing and projected upwardly nearly to the grate, and a gas-pipe c extended through each cylindrical body to support the burner, and provided with gas-jet as set forth, and each burner having the flame-screen f upon the top and the perforated shell g' upon the bottom extending downwardly into the air-chamber, whereby the gas and air are mixed in the several burners, and a series of flames are applied to the under side of the grate to render its contents incandescent, substantially as herein set forth.



2. In a gas-burner having a series of upright tubular burners, the combination, with the casing having sides, back, top and bottom, and front provided with opening e as set forth, and air-chamber A extended under the bottom, of the horizontal grate d supporting a bed of terracotta fragments as set forth, the series of upright tubular burners having each the cylindrical body g extended through the bottom of the casing, and projected upwardly nearly to the grate, a gas-pipe c extended through each cylindrical body to support the burner and provided with gas-jet as set forth, and each burner having the flame-screen f upon the top and the perforated shell g' upon the bottom extending downwardly into the air-chamber, and a partition extended upwardly in contact with the grate inside the casing, forming the air-flue f' having connection with the air-box A , and having flange-openings c' into the space above the grate, to supply the apartment with heated air independently with the products of combustion.

3. In a gas-burner having a series of upright tubular burners, the combination, with the casing having sides a , back a' , bottom b , top c , and air-chamber A extended under the bottom, with partition f extended upward from the bottom, forming an air-flue f' to connect the chamber A with the interior of the casing below the top c , a horizontal grate within the casing supported upon the partition and upon the front of the casing, the latter having the opening e as set forth, and the series of tubular burners g having their lower ends projected through the bottom b and provided each with perforated shell g' and their upper ends provided with flame-screens f in proximity to the grate, and each burner having the gas-pipe c extended within the casing and supplied with gas-jet, the whole arranged and operated substantially as herein set forth.

4. A gas-burner comprising the casing closed upon the top and three sides and containing the grate with a bed of terracotta fragments thereon and an opening below the grate for the radiation of heat, partitions within the rear and sides of the casing forming flange-openings into the top of the casing, burners beneath the grate, an air-box and pipe connecting each burner and flue with the external atmosphere, the bed of terracotta being in contact at its edges with the partitions to heat the same and the air within the flue.

5. In a gas-burner, the combination, with a casing containing a grate and a bed of terracotta fragments thereon, and having an opening below the grate for the radiation of heat, of a tubular burner or burners extended from the bottom of the casing upward nearly to the grate with gas-supply in the bottom of each burner, a flame-screen at the top of the burner next the grate, an air-box below the casing with air-supply thereto, and a perforated shell extended from the burner into the air-box to receive the air therefrom.

701,101. BOTTLE-DROPPER. FREDERICK STEIN, Philadelphia, Pa., assignor of one-half to Frederick E. Glander, Philadelphia, Pa. Filed Nov. 15, 1901. Serial No. 68,205. (No model.)

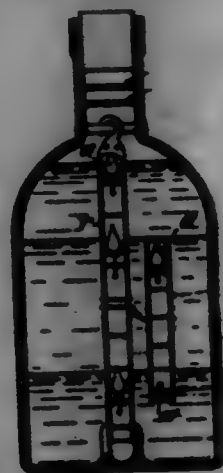


Claim.—1. The combination with the neck of a bottle having a groove therein, of a latching device to said bottle, said latching device having an annular head at its lower extremity adapted to coast with said groove whereby the latching is secured to said bottle, and a laterally-extending flange adapted to project over the mouth of the bottle.

2. The combination with the neck of a bottle, of an annular groove therein, a bushing within said neck, having a head at its lower portion adapted to be seated in said groove, a flange on the upper portion of said bushing adapted to project over the extremity of the bottle, and a stopper adapted to enter said bushing.

3. The combination with the neck of a bottle having a groove therein, of a bushing having a head adapted to coast with said groove, a flange on said bushing extending over the mouth of the bottle, and an independent stopper having an extension entering said bushing and existing in forming a tight joint between said neck and bushing.

701,102. VESSEL FOR CONTAINING LIQUIDS. LOUIS J. TARDY, Vermeil, France, assignor of one-half to Jean Pierre Arsène Elie Henri Cheumont, Vermeil, France. Filed Sept. 28, 1891. Serial No. 75,745. (No model.)



Claim.—1. A controlling device indicating additions to or subtraction of liquid in the containing vessel, said device being essentially constituted by floats provided with arms displaced within internally-grooved transparent tubes.

2. In a controlling device, the combination of two floats provided with arms one of these floats partially entering within the other in such a manner that its arms are caused to approach the center of the tube, one of the floats serving for direct control and the other for indirect or inverse control, the level of the liquid being thus checked whether it moves from below upward or from above downward.

3. In a controlling device arranged within a bottle, the combination of two internally-grooved tubes, one of which is rigidly fixed, extends throughout the entire length of the bottle and is provided with a ring adapted to rotate around it, while the second is expanded from the ring of the first by a universal joint, the height of this second tube, which is provided with a counterweight, being equal to the diameter of the bottle; floats for direct and for indirect or inverse control being provided in each of these tubes respectively.

4. In a control appliance, the combination with a bottle, and the two tubes and floats of means with apertures arranged as baffles for the purpose of preventing fraud.

5. In a controlling appliance, the combination of an internally-grooved tube housing a float for direct control and provided with means for reverse control.

6. In a controlling appliance, the combination with the float for direct control of a means arranged within the glass tube and serving to wedge or lock the float when the bottle is inverted for preventing this float from rising under the influence of the thrust exercised upon it by the liquid.

701,103. SLIDE-RULE. HOWES TRACHER, New York, N. Y., assignor of one-half to Edwin H. Goodfield, Pittsburgh, Pa. Filed Jan. 27, 1892. Serial No. 91,472. (No model.)

Claim.—1. A slide-rule, bearing two sets of duplicate logarithmic scales, one set upon each side of its longitudinal center, one scale of each set being upon the slide and one upon the base, each scale having a length equal to the graduated length of the rule, both scales of one set reading continuously from left to right, and both scales of the other set reading from center to right and thence from left to center, substantially as described.

2. A slide-rule, composed of two fixed and two movable logarithmic scales, each composed of two equal parts arranged one above the other, having a combined length equal to the graduated length of the rule; one scale of said fixed and movable scales being upon one side of the transverse center of the rule, and beginning on the top and ending on the bottom; and the other of said fixed and movable scales being upon the other side of the transverse center of the rule, and beginning on the

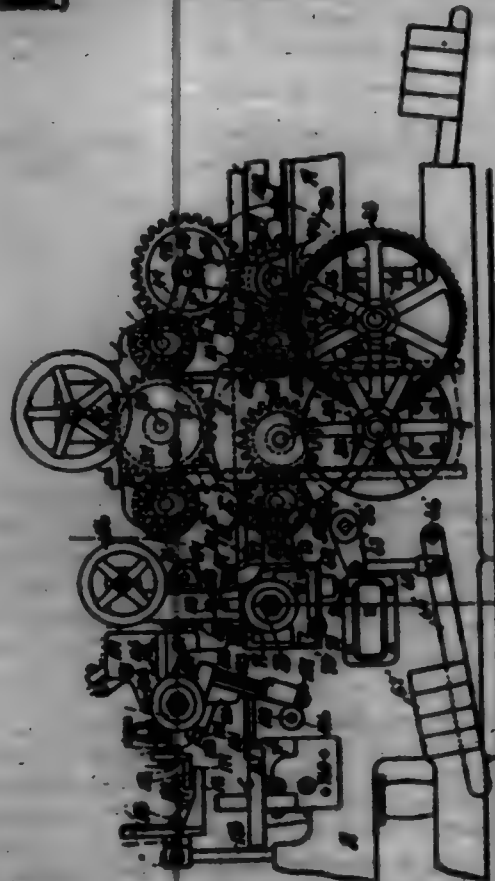
bottom and ending on the top, all being direct scales, substantially as described.



3. A slide-rule bearing two sets of duplicate logarithmic scales, one scale of each set being upon the slide and one upon the base, so arranged that the square root of the base of the system of logarithms of each set is opposite the unit of one scale of the other set, substantially as described.

4. A slide-rule bearing two duplicate logarithmic scales relatively fixed, and so arranged that the square root of the base of the system of logarithms in one scale is approximately opposite the unit of the other scale, substantially as described.

701,104. PLANING-MACHINE. JOHN R. THOMAS, Cincinnati, Ohio, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio, a Corporation of West Virginia. Filed Mar. 5, 1892. Serial No. 7,995. (No model.)



Claim.—1. In a planing-machine, the combination with a lower cutter-head, of a lower chip-breaker therefor and a lower feeding-in roll arranged to be depressed below their normal height by the stock, with means for permitting the chip-breaker to be adjusted with and independently of the lower cutter-head, an upper cutter-head, and upper feeding-in roll and contact means for the stock comprising upper feeding-in roll and a pressure device above the lower cutter-head caused against upward yield.

2. In a planing-machine, the combination with the frame, of a lower cutter-head and an upper feeding-in roll normally positioned uprightly

in height, and a lower feeding-in roll arranged to be held against the stock under yielding pressure, with an adjustable saddle for supporting the lower cutter-head and a chip-breaker therefor, with the chip-breaker adjustable with and independently of the saddle, and arranged to be held against the stock under yielding pressure.

3. In a planing-machine, the combination with the frame, of a lower cutter-head and an upper feeding-in roll normally held against yield in height, a lower feeding-in roll arranged to be held against the stock with yielding pressure, an adjustable saddle for the lower cutter-head, with the lower cutter-head and a chip-breaker therefor supported by the saddle, and the chip-breaker adjustable with and independently of the saddle and arranged to be held against the stock with yielding pressure, and a fast for the chip-breaker adjustable to and from the cutter-head.

4. In a planing-machine, the combination with the frame, of a lower cutter-head and an upper feeding-in roll normally held against yielding movement, and a lower feeding-in roll arranged to yield through pressure of the stock, with an adjustable saddle, a yoke thereon on which the lower cutter-head is mounted, a lower chip-breaker supported by the saddle, with the yoke slidable on the saddle transversely of the frame and the chip-breaker adjustable with and independently of the saddle and arranged to yield to pressure of the stock.

5. In a planing-machine, the combination with the frame, of a lower yielding feeding-roll, a lower cutter-head, with a chip-breaker therefor, an arm for the chip-breaker and an arm for the lower yielding feeding-roll having their ends in the same plane, with pressure devices for independently yieldingly raising the lower feeding-roll and the chip-breaker for the lower cutter-head.

6. In a planing-machine, the combination with the frame, of a lower cutter-head, a lower yielding feed-roll, a chip-breaker for the lower cutter-head, with a pressure-lever for the lower yielding feed-roll and a pressure-lever for the chip-breaker, and a rod or shaft about which said levers are fulcrumed for independently yieldingly holding the lower yielding roll and the chip-breaker against the stock.

7. In a planing-machine, the combination of a frame, a lower cutter-head, a roll-bearing extending transversely of the frame, an upper feeding-in roll with bearings rigid with relation to the housing, and long ways connecting the housing and the frame at each side of the frame and extending substantially the entire height of the frame, with a lower feeding-in roll arranged to be depressed bodily by the stock taking through the machine to substantial extent below the line of cut of the lower cutter-head, substantially as described.

8. In a planing-machine, the combination of a frame, a lower cutter-head, a roll-bearing extending transversely of the frame, an upper feeding-in roll with bearings rigid with relation to the housing, and long ways connecting the housing and the frame at each side of the frame and extending substantially the entire height of the frame, with a lower feeding-in roll and a chip-breaker for the lower cutter-head arranged to be depressed bodily by the stock taking through the machine to substantial extent below the line of cut of the lower cutter-head, substantially as described.

9. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for supporting the lower cutter-head, and a chip-breaker therefor, with the chip-breaker adjustable with the same and arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head independently of the latter, substantially as described.

10. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for the lower cutter-head, with the lower cutter-head and a chip-breaker therefor supported by the saddle, with the chip-breaker adjustable with and independently of the saddle and arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head independently of the latter, with a separable fast for the chip-breaker adjustable to and from the cutter-head, substantially as described.

11. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for the lower cutter-head, with the lower cutter-head and a chip-breaker therefor supported by the saddle, with the chip-breaker adjustable with and independently of the saddle and arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head independently of the latter, with a fast for the chip-breaker movable with relation thereto, with

means for adjusting the fast to and from the vertical plane of the cutter-head, substantially as described.

12. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for the lower cutter-head, with the lower cutter-head and a chip-breaker therefor supported by the saddle, with the chip-breaker adjustable with and independently of the saddle and arranged to yield to substantial extent below the horizontal plane of the cut of the lower cutter-head independently of the latter, with a fast for the chip-breaker movable with relation thereto, with means for adjusting the fast to and from the vertical plane of the cutter-head, and means for adjusting the limit of upward movement of the chip-breaker, substantially as described.

13. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower cutter-head, with a saddle in the frame, a yoke slidably mounted on the saddle, with the lower cutter-head journaled in the yoke, a pressure-fast for the cutter-head mounted in the yoke, means for adjusting the saddle with its yoke, cutter-head and pressure-bar simultaneously, an opening in the side of the frame, with a shaft for forcing the yoke with its cutter-head and pressure-fast sidewise for exposing the cutter-head at the side of the frame, substantially as described.

14. In a planing-machine, the combination of a frame, a saddle 68 thereon, means for adjusting the saddle upon the frame, a yoke 74 slidably on the saddle and supporting a cutter-head journaled therein and a pressure-fast thereon, a shaft 75 sliding with the yoke, a worm-wheel 76 caused against sidewise movement in the saddle and having the shaft take therethrough for turning the same, with a worm-rack 77 on the yoke, constructed and arranged for forcing the yoke with its cutter-head and pressure-fast sidewise of the saddle for exposing the cutter-head at the side of the machine, substantially as described.

15. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for the lower cutter-head with a yoke for the cutter-head sliding longitudinally with relation to the saddle, and the lower cutter-head mounted in the yoke, ways in the yoke, with pressure-bar for the lower cutter-head adjustable in the ways, with means for permitting the sidewise movement of the yoke sidewise for exposing the cutter-head in the side of the frame, substantially as described.

16. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle for the lower cutter-head, with a yoke for the cutter-head sliding longitudinally with relation to the saddle, and the lower cutter-head mounted in the yoke, with a pressure-bar after the cut of the lower cutter-head mounted in the yoke, a fast for the bar, with means for adjusting the fast to and from the vertical plane of the cutter-head, with means for permitting sidewise movement of the yoke for exposing the cutter-head at the side of the machine, substantially as described.

17. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, and a lower feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle, a yoke thereon for the lower cutter-head, and a chip-breaker for the lower cutter-head before the cut and a pressure-bar for the lower cutter-head after the cut mounted on the saddle and adjustable therewith, with means for permitting the sidewise movement of the yoke for exposing the cutter-head at the side of the machine, substantially as described.

18. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower cutter-head, with an adjustable saddle, a yoke thereon for the lower cutter-head, and a chip-breaker for the lower cutter-head before the cut and a pressure-bar for the lower cutter-head after the cut mounted on the saddle and adjustable therewith and movable independently thereof, with means for permitting the sidewise movement of the yoke for exposing the cutter-head at the side of the machine, substantially as described.

19. In a planing-machine, the combination of a frame, a lower cutter-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll

arranged to yield below the horizontal plane of the cut of the lower outer-head, with an adjustable saddle, a yoke thereon for the lower outer-head, and a chip-breaker for the lower outer-head before the cut and a pressure-bar for the lower outer-head after the cut mounted on the saddle and adjustable therewith, with a separate toe for the chip-breaker and a separate toe for the pressure-bar, with means for adjusting the toes to and from each other, with means for permitting sidewise movement of the yoke for exposing the outer-head at the side of the machine, substantially as described.

30. In a planing-machine, the combination of a frame, a lower outer-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower outer-head, with an adjustable saddle for the lower outer-head and a chip-breaker for the lower outer-head before the cut and a pressure-bar for the lower outer-head after the cut mounted on the saddle and adjustable therewith, with a shiftable yoke interposed between the saddle and the lower outer-head and pressure-bar and means for permitting sidewise movement of the yoke with its outer-head and bar for exposing the outer-head at the side of the machine, with a separate toe for the chip-breaker and a separate toe for the pressure-bar, with means for adjusting the toes to and from each other, with the chip-breaker arranged to yield on the saddle below the horizontal plane of the outer-head, substantially as described.

31. In a planing-machine, the combination of a frame, a lower outer-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower outer-head, with an adjustable saddle for the lower outer-head, and a chip-breaker for the lower outer-head before the cut and a pressure-bar for the lower outer-head after the cut mounted on the saddle and adjustable therewith, with a yoke interposed between the outer-head with its pressure-bar and the saddle and having shiftable connection with the saddle, with means for permitting sidewise movement of the yoke for exposing the outer-head at the side of the machine, substantially as described.

32. In a planing-machine, the combination of a frame, a lower outer-head with axis rigid with relation to the frame, an upper feeding-in roll with axis rigid with relation to the frame, and a lower feeding-in roll arranged to yield below the horizontal plane of the cut of the lower outer-head, with an adjustable saddle for the lower outer-head, and a chip-breaker for the lower outer-head before the cut and a pressure-bar for the lower outer-head after the cut mounted on the saddle and adjustable therewith, with a yoke interposed between the outer-head with its pressure-bar and the saddle and having shiftable connection with the saddle, with a worm-shaft and worm-gear for sliding the yoke with its outer-head and pressure-bar longitudinally with relation to the saddle for exposing the outer-head at the side of the machine, substantially as described.

33. In a planing-machine, the combination of a frame, a lower outer-head, a roll-bearing extending transversely of the frame, an upper feeding-in roll with bearings rigid with relation to the housing, a lower outer-head saddle, with a feeding-in chip-breaker for the lower outer-head mounted on the saddle, with a lower feeding-in roll, with the lower feeding-in roll and the chip-breaker arranged to be depressed bodily by the stock taking through the machine below the line of cut of the lower outer-head, with a longitudinally-slidable yoke in which the lower outer-head is mounted supported and sliding with relation to the saddle, with a work-support after the lower outer-head, and means for raising and lowering the saddle with its chip-breaker and outer-head to and from the plane of the work-support, with an adjustable pressure device above the lower outer-head, with means for permitting sidewise movement of the yoke for exposing the outer-head at the side of the machine, substantially as described.

34. In a planing-machine, the combination of a frame, a lower outer-head, a roll-bearing extending transversely of the frame, an upper feeding-in roll with bearings rigid with relation to the housing, a lower outer-head saddle, with a feeding-in chip-breaker for the lower outer-head mounted on the saddle, with a lower feeding-in roll, with the lower feeding-in roll and the chip-breaker arranged to be depressed bodily by the stock taking through the machine below the line of cut of the lower outer-head, with a longitudinally-slidable yoke in which the lower outer-head is mounted supported and sliding with relation to the saddle, with a work-support, with means for raising and lowering the saddle with its chip-breaker and outer-head to and from the plane of the work-support, with means for permitting the movement of the chip-breaker and the pressure-bar to and from the plane of the cut of the outer-head, with an adjustable pressure device above the lower outer-head, with means for permitting sidewise movement of the yoke for exposing the outer-head at the side of the machine, substantially as described.

35. In a planing-machine, the combination of a frame, with a lower yielding feed-roll, a rest-shaft, a lower outer-head, with a chip-breaker in advance of the same, with an arm for the chip-breaker and an arm for the lower yielding feed-roll swingingly arranged about the same axis, with pressure devices for independently yieldingly raising the lower feed-roll and the chip-breaker for the lower outer-head, substantially as described.

36. In a planing-machine, the combination of a frame, with a lower yielding feed-roll, a rest-shaft, and an arm extending from the rest-shaft for yieldingly raising the lower roll, a lower outer-head, with a chip-breaker in advance of the same, and a pressure-arm for the chip-breaker cleaved about the rest-shaft, constructed and arranged for swinging the pressure device for the lower yielding roll and the pressure device for the chip-breaker independently about the same shaft, substantially as described.

37. In a planing-machine, the combination of a cutter-head, with a chip-breaker for the outer-head, a plurality of links, with pivots thereon, and connections between the links and the chip-breaker, constructed and arranged for guiding the latter substantially concentrically about the outer-head with its axis maintained substantially in the same plane horizontally with relation to the stock, with means for adjusting the chip-breaker to and from the outer-head, substantially as described.

38. In a planing-machine, the combination of a cutter-head, with a chip-breaker for the outer-head, a plurality of links, with pivots thereon, and connections between the links and the chip-breaker, constructed and arranged for guiding the latter substantially concentrically about the outer-head with its axis maintained substantially in the same plane horizontally with relation to the stock, with a spring for yieldingly holding the chip-breaker against the stock, substantially as described.

39. In a planing-machine, the combination of a cutter-head, with a chip-breaker for the outer-head, a plurality of links, with pivots thereon, and connections between the links and the chip-breaker, constructed and arranged for guiding the latter substantially concentrically about the outer-head with its axis maintained substantially in the same plane horizontally with relation to the stock, with a spring for yieldingly holding the chip-breaker against the stock, with an adjustment for the spring, substantially as described.

40. In a planing-machine, the combination of a cutter-head upright, a cutter-head housing thereby, with means for raising and lowering the outer-head housing with relation to the upright, bearings in the housing for the outer-head, with an extension toward each side of the outer-head in the housing, a secondary housing for the extension, with a plurality of links pivoted in the secondary housing, a chip-breaker, and a pivotal connection between each of the links and the chip-breaker, constructed and arranged for causing the chip-breaker to be moved with its parts maintained substantially in the same relative horizontal plane, with means for adjusting the bearings on the extensions to and from the outer-head, substantially as described.

41. In a planing-machine, the combination of a cutter-head upright, a cutter-head housing thereby, with means for raising and lowering the outer-head housing with relation to the upright, bearings in the housing for the outer-head, with an extension toward each side of the outer-head on the housing, a secondary housing for the extension, with a plurality of links pivoted in the secondary housing, a chip-breaker, and a pivotal connection between each of the links and the chip-breaker, constructed and arranged for causing the chip-breaker to be moved with its parts maintained substantially in the same relative horizontal plane, and an adjustable stop for limiting the movement of the chip-breaker, substantially as described.

42. In a planing-machine, the combination of a cutter-head upright, a cutter-head housing adjustable with relation thereto, bearings for the housing, a cross-girth connecting the bearings, and a pressure-foot extending above the bed between the vertical spindles connecting with the cross-girth, with a pressure-bar for the upper outer-head between the cross-girth and outer-head bearings, with means for adjusting the pressure-bar independent of the pressure-foot, substantially as described.

43. In a planing-machine, the combination of a cutter-head upright, a cutter-head housing thereby, with means for raising and lowering the outer-head housing, vertical side spindles, a cross-girth for the housing, with a pressure-bar for the outer-head between the vertical plane of the cross-girth and the outer-head, with means for adjusting the pressure-bar, and a pressure-foot, with a bracket, extending above the bed of the machine between the longitudinal planes of the vertical spindles, with an adjustment between the bar and bracket, and arranged to steady the pressure-foot from the cross-girth, substantially as described.

44. In a planing-machine, the combination of a cutter-head upright, a cutter-head housing thereby, with means for raising and lowering the outer-head housing, vertical side spindles, a cross-girth for the housing, with a pressure-bar for the outer-head between the vertical plane of the girth and the outer-head, with means for adjusting the pressure-bar, and a pressure-foot, with a bracket, extending above the bed of the machine

between the longitudinal planes of the vertical spindles, with an adjustment between the bar and bracket, means for adjusting the pressure-foot and the bracket, and arranged to steady the pressure-foot from the girth, substantially as described.

45. In a planing-machine, the combination with a lower outer-head, of a lower chip-breaker thereon and a lower feeding-in roll arranged to be depressed below their normal height by the stock, with means for permitting the chip-breaker to be adjusted with and independently of the lower outer-head, and upper feeding and contact flange for the stock comprising upper feeding-in roll and a pressure device above the lower outer-head secured against upward yield.

46. The combination, in a planing-machine having upper and lower outer-heads, of the frame which carries the top feeding-roll and which extends transversely of the main frame, with long ways extending substantially the entire height of the frame inside the main frame, means for adjusting said frame and thereby giving disableness adjustment to the top feeding-roll at both ends with means for driving the top feeding-roll.

47. The combination, in a planing-machine with a main frame having upper and lower outer-heads mounted thereon, a roll-bearing extending transversely of the main frame, an upper feeding-in roll therein, and long ways connecting the bearing and the main frame at each side of the main frame inside the main frame and extending substantially the entire height of the main frame, with a lower feeding-in roll, with means for driving said upper feeding-in roll from the main frame.

48. In a planing-machine, the combination of a frame having upper and lower outer-heads mounted thereon, and a roll-bearing, which carries the top feeding-roll adjustable as an entirety while carrying said rolls and thereby giving disableness adjustment to said top feeding-roll at both ends, means for performing said adjustment, with said roll-bearing extending transversely of the frame, and long ways connecting the bearing and frame at each side of and inside the frame and extending substantially the entire height of the frame, a lower feeding-in roll, operating on the frame, operating on the said feeding-in roll in the bearing, and over expansion-gearing at the feeding-in side of said feeding-in roll between the gearing in the frame and the gearing on the feeding-in roll, substantially as described.

49. In a planing-machine, the combination of a frame having upper and lower outer-heads mounted thereon, and a roll-bearing, which carries the top feeding-roll, adjustable as an entirety while carrying said rolls and thereby giving disableness adjustment to said top feeding-roll at both ends, means for performing said adjustment, with said roll-bearing extending transversely of the frame, and long ways in the inside of the frame at each side of the frame connecting the bearing and the frame and extending substantially the entire height of the frame, a lower feeding-in roll, with means for driving the top feeding-roll from the main frame, substantially as described.

50. In a planing-machine, the combination of a frame having upper and lower outer-heads mounted thereon, and a roll-bearing, which carries the top feeding-roll, adjustable as an entirety while carrying said rolls and thereby giving disableness adjustment to said top feeding-roll at both ends, means for performing said adjustment, with said roll-bearing extending transversely of the frame, and long ways in the inside of the frame at each side of the frame connecting the bearing and the frame and extending substantially the entire height of the frame, a lower feeding-in roll, with means for driving the top feeding-roll from the main frame, substantially as described.

701,105. FLANK FOR SAND HOLDER. ROBERT C. TOLME, Wilmington, Del., assignor to Lobell Car-Wheel Company, Wilmington, Del., a Corporation of Delaware. Filed June 28, 1901. Serial No. 68,126. (No model.)



Claim.—1. The combination in a flask of a fixed section, a movable section mounted within the fixed section, ribs or partitions carried by the movable section, said section being open at the top so that the sand can be packed into the mold prior to compression of the same with a single device constructed to perform the double function of holding the movable section in either its elevated or its depressed position, substantially as described.

2. The combination of a flask made in two parts, one part being fixed and the other part being movable, vertical slots in one part, and legs

on the other part entering said slots, and stops to limit the movement of the movable part of the flask, substantially as described.

3. The combination of a two-part flask, one part being fixed, the other part being movable within the said fixed part and having stops to limit the movement of the said movable part, latches on one part and lugs on the other part, said latches and lugs being so arranged that the latches will support the movable part when raised and hold it down in position when depressed, substantially as described.

4. The combination of a pattern A, a shell-ring B mounted on the pattern, a two-part flask D, one part E being fixed, bolts securing the said fixed part to the shell-ring, the movable part F arranged to slide within the fixed part, said movable part having an annular rib or partition, and radial ribs extending from the annular rib to the outer portion of the section, a stop to limit the upward movement of the movable section, and means for holding the movable section either in its raised or depressed position, substantially as described.

701,106. KITE. ROBERT J. TRAMER, Jersey City, N. J. Filed Feb. 14, 1902. Serial No. 94,090. (No model.)



Claim.—1. The combination of a kite, an acoustical instrument attached thereto, a cord attached to the kite, and a telephone receiver connected to the cord.

2. A kite having a whistle attached thereto, and an air-tube of uniform interior diameter located at one side of the whistle to receive the currents of air and to deliver them to the whistle, said air-tube having therein at its receiving end an inwardly-projecting funnel-shaped and piece.

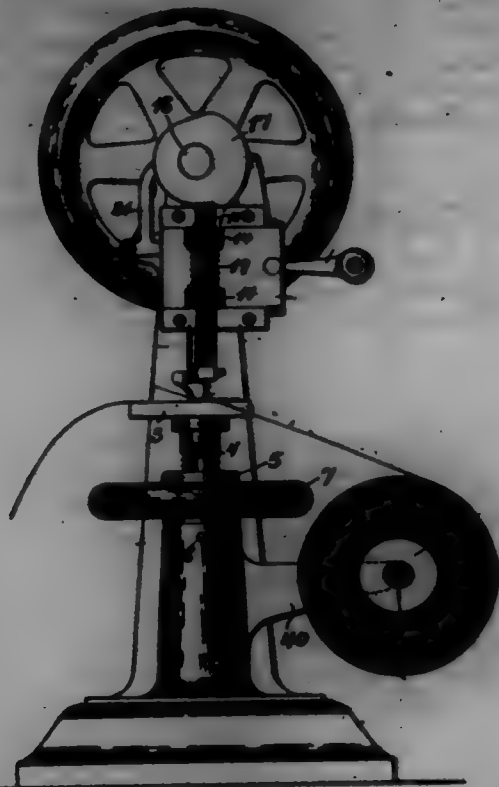
3. The combination of a kite, an acoustical instrument attached thereto, a cord connected to the kite, and a telephone receiver attached to the cord, said receiver comprising a tube with a diaphragm therein, and an interior rod adapted to have the cord connected to it.

701,107. PERFORATING-MACHINE. WILLIAM E. TRIM, Lynn, Mass. Filed Oct. 14, 1901. Serial No. 73,692. (No model.)

Claim.—1. A perforating-machine comprising a work-supporting bed, a punch movable longitudinally toward and from the bed and laterally over it, mechanism for reciprocating the punch both longitudinally and laterally to give the punch work-penetrating movements and stop-by-stop work-feeding movements, a flexible bed-feeding strip and means for guiding said strip between the bed and the punch, said strip feeding the cutting face of the bed, the work-penetrating movement of the punch causing it to engage said feeding-strip so that the work-feeding movements of the punch also feed the feeding-strip step by step.

2. A perforating-machine comprising a work-supporting bed, a punch reciprocated longitudinally toward and from the bed and laterally over it, a flexible bed-feeding strip guided between the bed and punch, the punch in its cutting movement passing through the work and strip simultaneously, and means for relieving the strip from binding-pressure during the feeding movement.

3. A perforating-machine comprising a work-supporting bed, a punch movable longitudinally toward and from the bed and laterally over it, a flexible bed-facing strip, means for guiding said strip between the punch and bed, means for reciprocating the punch longitudinally, said means having provision for forcing the punch through the work into the strip, and then slightly rotating the punch to relieve its pressure on the strip without disengaging it from the strip, and means for reciprocating the punch laterally, said means being organized to give the punch its work-feeding movement while it is in said slightly-rotated position, whereby the strip although relieved from binding-pressure is positively engaged and fed by the punch.



4. A perforating-machine comprising a work-supporting bed, a punch movable longitudinally toward and from the bed and laterally over it, mechanism for reciprocating the punch both longitudinally and laterally to give the punch work-penetrating movements and step-by-step work-feeding movements, a reel mounted on the frame of the machine, a rolled flexible bed-facing strip mounted thereon, and means for guiding said strip from the reel between the bed and punch.

5. A perforating-machine comprising a work-supporting bed having a strip-guide at one end, a punch movable longitudinally toward and from the bed and laterally over it, mechanism for reciprocating the punch both longitudinally and laterally to give the punch the described work-penetrating and feeding movements, and an elongated flexible bed-facing strip engaged with said guide, the latter being arranged to direct said strip between the bed and punch.

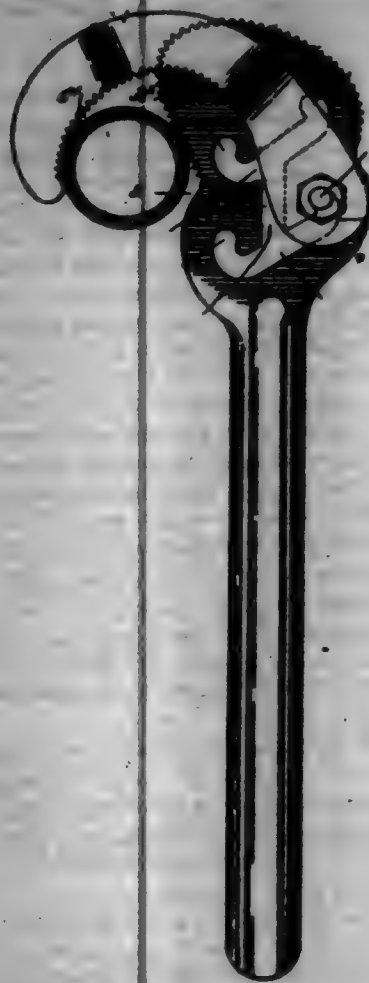
6. A perforating-machine comprising a work-supporting bed having a strip-guide at one end, a punch movable longitudinally toward and from the bed and laterally over it, mechanism for reciprocating the punch both longitudinally and laterally to give the punch the described work-penetrating and feeding movements, an elongated flexible bed-facing strip engaged with said guide, the latter being arranged to direct said strip between the bed and punch, and means adjacent to said guide for supporting the reserve portion of said strip.

7. A perforating-machine comprising a horizontal work-supporting bed, a vertical punch-bar having a perforating-punch located over said bed, a slide movable horizontally over the bed and having guides in which the punch-bar is movable vertically, a flexible bed-facing strip, means for guiding said strip between the bed and the punch, means for reciprocating the punch vertically, said means having provision for forcing the punch into the facing-strip and leaving it temporarily in engagement with the said strip, and means for reciprocating the slide horizontally to give the punch its work-feeding and return movements, the last-mentioned means having provision for giving the punch its work-feeding movement while it is engaged with the facing-strip, whereby the strip is fed positively step by step with the work.

8. A perforating-machine comprising a horizontal work-supporting bed, a vertical punch-bar having a perforating-punch located over said bed, a slide movable horizontally over the bed and having guides in which the punch-bar is movable vertically, a flexible bed-facing strip, means for guiding said strip between the bed and the punch, means for reciprocating the punch vertically, said means having provision for forcing the punch into the facing-strip and leaving it temporarily in engagement with

the said strip, means for reciprocating the slide horizontally to give the punch its work-feeding and return movements, the strip being fed by the punch with the work, and means for varying the length of the horizontal movements of the punch to vary the feed of the work and strip.

701,108. WRENCH. WILLIAM H. THOMAS, JR., New York, N. Y. Filed Sept. 26, 1901. Serial No. 74,573. (No model.)



Claim.—1. A wrench, comprising a fixed jaw having gripping-surfaces on its opposing edges and provided with a slot having a plurality of bearings, and a movable hook-jaw having a pivot working in the slot of the fixed jaw and adapted to be inserted in said bearings, as set forth.

2. A wrench comprising a handled jaw having segmental gripping-surfaces and provided with a plurality of connected angular slots, and a hook-jaw having a pivot for engaging the said slots to change the fulcrum of the hook-jaw on the handled jaw to permit it to work in combination with either gripping-surface of the handled jaw, as set forth.

3. A wrench comprising a handled jaw having gripping-surfaces standing at angles one to the other, the said jaw also having angular slots arranged one above the other and a slot connecting the angular slots, and a hook-jaw having a pivot for engaging the said slots, to allow of changing the hook-jaw relative to the said gripping-surfaces of the handled jaw, as set forth.

4. A wrench comprising a handled jaw having spaced side slots terminating in angular ends and a connecting-slot for connecting the said side slots with each other, and a hook-jaw having a pivot for engaging the said slots, as set forth.

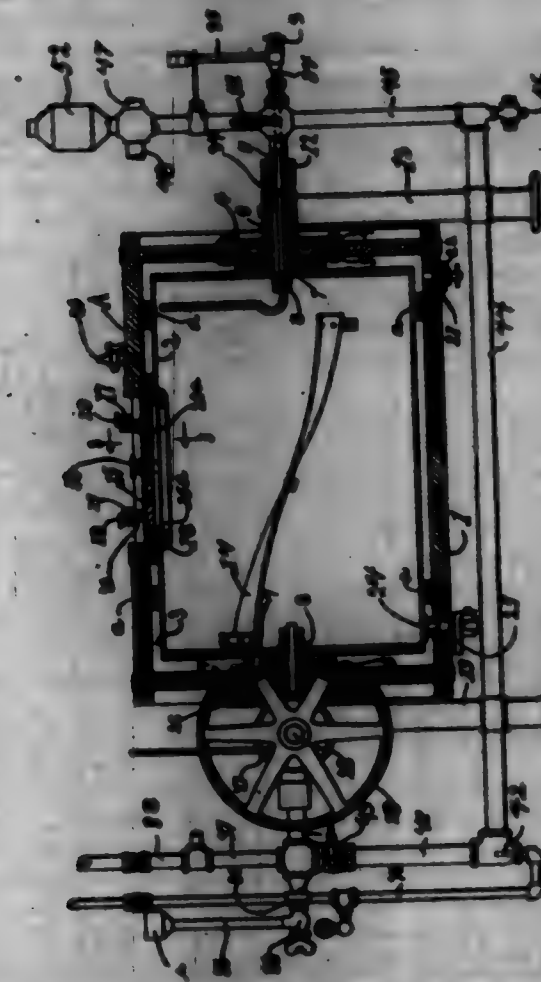
5. A wrench, comprising a handled jaw having gripping-surfaces on its opposing edges and provided with an angular slot, the ends of which are opened to form bearings, and a hook-jaw, forced to straddle the handle-jaw and provided with a pivot connecting the members of the fork and working in the slot of the handled jaw, as set forth.

701,109. PAPER-FOLDING APPARATUS. THOMAS L. VALENTINE, Fort Atkinson, Wis., assignor to the Greenway Package Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 26, 1902. Serial No. 41,471. (No model.)

Claim.—1. The combination with a rotary casing, of plates 4, 4' secured to the ends thereof, each of the said plates having integrally formed tubular portions 6 and 6' whereby the portion 6 extends into the interior of the casing and is adapted to communicate therewith, and the portion 6' projects outwardly and is adapted to serve as a journal.

2. The combination of a rotary structure comprising inner and outer slightly-curved rotary casings, journal members secured to the opposite

ends of the outer casing, each of said members being constructed with inwardly and outwardly projecting tubular portions having a common base whereby the outwardly-projecting portion is adapted to serve as a journal and the inwardly-projecting portion extends into the interior of the outer casing and is adapted to communicate therewith, and is also adapted to engage the inner casing, pipes extending through the bases of said journal members and into the inner casing, pipes fitted to the outer ends of the journal portions, and stuffing-boxes at the joints of the said pipes and journal portions and also at the points of entry into the interior casing of the pipes arranged in the bases of said journal members, substantially as described.



3. The combination with the inner and outer rotary casings, of a tubular structure secured to one of the ends of the outer casing and extended inwardly to the inner casing, a pipe or tube arranged within said tubular structure and extended into the inner casing, and a stuffing-box at the junction of the tubular structure and the end of the inner casing, the said stuffing-box including the tube or pipe within the tubular structure.

4. The combination with a rotary casing, of tubular structures providing passage-ways to the opposite ends of the casing, a distribution-pipe disposed below the casing, connecting-pipes connecting the said distribution-pipe with the tubular structures which communicate with the interior of the casing, a steam-jet at the junction of the distributing-pipe and one of said connecting-pipes, and a check-valve in said connecting-pipe above the steam-jet, the said check-valve being adapted to permit the flow of fluid in an upwardly direction but to prevent its flow in a downwardly direction, substantially as set forth.

5. The combination with the inner and outer rotary casings, of a tubular structure providing an opening through the outer casing and adapted to afford means of communication with the interior of said casing, an inlet-pipe connected with said tubular structure for supplying the same with fluid for the interior of the outer casing, a small pipe or tube arranged within said inlet-pipe and said tubular structure and extended through the end of the inner casing so as to communicate with the interior of said casing, the said small pipe or tube being extended out of the inlet or supply pipe and the pipe connected with said small pipe or tube, whereby the latter can be supplied with fluid for the interior casing, substantially as set forth.

6. The combination with the casing providing a chamber for the temperature-varying fluid, of a supply-pipe extending from the casing to a source for supplying a fluid under ordinary temperature, and provided with a steam-jet, whereby the contents of the receptacle can be first heated by filling the casing with such fluid, and then heating the same, and can then be cooled by shutting off the jet and admitting more of such fluid, an outlet by which the casing can be drained, and a second supply-pipe leading from a source for supplying a cooling fluid at a relatively cooler

temperature, whereby the contents of the receptacle can be further cooled by admitting such relatively cooler fluid to the casing after the casing has been emptied.

7. The combination with a casing providing a fluid-chamber of means for supplying said chamber with a heating fluid, a plurality of sources for supplying a plurality of cooling fluids of different temperatures, and means for conveying each of said fluids to the casing.

8. The combination with the casing providing a chamber for the temperature-varying fluid, of sources for supplying a plurality of cooling fluids, each at different temperature, pipes connecting both of said sources with the casing, and a steam-jet for heating the fluid in the casing.

9. The combination of the casing providing a chamber for the temperature-varying fluid, a source for supplying water at ordinary temperature, and another source for supplying brine at a lower temperature, pipes connecting both of said sources of supply with the casing, and a steam-jet or like device for heating the water supplied under ordinary temperature.

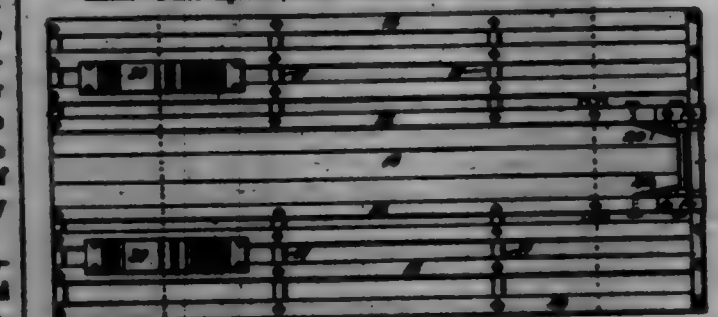
10. The combination with the casing providing a chamber for the temperature-varying fluid, of a source for supplying water under ordinary temperature, and another source for supplying brine at a lower temperature, pipes connecting both of said sources with the casing, a steam-jet for heating the water supplied to such casing, an outlet by which the water can be drained from the casing, and a return-pipe connecting the casing with the source for supplying brine, whereby the brine can be returned from the casing to its source of supply.

11. The combination with the casing providing a chamber for the temperature-varying fluid, of a plurality of sources for supplying the casing with a plurality of cooling fluids of different temperatures, and a device for heating one of such fluids when desired, whereby such fluid can be caused to serve as either a heating or a cooling fluid at will.

12. The combination with the casing providing a chamber for the temperature-varying fluid, of means for supplying fluid at ordinary temperature, means for supplying fluid at a relatively lower temperature, means for conveying each of said fluids to the casing, and a device for heating the fluid supplied at ordinary temperature when desired, whereby such fluid can be employed as either the heating or the cooling fluid at will, and also whereby its cooling action can be supplemented by the cooling action of the fluid supplied at a lower temperature.

13. The combination with the casing providing a chamber for the temperature-varying fluid, of sources of supply C and D for fluids at different temperatures, pipes 36 and 39 extending respectively from said sources C and D, a pipe 37 arranged as an inlet-pipe for the casing, a steam-pipe 40, a pipe 41 connecting the pipe 40 with the inlet-pipe 37, the said pipe 41 having a steam-jet 42, a distribution-pipe 44, a pipe 45 extending upwardly from the pipe 44 and having a connection with the other end of the casing, an overflow-pipe 43 connected with the pipe 45, and a return-pipe 46 connecting the pipe 45 with the source of supply D, substantially as described.

701,110. RAY-RACK. HOWE P. VERNER, Waterville, Kans., assignor of two-thirds to August Wippl and William Wendell, Kansas. Filed Apr. 12, 1902. Serial No. 148,086. (No model.)



Claim.—1. A ray-rack consisting of a front cross-bar, a rear cross-bar and intermediate cross-bars, longitudinal beams resting upon the rear and intermediate cross-bars at each side of their centers, being secured to said cross-bars, the forward ends of which beams abut against the rear flange of the forward cross-bar, clamps securing the said beams to the forward cross-bar, body-boards located at the outer sides of the said beams, resting upon and secured to the upper flange of the intermediate and rear cross-bars, the forward ends of which body-boards extend into the recesses in the forward cross-bar and are secured to the same, and central body-boards located between the beams, which central body-boards rest upon the rear and intermediate cross-bars and abut against the rear surface of the forward cross-bar, as described.

2. In a ray-rack, the combination with a body-section comprising a front cross-bar, secured at its ends to each side of its center, intermediate and rear cross-bars parallel with the forward cross-bar, longitudinal beams resting upon the intermediate and rear cross-bars, being

mination with an angle-shaped slot having the ends *ab*, then making two points of the same dimension, one of which points extends out from the body of the slot at a right angle with the same, and the other of which points extends downward at a right angle from the body of the slot and toward the angle between the two sides of the same, the said two points being for the purpose of connecting the slot to the sides of a cross-frame or upstand.



701,111. EYEGLASSES OR SPECTACLES. WILLIAM L. WALL and LAWRENCE FROST, Philadelphia, Pa., assignors to Wall and Ochs, Philadelphia, Pa., a Firm. Filed July 28, 1901. Serial No. 89,610. (No model.)



2. In a flustering for an ocular or apertic lens, a stud provided with straps having openings therein, and a two-part screw, the members of which are fitted to each other telescopically, the external member passing freely through both straps and said lens, the head of one member of said screw bearing against the adjacent strap and the head of the other member thereof bearing against the end of the first-named member and the surrounding portion of the adjacent strap.

4. In an eyeglass or spectacle fastening, a stud provided with a screw for securing a bridge and nosepiece, and means on said stud for covering the head of said screw, said means consisting of a movable plate which is mounted on said stud independently of said screw.

6. In an *oxyrhina* or *apostrophe*, a stud provided with a screw for securing a bridge and suspension, and means on said stud for covering the head of said screw, said means consisting of a plate which is movably fitted to said stud, and a locking device for said plate, said device consisting of a lip which is connected with said plate and adapted to engage with an adjacent member of the *oxyrhina* or *apostrophe*.

3. In a fastening for frame and lens of glasses, the combination with the base and cover adapted to lie on opposite sides of the lens, of a cap-screw passing through one arm and the lens, and a screw passing through said sleeve and engaging the two arms to bind them upon the lens.

Chain.—An interlock on the sides of a comb-frame or bedstead, for the purpose of connecting the sides with the slats, which said interlock is a part of the same piece as the sides themselves, and consists of two points or catches facing each other, for receiving the ends of the slats, in com-

Claim.—1. In a machine for pressing plastic material, disc therefor, die-operating means, a fulcrum for the die-operating means, a cushioned journal-block for said means and means for adjusting said block to adjust the fulcrum to regulate the throw of the disc.

2. Is a machine for pressing plastic material, a pair of dies thereby, means for operating said dies toward or away from each other, a cushioned journal-block for said means, an adjustable fulcrum for the die-operating means for regulating the throw of said dies, and means for operating one of said dies at a different speed from the other die and independent of each other.

3. In a machine for pressing plastic material, dies therefor, means for operating said dies toward or away from each other, an adjustable fulcrum for said means, and a cushioning device for one of said dies out of contact with said dies and at a distance from the position of the stroke of said dies.

4. In a machine for pressing plastic material, means for operating the die toward and away from each other, a combined journal-block for said means, the die, and means for adjusting the fulcrum of the said means and disconnected from the die-carrier, for adjusting the throw of one of said die.

5. In a machine for pressing plastic material, die therefor, means having an adjustable fulcrum for operating said die toward or away from each other, means acting directly on said operating means independent of the die-carriers for regulating the throw of the die, and means for moving the material to be pressed, between said die.

6. In a machine for pressing plastic material, a pair of dies therefor, means having an adjustable fulcrum for operating the same toward and away from each other, means acting directly on said operating means and disconnected from the disconnector for regulating the throw of said means and thereby the dies, means for guiding the material between said dies and means for removing the material from between said dies after the said material has been pressed.

7. In a machine for pressing plastic material, a pair of dies there-
for means for operating the same toward or away from each other and

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8. In a machine for pressing plastic material, a pair of dies therefore, means for operating the same toward or away from each other, means for delivering the material to said dies, and a stop for preventing the material from passing said dies, and means movable with said stop for moving the unpressed material to a carrier.

9. In a machine for pressing plastic material, a pair of dies therefore, means for operating the same toward or away from each other, means having an adjustable fulcrum for operating one of said dies at a different speed from the other and a member on one of said dies for adjusting the pressure on the material.

10. In a machine for pressing plastic material, a pair of dies therefor, means for operating the same toward or away from each other, means for delivering the material between said dies, means for maintaining said material and means acting directly on said operating means independent of the die-carriers for adjusting the throw of one of said dies to prevent unnecessary pressing of said material.

"11. In a machine for pressing plastic material, a pair of dies therefor, means for operating said dies toward or away from each other, means acting directly on said operating means independent of the die-carriers for adjusting the throw of the dies, means for delivering the material to said dies and a device operated by the movement of one of said dies to remove the pressed material and to prevent the delivered material from passing said dies.

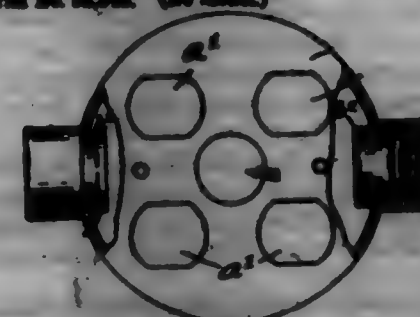
12. In a machine for pressing plastic material, a pair of dies thereon, means for operating said dies toward or away from each other, means acting directly on the said operating means independent of the dis-arranging for adjusting the throw of the dies, means for delivering the material to said dies, means for removing the pressed material and carrying same disposed at substantially right angles thereto for preventing the delivered material from passing the dies, and a belt adapted to receive the pressed material and carry the same to a desired point.

13. In a machine for pressing plastic material, a pair of dies therefor, means for imparting movement to one of said dies, a cushioned journal-block for said means, a lever for imparting movement to the other die and means for adjusting the fulcrum of said lever whereby the thrust of the die is adjusted.

14. In a machine for pressing plastic material, a pair of dies therefor, means for imparting motion to one of said dies, a lever adapted to impart motion of a quicker nature to the other die, and a combining device carried by said lever at a distance from the position of the stroke of the die whereby increasing number of said material is prevented.

15. In a machine for pressing plastic material, a pair of dies therefor, means for imparting motion to said dies toward and away from one another, means for varying the thickness of said means for regulating the throw of the dies, a step normally out of the path of movement of the material, means carried with one of said dies for moving said step into the path of movement and means for returning said step to its normal position.

701,114. COUPLING AND NIPPLE FOR OUTLET OR JUNCTION BOXES. MORRIS F. WILSON, Brighton, Mass. Filed Feb. 2, 1922. Serial No. 92,242. (No model.)



Claim.—1. An integrally-formed coupling and nipple for uniting of junction boxes having other than round holes, consisting of a tubular body having a wall-engaging and portion adapted to project through said holes, substantially as described.

2. An integrally formed coupling and nipple for outlet or junction boxes having other than round holes, consisting of a tubular cylindrical body having an end portion adapted to project through said holes as provided with wall-receiving grooves or recesses, substantially as described.

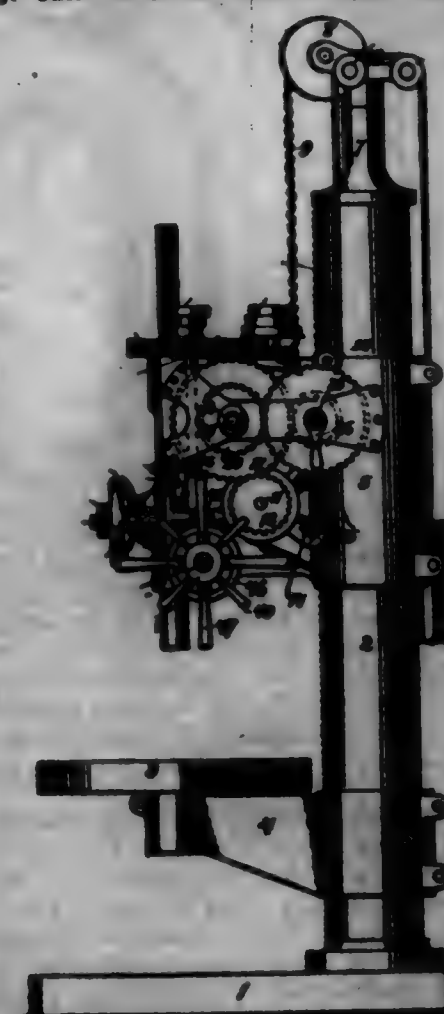
8. An integrally-formed coupling and nipple for outlet or junction boxes having other than round holes, consisting of a tubular cylindrical body having an end portion adapted to project through said holes or provided with well-ventilated grooves or recesses provided with well-known closures, substantially as described.

4. An integrally-formed coupling and nipple for outlet or junction boxes having other than round holes, consisting of a tubular cylindrical body having an end portion adapted to project through said holes and provided with wall-receiving grooves or recesses, the sides of which converge to reduce the width of said grooves or recesses and thereby produce wall-embedding portions, substantially as described.

5. An integrally-formed coupling and nipple for offset or junction boxes having other than round boxes, consisting of a tubular cylindrical body and a neck of larger diameter having laterally-projecting wall-engaging portions, substantially as described.

6. An integrally-formed coupling and nipple for outlet or junction boxes having other than round holes, consisting of a tubular cylindrical body and a neck of lesser diameter having laterally-projecting wall-engaging portions provided with inclined wall-engaging faces, substantially as described.

701,115. DRILLING MACHINERY. CHAMBERLAIN, Louisville, Ky. Filed July 6, 1909. Serial No. 22,674. (No model.)



Claim.—1. In a drill, the combination with a support, a hand movably mounted thereon, and a revolvable spindle carried by said hand, of a motor mounted within said hand, and carried thereby, the drive-shaft of said motor being arranged horizontally and located between said support and said revolvable spindle, a pinion carried by said drive-shaft, bevel-gear driven by said pinion, a bevel-gear connected to said bevel-gearing, a vertical shaft, a bevel-gear on said vertical shaft and driven by first-mentioned bevel-gear, a pinion on said vertical shaft, and a gear-wheel having a spiral connection with the said revolvable spindle, and in engagement with said pinion.

2. In a drill, the combination with a support, a hand screwly secured thereto, and a revolvable spindle carried by said hand, of a motor mounted within said hand, and carried thereby, the drive-shaft of said motor being arranged horizontally and located between said support and said revolvable spindle, a pinion carried by said drive-shaft, beak gearing driven by said pinion, a bevel-gear connected to said beak gearing, a vertical shaft, a bevel-gear on said vertical shaft and driven by first-named bevel-gear, a pinion on said vertical shaft, a gear-wheel having splined connection with the said revolvable spindle, and in engagement with said pinion, and means for imparting a longitudinal movement to said spindle, driven from said vertical shaft.

3. Is a drill, the composition, with a support, a head movably secured thereto, and a revolvable spindle carried by said head, of a motor carried by said head and having a horizontal driving-shaft, a gear having a splined connection with the spindle, and gearing for transmitting motion from the motor to said spindle-gear, and including bevel-gears and

a vertical shaft driven thereby and carrying a gear intermeshing with said spindle-gear.

4. In a drill, the combination, with a support, a head movably secured thereto, and a revolvable spindle carried by said head, of a motor carried by said head and having a horizontal driving-shaft, a gear having a spiral connection with the spindle, gearing for transmitting motion from the motor to said spindle-gear, and including bevel-gears and a vertical shaft driven thereby and carrying a gear intermeshing with said spindle-gear, and automatic feed appliances driven from said motor-shaft.

701,116. MACHINE FOR MAKING BUTTRES. JOHN E. WILLIAMS, St. Louis, Mo., assignor to E. A. Hyatt, St. Louis, Mo. Filed June 26, 1901. Serial No. 68,178. (No model.)



Claim.—1. In a buttress-forming machine, a rotatable base; a die mounted upon the base; a standard revolvable to the base; a plunger carried by the standard in position to swing from one die to another; a die loosely mounted upon said plunger, there being an L-slot in the plunger and a pin extending from the die into said slot, said die being locked on the plunger when rotated to move the pin into the horizontal part of the slot and said die being free to slide on the plunger when unlocked; an arm projecting from said plunger-die; and steps mounted upon the base in position to be engaged by said arm, as required to rotate said plunger-die upon the plunger by the swinging of the plunger from one die to another, thereby alternately locking and unlocking said die; substantially as specified.

2. In a buttress-forming machine, a rotatable base; two dies mounted upon the base; a standard revolvable to the base; a plunger mounted in the standard in position to be swung from one die to the other; adjustable steps mounted upon the base to limit the swing of said standard, as required to bring the plunger exactly in position over said fixed dies; an arm extending from the standard between said steps, so that the plunger may be adjusted independently relative to each die; and a handle for operating said plunger, substantially as specified.

3. In a buttress-forming machine, a rotatable base; dies mounted upon the base; a standard revolvable to the base; a plunger carried by the standard in position to swing from one die to another; a die loosely mounted upon said plunger, there being an L-slot in the plunger and a pin extending from the die into said slot, said die being locked on the plunger when rotated to move the pin into the horizontal part of the slot and said die being free to slide on the plunger when unlocked; an arm projecting from said plunger-die; and steps mounted upon the base in position to be engaged by said arm, as required to rotate said plunger-die upon the plunger by the swinging of the plunger from one die to another, thereby alternately locking and unlocking said die; adjustable steps mounted upon the base to limit the swing of said standard, as required to bring the plunger exactly in position over said fixed dies; and a handle for operating said plunger, substantially as specified.

701,117. JAR-GLASS. HANS J. WITTMANN, Omaha, Neb. Filed June 1, 1901. Serial No. 68,708. (No model.)



Claim.—A shoulder comprising a recessed cover, a flange at the edge thereof adapted to bear upon the neck of a bottle, said shoulder within

the recess, a cross-head mounted thereon, a vertically-movable pin extending through the cross-head and cover, a concave-convex expanding-disk secured to the pin, an inclined rim to said disk, strengthening-ribs thereon, an annular flange at the edge of said disk, and a gasket interposed between and adapted to be compressed by the flanges of the cover and disk, said inclined rim serving to expand the gasket.

701,118. WEB-CONTROLLING MECHANISM. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 4, 1902. Renewed Oct. 12, 1901. Serial No. 73,008. (No model.)



Claim.—1. The combination in a web-printing press of a web-roll, with a pump actuated therefrom, serving as a controller or brake for the web-roll, said pump being arranged to pump an incompressible liquid.

2. The combination in a web-printing press of the web-roll, a pump actuated therefrom, and arranged to pump an incompressible liquid, and means for controlling the resistance against which the pump has to work to regulate or control the motion of the web-roll.

3. The combination in a web-printing press of the web-roll, a pump actuated therefrom, and arranged to pump an incompressible liquid, and means for controlling the direction of the pump to regulate or control the motion of the web-roll.

4. The combination in a web-printing press of the web-roll, a pump actuated therefrom, and arranged to pump an incompressible liquid, a circulating-line connected therewith, and a valve arranged in said line.

5. The combination in a web-printing press of a pump secured thereto, and arranged to pump an incompressible liquid, the shaft of the web-roll and means for connecting the same to the pump.

6. The combination in a web-printing press of the shaft carrying the web-roll, said shaft being shabbled at its end, a pump, a shaft arranged to actuate the pump, this shaft being shabbled to fit the shabbled end of the web-roll shaft, and a coupling for sliding over the shabbled ends of the shafts to couple said shafts together.

7. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, and a valve arranged to connect the direction with the induction of the pump so that the web-roll can be easily turned and the web driven therefrom to thread the machine.

8. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, means for closing the induction of the pump and a relief-valve arranged between the induction and induction of the pump.

9. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a regulating-valve controlling the resistance of the pump, and means for operating said regulating-valve from the tension of the web.

10. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a spring-actuated regulating-valve for controlling the resistance against which the pump has to work, and connections for operating this valve from the tension of the web.

11. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a valve controlling the resistance against which the pump has to work, a movable roll bearing on the web, and connections from the roll to the valve.

12. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a drawing device for drawing the web from the web-roll, and a valve controlling the resistance against which the pump has to work.

13. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a stop-valve controlling the action of the pump, and connections whereby when the web breaks, the stop-valve will be closed.

14. The combination in a web-printing press of a web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a stop-valve controlling the action of the pump, a roller bearing on the web, and connections between the roller and the stop-valve.

15. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, a stop-valve having a weight tending to normally close the same, a roll bearing on the web and holding said valve normally open, and connections from the roll to the valve whereby when the web breaks, the valve will automatically close and stop the pump.

16. The combination in a web-printing press of the web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, and a plurality of stop-valves with connections to stop the pump in case the web breaks.

17. The combination in a web-printing press of a web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving as a controller or brake for the web-roll, and a hand-valve arranged at a point remote from the web-roll controlling the resistance of the pump, whereby the motion of the web-roll may be controlled at a point remote from the same.

18. The combination in a web-printing press of a web-roll, a pump arranged to pump an incompressible liquid actuated therefrom and serving both as a controller or brake for the web-roll, a valve controlling the resistance against which the pump has to work, a movable roller bearing on the web, connections from the roller to the valve, a stop-valve arranged in the induction of the pump, another roller bearing on the web, and connections whereby this roll connects to the stop-valve, whereby the first-named roller will act to properly tension the web-roll, and the second-named roller will act to stop the web-roll if the web breaks.

19. The combination of a web-roll, a rotary pump actuated therefrom to serve as a brake for the web-roll, said pump being arranged to pump an incompressible liquid through a circulating system, and a valve in said system for varying the resistance against which said rotary pump has to work.

701,119. INKING APPARATUS. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 4, 1902. Renewed Oct. 12, 1901. Serial No. 73,009. (No model.)

Claim.—1. The combination with an ink-supply, a rotating duster taking ink from the roller thereof, and means for positively turning the duster on its axis so that the same will roll over the surface of the supply-roller.

2. The combination with an ink-supply, rotating dusters taking ink from the roller thereof, and means for continuously and positively turning the dusters so that the same will roll over the surface of the supply-roller.

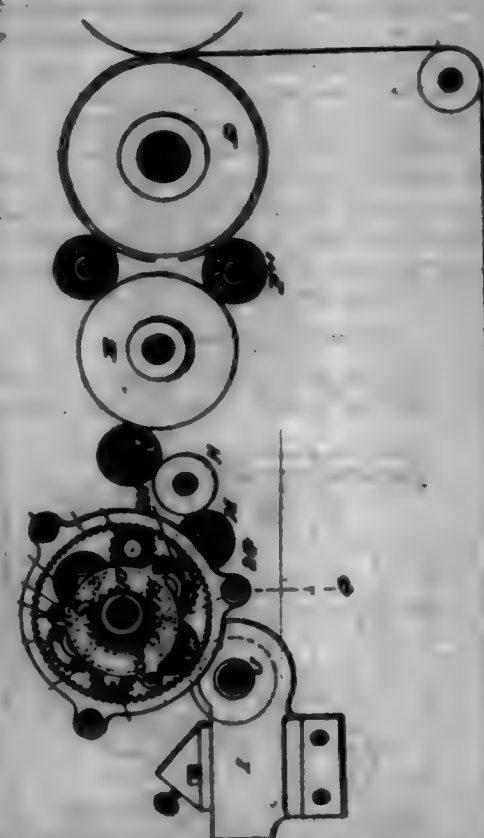
3. The combination with an ink-supply, an orbitally-rotating duster taking ink from the roller thereof, and a receiving-roller in constant engagement with the duster-roller.

4. The combination with an ink-supply, orbitally-rotating dusters taking ink from the roller thereof, and a receiving-roller in constant contact with each of the dusters.

5. The combination with an ink-supply, a duster taking ink from the roller thereof, a receiving-roller in constant contact with the duster, and means for orbitally rotating the duster and receiving-roller.

6. The combination with an ink-supply, dusters taking ink from the roller thereof, a receiving-roller in constant contact with each of the dusters, and means for orbitally rotating the dusters and receiving-roller.

7. The combination with an ink-supply, a duster, a receiving-roller in engagement with the duster, a roller as M, and means for orbitally rotating the receiving-roller and duster.



8. The combination with an ink-supply, a plurality of dusters, a receiving-roller in engagement with each duster, a roller as M, and means for orbitally rotating the dusters and receiving-roller.

9. The combination with an ink-supply, a duster, a receiving-roller in engagement with the duster, a roller as M, means for rotating the receiving-roller and duster, and means for moving the duster about the axis of the receiving-roller during its rotation.

10. The combination with an ink-supply, a plurality of dusters, a receiving-roller in engagement with each duster, a roller as M, means for rotating the dusters and receiving-roller, and means for moving the dusters about the axis of their respective receiving-rollers during their rotation.

11. The combination with an ink-supply, a duster, a receiving-roller in engagement with the duster, a rotating roller as M, means for axially rotating the duster and receiving-roller, and means for orbitally rotating the duster and receiving-roller so proportioned and arranged that the duster will roll over the roller of the fountain, and so that the receiving-roller will engage the roller M and rotate therewith.

12. The combination with an ink-supply, a plurality of dusters, a receiving-roller in engagement with each duster, a rotating roller as M, means for rotating the dusters and receiving-roller, and means for turning the dusters and receiving-roller upon their axes, so proportioned and arranged that the dusters will roll over the fountain-roller and so that the receiving-roller will engage the roller M, and rotate therewith.

13. The combination with an ink-supply, a receiving-roller, arms mounted concentrically therewith and carrying a duster-roller, means for rotating the receiving-roller and the duster, a roller as M, and means for moving the duster to engage the roller of the fountain and to clear the roller M, consisting of grooved disks, and rollers mounted on said arms engaging said disks.

14. The combination with an ink-supply, a plurality of receiving-roller, a duster in engagement with each receiving-roller, and mounted in arms journaled concentrically to the axis of each receiving-roller, means for rotating the receiving-rollers and dusters, a roller as M, and means for moving the dusters to engage the roller of the fountain and to clear the roller M, consisting of grooved disks, and rollers arranged on said arms engaging said disks.

15. The combination with an ink-supply, a duster and receiving-roller bearing on each other, a gear on the receiving-roller, a pinion engaging the same, means for rotating the duster-roller, receiving-roller and pinion, and a stationary internal gear with which said pinion meshes, whereby the duster-roller and the receiving-roller will be turned upon their axes as the same are rotated.

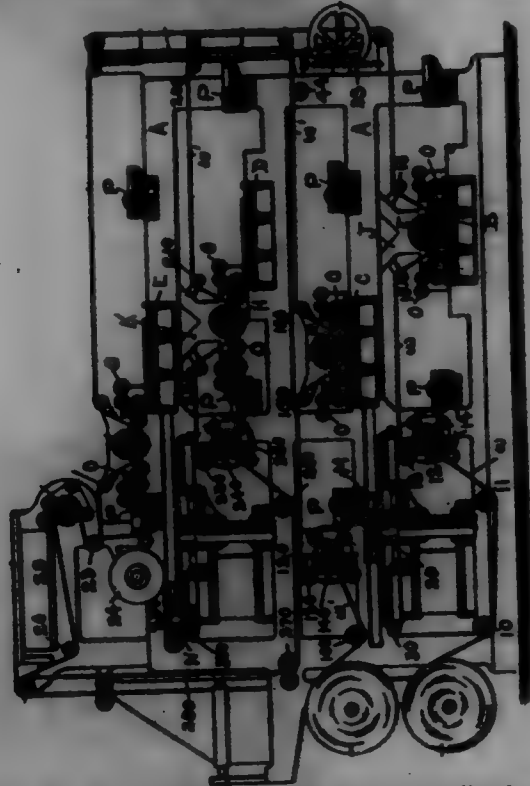
16. The combination with an ink-supply, a plurality of receiving-roller, a duster-roller in engagement with each of the receiving-roller, a gear on each receiving-roller, a pinion engaging the gear of each receiving-roller, means for rotating the dusters, receiving-rollers and pin-

less, and a stationary, internal gear with which said pinions mesh, whereby said duster-rollers and receiving-rollers will be turned on their axes as the same are rotated.

17. The combination with an ink-fountain, a receiving-roller and a duster-roller, means for rotating the same, gearing whereby said duster-roller and said receiving-roller will turn on their axes as they are rotated, a roller as M, and means for moving the fountain-roller and will clear the roller M.

18. The combination of an ink-fountain, a plurality of receiving-rollers, a duster engaging each receiving-roller, means for rotating the receiving-rollers and dusters, gearing whereby the receiving-rollers and dusters will turn on their axes as they are rotated, a roller as M, and means for moving the dusters in their rotation so that they will engage the fountain-roller and clear the roller M.

701,190. DOUBLES MULTIPRESS. HENRY A. W. WOOD, New York, N. Y. Filed Feb. 25, 1900. Serial No. 6,998. (No model.)



Claim.—1. The combination of two flat-bed traveling-impression-cylinder web-perforating printing-presses arranged one over the other, web-guides arranged so that two webs can be led through the mechanism, and devices for associating the two webs after they are perforated.

2. The combination of two side frames, four form-beds mounted therein in different horizontal planes, two sets of carriers fitted to said frames, each set carrying two impression-cylinders and web-guides, mechanism for reciprocating the two sets of carriers, web-guides for leading two webs through the machine, and manipulating devices for shifting said webs around the cylinders during the non-impression periods.

3. The combination in a web-perforating printing-press of four form-beds arranged in different horizontal planes, a traveling impression-cylinder cooperating with each form-bed, web-guides arranged so that a web may be led around the lower and upper cylinders, and another web around the second and third cylinders, and a suitable web-manipulating device for each web.

4. The combination in a web-perforating printing-press of four form-beds arranged in different horizontal planes, a traveling impression-cylinder cooperating with each form-bed, web-guides arranged so that a web may be led around the lower and upper cylinders, and another web around the second and third cylinders, whereby the last-named web is substantially within the loop of the first-named web, a suitable web-manipulating device for each web, and devices for associating the two webs.

5. The combination of two flat-bed traveling-impression-cylinder web-perforating printing-presses arranged one over the other, web-guides arranged so that one or two webs can be led through the mechanism, and means whereby one or both presses may be operated.

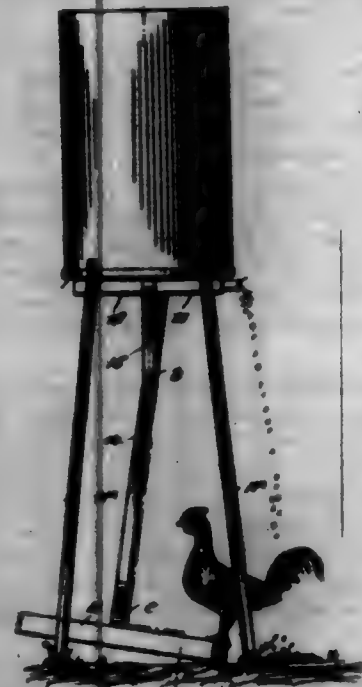
6. The combination in a web-perforating printing-press of four form-beds arranged in different horizontal planes, a traveling impression-cylinder cooperating with each form-bed, web-guides arranged so that one or two webs may be led through the mechanism, two driving mechanisms, one arranged to reciprocate the two lower and the other the two upper cylinders, and connection whereby one driving mechanism can be thrown out of operation.

7. The combination in a web-perforating printing-press of four form-

beds arranged in different horizontal planes, two sets of carriers, each set carrying two impression-cylinders, a driving mechanism for each set of carriers, web-guides arranged so that one or two webs may be led through the mechanism, web-manipulating mechanisms, and connections whereby only one set of carriers can be operated.

8. The combination in a web-perforating printing-press of four form-beds arranged in different horizontal planes, a traveling impression-cylinder cooperating with each form-bed, web-guides arranged so that a web may be led around the lower and upper cylinders, and another web around the second and third cylinders, a feeding-in and feeding-out device for each of these webs, and means whereby the feeding-in device for the second web may be used as the feeding-out device when only one web is run through the machine, whereby the two lower impression-cylinders may be used for handling a single web.

701,191. STOCK OR POULTRY FEEDING DEVICE. ZACHARIAH LEVER, Santa Cruz, Cal. Filed Aug. 22, 1901. Serial No. 73,964. (No model.)



Claim.—1. The combination of a hopper with a bottom plate having a feed-opening, and attachable on the lower end of a hopper, of a feeding device for discharge of feed from the hopper and slidable at the opening, a swinging bar controlling the feeding device, and means to secure and protect bait at the lower end of the swinging bar for movement by a fowl or animal.

2. The combination with a supported hopper having a feed-opening in the bottom, of a swinging bar, a chute or gate slidable at the opening and controlled by the swinging bar, and means to secure and protect bait at the lower end of said bar for movement by a fowl or animal.

3. The combination with a supported hopper having a feed-opening in the bottom wall, of a rockable bar, a gate or chute in the hopper adapted for longitudinal movement by the movement of the bar, a hood in the hopper over the feed-opening, and a device for holding and protecting bait at the lower end of the bar adapted for movement by a fowl or animal.

4. The combination with a supported hopper having a feed-opening in the bottom wall, of a rockable bar extending up through the feed-opening, a gate or chute in the hopper and through which the bar passes, a bait-box on the lower portion of the bar, and a cap on the bait-box protected by and projecting laterally therefrom, a perforated lid, the lid including a fowl or animal to move the bar and discharge feed.

5. The combination with a supported hopper having a feed-opening in the bottom wall, an arched hood over said opening, and a swing rod or bar hung from the hood, of a gate or chute held to slide near the feed-opening and through which the bar passes, and a bait-box projecting laterally from the swing-rod and having a cup protected by a perforated lid, for movement by a fowl or animal.

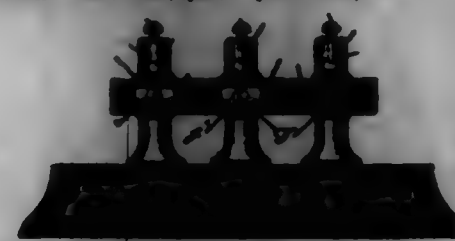
6. The combination with a hopper, legs on said hopper, guides on the bottom of the hopper at each side of a feed-opening therein, and a gate or chute held to slide between the guides at the feed-opening, of an upright rod or bar adapted to swing in the feed-opening, a device adapted to control the swinging movement of the rod or bar, and means for attaching and protecting a bait on the lower part of the rod or bar for movement by a fowl or animal that endeavors to get the bait.

7. The combination with a hopper, legs on the hopper, guides on the bottom of the hopper at each side of a feed-opening therein, and a hood over said feed-opening, of a gate or chute held to slide at the feed-

opening by a loose engagement with the guides, a rod or bar pendant through the feed-opening and also through a perforation in the chute or gate, and having a loose engagement with the hood, a bracket-supported check-bar hung from the hopper and adapted to control the swinging movement of the pendant rod or bar, and a bait-holding device projecting laterally from the lower portion of the rod or bar, adapted to be moved with said bar by efforts of a fowl or animal to get the bait.

8. In a poultry-feeder, the combination with a suitable container, of a reciprocating valve-slide confined on the bottom of said container, and arranged to traverse a discharge-opening therein, a vertical swinging bar mounted to turn on a horizontal axis and operatively connected with said valve to actuate the latter, and means carried by said bar to serve as a support for a fowl and adapted to receive a bait, whereby the weight of a fowl perched on the bar is adapted to impart movement thereto and to the valve-slide.

701,192. COMBINED LIGHTNING-ARRESTER AND FEEDING-POST. HENRY R. YALLEY, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation of New Jersey. Filed Mar. 13, 1901. Serial No. 59,922. (No model.)



Claim.—1. A lightning-arrester comprising three combined carbon-holders and blinding-posts, each post having a transverse opening, three carbons held end to end in said openings and arranged in line, the head of each post being provided with a screw-threaded member for securing a wire in place.

2. A lightning-arrester comprising a plurality of combined carbon-holders and blinding-posts, each post being formed with a base and a head and also with an enlarged middle or intermediate portion having a transverse opening, adjustable carbons held end to end in said openings and arranged in line, the head of each post being provided with a screw-threaded member for securing a wire in place.

3. The combination of three metal posts having their bases secured to a support and arranged close together in a row, a cylindrical piece of carbon extending transversely through the middle portion of each post, the three carbons thus arranged end to end in a line being capable of unlimited endwise adjustment in either direction, and screw-threaded members mounted upon the heads of said posts and adapted for securing wires in place.

4. A lightning-arrester comprising three metal posts having their bases secured to a support and arranged close together in a row, each post being provided with a transverse opening, three carbons held end to end in said openings and arranged in line, said carbons being capable of unlimited endwise adjustment in either direction, means holding the carbons in place, a screw-threaded member for connecting the middle post with a grounded conductor, and screw-threaded members for connecting the outside posts with the direct-conductor.

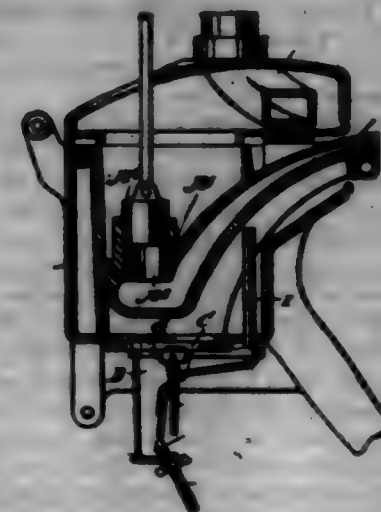
5. A lightning-arrester for use in connection with a subscriber's telephone set, consisting of three blinding-posts having their bases secured to a suitable support, each blinding-post being provided with a transversely-extending socket or opening, the said blinding-posts being arranged in a row with their said openings or sockets in line, cylindrical pieces of carbon mounted in said sockets or openings and held end to end, cut-overs for holding the carbons in place, the free end of each blinding-post being provided with a relatively small transverse opening adapted to receive a wire, and also with a longitudinally-extending cut-over for holding a wire in said relatively small opening.

701,193. BURNER. HENRY C. SMITH, New York, N. Y. Filed Mar. 3, 1901. Serial No. 58,595. (No model.)

Claim.—1. A burner having a mixing-chamber provided with a vertical and a horizontal member, the vertical member being open at its lower end to the atmosphere and having a gas-inlet, a burner-tip connected with the top of said mixing-chamber, a heating or combustion chamber surrounding the burner-tip and having air-inlets separate from the air-inlets of the mixing-chamber, and means for supporting the mixing-chamber from the heating-chamber and holding the same in contact therewith, as set forth.

2. A burner having a mixing-chamber provided with air and gas inlets and having a vertical and a horizontal member, a burner-tip connected with said mixing-chamber, a heating or combustion chamber surrounding the burner-tip and having air-inlets separate from the air-inlets of the mixing-chamber, and means for supporting the mixing-chamber from the heating-chamber and holding the same in contact therewith, as set forth.

mixing-chamber, and an auxiliary tip connected with the horizontal member of said mixing-chamber and extending in the heating or combustion chamber, as set forth.



3. A burner having a mixing-chamber provided with air and gas inlets and formed with a vertical member and a horizontal member, a burner-tip connected with said mixing-chamber, a heating or combustion chamber surrounding the burner-tip and having air-inlets separate from the air-inlets of the mixing-chamber, and an auxiliary tip connected with the top of the horizontal member of said mixing-chamber and extending in the combustion-chamber, the upper end of said auxiliary tip reaching to the outlet of the combustion-chamber, as set forth.

4. The combination with a burner having a mixing-chamber provided with air and gas inlets, and a burner-tip connected with the top of the mixing-chamber and formed with a depending flange provided with notches, of a heating or combustion chamber surrounding the burner-tip, and having air-inlets separate from the air-inlets of the mixing-chamber, and a receptacle for the material to be heated, the said receptacle forming the top of the heating or combustion chamber, as set forth.

5. The combination with a burner having a mixing-chamber provided with air and gas inlets, and a burner-tip connected with said mixing-chamber, of a heating or combustion chamber surrounding the burner-tip and having air-inlets separate from the air-inlets of the mixing-chamber, and a receptacle for the material to be heated, said top plate having an annular upwardly-extending rim for direct engagement with the bottom of the heating-chamber, the top plate also having a flange depending from the outer side and within which extends the upper end of the mixing-chamber, as set forth.

6. A burner having a top plate provided with a rim, a heating or combustion chamber against the bottom of which the rim of the top plate is adapted to engage, and a spring having its ends extending upward and engaging respectively the heating-chamber and the top plate of the burner for supporting the latter and holding the rim in contact with the under side of the heating-chamber, as set forth.

7. A burner having a mixing-chamber provided with an air-inlet and connected with a gas-supply, a top plate for said mixing-chamber and extending beyond the same, the top plate having a depending flange adapted to receive the upper end of the mixing-chamber, the extended portion of the top plate having air-inlet openings, and a burner-tip on the upper surface of the top plate and connected with said mixing-chamber the said burner-tip fitting within a correspondingly-shaped flange on the top plate, as set forth.

8. A burner, comprising a heating or combustion chamber, having an opening therein, an apertured top plate having a rim fitting the under side of the heating-chamber around the opening, the said top plate having a depending flange on its under face, a burner-tip on the upper surface of the top plate, and a mixing-chamber having a vertical member open at its lower end to the atmosphere and provided with a gas-inlet and a horizontal member extending from the upper portion of the vertical member, the said mixing-chamber being connected with the burner-tip by apertures in the top plate, the upper end of the mixing-chamber fitting within the depending flange on the top plate, as set forth.

9. The combination with a heating or combustion chamber having an opening in its bottom, of a burner having a top plate carrying a burner-tip and provided with a rim fitting the under side of the heating-chamber around the opening, and springs engaging legs on the burner and the heating-chamber for connecting the burner with said heating-chamber and for holding the rim of the top plate in firm contact with the under side of the heating-chamber, as set forth.

10. The combination with a heating-chamber provided in its under side with depending legs, of a burner having a top plate arranged to engage the under side of the heating-chamber, the top plate being also pro-

vided with depending legs, and springs engaging the legs of the heating-chamber and the said top plate, as set forth.

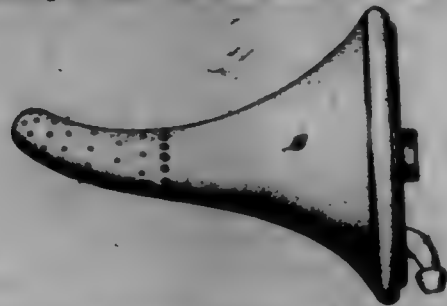
11. The combination with a heating-chamber, of a burner engaging the under side of the heating-chamber, and a heat spring coiled at the head and having its members extending upward and connected respectively with the heating-chamber and the burner to hold the burner against the heating-chamber, as set forth.

12. The combination with a heating-chamber provided on its under face with depending legs, of a burner on the under side of the heating-chamber and also provided with legs in horizontal alignment with the legs on the heating-chamber, and springs engaging the legs to hold the burner against the heating-chamber, as set forth.

13. A burner, comprising a mixing-chamber having a vertical member open at its lower end to the atmosphere, and provided near said lower end with a gas-inlet extending upward and downward through the wall of said vertical member, a top plate for said mixing-chamber provided with an upwardly-extending rim, and a burner-tip on the top plate within said rim and connected with the mixing-chamber, the said burner-tip having a depending flange provided with notches and engaging a correspondingly-shaped flange on the top plate, as set forth.

14. A burner, comprising a mixing-chamber having a vertical member and an approximately horizontal member, the vertical member being open at its lower end to the atmosphere, and provided near said lower end with a gas-inlet adapted for connection with a gas-supply pipe, a top plate for the mixing-chamber and extending beyond the same, the top plate having an integral depending flange adapted to receive the upper end of the mixing-chamber, a burner-tip on the top plate and connected by apertures in the top plate with the mixing-chamber, the extended portion of said top plate being also provided with apertures, and an upwardly-extending auxiliary tip connected with the horizontal member of the mixing-chamber near the end thereof, as set forth.

701,124. VAGINAL SYRINGER. CHARLES F. ALLEN, HUSBAND. Cal. Filed May 27, 1901. Serial No. 65,127. (No model.)



Claim.—1. A vaginal syringe, consisting of a rigid frame comprising a front plate provided with a marginal head, a tubular inlet-stem, and a drain-outlet, and a body of flexible material terminating in an apertured tip of greater thickness than the material of the body, the said body being of conical shape, the forward end of the body being arranged to be sprung over the marginal head of the front plate, as described.

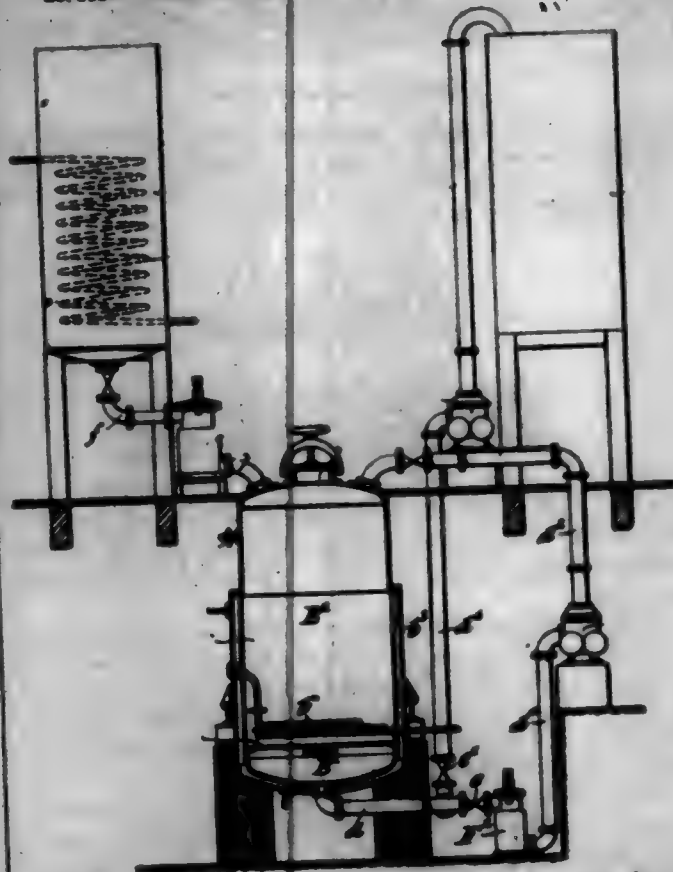
2. In a vaginal syringe, a frame comprising a front plate, a tubular stem extending through the front plate to a distance beyond the rear thereof, the rear portion of the stem being curved, and a drain-pipe which passes through the said plate, and a conical body of flexible material, provided with a tip also of flexible material but of greater thickness than the body, which tip is closed at its rear end and is in communication with the inner or rear end of the tubular stem, the tip having an upward curve, being provided with series of apertures, the body being likewise provided with apertures, and means substantially as described, for detachably attaching the said body to the front plate of the frame.

3. In a vaginal syringe, the combination, with a frame, consisting of a front plate, an upwardly-curved tubular stem extending from the rear portion of the front plate, and a drain-pipe extending outward from the said front plate, of a body constructed of flexible material and having a conical shape, the forward end of the body being in frictional engagement with the peripheral portion of the plate of the frame, an upwardly-curved apertured tip formed integral with the inner or rear end of the said body, the material of the tip being of greater thickness than the material of the body, the rear or inner end of the tip being closed and its forward end in communication with the said tubular stem and the body being provided with apertures adjacent to the forward end of the said tip, as described.

4. In a vaginal syringe, the combination, with a frame, consisting of a front plate provided with a marginal head, an upwardly-curved tubular stem extending from the rear portion of the front plate and provided with a collar near its rear end, and a drain-pipe extending outward from the said front plate, of a body constructed of flexible material and having a conical shape, the forward end of the body being arranged to be sprung over the head of the front plate and having a marginal rib adapted to en-

gage with the outer face of the plate within the line of the marginal head, an upwardly-curved apertured tip formed integral with the inner or rear end of the said body, the material of the tip being of greater thickness than the material of the body, the rear or inner end of the tip being closed and its forward end in communication with the said tubular stem, and the body being provided with apertures adjacent to the forward end of the said tip, for the purpose set forth.

701,125. PROCESS OF MAKING RUBIN SIZE. FRIEDRICH ALBRECHT, New York, N.Y., and HERMAN ALBRECHT, Garsden, England. Filed Jan. 26, 1902. Serial No. 91,202. (No specimens.)

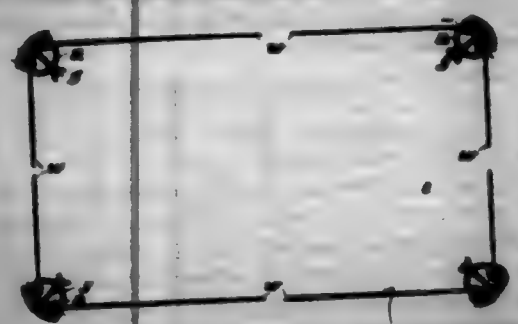


Claim.—1. The process herein described of making rubin size, which consists in mixing an oil or fat with a suitable molten resin, filtering the mixture, adding to the same a solution of an ammonium compound and an alkali lye, the latter in sufficient quantity to induce saponification, and agitating the resulting mixture in contact with carbonic acid gas under conditions permitting saponification of only a portion of the resin, substantially as set forth.

2. The process herein described of making rubin size, which consists in mixing an oil or fat with a suitable molten resin, filtering the mixture, adding to the same a solution of an ammonium compound and an alkali lye, the latter in sufficient quantity to induce saponification, and agitating the resulting mixture in contact with carbonic acid gas and under such heat and pressure as to permit saponification of only a portion of the resin, substantially as set forth.

3. A rubin size containing free compressed resin, free alkali and an ammonium resinate, substantially as set forth.

701,126. TEST. FRIEDRICH ALBRECHT, Berlin, Germany. Filed Mar. 1, 1902. Serial No. 85,202. (No model.)

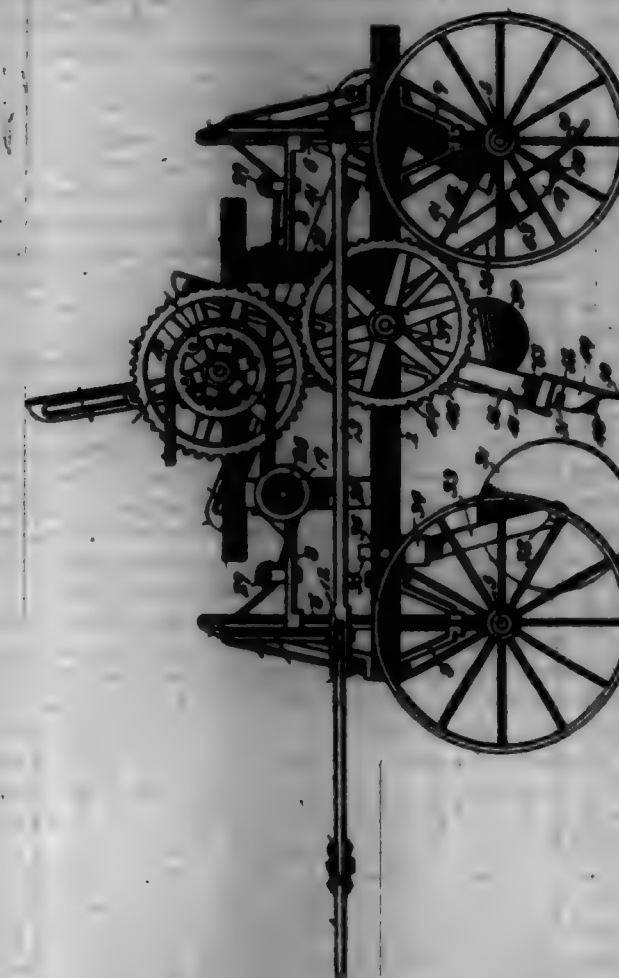


Claim.—1. In a sliding test, longitudinally-recessed frame-posts, rods fitting into the recesses and holding the ends of the test-walls, and adjustable means for retaining said rods in the recesses, all substantially as and for the purpose herein set forth.

2. In a sliding test, longitudinally-recessed frame-posts, rods fitting into the recesses and holding the ends of the test-walls, and clip-bolts passing

ing through said posts and retaining the rods in said recesses, all substantially as and for the purpose herein set forth.

701,127. FLOW. GEORGE R. BARTY, Bellville Park, Minn. Filed June 12, 1901. Serial No. 84,712. (No model.)



Claim.—1. A wheeled plow, comprising crank-shafts, a standard loosely mounted on the crank-shafts and provided with a reduced shank at its lower end, a shovel provided with a head and mounted so as to turn on the lower end of the standard, means for limiting the turning movement of the shovel in both directions, a coil-spring encircling the standard for holding the shovel in its operative position, means for swinging or tilting the shovel, and a spring-dog for locking the shovel in its inoperative position.

2. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts mounted one above the other and adapted to rotate in opposite directions, a standard journaled on the lower crank-shaft and provided in its upper portion with a longitudinal slot in which is received the upper crank-shaft, and a spring-actuated oscillatory shovel mounted on the lower end of the standard.

3. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby and provided with reduced shanks at their lower ends, a shovel provided with a head journaled on the lower end of each standard, means for limiting the turning movement of the shovel in both directions, a coil-spring encircling each standard for holding the shovel in its operative position, means on the frame for swinging or tilting the shovel, and spring-dogs for locking each shovel in its inoperative position.

4. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby, a shovel provided with a head rotatable axially on the lower end of each standard, a flange on said head having a projecting portion, deflecting devices on the main frame adapted to cooperate with said projecting portion of the flanges for turning the shovels, and retracting springs on the shovels for returning the shovels to their operative positions.

5. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby, shovels mounted to turn axially on the lower ends of the standards, and a series of combined deflectors and scrapers connected to the main frame and arranged in the path of the shovels whereby the shovels are successively oscillated and scraped.

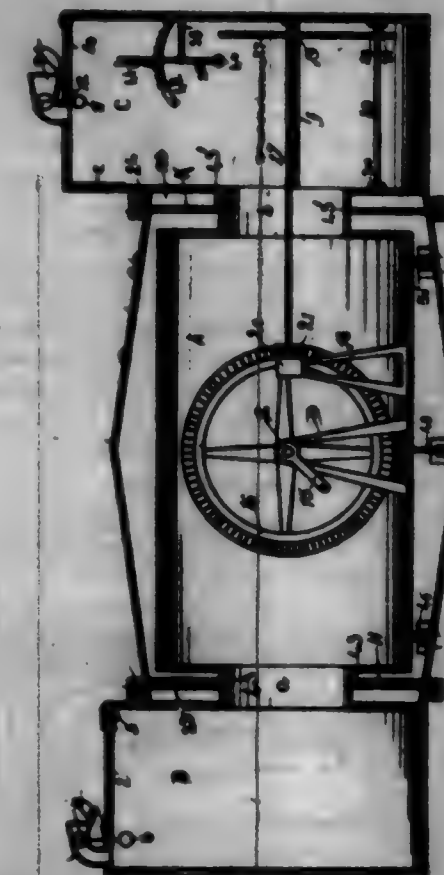
6. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby, a shovel having a head journaled axially upon the lower end of each standard, a spring for yieldingly holding each shovel in its

operative position, means for turning the shovels axially on the standards, a dog for locking each shovel after it has been turned, and a tripping device for disengaging the dog.

7. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby, a shovel having a head journaled axially on the lower end of each standard, springs for yieldingly holding the shovels at two limits of their throw, means on the frame for turning the shovel, a spring-dog for automatically locking the shovel at one limit of its throw, and a tripping device in the form of a rock-shaft having oppositely-projecting terminal cranks, one of which co-operates with the spring-dog, and the other with a part of the crank-shaft.

8. In a wheeled plow, the combination with the main frame and carrying-wheels, of a plurality of crank-shafts, a series of standards actuated thereby and provided with reduced shanks at their lower ends, a shovel provided with a head journaled on the lower end of each standard, a flange on said head, a projecting portion on each flange having a locking-notch, a spring-dog on each of said standards to engage said locking-notch at one limit of its throw, tripping devices for said dogs, and a spring coiled about the reduced portion of each standard and having one end fixed to the shovel-head and the opposite end to the standard for holding the shovel at one limit of its throw, and means on the frame for turning said shovel.

701,128. LIFE-SOAT. ADOLPH BAUMANN, Curacao, Nether. Filed June 4, 1901. Serial No. 83,164. (No model.)



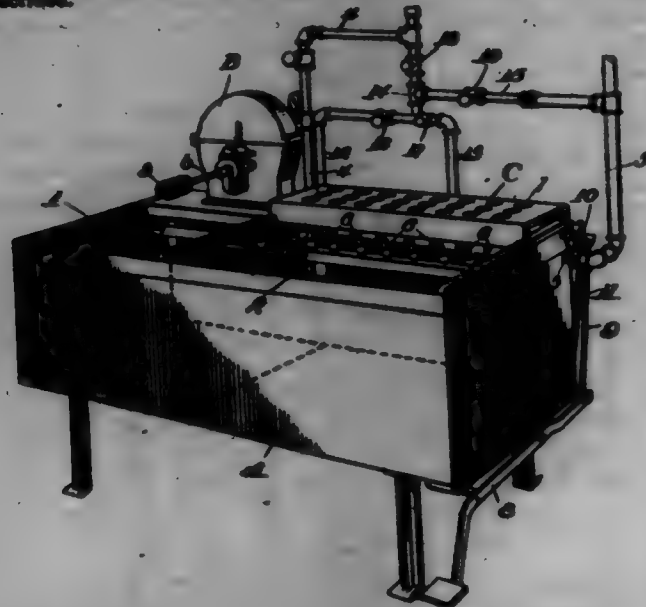
Claim.—The combination in a boat of the character described of a main central chamber, a forward chamber, a narrow cylindrical communication between said forward and said main chambers, a rear chamber, a narrow cylindrical communication between said rear and said main chambers, a housing surrounding said main chamber provided with end disks working upon said cylindrical communication to form an air-chamber surrounding said main chamber, said housing and said disks being reversibly supported and held as and for the purpose set forth.

701,129. BOTTLE-WASHING MACHINE. WILIAM L. BULCHAP, Chicago, Ill., assignor to the Greenery Package Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed May 11, 1902. Serial No. 14,217. (No model.)

Claim.—1. A bottle-washing apparatus, consisting of a tank having a partition dividing it into washing and rinsing compartments, a water-pipe arranged horizontally in the rear of the rinsing-compartment below the top thereof and provided with upwardly-directed nozzles, and a rack arranged to rest upon the top of the side walls of this rinsing-compartment and provided with apertures corresponding to the nozzles of the said water-pipe, substantially as described and for the purpose set forth.

2. A bottle-washing apparatus consisting of a tank having a vertical partition dividing it into washing and rinsing compartments, a water-

pipe extending into the rinsing-compartment and arranged horizontally in the same below the top thereof, the said pipe having upwardly-directed nozzles, a rack arranged to rest upon the top of the side walls of the rinsing-compartment and provided with apertures corresponding with said nozzles, supply-pipes 12 and 13 extending to the washing and rinsing compartments respectively; connection between the steam and water pipes and the supply-pipes 12 and 13, whereby either steam or water or both may be supplied at will to either or both of the compartments of the tank, a valve in the water-pipe outside of the rinsing-compartment, a valve-lever 10 for operating said valve, a link for operating the valve-lever, a spring tending to hold the valve-lever in such position as to normally close the valve, and a foot-lever for operating the link, substantially as described.



3. The combination with the tank, and a water-pipe therein having upwardly-directed nozzles, of a valve in said water-pipe, a lever for operating said valve, a spring tending to hold said lever normally in position to maintain the valve closed, a link 9 extending downwardly from the valve-lever, and a foot-lever 8 pivoted to the bottom of the tank and having its rear end connected with the link 9 and its forward end provided with a pedal for the foot, substantially as described.

701,180. APPARATUS FOR TESTING THE VOLUME OF AIR FROM THE LUNGS. MICHAEL BENEDICT, New York, N. Y. Filed July 28, 1901. Serial No. 68,347. (No model.)



Claim.—1. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, gas-conveying pipes leading to the said burners, a series of gas-cocks, a bellows adapted to be expanded by forcing air into the same, and means for successively closing the said gas-cocks during the ascent of the bellows, substantially as and for the purposes set forth.

the bellows and opening the closed gas-cocks during the descent of the bellows, substantially as and for the purposes set forth.

2. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, a stand-pipe, means for conducting gas into said stand-pipe, a series of gas-cocks connected with the said stand-pipe, a gas-conveying pipe between each gas-cock and each gas-burner, and means for successively closing and opening the said gas-cocks, substantially as and for the purposes set forth.

3. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, a stand-pipe, means for conducting gas into said stand-pipe, a series of gas-cocks connected with the said stand-pipe, a gas-conveying pipe between each gas-cock and each gas-burner, a bellows adapted to be expanded by forcing air into the same, and means for successively closing the said gas-cocks during the ascent of the bellows, and opening the closed gas-cocks during the descent of the bellows, substantially as and for the purposes set forth.

4. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, gas-conveying pipes leading to the said burners, a series of gas-cocks, an oscillating valve in each gas-cock provided with a forwardly-extending arm, a bellows adapted to be expanded by forcing air into the same, and means for successively engaging the forwardly-extending arms and thereby actuating the valves of said gas-cocks, consisting of a bracket having ribs adapted to engage with the said arms for closing or opening the said valves, substantially as and for the purposes set forth.

5. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, gas-conveying pipes leading to the said burners, a stand-pipe, means for conducting gas into said stand-pipe, a series of gas-cocks connected with said stand-pipe, a gas-conveying pipe between each gas-cock and each gas-burner, an oscillating valve in each gas-cock provided with a forwardly-extending arm, and means arranged and constructed to successively engage the said arms, and actuate the oscillating valves of the gas-cocks, substantially as and for the purposes set forth.

6. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, gas-conveying pipes leading to the said burners, a stand-pipe, means for conducting gas into said stand-pipe, a series of gas-cocks connected with said stand-pipe, a gas-conveying pipe between each gas-cock and each gas-burner, an oscillating valve in each gas-cock provided with a forwardly-extending arm, a bellows adapted to be expanded by forcing air into the same, and means for successively engaging the forwardly-extending arms and thereby actuating the valves of said gas-cocks, consisting of a bracket having ribs adapted to engage with the said arms for closing or opening the said valves, substantially as and for the purposes set forth.

7. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, each burner comprising an inner gas-burning tube and an outer tube, gas-conveying pipes leading to the said inner gas-burning tubes, a series of gas-cocks, each cock being provided with an oscillating valve for admitting a full supply of gas to the inner gas-burning tube, means for closing the said gas-cocks, and an auxiliary gas-tube connected with said gas-conveying pipes and leading around each gas-cock for providing each burner with a constant but limited supply of gas, substantially as and for the purposes set forth.

8. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, each burner comprising an inner gas-burning tube, gas-conveying pipes leading to the said inner gas-burning tubes, a series of gas-cocks, each cock being provided with an oscillating valve for admitting a full supply of gas to the inner gas-burning tube, means for closing the said gas-cocks, and an auxiliary gas-tube connected with said gas-conveying pipes and leading around each gas-cock for providing each burner with a constant but limited supply of gas, and a bellows adapted to be expanded by forcing air into the same, the said bellows being arranged to actuate the said closing means of said gas-cocks, and successively closing the valves of said cocks during the ascent of the bellows and opening said valves during the descent of the said bellows, substantially as and for the purposes set forth.

9. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, each burner comprising an inner gas-burning tube and an outer tube, means for conducting gas into said stand-pipe, a series of gas-cocks connected with said stand-pipe, a gas-conveying pipe between each gas-cock and each inner gas-burning tube, an oscillating valve in each gas-cock for admitting a full supply of gas to the inner gas-burning tube, means for closing the said gas-cocks, and auxiliary gas-tubes connected with the said stand-pipe and the said gas-pipes which lead to the

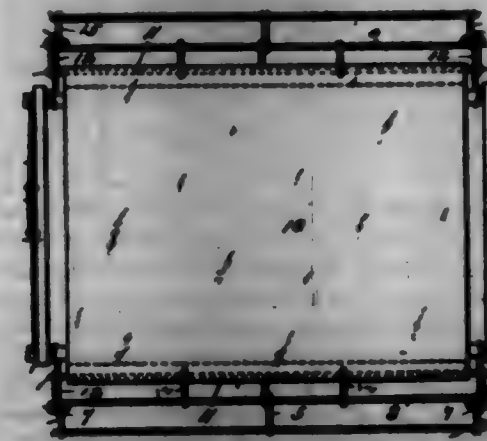
aid inner gas-burning tube, the said auxiliary gas-tubes leading directly around the said gas-cocks, for providing each burner with a constant but limited supply of gas, substantially as and for the purposes set forth.

10. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a series of gas-burners, each burner comprising an inner gas-burning tube, a stand-pipe, means for conducting gas into said stand-pipe, a series of gas-cocks connected with said stand-pipe, a gas-conveying pipe between each gas-cock and each inner gas-burning tube, an oscillating valve in each gas-cock for admitting a full supply of gas to the inner gas-burning tube, means for closing the said gas-cocks, and auxiliary gas-tubes connected with the said stand-pipe and the said gas-pipes which lead to the said inner gas-burning tubes, the said auxiliary gas-tubes leading directly around the said gas-cocks, for providing each burner with a constant but limited supply of gas, and a bellows adapted to be expanded by forcing air into the same, the said bellows being arranged to actuate the said closing means of said gas-cocks, and successively closing the valves of said cocks during the ascent of the bellows and opening the said valves during the descent of the said bellows, substantially as and for the purposes set forth.

11. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a bellows adapted to be expanded, a series of gas-burners, and an intermediately-arranged mechanism between said bellows and the burners for successively releasing the gas-flames at the said burners, and then restoring said flames to their original size, substantially as and for the purposes set forth.

12. In an apparatus for testing the volume of the air blown from the lungs of a person, the combination, with a casing, of a bellows adapted to be expanded, a bracket on said bellows, provided with ribs, a series of gas-burners, and gas-cocks arranged in gas-conveying pipes connected with said bellows, and means on said gas-cocks with which said ribs on said bracket engage for closing and opening the said gas-cocks, substantially as and for the purposes set forth.

701,181. BED. ROBERT A. BARNETT, Riverside, Md. Filed Aug. 2, 1901. Serial No. 71,360. (No model.)



Claim.—1. A bed comprising a base-frame including side bars, series of spring supporting-arms extending upward from the side bars and having an interlocking connection therewith, eyes or loops formed intermediate the ends of said spring-arms, whereby the two ends of said spring-arms form guards stringer-rods extending through the eyes or loops on the spring-arms, a bed-bottom having attached side rods, and connections between the side rods and stringer-rods.

2. A bed comprising a base-frame including side bars, spring supporting-arms extending upward and inclining outward from the side bars and having an interlocking connection therewith, eyes or loops formed intermediate the ends of said spring-arms, whereby the two ends of said spring-arms form guards, stringer-rods extending through the eyes on the spring-arms and having terminal eyes which interlock with the eyes or loops of the spring-arms, a flexible bed-bottom, side rods connected therewith, and links interposed between said side rods and the stringer-rods.

3. A bed comprising a base-frame including side bars, series of spring supporting-arms extending upward and inclining outward therefrom and having an interlocking connection therewith, stringer-rods connected to the spring-arms, spring-arms extending above the stringer-rods and provided with terminal eyes, guard or finger rods inserted through said terminal eyes, a flexible bed-bottom, side rods connected therewith, and links connecting the side rods and stringer-rods at intervals.

4. A collapsible or knockdown bed embodying a base-frame consisting of side bars and cross-bars, spring-arms having an interlocking connection with the side bars and extending upward therefrom, stringer-rods connected with said spring-arms, a bed-bottom stretched and suspended between the stringer-rods, and arched canopy-supports located at opposite ends of the bed and having their extremities inserted in openings in the

base-frame, the canopy-supports also serving as means for preventing displacement of the cross-bars relatively to the side bars of the base-frame.

5. A collapsible or knockdown bed embodying a base-frame comprising side bars and cross-bars, spring supporting-arms having an interlocking connection with the side bars and bent to embrace said side bars, stringer-rods inserted through eyes or loops on the spring-arms, a flexible bed-bottom suspended between the stringer-rods, and arched canopy-supports having their extremities inserted into openings in the side bars, the cross-bars being confined between the canopy-supports and the portions of the spring-arms which embrace the side bars.

701,182. FIRE-HOOK. PAUL R. T. BERNER, Brooklyn, N. Y. Filed Apr. 18, 1901. Serial No. 68,388. (No model.)



Claim.—1. A fire-hook comprising spring-actuated pivoted members and an adjuster for the spring substantially as described.

2. A fire-hook comprising pivoted members, a spring for actuating the members, and a disk-shaped slide made to regulate the action of the spring and to act as a drag substantially as described.

3. A fire-hook comprising crusting members pivoted together, a spring for actuating the members, and a regulator adjustable on the spring for changing the action of the latter from opening to closing substantially as described.

701,188. VEL-FASTENER. WILLIAM BUSHNELL, New York, N. Y. Filed Mar. 28, 1900. Serial No. 68,464. (No model.)



Claim.—A vel-fastener, comprising an attaching-plate, adapted to be secured to a hat, a pin extending on the front face of the attaching-plate, and comprising a shank, having its base and extending at angles from the said plate and in an upward and outward direction, the base end of the shank terminating in an eye-curved portion, extending laterally and upwardly, and a point extending from the said curved portion and in the same direction, and reaching within a short distance of the base of the attaching-plate, as set forth.

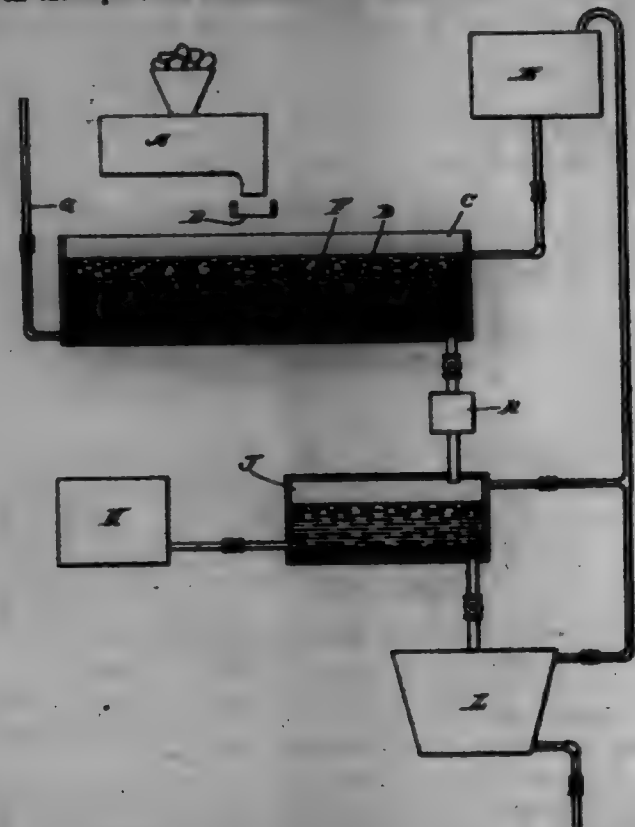
701,184. PROCESS OF TREATING ORES. CHARLES J. BOW, Denver, Colo. Filed July 28, 1901. Serial No. 68,746. (No specification.)

Claim.—1. The process of treating ores, which consists in grinding them to a suitable fineness, supplying thereto a solution, consisting of a large proportion of water, a small proportion of acid and a salt mixture, consisting approximately of two parts common salt, one and one-quarter parts nitric acid, boiling the whole for a proper length of time, filtering the solution, precipitating the metallic portions by the application of sulfated hydrogen to the filtered solution, until a milky precipitate is formed, then heating each precipitate with the usual fluxes to drive off the vapors, then drawing off the metals, and then returning each solution and vapors for use in the heating-tank.

2. The process of treating ores, which consists in grinding them to a suitable fineness, supplying thereto a solution, consisting of a large proportion of water, a small proportion of acid and a salt mixture, consisting approximately of two parts common salt, one and one-quarter parts nitric acid, one and one-quarter parts alum and one and one-half parts nitric acid, boiling the whole for a proper length of time, filtering the solution, precipitating the metallic portions by the application of sulfated hydrogen to the filtered solution, until a milky precipitate is formed, then heating each precipitate with the usual fluxes to drive off the vapors, and then drawing off the metals.

3. The process of treating ores, which consists in grinding them to a suitable fineness, supplying thereto a solution, consisting of a large proportion of water, a small proportion of acid and a salt mixture, consisting approximately of two parts common salt, one and one-quarter parts nitric acid, one and one-quarter parts alum and one and one-half parts nitric acid, boiling the whole for a proper length of time, filtering the solution, precipitating the metallic portions by the ap-

precipitation of sulfureted hydrogen to the filtered solution, until a solid precipitate is formed, then heating such precipitate with the usual fluxes to drive off the vapors, and then drawing off the metals.



4. The process of treating ores, consisting of applying to the properly-ground ore a solution of from one to two parts acid, seventy to eighty parts water and titanium to twenty-five parts alkali mixture, consisting approximately of two parts common alkali, one and one-quarter parts nitric acid, one and one-quarter parts alum and one and one-half parts nitric acid, then boiling the compound for from one to two and a half hours, then drawing off the solution and causing a precipitation of the metallic portions to form a solid, then by the application of heat with the usual fluxes freeing the metals from the substances with which they are associated by reason of the preceding steps in the process.

5. The process of treating ores, consisting of applying to the properly-ground ore a solution of acid, water and a salt mixture, consisting approximately of two parts common alkali, one and one-quarter parts nitric acid, one and one-quarter parts alum and one and one-half parts nitric acid, then boiling the compound for from one to two and a half hours, then drawing off the solution and causing a precipitation of the metallic portions to form a solid, then by the application of heat with the usual fluxes freeing the metals from the substances with which they are associated by reason of the preceding steps in the process.

6. The process of treating ores, which consists in grading them to a suitable fineness, supplying thereto a solution consisting of water, acid and a salt mixture, consisting approximately of two parts common alkali, one and one-quarter parts nitric acid, one and one-quarter parts alum and one and one-half parts nitric acid, boiling the whole for a proper length of time, precipitating the dissolved metals as solids, then heating such precipitate with the usual fluxes to drive off the vapors, and then drawing off the metals.

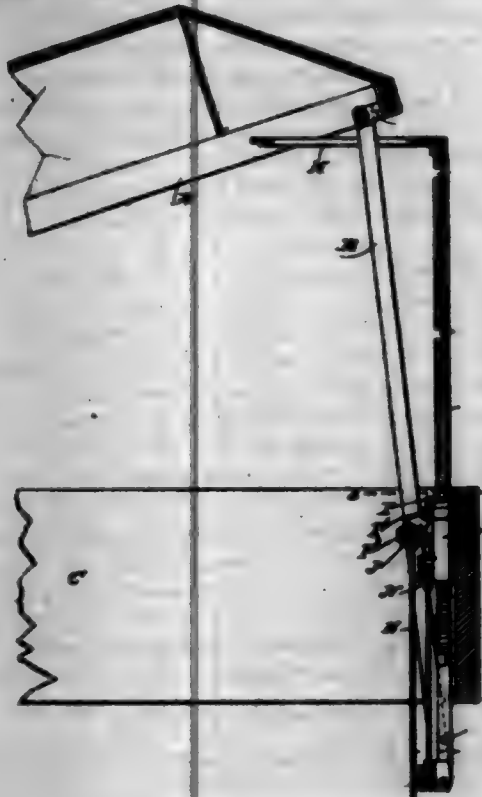
701,185. SKYLIGHT-OPENER. GEORGE BOKERHART, New York, N. Y. Filed Jan. 24, 1908. Serial No. 91,970. (No model.)

Claim.—1. A skylight-opener, comprising a link pivotally connected at its upper end with a hinged skylight, a fixed bearing, a raising-bar slidable in the said bearing and pivotally connected at its lower end with the said link, a locking device on the fixed bearing for locking the bar to the bearing, and manually-controlled means for actuating the said locking device and imparting a sliding motion to the said bar, as set forth.

2. A skylight-opener, comprising a link pivotally connected at its upper end with a hinged skylight, a fixed bearing, a raising-bar slidable in the said bearing and pivotally connected at its lower end with the said link, a locking device on the fixed bearing for locking the bar to the bearing, and manually-controlled means for actuating the said locking device and imparting a sliding motion to the said bar; the said means comprising a pulley, a locking device, a pulley on the bearing, a pulley on the bar, and a pull-rope secured at one end to the raising-bar and extending over the said pulleys, as set forth.

3. A skylight-opener, comprising a link pivotally connected at its upper end with a hinged skylight, a fixed bearing, a raising-bar slidable

in the said bearing and pivotally connected at its lower end with the lower end of the said link, a spring-pressed lever-catch fulcrumed on the said fixed bearing and adapted to engage and lock the raising-bar in position, and means connected with the said catch and the said raising-bar to impart an initial movement to the said lever-catch to disengage the latter from the raising-bar, and to impart a sliding movement to the latter, as set forth.



4. A skylight-opener, comprising a link pivotally connected at one end with a hinged skylight, a fixed bearing, a raising-bar slidable in the said bearing and pivotally connected with the said link, a spring-pressed lever-catch fulcrumed on the said bearing and adapted to engage and lock the raising-bar in position, and means connected with the said catch and the said raising-bar to impart an initial movement to the said lever-catch to disengage the latter from the raising-bar, and to impart a sliding movement to the latter; the said means comprising a pulley journaled on the bearing, a pulley journaled on the bar, a pulley journaled on the lever-catch, and a pull-rope fixed at one end to the said bar and passing over the said pulleys, as set forth.

5. A skylight-opener, comprising a link pivotally connected at one end with a hinged skylight, a fixed bearing, a raising-bar slidable in the said bearing and pivotally connected with the said link, a locking device for locking the bar to the bearing, manually-controlled means for actuating the said locking device and imparting a sliding motion to the said bar, and a guide fixed on the said raising-bar for guiding the said link, as set forth.

6. A skylight-opener, comprising a link pivotally connected with a hinged skylight, a raising-bar having vertical guided movement and pivotally connected with the said link, a pivoted and spring-pressed lever-catch adapted to engage and lock the raising-bar, a pulley carried by the lever-catch, and pull-rope connected with the raising-bar and passing over the pulley on the lever-catch, as set forth for the purpose set forth.

701,186. DOOR-HOLDER. DAVID S. HAMPTON, Bostonville, Mass. Filed Oct. 31, 1901. Serial No. 90,007. (No model.)



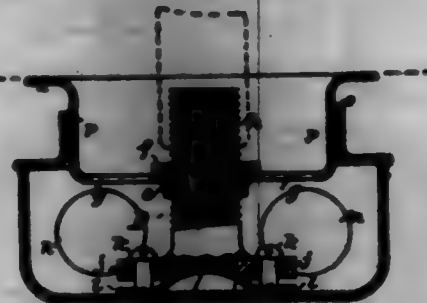
Claim.—1. A door-holder comprising a normally straight resilient bar having a leg on each end, said legs being of substantially the same

length so that when the bar is depressed and spring under the door it will hold the door from being moved in either direction, substantially as described.

2. A door-holder comprising a resilient bar having legs thereon provided with feet, said feet having tapered toes constructed to engage and support said bar when depressed, substantially as described.

3. A door-holder comprising a normally straight resilient bar having a leg on each end, said legs being substantially of the same length, and rubber shoes on said legs to engage the floor and prevent slipping, each of said shoes comprising a piece of tubing secured by a clip having hooked ends engaging said feet, substantially as described.

701,187. INTERIOR-CONDUIT OUTLET-BOX. WILLIAM F. BARNETT, Utica, N. Y., assignor to the Barnett Electric Construction Company, Utica, N. Y. Filed Mar. 20, 1908. Serial No. 90,000. (No model.)



Claim.—1. An interior-conduit box, composed of an inner box portion to which the conduits are attached, provided with a cover having a central orifice; an outer box portion of less diameter than the orifice of the cover, and located therein, with a screw-threaded leg in the center of its bottom wall; with means for directly and positively supporting the said outer box portion from the bottom of the inner box portion, and means for adjusting the distance of one box portion to the other, and means also for adjusting the relative angle of one box portion to the other, as set forth.

2. An interior-conduit box, composed of an inner box portion provided with a cover having a central orifice; an outer box portion of less diameter than the orifice of the cover and located therein, having an outer rim and a screw-threaded leg in the center of its bottom wall, and other openings in said wall as described; with means for directly and positively supporting the said outer box portion from the bottom of the inner box portion, and means for adjusting the box portions toward one another and means also for adjusting the relative angle of the outer box portion to the inner portion, as set forth.

3. An interior-conduit box, composed of an inner box portion to which the conduits enter; a lamp-fixture support provided with a screw-threaded stud whose inner end has a supporting-surface adjustably held to a second surface in the bottom of the said inner box portion; a cover secured to said inner portion, having a central orifice; an outer box portion within the central orifice of the cover and adjustably supported upon the said threaded stud; with means at the bottom of said fixture-support for adjusting the said support and outer box portion at any angle.

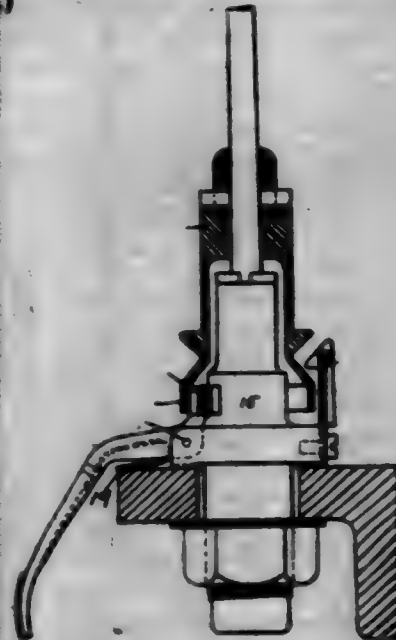
4. An interior-conduit box, composed of an inner box portion to which the conduits are attached; a cover for the said box portion having a central orifice; an outer box portion adapted to enter the said cover-orifice freely, having a threaded leg in the center of its bottom; with means for adjustably supporting the said outer box portion to and from the said cover, and for tilting the same universally at any angle, consisting of an upright support whose outer end is screw-threaded and engaging the said threaded leg of the outer box portion, the support also adapted to contain a lamp-fixture, the inner end of the support provided with adjustable means for holding the same tilted from the bottom wall of the inner box portion.

5. An interior-conduit box, composed of an inner portion to which the conduits enter; a cover for the said inner portion, provided with a central orifice; an outer portion with substantially upright walls terminating in an outward rim, a screw nut or leg in the center of the bottom wall, which is also otherwise perforated as described; with a lamp-fixture support whose inner end has a supporting-surface adjustably held to a second surface in the bottom of the inner box portion and adapted to rotate thereupon, the outer end of said support consisting of a screw-threaded stud passing through and engaging with the said screw thread or leg, and a nut-nut upon the upper side of said leg.

6. An interior-conduit box, composed of an inner portion to which the conduits enter; a cover for the said inner portion, having a central orifice; and an outer portion provided with a screw-leg in the center of its bottom wall; with a lamp-fixture support having a screw-threaded stud projecting through and engaging said screw-leg, and whose inner end has a curved supporting-surface adjustably held to a second surface

in the bottom of the said inner portion, whereby the said outer portion may be raised and lowered upon the said stud, and be angularly adjusted relatively to the said inner box portion by the movement of the said curved surface upon the second surface, as set forth.

701,188. KNEE-BRAKE FOR STOPPING SPINNING-SPINDLES. JOHN ROTH, Bathwell, Scotland. Filed Feb. 1, 1908. Serial No. 90,142. (No model.)



Claim.—In spinning or doubling machines, the combination of the brake and spindle having a flanged whorve with a pivoted brake-lever, having a brake part projecting within the whorve-flange and adapted to act on the inner face thereof and at the other end of the lever a projecting part for the knee or limb of the operator to act on, substantially as described.

701,189. PUMP. ORVILLE J. BRACKLEY, Butler, Pa., assignor to himself and Thomas F. Ryan and Daniel A. Butler, Butler, Pa. Filed Jan. 6, 1908. Serial No. 90,612. (No model.)



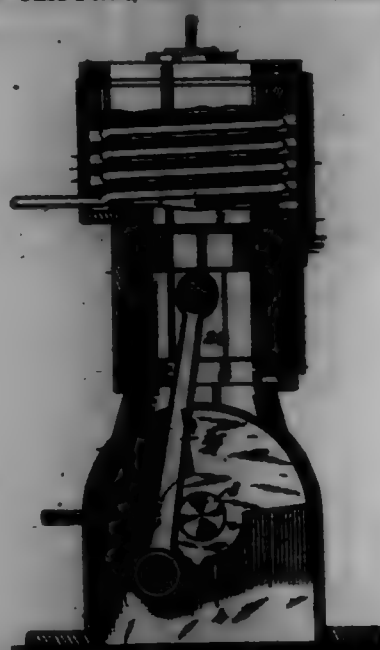
Claim.—1. A pump comprising a tube, a ring arranged in the lower portion of the tube and forming a valve-seat, a valve supported on the

ring, an annular channel formed in the outer surface of the ring, the tube being provided with an opening in line with said channel and an opening having its axial line below the plane of the channel, and a spring-plate attached to the tube and having an inwardly-turned end for passing through the first-named opening and into the channel, substantially as specified.

2. A pump comprising a tube having an interior annular shoulder near its lower end, the said tube below said shoulder being tapered downward and outward, a valve-supporting ring correspondingly tapered at its outer side and adapted to engage its upper end against said shoulder, a valve supported on the ring, an annular channel formed in the outer surface of the ring, the tube being provided with an opening in line with said channel, and an opening having its axial line below the plane of the channel, a spring-plate attached to the tube and having an inwardly-turned end for passing through the first-named opening and into the channel, and a motor operating in the tube, substantially as specified.

3. In a pump, a tube, a valve-actuator secured to the lower end of said tube and having its outer surface flush with the tube, the said actuator being provided with an annular shoulder and tapered downward and outward from said shoulder, a valve-supporting ring tapered at its outer side to fit said taper of the actuator, the said ring having an annular channel, a valve on the upper end of the ring, the valve-actuator being provided with an opening in line with the channel of the ring and also with an opening on a lower plane than the channel, a spring-plate seated in a recess formed in the actuator and having an inwardly-turned portion for passing through the first-named opening and into said channel, the said actuator also having a depression or recess above the first-named opening, whereby an instrument may be inserted against the inner side of the plate, and a motor for operating in the tube, substantially as specified.

701,140. HYDROCARBON-OIL ENGINE. DWIGHT A. BROWN, Flint, Mich. Filed Feb. 4, 1908. Serial No. 82,821. (No model.)



Claim.—1. In a hydrocarbon-oil engine, a cylinder, a rib extended spirally around said cylinder and having openings through its coils, a jacket secured to said rib, an oil-supply pipe coiled around the cylinder between the coils of the rib, a vaporizing-chamber into which said coiled pipe discharges, a mixing-chamber communicating with said vaporizing-chamber and having communication with the interior of the cylinder, and a valve for controlling said communication, substantially as specified.

2. In hydrocarbon-oil engine, a cylinder, a rib extending spirally around said cylinder and having openings through its coils, a jacket secured to said rib, an oil-supply pipe coiled around the cylinder between the coils of the rib, a vaporizing-chamber, a spray-nozzle for receiving oil from the oil-pipe and discharging into said chamber, screens in said chamber below said nozzle, a cap surrounding the chamber and adapted to receive oil from the oil-pipe, a mixing-chamber at one side of the cylinder, a pipe leading from the vaporizing-chamber into said mixing-chamber, a valve for controlling the communication between said pipe and the mixing-chamber, a part in the wall of the cylinder communicating with said mixing-chamber, a valve for controlling said communication, and a screen in the opening which provides communication between said mixing-chamber and the port, substantially as specified.

3. In a hydrocarbon-oil engine, a cylinder, a rib extended spirally around the upper portion of said cylinder and provided with openings, an oil-supply pipe coiled around the cylinder between the coils of the rib, a supplemental heating-chamber on the cylinder and communicating with

said oil-pipe, a cap on the cylinder within said supplemental chamber, a vaporizing-chamber in said cap, an oil-pipe coiled around the vaporizing-chamber and communicating with the supplemental chamber, a nozzle leading from said pipe into the vaporizing-chamber, a mixing-chamber having communication with the interior of the cylinder, and a pipe leading from the vaporizing-chamber into said mixing-chamber, substantially as specified.

4. A hydrocarbon-oil engine comprising a cylinder, a rib extended spirally around the upper portion of the cylinder and having openings, an oil-supply pipe extended spirally around the cylinder, a jacket secured to the rib, a vaporizing-chamber on the cylinder and receiving oil from the oil-pipe, a casing on the cylinder having an opening for the inlet of air, a gas and air mixing chamber in a wall of the cylinder and having communication with the interior of the cylinder, means for controlling said communication, and a pipe leading from the vaporizing-chamber into said mixing-chamber, substantially as specified.

701,141. BELT. FRANK W. BROWN, CHASE, N. Y. Filed Feb. 4, 1901. Serial No. 74,608. (No model.)



Claim.—1. A belt having a transverse curvature which at the portion between the center and ends of the belt extends downwardly and outwardly from the upper edge of said belt, substantially as shown and described.

2. A belt having a transverse curvature terminating in straight ends, said curvature at the portions of the belt between the center and ends extending downwardly and outwardly from the upper edge of the belt, substantially as shown and described.

701,142. GARMENT-STRETCHER. EMORY A. BROWN, MAINE. Filed Nov. 20, 1901. Serial No. 81,728. (No model.)



Claim.—1. A transverse-stretcher, substantially as herein described, consisting of a roller tapered toward its middle and provided at each point with spurs, a cord attached to one end of said roller and having its free ends arranged to be tied around the material rolled in the roller, and the intermediate flexible sheet arranged to be wound with the legs of trousers around the roller, substantially as set forth.

2. A transverse-stretcher consisting of a roller and an intermediate flexible sheet arranged and adapted for use substantially as set forth.

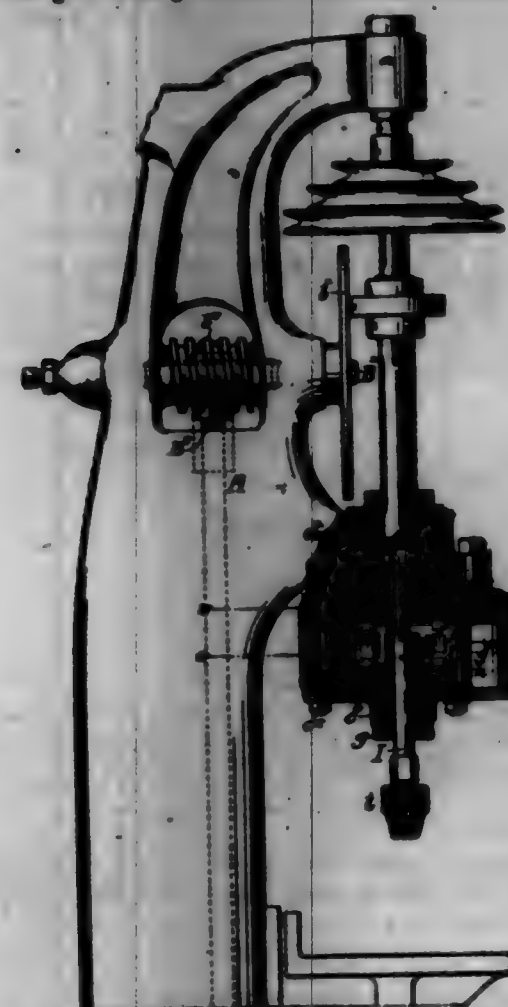
3. A transverse-stretcher comprising a roller tapered toward its middle, an eye at one end of said roller, a string passed through said eye and secured with its ends free and adapted to be passed around the trousers when rolled, and the intermediate flexible sheet arranged and adapted for use, substantially as set forth.

701,143. TAPPING-MACHINE. JOHN W. BROWN, JR., PHILADELPHIA, Pa. Filed Apr. 20, 1908. Serial No. 14,978. (No model.)

Claim.—1. The combination of a standard, a spindle, a bracket, a tapered opening in the bracket, a tapered sleeve in the opening and having nuts at either end, a flange on the end of the spindle, a ring mounted on the flange, balls mounted between the ring and the nut on the end of the tapered bearing, a two-part casing secured to the bracket, a gear-wheel F mounted on the end of the spindle and having one or more legs, a gear-wheel G mounted on the lower section of the casing and also having one or more legs, a gear-wheel H meshing with the gear-wheel F, a gear-wheel J meshing with the gear-wheel H, and a gear-wheel K secured to the gear-wheel J and meshing with the gear-wheel G, a tapping-spindle passing through the gear-wheel G and into an opening in the end of the driving-spindle, a clutch-arm on the end of the tapping-spindle extending between the two gear-wheels F and G and arranged so as to be engaged by either the legs on the wheel F or the legs on the wheel G, substantially as described.

2. The combination in a tapping-machine of a frame having a bracket, a casing supported thereby, a driving-spindle extending into the casing and having a bearing in the bracket, a flange on the lower portion of the spindle and ball-bearings between said flange and the bracket, a gear-

wheel on the spindle provided with legs, a second gear-wheel in the casing below the first wheel and also having legs, intermediate gearing whereby the second gear-wheel may be driven from the first wheel, a tapping-spindle and a projection on said spindle constructed to be engaged by the legs of either gear-wheel, substantially as described.



3. The combination in a tapping-machine of a frame, a bracket projecting from said frame, a casing, a driving-shaft carried by the frame and extending into the casing, a sleeve carried by the bracket and surrounding said spindle, means for holding said sleeve stationary in the bracket, ball-bearings between the lower end of the spindle and said sleeve, a gear-wheel fixed to the lower end of the spindle having projecting legs, a second gear-wheel in the casing below the first wheel and also having legs, intermediate gearing whereby the second gear-wheel may be driven from the first wheel, a tapping-spindle and a projection on said spindle constructed to be engaged by the legs of either gear-wheel, substantially as described.

701,144. AXLE-NUT WRENCH. LAWRENCE E. BROWNE, BROOKLYN, N. Y. Filed Dec. 30, 1901. Serial No. 87,313. (No model.)



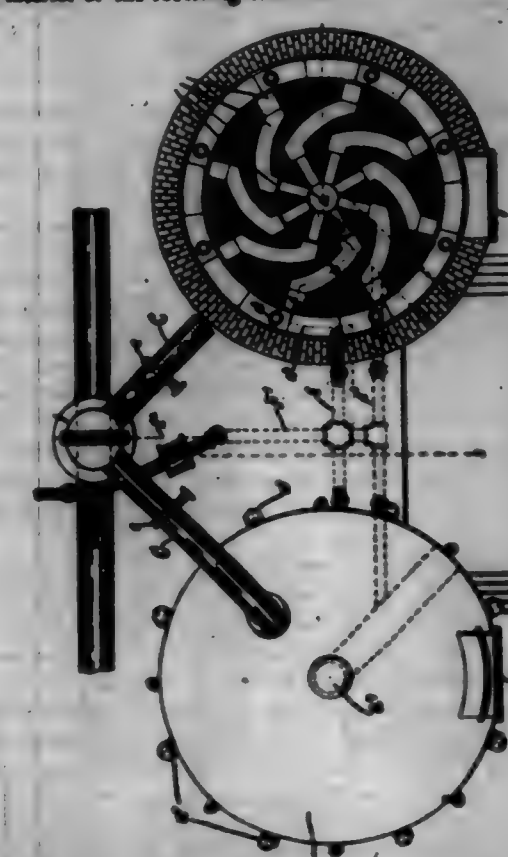
Claim.—1. In an axle-nut wrench, the combination of a spanner, resilient jaws secured to said spanner on opposite sides thereof, a rock-shaft journaled within said spanner and having a crank-lever secured thereto, and the hook-shaped arms secured to said shaft and having their free ends depending between said spanner and jaws and having a wedging contact therewith, substantially as set forth.

2. In an axle-nut wrench, the combination of the spanner, the resilient jaws secured to their rear ends to the head end of said spanner, the hook-shaped levers pivoted to said spanner and having their forward free ends underlaid between said spanner and jaws in wedging contact therewith, and means for operating said jaws in unison, substantially as set forth.

701,145. APPARATUS FOR MANUFACTURING CHARCOAL. CHARLES J. E. BROWN, SYRACUSE, N. Y. Filed May 20, 1901. Serial No. 81,638. (No model.)

Claim.—1. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, a plurality of heat-conducting passages communicating with the combustion-

chamber and arranged in proximity to different portions of the interior of the receiving-chamber, said passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber through said passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.



2. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, a plurality of heat-conducting passages communicating with the combustion-chamber and arranged in proximity to portions of the interior of the receiving-chamber substantially equidistant from each other, said passages communicating independently with the atmosphere and being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber into the atmosphere through said passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.

3. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, a main heat-conducting passage communicating with the combustion-chamber, a plurality of passages communicating independently with the main heat-conducting passage and also communicating independently with the atmosphere, said passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber and the main heat-conducting passage to the atmosphere through said plurality of passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.

4. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, said receiving-chamber being provided at its base with heat-conducting passages communicating with the combustion-chamber and arranged in proximity to different portions of the interior of the receiving-chamber and being provided with additional passages which communicate with the former passages and extend within the interior of the receiving-chamber and outwardly through the wall thereof, said former and additional passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber and the former passages through said additional passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.

5. An apparatus for manufacturing charcoal comprising a combustion-

chamber, a receiving-chamber for the wood to be charred, said receiving-chamber being provided at its base with a main heat-conducting passage communicating with the combustion-chamber, and a plurality of passages communicating with the main heat-conducting passage and leading therefrom in proximity to different portions of the interior of the receiving-chamber, and being provided with a plurality of additional passages which communicate with the former passages and extend within the interior of the receiving-chamber and outwardly through the wall thereof, said former and additional passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber and the former passages through said additional passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.

6. An apparatus for manufacturing charcoal comprising a receiving-chamber for the wood provided with a main heat-conducting passage, substantially horizontal heat-conducting passages formed in the base of the receiving-chamber and communicating with the main heat-conducting passage and extending outwardly therefrom, and additional heat-conducting passages communicating with the outer ends of the substantially horizontal heat-conducting passages and extending upwardly therefrom, said additional heat-conducting passages having their upper ends projected outwardly through the side walls of the receiving-chamber and provided with exits and closures therefor, and means for conducting the gases and vapors from the receiving-chamber, substantially as and for the purpose set forth.

7. An apparatus for manufacturing charcoal comprising a receiving-chamber for the wood provided with a main heat-conducting passage, substantially horizontal heat-conducting passages formed in the base of the receiving-chamber and communicating with the main heat-conducting passage and extending outwardly therefrom, a substantially ring-shaped heat-conducting passage communicating with the outer ends of the former passages, and additional heat-conducting passages extending upwardly therefrom, said additional heat-conducting passages having their upper ends projected outwardly through the side walls of the receiving-chamber and provided with exits and closures therefor, and means for conducting the gases and vapors from the receiving-chamber, substantially as and for the purpose described.

8. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, a plurality of heat-conducting passages communicating with the combustion-chamber and arranged in proximity to different portions of the interior of the receiving-chamber, said passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, means for controlling the flow of the products of combustion from the combustion-chamber through said passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber, a conduit for conducting the gases and vapors from the receiving-chamber, means for cooling the gases and vapors, and a conduit for conducting the cooled gases from said means to the receiving-chamber and cooling the charcoal, substantially as described.

9. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred, a plurality of heat-conducting passages communicating with the combustion-chamber and arranged in proximity to different portions of the interior of the receiving-chamber, said passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, means for controlling the flow of the products of combustion from the combustion-chamber through said passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber, a conduit for conducting the gases and vapors from the receiving-chamber, means for cooling the gases and vapors, and a conduit for conducting the cooled gases from said means to the combustion-chamber, substantially as described.

10. An apparatus for manufacturing charcoal comprising a receiving-chamber for the wood provided with heat-conducting passages at its base, a combustion-chamber communicating with the heat-conducting passages, a conduit for conducting the gases and vapors from the receiving-chamber, a condenser having a substantially upright passage for ascending fluid provided with an inlet at its base and an outlet at its top, and substantially upright passages communicating at their upper ends with the condenser, a second conduit, means for conducting the condensed vapors and gases from the lower ends of the upright passages thence to the second conduit, and a gas-conduit communicating with said means and the combustion-chamber, and provided with a chamber containing a wire-gauze partition, substantially as and for the purpose described.

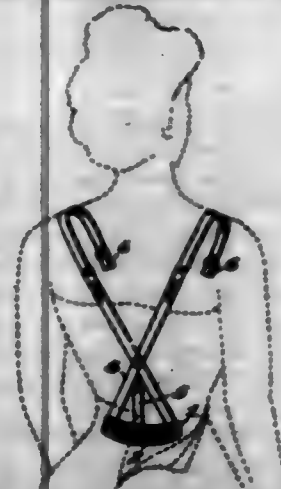
11. An apparatus for manufacturing charcoal comprising a combustion-chamber, a receiving-chamber for the wood to be charred having a plurality of openings extending through its side walls and closures for said openings, a plurality of heat-conducting passages communicating with the combustion-chamber and arranged in proximity to different portions of the interior of the receiving-chamber, said passages being each provided with an insulating wall for preventing the escape of the products of combustion from the passages into the interior of the receiving-chamber, and means for controlling the flow of the products of combustion from the combustion-chamber through said passages independently and thereby rendering substantially uniform the treatment of the wood in the different portions of the interior of the receiving-chamber.

701,146. BAG HANDLE OR CARRIER. EDWARD L. GARDNER and WILLIAM H. GARDNER, Detroit, Mich. Filed Mar. 17, 1902. Serial No. 98,592. (No model.)



Claim.—In a bag-carrier, a conical loop bent laterally near its ends, handles on said ends, and a conical loop having eyes at its ends to engage the laterally-projecting ends of the other loop.

701,147. DRESS-SUPPORTER. MARTHA J. GARDNER, Sherman, Tex. Filed Feb. 4, 1902. Serial No. 98,593. (No model.)



Claim.—A dress-supporter comprising a longitudinally-bowed plate to fit the body at a point adjacent the base of the spine, a spring applied completely against the rear convex side of the plate and converged toward its opposite terminus, suspending device having their lower terminals attached to the plate whereby the latter may be loosely hung from the shoulders of the wearer, and a reinforce-hanger having its lower end attached to the plate at a point intermediate of the attachment thereof of the suspending device, said hanger being also secured to the said suspending device.

701,148. FLUID-CUTTER. JAMES GARDNER, Detroit, Mich. Filed July 18, 1901. Serial No. 94,896. (No model.)



Claim.—1. In a fluid-cutter, the combination with a spindle having a cam formed thereon, of a tool-guard loosely mounted upon the spindle and provided with openings in its sides, cutters carried by the guard and adapted to be projected radially through said openings by the cam, and means on the spindle to engage the guard to hold the cutters projected during the cutting operation.

2. A fluid-cutter comprising a spindle having a cam formed thereon, a tool-guard mounted on the spindle, cutters carried by said guard and adapted to be moved radially by the cam when the spindle is rotated, a

cutting-pin carried by the spindle to engage the guard, whereby the spindle and guard are rotated together and the cutters are held projected during the cutting operation, substantially as specified.

3. A fluid-cutter comprising a spindle having annular grooves formed thereon, a tool-guard carrying cutters mounted on the spindle, a cam formed on the spindle to engage the cutter and project them radially when the spindle is partially rotated, a pin carried by the spindle to engage the guard and arrest the independent movement of the spindle, a gage revolved on the spindle, and means to prevent the spindle from wobbling, substantially as specified.

4. In a fluid-cutter, the combination with a spindle, having an eccentric formed thereon, of a tool-guard mounted upon the spindle, and provided with diametrically-arranged openings, radially-movable cutters mounted in said openings, and adapted to contact with the eccentric formed on the spindle, a cutting-pin carried by the spindle, laps formed on the ends of the tool-guard with which the cutting-pin contacts to revolve the guard, the sleeve 5, collar 6 for clamping the spindle, and a gage revolved upon the spindle, substantially as shown and described.

701,149. PHOTOGRAPH-HANGER. GEORGE H. GRANT, Portland, Ore. Filed Apr. 26, 1901. Serial No. 97,974. (No model.)



Claim.—A picture-hanging instrument having a vertical shaft, a pair of jaws attached thereto, and extending horizontally therefrom, one of said jaws being rigidly attached to the shaft, and the other of said jaws consisting of a horizontal bar pivoted near one end to the first jaw, and a gripping portion attached to the horizontal portion at or near the middle, means for attaching a pull-cord at the opposite end of said horizontal bar, and a spring for holding the pivoted jaw pressed toward the stationary jaw, substantially as specified.

701,150. BUILDING-BLOCK. JAMES W. GREENWOOD, Cleveland, Ohio. Filed Feb. 4, 1902. Serial No. 98,548. (No model.)



Claim.—1. As a new article of manufacture, a building-block comprising two slabs of concrete or similar material rigidly secured together by means of a metallic framework comprising two or more sets of cross-braces connected by rods embedded in the material of the respective slabs, said slabs having their adjacent faces parallel and separated from each other, substantially as described.

2. As a new article of manufacture, a building-block comprising two slabs of concrete arranged with their adjacent faces parallel and separated from each other, means for securing said slabs together, comprising a series of braces having their ends embedded in the material of the respective slabs and extending from the upper portion of one slab to the lower portion of the other slab, and a similar series of braces extending from the upper portion of the last-mentioned slab to the lower portion of the first-mentioned slab; means for securing the respective braces together at the points where they cross each other; and means embedded in the material of said slabs for locking the ends of the said braces in the said slabs, substantially as described for the purpose set forth.

3. As a new article of manufacture, a building-block comprising two slabs of concrete or similar material, one slab embedded in the upper and one in the lower portion of each slab, and a series of cross-braces secured together at their outer points and having their ends secured to the said rods in the respective slabs, the said cross-braces being arranged so that their outer points will fit without the material constituting the said slabs, substantially as described and for the purpose set forth.

4. As a new article of manufacture, a building-block comprising two slabs of concrete or similar material arranged with their adjacent faces separated from each other, a series of braces arranged with their ends embedded in the material of the respective slabs, and extending from the upper portion of one slab to the lower portion of the other slab, a similar series of braces extending from the upper portion of the last-mentioned slab to the lower portion of the first-mentioned slab, and means embedded in the material of the said slabs for locking the ends of the said braces in the respective slabs, substantially as described and for the purpose set forth.

701,151. MUFFLER. CHARLES E. CHRISTMAN, San Jose, Cal., assignor to Christman Motor Carriage Co., San Jose, Cal., a Corporation of West Virginia. Filed Jan. 20, 1902. Serial No. 99,466. (No model.)



Claim.—1. A muffler comprising an outer cylinder and an inner cylinder, means for connecting the exhaust with the inner cylinder, and a plurality of condensing-pipes and a plurality of discharge-pipes, the former communicating with the interior of the inner cylinder and the latter communicating with the atmosphere, and both sets of pipes located in the space between the inner and the outer cylinders, substantially as and for the purpose set forth.

2. A muffler comprising an outer cylinder and an inner cylinder, said inner cylinder provided with means for connecting with the exhaust-pipe, a plurality of condensing-pipes and a plurality of discharge-pipes located within the space between the two cylinders, the condensing-pipes communicating at one end with the interior of the inner cylinder and at their opposite ends communicating with the space between the two cylinders, and the discharge-pipes communicating at their opposite ends with the space between the two cylinders and with the atmosphere respectively, whereby the steam, vapor or gas is discharged into the same, substantially as and for the purpose specified.

701,152. TELEPHONE SYSTEM. HENRY F. CLARK, Chicago, Ill., assignor to American Electric Telephone Company, a Corporation of New Jersey. Filed Apr. 26, 1901. Serial No. 97,999. (No model.)

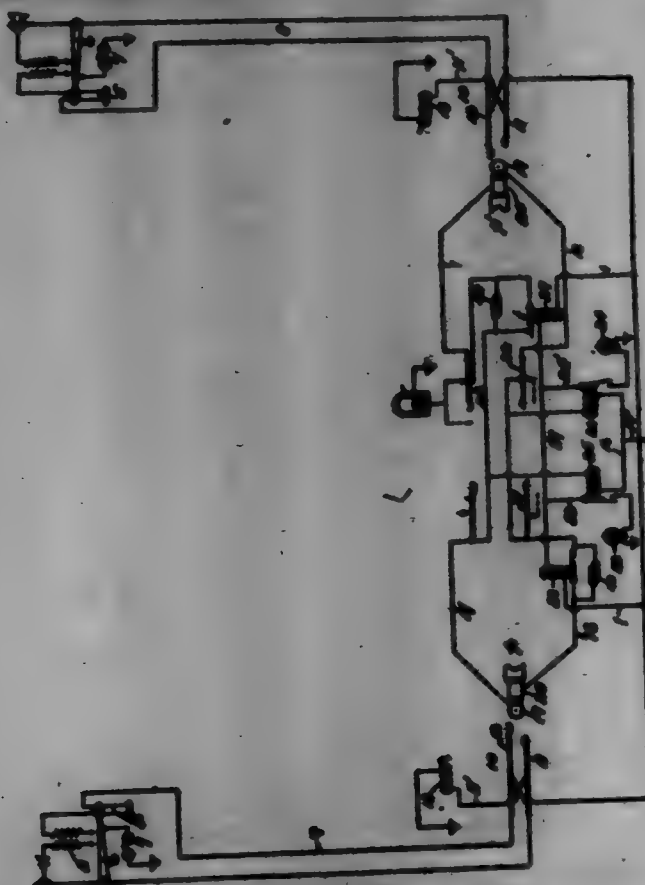
Claim.—1. In a telephone system, the combination with subscribers' lines, of a central office at which the lines terminate, operators' connective means at the central office to variously connect said lines together for conversational purposes, supervisory signals associated with said means to indicate the condition of the telephones at the connected subscribers' stations, and a circuit-breaking device adapted to open the circuit to one station when the supervisory signal assigned to the other is operated.

2. In a telephone system, the combination with subscribers' lines, of a central office at which the lines terminate, operators' connective means at the central office to variously connect said lines together for conversational purposes, subscribers' stations having telephones and hooks, and circuit-breaking device adapted to open the circuit to one of two connected subscribers when the telephone of one subscriber is off the hook and the telephone of the other subscriber is upon the hook.

3. In a telephone system, the combination with subscribers' lines, of a central office at which the lines terminate, operators' connective means at the central office to variously connect said lines together for conversational purposes, subscribers' stations being provided with telephones and hooks, and a relay and circuit connections adapted to open the circuit to a connected subscriber when his telephone is off the hook and the other subscriber's telephone is upon the hook.

4. In a telephone system, the combination with subscribers' stations having receivers and hook-switches, metallic telephone-lines extending

therefrom in a central office, operators' connective circuits to connect said lines together for conversational purposes, and a relay adapted and arranged to open one side of the circuit of a connected subscriber when one subscriber's receiver is off the hook and the other subscriber's receiver is open the hook.



5. In a telephone system, the combination with subscribers' stations having receivers and hook-switches, metallic telephone-lines extending therefrom to a central office, operators' connective circuits to connect said lines together in pairs for conversational purposes, supervisory signals associated with said means to indicate the condition of the subscribers' instruments when connected together, and a circuit-breaking device adapted and arranged to open the circuit to one connected subscriber when the supervisory signal assigned to the other is operated.

6. In a telephone system, the combination with subscribers' stations having receivers and hook-switches, metallic telephone-lines extending therefrom to a central office, operators' connective circuits to connect said lines together in pairs for conversational purposes, supervisory signals associated with said means to indicate the condition of the subscribers' instruments when connected together, said signals being operated over one side of the metallic circuits and ground, and a relay adapted and arranged to open the other side of the circuit to one subscriber when the supervisory signal for the other subscriber is operated.

7. In a telephone system, the combination with metallic telephone-lines, subscribers' stations having hook-switches connected to one line conductor and normally grounded, cord-circuits at the central office to interconnect said lines for conversational purposes, relays connected across the line, a common battery connected between said coils and ground, supervisory signals controlled by said relays, and relays arranged for automatically opening the metallic circuit of one connected line when the signal of the other is operated.

8. In a telephone system, the combination with metallic telephone-lines, subscribers' stations having hook-switches connected to one line conductor and normally grounded, cord-circuits at the central office to interconnect said lines for conversational purposes, relays connected across the line, a common battery connected between said coils and ground, supervisory signals controlled by said relays, and circuit-breaking devices controlled by said relays for opening the circuit to one station when the signal assigned to the other is operated.

9. In a telephone system, the combination with metallic telephone-lines, hook-switches at the subscribers' stations connected to one line conductor and normally grounded, cord-circuits at the central office to interconnect said lines for conversational purposes having their strands connected with tip and sleeve contacts of the plugs, circuit-closing relays bridged across the cord-circuits, a common battery connected between a point intermediate said relays and earth, supervisory signals controlled by said relays and associated respectively with the ends of the cord-circuit, and circuit-breaking relays also controlled by said circuit-closing relays to open either end of the cord-circuit when the signal associated with the other end is operated.

10. In a telephone system, the combination with metallic lines, hook-switches at the subscribers' stations connected to one line conductor in the same unvarying relation and normally grounded, cord-circuits to interconnect said lines for conversational purposes having their strands connected with tip and sleeve contacts of the plugs, relays bridged across the cord-circuits, a common battery connected between a point intermediate said relays and earth, said relays being operated over the grounded line conductors and corresponding strands of the cord-circuit, supervisory signals associated with the ends of the cord-circuit, and relays for opening the other strands of the cord-circuit, said latter relays being operated when one subscriber's receiver is open the hook and the other subscriber's receiver is off the hook.

11. In a telephone system, the combination with metallic lines, hook-switches at the subscribers' stations connected to one line conductor in the same unvarying relation and normally grounded, a cord-circuit to interconnect said lines for conversational purposes, circuit-closing relays connected across the cord-circuit, a common battery connected between a point intermediate said relays and earth, supervisory signals controlled by said relays assigned to each end of the cord-circuit, circuit-breaking relays to open each end of the cord-circuit also controlled by said circuit-closing relays, and local circuits each including said battery and one of said circuit-breaking relays, the circuit-breaking relays at one end of the cord-circuit operating when the supervisory signal at the opposite end is operated.

12. In a telephone system, the combination with metallic telephone-lines, hook-switches at the subscribers' stations connected in unvarying relation with one line conductor, signal-bells grounded by said hook-switches, a central office at which the lines terminate, individual signals at said office for said lines, a common battery to which said lines and signals are normally connected, an operator's cord-circuit comprising plugs and strands between the tip of one plug and sleeve of the other, two circuit-closing relays in a bridge of the cord-circuit, the middle point of which bridge is connected with said battery, said relays being adapted to be operated over the grounded line conductors and corresponding strands of the cord-circuit when a connection is established, supervisory signals associated with said plugs and controlled by said relays, and circuit-breaking relays to open the cord-circuit on one side of the bridge when a circuit-closing relay is operated over the other strand on the other side.

13. In a telephone system, the combination with metallic telephone-lines, hook-switches at the subscribers' stations connected in unvarying relation with one line conductor, signal-bells grounded by said hook-switches, a central office at which the lines terminate, individual signals at said office for said lines, a common battery to which said lines and signals are normally connected, an operator's cord-circuit comprising plugs and strands between the tip of one plug and sleeve of the other, two circuit-closing relays in a bridge of the cord-circuit, the middle point of which bridge is connected with said battery, said relays being adapted to be operated over the grounded line conductors and corresponding strands of the cord-circuit when a connection is established, supervisory signals associated with said plugs and controlled by said relays, and circuit-breaking relays arranged to open the cord-circuit and operated by either of the circuit-closing relays, whereby when a signal associated with one plug is operated the circuit-breaking relays are also operated to open the cord-circuit.

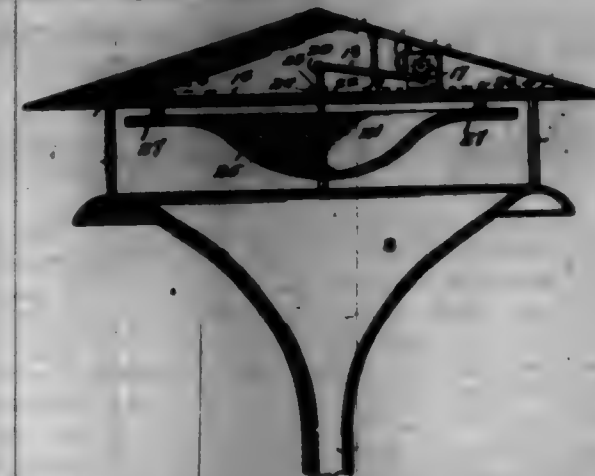
14. In a telephone system, the combination with metallic telephone-lines, hook-switches at the subscribers' stations connected in unvarying relation with one line conductor, signal-bells grounded by said hook-switches, a central office at which the lines terminate, individual signals at said office for said lines, a common battery to which said lines and signals are normally connected, an operator's cord-circuit comprising plugs and strands between the tip of one plug and sleeve of the other, two circuit-closing relays in a bridge of the cord-circuit, the middle point of which bridge is connected with said battery, said relays being adapted to be operated over the grounded line conductors and corresponding strands of the cord-circuit when a connection is established, supervisory signals associated with said plugs and controlled by said relays, circuit-breaking relays arranged to open the cord-circuit and operated by either of the circuit-closing relays, and a grounded ringing generator at the central office to operate the subscribers' bells.

701,158. **ENTRANCE-JOURNAL**, THOMAS GALT, Youngstown, Ohio. Filed Dec. 28, 1901. Serial No. 67,000. (No model.)

Claim.—1. In a signal device of the class described, a trumpet-shaped sound-flare having its outer bell disposed exterior to a building, means for holding and operating an alarm within the flare, and a protective bonnet or shield arranged over and spaced from the exterior bell, said bonnet or shield being of sufficient area to completely cover the bell.

2. In a signal device of the class described, the combination of a sound-trumpet arranged to receive an explosive alarm, and having an en-

terior bell, a protective bonnet or shield arranged over and spaced from the exterior bell of the trumpet, and an auxiliary alarm housed beneath and within the plane of the protective bonnet or shield and comprising means, disposed within the plane of the trumpet, actuated by the explosion from the explosive alarm.



3. In a device of the class described, a sound-trumpet arranged to receive an explosive alarm and having its bell exposed exterior to a building, a protective bonnet or shield supported over and spaced from the bell of the trumpet, an auxiliary continuous alarm, an impact-plate movably supported in the interval between the trumpet-bell and the protective bonnet or shield, said impact-plate having guiding means and provided with a ruffled portion, and tripping devices actuated by the impact-plate and cooperating with said auxiliary alarm.

4. In a device of the class described, a sound-trumpet arranged to receive an explosive alarm, a protective bonnet arranged over and spaced from the bell of the trumpet, means arranged within the bonnet and having a plurality of guides, an auxiliary alarm mounted within the bonnet, an impact-plate movably supported in the interval between the trumpet-bell and the bonnet and provided with members engaging said guides, and an operating-stem connected with the impact-plate and having a tripping connection with the auxiliary alarm.

701,154. **WRENCH-FRAME**, ARTHUR COLL, New Haven, Conn. Filed Mar. 12, 1902. Serial No. 66,978. (No model.)



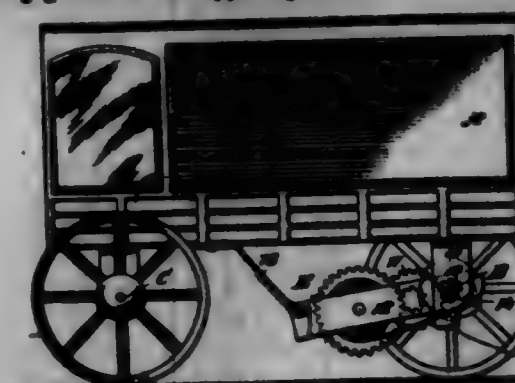
Claim.—1. A combined necktie frame and holder, constructed of a single piece of spring-wire bent upon itself, forming spaced upwardly and rearwardly curved wing-sections, a central bottom-clamping section between the wings, including front and rear members, and an open loop connecting the upper ends of the rear members, and a substantially V-shaped bottom section extending from the lower inner portions of the wings to a point below the bottom-clamping section at the vertical center of the frame, substantially as described.

2. A combined necktie frame and holder, constructed of a single piece of wire bent upon itself to form spaced upwardly and rearwardly curved wing-sections, the upper members of the wing-sections being curved and the lower members curved, the said wire being further bent to form a central bottom-clamping section at the inner ends of the upper members of the wings, which bottom-clamping section includes front and rear members below the upper members of the wings, the rear members having an inclination at their upper ends in direction of the forward members, and an open loop connecting the upper ends of the rear members of the bottom-clamping section, which open loop is substantially at its bottom portion and is flaring at its upper or mouth portion, the wire being still further bent upon itself to form a V-shaped central lower section extending some distance below the central clamping-section, the ends of the wire being secured together at the point of the said central lower section, as and for the purpose described.

701,155. **STOP-MOTION FOR MECHANICAL TOYS**, ARTHUR D. CRAWFORD, Winchester, Mass. Filed Mar. 24, 1901. Serial No. 66,980. (No model.)

Claim.—1. A vehicle provided with a motor for imparting motion

to a body of the wheels, and a check for the wheels, brought into and out of action by raising the wheels of the vehicle from or bringing said wheels into engagement with a supporting-surface.



2. In mechanical toys, a motor-controlled driving-axle having movement to and from the body of the vehicle to which it is applied, and a check for the motor, operated by the movement of the axle, as set forth.

3. In mechanical toys, a driving-axle for a vehicle, a motor for the driving-axle, a projection from the axle and a stop arranged for engagement with the projection, the projection and stop being automatically brought into engagement when the vehicle is placed upon a surface upon which it is adapted to travel, said stop and projection being immediately carried out of engagement when the vehicle is raised from said surface, the engagement of the stop and projection serving to prevent an expenditure of power on the part of the motor.

4. A driving-axle for a vehicle, a motor having driving connection with said axle, the motor having movement to and from the vehicle-body, a stop carried by the fixed support, and a projection from the driving-axle, arranged for engagement with the said stop and for disengagement from the stop through the weight of the vehicle with which the axle is connected.

5. A driving axle for a toy vehicle, a fixed support for the axle, in which fixed support the said axle has sliding movement, a stop carried by one of the said supports, a projection from the axle, adapted to engage with the stop when the axle is in one position, the said stop being out of engagement with the projection from the axle when said axle is in its other position, and a motor connected with said axle, as described.

6. In toy vehicles, the combination, with the body of the vehicle, axle for the same, the driving-axle having movement in its pedestal to and from the body, of a motor connected with the driving-axle and having pivotal connection with the body of the vehicle, a projection from the driving-axle, and a stop-peg adapted for engagement with the said projection, which stop-peg is attached to a fixed support, the projection from the driving-axle being in the path of the stop-peg only when the said axle is in its lower position.

7. In a toy vehicle, the combination, with a vehicle-body and a motor supported thereby, of an axle operatively connected with said motor, whereby said axle is rotated and the vehicle propelled, said axle being capable of a rising-and-falling motion relatively to the said body, a ratchet carried by said axle, and an arm arranged to engage said ratchet as the axle falls, and check its rotation, substantially as described.

8. The combination, with a vehicle-body having a motor, an axle rotated by said motor, a ratchet on said axle, a locking-arm for engaging said ratchet, means for moving said axle away from said body and carrying said ratchet into engagement with said locking-arm, substantially as described.

9. The combination, with a vehicle-body, of a rotating axle, means for moving said axle relatively to said body, and means for locking said axle from rotating when it is moved away from said body, substantially as described.

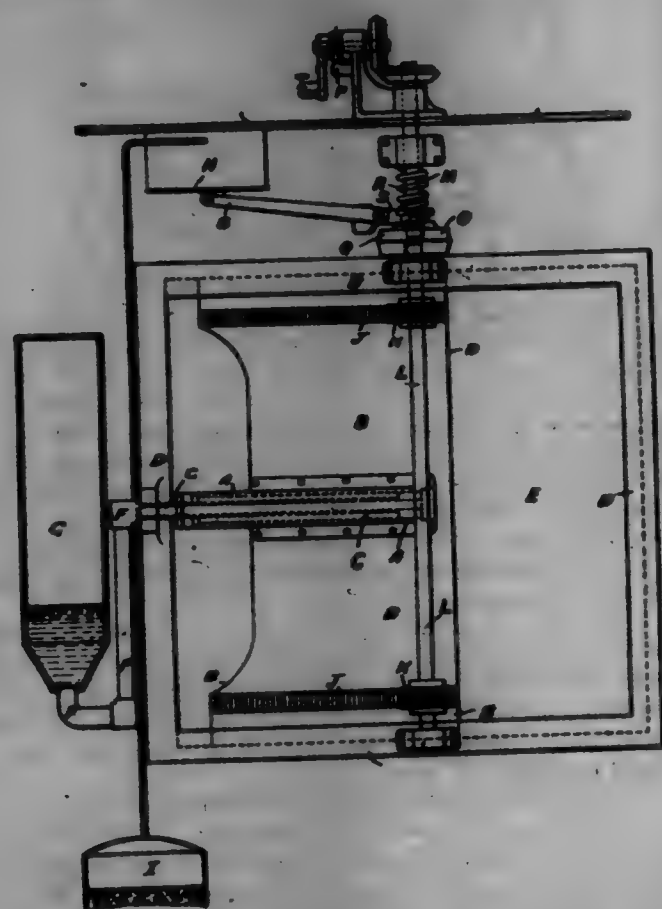
10. The combination of a vehicle-body having dotted legs, an axle held in said dotted legs, whereby said axle is capable of moving toward or away from said body, wheels attached to said axle, one of said wheels having ratchet-shaped teeth, an arm arranged to engage said teeth when the axle is moved away from said body, and means for rotating said axle against said arm, substantially as described.

11. In a toy vehicle, the combination with a body and an axle carried by said body and capable of a falling motion as the body is raised, of a motor applied to propel the vehicle, and means controlled by said falling axle to check the movement of the vehicle, substantially as described.

701,156. **APPARATUS FOR CLOSING OR OPENING WATER-DOORS**, WILLIAM CRAWFORD and ARTHUR D. CRAWFORD, Winchester, Mass. Filed Aug. 26, 1901. Serial No. 67,001. (No model.)

Claim.—1. Apparatus for automatically closing bulkhead-doors for

ships comprising a liquid-pressure accumulator, a cylinder secured upon the movable door, piping connecting said accumulator and said cylinder, a shaft geared to a rack or racks on said door, the said shaft being normally held stationary by a clutch, and means for releasing said clutch operated by a diaphragm automatically actuated by the rise of water in the ship's bilges.



2. Apparatus for automatically opening and closing bulkhead-doors for ships, comprising a liquid-pressure accumulator, a cylinder secured upon the movable door, piping connecting said accumulator and said cylinder, a piston within said cylinder, a shaft geared to a rack or racks on said door, a clutch-shaft normally clutched to the geared shaft, capable of rotation in one direction to open the door, but held by a pawl and ratchet to prevent rotation in the opposite direction, and means, operated by a diaphragm automatically actuated by the rise of water in the ship's bilges, for releasing said clutch to permit of the door being closed by the fluid-pressure.

3. Apparatus for closing and opening water-tight bulkhead-doors, comprising in combination a cylinder secured upon the movable door, a hollow piston and piston-rod, upon which said cylinder works, secured to the bulkhead or framing of the doorway, a pipe connection to the end of said hollow piston-rod from an accumulator, a shaft having bearings in brackets on the door-framing and having spur-wheels fitted upon it, racks on the movable door in gear with said spur-wheels, a second shaft in line with the spur-wheel shaft, a sliding clutch on the second shaft normally engaging the spur-wheel shaft, a device for withdrawing said clutch to allow the door to be closed by the fluid-pressure, a hand-lever for operating the clutch-shaft to open the door, and a ratchet and pawl for preventing the closing of the door until the withdrawal of the clutch by the releasing device, substantially as described.

4. In apparatus for closing and opening water-tight bulkhead-doors, means for normally retaining the door in open position, said means consisting, in combination with a bulkhead-door having racks upon it and a shaft fitted with spur-wheels in gear with said racks, of a shaft in line with the spur-wheel shaft, and having a clutch adapted to engage normally with the spur-wheel shaft, a ratchet-wheel actuated by the clutch-shaft, and a pawl engaging said ratchet to prevent the shafts from turning by the fluid pressure on the door, substantially as described.

5. In apparatus for closing and opening bulkhead-doors, the means for automatically closing the door consisting, in combination with a bulkhead-door having racks upon it, and a shaft fitted with spur-wheels in gear with said racks, of a cylinder secured upon said door, a hollow piston and piston-rod working in said cylinder, the end of the rod being connected in the bulkhead or framing of the doorway, a pipe connection from said hollow piston-rod to an air-pressure vessel containing air or other fluid, and a diaphragm operated by the rising of water in the ship's bilges to free a clutch from the spur-wheel shaft, substantially as described.

701,157. SPEED-REGULATING CLUTCH. HENRY E. GREENE. New Canaan, Conn. assignor of one-half to W. F. Schneider. Filed June 27, 1901. Serial No. 60,989. (No model.)



Claim.—In a speed-regulating clutch, the combination of a shaft to be driven, a wheel loosely mounted on said shaft, a collar at one side of said wheel, a clutch-collar engaging the other side of said wheel, clutch-arms pivoted to said clutch-collar, friction-shoes pivoted to said clutch-arms and projected on the interior of the wheel where they are adapted to engage the inner surface of said wheel, and a coil-spring controlling said clutch-arms and effecting an engagement of the friction-shoes with the inner surface of the wheel at such times when the tension of said spring is not overcome by the centrifugal force due to the movement of the shaft, substantially as specified.

701,158. BREAKDOWN GUN. WILLIAM H. DAVENPORT. Norwich, Conn. Filed Aug. 7, 1901. Serial No. 71,173. (No model.)



Claim.—1. In combination, is a breakdown gun, a frame and barrel hinged together substantially as set forth, a leg beneath the barrel and extended forward of the hinge-joint, and a strap secured to the said leg extension.

2. In combination, is a breakdown gun, a frame and barrel hinged together substantially as set forth, a barrel-leg extended forward of the hinge-joint, a strap secured to said leg extension, a fore-wood abutting the said fore-wood strap and means for securing the fore-wood to the barrel.

701,159. LOCKING-KEY FOR FIREARM. WILLIAM H. DAVENPORT. Norwich, Conn. Filed Aug. 7, 1901. Serial No. 71,174. (No model.)



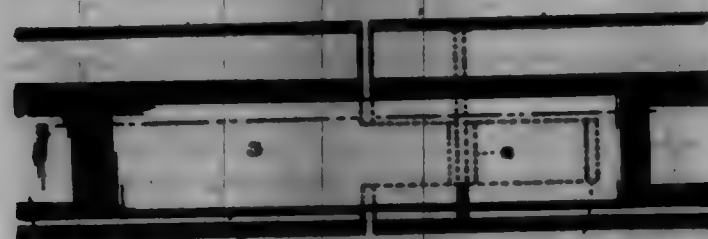
Claim.—1. In combination, is a screw-key, a threaded pin, an operating-head having a stem that is longitudinally movable in said pin; and means for preventing the rotation of said stem relatively to the said threaded pin the opposite end of said stem being extended through the pin, substantially as specified.

2. In combination with the frame and barrel of an arm, a key for locking said parts together consisting of a threaded pin adapted to be screwed into said frame, an operating-stem that is longitudinally movable in said pin and means for preventing the rotation of the stem in the said pin.

3. In combination, a barrel, a frame having a recess of, a key for locking together said frame and barrel, consisting of a threaded pin screwed into said frame, and operating-head having a stem that is longitudinally movable in said pin; and means for holding the said stem against rotation relatively to the said threaded pin the said operating-head being adapted to enter the said frame-recess, substantially as and for the purposes specified.

4. In combination with the frame and barrel of an arm, a locking-key consisting of a threaded pin that is adapted to be screwed into the said frame, one end of said pin being capped, as set forth, a stem mounted to slide longitudinally in said pin; and means for holding the said stem against rotation in the threaded pin one end of said stem being formed with an enlarged operating-head and the opposite end being extended to enter the capped end of the pin.

701,160. RAIL-JOINT. EDWARD F. DAVENPORT. New Canaan, Conn. Filed Jan. 18, 1902. Serial No. 60,990. (No model.)



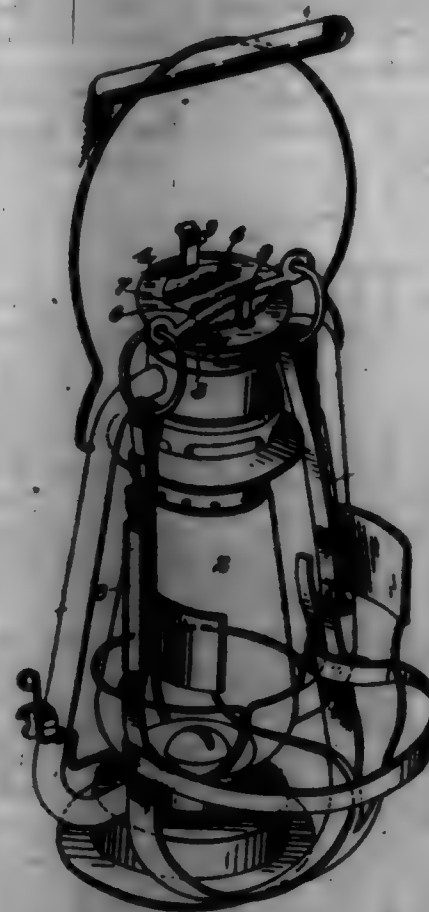
Claim.—1. A railroad-joint comprising rail-sections one of which has the terminal portion of the web increased in thickness and projected to form an extension with upper and lower grooves therein, the contiguous rail-section terminal having the web longitudinally slotted at an intermediate point and adapted to be embraced by the extension of the web of the other rail-section, and a single fastening-bolt passing vertically through one rail-section and a portion of the extended web of the other section.

2. A rail-joint comprising rail-sections, one section having the web extended and embracing the web of the other section, and a single bolt passing vertically through one section and a portion of the extended web of the other section.

3. A rail-joint comprising rail-sections continuously arranged, one section having the web extended and embracing a portion of the web of the opposite section, the extended web being vertically slotted, and a single fastening-bolt passing through one section and the slot in the extended web of the other section, the said slot being greater in diameter than the bolt.

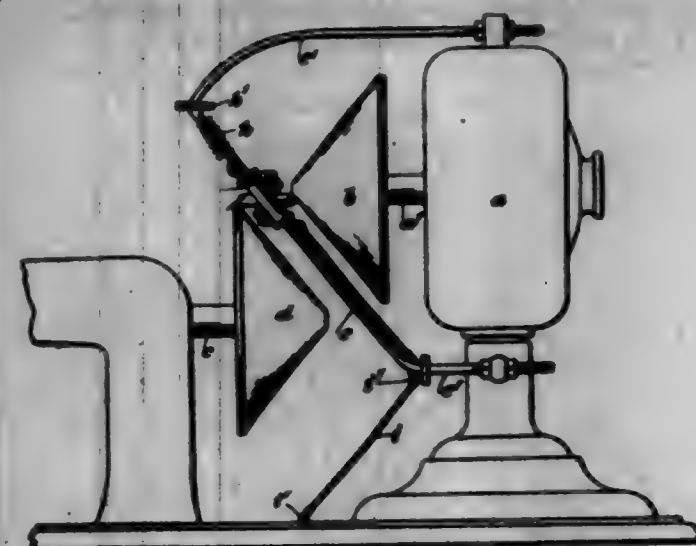
4. A rail-joint comprising continuously-arranged rail-sections, a portion of one rail-section embracing a part of the other and having a vertical slot therethrough and upper and lower grooves, and the embraced portion of the other section longitudinally slotted at an intermediate point, and a single fastening-bolt passing vertically through the section having the longitudinal slot and the extended portion of the other section.

701,161. DEVICE FOR WARNING BRIDLE-BITS. GEORGE DAVIS. Lyons, N. Y. Filed Feb. 2, 1902. Serial No. 60,441. (No model.)



Claim.—The combination with a lantern, of a cap bearing an indentation designed to engage a bridle-bit and support it, there being an aperture in the bottom of said indentation, and a slide closing said aperture and constructed to be withdrawn to expose said bit to the direct heat of the flame, substantially as described.

701,162. FRICTION-GEAR. EDWARD F. DAVENPORT. New Canaan, Conn. assignor of one-third to Howard W. Pierce. Filed Jan. 17, 1902. Serial No. 60,100. (No model.)



Claim.—1. The combination of two rotary frictional members arranged with their axes out of alignment, a transmitting-wheel bearing between said members, a slide on which the wheel is mounted, a frame carrying the slide, and means for moving the slide, said means comprising a spring actuating the slide in one direction and a cord to draw the slide against the action of the spring.

2. The combination of two rotary cones having their axes out of alignment and having their opposite faces extending parallel to each other, a transmitting-wheel having its axis extending across the axes of the cones and movable between the said parallel faces of the cones, a slide carrying the transmitting-wheel, and a frame in which the slide is movable, the frame extending between said opposite faces of the cones and essentially parallel therewith.

3. The combination of two rotary cones having their axes out of alignment and having their opposite faces extending parallel to each other, a transmitting-wheel having its axis extending across the axes of the cones and movable between the said parallel faces of the cones, means for mounting the transmitting-wheel, the said means for mounting the transmitting-wheel comprising a slide carrying the wheel and a frame in which the slide is movable, a spring drawing the slide in one direction, and a flexible connection attached to the slide for moving it against the action of the spring.

4. The combination of two rotary cones having their axes out of alignment and having their opposite faces extending parallel to each other, a frame running between and essentially parallel with said opposite faces, a slide carried on the frame, a transmitting-wheel mounted on the slide, said wheel having its axis extending across the axes of the cones, and means for shifting the slide on the frame.

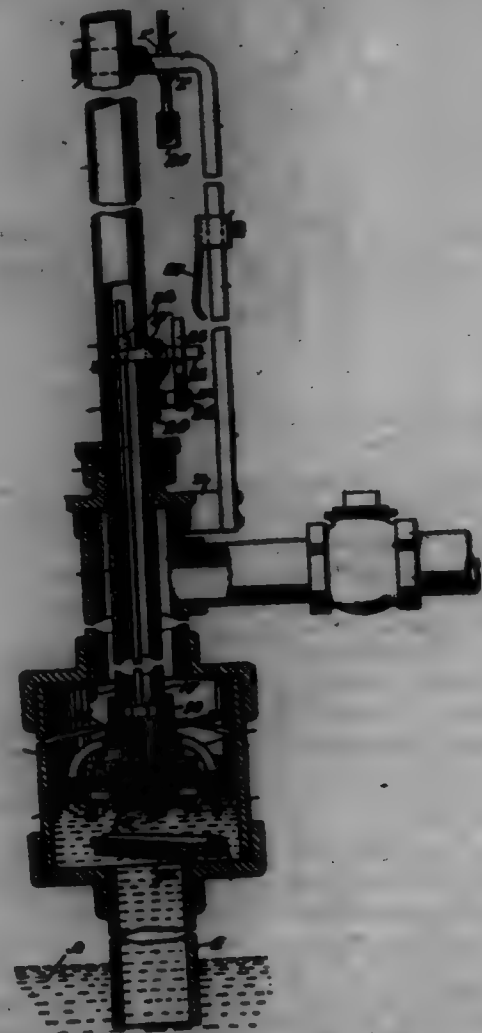
5. The combination of two rotary frictional members arranged with their axes out of alignment and having their opposite faces parallel to each other, a frame extending in parallelism with said opposite faces, a slide mounted on the frame, a transmitting-wheel carried by the slide and engaging the said opposite faces of the frictional members, a spring drawing the slide in one direction, and a flexible connection attached to the slide to permit moving it against the action of the spring.

701,163. COMBINED AIR AND WATER PUMP. EDWARD D. DAVENPORT. New Canaan, Conn. Filed Feb. 22, 1901. Serial No. 60,400. (No model.)

Claim.—1. In a pneumatic system for water elevation, a sealed tank, a water-carrier leading therefrom, a pump comprising a cylinder having an outlet connected with the tank, a water-pumping device consisting of a plunger-rod, and a head thereon having means for the upward passage of water and air, an air-induction device coacting with the water-pumping device and having a valve for controlling the amount of air pumped, and adjustable devices for controlling the movement of said valve.

2. In a pneumatic system for water elevation, a sealed tank, a water-carrier leading therefrom, a pump combining water lifting and forcing mechanism, and an air-induction device adapted to control the introduction of air below the plunger-head during a part of the upward stroke of the plunger-rod, the said device comprising a valve controlling an air-passage leading below the plunger-head, means for opening said valve at a predetermined point in the upward movement of said plunger-rod, and an outlet for the water and air leading from the cylinder above the plunger-head and connected with the tank.

3. A pump, comprising a cylinder, a hollow plunger-rod, a plunger-head on the rod having a valve-controlled water-passage and an air-passage, a valve-stem in the hollow plunger-rod, a valve on the valve-stem and controlling the said air-passage in the plunger-head, and means for opening said valve at a predetermined point in an upward movement of the plunger-rod.



4. A pump, comprising a cylinder, a water-supply pipe thereon, a hollow plunger-rod, a plunger-head on said rod through which water passes after it enters the cylinder, a valve-stem movable in the hollow plunger-rod, a valve on said stem and controlling an air-passage through the plunger-head, means for opening said valve during the upward movement of the plunger-rod, and means for holding it in the open position.

5. A pump, comprising a cylinder, a water-supply pipe connected therewith, a hollow plunger-rod, a plunger-head on said rod through which water passes after it enters the cylinder, a valve-stem movable in the hollow plunger-rod, a valve on said stem and controlling an air-passage through the plunger-head, the said valve being normally closed, a device for adjusting said valve to the open position during the upward movement of the plunger-rod, and means for releasing said valve to allow it to return to closed position.

6. A pump comprising a cylinder, a depending water-supply pipe thereon, a check-valve controlling the opening of the supply-pipe into the cylinder, a hollow plunger-rod, a head thereon slidably engaging the bore of the cylinder and having a water-passage therethrough, a vertically-reciprocating disk valve controlling said water-passage, an outlet-pipe on the cylinder above the plunger-head, and an air induction and controlling device adapted to pass air down through the plunger-head during each upward movement of the plunger-head, the said device comprising a valve controlling a passage through the plunger-head, a valve-stem extending upward from said valve, means for moving said valve-stem, to open the valve at a predetermined point in the upward movement of the plunger-rod, means for holding said valve in the open position, and means for releasing said valve.

7. A pump, comprising a cylinder, a depending water-supply pipe thereon, an outlet-pipe connected with the cylinder, a hollow plunger-rod, a threaded socket screwing on the lower end of the plunger-rod, a cylindrical valve-chamber screwing into a projection of said socket, and a plunger-head consisting of a perforate base-plate, a headed clamping-bolt screwing in the lower end of the cylindrical chamber to hold the base-plate in position, the said clamping-bolt having a central passage formed therein, a cupped flexible packing resting on the base-plate, a disk cap-plate seated within the packing-ring and engaged by the threaded socket to press the cap-plate upon said packing-ring, a disk valve slidably held be-

tween the cap-plate and the base-plate and which normally seats over the perforations in the base-plate, a valve-stem arranged to reciprocate in the hollow plunger-rod and a valve on said stem and adapted to be seated over the passage in the clamping-bolt.

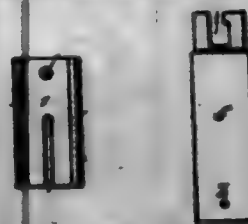
8. An air and water pump, comprising a cylinder, a water-supply pipe depending therefrom, an outlet-pipe laterally extended from the cylinder near its upper end, a hollow plunger-rod, a cylindrical valve-chamber secured on the lower end of said hollow rod, a plunger-head having a water-passage therethrough, a disk valve slidable on the valve-chamber and controlling the passage through the plunger-head, a headed bolt having a passage therethrough and holding the plunger-head on the valve-chamber and plunger-rod, a valve-stem reciprocating in the hollow plunger-rod, a valve on the lower end of the valve-stem and seating over the passage in the headed bolt, and means held on the cylinder and adapted to control adjustment of said valve to hold it open or permit its closure.

9. An air and water pump, comprising a cylinder, a water-supply pipe thereon, an outlet-pipe, a hollow plunger-rod, an apertured plunger-head, a disk valve adapted to control the passage in the plunger-head, a headed bolt holding the plunger-head on the rod and having a longitudinal passage therethrough, a valve-stem in the plunger-rod, a valve thereon seating over the passage in the headed bolt, a rockably-supported tappet-lever held loosely engaged at one end with the valve-stem, the other end thereof being free, an upright post at one side of the cylinder, having a lateral arm at the upper end, an adjustable spring-link depending from one side of the post and adapted to rock the free end of the tappet-lever downwardly, spring-coils embracing the free end of the tappet-lever so as to hold it rocked, and a pressure-block depending from the arm on the post, and adapted to spread apart the spring-coils for the release of the tappet-lever when said lever and arm are fully elevated by the upward movement of the hollow plunger-rod.

10. In a pneumatic system for water elevation, a sealed tank, a water-service leading therefrom, a pump-cylinder, a hollow plunger-rod, a plunger-head on said rod and provided with openings through which water passes after it enters the cylinder, an air-induction device comprising a valve-stem movable in the hollow plunger-rod, a valve carried thereby and controlling the passage of air below the plunger-head and adjustable device controlling the movement of said valve-stem to regulate the opening-and-closing movement of said valve.

11. A pump, comprising a cylinder, a hollow plunger-rod, a plunger-head on the rod having a valve-controlled water-passage and an air-passage communicating with the interior of the hollow plunger-rod, a valve-stem movable in the hollow plunger-rod, a valve on the valve-stem and controlling the air-passage in the plunger-head, and means for controlling the movement of said valve-stem to hold the valve open or permit its closure.

701,164. SHADE-ROLLER BRACKET. James J. De Lona, Brooklyn, N. Y. Filed Jan. 2, 1901. Serial No. 41,908. (No model.)



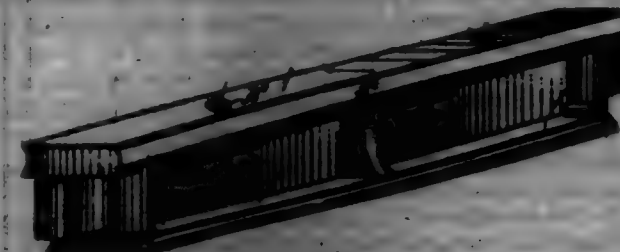
Claim.—1. A shade-roller bracket in which is comprised a base-plate having a slide-way therein formed by turning over the edges of the material, and a single perforation, and a slot for the passage of a holding screw or nail, in combination with a movable bracket-piece for the reception of a shade-roller bearing arranged to engage in the slide-way, the said bracket-piece having an opening for the reception of a retaining screw or nail which registers with the slot in the base-plate.

2. A shade-roller bracket in which is comprised a base-plate having a slide-way therein formed by turning over the edges of the material, and a single perforation, and a slot for the passage of a holding screw or nail, in combination with a movable reversible bracket-piece for the reception of a shade-roller bearing arranged to engage in the slide-way, the said bracket-piece having an opening for the reception of a retaining screw or nail which registers with the slot in the base-plate.

3. A shade-roller bracket in which is comprised a base or holding plate having a slide-way therein formed by turning over the edges of the material, and a single perforation for the passage of a holding nail or screw, in combination with a bracket-piece arranged to engage in the slide-way, said bracket-piece being provided with an opening for the reception of a holding nail or screw, which also passes through the base or holding plate.

701,165. BUILDING-BLOCK. ALFRED H. MAX, New York, N. Y. Filed Sept. 2, 1901. Serial No. 74,128. (No model.)

Claim.—1. A floor construction, comprising floor-supporting beams, and floor-blocks arranged one alongside the other and extending between and supported from the adjacent floor-supporting beams, the said blocks being arranged to form dead-air spaces between the floor-supporting beams and the ends of adjacent blocks, the blocks having interlocking top and bottom flanges, as set forth.



2. A floor construction, comprising floor-supporting beams, and floor-blocks arranged one alongside the other and extending between and supported from the adjacent floor-supporting beams, the said blocks being arranged to form dead-air spaces between the floor-supporting beams and the ends of adjacent blocks, the said blocks being interlocked and fastened together at the interlocking joints by a suitable binding substance, and the blocks forming dead-air spaces between adjacent blocks, as set forth.

3. A floor-block of substantially an I-beam cross-section, and having transverse partitions near its ends to reach close to the edges of the flanges of the floor-supporting beams, and longitudinal lips extending outwardly from the partitions to reach to the webs of adjacent floor-supporting beams, as set forth.

4. A floor-block, of substantially an I-beam cross-section and having its top flange extending beyond the ends of the web, and lips projecting from the ends of the web, as set forth.

5. A floor-block, of substantially an I-beam cross-section and having its top flange extending beyond the ends of the web, and lips projecting from the ends of the web under the said top flange, as set forth.

6. A floor-block, of substantially an I-beam cross-section and having its top flange extending beyond the ends of the web, and lips projecting from the ends of the web and a distance beyond the same, as set forth.

7. A floor-block, of substantially an I-beam cross-section and having its top flange extending beyond the ends of the web, and the bottom flange terminating at the ends of the web, and lips projecting from the ends of the web in line therewith and beyond the ends of the said top flange, as set forth.

8. A floor-block, of substantially an I-beam cross-section, and having transverse partitions at the ends of the web, the top flange extending beyond the partitions, as set forth.

9. A floor-block, of substantially an I-beam cross-section, and having transverse partitions at the ends of the web, the top flange extending beyond the partitions, the bottom flange terminating at the partitions and having its ends beveled, as set forth.

10. A floor-block, of substantially an I-beam cross-section and having transverse partitions at the ends of the web, the top flange extending beyond the partitions, and lips projecting outward from the partitions in line with the web, and strengthening members at the top and bottom flanges of the block and extending longitudinally thereof, as set forth.

11. A floor-block, of substantially an I-beam cross-section and having transverse partitions at the ends of the web, the top flange extending beyond the partitions, lips projecting outward from the partitions in line with the web, and strengthening members at the top and bottom flanges of the block and extending longitudinally thereof, as set forth.

12. A floor-block of substantially an I-beam cross-section, and having recesses in its top and supporting-eyes having twisted channels embedded in the web of the block, the eyes extending in the said recesses, as set forth.

13. A floor-block, of substantially an I-beam cross-section and having transverse partitions at the ends of the web, the edges of the partitions and those of the top and bottom flanges being arranged to interlock with the corresponding edges of adjacent blocks, as set forth.

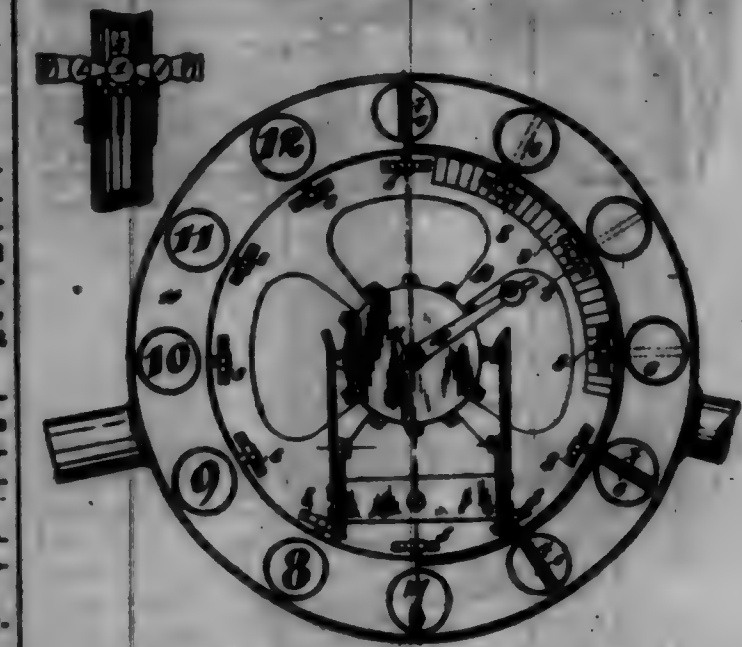
14. A floor-block of substantially an I-beam cross-section and having lips at the ends thereof above the bottom flange of the block, and a tension member extending in the bottom flange and the said lips, as set forth.

15. A floor-block of substantially an I-beam cross-section, and having lips at the ends thereof above the bottom flange of the block, and a tension member extending in the bottom flange and the said lips at the middle of the flange and lips, as set forth.

16. A floor-block of substantially an I-beam cross-section and having lips at the ends thereof, and a tension member longitudinally embedded in the block at the bottom thereof and extending into the lips thereof, the ends of the tension member terminating a distance from the ends of the lips, as set forth.

17. A floor-block of substantially an I-beam cross-section and having lips at the ends thereof, and a tension member longitudinally embedded in the block at the bottom thereof and extending into the lips thereof, and reinforcing-wires longitudinally embedded in the block near the edges of the flanges of the block, as set forth.

701,166. APPARATUS FOR THE RECEPTION OF SOUND-SIGNALS FOR NAUTICAL PURPOSES. Edouard De Rougemont, Brussels, Belgium. Filed Sept. 22, 1901. Serial No. 75,928. (No model.)



Claim.—1. An apparatus for the reception of sound-signals characterized by the combination of a tubular ring, a tube provided with an earpiece fitted to said tubular ring, a series of ear-trumpets arranged to receive the sound waves, a series of tubes connecting the ear-trumpets with the tubular ring and means for closing and opening the said tubes.

2. An apparatus for the reception of sound-signals characterized by the combination of a tubular ring, a tube provided with an earpiece fitted to said tubular ring, a series of ear-trumpets arranged to receive the sound waves, a series of tubes connecting the ear-trumpets with the tubular ring, the orifices of said tubes being arranged around the ring in order corresponding with the position of the ear-trumpets, plugs or interceptors fitted to the said tubes, means for opening and closing the said plugs or interceptors and a handle for introducing a tube through which a sound enters the tubular ring.

3. In apparatus for the reception of sound-signals the combination with a tubular ring, a tube provided with an earpiece fitted to said tubular ring, a series of sound-conducting trumpets and a series of tubes connecting the ear-trumpets with the tubular ring, of interceptors fitted to the said tubes, toothed wheels mounted on the axis of said interceptors and whose rotation produces the opening and closing of the said interceptors, a rotatable disk provided upon a part of its circumference with teeth which can gear with the said toothed wheels for turning them, and a handle mounted upon the axis which carries the said disk in such manner that when it is made to turn around the said axis it turns the disk and the disk.

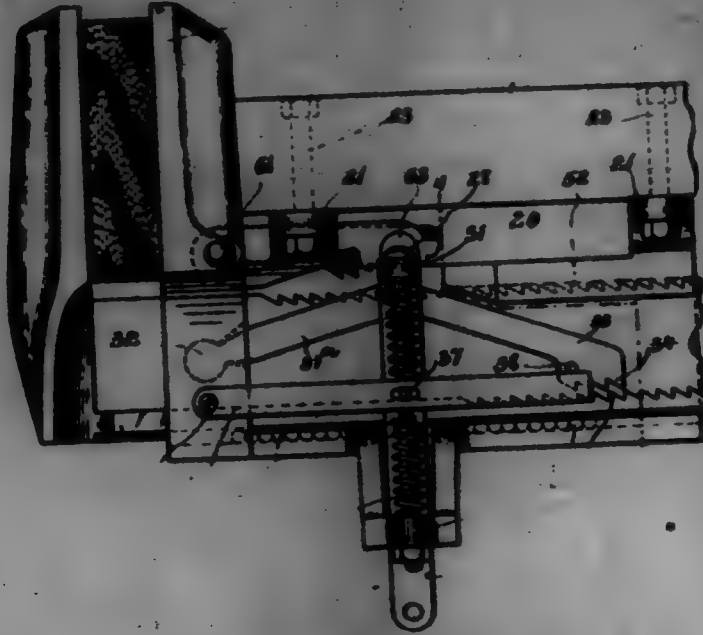
4. In apparatus for the reception of sound-signals in combination, a tubular ring provided with an internal partition, a tube provided with an earpiece fitted to the said tubular ring, a series of sound-conducting trumpets, tubes connecting the said trumpets with the said tubular ring and means for closing successively one or more of the said tubes at a time.

701,167. VISE. Jean Bismar, Lowell, Mass. Filed Aug. 11, 1901. Serial No. 24,024. (No model.)

Claim.—1. A vise comprising a movable jaw, a check connected therewith and provided with two sets of ratchet members, a toggle-arm provided with means to engage one set of ratchet members to move said jaw, and retaining means for engaging the other set of ratchet members to hold said jaw, the toggle being arranged to operate independently of the retaining means.

2. A vise comprising a movable jaw provided with a check having a set of ratchet-teeth, two companion pawls having complementary teeth arranged to engage said ratchet, the teeth of one pawl being arranged in advance of the other, as described, and means for moving said check arranged to disengage said pawls, or to move said check without engaging said pawls.

701,167.



701,168. CENTER-IRON AND LAP-RING. PERKINS H. DU ROSS, New York, N. Y. Filed Feb. 2, 1902. Serial No. 92,995. (No model.)

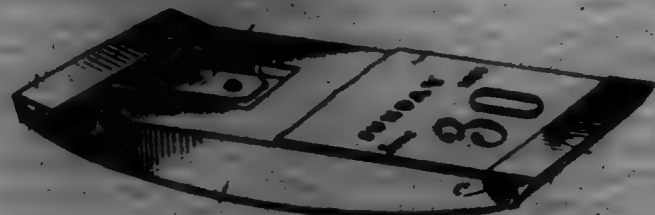


Claim.—1. A device of the class set forth, comprising a cuff with a forwardly-projecting head having independent openings therein, and a lap-link comprising two members having portions individually engaging the said openings and movable vertically to open and close the cuff.

2. The combination with a center-iron having a head with a pair of openings therein, the said openings being flared toward the front, and a lap-link comprising a pair of members having flanges movably passing through the said openings, the said members being spread apart and drawn together in a vertical plane in the opening and closing movements thereof.

3. In a center-iron and lap-link, the combination with a center-iron having a head formed with a pair of openings, and an inner groove, and a lap-link comprising a pair of members having flanges movably extending through the said openings to permit the members to be opened and closed in a vertical plane, the inner flange of the flange being in the form of transverse bands movably engaging the groove.

701,169. CALENDAR-BLISTER. STANLEY M. DOWDY, Rochester, N. Y. Filed Sept. 2, 1901. Serial No. 74,186. (No model.)



Claim.—1. A blister, comprising a frame, and clamping device mounted on said frame, and each having two members which are provided with two separate gripping-surfaces adapted to respectively engage the under face of a blotting-sheet on the bottom of said frame, and the upper face of superimposed sheets on the top of said frame.

2. A calendar-blister, comprising a frame having a segmental bottom, a blotting-sheet on said bottom, a calendar on the top of said frame, and a clamping device yieldably supported on the frame and provided with two members which are formed with gripping-surfaces adapted to respectively engage the under face of the blotting-sheet and the top face of the calendar.

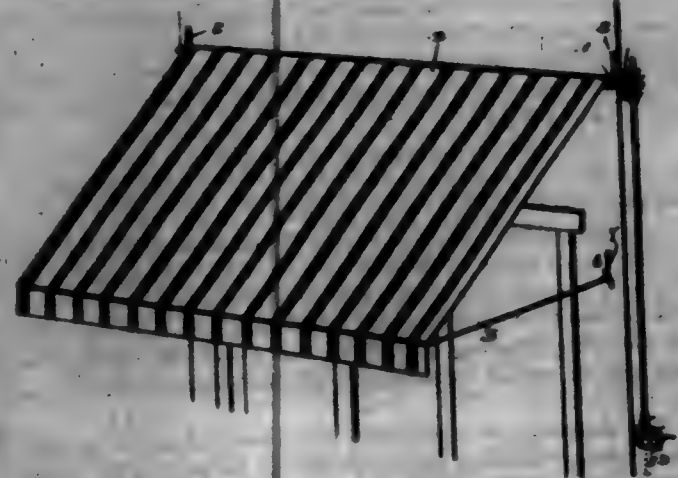
3. A calendar-blister, comprising a frame having a segmental bottom, a blotting-sheet on said bottom, a calendar on the top of said frame, and clamping device individually fitted to the ends of the frame, each clamping device having members disposed at an angle to each other and formed with gripping-surfaces arranged to hold the blotting-sheet and the calendar separately and removably in place on the frame.

4. A calendar-blister, comprising a frame having a segmental bottom, a blotting-sheet on said frame, a calendar on the top of said frame, and spring clamping-clips at the ends of the frame and each provided with separate gripping-surfaces disposed at an angle to each other, said gripping-surfaces of each clip adapted to individually hold the end portions of the blotting-sheet and the calendar portions of the calendar.

5. A calendar-blister, comprising a frame having a segmental bottom, a blotting-sheet on said frame, a calendar on the top of said frame, clips at the ends of the frame and provided with angularly-disposed members which have gripping-surfaces adapted to individually hold the blotting-sheet and said calendar in position on the frame, and springs pressing said clips and holding both members thereof in active engagement with the blister and the calendar.

6. The combination with a frame, of clips held on the ends of said frame, each clip having angularly-disposed members which are provided with gripping-surfaces arranged in opposing relation to the under side and the top face of the frame respectively, a clamping-plate at the top of the frame, and springs pressing the clips for both surfaces thereof to occupy active relation to the frame.

701,170. AWNING. SAMUEL DUNN, Boston, U. S. A. Filed Jan. 18, 1902. Serial No. 92,973. (No model.)



Claim.—1. In an awning, the combination of a winding-spindle having a gear on one extremity thereof mounted adjacent to said gear and having a vertically-disposed sleeve terminating in a lower yoke carrying a pinion which is held in constant mesh with said gear, an overlying engaging the winding-spindle, supporting means for the screw at the extremity opposite that engaging the winding-spindle, a winding-rod freely movable through said sleeve and pinion, and means for rotating the said winding-rod.

2. In an awning, the combination with an awning proper and a winding-spindle, of a winding-rod for rotating said spindle and operative mechanism for said winding-rod comprising a horizontally-disposed gear connected to the rod by a universal joint, and a primary rotating-pinion adjustable in relation to the gear and connected to the lower extremity of the rod.

701,171. GAME. JAMES R. DUNN, New York, N. Y. Filed Mar. 14, 1902. Serial No. 92,996. (No model.)



Claim.—1. A set of men for a game, comprising pieces each having a direction-mark at a corner, a piece having a direction-mark at a corner, and parallel lines at each side of the direction-mark, a piece having a direction-mark at a corner, parallel lines at each side of the direction-mark, and a line crossing the parallel lines at each end thereof, and a piece having a direction-mark at a corner, parallel lines at each side of the direction-mark, and a line crossing the parallel lines at each end thereof.

2. A set of men for a game comprising pieces each having a direction-mark at a corner and a row of dots in line therewith, a piece having a direction-mark at a corner, parallel lines on each side of the direction-mark, and rows of dots in line with the latter, a piece having a direction-mark at a corner, parallel lines on each side of the direction-mark, and rows of dots in line with the direction-mark, and a piece having a direction-mark at a corner, parallel lines on each side of the direction-mark, parallel lines crossing the parallel lines at each end thereof and rows of dots in line with the direction-mark.

701,172. BUCKLE-FASTENER. ALBERT H. BOW, Boston, U. S. A. Filed May 4, 1901. Serial No. 92,792. (No model.)



Claim.—1. A buckle-fastener, comprising a steel member having a head, and a clip member comprising a plate having an opening through which the head may pass, the said plate being provided at its center with oppositely-arranged depressions extending from the opening to the edges of the plate, whereby the sides of the plate are permitted to spring or move relatively to each other, substantially as specified.

2. In a buckle-fastener, a steel comprising a base-plate, a clasp member projecting from the base-plate, a head of oval contour on the other end of the clasp, and a collar or flange arranged at the base of the head, and a plate-like clip member apertured to receive the head and provided with a longitudinal depression at each side of the opening and extending to the edge of the plate, substantially as specified.

3. A buckle-fastener, comprising a steel member having a head, and a clip member comprising a plate having an opening to pass over the head, the said plate having oppositely-arranged depressions extending from the opening to the edges of the plate, the sides of said plate being carried outward and then inward toward each other to engage over the outer end of the head, substantially as specified.

4. In a fastening device, the combination with a headed steel, of a plate having an opening through which the head of the steel may pass, and oppositely-arranged depressions on said plate, said depressions extending in a direction across the opening, from the opening to the edge of the plate, substantially as specified.

701,173. SAFETY DEVICE FOR BLASTING PURPOSES. JAMES H. DOWDY, New York, N. Y. Filed June 4, 1901. Serial No. 92,141. (No model.)



Claim.—1. In a safety device for blasting purposes, the combination with a fuse and a cap attached to one extremity thereof, of a tubular open-ended sheath through which the fuse is passed, the cap being located beyond the inner extremity of the sheath, said sheath being of a size to fit the fuse quite closely, but at the same time to permit the easy insertion and removal of the cap and fuse, the arrangement being such that the tamping material is pushed around and exterior to the sheath.

2. The combination with a fuse, and a cap applied to one extremity of the fuse, of a tubular open-ended sheath through which the fuse is passed, the cap being located beyond the inner extremity of the sheath which is of sufficient rigidity to maintain its form against the external pressure of the tamping material which is placed around and exterior to the sheath.

3. In a safety device for blasting purposes, the combination with a fuse and a cap attached to one extremity thereof, of a tubular open-ended sheath through which the fuse is passed, the cap being located beyond the inner extremity of the sheath, substantially as described.

4. The combination with a cap and fuse, of a wire fastened to the cap end of the fuse, the fastening or knot in the wire being inside the cap when the latter is applied to the fuse end, the said wire being carried along the fuse endwise and suitably connected therewith, and a tubular sheath through which the fuse and wire may be passed, and permitting the removal of the wire and the cap, after the hole has been filled and tamped.

5. The combination with a cartridge, fuse and cap, the cartridge having an opening to receive the cap end of the fuse, and a tubular sheath for the fuse, said sheath being connected with the cartridge-end, and extending the entire length of the hole in the rock, whereby the fuse is protected and its removal together with the cap, made practicable.

6. The combination with a fuse and a cap applied to one end thereof, of an open-ended tube through which the fuse is passed, the cap being located beyond the inner extremity of the tube which is composed of sections and constructed and arranged to protect the fuse and permit its withdrawal after the hole is filled.

701,174. APPARATUS FOR TESTING THE MAGNETIC QUALITIES OF MATERIALS. CHARLES V. BENTLEY, New York, N. Y. Filed Feb. 24, 1902. Serial No. 92,997. (No model.)

Claim.—1. An apparatus for testing the magnetic qualities of materials comprising a plug, a bobbin attached thereto having a central bore to receive a core formed in the material to be tested, a magnetizing-coil

carried by said bobbin, device for making and breaking the circuit of said coil, another coil carried by said bobbin, and indicating device included in the circuit of said coil.



2. An apparatus for testing the magnetic qualities of materials comprising a plug having a tapered end and a central bore adapted to fit a hole formed in the material to be tested, and to receive a core of the material within said hole, a bobbin attached to the plug, a magnetizing-coil carried by said bobbin, another coil carried by the bobbin, and indicating device included in the circuit of said last-mentioned coil.

3. An apparatus for testing the magnetic qualities of materials comprising a magnetizing-coil adapted to encircle a core formed on the material to be tested, a coil arranged concentrically with the magnetizing-coil, indicating device in the circuit of said last-mentioned coil, and a compensating device connected with said coils for the purpose specified.

701,175. PAPER-STOP. HAROLD F. BOWEN, Turner Falls, Mass. Filed Sept. 26, 1901. Serial No. 73,094. (No model.)



Claim.—1. In connection with a winding-drum, a stop mounted on the drum and adapted to swing transversely of the drum while winding the material thereon.

2. In connection with a winding-drum, a stop-arm adjustable longitudinally and axially of the drum.

3. A paper-stop in connection with a winding-drum, consisting of a carriage adjustable longitudinally on the drum, and an arm mounted to swing on said carriage axially of the drum.

4. A paper-stop for a winding-drum, comprising a rack on the drum, a carriage movable on the rack, a spring-pressed dog on the carriage and engaging with the rack, and a stop-arm mounted to swing on the carriage.

5. A paper-holding device on a winding-drum, comprising a rack attached to the drum, a carriage movable on said rack, a spring-pressed dog mounted on the carriage and engaging with the rack, a lifting device for the dog, and a stop-arm mounted to swing on the carriage.

6. In connection with a winding-drum, a carriage movable longitudinally of the drum, an arm mounted to swing on said carriage, and means for locking the arm on the carriage.

7. In connection with a winding-drum, a carriage adjustable longitudinally of the drum, a stop-arm having spring-yielding pivotal connection with the carriage, and a locking connection between the carriage and arm.

8. In connection with a winding-drum, a carriage adjustable longitudinally of the drum, and a curved stop-arm mounted to swing on said carriage.

9. In connection with a winding-drum, a rack secured in a channel in the drum, a carriage comprising an upright plate and side plates, a spring-pressed dog mounted in the carriage and engaging with the rack, a shaft having bearings in the side plates, a cam on said shaft for engaging with the dog, a stop-arm, a pivot-pin on said stop-arm and extending through the upright plate of the carriage, a spring yielding connection between said pin and the carriage, and a spring-pressed pin mounted in the carriage and adapted to engage in an opening in the said arm.

701,176. CAN-GAPPER. JOHN R. DUNN, Indianapolis, Ind., assignor of one-half to the Specialty Manufacturing Company, Indianapolis, Ind. Filed Aug. 19, 1901. Serial No. 72,619. (No model.)



Claim.—1. A machine for sealing cans by pressing the lid thereof into the mouth or opening in the can including a support for the can, a pressure-head for engaging, containing the lid and pressing it down into a sealing position, and means for actuating said pressure-head.

2. A machine for sealing cans by pressing the lid thereof into the mouth or opening in the can including a support for the can, a pressure-head for engaging, containing the lid and pressing it down into a sealing position, a rod carrying said pressure-head, a guide for guiding said rod and pressure-head, and means for actuating the pressure-head.

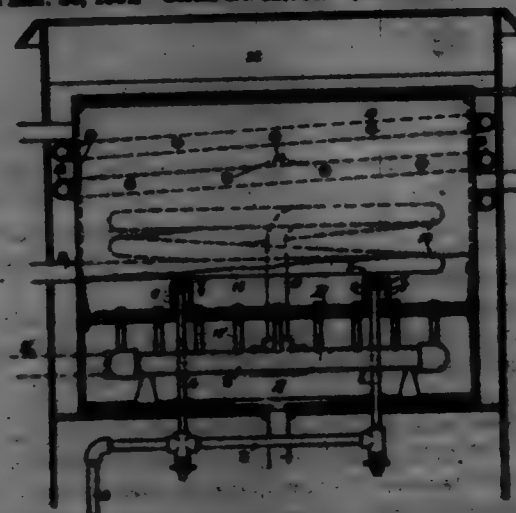
3. A pressure-head for sealing cans having a central extension to enter the depression in the can-lid and an annular flat surface about said extension to engage the rim of the lid or pressing it into place.

4. A pressure-head for sealing cans having an annular pressing-surface for engaging the rim of the lid and pressing them into the can, and a central extension beveled on its outside surface and adapted to enter the depression in the lid and abutment against the bottom of the lid in the final movement of the pressure-head.

5. A sealing-block for cans while the cans are being sealed having a series of concentric circular depressions of varying diameters and elevations within and between said depressions that are substantially flush with the top surface of the block and with each other.

6. A sealing-block for cans while being sealed having a series of concentric circular depressions of varying diameters to receive the bottoms of the cans, said depressions increasing in depth from the center of the block outward.

701,177. CIL-SURFER. BRADLEY W. DUNE, San Jose, Cal. Filed Mar. 26, 1901. Serial No. 62,911. (No model.)



Claim.—1. In an apparatus for boring petroleum, the combination of a table having openings made through the surface, with flanges sur-

rounding said openings and projecting above the table surface, open-topped fuel-supply pipes extending above said surface, and heads therefor closed at the top and open at the bottom.

2. In an apparatus for boring petroleum, the combination of a burning-table having openings made through with raised flanges surrounding said openings, fuel-supply pipes extending upwardly through and above the surface of the table, closed top heads fitting over said pipes, and extending downwardly to near the surface of the table, said heads having discharge-openings at the bottom and through the sides.

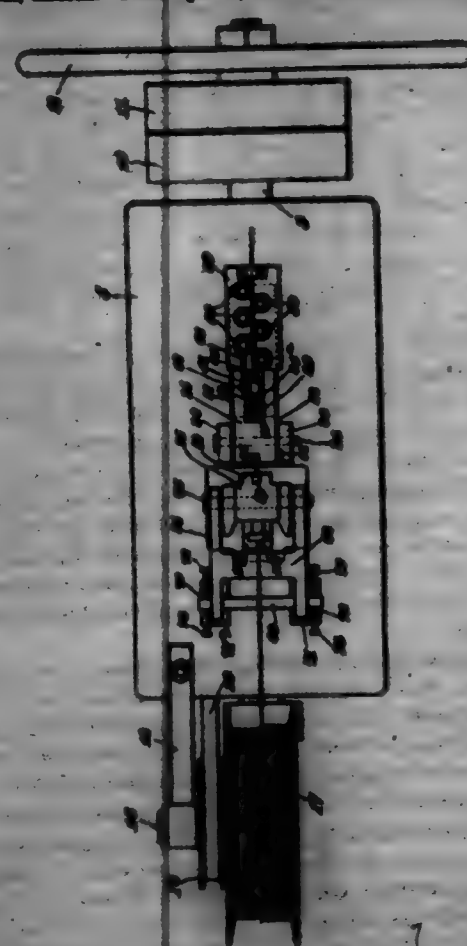
3. In an apparatus for boring petroleum, the combination of a burner-plate having openings, with raised flanges surrounding said openings, open-topped fuel-supply pipes extending above the table surface, and having annular projecting and downwardly-divergent flanges around the upper end, closed top heads of larger diameter than said flanges, said heads having discharge-openings at the bottom and through the sides.

4. In an apparatus for boring petroleum, the combination of a chamber, means for introducing a fluid fuel therein, a burner-plate located above said chamber having holes made therethrough, with raised flanges surrounding said openings, open-topped fuel-supply pipes extending through said chamber and above the burner-plate, annular flanges surrounding the tops of the pipes divergent downwardly, closed top heads of larger diameter than the flanges, fitting over the pipes above the burner-plate having discharge-openings at the bottom and through the sides.

5. In an apparatus for boring petroleum, the combination of a burner-plate having openings with flanges surrounding the same and projecting above the upper surface of said burner, open-topped fuel-supply pipes extending above said plate and heads encompassing the upper ends of said pipes, a closed chamber below the burner-plate, and a pipe within said chamber for supplying gaseous fuel thereto said pipe having passages leading from it to a point above the plate.

6. In an apparatus for boring petroleum, the combination of an upper-passed chamber, an intermediate burner-plate, liquid-fuel-supply pipes extending upwardly through said plate, and distributor connected therewith, and gaseous-fuel-supply pipes disposed within the lower chamber having perforations and passages made in them, said burner-plate having openings through which said gaseous fuel passes.

701,178. NAIL-MAKING MACHINE. HENRIQUE DUBOIS, Montreal, Canada. Filed Apr. 16, 1901. Serial No. 65,894. (No model.)



Claim.—1. In a nail-making machine of the class described, a nail-forming mechanism limited to two sets of dies, one of said sets of dies having its members formed to point the nails by a compression action solely on the wire, and the other set of dies having head-forming die-cores in their casting dies and in the dies which oppose the point-compressing dies, combined with means for intermittently and positively reciprocating the set of head-forming dies, while they are gripped upon

the wire, in a direction contrary to the feeding of the wire and less compressive relation in the set of nail-pointing dies, to upset the wire at intervals and form the nail-heads substantially as described.

2. In a nail-making machine of the class described, a nail-forming mechanism limited to two sets of dies, one of which comprises a stationary relation to the other and said relatively stationary dies formed and driven to point and shape the nails by a compression action solely on the wire, and the other set of dies provided with head-forming die-cores in the cooperative faces thereof and in the faces which oppose the point-compressing dies, combined with means for opening and closing each set of dies intermittently, and means for positively feeding said head-forming dies gripped upon a wire, toward and in cooperative relation to the relatively stationary shaping-dies, whereby two sets of dies operate on a wire to head and point the nails, as set forth.

3. In a nail-making machine, the combination of a set of relatively stationary shaping and pointing dies, another set of independent head-forming dies having gripping-dies and head-forming die-cores, die-actuating means whereby the dies of each set may be forcibly gripped upon the stock, and quickly opened prior to advancement of the stock, and means for positively moving the set of head-forming dies toward the shaping and pointing dies and for lifting said head-forming dies on the return movement thereof, whereby the head-forming dies are given ample clearance for the nail-heads, substantially as described.

4. In a nail-machine, the combination of a set of casting dies provided with means for opening and closing the same, another set of dies having their active faces beveled to point the nails or heads by a compression action and also provided with means for opening and closing said dies, an intermittent feed mechanism effective to advance a wire in one direction when both sets of dies are opened, and means for positively moving one set of dies toward the other set of dies at a period when both sets of dies are closed and gripped upon the wire, such movement of the dies being in a direction contrary to that of the wire under the action of the feed mechanism, substantially as described.

5. In a nail-machine, a relatively stationary die-block, a lever fulcrumed on the die-block and provided with a roller-shoe, casting dies mounted in the die-block and the lever respectively and provided with grooves in their opposing faces, and a cam arranged to ride against the head of said lever and thereby positively move the latter to open and close said dies, in combination with a feed mechanism, a set of casting head-forming dies, and means for positively moving said head-forming dies in a direction contrary to the line of feed of the work, substantially as described.

6. In a nail-machine, the combination with casting shaping-dies, and a dotted lever for opening and closing said dies, of a head-forming lever passing through the dotted lever and provided with a roller-shoe, a cam arranged to ride against said shoe, a spring connected with the head-forming lever for holding the same in a retracted position, an adjustable stop in the path of the head-forming lever, and cooperating work-engaging devices movable with the casting head-forming dies, substantially as described.

7. In a nail-making machine of the class described, the combination with nail-pointing mechanism, and a suitable feed mechanism, of a head-forming support mounted on a shiftable fulcrum and capable of a compound movement whereby it may be positively moved toward the pointing mechanism and it may be raised or lifted somewhat on its return movement, casting head-forming dies mounted in the support for movement therewith, means for closing said head-forming dies and for opening the same prior to, or simultaneously with, the upward and return movement of the head-forming support, and means for giving the shiftable movement to said head-forming support, substantially as described.

8. In a nail-machine, the combination with shaping-dies, and a feed mechanism, of a head-forming lever, a slide mounted thereon, cooperating head-forming dies mounted on the lever and the slide respectively, means for actuating the slide to open and close said dies, and means for moving the head-forming lever to shift the position of the head-forming dies in a direction contrary to the line of feed of the work, substantially as described.

9. In a nail-machine, a head-forming lever, a slide movable thereon, and a retractor connecting the lever and the slide to impart relative movement to the same in opposite directions, and head-forming dies mounted on the lever and the slide respectively, and a cam having operative engagement with the lever and slide, in combination with shaping-dies, and means for moving the head-forming lever and the slide toward or from said shaping-dies, substantially as described.

10. In a nail-machine, the combination of a head-forming lever, a shiftable support for said head-forming lever, a slide limited to rectilinear movement on the head-forming lever, cooperating head-forming dies mounted on the lever and the slide respectively, a cam in operative relation to the lever and the slide, and a spring connecting the lever and slide, in combination with shaping-dies and means for imparting movement to the head-forming lever and the head-forming dies in a direction contrary to the line of feed of the work, substantially as described.

11. In a nail-machine, the combination of a head-forming lever provided

with roller-shoes 26, 27, a slide on said head-forming lever and provided with a roller-shoe 21, a cam disposed between the slide-dies and one die of the head-forming lever, another cam in operative relation in the other die of the head-forming lever, a retractor connecting the lever and the slide, cooperating head-forming dies mounted on the lever and the slide, a shiftable support for the head-forming lever, a set of shaping-dies, and a feed mechanism, substantially as described.

12. In a nail-machine, the combination of a head-forming lever, a swinging frame pivoted to the head-forming lever, means for adjustably supporting the swinging frame in pivotal relation to the head-forming lever, a set of head-forming dies carried by said head-forming lever, means for opening and closing said dies, a set of shaping-dies, and means for moving the head-forming lever and the head-forming dies toward or from the shaping-dies, substantially as described.

13. In a nail-machine, the combination of a head-forming lever, a shiftable support for said head-forming lever, two roller-shoes mounted on the lower portion of the head-forming lever, a cam having operative relation to one of said shoes, an adjustable plate, a spring connected to the head-forming lever and to said plate and adapted to normally position said roller-shoe in the path of said cam, a slide mounted on the head-forming lever and provided with a roller-shoe, another cam disposed between the roller-shoes of the lever and the slide, the cooperating head-forming dies on the lever and the slide, and a set of shaping-dies, substantially as described.

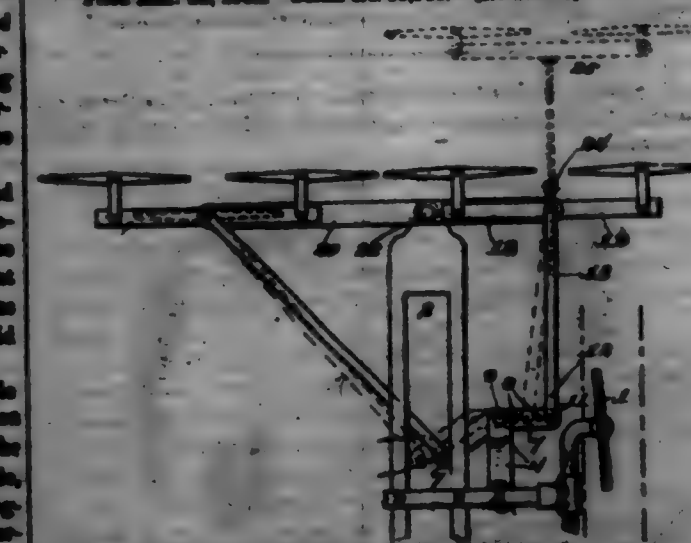
14. A nail-machine in which the pointing and heading devices are connected to two sets of dies, one set of dies carrying a non-shiftable position and opened or closed by cam-actuated devices, the other set of dies being provided with active faces arranged to point the nails by a compression action, a head-forming lever arranged to positively move one set of dies toward or from the other set, and a cam in operative relation to the head-forming lever, substantially as described.

15. In a nail-machine, the combination of a set of dies, another set of dies, cam-actuated means for opening and closing each set of dies, a head-forming lever arranged to positively advance one set of dies relative to the other set and at a period when both sets of dies are closed, a cam arranged to actuate the head-forming lever, and an intermittently-actuated feed mechanism operable to advance a wire during the period when both sets of dies are opened, such advancement of the wire being in a direction contrary to the heading movement of the set of dies by the head-forming lever, substantially as described.

16. In a nail-machine, the combination of two sets of independently-mounted dies, a main shaft having a plurality of cams, means actuated by certain cams to open and close said dies, a head-forming lever actuated by another cam and having means for feeding a wire through said dies when the latter are opened, and a head-forming lever actuated by a cam on said main shaft and operatively connected with one set of dies to positively move the latter in a direction contrary to the line of feed by the head-forming lever and at a period when both sets of dies are closed upon the wire, substantially as described.

17. In a nail-machine, the combination of a main shaft having a plurality of cams, an upright head-forming lever actuated by one of said cams and having means for gripping and heading a wire, an upright head-forming lever also arranged for actuation by one of said cams, two sets of dies independently mounted, one set being movable with the head-forming lever in a direction contrary to that of the wire under the action of the head-forming lever, and cam-actuated devices for opening and closing the dies of said sets, substantially as described.

701,179. DRAFT-EQUALIZER. WILLIAM C. DYER, Dallas, Tex. Filed Mar. 28, 1902. Serial No. 69,516. (No model.)



Claim.—1. A draft-equalizer comprising an adjustable bracket, a two-part equalizing-lever anchored pivotally together, an equalizing-bar

pivoted to the bracket and having a straight portion provided with a series of pivot-holes and a transversely-projecting portion, and the lever pivotedly connected to the outer end of the two-part lever with the said bar.

2. In a draft-equalizer the combination, with the bracket adapted to be adjustably connected to a cultivator-wheel axle, and the two-part equalizing-lever pivoted together and to the cultivator-beam, of an equalizing-bar pivoted in the bracket, and the lever connecting the said bar with the two-part lever.

3. In a draft-equalizer the combination, with the triangular bracket having a slot, and the equalizing-bar pivotally adjustable in said slot, of the two-part equalizing-lever, and the lever having diverging arms and connecting the two-part lever with the said bar.

4. The combination, with a disk pivot, of a double-draft equalizer adaptable for use from three to six horses, comprising a bracket capable of transverse adjustment on the pivot-axis, an equalizing-bar pivotally adjustable in the bracket, the two-part equalizing-lever pivoted together and to the pivot-beam, and having a hook or clevis, the double and single trees carried by the parts of said lever, the lever pivotally connecting the two-part lever with the said bar, and the double-tree attachment adapted to be connected to the said hook.

701,180. CLASP FOR TRACTION-WHEELS. RAIL SHIPLEY, Ravensport, Iowa, assignor to the Bettendorf Metal Wheel Company, a Corporation of Iowa. Filed Mar. 25, 1902. Serial No. 100,670. (No model.)



Claim.—1. A clasp for a traction-wheel adapted to be fastened to the rim of the wheel, and formed at its edge with a discontinuous longitudinally-extending projecting flange.

2. A clasp for a traction-wheel, comprising a flat body portion adapted to be fastened to the wheel-rim, and having at one edge an angular flange formed with alternate elevated and depressed portions.

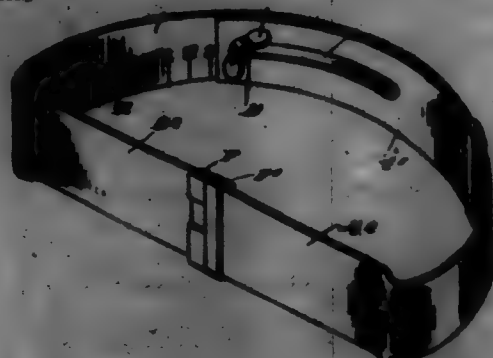
3. A clasp for a traction-wheel comprising a base-plate adapted to be fastened to the rim of the wheel, and an integral angular flange at the edge of the base-plate cut away between its ends to form a depression.

4. A clasp for a traction-wheel comprising a base-plate adapted to be fastened to the rim of the wheel, and an angular flange at one edge, said flange being continuous at its base where it unites with the plate and having its outer projecting edge discontinuous.

5. A clasp for a traction-wheel comprising a flat body portion adapted to be fastened to the rim of the wheel, and having at one edge an integral projecting flange disposed at an angle to the body portion and formed at its edge with an open unobstructed recess.

6. In a wheel the combination with the rim, of a traction-clasp comprising a flat body portion fastened rigidly to the face of the rim and a flange disposed at right angles to the body and extending longitudinally thereof, and formed in its outer edge with an open free recess.

701,181. HUBBARD-CHAPER. MARSHALL E. HUBBARD and ARMAN L. LEVI, Patrons, N. J. Filed Feb. 4, 1902. Serial No. 92,002. (No model.)



Claim.—1. A hubbard-chaper comprising two separate members, each of which has one portion bent to form the chord of an arc and the other portion the circumference of the arc, the chord portions of the mem-

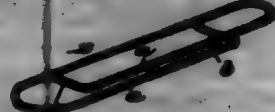
bers being rigidly connected and the arc portion being also rigidly connected, and means for rigidly locking one of their sliding connections while the other remains yielding, substantially as and for the purpose described.

2. A hubbard-chaper comprising two separate members, each of which has one portion bent to form the chord of an arc and the other portion the circumference of the arc, the chord portions having each a rigidly-attached terminal knocker with the knocker of each chord-portion embracing the body part of the opposite member, and a locking device for the sliding curved portions of the members, substantially as described.

3. A hubbard-chaper comprising two separate members, each of which has one portion bent to form the chord of an arc and the other portion the circumference of the arc, and having also at the head of these two portions a rearwardly-extending offset A' and B', sliding connections for the chord portions, sliding connections for the arc portions, and means for locking one of said sliding connections to a rigid adjustment substantially as shown and described.

4. A hubbard-chaper comprising two members united to form a curved front and a straight back, the members having their back portions rigidly connected and the front portions overlapping for adjustable attachment one to the other, and means for securing the front portions together, after the same have been adjusted, as set forth.

701,182. BROOM. FREDERICK J. BLAN and ARTHUR E. BLAN, London, Canada. Filed Feb. 27, 1902. Serial No. 92,021. (No model.)



Claim.—The combination with the broom-head, of the metallic band surrounding the head at or about the horizontal median line thereof, and having the lapped arms extending across the major portion of one side of the head, and terminating in the angular prongs b corresponding in length to the thickness of the head, and embedded therein, and the continuous connection extending from one edge of the head to the other, and passed to and fro through the head and lapped over the portions of the head at opposite sides of said band.

701,183. METHOD OF PREPARING FLAX FIBER FOR SPINNING. GEORGE H. BLAN, Chicago, Ill., assignor to Dearing Harvester Company, Chicago, Ill. Filed July 28, 1902. Serial No. 24,542. (No specimen.)



Claim.—1. The method of preparing flax fiber for spinning, which consists in separating and feeding the flax-stem endwise in bunches or wips, subjecting the bunches or wips to an initial or preparatory coarse rubbing overwise of the stem and feed thereby spreading the stem and loosening the fiber, and then subjecting the material to a continued crush-

ing and transverse breaking of the stem thereby breaking the woody center and separating the same from the fiber for the production of flax-drier, substantially as described.

2. The method of preparing flax fiber for spinning, which consists in separating and feeding the flax-stem endwise in bunches or wips, subjecting the bunches or wips to an initial or preparatory coarse rubbing overwise of the stem and feed thereby spreading the stem and loosening the fiber, then subjecting the material to a continued crushing and transverse breaking of the stem thereby breaking the woody center and separating the same from the fiber and then subjecting the material to a final or finishing pressing and spreading for the production of flax-drier, substantially as described.

3. The method of preparing flax fiber for spinning, which consists in separating and feeding the flax-stem endwise in bunches or wips, subjecting the bunches or wips to an initial or preparatory coarse rubbing overwise of the stem and feed thereby spreading the stem and loosening the fiber, then subjecting the material to a continued crushing and transverse breaking of the stem thereby breaking the woody center and separating the same from the fiber, then subjecting the material to a final or finishing pressing and spreading for the production of flax-drier, substantially as described.

4. The method of preparing flax fiber for spinning, which consists in subjecting untreated flax-stem endwise in bunches or wips to an initial or preparatory coarse rubbing overwise of the stem and feed thereby spreading the stem and loosening the fiber, then subjecting the material to a continued crushing and overwise breaking of the stem longitudinally thereby breaking the woody portion and separating the same from the fiber, then subjecting the material to a final or finishing pressing and spreading and then subjecting the drier as produced to repeated drawings and treating the drier during the drawings with oil, substantially as described.

5. The method of preparing flax fiber for spinning which consists in subjecting untreated flax-stem endwise in bunches or wips to an initial or preparatory coarse rubbing overwise of the stem and feed thereby spreading the stem and loosening the fiber, then subjecting the material to a continued crushing and overwise breaking of the stem thereby breaking the woody portion and separating the same from the fiber, then subjecting the material to a final or finishing pressing and spreading, then subjecting the drier as produced to repeated drawings, treating the drier during the drawings with oil, and applying water to the drier after oiling and during the drawings, substantially as described.

6. The method of preparing flax fiber for spinning, which consists in subjecting untreated flax-stem to rubbing, crushing, breaking and pressing, for separating the woody substance from the fiber and feeding the fiber into drier, then subjecting the drier to repeated drawings, treating the drier during the drawings with oil, applying water to the drier after oiling and during the drawings, and during the drier, after treatment with the oil and water, a sufficient length of time to cause the substance to become uniformly diffused through it, rendering it soft and flexible, and then subjecting the material and spread drier to a drawing treatment, substantially as described.

7. The method of preparing flax fiber for spinning, which consists in subjecting untreated flax-stem to rubbing, crushing, breaking and pressing, for separating the woody substance from the fiber and feeding the fiber into drier, then subjecting the drier to repeated drawings, treating the drier during the drawings with oil, applying water to the drier after oiling and during the drawings, and during the drier, after treatment with the oil and water, a sufficient length of time to cause the substance to become uniformly diffused through it, rendering it soft and flexible, and then subjecting the material and spread drier to a drawing treatment, substantially as described.

8. The method of preparing flax fiber for spinning which consists in feeding the flax into drier, subjecting the drier to a preparatory drawing, then subjecting the drier to a second drawing and during the second drawing treating the drier with oil and then subjecting the drier after treatment with oil to a third drawing and applying water to the drier during the third drawing, substantially as described.

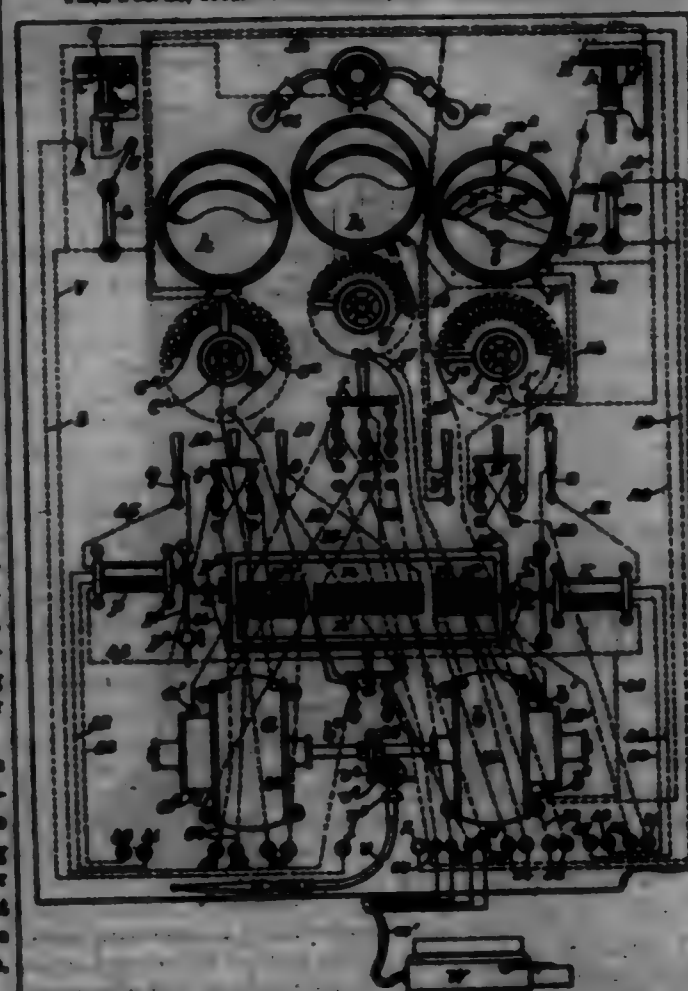
701,184. THERMO-REGULATOR. JOHN B. BLANCHARD, Franklin, Iowa. Filed Sept. 12, 1901. Serial No. 73,004. (No model.)

Claim.—The combination with a clip having a vertical hooked end and a T-bar for fastening said end to the rearward end of the clip; of a recessed extension to the clip having grooves in the walls of the recess, a dial-rod, transverse thereto having in the grooves, a ball slightly unseated in the bottom of the recess, a camrod bent to said ball and fixed in the recess above the dial-rod, packing around to the camrod face of the ball-head and bearing upon the dial-rod, a contact mounted upon and engaging the dial-rod end of the ball, a handle extending laterally from the contact, a pawl pivoted to the bottom of the recessed extension and

engaging the contact, an arm to said pawl, a hand or grip thereon, and a projection for limiting the movement of the pawl in one direction.



701,185. ELECTROTHERAPEUTIC APPARATUS. GEORGE W. BLAN, Richmond, Va., assignor to Edwin C. Meyer, Richmond, Va. Filed Feb. 25, 1902. Serial No. 92,750. (No model.)



Claim.—1. In electrotherapeutic apparatus, the combination with a pair of alternating-current service-units, of a rotary converter connected to said units, and a combined voltmeter and automatic cut-out for limiting the voltage of the direct current from said converter.

2. The improved means for limiting the voltage of a source of electricity for therapeutic purposes, comprising a voltmeter measuring the voltage of the direct therapeutic current, an adjustable contact operated by said voltmeter, and a circuit-breaker operated through said contact.

3. In electrotherapeutic apparatus, the combination with a main alternating-current circuit, of a rotary converter operated by the current in said circuit, and means for automatically limiting the voltage of the direct current produced by said converter, said means comprising a voltmeter connected in said direct-current circuit, an adjustable contact operated by said voltmeter, and a circuit-breaker located in said alternating-current circuit and operated by the contact of said voltmeter.

4. The combination with a pair of alternating-current service-units, of a rotary converter connected thereto, a cycle-regulator connected in the alternating-current circuit of said converter, an electrotherapeutic apparatus connected in the direct and alternating current circuit of said converter.

5. The combination with a pair of alternating-current service-units, of a rotary converter connected thereto, a cycle-regulator comprising an adjustable shunting-coil connected in the alternating-current circuit of said converter, and electrotherapeutic apparatus connected in the direct and alternating current circuit of said converter.

6. In electrotherapeutic apparatus, the combination with a pair of alternating-current service-units, of a rotary converter connected to said units, and a pulsator operated by the direct current from said converter and adapted to produce pulsations of varying periods.

7. In electrotherapeutic apparatus, the combination with a pair of alternating-current service-mains, of a rotary converter connected to said mains, and a pulsator operated by the direct current from said converter and adapted to produce pulsations of varying periods, said pulsator comprising an induction-coil provided with a circuit-interrupter consisting of an oscillating contact-maker having an adjustable weight attached thereto.

8. In electrotherapeutic apparatus, the combination with a pair of alternating-current service-mains, of a rotary converter connected thereto, a flexible shaft and a coupling for connecting said shaft to said rotary converter.

9. In electrotherapeutic apparatus, the combination with a pair of alternating-current service-mains, of a rotary converter connected to said mains, and a rheostat connected in multiple with the direct-current terminals of said converter, substantially as and for the purposes herein specified.

701,186. APPARATUS FOR GENERATING GAS. WILLIAM J. FARRER, Chicago, Ill. Filed July 25, 1901. Serial No. 68,082. (No model.)



Claim.—1. In a gas-generating apparatus, a gas-generating chamber, a combustion-chamber, each apparatus provided with an inlet and an outlet for gaseous material and each chamber provided with a communicating passage-way through which molten material may flow, the gas-generating chamber provided with an outlet for gas and the combustion-chamber provided with an outlet for the products of combustion, means in the chambers, means to introduce gas-producing material into the gas-generating chamber, means to introduce fuel and means to introduce air to support combustion of the fuel into the combustion-chamber; whereby means are provided to supply gas-producing material to the gas-generating chamber and to exclude air therefrom, means are provided to supply fuel and air to support combustion thereof to the combustion-chamber, means are provided to supply molten material to the apparatus and to deliver molten material from the combustion-chamber into the gas-generating chamber and to thus maintain material in the gas-generating chamber at an operative gas-generating temperature; substantially as described.

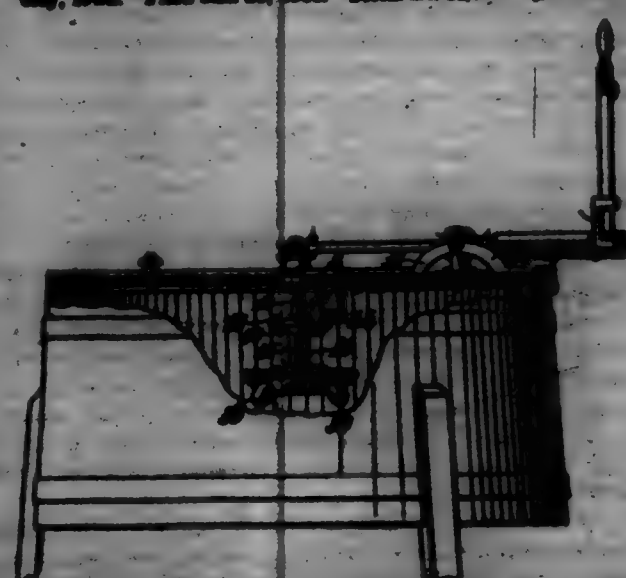
2. In a gas-generating apparatus, a series of gas-generating chambers, a series of combustion-chambers, the gas-generating chambers respectively provided with outlets for gas and the combustion-chambers respectively provided with outlets for the products of combustion, and adjacent each a. each chamber provided with communicating passage-ways, molten material in the chambers, each chamber and communicating passage-ways arranged so that molten material may flow successively throughout and the passage-ways opening into the respective gas-generating chambers will be cooled by each molten material to exclude air from each gas-generating chamber, means to introduce gas-producing material into the gas-generating chambers, means to introduce fuel and means to introduce air to support combustion of the fuel, into the combustion-chambers; whereby, as gas is generated in the gas-generating chambers of the apparatus and thereby the heat of the molten material flowing through each chamber is reduced, each molten material is replaced by molten material of a higher temperature flowing thereto from the combustion-chambers of the apparatus; substantially as described.

3. In an apparatus for generating gas, the combination of a gas-generating chamber provided with an inlet and with an outlet for molten material and provided with an inlet for gas-producing material means to regulate the supply of gas-producing material delivered into the gas-generating chamber through the inlet therefor, and with an outlet for gas, with molten material to flow through the chamber; substantially as described.

4. In a gas-generating apparatus, the combination of a plurality of gas-generating chambers respectively sealed to exclude air therefrom and a combustion-chamber, each chamber provided with communicating passage-ways through which molten material may flow, each passage-way arranged so that the molten material shall cool the gas-generating chambers against the admission of air thereinto, the gas-generating chambers respectively provided with inlets for gas-producing material and with outlets for gas, and the combustion-chamber provided with means to introduce fuel and means to introduce a supporter of combustion thereto and with outlets for the products of the combustion thereof; substantially as described.

5. In a gas-generating apparatus, the combination of a series of gas-generating chambers and a series of combustion-chambers alternating therewith, the division-walls thereof being common thereto, each chamber provided with communicating passage-ways and each gas-generating chamber respectively provided with an inlet and with an outlet for molten material, with an inlet for gas-producing material and with an outlet for gas, and the combustion-chambers respectively provided with means to supply air to support combustion thereof and with outlets for the products of combustion, each outlet arranged in the division-walls with openings thereof adjacent to the outlets of the molten material in each combustion-chamber; substantially as described.

701,187. WASHING-MACHINE. WILLIAM S. FAVER, St. Louis, Mo. Filed Jan. 25, 1901. Serial No. 68,081. (No model.)



Claim.—1. In a washing-machine, the combination with a rubber, a shaft on which the same is mounted, and a pulley on said shaft, of a drive-shaft having an enlargement on one end thereof provided with a circumferential groove or channel, rollers lying within said groove or channel and on one end having a furled and embracing said enlargement, having projections thereon lying within said groove and provided with a rack adapted to engage said pulley, as and for the purposes set forth.

2. In a washing-machine, the combination with a rubber, a shaft on which the same is mounted and a pulley on said shaft, of a rotary drive-shaft having an enlargement on one end thereof provided with a circumferential groove or channel, rollers lying within said groove or channel on opposite sides thereof, and an arm having a furled end in which said rollers are mounted and provided with a segmental rack adapted to engage said pulley, as and for the purposes set forth.

3. In a washing-machine, the combination with a rubber, a shaft on which the same is mounted and a pulley on said shaft, of a rotary drive-shaft having an enlargement on one end thereof provided with a circumferential groove or channel, rollers lying within said groove or channel on opposite sides thereof, a rod or arm having a furled end in which said rollers are mounted and provided with a segmental rack upon its free end adapted to engage said pulley, and a horizontally-movable frame to which the furled end of said rod is pivoted, as and for the purposes set forth.

4. In a washing-machine, the combination with a rubber, a shaft on which the same is mounted and a pulley on said shaft, of a rotary drive-shaft having an enlargement on one end thereof provided with a circumferential groove or channel, means for adjusting the position of said en-

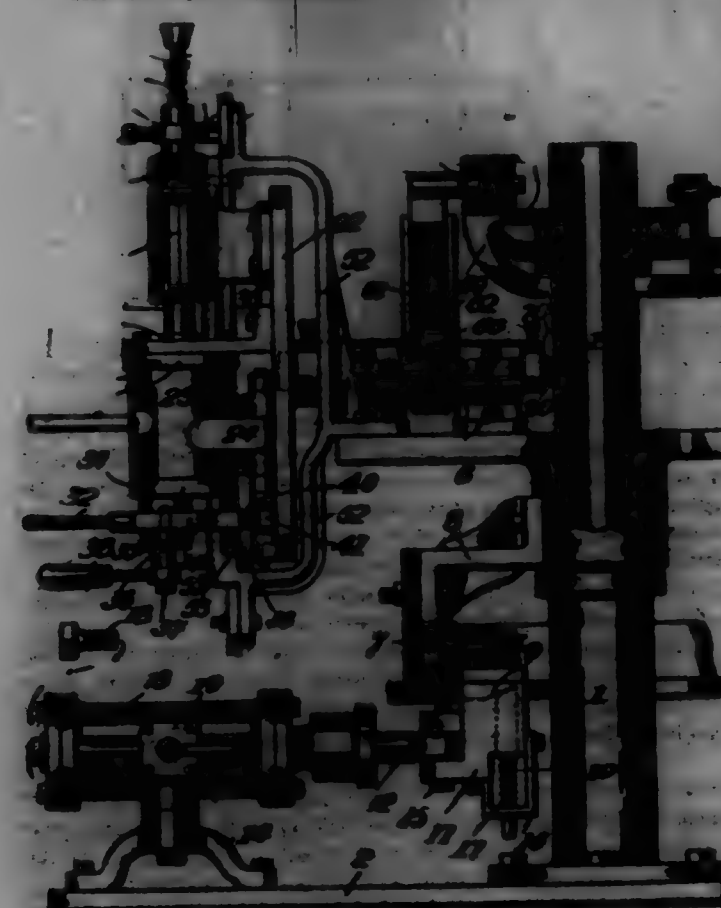
largement on said drive-shaft, rollers lying within said groove or channel, and an arm having a furled end in which said rollers are mounted and provided with a segmental rack adapted to engage said pulley, as and for the purposes set forth.

5. In a washing-machine, the combination with a rubber, a shaft on which the same is mounted and a pulley on said shaft, of a rotary drive-shaft having an enlargement on one end thereof provided with a circumferential groove or channel, a frame pivoted beneath said enlargement and capable of movement in a horizontal plane, the said frame having upwardly and outwardly extending arms thereon embracing said enlargement, a rod having a furled end on one end, the branches of which are pivoted to the arms of said frame and having a segmental rack on the opposite end adapted to engage said pulley, and rollers pivoted to the branches of said furled end, extending inwardly therefrom, and lying within said groove or channel on opposite sides thereof, as and for the purposes set forth.

6. In a washing-machine, the combination with a longitudinally-movable rubber-shaft, and means for actuating the same, of a rubber yieldingly mounted on said shaft, a stationary track having rollers thereon, and a projection on said rubber movable on said track, as and for the purposes set forth.

7. In a washing-machine, the combination with a rubber-shaft and means for actuating the same, of a rubber, a sleeve secured to said rubber and receiving said shaft, said sleeve being provided with elongated slots, a spring in said sleeve engaging the lower end of said shaft, a transverse pin extending through said shaft and slots, a stationary track having an irregular bearing-surface, and a laterally-projecting roller on said sleeve adapted to move upon said track.

701,188. FRUIT-JAR OR BOTTLE MACHINE. WILLIAM F. FARRER and HENRY F. LAMBERT, Chicago, Ill. Filed Oct. 24, 1900. Serial No. 64,170. (No model.)



Claim.—1. A glass-blowing machine, comprising an auxiliary support, a mold having a removable bottom and carried by the support, a plunger also carried by the said support and provided with means for admitting air therethrough into the mold, means for confining the support, and means controlled by the confining of the support for continuously reciprocating and rotating the plunger, as set forth.

2. A glass-blowing machine comprising an auxiliary support, a mold having a removable bottom and carried by the support, a plunger also carried by the support, a bellows valve-stem in the plunger and adapted to receive air from an air-blowing device, means for confining the support and means for continuously reciprocating and rotating the plunger, said means being controlled by the means for confining the support, as set forth.

3. In a glass-blowing machine, a table, a disk mounted thereon as to be overhanging the edge, a separable mold hinged to the disk and adapted to be inverted as the disk is rotated, the bottom of the mold being removable and adapted to engage with the parts of the mold and hold them

together, a plunger carried by the disk and means for continuously rotating the disk and reciprocating and rotating the plunger, substantially as described.

4. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, a separable mold hinged at one end of the disk, the bottom of the mold being removable, a lever adjacent to the bottom of the mold, a stem from the bottom through the lever, means for moving said stem through the lever, and a hollow plunger adapted to enter the opposite end of the mold, substantially as described.

5. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, a separable mold at one end of the disk and a plunger at the other, the bottom of the mold being removable and provided with guides and a notched part, a lever pivotedly secured to the disk adjacent to the bottom, the guides and the part passing through said lever, a rotary part upon the lever provided with a cam in position to engage with the notched part from the bottom of the mold, and a handle for operating said cam, substantially as described.

6. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, a two-part mold hinged to one end of the disk and a plunger mounted upon the other end, the lower end of the mold being provided with a shoulder, a shoulder bottom detachably connected with the bottom of the mold, a swinging lever pivotedly secured to the disk and provided with means for moving the bottom toward and from the bottom of the mold, and an adjustable stop in position to engage with the lever and limit its movement when the shoulder of the bottom is in position to engage with the shoulder upon the lower end of the mold, substantially as described.

7. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, a bracket secured near the center of the disk, a plate secured to the bracket and provided with grooves, a two-part mold hinged to the disk, each part being provided with a pin in position to be moved into said grooves, a removable bottom for the mold, and a rotary and reciprocating plunger mounted upon the disk with its axis coincident with the axis of the mold, substantially as described.

8. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, one end of which is provided with a mold and the other end is provided with a rotary and longitudinally-movable plunger, means for confining the disk and means controlled by the means confining the disk for continuously rotating the plunger and moving it longitudinally, substantially as described.

9. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, one end of which is provided with a mold and the other end is provided with an oscillatory and longitudinally-movable plunger, a piston and a transverse at the outer end of said plunger, and a segmental rack and cam for engaging with said piston and transverse respectively as the disk is oscillated, substantially as described.

10. In a glass-blowing machine, a table, an auxiliary disk mounted thereon provided with a mold at one end and a hollow plunger at the other, a piston loosely mounted against rotation upon the plunger near its outer end, a collar rigidly secured to the plunger beyond the piston and provided with a transverse, located upon the table, and two segments secured to said piston, one of which is provided with a rack for engaging with the piston and the other one is provided with a cam-shaped groove for engaging with the transverse upon the collar, substantially as described.

11. In a glass-blowing machine, a table, an auxiliary disk mounted thereon provided with a mold at one end and a hollow plunger at the other, the inner end of the plunger being provided with a head, a reciprocating valve-stem in the plunger, the outer end of which is provided with a mouthpiece, and the inner end is perforated and provided with a conical head, and yielding means for normally forcing said valve-stem outward, substantially as described.

12. In a glass-blowing machine, a table, an auxiliary disk mounted thereon, one end of which is provided with a mold and the other end with a rotary and longitudinally-movable hollow plunger, a bellows valve-stem through the plunger, the outer end of which is curved-shaped and provided with a mouthpiece and the inner end is perforated and provided with a conical head, a nut upon the curved-shaped portion of the stem, a spring between said nut and the end of the plunger, and means for continuously rotating the plunger and moving it longitudinally as the disk is oscillated, substantially as described.

13. In a glass-blowing machine, a support, a table rotatably mounted upon said shaft and provided with a series of glass-blowing mechanisms, each of said mechanisms being provided with a piston, a rack upon the table for each piston, and a cam-shaped track secured to the support in position to engage with the upper end of said rack and move them vertically as the table is rotated, and means for intermittently rotating the table, substantially as described.

14. In a glass-blowing machine, a support, a table rotatably mounted thereon, a series of glass-blowing mechanisms mounted upon the table,

each being provided with a piston, a reciprocating rack for each piston, the upper end of each of which is provided with an arm, a tank secured to the support and provided with cam-shaped grooves for engaging with said arms, and means for intermittently rotating the table, substantially as described.

15. In a glass-blowing machine, a column provided with a collar intermediate its length, a table rotatably mounted upon the column and provided with a hub which is adapted to be supported by said collar, a series of glass-blowing mechanisms mounted on the table and provided with means for operating them, a circular way secured to the hub of the table and provided with shoulders, one for each glass-blowing mechanism, and a motor provided with means for engaging said shoulders and intermittently rotating the way and the table, substantially as described.

16. In a glass-blowing machine, a column provided with a collar intermediate its length, a table rotatably mounted upon the column and provided with a hub which is supported by said collar, a series of glass-blowing mechanisms upon the table provided with means for operating them, brackets secured to the hub of the table, a circular way secured to said brackets, the lower edge of which is provided with notches, and a reciprocating motor provided with a pawl for engaging with said notches, substantially as described.

17. In a glass-blowing machine, a column, a table rotatably mounted thereon and provided with a series of glass-blowing mechanisms and means for operating the same, a shoulder way connected with said table, an air-cylinder pivoted thereto provided with a piston, a head upon the piston provided with a pawl for engaging with the shoulders of the way and intermittently rotating the table, substantially as described.

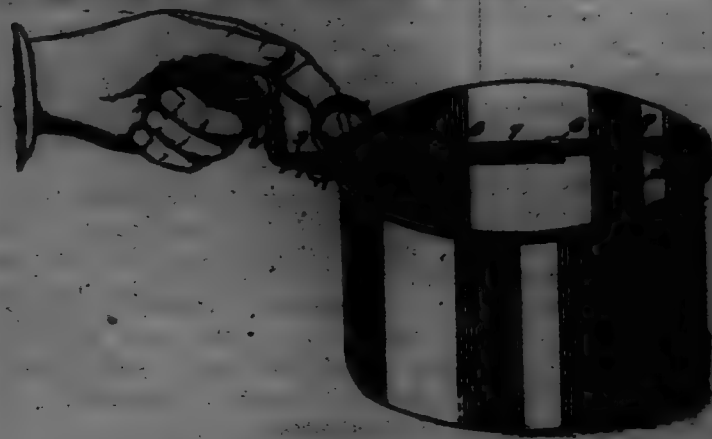
18. In a glass-blowing machine, a column, a table rotatably mounted thereon and provided with a series of glass-blowing mechanisms and means for operating the same, a circular shoulder way connected with the table, an air-cylinder pivoted thereto mounted adjacent thereto and provided with a piston, a head pivotedly mounted on the end of the piston, and a spring-actuated pawl in the head in position to engage with the shoulders of the way and intermittently rotate the table as the piston is reciprocated, substantially as described.

19. In a glass-blowing machine, a base, a column and a bracket mounted thereon, a table rotatably mounted on the column and provided with a series of glass-blowing mechanisms, a shoulder way connected with the table, an air-cylinder pivotedly mounted upon the bracket and provided with a piston, said cylinder being provided with two inlets and one outlet, and means between the end of the piston and the way for engaging with said shoulders and rotate the table, substantially as described.

20. In a glass-blowing machine, a support, a table mounted to revolve on said support, a shaft journaled in the table and carrying a piston, a mold and plunger carried by the shaft, a rack engaging the piston, and means for moving the rack as the table is revolved, as set forth.

21. In a glass-blowing machine, a support, a table mounted to revolve on the support, a shaft journaled in the table and provided with a piston, a mold and plunger carried by the shaft, a sliding rack engaging the piston and provided with a lateral arm at its upper end, and a cam-track on the support and with which the arm of the rack engages, as set forth.

701,189. LIFTING DEVICE. ALONSO E. FLETCHER, Worcester, Mass. Filed Jan. 14, 1908. Serial No. 58,919. (No model.)



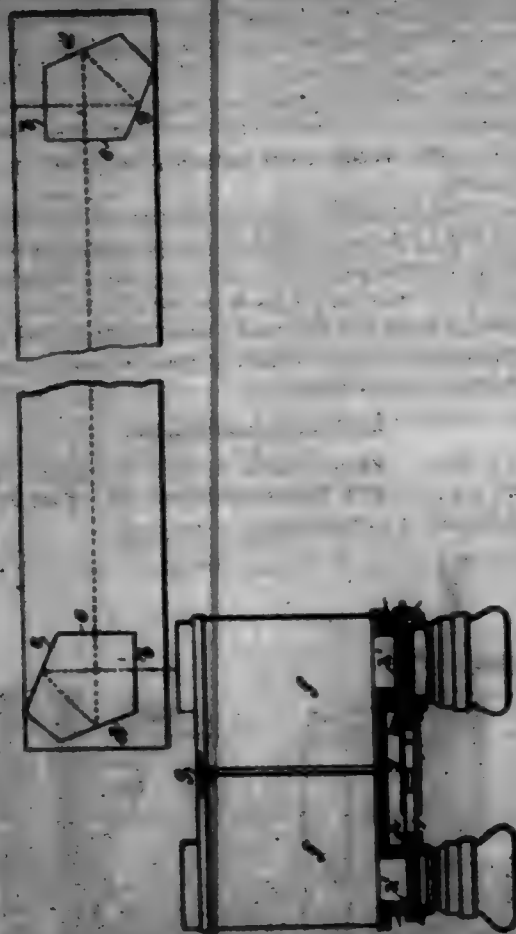
Claim.—1. A lifting device comprising a body with a rear upwardly-projected terminal to form a grip, a member longitudinally slidable on the body in advance of the grip and provided with a rear finger-loop and front gripping extremities, and a pivoted catch slidably mounted on the body and independent of the said member.

2. A lifting device having a body with notches in the under portion thereof, a slidable member supported by the body and provided with gripping extremities and a rear engaging device, and a pivoted catch slidably

on the body and having a portion thereof adapted to engage the said notches, said catch being independent of the slidable member and free for individual adjustment.

3. A lifting device of the class set forth, comprising a body having lower notches and upwardly-projecting guide-loops, a member slidable in the said guide-loops and formed with outer gripping extremities and a rear engaging device, and a catch comprising a loop movable longitudinally in the said body and having a dog pivotedly supported thereby and formed with a front engaging lip and a rear nose to take into the said notches.

701,190. RABBIT-FINDER. GEORGE FERRIS, Westminster, England. Filed July 4, 1908. Serial No. 67,678. (No model.)



Claim.—1. In a rabbit-finder, a base member adapted to be used with a telescope, comprising a right bar and two similar prisms rigidly fixed to the bar with their corresponding faces parallel to each other but oppositely directed, each prism having four operative faces, two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other.

2. In a rabbit-finder, a base member, adapted to be used with a telescope, comprising a right straight tubular bar and two similar prisms rigidly fixed to the bar with their corresponding faces parallel to each other but oppositely directed, each prism having four operative faces, two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other.

3. In a rabbit-finder, a base member comprising a right straight tubular bar and two similar prisms rigidly fixed to the bar with their corresponding faces parallel to each other but oppositely directed, each prism having four operative faces, two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other combined with a mechanically separate binocular telescope having indicating devices in the eyepieces.

4. In a rabbit-finder, a base member comprising a right straight tubular bar and two similar prisms rigidly fixed to the bar with their corresponding faces parallel to each other but oppositely directed, each prism having four operative faces, two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other, combined with a mechanically separate binocular telescope having lenses rigidly in the eyepieces, indicating devices carried by the rings, means for changing the distance between the tubes, and means for locking the rings against rotation relatively to each other while permitting their distance apart to be varied.

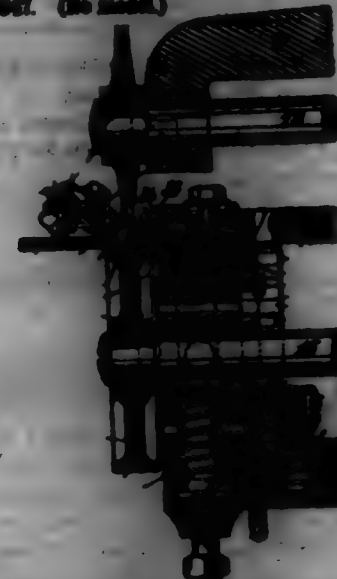
5. In a binocular telescope for a rabbit-finder, the combination of two tubes, a pivot about which the tubes can turn relatively to each other, rings in the eyepieces, indicating devices carried by the rings and a connection between the rings locking them against rotation relatively to each other but allowing their distance apart to be varied.

6. In a binocular telescope for a rabbit-finder, the combination of two tubes, a pivot about which the tubes can turn relatively to each other, rings in the eyepieces, indicating devices carried by the rings, a tube fixed to each ring and a rod working loosely within this tube fixed to the other ring.

7. In a rabbit-finder, the base member comprising two right bars, a pivot connecting the bars, four similar prisms two rigidly fixed to each bar with their corresponding faces parallel to each other but oppositely directed each prism having four operative faces two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other.

8. In a rabbit-finder, the base member comprising two right bars, a pivot connecting the bars, four similar prisms two rigidly fixed to each bar with their corresponding faces parallel to each other but oppositely directed each prism having four operative faces two at right angles to each other and the other two equally inclined to the first and inclined at an angle of forty-five degrees to each other, combined with a mechanically separate binocular telescope having indicating devices in the eyepieces.

701,191. MACHINE FOR MAKING LUMBER. ALFRED E. FOWLER, Worcester, Mass. Filed Jan. 14, 1908. Serial No. 58,920. (No model.)



Claim.—1. In a machine for making lumber, a feeding mechanism to feed the work, two vibrating knives, mechanisms to vibrate the knives in opposition to each other and at right angles to the direction of the feeding of the work, combined with a turning surface in connection with each knife to turn the lip upward when formed by the knife, for the purpose set forth.

2. A machine for making lumber, having, in combination, a channeling-knife, and an edge-splitting knife normally in alignment transversely to the line of feed and means for drawing said knives out of their normal alignment during the operation of the machine to cause one knife to cut in advance of the other, substantially as described.

3. A machine for making lumber, having, in combination, a vibrating channeling-knife, arranged to cut transversely to the direction of the feed, a similarly-arranged vibrating edge-splitting-knife, and means for relatively and laterally changing the paths of motion of said knives during the operation of the machine, substantially as described.

4. A machine for making lumber, having, in combination, a channeling-knife, an edge-splitting knife, and means for relatively moving said knives in the direction of feed during the operation of the machine to change their relative cutting positions, substantially as described.

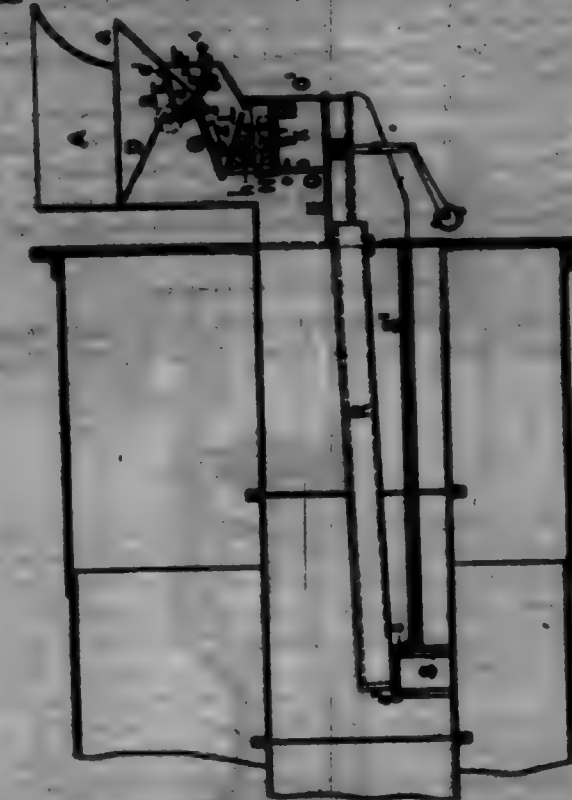
5. A machine for making lumber, having, in combination, a pair of opposed lip-turning devices adapted to simultaneously turn two lips on the surface of an incise and a support for said lips located between said devices, substantially as described.

6. A machine for making lumber, having, in combination, two lip-cutting knives acting to simultaneously cut two lips upon the surface of a sole, two opposed lip-turning devices acting to cut the lips out by said knives and a support for the lips between the lip-cutting devices, substantially as described.

7. A machine for making lumber, having, in combination, two opposed vibrating lip-cutting knives, acting transversely to the direction of the feed, and a feed-wheel acting on the sole between the lips cut by said knives, substantially as described.

701,192. MINERAL SUCKER. WILLIAM FRANK, Rochester, England. Filed Feb. 24, 1908. Serial No. 58,921. (No model.)

Claim.—1. In a mechanical sucker, a hopper for supplying the feed, a feed-roller mounted thereon, a plate for directing the feed to the feed-roller, and a feed-plate formed of a plurality of spring-actuated sections mounted in suitable relation to said feed-roller, substantially as shown and described.



2. In a mechanical sucker, in combination with a hopper for supplying the feed, a feed-roller mounted thereon, a plate for directing the feed to the feed-roller, a feed-plate formed of a plurality of movable sections and arranged in suitable relation to the feed-roller, means for operating the shock from the feed after its passage from the feed-plate, and mechanism for delivering the shock and feed separately to the fire.

3. In a mechanical sucker, a hopper for supplying the feed, a feed-roller mounted thereon, a plate for directing the feed to the feed-roller, a feed-plate formed of a plurality of sections and arranged in suitable relation to the feed-roller, a riddle arranged below the feed-plate for dividing the shock from the feed, and means for delivering the shock and feed separately to the fire.

4. In a mechanical sucker, the combination with a hopper for supplying the feed, a feed-roller mounted thereon, and a plate for directing the feed to the feed-roller, of a feed-plate constructed of a plurality of sections and arranged in suitable relation to the feed-roller, springs engaging the sections for normally retaining them in an elevated position, a riddle arranged below the feed-plate and adapted to separate the shock from the feed, a shock-receiver below the riddle, a shaft for expending the said receiver, means mounted in the receiver for delivering the shock over the fire, and means for delivering the larger feed to the fire.

5. In a mechanical sucker, the combination with a hopper for supplying the feed, a feed-roller mounted thereon and an inclined plate for directing the feed to the feed-roller, of a feed-plate constructed of a plurality of sections and arranged in suitable relation to the feed-roller, means for normally retaining the sections separately in an elevated position, a riddle mounted below the feed-plate for expending the shock from the larger feed, means for confining the riddle, a shaft below the riddle, a shock-receiver mounted upon the shaft and adapted to collect the shock as it falls, a pair of rotary star-wheels mounted in the shock-receiver and adapted to deliver the shock to the fire, means for rotating the said star-wheels, a reciprocating plate II fixed with doors and adapted to deliver the larger feed to the fire, and means for reciprocating the said plate II.

6. A mechanical sucker comprising in its construction a hopper for supplying the feed, a feed-roller arranged thereon, a plate for directing the feed to the feed-roller, a feed-plate constructed of a number of sections each capable of independent movement, springs for normally retaining the sections in an elevated position, a riddle mounted below the feed-plate and adapted to separate the shock from the larger feed, a plate for expending the riddle, a support for confining the riddle, a receiver mounted below the riddle and adapted to collect the shock, a shaft for expending the said receiver, a pair of rotary star-wheels driven by the said shaft and mounted in the shock-receiver to distribute the shock over the fire, two-armed gearing for rotating the star-wheels, an inclined plate I mounted upon the receiver and upon which the shock falls, means for confining the said plate I, an adjustable plate hinged to the said receiver, a reciprocating plate for receiving the larger feed, doors mounted upon the reciprocating

cutting plate H and moving therewith to push forward the feed, and means for reciprocating the said plate H.

7. In a mechanical shaker, the combination with a hopper, of a feed-plate mounted thereon formed of a plurality of independent movable sections, means for directing the feed to the said feed-plate, means for separating the shak from the large feed after its passage from the feed-plate, and mechanism for delivering the shak and large feed separately to the fire, substantially as herein shown and described.

8. In a mechanical shaker, the combination with a hopper for supplying the feed, a feed-roller mounted therein, means for directing the feed to the feed-roller, a feed-plate arranged in suitable relation to the feed-roller, means for separating the shak from the feed after its passage from the feed-plate, and mechanism for delivering the shak and large feed separately to the fire.

701,198. **RECK-ROTATING MECHANISM.** John F. FISHBURN, Montreal, Canada. Filed Apr. 15, 1901. Serial No. 24,989. (No model.)



Claim.—1. In a machine for pumping water and steam, a pump, a bearing therefor, means to slide said pump longitudinally in said bearing, mechanism for imparting an intermittent rotary motion to said pump, and means for throwing said mechanism into and out of connection with said pump.

2. In a machine for pumping water and steam, a pump, a rocking frame in which said pump is arranged to slide longitudinally, a rock-shaft that is said rocking frame, mechanism for rocking said shaft, and mechanism for imparting an intermittent rotary motion to said pump.

3. In a pumping-machine, a pump, a rocking frame in which said pump is arranged to slide longitudinally, a rock-shaft that is said rocking frame, mechanism for rocking said shaft, and mechanism for imparting an intermittent rotary motion to said pump.

4. In a pumping-machine, a pump, a rocking frame in which said pump is arranged to slide longitudinally, a rock-shaft that is said rocking frame, mechanism for rocking said shaft, and mechanism for imparting an intermittent rotary motion to said pump.

5. In a pumping-machine, a pump, a rock-shaft that is said pump, a pawl, and mechanism for throwing said pawl into and out of engagement with said rock-shaft.

6. In a pumping-machine, a pump, a rock-shaft that is said pump, a pawl, mechanism for imparting a reciprocating motion to one of said parts, and mechanism for throwing said pawl into and out of engagement with said rock-shaft.

7. In a pumping-machine, a pump, a rock-shaft that is said pump, two pawls arranged to engage said rock-shaft upon opposite sides thereof, and mechanism for throwing said pawls into and out of engagement with said rock-shaft.

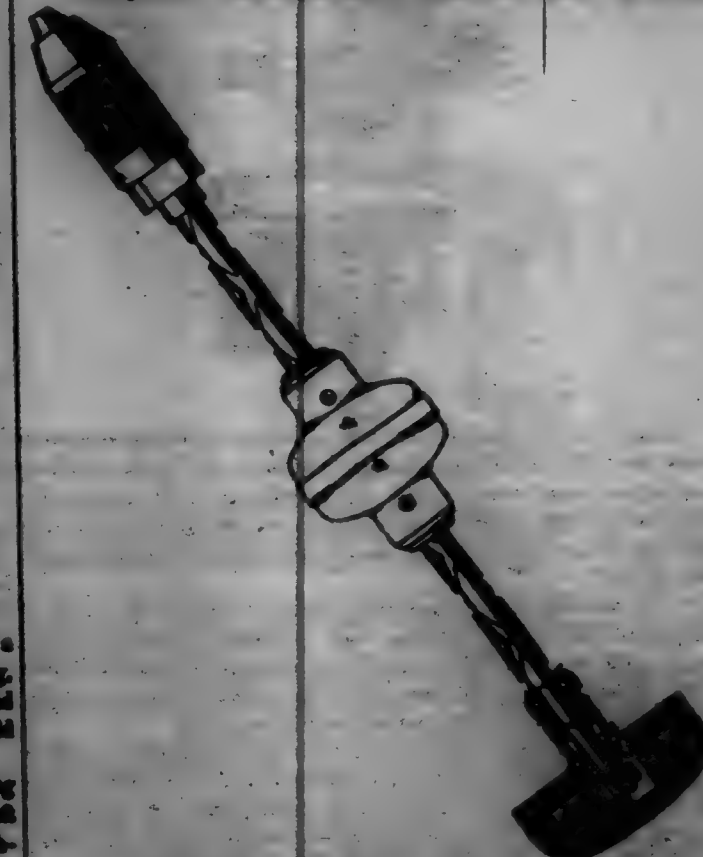
8. In a pumping-machine, a pump, a rock-shaft that is said pump, a pawl, and a lever adapted to engage said pawl and throw it into and out of engagement with said rock-shaft.

701,194. **REVELLED TIE AND RAIL-JOINT CONNECTOR.** ORAN A. FRYE, Birmingham, Pa. Filed Sept. 24, 1901. Serial No. 24,989. (No model.)



Claim.—In combination with a metallic tie, a split-joint comprising an enlarged corrugated portion having connected each one of which is secured to the metallic tie, the upper face of said enlarged portion being cut away forming shoulders, said enlarged portion having a pair of openings formed therein one on each side of the rail-head, a locking fish-plate engaging one of said shoulders and one side of the rail head, web and base, an apertured lug on the under face of the said fish-plate and extending into one of said openings, a wedge engaging in said apertured lug and engaging the upper wall of the said opening formed in the enlarged portion, and locking-plate carrying an apertured lug on its under face engaging the other side of the rail-head and the other of said shoulders and having a wedge passed through said lug and engaging the upper wall of the said other opening in the enlarged portion, substantially as described.

701,195. **MEANS FOR SECURING HANDLES OR LEVERS TO TOOLS.** SAMUEL T. FISHBURN, Philadelphia, Pa., assignor to North Brothers Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 27, 1901. Serial No. 24,989. (No model.)



Claim.—1. The combination is a tool in which the spindle extends in the handle or rest, of a spindle, a handle, a hub secured to the handle and into which the spindle extends, a cap mounted between the hub and a shoulder on the spindle, with a series of antifriction-balls between the cap and the hub, substantially as described.

2. The combination of a spindle, a handle or rest, a flanged hub secured to the handle or rest, a sleeve forced into one end of the hub, a block forced into the opposite end of the hub, the spindle extending through the block and the sleeve, and means for preventing longitudinal movement of the spindle, substantially as described.

3. The combination of a spindle, a handle or rest, a hub, an external flange at one end of the hub, said flange being secured to the handle or rest, an internal flange at the opposite end, a sleeve within the hub resting against the internal flange and reduced to fit the spindle, a block inserted within the opposite end of the hub and resting against the internal flange, the spindle passing through the block in the sleeve, and means for preventing longitudinal movement of the spindle, substantially as described.

4. The combination of a spindle having a reduced portion, a handle or rest, a hub having an internal flange secured to the handle or rest and having an internal flange at the opposite end, a sleeve inserted in the

hub and resting against the internal flange and reduced at the opposite end to fit the reduced portion of the spindle, a shoulder block inserted in the hub and resting against the internal flange, a cap resting against a shoulder on the spindle, a series of balls between the cap and the block, and a nut on the end of the spindle confining the spindle longitudinally but allowing it to freely rotate, substantially as described.

701,196. **RAIL-CARTER.** THOMAS GALVIN, Detroit, Mich. Filed May 14, 1901. Serial No. 24,989. (No model.)



Claim.—1. In a rail-carter, a large ball, a socket having two jaws embracing the ball and divided vertically into two parts, means for moving said parts to each other, a circular channel in each of said jaws, and small balls in said channels and engaging opposite sides of the large ball, substantially as described.

2. In a rail-carter, a large ball, a socket having jaws embracing the ball, and divided vertically into two parts, means for moving said parts to each other, circular channels in the jaws, small balls in said channels and engaging opposite sides of the large ball, and supplemental balls in recesses in the socket and engaging the upper side of the large ball, substantially as described.

701,197. **DOUBLE ENDING-BOARD.** JOHN E. GARDNER and JAMES F. ADAMS, Baltimore, Ohio; said Gardner assignor to said Adams. Filed Sept. 21, 1901. Serial No. 24,989. (No model.)



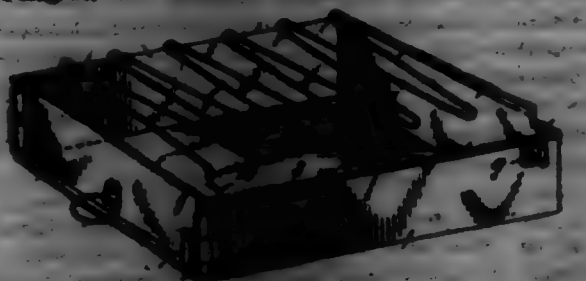
Claim.—1. In a double ending-board, two pressing-boards, quadrangular spring-loops held to each on one board, two elongated guides secured near side edges on the other board, the spring-loops engaging with said guides, and means substantially as described for causing said spring-loops angularly disposed between the boards so as to cutably open the boards apart.

2. The combination with two quadrangular spring-loops loosely held on one pressing-board, guides longitudinally disposed near side edges of the other board, cross-bars of the spring-loops engaging beneath the guides, and adjustable means to define the degree of inclination given to the spring-loops for cutably opening apart the two pressing-boards.

3. The combination with two pressing-boards, two spring-loops held to rest on one of the pressing-boards, and guides on the other pressing-board loosely engaged by the opposite ends of the spring-loops, of coating means adjustable from one pressing-board and loosely engaging the guides, and means for moving the spring-loops and means adjusted to space apart the pressing-boards.

4. The combination with two pressing-boards, two rectangular spring-loops held to rest on one of the pressing-boards by one end of each loop, and two longitudinally-disposed parallel guides secured on the other pressing-board and loosely engaged by opposite ends of the spring-loops, of two spaced and coating means adjustably held on one of the pressing-boards and engaging the guides, a slidable bumper-piece on one of the pressing-boards adapted to press upon the free end of one of the loops and an adjacent end of one of the spring-loops, and a two-button adapted to bear upon the bumper-piece to hold it folded on the pressing-board.

701,198. **CAKE-PAN.** HARRY A. GRAVE, St. Anthony, Minn. Filed Aug. 24, 1901. Serial No. 24,989. (No model.)



Claim.—The combination with a body having an open side, flanges extending from the remaining sides, and a connecting-strip, of a member

slide bottom adapted to rest upon the flanges and strip, a side flange, grooved extensions to said side adapted to receive the free ends of the sides of the body, means pivoted to said free ends and adapted to engage the extensions, and a frame detachably secured to and extending over the body.

701,199. **SHOULDER FASTENER.** LOUIS H. HANCOCK, Fargo, N. D. Filed Nov. 24, 1901. Serial No. 24,989. (No model.)



Claim.—1. A fastener for lacing-strings comprising a tubular body having open ends and adapted to be secured to a shoe or other article, a plate-spring secured at its lower end and extending upwardly through the tubular body and over the upper end of the shoe, teeth or prongs at the upper end of the plate-spring adjacent to the upper edge of the tubular body, and a spring adapted to move the teeth or prongs of the plate-spring toward the outer face of the tubular body.

2. A fastener for laces or strings consisting of an open-ended tubular body, having a transverse slot or opening in its front face and adapted to be secured to a shoe-upper or other article, a plate-spring secured at its lower end and extending upwardly through said tubular body and having a bent-over upper end, teeth or prongs at the end of said bent-over portion, a coiled spring secured at one end to the inner face of the tubular body, said coiled spring provided with an extension clamping the plate-spring and extending transversely across the front face of the tubular body within the slot in the shoe.

3. A fastener for laces or strings consisting of a base-plate adapted to be secured to a shoe-upper or other article, an open-ended tubular body secured to said base-plate and having a transverse slot in its front face, a plate-spring secured at its lower end to the base-plate and extending upwardly through the tubular body and bent at its upper end, teeth or prongs at the end of said bent portion adjacent to the upper end of said tubular body, a wire spring secured at one end to the inner face of the tubular body having contractile cells extending across the tube, a straight portion bent transversely from the coiled portion, through the slot in the tubular body, a band and a second straight transverse portion extending in an opposite direction from the first straight portion which with the said first straight portion forms a clamp for the plate-spring and forms a finger-piece for operating the device, substantially as shown and described.

4. A fastener for laces or strings consisting of an open-ended tubular body adapted to be secured to a shoe-upper or other article, a transverse slot in the front face of the tubular body, a plate-spring secured at its lower end, said spring extending upwardly through the tubular body and having a bent-over upper portion provided with teeth or prongs at its end, a wire spring secured at one end to the inner face of the tubular body, contractile cells formed therein, said wire spring having straight transverse oppositely-extending arms adapted to grip the plate-spring between them, and lying in said transverse slot, substantially as shown and described.

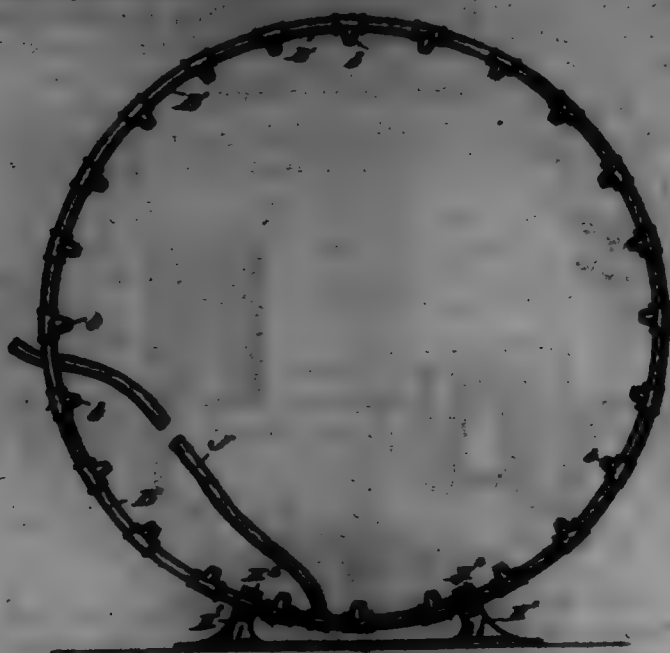
5. A fastener for laces and strings consisting of an open-ended tubular body adapted to be secured to a shoe-upper or other article, a plate-spring secured at the lower end, and having the upper end bent over and provided with teeth or prongs adapted to bear against the front face of the tubular body adjacent to its upper edge and means for moving said teeth against the upper portion of the tubular body adjacent to the edge thereof.

701,200. **TIE-BEAKER.** HENRY J. BRUNSWOLD and ALBERT E. ADAMS, High Springs, Fla. Filed Apr. 23, 1901. Serial No. 24,989. (No model.)

Claim.—1. In a tie-beaker, a ring composed of tubular sections, T connections between said sections and threaded thereon, inwardly-projecting members or bumpers on said connections, and the said having clamps holding said ring whereby it may be supported in an upright position substantially as set forth.

2. A tie-beaking ring composed of a series of tubular sections, a series of members, and means for connecting the tubular sections and members

whereby sections and members may be added or removed to vary the size of the ring substantially as set forth.



701,201. SAW-HANDLE FASTENING. HARRISON E. HARRIS. Merriam, N. H. Filed Aug. 9, 1901. Serial No. 71,510. (No model.)



Claim.—1. A saw-handle fastening, comprising a slotted tube having a concave-convex end to form impinging edges for engagement with the saw, a bar arranged within the tube and adapted to bear against the top of the saw, and means for forcing said bar in rigid contact with the saw.

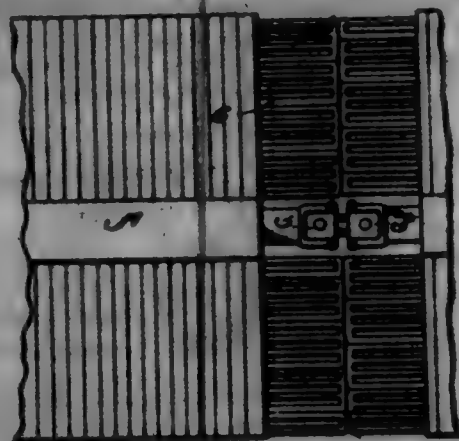
2. A saw-handle fastening comprising a slotted tube having impinging edges at its lower end, a saw seated in said slot and engaged by the impinging edges, means pivotally mounted in said tube for engaging the saw and means for holding the engaging member in contact with the saw.

3. A saw-handle fastening comprising a tube having a vertical slit therein, a concave-convex portion in said tube, the edges of which are adapted to bear against the lower edge of the saw, and a lever for holding said saw in engagement with said edges.

4. In a saw-handle fastening, the combination with a slotted tube, of a saw seated therein, a pivoted and sliding bar adapted to engage one edge of the saw, said bar being provided with a cam-face, and an eccentrically-mounted lever pivoted above said bar and adapted to engage the same to normally hold it in rigid contact with the saw.

701,202. SAFETY-PLATFORM FOR RAILWAY-CARS. JOHN HOLLAND and WILLIAM F. WHEELER, San Antonio, Tex. Filed Oct. 23, 1901. Serial No. 72,732. (No model.)

Claim.—1. A car-platform including a plurality of independently-yieldable members arranged side by side to form a continuous structure.



2. A car-platform including a plurality of independently-movable members arranged side by side to form a continuous structure and springs acting against the respective members.

3. A car-platform including a plurality of independently-yieldable members arranged side by side to form a continuous structure, said members being of different widths.

4. A car-platform consisting of two sections separated by a space to receive a coupling, and each section consisting of a plurality of independently-yieldable members arranged side by side to form a continuous structure.

5. A car-platform including a plurality of members, cross-bars adapted to receive said members, cheeks on said members, a cross-bar to receive said cheeks, and coiled springs on said cheeks bearing against said members and last-mentioned cross-bar.

701,203. FUSE-IGNITER. CHARLES E. JENNIS and JOHN J. McNEAL, South Little Rock. Filed Nov. 13, 1901. Serial No. 82,154. (No model.)



Claim.—1. A fuse-igniter comprising a shell containing fusible material and attaching means on said shell for connecting said shell to the ends of a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

2. A fuse-igniter comprising a shell containing fusible material, and a wire secured to said shell for connecting the same to a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

3. A fuse-igniter, comprising a shell having its upper end closed and containing a mass of fusible substance, a disk of open-work material for retaining said fusible substance in place, and means for connecting said shell to the ends of a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

4. A fuse-igniter, comprising a shell having its upper end closed, provided with an annular groove on its inner surface and containing a mass of fusible substance, a disk of open-work material fitting within said groove for retaining said fusible substance in place, and attaching means for connecting said shell to the ends of a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

5. A fuse-igniter comprising a cone-shaped shell containing a fusible substance and having a groove on its inner surface, a disk of open-work material held in place by said groove, and a wire secured to said shell below said disk for connecting said shell to the ends of a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

6. A fuse-igniter comprising a cone-shaped shell containing a fusible substance and having a groove on its inner surface, a disk of open-work material held in place by said groove, a disk of combustible water-proof material in said shell beneath said fusible substance, and a wire secured to said shell for connecting the same to the ends of a bunch of fuses, whereby the same are protected and caused to be simultaneously ignited.

701,204. EXHAUST MECHANISM. THOMAS D. ELAM, Savannah, Ga. Filed Oct. 3, 1901. Serial No. 77,821. (No model.)

Claim.—1. In an exhaust mechanism for locomotives, the combination with a main exhaust-flue, of an auxiliary exhaust-flue opening at its lower end at one side of the main flue and gradually enlarging circumferentially

centrally around said main flue above its lower inlet end, and means controlling the auxiliary flue, substantially as set forth.



2. The combination is an exhaust mechanism substantially as described, of a main exhaust-flue, and a side exhaust-flue opening at its lower end laterally to the main flue and gradually widening circumferentially above said opening, substantially as set forth.

3. The combination of the main exhaust-flue, the supplemental or auxiliary exhaust-flue arranged alongside the main flue and controlling the same at its upper end and gradually reducing to an opening lateral to the main flue at the lower end of the auxiliary flue whereby there are provided two concentric nozzles at the upper end of the regulator and a reduced auxiliary flue-opening at the lower end of the main flue, and a valve controlling the auxiliary exhaust-flue, substantially as set forth.

4. The combination is an exhaust mechanism of the main or body portion, the intermediate chamber, the exhaust-nozzle above the said chamber and in communication at their lower ends therewith, said nozzle being composed of an inner or control nozzle and an outer nozzle enclosing the inner nozzle at its upper end and gradually reducing toward its lower end and opening at said end laterally to the inner nozzle, and a valve controlling the lower end of the auxiliary nozzle, substantially as set forth.

5. An apparatus substantially as described comprising the main or body portion circular in cross-section, the intermediate chamber rectangular in cross-section and extending laterally beyond the circumference of the body portion, the main flue in line with the body portion, the supplemental or auxiliary flue having a circular upper portion enclosing the orifice of the main flue and gradually narrowing toward its lower end and communicating at such end with the upper end of the lateral extension of the intermediate chamber, and the valve controlling the lower end of the supplemental flue, substantially as set forth.

6. An exhaust mechanism comprising the main flue, the supplemental or exhaust flue, enclosing the main flue at its upper end and having an inlet-opening at its lower end and gradually converging or narrowing from its upper circular portion toward such inlet-opening substantially as set forth.

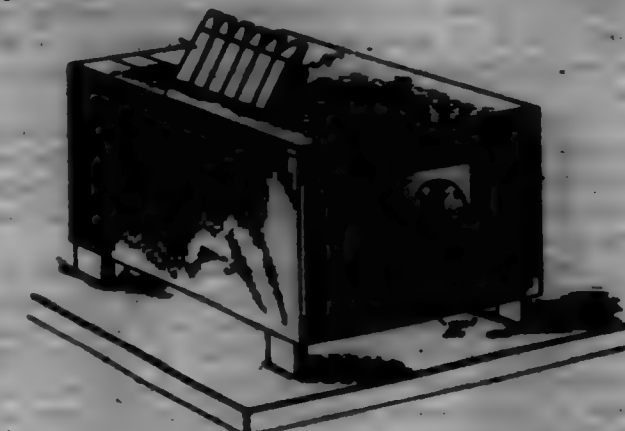
701,205. AIR-BRAKE FOR RAILWAY-CARS. FREDERICK M. KIRBY, South Bethlehem, Pa. assignor to WILLIAM H. MILLER and WILLIAM J. REA, South Bethlehem, Pa. Filed Aug. 12, 1901. Serial No. 72,617. (No model.)



Claim.—In a device of the character described, the combination of two pipes formed at their ends with projecting lips and adjacent recesses to receive the former, said pipes adapted to run one upon the other and having curved inner walls with registering apertures therein, also loosely mounted in the said inner walls adjacent the said apertures, and held against the pipes, the inner surfaces of which normally bear thereagainst, yokes on the pipes, a spring pivotally carried by each yoke, and clips for engaging the springs.

701,206. VOTING-MACHINE. GEORGE W. LAFRANK, Franklin County, Va. Filed Aug. 20, 1901. Serial No. 73,092. (No model.)

Claim.—1. A voting-machine substantially as herein described, comprising the casing or housing, having the two compartments, the registering mechanism in one of the compartments, an operating-shaft geared with the registering mechanism and provided with means for operating the alarm-bell, and with a crank-arm, an alarm-bell and its hammer arranged for operation by the main shaft, the taking device, the upright slides carrying the same, the guides in the casing for said upright slides, the rocking frame for operating the slides and connected with the crank-arm of the drive-shaft, the rollers supporting the ballot-sheet, one of said rollers being geared with the registering mechanism, the plates or guide-bars over which the ballot-sheet is directed, the ink-bar arranged to supply the taking device, and the independent type-bar arranged to be operated to print upon the ballot-sheet passed over the plates-bar, substantially as set forth.



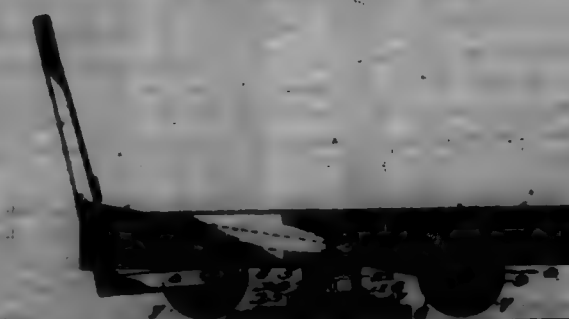
2. The combination of the plates or guide-bars for the ballot-sheet, the printing device, the ink-carrier, the guides in the casing, the slides operating in said guides, the taking device carried by said slides, the rocking frame engaged with the slides and means for operating the rocking frame, substantially as set forth.

3. The combination of the rollers for supporting the ballot-sheet, the printing device, the taking device including slides, and a rocking frame for operating the same, and means for advancing the ballot-sheet and for operating the rocking frame simultaneously, substantially as set forth.

4. The combination with the register, the rocking frame, the sliding taking device carried by the rocking frame, the printing device and the means for supporting the ballot-sheet, of gearing between the ballot-supporting means and the register, and the main shaft geared with the register and having a crank-arm connected with the rocking frame, substantially as set forth.

5. In a voting-machine the combination of the rollers for supporting the ballot-sheet, the plates or guide-bars for the ballot-sheet, the printing-levers, the ink-carrier, the taking-brush movable between said carrier, and the types of the lower, the slides carrying said brush, the guides for said slides, the rocking frame engaging said slides, and the main shaft connected with said rocking frame, and gearing between the said shaft and one of the rollers supporting the ballot-sheet, substantially as set forth.

701,207. TRANSFERRING CAR OR TRUCK. BENJAMIN A. LARLEY, Hartford, Cal. assignor of one-half to HENRY LADLOW, Hartford, Cal. Filed Mar. 1, 1902. Serial No. 64,205. (No model.)



Claim.—1. In a device of the class set forth, the combination of a bed or body having crank-axles movably attached thereto and provided with wheels, a two-table attached to the bed or body at a point between the axles, and means for disengaging with the said axles to throw the wheels out of engagement with the ground or other surface and at the same time bring the two-table into operative position.

2. In a device of the class set forth, the combination of a bed, a draft device pivotally connected to the front extremity of said bed, crank-axles movably attached to the under side of the bed and having wheels thereon, and link-bars movably attached to the crank-axles and to the said draft device.

701,208. CABLE CONNECTION. CHARLES LARK, Milford, Conn., assignor to the New Haven Novelty Machine Company, New Haven, Conn. Filed Jan. 10, 1902. Serial No. 93,942. (No model.)



Claim.—1. A connection for a pipe-covered cable, comprising a tubular body to insulate the splice, and means at the opposite ends of said body to clamp the inner and outer sides of the pipe-covering water and air tight.

2. In a connection for pipe-covered cable, means to clamp the inner and outer sides of the ends of the lead pipe covering the cable water and air tight, a tubular body surrounding and connecting said clamping means, and a screw-threaded nut to retain said tubular body in position to cover the splice water and air tight.

3. A connection for covered cable, comprising means to clamp water and air tight the covering for one cable, an extension having a branch, means to connect the covering of two cables water and air tight with one end of said extension and the branch, and a tubular body coating with said extension and the means employed for clamping the covering of another cable, to make the means clamping the end of the cable water and air tight with said extension.

4. A connection for pipe-covered cables, comprising pipe-clamping means composed of two members to embrace the ends of the pipe between them, and a sleeve joining said pipe-clamping means and protecting the spliced wires between the ends of the pipe.

5. A connection for a pipe-covered cable comprising means to clamp the ends of the pipe, and a tubular sleeve having an interior diameter greater than the exterior diameter of the means for clamping the pipe whereby the sleeve may be slid longitudinally over the pipe-clamping means and pipe.

6. In a connection for a plurality of covered cables, metallic collars surrounding the covering of each cable near its end, a metallic sleeve, and a connected extension having a branch for the reception of wires of a cable to be led off laterally from the main cable, and means at the outer end of said sleeve and at one end of the extension and its branch to engage the said collar and complete a water-tight joint between the covering of said cable to protect the junction of the wires thereof from water and moisture.

701,209. COVERING MEANS FOR JOINTS IN ELECTRIC CABLES. CHARLES LARK, Milford, Conn., assignor to the New Haven Novelty Machine Company, New Haven, Conn. Filed Mar. 10, 1902. Serial No. 97,002. (No model.)



Claim.—1. Covering means for spliced joints of sheathed cables, comprising a sleeve having extended fixed hubs embracing the sheath of each cable at opposite sides of the junction of the ends of the wires of the cable, leaving the ends of the sheaths inside the sleeve that said ends and the wires of the cables may be insulated by an insulating medium run into the sleeve.

2. Covering means for spliced joints of sheathed cables, comprising a sleeve having extended fixed hubs embracing the sheath of each cable at opposite sides of the junction of the ends of the wires of the cable, leaving the ends of the sheaths inside the sleeve that said ends and the wires of the cables may be insulated by an insulating medium run into the sleeve, the ends of said hubs being insetted and soldered to the sheaths of the cables.

3. Covering means for spliced joints of sheathed cables, comprising a sleeve having extended fixed hubs to embrace the sheaths of the cables at opposite sides the junction of the ends of the wires of the cables, and locking means to affix the hubs to the sheaths of the cables outside the ends of the sleeve.

4. Covering means for the spliced ends of wire cables, comprising a sleeve, a hub fixed in one end of the sleeve and to the cable inside the sleeve, and an insulating medium run into said sleeve and surrounding said spliced ends and the end of the covering of the cable inside the sleeve.

701,210. CABLE CONNECTION FOR COVERING SPLICED JOINTS. CHARLES LARK, Milford, Conn., assignor to the New Haven Novelty Machine Company, New Haven, Conn. Filed Mar. 10, 1902. Serial No. 97,002. (No model.)



Claim.—1. A cable connection to cover a splice therein, comprising externally-threaded hubs embracing the lead pipes of the two cables to be united, said hubs being soldered to said pipes, one of said hubs having an external flange 2; a sleeve having a collar at each end, one of said collars having at its outer end a screw-thread to engage the screw-thread of one of said hubs, and the other having at its outer end an internal flange, a packing-ring retained at one side by said internal flange, and acted upon at its other side by said external flange, and a running-nut applied to the hub having the external flange.

2. In a cable connection for lead pipes, hubs having inclined outer ends surrounding and soldered to said pipes, and a device to engage both said hubs to prevent the separation of the lead pipes.

3. In a coupling for lead pipes, hubs having inclined outer ends surrounding and soldered to said pipes, said hubs being cut away at their lower sides to enable either to pass between the interior of the hubs and the exterior of the pipes, and a device to engage both said hubs and prevent the longitudinal movement of one of said pipes with relation to another of said pipes.

4. In a lead-covered cable connection, hubs soldered to the lead covering of the cables to be united, a sleeve having at one end a threaded collar united by screw-threads to one of said hubs, said sleeve having at its opposite end a collar having an internal flange and embracing loosely the other of said hubs, a lead washer surrounding the latter hub and interposed between the interior of the collar surrounding one end of the sleeve and between an internal flange of said collar and an external flange of said hub, said washer being held snugly at both its sides and of its outer and inner edges against drawing, and a nut to clamp said washer tightly in its operative position.

5. A connection for spliced cables comprising a hub having its outer end beveled outwardly and soldered to the exterior of the cover of one cable back from the end thereof, and a sleeve embracing said hub and insulating the splicing of the wires of the cables.

701,211. ELECTROMAGNETIC PATTERN-CONTROLLING APPARATUS FOR LOOMS. ARTHUR P. S. MACMURRAY, Chicago, Ill. Filed Apr. 10, 1902. Serial No. 102,001. (No model.)

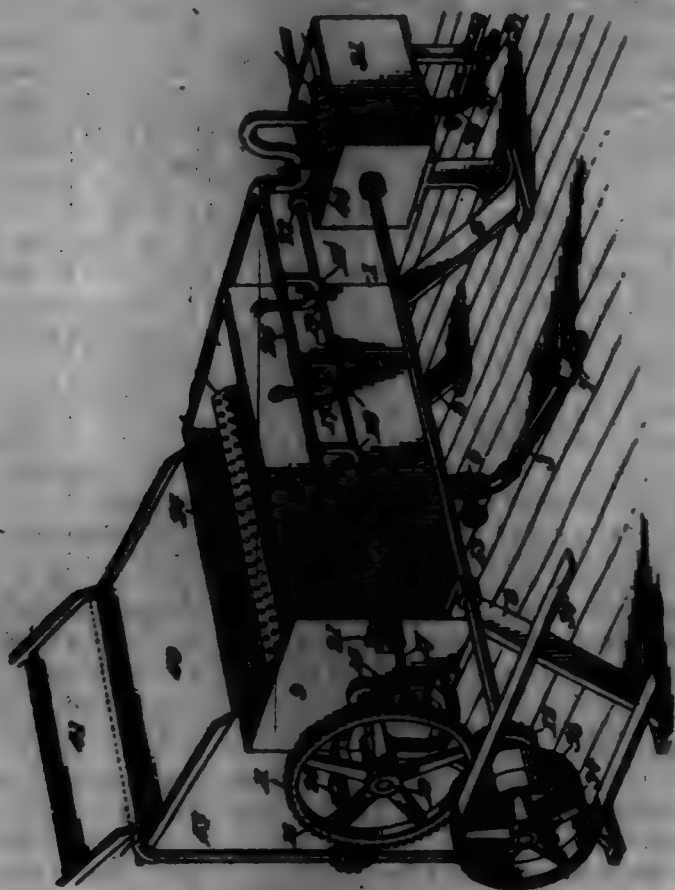


Claim.—1. In a loom pattern mechanism, the cable-wires, the reader-wires, and intermediate wires soldered to the cable-wires, a hub

having strung upon it washers each insulated on the one side, and means of pressing the washers toward each other so as to clamp between each pair, an intermediate and a reader wire, substantially as and for the purpose set forth.

2. In a loam-pattern mechanism, the combination of the intermediate wires, the cable-wires, the reader and its clamp, the washers and bar for clamping the reader-wires to the intermediate wires, and the layers of insulated sheets having the cable-wires held between pairs of them, the intermediate wires being connected to the cable-wires, substantially as described.

701,212. AMALGAMATOR. JOHN S. MARSHALL and PETER J. WILSON, Baltimore, Md. Filed Aug. 27, 1901. Serial No. 74,847. (No model.)



Claim.—1. In an amalgamator the combination with a tank or receptacle, provided with an amalgam-receptacle at its bottom having a central discharge-opening, of a revolvable agitator within the tank, a plurality of overflow-traps communicating with the upper portion of the tank, a shaft extending through a plurality of said traps and agitators on said shaft within the traps.

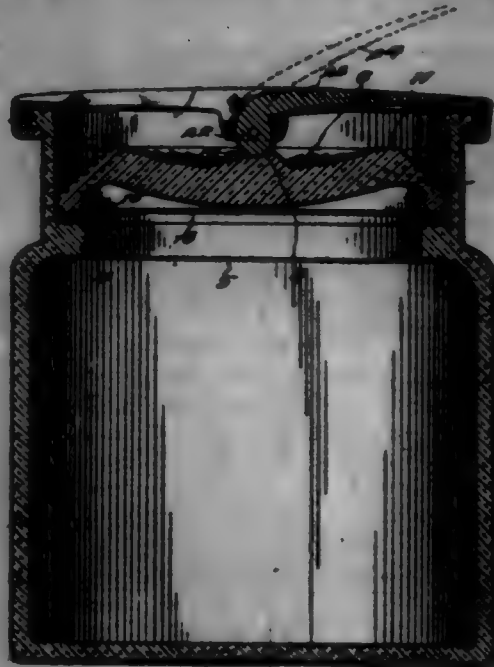
2. In an amalgamator, the combination with a tank having an amalgam-receptacle at its bottom, of a discharge-pipe provided with two independent valves, a revolvable agitator within the tank, a plurality of overflow-traps communicating with the tank, a shaft extending through the traps, agitators upon said shaft, and a supplemental box or tank containing an agitator and adapted to receive the discharge from said traps.

3. In an amalgamator, the combination with a tank having an amalgam-receptacle at its bottom, of a discharge-pipe for said receptacle having two independent valves, a series of overflow-traps communicating with the rear side of the tank and a second series of traps communicating with the front side of the tank, all of said traps being connected to a common discharge-trap which delivers to an auxiliary tank, and revolvable agitators within said traps.

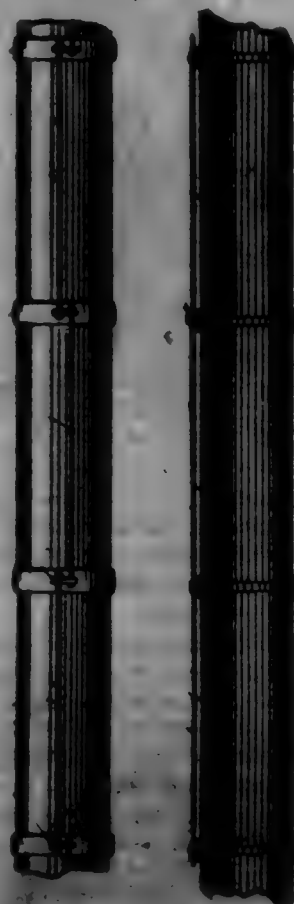
4. In an amalgamator, the combination with a tank having a converging bottom provided with a central discharge-opening, a pipe communicating with said opening and provided with two independent valves, a revolvable main shaft extending through said tank, perforated agitator-blades projecting from the shaft, a series of overflow-traps communicating with the rear side of the tank, another series of overflow-traps communicating with the front side of the tank, a shaft extending through each series of the traps and carrying agitators within the traps, means for revolving these shafts from the main shaft, pipes connecting all of said traps with a discharge-trap, inlet and outlet cocks for said traps, and an auxiliary tank provided with an agitator and a discharge-pipe having two independent valves.

701,213. FRUIT-JAR. FRANKLIN HANCOCK, Danversport, Iowa. Filed Oct. 25, 1901. Serial No. 75,304. (No model.)

Claim.—The combination with a jar having a neck of considerable depth and provided with an inner lower conical shoulder and an upper outer flange, of a cap having a central upwardly-extending projection with a bearing-cavity therein and a lower bearing edge, a rubber gasket interposed between said bearing edge and shoulder, a fastening device consisting of a longitudinally-slotted bar having lower transversely-disposed terminal hooks to removably engage the flange of the neck and also provided with central depending ears and end sockets on its upper side, and a lever having a cam-head slidably between the ears and adapted to move a portion thereof extend below said ears to engage the bearing-cavity in the central projection of the cap, the outer end of said lever being adapted to enter the sockets at the ends of the slotted bar, substantially as described.



701,214. CONDUIT. THOMAS J. MILLER, Denver, Colo. Filed Apr. 6, 1901. Serial No. 54,730. (No model.)



Claim.—1. A conduit composed of sections, bands or rings T-shaped in cross-section surrounding the conduit at the joints, and having interiorly-projecting, circumferential tongues adapted to pass between the sections at each joint, a packing material located between the tongues and the sections and held in place by the band, and tie-rods connecting the bands.

2. A conduit composed of sections, bands or rings surrounding the

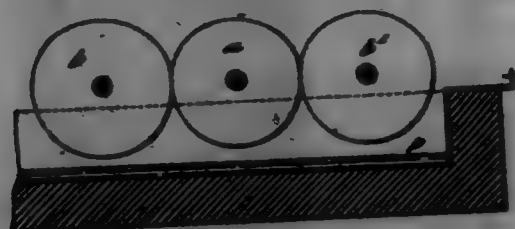
conduct at the joints, and T-shaped in cross-section, an interior circumferential tongue being formed on the ring, adapted to pass between the ends of the sections, the body of the band overlapping the sections exteriorly, the band being provided with exteriorly-projecting, apertured lugs, and the ends attached to the lugs for connecting the conduct-sections.

3. A conduct composed of sections, bands located at the end joints and provided with interiorly-projecting circumferential tongues located between the extremities of the sections, the exterior portions of the bands overlapping the sections, a packing co-operating with the bands to form a tight joint, a circular recess being left between the sections at the inner periphery of the tongue of the band, and a cement filling for said recess.

4. A conduct composed of sections, a band or ring, T-shaped in cross-section located at the joints of the sections, the body of each band overlapping the section ends exteriorly and the tongue passing between the ends of the sections, the band being provided with exterior openings on opposite sides of the tongue, and a cavity being left between the band and the conduct into which molten metal or other packing may be introduced through the said openings.

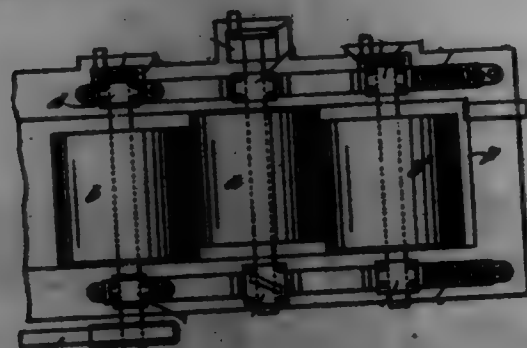
5. A band for sectional pipes or conduits, said band being T-shaped in cross-section whereby a circumferential tongue is formed on its inner periphery, its outer periphery having a plurality of apertured lugs.

701,215. METHOD OF OBTAINING SINE BY ELECTROLYSIS.
LEWIS MOSE, London, England. Filed Aug. 12, 1901. Serial No. 71,778. (No specimen.)



Claim.—A method of obtaining sine in a solid metallic condition which consists in depositing the sine on separate cathodes by electrolysis and simultaneously therewith subjecting the deposited sine upon one cathode to a longitudinal and transverse rubbing action of the sine deposited upon the other cathode under pressure.

701,216. APPARATUS FOR OBTAINING SINE BY ELECTROLYSIS.
SEE LEWIS MOSE, London, England. Filed Mar. 4, 1902. Serial No. 90,601. (No model.)



Claim.—1. In apparatus for obtaining sine by electrolysis, the combination of a number of cylindrical cathodes rotating in contact with each other within an electrolytic bath, means for pressing the cylinders against each other and means for producing a longitudinal rubbing action between the cylinders, substantially as described.

2. In apparatus for obtaining sine by electrolysis, the combination of a number of cylindrical cathodes rotating in contact with each other within an electrolytic bath, means for pressing the cylinders against each other and means for producing a longitudinal rubbing action between the cylinders, substantially as described.

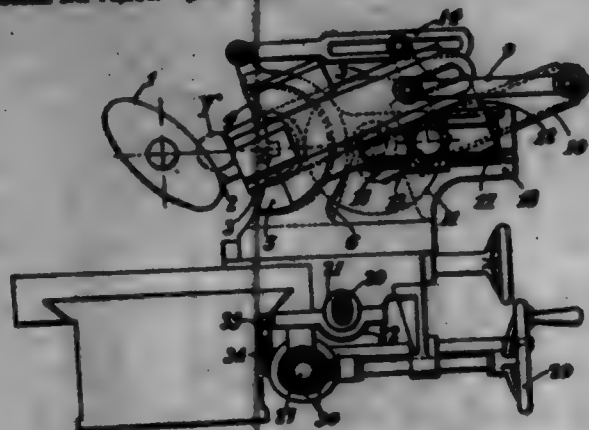
3. In apparatus for obtaining sine by electrolysis, the combination of a number of cylindrical cathodes rotating in contact with each other within an electrolytic bath, means for pressing the cylinders against each other, means for driving the one cylinder by external power which cylinder gives rotation to the others by frictional contact, and means for producing a longitudinal rubbing action between the cylinders, substantially as described.

4. In apparatus for obtaining sine by electrolysis, the combination of a number of cylindrical cathodes rotating in contact with each other within an electrolytic bath, means for pressing the cylinders against each other and means for imparting a longitudinal to-and-fro motion to some

or all of the cylinders for producing a rubbing action between them, substantially as described.

5. In apparatus for obtaining sine by electrolysis, the combination in an electrolytic bath of a number of rotating horizontal cylindrical cathodes each differing somewhat in diameter from that or these next to it, pressed toward each other by means which allow their axes to move further apart, all these axes being mounted in sliding bearings, and one of the axes of each alternate cathode being provided with a stud engaged in an inclined groove in its bearing, so that as each cathode revolves, it is moved to and fro longitudinally, substantially as and for the purpose set forth.

701,217. APPARATUS FOR ELLIPTICAL TURNING AND BORING.
CHARLES J. MONTAGNA, Rouen, France. Filed Sept. 2, 1901. Serial No. 74,216. (No model.)



Claim.—1. In a lathe for turning articles with elliptical cross-section, the combination with the slide-rest of a table 6 having a circular depression, 5, a piece 4 turning in the said circular depression a tool-holder 3 capable of sliding in the piece 4, a connecting-rod 9 and link 10 for connecting the tool-holder with the crank-pin 15 of a crank-disk 11, a slide 12 for guiding the link 10, co-acting on an adjustable journal 13, and a slotted rod 14 connecting piece 4 and the slide 12 so as to keep them parallel, this arrangement being made so as to cause the end of the tool to describe a circle the diameter of which is that described by the crank-pin, substantially as hereinbefore described and for the purpose set forth.

2. In a lathe for turning articles with elliptical cross-section, the combination with a slide-rest, of a table having a circular depression, a supporting-piece turning in the circular depression, a tool-holder adapted to slide in the said piece, a disk, a crank-pin therefor, a rod and a link for connecting the crank-pin with the tool-holder, an adjustable journal, a slide co-acting on said journal and adapted to guide said link, a slotted rod for connecting the supporting-piece and slide, gear-wheels 19, a shaft operated by the said gear-wheels, and gear-wheels 24, 25 actuated by the said shaft for operating the said crank-disk, the relative proportions of the gear-wheels 24, 25 being such that the disk turns with an angular velocity twice that of the article being turned.

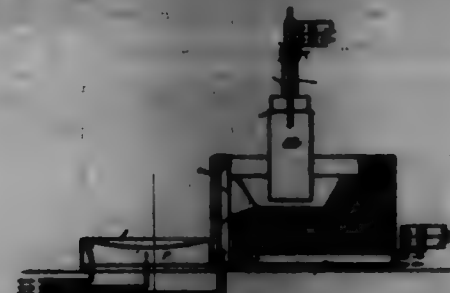
3. In a lathe, a tool-holder adapted to have a tool suitably connected thereto, mechanism for reciprocating said tool-holder, mechanism for supporting and rocking said tool-holder in a circular manner simultaneously with the reciprocation thereof, operating means for the said mechanism, adjustable means for connecting the supporting and rocking mechanism to the said operating means for causing the operation of said mechanism to be changed the degree of circular movement of the said tool-holder, and adjustable means for connecting the reciprocating mechanism to the operating means for operating said mechanism and for adjusting the reciprocating movement of the tool-holder, substantially as herein shown and described.

4. In a lathe, a tool-holder adapted to have a tool suitably connected thereto, means for supporting said tool-holder to permit of the operation thereof in a circular manner, mechanism for reciprocating said tool-holder, mechanism for rocking said tool-holder in a circular manner simultaneously with the reciprocation thereof, operating means for the said tool-holder, adjustable means connected to said rocking mechanism and to said operating means for operating the former and for adjusting the reciprocating movement of the tool-holder.

701,218. ELECTRIC FURNACE. FANTO MORANI, Roma, Italy. Filed July 24, 1900. Serial No. 94,728. (No model.)

Claim.—1. In an electric furnace, an electrode, a supporting-yoke for suspending the same in said furnace and constructed to permit of the circulation of a cooling medium, a casing connected to said electrode and in communication with said yoke, means for circulating a cooling medium through said casing, and a conductor suitably connected thereto.

2. In an electric furnace, an electrode, a hollow yoke connected therewith, and a casing in contact with said electrode and in suitable communication with a source of electrical energy, said casing and yoke constructed to permit of the circulation of a cooling medium.



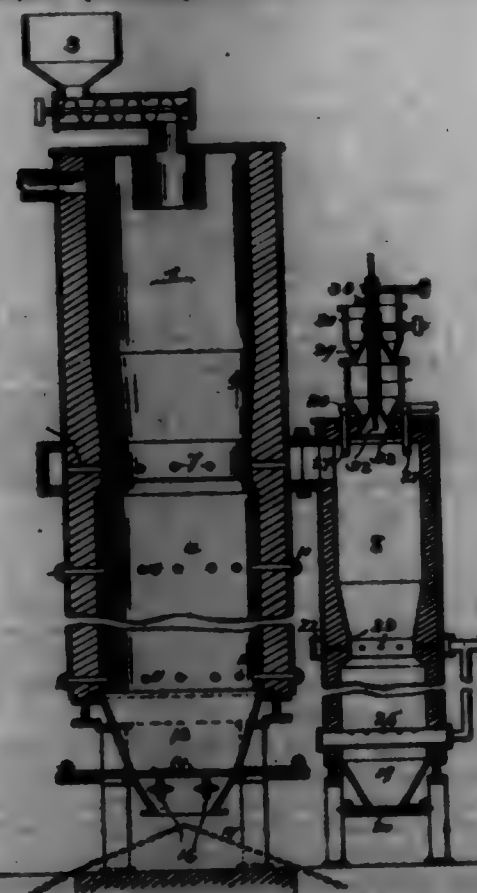
3. In an electric furnace, an electrode, a hollow yoke connected therewith and adapted to conduct a cooling medium, a cross-head, means for adjustably securing the yoke to the cross-head, a hollow casing extending through the cross-head and contacting with the electrode, a connection for establishing communication between the yoke and the casing to permit of the circulation of the cooling medium, and an electrical conductor connected with said casing.

4. In an electric furnace, an adjustable yoke for suspending an electrode and adapted to conduct a cooling medium, and a casing contacting with said yoke and in communication with a source of electricity, said casing communicating with said yoke to permit of the circulation thereof of said cooling medium.

5. In an electric furnace, an adjustable hollow yoke for suspending an electrode, a casing contacting with the electrode, a connection between the casing and the yoke for establishing communication between them, and a suitable connection between said casing and a source of electrical energy.

6. In an electric furnace, a hollow yoke connected to an electrode, a casing contacting with the electrode, means for establishing communication between said yoke and casing, means for supplying said yoke and casing with a cooling medium, and a suitable connection between said casing and a source of electrical energy.

701,219. APPARATUS FOR THE MANUFACTURE OF COKE.
PAUL HARR, New York, N. Y. Original application filed Sept. 7, 1901. Serial No. 690,781. Divided and this application filed May 1, 1902. Serial No. 15,092. (No model.)



Claim.—1. A coking apparatus consisting of a shaft provided at its lower end with a coke-outlet and having inlets for gaseous fluid, inlets for steam at a lower level than the gaseous-fluid inlets and inlets for water at a still lower level all of said inlets being above the coke-outlet.

2. In a coking apparatus, the combination of a shaft having an outlet for by-products at its upper end and an outlet for coke at its lower

end and means for feeding coking material downwardly through said shaft, of means for introducing heated fluid into the shaft at a considerable distance above the coke-outlet and means for injecting steam into said shaft at a point below the gas-inlets and above the coke-outlet.

3. In a coking apparatus, the combination with a shaft or stack comprising a coking-chamber provided with an outlet for by-products, and a cooling-chamber for coke below the coking-chamber having an outlet for coke at its lower end, of a hollow ring encircling the shaft or stack at the juncture of said chambers and communicating with the interior of said stack or shaft and means for introducing hot gas into said ring.

4. In a coking apparatus, the combination with a stack or shaft having an inlet for fuel and an outlet for by-products at its upper end and an outlet for coke at the lower end, said stack or shaft comprising upper and lower communicating chambers, of means for introducing hot gas at the juncture of said chambers.

5. In a coking apparatus, the combination with a stack or shaft having an inlet for fuel and an outlet for by-products at its upper end and an outlet for coke at the lower end, said stack or shaft comprising upper and lower communicating chambers, of means for introducing hot gas at the juncture of said chambers and means for introducing steam and water into the lower chamber.

6. In a coking apparatus, the combination with a stack or shaft adapted to permit the free passage of fuel from top to bottom and having an outlet at its upper end for by-products, of an outlet hopper or funnel at the lower end of said stack or shaft, adjustable doors in said hopper and crushing devices in said hopper or funnel below the doors.

7. In a coking apparatus, the combination with a shaft provided at its upper end with an outlet for by-products and means for feeding material into the shaft, and provided at its intermediate portion with a series of trays, of a separate heated combustible gas-producer and means for conveying the heated combustible gas to said series of trays, and means for discharging coke from the lower end of the shaft, substantially as set forth.

8. In a coking apparatus, the combination of a part for coking fine coal, a part for treating the coke with steam and devices for crushing the treated coke as it leaves the apparatus.

9. The combination with two shafts filled with fuel, means for conducting hot gas from the first into and through the second and sprays for introducing liquid into said hot gas.

701,220. BRAKE-BLOCK. JOHN S. COOMAS, Central City, Colo. Filed Dec. 26, 1901. Serial No. 57,816. (No model.)



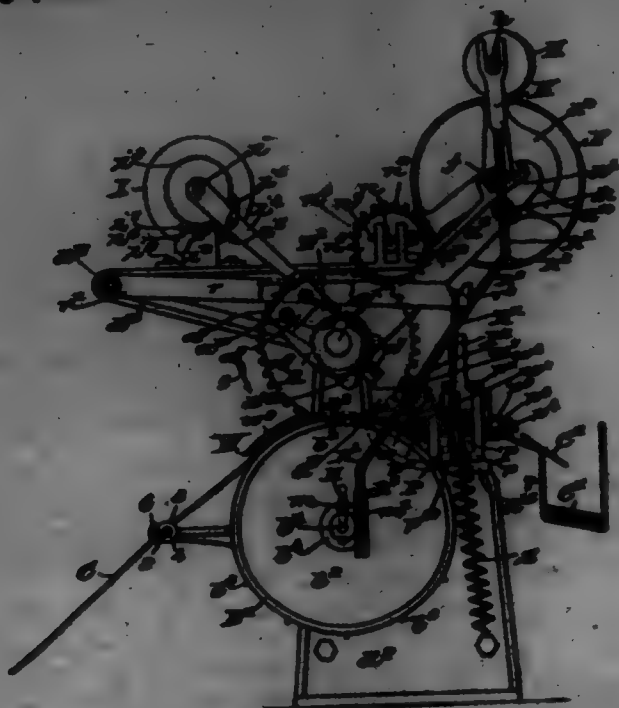
Claim.—1. A brake-block comprising a shoe having a transverse ridge across its back and a bolt-hole on each side of the shoe, one above and the other below the ridge, and both lying in the plane of the shoe and in a vertical line with each other, and a supporting-bar having a horizontal groove on its face to receive the transverse ridge of the shoe and having also formed on it two slotted wings, one above and the other below the bar, and bolts passing through the slots of the wings and the vertically-aligned holes of the shoe substantially as and for the purpose described.

2. A brake-block comprising a shoe having parallel side flanges *b'* and a back portion formed with a transverse ridge with pairs of bolt-holes *b*, one pair above and the other below said ridge and both lying in the vertical plane, and a supporting-bar having an arched portion *a* fitting on the ridge and formed also with rigid slotted wings *a'*, one above and the other below the arched portion, and bolts *d* passing through the slots of the wings and the vertically-aligned holes of the brake-shoe substantially as and for the purpose described.

701,221. WEB-TREATING MACHINERY. ALBERT E. RAY, Ashland, Mass. Filed July 11, 1900. Serial No. 69,688. (No model.)

Claim.—1. In an apparatus of the class described, the combination with an impression-cylinder having peripheral web-controlling means, and a clear device, of a web-guide co-acting in contact to, and arranged closely adjacent the periphery of said cylinder, to maintain the web in

close relation with a portion thereof; said guide having a bearing to permit clearance of said web-controlling means, and being constructed and arranged to deliver said web over one of the members of said shear device to the shearing edge, at an upwardly-inclined angle, to thereby cause the web to free itself automatically from said shearing edge after each shearing operation.



2. In an apparatus of the class described, a work-guide, comprising a carrier w , having threaded portions w^1, w^2 ; bearings d^1 therefor; work-directing members W, W' , carried by said threaded portions, and guide portions w^3, w^4 , on said members.

3. In an apparatus of the class described, a shaft; and a tappet thereon; said tappet comprising an attachment mounted on said shaft, a head supported by carriers extended from said attachment, means to regulate the degree of extension of said head, and means to maintain said head in extended position.

4. The combination with a driven member having a periphery adapted to be engaged frictionally and thereby actuated, of a rotating tappet or actuating member having a frictional actuating-surface, and means to prevent engagement of said periphery by said surface until said tappet has reached a relative position insuring high frictional efficiency.

5. In an apparatus of the class described, a frame; a shaft carried thereby, and a tappet on said shaft; said tappet comprising an attachment secured to said shaft, a head carried by said attachment and movable toward and away from said shaft, and means to maintain said head in extended position; and a projection on said frame adapted to engage said head and cause retraction of the latter toward said shaft during a portion of its relative period.

6. In a machine of the class described; a rotary printing member having a groove parallel with its axis to receive and retain a chain; an elongated chain adapted to enter said groove lengthwise and engaged inferiorly to cause its retention by the walls of said groove; and a spring device carried by said rotary member and adapted to traverse the walls of said groove and engage said chain to prevent accidental lengthwise displacement thereof from said groove.

7. A printing-machine of the class described comprising printing and cutting mechanisms constructed as specified; a printing-coupler to operate upon the web and a rotating tappet having a frictionally-actuating surface to actuate the impression-cylinder of said coupler; and a work-guide intermediate said printing and cutting mechanisms; said instrumentalities co-operating upon a continuous web to produce therefrom at a high rate of speed individually perfect tickets bearing printed matter corresponding exactly in alignment on the respective tickets.

701,222. SHOW-CASE. JAMES B. HILL, Baltimore, Md. Filed Jan. 20, 1908. Serial No. 93,994. (No model.)

Claim.—1. A joint-strip for show-cases having a longitudinal corrugation forming a cushioning-spring and edge wings, and provided with a fastening-bracket secured at one end within the joint-strip to the longitudinal corrugation thereof, substantially as set forth.

2. A joint-strip for show-cases having an intermediate longitudinally-corrugated bow portion forming a cushioning-spring and provided at its inner and outer edges with the projecting wings of sufficient length to lap on opposite sides of the plate to which it is applied, substantially as set forth.

3. The combination in a show-case of the abutted and abutting-plates, the joint-strip fitting between said plates, the bracket secured to the joint-strip having a wing secured to the abutting plate, and an arm for connection with the abutted plate, said wing and arm being arranged within the show-case, and means connecting the said arm with the abutted plate, substantially as set forth.

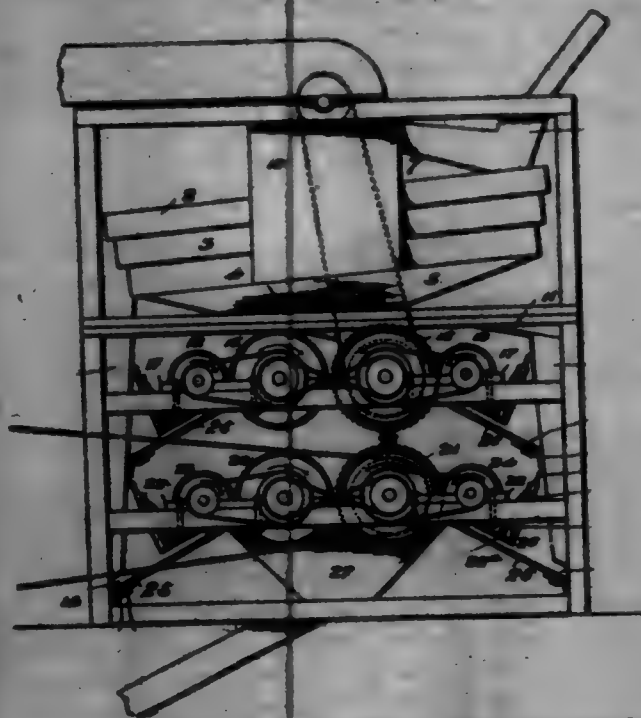


4. A joint-strip in the form of a clamp having side wings and notched in the edge of one of said wings, and a fastening-bracket secured at one end within the strip and extending between its ends through the edge slot of the wing, substantially as set forth.

5. In a show-case, the combination of the joint-strip, for application to adjoining glass plates and having inner and outer projecting wings, to lap alongside the edge of one glass plate, and having its inner wing notched for the passage of the bracket, the bracket fitting in said notch and arranged for connection with one of the adjoining glass plates, substantially as set forth.

6. The combination of the abutted and abutting plates, the resilient joint-strip fitted to the edge of the abutting plate and between the same and the abutted plate, the connecting-bracket secured to the resilient joint-strip and having a wing extending along the inner side of the abutting plate and secured thereto, and the screw or bolt secured to the said bracket, and means operating in connection with said screw for securing the abutted plate substantially as set forth.

701,228. MACHINE FOR REMOVING GARLS FROM WHEAT. WILEY E. RICE, Manassas, Va., assignor of one-half to Irven E. Welverton, Manassas, Va. Filed Oct. 7, 1901. Serial No. 77,894. (No model.)



Claim.—1. The combination, with the rollers, the rotary brushes working against the rollers, and the scraper-bars, of the scrapers pivotedly hung adjacent to the brushes, and the spring-controlled tooth-levers secured to the scrapers and engaging said bars for operating the scrapers to vary their bearing on the brushes.

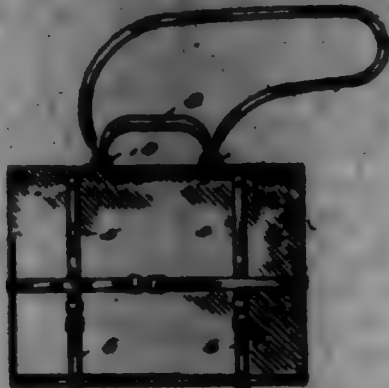
2. The combination with the rollers, and the rotary brushes, of the bearing-plates upon each of which a roller and a brush are journaled and having a slot extending from one bearing to the other of said plates to permit the adjustment of the plates so that the latter will carry with them without removal therefrom the rollers and brushes.

3. In a grain-separator, the combination, with the rollers, the rotary brushes, and the chutes, of the detachable boards reaching from the brushes into the chutes, and means for adjusting the boards relative to the brushes.

4. In a machine for separating garlic from wheat, the combination of the rollers and brushes, the plates each forming a bearing for a roller and a brush and having a slot extending from one bearing to the other for adjustment, the scraper-bars, the pivoted tooth-scrapers, having a toothed

hand-lever for operating them, a plate-spring on the lever to keep the teeth in engagement with the said bar, the clutches, the removable gear-boards reaching from the brushes to the clutches, and the dotted brackets upon which the boards are adjusted, substantially as and for the purpose set forth.

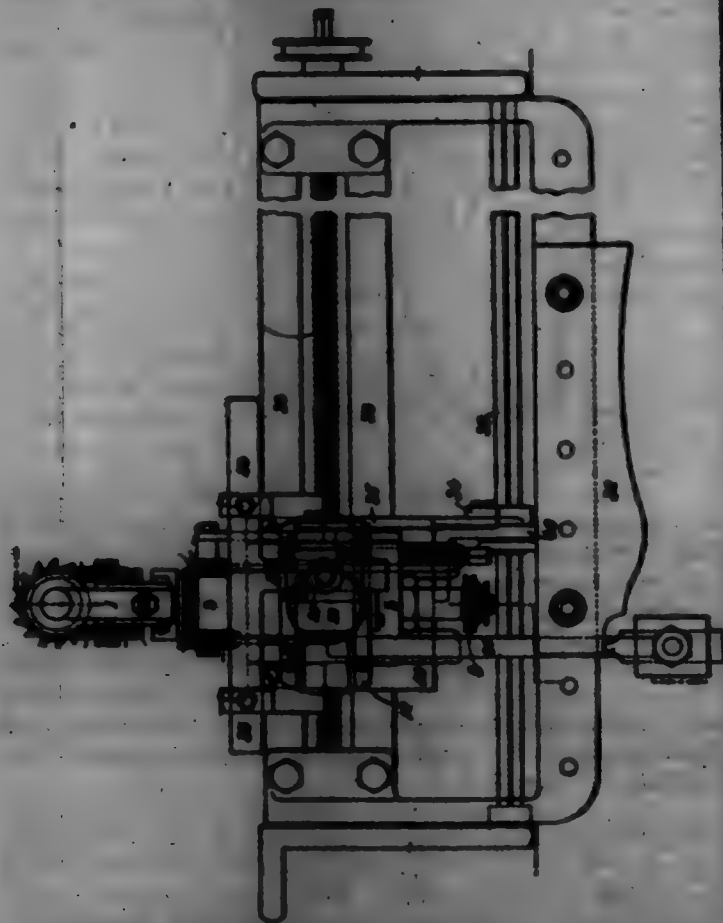
701,924. SCHOOL-BAG. HENRY C. ROBINSON, Fayetteville, W. Va. Filed June 2, 1901. Serial No. 61,702. (No model.)



Claim.—1. In a device of the character described, the combination with a back of stiff material, a metallic flange secured to the lower edge of said back, a flexible flap secured to said flange and an overlapping flap carried by the upper edge of said back for the purpose described.

2. In a device of the character described, the combination with a back of stiff material, a metallic flange secured to the lower edge of said back, a flap secured to said flange, an overlapping flap carried by the said back, a handle on the top edge of the back and cross-straps to hold the flaps in position.

701,925. APPARATUS FOR CUTTING SCREWS OR SPIRALS. HENRY G. ROBINSON, London, England. Filed May 17, 1901. Serial No. 61,771. (No model.)



Claim.—1. The combination of a slide-rest, a cutter or tool frame and a lever both pivotally mounted on the transverse slide of said slide-rest, gearing connecting said cutter or tool frame and said lever so that one cannot turn without the other, and means pivotally and adjustably connecting said lever to the longitudinal slide of the slide-rest, substantially as, and for the purpose, heretofore described.

2. The combination, in a lathe, of a slide-rest, a cutter or tool frame and a guide-frame with a slider forming a lever, both frames pivotally mounted on the transverse slide of said slide-rest, gearing connecting said cutter or tool frame and said guide-frame, an adjustable block carried by the longitudinal slide of said slide-rest, and a pivot-pin connecting said

slider and said adjustable block, substantially as, and for the purpose, heretofore described.

3. The combination, in a lathe, of a slide-rest, a cutter or tool frame and a guide-frame with a slider forming a lever both frames being pivotally mounted on the transverse slide of said slide-rest, bands connected at their ends to said cutter or tool frame and said guide-frame respectively, tangent wheels and screws for adjusting said bands, a pivot-pin on said slider, and means for connecting said pivot-pin to the longitudinal slide of the slide-rest, substantially as, and for the purpose, heretofore described.

4. The combination, in a lathe, of a slide-rest, a cutter or tool frame and a guide-frame with a slider forming a lever both frames pivotally mounted on the transverse slide of said slide-rest, gearing connecting said cutter or tool frame and said lever, brackets mounted on the longitudinal slide of said slide-rest, a T-piece having its cross-arm adjustably secured in said brackets, a block adjustably secured on the stem of said T-piece, and a pivot-pin on the slider and working in said block, substantially as heretofore described.

5. The combination, in a lathe, of a slide-rest, a bush or stem mounted in the transverse slide of said slide-rest, a cutter or tool holder rotatably mounted on the end of said bush or stem, a cutter-spindle pivotally mounted in said holder, a spindle journaled in said bush or stem, gearing connecting said cutter-spindle and the spindle in said bush or stem, gearing for driving the spindle in said bush or stem, a guide-frame pivotally mounted on said transverse slide, a slider in said guide-frame, gearing connecting said cutter or tool holder with said guide-frame, and a pivot-pin on the slider adjustably connected to the longitudinal slide of said slide-rest, substantially as, and for the purpose, specified.

6. The combination, in a lathe, of a slide-rest, a cutter or tool holder pivotally mounted on the transverse slide of said slide-rest, a hub on said holder, a sleeve pivotally mounted on said transverse slide, rings rotatably mounted on said sleeve, teeth formed on said rings, tangent-curved journaled in a bracket on said sleeve, flexible bands each connected at one end to one of said rings and at the other to the hub of said cutter or tool holder, a guide-frame mounted on said sleeve, a slider in said guide-frame and a pivot-pin on said slider and adjustably secured to the longitudinal slide of said slide-rest substantially as described.

7. The combination, in a lathe, of a slide-rest, a cutter or tool frame and a guide-frame with a slider forming a lever, both frames pivotally mounted on the transverse slide of said slide-rest, a sleeve rigidly attached to said guide-frame, a split collar encircling said sleeve and anchored to said transverse slide, a clamping-screw uniting the ends of said split collar, gearing connecting said cutter or tool frame and said sleeve, and a pivot-pin connecting said slider and the longitudinal slide of said slide-rest, substantially as, and for the purpose specified.

701,926. COMBINATION BUNG AND TAPPING-BUSH. JOHN BURN, Mansfield, Ohio. Filed Nov. 14, 1901. Serial No. 62,202. (No model.)

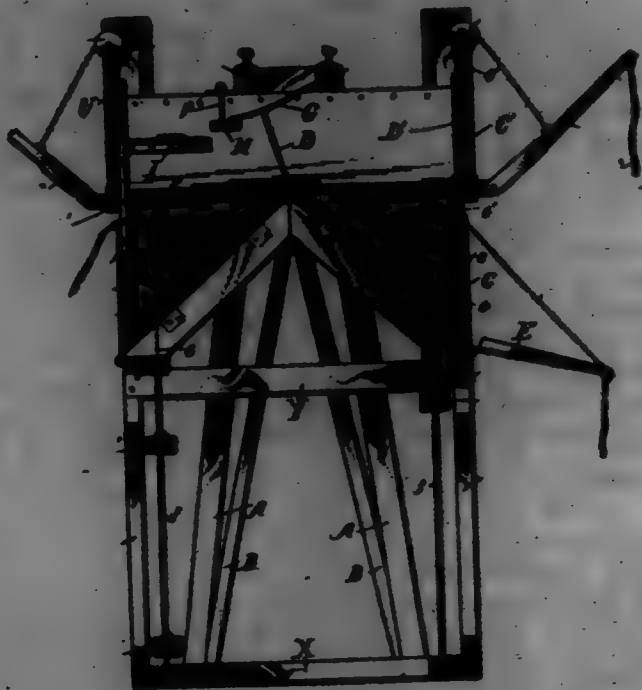


Claim.—1. A combination bung and tapping-bush, comprising a bung-bushing having a bore of even diameter, an outer flange thereon, the flange provided with internal bayonet-slots to which lead notches, a shoulder formed at the point of connection of the flange and bushing, an annular internal upwardly-inclined rib formed in the bore of the bushing below the shoulder whereby an annular groove is formed between the upper end of the rib and the inside of the bushing, the bushing adapted to receive a cylindrical bung, projections on the bung adapted to be received in the bayonet-slots, the bung provided with an annular groove on its reverse and a cup-shaped recess upon its obverse, the wall of the recess forming the lower wall of the groove, against receivable in the groove, a tapping-bush comprising an outer annular right-angular depending flange, projections on the outer wall of the flange, the projections adapted to be received in the bayonet-slots the right-angular flange including an inverted groove, the inner wall of the groove formed of an elongated depending member, the elongated member being hollow and extending some distance below the horizontal plane of the right-angular flange, the tapping-bush and bung being interchangeable.

2. A combination bung and tapping-bush comprising a bung-bushing, an outer flange thereon, the flange provided with internal inclined bayonet-slots having notches connected therewith, a shoulder formed at the point of connection of the flange and bushing, an annular upwardly-inclined rib formed in the bore of the bushing below the shoulder whereby an annular groove is formed between the upper end of the rib and the inner circumference of the bushing, and a tapping-bush, the tapping-bush provided with a right-angular depending flange, projections on the de-

pending wall of the flange, the projections adapted to be received in the bayonet-slot of the bushing, and a gasket received in the groove formed between the depending wall of the flange and the body portion of the tapping-bush, the body portion of the tapping-bush being extended some distance beyond the depending wall of the flange.

701,927. COAL-CHUTE. WILLIAM E. SMITH, Grand Island, Neb.
Filed Jan. 4, 1902. Serial No. 63,363. (No model.)



Claim.—1. A chute having a hinged apron at its lower end with supporting-chains on each side, and pulleys over which said chains pass, a horizontal weight having its opposite ends connected to said chains, a second horizontal weight independently supported above the first-named weight in the same vertical plane therewith, and means for guiding said weights in their vertical movements substantially as described.

2. A chute having a hinged apron at its lower end with supporting-chains on each side and pulleys over which said chains pass, a horizontal weight having its opposite ends connected to said chains, a horizontal weight independently supported above the first-named weight in the same vertical plane therewith and a vertical guide-rod passing through both of said weights substantially as described.

3. A chute having an inclined bottom and a vertical wall extending upwardly from a point near the bottom and having an opening below it the full width of the chute-bottom, vertical guideways at each side of the chute, a gate the full width of the chute arranged in said guideways and having a rigidly-attached rod projecting upwardly from the same, a chain attached to the same, a pulley located above it over which the chain passes, and a lever fulcrumed to the chute and fastened to said chain and having a pull extending to reach from below substantially as described.

4. In a railroad coal-chute, an inclined grating extending from one rail to a point below the other rail, and retaining devices at the end of said grating for holding the large lumps while being broken substantially as described.

5. In a railroad coal-chute, an inclined grating extending from one rail to a point below the other rail, a receiving-plate connected to the lower end of said grating, and a cross-bar with removable pins passing through the said cross-bar and receiving-plate to hold the large lumps while being broken substantially as described.

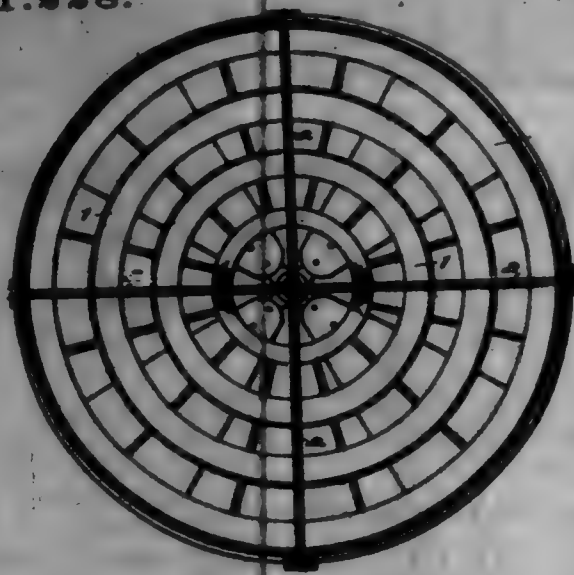
6. A coal-chute comprising a double inclined chute with gate and delivery devices, track stringers and rails arranged above the same, two A-shaped frames A, B, A, B, having their apices below the track-stringers and their feet brought together, and cross-braces and corner-posts substantially as shown and described.

701,928. AIR-DIFFUSER. STEPHEN C. BURR, Kansas, Mo.
Filed Nov. 25, 1901. Serial No. 59,007. (No model.)

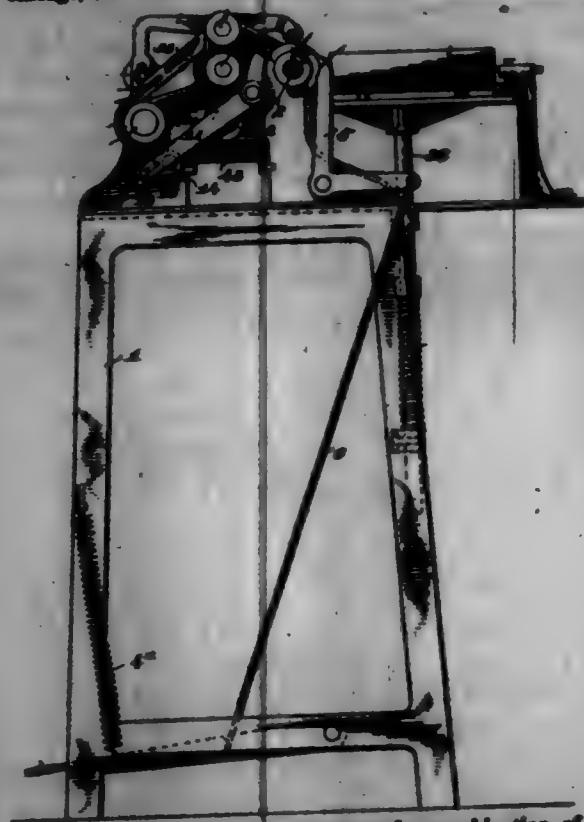
Claim.—1. In an article of the character described, placed upon the delivery side of a fan, a series of deflecting-blades arranged concentrically one within another and means for connecting said blades.

2. In an article of the character described, placed upon the delivery side of a fan, a series of deflecting-blades arranged concentrically one within another and clamping outwardly, and means for connecting said blades.

701,928.



701,929. LABELING-MACHINE. FRANK C. E. STRANDBERG,
Chicago, Ill. Filed Jan. 31, 1902. Serial No. 63,461. (No model.)



Claim.—1. In a labeling-machine, the combination of a pair of clamping-heads to engage and rotate the receptacle while the label is being affixed thereto, a stop permanently located behind the clamping-heads and adjacent thereto, a rock-shaft beneath said permanent stop, arms mounted on said rock-shaft, a rod carried by said arms, said rod being arranged to receive and support the receptacle when it is fed to the machine and while it is resting against the permanent stop, means for lifting the rod to arrange the receptacle in labeling position between the clamping-heads, and means for lowering the rod to permit the discharge of the labeled receptacle before another receptacle is fed to the machine, substantially as described.

2. In a labeling-machine, the combination of a pair of clamping-heads to engage and rotate the receptacle while the label is being affixed thereto, a fixed stop at one side of the clamping-heads, a discharge-chute, a rock-shaft, arms mounted on said rock-shaft, a rod carried by said arms beneath the clamping-heads to receive and support the receptacle when fed to the machine, a spring device for lifting the rod to arrange the receptacle in labeling position between the clamping-heads, and means for lowering the rod after the receptacle has been engaged by the clamping-heads, so that the receptacle may drop into the discharge-chute when the clamping-heads are released, substantially as described.

3. In a labeling-machine, the combination with a pair of rotatable clamping-heads to receive and rotate the receptacle to be labeled, a main shaft, a label-supply holder, a feed-cam on the main shaft and arranged to carry a label forward from the supply, a paste-roll, a feed-roll located above the paste-roll and arranged to receive the label carried forward by the feed-cam and feed said label onto the receptacle, an affixing-roll be-

ated above the receptacle, a rock-shaft, arms on said rock-shaft and carrying said affixing-roll, and a cam on the main shaft for locking said rock-shaft, substantially as and for the purpose described.

4. In a labeling-machine, the combination of a pair of rotatable clamping-heads, device for receiving the receptacle to be labeled and arranging the same in position between said heads, means for clamping the heads upon the receptacle, means for feeding the label to the receptacle, a main shaft, a rock-shaft, arms carried by said rock-shaft, an affixing-roll carried by said arms and device connected with the main shaft for rotating the rock-shaft to bring the affixing-roll into operative engagement with the receptacle, substantially as described.

5. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste device, a device for feeding a label from the paste device to the receptacle to be labeled, pawl-and-ratchet mechanism on the feed and paste device, and a device for affixing the label to the receptacle while it is rotating, substantially as described.

6. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-applying device, a label-supply holder, feeding device rotating at less speed than the receptacle, a device for affixing the label to the receptacle while the latter is rotating, and means for permitting the label to move more rapidly through the machine after it is engaged by the affixing device and while still engaged by the feeding device, substantially as described.

7. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-applying device, a feed-roll adjacent to said paste device, a label-supply holder, a feed device moving a label from the supply to the paste device, a device for affixing the label to the receptacle while it is being rotated, and means for permitting the feed-roll and the paste-applying device to rotate more rapidly after the affixing device has engaged the label, substantially as described.

8. In a labeling-machine, the combination of means for rotating a receptacle to be labeled, a paste-roll shaft, a paste-roll having a ratchet connection with said paste-roll shaft, a feed-roll shaft, a feed-roll normally rotating at less speed than the receptacle and having a ratchet connection with said feed-roll shaft, a label-supply holder, a device for feeding the labels from the supply to said paste-roll and feed-roll, and a device for affixing the label to the receptacle, substantially as described.

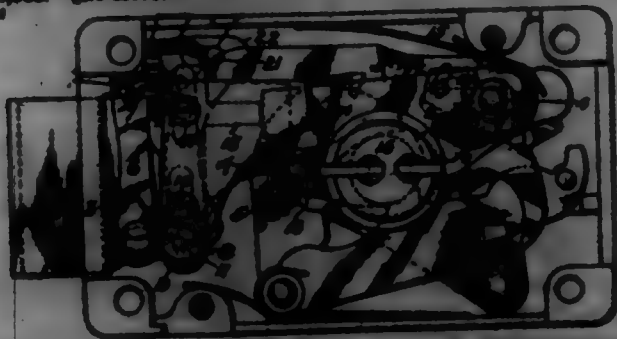
9. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-roll shaft, a paste-roll having a ratchet connection with said paste-roll shaft, a feed-roll shaft, a feed-roll normally rotating at less speed than the receptacle and having a ratchet connection with said feed-roll shaft, a label-supply holder having its bottom provided with a yielding section at its front end, a cam located above said yielding section for feeding the labels from the supply, and a device for affixing a label to the receptacle, substantially as described.

10. In a labeling-machine, the combination with a receptacle-clamping head, of a fixed plate, a cleave mounted on said plate, a clamping-head rotatably mounted on said cleave, and means for moving said cleave longitudinally on the plate, substantially as described.

11. In a labeling-machine, the combination with a receptacle-clamping head, of a fixed plate, a cleave mounted on said plate and provided with an angular slot, a pin on the plate projecting up through the slot, means for moving said cleave rotatably on the plate to move the cleave laterally, and a clamping-head carried by the cleave, substantially as described.

12. In a labeling-machine, a fixed plate, a cleave mounted on said plate and provided with an angular slot, a pin on the plate projecting up through the slot, a head carried by the cleave, an arm connected with the cleave, and a device for actuating said arm to move said cleave rotatably on the plate and thereby move it laterally, substantially as described.

701,280. CHANGEABLE COMBINATION KEY-LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Mar. 10, 1902. Serial No. 97,668. (No model.)



Claim.—1. In a changeable combination key-lock the combination with a bolt, a fence carried by the bolt, and a tumbler coacting with the fence, of a yielding device also carried by the bolt and normally engag-

ing the front edge of the fence, and means for disengaging said device from the fence when a change in the combination is to be effected.

2. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby and a tumbler coacting with the fence, of a yielding device movably mounted on the bolt and normally engaging the front edge of the fence, and means for disengaging said device from the fence when a change in the combination is to be effected.

3. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby, and a tumbler coacting with the fence, of a spring-pressed arm pivoted to the bolt and carrying a spline which latter normally engages the fence, and means exterior of the casing whereby the arm may be moved to disengage the spline from the fence.

4. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby and a tumbler coacting with the bolt, of a spring-actuated arm pivoted to the bolt and carrying a spline normally engaging the fence, and means engaging the pivoted arm, and accessible from the outside of the casing for moving the spline out of engagement with the fence.

5. In a changeable combination key-lock the combination with a bolt, a plurality of fences movably mounted thereon, a series of tumblers, and spacing-plates between the several fences and overlapping the adjacent ends of the tumblers, of a spline carried by the bolt and common to and normally engaging all the fences, and means for disengaging the spline from the fences when a change in the combination is to be effected.

6. In a changeable combination key-lock the combination with a bolt, a movable fence carried thereby, and a tumbler coacting with the fence, of a movable spline carried by the bolt and located between the fence and a fixed stop, the parts being so arranged that the spline can be moved only when the bolt is in its unlocked position.

7. In a changeable combination key-lock, the combination with a bolt, a movable fence carried thereby and a tumbler coacting with the fence, of an arm pivoted to the bolt and carrying a spline, the said arm being located between a fixed stop and the fence so that the arm can be moved to disengage its spline from the fence only when the bolt is in an unlocked position.

701,281. CHANGEABLE COMBINATION KEY-LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Mar. 10, 1902. Serial No. 97,669. (No model.)



Claim.—1. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby and a tumbler coacting with the fence, of a clamping-plate for the fence, a screw carrying said clamping-plate, and means carried by the bolt and engaging a stop on the casing for preventing the bolt from being thrown to its locked position when the pressure of the clamping-plate is removed from the fence.

2. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby, a tumbler coacting with the fence and a stop carried by the casing, of a clamping-plate for the fence, and a screw carried by the bolt and connected to said clamping-plate and provided with a slotted head, the slot in said head resting in line with the stop on the casing when the fence is locked by the clamping-plate.

3. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby, a tumbler coacting with the fence and a stop carried by the casing, of a clamping-plate for the fence, and a screw carried by the bolt and connected to said clamping-plate, the head of said screw being constructed to engage said stop and prevent the bolt from being thrown to a locked position except when the fence is clamped by the clamping-plate.

4. In a changeable combination key-lock, the combination with a bolt, a plurality of adjustable fences carried by said bolt, a tumbler coacting with each fence and spacing and friction plates between the several fences and overlapping the ends of the tumblers, of a clamping-plate engaging the outer fences, a screw carried by the bolt and engaging the clamping-plate, a casing including said parts and provided with an opening through which the head of the screw may be reached, and means carried by the bolt for preventing the latter from being thrown to its locked position when the pressure on the clamping-plate is removed from the fence.

5. In a changeable combination key-lock, the combination with a lock, a loose screw liberty and a tumbler consisting with the flange, of a clamp for holding the flange against accidental movement, a device for adjusting said clamp, and means actuated by the clamp-adjusting device for preventing the bolt from being thrown to its locked position when the pressure of the clamp is removed from the flange.

701,282. DRAWER GUARD OR SUPPORT. MARION C. TIER.
The Dalles, Oreg. Filed Nov. 22, 1901. Serial No. 58,285. (No model.)



Claim.—1. A guide and stop for drawers comprising a strand of wire bent intermediate its ends to form two parallel arms, then on the free end of said arms and adapted to engage the drawer-support and a head in the other ends of the arms which is adapted to limit the outward movement of the drawer.

2. In a drawer guide and stop, the combination with a support, and a sliding drawer secured thereto, of a pair of parallel arms secured to the support and extending through the drawer, the free ends of said arms being bent at right angles to the arms proper, whereby said ends are adapted to engage the drawer to limit the outward movement thereof.

701,288. WHEEL ATTACHMENT FOR PLOWS. DANIEL E. TRIPP, Coldwater, Mich., assignor of one-half to John H. Neat, Coldwater, Mich. Filed Jan. 26, 1902. Serial No. 91,735. (No model.)



Claim.—A wheel attachment for plows, comprising a cross-bar having a fixed standard at one end, means to detachably and adjustably connect the cross-bar to a plow-beam, a wheel, a bearing-rod therefor, attached to and vertically adjustable on the fixed standard, and stay-rods attached to the cross-bar and adapted to be attached to the plow at points in advance and rear of the cross-bar, said stay-rods including means for lengthening and shortening them, substantially as described.

701,284. CHURN-COVER. THOMAS E. VAN HORN, Orem, Utah. Filed Aug. 17, 1901. Serial No. 72,267. (No model.)



Claim.—1. The churn-top herein described comprising the bottom case, the outwardly-projecting flange at the lower end of the tapered sides, the depending flange at the outer edge of said first flange, the bottom extending across the base of the cover forming the dead-air space, the tubular guide for the dash-rod extending between the center of the bottom and the apex of the cover, and the depending flange located

within and spaced apart from the inner depending flange forming an annular chamber to fit upon the upper end of a churn-body, said inner depending flange being provided at its upper edge with a rim-flange secured to the bottom of the cover and the clasp carried by the cover whereby to secure said cover in place upon a churn-body, substantially as set forth.

2. The churn-cover herein described comprising the base-plate provided at its outer edge with a depending flange overlapping the outer side of the churn-body, the flange depending from the base-plate and located within and spaced apart from the outer flange and arranged to lap within the churn-body, the central tubular guide secured to the base-plate and projecting upwardly from the base-plate and opening at its lower end through said base-plate, and the rigid hollow cone secured at its upper or base end to the base-plate and at its upper end to the tubular guide and forming, with the base-plate, an air-space surrounding the tubular guide substantially as set forth.

701,285. AUTOMATIC VALVED HAMMER. DANIEL E. WARD, Chicago, Ill. Filed Nov. 24, 1901. Serial No. 31,201. (No model.)



Claim.—1. In a fluid-operated hammer, the combination with a casing, a hammer movable therein, means for effecting the supply and exhaust of a motive fluid to and from the casing, and means for reducing the area of the surface of said hammer exposed to the motive fluid at one limit of movement of the hammer, of means formed in the casing for relieving the compression opposed to the hammer during the final portion of its return movement said means being supplemental to the normal exhaust.

2. In a fluid-operated hammer, the combination with a casing provided with a cushioning-plug extended therein, of a chambered hammer disposed to move within the casing and to receive the cushioning-plug, means for effecting the supply and exhaust of the motive fluid to and from the casing to operate the hammer, and means separate from the normal exhaust for relieving the compression opposed to the return of the hammer.

3. In a fluid-operated hammer, the combination with a casing provided with an inwardly-projecting cushioning-plug, of a chambered hammer mounted for reciprocation within the casing and designed to receive the plug, means for effecting the supply and exhaust of the motive fluid to and from the casing to operate the hammer, and a relief-port piercing the casing at a point above the inner end of the cushioning-plug and also opening into the casing at a point below or beyond the hammer when the latter is engaged with the plug.

4. In a fluid-operated hammer, the combination with a casing provided with principal ports opening into the opposite ends of the casing, a controlling-valve controlling the supply and exhaust through said principal ports, auxiliary ports opening into the casing and disposed to admit fluid to the controlling-valve, and means controlling the passage of fluid through said auxiliary ports, said means being controlled by the fluid-pressure within the principal ports.

5. A fluid-operated hammer comprising a casing, a valve-chest, a pair of principal ports leading from the valve-chest to the interior of the casing, auxiliary ports leading from the casing to the opposite ends of the

valve-chest, a controlling-valve within the valve-chest, automatically-operated auxiliary valves controlling the auxiliary ports, and a hammer mounted for reciprocation within the casing.

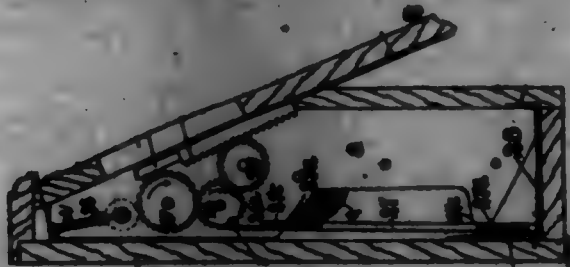
6. A fluid-operated hammer comprising a casing, a valve-chest, a pair of principal ports, and a pair of auxiliary ports, all of said ports opening into the casing and valve-chest respectively, a controlling-valve within the valve-chest, auxiliary valves controlling the auxiliary ports, means for supplying pressure from the principal ports to operate the auxiliary valves, and a hammer mounted for reciprocation within the casing.

7. In a fluid-operated hammer, the combination with a casing provided with a valve-chest and valve, a pair of principal ports communicating with the opposite ends of the casing and with a pair of auxiliary ports also communicating with the interior of the casing, all of said ports being in communication with the valve-chest, a piston-valve within the valve-chest controlling the supply and exhaust of the motive fluid to and from the ports, auxiliary-valve chambers intersecting the auxiliary ports and in communication with the principal ports, spring-pressed valves within said valve-chambers, a hammer mounted for reciprocation within the casing, and means for supplying and exhausting the motive fluid to and from the valve-chest.

8. In a fluid-operated hammer, the combination with a casing, a valve-chest disposed at one end thereof, supply and exhaust chambers disposed upon the exterior of the valve-chest and communicating therewith, principal and auxiliary ports communicating with the interior of the casing and with the valve-chest, automatically-operated valves controlling the several ports, a hammer mounted for reciprocation within the casing, a supply-port communicating with the supply-chamber, said port being intersected by an initial valve-chamber having a tapering valve-seat, an initial valve opposed to said seat, a trigger disposed beyond the casing and in operative relation with the initial valve, and a handle connected to the casing and disposed in convenient relation to the trigger.

9. In a fluid-operated hammer, the combination with a casing, a valve-chest disposed at one end thereof, a valve within the valve-chest, and a hammer within the casing, of a head closing the valve-chest and provided with a supply-port intersected by a valve-chamber having a tapered seat, a valve opposed to the seat and provided with an extended stem, a pivoted trigger mounted upon the head and provided with an operating arm and disposed at one side of said head, and a handle extended from the head at the side adjacent to the operating end of the trigger and extended over the trigger to protect the same.

701,986. MEMORANDUM AND INDICATING DEVICE. CHARLES D. WEAVER, McPherson, Kans., assignor to the McPherson Office Machinery Company, McPherson, Kans. Filed Mar. 14, 1901. Serial No. 61,000. (No model.)



Claim.—1. In a memorandum and indicating device, the combination with a cabinet or case, of a lid slidably mounted thereon, a cogged rack rigidly attached to the lid, a message-strip-operating roll, a gear loose on said roll, a connection between the gear and the roll whereby as the lid is moved in one direction the roll is actuated, and when the lid is moved in the opposite direction the roll remains idle, an indicating device, and means operated by the gear for actuating the indicating device when the lid is moved in the direction opposite that which actuates the message-strip-operating roll, substantially as described.

2. The combination with a case, of a lid slidably mounted thereon, a supply-roll located by the case, a main strip-operating roll, a tension-roll co-operating with the main roll, a gear-wheel loose on the spindle of the main roll, a dog carried by said gear, a ratchet-wheel fixed on the spindle of the main roll and arranged to be engaged by the dog carried by the gear, a cogged rack rigidly connected with the lid and engaging the gear, whereby as the lid is moved in one direction the strip-operating roll is actuated, means for locking the strip-operating roll from movement when the lid is moved in the opposite direction, an indicator, and means actuated by the gear for operating the indicator while the roll remains idle, substantially as described.

701,987. PIPE-WRENCH. GEORGE J. WENZ, Toledo, Ohio, assignor of one-half to the Ames Buckner Rod Company, Toledo, Ohio. Filed Nov. 13, 1901. Serial No. 52,008. (No model.)

Claim.—1. In a pipe-wrench, a forked handle, a pair of wrench-jaws pivotally connected together at their inner ends, a pivotal connection between one of the forks and one of the jaws, and a sliding connection between the other fork and the other jaw.



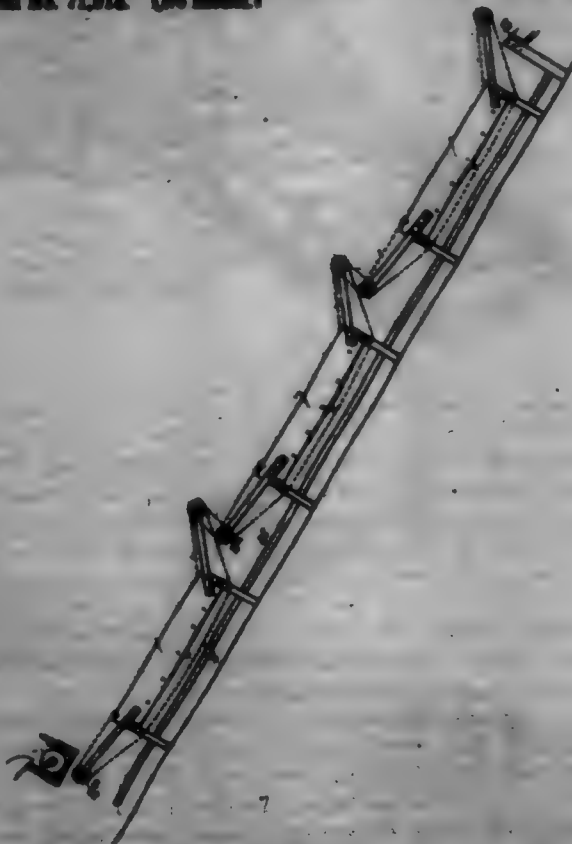
2. In a pipe-wrench, a forked handle, a pair of wrench-jaws pivotally connected together at their inner ends, a pivotal connection between one of the forks and one of the jaws, a sliding connection between the other fork and the other jaw, and a removable tooth in the gripping-face of one of the jaws.

701,988. SAFE-FASTENER. ROBERT WILLIAMS, Melbourne, South Australia, Australia, assignor to Fresh Air and Safety Safe Fastener Company, Limited, Adelaide, South Australia, Australia, a Corporation of South Australia. Filed Feb. 26, 1902. Serial No. 94,148. (No model.)



Claim.—In a safe-fastener, a stud, a plate secured thereto having a beveled stud projecting therefrom and provided with inclined surfaces, a knob rotatably and slidably mounted on said stud and carrying a spring-controlled pin passing through the bore of said stud, said knob having inclined surfaces, adapted to engage and work on those of the stud, and said inclined surfaces being respectively provided at their highest and lowest points, with engaging means for holding the pin in a retracted position against the resistance of its spring.

701,989. MEANS FOR WORKING CREEPS BY THE CYANIDE PROCESS. FRANK R. WOOD, San Francisco, Cal. Filed Aug. 13, 1901. Serial No. 71,012. (No model.)



Claim.—1. An apparatus for working creeps consisting of a plurality of tanks arranged in line, a conveyor passing through each of said tanks and returning thereunder, said conveyor elevated at the rear of the machine more than at the front, said the rear end of one of the conveyors discharging upon the front end of the other conveyor, and means whereby the conveyors may be driven in unison.

2. An apparatus for working over comprising a plurality of tanks arranged in line, each of said tanks having a conveyor passing through and returning beneath the tank, means for driving the conveyors in unison, and conveyor rollers within the tank and upon which the conveyors travel whereby the latter are given an undulatory movement while passing through the tank.

3. In an apparatus for treating ore, a containing-tank, an endless transversely-convexed belt conveyor upon which the ore is carried through the solution in said tank, and means by which an undulatory movement is given to said conveyor.

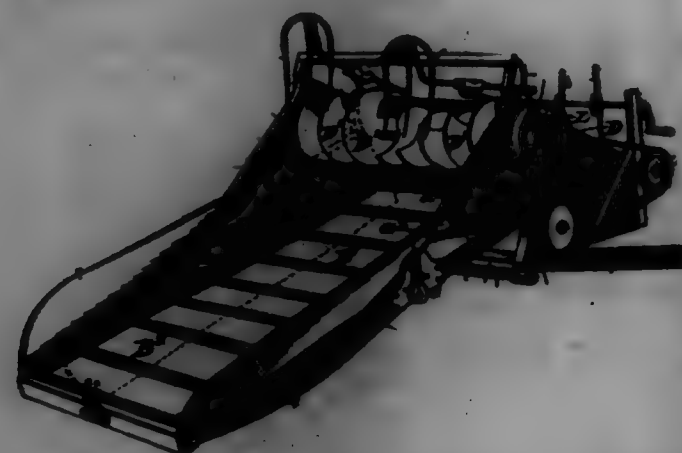
4. In an apparatus for treating ore, a containing-tank, an endless belt conveyor passing through and returning beneath said tank, means supporting one end of the conveyor at a higher elevation than the opposite end, and rollers within the tank over which the conveyor passes whereby the latter is given an undulatory movement.

5. In an apparatus for treating ore, a containing-tank, an endless belt conveyor passing through and returning beneath said tank, conveyor rollers upon which said conveyor is sustained and rods supporting the edges of said conveyor whereby the latter is kept distended.

6. In an apparatus for treating ore, the combination of a containing-tank, an endless belt conveyor, conveyor rollers on which said conveyor is supported, certain of said rollers disposed in the tank so that the conveyor passes over them in undulatory movement during its travel through the solution in the tank, and supports for said conveyor at opposite ends thereof, one of said supports being at a higher elevation than the other.

7. An apparatus for treating ore consisting in combination of a plurality of aligned containing-tanks, a transversely-convexed, endless belt passing through and returning beneath each of said tanks, and upon which the ore is carried, each of said belts discharging its load upon the belt of the next succeeding tank, means for driving said belts in unison, means by which said belts are kept transversely distended and rollers disposed at intervals in said troughs and over which the belts pass, whereby the latter are given an undulatory movement.

701,240. FEEDER FOR GRAIN-SEPARATORS. FRANK J. WOOD, Des Moines, Iowa, assignor to Wood Bros. Steel Belt Feeder Co., Incorporated, Des Moines, Iowa. Filed June 4, 1901. Serial No. 68,166. (No model.)



Claim.—1. In a feeder for the purpose set forth, a carrier-frame made up of two sections which are hinged to each other the hinges having abutting edges above their plates, a supporting-frame therefor in which one section of the carrier-frame is pivoted, rods permanently attached to be in swinging engagement with extensions of the supporting-frame and with the outer section of the carrier-frame, the points of connection being on different horizontal planes whereby the sections will be maintained in line without other supporting means, and when the hinged joint between the sections is broken upwardly the outer section will swing under the frame of the feeder and be maintained by the rods below its lower section which is pivoted to the frame.

2. In a head-cutter and feeder, the combination with a shaft, of a plurality of blades mounted on the shaft at right angles thereto each blade having a cutting edge, curvatures in each blade at those parts thereof which are furthest from the shaft, the curvatures being at one angle near the points of the blades and at an opposing angle beyond the first curvature but continuous therewith to provide curvatures on both the first to contact with the sheaves being connected in the direction of the rotation of the blades and the other curvature in a reverse direction thereto, substantially as shown.

3. In a feeder for separating, spreading-form consisting of bars having at one end depending flaps, clamps for adjustably attaching the bars to a crank-shaft, slides mounted on the bar, a ball end having bent ends

which engage the slides, and a lever rigidly attached to the ball for adjusting the same to vary the position of the slides on the bars of the flaps, substantially as shown.

4. A governor for head-cutter and feeders comprising a flanged disk, a frame separate therefrom and rigidly attached to a shaft upon which the disk is loosely mounted so that the frame will be within the flange of said disk, three similar projections on each side of the frame, bars guided by two of the projecting portions, heads on the ends of each bar, weighted arms pivoted to the other projecting portion of the frame so that when said arms are swung outward by centrifugal force the heads of the bars will be thrown into engagement with the flange of the disk, springs which unseat the bars and said springs acting to move the bars and weighted arms inwardly, units mounted on the bars with which the springs engage, and a sprocket-wheel in positive engagement with the flanged disk and loosely mounted on the shaft, substantially as shown.

701,241. HEATING APPARATUS. JOHN H. FOUNT, Alhambra, Cal. Filed Mar. 12, 1902. Serial No. 97,917. (No model.)



Claim.—1. In combination a receptacle for the storage of fuel to be used, a stove or other object or objects to be heated, connecting pipe or pipes with valves, and a receptacle containing porous, incandescent substance or substances, a raised cover or upper part above and resting upon said receptacle with openings therein for the inlet of air, and having an exit-opening at its top, and a flange around the exit-opening, a raised cap or shoulder piece sustained by legs and held in position by a closely-fitting ring around the flange at the top of said raised cover, all in proper heating relation to the stove or other object or objects to be heated, and all substantially as described and set forth.

2. In combination a receptacle for the storage of fuel to be used, a stove or other object or objects to be heated, connecting pipe or pipes with valves, a receptacle, a tube open at its upper end and forming and being a continuous piece with the bottom of the receptacle and surrounding an opening through which the fuel enters, and said tube and receptacle containing porous, incandescent substance or substances, a wire-net cover placed over said substance at or near the top of said tube, a wire-net covering the said opening into the bottom of said tube, and said receptacle having a second opening for the influx of fuel into said last-mentioned opening, a raised cover or upper part above and resting upon said receptacle with openings therein for the inlet of air, and having an exit-opening at its top, and a flange around the exit-opening, a raised cap or shoulder piece sustained by legs and held in position by a closely-fitting ring around the flange at the top of said raised cover, all in proper heating relation to the stove or other object or objects to be heated, and all substantially as described and set forth.

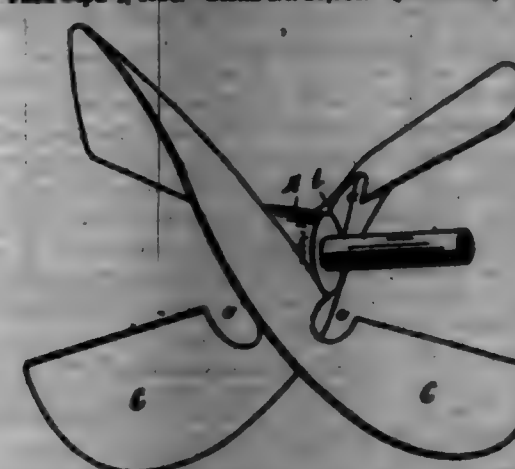
3. In a burner, the combination of a receptacle for the storage of fuel to be used, a stove or other object or objects to be heated, connecting pipe or pipes with valves, a receptacle, a tube open at its upper end and forming and being a continuous piece with the bottom of the receptacle and surrounding an opening through which the fuel enters, and said tube and receptacle containing porous, incandescent substance or substances, a wire-net cover placed over said substance at or near the top of said tube, a wire-net covering the said opening into the bottom of said tube, and said receptacle having a second opening for the influx of fuel into said last-mentioned opening, a raised cover or upper part surrounding said tube having openings for the inlet of air, an exit-opening at the top surrounded with a flange, its lower edges curved and a nut-screw near its lower end, all placed in proper heating relation to the stove or other object to be heated, substantially as described and for the use and purpose set forth.

4. In a burner, the combination of a receptacle for the storage of fuel to be used, a stove or other object or objects to be heated, connecting pipe or pipes with valves, a receptacle, a tube open at its upper end and forming and being a continuous piece with the bottom of the receptacle and surrounding an opening through which the fuel enters, and said tube and receptacle containing porous, incandescent substance or substances, a wire-net cover placed over said substance at or near the top of said tube, a wire-net-covering the said opening into the bottom of said tube,

and said receptacle having a second opening for the influx of fuel into said receptacle outside of said tube, a wire-net cover being placed over said last-mentioned opening, a raised cover or upper part surrounding said tube having openings for the inlet of air, an exit-opening at the top surrounded with a flange, its lower edges curved and a nut-screw near its lower end, a raised cap or shoulder piece sustained by legs and held in position by a closely-fitting ring around the flange at the top of said raised cover, all placed in proper heating relation to the stove or other object to be heated, substantially as described and for the use and purpose set forth.

5. In a burner, the combination of a receptacle for the storage of fuel to be used, a stove or other object or objects to be heated, connecting pipe or pipes with valves, the receptacle containing with the raised cover or upper part for the inlet of air, an exit-opening at its top with a flange surrounding said exit-opening, a raised cap or shoulder piece sustained by legs and held in position by a closely-fitting ring around the flange at the top of said raised cover or upper part, said receptacle having its lower end or bottom closed except an opening in the bottom for the influx of the fuel from the said connecting-pipe, all in proper heating relation to the stove or other object or objects to be heated, and all substantially as described and set forth.

701,242. SCREW-PROPELLER. JAMES ARNHEIM, San Francisco, Cal. Filed Sept. 4, 1900. Serial No. 20,000. (No model.)



Claim.—1. A propeller-blade consisting of conical flange having uniform shape mounted diagonally upon suitable hub and projecting at its ends downwardly beyond the center of the hub, substantially as set forth and for the purpose specified.

2. A propeller composed of two blades mounted upon a suitable base and diagonally thereof, said blades being so constructed as to provide the openings substantially around the hub, for the purpose specified.

3. A reversible propeller composed of two conical blades provided with bases mounted upon suitable hub, and having their ends formed substantially alike and provided with inward curves at each end of the base thereof, as set forth and for the purpose specified.

4. In a propeller having conical blades provided with suitable bases mounted diagonally upon the hub, inward curves formed substantially alike at the center of the blades near the hub, as set forth and for the purpose specified.

5. A propeller composed of two blades provided with suitable bases mounted upon the hub, having downwardly-projecting ends formed substantially alike and inward curves made between the center of the projecting ends of the blades and the hub, as set forth and for the purpose specified.

6. In a reversible propeller, conical blades having narrow channels or bases mounted diagonally upon suitable hub and projecting at their ends downwardly toward the center of the hub at its ends and inward curves formed at the center of the blades offsetting the base portion, substantially as set forth and for the purpose specified.

7. In a reversible propeller, blades consisting of conical flanges of uniform shape, having suitable bases mounted diagonally upon suitable hub, and projecting downwardly at their ends beyond the ends of the hub, inward curves formed substantially alike between the center of the extreme ends of the flanges and the hub, as set forth and for the purpose specified.

8. A propeller composed of a hub, two blades mounted thereon and having downwardly-projecting ends, as set forth and for the purpose specified, substantially around the hub for the purpose specified.

701,243. STAMP-SUPPORTING MACHINE. JOHN F. ARNHEIM, San Francisco, Cal. Filed July 17, 1901. Serial No. 20,000. (No model.)

Claim.—1. In a stamp-officing machine, the combination with a stamp and a stamp-supporting table; and a housing secured to the table

above the said and having upwardly-extending sheet-plates on the upper portion thereof, of a plunger within the housing operating in connection with the said, a toothed stem connected with the plunger and projecting upwardly between the said sheet-plates, a spring for driving the plunger downward, a transverse driving-shaft journaled in the said sheet-plates, a mated gear on said shaft and meshing with the plunger-stem teeth, a stamp-feeding mechanism, and operative connection between the mated gear and feeding mechanism whereby the feeding mechanism is checked simultaneously with the tripping of the plunger.



2. In a stamp-officing machine, the combination with a stamp-supporting table having a plunger-housing secured thereon, of a reciprocating plunger positioned in said housing, means for operating the said plunger; of a feeder-shaft geared to the operating mechanism and extending transversely of the table, and a series of toothed feeder-wheels mounted on said shaft and spaced apart so that the teeth on the wheels will enter the perforations in the sheet of stamps.

701,244. COLLAR OR GUFF BUTTOL. JOHN F. ARNHEIM, San Francisco, Cal., assignor, by direct and mesne assignments, to John T. Clark and John G. Martin, Bay Ridge, Mich. Filed Sept. 7, 1900. Serial No. 20,312. (No model.)



Claim.—1. In a button, the combination with the base and a post rising therefrom, of a longitudinal passage extending through said post from end to end and open at both ends, an endwise-movable spindle located in said passage and having its lower end exposed at the outer side of the base, a head secured to the upper end of said spindle, and a spring engaging the spindle and tending to force it out of the passage at the lower end thereof, substantially as described.

2. In a button, the combination with the base and a post rising therefrom, said post having through it a longitudinal passage open at both ends, of an endwise-movable spindle located in said passage and having at its lower end an enlarged head exposed at the outer side of the base, a head secured to the other end of said spindle and adapted to rest upon the upper end of the post, and a spring-surrounding the spindle and bearing in one direction against the post and in the other direction against the enlarged head of the spindle, substantially as described.

701,345. PEDAL-BALANCE. FRANK R. ANDERSON, Walpole, N. H. Filed Apr. 8, 1901. Serial No. 34,093. (No model.)



Claim.—1. A pedal-balance substantially as shown and described comprising the supporting-rod, means for connecting them with the pedal, the weight-carrying rods extending at right angles to and across the supporting-rod and having deflected portions fitting between said supporting-rod, the cross panels through the space between the supporting and carrier rods, the nut and washers for securing the carrier-rods and supporting-rods together, and the weights on the carrier-rods on opposite sides of the supporting-rods substantially as set forth.

2. A pedal-balance substantially as described comprising the parallel supporting-rods, the parallel weight-carrying rods crossing the supporting-rods at a right angle, the weights on the carrying-rods, means for securing the carrying-rods to the supporting-rods and means for securing the supporting-rods to the pedal-frame substantially as set forth.

3. The combination of the parallel supporting-rods spaced apart, the parallel carrier-rods crossing the supporting-rods and having depressed portions between the supporting-rods, the weights on the carrier-rods, and the connecting devices for securing the carrier-rods to the supporting-rods substantially as set forth.

4. The combination with the front and rear plates of the pedal, of the supporting-rods formed from a length of wire bent upon itself and having its bent and upturned forming wings lapped alongside and secured to the front plate of the pedal, the rear ends of the arms or rods being upturned forming wings secured to the rear plate of the pedal, the weight-carrying rods secured between their ends to the supporting-rods and the weights on the carrying-rods on opposite sides of the supporting-rods substantially as set forth.

5. The combination of the supporting-rods, the carrier-rods crossing the same at right angles and adjustable along the supporting-rods, and the weights having openings to receive the ends of the carrier-rods and carried thereby on opposite sides of the supporting-rods substantially as set forth.

701,346. INSULATOR PIN AND BRACKET. HENRY T. RABY, Mount Kisco, N. Y. Filed Mar. 28, 1902. Serial No. 34,093. (No model.)



Claim.—1. An insulator-pin consisting of two members formed of yielding material normally spaced apart to be forced toward each other by the application of an insulator and having at their upper ends means for securing an insulator thereon, and at its lower ends means for securing the same to a support.

2. An insulator pin or bracket comprising two independent members having yielding portions and normally spaced apart means at the ends of the members for securing an insulator thereon, the lower ends of said members being projected outwardly and fashioned to embrace and be secured to a suitable support, substantially as described.

3. The combination with a support, of an insulator-pin embracing the support and having complementary portions spaced apart, threads on the outer ends of the members, and an insulator secured on the threaded portions and serving to draw the members toward each other, substantially as described.

4. An insulator-pin comprising two independent members, with means for securing the members independently to a support, threaded extensions on the members, and an insulator on the threaded extensions normally tending to draw the members toward each other, substantially as described.

5. An insulator-pin comprising two independent spring members having their insulator-supporting ends arranged in proximity to each other but out of contact, and provided with threads for receiving and securing an insulator in place, substantially as described.

6. An insulator-pin comprising two members fashioned to embrace a support, and having insulator-carrying portions arranged so that upon the application of the insulator the members will be secured to the support, substantially as described.

7. In an insulator-pin, the combination with an insulator, of a pin

comprising two members fashioned to be forced into contact with the holding-support by the application of the insulator, substantially as described.

8. The combination with a threaded supporting-arm, of an insulator-pin having portions bent and engaging in the channel of the supporting-arm, and means on the pin for supporting and carrying an insulator, substantially as described.

9. In an insulator-pin, the combination with two metallic members, of threaded blocks secured to the outer face of the members, and means for securing the members to a suitable support, substantially as described.

10. An insulator-pin comprising two yielding members normally spaced apart, and insulating-blocks secured to the members on the outer faces thereof, and with which the insulator is adapted to engage, substantially as described.

11. A metallic insulator-pin comprising two members arranged in opposite relation, having outwardly-projecting lower portions fashioned to engage a suitable support, and inclined upper ends having projections for engaging and holding an insulator, substantially as described.

12. The combination with a supporting-arm, of two pin-sections arranged to embrace the arm and having inclined upper portions normally spaced apart, and means on the upper portions for engaging and securing an insulator thereon, substantially as described.

13. The combination with a supporting-arm, of an insulator-pin comprising two metallic members fashioned to engage a support, having their upper ends inclined and provided with suitable threaded portions, means for the inclined portions, and a block interposed between the threaded portions, substantially as described.

14. The combination with a supporting-arm, of an insulator-pin comprising two metallic members fashioned to engage a support, having their upper ends inclined and provided with suitable threaded portions, and a block interposed between the threaded portions, substantially as described.

15. The combination with an insulator-pin, of projections thereon, and independent insulating-blocks on opposite sides of the pin held in place by the projections, substantially as described.

16. An insulator-pin comprising separated portions and having means for securing an insulator thereon, of an insulating-fiber between the said portions, substantially as described.

701,347. TROLLEY. WILLIAM L. RAKER, Fairport, Ohio. Filed Jan. 20, 1902. Serial No. 34,092. (No model.)



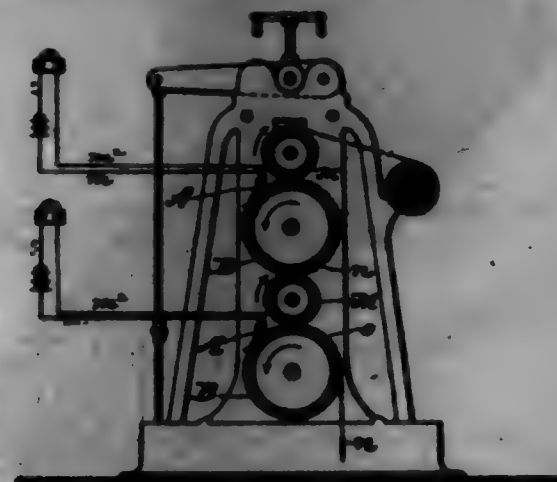
Claim.—1. In a trolley device, the combination with a bowed frame or harp having terminal supporting parts spaced substantially parallel with the wire, of a trolley-wheel having therein to have free angular adjustment with respect to the frame, and springs adapted to maintain the electrical continuity of the said parts and assist the wheel to its normal position, substantially as set forth.

2. In a trolley device, the combination with a frame or harp bowed or expanded at *c*, said frame having terminal parts *a* providing supporting slides or ways lying substantially in a horizontal plane when the device engages the trolley-wire, of a trolley-wheel mounted therebetween and permitted free angular adjustment within the horizontal supporting-ways, and contact-springs *b* engaging said trolley-wheel and frame, substantially as set forth.

3. In a trolley device, the combination with a bifurcated frame or harp having spaced supporting or terminal parts, the distal ends of the arms of a length of least equal to the horizontal width of the sign-body, the lower bracket-arm being provided with an upstanding plate, and the upper bracket-arm being provided with a bearing-rod aligned with the

the distal, wherein it is freely movable to permit of the angular adjustment of the wheel within its frame, and lateral springs *b* engaging the wheel and frame adapted to maintain the electrical continuity between said parts, and return the wheel to its normal position, substantially as set forth.

701,348. REMOTE ALARM FOR CLOTH-FINISHING MACHINERY. JOHN F. RABBY, Central Falls, R. I. Filed Aug. 4, 1901. Serial No. 71,421. (No model.)



Claim.—1. In a cloth-finishing machine having one or more bowls made of non-conductor material, the combination, of a crank adapted to extend longitudinally with one of said bowls, said crank comprising a metallic supporting-bar, two rubber strips secured upon said bar, one of said strips provided with a series of grooves extending through at an angle from either edge thereof, a series of thin metallic blades secured within the grooves of said strip and projecting outwardly therefrom, a wire having its ends attached to each alternate blade of said crank as to form multiple having positive and negative pole connections, as shown, a battery having one pole wired to one of the pole connections, and its other pole wired to said alarm and thence to the other pole connection, substantially as shown and described.

2. In a cloth-finishing machine having one or more bowls made of non-conductor material, the combination, of a crank adapted to extend between the end frames of the machine, two strips made of non-conductor material secured upon said bar, a series of metallic blades secured between said strips and projecting at an angle therefrom, a wire connected to each alternate blade, a battery, a wire from said battery to a positive pole of said blades, an alarm actuated by said battery, a wire from said alarm to a negative pole of said blades, with brackets secured to the end frames of the machine adapted to support the blades and provided with means of adjustment to extend the projecting ends of the blades upon the periphery of the bowl, substantially as shown and described.

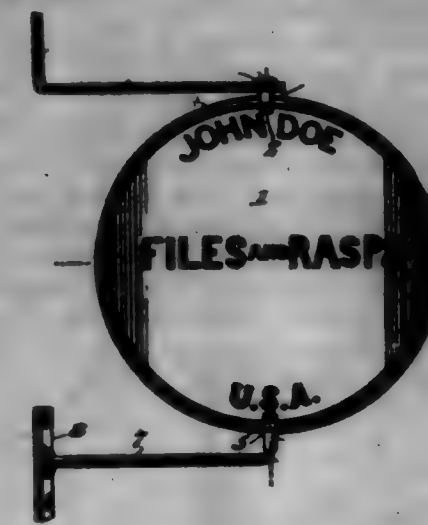
3. In a cloth-finishing machine having one or more bowls made of non-conductor material, the combination, of a crank provided with a series of blades, a wire connecting each alternate blade of said crank, a battery wired to one of said blades, an alarm actuated by said battery and wired to the next adjoining blade, each of said blades projecting at an angle to the plane of rotation of the bowl, so arranged that a piece of metal caught in the surface of the bowl will make a positive and negative pole connection upon the blades, as set forth.

701,349. ADVERTISING DEVICE. HENRY L. RAKER, Cincinnati, Ohio, assignor, by mesne assignments, to Mack and Beach Company, Cincinnati, Ohio. Filed Aug. 25, 1900. Serial No. 28,693. (No model.)

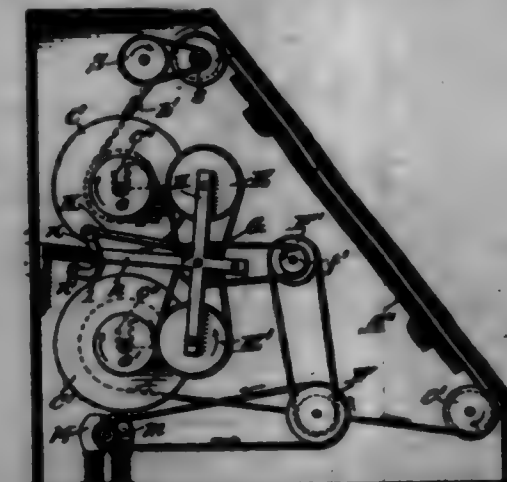
Claim.—1. In a sign, the combination with a rotatable body having its opposite sides capable of receiving advertising matter, opposite supporting-brackets having laterally-projected arms of a length at least equal to that radius of the sign-body which is parallel with the arms, one of the bracket-arms being provided with a plate projected toward the other arm, and said other arm being provided with a bearing-rod aligned with the plate, a bearing-socket rigidly secured to one edge portion of the sign-body and rotatably embracing the plate, and a plate carried by the diametrically opposite edge portion of the sign and rotatably fitting the bearing-rod of said other bracket-arm, whereby the sign-body is capable of a complete rotation between the brackets.

2. In a sign, the combination with an upstanding sign-body, of a rotatable body having advertising matter upon the opposite faces thereof, of upper and lower supporting-brackets having laterally-projected arms of a length of least equal to the horizontal width of the sign-body, the lower bracket-arm being provided with an upstanding plate, and the upper bracket-arm being provided with a bearing-rod aligned with the

plate, a bearing-socket rigidly secured in the lower edge portion only of the sign-body and rotatably embracing the plate to form a stop-bearing, and a plate located diametrically opposite the bearing-socket and rotatably fitting the bearing-rod of the upper bracket-arm, whereby the sign-body is capable of a complete rotation between the brackets.



701,350. DISPLAY DEVICE OR EXHIBITOR. DAVID T. BULL, Norfolk, Va., assignor of one-half to Richard D. Dandridge, Norfolk, Va. Filed Dec. 8, 1900. Serial No. 28,694. (No model.)



Claim.—1. In a pattern-exhibitor, the pattern-band, the feed and take-up rollers therefor, the electric motor having a driving connection with said band, the rotary switch, the switch-pulley in gear with the shaft of said switch, the slidable tongue, cord or the like oppositely wound upon said pulley and connected to said tongue, and means carried by said band for operating said tongue to rotate said pulley and switch, substantially as specified.

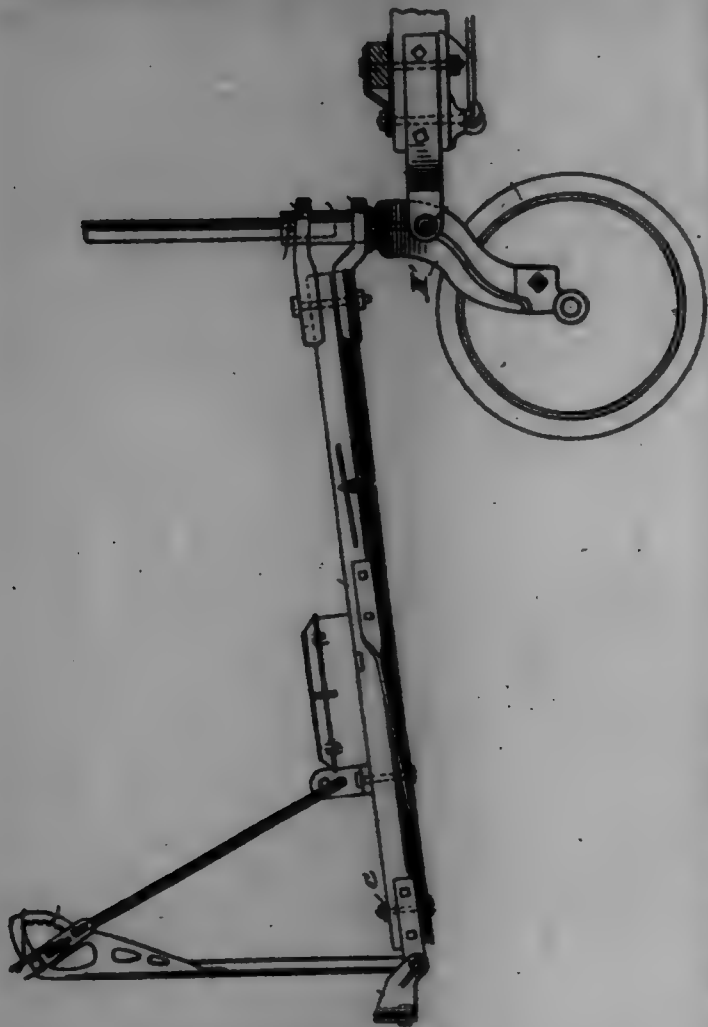
2. In a pattern-exhibitor, the pattern-band, the feed and take-up rollers for said band, the electric motor having a driving connection with said rollers, the terminal air-cylinders, the pistons in said cylinders in contact with the motor-terminals and arranged to fill at different rates of speed, and normally in electrical connection, means operated by the band for raising and releasing said pistons to break the electrical connection therebetween, substantially as specified.

3. In a pattern-exhibitor, the pattern-band, the feed and take-up rollers for said band, the electric motor having a driving connection with said rollers, and means for intermittently and automatically making and breaking the circuit of said motor, having the terminal cylinders normally electrically connected, the pistons and piston-rods of said cylinders, means for intermittently raising and releasing said pistons and rods, and means whereby said pistons and rods fill at different rates of speed to temporarily break such electrical connection therefrom, and for again making such electrical connection upon the termination of each fill, substantially as specified.

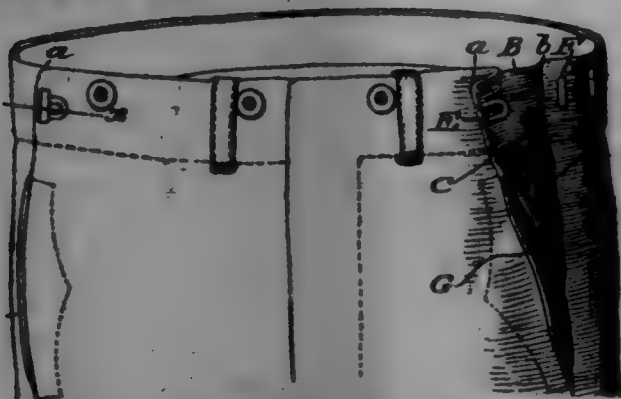
4. In a pattern-exhibitor, the pattern-band, the feed and take-up rollers therefor, the electric motor having a driving connection with said rollers, and a gravity make-and-break device in circuit with said motor, and consisting of the terminal air-cylinders, their pistons and hollow piston-rods, a pawl operated by the band for raising said pistons and rods, the inclined guide for said pawl, said rods having engaging flanges, substantially as specified.

701,351. WRAPPING-MACHINE. JOHN F. RABBY, Chicago, Ill., assignor to the Harvester King Company, Harvey, Ill., a Corporation of Illinois. Filed Jan. 1, 1902. Serial No. 71,422. (No model.)

Claim.—In a reaping-machine, the combination with the main frame of a reach connected to the forward edge of the main frame by a horizontal pivot, a ground-wheel connected to the forward end of the reach by a vertically-arranged stem mounted to turn in suitable bearings and having flanges embracing the ground-wheel, and a draft-tongue pivoted to said flanges by horizontal pivots, substantially as described.



701,252. GARMENT. HENRY SANDLER, Philadelphia, Pa., assignor to Morris Liveright, Philadelphia, Pa. Filed Oct. 11, 1901. Serial No. 73,331. (No model.)



Claim.—1. A garment having a divided waistband, a pocket having its rear wall divided from the adjacent portion of the garment below one wall of said band, a gusset occupying the space between the divisions, and a fastening having its members on the opposite walls of said band, said gusset being secured at one side to one wall of said band and a portion of the garment below the same, and at the other side to the opposite wall of said band and the rear wall of the pocket below the same.

2. A garment having a pocket and a gusset, said garment being vertically divided along the line of said pocket, said gusset occupying the space between the division of the garment, one side of said gusset being secured to one wall of the division and the other side being partly secured to the opposite wall of the division and the rear wall of said pocket.

701,253. BATTERY. GEORGE S. BARNETT, San Francisco, Cal., assignor to Joseph W. Thatcher, San Francisco, Cal. Filed Aug. 6, 1901. Serial No. 71,120. (No model.)

Claim.—1. A battery comprising in combination, a casing, a cap

thereof, a voltaic pile, a sleeve secured in the cap and forming one terminal of the battery, a conducting and supporting rod for the pile, forming the opposite terminal of the battery, said rod extending through but insulated from the sleeve and serving to firmly connect the battery elements to the cap.



2. A battery comprising a voltaic pile, a casing including the same, a cap or cover arranged at the upper end of the casing and to which the voltaic pile is secured, terminal connections carried by said cap or cover, a socket member removable from the cap and having terminal contacts connected to the line-wires, said contacts being adapted to make contact with the terminal connections of the cap or cover when the socket member is in place.

3. The combination in a battery, of a casing, a cap therefor screwing into the casing, a voltaic pile secured to and carried by the cap, a sleeve carried by the cap and forming a terminal connection from the uppermost of the battery elements, a conductor-rod passing through the sleeve and insulated therefrom and forming a terminal connection from the lowermost of the battery elements, and a socket member connected to one of the line-wires and adapted to said sleeve, and an inner contact carried by and insulated from the socket member and connected to the opposite line-wire, substantially as specified.

4. The combination in a battery, of a casing, a central rod of conducting material, a series of disks of positive and negative elements supported on said rod and insulated therefrom, said central rod being in electrical contact with the lowermost element, a casing cap or cover of non-conducting material through which the central rod passes, a sleeve of conducting material passing through the cap and having a lower flange in contact with the uppermost element, and means for attaching the line-wires to the central rod and to the sleeve.

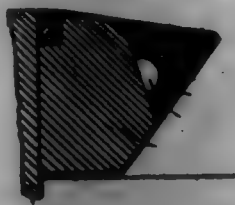
5. In the device of class specified, a socket-attaching member comprising a threaded socket electrically connected to a line-wire, a ring of insulating material supported on a shoulder within said socket, a contact-plate supported by said ring and in electrical contact with an opposite line-wire, and a securing-block of insulating material acting to hold said contact-plate in position.

6. A voltaic pile comprising a centrally-arranged rod of conducting material, a tube of insulating material surrounding the same, alternate layers of positive and negative electric elements arranged in series, disks of absorbent material situated between adjacent elements of opposite proportion, and separating-sleeves of insulating material arranged around the tube at the central portions of the absorbent disks to prevent compression of said disks, substantially as specified.

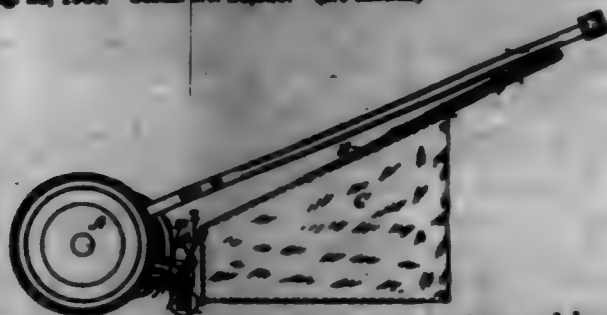
7. A voltaic pile comprising in combination, a centrally-arranged rod of conducting material, a tube of insulating material surrounding the same, perforated disks of positive and negative proportion arranged on said tube, disks of absorbent material disposed between adjacent elements and having central perforations of a diameter greater than those formed in the elements, and separating-sleeves of non-conducting material fitting around the tube and arranged in the central perforation of each of the absorbent disks, and a clamping-nut provided on the said central rod, substantially as specified.

701,254. MILLIARD-TABLE CUSHION. MORRIS BRUNSWICK, Chicago, Ill., assignor to the Brunswick-Balke-Clender Company, Chicago, Ill., a Corporation of Ohio. Filed Jan. 21, 1902. Serial No. 91,962. (No model.)

Claim.—A billiard-cushion strip composed of a suitable rubber compound, having some suitable face-hardening device molded in; united with the mass of compound by the vulcanizing process to which the latter is subjected; and located so far within the mass, as specified, that the wear, or playing-surface of the cushion, will not be overworn, or injuriously affected by the proper vulcanizing of the strip; all substantially as and for the purposes hereinbefore set forth.



701,955. LAWN-MOWER. WILLIAM BORN, St. Paul, Minn. Filed Aug. 28, 1900. Serial No. 28,300. (No model.)

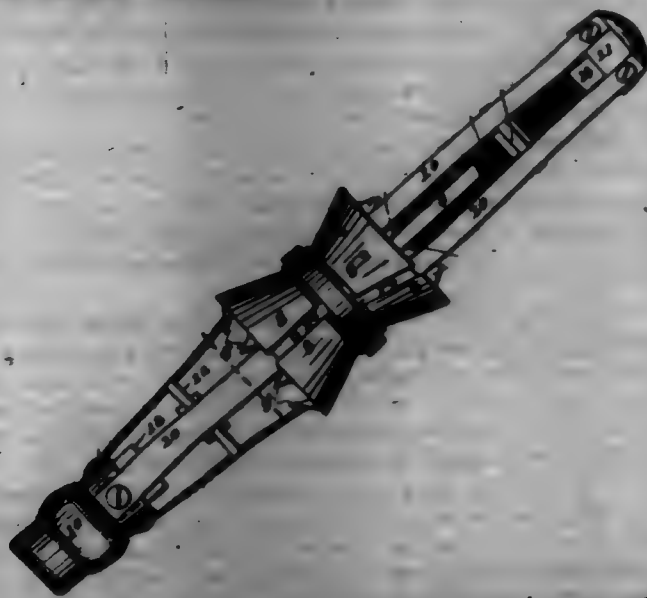


Claim.—1. In combination with a lawn-mower frame and handle, and brackets swivelled to the sides of said frame and having heads at their outer ends; a grass-catching receptacle comprising a frame of wire having its front ends bent downward and removably engaged with said brackets inside their heads, a handle secured to this frame, and means for detachably connecting this handle with the handle of the lawn-mower.

2. In combination with a lawn-mower frame and handle, and brackets carried by the former; a grass-catching receptacle comprising a frame of wire whose front ends detachably engage said brackets, a handle connected to the rear of said frame, wires diverging from the front end of this handle and connected with the sides of the frame, and a hook on the lawn-mower handle detachably engaging the handle of the frame.

3. In combination with a lawn-mower frame and handle, and brackets carried by the frame; a grass-catching receptacle whose front ends detachably engage with said brackets, a straight handle rigidly secured to the rear of said receptacle, said handle projecting rearwardly parallel with the mower-handle when the receptacle is in position, and a hook detachably supporting said receptacle-handle underneath said mower-handle.

701,956. FLUID-CLEANER. JOHN S. CLARK, St. Clair, Mich., assignor of one-half to WILLIAM SCOTT MITCHELL. Filed Jan. 12, 1902. Serial No. 28,400. (No model.)



Claim.—1. In a fluid-cleaner, in combination, a spindle having right and left hand screw-threads, traveling spreaders thereon, a collar having radial slots loosely mounted on the spindle, radially-yielding segments arranged around and connected to the spindle and having projections engaging said slots, and scraper-blades attached to alternate segments.

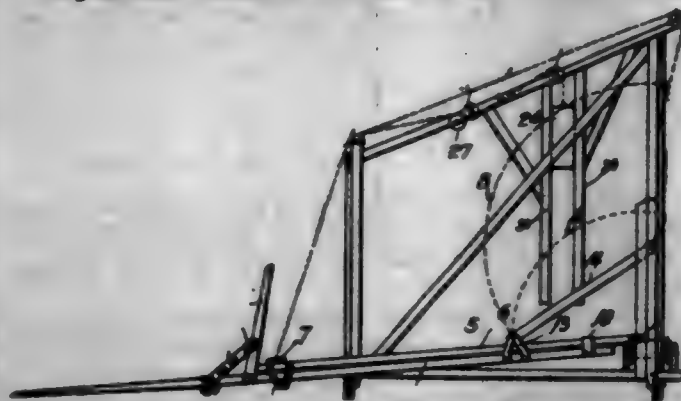
2. In a fluid-cleaner, in combination, a spindle, a radially-slotted collar thereon, blade-bearing segments arranged around and flexibly attached

to the spindle, said segments having projections engaging the slots to guide the radial motion of the segments, and inclined spurs on the segments projecting in advance of the cutting edge of the blades.

3. In a fluid-cleaner, in combination, a spindle, a radially-slotted collar thereon, segments arranged around and flexibly attached to the spindle, said segments having projections engaging the slots to guide the radial motion thereof, and scraper-blades attached to the alternate segments, so that the free segments cover the space between the ends of the blades.

4. In a fluid-cleaner, in combination, a threaded spindle, a radially-slotted collar loosely mounted thereon, said threads being right and left hand on opposite sides of the collar, blocks loosely mounted on opposite ends of the spindle, springs attached to said blocks, traveling spreaders on the threaded portions of the spindle and engaging the springs to expand the same, segments attached to the free ends of the springs and having projections engaging the slots of the collar, and scraper-blades attached to the segments.

701,957. HAY-STACKER. JAMES H. CURT, Windsor, Colo. Filed Aug. 12, 1901. Serial No. 71,004. (No model.)



Claim.—1. In a hay-stacker, the combination with a suitable relatively stationary framework, of a lifting-frame hinged or pivoted thereon, a stacker-head slidably connected with said lifting-frame, and a link connection between the rigid part of the stacker-head and the frame, the point of connection with the frame being above the plane of the stacker-head when the latter is in its lowermost position, whereby the latter is projected outwardly from the stationary frame as the lifting-frame is raised.

2. In a stacker, the combination with a relatively stationary frame, of a lifting-frame pivoted on the stationary frame, a stacker-head slidably connected with the pivoted frame, and a link connecting a rigid part of the head with the stationary frame, the point of the framework where the link is connected being above the pivoted point of the lifting-frame, whereby as the lifting-frame is raised the head is extended or moved outwardly thereon.

3. In a stacker, the combination with a relatively stationary frame, of a lifting-frame hinged or pivoted thereon, a head having bars rigidly connected therewith and slidably connected with the pivoted frame, and links connected with the rigid head-bars at one extremity and with the stationary frame at the opposite extremity at a point above the pivoted point of the lifting-frame.

4. In a stacker, the combination with a relatively stationary frame, of a lifting-frame hinged or pivoted on the stationary frame, suitable hoisting devices mounted on the stationary frame and connected with the lifting-frame, in suitable operative relation, a stacker-head slidably connected with the lifting-frame, and links connected with a rigid part of the stacker-head at one extremity and with the stationary frame at the opposite extremity at points above the lifting-frame pivot, for extending the stacker-head or moving it outwardly on the lifting-frame.

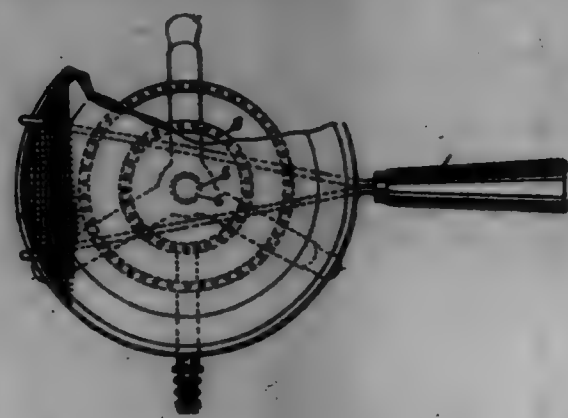
5. In a stacker, the combination with a relatively stationary frame, of a lifting-frame hinged or pivoted thereon, hoisting means connected with the lifting-frame, a counterweight also connected with the lifting-frame and suspended on the stationary frame, a stacker-head slidably connected with the lifting-frame, and links pivoted on the stationary frame above the lifting-frame pivot, and connected with a rigid part of the stacker-head for extending the said head on the lifting-frame as the head is raised with the last-named frame.

6. The combination with a suitable stationary frame, of a lifting-frame pivotally connected with the stationary frame and having two parallel bars, a stacker-head provided with two bars rigidly connected with the head proper and slidably connected with the parallel bars of the lifting-frame, and links or arms connected with the rigid bars of the head at one extremity and with the stationary frame at the opposite extremity, at points above the pivoted points of the lifting-frame.

7. In a stacker, the combination with a relatively stationary frame, of a lifting-frame pivoted on the stationary frame, a stacker-head having bars rigidly connected therewith, guides secured to the bars of the stacker-

head and passing around the adjacent bars of the lifting-frame forming a sliding connection between the two sets of bars, and links connected with said guides at one extremity and with the stationary frame at the opposite extremity at points above the pivot of the lifting-frame.

701,258. PEANUT-ROASTER AND POPCORN-POPPER. WILLIAM T. CHASE, San Francisco, Cal., assignor to Simon Emanuel and James Howard Stevens, trustees, San Francisco, Cal. Filed Mar. 14, 1902. Serial No. 94,297. (No model.)

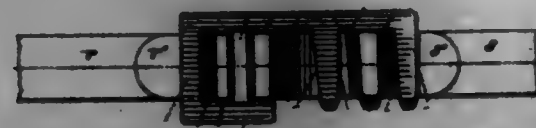


Claim.—1. In a device of the character described, a vessel adapted to hold popcorn, peanuts, chestnuts or the like composed entirely of asbestos, and a metallic frame around said vessel for supporting the same, substantially as described.

2. In a device of the character described, a vessel for holding popcorn, peanuts, chestnuts or the like made of asbestos compressed and molded into shape, and a metallic frame outside said vessel for supporting the same, substantially as described.

3. A popcorn-popper comprising a vessel entirely composed of asbestos, a metallic frame around the same having a handle, and a stop-pivot in the center thereof, in combination with a gas-burner having a socket to receive said stop-pivot, legs upon which it is supported and a ring burner around said socket provided with means for supplying gas thereto, substantially as described.

701,259. RAIL-TIE. HUGH DE HAVEN, Brooklyn, N. Y. Filed Dec. 2, 1901. Serial No. 94,294. (No model.)



Claim.—1. A bale-tie provided with a back bar and a double loop at one end adapted to receive the ends of a strap, one end of the said strap being anchored by engagement with both of the loops and a series of fingers projecting from the said back bar and adapted to engage and retain a strap passing through one of the loops, and having its free end interwoven with the fingers.

2. In a bale-tie the combination of a back bar and a plurality of loops at or near one end, the said loops being separated by a cross-bar, one of the said loops being larger than the other and adapted to receive both of the free ends of the strap, the other of said loops being adapted to cooperate with its mate to firmly anchor one of the free ends of the strap, and a series of fingers adapted to cooperate with the larger loop to hold the other free end of the strap.

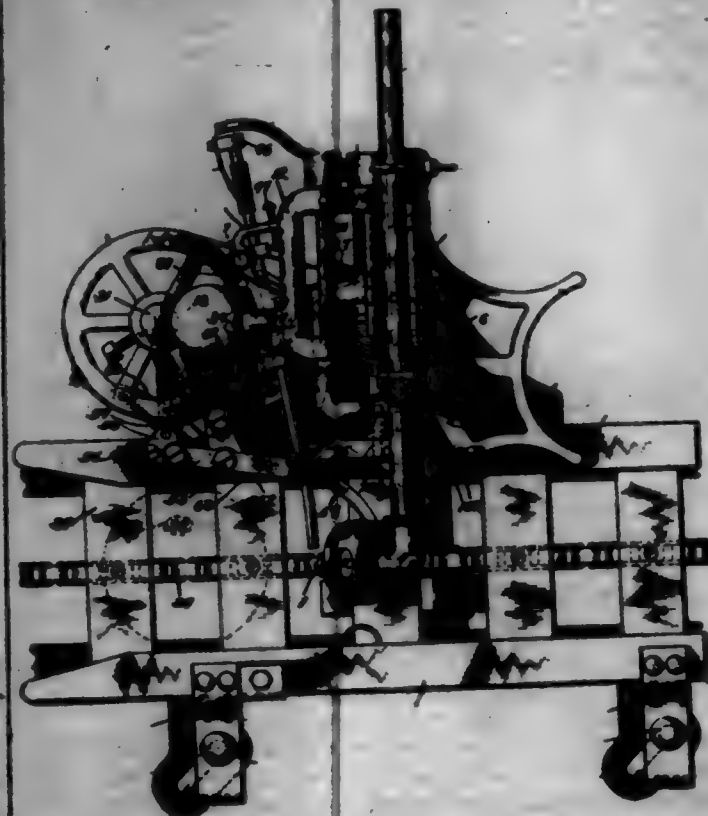
3. In a bale-tie, the combination of means for anchoring one end of the bale-tie combined with means for anchoring the other end thereof, the said last-mentioned means comprising a series of fingers, each finger having a front edge inclined to the axis of the tie and a rear edge of substantially right angles thereto and adapted to engage the strap.

4. In a bale-tie the combination of a back bar having a loop at or near one end and a series of fingers at or near the other end, the said fingers having inclined front edges and rear edges substantially at right angles to the axis of the tie and adapted to engage the strap.

5. A bale-tie embodying in its structure a back bar and a plurality of loops at or near one end and a series of pointed fingers at or near the other end having their front edges inclined with respect to the axis of the bale-tie.

6. The combination of cross-bars a, c, a strap passing around the middle cross-bar d and beneath the edge of cross-bar c, and fingers h, i, j, the other end of the said strap passing around the cross-bar c and under and over adjacent fingers h, i, j.

701,260. TIPPING-MACHINE. PAUL C. DUNDON, Chicago, Ill., assignor of one-half to A. W. WARD, Chicago, Ill. Filed June 7, 1901. Serial No. 94,084. (No model.)



Claim.—1. In a machine for tipping cans, the combination of a tipping implement, means for advancing the can while being tipped, normally inactive, but permanently in readiness to operate thereon, means for imparting motion to said advancing means and tipping implement independently of the can, and means adapted to be released by the can for arresting the operation of the last-said means, substantially as set forth.

2. In a tipping-machine, the combination of a tipping implement, means for advancing the can while being tipped, means independent of the can operatively related to and exerting a permanent tendency on said tipping implement and advancing means for actuating them, and a resistance adapted to be released by the can, for restraining the operation of said tipping implement and advancing means, substantially as set forth.

3. In a tipping-machine, the combination of a tipping implement, means for advancing the can while being tipped, normally inactive and permanently in readiness to operate thereon, means for imparting motion to said advancing means and tipping implement independently of the can, means adapted to be released by the can for arresting the operation of the last-said means, and means for feeding the cans into the embrace of said can-advancing means, substantially as set forth.

4. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame in which said implement is pivoted on an independent axis, and means for pulling said implement toward the can and longitudinally of the movement thereof, substantially as set forth.

5. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame, a second frame pivotally mounted on said first frame and in which said implement is adjustably clamped, and means for pulling said implement toward the can and longitudinally of the movement thereof, substantially as set forth.

6. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame, a second frame pivotally mounted on said first frame, clips or clamps holding said implement on said second frame, with capability of axial and transverse adjustment, and means for oscillating said frames for holding the implement against the can, substantially as set forth.

7. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame, in which said implement is pivoted on an independent axis, and means flexibly connected with said implement for holding it in contact with the can, substantially as set forth.

8. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame, in which said implement is pivoted on an independent axis, and means for oscillating said implement lengthwise of the line of movement of the can, substantially as set forth.

9. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced

frame, in which said implement is pivoted on an independent axis, means for oscillating said implement lengthwise of the line of movement of the can and holding it in contact therewith while going with the can, and means for lifting said implement above the can when going in the opposite direction, substantially as set forth.

10. In a tipping-machine, the combination of a tipping implement, means for guiding a can past said implement, a pivoted counterbalanced frame in which said implement is pivoted on an independent axis, and means for pulling said implement downwardly and laterally, lengthwise of the line of movement of the can, substantially as set forth.

11. In a tipping-machine, the combination of a tipping implement movable axially and transversely, means yieldingly connected with said implement for oscillating it transversely, and means for holding said implement elevated during one of its transverse movements, substantially as set forth.

12. In a tipping-machine, the combination of a tipping implement yieldingly supported, so as to conform to the can to be tipped, and means for oscillating the point of said implement transversely in two different lines of movement, whereby it will touch the can going one way and be aloof from the can going the other way, substantially as set forth.

13. In a tipping-machine, the combination of a tipping implement movable axially and transversely, a sling movable transversely with said implement and having a shoulder, and means movable axially and transversely with said implement and adapted to engage said shoulder and support the implement against downward movement when oscillating in one direction, substantially as set forth.

14. In a tipping-machine, the combination of a tipping implement movable axially and transversely, a swinging sling having a shoulder, movable with said implement transversely, and also having a limited, independent movement thereof, and a leg operatively connected with said implement and adapted to engage said shoulder, for supporting said implement against axial movement when oscillating in one direction, substantially as set forth.

15. In a tipping-machine, the combination of a tipping implement movable transversely and axially, a swinging sling movable transversely with said implement and also independently thereof, and provided with a shoulder on one side and a notch or depression on the other side, and a leg operatively connected with said implement and arranged to engage alternately with said shoulder and in said notch, substantially as set forth.

16. In a tipping-machine, the combination of a tipping implement, a pivoted frame, in which said implement is pivotally supported on an independent axis, a swinging sling, having its axis of oscillation concentric with said independent axis, and provided with a shoulder, and a leg movable with said implement and adapted to rest upon said shoulder, as the implement moves in one direction, substantially as set forth.

17. In a tipping-machine, the combination of a tipping implement movable transversely and axially, a sling having a shoulder on one side and a depression on the other, and being movable transversely with said implement, a leg operatively connected with said implement and movable in unison therewith, and adapted to rest alternately in said depression and upon said shoulder, and means yieldingly connected with said implement for first pulling it axially and causing said leg to engage in said depression, and then transversely and upwardly, causing the shoulder to drop into engagement with said leg, substantially as set forth.

18. In a tipping-machine, the combination of a tipping implement movable axially and transversely, and a crank yieldingly connected with said implement, for imparting the said movements thereto, substantially as set forth.

19. In a tipping-machine, the combination of a tipping implement movable axially and transversely, and a crank elastically connected with said implement for imparting the said movements thereto, substantially as set forth.

20. In a tipping-machine, the combination of a tipping implement movable axially and transversely, a crank, and a bowed spring connecting said crank with said implement, for imparting the said movements thereto, substantially as set forth.

21. In a tipping-machine, the combination of a tipping implement movable axially and transversely, a crank, on elastic connection between said crank and implement, and means for rocking said crank back and forth throughout a partial revolution, for imparting the said axial and transverse movements to said implement, substantially as set forth.

22. In a tipping-machine, the combination of a tipping implement movable axially and transversely, the pivoted swinging sling 74 movable transversely therewith, a leg operatively connected with said implement and movable in unison therewith and engaging in said sling, said sling having a shoulder on one side for supporting said leg, a bowed spring operatively connecting said crank and tipping implement together, and means for rocking said crank back and forth a partial revolution, substantially as set forth.

23. In a tipping-machine, the combination of a tipping implement,

movable axially and transversely, means for yieldingly supporting said implement, a crank operatively and yieldingly connected with said implement, for oscillating it, and a rest operatively connected with said implement and adapted to engage said crank for holding said implement against downward or axial movement independently of said crank, substantially as set forth.

24. In a tipping-machine, the combination of a tipping implement, a crank operatively connected therewith, a guideway for the can, a turnstile operatively related to said guideway, and means for operatively connecting said turnstile with said crank for operating the tipping implement, substantially as set forth.

25. In a tipping-machine, the combination of a tipping implement, a crank operatively connected therewith, a guideway for the can, a turnstile having points or projections operatively related to said guideway and adapted to be engaged by the can, an oscillatory member operatively connected with said crank for oscillating the latter and operatively related to and adapted to be actuated by the points of said turnstile, substantially as set forth.

26. In a tipping-machine, the combination of a tipping implement, a crank operatively connected therewith, a guideway for the can, a turnstile operatively related to said guideway, an oscillatory member operatively related to and adapted to be thrown in one direction by said turnstile, a spring for throwing said member in the opposite direction, and means operatively connecting said member with said crank for oscillating the latter, substantially as set forth.

27. In a tipping-machine, the combination of a tipping implement, a crank operatively connected with said implement, a guideway for directing the cans past said implement, a turnstile operatively related to said implement and guideway, an oscillatory member operatively related to and adapted to be actuated by said turnstile, and a band operatively connecting said member and crank, substantially as set forth.

28. In a tipping-machine, the combination of a tipping implement, a guideway for directing the cans past said implement, a turnstile operatively related to said guideway and implement, means exerting a permanent tendency to revolve said turnstile, means for arresting the rotation of said turnstile, adapted to be released by the cans on said guideway, and means for imparting the movement of said turnstile to said tipping implement for actuating the latter, substantially as set forth.

29. In a tipping-machine, the combination of a tipping implement, a guideway for directing the cans past said implement, a turnstile operatively related to said implement and guideway, a friction-clutch operatively connected with said turnstile, means for permanently driving said clutch, means for arresting the rotation of said turnstile, arranged to be released by the cans on said guideway, and means for imparting the movement of said turnstile to said tipping implement for actuating the latter, substantially as set forth.

30. In a tipping-machine, the combination of a tipping implement, a guideway for the can, a turnstile operatively related to said implement and guideway, means for imparting a constant relative tendency to said turnstile, means for arresting the rotation of said turnstile, arranged to be released by the cans on said guideway, and means operatively connecting said member with said tipping implement, substantially as set forth.

31. In a tipping-machine, the combination of a tipping implement, a guideway for the can, a turnstile operatively related to said implement and guideway, and having radial projections or points, means for imparting a constant relative tendency to said turnstile, means for arresting the rotation of said turnstile, arranged to be released by the cans on said guideway, an oscillatory member arranged in the circle described by said points and adapted to be struck thereby, and moved in one direction, means for throwing said member in the opposite direction, and means operatively connecting said member with said tipping implement, substantially as set forth.

32. In a tipping-machine, the combination of a tipping implement, a guideway for the can, a turnstile operatively related to said implement and guideway and having radial points, means for imparting a constant relative tendency to said turnstile, a dog arranged to be engaged by said points for arresting the rotation of said turnstile, a trigger, projecting across said guideway and operatively connected with said dog, whereby the cans will release the latter, and means for imparting the movement of said turnstile to said tipping implement, substantially as set forth.

33. In a tipping-machine, the combination of a tipping implement, a guideway for the can, a turnstile operatively related to said implement and guideway, means for imparting a constant relative tendency to said turnstile, a pivoted dog for arresting the rotation of said turnstile, a trigger pivotally connected to said dog and projecting across said guideway at one end, a bell-crank, pivotally connected with the other end of said trigger, a spring having abutment against said dog and connection with

mid bell-crank, and means for imparting the movement of said turntable to said tipping implement, substantially as set forth.

34. In a tipping-machine, the combination of a tipping implement, means for controlling the same, and means for feeding the roller thereto operatively connected with means for operating the tipping implement, substantially as set forth.

35. In a tipping-machine, the combination of a tipping implement, a guideway for the same, a turntable operatively related to said implement and guideway, and having points, a roller-holder, feeding mechanism for the roller in said holder, having a member located in the circle described by said points, for actuating the same, and means for imparting the motion of said turntable to said tipping implement, substantially as set forth.

36. In a tipping-machine, the combination of a tipping implement, a cam-conveyor, guideways for the same on said conveyor, a turntable operatively related to said implement and guideway, means for imparting a constant relative tendency to said turntable, means for arresting the rotation of said turntable, having a trigger projecting across the path of the cam and adapted to be released thereby, means for imparting the movement of said turntable to said tipping implement, and a spring arranged opposite said trigger for overriding the same thereagainst, substantially as set forth.

37. In a tipping-machine, the combination of a tipping implement, relatively adjustable guideways for the same, a trigger projecting across the path of the cam on said guideways, a spring for returning the cam after engaging said trigger, secured to one of said guideways and being movable therewith at an oblique angle to the line of movement of said cam, and means for actuating said tipping implement when said trigger is engaged, substantially as set forth.

701,261. HYDRAULIC-MACHINE. FREDERICK B. GLASS, Quincy, Mass., assignor to Perkins Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Mar. 25, 1902. Serial No. 63,764. (No model.)



Claim.—1. The combination with the longitudinally and laterally movable punch; of the lever act, the upper act normally standing substantially in line therewith; a spring normally holding said upper act, said spring yielding when the said upper act is engaged by the punch and restoring said upper act when the punch rises from the material; and a portion of the upper act adapted to engage the side of the punch to guide and position the upper act.

2. The combination with the longitudinally and laterally movable punch; of a presser-foot; a lower act; an upper act movably mounted in said presser-foot and provided with a restoring-spring, said upper act normally standing over the lower act but being moved out of the way by the punch; and supporting and engaging portions of the punch to support and guide the act during the cutting or shearing operation.

3. In a cutting-machine, a lower act; a presser-foot to retain the material during the cutting operation; an upper act contained in said presser-foot; means for moving said upper act into alignment with said lower act after the punching operation; and a punch arranged to move laterally in said lower act, and to move said upper act out of alignment with said lower act.

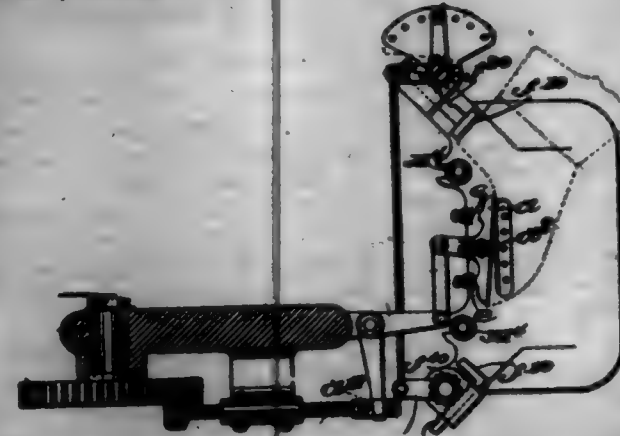
4. In an oscillating-machine, a punch adapted to punch and feed the material; a lower act; a presser-foot; and an upper act spring-supported in said presser-foot and normally standing over the lower act, said upper act being moved out of the way by the punch in the feeding movement thereof.

701,263. HYDRAULIC-MACHINE. FREDERICK B. GLASS, Quincy, Mass., assignor to Perkins Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Apr. 6, 1901. Serial No. 64,607. (No model.)

Claim.—1. In an oscillating-machine provided with a gang of punches and a gang of cutting devices, a gage adjacent to the punches and cutting devices, and having an elongated gaging portion to extend some distance along the edge of the material, said gage being movable around an axis midway between the ends of the gang of tools; and means for automatically moving said gage on said axis after each cutting operation, as set forth.

2. In an oscillating-machine provided with a gang of punches, an edge-gage for the material pivotally supported at a point midway between the ends of said gang of punches; stops to limit the pivotal movement thereof; an actuating member connected with said gage; and means

for moving said member in one direction at the end of one cycle of operations, and in the other direction at the end of the next cycle of operations, as set forth.



3. In an oscillating-machine of the class described, the pivotally-supported edge gage for the material; an operating-rod connected with said gage to produce a movement thereof on its pivot; a cam cooperating with said rod arranged to produce a movement thereof in one direction substantially at the end of half a revolution of said cam, and a movement thereof in the other direction substantially at the end of the other half-revolution; and means for connecting the said cam with the operating-shaft of the machine to cause the said cam to make one revolution at each two revolutions of said shaft, as set forth.

4. In an oscillating-machine of the class described, a gage for the edge of the material pivotally supported; a reciprocating operating member for moving the said gage on its pivot; adjustable stops to limit the pivotal movement of said gage in either direction; and a yielding connection between the said gage and the said reciprocating operating member, as set forth.

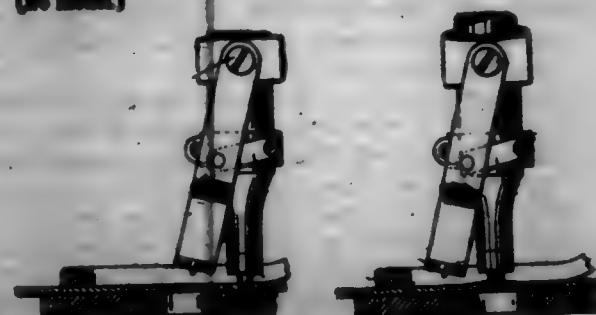
5. In a machine for oscillating sheet-rollers in which bearing-rolls have been previously inserted, the combination with means for punching a plurality of holes in the material and cutting a plurality of cycles therein by a single cycle of operation; of a gage for the material so positioned as to cooperate with a previously-inserted bearing-roll, substantially as described.

6. In an oscillating-machine for consecutively cutting a gang of cycles in the right and left members of a sheet-roller, an end gage for each of said members; and an adjusting device for the said end gages which is common to both, as set forth.

7. In an oscillating-machine for consecutively cutting cycles in the two members of an upper previously supplied with bearing-rolls; a gage for each member of the upper below the support for the material to cooperate with one of the bearing-rolls; an adjusting-piston; and a rack connected with each gage, the said racks intermeshing with opposite sides of the said piston whereby the said gages may be equally adjusted in opposite directions at one operation, as set forth.

8. In an oscillating-machine, the combination with a tubular punch provided with an annular shearing-surface; of an anvil to cooperate with the said punch in perforating the material; means for bringing the said punch and anvil together; a spring-support for the material normally projecting above the said anvil and having an opening for the punch and anvil, the strength of the springs for said support being sufficient to force the material onto the punch after the material is perforated, substantially as described.

701,268. HYDRAULIC-MACHINE. FREDERICK B. GLASS, Quincy, Mass., assignor to Perkins Machinery Company, Boston, Mass., a Corporation of Massachusetts. Filed Oct. 29, 1901. Serial No. 66,478. (No model.)



Claim.—1. In an oscillating-machine, the combination with a punch having a longitudinal movement to punch the material; of a cutting-die connected with a rigid support to thereby contain the thrust; means for laterally moving said cutting-die into and out of alignment with the longitudinal axis of said punch; and a cooperating setting-die, as set forth.

2. In an oscillating-machine, the combination with a punch; of means for reciprocating said punch to perforate the material; a setting-die having a pivotal support which does not partake of the reciprocating movement of the punch; means for connecting the said punch with said setting-die whereby the latter is swung into and out of alignment with the punch in response to the reciprocating movement thereof; and a cooperating setting-die, as set forth.

3. In an oscillating-machine, the combination with a punch having a reciprocating movement; of a laterally-movable carrier for said punch; a setting-die having a pivotal connection with said carrier; means for swinging said die on said pivot into and out of alignment with said punch; and a cooperating setting-die, as set forth.

4. In an oscillating-machine, a reciprocating punch; a setting-die having a support stationary with relation to the punch; adjustable means for connecting said die with said punch; and a cooperating setting-die, as set forth.

5. In an oscillating-machine, a reciprocating punch; a setting-die having a pivotal support; a link connecting said punch with said die; and a cooperating setting-die, as set forth.

6. In an oscillating-machine, a punch having a reciprocating movement; a laterally-movable carrier for said punch; a setting-die having a pivotal connection with said carrier; a link connecting said punch with said die; and a cooperating setting-die, as set forth.

701,264. GAGE-ROD. ALFRED J. GRAY, Fitch, Wis., assignor of one-half to Eugene A. Gray, St. Paul, Minn. Filed May 14, 1901. Serial No. 66,482. (No model.)



Claim.—1. A gage-rod, comprising a barrel, a striking-pin and a hammer therein, means yieldingly connecting the striking ends of said pin and hammer, and means provided near the end of said barrel for co-operating with said pin to hold it stationary while the hammer is being retracted, substantially as described and for the purpose specified.

2. A gage-rod, comprising a barrel, a striking-pin and an actuating-hammer therein, means provided within said barrel between the striking ends of said pin and hammer for yieldingly holding them together but permitting the hammer to be retracted to drive forward the pin when released, substantially as described.

3. The combination, with a barrel having a tapered surface, of a striking-pin having a correspondingly-shaped surface to engage the tapered surface of said barrel, a hammer, and means for actuating the same to project said pin, substantially as described.

4. The combination, with a barrel, of a striking-pin adapted to be wedged in the end thereof, and a spring-actuated hammer, substantially as described.

5. The combination, with a barrel having a tapered ferrule in its end, of a striking-pin having a sleeve or collar to engage said ferrule, and a spring-actuated hammer for projecting said pin.

6. The combination, with a barrel, of a striking-pin adapted to be normally wedged in the end thereof, and means for actuating said pin.

7. The combination, with a barrel having a tapered ferrule in its end, of a striking-pin provided with a surface having a corresponding taper to engage said ferrule, a hammer, and means for actuating said hammer to project said pin, substantially as described.

8. The combination, with a barrel, of a striking-pin, an actuating-hammer, a spring interposed between said pin and hammer and having its ends attached thereto respectively, whereby when the hammer is withdrawn the pin will be retracted also and driven forward by the impact of the hammer when released.

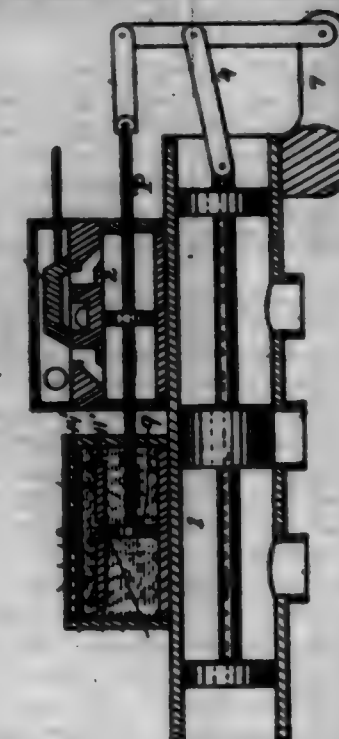
9. The combination, with a barrel having a tapered ferrule in its end, of a striking-pin having a sleeve provided with a corresponding taper to engage said ferrule, and a spring-actuated hammer for projecting said pin.

10. In a gage-rod, the combination, with a barrel of a striking-pin provided in one end of said barrel, a hammer in the opposite end, a coil-spring provided between the striking ends of said pin and hammer and yieldingly connecting the same, said spring being normally under tension to hold said pin stationary in the end of the barrel and being put under greater tension when said hammer is retracted to project said pin when the hammer is released, substantially as described.

701,265. SLOW-CLOSING DEVICE FOR HYDRAULIC-ELEVATOR VALVE. LOUIS E. KAMMERER, New York, N.Y., assignor to the Franger Elevator Company, Worcester, Mass. Filed May 24, 1902. Serial No. 68,668. (No model.)

Claim.—1. The combination with a three-way valve which is adapted to be closed when in an intermediate position, of a slow-closing device

having a moving part thereof connected to said valve, means for permitting the movement of said moving part at a predetermined speed from an intermediate position in either direction, and means for restricting the speed at which it may be moved toward said intermediate position.



2. The combination with a hydraulic-elevator valve which is adapted to be moved from an intermediate position to open the supply to and discharge from the elevator-cylinder, a slow-closing device connected to said valve, consisting of a cylinder, a piston therefor, means for permitting a free discharge of the fluid in said cylinder as the piston is moved toward either end of said cylinder, and means for restricting the supply of fluid to either end of said cylinder as said piston is returned to its intermediate position, whereby said valve may be opened quickly to supply or exhaust, but will be retarded in its movement to its closed position.

3. A device for regulating the opening and closing movements of a three-way valve, consisting of a cylinder, a piston therefor, means for permitting the unrestricted circulation of fluid past said piston when it is moved from an intermediate position in said cylinder in either direction, and means for automatically restricting the circulation past said piston as it is moved toward said intermediate position.

4. A slow-closing device for a three-way valve, consisting of a closed cylinder, a piston therefor, an enlarged passage connected to each end of said cylinder and to an intermediate portion thereof, check-valves in said passages arranged to permit a free flow of the fluid in said cylinder from either end toward the center thereof, and means for permitting a restricted flow toward either end of said cylinder.

5. A slow-closing device for a three-way valve, consisting of a closed cylinder, a piston therefor, an enlarged passage connected to each end of said cylinder and to an intermediate portion thereof, check-valves in said passages arranged to permit a free flow of the fluid in said cylinder from either end toward the center thereof, and a restricted by-pass around said check-valves.

6. A slow-closing device for a three-way valve, consisting of a closed cylinder, a piston therefor, an enlarged passage connected to each end of said cylinder and to an intermediate portion thereof, check-valves in said passages arranged to permit a free flow of the fluid in said cylinder from either end toward the center thereof, a restricted by-pass around said check-valves, and a valve in said by-pass for regulating the flow therethrough.

7. A slow-closing device for a three-way valve, consisting of a closed cylinder, a piston therefor, a passage connecting each end of said cylinder to an intermediate portion thereof, check-valves therein arranged to permit a free flow of fluid from the ends toward the middle of said cylinder, means for regulating the flow through said passages and means for permitting a restricted flow in the opposite direction.

8. The combination with a hydraulic-elevator valve, which when moved from its middle position in one direction will connect the elevator-cylinder with the supply and in the other direction with the exhaust, a slow-closing device for said valve consisting of a cylinder, a piston therefor, connected to a moving part of said valve, and arranged to be in the central position of its travel when the valve is in its closed position, means for permitting a free circulation past said piston as it is moved in either direction from its central position, and means for preventing a correspondingly free circulation past said piston as it is moved from one of its extreme positions to its middle position, substantially as described.

9. A device for regulating the opening and closing movements of

a three-way valve, consisting of a cylinder containing a fluid, a piston therefor, passages connected to said cylinder, means for alternately closing said passages as the piston is moved in different directions, and a constantly-open passage, relatively smaller than said first-named passages, through which fluid may flow when either of the first-named passages is closed.

10. A device for regulating the opening and closing movements of a three-way valve, consisting of a cylinder containing a fluid, a piston therefor, passages connected to said cylinder, means for alternately closing said passages as the piston is moved in different directions, a constantly-open restricted passage, relatively smaller than the first-named passages, through which the fluid may flow when either of said passages is closed, and means for regulating the flow through all of the above-named passages.

11. A device for regulating the opening and closing movements of a three-way valve, consisting of a cylinder containing a fluid, a piston therefor, means for permitting a free circulation of fluid past said piston as it is moved from the center of said cylinder toward either end thereof, means for permitting only a restricted return flow past said piston as it is moved toward the center of said cylinder, and means for gradually restricting the freedom with which the fluid may pass the piston as it is moved from either end toward the center of the cylinder, whereby the speed at which the piston may be returned is correspondingly reduced as it approaches the center of the cylinder.

12. A device for regulating the opening and closing movements of a three-way valve, consisting of a cylinder containing a fluid, a piston therefor, means for permitting a free circulation of fluid past said piston as it is moved from the center of said cylinder toward either end thereof, means for permitting only a restricted return flow past said piston as it is moved toward the center of the cylinder, and means for varying the freedom with which the fluid may pass the piston, whereby the speed at which the piston may be moved by the valve during such predetermined movements is correspondingly varied.

13. The combination with an elevator-valve which is adapted to be closed when in an intermediate position and be opened when moved in either direction from said position, an automatic speed-regulating device having a moving part thereof connected to said valve, means for permitting comparatively free movements of said moving part in either direction from an intermediate position, and means for automatically varying the speed at which said part may be returned from an extreme to said intermediate position, whereby the speed of said valve in its closing movements may be made different at different points therein.

14. The combination with an elevator-valve which is adapted to be closed when in an intermediate position and be opened when moved in either direction from said position, an automatic speed-regulating device having a moving part thereof connected to said valve, means for permitting comparatively free movements of said moving part in either direction from an intermediate position, and means for automatically varying the speed at which said part may be returned from either extreme to said intermediate position, whereby the speed of said valve in its closing movements may be made different at different points therein.

15. The combination with an elevator-valve which is adapted to be closed when in an intermediate position and opened when moved in either direction from said position, a slow-closing device comprising a piston and cylinder, one of which parts is fixed and the other movable, connections between the movable part of said device and said valve, whereby said piston is in an intermediate position with respect to said cylinder when said valve is in its closed position, means for permitting a comparatively free circulation of fluid past said piston when said valve is moved in either direction, and means for correspondingly restricting said circulation when said valve is returned to its closed position, so that the speed of said valve in closing is correspondingly reduced.

701,266. COVERED ROLLER FOR COTTON-MACHINES. OLIVER H. HATHAWAY, Central Falls, and WILLIAM H. BRUNNEN, Providence, R. I. Filed Dec. 2, 1899. Serial No. 33,696. (No model.)



Claim.—A top roll for use in cotton-machines, which comprises a spindle having a speed with square ends formed integral therewith at its center, a roller having a covering of cloth and an outer covering of leather mounted on each end of said spindle, said rollers having square ends engaging the ends of the spindle, their other ends extending in vertical alignment with the ends of the spindle, a washer carrying a flange and a shank, the shank being secured in the ends of the spindle with the flange engaging the outer end of the roller, and a screw concentric in said washer

extending through the shank and secured in the spindle, substantially as described.

701,267. SHEET-METAL FASTENING-CLASP. FREDERICK R. HENNE, Louisville, Ky., assignor of two-thirds to CURRAN PAPA and ALFRED THURSTON PAPA, Louisville, Ky. Filed Aug. 26, 1901. Serial No. 73,067. (No model.)



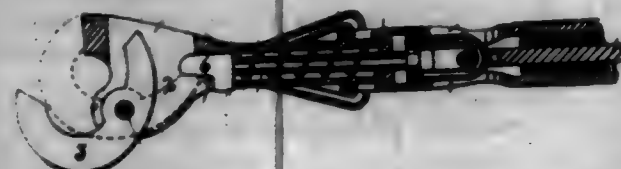
Claim.—1. A holding-clasp composed of a single piece of sheet metal, having a substantially vertical body provided with horizontal flanges at each lower corner, a tongue extending from the upper edge of the vertical body, a notch in the lower edge of said body and between the horizontal flanges, and points struck from the body and extending in opposite directions to the flanges, substantially as described.

2. A sheet-metal holding-clasp having a tongue projecting centrally from one edge and having a corresponding notch at the other edge and a bent flange at each side of said notch, and having integral points projecting from its back, substantially as described.

3. A holding-clasp of sheet metal having a body and flanges extending from one edge of said body, and having a central tongue extending from the other edge of said body, and having points struck from the body with their flat faces vertical, said points projecting in opposite directions from the flanges, substantially as described.

4. The combination with a barrel or package, of a holding-clasp of sheet metal, having its body lying against the chime of the package, a flange against the head of the package, integral points entering the inner face of the chime, and a tongue extending over the end and into the outside of the package, as set forth.

701,268. BELMORING HITCHING-STRAP. ARTHUR H. HOWARD and GEORGE F. LOW, Ogdensburg, N. Y. Filed Sept. 24, 1901. Serial No. 75,442. (No model.)



Claim.—1. In a hitching device, a strap-head carrying an abutment at its one end with a gravity-hook mounted in the strap-head beneath the abutment and having its ends playing on opposite sides of the abutment, and horizontally-movable means adapted for engagement with one end of said gravity-hook to secure the other end thereof in engagement with said abutment.

2. In a hitching device, a strap-head carrying an abutment and spring-pressed engaging means, a gravity-hook mounted intermediate of its length in the strap-head, one end of said hook playing between said abutment and spring-pressed means and adapted to be engaged by the latter, the other end of said hook playing on the opposite side of the abutment and adapted to form a locking engagement therewith.

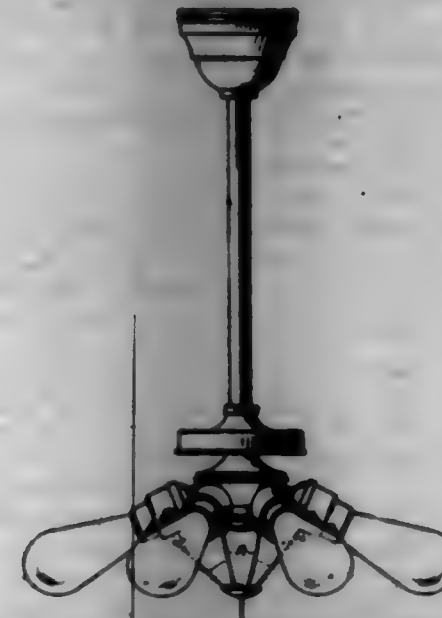
3. In a hitching device, a strap-head comprising jaws and an abutment carried thereby, a gravity-hook mounted intermediate of its length between said jaws and adapted to have one of its ends engage said abutment, spring-pressed means mounted in the strap-head adapted for engagement with the opposite end of said hook, means carried by said means and operatively through an opening provided therefor in the strap-head whereby the first-named means may be retracted, a hollow flexible connection secured at its one end to the strap-head and adapted to have its other end secured in the stall, and means operating through said connection and secured to said spring-pressed means whereby the said means may be automatically retracted.

4. In a hitching device, a strap-head carrying an abutment, and having a gravity-hook mounted therein intermediate of its length, with its ends extending beyond said abutment in opposite directions, spring-actuated means adapted for engagement with one of said ends of the hook whereby the opposite end thereof forms a locking engagement with said abutment, and a connection secured to the strap-head and carrying means for retracting said first-named means, substantially as described.

5. In a hitching device, a strap-head carrying an abutment and

having a gravity-hook mounted intermediate of its length therein, the ends of said gravity-hook being free and extending on opposite sides of the abutment, and sliding spring-pressed means adapted to engage over one of said ends of the hook to cause the other end thereof to form a locking engagement with the other face of the abutment.

701,269. SWITCH-CLUSTER-OPERATING DEVICE. HARVEY HUBBELL, Bridgeport, Conn. Filed Sept. 4, 1901. Serial No. 74,267. (No model.)



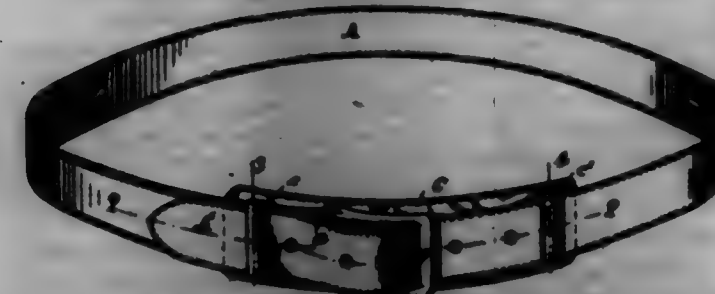
Claim.—1. A switch-operating device for lamp-clusters comprising a plurality of switch connections, a single operating connection, and a freely-movable coupling member flexibly connecting the latter with the former, whereby the operating connection may be pulled to simultaneously operate a plurality of switches or may be deflected to one side and pulled to operate any one of the switches.

2. A switch-operating device for lamp-clusters comprising a plurality of switch connections, a single operating connection, and a freely-movable coupling member flexibly connecting the latter with the former, whereby the operating connection may be pulled to simultaneously operate a plurality of switches or may be deflected to one side and pulled to operate any one of the switches, said switch connections and operating connection being detachably secured to the coupling member.

3. A switch-operating device for lamp-clusters comprising a series of switch connections, an operating connection and a coupling member, said coupling member comprising a plate having holes to receive the connections and curves engaging the plate and having heads adapted to engage and lock the connections, said heads being provided with recesses which will permit the connections to pass when the recesses and the holes in the plate are in alignment.

4. A switch-operating device for lamp-clusters consisting of a series of switch connections, an operating connection and a coupling member, said coupling member comprising a plate having holes to receive the connections, curves engaging the plate and having heads adapted to engage and lock the connections, said heads having recesses which will permit the connections to pass when in alignment with the holes, a cover-plate through which the operating connection passes and which covers the ends of the switch connections and means for securing said plate together.

701,270. BELT. LOUIS BRUNNEN, Brooklyn, N. Y., assignor to Adolf Mayer, Brooklyn, N. Y., and Samuel Friedman, New York, N. Y. Filed Sept. 26, 1901. Serial No. 73,760. (No model.)



Claim.—1. A belt, consisting of a belt-band, a buckle at one end thereof, a backing-strip arranged under said buckle, and secured to the buckle end of said belt-band, and loops arranged at opposite ends of said backing-strip, substantially as set forth.

2. A belt, consisting of a belt-band, a buckle, a backing-strip of greater width than said belt-band, and arranged to lie under said buckle in an approximately central position, and a loop at each end of said backing-strip, substantially as set forth.

701,271. PROCESS OF REDUCING FIBROUS MATERIAL TO PULP. CHARLES T. LEE, Boston, Mass., assignor to Ragusa Pulp Company, a Corporation of Maine. Filed July 21, 1901. Serial No. 70,418. (No specimens.)

Claim.—1. That improvement in the art or method of reducing fibrous material to pulp, which consists in dampening the material, immersing the dampened material in chlorine gas, and washing the product in water, as set forth.

2. That improvement in the art or method of reducing fibrous material to pulp, which consists in cutting, stripping or otherwise breaking up the material, dampening the same, immersing the dampened material in chlorine gas, and washing the product in water, as set forth.

3. That improvement in the art or method of reducing fibrous material to pulp, which consists in cutting, stripping or otherwise breaking up the material, dampening the same, immersing the dampened material in chlorine gas, and washing the product in water, as set forth.

4. That improvement in the art or method of reducing fibrous material to pulp, which consists in subjecting such material when damp to the action of chlorine gas, substantially as and for the purpose described.

5. That improvement in the art or method of reducing fibrous material to pulp, which consists in dampening the material and then subjecting it to the action of chlorine gas, substantially as and for the purpose described.

6. That improvement in the art or method of reducing fibrous material to pulp, which consists in subjecting such material when damp to the action of chlorine gas, washing the product in water, and subjecting the product to a bleaching agent, and again washing the same, substantially as described.

7. That improvement in the art or method of reducing lignose to pulp, which consists in subjecting the lignose when damp to the action of chlorine gas; substantially as described.

8. That improvement in the art or method of reducing lignose to a pulp, which consists in dampening the lignose and then subjecting it to the action of chlorine gas; substantially as described.

701,272. AIR-BRAKE CONNECTION. WILLIAM ENRI, Newark, N. J. Filed June 7, 1901. Serial No. 63,691. (No model.)

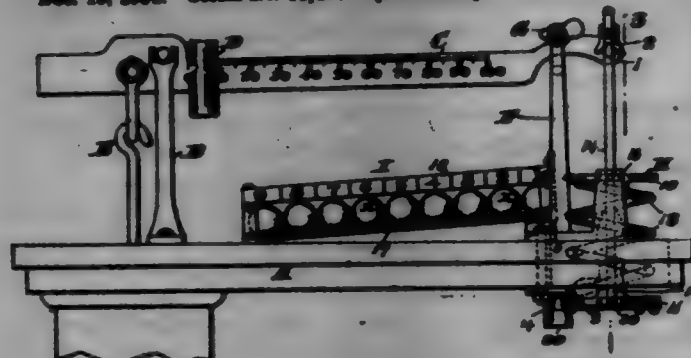


Claim.—1. The combination in an air-brake connection of the air-brake couplings A and A', the spiral steel tubing O and the woven hose B constructed with parallel, all constructed and combined substantially as hereinbefore described and shown.

2. The combination in an air-brake connection of the air-brake couplings A and A', the spiral steel tubing O coated with paraffin and the woven hose B saturated with paraffin, all constructed and combined substantially as hereinbefore described and shown.

3. The combination in an air-brake connection of the air-brake couplings A and A', the spiral steel tubing O and the woven hose B all constructed and combined substantially as hereinbefore described and shown.

701,278. SCALE. HORATIO R. CROOK, JR., Binghamton, N. Y., assignor of one-half to Daniel H. Winans, Binghamton, N. Y. Filed Dec. 19, 1901. Serial No. 95,496. (No model.)



Claim.—1. The combination with a scale-beam and poise, of a counterpoise on the beam, a weight-holder having a runway and series of weights adapted to move on said runway, said counterpoise and runway being arranged for the weights to pass over the runway to and from the counterpoise, and said runway being so constructed and arranged that any number of the weights may be transferred to the counterpoise while the remaining weights of the series are retained in the holder, substantially as described.

2. The combination with a scale-beam and poise, of a counterpoise on the beam, a weight-holder having a runway and series of spherical weights on said runway, said counterpoise and runway being arranged for the weights to roll over the runway to and from the counterpoise, and said runway being so constructed and arranged that any number of the weights may be transferred to the counterpoise while the remaining weights of the series are retained in the holder, substantially as described.

3. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a stop at the bottom of the spiral runway for holding the weights, a weight-holder having a runway and series of weights, said counterpoise and holder being arranged for the weights to pass over the holder-runway to and from the spiral counterpoise-runway, substantially as described.

4. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway adapted for spherical weights, a stop at the bottom of the spiral runway for holding the weights, a weight-holder having a runway and series of spherical weights, said counterpoise and holder being arranged for the weights to roll over the holder-runway to and from the spiral counterpoise-runway, substantially as described.

5. The combination with a scale-beam and poise, of a counterpoise on the beam, a weight-holder having a runway and series of weights adapted to move on said runway, said counterpoise and runway being arranged for the weights to pass over the runway to and from the counterpoise and for change of the relative position of the counterpoise and runway from the weighing position in which the weights may pass from the runway to the counterpoise into a position for the return of the weights from the counterpoise, and said runway being so constructed and arranged that any number of the weights may be transferred to the counterpoise while the remaining weights of the series are retained in the holder, substantially as described.

6. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a weight-holder having a runway and series of weights, said counterpoise and holder being arranged for the weights to pass over the holder-runway to and from the spiral counterpoise-runway, said counterpoise being normally in position to receive the weights at the top of the spiral runway and being mounted for return of the weights to the holder-runway from the bottom of the spiral runway, substantially as described.

7. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a weight-holder having a runway and series of weights, said counterpoise and holder being arranged for the weights to pass over the holder-runway to and from the spiral counterpoise-runway and a releasable stop at the bottom of the spiral runway, substantially as described.

8. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a weight-holder having a runway and series of weights, said counterpoise and holder being arranged for the weights to pass over the holder-runway to and from the spiral counterpoise-runway, a releasable stop at the bottom of the spiral runway, and means whereby said stop is released when the counterpoise is raised for returning the weights, substantially as described.

9. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a weight-holder having a fixed runway inclined downward from the counterpoise and series of weights, said counterpoise being mounted for movement from the weighing position in which the weights may pass from the runway to the counterpoise into a position for the return of the weights from the counterpoise, substantially as described.

10. The combination with a scale-beam and poise, of a counterpoise on the beam having a spiral weight-runway, a weight-holder having a fixed runway inclined downward from the counterpoise and series of weights, said counterpoise being mounted for movement from the weighing position in which the weights may pass from the runway to the counterpoise into a position for the return of the weights from the counterpoise, a releasable weight-stop on the counterpoise, and means whereby said stop is released when the counterpoise is raised for returning the weights, substantially as described.

11. The combination with a scale-beam and poise, of a counterpoise on the beam adapted to receive a number of weights, and a weight-holder having a runway and series of weights adapted to move thereon to the counterpoise for weighing and to move thereon from the counterpoise when the weights that have been transferred to the counterpoise are raised for return to the runway, and said runway being so constructed and arranged that any number of the weights may be transferred to the counterpoise while the remaining weights of the series are retained in the holder, substantially as described.

12. The combination with a scale-beam and poise, of a counterpoise on the beam adapted to receive a number of weights, and a weight-holder having a fixed runway inclined downward from the counterpoise and series of weights adapted to move thereon to the counterpoise for weighing and to move thereon from the counterpoise when the weights that have been transferred to the counterpoise are raised for return to the runway, substantially as described.

13. The combination with a scale-beam and poise and a series of weights, of a counterpoise adapted to receive the weights and having a vertical spiral weight-runway, substantially as described.

14. The combination with a scale-beam and poise, of a weight-holder on the beam having a runway and series of hardened-steel-ball counterpoise-weights, said runway being so constructed and arranged that any number of the weights may be transferred over the runway into position for use as counterpoise-weights, while the remaining weights of the series are retained on the runway and the weights used may be returned to the runway after weighing, substantially as described.

15. The combination with a scale-beam and poise, counterpoise and weight-holder, of a series of hardened-steel-ball weights in the holder, said counterpoise and holder being constructed and arranged for the transfer of any number of said weights from the holder to the counterpoise for weighing while the remaining weights of the series are retained in the holder and for returning the used weights from the counterpoise to the holder after weighing, substantially as described.

16. The combination with a scale-beam and poise and a series of spherical weights and runway therefor, of a counterpoise adapted to receive the weights, and having the open vertical spiral weight-runway 19 and central bar 12, substantially as described.

17. The combination with the scale-beam, poise and weights, of the counterpoise having the weight-runway, a weight-stop at the bottom of the runway, and guard 20, substantially as described.

18. The combination with the scale-beam and poise, of the weight-holder I having the inclined runway 17, a series of spherical weights a on said runway, counterpoise H suspended from the beam and having a spiral runway adapted to receive the weights a from the runway 17 at the top of the spiral runway and be lifted for the return of the weights from the bottom of the spiral runway, a releasable stop for holding the weights in the counterpoise, and a cut-off at the top of the counterpoise adapted to close the holder I and prevent weights passing from the holder to the counterpoise when the scale-beam is lowered, substantially as described.

19. The combination with the scale-beam and poise, of the weight-holder I having the inclined runway 17, a series of spherical weights a on said runway, counterpoise H suspended from the beam and having a spiral runway adapted to receive the weights a from the runway 17 at the top of the spiral runway and be lifted for the return of the weights from the bottom of the spiral runway, a stop 3 for holding the weights in the counterpoise, and means for tripping said stop to release the

weights when the counterpoise is raised for returning the weights to the holder, substantially as described.

701,274. RECEPTACLE FOR ETHYLCHLORIDE. LOUIS BERWANGER, New York, N. Y., assignor to Anglo Chemical Works, Broomfield, N. J., a Corporation of New Jersey. Filed Feb. 6, 1908. Serial No. 95,771. (No model.)



Claim.—1. In a device of the class described, the combination with a tube, of a cap attached thereto, means substantially as described for making a tight joint between the tube and the cap, and a screw secured in said cap.

2. In a device of the class described, the combination with a tube, of a non-adjustable cap attached to the tube by a threaded joint, means for locking said cap against rotation and providing a tight joint between the tube and the cap, and a screw attached to the cap.

3. In a device of the class described, the combination with a tube, of a non-adjustable cap attached to said tube by a threaded joint, a washer and nut within said cap and locking the same against rotation on the tube and forming a tight joint between said parts, and a screw.

4. In a device of the class described, the combination with a tube, of a non-adjustable chambered cap attached to said tube by a threaded joint, an elastic washer within said chamber of the cap, a nut screwed on the tube and impinging the washer, and a screw.

5. A device of the class described comprising a tube, a cap thereon, a screw screwed into said cap and provided with capillary jet-passages and with two series of capillary ducts, said series of ducts communicating individually with said jet-passages, and said jet-passages being disposed in converging relation and opening at different points through the active end or face of the screw, and a valve adapted to close the tube.

6. A device of the class described comprising a chambered cap, a screw screwed into said cap and provided with converging jet-passages which are supplied by a plurality of branching ducts adapted to communicate with said chamber, said jet-passages opening at different points of the active end or face of the screw, and a valve carried by the screw within the branching ducts and adapted to close the source of supply to the chamber of said cap.

7. A device of the class described, provided with a threaded tube, a cap screwed to said tube, a disk screwed on the tube, a spring-washer acting against said disk and screwing the threads thereof into engagement with the threads of the tube, and an adjustable screw attached to the cap.

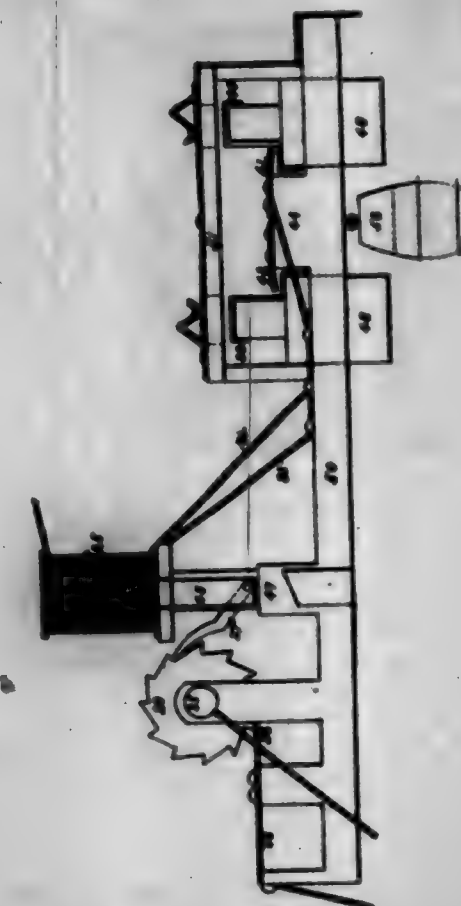
701,275. AUTOMATIC SIGNAL FOR ELECTRIC RAILWAYS. RALPH L. BROWN, Waterbury, Iowa, assignor to Western Railway Signal Company, Waterbury, Iowa. Filed July 25, 1901. Serial No. 95,670. (No model.)

Claim.—1. The combination with a frame supported above a trolley-wire and having openings, drop-blocks movable within said openings operated by gravity and fixed on their upper ends with conducting-plates, terminals adapted to make independent contact with said plates when the blocks are raised, a strip adapted to make contact with other plates when its block is raised, and circuits leading from said strip through a source of power and electromagnets to said terminals; of a spring-block supported by the frame between said drop-blocks and adapted so as to stand outside the trolley-wire, the spring-block being adapted when swung mechanically in either direction by a passing trolley-wheel to raise one of said drop-blocks and close the circuit, as and for the purpose set forth.

2. The combination with a frame supported above a trolley-wire and having openings, drop-blocks movable within said openings operated by gravity and fixed on their upper ends with conducting-plates, terminals adapted to make independent contact with said plates when the blocks are raised, a strip adapted to make contact with other plates when its block is raised, a main circuit including a source of power and the work to be performed, devices for making and breaking said main circuit, and a second circuit leading through said devices and a source of power to said terminals and plates; of means for permitting the trolley-wheel to pass beneath the first and to raise the second of said blocks mechanically when the car is passing in either direction, as and for the purpose set forth.

3. The combination with a frame supported above a trolley-wire and having openings, drop-blocks movable within said openings operated by gravity and fixed on their upper ends with conducting-plates, terminals adapted to make independent contact with said plates when the blocks are raised, a strip adapted to make contact with other plates when its block is raised, a main circuit including a source of power and the work to be performed, devices for making and breaking said main circuit, and

a second circuit leading through said devices and a source of power to said terminals and plates; of a spring-block suspended from the frame between the drop-blocks and adapted when swung in either direction by a passing trolley-wheel to raise one block mechanically and establish the second circuit above mentioned, as and for the purpose set forth.



4. The combination with two vertically-movable drop-blocks operated by gravity and fixed on their upper ends with conducting-plates, a supporting-frame having a projection between said blocks, terminals mounted on the projection and adapted to contact with other plates when its block is raised, and means for permitting a trolley-wheel to pass under the first of said blocks in either direction and to mechanically raise the second; of a dotted framework standing above the blocks, a strip centrally attached to said framework with its extremities adapted to contact with other plates when its block is raised, and circuits leading from said strip through a source of power and the work to be performed and to said terminals, as and for the purpose set forth.

5. The combination with two vertically-movable drop-blocks operated by gravity and fixed on their upper ends with conducting-plates, a supporting-frame having a projection between said blocks, terminals mounted on the projection and adapted to contact with other plates when its block is raised, and means for permitting a trolley-wheel to pass under the first of said blocks in either direction and to mechanically raise the second; of a dotted framework standing above the blocks, a strip centrally attached to said framework with its extremities adapted to contact with other plates when its block is raised, books standing above said extremities of the strip, and circuits leading through said books, a source of power, and the work to be performed, as and for the purpose set forth.

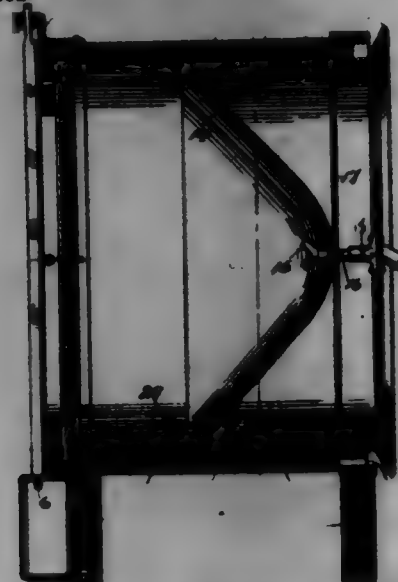
6. In an automatic signal for electric railways, the combination with drop-blocks movable vertically by impact upon them, of a trolley-wheel passing in either direction, and circuits including a source of power and two electromagnets through one of which an impulse is passed when a block is raised; of a second circuit including a pair of signals at opposite ends of the track-section, and devices for making and breaking this circuit which devices include two ratchet-wheels intermittently rotated when said magnets are alternately energized, as and for the purpose set forth.

701,276. LANTERN. GEORGE L. WILLIAMS, Calverton, Ill., assignor of one-half to F. Curtis Wilson, Chicago, Ill. Filed Aug. 15, 1901. Serial No. 71,097. (No model.)

Claim.—1. A lantern comprising a front casing closed at its front and open at its rear end, a rear casing closed at its rear and open at its front end, said casings being telescoped together and the outer casing being made smaller than the opening in the outer casing to afford venting-openings between them, and an inclined burner, substantially as described.

2. A lantern comprising an outer casing closed at its front and open

at its rear end, an inner casing open at its front and closed at its rear end, the inner casing being telescoped into the outer casing and made smaller in cross-section than the opening in the latter to afford ventilating-space between the casings, and an inclosed burner in the inner casing, substantially as described.



2. A lantern comprising an outer casing glazed at its front and open at its rear end, an inner casing open at its front and closed at its rear end, the inner casing being telescoped into the outer casing and made smaller in cross-section than the opening in the latter to afford ventilating-space between the casings, an annular shielding-flange at the rear of the ventilating-space, and an inclosed burner, substantially as described.

4. A lantern comprising an outer casing glazed at one end and open at the other, an inner casing telescoping into the open end of the outer casing and made smaller to provide an annular ventilating-space between the casings, a reflector in the inner casing facing toward the glazed end of the outer casing, and an inclosed burner.

5. A lantern comprising an outer casing, an inner casing telescoping into the outer casing and made smaller to afford a ventilating air-space between the casings, and an annular flange on the inner casing extending out behind the rear edge of the outer casing but separated therefrom so as to leave an outlet for the ventilating air-space.

6. A lantern comprising an outer casing, an inner casing telescoping into the outer casing, a spring-bearing between the casings, and an opposite latching device between the casings held normally in engagement by the pressure of the spring-bearing.

7. A lantern comprising an outer casing, an inner casing telescoping into the outer casing, a spring-bearing between the casings, and interlocking transverse and longitudinal ribs on the casings opposite the spring-bearing and normally held in engagement thereby.

8. A lantern comprising an outer casing, an inner casing telescoping into the outer casing, a spring supporting-plate in the outer casing against which the inner casing yieldingly rests, and latching members located between the casings opposite the spring-bearing and held normally interlocked thereby.

9. A lantern comprising an outer casing, an inner casing telescoping into the outer casing, a spring-bearing in the outer casing against which the inner casing yieldingly rests, longitudinal notched ribs on the outer casing opposite the yielding bearing, and a transverse rib on the inner casing normally held interlocked with the notched ribs by the pressure of the spring-bearing.

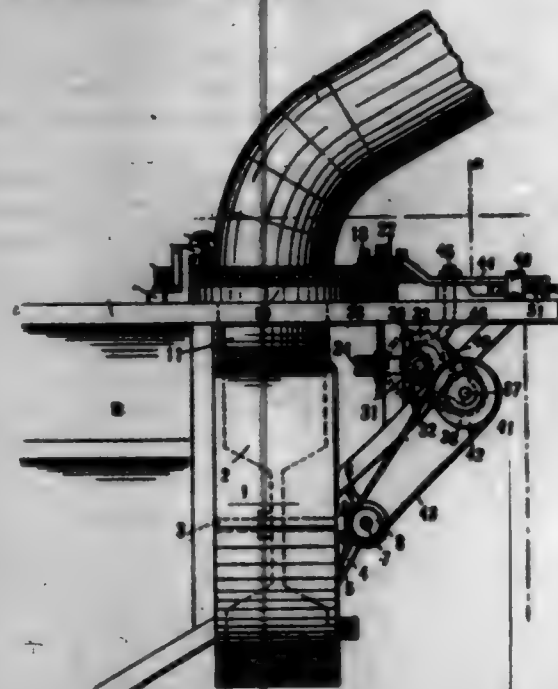
10. A lantern comprising an outer casing, an inner casing telescoping into the outer casing, a longitudinal rib on one casing and a transverse rib on the other casing interlocking therewith, said ribs being opposite the yielding bearing and normally held in engagement thereby, and steps embracing the longitudinal rib to prevent relative rotation of the casings.

11. A lantern comprising an outer casing, an inner casing telescoping into the outer casing and made smaller to provide a ventilating-space between the casings, a burner within the inner casing, a stem projecting forwardly through the rear wall of the casing and supporting the burner, a cross-bar on the casing behind its rear wall, and a fitting on said cross-bar to which said burner-stem is detachably connected.

REISSUES.

11,994. PNEUMATIC STRAW-SACKER. JOHN M. ANDREWS, Andrews, Tenn., assignor of two-fifths to A. P. Roberts and G. P. Roberts. Filed Feb. 7, 1902. Serial No. 98,092. Original No. 698,590. Issued Mar. 12, 1901.

Claim.—1. In a pneumatic straw-sacker, the combination of a stacker-tube having a master-wheel forming the pivotal support thereof, a loose pinion to rotate said master-wheel, a shaft and coupling steps to rotate said pinion and permit of the partial rotation of said shaft independently of said pinion, a shaft and connections to rotate said pinion-shaft, shifting mechanism to rotate said shaft in opposite directions alternately, and a shifting lever actuated by steps carried by said master-wheel, whereby said stacker-tube may be automatically swung from side to side and caused to "dwell" at the limits of its path at each change in the direction of its movement, substantially as described.



2. In a pneumatic straw-sacker, the combination of a stacker-tube having a master-wheel forming the pivotal support thereof, said master-wheel having sprocket-teeth, a loose sprocket-pinion, an endless sprocket-chain connecting said master-wheel and sprocket-pinion, a shaft and coupling steps to rotate said pinion and permit of the partial rotation of said shaft and connections to rotate said pinion-shaft, shifting mechanism to rotate said shaft in opposite directions alternately, and a shifting lever actuated by steps carried by said master-wheel, for the purpose set forth, substantially as described.

3. In a pneumatic stacker, the combination with the auxiliary discharge-tube thereof, of driving means therefor consisting in part of a gear, a shaft, a connection between said shaft and gear allowing a partial rotation of one independent of the other, and means for alternately driving one of said elements alternately in opposite directions.

4. In a pneumatic stacker, the combination with the auxiliary discharge-tube thereof, of driving-gear therefor consisting in part of a shaft, a gear mounted thereon, a pin carried by the shaft and a coupling pin carried by the gear in position to allow a relative rotation of the shaft or gear independent of the other, and means for automatically driving the independently-movable element alternately in opposite directions.

11,995. PROCESS OF MAKING SULFURIC ANHYDRIDE. HENRY S. RACKENBACH, Mount Vernon, N. Y. Filed Mar. 29, 1902. Serial No. 109,690. Original No. 694,022, dated Nov. 5, 1901.

Claim.—1. The process of producing sulfuric anhydride (SO₂), which consists in oxidizing sulfur dioxide by the action of metallic oxide, substantially as described.

2. The process of producing sulfuric anhydride, which consists in conveying sulfur dioxide in contact with metallic oxide at a temperature below the dissociating-point of sulfur trioxide.

3. The process of producing sulfuric anhydride, which consists in exposing a metallic oxide to the action of heated sulfur dioxide while maintaining the temperature below the dissociating-point of sulfuric anhydride.

4. The continuous process of producing sulfuric anhydride (SO₂) which consists in exposing metallic oxide to the action of sulfur dioxide at a temperature below the dissociating-point of sulfur trioxide, conveying the sulfur trioxide produced to a condenser, elevating the temperature of the metallic residue, passing oxygen over the same, cooling, separating the product to the action of more sulfur dioxide and continuing the process as before.

5. The process of producing sulfuric anhydride, which consists in exposing iron oxide to the action of sulfur dioxide in a heated state and maintaining the temperature below the dissociating-point of sulfuric anhydride, substantially as described.

6. The process of making sulfuric anhydride, which consists in oxidizing sulfur dioxide while maintaining the temperature below the dissociating-point of sulfur trioxide, substantially as described.

7. The process of producing sulfuric anhydride, which consists in conveying sulfur dioxide in contact with an oxidizing agent at a temperature below the dissociating-point of sulfur trioxide, substantially as described.

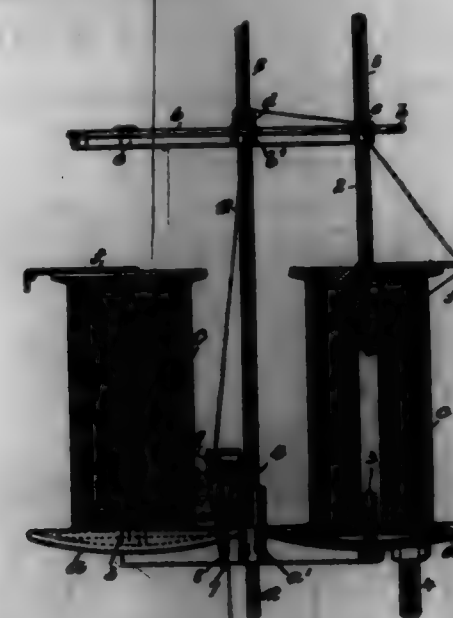
8. The process of making sulfuric anhydride, which consists in subjecting sulfur dioxide to the action of an oxidizing agent while maintaining the temperature below the dissociating-point of sulfur trioxide, substantially as described.

9. The process of making sulfuric anhydride, which consists in oxidizing sulfur dioxide and maintaining the temperature below the dissociating-point of sulfur trioxide by refrigeration, substantially as described.

10. The process of making sulfuric anhydride, which consists in mixing sulfur dioxide with oxygen while maintaining the temperature between the combining and dissociating points of sulfur trioxide by controlled heat and refrigeration, substantially as described.

11. The process of making a compound composed of one atom of sulfur and three atoms of oxygen which consists in mixing substances forming the compound while maintaining the temperature below the dissociating-point of sulfuric anhydride by refrigeration, substantially as described.

11,996. COMBINED SPOOL-HOLDER AND TENSION DEVICE FOR SEWING-MACHINES. ARTHUR I. JACOB, Hartford, Conn., assignor to the Smyth Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Mar. 7, 1902. Serial No. 97,807. Original No. 698,022, dated Dec. 17, 1901.



Claim.—1. A combined spool-holder and tension device, comprising a base-plate adapted to support the spools or bobbins, a top plate conforming thereto and having eyes for the threads, and standards for supporting the top plate above the base-plate and means for supporting the same adjacent to the base-plate and in line with one another, an independent bar carried by the top plate having eyes for the threads whereby the threads from the spools or bobbins pass up through the eyes in the top plate, down through eyes in the bar supported thereby, through the tension device supported by the base-plate and so to the needles of the sewing-machine, substantially as set forth.

2. A combined spool-holder and tension device, comprising a main or base plate with spool-supports arranged on three sides of a rectangular figure, a top plate having eyes for the threads, and standards for supporting the top plate above the base-plate and conforming in outline to the base-plate, standards from the base-plate for supporting the top plate, a bar having eyes for threads secured to the top plate parallel with the main portion of the top plate, a bar and means for supporting the same adjacent to the base-plate and substantially beneath the bar carried by the top plate and which latter bar is parallel with the main portion of the base-plate and tension devices in line with one another supported by the bar of the base-plate, substantially as set forth.

3. A combined spool-holder and tension device, comprising a series of connected circular disks arranged on three sides of a rectangular figure and adapted to support the spools or bobbins, standards rising therefrom, a top plate having eyes for the threads and means for supporting the same upon and clamping the same to the standards, pins carried by the top plate, rising above the same and adapted to support auxiliary spools, a center-bar parallel with the longer portion of the top plate and having eyes agreeing in number with the eyes of the top plate plus the number of pins for auxiliary spools, a bar parallel with the longer portion of the base-plate, and means for connecting and supporting the same adjacent to

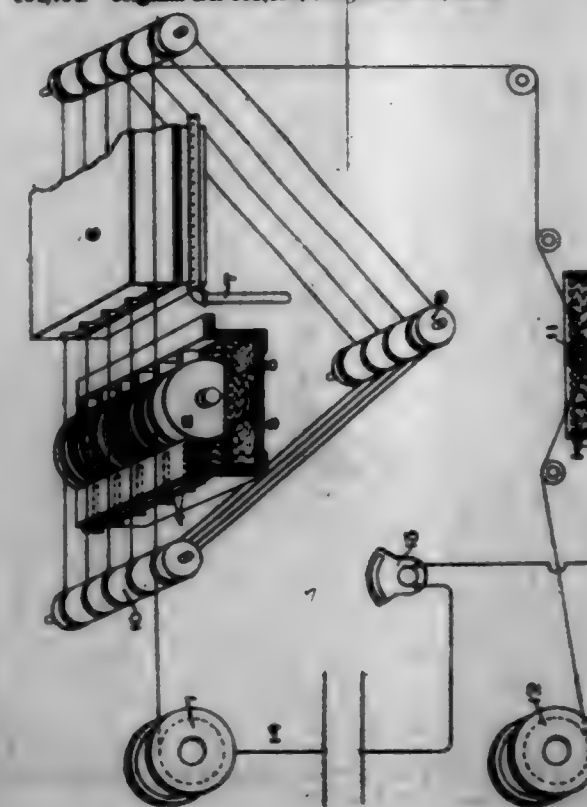
the base-plate and substantially below the bar carried by the top plate and tension devices supported by the latter bar, substantially as set forth.

4. A combined spool-holder and tension device, comprising a series of connected circular disks arranged on three sides of a rectangular figure and adapted to support the spools or bobbins, standards rising therefrom, a top plate having eyes for the threads and means for supporting the same upon and clamping the same to the standards, pins carried by the top plate, rising above the same and adapted to support auxiliary spools, a center bar parallel with the longer portion of the top plate and having eyes agreeing in number with the eyes of the top plate plus the number of pins for auxiliary spools, a bar parallel with the longer portion of the base-plate, and means for connecting and supporting the same adjacent to the base-plate and substantially below the bar carried by the top plate and tension devices supported by the latter bar, said tension devices each comprising a plate 7 with eyes through the same near the lower edge, pins 9 connecting said plates to the standard bar, spring-fingers 10 connected to said pins, and adjusting-screws 11 passing through the spring-fingers into interiorly-threaded holes in the said bar with the free ends of the spring-fingers bearing upon the plate 7, substantially as set forth.

5. A combined spool-holder and tension device, comprising a series of connected circular disks arranged on three sides of a rectangular figure and adapted to support the spools or bobbins, standards rising therefrom, a top plate having eyes for the threads and means for supporting the same upon and clamping the same to the standards, pins carried by the top plate, rising above the same and adapted to support auxiliary spools, a center bar parallel with the longer portion of the top plate and having eyes agreeing in number with the eyes of the top plate plus the number of pins for auxiliary spools, a bar parallel with the longer portion of the base-plate and means for connecting and supporting the same adjacent to the base-plate and substantially below the bar carried by the top plate, and tension devices supported by the latter bar, and flex-arms each comprising a wire helix and integral arm with an eye at the free end, the wire helix fitting into the opening in the spool and the eye at the end receiving the thread from the spool, substantially as set forth.

6. A combined spool-holder and tension device, comprising a base-plate adapted to support the spools or bobbins and having arms extending centrally toward one another, a top plate conforming thereto and having eyes for the threads and arms that also extend toward one another and come over the arms of the base-plate, said arms being perforated at their ends, standards for supporting the top plate above the base-plate, a bar and means for supporting the same adjacent to the base-plate and tension devices supported thereon, a bar carried by the top plate having eyes for the threads, and rods extending vertically through the ends of the arms of the base-plate and top plate and through the ends of the bar carrying the tension devices and the other bar having the eyes whereby said parts are connected together removably, substantially as specified.

11,997. INSULATED CONDUCTOR. ELIOT THOMSON, Swampscott, Mass., and JOHN S. GILLMAN, Lynn, Mass., assignors to General Electric Company, a Corporation of New York. Filed Apr. 24, 1902. Serial No. 104,794. Original No. 696,127, dated Mar. 11, 1902.



Claim.—1. An insulating compound consisting of an adherent non-explosive cellulosic ester attached to a support.
2. An insulating compound consisting of a non-explosive cellulosic ester attached to a support by an adhesive binder.
3. An insulated conductor coated with a non-explosive cellulosic ester.
4. An insulated conductor coated with a cellulosic ester bound to the conductor by an adhesive compound.
5. An insulated conductor coated with a waterproof heat-resisting compound of stramonium cellulose.
6. An insulated conductor coated with an acetate of cellulose.
7. An insulated conductor coated with succinate of cellulose.
8. An insulated conductor coated with a plurality of films of tetracetate of cellulose.
9. An insulated conductor covered with a film of rubber next the metal and an adherent covering of cellulosic tetracetate over the rubber.

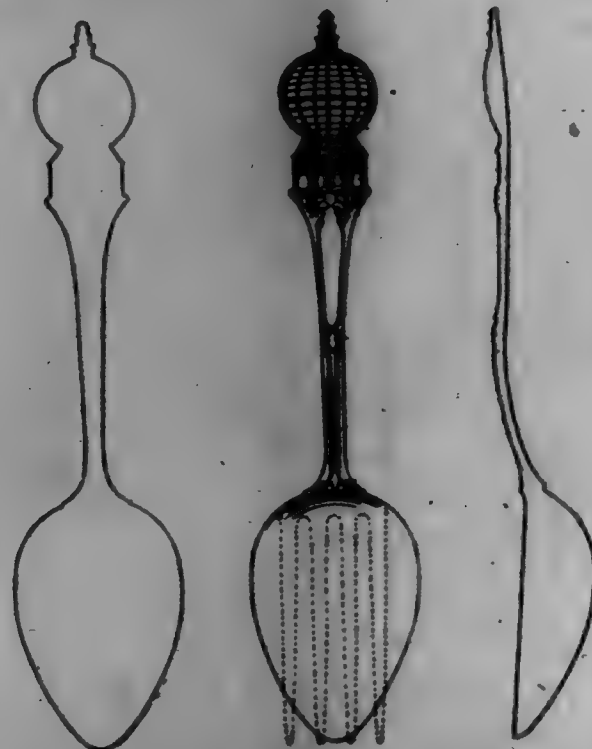
DESIGNS.

85,922. ORNAMENTAL HEAD FOR BROOCHES, SCARF-TIPS, OR SIMILAR ARTICLES. LOUIS D. FRISSE, Newark, N. J., assignor to The Fins of Beavers and Browns, Newark, N. J. Filed Feb. 4, 1902. Serial No. 33,364. Term of patent 7 years.



Claim.—The design for an ornamental head for brooches, scarf-tips, and similar articles as herein shown and described.

85,923. SOUVENIR SPOON, FORK, OR SIMILAR ARTICLE. JOHN T. DUNN, St. Louis, Mo. Filed Dec. 7, 1901. Serial No. 35,112. Term of patent 24 years.



Claim.—The design for a souvenir spoon, fork, or similar article, substantially as herein shown and described.

85,924. ORNAMENTAL FRAME FOR TRAPOTS OR SIMILAR ARTICLES. HOWARD PIPERBERG, Washington, D. C. Filed Dec. 7, 1901. Serial No. 33,100. Term of patent 24 years.



Claim.—The design for an ornamental frame for trapots or similar articles, as herein shown and described.

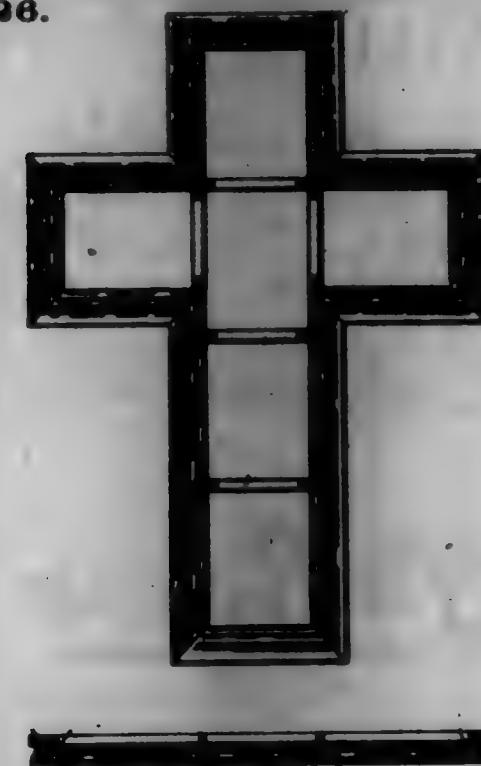
85,925. PICTURE-FRAME. DAVID A. KIRK, Chicago, Ill., assignor to Chicago Picture Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 26, 1901. Serial No. 37,578. Term of patent 7 years.



Claim.—The design for a picture-frame, substantially as herein shown and described.

85,926. PICTURE-FRAME. HARRY H. GOSLA, Philadelphia, Pa. Filed Feb. 21, 1902. Serial No. 36,133. Term of patent 24 years.

85,926.



Claim.—The design for a picture-frame, as herein shown and described.

85,927. BADGE. JOHN O'CALLAHAN, Philadelphia, Pa. Filed Apr. 12, 1902. Serial No. 33,361. Term of patent 7 years.



Claim.—The design for a badge, substantially as shown and described.

TRADE-MARKS

REGISTERED MAY 27, 1902.

88,821. GAME. COLUMBIAN GAME COMPANY, Norwood, Ohio. Filed Apr. 18, 1902.

LERNALOT

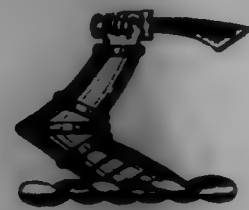
The word "LERNALOT." Used since March 8, 1902.

88,822. GOLF-BALLS. THE "SANTAS" COMPANY, LIMITED, New York, N. Y. Filed Apr. 18, 1902.

FLIPOOT

The word "FLIPOOT." Used since April 9, 1902.

88,823. CERTAIN NAMED FISHING-TACKLE. HENRY MILWARD & SONS, LIMITED, Redditch, England. Filed Apr. 21, 1902.



The figure of a mailed arm holding in the hand a fishhook. Used since 1881.

88,824. CERTAIN NAMED JEWELRY. ARNOLD E. CLOVER CO., Chicago, Ill. Filed Mar. 19, 1902.



The representation of a four-leaf clover, one leaf bearing the letter "A," a second leaf the letter "B," a third leaf the letter "C," and the remaining leaf the letters "CO." Used since February 12, 1902.

88,825. CORSET. WEINSTEIN BROS., New York, N. Y. Filed Apr. 26, 1902.

LaRaso

The words "LA RASO." Used since April, 1901.

88,826. CORSET. BIRDNEY & SCHERER, New York, N. Y. Filed Nov. 26, 1901.



The word "ARMORIDE" in letters of white on a dark background within a rectangular panel, the word extending from the lower left-hand corner of the background to the upper right-hand corner, and above and below the word white scrolls appear, while in the lower right-hand corner a circular figure appears. Used since July, 1893.

88,827. CERTAIN NAMED FABRIC. GRINNELL WILSON, New York, N. Y. Filed Apr. 11, 1902.



The words "DRAGON FLY" and the representation of a dragon-fly and crest pose and a surrounding border. Used since April 1, 1902.

MAY 27, 1902.

U. S. PATENT OFFICE.

2093

88,828. COTTON FABRIC. SHANNON & Co., New York, N. Y. Filed Apr. 26, 1902.



The representation of a crawfish, a spider, and flowers, arranged in Chinese style. Used since August 15, 1901.

88,829. COTTON FABRIC. SHANNON & Co., New York, N. Y. Filed Apr. 26, 1902.



The representation of a monkey on horseback and the limb of a tree with leaves and fruit above the same. Used since August 15, 1901.

88,830. COTTON FABRIC. SHANNON & Co., New York, N. Y. Filed Apr. 26, 1902.



The representation of a limb, leaves, and blossoms of the Sugar-Beet. Used since August 15, 1901.

88,831. YARN. ARNOLD OTTO MEYER, Hamburg, Germany. Filed June 12, 1901.



The pictorial representation of an Indian warrior. Used since September 14, 1882.

88,832. RUBBER FOOTWEAR. FINE, BURLIN & COMPANY, St. Paul, Minn. Filed Mar. 15, 1902.

BURR OAK.

The words "BURR OAK." Used since February 8, 1902.

88,833. LEATHER. HARRY L. RICE, Boston, Mass. Filed Apr. 2, 1902.



The representation of two boxing calves and the word "CHAMPION." Used since November 1, 1901.

88,834. HERRING. GEORGE HOOGSTRAAT, Vlaardingen, Rotterdam. Filed Feb. 4, 1902.



The representation of a banner, with the letters "H. W." thereon, and the word "BANNER." Used since August 6, 1900.

88,885. BUTTER. LUTHERS BROS., New York, N. Y. Filed Apr. 28, 1902.

DAMA

The word "DAMA." Used since April 1, 1899.

88,886. CERTAIN NAMED GROCERY SUNDRIES. AMER. BROS. & CO., New York, N. Y. Filed Feb. 27, 1902.



The representation of a scale, scales upon the end of the scale, an eagle with outspread wings appearing as about to alight on the scale, and a shield in front of the breast of the eagle and bearing a monogram of the letters and character "A M & C." Used since December, 1900.

88,887. CERTAIN NAMED SUGGEST SUPPLIES. J. S. SUGGEST, New York, N. Y. Filed Apr. 4, 1902.

Three Star

Three stars and the words "THREE STAR." Used since September, 1899.

88,888. WITTEDRAWN.

88,889. MEAT EXTRACT, BOUILLON, AND BEEF-TIA. THE CORDON FARMER CO., Chicago, Ill., and South Omaha, Neb. Filed Jan. 2, 1902.

REXONA

The word "REXONA." Used since October, 1901.

88,840. COPPER, MOLASSES, TEAS, AND SPICES. NEW ORLEANS COPPER CO., Ltd., New Orleans, La. Filed May 1, 1902.

CHIEF



The word "CHIEF" and the bust of an Indian chief with full plume head-dress. Used since December 23, 1901.

88,841. PASTE. CHARLES R. FORTY, Alexandria Bay, N. Y. Filed Apr. 24, 1902.

AKOS

The word "AKOS." Used since April 15, 1902.

88,842. SOAP. KEEB BROS. & COMPANY, Chicago, Ill. Filed Apr. 16, 1902.

FEDERAL

The word "FEDERAL." Used since April 12, 1902.

88,843. PERFUMERY, SOAP, AND FACE-POWDER. KAMMAM ABRAM GARDNER, New York, N. Y. Filed Jan. 15, 1902.



The portrait of Joseph Bey Karam, deceased, associated with the name "JOSEPH BEY KARAM." Used since September 16, 1901.

88,844. CHOCOLATE. NEW YORK VICTORIAN MANUFACTURING CO., New York, N. Y. Filed Apr. 15, 1902.

CHULONG

The word "CHULONG." Used since January, 1902.

88,845. CHOCOLATE CHIPS. HONEY COMB CHOCOLATE CHIP CO., Ltd., Baltimore, Md. Filed Apr. 15, 1902.



The words "HONEY COMB" in connection with the representation of a beehive and bees about the same. Used since March 27, 1902.

88,846. CERTAIN NAMED CONFECTIONERY. MRS. L. M. GUTHRIE, New York, N. Y. Filed Apr. 15, 1902.

MIRROR

The word "MIRROR." Used since October 15, 1899.

88,847. CIGARETTES. ARTHUR G. WALKER, New York, N. Y. Filed Apr. 17, 1902.

BIRCH BARK

The words "BIRCH BARK." Used since April 1, 1902.

88,848. REMEDIES FOR CERTAIN NAMED DISEASES. THOMAS H. KENTON, Minneapolis, Minn. Filed Nov. 21, 1901.



A pictorial representation of the head of a little girl enclosed in a circular frame. Used since November 2, 1899.

88,849. INTERNAL REMEDY FOR A CERTAIN NAMED DISEASE. ANNA R. GIBBS, New York, N. Y. Filed Apr. 16, 1902.

Caso-Juo.

The hyphenated word "CASO-JUO." Used since January 24, 1902.

88,850. LA GRIPPE AND KIDNEY CURE. GEORGE R. HAYTHORN, Morgantown, Ky. Filed Apr. 16, 1902.

WORLD'S WONDER



The words "WORLD'S WONDER" in connection with the photograph of the registrant. Used since April 1, 1901.

88,851. MEDICAL COMPOUND FOR SUBCUTANEOUS, SYNECDOLOGICAL AND ORTHODONTIC USE. JAMES FLANNERY GIBBS, New York, N. Y. Filed Mar. 27, 1902.

Luborine

The word "LUBORINE." Used since February 1, 1901.

88,852. EXTERNAL REMEDY FOR SKIN DISEASES. JAMES FLANNERY GIBBS, New York, N. Y. Filed Feb. 15, 1902.



The representation of the naked bust of a man, with the hands crossed on the breast, with the representation of spots on the face, breast and arms to indicate skin diseases. Used since August 11, 1900.

88,853. EXTERNAL REMEDIES. THE ALPINE CHEMICAL COMPANY, New York, N. Y. Filed Apr. 24, 1902.

KAOPLASMA

The word "KAOPLASMA." Used since November 1, 1901.

88,854. LINIMENT. ALBERT G. CHARLTON, Plymouth, Pa. Filed Mar. 13, 1902.

ZMIJECHNIK

The Polish word "ZMIJECHNIK." Used since January, 1903.

88,855. LINIMENT. FRANK SAVALLA, Dayton, Ohio. Filed Jan. 21, 1901.



The portrait of the registrant. Used since April 10, 1900.

88,856. WITHDRAWN.

88,857. SALVE. GEORGE BROWN, Windsor, Ind. Filed Mar. 22, 1902.



The best portrait of Mrs. Anna M. Gross, mother of the registrant, and her autograph, "ANNA M. GROSS." Used since January, 1903.

88,858. LIQUID DISINFECTANTS. FRANK BROOKS BROTHERS CO., New York, N. Y. Filed Feb. 6, 1902.

SAVOMOR

The word "SAVOMOR." Used since December 23, 1901.

88,859. MOSQUITO AND FLY REPELLENTS AND INSECT-EXTERMINATORS. FRANK MANUFACTURING COMPANY, Oshkosh, N. Y. Filed Dec. 2, 1901.

PRESTO

The word "PRESTO." Used since 1901.

88,860. VERMIN-DESTRUCTORS. ALFRED KATHAN, Montreal, Canada. Filed Apr. 22, 1902.



The initials "A K" in white on a black shield, having above and below two sets of curved lines, to the right a representation of a roach to the left a representation of a bedbug, and in the four corners representations of mice or rats. Used since January 1, 1903.

88,861. DOMESTIC DISINFECTANTS. WARREN BROTHERS COMPANY, Boston, Mass. Filed Apr. 7, 1902.

KARBO

CRIOLENE

The word "KARBO-CRIOLENE." Used since March 20, 1902.

88,862. HYDRAULIC COMPOSITION OR CEMENT. WARREN
BROOKMAN COMPANY, Boston, Mass. Filed Apr. 2, 1902.

ASPHAL STONE

The word "ASPHALSTONE." Used since January 1, 1901.

88,863. HYDRAULIC COMPOSITION OR CEMENT. WARREN
BROOKMAN COMPANY, Boston, Mass. Filed Apr. 11, 1902.

STONE BOUND

The word "STONEBOUND." Used since January 1, 1902.

88,864. PAINT FOR GALVANIZED IRON. THE GOSWELL IRON CO.,
Canton, Ohio. Filed Apr. 12, 1902.

Galvanum.

The word "GALVANUM." Used since August 12, 1902.

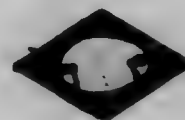
88,865. LINE, PLASTER, AND CEMENT. THE TOLSON BUILDING
SUPPLY CO., Toledo, Ohio. Filed Apr. 22, 1902.

CRESCENS



The word "CRESCENS" and the representation of a panel showing
a landscape background with a horse in the foreground. Used since
June 1, 1901.

88,866. FOUNTAIN-KEEPING SUPPLIES. CROWN FOUNTAIN
CO., Buffalo, N. Y. Filed Jan. 20, 1902.



A diamond-shaped figure having within it the representation of an
egg and the heads of two chicks. Used since October 5, 1901.

88,867. CARPET-SWEEPER. BARNES CARPET SWEEPER CO.,
Grand Rapids, Mich. Filed Apr. 2, 1902.

Crown Jewel.

The words "CROWN JEWEL." Used since February 17, 1902.

88,868. SEWING-MACHINES AND ATTACHMENTS. WILLIAM
ALLEN CHURCH, New York, N. Y. Filed Apr. 17, 1902.

NIRVANA

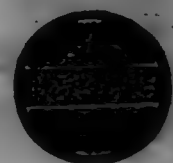
The word "NIRVANA." Used since January 20, 1902.

88,869. ELECTRIC SWITCHES. THE EAST MANUFACTURING CO.,
Hartford, Conn. Filed Nov. 22, 1901.



A diamond-shaped figure, within which appears the letter "H."
Used since May, 1900.

88,870. CERTAIN MARKING MACHINES. MARK MARKING TOOL
COMPANY, Springfield, Mass. Filed Mar. 17, 1902.



The representation of the terrestrial globe, on which are represented
longitudinal divisions, across which, centrally between the poles of the
globe, extends an equatorial band. Used since February 1, 1900.

88,871. ROOFING-SLATE. AMERICAN SLATE COMPANY,
Butte, Pa. Filed Mar. 24, 1902.

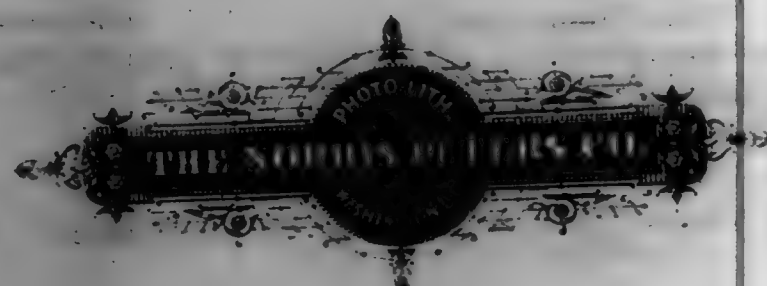


The representation of a circle the background of which is a solid
red. Used since February 11, 1902.

88,872. ROOFING-SLATE. SEAR SLATE COMPANY, Butte, Pa.
Filed Mar. 24, 1902.



A six-pointed star the background of which is solid red. Used
since February 11, 1902.



LABELS

REGISTERED MAY 27, 1902.

- 9,160.—Title: "CRESCENT SILK VELVET." (For Velvet.) W. A. HAYS, New York, N. Y. Filed May 5, 1902.
9,161.—Title: "SCHAEFER'S BLOOD PURIFIER." (For Medicine.) EVA B. REEDER, New York, N. Y. Filed April 19, 1902.
9,162.—Title: "ECLIPSE HAIR TONIC." (For Hair-Tonic.) FREDERICK BAUM, Westfield, N. J. Filed May 1, 1902.
9,163.—Title: "OWENS' FRAGRANT CREAM." (For Toilet Preparation.) JOHN C. OWENS, Plainfield, Ill. Filed May 6, 1902.
9,164.—Title: "CHILIAN EYE BALM." (For Eye-Lotion.) A. B. COOKING and GEORGE W. COLE, Bushnell, Ill. Filed October 23, 1901.
9,165.—Title: "CEDARINE OINTMENT." (For Ointment.) A. W. HUMPHREY & SON, Henderson, N. Y. Filed February 15, 1902.
9,166.—Title: "RESORCINOL." (For an Ointment.) THE F. DOWNEY COMPANY, Milwaukee, Wis. Filed April 24, 1902.

- 9,167.—Title: "EL FUMEROS." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed May 2, 1902.
9,168.—Title: "EL FUMEROS." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed May 2, 1902.
9,169.—Title: "CASTRO FORTUONDO." (For Cigars.) J. E. BLOCK & CO., Dallas, Tex. Filed April 22, 1902.
9,170.—Title: "MILLIONAIRES CLUB." (For Whisky.) ISAAC MANNING & CO., Philadelphia, Pa. Filed April 20, 1902.
9,171.—Title: "WORCESTER QUICK FREEZING ICE CREAM SALT." (For Salt.) WORCESTER SALT CO., New York, N. Y. Filed April 22, 1902.
9,172.—Title: "CAMDEN PURE WHEAT STARCH UN-CHEMICALIZED." (For Wheat Starch.) CAMDEN & PHILADELPHIA SOAP COMPANY, Camden, N. Y. Filed May 2, 1902.
9,173.—Title: "XXX HYGIENIC SOAP." (For Soap.) CAMDEN & PHILADELPHIA SOAP COMPANY, Camden, N. J. Filed May 2, 1902.

PRINTS

REGISTERED MAY 27, 1902.

- 506.—Title: "MEN'S APPAREL." (For Men's Apparel.) W. C. BOTT, Chicago, Ill. Filed April 23, 1902.
507.—Title: "ATWOOD SUSPENDER." (For Suspenders.) ATWOOD SUSPENDER CO., Swanton, Vt. Filed April 15, 1902.
508.—Title: "CLIMAX." (For Nose-Guards.) DAVID W. TAFT, Philadelphia, Pa. Filed May 2, 1902.
509.—Title: "MEIER & SCHUKNECHT." (For Trunks, Grips, and Valises.) MEIER & SCHUKNECHT, Detroit, Mich. Filed April 22, 1902.

- 510.—Title: "DARMSTADT GERMAN FOOD." (For Foods.) DARMSTADT GERMAN FOOD COMPANY, Philadelphia, Pa. Filed April 22, 1902.
511.—Title: "YALE VIOLETS FOR THE BREATH." (For a Breath-Perfume.) THE GRAHAM DRUG CO., New York, N. Y. Filed May 2, 1902.

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE MCCLAIN.

Decided May 7, 1908.

TRADE-MARKS—"Felt-Less"—DESCRIPTIVE.

The word "Felt-Less" as a trade-mark for sweat-pads used in connection with harness for horses refused registration on the ground that it is either descriptive or deceptive.

TRADE-MARK FOR SWEAT-PADS.

Application of Edward L. McClain filed October 23, 1898, No. 56,719.

Messrs. Murray & Murray for the applicant.

ALLEN, Commissioner:

This is an appeal from the action of the Examiner of Trade-Marks in refusing to register the word "Felt-Less" as a trade-mark for sweat-pads.

The pads to which the trade-mark is applied are used in connection with harness for horses. Such pads as commonly made comprise in their construction a thick piece of felt. It is clear, therefore, that the word "Felt-Less" as applied to a sweat-pad for harness would naturally be understood to be a pad made without felt. So understood the word is obviously either descriptive or deceptive and for this reason unregistrable as a trade-mark.

Applicant contends that in the present case the word is not descriptive, because as a matter of fact the pads to which it is applied do have felt upon them in very prominent positions and that for this reason the word would not be taken in a descriptive sense by the purchasing public. Without actual inspection of a pad, however, it would be supposed by an intending purchaser that a pad to which this trade-mark is applied is one containing no felt. The word is therefore descriptive.

Applicant contends, further, that this word is composed of the two words "felt" and "less" and that it is "suggestive of the idea that the pad rests more lightly on the neck of a horse than do other pads on the market. In reply to this it may be said that although it does not so appear in the brief filed by applicant, yet it was stated orally at the hearing that the pads are made of canvas stuffed with hair, the only felt thereon being applied thereto for ornament and not as a wearing-surface. In view of the fact that the pads in ordinary use have, as above noted, a wearing-surface of felt, the argument that the word "Felt-Less"

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applied to applicant's pads would not be taken in a descriptive sense is not convincing. The decision of the Examiner of Trade-Marks was correct, and it is accordingly affirmed.

EX PARTE FIEBEGGER.

Decided May 8, 1907.

TRADE-MARK—"Solid Comfort" FOR FURNACES—NOT DESCRIPTIVE—REGISTERABLE.

The words "Solid Comfort" held to be registrable as a trade-mark for furnaces on the ground that even though these words may convey the idea that persons using these furnaces will experience that degree of comfort known as "solid comfort" they are not descriptive of the quality or construction of the furnaces. They merely suggest a remote result which may be brought about by the use of the furnaces.

ON appeal.

TRADE-MARK FOR FURNACES.

Application of Frank Fiebegger filed October 24, 1901, No. 64,847.

Messrs. Humphrey & Humphrey for the applicant.

ALLEN, Commissioner:

This is an appeal from the refusal of the Examiner of Trade-Marks to register the words "Solid Comfort" as a trade-mark for soft-coal furnaces.

The Examiner holds that these words are "manifestly descriptive and advertising as applied to soft-coal furnaces."

The words "Solid Comfort," even though they may convey the idea that persons using these furnaces will experience that degree of comfort known as "solid comfort," are not descriptive of the quality or construction of the furnaces. The words merely suggest a remote result which may be brought about by the use of the furnaces, and for this reason they are registrable. (*O'Rourke v. Central City Soap Company*, 35 O. G., 875.)

As stated in *ex parte Peek*, (96 O. G., 425:)

The result or condition suggested by the word is so remote from the article to which it is applied that it cannot be held to be one of those descriptive terms which any person has the right to use in describing similar articles and which therefore cannot be exclusively appropriated by one person.

The decision of the Examiner of Trade-Marks is reversed.

EX PARTE SACK.

Decided May 12, 1908.

ABANDONED APPLICATION—INSUFFICIENT ACTION.

Where the Examiner called attention to a formal defect in the application and the applicant while admitting the defect made no effort for six years to correct it, but merely wrote letters in regard to it, held that the application is abandoned.

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ON petition.

PHOTOGRAPHIC-PRINTING FRANK.

Application of Hugo Sack filed June 10, 1896, No. 505,006.

Mr. Francis M. Wright for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Primary Examiner holding that the above-entitled case is abandoned.

In his first letter in this case, dated July 13, 1896, the Examiner said that the oath was informal in that the seal of the notary was omitted and required a new oath. None of the claims was rejected, and this was the only requirement made. On July 13, 1896, the attorney filed a request for reconsideration, saying that the informality in the oath could be cured as well by furnishing evidence of the official character of the notary. He made no effort, however, to correct the informality by furnishing evidence of the official character of the notary, as suggested by him, or by furnishing a new oath, as suggested by the Examiner, and therefore the Examiner wrote him on July 18, 1896, that the case was abandoned. On June 4, 1900, the applicant requested reconsideration of the holding that the case was abandoned and on April 11, 1902, filed this petition from that holding.

It is apparent from this statement of the case that nearly six years ago the applicant was notified of a simple formal defect in the application and that he has not during all of that time made any effort whatever to correct it. It is clear that the actions of the applicant were not such proper actions as the condition of the case required. (Rule 171.) The defect was admitted and no effort was made to correct it, and it therefore appears that the purpose was merely to delay the case in this Office.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE EXCELSIOR WOODEN PIPE COMPANY v. THE PACIFIC BRIDGE COMPANY *et al.*

Decided May 5, 1902.

1. JURISDICTION OF FEDERAL COURTS—QUESTION UNDER PATENT LAWS—CONTRACT—INFRINGEMENT.

Where the defendant gave to the complainant an exclusive license under his patent and subsequently gave a license to a third party in the same territory, alleging that the first license is void for failure to comply with its terms, *Held* that a bill to recover damages for infringement and for an injunction raises a question under the patent laws which is within the jurisdiction of the United States courts and is not merely a question of contract.

2. SAME—SAME—RIGHT UNDER PATENT.

To constitute an action arising under the patent laws of the United States, the plaintiff must set up some right, title, or interest under the patent laws, or at least make it appear that some right or privilege will be defeated by one construction or sustained by the opposite construction of those laws.

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3. SAME—SAME—REMEDY IN STATE COURT INADEQUATE.

Before it can be held that the allegations of the bill oust the jurisdiction of the United States court it must at least appear that the plaintiff has another remedy by an action in a State court, and where an action in that court would be inadequate or would involve questions under the patent law jurisdiction of the United States court is not ousted.

4. SAME—SAME—REMEDY FOR INFRINGEMENT.

Where the only remedy which an alleged licensee had against a violation of his license by the patentee was to prosecute the patentee as an infringer of his rights under the patent, *Held* that the question is one arising under the patent laws and is within the jurisdiction of the United States courts.

5. SAME—CONTRACT CONCERNING PATENTS—SUIT FOR INFRINGEMENT.

The jurisdiction of the Federal courts cannot be invoked primarily for the determination of the rights of parties to a contract concerning patents; yet when the bill is an ordinary one for infringement and the answer puts in issue the title of the plaintiff to sue the jurisdiction is not ousted by the mere allegation that the license has been revoked.

6. SAME—CASE DISMISSED ON MOTION OF COURT.

It is the duty of the circuit court on its own motion to dismiss the case whenever at any time it shall appear that its jurisdiction has been improperly invoked.

7. APPEAL TO SUPREME COURT FROM CIRCUIT COURT—QUESTION OF JURISDICTION.

On an appeal directly to the Supreme Court from a decision of the circuit court it must appear either that the question of jurisdiction was certified or that the decree appealed from shows upon its face that the sole question decided was one of jurisdiction. A statement to that effect in allowing an appeal is, however, a sufficient certificate that the question is one of jurisdiction.

On appeal from the Circuit Court of the United States for the District of Washington.

STATEMENT OF THE CASE.

This was a bill in equity filed by the Excelsior Wooden Pipe Company, a California corporation, against the Pacific Bridge Company, also a California corporation, but having a branch in the city of Seattle, Wash., and Charles P. Allen, for the infringement of a patent issued to Allen, one of the defendants, for a wooden pipe.

Besides the usual allegations of a bill for the infringement of a patent, the plaintiff averred that, prior to the acts charged against the respondents, the said Charles P. Allen, one of the defendants, had granted December 20, 1892, unto the Excelsior Redwood Company, a California corporation, the exclusive right within the Pacific States of manufacturing and selling wooden pipe under his patent to the full end of its term; that the Excelsior Redwood Company had, with the written consent of Allen, the patentee, on December 22, 1892, transferred unto the Excelsior Wooden Pipe Company, plaintiff, the said exclusive license to it, from Allen, with all rights and privileges thereunder, and that Allen had been, and still was, the exclusive owner of the patent, and the plaintiff the sole and exclusive licensee; that the plaintiff has ever since and still is engaged in the manufacture and sale of the patented articles, and has filled all orders therefor, and is well known as the exclusive licensee, and that Allen has joined with the plaintiff in suits against infringers of his patent, all of which have resulted in his favor. The gravamen of the bill lies in the allegation that, notwithstanding all this, the defendant, the Pacific Bridge Company, and the said Allen, have since such license conspired to make and sell, and without the license and consent of your orator, extensive licenses as aforesaid, have made and sold, within one year last past, within the State of Washington, wooden pipe substantially the same as that described in the patent and embodying the invention; and therefore it brought this bill to recover damages for this infringement and for an injunction.

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The answer, which was a joint one of both defendants, admitted the issue and validity of the patent and its ownership by defendant Allen. It is also admitted a license by defendant Allen to plaintiff's assignor, whereby the latter obtained the exclusive right to make and sell the patented articles in the territory described, and set out the license in full; but it denied that this license was a subsisting one, and alleged an abandonment of the same by the plaintiff, a forfeiture of all rights thereunder by failure and refusal to comply with its terms and conditions, and by acts of bad faith toward the patentee by seeking to defeat the patent and destroy its monopoly; and a revocation of the license by Allen for cause in pursuance of the terms of the contract. It also set up that after the alleged revocation of the license the defendant Allen granted a license to his joint defendant, the Pacific Bridge Company. In short, the only defense was a denial of the license which lies at the basis of plaintiff's suit, and constitutes its title to the patent.

The usual replication was filed, and, pending an application on the part of defendants for an extension of time to take proofs, the plaintiff, apparently at the suggestion of the court, moved for a decree in its favor upon the pleadings and affidavits on file. Upon argument, which was upon the question of jurisdiction alone, the court held that the suit was not one arising under the patent laws, but solely out of a contract; that the court had no jurisdiction, and a decree was entered to that effect. Plaintiff thereupon appealed to the circuit court of appeals, which dismissed the case upon the ground that it had no jurisdiction itself over the appeal, and that, as such appeal was prosecuted from an order dismissing the bill solely for want of jurisdiction, it should have been taken to this Court. (109 Fed. Rep., 497.) Whereupon the mandate of the circuit court of appeals being filed in the circuit court, an appeal from the final decree of that court, which had been entered November 5, 1900, was taken to this Court.

Mr. Nicholas A. Acker, Mr. L. S. Bacon, and Mr. W. W. Wilshire for the appellant.

Mr. James B. Howe for the appellee.

Mr. Justice Brown delivered the opinion of the Court.

1. Motion is made by defendants to dismiss this appeal upon the ground that no appeal was taken, and no certificate of the trial court upon the question of jurisdiction, was made by such court during the term at which the decree was rendered; and that no such certificate has since or ever been made.

As the appeal was taken directly to this Court, it must appear, under the fifth section of the Court of Appeals act, either that the question of jurisdiction was certified to this Court, or that the decree appealed from shows upon its face that the sole question decided was one of jurisdiction. Plaintiff evidently supposed that the case was a proper one to carry to the court of appeals, but its appeal having been there dismissed, it took this appeal May 27, 1901, from the original decree of the circuit court made November 5, 1900. This decree, after reciting—

that said suit does not really and substantially involve a dispute or controversy properly within the jurisdiction of this court, and that this court should not further exercise jurisdiction, it is therefore ordered and decreed that said suit be and the same is hereby dismissed for want of jurisdiction.

An appeal was taken from this decree, and the order allowing the appeal states that the appeal was allowed—

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from the final order and decree dismissing said suit for want of jurisdiction.

This is clearly a sufficient certificate of the circuit court that the jurisdiction of that court was in issue, and the only question to be considered by us relates to the jurisdiction of that court. (*Shields v. Coleman*, 157 U. S., 168; *in re Lehigh Mining Co.*, 156 U. S., 322; *Huntington v. Laidley*, 176 U. S., 668.)

The case, being thus in proper condition for appeal, such appeal could be taken at any time within two years. (*Allen v. Southern Pacific R. R. Co.*, 173 U. S., 479; *Holt v. Indiana Manfg. Co.*, 176 U. S., 68.)

2. The most important question is whether this is a suit under the patent laws of the United States within the meaning of Revised Statutes sec. 629, sub. 9, which grants original jurisdiction to the circuit courts—

of all suits at law or in equity arising under the patent or copyright laws of the United States.

The rule is well settled that, if the suit be brought to enforce or set aside a contract, though such contract be connected with a patent, it is not a suit under the patent laws, and jurisdiction of the circuit court can only be maintained upon the ground of diversity of citizenship. But difficulties sometimes arise in determining whether the action be upon a contract or upon the patent. The first case involving this question was *Wilson v. Sandford*, (10 How., 99,) in which a bill filed on the equity side of the circuit court by the assignee of a patentee, to set aside a contract in the nature of a license upon the ground that the licensee had not complied with the terms of the contract, was held not to be a case under the patent laws. The object of the bill was to have the license set aside and forfeited, and plaintiff's title reinvested in him. Such was also the case in *Brown v. Shannon*, (20 How., 55,) which was a bill to enforce the specific execution of certain contracts respecting the use of the patent; and in *Albright v. Teas*, (23 O. G., 2099; 106 U. S., 618,) which was a suit brought by the plaintiff for moneys alleged to be due under a contract whereby certain Letters Patent granted to him were transferred to the defendant. This was clearly a bill to recover royalties, and no question under the patent laws was involved. *Dale Tile Manfg. Co. v. Hyatt* (43 O. G., 249; 125 U. S., 46) was an action in a State court by the owner of the patent upon an agreement by which such owner granted an exclusive license to make and sell the patented articles within a certain territory. Defendant expressly acknowledged the validity of the patent. This, we held to be, clearly within the jurisdiction of the State court. A like ruling was made in the next case of *Feltz v. Scharnweber*, (43 O. G., 351; 125 U. S., 54.) In the same line of cases are those of *Marsh v. Nichols*, (56 O. G., 359; 140 U. S., 844,) to enforce the specific performance of a contract to transfer an interest in a patent to the plaintiff; *Wade v. Lawder*, (165 U. S., 634;) and *Pratt v. Paris Light & Coke Co.*, (168 U. S., 355,) which was an action by patentees in a State court upon the common counts to recover of

the defendant the stipulated price for manufacturing and setting up an apparatus for the manufacture of water-gas. Defendant pleaded that the plaintiff had agreed to save it harmless against any suit which might be brought against it for infringement, and to defend such suits at their own expense, and averred, among other things, that the patents were void and an infringement upon prior patents; that defendant had not kept plaintiffs harmless against such suits, but had refused to defend a certain suit brought against it, and that the defendant had rightfully rescinded the contract. It was held that the action was not one arising under the patent laws of the United States, and that to constitute such a cause the plaintiff must set up some right, title or interest under the patent laws, or at least make it appear that some right or privilege will be defeated by one construction or sustained by the opposite construction of those laws. That—

section 711 does not deprive the State courts of the power to determine questions arising under the patent laws, but only of assuming jurisdiction of cases arising under those laws. There is a complete distinction between a case and a question arising under the patent laws. The former arises when the plaintiff in his opening pleading—be it a bill, complaint or declaration—sets up a right under the patent laws as ground for a recovery. Of such the State courts have no jurisdiction. The latter may appear in the plea or answer or in the testimony. The determination of such question is not beyond the competency of the State tribunals.

Now, as the bill in this case differs from an ordinary bill for infringement only in the fact that the suit is by a licensee against two defendants, one of whom is the licensor and owner of the patent, and the license is set forth only for the purpose of showing title, there would be no difficulty whatever in sustaining it, were it not for the question whether we are not also bound to consider the averments of the answer. We think this difficulty is practically settled by a reference to section 5 of the Jurisdictional Statute of 1875, (18 Stat., 470, 472,) which provides—

that if, in any suit commenced in a circuit court, . . . it shall appear to the satisfaction of the said circuit court, at any time after such suit has been brought, . . . that such suit does not really and substantially involve a dispute or controversy properly within the jurisdiction of said circuit court, . . . the said circuit court shall proceed no further therein, but shall dismiss the suit, &c.

While it seems reasonable to say that a jurisdiction once acquired by the filing of a proper bill ought not to be taken away by any subsequent pleading, the statute is peremptory in this particular, and requires the court to dismiss the case whenever at any time it shall appear that its jurisdiction has been improperly invoked. We are by no means without authority upon this question. In *Robinson v. Anderson* (121 U. S., 523) it was held that when it appeared, after all the pleadings were filed, that the averments in the declaration which alone gave the court jurisdiction, were immaterial and made for the purpose of creating a case cognizable by the court, it was the duty of the circuit court to dismiss the bill for want of jurisdiction. Said the Chief Justice:

Even if the complaint, standing by itself, made out a case of jurisdiction, which we do not decide, it was taken away as soon as the answers were in, because if there was jurisdiction at all it was by reason of the averments in the complaint as to what the defenses against the title of the plaintiff would be, and these were of no avail as soon as the answers were filed and it was made to appear that no such defenses were relied on.

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In *Williams v. Nottawa* (104 U. S., 200) this Court went so far as to dismiss a case in which judgment had been rendered for the plaintiff in the circuit court, because it appeared from the testimony of the plaintiff that certain bonds were put in his hands for collection in which he had no real interest. It was held that it was the duty of the circuit court on its own motion, as soon as the evidence was in and the collusive character of the case shown, to stop all further proceedings and dismiss the suit, the Chief Justice further remarking that this provision of the act of 1875 was a salutary one, and that it was the duty of the circuit courts to exercise their power under it in proper cases. See also *Wetmore v. Rymer*, (160 U. S., 115;) *Morris v. Gilmer*, (129 U. S., 315;) *Lake County Commissioners v. Dudley*, (173 U. S., 243.)

Is there anything in the answer to show that the court was bound to dismiss the bill for want of jurisdiction?

The bill makes the usual allegations of a bill for infringement, and puts in issue (1) the title of the plaintiff, which in this case was a license from one of the defendants, fully set forth in the margin;* (2) the validity of the patent; and (3) the infringement. The answer raises no issue as to the validity of the patent, or as to the acts charging infringement. It admits the license, but denies that it is a subsisting one, and pleads abandonment of the same by plaintiff, a forfeiture of all rights thereunder by failure to comply with its terms and conditions, and by acts of gross bad faith toward the

* *License and agreement.*—This agreement, made this 11th day of March, 1898, by and between Charles F. Allen, of Denver, Colo., party of the first part, and the Excelsior Redwood Company, a corporation duly organized and existing under and by virtue of the laws of the State of California, and having its principal place of business in the city and county of San Francisco in said State, party of the second part:

Witnesseth: That, whereas, the party of the first part is the owner and holder, for, to and in the States and Territories hereinafter mentioned, of the whole right, title and interest in and to Letters Patent of the United States, No. 589,590, dated March 28, 1897, for "wooden pipe."

And, whereas, the party of the second part is desirous of obtaining for, to and within the said States and Territories hereinafter mentioned an exclusive right, license and privilege to manufacture and sell wooden pipe under and in accordance with said Letters Patent:

Now, therefore, the parties have agreed as follows: The party of the first part hereby grants, subject to the conditions hereinafter stated, unto the party of the second part, its successors and assigns, the exclusive right, license and privilege, within the States of Northern California, Oregon, Washington, Nevada, Montana and Idaho, and Territories of Arizona and Utah, of manufacturing and selling wooden pipe under and in accordance with the said Letters Patent, to the full end of the term of said Letters Patent.

The party of the second part agrees to pay unto the party of the first part, as a license fee or royalty under this license and agreement, the following sums to wit: One dollar (\$1.00) on every one thousand feet, board measure, of lumber employed in the manufacture of said pipe, and two and one-half per cent. (2½%) on the cost at factory of all steel and iron used in said manufacture.

The said license or royalty is to be paid by the said party of the second part to the said party of the first part upon the final payment to the party of the second part of the contract price on each and every contract taken by said party of the second part, involving the manufacture and sale of said patented wooden pipe. The right, license and privilege hereby granted is not transferable or assignable, either in whole or part, by the party of the second part, without the consent of the party of the first part. It is agreed that in case the party of the second part shall fail to use the above-described patent in any pipe constructed by them, of twelve (12) inches diameter and upward, or from any cause the said party of the second part shall cease the manufacture of wooden pipe, then and in that event all the rights and privileges granted by this agreement and license to the said party of the second part shall at once be revoked.

It is understood and agreed that this agreement is binding upon the heirs, legal representatives and assigns of the party of the first part, and upon the successors and assigns of the party of the second part.

patentee by seeking to defeat the patent, and a revocation of the license by Allen. It will be observed that the answer raises no question of the construction of the license, but merely of its existence—that is, of the title of the plaintiff to sue. Before deciding that these allegations oust the jurisdiction of the court it must at least appear that the plaintiff has another remedy by an action in a State court. But what remedy has it? All the agreements and conditions of the license are such as are made by the plaintiff's assignor, the Excelsior Redwood Company. This company, the party of the second part, agrees first, to pay a license fee or royalty, the time of payment being fixed in a subsequent sentence; second, that it will neither transfer nor assign the license without the consent of the patentee, (it was admitted that the patentee consented to the assignment to plaintiff;) third, that in case the licensee should fail to use the patent in any pipe constructed by them, or from any cause it should cease to manufacture a wooden pipe, the license shall be at once revoked. The only clause in the license in which the patentee appears as promisor is that wherein—

he hereby grants, subject to the conditions hereinafter stated, unto the party of the second part, its successors and assigns, the exclusive right, license and privilege within—
certain States—

of manufacturing and selling wooden pipe under and in accordance with the said Letters Patent to the full end of the term of said Letters Patent.

Now, it may be freely conceded that, if the licensee had failed to observe any one of the three conditions of the license, the licensor would have been obliged to resort to the State courts either to recover the royalties, or to procure a revocation of the license. Such suit would not involve any question under the patent law.

But the same does not hold good with respect to the licensee. There were practically but two ways in which the patentee could impair the grant he made to the licensee, and those were by a revocation of the license by a bill in equity, or by treating it as abandoned and revoked, and granting a license to another party. He elected the latter remedy, and made a contract with the Pacific Bridge Company to make and sell wooden pipe within the same territory. A suit in a State court would either be inadequate or would involve questions under the patent law. If the licensee sued at law he would be obliged to establish the fact that the patent had been infringed, which the patentee might have denied, and in any case could only recover damages for past infringements. If he sued in equity, he could only pray an injunction against future infringements; but this is exactly what he prays in this case, and thereby raises a question under the patent laws. In either case the patentee could defeat the action by showing that he did not infringe,—in either case the defendant could so frame his answer as to put in issue the title, the validity or the infringement of the patent.

The natural and practically the only remedy, as it seems to us, was for the plaintiff to assert his title under the license and to prosecute the defendants as infringers. In doing this he does what

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every plaintiff is bound to do, namely, set forth his title either as patentee, assignee or licensee, and thereby puts that title in issue. The defendant is at liberty in such a case to deny the title of the plaintiff by declaring that the license no longer exists, but in our opinion this does not make it a suit upon the license or contract, but it still remains a suit for the infringement of a patent, the only question being as to the validity of plaintiff's title. There can be no doubt whatever that if the plaintiff sued some third person for an infringement of his patent, the defendant might attack the validity of his license in the same way, but it would not oust the jurisdiction of the court. Why should it do so in this case?

Much reliance is placed upon the case of *Hartell v. Tighman*, (99 U. S., 547,) which was a bill by a patentee against one with whom he had made a contract in the nature of a license, alleging that defendants, after paying the royalty for several months, refused to do certain other things which he charged to have been a part of the contract, and thereupon he forbade them further to use his patented process, and charged them as infringers. Defendants pleaded the contract as they understood it, and the tender of all that was due plaintiff under it, and their readiness to perform it.

Plaintiff's case was that there was a verbal agreement that he should prepare and put up his patented mechanism in defendants' workshop, and that after this was done defendants should take a license for the use of the invention. The machinery was put up, but defendants refused to sign the license apparently upon the ground that the patentee claimed the right to visit the works of the defendants, and inspect their books with a view to ascertaining the amount of work done. The dispute was as to the terms of the agreement, defendants insisting that they had never proposed to accept the license with the conditions mentioned. It was held that the patentee could not sue the defendants for an infringement, and in answer to the objection that he had no other remedy Mr. Justice Miller observed that he could establish his royalty once every year, and sue at law and recover every month or every year for what was due, and that, if he desired to assert his right of examining the works of the defendants, he could in a proper case compel them to submit to the examination. The case is the converse of the one under consideration, inasmuch as it was a suit by the patentee against the licensee for a violation of his contract, and, as the Court observed, the plaintiff might have brought suit for royalties. As already said, the patentee might have done the same in this case, if he had sought to enforce his contract.

Much more nearly analogous to the case under consideration and practically upon all fours with it is that of *Littlefield v. Perry*, (7 O. G., 934; 21 Wall., 305.) This was a suit by an assignee against the patentee, who had made a conveyance to the plaintiff of his patent with all improvements thereon, within certain States, for which plaintiff had agreed to pay royalty upon all articles sold, with a

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clause of forfeiture in case of non-payment or neglect after due notice, to make and sell the patented articles to the extent of a reasonable demand therefor. There was by a supplementary document an agreement reserving to the patentee the right to apply the principle of his invention to one special purpose. It was held that whether the plaintiff was an assignee or a licensee, he had a right to maintain a suit for infringement in his own name in a Federal court against the patentee. Said the Chief Justice:

They [the plaintiffs] certainly had the exclusive right to the use of the patent for certain purposes within their territory. They thus held a right under the patent. The claim is that this right has been infringed. To determine the suit, therefore, it is necessary to inquire whether there has been an infringement, and that involves a construction of the patents, * * * such a suit may involve the construction of a contract as well as of a patent, but that will not out of the court of its jurisdiction. If a patent is involved, it carries with it the whole case.

Upon the subject of a licensee suing his own patentee the Chief Justice observed:

A mere licensee cannot sue strangers who infringe. In such cases redress is obtained through or in the name of the patentee or his assignee. Here, however, the patentee is the infringer, and, as he cannot sue himself, the licensee is powerless, so far as the courts of the United States are concerned, unless he can sue in his own name. A court of equity looks to the substance rather than form. When it has jurisdiction of parties it grants the appropriate relief without regard to whether they come as plaintiff or defendant. In this case the person who should have protected the plaintiff against all infringements has become himself the infringer.

White v. Rankin (59 O. G., 1606; 144 U. S., 628) was a bill by a patentee for infringement, to which there was answer setting up an agreement between the plaintiff and one of the defendants to assign to him an interest in the patent on certain conditions, which it was alleged were performed, and certain other matters which it was alleged gave the defendants the right to make, use and sell the patented invention. The case was tried upon a stipulation admitting that defendants had made and sold the patented inventions, and that a certain written agreement between the plaintiff and one of the defendants had been made as above stated. The circuit court entered a decree dismissing the bill, which was reversed by this Court.

It [the court] appears [said Mr. Justice Blatchford] to have dismissed the bill on the simple ground that the defendant set up a contract of license from White. The bill being purely a bill for infringement, founded upon patents, what was set up by the defendants was set up as a defense and as showing the lawful right in them to do what they had done, and as a ground for the dismissal of the bill because they had not infringed the patents.

The decree was not one upon the facts of the case, but was simply a decree that the Court had no jurisdiction to try the case. The subject-matter of the action, as set forth in the bill, gave the court jurisdiction, and exclusive jurisdiction, to try it. All of the parties to the suit were citizens of California, and if jurisdiction did not exist under the patent laws it did not exist at all.

The circuit court found nothing as to the existence or validity of the contract, decree or deed mentioned in the stipulation. The stipulation provides that at the hearing the contract, complaint, answer, decree and deed set forth in the stipulation may be offered in evidence, subject to such objections as might be urged against the originals thereof. The stipulation further states that the defendants do not admit that anything is due to the plaintiff from Thompson, and that they do admit that nothing had been paid by Thompson to the plaintiff under the decree of the State court of August 28, 1894, and since the making thereof. All these matters and questions ought to have been adjudicated by the circuit court before it could find ground to determine whether or not it should dismiss the bill. Until it had so adjudicated those questions the decision in the case of *Hartell v. Trighman* could not apply.

The cases in the circuit courts and courts of appeal are too numerous to be analyzed, or even cited. One of the most recent and satisfactory is that of the *Atherton Machine Co. v. Atwood-Morrison Co.*, (103 Fed. Rep., 949,) in which it was broadly held that a suit in which the relief sought is an injunction and a recovery of damages for the infringement of a patent is one arising under the patent laws of the United States, although it incidentally involves a determination of the question of the ownership of the patent, which was claimed by both complainant and defendant under separate assignments from the patentee. All the cases cited herein are reviewed and the jurisdiction sustained.

The difficulty with the defendant's position in the case under consideration is that it apparently leaves the plaintiff without an adequate remedy. Defendant has broken no express covenant of the contract, since it has made no covenant. It has simply ignored the existence of the contract and granted a license to another party. It is difficult to see what remedy is available to the plaintiff in a State court that would not involve the right of the defendant to use the patent. In other words, it would be an ordinary suit for infringement in which the Federal courts would alone have jurisdiction. Whether it sued at law or in equity, its damages would be such as are usual in cases of infringement, and the only injunction it could obtain would be against the further use of the invention.

In any suit that could be brought the title of the plaintiff to sue must be put in issue, and, that being the title to the patent, is put in issue in every suit for infringement. We held in *Pratt v. Paris Light & Coke Co.*, (108 U. S., 255,) with respect to an action in a State court, which involved the question whether the patents were void and an infringement upon prior patents, that this did not necessarily oust the State court of its jurisdiction; and by parity of reasoning we hold in this case that the mere fact that the suit may involve the existence of the license does not oust the court of jurisdiction of a suit for the infringement of a patent.

While we do not intend to allow the jurisdiction of the Federal courts to be invoked primarily for the determination of the respective rights of parties to a contract concerning patents, yet when the bill is an ordinary one for an infringement and the answer puts in issue the title of the plaintiff to sue, we think the jurisdiction is not ousted by the mere allegation that the license has been revoked and that the court is at liberty to go on and determine that fact. We regard this question as conclusively settled in *Perry v. Littlefield*, (31 Wall., 205,) and *White v. Rankin*, (144 U. S., 628,) and have no disposition to disturb it.

The decree of the circuit court is, therefore, reversed, and the case remanded to that court for further proceedings consistent with this opinion.

Mr. Justice GRAY did not sit in this case or participate in the decision.

[Vol. 99. No. 9.]

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 99.—No. 10.

TUESDAY, JUNE 3, 1902.

Price—\$5 per year.

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TO CITIZENS OF THE UNITED STATES.

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Alabama.....	4	1	Nebraska.....	3	
Alaska Territory.....			Nevada.....		
Arizona Territory.....			New Hampshire.....	1	
Arkansas.....	2		New Jersey.....	27	3
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Colorado.....	17		New York.....	29	14
Connecticut.....	15	3	North Carolina.....	2	1
Delaware.....	1		North Dakota.....	1	
District of Columbia.....	1		Ohio.....	54	5
Florida.....	1	3	Oklahoma Territory.....	3	
Georgia.....	3	1	Oregon.....	2	
Hawaii Territory.....			Pennsylvania.....	20	8
Idaho.....			Rhode Island.....	2	
Illinois.....	46	10	South Carolina.....	1	
Indiana Territory.....	1		South Dakota.....		
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Massachusetts.....	37	9	Wisconsin.....	10	3
Michigan.....	29	2	Wyoming.....	1	
Minnesota.....	3		U. S. Navy.....		
Mississippi.....	2		Total to citizens of the United States.....	499	71
Missouri.....	25	1			
Montana.....	1				

TO CITIZENS OF FOREIGN COUNTRIES.

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Brasil.....	1		Norway.....		
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Denmark.....	2		Sweden.....	2	
Egypt.....	27	2	Switzerland.....	1	
England.....	25		Tasmania.....		
France.....	25		Texas.....		
Germany.....	25		Victoria.....		
Greece.....	1		Western Australia.....		
India.....			Total to citizens of foreign countries.....	35	3
Ireland.....					
Italy.....					
Mexico.....					

Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of the city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelope forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelope addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelope should be marked or stamped "Hold in General Delivery," but no envelope should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered," until it is returned to this Office in an envelope thus addressed and marked.

Hearings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

Washington, D. C., May 18, 1902.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1902.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 17, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
In arrears—Under one month.				
517	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics, and Photography.	May 15	May 17	51
108	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	May 8	May 14	288
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	May 8	May 12	307
200	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	May 1	May 12	308
252	X. Carriages and Wagons.	Apr. 29	May 15	108
248	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Apr. 29	May 13	288
125	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Apr. 23	May 14	102
281	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Apr. 23	May 14	149
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Apr. 23	May 14	172
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Apr. 23	May 13	249
286	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Apr. 23	May 13	249
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Grease, Tanning, etc.	Apr. 23	May 13	107
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Apr. 23	May 13	206
246	I. Tillage, etc., and Fences.	Apr. 23	May 13	172
282	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 23	May 13	163
283	XXIV. Railways, Railway-Busses, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Apr. 23	May 13	288
212	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Apr. 23	May 13	216
177	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Apr. 23	May 13	285
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Apr. 23	May 9	543
281	XXIII. Acoustics, Electric Signaling, Holography, Recorders, and Registers.	Apr. 23	May 7	106
Between one and two months.				
288	VI. Chemistry, Explosives, Ferments, Medicines, Sugar and Salt, Surgery, etc.	Apr. 23	May 7	240
285	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Apr. 23	May 13	288
120	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Apr. 24	May 14	166
280	XIV. Metal Bending, Ornamenting, and Personal Wear, Parriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Work, Making, etc.	Apr. 24	May 2	271

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Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
89	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	Apr. 23	Apr. 23	271
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Apr. 21	May 5	208
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Apr. 9	Apr. 16	370
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Apr. 5	Mar. 20	281
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Apr. 2	May 2	185
122	XXIX. Wood-Working Machines, Coopering and Boonding.	Mar. 20	Apr. 28	280
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Mar. 28	Mar. 25	472
<i>Between two and three months.</i>				
245	XVIII. Steam-Engineering, etc.	Mar. 25	Mar. 25	400
21	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 15	Mar. 15	572
99	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 11	Mar. 11	502
142	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Mar. 4	Mar. 31	408
<i>Between three and four months.</i>				
103	II. Boots and Shoes, Harness, Hoop and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Feb. 17	Apr. 14	422

Total number of applications awaiting action..... 2,985

Under one month.

* Designs	May 1	May 6	116
† Trade-Marks	May 5	May 19	165
‡ Labels and Prints	May 19	May 19	28

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.
2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.
3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.
4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.
5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

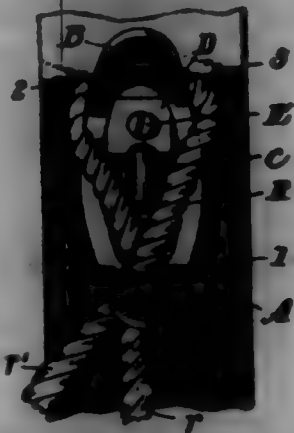
Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

PATENTS

GRANTED JUNE 8, 1902.

701,277. ROPE-FASTENER. FRANK B. ADAMS, Plymouth, Mich.
Filed Oct. 12, 1891. Serial No. 73,944. (No model.)



Claim.—1. A fastener for ropes, &c., comprising a plain oval loop, when viewed from above, said loop being bent on its longer axis into crescent shape, when viewed from the side, to form two similar opposite curved members, and the opposite sides of the loop being connected on its shorter axis by a cross-bar, and a retainer for said cross-bar holding the convex side of the loop next to the support, substantially as set forth.

2. In a rope-fastener, the combination of a plain oval-shaped loop, when viewed from above, bent on its longer axis into crescent shape, when viewed from the side, and forming two similar opposite curved members; the opposite sides of the loop being centrally connected on its shorter axis by a cross-bar; with a retainer engaging said cross-bar and holding the convex side of the loop to the support while permitting rocking of the loop, substantially as described.

3. The herein-described fastener for ropes, &c., comprising a long oval loop when viewed from above, said loop being bent on its longitudinal axis into crescent shape, when viewed from the side, forming two opposite curved members A, B, each side piece of the loop having a central lug, said lugs being connected by a transverse bar; and a retainer lying longitudinally of the loop and athwart said bar, whereby the fastener is permitted a longitudinal rocking movement, substantially as and for the purpose set forth.

701,278. WALL-PAPER CLEANER. WILLIAM ABBOTT, Akron, Ohio, assignor of one-half to John Lee, Akron, Ohio. Filed Aug. 20, 1891. Serial No. 73,570. (No model.)



Claim.—1. A rubber wall-paper cleaner comprising a sponge-rubber portion split lengthwise at its rear and outer and having an inclined working surface, a two-part holder for said rubber constructed to clamp thereon, and a spreader located in the base of said split and adapted to spread the rubber in the holder, and arrows to temporarily lock the sides of the holder together, whereby the rubber can be removed and replaced, substantially as described.

2. The holder consisting of two clamping side sections A and B having a union channel lengthwise within their lower edge, and arrows to clamp them together, in combination with a rubber strip having its edge extending into said channel and split lengthwise at its center, a spreader for the rubber lengthwise through the said split within said channel, the said rubber having an inclined working surface C and the said holder having a rigid bearing portion D forming a backing for said working surface, substantially as described.

701,279. VEHICLE-WHEEL AND TIRE THEREFOR. LOUIS F. ALPHEUS and ROBERT G. ALPHEUS, Chicago, Ill. Filed Nov. 12, 1891. Serial No. 68,061. (No model.)



Claim.—1. In a tire for vehicle-wheels, in combination, a rim having cavities in the periphery thereof, tufts of bristles coated in the cavities and disposed radially as to the wheel, and a covering of rubber filling the interior of and covering the tufts and forming the body of the tire.

2. In a tire for vehicle-wheels, in combination, a rim having cavities in the periphery thereof, tufts of bristles coated in the cavities and disposed radially as to the wheel, a covering of rubber filling the interior of and covering the tufts and forming the body of the tire, a jacket covering the rubber body, and a pair of annular clamps and fastening means therefor for securing the jacket to the wheel-rim.

701,280. ELECTRIC METER. EUGENIUS ARON, Charlestown, Germany. Filed Feb. 20, 1892. Serial No. 64,868. (No model.)



Claim.—1. In an electric meter, the combination with a driving-shaft; of a planet-wheel gearing connected with said driving-shaft; a clock-train to actuate the registering device driven by one of the crown-wheels of said planet-wheel gearing; and a cut-out shaft to open and close the circuit driven by the other crown-wheel of said planet-wheel gearing.

2. In an electric meter, the combination with a driving-shaft; of a planet-wheel gearing connected with said driving-shaft; a clock-train to actuate the registering device driven by one of the crown-wheels of said planet-wheel gearing; a cut-out shaft to open and close the circuit driven by the other crown-wheel of said planet-wheel gearing; a second planet-wheel gearing having one crown-wheel driven by said clock-train; and connections between the other crown-wheel of said last-named planet-wheel gearing and the said cut-out shaft, whereby the movements of said shaft are controlled by said crown-wheel.

701,281. PAPER-HOLDER. JAMES S. BROWN, Wilmington, Del., assignor to E. K. Thompson & Company, Wilmington, Del. Filed Aug. 20, 1891. Serial No. 73,738. (No model.)

Claim.—An improved article of manufacture, a paper-holder formed of a single piece of wire, one end of the same being bent so as to form the two eyelets B at the lower end, the wire then extending upward and being bent so as to form the circle F at the upper end, the wire between the circle and the eyelets adapted to normally lie against the surface to which it is secured, said wire being bent outward and then back just below the circular portion to form a thumb-hold, said wire also being

outward and then back just above the eyelets in form a spring portion, the circular portion being slightly curved outward so that the upper and will normally be at a distance from the surface in which the latter is secured, substantially as and for the purpose set forth.



701,982. INTERCOMMUNICATING TELEPHONE-SWITCH. H. SHAN RANNEY, Philadelphia, Pa., and WILLIAM A. FROST, Camden, N. J., assignors of one-half to Louis Ryerson, Jr. Filed June 10, 1901. Serial No. 94,954. (No model.)



Claim.—1. An intercommunicating telephone-switch comprising a transmitter-base having therein a rigid insulating-plate and electrical connections therein, with plugs operating through said plate and means for simultaneously returning all plugs to their normal positions, as set forth.

2. An intercommunicating telephone-switch, comprising a transmitter-base having therein a fixed horizontal insulating-plate to receive all the electrical connections and intercommunicating plugs, a disk below said plate, a hinged receiver-hook having mechanical connections with said disk, and a spring for depressing said disk, as set forth.

3. An intercommunicating telephone-switch, comprising a transmitter-base, and a hinged receiver-hook, a disk with said base in connection with the receiver-hook, a series of switch-plugs in operative relation with said disk, and means whereby said plugs are locked in position when the disk is elevated by the receiver-hook, as set forth.

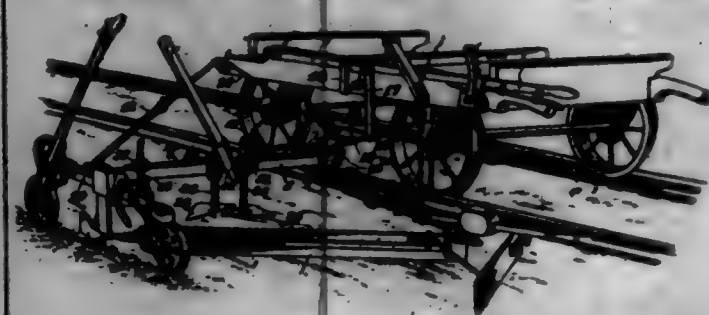
4. In an intercommunicating telephone-switch, a transmitter-base having therein a fixed plate provided with a series of non-removable plugs, said plugs extending through the face of the base and projecting below the fixed plate, each plug having on opposite sides a spring-finger and

pass depending from the fixed plate to contact with said spring-finger, as set forth.

5. In an intercommunicating telephone-switch, a transmitter-base having therein a rigid insulating-plate, a series of round holes through the same, provided with oppositely disposed pins or grooves, in combination with plugs, having rounded bodies provided with spring-fingers on opposite sides and adapted to rest within the circular grooves, as set forth.

6. In an intercommunicating telephone-switch, the combination of a base and standard for a transmitter and a hinged receiver-hook, a disk within said base mechanically connected with the receiver-hook, a fixed insulating-plate above said disk having therein all the electrical terminals, and plugs through said plate projecting out of said base and extending below the insulating-plate into operative contact with said disk, metallic posts on opposite sides of each plug in electrical connection with the telephone-circuit, and spring-fingers on each plug adapted to contact with said posts when the plugs are depressed, as set forth.

701,988. WOOD-DESTROYING MECHANISM. VICTOR BERNARD, Tara, Canada. Filed June 10, 1901. Serial No. 95,457. (No model.)



Claim.—1. In an apparatus for destroying weeds on railway-tracks, the combination with a wheeled car, of a frame extending in its operative position outwardly from one side of said car, means whereby said frame is maintained in foldable and operative relation to said car, and a gang of wheel-cutters mounted on said frame, each wheel-cutter having a blade which is disposed approximately in a position parallel to the plane of the frame, as and for the purpose described.

2. In an apparatus for destroying weeds on railway-tracks, the combination with a wheeled car, of a frame-bar extending outwardly from one side of said car, means connecting said frame-bar foldably with the car and supporting the same in its extended operative position, and a gang of wheel-cutters on the frame-bar, each cutter having a cheek and a blade which is disposed on the cheek in a position approximately parallel to the frame upon which the cutter-cheek is clamped, as and for the purpose described.

3. An apparatus of the class described comprising a suitable frame, a pivoted bar having a handle and adapted to turn on a vertical axis, means carried by the frame to operate relation to the pivoted bar for limiting the latter to movement in a horizontal plane, and a gang of wheel-cutters, one of which is mounted on the pivoted bar and is shiftable therewith, substantially as described.

4. An apparatus of the class described comprising a suitable frame, a bar pivoted to said frame and having a handle, a keeper for limiting the bar to movement in a horizontal plane, and a gang of wheel-cutters, one of which is mounted on said bar and is shiftable therewith, substantially as described.

5. In an apparatus of the class described, the combination with a wheeled frame, of a hanger pivoted to said frame, means whereby the hanger may be adjusted with relation to the wheeled frame, a stay-rod attached to said hanger and to the frame, a frame-bar having a hinged connection with said hanger and extending outwardly therefrom, and a gang of wheel-cutters mounted on said frame-bar, substantially as set forth.

6. An apparatus of the class described comprising a suitable frame, a bar pivoted to said frame and having a handle, a keeper for limiting the bar to movement in a horizontal plane, and a gang of wheel-cutters each having an upwardly-extending cheek, one of said bars having its cheek attached to said bar, substantially as described.

7. In an apparatus of the class described, the combination with a wheeled frame, of a wood-destroying mechanism comprising a frame-bar, an arm pivoted to said frame-bar and extending rearwardly therefrom, a guide-bar attached to the frame-bar and embracing said pivoted arm, means for shifting the arm on its pivot, and a gang of bars one of which is attached to the pivoted arm and the other bars connected to the frame-bar, substantially as set forth.

8. In an apparatus of the class described, the combination with a wheeled frame, of a wood-destroying mechanism connected therewith and comprising a frame-bar extending outwardly from said wheeled frame, an extensible stay-rod attached to said outwardly-extending frame-bar and

to the wheeled frame, and a gang of wheel-cutters mounted on the frame-bar, substantially as set forth.

9. In an apparatus of the class described, the combination with a wheeled frame, of a hanger supported thereon, means for adjusting said hanger vertically, a frame-bar having a hinged connection with the hanger and extending outwardly from the wheeled frame, an extensible stay-rod connected with the frame-bar and with the wheeled frame, another stay-rod attached to the hanger and to the wheeled frame, and a gang of wheel-cutters mounted on the frame-bar, substantially as set forth.

10. In an apparatus of the class described, the combination with a wheeled frame, of a wood-destroying mechanism connected therewith and comprising an extensible frame-bar, means for clamping the members of said frame-bar adjustably together, means for foldably connecting the frame-bar to the wheeled frame and to support said frame-bar thereon when it is extended outwardly therefrom to assume an operative position, and a gang of wheel-cutters secured to the frame-bar, substantially as set forth.

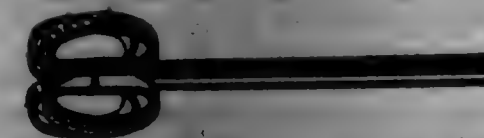
11. In an apparatus of the class described, the combination with a wheeled frame, of a wood-destroying mechanism connected therewith and comprising a two-part frame-bar, clamping-brackets having the clotted plates arranged to receive the members of said frame-bar, means for clamping the frame-bar and the brackets adjustably together, and a gang of wheel-cutters each having a cheek which is fastened in one of the clamping-brackets, substantially as set forth.

701,984. BOTTLE-WASHER. RICHARD W. BAKER, Baitimore, Md. Filed Aug. 2, 1901. Serial No. 95,351. (No model.)



Claim.—The combination of a handle, having a cylindrical body, and running around on said cylindrical body a right-hand thread, and running around on said cylindrical body a left-hand thread, broader than said right-hand thread and crossing the same; an inner nut having a right-hand thread, corresponding with the right-hand thread of the bolt and in its upper face a recess, churning in the same direction with its thread, having a shoulder; a spring-washer provided with a central perforation, and with two tongues in one side, one turning slightly downwardly, and the other slightly upwardly; an upper nut having a left-hand thread corresponding with the left-hand thread of the bolt, and in its lower face one or more recesses, churning in an opposite direction from its thread, and having one or more shoulders; said nuts and washers adapted to be locked and unlocked at any point on the threaded part of the bolt, substantially as shown and described and for the purpose set forth.

701,985. BOTTLE-WASHER. RICHARD W. BAKER, Baitimore, Md., assignor of one-half to William F. Baker, Baitimore, Md. Filed Oct. 22, 1901. Serial No. 95,352. (No model.)



Claim.—1. A bottle-washer comprising a supporting rod or spindle and a flexible tube fitted longitudinally and having its ends inverted to form projecting loops.

2. A bottle-washer comprising a rod or spindle, and a flexible tube fitted longitudinally and having its ends inverted to form projecting loops, the outer surfaces of which are formed with projections.

3. A brush for washing bottles comprising a tubular body portion of yielding material, and radially-disposed loops projecting from the ends of the tubular body portion.

701,986. HEATING AND VENTILATING FURNACE. RICHARD W. BAKER, Baitimore, Md. Filed Oct. 22, 1901. Serial No. 95,353. (No model.)

Claim.—1. In a heating-furnace, the combination of a vertical flue, an inlet connection therein, heating-chambers connecting with the top and bottom of said flue, a damper in said vertical flue, independent air-flues in said lower chamber, an air-reheating chamber communicating with the atmosphere in said upper chamber and an inlet-pipe for said chamber passing through said lower chamber, for the purpose described.

2. In a heating-furnace, the combination of a vertical flue, an inlet connection therein, heating-chambers connecting with the top and bottom of said flue, a damper in said vertical flue, independent air-flues in said lower chamber, a hot-air chamber in said upper chamber, air inlet and outlet flues for said chamber, said inlet-flue extending down through the bottom of the upper chamber and partially through the lower chamber and a detachable extension projecting through the bottom of the lower chamber, shrouded on said flue, for the purpose described.



3. In a heating-furnace, the combination of a vertical flue, an inlet connection therein, heating-chambers connecting with the top and bottom of said flue, a damper in said vertical flue, independent air-flues in said lower chamber, a hot-air chamber in said upper chamber, air inlet and outlet flues for said chamber, said inlet-flue extending down through the bottom of the upper chamber and partially through the lower chamber, a damper in said flue intermediate said upper and lower chambers, and a downward extension projecting through the bottom of the lower chamber and carrying a ventilating-regulator.

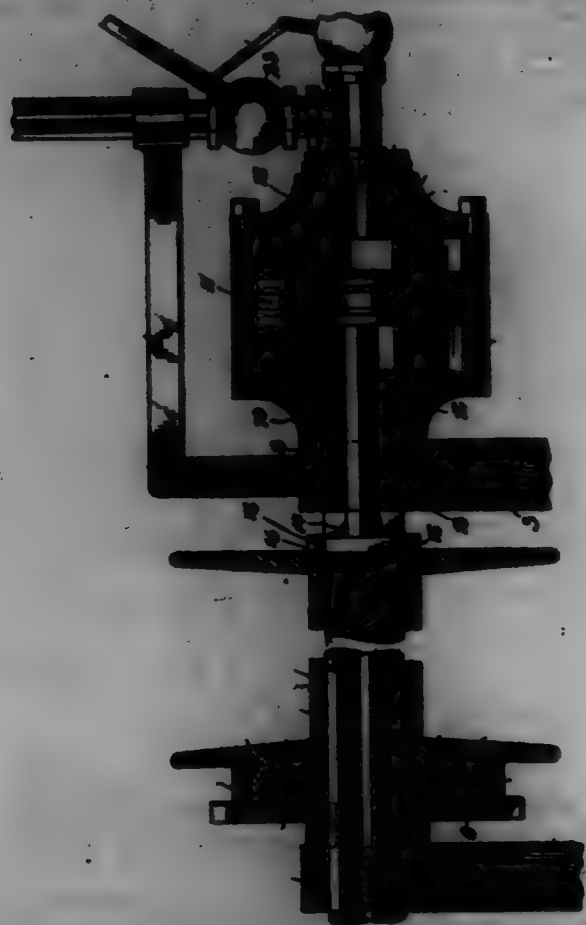
4. In a heating-furnace, the combination of a vertical flue, an inlet connection therein, heating-chambers connecting with the top and bottom of said flue, a damper in said vertical flue, independent air-flues in said lower chamber, a hot-air chamber in said upper chamber, air inlet and outlet flues for said chamber, said inlet-flue extending down through the bottom of the upper chamber and partially through the lower chamber and a detachable extension projecting through the bottom of the lower chamber shrouded on said flue, a flaring collar on said extension forming a stop and provided with openings adapted to register with openings in the bottom of the lower chamber to form a register and an outwardly-flaring portion below said collar adapted to form a handhold for extending said register.

5. In a heating and ventilating furnace, the combination of an upper direct smoke-chamber D and a lower indirect smoke-chamber E, the main inlet-flue A having direct and indirect branches B and C respectively leading into said chambers, the regulating-damper G is in the direct branch, the air-heating chamber is in the upper smoke-chamber provided with air inlet and outlet flues, and the air-inlet flue passing through the lower chamber formed with lateral extensions at their ends for the purpose described.

6. In a heating and ventilating furnace, the combination of an upper direct smoke-chamber and a lower indirect smoke-chamber, the main inlet-flue having direct and indirect branches respectively leading into said chambers, the regulating-damper is in the direct branch, the air-heating flue passing through the lower chamber, the air-heating chamber is in the upper chamber provided with outlet and inlet flues, the air-inlet flue passing through the lower chamber and connected at its upper end with the air-heating chamber and the detachable extension shrouded on the lower end of said flue.

7. In a heating and ventilating furnace, the combination of an upper direct smoke-chamber and a lower indirect smoke-chamber, the main inlet-flue having direct and indirect branches respectively leading into said chambers, the regulating-damper is in the direct branch, the air-heating flue passing through the lower chamber, the air-heating chamber is in the upper chamber provided with air inlet and outlet flues, said inlet-flue passing through the lower chamber and connecting the air-heating chamber with the atmosphere and a rotatably-adjustable collar carried by the lower end of said flue and formed with openings adapted to register with openings in the bottom of the lower chamber to form a ventilating-regulator.

701,987. STARTING OR STOPPING MECHANISM. GEORGE H. BROWN, Benton, Ore. Filed Sept. 28, 1901. Serial No. 73,778. (No model.)



Claim.—1. The combination with opposite bearings, of a shaft mounted thereon, a driving member carried by the shaft, an endwise-shiftable drum mounted on the shaft in frictional operative relation to the driving member, a cylinder mounted upon one end of the shaft and exteriorly of the adjacent bearing, a piston working in the cylinder and having an operative connection with the drum to shift the same into engagement with the driving member, an inlet-pipe placing the center of the outer head of the cylinder and forming a bearing therefor, and a supporting-bracket carried by one of the bearings and connected to the supply-pipe to form a support therefor.

2. The combination with opposite bearings, of a rotatable shaft mounted thereon, a driving member carried by the shaft, an endwise-shiftable drum loosely mounted upon the shaft in operative relation to the driving member, a cylinder carried by and rotatable with one end of the shaft and loosely mounted on the adjacent bearing, a piston working in the cylinder and in operative relation to the drum to shift the same into engagement with the driving member, a supply-pipe centrally placing the outer head of the cylinder and forming a bearing therefor, an exhaust-valve carried by the supply-pipe, a service-pipe communicating with the supply-pipe between the exhaust-valve and the cylinder, a controlling-valve upon the service-pipe, a controlling-lever having a link connection between the two valves for simultaneously closing one and opening the other, and a bracket carried by the adjacent bearing and connected to the service-pipe to support the bearing for the outer end of the cylinder.

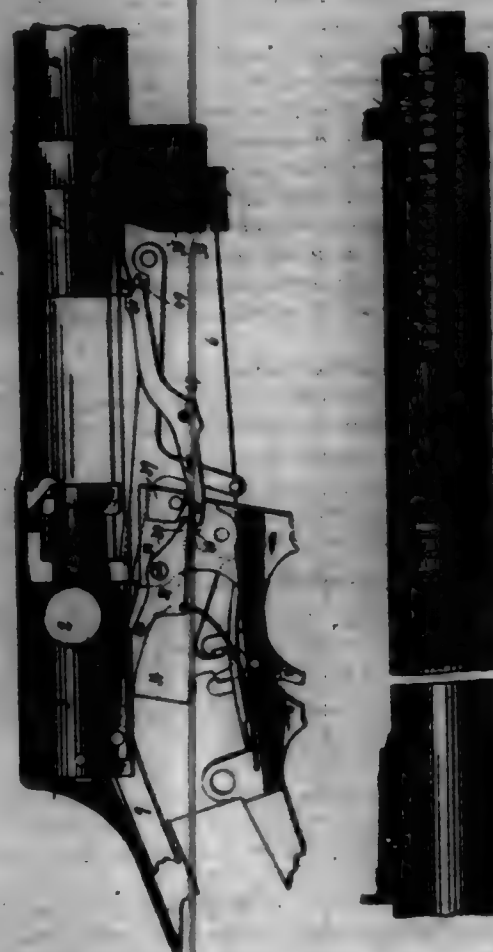
701,988. RECOIL-OPERATED FIREARM. JOHN H. BROWNE, Ogden, Utah. Filed Mar. 15, 1901. Serial No. 51,595. (No model.)

Claim.—1. In a recoil-operated firearm, the combination with the receiver thereof, of a recoiling barrel, a barrel-jacket secured to the receiver, a barrel-spring controlling the barrel, a buffer-spring controlling the barrel at a point to the rear of the rear end of the said barrel-spring, and a stop engaging with the barrel and bringing the barrel-spring into play after the barrel-spring has been compressed.

2. In a recoil-operated firearm, the combination with the receiver thereof, of a recoiling barrel, a barrel-jacket secured to the receiver, a barrel-spring controlling the barrel, a buffer-spring controlling the barrel at a point to the rear of the rear end of the said barrel-spring, and a stop located outside of the barrel-spring, engaging with the barrel and bringing the barrel-spring into play after the barrel-spring has been compressed.

3. In a recoil-operated firearm, the combination with the receiver thereof, of a recoiling barrel, a barrel-jacket secured to the receiver, a barrel-spring controlling the barrel, a buffer-spring controlling the barrel at a point to the rear of the rear end of the said barrel-spring, and a tubular stop

controlling a portion of the barrel-spring and engaging with the barrel to bring the buffer-spring into play after the barrel-spring has been compressed.



4. In a recoil-operated firearm, the combination with a receiver, of a recoiling barrel, a barrel-jacket secured to the receiver, a barrel-spring controlling the barrel, a buffer-spring also controlling the barrel, and a tubular stop engaging at one end with the buffer-spring and adapted to have its other end engaged by a projection from the barrel after the same has begun its recoiling movement.

5. In a take-down recoil-operated firearm, the combination with a receiver having its forward end formed with a bolt-hole, of a recoiling barrel, a barrel-jacket, a take-down head located at the rear end of the said jacket, adapted to fit the forward end of the receiver, and provided with a bolt-hole registering with the said bolt-hole therein, and a screw-bolt passing through the bolt-hole in the take-down head into the bolt-hole in the receiver, whereby the said head is fastened directly to the receiver.

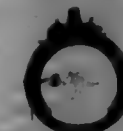
6. In a take-down, recoil-operated firearm, the combination with a receiver formed at its forward end with a shallow recess, of a recoiling barrel, a barrel-jacket provided at its rear end with a take-down head consisting of a body receiving the rear end of the jacket, and formed with a bolt-hole, and of a plate or flange formed with a shoulder adapted to enter the said recess, a screw-bolt passing through the said bolt-hole in the said head and into the receiver and securing the head directly thereto.

7. In a recoil-operated firearm, the combination with a recoiling barrel, of a breech-closure, a hammer, and a dog engaging with the breech-closure to lock the same in its open position, and engaging with the hammer to prevent the same from falling until after the gun has been closed and locked.

8. In a recoil-operated firearm, the combination with the recoiling barrel and barrel extension thereof, of a breech-closure, a hammer, a dog engaging with the breech-closure to lock the same in its open position, and engaging with the hammer to prevent the same from falling until after the gun is closed and locked, and a lever engaging with the said dog and operated upon at its forward end by the barrel extension and by the breech-closure in the order named.

9. In a recoil-operated firearm, the combination with the recoiling barrel and barrel extension thereof, of a breech-closure, a hammer, a dog engaging at its rear end with the breech-closure to lock it in its open position, and formed at its forward end with two arms, one of which is provided with a hook for engaging with the hammer, and a lever engaging at its rear end with the other arm of the dog, and acted upon at its forward end by the barrel extension and the breech-closure in the order named, just before they reach their closed position.

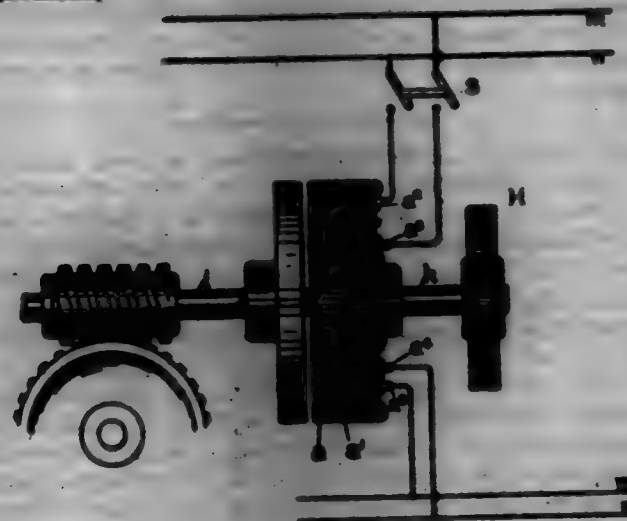
701,989. SHUT FOR FIREARM. JOHN H. BROWNE, Ogden, Utah. Filed Dec. 15, 1901. Serial No. 52,665. (No model.)



Claim.—1. In a firearm, the combination with the barrel thereof, of a barrel-jacket formed with one or more clearance-openings, a right-piece located upon the jacket, and a ring located within the jacket in frictional contact with the inner periphery thereof, and adapted to have the right-piece connected with it through the said opening or openings which permit the right-piece to be adjusted sidewise upon the jacket, at which time the ring remains within the same.

2. In a firearm, the combination with the barrel thereof, of a barrel-jacket formed with one or more clearance-openings, a right-piece mounted upon the jacket, an expansible dog located within the jacket, and covers for connecting the right-piece and ring through the said clearance opening or openings and permitting the right to be adjusted upon the jacket for adjusting its position thereupon.

701,990. MAGNETIC CLUTCH. MARSHALL W. BOW, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Original application filed Mar. 27, 1900. Serial No. 700,702. Divided and this application filed May 24, 1902. Serial No. 13,045. (No model.)



Claim.—1. In an electromagnetic clutch, the combination with an energizing-coil, of a normally excited demagnetizing-coil, such as to cause the clutch to release when the energizing-coil is deenergized.

2. In a clutch, the combination with a magnetizing-coil adapted to cause the clutch to operate when the coil is supplied with current, of a source of magnetomotive force substantially equal to the coercive force of the clutch, arranged to positively demagnetize the clutch when the main coil is deenergized.

3. In an electromagnetic clutch, the combination with metal forming a magnetic circuit, of a source of magnetomotive force acting on said circuit to operate the clutch, and an opposing and normally constantly acting source of magnetomotive force sufficient to neutralize the remanent magnetism and to cause the clutch to release when the first source of magnetomotive force ceases to act.

701,991. CURTAIN. EDWARD L. CARPENT and WILLIAM H. CARPENT, Detroit, Mich. Filed Mar. 17, 1902. Serial No. 93,394. (No model.)



Claim.—1. In a curtain, the combination with the curtain having an opening, of a longitudinally-movable cover to close said opening and a bowl pivoted to turn beneath the opening and extended upward therefrom and hinged to the cover whereby the cover is guided by the engagement of the bowl with the side of the opening in the floor.

2. In a curtain, the combination with a casing forming the body of the curtain and open at its top and bottom, of a longitudinally-mov-

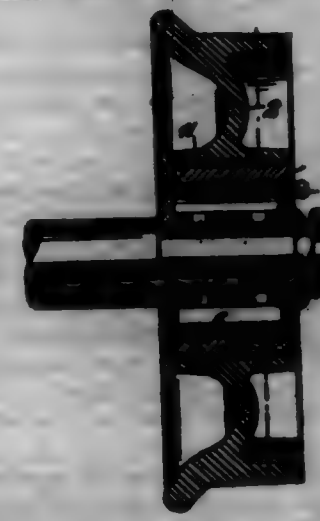
able cover to close the upper end of said casing, and a pivoted bowl to close the lower end of said casing having a portion extended upward and hinged to the cover and adapted to guide the same.

3. In a curtain, the combination with a casing open at its top and bottom, of a longitudinally-movable cover to close the upper end of said casing, a bowl to close the lower end of the casing, having a portion extended upward and hinged to the cover, and a pivot upon which said bowl is free to turn and to slide.

4. In a curtain, the combination with a rectangular casing forming the body of the curtain and open at its top and bottom, of a cover to close the top of said casing, a bowl within said casing, having a portion extended upward and hinged to said cover, a rod extending transversely across the casing and a guide-loop on said bowl engaging said rod and holding the bowl in engagement therewith.

5. In a curtain, the combination with a rectangular casing forming the body of the curtain and open at its top and bottom, of a longitudinally-movable cover to close the upper end of said casing, a bowl having a curved bottom portion extended upward to the top of the casing and side flanges engaging the side wall of the casing, hinges connecting the upper end of said bottom portion with said cover, a rod extending through the walls of the casing and transversely across the same, guide-loops on the bottom portion of the bowl engaging said rod, and a rib on the casing forming a stop to engage the lower end of said bottom portion.

701,992. WHEEL. FREDERICK H. CANSA, New York, N. Y. Filed Oct. 23, 1901. Serial No. 95,495. (No model.)



Claim.—1. As an article of manufacture, a car-wheel comprising a body portion formed of a relatively hard material and a separate hub formed of a softer material suitable for a bearing member, said body portion and hub being secured together by a layer of binding material fusible at a lower temperature than either the body portion or the hub, and said hub having an interior bearing-surface adapted to permit rotation about a suitable journal.

2. As an article of manufacture, a car-wheel, comprising a cast-steel body portion and a separate hub formed of a softer material and secured to said body portion by a layer of metal fusible at a lower temperature than the metal of said body portion and hub, said hub having an interior bearing-surface adapted to permit rotation about a suitable journal, and having within it a chamber for lubricant communicating by a passage with said bearing-surface.

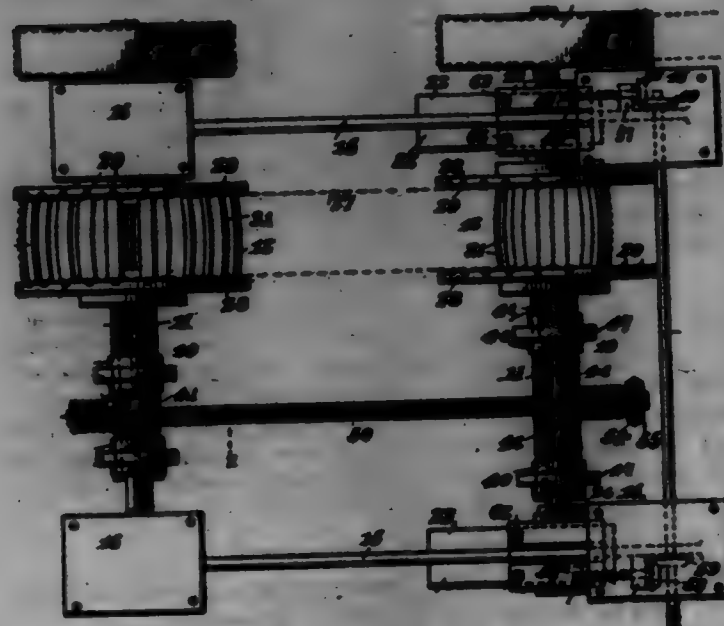
3. As an article of manufacture, a car-wheel, comprising a cast-steel body portion and a separate hub formed of a softer material, and a layer of cast metal filling the space between said body portion and said hub and securing the same together, said body portion and hub having on their adjacent surfaces projections whereby they are interlocked with the layer of cast metal binding them together.

701,993. VARIABLE-SPEED MECHANISM. JOHN E. CASE, Kansas City, Mo. Filed June 14, 1901. Serial No. 94,554. (No model.)

Claim.—1. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced flange-plates and an expansible rim located between the flange-plates, means for expanding and contracting the rim, said means including a head slidably mounted upon the shaft between the flange-plates and within the rim and having a connection with said rim, and mechanism for moving the head upon the shaft.

2. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced flange-plates and an expansible rim arranged between the flange-plates, means for expanding

and contracting the rim, said means including heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, and operating mechanism for moving the heads.



3. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the face-plates, heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, links connecting the rim and heads whereby the said rim will be expanded and contracted upon the movement of the heads, and operating mechanism for moving said heads.

4. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the face-plates, heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, curved independent links connecting the rim and heads, whereby the said rim will be expanded and contracted upon the movement of the heads, and operating mechanism for moving said heads.

5. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim located between the plates, means for expanding and contracting the rim, said means including a head slidably mounted upon the shaft between the plates and within the rim and having a connection with said rim, a collar slidably mounted upon the shaft exteriorly of the pulley and having a connection with the head, and means for sliding said collar.

6. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the plates, heads slidably mounted upon the shaft between the face-plates and movable toward and from each other, connections between the heads and rim, and adjusting elements located upon the shaft exteriorly of the pulley and movable toward and from each other, each of said adjusting elements being connected to one of the heads.

7. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the plates, heads slidably mounted upon the shaft between the plates and movable toward and from each other, connections between the heads and rim, adjusting elements located upon the shaft exteriorly of the pulley and movable toward and from each other, each of said adjusting elements being connected to one of the heads, and a screw-threaded shaft located between the adjusting elements and engaging therewith to move them toward and from each other.

8. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the plates, a head movably mounted upon the shaft between the face-plates, connections between the head and rim, a slidable adjusting element located exteriorly of the pulley, and means connecting the head and adjusting element, whereby when said element is moved, the head will also be moved.

9. In apparatus of the class described, the combination with a shaft, of a pulley mounted upon the shaft and comprising spaced face-plates and an expandible rim arranged between the face-plates, heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, means connecting the rim and heads, collars slidably mounted on the shaft exteriorly of the pulley and con-

nected to the heads, and means engaging the collars to move them toward and from each other.

10. In apparatus of the class described, the combination with a shaft, of a pulley mounted on the shaft and comprising spaced face-plates and an expandible rim arranged between the face-plates, heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, means connecting the rim and heads, collars mounted on the shaft exteriorly of the pulley and connected to the heads, slidably-mounted adjusting-blocks located contiguous to the shaft, each of said blocks having an engagement with one of the collars, and means for moving said blocks toward and from each other.

11. In apparatus of the class described, the combination with a shaft, of a pulley mounted on the shaft and comprising spaced face-plates and an expandible rim arranged between the face-plates, heads mounted upon the shaft between the face-plates and within the rim, said heads being movable toward and from each other, means connecting the rim and heads, collars mounted on the shaft exteriorly of the pulley and connected to the heads, slidably-mounted adjusting-blocks located contiguous to the shaft, each of said blocks having an engagement with one of the collars, a cover-shaft located between the adjusting-blocks and engaging therewith, and means for rotating the cover-shaft.

12. In apparatus of the class described, a driving and a driven element, each element comprising a shaft, a pulley mounted upon each shaft and having an expandible rim, means for expanding and contracting said rim, said means including heads mounted to move toward and from each other, adjusting elements spaced from each other and connected to the heads, and a cover-shaft located between the adjusting elements and provided with a worm-gear, in combination with a shaft having worms that engage the worm-gears of each element to rotate them in opposite directions.

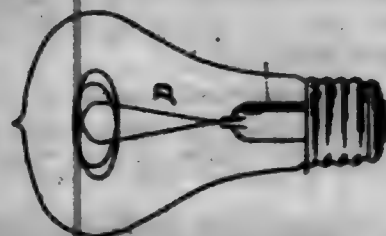
701,294. ART OF FUELING IRON. ROBERT A. GARNER, FRIDBURG, Pa. Filed Mar. 12, 1901. Serial No. 61,896. (No specimens.)

Claim.—1. As an improvement in the art of fueling iron, the method herein described, which consists in forming an ore lining for the bottom of the hearth, charging the metal to be treated on the hearth, melting, boiling and stirring the metal adding ore to the charge during the boiling and stirring and finally boiling the charge, substantially as set forth.

2. As an improvement in the art of fueling iron, the method herein described, which consists in forming an ore lining for the bottom of the hearth, spreading ore on each lining, charging the metal to be treated onto the ore, melting, boiling and stirring the metal adding ore gradually to the molten metal and finally boiling the charge, substantially as set forth.

3. As an improvement in the art of fueling iron the method herein described, which consists in forming an ore lining for the bottom of the hearth, charging the metal to be treated, melting, boiling and stirring the metal adding ore in small quantities and from time to time after the metal has commenced to boil and finally boiling the charge, substantially as set forth.

701,295. IMPROVEMENT ELECTRIC LAMP. ADOLPH A. CHAILLON, Shelby, Ohio, assignor to the Shelby Electric Company, Shelby, Ohio, a Corporation of Ohio. Filed Oct. 28, 1900. Serial No. 23,856. (No model.)



Claim.—1. In an incandescent electric lamp, a filament having consecutive convolutions which form a helix whose axis is transverse to the axis of the lamp, the helix being flattened in a direction parallel with the axis of the lamp, substantially as described.

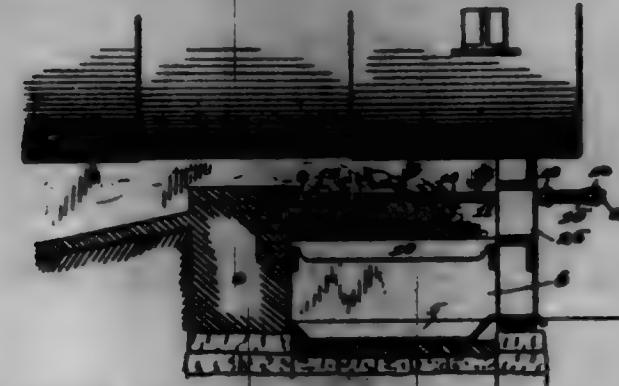
2. In an incandescent electric lamp, a filament coiled to form a helix, whose longitudinal axis is in a plane at right angles to the axis of the lamp, the helix being flattened in a direction parallel with the axis of the lamp, combined with a pear-shaped globe flattened on its end to correspond to the flattening of the helix, substantially as described.

3. In an incandescent electric lamp, a filament coiled in a plurality of convolutions to make a helix transverse to the axis of the lamp, the helix being flattened parallel with the axis of the lamp and terminating on opposite sides of its greater diameter, the filament-legs leading diagonally directly from each termination, substantially as described.

4. In an incandescent electric lamp, a filament coiled in a plane

ity of convolutions to make a helix having its longitudinal axis in a plane at right angles to the axis of the lamp, the convolutions being shortened parallel with the axis of the lamp, and the helix terminating on opposite sides of its greater diameter, the filament leading therefrom in two substantially straight diagonal legs, combined with a globe of a pear shape flattened on its dome and end carrying internally a mount in which the extreme ends of said filament-legs are fastened, substantially as described.

701,296. SMOKE-CONSUMER. DAVID CLINE and WILLIAM HOPKINS, St. Louis, Mo. Filed Feb. 12, 1902. Serial No. 64,287. (No model.)



Claim.—1. A smoke-consuming furnace comprising the ash-pit 5; the side walls 6 and 7 extending upwardly from the ash-pit; the bridge-wall 8 extending upwardly behind the ash-pit and having a forwardly-projecting portion 9 at its upper end; a grate mounted above the ash-pit; the perforated injector-pipes 11 and 12 mounted in the side walls a suitable distance above the grate; the perforated injector-pipe 13 mounted in the forwardly-extending projection 9 of the bridge-wall; and the steam air-injectors 15, 16 and 17 connected to the injector-pipes 11, 12 and 13, said injector-pipes being independently rotatable in their bearings, substantially as specified.

2. A smoke-consuming furnace comprising the ash-pit 5; the side walls 6 and 7 extending upwardly from the ash-pit; the bridge-wall 8 extending upwardly behind the ash-pit and having the forwardly-projecting portion 9 at its upper end; a grate mounted above the ash-pit; the perforated injector-pipes 11 and 12 mounted in the side walls a suitable distance above the grate; the perforated injector-pipe 13 mounted in the forwardly-extending projection 9 of the bridge-wall; and the steam air-injectors 15, 16 and 17 connected to the injector-pipes 11, 12 and 13; said injector-pipes being independently rotatable in their bearings; each of said steam air-injectors comprising a nipple 20 connected to the steam-pipes and having a reduced discharge-opening 22, the nipple 22 formed integrally with the nipple 20 and in alignment therewith, and the nipple 24 formed integrally with the nipples 20 and 22, said nipple 24 extending backwardly and outwardly at an angle of about forty-five degrees.

701,297. STATIONARY FENCE. ADOLPH H. COLE and GEORGE R. COLE, Altona, and WILLIAM H. COLE, Hagerstown, Canada. Filed Mar. 14, 1901. Serial No. 61,562. (No model.)

Claim.—1. In a stationary fence, the combination with the end or corner post suitably anchored and the strands connected thereto, of a triangular supporting-brace having its side members inclining downwardly and suitably supported, longitudinal bars connecting said brace with the upper part of the end post, and an inclined brace-rod connecting the upper end of said brace with the lower part of said post, substantially as described.

2. In a stationary fence, the combination with the end post and the strands connected thereto, of a triangular supporting-brace having its side members inclining downwardly and suitably supported, longitudinal bars connecting said brace with the upper part of the end post, and an inclined brace-rod connecting the upper end of said brace with the lower part of said post, and an inclined anchor-rod adjustably connected to the lower end of said post, substantially as described.

3. In a stationary fence, the combination with the end or corner post suitably anchored and the strands connected thereto, of a triangular supporting-brace having its side members inclining downwardly and suitably supported, longitudinal bars connecting said brace with the upper part of the end post, an inclined brace-rod connecting the upper end of said brace with the lower part of said post and means for adjusting said brace, substantially as described.

4. In a stationary fence, the combination with the end or corner post with means for anchoring the same at the base and the supporting-brace consisting of two diverging members suitably connected together at the top and bottom and supported at the base, of the longitudinal bar con-

necting the top portions of the post and brace and a flexible brace adjustable at the end thereof and connected to the top of the supporting-brace and to the bottom of the post as and for the purpose specified.



5. In a stationary fence, the combination with the end or corner post suitably supported at the base and the supporting-brace consisting of two diverging members suitably connected together at the top and bottom and supported at the base, of the longitudinal bar connecting the top portions of the post and brace, a flexible brace adjustable at one end and connected to the top of the brace and to the bottom of the post and a flexible brace connected to the bottom of the post at one end and to a suitable anchor in the ground for the opposite end of each brace as and for the purpose specified.

6. In a stationary fence, the combination with the double post and supporting-brace suitably held in position at the bottom, of the longitudinal bar adjustably connected to the top of the post and supporting-brace, the block holding the top of the supporting-brace together, the flexible brace extending through the top block and provided with a suitable nut at one end, the device suitably connected at the bottom of the brace at the opposite end and an anchoring means for securing the bottom of the post in position as and for the purpose specified.

7. In a stationary fence, the combination with the double post and supporting-brace suitably held in position at the bottom, of the longitudinal bar adjustably connected to the top of the post and supporting-brace, the block holding the top of the supporting-brace together, the flexible brace extending through the top block and provided with a suitable nut at one end, the device suitably connected at the bottom of the brace at the opposite end, a cross-block extending between the two members of the post, a wire extending therethrough and provided with a suitable nut and an anchoring means in the ground for the opposite end of each wire as and for the purpose specified.

701,298. PROCESS OF DEPOSITING METALS ON METALLIC SURFACES AND THE PRODUCT THEREOF. GUERARD CUYVER-OLAN, London, England, assignor, by name assignment, to the Electrolytic Syndicate, Limited, Westminster, London, England, a Corporation of Great Britain. Filed July 24, 1901. Serial No. 63,662. (No specimens.)

Claim.—1. The process of depositing also on metallic surfaces which process consists in applying to the metallic surface pulverulent also partially oxidized and in submitting the same to heat.

2. The process of depositing also on metallic surfaces which process consists in applying to the metallic surface pulverulent also partially oxidized and in submitting the same to heat in a closed chamber.

3. The process of depositing also on metallic surfaces which process consists in applying to the metallic surface pulverulent also partially oxidized and submitting the same to heat in the presence of carbon.

4. The process of depositing also on metallic surfaces which process consists in applying to the metallic surface what is known in commerce as zinc-dust and in submitting the same to heat.

5. The process of depositing also on iron surfaces which process con-

into applying to the iron surface zinc dust and in submitting the same to heat.

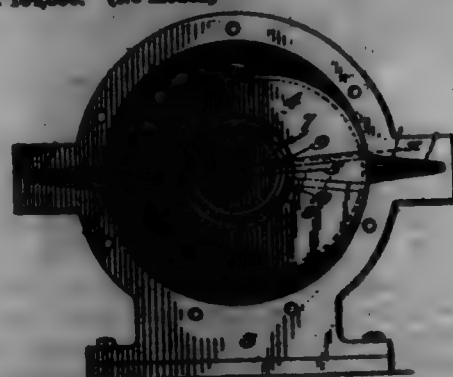
6. The process of depositing zinc on metallic surfaces which process consists in applying to the metallic surface pulverulent zinc containing not less than eight per cent. zinc oxide and in submitting the same to heat.

7. The process of depositing zinc on metallic surfaces which process consists in applying to the metallic surface pulverulent zinc containing not less than eight per cent. zinc oxide and in submitting the same to heat in a closed chamber.

8. The process of depositing zinc on metallic surfaces which process consists in applying to the metallic surface pulverulent zinc containing not less than eight per cent. zinc oxide and submitting the same to heat in the presence of a small percentage of carbon.

9. As a new product a metallic object with its surface covered with zinc having the following characteristics, a homogeneous coating of zinc, having a physical connection with the metal underneath, and having the appearance to the naked eye of a delicate silver gray and not shiny like galvanized articles and having the distinguishing appearance under the microscope of homogeneous particles free from crystalline structure.

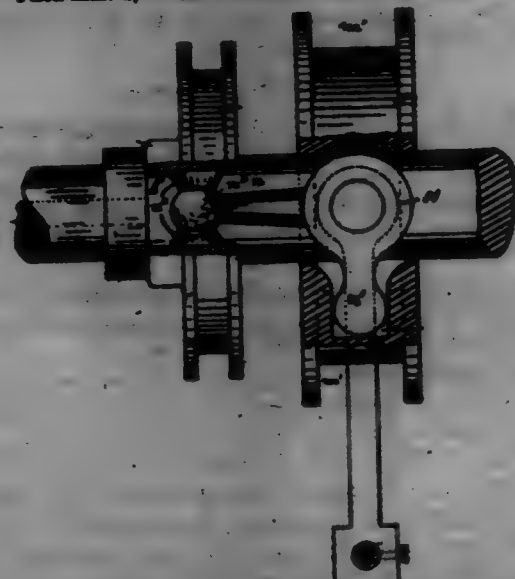
701,299. ROTARY STEAM-ENGINE. JOHN F. GRAM and THOMAS V. FLEMING, Paris, Ill. Filed Feb. 14, 1901. Renewed Apr. 24, 1902. Serial No. 104,529. (No model.)



Claim.—1. In a rotary steam-engine, the combination with the cylinder, of an eccentric piston, said cylinder being provided with gate or abutment chambers diverging toward the cylinder-space, gates or abutments adapted to work in said chambers, and means for positively reciprocating in alternation the gates or abutments within their chambers by the movement of the engine, substantially as set forth.

2. In a rotary steam-engine, the combination with a cylinder having gate or abutment chambers diverging toward the cylinder-space and arranged at diametrically opposite points in its circumference, and radially disposed, of an eccentrically-mounted piston provided with concentric inlet and exhaust ports on its ends communicating with inlet and exhaust ports which extend through and lead out at the periphery of the piston at different points in the circumference of the piston, gates or abutments mounted to reciprocate in said chambers, and clamps connecting the gates or abutments to the piston and designed to reciprocate said gates or abutments in alternation, substantially as set forth.

701,800. VALVE-GEAR. HENRY I. GRAM and WALTER S. GRAM, Cincinnati, Ohio, assignors of one-third to Stewart Shultz, Cincinnati, Ohio. Filed Mar. 2, 1901. Serial No. 48,495. (No model.)



Claim.—The combination of a crank-shaft; an eccentric pivoted in the line of the crank, permanently eccentric to the extent of the lap of

the valve, to swing across the crank-shaft; a collar splined to the crank-shaft; a flattened surface on the crank-shaft; a bell-crank lever pivoted to the flattened surface on the crank-shaft; a slot in the eccentric; washers engaging the slot and having concave spherical bearings; a ball on one arm of the bell-crank lever engaging the spherical bearings in the washers; an engagement between the other arm of the bell-crank lever and the collar; and means for moving the collar longitudinally on the shaft, substantially as specified.

701,801. HARVESTER ATTACHMENT. CHARLES F. CRAYER, Harvey, Ill. Filed May 4, 1902. Serial No. 15,462. (No model.)



Claim.—1. A harvester attachment comprising a series of lifting-fingers each comprising a single curved bar and extending beyond the points of the guards, the lifting portions whereof extend from points above and in front of the points of the guards obliquely downwardly and forwardly while the opposite finished ends extend beneath and below the guards and are connected to the front of the finger-bar, substantially as described.

2. A harvester attachment comprising in combination a series of lifting-fingers and a common bar to which said fingers are attached, said bar being removably secured to the front of the finger-bar beneath the guards thereof and said fingers being rigidly attached thereto and curved upwardly to points above the points of the guards and thence obliquely downward, substantially as described.

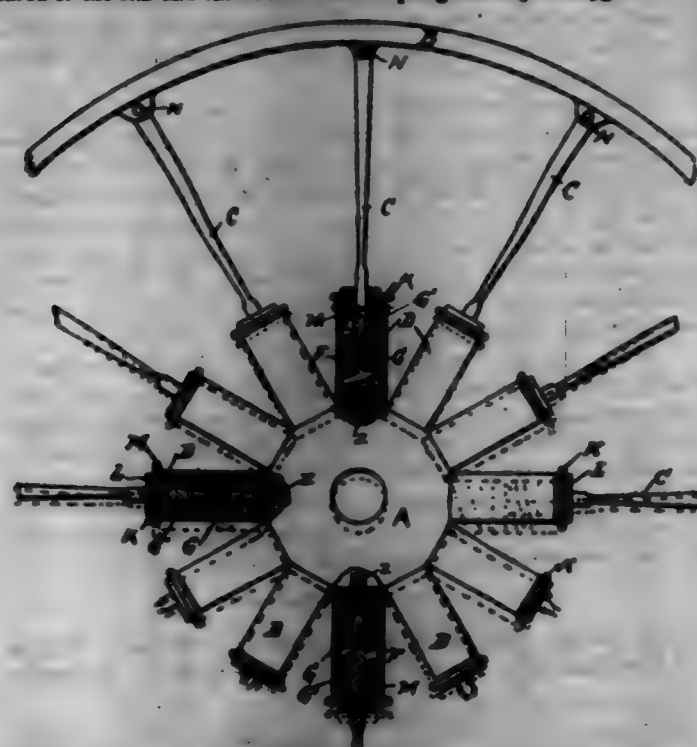
3. A lifting-finger for lodged or fallen grain comprising a single curved bar having its inner portion connected to the front of the finger-bar below the upper surface of the guard and its body curved upwardly so as to clear the plane of the point of the guard and thence curved downwardly in front of the guard and its extremity being slightly upturned, substantially as described.

4. A harvester attachment comprising a series of lifting-fingers each formed of a single curved bar and extending beyond the points of the guards, the lifting portions whereof extend from points above and in front of the points of the guards obliquely downwardly and forwardly while the opposite attached ends are located below the top of the guards and in front of the finger-bar whereby the grain is lifted above the guards before it passes between the latter and the reel-blades may be carried into close proximity with the tops of the guards without encountering the lifting-fingers, substantially as described.

701,802. WHEEL. GEORGE E. CUNNEY, Akron, Mo. Filed Jan. 11, 1902. Serial No. 50,211. (No model.)

Claim.—1. In a vehicle-wheel, a rim, a hub provided with a plurality of radial spoke-retaining cases, a spring set in each of said cases, means for confining said springs in said cases, and a series of spokes, each spoke having one end secured to the rim and the other end to one of said springs midway its length, whereby the hub is yieldingly supported.

2. In a vehicle-wheel, a rim, a hub provided with a plurality of radial spoke-retaining cases, a series of spokes and a series of springs set in each of said spoke-retaining cases, one end of said springs being secured to the bottom of said cases, each of said spokes having one end secured to the rim and the other end to a spring midway its length.



3. In a vehicle-wheel, a rim, a hub provided with a plurality of radial spoke-retaining cases, a coil-spring set in each of said cases, a threaded cap adapted to screw into the outer end of said cases and bear against the end of the spring therein compressing said spring and a plurality of spokes each having one end secured to the rim of the wheel and the other end passing through the cap and being secured to said spring midway its length.

4. In a vehicle-wheel, a rim, a hub provided with a plurality of radial spoke-retaining cases, a spring set in each of said cases, a cross-head secured to the spring midway its length and adapted to have sliding contact with the walls of said cases and a plurality of spokes each having one end secured to the rim and the other end secured to said cross-head and a cap fitting the outer end of said spoke-retaining cases and adapted to hold said springs therein.

5. In a vehicle-wheel, a rim, a hub provided with a plurality of radial spoke-retaining cases, a double coil-spring, wound from the middle into a double coil set in each of said cases, means for confining said spring in said cases and a series of spokes, each spoke having one end secured to the rim and the other end to one of said springs intermediate its length, whereby the hub is yieldingly supported.

6. In a vehicle-wheel, a rim, a hub provided with a plurality of spoke-retaining cases, a spring set in each of said cases, means for confining said springs in said cases normally under some degree of tension and a series of spokes, each spoke having one end secured to the rim and the other end to one of said springs intermediate its length, whereby the hub is yieldingly supported.

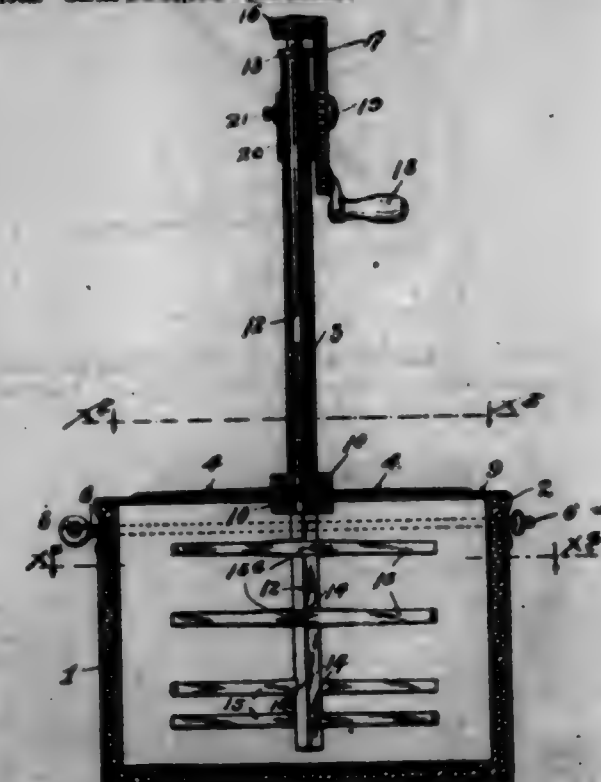
701,803. GAS-BURNER. CHARLES W. CUNNEY, Columbus, Ohio. Filed Sept. 26, 1901. Serial No. 75,245. (No model.)



Claim.—In a gas-burner, the combination with a valve-casing; a gas-supply pipe leading downwardly therefrom, said casing having formed therein an internal chamber and an inverted valve-seat in the top of said chamber, and a port leading therefrom; a vertically-arranged valve loosely mounted in the casing and controlling the vertical port said valve having

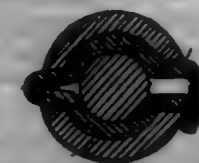
a port in line with the port of the casing and adapted to be in communication therewith; said casing being provided with a part at right angles to the valve's port; and burner-supporting arms radiating from the casing and in communication with said chamber; of a pipe extending from the casing in communication with its right-angled port; and a tube at right angles to the said pipe having a valve-seat in its end, and a vertically-adjustable valve in the end of the pipe adapted to contact the seat in the tube and control the flow of gas through the tube.

701,804. CHURCH. CLARENCE A. DART, Wash. D. C. Filed Jan. 29, 1902. Serial No. 50,284. (No model.)



Claim.—The combination with a jar 1 having the marginal head 2, of the chamber 3, the supporting-arms 4 and jar-cover 5 secured to the base end of said standard, by the clamping-arms 10, which arms 4 have the depending clamping ends 6, the heater-shaft 12 mounted in said standard and provided at its depending end with radial heater-arms, the piston on the upper end of said shaft 12, and the crank-equipped gear working with said piston and mounted on a bearing carried by said shaft 2, substantially as described.

701,805. HOLDER FOR HANDLES OF KITCHEN UTENSILS. WILLIAM R. DAUFREY, Montgomery, Ala. Filed Oct. 3, 1901. Serial No. 77,757. (No model.)



Claim.—1. A device of the class described comprising two semi-tubular handle-sections, and a lining of flexible material secured to the inner faces of the tubular handle-sections and connecting the same to form a hinge-joint, said material being doubled and interposed between the sections at the said hinge-joint and presenting sufficient resiliency to open the sections automatically when the said sections are free to open, substantially as described.

2. As an improved article of manufacture a holder for kitchen utensils comprising two semi-tubular sections with an inner lining of fabric forming the hinge therefor and having one edge extended beyond the sections and deflected at an angle.

701,806. PHOTOGRAPHIC-PLATE HOLDER. WILLIAM E. L. DAVIES, Southwick, England. Filed Dec. 3, 1901. Serial No. 54,257. (No model.)

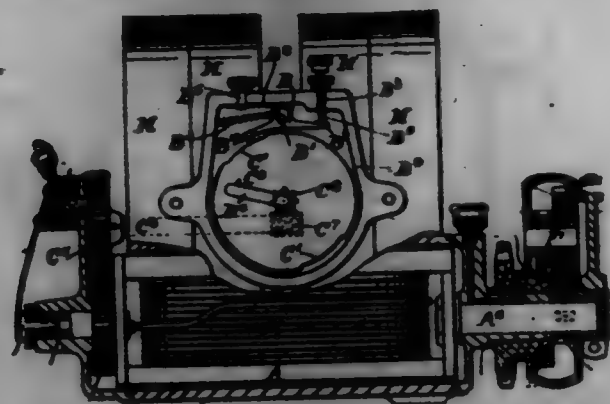
Claim.—1. In a photographic-plate holder adapted for three-color photography, a plate carrier hinged within the slide turning into position at right angles to the slide for exposure and a screen-reflector hinged behind the carrier adapted to turn through about half a right angle and to reflect part of the light from the lens upon the horizontal plate in the carrier, substantially as herein described.

2. In a photographic-plate holder, having a plate fixed in the back,

a hinged plate-carrier C at the front adapted to take up a horizontal position for exposure, a hinged screen-reflector D between the back and the carrier C and an attachment E retaining the reflector at an angle of about forty-five degrees to the slide when opened, the whole adapted for three-color photography, substantially as herein described and shown.



701,807. ELECTRICAL IGNITION APPARATUS. HENRY J. DAVIES and HENRY A. DAVIES, Canterbury, England. Filed Jan. 20, 1901. Serial No. 44,948. (No model.)



Claim.—1. In electrical ignition apparatus, the combination with a dynamo having an armature of interrupted-pole type, of a loose pinion, a first wheel fixed to the said loose pinion, a second wheel fixed to the armature, a double wheel gearing with the first and second wheels respectively and means for moving the axis of the said double wheel about the axis of the armature, substantially as and for the purpose set forth.

2. In electrical ignition apparatus, the combination with a dynamo, an induction-coil, a primary circuit, and a motor, of a disk, a number of recesses in the said disk, a fulcrum, a metallic lever movable on the said fulcrum, a blade-spring in electrical connection with the said lever, an insulated terminal, contact-points on the said insulated terminal and on one end of the said lever, a spring adapted to impel both the other end of the said lever into contact with the periphery of the disk and the said points into contact with each other, a sparking plug in each cylinder, metallic studs equalling in number the cylinders of the motor in electrical connection with the respective sparking plugs and arranged in a circular series concentric with the axis of the disk, a central metallic stud in electrical connection with one end of the secondary winding of the induction-coil, a finger carried by the disk and pivoted on the said central stud, and means for rotating the said finger with the said disk once for each cycle of the motor, such means being adapted to bring the outer end of the finger into contact with each of the studs in the circular series in turn, substantially as and for the purpose set forth.

701,808. ENVELOPES. WILLIAM A. DEAN, Chicago, Ill. Filed Mar. 16, 1908. Serial No. 53,366. (No model.)



Claim.—1. An envelop or wrapper, consisting of a face portion, a pair of side flaps thrown the outer meeting margins of which are united to constitute the back, a tail-flap underlying and unattached to said connected side flaps and having an extension in the nature of an anchoring-flap which folds over and is unattached to the outside of said connected side flaps at the upper and thereof, and a top flap adapted to be folded down over said anchoring-flap, substantially as described.

2. An envelop or wrapper, consisting of a face portion, a pair of in-

tegral side flaps thrown the outer meeting margins of which are united to constitute the back, an integral tail-flap underlying and unattached to said connected side flaps and having an extension in the nature of an anchoring-flap which folds over and is unattached to the outside of said connected side flaps at the upper and thereof, and an integral top flap adapted to be folded down over said anchoring-flap and to be sealed to the back of said connected side flaps below said anchoring-flap, substantially as described.

3. An envelop or wrapper, consisting of a face portion, a pair of integral side flaps thrown the outer meeting margins of which overlap and are united to constitute the back, an integral tail-flap folded back upon said face portion beneath said connected side flaps and unattached thereto and having an extension in the nature of an anchoring-flap which folds over and is unattached to the outside of said connected side flaps at the upper and thereof, and a top flap adapted to be folded down over said anchoring-flap and to be sealed to the back of the side flaps below said anchoring-flap, substantially as described.

4. An envelop or wrapper, consisting of a face portion, a pair of side flaps thrown the outer meeting margins of which are united to constitute the back, a tail-flap underlying and unattached to said connected side flaps and having an opening formed therethrough near its base, an anchoring-flap integral with and constituting an extension of said tail-flap folded over the outside of said connected side flaps at the upper and thereof and unattached thereto, and a top flap adapted to be folded down over said anchoring-flap, substantially as described.

701,809. PORTABLE JEWEL-CASE. DR. EDWARD J. DUTCH. New York, N. Y. Filed Dec. 21, 1901. Serial No. 48,548. (No model.)



Claim.—1. In a device of the character described, the combination with a casing, composed of two separate sections hinged together, of partitions dividing one of said sections longitudinally into compartments, a transversely-disposed partition dividing one of said compartments, a flexible covering inclosing said partition, a cover for one of said compartments supported by said covering, a plurality of cross-pieces arranged transversely of one of said compartments, at spaced distances, and a web covering for said cross-pieces between which are adapted to be inserted rings or the like.

2. In a device of the class described, the combination with a case comprising a pair of separate sections hinged together, of partitions arranged longitudinally and transversely within said sections, dividing the same into compartments, cross-pieces arranged transversely at spaced intervals in one of said compartments, a soft fabric covering said cross-pieces, a covering for said partitions, a cover secured by the covering of one of said partitions adapted to close one of said compartments, a flexible flange carried by one of said hinged sections, against which the edge of said cover impinges, and flexible strips arranged transversely of the opening section, secured to the same at intervals.

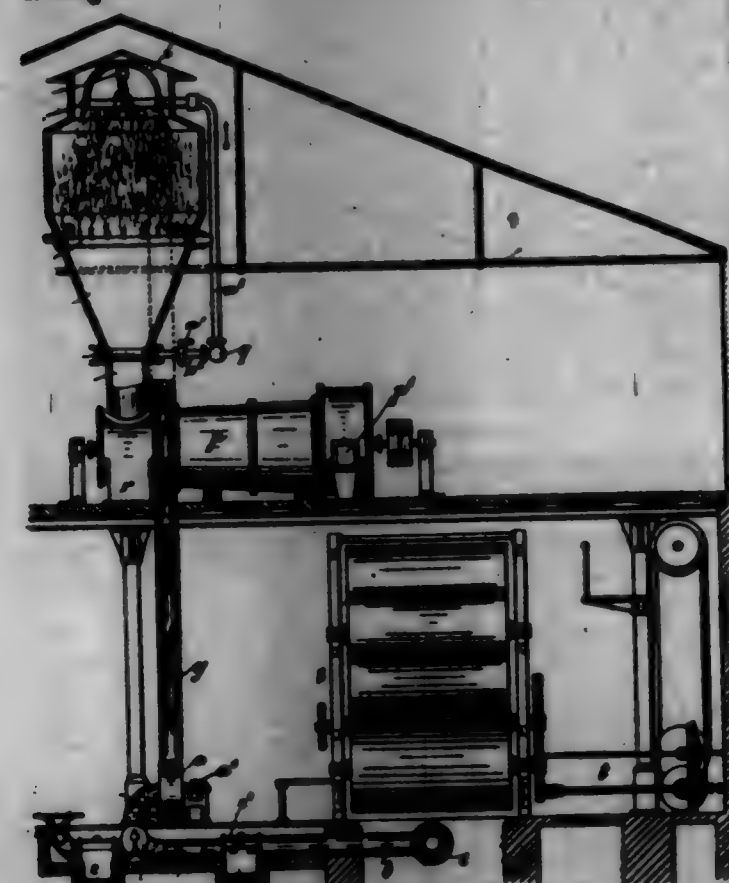
3. In an article of the class described, the combination of the separate sections 1, 2, hinged together at the bottom, the section 2 having a carrying-handle, a longitudinal strip 14, a flexible rim 12, and a cover hinged to the strip 14, its free end being adapted to bear against said flexible rim.

701,810. TREATMENT OF WASTE MATERIAL FOR USE IN THE MANUFACTURE OF PAPER. ROBERT DUNHAM, Monroeville, Germany. Filed Oct. 17, 1906. Serial No. 33,388. (No model.)

Claim.—1. A machine for treating paper-waste material comprising an exhauster, suction-pipes leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top adapted to play on the material falling from the conduit and a filter-estimating apparatus into which the cyclone discharges.

2. A machine for treating paper-waste material comprising an exhauster, suction-pipes leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top, a spraying-ring surrounding the

spraying device, and a filter-estimating apparatus into which the cyclone discharges.



3. A machine for treating paper-waste material comprising an exhauster, suction-pipes leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top, an upper spraying-ring, a lower spraying-ring, and a filter-estimating apparatus into which the cyclone discharges.

4. A machine for treating paper-waste material comprising an exhauster, suction-pipes leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top, an upper spraying-ring, a lower spraying-ring, a spraying-ring at the discharge end of the cyclone, and a filter-estimating apparatus into which the cyclone discharges.

5. A machine for treating paper-waste material comprising an exhauster, suction-pipes leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top, a spraying-ring at the discharge end of the cyclone, and a filter-estimating apparatus into which the cyclone discharges.

6. A machine for treating paper-waste material comprising an exhauster, suction-pipes provided with separate-bases and leading to the exhauster, a cyclone having a ventilating-top, a conduit connecting the exhauster with the cyclone, a water-spraying device within the ventilating-top, and a filter-estimating apparatus into which the cyclone discharges.

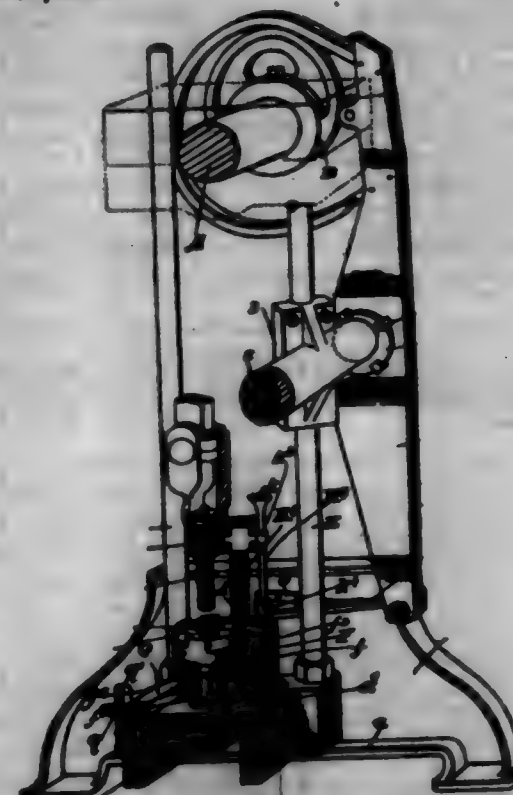
701,811. PRESS-PRESS. ALFRED H. DUNHAM, New York, Canada, assignor of one-half to William Irvine, Toronto, Canada. Filed June 22, 1901. Serial No. 48,549. (No model.)

Claim.—1. In a press, the combination with the die-block containing a plurality of dies, of a compressing-plunger and an ejecting-plunger suitably supported and deriving a reciprocating movement, means for moving each succeeding die from underneath the compressing-plunger to a point below the ejecting-plunger and a cleaning and ejection device rigidly connected to the plungers and deriving a simultaneous reciprocating movement with the plungers into an empty die as and for the purpose specified.

2. In a press, the combination with a rotatable die-block suitably journaled and a plurality of dies located therein at equal distances apart,atchet-shaped notches in the periphery of the die-block, a lever suitably journaled on a counter-shaft, a push-rod pivotedly connected to the lever and thereof, a spring for holding each push-rod in engagement, a cam on the main shaft designed to operate against the upper end of the lever and a surrounding strap connected to the upper end of the lever and engaging with the cam as and for the purpose specified.

3. The combination with the die-block and dies and the notched-shaped notches in the periphery of the die-block, of the lever and push-rod connected to the lever and thereof and means for imparting a springing movement to lever and the eccentric pivot-block for the lever held on

the end of a pin and extending through a circular hole in the lever and adjustable means for holding each eccentric block in position as and for the purpose specified.



4. In a device of the class described, the combination with the operating-lever for the die-block, of an eccentric pivot-block suitably supported and the L-shaped bolts having the end extending over the flange of the block and extending through the lever, and one on the opposite end of the bolt whereby the eccentric pivot-block is clamped into any position in which it may be set as and for the purpose specified.

5. In a device of the class described, the combination with the cylindrical die-block having an annular groove in the periphery thereof and the bed on which the same is supported and journaled, of the diametrically opposite plates fitting into the annular groove in the die-block and means for securing them to the bed as and for the purpose specified.

6. In a device of the class described, the combination with the bed and the die-block suitably supported on same, as to have a space between the block and the bed, of the die suitably held in the block and provided at the bottom with a flaring discharge portion as and for the purpose specified.

7. In a device of the class described, the combination with bed and the die-block suitably supported on same, as to have a space between the block and the bed, of the die suitably held in the block and provided at the bottom with a flaring discharge portion as and for the purpose specified.

8. In a device of the class described, the combination with the bed and the die-block and the die and plunger, of a block situated in the bed directly beneath the die and a resilient-spring extending underneath the block as and for the purpose specified.

9. In a device of the class described, the combination with the bed, and a rotatable die-block provided with a plurality of dies at equal distances apart, of the central arbor having a suitable head and extending through the center of the die-block and through the bed, the collar through which said arbor extends, each collar fitting into a recess in the bed and in the block and supporting each block above the bed and a nut at the lower end of the arbor for securing it in position as and for the purpose specified.

10. In a device of the class described, the combination with the die-block containing a plurality of dies, of the compressing-plunger and companion ejecting-plunger, said ejecting-plunger having its end extending below the level of the compressing-plunger, substantially as described.

11. In a device of the class described, the combination with the die-block containing a plurality of dies having flaring discharge ends, of the compressing-die and companion ejecting-die having the end extending below the level of the compressing-die and tapered as shown.

12. In a device of the class described, a die-chamber comprising a tube having a web of suitable material at the lower end, each tube being designed to contain oil and having perforations extending through the bottom and of the same to the web as and for the purpose specified.

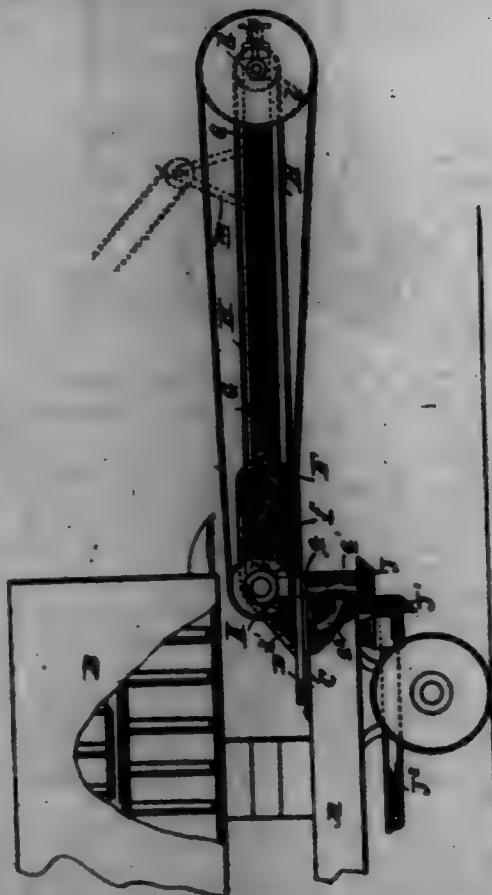
13. In a device of the class described, the combination with a die-block suitably supported and means for holding each block from vertical displacement comprising an annular channel adapted to engage the edge of a stationary plate as and for the purpose specified.

14. The combination with the die-block, dies suitably held therein and means on said dies for preventing vertical displacement thereof, substantially as described.

15. In a device of the class described, the combination with the bed and the rotatable block suitably journaled and supported a slight distance above the bed, of the die provided with an outwardly-projecting lower end of such a depth as to allow of a limited movement upwardly of the die in order to permit of the expansion of the block after being compressed as and for the purpose specified.

16. The combination with the die-block and dies having an annular enlargement, of the bed having an opening therein designed to be always opposite the discharging-die, such annular enlargement of the die being designed to rest on the edge of the opening as and for the purpose specified.

701,812. CONVEYER FOR MIXING-MACHINES OR THE LIKE.
GUYTON T. DRAKE, Chicago, Ill. Filed June 7, 1901. Serial No. 63,998.
(No model.)



Claim.—1. In a mixing apparatus of the character described, the combination with a vehicle, of a power-shaft extending longitudinally beneath said vehicle, a depending bearing secured to said vehicle within which said shaft is journaled, a horizontal plate mounted upon said vehicle beneath the discharge end of the mixer, a vertical bearing depending from said plate, a turn-table supported by said horizontal plate, a king-bolt journaled in said vertical bearing and passing through said horizontal plate and turn-table, meshing gears secured to the power-shaft and lower end of the king-bolt, a stub-shaft journaled upon said turn-table, meshing beveled gears secured to said stub-shaft and the upper end of the king-bolt, a frame pivotally supported by said turn-table, and a conveyor carried by said frame and driven by said stub-shaft, substantially as described.

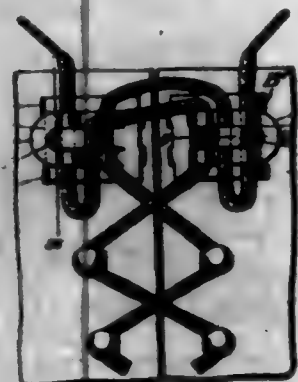
2. In combination with a mixer or the like, a turn-table thereon, a king-bolt constituting the pivot of said turn-table, a conveyor connected to the turn-table, means for transmitting motion to the king-bolt, means for transmitting motion from the king-bolt to the conveyor and a supporting-structure for the lower portion of the king-bolt, comprising the tubular portion of and the lateral arm or brace of, substantially as described.

3. In a mixing apparatus of the character described, the combination with a support, of a turn-table mounted thereon, a king-bolt pivotally securing said turn-table to said support, brackets secured to the upper surface of said turn-table, a conveyor-frame, a rotatable shaft extending through the lower end of said frame and through said brackets and constituting a pivotal connection between said frame and brackets, a roller beneath the discharge end of the mixer mounted on said shaft, a second roller journaled in the outer end of said conveyor-frame, a conveyor passing around said roller, connections between said king-bolt and a source of power for rotating the former, a stub-shaft rotatably mounted above said turn-table in one of said brackets, meshing gears secured to said king-

bolt and said stub-shaft, and means interposed between said stub-shaft and said second roller for driving the conveyor, substantially as described.

4. In a mixing apparatus of the character described, the combination with a support, of a turn-table mounted thereon, a king-bolt pivotally securing said turn-table to said support, brackets secured to the upper surface of said turn-table, a conveyor-frame, a rotatable shaft extending through the lower end of said frame and through said brackets and constituting a pivotal connection between said frame and brackets, a roller beneath the discharge end of the mixer mounted on said shaft, a roller adjustably mounted in the outer end of said frame, an endless conveyor passing around said roller, a power-shaft operatively connected to said king-bolt for rotating the latter, a stub-shaft rotatably mounted in one of said brackets, meshing gears secured to said king-bolt and stub-shaft, sprocket-wheels secured to said stub-shaft and the roller adjustably mounted in the conveyor-frame, and a sprocket-chain connecting said sprocket-wheel whereby the conveyor is driven, substantially as described.

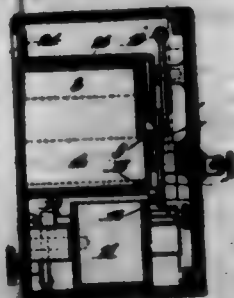
701,818. FASTENING FOR ARTICLES OF CLOTHING. JOHN M. DUFFY, Philadelphia, Pa. Filed Jan. 7, 1902. Serial No. 64,748. (No model.)



Claim.—1. A fastener of the character stated, consisting of an attaching-plate, and a plurality of tongues extending therefrom in the same direction, having their outer ends free of each other and said plate, at the same side of the fastener.

2. In a fastener of the character stated, an attaching-plate and a plurality of tongues which later are connected at the same end with said plate, the latter having side pieces, the outer tongues being formed from said plate between said side pieces, and the outer tongue being formed from said outer tongues, said tongues being free from each other and said side pieces, and their outer ends being on the same side of the fastener.

701,814. ASSEMBLY VOTING-MACHINE. FRANK L. DYER, Montclair, N. J. Filed Apr. 9, 1901. Serial No. 64,971. (No model.)



Claim.—1. In an apparatus for ascertaining and registering the sense of an assembly, the combination with a receiver, of a series of transmitting-stations, a contact device in each transmitting-station, and a lock the movement of which effects the operation of the contact device, substantially as set forth.

2. In an assembly voting apparatus, the combination with a transmitter employing a contact device and a lock the barrel of which effects the operation of said contact device, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

3. In an assembly voting apparatus, the combination with a transmitter employing a contact device, a lock the barrel of which effects the operation of said device, and means for locking the contact device in the position to which it may be moved, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

4. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, two contacts cooperating therewith, and a lock the barrel of which effects the operation of said disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

5. In an assembly voting apparatus, the combination with a trans-

mitter employing a contact-disk, two contacts cooperating therewith, a lock the barrel of which effects the operation of said disk, and means for locking the disk in either extreme position, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

6. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, means for operating said disk, and means for locking said disk in either extreme position of movement, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

7. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, two contacts cooperating therewith, means for operating the disk, and means for locking the disk in either of its extreme positions, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

8. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, means for locking the disk in either of its extreme positions, and a restoring-magnet for returning the disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

9. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, a restoring-magnet, an armature for said magnet for locking the disk in either of its extreme positions, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

10. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, a restoring-magnet, an armature for said magnet for locking the disk in either of its extreme positions, a dotted extension on said armature, and a pin on the disk cooperating with said dot, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

11. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, a restoring-magnet, an armature for said magnet for locking the disk in either of its extreme positions, a dotted extension on said armature, and two pins on the disk cooperating with said dot, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

12. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, means for locking the disk in either of its extreme positions, and a lock the barrel of which effects the movement of said disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

13. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, means for locking the disk in either of its extreme positions, a restoring-magnet for unlocking the disk, and a lock the barrel of which effects the movement of said disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

14. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts with which said disk cooperates, means for locking the disk in either of its extreme positions, and means for manually unlocking the disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

15. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts with which said disk cooperates, means for locking the disk in either of its extreme positions, and means for manually and electrically unlocking the disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

16. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts with which said disk cooperates, a restoring-magnet, an armature therefor for locking the disk in either of its extreme positions, and means for manually operating said armature for unlocking the disk, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

17. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, means for locking the disk in either of its extreme positions, and two spring-actuated levers for entering the disk when unlocked, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

18. In an assembly voting apparatus, the combination with a transmitter employing a contact-disk, a pair of contacts cooperating therewith, means for locking the disk in either of its extreme positions, two spring-actuated levers for entering the disk when unlocked, and hooks on the ends of said levers for limiting the movement of said disk in either direction, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

19. In an assembly voting apparatus, the combination with a transmitter employing a disk, means for actuating the same, means for locking the disk in either of its extreme positions, and an indicator movable with

the disk to give a visual indication of its position, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

20. In an assembly voting apparatus, the combination with a transmitter employing a disk, means for actuating the same, means for locking the disk in either of its extreme positions, and a screw movable with the disk and indicating the position thereof, of a receiver electrically connected to and operated by said transmitter, substantially as set forth.

21. In a receiver for the purpose described, the combination of a carrying-body, two lines of type carried thereby, an impression-roller cooperating with each line, a paper strip passing over each impression-roller, a slide-head, means for operating said slide-head, and means controlled electrically for engaging the slide-head with either impression-roller, substantially as set forth.

22. In a receiver for the purpose described, the combination of a carrying-body, two lines of type carried thereby, an impression-roller cooperating with each line, a paper strip passing over each impression-roller, a slide-head, means for operating said slide-head, and a polarized relay for engaging the slide-head with either impression-roller, substantially as set forth.

23. In a receiver for the purpose described, the combination of a carrying-body, two lines of type carried thereby, a swinging frame mounted above each line, an impression-roller in each frame, a slide-head, means for operating the slide-head, a tongue carried by the slide-head for engaging either of said frames, and means for operating said tongue electrically, substantially as set forth.

24. In a receiver for the purpose described, the combination of a carrying-body, two lines of type carried thereby, a swinging frame mounted above each line, an impression-roller in each frame, a slide-head, means for operating the slide-head, a tongue carried by the slide-head for engaging either of said frames, and a polarized relay for operating said tongue, substantially as set forth.

25. In a receiver for the purpose described, the combination of a carrying-body, two lines of type carried thereby, a swinging frame mounted above each line, an impression-roller in each frame, a slide-head, a cam-shaft for operating the slide-head, a tongue carried by the slide-head for engaging either of said frames, a polarized relay for operating said tongue, and means carried by the cam-shaft for resetting said polarized relay, substantially as set forth.

26. In a receiver for the purpose described, the combination of a printing-drum, two lines of type carried thereon, a swinging frame cooperating with each line, an impression-roller in each frame, a slide-head, means controlled electrically for causing the slide-head to depress either of said swinging frames, and means for reciprocating said slide-head and for rotating said printing-drum, substantially as set forth.

27. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, two impression-rollers cooperating with said lines, a slide-head, a tongue carried by said slide-head, means for electrically engaging said tongue with either impression-roller, and means for simultaneously reciprocating said slide-head and rotating said drum, substantially as set forth.

28. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, an impression-roller cooperating with each line, a slide-head, a tongue carried by the slide-head, a polarized relay, connections between the relay and said tongue, and means for reciprocating the slide-head, substantially as set forth.

29. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, an impression-roller cooperating with each line, a slide-head, a tongue carried by the slide-head, a polarized relay, connections between the relay and said tongue, and means for reciprocating the slide-head and for rotating the polarized relay, substantially as set forth.

30. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, an impression-roller cooperating with each line, a slide-head, a main shaft, a cam on said shaft for reciprocating the slide-head, a tongue on the slide-head, means for electrically engaging said tongue with either impression-roller, and connections between said shaft and the printing-drum for rotating the latter, substantially as set forth.

31. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, an impression-roller cooperating with each line, a slide-head, a tongue carried by said slide-head, a polarized relay for operating said tongue, a main shaft, a cam on said shaft for reciprocating said slide-head, and means on said shaft for rotating the polarized relay, substantially as set forth.

32. In a receiver for the purpose described, the combination of a suitable carrier, two lines of type carried thereby, an impression-roller cooperating with each line, a slide-head, a polarized relay which causes the slide-head to actuate either impression-roller, contact-plates, a collecting device cooperating with the contact-plates and connected electrically with

aid relay, and means for simultaneously actuating the slide-bar, carrier and collecting device, substantially as set forth.

53. In a receiver for the purpose described, the combination of a printing-drum carrying two lines of type, an impression-roller cooperating with each drum, means controlled electrically for selecting and operating either of said impression-rollers, a paper strip engaging each impression-roller, feed-rollers for said strips, and means for rotating said feed-rollers and said printing-drum in the same surface speed, substantially as set forth.

54. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a number-disk, means for intermittently feeding said number-disk electrically, a screen, and means for projecting light through the disk and upon the screen, substantially as set forth.

55. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a plurality of number-disks, means for electrically actuating said number-disks, a screen, and means for projecting light through the number-disks and upon the screen, substantially as set forth.

56. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, and means for shifting the escapement-wheel and escapement relatively to each other, substantially as set forth.

57. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, and means for shifting the escapement-wheel on said shaft, substantially as set forth.

58. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, and a magnet for shifting the escapement-wheel on said shaft, substantially as set forth.

59. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, a restoring-magnet, an armature for said magnet, a sleeve surrounding the shaft and engaging the escapement-wheel to effect a longitudinal shift thereof, substantially as set forth.

60. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, a restoring-magnet, an armature for said magnet, a sleeve surrounding the shaft and engaging the escapement-wheel to effect a longitudinal shift thereof, and stops for limiting the extreme movements of said disk, substantially as set forth.

61. In an assembly voting apparatus, the combination with a transmitter, of a totalizer electrically connected to and operated from said transmitter and employing a shaft, means for driving the shaft, a number-disk on the shaft, an escapement-wheel, an escapement for permitting feed movements of said wheel, a magnet for actuating said escapement, a wide tooth on the escapement-wheel, an extension on the escapement, a restoring-magnet, an armature for said magnet, a sleeve surrounding the shaft and engaging the escapement-wheel to effect a longitudinal shift thereof, stops for limiting the extreme movements of said disk, and a spring for returning the disk to its normal position, substantially as set forth.

62. Means for selecting a plurality of electrical devices arranged in groups, comprising two sets of contact-plates, the plates of one set being connected to the devices of corresponding groups and the plates of the other set being connected to corresponding devices of the several groups, and current-collecting devices cooperating with said contact-plates and operated at different relative speeds, substantially as set forth.

63. Means for selecting a plurality of electrical devices arranged in groups, comprising two sets of contact-plates, the plates of one set being

connected to the devices of corresponding groups and the plates of the other set being connected to corresponding devices of the several groups, current-collecting devices for said contact-plates, and means for moving the current-collecting device of one set at a speed which will carry it into engagement with all the plates of that set while the collecting device of the other set is moved from one plate to the other of that set, substantially as set forth.

64. Apparatus for successively bringing into circuit with a common electrical receiving device a plurality of electrical devices arranged in groups, comprising in combination a plurality of electrical devices arranged in groups, a common receiving electrical device, two sets of contact-plates, the plates of one set being connected to the several groups and the plates of the other set being connected to corresponding devices of the several groups, current-collecting devices cooperating with said contact-plates, and means for operating said current-collecting devices at different relative speeds, substantially as set forth.

65. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of transmitting circuit-closing devices, a set of contact-plates with which said circuit-closers are connected, a current-collector cooperating with said contact-plates, a magnetic receiver connected to said current-collector, and means controlled by said receiver for effecting a registration of the condition in which the transmitting circuit-closers are placed, substantially as set forth.

66. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of transmitting circuit-closing devices, a set of contact-plates with which said circuit-closers are connected, a current-collector cooperating with said contact-plates, a magnetic receiver connected to said current-collector, and means controlled by said receiver for effecting a registration of the condition in which the transmitting circuit-closers were placed, substantially as set forth.

67. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of transmitting circuit-closing devices, a set of contact-plates with which said circuit-closers are connected, a current-collector cooperating with said contact-plates, a magnetic receiver connected to said current-collector, and means controlled by said receiver for effecting a registration of the condition in which the transmitting circuit-closers were placed, and means for effecting a total of the circuit-closers which were moved in one direction and a corresponding total of the circuit-closers which were moved in the opposite direction, substantially as set forth.

68. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices with which each circuit-closing disk cooperates, a source of polarized current for said contacts, a set of contact-plates connected with said circuit-closers, a current-collector cooperating with said plates, an electromagnetic receiving apparatus connected to said current-collector, and means controlled by said receiving apparatus for effecting a registration of the votes, substantially as set forth.

69. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices with which each circuit-closing disk cooperates, a source of polarized current for said contacts, a set of contact-plates connected with said circuit-closers, a current-collector cooperating with said plates, a polarized relay connected to said current-collector, and means controlled by said polarized relay for effecting a registration of the votes, substantially as set forth.

70. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices with which each circuit-closing disk cooperates, a source of polarized current for said contacts, a set of contact-plates connected with said circuit-closers, a current-collector cooperating with said plates, a polarized relay connected to said current-collector, and means controlled by the relay for effecting a printed record of the votes, substantially as set forth.

71. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices with which each circuit-closing disk cooperates, a source of polarized current for said contacts, a set of contact-plates connected with said circuit-closers, a current-collector cooperating with said plates, a polarized relay connected to said current-collector, and means controlled by the relay for effecting a printed record of the votes and simultaneously effecting a totalization of each vote, substantially as set forth.

72. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices cooperating with each disk, a source of polarized current connected to said contact devices, a set of contact-plates connected to said disks, a current-collector cooperating with said plates, a polarized relay connected with said current-collector, means controlled by the relay for effecting a printed record of the votes and for simultaneously effecting a

totalization thereof, and means for simultaneously restoring the totalizing device, substantially as set forth.

73. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices cooperating with each disk, a source of polarized current connected to said contact devices, a set of contact-plates connected to said disks, a current-collector cooperating with said plates, a polarized relay connected with said current-collector, means controlled by the relay for effecting a printed record of the votes and for simultaneously effecting a totalization thereof, means for simultaneously restoring the totalizing device, means for locking the circuit-closing disks in either of their extreme positions, and means for electrically releasing said disks, substantially as set forth.

74. In an apparatus for ascertaining and registering the sum of an assembly, the combination of a plurality of circuit-closing disks, a pair of contact devices cooperating with each disk, a source of polarized current connected to said contact devices, a set of contact-plates connected to said disks, a current-collector cooperating with said plates, a polarized relay connected with said current-collector, means controlled by the relay for effecting a printed record of the votes and for simultaneously effecting a totalization thereof, means for simultaneously restoring the totalizing device, means for locking the circuit-closing disks in either of their extreme positions, and a magnet in circuit between each of the disks and the contact-plates for releasing the disks, substantially as set forth.

701,815. SAND-REEL FOR OIL OR OTHER LIQUIDS. ERIC W. BATES JR. and ANDREW BATES, Bradford, Pa. Filed Mar. 4, 1902. Serial No. 672,904. (No model.)



Claim.—1. In a sand-reel, the combination with a sand-reel shaft, of a friction-wheel comprising radial arms connected by a rim, a series of courses of arc-shaped segmental cuts arranged to break joints and applied to the opposite sides of the rim, the outer course of cuts being of wood and the inner course of compressed paper, substantially as and for the purposes specified.

2. In a sand-reel, the combination with a suitable reel-shaft, of a friction or brake wheel comprising radial arms connected by a rim and provided with ribs which terminate in shoulders on the rim, and a series of courses of arc-shaped segmental cuts applied on the opposite sides of said rim the inner course of the cuts being on the shoulders formed by the ribs of the radial arms, substantially as and for the purposes specified.

3. In a friction-wheel for sand-reels, the combination with a suitable central support of a series of courses of arc-shaped segmental cuts arranged to break joints and applied on opposite sides of said central support, the outer course of said cuts being of wood, and the intermediate course of compressed paper, substantially as and for the purposes specified.

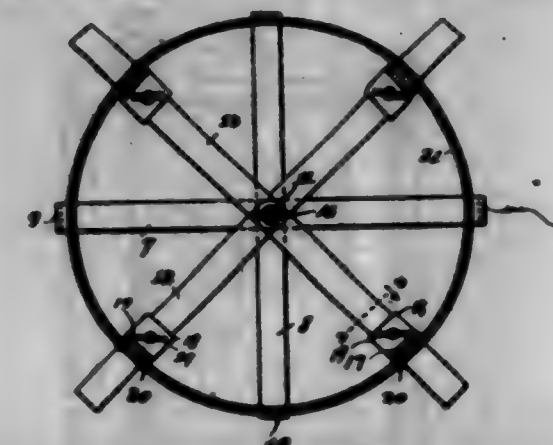
701,816. PLANT-FERTILIZER-DISTRIBUTING RECEPTACLE. JAMES A. BOWMAN, Hot Springs, Ark. Filed Oct. 18, 1901. Serial No. 73,762. (No model.)



Claim.—1. In a plant-fertilizer-distributing receptacle comprising a receptacle having an elongated spout projecting forwardly therefrom adjacent to the bottom of said receptacle, said spout having a valve at its forward end and a spring-actuated rod or stem attached to said valve and extending entirely through the spout and through the receptacle, said rod or stem being provided with a ring or head upon the rear side of the receptacle adjacent to its handle, substantially as shown and described.

2. A plant-fertilizer-distributing receptacle consisting of a receptacle, the upper end of which slopes rearwardly and is provided with a hinged cover, the hinge of said cover being arranged at the forward end, an elongated tapering spout attached to the forward side of the receptacle adjacent to the bottom of the same, a valve adapted to normally close the forward end of said spout, a rod or stem connected to said valve extending entirely through the spout and receptacle, a ring or head arranged upon the rear end of said stem or rod, a coil-spring surrounding the projecting end of the stem or rod, and the spring-actuated rod or stem being attached to the rear side of the receptacle, substantially as shown and described.

701,817. COLLAPSIBLE REEL. FRANK BOWMAN, Boston Harbor, Mass. Filed Aug. 23, 1901. Serial No. 73,077. (No model.)



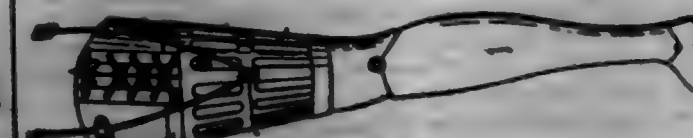
Claim.—1. A collapsible reel to hold coils of wire and the like, comprising in combination interfoldable supporting members united crosswise by a central vertical pivot-bolt, a plurality of intersecting spider-arms also mounted crosswise on said pivot-bolt above said supporting members, said spider-arms also being interfoldable in a plane parallel with the plane of the supporting members, and a series of supporting arms clamped on said spider-arms and adjustable radially of the reel thereon, substantially as described.

2. A collapsible reel to hold coils of wire and the like, comprising in combination a pair of interfoldable supporting-bars united crosswise on a central vertical pivot-bolt, a pair of intersecting spider-arms also mounted crosswise on said pivot-bolt above and in a plane parallel with the plane of the supporting-bars, said spider-arms being interfoldable to overlap the interfolded supporting-bars longitudinally thereof, and a series of shorter arms adapted to be adjustably secured in either parallel or upstanding relation on said spider-arms, substantially as described.

3. A collapsible reel to hold coils of wire and the like, comprising in combination a pair of interfoldable supporting-bars united crosswise on a central pivot-bolt, a pair of spider-arms mounted crosswise on said pivot-bolt above and in a plane parallel with the plane of the supporting-bars, and a series of angularly-bent shorter arms provided with clamping devices on their opposite ends, whereby they can be adjustably secured in either parallel or upstanding relation on said spider-arms, substantially as described.

4. The heretofore-described reel to hold coils of wire and the like, the same comprising in combination the horizontal supporting-bars 7 and 8 pivotally united by the bolt 11, the spider-arms 12 and 13 also pivotally connected on bolt 11, the cross-block 14, and the angularly-bent arms 17 having clamps 18 and 20 at their opposite ends, whereby they may be secured in either parallel or vertical relation to the arms 12 and 13, substantially as described.

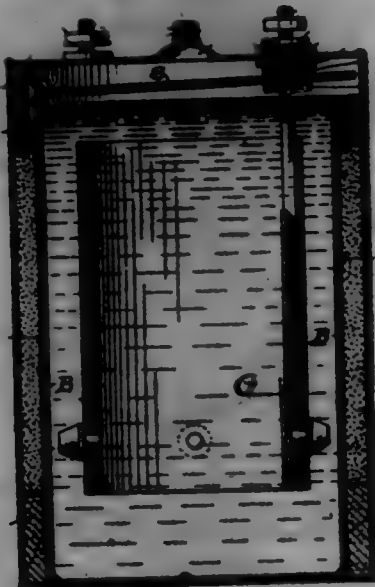
701,818. ARTIFICIAL LIMB. IRVIN R. FENNER and WILLIAM R. FENNER, San Francisco, Cal. Filed Jan. 2, 1902. Serial No. 67,908. (No model.)



Claim.—1. An artificial limb having an upper section formed of a single sheet of metal bent into a frustum of a cone, said sheet being cut out so as to form an upper continuous horizontal band and a middle continuous horizontal band joined by vertical lines, the ends of said bands overlapping and being provided with means for adjustably securing the same together and the lines being secured at their lower ends in the outside of the lower section, and being surrounded by a metallic band around said lower section, substantially as described.

2. An artificial limb having its top section formed of sheet metal in the shape of a frustum of a cone, the lower edge being fixedly secured to the remainder of the limb, and the vertical meeting edges overlapping and being provided with curves of screw-bolts, the bolts on one side being arranged to register with those on the other side whereby said top section may be adjusted, said top section having a single pulley on each side, and a socket provided with means for fixing it around the stump of the limb and having two guide-pulleys on each side, substantially as described.

701,819. PRIMARY BATTERY. BUREN M. FINELL and WILLIAM R. CLYMER, Cleveland, Ohio, assignors to National Carbon Company, Cleveland, Ohio, a Corporation of New Jersey. Filed Oct. 14, 1901. Serial No. 75,588. (No model.)



Claim.—1. In a voltaic cell, in combination, a combined containing vessel and negative electrode, an annular perforated partition within said vessel-electrode mechanically and electrically connected to the bottom thereof, depolarizing material packed in the space between said partition and vessel-electrode, an exciting solution in said vessel, a zinc electrode immersed in said solution, a cover sealed to said vessel, a vent for said vessel above the exciting solution, and means for opening and closing said vent, substantially as specified.

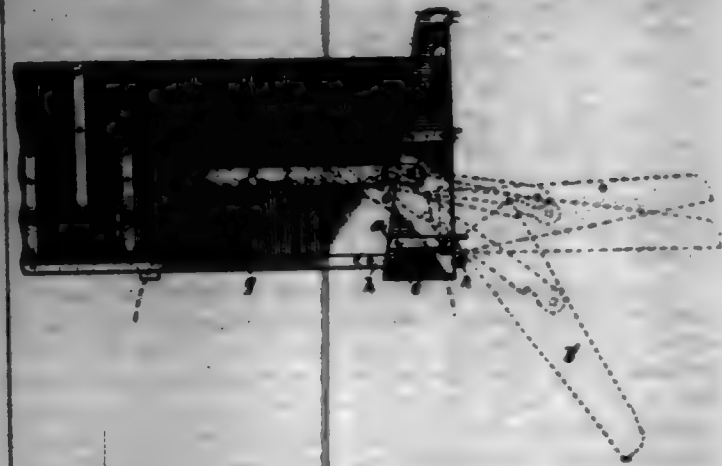
2. In a voltaic cell, in combination, a combined containing vessel and negative electrode made of a suitable metal; a cover sealed to said vessel but having a vent-hole, means for opening and closing said vent-hole, a perforated metallic partition in said vessel mechanically and electrically connected to the bottom thereof, finely-subdivided particles of depolarizing material in the space between said partition and vessel-electrode, an exciting solution in said vessel, a zinc electrode centrally located within said vessel and immersed in said solution and supported but insulated from said cover, substantially as specified.

3. In a voltaic cell, in combination, a combined containing vessel and negative electrode made of a suitable metal, a cover sealed to said vessel but having a vent-hole, means for opening and closing said vent-hole, an annular perforated metallic partition mechanically and electrically connected with the bottom of said vessel, a layer of cloth covering the outer face of said partition, a layer of sand in the bottom of the annular space between said cloth and the vessel-electrode, a layer of finely-subdivided cupric acid packed in said space above said sand, and a seal in said space above said cupric acid, a caustic-soda solution in said vessel-electrode, and a zinc electrode immersed in said solution and supported by but insulated from the cover, substantially as specified.

4. A cylindrical containing vessel made of a suitable metal whereby it also serves as the negative electrode, a cylindrical perforated metallic partition concentrically placed in said vessel and mechanically and electrically connected with the bottom thereof, finely-subdivided depolarizing material packed in the annular space between said partition and vessel, a centrally-placed zinc electrode, and an exciting solution of caustic soda in said vessel, substantially as specified.

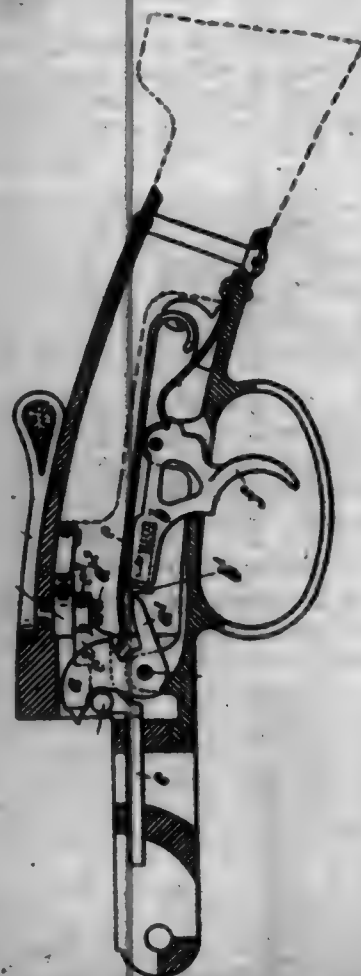
5. In a voltaic cell, in combination, a combined containing vessel and negative electrode made of a suitable material, a cover sealed thereto but having a vent-hole, means for opening and closing said vent-hole, a perforated metallic partition secured to the bottom of said vessel, finely-subdivided cupric acid packed in the space between said partition and vessel, an exciting solution in said vessel, a zinc electrode immersed in said solution having a stem which is attached to but insulated from the cover, and an inclined splash-plate secured in said vessel between the cover and top of said perforated partition, substantially as specified.

701,820. COMBINED END-BOARD AND BOOT FOR WAGON. CHARLES FISHER, Lyons, N. Y., assignor of one-half to George A. HERR, Newark, N. Y. Filed Apr. 21, 1902. Serial No. 104,084. (No model.)



Claim.—A combined end-board and end-board for wagon-boxes, comprising a metal plate having upturned opposite sides to pass outside the wagon-box, severed near their ends from the intermediate part of the plate by slots, said intermediate part being bent or rolled to the form of a tube with its convex surface in contact with the wagon-box, a pair of holding joint-straps rigid with the wagon-box having perforated ends projecting through said slots opposite the respective ends of said tube, an axial rod within the tube and passing through the joint-straps, and a notched hanger held pivotally to each upturned side of the plate, and loops on the wagon-box to control the notched hangers, substantially as set forth and shown.

701,821. SMALL ARM. ADOLF FRANK, Hamburg, Germany. Filed Aug. 22, 1901. Serial No. 73,945. (No model.)



Claim.—1. The combination with a spring-actuated hammer and a to-and-fro movable locking-bolt adapted to move said hammer into half-cock position against the stress of its spring when said bolt is moved in one direction; of a trigger and a rear controlled thereby and adapted to engage the hammer and hold it in its said position to admit of the movement of the locking-bolt out of engagement with the hammer and to move the latter into full-cock position by a pull on the trigger, for the purpose set forth.

2. The combination with a spring-actuated hammer and a to-and-fro movable hand-operated locking-bolt adapted to move said hammer into a half-cock position and lock the same against the stress of its spring; of

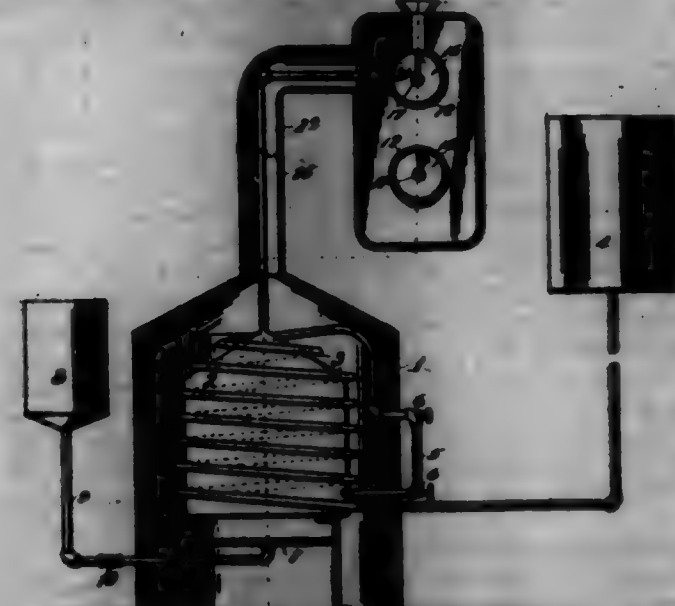
a spring-actuated trigger and a spring-actuated rear controlled thereby and adapted to engage the hammer and hold it in its said position to admit of the movement of the locking-bolt out of engagement with said hammer and to move the latter into full-cock position by a pull on the trigger and to release it by a further pull on said trigger, for the purpose set forth.

3. The combination with a spring-actuated hammer and a hand-operated locking-bolt adapted when moved in one direction to retract and lock said hammer against the stress of its spring; of a spring-actuated trigger and a spring-actuated rear mounted on said trigger and adapted to engage the hammer when retracted and to release the same by a pull on the trigger against the stress of its spring, for the purpose set forth.

4. In a double-barrel break-down gun, the combination with the hammer and a to-and-fro movable locking-bolt for the barrels, said bolt adapted to move the hammers to a half-cock position against the stress of their springs when moved to unlock the barrels; of a trigger and a rear for each hammer, said rear adapted to engage and lock their respective hammers into their said half-cock position, to admit of the movement of the locking-bolt out of engagement with the hammers and into engagement with the barrels, and then by a pull on the trigger to move said hammers into full-cock position and by a further pull on said triggers to release the hammers, for the purpose set forth.

5. The combination with a spring-actuated hammer, and means for moving the same into half-cock position and again releasing it; of a rear, and a trigger controlling the same, said rear adapted to engage and hold said hammer in its off-cock position, to move said hammer into full-cock position by a pull on the trigger, and to release it by a further pull on said trigger, for the purpose set forth.

701,822. WHEAT-STRAMER. JACOB FRANK, Philadelphia, Pa. Filed Sept. 28, 1901. Serial No. 75,787. (No model.)



Claim.—1. In a grain-straining apparatus, a drum, steaming-chamber within the drum, means for conveying the grain through said chamber, a steam-generator, and means for conveying steam to the steam-chamber and the heat from the steam-generator to the drum, substantially as described.

2. In a grain-straining apparatus, a drum, steaming-chamber within the drum, conveyor within the chamber, apertures between the chamber and drum, a steam-generator, a steam-pipe, leading from the generator to the steaming-chamber, a pipe controlling the steam-pipe communicating with the drum, a burner for the steam-generator, and a water-pipe controlling the steam-generator and communicating with the interior thereof, substantially as described.

3. In a grain-straining apparatus, a drum, steaming-chamber therein, a heater casing, a boiler therein, a steam-pipe leading from the boiler to the steam-chamber, and a pipe leading from the heater-casing to the drum, insulating the steam-pipe, substantially as described.

4. In a grain-straining apparatus, a drum, steaming-chamber within the drum, cover conveyor in the steaming-chamber, shafts journaled in the drum-heads on which the cover conveyors are mounted, gear-wheels connecting the shafts, a pulley on one shaft from which motion is derived from any suitable source, a heating-casing, a boiler within the casing, a burner under the boiler, a feed-water pipe controlling the boiler and communicating with the interior thereof, a steam-pipe connected to the boiler and to one of the steaming-chambers, and a pipe including the steam-pipe, connecting the heating-casing and the drum, whereby steam is conducted to the steaming-chambers and heat is carried to the drum simultaneously, as and for the purpose described.

701,823. GAS-LAMP. LOUIS C. FULMER, Kansas City, Mo. Filed Dec. 24, 1900. Serial No. 69,911. (No model.)



Claim.—1. In a lamp, the combination of a lateral arm, a vertical finger rising therefrom, a sheet-metal strip secured to the finger, and having its upper end bent outwardly and perforated, a crimp or band in said strip below said perforated portion, a vertical perforation through said lateral arm, and a mantle-supporting wire extending through both of said perforations and frictionally engaged by said crimp, substantially as described.

2. In a lamp, a mantle-supporting device comprising, in combination with fingers for guiding the chimney, a sheet-metal strip secured to the outer face of one of the fingers, said strip having an outwardly-projecting perforated ear and a crimp or band below said ear, a lateral extension from the lower end of said finger having a vertical perforation therethrough, and a mantle-supporting wire extending through both of said perforations, substantially as described.

3. A mantle-support for lamps, comprising a central tube 14, a spider mounted thereon, having a radial arm thereon, a vertical finger rising from said arm, a sheet-metal strip secured to the outer face of said finger, a perforated ear extending laterally from said strip, a crimp or band in said strip below said ear, a vertical perforation through said radial arm, and a mantle-supporting wire passing through said perforation and through said perforated ear, and frictionally engaged by said crimp in said sheet-metal strip, substantially as described.

4. In a lamp-burner, a vertical tube, and a tubular wire-glass tip mounted thereon, having its top of greater thickness than its sides, substantially as described.

5. In a lamp-burner, a tubular wire-glass tip having its top formed by overlapping flaps cut from the upper end of the tip, substantially as described.

701,824. VOTING-MACHINE. OTTOMAR A. GATHELL, Columbus, Ohio, assignor to Preston C. Houston, Jamestown, N. Y. Filed July 31, 1901. Serial No. 75,697. (No model.)

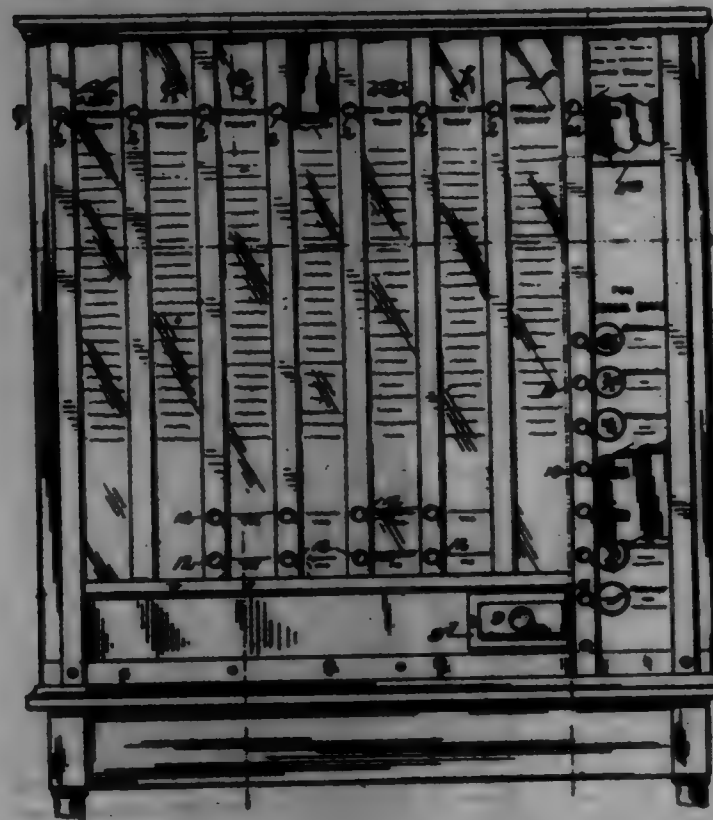
Claim.—1. In a voting-machine, the combination with a key-voting mechanism, of mechanism adapted to be operated to deliver a separate paper ballot to the voter, and means for locking the ballot-releasing mechanism if a key is voted, and for locking the key-voting mechanism if the ballot-delivering mechanism is operated, substantially as described.

2. In a voting-machine, the combination of mechanism for voting straight party tickets and upon questions submitted to election, mechanism adapted to be operated to deliver a separate paper ballot to the voter, mechanism permitting voting by those of limited franchise, and means operative by the judges of election for locking out all except the last-named mechanism, substantially as described.

3. In a voting-machine, the combination of mechanism for voting straight party tickets and upon questions submitted to election, mechanism for delivering to the voter a separate paper ballot, and mechanism permitting voting by those of limited franchise, means operative by the judges of election for locking out all the mechanism except the last named, and mechanism for resetting simultaneously all the mechanism, substantially as described.

4. In a voting-machine, the combination of straight-ticket-voting mechanism, a paper-ballot receptacle, a key to be operated to release to the voter a ballot from said receptacle, locking-out devices common to

the straight-ticket-voting mechanism and the ballot-releasing key, substantially as described.



5. In a voting-machine, keys for voting straight tickets, a ballot-receptacle, a drawer therein adapted to be operated to extract a ballot from a package of ballots therein, means for locking said drawer in its closed position, means for locking the same in its open position, combined with a key to be operated to release the drawer, and mechanism for locking out the straight-ticket keys if the ballot-releasing key is operated, substantially as described.

6. In a voting-machine, keys for voting straight tickets, a ballot-receptacle, a drawer therein adapted to extract a paper ballot from a package of ballots in said receptacle, means tending to open said drawer, means for locking said drawer in its closed position, means for locking the same in its open position, combined with a key to be operated to release the drawer and mechanism for locking out the straight-ticket keys if the ballot-releasing key is operated, substantially as described.

7. In a voting-machine, a case, a ballot-receptacle in said case, a drawer adapted to withdraw from the case a ballot from a package of ballots in the receptacle, an adjustable plate for diminishing or increasing the opening and key-operated device for releasing said drawer, combined with key-voting mechanism, and means for locking and releasing said key mechanism common also to the opening device of the drawer in the case through which the ballot is drawn by said drawer, substantially as described.

8. In combination with a voting-machine having voting device provided with means independent of the door for locking them when voted, relative means extending beyond the case operated by the door for resetting the voting device to voting position, a latch having a door permitting ingress or egress of the voter thereto, and a cylinder-cum on said door for operating the relative means for resetting the voting device, substantially as described.

9. In a voting-machine, a plurality of push-keys having notches 12°, a series of cavities 12° and a notch 12°, locking mechanism for said keys comprising expandable blocks to be operated by the keys, and a separate sliding bar arranged to be moved to lock both the voted and unvoted keys, substantially as described.

10. In a voting-machine, a plurality of push-keys, locking mechanism for said keys comprising expandable blocks, a sliding locking-bar supported by one of said blocks, said bar being moved to lock in the voted key and lock out the unvoted key when one of said keys is voted, substantially as described.

701,825. STOVE. HOWARD G. GUNDEL, Erie, Pa. Filed June 12, 1901. Serial No. 63,161. (No model.)

Claim.—1. In a stove, the combination of a lining for a fire-pot having a series of substantially upright air-ducts therein communicating with the fuel-space of the fire-pot; a grate at the bottom of the fire-box; a stove-base below the fire-box comprising an ash-pit and having an air-passage cut therein above the ash-pit; and passages arranged to conduct the delivery of air from the passages in the base to points at the sides and near the bottoms of the air-ducts, said ducts being open at the bottom for the escape of ashes.

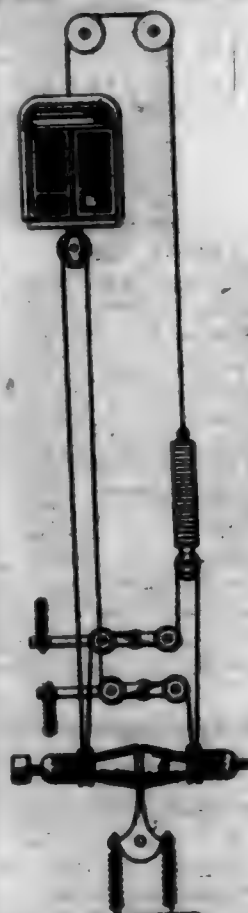
ducts, said ducts being open at the bottom for the escape of ashes; and means for controlling said passages.



2. In a stove the combination of the base comprising an ash-pit; a fire-pot above the ash-pit having a lining provided with a series of air-ducts leading into the pot and opening at their bottoms into the ash-pit; and an air-passage cut in the base above the ash-pit and arranged to deliver air to the ash-pit at the sides of the bottoms of the ducts.

3. In a stove, the combination of a lining for a fire-pot having a series of substantially upright air-ducts therein communicating with the fuel-space of the fire-pot; a grate at the bottom of the fire-box; a stove-base below the fire-box comprising an ash-pit and having an air-passage cut therein above the ash-pit; and passages arranged to conduct the delivery of air from the passages in the base to points at the sides and near the bottoms of the air-ducts, said ducts being open at the bottom for the escape of ashes.

701,826. ELEVATOR. HOWARD G. GUNDEL, Erie, Pa. Filed Aug. 28, 1902. Serial No. 728,513. (No model.)



Claim.—1. In an elevator, an endless driving-cable forming two light, two driving-sheaves, one in each of said light and both acting to drive said cable, impelling means for driving said sheaves and means for causing expansion and contraction of at least one sheave.

2. In an elevator, an endless driving-cable forming two light, two sheaves, one in each of said light, a common driving means other than said cable for running said sheaves simultaneously, and means for changing the relative diameters of said sheaves.

3. In an elevator, a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-moving part; in combination with an endless cable forming two light in said block, a driving-sheave in each light of said cable and means for varying the relative diameters of said sheaves.

4. In an elevator, a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-moving part; in combination with an endless cable forming two light in said block, a driving-sheave, two expandable sheaves on said shaft, one for each light of cable, and means for changing the relative diameters of said sheaves.

5. In an elevator, a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-moving part; in combination with an endless cable forming two light in said block, a driving-sheave, two expandable sheaves on said shaft, one for each light of cable, and means for expanding one or the other of said sheaves at will.

6. In an elevator, an endless driving-cable forming two light, two sheaves at least one of which is expandable, both being adapted to run simultaneously, one in each light of said cable, a spring take-up in each light of said cable and means for controlling the expansion of said expandable sheave.

7. In apparatus for producing motion a driving-shaft with two sheaves fast thereon, at least one of which is hollow and is made of resilient material, and said hollow sheave being composed of parallel movable sections, a driving-cable running over both of said sheaves and a cone adapted to extend more or less into said expandable sheave.

8. In apparatus for producing motion a driving-shaft, two hollow sheaves of resilient material made fast thereon, said sheaves being composed of parallel movable sections, a driving-cable passing over both of said sheaves and a double cone centered on said shaft and adapted to slide on said shaft so as to extend more or less into the hollow of either sheave.

9. The combination, with two rotary pulleys, of a cable engaging both pulleys, a device to be driven connected by said cable with both pulleys and tending to be moved thereby respectively in opposite directions, and means for varying the relative diameters of the driving or cable-engaging faces of the two pulleys, thereby controlling the direction and speed of movement of the driven device.

10. The combination, with differential mechanism consisting of a rotary driven element, rotary driving elements, and a cable connecting and engaging the driving and driven elements, the driving elements tending to move the driven element respectively in opposite directions, a motor oppositely connected with the driving elements and driving them at the same angular velocity, and manually-controlled means for controlling the relative peripheral speeds of the cable-engaging faces of the driving elements, thereby controlling the stoppage, direction and speed of the driven element without changing the speed or direction of the motor.

11. The combination, with differential mechanism consisting of a driven pulley, driving-pulley, and a cable connecting and engaging the driving and driven pulleys, the driving-pulley tending to move the driven pulley respectively in opposite directions, a motor, driving connection from the motor to the pulleys, and means for varying the relative peripheral speeds of the driving parts of the driving-pulley, independently of the operative connections between them and the motor, thereby controlling the relative peripheral speeds of the driving-pulleys of the differential mechanism and the stoppage, direction and speed of the driven pulley.

12. The combination, with a shaft and two pulleys driven therefrom of differential mechanism consisting of a driven device a driving-cable connected with the two pulleys, the driven device being adapted to move to take up the excess of length of the driving-cable fed to and from one pulley over that fed to and from the other, a motor adapted to drive the shaft, and means independent of said driving connection for varying the relative peripheral speeds of the driving or cable-engaging faces of the two pulleys.

13. In an apparatus of the character described, the combination with a bodily-movable device, of two rotary drivers, the driving-cables extending around a rotary driving-drum of one of the drivers, thence around the movable device, and thence around the rotary driving-drum of the other driver, driving means for the rotary drivers, the controlling mechanism, and means controlled thereby independent of the driving means to vary the relative peripheral speeds of the rotary drivers, whereby said bodily-movable device may be moved in opposite directions and its direction of travel and rate of speed controlled.

14. In an apparatus of the character described, the combination, with a bodily-movable device, of a rotary shaft, two rotary pulleys driven thereby at the same relative angular velocities, the driving-cables extending around one of said pulleys, thence around the bodily-movable device and thence around the other of said pulleys, the controlling mechanism, and means adapted thereby to vary the relative peripheral speeds of said pulleys whereby said bodily-movable device may be moved in opposite directions and its direction of travel and rate of speed controlled.

15. In an apparatus of the character described, the combination with two rotary pulleys, means for driving them, and driving-cables extending around and adapted to be driven by said pulleys, of a bodily-movable device

with which the driving-cables engage and which is adapted to move to take up the excess of length of the driving-cable fed to and from one pulley over that fed to and from the other, the controlling mechanism, and means, independent of the driving means, adapted by the controlling mechanism to vary relatively the peripheral speeds of the two pulleys, thereby controlling the travel and speed of the bodily-movable device.

16. In an apparatus of the character described, the combination of two rotary pulleys, means for driving them constantly at the same angular velocities, driving-cables extending around and adapted to be driven by said pulleys, bodily-movable devices with which the driving-cables engage, and which are adapted to move oppositely to take up the excess of length of driving-cable fed to and from one pulley over that fed to and from the other, controlling mechanism, and means adapted thereby to vary relatively the peripheral speeds of the cable-engaging faces of the two sheaves, thereby controlling the travel and speed of the said bodily-movable devices.

17. In an apparatus of the character described, in combination, driving-pulleys, cables passing around the same, a motor, driving connection between the motor and the pulleys whereby the same are constantly driven at the same relative angular velocities, the diameters of the driving-faces of said pulleys being capable of being varied with reference to each other, controlling mechanism, and connection between said pulleys and the controlling mechanism whereby the diameters of the driving-faces of said pulleys may be varied with reference to each other by said controlling mechanism, whereby the cables are fed from the pulleys at different relative speeds, and a bodily-movable device adapted to take up the excess of length of cable fed to and from one pulley over that fed to and from the other.

18. In an apparatus of the character described, the combination with two rotary drivers and a bodily-movable device, of the driving-cables connected with the bodily-movable device so as to control the travel back-and-forth movement of the same, the said driving-cables extending around the driving-faces of the two rotary drivers, a motor, a driving connection therefrom to the drivers, the controlling mechanism, and means controlled thereby, and independent of the driving connection, to vary the relative peripheral speeds of the driving-faces of the two rotary drivers, causing the movable device to travel in one direction or the other.

19. In an apparatus of the character described, the combination with two bodily-movable devices, of two driving-pulleys, cables engaging said pulleys and in operative connection with the bodily-movable devices, a rotating shaft, said pulleys being driven constantly at the angular velocity of the shaft, and means to vary the diameters of the driving faces of the pulleys with reference to each other, whereby the movable devices may be fed in opposite directions and at different speeds.

20. In an apparatus of the character described, the combination with two devices to be driven and two traveling sheaves connected respectively to said devices, of two driving-pulleys, a motor, a driving connection from the motor to the pulleys whereby said pulleys are constantly driven at the same relative angular velocities, the diameters of the driving-faces of said pulleys being capable of being varied with reference to each other, controlling mechanism, and connection between said pulleys and the controlling mechanism whereby the relative diameters of the driving-faces of said pulleys may be varied by said controlling mechanism.

21. In an apparatus of the character described, the combination, with two bodily-movable devices, of two rotary drivers, a motor, a driving connection from the motor to the drivers, a driving connection from the rotary drivers to the movable devices, and means to vary the relative peripheral speeds of the driving parts of the rotary drivers without changing their angular velocity.

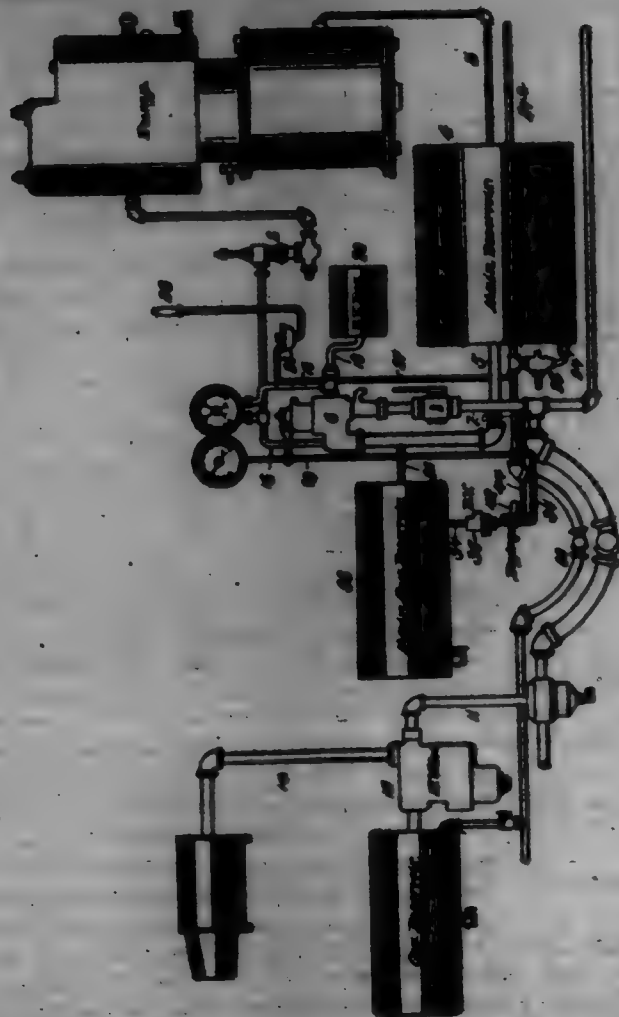
22. In an elevating apparatus, the combination with two bodily-movable devices, two driving-pulleys, a motor, driving connection from the motor to the pulleys whereby they are driven constantly at the same relative angular velocities, cables connecting the pulleys with the movable devices, and connecting the movable devices with each other, whereby any movement of one movable device will be accomplished during an opposite movement of the other, and means to vary the relative peripheral speeds of the driving-faces of the pulleys, thereby controlling the speed and travel of the bodily-movable devices.

23. In an elevating apparatus, the combination, with two traveling sheaves and two driving-pulleys, of a cable extending from one traveling sheave to one driving-pulley, thence to the other traveling sheave, thence to the other driving-pulley and thence back to the first-mentioned traveling sheave, a motor, a driving connection therefrom to the driving-pulleys, and means to vary the relative diameters of the driving-faces of said pulleys.

24. The combination with a shaft of means for driving said shaft, a pair of sheaves mounted on said shaft, a pair of traveling pulleys, an end

two cable loops around said sheaves and pulleys driven by said sheaves, and means for varying the relative diameter of said sheaves.

701,827. CONTINUOUS AUTOMATIC AIR-BRAKE SYSTEM.
HOWARD L. GARR, Chicago, Kans., assignor of one-half to Louis A. Laughlin, Kansas City, Mo. Filed Nov. 1, 1901. Serial No. 98,758 (No model.)



Claim.—1. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir, a connection between the main reservoir and signal-line, a reducing-valve in such connection, a diaphragm on said connection between the reducing-valve and the signal-line, and a connection between said diaphragm and the train-pipe, whereby a reduction of pressure in the latter shall result in the operation of the diaphragm and the passage of air through said connection to the signal-line, substantially as described.

2. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir, a connection between the main reservoir and signal-line, embodying a check-valve, and means whereby a suitable decrease of pressure in the train-pipe shall result in the discharge of air through said check-valve and into the signal-line; said check-valve discharging being about equal in volume to that pumped into the main reservoir as said discharge takes place.

3. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir, a main auxiliary reservoir, a connection between the main reservoir and said main auxiliary reservoir, a connection between the main auxiliary reservoir and the signal-line, and means whereby a suitable decrease of pressure in the train-pipe shall permit air to pass from the main auxiliary reservoir to the signal-line, substantially as described.

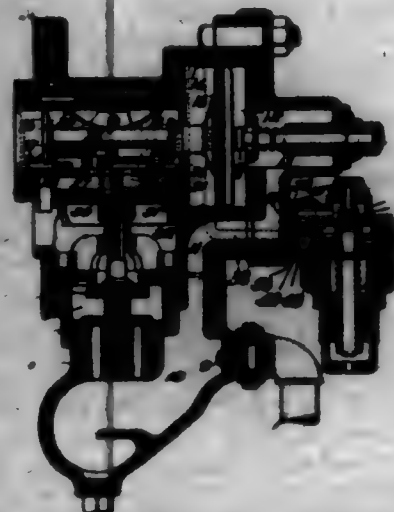
4. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir, a main auxiliary reservoir, a connection between the main reservoir and the main auxiliary reservoir, whereby the latter is supplied without robbing the former of the required pressure, a connection between the main auxiliary reservoir and the signal-line, means whereby a reduction in the train-pipe pressure shall result in the passage of air from the main auxiliary reservoir to the signal-line, and means to limit the volume of air passing from the main auxiliary reservoir to the signal-line, substantially as described.

5. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir, a main auxiliary reservoir, a connection between the main and main auxiliary reservoirs whereby the latter receives air from the former in volume proportionate to the pump-supply, a connection between the main auxiliary reservoir

and the signal-line, a reducing-valve in such connection, and means also on said connection whereby a suitable reduction of pressure in the train-pipe shall permit air to pass from the main auxiliary reservoir to the signal-line, substantially as described.

6. In an apparatus of the character described, a valve-controlled connection between the signal-line and the auxiliary reservoir; a valve on the signal-line, to offer resistance to the passage of air therein from the main reservoir until an initial pressure in said reservoir, train-pipe, and the auxiliary reservoir has been obtained; a connection between the signal-line and the reservoir-line, the point of connection with the reservoir-line being between the main reservoir and the train-pipe; and means whereby a suitable decrease of pressure in the train-pipe shall permit air to pass through said last-mentioned connection and into the signal-line.

701,828. CONTINUOUS AUTOMATIC AIR-BRAKE SYSTEM.
HOWARD L. GARR, Chicago, Kans., assignor of one-half to Louis A. Laughlin, Kansas City, Mo. Filed Jan. 10, 1902. Serial No. 98,148 (No model.)



Claim.—1. The combination is an automatic air-brake apparatus, of the triple valve provided with an opening and a port, the former communicating with the triple-valve-piston chamber at the train-pipe side of the piston thereof in its emergency position, and the latter with said chamber at a point between the feed-groove thereof and the service position of the piston, and a feed-valve attachment connected to said opening and port, and adapted when the train-pipe pressure falls below a predetermined standard but still exceeds that of the auxiliary reservoir to receive train-pipe air and deliver it to the said piston-chamber through said port.

2. The combination is an automatic air-brake apparatus, of the triple valve provided with an opening and a port, the former communicating with the triple-valve-piston chamber at the train-pipe side of the piston thereof in its emergency position, and the latter with said chamber at a point between the feed-groove thereof and the service position of the piston, a feed-valve attachment connected to said opening and port, and adapted when the train-pipe pressure falls below a predetermined standard but still exceeds that of the auxiliary reservoir to receive train-pipe air and deliver it to the said piston-chamber through said port, and means for reinforcing the train-pipe pressure in proportion to the loss by leakage.

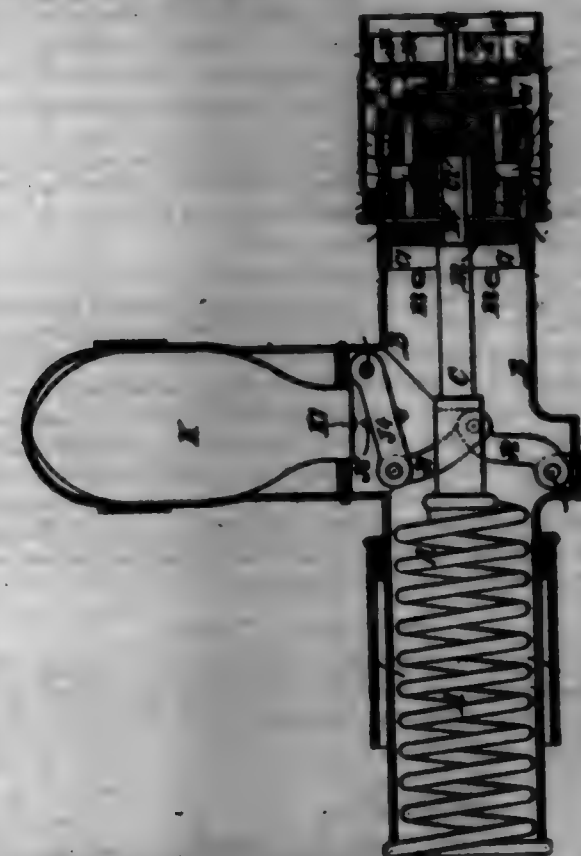
3. The combination is an automatic air-brake apparatus, of the triple valve provided with an opening and a port, the former communicating with the triple-valve-piston chamber at the train-pipe side of the piston thereof in its emergency position, and the latter with said chamber at a point between the feed-groove thereof and the service position of the piston, a feed-valve attachment connected to said opening and port, and adapted when train-pipe pressure falls below a predetermined standard but still exceeds that of the auxiliary reservoir to receive train-pipe air and deliver it to said piston-chamber through said port, and a reducing-valve in communication with the main reservoir and the train-pipe and adapted to automatically reinforce the latter from the former to compensate for fall of pressure occasioned in the train-pipe by leakage.

4. The combination is an automatic air-brake apparatus, of the triple valve provided with an opening and a port, the former communicating with the triple-valve-piston chamber at the train-pipe side of the piston thereof in its emergency position, and the latter with said chamber at a point between the feed-groove thereof and the service position of the piston, and a feed-valve attachment connected to said opening and port, and adapted when the train-pipe pressure falls below a predetermined standard but still exceeds that of the auxiliary reservoir to receive train-pipe air and deliver it to the said piston-chamber through said port, and adapted when the train-pipe pressure rises above such predetermined pressure to close communication between the train-pipe and said port.

5. The combination is an automatic air-brake apparatus, of the triple valve provided with an opening and a port, the former communicating with the triple-valve-piston chamber at the train-pipe side of the piston thereof in its emergency position, and the latter with said chamber at a point between the feed-groove thereof and the service position of the piston, and a feed-valve attachment connected to said opening and port, and adapted when the train-pipe pressure falls below a predetermined standard but still exceeds that of the auxiliary reservoir to receive train-pipe air and deliver it to the said piston-chamber through said port, and means to automatically close communication between the train-pipe and said port when the pressure in the auxiliary reservoir exceeds that of the train-pipe.

6. The combination with an automatic air-brake apparatus, of a feed-valve attachment having a supply-port, and a discharge-port, in communication with the triple-valve-piston chamber, and provided with a valve adapted when the pressure of the train-pipe falls below a given standard to permit train-pipe air to pass and enter the triple-valve-piston chamber, and to close such line of communication when the train-pipe pressure rises above such predetermined standard; said attachment also comprising a piston controlling the discharge-port, and adapted to be actuated by air-pressure before the closing of said valve occurs, and a check-valve adapted to be seated by back pressure in said discharge-port, substantially as described.

701,829. AUTOMATIC SELF-INFLATING LIFE-PRESERVER.
JAMES GRAMER, Cincinnati, and ROBERT R. TAYLOR, Stirling, Scotland. Filed Dec. 14, 1901. Serial No. 98,451. (No model.)



Claim.—1. Improved apparatus for automatically inflating a life-belt garment or appliance, comprising a spring arranged in a casing having an outlet connected to the inlet part of the life-belt, the spring having a head part bearing against the rim or edge of the barrel of the casing, a rod extending through the casing and connected to the spring and to the inner part of a hobbin-piece composed of outer and inner parts hailing against each other, the outer part having a head bearing against the other rim or edge of the casing-barrel, holes or inlet-passages being formed through the hobbin-piece and through that portion of the casing enclosing it, a strip or roll of paper being fixed to the two parts of the hobbin-piece, a piston fixed to the rod and fitting the interior of the casing, a spring-controlled inlet-valve furnished with a push-handle and working on a nut arranged on a cap-piece fixed to the hobbin end of the casing, a receptacle containing gas-yielding materials, the said receptacle being inclosed with the helical spring in the casing and mechanism adapted to be acted on by the release of the spring to free the contents of the receptacle, substantially as described.

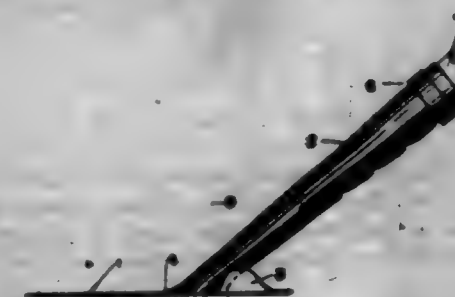
2. Improved apparatus for automatically inflating a life-belt, garment or appliance comprising in combination a helical spring extending within a casing having an outlet connected to the inlet part of the life-belt, the spring having a head part bearing against the rim or edge of the casing-barrel, a rod extending through the casing and connected to the spring and, through a hobbin-piece, to a strip or roll of paper, a piston fixed to the rod and fitting the interior of the casing, a spring-controlled inlet-valve fixed to the casing, with means for operating on a nut in a vessel fixed in the casing and containing materials for producing the gas for inflating the life-belt, substantially as hereinbefore described.

3. Improved apparatus for automatically inflating a life-belt, garment or appliance, comprising in combination a helical spring extending within a casing having an outlet connected to the inlet part of the life-belt, the spring having a head part bearing against the rim or edge of the casing-barrel, a rod extending through the casing and connected to the spring and, through a hobbin-piece, to a strip or roll of paper, a piston fixed to the rod and fitting the interior of the casing, a spring-controlled inlet-valve fixed to the casing, with means for operating on a nut in a vessel fixed in the casing and containing materials for producing the gas for inflating the life-belt, substantially as hereinbefore described.

4. Improved apparatus for automatically inflating a life-belt, garment or appliance, comprising in combination a helical spring extending within a casing having an outlet connected to the inlet part of the life-belt, the spring having a head part bearing against the rim or edge of the casing-barrel, a rod extending through the casing and connected to the spring and to the inner part of a hobbin-piece composed of outer and inner parts hailing against each other, the outer part having a head bearing against the other rim or edge of the casing-barrel, holes or inlet-passages being formed through the hobbin-piece and through that portion of the casing enclosing it, a strip or roll of paper being fixed to the two parts of the hobbin-piece, a piston fixed to the rod and fitting the interior of the casing, a spring-controlled inlet-valve furnished with a push-handle and working on a nut arranged on a cap-piece fixed to the hobbin end of the casing, a receptacle containing gas-yielding materials, the said receptacle being inclosed with the helical spring in the casing and mechanism adapted to be acted on by the release of the spring to free the contents of the receptacle, substantially as hereinbefore described.

5. Improved apparatus for automatically inflating a life-belt, garment or appliance, comprising in combination a helical spring extending within a casing having an outlet connected to the inlet part of the life-belt, the spring having a head part bearing against the rim or edge of the casing-barrel, a rod extending through the casing and connected to the spring and to the inner part of a hobbin-piece composed of outer and inner parts hailing against each other, the outer part having a head bearing against the other rim or edge of the casing-barrel, holes or inlet-passages being formed through the hobbin-piece and through that portion of the casing enclosing it, a strip or roll of paper being fixed to the two parts of the hobbin-piece, a piston fixed to the rod and fitting the interior of the casing, a spring-controlled inlet-valve furnished with a push-handle and working on a nut arranged on a cap-piece fixed to the hobbin end of the casing, a receptacle containing gas-yielding materials, the said receptacle being inclosed with the helical spring in the casing and mechanism adapted to be acted on by the release of the spring to free the contents of the receptacle, substantially as described.

701,830. HOE. GEORGE H. UNRAVE, Wellington, New Zealand. Filed May 7, 1901. Serial No. 98,112. (No model.)



Claim.—1. A hoe having its blade inclined to the axis of the handle which latter is cut so that its axis will cut the cutting edge of the blade nearer to the front end 3 of the blade than to the rear end and an upturned leg 5 at the rear end of the blade extending in a plane converging with the axial plane of the handle, substantially as described.

2. In a hoe, barbs formed on the edges of the socket in combination with a ring for forcing the barbs into the handle, substantially as set forth herein.

3. In a hoe having its blade set at an angle, in combination, a socket placed so that its axis will cut the cutting edge nearer to the front end 3 of the blade than to the rear end, an ear on the rear point of the blade, barbs on the edges of the socket, and a securing-ring for forcing the barbs into the handle, substantially as set forth herein.

701,831. MILK-PAIL. JOHN GRAYSON, Scottville, Mich. Filed Mar. 18, 1902. Serial No. 98,794. (No model.)

Claim.—The combination with a pail-top provided with an opening and with a neck surrounding said opening, a partition extending across the top to form a trap or basin, and two sets of studs, one set being arranged in a plane above the other and each set projecting inwardly from the sides of the neck, of a strainer, the lower end of which fits upon the top and abuts against the partition, and the sides of which engage one set of studs to hold the strainer in an inclined position, a shield covering a portion of the neck and extending over the strainer and having notches to engage one set of studs, and a hook and staple for connecting the opposite edge of the strainer to the neck, substantially as set forth.

701,881.

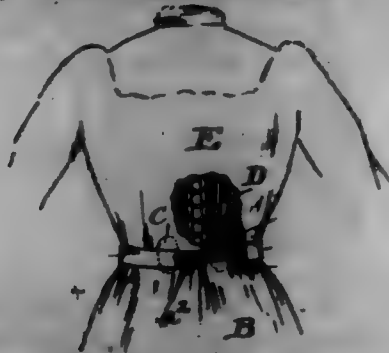


701,882. SWAN-HOOK. James Swan, Clinton, N. Y., assignor to Covert Manufacturing Company, Watervliet, N. Y., a Corporation of New York. Filed Dec. 26, 1901. Serial No. 57,767. (No model.)



Claim.—A snap-hook of the character described comprising a hook portion, and a keeper portion pivoted thereto formed with continuous unbroken depending sides embracing the shank of the hook, and having continuous downwardly and rearwardly inclined forward edges extending from the extreme upper forward end thereof, substantially as described.

701,888. WANDERLAND. Louis H. Wanderland, Cleveland, Ohio. Filed Oct. 5, 1901. Serial No. 77,008. (No model.)



Claim.—1. As a new article of manufacture, a strip of rubber having a surface grooved longitudinally and a ribbon or strip of goods secured thereto and projecting from one edge thereof, the said parts adapted to form the inner and outer portions of a waistband, substantially as described.

2. A waistband for a lady's skirt consisting of a narrow strip of yielding material having longitudinal grooves on one face and being smooth on the other face, combined with a ribbon parallel with the band, and having one edge overlapping the edge of the band on the smooth face, said ribbon being secured to the band by stitches lying within one of the grooves of the band, substantially as described.

3. A lady's skirt having at the upper end a waistband on both the inner and outer sides of the skirt, the band on the inner side being a longitudinally-grooved piece of rubber, the band on the outer side being a ribbon secured to the back side of the rubber and hanging over the upper edge of the skirt and downward along its outer side, substantially as described.

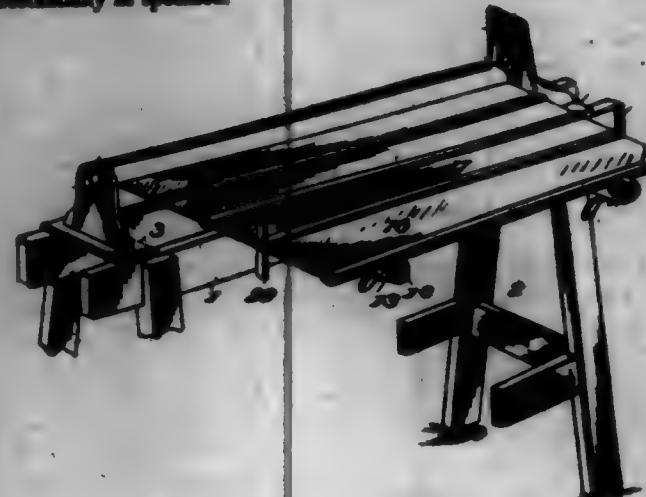
4. A waistband for a lady's skirt consisting of a strip of yielding and flexible material having its inner surface grooved longitudinally, combined with one or more retaining-pieces having a corresponding surface adapted to interfit with the band, whereby material as a skirt-waist may be clamped between them, substantially as described.

5. A waistband having its inner surface composed of longitudinal projections and grooves, combined with a pad having corresponding projections and grooves, said pad being considerably wider than the band whereby it presents a choice of positions for the band, substantially as described.

701,884. DEVICE FOR STRIPPING TOBACCO FROM LATH. PAUL H. GULLERMAN, Oshkosh, Wis. Filed Mar. 28, 1902. Serial No. 100,587. (No model.)

Claim.—1. In a device for stripping tobacco from lath, a standard having a slot to receive the lath, and an apron at one side of the standard

and forming a support for the lath and tobacco, said apron being reversible to admit either of the right-hand or the left-hand use of the device, substantially as specified.



2. In a device for stripping tobacco from lath, a standard having a slot to receive the lath upon which the tobacco-plants are strung, and a flexible apron at one side of the standard and reinforced at intervals by ribs, and means for supporting said apron, substantially as set forth.

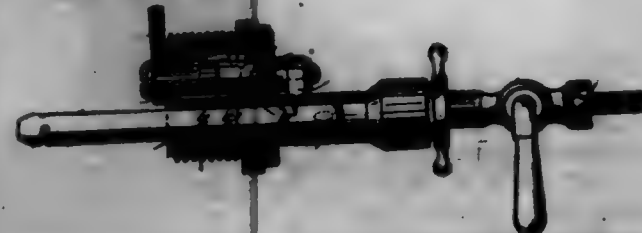
3. In a device for stripping tobacco from lath, a standard having a slot for the reception of the lath containing the tobacco, an apron for supporting the lath and tobacco at one side of the standard and reversible so as to extend from either side of the stand, and an apron-support detachably fitted to the stand and adapted to project from either side thereof to support the apron in either of its extreme positions, substantially as set forth.

4. In a device for stripping tobacco from lath, a standard having a slot to receive the lath containing the tobacco, an apron for supporting the lath and tobacco, and a guard at the end of the apron adjacent to the slotted standard, substantially as set forth.

5. In a device for stripping tobacco from lath, a standard having a slot to receive the lath containing the tobacco, a support projected laterally from the stand receiving the slotted standard, an apron of flexible material resting upon said support, and means for stretching the apron and connecting it to the outer end of said support, substantially as specified.

6. In a device for stripping tobacco from lath, comprising a stand, hand and tail standards projected upward from the stand, the hand-standard having a vertical slot in its upper end, a roller journaled between the said standards, an apron attached at its inner edge to said roller and reversible so as to project from either side of the stand, and bars supporting the apron and adapted to be fitted to the stand so as to project from either side thereof, substantially as described.

701,885. DEVICE FOR DRAWING LIQUIDS. LOUIS H. WANDERLAND, San Francisco, Cal., assignor to American Patent Company, San Francisco, Cal., a Corporation of California. Filed Feb. 10, 1902. Serial No. 98,208. (No model.)



Claim.—1. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage, and having a stem mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a flange connection carried by said plate, and adapted to form communication with the bung-passage, and an independent key carried by said plate, and adapted to operate the valve-stem.

2. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem mounted relatively in the bung and adapted by its axial movement to operate the valve, a plate to be applied to the outer face of the bung, a flange connection carried by said plate and adapted to form communication with the bung-passage, and a key carried by and relatively mounted in said plate, and adapted to connect with and to operate the valve-stem.

3. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem mounted relatively in the bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a flange connection carried by said plate, and adapted to form communication with the bung-passage, and a key carried by and relatively mounted in said plate, and adapted to connect with and to operate the valve-stem.

of said passage, a stem relatively mounted in the bung, and carrying the valve upon its inner end, a plate to be applied to the outer face of the bung, a flange connection carried by said plate and adapted to form communication with the bung-passage, and a key carried by and relatively mounted in said plate, and adapted to connect with and to operate the valve-stem.

4. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem relatively mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a flange connection carried by said plate, and adapted to form communication with the bung-passage, a key carried by and relatively mounted in said plate and adapted to connect with and to operate the valve-stem, and suitable locking connections between the bung and the key, adapted to be operated by the turning of the key while operating the valve.

5. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem mounted relatively in the bung, a plate to be applied to the outer face of the bung, a flange connection carried by said plate, and adapted to form communication with the bung-passage, a key carried by and relatively mounted in said plate independently of the flange connection, and adapted to connect with and to operate the valve-stem, and an operating-handle on said key disposed to connect with the flange connection at its limits of movement, whereby the limits of the throw of the valve are defined.

6. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem mounted relatively in the bung, a plate to be applied to the outer face of the bung, a flange connection carried by said plate, and adapted to form communication with the bung-passage, a key carried by and relatively mounted in said plate independently of the flange connection, and adapted to connect with and to operate the valve-stem, an operating-handle on said key disposed to connect with the flange connection at its limits of movement, whereby the limits of the throw of the valve are defined, and suitable locking connections between the bung and the key, adapted to be operated by the turning of the key while operating the valve.

7. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage, and having a stem mounted in said bung, a plate to be applied to the outer face of the bung, a flange connection carried by the plate and adapted to form communication with the bung-passage, a key carried by and relatively mounted in the plate independently of and exterior to the flange connection and adapted to connect with and to operate the valve-stem, said key having locking devices to engage the bung, and a handle-lever on the outer end of the key to operate it, said lever being so disposed relatively to the flange connection that its limits of movement are defined by its contact on either side of its center of movement with said flange connection.

8. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a sleeve carried by the plate and adapted to form communication with the bung-passage, a dip-pipe carried by said sleeve, and adapted to pass through the bung-passage into the liquid-receptacle when the valve controlling said passage is open, and a key carried by said plate and adapted to operate the valve-stem.

9. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem relatively mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a sleeve carried by the plate and adapted to form communication with the bung-passage, a dip-pipe carried by said sleeve and adapted to pass through the bung-passage into the liquid-receptacle when the valve controlling said passage is open, and a key carried by and relatively mounted in said plate and adapted to lock the plate to the bung and to connect with and to operate the valve-stem.

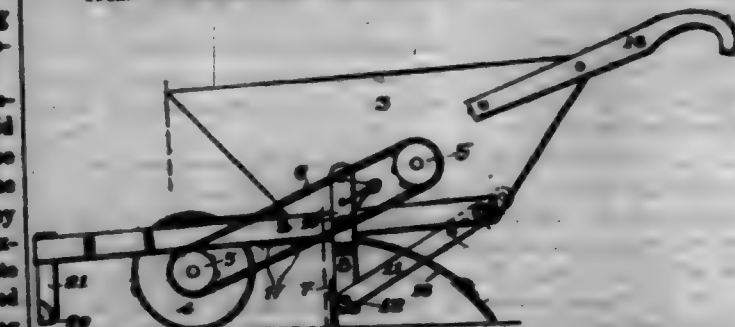
10. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem relatively mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a sleeve carried by the plate and adapted to form communication with the bung-passage, a branch for an air-supply connection opening into said sleeve whereby air may be forced through the bung-passage when opened, a dip-pipe carried by the sleeve and adapted to pass through the bung-passage into the liquid-receptacle when the valve controlling said passage is open, and a key carried by and relatively mounted in said plate and

adapted to lock the plate to the bung and to connect with and to operate the valve-stem.

11. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem relatively mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a sleeve carried by the plate and adapted to form communication with the bung-passage, a branch for an air-supply connection opening into said sleeve, a dip-pipe carried by the sleeve and adapted to pass through the bung-passage into the liquid-receptacle when the valve controlling said passage is open, said dip-pipe having an exterior diameter sufficiently smaller than the interior diameter of sleeve and passage, to permit the air to pass in around it, to the liquid-receptacle, and a key carried by and relatively mounted in said plate and adapted to lock the plate to the bung and to connect with and to operate the valve-stem.

12. A device for drawing liquids, consisting of a bung having a passage communicating with the liquid-receptacle, a valve controlling said passage and having a stem relatively mounted in said bung and adapted to operate the valve, a plate to be applied to the outer face of the bung, a sleeve carried by the plate and adapted to form communication with the bung-passage, a branch for an air-supply connection opening into said sleeve, a dip-pipe carried by the sleeve and adapted to pass through the bung-passage into the liquid-receptacle when the valve controlling said passage is open, said dip-pipe having an exterior diameter sufficiently smaller than the interior diameter of sleeve and passage to permit the air to pass in around it, to the liquid-receptacle, an independent key relatively mounted in said plate and adapted to lock the plate to the bung and to connect with and to operate the valve-stem, and a handle on the exterior end of the key adapted to connect with the sleeve on either side of the center of movement to define its limits in either direction.

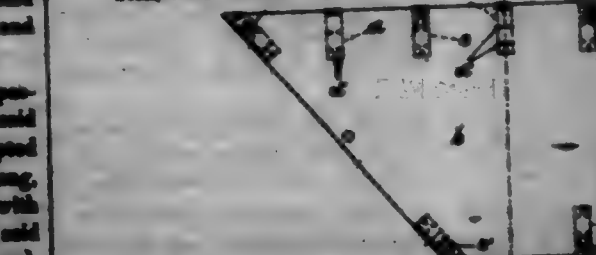
701,886. FURROW OPENING AND COVERING ATTACHMENT FOR PLANTERS. WILLIAM A. HANSEN, Glendale, S. C. Filed Jan. 8, 1902. Serial No. 98,209. (No model.)



Claim.—1. In a planter, the combination of a furrow-opener, standard-arm to which said furrow-opener is secured, the upper portions of said standard-arm being laterally offset, brace-bars in rear of the standard-arm and connected thereto and coverer-arms disposed between said brace-bars and the laterally offset upper portions of the standard-arm, the latter and the coverer-arms being attached to the frame of the planter, substantially as described.

2. In a planter, the combination of a furrow-opener, standard-arm to which said furrow-opener is secured, the upper portions of said standard-arm being laterally offset and secured to the side of the planter, brace-bars in rear of the standard-arm and secured to the lower ends thereof and to the planter, and spring coverer-arms having their front ends attached to the planter, the said spring coverer-arms being disposed between the brace-bars and the laterally offset upper portions of the standard-arm, and thereby adapted to play vertically between them, the brace-bars and standard-arm preventing lateral displacement of the coverer-arms, substantially as described.

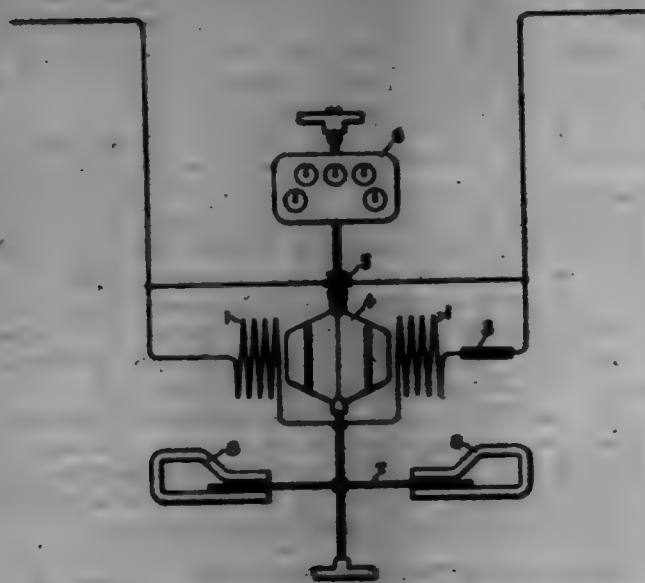
701,887. CURTAIN FOR CARRIAGES. GEORGE E. HANSEN, New York, Conn. Filed Aug. 8, 1901. Serial No. 71,261. (No model.)



Claim.—In combination with a carriage-top, a side article, means for attaching said article to the said carriage-top at stated points, and means for preventing the sagging of said article between the said points

of attachment, consisting of metallic strips formed with spurs that are bent and clamped upon the curtain, as set forth, and whose projecting end portion is bent and clamped over the edge of said curtain, substantially as specified.

701,888. ELECTRIC MOTOR. CARTER R. HANSEN, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 20, 1901. Serial No. 20,000. (No model.)



Claim.—1. In an electric motor, the combination of a field-winding, a conductor having a negative temperature coefficient in series with said winding, and an armature connected about said field-winding and conductor.

2. In an electric motor, the combination of a field-winding and an armature connected in parallel with each other, and means for causing the drop of potential in the field-circuit to be less than proportional to the current flowing therein.

3. In an electric motor, the combination of a motive element in which the torque is produced by the mutual interaction of currents in parallel-connected circuits, and means for causing the resistance of one of said circuits to change upon variation of current in the motor at a rate different from the rate of change of the resistance in the other circuit.

4. In an electric motor, the combination of a field-winding and an armature connected in parallel relation with each other and adapted to be connected in circuit with one of the mains of an electric system, and means for causing the field-winding circuit to be of higher resistance with small currents than with large currents passing therein.

5. In an electric motor, the combination of a field-winding and an armature in parallel-connected circuits, and means for causing the resistance of one of said circuits to be greater when carrying small currents than when carrying larger currents.

6. In an electric motor, the combination of a fixed member, a relatively movable member, connections whereby current flowing in the motor produces torque of the movable member, and a resistance changing with temperature adjusted to change the law of said torque with change in the quantity measured.

701,889. ROTARY ENGINE. FRANK A. BRADSHAW, Lafayette, Ind., assignor of one-half to Leo Pettibone, Norman Pettibone, Julius Pettibone, and Max Pettibone, Lafayette, Ind. Filed Nov. 15, 1900. Serial No. 34,578. (No model.)

Claim.—1. In an engine of the class described, the combination of a casing having an operating-chamber and inlet and outlet passages therefor, a piston rotating in said chamber provided with one or more steam-pockets in the periphery thereof arranged to cover and uncover the inlet-opening and thereby govern the admission of motive fluid, a slidable cut-off valve in each pocket, and rack-and-pinion mechanism for operating said valves, substantially as described.

2. In an engine of the class described, the combination of a casing having an operating-chamber and inlet and outlet passages therefor, a piston rotating in said chamber and provided with one or more steam-pockets in the periphery thereof arranged to cover and uncover the inlet and thereby govern the admission of motive fluid, a slidable cut-off valve in each pocket, rack mechanism on the pocket-wall and on the valve, a spur-pinion engaging both racks to multiply the movement of the valve, and rod-and-lever mechanism arranged to operate the pinion, substantially as described.

3. In an engine of the class described, the combination of a cylinder-casing having an operating-chamber and inlet and outlet passages therefor, an inwardly-projecting banking secured to and forming a part of the casing through which the inlet-opening extends and provided with curved ends which form a part of the walls of the operating-chamber and through which banking the inlet-opening extends, a rotatable piston mounted in each chamber and provided with longitudinal wing-grooves, wing mechanism in each of said grooves provided with a packing in the outer edge thereof consisting of a strip arranged in the bottom thereof provided with a cylindrical contacting surface, and a plurality of longitudinal strips arranged thereon capable of adjusting themselves automatically to the surface of the cylinder, substantially as described.



4. In an engine of the class described, the combination of a cylinder-casing having an operating-chamber and inlet and outlet passages therefor, an inwardly-projecting banking secured to the casing provided with curved ends which form a part of the walls of the operating-chamber and through which banking the inlet-opening extends, a rotatable piston mounted in each chamber and provided with longitudinal wing-grooves diametrically opposite to each other, a wing in each of said grooves connected together across the diameter of the piston and each having a longitudinal packing-groove in the outer edge thereof, a semi-cylindrical strip arranged in the bottom of the packing-groove of each wing, a plurality of strips laid on edge to contact with each other and resting upon the upper surface of the semi-cylindrical strip forming a packing which automatically adjusts itself to the surface of the cylinder, and spring mechanism inserted between the lower side of the wings and the bottom of the wing-grooves in the piston to form a cushion for each wing, substantially as described.

5. In an engine of the class described, the combination of a base portion, a cylinder secured thereto provided with a head at each end thereof having stuffing-boxes thereon, a piston rotatably mounted in the cylinder and having its shaft extending out through the stuffing-boxes of the cylinder-heads, and piston-heads secured adjacent to each end of the piston made in two parts and provided with packing-rings 22 between each part to confine the motive fluid between them, substantially as described.

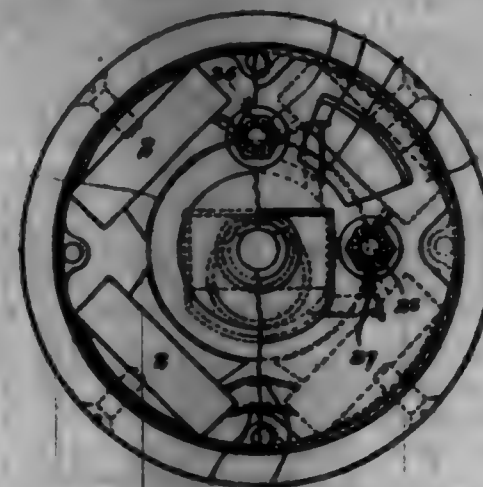
701,840. MANUFACTURE OF SPHERICAL MAPS. HENRI HENRIKSEN and ALBERT FATHNER, Brussels, Belgium. Filed Nov. 15, 1899. Serial No. 35,573. (No model.)

Claim.—The herein-described process of constructing a spherical chart of a portion of the earth's surface, consisting of first printing a distorted representation of the chart on a flat surface, then embossing said flat surface so as to produce a surface of a sphere corresponding to the curvature of the earth and causing said distortion to be rectified in the step of embossing to produce a true chart of the said portion of the earth's surface, substantially as described.

701,841. ELECTRIC MOTOR. ALBERT R. BRADSHAW, Chicago, Ill. Filed July 15, 1901. Serial No. 35,574. (No model.)

Claim.—1. In an electric motor, the combination of a rotary armature, a drive-shaft rotating therewith, a pinion on each end of said shaft and an annular driven member provided with duplex annular racks respectively engaged with said pinions in diametrically opposite relation,

whereby the driving moment of the motor is simultaneously imparted to said driven element through both pinions.



2. In an electric motor, the combination of a main drive-shaft, an armature mounted thereon, a pinion upon said shaft at each side of said armature, and a driven member provided with duplex annular racks arranged to encircle said armature; said racks being severally engaged with the respective pinions of the armature-shaft in diametrically opposite relation to each other whereby the driving moment of the motor is simultaneously imparted to said driven element through both pinions.

3. In an electric motor, the combination of a relatively stationary frame, a main drive-shaft journaled in said frame and provided with a pair of driving-pinions, an armature mounted upon said drive-shaft between said pinions, a series of field-pieces upon said frame in co-operative relation to said armature, and a driven member comprising duplex parallel annular racks encircling said armature exteriorly of the stationary frame, and having its racks operatively engaged with the respective pinions of the drive-shaft in diametrically opposite relation whereby the driving moment of the armature is imparted to the driven member through both pinions simultaneously and in the same direction.

4. In an electric motor, the combination of a relatively stationary frame, constituting an armature-bearing, a main drive-shaft journaled in said frame and provided with a pair of driving-pinions, an armature mounted upon said drive-shaft between said pinions, a series of field-pieces upon said frame in co-operative relation to said armature, and a driven member comprising duplex parallel annular racks encircling said armature exteriorly of the stationary frame, and having its racks operatively engaged with the respective pinions of the drive-shaft in diametrically opposite relation whereby the driving moment of the armature is imparted to the driven member through both pinions simultaneously and in the same direction.

5. In an electric motor, the combination of a relatively stationary main frame provided with bearing-supports, a main drive-shaft journaled in said frame and provided with a pair of driving-pinions, an armature mounted upon said drive-shaft between said pinions, a series of field-pieces upon said frame in co-operative relation to said armature, and an outer driven member operatively engaged with the bearing-supports of the relatively stationary frame comprising duplex parallel annular racks encircling said armature exteriorly of the stationary frame, and having its racks operatively engaged with the respective pinions of the drive-shaft in diametrically opposite relation whereby the driving moment of the armature is imparted to the driven member through both pinions simultaneously and in the same direction.

6. In an electric motor, the combination of a relatively stationary frame provided with integral oppositely-disposed external projections constituting journals, a main drive-shaft journaled in said frame and provided with a pair of driving-pinions, an armature mounted upon said drive-shaft between said pinions, a series of field-pieces upon said frame in co-operative relation to said armature, and an outer driven member journaled upon said journal projections of the main frame, comprising duplex, parallel, annular racks encircling said armature exteriorly of the stationary frame, and having its racks operatively engaged with the respective pinions of the drive-shaft in diametrically opposite relation whereby the driving moment of the armature is imparted to the driven member through both pinions simultaneously and in the same direction.

7. In an electric motor, the combination of a relatively stationary frame provided with integral oppositely-disposed external projections constituting journals, a main drive-shaft journaled in said frame and provided with a pair of driving-pinions, an armature mounted upon said drive-shaft between said pinions, a series of field-pieces upon said frame in co-operative relation to said armature, and an outer driven member journaled upon said journal projections of the main frame, comprising duplex, parallel, annular racks encircling said armature exteriorly of the stationary frame,

and having its racks operatively engaged with the respective pinions of the drive-shaft in diametrically opposite relation whereby the driving moment of the armature is imparted to the driven member through both pinions simultaneously and in the same direction.

8. In an electric motor, the combination of a relatively stationary motor-casing constituting a substantially complete enclosure, a series of field-magnets arranged upon the interior of said casing, an armature journaled within the casing and a commutator mechanism mounted upon the interior of the casing at one end of said armature, that portion of the wall of the casing which supports the commutator mechanism being made in the form of a removable end cap through which the motor mechanism is insertible and removable, substantially as described.

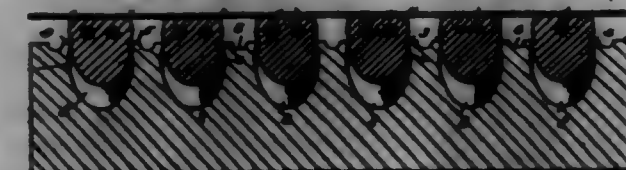
9. In combination with a wheel, means for propelling the same comprising an annular double driving-rack mounted concentrically with the axis of rotation of said wheel, a drive-shaft arranged diametrically of said rack and provided at each end with a driving-pinion engaged with the rack, and an armature arranged to rotate said drive-shaft.

10. In combination with a wheel having a hollow shell-like hub, a double driving-rack mounted within said hub concentrically with the axis of rotation of the wheel, a drive-shaft arranged diametrically of said rack and provided at each end with a driving-pinion engaged with the rack, a motor-armature mounted upon said drive-shaft within the hub, field-magnets supported upon the wheel in co-operative relation with said armature, and means for supplying electric current to said motor.

11. In combination with a wheel having a hollow shell-like hub, a double driving-rack mounted within said hub concentrically with the axis of rotation of the wheel, a drive-shaft arranged diametrically of said rack and provided at each end with a driving-pinion engaged with the rack, a motor-armature mounted upon said drive-shaft within the hub, field-magnets supported upon the wheel in co-operative relation with said armature, and means for supplying electric current to said motor.

12. In combination with a wheel, having a hollow shell-like hub, means for propelling the same comprising an annular double rack mounted upon the interior of the hub concentrically with the axis of rotation of the latter, a drive-shaft arranged to extend diametrically and diagonally across said annular rack and provided at each end with a driving-pinion engaged with the latter, an armature mounted rigidly upon said drive-shaft, a motor-casing inclosing said armature within the hub-shell and supporting a series of field-magnets in co-operative relation to the armature, said armature-casing being rigidly secured to the interior of the hub, armature-shaft bearings formed in each end of said armature-casing, a commutator-hub mounted upon said armature-shaft adjacent to one of the end walls of the casing, commutator-brushes supported upon the end wall and operatively engaging said commutator, and electrical connections connected with the windings of the field-magnets and commutator-brushes respectively and extending out of the wheel-hub through a non-rotated part of, or upon the wheel-axis, as and for the purpose set forth.

701,842. PROCESS OF MAKING RUBBER TIRES. ALBERT T. HOLT, Springfield, Ohio. Filed Oct. 7, 1901. Serial No. 77,515. (No specimen.)



Claim.—1. The herein-described process of making rubber tires, which consists in subjecting the rubber to heat and pressure in a mold-cavity having the shape of the complete tire, the widest point thereof lying inward from a relatively constricted mouth, and withdrawing the vulcanized tire through said constricted mouth by compressing the wider portions of the body thereof, substantially as described.

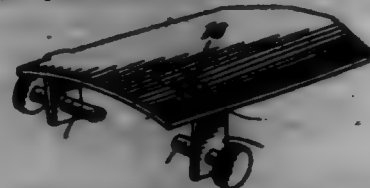
2. The herein-described process of making rubber tires, which consists in subjecting the rubber to heat and pressure in a mold-cavity having the shape of the complete tire, the widest point thereof lying inward from a relatively constricted mouth, the base of the tire being coincident with said mouth and the pressure being applied to said mouth, and withdrawing the vulcanized tire through said constricted mouth by compressing the wider portions of the body thereof, the withdrawal being effected successively from one end of the tire to the other, substantially as described.

3. The herein-described process of making rubber tires, which consists in subjecting the rubber to heat and pressure in a mold-cavity having the shape of the complete tire, the widest point thereof lying inward from a relatively constricted mouth, the pressure being applied at the mouth of the mold through an interspersed sheet or strip of canvas, and withdrawing the vulcanized tire along with the canvas through said con-

erected mouth by compressing the wider portions of the body thereof, substantially as described.

4. The herein-described process of making rubber tire, which consists in providing a mold having a plurality of mold-cavities, each having the shape of a complete tire and having its widest point lying inward from a relatively constricted mouth, subjecting the rubber to heat and pressure between said mold and a flat plate or plates, a sheet of canvas being interposed between the mold and plate, and the pressure being applied to the mouth of the mold-cavity, withdrawing the vulcanized tire through the constricted mouth of the mold-cavity by pulling on the canvas and thereby compressing the wider portions of the bodies of the tires to permit them to pass through said mouth, and then covering the canvas along the edges of the base of each tire, substantially as described.

701,843. MUD OR SAND BAND FOR VEHICLES. GEORGE D. HONAN and JOHN H. HONAN, Newton, Tex. Filed Oct. 22, 1901. Serial No. 70,686. (No model.)



Claim.—1. A device of the class described comprising a plate having a transverse slot, arm having a reduced and threaded end and portion passed upwardly through the slot and provided with a clamping-out at its upper end, a clamping-rod engaged with the arm adjacent to its lower end, and a second arm spaced from the first arm in the direction of projection of the screw.

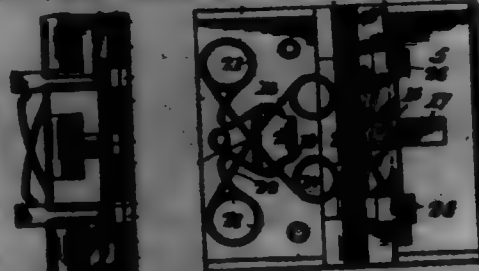
2. A device of the class described comprising a plate having a transverse slot, arm having a reduced and threaded end and resilient shoulder, the threaded end being passed upwardly through the slot and having nut engaged with its upper end and to impinge the upper face of the plate, a clamping-rod engaged with the arm, and a second arm spaced from the first arm in the direction of projection of the screw.

3. A mud-band consisting of a plate provided with depending arms to lie against the side faces of an axle, and a clamping-rod engaged with one of the arms and arranged to impinge against the axle, the second arm being adjustable bodily toward and away from the first arm.

4. A mud-band comprising a plate having correlatively-adjustable depending arms adapted to lie at opposite sides of an axle, and a tie connecting the lower ends of the arms.

5. A mud-band comprising a plate having depending, correlatively-adjustable arms and means for holding them in fixed relation, and a tie formed integral with one arm and engaged adjustably with the other arm.

701,844. SPRING-HINGE. JOHN A. HOWLAND, Saginaw, Mich. Filed Mar. 2, 1906. Serial No. 50,448. (No model.)

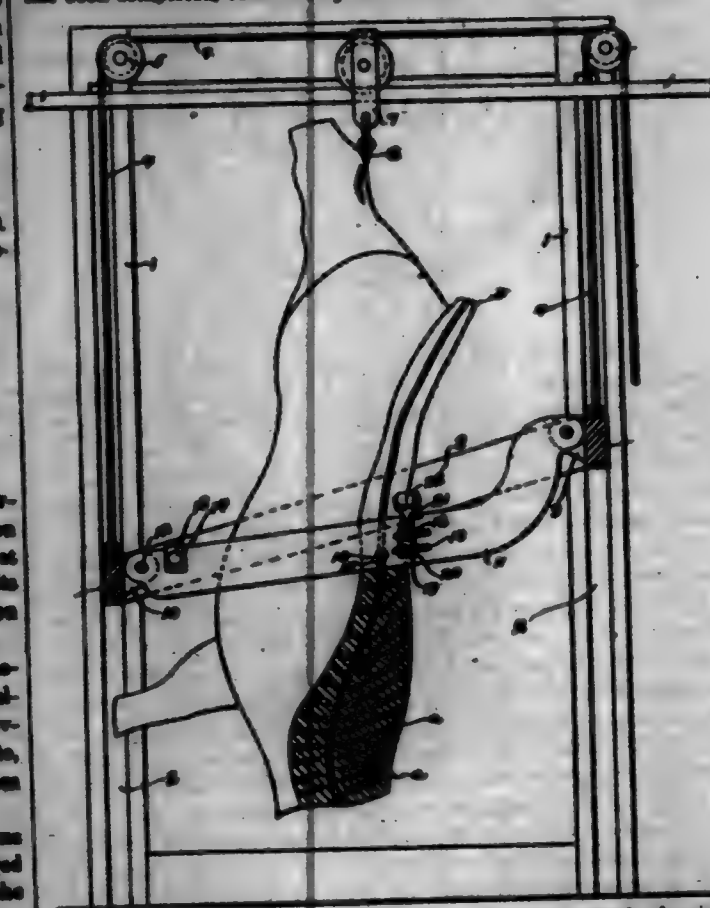


Claim.—1. In a hinge of the character described, the combination of a keeper-plate adapted to be applied to a door-frame, a hinge, one of the leaves of which is adapted to be secured to a door, leaves pivotally connected to each other and provided with tongues for securing the other leaf of the hinge to the keeper-plate, and means for operating said leaves to project and retract said tongues, substantially as described.

2. In a hinge of the character described, the combination of a keeper-plate adapted to be secured to a door-frame and provided at one edge with slots guarded by ribs and adjacent to the opposite side edge with slots and bosses, a hinge, one leaf of which is adapted to be secured to a door, the other being provided with lugs to engage said slots and ribs, leaves upon the latter-named leaf pivotally connected to each other and provided with tongues to engage said slots and bosses, and a slidable operating device for actuating said leaves to project and retract said tongues, substantially as and for the purpose set forth.

701,845. HOG OR CATTLE SPLATTING MACHINE. JOHN C. HUNTER, South Omaha, Neb. Filed Feb. 7, 1906. Serial No. 50,678. (No model.)

Claim.—1. In a mechanism for dividing the carcasses of animals, the combination of standards or posts forming a main frame, each standard being grooved to permit of the reception and sliding therein of a quadrangular supplemental frame, means for bringing the carcass into proper position relative to the main frame, a knife pivoted at one end to the supplemental frame, and mechanism for retracting the supplemental knife-carrying frame to the top of the main frame when the cutting operation has been completed, substantially as set forth.



2. In a mechanism for dividing the carcasses of animals, the combination of a main frame, a supplemental frame movably mounted therein, the knife pivotally mounted on said frame, at one end and removably secured to the frame at the other end, and a handle mounted on said knife for assisting in operating said knife, substantially as set forth.

3. In a mechanism for dividing the carcasses of animals, the combination of a main frame, a supplemental frame vertically movable in said main frame, means for bringing the carcass into proper position relative to said main frame, cutting-mechanism mounted on the supplemental frame for dividing the carcass, and device mounted on the cutting mechanism for guiding the same relative to the carcass, during the operation of said cutting mechanism, substantially as set forth.

4. In a mechanism for dividing the carcasses of animals, the combination of a main frame, a supplemental frame vertically movable in said main frame, means for bringing the carcass into proper position relative to said frame, cutting mechanism mounted on the supplemental frame for dividing the carcass, device mounted in the cutting mechanism for guiding the same during the operation thereof, and supplemental cutting and breaking means mounted on the cutting mechanism for assisting in the operation of dividing the carcass, substantially as set forth.

5. A mechanism for dividing the carcasses of animals, comprising in its construction a main frame, a supplemental frame slidably mounted in said main frame, a knife pivotally secured at one end to said supplemental frame, means for removably mounting the free end of the knife in the supplemental frame, and means on said knife for guiding it during the operation of dividing the carcass, substantially as set forth.

6. A mechanism for dividing the carcasses of animals, comprising in its construction a main frame, a supplemental frame, means for permitting the supplemental frame to move vertically in said main frame, a knife mounted on said supplemental frame, and means on said knife for guiding the same, relative to the carcass of the animal, each means comprising a pin movably secured to the cutting edge of the knife, substantially as set forth.

7. A mechanism for dividing the carcasses of animals, comprising in its construction a main frame, a supplemental frame, means for permitting the supplemental frame to move vertically in said main frame, a knife mounted on said supplemental frame, and supplemental device on said knife for assisting in dividing the carcass, each device comprising a block adjustably mounted on the knife-blade, curved blades mounted on said block, relatively small arms extending upwardly from said block, and

rollers mounted on said arms, the entire mechanism being adapted to bear against the carcass, when the knife is moving downward and splitting the same, substantially as set forth.

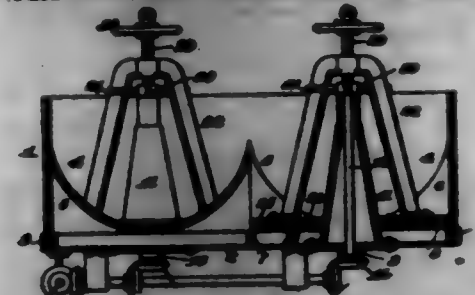
8. In a mechanism for dividing the carcasses of animals, the combination of a main frame, means for bringing the carcass in proper position relative to said frame, a supplemental frame sliding in said main frame, and a knife pivotally mounted at one end in said supplemental frame and removably secured at its other end to said supplemental frame, substantially as set forth.

9. In a mechanism of the class described, the combination with suitable supporting means, and carcass-dividing means, of means carried by said dividing means for following the cavity occupied by the spinal cord of a carcass for directing said dividing means in its movement, substantially as described.

10. In a mechanism of the class described, the combination with suitable supporting means and a carcass-dividing knife carried thereby, of a pin carried by said knife and extending from the cutting edge thereof for following the cavity occupied by the spinal cord of a carcass for guiding said knife, substantially as described.

11. In a mechanism of the class described, the combination with a suitable support and a carcass-dividing knife carried thereby, of a pin pivoted to said knife and extending forwardly therefrom for following the cavity occupied by the spinal cord of a carcass for guiding said knife, substantially as described.

701,846. ANALYZING APPARATUS. GEORGE F. JENNINGS, New York, N. Y., assignor of one-half to Helen T. Shanks, New York, N. Y. Filed June 7, 1906. Serial No. 52,575. (No model.)

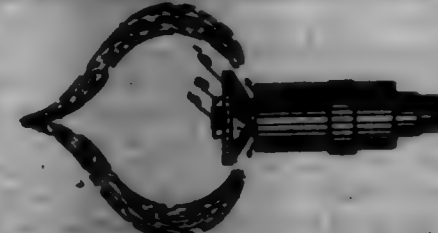


Claim.—1. In an analyzing apparatus, the combination of a rectangular tank, a series of pyramidal projections or partitions 5 mounted upon the bottom of said tank, a series of conical partitions 6 mounted at the edge of the tank whereby a series of conical mulling-chambers will be formed each having sloping walls, and a series of rollers rotatably mounted in each of said chambers whereby the rotation thereof will cause the material to progress successively through the several chambers and around the tank, substantially as and for the purpose set forth.

2. In an analyzing apparatus, the combination of a rectangular tank, a series of pyramidal projections or partitions 5 mounted upon the bottom of said tank, a series of conical partitions 6 mounted at the edge of the tank whereby a series of conical mulling-chambers will be formed each having sloping walls, a series of rollers rotatably mounted in each of said chambers whereby the rotation thereof will cause the material to progress successively through the several chambers and around the tank, and means for simultaneously rotating all of said rollers, substantially as and for the purpose set forth.

3. In an analyzing apparatus, the combination of a rectangular tank, a series of pyramidal projections or partitions 5 mounted upon the bottom of said tank, a series of conical partitions 6 mounted at the edge of the tank whereby a series of conical mulling-chambers will be formed each having sloping walls, a series of rollers rotatably mounted in each of said chambers whereby the rotation thereof will cause the material to progress successively through the several chambers and around the tank, and a removable grooved bottom for each of said mulling-chambers and with which said rollers cooperate, substantially as and for the purpose set forth.

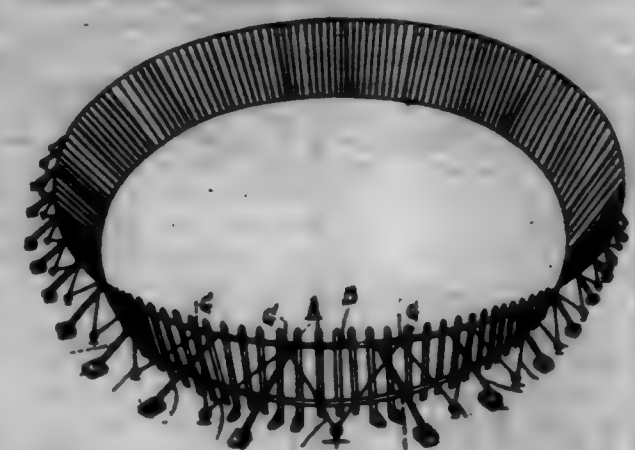
701,847. HYDROCARBON-BURNER. CHARLES J. JENNINGS, St. Louis, Mo. Filed June 14, 1906. Serial No. 54,026. (No model.)



Claim.—In a hydrocarbon-burner, the combination of a supply-pipe provided with a closed end, but with perforations on the side thereof, an

adjustable jacket engaging and including said pipe and extending beyond said perforations, but leaving a clearance-space between it and the said supply-pipe, and a deflector placed above said jacket and on the end of said pipe, said deflector being of greater diameter than in the interior of said supply-pipe substantially as described.

701,848. CONSTRUCTION OF COULERS OR TRACKS FOR UTILITY. CHARLES H. JONES, West Grove, England. Filed Aug. 26, 1901. Serial No. 72,901. (No model.)



Claim.—1. In a bicycle-track, the combination with a series of inclined bottoms each having one end resting on the floor or ground, of curved horizontally-disposed cross-pieces secured to said bottoms, and forming therewith an endless track, levers extending outwardly from the upper portions of said bottoms, and having their lower ends engaging the floor or ground, and means for preventing the lower ends of said bottoms from slipping outwardly, substantially as described.

2. In a bicycle-track, the combination with a series of inclined bottoms, each having one end resting on the floor or ground, of curved horizontally-disposed cross-pieces secured thereto and forming therewith an endless track, curbs of said bottoms being separated to permit of spectators seating between them, levers secured to the upper of said cross-pieces and engaging the ground or floor, devices engaging the lower ends of said bottoms, to prevent them from moving outwardly, and flexible connections secured to the said upper cross-bar and to the floor for exerting a downward pressure upon said cross-bar and steadying the track, substantially as described.

3. In a bicycle-track, the combination with a series of inclined bottoms, each having one end resting on the ground or floor, of curved horizontally-disposed cross-pieces secured to said bottoms, and forming therewith an endless track, levers connected with the upper of said cross-bars, check-blocks, to receive the lower ends of said bottoms and prevent them from slipping, retaining devices for securing said blocks to the floor or ground, a series of eyes secured to one of said cross-bars and to the floor or ground, and a flexible connection passing through said eyes, a portion of said bottoms being separated to allow spectators to see between them, substantially as described.

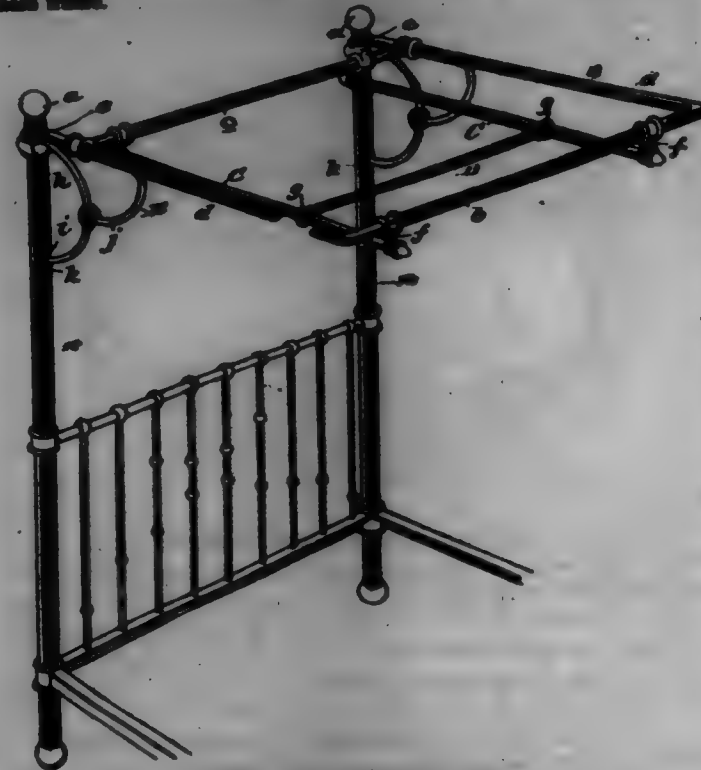
4. A bicycle-track comprising among its members, a series of substantially parallel bottoms disposed at an angle with the floor or support for the track arranged in substantially circular form, and having their lower ends engaging the floor, or support, certain of said bottoms being held at short distances from each other, to permit the riders to be seen through the spaces between them, substantially as described.

701,849. MOSQUITO-BAR OR CANOPY SUPPORT. FREDERICK JONES, New Orleans, La. Filed Feb. 24, 1906. Serial No. 55,260. (No model.)

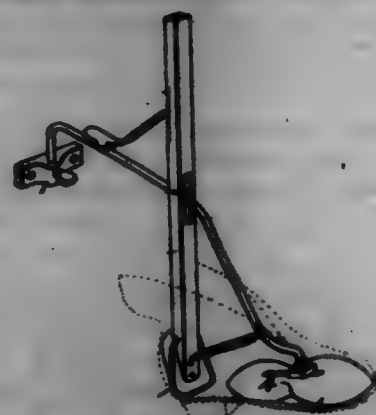
Claim.—1. The combination with the head-posts of a bedstead, of a mosquito-bar or canopy support comprising a horizontally-disposed main frame connected in its head-posts and having side bars and front and rear cross-bars, brackets interposed between the head-posts and the side bars of the main frame, side-bars disposed below and in planes within those of the side bars of the main frame, hangers connecting said side-bars to the front and rear cross-bars of the main frame, and a bar D held to and slidable fore and aft on the side-bars, and adapted for the connection of a mosquito-bar or canopy.

2. The combination with the head-posts of a bedstead having threaded sockets in their upper ends, and also having removable tape with threaded shanks disposed in said sockets, of a mosquito-bar or canopy support comprising a horizontally-disposed main frame having side bars provided with eyes receiving the shanks of the removable post-tape, and also having front and rear cross-bars, side-bars disposed below and in planes within those of the side bars of the main frame, hangers connecting said side-

bars to the front and rear cross-bars of the main frame, a bar D held to and slidable fore and aft on the side-bars, and adapted for the connection of a mosquito-bar or canopy, and brackets having eyes at their upper ends receiving the chains of the post-top and interspersed between the eyes of the main frame and the ends of the posts, and also having curving linear portions at their lower ends bearing against the forward sides of the posts, and forwardly-reaching arms connected to the side bars of the main frame.



701,850. DEVICE FOR SUPPORTING SHOES WHILE POLISHING SAME. CHARLES G. KELLER, St. Louis, Mo. Filed Aug. 28, 1901. Serial No. 72,045. (No model.)

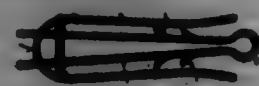


Claim.—1. A device of the class described, comprising a support, a double last adjustably mounted upon the support, a bar pivotally carried upon the support, and means for retaining its lower end in the shoe, and means for retaining the entire device to a rigid object, substantially as specified.

2. A device of the class described, comprising a last of two shoes suspended to a rod or support, a bar pivotally carried by the rod, a heelpiece provided at the lower end of the bar, a means for retaining the shoe upon the last in a rigid position, and means whereby the entire device is supported to a rigid object, substantially as specified.

3. A device of the class described, comprising a rod adjustably carried by a bracket, a double foot-last carried by said rod, a slot formed in said last whereby the same may be secured and adjusted upon the rod, a bar pivotally carried by said rod, a heelpiece secured to the lower end of the bar, and a pawl carried by the rod, and meshing with ratchet-teeth formed on the bar, for regulating the tension to the shoe rigidly holding it upon the last, substantially as specified.

701,851. GARMENT-SUPPORTER. VALENTIN KELLER, Milwaukee, Wis. Filed Mar. 20, 1901. Serial No. 100,505. (No model.)



Claim.—1. A garment-supporter consisting of two pivotally-carried sheet-metal sections, the inner one of which is bent to have upwardly-

diverging sides and provided with outwardly-projecting upwardly-inclined bars, the outer section being of π form and having its sides in opposition to those of said inner section when in normal position.

2. A garment-supporter consisting of two pivotally-carried sheet-metal sections, the inner one of which is bent to have upwardly-diverging sides provided with outwardly-projecting upwardly-inclined bars and upper ears, the outer section being of π form and provided with a recess in its bend for engagement of said ears when in normal position.

701,852. PROCESS OF MAKING DRESSING-FLUENTS. WILLIAM T. KENNEDY, Montgomery, Ala., and WILLIAM T. KENNEDY, administrator of George W. DIXON, deceased. Filed Mar. 12, 1902. Serial No. 93,092. (No specimens.)

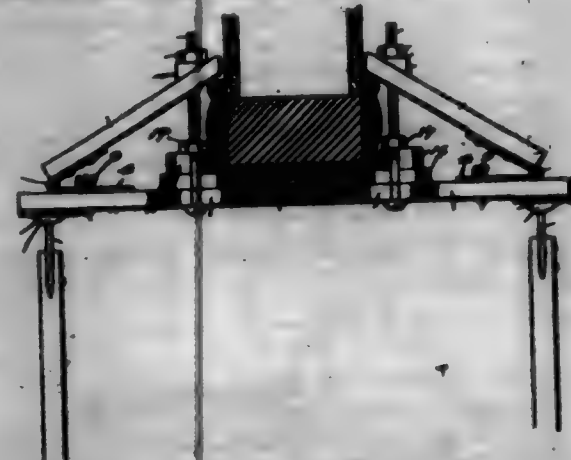
Claim.—The process of compounding a liquid chemical composition for the purpose stated, comprising essentially chlorid of lime, carbonate of soda, boracic acid, permanganate of potash, in substantially the proportions specified, consisting in incorporating chlorid of lime and water, then permitting precipitation and decanting the supernatant fluid; then dissolving carbonate of soda in water by means of heat, then mixing the solutions of chlorid of lime and carbonate of soda and permitting the combined solution to stand until precipitation is complete; then removing the supernatant solution; and then incorporating boracic acid and permanganate of potash and permitting substantially complete precipitation, and then removing the supernatant fluid from the residuum, substantially as set forth.

701,853. WIND-REGISTERING ATTACHMENT FOR VEHICLES. GEORGE A. KENNEDY, Marshall, Mich. Filed Aug. 20, 1901. Serial No. 72,722. (No model.)



Claim.—In a speed-registering mechanism, the combination with a governor consisting of a stem having a tapered and a sliding collar thereon, spring-arms connected at their opposite ends to the collar; of a pivoted lever with a toothed sector mounted on the sliding collar, a suitably-connected piston meshing with the sector, means for rotating the stem to give the springs an inward and outward movement and move the sliding collar upward or downward as to oscillate the pivoted lever, and a tension-spring connected to said oscillating lever, and adjusting means on the same whereby to increase or decrease the resistance of the oscillating lever to its action by the governor and enable the gearing to be set with accuracy, said tension-spring also serving to coast with the spring-arms to absorb vibration, thereby preventing the said oscillating lever from being unduly influenced by the jolting of the vehicle to which said registering mechanism is attached, substantially as specified.

701,854. SWING. GEORGE S. KERR, Horton, Pa. Filed Mar. 12, 1901. Serial No. 50,820. (No model.)



Claim.—1. A bridge for a swing comprising a horizontal supporting-bar, clamping-bars movably attached to the upper side of the opposite end portions of said supporting-bar, hinges adjustably attached to the opposite end portions of the supporting-bar and the lower outer ends of

the clamping-bars, and clamping-balls extending through the supporting-bar and the free terminals of the clamping-bars.

2. A bridge for a swing comprising a horizontal supporting-bar, movable clamping-bars connected to said supporting-bar adjacent to opposite extremities thereof, both bars being wholly located above the upper side of said supporting-bar, clamping means engaging the latter bar and the free extremities of the clamping-bars, hinges for connecting the clamping-bars, each having the heel thereof resting on the supporting-bar formed with a slot, said supporting-bar also having slots to coincide with those of the hinge-leaves, and means for connecting the said slotted hinge-leaves to the bar.

3. A supporting means for a swing comprising a horizontally-disposed plate with a lower depending socket portion at the center thereof having a rectangular slot opening out from the bottom and an upper enlarged recess of square form to provide horizontal shoulders adjacent to the long sides of the rectangular slot, the said shoulders having at their centers and at diametrically opposite points in planes at right angles to the slot in the bottom of the socket transverse cuts, in the form of recesses, and a vertically-depending shank for attachment to a swing-supporting means and having an upper head of a transverse extent less than the width of the said rectangular slot and provided with laterally-projecting transverse ends of equal length in alignment with each other and having a combined extent from the shank slightly less than the transverse extent of the said upper square recess and less than the length of the said slot, the shank being rotatable in the slot and the transverse in the square recess for the purpose of detaching and seating the said transverse.

4. A bridge for a swing comprising a supporting-bar, clamping-bars hinged thereto, and clamping-balls extending through the supporting-bar and the free terminals of the clamping-bars.

5. A bridge for a swing comprising a supporting-bar, clamping-bars movably connected to the same, stop-blocks on the supporting-bar, and clamping-balls extending through the supporting-bar and the free terminals of the clamping-bars.

701,855. WATER-WHEEL. JAMES E. KIM, Rochester, N.Y. Filed Sept. 18, 1891. Serial No. 21,302. (No model.)



Claim.—1. A water-wheel comprising speed heads, wings between the heads and joined at their edges thereto, and peripheral plates joined at their edges to the heads and having their proximal ends passing by each other and spaced apart, the inner end of each plate being attached to a wing a short distance from its extremity and having the projecting portion bent inward, and the outer end of each plate being bent outward, the overlapped end portions of adjacent plates being outwardly convergent, substantially as specified.

2. A water-wheel comprising speed heads, long and short wings alternately arranged between the heads and joined at their edges thereto, the long wings extending to the axis of the wheel and the short wings having their inner ends spaced from said axis, and peripheral plates joined near their inner ends to the outer extremities of the respective wings and reaching toward their outer ends from the axis of the wheel and having the outer end portions of each inwardly bent, spaced from and passing by the inner end portions of the proximal plates, and having the inner end of each plate inwardly bent, the adjacent bent portions being outwardly convergent, substantially as set forth.

3. A water-wheel comprising speed heads having their outer portions convergent, long wings extended from the center of the wheel outward, short wings radially disposed and subdividing the spaces between the long wings and having their inner ends spaced from the axis of the wheel and sharpened, and peripheral plates joined at their edges to the heads and having their proximal ends passing by each other and spaced apart, said plates gradually reaching from the axis of the wheel toward their outer ends, and having the outer end portions bent inward and the inner end of each plate being attached to the outer end of a wing and inwardly bent, the proximal bent ends of adjacent wings being outwardly convergent, substantially as specified.

701,856. VEHICLE-AXLE. JAMES E. KIM, Rochester, N.Y. Filed Apr. 18, 1892. Serial No. 100,884. (No model.)



Claim.—The combination with an axle having a straight squared portion inside of the shaft, a tapered squared shoulder extending outwardly from said straight portion, a long tapered squared portion extending outwardly from said shoulder, a second tapered squared shoulder extending outwardly from said long portion, and a curve-threaded end; of a chain having an interior opening squared to fit said axle, and removably mounted upon said axle; a thimble adapted to be mounted upon said chain and having ribs to hold the thimble in the hub against rotation; and a nut curve-threaded upon said curve-threaded portion of the axle to hold the chain and thimble in position, substantially as specified.

701,857. PYROXYLIN COMPOUND. JAMES E. KIM, Philadelphia, Pa. Filed Feb. 5, 1892. Serial No. 21,307. (No specimens.)

Claim.—1. The process which consists in adding to an amorphous cellulose compound, either, and curing or vulcanizing the same with the aid of heat.

2. The process of curing or vulcanizing an amorphous cellulose compound which consists in adding to said cellulose compound either in its divided state, and subjecting the same to a high temperature.

3. The process of producing an article useful as an electric insulator which consists in adding to an amorphous cellulose treated with a solvent, either in its divided state, and subjecting the same in the action of heat.

4. The process of curing or vulcanizing amorphous cellulose which consists in subjecting the cellulose to a solvent, adding either to the compound, intermixing said cellulose with said cellulose, and subjecting the compound to the action of heat.

5. An article of manufacture a compound consisting of amorphous cellulose and either cured or vulcanized with the aid of heat.

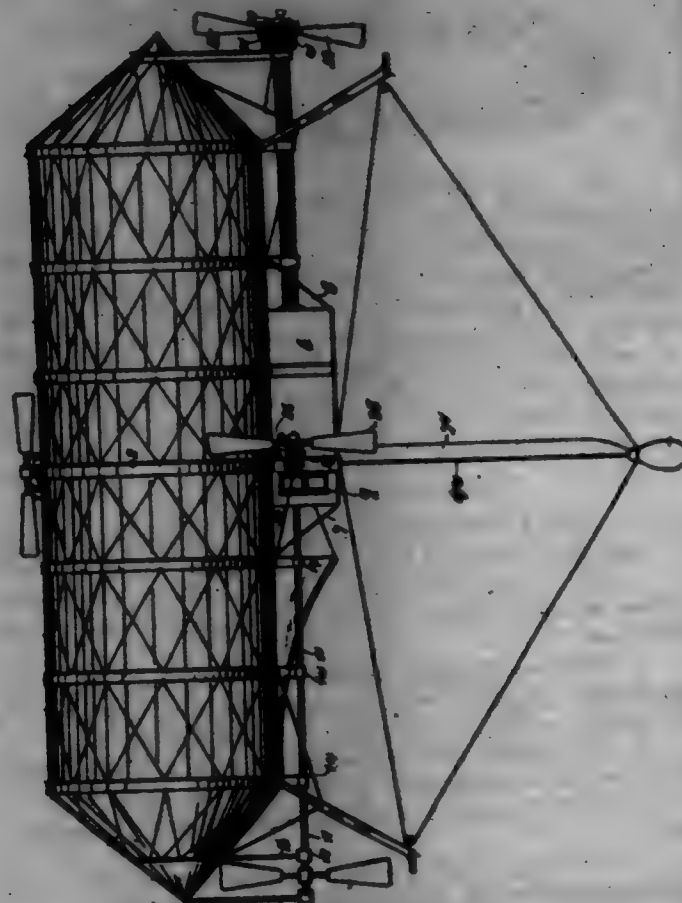
701,858. SLOT-MACHINE. WILLIAM KLEINBERG, Ploos, Austria-Hungary. Filed Mar. 31, 1902. Serial No. 100,720. (No model.)



Claim.—1. In a slot-machine for vending pasteboard tickets, with delivery-slide arrangement, the combination of a number of flat springs, secured with the upper ends to the front face of the machine and projecting with the lower free ends into the delivery-path, a curved flat spring, secured with the curved end to the bottom plate of the machine and projecting with the free forward end through an aperture in the bottom plate of the machine and into the delivery-path, a shield or housing covering the said flat-springed springs, and a housing for the curved spring, the parts being constructed, arranged and working, substantially as and for the purpose set forth.

2. In a slot-machine for vending pasteboard tickets, with delivery-slide arrangement, the combination of a number of flat springs, secured with their upper ends to the front face of the machine and projecting with the lower free ends into the delivery-path, a plurality of curved flat springs, secured with the curved end to the bottom plate of the machine and projecting with the free forward ends through an aperture in the bottom plate of the machine and into the delivery-path, a shield or housing covering the said flat-springed springs, and a housing for the curved springs, all substantially as and for the purpose specified.

701,859. AIR-SHIP. CARL F. A. KLOSS, Indianapolis, Ind. Filed July 8, 1901. Serial No. 57,490. (No model.)



Claim.—1. In an air-ship, the combination with a gas-reservoir, of a pilot-house suspended from the bottom thereof, a motor arranged in said pilot-house, propellers connected to said motor for elevating and driving the ship, booms pivotally connected to the bottom of the gas-reservoir, flexible wings connected along one of their edges to the bottom of the gas-reservoir and along another edge to the booms, said wings being adapted when spread to prevent rolling of the ship, means for opening said wings, and means for closing the same.

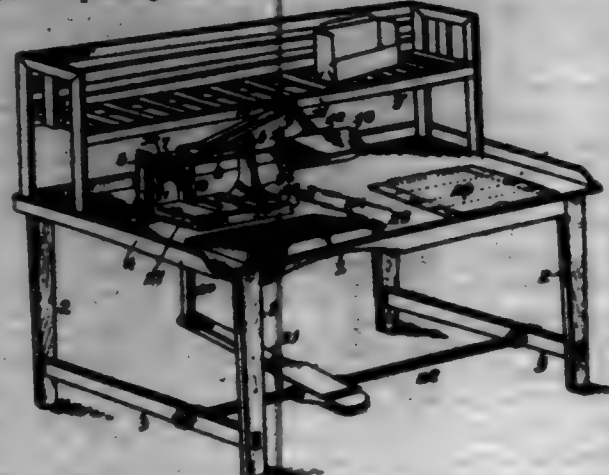
2. In an air-ship, the combination with a gas-reservoir, of a pilot-house suspended from the bottom thereof, a motor arranged in said pilot-house, transversely-extending shafts connected to said motor and passing through the pilot-house, rotatable tubes including said shafts, propellers mounted upon said tubes and operatively related to said shafts, a tail-shaft extending rearwardly from said pilot-house and also connected to said motor, a tube including said tail-shaft, a steering-propeller adjustably mounted upon said tube and adapted to swing in a horizontal plane, gearing between said shaft and said propeller, adjustable bearings arranged in said tube and in which the tail-shaft is journaled, a rod extending through said shaft-tube, and rotatably mounted therein, and cone carried by said rod and engaging said bearings for adjusting the latter, whereby the gearing between the tail-shaft and the steering-propeller may be caused to reverse the direction of movement of the steering-propeller.

3. In an air-ship, the combination with a gas-reservoir, of a pilot-house suspended from the bottom thereof, a motor arranged in said pilot-house, transversely-extending shafts connected to said motor and passing through the pilot-house, rotatable tubes including said shafts, propellers mounted upon said tubes and operatively related to said shafts, a tail-shaft extending rearwardly from said pilot-house and also connected to said motor, a tube including said tail-shaft, a steering-propeller adjustably mounted upon said tube and adapted to swing in a horizontal plane, gearing between said shaft and said propeller, adjustable bearings arranged in said tube and in which the tail-shaft is journaled, a rod extending through said shaft-tube and rotatably mounted therein, cone carried by said rod and engaging said bearings for adjusting the latter, whereby the gearing between the tail-shaft and the steering-propeller may be caused to reverse the direction of movement of the steering-propeller to the desired position.

701,860. PAPER-BOX MACHINE. ALBERT KOENIG, St. Louis, Mo. Filed Sept. 14, 1901. Serial No. 70,641. (No model.)

Claim.—1. In a machine for making paper boxes, a table; a form-support mounted upon the table; a "former-block" pivotally mounted in position to engage the form-support, the ends of said block being recessed

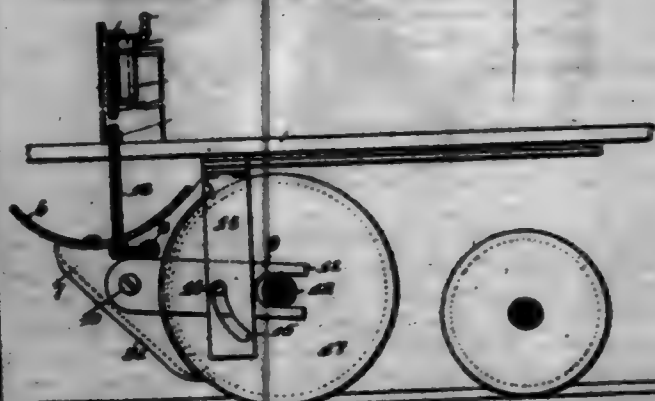
to receive the ends of the form as they are folded around the block; and means for operating the "former-block" substantially as specified.



2. In a machine for making paper boxes, a table; bearing-blocks mounted upon the table; a gage adjustably mounted upon the table between the bearing-blocks; a form-support movably mounted upon the table in front of the gage, the upper surface of said form-support being corrugated and inclined backwardly; a shaft mounted in the bearing-blocks; an arm pivotally mounted upon the shaft; a former-block adjustably attached to the front end of said arm; a foot-lever under the table; and a connection between the foot-lever and the said arm to operate the former-block, substantially as specified.

3. In a machine for making paper boxes, a table; bearing-blocks mounted upon the table; an adjustable gage mounted upon the table between the bearing-blocks; a former-block pivotally mounted in said bearing-blocks in position to engage the form-support, the ends of said block being recessed to receive the ends of the form as they are folded around the block; a form-support mounted upon the table in front of the gage, and in position to be engaged by the former-block, the upper surface of said form-support being corrugated and inclined backwardly; a foot-lever mounted under the table; and a connection between the foot-lever and the former-block for operating the former-block, substantially as specified.

701,861. COMBINED FEEDER AND BRAKE. HENRIK ERIKSSON, St. Louis, Mo. Assignor to Charles C. Green, St. Louis, Mo. Filed Feb. 24, 1902. Serial No. 58,674. (No model.)



Claim.—1. In a device of the class described, a feeder-scoop; brake-blocks attached to the ends of the feeder-scoop; forks pivotally attached to the brake-blocks, and embracing the car-axle; hangers extending downwardly from the car-bed and having cam-plates in their lower ends; pins rigidly fixed in said forks and operating in said cam-plates as required to move the brake-blocks away from the car-wheel when the feeder is elevated, and upon the brake-blocks to the car-wheel when the feeder is lowered; and means of raising and lowering the feeder, substantially as specified.

2. In a device of the class described a feeder-scoop; brake-blocks attached to the ends of the feeder-scoop; forks pivotally connected to the brake-blocks and embracing the car-axle; hangers extending downwardly from the car-bed, and having cam-plates in their lower ends; pins rigidly fixed in said forks and operating in said cam-plates; an operating-rod extending upwardly from the frame of the feeder; a hook at the upper end of said operating-rod; a slide mounted in position to be operated by the hook impact of the controller, and in position to engage said hook, so that when the controller is operated to shut off the current, the slide will be moved to release the hook and thereby the feeder, and set the brake, substantially as specified.

3. In a device of the class described, brake-blocks framed together; forks pivotally connected to the brake-blocks, and embracing the car-axle;

701,862. INSECT-EXTERMINATOR. MAX KURTZ, Berlin, Mo. Filed Mar. 4, 1902. Serial No. 57,941. (No model.)



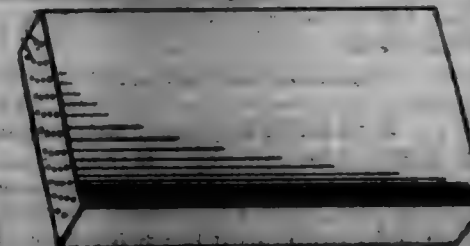
Claim.—1. An insect-exterminator comprising a frame having angularly-disposed walls, a lamp located in the angle formed between the walls, a pan arranged below the lamp and in the angular space formed between the walls of the frame and adapted to contain an insecticide, and interlocking means between the adjacent sides of the pan and frame, substantially as set forth.

2. In an insect-exterminator, a frame comprising angularly-disposed side walls, a top for closing the space formed between said walls, a lamp suspended from the top between the side walls, supports near the lower ends of the side walls, and a pan having its sides fitted against the inner faces of the side walls and provided with off-standing hook-shaped lips to engage with the aforementioned supports and hold the pan in suspension beneath the lamp, substantially as set forth.

3. In an insect-exterminator, a folding frame comprising angularly-disposed walls hingedly connected at one edge, a top hinged to the upper end of one of the side walls and adapted to make detachable connection at the opposite edge with the other end of the other side wall, a lamp to be suspended from said top, and a pan located beneath the lamp and detachably connected with the sides of the frame, substantially as set forth.

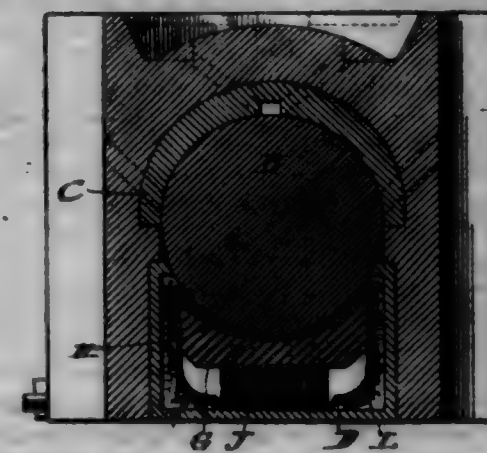
4. The herein-described insect-exterminator comprising side walls hinged at their rear vertical edges, a top hinged to the upper end of one of the sides and provided at its opposite edge with fastenings to make detachable connection with the upper end of the other side, rings near the front edges of the sides, supports near the lower ends of the sides, a lamp suspended from the top between the side walls, a reflector located in the angle formed between the said sides, a pan having its sides angularly disposed and adapted to come close against the sides of the frame, and hook-shaped lips projected from the sides of the pan to make interlocking connection with the aforementioned supports for holding the pan in suspension, substantially as specified.

701,868. PROCESS OF MAKING ELECTRIC BRUSHES. RICHARD A. LAURENCE, New Haven, Conn. Assignor to National Carbon Company, Cleveland, Ohio, a Corporation of New Jersey. Filed Dec. 26, 1901. Serial No. 57,974. (No model.)



Claim.—The herein-described process of making electric brushes which consists in winding wire spirally and longitudinally upon plates of green carbon, in placing one or more of these plates, so wound, between other green-carbon plates not so wound, in compressing this composite plate so as to make the surface of the several plates into a homogeneous mass, and in finally taking the resultant structure.

701,864. LUBRICATING DEVICE. ANDREW LUDWIG, Elkhart, Ind. Filed Dec. 30, 1901. Serial No. 57,723. (No model.)



Claim.—The combination with a journal and journal-box, of a base-piece G, having a perforated and recessed upper face curved in cross-section to match the under convex surface of the journal; a perforated sheepskin covering L cut out at the corners to form projecting portions at the sides and ends which portions depend below the sides and ends of the base-piece into the bottom of the journal-box; and a spring secured to the lower surface of the base-piece and bearing against the bottom of the journal-box for pressing the sheepskin and base-piece upwardly against the journal.

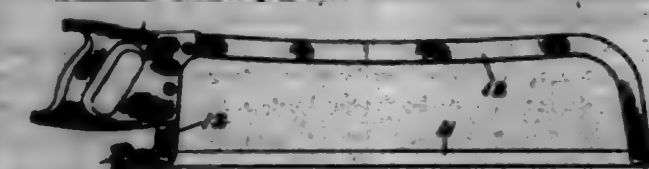
701,865. BRIQUET AND METHOD OR PROCESS OF PRODUCING SAME. EDWARD S. BRADY, Philadelphia, Pa. Filed July 26, 1901. Serial No. 58,787. (No model.)

Claim.—1. The process of weatherproofing and strengthening briquets composed of coal, coke, or the like, and molasses as a binding agent, which consists in subjecting said briquets to sufficient heat to coke the molasses, substantially as set forth.

2. The process of weatherproofing and strengthening briquets composed of coal, coke, or the like, in which molasses is the binding agent, which consists in subjecting such briquets, for a very brief period (about a minute) to a temperature considerably above that necessary to coke the molasses, whereby said molasses is quickly coked, substantially as set forth.

3. A briquet composed of coal, coke, or the like, and molasses as a binding agent, in which the molasses has, after incorporation into said briquet, been coked, whereby the briquet is rendered weatherproof and strengthened, substantially as set forth.

701,866. BUTCHER'S SAW. GEORGE MEYER, Indianapolis, Ind. Assignor to E. C. Atkins & Company, Indianapolis, Ind., a Corporation of Indiana. Filed July 1, 1901. Serial No. 58,791. (No model.)



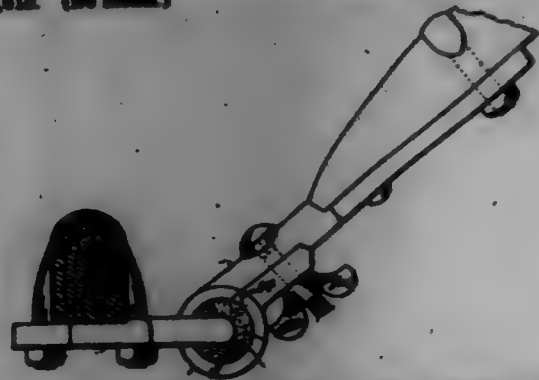
Claim.—1. The combination, in a butcher's saw, of a frame the heel whereof is tilted and extends rearwardly from the point of union with the saw-blade, said saw-blade, and suitable device for fastening and tightening said saw-blade mounted upon the rearwardly-extending heel of the frame below the handle and out of ordinary danger of contact with the meat, said fastening device being provided with wings covering the slit in the frame-heel, substantially as set forth.

2. The combination, in a butcher's saw, with a saw-blade, of a frame in which said blade is mounted having a rearwardly-extending heel provided with a vertical slit for receiving the end of the saw-blade and a horizontal slit for receiving the tightening-bolt, and said tightening-bolt, substantially as set forth.

3. The combination, in a butcher's saw, of the saw-blade, the frame having a rearwardly-extending heel in which are vertical and transverse slits for receiving the saw-blade and the tightening-bolt respectively, said tightening-bolt, a wing-out on the outer end thereof, and a bearing-block interposed between said wing-out and the extreme end of the frame-heel, substantially as set forth.

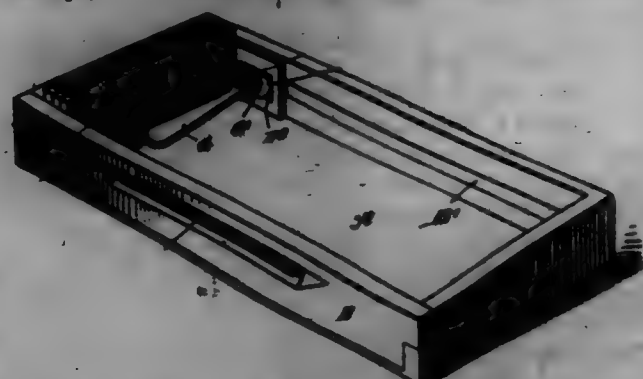
4. The combination, in a butcher's saw, of the saw-blade, the frame having a rearwardly-extending heel in which are vertical and transverse slits for receiving the saw-blade and the tightening-bolt respectively, said tightening-bolt connected to said saw-blade and provided with wings extending forwardly along the frame-heel and covering the other-wise open portion of the slit therein in that point, substantially as set forth.

701,867. THILL-COUPING. ROBERT HILL, Old Orchard, and CHARLES H. BLANCHARD, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 55,615. (No model.)



Claim.—A thill-coupling, consisting of a clamp composed of two members, a recess formed in the under side of the upper member, the lower member adapted to fit within said recess, the inner upper corner of the lower member rounded for the purpose of allowing the said member to be placed in locking position over a bushing, and means for preventing the upper member from becoming detached from the vehicle when in an upwardly-inclined position should the lower member become loose, substantially as specified.

701,868. LEBOVITS-GALLEY. FREDERICK R. HEDGECOCK, Brooklyn, N. Y. Filed May 20, 1901. Serial No. 51,051. (No model.)



Claim.—1. A galley having a bottom, and side and end members, and all rigidly secured together, said end members being provided with pins, and a removable side member provided with apertures for engaging the said pins.

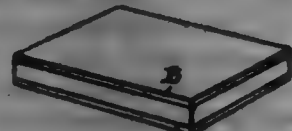
2. A galley provided with an undercut groove, a slidable jaw provided with a dovetailed portion engaging said groove and also provided with a lug, and a lever mounted upon said lug and provided with a cam for engaging a stationary part of the galley, for the purpose of securing said slidable jaw thereto.

3. A galley, comprising a side member provided with an undercut groove, an L-shaped slidable member provided with a dovetailed portion engaging said groove and also provided with a lug, and a lever pivoted upon said lug and provided with cam for engaging a fixed portion of said galley.

4. A galley, comprising a side member provided with an undercut groove, an L-shaped slidable member provided with a dovetailed portion engaging said groove and also provided with a lug, a lever pivoted upon said lug and provided with cam for engaging a fixed portion of said galley, and members engaging said side member and provided with pins, and a side member provided with holes for engaging said pins.

5. A galley, comprising a side member provided with an undercut groove, an L-shaped slidable member provided with a dovetailed portion engaging said groove, and also provided with a lug, a lever pivoted upon said lug and provided with cam for engaging a fixed portion of said galley, and members rigidly secured to said side member, and a side member removably secured to said end members.

701,869. CARBON BRUSH AND PROCESS OF MAKING SAME. WILLIAM HENRI, Jersey City, N. J., assignor to Eastern Carbon Works, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 5, 1901. Serial No. 51,944. (No model.)



Claim.—1. The process of making electric brushes, consisting of placing in a mold alternate layers of relatively high and low resistance

and submitting them to a pressure capable of causing them to firmly adhere.

2. The process of making an electric brush, consisting of making a resistance composition by mixing a substance similar to ground stone, mica, clay, &c., with carbon, and putting a layer of this material and a layer of relatively high conductivity in a mold and subjecting the same to pressure.

3. The process of making a carbon brush, consisting of making a high-resistance composition of material similar to ground stone, mica, &c., and carbon, and a suitable plastic binder; and alternating this composition and carbon in layers; and in subjecting the whole to a high pressure.

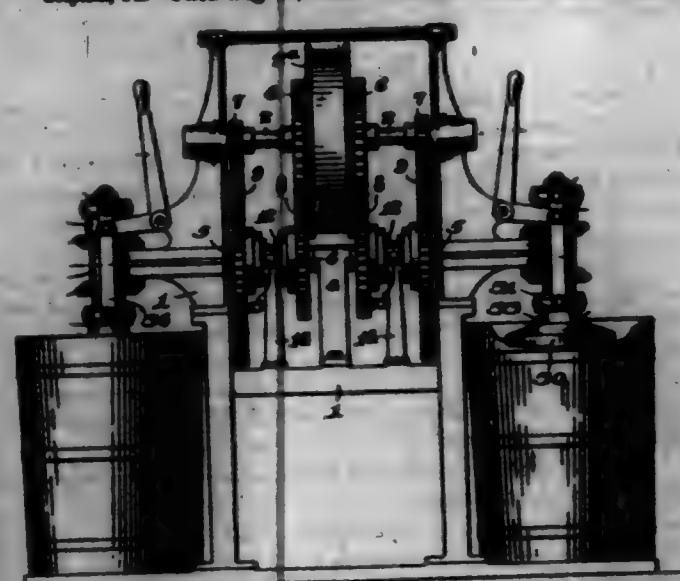
4. A carbon brush composed of a layer of carbon and a layer of a mixture of carbon and non-conductor.

5. A carbon brush composed of a layer of high-conductivity material and a layer of relatively low conductivity material, which latter comprises a mixture of carbon and a substance similar to ground stone, mica, clay, &c.

6. A carbon brush consisting of alternate layers of varied resistance, the high-resistance layers being of carbon and the low resistance of a mixture of carbon and material similar to ground stone, mica, &c.

7. A carbon brush consisting of layers of different resistance pressed into intimate contact with each other.

701,870. ICE-CREAM PRESSER. HENRY MORRIS, JR., Philadelphia, Pa. Filed Aug. 20, 1902. Serial No. 124,827. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a driving-shaft and two sets of gears thereon, of two counter-shafts having loosely mounted thereon sets of gears meshing with the respective sets on the driving-shaft, a clutch mechanism on each of said counter-shafts intermediate the loose gears and adapted to render the adjacent gears active or inactive as desired, and mechanism whereby the said counter-shafts may be operatively connected with the driving-shaft and one of the driving shafts, substantially as described.

2. The combination with the cam and piston-rod of a freezing vessel, of a frame adjacent thereto, a vertically-disposed bushing on said frame, two oppositely-disposed beveled wheels on the upper and lower end of said bushing, a driving-shaft provided with a gear engaging said wheels, a cap having a sliding connection with the upper wheel, a sleeve having a similar connection with the lower wheel, a central shaft in said bushing offset at its upper end to said cap, a sliding connection between said cap and sleeve, and means for operating said connection, together with interlocking portions for the sliding ends of the piston-rod and the said central shaft, and interlocking portions for the sleeve and the cap, substantially as described.

701,871. HAND-CLIPPER. JAMES A. HOLLAND, Baltimore, Md. Filed Oct. 5, 1901. Serial No. 77,901. (No model.)

Claim.—1. In a hand-clipper, the combination of a pair of jaws, one having a pair of blades with an intervening space between them and the other a single blade partially movable into the space between said pair of blades, means for holding the jaws in open position, and a spring for closing said jaws.

2. In a hand-clipper, the combination of a pair of jaws, one jaw having a pair of blades and the other a single blade partially movable between said pair of blades, and a spring connected to the jaws for closing one of the latter inwardly toward the other.

3. In a hand-clipper, the combination of a pair of jaws having an

intervening space between them and the other jaw a single blade partially movable between said pair of blades, angle-plates secured to the upper central portions of the blades, a spring attached to said angle-plates, and a catch-bar pivoted to one jaw and adapted to removably engage the other jaw.



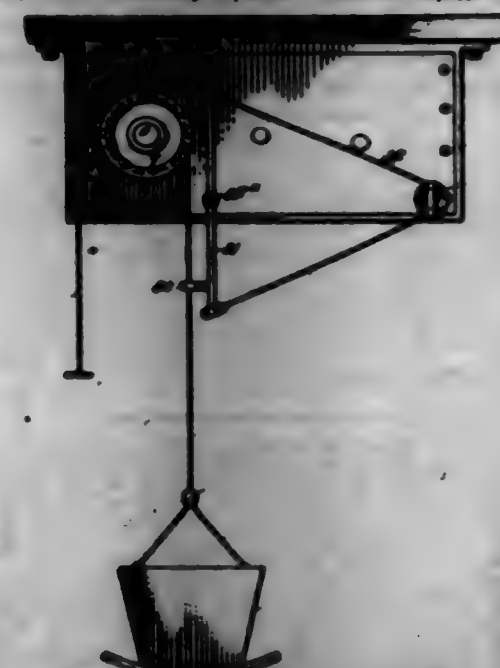
4. In a hand-clipper, the combination of a pair of jaws pivotally connected, one jaw having a pair of blades arranged parallel and spaced apart and the other jaw having a single blade movable between said pair of blades, angle-plates secured to the jaws, a spring attached to said plates, a handle depending from one of the plates, and means for holding the jaws open.

5. A hand-clipper comprising a pair of pivotally-connected jaws, each of said jaws being provided with a cutting-blade, means for holding said jaws in open fixed position, and a spring for closing said jaws when released.

6. A hand-clipper comprising a pair of pivotally-connected jaws, each of said jaws being provided with a cutting-blade, a brace pivoted to one of said jaws and adapted to engage the other and hold it in open position, and means for closing said jaws upon the disengagement of the brace being effected.

7. A hand-clipper comprising a pair of pivotally-connected jaws, each of said jaws having a cutting-blade, a brace or catch bar pivoted to one of said jaws and adapted to removably engage the other jaw, and a spring for closing said jaws.

701,872. SWINGING-MACHINE. FRANK J. McDERMOTT, New Bedford, Mass. Filed July 20, 1901. Serial No. 70,941. (No model.)



Claim.—1. In a swinging-machine, a suspended chain of gearing, a carriage, cable connections between the carriage and the gearing, a crank-shaft operated by the gearing, and connections between said shaft and the cables, substantially as specified.

2. In a swinging-machine, a suspended chain of gearing, a carriage, cable connections between the carriage and gearing, a crank-shaft, rock-levers on opposite sides of the casing, connections between said rock-levers and cranks on the crank-shaft, and guides carried by the rock-levers and through which the cables pass, substantially as specified.

3. In a swinging-machine, a casing designed to be secured to an overhead support, a main shaft in the casing, drums mounted on the outer ends of said shaft, cords or cables engaging the said drums, a carriage supported by the cords or cables, a winding-drum on the shaft, means for rotating the winding-drum and shaft, a gear-wheel loosely mounted on the shaft, means for locking said gear-wheel in connection with the shaft, a

crank-shaft, a train of gearing between said crank-shaft and said gear-wheel, rock-levers on opposite sides of the casing, connections between said rock-levers and cranks on the crank-shaft, and guides carried by the rock-levers and through which the cords or cables pass, substantially as specified.

4. In a swinging-machine, a casing adapted to be secured to an overhead support, a main shaft arranged in the casing, a winding-drum on said shaft within the casing, a cord or cable extended from said drum through an opening in the bottom of the casing, a ratchet-wheel mounted on said shaft, a gear-wheel loosely mounted on the shaft, a spring-pressed pawl carried by the gear-wheel for engaging with the ratchet-wheel, drums on the outer ends of said shaft, a carriage having cord or cable connections with said drums, a crank-shaft having double cranks at its opposite ends, a chain of gearing between said crank-shaft and said gear-wheel, rock-levers on opposite sides of the casing, the said rock-levers being secured at their centers, flat-rods extended from the crank members respectively to the upper and lower portions of the levers, and guides on the levers through which the carriage-suspending cords or cables pass, substantially as specified.

701,873. WATER-FILTER. JAMES W. McLEAN, Joplin, Mo. Filed Mar. 1, 1902. Serial No. 55,322. (No model.)



Claim.—1. A water-filter comprising an outer cylinder provided with means for attaching it to a service pipe or bibb and having a discharge for unfiltered water extending through its side, and a rotatable filtering body or cylinder carrying a suitable valve or cut-off whereby the opening in the discharge is opened or closed by the rotation or turning of said filtering body or cylinder, substantially as and for the purpose set forth.

2. A water-filter, comprising an outer cylinder provided with means for connecting it with the service pipe or bibb, and having at its upper and lower ends respectively suitable notched ends and a discharge for unfiltered water, and a rotatable filtering body or cylinder having discharge-ports for the filtered water adapted to engage the notched ends, and a valve or cut-off carried by said filtering body or cylinder to open or close the unfiltered-water discharge, substantially as and for the purpose specified.

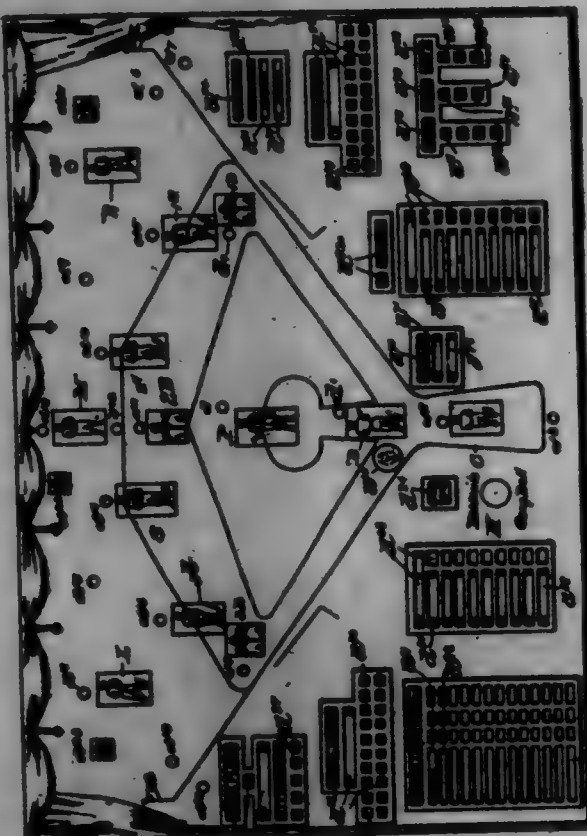
701,874. ILLUSTRATING APPARATUS. FREDERICK R. HEDGECOCK, Springfield, Mass. Filed Jan. 17, 1902. Serial No. 72,411. (No model.)

Claim.—1. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and openings therein at determined points, reflectors having transparent closures, secured back of said openings, pictures permanently affixed to certain of said closures, and electric lamps in said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-plugs arranged at determined points corresponding to the locations of certain of said lamps, and electric circuits connecting the lamps, switches and switch-plugs with a source of electrical supply, substantially as shown and described.

2. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and openings therein at determined points, sliding reflectors having transparent closures, secured back of said openings, pictures permanently affixed to certain of said closures, and electric lamps inside and attached to the rear of said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-plugs arranged at determined points corresponding to the locations of certain of said lamps, and electric circuits connecting the lamps, switches and switch-plugs with a source of electrical supply, substantially as shown and described.

3. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and provided with openings at determined points and other openings arranged in independent series, practically adjacent to each other, reflectors having transparent closures, secured back of said openings, pictures permanently affixed to the closures at said first mentioned openings, and electric lamps in said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-

4. In an illustrating apparatus, a display board or screen having a diagram delineated thereon, openings in said screen at determined points, other openings arranged in independent series, approximately adjacent to each other, reflectors disposed in said openings, transparent closures for said reflectors, incandescent lamps within the reflectors, electric circuits to said lamps, switches F and G and non-reversible switch-plugs in the circuits, incandescent lamps secured to and projecting from the face of the screen, an electric circuit to each of said last-mentioned lamps, and spring-actuated switch-plugs in each lamp-circuit last mentioned, to close said circuits as required and to automatically break the circuits when pressure is removed from the plugs, substantially as specified.



701,875. WIRE STRAIGHTENING AND CUTTING MACHINE. ALAN E. SHAW and HARVEY SHAW, Bridgeport, Conn., assignors to the A. E. Shaw Machine Company, Bridgeport, Conn., a Corporation of Connecticut. Filed July 17, 1901. Serial No. 68,648. (No model.)

Claim.—1. In a machine of the character described, the combination with independently-operated feeding and cutter-operating mechanisms, a cutter, and horizontally-movable guide-plates, of a stop, a clutch, and a connection between the stop and the clutch, the parts being so combined and arranged that when the stop is engaged by the wire connection will be made with the cutter-operating mechanism, a blank will be covered and released, and the guide-plates and cutter will be returned to their normal position and the cutter-operating mechanism disconnected.

2. The combination with guide-plates having grooves in their contiguous edges which together form a receiving-socket, of means for opening and closing the guide-plates so that blanks may drop out.

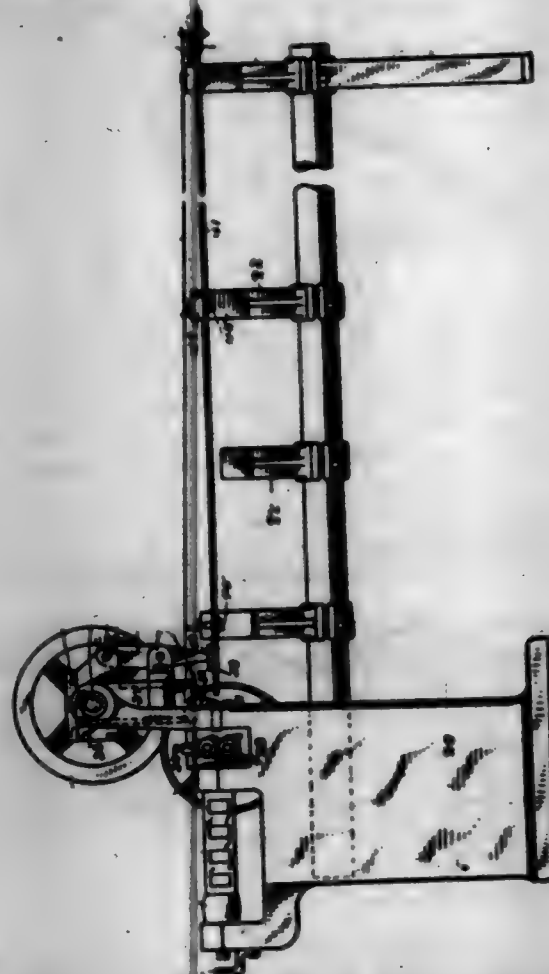
3. The combination with guide-plates having grooves in their contiguous edges and oblique slots 45, of slots 44 which pass through the slots and a lever engaging the guide-plates and acting in connection with the slots and slots to open and close the guide-plates.

4. The combination with guide-plates having grooves in their contiguous edges which together form a receiving-socket, of a stop for the wire adapted to fit within the socket, a cutter and means for opening the guide-plates to permit covered blanks to drop out.

5. The combination with guide-plates having grooves in their contiguous edges which together form a receiving-socket, of an adjustable stop for determining the length of blanks, means for loosely connecting said stop to one of the guide-plates, a cutter and means for opening and closing the guide-plates.

6. The combination with guide-plates having grooves in their contiguous edges which together form a receiving-socket, of an adjustable stop carried by one of the guide-plates, a cutter, means for opening and closing the guide-plates and means for releasing the blanks drop when the guide-plates are opened.

7. The combination with guide-plates having grooves in their contiguous edges which together form a receiving-socket, means for opening and closing the guide-plates and an adjustable stop adapted to fit in the socket, of feeding and driving mechanisms, a cutter, a clutch and a connection between the stop and the clutch, whereby when the stop is engaged by the wire the cutter is actuated and the guide-plates caused to release the covered blank.



8. The combination with drawing-rolls and a cutter, of guide-plates having grooves in their contiguous edges to receive the wire, means for opening and closing the guide-plates, a stop carried by one of the guide-plates and intermediate connections whereby when the stop is engaged by the wire the cutter and guide-plates are actuated.

9. The combination with feeding and driving mechanisms, guide-plates having grooves in their contiguous edges and a stop carried by one of the guide-plates, of a plunger carrying a cutter and a cam-head having oblique slots, a lever pivoted to the plunger and engaging the guide-plates and having a cross-pin engaging the oblique slots, a clutch and a connection between the clutch and the stop, so that when the latter is engaged by the wire connection will be made with the driving mechanism and the plunger retracted.

701,876. CRUST-TILE FOR ROOFS. SYLVESTER D. BORN, Indianapolis, Ind. Filed Mar. 14, 1902. Serial No. 92,172. (No model.)



Claim.—1. As a new article of manufacture ready to be applied to a roof without any further preparation, a crust-tile constructed of a sheet of metal bent double in the center and then having its bent edge turned back upon itself so as to form a hook in cross-section and having the leaves of the lower portion opened or spread apart laterally to form flaring flanges, whereby the crust-tile is adapted to be readily placed upon a roof of any pitch; and a single vertical strip having its lower edge turned up to form a hook and having said hook inserted in the hook of the double-

flange piece and the two hooked parts held firmly by being tightly pressed together, the said vertical strip being suitably ornamented.

2. As a new article of manufacture, a metal crust-tile constructed of two sheets of metal, the first of said sheets being bent double in the center and the bent edge then turned to form a hooked edge and the lower flange of said sheet being spread apart laterally to form flaring edges, and said second sheet having its lower edge bent to form a hooked edge which hooked edge is locked with the hooked edge of the first sheet and the two united by pressing the said edges together, the said second sheet having a plurality of transverse stiffening corrugations.

3. As a new article of manufacture, a metal crust-tile constructed of two sheets of metal, the first of said sheets being bent double in the center and the bent edge then turned to form a hooked edge and the lower flange of said sheet being spread apart laterally to form flaring edges, and said second sheet having its lower edge bent to form a hooked edge which hooked edge is locked with the hooked edge of the first sheet and the two united by pressing the said edges together, the said second sheet having a plurality of transverse stiffening corrugations which extend down to the bands forming the joint between said flange and the lower members of the crust-tile.

701,877. CONCRETE COLUMN. ORLANDO W. FORTNER, Worcester, Mass. Filed Nov. 24, 1901. Serial No. 92,378. (No model.)



Claim.—1. A column for building construction, consisting of a solid body of concrete, with a number of concentric tubular bodies of metallic network inclosed in the concrete, so that the maximum amount of metal will be located near the center of the column.

2. A column for building construction, comprising a body and floor-plates of solid concrete, with a number of tubular bodies of metallic network inclosed in the body portion of the column, so that a maximum amount of metal will be located near the center of the column, and metallic-network plates inclosed in the floor-plates of the column.

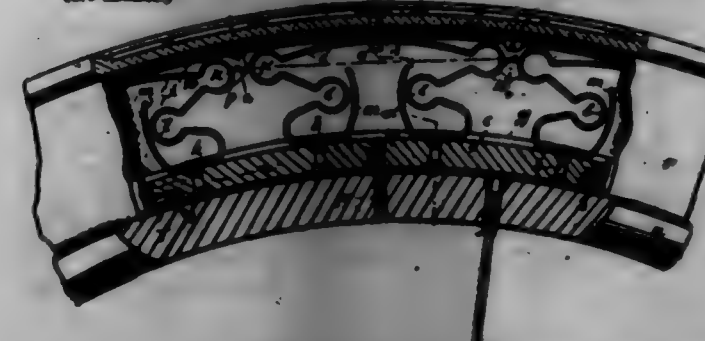
3. A column for building construction, comprising a cylindrical body portion and floor-plates of solid concrete, and a tubular body of metallic network inclosed in the body portion of the column, and having turned-out ends inclosed in the floor-plates of the column.

701,878. PROCESS OF MAKING PAINT. DAVID J. OULVE, Cincinnati, Ohio. Filed June 24, 1902. Serial No. 79,128. (No machines.)

Claim.—1. The process of making zinc-oxide paint, which consists in treating zinc-white and a suitable vehicle with high-pressure or superheated steam injected into the mass until the mixture has been sufficiently levigated and heated so as to be in a proper condition for straining or other treatment, substantially as specified.

2. The process of making mixtures and combinations of zinc oxide and the proper vehicle consisting in heating and levigating zinc oxide in a tinted dyed or mixed condition and a suitable vehicle with injected high-pressure or superheated steam, until the result has been sufficiently levigated and in a condition to be strained or otherwise treated, substantially as specified.

701,879. VEHICLE-WHEEL. DORIS E. O'BRIEN, Worcester, Mass. Filed Feb. 16, 1901. Renewed Nov. 4, 1901. Serial No. 21,071. (No model.)



Claim.—1. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a supplementary rim removably secured to and bearing against said inner rim; an annular series of double

flat metallic springs removably secured to said supplementary rim; an encircling metal band removably secured to said springs; and an outer composite tread of metal and flexible material, removably secured to said encircling metal band.

2. In a vehicle-wheel, the combination of a rim and encircling metal band, united by an interposed annular series of double flat metallic springs, having projecting stop-arms to prevent undue compression.

3. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a supplementary rim and encircling metal band, united by an interposed series of double flat metallic springs, forming a spring-rim removably secured to said inner rim, said springs having projecting stop-arms to prevent undue compression of said spring-rim.

4. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a supplementary rim and encircling metal band, united by an interposed series of double flat metallic springs, forming a spring-rim removably secured to said inner rim, said springs having projecting stop-arms to prevent undue compression of said spring-rim, and an outer composite tread of metal and flexible material, removably secured to said spring-rim.

5. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a supplementary rim and encircling metal band, united by an interposed annular series of double flat metallic springs, forming a spring-rim removably secured to said inner rim; an outer composite tread of metal and flexible material, removably secured to said spring-rim, and strips of waterproof fabric entirely surrounding said spring-rim, and interposed between it and said inner rim, and between said spring-rim and said outer composite tread.

6. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a removable supplementary rim having annular grooves on its inner surface, and a wide annular channel on its outer surface; an annular series of double flat metallic springs seated in said channel and secured to said supplementary rim, said springs having slots in their outer surfaces and stop-arms to prevent undue compression; an encircling metal band resting on said springs and removably united thereto by double-headed rivets; another metal band encircling the first-named band and held thereto by intermeshing inward indentations in the two bands; strips of waterproof fabric entirely surrounding and including the said supplementary rim, springs and metal bands; spring-wire rings fitting in said annular grooves against said fabric, and thereby holding same in place; and an outer composite tread of metal and flexible material, resting on the fabric-covered metal band, and removably secured thereto.

7. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a removable supplementary rim having annular grooves on its inner surface, and a wide annular channel on its outer surface; an annular series of double flat metallic springs seated in said channel and secured to said supplementary rim, said springs having slots in their outer surfaces and stop-arms to prevent undue compression; an encircling metal band resting on said springs and removably united thereto by double-headed rivets; another metal band encircling the first-named band and held thereto by intermeshing inward indentations in the two bands; strips of waterproof fabric entirely surrounding and including the said supplementary rim, springs, and metal bands; spring-wire rings fitting in said annular grooves against said fabric, and thereby holding same in place; another metal band of greater width than the other bands, having its projecting edges obliquely and outwardly inclined, encircling and resting on the fabric-covered metal band and removably secured thereto; a thick annular band of flexible material conferring in shape to and encircling the said wide metal band; an outer narrow metal band encircling the center of said wide band, and forming therewith the tread of the wheel; and series of curves uniting the wide tread-supporting metal band and the said central narrow outer metal band.

8. In a vehicle-wheel, the combination with an inner rim to which the spokes are secured, of a supplementary rim, and encircling band, united by an interposed series of springs, forming a spring-rim removably secured to said inner rim, and the said supplementary rim having annular grooves on its surface adjacent to said inner rim; strips of waterproof fabric entirely surrounding and including the said supplementary rim, springs and encircling band; and spring-wire rings fitting in said annular grooves against said fabric, and thereby holding the same in place.

701,880. SAWING-MACHINE. FRANK J. PAMA, Chicago, Ill. Filed Aug. 29, 1901. Serial No. 73,088. (No model.)

Claim.—1. A guide for the saw-blade of sawing-machines, comprising substantially a rod adapted to be secured to the saw-blade, an arm pivoted to the frame of the sawing-machine and adjustable with respect thereto, and a guide pivoted upon said arm and adapted to guide the rod in the plane of the saw-blade; substantially as described.

2. In a sawing-machine, a frame, a saw-blade, means for reciprocating the saw, a bearing upon the frame, a guide pivoted in said bear-

ing, a rod clamped to the saw and sliding in said guide and a spring adapted to exert tension through the medium of said rod, upon the free end of said saw; substantially as described.



3. A device for guiding a saw-blade and applying tension thereto, comprising substantially a bearing, a guide pivoted upon the bearing, a rod sliding in said guide and secured to the saw-blade, a spring engaging the guide and a lever connected to the bearing and engaging said spring and adapted by its rotation to tighten or loosen the tension of said spring; substantially as described.

4. In a sawing-machine, a rod, adapted to support the free end of a saw-blade, a guide for said rod, an arm upon which said guide is pivoted; a lever turning upon said pivot connection between the guide and arm, and having clutch-teeth engaging similar teeth upon the arm and a spring connected to the guide and to the bearing, the rotation of said lever in one direction serving to increase the tension upon the guide; substantially as described.

701,881. STREET-SWEEPER. ARTHUR F. PALMER, Waverly, N.Y., and ROBERT L. FERRIS, ARTHUR, Pa., assignors of one-third to James Howard, Cortland, N.Y. Filed Oct. 14, 1900. Serial No. 33,114. (No model.)

Claim.—1. In a sweeper, the combination with the frame, and a revolving brush of a dumping-box receiving the sweepings from the front of the brush, and an auxiliary receiver in the rear of the brush and between it and the box and receiving the sweepings discharged from the rear of the brush.

2. In a sweeper, the combination with a frame and a revolving brush, of a dumping-box receiving the sweepings from the front of the brush, and an auxiliary tilting receiver in the rear of the brush and between it and said box and extending under the box to prevent its dumping, and receiving the sweepings discharged from the rear of the brush.

3. In a sweeper, the combination with a main frame, a revolving brush thereon, and a curtain pendant from the frame, of a dust-pan at the rear end of the brush and a flexible extension thereof between it and the curtain.

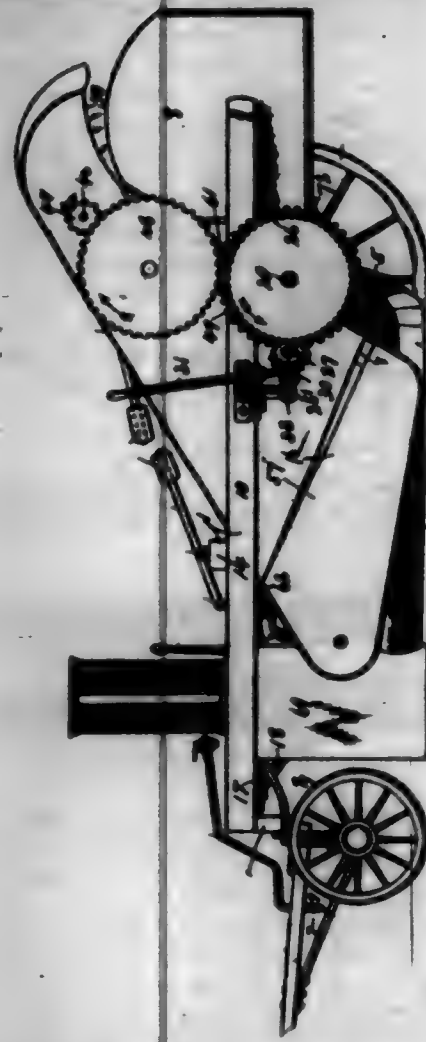
4. In a sweeper, the combination with a main frame, a revolving brush thereon and a curtain pendant from the frame in front of the brush, of a dust-pan at the rear end of the brush, and a flexible and inwardly-inclined extension thereof between it and the curtain whereby the sweepings are primarily collected in a window along the edge of said dust-pan.

5. In a sweeper, the combination with a main frame, a revolving brush thereon and a curtain pendant from the frame in front of the brush, of a dust-pan at the rear end of the brush having a tapered flexible and inwardly-inclined extension extending forward to said curtain, whereby the sweepings are primarily thrown onto the incline of the dust-pan and are collected in a window along its edge.

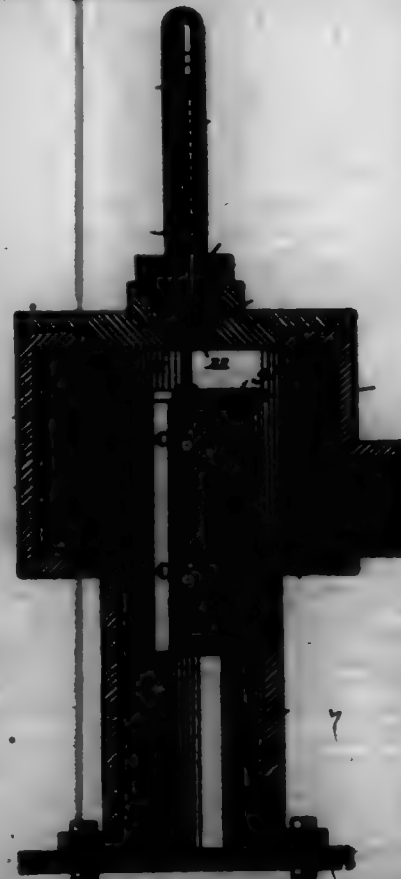
6. In a sweeper, a main frame, a revolving brush and a dust-pan at the rear end of the brush, combined with an elevator-leg substantially horizontal for a part of its length and open along its inner side, of a flexible, inclined dust-pan extension having its outer edge secured to said elevator-leg and dust-pan.

7. In a sweeper, the combination with a revolving brush arranged at an angle with the line of draft, of a dumping-receptacle in the rear of the brush to receive the sweepings, an elevator and once therefrom arranged

to convey and to conduct the sweepings to the receptacle, said once being provided with a depending flexible dust-pan in front of the brush and having an opening in its inner side above the dust-pan to receive the sweepings and to conduct the same to the elevator, said brush and dust-pan being movable vertically for the purpose described.



701,882. DEVICE FOR INDICATING THE RATE OF FLOW OF FLUID. JOHN PATTEN, Baltimore, Md., assignor to Patten Vacuum Ice Machine Company, (successor to the Home Ice Machine Company,) Baltimore, Md., a Corporation of West Virginia. Filed Dec. 8, 1900. Serial No. 34,324. (No model.)



Claim.—1. In a device for measuring the flow of fluid, the combination with a casing having a passage-way for the fluid, of a hollow piston

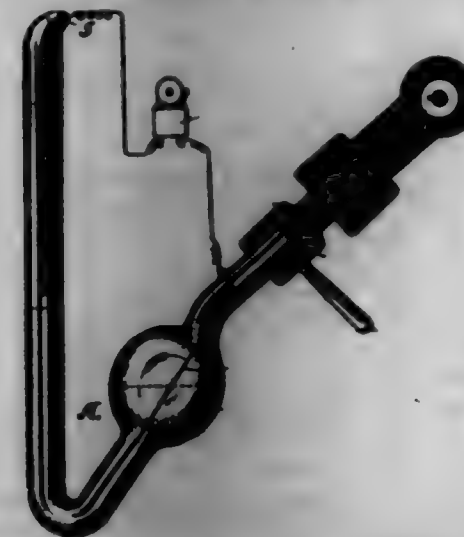
ton extending into said passage-way and movable longitudinally therein, said piston being open at its inner end and closed at its outer end and having a series of openings in its walls, the consecutive openings in the series being in different positions longitudinally and circumferentially of the piston, and an indicating device operated by the piston for indicating the position of the latter.

2. In a device for measuring the flow of fluid, the combination with a casing having a passage-way for the fluid of a hollow piston extending into said passage-way and movable longitudinally therein, said piston being open at its inner end and closed at its outer end and having a series of openings in its walls, the consecutive openings in the series being in different positions circumferentially and longitudinally of the piston and at such distance apart longitudinally thereof that the bottom of each opening extends below the top of the opening next in succession, and an indicating device operated by the piston for indicating the position of the latter.

3. In a device for measuring the flow of fluid, the combination with a cylinder through which the fluid passes, of a hollow piston extending into the cylinder and movable longitudinally therein, said piston being open at its inner end and closed at its outer end, and having a series of spirally-arranged openings in its walls, and an indicating device operated by the piston for indicating the position of the latter.

4. In a device for measuring the flow of fluid, the combination with a vertically-arranged cylinder through which the fluid passes and an enlarged chamber at the upper end of said cylinder, said chamber having an outlet, of a hollow piston arranged within the cylinder and adapted to move outwardly into the chamber, said piston being open at its inner end and closed at its outer end and having a series of spirally-arranged openings in its walls, and an indicating rod connected to said piston and extending through an opening in the walls of the casing.

701,888. VACUUM-GAGE. JOHN PATTEN, Baltimore, Md., assignor to Patten Vacuum Ice Machine Company, (successor to the Home Ice Machine Company,) Baltimore, Md., a Corporation of West Virginia. Filed Dec. 5, 1900. Serial No. 34,324. (No model.)



Claim.—1. A vacuum-gage comprising a U-shaped tube open at one end, the other end being sealed and having a pocket or cavity out of line with the bore of the tube, in combination with a support in which said gage is revolvably mounted, for the purpose set forth.

2. In a vacuum-gage a U-shaped tube open at one end and having its other end sealed and bent over to provide a pocket or cavity out of line with the bore of the tube, in combination with a support in which said tube is revolvably mounted, for the purpose set forth.

3. A vacuum-gage comprising a U-shaped tube, one arm of which is sealed and formed with a pocket or cavity out of line with the bore of the tube, the other arm of said tube having an enlarged bulbous portion or chamber, in combination with a support in which said gage is revolvably mounted, for the purpose set forth.

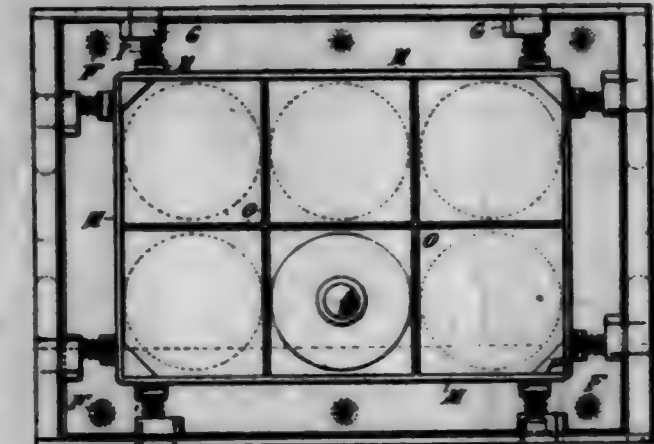
4. A vacuum-gage comprising a U-shaped tube one arm of which is sealed and formed with a pocket or cavity out of line with the bore of the tube, the other arm of said tube having an enlarged bulbous portion or chamber and an open end extending upwardly from the chamber at an angle to the lower part of the arm, and a downwardly-inclined tubular support to which said chamber and is revolvably connected.

5. A vacuum-gage comprising a U-shaped glass tube one arm of which is sealed and formed with a pocket or cavity out of line with the bore of the tube, the other arm of said tube having an enlarged bulbous portion or chamber and an open end extending upwardly from the chamber at an angle to the lower part of the arm, a coupling-piece upon said

end, and a tubular support having a downwardly-inclined socket adapted to receive said coupling-piece.

6. A vacuum-gage comprising a U-shaped glass tube, one arm of which is open, the other being sealed and formed with a pocket or cavity out of line with the bore of the tube, and a tubular coupling-piece secured to said open arm, in combination with a support in which said coupling-piece is revolvably connected, for the purpose set forth.

701,884. PACKING-CASE. GEORGE W. POST, Roselle Park, N.J., assignor of two-thirds to Fred C. White, Hawley, Pa., and Oscar T. Post, Roselle Park, N.J. Filed Jan. 30, 1900. Serial No. 31,903. (No model.)



Claim.—1. The combination with a packing-case of buffers comprising two bars with suitably-supported springs between them, the movable bar being offset to one side relative to the one which is attached to the case whereby the latter may be nailed or otherwise attached without interference by the former.

2. The combination in a packing-case of pairs of buffer-bars attached to the interior of the case and loaded and operating one at each side of each corner, a removable frame for the immediate support of the goods located within the case and supported and guided at its corners by the buffers, transverse partitions in said frame whereby it is divided into a series of separate and distinct compartments, and a spring-supported false or interior bottom and a spring-supported false or interior cover.

701,885. GRAIN-DRILL. CHARLES E. FLEWELL, Springfield, Ohio, assignor to the Thomas Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Apr. 17, 1902. Serial No. 193,570. (No model.)



Claim.—1. In a grain-drill, a combined receiver for grain and fertilizer, comprising an inclined seed or grain conduit, and a substantially vertical fertilizer-conduit, said conduits converging and uniting to form a discharge throat or mouth adapted to be connected with a seed-tube, and said receiver being provided with a partition or extension of the front wall of the fertilizer-conduit, extending downward beyond the point of junction of the two conduits, substantially as described.

2. In a grain-drill, a combined fertilizer and grain or seed receiver comprising an inclined grain or seed conduit, and a substantially vertical fertilizer-conduit, the two converging and uniting to form a discharge throat or mouth adapted to be connected with a seed-tube, the rear wall of the receiver opposite the point of junction being provided with an opening, and said rear wall below said opening being extended outward or rearward, substantially as described.

3. In a grain-drill, a combined fertilizer and grain receiver comprising an inclined grain or seed conduit and a substantially vertical fertilizer-conduit, the two converging and uniting to form a discharge throat or mouth adapted to be connected with a seed-tube, said receiver being provided with a partition extending downward between the conduits at their point of junction, and said receiver having in its rear wall an opening opposite said point of junction, the rear wall being extended outwardly below said opening, substantially as described.

701,886. MACHINE FOR JAPANNING SMALL ARTICLES.
THOMAS A. PERKINS, Syracuse, Conn. Filed Sept. 11, 1901. Serial No. 70,082. (No model.)



Claim.—1. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles to be treated, and means for imparting movement to the belt, a space being provided at the entrance of the oven for filling the perforations with said articles.

2. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles to be treated, means for imparting movement to the belt, a space being provided at the entrance of the oven for filling the perforations with said articles, and a support for the belt while being filled.

3. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles being treated, pulleys over which the belt passes, one of said pulleys being located at a distance from the entrance end of the oven to afford a space for filling the perforations of the belt with the articles, and a support for the belt between the said entrance end of the oven and the pulley.

4. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles being treated, pulleys over which the belt passes, one of said pulleys being at a distance from the entrance end of the oven to afford a space for filling the perforations of the belt with the articles, and the other pulley serving as means for partially ejecting the articles from the perforations after leaving the oven.

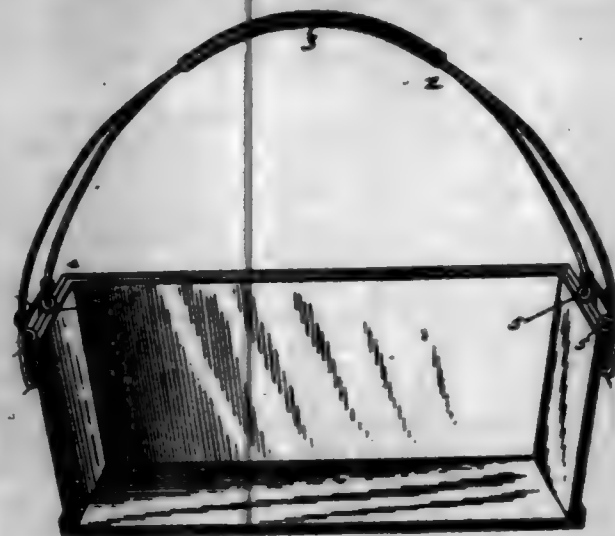
5. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles being treated, pulleys over which the belt passes, one of said pulleys being at a distance from the entrance end of the oven to afford a space for filling the perforations of the belt with the articles, and the other pulley serving as means for partially ejecting the articles from the perforations after leaving the oven, and a rotary brush adjacent to the under side of the last-mentioned pulley to dislodge the articles which have been partially ejected.

6. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles to be treated, means for imparting movement to the belt, a space being provided at the entrance of the oven for filling the perforations with said articles, means for supporting the belt while being filled, and means within the oven for guiding and supporting the edges of the belt.

7. A machine for japanning small articles, comprising a baking-oven, an endless metal belt passing through the oven and having perforations corresponding to the shape of portions of the articles to be treated, means for imparting movement to the belt, a belt-cleaning tank outside of the oven, and means for guiding the belt through said tank.

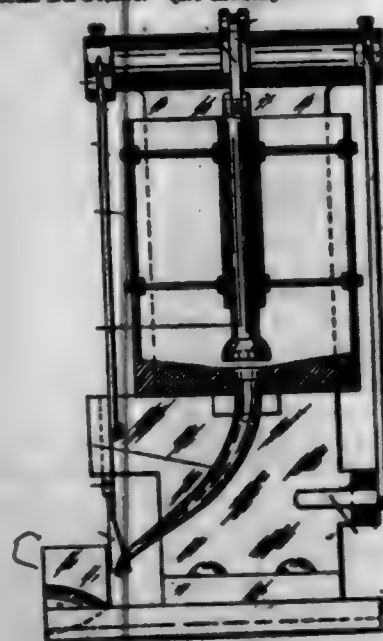
8. In a machine of the character described the combination with an endless perforated metal belt and means for driving the same, of guides in which the edges of the belt travel, cross-pieces 14 by which pairs of guides are connected, means for holding said guides in place while permitting lateral movement thereof and a baking-oven through which the belt passes.

701,887. REMOVABLE HANDLE. CHARLES M. PERKINS, Lakewood, N.J. Filed Mar. 2, 1902. Serial No. 94,488. (No model.)



Claim.—A handle of the character described comprising bows or rails connected together at their highest point and spread apart at their ends and provided with lugs, shoulders projecting inwardly from said bows or rails immediately above said lugs, and means for holding the ends curved apart, substantially as described.

701,888. CUTTING AND PASTING DEVICE FOR CIGAR-WRAP PING MACHINES. EMANUEL PERIN, New York, N.Y. Filed Apr. 24, 1901. Serial No. 87,283. (No model.)



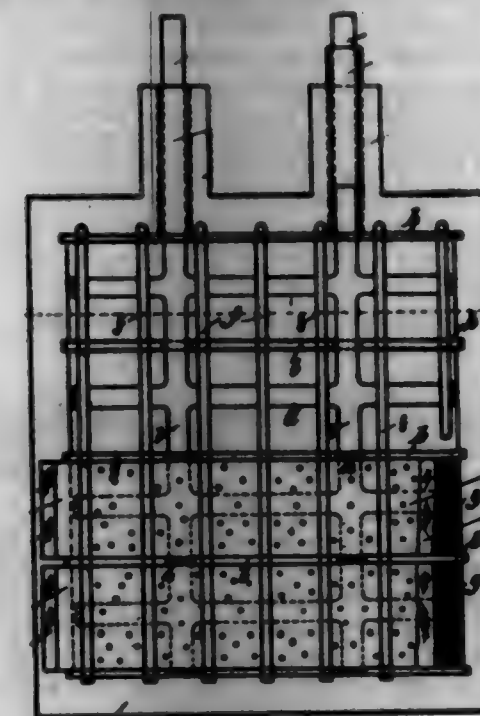
Claim.—1. In a cigar-rolling machine, the combination of a knife for slitting the end of the wrapper, means for operating the same, and means for applying the paste to the wrapper between the slit and the end of the wrapper, substantially as described.

2. In a cigar-rolling machine, the combination of a knife for slitting the end of the wrapper, means for operating the same, and means whereby the action of the cutter will automatically cause the paste to be applied to the wrapper between the slit and the end of the wrapper, substantially as described.

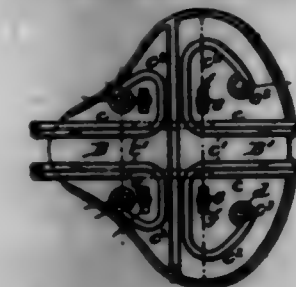
3. In a cigar-rolling machine, means for producing an angular slit or cut in the end of the wrapper as a single operation, substantially as described.

701,889. STORAGE-BATTERY ELECTRODE. JOHANNES VON DER POTTENBURG, Charlottenburg, Germany. Filed Apr. 30, 1902. Received Apr. 17, 1902. Serial No. 100,420. (No model.)

Claim.—An improved storage-battery electrode comprising a conducting-frame independently-removable cross-pieces of non-conducting material carried by the frame and having perforated portions projecting on each side thereof, perforated protecting-strips, active material interposed between said strips, and removable vertical elastic bars held in said perforations in the cross-pieces adapted to press the protecting-strips against the active material, substantially as described.



701,890. BICYCLE-SADDLE. JOHN H. PASVOORT, Buffalo, N.Y. Filed Dec. 12, 1900. Serial No. 74,894. (No model.)



Claim.—1. A bicycle-saddle the seat or body portion of which consists of plates separated or divided transversely of the middle and which together form the support for carrying the weight of the rider, in combination with means to support said plates independently and elastically from a common support, substantially as set forth.

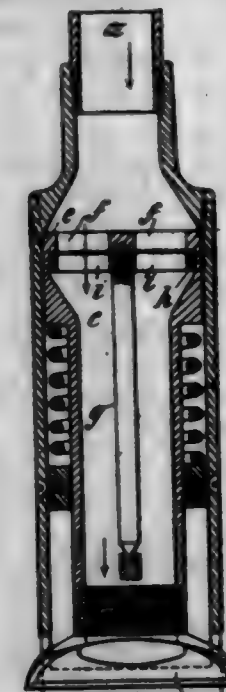
2. A bicycle-saddle, the seat or body portion of which consists of two plates separated or divided transversely of the middle which together form the support for carrying the weight of the rider, in combination with a suitable spring or springs divided at one point, one of said plates being curved to said spring or springs at one end of said division and the other plate at the other end of said division, and means to secure said spring or springs to a middle-post, substantially as set forth.

3. A bicycle-saddle, the seat or body portion of which consists of two plates separated or divided transversely of the middle which together form the support for carrying the weight of the rider, in combination with a suitable spring or springs divided at one point, one of said plates being curved to the spring or springs at one end of said division and the other plate at the other end of said division, means to secure said spring or springs to the middle-post at or about opposite the point of said division, and two pads which together are adapted to fit over said plates, each spanning both plates and each being adjustably mounted thereon, substantially as set forth.

4. In a bicycle-saddle, the combination of a longitudinal supporting-spring having its upper portion divided transversely into front and rear members, transverse front and rear plates mounted on the front and rear members of said spring, respectively, and flexible pads mounted side by side on said plates and each resting upon both of said plates, substantially as set forth.

5. In a bicycle-saddle, the combination of a pair of transverse supporting-plates arranged one in front of the other, flexible pads mounted on said plates, and a pair of longitudinal supporting-springs for said plates, each having a main lower member and a divided upper member, the sections of which are provided at their inner ends with outwardly and laterally extending branches which are secured to the under side of said transverse plates, substantially as set forth.

701,891. ROTARY BORING APPARATUS. WLASTYAW PRUS-SKOWSKI, Schudalen, Austria-Hungary. Filed June 12, 1900. Serial No. 80,084. (No model.)



Claim.—1. The combination with a tubular bore-rod and a cylinder on the end thereof; of a tool-carrier in said cylinder provided with ports, and a tool on the end of the carrier, and a rotatable valve co-operating with the ports in the carrier to alternately cut off and admit the supply of water through the carrier and cause the inertia of the moving column to drive it and the tool, substantially as set forth.

2. The combination with a tubular bore-rod and a cylinder on the end thereof; of a hollow piston in the cylinder and provided with ports inclined to the direction of flow of water through it, a rotatable valve provided with ports inclined in a direction opposite to those in the piston and located within the piston whereby the current of water is automatically cut off to cause the inertia of the moving column to drive the piston and tool, and a spring to return the piston into operative position, substantially as set forth.

3. The combination with a tubular bore-rod and a cylinder on the end thereof; of a hollow piston in the cylinder and provided with ports in its end inclined in the direction of flow of water, a disk valve pivoted within the piston and provided with radial ports inclined to the direction of flow of water and opposite to those in the piston, and a coil-spring to return the piston to operative position, substantially as set forth.

4. The combination with a tubular bore-rod and a tubular tool-carrier, open at its lower end and fitted to reciprocate in the lower end of said rod, said carrier provided with a series of ports in communication with the bore-rod above the carrier; of a valve having corresponding ports and controlling said carrier-ports, said valve organized to revolve under the action of the fluid under pressure in the bore-rod whereby the pressure on the carrier is alternately reduced and re-established, and means acting to move the carrier against the reduced pressure, for the purpose set forth.

5. The combination with a revolvable tubular bore-rod and a tubular tool-carrier open at its lower end, and fitted to revolve with and to reciprocate in the lower end of said rod, said carrier provided with a series of ports in communication with the bore-rod above the carrier; of a valve having corresponding ports and controlling said carrier-ports, said valve organized to revolve under the action of a fluid under pressure in the bore-rod whereby the pressure on the carrier is alternately reduced and re-established, and means acting to move the carrier against the reduced pressure, for the purpose set forth.

6. The combination with a bore-rod having a fluid-passage extending therethrough, a piston-cylinder at the lower end of said rod and in communication with its fluid-passage, said cylinder having fluid-exhaust ports, and a piston working in said cylinder and carrying the boring-tool; of a valve having corresponding ports, and controlling the exhaust-ports in the cylinder, said valve organized to revolve under the pressure acting on the piston-carrier, whereby said pressure is alternately reduced and re-established, and means acting to move the piston against the reduced pressure, for the purpose set forth.

7. The combination with a revolvable bore-rod and a tool-carrier

head to reciprocate in the lower end of said rod, said carrier organized to move in one direction under the action of the inertia of a moving column of fluid; of means for alternately and automatically reducing and retarding the pressure acting on the carrier, and means for moving said carrier in an opposite direction at each reduction, and a casing secured to the bore-rod open at its lower end and provided at said end with oppositely-arranged slots through which the boring-tool projects to cause the same to revolve with the bore-rod without interfering with the reciprocations of said tool, substantially as and for the purpose set forth.

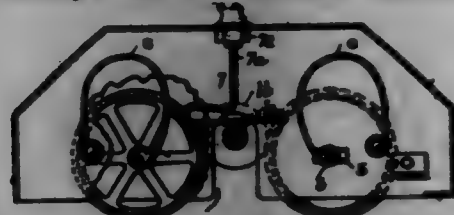
701,892. INSULATING-PAINT. LEONARD M. RANDOLPH, Newark, N. J., assignor of six-tenths to Edward C. Bruno and Lawrence F. Bruno, Brooklyn, N. Y. Filed Sept. 8, 1901. Serial No. 74,662. (No specimens.)

Claim.—1. The jaspersing or insulating compound herein specified, consisting of varnish residues, powdered peat and naphtha or similar solvent, substantially as set forth.

2. The jaspersing or insulating-paint herein specified and consisting of varnish residues, about twenty-five per cent. of powdered peat, and naphtha or similar solvent sufficient to thin the same down to the desired consistency, substantially as set forth.

3. The method herein specified of manufacturing a jaspersing or insulating-paint, consisting in taking a waste product from the manufacture of varnish, jaspers and chollas, and known as varnish residues, heating the same hot and straining the same through cloth or similar material for the removal of various foreign substances, adding to the hot strained varnish residues about twenty-five per cent. of powdered peat, stirring the same thoroughly to form a homogeneous mass, and adding thereto naphtha or similar solvent material for the purpose of thinning the same down to the desired consistency, substantially as set forth.

701,893. CARPET-SWEEPER. SILVANO J. RYBOLIN, Saginaw, Mich. Filed July 1, 1901. Serial No. 64,764. (No model.)



Claim.—1. In combination with a casing carrying pairs of horizontally-adjustable wheels yieldingly pressed toward each other; a brush-spindle engaged and supported by said wheels; a vertically-adjustable brush-adjuster having a horizontal lower bearing-face permitting horizontal movement of the brush-spindle, and openings in said casing larger than said spindle for the purpose set forth.

2. In a carpet-sweeper, the combination with the casing, of a pair of parallel shafts extending through horizontal slots in the ends of the casing and carrying wheels on their outer ends; leaved springs secured as one end to the casing and pressing the shafts toward the center line of the sweeper; a brush-spindle reduced in diameter near its ends; rollers housed on the spindle and yieldingly held between the wheels above their center line; a pair of vertically-adjustable brush-adjusters having horizontal spring members to yieldingly press the upper side of said spindles; and openings in the casing for the passage of the spindles, said openings being larger than the spindles, the brush being supported and rotated independent of the casing.

3. In combination with a carpet-sweeper casing having wheel-shafts mounted in horizontal slots and yieldingly pressed toward the center line of the casing; a brush-spindle extending through openings in the casing, said openings being larger than the spindle to permit its independent horizontal and vertical movement; a vertically-adjustable brush-adjuster near each end of the spindle, comprising a vertical rod bent horizontally near its lower end to form a horizontal spring member; said brush-spindle being held in place and not in contact with the casing by the combined action of the wheels and the spring brush-adjuster, for the purpose set forth.

4. In a carpet-sweeper, a rotatable brush having the ends of its spindle supported by the combined action of the horizontally-yielding wheels and a vertically-yielding spring member above the spindle; whereby the brush-spindle is capable of moving with the wheels and in contact with them in both a horizontal and vertical direction, substantially as described.

5. In a carpet-sweeper having horizontally-yielding wheels spring-pressed toward each other, the combination of a brush-spindle having rollers engaged between said wheels above their center line, and a downwardly-pressing adjustable spring having a horizontal lower face to take the upward thrust of the spindle, said spindle passing freely through the casing and being supported solely by the combined action of the wheels and the spring, substantially as described and for the purpose set forth.

701,894. STAIR-ROD FASTENER. WILLIAM RICHARDS, Cambridge, Mass. Filed Aug. 24, 1901. Serial No. 72,191. (No model.)



Claim.—A stair-rod fastener, consisting of an attaching bracket member having angularly-related arms, the outer end of one arm being provided with an overhanging terminal keeper, which is provided with a pendant projection, and a springing clip member having one end pivotally connected to the other bracket-arm, and its opposite free end constructed to fit within the keeper and provided in its upper face with a socket or depression for the reception of the pendant projection of the keeper.

701,895. BROOM. BRIAN ROBERTSON, Fremont, Ark. Filed Mar. 27, 1902. Serial No. 108,292. (No model.)



Claim.—1. The combination with the broom-head and the handle extending therethrough, of a base-wire inserted through the end of the handle and projecting beyond the edge of the broom-head, internally-threaded sleeves held by the ends of said wire, fastening-bolts fitted in the ends of said sleeves, and clamping-wires mounted on said bolts and passing across the face of the broom-head.

2. The combination with the broom-head and the handle, of a base-wire inserted through the handle and projecting beyond the edge of the broom-head, clamping-bolts supported by the ends of said wire, clamping-wires carried by said bolts and passing across the broom-head, supporting-frames secured to the handle above the broom-head, passing therefrom to and encircling the clamping-bolts, and provided with hooks below the bolts, and brace-wires attached to the handle above the broom-head and diverging downward therefrom and engaging the hooks on the supporting-frames.

701,896. ELECTRICAL PROTECTOR. CHARLES A. BELLE, Chicago, Ill., assignor to Bell Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1900. Serial No. 25,541. (No model.)



Claim.—1. The combination with structurally-separate heat-generating and heat-responsive devices of a power device upon which the heat-generating device is mounted, and the means for controlling the circuit operable by the power device, substantially as set forth.

2. The combination with structurally-separate heat-generating and heat-responsive devices of a power device upon which the heat-generating device is mounted, and means for opening the circuit upon the generation of heat in the heat-generating device sufficient to operate the heat-responsive device, substantially as described.

3. The combination with a base of a spring secured thereto and having an arm adapted to swing upwardly, a heat-generating device mounted upon the end of said spring, a support arranged at the end of the spring and provided with a heat-responsive device adapted to cooperate with the heat-generating device and positioned over the spring so as to hold the same against the upward movement, and circuit-controlling means operable by the spring upon its release, substantially as described.

4. The combination with a base of a spring secured thereto and having an arm adapted to swing upwardly, a heat-generating device mounted upon the end of said spring, a support arranged at the end of the spring and provided with a heat-responsive device adapted to cooperate with the heat-generating device and positioned over the spring so as to hold the same against the upward movement, and means for breaking the circuit operable by the spring upon its release, substantially as described.

5. The combination of a base, a spring secured to the base and having an arm adapted to swing upwardly, a coil of fine wire mounted upon the end of said spring-arm, a support secured to the base and provided with a mass of heat-responsive material which is arranged above the coil of fine wire so that the generation of heat in the latter will cause or break the mass of heat-responsive material, and means for controlling the circuit upon the release of the spring.

6. The combination of a base, a spring secured to the base and having an arm adapted to swing upwardly, a coil of fine wire mounted upon the end of said spring-arm, a support secured to the base and provided with a mass of heat-responsive material which is arranged above the coil of fine wire so that the generation of heat in the latter will cause or break the mass of heat-responsive material, and means for opening the circuit upon the release of the spring.

7. The combination of a spring provided with contacts and also provided with a coil of fine wire mounted with said contacts; contact-jaws cooperating with said contacts; and a heat-responsive device arranged to hold the spring in the position in which its contacts engage the contact-jaws and connected with the coil of fine wire on the spring so that the generation of heat in the latter operates the heat-responsive device and allows the same to release the spring.

8. The combination of a spring carrying a contact; a contact-jaw cooperating with said contact; a heat-generating device; and a heat-responsive device cooperating to hold the spring in the position in which its contact engages the contact-jaw, and to release the same upon the generation of heat in the heat-generating device.

9. The combination of a spring carrying a pair of contacts, and having a coil of wire arranged at its free end; contact-jaws cooperating with the contacts carried by the spring; a stick or block of fusible or softenable material held in position to engage the coil of wire at the end of the spring, and to release the spring upon generation of heat in said coil.

10. The combination of a pair of cooperating electrodes; a spring upon which one of said electrodes is mounted; means whereby the spring is held in position to maintain its electrodes normally separated from but in close proximity to the other electrode; and means for releasing the spring so as to allow it to operate and separate its electrodes widely from the other electrode.

11. The combination of a pair of electrodes, a spring upon which one of said electrodes is mounted; a circuit-breaking device arranged to maintain the circuit normally closed and to open the same upon the passage therein of an unduly strong current, the said circuit-breaking device being also arranged to hold the spring normally in position to maintain the electrodes thereon normally away from but in close proximity to the other electrode, and to separate the same widely upon its operation to break the circuit.

12. The combination of a spring carrying a pair of contacts, one of which is insulated from the spring, and the other of which is connected electrically therewith; a heat-generating or concentrating coil of wire carried at the end of the spring and connected with said contacts; a carbon electrode also carried by the spring; a ground electrode cooperating with the carbon on the spring; a stick or mass of fusible or softenable material engaging the coil of wire on the spring so as to hold the same in a lowered condition normally, but to release the same upon the passage in the coil of an unduly strong current; and a support for said stick or mass of fusible or softenable material.

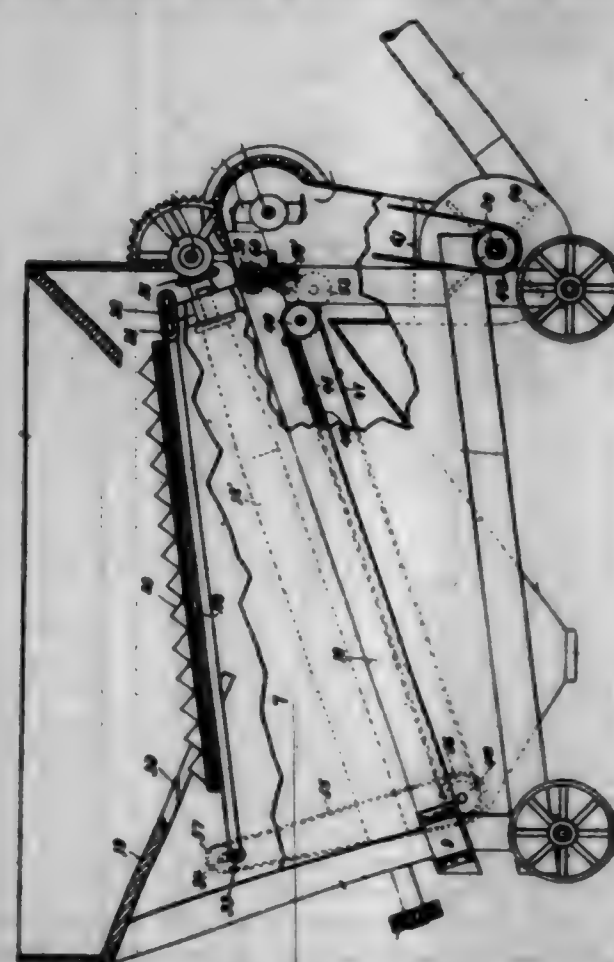
701,897. CORN HUSKER AND SHREDDER AND HUSK-SEPARATOR. ALBERT BERNHARD, Milwaukee, Wis., assignor to Rosenthal Husker Company, a Corporation of Wisconsin. Filed June 14, 1901. Serial No. 64,694. (No model.)

Claim.—1. The combination of a lower frame, an upper frame removably fitted thereon, means for causing the material fed into the machine to pass from one end of said machine toward the opposite end thereof, rotatable feed-rolls at the end of the machine adapted to receive the material as fed therebetween, rotatable cutting and shredding mechanism adapted to act on the material as it leaves the feed-rolls, and means for conveying material from the machine, after said material has been acted upon by the cutting and shredding mechanism.

2. The combination of a frame, cutting mechanism carried by the frame, rotatable husking-rollers journaled in the frame, a platform below the husking-rollers and provided with a series of open spaces through which chaffed corn is adapted to pass, and an endless conveyor running over said platform and adapted to convey to the cutting mechanism the material passing between and falling below the husking-rollers.

3. The combination of a frame, a main drive-shaft mounted therein at the forward end of the frame and having a toothed wheel thereon, an auxiliary shaft having a toothed wheel engaged by the toothed wheel of the main shaft, and also having a beveled gear-wheel mounted thereon, husking-rollers journaled in the frame, the corresponding ends of the journals of said rollers provided with intermeshing gear-wheels, and the opposite journal of one of the rollers provided with a beveled gear-wheel meshing with the beveled gear-wheel of the auxiliary shaft, an endless conveyor below the husking-rollers, feed-rollers at the forward end of the conveyor, said feed-rollers being geared together, and the journal of one of said rollers provided with a pinion, said pinion being in mesh with a toothed wheel on the drive-shaft, a system of gearing between said pinion of the feed-roll and the forward roll of the conveyor mechanism, cut-

ting and shredding mechanism mounted on the main shaft, a fan-casing below the cutting and shredding mechanism, a fan within said casing, and a belt connection between the fan-shaft and the main shaft.



4. The combination of a frame, rotatable husking-rollers journaled therein, the forward portions of said rollers provided with means for separating the stalks from the ears of corn, and the remaining portions of said rollers provided with husking means, a hopper at the upper portion of the frame, and a board arranged above the rollers and extending at a downward incline from the rear end of the hopper toward the front and thereof for such a distance as to compel, in the first place, the grouping by the separating ends of the rollers of the ends of the cornstalks which project beyond the inclined board, and said inclined board thereby also adapted to tilt the stalks toward a vertical position.

5. The combination of an upper frame, means for causing the material fed into the machine to pass from one end of said machine to the other, rotatable feed-rolls carried by the upper frame, and arranged at one end of said frame, and adapted to receive therebetween the material fed through the machine, rotatable cutting and shredding mechanism carried by the upper frame and arranged in said upper frame in position to act on the material as it leaves the feed-rolls, a lower frame to which the upper frame is removably fitted, and means for conveying the material from the machine, after said material has been acted upon by the cutting and shredding mechanism, said means being carried by the lower frame.

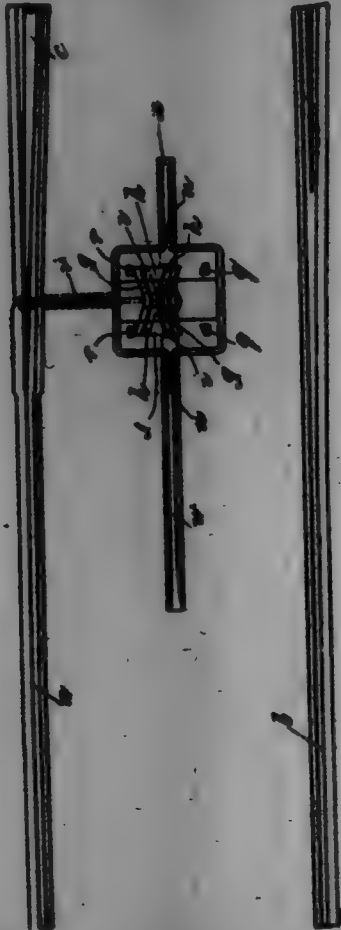
701,898. ARRANGEMENT FOR SHIFTING THE POINTS OF TRAMWAY OR RAILWAY LIMB. GEORGE E. ROSS, Glasgow, Scotland. Filed Feb. 12, 1902. Serial No. 65,734. (No model.)

Claim.—1. The combination with the car and the point to be shifted, of a movable plate having cross-grooves on its upper surface, a rocking arm supporting the plate, a pin supporting the arm, a box containing the arm and plate, a rod connecting the arm with the point and a point-chifter fitted to the car and adapted to engage with one or other of the grooves of the plate, substantially as described.

2. The combination with the car and the point to be shifted, of a movable plate having cross-grooves on its upper surface, a rocking arm supporting the plate, a pin supporting the arm, a box containing the arm and plate, a lag on the arm, a connecting-rod jointed at one end to the lag and at the other end to a tongue on the point, and a point-chifter fitted to the car and adapted to engage with one or other of the grooves of the plate, substantially as described.

3. The combination with the car and the point to be shifted, of a movable plate having cross-grooves on its upper surface, a rocking arm supporting the plate, a pin supporting the arm, a box containing the arm and plate, said box being broad and flat at its upper end and narrow and tapered at its lower end, a drain-hole in the bottom of the box, means for limiting the movement of the arm, means for connecting the plate to the

point and a point-chifter on the car which is adapted to engage with one or other of the grooves of the plate, substantially as described.



4. The combination with the car and the point to be shifted, of a movable plate having cross-grooves on its upper surface, a rocking arm supporting the plate, a pin supporting the arm, a box containing the arm and plate, said box being broad and flat at its upper end and narrow and tapered at its lower end, a drain-hole in the bottom of the box, guide-openings in the sides of the box, guideways leading to and from the box, a cover for the box, a guide-slot made across the cover in the same line as the guideways, means for limiting the movement of the arm, means for connecting the plate to the point and a point-chifter on the car which is adapted to engage with one or other of the grooves of the plate, substantially as described.

701,899. REIN-HOLDER. GLENN BATHURST, Dura, Tenn. Filed Mar. 31, 1902. Serial No. 100,855. (No model.)



Claim.—A rein-holder comprising a supporting-plate, cam-jaws mounted upon one side of the plate, one of said jaws being provided with a finger-piece, shafts or pistons connected to the jaws and projecting through the plate, toothed segments connected to said shafts or pistons on the opposite sides of the plate, and a loop-wire spring secured to the plate and having its free ends connected to the segments and provided with spring-cells, the said free ends of the spring normally tending to force the segments to a position in which the segments act to force the jaws closed, substantially as set forth.

701,400. MAGAZINE PLATE-HOLDER FOR CAMERAS. JOHN C. F. SCHAFER, Mount Pleasant, Ill. Filed Apr. 26, 1902. Serial No. 14,472. (No model.)

Claim.—1. In a magazine plate-holder for cameras, the combination of a plate-magazine, a case slidable on said plate-magazine, a handle on said case, a hook mounted on said case, and a hook-operating device contiguous to said handle, as set forth.

2. In a magazine plate-holder for cameras, the combination of a plate-magazine, a case slidable in said plate-magazine, a case slidable on said plate-magazine, a handle on said case, a hook mounted on said case, a hook-operating device contiguous to the handle on said case, means for shifting said case in said case, and means for returning said case to said plate-magazine, as set forth.



3. In a magazine plate-holder for cameras, the combination of a plate-magazine, a case slidable on said plate-magazine, a handle on said case, a hook mounted on said case, a slide contiguous to said handle, an arm connected with said slide and engaging with said hook, a spring acting against said hook, a shifting-frame mounted on said case, and a spring actuating said shifting-frame, as set forth.

4. In a magazine plate-holder for cameras the combination of a case, a plate-hook mounted on said case and having an extension, a hook-disengaging device operative from the outside of said case, a plate-magazine on which said case is slidable and having a housing to accommodate the extension of said hook, means for limiting the movement of said case and sheaths within said plate-magazine with which said plate-hook engages, as set forth.

5. In a magazine plate-holder for cameras, the combination of a plate-magazine, a case slidable on said plate-magazine and having compartments, a plate-shifting frame mounted in one compartment of said case and a spring mounted in the other compartment of said case and operatively connected with said plate-shifting frame, and a plate-hook on said case in cooperative relation to said plate-shifting frame, as set forth.

6. In a camera, the combination of a camera-box having an opening adapted to accommodate a slidable case, a housing mounted in said camera-box, a plate-magazine within said housing and provided with a ledge, securing devices connecting said plate-magazine with the camera-box, and a case slidable on said plate-magazine and having a ledge which engages with the ledge on the plate-magazine to limit inward movement of said case and engages with a wall of said camera-box to limit the outward movement of said case, as set forth.

7. In a magazine plate-holder for cameras, the combination of a plate-magazine, a housing, and a case slidable between said plate-magazine and housing, all three being separable from each other for the removal of and insertion of plates, as set forth.

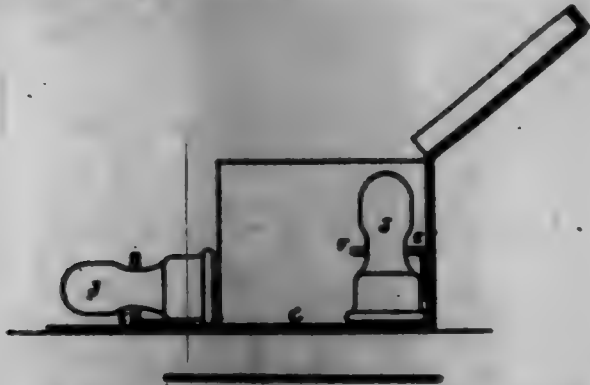
8. In a camera, the combination of a camera-box, a housing mounted on said camera-box, a plate-magazine housed in said housing and detachably connected with said camera-box, and a case slidable on said plate-magazine and having a sliding movement within said housing, limited in one direction, as set forth.

9. In a magazine plate-holder for cameras, the combination of a housing, a plate-magazine housed in said housing, and a case slidable on said plate-magazine and having sliding movement within said housing, limited in one direction, said plate-magazine and case being withdrawable from said housing, as set forth.

701,401. COMBINED PACKING AND DISPLAYING BOX. WILLIAM SCHUBERT, Brooklyn, N. Y. Filed Jan. 11, 1902. Serial No. 88,297. (No model.)

Claim.—The combination with a box, having its front wall hinged at its bottom edge to the front edge of the box-bottom, of an L-shaped strip fastened each to the inner surface of the front wall and of the rear

wall, the horizontally-projecting leg of each strip being provided with notches, substantially as described.



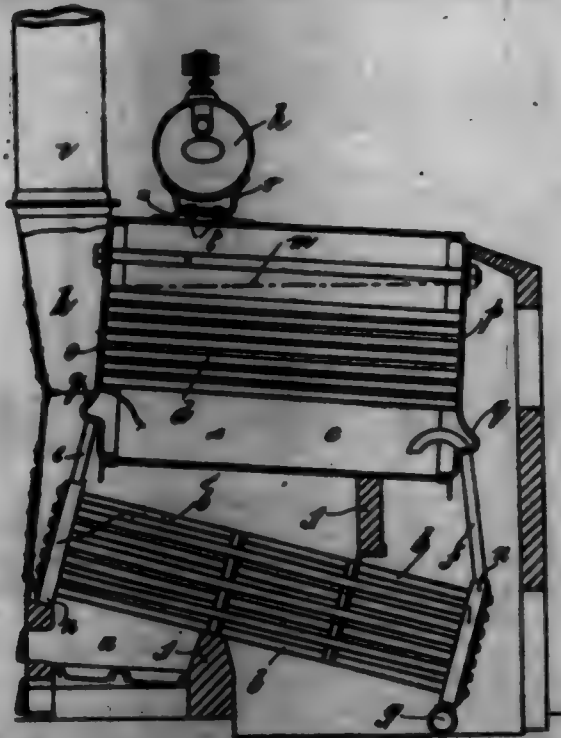
701,403. FOUNTAIN-PEN. HERMAN SCHWARTZ and IRVING SILVERMAN, New York, N. Y. Filed Mar. 10, 1902. Serial No. 97,490. (No model.)



Claim.—1. A brush-holder comprising a reservoir adapted to receive a brush, a socket located wholly within the reservoir, a rod to stay the socket secured to the wall of the reservoir and to the socket, and means carried by said socket to engage the handle positively, substantially as shown and described.

2. A brush-holder comprising a reservoir adapted to receive a brush, a socket located wholly within the reservoir, a stay-rod secured to the wall of the reservoir and to the socket, a nut secured to the side of the socket, and a screw extended through the wall of the reservoir and through said nut and the wall of the socket to clamp the handle within the socket, substantially as shown and described.

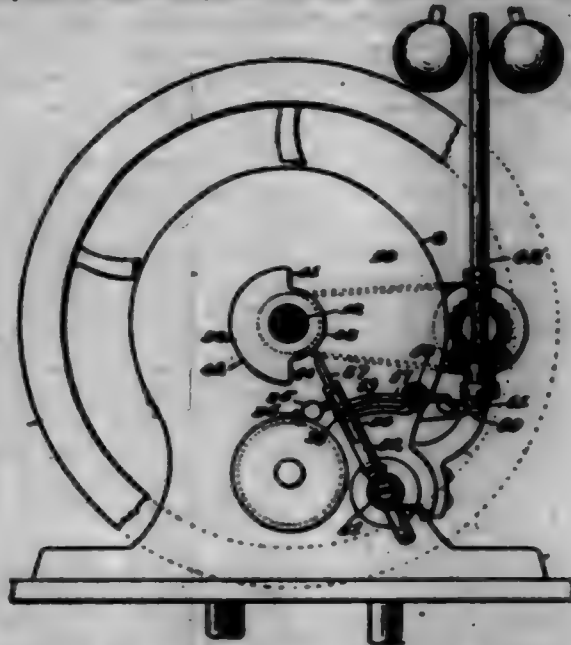
701,408. STEAM-GENERATOR. WILLIAM SHARPE and DAVID CRAWFORD, Glasgow, Scotland. Filed Jan. 14, 1902. Serial No. 98,942. (No model.)



Claim.—1. In steam-generators, the combination of an inclined nest of water-tubes having sectional headers connected to each end thereof, a fire-tube boiler having a front and back plate connected thereto, circulating-tubes connected to said headers and extending into said front and back plates of the fire-tube boiler, a pair of dished nozzles having their dished portions in contact with one another with tubes extending through said dished portions, and a drum carried by the upper nozzle, substantially as described.

2. In steam-generators, the combination of an inclined nest of water-tubes, sectional headers for the tubes, circulating-tubes connected with the headers, a superposed fire-tube boiler, and plates on the boiler, outwardly-bulged parts made in the end plates for the reception of the said circulating-tubes, nozzles *r, s*, secured to the boiler and a drum *t* secured to the nozzles, substantially as set forth.

701,404. ROTARY ENGINE. SYLVANUS C. SHARP, Haverhill, Mass. Filed Feb. 24, 1902. Serial No. 98,943. (No model.)



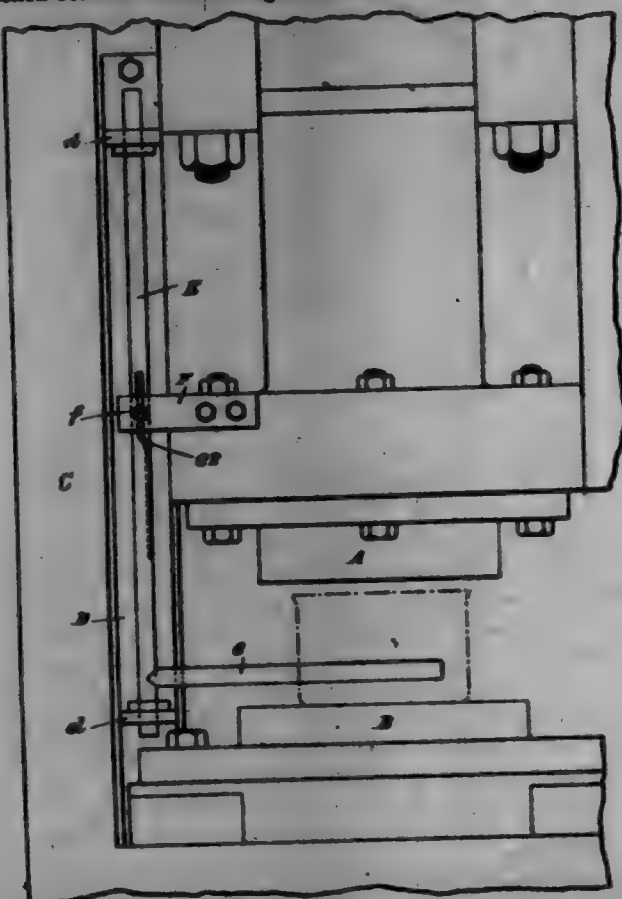
Claim.—1. In a rotary engine, a casing; heads closing the ends of the casing; a shaft mounted in said heads; a piston mounted upon said shaft between said heads and forming a steam-chamber; a wing extending from said piston and engaging the inner surface of said casing; a rocking abutment of cylindrical form mounted in a cylindrical opening and extending into said chamber and engaging the periphery of said piston; a cam on the outer end of said shaft; a second cam on the outer end of the abutment-shaft, there being a projection on the first-mentioned cam and a cut-away portion of the second-mentioned cam, so that when the piston rotates, the abutment will be rocked out of the way of said wing; and a spring for returning said abutment to its normal position; substantially as specified.

2. In a rotary engine, a casing; heads closing the ends of the casing; a shaft mounted in said heads; a piston mounted upon said shaft between said heads and forming a steam-chamber; a wing extending from said piston and engaging the inner surface of the casing; a rocking abutment mounted in a cylindrical opening and extending into said chamber and engaging the periphery of said piston, said rocking abutment having a cut-away portion to allow said wing to pass, and said rocking abutment having a bearing-surface to form a bearing-surface to engage the periphery of the piston and form a stop to limit the backward motion of the abutment; a cam on the outer end of said shaft; a second cam on the outer end of the abutment-shaft, there being a projection on the first-mentioned cam, and a cut-away portion on the second-mentioned cam, so that when the piston rotates, the abutment will be rocked out of the way of said wing; and a spring for returning said abutment to its normal position with said bearing-surface against the periphery of the piston, substantially as specified.

3. In a rotary engine, a casing; heads closing the ends of the casing; a shaft mounted in said heads; a piston mounted upon said shaft between said heads and forming a steam-chamber; a wing extending from said piston and engaging the inner surface of the casing; a rocking abutment extending into said steam-chamber and engaging the periphery of the piston; means of rocking said abutment out of the way of said wing; a rocking valve for admitting steam to said chamber; a spring connecting one end of the valve to the frame, the tension of said spring being exerted to hold the valve closed; a tubular arm rigidly fixed upon the outer end of the shaft of the valve, the upper end of said arm being transversely slotted; an adjustable stop projecting from the frame and engaging said arm to resist the tension of said spring; a slide mounted in said tubular arm; a pin extending outwardly from said slide through said slot; a cam-wheel fixed upon the end of the shaft and having a shoulder to engage the outer end of said slide, and a second shoulder to release said slide so that when said cam-wheel strikes said slide, the valve will be opened; a lever pivoted to the frame and having a slot in one end to receive said pin; a second lever pivoted in position to engage the opposite end of the first-mentioned lever; and a governor mounted in position to have its sliding link engage said second lever as required to move said slide in and out in said tubular arm by the action of the governor, thus regulating the valve, substantially as specified.

701,405. EJECTING DEVICE FOR STAMPING-MACHINES. JOHN SHERRIFF, Greenwich, London, England, assignor to Archibald White Macintosh, London, England. Filed Feb. 17, 1902. Serial No. 98,957. (No model.)

Claim.—1. In a stamping or like machine, the combination with a reciprocating die-carrying plunger, of a device for ejecting stamped articles comprising an oscillatory spindle approximately parallel to the line of movement of the plunger, an ejector-arm projecting from the spindle, an actuating-arm projecting from the plunger, and a spindle-oscillating connection between the actuating-arm and spindle.



2. In a stamping or like machine, the combination with a reciprocating die-carrying plunger, of a device for ejecting stamped articles comprising an oscillatory spindle approximately parallel to the line of movement of the plunger, an ejector-arm projecting from the spindle, an actuating-arm projecting from the plunger, and a spindle-oscillating connection between the actuating-arm and spindle comprising a projection on one part engaging a cam-groove in the other.

701,406. CUT-OFF-VALVE MECHANISM. FRANKLIN T. BROWN, Corvallis, Minn., assignor to one-half to Thomas K. Jones, Corvallis, Minn. Filed July 16, 1901. Serial No. 68,831. (No model.)

Claim.—1. The combination of a reciprocating valve-stem, right and left hand screw-cleaves splined thereon, means to adjust said screw-cleaves on said valve-stem, means to turn the latter, and cut-off valves engaged and operated by said screw-cleaves, whereby said cut-off valves may be moved longitudinally in opposite directions by turning said valve-stem, for the purpose set forth, substantially as described.

2. The combination of a reciprocating valve-stem, right and left hand screw-cleaves splined thereon, means to adjust said screw-cleaves on said valve-stem, means to turn the latter, cut-off valves engaged and operated by said screw-cleaves, whereby said cut-off valves may be moved longitudinally in opposite directions by turning said valve-stem, and a centrifugal mechanism and connections between the same and said valve-stem, to automatically turn the latter, substantially as described.

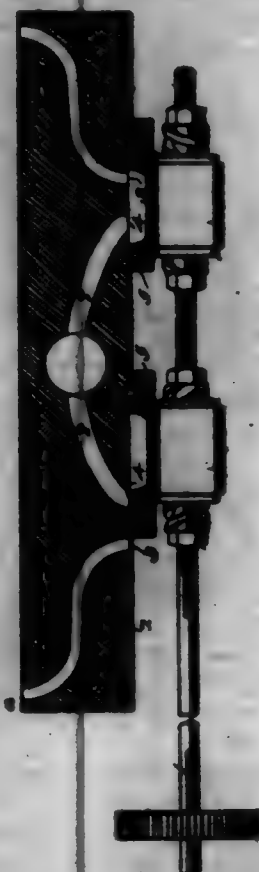
3. The combination of a reciprocating screw-threaded valve-stem, right and left hand screw-cleaves splined thereon, but not engaged by the screw-thread thereof, adjusting-nuts on said threaded valve-stem to adjust said screw-cleaves, and cut-off valves engaged by said right and left hand screw-cleaves, for the purpose set forth, substantially as described.

4. In an engine, the combination of cut-off valves, a reciprocating reversible valve-stem, to move said valves reversely, for the purpose set forth, a spring to turn said valve-stem in one direction, a centrifugal mechanism to turn said stem in the reverse direction, and means to vary the power of said spring, substantially as described.

5. In an engine, the combination of cut-off valves, a reciprocating reversible valve-stem, to move said valves reversely, for the purpose set forth, a spring to turn said valve-stem in one direction, a centrifugal mechanism to turn said stem in the reverse direction, and means to vary the power of said spring, substantially as described.

6. In an engine, the combination of cut-off valves, a reciprocating reversible valve-stem, to move said valves reversely, for the purpose set forth, and means, automatically operated, on an abnormal increase of

speed of the engine, to turn said stem and cause said valves to cut off the supply of steam to the cylinder, substantially as described.



7. In an engine, the combination of cut-off valves, operative on the steam and exhaust ports of the cylinder, a speed mechanism to adjust said valves automatically, a belt to drive said speed mechanism, a normally idle element supported by said belt, and connections between said normally idle element and said valves, to operate the latter when said normally idle element is released by said belt, substantially as described.

701,407. BALING-SLIP AND BLANK THEREFOR. SAMUEL BROWN and LAUREN E. BROWN, Wilmington, Del. Filed Feb. 8, 1901. Serial No. 68,862. (No model.)



Claim.—1. As a new article of manufacture, a roll of paper for use in the making of check baling-slips, said roll consisting of two or more webs of paper wound up together in a single roll, two or more of the webs being pasted together on longitudinal lines and one or more of the webs being scored and ruled longitudinally.

2. As a new article of manufacture, a roll of paper for use in the making of check baling-slips, said roll consisting of two or more webs wound up together in a single roll, one or more of the webs being scored longitudinally, and one or more of them being scored and ruled longitudinally.

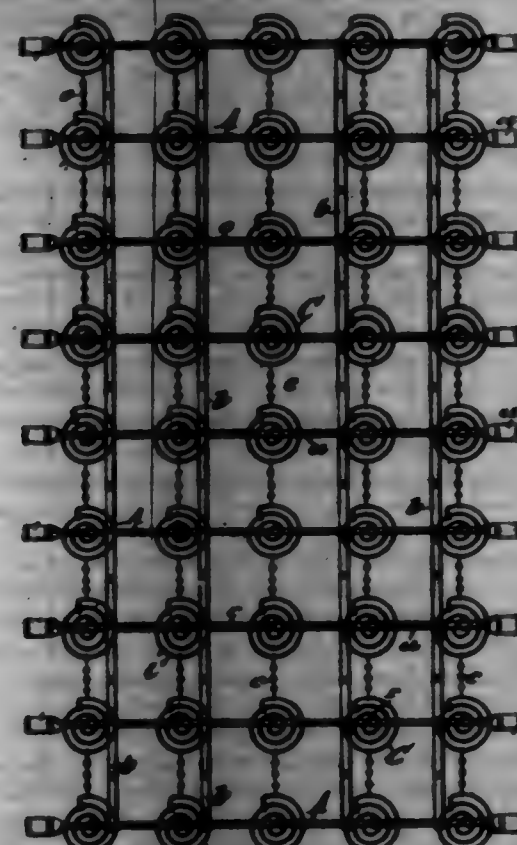
3. As a new article of manufacture, a roll of paper for use in making baling-slips, said roll consisting of two or more webs wound up together in a single roll and one or more of the webs having continuous longitudinal ruled lines.

4. As a new article of manufacture, a roll of paper for use in making baling-slips, said roll consisting of two or more webs wound up together in a single roll, one or more of the webs being scored longitudinally.

5. As a new article of manufacture, a roll of paper for use in making baling-slips, said roll consisting of two or more webs wound up together in a single roll and scored longitudinally on lines not overlying each other in different webs.

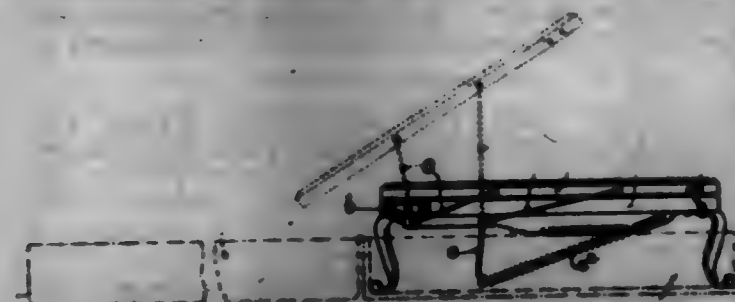
6. As a new article of manufacture, a roll of paper for use in making baling-slips, said roll consisting of two or more webs scored longitudinally and having lines ruled thereon to identify the score-lines.

701,408. SPRING-BED. SAMUEL L. GURVIN, New York, N. Y. Filed Mar. 4, 1901. Serial No. 68,867. (No model.)



Claim.—A collapsible spring-bed, consisting of a plurality of coils extending transversely to the direction of collapse, each coil having hooked ends adapted to engage the rails of a bedstead, and a vertical portion between said ends, ends on the coils, folding links pivoted to and supported by said ends, and arranged in the direction of collapse, said ends being composed each of a shank adapted to be attached to the coil and to support a link above and out of contact with the same, and a pivot extending upwardly from said shank, and bed-springs supported on said coils, substantially as set forth.

701,409. APPARATUS FOR COPYING DOCUMENTS, DRAWINGS, &c. ROBERT BURNHAM, London, England. Filed Jan. 12, 1902. Serial No. 68,872. (No model.)



Claim.—1. An apparatus for copying documents, drawings and the like comprising a frame carrying the stencil-sheet a bed on which the paper to receive the impression is laid, and two pairs of links connecting the frame with the bed, the pairs being of unequal effective length in order to cause the one end of the frame to rise more rapidly and to a greater extent than the other and thereof, as set forth.

2. An apparatus for copying documents, drawings and the like comprising a frame carrying the stencil-sheet, a bed on which the paper to receive the impression is laid, two pairs of links connecting the frame with the bed, the pairs being of unequal effective length in order to cause the one end of the frame to rise more rapidly and to a greater extent than the other and thereof, and of one or more springs arranged to control the movements of said links, as set forth.

701,410. SOUND-RECOR. WALTER L. SAGE, Geneva, Iowa. Filed Nov. 23, 1901. Serial No. 68,877. (No model.)



Claim.—1. In a sound-recorder, in combination, a casing, an axially-movable rotatable diaphragm therein, and a plurality of deflectable arms

secured at one end to the casing and frictionally engaging the diaphragm and inclined in the direction of rotation thereof.

2. In a sound-recorder, in combination, a casing, a longitudinally-movable rotatable diaphragm therein, and a plurality of elastic fibers secured at one end to the casing and frictionally engaging the diaphragm with their free end, the said fibers being inclined in the direction of rotation of the diaphragm.

3. In a sound-recorder, in combination, a casing, a headed pin located in the casing, a disk rotatably mounted on and movable longitudinally as to the pin, and a plurality of elastic fibers secured in the casing and frictionally engaging the rear face of the diaphragm, the said fibers being inclined in the direction of rotation of the diaphragm.

4. In a sound-recorder, in combination, a casing, a rotating disk the rear face of which is roughened, a headed pin fixed in the back of and extending perpendicularly into the casing, a disk rotatably mounted on and movable longitudinally as to the pin, a plurality of elastic fibers secured at one end to the back of the casing and bearing with their free end against the back of the disk, the said fibers being inclined in the direction of rotation of the disk.

701,411. LASTING-MACHINE. STEPHEN SNOW, Everett, Mass., assignor to Portland Machinery Company, Portland, Me., and New York, N. Y. Filed May 7, 1900. Serial No. 68,887. (No model.)



Claim.—1. In a lasting-machine, a two-wiper, and means to move the same when in contact with the upper on the top of the last back of the toe and thereof forwardly toward and to the toe end of the last, said wiper moving in the arc of a circle located between the toe and heel of the last, and a toe-rest movable in the direction of the length of the last during the operation of the two-wiper, said toe-rest contacting with the upper on the top of the last back of the toe and thereof.

2. In a lasting-machine, a pivotally-mounted two-wiper, a two-wiper actuator to move the wiper longitudinally of the last and turn the same that its upper edge may contact with the upper lying on the top of the last and sliding over said upper stretch the same and fit it to the last, and a toe-rest connected with the said two-wiper actuator contacting with the upper on the top of the last at a point back of the toe and of the last and toe-wiper and movable longitudinally of the length of the last with and during the operation of the two-wiper.

3. In a lasting-machine, a two-wiper actuator, a two-wiper carrier pivoted thereto at its ends, and a connected two-wiper, combined with a toe-rest movable longitudinally of the length of the last during the operation of the two-wiper, said toe-rest contacting with the upper on the top of the last between the end of the last and the pivotal point of the two-wiper carrier.

4. In a lasting-machine, a two-wiper having its edge adapted to meet the upper on the top of the last back of the toe end of the last, and a toe-rest to contact with the upper on the last as the two-wiper completes its operative stroke and means to move the toe-rest and two-wiper longitudinally of the last and to turn the two-wiper when stretching and fitting the upper to the last.

5. In a lasting-machine, a two-wiper actuator, a two-wiper carrier pivoted thereto at its ends and a connected two-wiper, combined with a toe-rest supported on the two-wiper carrier, means to adjust the toe-rest with relation to the two-wiper to cause the toe-rest to contact with the upper on the top of the last and determine the position of the upper edge of the two-wiper when stretching the toe of the last.

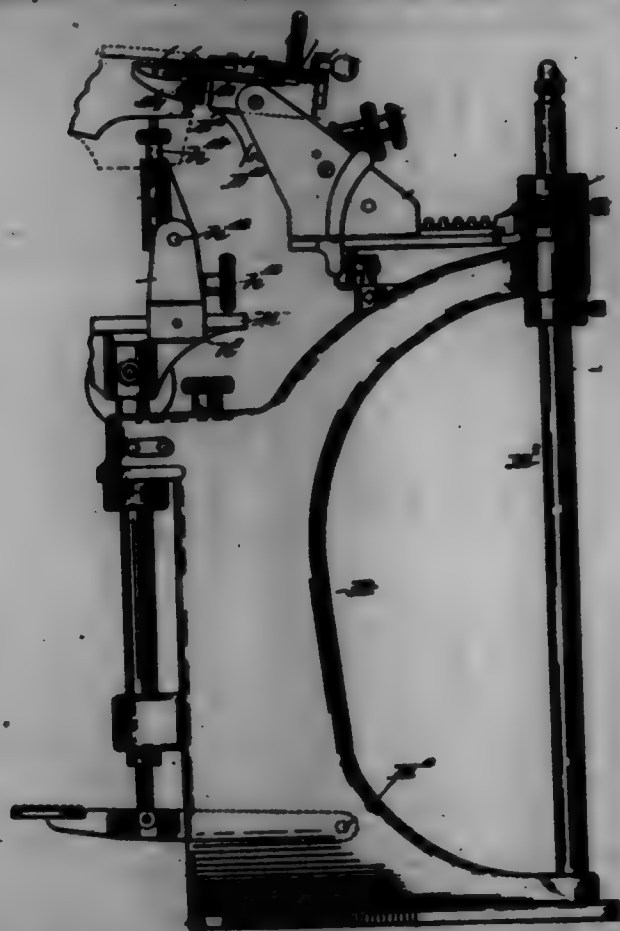
6. In a lasting-machine, a grooved spindle, means carried thereby to jack and support a last, a spring to sustain said spindle, a movable carrier comprising a plunger and a bar having a guide-pin, a spring to move said carrier that the guide-pin may enter the groove of said spindle, said pin insuring the movement of the spindle in a vertical line, the withdrawal of said pin in opposition to said spring permitting the spindle to be rotated.

7. In a lasting-machine, a two-wiper actuator, a two-wiper, a two-wiper carrier pivotally mounted on said actuator at its ends, said carrier occupying normally a position between the toe and heel end of the last, a rod connected with said two-wiper carrier between its ends, and means to move said rod in the direction of its length to thereby cause the upper

end of the too-wiper to meet the upper on the last, and a too-rest connected with said rod.

8. In a lusting-machine, a too-wiper actuator, a too-wiper, a too-wiper carrier pivotally mounted on said actuator at its ends, said pivots occupying normally a position between the too and heel end of the last, a rod connected with said too-wiper carrier between its ends, and means to move said rod in the direction of its length to thereby cause the upper end of the too-wiper to meet the upper on the last and a too-rest connected with said rod, and means to adjust said too-rest vertically to thereby adapt it to the thickness of the last back of the end of the too.

701,412. LASTING-MACHINE. BREWSTER BROW, Everett, Mass. Assignor to Portland Machinery Company, Charleston, W. Va., and New York, N. Y. Filed June 25, 1900. Serial No. 21,397. (No Model.)



Claim.—1. In a lasting-machine, a pair of plate-carriers, two crimping-plates one for each carrier, said crimping-plates varying one from the other in the curvature of their crimping edges, and means for connecting said plates detachably with said carriers that they may be disengaged from one carrier, overturned, and transposed to the other carrier to enable right and left feet shoes to be lasted.

2. In a lasting-machine, a pair of plate-carriers, combined with crimping-plates detachably mounted in said carriers and having each a concave edge, said crimping-plates differing one from the other in the curvature of their crimping edges, each plate being capable of being detached, transposed to the other carrier, and, inverted to provide for right or left shoe lasting.

3. In a lasting-machine, a plate-carrier slotted at one end, a plate connected at one edge and notched and inserted in the slot of the plate-carrier, said notch engaging a projection of said carrier, and means acting upon said plate to lock it in the carrier.

4. In a lasting-machine, a plate-carrier slotted at one end, a plate connected at one edge and notched and inserted in the slot of the plate-carrier, said notch engaging a projection of said carrier, combined with a spring-controlled latch to engage and effect the retention of the plate in the carrier.

5. In a lasting-machine, crimping-plate carrier, attached crimping-plates, a main slide, a lever, and connections between said slide and said carrier to move the same; an intermediate slide, a clamp mounted thereon, a coupling adapted to be interposed between said two slides, it occupying its operative position when the two slides are moved to seat the clamp upon the upper, and means to thereafter move said coupling into its inoperative position to release it from said main slide that the plate-carrier and their crimping-plates may be further moved to lay the upper over the lower sole on the last.

6. In a lasting-machine, crimping-plate carrier, attached crimping-plates, a main slide, a lever, and connections between said slide and said carrier to move the same; an intermediate slide, a clamp mounted there-

on, a coupling adapted to be interposed between said two slides, it occupying its operative position when the two slides are moved to seat the clamp upon the upper, means to thereafter move said coupling in its inoperative position that the plate-carrier and their crimping-plates may be moved to lay the upper over the lower sole on the last, and a device under the control of said coupling to lock said intermediate slide in position, to maintain the clamp against the upper on the last holding the plate-carrier from lasting movement.

7. In a lasting-machine, a slide, a connected clamp, a spring-pressed notched block over which said slide is movable, a tooth on said slide to engage a notch of said block, and means to move said block that it may engage the tooth of the slide, or be made to rotate from said tooth as aid for the purpose set forth.

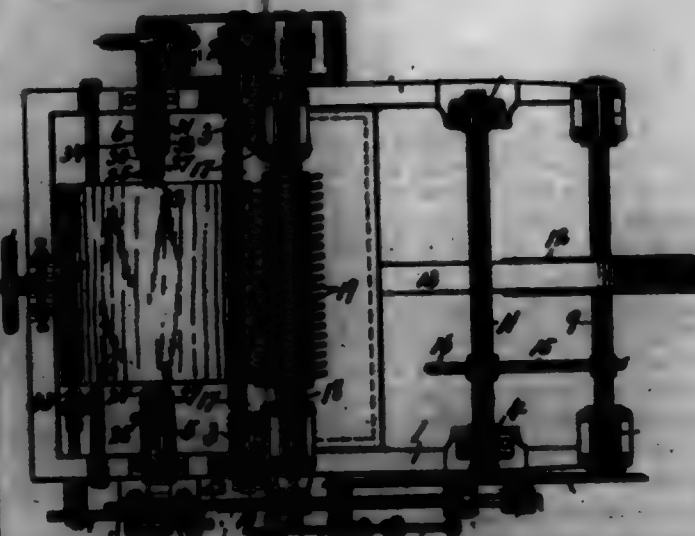
8. In a lasting-machine, a flexible clamp to embrace the end of the last, means to contain the ends of the clamp, and clamp-containing means intermediate the ends of said clamp and independent of the means for containing the ends of the clamp, said clamp being connected detachably with said intermediate clamp-containing means.

9. In a lasting-machine, a flexible clamp having attached to it between its ends a clotted plate, combined with a sliding clamp-containing device having slots engaged loosely with said plate to contain the central portion of the clamp detachably.

10. In a lasting-machine, crimping-plates, carriers for said plates, a slide operatively connected with said carriers, an intermediate slide, a clamp to embrace the end of the last, an overcar mounted on said intermediate slide, links connected at one end with said overcar and at their other ends with said clamp, means to move the slide connected with said carriers, a coupling to couple the said slides together that they may be moved together until said clamp embraces the upper on the end of the last, and means to then move the coupling to release the slide carrying the clamp while the slide moving the crimping-plates is further moved to meet the upper and lay it over upon the lower sole on the bottom of the last, and means to lock the clamp in its clamping position while the crimping-plates complete their operative movement.

11. In a lasting-machine, crimping-plates, carriers for said plates, a slide operatively connected with said carriers, an intermediate slide, a clamp to embrace the end of the last, an overcar mounted on said intermediate slide, links connected at one end with said overcar and at their other ends with said clamp, means to move the slide connected with said carriers, a coupling to couple the said slides together that they may be moved together until said clamp embraces the upper on the end of the last, and means to then move the coupling to release the slide carrying the clamp while the slide moving the crimping-plates is further moved to meet the upper and lay it over upon the lower sole on the bottom of the last, and means to lock the clamp in its clamping position while the crimping-plates complete their operative movement, and means to depress the locking device to unlock the slide for moving the clamp, that it may be moved backwardly after the completion of the action of the crimping-plates.

701,418. MACHINE FOR REDUCING WOOD TO FIBER. WILLIAM K. SUMNER, Syracuse, N. Y. Filed Jan. 24, 1902. Serial No. 91,311. (No Model.)



Claim.—1. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rotating cutter, an oscillatory support for one of the parts, and mechanism to rotate the carrier and simultaneously rock the support, a device to hold parts of said mechanism in engagement, and means actuated by the rocking support to automatically trip the device.

2. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rotating cutter, an oscillatory support for one of the parts and mechanism to rotate the carrier and simultaneously rock the support

at gradually-increasing speed, one of the members of said mechanism being detachable to prevent the variable speed movement of the rocking support for the purpose set forth.

3. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rocking frame carrying a rotating cutter, and mechanism connected and operating to rotate the carrier and to simultaneously rock the frame to move the cutter to the work.

4. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rocking frame carrying a rotating cutter, a screw adapted to rock the frame, and driving mechanism connected and operating to rotate the carrier and screw simultaneously.

5. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rocking frame carrying a rotating cutter, a screw adapted to rock the frame, and driving mechanism connected and operating to rotate the carrier and screw simultaneously at gradually-increasing rates of speed.

6. A machine for reducing wood to fiber, comprising a rotary wood-carrier and a rocking cutter-support, a driving member for the cutter, and a screw actuated by said member and connected to rock the cutter-support for the purpose specified.

7. A machine for reducing wood to fiber, comprising a rotary wood-carrier, an oscillatory frame, a rotating cutter mounted on the frame, a rotating driving member to rotate the carrier, and a screw actuated by said member and connected to oscillate the frame for the purpose set forth.

8. A machine for reducing wood to fiber, comprising a rotary wood-carrier, a movable cutter-support, a screw connected to move the support, a friction-disk, a frictional wheel engaged with and actuated by the disk, a worm driven by the wheel and connected to drive the screw, and connections whereby said frictional wheel is moved across the face of the disk to increase the speed of movement of the support as the wood is reduced for the purpose set forth.

9. A machine for reducing wood to fiber, comprising a rotary wood-carrier, a rotating friction-disk, a rotary friction member movable across the face of the disk and receiving its rotary motion from the disk, said member being connected to drive the carrier, a screw connected to and actuated by the said member, and means actuated by the screw and detachably connected to said member to move the same across the face of the disk, and a cutter connected with the carrier to reduce the wood to fiber.

10. In a machine for reducing wood to fiber, a rotating wood-carrier, a cutter, a rotating friction-disk, a screw, a rotary shaft having means fastened thereon and engaged with the disk and a worm on the shaft connected to drive the carrier and screw, said screw being connected to move said member across the face of the disk.

11. In a machine for reducing wood to fiber, a rotating wood-carrier, a rotating friction-disk, a screw, rotary means engaged with the disk and connected to drive the screw, a movable cutter-support connected to and actuated by the screw, and means detachably connected to said cutter-support to move the former across the face of the disk.

12. In a machine for reducing wood to fiber, a rotating wood-carrier, a rock-frame, a rotating cutter on the frame, a screw to rock the frame, a rotating friction-disk, a revolvable sliding member rotated by the disk and connected to drive the carrier and screw, and means connected to the rock-frame to slide said member across the disk.

13. In a machine for reducing wood to fiber, a rotating wood-carrier, a rock-frame, a rotating cutter on the frame, a screw to rock the frame, a rotating friction-disk, a revolvable sliding member rotated by the disk and connected to drive the carrier and screw, and means detachably connected to the rock-frame to slide said member across the disk.

14. In a machine for reducing wood to fiber, a rotary wood-carrier, a rocking cutter-support, means to rock said support, a driving member for said means having independent movement away from said means, a device holding said driving member in position, and additional means actuated by the rocking of the support to release the device.

15. In a machine for reducing wood to fiber, a rotating wood-carrier, a movable cutter-support, a screw engaging the support to move the cutter to the work, driving means for the screw, one of the two last-mentioned parts being movable toward and away from the other, a device holding the movable part in operative position, and additional means operated by the support to trip the device and thereby break the connection between the screw and its driving means.

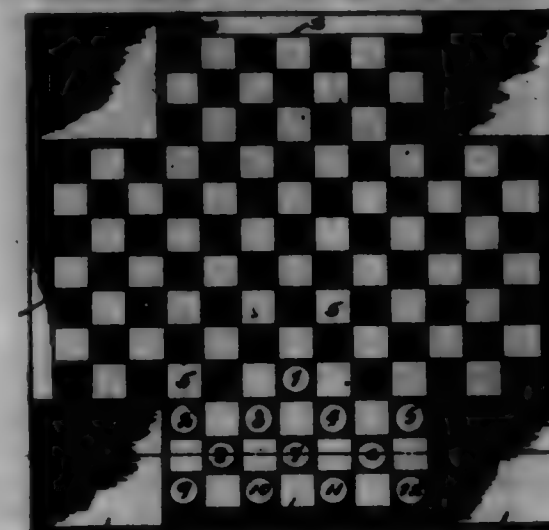
16. In a machine for reducing wood to fiber, a rotating wood-carrier, a rocking frame, a rotating cutter on the frame, a screw for rocking the frame, a rotating friction-disk, and means driven by the disk and connected to rotate the carrier and screw, said means having an independent sliding movement across the disk, and connections between the rock-frame and said means to effect the sliding movement automatically.

17. In a machine for reducing wood to fiber, a rotating wood-carrier, a rocking frame, a rotating cutter on the frame, a screw for rocking the frame, a rotating friction-disk and means driven by the disk and con-

ected to rotate the carrier and screw, said means having an independent sliding movement across the disk, connections between the rock-frame and said means to effect the sliding movement automatically, and additional means actuated by the rock-frame to break the connection between the screw and its driving means.

18. In a machine for reducing wood to fiber, a rotating wood-carrier, a rocking frame, a rotating cutter on the frame, a screw for rocking the frame, a rotating friction-disk, and means driven by the disk and connected to rotate the carrier and screw, said means having an independent sliding movement across the disk, connections between the rock-frame and said means to effect the sliding movement automatically, said latter connections having a manually-movable member adapted to break the connection between the rock-frame and said means.

701,414. GAME APPARATUS. HARRY W. GRAMMEL, Chicago, Ill. Filed Dec. 15, 1900. Serial No. 20,957. (No Model.)



Claim.—1. A checkered game-board having a main part and wings and each of said wings having a "single corner" or man-space in each outer corner and a "double corner" or double man-space at each intersection of the wings, substantially as set forth.

2. A checkered game-board having a square common center the spaces in all corners of which are alike and having a wing extending from each of the different sides thereof, substantially as set forth.

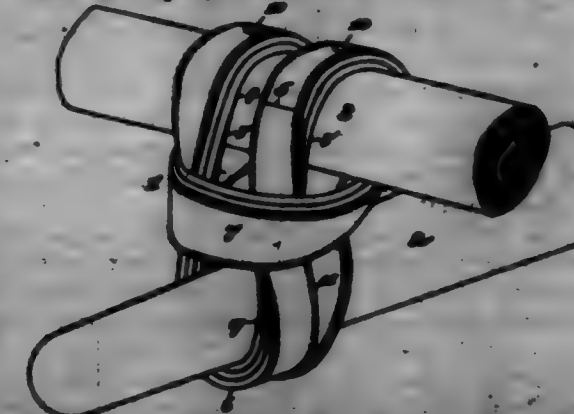
3. A checkered game-board having a main part and wings and an odd number of man-spaces and blank spaces collectively in each row thereof extending longitudinally of the edge of the board in said main part and in each of said wings, including all of each space in each of said rows, substantially as set forth.

4. A checkered game-board having a main part and wings and a blank space at each corner of said main part and a man-space at each corner of each of said wings, substantially as set forth.

5. In a game apparatus differently-distinguished sets of movable men having different numerical values on different sides thereof and each of such men having one numeral on one side and a higher numeral on the other side, and the numerals on the men of each set corresponding with the numerals on the men of each other set, substantially as set forth.

6. In a game apparatus differently-distinguished sets of movable men having marks of different numerical value on different sides thereof and each mark of value on the different sides of each man also being of different numerical value, all substantially as set forth.

701,415. HIRE-YOKE CENTER. BREWSTER BROW, Orem, Utah. Filed Apr. 3, 1902. Serial No. 100,490. (No Model.)



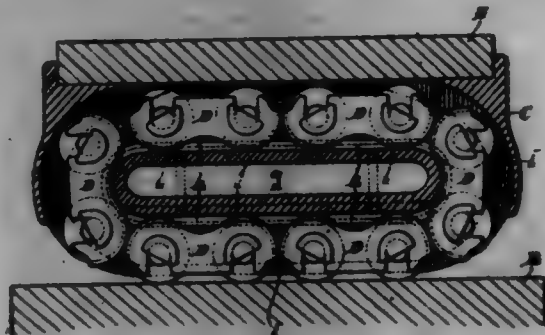
Claim.—1. A hire-yoke center formed by carrying the end 7, of the material under and over the end 6, thereby forming openings 8 for

the yoke, and an opening 9 for the pole; the whole arranged whereby the greater the pull on the pole, the tighter the yoke is held.

2. A neck-yoke center formed by carrying the end 7 under and over the end 8, thereby forming openings 6 for the yoke, and an opening 9 for the pole.

3. A neck-yoke center formed of a strap, the free ends of which are secured to itself; the said strap being then twisted whereby the end 7 is carried under and over the end 8; thereby forming openings for the yoke and pole.

701,416. CAR SIDE BEARING. FRANKS & SUMNER, and AUGUSTUS TURNEY, Detroit, Mich. Filed Mar. 2, 1902. Serial No. 94,494. (No model.)



Claim.—1. In a car side bearing, the combination with the casing forming an endless roller-track, of an endless train of independent roller-trucks.

2. A car side bearing comprising in combination, a casing forming an endless roller-track, an endless train of independent roller-trucks, each roller-truck comprising a rigid frame with a roller mounted therein, substantially as described.

3. In a car side bearing, the combination with the casing forming an endless roller-track, of an endless train of independent roller-trucks, each roller-truck comprising a rigid frame, and a plurality of tapering rollers journaled therein.

4. In a car side bearing, the combination with the casing forming an endless roller-track, which guides the rollers, of an endless train of independent roller-trucks, each composed of a rigid frame and a pair of tapering rollers journaled in said frame.

5. In a car side bearing, the combination with the truck and body bolsters, of a side bearing consisting of a series of tapering rollers, a casing secured to one of the bolsters and forming an endless track for said rollers adapted to support a part of the rollers in traveling contact with the other bolster, and rigid truck-frames in which said rollers are journaled, said frame and rollers forming an endless train of roller-trucks.

6. In a car side bearing, the combination with the truck and body bolsters, of a side bearing consisting of a series of tapering rollers, a casing secured to one of the bolsters and forming an endless track in which said rollers are free to travel a portion of said travel being in contact with the other bolster, and rigid frames in which said rollers are journaled, said frames and rollers forming an endless train in which each frame and the rollers carrying the frame form an independent traveling unit.

7. In a car side bearing, the combination with the truck and body bolsters, of a side bearing consisting of an endless train of roller-trucks each composed of a rigid truck-frame and tapering rollers journaled in said frame, and a casing secured to one of the bolsters and forming an endless roller-track adapted to support a portion of the rollers in traveling contact with the other bolster, each truck-frame and its rollers forming a unit, guided in its travel in the casing independently of any other unit.

8. In a car side bearing, the combination with the truck and body bolsters, of a side bearing consisting of an endless train of roller-trucks each composed of a rigid truck-frame and tapering rollers journaled in said frame and a casing secured to one of the bolsters and forming an endless track for said roller-trucks, said casing provided with a core adapted to support a portion of the rollers in traveling contact with the other bolster and with projecting guide-flanges extending around the core at a distance apart equal to the bearing-face of the rollers and adapted to guide the rollers in their travel around the core.

9. In a car side bearing, the combination with the bolster and the casing secured thereto and forming an endless roller-track for guiding the rollers in their travel, of an endless train of independent roller-trucks, each composed of a rigid frame and two rollers removably journaled in said frame.

10. In a car side bearing, the combination with the bolster and the casing secured thereto and forming an endless roller-track for guiding the rollers, of an endless train of independent roller-trucks, each composed of a rigid frame formed of two side bars and a cross-bar centrally connecting

the side bars together and two rollers journaled in said side bars on opposite sides of the cross-bar.

11. In a car side bearing, the combination with the body-bolster and the casing secured thereto and forming an endless roller-track for guiding the rollers, of an endless train of independent roller-trucks, each composed of two rollers and a rigid frame composed of two side bars formed with open bearings in which the rollers are removably journaled and of a cross-bar uniting the side bars intermediate between the rollers.

12. In a car side bearing, the combination with the casing carried by the body-bolster and formed with a core around which the rollers are adapted to travel, of an endless train of independent roller-trucks, each composed of two tapering rollers formed with journals at their ends, and of a rigid frame formed of two side bars and a cross-bar, the side bars formed with open bearings to receive the journals of the rollers and provided with heads projecting over the ends of the journals.

13. In a car side bearing, the combination with the casing carried by the body-bolster and forming an endless roller-track, of an endless train of independent roller-trucks, each composed of two tapering rollers and of a rigid frame formed of two side bars provided with bearings in which the rollers are journaled, and of a cross-bar uniting the side bars between the rollers, the ends of the side bars being rounded off and projecting beyond the rollers.

14. The combination with the truck and body bolsters having a center bearing, of side bearings carried by the body-bolster each comprising a series of independent roller-trucks composed of a rigid frame and two taper rollers journaled in the frame, and a casing formed with a core around which the roller-trucks are adapted to travel in a path radial with the center bearing, said core provided with projecting parallel guide-flanges for the rollers extending around said core at a distance apart equal to the length of the bearing-face of the rollers.

15. The combination with the truck and body bolsters having a center bearing, of side bearings carried by the body-bolster, each comprising a series of independent roller-trucks and a casing formed with a core around which the roller-trucks are adapted to travel in a path radial with the center bearing, said core formed on its under side with a flat bearing-face formed of a steel plate secured to the core and with projecting flanges extending around the whole core for guiding the rollers in their travel around the core.

16. The combination with the truck and body bolsters having a center bearing, of side bearings carried by one of the bolsters, each comprising a series of independent roller-trucks composed of a rigid frame formed with side bars and of two rollers provided with journals engaging into bearings in the side bars and projecting beyond said bearings, a casing formed with an elongated core around which the trucks are adapted to travel, said core flat upon its upper and lower sides and with rounded ends projecting guide-flanges upon said core adapted to guide the rollers in their path around the core and retaining-flanges for the rollers projecting inwardly from the sides of the casing, said retaining-flanges adapted to form bearings for the projecting ends of the journals of the rollers in their travel around the rounded portions of the core.

17. The combination with the truck and body bolsters having a center bearing, of side bearings carried by one of the bolsters each comprising a series of independent roller-trucks D and a casing C formed with an elongated core G, the upper and lower sides of which form bearings for the rollers in the travel of the trucks around the core, guide-flanges A extending around the core, and the retaining and bearing flanges B projecting inwardly from the sides of the casing and stepped off at the top of the casing, said casing being open on top for the insertion and removal of the roller-trucks.

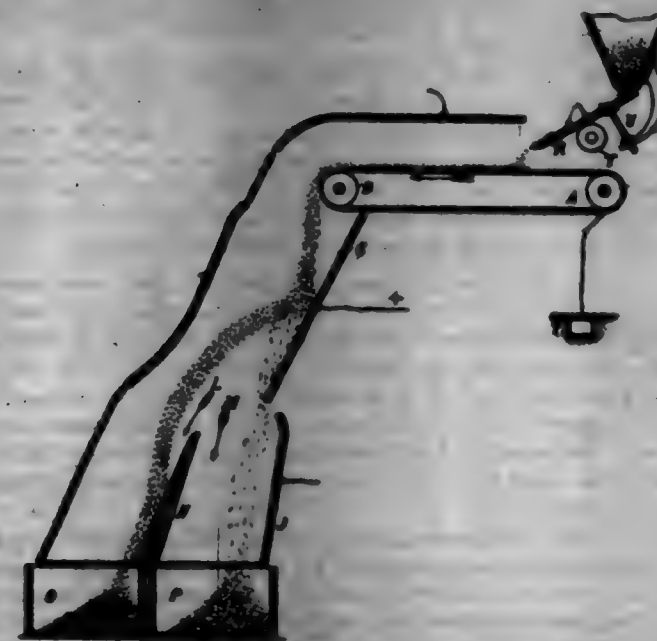
701,417. APPARATUS FOR SEPARATING CONDUCTORS FROM NON-CONDUCTORS. WALTER S. SWANN, Denver, Colo., and LOUIS I. BLAKE, Lawrence, Mass. Filed Oct. 22, 1901. Serial No. 93,098. (No model.)

Claim.—1. A conducting-belt, a charged conducting-plate mounted substantially parallel to said belt at the discharge end of the same, a dielectrically-charged conducting-plate below said end of said belt, an oppositely-charged metallic conducting-plate mounted near the discharge-end of said belt and means to collect the separated particles, and a feeding device comprising a hopper, a feed-board adjustably mounted with respect to said hopper, a series of non-conducting feed-cords mounted to move relatively to said feed-board and means to move said feed-cords with respect to said feed-board.

2. Apparatus for the electrical separation of particles comprising an electrically-charged portion and a feeding device adjacent said charged portion comprising a feed-board, means to adjust the slope of said feed-board, means to supply material to the upper end of said feed-board, a series of non-conducting cords mounted on said feed-board and means to move said cords relatively to said feed-board.

3. Apparatus for the electrical separation of particles comprising an

electrically-charged portion, and a feeding device arranged adjacent said charged portion comprising an inclined feed-board, a series of non-conducting feeding elements mounted on said feed-board and means to move said feeding elements relatively to said feed-board.



4. Apparatus for the electrical separation of particles comprising an electrically-charged portion, and a feeding device arranged adjacent said charged portion comprising an inclined feed-board, a series of non-conducting feeding-cords mounted on said feed-board and means to move said cords with respect to said feed-board.

5. In a feeding device, a hopper, a feed-board hinged to said hopper, means to adjust the inclination of said feed-board, a series of feed-cords mounted on said feed-board, said feed-cords passing through a series of guiding-clamps secured to said feed-board, each of said feed-cords being yieldably connected at one end to said feed-board, a feed-frame to which the other end of each of said feed-cords is connected, a cam, and a cam-follower engaging said cam secured to said feed-frame to reciprocate said feed-cords.

6. In a feeding device, an inclined feed-board, means to adjust the inclination of said feed-board, the discharge edge of said board being substantially horizontal, a series of horizontal feed-cords mounted on said feed-board and means to reciprocate said feed-cords with respect to said feed-board.

7. In a feeding device, an inclined feed-board, means to supply material to said feed-board, a series of feed-cords mounted on said feed-board and means to move said feed-cords longitudinally relatively to said feed-board to uniformly feed material down said feed-board.

8. In a feeding device, a horizontally-inclined feed-board and a series of relatively movable horizontal feed-cords.

9. In a feeding device, an adjustable inclined feed-board at substantially the angle of repose of the material fed over said board, a feed-cord mounted on said board and means to move said cord relatively to said board to feed material down said board.

10. In a feeding device, an inclined feed-board, means to adjust the inclination of said feed-board to substantially the angle of repose of the material fed over said board, a series of feed-cords mounted on said board, and means to move said cords relatively to said feed-board to feed said material down said feed-board.

11. In a feeding device, an inclined feed-board, means to adjust the inclination of said feed-board to substantially the angle of repose of the material fed down said board, elongated feeding elements mounted on said board to cooperate therewith, and means to longitudinally reciprocate said feeding elements to feed material down said board.

12. In a feeding device, an inclined feed-board at substantially the angle of repose of the material fed down said feed-board, elongated feeding elements mounted on said feed-board, and means to longitudinally move said elements to feed material down said feed-board.

13. In a feeding device, an inclined feed-board, the discharge edge of said feed-board being substantially horizontal, a horizontally-arranged elongated feeding element mounted on said feed-board substantially parallel to the discharge edge of the same, and means to longitudinally move said feeding element to feed material down said feed-board.

14. In a feeding device, an adjustable inclined feed-board having a horizontal discharge edge, a feed-cord mounted on said board substantially parallel to the discharge edge of the same, and means to move said cord relatively to said board to feed material down said board.

701,418. METHOD OF PRODUCING WEAVING-DIAGRAMS. JAN BUNDFELD, Vienna, Austria-Hungary, assignor to Société des Inventions Jan Bundfeld & Co., Vienna, Austria-Hungary, a Firm. Filed Mar. 12, 1902. Serial No. 93,501. (No specimens.)



Claim.—1. The method of producing diagrams for weaving multicolored fabrics, which consists in dividing in one direction the fields that represent stitches on a sensitive medium into three parts, producing monochrome dispositive from a suitable object, exposing each of the parts of the aforementioned fields to the action of light passed through one of said dispositive and a suitable screen arranged to indicate a weaving-stitch, substantially as described.

2. The method of producing diagrams for weaving multicolored fabrics, which consists in dividing the fields that represent stitches on a sensitive medium into three parts in the warp direction, producing monochrome dispositive and exposing said sensitive medium to the action of light passed through the dispositive, and a screen arranged to indicate a pattern-stitch, whereby each stitch in the warp direction will be represented by three colors, substantially as described.

3. The method of producing diagrams for weaving multicolored fabrics, which consists in dividing the fields that represent stitches on a sensitive medium into three parts in the warp direction, exposing each of said parts to the action of light passed through the dispositive and a screen arranged to indicate the particular weaving-stitch to be used, whereby each stitch in warp direction will be represented by the three primary colors, and indicating the web-binding by suitable means, substantially as described.

4. The method of producing diagrams for weaving multicolored fabrics, which consists in indicating the arrangement of the warp-threads, each of which is composed of three colors and arranging the indication of web-threads of white or black to bind and combine warp-threads and parts of warp-threads to produce high light and shadow, substantially as described.

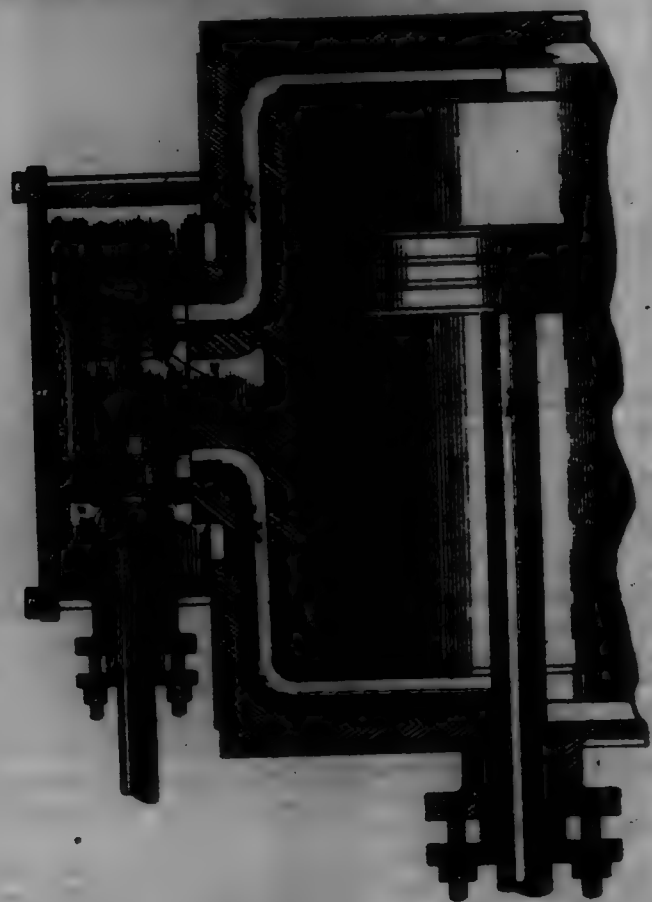
5. The method of producing diagrams for weaving multicolored fabrics, which consists in indicating the arrangement of the threads in one direction, each of which is composed of three parts each of a different color and arranging the indication of black threads in the other direction to accentuate the shadows, and white threads also in the other direction to accentuate high lights, substantially as described.

701,419. CULTIVATOR. JAMES H. TAYLOR, Rome, Ga., assignor of one-half to JOHN H. VANDIVER, Rome, Ga. Filed June 22, 1901. Serial No. 93,578. (No model.)



Claim.—In a cultivator of the kind described the combination of a central draft-beam having a hook arranged upon its forward end, and handle-connections on the rear end thereof, cultivator-supporting arms pivotally connected at one end to the beam, brace-beams pivotally held to the free ends of said arms and having their opposite ends adjustably held to the central beam, downwardly-depending members held to the supporting-arms, each pair having their lower ends connected by a threaded bolt or shaft upon each of which is mounted a cultivator-disk, substantially as shown and described.

701,420. STEAM-ENGINE VALVE. ALFRED TAYLOR, Chicago, Ill. Filed Sept. 24, 1891. Serial No. 74,674. (No model.)



Claim.—1. In a valve for steam-engines, in combination, a slide-valve proper, having a steam-port and an exhaust-port; a piston exhaust-valve loosely mounted in said slide-valve and adapted to open and close the exhaust, said piston-valve being provided with a chamber at one of its ends; a duct in said valve for conveying live steam to said chamber; and a duct in said piston exhaust-valve adapted to be brought into coincidence with said first-mentioned duct by the movement of said piston-valve.

2. In a valve for steam-engines, in combination, a slide-valve proper, having steam-ports, an exhaust-port, and a longitudinal opening; a piston exhaust-valve free to move longitudinally in said opening and adapted to open and close the exhaust by its said movement, said piston-valve being provided with a chamber at one of its ends; a closure for one end of said longitudinal opening; a duct in said closure for conveying live steam to said chamber; and a duct in said piston exhaust-valve adapted to be brought into coincidence with the duct in said closure by the movement of said piston-valve.

3. In a valve for steam-engines, in combination, a slide-valve proper, having a steam-port and an exhaust-port; a piston exhaust-valve loosely mounted in said slide-valve and adapted to open and close the exhaust, said piston-valve being provided with a chamber at one of its ends; means of communication between said chamber and the boiler-pressure within the valve; means for opening and closing said communication; and a means of escape for the steam within said chamber.

4. In a valve for steam-engines, in combination, a slide-valve proper, having a steam-port and an exhaust-port; a piston exhaust-valve loosely mounted in said slide-valve and adapted to open and close the exhaust, said piston-valve being provided with a chamber at one of its ends; a duct in said valve for conveying live steam to said chamber; a duct in said piston exhaust-valve adapted to be brought into coincidence with said first-mentioned duct by the movement of said piston-valve; and a second duct in said piston-valve for the escape of the steam within said chamber.

5. In a valve for steam-engines, in combination, a slide-valve proper, having steam-ports, an exhaust-port, and a longitudinal opening; a piston exhaust-valve free to move longitudinally in said opening and adapted to

open and close the exhaust by its said movement, said piston-valve being provided with a chamber at one of its ends; a closure for one end of said longitudinal opening; a duct in said closure for conveying live steam to said chamber; a duct in said piston exhaust-valve adapted to be brought into coincidence with the duct in said closure by the movement of said piston-valve; and a second duct in said piston-valve for the escape of the steam within said chamber.

6. In a valve for steam-engines, in combination, a slide-valve proper, having a steam-port and an exhaust-port; a piston exhaust-valve loosely mounted in said slide-valve and adapted to open and close the exhaust, said piston-valve being provided with a chamber at one of its ends; means of communication between each of said chambers and the boiler-pressure within the valve; means for opening and closing said communication; and a means of communication between said chambers.

7. In a valve for steam-engines, in combination, a slide-valve proper, having a steam-port and an exhaust-port; a piston exhaust-valve loosely mounted in said slide-valve and adapted to open and close the exhaust, said piston-valve being provided with a chamber at one of its ends; a duct in said valve for each of the chambers, for conveying live steam to said chambers; a duct in each end of said piston-valve adapted to be brought into coincidence with one of said first-mentioned ducts by the movement of said piston-valve; and a means of communication between said chambers.

8. In a valve for steam-engines, in combination, a slide-valve proper, having steam-ports, an exhaust-port, and a longitudinal opening; a piston exhaust-valve free to move longitudinally in said opening and adapted to open and close the exhaust by its said movement, said piston-valve being provided with a chamber at one of its ends; a closure for each end of said longitudinal opening; a duct in each end of said piston-valve adapted to be brought into coincidence with the duct in one of said closures by the movement of said piston-valve; and a means of communication between said chambers.

9. In a valve for steam-engines, in combination, a slide-valve proper having steam-ports, an exhaust-port and a longitudinal opening; a piston exhaust-valve free to move longitudinally in said opening and adapted to open and close the exhaust by its said movement; a closure for each end of said longitudinal opening, said piston exhaust-valve being provided at its opposite ends with steam-chambers adapted to enable the entire movement of said exhaust-valve, and a connecting-duct between said chambers; and a projection extending from each of said closures for entering one of the said steam-chambers in the piston exhaust-valve.

10. In a valve for steam-engines, in combination, a slide-valve proper having steam-ports, an exhaust-port and a longitudinal opening; a piston exhaust-valve free to move longitudinally in said opening and adapted to open and close the exhaust by its said movement, said piston exhaust-valve being provided in its opposite ends with steam-chambers; means of communication between said steam-chambers and the boiler-pressure within said valve; closures for the ends of said longitudinal opening, each of said closures being provided with a guide-plate adapted to enter the adjacent steam-chamber in the piston exhaust-valve and a duct in said piston-valve communicating between said chambers.

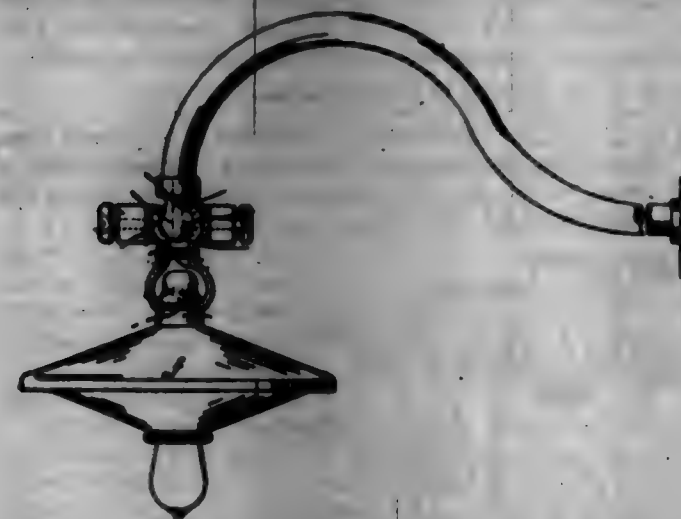
11. In a valve for steam-engines, in combination, a slide-valve proper having two steam-ports, an exhaust-port and a longitudinal opening; a piston exhaust-valve of open form, free to move in said longitudinal opening and adapted to open and close the exhaust by its said movement, said piston exhaust-valve being provided at its opposite ends with projecting annular walls to form chambers to enable the entire movement of said exhaust-valve; a closure adapted to enter said chambers; and a duct in said piston-valve communicating between said chambers.

12. In a valve for steam-engines, in combination, a slide-valve proper having two steam-ports, an exhaust-port and a longitudinal opening, said longitudinal opening being counterbored on opposite sides of the exhaust-port and provided with means of communication with each of said steam-ports; a piston exhaust-valve free to move longitudinally in said opening and adapted to open and close the exhaust by its said movement, said piston exhaust-valve having at its opposite ends annular walls to form steam-chambers in each end of said piston-valve; means of communication between each of said chambers and the boiler-pressure in the steam-chest; closures for the opposite ends of said longitudinal opening, said closures being provided with guide-plates adapted to enter said steam-chambers in the piston exhaust-valve and a duct in said piston-valve communicating between said chambers.

13. In a valve for steam-engines, in combination, a slide-valve proper having steam-ports, an exhaust-port, and two longitudinal openings communicating with the exhaust-port; closures for the opposite ends of said openings; a piston exhaust-valve free to move longitudinally in each of said openings and adapted to open and close the exhaust by its said movement, each of said piston exhaust-valves being provided at its opposite ends with steam-chambers adapted to enable the entire movement of said exhaust-valves; a guide-plate extending from each of said closures

adapted to enter the chamber in one of said piston exhaust-valves; and a connecting-duct in each piston-valve for connecting the chambers in the opposite ends thereof.

701,431. ELECTRICAL HOOD OR REFLECTOR AND CLAMP FOR SAME. LEONARD L. THOMAS, New York, N. Y., assignor to the Van Tray Company, a Corporation of New Jersey. Filed Aug. 17, 1899. Serial No. 57,157. (No model.)



Claim.—1. The combination with an electric hood or reflector having a stem provided with an annular recess at its exterior, of a clamp comprising sections adjustably held together and at their ends next the hood or reflector having claws entering the said annular recess.

2. The combination with an electric-light hood or the like, having a stem with an exterior annular recess, of a clamp comprising sections adjustably held together intermediate of their ends, said clamp at its outer end being adapted to engage supporting means and its end at the other end having claws hooking into the said annular recess of the stem.

3. The combination with an electric-light hood or the like having a stem with an exterior annular groove, of a support having clamping members with claws adapted to enter said groove loosely and permit the hood to rotate while preventing motion in any other direction.

4. The combination with an electric hood or reflector having a stem provided with a peripheral groove, and with a fixed rounded head, of clamping members held at opposite sides of said stem and head and resting thereagainst at their opposite ends, the ends of said members at the rounded head being curved to fit thereagainst and the opposite ends at the stem having inwardly-directed extensions entering said groove, and means for connecting said clamping members intermediate of said head and stem and forcing them together, substantially as set forth.

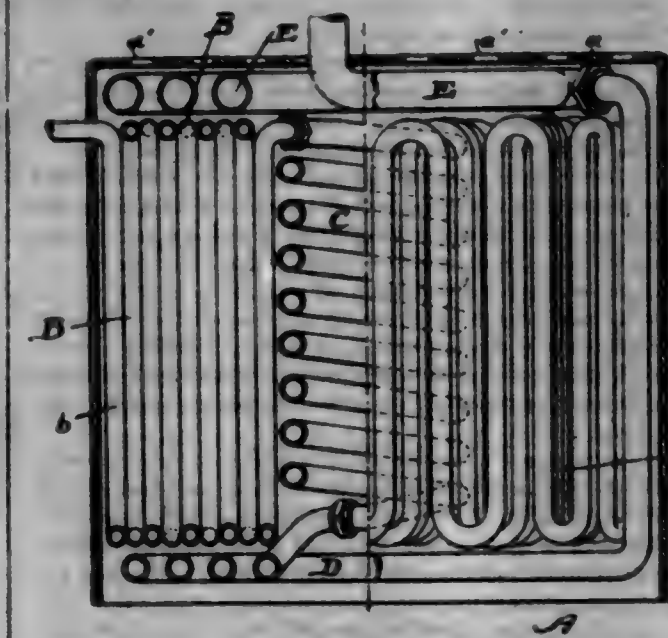
5. The combination with a fixed arm providing a rounded head, of an electric hood or reflector having a stem provided with a peripheral groove and a clamp suitably connecting said stem of the hood or reflector to the rounded head of the arm, said clamp having sections adjustably held together intermediate of their ends and at one end forming claws entering the groove of the said stem and at the other end forming opposite curved jaws grasping the rounded head, and lateral supports for clamping-wires carried upon said clamp-sections, substantially as set forth.

701,432. STEAM-GENERATOR. ALFRED THOMSON, Geneva, Ohio, assignor to the Western Automobile and Manufacturing Company, Geneva, Ohio, a Corporation of Ohio. Filed Sept. 18, 1891. Serial No. 74,685. (No model.)

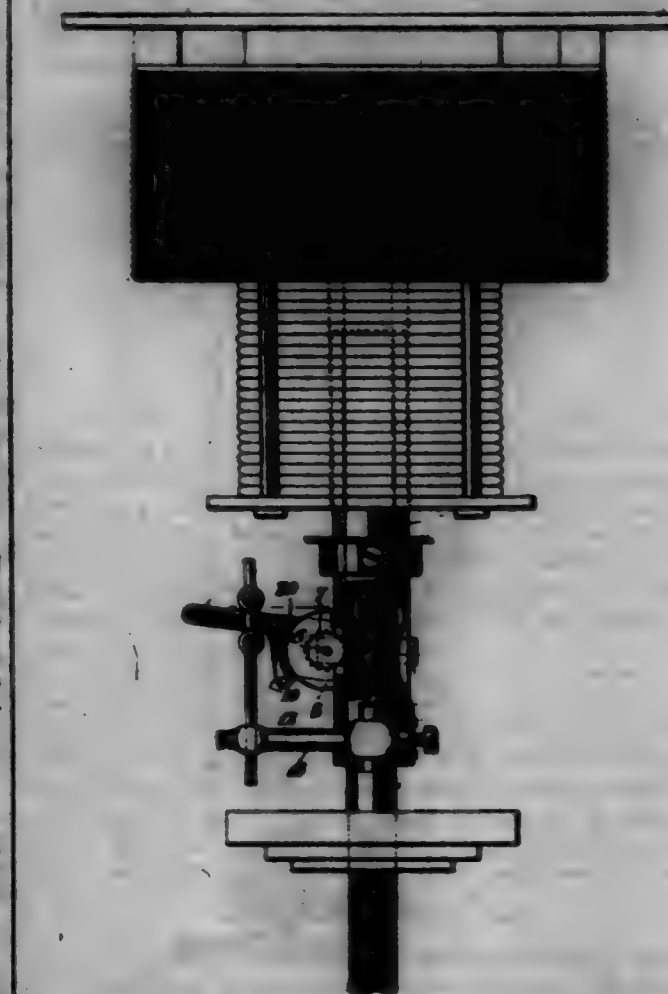
Claim.—1. In a steam-generator, the combination of a tube bent up and down and then coiled and closely nested having a central space, a tubular spiral coil occupying this space and connected at its upper end with the outlet end of the tube first mentioned, a tubular coil located below the taken heretofore mentioned and connected with the lower end of said tubular spiral coil, and a tubular coil located above the other tubes and connected with the outlet end of the lower coil, and a casing which incloses said tubular system, substantially as specified.

2. In a steam-generator, the combination of a tube bent up and down and then coiled and closely nested around a central space, the long reaches of said tube comprising a substantially vertical position, a tubular spiral coil C, of larger diameter than the tube first mentioned, occupying said central space and connected at its upper end with the outlet end of said tube B, a flat tubular coil D located below the other tubes and connected with the lower end of said spiral coil, the tube-coils C and D being of larger diameter than the tube B, and a flat coil located above the other pipes referred to of larger diameter and connected with the outlet end of

the lower flat coil D, and a casing inclosing said pipe system, substantially as specified.



701,433. ELECTRIC-ARC LAMP. GEORGE S. THOMAS, New York, N. Y., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Aug. 18, 1891. Serial No. 74,686. (No model.)



Claim.—1. In an arc-lamp, a pair of carbons, a magnet in series therewith, a longitudinally-movable carbon-carrier controlled by the said magnet, and means for moving one of the carbons within the carrier at a faster rate than the carrier moves.

2. In an arc-lamp, a pair of carbons, a magnet in series therewith, a movable core for the said magnet, one of the carbons being mounted within the said core, and positive means for moving the said carbon in the same direction as the core but at a more rapid rate.

3. In an arc-lamp, a pair of carbons, a magnet in series therewith, a core for the said magnet, one of the carbons being in line with said core and adapted to move therewith, and means for advancing the said carbon faster than the core.

4. In an arc-lamp, a pair of carbons, a magnet in series therewith and located above the carbons, a core for the said magnet connected with

the upper carbon in line therewith, and means for moving the upper carbon faster than the core, whereby, when the core drops by reason of the partial demagnetization of the magnet, the feeding of the carbon will be accomplished positively and with great rapidity.

5. In an arc-lamp, a pair of carbons, a magnet in series therewith, a core for the said magnet, and a bracket on the said core in combination with feeding mechanism mounted on the said bracket, and means for bringing the feeding mechanism into operation when the core drops.

6. In an arc-lamp, a pair of carbons, a magnet in series therewith, a core for the said magnet in line with the carbons, feeding mechanism mounted on the core, and means brought into operation by the dropping of the core for actuating the said feeding mechanism.

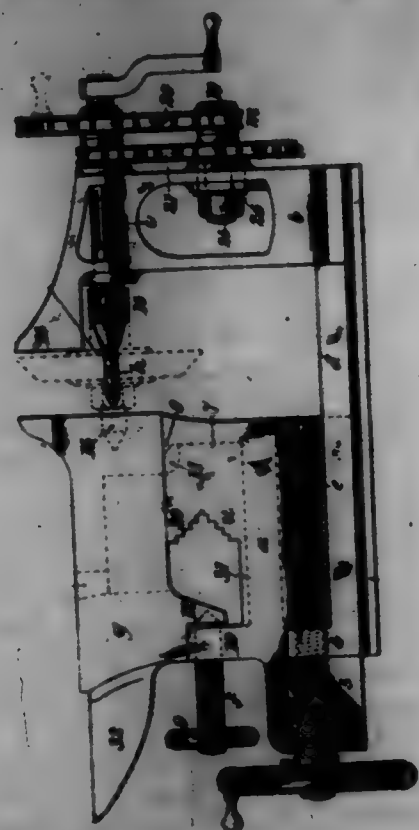
7. In an arc-lamp, a pair of carbons, a magnet in series therewith, a core for the said magnet, and a carbon connected with the said core, in combination with a bracket mounted on the core, a toothed wheel engaging with the carbon, a pawl and ratchet for operating the toothed wheel, and means for bringing the pawl and ratchet into operation when the core drops.

8. In an arc-lamp, a pair of carbons, a magnet in series therewith, a core for the said magnet, one of the carbons being connected with the said core and partaking of its motion, in combination with a spring pressing against one side of the carbon, a toothed wheel pressing against the opposite side thereof, and means for actuating the toothed wheel, such means being brought into operation by the dropping of the core.

9. In an arc-lamp, a pair of carbons one of which is movable, a carrier for the movable carbon, a positive feeding mechanism for the carbon mounted on the said carrier, and means brought into operation by the dropping of the carbon for actuating the feeding mechanism.

10. In an arc-lamp, a movable carbon, a carrier therefor, a feeding mechanism mounted on the carrier, the carbon being adapted to move with the carrier in one direction and to be moved in the other direction both by the action of the carrier and that of the positive feeding mechanism.

701,424. CONVERTIBLE MACHINE TOOL. THOMAS F. TINEY, Alpena, Mich. Filed Aug. 28, 1901. Serial No. 73,568. (No model.)

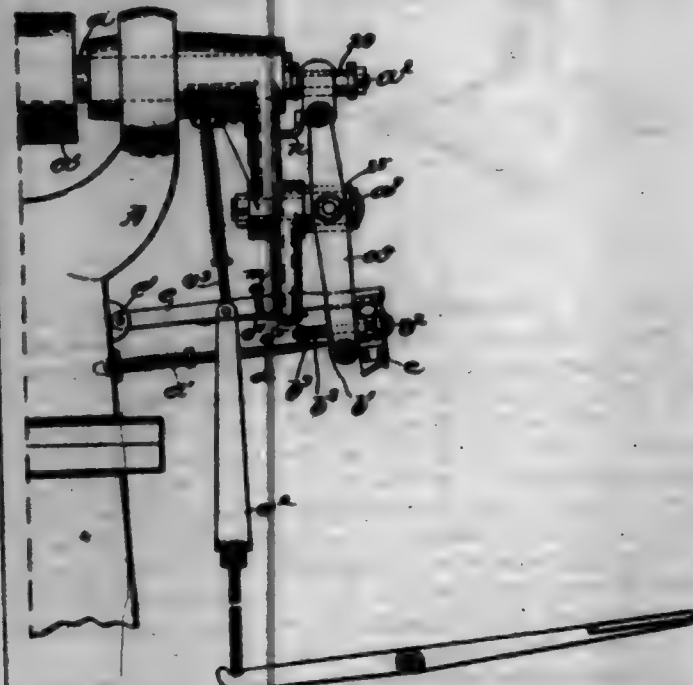


Claim.—1. A convertible machine tool comprising an arvil-base adapted to support alternatively, a detachable arvil-top having at its inner end a chamber to admit the point of a drill-bit or a back-center attachment for lath-work, a movable main jaw, a horizontal shaft mounted in said movable jaw and constructed and arranged to carry interchangeable bit and grinding-wheel chucks or to form a lath-spindle, and connections between said arvil-base and movable jaw including a horizontal feed-screw.

2. A convertible machine tool comprising a chambered arvil-base having an open-topped chamber overhanging at its inner end by a ledge and constructed and arranged to support, alternatively, a detachable arvil-top or a back-center attachment for lath-work, constructed in common with a feed-rod to interlock with said ledge, a movable main jaw, a horizontal shaft which is mounted in said movable jaw and is adapted to carry in-

terchangeable bit and grinding-wheel chucks or to form a lath-spindle, connections between said arvil-base and movable jaw including a horizontal feed-screw, a short screw above and parallel with said feed-screw whereby said arvil-top or said back-center attachment is fastened in place, and mechanism for driving said shaft at different speeds including a detachable hand-crank applied directly to said shaft, a vertically-adjustable end-shaft supported by said movable main jaw parallel with the shaft first named, and high-speed sprocket-gearing one wheel and one chain of which are detachable together with a crank-handle for each detachable wheel, each gearing as a whole serving to transmit rotary motion from each detachable crank-handle to the shaft first named and to the bit or grinding-wheel carried thereby, substantially as hereinbefore specified.

701,425. EDGE-FINISHING MACHINE. THAXTER E. TRIPP, Lynn, Mass., administrator of Seth D. Tripp, deceased, assigner, by mesne assignments, to said Thaxter E. Tripp. Filed May 28, 1902. Serial No. 681,982. (No model.)



Claim.—1. In an edge-finishing machine, the combination of a vibratory frame, a tool-holder carried by it bearing one or more tools, a tool-operating device for oscillating the tool as the frame bearing it vibrates, and means for moving said tool-operating device into and out of operative position, substantially as described.

2. In an edge-finishing machine, the combination of a vibratory frame, a tool-holder carried by it bearing one or more tools, and a pivoted arm engaging said tool-holder which causes the tool to oscillate as the frame bearing it vibrates, substantially as described.

3. In an edge-finishing machine, the combination of a vibratory frame, a tool-holder carried by it bearing one or more tools, a pivoted arm engaging said tool-holder which causes the tool to oscillate as the frame bearing it vibrates, and means for moving said arm into and out of engagement with said tool-holder, substantially as described.

4. In an edge-finishing machine, the combination of a vibratory frame, a tool-holder pivotally supported thereon, a pivoted arm for engaging said tool-holder which causes it to oscillate as the frame bearing it vibrates, and means for moving said arm out of engagement with said tool-holder, substantially as described.

5. In an edge-finishing machine, the combination of a vibratory frame, a rising and falling tool-holder carried by it bearing one or more tools, a spring-pressed arm engaging said tool-holder, which causes the tool to oscillate as the frame bearing it vibrates, and which yieldingly holds down said tool-holder, substantially as described.

6. In an edge-finishing machine, the combination of a vibratory frame, a rising and falling tool-holder carried by it bearing one or more tools, a spring-pressed arm engaging said tool-holder, which causes the tool to oscillate as the frame bearing it vibrates, and which yieldingly holds down said tool-holder, and means for moving said arm to disengage the tool-holder, substantially as described.

7. In an edge-finishing machine, a vibratory frame, a tool-holder carried by it bearing one or more tools, a spring for holding said tool-holder in a predetermined position relative to the frame bearing it, yet permitting it to be moved bodily forward by the work, and means for oscillating said tool-holder as the frame bearing it vibrates, substantially as described.

8. In an edge-finishing machine, a vibratory and rearwardly-moving frame, a tool-holder carried by it bearing one or more tools, a spring for

holding said tool-holder in a predetermined position relative to the frame bearing it, yet permitting it to be moved bodily forward by the work, and means for oscillating said tool-holder as the frame bearing it vibrates, substantially as described.

9. In an edge-finishing machine, a vibratory and rearwardly-moving frame, a tool-holder carried by it bearing one or more tools, means for oscillating said tool-holder as the frame bearing it vibrates, and a spring-pressed bar against which the lower end of said frame bears which serves as a yielding abutment thereby making its rearward movement, substantially as described.

10. In an edge-finishing machine, the combination of a vibratory frame, a tool-holder carried by it bearing one or more tools, a pivoted arm engaging said tool-holder which causes the tool to oscillate as the frame bearing it vibrates, and means for moving said arm into and out of engagement with said tool-holder and a spring upon which said arm bears as it engages the tool-holder, substantially as described.

11. In an edge-finishing machine, the rotating shaft of a having a crank-pipe projecting from it, a cylindrical bushing having an eccentrically-disposed hole adapted to receive said crank-pin, means for holding said cylindrical bushing in any position of rotary adjustment on said crank-pin, a vibratory frame having an independently-movable bar in said bushing, and a tool-holder operated by said vibratory frame bearing one or more tools, substantially as described.

12. In an edge-finishing machine, a vibratory frame, a tool-holder having a number of tools and having a corresponding number of engaging portions, combined with a tool-operating device and means for operating it to engage any one of said engaging portions, to thereby hold the tool-holder with any one of its tools in operative position, and to also operate said tool as the frame bearing it vibrates, substantially as described.

13. In an edge-finishing machine, a vibratory frame, a tool-holder having a number of tools and a number of recesses, combined with a pivoted spring-pressed arm and means for operating it to engage any one of said recesses to thereby hold the tool-holder with one of its tools in operative position and to also operate said tool as the frame bearing it vibrates, substantially as described.

14. In an edge-finishing machine, a vibratory frame, a tool-holder having a number of tools and having a corresponding number of engaging portions, combined with a movable tool-operating device engaging any one of said engaging portions to thereby hold the tool-holder with any one of its tools in operative position, and to also operate said tool as the frame bearing it vibrates, substantially as described.

15. In an edge-finishing machine, a vibratory frame, a tool-holder having a number of tools and having a corresponding number of engaging portions, combined with a pivoted spring-pressed arm engaging any one of said engaging portions to thereby hold the tool-holder with any one of its tools in operative position and to also operate said tool as the frame bearing it vibrates, substantially as described.

701,426. FENCIBLE-TOOL. CHARLES L. TUTTLE, Rochester, N. Y., assigner of one-half to Henry B. Whipple, Rochester, N. Y. Filed Feb. 12, 1902. Serial No. 68,746. (No model.)



Claim.—1. A fence-post comprising a metallic skeleton and a body of concrete or cement covering the walls or sides of the skeleton, the lat-

ter being conical or tapering, with its upper end closed and the lower end open, substantially as shown and set forth.

2. A fence-post comprising a metallic skeleton and a body of concrete or cement covering the walls or sides of the skeleton, the latter being longitudinally fluted, with parts projecting from the hollow or concave sides of the flutes, substantially as shown and described.

3. A fence-post comprising a metallic tube or skeleton longitudinally fluted with projections extending from the concave sides of said flutes and a body of concrete or cement covering the walls or sides of the tube or skeleton, and means for holding the horizontal members of a fence, substantially as shown and set forth.

4. A fence-post comprising a metallic tube or skeleton longitudinally fluted with projections extending from the concave sides of said flutes and a body of concrete or cement covering the walls or sides of the tube or skeleton, and holders for parts of the fence projecting from the post and passing through the metal skeleton or tube, substantially as shown.

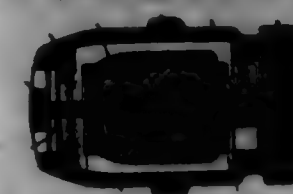
701,427. RED DYE AND PROCESS OF MAKING SAME. JULIUS VILLER, Montpellier, France. Filed Oct. 5, 1901. Serial No. 71,088. (Specimens.)

Claim.—1. The herein-described process of producing a coloring-matter which dyes red, said process consisting in heating dialkyltinmetaphosphoric acid in acetic liquor with an oxidizing agent and alcohol.

2. The herein-described process of producing a coloring-matter which dyes red, said process consisting in heating dialkyltinmetaphosphoric acid in acetic liquor with an oxidizing agent and alcohol.

3. A new coloring-matter obtained by heating dialkyltinmetaphosphoric acid in acetic liquor with an oxidizing agent, sodium acetate and alcohol, appearing in the form of minute whitish crystals slightly soluble in cold water but more soluble in hot water with orange-yellow fluorescence and dyeing red.

701,428. AUTOMATIC VENT-VALVE. LAWRENCE J. WALKER, New York, N. Y., assigner of one-fourth to Edward J. Sullivan, Boston, Mass. Filed June 28, 1901. Serial No. 68,598. (No model.)



Claim.—1. As an article of manufacture, an automatic vent-valve, comprising a casing having upper and lower sections provided with spindles and normally secured together by a lip-joint, the upper section being provided with an annular valve-seat and the lower section being provided with a valve-plate, a cylindrical float mounted centrally inside of the casing and provided with a flat disk secured upon the upper surface of the said cylindrical member for the purpose of engaging said annular valve-seat, said cylindrical member being also provided with a guide-rod extending through said spindles.

2. As an article of manufacture, an automatic vent-valve, comprising a casing having upper and lower sections provided with spindles and normally secured together by a lip-joint, the upper section being provided with an annular valve-seat, a valve-plate located at the bottom of the lower section, a cylindrical member having one of its ends covered with a flat disk for engaging said annular valve-seat, and a guide-rod located centrally through both said cylindrical member and said disk.

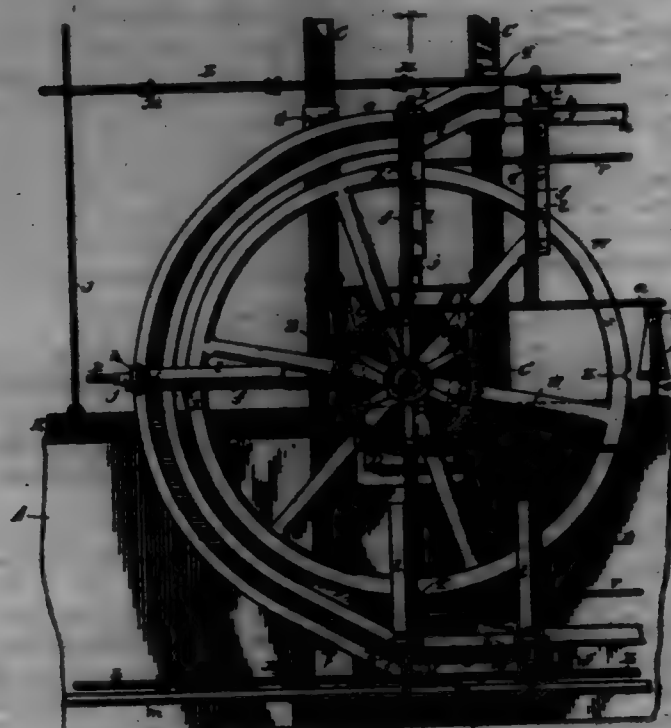
701,429. PROCESS OF HARDENING COPPER. GRANT L. WALKER and FRANKLIN W. KIRBY, Rochester, N. Y. Filed Nov. 2, 1902. Serial No. 88,504. (No specimens.)

Claim.—The herein-described method of hardening copper, which consists in placing shanklets and charcoal in a crucible, supplying to the crucible a superheated mass of copper, and then applying heat to the crucible, causing thereby combustion of the charcoal and generation of carbonic acid gas which passes upward through the copper, carrying off any contained moisture in the metal and at the same time preventing oxidation thereof, whereby upon fusion of the metal, the copper, owing to its superior specific gravity, will intimately combine with the shanklets producing thereby a hardened copper alloy.

701,430. CURRENT-METER. WILLIAM L. WALKER, Fort Worth, Tex., assigner of one-half to Samuel W. Smith, Fort Worth, Tex., and Earl E. Brockway, Washington, D. C. Filed July 1, 1901. Serial No. 68,684. (No model.)

June 3, 1903.

Claim.—1. In a current-meter, the combination of an endless cable; means for supporting said cable with the lower stretch thereof in a submerged position; a series of paddles mounted intermediate the upper and lower stretches of the cable; and means for bringing the paddles successively into operative relation with the lower stretch of the cable.



2. In a current-meter, the combination of an endless cable; means for supporting the same with the lower stretch thereof in a submerged position; a series of paddles mounted intermediate the upper and lower stretches of said cable; means for bringing the paddles successively into operative relation with the lower stretch of the cable; and means for disengaging the paddles successively as they near the end of the lower stretch of the cable and passing them upwardly and back toward the forward end of the lower stretch.

3. In a current-meter, the combination of an endless cable; means for supporting the lower stretch thereof in a submerged position; a series of paddles; means for successively bringing the paddles into operation with the lower stretch of the cable; means for releasing said paddles as they near the end of the lower stretch; and means for elevating said paddles and carrying them forward toward the forward end of the lower stretch of the cable, substantially as described.

4. In a current-meter, the combination of an endless cable; means for supporting the same with the lower stretch thereof in a submerged position; a series of paddles mounted intermediate the upper and lower stretches of said cable; means for traversing said paddles in a circular path intermediate the upper and lower stretches of the cable; means for successively bringing said paddles into operative engagement with the lower stretch of the cable; means for disengaging said paddles therefrom as they near the end of said stretch; and means for bringing the paddles into operative relation with the upper stretch of the cable and moving them therewith toward the forward end of the meter.

5. In a current-meter, the combination of a pair of endless cables; means for supporting the same with the lower stretches thereof in a submerged position; a pair of paddle-carrying chains between the upper and lower stretches of the endless cables; a series of paddles pivotally connected to said paddle-carrying chains; means for causing the successive engagement of the paddles with the lower stretches of the cables; means for disengaging the paddles from said lower stretches; means for elevating said paddles and causing them to engage with the upper stretches of the cables; and means for disengaging the paddles from said upper stretches and carrying them around into proper position for engagement with the lower stretches.

6. In a current-meter, the combination of a pair of endless cables; means for supporting the same with their lower stretches in a submerged position; a pair of paddle-carrying chains mounted intermediate the upper and lower stretches of said cables; a series of paddles pivotally connected to said chains; means for causing said paddles to look there to the upper and lower stretches of the cables; and mechanism for releasing and locking said means and carrying the paddles from one stretch to the other stretch of the cables.

7. In a current-meter, the combination of a pair of endless cables; means for supporting the same with their lower stretches in a submerged position; a series of buttons or stops attached to said cables; a pair of paddle-carrying chains mounted between the upper and lower stretches

of said cables; paddles carried by said chains; levers pivotally connected to the paddles; slides mounted upon the paddles and each connected with a lever; a fork carried at the outer end of each slide; and means for operating the levers and causing the forks to engage the cables and the buttons carried thereby, substantially as described.

8. In a current-meter, the combination of a pair of endless cables; means for supporting the same with their lower stretches in a submerged position; a series of buttons or stops attached to said cables; a pair of paddle-carrying chains mounted between the upper and lower stretches of said cables; paddles carried by said chains; levers pivotally connected to the paddles; slides mounted upon the paddles and each connected with a lever; a fork carried at the outer end of each slide; means for operating the levers and causing the forks to engage the cables and the buttons carried thereby; and means for withdrawing the forked ends from engagement with the cables as the paddles pass from one stretch to the other of the cables.

9. In a current-meter, the combination of a pair of endless cables; means for supporting the same with their lower stretches in a submerged position; a series of buttons or stops attached to said cables; a pair of paddle-carrying chains mounted between the upper and lower stretches of said cables; paddles carried by said chains; levers pivotally connected to the paddles; slides mounted upon the paddles and each connected with a lever; a fork carried at the outer end of each slide; means for operating the levers and causing the forks to engage the cables and the buttons carried thereby; means for withdrawing the forked ends from engagement with the cables as the paddles pass from one stretch to the other of the cables; and means for holding the paddles in their proper position as they pass from one stretch to the other of the cables.

10. In a current-meter, the combination of a pair of endless cables; means for maintaining the lower stretches thereof in a submerged position; a pair of paddle-carrying chains mounted intermediate the upper and lower stretches of the cables; a series of paddles pivotally connected to said chains; pivoted levers carried by the paddles; means connected to said levers for engaging the stretches of the cables; a track located beneath the upper stretches of the cables to hold the outer ends of the levers in a raised position; runways *a, p* mounted in line with said track and serving to control the outer ends of the levers; and means for holding the paddles in their proper position as they pass around in line with said runways.

11. In a current-meter, the combination of a pair of endless cables; means for holding the lower stretches thereof in a submerged position; a pair of paddle-carrying chains mounted intermediate the upper and lower stretches of said cables; a series of paddles pivotally connected to said chains; levers pivotally connected to the paddles; means connected to said levers for engaging the stretches of the cables; tracks located below the upper stretches of said cables; runways *a, p* in line with the ends of said tracks and arranged to control the outer ends of said levers as the paddles near the end of the upper and lower stretches respectively; and means for properly maintaining the paddles as they pass around through said runways.

12. In a current-meter, the combination of a pair of endless cables; means for maintaining said cables with their lower stretches in a submerged position; a pair of paddle-carrying chains mounted intermediate the upper and lower stretches of said cables; a series of paddles pivotally connected to said chains; means for connecting the paddles successively to the upper and lower stretches of the cables; means for withdrawing the connections intermediate said paddles and the cables as the paddles pass from one stretch to the other; arms extending out from the paddles; notched wheels designed to receive said arms; and endless cables passing about said wheels holding the arms in the notches as the paddles pass from one stretch of the cable to the other.

13. In a current-meter, the combination of a pair of endless cables; means for supporting the same with the lower stretch thereof in a submerged position; a pair of paddle-carrying chains mounted between the upper and lower stretches of the endless cables; a series of paddles pivotally connected to said paddle-carrying chains; means for causing the successive engagement of the paddles with the lower stretches of the cables; means for disengaging the paddles from the ends of said lower stretches; and connections intermediate the supports for the cables and the chains.

14. In a current-meter, the combination of a reliable support; a pair of shafts located one at each end thereof; a pair of wheels carried by each shaft; endless chains or cables passing about said shafts; a second pair of shafts mounted on the support intermediate the first pair of shafts; a pair of wheels carried by each of said second pair of shafts; endless chains passing about said wheels; a series of paddles pivotally connected to said chains; means for causing the paddles to successively engage the lower stretches of the cables; and a wheel *A'* carried by one of the intermediate shafts; a wheel *A* carried by the adjacent shaft of the outer pair; and a driving connection passing about said wheels.

15. In apparatus of the class described, a current-meter comprising

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a pair of cables, paddles mounted upon one of the cables and having detachable connections with the other cable, and connections between the cables for causing them to move in unison and maintain the paddles in fixed relation thereto while said paddles are connected in both cables.

701,481. DOOR-CHECK. JOHN WATTS, Akron, Ohio. Filed Apr. 2, 1898. Serial No. 161,178. (No model.)



Claim.—1. An improved door-check consisting of two metallic leaves, united at one end, and having a pivoted lever in the free end of one leaf with an eccentric flange to engage and bear on the face of the other leaf, substantially as shown and described.

2. An improved door-check consisting of two metallic leaves, united at one end and of which one has a corrugated flange, and the other having a pivoted lever in its free end with an eccentric corrugated flange to engage and bear on the corrugated flange of the opposite leaf, substantially as shown and described.

701,482. ICE-HEATER. RALPH L. WAIN, Baker City, Oreg., assignor of one-half to Thomas G. Burke, Baker City, Oreg. Filed Aug. 9, 1898. Serial No. 171,541. (No model.)



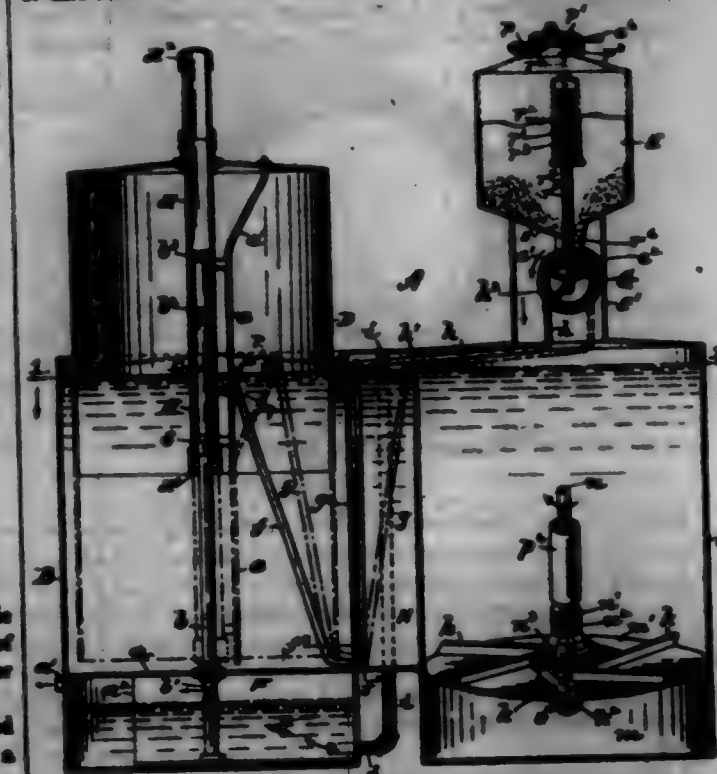
Claim.—The herein-described ice-heater consisting essentially of the cylinder, the piston made up of the approximately horizontal portion *f* joined to and extending outwardly from the lower end of the cylinder, and having the upwardly, outwardly and downwardly extending flange *f'* at its outer edge; said flange being disposed at right angle to the portion *f*, and the vertical skirt portion curved at its upper edge in the flange *f'* of portion *f* and depending from said portion *f* and having notches in its lower edge; said flange *f'* serving to connect the outer edge of the portion *f* and the upper edge of the skirt portion *g* and bend rigidly and strength to the base as a whole, the forked flange connected to the base portion *f*, and the piston movable in the cylinder.

701,483. ANASTYLENE-GAS GENERATOR. JOHN W. WAIN, Providence, R. I., assignor to The Universal Anastylene Company, Providence, R. I., a Corporation of Rhode Island. Filed May 2, 1891. Serial No. 81,405. (No model.)

Claim.—1. In an anastylene-gas generator, the combination of a water-tank; a carbide-holder located at the top of the water-tank; a gasometer, an interposed hollow water-tight connecting member uniting the water-tank with the tank of the gasometer, said member having an opening at the upper part into the water-tank and an opening at the lower part into the tank of the gasometer, a bent lever pivoted in proximity to said lower opening of said member and having one arm operated by the gasometer, the lever having its other arm extending upwardly through said connecting member, and means connected with the free end of said lever arm for opening said carbide-holder.

2. In an anastylene-gas generator, the combination of a water-tank, a carbide-holder located at the top of the water-tank, a gasometer, an interposed connecting member uniting the water-tank with the gasometer-tank, said member having an opening at the upper part into the water-tank and an opening at the lower part into the tank of the gasometer, a bent lever pivoted in proximity to said lower opening and having one arm extending upwardly in the gasometer, an inclined rod in the gas-

ometer arranged to engage said arm and thereby move the lever on the movement of the gasometer, the other arm of the bent lever extending upwardly through the connecting member, and a rod connecting the end of said lever arm with the carbide-holder.



3. In an anastylene-gas generator, the combination of a water-tank, a carbide-holder located at the top of the water-tank, a gasometer, an interposed connecting member uniting the water-tank with the gasometer-tank, said member having an opening at its upper part into the water-tank and an opening at its lower part into the tank of the gasometer, a gas-washing chamber located in the base of the gasometer, a pipe communicating with said connecting member just below the top of said water-tank and just above the normal water-line, said pipe communicating with the gas-washing chamber near its bottom, and an exterior outlet or overflow communicating with said gas-washing chamber for limiting the height of water in the latter.

4. In an anastylene-gas generator, the combination with the gasometer and gas-generating tank, B, C, respectively, and gas-washing chambers located below the tank B, of the interposed hollow water-tight connection H uniting said tanks and communicating therewith by means of suitable openings, the opening in tank C being at the normal water line or level, a gas-pipe *i* leading from the upper end of said connection H and discharging into the said gas-washing chamber and an exterior outlet overflow-vent communicating with said gas-washing chamber thus limiting the height of water in the latter, substantially as described.

5. In an anastylene-gas generator, the combination of a reliably-mounted carbide holder or reservoir having a tilted bottom member supporting the carbide, a reversible feed-wheel having its rim provided with projecting pins or fingers arranged to enter upwardly through and travel along said rim so as to discharge a quantity of the carbide from the holder, and means substantially as described for intermittently rotating the feed-wheel.

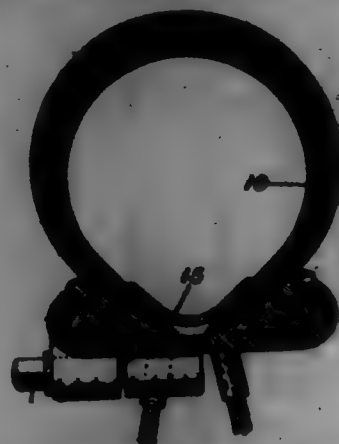
6. In an anastylene-gas generator, the combination of a reliable delivery crank-shaft or eccentric and the feed-wheel G, the latter having a reversible inner sleeve mounted on the crank portion of the shaft and a series of radially-movable fingers held in said sleeve and extending through the rim of the wheel, arranged whereby upon rotating the wheel the outer portion of the fingers will be successively and gradually projected beyond the rim and then retracted, substantially as described.

7. In an anastylene-gas generator, the combination of the reversibly-mounted carbide-feeding wheel G, provided with peripherally-arranged fingers and a ratchet or toothed member, a swinging arm carrying said dropping pins arranged to engage the said toothed member, a vertically-movable gasometer, and mechanism connected with said swinging arm and gasometer, whereby the latter is adapted to rotate the feed-wheel, substantially as described.

8. In an anastylene-gas generator, the combination with the carbide-holder and the feed-wheel, reversibly mounted below the throat of said holder, provided with a series of independent fingers or agitators, of a tilted base member for supporting the carbide and forming the bottom of the throat and at the same time also forming a shield for the upper portion of the wheel, in that the latter is not in direct contact with the carbide, and means actuated on rotation of the wheel for gradually passing said fingers upwardly through the shield portion of the base to engage

the cord and discharge it from the throat of the holder, substantially as described.

701,484. VEHICLE-TIRE. GEORGE A. WHEATLEY, Indianapolis, Ind., assignor to the G. & J. Tire Company, Indianapolis, Ind., a Corporation of Indiana. Filed Oct. 3, 1901. Serial No. 77,945. (No model.)



Claim.—1. The combination, in a vehicle-wheel, of a tire open on the under side and having ribs adjacent to the open portion, the inner surface opposite said ribs being inclined or tapered, an inner supporting-band formed to rest upon said inclined or tapered surface, and a channelled wheel rim or fully composed of two parts adapted to fit over the ribs on the tire, one part being adjustable toward and from the other, whereby the tire may be firmly grasped between the parts of the rim or fully and the inclined surface of the inner band, and also conveniently released therefrom.

2. The combination, in a vehicle-wheel, of a tire open on the under side and having smaller ribs adjacent to the open portion, a supporting-band adapted to be inserted within the tire just above the open portion, a channelled rim or fully divided into two parts one of which is movable toward and from the other, the movable part being carried by bolts or screws, and said bolts or screws, said several parts being constructed, arranged and operating substantially as shown and described.

701,485. BROWN-VIOLET SULFUR DYE AND PROCESS OF MAKING SAME. ARTHUR WEINBERG, Frankfurt-on-the-Main, Germany, assignor to Leopold Cassella & Co., Frankfurt-on-the-Main, Germany. Filed Jan. 6, 1901. Renewed Jan. 13, 1902. Serial No. 80,568. (No specimens.)

Claim.—1. The process of producing a brownish-violet dyestuff by heating arylsulfonates of the formula



(in which R stands for hydrogen, chlorine, a sulfide group or a carbonyl group) with alkaline sulfide and water substantially as described.

2. The coloring-matter produced as hereinbefore described which is a dark-violet or black powder, dissolving in concentrated sulfuric acid with a violet-black color being precipitated from this solution by addition of water, easily soluble in water in presence of alkaline sulfide, dyeing unmercerized cotton brownish-violet shades fast to washing, alkaline acids and light substantially as described.

701,486. WINDOW-SHADE-CORD CLAMP. EDWARD J. WELLS and JOHN F. YOUNG, Boston, Iowa. Filed Apr. 4, 1901. Serial No. 84,348. (No model.)



Claim.—1. A clamp for a window-shade-suspending cord comprising a fixed attaching-bracket having an eye for the loose reception of the cord, a clamping-plug slidably arranged in the eye and projecting from the same in opposite directions, and an exterior spring engaging the bracket and the plug and holding the latter normally in its engaging position, substantially as described.

2. A clamp for a window-shade-suspending cord, comprising a screw-

eye for the loose reception of the cord, a clamping-plug slidably mounted in the eye, and a spring bearing in opposite directions against the screw-eye and the plug to elastically yieldably hold the plug in its normal clamped position.

3. A clamp for a window-shade-suspending cord, comprising a bracket having an opening therein, a tubular plug slidably mounted in the opening and provided with a lateral opening, and a coiled spring embracing the plug and bearing in opposite directions against the same and the bracket.

4. A clamp for a window-shade-suspending cord, comprising a bracket having an opening therein, a tubular plug slidably mounted in the opening, and provided with a lateral perforation, and an upper external marginal flange, and a coiled spring embracing the plug and bearing in opposite directions against the bracket and the flange.

5. A clamp for a window-shade-suspending cord, comprising a screw-eye, a tubular plug slidably mounted therein, and having a lateral perforation formed in the lower portion and to cooperate with the screw-eye, and an upper external marginal flange, and a coiled spring embracing the plug, with its lower end resting upon the screw-eye and its upper end bearing upwardly against the flange of the plug.

6. A clamp for a window-shade-suspending cord, comprising an attaching-bracket having an opening therein, and a tubular clamping-plug slidably mounted in the opening and also provided with a lateral perforation, one wall of which is adapted to cooperate with the adjacent portion of the bracket to clamp the cord therebetween.

7. The combination with a window-shade-suspending cord, of a clamp therefor, comprising an attaching-bracket having an opening therein, and a spring-pressed tubular clamping-plug slidably mounted in the opening, and provided with a lateral perforation, the cord being passed into one end of the tubular plug and then outwardly through the lateral perforation therein, one wall of the perforation coacting with the adjacent portion of the bracket to clamp the cord therebetween, and the plug being yieldable to separate said wall and the bracket to release the cord.

701,487. BUTTER-HANDLE-BARREL. EDWARD F. WHEELER, Detroit, Mich., assignor to the Wheeler Manufacturing Company, Detroit, Mich., a Corporation. Filed May 27, 1901. Serial No. 82,182. (No model.)



Claim.—1. In a device for the purpose set forth, the combination with an oblong barrel adapted to be secured to the end of a handle-bar and having an interior channel extending longitudinally along its opposite ends and around its outer end; of a covering of two members curved together by through-stitches near their edges with their outer faces in contact and placed upon the core with the projecting margin of the same lying in said channel; and a socket-structure surrounding the lower open end of the core and the inner end of the covering and clamping these two parts together.

2. In a device for the purpose set forth, the combination of a core having a shoulder formed near and flaring away from one end thereof, a covering embracing said core and extending across said shoulder, and a socket-structure mounted upon the end of the core and upon the covering and having its edge turned inward and into direct contact with the covering so as to force the latter against said shoulder and lock itself and the covering to the core.

701,488. COMPRESSED TABLET. ROBERT H. WATTS, Jersey City, N. J., assignor to Schell & Company, New York, N. Y., a Corporation. Filed Feb. 19, 1902. Serial No. 80,590. (No specimens.)



Claim.—1. The method of making composite dry tablets or pills which consists in forming a layer of a dry powdered chemical, then forming a second layer in contact with the first of a dry powdered chemical capable of reaction with the first chemical and compressing the entire mass.

2. A composite pill or tablet consisting of two parts or sections of dry chemicals compressed together in contact the two sections with the other, said chemicals being adapted when wet to react and produce a desired drug.

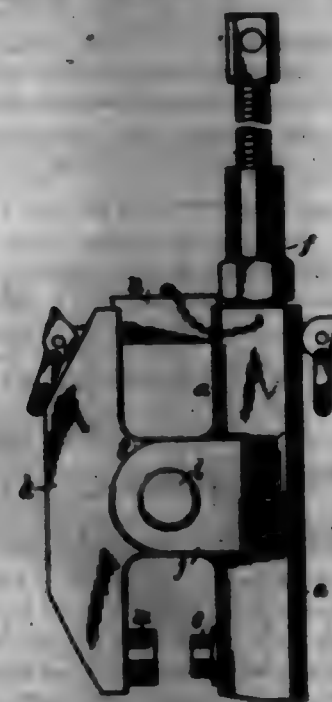
3. A composite pill or tablet consisting of two layers of different chemicals compressed together in contact, said chemicals being adapted when wet to react and produce a desired drug.

4. In a composite pill or tablet consisting of dry chemicals which

tend when mixed and compressed together to suffer deterioration, a section of each of said chemicals combined with the other, said two sections being compressed together in contact, the one with the other.

5. A composite pill or tablet consisting of two parts or sections each composed of a separate dry chemical, said sections being compressed together in contact the one with the other, and said chemicals, when allowed to react not producing material quantities of gas.

701,489. HYDRAULIC RIVETING OR PUNCHING TOOL. CARL WIERTZ, Brooklyn, N. Y., assignor to Francis H. Stillman, Brooklyn, N. Y. Filed Mar. 11, 1901. Serial No. 80,690. (No model.)



Claim.—1. A hydraulic riveting or punching tool comprising the combination of: a ram; a jaw pivoted between its ends to the body of the tool and extending in front of the ram; devices on the ram and jaw that coact on the work on one side of the pivot-pin; and a removable block that fits between the jaw and body on the other side of the pivot-pin; substantially as described.

2. A hydraulic riveting or punching tool comprising the combination of: a body containing a fluid-reservoir; a hollow part on the body; a screw engaging with the hollow part and having an extension that passes into the reservoir; a ram whose axis is transverse to that of the reservoir and whose chamber is connected with the reservoir; a jaw pivoted to the body and extending in front of the ram; devices on the jaw and ram that coact on the work; and means to prevent the jaw from turning under the action of the ram; substantially as described.

3. A hydraulic riveting or punching tool comprising the combination of: a body containing a fluid-reservoir; a hollow part on the body; a screw engaging with the hollow part and having an extension that passes into the reservoir; a ram whose axis is transverse to that of the reservoir and whose chamber is connected with the reservoir; a jaw pivoted between its ends to the body and extending in front of the ram; devices on the ram and jaw that coact on the work on one side of the pivot-pin; and a removable block that fits between the jaw and body on the other side of the pivot-pin; substantially as described.

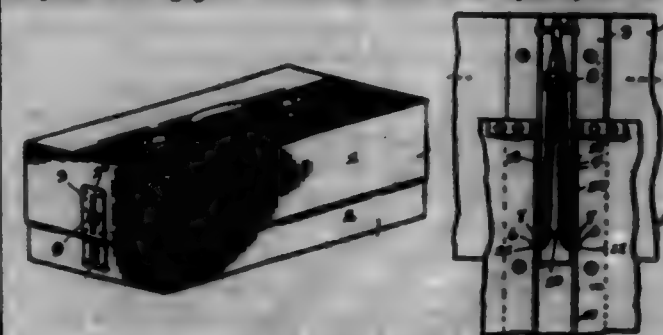
701,440. TELESCOPING VALVE. THOMAS A. WHEATLEY, Cincinnati, Ohio, assignor to Walter W. Warwick and Frank E. Warwick, Cincinnati, Ohio. Filed May 26, 1901. Serial No. 81,914. (No model.)

Claim.—1. A lock attached to the ends of the sections of a telescope-valve and inwardly projected therefrom, consisting of a head and socket formed to telescope and to interlock against lateral strain, detents in the socket, and locking means housed in said head adapted to be engaged into said detents, substantially as specified.

2. A lock attached to the ends of the sections of a telescope-valve inwardly projected therefrom, consisting of a telescoping head and socket formed to interlock transversely to the plane of telescopic action, detents in the socket, locking means housed in the head adapted to be engaged into said detents to interlock the sections in the plane of telescopic action, and means for releasing said locking means from the detents, substantially as specified.

3. A lock attached to the ends of the sections of a telescope-valve inwardly projected therefrom, consisting of a dovetailed telescoping head

and socket, detents in the socket, and locking means housed in the head adapted to be engaged into said detents, substantially as specified.



4. A lock attached to the ends of the sections of a telescope-valve, consisting of a socket attached to the under section, a head attached to the top section, the said head telescoping within the socket, the said head and socket being formed to interlock transversely to the plane of telescopic action, detents in the socket, locking means housed within the head having hook ends adapted to be engaged into said detents, and means for expanding and contracting said hook ends, substantially as specified.

5. A lock attached to the ends of the sections of a telescope-valve consisting in a socket attached to the under section, a head attached to the top section, the said head and socket being formed to telescope in the plane of telescopic action of the sections, and to interlock transversely thereto, detents in said socket, spring-actuated devices housed within the head, the ends of which are adapted to be engaged into the said detents, a collar within said head embracing said spring-actuated devices having a knob projected through a slot formed in the end of said top section, whereby the said springs are contracted and released from or into locking position, substantially as specified.

6. A lock for a telescope-valve, consisting of a socket attached to the end of the under section upon the interior face, detents in said socket, a head attached to the interior face of the upper section adapted to telescope within said socket and interlocking therewith transversely to the plane of telescopic action, locking means within said head adapted to be engaged into said detents, and means for releasing the same, substantially as specified.

7. In a telescoping valve, housing-heads attached to the ends of the top telescoping section, diverging springs having hooked ends projected through orifices in the opposite sides of said heads, sockets attached to the ends of the bottom telescoping section having a series of detents on its opposite sides adapted to be engaged by said hooked ends, the said heads having inclined under faces adapted to automatically slide by the detents without engagement when the sections are pressed together, said heads and sockets being formed to telescope and interlock against lateral strain, and means for controlling the locking position of said hook ends, substantially as specified.

8. In a telescoping valve, housing-heads attached to the ends of the top telescoping section, diverging springs having their converging ends secured within said housing-heads, a collar in each head encompassing said springs, each collar having a knob projected through a slot in the end of the top section exteriorly exposed, the springs having hooked ends projected through orifices in opposite sides of said housing when the collar is moved in one direction, and compressed within the housing when the collar is moved in the opposite direction, receiving-sockets attached to the ends of the bottom telescoping section having detents in the opposite sides adapted to be engaged by the hook ends of the springs when protruded through said heads, the heads and sockets being formed to telescope and interlock against lateral strain, and the hook ends being formed to interlock with the detents automatically when the valve-sections are closed apart, substantially as specified.

9. In a lock for a telescope-valve, a head inwardly projected from the end of the upper section, a locking member housed therein, the corresponding end of the under section being dovetailed in the plane of telescopic action, a socket inwardly projected from the edge of said dovetail and provided with detents to receive the locking member of the head, the said head and socket being formed to interlock transversely to the plane of telescopic action, substantially as specified.

10. A lock for a telescope-valve consisting of a head attached to the end of one section, the end of the opposing section being dovetailed, a socket projected from the edge of said dovetail in the direction of projection of the head, said head being formed to telescope and to interlock in said socket and dovetail, and means for locking said head and socket together, substantially as specified.

11. A head and socket attached to the corresponding faces of the ends of a telescope-valve, and extended therefrom in the same direction, said head and socket being formed to telescope and to interlock laterally, and means adapted to interlock said head and socket at any point in the plane of telescopic action, substantially as specified.

701,441. ENVELOP AND STAMP MOUNTING. CLARENCE H. WILLIAMS, Mayville, Ky. Filed Jan. 24, 1902. Serial No. 91,108. (No model.)



Claim.—1. An envelop and stamp mounter comprising a water-reservoir, a water-absorbent medium associated therewith, and a plunger provided near its extremities with parts, one of which is normally disposed without the reservoir, and the other normally disposed within the same, the first-named part, when the plunger is depressed, serving to supply air to the reservoir, and the second-named part to supply water to the said medium.

2. In an envelop and stamp mounter, the combination with a water-reservoir, of a nipple associated therewith and containing an absorbent material projecting at one end beyond the nipple, and a plunger provided with parts for supplying air to the reservoir and water to the nipple.

3. In an envelop and stamp mounter, the combination with a reservoir, of a nipple associated therewith and containing an absorbent material projecting at one end beyond the nipple, an open-work screen against which the said material bears, and a plunger provided with means for supplying air to the reservoir and water to the said material.

4. In an envelop and stamp mounter, the combination of a cylinder provided with a normally sealed water-filling inlet, a cap connected with one end of the cylinder and provided with a stuffing-box, a bottom secured within the opposite end and provided with a centrally-disposed orifice, a spring-actuated plunger working in the stuffing-box and in the orifice, and provided near its terminals with parts, one of which is normally in communication with the air and the other with the cylinder, a packing carried by the plunger and bearing against the under side of the bottom, a nipple associated with the cylinder and having its lower end constricted, an open-work disk screen carried by the nipple, and a sponge housed within the nipple and bearing against the under side of the screen and projecting beyond the constricted end of the nipple.

701,442. RAIL BRACE AND SUPPORT. HARRISON F. WILSON, Alhambra, Pa. Filed Nov. 20, 1901. Serial No. 94,128. (No model.)



Claim.—1. A rail-brace comprising a plate adapted to bear against the side of a tie and having lateral legs to rest upon the upper surface of the tie and a brace to bear upon the rail, the upper edge of the plate between the brace and one of the legs forming a rest for the rail to prevent crushing or indentation of the tie under the pressure of the rail, substantially as described.

2. A rail-brace comprising a plate adapted to bear against the side of a tie and having lateral legs to rest upon the upper surface of the tie and a rail-brace adjacent to one of said legs, the said upper edge of the plate between said brace and the opposite end leg forming a bearing-surface adapted to extend flush with or slightly above the upper surface of the tie to assist in supporting the rail, substantially as specified.

3. A rail-brace comprising a plate adapted to be secured to the

side of a tie and having an upper seat or bearing-surface for the rail, legs extending laterally therefrom to bear upon the upper surface of the tie, a brace to bear upon one side of the rail, and an auxiliary brace adapted to be secured to the plate and to bear upon the opposite side of the rail, substantially as and for the purpose set forth.

4. A rail-brace comprising a plate adapted to be secured to the side of a tie and having an upper seat or bearing-surface for the rail, legs extending laterally therefrom to bear upon the upper surface of the tie, a brace to bear upon one side of the rail, and an auxiliary brace adapted to be secured to the plate and to bear upon the opposite side of the rail, said auxiliary brace having a leg to rest upon the upper surface of the tie to supplement the action of the plate-legs, substantially in the manner set forth.

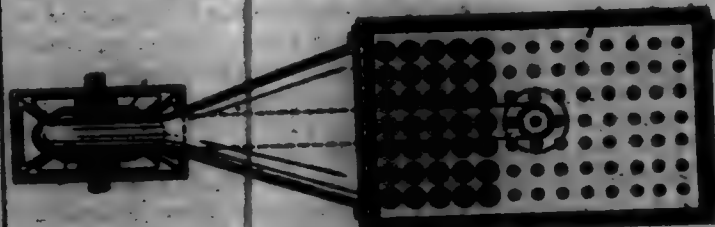
5. The combination with a tie and rail, of fastening-pieces secured to opposite sides of the tie and having braces to bear upon the opposite sides of the rail, said braces having their upper edges forming external bearing-surfaces for the rail and provided with legs resting upon the upper surface of the tie, substantially as specified.

701,443. TRANSFER OR CARBON PAPER FOR TYPE-WRITING MACHINES. HOWARD A. WILSON, New York, N. Y., assignor to Wyckoff, Macmaster & Beaudet, Inc., N. Y., a Corporation of New York. Filed Mar. 11, 1903. Serial No. 93,657. (No specimen.)



Claim.—Transfer-paper for use in type-writer manifolding, having one side coated with resin-ink and the other side coated with copying-ink, substantially as set forth.

701,444. APPARATUS FOR DYING YARN. CARL WOLZ, Schweinfurt-on-the-Rhine, Germany. Filed July 13, 1901. Serial No. 93,812. (No model.)



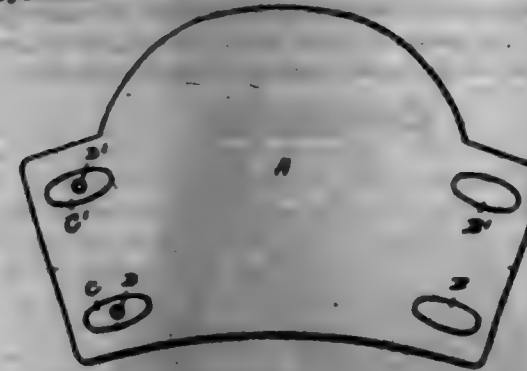
Claim.—1. Apparatus for dyeing yarn in the cap, comprising a polygonal vat, a false bottom therein having apertured seats for the caps, an inlet-port at one end above the false bottom extending nearly across the vat, and an exhaust-port in the bottom thereof; in combination with a pipe connected with said exhaust-port and having an outlet-terminal of gradually-increasing width connected to the aforementioned inlet-port and a suction and forcing device interposed in said pipe, substantially as and for the purpose set forth.

2. Apparatus for dyeing yarn in the cap, comprising a polygonal vat, a false bottom therein having apertured seats for the caps, an inlet-port of uniform vertical cross-sectional area at one end above the false bottom extending nearly across the vat, and an exhaust-port in the bottom thereof; in combination with a pipe connected with said exhaust-port and having an outlet-terminal of gradually-increasing width and of substantially the same vertical cross-sectional area as and connected to the aforementioned inlet-port, and a suction and forcing device interposed in said pipe, substantially as and for the purpose set forth.

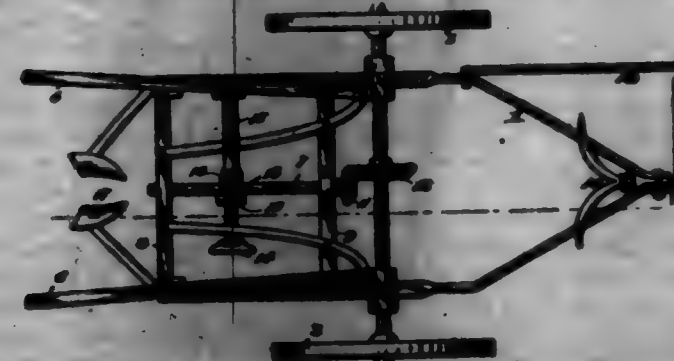
701,445. SHEAVE-PROTECTOR. HARRY E. WOOD, Worcester, Mass. Filed Dec. 7, 1900. Serial No. 739,095. (No model.)

Claim.—A sheave-protector, comprising a blank curved throughout its length in the arc of a circle and provided at one end with elongated slots and at the other with elongated slots adapted to enter the grooves of the sheave and which they are turned to prevent their escape therefrom, the blank and slots arranged to diverge from a center coincident or approximately coincident with the center from which the arc of the blank is struck.

701,445.

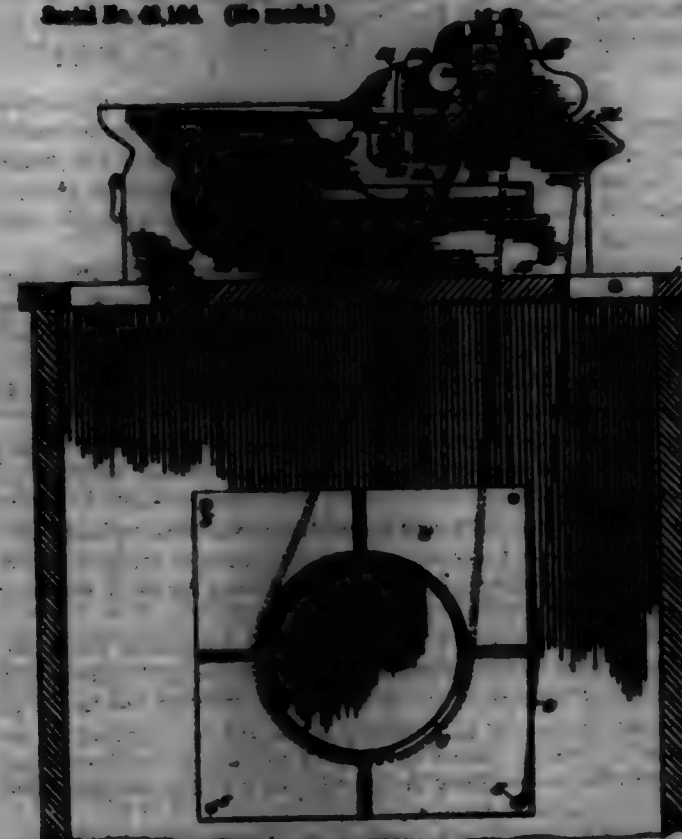


701,446. CUTTING-CHOPPER. LEWIS W. WOOD, Worcester, Mass. Filed Dec. 26, 1901. Serial No. 97,739. (No model.)



Claim.—In a cotton-chopper, the combination with the main frame the forward end of which is provided with a chisel and an auxiliary attending device having one end attached to the chisel and the other end to the side of the main frame, of an axle journaled in the main frame and provided with a gear-wheel, a crank-shaft journaled in bearings in the main frame at points at the rear of the axle and provided with a gear-pinion meshing with said gear-wheel, a chopper-blade provided with a shank which is journaled upon said axle, and a guide-bracket fixed to the frame of the machine above the crank-shaft and provided with a hole through which the shank of the chopper-blade projects, cam-pieces 16 secured to the forward end of the machine and cam-pieces 17 secured to the rear end of the machine, substantially as set forth.

701,447. ROLLER-CUTTING-PRISM. FRED E. YAVNER, Rochester, N. Y., assignor to the Yavner & Sons Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Jan. 14, 1903. Serial No. 94,164. (No model.)



Claim.—1. The combination with the side frame having the recesses and the ways at the sides thereof extending at an angle relatively

of the removable filling-pieces secured in the recesses and having corresponding ways therein, the journal blocks or beams operating in the ways and the cooperating rollers arranged in the frame.

2. The combination with the side frame having the recesses and the ways at the sides thereof extending at an angle relatively, of the removable filling-pieces secured in the recesses and having corresponding ways therein, the stationary bearing-blocks held between the frame and filling-pieces, the roller in said blocks and the movable bearing-blocks arranged between the filling-pieces and frame adjustable toward and from the roller, and rollers journaled in said last-mentioned bearing-blocks and co-operating with the first-mentioned roller.

3. The combination with the side frame having the recesses and the ways at the sides thereof extending at an angle relatively, of the filling pieces or blocks located in the recesses having the ways opposing them on the frame, a pressing-roller arranged near the intersection of the ways on the frame, bearing-blocks adjustable on both of the ways on the frame toward and from the first-mentioned roller, and rollers journaled in said bearing-blocks co-operating with said roller.

4. The combination with the side frame having the recesses provided with the vertically-extending ways, of the removable filling-pieces arranged in the recesses and having the corresponding ways or surfaces, a pressing-roller arranged at the lower portion of the ways, the vertically-movable journal-beams in the ways, the roller carried thereby co-operating with the first-mentioned roller, and means for adjusting the said blocks vertically.

5. The combination with the frame having the ways therein, the stationary removable bearing-blocks 35 at the ends of the ways, the roller journaled therein, the bearing-blocks 37 movable on the ways and the roller journaled therein and co-operating with the first-mentioned roller, of the bearing-blocks 36 and means for adjusting them on the ways, and an arbor journaled in the blocks 36 having means thereon for adjusting the blocks 37 in the ways.

6. The combination with the recessed side frame having the ways at one side of each of the recesses, and the arms extending over the ways, of the roller arranged at the lower end of the ways, the removable filling-pieces in the recesses, two sets of bearing-blocks arranged between the filling-pieces and the ways, a roller carried in the lower set of bearing-blocks, springs for raising them, and a rotary cam-shaft journaled in the upper blocks and operating upon the blocks of the roller.

7. The combination with the recessed side frame having the ways at one side of each of the recesses, the arms extending over the ways and the adjusting-curved, of the lower pressing-roller, the removable filling-pieces in the recesses, the two sets of bearing-blocks arranged between the filling-pieces and the ways, the upper pressing-roller carried in the lower blocks, springs for raising it and a rotary cam-shaft journaled in the upper blocks and operating upon the blocks of the roller.

8. The combination with the frame and ways therein, the stationary pressing-roller, the movable roller, the bearings therefor and the springs for separating the rollers, of the adjustable bearings in the ways, the pins operating on the bearings of the movable roller and guided in the last-mentioned bearings, the shaft journaled in said bearings having the cam-grooves in which the pins operate.

9. The combination with the frame and ways therein, the stationary pressing-roller, the movable roller, the bearings therefor and the springs for separating the rollers, of the adjustable bearings in the ways, the pins operating on the bearings of the movable roller and guided in the last-mentioned bearings, the shaft journaled in said bearings having the cam-grooves in which the pins operate.

10. The combination with the frame and ways therein, the stationary pressing-roller, the movable roller, the bearings therefor and the springs for separating the rollers, of the rotary shaft journaled in bearings and having the cam-grooves therein, the pins entering the cam-grooves and operating upon the bearings of the movable roller.

11. The combination with the frame and ways therein, the stationary roller, the adjustable roller, the bearings for the latter and springs for separating the rollers, of bearings above the movable roller, the shaft operating therein having the cam-grooves, and the pins guided in the bearings for the shaft, entering the cam-grooves and operating upon the bearings of the movable roller.

12. The combination with the frame and ways therein, the stationary roller, the adjustable roller, the bearings for the latter and springs for separating the rollers, of the bearings above the former bearings, means for adjusting and raising them, the rotary shaft journaled in said bearings having the cam-grooves, the pins guided in the bearings, projecting into the cam-grooves and operating upon the bearings of the movable roller.

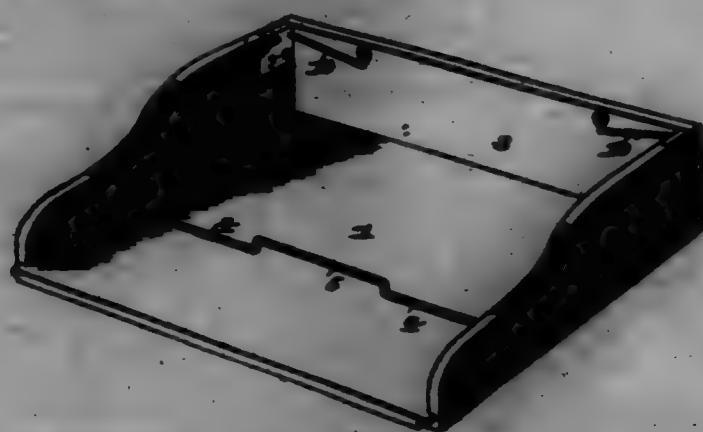
13. In a roller cutting-prism, the combination with the frame, the stationary pressing-roller, the movable pressing-roller co-operating therewith and web-dampering device, of the internal toothed gear mounted on the end of the stationary roller, the bracket in the frame extending

beyond the gear, the crank-shaft journaled in the outer end of the bracket beyond the gear, having the pinion on its end engaging the internal gear, and pawl-and-rotchet mechanism for preventing the backward rotation of the roller.

14. The combination with the frame, the stationary pressing-roller, the movable pressing-roller cooperating therewith, web-dampening device, a web-take-up reel, and a ribbed roller arranged between the pressing-rollers and the reel, of the pulley on one end of the stationary roller, the belt connecting it with the reel, the internal gear and the pulley on said roller, the belt connecting the pulley with the ribbed roller, the bracket on the frame extending outwardly beyond the gear, the crank-shaft journaled in the bracket and the pinion on the end of the crank-shaft meshing with the gear.

15. The combination with the main frame having the ways, the roller therein, the bearing-blocks movable on the ways, the pressing-roller journaled therein cooperating with the first-mentioned roller, and springs for raising said blocks, of the bearing-blocks guided on the ways on the frame arranged above the last-mentioned ones, means for positively adjusting them toward the roller, and a straight bar journaled near its ends in said blocks and extending over the roller and provided with cones operating upon the bearings of the pressing-roller, and an operating-handle.

701,448. HILL-FILE. PHILIP H. YAWMAN, Rochester, N. Y., assignor to Yawman & Burt Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed June 3, 1901. Serial No. 68,868. (No model.)



Claim.—1. In a bill file or holder, the combination with a base-board or support, the slides thereon and a plate secured to the upper portion of one side, of a follower pivoted in the plate and having a cam-arm on the inner side of the latter, of the spring arranged exterior of the plate and extending through it and secured thereby and having the arm with which the cam-arm on the follower engages.

2. In a bill file or holder, the combination with the base-board or support, and plates at the sides thereof having two apertures, of the follower having the arms journaled in the plates and the crank at the end of one of them, and a spring-arm passing through one of the plate-apertures and having the extension parallel with the plate with which the crank-arm engages.

3. In a bill file, the combination with the base-board or support, and plates at the sides thereof having two apertures, of the follower having the arms journaled in the plates and having the extensions parallel with the plates and on the rear side thereof with which the cranks engage to hold the follower in two positions of adjustment.

4. In a bill file, the combination with the base-board or support, the slides and back board, and the plates at the upper portions of the side boards having apertures therein, of the follower having the arms journaled in the apertures in the plates, one of them being provided with a crank, and a spring-arm extending parallel with the plate to engage the crank-arm.

5. In a bill file, the combination with the base-board, the slides and back board, and the plates at the upper portions of the side boards having two apertures therein, of the follower having the arms extending through the apertures in the plates, and the crank thereon, the spring secured to the back board extending through the aperture in the plate and having the extension operating upon the crank on the follower-arm.

701,449. FILING-CAMMER. PHILIP H. YAWMAN, Rochester, N. Y., assignor to Yawman & Burt Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Jan. 9, 1902. Serial No. 58,867. (No model.)

Claim.—1. The combination with a casing, of a slide or drawer ap-

erating therein having the base and provided with the front hinged thereon, a guide on one of the parts, an arm attached to the other part having the end lying beneath the guide, and a stop engaging the arm between its ends to limit the relative opening movement of the front.



2. The combination with a casing, of a base among therein having a front hinged thereon, a guide on one of the parts, and an arm attached to the other engaging the guide, a stop on the guide cooperating with the arm to limit the relative closing movement of the parts, and a stop on one of the parts engaging the arm between its ends to limit the opening movement of the parts.

3. The combination with a casing, of a slide or drawer mounted therein having the base, and a front pivoted thereon, a guide mounted on one of the said parts, and an arm pivoted to the other part having the end lying beneath the guide and adapted to engage one end thereof to limit the closing movement of the front and base, and a stop engaging the arm between its points of attachment to said parts to limit their opening movement.

4. The combination with a casing, of a slide or drawer movable therein having the base, and a front pivoted thereon, a guide mounted on one of the parts of the drawer having a notch therein, an arm attached to the other part having the end movable longitudinally on the guide and secured thereby and a shoulder on the arm adapted to engage the notch to prevent the movement of the arm on the guide.

5. In a slide or drawer for filing-cases, the combination with a base, and a front pivoted thereon, of a guide arranged upon one of the parts having a notch, an arm attached to the other part having the end movable laterally of the guide and provided with a shoulder adapted to engage the notch, and a stop on the arm adapted to engage the guide for limiting its lateral movement relative thereto.

6. In a slide or drawer for filing-cases, the combination with a base, and a normally vertically extending portion pivoted thereto at one end, of a guide mounted on one of the parts having a notch, an arm attached to the other part having the end lying beneath the guide and movable laterally thereof, a shoulder on said arm adapted to engage the notch, and a stop adapted to engage the guide for limiting the lateral movement of the arm thereon.

7. In a slide or drawer for filing-cases, the combination with a base, and a normally vertically extending and pivoted thereon, of a plate mounted on one of the parts having a slot, an arm pivotedly attached to the other part having the end opening in said slot and engaging the end thereof to limit the relative movement of the parts in one direction, and a stop on the plate engaging the arm between its ends to limit their movement in the opposite direction.

8. In a slide or drawer for filing-cases, the combination with the base, and an end portion pivoted thereto normally extending vertically therefrom, of a plate mounted on one of the parts of the drawer having a slot

and provided with a notch, a spring-arm having a shoulder and pivoted to the other member and movable laterally of the plate to cause the shoulder to engage the notch, and a projection on the arm operating in the slot.

9. In a slide or drawer for filing-cases, the combination with a base, and a portion forming a wall pivoted at the edge thereof, of a plate on one of the parts having the slot and provided with a notch, an arm pivoted to the other part having the end operating in the slot, and a shoulder on the arm, means normally moving the arm toward one side of the plate to engage the shoulder with the notch, and a stop on the arm adapted to engage the opposite side of the plate to limit its lateral movement when the shoulder is disengaged from the notch.

10. In a slide or drawer for filing-cases, the combination with a bottom portion, and a wall pivoted at the end thereof, a base-plate secured to one of said parts of the drawer having a flange provided with the slot, a brace-arm pivoted at one end to the other part of the drawer having its opposite extremity projecting laterally through the slot and adapted to engage the inner end of the slot to limit the relative closing movement of the front and base, and a stop at the outer end of the base-plate engaging the arm between its ends to limit their relative movement in the opposite direction.

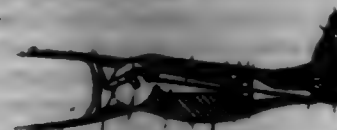
11. The combination with a casing having a drawer-aperture, a slide movable therein, and a wall adapted to normally close the aperture, of pivotal connections between the slide and wall, and adjustable devices between the slide and front whereby the latter may be moved at an angle to the former above the plane of the slide or substantially in line therewith.

12. The combination with a casing having an aperture, a slide movable therein, and a wall normally closing the aperture and extending over the end of the slide, of hinge connections between the slide and wall, a guide on one of the parts of the drawer, a brace-arm having the end engaging the guide and attached to the other part, and a stop engaging the arm and arranged out of line with the pivotal center of the hinge connections to limit the relative opening movement of the front on the base.

13. In a slide or drawer for filing-cases, the combination with a base, of a wall therefor forming the front of the drawer thicker than the base, and provided with a recess and having the tongue at its lower edge extending over the end of the base, a hinge having one member attached to the base and the other cut into the recess in the front wall whereby when the parts of the drawer are opened the outer surfaces of the base and front will be in substantial alignment, and adjustable devices between the parts for limiting their opening and closing movement.

14. The combination with a cabinet or casing having an opening therein, of a removable slide arranged in said opening embodying a base, a front hinged at its lower edge to said base and adapted to form a closure for the casing and to be moved into substantial alignment with the base, a brace-arm pivotally connected with one of said parts and sliding upon the other, and stops for limiting the movements of said parts on the hinge.

701,450. ARTIFICIAL LIMB. HENRY YEARMAN, North Manchester, England. Filed Oct. 14, 1900. Serial No. 22,193. (No model.)



Claim.—1. In combination, an artificial limb having cavities within it, a bent lever within the knee-cavity and with one end mounted on the pin which joins the upper and fore legs and the other end connected to a pin within the upper leg, a curved link connected at one end to the said lever at its bend and at the other to an artificial tendon made of catgut, a tension device within a cavity in the fore-leg consisting of two stationary and one moving plate and two rods, also a rubber washer between two of the plates and to one of which plates the said tendon is attached, a further artificial tendon secured to one of the fixed plates of the tension device and to the two part of the limb, substantially as and for the purposes set forth.

2. In combination, an artificial limb with cavity, a tension device within the cavity consisting of two plates and rubber washers between them, an artificial tendon secured to one plate and passing through the other plate at one end and at the other end attached to the two-piece of the limb, as and for the purposes set forth.

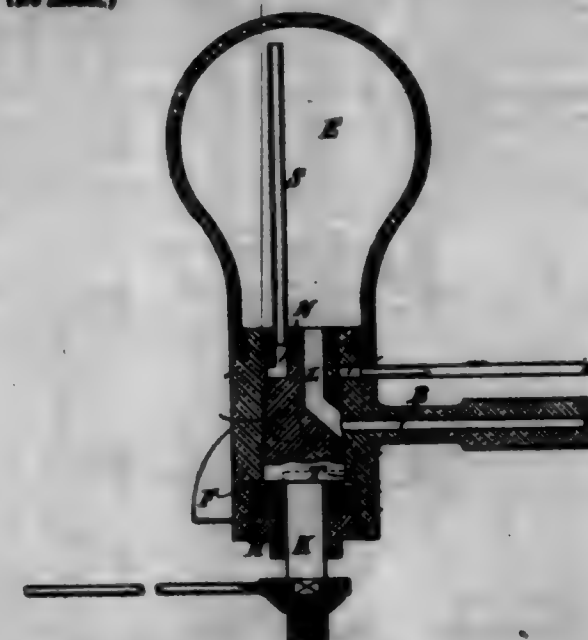
701,451. WHEELER. LEVI D. YOUNG, DALLAS, TX. Filed Oct. 13, 1901. Serial No. 72,822. (No model.)

Claim.—A implement of the character described formed of a series of wires doubled upon themselves and twisted together for a short distance

from the fold and having the end portions spread and bent to form teeth and having an eye at the fold and another in the length of the stem formed by opening adjacent twists, a handle receiving the stem of the tool, and fastenings connecting the handle and stem by passing through the eyes of the latter and openings in the handle, substantially as specified.



701,452. DRAWING-OFF TAP FOR AERATED LIQUIDS. BENJAMIN YOUNG, Glasgow, Scotland. Filed Jan. 22, 1902. Serial No. 60,776. (No model.)



Claim.—1. A drawing-off tap for aerated liquids, comprising a measuring vessel, a vertical plug-cock fitted in the vessel with its narrow end upward, a barrel for the cock, packing and a screwed nut to hold the cock to its seat in the barrel, in combination with an air-passage, inlet and discharge passages in the barrel of the plug-cock, a main passage in the plug-cock to connect the measuring vessel with either a reservoir or a discharge-opening, and a second passage in the plug to connect the measuring vessel with the atmosphere, substantially as described.

2. In drawing-off taps for aerated liquids, in combination a measuring vessel, a vertical plug-cock fitted thereto with its narrow end upward and held to its seat by packing and a screwed nut, inlet and discharge passages in the barrel of plug-cock, a main passage extending through the plug from the level of the inlet and discharge to the interior of the measuring vessel; and a second passage in the plug connected at its upper end with a pipe extending up within the measuring vessel and having its lower end at the level of a passage through the barrel open to the atmosphere, substantially as and for the purposes herein set forth.

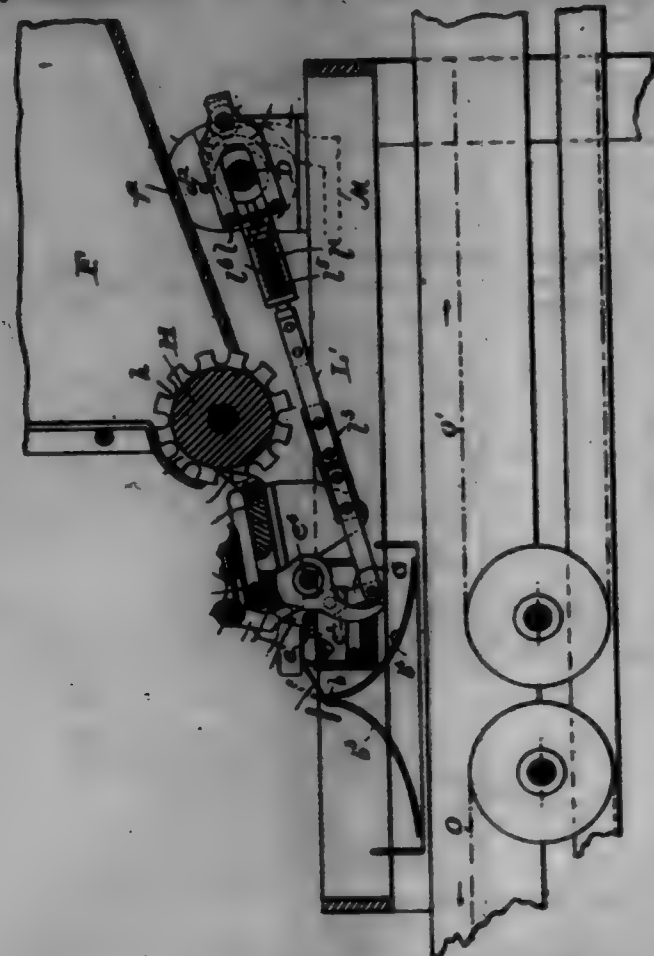
3. A tap and measuring vessel for drawing off aerated liquids, comprising a barrel, a measuring vessel above said barrel, a cylindrical vertical central opening in the barrel, ports opening from the barrel outward, one to the reservoir, one to the atmosphere and one forming a discharge, a vertical plug in the cylindrical opening, a part therein adapted to be connected with the reservoir or the discharge, a groove adapted to be connected with the atmosphere-opening in the barrel and a tube carried by said plug extending into the measuring vessel and connecting with said groove, substantially as described.

4. A tap and measuring vessel for drawing off aerated liquids, comprising a barrel, a measuring vessel above it, a cylindrical tapered vertical plug within the barrel, said plug having its end of lesser area upward, a spindle at its other end and a nut to hold it in place, the plug having an opening I and a groove P and carrying an upwardly-extending tube, the barrel having an opening to the atmosphere, an opening to the container and a discharge-opening, as and for the purposes set forth.

701,453. CARBON-SORTING MACHINE. MARION M. ZELLMER, Cleveland, Ohio, assignor to National Carbon Company, Cleveland, Ohio, a Corporation of New Jersey. Filed Feb. 15, 1902. Serial No. 64,172. (No model.)

Claim.—1. In combination, an electric circuit, means for inserting carbon rods therein, means for determining the resistance thereof, and automatic means for guiding said rods to different receivers, substantially as described.

2. In combination, an electric circuit, means for inserting carbon rods in said circuit, automatic means for guiding said rods therefrom, said last means being controlled by the electrical resistance of said rods, substantially as described.



3. In combination, an electric circuit, means for inserting carbon rods in said circuit, receivers, means for guiding said carbon rods, said last means being controlled by the resistance of said carbon rods, substantially as described.

4. In combination, an electric circuit, means for inserting carbon rods in said circuit, means for comparing their resistance with a standard resistance, receivers, means for guiding said carbon rods, means for controlling said last means by the electrical resistance of said carbon rods, substantially as described.

5. In combination, an electric circuit including two branches, one of said branches containing a known resistance, means for inserting carbon rods in the other of said branches, a bridge-circuit connecting points of said branches and means controlled by the current flowing in said bridge-circuit for guiding said rods to receivers, substantially as described.

6. In combination, an electric circuit, means for inserting carbon rods in said circuit, means for comparing their resistance with a standard resistance, receivers, means for guiding said carbon rods, means for controlling said last means by the resistance of said carbon rods, substantially as described.

7. In combination, an electric circuit including two branches, a bridge connecting points of said branches, an electrically-controlled apparatus located in said bridge, a second circuit controlled by said apparatus, means for inserting carbon rods in one of said branches, means for guiding said rods in passing out of said circuit, said last means being controlled by said second circuit, substantially as described.

8. In combination, an electric circuit including two branches, one of said branches containing a known resistance, means for inserting carbon rods in the other of said branches, a bridge-circuit connecting points of said branches, means for guiding said carbon rods to different receivers, galvanometer located in said bridge-circuit, means whereby said galvanometer may close a second electric circuit, and means whereby the closing of said second circuit may guide said carbon rods to different receptacles, substantially as described.

9. In combination, an electric circuit including two branches, one of said branches containing a known resistance, means for inserting carbon rods in the other of said branches, a bridge-circuit connecting points of said two branches, a second electric circuit, means whereby a current flowing in said bridge-circuit may close said second circuit, means for guiding said carbon rods in different receptacles, said means being controlled by said second circuit, substantially as described.

10. In combination, an electric circuit including two branches, one

of said branches including a known resistance, means for inserting carbon rods into the other of said branches, a bridge conductor connecting points of said branches, a galvanometer therein, a second circuit, means whereby said second circuit may be closed by a movement of the needle of said galvanometer, means for guiding said carbon rods to different receptacles, said means being controlled by said second circuit, substantially as described.

11. In combination, an electric circuit including two branches, one of said branches having a known resistance, means for inserting carbon rods in the other of said branches, a bridge conductor connecting points of said two branches, said bridge conductor including a galvanometer, a second electric circuit including the spindle of said galvanometer, a contact-arm carried by said spindle, whereby the needle of said galvanometer may close said second circuit through said arm, means for guiding said carbon rods to different receptacles, said means being controlled by said second circuit, substantially as described.

12. In combination, an electric circuit, members forming terminals thereof and adapted to receive carbon, means for feeding electric-light carbon rods to said members, means for withdrawing said carbon rods from said members, receivers therefor, means for advancing said carbon rods to said receivers, and means for guiding said carbon rods to said receivers, said last means being controlled by the resistance of said carbon rods, substantially as described.

13. In combination, an electric circuit, jaws forming terminals thereof and adapted to grasp a carbon, means for feeding carbon between said jaws, means for closing said jaws, means for releasing said jaws, means for guiding said carbon, and means whereby said last means is controlled by the resistance of said electric-light carbon rods, substantially as described.

14. In combination, an electric circuit, means for inserting carbon between the terminals thereof, a second electric circuit, means whereby the resistance of said carbon controls the condition of said second circuit, means for guiding said carbon when advanced from said terminals, said guiding means being controlled by said second circuit, substantially as described.

15. In combination, an electric circuit including two branches one of said branches including a known resistance, means for advancing carbon into a position between terminals in the other of said branches, a bridge conductor connecting points of said branches, receivers, means for advancing said carbon toward the same, means for guiding said carbon to said receivers, said last means being controlled by the flow of current in said bridge conductor, substantially as described.

16. In combination, an electric circuit, means for feeding carbon between terminals thereof, means for advancing said carbon therefrom, receivers, a guide-plate, means whereby said guide-plate determines the direction of said carbon with respect to said receivers, and means whereby the resistance of said carbon determines the position of said guide-plate, substantially as described.

17. In combination, an electric circuit, means for feeding carbon one by one between terminals of said circuit, automatic means for advancing said carbon, receivers, means for guiding said carbon with respect to said receivers, said last means being controlled by the resistance of said carbon, substantially as described.

18. In combination, an electric circuit, means for feeding carbon between terminals thereof, means for comparing the resistance of said carbon with a standard resistance, receivers, means for advancing said carbon, means for guiding said carbon into said receivers, and means whereby said last means is controlled by the resistance of said carbon, substantially as described.

19. In combination, a support adapted to receive a plurality of carbon, feeders, means whereby said feeders may advance said carbon from said support, members adapted to contact said carbon, an electric circuit, said members constituting terminals for the same, receivers, means for guiding said carbon to the same, said last means being controlled by the resistance of said carbon, substantially as described.

20. In combination, feeders adapted to support carbon, retaining-fingers for said carbon, means for moving said feeders so that they may engage one of said carbon, members adapted to grasp said carbon, said members constituting terminals for an electric circuit, and automatic means for withdrawing said carbon from said members, substantially as described.

21. In combination, feeders adapted to support carbon, retaining-fingers therefor, means for moving said feeders so that the supporting-fingers thereof pass from beneath the extremities of said carbon, whereby said feeders may remove said extremities of carbon, members adapted to grasp said carbon, said members constituting terminals for an electric circuit, and means for withdrawing said carbon from said members, substantially as described.

22. In combination, feeders adapted to support carbon, retaining-fingers therefor, means for moving said feeders so as to segregate one of said carbon, arms constrained against said segregated carbon, where it is retained by said feeders, members adapted to grasp said carbon, said

members constituting terminals for an electric circuit, means for withdrawing said carbon from said members, and means for advancing the same, substantially as described.

23. In combination, feeders having supporting-fingers, retaining-fingers therefor, whereby carbon rods may rest thereon, means for moving said feeders so that said supporting-fingers pass from beneath one of said rods, whereby it may be segregated from the rest, said feeders having an edge substantially perpendicular to their supporting-fingers, spring-constrained arms adapted to press the segregated rod against said edges, means for moving said feeders to bring said rod adjacent to the terminals of an electric circuit, means whereby said terminals may grasp said rod, means for withdrawing said rod from said terminals, and means for advancing the same, substantially as described.

24. In combination, feeders, means for supplying carbon thereto, one by one, means whereby said feeders may advance said carbon to a point adjacent to the terminals of an electric circuit, means whereby said terminals may grasp said carbon, means for releasing the same therefrom, automatic means for advancing said carbon, receivers, means for guiding said carbon thereto, said means being controlled by the resistance of said carbon.

25. In combination, pivoted feeders having circumferential supporting-fingers upon which carbon may rest, means for rocking said feeders so that said supporting-fingers pass from beneath one of said carbon, whereby a carbon may be segregated, said feeders having a substantially radial edge, spring-constrained arms adapted to press a segregated carbon against said edge, means for rocking said feeders so that said segregated carbon is advanced, an electric circuit, the terminals whereof may grasp said carbon, means for releasing the same therefrom, means for advancing said carbon, means for guiding them, receivers into which said carbon may pass, said guiding means being controlled by the resistance of said carbon, substantially as described.

26. In combination, pivoted feeders having circumferential supporting-fingers adapted to support a plurality of carbon, retaining-fingers therefor, means for rocking said feeders so that said supporting-fingers may pass from beneath one of said carbon, whereby one of said carbon may engage said feeders, means for rocking said feeders so as to advance said carbon, jaws adapted to grasp the ends thereof, said jaws constituting terminals of an electric circuit, means for advancing said carbon therefrom, means for guiding said carbon, receivers into which said carbon may pass, said guiding means being controlled by the resistance of said carbon, substantially as described.

27. In combination, an inclined support adapted to receive a plurality of carbon, retaining-fingers, feeders adapted to support some of said carbon, means for moving said feeders so that one of said carbon may be engaged thereby, an electric circuit, means whereby said carbon may advance said carbon to a point adjacent to the terminals of said circuit, means whereby said terminals may grasp said carbon, means for withdrawing said carbon therefrom, receivers therefor, means for guiding said carbon thereto, said last means being controlled by the resistance of said carbon, substantially as described.

28. In combination, pivoted feeders having circumferential upper faces adapted to support carbon, said feeders having shoulders adapted to engage and segregate one of said carbon, pivoted arms constituting said segregated carbon against said shoulders, terminals of an electric circuit between which said segregated carbon is deposited, said feeders having curved faces adjacent to said shoulders, and said arms having curved faces adapted to cooperate therewith, whereby said carbon may be raised and advanced from said terminals, substantially as described.

29. In combination, an inclined board, retaining-fingers adapted to maintain a plurality of carbon thereupon, pivoted feeders having circumferential faces adapted to support the lowermost of said carbon, said circumferential faces having recesses, means for rocking said feeders so that the extremities of said carbon may pass into said recesses, arms adapted to be constrained so as to maintain a carbon within said recesses, jaws adapted to receive said carbon, an electric circuit including said jaws as terminals, said feeders having curved faces adjacent to said recesses, and said arms having curved faces adapted to form guides for said carbon, said feeders and arms cooperating, whereby said carbon may be raised from said jaws and advanced, substantially as described.

30. In combination, a support adapted to receive carbon, feeders adapted to advance said carbon one by one from said support, an electric circuit, jaws forming terminals thereof and adapted to receive said carbon, mechanism adapted to close said jaws, said mechanism including a spring through which the operating force is applied, substantially as described.

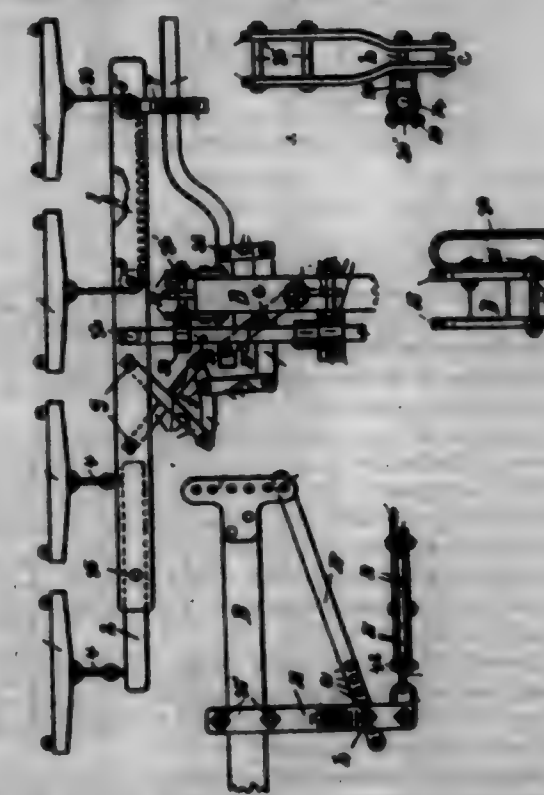
31. In combination, a support adapted to receive a plurality of carbon, feeders adapted to advance said carbon from said support, jaws adapted to receive said carbon when so advanced, said jaws constituting terminals for an electric circuit, mechanism for opening and closing said jaws, said mechanism including a link and a spring carried by said

link, through which the operating force for said jaws is transmitted, substantially as described.

32. In combination, a hopper adapted to receive carbon, a cylinder having grooves which may receive said carbon, means for rotating said cylinder so as to feed said carbon one by one from said hopper, an inclined table upon which said carbon are delivered, retaining-fingers against which said carbon may rest, feeders adapted to advance said carbon one by one from said table, an electric circuit having terminals adapted to receive the ends of said carbon, means for withdrawing said carbon from said terminals and advancing the same, receivers, means for guiding said carbon thereto, said guiding means being controlled by the resistance of said carbon, substantially as described.

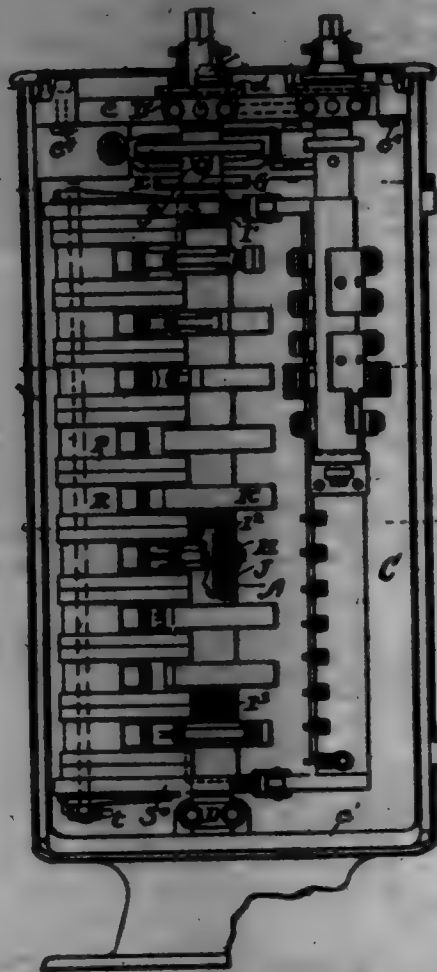
33. In combination, a hopper adapted to receive carbon, means for feeding said carbon one by one from said hopper, an inclined table upon which said carbon are delivered, retaining-fingers upon said table, pivoted feeders adapted to form supports for the extremities of said carbon, means for rocking said feeders so that they may engage the extremities of said carbon, terminals adapted to receive the extremities of said carbon, said feeders having curved faces, guides adapted to cooperate therewith so that said carbon may be raised and advanced from said terminals, receivers, means for guiding said carbon thereto, said guiding means being controlled by the resistance of said carbon, substantially as described.

701,454. FOUR-WHEEL EQUALIZER. EDWARD SCHLAEGER and FREDERICK SCHLAEGER, Oakland, Iowa. Filed Apr. 2, 1902. Serial No. 100,100. (No model.)



Claim.—The combination with a pivot-beam provided with a suitable clevis, of a bolt passing through said clevis, a draft-bar extending rearward and downward from said clevis-bolt, a loop positioned upon one side of said clevis, two depending yoke members adjustably clamped to said pivot-beam, a forward draft-bar being secured to said yoke members, a connecting-link secured to the lower end of said draft-bar, a swivelled car supported by said yoke members, a main rod secured to said swivelled car and extending through a forward loop, a main tree pivotally secured to the forward end of said main rod, a loop extending from a rearward main tree at one end, a curved lever passing through said last-mentioned loop and extending approximately parallel with a forward main tree, a connecting-bar pivotally secured approximately centrally to said curved lever, a toggle-bar pivotally secured to said last-mentioned connecting-bar, a centrally-pivoted connecting-bar extending from one end of said curved lever and being centrally pivoted to said toggle-bar and secured at the remaining end to a rearward connecting-link, a second connecting-bar extending forward from a rearward centrally-pivoted toggle-bar, a curved bar pivotally secured near one end to said last-mentioned connecting-bar, two connecting-rods extending from the ends of said curved bar and coupling one another and being pivotally secured to a rearward main tree, a double-bar pivotally secured to a rearward main tree near one end, two bolts secured to said main tree near the remaining end of said main tree, a chain passing over said bolts and provided at each end with a shackle, all arranged substantially as and for the purpose set forth.

701,455. CONTROLLER. THOMAS VAN SWINSEN, Preston, England. Filed Jan. 22, 1902. Serial No. 90,992. (No model.)



Claim.—1. In a controller, in combination, a shaft, a collar tightly surrounding the shaft and having an annular groove in its upper surface, with an outlet through the peripheral wall of the groove, and a trough or discharge-plate directly beneath said outlet when the shaft is at the off position, substantially as described.

2. In a controller, in combination, a frame, a cover therefor, a vertical shaft within the frame and extending through the cover, a substantially horizontal plate carried by the frame beneath the cover, a bearing carried at the front edge of said plate in which said shaft is journaled, there being a flange along the front edge of said plate, and a collar rigid on the shaft having in its upper surface an annular groove or recess discharging when the shaft is in the off position to the rear above said plate, substantially as described.

3. In a controller, the combination of a shaft, a metal tube carried by the shaft and surrounding the same and insulated from it, and metal segments having hubs snugly embracing said tube and electrically connected thereby, substantially as described.

4. In a controller, the combination of a shaft, metal tubes carried by the shaft and surrounding the same and insulated from the shaft and from each other, and metallic segments having hubs snugly embracing said tubes, substantially as described.

5. In a controller, the combination of a metal shaft, insulating-films surrounding the same, metal tubes surrounding the films, insulating-washers between the tubes, and metal segments having hubs snugly embracing the metal tubes, substantially as described.

6. In a controller, in combination, a shaft, wooden sectional sleeves collectively surrounding the same, metal tubes surrounding the wooden sleeves, and segments carried by the tubes, substantially as described.

7. In a controller, in combination, a flattened shaft, wooden sectional sleeves collectively surrounding the same and presenting a cylindrical exterior, metal tubes snugly embracing such sectional sleeves, insulating-washers between the tubes, and segments having metal hubs snugly embracing said metal tubes, substantially as described.

8. A segment for a controller including a peripheral portion, a hub portion, and an arm connecting them, combined with a removable tip having a rubbing portion, an inwardly-extending leg, and a screw clamping said leg to said arm, substantially as described.

9. A segment for a controller comprising a hub portion, a rubbing portion and an arm connecting them, and a threaded bar carried by said arm, combined with a removable tip having a rubbing portion adapted to slide with the rubbing portion of the segment, and having an inwardly-extending leg, and a screw passing through said leg into said threaded bar, substantially as described.

10. In a controller, the combination with a segment-cylinder, of a stationary bracket, a contact-finger having a spring-shank carried thereby, a stop for limiting the outward movement of the finger, and a screw securing both said stop and finger in the bracket, substantially as described.

11. In a controller, in combination, a stationary bracket, a contact-finger having a spring-shank, a stop in the form of a bent plate, and a screw passing through both said stop and shank into the bracket, the free end of said bent plate standing a short distance behind said finger, substantially as described.

12. In a controller, in combination, a stationary bracket, a contact-finger having a spring-shank, a safety-stop bracket for limiting the outward movement of the contact-finger, a screw passing through said stop-bracket and said spring-shank into the stationary bracket for holding said finger to the stationary bracket, an inward stop-leg carried by the stationary bracket, and an adjusting-screw carried by the contact-finger and adapted to engage therewith, substantially as described.

13. In a controller, the combination with contact segments and fingers, of a hinged and reversible solenoid blow-out, substantially as described.

14. In a controller, the combination with contact segments and fingers, of a hinged blow-out, and means whereby the swinging of said blow-out on its hinge breaks the electrical connection thereto, substantially as described.

15. In a controller, the combination with contact segments and fingers, of a hinged and reversible solenoid blow-out comprising coils within separated insulating-bases and connected in series and terminals for the collective coils carried by the blow-out, and other terminals with which these automatically disengage when the blow-out is swung on its hinge, substantially as described.

16. In a controller, the combination of blow-out coils contained within insulated boxes, insulating spacing-blocks between the boxes, metallic rods passing through the boxes and spacing-blocks, hinges for supporting the whole construction, and a lock for holding it in place, substantially as described.

17. In a controller, the combination of blow-out coils contained within insulated boxes, insulating spacing-blocks between the boxes, metallic rods passing through the boxes and spacing-blocks, hinges for supporting the whole construction, and metal strips carried by the solenoid and forming the terminals of the coils thereof, and stationary members with which they are adapted to connect when the solenoid is in a closed position, substantially as described.

18. In a controller, the combination of a series of coils contained within insulating-bases, insulating distance-blocks between the boxes, rods passing through the boxes and blocks, a fiber plate above the top box, and a fiber plate below the bottom box, said rods passing through said plates and clamping the whole together, a pair of hinge members carried stationary with the controller-frame, said hinge members being pivotally connected to said fiber plates, terminals of the solenoid carried by said plates respectively, and cooperating terminals adapted to engage the same when the solenoid is in a closed position, substantially as described.

19. In a controller, a movable blow-out, combined with three terminals, and means whereby one terminal is connected with one end of the blow-out and the other two terminals are connected with the other end of the blow-out when the blow-out is in place, all of said terminals being automatically disconnected from each other and from the blow-out when the blow-out is removed, substantially as described.

20. A controller and its circuit presenting three terminals adjacent to a blow-out, combined with each blow-out which is a solenoid composed of a series of coils in a hinged structure and having two terminals in the form of metallic plates, one adapted to engage one of said circuit-terminals the other adapted to engage both of the remaining terminals mentioned in one position of the solenoid, said terminals being all disconnected in another position of the solenoid, substantially as described.

21. A series-parallel controller, including a pair of contact-fingers, one adapted to be in engagement at the final series position, and both in engagement at the final parallel position, conductors leading from said fingers to adjacent terminals, combined with a movable solenoid having its coils terminating in contact members, one of which is adapted to engage and bridge said two adjacent terminals, and the other of which is adapted to engage a terminal from the governing resistance, substantially as described.

22. A controller having contact segments and fingers, and circuits leading from the fingers, combined with a blow-out consisting of a series of coils contained in boxes adapted to project between the fingers, said boxes being rigidly held apart in a hinged structure, means for locking said hinged structure in position, a pair of contact-strips carried by said hinged structure to form terminals for the two ends of the series of coils, and contact members carried by the controller to form the terminals of some of its circuits and adapted to be engaged by said strips, whereby when the solenoid is swung on its hinge the electrical connection to each end thereof is broken, substantially as described.

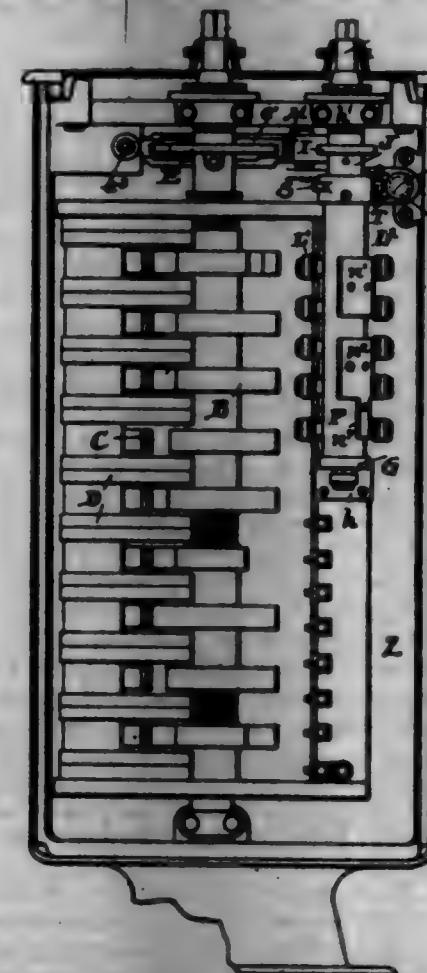
23. In a solenoid blow-out, the combination of a coil of conductor, and sheet-metal plates of magnetic material on opposite sides of the conductor out of contact therewith, substantially as described.

24. In a solenoid blow-out a recessed insulating-box, a coil of metallic ribbon within said box, a pair of sheet-metal plates of magnetic material within said box on opposite sides of the coil, and parallel with the opposite sides of the boxes, said plates being insulated from the coil, substantially as described.

25. In a controller, the combination of a frame and a cover therefor, of a hook for locking the cover to the frame, which hook comprises a housing portion secured to the cover near the edge thereof, a hook pivoted thereto, and a spring carried by the housing and tending to force the hook into either of its extreme positions, substantially as described.

26. In a controller, the combination of a frame, a hinged sheet-metal cover therefor, a housing riveted to the cover near the free edge thereof, a hook pivoted in said housing and adapted to engage a lug on the rear side of the frame, said hook having a projecting toe, and a half-spring within the housing and secured to it and bearing against said toe, said toe being adapted to have either of two surfaces in contact with the spring according to the position of the hook whereby the hook is given a tendency to assume either of its extreme positions, substantially as described.

701,456. CONTROLLER. THOMAS VAN SWINSEN, Preston, England. Filed Jan. 22, 1902. Serial No. 90,993. (No model.)



Claim.—1. An electric switch having a movable insulating-body with a longitudinal recess in it, a pair of separated contact-plates secured to the outer surface of said body, a metallic bar rigidly connected to each of said plates on their inner sides and occupying such recess, and insulating material filling the outer portion of each recess, substantially as described.

2. In an electric switch, in combination, a cylindrical wooden body, a pair of parallel recesses on one side thereof, separated segments on that side of the body extending across both recesses, a pair of longitudinal bars joining alternate members of said segments on the inner sides thereof, one bar occupying one recess and one the other, substantially as described.

3. In an electric switch, in combination, a cylindrical wooden body, a pair of parallel recesses on one side thereof, separated curved plates on that side of the body extending across both recesses, screws passing through the plates into the body, a pair of longitudinal bars joining alternate members of said segments on the inner sides thereof, one bar occupying one recess and one the other, and insulating material filling the remainder of said recesses, substantially as described.

4. In an electric switch, the combination of a cylindrical wooden body having a pair of parallel longitudinal recesses on the same side thereof, four contact-segments extending acrosswise of said recesses, two wider seg-

ments on the opposite side of the body, screws passing through said segments into the body for holding the segments in place, and a pair of longitudinal bars connecting alternate members of said four segments, said bars being on the inner sides of the segments, and rigidly connected therewith and occupying said recesses, and insulating material filling the space in the recesses in front of said bars and behind those segments which the bars cross but do not engage, substantially as described.

5. The combination with a rotatable reversing-switch body, an automatic spring-actuated lock independent of the operating-lever of the switch, which lock is adapted to engage a shoulder movable with the body when it is turned to the emergency position and prevent its return therefrom until the lock is extraneously released, substantially as described.

6. The combination of a body adapted to be turned on its axis and carrying contact-segments, an abrupt shoulder on said body, a dog spring-pressed against a smooth surface adjacent to said shoulder and adapted to engage the shoulder when the switch-body is turned into the emergency position, and means for releasing said dog, substantially as described.

7. The combination of a switch having a body adapted to be turned and carrying contact-segments, a collar on said body having an abrupt shoulder, a dog normally engaging the periphery of said collar, a spring constraining said dog in said position, said dog being adapted to engage said abrupt shoulder when the switch comes to a certain position, and means independent of the operating-lever of the switch for releasing said dog, substantially as described.

8. The combination with a controller-frame and a movable switch-body carried thereby, of a housing carried by the frame, a dog pivoted in said housing, a push-button slidable through the frame and adapted to operate said dog in one direction, a spring tending to move the dog in the other direction, said dog cooperating with said movable switch-body to lock the same at a certain position thereof, substantially as described.

9. The combination of a controller-frame, a housing carried thereby, a dog pivoted to said housing, a spring within the housing bearing against one side of the dog, a push-button movable through the housing and bearing against the other side of the dog, a reversing-switch carried by the controller-frame, a smooth peripheral surface rigid with the movable member of said switch, which surface the nose of said dog normally engages, said surface having an abrupt termination providing a shoulder with which the dog may lock under the influence of said spring and from which it may be released by said push-button, substantially as described.

10. The combination with a motor, electric circuits and contact-fingers at which they terminate, of a reversing-switch body adapted to move with reference to said contact-fingers to reverse said motor, said body having three different positions, namely, an ahead position, a reverse position, and an emergency-brake position, said last position completing the circuits the same as to drive the motor in the reverse direction but connecting an additional circuit to close the motor on itself, substantially as described.

11. A reversing-switch, comprising a series of contact-fingers, and two series of contact-plates on a relatively movable body, one series being adapted to connect adjacent fingers and the other series alternate fingers, each of said series having an extra narrower plate connected with one of the other plates and adapted to engage a certain finger in one position but not all operative positions of the switch, the fingers cooperating with such narrower plates being connected with lines leading from one side of the motor, and the fingers cooperating with the plates with which such narrower plates are connected being connected to lines leading from the other side of the motor, whereby an emergency position is provided where the motor is closed on themselves, substantially as described.

12. The combination with a motor, electric circuits and contact-fingers at which they terminate, of a reversing-switch body adapted to move with reference to said contact-fingers to reverse said motor, said body having four different positions, namely, an ahead position, an off position, a reverse position, and an emergency-brake position, said last position completing the circuits the same as to drive the motor in the reverse direction but connecting an additional circuit to close the motor on itself, and an automatic lock coming into action at said fourth position and adapted to prevent the accidental movement of the reversing-switch body from such emergency-brake position, substantially as described.

13. A reversing-switch having four positions, namely, ahead, off, reverse, and emergency, and comprising two series of contact-fingers, and two series of contact-plates on a relatively movable body, one series of plates being adapted to connect adjacent contact-fingers and the other series alternate fingers, and each of said series of plates being adapted to engage either of said series of fingers, the other series of plates concurrently engaging the other series of fingers, said series of plates having extra members located intermediate of the lines of engagement of said plates at the ahead and reverse positions, and contact-fingers for said extra members, whereby said extra members are engaged by their contact-fingers in the emergency position but not in the other operative positions of the switch, substantially as described.

14. In a controller, a casing, a reversing-switch within the casing comprising contact-fingers and a relatively movable body, said body having four different positions, namely, ahead, off, reverse and emergency, combined with a lock within the controller-casing and carried one member by said movable body and the other by the controller-frame, and adapted to automatically lock said switch-body in the emergency position, and means extending through the casing for releasing said lock, substantially as described.

701,457. APPARATUS FOR OBTAINING ZINC OR OTHER VOLATILE METALS FROM ORES OR MATTER. JOHN ARMSTRONG, London, England. Filed Aug. 30, 1900. Serial No. 30,309. (No model.)



Claim.—1. In a furnace for reducing volatile metals, the combination of a central column for the charge of mixed ore and fuel, side columns for the fuel, a reduction-chamber below into which they all converge, a large number of tuyeres or blast-orifices around the reduction-chamber whereby the blast is broken into minute streams, and therefore quickly dissipated, a condensing device and exit-passages for the effluent gases direct to the condenser close adjoining, whereby the blast attacks evenly a layer of fuel below the part intermediate between the charge and the condenser, and raises the fuel above to a high heat and the effluent gases pass through this incandescent fuel above the hottest heating zone on their way to the condenser and the carbonic dioxide is changed to carbon monoxide before it is cooled.

2. In a furnace for smelting ores containing zinc, the combination of a reducing-chamber, means for feeding the charge thereto, a vessel containing a bath of zinc, means for keeping the zinc therein in a comparatively cool and liquid state and a passage for the vapors from the reduction-chamber through a still hotter part of the furnace into and below the surface of the liquid metal.

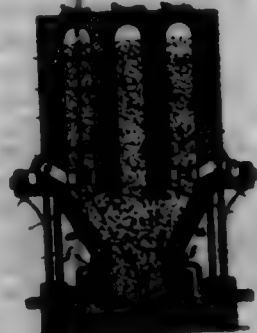
3. In a furnace for reducing ores containing zinc, the combination of a central column-chamber for the charge of mixed ore and carbon, side column-chambers for the fuel, a central reduction-chamber below into which all converge, numerous tuyeres on the sides of the reduction-chamber, a central dump below having a tapping device, an exit for the fumes through the fuel placed below the side column-chambers and a bath containing molten zinc into which the said exit dips, whereby the zinc-vapor is volatilized and condensed in the liquid zinc and the less volatile metals collect in the dump.

4. In a furnace for reducing ores containing zinc, and other metals, the combination of a central reducing-chamber, means for supplying fuel at the sides, means for supplying ore at the center, numerous tuyeres for supplying air through the fuel at the sides to the ore, means for drawing off and means for condensing the zinc-vapors, a dump below for the less easily volatilizable metals to collect in and means for introducing fumes a little above the fluid metal in the dump, but below the main portion of the zone of reduction.

5. The combination of a reducing-chamber, a vessel containing a bath of zinc, of means for heating the fuel between the reducing-chamber and said bath to a high degree, means for passing the zinc-vapors from the reducing-chamber through such highly-heated fuel to the bath of zinc, an exit below the surface of the fuel direct into said bath below the normal surface of the metal, and means for keeping the bath of metal at a temperature a few degrees above its fusing-point.

6. In a furnace for smelting zinc ores, the combination of the chambers *a* & *b* for the purposes described, the water-jackets *c* surrounding the space below said chambers giving a converging direction to the three columns *e* & *f*, the tuyeres *g* passing through the water-jackets and formed of a vast number of small tubes, and the dump *h* at the lowest point for the purposes described.

701,458. PROCESS OF OBTAINING ZINC OR OTHER VOLATILE METALS FROM ORES OR MATTER. JOHN ARMSTRONG, London, England. Filed Aug. 30, 1900. Serial No. 30,370. (No specimens.)



Claim.—1. The process of smelting compounds of volatile metals such as described, which consists in heating them with carbon out of contact of air, reducing and vaporizing them in a reducing atmosphere, consisting largely of carbon monoxide, and condensing them by passing the metallic vapors and the carbon monoxide into a bath of the same metal that is being condensed, which bath is maintained in a molten state, but not much above melting-point, condensing the metal in said bath and passing the carbonic acid through the same.

2. The process of smelting compounds of volatile metals such as described, which consists in heating the finely-divided ore with finely-divided carbon out of contact of air or free oxygen, reducing and vaporizing the metal, and passing the vapors through or among carbon at a still higher temperature and from there to a bath of the same metal which is being condensed, but in a molten condition, and condensing the metallic vapors in said bath.

3. The process of smelting compounds of volatile metals such as described, which consists in heating carbon and the ore together out of contact of free oxygen, distilling off the metal and passing the same together with such carbonic acid and nitrogen as are present with it but without free oxygen or carbonic acid into a bath of the same metal in the molten state, substantially as described, whereby the metal is condensed and the carbon monoxide and nitrogen escape through the bath.

4. The process of smelting compounds of volatile metals such as described, which consists in reducing the ore to a finely-divided state, mixing the same with finely-divided fuel and submitting it to the requisite heat in an atmosphere of carbon monoxide in which no free oxygen or carbonic acid is present, distilling off the volatile metal still surrounded by an atmosphere of carbon monoxide and condensing the metal in a bath of the same metal in a liquid state, and tapping off the less volatile metals.

5. The improvement in the process of smelting compounds of volatile metals, such as described, which consists in bringing them into the vapor state out of presence of oxygen or carbonic acid and passing the vapors through a bath of the same metal in a liquid state at a little above its fusing-point, whereby the metal is condensed and any residual gas that may be present passes through the bath and liquid metal, and escapes.

701,459. PASSENGER OR GOODS ELEVATOR OR CONVEYER. WILLIAM H. ARNOLD, London, England. Filed June 2, 1901. Serial No. 30,344. (No model.)

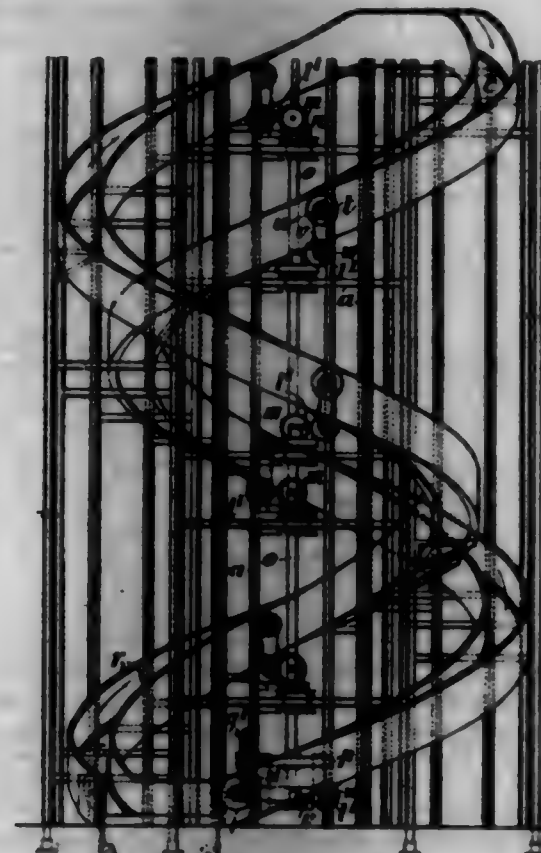
Claim.—1. In an elevator, the combination with the track, of a movable platform, comprising an endless driving-chain, located centrally of said platform, and provided with links connected by horizontal and vertical pivots, to permit said chain to bend vertically and also laterally, and transverse bars secured to the chain-links, and provided at opposite ends with supporting-rollers engaging said track, and driving mechanism for said chain, substantially as described.

2. The combination with the endless curved track, of an endless platform, comprising an endless driving-chain, a series of horizontally-disposed bars, secured to the links of said chain, supporting-rollers at each end of said bars, for engaging horizontal portions of the track and horizontally-disposed guide-rollers secured to said bars and adapted to engage vertical portions of the track and driving mechanism for said chain, substantially as described.

3. The combination with an endless curved track, of an endless platform, comprising an endless chain, a series of transverse bars, secured thereto, said bars being wider at one end than at the other, supporting-rollers secured to the ends of said bars, and engaging horizontally-disposed portions of the track and horizontal rollers secured to the ends of said bars, and engaging vertical portions of said track and driving mechanism for said chain, substantially as described.

4. In an elevator, the combination with the spiral track, of an endless platform comprising an endless driving-chain located centrally of said platform, transverse bars secured to the links of said chain, certain of said chain-links being provided with vertically-disposed pivots, a supporting-

roller secured to each end of said cross-bars and engaging said track, and horizontal guide-rollers secured to the ends of said transverse bars and engaging vertical portions of said track and driving mechanism engaging said chain, substantially as described.



5. In an elevator, the combination with the spiral track, of an endless platform comprising a driving-chain located centrally of the platform and provided with links connected by horizontal pivots, certain of said links being jointed vertically and connected by vertical pivots, cross-bars secured to said links, each provided with a supporting-roller at each end and engaging the track, said cross-bars being wider at one end than at the other, and a horizontally-disposed roller secured to each cross-bar and engaging a vertical flange of said track and driving mechanism engaging said chain, substantially as described.

6. In an elevator, the combination with the supporting-frame of the spiral track, an endless drive-chain, an endless platform carried by said chain and engaging said track, a series of driving-wheels located at different elevations along said track and engaging said chain, a vertical driving-shaft and connections between said vertical driving-shaft and each of said driving-wheels, for driving said chain simultaneously at different points throughout its length, substantially as described.

7. The combination with the spiral track, provided with sides, of the endless driving-chain, an endless platform carried by said chain and engaging said track, an endless hand-rail engaging the upper edge of one of said sides, and provided with driving projections on its lower flange, a series of drive-wheels engaging said chain at intervals throughout its length, and provided with horizontal shafts, a driving-wheel engaging said hand-rail adjacent to each of said chain-driving wheels, and connected with the shaft thereof, a main driving-shaft extending vertically up through said spiral track and connections from said driving-shaft to each of the shafts of the chain-driving wheels for driving said chain and hand-rail simultaneously at different points throughout their length, substantially as described.

8. In an elevator, the combination with a spiral track having a spirally-arranged ascending portion and a descending portion lying directly beneath and parallel to said ascending portion, an endless platform engaging said track and means for driving said platform, substantially as described.

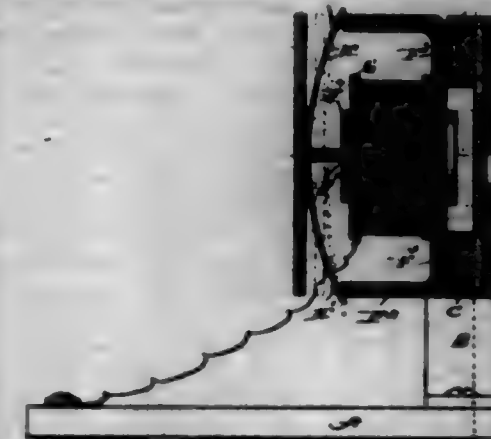
701,460. SIGNAL. JAMES R. BAKER, Boston, Mass. Filed Nov. 18, 1901. Serial No. 31,700. (No model.)

Claim.—1. A signal comprising a translucent body and a relatively movable signal device, thereabout, substantially as described.

2. A signal comprising a translucent body, a signal device thereabout and means for moving it into a posterior position, in which it is practically invisible, and into an anterior position in which it is visible through the translucent body, substantially as described.

3. A signal comprising a translucent plate and signal-disk thereabout, movable away from and nearly or quite into contact with the plate, to render the disk invisible and visible in turn, substantially as described.

4. A signal comprising a translucent body, a signal device thereabout and electromagnetic actuating means for moving the signal device toward and from the translucent body, substantially as described.



5. A signal comprising a translucent body, an electromagnet fixedly mounted at its back, an armature actuated thereby, a signal device placed behind the translucent body and an axial rod connecting it to the armature to be moved thereby, substantially as described.

6. A signal comprising a translucent body, an electromagnet fixedly mounted at its back and having a pole-piece or pole-pieces outside its coil, an armature cooperating therewith, a signal device placed behind the translucent body and a connection between the armature and signal device to move the latter with relation to the translucent body, substantially as described.

7. A signal comprising a translucent body, an electromagnet fixedly mounted at its back and having a pole-piece or pole-pieces outside its coil, an armature cooperating therewith, a signal device placed behind the translucent body and an axial connection between the armature and signal device to move the latter with relation to the translucent body, substantially as described.

8. A signal comprising a translucent body having a masked and an active portion and a relatively movable signal device behind the active portion, substantially as described.

701,461. SPRING-CUSHION AND ITS SUPPORT. WILLIAM H. BAKER, Jackson, Mich. Filed Nov. 11, 1901. Serial No. 31,708. (No model.)



Claim.—1. The combination with support-wires having straight middle portions, of corrugated wires crossing the same at right angles, and firmly joined thereto at their points of crossing, and conical, convolute springs having their lowermost coils in spring contact with, and on the under side of, outwardly-directed heads of said corrugated wire, and the ends of said springs turned inwardly diametrically of said coils, and in a plane below the same, and formed into a compound curve, with the upwardly-directed head in spring contact with, and on the upper side of a downwardly-directed head of said corrugated wire intermediate the corrugations engaged by said lowermost coils.

2. The combination with support-wires having straight middle portions, corrugated wires crossing the same, sheet-metal hoops having a middle portion rounded to form a seat for said support-wires, and its ends bent at an angle to conform to the angle of the head of the corrugated wire, and folded thereabout on either side of the point of crossing; double conical convolute springs, and single conical convolute springs having the lowermost ends thereof formed into a compound curve diametrically of, and in a plane below the lowermost coils thereof, to hold the spring upon the corrugated wire by the tension and recoil after firing said end over the corrugated wire, with the lowermost coil in contact with the opposite side thereof; and wire-clips to hold the upper ends of the single springs to the double springs, formed of a substantially straight middle portion, with double loops at each end, one set to hold the double spring, and the other to hold the end of the single spring firmly in contact therewith.

3. The combination with a seat-frame, of support-wires having straight middle portions and upward at the ends for fastening the same to the said frame; corrugated cross-wires joined thereto at their points of crossing;

spring formed at their lower ends into a compound curve to facilitate the forcing of said end over the corrugated wire, and also to form a seat to rest upon said corrugated wire to prevent the spring slipping therefrom, the spring being held firmly thereon by the recoil of the said spring at its lower end; a wire 23 to form a spring edge at the upper portions of said springs, and wire-clips having a straight middle portion in contact with the upper coils of said springs, and a double loop at each end to hold the said wire 23 firmly in contact with said top coils of said springs.

4. In a spring-seat, the combination with suitably-supported rows of single springs, of a tie-wire 22 adjacent to the uppermost coils of said spring, having a straight portion contiguous to said springs, and bent to connect with alternate rows, as shown, and wire-clips joining the straight portions of said tie-wire to the uppermost coils of said springs, each of said clips having a comparatively straight middle portion, a loop at each end coiled about the uppermost coil of said spring, and a second loop at each end adjacent to said first loops coiled about the said wire, and holding said tie-wire firmly against said spring, substantially as shown.

5. As a new article of manufacture, a wire-clip for springwork, having a straight middle portion, a loop at each end coiled about one wire, and a second loop at each end coiled about another wire, to connect said wires together.

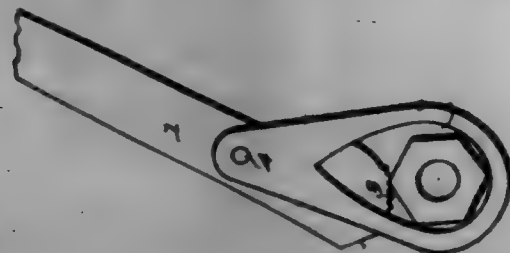
6. As a new article of manufacture, a wire-clip for connecting a straight wire to a curved wire, consisting of a straight middle portion; a loop at each end coiled about said curved wire and a second loop at each end coiled about said straight wire, clamping the said two wires together.

7. As a new article of manufacture, a wire-clip for joining springs together, or to stay or tie wires, consisting of a comparatively straight portion in contact with said spring; a portion coiled about said spring on either side of said middle portion; a second portion coiled about the other spring or wire which it is desired to be attached to said first spring.

8. As a new article of manufacture, a wire-clip for springwork consisting of a comparatively straight middle portion 19 in contact with a spring; a coil on either side of said middle portion joining said middle portion to said spring; and a second coil on either side of said middle portion joining a second wire to said middle portion, and also to said spring.

9. As a new article of manufacture, a wire-clip for springwork, consisting of a straight middle portion 18, a loop 19, at either end at right angles to said middle portion, for engaging a spring; and a second loop 20, at each end of said clip, and at right angles to said middle portion, for engaging another wire which is desired to be attached to said spring.

701,462. WRENCH. CHARLES F. RUTLAND and SAMUEL TALKINGTON, New Albany, Ind. Filed Dec. 18, 1901. Serial No. 94,423. (No model.)



Claim.—A wrench comprising a bar or lever provided at one end with a jaw having a smooth face of one side for engaging new nuts and provided at the opposite side with a toothed face for engaging worn nuts, and the tapering approximately oval-shaped jaw having a nut-receiving opening and bifurcated at its apex or pointed end to receive the lever or bar and pivoted to the same beyond the jaw thereof, the bifurcation being of sufficient length to permit the jaw to swing beyond the nut-receiving opening at either side to enable it to present either face to a nut without separating and rearranging the parts, substantially as described.

701,463. SOAP ARTICLE. HENRY L. BOWELL, Cleveland, Ohio, assignor of one-eighth to Fred Wells, Chicago, Ill. Filed May 16, 1901. Serial No. 94,499. (No model.)

Claim.—1. A soap-retainer comprising, a body portion web-shaped and designed to extend centrally through the ends of soap, in combination with diagonally-placed flanges thereon so arranged upon the web as to form grooves therewith, adapted to be engaged by the fingers of either hand when the soap is nearly exhausted therefrom, substantially as described.

2. A soap-retainer comprising, a body portion of thin web-shaped material, in combination with diagonally-placed flanges thereon, the flanges on one side being placed at an angle to the flanges on the other side, as for the purpose set forth.

3. A soap-retainer, comprising, a webbed central portion and later-

gral projecting perforated handle portion, in combination with diagonal flanges forming grooves with the body portion, as and for the purpose described.



701,464. WATER-COOLING APPARATUS FOR MOTOR-VEHICLES. EDWARD T. BROWDER, Portland, Me. Filed May 7, 1901. Serial No. 94,114. (No model.)



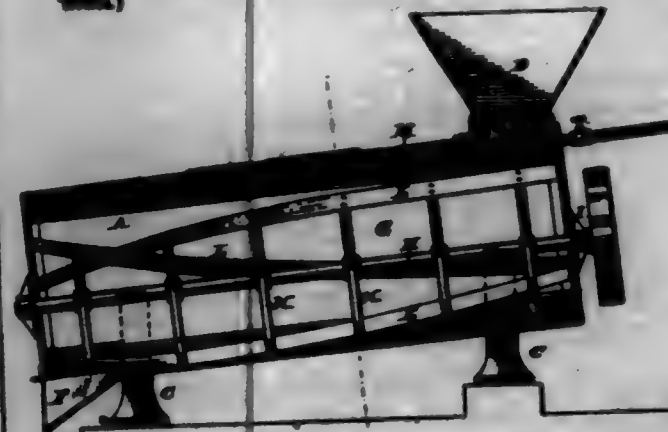
Claim.—1. In a motor-vehicle, the combination with a body and motor carried thereby, of a water-cooler mounted upon the vehicle and having an open-ended cooling-space into which the water is discharged and having an open-ended cooling-space into which the water is discharged, a series of baffles in said space over which the water passes while directly exposed to air-currents created by the movement of the vehicle, and means for circulating the water, substantially as described.

2. In a motor-vehicle, the combination with a body and motor carried thereby, of a water-cooler mounted upon the vehicle having an open-ended cooling-space into which the water is discharged, a series of baffles in said space over which the water passes while directly exposed to air-currents created by the movement of the vehicle, and means for circulating the water to and from the motor-jacket, substantially as described.

3. In a motor-vehicle, the combination with a body and motor carried thereby, of a water-cooler mounted upon the vehicle and having an open-ended cooling-space into which the water is discharged, baffles in said space over which the water may pass while directly exposed to air-currents created by the movement of the vehicle, means for preventing the water from flowing out of the end of the cooling-space, and means for circulating the water, substantially as described.

4. In a motor-vehicle, the combination with a body and motor carried thereby, of a circulating system in communication with the motor adapted to contain a cooling medium for said motor, said system having an opening through which the cooling medium may be directly exposed to air-currents created by the movement of the vehicle, substantially as described.

701,465. MIXING-MACHINE FOR CONCRETE. DR. WILLIAM R. GAY, Philadelphia, Pa. Filed Mar. 4, 1902. Serial No. 97,815. (No model.)



Claim.—1. In a mixing-machine, the combination of a cylindrical casing of greater height than width having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing but clear the surface of the upper portion, and a water-spraying pipe arranged in the upper part of the casing for spraying water upon the material being mixed.

2. In a mixing-machine, the combination of a cylindrical casing hav-

ing a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing, and a water-spraying pipe arranged in the upper part of the casing and across the throat or opening of the hopper into the casing for spraying water upon the material being delivered to the casing and mixing-blades to be mixed.

3. In a mixing-machine, the combination of a cylindrical casing having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing, and a water-spraying pipe arranged in the upper part of the casing across the throat of the hopper and over the casing beyond the throat for spraying water upon the material as they enter the casing and also as they are being mixed.

4. In a mixing-machine, the combination of a cylindrical casing of greater height than width having a hopper at its top and opening into it at the highest end and having a discharge-opening at its bottom at the other end and arranged on an incline, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and a water-spraying pipe arranged in the upper part of the casing across the throat of the hopper for spraying water upon the material being mixed.

5. In a mixing-machine, the combination of a cylindrical casing having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and in which the obliquity of the blades is greater at the discharging end than at the hopper end, and a water-spraying pipe arranged in the upper part of the casing for spraying water upon the material being mixed.

6. In a mixing-machine, the combination of a cylindrical casing having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and in which the obliquity of the blades is greater at the discharging end than at the hopper end.

7. In a mixing-machine, the combination of a cylindrical casing of greater height than width having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and in which the obliquity of the blades is greater at the discharging end than at the hopper end, and a water-spraying pipe arranged in the upper part of the casing for spraying water upon the material being mixed.

8. In a mixing-machine, the combination of a cylindrical casing of greater height than width having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and in which the obliquity of the blades is greater at the discharging end than at the hopper end, and a water-spraying pipe arranged in the upper part of the casing for spraying water upon the material being mixed.

9. In a mixing-machine, the combination of a cylindrical casing of greater height than width having a hopper at its top and opening into it at one end and having a discharge-opening at its bottom at the other end and an opening at its top intermediate of the hopper and discharge end, a door or cover for said opening, a rotating shaft extending longitudinally through the casing and carrying spirally-arranged mixing-blades to sweep the interior and lower portion of the casing and a water-spraying pipe arranged in the upper part of the casing for spraying water upon the material being mixed.

701,466. CENTRIFUGAL FILLING-MACHINE. NORMAN C. FOX, Vienna, Austria-Hungary. Filed Dec. 4, 1900. Serial No. 94,994. (No model.)

Claim.—1. In a machine such as described, the combination with a centrifugal drum, of a ring of interlocked carriers each carrying a multiplicity of open-ended tubular holders for the reception of tubes to be filled, a feed-nozzle at the inner end of each holder and means for removably locking said ring of carriers to the inner periphery of the drum, for the purpose set forth.

2. In a machine such as described, the combination with a centrifugal drum, of a ring of interlocked carriers each carrying a multiplicity of removable open-ended tubular holders for the reception of tubes to be filled, a feed-nozzle at the inner end of each holder and means for removably locking said ring of carriers to the inner periphery of the drum, for the purpose set forth.

3. In a machine such as described, the combination with a centrifugal drum, of a ring of carriers each provided with a multiplicity of bearings, a tubular open-ended holder for the reception of a tube to be filled, removable from and reversible in each of said bearings, means for revolving the tube-holder, a feed-nozzle at the inner end of said holder and means for removably locking the said ring of carriers to the inner periphery of the drum, for the purpose set forth.



4. In a machine such as described, the combination with a centrifugal drum, of a ring of carriers each provided with a multiplicity of bearings, a tubular open-ended holder for the reception of a tube to be filled, removable from and reversible in each of said bearings, means for simultaneously revolving the tube-holder, a feed-nozzle at the inner end of said holder, and means for removably locking the said ring of carriers to the inner periphery of the drum, for the purpose set forth.

5. In a machine such as described, the combination with a centrifugal drum, of a ring of interlocked carriers bodily removable from said drum, each carrier carrying a multiplicity of open-ended tubular holders for the reception of tubes to be filled, a feed-nozzle at the inner end of each tube, means for removably locking the ring of carriers to the inner periphery of the drum, and means for connecting the ring of carriers to a hoisting-latch, for the purpose set forth.

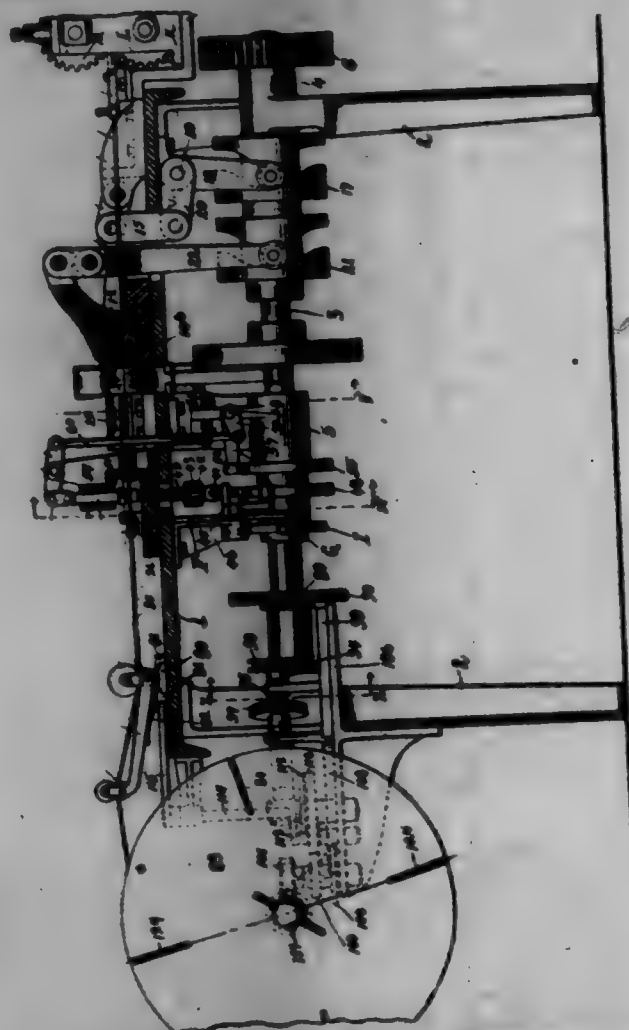
6. In a machine such as described, the combination with a centrifugal drum, of a ring of interlocked carriers each carrying a multiplicity of open-ended removable tubular holders for the reception of tubes to be filled, a feed-nozzle at the inner end of each holder, said ring of carriers adapted to be bodily moved out of and into said drum, means for guiding the ring of carriers when so moved and locking it against rotary motion independently of the drum, and means for holding said ring of carriers against vertical displacement, for the purpose set forth.

7. In a machine such as described, the combination with a centrifugal drum, of a circular frame comprising a bottom plate and spacers radiating laterally from the periphery thereof and dividing the same into rectangular spaces, a carrier for and fitting into each of said spaces and carrying a multiplicity of open-ended removable tubular holders for the reception of the tubes to be filled, a feed-nozzle at the inner end of each holder, means for locking the carriers against radial displacement, a top ring secured to the spacers and holding the carriers against vertical displacement, and means for locking the ring of carriers thus formed against rotary motion independently of the drum, for the purpose set forth.

8. In a machine such as described, the combination with a centrifugal drum, of a disk fitting into the drum, spacers radiating laterally from the periphery of said disk and dividing the same into rectangular spaces, carriers fitting into said spaces and carrying each a multiplicity of removable open-ended tubular holders for the reception of tubes to be filled, a feed-pipe on the inner face of each carrier, provided with a feed-nozzle

for each of the holders, a locking-bar removably secured to the spacers and lapping over adjacent carriers, a top ring for holding the carriers against vertical displacement bolted to the spacers, the latter provided with a ring at their upper end and above the top ring, means removably locking the ring of carriers thus formed to the inner periphery of the drum, means for holding the carriers against outward radial movement and a retaining-ring for holding the ring of carriers against vertical motion in the drum, for the purposes set forth.

701,467. WIRE-NAIL MACHINE. JAMES H. CLARK and ALFRED HAYES, Philadelphia, Pa. Filed June 1, 1901. Serial No. 62,792. (No model.)



Claim.—1. In combination with a machine of the character described, a framework, a main shaft journaled in suitable bearings upon said framework, a point-forming die composed of two members pivotally connected, a cam secured to the main shaft adapted to open and close the said point-forming die through the medium of a system of levers, a grasping and head-forming die composed of two members pivotally connected together, a cam secured to the main shaft for the purpose of opening and closing said die through a system of levers, a cam secured to the main shaft adapted to move the point-forming die through a system of levers longitudinally toward and away from the head-forming die, two plungers adapted to move toward and away from the string of nails, a cam located upon the main shaft and adapted, through the medium of the system of levers, to force said plungers toward the string of nails, a spring adapted to return said plungers to their original position at the proper time, dies secured to the inner ends of said plungers, the contour of each of said dies being of the shape of the desired form of nail, the said dies, when the plungers are forced inward, adapted to grasp the nail below the fin which is to be trimmed off, a plunger adapted to reciprocate vertically in suitable guideways, said plunger adapted to be forced downward and engage the Shank of two nails upon each side of the head and point for the purpose of forcing the string of nails a slight distance downward between the dies, a cam secured to the main shaft and adapted to force the plunger downward through the medium of the system of levers, a spring for the purpose of returning the plunger to its original position at the proper time, a bell-crank lever pivoted to the main frame of the machine, a guide through which the string of nails passes formed with or secured to the end of the horizontal member of the bell-crank lever, a roller journaled in the lower end of the vertical member of the bell-crank lever, a cam secured to and adapted to revolve with the main shaft of the machine and operate against said roller for the purpose of raising the string of nails at the proper time, a spring for returning the lever to its normal position, a re-

tary feeding mechanism consisting of two spur-wheels arranged one above the other and in mesh with each other, suitable standards in which said spur-wheels are journaled, means for communicating motion to the lower spur-wheel, sliding blocks in which the upper spur-wheel is adapted to be journaled, said blocks adapted to slide in suitable guideways in the standards, springs arranged above said blocks and adapted to exert pressure downward upon the same, adjusting devices arranged above said springs for the purpose of adjusting the tension of the same, an annular grooved disk secured to the face of the lower spur-wheel, a block secured to the one face of the upper spur-wheel, a surface carried by said block adapted to contact the wire upon every revolution of the spur-wheel for the purpose of feeding the same forward, frictional cones arranged in front of the feeding mechanism adapted to exert pressure upon each side of the wire at all times, a reel upon which the string of nails is adapted to be wound, a guide-roll through which the string of nails is guided from the feeding device of the reel, a guide-roll pivoted to spring-actuating lever for the purpose of taking up the slack in the string of nails as the same is fed forward, means independent upon the revolution of the reel for sliding the guideways backward and forward the width of the reel for the purpose of evenly winding the string of nails, a friction-roll adapted to bear against one side of the reel for the purpose of revolving the same, movement communicated to the said friction-roll from the main shaft, means dependent upon the revolution of the reel for moving the friction-roll gradually toward the periphery of the reel, substantially as described and for the purpose specified.

2. In combination with a machine of the character described, a suitable framework, a main shaft journaled in suitable bearings upon said framework, a point-forming die composed of two members pivotally connected together, one member being adapted to slide longitudinally of the machine in suitable guideways, the other member adapted to rock upon a pivot for the purpose of opening and closing the die and adapted to slide longitudinally with the other member, toggle-joint interposed between the rear ends of the two members, a pivoted lever adapted to operate upon said toggle-joint for the purpose of opening and closing the jaws of the die, a cam secured to the main shaft for the purpose of rocking said lever, a grasping and head-forming die composed of two members, said members connected together by a pivot, said pivot having a bearing upon the main shaft of the machine, a toggle-joint being interposed between the two ends of said members, a lever pivoted to the main frame of the machine adapted to operate upon said toggle-joint when said lever is rocked for the purpose of opening and closing the jaws of the head-forming die, a cam secured to the main shaft of the machine for the purpose of engaging said lever and rocking the same, a toggle-joint interposed between the rear end of the point-forming die, and a stationary standard secured to the head-plate of the machine, levers adapted to operate upon said toggle-joint for the purpose of forcing the point-forming die toward and away from the head-forming die, a cam secured to the main shaft of the machine adapted to operate upon said levers, means for trimming the waste material from the nail after passing from the dies, means for feeding the string of nails forward a predetermined distance, means for guiding and reeling said string of nails into a coil, substantially as described and for the purpose specified.

3. In combination with a machine of the character described, point-forming die composed of two members pivotally connected together, said dies adapted to open vertically, head-forming die composed of two members pivotally connected together and adapted to open vertically, one member secured to the main shaft of the machine adapted to actuate mechanism for opening and closing both of said dies, a cam secured to the main shaft of the machine and adapted to actuate mechanism to cause the point-forming die to be forced toward and away from the head-forming die, the cam-carriage upon all of the said cams being formed in such a manner that the longitudinally-sliding point-forming die will move backward and forward twice in the formation of the head of the nail, the head-forming die opening and closing at the proper intervals to permit this movement, the point-forming die remaining closed until the head is formed, substantially as described and for the purpose specified.

4. In combination in a machine of the character described, nail-forming die with trimming mechanism consisting of two horizontal plungers, each of said plungers having secured upon its inner end a die, each of said dies having a contour of the shape of one-half of the head and point of the nail where they are joined together, said plungers and dies adapted to reciprocate toward and away from one another transversely to the line of travel of the nails, suitable bearings for guiding said plungers, a system of levers for forcing said plungers toward one another, a cam secured to the main shaft of the machine adapted to operate upon said system of levers for forcing the said plungers toward at the proper time, a spring adapted to operate to force said plungers apart at the proper time, said plungers when brought together adapted to grasp the string of nails below the position to be trimmed off, a vertical plunger arranged above the point where the two horizontal plungers grasp the string of

nails, said plunger adapted to be reciprocated vertically in suitable bearings, the end of said plunger being so formed that when it is forced downward it will engage the Shank of the nails upon each side of the head and point and press the mid string of nails downward between the dies, a system of levers for communicating motion to the vertically-reciprocating plunger, a cam secured to the main shaft of the machine for operating upon said system of levers for forcing the vertical plunger downward, a spring adapted to operate upon said system of levers and permitted to do so by the cam for the purpose of raising and holding said vertical plunger in its upper or normal position, substantially as described and for the purpose specified.

5. In a machine of the character described, the combination of nail-forming die, trimming and feeding mechanism with reeling mechanism consisting of a reel mounted upon a shaft journaled in suitable bearings, said reel adapted to be driven by a friction-roller bearing against one side of said reel, a spring interposed between the hub of said reel and a collar upon its shaft for the purpose of keeping said reel in contact with the friction-roller, said friction-roller being mounted upon a shaft which is journaled in bearings secured to a longitudinally-sliding plate, motion being communicated to the friction-roller through a pulley also mounted in bearings secured to said sliding plate, said pulley receiving its motion through a belt which passes over said pulley and also around a stationary drum, which drum receives its motion from the main shaft of the machine, a worm mounted upon the reel-shaft and adapted to revolve, a worm-wheel mounted upon a vertical shaft, a cam-wheel also mounted upon said vertical shaft and adapted to be revolved by the worm-wheel, a lever, one end being pivoted to the main frame of the machine, the other end adapted to lie in contact with said cam-wheel, a pawl pivoted to said lever and adapted to engage ratchet-teeth formed in an extension connected to the longitudinally-sliding plate for the purpose of sliding said plate rearward a slight distance whenever said lever is rocked by the said cam-wheel, a spring for returning said lever to its normal position when permitted to do so by the cam, guide-rollers through which the string of nails is adapted to be guided, means controlled by the revolution of the reel for sliding said guide-rollers laterally backward and forward a distance equal to the distance of the coil to be formed for the purpose of evenly winding the said coil, substantially as described and for the purpose specified.

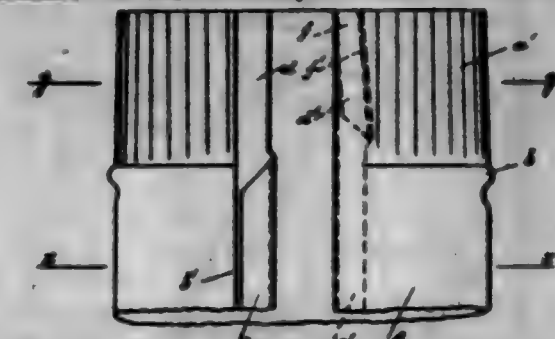
6. In combination with a machine of the character described, a reel adapted to be revolved at a decreasing rate of speed as the coil wound thereon enlarges, a pair of guide-rollers between which the string of nails is guided, said guide-rolls being journaled in suitable bearings formed with or secured to a lateral sliding block, suitable guideways for guiding said block, a supplemental pair of guide-rolls between which the string of nails also passes and is guided, said guide-rolls being journaled in the forward end of a lever pivoted to the sliding block, a spring arranged to exert pressure upward upon said lever for the purpose of taking up the slack in the string of nails when the said string is fed forward, a link pivoted to the sliding block at one end, the other end of said link being pivoted to a lever which is in turn mounted upon a vertical shaft, a lever also secured to the vertical shaft and having a roller at its outer end adapted to bear against the periphery of a cam-wheel, said cam-wheel adapted to be revolved through suitable mechanism connected with the reel-shaft, said cam adapted to force the sliding block and guide-rolls gradually toward one side of the reel, a spring adapted to return the sliding block and guide-rolls to the other side of the reel for the purpose of evenly winding the coil, substantially as described and for the purpose specified.

7. In combination with a machine of the character described, a reel consisting of one member having a drum formed thereon, said member adapted to be driven through power being communicated to it through the main shaft of the machine, a second member consisting of a disk adapted to be removably secured to the reel-shaft, a pin secured in the removable member and adapted to register with and enter a hole formed in the permanent member, a plurality of discs formed through both members and extending from the drum outward to the periphery for the purpose of binding the coil with wire or the like while the same is upon the reel, fingers pivoted to the permanent member of the reel and adapted to lie within the slots in said member and be flush with the inner face of the reel when the coil is being formed, said fingers adapted to be swung outward and held in that position as to leave the slots accessible for the binding of the coil, substantially as described and for the purpose specified.

701,468. STOVEPIPE. ALBERT CLARKIN, Milwaukee, Wis. Filed Jan. 12, 1902. Serial No. 30,608. (No model.)

Claim.—1. A pipe-section provided at its edges with interlocking hook-shaped flanges, one edge being without any flange at one end and the opposed portion of the pipe being provided with a pocket having an inclined bottom for receiving the said blank portion of the opposed edge

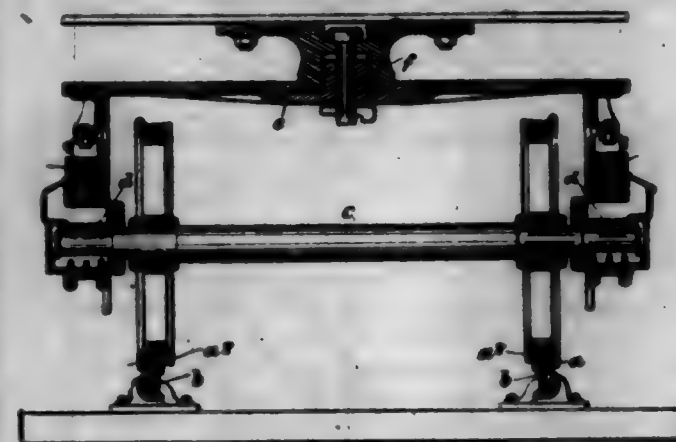
and permitting the said hook-shaped flanges to be interlocked without longitudinal movement, substantially as set forth.



2. A pipe-section provided at its edges with interlocking hook-shaped flanges and provided also upon one edge with an offset portion extending longitudinally behind one of the said flanges, one edge of the said pipe being without any flange at one end and the opposed portion of the pipe being provided with a pocket having an inclined bottom for receiving the said blank portion of the opposed edge, substantially as set forth.

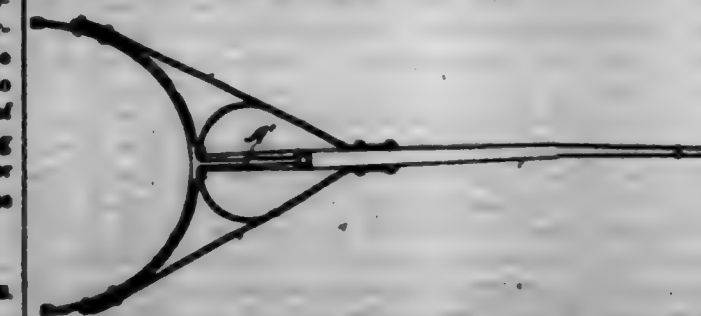
3. A pipe-section provided at its edges with interlocking hook-shaped flanges *c* and an offset portion *b* extending longitudinally behind the flange *c*, one edge being without the said flange *c* at one end and the opposed edge being provided with a pocket *f* having an inclined bottom *f'* for engaging with the said blank portion of the pipe, said pocket *f* being formed between two folds of the metal and upon the inside of the pipe, substantially as set forth.

701,469. RAILWAY OR TRAMWAY VEHICLE. DAVID D. COATE, Bangon, India. Filed Mar. 6, 1901. Serial No. 50,096. (No model.)



Claim.—In connection with a railway or similar vehicle, a two-wheeled truck, consisting of the two wheels each having an outer flange and with its main portion increasing in diameter inward from said flange, the axle-carrying said wheels and extended beyond the same to provide an outer spindle at each end, a journal-box with superposed one-spring upon each spindle, a truck-frame carried by said journal-boxes and springs, and a 60th-wheel and king-bolt in said truck-frame, upon and by which the vehicle-body is attached to said truck, said 60th-wheel and king-bolt being directly above the geometric center of said axle, substantially as and for the purpose described.

701,470. VEHICLE-POLE. GEORGE W. CONRAD, Troy, Ohio, assignor to the Troy Spring Company, Troy, Ohio. Filed Feb. 12, 1902. Serial No. 32,517. (No model.)

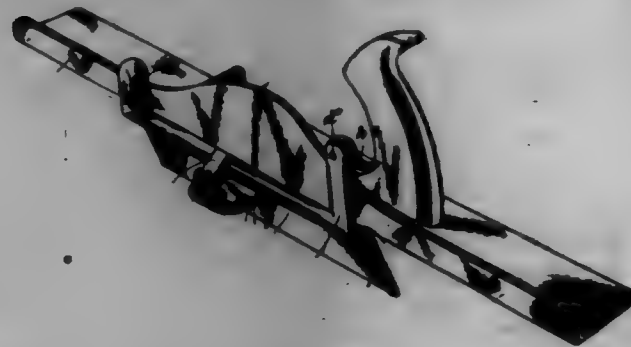


Claim.—1. In a vehicle-pole, a pole proper having a single bend at its rearward end and in combination with a double-head circle or bow, substantially as and for the purpose specified.

2. In a vehicle-pole, a single-bend pole in combination with a double-head circle or bow, and braces connecting the sides of the circle or

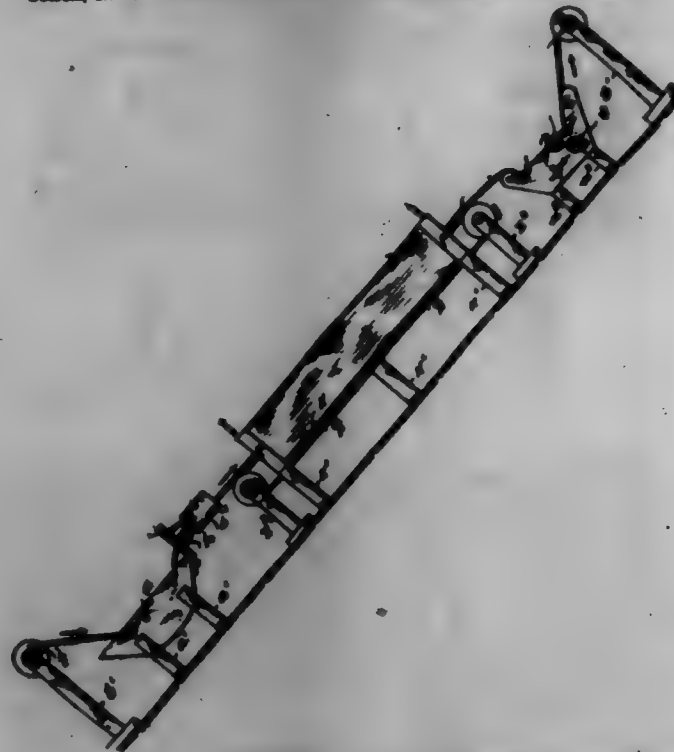
bow with the pole, said braces occupying straight lines and imparting suitable strength to the bow or circle, substantially as specified.

701,471. BENCH-PLANE GUIDE. GEORGE S. DUNN, Manchester, N. H., assignor of one-half to George A. Dunbar, Manchester, N. H. Filed Sept. 9, 1901. Serial No. 74,761. (No model.)



Claim.—A guide for flanged bench-planes consisting of a frame having at one end an extension terminating in an integral hook to engage the flange, an extension at the other end of the frame, a cone pivoted on the latter extension adapted to clamp the body of the plane, ears on the frame, a guide-plate pivoted to the ears, a pivoted arm on the guide-plate adjustable in a slot in a lag on the frame, and a set-screw passed through the lag against the arm for maintaining the adjustment.

701,473. APPARATUS FOR COVERING FLEXIBLE CONDUITS WITH RUBBER IN CEMENT OR LIQUID FORM. JOHN T. DORSEY, Hoboken, N. J. Filed June 7, 1901. Serial No. 62,622. (No model.)



Claim.—1. In an apparatus for covering flexible conduits with rubber in cement or liquid form or other similar elastic liquids, a coating-pan consisting of a vessel supported by standards, a guide-roller journaled to arms secured to a rod extending across said vessel, which has one side extending, perforated, a hollow cylinder partially conical, partially straight provided with two slots or eyes, secured over said perforation for the purpose specified.

2. In an apparatus for covering flexible conduits with rubber in cement or liquid form or other similar elastic liquids the combination of a coating-pan, a vessel supported by standards, a guide-roller journaled to arms secured to a rod extending across said vessel, having one side extending, perforated, a hollow cylinder partially conical, partially straight the bearer of two slots or eyes, secured over said perforation, with a spreading device consisting of a tube or pipe partially slit open intersected by a cross-rod, forming two lips, bent to a tube, its diameter regulated by a round clamp and its bolt, said pipe bearing two arms having their ends shaped to a hook, all substantially as set forth.

3. In an apparatus for covering flexible conduits with rubber in cement or liquid form or other similar elastic liquids, a drying-pan consisting of a plate supported by standards, a steam-coil secured to the upper

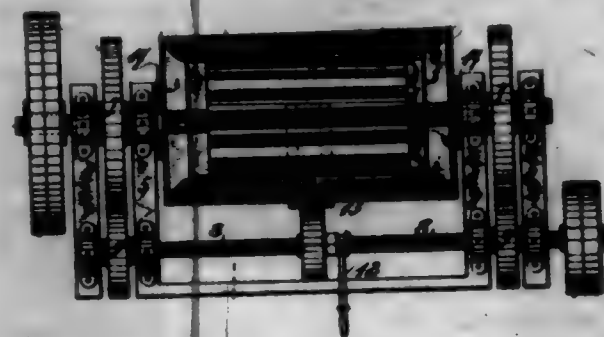
face of said plate, heated by perforated sheet metal, brackets extending from said plate near longitudinal edges, in which are journaled guide-rollers, a cover having slides on both of its ends, which inclose said apparatus, all substantially as set forth.

4. The combination is an apparatus for covering flexible conduits with rubber in cement or liquid form or other elastic liquids of a drying-pan, its plate supported by standards, a steam-coil secured to upper face of said plate, inclosed by perforated sheet metal, brackets extending from said plate near longitudinal edges in which guide-rollers are journaled, a cover having slides on both of its ends which inclose said apparatus, with an endless belt supported by flanged rollers, journaled to brackets, a driving-pulley secured to shaft of one of said rollers, all substantially as described.

5. In an apparatus for covering flexible conduits with rubber in cement or liquid form or other similar elastic liquids a cleaning-pan consisting of a vessel provided with standards, guide and brush rollers extending across said vessel, the brush-bearing rollers rotated in same direction by means of driving-pulleys secured to their shafts, all substantially as specified.

6. An apparatus for covering flexible conduits with rubber in liquid form or similar elastic liquids consisting of a coating-pan, having a vessel supported by standards, a guide-roller journaled to arms secured to a rod extending across said vessel, having one side extending, perforated, a partially straight, partially conical cylinder fitted to said perforation, two eyes secured to the former; a spreading device consisting of a pipe, partially slit open, intersected by a cross-rod forming two lips, bent to a tube, its diameter regulated by a round clamp and its bolt, the straight portion of the adjustable pipe fitted to the same portion of the stationary, hook-shaped arms extending from the former fitted in the eyes located on the conical portion of the latter; a drying-pan consisting of a plate supported by standards, a steam-coil secured to upper face of said plate, inclosed by perforated sheet metal, brackets extending from former near its longitudinal edges in which guide-rollers are journaled, a cover with slides inclosing said apparatus, an endless belt supported by rollers and its standards guiding the material already coated through the drying-pan; a cleaning-pan consisting of a vessel, its standards, guide-rollers and brush-rollers extending across said vessel the latter rotating in same direction by means of driving-pulleys, flanged rollers placed one in front of the coating-pan and one in the rear of the cleaning-pan, for supporting the conduit before and after the operation, and pulleys secured to the shafts thereof, substantially as described.

701,478. MACHINE FOR KNEADING AND WASHING MARBLE OR OTHER SIMILAR SUBSTANCES. LOUIS B. DORRIS, Antwerp, Belgium. Filed Sept. 4, 1901. Serial No. 74,962. (No model.)

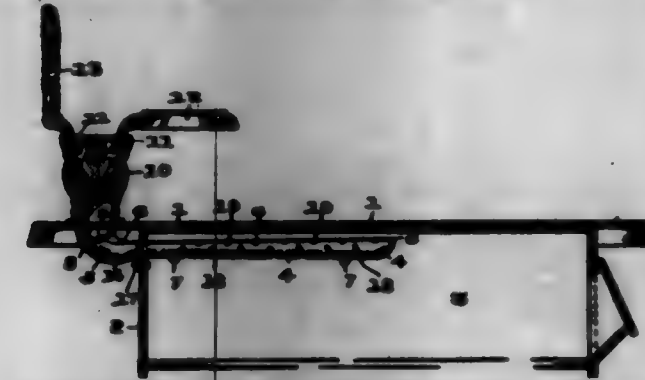


Claim.—The combination of a substantially cylindrical receptacle having an opening in its side wall, a supporting-frame, said receptacle being arranged to turn in said frame, a shaft arranged parallel with said receptacle, reversely-rotatable cages arranged in said receptacle, means for rotating one of said cages, gearing connecting said shaft with the other cage, and disconnection means for turning said receptacle in the frame, a portion of said means being carried by said shaft, substantially as described.

701,474. HOT-BLAST FOR RANGES OR COOKING-STOVES. JOHN A. BURLIN, Indianapolis, Ind. Filed Feb. 17, 1902. Serial No. 94,694. (No model.)

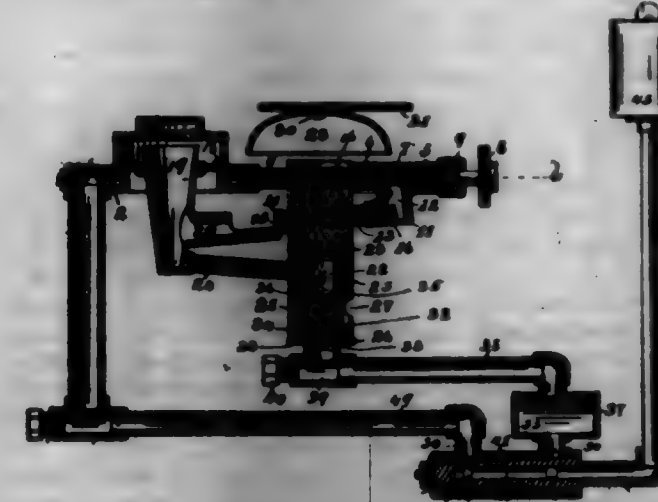
Claim.—1. In a hot-blast for ranges and cooking-stoves, a discharge-pipe substantially as shown, the said pipe being conical in form and terminating at one end in an integrally-formed ingrain-bowl, slots in the pipe which form an airtight seal for the air, a plate 6 forming the top for the discharge-pipe, bolts passing through the top plate and the pipe by which the parts are secured together, integral flanges on the pipe and bowl which carry apertures, bolts passing through the said apertures in the flanges and the range top and back, whereby a means is provided for securing the hot-blast to the range or stove, substantially as shown and described.

2. In a hot-blast for ranges and cooking-stoves, a discharge-pipe substantially as shown, the said pipe being conical in form and flaring in a horizontal direction, slots in the pipe which form an airtight seal for the air, the discharge-pipe extending through and is secured to the back of the range or stove by means of the flange 16 and the bolts 17, the discharge-pipe curving upward at its rear end and terminating in an integrally-formed ingrain-bowl, the upper edge of the bowl registering with an aperture in the range-top, flanges on the bowl which carry apertures for the bolts 18, similar integral flanges within the ingrain-bowl which form a seat for the damper-plate 9, a damper composed of the plate 8 and 9, the plate 9 of the damper being adjustably secured in the plate 8, the combined plates forming a means for regulating the inflow of air, substantially as shown and for the purposes set forth.



3. In a hot-blast for ranges and cooking-stoves, a discharge-pipe conical in form, the said pipe extending into the fire-box of the range or stove, the rear end of the pipe being curved upward and terminating in an ingrain-bowl, integral flanges on said bowl which carry apertures, bolts extending through the said apertures and the range-top, whereby the parts are secured together, a secondary ornamental stand secured to the upper surface of the range which forms the ingrain for the hot-blast, ears integrally formed on the said stand, the front ears of which form a bearing for the swinging handle while the rear ears form a bearing for the ornamental back, substantially as shown and for the purposes set forth.

701,475. VAPOR-STOVE. JAMES H. FINE, KANSAS CITY, Mo., and RAYMOND ANDERSON, KANSAS CITY, Mo. Filed Mar. 11, 1901. Serial No. 20,024. (No model.)



Claim.—1. In a vapor-stove, the combination with a generator, of a waste-receptacle, means for conveying liquid oil emitted by the generator into the waste-receptacle, an oil-supply tank located normally higher than the generator and the waste-receptacle, but adapted to be disposed in a position lower than the waste-receptacle and the generator, an oil-conductor provided with an always-open passage connecting the supply-tank with the generator, an oil-conductor provided with a passage connecting the waste-receptacle with the supply-tank, and having means for closing the latter passage when the supply-tank is in the raised position, substantially as described.

2. In a vapor-stove, the combination with a generator, of a waste-receptacle, means for conveying liquid oil emitted by the generator into the waste-receptacle, an oil-supply tank located normally higher than the generator and the waste-receptacle, but adapted to be disposed in a position lower than the waste-receptacle and the generator, an oil-conductor provided with an always-open passage connecting the supply-tank with the generator, an oil-conductor provided with a passage connecting the waste-receptacle with the supply-tank and having a valve for closing the latter passage when the supply-tank is in the raised position, substantially as described.

3. In a vapor-stove, the combination with a generator, of a waste-receptacle, a burner disposed intermediate the generator and the waste-receptacle in a position adjacent to the generator, means for conducting the liquid oil emitted from the generator to the said burner and thence into the waste-receptacle, an oil-supply tank located normally higher than the generator and the waste-receptacle, but adapted to be disposed in a position lower than the generator and the waste-receptacle, an oil-conductor provided with an always-open passage connecting the supply-tank with the generator, an oil-conductor provided with a passage connecting the waste-receptacle with the supply-tank, and having means for closing the latter passage when the supply-tank is in the raised position, substantially as described.

4. In a vapor-stove, the combination with the burner, of a generator, means for mixing air with the vapor emitted from the generator and conducting the mixture to the burner, a waste-receptacle, a supplemental burner intermediate the generator and the waste-receptacle, and means for conveying liquid oil emitted from the generator to the supplemental burner and from thence into the waste-receptacle, substantially as described.

5. In a vapor-stove, the combination with the burner, of a generator, means for mixing air with the vapor emitted from the generator and conducting the mixture to the burner, a waste-receptacle, a supplemental burner intermediate the generator and the waste-receptacle, means for conveying liquid oil emitted from the generator to the supplemental burner and from thence into the waste-receptacle, and a casing enclosing the supplemental burner for conveying heat therefrom to the generator, substantially as described.

6. In a vapor-stove, the combination with a generator, of a burner, means for mixing air with the vapor emitted from the generator and conveying the mixture to the burner, a waste-receptacle, a supply-tank located normally higher but adapted to be disposed in a position lower than the waste-receptacle and the generator, a supplemental burner intermediate the generator and the waste-receptacle, means for conveying liquid oil emitted from the generator to the supplemental burner and from thence into the waste-receptacle, an always-open oil-conductor connecting the supply-tank with the generator, an oil-conductor connecting the waste-receptacle with the supply-tank, and provided with means for closing the latter conductor when the supply-tank is in the raised position, substantially as described.

7. In a vapor-stove, the combination with a generator, of a waste-receptacle, a burner intermediate the generator and the waste-receptacle, means for conveying liquid oil emitted from the generator to the burner and thence into the waste-receptacle, a supply-tank located normally higher than the generator and the waste-receptacle, but adapted to be disposed in a position lower than the waste-receptacle and the generator, a conductor provided with an always-open passage connecting the supply-tank with the generator, a conductor provided with a passage connecting the waste-receptacle with the supply-tank, and having means for closing the latter passage when the supply-tank is in the raised position, substantially as described.

8. In a vapor-stove, the combination with a generator, of a waste-receptacle, a burner intermediate the waste-receptacle and the generator, means for conveying liquid oil emitted from the generator to the burner and thence into the waste-receptacle, a supply-tank located normally higher than the generator and the waste-receptacle, but adapted to be disposed in a position lower than the generator and the waste-receptacle, a casing enclosing the burner for conveying heat to the generator, a conductor provided with a passage connecting the waste-receptacle and the generator with the supply-tank, and having means for closing the passage to the waste-receptacle when the supply-tank is in the raised position, substantially as described.

9. In a vapor-stove, the combination with a generator, of a mixing-chamber for receiving vapor emitted from the generator, a waste-receptacle, a burner disposed intermediate the waste-receptacle and the mixing-chamber, means for conveying liquid oil from the mixing-chamber into the burner and thence into the waste-receptacle, and an inclined conductor for carrying downward liquid oil emitted from the generator into the mixing-chamber, substantially as described.

10. In a vapor-stove, the combination with a generator, of a mixing-chamber for receiving vapor emitted from the generator, a waste-receptacle, a burner located intermediate the waste-receptacle and the mixing-chamber, a casing enclosing the burner for conveying heat therefrom to the generator, an inclined conductor for conveying liquid oil from the generator downward into the mixing-chamber, and means for conveying liquid oil passing into the mixing-chamber to the burner and thence into the waste-receptacle, substantially as described.

11. In a vapor-stove, the combination with a generator, of a burner, means for conveying vapor emitted from the generator to the burner and mixing with air, a waste-receptacle, a supplemental burner disposed between the generator and the waste-receptacle, means for conveying liq-

aid oil omitted from the generator to the supplemental burner and thence into the waste-receptacle, a casing enclosing the supplemental burner for conveying heat therefrom to the generator, and a deflector disposed above the casing in a position such as it will deflect the flame in the casing to the main burner, substantially as described.

12. In a vapor-stove, the combination with a generator, of a waste-receptacle, a burner disposed intermediate the generator and the waste-receptacle, an oil-conductor leading to the waste-receptacle from the burner, a mixing-chamber provided with a lateral opening for receiving air and also for receiving vapor discharged from the generator, and provided with an opening for the discharge of mixed vapor and air, an inclined oil-conductor for conveying oil downward from the generator through the said lateral opening into the mixing-chamber, and a conductor leading from the mixing-chamber to the said burner, substantially as described.

13. In a vapor-stove, the combination with a generator, of a waste-receptacle, a conductor for oil leading to the waste-receptacle, a burner provided with an oil-conveying chamber having an internal oil-passage leading to the said conductor, and having oil-passages leading from the chamber to the exterior of the burner for carrying oil to the outside thereof, and an oil-passage leading from the exterior of the burner into the said waste-receptacle conductor, and means for conveying liquid oil from the generator into the said chamber, substantially as described.

14. In a vapor-stove, the combination with a burner provided with an oil-receiving chamber and having an internal oil-passage leading therefrom and a passage leading to the exterior thereof, and a groove for receiving the oil passing to the exterior of the burner, of an oil-conductor connected to the said groove and the said internal passage, and an oil-conductor leading to the said chamber, substantially as described.

15. In a vapor-stove, a burner comprising a body provided with a chamber having an oil-inlet leading thereon, an internal discharge-passage, passages leading from the chamber to the exterior thereof, a groove in the exterior of the body to receive the oil discharged upon the exterior, and a passage leading from the said groove to the said internal passage, substantially as described.

16. In a vapor-stove, the combination with a supply-tank, of a valve member provided with a tapering bore therethrough and having two openings leading therefrom to the exterior thereof, a rotary member fitted to the said tapering bore and provided with an internal oil-passage always communicating with one of the said openings and communicating with the other opening when the valve member is rotated to a certain position, and a pipe connecting the supply-tank with the said rotary member and communicating interiorly with the tank and the internal oil-passage of the said rotary member, substantially as described.

17. In a vapor-stove, the combination with a generator, of a burner so disposed as to impart heat to the generator and to receive vapor discharged therefrom, a supplemental burner, a waste-receptacle, and means for conducting liquid oil omitted from the generator to the supplemental burner and thence into the waste-receptacle in a continuous flow and without the formation of oil pools, substantially as described.

18. In a vapor-stove, the combination with a generator, of a burner, a waste-receptacle, means for conducting oil to the generator, means for conducting oil from the waste-receptacle to the said oil-conducting means, and means for conducting liquid oil omitted from the generator to the burner and thence into the waste-receptacle in a continuous flow and without the formation of oil pools, substantially as described.

19. In a vapor-stove, the combination with a generator, of a burner so disposed as to impart heat to the generator and to receive vapor discharged therefrom, a supplemental burner, a waste-receptacle, means for conducting oil to the generator, means for conducting oil from the said waste-receptacle to the said oil-conducting means, and means for conducting liquid oil omitted from the generator to the supplemental burner and thence into the waste-receptacle in a continuous flow and without the formation of oil pools, substantially as described.

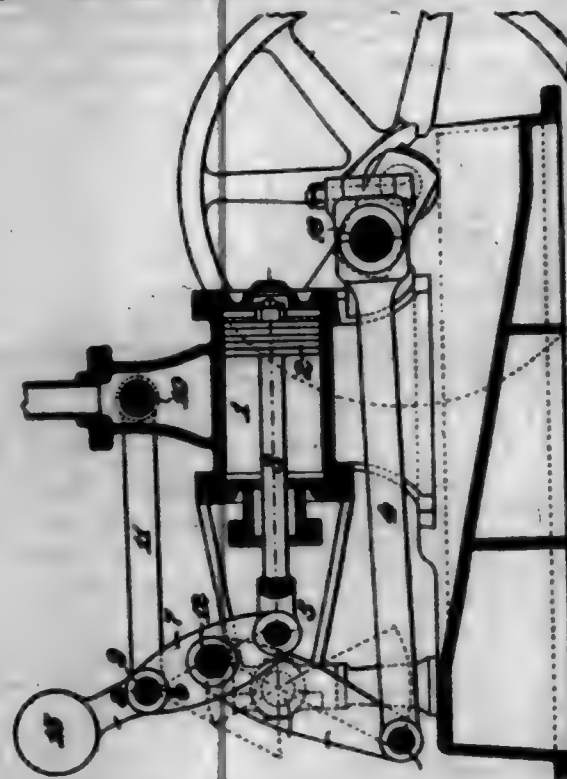
701,476. EYBLET. JOHN W. PUGH, New Britain, Conn. Filed Dec. 10, 1901. Serial No. 86,570. (No model.)



Claim.—1. An cyclist comprising in its construction, a tubular-shaped body, a flat flange arranged at one end thereof, notches at intervals in said flange forming radial projections, the sides of said projections being downturned and located in radial planes with respect to the axis of the tubular-shaped body, substantially as described.

2. An cyclist comprising in its construction a tubular-shaped body, a flat flange arranged at one end thereof, radial projections from said flange, the sides of said projections being downturned and located in radial planes with respect to the axis of the tubular body, all substantially as described.

701,477. MEANS FOR COUNTERBALANCING THE MOMENTUM OF RECIPROCATING ELEMENTS. MATTHEW M. FORNEY, New York, N. Y. Filed Dec. 2, 1901. Serial No. 84,992. (No model.)



Claim.—1. The combination with a reciprocating element, of an articulated system of oscillating levers or links, connected to the reciprocating element and forming a guide to insure rectilinear motion thereof, a link coupling said system of levers to a fixed support, and a rod connected to said system of levers and to a crank and moving in opposite direction to the reciprocating element.

2. The combination, with a reciprocating piston and rod, of an articulated system of oscillating levers or links, coupled to the piston-rod and forming a guide to insure rectilinear motion thereof, a link coupling said system of levers to a fixed support, a connecting-rod which is coupled to said system of levers and to a crank, and moves in opposite direction to the piston-rod, and a counterbalance-weight connected to the system of levers and also moving in opposite direction to the piston-rod, the aggregate of said counterbalance-weight and of the weight of the connecting-rod being sufficient to counterbalance the piston and rod.

3. The combination, with a reciprocating piston and rod, of a primary lever connected at one end to the piston-rod, a link coupled to the primary lever and to a fixed support, a connecting-rod coupled at one end to a crank and at the other end to the primary lever, and a counterbalance-weight connected to the end of the primary lever opposite that adjacent to which the piston-rod is connected.

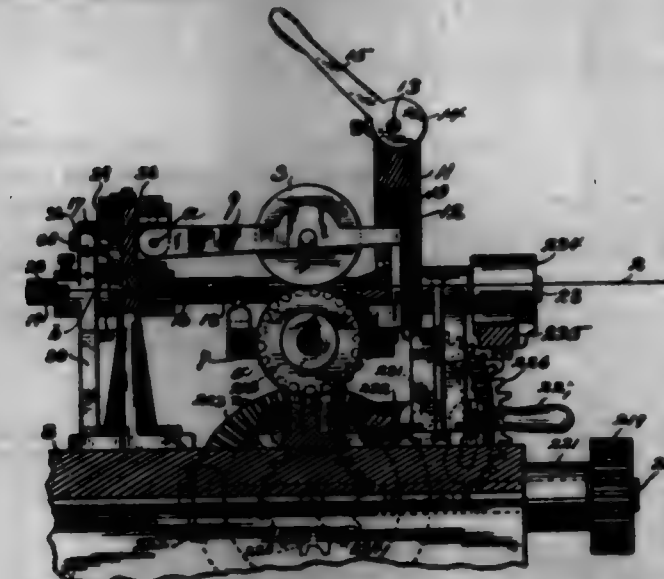
4. The combination, with a reciprocating piston and rod, of a primary lever connected at one end to the piston-rod, a link coupled to the other end of the primary lever and to a fixed support, a secondary lever journaled in fixed bearings and having one of its arms pivotally connected to the primary lever between the link and piston-rod connection thereof, and a connecting-rod coupled to the opposite arm of the secondary lever and to a crank.

5. The combination, with a reciprocating piston and rod, of a primary lever connected at one end to the piston-rod, a counterbalance fixed to the opposite end of the primary lever, a link coupled to the primary lever and to a fixed support, a secondary lever journaled in fixed bearings and having one of its arms pivotally connected to the primary lever between the link and piston-rod connections thereof, and a connecting-rod coupled to the opposite arm of the secondary lever and to a crank.

701,478. BALSTIN MACHINE. FRANK PRATER, Sterling, Ill. Filed Oct. 14, 1901. Serial No. 78,604. (No model.)

Claim.—1. In a balst-machine the combination of mechanism for feeding a series of wire into the machine; mechanism for cutting each wire after they have been introduced a desired distance into the machine; mechanism for supporting each wire while they are being introduced

into the machine, and for releasing the same after they have been so introduced and covered; mechanism for imparting to each covered piece an intermittent lateral movement; mechanism for forming a loop on one end of each of such wires, in succession, during each lateral movement; and mechanism for binding a plurality of such wires into a bundle substantially as set forth.



2. In a balst-machine the combination of mechanism for feeding a continuous wire into the machine; mechanism for cutting a piece from such wire after it has been introduced a desired distance into the machine; mechanism for supporting each wire and releasing the same after it has been so introduced and cut; mechanism for imparting to each covered wire an intermittent, lateral movement; and mechanism for forming a loop on the end of each wire during each lateral movement; substantially as described.

3. In a balst-machine the combination of means for introducing a series of wire strands a desired distance into the machine; means for simultaneously cutting pieces of wire from such strands, and delivering such covered wires to a conveying mechanism; means for conveying such covered wires by an intermittent movement, laterally through and from the machine; and means for forming a loop on one end of each of such wires, in succession, during each lateral progress through the machine; substantially as shown and set forth.

4. In a balst-machine, mechanism for forming a loop on the end of a wire, consisting of the plunger 55, provided with a vertically-movable pin 62; twisting-head 67, provided with a pin 76, adapted to disappear therein; plate 71 provided with the groove 72; jaws 84, and means for operating said mechanism, substantially as shown and set forth.

5. In a balst-machine the combination of mechanism for feeding a series of wire into the machine; mechanism for simultaneously cutting each wire after they have obtained a desired length, consisting of a series of knives 56, having handles 58 pivotally secured on the face-plate 17 in proximity thereof, a slide-bar 29, supporting a series of blocks 36, engaging the handles 58 of the knives, and means for moving the slide-bar 29 so as to cause the knives 56 to cross the ends of the tubes 16 through which the wires pass, whereby each wire is covered; mechanism for supporting each wire, and releasing the covered wire therefrom; mechanism for conveying each covered wire by an intermittent movement, laterally through and from the machine; and mechanism for forming a loop on each wire, in succession, as it passes through the machine; substantially as set forth.

6. In a balst-machine the combination of mechanism for feeding a series of wire strands into the machine; mechanism for guiding and supporting each wire during their progress into the machine, and for releasing the same after a desired length thereof has been obtained; mechanism consisting of a series of guides 19, channeled to receive such wires, and adapted to open so as to permit each wire to drop therefrom; means for supporting each guide, and means for simultaneously opening each guide to permit the release of the wire therefrom; mechanism for simultaneously cutting each wire; mechanism for conveying each covered wire by an intermittent movement laterally through the machine; and mechanism for forming a loop on the end of each wire, in succession, during each lateral progress through the machine; substantially as described.

7. In a balst-machine the combination of mechanism for conveying the wire laterally through the machine, each mechanism consisting of a series of tracks 46, several pair of racks 48 and 47, one pair for each of the tracks 46, and means for imparting to each rack an eccentric intermittent movement; mechanism for forming a loop on one end of each wire as it passes through the machine; and means for delivering a

plurality of wire simultaneously to the conveying mechanism above referred to; substantially as set forth.

8. In a balst-machine the combination of mechanism for introducing a series of wire strands into the machine; mechanism for cutting lengths of wire from such strands after they have been fed a desired distance into the machine; mechanism for delivering each covered length to a loop-forming device; and loop-forming mechanism, consisting of a plunger 55, provided with a vertically-movable pin 62, twisting-head 67, provided with a pin 76 adapted to disappear therein, plate 71 provided with groove 72, jaws 84, and means for operating such loop-forming mechanism; substantially as shown and set forth.

9. In a balst-machine, the combination of mechanism for introducing a series of wire strands a desired distance into the machine; mechanism for simultaneously cutting pieces of wire of a desired length from such strands, and delivering each covered wire to a conveying mechanism; mechanism for conveying such covered wires by an intermittent movement laterally through such machine; mechanism for forming a loop on one end of each of such wires, in succession, during each lateral progress through the machine; and building mechanism, consisting of a series of brackets 100 having recesses 106, a shaft 102, supporting a series of plates 108, adapted to receive and hold the balst-wire; the disk 114 provided with knife 115, the disk 118 carrying the knife 120, the wire 107, coiling-finger 109, secured on the shaft 110, and means for supporting and opening such building mechanism; substantially as shown and described.

10. In a balst-machine wherein the wires are passed laterally through the machine, and formed into balst-ties during each passage, mechanism for forming the completed balst-ties into bundles of a desired size, consisting of the following parts in combination: a series of brackets 100 having recesses 106; a series of plates 108 supported on the shaft 102, and adapted to receive a desired number of completed balst-ties and force the same into a compact bundle in the recesses 106; a coiling-finger 109 secured on the shaft 110, and means for operating such shaft and coiling-finger at desired intervals; a disk 114 provided with the knife 115, and the disk 118 provided with the knife 120, each disk being adapted to draw out a piece of the wire 107 and cut each wire after the same has been coiled about the balst-tie; the rack 183 engaging a pinion 184 on a shaft 103; the hollow shaft 192 and cam 177 fixed thereon, each cam being adapted to impart to the rack 183 an eccentric reciprocating movement; the clutch 188, and means for rotating the same; the hanger 180, and yoke 191 supported thereby; the brace 185 pivotally secured to hanger 180; cam 186 on the cam 177, against which the end of the brace 185 rests, holding the clutch 188 normally out of engagement with the hollow shaft 192; the lever 190, and cam 207, adapted to operate such lever when such parts are vertically in line with one another; the rod 200; lever 201; and the counter-wheel 203, having teeth 204 and a lug 205, and adapted to engage the end of the lever 201, whereby the lever 190 is brought into line with the cam 207, the brace 185, and cam 186 disengaged, and the cam 177 set in motion; substantially as set forth.

701,479. HAIR-FASTENER. ROBERT E. GLASS, Cincinnati, Ohio. Filed June 5, 1901. Serial No. 82,392. (No model.)



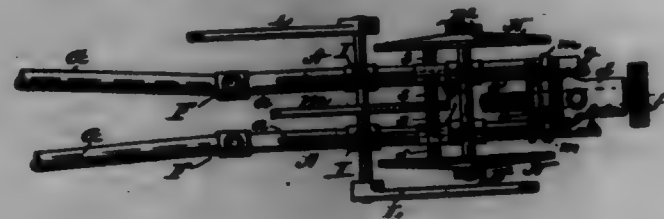
Claim.—1. A hair-pin comprising a long leg and a short leg having a connecting-web, an arcuate spring-plate attached at its forward end to the inner face of the short leg at the free end thereof, said spring-plate being adapted to lie with its free end transversely of the long leg and in the direction of the web, and a sleeve slidably mounted upon the short leg of the hair-pin and having an opening in its side through which the spring-plate is adapted to pass when the sleeve is moved in a direction away from the web, said sleeve having an arcuate operating-finger extending beyond the web of the pin and having its end hollowed to fit upon the web of the pin when the sleeve is moved in a direction to expose the spring-plate.

2. A hair-pin comprising a long leg and a short leg having a connecting-web, an arcuate spring-plate attached at its forward end to the inner face of the short leg and at the free end thereof and adapted to normally lie with its free end transversely of the long leg, and a sleeve slidably mounted upon the short leg of the hair-pin and having an opening in its side through which the spring-plate is adapted to pass when the sleeve is moved in a direction away from the web, said sleeve having an operating-finger extending beyond the web of the pin and having its end constructed and arranged to fit upon the web when the sleeve is in position to expose the spring-plate.

3. A hair-pin comprising a long rigid leg and a short rigid leg having a connecting-web, an arcuate spring-plate attached at one end to the

inner face of the short leg and arranged to lie normally with its free end in the direction of the web of the pin, said plate lying in the plane of the two legs of the pin whereby its free end will contact with the long leg of the pin when moved in a direction away from the web, to stop such movement of the plate, and a sleeve slidably mounted upon the short leg of the hair-pin and having an opening arranged to permit of passage of the spring-plate therethrough when the sleeve is moved in a direction away from the web.

701,480. POWER APPLYING AND TRANSMITTING APPARATUS. JAMES E. HARRIS, New York, N. Y. Filed Nov. 24, 1900. Serial No. 37,557. (No model.)



Claim.—1. In a frictional speed-gearing of the class herein described, the rectangular frame composed of the longitudinal ribs *a*, two on each side, united together at their rear ends and having their front ends connected to the plate or head *c*; blocks or frames *g* mounted on said ribs and carrying the friction-rollers *e*, in combination with an including frame *A*, vertical rods *I* and *B*, central bearings for the reception of the power-applying shaft *K*, and power-transmitting shaft *H*, respectively; friction disk or wheel *M* rigidly keyed to shaft *K*, friction disks or wheels *N* longitudinally adjusted and reversible with shaft *H*, and the screw-threaded bolt *d*, having milled head *f*, arranged in the tubular head *d* and engaging with a correspondingly screw-threaded opening in the plate or head *c* of the rectangular frame, substantially as specified.

2. In a frictional speed-gearing of the class herein described, the rectangular frame composed of the ribs *a*, head or plate *c*, and blocks or frames *g* carrying the friction-rollers *e*, in combination with the screw-threaded bolt *d*, located in the tubular head *d*, and engaging with a correspondingly screw-threaded opening in the plate or head *c*; said bolt *d* being adapted for operation through the medium of the friction-wheel *g* located thereon, and the friction-rollers *e* are attached to curved arm *h*, and operating-cords *e*, substantially as specified.

3. In a frictional speed-gearing of the class herein described, the rectangular frame composed of the ribs *a* and plate or head *c*, blocks or frames *g*, the friction-rollers *e*; said frame being capable of longitudinal adjustment in the main frame *A* through the medium of the screw-threaded bolt *d*, arranged in the tubular head *d*, substantially as specified.

4. In a frictional speed-gearing of the class herein described, the curved arm *h*, friction-rollers *e* and cords *e*, in combination with the friction-wheel *g*, and the screw-threaded bolt *d*, whereby the rectangular frame is capable of longitudinal adjustment within its including frame *A*, substantially as specified.

701,481. REGISTER, VENTILATOR, OR THE LIKE. HOWARD S. HART, New Britain, Conn., assignor to Hart & Cooley Company, New Britain, Conn., a Corporation of Connecticut. Filed Mar. 26, 1901. Serial No. 52,936. (No model.)



Claim.—1. A top plate for registers and the like, comprising a plate having an opening, a depending flange adjacent said opening, metal strips stretched across said opening and secured in position by the upset ends thereof.

2. A top plate for registers and the like, comprising a plate having an opening, a depending flange adjacent said opening, metal strips stretched across said opening and secured in position by riveting the ends thereof, one end of said strips crossing another end of said strips.

3. A top plate for registers and the like, comprising a frame and flattened wires attached to said frame and stretched across the same, some of said wires crossing other of said wires, and said wires being arched in cross-section between the points of intersection.

4. A top plate for registers and the like, comprising a flanged frame and flattened wires riveted to the flange of said frame and stretched across the opening, a portion of frame of said wires being arched in cross-section.

5. A top plate for registers, ventilators and the like, comprising a frame, strips secured to said frame forming the bearing and supporting surface of said top plate, the said strips being woven together and arched in cross-section at those portions between the points of their intersection one with the other.

701,482. MOP. HENRY A. HAYDEN, Jersey City, N. J. Filed Aug. 8, 1901. Serial No. 71,201. (No model.)



Claim.—In a mop, the combination with the hollow, oblong metal head having sloping or flared front and ends, the latter provided with internal flanges, and the top plate having open slots 7, the clamping-bar, and the securing-screws engaging said slots in the top plate and screwing into said bar, of the block 10 having grooves in its ends to receive the internal flanges on the ends of the head, and the sponges secured to said block and adapted to project out beyond the head at the front and ends when said block is in place, substantially as set forth.

701,483. FIRE-ESCAPE APPARATUS. ROBERT R. HENNING, Oakland, Cal. Filed July 17, 1900. Serial No. 724,024. (No model.)



Claim.—1. A fire-escape apparatus including a wheeled truck, a reel, a rope ladder composed of side ropes, hand-ropes, spaced ladder-rungs and standards carrying the hand-ropes; in combination with a running-cable permanently affixed to the building, a sheave and a clutch device placed in relation to the sheave, for operation as described.

2. In a fire-escape apparatus a rope ladder composed of side ropes, rungs joining the side ropes together at intervals apart, standards attached to the side ropes by hinged connections that permit movement of the standards in a quarter-circle, and hand-ropes supported by said standards, as described.

3. In a fire-escape apparatus the combination with a wheeled truck, a reel mounted thereon, a rope ladder wound on the reel having side ropes and hand-ropes and connecting rungs and standards; of means for attaching the end of the ladder to a building at a point higher than the truck, means for securing the ladder perpendicularly against the face of the building at a point below the said point of attachment to the building, and tension devices for maintaining tension on the side ropes and the hand-ropes, as described.

4. In a fire-escape apparatus the combination, with a wheeled truck, a reel, a flexible ladder wound on said reel having means for clamping and carrying sections of fire-hose thereon; of a running-cable permanently affixed to the face of a building and extending downward from a sheave at the top and a clutch device located with relation to the sheave as described, as a means of raising the ladder up to and suspending it from the clutch.

5. In a fire-escape apparatus the combination, with a flexible ladder adapted to be wound on a reel; of a ball on the end of the ladder and a clutch device on the building; adapted to seize the ball and comprising a stationary hook and an inclined guard overhanging the point of the hook.

6. The combination on a building-front of a clutch device composed

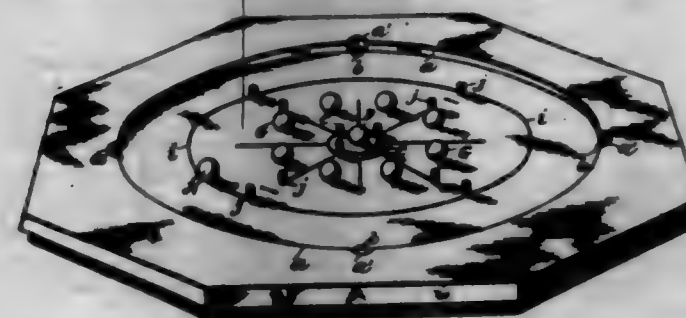
of a stationary hook projecting outwardly from the building, an inclined gravity-guard overhanging the point of the hook, and a running-cable extending from a sheave above the hook downward along the face of the building.

7. In a fire-escape apparatus, a flexible fire-ladder composed of side ropes, hand-ropes rigid rungs joining the side ropes at intervals, standards supporting the hand-ropes and connected to the rungs by hinged joints and means for clamping sections of fire-hose to the ladder-rungs.

8. A fire-escape apparatus including a wheeled truck, a flexible ladder, a reel for the ladder, tension devices adapted to apply tension to the ropes of the ladder, winding-rollers mounted on the truck, and means attached to a building for raising and lowering the end of the ladder to a point of suspension above the street, comprising a sheave, a running-cable extending over the sheave and down to the ground, and adapted for connection with the winding-roller, and a clutch device located below the sheave and constructed to seize and fasten the end of the ladder to the building, as described.

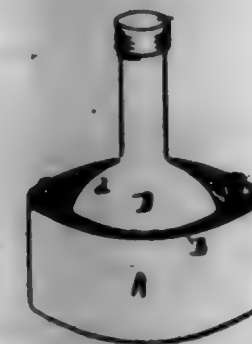
9. The combination with a truck and a reel mounted thereon, of pliable hose-carrying sections formed of parallel cables united by rigid cross-bars, hose-sections detachably secured to the cross-bars, and coupling devices on the ends of the cable-sections and the hose-sections for joining the same together to increase or reduce the length thereof, said cable-sections forming both a ladder and a carrier for the hose being adapted to wind upon and be unwound from the reel.

701,484. GAME-BOARD. GEORGE E. JOHNSON, Leesville, Pa. Filed Oct. 12, 1901. Serial No. 73,400. (No model.)



Claim.—A game-board having a rail and a series of pockets adjacent thereto, a central depression to receive initially a ball to be dislodged, a circular series of depressions for initially-placed balls surrounding the central depression, a concentric series of posts between the central and outer depressions said posts being interposed in the radial paths of the outer balls to render difficult the dislodgment of the central ball by an outer ball, and a series of posts forming wickets between the outer depressions and rail.

701,485. DISINFECTING DEVICE. LOUIS R. JONES, Conshohocken, Pa., assignor to J. H. Wood Lee Company, Conshohocken, Pa., a Corporation of Pennsylvania. Filed Jan. 18, 1902. Serial No. 90,250. (No model.)



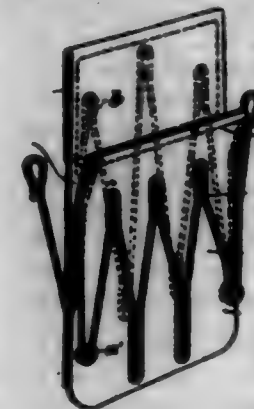
Claim.—1. The combination of a vessel containing a combustible fumigating composition with a bottle set in the center of the said composition and having an upwardly-projecting contracted neck the mouth of which extends above the point reached by the flames from the combustible fumigating composition.

2. The herein-described disinfectant consisting of a vessel containing combustible fumigating composition with a bottle set in the said composition, the mouth of the neck extending above the point reached by the flames of said composition, said bottle having a body of relatively large diameter and an upwardly-projecting contracted neck, the upper part of the body of the bottle and the neck both projecting above the surface of the combustible composition, substantially as set forth.

3. The herein-described disinfectant consisting of a vessel containing combustible fumigating composition with a bottle set in the center of said

composition and having a projecting contracted outlet at the top and wicks coiled in the composition around the bottle, said outlet extending above the point reached by the flames of said composition.

701,486. PENCIL-HOLDER. FRANK J. KAMBER, Colorado Springs, Colo. Filed Mar. 7, 1902. Serial No. 97,079. (No model.)



Claim.—1. As an improved article of manufacture a pencil-holder comprising an outer clamp formed of spring-wire, and having a plurality of upwardly and downwardly extending loops, an inner clamp formed of spring-wire, and having a plurality of upwardly and downwardly extending loops, means connecting the clamps, arranged at the lower corners thereof, and means on one of the clamps for securing the holder in a garment-pocket.

2. As an improved article of manufacture, a pencil-holder comprising an outer clamp formed of a single piece of spring-wire, and having the upwardly-extending loops, the end arms and the cross-bar connecting the end arms, an inner clamp formed of a single piece of spring-wire and having the loops extending above those of the outer clamp, and the end arms terminating in hooks, means connecting the clamps at the lower corners thereof, a layer of soft material secured between the lower portions of the clamps and connected to the cross bar of the outer clamp, and a layer of soft material secured between the lower portions of the clamps, and having a pocket receiving the upper ends of the loops of the inner clamp.

701,487. FEEDING MECHANISM FOR CARDING-MACHINES. HARRY KENT, Boston, Mass. Filed Jan. 2, 1902. Serial No. 92,476. (No model.)



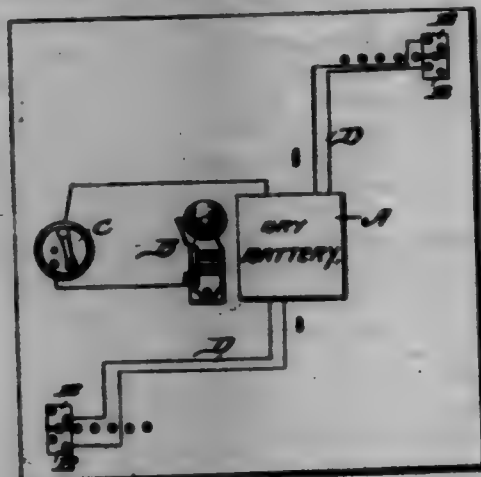
Claim.—1. In a feeding mechanism for carding-machines, the combination with a frame, the rack, the carrier, and the plate pivoted thereon; of a pair of feed-rolls disposed under the plate and provided with gears adapted to engage the rack and at a time, horizontal springs located in

said plate and pressing the feed-rolls normally toward each other, and intermediate gear intermeshing and meshing into the gear with which the feed-rolls are provided, whereby as the feed-rolls are operated by the driver, motion is communicated by one to the other by said intermediate gear, substantially as described.

2. In a feeding mechanism for carding-machines, in combination, the frame; the rack; the carrier; the plate (1) provided with the slots 5 formed with the edges or steps 10; the studs 4, and boxes 6, the latter adapted to slide horizontally in said slots, said boxes being provided with the overlapping edges 9; and the feed-rolls on said studs, substantially as set forth.

3. In a feeding mechanism for carding-machines, in combination, the frame; the rack; the carrier; the plate (1) provided with the slots 5; the studs 4; the hubs 3 of the feed-rolls; the boxes 6 adapted to slide horizontally in said plate and provided with the overlapping edges 9, 9' formed with the extensions 11, 11'; and the downwardly-extending brackets 31 provided with the inwardly-extending steadying-plates 32, substantially as described.

701,488. GAME-COUNTER. WILLIAM J. LAWRENCE, Wilkes-Barre, Pa. Filed Oct. 15, 1901. Serial No. 73,780. (No model.)



Claim.—1. A combined game counter and accumulator consisting of a counter-plate having a plurality of counter-holes adapted to receive a counting-pin, circuit-closing plates arranged adjacent to the counting-plate and adapted to receive the counting-pin at the terminal ends and the electromagnetic bell and circuit connected with the contact-plates, substantially as shown and described.

2. A combined game counter and accumulator comprising in combination a board having counter-plates attached thereto and provided with suitable openings, metallic counter-pins adapted to be inserted in the said openings, the contact-plates arranged beneath the terminal opening, the electromagnetic bell, battery and circuit attached also to the board and connected with the contact-plates, substantially as shown and described.

3. A combined game counter and accumulator comprising in combination a board having counter-plates arranged thereon, said counter-plates having openings produced therein, and marked to designate the points of the game, a metallic counter-pin adapted to be inserted in said openings, contact-plates arranged beneath the terminal opening, the battery, electromagnetic bell, push-button and circuit-wires, all arranged and adapted to operate substantially as described.

4. The combination with a board having counter-plates arranged thereon, said counter-plates having a series of openings produced therein, of the counter-pin adapted to be inserted in the said openings, the lower ends of said pins being metallic, the contact-plates arranged beneath the terminal openings, the circuit-wires, battery and electromagnetic bell, and the switch for opening and closing the circuit, substantially as described.

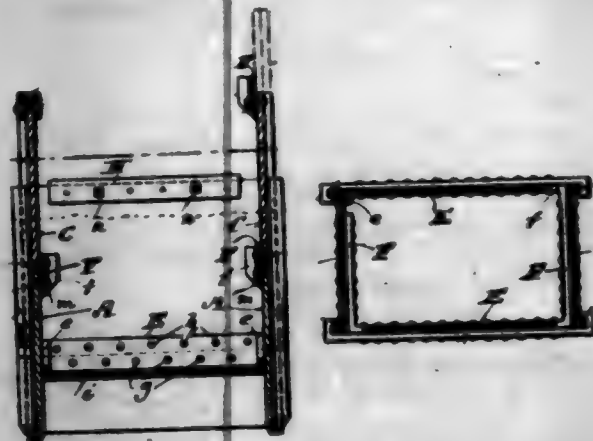
701,489. PIPE-WRENCH. WILLIAM LOVE, BYR MAINT. PA. Filed Feb. 14, 1901. Serial No. 73,574. (No model.)



Claim.—A pipe-wrench comprising a handle portion, the forward end of said handle portion being curved upward to form the contact point or nose V, an opening formed through the handle portion at the forward

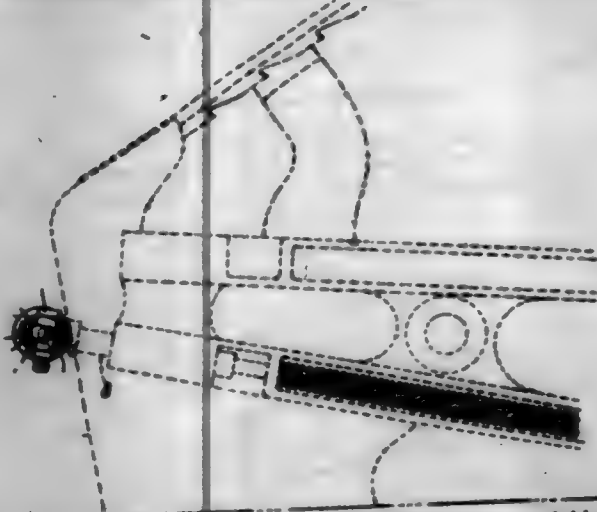
part thereof, a strip of flexible material secured to the under side of the handle portion at a point in the rear of the opening, a bolt passing upward through the flexible strip and through the handle portion and having a nut threaded upon its upper end for the purpose of securing the strip to the handle, said strip passing from its point of attachment upward through the opening around the object to be gripped and back again through the opening, substantially as and for the purpose specified.

701,490. METHOD OF SINKING SHAFTS. GEORGE J. HARR, Saginaw, Mich. Original application filed July 3, 1900. Serial No. 725,614. Divided and this application filed Dec. 3, 1900. Serial No. 72,423. (No model.)



Claim.—The method of building and sinking mine shafts consisting in maintaining a series of shaft-plates in proper relative position to form a transverse section or zone of shafting incapable of lateral separation and capable of independent vertical movement; forcing said plates independently downward; building up the shaft by adding thereto other shaft sections or zones, the plates thereof aligning with those of the sections or zones below, and applying force independently to each of the plates of said added sections to drive said added plates, and the plates below the same downward; and finally removing the material within the shaft.

701,491. INKING-ROLLER FOR PRINTING-PRESS. JAMES F. HARR, Philadelphia, Pa. Assignor, by direct and mesne assignments, of two-thirds to John L. Larson and Charles E. Day, Philadelphia, Pa. Filed Oct. 21, 1901. Serial No. 73,534. (No model.)



Claim.—1. In combination with a printing-press, an inking-roller, eccentric journal-bearings for same, mounted in rotatable trucks and means for limiting the rotating movement of the journal-bearings.

2. In combination with a printing-press, an inking-roller, eccentric journal-bearings rotatably mounted in traveling supports and means for causing a limited rotation of said eccentrics by the initial movement in either direction of the traveling supports.

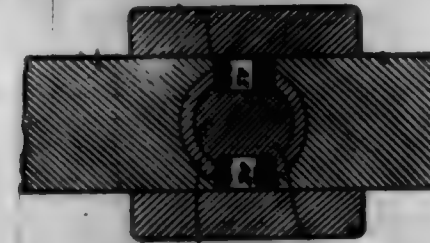
3. In combination with a printing-press, an inking-roller, eccentric journal-bearings for the shaft of same, trucks for supporting said journal-bearings adapted to roll along the frame of the press, said journal-bearings having a limited relative movement with said trucks, substantially as described.

4. In combination with a printing-press, an inking-roller, eccentric journal-bearings for the shaft of the roller, said journal-bearings being rotatably mounted in trucks but having a limited rotatable movement there-with, said trucks having rotatable engagement with trucks secured to the framework of the press, said eccentric-bearings adapted to shift position

as the roller-chalk changes direction of movement, substantially as described.

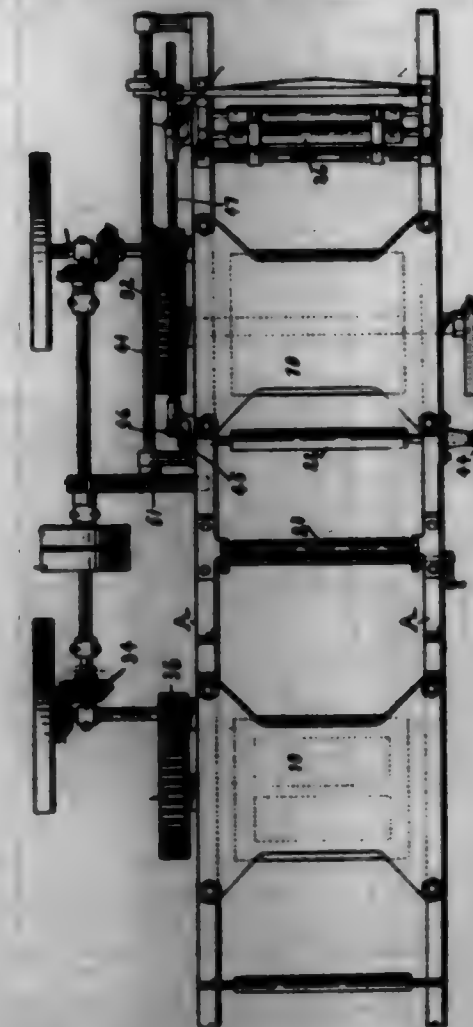
5. In combination with a printing-press, an inking-roller having its shaft mounted in spring-compressed journal-bearings, said shaft also rotatable in eccentrics having limited relative movement in trucks adapted to engage with stationary trucks, said eccentrics adapted to shift in position as the roller changes in direction of movement, substantially as described.

701,492. METHOD OF MAKING POOL-BALLS. JULIUS H. MAY, Chicago, Ill. Assignor to the Brunswick-Balke-Clender Company, Chicago, Ill., a Corporation of Ohio. Filed Mar. 24, 1902. Serial No. 59,702. (No specimen.)



Claim.—The herein-described method of manufacturing a composition ball, which consists in first compressing a mass of material into substantially spherical form and simultaneously forming therein cylindrical sockets or cavities in opposite portions thereof, then compressing upon said spherical body or core material of a distinguishing color to produce an annular band and simultaneously forming therein cylindrical apertures, registering with the sockets of the core, next forming or placing within said sockets inserts to afford number-spots and finally compressing a composition upon said core on opposite sides of said band, substantially as described.

701,493. MACHINE FOR PRINTING AND SCORING BOX-BLANKS. FRANCIS MUMFORD, Boston, Mass. Assignor to the Elder Press Company, Dover, N. H., a Corporation of New York. Filed Apr. 16, 1900. Serial No. 12,041. (No model.)



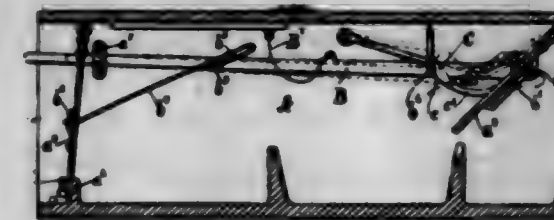
Claim.—1. In a combined machine for printing and scoring box-blanks, the combination of a printing-press, a scoring-press, feeding connections for feeding a single web of material through both of said presses, and driving connections for operating said parts, said driving connections being arranged so that the printing-press may be thrown out of opera-

tion without interfering with the feed of the web or the action of the scoring-press, substantially as described.

2. In a combined machine for producing printed or unprinted box-blanks as desired, the combination of a printing-press, a scoring-press, a web-feeding apparatus for feeding a single web of material through said presses, and driving connections connected to operate both of said presses, and the web-feeding mechanism, to produce printed box-blanks, and to operate the web-feeding mechanism and scoring-press alone when it is desired to produce unprinted box-blanks.

3. In a machine for producing printed or unprinted box-blanks as desired, the combination of a main frame, a platen printing-press arranged at one end of the frame, a platen scoring-press at the opposite end of the frame, web-guide rolls for directing a single web of material through both of said presses, a web-feeding mechanism comprising a pair of intermittently-rotating feed-rolls, arranged to act on a web after the same has passed the printing-press and before it reaches the scoring-press, and an auxiliary feeding-out mechanism at the outgoing end of the machine, consisting of a pair of feed-rolls geared to and actuated from the main feeding mechanism, and a driving-shaft having geared connections for operating the printing and scoring presses and the web-feeding device when it is desired to produce printed box-blanks, and for operating the scoring-press and feeding mechanism without operating the printing-press when it is desired to produce unprinted box-blanks.

701,494. FEED FOR FEEDER. DAVID V. MILLER, Woodsport, N. Y. Filed Oct. 2, 1900. Serial No. 51,513. (No model.)



Claim.—1. A feed comprising a hollow frame having inlet and outlet openings, closures for said openings actuated by the feed, the closure for the inlet-opening being normally out of its operative position for closing the inlet-opening when the feed is unoccupied and being movable automatically independently of the other closure for closing said inlet-opening after the entrance of the feed, and means for holding the closure for the inlet-opening in its normal position, for permitting said closure to move into its operative position to close the inlet-opening, and for moving said closure to its normal position when the other closure is opened by the escaping feed, substantially as and for the purpose described.

2. A feed comprising a hollow frame having an inlet-opening, a plurality of outlet-openings and closures for said inlet and outlet openings, and means connecting the closures for the inlet-opening to the closures for the outlet-openings for varying the position of the closure for the inlet-opening as either of the other closures is opened, substantially as and for the purpose specified.

3. A feed comprising a hollow frame having inlet and outlet openings, closures for said openings actuated by the feed, the closure for the inlet-opening being normally out of its operative position for closing the inlet-opening when the feed is unoccupied and being movable automatically independently of the other closure for closing said inlet-opening after the entrance of the feed, and a reciprocating actuating member connected respectively to the closures for moving the closure for the inlet-opening to its normal position when the other closure is opened by the escaping feed, said actuating member being provided with means for holding the closure for the inlet-opening in its normal position and for permitting said closure to move into its operative position to close the inlet-opening, substantially as and for the purpose specified.

4. A feed comprising a hollow frame having inlet and outlet openings in its ends and an outlet-opening in its top, closures for said inlet and outlet openings, and a reciprocating actuating member having its ends connected, respectively, to the closures for said openings in the ends of the frame, and its intermediate portion connected to the closure for said opening in the top of the frame, substantially as and for the purpose described.

5. A feed comprising a hollow frame having inlet and outlet openings, closures for said openings actuated by the feed, the closure for the inlet-opening being partly open when the feed is unoccupied and being movable automatically for closing said inlet-opening after the entrance of the feed, means connecting the closures for moving the closure for the inlet-opening to its partly-open position when the other closure is opened by the escaping feed, and a catch for holding the closure for the inlet-opening partly open, said catch being forced from its operative position

as the closure for the inlet-opening is additionally opened by the flow when entering the nest, substantially as and for the purpose set forth.

6. A nest comprising a hollow frame having inlet and outlet openings, closures for said openings, an actuating member connected, respectively, to the closures, for varying the position of the closures as the other closure is opened, and a catch for holding the actuating member in its adjusted position, substantially as and for the purpose set forth.

7. A nest comprising a hollow frame having inlet and outlet openings, closures for said openings, a reciprocating actuating member having its ends connected, respectively, to the closures, for opening one of the closures as the other closure is opened, said actuating member being movable independently of one of the closures, and a catch for holding the actuating member in its adjusted position, substantially as and for the purpose described.

8. A nest comprising a hollow frame having inlet and outlet openings, closures for said openings, a reciprocating actuating member having one end connected to the closure for the inlet-opening, and a connection between the closure for the outlet-opening and the other end of the actuating member, said connection being provided with means for permitting the actuating member to move independently of the connection and for causing said member to move simultaneously with said connection, substantially as and for the purpose specified.

9. A nest comprising a hollow frame having inlet and outlet openings, closures for said openings, a reciprocating actuating member having one end connected to the closure for the inlet-opening and movable independently of said closure for a limited distance and also movable simultaneously with said closure, and a connection between the closure for the outlet-opening and the other end of the actuating member, said connection being provided with means for permitting the actuating member to move independently of the connection and for causing said member to move simultaneously with said connection, substantially as and for the purpose set forth.

10. In a nest, the combination of a hollow frame having inlet and outlet openings, a closure for said inlet-opening, an actuating member for the closure, and a catch for holding the actuating member in its adjusted position, said catch being forced from its operative position by the closure, substantially as and for the purpose described.

11. In a nest, the combination of a hollow frame having inlet and outlet openings, a closure for said inlet-opening having a cam or shoulder, an actuating member movable independently of the closure and then movable simultaneously with the closure, and a catch for holding the actuating member in its adjusted position, said catch having a shoulder movable into engagement with the cam or shoulder of the closure for forcing said catch from its operative position, substantially as and for the purpose specified.

12. In a nest, the combination of a hollow frame having inlet and outlet openings, a closure for the inlet-opening having a pin *b* and a cam or shoulder, a reciprocating actuating member having an inclined slot for receiving the pin *b*, a catch for holding the actuating member in its adjusted position, said catch having a shoulder movable into engagement with the cam or shoulder of the closure for forcing said catch from its operative position, and a closure for the outlet-opening connected to the actuating member for actuating the same, substantially as and for the purpose set forth.

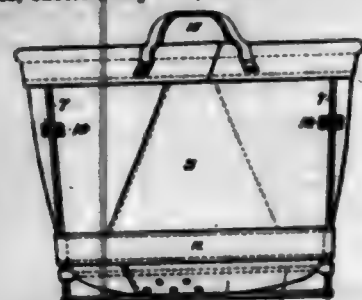
13. A nest comprising a hollow frame having inlet and outlet openings, a closure for said outlet-opening, an actuating member, and a link having one end yieldingly connected to said closure and its opposite end connected to the actuating member, said actuating member being movable independently of the link and being movable with said link, substantially as and for the purpose described.

14. In a nest, the combination of a hollow frame having inlet and outlet openings, a closure for the outlet-opening, an actuating member having a pin *b*, a spring-arm having one end fixed to the closure, a link having one end connected to the spring-arm and its other end formed with a lengthwise slot for receiving the pin *b*, and a closure for the inlet-opening connected to the actuating member, substantially as and for the purpose specified.

15. In a nest, the combination of a hollow frame having inlet and outlet openings in its ends, said frame being provided with a stop, closures for said openings hinged at their upper ends, the closure for the inlet-opening being normally partly open, and the closure for the outlet-opening being normally prevented from inward movement by the stop, and a reciprocating actuating member connected to the closures, substantially as and for the purpose set forth.

701,495. BASKET OF TEXTILE MATERIAL. WILLIAM M. MORRIS, Yardville, and BRAD M. DEAPEN, Hingham, N. J., assignors to William M. Morris and Edwin J. Morris, Yardville, N. J., a firm trading as Morris & Company. Filed June 14, 1901. Serial No. 62,010. (No model.)

Claim.—1. A basket or receptacle consisting of a square or oblong strip of textile fabric folded so as to form a receptacle seamless throughout and having single bottom and sides, lapped ends each presenting three thicknesses of material and triangular end flaps folded under the bottom and secured thereto, substantially as specified.



2. The combination of a basket of textile fabric, with a supporting and bracing frame thereof comprising a top rim, and frames with horizontal bottom portions and uprights secured at the upper ends to said rim, and transverse brace-rods connecting the lower portions of said end frames above the bottom portions of the same, substantially as specified.

3. A basket of textile material folded so as to form bottom flaps at the ends of the same, and an external metal supporting-frame for said receptacle having transverse brace-rods around which said bottom flaps are folded and then secured to the bottom of the receptacle, substantially as specified.

4. The combination of a basket of textile fabric, an external metal frame thereof, and a textile strip or band secured externally to the receptacle and confined to upright corner-bars of said frame, substantially as specified.

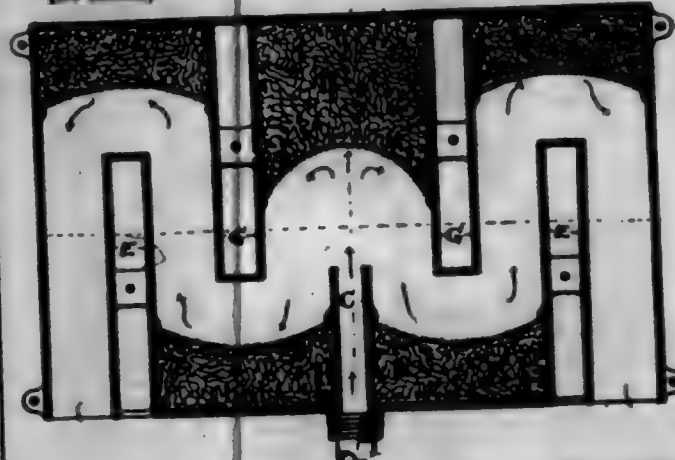
5. The combination of a basket of textile fabric, an external metal frame thereof, and bands of textile material secured externally to the basket, and forming loops for the reception of the upright corner-bars of the said metal supporting-frame, substantially as specified.

6. The combination of a basket of textile material, an outer metal supporting-frame thereof having end frames with horizontal rails for resting on the floor and transverse strips secured to the bottom of the basket and overlapping said end frames so as to rest thereon and prevent contact of the bottom of the basket with the floor, substantially as specified.

7. The combination of a basket of textile fabric, with an external metal supporting-frame and clips secured to the textile body of the basket, and embracing the upright corner-bars of said metal frame, substantially as specified.

8. A basket or receptacle of textile material having secured thereto adjacent to the bottom an external, tightly-stretched textile band, extending around the receptacle and serving to stiffen and strengthen the same at and near the bottom, substantially as specified.

701,496. SUPPLIER FOR STEAM OR OTHER ENGINES. THOMAS MCKINNEY, Cleveland, Ohio. Filed July 24, 1901. Serial No. 62,612. (No model.)



Claim.—1. A steam-muffler having a series of walls overlapping each other and spaced apart to form an open circuitous passage for the steam, an absorbent, condensing and cushioning material between said walls at each turn of said passage, and means to hold said material in place at said turns, substantially as described.

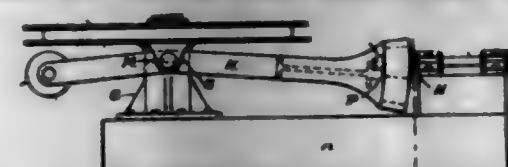
2. In a steam-muffler, a casing having oppositely-extending and overlapping walls to form an open circuitous steam-passage from its inlet to its outlet, a removable cover substantially over the full length of said passage, an absorbent cushioning material in the turns of said passage and a wire-netting to keep said material in place and maintain a free passage for the steam at the turns, substantially as described.

3. A muffler having a casing with double-walled air-spaces extend-

ing part way across the interior of the muffler from opposite directions, said air-spaces closed to the inside of the muffler and open to the outer air, substantially as described.

4. A muffler having double-walled projections extending into the interior and forming condensing-surfaces and division-walls, and an absorbent condensing and cushioning material between said projections at their base, substantially as described.

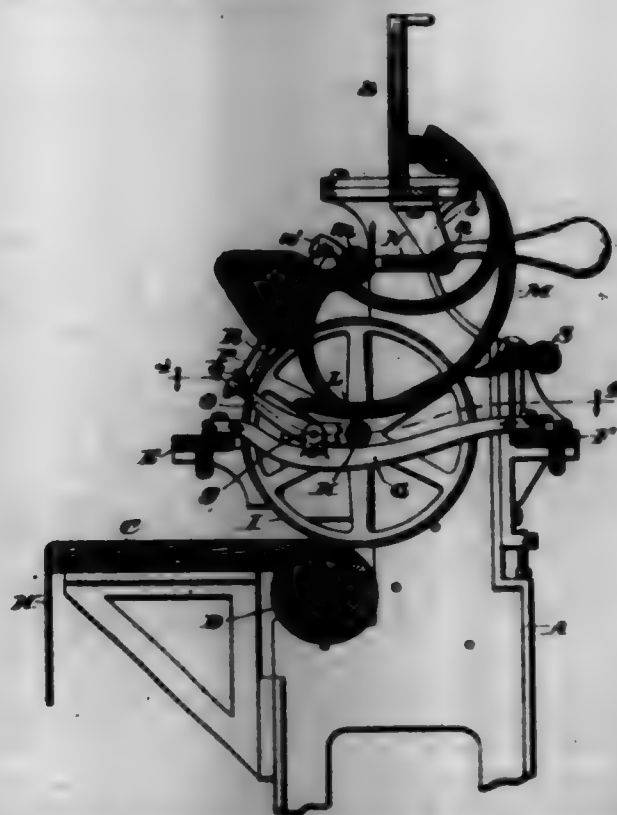
701,497. PUMPING POWER FOR OIL-VELLS. GUY D. NEWTON, Cleveland, Ohio. Filed Feb. 6, 1902. Serial No. 62,821. (No model.)



Claim.—1. The combination, in a pumping power for oil-wells, of a vertical shaft, a pull-wheel journaled thereon, an endless internal bevel-rack attached to said pull-wheel by a suitable hinged connection, a horizontal shaft, and a bevel-pinion which drives the said internal bevel-rack whereby a rocking or reciprocating rotary motion is imparted to the pull wheel, substantially as described.

2. The combination in a pumping power for oil-wells, of a suitable beam, a vertical pull-wheel shaft and a horizontal shaft mounted thereon, a pull-wheel journaled on the former shaft and provided with lugs on lower side as shown, a bevel-pinion on the latter shaft, an endless internal bevel-rack driven by said pinion, arms attached to said rack and hinged near their center to the above-mentioned lugs on the pull-wheel, a counterweight in the outer ends of said arms and a small wheel on the end of the horizontal shaft to travel on an oblong ledge centrally located on the rack, substantially as shown and described.

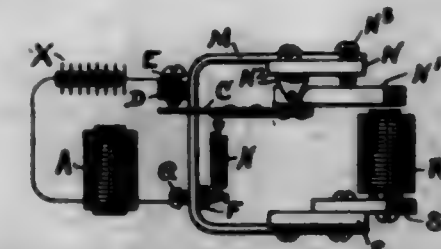
701,498. MACHINE FOR MEASURING THE AREAS OF SURFACES. JONAS E. HIGHTSMITH, Davenport, Iowa. Filed Sept. 7, 1901. Serial No. 74,904. (No model.)



Claim.—In a machine for measuring the areas of surfaces, a measuring-wheel *I*, having a toothed pinion *K*, journaled in a skeleton lever *O*, pivotally connected to a stationary skeleton yoke or bracket *G*, in combination with a toothed segment *M*, suspended on a pivoted lever *K*, having a forward-projecting extension *n*, an adjusting-screw *Q*, arranged on the lever *O*, a rod *P*, loosely interposed between the parts *n* and *Q* and a contractile spring *R* connecting the ends of the levers *N* and *O*, substantially as and for the purpose set forth.

701,499. AUTOMATIC TELEPHONE-EXCHANGE. FRED R. HENNINGSON, Chicago, Ill., assignor of two-thirds to John Anderson, St. Louis, Mo., and H. E. Richardson, St. Louis, Mo. Filed Aug. 27, 1900. Serial No. 22,110. (No model.)

Claim.—1. In a magnet, pole-pieces *N* and *N'* formed of a pair of parallel bars, the polarity of which pieces is maintained by a series of permanent magnets *M* distributed at intervals along said bars substantially as described.



2. A series of permanent magnets, pole-pieces consisting of parallel bars secured to the ends of the permanent magnets, a series of relay-magnets supported on one pole-piece, and a corresponding series of armatures supported on the other pole-piece.

3. A pair of parallel bars, means for maintaining an *N* polarity throughout the length of one bar and an *S* polarity throughout the length of the other bar, a series of relay-magnets supported on one bar, and a corresponding series of armatures supported on the other bar.

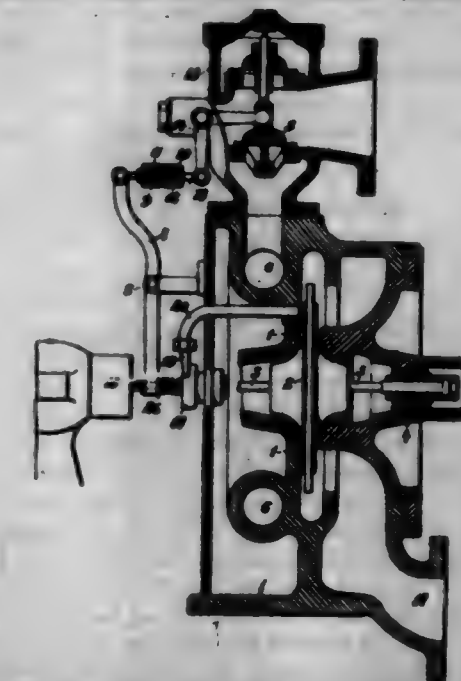
4. A pair of parallel bars, means for maintaining opposite polarity throughout the lengths of the bars, a series of pairs of relay-magnets supported on one bar, corresponding armatures supported on the other bar, and means by which an electrical impulse may be sent through a pair of magnets so as to attract one armature and not the other.

5. A pair of parallel bars having opposite polarity, a series of pairs of relay-magnets supported on one bar, corresponding armatures supported on the other bar, a contact-closing device for each armature arranged to be operated thereby, and means by which an electrical impulse may be sent through a pair of magnets so as to attract one armature and not the other.

6. A pair of parallel bars, means for maintaining opposite polarity throughout the lengths of the bars, a series of pairs of relay-magnets supported on one bar, corresponding armatures supported on the other bar, a contact-making device connected to and operated by each armature, a switch-operating magnet connected to each contact-making device, and a telephone line connected to each pair of relay-magnets.

7. A series of pairs of relay-magnets, an armature for each magnet, means for maintaining a similar polarity in all of the armatures, and electrical connections to each pair of magnets, said connections being so arranged that upon sending an electrical impulse through a pair of magnets the poles adjacent to the armatures will be of opposite polarity in respect to each other.

701,500. APPARATUS FOR CONTROLLING THE SPEED OF STEAM-TURBINES. GUNAR O. M. OLSEN, Stockholm, Sweden, assignor to De Laval Steam Turbine Company, a Corporation of New Jersey. Filed June 22, 1901. Serial No. 62,267. (No model.)



Claim.—1. In combination with a steam-turbine and a vacuum-chamber including the same, a valve constructed and arranged to admit air into said chamber and means for actuating said valve.

2. In combination with a steam-turbine and a vacuum-chamber including the same, a valve constructed and arranged to admit air into said chamber and mechanism communicating with said turbine and control-

ing said valve to open the same to admit air into said chamber when said turbine shall have attained a predetermined speed of rotation.

3. In combination with a steam-turbine and a vacuum-chamber including the same, a throttle-valve, an air-valve communicating with said vacuum-chamber and means actuated by said turbine for closing said throttle-valve and subsequently opening said air-valve.

4. In combination with a steam-turbine, a speed-regulator therefor, a throttle-valve controlled by said regulator, a vacuum-chamber including said turbine, and a valve for admitting air into said chamber; the above-said parts being constructed and arranged so that the speed of rotation of said turbine beyond a certain fixed rate shall cause said regulator to shut said throttle and open said air-valve.

5. In combination with a steam-turbine, a speed-regulator therefor and actuated thereby, a throttle-valve controlled by said regulator, a vacuum-chamber including said turbine and a valve for admitting air into said chamber; the above-said parts being constructed and arranged so that said regulator at a certain speed of rotation of said turbine shall operate to close the throttle, and thereafter at a certain higher speed of rotation of said turbine shall operate to open said air-valve.

6. In combination with a steam-turbine having a vacuum-chamber including the same, a speed-regulator for said turbine having the pin 16, a throttle-valve controlled by said regulator, hollow block 18 communicating with said vacuum-chamber and means for opening the air-valve 21 constructed and arranged to be actuated by said regulator-pin 16.

701,501. CATGUT LIGATURE AND SUTURE AND METHOD OF PREPARING SAME. CHARLES E. PARKER, Orange, N. J. Filed Apr. 2, 1900. Serial No. 11,261. (No model.)



Claim.—1. As an article of manufacture, a catgut ligature wound upon an expandable spool, substantially as and for the purpose described.

2. As an article of manufacture, a sterilizing ligature-package consisting of a catgut ligature disposed upon an expandable spool by winding, and relatively securing its ends to maintain tension, substantially as described.

3. As an article of manufacture a sterilizing ligature-package consisting of a catgut ligature disposed upon an expandable spool by winding, and relatively securing its ends to produce extension, and inclosed in a container permeable to sterilizing fluid, substantially as described.

4. The method of treating a catgut ligature consisting in maintaining it under longitudinal tension while subjecting it to the action of a sterilizing fluid, substantially as described.

5. As an article of manufacture, a sterilized ligature-package consisting of a catgut ligature disposed upon an expandable spool by winding, and securing its ends relatively to produce extension, substantially as described.

6. As an article of manufacture a sterilized ligature-package consisting of a catgut ligature disposed upon an expandable spool by winding, and securing its ends relatively to produce extension, and inclosed in a container permeable to sterilizing fluid, substantially as described.

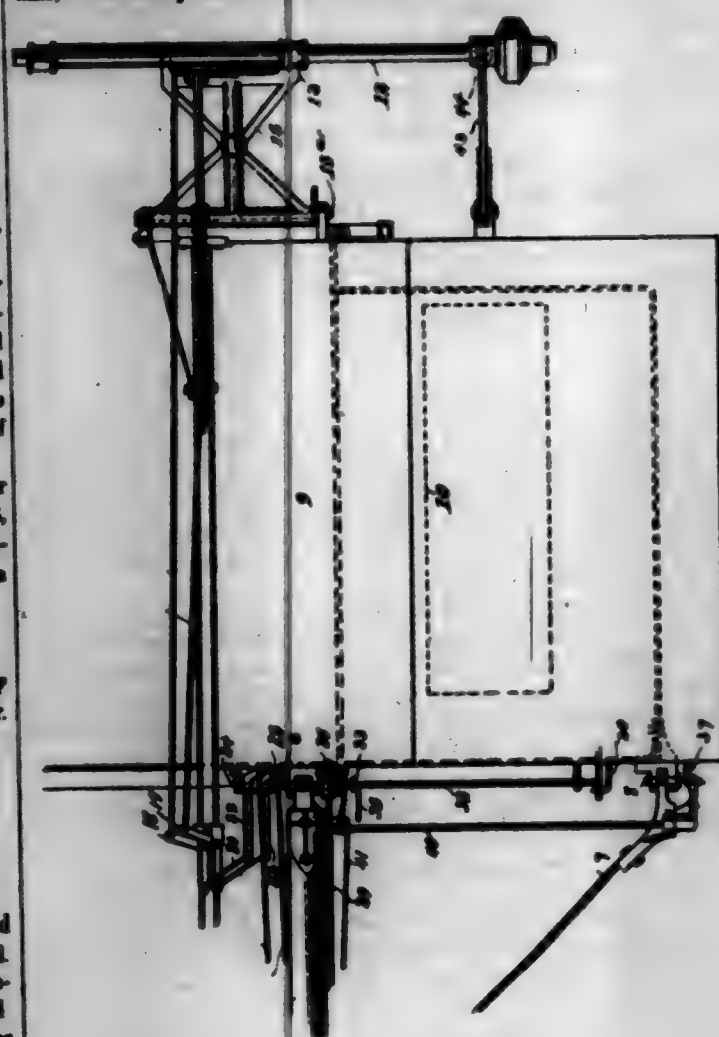
701,502. REAPING-MACHINE. RUTH A. PINK, Pekin, Ill., assignor to Anne Harvester Company, Pekin, Ill., a Corporation of Illinois. Filed Apr. 26, 1901. Serial No. 57,378. (No model.)

Claim.—1. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a reel pivoted upon the frame, and a jointed connection for adjusting the reel from the driver's platform, said connection having an axis of oscillation located in line with the hinge-axis of the push-pole and the main frame and a pivotal joint located closely adjacent said hinge-axis, substantially as and for the purpose described.

2. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a reel adjustable vertically and forward and back, connected to said frame, and jointed connections for effecting the adjustments of the reel, said connections each having an axis of oscillation which is located in line with the hinge-axis of the push-pole and the main frame and a pivotal joint closely adjacent said hinge-axis, substantially as and for the purpose described.

3. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a blade adjustably carried on said frame, and a jointed connection extending to the driver's platform for adjusting the blade, said connection having an axis of oscillation located closely

adjacent the hinge-axis of the push-pole and the main frame and a pivotal joint which in one adjustment of the blade lies in the said hinge-axis, substantially as and for the purpose set forth.



4. In a harvester, the combination with a main drive-wheel, of a main frame mounted to rock around the axis of the drive-wheel, a push-pole hinged to the rear edge of the main frame, a standard rigid with the main frame, an adjusting-rod connected to the standard and extending to the driver's platform, a reel adapted to be adjusted vertically as well as forward and back, rods extending along the push-pole for adjusting the reel, bell-cranks pivoted in line with the hinge-axis of the push-pole, bell-cranks pivoted above said hinge-axis and connections between the upper and lower bell-cranks, and between the upper bell-cranks and the reel, substantially as and for the purpose described.

5. In a harvester of the class described, the combination with a main drive-wheel and a main frame mounted to rock around the axis of the main drive-wheel, of a push-pole hinged to the rear edge of the main frame, a handle-carrier hinged to the main frame, and operating means for tripping the handle-carrier, said means comprising a system of jointed connections, the latter having an axis of oscillation located closely adjacent the hinge-axis of the push-pole and the main frame and a pivotal joint which in one adjustment of the handle-carrier lies in axial alignment with said hinge-axis, substantially as and for the purpose set forth.

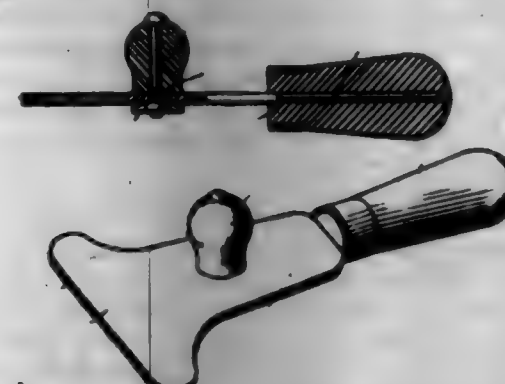
6. In a harvester of the type described, in combination, an over-hanging reel, a reel-shaft, a jointed yoke supporting the reel-shaft and whereby the reel may be adjusted vertically and forward and back, and said shaft being extended stubbleward beyond the supporting-bearings, a jointed connection between the extended end of the reel-shaft and the harvester-frame, and a spring attached to one member of the connection and adapted to exert a counterbalancing effect on the reel, substantially as described.

7. In a harvester of the type described, in combination, a reel mounted so as to be adjusted vertically and forward and back, a reel-shaft supported in bearings at the stubble end only, the supported end of said shaft being extended beyond its bearings and a counterbalance applied to said extended end, substantially as described.

701,503. BUTCHER'S BLOCK-SCRAPER. BENJAMIN I. FLOWER, Grants Pass, Ore. Filed Jan. 29, 1902. Serial No. 91,782. (No model.)

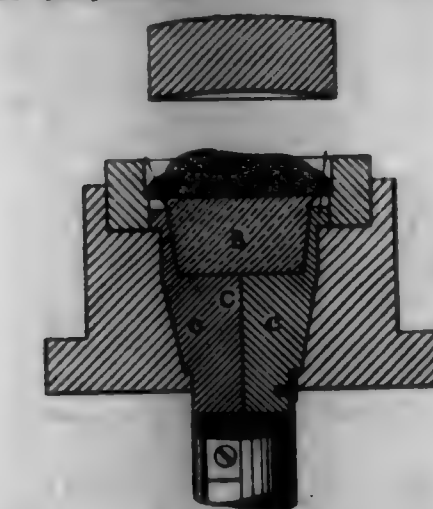
Claim.—1. A block-scraper comprising a blade having scraping edges at one end thereof, a handle fixed to the opposite end of the blade, and a handle removably engaged with the blade at a point between the scraping edges and the fixed handle, said blade and curved handle being

constructed to permit of engagement of the handle at opposite sides of the blade.



2. A block-scraper comprising a blade having scraping edges at one end thereof and having a handle fixed at its opposite end, said blade having a perforation therethrough intermediate of the handle and scraping edges, and a supplemental handle having a bolt passed therethrough and engaged with the perforation, said bolt having a clamping thumb-screw engaged removably therewith, whereby the supplemental handle may be engaged at either side of the blade.

701,504. METHOD OF MANUFACTURING STOPPERS FOR BOTTLES, JARS, OR OTHER ARTICLES. JAMES L. RAWSON and EDWARD W. BUNY, Manchester, England. Filed Feb. 27, 1901. Serial No. 46,145. (No specimens.)



Claim.—1. The method of manufacturing a capped cork or stopper with a cap of plastic material consisting in compressing the cork and forming thereon by such compression a recess and retaining-head to receive and retain the plastic material and subsequently compressing around each head and recess in the cork while retained compressed a plastic material which sets hard substantially as described.

2. The method of manufacturing a capped cork or stopper which consists in compressing the cork laterally and longitudinally to form a retaining-head and then compressing thereon while retained compressed a plastic material substantially as described.

3. The method of forming a retaining-head and recess on a cork to receive a cap of plastic material consisting of compressing the cork laterally and longitudinally substantially as described.

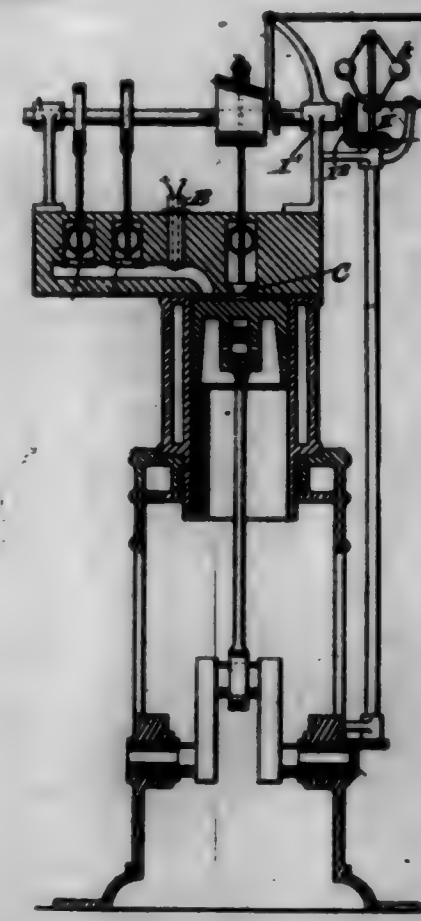
701,505. INTERNAL-COMBUSTION ENGINE. FRITZ RECHENBACH, Berlin, Germany. Filed Nov. 23, 1901. Serial No. 53,473. (No model.)

Claim.—1. In an internal-combustion engine, the combination, with means for supplying and exploding a weak mixture of air and fuel in the engine-cylinder, of means for supplying and burning a supplemental fuel charge in said cylinder after the explosion of the weak mixture.

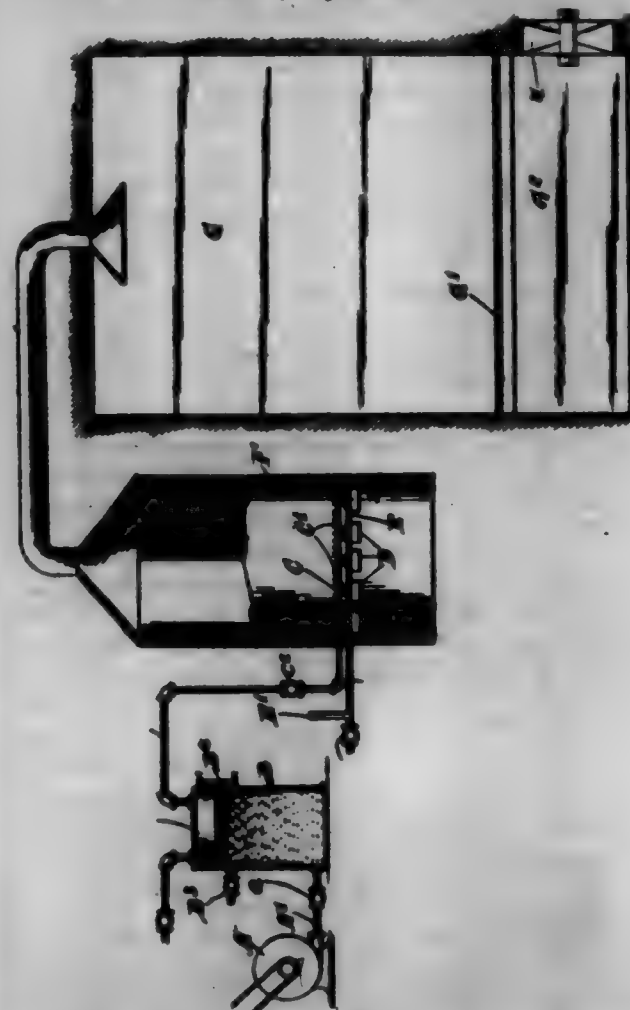
2. In an internal-combustion engine, the combination, with means for introducing a weak mixture of air and fuel into the cylinder, means for confining it therein, and means for thereupon igniting it, of variable mechanism for introducing a supplemental fuel charge into the cylinder after the ignition of the weak mixture.

3. In an internal-combustion engine, the combination, with means for supplying a fixed proportion of a weak mixture of air and fuel to the cylinder and compressing it therein, of means for igniting the said mixture, whereupon an explosion of the same is produced, a speed-controlled mechanism for introducing a variable supplemental fuel charge into the cylinder after the ignition of the weak mixture, whereby a burning of said supplemental fuel charge takes place.

701,505.



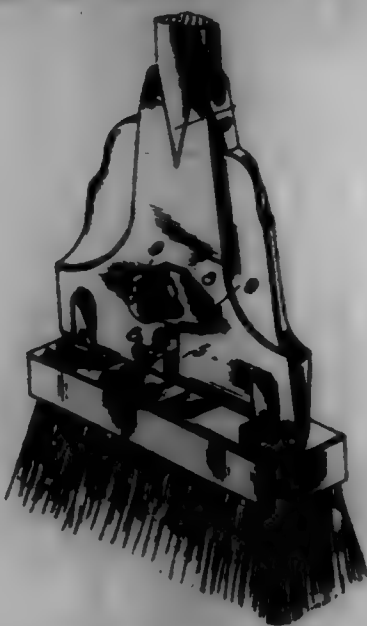
701,506. METHOD OF TREATING AIR FOR COOLING AND MOISTENING SAME. WILLIAM F. RICE, Chicago, Ill. Filed Feb. 25, 1901. Serial No. 42,006. (No specimens.)



Claim.—The process which consists in inducing a current of air directly from a source of natural humidity to or through a space to be cooled, placing a gas under compression to materially reduce its volume, removing the heat of compression from said gas, permitting the cooled and compressed gas to expand into said current of air, and delivering into the path of the expanding gas water in such quantity that the expanding gas acts to atomize the water and disseminate the same through the air-current.

rest in the form of a mist or fog; the said air-current being supplied from a natural source in such quantity and humidity that the particles of liquid forced or carried thereby by the expanding gas are at once evaporated and the air-current is thereby cooled and at the same time suitably humidified.

701,507. BRUSH-BROOM. GEORGE W. RICHARDSON, Sparta, Wis., assignor of two-thirds to Edgar W. Dickerson and William W. Hubbell, Sparta, Wis. Filed Mar. 2, 1902. Serial No. 98,427. (No model.)



Claim.—1. In combination with a brush, a handle having pivotal connection therewith, a toothed segment and worm-wheel cooperating with and secured to the respective parts to admit of moving the same to any desired position, substantially as set forth.

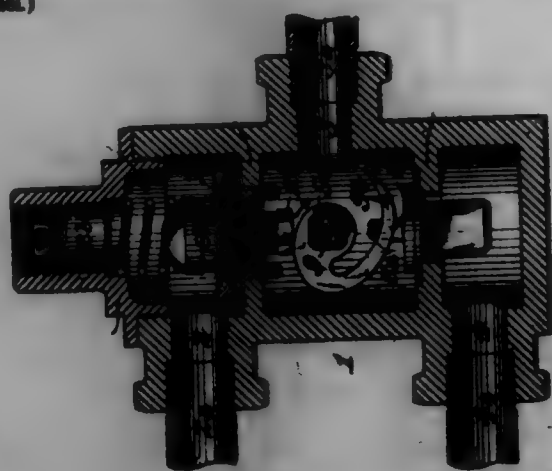
2. In combination, a brush, a frame pivoted to the brush, and having an opening and a slot extended from said opening, a toothed segment secured to the brush and arranged in the said slot, and a worm journaled in the opening of the said frame and cooperating with the toothed segment for adjustment of the handle, substantially as set forth.

3. In combination, a brush, a frame pivoted to the brush and having a slot and an opening, a second frame fitted in the opening of the pivoted frame and having oppositely-extended parts overlapping and secured to a side thereof, a toothed segment secured to the brush and passing through the slot of the pivoted frame, and a worm journaled in the frame secured to the pivoted frame and having a thumb-piece, substantially as set forth.

701,508. BOILER-CLEANING COMPOUND. JOHN A. ROBINSON, Berwind, Colo. Filed Apr. 10, 1902. Serial No. 102,948. (No specimen.)

Claim.—The cleaning compound or composition herein described, composed of the water from boiled potatoes, ammonia, sal-soda, coal-oil, black oil, wood-ashes and sulfur, combined with the drag or droppings from animals which chew the cud, in the manner and proportions stated.

701,509. VALVE. JAMES J. BYLAND, Millvale, Pa., assignor to Homestead Valve Manufacturing Company, Homestead, Pa., a Corporation of Pennsylvania. Filed Sept. 22, 1901. Serial No. 78,488. (No model.)

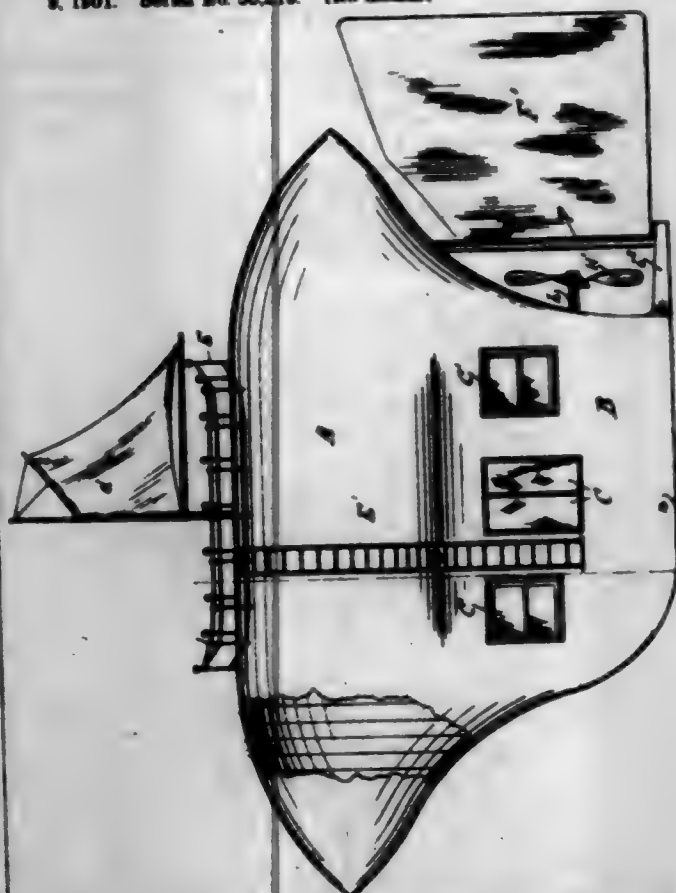


Claim.—1. In a valvular mechanism, the combination of a case or shell divided by transverse partitions into three superposed chambers, an

inlet-passage, a machine supply-passage and an outlet-passage, communicating, respectively, with the several chambers of the case, a supply-valve controlling communication between the inlet and machine supply passages, an exhaust-valve working substantially in line with the inlet-valve and controlling communication between the machine supply and exhaust passages, a shaft entering the casing between the said valves, a cam on said shaft operating the inlet-valve, and a finger or arm on said cam and operatively engaging the outlet-valve.

2. In a valvular mechanism, the combination of a case or shell divided by transverse partitions into three superposed chambers, an inlet-passage, a machine supply-passage and an outlet-passage, communicating, respectively, with the several chambers of the case, a supply-valve controlling communication between the inlet and machine supply passages, a preliminary valve mounted on said supply-valve, an exhaust-valve working substantially in line with the inlet-valve and controlling communication between the machine supply and exhaust passages, a shaft entering the casing between the inlet and outlet valves, a cam on said shaft engaging said preliminary valve to first operate the preliminary valve and then the inlet-valve, and finger or arm on said cam operatively engaging the outlet-valve.

701,510. AIR-SHIP. PETER SARROCKI, Chicago, Ill. Filed Dec. 8, 1901. Serial No. 85,219. (No model.)



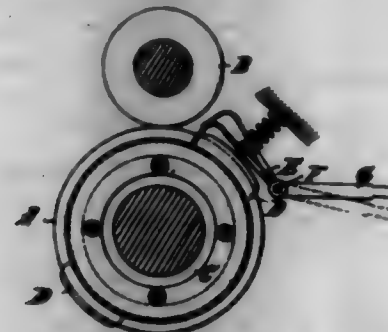
Claim.—In an air-ship, the combination with a balloon or gas-reservoir, of a cabin secured thereto and located beneath the reservoir, a main propeller-shaft carrying a propeller and journaled in the rear end of the cabin, an auxiliary propeller-shaft vertically journaled in the cabin, a drum located on the floor of the cabin, an air-compressing cylinder located on the top of the drum and communicating at its bottom therewith, a piston on the auxiliary propeller-shaft and within the air-compressing cylinder, a gas-engine geared to the main and auxiliary propeller-shafts, an air-tank communicating with the air-compressing cylinder, an oil-tank communicating with said air-tank and with the cylinder of the gas-engine, and means to throw the propeller-shafts in and out of gear with the crank-shaft of the engine, substantially as described.

701,511. CALENDERING-MACHINE. LOUIS SCHREIER, Barrow-Kittershausen, Germany. Filed Oct. 1, 1901. Serial No. 77,808. (No model.)

Claim.—1. In a calendering-machine, the combination of the two calendering-rollers and means for separating one roller from the other, said means comprising a cam, a friction drive connection between said cam and one of the rollers and means for holding said cam against rotation with the roller, substantially as described.

2. In combination, the two rollers, a ring having frictional connection with one roller to be driven thereby, a cam on the ring and means for normally holding the cam and ring against rotation with the roller, said cam being arranged to separate the rollers, substantially as described.

3. In combination, the two rollers, a ring driven by friction from one roller, a cam carried by the ring to separate the rollers and a detent for holding the ring and cam normally against rotation, substantially as described.



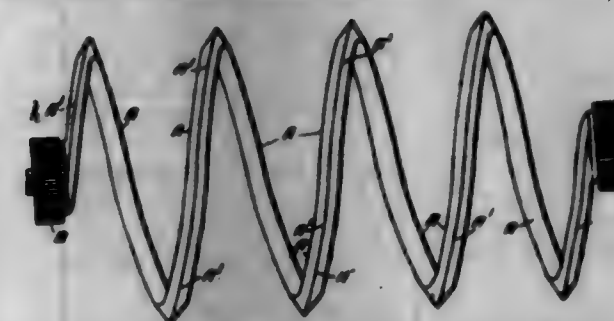
4. In combination, the rollers, a friction-ring at each end thereof, a cam on each ring for separating the rollers and detent means for normally holding the rings against rotation, substantially as described.

5. In a calendering-machine, in combination with one of the calendering-rollers, two lifting-cams, two rings carrying the cams and frictionally mounted on each end of the roller, and two detents, arranged and operating substantially as and for the purpose set forth.

6. In a calendering-machine, in combination with one of the calendering-rollers, a cam-ring frictionally held at each end thereof and a spring-detent and hand-lever, arranged and operating substantially as and for the purpose set forth.

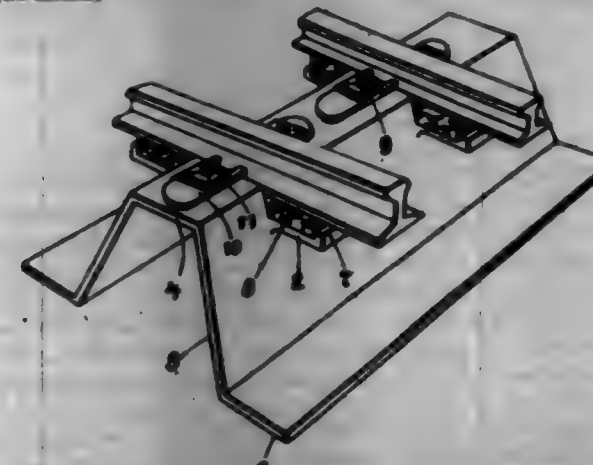
7. An appliance for separating the rollers of a calendering-machine during the passage of a seam between them without relieving the pressure of the lifted roller upon the other rollers, the said appliance comprising a ring C carrying a pair of cam-surfaces D and being frictionally mounted on each end of one of the rollers A, and a spring-detent E, rocking-shaft F and hand-lever G, arranged and operating substantially as and for the purpose set forth.

701,512. ROTARY CULTIVATOR. JOHN SCOTT, Edinburgh, Scotland. Filed Jan. 7, 1902. Serial No. 82,798. (No model.)



Claim.—A cultivator-blade consisting of a bar bent to form an open helix having end-shafts at its ends and having driving-elements at its ends, the convolutions of the helix having their edges sharpened and said convolutions being unsupported excepting at the ends of the helix curve by the adjacent convolutions.

701,518. METALLIC RAILWAY-TIE. CHARLES S. SHALLENBERGER, Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Filed Aug. 19, 1901. Serial No. 78,537. (No model.)



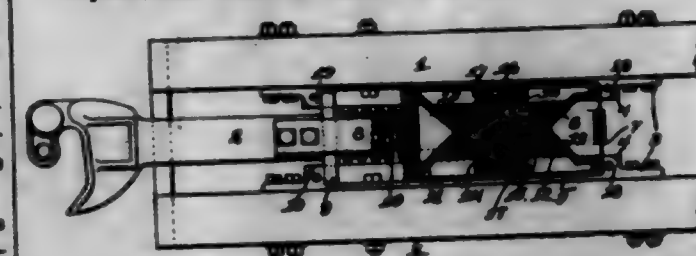
Claim.—1. A tie, consisting of a metallic plate having its sides bent downwardly and being cut to form the tongues 2 near its top, the said

tongues 2 being bent outwardly and being adapted to receive the rail-ends, and means for holding the rails upon the rail-ends, substantially as specified.

2. A metallic tie, consisting of a section of sheet metal bent to form a top 4, the sides 5 and the base 6 and being cut out at the top to form the tongues 2, said tongues 2 being bent outwardly and being adapted to receive the rail-ends, and means whereby the rails may be locked upon the tie, substantially as specified.

3. A metallic tie consisting of a section of sheet metal bent to form a top 4, the inclined sides 5 and the base 6, and cut out at the top to form the tongues 2, said tongues being bent outwardly to receive the rail-ends, said top having also bolt-holes 3 and openings 10 formed therein adjacent to the rail-ends, tongues extending downwardly from said openings 10 for holding the bolt-heads rigidly against turning, and means whereby the rails may be locked upon the tie, substantially as specified.

701,514. COMBINED SPRING AND FRICTION DRAFT-RIGGING. CHARLES S. SHALLENBERGER, Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Filed Sept. 23, 1901. Serial No. 78,554. (No model.)



Claim.—1. The combination with a draw-bar, of a friction-casing having an integral wedge-shaped friction-plate at its rear end and arranged to slide with the draw-bar, a draw-bar connection, and the following friction mechanism all contained within said casing: a front friction-plate adapted to receive both the outward and inward pressure of the draw-bar, opposite side friction-plates, and suitable yielding connections for holding the said parts in proper position, substantially as specified.

2. A combined spring and friction draft-rigging, consisting of a movable friction-casing having an integral wedge-shaped friction-plate at its rear end and arranged to slide with the draw-bar, a front friction-plate mounted adjacent to the friction-casing and arranged to receive both the draft and buffing shocks, two opposite movable side friction-plates mounted between the front friction-plate and the rear friction-plate, and means for holding the said parts in proper adjustment to receive the inward and outward pressure of the draw-bar, substantially as specified.

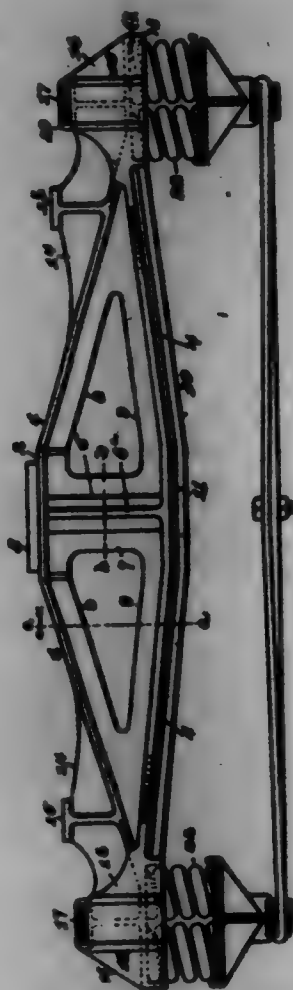
3. In a combined spring and friction draft-rigging, the combination of a draw-bar, a movable casing having an integral wedge-shaped friction-plate at its rear end, and arranged to slide with the said draw-bar, and the following friction mechanism all contained within said casing: a buffing or draft plate, a front friction-plate arranged to receive both the buffing and draft shocks, a buffing or draft spring interposed between the buffing-plate and the front friction-plate, two side plates interposed opposite each other between the front friction-plate and the rear friction-plate, and means for maintaining said plates in position, substantially as specified.

4. The improved draft and buffer rigging, comprising the casing having a wedge-shaped friction-plate at one end, a wedge-shaped front friction-plate loosely arranged to slide in the opposite end of said casing, with its wedge facing the wedge of the plate first mentioned, opposite side friction-plates 12, the ends of which are beveled to engage the beveled faces of said end friction-plates, said side friction-plates having recesses 15, a bolt 16 extending through said recesses, spring 14 mounted one in each recess, and a draw-bar connection whereby the said front friction-plate is adapted to receive both the draft and buffing shocks, substantially as herein specified.

701,515. CAR-BOLSTER. CHARLES S. SHALLENBERGER, Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Filed Nov. 14, 1901. Serial No. 82,318. (No model.)

Claim.—A car-bolster, comprising an upper member 1, the middle of which is broader than its side portions and a lower member, a center bearing 3 connecting said members, reinforcing-ribs integral with said center bearing and extending between said members, and the said members converging and being combined near their outer ends, a spring-seat formed at each end of the bolster, walls around the said spring-seat, side walls 10 extending upwardly from the spring-seat and forming bearings to receive the standards whereby the bolster is held in position, and the side bearings 12 formed integral with the upper side of the bolster for receiving the side bearings of the body-bolster, substantially as specified.

701,515.



701,516. WATER-GAGE FOR BOILERS. EDWARD F. SHALLOW, West Philadelphia, Pa. Filed Feb. 17, 1902. Serial No. 94,362. (No model.)

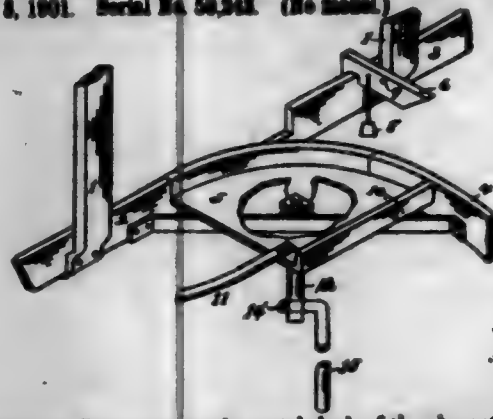


Claim.—1. In a water-gage, a boiler, a glass tube, hangers, superposed chambers arranged in said hangers, an inlet connecting the chambers with each other, a valve arranged in said lower chamber controlling the boiler-outlet and permitting of the entrance of water or steam from said boiler into said chambers, an angular passage connecting the upper chamber with said tube, a valve centrally arranged in said upper chamber and having a differential face in alignment with the flow of water or steam from said boiler into said tube, and a drip-cock leading from the lower chamber of one of said hangers directly to the atmosphere.

2. In a water-gage, a boiler, a glass tube, hangers, superposed chambers

hangers arranged in said hangers, an inlet connecting the chambers with each other, a valve arranged in said lower chamber controlling the boiler-outlet and permitting of the entrance of water or steam from said boiler into said chambers, an angular passage connecting the upper chamber with said tube, a valve centrally arranged in said upper chamber and having a differential face in alignment with the flow of water or steam from said boiler into said tube, and a drip-cock leading from the lower chamber of one of said hangers directly to the atmosphere.

701,517. LOCK FOR OVERHEAD-TROLLEY TRACKS. SAMUEL J. SHARP, Wheeling, W. Va., assignor of three-fourths to Herbert E. Dunlap, Louis F. Stille, and Henry E. Stille, Wheeling, W. Va. Filed May 8, 1901. Serial No. 58,244. (No model.)



Claim.—1. In an automatic switch-lock of the character described, the combination with an overhead track, hangers therefor and a turn-table, of a bar pivoted to the hanger next the switch, a notch provided in said track in which the point of said bar normally lies, a weight suspended from said bar at a point between its pivotal connection with the hanger and the track, and a long bar 11 secured on said turn-table, said bar 11 being adapted to tip up and hold the front end of the pivoted bar to leave the track clear when the switch is closed, substantially as described.

2. In an automatic switch-lock for overhead-trolley tracks, the combination with the track, hanger and turn-table, of a bar pivoted on the track-hanger next the switch, said track provided with a notch therein, the point of said bar adapted to normally lie in said notch to lock the switch, a weight suspended from said bar and adapted to normally hold the said bar in place in said notch, and a rod fixed to said switch-block and adapted to tip the front end of said bar from the notch to clear the track when the switch is closed by the turn-table, all substantially as shown and described.

3. In an automatic switch-lock for overhead-trolley tracks, the combination with the track 3, hanger 1 and turn-table 5, of the bar 6, pivot 9, the track 3 provided with the notch 7, the weight 8, and the rod 11, all substantially as and for the purposes set forth and described.

701,518. FEED-WATER HEATER. FRANK W. SUTHER, Spokane, Wash. Filed Dec. 12, 1901. Serial No. 85,908. (No model.)

Claim.—1. The combination in a feed-water heater, of a boiler, a fire-box, a flattened pipe adapted to be placed in the fire-box of the boiler, a double check-valve, a chamber containing the same, a water-supply pipe in communication with said chamber, a circulating-pipe extending between the water-space of the boiler and said chamber, said circulating-pipe being of a diameter less than the water-supply pipe, a pipe extending between said chamber and the heater-pipe, and a discharge-pipe extending from the heater-pipe to a point within the boiler.

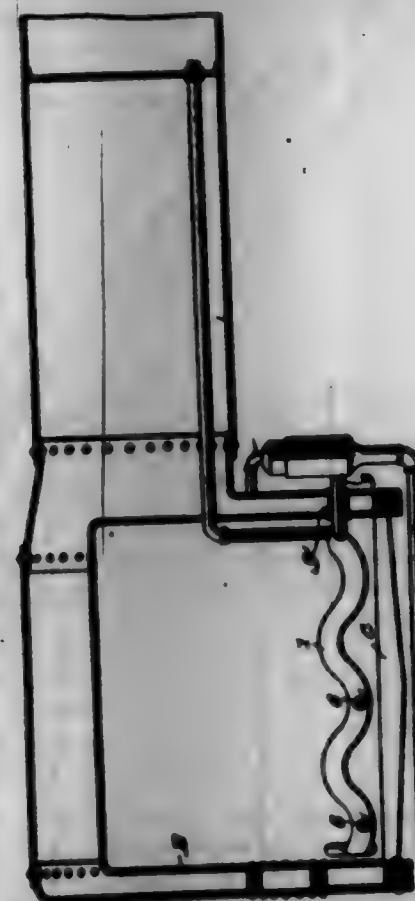
2. The combination in a feed-water heater, of a boiler, a fire-box, a single heater-pipe extending in a substantially horizontal plane within the fire-box and bent into a serpentine or wavy line, means for supporting said pipe at a point immediately above the grate, and supply and discharge pipes communicating respectively with the opposite ends of said pipe.

3. The combination in a feed-water heater, of a boiler, a fire-box, a heater-pipe arranged within the fire-box, thinblades extending between the wall of the fire-box and the shell of the boiler, blow-off pipes connected to said heater-pipe and extending through the said thinblades, said blow-off pipes acting to support the said heater-pipe, and water supply and discharge pipes communicating with said heater-pipe.

4. The combination in a feed-water heater, of a boiler, a fire-box, a heater-pipe bent into a serpentine or wavy line and located within the fire-box, a series of supporting and blow-off pipes connected to the lower bands of the pipe and extending out through the shell of the boiler, and water supply and discharge pipes communicating with said heater-pipe.

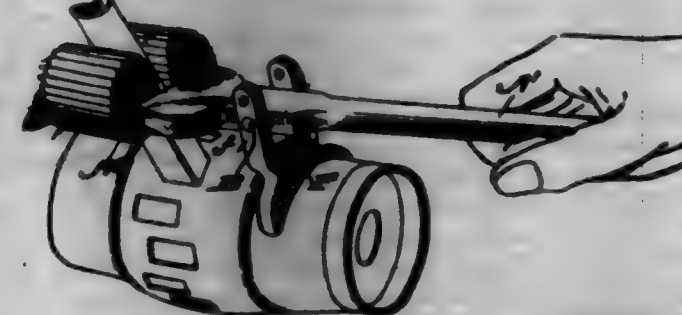
5. The combination in a feed-water heater, of a boiler, a fire-box, a heater-pipe bent into a serpentine or wavy line and located within the fire-box, supporting and blow-off pipes connected to the lower bands of

the heater-pipe, thinblades extending between the wall of the fire-box and the shell of the boiler and forming passages for said supporting and blow-off pipes, a double check-valve, a valve-chamber, containing the same, a water-supply pipe communicating with the valve-chamber and having a valve-seat at the lower end of the chamber, a circulating-pipe connecting the boiler and the check-valve chamber and of a diameter less than that of the water-supply pipe, a pipe extending between the valve-chamber and one end of the heater-pipe, and an oppositely-disposed discharge-pipe extending between the opposite end of the heater-pipe and the interior of the boiler.



6. In a feed-water heater, a boiler, a fire-box, a heater-pipe located within the fire-box, a water-supply pipe therefore, a water-discharge pipe extending from the opposite end of the heater-pipe through the front flue-sheet of the boiler and perforated to permit of the discharge of water, a threaded sleeve to which the end of the pipe is secured, and a threaded closing-pipe carried by said sleeve to close the end of the pipe, substantially as specified.

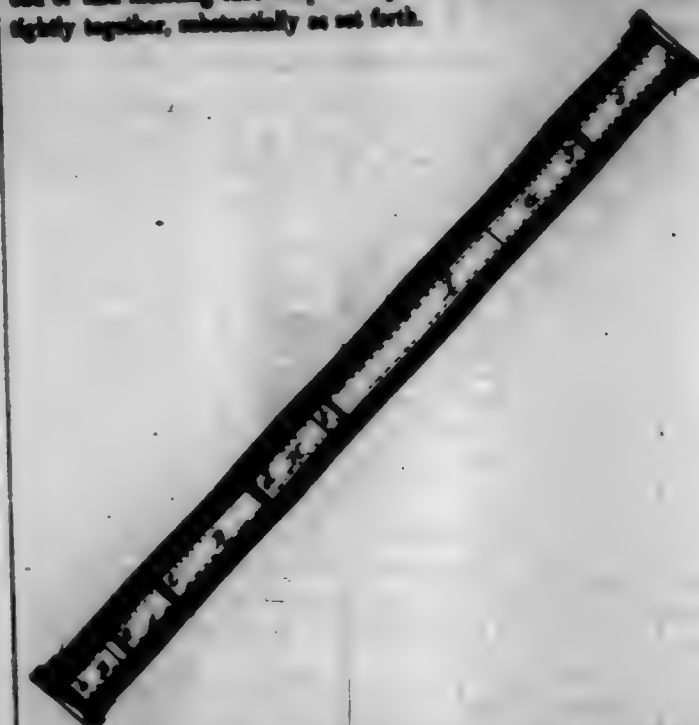
701,519. VEHICLE-SPOKE PULLER. CHARLES W. RICHMOND, Independence, Mo. Filed Sept. 20, 1901. Serial No. 74,968. (No model.)



Claim.—The combination of a lever having one end provided with a handle-section, its opposite end having a head formed thereon from which protrude short shaft-sections, toothed cylinders journaled on the shafts, a retaining-plate held upon one of the shafts and adapted for engagement with the opposite shaft, and a fulcrum-bracket secured to the lever adjacent the head, the said brackets consisting of a body portion having arms protruding therefrom and each provided with a series of apertures through one of which is designed to pass a bolt for securing the said bracket to the lever, the opposite end of the bracket having a semi-circular recess formed therein, substantially as shown and described.

701,520. TELESCOPE. FREDERICK L. SMITH and HARRY D. GORE, Buffalo, N. Y., assignors to Colson Tool and Optical Company, Buffalo, N. Y. Filed Aug. 4, 1901. Serial No. 78,284. (No model.)

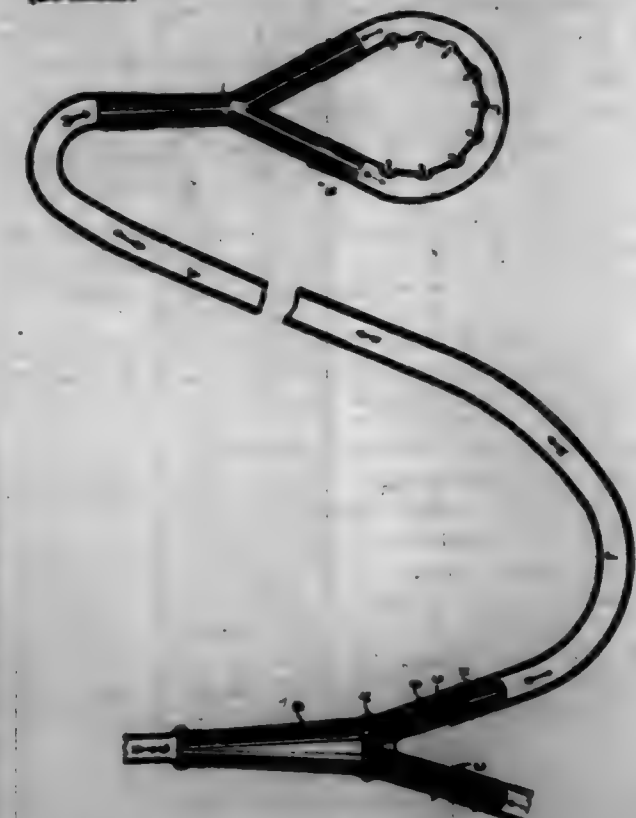
Claim.—1. The combination with an including tube, of a lens-tube therein made up of independent sections, means at one end of the including tube against which one tube-section chaps, and a device at the other end of said including tube adapted to jam the sections of said lens-tube tightly together, substantially as set forth.



2. The combination with an including tube, of a lens-cell therein, one or more spacing-shells therein, said lens-cell and spacing shell or shells constituting a sectional inner tube, and end caps having screw-threaded engagements with the opposite ends of said including tube and adapted to jam said lens-cell and shell or shells together between the end caps, substantially as set forth.

3. The combination with an including tube, having screw-threaded ends, of a lens-cell at or near each end of said tube, a spacing-shell between said cells, said cells and shell constituting a sectional inner tube, and end caps having screw-threaded flanges engaging the screw-threaded ends of said including tube and having shoulders engaging the ends of said inner sectional tube and adapted to jam the sections thereof tightly together, substantially as set forth.

701,521. APPLIANCE FOR TREATING HORSES' LEGS WITH WATER. JOHN T. DUNN, New York, England, assignor to ALFRED DUNN, Ltd., London, England. Filed Jan. 22, 1901. Serial No. 64,572. (No model.)



Claim.—An apparatus for treating horses consisting of flexible perforated tubes, one for each leg, each of said tubes being connected with

a nozzle H having three branches, a distributing-nozzle arranged to be placed on the horse's back and having four outlets, the reducing-liners in the said outlets, a tube extending from each of the four outlets to the flexible perforated tubes at the horse's legs, and a tube leading to the said distributing-nozzle whereby all the legs of the horse may be supplied at once.

701,522. AUTOMATIC SWITCH FOR PNEUMATIC CARRIERS.
FRED R. YAMET, Indianapolis, Ind., assignor to the Talcott Pneumatic Service Company, Indianapolis, Ind., a Corporation of Indiana. Filed Oct. 17, 1901. Serial No. 78,964. (No model.)



Claim.—1. In a switch-actuating mechanism for pneumatic carriers, the combination with a shaft, a trigger loosely mounted thereon, a ratchet secured on said shaft, and a pawl pivoted to the trigger for engaging the ratchet when the pawl is actuated, of a catch for engaging the pawl and holding it in its actuated position.

2. In a switch-actuating mechanism for pneumatic carriers, the combination with a shaft, a trigger loosely mounted thereon, a ratchet secured on said shaft, a pawl pivoted to the trigger for engaging the ratchet when the pawl is actuated, and a spring for normally holding the pawl out of engagement with the ratchet, of a catch for engaging and holding the pawl after it has been actuated so that it will keep in engagement with the ratchet.

3. In a switch-actuating mechanism for pneumatic carriers, the combination with a shaft, a trigger loosely mounted thereon, a ratchet secured on said shaft, a pawl pivoted to the trigger for engaging the ratchet when the pawl is actuated and a spring for normally holding the pawl out of engagement with the ratchet, means for returning the trigger mechanism after it has been actuated, and a stationary means for engaging the catch in its return movement to disengage it from the pawl.

701,523. PROCESS OF MAKING ALKYL ETHERS OF CIRCONE-ALKALOID CARBONIC ACIDS. HERBERT TERN, Frankfurt-on-the-Main, Germany, assignor to Veredigte Glanzfabriken, Rummer & Co., Gesellschaft mit beschränkter Haftung, Frankfurt-on-the-Main, Germany, a Firm. Original application filed Apr. 24, 1901, Serial No. 67,222. Divided and this application filed Jan. 8, 1902. Serial No. 14,904. (No specimens.)

Claim.—1. A process for the manufacture of the alkyl ethers of the circone-alkaloid carbonic acids which consists in causing the alkyl ethers of alkyl carbonic acids to act on the circone-alkaloids substantially as described.

2. A process for the manufacture of the ethyl ethers of the circone-alkaloid carbonic acids which consists in causing the alkyl ethers of ethyl carbonic acid to act on the circone-alkaloids substantially as described.

3. A process for the manufacture of the ethyl ether of quinic carbonic acid which consists in causing the alkyl ethers of ethyl carbonic acid to act on quinic substantially as described.

701,524. STEAM-TRAP. FREDERICK TOWN, Brooklyn, Mass. Filed July 3, 1901. Serial No. 66,901. (No model.)

Claim.—1. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, substantially as described.

2. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, an elastic cushion, whereon the valve-controller is abutted, the

discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, substantially as described.



3. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, and means whereby the valve-controller may be manually operated to lift the valve from its seat substantially as described.

4. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber and means whereby the valve-controller may be manually operated to lift the valve from its seat against the stress of the elastic cushion, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, substantially as described.

5. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-tube of heat-expandable material, a valve connected therewith controlling the discharge-passage and the entrance to the steam-tube, the steam-tube adapted to receive steam issuing from the discharge-passage, connections between the expandable steam-tube and the valve whereby expansion of the tube is accompanied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube.

6. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-tube of heat-expandable material, a valve connected therewith controlling the discharge-passage and the entrance to the steam-tube, the steam-tube provided with device whereby circulation of steam issuing from the inlet-pipe is induced through the steam-tube, connections between the expandable steam-tube and the valve whereby expansion of the tube is accompanied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube.

7. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller, substantially as described.

8. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, an elastic cushion, whereon the valve-controller is abutted, the discharge-passage and steam-chamber being so disposed with relation to

each other that liquids flow through the discharge-passage without entering the steam-chamber, and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller, substantially as described.

9. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, and means whereby the valve-controller may be manually operated to lift the valve from its seat and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller, substantially as described.

10. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber and means whereby the valve-controller may be manually operated to lift the valve from its seat against the stress of the elastic cushion, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller, substantially as described.

11. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-tube of heat-expandable material connected therewith, controlling the discharge-passage and the entrance to the steam-tube, the steam-tube adapted to receive steam issuing from the discharge-passage, connections between the expandable steam-tube and the valve whereby expansion of the tube is accompanied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube, and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller.

12. In a steam-trap or analogous apparatus, the combination of a fluid-discharge pipe, a valve in the same, the said valve controlled by a heat-expandable valve-controller, and so located that liquids passing through the discharge-pipe past the valve flow away from the valve-controller, a steam-opening leading to the controller from the outlet side of the valve, so that steam, to approach the controller must first pass the valve, substantially as described.

13. In a steam-trap or analogous apparatus, the combination of a fluid-discharge pipe, a valve in the same, a tubular valve-controller secured to the valve, an aperture from the outlet side of the valve leading to the interior of the tubular controller, a casing surrounding the controller, an aperture in the controller communicating with the interior of the said casing, and drain-apertures from the casing to the discharge-pipe, substantially as described.

14. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber branching from and communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, substantially as described.

15. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber branching from and communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, an elastic cushion, whereon the valve-controller is abutted, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, substantially as described.

16. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber branching from and communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquid flows through the discharge-passage without entering the steam-chamber, and means whereby the valve-controller may be manually operated to lift the valve from its seat substantially as described.

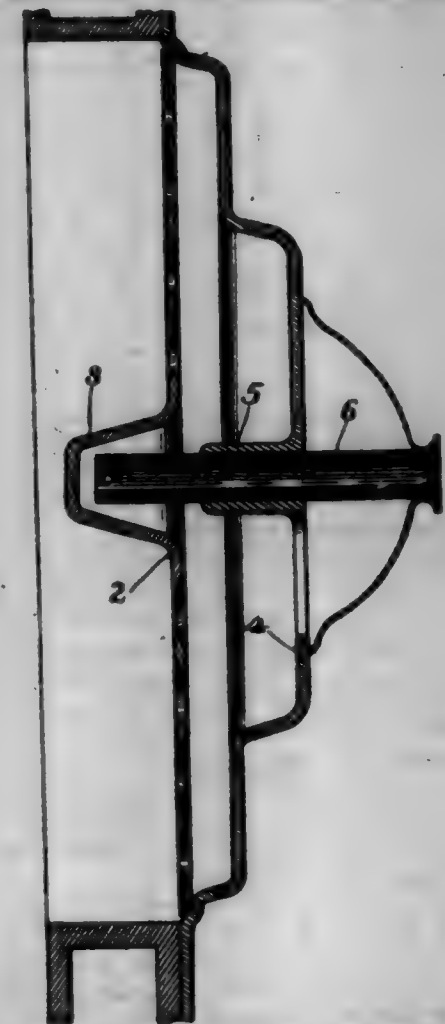
17. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-tube of heat-expandable material branching therefrom, a valve connected therewith controlling the discharge-passage and the entrance to the steam-tube, the steam-tube adapted to receive steam issuing from the discharge-passage, connections between the expandable steam-tube and the valve whereby expansion of the tube is accompanied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube.

companied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube.

18. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-tube of heat-expandable material branching therefrom, a valve connected therewith controlling the discharge-passage and the entrance to the steam-tube, the steam-tube provided with device whereby circulation of steam issuing from the inlet-pipe is induced through the steam-tube, connections between the expandable steam-tube and the valve whereby expansion of the tube is accompanied by closure of the valve, the discharge-passage being so located that liquids passing therethrough flow away from effective heat-conductive proximity to the steam-tube.

19. In a steam-trap or analogous apparatus, the combination of a discharge-passage, a steam-chamber branching therefrom and communicating therewith, a valve, controlling the discharge-passage and the entrance to the steam-chamber, a heat-expandable valve-controller in heat-conductive proximity to the steam-chamber, the discharge-passage and steam-chamber being so disposed with relation to each other that liquids flow through the discharge-passage without entering the steam-chamber, and connections with the valve whereby the valve may be opened at will independently of the normal operation of the valve-controller, substantially as described.

701,525. SAFETY-VALVE. WILLIAM S. WAREHAM, Wellesley, Mass. Filed Jan. 12, 1901. Serial No. 62,903. (No model.)



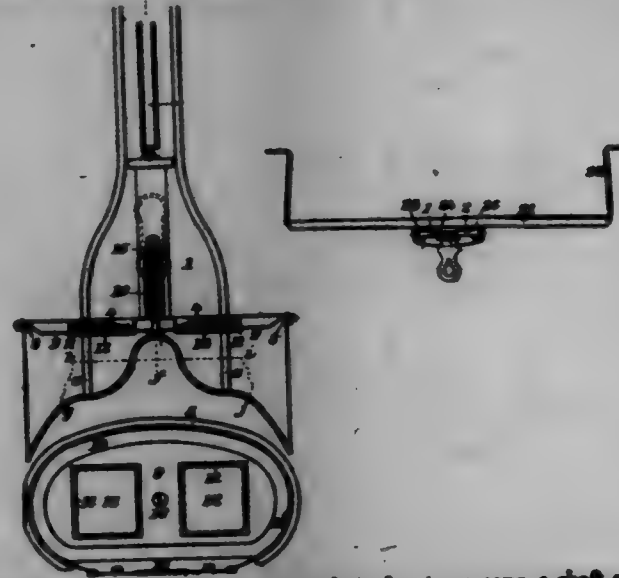
Claim.—1. A safety-valve for a boiler, comprising a member having a plurality of openings or passages from the fire-box to the external atmosphere, and a cover for part of said openings, said cover being provided with an opening to normally admit air directly to the fire-box and being also free to be moved outward by excessive pressure within the fire-box.

2. A safety-valve for a boiler, comprising a member having a plurality of openings or passages from the fire-box to the external atmosphere, a cover for part of said openings, a support for said cover having a passage to normally admit air directly to the fire-box, said cover being permanently free to be moved outward by excessive pressure within the fire-box.

3. A safety-valve for a boiler, comprising a fire-box door having a perforated portion, a permanently-open tube free to slide relatively to said perforated portion, and a cover attached to said tube and movable therewith and having a diameter to cover the perforations around the tube, said cover being permanently free to be moved outward to relieve excessive internal pressure in the fire-box.

4. A heater provided with a vent or outlet communicating with the fire-box, a substantially horizontal guide adjacent to said outlet, and a valve adapted to close said outlet and having a slide movable on said guide from the closed position to the open position of the valve, the guide supporting the valve in either of said positions.

701,526. STEREOSCOPE. HAWLEY C. WHITE and HARRIS C. WHITE, North Bennington, Vt., assignors to E. C. White Co., North Bennington, Vt., a Corporation of Vermont. Filed Apr. 18, 1901. Serial No. 58,081. (No model.)



Claim.—1. As a constituent member of a stereoscope, a shaft consisting of an upper and an under metallic plate with a space between them, the margin of one of said plates being fashioned with an upturned semi-tubular flange and the margin of the other with a substantially tubular flange which closely envelopes the semi-tubular flange of the former plate, the inclined flange thus practically forming a strut within the tubular structure so constituted which stands transversely to the plane of the shaft, substantially as specified.

2. As a constituent member of a stereoscope, a shaft consisting of two metallic plates with a space between them, having their margins interlocked by a joint whereof the edge of one member has a flange upturned transversely to the plane of the shaft, and having a longitudinal depression in one plate sunk to a depth to contact with the inner surface of the other plate, substantially as specified.

3. As a constituent member of a stereoscope, a shaft consisting of two metallic plates having their margins interlocked by a joint whereof the edge of one member has a flange upturned transversely to the plane of the shaft, both plates having shallow depressions oppositely disposed so as when assembled to contact with each other, substantially as specified.

4. As a constituent member of a stereoscope, a shaft consisting of two metallic plates having margins interlocked by a joint whereof the edge of one member has a flange upturned transversely to the plane of the shaft, with a space between said plates, one of said plates projecting forwardly of the lens-frame and having provisions for connecting with the hood, and the other having provisions to receive and connect with the lens-frame, substantially as specified.

5. As an improved member of a stereoscope, a lens-frame consisting of a metallic face and a metallic back plate, the face-plate being provided with shallow flanged sockets to receive and maintain correct lateral position of the lenses; the back plate having forwardly-projecting inclined flanged rims to contact with the back sides of the lenses and in opposition with the aforesaid sockets; means for holding said plates in correct co-junctive position, and means for drawing them together so as to bind the interposed lenses immovably in their positions in the frame.

6. As an improved member of a stereoscope, a lens-frame consisting of a metallic face-plate, the main central field of which is struck up above the plane of its margin approximately the thickness of the lenses, provided with shallow flanged sockets to receive and maintain correct lateral position of the lenses; in combination with a back plate having forwardly-projecting inclined flanged rims to contact with the back sides of the lenses and in opposition with the aforesaid sockets; and having also a marginal flanged groove to receive the edges of said plates, and means in connection therewith for holding said hood and plates in conjunction and means for binding said plates to each other.

7. In combination with a shaft consisting of two metallic plates marginally locked together with a space between them; of a lens-holder consisting of a metallic back plate having a peripheral-flanged groove, and a metallic face-plate with provisions between said back and face plates for receiving and holding the lenses in correct position; means for lock-

ing and confining said shaft and lens-frame together; and a hood flanged to connect with the groove of the back plate and locked to the shaft, substantially as specified.

8. The combination in a stereoscope, with the shaft and lens-frame of a septum consisting of a core of material suitable for holding a nail or screw-thread, and a metallic sheath including the same provided with a perforated flange or flanges which overlap the core, and fastening devices adapted to cooperate with said perforated flange for attaching the septum to the shaft, substantially as specified.

9. As a constituent member of a stereoscope, a picture-holder consisting of a plate of metal having a tubular head extending along its side edges, said tubular feature containing and holding by their tangs wire guards for supporting the pictures, substantially as specified.

10. The described picture-holder-consisting of a metallic plate having tubular headed edges and cord-supporting wire guards, the ends of each of which are of differential length so that the long end of one guard shall break joint over the opposing contiguous ends of the guards, substantially as specified.

11. The combination in a stereoscope, of a shaft provided with a rib along the margin of its upper side, with a picture-holder in the nature of a cross-bar, the margins of the under side of which have similar ribs, whereby the holder contacts with the shaft only at the points where the bar crosses the ribs of the shaft; whereby the surfaces of the web of the shaft and holder are protected against wear and abrasion due to sliding one over the other, substantially as specified.

12. In a stereoscope the means for uniting the margins of the two plates forming the shaft, consisting in the raised rim and transversely-turned flange-lip of the inner plate edge, in combination with the overlapping lip of the edge of the outer plate, the latter lip being bent outwardly from its web, then across and over the edge of the inner lip, thence around the latter so that its edge closes firmly into the angle of the inner plate formed by the outward bend of the inner lip; whereby the inner lip acts as a stiffening-arc within the tube formed by the curvature of the outer lip, substantially as described.

701,527. STEREOSCOPE. HAWLEY C. WHITE and HARRIS C. WHITE, North Bennington, Vt., assignors to E. C. White Co., North Bennington, Vt., a Corporation of Vermont. Filed Sept. 24, 1901. Serial No. 70,287. (No model.)



Claim.—1. A metallic stereoscope-shaft consisting of an upper and an under plate and united at their margins by an interlocking joint; and separated at their intermediate portions, and an interposed spring which is adapted to distend the two plates.

2. A metallic stereoscope-shaft consisting of an upper and an under plate, connected at their edges by a loose interlocking joint, and an interposed spring adapted to distend the two plates.

3. A metallic stereoscope-shaft consisting of an upper and an under plate, connected at their edges by an interlocking joint, and an interposed metallic spring adapted to distend the two plates.

4. A metallic stereoscope-shaft consisting of an upper and an under plate, connected at their edges by a loose interlocking joint, and an interposed metallic spring-plate, the longitudinal axis of which bears against the middle of one plate, and the parallel margins of which bear against the other plate.

5. A metallic stereoscope-shaft consisting of an upper and an under plate, one of which is provided with a central axial inward depression, a plate-spring having a corresponding central axial depression which fits over the depression of said plate, both upper and under plates and the spring-plate connecting along a longitudinal median line.

6. The combination in a stereoscope-shaft of the upper plate, under plate and an interposed spring-plate, the edges of the upper and under plates being united by a marginal joint adapted to permit slight movement of one member upon the other perpendicularly to the plane of the shaft as a means for obviating elastic rigidity.

7. In a picture-holder the combination with the shaft of a cross-bar made from sheet metal having a longitudinally-convex depression opposite where the bar crosses the shaft which is covered with a non-abrasive substance and projects sufficiently beyond the plane of the highest portions of the cross-bar where it lies over the shaft to break contact between the opposed metal surfaces of the shaft and cross-bar, substantially as specified.

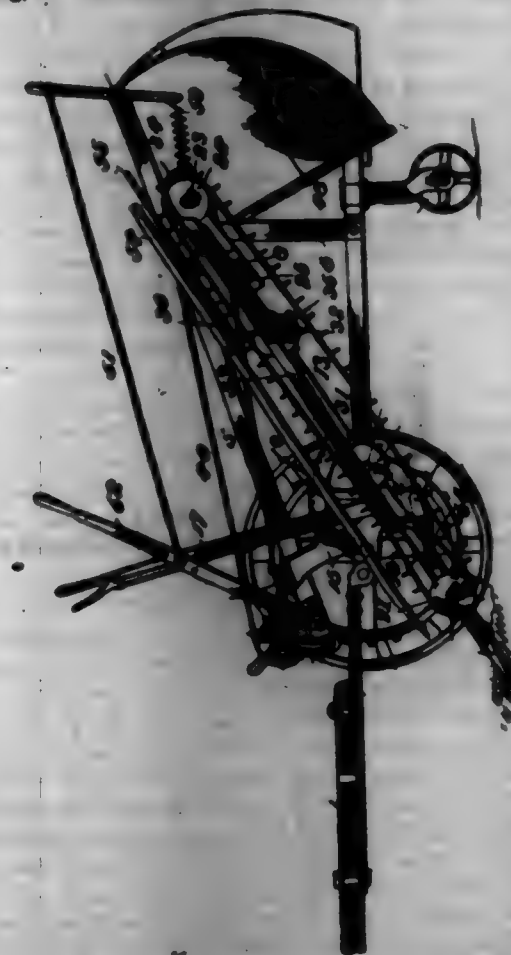
8. The combination with a stereoscope-shaft, of a metallic picture-holder having a spring-clamp and cross-bar, whereof the bar has a convex cushioned depression where it crosses the shaft and the clamp has springs provided with cushioned tips or pads to bear against the under side of the shaft, substantially as specified.

701,528. SELVAGE-HEDDLE MOTION. JAMES WILKINSON, Fall River, Mass. Filed Oct. 8, 1901. Serial No. 77,622. (No model.)



(Name.—) In a selvage-motion for looms, the combination of a pick-up shaft; a cam-shaft; two adjacent sprocket-wheels, one having a diameter twice as great as that of the other, said wheels being mounted on the pick-up shaft; a sprocket-wheel having the same diameter as the larger sprocket-wheel on the pick-up shaft; a chain to engage the sprocket-wheel on the cam-shaft, and either of the two different-sized sprocket-wheels on the pick-up shaft; a cam fixed on said cam-shaft; selvage-heddles; selvage-treadles connected with said selvage-heddles, and operated by said cams.

701,529. PEANUT-MARVINTER. CHARLES E. WYCKOFF, Fort Leno, Va. Filed July 12, 1901. Serial No. 68,954. (No model.)



Claim.—1. Is a machine for harvesting peanuts and the like, comprising elevator spaced apart transversely, and an agitator-bar located in the space formed between the elevators for imparting a vibratory movement to the article being harvested, substantially as set forth.

2. In a machine for harvesting peanuts and the like, comprising ele-

vators transversely spaced, and a shaker-bar arranged in the said space and provided at its upper end with a curved portion projecting beyond the delivery end of the elevators to push the vines and peanuts therefrom, substantially as set forth.

3. In a machine for harvesting peanuts and the like, transversely-spaced elevators, means for imparting a vibratory movement thereto, and a shaker-bar located in the space formed between the elevators, substantially as set forth.

4. In combination, a main frame, an elevator-frame telescoped to the main frame and having longitudinal slots, and a crank-shaft journaled to the main frame and having its crank portion operating in the slots of the elevator-frame, substantially as set forth.

5. In combination, a main frame, an elevator-frame longitudinally movable with reference to the main frame, an endless elevator, supports for the said elevator applied to the main and elevator frames, and means for moving the frames longitudinally with reference to each other to effect a tightening or loosening of the elevator, substantially as set forth.

6. In combination, a shaft, an elevator-frame mounted to turn upon said shaft, an endless elevator, supports for the endless elevator mounted upon the aforesaid shaft and elevator-frame, and means for effecting a longitudinal movement of the elevator-frame, the same consisting of corresponding irons, adjusting means for relatively moving the irons, and fastening means for securing the irons in an adjusted position, substantially as set forth.

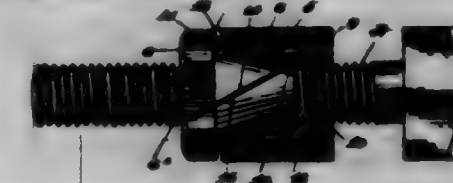
7. In combination, a shaft, an elevator-frame, a cross-bar having bent ends mounted upon the shaft, said cross-bar having slotted widened portions, one of the widened portions having an end portion bent, brackets secured to the elevator-frame, nut-screws mounted in the said bent ends, fastenings for securing the brackets in an adjusted position, an endless elevator, and supports for said elevator applied to the aforesaid shaft and to the elevator-frame, substantially as set forth.

8. In a harvester of the character described, and in combination with the elevator, actuating means therefor including a clutch, and means for raising and lowering the elevator, a shipper-lever, and a trip automatically actuated by the raising and lowering of the elevator to automatically throw the operating mechanism into and out of gear, substantially as set forth.

9. In combination, an elevator, means for raising and lowering the same, an actuating mechanism including a clutch, a shipper-lever in engagement with the clutch and mounted independently of the elevator-frame and having a part to be engaged by a portion of the elevator-frame to effect a making and a breaking of the clutch automatically by a raising and lowering of the elevator, substantially as set forth.

10. In combination, an elevator adapted to be raised and lowered, elevator-actuating mechanism including a clutch, and a shipper-lever for the clutch mounted independently of the elevator and having a cam-trip for cooperation with the elevator to effect an automatic making and breaking of the clutch, substantially as set forth.

701,530. LOCK-OUT. JOHN L. ALGER, Medford, Mass. Filed Mar. 5, 1902. Serial No. 68,772. (No model.)



Claim.—1. A lock-out member comprising a base and a conical extension having a bore and slotted from end to end, said slot extending in a direction diagonal to the bore.

2. A lock-out member comprising a base and a conical extension having a screw-threaded bore and having a diagonal slot extending from end to end and in a direction generally opposite to the extension of the screw-thread.

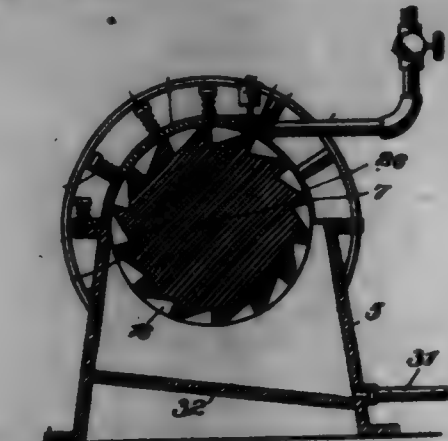
3. A lock-out member comprising a base and a conical extension having a bore and slotted from end to end, said slot being inclined to the median plane of the member, whereby a biting edge and an expanding wedge are formed on the respective faces of said slot.

4. A lock-out member comprising a base and a conical extension having a bore and furnished with a slot diagonal to bore and inclined to the median plane thereof.

5. The combination with the member 5 having the conical socket 6, of the member 6, having the base 11 and the extension 12 and furnished with the slot 14, having the edge 15 and the surfaces 16 and 17, as and for the purpose described.

701,531. ROTARY ENGINE. WILLIAM F. BAKER, Braintree, Mass. Filed July 5, 1901. Serial No. 67,122. (No model.)

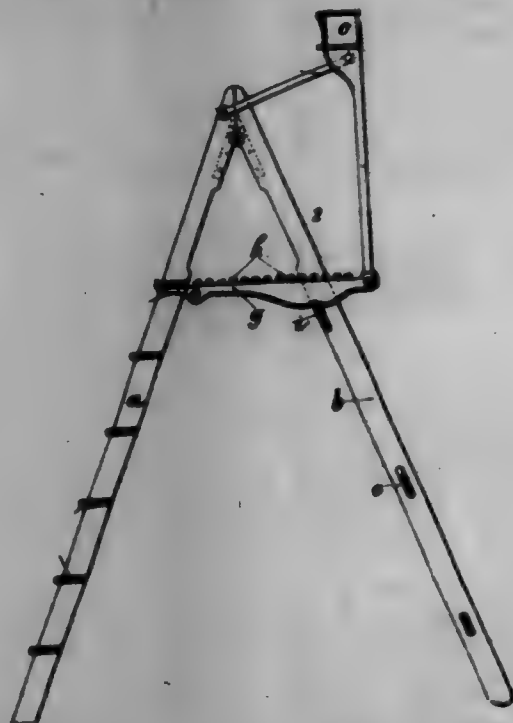
Claim.—1. In a rotary engine, the combination with a hollow base having side bearings and cylinder-heads concentric with the bearings, of a piston having a shaft disposed in the bearings, the piston lying between the heads, the piston and heads having equal radii, and an arcuate plate fitted against the outer face of the piston and cylinder-heads and having yieldable connection with the latter, said plate having an inlet-passage therethrough and the piston having pockets to receive from the inlet-passage.



2. A rotary engine comprising a hollow base having cylinder-heads and bearings therein, a piston fitted between the heads and having a shaft journaled in the bearings, the lower side of the piston being exposed within the base, a cylinder-plate fitted against the outer face of the piston and cylinder-heads, spring pressure devices for holding the plate yieldably against the piston to take up wear, a fixed plate-covering and spaced from the remaining portion of the upper face of the piston, said cylinder-plate having an inlet-passage therethrough and the piston having pockets in line with the passage, and a feed-pipe connected with the passage.

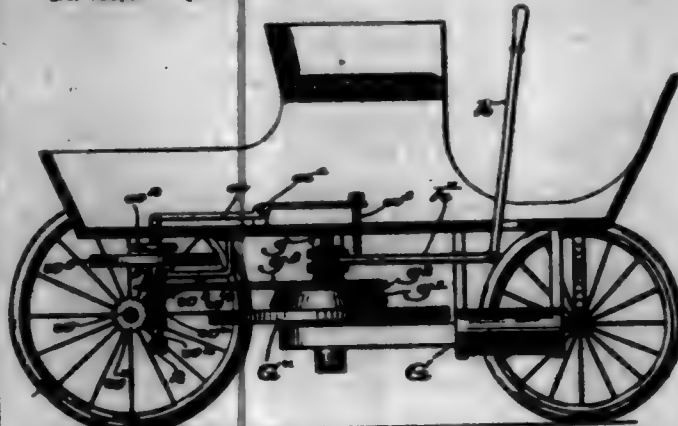
3. A rotary engine comprising a rotatable piston, a base in which the piston is mounted and partly contained, said piston having a central series of pockets and an annular groove at each side thereof and annular flanges at the outer sides of the grooves, and a cylinder-plate fitted against the piston and having arcuate flanges engaged with the grooves, the flanges having longitudinally-extending channels provided with packing projecting therefrom, and adjustable means for holding the plate yieldably in contact with the piston.

701,582. DOUBLE OR STEP LADDER. EMILE BARDON, Bangor, France. Filed May 31, 1901. Serial No. 62,663. (No model.)



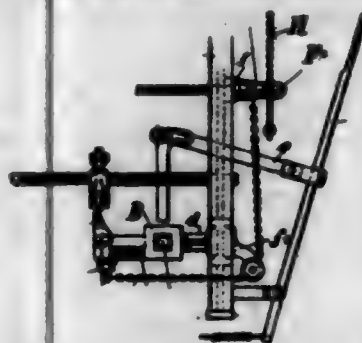
Claim.—A step-ladder comprising the limbs a, b, pivoted together, a platform A pivoted at one of its ends to one of the limbs, a support c on the other limb upon which the platform rests at or near its free end, said support when the ladder is folded moving toward the pivoted end of the platform to allow the said platform to fall at its free end, a tool-box, arms j connecting the free end of the platform with the tool-box and arms k connecting the tool-box with the ladder at or near its upper end, the said arms and tool-box moving downwardly when the platform falls at its free end upon the folding of the step-ladder, substantially as described.

701,583. DRIVING MECHANISM FOR MOTOR-VEHICLES. CLARENCE C. BRANWELL, Hydeport, Mass. Filed Sept. 14, 1898. Serial No. 730,401. (No model.)



Claim.—In a motor-vehicle, a driving wheel or wheels, a motor, intermediate power-transmitting means, including a worm and meshing worm-gear, a fly-wheel rotatable with the worm, a brake for said fly-wheel, controlling means for the motor, and actuating connections between said means and the brake, to govern the latter.

701,584. PICKER-OPERATING MECHANISM FOR SWIVEL-LOOMER. FRED EDWIN PATTERSON, N. J., assignor to Joseph Wadsworth, Paterson, N. J. Filed Jan. 16, 1902. Serial No. 89,801. (No model.)



Claim.—1. In a swivel-loom, the loom-frame, a rock-shaft mounted therein, a picking-stick pivotally secured to said frame, a lever-arm secured to said rock-shaft and a lug-strap connecting said lever and picking-stick, in combination with a shoe-block also secured to said rock-shaft and having a raceway therein, a shoe adapted to slide therein, a spring to hold said shoe in its normal position, and means for temporarily withdrawing and holding said shoe from and out of its normal position, substantially as set forth.

2. In a swivel-loom, a rock-shaft, a shoe-block secured to same and provided with a raceway therein, in combination with a shoe adapted to slide therein, means therein to hold said shoe normally in the path of revolving picking-balls, and means for temporarily withdrawing and holding said shoe from, and out of its normal position, substantially as set forth.

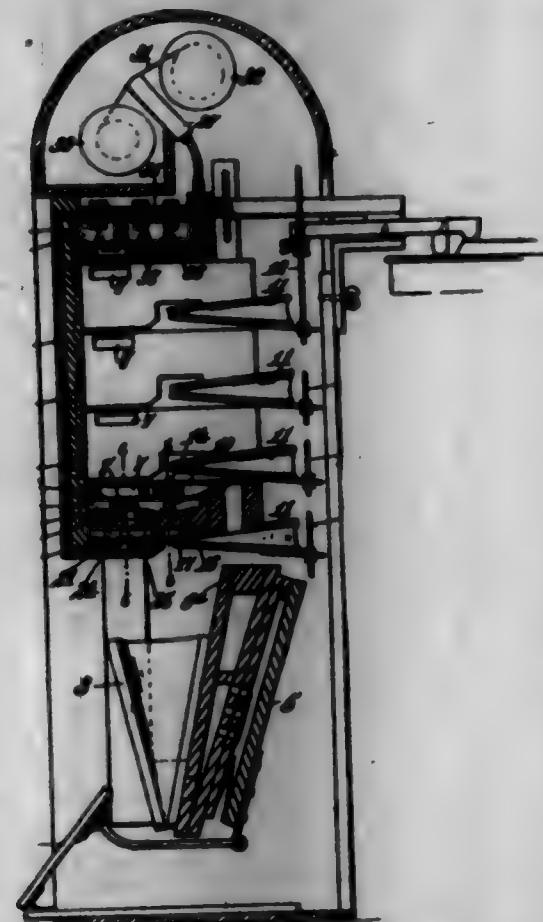
3. In a swivel-loom, the combination with the picking-stick, provided with a picking-arm carrying picking-balls, of the rock-shaft, a shoe-block secured thereto having a raceway in it and a sliding shoe adapted to reciprocate therein, means to hold said shoe normally in the path of the picking-balls to rock the rock-shaft and means for temporarily withdrawing and holding said shoe from, and out of its normal position, substantially as set forth.

701,585. DOUBLE-BELLOWS ACTION FOR PNEUMATIC PIANO-PLAYERS. THOMAS F. BROWN and PETER WILK, Worcester, Mass. Filed June 29, 1901. Serial No. 64,693. (No model.)

Claim.—1. In an automatic piano-player, the combination with power-pneumatics and suitable key-operating instrumentalities, of a low-tension chamber communicating with said pneumatics, a high-tension chamber independent of said low-tension chamber communicating with said pneumatics, a single valve controlling the ports leading from said low and high tension chambers to each of said power-pneumatics, a low-tension bellows communicating with said low-tension chamber, and a high-tension bellows communicating with said high-tension chamber, and feeders for said bellows.

2. In an automatic piano-player, the combination with power-pneumatics and suitable key-operating instrumentalities, of a low-tension chamber communicating with said pneumatics, a high-tension chamber independent of said low-tension chamber communicating with said pneumatics, a single valve controlling the communication of said tension-chambers

with each of said power-pneumatics, a low-tension bellows communicating with said low-tension chamber, a high-tension bellows communicating with said high-tension chamber, a tracker having ducts controlling the valves which regulate the communication of said high and low tension chambers with the power-pneumatics, and feeders for the high and low tension bellows.



3. In an automatic piano-player, the combination with power-pneumatics and suitable key-operating instrumentalities, of a low-tension chamber communicating with said pneumatics, a high-tension chamber independent of said low-tension chamber communicating with said pneumatics, a single valve controlling the communication of said tension-chambers with each of said pneumatics, a low-tension bellows communicating with said low-tension chamber, a high-tension bellows communicating with said high-tension chamber, and a tracker having separate ducts for controlling the valves which regulate the communication of said low-tension chamber and said high-tension chamber with said power-pneumatics.

4. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, separate feeders for each of said bellows, a low-tension vacuum-chamber, a high-tension vacuum-chamber, means for cutting off communication between said diaphragm-chambers and said high and low tension chambers, and power-pneumatics in communication with said diaphragm-chambers.

5. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, separate feeders for said bellows, a low-tension vacuum-chamber connected with said low-tension bellows, a high-tension vacuum-chamber connected with said high-tension bellows, diaphragm-chambers in communication with both of said vacuum-chambers, a single valve controlling the port between each of said diaphragm-chambers and said low and high tension chambers, and power-pneumatics in communication with said diaphragm-chambers.

6. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, feeders for said bellows, a low-tension vacuum-chamber, diaphragm-chambers in communication with said low-tension chamber through normally open valved ports, power-pneumatics having valved ports communicating with said diaphragm-chambers, a high-tension vacuum-chamber having normally closed ports leading to said diaphragm-chambers, means for cutting said low-tension chamber out of communication with said diaphragm-chambers, and putting said high-tension chamber in communication therewith.

7. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, feeders for said bellows, a low-tension vacuum-chamber, diaphragm-chambers in communication with said low-tension chamber through normally open valved ports, power-pneumatics having valved ports communicating with said diaphragm-chambers, a high-tension vacuum-chamber having normally closed ports leading to said chambers, a single valve controlling the communication of said high and low tension chambers with each of said power

pneumatics, and means for operating said valve to cut out said low-tension chamber and bring said high-tension chamber into action.

8. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, separate feeders for each of said bellows, a low-tension vacuum-chamber in communication with said high-tension bellows, a high-tension vacuum-chamber in communication with said low-tension bellows, independent diaphragm-chambers communicating with both of said vacuum-chambers, power-pneumatics, pockets separated by the diaphragm from said diaphragm-chambers, a tracker having ducts communicating with the pockets of said diaphragm-chambers, valve-controlled ports leading from said diaphragm-chambers to said pneumatics, and means to cut out said low-tension chamber and simultaneously throw said high-tension chamber into action.

9. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, separate feeders for said bellows, a low-tension vacuum-chamber in communication with said low-tension bellows, a high-tension vacuum-chamber in communication with said high-tension bellows, a series of separate diaphragm-chambers having valved ports leading to both of said tension-chambers, a series of power-pneumatics communicating with said diaphragm-chambers, means for selecting any one of said diaphragm-chambers and power-pneumatics for action, and means for cutting out said low-tension vacuum-chamber and throwing said high-tension chamber into communication with any of said diaphragm-chambers so selected.

10. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, separate feeders for said bellows, means for operating said feeders, a low-tension vacuum-chamber in communication with said low-tension bellows, a high-tension vacuum-chamber in communication with said high-tension bellows, a series of diaphragm-chambers in communication with both of said vacuum-chambers, a single valve controlling the ports leading from each of said diaphragm-chambers to said vacuum-chambers, power-pneumatics having valved ports leading to said diaphragm-chambers, a tracker provided with ducts through which said power-pneumatic valves are controlled, said tracker having independent ducts through which the valved ports leading from said diaphragm-chambers to said vacuum-chambers are controlled.

11. In an automatic piano-player, the combination with a low-tension bellows, of a high-tension bellows independent thereof, feeders for said bellows, a low-tension vacuum-chamber in communication with said low-tension bellows, a high-tension vacuum-chamber in communication with said high-tension bellows, diaphragm-chambers having valved ports leading to both of said vacuum-chambers, power-pneumatics having valved communication with said diaphragm-chambers, and a tracker controlling said valved connections between the diaphragm-chambers and their power-pneumatics, and between said diaphragm-chambers and said low and high tension vacuum-chambers.

12. In an automatic piano-player, the combination with key-operating instrumentalities, of a low-tension bellows and a high-tension bellows, adapted to be placed in communication with said key-operating instrumentalities, valves for controlling the ports leading from said bellows, valves for controlling the ports leading to the key-operating instrumentalities, and a tracker having ducts for controlling the valves which regulate the action of said key-operating instrumentalities, and separate ducts for regulating the valves which control the said high and low tension bellows.

13. In an automatic piano-player, the combination with key-operating instrumentalities, of a low-tension bellows, a high-tension bellows, power-pneumatics connected through valved ports with said high and low tension bellows independently of each other, valves in said ports, a tracker having selecting-ducts for controlling the valves which regulate the action of said power-pneumatics, said tracker having accentuation-ducts for controlling the valves which regulate the action of said high-tension bellows.

14. In an automatic piano-player, the combination with key-operating instrumentalities, of a low-tension bellows, a high-tension bellows, power-pneumatics independently connected through valved ports with said high and low tension bellows, valves in said ports, a tracker having selecting-ducts for controlling the valves which regulate the action of said power-pneumatics, said tracker having accentuation-ducts for controlling the valves which regulate the action of said high-tension devices on one or more of said power-pneumatics.

15. In an automatic piano-player, the combination with high and low tension wind-chests, of the sound-producing instrumentalities operable from either of said chests, a tracker having a series of note-selecting ducts, a series of accentuation-ducts and a duct-board having a series of accentuation-ducts communicating with the chordal accentuation-ducts and each provided with a plurality of branches whereby two or more of the sound-producing instrumentalities are controlled from a single accentuation-duct.

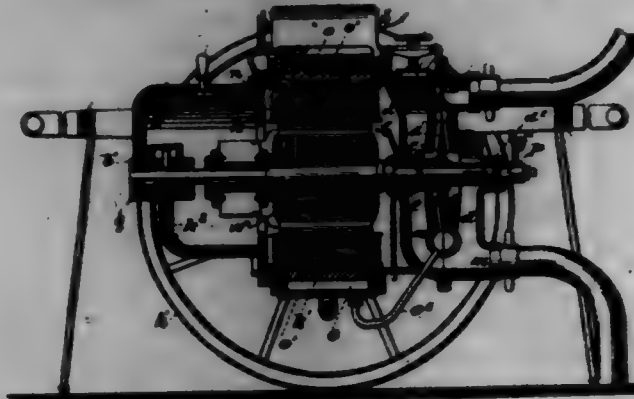
16. A tracker for automatic piano-player having a series of note-selecting ducts therein and an accentuation-duct, combined with a duct-

board having a plurality of passages or ducts in communication with said atmosphere-duct.

17. In an automatic piano-player, the combination with high and low tension wind-chests, of power-pneumatics operable from either of said wind-chests, valves for controlling the action of the high and low tension wind-chests, valves for controlling the action of the power-pneumatics, a tracker provided with ducts to select and bring into action the valves that control said power-pneumatics, said tracker being provided with separate ducts for controlling the valves that regulate the action of said high-tension wind-chest on a plurality of said pneumatics.

18. In an automatic piano-player, the combination with key-operating instrumentalities, of power at pneumatic, diaphragm-chambers having valved communication with said power-pneumatics, a low-tension chamber normally in communication with said diaphragm-chambers, a high-tension chamber, controlling means for cutting out said low-tension chamber and throwing said high-tension chamber into communication with said diaphragm-chambers, a tracker, connections between said tracker and said diaphragm-chambers, and connections between said tracker and said controlling means for the low and high tension chambers.

701,586. ELECTRIC PUMPING-ENGINE. OVEN BERMAN, Elzing, Sweden, assignor to De Laval Steam Turbine Company, a Corporation of New Jersey. Filed Oct. 2, 1901. Serial No. 74,003. (No model.)



Claim.—1. The combination in an electric pumping-engine of a vehicle, an inclosing drum or cylinder supported on said vehicle and divided into two compartments, an electric motor disposed in one compartment and a rotary pump actuated thereby in the other compartment, and on the exterior of said cylinder means for connecting suction and delivery pipes to said pump-compartment and means for connecting a source of electric current to said motor.

2. The combination in an electric pumping-engine of a vehicle, an inclosing drum or cylinder supported on said vehicle and divided into two horizontally-closed compartments, each provided with an opening for allowing access to its interior and with means for closing said openings, an electric motor disposed in one compartment and a rotary pump actuated thereby in the other compartment, and on the exterior of said cylinder means for connecting suction and delivery pipes to said pump-compartment and means for connecting a source of electric current to said motor.

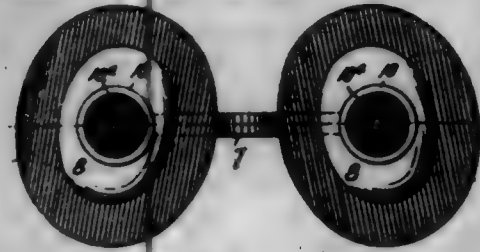
3. The combination in an electric pumping-engine of an inclosing cylinder or drum divided into two compartments, an electric motor in one of said compartments, a rotary pump in the other compartment, a shaft extending through both compartments and carrying the armature of said motor and the wheel of said pump, means for connecting said motor and said pump respectively to sources of electric current and liquid supply, and means exterior to said drum for regulating the tightness of the joint between said shaft and the partition dividing said compartments.

701,587. BAG-FASTENER. GEORGE M. BURET, Cumberland, Md. Filed June 21, 1901. Serial No. 66,476. (No model.)



Claim.—The combination with a bag or sack, of a permanent non-removable fastener for securing the gathered mouth or neck of the bag and rendering the same non-refillable, said fastener consisting of a staple having the terminal portions thereof flattened and sharpened by beveling on opposite sides, the extremities of said terminal portions, in the act of applying the fastener, being recurved and extended convergently inward, the fastener being compressed tightly around the neck of the bag and the sharpened terminals thereof being simultaneously brought together and driven into the sack under pressure, substantially as described.

701,588. NASAL SHIELD. THOMAS CARLSON, Kansas City, Mo. Filed Sept. 18, 1901. Serial No. 73,533. (No model.)



Claim.—1. In a nasal shield, the combination of two open-ended tubes, respectively provided with exteriorly-projecting plates, a bridge connecting the tubes, an absorbent pad surrounding each tube in contact with the plate, a removable plate surrounding each tube in contact with the pad and opposed to the first-named plate, and a cap applied to each tube to hold the removable plate in position and to cause it to clamp the pad, said cap being provided with a diaphragm adapted to strain out the dust while it allows the air to pass through the tube.

2. In a device of the class described, the combination of two tubular parts, an outwardly-bowed bridge-piece connecting said parts, two opposing plates surrounding each tube, absorbent material held between the plates and protruding therefrom, and a cap applied to each tube and provided with a gauze diaphragm for the purpose set forth.

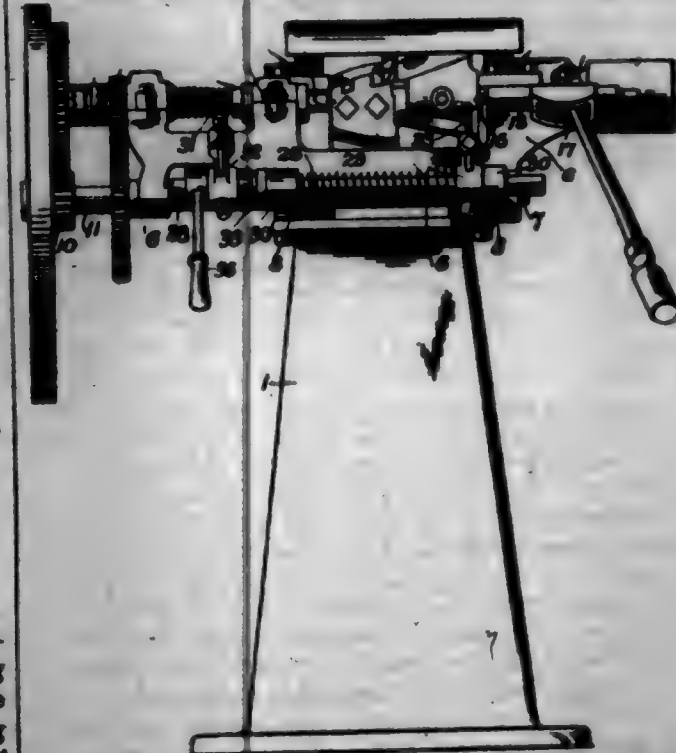
3. In a device of the class described, the combination of two open-ended, cylindrical parts, a bow-shaped bridge connecting said parts, two opposing plates mounted on each cylinder, absorbent pads held by the plates, and a cap applied to each cylinder and provided with a gauze diaphragm for the purpose set forth.

4. The combination of two tubular parts, a bridge connecting said parts, absorbent pads mounted on the tubular parts, means for holding the pads in place, and a gauze diaphragm applied to each part for the purpose set forth.

5. The combination of two cylinders, a plate surrounding each cylinder, a pad engaging the plate, another plate surrounding the cylinder on the opposite side of the pad, and a screw-cap applied to the cylinder and made to engage the adjacent plate, the cap being provided with a wire-gauze diaphragm.

6. The combination of two exteriorly-threaded cylinders, a bridge connecting said cylinders, a concavo-convex plate applied to each cylinder and made fast thereto, its outer edges being serrated or toothed, an absorbent pad applied to the plate around each cylinder, a similar loose plate applied to each cylinder and engaging the pad opposite the first-named plate, and an interiorly-threaded cap screwed upon each cylinder to engagement with the loose plate, said cap being provided with a wire-gauze diaphragm.

701,589. INSULATOR-PIN MACHINE. AMEL D. CATTIN, Chattanooga, Tenn. Filed May 27, 1901. Serial No. 62,002. (No model.)



Claim.—1. An insulator-pin machine, comprising spindle and means for rotating them, centers-forming cutters, a thread-cutting device, and means for imparting a more rapid rotation when the thread-cutting device is in operation.

2. In an insulator-pin machine, the combination with the cutting device, of a pivoted frame, means therein for supporting the pin-blank and causing it to rotate, and means whereby the speed of rotation of the blank may be increased at the beginning of the threading operation, and suitable threading devices likewise carried by the movable frame.

3. In an insulator-pin machine, the combination with the frame, the cutting devices for turning the pin-blank to the proper shape, a movable frame pivoted to the main frame, supporting-centers in said movable frame for holding the pin-blank, one of said centers being carried on the end of a threaded spindle, threading device for imparting the thread to the pin, means for causing the threading device to operate in correspondence with the threaded spindle, and means for causing the threaded spindle to run at a higher speed in threading than in turning.

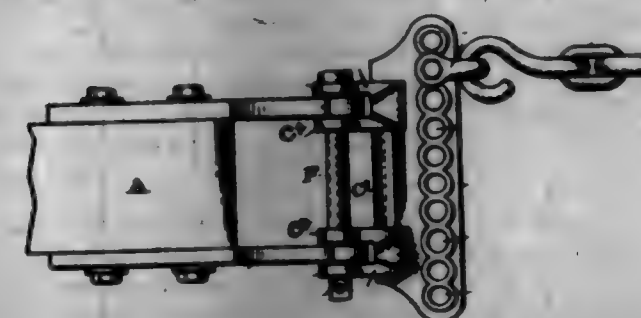
4. In an insulator-pin machine, the combination with the main frame, of centers for turning the pin, a movable frame pivoted to the main frame, centers for supporting the pin-blank, one of which centers is carried on the end of a threaded spindle, gearing for driving said spindle which includes a clutch device for fast and slow speeds, a tracer-pin engaging the threaded spindle, and the threading-tool, the two being carried by a common shiftable rod, and means whereby said rod may be adjusted to place the threading device in operative position and simultaneously to adjust the clutch for high speed in threading.

5. In an insulator-pin machine, the combination with the main frame and the turning-cutter supported thereon, of a movable frame pivotally supported on the main frame, adjustable pin-blank-containing device, one of which is carried by a threaded shaft, a clutch on said shaft, speed-changing gears likewise on the shaft, a threading implement which is operated from the shiftable threaded shaft and means whereby the speed of the threaded shaft will be accelerated when the threading implement is in connection.

6. In an insulator-pin machine, the combination with the main frame, and means carried thereby for shaping the blank to the proper form, of a swinging frame and centering device therein, one of which is carried by a threaded spindle, a clutch-gear on said shaft, the gearing arrangement for driving the gears at different speeds, a threading implement, an end-wise-movable spring-provided shaft carrying it, a tracing-pin on said shaft engaging the threaded spindle, a shipper-bar for operating the clutch, an angular slide engaging the shipper-bar, and a lever on the threading-tool shaft which connects with the angular bar.

7. The combination with the main frame, a cutter therein for shaping the blank to the proper form, supporting devices for the blank, means for driving them at different speeds, a threading-tool, a spring-provided rod carrying it, said rod having a handle, a lever fixed on said rod, a clutch for controlling the means for driving the device that supports the blank, a shipper-bar arranged to operate said clutch, an angular slide-bar engaging an inclined groove in the shipper-bar and being itself engaged by the aforesaid lever.

701,540. OLEVIA. JAMES H. CHIMMERT and WILLIAM TYRE, St. Louis, Mo. Filed Mar. 15, 1902. Serial No. 64,554. (No model.)



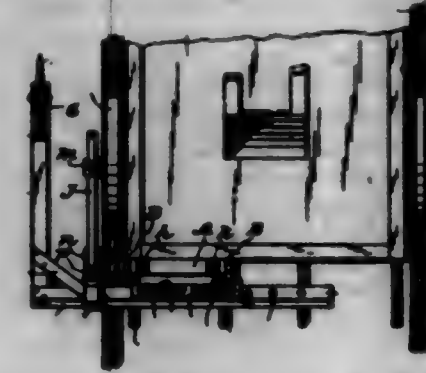
Claim.—The combination with parallel jaws, of a clevis having means for the adjustable connection of a draft-chain and provided with devices whereby it can be attached to jaws of any width, consisting of a stationary leg on the clevis to engage with one jaw, ribs along the rear edge of the clevis, and a block adapted to engage with the other jaw and having flanges engaging with the ribs on the clevis.

701,541. GRASS AND DITCH LINES. JAMES H. CHIMMERT, St. Louis, Mo. Filed Mar. 17, 1902. Serial No. 64,556. (No model.)

Claim.—1. A grass and ditch liner comprising a beam adapted to be attached to a hand-car, an adjustable beam pivoted to the beam, a trailing arm having a line-marker at the free end thereof and attached to an end of the beam, a head adjustably attached to the beam, and a controlling-lever attached to the head.

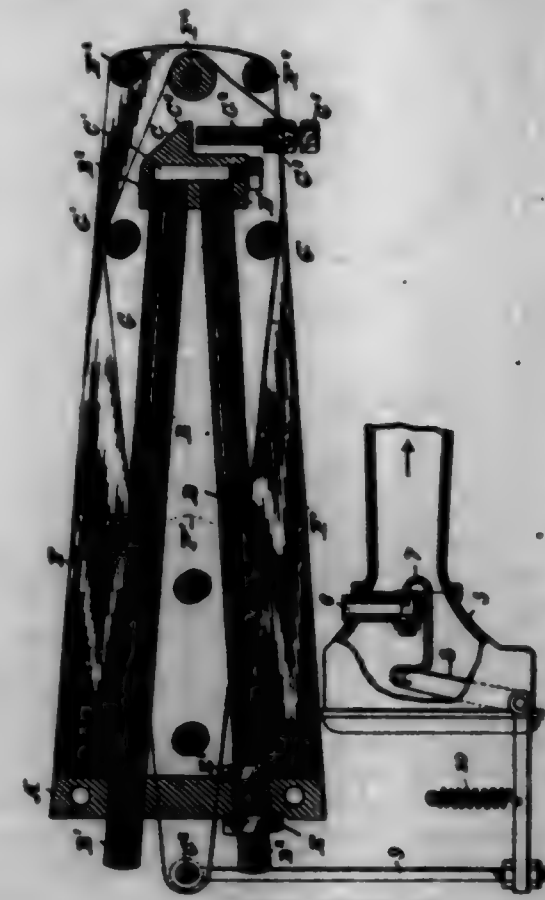
2. The combination with a hand-car, of a grass and ditch liner comprising a beam rigidly attached to the forward end of the car-body, a hori-

zontal beam pivotally and adjustably connected to the beam and having a trailing arm provided with a line-marker whereby lines may be cut into the ground at the side of the car, and a controlling-lever adjustably attached to the beam.



3. In a grass and ditch liner, the combination with the car, of the beam attached to the forward end of the car, the fixed hinge parts attached to the beam, the companion hinge parts connected to the fixed hinge parts the beam adjustably attached to the companion hinge parts, the head adjustably attached to the beam, the lever pivoted to the head and having the head adapted to engage the beam, the movable weight on said lever, the trailing arm attached to said beam, and the line-marker connected to the free end of said arm, substantially as and for the purposes set forth.

701,542. REGULATOR FOR STEAM-GENERATORS. THOMAS CLARKSON, London, England. Filed July 30, 1899. Serial No. 724,547. (No model.)



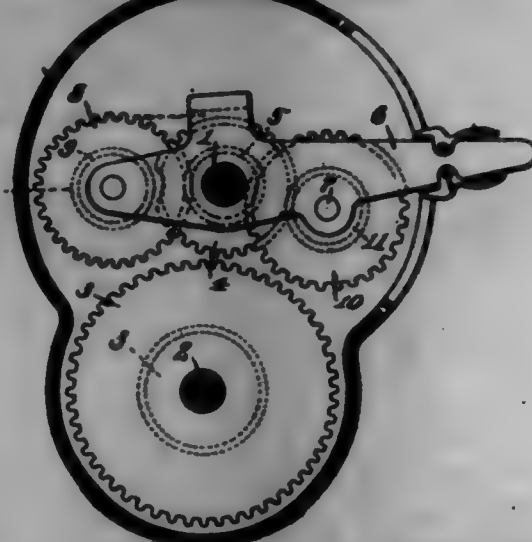
Claim.—1. In a regulator for steam-generators, the combination of two tubular metallic members having different coefficients of expansion and adapted to be connected to the generator to permit a heated fluid from the generator to flow through them, a rigid base supporting one end of each member and a movable connection for the other end of each member, a lever pivoted adjacent to the said members, a projection on the lever adapted to be engaged by said connection and adjustable in relation thereto, a device for controlling the flow of fluid to the generator, and connections between the lever and each device, substantially as and for the purpose specified.

2. In a regulator for steam-generators, the combination of two tubular metallic members having different coefficients of expansion and adapted to be connected to the generator to permit a heated fluid from the generator to flow through them, a rigid base to which one end of each member is attached, a movable connection for the other ends of the members, a lever pivoted adjacent to the said members, a projection on the lever adapted to be engaged by said connection and adjustable in relation thereto.

to, a device to control the feed of fuel to the generator, and connections between the lever and such device, substantially as and for the purpose specified.

3. In a regulator for steam-generators, the combination of the fixed support, A, tubular metallic members B and D, secured at one end to the support A and having different coefficients of expansion and adapted to be connected to the generator to permit a heated fluid from the generator to flow through them, a movable connection C for the other ends of the tubular members, plates F secured to the support A and projecting therefrom, a lever G pivoted between the outer ends of said plates, a projection G' supported on the said lever to be engaged by the connection C, means to adjust said projection relatively to the connection C, a valve to control the feed of fuel to the generator, connections between the lever G and said valve, and means to move the valve and lever in a direction opposite to that in which they are moved by the connection C, substantially as and for the purpose set forth.

701,543. VARIABLE-SPEED GEAR. FRANK B. COHEN, New York, N. Y., assignor to Hill-Sement-Pond Company, Jersey City, N. J. Filed Mar. 31, 1902. Serial No. 160,776. (No model.)



Claim.—1. In variable-speed gears, the combination, substantially as set forth, of a shaft, a series of diversely-sized gears fast thereon, a splined shaft, a plurality of gears splined thereon, a double-armed tumbler sliding with said splined gears, a plurality of diversely-sized gears carried by said tumbler and driven from one of the splined gears and adapted for engagement with said diversely-sized gears, a second plurality of gears carried by the tumbler and driven from another one of said splined gears and adapted for engagement with said diversely-sized gears, and means for adjusting and locking the tumbler.

2. In variable-speed gears, the combination, substantially as set forth, of a shaft, a series of diversely-sized gears fast thereon, a splined shaft, a plurality of gears splined thereon, a double-armed tumbler sliding with said splined gears, a plurality of diversely-sized gears carried by said tumbler and driven from one of the splined gears and adapted for engagement with said diversely-sized gears, a second plurality of gears carried by the tumbler and driven from another one of said splined gears and adapted for engagement with said diversely-sized gears, a casing provided with an opening for a projecting portion of the tumbler, an upper and a lower longitudinal series of stops arranged at the margins of said opening and adapted to determine the angular and longitudinal position of the tumbler, and means for adjusting and locking the tumbler.

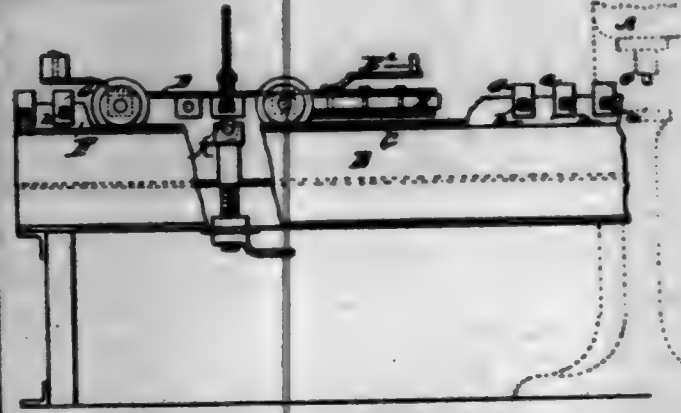
701,544. GUIDE FOR PUNCHING-PRESS. THOMAS CUNLEY and JOHN B. CUNLEY, Pittsburg, Pa. Filed Aug. 30, 1901. Serial No. 73,961. (No model.)

Claim.—1. The combination with a punch or drill press, of a carriage, a reciprocating rod mounted on said carriage, and a series of separately-adjustable stops adapted to contact with said rod and stop the carriage at predetermined points.

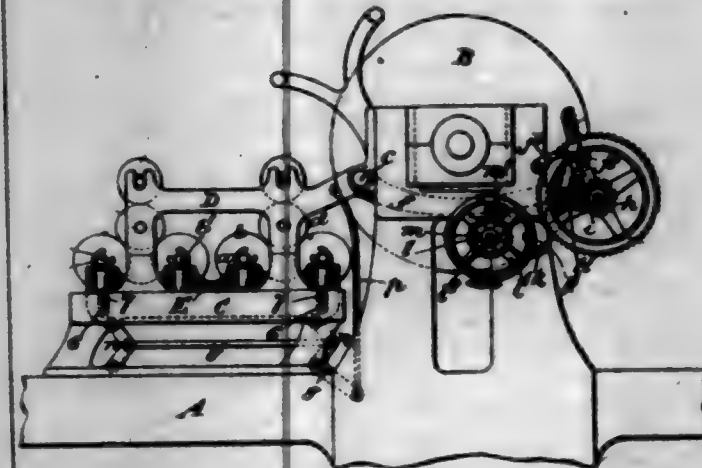
2. The combination with a punch or drill press and a carriage for conveying metal into position to be operated on, of separately-adjustable stops for stopping and retaining said carriage at predetermined points and means for causing the carriage to be engaged by and disengaged from said stops.

3. The combination with a punch or drill press, of a carriage, means for holding work in position on said carriage, a series of separately-adjustable stops, for stopping said carriage at predetermined points, and a manually-operable device carried on the carriage and adapted to engage with said stops.

4. The combination with a press and a movable carriage, of a guide for stopping said carriage consisting of a rail or rod provided with adjustable stops and adapted to stop the movement of the carriage at predetermined intervals.



701,545. INKING APPARATUS FOR PRINTING-MACHINES. CHARLES F. COTTRELL, Westbury, N. Y., assignor to C. R. Cottrell & Sons Company, New York, N. Y., and Westbury, Conn., a Corporation of New Jersey. Filed Nov. 1, 1901. Serial No. 90,722. (No model.)



Claim.—1. In the inking apparatus of a printing-machine, the combination with roller-stand tops and supports to which they are hinged, of toothed sector-carrying levers one on each stand-top, a lifting-shaft and bearings therefor, pinions on said shaft one for each sector-carrying lever, and means for turning and locking said shaft, substantially as herein described.

2. In the inking apparatus of a printing-machine, the combination with roller-stand tops and supports to which they are hinged, of toothed sector-carrying levers one on each stand-top, a lifting-shaft and bearings therefor, pinions on said shaft one for each sector-carrying lever, a gear on said lifting-shaft, a hand-wheel and a pivotal support therefor, gearing between said hand-wheel and said gear on the lifting-shaft for lifting the stand-tops, a ratchet on said gear and a pawl engaging therewith for locking the stand-tops with their rollers in operative position, a ratchet-wheel carried by said hand-wheel, and a pawl engaging with the latter ratchet-wheel to lock the roller-stands in their lifted position, substantially as herein described.

3. In the inking apparatus of a printing-machine, the combination with fixed roller-stands and inking-rollers and bearings therefor in said stands, of roller-stand tops one for each side of the machine containing the bearings for ink-distributing rollers, fixed supports to which said stand-tops are directly pivoted at fixed points, lifting-plates applied within said stands under the journals at both ends of the form-rollers, and connections between each co-pivoted stand-top and the lifting-plate on the same side of the machine for operating said lifting-plates by the raising of the stand-tops, substantially as herein described.

4. In the inking apparatus of a printing-machine, the combination with roller-stands and inking-rollers and bearings therefor in said stands, of roller-stand tops containing ink-distributing rollers, fixed supports to which said stand-tops are directly pivoted at fixed points, lifting-plates applied within said roller-stands under the journals of the inking-rollers, toggles supporting said lifting-plates, means for raising said stand-tops on their hinges and connections between said co-pivoted stand-tops and toggles for operating said lifting-plates by the raising of the stand-tops, substantially as herein described.

701,546. DRYING-RACK. JOHN E. DAVIS, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 71,792. (No model.)

Claim.—1. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods, a feeder adapted to supply said material to said rods and to carry and support same together with one of said rods for a considerable distance immediately before reaching the point at which the loops begin to form; said feeder being adapted to carry and support said material independently of the support afforded by the rod carried therewith.



2. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods, a feeder adapted to supply said material to said rods and to carry and support same together with one of said rods, in a substantially horizontally disposed plane, for a considerable distance immediately before reaching the point at which the loops begin to form; said feeder being adapted to carry and support said material independently of the support afforded by the rod carried therewith.

3. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods, a feeder for said material arranged to carry and support same along with one of said rods to a point at which the loops begin to form, and means in advance of and adjoining said feeder for depressing the rods upon the carrier and preventing their dragging or shifting out of parallel relation during the formation of the loop.

4. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods, a feeder for carrying said material to the rods, and means in advance of and adjoining said feeder for depressing the rods upon the carrier and preventing their dragging or shifting out of parallel relation.

5. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods, a feeder for carrying said material to the rods, and a belt traveling with the carrier in advance of and adjoining said feeder for depressing the rods upon the carrier and preventing their dragging or shifting out of parallel relation.

6. A drying-rack comprising a frame having an open space extending longitudinally of same through which the material to be dried may be passed in suspended loops; a conveyor extending along each side of said space at the upper part; a series of rods supported and carried by said conveyors and arranged to support said loops; a conveyor below said space adapted to receive said rods after they have traversed the upper conveyor, and to return same in parallel relation toward the end of said rods at which said material is received on said upper conveyor; a rod-storage extending along and curving upwardly beyond the forward end of said lower conveyor; a stop for said rods at the forward end of said rod-storage; said lower conveyor being arranged to advance

relatively to the rods held in said storage and to crowd said rods against each other and into said upwardly-curved part, toward said stop; and a pick-up intersecting the upwardly-curved end of said rod-storage and adapted to engage the rods in said storage, one at a time, and deposit same in parallel relation upon the upper conveyors; and means for feeding said material upon the rods near the upper part of said pick-up.

7. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods; a pair of opposed conveyor-belts passing downwardly near each side of the discharge end of said carrier and adapted to engage said rods and prevent same from tilting or shifting out of parallel relation at the time of their discharge from said carrier; a lower conveyor adapted to receive said rods from said conveyor-belts and return same toward the receiving end of said carrier, and a pick-up adapted to receive the rods from said lower conveyor and deposit same in parallel relation upon the receiving end of said carrier.

8. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods; a pair of opposed conveyor-belts passing downwardly near each side of the discharge end of said carrier and adapted to engage said rods and prevent same from tilting or shifting out of parallel relation at the time of their discharge from said carrier.

9. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods; means for supporting the material independently of said rods at the discharge end of said carrier; and a pair of opposed conveyor-belts located toward each side of the discharge end of said carrier adapted to engage said rods and prevent same from tilting or shifting out of parallel relation at the time of their discharge from said carrier and until the rods are free from contact with said material.

10. A drying-rack comprising a rod-carrier, a series of rods supported by said carrier and arranged to have the material to be dried suspended in loops below and from said rods; means for supporting the material independently of said rods at the discharge end of said carrier; a conveyor-belt adapted to receive the rods at the time of their discharge from the carrier; and means for urging the rods against said conveyor-belt to prevent same from tilting or shifting out of parallel relation at the time of their discharge from said carrier and until the rods are free from contact with said material.

701,547. WELL-BORING APPARATUS. JOHN T. DAVIS, San Francisco, Cal. Filed Apr. 2, 1901. Serial No. 64,102. (No model.)



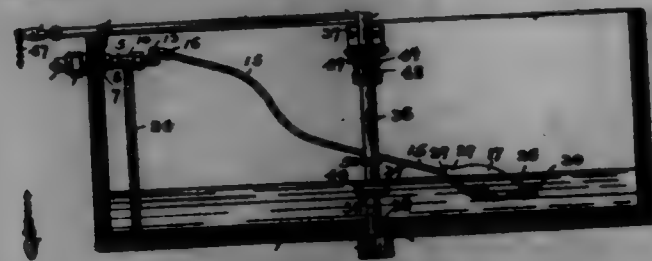
Claim.—1. In a well-boring apparatus, a well-casing, a hollow boring-tube therein composed of sections, a boring-head carried by said tube, a conveyor-flight and sectional conveyor-tube within the boring-tube, a gear-

wheel connected by a flange and groove with the upper section of the boring-tube and means whereby sections may be interposed in the boring-tube and conveyor-tube consisting of the coupling D having a central bore to receive the sections of the conveyor-tube and annular internally-threaded sockets opening upwardly and downwardly to receive the boring-tube sections, substantially as described.

2. In a well-boring apparatus, the upper section of well-casing, a shoe mounted thereon, and having a circular track, an upper section of drill-rod tubing, rollers carried thereby and traveling upon said track, a gear-wheel held against vertical movement with the drill-tube and the well-casing having a feathered and grooved communication with said section of drill-tubing, whereby said upper sections of well-casing and of drill-tubing are permitted to move vertically in both directions, and means for holding the well-casing with its shoe up against the said rollers.

3. In a well-boring apparatus, a driving-gear, a section of drill-rod feathered thereto, a collar secured to said section and having rollers, a section of well-casing, a circular track supported thereby, a driving-shaft and counterbalance means connected with the well-casing to hold it with its circular track up against the rollers carried by the drill-rod; whereby the said well-casing and drill-rod can sink automatically as the boring progresses, and can also be raised to permit of the insertion of successive lower sections, said driving-gear being held against vertical movement with the drill-rod and well-casing.

701,548. FLUSHING APPARATUS. CHARLES E. DAY, Inventor.
Orange, N. J. Filed Dec. 12, 1901. Serial No. 68,285. (No model.)



Claim.—1. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of the tank provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device and means on said stem adapted to be brought in sliding and holding engagement with said clamping device, for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position with the said clamping device to close said water-outlet, substantially as and for the purposes set forth.

2. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of the tank provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position with the said clamping device to close the said water-outlet, consisting, essentially, of a float and a float-arm adapted to be brought in engagement with a part of the said stem, substantially as and for the purposes set forth.

3. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of the tank provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device and means on said stem adapted to be brought in sliding and holding engagement with said clamping device, for holding said stem in its raised position while the level of the water is being lowered, means actuated by the receding water for releasing said stem from its raised position with the said clamping device to close the said water-outlet, and a water-inlet valve connected with said tank for admitting water into said tank when the outlet is closed, substantially as and for the purposes set forth.

4. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of the tank provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device for holding said stem in its raised position while the level of the water is being lowered, means actuated by the receding water for releasing said stem from its raised position with the said clamping device to close the said water-outlet, consisting, essentially, of a float and a float-arm adapted to be brought in engagement with a part of said stem, and a water-inlet valve connected with said tank, the valve being connected with and operated by the said float-arm, substantially as and for the purposes set forth.

5. A flushing apparatus or the like, comprising, a tank, a water-outlet

in the bottom of said tank, a valve-seat in said outlet provided with a valve-disk, a guiding means in said valve-seat, a vertical stem and a valve-disk thereon, the lower portion of said stem extending down between the said guiding means, a pull device for raising said stem, a bracket provided with an opening in which the upper and portion of said stem is movably arranged, spring clamping-fingers extending from said bracket, an enlargement on said stem adapted to be brought in holding engagement with said fingers for holding said stem in its raised position while the level of the water is being lowered, substantially as and for the purposes set forth.

6. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of said tank, a valve-seat in said outlet provided with a valve-disk, a guiding means in said valve-seat, a vertical stem and a valve-disk thereon, the lower portion of said stem extending down between the said guiding means, a pull device for raising said stem, a bracket provided with an opening in which the upper and portion of said stem is movably arranged, spring clamping-fingers extending from said bracket, an enlargement on said stem adapted to be brought in holding engagement with said fingers for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position to close the said water-outlet, substantially as and for the purposes set forth.

7. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of said tank, a valve-seat in said outlet provided with a valve-disk, a guiding means in said valve-seat, a vertical stem and a valve-disk thereon, the lower portion of said stem extending down between the said guiding means, a pull device for raising said stem, a bracket provided with an opening in which the upper and portion of said stem is movably arranged, spring clamping-fingers extending from said bracket, an enlargement on said stem adapted to be brought in holding engagement with said fingers for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position to close the said water-outlet, consisting, of a projection extending from the side of said stem, and a float and float-arm adapted to be brought in engagement with said projection, substantially as and for the purposes set forth.

8. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of said tank, a valve-seat in said outlet provided with a valve-disk, a guiding means in said valve-seat, a vertical stem and a valve-disk thereon, the lower portion of said stem extending down between the said guiding means, a pull device for raising said stem, a bracket provided with an opening in which the upper and portion of said stem is movably arranged, spring clamping-fingers extending from said bracket, an enlargement on said stem adapted to be brought in holding engagement with said fingers for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position to close the said water-outlet, consisting, of a projection extending from the side of said stem, and a float and float-arm adapted to be brought in engagement with said projection, and a water-inlet valve connected with said tank for admitting water into said tank when the outlet is closed, substantially as and for the purposes set forth.

9. A flushing apparatus or the like, comprising, a tank, a water-outlet in the bottom of said tank, a valve-seat in said outlet provided with a valve-disk, a guiding means in said valve-seat, a vertical stem and a valve-disk thereon, the lower portion of said stem extending down between said guiding means, a pull device for raising said stem, a bracket provided with an opening in which the upper and portion of said stem is movably arranged, spring clamping-fingers extending from said bracket, an enlargement on said stem adapted to be brought in holding engagement with said fingers for holding said stem in its raised position while the level of the water is being lowered, and means actuated by the receding water for releasing said stem from its raised position to close the said water-outlet, consisting, of a projection extending from the side of said stem, and a float and float-arm adapted to be brought in engagement with said projection, and a water-inlet valve connected with said tank, the valve being connected with and operated by the said float-arm, substantially as and for the purposes set forth.

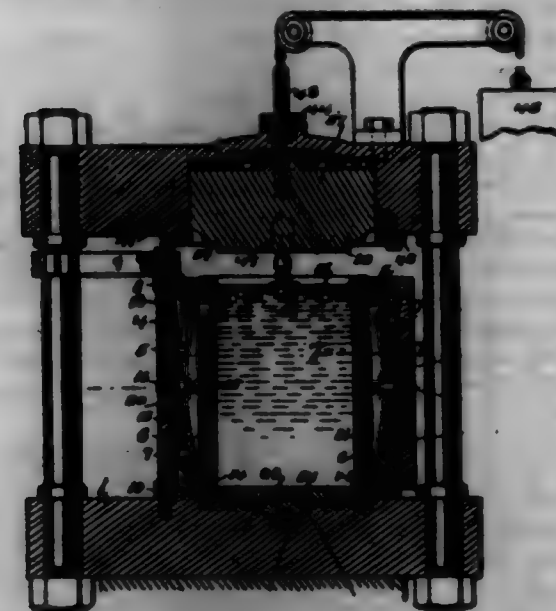
10. In a flushing apparatus or the like, the combination, with a tank, a water-outlet, provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device for holding said stem in its raised position while the level of the water is being lowered, of a water-inlet valve arranged in the upper portion of said tank above the level of the water therein, comprising, a tubular casing, having a valve-chamber and a valve-seat, a plunger in said casing, a valve-plug connected with said plunger, an outlet-pipe connected with said casing, and means for causing a reciprocatory motion of said plunger and valve-plug, said float-arm being adapted to be brought in engagement with a portion of said vertical stem

to release said stem from its raised position with said clamping device, substantially as and for the purposes set forth.

11. In a flushing apparatus or the like, the combination, with a tank, a water-outlet, provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device for holding said stem in its raised position while the level of the water is being lowered, of a water-inlet valve arranged in the upper portion of said tank above the level of the water therein, comprising, a tubular casing, having a valve-chamber and a valve-seat, a plunger in said casing, said plunger having a slotted end portion, a valve-plug connected with the opposite end of said plunger, an outlet-pipe connected with said casing, a float and a float-arm pivotally connected with said valve-seat, and means on said float-arm extending into the slotted end portion of said plunger for causing a reciprocatory motion of the said plunger and valve-plug, said float-arm being adapted to be brought in engagement with a portion of said vertical stem to release said stem from its raised position with said clamping device, substantially as and for the purposes set forth.

12. In a flushing apparatus or the like, the combination, with a tank, a water-outlet, provided with a valve-seat, a vertical stem and a valve-disk thereon movably arranged above said valve-seat, a pull device for raising said stem, a clamping device for holding said stem in its raised position while the level of the water is being lowered, of a water-inlet valve arranged in the upper portion of said tank above the level of the water therein, comprising, a tubular casing, having a valve-chamber and a valve-seat, a plunger in said casing, said plunger having a slotted end portion, a valve-plug connected with the opposite end of said plunger, an outlet-pipe connected with said casing, a pair of perforated discs on said valve-seat, arranged near the slotted end portion of said plunger, a pivotal pin in said casing, a float and a float-arm, an eye portion connected with said float-arm and pivotally arranged on said pivotal pin, and a finger on said eye portion extending into the slotted end portion of said plunger for causing a reciprocatory motion of said plunger and valve-plug, said float-arm being adapted to be brought in engagement with a portion of said vertical stem to release said stem from its raised position with said clamping device, substantially as and for the purposes set forth.

701,549. APPARATUS FOR SHAPING METAL RECTANGLES.
MARK L. DUNN, New York, N. Y., assignor to Standard Oil Company, Bayonne, N. J., a Corporation of New Jersey. Filed Jan. 11, 1902.
Serial No. 87,714. (No model.)



Claim.—1. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a movable wall, and means whereby the wall of the mold may be moved during the shaping operation in order to enlarge the mold and thereafter returned to its original position after the shaping operation is completed, substantially as described.

2. In an apparatus for shaping hollow metal articles the combination with a suitable fluid-pressure-applying means, of a mold comprising a movable head and wall, means whereby the wall of the mold may be moved during the shaping operation in order to enlarge the mold and thereafter returned to its original position after the shaping operation is completed, and means for moving the head, substantially as described.

3. In an apparatus for shaping hollow metal articles the combination with a suitable fluid-pressure-applying means, of a cylindrical mold having a movable wall, and means whereby the wall of the mold may be moved during the shaping operation in order to enlarge the mold and

thereafter returned to its original position after the shaping operation is completed, substantially as described.

4. In an apparatus for shaping hollow metal articles the combination with a suitable fluid-pressure-applying means, of a cylindrical mold having a movable head and wall, means whereby the wall of the mold may be moved during the shaping operation in order to enlarge the mold and thereafter returned to its original position after the shaping operation is completed, and means for moving the head, substantially as described.

5. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold having a wall made up of movable sections, and means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, substantially as described.

6. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold having a wall made up of movable sections and a movable head, means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, and means for giving the head an inward movement, substantially as described.

7. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a cylindrical mold having a wall made up of movable sections, and means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, substantially as described.

8. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a cylindrical mold having a wall made up of movable sections and a movable head, means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, and means for giving the head an inward movement, substantially as described.

9. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold composed of movable sections each section comprising a plurality of parts, and means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, substantially as described.

10. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold composed of movable sections each section comprising a plurality of parts, said mold also having a movable head, means whereby said sections may be moved during the shaping operation in order to enlarge the mold and thereafter returned to their original position after the shaping operation is completed, and means for giving the head an inward movement, substantially as described.

11. A mold for use in a fluid-pressure shaping apparatus comprising a plurality of sections each section being made up of a plurality of movable parts, and means for moving the adjacent parts of each section simultaneously to enlarge the mold, substantially as described.

12. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a wall made up of movable sections each section being composed of a plurality of parts, and means for giving the adjacent parts of each section a simultaneous movement to enlarge the mold, substantially as described.

13. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a movable head and a wall made up of movable sections each section being composed of a plurality of parts, and means for giving the adjacent parts of each section a simultaneous movement to enlarge the mold, substantially as described.

14. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a wall made up of movable sections, and means for giving a simultaneous movement in all the sections to enlarge the mold, substantially as described.

15. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a movable head and a wall made up of movable sections, and means for giving a simultaneous movement to all the sections to enlarge the mold, substantially as described.

16. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold said mold having a wall composed of a plurality of movable sections each section consisting of a plurality of movable parts, and means for simultaneously moving the parts of all the sections to enlarge the mold, substantially as described.

17. In an apparatus for shaping hollow metal articles, the combination with a suitable fluid-pressure-applying means, of a mold having a mov-

able head and a wall composed of a plurality of movable sections each section consisting of a plurality of movable parts, and means for simultaneously moving the parts of all the sections to enlarge the mold, substantially as described.

18. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a wall made up of sections each section comprising a plurality of movable parts, and means for moving said parts to enlarge the mold, said moving means being connected to the adjacent parts of each section, substantially as described.

19. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a mold having a movable head and a wall made up of sections each section comprising a plurality of movable parts, and means for moving said parts to enlarge the mold, said moving means being connected to the adjacent parts of each section, substantially as described.

20. In an apparatus for shaping hollow metal articles, the combination with a plurality of supports, of a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement with respect to each other to open and close the mold, and means for moving the sections to enlarge the mold as the shaping operation proceeds, substantially as described.

21. In an apparatus for shaping hollow metal articles, the combination with a plurality of supports, of a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement with respect to each other to open and close the mold, means for moving the sections to enlarge the mold as the shaping operation proceeds, and a movable head cooperating with the mold-sections, substantially as described.

22. In an apparatus for shaping hollow metal articles, the combination with a plurality of supports, of a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement with respect to each other to open and close the mold, and means carried by the supports for moving the sections to enlarge the mold as the shaping operation proceeds, substantially as described.

23. In an apparatus for shaping hollow metal articles, the combination with a plurality of supports, of a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement with respect to each other to open and close the mold, means carried by the supports for moving the sections to enlarge the mold as the shaping operation proceeds, and a movable head cooperating with the mold-sections, substantially as described.

24. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a plurality of supports, a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement toward and from each other, and an abutment arranged to be moved into and out of position between the supports when they are opened in order to position and remove the articles to be shaped, substantially as described.

25. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a plurality of supports, a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement toward and from each other, an abutment arranged to be moved into and out of position between the supports when they are opened in order to position and remove the articles to be shaped, and a movable head cooperating with the mold-sections, substantially as described.

26. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a plurality of supports, a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement toward and from each other, an abutment arranged to be moved into and out of position between the supports when they are opened in order to position and remove the articles to be shaped, and a movable head cooperating with the mold-sections, substantially as described.

27. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a plurality of supports, a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement toward and from each other, an abutment arranged to be moved into and out of position between the supports when they are opened in order to position and remove the articles to be shaped, and a movable head cooperating with the mold-sections, substantially as described.

28. In an apparatus for shaping hollow metal articles, the combination with suitable fluid-pressure-applying means, of a plurality of supports, a plurality of movable mold-sections carried by the supports, means whereby the supports are permitted to have a relative movement toward and from each other, an abutment arranged to be moved into and out of position between the supports when they are opened in order to position and remove the articles to be shaped, and a movable head cooperating with the mold-sections, substantially as described.

29. In an apparatus for shaping metal barrels, the combination with suitable fluid-pressure-applying means, of a mold, and means for increasing the diameter of the mold at its center in order to give the barrel a bilged shape and for restoring the mold to its original form after the shaping operation, substantially as described.

30. In an apparatus for shaping metal barrels, the combination with suitable fluid-pressure-applying means, of a mold, means for increasing the diameter of the mold at its center in order to give the barrel a bilged shape, suitable heads or abutments cooperating therewith, and means for causing one of the heads or abutments to move inward during the shaping operation, substantially as described.

31. In a machine for shaping metal receptacles, the combination with a plurality of supports mounted to permit a relative opening and closing movement, of a plurality of mold-sections mounted on the supports each section being composed of a plurality of parts having their adjacent ends abutting, means for giving the parts an outward movement at their line of contact, and means for subjecting the receptacle to an interior fluid-pressure, substantially as described.

32. In a machine for shaping metal receptacles, the combination with a plurality of supports mounted to permit a relative open and closing movement, of a plurality of mold-sections mounted on the supports each section being composed of a plurality of parts having their adjacent ends abutting, means for giving the parts an outward movement at their line of contact, an abutment for one end of the receptacle, a head for the other end, means for moving one of these parts during the shaping operation, and means for subjecting the interior of the receptacle to fluid-pressure, substantially as described.

33. In a machine for shaping metal receptacles, the combination with a plurality of supports mounted to permit an opening and closing movement, of a plurality of mold-sections carried by said supports, each of said sections comprising a plurality of parts the adjacent ends of which abut, an abutment cooperating with the mold-sections at one end, a head cooperating with the mold-sections at the other end, means connected to adjacent parts of each support at their line of contact for moving the parts outward, means for subjecting the interior of the receptacle to fluid-pressure, and means for moving the head inward as the parts of the mold are moved outward, substantially as described.

34. In a machine for shaping metal receptacles, the combination with a plurality of supports mounted to permit an opening and closing movement, of a plurality of mold-sections carried by said supports, each of said sections comprising a plurality of parts the adjacent ends of which abut, a plurality of rotating gears, and connections between the gears and said parts, substantially as described.

35. In a machine for shaping metal receptacles, the combination with a plurality of supports mounted to permit an opening and closing movement, of a plurality of mold-sections carried by said supports, each of said sections comprising a plurality of parts the adjacent ends of which abut, a plurality of rotating gears, connections between the gears and said parts, a head, and means for moving the head inward as the parts are moved outward, substantially as described.

36. The combination with a plurality of supports mounted to permit an opening and closing movement, of means for locking the supports in their closed position, a plurality of mold-sections carried by the supports, an abutment cooperating with the mold-sections at one end, means for moving the mold-sections outward at the center, means for subjecting the interior of the receptacle to fluid-pressure, substantially as described.

37. The combination with a plurality of supports mounted to permit an opening and closing movement, of means for locking the supports in their closed position, a plurality of mold-sections carried by the supports, an abutment cooperating with the mold-sections at one end, means for moving the mold-sections outward at the center, means for subjecting the interior of the receptacle to fluid-pressure, a head, and means for moving the head inward as the parts of the mold are moved outward, substantially as described.

38. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports, said supports being mounted to have a relative opening and closing movement, of means for locking the supports in their closed position, an abutment, a series of mold-sections carried by the supports, each section being composed of a plurality of parts, means for giving the parts of said sections an outward movement, and means for subjecting the interior of the receptacle to fluid-pressure, substantially as described.

39. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports, said supports being mounted to have a relative opening and closing movement, of means for locking the supports in their closed position, an abutment, a series of mold-sections carried by the supports, each section being composed of a plurality of parts, means for giving the parts of said sections an outward movement, means for subjecting the interior of the receptacle to fluid-pressure, a head, and means

for moving the head inward during the shaping operation, substantially as described.

40. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports, said supports being mounted to have a relative opening and closing movement, of means for locking the supports in their closed position, an abutment, a series of mold-sections carried by the supports, each section being composed of a plurality of parts, means for giving the sections a simultaneous outward movement, and means for subjecting the interior of the receptacle to fluid-pressure, substantially as described.

41. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports, said supports being mounted to have a relative opening and closing movement, of means for locking the supports in their closed position, an abutment, a series of mold-sections carried by the supports, each section being composed of a plurality of parts, means for giving the sections a simultaneous outward movement, means for subjecting the interior of the receptacle to fluid-pressure, a head, and means for moving the head inward during the shaping operation, substantially as described.

42. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports mounted to permit an opening and closing movement, of an abutment, a plurality of mold-sections carried by the supports, each of said mold-sections consisting of a plurality of parts, means for locking the supports in closed position, a plurality of gears, connections between said gears and adjacent parts of the sections, means for rotating the gears, means for moving the parts of the sections to give the mold a bilged form, and means for producing an interior fluid-pressure, substantially as described.

43. In a machine for shaping metal receptacles, the combination with a plurality of bilged supports mounted to permit an opening and closing movement, of an abutment, a plurality of mold-sections carried by the supports, each of said mold-sections consisting of a plurality of parts, means for locking the supports in closed position, a plurality of gears, connections between said gears and adjacent parts of the sections, means for rotating the gears, means for moving the parts of the sections to give the mold a bilged form, means for producing an interior fluid-pressure, a head, and means for moving said head inward, substantially as described.

44. In a machine for shaping metal receptacles, the combination with suitable supports mounted to permit an opening and closing movement, of a plurality of mold-sections carried by the supports each of the sections comprising a plurality of parts having abutting ends, a plurality of screws the heads of each screw being connected to two adjacent parts of a mold-section at their line of contact, means cooperating with the screws for causing them to move outward and give the parts of the mold-sections an outward movement, and means for producing an interior fluid-pressure, substantially as described.

45. In a machine for shaping metal receptacles, the combination with suitable supports mounted to permit an opening and closing movement, of a plurality of mold-sections carried by the supports each of the sections comprising a plurality of parts having abutting ends, a plurality of screws the heads of each screw being connected to two adjacent parts of a mold-section at their line of contact, suitable nuts cooperating with the screws, a series of rotating gears for operating the nuts whereby the screws are caused to move outward and impart a movement to the parts of the mold-sections, and means for producing an interior fluid-pressure, substantially as described.

46. The combination with a plurality of bilged supports, mounted to permit a relative opening and closing movement, of means for locking the supports in their closed position, an abutment, means for moving the abutment into and out of position, a plurality of mold-sections each comprising a plurality of parts the adjacent ends of which abut, screws connected to said adjacent ends, means including rotating gears and suitable connections for moving the abutting ends of the parts to give the mold a bilged form, a head, means for moving the head inward as the parts of the mold are moved outward, and means for producing an interior fluid-pressure, substantially as described.

47. In a machine for shaping metal receptacles, the combination with a mold, of a suitable abutment at one end thereof, means for moving the mold outward between its ends, a head for closing the other end of the mold, means for producing an interior fluid-pressure, and means for causing the head to move inward simultaneously with said pressure, substantially as described.

48. In a machine for shaping metal receptacles, the combination with a mold comprising a plurality of sections each section being composed of a plurality of abutting parts, of an abutment at one end of the mold, means for moving the parts of the sections outward at their line of contact, a head for the other end of the mold, means for producing an interior fluid-pressure, and means for causing the head to move inward simultaneously with said pressure, substantially as described.

49. In a machine for shaping metal receptacles, the combination with

a mold, of a suitable abutment at one end thereof, means for moving the mold outward between its ends during the shaping operation and restoring it to its original form after the completion of the shaping operation, a head for closing the other end of the mold, and means for simultaneously subjecting the interior of the receptacle and said head to fluid-pressure, substantially as described.

50. In a machine for shaping metal receptacles, the combination with a mold comprising a plurality of sections each section being composed of a plurality of abutting parts, of an abutment at one end of the mold, means for moving the parts of the sections outward at their line of contact, a head for the other end of the mold, and means for simultaneously subjecting the interior of a receptacle and said head to fluid-pressure, substantially as described.

51. The combination with a mold for shaping hollow metal articles, of an abutment at one end of the mold, a head at the other end of the mold said head having a bearing-surface against which the end of the article to be shaped rests, a hydraulic chamber above the head, said chamber being of greater area than the area of the bearing-surface, a pressure-supply pipe, a branch from said pipe leading to the hydraulic chamber above the head and a branch from said pipe leading to the interior of the article to be shaped, substantially as described.

52. The combination with a bilged mold for shaping hollow metal articles, of an abutment at one end of the mold, a head at the other end of the mold said head having a bearing-surface against which the end of the article to be shaped rests, a hydraulic chamber above the head, said chamber being of greater area than the area of the bearing-surface, a pressure-supply pipe, a branch from said pipe leading to the hydraulic chamber above the head and a branch from said pipe leading to the interior of the article to be shaped, substantially as described.

53. The combination with a mold comprising a series of sections adapted to receive an outward movement, of an abutment at one end of the mold, a head at the other end of the mold said head having a bearing-surface against which the end of the article to be shaped rests, a hydraulic chamber above the head, said chamber being of greater area than the area of the bearing-surface, a pressure-supply pipe, a branch from said pipe leading to the hydraulic chamber above the head and a branch from said pipe leading to the interior of the article to be shaped, substantially as described.

54. The combination with a mold for shaping hollow metal articles said mold comprising a plurality of sections each section being composed of abutting parts, of means for moving the parts outward at their line of contact, an abutment at one end of the mold, a movable block at the other end of the mold said block having a bearing-surface against which the head of the article to be shaped rests and a shoulder adapted to come in contact with the ends of the mold-sections whereby the position of the sections limits the inward movement of the block, and means for subjecting the interior of the receptacle and the block to different degrees of fluid-pressure, substantially as described.

55. The combination with a pair of conical bilged supports mounted to permit an opening and closing movement, of an abutment, means for moving the abutment into and out of position at one end of the supports, a plurality of mold-sections carried by the supports each of said sections comprising a plurality of abutting parts, screws connected to said parts at their line of contact, suitable connections including a series of rotating gears for operating the screws to move the sections, a movable block at the other end of the mold, said block having a bearing-surface which rests against the article to be shaped and a shoulder adapted to rest against the ends of the parts of the mold-sections, means for subjecting the interior of the article to be shaped to fluid-pressure, and means for causing the block to move inward until its shoulder strikes the end of the mold-sections, substantially as described.

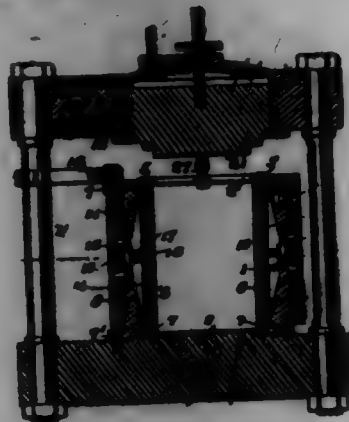
56. The combination with a pair of conical bilged supports mounted to permit an opening and closing movement, of an abutment, means for moving the abutment into and out of position at one end of the supports, a plurality of mold-sections carried by the supports each of said sections comprising a plurality of abutting parts, screws connected to said parts at their line of contact, suitable connections including a series of rotating gears for operating the screws to move the sections, a movable block at the other end of the mold, said block having a bearing-surface which rests against the article to be shaped and a shoulder adapted to rest against the ends of the parts of the mold-sections, means for subjecting the interior of the article to be shaped and the block to different degrees of fluid-pressure whereby the article is caused to assume the shape of the mold and the block to move inward until its shoulder comes in contact with the mold-sections, substantially as described.

57. The combination with a pair of conical bilged supports mounted to permit an opening and closing movement, of an abutment, means for moving the abutment into and out of position at one end of the supports, a plurality of mold-sections carried by the supports each of said sections comprising a plurality of abutting parts, screws connected to

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mid parts at their line of contact, suitable connections including a series of rotating gears for operating the screws to move the sections, a movable block at the other end of the mold, said block having a bearing-surface which rests against the article to be shaped and a shoulder adapted to rest against the ends of the parts of the mold-sections, means for simultaneously subjecting the interior of the article to be shaped and the block to different degrees of fluid-pressure whereby the article is caused to assume the shape of the mold and the block to move inward until its shoulder comes in contact with the mold-section, substantially as described.

701,550. METHOD OF SHAPING METAL RECEPTACLES. MARK L. DUNN, New York, N. Y., assignor to Standard Oil Company, Bayonne, N. J., a Corporation of New Jersey. Filed Jan. 11, 1902. Serial No. 89,316. (No model.)



(Claim.—1. The method of shaping hollow metal articles which consists in subjecting the articles to an interior expanding fluid-pressure and supporting the walls or parts to be expanded exteriorly at successive separated positions during the shaping operation, substantially as described.

2. The method of shaping hollow metal articles which consists in subjecting the articles to an interior expanding fluid-pressure and simultaneously shortening the article by an exterior pressure the lines of force of the exterior pressure being at an angle to the movement of the metal produced by the interior expansive force, and supporting the walls of the articles or the parts thereof to be expanded exteriorly at their several positions during the shaping operation, substantially as described.

3. The method of shaping hard-metal receptacles having heads or ends and side walls which consists in subjecting a receptacle with its heads or ends in position to an interior expanding fluid-pressure, supporting the walls during the expanding operation and simultaneously with the expanding operation preventing an outward movement of the heads or ends, substantially as described.

4. The method of shaping hard-metal receptacles having heads or ends and side walls which consists in subjecting a receptacle with its heads or ends in position to an interior expanding fluid-pressure, supporting said walls at successive separated positions during the expanding operation and simultaneously therewith preventing an outward movement of the heads or ends, substantially as described.

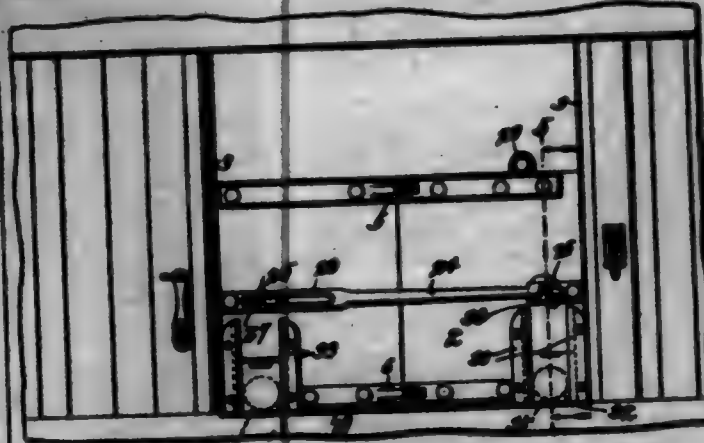
5. The method of shaping hard-metal receptacles having heads or ends and side walls which consists in subjecting a receptacle with its heads or ends in position to an interior expanding fluid-pressure, supporting said walls during the expanding operation and simultaneously with the expanding operation subjecting the heads or ends to an exterior pressure which is greater than the interior pressure whereby the receptacle is shortened in a line which is at an angle to the direction of the expanding force, substantially as described.

6. The method of shaping hard-metal receptacles having heads or ends and side walls which consists in subjecting a receptacle with its heads or ends in position to an interior expanding fluid-pressure, supporting said walls at successive separated positions during the expanding operation and simultaneously with the expanding operation subjecting the heads or ends to an exterior pressure which is greater than the interior pressure whereby the receptacle is shortened in a line which is at an angle to the direction of the expanding force, substantially as described.

701,551. GRAIN-CAR DOOR. HANS L. EDWARDS, Aurora, Ill., assignor of two-thirds to Benjamin A. Sanders, Louis H. Coia, and Aurelio Coia, Aurora, Ill. Filed Jan. 22, 1902. Serial No. 91,787. (No model.)

(Claim.—1. The combination of a car provided at opposite sides of its doorway with ways, and a sectional grain-door provided at the bottom with a flange interlocked with the bottom of the car, whereby the grain-door is held against upward movement and the grain is prevented from clogging, substantially as described.

2. The combination of a car provided at the bottom of its doorway with a groove, and a sectional grain-door provided at the bottom with outwardly-projecting flanges fitting in the groove of the car, whereby the grain-door is interlocked with the bottom thereof to hold the door against vertical movement and to provide a grain-tight joint, substantially as described.



3. The combination of a car provided at opposite sides with ways, a grain-door arranged in the ways and composed of sections hinged together and provided at the bottom with flanges interlocked with the bottom of the car, and the vertical chute or bars secured to the inner faces of the sections and covering the inner edges of the said sections at the joint, substantially as described.

4. The combination of a car, a grain-door composed of sections hinged together and interlocked at their bottom and outer edges with the car and provided with openings, slides normally covering the openings, and means for raising the door, substantially as described.

5. The combination of a car, a grain-door composed of hinged sections, one of the sections being provided with a keeper and a combined brace and latch-bar adjustably connected with the other section and provided with means for engaging the keeper, substantially as described.

6. The combination of a car, a grain-door composed of hinged sections, a stud mounted on one of the sections, a keeper arranged on the other section, and a combined brace and latch-bar provided with a slot receiving the stud, said latch-bar being also provided with a hook for engaging the keeper, substantially as described.

7. The combination of a car, a vertical rod secured to the car, a clamp mounted on the rod and adapted to swing horizontally and slide vertically, a grain-door composed of sections, and a link hinged to the clamp and to the grain-door, substantially as described.

8. The combination of a car, a vertical rod secured to the car, a clamp composed of two sections and having an opening receiving the rod, said clamp being also provided with ears, a grain-door, a plate secured to the grain-door and provided with ears, and a link hinged between the said car, substantially as described.

701,552. MUGULAR-ALARM. SAMUEL R. BRIDGES and FREDERICK FETTERSON, Chicago, Ill. Filed Mar. 31, 1902. Serial No. 100,764. (No model.)



(Claim.—1. In a device of the character specified, the combination with a spring-actuated gang adapted for application to a door, of a brake normally holding the same inoperative, a push rod and button operable from the outside of the door to release said brake, and jointed connections intermediate said gang and the door-knob on the inside of the door adapted to also release said brake and permit the gang to come open turning the door-knob in either direction, substantially as described.

2. In a device of the character specified, the combination with a

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spring-actuated gang adapted for application to a door, of a spring-actuated brake normally holding the gang-hammer inoperative, a push rod and button operable from the outside of the door to release said brake from the gang-hammer, and jointed connections intermediate said gang and the door-knob on the inside of the door, one element of which has a cam-surface adapted to engage and retract said brake upon turning the door-knob, substantially as described.

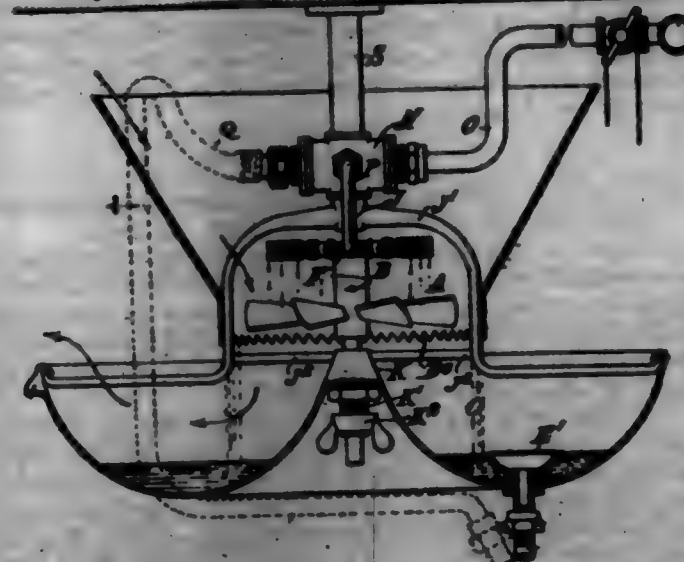
3. In a device of the character specified, the combination with a spring-actuated gang adapted for application to a door, of a spring-pressed pin adjustably mounted in the supporting-frame of the gang mechanism, said pin having thereon a brake adapted to engage and render inoperative the gang-hammer and a radially-projecting arm, a push rod and button operable from the outside of the door and engaging the adjacent end of said adjustable pin, and jointed connections intermediate said gang and the door-knob on the inside of the door, one element of which has a double cam-surface adapted to underlie and retract said arm, said flange being confined by the inwardly-bent end of the latter, substantially as described.

4. In a device of the character specified, the combination with a spring-actuated gang adapted for application to a door, of a spring-pressed pin adjustably mounted in the supporting-frame of the gang mechanism, said pin having fast thereon a brake-adaptor adapted to engage and block the gang-hammer and a radially-projecting arm provided with an inwardly-bent end, a push rod and button operable from the outside of the door and engaging the adjacent end of said adjustable pin, and pivotally-mounted jointed connections intermediate said gang and the door-knob on the inside of the door, one element of which has an upstanding flange provided with a double cam-surface adapted to underlie and retract said arm, said flange being confined by the inwardly-bent end of the latter, substantially as described.

5. In a device of the character specified, the combination with a spring-actuated gang adapted for application to a door, of a spring-pressed pin adjustably mounted in the supporting-frame of the gang mechanism, said pin having fast thereon a brake adapted to engage and render inoperative the gang-hammer and a radially-projecting arm, a lever pivoted to the door intermediate the door-knob and the gang and having a segment-shaped end adjacent the latter, an upstanding curved marginal flange on the segment end of said lever adapted to underlie said radially-projecting arm and provided with a pair of oppositely-directed cam-surfaces adapted to retract the latter, and an actuating-arm removably clamped to the shank of the door-knob and pivotally connected to the adjacent end of said lever, substantially as described.

6. In a device of the character specified, the combination with a spring-actuated gang adapted for application to a door, of a spring-pressed pin adjustably mounted in the supporting-frame of the gang mechanism, said pin having fast thereon a brake adapted to engage and render inoperative the gang-hammer and a radially-projecting arm, a push rod and button operable from the outside of the door and engaging the adjacent end of said adjustable pin, a lever pivoted to the door intermediate the door-knob and the gang and having a segment-shaped end adjacent the latter, an upstanding curved marginal flange on the segment end of said lever adapted to underlie said radially-projecting arm and provided with a pair of oppositely-directed cam-surfaces adapted to retract the latter, and an actuating-arm removably clamped to the shank of the door-knob and pivotally connected to the adjacent end of said lever, substantially as described.

701,553. AIR-MOUNTING APPARATUS. GILBERT H. EVANS, Brooklyn, N. Y. Filed Apr. 12, 1901. Serial No. 84,300. (No model.)



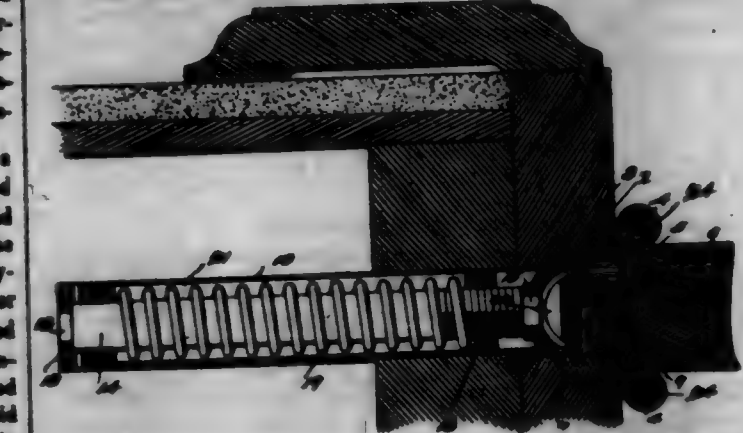
(Claim.—1. The combination of a tubular casing having a substantially horizontal toothed lower edge, means for causing water to run down

the wall of such casing, and a fan arranged to pass a current of air across such lower edge.

2. The combination of a fan, and a water-wheel arranged to drive said fan, said wheel having spokes inclined in a direction to assist said fan.

3. The combination in an air-mountain apparatus adapted to be driven by water-power and having a discharge-pipe, of a fitting having openings for an inlet-pipe, a driving-pipe and a flushing-pipe, and a detachable flushing-pipe adapted to be attached at opposite ends to said fitting and said discharge-pipe to clean the latter.

701,554. DOOR-HINGE. WILLIAM L. EVANS, Jr., Washington, Ind. Filed Oct. 31, 1901. Serial No. 80,977. (No model.)



(Claim.—1. A hinge comprising a leaf or plate designed to be secured to a door-frame, a rotary bar relatively mounted at its forward end on the leaf or plate and provided at its rear portion with screw-threads, the rear portion of the bar forming a guide, means for supporting and holding the rotary bar against longitudinal movement, a nut arranged on the front threaded portion of the rotary bar, a coiled spring disposed on the bar and having its front end engaged by the nut, a leaf or plate designed to be secured to a door, and means slidable on the rear portion of the rotary bar for connecting the leaf or plate of the door with the rear end of the spring, substantially as described.

2. A hinge comprising a leaf or plate designed to be secured to a door-frame, a spring, a sliding member connected with the leaf or plate and engaged by the spring, and a leaf or plate designed to be secured to a door and connected with the sliding member and provided with rollers arranged to engage the leaf or plate of the door-frame and located at opposite sides of the joints of the hinge, substantially as described.

3. A hinge comprising a leaf or plate 1, an approximately U-shaped supporting-frame fixed to the leaf or plate 1, the rotary bar journaled on the frame and on the leaf or plate 1 and held against longitudinal movement and provided with a threaded front portion and with a smooth rear portion forming a guide, a slidable member guided on the smooth rear portion of the rotary bar, a leaf or plate connected with the slidable member and designed to be secured to a door, a spring engaging the slidable member, and a nut arranged on the front threaded portion of the rotary bar and engaging the spring, substantially as described.

4. A hinge comprising a leaf or plate designed to be mounted on a door-frame, a supporting frame or barrel open at its front and closed at its rear end and extending rearward from the leaf or plate, a bar relatively mounted at its forward end in the leaf or plate at the mouth of the frame or barrel and at its rear end in the closed end of the said frame or barrel and held against longitudinal movement by the latter and having its forward end exposed at the leaf or plate for rotation, said bar being also provided with a threaded portion and a smooth guiding portion, a spring disposed on the bar, a nut arranged on the threaded portion of the bar and engaging the spring, a leaf or plate designed to be secured to a door, and means for connecting the leaf or plate of the door with the spring, substantially as described.

5. A hinge comprising leaves or plates 1 and 5 designed to be mounted respectively on a door-frame and on a door, a supporting frame or barrel open at its front and closed at its rear end and extending rearward from the leaf or plate 1, a bar relatively mounted at its forward end on the leaf or plate 1, at the open end or mouth of the frame or barrel and journaled at its rear end in the closed end of the said frame or barrel, said bar being held against longitudinal movement by the latter and provided with a threaded front portion and having a smooth lower or rear portion forming a guide, a nut arranged on the threaded portion of the bar and held against rotation, a slidable member connected with the leaf or plate 5 and guided on the smooth rear portion of the bar, and a spring interposed between the nut and the slidable member, substantially as described.

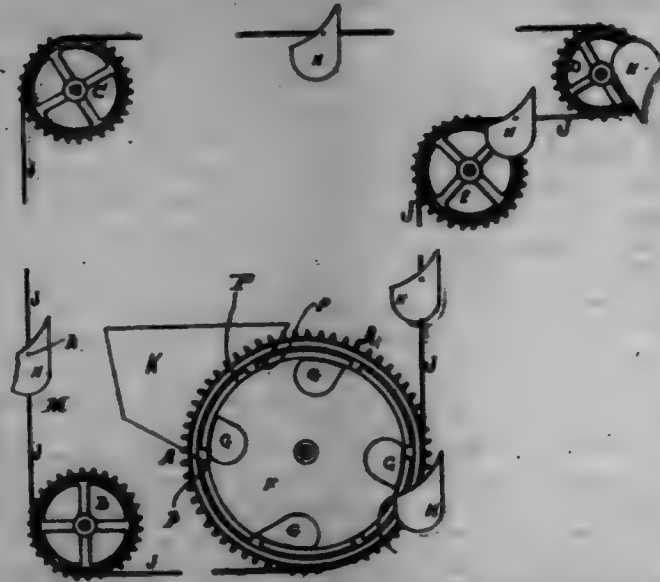
6. A hinge comprising a leaf or plate 1 provided with apertures, a rotary guide-bar having screw-threads and held against longitudinal move-

ment, a yoke arranged to slide on the guide-bar and extending through the aperture of the plate 1, a nut arranged on the threaded portion of the guide-bar between the sides of the yoke and held against rotation by the same, and a spring interposed between the nut and the yoke, substantially as described.

7. A hinge comprising a leaf or plate 1 provided with apertures, an approximately U-shaped yoke having parallel sides and extending through the apertures, a guide-bar connected with the leaf or plate 1 and held against longitudinal movement and extending through the inner end of the yoke and receiving the latter, a spring engaging the yoke, and a leaf or plate pivotally connected with the yoke and designed to be mounted on a door, substantially as described.

8. A hinge comprising a leaf or plate 1 having apertures, an approximately U-shaped frame fixed to the leaf or plate, a guide-bar mounted on the frame and on the plate and held against longitudinal movement, an approximately U-shaped yoke having parallel sides and arranged to slide on the guide-bar and extending through the apertures of the leaf or plate 1, a leaf or plate connected with the yoke and designed to be mounted on a door, and a spring arranged on the guide-bar and engaging the yoke, substantially as described.

701,555. RAIN OR FRUIT ELEVATOR. WILLIAM M. SWINE, Fresno, Cal. Filed Aug. 26, 1900. Renewed Mar. 17, 1902. Serial No. 21,841. (No model.)



Claim.—1. The combination with an endless upright conveyor comprising sprocket-chains and a series of equally-spaced gravity-buckets pivoted therebetween, and a hopper, having an opening in its bottom, of a rotary cylindrical filling-drum located adjacent to the hopper-opening, sprocket-wheels at the ends of the drum operated by said sprocket-chains, said drum being provided with a series of equally-spaced pockets, so arranged as to individually receive their charges of material from the hopper and empty the same into the respective gravity-buckets, substantially as set forth.

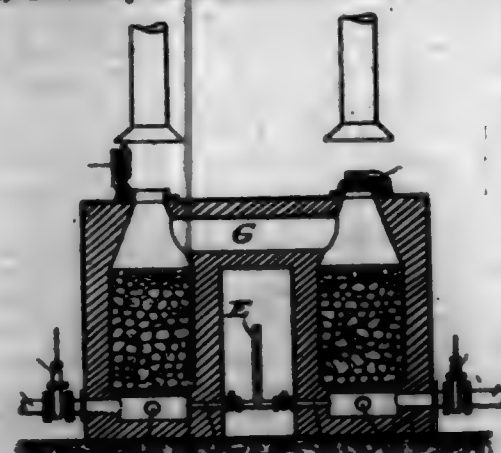
2. In an apparatus of the class described, the combination with the endless conveyor having equally-spaced pivoted gravity-buckets, of a hopper, a rotary filling-drum provided with a series of equally-spaced pockets so arranged as to individually receive their charges of material from the hopper and empty the same into the respective gravity-buckets, and a series of guiding-rollers for the endless conveyor, one of the guiding-rollers constituting a dumping device for effecting a tilting of the buckets.

701,556. PROCESS OF MAKING WATER-GAS. ERIL FLEMMING, Dresden-Stralun, Germany, assignor to Jacob Eduard Goldschmidt, Frankfurt-on-the-Main, Germany. Filed Aug. 2, 1901. Serial No. 20,646. (No specimen.)

Claim.—1. In the process of making water-gas from bituminous fuel by blowing up the fuel to high temperature and passing steam through it, the improvement which consists in passing through the generator after the charging of a fresh quantity of fuel a quantity of air less than that used for blowing up the fuel and at rate slower than that used for blowing up and slow enough to generate producer-gas.

2. In the process of making water-gas from bituminous fuel by blowing up the fuel to high temperature and passing steam through it, the improvement which consists in passing through the generator after the charging of a fresh quantity of fuel and before the passing of steam, a quantity of air less than that used for blowing up the fuel and at rate slower than that used for blowing up and adapted to generate producer-gas.

3. The process of making water-gas from bituminous fuel in twin generators, which consists in blowing up one generator and charging fresh fuel into it, blowing through the other generator a quantity of air less than necessary to blow it up and at a rate slower than that used for blowing up, passing the escaping gases through the said first generator, admitting steam into the second generator and passing the escaping gases through the first generator, blowing up the second generator, blowing air slowly and in small quantity through the first generator, as described, and passing steam through the first generator and afterward through the second one, substantially as described.



4. A process for the production of water-gas from mineral coal or the like consisting in the blowing up of the fuel in any ordinary way causing thereby a high temperature throughout the fuel, charging coal into the generator, generating producer-gas by blowing in slowly a quantity of air less than that used for blowing up the fuel and passing steam through the fuel.

701,557. CANDLE. THOMAS J. GARDNER, Boston, Mass. Filed Apr. 12, 1902. Serial No. 100,000. (No model.)



Claim.—1. A candle having a wick extended throughout the length thereof, the said wick at a portion between its ends being treated with a compound of asbestos and cement which will harden when heated to thereby extinguish the flame.

2. A candle having a wick extended throughout the length thereof, a portion of said wick near the base of the candle being treated with a compound which will harden when heated to thereby extinguish the flame.

701,558. TIRE FOR VEHICLE-WHEELS. CHARLES J. SHADEN, Chicago, Ill. Filed Feb. 12, 1902. Serial No. 94,771. (No model.)



Claim.—A tire comprising a single tread-tube having spaced integral partitions across the top thereof and a continuous slot extending centrally around the tire through the partitions and the rim-face of the tube, whereby the tube and the partitions may be spread open laterally, and disconnected separably-resiliently unperforated cork segments filling the space between the partitions.

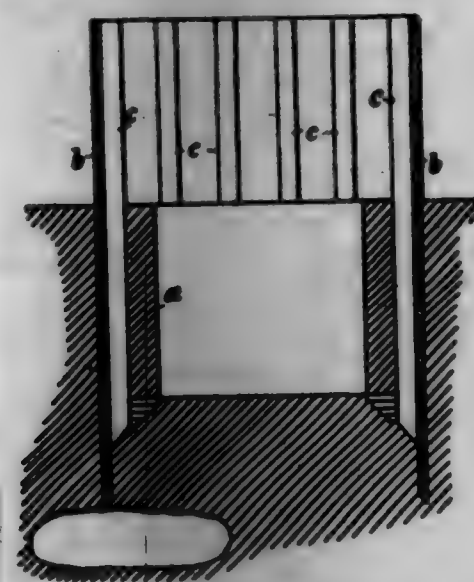
701,559. SINKING FOUNDATIONS. ADOLF GUNTER, Berlin, Germany. Filed Apr. 12, 1901. Serial No. 93,851. (No model.)

Claim.—1. Means for sinking shafts for foundations comprising a casing and a structure surrounding said casing, attached thereto, and forming one or more chambers or spaces reaching down to the bottom edge of the casing, so as to facilitate the location and removal from above of obstacles such as boulders, tree-trunks, &c., which may obstruct the sinking of said casing, substantially as set forth.

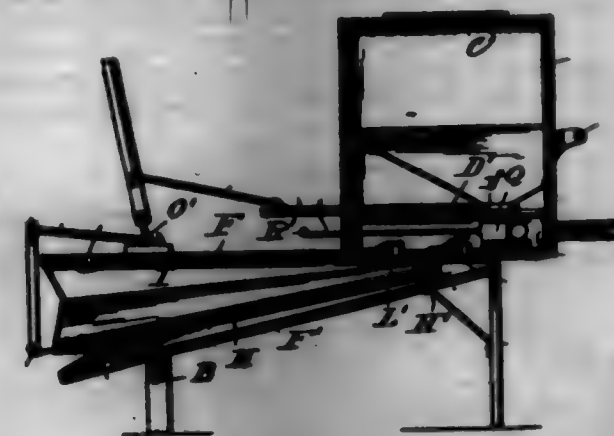
2. Means for sinking shafts for foundations comprising a casing, a column, and means for keeping a space between said casing and column, reaching down to the bottom edge of the casing, so as to facilitate the location and removal from above of obstacles such as boulders, tree-trunks, &c., which may obstruct the sinking of said casing, substantially as set forth.

3. Means for sinking shafts for foundations comprising a casing, a column, and distance-pieces for keeping a space between said casing

and said column 2, reaching down to the bottom edge of the casing, so as to facilitate the location and removal from above of obstacles such as boulders, tree-trunks, &c., which may obstruct the sinking of said casing, substantially as set forth.



701,580. INSECT-DESTRUCTOR. SALATHIEL V. GRAVE, McFall, Mo. Filed Mar. 12, 1902. Serial No. 95,797. (No model.)



Claim.—1. An insect-destructor, comprising a bench, a receptacle mounted thereon, an air-chamber underneath said receptacle and communicating therewith, a slide over an aperture in the bottom of said receptacle, a bellows having its outer wall stationary, a hinged partition between said walls, and means for swinging said partition whereby a continuous blast may be maintained in said air-chamber, as set forth.

2. An insect-destructor comprising a bench, a receptacle mounted thereon, an air-chamber, a reciprocating slide positioned over a partition in said receptacle, an air-chamber underneath said receptacle, a bellows having stationary walls, a hinged partition intermediate said walls, a bellows-slit fastened to said walls and partition, a rock-shaft journaled on the top wall of said bellows, pivotal link connection between said hinged partition and shaft, a handle for rocking said shaft, and a rod connecting said handle with said slide, whereby as the bellows is worked a continuous blast of air is blown into the air-chamber, simultaneously with the feeding of the poison from the receptacle, as set forth.

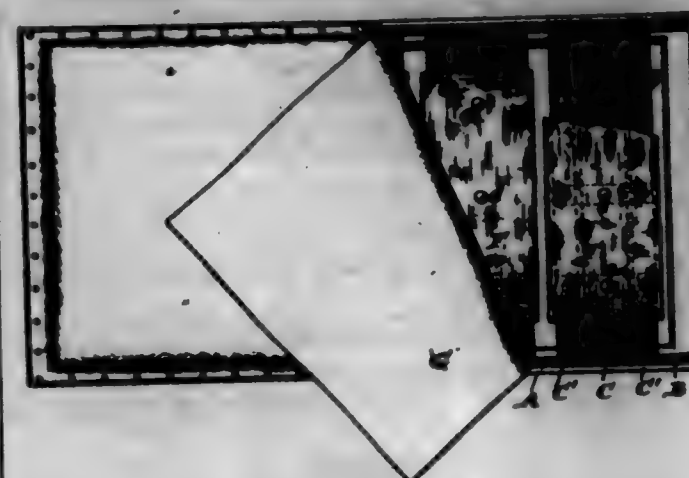
701,581. BOOKLE. EDWARD J. GUNTER, Halyria, Mass. Filed Aug. 22, 1901. Serial No. 21,798. (No model.)



Claim.—1. In a bookle, a frame, a tongue, one end of which loosely embraces one of the bars of said frame, a cylindrical tongue-actuator concentrically hung on said tongue-actuated bar, and means for rotating said actuator, and thereby imparting an endwise movement to said tongue in a direction across said frame, substantially as described.

2. In a bookle, a frame having front and rear bars, a tongue one end of which embraces one of said bars, a rotatable cam on said tongue-actuated bar engaging said tongue, means for reciprocally rotating said cam and for the engagement thereof with a strap attached to said bookle, and whereby said cam and tongue are held against displacement consequent upon a strain on said strap, substantially as set forth.

701,582. CAR-SEAT. HENRY & HALL, Philadelphia, Pa., assignors to the Hale and Kilbourn Manufacturing Company, a Corporation of Pennsylvania. Filed Oct. 20, 1901. Serial No. 99,699. (No model.)



Claim.—1. In a seat-cushion the combination of a wooden frame, a series of spring-plate structures extending across the top of said frame and each comprising a series of parallel strips connected together by cross-strips, coil-springs secured to the cross-strips and supported within the wooden frame, and suitable upholstery arranged above the spring-plate structures and secured to the wooden frame.

2. In a seat-cushion, the combination of a wooden frame, a series of spring-plate structures extending across the top of and having their ends secured to said frame and each comprising a series of parallel strips connected together by cross-strips, coil-springs secured to the cross-strips and supported within the wooden frame, wide textile webbing resting upon the said series of parallel strips of metal and wider than the width of the said spring-plate structures, and suitable upholstery arranged above the spring-plate structures and webbing and secured to the wooden frame.

3. In a seat-cushion, the combination of a wooden frame, a series of spring-plate structures extending across the top of said frame and each comprising a central wide strip and a narrow strip upon each side thereof connected together by cross-strips and having their ends bent downward and fastened to the side bars of the wooden frame, coil-springs secured to the central wide strips and supported within the wooden frame, and suitable upholstery arranged above the spring-plate structures and secured to the wooden frame.

4. In a seat-cushion, the combination of a wooden frame, a series of spring-plate structures extending across the top of and having their ends secured in said frame and each comprising a central wide strip and a narrow strip upon each side thereof connected together by cross-strips and said wide and narrow strips having transverse corrugations at intervals in their length, coil-springs secured to the central wide strips and supported within the wooden frame, and suitable upholstery arranged above the spring-plate structures and secured to the wooden frame.

5. A spring-plate structure for a seat-cushion consisting of three parallel plates connected at intervals in their length by transverse or cross-plates riveted thereto, and coil-springs secured to the under side of the middle strip.

6. A spring-plate structure for a seat-cushion consisting of three parallel plates connected at intervals in their length by transverse or cross-plates riveted thereto, a strip of textile webbing of a width greater than the whole width of the strips and secured in position upon the central strip and having its lateral edges extending over the side strips, and coil-springs secured to the under side of the middle strip.

7. A spring-plate structure for a seat-cushion consisting of a wide central corrugated spring-plate, two narrow side plates, transverse or cross-plates riveted to the middle plate of said parallel plates and arranged at intervals in their length, and coil-springs secured to the under side of the corrugated middle plate.

8. In a spring-plate structure for seat-cushions, the combination of a wide central plate U and two narrow side plates C, C', with cross-strips D riveted to said plates C, C', C' and coil-springs E secured to the central plate U in line with the cross-strips D.

9. In a spring-plate structure for seat-cushions, the combination of a wide central plate U and two narrow side plates C, C', having their ends curved downward, with cross-strips D riveted to said plates C, C', C', textile webbing resting upon the plates C, C', C', and of a width greater than the total width of the plate structures and secured thereto and of less length than the length of said plate structures, and coil-springs E secured to the central plate U in line with the cross-strips D.

10. In a spring-plate structure for seat-cushions, the combination of a central plate U and two side plates C, C', with cross-strips I riveted to said plates C, C', U' and coil-springs E secured to the central plate U in line with the cross-strips I.

11. A spring-plate structure adapted for use in seat-cushions made of greatly less width than the length of the completed seat and consisting of parallel spring-plates or strips of metal connected at intervals in their length by transverse or cross strips or plates secured thereto, and a single row of coil-springs secured to the under side of the spring-plate structure and located under said cross strips or plates.

12. A spring-plate structure adapted for use in seat-cushions made of greatly less width than the length of the completed seat and consisting of parallel spring-plates or strips of metal connected at intervals in their length by transverse or cross strips or plates secured thereto, a single row of coil-springs secured to the under side of the spring-plate structure and located under said cross strips or plates, and a strip of textile webbing of a width greater than the whole width of the plate structure and secured in position upon it.

701,568. ADJUSTABLE TYPE-WRITER KEY. JAMES B. HARRISON, Camden, Me. Filed Dec. 17, 1901. Serial No. 96,294. (No model.)



Claim.—1. A type-writer key having a plurality of faces and means for supporting said key adjustably whereby the different faces may be brought into use, substantially as described.

2. An adjustable type-writer key adapted to be turned, having a plurality of faces to be used at different times, substantially as described.

3. A type-writer key having a plurality of faces, and means for automatically locking said key when it is turned to bring a different face into use, substantially as described.

4. A type-writer key having a plurality of faces, and resilient means for automatically locking said key when it is turned to bring a different face into use, substantially as described.

5. A type-writer key having a plurality of faces, and means for automatically locking said key when it is turned to bring a different face into use, said means consisting of a spring arranged to act in connection with the key-body, substantially as described.

6. In combination with the key-body, means for supporting the same to allow it to turn, said key having a plurality of faces and means bearing upon one of the faces to hold the key in an adjusted position, substantially as described.

7. In combination with a key-body, means for supporting the same so that it may be turned and a leaf-spring to bear on the key-body to hold it in an adjusted position, substantially as described.

8. In combination, a key-body, means for supporting the same so that it may be turned, said body having concavities in its faces and a spring to engage the same to hold the key-body in adjusted position, substantially as described.

9. In combination with a key-body having concave faces, means for supporting the key-body to allow the same to turn, and a leaf-spring arranged beneath the key-body to engage the lowermost face thereof, substantially as described.

10. In combination, a key-body having a plurality of faces, arms in which said key-body is journaled and a spring engaging one of the faces of the key-body to allow the same slight yielding movement in its bearings under the stroke of the finger, substantially as described.

11. In combination, the key-body having the concave faces, means for supporting the key-body so that it may be turned and a spring having a convex portion conforming substantially to the concave faces of the key-body, substantially as described.

12. In combination with the key-body, means for supporting the same so that it may be turned, comprising the bracket and a leaf-spring in the form of a closed loop bearing on the key-body, substantially as described.

13. In combination, a key-body, a slotted post connected therewith, a key-lever arranged within the slot and a nut screwed onto the post for holding the parts together, substantially as described.

14. In combination, a key-body, a bracket supporting the same, a post having a head engaging the bracket, said post being slotted and screw-threaded, a key-lever fitting within the slot and a collar or sleeve between the key-lever and bracket with a nut on the post for holding the parts together, substantially as described.

15. In combination, a key-body, a bracket supporting the same, a post extending through the bracket and having a head to engage the same, a key-lever connected with the post, and a spring for holding the key-body in place, said spring being clamped in place between the parts, substantially as described.

16. In combination, a key-body, a bracket supporting the same so that it may be turned, a leaf-spring engaging the key-body, a post passing through the bracket and the ends of the spring, said post having a head to engage the bracket, a key-lever and means for holding the parts together, substantially as described.

17. In combination, the bracket, a key-body arranged to turn therein, a post passing through the bracket, a leaf-spring engaging the key-body and having its ends perforated and engaging the post, said post being slotted, a key-lever in said slot, a nut for holding the key-lever in place and a ferrule between the key-lever and the ends of the spring, substantially as described.

18. In combination, the adjustable key having a plurality of character-bearing faces, a key-lever and a friction-tight connection between said key-lever and key by which the exposed face may be adjusted to the desired position, substantially as described.

19. In combination with the key-lever, a key, and a swivel friction-tight connection between said key and key-lever with means for adjusting the frictional contact, substantially as described.

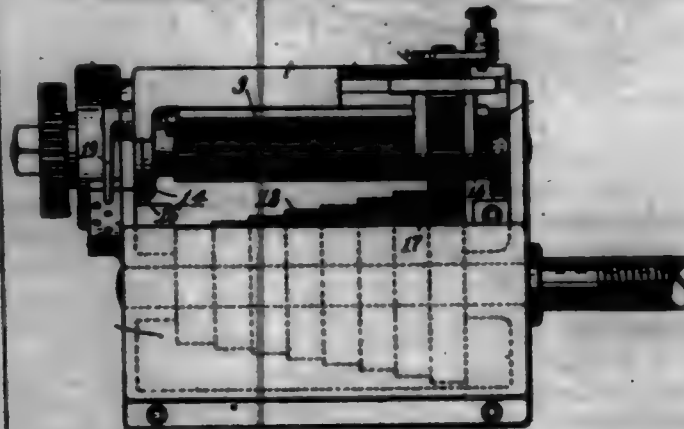
20. In combination, the key, the post about which the said key may swivel and means for holding the post adjustable to the key, said means serving to produce and adjust the frictional pressure at the swivel to hold the key in place, substantially as described.

21. In combination, the key-lever, a post having a slot to receive the same, means for holding said parts together, the arms on which the key is supported arranged to swivel about the post and the sleeve between the key-lever and the said arm forming a friction-tight joint, substantially as described.

22. In combination, the slotted post, the key-lever fitted to the slot, a nut threaded on the lower end of the post to press the lever upward, supporting means carried by the post for the key and a ferrule between the key-lever and said supporting means, substantially as described.

23. A type-writer key having a plurality of character-bearing faces and adapted to be adjusted to bring different faces to the position of use, a support for the said key and a friction-tight connection between the key and its support, substantially as described.

701,564. LATHES-FRAME. EDWARD W. W. HARRISON and FRANKLIN W. GORDON, Hartford, Conn., assignors to Pratt & Whitney Company, Hartford, Conn. Filed Mar. 12, 1902. Serial No. 96,908. (No model.)



Claim.—1. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse diameters, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of said series of gears, and means for securing the rocking guideway and the carriage in position.

2. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse diameters, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of said series of gears, a spring connecting the carriage and guideway and serving to shift the carriage along the guideway, and means for securing the rocking guideway and the carriage in position.

3. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse diameters, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of said series of gears, a rack supported by the guideway, a pinion journaled on the carriage and engaging the rack, a crank for turning the pinion, and means for locking the rocking guideway and the carriage in adjusted position.

Claim.—1. A burglar-alarm comprising a casing, a firing-arm, a firing-pig, and a cartridge-sleeve holding the said pig in place and adapted to receive a cartridge for discharge by the firing-arm.

2. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse diameters, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of said series of gears, a rack supported by the guideway, a pinion journaled on the carriage and engaging said rack, a crank for turning said pinion, a detent-pin carried by said crank and adapted to engage selective detent-balls in the guideway, and means for locking the rocking guideway in adjusted position.

3. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse diameters, a second shaft mounted parallel therewith, a pinion upon said second shaft, a guideway disposed parallel with and arranged to rock upon the axis of said second shaft, a carriage mounted to slide in said guideway, an idle gear mounted in said carriage and geared to said second shaft and adapted to engage any of the gears of said series of gears, and means for locking said rocking guideway and the carriage in adjusted position.

4. The combination, substantially as set forth, of a casing, a shaft journaled therein and provided with a series of gears of diverse diameters enclosed by said casing, a pinion mounted in said casing parallel with said shaft and having a length equal to said series of gears, a guideway disposed parallel with said pinion and mounted to rock upon the axis thereof, a carriage arranged to slide in said guideway, an idle gear mounted in said carriage and engaging said pinion and adapted to engage any one of said series of gears, and means for locking the rocking guideway and the carriage in adjusted position.

701,565. TROLLEY-RAIL. WILLIAM E. HARRIS, New York, N. Y. Filed Oct. 19, 1901. Serial No. 79,203. (No model.)



Claim.—1. In a rail, the combination with a flange, of a web provided at the top edge with downwardly-projecting flanges to form a groove, said web having an inward flange at one edge adapted to engage one of the flanges of the web, and a downwardly-projecting flange at the other edge of the tread adapted to fit against the remaining flange of the web, and a screw for securing said tread to the web.

2. In a rail, the combination with a flange, of a web bifurcated at its upper edge, the bifurcated portions terminating in outwardly-projecting flanges, and a tread adapted to be seated upon the web and provided with edge flanges adapted to engage the flanges carried by the web, and a screw for fastening the web and tread together.

3. In a rail, the combination with a flange; of a web bifurcated at its upper edge to form a groove for the reception of an electrical conductor, the bifurcated portions terminating in outwardly-projecting flanges and a tread adapted to be seated upon the web and provided with edge flanges designed to engage the flanges carried by the web and means for fastening the tread and rail together.

701,566. ELECTRIC ALARM. WILLIAM E. HARRIS, New York, N. Y. Filed Feb. 1, 1902. Serial No. 93,904. (No model.)

Claim.—1. A burglar-alarm comprising a casing, a firing-arm, a firing-pig, and a cartridge-sleeve holding the said pig in place and adapted to receive a cartridge for discharge by the firing-arm.



2. A burglar-alarm comprising a casing, a firing-arm, a cartridge-holding sleeve having insulating material separating it completely from the rest of the structure, and electrical connections for the sleeve and the remaining parts of the alarm, the firing-arm serving as a circuit-closer.

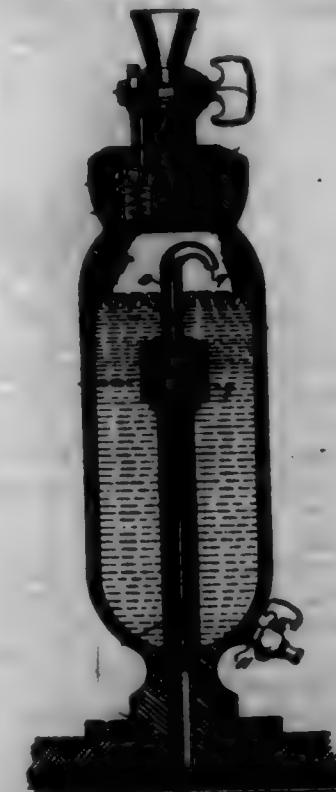
3. A burglar-alarm comprising a casing carrying detent-spring elements, a plug mounted in one end of the casing, a fastening device removably arranged in the said plug, and a removable pin passing through the casing, plug, and fastening device.

4. A burglar-alarm comprising a casing, a cartridge-holding element, and a firing-arm carrying both rim and center firing elements, the center-firing element being adjustable.

5. A burglar-alarm comprising a casing having a plug fitted in one end thereof and carrying a spring which is permanently fastened thereto, the said plug having an opening therethrough, a cartridge-holding sleeve removably mounted in the casing and plug, and a firing-arm fastened in the casing and having a portion adapted to engage the said spring.

6. A burglar-alarm comprising a casing having a firing-arm fastened therein, a plug removably mounted in one end of the casing and having a spring fixed thereto which engages a portion of the firing-arm, cartridge-holding means mounted in the casing and plug, and a screw in the said plug to cooperate with the said cartridge-holding means.

701,567. LUBRICATOR. HART HARRIS, Washington, D. C. Filed May 31, 1901. Serial No. 62,907. (No model.)



Claim.—In a lubricator having a receptacle for the oil, means for feeding the oil from said receptacle, a removable closure to said receptacle enlarged into a funnel and a stop-cock between said funnel and receptacle, a vent-valve in said closure adapted to release air from said receptacle, and having a stem rising through said closure, and a cam upon the plug of said stop-cock adapted to engage said valve-stem, and open said valve when said valve-plug is actuated, substantially as described.

701,568. CAR-FINDER. JOHN B. HARRIS, St. Louis, Mo., assignor of two-thirds to Dan W. Morris and Edward Butler, Jr., St. Louis, Mo. Filed Nov. 12, 1901. Serial No. 93,905. (No model.)

Claim.—1. A car-finder, consisting of a frame pivotally supported under the car, a cross-piece supported adjacent the rear end of the frame, means carried by said cross-piece for holding the finder in an elevated position, and means for automatically releasing the finder from the said cross-piece whenever any object is engaged by the forward end of the finder, substantially as specified.

2. A fender, consisting of a frame pivotally supported under the car, a cross-piece 5 supported adjacent to the rear end of the fender, means carried by said cross-piece for engaging the fender to hold it in different positions, rods extending within the fender-frame and projecting in front of the fender, a cross-piece carried by said rods and adapted to first engage any object which may be on the track so that the said rods will be forced rearwardly, means whereby the first-mentioned cross-piece will be operated whenever the said rods are moved and the fender released, and a shield hinged to the said fender and extending upwardly in front of the end of the car, substantially as specified.



3. A car-fender, consisting of a frame pivotally supported by the car, a cross-piece 5 supported under the car, an arm 7 carried by said cross-piece 5 and adapted to engage with the rear end of the fender to hold it in different positions, arms 6 carried by the ends of the cross-piece 5 and extending downwardly, rods 13 supported within the fender-frame and projecting in front thereof, a member 13 carried by said rods 13 in front of the fender, the rear ends of the said rods 13 bearing against the arms 6 so that the said arm will be moved to release the fender whenever any object is encountered by the said member 13, means for holding the arm 7 in contact with the end of the fender, and a suitable shield carried by the fender and extending upwardly in front of the car, substantially as specified.

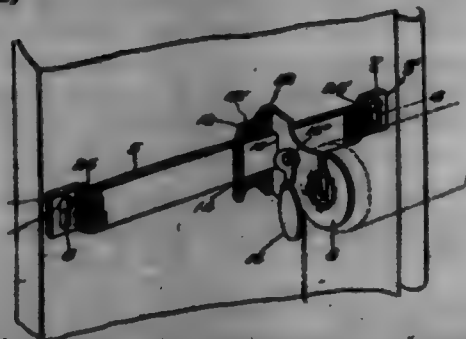
701,569. SEED-PLANTER. ELIAS F. BRILL, Wichita, Kans., assignor of one-half to R. C. Israel and George W. Israel, Wichita, Kans. Filed Aug. 25, 1900. Serial No. 14,094. (No model.)



Claim.—1. In the herein-described seed-planter, a plow and furrow-opener or blade combined, vertically covered adjustably in the planter-frame, said blade having a hole lengthwise through the lower end, a reel for carrying a long strip of paper with seeds placed therein, and a reel on a post secured to said planter-frame, said long strip of paper with seeds adapted to pass through said hole in said plow and furrow-opener or blade into the furrow.

2. The combination of a seed-planter frame, a vertically-adjustable plow and furrow-opener or blade, having a hole lengthwise thereof, a laterally-adjustable frame, wherein which said seed-planter rides journaled in a yielding frame, a reel shod on a post secured to said adjustable frame, a long strip of narrow paper with seeds twisted therein at desired intervals, wound on said reel, said paper adapted to pass through said hole in said plow and furrow-opener or blade into the furrow.

701,570. CURTAIN-FIXTURE. JAMES JORDAN, JR., and PATRICK J. RAGAN, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,721. (No model.)



Claim.—1. A curtain-fixture comprising a sheet-metal plate having an end portion bent to effect the plate proper from said end portion, said end portion being slotted, so that the plate may be adjusted on its support; a bracket having a pair of slots for receiving the plate; and a com-

lever pivoted to the bracket and adapted, when actuated, to bind the bracket and plate together.

2. A curtain-fixture comprising a sheet-metal plate having offset, vertically-slotted ends through which devices may be passed for securing said plate to its support; a sheet-metal bracket having a pair of slots through which the plate is passed; and a sheet-metal cam-lever pivoted to said bracket, substantially as described.

3. The combination, with a sheet-metal plate having its ends slotted to receive fastening devices and also bent to bear against a support and separate the plate from such support, of a sheet-metal bracket formed of a blank having a pair of slots, the end of said blank being bent to bring the slots in alignment with each other; and a device for securing the bracket and plate together.

4. The combination with a sheet-metal plate having offset ends, each provided with a vertical slot for the reception of a fastening device; of a sheet-metal bracket having a pair of registering slots for receiving the plate; and a cam-lever pivoted to the bracket and adapted to clamp said bracket and plate together.

5. The herein-described curtain-fixture comprising a sheet-metal plate having offset ends vertically slotted to receive screws for securing the plate to a support; a cam-lever stamped from sheet metal, and having bearings for the reception of the plate; and a cam-lever stamped from sheet metal and having its inner end adapted to engage the plate between the bearings thereof.

701,571. SHIFTER TOPRAILS. ARTHUR KEMMER, San Francisco, Cal. Filed May 25, 1901. Serial No. 61,416. (No model.)



Claim.—1. In combination with the mast and topmast of a vessel and a stay connecting said mast to an adjacent mast, a top-rail, and means operable from the deck of the vessel for shifting said top-rail under said stay.

2. In combination with the masts of a vessel and a stay connecting them, a top-rail, means for leading down the sail, means for shifting the sail under said stay, and means for hoisting the sail upon the other side of the stay, all of such means being operable from the deck of the vessel.

3. In combination with a topmast and top-rail, parallel guides on said mast, means for securing the sail movably to said guides, means for lowering and hoisting the sail, and means for transferring the lowered sail from one guide to the other.

4. In combination with a topmast and top-rail, a single halyard made fast to the sail-head, a block over which the halyard passes, said halyard having a bight therein, both ends of said halyard being on deck and the sail being hoisted by drawing upon either end, whereby the sail-head may be held to port or starboard, substantially as described.

5. In combination with a topmast and top-rail, a two-sheave block at the masthead, a single-sheave block near the foot of the topmast, and a single halyard-halyard having both ends on deck, and extending from one side of the deck over one sheave of the upper block, thence under the lower block, thence over the other sheave of the upper block, and thence to the other side of the deck, the head of the sail being secured to said halyard, whereby the sail-head may be held to port or starboard.

6. A mast having parallel guide-tracks, a sail movable on either of said tracks, a pivoted switch adapted to coincide with either track, means for hoisting and lowering the sail, and means for throwing the switch.

7. In combination with a mast having parallel guide-tracks upon

which the top-rail travels in hoisting and lowering, a pivoted switch-bar adapted to coincide with either guide-track, a lever attached thereto and leading-ropes from said lever to the deck.

8. In combination with a mast and sail, guides upon which the sail travels in hoisting and lowering, clips secured to the edge of the sail and engaging with one of said guides, and a switch adapted to receive said clips from the guide, and then to transfer them, with the sail, to alignment with the other guide.

9. In a rigging for shifting top-rails, a halyard, a clip connecting the head of the sail to said halyard, a guide-block for said halyard, and a slot in said block to permit the passage of said clip.

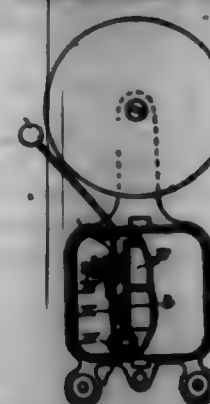
10. In a rigging for shifting top-rails, guides on the mast to one of which the sail is connected, a halyard to which the head of the sail is secured, a switch for receiving the sail from one guide and transferring it to the other, and a guide-block for the halyard having a slot to admit and pass the clip which secures the head of the sail to said halyard.

11. In combination with a mast, sail-guides thereon, a pivoted switch for receiving the lowered sail bodily and transferring it under the mast-head stay, and a guide for the free end of said switch.

12. In combination with a mast and topmast, sail-guides secured to the topmast, but bridging to and loosely connected with the mast.

13. In combination with a mast and topmast, parallel sail-guides secured to the topmast, a plate forming part of said guides, and having a loose connection with the mast, a rib on said plate, and a pivoted switch-bar having its free end in engagement with said rib.

701,572. ELECTRIC BELL. HENRY F. KIM, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,571. (No model.)



Claim.—1. An electromagnet, an armature, a support therefor sustained by the core of the magnet, and constructed and arranged to be sprung on or detached from the core at will, and means to hold the armature so as to move toward the electromagnet or transversely of the same.

2. An electromagnet, an armature, a support therefor sustained by the core of the magnet, and constructed and arranged to be sprung on or detached from the said core at will, means to hold the armature so as to move toward the electromagnet or transversely of the same, and a locking device intermediate the armature and support, whereby the said armature may be maintained in a locked relation.

3. An electromagnet, an armature, a supporting-plate constructed and arranged to be sprung on or detached from the magnet-core at will, means to hold the armature so as to move toward the electromagnet or transversely of the same, and a locking device, one part of said locking means being attached to the armature, and the other portion forming a part of said support.

4. An electromagnet, an armature, a supporting-plate constructed and arranged to be sprung on or detached from the magnet-core at will, means to hold the armature so as to move toward the electromagnet or transversely of the same, and a locking device, consisting of a corrugated disk, attached to the armature, and another portion, consisting also of a corrugated disk, forming a part of said support.

5. An electromagnet, an armature, a spring-plate supported by the core of said magnet, means to hold the armature so as to move toward the electromagnet or transversely of the same, and a locking device, one part of said locking device consisting of a corrugated disk, attached to the armature, and the other part, consisting also of a corrugated disk, supported by said spring-plate.

6. An electromagnet, a spring-plate supported by the core of said magnet, an armature, and a locking device, one member of said locking device, consisting of a disk, attached to the armature, and another member, also consisting of a disk, supported by the said spring-plate, the two members being held together by means passing through the said disks.

7. An electromagnet, a spring-plate supported by the core of said magnet, an armature, and a locking device, one member of said locking device, consisting of a disk, attached to the armature, and another mem-

ber, also consisting of a disk, supported by said spring-plate, the two members being held together by means passing through the said disks and through an extension of the second member of the locking device.

8. An electromagnet, a spring-plate sustained by the core of said magnet, an armature connected with the magnet and mounted to turn, and a locking device consisting with the armature, whereby, upon manipulation, the movable pivoted armature may be rigidly held in any desired adjusted position.

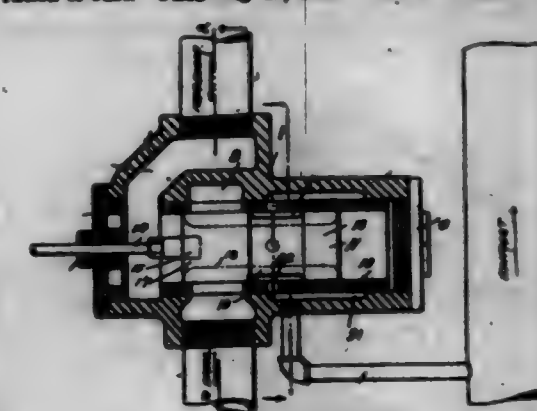
701,573. WOVEN DOUBLE-PILE FABRIC. JOHN KILLAM, Newington, Conn., assignor to Charles A. Wingtholmer, New York, N. Y. Filed Sept. 21, 1901. Serial No. 70,061. (No model.)



Claim.—1. A pile fabric composed of ground warp-threads, filling-threads, and pile-threads arranged independently of each other in pairs upon successive pairs of filling-threads, one left upon each thread, and said pairs arranged in staggered relation between the successive ground warp-threads, substantially as set forth.

2. A double-pile fabric, consisting of upper ground warp-threads, lower ground warp-threads, upper filling-threads, lower filling-threads, and pile warp-threads, two to each ground warp-thread, arranged between the same, said pile warp-threads being looped in pairs upon successive pairs of filling-threads alternately in the top and bottom piece, substantially as set forth.

701,574. THROTTLE-VALVE. GEORGE W. KIM, Marion, Ohio, assignor to the Marion Steam Shovel Company, Marion, Ohio, a Corporation of Ohio. Filed Aug. 12, 1901. Serial No. 71,572. (No model.)



Claim.—1. The combination, with the steam-supply pipe of a steam-engine, of a throttle-valve comprising a casing having a port communicating with that portion of the steam-supply pipe connected with the source of supply, a second port connected with that portion of the steam-supply pipe which is connected with the engine, said valve-casing being also provided with an exhaust-passage, and a valve controlling said ports and adapted to connect the engine-port and exhaust-passage and simultaneously close the port connected with the steam-supply, whereby the steam from the engine may be permitted to return through the steam-supply pipe and escape through the valve and exhaust-passage under control of the valve, substantially as described.

2. A throttle-valve comprising a casing provided with ports communicating with the steam-supply and engine and with an exhaust-passage, and a valve controlling said ports and provided with a by-pass adapted to connect the engine-port and exhaust-passage, said valve being movable to three operative positions; first, to close both the engine-port and exhaust-passage and prevent all movement of the steam; second, to close the steam-supply and open communication between the engine-port and exhaust-passage; and third, to open communication between the steam-supply and engine-port and close the exhaust-passage, substantially as described.

3. A throttle-valve comprising a casing provided with ports communicating with the steam-supply and engine and with an exhaust-passage, and a valve controlling said ports and provided with a by-pass adapted to connect the engine-port and exhaust-passage, said valve being movable to three operative positions; first, to close both the engine-port and exhaust-passage and prevent all movement of the steam; second, to close the steam-supply and open communication between the engine-port and exhaust-passage; and third, to open communication between the steam-supply and engine-port and close the exhaust-passage, said valve being also movable in its second and third positions to regulate the passage of steam, substantially as described.

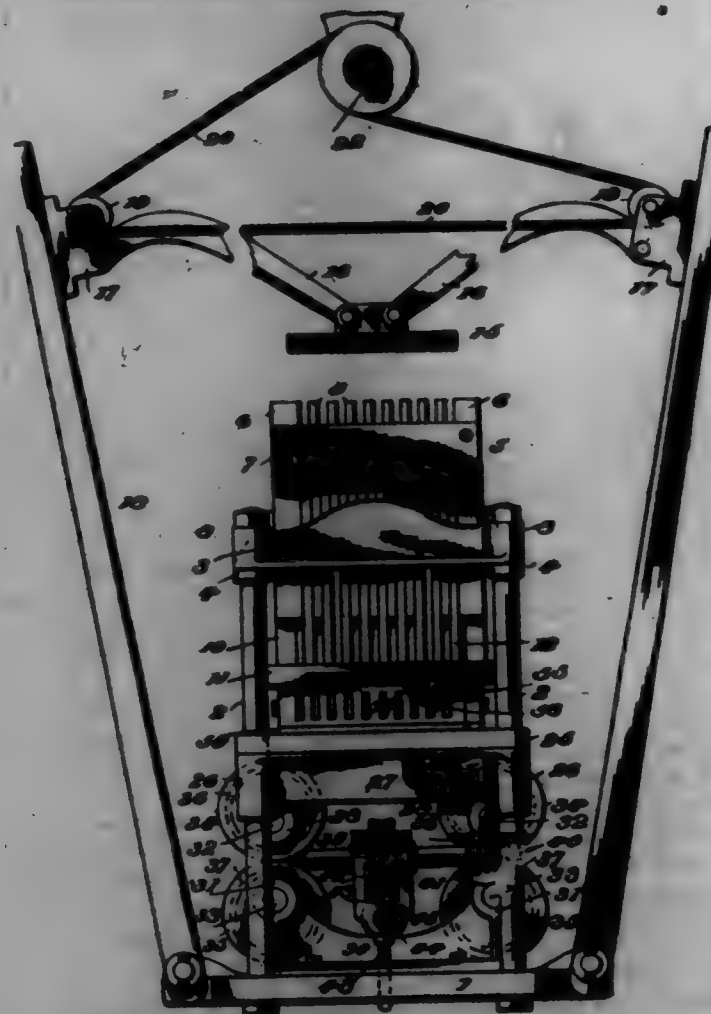
4. A throttle-valve comprising a valve-casing having a valve-cham-

her closed at one end and opened at the other end for the admission of steam, said casing having an intermediate chamber communicating with the engine and with the valve-chamber, in combination with a valve controlling communication between the valve-chamber and the intermediate chamber, said valve having a steam-passage therethrough, whereby both ends of the valve are subjected to steam-pressure to partially balance the same, and a valve-rod connected to said valve and passing through the inlet end of the casing, said valve being adapted to close the valve-ports by a movement toward the said inlet end, whereby the unbalanced pressure on said valve tends to close the same, substantially as described.

5. A throttle-valve comprising a casing having a cylindrical valve-chamber closed at one end and connected at the other end with a steam-supply, said casing being provided with an annular chamber having ports connecting with the valve-chamber and also connected with the engine, and a second annular chamber having an exhaust-opening and ports connecting with the valve-chamber, in combination with a piston-valve having a longitudinal opening and a body portion adapted to control the ports communicating with the engine, and a reduced portion adapted to establish communication between the engine-ports and the ports communicating with the exhaust-chamber, substantially as described.

6. A throttle-valve comprising a valve-casing having a cylindrical body portion closed at one end and connected with the steam-supply at the other, said casing having an annular chamber communicating with the engine and provided with ports opening into the valve-chamber, and a second annular chamber also provided with ports opening into the valve-chamber and connected with the exhaust, and a valve having a cylindrical body provided with a longitudinal opening to balance the valve and with a reduced intermediate portion, whereby communication may be established between the engine-ports and the ports of the exhaust-chamber, substantially as described.

701,575. BALING-PRESS. MINHAM KIMMER, Lynchburg, Va. Filed Aug. 24, 1901. Serial No. 73,116. (No model.)



Claim.—1. In a machine of the character described, a pressure chamber or crib, a follower and mechanism for compressing the material comprising a pair of eccentric rollers or cams arranged to roll on each other and thereby operate said follower, and a worm operating between said eccentric rollers and arranged to rotate the same, substantially as described.

2. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate for compressing the material therein, an eccentric roller or cam carried by said follower or bed-plate, and a second roller suitably supported, said rollers rolling on each other, and a

worm operating between said rollers for rolling one of them on the other, substantially as described.

3. In a machine of the character described, a pressure chamber or crib, and mechanism for compressing the material therein comprising a pair of eccentric rollers or cams, a pair of rollers in rolling contact therewith, and a worm for operating said rollers, substantially as described.

4. In a machine of the character described, a pressure chamber or crib, and mechanism for compressing the material therein comprising a pair of eccentric rollers or cams, a pair of eccentric rollers or cams in contact with the first-mentioned rollers or cams, the said rollers having gears formed thereon, and a worm meshing with and rotating said geared rollers or cams, substantially as described.

5. In a machine of the character described, a pressure chamber or crib, and mechanism for compressing the material therein comprising a pair of eccentric rollers or cams arranged to roll on each other, and a worm arranged to rotate said rollers and capable of moving to accommodate itself to the movement of said rollers or cams, substantially as described.

6. In a machine of the character described, a pressure chamber or crib and mechanism for compressing the material therein comprising two pairs of eccentric rollers or cams having gearing thereon, a shaft provided with a worm near each end thereof for meshing in the gearing on said eccentric rollers and arranged to rotate the same, substantially as described.

7. In a machine of the character described, a pressure chamber or crib, and mechanism for compressing the material therein comprising two pairs of eccentric rollers or cams arranged to roll on each other and having worm-wheels thereon, a shaft having a worm near each end thereof meshing between the worm-wheels on said rollers and means for rotating said shaft, substantially as described.

8. In a machine of the character described, a pressure chamber or crib and mechanism for compressing the material therein comprising two pairs of eccentric rollers or cams arranged to roll on each other whereby the axes of one set have vertical movement, worm-wheels forming part of said rollers, a shaft having a worm near each end thereof arranged to gear with the worm-wheels on said rollers, said shaft capable of movement as the axis of one pair of said rollers move, substantially as described.

9. In a machine of the character described, a pressure chamber or crib and mechanism for compressing the material therein comprising two pairs of eccentric rollers or cams arranged to roll on each other whereby the axes of one set have vertical movement, worm-wheels forming part of said rollers, a shaft having a worm near each end thereof arranged to gear with the worm-wheels on said rollers, means for supporting said shaft capable of movement to adapt said worms to the movement of said rollers, substantially as described.

10. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate for compressing the material therein, two pairs of eccentric rollers or cams meshing with said follower or bed-plate and arranged to move the latter as they roll on each other, worm-wheels forming part of said rollers or cams, a shaft having a worm near each end thereof meshing with the worm-wheels on said rollers or cams, a worm-wheel on said shaft and a shaft and worm for operating said worm-wheel, substantially as described.

11. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate for compressing the material therein, two pairs of eccentric rollers or cams meshing with said follower or bed-plate and arranged to move the latter as they roll on each other, worm-wheels forming part of said rollers or cams, a shaft having a worm near each end thereof meshing with the worm-wheels on said rollers or cams, a worm-wheel on said shaft and a shaft and worm for operating said worm-wheel, the said shafts and worms having movement corresponding to the movement of the follower or bed-plate, substantially as described.

12. In a machine of the character described, two cribs having walls forming a pressure-chamber of the same internal dimensions and of uniform size and arranged to telescope or slide one in the other during the compression of the material, substantially as described.

13. In a machine of the character described, a crib having one part with its members projecting therefrom with spaces left between them, and a second part having members also projecting therefrom and telescoping between the members of the opposing part, substantially as described.

14. In a machine of the character described, a crib having a stationary part with its members projecting downward therefrom with spaces left between them, and a second part having members projecting upward and telescoping between the members of the upper part, substantially as described.

15. In a machine of the character described, a pressure chamber or crib and a frame for use therewith having an inwardly-curved or convex

portion tending to form a corresponding concave depression in the bale, substantially as described.

16. In a machine of the character described, a pressure chamber or crib and a knockdown frame for use therewith having an inwardly-curved or convex portion tending to form a corresponding concave depression in the bale, substantially as described.

17. In a machine of the character described, a pressure chamber or crib and a knockdown frame for use therewith having an inwardly-curved portion adapted to form a corresponding concave depression in the bale, and openings or slots in said frame permitting the air to escape as the material is compressed, substantially as described.

18. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate having means for supporting the bottom and sides of a pan or section of the bale-covering, a removable frame consisting with said supporting means, and means for compressing the material into said pan or section, substantially as described.

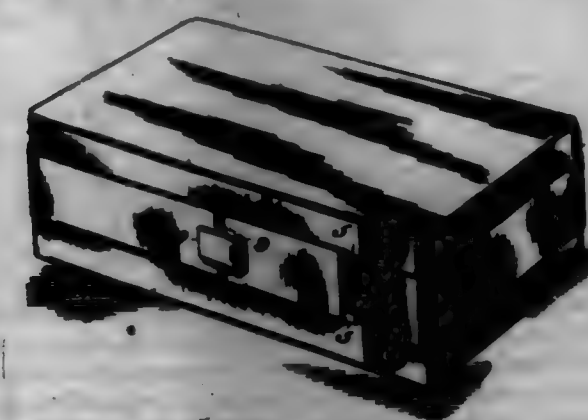
19. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate having a recess formed therein arranged to support the bottom and sides of a pan or section of the bale-covering, a removable frame consisting with said recess and forming a continuation thereof, and means for compressing the material into said pan or section, substantially as described.

20. In a machine of the character described, a pressure chamber or crib, a follower or bed-plate having a recess formed therein for supporting the bottom and sides of a pan or section of the bale-covering, a knockdown frame arranged to be supported above said recess and forming a continuation thereof, and means for compressing material into said frame and pan or section of the bale-covering, substantially as described.

21. In a machine of the character described, a pressure chamber or crib, means for compressing material between pans or sections of the bale-covering arranged in said pressure chamber or crib, and means for holding a fastening-strip against said pans or sections of the bale-covering, substantially as described.

22. In a machine of the character described, a pressure chamber or crib, means for compressing material between pans or sections of the bale-covering arranged in said pressure chamber or crib, and detachable bars for holding a fastening-strip against said pans or sections of the bale-covering, substantially as described.

701,576. BALE-COVERING. MINHAM KIMMER, Lynchburg, Va. Filed Aug. 24, 1901. Serial No. 73,116. (No model.)



Claim.—1. A bale-covering, comprising a top and a bottom dash having locking-flanges on all of its edges, and a substantially continuous strip having flanges coating with the locking-flanges on the top and the bottom and locking or fastening them together, substantially as described.

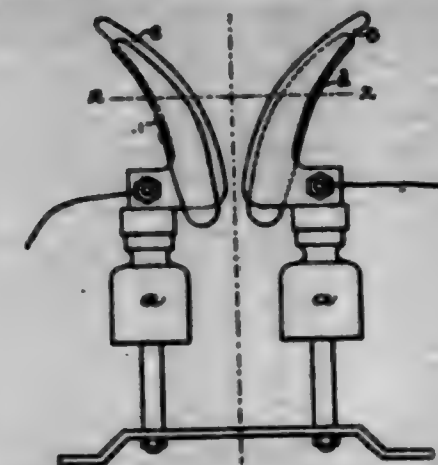
2. A bale-covering comprising a top and a bottom having locking-flanges thereon, and a strip having flanges coating with the flanges on the top and bottom and locking or fastening them together, and provided with means for locking or fastening its ends together, substantially as described.

3. A bale-covering, comprising a top and a bottom made into pan shape with locking-flanges thereon, and a substantially continuous strip surrounding the bale and having flanges thereon coating with the locking-flanges on the top and bottom and thereby locking the latter together, substantially as described.

4. A bale-covering comprising a top and a bottom made into pan shape with flanges thereon, and a strip surrounding the bale and having flanges thereon coating with the flanges on the top and bottom and thereby locking the latter together, and provided with a tongue and coating means for locking its ends together, substantially as described.

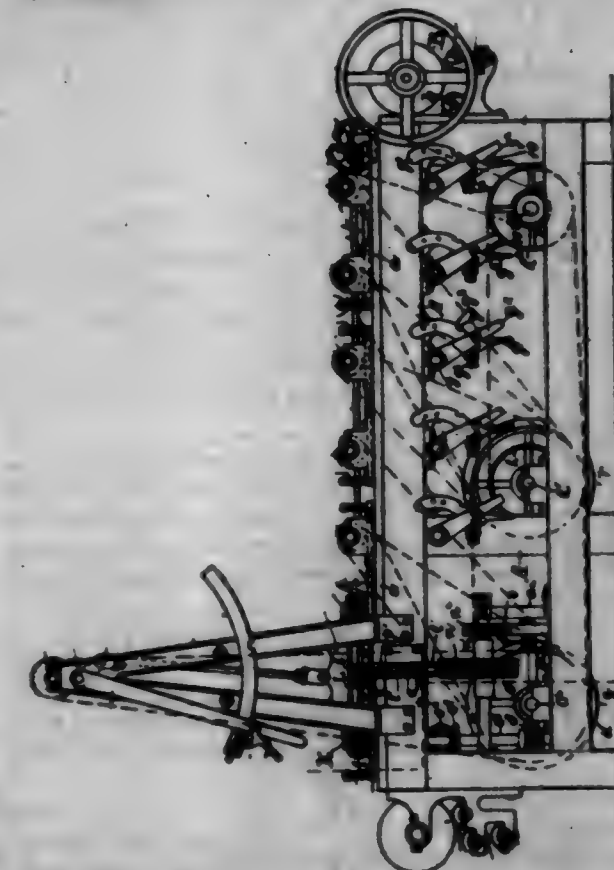
701,577. LIGHTNING-CONDUCTOR. FRANK E. KLINE, Dresden, Germany. Filed Mar. 31, 1900. Serial No. 10,911. (No model.)

Claim.—1. A horn-shaped lightning-arrester in which there are provided near where the arc is to be formed, paramagnetic bodies consisting of sheets which partly surround the horn but leave free their inner edges which face each other, substantially as herein described.



2. Is a lightning-arrester, the combination of two horn-shaped discharging-plates *c c* and two paramagnetic bodies in the form of sheets which partly surround said plates, substantially as and for the purpose herein described.

701,578. MACHINE FOR CUTTING LOOPS OF FINE FABRIC. JOHN D. KNOWLES, Westbrook, Me., assignor to Sanford Mills, Sanford, Me., a Corporation of Maine. Filed Apr. 26, 1901. Serial No. 672,008. (No model.)



Claim.—1. In a machine for cutting the loops of a pile fabric, a framework, a bed over which the pile fabric is passed, and a rotary and reciprocating shaft having thereon a plurality of cutters or knives.

2. In a machine for cutting the loops of pile fabric, a framework, a bed over which the pile fabric is passed, a rotary and reciprocating shaft having thereon a plurality of cutters or knives, a rotatable roll beneath and parallel with said shaft of cutters or knives to support the fabric in position to be cut.

3. In a machine for cutting the loops of pile fabric, a rotating shaft having a gang of bladed cutters, means to reciprocate said shaft longitudinally, and means to support the back of the fabric at the line opposite where the bladed cutters act to enter and cut the loops, substantially as described.

4. In a machine for cutting the loops of pile fabric, the following instrumentalities, viz., a rotating shaft having a gang of bladed cutters, means to reciprocate said shaft longitudinally during its rotation, means to sustain the fabric parallel with the axis of rotation of the rotating cutter-carrying shaft, and tension means acting upon the fabric to hold the same stretched over the support sustaining the fabric.

5. In a machine for cutting the loops of pile fabric, a gang of blades cutters mounted upon a shaft extended across the line of travel of the fabric, means to rotate said shaft and its cutters, combined with a shaft having a gang of cross or traverse cutters, said shaft being arranged at an angle to the shaft carrying the gang of main cutters, and means to reciprocate the shaft carrying said cross cutters to and fro across the fabric in the direction of its travel through the machine, substantially as described.

6. In a machine for cutting the loops of pile fabric, a carriage, a shaft mounted in said carriage, said shaft having one or more gangs of blades cutters, means to rotate said shaft and to move said carriage transversely with relation to the direction of travel of the fabric through the machine, whereby said cross or traverse cutters are made to cut transversely across a field of loops of the fabric, substantially as described.

7. In a machine for cutting the loops of pile fabric, a gang of blades cutters fixed upon a shaft extended across the line of travel of the fabric, a series of cross or traverse blades cutters fixed upon a shaft more or less in line with the direction of travel of the fabric, and means to sustain the back of the fabric opposite the points where the said blades cutters act to cut the loops thereof, means for reciprocating said cross or traverse cutters to and fro across the face of the fabric, and means for guiding and stretching the fabric being cut, substantially as described.

8. In a machine for cutting the loops of pile fabric, a gang of blades cutters fixed upon a shaft extended across the line of motion of the fabric, a gang of cross or traverse blades cutters fixed upon a shaft located more or less in line with the direction of travel of the fabric, means to sustain the back of the fabric opposite the points where the said blades cutters act to cut the loops thereof, means for reciprocating said cross or traverse cutters to and fro across the face of the fabric, means for guiding and stretching the fabric being cut, and means for automatically feeding the fabric through the machine, substantially as described.

9. In a machine for cutting the loops of pile fabric, a gang of blades cutters, and a shaft carrying them, said shaft being extended across the line of motion of the fabric, and a gang of cross or traverse blades cutters, and a shaft carrying them, said shaft occupying a position in the direction of the line of travel of the fabric through the machine, and means for moving both gangs of said cutters laterally with relation to the face of the fabric as the same is being fed beneath said cutters, substantially as described.

10. In a machine for cutting the loops of pile fabric, a shaft having a gang of blades cutters, means to both rotate and reciprocate said shaft, means to sustain the back of the fabric in a line substantially parallel to the axis of rotation of the cutter-carrying shaft, tension devices for keeping the fabric stretched over the means for supporting the same during the time the loops are being cut, and means to change the relative positions vertically of the support for the back of the fabric and the gang of cutters, substantially as described.

11. In a machine for cutting the loops of pile fabric, means to support the fabric to be cut, a rotating shaft having a gang of blades cutters thereon, a hub secured to the shaft carrying said cutters, said hub having an annular groove, and means operating with said groove to reciprocate automatically said shaft longitudinally in its journals, substantially as described.

12. In a machine for cutting the loops of pile fabric, a rotary shaft located in the line or direction of travel of the fabric, a gang of blades cutters or traverse cutters applied to said shaft, a carriage to support said shaft, guides to direct the movement of said carriage, and means for reciprocating said carriage on said guides across the machine, substantially as described.

13. In a machine for cutting the loops of pile fabric, a shaft located in the line or direction of travel of the fabric, a gang of blades cutters or traverse cutters secured to said shaft, a carriage to support said shaft, guides to support said carriage, and direct its movements transversely with relation to the travel of the fabric through the machine, means to reciprocate said carriage in said guides, and means to rotate and lower said guides, substantially as described.

14. In a machine for cutting the loops of pile fabric, a shaft located in the line or direction of travel of the fabric, a gang of blades cutters mounted on said shaft, a carriage to support said shaft, transverse guides in which said carriage is mounted, means to move said carriage in said guides, temple-plates to support the fabric being acted upon by said gang of cutters and pressure-plates acting upon the face of the fabric in front of and behind said temple-plates, substantially as described.

15. In a machine for cutting the loops of pile fabric, a shaft, a carriage containing said shaft, a series of blades cutters mounted on said shaft, transverse guides in which said carriage is mounted, a cord or flexible connection secured to said carriage, a reel, and means to move it in one end and then the opposite direction to wind and unwind said cord or flexible connection and thereby reciprocate said carriage to and fro in said guides, substantially as described.

16. In a machine for cutting the loops of pile fabric, a plurality of

shafts, a movable carriage containing said shafts, gangs of blades cutters mounted on said shafts, transverse guides in which said carriage is mounted, a flat temple-plate extended transversely with relation to the machine in support the back of the fabric, and a pressure-plate acting upon the face of the fabric at opposite edges of said temple-plate, substantially as described.

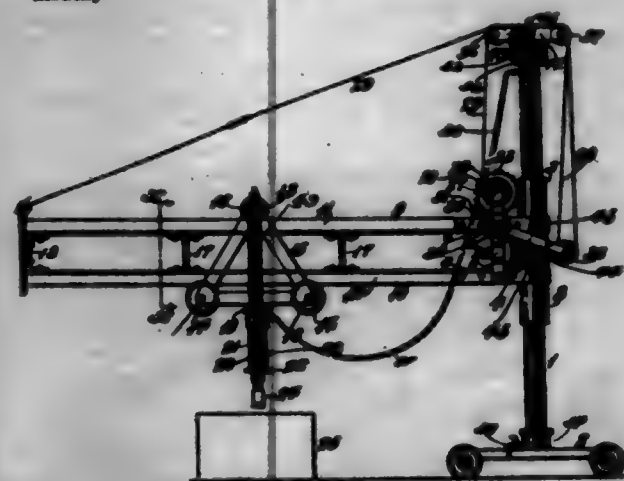
17. In a machine for cutting the loops of pile fabric, a shaft having a series of blades cutters, temple-rolls to support the back of said fabric opposite said cutters, pressure-plates extended across the machine and acting upon the face of the fabric to hold the same down on said temple-rolls, and means for adjusting the effective pressure of said pressure-plates upon the fabric, substantially as described.

701,579. METALLURGICAL. HENRY C. KENOW, Milwaukee, Wis. Filed Feb. 17, 1902. Serial No. 94,341. (No model.)



Claim.—A metallic seal comprising a flexible metal strip having a plurality of prongs struck up out of one end thereof all clear of one another from the strip to their outer extremities, and a compressible metal plug molded on said strip to embed and conceal the prongs of same, the plug-shank being engageable with an aperture provided in the other end of the aforesaid strip.

701,580. PNEUMATIC-SURFACER FRAME. EUGENE C. KOTHE, New York, N. Y. Filed July 17, 1901. Serial No. 66,992. (No model.)



Claim.—1. A post, an arm rotatably mounted thereon, a drum carried by said arm, rollers carried by said post and arm, a connection passing around said rollers and leading from an end of said arm to said drum, and means for rotating the latter, in combination with a carriage mounted on said arm, trolleys on the upper and lower portion of said carriage adapted to contact with tracks on said arm, and a set of rollers mounted in the lower portion of said carriage and adapted to contact with the lower of said tracks.

2. The combination of a post, an arm secured to a sleeve rotatably mounted thereon, a carriage movably supported on said arm, a drum carried by said arm, rollers carried by said post, a roller secured to bearings on said sleeve, said bearings projecting therefrom in an opposite direction to said arm, a connection passing around each of said rollers and leading from an end of said arm to said drum, and means for rotating the latter.

3. In a surface-frame, a post, a sleeve surrounding said post and adapted to be moved thereupon, an arm projecting from said sleeve, and secured thereto, tracks formed on the upper and lower surfaces of said arm, a carriage movable upon said tracks, said carriage having strips on either side thereof, rods supported by said strips, plates carried by said rods, a pneumatic tool supported upon said plates and means for raising and lowering said arm.

4. In a surface-frame, a post, an arm projecting laterally therefrom, means for enabling said arm to be turned on said post, a cap rotatably mounted on said post, rollers mounted on said cap, a drum mounted on said arm, a connection leading from an end of said arm to said drum and passing over said rollers, a carriage movable on said tracks and having strips on either side thereof, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

5. In a surface-frame, a post, an arm rotatably mounted thereupon,

and a carriage mounted on said tracks adapted to support a pneumatic tool.

6. In a surface-frame, a post, an arm rotatably mounted thereupon, said arm consisting of a plurality of T-beams braced at intervals throughout their length, the central flanges of the upper and lower T-beams flaring upwardly and downwardly respectively and forming a track, a carriage having trolleys at its upper and lower portion and adapted to travel on said track and means for raising and lowering said arm.

7. In a surface-frame, a post, a cap rotatably mounted thereon, and carrying a plurality of rollers, a sleeve rotatably mounted on said post, an arm projecting from said sleeve and having a track thereon, a carriage adapted to travel upon said track, a drum mounted on said arm, a roller carried by said sleeve, rollers journaled in said carriage, and bearing against said track for preventing lateral motion and a connection secured to one end of said arm, and passing around said rollers to said drum, in combination with a pneumatic tool carried by said carriage, and means for rotating said drum.

8. The combination of a laterally-extending arm, having an upper and lower track thereon, a carriage movable on said tracks, strips on either side of said carriage, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

9. The combination of a laterally-extending rotatable arm, having tracks thereon, a carriage mounted on said tracks, a roller carried on the lower portion of said carriage and adapted to contact with the lower one of said tracks, other rollers carried by said carriage and adapted to contact with the opposite sides of said lower track, said carriage having strips on either side thereof, rods supported by said strips, plates carried by said rods and a pneumatic tool supported between said plates.

10. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a collar on the upper portion of said post, a cap rotatably mounted on said collar, ball-bearings intermediate said cap and collar, an inlet-pipe for compressed air leading through said cap to said reservoir, rollers journaled in said cap, a sleeve rotatably mounted on said post, an arm projecting from said sleeve, a drum supported upon said arm, and a connection leading from a point at or near the extremity of said arm around said rollers to said drum.

11. The combination of a post, a laterally-extending arm rotatably mounted thereupon and having an upper and lower track thereon, a carriage movable upon said tracks, strips on either side of said carriage, rods supported by said strips, plates carried by said rods, rollers carried by said post, a connection passing around said rollers, and leading from said arm to said drum and means for rotating the latter.

12. The combination of a post, a sleeve rotatably mounted thereon, an arm secured to said sleeve and consisting of upper and lower T-beams, a bearing 4 interposed between the inner ends of said beams, braces 17 and 18 interposed between the intermediate and outer ends of said beams, arms 26 secured to said beams near their inner extremities and provided with a gear-wheel and drum rotatably mounted thereon, rollers-and-pawl mechanism for operating said drum, legs 44 projecting from said sleeve in a direction opposite to said drum, a roller mounted in said legs, braces 45 extending from said legs 44 to said arm 26, a cap rotatably mounted on the upper portion of said post, rollers carried by said cap, a connection from said drum passing around the rollers carried by said cap, thence under the roller carried by said leg and thence over another set of rollers carried by said cap, said connection having one end secured to the extremity of said arm and the other extremity adapted to be wound upon said drum and a carriage mounted on said arm.

13. The combination of a post, a sleeve rotatably mounted thereon, an arm projecting laterally from said sleeve and having tracks thereon, a roller mounted on said sleeve and extending in a direction opposite to said arm, a drum carried by said arm, a cap rotatably mounted on the upper portion of said post, two series of rollers carried by said cap and a connection extending from said drum around one pair of the rollers carried by said cap, thence downwardly around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connection being secured to an end of said arm.

14. The combination of a post, a sleeve rotatably mounted thereon, an arm projecting laterally from said sleeve and having tracks thereon, a roller mounted on said sleeve and extending in a direction opposite to said arm, a drum carried by said arm, a cap rotatably mounted on the upper portion of said post, two series of rollers carried by said cap, a connection extending from said drum around one pair of the rollers carried by said cap, thence downwardly around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connection being secured to an end of said arm.

and a carriage mounted on said tracks adapted to support a pneumatic tool.

15. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a sleeve rotatably mounted on said post, an arm projecting laterally from said sleeve and adapted to support a carriage for a pneumatic tool, a roller mounted on said sleeve, a cap rotatably supported on the upper portion of said post, a drum carried by said arm, a plurality of sets of rollers carried by said cap, a connection leading from said drum around one set of rollers in said cap, thence around the roller carried by said sleeve, thence upwardly over the other set of rollers carried by said cap, the outer extremity of said connection being secured to an end of said arm.

16. The combination of a post, an arm rotatably mounted thereon and having upper and lower tracks thereupon, a carriage movable on said tracks and consisting of triangular-shaped frames, rollers journaled in the apices of said frames, strips secured to either side of said carriage, rods supported in said strips, plates carried by said rods and a pneumatic tool supported between said plates.

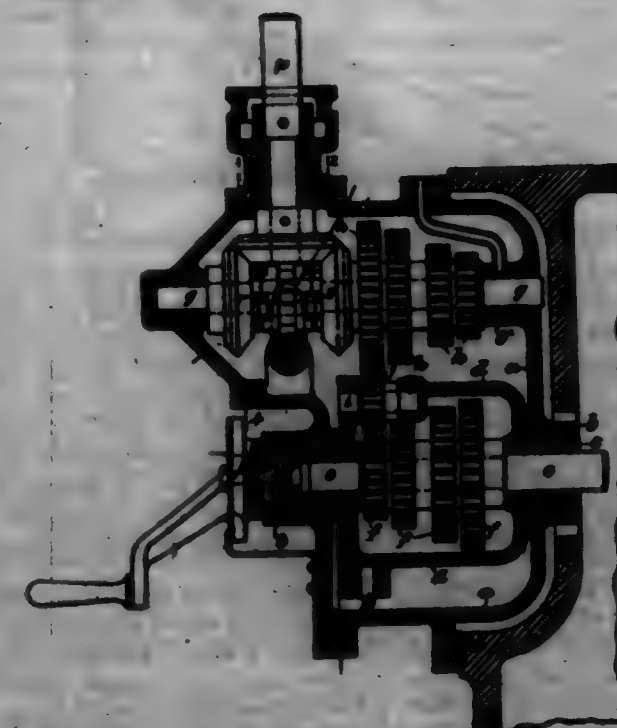
17. The combination of a post, an arm rotatably mounted thereon and having upper and lower tracks thereupon, a carriage movable on said tracks and consisting of triangular-shaped frames, rollers journaled in the apices of said frames, strips secured to either side of said carriage, rods supported in said strips, plates carried by said rods and a pneumatic tool supported between said plates, in combination with rollers mounted in the lower portion of said carriage on either side of said lower track, said rollers being adapted to contact with said track and prevent undue lateral motion of said carriage.

18. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post and having tracks thereon, a carriage movable on said tracks, rods rotatably supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates and a hose leading from said post to said pneumatic tool.

19. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post and having tracks thereon, a carriage movable on said tracks, rods rotatably supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates and a hose leading from said post to said pneumatic tool, in combination with means for raising and lowering said arm and carriage.

20. The combination of a hollow supporting-post adapted to serve as an air-reservoir, a laterally-extending arm rotatably mounted on said post, a carriage movable on said arm, rods supported from said carriage, plates carried by said rods, a pneumatic tool supported between said plates, a hose leading from said post to said pneumatic tool, a drum carried by said arm, rollers carried by said post and a connection leading from the end of said arm around said rollers to said drum.

701,581. VARIABLE-SPEED MECHANISM. ARTHUR LUTHER, Braintree, England. Filed Jan. 22, 1902. Serial No. 66,799. (No model.)



Claim.—1. A variable-speed mechanism comprising a rotatable base having transverse stationary bearings for said transverse, a shaft having

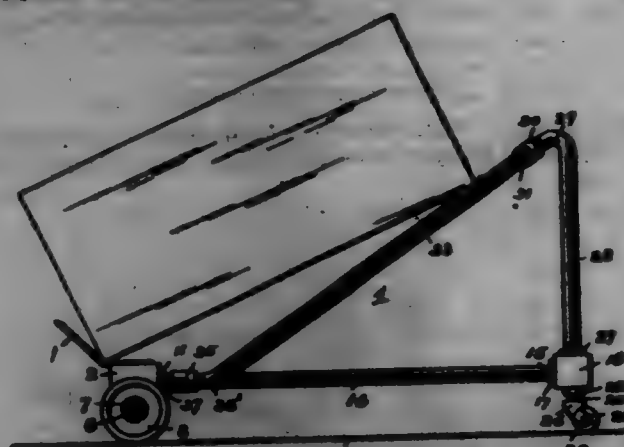
In bearings in said transmission, a second shaft parallel with that first mentioned, stationary bearings for said second shaft, two sets of gear-wheels of different diameters each set fast on one of said shafts with those of each set opposite to those of the other set but at same distance apart therefrom, loose pinions and bearings therefor so located in said box that by turning the latter either of the said pinions may be brought into gear with one of the gear-wheels of each set, and reversing mechanism comprising bevel-wheels and a sliding clutch on said second shaft, substantially as herein described.

2. A variable-speed mechanism comprising a rotatable box having transmission, stationary bearings for said transmission, a shaft having its bearings in said transmission, a second shaft parallel with that first mentioned, stationary bearings for said second shaft, two sets of gear-wheels of different diameters each set fast on one of said shafts with those of each set opposite to those of the other set but at same distance apart therefrom, loose pinions and bearings therefor so located in said box that by turning the latter either of the said pinions may be brought into gear with one of the gear-wheels of each set, means for turning the box, and means for indicating the position of said box with respect to the shafts, substantially as herein described.

3. A variable-speed mechanism comprising a rotatable box having transmission, stationary bearings for said transmission, a shaft having its bearings in said transmission, a second shaft parallel with that first mentioned, stationary bearings for said second shaft, two sets of gear-wheels of different diameters each set fast on one of said shafts with those of each set opposite to those of the other set but at same distance apart therefrom, and loose pinions and bearings therefor so located in said box that by turning the latter either of the said pinions may be brought into gear with one of the gear-wheels of each set, substantially as herein described.

4. A variable-speed mechanism comprising a rotatable box having transmission, stationary bearings for said transmission, a shaft having its bearings in said transmission, a second shaft parallel with that first mentioned, stationary bearings for said second shaft, two sets of gear-wheels of different diameters each set fast on one of said shafts with those of each set opposite to those of the other set but at same distance apart therefrom, loose pinions and bearings therefor so located in said box that by turning the latter either of the said pinions may be brought into gear with one of the gear-wheels of each set, reversing mechanism comprising bevel-wheels and a sliding clutch on said second shaft, means for turning the box and means for indicating the position of said box with respect to the shafts, substantially as herein described.

701,582. TRUCK. WILLIAM E. LAYNE, Newark, N. J. Filed Feb. 14, 1902. Serial No. 94,692. (No model.)



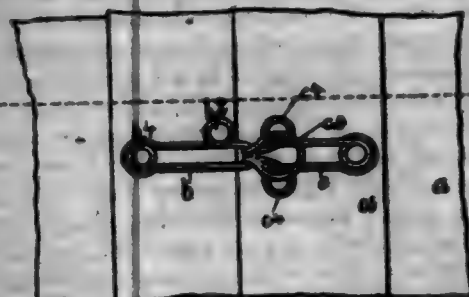
Claim.—1. A truck, comprising a bar at one end, a pair of supporting-wheels connected with said bar, a retaining-structure at the other end of said truck, a supporting-wheel connected with said structure, and a transverse supporting-frame for supporting a package, consisting, essentially, of a horizontal and centrally-arranged connecting-piece between said bar and said structure, a standard on said structure at right angles, or approximately so, to said central bar, and a pair of supporting-pieces between the upper portion of said standard and said bar, all arranged to form a right-angled triangle when viewed from the side and its hypotenuse forming a support for the package, substantially as and for the purposes set forth.

2. A truck, comprising a bar at one end, a pair of supporting-wheels connected with said bar, a retaining-structure at the other end of said truck, a central-frame connected with said structure, a wheel journaled in said central-frame, and a transverse frame for supporting a package, consisting, essentially, of a horizontal and centrally-arranged connecting-piece between said bar and said structure, a standard on said structure at right angles, or approximately so, to said central bar, and a pair of supporting-pieces between the upper portion of said standard and said bar, all arranged to form a right-angled triangle when viewed from the side and its hypotenuse forming a support for the package, substantially as and for the purposes set forth.

3. The herein-described truck, consisting of a bar 2, a bearing means connected with said bar, an axle arranged in said bearing means and secured to said bar 2, receiving-cockets 10, 11 and 12 on said bar, a fixture 16, a receiving-cocket 17 on said fixture, a connecting rod or piece between said cockets 10 and 17, a swivel-wheel connected with said fixture 16, a receiving-cocket 17 on said fixture, a standard 20 in said cocket 17, and connecting-pieces between said cockets 11 and 12 and the upper portion of said standard, to provide a supporting-frame for the support of a package, substantially as and for the purposes set forth.

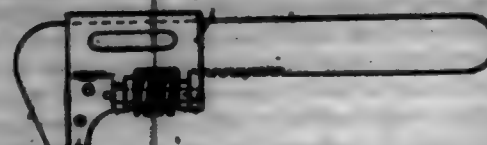
4. The herein-described truck, consisting of a bar 2, a bearing means connected with said bar, an axle arranged in said bearing means and secured to said bar 2, receiving-cockets 10, 11 and 12 on said bar, a fixture 16, a receiving-cocket 17 on said fixture, a connecting rod or piece between said cockets 10 and 17, a swivel-wheel connected with said fixture 16, a receiving-cocket 17 on said fixture, a standard 20 in said cocket 17, a best part 20 on the upper end of said standard, a T-lying connected with said best part 20, and angularly-connecting pieces 23 and 24 between the respective ends of said T-lying and the said cockets 11 and 12, the whole forming a triangularly-shaped trans-frame for the support of a package, substantially as and for the purposes set forth.

701,583. LOCK AND EYE. SARAH W. F. LEE, East Orange, N. J. Filed Feb. 4, 1902. Serial No. 92,110. (No model.)



Claim.—A fastening device of the lock-and-eye type, and composed of two parts, the eye part being oblong or flat-shaped in form and provided at one end with a loop or ring, and at one side and adjacent to the opposite end with a loop or ring, the other part consisting of a lock and body or lock portion, the lock being wider than the transverse width of the flat or oblong portion of the eye part, and provided with a narrow shank, and the lock or body portion being provided with rings or loops, substantially as shown and described.

701,584. WRENCH. DEWEY B. LEE, Springfield, Mass., assignor to Union Manufacturing & Specialty Company, Buffalo, N. Y., a Corporation. Filed Mar. 7, 1902. Serial No. 94,691. (No model.)



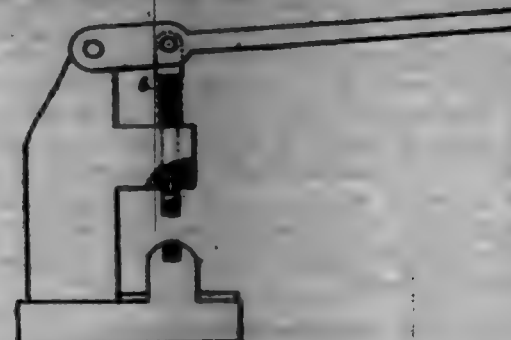
Claim.—1. A blank for the sliding jaw of a wrench comprising a body portion adapted to be folded on itself to embrace the chuck of the wrench, laterally-extending strips on said blank integral therewith, adapted to be bent into an angular shape to form bearings in which the jaw is supported, two jaw projections on said blank, and means for securing the latter together, side by side.

2. A blank for the sliding jaw of a wrench comprising a body portion adapted to be folded on itself to embrace the chuck of the wrench, a laterally-extending strip on each side of the blank, that on one side thereof being bent in an opposite direction to that on the other to form an angular bearing for the jaw; projections on each side of the blank which, together, constitute the jaw proper, and means for securing these projections together.

3. A blank for the sliding jaw of a wrench comprising a body-portion adapted to be folded on itself to embrace the chuck of the wrench, two laterally-extending strips on opposite sides of said blank, the lower edge of one and the upper edge of the other lying in the same plane, said strips, when bent to angular form, constituting a bearing for the ends of a jaw.

701,585. RING-MARKING MACHINE. LOUIS LERN, New York, N. Y. Filed Nov. 12, 1901. Serial No. 92,590. (No model.)

Claim.—1. In a finger-ring-stamping machine, a base, standards on the base, a die-bar having an angular portion, a plate on the base and having a notch to receive said angular portion, clamping-jaws for holding and centering a ring and a plunger.



2. In a ring-stamping machine a base, a standard on the base, a plunger movable in the standard, a lever for operating the plunger, movable jaws below the plunger, a die-bar having an angular portion and a plate on the base, having a notch to receive said angular portion.

701,586. SNAP-HOOK. DEWEY B. LEE, East Orange, N. J. Filed Sept. 14, 1901. Serial No. 78,571. (No model.)



Claim.—1. A snap-hook having a horizontal barrel, a sliding bolt therein and a vertical locking-pin carried by the bolt and passing through the same and engaging the hook for locking the sliding bolt.

2. A snap-hook having a recess or socket, a sliding bolt therein, and a vertical locking-pin carried by the bolt and engaging the socket to lock the bolt.

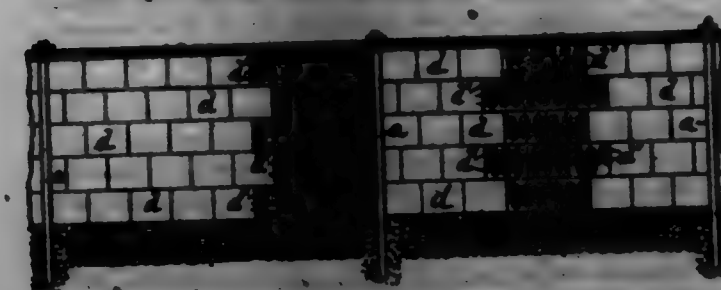
3. A snap-hook, having a socket, a spring sliding bolt arranged in the hook, a vertical locking-pin arranged in the bolt and engaging the socket to lock the bolt, and a spring for forcing the locking-pin into engagement with the socket.

701,587. AFFILIATOR. ALEXANDER LEVI, Brighton, Germany. Filed Feb. 2, 1901. Serial No. 94,690. (No model.)

Claim.—1. In an instrument for introducing liquid medicaments the combination of a straight catheter made of soft India-rubber tapering toward the end, which is closed, and having numerous fine capillary apertures opening externally and a central longitudinal bore, having no communication with the capillary apertures, essentially as described.

2. In an instrument for introducing liquid medicaments the combination of a straight catheter made of soft India-rubber having a heart-shaped head, which is closed, and having numerous fine capillary apertures opening externally and a central longitudinal bore, having no communication with the capillary apertures, essentially as described.

701,588. WALL OR FENCE. GUYARD LEMAS, Montreal, N. E. J. Filed Apr. 4, 1901. Serial No. 94,700. (No model.)



Claim.—1. A wall, fence or analogous structure, composed of a single thickness of tiles or bricks, laid in mortar between appropriate supports, and longitudinal strips of hard-metal wholly embedded in the mortar between the courses and not united to said supports, substantially as described.

2. A wall, fence, &c., composed of thin tiles laid on edge between suitable supports, in mortar; and strips of hard-metal wholly embedded in the mortar between the courses and not united to said supports, substantially as described.

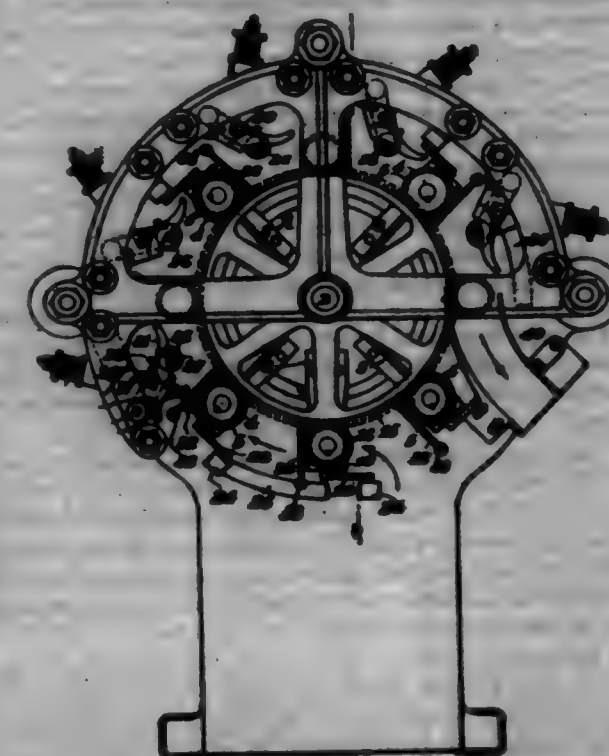
3. A structure composed of a single thickness of laterally-perforated

tiles or blocks, laid in mortar between appropriate supports, and longitudinal strips of hard-metal embedded in the mortar between the courses and not united to said supports, substantially as described.

4. A series of supporting-posts, substantially T-shaped in section; a structure of thin tiles or bricks laid in mortar between such supports, the end tiles of each course entering the channels therein; and strips of hard-metal embedded in the mortar between the courses, substantially as described.

5. A series of supporting-posts substantially T-shaped in cross-section; a structure of thin, perforated tiles laid in mortar between such supports, the end tiles of each course entering the channels therein; and strips of hard-metal embedded in the mortar between the courses and an appropriate cap or coping topping the structure, substantially as described.

701,589. GAS-BRADING MACHINE. ANDREW W. LEVINSKY, Alameda, Cal. Filed Dec. 15, 1901. Serial No. 94,618. (No model.)



Claim.—1. In an automatic gas-brading machine the combination of a rotatable support, an upper and lower set of chucks carried thereon, means whereby the upper chucks may be revolved independently of the drum, and means including a bell-crank lever having one arm connected with the spindle of the lower chuck, and a cam-surface in the path of the end of the other arm of the lever, whereby a lower chuck may be gradually raised to engage and hold a can interspersed between said sets of chucks.

2. In a gas-brading machine the combination of revolvable upper and lower chucks, each of said lower chucks provided with a bell-crank lever having a longer curved arm, the shorter arm of said lever connected to the spindle of said lower chuck in such manner that when the longer curved arm is oscillated in one direction the lower chuck will be made to gradually approach its respective upper chuck and hold a can interspersed therebetween.

3. In an automatic gas-brading machine the combination of a revolving support, rotating chucks thereon between which the cans are held and revolved independently of the support, pivoted arms carrying cam-rollers and means upon said revolving support whereby said pivoted arms are engaged to hold said cam-rollers against the can.

4. In a gas-brading machine, a revolvable drum, rotating chucks thereon between which the cans are held and revolved, pivoted arms carrying cam-rollers, a cam upon each of said arms and means whereby said cam may be engaged to bring the cam-roller into and hold it in engagement with the can.

5. In a gas-brading machine, the combination of a revolving support or drum, means thereon for holding and revolving cans, rollers with which the flanges of said cans are adapted to be engaged and crimped, a cam-surface in connection with said rollers and means upon the drum engaging said surface whereby said rollers are held against the passing cans.

6. In a gas-brading machine, the combination of a revolving drum, means thereon for holding and revolving cans, pivoted arms carrying cam-rollers, a plate on each of said arms a cam-surface on said plate and means by which said guide may be engaged to hold a cam-roller against a passing can.

7. In a can-handling machine the combination of a revolving drum, means thereon for holding and revolving cans, arms carrying cam-rollers, a plate pivoted on each of said arms, a drum cam-roller on said plate, a projection on the drum adapted to engage said rollers to hold the canner against the can and means whereby the pressure of said canner on the can may be regulated.

8. In a can-handling machine the combination of a revolving drum, upper and lower sets of cheeks carried thereon and concentric therewith, connections with a source of power whereby said drum and cheeks are revolved independently of each other and in the same direction, and adjustable means with which the cans are adapted to engage during the rotation of the cheeks and drum.

9. In a can-handling machine the combination of a revolving support or drum, upper and lower cheeks carried thereon said cheeks and drum revolvable independently but in the same direction, a bell-crank lever fulcrumed in relation to the spindle of each of said lower cheeks, said lever having a longer segmental arm adapted to engage a cam whereby the said lower cheek is raised to hold securely a can interposed between said lower cheek and its respective upper cheek, pivoted arms carrying cam-rollers, a cam-roller in connection with each of said arms, a projection on the drum and a roller on the projection adapted to engage said cam-roller whereby the cammer is drawn and held against the passing can and means by which the bell-crank lever may be tripped to separate the cheeks and release the can.

10. In a can-handling machine the combination of a traveling support, sets of rotatable cheeks thereon, a movable arm carrying a cam-roller, a cam on said arm and means for engaging said cam to bring said roller into engagement with the revolving can.

11. In a can-handling machine the combination of a traveling support, sets of rotatable cheeks thereon, a movable member carrying a cam-roller, a cam-roller on said member and a movable arm engaging said cam to draw said roller into and hold it in engagement with the revolving can.

12. The combination with a continuously-revolving can-carrier, drum or support, of a plurality of sets of rotating can-checks thereon, a plurality of swinging arms or levers each furnished with a camming-roller, and interengaging cams and projections for automatically and positively holding and pressing the camming-rollers against the camming-flanges of the cans as the cans are rotated and carried continuously along in the rotating cheeks on the traveling carrier, substantially as specified.

13. The combination with a continuously-moving can carrier or support, of a plurality of sets of rotating can-checks thereon, a plurality of camming-rollers, a plurality of swinging arms mounted on the stationary frame of the machine and carrying said camming-rollers, and interengaging devices on said swinging arms and carrier for forcing and holding the camming-rollers against the rotating cans as they pass, substantially as specified.

14. The combination with a plurality of continuously-traveling rotating sets of can-checks, of a plurality of camming-rollers engaging the rotating cans successively as they pass in their traveling cheeks, and mechanism for positively forcing and holding the camming-rollers against the traveling and rotating cans as they pass, substantially as specified.

15. The combination with a plurality of camming-rollers engaging the rotating cans successively as they pass in their traveling cheeks, and mechanism for positively forcing and holding the camming-rollers against the traveling and rotating cans as they pass, said mechanism comprising interengaging cams and projections, substantially as specified.

16. The combination with a continuously-moving can-carrier having a plurality of sets of rotating can-checks thereon, of a plurality of camming-rollers, and a plurality of interengaging cams and projections for positively forcing and holding the camming-rollers against the rotating cans as they travel past the camming-rollers, substantially as specified.

17. The combination with a continuously-moving can-carrier having a plurality of rotating can-checks thereon, of a camming-roller mounted on a movable device independent of said carrier, and an interengaging cam and projection for forcing and holding the camming-roller against the can as it passes in the traveling and rotating can-check, substantially as specified.

18. The combination with a traveling support or carrier, of a plurality of sets of rotating can-checks thereon, a swinging arm mounted on the stationary frame of the machine and provided with a camming-roller, and interengaging cam and projection members for positively holding the camming-roller against the rotating can as it passes, one of said members being on said swinging arm and the other on said traveling support or carrier, substantially as specified.

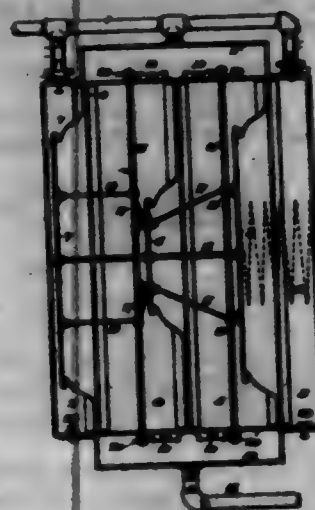
19. The combination with a traveling support or carrier, of a plurality of sets of rotating can-checks thereon, a swinging arm mounted on the stationary frame of the machine and provided with a camming-roller, and a cam and projection for positively holding the camming-roller against

the stationary can as it passes, said cam being on the swinging arm and said projection on the stationary frame, substantially as specified.

20. The combination with a traveling support or carrier having a plurality of sets of rotating can-checks thereon, a plurality of swinging arms mounted on the stationary frame of the machine, a cam and a camming-roller on each of said arms, and a plurality of projections on the carrier engaging said cam on said arms to press and hold the camming-rollers against the cans as they pass, substantially as specified.

21. The combination with a traveling support or carrier having a plurality of sets of rotating can-checks thereon, a plurality of swinging arms mounted on the stationary frame of the machine, a cam and a camming-roller on each of said arms, a plurality of projections on the carrier engaging said cam on said arms to press and hold the camming-rollers against the cans as they pass, and a spring for each of said swinging arms, substantially as specified.

701,590. GAS AND AIR MIXER. GEORGE A. LOHMEYER, Phila. Pa. Filed May 12, 1901. Serial No. 60,380. (No model.)



Claim.—1. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing a gas-chamber and an air-chamber, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm acted upon by the gas in the gas-chamber, and means whereby the movement of said diaphragm is caused to effect compression of air in the air-chamber for admixture with the gas, substantially as specified.

2. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing a pair of gas-chambers and a pair of air-chambers, valve mechanism governing the flow of gas into and from said gas-chambers, one or more movable diaphragms acted upon by the gas in the gas-chambers and caused to move by the difference in pressure of the gas in said chambers, and means whereby the diaphragm movement is caused to effect inflow of air into one air-chamber simultaneously with the expulsion of air under pressure from the other air-chamber for admixture with the gas, substantially as specified.

3. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing a gas-chamber and an air-chamber, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm separating said gas and air chambers, and means whereby the flow of gas into and from the gas-chamber is caused to effect movement of the diaphragm separating the gas and air chamber and thereby compress air in the air-chamber for admixture with the gas, substantially as specified.

4. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing a gas-chamber and an air-chamber, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm acted upon by the gas in the gas-chamber, means whereby the movement of said diaphragm is caused to effect compression of air in the air-chamber for admixture with the gas, and valve-operating mechanism actuated by the movable diaphragm, substantially as specified.

5. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing a pair of gas-chambers, and a pair of air-chambers, valve mechanism governing the flow of gas into and from said gas-chambers, one or more movable diaphragms acted upon by the gas in the gas-chambers and caused to move by reason of the difference in pressure in said gas-chambers, means whereby the diaphragm movement is caused to effect inflow of air into one air-chamber simultaneously with the expulsion of air under pressure from the other chamber for admixture with the gas

and valve operating mechanism actuated by connection with the movable diaphragm structure of the apparatus, substantially as specified.

6. A gas and air mixing apparatus in which are combined a casing having valved inlet for external air and closed against outflow thereto and containing gas and air chambers, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm separating said gas and air chambers, and means whereby the flow of gas into and from the gas-chamber effects movement of the diaphragm separating the gas and air chamber, means whereby such movement of the diaphragm is caused to compress air in the air-chamber for admixture with the gas, and valve-operating device actuated by connection with the movable diaphragm, substantially as specified.

7. A gas and air mixing apparatus in which are combined a casing having two gas-chambers and two air-chambers, movable diaphragms separating said gas and air chambers, and having connection with each other inside of the casing, valve mechanism whereby the gas is admitted to and exhausted from the gas-chambers alternately, and the diaphragms are caused to move by reason of the difference in pressure in the two gas-chambers, and means whereby the movement of the diaphragms is caused to effect inflow of air into one air-chamber simultaneously with the expulsion of air from the other air-chamber for admixture with the gas, substantially as specified.

8. A gas and air mixing apparatus in which are combined a casing having two gas-chambers and two air-chambers, movable diaphragms separating said gas and air chambers, and having connection with each other inside of the casing, valve mechanism whereby the gas is admitted to and exhausted from the gas-chambers alternately so as to cause movement of the diaphragms by reason of the difference in pressure in the two gas-chambers, means whereby the movement of the diaphragms is caused to draw air into one air-chamber simultaneously with the expulsion of air under pressure from the other air-chamber for admixture with the gas, and valve-operating device actuated by connection with the movable diaphragm structure of the apparatus, substantially as specified.

9. A gas and air mixing apparatus in which are combined a casing having a pair of gas-chambers separated by a movable diaphragm, a pair of air-chambers separated from said gas-chambers by movable diaphragms of greater area than that which separates the gas-chambers, valve mechanism for controlling the flow of gas into and its discharge from each gas-chamber, and means whereby the movement of the diaphragms is caused to effect compression of air in the air-chambers alternately for admixture with the gas, substantially as specified.

10. The combination in a gas and air mixing apparatus, of a casing having a pair of gas-chambers separated by a movable diaphragm, a pair of air-chambers separated from said gas-chambers by movable diaphragms of greater area than that which separates the gas-chambers, valve mechanism for controlling the flow of gas into and its discharge from each gas-chamber, means whereby the movement of the diaphragms is caused to effect compression of air in the air-chambers alternately for admixture with the gas, and valve-operating mechanism actuated by connection with the movable diaphragm structure of the apparatus, substantially as specified.

11. A gas and air mixing apparatus in which are combined a casing having a gas-chamber, an air-chamber containing a bellows, valve mechanism governing the flow of air and gas into and from said gas-chamber, a diaphragm acted upon by the gas in said gas-chamber, and means whereby the movement of said diaphragm is caused to effect movement of the bellows in the air-chamber and thereby alternately draw air into and expel it under pressure from said air-chamber and bellows for admixture with the gas, substantially as specified.

12. A gas and air mixing apparatus in which are combined a casing having a gas-chamber and an air-chamber containing a bellows, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm acted upon by the gas in the gas-chamber, valve-operating mechanism actuated by connection with said diaphragm, and means whereby the movement of the diaphragm is caused to operate the bellows in the air-chamber and thereby alternately draw air into and expel it under pressure from the air-chamber and bellows, substantially as specified.

13. A gas and air mixing apparatus in which are combined a casing having a gas-chamber and an air-chamber containing a bellows, a movable diaphragm separating said gas and air chambers, valve mechanism governing the flow of gas into and from the gas-chamber, and means whereby the movement of the diaphragm under the varying pressure in the gas-chamber is caused to effect the operation of the bellows in the air-chamber and thereby alternately draw air into and expel it under pressure from the air-chamber and the bellows for admixture with the gas, substantially as specified.

14. A gas and air mixing apparatus in which are combined a casing having a gas-chamber and an air-chamber containing a bellows, valve mechanism governing the flow of gas into and from said gas-chamber, a movable diaphragm separating the gas and air chambers and deriving its

movement from the gas in the gas-chamber, and means whereby said movement of the diaphragm is caused to effect the operation of the bellows in the air-chamber so as to alternately draw air into and expel it under pressure from said air-chamber and bellows, and valve-operating mechanism actuated by connection with the movable diaphragm, substantially as specified.

15. A gas and air mixing apparatus in which are combined a casing having a pair of gas-chambers and a pair of air-chambers each containing a bellows, valve mechanism whereby the flow of gas into and from the gas-chambers is governed so as to cause one chamber to fill with gas as the other is being discharged, one or more movable diaphragms actuated by reason of the difference of pressure of the gas in the two gas-chambers, and means whereby the diaphragm movement is caused to operate the bellows in the air-chambers so as to alternately draw air into and expel it from said air-chambers and bellows, substantially as specified.

16. A gas and air mixing apparatus in which are combined a casing having a pair of gas-chambers and a pair of air-chambers each containing a bellows, valve mechanism for governing the flow of gas into and from the gas-chambers so that one chamber fills with gas as the other is being discharged, one or more movable diaphragms whose movement is caused by difference of pressure of the gas in the two gas-chambers, means whereby the bellows in the air-chambers are operated by the diaphragm movement so as to alternately draw air into and expel it under pressure from said bellows and air-chambers, and valve-operating mechanism actuated by connection with the movable diaphragm structure of the apparatus, substantially as specified.

17. A gas and air mixing apparatus in which are combined a casing having a pair of gas-chambers, and a pair of air-chambers each air-chamber containing a bellows, valve mechanism governing the flow of gas into and its discharge from each gas-chamber, movable diaphragms separating the gas-chambers from the air-chambers, and means whereby the movement of the diaphragms by reason of the difference of pressure of the gas in the two gas-chambers is caused to operate the bellows in the air-chambers and thereby alternately draw air into and expel it under pressure from said bellows and air-chambers, substantially as specified.

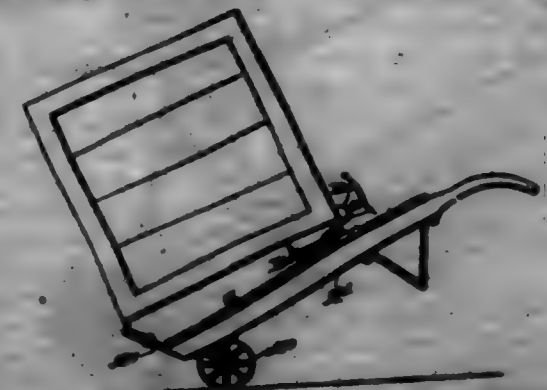
18. A gas and air mixing apparatus in which are combined a casing having a pair of gas-chambers and a pair of air-chambers, each of said chambers containing a bellows, valve mechanism controlling the flow of gas into and its discharge from each of said gas-chambers, movable diaphragms separating the gas-chambers from the air-chambers, means whereby the movement of said diaphragms under the influence of difference of pressure of the gas in the two gas-chambers is caused to operate the bellows in the air-chambers and alternately draw air into and expel it under pressure from said bellows and air-chambers, and valve-operating mechanism actuated by connection with the diaphragm structure of the apparatus, substantially as specified.

701,591. GUNPOWDER. EARL G. LOHMEYER, Worcester, Mass. Filed Feb. 20, 1902. Serial No. 56,176. (No model.)

Claim.—1. A gunpowder in which nitroglycerin, nitrocellulose and diethyl phthalate are combined, substantially as herein described.

2. A gunpowder consisting of nitroglycerin, nitrocellulose, mineral jelly and diethyl phthalate, substantially as herein described.

701,592. LOADING ATTACHMENT FOR HAND-TRUCK. THOMAS J. LYNN, Chicago, Ill. Filed Mar. 20, 1901. Serial No. 54,082. (No model.)



Claim.—1. The combination with a hand-truck, of a slotted device connected therewith and movable endwise thereon, said device being constructed to shift longitudinally of the truck during the loading of a box or the like thereon.

2. The combination with a hand-truck, provided at the lower end

thereof with means for preventing a box slipping thereon, of a clutch device connected therewith and movable endwise thereon, said clutch device being constructed to shift longitudinally on the track during the loading of a box or the like thereon.

3. The combination with a hand-truck, of a longitudinal guide-rail thereon, a clutch device having interlocking connection with and sliding endwise on said rail, said clutch device being constructed to shift on said rail during the loading of a box or the like on the truck.

4. The combination with a hand-truck, provided at the lower end thereof with a series of teeth or corrugations, of a central longitudinal guide-rail thereon, a clutch device having interlocking connection with and sliding endwise on said rail, said clutch device being constructed to shift on said rail during the loading of a box or the like on the truck.

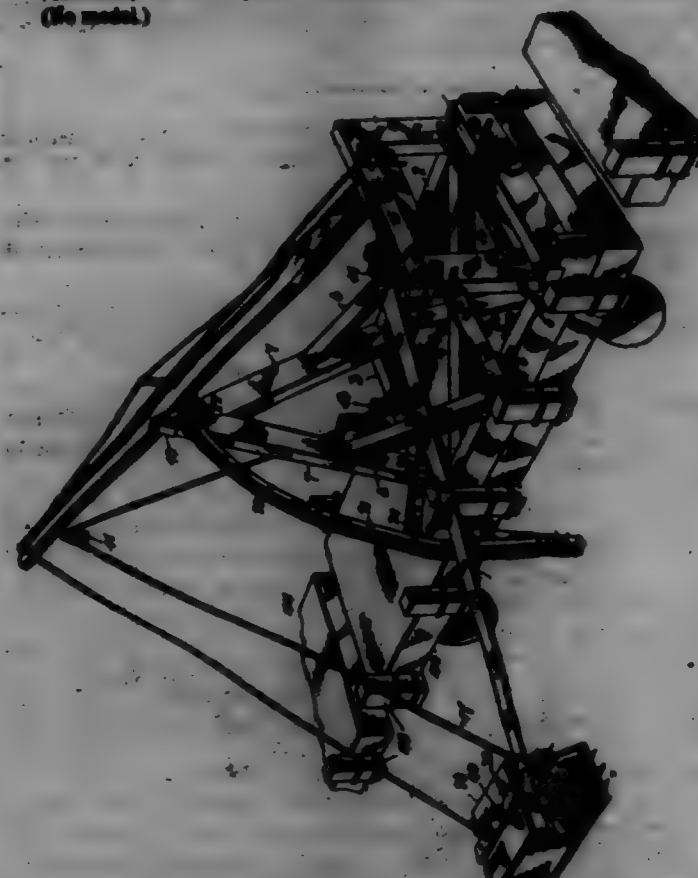
5. The combination with a hand-truck having a guide or way thereon, a member freely slidable thereon, and a clutch device comprising a lower member pivoted to the sliding member and an upper member pivoted to the lower member, said lower and upper members being constructed to first grasp a load, and then shift their grasp to the center of gravity of the load changes in being lifted by the truck.

6. The combination with a hand-truck provided at its lower end with means preventing the box slipping thereon, of a guide-rail attached to the front thereof, a clutch device embracing a plate having interlocking and endwise-movable connection with the rail, a lower clutch member pivoted at its upper end to said plate and provided with laterally-separated prongs and an upper clutch member provided with a central prong and pivoted to the lower clutch member between the pivot of the latter and its prongs, said clutch constructed to shift their hold on a load during the transfer of the center of gravity of the load from its resting-place to the truck, substantially as described.

7. The combination with a hand-truck, of a clutch device comprising upper and lower clutch members adapted to grasp a box above and below the upper corner thereof, and a handle on the upper clutch member having a part adapted to engage with the truck to afford means by which said device is suspended at the upper end of the truck.

8. The combination with a hand-truck, of a clutch device comprising upper and lower clutch members adapted to grasp a box above and below the upper corner thereof, and a handle on the upper clutch member comprising a lateral member which has swiveling or relative connection with said upper clutch member whereby it may be turned to overhang a part of the truck and said clutch to thereby be suspended on the truck.

701,593. EXCAVATING AND LOADING MACHINE. DANIEL H. HARRIS, Vincennes, Ind. Filed Sept. 5, 1901. Serial No. 74,266. (No model.)



Claim.—1. An excavating and loading machine comprising a support, a boom, a scoop carried by the boom, means for raising and lowering the boom, and an inclined guide, separate from said means, for the movement of the boom.

2. An excavating and loading machine consisting of a carrier adapted

to be drawn over a movable support, and means on the carrier for excavating at the side of the movable support and for loading the excavated material on the movable support, said means being propelled by the movement of the latter during the excavating operation.

3. An excavating and loading machine consisting of a carrier adapted to be supported on and to be drawn over a train of movable cars, a boom on the carrier, means for raising and lowering the boom in an inclined plane and a scoop carried by the boom.

4. An excavating and loading machine consisting of a carrier provided with runners, means for drawing the carrier along a train of movable cars, a scoop supported from the carrier to excavate by the movement of the train, and means for elevating the scoop to discharge on the cars.

5. In a machine of the class described, the combination of a support, a boom swiveled at one end thereof, a scoop carried by the boom, means for raising and lowering the boom, and an adjustable inclined guide for the movement of the boom.

6. In a machine of the class described, the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, an adjustable inclined guide for the boom, and a scoop adjustably attached to the boom.

7. In a machine of the class described, the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, an adjustable inclined guide for the boom, a block adjustably secured to the boom, and a scoop having a ball pivotally secured to said block.

8. In a machine of the class described, the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, a guide for the boom, a scoop pivoted on the boom, and an adjustable arm on the boom engaging an adjustable stop on the scoop to prevent tilting of the latter during excavating.

9. In a machine of the class described, the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, a guide for the boom, a scoop pivoted in its open end to the boom, an adjustable arm on the boom engaging an adjustable stop on the scoop to prevent tilting of the latter during excavating, and a cord attached to the closed end of the scoop and adapted to right the latter at the end of its downward movement.

10. In a machine of the class described the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, a scoop carried by the boom, an inclined guide for the movement of the boom, an extension adjustably secured to the guide, and a brace for the extension.

11. In a machine of the class described, the combination of a support, a boom swiveled thereon, means for raising and lowering the boom, a scoop carried by the boom, an inclined guide for the movement of the boom, and a roller on the boom contacting with the guide.

12. In a machine of the class described, the combination of a carrier adapted to be drawn along a movable support, a boom swiveled at one end thereof, a scoop carried by the boom, means for raising and lowering the boom, an inclined guide for the movement of the boom, and clamps for temporarily securing the carrier to the support.

13. In a machine of the class described, the combination of a carrier, an upright on the carrier, a scoop, a boom operatively connected with the scoop, and a shiftable support on the upright for the boom whereby the scoop may be used at either side of the carrier.

701,594. CAR-COUPPLING. HENRY E. MARSHALL, Lincoln, Neb. Filed Nov. 15, 1901. Serial No. 68,711. (No model.)



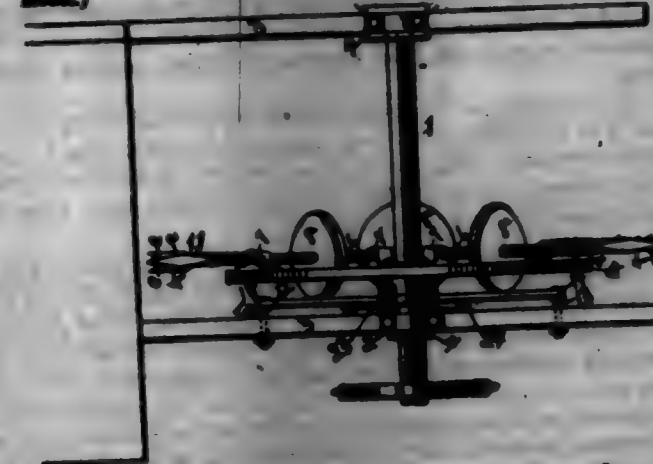
Claim.—1. The combination of a draft-frame provided with end couplers, a draw-head having a shank or draw-bar extending between the sides of the draft-frame and connected with the latter, longitudinal draft-bars connected directly to the draw-head at opposite sides of the shank or draw-bar, and cushioning-springs located at opposite sides of the shank or draw-bar and arranged in the said couplers and interposed between the draft-frame and the draw-head, substantially as described.

2. The combination of a draft-frame, a draw-head having a shank or bar and provided at opposite sides of the same with recesses located at the back of the draw-head, draft-rods provided with slots or openings arranged in the recesses of the draw-head, lugs mounted on the draw-head and passing through the slots or openings of the draft-rods, and cushioning-springs interposed between the back of the draw-head and the draft-frame, substantially as described.

3. The combination of an attachment-frame provided at opposite sides with longitudinally-located openings, draft-rods loosely arranged in the longitudinally-located openings, a draw-head having a shank arranged between the sides of the draft-frame, the back of the draw-head being connected to the draft-rods, and coiled springs disposed on the draft-rods and interposed between the attachment-frame and the draw-head, substantially as described.

4. The combination of an attachment-frame having end couplers and provided with longitudinal openings, draft-rods extending through the openings of the draft-frame and provided at their ends with slots, a draw-head provided at opposite sides with couplers receiving the ends of the draft-rods, lugs mounted on the draw-head and passing through the slots of the rods, and springs arranged on the rods and seated in the couplers of the draft-frame and engaging the back of the draw-head, substantially as described.

701,595. FEATHERING PADDLE-WHEEL. JAMES HENRY WELLS, Wadsworth, Ohio. Filed June 15, 1901. Serial No. 64,662. (No model.)



Claim.—1. A feathering paddle-wheel, comprising a shaft, a paddle-wheel support or body portion mounted thereon and provided with a series of openings or recesses in its face, a series of radially-extending axially-rotating paddle-shafts mounted in suitable bearings attached to the said paddle-wheel support or body portion, a series of friction-wheels mounted on the shafts and having their peripheries extending through the said openings, and a suitably-supported friction-plate mounted adjacent to the side of the said paddle-wheel support or body portion whereby the said friction-wheels are brought into engagement therewith to rotate the said paddle-shafts, substantially as described.

2. A paddle-wheel, consisting of the main body portion thereof mounted on a shaft and provided with a series of openings or recesses in its face and carrying a series of radial axially-rotating paddle-shafts provided with friction-wheels the peripheries of which extend through the said openings or recesses and which are adapted to come into contact with and ride upon a friction-plate suitably mounted adjacent to the said paddle-wheel whereby the said paddle-shafts are rotated, paddle-shafts mounted on the said paddle-shafts, and means attached to the paddles whereby the same are held in line with the periphery of the wheel during a portion of its revolution.

3. A feathering paddle-wheel, comprising a wheel-support or body portion mounted on a shaft and provided with a series of openings in its face, a series of radially-extending axially-rotating paddle-shafts mounted in suitable bearings attached to the said wheel-support or body portion, a series of friction-wheels mounted on the said paddle-shafts and extending through the said openings, a friction-plate suitably mounted beneath the paddle-wheel shaft and parallel with and adjacent to the side of the paddle-wheel body whereby the said friction-wheels come into engagement therewith to rotate the said paddle-shafts during a portion of the revolution of the paddle-wheel, and means connected to the paddles whereby the same are kept in line with the periphery of the wheel during that portion of the revolution of the paddle-wheel when the said paddle-shafts are not being rotated by the engagement of the friction-wheels with the friction-plate.

4. In a feathering paddle-wheel, a feathering-paddle attached to the end of a shaft and provided near its ends with feathers or wings pivotally attached to the sides thereof and which when moved in one direction will lie flat to the side of the paddle but when moved in the opposite direction are brought into contact with stops which hold the wings outwardly at an angle to the side of the paddle, substantially as described.

5. In a paddle-wheel, the combination with a driving-shaft, of a wheel connected thereto, radial axially-rotating paddle-shafts carried by the wheel, friction-wheels mounted on the said paddle-shafts and extending through openings or recesses in the body of the wheel, a friction-plate suitably mounted adjacent to and parallel with the side of the said wheel whereby the said friction-wheels are rotated during the lower half

of the revolution of the paddle-wheel, means connected to the said friction-plate whereby the same is held in position and rendered oscillative, and means connected to the paddles whereby the same are held in line with the periphery of the paddle-wheel during the upper half of its revolution, substantially as described and for the purpose set forth.

6. In a feathering paddle-wheel, the combination with an axially-rotating paddle-shaft provided with a friction-wheel adapted to come into contact with a friction-plate whereby the same is rotated during a portion of the revolution of the paddle-wheel; of a paddle attached to the end of the shaft and provided at or near its ends with feathers or wings pivotally attached thereto and which when moved in one direction will lie flat to the side of the paddle but when moved in the opposite direction are brought into contact with stops which hold the wings outwardly at an angle to the side of the paddle whereby the same is held in line with the periphery of the paddle-wheel when the said friction-wheel is not being operated upon by means for rotating the same.

7. In a feathering paddle-wheel, a radial axially-rotating paddle-shaft mounted in suitable bearings attached to the main body portion thereof and provided with a friction-wheel adapted to come into engagement with a friction-plate whereby the said shaft is rotated during a portion of the revolution of the paddle-wheel, and a feathering-paddle attached to its end and provided with means for holding the paddle in line with the periphery of the paddle-wheel when the said friction-wheel is not in engagement with the said friction-plate.

8. In a feathering paddle-wheel, a friction-plate suitably mounted beneath the paddle-wheel shaft and adjacent to the side of the main body portion thereof, means connected to the said friction-plate whereby the same is held in position and the friction-wheels rotated during a portion of the revolution of the paddle-wheel; and means for rendering the said friction-plate oscillative.

9. In a paddle-wheel, the combination with the main body portion thereof mounted on a shaft, and provided with a series of openings or recesses in its face; of a series of radial axially-rotating paddle-shafts mounted thereon and provided with friction-wheels the peripheries of which extend through the said openings or recesses, and a friction-plate mounted adjacent to the paddle-wheel body whereby the said friction-wheels are adapted to come into contact therewith for rotating said paddle-shafts during a portion of the revolution of the paddle-wheel.

10. In a paddle-wheel, the combination with the main body portion thereof mounted on a shaft and provided with a series of openings or recesses in its face and carrying a series of radial axially-rotating paddle-shafts provided with friction-wheels the peripheries of which extend through the said openings or recesses; of a friction-plate suitably mounted adjacent to the side of the paddle-wheel body whereby the said friction-wheels come into engagement therewith to rotate the said paddle-shafts during a portion of the revolution of the paddle-wheel, and means attached to the paddles for holding the same in line with the periphery of the paddle-wheel when the said friction-wheels are not in engagement with the friction-plate.

11. A paddle-wheel, consisting of a main body portion mounted on a shaft and provided with a series of openings in its face, a series of radially-extending axially-rotating paddle-shafts carried by the main body portion, a series of friction-wheels mounted on said paddle-shafts and extending through the said openings, a friction-plate suitably mounted adjacent to the side of the main body portion of the wheel whereby the said friction-wheels come into engagement therewith to rotate the said paddle-shafts during a portion of the revolution of the paddle-wheel, and means connected to the paddles whereby the same are kept in line with the periphery of the wheel during that portion of the revolution of the paddle-wheel when the said paddle-shafts are not being rotated by the engagement of the friction-wheels with the friction-plate.

12. In a paddle-wheel, a main body portion mounted on a shaft, a series of radial axially-rotating paddle-shafts mounted on the said main body portion and provided with friction-wheels adapted to come into contact with and ride upon a friction-plate whereby the said shafts are rotated, a friction-plate mounted adjacent to the said main body portion thereof, means connected to the said friction-plate whereby the same is held in position to engage the said friction-wheels, and feathering-paddles attached to the said paddle-shafts and provided with means whereby the same are held in line with the periphery of the paddle-wheel when the said friction-wheels are not in engagement with the friction-plate.

13. In a feathering paddle-wheel, the combination with a rotating paddle-shaft provided with a friction-wheel adapted to come into engagement with a friction-plate whereby said shaft is rotated during a portion of the revolution of the paddle-wheel; of a paddle mounted on the said paddle-shaft and provided with means whereby the same is held in a line with the periphery of the paddle-wheel when the said friction-wheel is not in engagement with the friction-plate.

14. A paddle-wheel, consisting of a main body portion mounted on a shaft, a series of radially-extending axially-rotating paddle-shafts car-

ried by the said main body portion, a series of friction-wheels mounted on said paddle-shafts and adapted to come into contact with and ride upon a friction-plate whereby the said paddle-shafts are rotated during a portion of the revolution of the paddle-wheel, a friction-plate mounted adjacent to the main body portion of the paddle-wheel, means connected to the friction-plate whereby the same is held in position and rendered operative, paddles mounted on the said paddle-shafts, and means connected thereto whereby the same are held in line with the periphery of the wheel when the friction-wheels are not in engagement with the friction-plate.

15. In a paddle-wheel, the combination with the main body portion thereof mounted on a shaft; of a series of radial axially-rotating paddle-shafts provided with friction-wheels adapted to come into engagement with a friction-plate whereby the said paddle-shafts are rotated during a portion of the revolution of the paddle-wheel, and a series of paddles attached to the said paddle-shafts and provided with means whereby the same are held in line with the periphery of the wheel when the friction-wheels are not in contact with the friction-plate.

16. In a paddle-wheel, the combination, with the main body portion thereof mounted on a shaft; of a series of paddle-shafts mounted thereon, paddles attached to the said paddle-shafts, and means attached to said paddles whereby the same are held in line with the periphery of the paddle-wheel during a portion of its revolution.

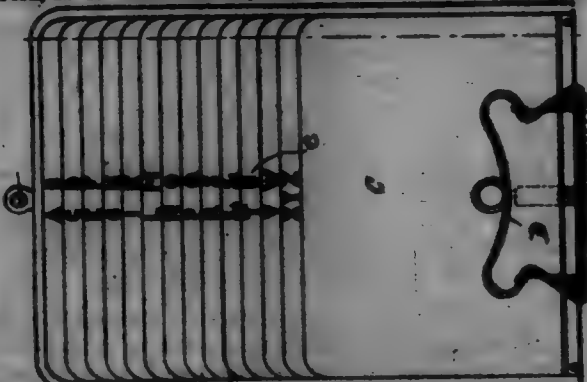
17. The combination, in a paddle-wheel, with a series of paddle-shafts carried by the main body portion thereof; of a series of friction-wheels mounted thereon for revolving the same during a portion of the revolution of the paddle-wheel, a series of paddles attached to the paddle-shafts, and means attached to the paddles whereby the same are held in line with the periphery of the paddle-wheel during the upper portion of its revolution.

18. A paddle-wheel, consisting of the main body portion thereof mounted on a shaft and carrying a series of radial axially-rotating paddle-shafts provided with friction-wheels adapted to come into engagement with and ride upon a friction-plate suitably mounted adjacent to the said main body portion whereby the said paddle-shafts are rotated during the lower portion of its revolution, paddles attached to the paddle-shafts, and means attached to the paddles whereby the same are kept in line with the periphery of the paddle-wheel during the upper portion of its revolution.

19. In a feathering paddle-wheel, the combination with an axially-rotating paddle-shaft provided at its end with a paddle; of mechanism attached to the said paddle whereby the same is held in line with the periphery of the paddle-wheel when the said paddle-shaft is not being operated upon by means for rotating the same.

20. In a feathering paddle-wheel, a series of feathers or wings pivotally attached to a paddle whereby the same is held in line with the periphery of the paddle-wheel when the paddle-shaft is not being operated upon by means for rotating the same.

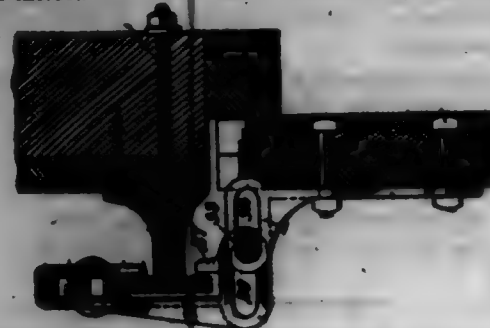
701,596. TELEPHONE CALL-LINE. MORRIS HENRIKSEN, New York, N. Y. Filed Nov. 14, 1901. Serial No. 24,565. (No model.)



Claim.—A telephone call-line, consisting of a back having a suspension device attached to its upper end, and a cover hinged to the lower end of said back and covering the lower half of the same, a plurality of sheets of uniformly-increasing length from the front to the back sheet between said cover and back, said sheets being evenly disposed at their lower edges and having extending portions provided at the upper edges of said sheets which project successively each beyond the preceding one, in step arrangement from the upper edge of the cover, covering provided on said sheets at an equal distance from the upper edges thereof, and means for securing the sheets together adjacent said covering, and a spring closing means for said cover, substantially as shown.

701,597. DOOR-HANGER. FRED C. HENRIK, Washington, W. Va. Assignor of one-fourth to J. W. E. Henrich, Washington, W. Va. Filed May 14, 1901. Serial No. 21,770. (No model.)

Claim.—1. A door-hanger comprising sections, one of which is adapted to be secured to a door, the other being arranged to movably engage a supporting-track, each of said sections being further provided with a detent, and a device connecting the sections and movably engaging in the detent thereof.

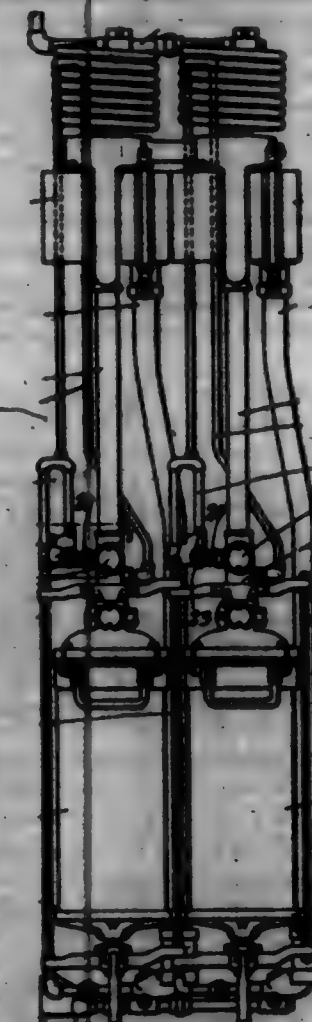


2. A door-hanger comprising sections one of which is adapted to be secured to a door, the other being arranged to movably engage a supporting-track, each of said sections being provided with transversely-disposed detents, portions of said detents being located in alignment, and a roller rotatably mounted in the aligned portions of said detents and being movable therein.

3. A door-hanger comprising sections, one of which is adapted to be secured to a door, the other being arranged to movably engage a supporting-track, each of said sections being provided with a horizontal transversely-disposed detent arranged in overlapping relation, and a roller engaging in said detents and movable therein.

4. The combination with a door, of a track located above the door, and a hanger connecting the door and track, said hanger comprising two sections, one of which is composed of an upright stirrup having shoulders that engage over the edges of the track, a runner-wheel carried by the stirrup and bearing upon the track, said stirrup being further provided with a depending foot having a horizontal detent disposed transversely of the track, the other section being secured to the door and having spaced jaws which embrace the foot of the first-mentioned section, said jaws being provided with detents disposed transversely to the door, and a roller connecting the sections and passing through the several detents thereof.

701,598. ACETYLENE-GAS GENERATOR. JOHN A. HENRIK, Chicago, Ill. Assignor to the Adams and Westlake Company, a Corporation of Illinois. Filed Jan. 2, 1901. Serial No. 41,922. (No model.)



Claim.—1. In an acetylene-generator, in combination, water-supply and gas-distributing pipes, a nipple common to and having a valve

for controlling both sets of pipes, a generating-cell adapted to engage each nipple, and a vent-pipe leading from each nipple below its valve and opening to the water-pipe.

2. In an acetylene-generator, in combination, a water-reservoir, a water-delivery pipe leading therefrom, a gas-conveying pipe, a nipple common to the water and gas pipes and having a valve for controlling both, a generating-cell adapted for attachment to the nipple, and a vent-pipe in loop form leading from the nipple below its valve to the water-pipe and extending above the reservoir.

701,599. COPY-HOLDER. JOHN E. McKEITH, Poplar, Kans. Filed Feb. 12, 1901. Serial No. 44,982. (No model.)



Claim.—1. A copy holder or case, comprising a folder folded longitudinally into four separate leaves or parts which are integrally connected, two of said leaves or parts being connected at one edge to form a copy-receptacle, and means whereby the receptacle is held in an inclined position by the other two parts of the folder to serve as a display-surface, substantially as shown and described.

2. A copy holder or case comprising a sheet folded longitudinally into four separate parts or leaves which are flexibly connected and two of which are connected to form a copy-receptacle, and means whereby the receptacle is held in an inclined position by the other two parts of the folder, so as to serve as a display-surface, and a plurality of copies secured in one end of said receptacle by a pivot-pin, substantially as shown and described.

3. A copy-holder consisting of a four-leaf folder, two adjacent leaves or parts of which are united to form a receptacle open at one side and at both ends, and means for holding one side of said receptacle in an inclined position by the other two parts of the folder, and a plurality of copies secured by a pivot-pin in one end of said receptacle, one of the side walls of said receptacle being also provided with a spring-clip.

4. A copy holder or case, comprising a four-leaf folder two leaves of which are united at one edge to form a receptacle open at the ends and at one side, said leaves being connected at one end by a rivet or cyclet, a plurality of copies within said receptacle and held therein by said rivet or cyclet, said copies being adapted to be turned outwardly through the open side of said receptacle, substantially as shown and described.

5. A copy holder or case, comprising a folder two leaves of which are connected at one edge to form a receptacle open at both ends and at one side, said folder being also provided with a male and a supplemental flap the supplemental flap being provided with a transverse detent in one edge thereof, a disk secured at the inner end of said detent, a double cord passed through the closed side of said receptacle and through the fold of the flap at the open side thereof, and a spring-clip secured to the back of said receptacle adjacent to the open side thereof, substantially as shown and described.

6. A copy holder or case comprising a folder two leaves of which are connected at one edge to form a receptacle open at both ends and at one side, said folder being also provided with a male and a supplemental flap the supplemental flap being provided with a transverse detent in one edge thereof, a disk secured at the inner end of said detent, a double cord passed through the closed side of said receptacle and through the fold of the flap at the open side thereof, and a spring-clip secured to the back of said receptacle adjacent to the open side thereof, said receptacle being also provided with a plurality of copies secured by a pivot at one end thereof, and adapted to be turned outwardly through the open side thereof, substantially as shown and described.

701,600. SAND-BOX. JOHN D. McKEITH, St. Louis, Mo. Filed Oct. 9, 1901. Serial No. 75,157. (No model.)

Claim.—The combination of a pair of horizontal flat blades, each clamping substantially at a right angle to a supporting-standard, said standards attached to a handle, and a second pair of standards attached to the same handle substantially at a right angle to the first pair of standards,

and each standard supporting a vertical blade at a substantially right angle to it.



701,601. HAIR-CLIPPER. ROBERT E. McKEITH, Chicago, Ill. Filed Oct. 12, 1901. Serial No. 75,462. (No model.)



Claim.—1. In a device of the character described, a pair of integral substantially rectangular blades having their rear ends extended to form handles, said blades having their inner surfaces connected throughout and carrying a series of integral clipping-teeth on their forward ends, said blades being pivotally connected near their forward ends, the outer faces of the ends tapering to the cutting-teeth, substantially as described.

2. In hair-clippers, a pair of substantially rectangular integral blades the rear ends of which are extended to form integral handles and which have a series of cutting-teeth formed integral with the front ends thereof, and a pivotal connection between said blades slightly to the rear of said front ends whereby the blades and integral handles may have an opposite lateral movement with relation to one another and be disengaged when said blades are at a substantial right angle, substantially as described.

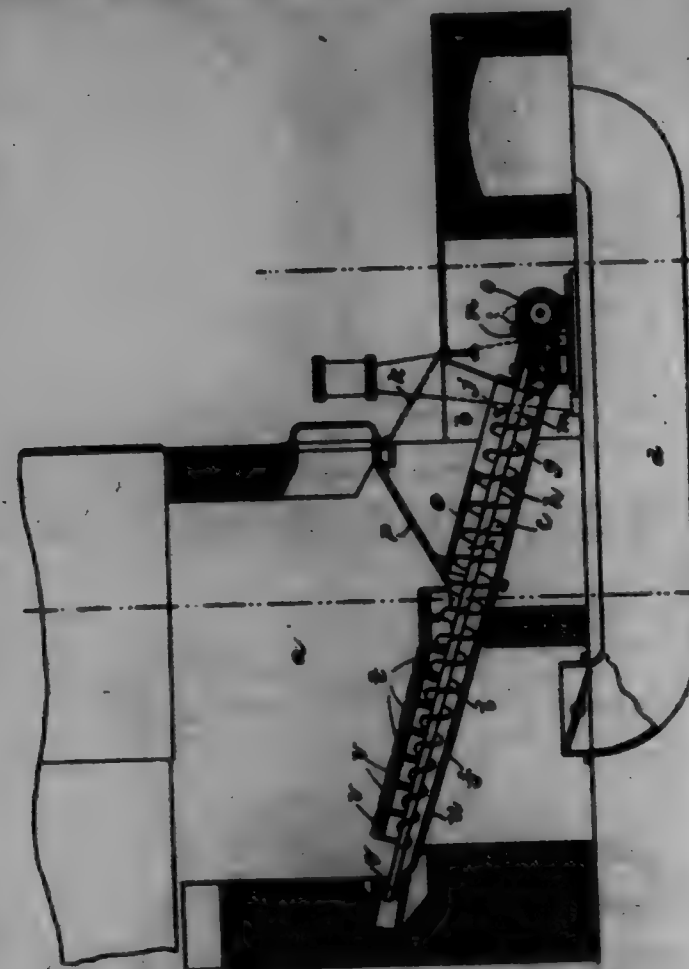
3. Hair-clippers which comprise in their entirety a pair of flat blades having integral flat handles carried by their rear ends, with clipping-teeth formed integral with their forward ends, a T-head rivet carried by one of said blades slightly to the rear of the teeth and engaging the outer face of the other of said blades, the last-named blade having an oblong detent formed therein lying transverse to said head of the rivet whereby said blades may have an opposite lateral movement with relation to one another and may be disengaged when the head registers with the detent, substantially as described.

701,602. MECHANICAL STOKER. AUGUST F. HADL, Munich, Germany, Assignor to Karl E. Gowing, Reading, Mass. Filed July 6, 1901. Serial No. 67,544. (No model.)

Claim.—1. A furnace fuel-feeder comprising in its construction a fuel-hopper, a screw conveyor for transporting the coal from the fuel-hopper to the furnace, means for discharging a smaller carrying capacity at the bottom of the hopper than in the passage leading from the hopper to the furnace, said means consisting of raising the diameter or pitch of the screw in the part which lies in the hopper, as compared with the part within the conveyor-tube.

2. A furnace fuel-feeder comprising in its construction a fuel-hopper, a screw conveyor for transporting the coal from the fuel-hopper to the furnace, in combination with a conveyor-tube having a contracted opening or throat at the inlet of the hopper, said conveyor screw being of less diameter in the hopper than in the passage leading from the hopper to the furnace.

3. A furnace fuel-feeder comprising in its construction a fuel-hopper, a screw conveyor for transporting the coal from the fuel-hopper to the furnace, and an obliquely-cut stirring device fixed on the conveyor-shaft at the end of the screw which lies in the hopper.



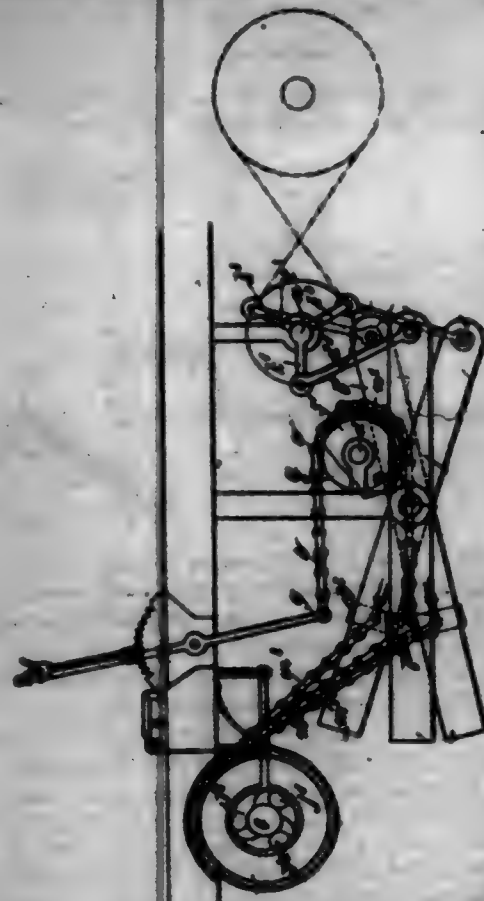
4. In a mechanical stoker, a coal-hopper located below the line of the boiler-room floor at or near the front of the furnace, an upwardly-inclined bottom plate at the rear portion of the furnace for the support of the coal during combustion, means for transferring the coal from the hopper to said rear portion of the furnace, an inclined ash-plate within the front end of the furnace for the deposit and removal of ashes, and means for supplying air beneath the coal to secure combustion.

5. In an under feed-stoker, a coal-hopper located below the line of the boiler-room floor at or near the front of the furnace, an upwardly-inclined conveyor-tube leading from the bottom of the hopper into the lower portion of the furnace, an upwardly-inclined trough extending backward from the end of the conveyor-tube to the rear part of the furnace and having an axle a continuation of the axle of the tube, an upwardly-inclined screw conveyor extending from the bottom of the hopper through the tube and trough to the rear end of the furnace, and means for driving said conveyor, in combination with rows of upwardly-inclined tuyeres placed at the side of the trough, a downwardly-inclined ash-plate located at the front end of the furnace and extending from the level of the fire-door downward to the front end of the trough, a number of ash-plates inclined upward and placed parallel with the trough and filling the openings between contiguous rows of tuyeres and between tuyeres and the walls of the furnace, and means for supplying the tuyeres with air under pressure, substantially as set forth.

6. In an under feed-stoker, a coal-hopper located below the line of the boiler-room floor at or near the front of the furnace, an upwardly-inclined conveyor-tube leading from the bottom of the hopper into the lower portion of the furnace and having a restricted opening, an upwardly-inclined trough extending backward from the end of the conveyor-tube to the rear part of the furnace, an upwardly-inclined screw conveyor extending from the bottom of the hopper through the tube and trough to the rear end of the furnace, the conveyor being of smaller diameter in that portion which lies in the hopper and extends through the restricted opening in the lower end of the tube than it is in the portion lying within the tube, and being of gradually reduced diameter from the front end of the trough to the rear end of the furnace, in combination with means for driving said conveyor, one or more rows of upwardly-inclined tuyeres placed at each side of the trough having air-openings into the furnace chamber several inches above the ash-plates to allow for the accumulation of ashes below the openings, a downwardly-inclined ash-plate located at the front end of the furnace extending from the level of the fire-door downward to the front end of the trough, a number of upwardly-inclined ash-plates

parallel to the trough and filling the openings between contiguous rows of tuyeres and between tuyeres and the walls of the furnace, and means for supplying the tuyeres with air under pressure, substantially as set forth.

701,608. VARIABLE MECHANISM FOR TRANSMITTING MOTION. JOHANNES KUNZE, Copenhagen, by MAGNUS, Denmark. Filed Aug. 22, 1891. Serial No. 73,985. (No model.)



Claim.—1. In a device for converting or transmitting motion, a driving crank-shaft, a rocking lever or balance having one end operatively connected with said crank-shaft, a block slidably guided by said balance, a driven shaft, a ratchet-drum carried by said driven shaft, a chain having one end connected to said drum and its intermediate portion connected to said block, and means connected with the other end of the chain for sliding the block toward the fulcrum of the lever, substantially as described.

2. In a device of the class described, a driving crank-shaft, a plurality of rocking levers or balances operatively connected thereto, sliding blocks guided on said balances, a driven shaft, ratchet-drums mounted on said shaft, intermediate portions of the fulcrums of said balances, chains secured to the drums and passing over said intermediate portions and having their intermediate portions connected with the blocks, and means for adjusting said chains, substantially as described.

3. In a device of the class described, a driving crank-shaft, a plurality of rocking levers or balances operatively connected thereto, sliding blocks guided on said balances, a driven shaft, ratchet-drums mounted on said shaft, chains secured to the drums and to the blocks and extending past the fulcrums of the levers, and automatically-operating means for drawing on or releasing said chains, substantially as described.

701,604. PROCESS OF MAKING CYANIDE. GEORGE OTTERHANS, Vienna, Austria-Hungary. Filed Feb. 12, 1891. Serial No. 67,086. (No specimens.)

Claim.—1. The process of producing cyanogen compounds from waste household substances and similar organic substances containing nitrogen, which consists in first subjecting said substances to destructive distillation, then bringing the resulting gases into contact with heated neutral material, then bringing said gases into contact with heated carbonaceous material, and finally bringing said gases into contact with heated nitrogen-absorbing material.

2. The process of producing cyanogen compounds from waste household substances and similar organic substances containing nitrogen, which consists in first subjecting said substances to destructive distillation, then bringing the resulting gases into contact with heated neutral material, then bringing said gases into contact with heated carbonaceous material, and finally bringing said gases into contact with a heated mixture of coal and carbonates of the alkalies.

701,604.



701,605. MANUFACTURE OF COLLOIDAL GOLD. CARL PAUL BRINGEN, Germany, assignor to Kalle and Company, Hildesheim, Germany, a firm. Filed Feb. 6, 1891. Serial No. 64,118. (No specimens.)

Claim.—1. The new process of preparing colloidal gold by adding to an aqueous solution of the alkali salts of the decomposition products of albumin (formed by the action of warm dilute alkalies on albumin) osmium tetroxide and as much alcohol of gold as slightly exceeds the quantity corresponding to the alkali present, heating this mixture until its coloration has changed into a bright red, dialyzing it against water, precipitating it with a dilute acid, dissolving the precipitate in dilute osmium tetroxide, dialyzing the solution again, and evaporating it.

2. As a new product the colloidal gold, containing over sixty per cent. pure metal, consisting of bright scales showing a brown lustre, being very easily and completely soluble in water and distinguished by its property to retain its solubility in dilute aqueous alkalies even after having been precipitated from its aqueous solutions by means of acids.

701,606. MANUFACTURE OF COLLOIDAL SILVER. CARL PAUL BRINGEN, Germany, assignor to Kalle and Company, Hildesheim, Germany, a firm. Filed Feb. 6, 1891. Serial No. 64,119. (No specimens.)

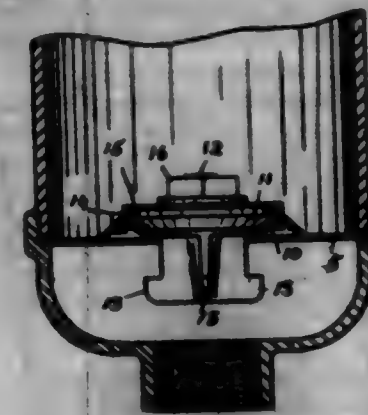
Claim.—1. The new process of preparing colloidal silver by adding to an aqueous solution of the alkali salts of the decomposition products of albumin (formed by the action of warm dilute alkalies on albumin) osmium tetroxide and as much alcohol of silver as slightly exceeds the quantity corresponding to the alkali present, heating and redissolving completely the so-formed precipitate, dialyzing the liquid against water, precipitating it with a dilute acid, dissolving the precipitate in dilute osmium tetroxide, dialyzing the solution again, and evaporating it.

2. As a new product the colloidal silver, containing up to ninety per cent. pure metal, consisting of bright scales showing a beautiful blue metallic lustre, being very easily and completely soluble in water and distinguished by its property to retain its solubility in dilute aqueous alkalies even after having been precipitated from its aqueous solutions by means of acids.

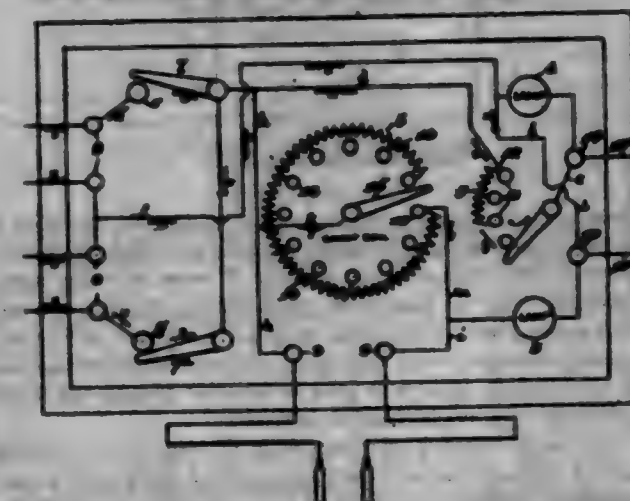
701,607. CHECK-VALVE FOR PUMP-CYLINDERS. JOHN W. PARK, Kankakee, Ind. Filed June 20, 1891. Serial No. 65,693. (No model.)

Claim.—The combination with a pump-cylinder, and a cap detachably connected to its lower end, of a plate seated in said cap and held in engagement with the cylinder thereby, said plate being provided with a

centrally-disposed opening around which is formed a concentric raised head the cross-sectional area of which is of inverted-V shape, whereby the inner face of said head is inclined toward the center of the opening and forms a valve-seat, and the outer face acts to brace the inner face and maintain the same inclined, a valve normally seated upon the inclined inner face of said head, a yielding packing-plate carried by said valve and having an inclined face coinciding and seating with the inclined inner face of the head, whereby said packing-plate exerts a wedging action upon the head to insure the positive seating of the valve, and a binding-plate also carried by said valve for holding the yielding packing-plate thereon.



701,608. ELECTRIC CONTROLLER. ANDREW FURMAN S. LEON, Pa., assignor, by direct and mesne assignments, to Pittsburgh Electric Machine Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Sept. 22, 1890. Serial No. 74,579. (No model.)



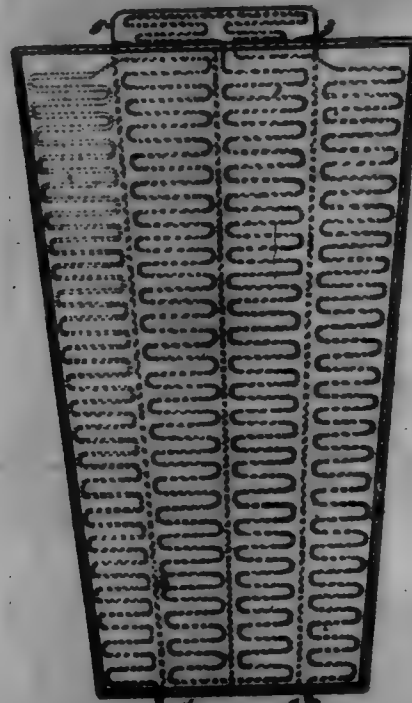
Claim.—1. A device of the class described, comprising a suitable box or case; a cover for said box composed of insulating material; terminals for the sweating-rods connected upon said cover; switches for the sweating-rods connected upon said cover; terminals for the lines leading from the generator mounted upon said cover; two inductance-lamp sockets mounted upon said cover; a rheostat for the sweating-rods connected to said cover; a line running from one of the generator-terminals through the rheostat to one of the switches; a second line connecting the switches together; a return-wire for the sweating-rods connected to the other generator-terminal; a line running from this return-wire through one of the lamps to the opposite terminal from that to which the return-wire is connected; binding-posts connected to said cover; electrodes connected to said binding-posts; a line connecting one of said binding-posts to the rheostat; a line running from the other binding-post through the second lamp to the opposite generator-terminal from that to which the rheostat is connected; a second rheostat; and a line running through said second rheostat and connected to the electrodes-wires at points on the opposite sides of said binding-posts from the electrodes as required to partly short-circuit the electrodes, substantially as specified.

2. In a device of the class described, a generator-circuit; a rheostat through which the generator-circuit passes; sweating-rods connected to the generator-circuit and connected to the generator-circuit; an electrode-circuit connected to the generator-circuit; a second rheostat connecting the electrode-circuit as required to partly short-circuit the electrodes; and a lamp incorporated into the electrode-circuit, substantially as specified.

3. In a device of the class described, a rheostat; a generator-circuit leading to the rheostat; an inductance lamp; a line passing through the inductance lamp, and short-circuiting the rheostat, substantially as specified.

4. In a device of the class described, a rheostat; a generator-circuit passing through the rheostat to the switches; a switch-circuit connected to said switches; electrodes connected to said generator-circuit as required to throw part of the circuit through the electrodes when they are connected; a lamp incorporated into the electrode-circuit; and a rheostat for partly short-circuiting the electrode-circuit, substantially as specified.

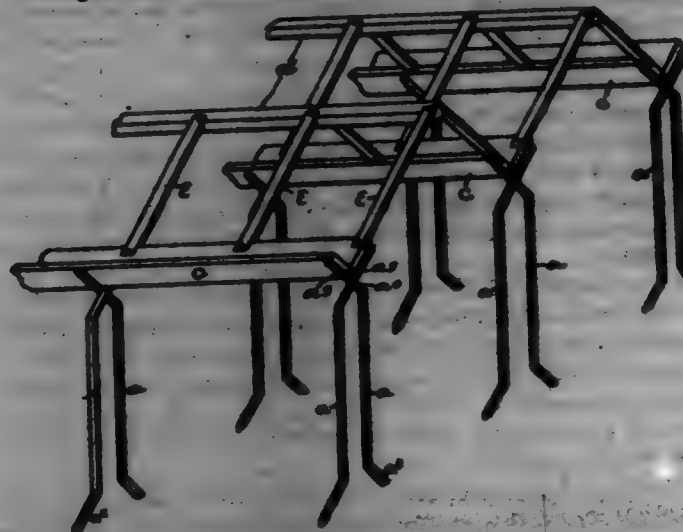
701,809. ELECTRIC SWEATING-ROBE. ANDREW PHILLIPS, St. Louis, Mo., assignor, by direct and mesne assignments, to Pittsburg Electric Machine Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Sept. 29, 1901. Serial No. 76,378. (No model.)



Claim.—1. An electric sweating-robe comprising the outer layer 1 and the inner layer 2 of equal size, said layers being secured together by a seam around their edges and by a plurality of seams extending longitudinally of the robe, the last-named seams dividing the robe into columns, said columns being wider at the head than at the feet of the robe, and an electric heat-generating wire, signing in form, arranged within said columns, the terminals of the wire being at the outer columns and at the same end of the robe, substantially as described.

2. An electric sweating-robe comprising the outer layer 1 and the inner layer 2 of equal size, said layers being secured together by a seam around their edges and by a plurality of seams extending longitudinally of the robe, the last-named seams dividing the robe into columns, said columns being wider at the head than at the feet of the robe and the inner columns being extended and cut to form a collar, and an electric heat-generating wire, signing in form, arranged within said columns, the terminals of the wire being at the outer columns and at the same end of the robe, substantially as described.

701,810. BATHHOUSE CONSTRUCTION. ROSS PLANK, Middle Village, N. Y. Filed Mar. 27, 1908. Serial No. 169,515. (No model.)

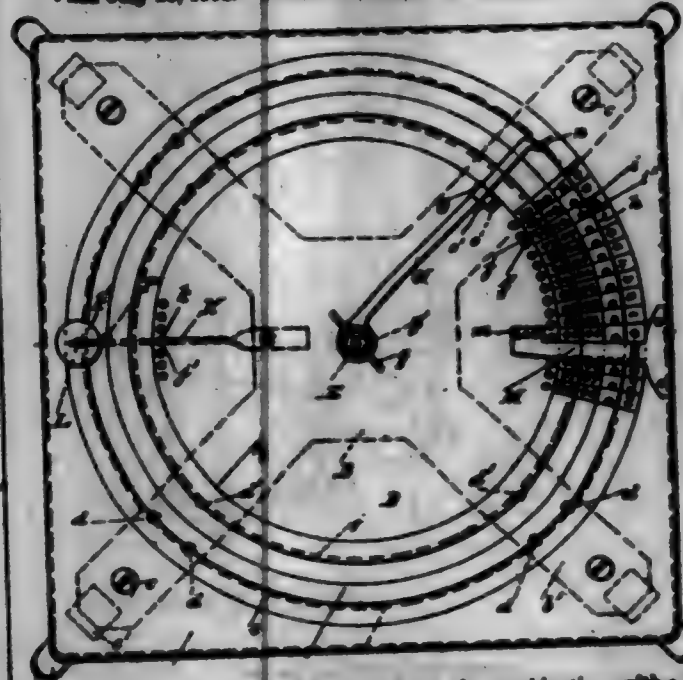


Claim.—1. In a bathhouse structure, side and end wall posts, each of which is composed of two bars of angle-iron, the upper ends of which are

bent and crossed and secured together to form a trough-support, and the lower ends of which are set into the ground, substantially as shown and described.

2. A bathhouse structure, the supports of which consist of posts composed of angle-iron, the lower ends of which are set into the ground and the upper ends of which are bent and crossed at an angle and secured together where crossed, so as to form a trough-support and a trough placed therein and forming a support for the rafters of the roof, substantially as shown and described.

701,811. CALCULATING-MACHINE. WILLIAM G. POWELL, Jacksonville, Fla., assignor to Eugene O. Locke, Jacksonville, Fla. Filed July 25, 1901. Serial No. 98,398. (No model.)



Claim.—1. In a calculating-machine, the combination, with a front plate, a revolvable ring, and a disk journaled concentric with the said ring and provided with a circular series of holes; of a catch formed of a twisted strip of sheet metal secured at one end under the said plate and provided with a pin which engages with the holes of the said disk, and a stud which projects upwardly from the free end of the said catch through the said front plate and affords a means for disengaging the said catch-pin from the disk, substantially as set forth.

2. In a calculating-machine, the combination, with a front plate, a revolvable ring, and a revolvable disk; of locking mechanism which locks and releases the said ring and disk alternately to the said front plate, substantially as set forth.

3. In a calculating-machine, the combination, with a front plate, a revolvable ring, and a disk journaled concentric with the said ring and provided with a circular series of holes; of a catch provided with a pin which normally engages with one of the said holes, and a friction-brake which bears on the said ring when the catch-pin is disengaged from the disk, substantially as set forth.

4. In a calculating-machine, the combination, with a front plate, a revolvable ring provided with a circular series of holes, and a disk journaled concentric with the said ring and also provided with a circular series of holes; of a stop-bar formed of a flat strip of sheet metal secured at one end only to the said front plate and projecting across the said ring and the adjacent holes of the disk, substantially as set forth.

5. In a calculating-machine, the combination, with a front plate, and a revolvable ring and a disk arranged concentric with each other; of a stop-bar formed of a flat strip of sheet metal secured at one end only to the said plate and having a laterally-projecting lobe at its free end over the said disk, substantially as set forth.

6. In a calculating-machine, the combination, with a front plate, and a revolvable ring and a disk each provided with a circular series of holes; of an arm pivoted concentric with the said ring and disk, and a guide slidable longitudinally on the said arm and carrying an operating-pin for engaging with the holes of either series, substantially as set forth.

7. In a calculating-machine, the combination, with a front plate provided with a zero-space, and a revolvable ring and a disk; of a stop-bar secured at one end to the said plate adjacent to the said zero-space and provided with a laterally-projecting lobe at its free end and arranged over the said disk in line with the said zero-space, and an arm for operating the said ring and disk, said arm being pivoted concentric with the said ring and disk and provided with a laterally-extending pointer which points to the space on the said front plate in line with the said lobe, a zero-space being formed between the said bar and arm, substantially as set forth.

8. In a calculating-machine, the combination, with a front plate, and a revolvable ring and disk; of an additional disk pivoted concentric with the said ring and disk and provided with a circular series of holes, and a spring stop-bar secured to the said front plate at one end and provided at its free end with a catch-pin for engaging with the said holes of the additional disk, substantially as set forth.

9. In a calculating-machine, the combination, with a front plate, and a back plate secured to the front plate; of a ring provided with offset flanges which bear on the said back plate and having a trip between the said flanges, a disk journaled in the said ring and provided with a circular series of holes, and a spring-catch secured at one end to the back plate and provided with a pin which engages with the said holes and having a projection arranged in the path of the said trip between the said flanges, substantially as set forth.

10. In a calculating-machine, the combination, with a front plate provided with supporting-flanges, of a back plate suspended from the surface of the front plate above the bottom edges of the said flanges, and a revolvable calculating-ring journaled in the said holes and provided with a peripheral flange which projects under the front plate and is supported by the said back plate, substantially as set forth.

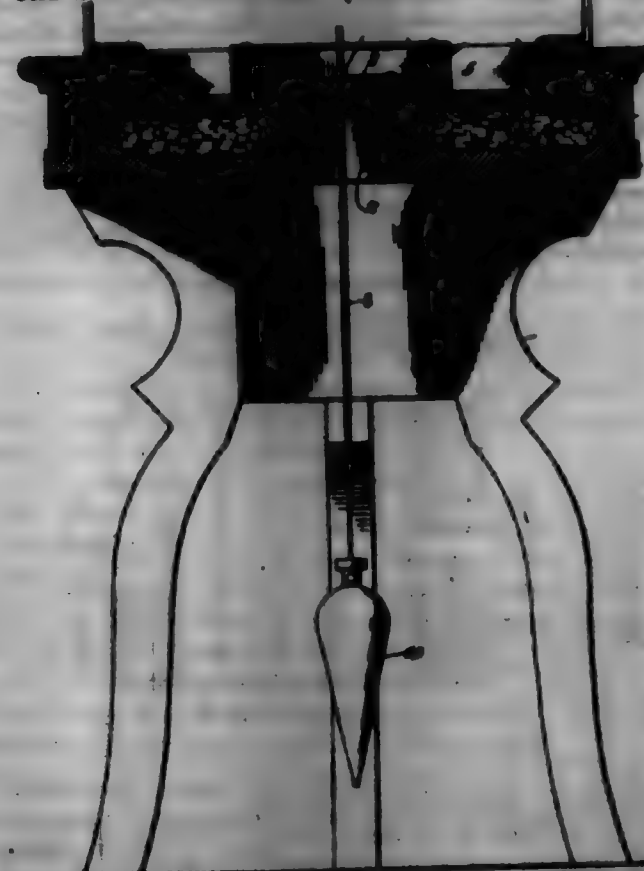
11. In a calculating-machine, the combination, with a front plate provided with supporting-flanges and a hole, of a back plate suspended from the surface of the front plate above the bottom edges of the said flanges, and a revolvable calculating-ring journaled in the said hole and provided with a peripheral flange which projects under the front plate and is supported by the said back plate, substantially as set forth.

12. In a calculating-machine, the combination, with a front plate provided with a hole, of a back plate secured to the front plate and provided with upwardly-projecting antifriction-bearings, and a revolvable calculating-ring journaled in the said hole and resting on the said antifriction-bearings of the back plate, substantially as set forth.

13. In a calculating-machine, the combination, with a rectangular front plate provided with supporting-flanges, of a back plate provided with radial arms which project under the corner portions of the front plate, fastening devices which secure the end portions of the said arms to the under side of the front plate, and revolvable calculating mechanism supported by the said arms, substantially as set forth.

14. In a calculating-machine, the combination, with a front plate provided with a hole, of a back plate secured to the front plate, a calculating-ring journaled in the said hole and supported by the said back plate and provided with an internally-projecting flange, a calculating-disk journaled in the said ring and resting on the said flange, and a tension device supported from the said back plate and operating to press the said disk against the flange of the said ring so as to afford a prearranged frictional resistance, substantially as set forth.

701,812. LEVELING INSTRUMENT. GEORGE E. FARR, New York, N. Y. Filed Feb. 28, 1908. Serial No. 98,971. (No model.)



Claim.—1. A leveling instrument comprising a trough for containing liquid, a float arranged in the trough, adjustable means for holding

the float from turning axially, an eyepiece carried on one side of the float, and a diaphragm carried on the opposite side of the float, substantially as specified.

2. A leveling instrument comprising a circular trough, a circular float arranged in the trough, sight devices carried on the float, and adjustable means for holding the float from rotary movement, substantially as specified.

3. A leveling instrument comprising a circular trough having a tubular upwardly-extended circular portion, a plate secured to the upper end of said circular portion, a plumb-bob rod supported by said plate and having a portion extended above the plate, a float arranged in the trough and having an opening at its center through which said upwardly-extended end of the rod passes loosely, and sight devices on opposite sides of said float, substantially as specified.

4. A leveling instrument comprising a trough, a float arranged therein and having recesses for receiving shot or the like, and sight devices forming covers for said recesses, substantially as specified.

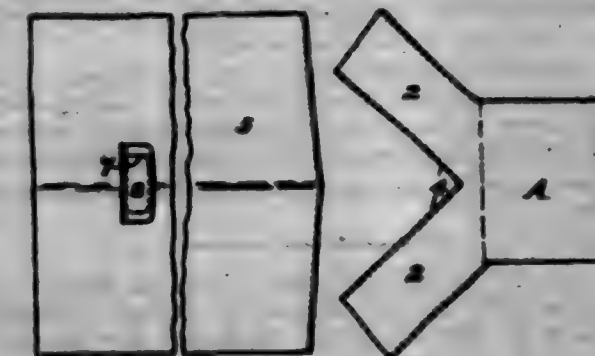
5. A leveling instrument comprising a circular trough, a float arranged in said trough, sight devices on said float, a pin extended from the float, and a weight movable around the trough and with which said pin engages in hold the float from rotary movement, substantially as specified.

701,818. MOUTHPIECE FOR CIGARS OR CIGARETTES. JOSEPHINE E. KAMMER, Bismarck, N. D., assignor to J. E. Kammer, Bismarck, N. D. Filed June 12, 1901. Serial No. 98,171. (No model.)



Claim.—In a cigar or cigarette mouthpiece, the combination of a sound-producing tongue mounted within the mouthpiece a lateral hole in the lower in proximity to said tongue and means for closing and opening the said hole as will substantially as described.

701,814. STERN-APRON FOR VEHICLES. WILLIAM E. KIMM, Oakland, Cal. Filed Mar. 24, 1902. Serial No. 98,768. (No model.)



Claim.—An improved stern-apron for vehicles consisting of two essential parts namely, a front plate fitting the dashboard and having forked extensions formed upon one side and folded, and a rectangular body portion having its front edge cut divergent from the center toward the sides and secured to the forked portion of the front plate, said front plate including the dashboard and said forked portion and the sides of the main portion extending down over the outside of the side rail of the carriage-body.

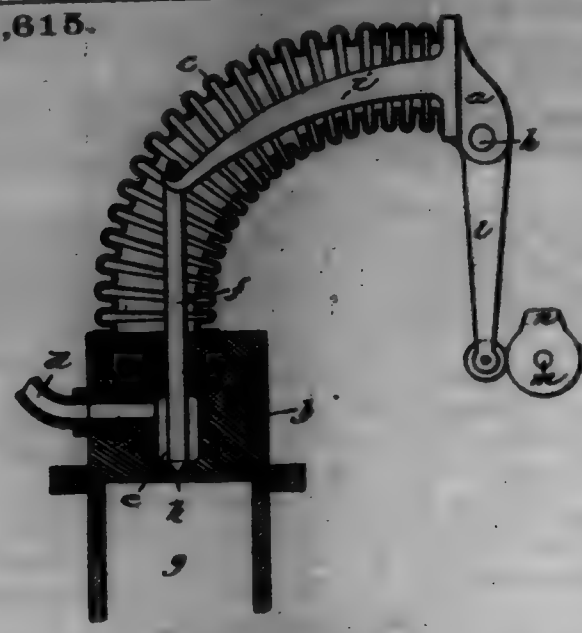
701,815. FLEXING DEVICE FOR CONNECTING STATIONARY OR MOVABLE MACHINE PARTS. FREDERICK SCHUMACHER, Berlin, Germany. Filed Nov. 17, 1906. Serial No. 36,904. (No model.)

Claim.—1. In combination with a reciprocating part, a part laterally arranged in respect thereto and connected thereto to serve therewith and a tube having longitudinal and lateral flexion forming a closed space between said moving parts, substantially as described.

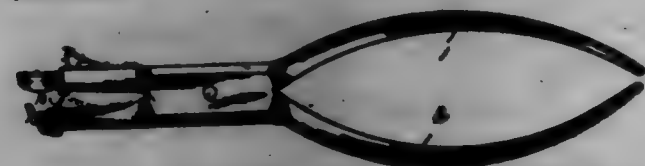
2. In combination, the piston *f*, a lever *a*, pivotally supported, an arm *i* connecting the same with the piston and a flexible tube including the piston-rod and the arm *i* and having lateral flexion under the movement of the parts, substantially as described.

3. In combination, the vertically-reciprocating piston *f*, the lever *a* pivoted at one side of the piston and having a laterally-extending arm *i* connected with the piston and a curved flexible tube including the piston-rod and arm and having vertical flexion under the movement of the parts.

701,615.



701,616. DENTAL TOOL FOR SLITTING CAP-CROWNS. CLAYTON J. RYTHOLM, PHILADELPHIA, Pa. Filed Dec. 27, 1901. Serial No. 57,408. (No model.)

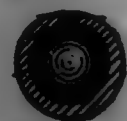


Claim.—1. A dental tool for slitting cap-crowns, comprising a pair of forceps having an independently-adjustable bearing-head and an independently-adjustable cutting or slitting blade arranged to cooperate with the adjustable bearing-head, for slitting cap-crowns in the operation of removing cap-crowns from a tooth, substantially as set forth.

2. A dental tool for slitting cap-crowns, comprising a pair of forceps having jaw portions, one of which is provided with a socket and the other a detent, and an adjustable bearing-head having a shank located in said socket, an adjustable cutting or slitting blade mounted in the distal portion of the other jaw, substantially as set forth.

3. A dental tool for slitting cap-crowns, comprising a pair of jaws, an adjustable bearing-head, an adjustable cutting or slitting blade, a socket in the end of one jaw for the bearing-head, means on the other jaw for supporting the blade, said bearing-head provided with a shank having annular grooves, and a pin for engaging with said grooves, substantially as set forth.

701,617. GOLD-BALL. FRANK H. RICHARDS, Hartford, Conn., assignor to The Knapp Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1903. Serial No. 57,500. (No model.)



Claim.—1. A playing-ball comprising a shell of hard, wear-resisting material distended by a mobile mass of solid material injected thereto; a layer of solid rubber intervening between said shell and said injected mass.

2. In a playing-ball, a spherical shell consisting at least partially of celluloid and distended by plastic material injected thereto; a layer of tensioned solid rubber intervening between said shell and said injected mass.

3. In a playing-ball, a shell formed of hard wear-resisting material and distended by a core of gutta-percha injected thereto; a tensioned layer of solid rubber intervening between said shell and said injected mass.

4. In a playing-ball, a shell formed of hard wear-resisting material and distended by a core of gutta-percha injected thereto; a layer of solid rubber intervening between said shell and said injected mass.

5. In a playing-ball, a shell formed of plastic material and distended by a core of plastic material injected thereto; a layer of solid rubber intervening between said shell and said injected mass.

6. In a playing-ball, an embossed shell formed of celluloid and distended by a gutta-percha core injected thereto; a layer of solid rubber intervening between said shell and said injected mass; and a plug filling the injection-hole in the shell and rubber layer.

7. A playing-ball comprising a seamless or continuous embossed shell

of plastic material distended by a core of plastic material injected thereto; a layer of solid rubber intervening between said shell and said injected mass.

8. In a playing-ball, a seamless or continuous shell of celluloid distended by a mass of mobile material injected thereto; a layer of tensioned solid rubber intervening between said shell and said injected mass.

701,618. DRAW-BAR ATTACHMENT. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Gould Cutter Company, New York, N. Y., a Corporation of West Virginia. Filed Nov. 30, 1901. Serial No. 57,519. (No model.)



Claim.—1. The combination with a movable draw-bar, of movably-mounted springs adapted to be moved bodily by the draw-bar, means for limiting the movement of said springs in opposite directions, and a movable device connected to said springs whereby both of said springs are strained when the draw-bar is moved in either direction, substantially as set forth.

2. The combination with a laterally-movable draw-bar, of movably-mounted springs adapted to be moved bodily by the draw-bar, means for limiting the inward movement of said springs, and a device movable with said draw-bar and connected to said springs whereby both of said springs are compressed when the draw-bar is moved to either side of a central position, substantially as set forth.

3. The combination with a laterally-movable draw-bar, of movable spring-pockets adapted to be moved by the draw-bar, a stop adapted to limit the inward movement of said spring-pockets, a coiled spring movable with each pocket, and a movable bar connecting the outer ends of said springs, whereby both of said springs are compressed, when the draw-bar is moved to either side of a central position, substantially as set forth.

4. The combination with a laterally-tilting draw-bar, and means for guiding the same, of oppositely-arranged spring-pockets having portions engaged by the draw-bar and adapted to be moved thereby, a stop arranged between said spring-pockets for limiting the inward movement thereof, a coiled spring carried by each pocket, a movable rod passing through said coiled springs and through openings in said pockets, and stops on said rod and engaging the outer ends of said coiled springs, substantially as set forth.

5. The combination with a draw-bar mounted to swing laterally, and a guide-yoke for said draw-bar, of oppositely-arranged spring-pockets mounted on said yoke to slide laterally and having portions engaged by said draw-bar, a stop on said yoke between said spring-pockets, a coiled spring seated in a socket in each spring-pocket, a rod or bar passing through openings in said spring-pockets and through said coiled springs, and stops secured to the opposite ends of said rod or bar and engaging the outer ends of said coiled springs, substantially as set forth.

6. The combination with a draw-bar, and a guide-bar or the like therefor, of a spring-pocket member on one side of said guide-bar and having arms straddling said guide-bar, and a second pocket member bearing against the other side of said guide-bar and secured to said arms, said second member constituting an abutment for said draw-bar, substantially as set forth.

701,619. GAS-WASHER. PAUL RIMMER, Dusseldorf, Germany. Filed Nov. 4, 1901. Serial No. 57,520. (No model.)



Claim.—1. A gas-washer, comprising an exterior casing, vertical partitions therein forming compartments communicating with each other adjacent to the center of the casing, a rotary shaft extending centrally through the casing, perforated disks fastened to the shaft in each of said compartments, for the purpose specified, and agitator-chains hung loosely over the shaft between the disks.

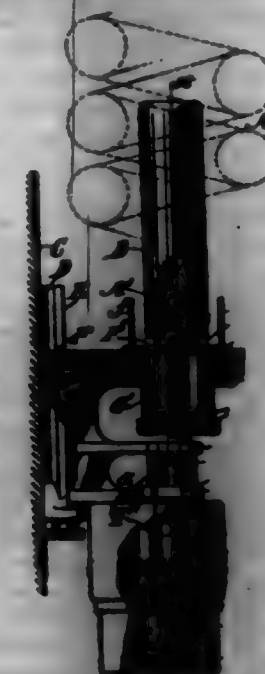
2. A gas-washer, comprising an exterior casing, vertical partitions therein forming compartments communicating with each other adjacent to the center of the casing, a rotary shaft extending through the casing, perforated disks fastened to the shaft in each of said compartments, for the purpose specified, and agitator devices hung loosely from the shaft between the disks.

3. A gas-washer, comprising a casing having a gas-inlet and a gas-outlet respectively at its end portions, a rotary shaft running through the casing, disks fastened to the shaft and turning therewith to retard the passage of the gas, and agitator devices hung loosely from the shaft between the disks, whereby to clean the disks as they turn.

701,620. PROCESS OF MAKING INDIFFERENT-POWDER. JULIUS ROTHEN, Kassel, Germany. Filed Dec. 2, 1901. Serial No. 57,521. (No specimens.)

Claim.—A process for producing a powder from alcohol, sublimate, condensed-quinolizer and veratrine, which consists in adding to a weak solution of about nine parts by weight of alcohol in alcohol, under the addition of common salt, an alcoholic solution of about one-half part by weight of sublimate and one-half part by weight of condensed-quinolizer, then adding, for each gram of this mixture of sublimate, condensed-quinolizer and alcohol, an alcoholic solution of about 0.014 grams of veratrine, vaporizing the whole in a water-bath in a thick fluid consistency, drying in moderate heat, grinding to a powder and mixing with lactose in the manner and for the purpose substantially as described.

701,621. CIRCUIT-BREAKER. BENJAMIN F. RUCKER, Brooklyn, N. Y. Filed Nov. 28, 1901. Serial No. 57,522. (No model.)



Claim.—1. In an electric-circuit breaker a movable member, means controlled by the movement of said member for releasing said member instantaneously under a predetermined excess of current and for releasing said member after the duration of another predetermined excess of current.

2. In combination with a movable member of an electric-circuit breaker, means for releasing said member instantaneously under a predetermined excess of current, and an electromagnetic device controlled by the movement of said member and adapted to release the latter after the duration of another predetermined excess of current.

3. In combination with a movable member of an electric-circuit breaker, means for releasing said member instantaneously under a predetermined excess of current, means for releasing said member after the duration of another predetermined excess of current, an electromagnetic device controlling said latter means, said electromagnetic device being actuated by an electric circuit controlled by the movement of the member due to an excess of current in the circuit controlled by the circuit-breaker.

4. In combination with a movable member of an electric-circuit breaker, means for releasing said member instantaneously under a predetermined excess of current, means for releasing said member after the duration of another predetermined excess of current, an electromagnetic device controlling said latter means and being situated in a normally open circuit, and devices actuated by the movement of the member for closing said circuit.

5. In combination with a movable member of an electric-circuit breaker, an electromagnetic device, means actuated by the movement of

said member for controlling the circuit of said electromagnetic device, said electromagnetic device being adapted to release the member after the duration of a predetermined excess of current, and means for instantaneously releasing said member from the device controlling the current under a predetermined excess of current of a different degree.

6. In combination with a movable member of an electric-circuit breaker, an electromagnetic device for releasing said member after the duration of a predetermined excess of current, a switch controlling the circuit of said electromagnetic device adapted to be engaged and operated by the movement of the member, said member being adapted to be instantaneously released from said switch under another predetermined excess of current of a different degree.

7. In combination with a movable member of an electric-circuit breaker, an electromagnetic device for releasing said member after the duration of a predetermined excess of current, a switch for controlling the circuit of said electromagnetic device situated in the path of said member and adapted to be engaged and operated thereby, said member being adapted to be instantaneously released from said switch upon a predetermined excess of current of a different degree.

8. In combination with a movable member of an electric-circuit breaker, an electromagnetic device for releasing said member after the duration of a predetermined excess of current, pivoted switches situated in the circuit controlling said electromagnetic device, and in the path of said member, said switches being normally engaged and held open by contact with the member, said member forming part of the circuit of the electromagnetic device, and said switches being adapted to be released from said member by the movement thereof upon a predetermined excess of current of a different degree.

9. In combination with a movable member of an electric-circuit breaker, an electromagnetic device, gearing between said electromagnetic device and said member for rotating the latter, the circuit of said electromagnetic device being controlled by a switch operated by the movement of said member, and means for disengaging said member and switch upon the rotation of said member.

10. In combination with a movable member of an electric-circuit breaker, an electromagnetic device, gearing between said electromagnetic device and said member for rotating the latter, the circuit of said electromagnetic device being controlled by a switch operated by the movement of said member, and means for disengaging said member and switch upon the rotation of said member, said member being also adapted to be released from said switch by reason of the longitudinal movement of said member under an excess of current greater than that which rotates said member.

11. In combination with a movable member of an electric-circuit breaker, an electromagnetic device, connections between the same and said member for rotating the latter, a switch controlled by the longitudinal movement of the latter, and means for disengaging the member and switch by reason of either the longitudinal or rotary movement of said member.

12. In combination with a movable member of an electric-circuit breaker, of an electromagnetic device, the movable member of said electromagnetic device being connected with the circuit-breaker member to rotate the same, rotating device for said electromagnetic device member, a switch controlling the circuit of said electromagnetic device, said circuit-breaker member engaging said switch and adapted to operate the same when the circuit-breaker member moves longitudinally, said circuit-breaker member being adapted to be disengaged from said switch by a longitudinal or rotary movement of said member.

13. In combination with a movable member of an electric-circuit breaker, provided with annular shoulders, an electromagnetic device connected with said member for rotating the same, a switch in the circuit of said electromagnetic device adapted to be engaged by said shoulders and operated by the longitudinal movement of the member, one of said shoulders terminating so as to disengage the member and switch by the rotary movement of the member, and said member being also adapted to be released from the switch by reason of the longitudinal movement of said member.

14. In combination with a movable member of an electric-circuit breaker, a rotatable member mounted thereon and provided with shoulders, an electromagnetic device connected with said member for rotating the latter, a switch controlling the current of said electromagnetic device, and adapted to be engaged by said shoulders and operated by the longitudinal movement of the member, one of said shoulders being terminated so as to disengage the member and switch by the rotary movement of the member, and said member being also adapted to be released from the switch by reason of the longitudinal movement of said member.

15. In combination with a movable member of an electric-circuit breaker, having annular shoulders, an electromagnetic device connected with said member for rotating the latter, a pivoted switch controlling the circuit of said electromagnetic device and having one end directed be-

between said shoulders of the member as to be operated by the longitudinal movement of the latter, one of said shoulders terminating so that the member and switch are disengaged by the rotary movement of the member, and said switch being also adapted to turn upon its pivot and to be disengaged from said member upon the longitudinal movement of the latter.

16. In combination with a movable member of an electric-circuit breaker, an electromagnetic device connected therewith for rotating the same, switches situated to engage contacts in the circuit controlling said electromagnetic device, said member engaging said switches and normally holding the same away from said contacts and adapted to move them in contact therewith upon the longitudinal movement of the member, said member forming part of the circuit, and means for disengaging said member and switches by the rotary movement of said member.

17. In combination with a movable member of an electric-circuit breaker, an electromagnetic device for rotating the same, a switch operated by the longitudinal movement of the member for controlling the circuit of said electromagnetic device, said member and switch being adapted to be disengaged by the rotary movement of the former, and said switch being carried by a member movable longitudinally to a limited extent with said member.

18. In combination with a movable member of an electric-circuit breaker, an electromagnetic device for rotating the same, a switch controlling the circuit of said electromagnetic device and engaged by said member, said switch being carried by a member movable longitudinally to a limited extent with said member, said member and switch being adapted to be disengaged either by the rotary or longitudinal movement of the member.

19. In combination with a movable member of an electric-circuit breaker having shoulders, an electromagnetic device for rotating the same, a switch for said electromagnetic device having contacts, a longitudinally-movable member carrying pivoted switches adapted to engage said contacts, said switches being engaged by said shoulders of the member, one of the shoulders of said member being broken away whereby the same can be disengaged from the switches upon the rotary movement of the member.

20. In a device of the kind specified, a longitudinal and rotatable circuit-breaker member controlling a switch for the purpose described, said switch being carried by a member longitudinally movable to a limited extent with said circuit-breaker member, and means for increasing and decreasing the weight of said member.

21. In a device of the kind specified, a longitudinal and rotatable circuit-breaker member controlling a switch for the purpose described, said switch being carried by a cap longitudinally movable to a limited extent with said member and adapted to receive a removable weight.

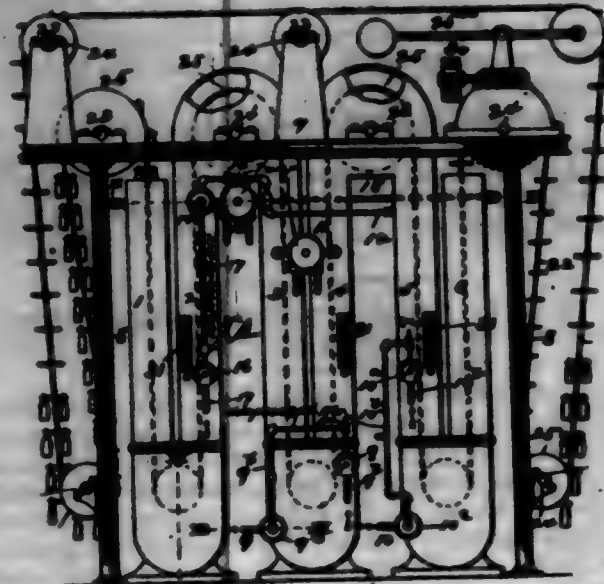
22. In combination with a member of an electric-circuit breaker, a rotatable spindle supporting the same and with which said member rotates and upon which it moves longitudinally, an electromagnetic device for rotating said spindle, a switch controlling the circuit of said electromagnetic device engaged by said member and from which it is adapted to be disengaged either by the longitudinal or rotary movement of said member.

23. In combination with a movable member of an electric-circuit breaker, a rotatable spindle supporting the same and with which said member rotates and upon which it moves longitudinally, a cam upon the said spindle, an electromagnetic device, the movable member of which engages said cam to rotate the same, a switch controlling the circuit of said electromagnetic device and engaged by said circuit-breaker member and from which it is adapted to be disengaged either by the longitudinal or rotary movement of said member.

24. In combination with a movable member of an electric-circuit breaker, an electromagnetic device, the movable member of said electromagnetic device being connected with said circuit-breaker member for rotating the same, a pot into which said electromagnetic device extends, said pot containing a fluid, a dasher upon said electromagnetic device member, a spring acting upon said dasher, a switch controlling the circuit of said electromagnetic device engaged by said circuit-breaker member and from which it is adapted to be disengaged either by the longitudinal or rotary movement of said member.

25. In combination with a movable member of an electric-circuit breaker, provided with annular shoulders, an insulating-plate, an electromagnetic device for rotating said member, the circuit of said electromagnetic device having contacts in said insulating-plate, pivoted switches carried by a longitudinal non-rotatable member normally supported by said insulating-plate, said switches adapted to engage said contacts, the inner ends of said switches being engaged by said shoulders of the member, one of said shoulders being cut away so as to disengage said member and switches by reason of the rotary movement of the member, and said member and switches being adapted to be disengaged by reason of the longitudinal movement of said member.

701,622. FASTERLINE. WILLIAM J. BRY, Quincy, Ill. Filed Sept. 12, 1891. Serial No. 75,608. (No Model.)



Claim.—1. In a pasteurizer, the combination of an atmosphere-compartment, a sterilizing-compartment, a cooling-compartment, means exterior of the machine and out of communication with the sterilizing-compartment for creating a circulation between the atmosphere and cooling compartments, means for automatically starting and stopping said circulating means, and means for carrying the substance to be sterilized through said compartments, substantially as set forth.

2. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said legs, and means for creating a circulation of water between the atmosphere-compartment and cooling-compartment, substantially as set forth.

3. In a pasteurizer, the combination of an atmosphere-compartment, a sterilizing-compartment, a cooling-compartment, means exterior of the machine and out of communication with the sterilizing-compartment for creating a circulation between the atmosphere-compartment and the cooling-compartment, and means for automatically starting and stopping said circulating means, substantially as set forth.

4. In a pasteurizer, the combination of an atmosphere-compartment, a sterilizing-compartment, a cooling-compartment, and automatic means exterior of the machine and out of communication with the sterilizing-compartment for creating a circulation of water between the atmosphere-compartment and cooling-compartment, substantially as set forth.

5. In a pasteurizer, the combination of an atmosphere-compartment, a sterilizing-compartment, a cooling-compartment, a pump and a return-pipe exterior of the machine and out of communication with the sterilizing-compartment for creating a circulation of water between the atmosphere-compartment and cooling-compartment, and a valve and regulator for automatically controlling the passage of water from said pump to said atmosphere-compartment as the temperature therein rises and falls, substantially as set forth.

6. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, and a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said water-legs, and automatic mechanism for creating a circulation of water between the atmosphere-compartment and the cooling-compartment, substantially as set forth.

7. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying bottles through said compartments, and means for causing a circulation of water from one water-leg of the sterilizing-compartment to the other water-leg thereof, substantially as set forth.

8. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said water-legs, means for creating a circulation of water between the atmosphere-compartment and the cooling-compartment, and means for creating a circulation of water between the two water-legs of the sterilizing-compartment, substantially as set forth.

9. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said compartments, automatic means

for controlling a circulation of water from the cooling-compartment to the atmosphere-compartment as the temperature rises and falls, and means for maintaining a circulation of water between the two water-legs of the sterilizing-compartment, substantially as set forth.

10. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said compartments, means for causing a circulation of water through the atmosphere and cooling compartments in a direction contrary to that in which the bottles move, and means for causing a circulation of water through the sterilizing-compartment in the same direction that the bottles move, substantially as set forth.

11. In a pasteurizer, the combination of an atmosphere-compartment, a two-part sterilizing-compartment, a cooling-compartment, means for creating a circulation between the atmosphere-compartment and cooling-compartment, means for creating an independent circulation between the two parts of the sterilizing-compartment, and means for carrying the substance to be sterilized through said compartments, substantially as set forth.

12. In a pasteurizer, the combination of a pair of water-legs forming an atmosphere-compartment, a pair of water-legs forming a sterilizing-compartment, a pair of water-legs forming a cooling-compartment, means for conveying the bottles through said legs, means for causing a circulation of water between the atmosphere-compartment and the cooling-compartment, and means for causing an independent circulation of water through the two legs of the sterilizing-compartment, substantially as set forth.

701,623. SAWING, JOINING, AND BORING MACHINE. CHARLES E. SANDSTROM, Chicago, Ill. Filed Jan. 30, 1898. Serial No. 70,872. (No Model.)



Claim.—1. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports while the saws are rotated so that the cutting-off saw furthest from the work-holding table shall complete its cut before the completion of the cut of the other saw.

2. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports simultaneously during the rotation of the saws, but so that the saw furthest from the work-holding table shall meet the work in advance of the other saw.

3. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, said ways being adjustably mounted so as

to vary the angles of the saws relative to each other and to the work-holding table, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports while the saws are rotated so that the saw furthest from the work-holding table shall complete its cut before the completion of the cut of the other saw.

4. In a machine of the class described, the combination of two cutting-off saws each having separate supports, the support for one saw being located in advance of the other, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways adjacent the rearward support and upon which the material is held during the movement of the saws, and means for reciprocating said supports simultaneously while the saws are rotated so that the saw in the forward support shall complete its cut before the completion of the cut of the other saw.

5. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways and adjustable to vary the angle at which the material held thereon is presented to the saws, and means for reciprocating the supports while the saws are rotated so that the cutting-off saw furthest from the work-holding table shall complete its cut before the completion of the cut of the other saw.

6. In a machine of the class described, the combination of two shafts each having separate supports and carrying a plurality of saws comprising a cutting-off saw and one or more grooving-saws, and means for rotating the said shafts, with ways arranged at an oblique angle to each other in which said supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports while the saws are rotated so that the cutting-off saw of the group furthest from the work-holding table shall complete its cut before the completion of the cut of the other cutting-off saw, the supports for one set of saws being located above the table so as to bring the lower teeth of the cutting-off saw below the top of the table and of the grooving-saws above it, and the supports for the other shaft located beneath the table so as to bring the upper teeth of the cutting-off saw above the table to cut through the material and of the grooving-saws so as to cut into the material.

7. In a machine of the class described, the combination of a plurality of cutting-off saws each having separate supports, and means for rotating said saws, with a plurality of ways corresponding in number to the supports pivotally mounted upon a single pivot and arranged at an oblique angle to each other and in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports while the saws are rotated so that the cutting-off saw furthest from the work-holding table shall complete its cut before the completion of the cut of the adjacent saw.

8. In a machine of the class described, the combination of a plurality of cutting-off saws each having separate supports, and means for rotating said saws, with a corresponding plurality of ways pivotally mounted upon a single support and arranged at an oblique angle to each other and in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and a single means for reciprocating all of said supports, the supports furthest from the table being located in advance of the adjacent supports so that the cutting-off saw furthest from the table shall complete its cut before the completion of the cut of an adjacent saw.

9. In a machine of the class described, the combination of a plurality of cutting-off saws each having separate supports, and means for rotating said saws, with a corresponding plurality of ways pivotally mounted upon a single support and arranged at an oblique angle to each other and in which the supports may be reciprocated, and adjustable to vary the angles of the saws relative to each other and to the table, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and a single means for reciprocating all of said supports, the supports furthest from the table being located in advance of the adjacent supports so that the cutting-off saw furthest from the table shall complete its cut before the completion of the cut of an adjacent saw.

10. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, a pair of drills located adjacent to the table, means for driving said drills, means for reciprocating the supports while the saws are rotated in that the cutting-off saw furthest from the work-holding table shall complete its cut before the completion of the cut of the other saw to sever the

trapenoid, and means for advancing said drills while they are driven to penetrate the material before the trapenoid is cut off.

11. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, a pair of drills located adjacent to the table, means for driving said drills, and means for simultaneously advancing said drills and reciprocating said supports so that the cutting-off saw furthest from the work-holding table shall complete its cut and the drills shall have penetrated the material before the completion of the cut of the other saw.

12. In a machine of the class described, the combination of two cutting-off saws each having separate supports, and means for rotating said saws, with ways arranged at an oblique angle to each other in which the supports may be reciprocated during the movement of the saws, a pair of drills located adjacent to the table and adjustable relative thereto, means for driving said drills, and means for simultaneously advancing said drills and reciprocating said supports so that the cutting-off saw furthest from the work-holding table shall complete its cut and the drills shall have penetrated the material before the completion of the cut of the other saw.

13. In a machine of the class described, the combination of the two shafts each having separate supports and carrying a plurality of saws comprising a cutting-off saw and two grooving-saws, the grooving-saw adjacent the cutting-off saw being the smaller, and means for rotating said shafts, with ways arranged at an angle to each other in which said supports may be reciprocated, a work-holding table at one side of said ways upon which the material is held during the movement of the saws, and means for reciprocating the supports while the saws are rotated so that the saw furthest from the work-holding table shall complete its cut before the completion of the cut of the other cutting-off saw.

14. In a machine of the class described, the combination of a plurality of saws each having separate supports, and means for rotating said saws, with a plurality of ways corresponding in number to the supports and in which said supports may be reciprocated, a work-holding table upon which the material is held during the movement of the saws, and means for reciprocating said supports so that while all the saws cut the same integral piece of material at the same operation, one saw shall meet the work in advance of another.

15. In a woodworking-machine, the combination of two or more saws arranged at different angles and having mechanism for driving them and means for advancing them upon the work, with a drill and means for driving it and, for advancing it upon the work, a guide-table for holding the material adjustable to different angles relative to said saws.

16. In a woodworking-machine, the combination of two or more saws arranged at different angles and means for driving them and for advancing them upon the work, with a drill and means for driving it and for advancing it upon the work, means for adjusting the position of the drill relative to the saws, and a guide-table adjustable with said drill.

17. In a woodworking-machine, the combination of the saw-supports sliding in ways, with the drill-shaft sliding in its bearings, and the lever *IV* connected to said support and to the drill-shaft, means for raising and lowering said lever, and means for automatically advancing and retracting said lever to reciprocate the saw-support and the drill-shaft.

18. In a machine for sawing off blocks and boring holes therein in a certain relation to the sawed-off edge, the combination with a work-supporting table, of a cutting-off saw, means for rotating it, a support for the saw, a way in which said support can be reciprocated to advance it upon the work, a drill adjacent said way and adapted to be advanced toward and to operate upon the portion of the work being sawed off, means for rotating said drill, and means for simultaneously reciprocating the saw-support and advancing the drill so that the drill shall penetrate the work before the saw has completed the sawing of that portion.

19. In a machine for sawing off blocks and boring holes therein in a certain relation to the sawed-off edge, the combination with a work-supporting table, of two cutting-off saws, means for rotating them, two supports for the respective saws, two ways in which said supports can be reciprocated to advance upon the work, a drill between said ways and adapted to be advanced toward and to operate upon the portion of the work being sawed off, means for rotating said drill, and means for simultaneously reciprocating the saw-supports and advancing the drill so that it shall penetrate the work before the saws have completed the sawing of the portion being drilled.

20. In a machine for sawing off blocks and boring holes therein in a certain relation to the sawed-off edge, the combination with the work-supporting table, of two cutting-off saws, means for rotating them, supports for the saws, ways in which said supports may be reciprocated adjustably to vary the angle at which the saws shall be advanced upon the work, two drills interspersed between said ways, means for driving them, mechanism for adjusting the position of the drills to vary the location of

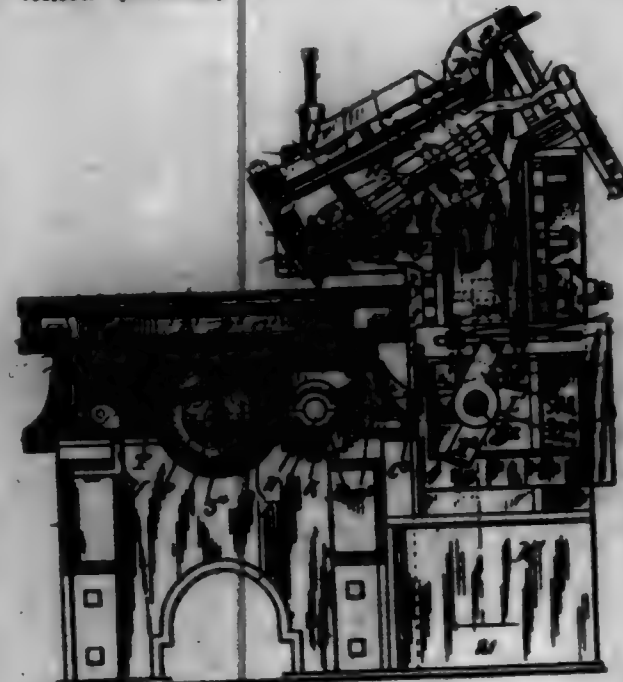
the holes in relation to the cut of the saws upon the material, and means for simultaneously reciprocating the saw-supports and advancing the drills so that the drills shall penetrate the work before the saws have covered the portion being operated upon.

21. In a woodworking-machine, the combination of a plurality of cutting-off saws, a separate support for each saw, a corresponding number of ways in which the supports may be reciprocated to advance the saw upon the work, means for rotating said saws, a work-supporting table located at one side of said ways, means for adjusting the position of said table relative to said ways to vary the angle at which the saws are presented to the work, and means for reciprocating said supports so that the cut of the saw furthest from the table shall be completed first.

22. In a woodworking-machine, the combination of a plurality of cutting-off saws, separate supports for each saw, a corresponding number of ways adjustable to vary the angle between the saws, means for rotating said saws, a work-supporting table located at one side of said ways, means for adjusting the position of said table relative to the ways to vary the angle at which the saws shall be presented to the work, and means for reciprocating said supports so that the cut of the saw furthest from the table shall be completed first.

23. In a woodworking-machine, the combination of a plurality of cutting-off saws, separate supports for each saw, a corresponding number of ways adjustable to vary the angle between the saws, means for rotating said saws, a work-supporting table located at one side of said ways, means for adjusting the position of said table relative to the ways to vary the angle at which the saws shall be presented to the work, means for reciprocating said supports so that the cut of the saw furthest from the table shall be completed first, and a clamping-bar for holding the material upon said table.

701,824. MACHINE FOR FORMING ELLIPTICAL FRAMES.
CHARLES E. SANDHORN, Chicago, Ill. Filed Feb. 17, 1899. Serial No. 705,808. (No model.)



Claim.—1. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point of it to move through an ellipse, comprising a stationary guideway, a carriage reciprocating longitudinally thereof, and the supporting-frame rotating on said carriage.

2. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point of it to move through an ellipse, comprising a stationary guideway, a carriage reciprocating longitudinally thereof, and the supporting-frame rotating on said carriage, together with a rotating shaft mounted in said carriage and having an eccentric thereon, and a link connecting said eccentric and the frame of the stationary guideway.

3. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically reciprocating it, comprising a stationary guideway upon which the frame reciprocates, a rotating shaft mounted in said reciprocating frame and having an eccentric thereon, and a link connecting said eccentric and the framework of the stationary guideway.

4. In a machine of the class described, the combination of a supporting-frame, with mechanism for simultaneously and automatically reciprocating and rotating it so as to cause any point of it to move through

an ellipse, said mechanism comprising a stationary guideway, a carriage reciprocating longitudinally thereof, means for reciprocating said carriage, a supporting-frame rotating on said carriage, a shaft rotating in said carriage and carrying a pinion, and a circular rack or gear on the supporting-frame meshing with said pinion.

5. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically moving it at intervals so as to cause any point on it to move through an ellipse.

6. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point on it to move through an ellipse, said mechanism comprising a rotating shaft mounted in a reciprocating carriage upon which the supporting-frame rotates, connections operated by said shaft for reciprocating the carriage and rotating the supporting-frame thereon, and a clutch operated automatically for throwing said rotating shaft into and out of operation to cause the mechanism to operate at intervals.

7. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point on it to move through an ellipse, said mechanism comprising a stationary guideway, a carriage reciprocating longitudinally thereof, a supporting-frame rotating in said carriage, a rotating shaft mounted in said carriage and having an eccentric thereon, a link connecting said eccentric and the framework of the stationary guideway, and a clutch operated automatically for throwing said rotating shaft into and out of operation to cause the mechanism to operate at intervals.

8. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point on it to move through an ellipse, said mechanism comprising a stationary guideway, a carriage reciprocating longitudinally thereof, a supporting-frame rotating in said carriage, a rotating shaft mounted in said carriage and having an eccentric thereon, a link connecting said eccentric and the framework of the stationary guideway, and a clutch for throwing said rotating shaft into and out of operation.

9. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and simultaneously reciprocating and rotating it to cause any point on it to move through an ellipse, said mechanism comprising a stationary guideway, a carriage reciprocating longitudinally thereof, a supporting-frame rotating in said carriage, a rotating shaft mounted in said carriage and having an eccentric thereon, a link connecting said eccentric and the framework of the stationary guideway, a clutch controlling the operation of said shaft, and means for automatically shifting said clutch at intervals to control the movement of the supporting-frame.

10. In a machine of the class described, the combination of a rotating supporting-frame, with a forming-tool journaled adjacent to said frame, and gearing and connections for rotating said frame and simultaneously rotating said tool at a rate synchronous with the movement of the supporting-frame.

11. In a machine of the class described, the combination of a supporting-frame, with a forming-tool journaled adjacent to said frame and geared to rotate synchronously therewith, and means for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

12. In a machine of the class described, the combination of a supporting-frame, with a forming-tool geared to said frame to rotate therewith, and mechanism for automatically and simultaneously reciprocating and rotating said frame to cause it to move through an ellipse relative to said tool.

13. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith by means of a gear-pinion on said tool meshing with a rack on said frame for rotating said tool, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting the tool longitudinally to vary the size of the elliptical surface cooperating therewith.

14. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically and simultaneously reciprocating and rotating said frame to cause it to move through an ellipse relative to said tool, and mechanism for rotating said tool at a rate of speed corresponding to the movement of the frame beneath it.

15. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting said tool longitudinally and vertically for the purpose described.

16. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an

ellipse, said mechanism comprising a stationary guideway, a carriage reciprocating longitudinally thereof, means for reciprocating said carriage, a supporting-frame rotating on said carriage, a shaft rotating in said carriage and carrying a pinion, and a circular rack or gear on the supporting-frame meshing with said pinion.

17. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool at regular intervals, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

18. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool at regular intervals, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

19. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool at regular intervals, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

20. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool at regular intervals, means for rotating said tool when it is in its lower position, and mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool.

21. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it.

22. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for automatically vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it.

23. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it.

24. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically and simultaneously reciprocating and rotating said frame to cause it to move through an ellipse relative to said tool, and means for automatically vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it.

25. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for raising and lowering said tool, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it.

26. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting the tool longitudinally to vary the size of the elliptical surface cooperating therewith.

27. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting the tool angularly to vary the angle of the tool relative to the surface of the frame.

28. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting said tool longitudinally and vertically for the purpose described.

29. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting said tool longitudinally and vertically for the purpose described.

30. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an

elliptical relative to said tool, and means for adjusting the tool angularly and vertically for the purpose described.

31. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, and means for adjusting the tool angularly, longitudinally and vertically for the purpose described.

32. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool, means for vibrating said tool to keep its axis at right angles to the line of movement of the portion of the frame passing beneath it, and means for regulating the amount of said vibration.

33. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically moving it so as to cause any point on it to move through an ellipse, and means for adjusting said mechanism so that the relative lengths of the major and minor axes of the ellipse may be varied as desired.

34. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically and discontinuously reciprocating and rotating it to cause any point on it to move through an ellipse, and means for adjusting said mechanism to vary the length of reciprocation so that the relative lengths of the major and minor axes of the ellipse may be varied as desired.

35. In a machine of the class described, the combination of a supporting-frame, with mechanism for automatically reciprocating it, comprising a stationary guideway upon which the frame reciprocates, a rotating shaft mounted in said reciprocating frame and having an adjustable eccentric thereon, and a link connecting said eccentric and the framework of the stationary guideway.

36. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, adjustable means for raising and lowering said tool, and mechanism for automatically moving said frame so as to cause it to move through an ellipse relative to said tool.

37. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool comprising a rotating cam and a cooperating bearing-surface adjustable vertically, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

38. In a machine of the class described, the combination of a supporting-frame, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool comprising a rotating cam and a cooperating bearing-surface adjustable horizontally, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

39. In a machine of the class described, the combination of a movable supporting-frame, means for moving said frame through a curve, with a forming-tool journaled adjacent said frame, and gearing between said frame and tool whereby the movement of the former rotates the latter synchronously therewith.

40. In a machine of the class described, the combination of a movable supporting-frame, means for moving said frame through a curve, with a forming-tool journaled adjacent said frame, and a rack on said frame having the same curve as that through which the frame is moved, and a pinion on said forming-tool meshing with said rack whereby the movement of the frame rotates the tool synchronously therewith.

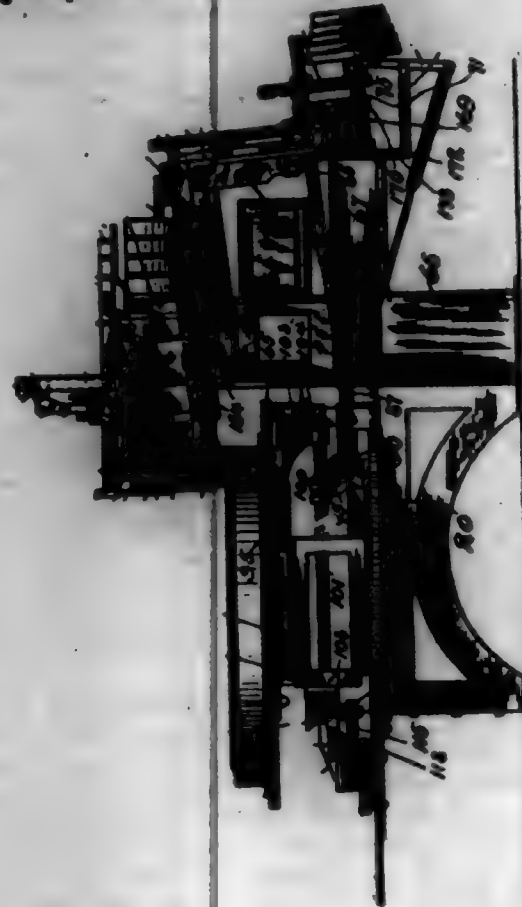
701,825. MACHINE FOR FORMING ELLIPTICAL FRAMES.
CHARLES E. SANDSTROM, Chicago, Ill. Filed Aug. 2, 1900. Renewed
Apr. 2, 1902. Serial No. 101,002. (No model.)

Claim.—1. In a device of the class described, the combination with a supporting-plate having two pivoted focal bearings thereon, of a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack rigidly secured to said table, a pinion meshing with said rack, and means for rotating said pinion.

2. In a device of the class described, the combination with a supporting-plate having two pivoted focal bearings thereon, one of said bearings being adjustable to and from the other, of a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack rigidly secured to said table, a pinion meshing with said rack, and means for rotating said pinion.

3. In a device of the class described, the combination with a supporting-plate having two pivoted focal bearings thereon, of a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack

rigidly secured to said table, a pinion meshing with said rack, a forming-tool mounted to rotate adjacent to the table, and means for synchronously rotating said pinion and forming-tool.



4. In a device of the class described, the combination with a supporting-plate having two focal bearings thereon, of a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack rigidly secured to said table, a pinion meshing with said rack, a forming-tool mounted to rotate adjacent to said table, a frame in which said forming-tool is mounted, means for raising and lowering said frame to bring the forming-tool into and out of engagement with the work on the table, a driving-pulley supported by said forming-tool frame, connections between said driving-pulley and forming-tool for rotating the latter, and flexible connections between said driving-pulley and the pinion meshing with the rack to permit the movement of the pulley caused by the raising and lowering of the frame.

5. In a device of the class described, the combination with the frame, of a table mounted to rotate and reciprocate upon said frame, an elliptical rack secured upon said table, a pinion meshing with said rack, means for rotating said pinion, and connections between said frame and table to compel it to move in an elliptical path as its rotation is forced by said pinion.

6. In a device of the class described, the combination with a stationary frame having a supporting-plate pivoted thereto and adapted to swing horizontally thereon, two focal bearings mounted on said plate, a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack rigidly secured to said table, a pinion meshing with said rack, means for rotating said pinion, and mechanism for automatically swinging said plate synchronously with the movement of the table.

7. In a device of the class described, the combination with a stationary framework, of a supporting-plate pivoted thereto and adapted to swing horizontally thereon, two focal bearings mounted on said plate, a rotating and reciprocating table having the ways formed therein crossing each other at right angles and cooperating with said focal bearings, an elliptical rack rigidly secured to said table, a pinion meshing with said rack, a forming-tool adapted to rotate adjacent to said table, and means for synchronously rotating said pinion and forming-tool and automatically swinging said plate, substantially as and for the purpose described.

8. In a device of the class described, the combination with the stationary frame, of a swinging plate pivotedly mounted thereon, a table mounted to rotate and reciprocate relative to said plate, an elliptical rack secured to said table, a pinion meshing with said rack, means for rotating said pinion, connections between said plate and table to compel the latter to move in an elliptical path as its rotation is forced by said pinion, and means for swinging said plate synchronously with the movement of said table, substantially as and for the purpose described.

9. In a device of the class described, the combination with the stationary frame, of a swinging plate pivotedly mounted thereon, a table mounted to rotate and reciprocate relative to said plate, an elliptical rack secured to said table, a pinion meshing with said rack, means for rotating said pinion, connections between said plate and table to compel the latter to move in an elliptical path as its rotation is forced by said pinion, and means for swinging said plate synchronously with the movement of said table, said means comprising a rotating arm journaled in the support for the said plate and having a bearing portion thereof cooperating with an elongated slot or way in the stationary frame, substantially as and for the purpose described.

10. In a device of the class described, the combination with the stationary frame, of a swinging plate pivotedly mounted thereon, a table mounted to rotate and reciprocate relative to said plate, an elliptical rack secured to said table, a pinion meshing with said rack, means for rotating said pinion, connections between said plate and table to compel the latter to move in an elliptical path as its rotation is forced by said pinion, and means for swinging said plate synchronously with the movement of said table, said means comprising a gear-pinion journaled in the support for said plate carrying an arm rigidly secured thereto having a bearing-portion pivoted thereto and cooperating with an elongated slot or way in the stationary frame, substantially as and for the purpose described.

11. In a device of the class described, the combination with the stationary frame, of a swinging plate pivotedly mounted thereon, a table mounted on said plate, gearing for rotating said table upon said plate, and means for swinging said plate synchronously with the movement of the table comprising a rotating arm journaled in the support for said plate and having a bearing portion thereof cooperating with an elongated slot or way in the stationary frame.

12. In a device of the class described, the combination with the stationary frame, of a swinging plate pivotedly mounted thereon, a table mounted on said plate, gearing for rotating and reciprocating said table upon said plate, and means for swinging said plate synchronously with the movement of the table comprising a gear-pinion journaled in the support for said plate and carrying an arm rigidly secured thereto which has a bearing-portion pivoted thereto cooperating with an elongated slot or way in the stationary frame.

13. In a device of the class described, the combination with a forming-tool, of a work-carrying table mounted adjacent to said tool, and means for discontinuously giving an elliptical movement to said table and also swinging it so that the line of movement of any portion of said table as it passes beneath said tool shall always be exactly at right angles to the axis of said tool.

14. In a device of the class described, the combination with a forming-tool, of a work-carrying table and means for discontinuously rotating it and reciprocating it in one direction so as to cause any point of it to move through an ellipse relative to the forming-tool, a swinging support for said table, and means for vibrating said support synchronously with the elliptical movement of the table so that the line of movement of the portion of the table passing beneath the forming-tool is always at right angles to the axis of said tool.

15. In a device of the class described, the combination with a forming-tool, of a work-carrying table mounted adjacent to said tool, and means for discontinuously giving an elliptical movement to said table and also synchronously swinging it the same distance and at a corresponding rate of speed at any point on either side of the center of its arc of vibration so that the line of movement of the portion of the table passing beneath the forming-tool is always at right angles to the axis of said tool.

16. In a device of the class described, the combination with the plate carrying the forming-tool, of the mechanism for reciprocating said plate, and means for automatically stopping said mechanism comprising the bell-shifting bar having the lever pivotedly connected thereto, and a cam-ling on said lever adapted to be contacted by a stop-ling on said plate when it reaches a certain point in its movement.

17. In a device of the class described, the combination with the plate carrying the forming-tool, of the mechanism for reciprocating said plate, and means for automatically stopping said mechanism at the limit of the movement of the plate in either direction, said means comprising the bell-shifting bar for the lever pivotedly connected thereto, and a pair of cam-ling on said lever adapted to be contacted by cooperating stop-ling on the plate when it reaches the desired points in its movement.

18. In a device of the class described, the combination of a supporting-table, with mechanism for automatically moving it so as to cause any point on it to move through an ellipse, a tool-carrying frame movable to and from said supporting-table, and means for automatically moving said tool-carrying frame to and from the table at any time desired by the operator.

19. In a device of the class described, the combination of a supporting-table, with mechanism for automatically moving it so as to cause any point on it to move through an ellipse, a tool-carrying frame movable to

and from said supporting-table, and means for automatically moving said tool-carrying frame to and from the table at any time desired by the operator, said means comprising a bell-shifting bar controlled by the operator and cooperating with flat and loose pulleys on a shaft geared to a screw cooperating with said tool-carrying frame, substantially as described.

20. In a machine of the class described, the combination of a supporting-table, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool comprising a screw cooperating with the support of said forming-tool, and connections for automatically rotating said screw and mechanism for automatically moving said table so as to cause it to move through an ellipse relative to said tool.

21. In a machine of the class described, the combination of a supporting-table, with a forming-tool cooperating therewith, means for automatically raising and lowering said tool at any time desired by the operator, and mechanism for automatically moving the frame so as to cause it to move through an ellipse relative to said tool.

22. In a device of the class described, the combination of the table, and means for moving it through an ellipse, with the forming-tool cooperating therewith and mounted in a frame, means for automatically moving said frame to and from the table, means for stopping the movement of said frame toward the table at a certain distance therefrom, and an adjustable stop on the frame adapted to contact with the stationary part of the machine at the instant the stopping means comes into action.

23. In a device of the class described, the combination with a stationary framework, of a supporting-plate mounted to swing thereon, a table mounted on said plate, a forming-tool mounted to rotate adjacent to said plate, and mechanism for discontinuously swinging said plate, moving said table thereon in an ellipse, and synchronously rotating said tool so that the design upon said tool will be accurately pressed upon an elliptical frame carried by said table.

24. In a device of the class described, the combination with a stationary framework, of a supporting-plate mounted to swing thereon, a table mounted on said plate, means for discontinuously rotating and reciprocating said table upon the plate to move it through an ellipse, and means for swinging said plate synchronously with the movement of the table for the purpose described, said means comprising a rotating arm journaled in connection with said plate and having a bearing portion thereof cooperating with an elongated slot or way in the stationary framework.

25. In a device of the class described, the combination with the grid having the pivotal bearing thereon, a swinging plate mounted on said grid by means of said pivotal bearing, a shaft having its stationary bearing on said grid and provided with a bevel gear-wheel at one end, a shaft having bearings in said plate and having a bevel gear-wheel secured thereon, and on the bevel gear-pinion mounted in line with said pivotal bearing and engaging with the bevel gear-pinion on said shaft, substantially as and for the purpose described.

26. In a device of the class described, the combination with the grid having the pivotal bearing thereon, a swinging plate mounted on said grid by means of said bearing, a shaft having bearings supported by said grid and with a bevel gear-pinion secured to one end thereof, a shaft mounted in bearings in said swinging plate and having bevel gear-pinions at the end thereof and also an intermediate bevel gear-pinion, two shafts suitably mounted in relation to said swinging plate and having bevel gear-pinions on their ends meshing with the bevel gear-pinion on the end of the shaft in said plate, and on the bevel gear-pinion mounted in line with said pivotal bearing and meshing with the bevel gear-pinion on the shaft mounted on the grid and with the intermediate bevel gear-pinion on the shaft mounted in the plate, substantially as and for the purpose described.

27. In a device of the class described, the combination with the stationary frame, of a swinging plate, an arm journaled in said plate and having a bearing at one end cooperating with an elongated slot or way in the swinging plate, and means for rotating said arm.

28. In a device of the class described, the combination with a table and means for rotating it, of a forming-tool and means for rotating it to cooperate with the edge of a frame placed on said table, a second forming-tool and means for rotating it to cooperate with the top of said frame, and mechanism whereby said forming-tools may be shifted alternately into position to operate on said frame.

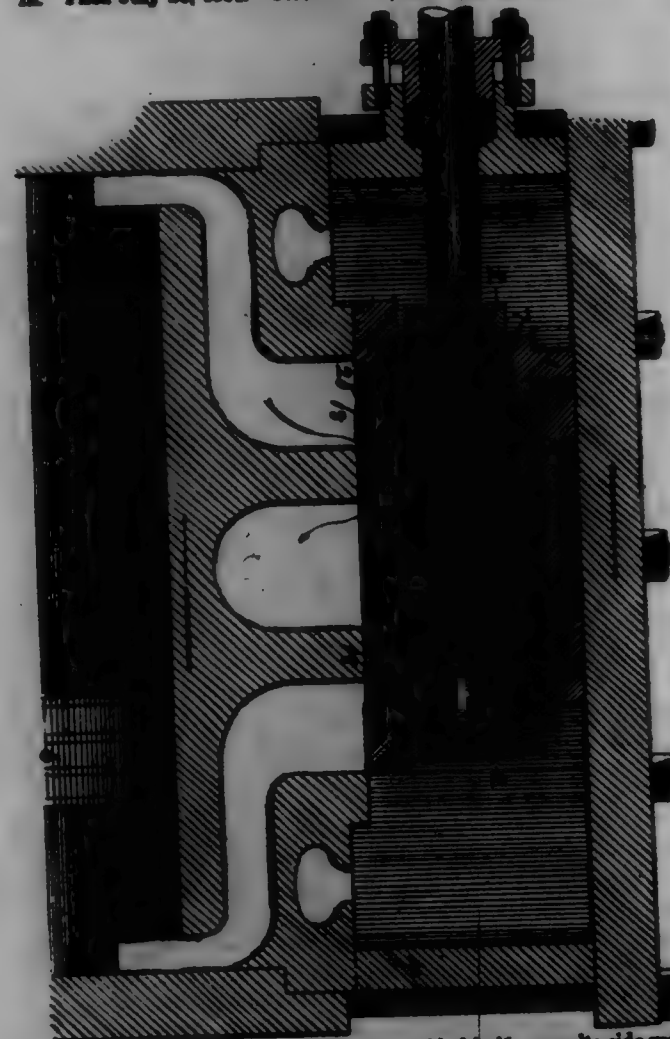
29. In a device of the class described, the combination with a table and means for rotating it, of a forming-tool and means for rotating it, a support for said tool whereby it can be moved horizontally to bring it into and out of cooperative engagement with the edge of the frame placed on said table, a second forming-tool and means for rotating it, a support for said second tool which can be moved vertically to bring it into and out of cooperative engagement with the top of said frame, and mechanism whereby said supports may be shifted to bring said forming-tools alternately into position to operate on said frame.

30. In a device of the class described, the combination with a table, and means for rotating and reciprocating it discontinuously so as to cause it to move through an ellipse, of a forming-tool and means for rotating it to cooperate with the edge of an elliptical frame placed on said table, a

second forming-tool and means for rotating it to cooperate with the top of said frame, and mechanism whereby said forming-tool may be shifted alternately into position to operate on said frame.

31. In a device of the class described, the combination with a table, and means for rotating and reciprocating it simultaneously so as to cause it to move through an ellipse, of a forming-tool and means for rotating it, a support for said tool whereby it can be moved horizontally to bring it into and out of cooperative engagement with the edge of the elliptical frame placed on said table, a second forming-tool and means for rotating it, a support for said second tool which can be moved vertically to bring it into and out of cooperative engagement with the top of said frame, and mechanism whereby said supports may be shifted to bring said forming-tools alternately into position to operate on said frame.

701,626. STEAM-ENGINE VALVE. ERL L. SAUER, Chicago, Ill. Filed July 26, 1901. Serial No. 60,708. (No model.)



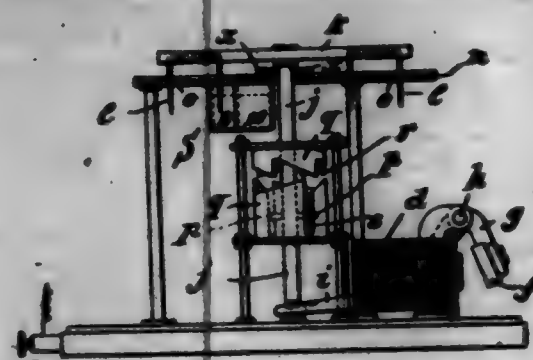
Claim.—1. A steam-engine valve, provided in its opposite side walls with openings into the exhaust-chamber, the bushings, inserted in said openings but stopping short of the exhaust-chamber, means for closing the outer ends of the bushings, the auxiliary piston-valves, provided with reduced ends, and a cushioning-shoulder and having the respective ends loosely inserted in said bushings, and the cushion-spaces between the adjacent surfaces of the piston-valves and bushings, substantially as described.

2. The combination with the main valve, provided with openings in the side walls opposite each other, of the bushings rigidly inserted therein, and open to the exhaust-chamber, but tightly closed at their outer ends, the piston-valves adapted to have a reciprocating movement in said bushings and provided with a cushioning shoulder and space adjacent to the inner ends of the bushings, substantially as described.

3. The combination with the main valve, having openings therethrough into the exhaust-chamber, of the bushings, inserted in said openings, the cap-plates closing the outer ends of the bushings, the piston-valves having their respective ends mounted in the inner open ends of the bushings and having a reciprocating movement across the line of the exhaust-chamber, and means for imparting such movement, substantially as described.

4. The combination with a steam-engine valve having apertures on opposite sides opening into the exhaust-chamber, bushings, open at both ends and seated in said apertures, the steam-tight cap-plates closing the outer ends of said bushings, piston-valves, connected by a common stem and seated in said bushings, the annular space around said bushings, and the crisscross leading therefrom in the space between the ends of the piston-valves, and the adjacent surfaces, substantially as described.

701,627. SWITCH FOR ELECTROMOTORS FOR DRIVING METAL APPARATUS. RUD. SCHNEIDER and HERMANN DÖHLER, Vienna, Austria-Hungary. Filed Jan. 10, 1902. Serial No. 59,281. (No model.)



Claim.—1. The combination with a tool and an electric motor for operating it, of an electric switch controlling the direction of the current in the motor-circuit, an auxiliary electric circuit and one or more solenoids connected therewith for operating said switch, and a push-button on the handle of the tool for opening and closing the auxiliary circuit, substantially as and for the purpose specified.

2. The combination with a tool and an electric motor for operating it, of an electric switch for controlling the motor-circuit, an auxiliary circuit including one or more solenoids for operating said switch, and a spring-contact carried by the handle of the tool for opening and closing said auxiliary circuit, substantially as and for the purpose specified.

3. The combination with a tool and an electric motor for operating it, of an electric switch for controlling the motor-circuit, an auxiliary circuit including one or more solenoids for operating the switch, a spring-contact carried by handle of the tool, and means actuated by the switch for stopping starting and reversing the motor, substantially as and for the purpose specified.

4. The combination with a tool and an electric motor for actuating it of a switch H comprising a cam y surrounding switch-shaft and adapted to guide the cross-pin forming part of said shaft in such a manner that it may rotate and otherwise control its movements, substantially as described.

5. The combination with a tool and an electric motor for actuating it of switch B with solenoids d adapted to impart a pivot motion to arm i and the means to transform this into a vertical as well as revolving motion of shaft j.

6. The combination with a tool and an electric motor for actuating it of solenoids to impart the operating movements in a switch B and a cam surrounding a shaft with a cross-pin to control and guide such movements, substantially as described.

7. The combination with a tool and an electric motor for actuating it, of solenoids to impart a part of the operating movement and a spring or the action of gravity to impart the other part of the operating movement in a switch B, a cam surrounding a shaft with a cross-pin to control and guide such movements, substantially as described.

8. The combination with a tool and an electric motor for actuating it of solenoids to impart the operating movements in a switch B, a pivot-lever with a slot or notch in which the point or end of a shaft rests one or a number of cross-pins or pins a part of said shaft one or a number of cam-surrounding, guiding and controlling the movements of said shaft.

9. The combination with a tool and an electric motor for actuating it of solenoids to impart the operating movements in a switch B, a pivot-lever with a slot or notch in which the point or end of a shaft rests, a number of cross-pins or pins a part of said shaft and arranged so as to guide and control the movement of shaft by means of a cam and to control the opening and closing of an auxiliary switch, substantially as described.

10. The combination with a tool and an electric motor for actuating it of solenoids to impart the operating movements in a switch B an auxiliary switch comprising a switch-lever, a tube fastened to the lever and containing mercury, a plate or disk on this lever with projecting arms adapted to engage with a cross-pin or pin a part of said switch-shaft, substantially as described.

701,628. AUTOMATIC AIR-BRAKE COUPLING. CLYDE E. SHER, Shrewsbury, Pa. Filed Dec. 14, 1901. Serial No. 59,531. (No model.)

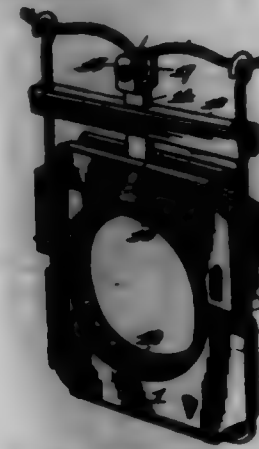


Claim.—1. In a device of the kind described, the combination with the tubes of the coupling-heads arranged thereon, one coupling-head having the forwardly-projecting wings at the upper and lower sides, the op-

posing head having the forwardly-projecting wings at its opposite sides, and the forwardly-projecting and outwardly-flaring guard arranged at the side of each coupling-head, substantially as set forth.

2. In a device of the kind described, the combination with a cylinder having an opening in its rear end, of a tube movable longitudinally in the said cylinder and projecting forwardly from the forward end of the said cylinder, the packing arranged at the forward end of the cylinder and between the said cylinder and tube, the flanges for holding the packing in place, the valve for closing the opening at the rear end of the cylinder, said valve being rigidly connected to the rear end of the tube, a coiled spring arranged within the cylinder and surrounding the rear portion of the tube, a collar arranged upon the said tube and against which the forward end of the spring bears, the coupling-head arranged upon the forward end of the tube and having the forwardly-projecting wings arranged at diametrically opposite points and the guard arranged at the side of the coupling-head, substantially as described.

701,629. DUST-GUARD FOR JOURNAL-BOXES. CHARLES E. HALLIDAY, JR., Jacksonville, Ill., assignor, by mesne assignments, of one-half to Michael J. Hurley, St. Louis, Mo. Filed Dec. 22, 1901. Serial No. 57,816. (No model.)



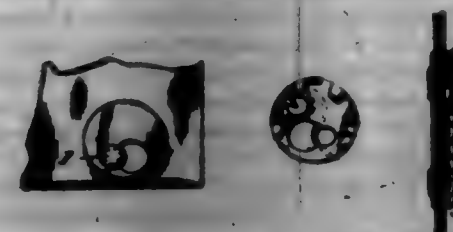
Claim.—1. The combination of a pair of packing-holders, a stirrup holding said holders together, a two-armed spring provided with a central coil and having a detachable connection with the ends of the stirrup, a filarum supporting the coil of the spring and bearing loosely against the upper packing-holder, and means holding the filarum against movement.

2. The combination of a pair of packing-holders, a stirrup holding said holders together, a cross-arm provided with a central opening, a filarum passing through the central opening of the cross-arm, and bearing against one of the packing-holders, a two-armed spring, mounted in the filarum and the ends of said arms engaging with the ends of the stirrup.

3. The combination of a pair of packing-holders, a stirrup holding said holders together, a wedge-shaped cross-arm, provided with a central opening, and forced ends which receive the stirrup, a filarum provided with a forced head, passing through the central opening of the cross-arm, and bearing against one of the packing-holders, a two-armed spring having a central coil, mounted in the forced head of the filarum and the ends of said arms engaging with the ends of the stirrup.

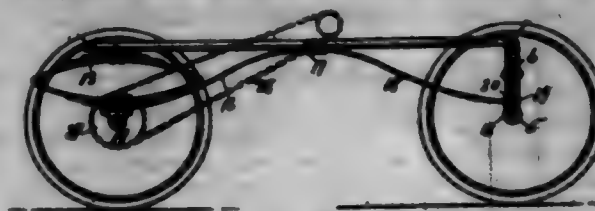
4. In a dust-guard, the combination of a pair of packing-holders, packing in said holders, guide-flaps carried by said holders, inward flanges carried by said holders and adapted to bear against said lips, and means for embracing said packing-holders, substantially as described.

701,630. CURTAIN-FASTENER. ARTHUR M. SHADOK, Galveston, Ohio. Filed Oct. 2, 1901. Serial No. 57,492. (No model.)



Claim.—In a fastener of the type described, spaced plates having openings in adjacent relation to form a buttonhole having an enlarged and a contracted portion, one of the plates having a portion pressed inward to form a projection, and a spring having a coil about the said projection and having a part normally extended across the contracted portion of the buttonhole for holding the button therein, substantially as specified.

701,631. VEHICLE RUNNING-GEAR. GEORGE E. BISHOP, Detroit, Mich. Filed Mar. 21, 1902. Serial No. 100,000. (No model.)



Claim.—1. In a vehicle running-gear, the combination of a frame, the axle, springs interposed between the axle and frame and pivoted to the latter, and side springs joined at their center to the frame and coupled at their ends to the axle.

2. In a vehicle running-gear, the combination of a frame, the axle, springs interposed between the axle and frame, side springs attached at their center to the frame and at their ends to the axle, the coupling which unites one end of said springs to the axle being adjustable.

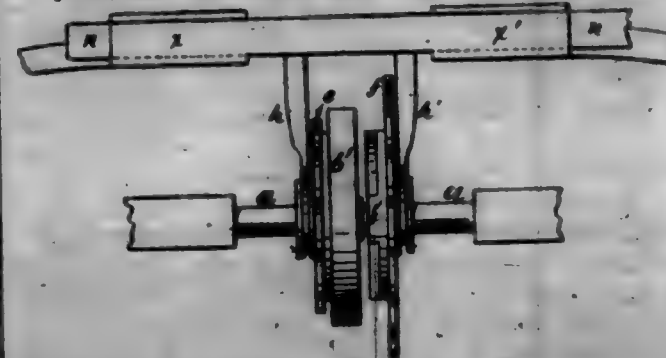
3. In a vehicle running-gear, the combination of a frame adapted to support a motor, the axle, springs interposed between the axle and frame and pivoted to the latter, side springs extending between the axle and attached to the frame, a sprocket-wheel on the rear axle, a chain extending from said wheel to the motor-shaft, and means for adjusting the rear axle to take up the slack of the sprocket-chain.

701,632. COFFEE-FILTER. KENNETH A. SHIRVIN, Artesia, Cal., administrator of Augustus F. Shirvin, deceased, assignor to Morris Zolotoroff and Samuel R. Caldwell, San Francisco, Cal. Filed Jan. 9, 1902. Serial No. 59,056. (No model.)



Claim.—For use in connection with a coffee-pot or the like, a filter having perforated sides and bottom walls, spring yielding arms extended upward from opposite sides of the filter, each arm consisting of a single length of wire bent to form two members which at the upper portion are curved outward and then inward, and downward extensions on said arms forming legs to support the filter upon the bottom of the pot, substantially as specified.

701,633. DIFFERENTIAL GEARING. ROBERT C. SHALL, New York, N. Y. Filed Dec. 20, 1901. Serial No. 57,861. (No model.)



Claim.—1. A rotary vehicle-axle; a disk provided on its opposite faces with clutch devices keyed to said axle; gears of different diameter mounted at opposite sides of said disk and adapted to be separately but not simultaneously engaged by the clutch devices thereof, and means for moving said gears into and out of such engagement, substantially as described.

2. A disk provided on its opposite faces with clutch devices and mounted upon the shaft of a vehicle; opposite faces with clutch devices, mounted thereon; gears of different diameter mounted at opposite sides of said disk and adapted to be separately engaged by the clutch devices thereof, and means for moving said gears into and out of such engagement, substantially as described.

3. A vehicle-axle, a disk provided on the opposite faces with clutch devices, mounted thereon; oppositely-arranged sprocket-wheels of different diameter adapted to be separately engaged by the clutch devices of said disk; levers and arms adapted to move said sprocket-wheels into and out of such engagement, and means for locking the disengaged sprocket out of position, substantially as described.

4. A clutch device comprising a disk having on its opposite faces inclined sectoral wings; a large and a small sprocket-wheel mounted at opposite sides of said clutch and provided with projecting sectoral wings adapted to enter the space between the wings of said clutch; a shifting lever controlling each of said sprocket-wheels and an operating-lever controlling said shifting lever, substantially as described.

5. A clutch device; a large and a small sprocket-wheel adapted to be separately engaged therewith; a shifting lever from each of said sprocket-wheels terminating in angular arms, and an operating-lever parallel with said arms adapted to move said shifting levers and arms, substantially as described.

6. A clutch device; a large and a small sprocket-wheel adapted to be separately engaged therewith; a shifting lever from each of said sprocket-wheels terminating in angular arms; and an operating-lever parallel with said arms and acting thereon to shift said sprockets into and out of engagement with the clutch, substantially as described.

7. A clutch device; a large and a small sprocket-wheel adapted to be separately engaged therewith; a shifting lever from each of said sprocket-wheels, terminating in horizontal arms partially inclosed in suitable bearings and provided on one face with a latch or beveled lug working in similarly-shaped recesses in said bearings, and an operating-lever having longitudinal slots through which said latches project, substantially as described.

8. A clutch device; a large and a small sprocket-wheel; a shifting lever from each of said wheels terminating in horizontal arms partially inclosed in bearings and provided on one face with a latch or beveled lug adapted to engage similarly-shaped recesses in said bearings, and an operating-lever having abrupt shoulders, and elongated slots, through the latter of which said latches are adapted to project, substantially as described.

9. A clutch device; a large and a small sprocket-wheel; a shifting lever from each wheel terminating in horizontal arms, partially inclosed in bearings and provided on their opposite faces with latches or beveled lugs adapted to engage similarly-shaped recesses in the front and rear walls of the bearings; and an operating-lever having abrupt shoulders adapted to engage the inner ends of said horizontal arms, and provided with elongated slots through which the latches on one face thereof may project, substantially as described.

701,684. REVERSING-GEAR. CHAS. F. SMITH, Broomfield, Mass., assigner, by direct and mesne assignments, to Smith Single Bolt Reversing Counter-shaft Company, Melrose, Mass., a Corporation of Maine. Filed July 12, 1901. Serial No. 63,574. (No model.)



Claim.—1. The combination with a shaft; of a pulley free to rotate on said shaft; means for clamping said pulley to said shaft; a fixed member; intermediate gears mounted thereon; external and internal gear members intermeshing with said intermediate gears; and means for connecting said external and internal gears respectively with said pulley and said shaft, as set forth.

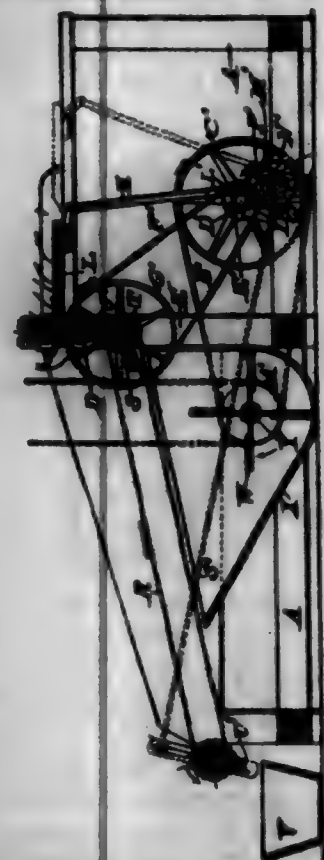
2. The combination with the pulley loosely mounted on a shaft; of said shaft; means for connecting said pulley with and disconnecting it from said shaft; an internal gear arranged to be connected with said pulley; a pinion arranged to be connected with said shaft; a frame; one or

more gears mounted on said frame and interposed between said internal gear and said pinion; and means actuating means for connecting said external gear with said pulley and said pinion with said shaft, as set forth.

3. The combination with a shaft; of a driven pulley; a fixed frame; intermediate gears mounted thereon; other gears adapted to coast through said intermediate gears; and means for connecting said other gears respectively with the pulley and the shaft.

4. The combination with a shaft; of a driven pulley; a fixed frame; intermediate gears mounted thereon; other gears adapted to coast through said intermediate gears; a clutch member for connecting one gear to the pulley; a second clutch member for connecting the other gear to the shaft; a shifting device interposed between said clutch members; and an actuating device connected with one clutch member, as set forth.

701,685. CANDY-CUTTING MACHINE. JOHN SMITH, Philadelphia, Pa., assigner of one-half to Henry Brundin, Philadelphia, Pa. Filed Feb. 18, 1902. Serial No. 94,613. (No model.)



Claim.—1. In a candy-cutting machine, cutting-rollers, a feed-table provided with a movable feeder situated on one side of said rollers, a combined front section on said feeder, and a traveling conveyor situated on the other side of said rollers.

2. In a candy-cutting machine, cutting-rollers consisting of opposing conical knives, a feed-table provided with a movable feeder situated on one side of said rollers, a combined front section on said feeder, and a traveling conveyor situated on the other side of said rollers.

3. In a candy-cutting machine, cutting-rollers consisting of opposing conical knives, stripping-lugs situated between said knives, a feed-table provided with a movable feeder situated on one side of said rollers, a combined front section on said feeder, and a traveling conveyor situated on the other side of said rollers.

4. In a candy-cutting machine, cutting-rollers, a feed-table situated on one side thereof, a reciprocating feeder mounted upon said table, and a combined front section on said feeder.

5. In a candy-cutting machine, cutting-rollers, a feed-table situated adjacent the same, and a sliding member mounted upon said table and connected with a vibratory lever extending through an opening in said table, said sliding member being provided with a combined front section.

6. In a candy-cutting machine, a feed-table having a reciprocating feeder provided with a combined front section.

7. In a candy-cutting machine, a feed-table provided with a reciprocating feeder having its front section movably connected therewith by means of dovels and springs.

8. In a candy-cutting machine, a feed-table having a reciprocating feeder provided with a vertically-movable front section.

9. In a candy-cutting machine, a feed-table having a reciprocating feeder provided with a vertically-movable front section, and means for holding said front section under tension upon the table.

10. In a candy-cutting machine, a feed-table having a reciprocating feeder provided with a front section connected therewith by spring-binges.

11. In a candy-cutting machine, cutting-rollers, a feed-table situated on one side thereof, a traveling conveyor on the other side thereof, and means for creating an air-current through said conveyor.

12. In a candy-cutting machine, cutting-rollers, a feed-table situated upon one side thereof, a traveling conveyor situated on the other side thereof, and consisting of open-work or reticulated material, and devices for causing an air-current situated below said conveyor.

13. In a candy-cutting machine, a conveyor consisting of articulated material, devices for causing an air-current to pass through said articulated material, and means for intermittently moving the said conveyor.

14. In a candy-cutting machine, cutting-rollers geared together, a feed-table situated on one side thereof and having a movable feeder, a lever connected with said feeder and extending through an opening in said table, a traveling conveyor situated on the other side of said rollers, devices for creating an air-current situated below said traveling conveyor and actuating said means for causing an air-current.

701,686. HANGER COUPLING-BEARING FOR SKEW CONVEYERS. EDWARD G. SMITH and JOHN H. MATHER, Portland, Me., Assigners. Filed Mar. 22, 1902. Serial No. 100,408. (No model.)



Claim.—1. The combination with a power and a conveyor shaft, of a journal-stud secured to the power-shaft and extending into the conveyor-shaft, a clamping-sleeve engaging with said journal-stud and with the conveyor-shaft for connecting the latter to the power-shaft, and a bodily-movable hanger for supporting the said shafts and for operating the said shafts.

2. The combination with a power and a conveyor shaft, of a journal-stud secured to the power-shaft and extending into the conveyor-shaft, a clamping-sleeve engaging with said journal-stud and with the conveyor-shaft for connecting the latter to the power-shaft, a pair of rollers mounted on said clamping-sleeve, and a bodily-movable hanger for supporting the said shafts and engaging with said rollers for operating the said shafts.

3. The combination with a power and a conveyor shaft, of a journal-stud secured to the power-shaft and extending into the conveyor-shaft, a clamping-sleeve mounted upon said journal-stud and with the conveyor-shaft for connecting the latter to the power-shaft, a pair of rollers mounted on said clamping-sleeve, a spring for elastically connecting the clamping-sleeve to the journal-stud, and a bodily-movable hanger for supporting the said shafts and engaging with said rollers for operating the said shafts.

4. The combination with a conveyor-casing and a power and a conveyor shaft arranged therein, of a journal-stud carried by the power-shaft and adapted to extend into the conveyor-shaft, a clamping-sleeve mounted upon and engaging with the said journal-stud, a pair of rollers mounted upon said sleeve, a hanger for supporting said sleeve and arranged between the said rollers, said hanger adapted to be moved for causing the engagement and the disengagement of the conveyor-shaft with the power-shaft, and means adapted to slide upon the casing and connected to said hanger for suspending and operating the same.

5. The combination with a conveyor-casing and a power and a conveyor shaft arranged therein, of a journal-stud carried by the power-shaft and adapted to extend into the conveyor-shaft, a clamping-sleeve mounted upon and engaging with the said journal-stud, a pair of rollers mounted upon said sleeve, a hanger for supporting said sleeve and arranged between the said rollers, said hanger adapted to be moved for causing the engagement and the disengagement of the conveyor-shaft with the power-shaft, means adapted to slide upon the casing and connected to said hanger for suspending and operating the same, and a yoke for connecting the hanger to said suspending means therefor.

6. A hanger coupling-bearing for a power and a conveyor shaft consisting of a journal-stud carried by the power-shaft and adapted to extend into the conveyor-shaft, a clamping-sleeve rotating with the journal-stud and capable of longitudinal movement while revolving, said clamping-sleeve adapted to engage with the conveyor-shaft for connecting the same to the power-shaft, a vertically-extending hanger for supporting and operating said clamping-sleeve, a roller mounted on the clamping-sleeve at each side of the said hanger and engaged by the said hanger for op-

erating the clamping-sleeve, a cross-bar provided with slots to permit of a longitudinal movement, and a yoke engaging the hanger and extending through the cross-bar for connecting the hanger to the said bar.

7. In combination, a power and a conveyor shaft, clamping means for connecting said shafts together, a bodily-movable hanger for supporting said shafts and clamping means and adapted when moved to elastically operate said clamping means, and means for suspending said hanger.

8. In combination, a power and a conveyor shaft, clamping means for connecting said shafts together, a bodily-movable hanger for supporting said shafts and clamping means and adapted when moved to elastically operate said clamping means, means for suspending said hanger, a cross-bar provided with a slot in each end, and means for connecting said hanger to said cross-bar.

9. A hanger coupling-bearing for conveyor-shafts consisting of a clamping-sleeve, a bodily-movable hanger for operating and supporting said sleeve, and means for suspending and operating said hanger.

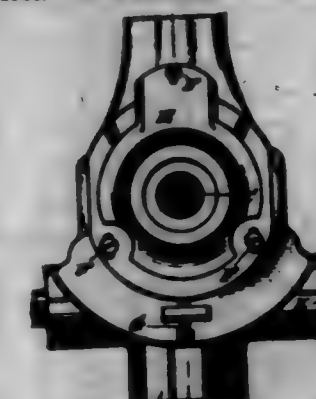
701,687. APPLIANCE FOR CLEANING FLOORS, WALLS, WINDOWS, &c. CHARLES W. SHELLER and JOHN F. ROBINSON, JR., Boston, Mass., Assigners. Filed Aug. 8, 1901. Serial No. 71,804. (No model.)



Claim.—1. In an appliance of the character described, a pair of plates, a spring connection secured to said plates for forcing them one toward the other, an absorbent material adapted to be arranged between the said plates and held in position by the action of the spring connection, and a handle connected to one of the said plates.

2. In an appliance of the character described, a pair of plates, a spring connection secured to the said plates and adapted to force one toward the other, an absorbent material arranged between said plates and retained in position by the action of said spring connection, a handle connected to one of said plates and having a portion thereof extending at an obtuse angle to the remaining portion, and a roller connected to the handle at the juncture of the angularly-disposed portion of the handle with the remaining portion thereof.

701,688. ROTARY VALVE. JAMES E. STARR, Taubet, Mich. Filed June 1, 1901. Serial No. 62,606. (No model.)



Claim.—1. A valve, comprising a casing having a steam-inlet, two cylinder-ports and two exhaust-ports leading to a common exhaust, casing-heads having cavities connected with the steam-inlet, a valve-plug mounted to turn in the casing and having exhaust-cavities adapted to register with the exhaust-ports and cylinder-ports, a main inlet-rod having branch ports registering at all times with the casing-head cavities, said main inlet-rod being adapted to register with either of said cylinder-ports, as set forth.

2. A valve, comprising a casing having heads, a valve-plug mounted to turn in said casing and having its stem extending through said heads, ball-bearings in said heads for said valve-stem, and means for adjusting said heads on the casing, to bring the ball-bearings and the valve-plug in proper alignment with the central portion of the casing.

3. A valve, comprising a cylindrical member provided with open ends, a pair of heads provided with ball-bearings for clamping said ends, a movable shaft passing through said ball-bearings and provided with a valve-plug, means for adjusting the position of said heads relative to said cylindrical member, said valve-plug being provided with integral surface clamping said ball-bearings.

4. A valve, comprising a cylindrical body provided with open ends, heads mounted upon the ends thereof and provided with annular outer members of ball-bearings, means for adjusting the position of said heads

relative to said cylindrical body, a valve-pipe fitted steam-tight in said cylindrical body and mounted upon a revolvable stem passing through said head, said stem being provided with inner members of ball bearings.

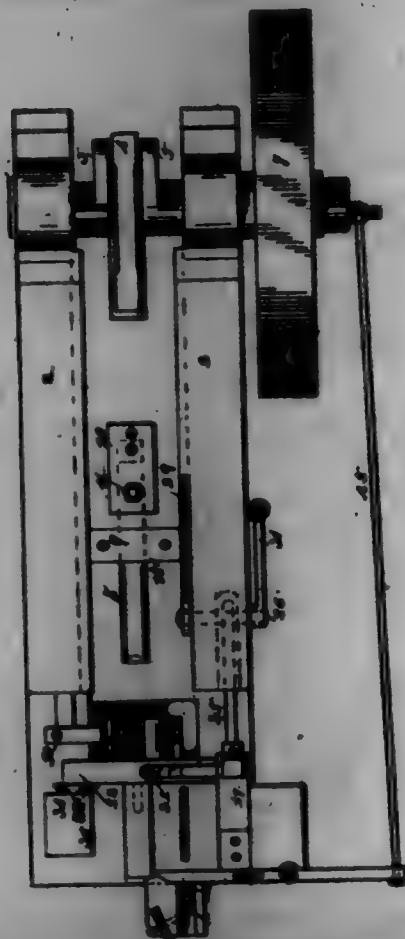
701,689. HAT-GUARD. ABNEY STARR, New York, N. Y. Filed Mar. 12, 1902. Serial No. 97,980. (No model.)



Claim.—1. A hat-guard, consisting of a cord, a flat pointed pin attached to one end of said cord, and a clamping device attached to the opposite end of the cord and provided with a V-shaped hook for engaging with the cord, substantially as set forth.

2. A hat-guard, consisting of a cord of proper length, a flat pointed pin provided with an opening and attached to one end of the cord, and a clamping device provided with two openings or eyes for attachment with the opposite end of the cord, said clamping device being provided with a V-shaped hook at one end, substantially as set forth.

701,640. SOLID-DIE RIVET-MACHINE. MARTIN T. STANUP-LAND, Cleveland, Ohio. Filed Nov. 12, 1901. Serial No. 98,148. (No model.)



Claim.—1. In a machine for the purpose described, the combination with a rotary die-head a spring-actuated hook arranged to engage said die-head, and a reciprocating plunger and heading-tool, of means for operatively connecting the reciprocating plunger with the hook, comprising a vertically-reciprocating bar to which the hook is pivoted, a roller on the plunger, a rock-shaft in the bed-plate, a rock-arm on said shaft, a link connecting said rock-arm and vertical bar, a cam-shaped arm on the rock-shaft arranged to engage the said roller on the plunger and a spring-actuated arm on the rock-shaft, substantially as described.

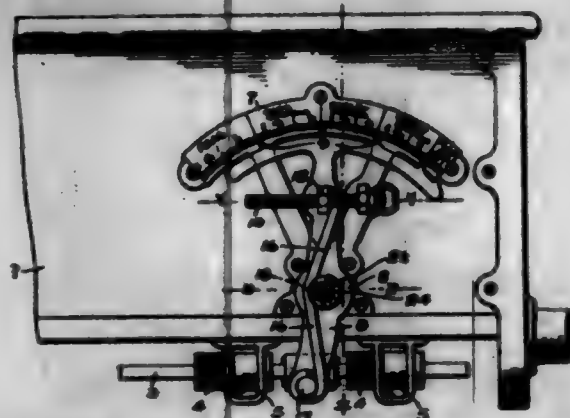
2. An actuating device for the rotary heading-die, comprising a spring-actuated hook arranged to engage the periphery of the die-head at regular intervals, in combination with means for actuating said hook to rotate said head at regular intervals, consisting of a plunger, a cam-arm engaging said plunger, a rock-shaft on which said cam-arm is mounted, a rock-arm on said shaft, a vertical bar to which said hook is pivoted, and a link connecting said bar and rock-arm, and a return-spring for the rock-shaft, substantially as described.

3. In a solid-die machine for heading-blanks, the combination with a rotary die-head, a reciprocating heading-tool and crank and crank-shaft

thereof, of means for ejecting the finished blank or product, consisting of a spring-actuated pin, a pivoted arm arranged to engage said pin and withdraw it from the die-head, and operatively connected with the crank-shaft, and means for releasing the said arm from engagement with the pin when the pin has been withdrawn to its greatest extent, substantially as described.

4. In combination with the die-head, and actuating crank-shaft, of a solid-die machine, means for discharging the perforated blank from the head, consisting of a spring-actuated pin, a roller on said pin, a pivoted arm engaging said roller, a link connecting said arm with a pin upon the crank-shaft, and means for releasing said arm when the pin has been withdrawn from the head, consisting of a roller-disk pivoted in the path of the arm, substantially as described.

701,641. ADJUSTING DEVICE FOR SEEDERS. WILLIAM STEPHENSON, St. Louis Park, Minn. Filed Mar. 12, 1901. Serial No. 98,100. (No model.)



Claim.—1. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotedly connected to said rod, means arranged to take up lost motion between said lever and said rod, an indicating-scale, pointers carried by said lever and co-operating with said scale, and an adjusting-screw connected to said lever, for the purpose set forth.

2. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotedly connected to said rod, and a spring arranged to take up lost motion between said lever and said rod, for the purpose set forth.

3. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotedly connected to said rod, and mounted upon a stationary support, an adjusting-screw for said lever, and a spring arranged to take up lost motion between said lever and said rod, and between said lever and its adjusting-screw, for the purpose set forth.

4. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotedly connected to said rod, a stationary support upon which said lever is mounted, an adjusting-screw mounted in a fixed support and having a threaded connection with said lever, and a spring engaging the pivotal connection of said lever and said rod, the support upon which said lever is mounted, and the connecting device between said screw and said lever, for the purpose set forth.

5. In a seeder, the combination, with the feed-cylinders and the adjustable rod 2, of a lever 3 pivotedly connected to said rod, an indicating-scale, pointers carried by said lever and co-operating with said scale, an adjusting-screw connected to said lever, and a spring arranged to take up lost motion between said lever and said screw and between said lever and its connection with said rod, for the purpose set forth.

6. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of an adjusting-lever, a connection between said lever and said rod, and an adjustable cam forming part of said connection, for the purpose set forth.

7. In a seeder, the combination, with the cylinders and the adjustable rod 2, of the operating-lever 3, the short shaft 17 connected to said lever and having the cam 23 formed integrally therewith, and the co-operating cam 21, substantially as described.

8. In a seeder, the combination, with the feed-cylinders and the adjustable rod 2, of an adjusting-lever, a shaft or rod 17 connecting said lever with said adjustable rod, and an adjustable cam arranged in connection with said rod or shaft 17, substantially as described.

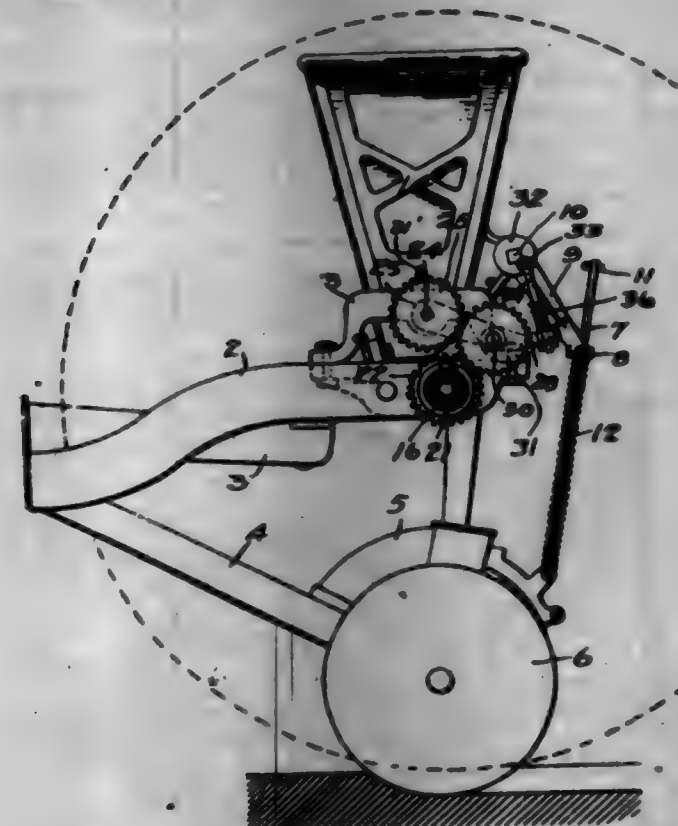
9. In a seeder, the combination, with the cylinders and the adjustable rod 2, of the lever 3, the cam 21 and 23 arranged upon said rod, one of said cams being co-operated with said lever 3, the conical washers arranged upon said rod and engaging said cams, and means permitting one of said cams to be turned upon the other, for the purpose set forth.

10. In a seeder, the combination, with the short shaft 17 and the cam 23 formed integrally therewith, of a co-operating cam 21 the rod 2

and the bolt 31) adapted to prevent accidental rotation of said cone, for the purpose specified.

11. The combination, with the feed-cylinders and the adjustable rod, of a lever pivotedly connected to said rod, and means arranged to take up lost motion between said lever and said rod.

701,642. SEEDER. WILLIAM STEPHENSON, St. Louis Park, Minn. Filed Nov. 9, 1901. Serial No. 98,092. (No model.)



Claim.—1. In a seeder, the combination, with the angle-bar frame provided with holes in its vertical flanges at the ends of the frame, of axle-spindles fitting within said holes and provided with vertical and horizontal flanges adapted to be connected to the corresponding flanges of said frame, substantially as described.

2. In a seeder, the combination, with an angle-bar frame, of brackets at the ends thereof, a hopper supported on said brackets, axle-spindles projecting through holes in the vertical flanges of said frame beneath said brackets and provided with vertical and horizontal ears or flanges, and bolts securing the flanges of said spindles to the corresponding flanges of said frame the bolts that pass through the horizontal flanges also securing said brackets thereto, substantially as described.

3. The combination, with an axle-spindle, of a wheel-hub having a gear secured thereon, a feed-shaft provided with a gear, a lever loosely mounted on said feed-shaft, on this gear carried by said lever and adapted to engage said axle and said feed-gear, and means for oscillating said lever to raise said idle gear out of engagement with said axle-gear or move it into contact therewith, substantially as described.

4. The combination, with a driving-gear 22, of a feed-shaft 24, a gear 25 having a hub 26 secured on said shaft, a lever 28 having a sleeve 27 loosely mounted on said hub and also having a stud 30, a gear 31 loosely mounted on said stud and normally engaging said gear 25, and means for oscillating said lever 28 to move said gear 31 into or out of engagement with said driving-gear, substantially as described.

5. The combination, with a driving-gear 22, of the feed-shaft 24, a gear secured thereon, a lever 28 oscillating on said shaft as a center and having an offset rear mid shaft and provided with a stud 30, a wide-faced gear loosely mounted on said stud and normally engaging said gear 25, and means for oscillating said lever, substantially as described.

6. The combination, with an axle-spindle, of a wheel-hub having a gear secured thereon, a feed-shaft provided with a gear, a lever loosely mounted on said feed-shaft, on this gear carried by said lever and adapted to engage said axle and said feed-gear, a rock-shaft, a crank-disk thereon and a yielding connection provided between said crank-disk and said lever, substantially as described.

7. In a seeder, the combination, with a driving-gear, of a feed-shaft, a gear secured thereon, an oscillating lever centered on said feed-shaft, an idle gear carried by said lever and adapted to engage said driving-gear and said feed-shaft gear, a rock-shaft, a crank thereon, a rod connected with said crank and with said lever, and a spring provided between said lever and said crank, substantially as described.

8. In a seeder, the combination, with an angle-bar frame provided with holes in its vertical flanges, of axle-spindles fitting within said holes, and means for adjustably securing said spindles to the flanges of said frame to permit the angle of the wheels with respect to the hopper and frame to be changed.

9. In a seeder, the combination, with a frame provided with holes at the ends thereof, of axle-spindles fitting within said holes, and means for changing the angle of said spindles with respect to said frame, for the purpose specified.

10. In a seeder, the combination, with a wheel-hub having a gear, of a feed-shaft provided with a gear and located above said wheel-hub gear, an oil-tube, a lever provided with a sleeve loosely mounted on the hub of said feed-gear and having a hole communicating with said oil-tube, and an idle gear carried by said lever and adapted to engage said wheel-hub gear and said feed-gear.

11. The combination, in a seeder, of the bracket 13 provided with an oil-tube 31, a feed-shaft below said oil-tube, a gear having a hub slidable on said shaft, a lever having a sleeve adapted to rotate on said hub, said hub and sleeve having oil-holes registering with the discharge end of said oil-tube, a driving-gear, and an idle gear provided on said lever and adapted to engage said driving-gear and said feed-gear.

12. In a seeder, the combination, with the frame and the wheels supporting the same, of a driving-gear provided on one of the wheel-hubs, a feed-shaft above said driving-wheel, a feed-gear having a hub slidable on said shaft, a lever provided with a sleeve loosely mounted on said hub, an idle gear slidably supported on said lever and adapted to engage said driving-gear and said feed-gear, and a guard 27 provided over said feed and idle gears and between them and said wheel and limiting their outward sliding movement, substantially as described and for the purpose specified.

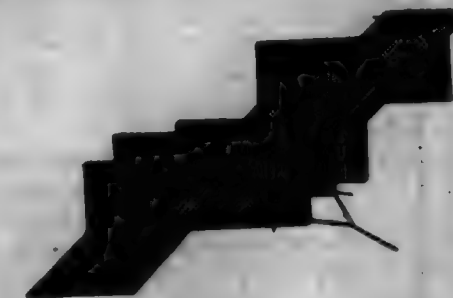
13. The combination, with an axle-spindle, of the wheel-hub provided with a gear, a feed-shaft also having a gear, a lever loosely mounted on said feed-shaft, a gear mounted on said lever and adapted to engage said axle and said feed-shaft gear, a rock-shaft, and a yielding connection provided between said lever and said rock-shaft.

701,643. PEN-POINT-ERECTING PENCILHOLDER. EMERY C. STURM, Pittsburg, Pa. Filed Apr. 1, 1902. Serial No. 100,000. (No model.)



Claim.—A pencilholder comprising a pair of resilient members united at their rear ends, an inwardly-projecting jaw formed integral with the opposite end of each member, one of said jaws provided on its inner face with a series of semicircular recesses arranged out of alignment with each other, the other member provided with corresponding semicircular projections whereby a pen can be held in different positions, and a sleeve slidably mounted on the said holder, substantially as described.

701,644. KITE OR FLYING-MACHINE. VICTOR TARNAL, Budapest, Austria-Hungary. Filed May 12, 1901. Serial No. 98,064. (No model.)



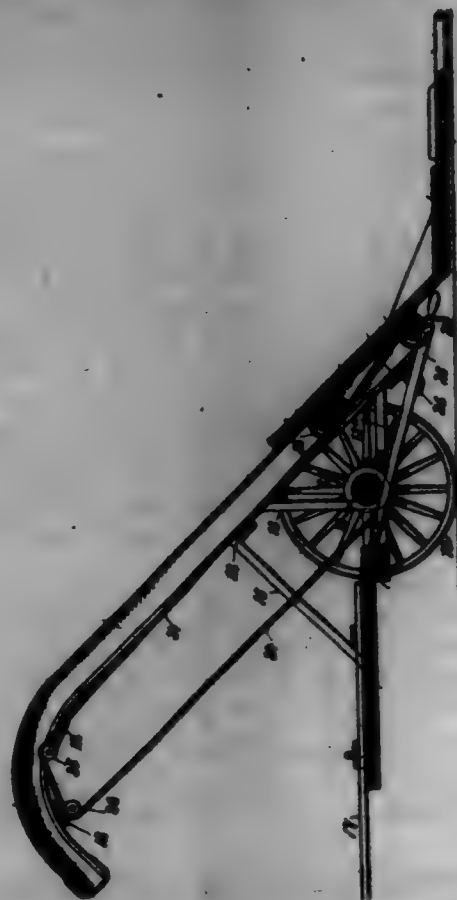
Claim.—1. In a kite or flying-machine the combination of a series of horizontal surfaces disposed in different planes each plane being in advance of the one below it and a series of symmetrically-disposed partition-walls mounted vertically between the said horizontal surfaces, substantially as described.

2. In a kite or flying-machine, the combination of a series of horizontally-disposed surfaces mounted in different planes each plane being in advance of the one below it and a series of symmetrically-disposed vertical partition-walls in open connection with the said horizontal surfaces in the manner and for the purpose substantially as described.

3. In a kite or flying-machine the combination of a series of horizontal surfaces disposed in different horizontal planes and a series of vertically-disposed partition-walls mounted between the same in different vertical planes all parallel to the direction of motion of the kite and symmetrically arranged in the manner and for the purpose substantially as described.

4. In a kite or flying-machine, the combination of a series of horizontally-disposed surfaces mounted stepwise one over the other and a vertically-disposed partition-wall all parallel to the direction of motion of the kite to connect the same in the manner and for the purpose substantially as described.

701,645. DEVICE FOR LOADING COKE-SHOVELS. WILLIAM A. TRA, Bellevue, Ohio; Mary J. Tra administratrix of said William A. Tra deceased. Filed Aug. 2, 1901. Serial No. 70,696. (No model.)



Claim.—1. A portable elevator of the class described, comprising an inclined frame, a wheeled axle, an elevator-car having members disposed at an angle to each other and arranged for the front member thereof to travel on said inclined frame, the rear member of said car being adapted to assume a horizontal position when the car is lowered to the rear portion of the inclined frame, and a hoisting mechanism driven from the axle and having operative connection with the elevator-car.

2. An elevating device for checks, consisting of a wheel-supported frame having inclined channels upon its lower face, the body portion of the frame being inclined downward and forward, and its upper portion curved downward and forward, a car or platform having wheels arranged to enter the said channels, a winding mechanism mounted on the axle of the wheel-supported frame, a locking connection between the winding mechanism and the axle, a shifting device for the winding mechanism, and a flexible connection between the car or platform and the winding device, as and for the purpose described.

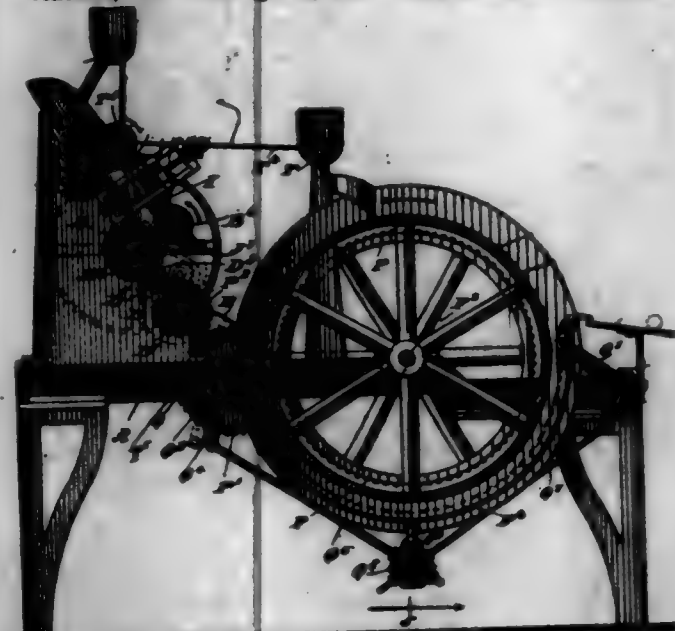
3. In an elevating device for checks, the combination, with a wheel-supported frame having a body inclined downward and rearward and upwardly and downwardly curved upper portion, the side bars of which frame have longitudinal channels produced therein, closed at their ends, the channels extending practically from one terminal of a side bar of the frame to the other, an axle connected with the said frame, and supporting wheels secured upon the said axle, of a spring-controlled winding-drum mounted to slide upon and to turn with the axle, engaging projections from the axle and the said drum, a shifting-lever engaging with the said drum and arranged to carry it from operative connection with the axle, a car or platform having friction-wheels at its sides which enter the channels in the said frame, a flexible connection between the winding-drum and the car or platform, roller-guides for such connection, and a section forming a portion of the car or platform, adapted to stand at an angle thereto and prevent the checks from leaving the platform as it is carried up the inclined plane of the frame, as described.

4. In an elevating device for checks, the combination, with a frame the body portion of which is inclined downwardly and forwardly, the upper portion being downwardly and forwardly curved, the side sections of the frame having longitudinal channels produced therein, closed at their ends, an axle supported in bearings carried by the said frame, supporting-wheels secured to the said axle, and an adjustable draft device connected

with the axle and frame, of a drum mounted to turn and slide on the axle, the drum being provided with projections at one end adapted to meet extensions from the axle and a spring which acts to carry the said points in engagement, a shifting-lever connected with the said drum, adapted to compress the spring and carry said points out of engagement, a car or platform having rolling extensions adapted to enter the channels of the frame, a flexible connection between the platform and the said frame, guides for the said flexible connection, and an adjustable rear section for the car or platform, which adjustable section comprises a retaining member and a locking member for the retaining member, all combined for operation substantially as shown and described.

5. In a portable elevator of the class described, an elevator-car comprising members disposed at an angle to each other, a supplementary member having hinged connection with one car member, and means for locking the supplementary member in inclined relation to the car member, combined with an inclined frame, and a hoisting mechanism for hauling the car on said frame, substantially as described.

701,646. DOUGH-HOLDING MACHINE. CHARLES A. TROMBEE, Bellevue, N. J. Filed Apr. 17, 1901. Serial No. 66,529. (No model.)



Claim.—1. The improved dough-molding machine comprising devices which form dough into a sheet and roll the said sheet completely into a spiral form, and mechanism into which each spiral roll is dropped and by which it is kneaded to form a mass suitable for the oven, the two operations of spiral rolling and kneading being thus effected separately and successively, as and for the purpose specified.

2. In a dough-molding machine, the combination, with reducing-rolls, whereby dough is formed into a sheet, of a roller arranged in the path of the dough sheet as it leaves said rolls, and means for rotating it, its upper side then moving in a direction opposed to the travel of the sheet, to form the latter into a spiral roll, and a guide-plate for delivering the sheet to each roller, substantially as shown and described.

3. A dough-molding machine comprising rollers for forming the dough into a sheet, means arranged below the rollers and fixed in position for rolling up the dough sheet spirally, and the dough-kneading apparatus having its mouth adjacent to and below the spiral roll-former, all substantially as shown and described.

4. A dough-molding machine having spaced sets of reversible rollers, of which one roller of each set has annular flanges, the other roller of the set extending between said annular flanges, to form a passage between the rollers of a set, the passage for the sets of rollers being of different lengths, and means for adjusting the non-flanged rollers toward the flanged rollers to vary the distance between the rollers of a set, as set forth.

5. In a dough-molding machine, the combination with a toothed roller rotating in a direction opposite to the travel of the dough, a smooth roller arranged adjacent to and above said toothed roller, and a fixed inclined guide arranged in the chute above the smooth roller, and having its lower end curved over and downward adjacent to the smooth roller, substantially as shown and described.

6. A dough-molding machine having a rolling-up device for rolling a dough sheet into a spiral roll, comprising a toothed roller and a smooth roller, the rollers rotating in opposite directions, as set forth.

7. A dough-molding machine having a rolling-up device for rolling a dough sheet into a spiral roll, comprising a toothed roller and a smooth roller, the rollers rotating in opposite directions, and a fixed apron or table extending to the top surface of the smooth roller and terminating a distance from one side of the toothed roller, as set forth.

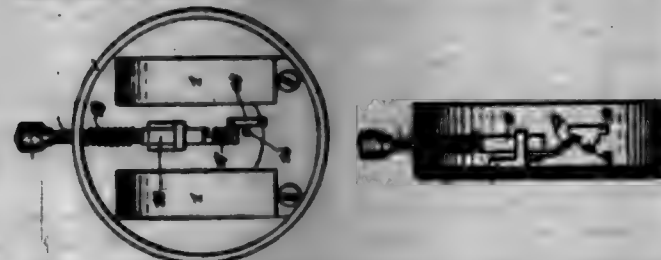
8. A dough-molding machine having a rolling-up device for rolling a dough sheet into a spiral roll, comprising a pair of rollers of different size and rotating in opposite directions, the larger roller forming a step for the forward end of the dough sheet, and a fixed inclined guide for guiding the dough sheet over the smaller roller against the abutment or step-roller, as set forth.

9. A dough-molding machine having a pressing and rolling device, comprising a revolvable drum or cylinder having a peripheral covering of a fabric material, a shield external to and spaced from the peripheral surface of said cylinder, for pressing and rolling a roll of dough, and means for adjusting the shield toward or from said cylinder, said means comprising levers for engaging the shield at or near the ends thereof, and a connection engaging the shield at or near the middle thereof and actuated from said levers, as set forth.

10. A dough-molding machine having a pressing and rolling device, comprising a revolvable drum or cylinder having a peripheral covering of a fabric material, a shield external to and spaced from the peripheral surface of said cylinder, for pressing and rolling a roll of dough, means for adjusting the shield toward or from said cylinder, said means comprising levers for engaging the shield at or near the ends thereof, a connection engaging the shield at or near the middle thereof and actuated from said levers, and means for simultaneously moving said levers, as set forth.

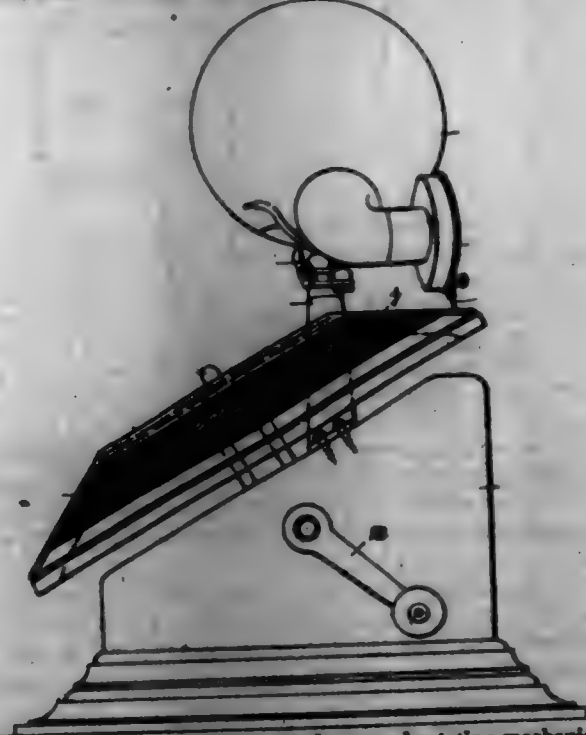
11. A dough-molding machine, provided with a drum or cylinder having flanges, auxiliary flanges adapted to fit against said drum or cylinder flanges at the inside thereof, and means for supporting said auxiliary flanges independent of the drum, as set forth.

701,647. ELSTORICAL APPARATUS. ALFRED TRAUT, Neuchâtel, Switzerland, assignor to David Perret, Neuchâtel, Switzerland. Filed Feb. 18, 1902. Serial No. 94,817. (No model.)



Claim.—In a testing apparatus for electric circuits, an electromagnetic generator comprising an exterior casing, an electromagnet in said casing, a spring, an armature mounted on said spring in proximity to the poles of said magnet, a pin carried by said spring, an operating pusher provided with an inclined end portion and a recess above the same for said pin, and means guiding said pusher-red in the path of said pin, substantially as set forth.

701,648. TALKING-MACHINE. LOUIS P. VALMONT, New York, N. Y., assignor, by mesne assignments, to the Universal Talking Machine Manufacturing Company, a Corporation of New York. Filed June 3, 1900. Serial No. 718,769. (No model.)



Claim.—1. The combination of the record-rotating mechanism, a plate shaped like the frustum of a cone, with a web of material extend-

ing across the smaller end forming a flat central portion, and having a sound-record formed upon the curved surface thereof, and the reproducer adapted to move along a line parallel to an element of said curved surface.

2. The combination of a record-rotating mechanism having a rotating shaft inclined to the plane of the horizon, a plate shaped like the frustum of a cone having a sound-record formed in a helical line upon the exterior curved surface thereof, the angle of the cone from which the frustum is cut being equal to the angle of inclination of the rotating shaft to the horizontal plane, said plate being carried and rotated by said shaft, and the reproducer adapted to move in a horizontal line substantially parallel to an element of the curved surface of said frustum.

3. A conically-shaped turn-table for talking-machines adapted to conically-shaped records, having that portion of the table over which the stylus travels on a substantially horizontal plane, and a rotating spindle disposed at an angle to the line of the record-surface, and means for causing the conically-shaped record upon the turn-table, substantially as described.

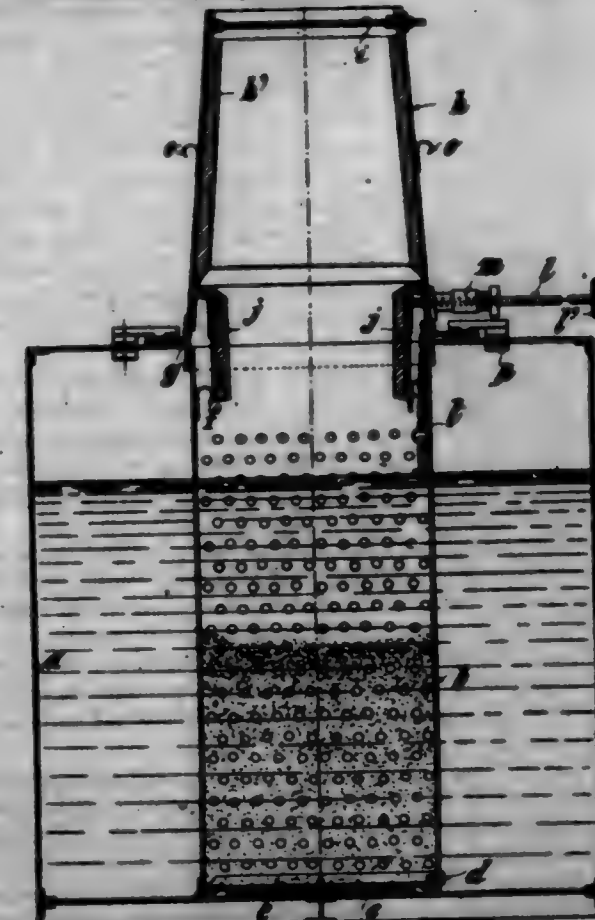
701,649. TALKING-MACHINE. LOUIS P. VALMONT, New York, N. Y., assignor, by mesne assignments, to the Universal Talking Machine Manufacturing Company, a Corporation of New York. Original application filed June 3, 1900, Serial No. 718,769. Divided and this application filed Nov. 16, 1901. Serial No. 82,604. (No model.)

Claim.—1. As an article of manufacture, a sound-record in the shape of a frustum of a cone with a web of material extending across the smaller end forming a flat central portion, the record-grooves being formed in the curved surface of said frustum.

2. As an article of manufacture, a sound-record in the shape of a frustum of a cone, with a web of material extending across the smaller end forming a flat central portion, the record-grooves being formed in the curved surface of said frustum in a helical line about the axis of said frustum.

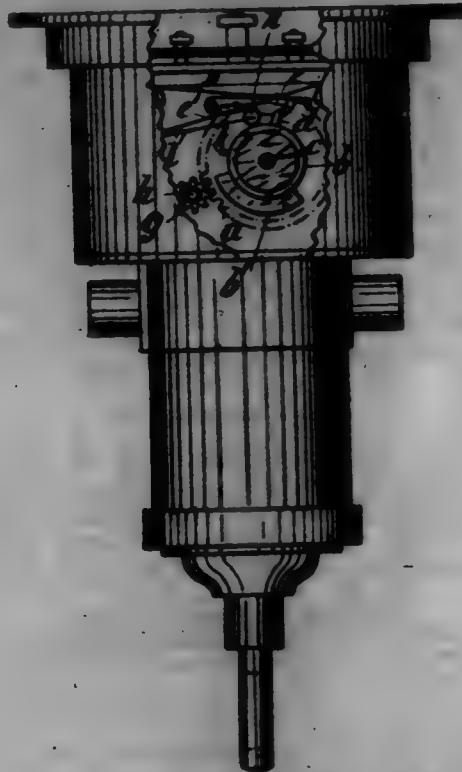
3. As an article of manufacture, a dish-shaped sound-record having record-grooves formed on the outer curved surface of the cone-shaped portion.

701,650. MANUFACTURE OF CALCIUM CARBIDE. DOMINIQUE DE VALATTE and JULIEN D'OLANOWSKI, Paris, France. Filed Dec. 12, 1900. Serial No. 82,897. (No specimens.)



Claim.—The process herein described of making a mixture of calcium carbide and a hydrocarbon, which consists in bringing a mass of lime in a molten state free from carbon into intimate contact with a liquid hydrocarbon, and permitting the same to cool in contact therewith, substantially as set forth.

701,651. ELECTRICAL SHIP-LOG APPARATUS. THOMAS F. WALKER and THOMAS S. WALKER, Birmingham, England. Filed Sept. 2, 1901. Serial No. 74,966. (No model.)



Claim.—1. In a ship's log, the combination with a train of wheelwork, a rotator and connections between the wheelwork and rotator, of an intermittently-operating circuit-closer, a contact-piece co-operating therewith, means operated by the wheelwork for rotating the said circuit-closer, a detent, a spring engaging therewith, a toothed wheel, a stop carried by said means and pins on the said wheel co-operating with the said detent, a register mechanism, and means for conveying electrical impulses to said mechanism.

2. In a ship's log; a train of wheelwork ending in a primary spindle and tooth-wheel, a rotator to actuate said train, a spring-containing barrel, a contact circuit-closer mounted on said barrel, a spring connecting said primary spindle and barrel, means on said tooth-wheel restricting the relative movement of barrel and tooth-wheel, means for adjusting the tension of said spring, a detent device co-operating with said spring-impelled barrel and means for conveying to and from the ends of a circuit and through said circuit-closer impulses of electrical energy.

3. In a ship's log; a register actuated by impulses of electrical energy, an electric circuit, an insulated spring contact-piece forming one terminal pole of the circuit, an intermittently-rotating circuit-closer, a terminal pole for the opposite end of the circuit electrically connected to said circuit-closer, a barrel carrying said closer, a spindle revolving within said barrel, a coiled spring connected by its opposite ends to the said barrel and spindle, a toothed member of train of motive wheel-work and means for alternately restraining and permitting the rotation of said spring-impelled barrel in co-operation with a detent.

4. An electric circuit, an insulated spring contact-piece, a contact-closer, a spring-impelled barrel carrying said closer, an axle therefor, a gear-wheel and train of impelling mechanism, means limiting the relative rotation of barrel and gear-wheel, and detent devices for successively restraining revolution of the barrel and circuit-closer and permitting of rapid rotatory flight, substantially as set forth.

5. An open electric circuit, an insulated spring contact-piece forming one pole of the circuit, a source of electrical energy in said circuit and mechanical motive mechanism in electrical connection with the opposite pole of the circuit, a relative intermittently-conducting circuit-closer, an axle common to the barrel and to the terminal member of a motive train of rotative mechanism and a spring connecting the barrel and terminal member referred to, in combination with a detent device and stops on the barrel and terminal member of the motive train.

6. In a ship's log, a circuit-closer periodically rotating in unison with a member of a train of wheelwork, a contact-piece co-operating therewith, a spring, a barrel and a motor-axle to which opposite ends of the spring are connected, said barrel carrying said circuit-closer, a detent, a spring engaging the same, a stop on said barrel, a toothed wheel, a pin on said wheel, and means for conveying electrical impulses to a register mechanism.

7. In an electrical ship-log mechanism, a continuously-rotating member, an intermittently-operating member, a spring connecting the two members together and operated by the continuously-rotating member for suitably operating the intermittently-operating member, a circuit-closer

fixed to the said intermittently-operating member, a contact co-operating with said closer for opening and closing an electrical circuit, and detent devices for successively restraining the operation of the intermittently-operating circuit-closer and permitting the rapid rotatory flight thereof.

701,652. FOLDING BOX. LAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 17, 1901. Renewed Jan. 22, 1902. Serial No. 90,921. (No model.)



Claim.—1. As an improved article of manufacture, a folding box comprising a bottom portion, and pieces projecting from two edges of the bottom portion, and side pieces projecting from the two remaining edges of the bottom portion, the side pieces having end flaps adapted to fold inward and form the box ends, one set of flaps having extensions projecting from the upper edge, which extensions are split at right angles to the length of the flaps, and the second set of flaps being cut away on the inner or under side to form terminal tongues to engage the apices in the first flaps, the second flaps being also provided with extension-flaps along their outer and upper edges, which extension-flaps are adapted to fold inward into the formed box, together with the split flaps above named, the combined extensions of the two sets of flaps forming a lock to prevent the disengagement of the parts of the box ends.

2. In a folding box, the combination with the box-bottom and the side pieces projecting from opposite edges of the bottom, of the end flaps on the side pieces, said flaps being adapted to fold inward to form the box ends and being each provided with extensions adapted to fold inward into the formed box, one set of flaps having also tongues formed on their under or inner edges, and the second set of flaps having tongues projecting from their outer edges at points above the normal top line of the formed box by which arrangement the tongues of the first flaps engage with the tongues of the extensions of the second flaps so that the said tongues may be pushed downward behind the body portion of the second flaps and the extensions of the two sets of flaps folded inward together to form a lock.

701,653. CLIPPER. ROBERT F. WERN, New Orleans, La. Filed Jan. 24, 1900. Serial No. 2,619. (No model.)



Claim.—1. A clipper for cordage, comprising two tubes fitted the one within the other and relatively turnable, each tube having a knife or knives thereon working as described, and one of the tubes being made up of a number of separable bars, with means for holding said bars in tubular form.

2. In a clipper for cordage, the combination with a support, of a tube held rigidly thereby and having a knife or knives thereon, a second tube formed with a number of separable bars, each with a knife thereon, and means for holding said bars rigidly in tubular form to turn around the first-named tube.

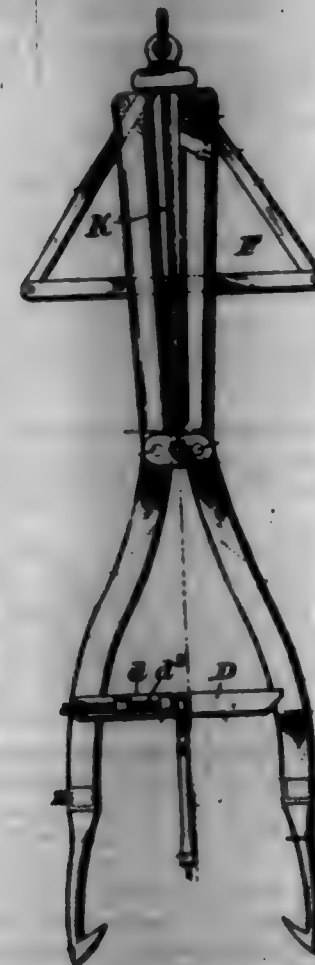
3. In a clipper for cordage, the combination with a tube fixedly held and provided with knives, of a second tube mounted on the first tube to

revolve thereon, and consisting of a series of separable bars formed with knives, and collars surrounding the said bars and having screw-threaded engagement with each other, substantially as described.

4. In a clipper for cordage, the combination with a support, and a tube having one end secured to the support and provided with knives at its other end, of a second tube mounted to revolve on the first tube and consisting of a series of bars having knives at their ends, said bars having oppositely-beveled outer surfaces, collars surrounding the bars and having a screw-threaded engagement with each other, and means for locking the collars in place, substantially as described.

5. In a clipper for cordage, the combination with a support, a tube having one end secured to the support and provided with knives at its other end and with an annular external flange between its ends, of a second tube mounted on the first tube to revolve thereon and consisting of a series of bars having knives at their ends, said bars having oppositely-beveled outer surfaces, and having their inner ends abutting against the flange of the first tube, collars surrounding the bars and having a screw-threaded engagement with each other, a ring surrounding the first tube between its flange and the support, and a screw securing one of the collars to the ring, substantially as described.

701,654. GRAPPLE-HOOK. DAVID WHITE, Kentwood, La., assignor of one-half to George A. Lomon, Kentwood, La. Filed Nov. 27, 1901. Serial No. 82,947. (No model.)



Claim.—1. In a grapple-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks open, and a trigger suspended from said tripping-bar for tripping the same.

2. In a grapple-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks open, and a pivoted rod or trigger suspended from said bar for tripping the same.

3. In a grapple-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in their open position, and a trigger for tripping said bar pivotally suspended transversely thereof, the said trigger being provided with a lower pivoted section, capable of a longitudinal swing in respect of said bar.

4. In a grapple-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in a predetermined open position and means for adjusting the length of said tripping-bar.

5. In a grapple-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in an open position, comprising a plurality of sections, and means for adjusting said sections for shortening or lengthening the tripping-bar.

6. In a grapple-hook, the combination with the spring-operated pivoted jaws, of an adjustable tripping-bar for holding said hooks in a

predetermined open position, and means suspended from said bar for tripping the same.

7. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length, and having hooks at one end, and means for opening the other ends and closing said hooks; of a bar pivoted to one of said shanks and adapted to hold said hooks open, means for adjusting the length of said bar, and means for tripping said bar to allow said hooks to close, substantially as described.

8. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length, and having hooks at one end, and means for opening the other ends, and closing said hooks; of a bar pivoted to one of said shanks and adapted to hold said hooks open, means for adjusting the length of said bar, and a tripping-arm for raising said bar to allow said hooks to close, substantially as described.

9. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length, and having hooks at one end, rollers in the other end, and a triangular frame engaging said rollers and adapted to open one end of said shanks and close the said hooks; of a bar for holding said hooks open and means for tripping said bar to allow the hooks to close, substantially as described.

10. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length, and having hooks at one end, and rollers in the other end; of a triangular frame engaging said rollers and adapted to open one end of said shanks and close the said hooks, and a rope connected with the apex of said triangular frame for lifting said device, substantially as described.

11. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length and having hooks at one end and rollers in the other end, and a pulley mounted near the pivotal points of the said shanks; of a triangular frame engaging said rollers and adapted to open and close one end of said shanks, a rope attached to the apex of the triangular frame for lifting the device and for moving the triangular frame in the direction to close the said hooks, and a rope connected with the base of said triangular frame and passing over said pulley for moving said frame in the direction for closing the said hooks, substantially as described.

12. In a grapple-hook, the combination with a pair of shanks pivoted together midway of their length and having hooks on one end and weights near their pivotal points, of means for opening and closing said hooks, a bar pivoted to one shank and adapted to engage the other shank to hold said hooks open, and means for tripping said bar to allow said hooks to close, substantially as described.

701,655. HOLDER ON FILE FOR PAPER, LUTHERA & MICHAEL J. WISNIEWSKI, Portau, Pa., assignor of one-half to Irvin T. Burdette, Portau, Pa. Filed Jan. 31, 1902. Serial No. 91,929. (No model.)



Claim.—1. In a holder of the character stated, a shank, a bill formed of a plurality of members extending upwardly from the lower end thereof, and a plurality of resilient arms depending from the upper end thereof, said arms being adapted to press toward the inner sides of the portions of the bill below the top loop thereof and being on opposite sides of the exterior of said loop.

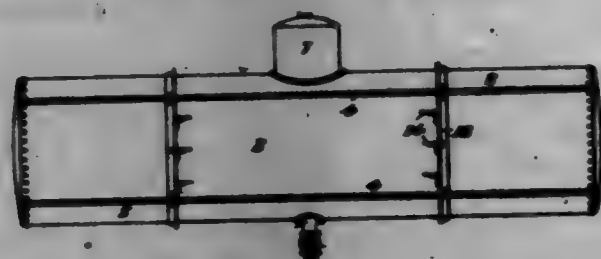
2. In a holder, a shank, a bill and an arm connected with the opposite ends of said shank, and an eye on said shank formed of expansible portions of said shank.

3. In a holder of the character stated, a bill, an arm, a shank, the latter carrying said bill and arm and formed of a plurality of pieces and an eye in said shank formed of portions of said pieces and open at one end, whereby it may be sprung upon a sustaining device.

4. In a holder of the character stated, a bill, an arm and a shank the latter carrying said bill and arm and having eyes at its upper and lower ends, one of said eyes having resilient sides whereby it may be sprung upon a sustaining device.

5. In a holder of the character stated, a bill, an arm, and a shank, the latter carrying said bill and arm, and an eye on said shank, said shank being bowed outwardly transverse to its length.

701,656. TANK-CAR. CLARENCE L. WILSON, PRINCETON, Pa. Filed Mar. 22, 1901. Serial No. 53,269. (No model.)



Claim.—1. A tank-car having a longitudinal cylindrical tank formed of one or more longitudinal plates with enlarged longitudinal edge portions secured together by locking-bars compressed upon said edge portions, said tank having flanged end heads secured by rivets extending through the flanges, said flanges being bent to allow the passage of the locking-bars; substantially as described.

2. A cylindrical tank formed of one or more longitudinal plates with enlarged edge portions secured together by locking-bars compressed thereon, said tank having a flanged end head secured by rivets extending through the flanges, said flanges being bent to allow the passage of the locking-bar; substantially as described.

701,657. BUMP-HOLDER. ANTONIA L. WILSON, CHAMBERS CITY, Pa. Filed Aug. 21, 1901. Serial No. 73,948. (No model.)



Claim.—1. A mop-handle, having a split spring-ring embracing two intermediate portions thereof, with its middle portion fastened to one side of the handle and its opposite free ends overlapped and spaced from the opposite side of the handle to receive and embrace a mop-rag.

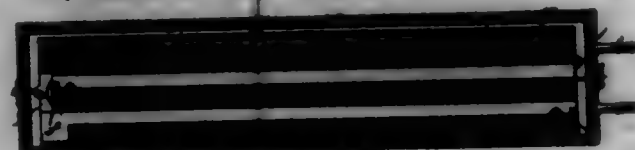
2. The combination with a handle, of a brush-holder having its forward edge secured to the outer edge of the handle and provided with one or more laterally-projected spring-clips, and an opposite intermediate spring-clip bent from the holder and folded back upon itself to form a handle-engaging brace.

3. A brush-holder consisting of a flat metal plate having lateral fastenings projected from the outer edge portion of the back of the body, spring-clips bent laterally from the forward edge of the body, and an opposite spring-clip bent laterally forward from the intermediate portion of the rear edge of the body, said clip being bent back upon itself and inclined across the back of the body, the outer free end of the clip being forked.

4. The combination with a handle, having a mop-holder at one end

which embodies a stationary transverse member, of a brush-holder having its outer edge lying against the fixed member, and provided with fastenings connecting the brush-holder to said fixed member, spring-clips carried by the opposite front and rear edges of the body and projected at the front thereof, and a brace extending between the rear portion of the holder and the handle of the mop.

701,658. SAMPLE CASE AND EXHIBITOR. SAMUEL H. WIT-
OLD, MARION, IOWA. Filed Feb. 6, 1908. Serial No. 62,764. (No model.)

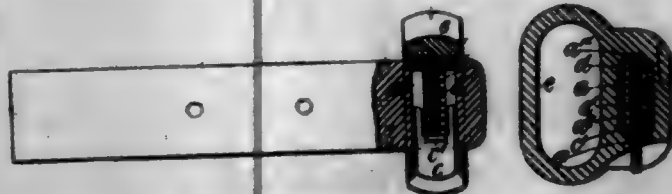


Claim.—1. A sample case and exhibitor, comprising a case proper formed in two hingedly-connected sections, one of said sections having a stud or pin on its free end, and a series of tray-shaped sections hingedly connected together so as to be capable of folding into the case when the case is closed, said sections also being capable of being extended into line with each other and resting jointly against one section of the case proper and against the said stud or pin whereby to hold the tray-shaped sections in position for displaying their contents.

2. A sample case and exhibitor, comprising three tray-shaped sections, hinges having laterally-offset portions connecting two of said sections together, so that when the sections are folded they will be spaced from each other, and hinges connecting the third section to the free end of one of the two first-named sections, whereby the third section may fold between the two first-named sections.

3. A sample case and exhibitor, comprising three tray-shaped sections, hinges having laterally-offset portions connecting two of said sections together, so that when the sections are folded they will be spaced from each other, hinges connecting the third section to the free end of one of the two first-named sections, whereby the third section may fold between the two first-named sections, the said tray-shaped sections being also capable of opening so as to lie approximately in the same plane, and a case proper formed of two hingedly-connected sections capable of containing the said tray-shaped sections when folded, one section of the case proper having a pin or stud thereon, for the purpose specified.

701,659. HARNESSES. ALFRED WOOD, FOLKSTONE, ENGLAND. Filed Sept. 9, 1900. Serial No. 729,908. (No model.)



Claim.—1. A fastening for harness, comprising an arm member attached to the harness-strap, a band member adapted to slide on said strap, and a loose bolt adapted to slide in one of said members and to normally engage with the other of said members, substantially as described for the purpose specified.

2. A fastening for harness, comprising a curved arm member attached to the harness-strap, a band member provided with a loop and adapted to slide on said strap, a loose bolt adapted to slide in a recess in one of said members and to normally engage with the other of said members, and means for retaining said bolt in engagement, substantially as described for the purpose specified.

3. A fastening for harness, comprising a curved arm member attached to the harness-strap, a band member provided with a loop and adapted to slide on said strap, a loose bolt adapted to slide in a recess in one of said members and to normally engage with the other of said members, a spiral spring for retaining said bolt in engagement, and means for disengaging said bolt against the pressure of said spring in order to release the fastening, substantially as described for the purpose specified.

4. In a fastening for harness, the combination of a curved arm attached to the harness-strap and having a recess in its free end, a band adapted to slide on said harness-strap, a loop formed on said band and provided with a slot through one end, a loose bolt confined in the recess in the said curved arm and normally projecting into the slot in the said loop, and means for normally retaining the bolt in such projecting position, substantially as described for the purpose specified.

5. In a fastening for harness, the combination of a curved arm attached to the harness-strap and having a recess in its free end, a band adapted to slide on said harness-strap, a loop formed on said band and provided with a slot through one end, a loose bolt confined in the recess

in the said curved arm and projecting into the slot in said loop and a spiral spring located in the recess in the curved arm for normally retaining the bolt in such projecting position, substantially as described for the purpose specified.

6. In a fastening for harness, the combination of a curved arm attached to the harness-strap and having a recess in its free end, a band adapted to slide on said harness-strap, a loop formed on said band and provided with a slot through one end, a loose bolt confined in the recess in the said curved arm and projecting into the slot in the said loop, a spiral spring located in the recess in the curved arm for normally retaining the bolt in such projecting position, means for supporting said spiral spring, and means for pressing the bolt into the recess in the curved arm against the force of the spiral spring in order to release the fastening, substantially as described for the purpose specified.

701,660. DRAW-GEAR FOR GARR. CHARLES WADSWORTH, BUREAU, Pa. Filed May 21, 1901. Serial No. 62,948. (No model.)



Claim.—1. The combination with a car-body and a coupler, of a plurality of removable chimes or plates W located above the coupler for adjusting the head of the coupler in a vertical plane and relative to the car-body.

2. The combination with a car-body and a coupler and a spring mechanism, of a plurality of removable chimes W and V for adjusting the coupler and spring mechanism vertically relative to the car-body.

3. The combination with a car-body and a coupler, of a plurality of removable chimes or plates for adjusting the head of the coupler in a vertical plane and relative to the car-body.

4. The combination with a car-body and a coupler and spring mechanism, of a plurality of removable chimes or plates for adjusting the coupler and spring mechanism vertically relative to the car-body.

5. The combination with a car-body and draw-gear, of means for adjusting the draw-gear vertically relative to the car-body, said means being located beneath the ends of the follower or followers and supporting the same.

6. The combination with a car-body and coupler head and shank, of means for adjusting the coupler head and shank vertically relative to the car-body, said means consisting of a plurality of chimes or plates located between the coupler-head and the shank, and some or all of said chimes adapted to be removed and placed above the shank so as to confine the shank and prevent the upward and downward movements of the coupler-head in buffing.

7. The combination with a car-body, coupler, spring mechanism, and follower or followers, of means for adjusting the coupler and spring mechanism and a follower or followers vertically relative to the car-body, said means being located under the follower or followers, and also under the shank of the coupler adjacent its head.

8. The combination with a car-body, of a coupler having a yoke; two followers located within the yoke; springs between the followers; and a plurality of chimes for adjusting the coupler-yoke, followers, and springs in a vertical plane.

9. The combination in a draw-gear, of a coupler; central stringers; stay-plates secured to the stringers and forming pockets; front and rear metal blocks or cast-steel blocks within the pockets; springs located between the blocks; and two followers engaging the springs at their ends and adapted to be moved by the coupler.

10. The combination in a draw-gear, of a coupler; two stay-plates; two followers slotted at the ends; four metallic blocks located between the upper and lower parts of the stay-plates; two springs supported by pins which engage the followers; and removable plates M, whereby the springs can be removed without displacing the coupler or followers.

11. The combination with a draw-gear constructed substantially as set forth, of stay-plates G, each made by bending a piece of metal upon itself and forming pockets for metallic blocks and against which the followers bear in towing and buffing.

12. The combination with a draw-gear, constructed substantially as set forth, of springs Q supported by pins P, which engage blocks L, said blocks L bearing against the blocks J and J', which latter are located between the stay-plates G, as set forth.

13. The combination with a draw-gear, embracing a coupler and followers and constructed substantially as set forth, of two stay-plates,

each stay-plate supporting a front and a rear metallic block and each block having a flange K; blocks L, located adjacent the flanges K; pins P; removable plates M; followers H and T; and springs supported by the pins.

14. The combination in a draw-gear of stay-plates G; a coupler, and a coupler-yoke curved at the end; two followers slotted at the ends and one of the followers having a curved surface; pins P; springs; blocks J J'; and removable plates M.

15. The combination with a draw-gear and chimes for adjusting the coupler, of a stay-plate cut away at X to allow the removal of the chime W, and a carry-iron which normally retains the chime in position by closing the opening formed by cutting away the stay-plate.

16. The combination with a draw-gear, of a plurality of chimes V, and removable plates M, whereby the chime can be removed and replaced.

17. The combination with a draw-gear, of stringers; stay-plates under the stringers; metallic blocks located directly beneath the stringers and within the stay-plates; followers engaging the blocks; and springs engaging the followers at their ends.

18. The combination with a draw-gear, constructed substantially as set forth, of stay-plates, each plate made by bending a metallic plate upon itself to form a pocket; follower-plates; metallic blocks located at the ends of each pocket; and springs located between the follower-plates at the ends of the blocks.

19. The combination with a draw-gear, constructed and operating substantially as set forth, of springs Q; means for holding the springs in place; followers H and T; and a plurality of plates or chimes V.

20. The combination in a draw-gear, of a coupler; a yoke secured to the coupler; followers attached at the ends; pins P which guide the followers; springs Q upon the pins P; spring R located within the yoke; blocks J J'; stay-plates G G' embracing the blocks J J'; removable plates secured to blocks J J' which allow the removal of the springs Q at the sides; and bolts securing the stay-plates to the central stringers.

21. The combination with a draw-gear, constructed substantially as described, of stay-plates G G'; blocks J J' supported by the stay-plates and bolts O; blocks L L' located at the ends of blocks J J'; pins P supported by blocks L L'; springs Q Q' on the pins; two followers engaging the pins; a coupler; a coupler-yoke; and removable plates M M'; as set forth.

22. The combination with a draw-gear, of stay-plates located directly under the central stringers; blocks secured in position beneath the stringers and between the upper and lower portions of the stay-plates; springs located directly under the stringers and in line therewith; a coupler; followers engaging the springs; and means uniting the coupler-shank and the followers.

23. The combination in a draw-gear, of the central stringers A A'; stay-plates each having an upper horizontal portion parallel with and adjacent a stringer and a lower portion parallel with the upper portion and located in a lower horizontal plane; blocks between the upper and lower portions of the stay-plates; and bolts passing through the stringers, the upper and lower portions of the stay-plates, and also through the blocks.

701,661. TRIPLE-SPRING DRAW-GEAR. CHARLES WADSWORTH, BUREAU, Pa. Filed Nov. 2, 1901. Serial No. 62,942. (No model.)



Claim.—1. The combination in a draw-gear, of the metallic draft-plates secured to the perpendicular sides of the central stringers by horizontal bolts and provided with front and rear follower-earings upon their inner faces, said earings having holes through which are passed perpendicular bolts which secure the earings to the central stringers.

2. The combination with the metallic draft-plates secured to the perpendicular faces of the stringers by horizontal bolts passed through the said plates and stringers, of follower-earings having enlarged ends 15 provided with bolt-holes through which are passed perpendicular bolts which secure the earings to the central stringers.

3. The combination with the metallic draft-plates secured to the perpendicular faces of the stringers, of follower-earings, and each of said earings having a horizontal strengthening-rib and a bolt-hole through which passes perpendicular bolt 34, uniting a earring to a stringer.

4. The combination with the metallic draft-plates, of front follower-earings riveted to the faces of the plates and each earring provided with a bolt-hole at the end through which passes a bolt 37 which unites the said earring to the end rail.

5. The combination with the metallic draft-plates having larger horizontal flanges 8, of follower-castings riveted to the faces of the plates, and stay-plates secured to the lower flanges of the draft-plates by rivets; said stay-plates extending from end to end of the metallic draft-plates and beneath the openings made in the sides of the said plates.

6. The combination with the metallic draft-plates, of follower-castings, stay-plates, spring mechanism, and chime located under the coupler-shank and also under the spring mechanism.

7. The combination with the metallic draft-plates, of follower-castings, stay-plates, spring mechanism, and chime; said follower-castings being provided with seats, as 16, for the chime.

8. The combination with the metallic draft-plates, of a spring mechanism, and chime; the said draft-plates being provided with openings which are normally closed by side plates which retain the chime in position.

9. The combination with the metallic draft-plates secured to the sides of the stringers, of follower-castings; a coupler and spring mechanism; stay-plates; a carry-iron; and a plurality of chime, which chime are located beneath the spring mechanism.

10. The combination in a draw-gear, of two central stringers; an end sill; and two draft-plates provided with front and rear follower-castings; the said draft-plates being secured to the stringers by bolts which pass through the stringers, end sill, and castings; the said bolts which pass through the end sill also passing through the ends of the front follower-castings.

11. A metallic draft-plate having a bolster attachment 5 located at right angles to the face of the plate, an end-sill attachment 6 located in a horizontal plane and at right angles to the face of the plate, a stringer attachment 7, midway the ends of the plate, and stay-plate flanges 8; the said draft-plate having an opening midway of its length and a stay-plate 10 secured by rivets to the flanges 8, as set forth.

12. The combination in a draw-gear, of central stringers; draft-plates provided with follower-castings riveted to their faces; a spring mechanism; and means for raising or lowering the spring mechanism relative to the stringers, said means consisting of chime which can be removed from beneath the followers and placed above the same.

13. The combination with the draft-plates, of the front and rear follower-castings having seats 16; the stay-plates; chime resting upon the stay-plates; followers supported upon the chime; a coupler and spring mechanism; and removable plates 22 at the sides.

701,662. BAKER'S STENCIL. LEONARD F. BAKER, Indianapolis, Ind. Filed May 31, 1901. Serial No. 62,578. (No model.)



Claim.—A baker's stencil for marking loaves of bread during the process of baking formed of a comparatively thin plate with the marking-matrices extending a portion of the way only through said plate, and having small perforations in the bottom of said matrices extending the rest of the way through said plate, substantially as described and for the purposes specified.

701,663. RAY-LAKE. ALFRED W. RAY-LAKE, Ann Arbor, Mich. Filed Sept. 3, 1901. Serial No. 74,173. (No model.)



Claim.—1. The combination with the frame of a hay-rake, of a rake-head and its teeth and the hay-guard, an axle, the right-angular extension of said axle and the wheels whose peripheries reach only to the height of the rake-head, carried by said extensions, an arm rigidly attached to the top of the rake-head, a hand-lever in front of said arm, and the rod forming pivotal connection between said lever and said arm, said lever and rod forming a locking-toggle, a foot-trip adapted to unlock said toggle, a duplicate arm rigidly attached to the top of the rake-head, the spring carried by said frame, the bar forming pivotal connection between said duplicate arm and spring, the foot-lever and its upwardly-turned

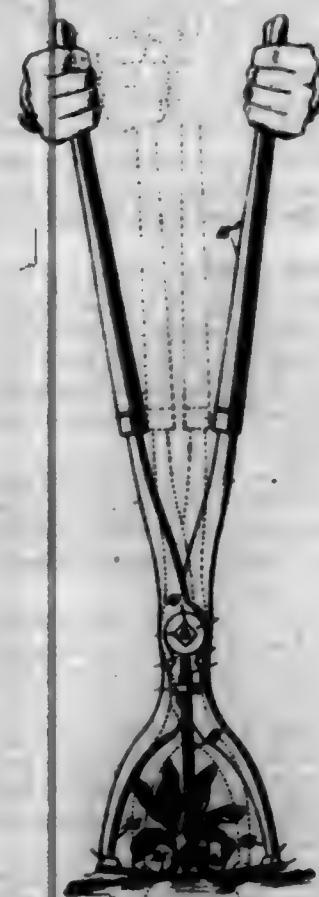
lower end and the duplicate bar forming pivotal connection between the foot-lever and the duplicate arm, substantially as described.

2. The combination with the frame and head of a hay-rake of an arm rigidly fastened to the top of the rake-head, a hand-lever forward thereof, a rod making pivotal connection between said rake-head arm and said hand-lever, said lever and rod forming a locking-toggle, a foot-trip adapted to unlock said toggle, a foot-lever, an arm backward thereof on said rake-head and a spring forward of said last-named arm having its lower end rigidly attached to the front cross-piece of the frame, a bar having pivotal connection with the upper end of said spring and with the arm back of said spring and a bar also pivotally connected at its rear end to said arm and at its forward end to said foot-lever, substantially as described and set forth.

3. In a hay-rake a spring adapted to raise the rake-head and its teeth having its lower end rigidly attached to a cross-piece of the frame, an arm rigidly attached on the rake-head, a bar forming pivotal connection between said spring and arm, and a foot-lever at the side of said spring and a bar pivotally connecting said foot-lever with said arm and adapted to assist the spring, substantially as described and for the purpose specified.

4. The combination with the frame, end, rake-head, teeth, guards and wheels of a hay-rake, of an arm rigidly attached to the rake-head, a foot-lever pivotally attached to a cross-piece near the front of the frame and having a lower upwardly-bent end, a bar pivotally attached at one end to the upwardly-bent lower end of said foot-lever and at its other end to said arm, a spring having its lower end rigidly attached to said cross-piece, and a bar also having one end pivotally attached to said arm and its other end attached to the upper end of said spring, said spring and its connections being adapted to automatically raise the rake-head and its teeth, substantially as described.

701,664. DEVICE FOR TOPPING BEETS. KLAAS BRIDGWIJED and ADRIAN VAN PUTTEN, Holland, Mich. Filed Mar. 14, 1901. Serial No. 62,182. (No model.)



Claim.—1. In a device for topping beets, the combination with pivotally-connected handles and knives horizontally carried by the handles, of a gage-bar having adjustable and swinging support at the pivot of the handles, which gage-bar automatically assumes a position transversely of and above the cutting edges of the knives when said cutting edges meet and a central position over the space between the cutting edges of the knives when said knives are separated, whereby said bar serves as a gage for the depth of the cut and indicates when the cutting action should be performed, and also serves to hold the severed portions of the beet on the knives after the cut is made, as described.

2. In a device for topping beets, pivotally-connected handles, a bifurcated frame carried by each handle, a horizontal knife adjustably attached to each frame, having cutting edges in the same horizontal plane when the handles are closed, and an adjustable and swinging gage-bar carried by one of the handles and automatically assuming a position within the frames transversely above the knives and centrally with relation to the knives in their open or in their closed position, as described.

3. In a device for topping beets, the combination with pivotally-connected handles, horizontal knives carried by the handles, and a pear-shaped shoulder forming a portion of the outer face of one of the handles, the point of the shoulder being at one side of a vertical line drawn through the center of the pivot of a carrier having a pear-shaped opening to receive the said similarly-shaped shoulder, which opening is sufficiently large to admit of decided rocking motion of the carrier on the shoulder, a horizontal foot forming a portion of the carrier, having an aperture whose wall is threaded, and a gage-rod provided with a threaded section to enter the aperture in the foot of the carrier and a lower section which is above the knives and is vertically and transversely disposed to the cutting edges of the knives and similarly and centrally disposed in the space which may occur between the knives, as specified.

701,665. VEENEH BASKET. EDGAR ABE, Jacksonville, Tex. Filed Jan. 25, 1901. Serial No. 61,181. (No model.)



Claim.—1. A basket comprising a suitable body, a bottom having upstanding slanted and portion, and end sections made in separate pieces from the body and the bottom, each end section extending continuously from one side to the other of the body and having overlapping relation thereto, said end sections having interlocking engagement with the slanted end portions of the bottom.

2. A basket comprising a suitable body, and sections made in separate pieces from the body and provided with flaring rounded corners, and a bottom provided with upstanding members which have overlapping relation to the end sections on lines within the flaring rounded corners thereof, all of said parts being united firmly together.

3. A basket comprising a suitable body, a bottom having upstanding end portions, and separate end sections provided with flaring rounded corners and assembled into overlapping relation to the body and in interlocking engagement with said upstanding portions of the body.

4. A basket comprising a suitable body, a bottom having upstanding end portions, separate end sections each provided with flaring rounded corners and extending continuously from one side to the other of the body, said end sections having overlapping relation to the body and interlocking engagement with the end portions of the body, and means for binding all the parts firmly together.

5. An article of the class described, comprising a bottom having its end portions bent and slanted to form the tongues and the splines, and the end sections bent to form the rounded flaring corners, and having the inwardly-extending flanges, said flanges being received within the side portions of the article, and said end sections fitting in the slanted portions of the bottom, so as to engage with the tongues and the splines.

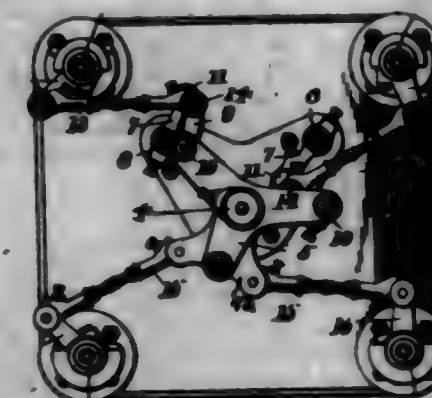
701,666. FOLDING TABLE. SHELF, OR DECK. GEORGE A. AM, Mount Carroll, Ill. Filed Apr. 10, 1900. Serial No. 712,608. (No model.)

Claim.—The combination with the cabinet formed with bins and discharge-spouts, of the standards or supports for the same, the folding leaf having its rear pivotally and adjustably connected to said standards or supports so as to move up toward the cabinet-bins in folding the leaf, said leaf when lowered being adapted to support itself beneath the discharge-

spouts of the bins, a hinged shelf in front of the cabinet and adapted when dropped to cover the space between the rear edge of the folded leaf and the discharge-spouts to the bins, and means for retaining the leaf in its horizontal position, substantially as and for the purposes described.



701,667. VALVE MECHANISM. EDWIN J. ARMITAGE, Erie, Pa. Filed Nov. 20, 1901. Serial No. 63,064. (No model.)



Claim.—1. A valve mechanism for the purpose described, comprising a valve, a rocking plate and means for actuating it, and a link mechanism including an oscillating rock-arm connected with the rocking plate and through said connection with the valve, whereby said valve is given a rapid movement during portions of the movement of the rocking plate and remains at rest during the remaining movements of the plate.

2. A valve mechanism comprising a valve, a rocking plate, and means for actuating it, a fixed pivot-point, a rock-arm mounted to turn thereon, a link pivoted to the free end of said rock-arm and to the rocking plate, a crank carried by the valve, and a valve-rod connected to said crank and pivoted to said link, the several elements being so proportioned that the valve will remain at rest during a considerable arc of travel of said rocking plate.

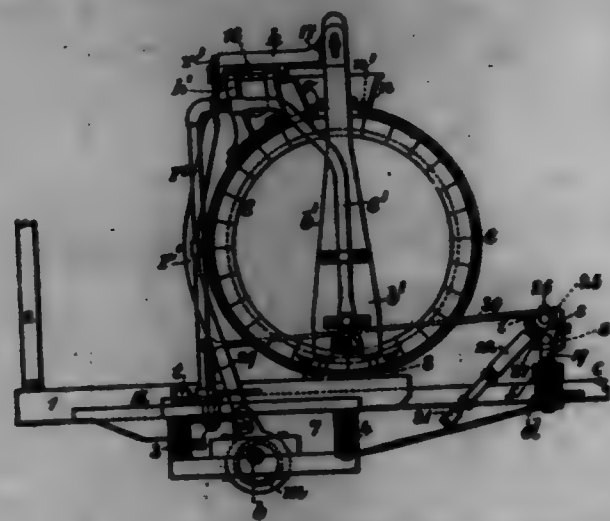
3. A valve mechanism comprising a valve, a fixed pivot-point, a link mounted to turn thereon, a rock-arm pivoted to the free end of said rock-arm, means constructed and arranged to move the free end of said link in a definite path, a valve-rod intermediate said link and said valve, the parts being so proportioned that the valve will remain at rest during a considerable movement of said rock-arm and link, but will be given a rapid motion when the said rock-arm and link approach their limit of travel.

4. A valve mechanism, comprising a valve, two fixed pivots, a rocking plate mounted on one of said pivots, and a rock-arm mounted on the other, a link pivotally connecting the free ends of said rocking plate and said rock-arm, and a valve-rod adjustably connected to the valve and pivotally connected to said link, whereby said valve is given a rapid movement during portions of the movement of said rocking plate and rock-arm, and remains at rest during other portions of the movement of said rocking members.

701,668. LIQUID-SPRAYER. LEWIS A. ANSELMI, Jackson, Mich., assignor to Anselmi Manufacturing Company, Jackson, Mich., a Corporation of Michigan. Filed Sept. 26, 1901. Serial No. 70,088. (No model.)

Claim.—1. In a portable liquid-sprayer, the combination with the

liquid-holding barrel, of a device extending into the barrel, and means connected therewith and actuated with and by the movement of the portable sprayer for imparting to said means a swinging movement for keeping the liquid contents in a state of agitation, a hose connected to and movable with the said swinging device, a pipe extending therefrom, and means actuated with and by the movement of the portable sprayer for drawing the liquid from the barrel and forcing the same away for use, substantially as set forth.



2. In a liquid-sprayer, the combination with the liquid-holding barrel and its supports, and a bracket connected to the barrel, of a rocking support pivoted to the bracket, a paddle connected to one end of the rocking support and passing down into the barrel, and means connected to the rocking support and to the main axle of the spraying-machine for swinging the rocking support and the paddle to keep the liquid contents of the barrel in a state of agitation, and a hose passing into the barrel and connected to the paddle and extending from the barrel, substantially as set forth.

3. In a liquid-sprayer, the combination with the liquid-holding barrel and its supports and a bracket connected to the barrel, of a rocking support pivoted to the bracket, a paddle connected to one end of the rocking support and passing down into the barrel and means connected to the rocking support and to the main axle of the spraying-machine for swinging the rocking support and the paddle to keep the liquid contents of the barrel in a state of agitation, and a hose passing into the barrel and connected to the paddle and extending from the barrel, and a similar open end of the hose within the barrel, a pump and connections therefrom and spraying-machine for delivering the liquid, substantially as set forth.

4. In a liquid-sprayer, the combination with the frame, the wheels and the main axle, and a liquid-holding barrel supported thereby, of a bracket secured to the barrel, a rocking support pivoted to the bracket and having a vertical edge 17 and a crank-arm portion, an arm pivoted to the crank-arm portion of the rocking support, an eccentric upon the main axle of the machine and to which said arm is connected, a paddle connected at its upper end to the rocking support with an edge adjustable along the vertical edge 17 and extending down into the barrel, and which paddle is moved back and forth in the barrel for agitating the liquid contents by the said support and eccentric and parts connected therewith, and a hose extending into the barrel connected to and movable with the paddle, and a pipe therefrom outside of the barrel and a pump device connected therewith, a filling-hopper secured to the upper part of the barrel at an opening therein, a removable top within the hopper having an opening through which the paddle passes into the barrel, a sliding plate upon the removable top having a mortise receiving the paddle and said parts acting to prevent, with the movement of the paddle, the liquid contents splashing out, substantially as set forth.

5. In a liquid-sprayer, the combination with the liquid-holding barrel, of a paddle extending into the barrel and means connected therewith for imparting thereto a swinging movement for keeping the liquid contents in a state of agitation, a hose connected to and movable with said swinging paddle and a pipe extending therefrom and means for drawing the liquid from the barrel and forcing the same away for use, and a filling-hopper connected to the barrel at an opening in the upper part and through which filling-hopper the paddle extends, and means within the hopper and surrounding the paddle for preventing the liquid contents splashing out, substantially as set forth.

6. In a liquid-sprayer, the combination with the liquid-holding barrel, of a paddle extending into the barrel and means connected therewith for imparting thereto a swinging movement for keeping the liquid contents in a state of agitation, a hose connected to and movable with said swinging paddle and a pipe extending therefrom and means for drawing the liquid from the barrel and forcing the same away for use, and a hopper connected to the upper part of the barrel at an opening therein, a removable top in said filling-hopper having a longitudinal opening through which the paddle extends into the barrel, a sliding plate upon the removable top with a mortise through which the paddle passes the said plate moving with the paddle and said parts preventing the splashing out of the liquid contents of the barrel, substantially as set forth.

7. In a liquid-sprayer, the combination with the frame, the wheels and the main axle, and a liquid-holding barrel supported thereby, of a bracket secured to the barrel, a rocking support pivoted to the bracket and having a vertical edge 17 and a crank-arm portion, an arm pivoted to the crank-arm portion of the rocking support, an eccentric upon the main axle of the machine and to which said arm is connected, a paddle connected at its upper end to the rocking support with an edge adjustable along the vertical edge 17 and extending down into the barrel and which paddle is movable back and forth in the barrel for agitating the liquid contents by the said support and eccentric and parts connected therewith, a hose extending into the barrel connected to and movable with the paddle, a pipe therefrom outside of the barrel and a pump device connected therewith, a filling-hopper secured to the upper part of the barrel at an opening therein, a removable top within the hopper having an opening through which the paddle passes into the barrel, a sliding plate upon the removable top having a mortise receiving the paddle and said parts acting to prevent, with the movement of the paddle, the liquid contents splashing out, substantially as set forth.

8. In a liquid-sprayer, the combination with the frame, the wheels, their axle and a liquid-holding barrel, of a device extending into the barrel and means for supporting and connecting the same to the axle of the machine and by which a swinging movement is imparted to the device for agitating the liquid contents of the barrel, and a hose and strainer connected therewith and supported by said device and moving therewith, and a connection from said hose and device acting therewith for removing the liquid contents from the barrel, substantially as set forth.

9. In a liquid-sprayer, the combination with the liquid-holding barrel having an opening in the upper end, of a filling-hopper a connected thereto and having a flange extending into the opening in the barrel, a removable top having a flange to rest upon and extend into the flange of the hopper and having a longitudinal opening in the said top, and a sliding plate having a mortise opening resting upon the removable top of the hopper, substantially as described.

701,689. HORN-COUPLES. JAMES R. ATKINSON, Montreal, Canada. Filed Sept. 2, 1901. Serial No. 74,491. (No model.)



Claim.—1. The horn-coupling described comprising the yoke adapted to receive a hose in its right, a cross-bar bridging the yoke and bearing a cam-lever, and the clamping-block movable on the side bars of the yoke between the right thereof and the cam-lever; said clamping-block being separate from the cam-lever, and arranged to be pressed and held by the same against the hose.

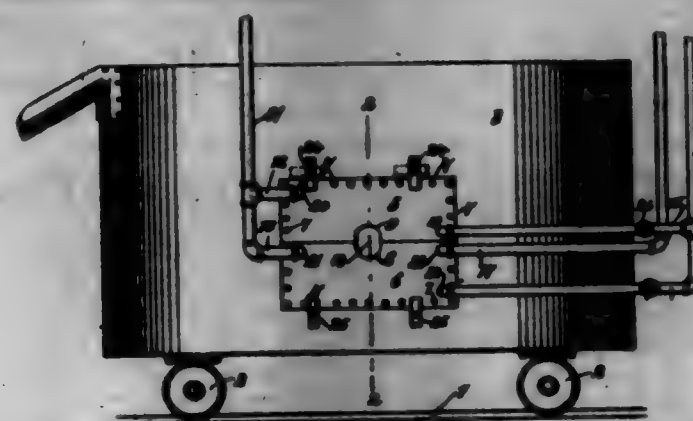
2. In a horn-coupling, the combination of a frame having a yoke at one end and an inclined portion at its opposite end, a clamping-block movable on the side bars of the yoke, and a lever fulcrumed in the frame and having a cam-head for engaging the clamping-block; said lever being adapted when rocked to carry the cam-head into engagement with the clamping-block to bring up against the inclined portion of the frame.

3. The combination of a pipe-section, a hose arranged on and receiving the end of the pipe, and the coupling described comprising the open frame having the yoke at one end and receiving the hose, and the inclined portion at its opposite end, the clamping-block movable on the side bars of the yoke and having the cam-head under side, the lever fulcrumed on said cam-head and having a cam-head to engage the clamping-block; said lever being adapted when rocked to carry the cam-head into engagement with the clamping-block to bring up against the inclined portion of the frame, and spacing-collars surrounding the cross-bar and interposed between the sides of the lever and the side bars of the frame.

701,670. TAPPING-JACKET. NILES RABBITT, Grand Forks, Canada, assignor of one-half to Francis H. Hutton, Grand Forks, British Columbia, Canada. Filed Jan. 28, 1902. Serial No. 68,496. (No model.)

Claim.—1. A tapping-jacket, comprising a receptacle for holding hot metal; a pair of hollow members, means for detachably securing said members upon said metal for holding hot metal, and a plurality of pipes for circulating a fluid through said members independently.

2. A tapping-jacket, comprising a pair of hollow members provided with independent compartments for holding a circulating liquid, the said members being provided with apertures of proper shape to form a tap-hole when fitted together in juxtaposition, and supply and exit pipes connected with said hollow members.



3. A tapping-jacket, comprising a pair of hollow members meeting each other and provided with complementary apertures, said apertures being adapted to form a tap-hole of substantially cylindrical form when said members are fitted together, and means for supplying a circulating liquid to said members separately.

4. A tapping-jacket, comprising members provided with compartments for holding a circulating liquid, and having a tap-hole adjacent to said compartments and free from same, and means for supplying a liquid to said compartments.

5. A tapping-jacket, comprising a pair of hollow members mated together and each having a substantially semi-circular aperture, and means for supplying a circulating fluid to said hollow members.

6. A tapping-jacket, comprising a plurality of hollow members adapted to be fitted together, and provided with separate compartments and also provided with apertures constituting fragmentary portions of a tap-hole, and means for supplying a circulating fluid to said hollow members.

7. A tapping-jacket, comprising a pair of members meeting each other and provided with separate water-tight compartments and with apertures for forming a tap-hole, and means for rendering said members interchangeable, so that one may be removed without affecting the other.

8. A tapping-jacket, comprising a pair of hollow members provided with separate compartments for holding a circulating liquid and with fluid-tight apertures free from same, said apertures being adapted to form a tap-hole when placed in juxtaposition, and supply and exit pipes connected with said hollow members.

9. A tapping-jacket, comprising a pair of hollow members provided with independent compartments for holding a circulating liquid and also provided with apertures constituting fragmentary portions of a tap-hole, means for supplying a circulating liquid to said hollow members, and a plurality of outlets connected with said hollow members and located upon opposite sides of said tap-hole.

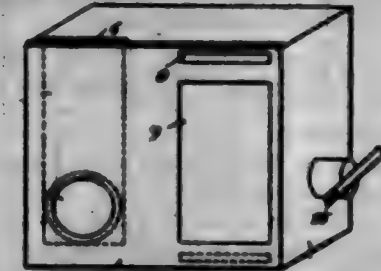
701,671. HYPODERMIC SYRINGE. JOHN A. BELLING, Rochester, Mass. Filed Aug. 2, 1901. Serial No. 70,704. (No model.)



Claim.—In a hypodermic syringe, the combination with the cylinder provided at one end with a hollow needle and at its other end with a

removable screw-cap having a mortise in its outer side at one side of the center, of a hollow reciprocating plunger arranged in the cylinder and provided with an unobstructed opening at its inner end and a valve-seat in its outer end, a threaded valve arranged in the outer end of the plunger, and arranged to seat against said valve-seat and close the hollow plunger, a lateral vent formed in the plunger in rear of said valve-seat and leading to the atmosphere whereby when the valve is moved away from its seat the cylinder is placed in communication with the atmosphere, and a pin carried by the outer end of the plunger and arranged to enter said mortise and lock the plunger against rotation when the latter is clamped within the cylinder, substantially as described.

701,672. COIN-CONTROLLED TICKET-DELIVERING DEVICE. MARCEL BERNIER, La Rochelle, France. Filed Oct. 18, 1901. Serial No. 72,573. (No model.)

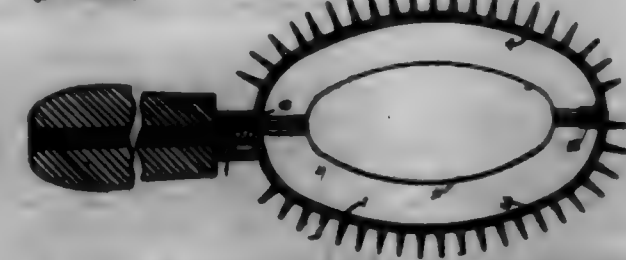


Claim.—1. In an apparatus of the character described the combination with a suitable box, of a door hinged at its upper edge having an opening for exposing a coin, a second opening for exposing a coupon, a third opening for exposing a ticket attached to the coupon, a slide-way in the box behind the coin-opening, and a slide-way in the box behind the ticket and coupon-opening, said latter slide-way being open at the bottom for the discharge of the ticket and coupon, and the coin-slide-way open at the top for the introduction of the coin, means operated by the closing of the door to separate the ticket from the coupon as axle extending laterally through the box, and slidable therein, a lateral arm on the inner end of the axle, a handle on its outer end, means for feeding the separated ticket to slightly project from the box, and connecting mechanism whereby the feeding means is operated by the movement of the axle longitudinally, substantially as described.

2. In an apparatus of the character described, the combination with a box, having a coin-slide-way and a ticket and coupon slide-way and a door hinged at its upper edge having a coin-exposing opening and ticket and coupon exposing openings, of a handle on the coupon when the door is closed, a spring-impelled feed-cylinder bearing against the exposed ticket on the inside, a stop for holding said cylinder against the action of the spring, and means whereby said stop is withdrawn to permit the feed-cylinder to operate when the handle is pulled outward, substantially as described.

3. In an apparatus of the character described, the combination with a box, having a coin-slide-way and a ticket and coupon slide-way and a door hinged at its upper edge having a coin-exposing opening and ticket and coupon exposing openings, of a handle on the coupon when the door is closed, a shaft parallel to the axle, a ticket-feed cylinder on said shaft provided with a recess, a lug on the axle normally engaging in said recess and withdrawn when the axle is drawn outward, a sleeve on the cylinder-shaft, a lever secured to said sleeve and slidably connected at its outer end to the door, and connections whereby the opening of the door will return the feed-sleeve to its normal position, substantially as described.

701,678. COMBINATION HAIR DRIER AND COMB. CHARLES E. BRADSHAW, Cleveland, Ohio. Filed Oct. 4, 1901. Serial No. 77,512. (No model.)



Claim.—1. In a device for drying the hair, a hollow metallic shell, a solid body within the shell for housing the same, said body being smaller than the hollow of the shell, pins secured to said body for centrally supporting it within the shell, and a handle secured to the shell, for the purpose specified.

2. In a device for drying the hair, a hollow oval-shaped metallic shell composed of two parts hinged together, each projecting from said shell, means adapted for being heated and for insertion within the hollow of the shell, means for holding the parts of the shell closed, and a handle of relatively non-conducting material secured to one of the parts of the shell, for the purpose specified.

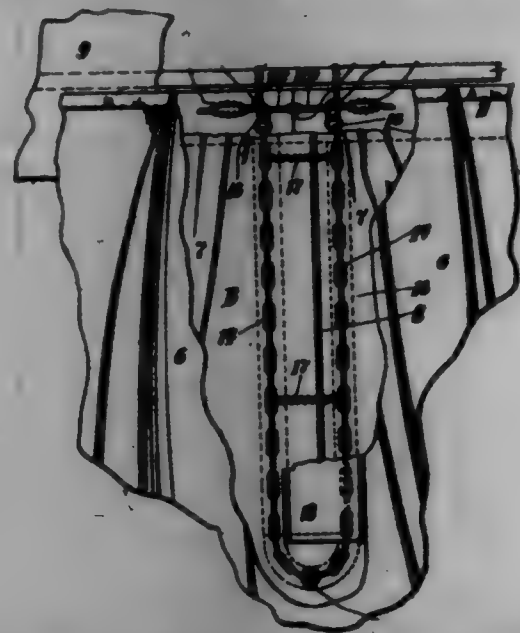
3. In a device of the character described, a hollow metallic shell composed of two parts hinged together, a body adapted for heating and for insertion within the hollow of the shell, pins projecting from said body by means of which it is supported within the shell, and a handle of relatively non-conducting material secured to one of the parts of the shell.

4. In a device of the character described, a hollow metallic shell composed of two parts hinged together, a body adapted for being heated and for insertion within the hollow of the shell, pins projecting from said body by means of which it is supported within the shell, a plurality of rows of comb-teeth projecting from the parts of the shell, and a handle secured to the shell, for the purpose specified.

5. In a device of the character described, a hollow metallic shell composed of two parts hinged together, comb-teeth projecting from the shell, a handle of relatively non-conducting material secured to one part, a ferrule rotatably mounted on the handle adjacent the shell, said ferrule having a notch, a lug on the hinged part of the shell adapted to enter the notch, for the purpose specified, and means for heating the shell.

6. In a device of the character described, a hollow metallic shell composed of two parts hinged together, a handle of relatively non-conducting material secured to one part, a ferrule rotatably mounted on the handle adjacent the shell, said ferrule having a notch, a lug on the hinged part of the shell adapted to enter the notch, for the purpose specified, comb-teeth projecting from the parts of the shell, a body adapted for being heated and for insertion within the hollow of the shell, and pins projecting from said body by means of which it is supported within the shell, substantially as described.

701,674. PLACKET-CLOSING DEVICE. CHARLES BRAND, New York, N. Y. Filed Sept. 20, 1901. Serial No. 78,908. (No model.)



Claim.—1. A placket-closing device comprising a chain or chain adapted to be secured in the skirt at the opposite side of the placket-opening, fastening device secured in the waistband portion of the skirt and with which said chain or chains are connected, means for detachably connecting said fastening device, and upwardly-directed hooks connected therewith which open downwardly, said chain or chains at the opposite side of the placket-opening being also connected by spiral springs, substantially as shown and described.

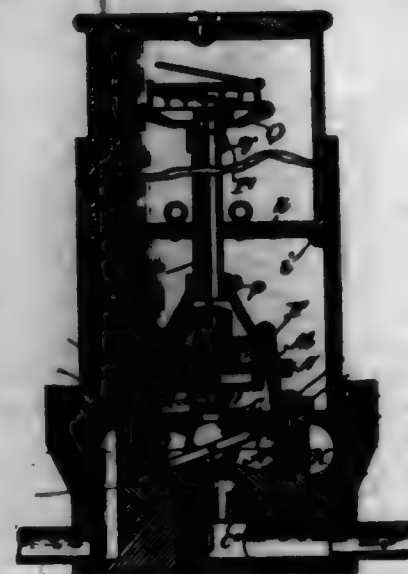
2. The herein-described means for closing a placket, comprising flexible device adapted to be secured in a skirt at the opposite side of the placket-opening, fastening device secured to the waistband portion of the skirt and with which said flexible device are connected, means for detachably connecting said fastening device, and upwardly-directed hooks connected therewith which open downwardly, said flexible device at the opposite side of the placket-opening being also connected by expansive device, substantially as shown and described.

3. In a placket-closing and skirt-supporting device, fastening device comprising two similar members each of which comprises a main horizontal portion provided centrally with an upwardly-directed hook which opens downwardly the main horizontal portions being provided with hooks at their adjacent ends which are adapted to be connected and the oppo-

sites or outer ends thereof being adapted to be secured in a garment, substantially as shown and described.

4. The herein-described means for closing a placket-opening consisting of flexible device secured in the flaps of the skirt at the opposite sides of the placket-opening and connected by transverse spiral springs, and fastening device secured to the top or waistband of the skirt with which said first-named device are connected, said last-named fastening device being also adapted to be connected and being provided with upwardly-directed hooks which open downwardly.

701,675. WATER-METER. HARRY F. BROWN, Chicago, Ill. Filed Aug. 5, 1901. Serial No. 70,589. (No model.)



Claim.—1. In a meter the combination of a base provided with inlet and outlet ports, a piston-rod removably seated upon the base and having parts communicating with the ports thereof, and a superposed part meeting the base and forming there-with a casing, the piston-rod being connected with said superposed part, so as to be carried thereby when removed, substantially as described.

2. In a meter the combination of a base, provided with inlet and outlet ports, a piston-rod having parts communicating with the ports of the base, the base being provided with a socket in which the piston-rod fits, and a superposed part meeting the base and forming there-with a casing which incloses the piston-rod, the piston-rod being connected with said superposed part, so as to be carried thereby when removed, substantially as described.

3. In a meter the combination of a piston-rod provided with inlet and outlet ports and a meter-casing including the piston-rod and having a base provided with a socket in which the piston-rod fits snugly, said base being provided also with inlet and outlet ports communicating directly with the ports of the piston-rod, substantially as described.

4. In a meter the combination of a piston-rod provided with inlet and outlet ports, a base provided with a socket in which the piston-rod fits, and with parts communicating with the ports of the piston-rod, one of said parts of the base terminating in an annular channel which surrounds the piston-rod, and means for detachably connecting the piston-rod and base, substantially as described.

5. In a meter the combination of a piston-rod provided with inlet and outlet ports, a base provided with a socket in which the piston-rod fits and with parts communicating with the ports of the piston-rod, a superposed part covering the joint between the piston-rod and base, and means for connecting the piston-rod and superposed part, substantially as described.

6. In a meter the combination of a base permanently connected in the waterway provided with inlet and outlet ports, a superposed part contacting with the base and forming there-with the meter-casing, means whereby said superposed part and base are detachably connected, and a moving system carried by said superposed part, substantially as described.

7. In a meter, the combination of a piston, a casing having a chamber occupied by the piston and having inlet and outlet ports, and a meter-casing including the piston-casing and having a base permanently connected in the waterway, said base being provided with a socket in which the piston-casing fits snugly and being provided also with inlet and outlet ports communicating directly with the ports of the piston-casing, substantially as described.

8. In a meter the combination of a base provided with inlet and outlet ports, a superposed part contacting with the base and forming there-with a casing, a piston-rod having parts registering with the ports of the base, means connecting the superposed part and piston-rod, means

detachably connecting the piston-casing and base, and a moving system carried by the superposed part, substantially as described.

9. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing removably seated upon the base and having parts communicating with the ports thereof, a superposed part meeting the base and forming a joint therewith, said superposed part and piston-casing being connected, a tube, and means reaching down into the said tube and engaging said superposed part for handling it, substantially as described.

10. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing having parts communicating with the ports of the base, the base being provided with a socket in which the piston-casing fits, a superposed part meeting the base and forming there-with a casing which incloses the piston-casing, the piston-casing being connected with said superposed part so as to be carried thereby when removed, a tube through which said piston-casing and superposed part may be removed or put in place, and means reaching down into the said tube and engaging said superposed part for handling it, substantially as described.

11. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a superposed part contacting with the base and forming there-with the meter-casing, means whereby said superposed part and base are detachably connected, a piston-casing inclosed by the meter-casing, a moving system carried by said superposed part, a tube through which said superposed part and its accessories may be removed or put in place, and means reaching down into the said tube and engaging said superposed part for handling it, substantially as described.

12. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a superposed part contacting with the base and forming there-with the meter-casing, means whereby said superposed part may be connected with or disconnected from the base by a bodily rotation of said part, a piston-casing inclosed by the meter-casing, a moving system carried by said superposed part, a tube through which said superposed part may be removed or put in place, and means reaching down into the said tube and engaging said superposed part for handling it, substantially as described.

13. In a meter the combination of a base permanently connected in the waterway and having inlet and outlet ports, a superposed part contacting with the base and forming there-with a casing, a piston-casing having parts communicating with the ports of the base, means connecting the superposed part and piston-casing whereby the one carries the other, means detachably connecting the piston-casing and base, a moving system carried by the superposed part, a tube through which said superposed part and piston-casing may be put in place or removed, and means reaching down into the said tube and engaging said superposed part for handling it, substantially as described.

14. In a meter the combination of a meter-casing including a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing inclosed by the meter-casing and removably seated directly upon the base and having parts communicating with the ports thereof, a tube also seated upon the said base and forming there-with the meter-box, and means reaching down into the said tube and engaging said piston-casing for handling it, substantially as described.

15. In a meter the combination of a meter-casing including a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing inclosed by the meter-casing and removably seated directly upon the base and having parts communicating with the ports thereof, means whereby said piston-casing and base may be connected or disconnected by a bodily rotation of the piston-casing, and a tube also seated upon said base, substantially as described.

16. In a meter the combination of a meter-casing including a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing inclosed by the meter-casing and removably seated directly upon the base and having parts communicating with the ports thereof, said piston-casing and base having threaded engagement with each other, a tube also seated upon said base and forming there-with the meter-box, and means reaching down into the said tube and engaging the piston-casing for handling it, substantially as described.

17. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing removably seated upon the base and having parts communicating with the ports thereof, a superposed part meeting the base and forming there-with a casing inclosing the piston-casing, means connecting said superposed part and piston-casing, and a tube also seated upon said base and forming there-with the meter-box, substantially as described.

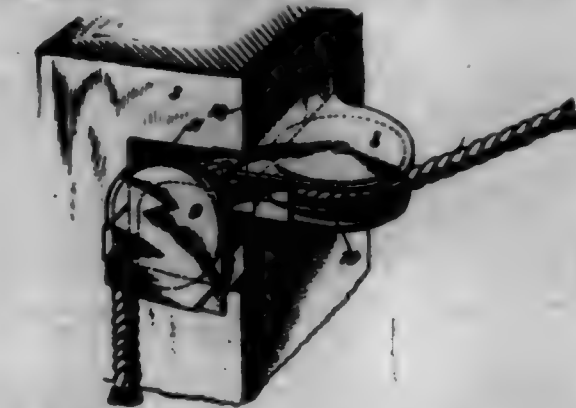
18. In a meter the combination of a base permanently connected in the waterway and provided with inlet and outlet ports, a piston-casing having parts communicating with the ports of the base, the base being provided with a socket in which the piston-casing fits, a superposed part meeting the base and forming there-with a casing, which incloses the pi-

ston-casing, the piston-casing being connected with said superposed part so as to be carried thereby when removed, and a tube also seated upon said base, substantially as described.

19. A base for a meter permanently connected in the waterway and provided with a socket adapted to receive the piston-casing and with inlet and outlet ports, one of which terminates in an annular channel surrounding said socket, a plug adapted to fit in said socket and having parts communicating with the ports of the base, and means for detachably connecting the plug and base, substantially as described.

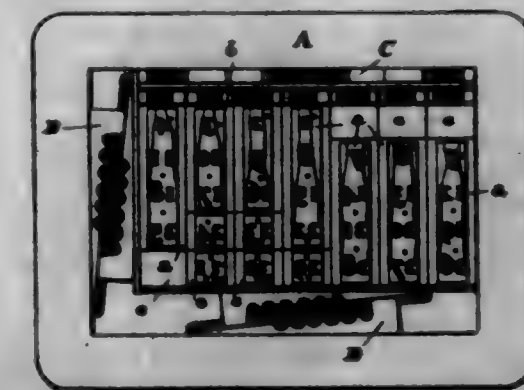
20. In a meter, the combination of a meter-casing comprising a base permanently connected in the waterway and having inlet and outlet ports and a removable superposed part, and a piston-casing inclosed by the meter-casing and having parts communicating directly with the ports of the base, said piston-casing being removably supported by the base whereby it may be removed from above, leaving the base in undisturbed relation to the waterway, substantially as described.

701,676. SELF-CLOSING GATE. ROBERT H. CARPENTER, Florence, Colo. Filed Jan. 15, 1902. Serial No. 90,332. (No model.)



Claim.—A self-closing gate, comprising an angular post, a member loosely mounted thereon and free to swing, a pulley mounted upon said post in a plane parallel with the general axial direction of said post and having one of its edges flush with the angular corner thereof, another pulley mounted upon said post at right angles with the general direction of said first-mentioned pulley and in immediate proximity thereto, one of said pulleys being so disposed upon said post as to overreach said angular corner thereof by a distance commensurate with the thickness of said other pulley, and a flexible member partially engaging said pulleys and also engaging said gate, the arrangement being such that said flexible member is guided around a single angular corner of said post, the two pulleys being mounted in casings and provided with guards to prevent the displacement of said flexible member.

701,677. SET OF TYPE FOR PRINTING CALENDARS. JOHN L. CARROLL, Baltimore, Md. Filed Nov. 15, 1901. Serial No. 82,344. (No model.)



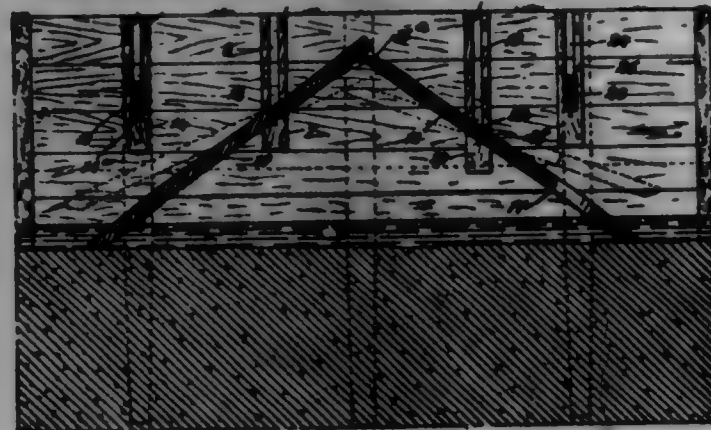
Claim.—1. The herein-described set of type characters for printing calendars, comprising a plurality of block-type each containing four characters in vertical line one above the other and representing four days of the month one week apart; a plurality of block-type each containing three characters in vertical line one above the other and representing three days of the month one week apart; and a plurality of block-type each containing one character representing one day of the month, substantially as set forth.

2. The herein-described set of type characters for printing calendars, comprising five block-type, each containing four numerals arranged one above the other and representing days of the month one week apart; two block-type, each containing three numerals also arranged one above the other and representing other days of the month one week apart; five in-

dividual block-type each containing one numeral representing one day of the month; and two auxiliary block-type each containing two numerals which together correspond to numerals on four of the five individual type, substantially as set forth.

3. The herein-described set of type characters for printing calendars, comprising vertical lines of block-type, *a*, containing respectively the sets of numerals "1-6-12-22," "4-11-18-25," "5-12-19-26," "6-12-20-27," and "7-14-21-28;" vertical lines of block-type, *b*, containing respectively sets of numerals "2-9-16" and "3-10-17;" and individual block-type, *c*, containing respectively the numerals "23," "24," "29," "30," and "31," as set forth.

701,678. FLOOD-GATE. HERMAN R. GARRISON, St. Marys, Ohio. Filed Feb. 26, 1902. Serial No. 86,557. (No model.)



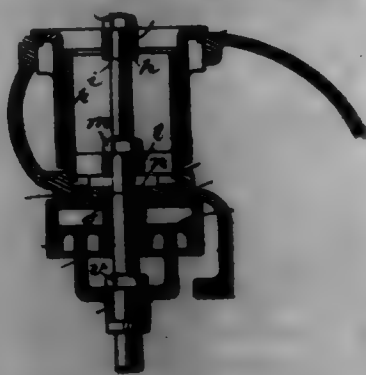
Claim.—1. In a flood-gate, the combination of a gate hinged to turn on a horizontal axis, and a buffer-bar disposed in the path of the gate and adapted to yield to its upward movement.

2. In a flood-gate, the combination of guideways, a gate having transverse slides fitted in one pair of said guideways, and a buffer-bar disposed in the path of the gate, and means for slidably confining the buffer-bar in operative relation to said gate.

3. In a flood-gate, the combination of pairs of guideways, a gate having transverse slides fitted in one pair of said guideways, and a buffer-bar also provided with transverse slides which are slidably received in the other pair of said guideways, said gate and the buffer-bar being free to turn on a horizontal axis, and either of said parts being adapted to rise and fall in the guideways.

4. In a flood-gate, the combination with a horizontally-hung gate, of a buffer-bar mounted to turn on a horizontal axis, and having overlapping relation with the gate, a buffer-bar disposed in the path of said buffer-bar, and means for confining said buffer-bar in place.

701,679. THROTTLE-VALVE. JOHN S. GRANTHER, Elizabeth, N. J. Filed June 1, 1901. Serial No. 82,061. (No model.)



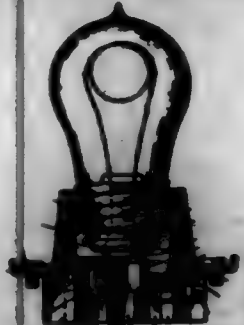
Claim.—1. A throttle-valve comprising a valve-rod provided with upper and lower valve-seats, upper and lower valve-extensions fitted to said seats and provided with tubular extensions, the tubular extension on the lower valve being arranged to telescope within the tubular extension on the upper valve-section, a valve-rod for operating the sections, the said sections having a rotary engagement with the rod and the upper valve-section being connected to the rod to move with it independently of the lower valve-section, the passage-way of steam past the lower valve-section leading from a point above the upper valve-seat, substantially as set forth.

2. A throttle-valve comprising a valve-rod provided with upper and lower valve-seats, an upper valve-section and a lower valve-section fitted to said seats, a valve-rod for operating the valve-sections, the said rod having a connection with the upper valve-section to operate it independently of the lower valve-section, an annular cap below the lower valve-seat and in communication with the interior of the valve-rod

and a counterbalance-piston connected with the valve-rod and adapted to work in said annular cap, substantially as set forth.

3. A throttle-valve comprising a valve-rod provided with upper and lower valve-seats, upper and lower valve-extensions fitted to said seats, a valve-rod connected with said valve-extensions for operating them, an annular cap removably attached to the bottom of the valve-rod and a counterbalance-piston connected with the valve-rod and arranged to work in said cap, substantially as set forth.

701,680. SOCKET FOR INCANDESCENT LAMPS. CHARLES A. CHASE, Chicago, Ill. Filed Jan. 16, 1902. Serial No. 86,947. (No model.)



Claim.—1. A socket for incandescent lamps comprising a tubular portion, a base portion, a diaphragm-like body between the two, a slot in the side of the tubular portion, a terminal which fits in said slot and projects downwardly so as to be secured at the base, and means for securing the terminal comprising a screw-bolt with head and nut, a cut-away portion in the base to receive the head, a cut-away portion to receive the nut, a shoulder on the base to receive the nut, an aperture in the terminal to receive the shoulder, a cut-away portion to receive the nut whereby the bolt and terminal may be manipulated by slightly loosening the nut and raising or lowering the parts through their respective openings.

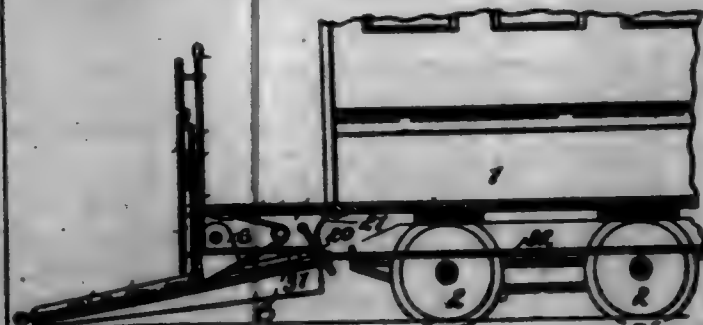
2. A socket for incandescent lamps consisting of a tubular portion, a base portion, a diaphragm between the two, suitable apertures and openings, a terminal vertically movable along said base, a horizontal screw-bolt passing through each terminal, and openings and recesses in the base whereby each terminal and bolt may be moved vertically in or out of engagement with each opening in the base, the screw traveling sideways in each vertical motion.

701,681. TAP-MEASURE. WILLIAM CHRISTMAS, Sheffield, England. Filed Nov. 16, 1901. Serial No. 82,546. (No model.)



Claim.—A tap-measure having a case with a winding-reel therein, and a lifting handle pivoted to a hinge-pin on the reel, said handle when closed being substantially flush with the case, and having a lever-arm projecting to the rear of the hinge-pin, so as to form an opening thumb-piece for the handle when closed, the case having a recess to allow the extension to be pressed downwardly; substantially as described.

701,682. FENDER. BRUNN E. CLARK, St. Louis, and ERNEST E. CLARK, St. Louis, Mo. Filed Apr. 12, 1901. Serial No. 86,686. (No model.)



Claim.—1. The combination with a fender traveling normally above the track, a trigger for holding it in that position, and means for automatically tripping the trigger; of a rod connected with said trigger and leading to emergency-brake mechanism whereby the tripping of the trigger will cause the application of said brake, a circuit-breaker having one terminal carried by said rod and the other by a relatively stationary part,

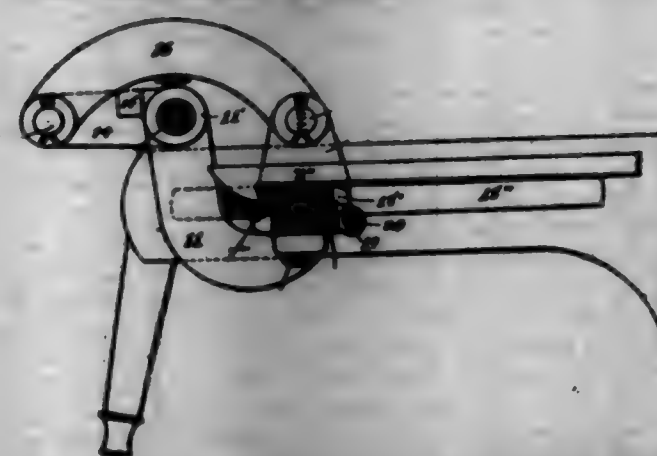
and an electric circuit leading from the source of energy through these terminals to the controller.

2. In a fender, the combination with the fender proper pivoted beneath the car-platform, depending flanges along the sides of the fender, rollers at its front corners, and a footer comprising a frame whose side bars move longitudinally in the fender proper and whose front cross-bar projects beyond said rollers and is made web; of a trigger pivoted beneath the platform with its lower edge engaging the rear end of the footer when said end is depressed, said lower edge being adapted to be pushed out of engagement by the movement of the footer.

3. In a fender, the combination with the fender proper having one side of the car-platform, guides along the sides of the fender, and a footer comprising a frame whose side bars move longitudinally in the guides and whose cross-bars are free; of springs throwing the front end of the footer normally downward, manual means for raising the front end of the footer against the tension of said springs, a trigger pivoted beneath the platform with its lower edge engaging the rear end of the footer when said end is depressed, said lower edge being adapted to be pushed out of engagement by the movement of the footer, and a positive trip engaging the trigger and adapted to be manipulated by the motorman.

4. In a fender, the combination with the fender proper pivoted beneath the car-platform and extending to the rear of said pivot, a trigger pivoted beneath the platform with its lower edge adapted to engage the rear end of the fender when depressed, and a spring throwing the trigger normally forward; of a stop depending from the dashboard forward of the pivot of the fender for the purpose set forth; means for manually raising the front end of the fender into contact with this stop, and means for tripping the trigger.

701,683. LOOM-HARNESSE OVERER. ARTHUR E. COWAN, Worcester, Mass., assignor to Orlington & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Feb. 21, 1902. Serial No. 85,911. (No model.)



Claim.—1. In a loom-harness overer, the combination with the lever-bar, made in two parts or sections, one part adapted to extend over and engage the other, so that both parts will move together, in the operation of the loom, of means for disengaging the part engaged by the hooked jaws, from the other part, allowing it to move inward, to lower the harnesses, substantially as shown and described.

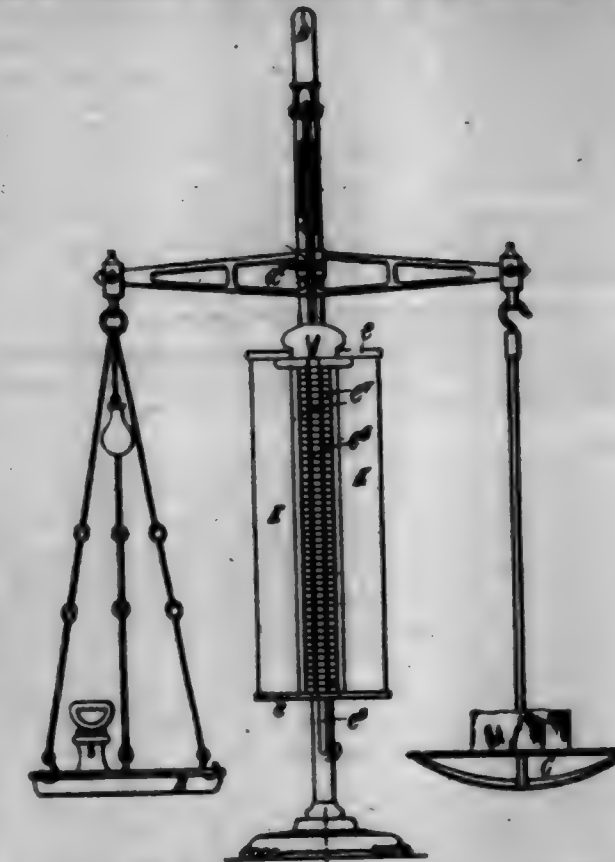
2. In a loom-harness overer, the combination with the lever-bar, made in two parts, one part adapted to extend over the other, and provided with a lip or projection on its rear edge to hold the parts together, of means for disengaging the upper part from the lower part, and allowing it to move inward, to lower the harnesses, substantially as shown and described.

3. In a loom-harness overer, the combination with the lever-bar, made in two parts or sections, one part adapted to extend over and engage the other, so that both parts will move together in the operation of the loom, of means for disengaging the part engaged by the hooked jaws, from the other part, and allowing it to move inward, to lower the harnesses, said means comprising a rock-shaft, means for rocking said shaft, a crank on said shaft, a link connected with said crank, and with the part of the lever-bar engaged by the hooked jaws, and a pin engaging the slot in which the lever-bar slides, substantially as shown and described.

701,684. WEIGHING APPARATUS. LEONARD E. COWAN, London, England. Filed Oct. 20, 1901. Serial No. 79,718. (No model.)

Claim.—1. In weighing apparatus, the combination with a scale-beam having a weight-pan at one end and a goods-pan at the other end, of a rotary device bearing indications representing monetary values, a non-rotary device bearing indications representing the rates at which the goods to be weighed are sold, a spring adapted to be more or less distorted by the combined weight of the weights and goods acting on the scale-beam, and

means for transmitting motion to said rotary device in accordance with the extent of distortion of said spring for the purpose specified.



2. In weighing apparatus, the combination with a scale-beam having a weight-pan at one end and a goods-pan at the other end, of a rotary device bearing indications representing monetary values, a non-rotary device bearing indications representing the rates at which the goods to be weighed are sold, a piece rectilinearly movable in which said scale-beam is fulcrumed, a spring by which said movable piece is suspended from a suitable standard and means for converting the said rectilinear movements of the movable piece into rotary movements of the said rotary device for the purpose specified.

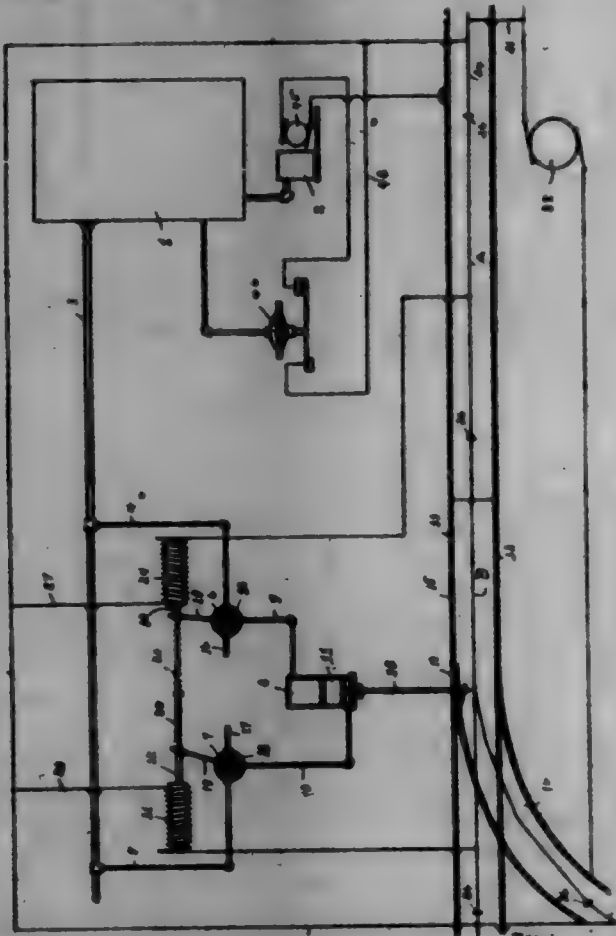
3. In a weighing apparatus, the combination with a scale-beam having a weight-pan at one end and a goods-pan at the other end, of a plurality of rotary drums bearing indications representing monetary values, an external non-rotary casing bearing indications representing the rates at which the goods to be weighed are sold and formed with a longitudinal slot through which the monetary values on the drums are exhibited, a rectilinearly-movable slide in which said scale-beam is fulcrumed, a spring by which said slide is suspended from a suitable standard, and means for converting the said rectilinear movements of the slide into rotary movements of the drums for the purpose specified.

4. In weighing apparatus, the combination with a scale-beam having a weight-pan at one end and a goods-pan at the other end, of a plurality of concentrically-arranged rotary drums bearing indications representing monetary values, each drum excepting the innermost one being longitudinally slotted, an external non-rotary cylindrical casing bearing indications representing the rates at which the goods to be weighed are sold and formed, contiguous to said indications, with a longitudinal slot through which the monetary values are exhibited, a rectilinearly-movable slide in which said scale-beam is fulcrumed, a frame in which said slide moves and by which it is guided, a spring by which said slide is suspended from the frame, means for flexibly connecting said frame to a standard so that the drums and their casing can move laterally to assume a truly vertical position irrespective of said standard, means for limiting the extent of such lateral movement, bearings for the said drums, a central stem to which one of said drums is connected, means for converting the rectilinear movement of the slide into rotary movement and transmitting the same to said stem, means for causing the drum that is connected with the stem to impart rotary movement to the other drums, and means for returning said drums to their normal position after the weighing operation substantially as described.

5. In weighing apparatus, the combination with the scale-beam having a weight-pan at one end and a goods-pan at the other end, of a plurality of concentrically-arranged rotary drums bearing indications representing monetary values, each drum excepting the innermost one being longitudinally slotted, an external non-rotary cylindrical casing bearing indications representing the rates at which the goods to be weighed are sold and formed, contiguous to said indications, with a longitudinal slot through which the monetary values on the drums are exhibited, a rectilinearly-movable slide in which said scale-beam is fulcrumed, a frame

in which said slide moves, rollers on said slide engaging with said frame for guiding the slide, a spiral spring by which said slide is suspended from the frame, means for flexibly connecting said frame to a standard, a finger on said standard entering a recess in the bottom of the said cylindrical casing, bearings for the said rotary drums, a central hollow drum in which the innermost of said drums is mounted, a quick-threaded screw at the upper end of said drum, a nut on said slide engaging with said screw, means for lubricating said screw and nut, projections on said drums adapted to successively impinge as each drum performs a complete revolution and to thus transmit the rotary motion of one drum to another, and a spring for returning the drums to their normal position after each weighing operation, substantially as described.

701,685. ELECTRO-PNEUMATIC SWITCH SYSTEM FOR ELECTRIC RAILWAYS. WILLIAM H. CHAMBER, Toledo, Ohio. Filed Nov. 1, 1901. Serial No. 11,102. (No model.)



Claim.—1. In an electro-pneumatic switch system for electric railways, the combination with a main line of track electrically equipped for operating cars thereon, of a switch in the main track provided with mechanism for opening and closing the switch by air-pressure; an air-supply connected to the switch mechanism; a valve in the connection adapted, when opened, to admit air from the air-supply to the switch mechanism; and means to open the valve by a current of electricity through the current-controller of a passing car.

2. In an electro-pneumatic switch system for electric railways, an open independent electric circuit comprising a main lead-conductor connected to a dynamo, a section of the line conductor insulated therefrom and connected to the main lead-conductor by a feed-conductor for the section including the winding of a magnet, and a return-conductor, adapted to be closed by the wiring of a car, in combination with a main line of track; a switch-track therefrom; a switch-point adapted to close or open the switch-track; means to operate the switch-point by air-pressure to open or close the switch; an air-supply connected to the switch; a valve in the connection adapted, when open, to admit air to open the switch, and, when closed, to release the air and leave the switch free; means to electrically open the valve by a current through the winding of the magnet, established by the closing of the circuit by a passing car, and means to automatically close the valve when it is electrically released by a breaking of the circuit.

3. In an electro-pneumatic switch system for electric railways, an open independent electric circuit comprising a main lead-conductor connected with a dynamo; a section of the line conductor, insulated therefrom and connected in the main lead-conductor by a feed-conductor for the section having included therein the winding of a magnet, and a return-conductor, adapted to be closed by the wiring of a car, in combination with a main line of track, a switch-track therefrom, a switch-point

adapted to close or open the switch-track, means to operate the switch-point by air-pressure to open or close the switch; an air-supply connected to the switch; a valve in the connection adapted, when open, to admit air to close the switch and, when the valve is closed, to release the air and leave the switch free; means to electrically open the valve by a current through the winding of the magnet established by the closing of the circuit by a passing car; and means to automatically close the valve when electrically released by a breaking of the circuit.

4. In an electro-pneumatic switch system for electric railways, a main line of track, a switch-track therefrom, a switch adapted to close or open the switch-track, means to operate the switch by air-pressure, to open or close the switch, an air-supply connected to the switch-operating mechanism, a valve in the connection adapted, when open, to admit air to open the switch and, when closed, to release the air and leave the switch free, in combination with an open independent electric circuit comprising a main lead-conductor connected to a dynamo; a line conductor connected to the main lead-conductor, and looped around the switch; an insulated section of the line conductor in alignment therewith within the loop, a feed-conductor for the section connected to the section and the loop, having included therein the winding of a magnet, and a return-conductor, the open circuit thus formed being adapted to be closed by the wiring of a car, means to electrically open the air-valve by a current through the winding of the magnet established by the closing of the circuit by a passing car, and means to automatically close the valve when it is electrically released by a breaking of the circuit.

5. In an electro-pneumatic switch system for electric railways, the combination with an electrically-equipped railway-track, having a plurality of switches, of an air-compressor; a receiver for the air-compressor; an air-main extending from the receiver along the track by the switches; a cylinder for each switch, having a piston operatively connected to its switch-point, and adapted, when moved in one direction, to open, and in the opposite direction, to close the switch; a branch pipe from the air-main to each end of the cylinder; a two-way valve in each branch pipe, adapted, when opened, to admit air to the cylinder and when closed, to release it therefrom; a lever for each valve; means connected to the levers to yieldingly hold the valves normally closed and automatically close them when opened and released; a loop in the line conductor around each switch; an approach and a passing section of the line conductor spanning the loop; circuit-breakers connecting the sections with each other and with the line conductor; an independent feed-conductor for each section, connecting the section with the loop and including the winding of a magnet having its core linked to the lever of a valve and adapted to be moved to open the valve by a current through the winding of a magnet, that of the approach section with the lever of the valve adapted to admit air to the cylinder to open the switch, and of the passing section, with the valve adapted to admit air to the opposite end of the cylinder and close the switch, and a return-conductor, forming with each section, its feed-conductor, and the loop, an independent open circuit, adapted to be closed by the wiring of a passing car, and kept closed or open by the current-controller of the car while the car is passing the section, and automatically opened again when the car has passed the section.

701,686. CAN-OPENER. HORACE E. DAY, Steubenville, Ohio. Filed Sept. 12, 1901. Serial No. 10,152. (No model.)



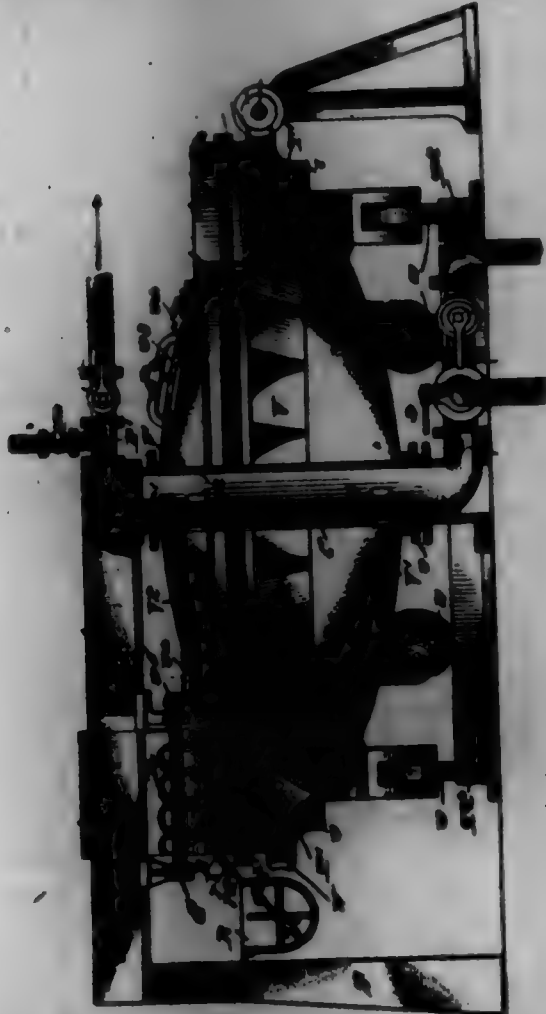
Claim.—In a can-opener, a handle formed of one piece of metal bent to form a yoke, a tool comprising a body portion pivotally connected to said handle and having a portion thereof inclosed by said yoke, a spring-clamp carrying prongs for engagement with the sides of one end of said body portion of the tool carried by the handle, a can-opener carried by one end of said tool, a slidable cutter mounted on said tool, said tool adapted to be swung on its pivotal point whereby the can-opener may be inclosed by the handle and engaged by said prongs when in an operative position.

701,687. APPARATUS FOR PURGING SUGAR. Dr. GUENON DUBOIS, Bourges, France. Filed May 12, 1901. Serial No. 90,634. (No model.)

Claim.—1. Apparatus such as described, comprising a vacuum-pan having a channel open to said pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough and means for educting liquid from the pan; in combination with a stationary feed device for feeding material to the trough and means for moving the pan progressively along said feed device, for the purpose set forth.

2. Apparatus such as described, comprising a vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its

length, a foraminous partition in said channel to form a trough and means for educting liquid from the pan; in combination with a stationary feed-hopper above the aforesaid trough and means for rotating the pan, for the purpose set forth.



3. Apparatus such as described, comprising a vacuum pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough, means for educting liquid from the pan and means for rotating the latter; in combination with means for continuously removing material from the trough and means for simultaneously and continuously feeding material to said trough so as not to relieve or materially relieve the vacuum in the pan, for the purpose set forth.

4. Apparatus such as described, comprising a vacuum-pan having a channel open to the atmosphere and to the pan throughout its length, a foraminous partition in said channel to form a trough, means for educting liquid from the pan and means for rotating the latter; in combination with a stationary interceptor arranged to remove material from the trough and means for taking up and conveying away said material, substantially as set forth.

5. Apparatus such as described, comprising a vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough, means for educting liquid from the pan and means for rotating the latter; in combination with a receiver, appliances automatically removing material from the trough into the receiver as the pan rotates, and means for simultaneously feeding fresh material to the trough at or substantially at the point of removal, for the purpose set forth.

6. Apparatus such as described, comprising a vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough, means for educting liquid from the pan and means for rotating the latter; in combination with a stationary interceptor constructed to intercept the material in the trough and direct it upwardly out of the same, a receiver, and a conveyor arranged to take the material banked up by the interceptor and convey it to said receiver, for the purpose set forth.

7. Apparatus such as described, comprising a vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough, means for educting liquid from the pan and means for rotating the latter; in combination with a stationary interceptor constructed to intercept the material in the trough and direct it upwardly out of the same, a receiver provided with stirring appliances, and a conveyor arranged to take the material banked up by the interceptor and convey it to said receiver, for the purpose set forth.

8. Apparatus such as described, comprising a stationary hollow column, a vacuum-pan mounted to revolve fluid-tight thereon, ports in said column near the bottom and top of the pan, a drain-pipe connected to the lower end of the column, an exhaust-pipe connected to the upper end of said column, said pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel to form a trough and means for rotating the pan; in combination with appliances for simultaneously removing material from and feeding material to said trough as the pan rotates and so as not to relieve or materially relieve the vacuum therein, for the purpose set forth.

9. In apparatus such as described, the combination with a rotatable vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel open to the pan and to the atmosphere throughout its length, means for educting liquid from the pan, and means for rotating the latter; in combination with a stationary feed-hopper arranged to discharge into said trough and means for regulating the feed of material to the hopper, for the purpose set forth.

10. In apparatus such as described, the combination with a rotatable vacuum-pan having a circular channel open to the pan and to the atmosphere throughout its length, a foraminous partition in said channel open to the pan and to the atmosphere throughout its length, means for educting liquid from the pan and means for rotating the latter; in combination with a stationary feed-hopper arranged to discharge into said trough, means for regulating the feed of material to the trough, a scraper therein, in front of the hopper-outlet, arranged to remove material from said trough as the pan rotates, and means for conveying away the material so removed, for the purpose set forth.

701,688. VAULE. JAMES W. DOWELL, Evanston, Ill., assignor to Hall's Safe & Lock Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 9, 1901. Serial No. 74,005. (No model.)



Claim.—1. In a vault, the combination of flanged rails entering into the construction of the walls, corner-posts having flanges contacting with the bases, webs, and heads of the end rails of the two series of rails entering into the construction of contiguous walls, and means for securing said rails and posts together, substantially as described.

2. In a vault, the combination of flanged rails entering into the construction of the walls, corner-posts engaging the end rails of the two series of rails entering into the construction of contiguous walls, tie-rods passing through said rails and through openings in the posts, and nuts turned onto the tie-rods, substantially as described.

3. In a vault, the combination of flanged rails entering into the construction of the walls, hollow corner-posts engaging the end rails of the two series of rails entering into the construction of contiguous walls, tie-rods passing through said rails and the adjacent walls of the posts, and nuts within the posts, turned onto said tie-rods, substantially as described.

4. In a vault, the combination of flanged rails entering into the construction of the walls, hollow corner-posts engaging the end rails of the two series of rails entering into the construction of contiguous walls, tie-rods passing through said rails and the adjacent walls of the posts, and nuts, within the posts, turned onto said rods, the posts being provided opposite the nuts, with openings for the admission of a wrench, substantially as described.

5. In a vault, the combination of flanged rails entering into the construction of the walls, hollow corner-posts having flanges complementary in the flange of the end rails of the two series of rails entering into the construction of contiguous walls, tie-rods passing through said rails and the adjacent walls of the posts and nuts, within the posts, turned onto said rods, substantially as described.

6. A hollow post for use in vault construction having two flange ends

complementary to one side of the base, web and head of a flanged rail, substantially as described.

7. A hollow post for use in vault construction having two faces each complementary to the side of a flanged rail, and having, through said faces, openings for the passage of fastening devices and having, also, between said faces, openings for the admission of a wrench, substantially as described.

8. In a vault, the combination of a course of flanged rails arranged side by side, base to base, and entering into the construction of a wall, and keys disposed between adjacent rails, each of said keys engaging the base of one and the head of the next adjacent rail, substantially as described.

9. In a vault, the combination of flanged rails entering into the construction of a wall, and keys disposed between said rails, each key engaging the upper sides of the bases and the under sides of the heads of two adjacent rails, substantially as described.

10. In a vault, the combination of flanged rails entering into the construction of a wall, and keys disposed between said rails, each of said keys having parts engaging the under sides of the heads of two adjacent rails, and means through which said keys bear upon the tops of the heads of said rails, substantially as described.

11. In a vault, the combination of flanged rails entering into the construction of a wall, and keys disposed between said rails, each of said keys filling the space between the bases, webs and heads of two adjacent rails, substantially as described.

12. In a vault, the combination of flanged rails arranged side by side and entering into the construction of a wall, and means engaging adjacent rails for bracing each rail against lateral movement either inward or outward relatively to the next rail, said bracing means having engagement with both the top and the under sides of the heads of adjacent rails, substantially as described.

13. In a vault, the combination of flanged rails arranged side by side and entering into the construction of a wall, and means for bracing each rail against lateral movement either inward or outward relatively to the next rail, said bracing means having keys disposed between said rails, each of said keys having contact with the upper side of the base of one rail and the under side of the head of the next adjacent rail, substantially as described.

14. In a vault, the combination of flanged rails entering into the construction of the walls, and keys disposed between said rails and having parts engaging the upper sides of the bases and the under sides of the heads of adjacent rails, and means through which said keys bear upon the tops of the heads of said rails, substantially as described.

15. In a vault, the combination of flanged rails entering into the construction of the walls, and keys disposed between said rails and engaging the under sides of the heads of adjacent rails, said keys having cheeks extending between the heads of said adjacent rails, and means through which said cheeks bear upon the tops of the heads of said rails, substantially as described.

16. In a vault, the combination of flanged rails entering into the construction of the walls and arranged base to base, and keys disposed between said rails and having parts engaging the under sides of the heads of adjacent rails, cheeks extending between the heads of adjacent rails, and means through which the cheeks bear upon the tops of the heads of said rails, substantially as set forth.

17. In a vault, the combination of flanged rails arranged base to base, entering into the construction of the walls, and keys disposed between said rails and having parts engaging the under sides of the heads of adjacent rails, cheeks extending between the heads of said adjacent rails and means engaging the cheeks and bearing upon the tops of the rails, substantially as described.

18. In a vault, the combination of flanged rails, entering into the construction of the walls and keys disposed between said rails and engaging the under sides of the heads of said rails, said keys having heads complementary to the bases, webs and heads of the rails and cheeks extending between said heads, and means through which said cheeks bear upon the tops of the heads of said rails, substantially as described.

19. In a vault, the combination of flanged rails, entering into the construction of the walls, and keys disposed between said rails and engaging them, said keys having cheeks extending between said heads, hooks on said cheeks, and bars supported by the rails and engaged by said hooks, whereby the keys are supported substantially as set forth.

701,689. SUSPENDER-BUCKLE. WILLIAM T. DODGE, St. Joseph, Mo., assignor of one-half to Sam Black, St. Joseph, Mo. Filed Sept. 7, 1901. Serial No. 74,664. (No model.)

Claim.—1. A suspender buckle or clasp consisting of a loop, and a wedge independent thereof, the loop adapted to be held in a tight of the suspender-webbing, and the wedge having a slot whereby it may be at-

tached to the webbing to be confined within and protected upon both sides by said webbing, as set forth.

2. The combination with the webbing of a suspender, of a loop held in a tight of the webbing, and a wedge secured to the webbing and movable in the loop, said webbing passing between said wedge and said loop, as set forth.

3. The combination with the webbing, of a loop having one bar held within a tight of the webbing and the other bar forming a guide for the other portion of the webbing, and a wedge interposed between the main portion of the webbing and the looped portion thereof, as set forth.

4. A suspender having a loop secured in its webbing and the inner portion thereof covered thereby, the other portion forming a guide for the webbing, and a wedge secured to the webbing and movable between the portions of the webbing within the loop to firmly secure the webbing in its adjusted position, as set forth.

701,690. MANUFACTURE OF ARTIFICIAL SANDSTONE. EDWARD BROWNE, Herts, Germany. Filed Jan. 1, 1902. Serial No. 82,503. (No specimens.)

Claim.—1. The herein-described process for the manufacture of artificial sandstone comprising the agitation of pulverized slag under the action of high-pressure steam, adding thereto a material containing silicic acid, agitating again under the action of high-pressure steam, submitting the mixture in suitable molds to very high pressure, and finally drying the blocks thus formed.

2. The herein-described process for the manufacture of artificial sandstone comprising the agitation of pulverized slag under the action of high-pressure steam, adding thereto a material containing silicic acid, agitating again under the action of high-pressure steam, submitting the mixture in suitable molds to very high pressure, and finally drying the blocks thus formed by submitting for several hours to the action of high-pressure steam.

701,691. REPAIR-PLUG FOR BOILERS. CHARLES BOWENBARD, Edgemoor, N. J. Filed Feb. 24, 1902. Serial No. 82,505. (No model.)



Claim.—1. A repair-plug for boilers and tanks comprising a threaded central bolt forming an engagement with opening at its bottom, a rivet in the opening, two swiveling members secured loosely on the rivet and arranged one on each side of the bolt, a washer of water and steam resisting material, a metal plate above the washer, a nut above the plate and a sleeve with hemispherical incision integral with the nut, a flexible washer, a solid washer conforming to the shape of the incision, and a tightening top screw-nut.

2. In a repair-plug for boilers a threaded central bolt forming an engagement with opening at its bottom, a rivet in the opening, two swiveling members secured loosely on the rivet one on each side of the bolt, and means for securing the swiveling members when in position.

3. In a repair-plug for boilers a threaded central bolt and nut, a sleeve integral therewith, a hemispherical incision therein, a flexible washer, a solid washer conforming to the shape of the incision, and a top screw-nut.

4. In a repair-plug for boilers a central bolt, a rivet in its bottom portion, two wings loosely connected to the rivets one on each side of the bolt, a nut and sleeve, a hemispherical incision therein, a flexible washer, a solid washer conforming to the shape of the incision and a tightening top screw-nut.

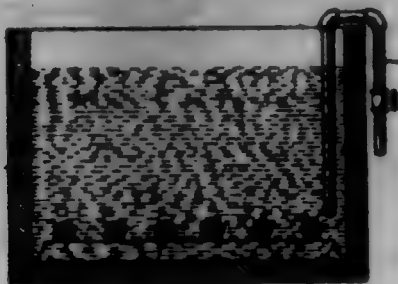
701,692. CLOTHES-DRYER. HERBERT C. EVANS, Chicago, Ill., and JOHN F. EVANS, Montgomery, Mo. Filed Jan. 6, 1902. Serial No. 82,506. (No model.)



Claim.—1. A clothes-drier comprising a supporting-frame, provided with an adjustable inner portion adapted to be secured to a window, brackets, guide-bases mounted on said brackets, and a reel mounted on said guide-bases.

2. A clothes-drier comprising a supporting-frame, provided with an adjustable inner portion adapted to be secured to a window, brackets, guide-bars mounted on said brackets, a hanger adapted to slide on the guide-bars, a shaft secured to said hanger, and a reel mounted on said shaft.

701,693. METHOD OF HEATING MANDRELS FOR ROLLING TUBES. GEORGE H. EVINSON, Pittsburg, Pa. Filed Apr. 18, 1901. Serial No. 64,573. (No specimens.)

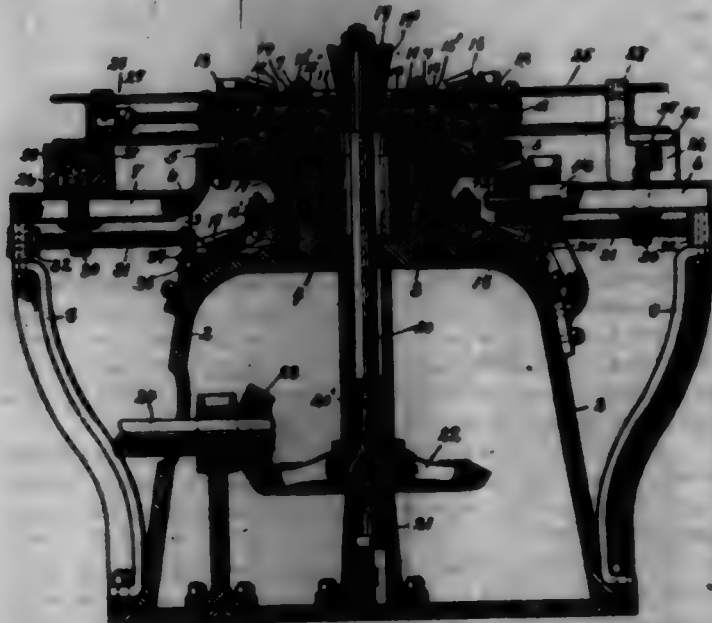


Claim.—1. The method of heating mandrels, preparatory to the rolling of tubes, without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until the requisite degree of heat is attained.

2. The method of heating tube-rolling mandrels without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until they attain the same degree of heat as the water.

3. The method of heating tube-rolling mandrels without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until, from center to circumference, they attain the same degree of heat as the water.

701,694. MACHINE FOR DRILLING SPOKE-HOLES IN METALLIC WHEEL-FELLERS. GEORGE H. EVINSON, Pittsburg, Pa. Filed May 30, 1901. Serial No. 61,106. (No model.)

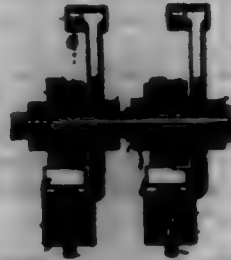


Claim.—1. In a drilling-machine, the combination of a frame, a circular series of heads 11 slidable horizontally therein and formed with inclined inner ends, a tapering device movable vertically and centrally through the series of slides and adapted to impinge the inclined inner-end surfaces thereof, a drill-check rotatably mounted in each slide, and means for rotating the checks, substantially as shown and described.

2. In a drilling-machine, the combination of an elevated bed-plate, drills and drill rotating and feeding mechanism supported at the upper end thereof, standards 8 positioned outwardly from the bed-plate, horizontal screw-shafts 31 journaled at their outer ends in said standards and at their inner ends provided with pinions, a bearing encircling the upper portion of the bed-plate, a large gear-wheel sustained by said bearing and meshing with said screw-shaft pinions, and work-supporting devices in engagement with and adapted to be adjusted by said screw-shafts, substantially as shown and described.

3. In a drilling-machine, the combination of a bed-plate having the upwardly-projecting tubular bearing 2, top frame portion 5 having the depending part 4 fitting bearing 2, drill-checks rotatable in the frame portion 5, a pinion on each check, a large gear-wheel mounted on bearing 2 and meshing with all of said pinions, and means for driving said gear, substantially as shown and described.

701,695. ELECTRIC IGNITER FOR EXPLOSION-ENGINE. HENRY H. FAHNEY, Chicago, Ill. Filed Sept. 19, 1900. Serial No. 29,596. (No model.)



Claim.—1. In an electric igniter the combination of the electrodes, means for separating the same, a friction-clutch having its driven member operatively related to one of said electrodes for bringing them together and closing the circuit therethrough, a positively-moving dog engaging the driving member of said clutch for rotating the same, a cam or trip for releasing said dog from said driving member, a slide to which said cam or trip is connected and means for adjustably covering said slide in place, substantially as set forth.

2. In an electric igniter the combination of two sets of electrodes, means for separating the electrodes of each set, two clutches having their driven members operatively related to one electrode of each of said sets for bringing them together and closing the circuits therethrough, means for positively moving the driving member of each of said clutches and adjustable means connected together so as to move in unison for rendering said clutch members inactive on the electrodes periodically, substantially as set forth.

3. In an electric igniter the combination of the electrodes one of which is movable, means for throwing said electrodes apart, a power-transmitting member having frictional operative relation to said movable electrode whereby it may continue to move after said electrode comes to rest and means for moving said member, substantially as set forth.

4. In an electric igniter the combination of the electrodes one of which is movable, means for throwing said electrodes apart, a power-transmitting member having permanent frictional operative relation to said movable electrode whereby said member may continue to move after said electrode comes to rest and means for intermittently moving said member, substantially as set forth.

5. In an electric igniter the combination of the electrodes one of which is movable, means for throwing said electrodes apart, a power-transmitting member having frictional operative relation to said movable electrode whereby said member may continue to move after said electrode comes to rest, means for engaging and moving said member, and means for tripping and releasing said engaging means, substantially as set forth.

6. In an electric igniter the combination of the electrodes one of which is movable, means for throwing said electrodes apart, a power-transmitting member having frictional operative relation to said movable electrode whereby said member may continue to move after said electrode comes to rest, means for engaging and moving said member and adjustable means for tripping and releasing said engaging means, substantially as set forth.

7. In an electric igniter the combination of the electrodes one of which is movable, a power-transmitting member having frictional operative relation to said movable electrode for forcing the latter electrode against the other electrode, means for intermittently moving said member and means for separating said electrodes offering less resistance than and adapted to be overcome by the friction of said power-transmitting member, substantially as set forth.

8. In an electric igniter the combination of the electrodes one of which is movable, a power-transmitting member rotatable continuously in one direction and having frictional operative relation to said movable electrode, means for intermittently moving said member and means for separating said electrodes offering less resistance than and adapted to be overcome by the friction of said power-transmitting member, substantially as set forth.

9. In an electric igniter the combination of two electrodes one of which is movable, a rotary power-transmitting member, a second member frictionally related to said first member and operatively connected with said movable electrode, means for engaging and rotating said first member until the electrodes meet, means for releasing said first member after the electrodes meet and means for throwing the electrodes apart, substantially as set forth.

10. In an electric igniter the combination of two electrodes one of which is movable, a shaft for operating said movable electrode, a rubber-arm loose on said shaft, a disk secured to said shaft, a second disk loose on said shaft and frictionally related to said first disk, a dog carried by said rubber-arm and adapted to engage said second disk, means for forcing said dog out of engagement with said second disk and means for

throwing the electrodes apart when said dog is then disengaged, substantially as set forth.

11. In an electric igniter the combination of two electrodes one of which is movable, a shaft for actuating said movable electrode in one direction, means for throwing said electrode in the opposite direction, a rocker-arm loose on said shaft, a disk secured to said shaft, a second disk loose on said shaft and frictionally related to said first disk, a dog carried by said arm and engaging said second disk for rotating it, a cam having a projection adjustable with reference to the circumference of said second disk and adapted to throw said dog out of engagement and means for adjusting said cam, substantially as set forth.

701,696. BICYCLE-SUPPORT. HENRY M. FAIRBANK, Rockland, Me. Filed Mar. 6, 1902. Serial No. 98,985. (No model.)



Claim.—1. In a device of the character described, the combination with a block, means for clamping it to a bicycle-frame, and a stop carried by said block, of a wheel-holder consisting of two arms pivoted to said block and adapted with their lower ends to grasp the steering-wheel and hold it against movement and having their upper ends screw-threaded, a bar having apertures through which the screw-threaded ends of said arms project and formed with screw-threaded sockets, into engaged with the said screw-threaded ends, and coasters or foot-rests having screw-threaded ends to engage the screw-threaded sockets, substantially as set forth.

2. In a device of the character described, the combination with a block, clamps hinged to said block and adapted to be clamped about the tube of a bicycle-frame, a stop secured to said clamps, of a wheel-holder consisting of two arms pivoted to said block and adapted with their lower ends to engage and hold the steering-wheel, a coupling for connecting the upper ends of said arms and for engaging the stop to limit the movement in one direction of the wheel-holder, substantially as set forth.

3. In a device of the character described, the combination with a block, clamps hinged to said block and adapted to be clamped about the tube of a bicycle-frame, a stop secured to said clamps, of a wheel-holder consisting of two arms pivoted to said block and adapted with their lower ends to engage and hold the steering-wheel, a coupling for connecting the upper ends of said arms and for engaging the stop to limit the movement in one direction of the wheel-holder, and coasters or foot-rests removably connected to the outer ends of said coupling, substantially as set forth.

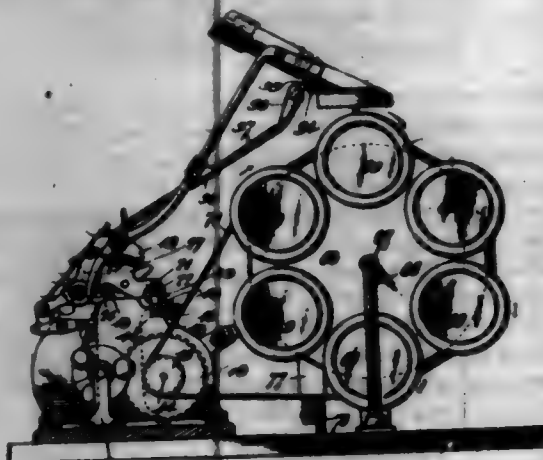
4. In a device of the character described, the combination with a block adapted to be secured to the tube of a bicycle-frame and provided with a transverse aperture, of a pivotal pin inserted through said aperture and having its ends screw-threaded, sleeves having screw-threaded ends, the inner ends of said sleeves being screwed upon the ends of the pivotal pin, said sleeves being provided with vertical apertures, a wheel-holder comprising arms inserted through the apertures of the sleeves and adapted to grasp with their lower ends the steering-wheel and hold it against movement, said arms being inserted in the outer ends of the sleeves for clamping said arms to the sleeves, substantially as set forth.

5. In a device of the character described, the combination with a supporting-block and a hinge pivotally connected therewith and provided

with aligned guide-eyes, of an extensible prop-rod consisting of a tube or rod, a set-screw for clamping the rod to one of the guide-eyes and a set-screw for clamping the tube in adjusted position to the rod, substantially as set forth.

6. In a device of the character described, the combination with a supporting-block and a hinge pivotally connected therewith and provided with aligned guide-eyes, of an extensible prop-rod consisting of a tube or rod, a set-screw for clamping the tube in adjusted position to the rod, said tube being provided at its upper end with a stop-ring and said rod being provided at its lower end with a head adapted to engage the stop-ring and thus prevent the accidental withdrawal of the rod from the tube, substantially as set forth.

701,697. GRAPHOPHONE. BARK P. FINE, Albia, Minn., assignor of one-half to Charles Henry Miles, Bemidji, Minn. Filed July 15, 1901. Serial No. 68,764. (No model.)



Claim.—1. In a machine of the class set forth, the combination of a plurality of unitedly and individually rotatable record-holders, a carriage carrying a movably-mounted reproducer and also provided with a movable grip, a fixed screw-rod engaged by the carriage, a gravitating arm pivoted to the front portion of the carriage and operating to release the grip when elevated, a slide-rod cooperating with the reproducer to raise the latter and with which said arm has contact, a cord connected to said arm, a winding-drum for said cord, a motor for actuating the several parts including the said drum, and means for shipping and unshipping the said drum.

2. In a machine of the class set forth, the combination of a plurality of unitedly and individually rotatable record-holders, a carriage supporting a movably-mounted reproducer and provided with a movable grip, a fixed screw-rod for the carriage, a gravitating arm operative to release the grip, a slide-rod cooperating with the reproducer to raise the latter and with which said arm has contact, a motor for actuating the several parts, and means for automatically raising the arm, returning the carriage to a starting position after traveling its full limit over the several records, and permitting the arm to resume its normal position.

3. In a machine of the class set forth, the combination of a plurality of unitedly and individually rotatable record-holders, a carriage supporting a movably-mounted reproducer, a slide-rod cooperating with the reproducer to raise the latter, a pivoted arm adapted to engage the lower end of and move the said rod, a motor, and automatically-operating means for shifting the said arm to raise the reproducer and permit the rod to return to normal position during extreme opposite positions of the carriage.

4. A machine of the class set forth, comprising a plurality of unitedly and individually rotatable record-holders, a carriage having an automatically-movable reproducer, a motor for actuating the carriage and the holders, a drum-shaft operated by the motor and provided with a clutch device, a drum loosely mounted on the said shaft and adapted to be rotated with the latter by engagement with the clutch device, a resilient arm for moving the drum into engagement with the clutch device provided with a flexible connecting device running to the carriage, a resilient releasing-arm for the drum, a latch to engage said arm and a trip-rod carried by and movable with the carriage to engage said latch to release the arm and to push the releasing-arm to free the drum.

5. A machine of the class set forth, comprising a plurality of unitedly and individually rotatable record-holders, a carriage having an automatically-movable reproducer and a gravitating arm, a motor for actuating the carriage and the holders, a winding-drum adapted to be actuated by the motor and capable of being thrown into and out of operative engagement with the motor, resilient arms for moving the drum into and out of operative engagement with the motor, a flexible connection between the arm for moving the drum into operative engagement with the motor and the carriage, a cord between the arm of the carriage and the drum, a fixed screw-rod engaged by the carriage, a spring-actuated grip in the carriage,

the arm of the carriage operating when elevated to release the said grip and raise the reproducer, and a trip-valve secured to and movable with the carriage to release the drum from operative engagement with the motor.

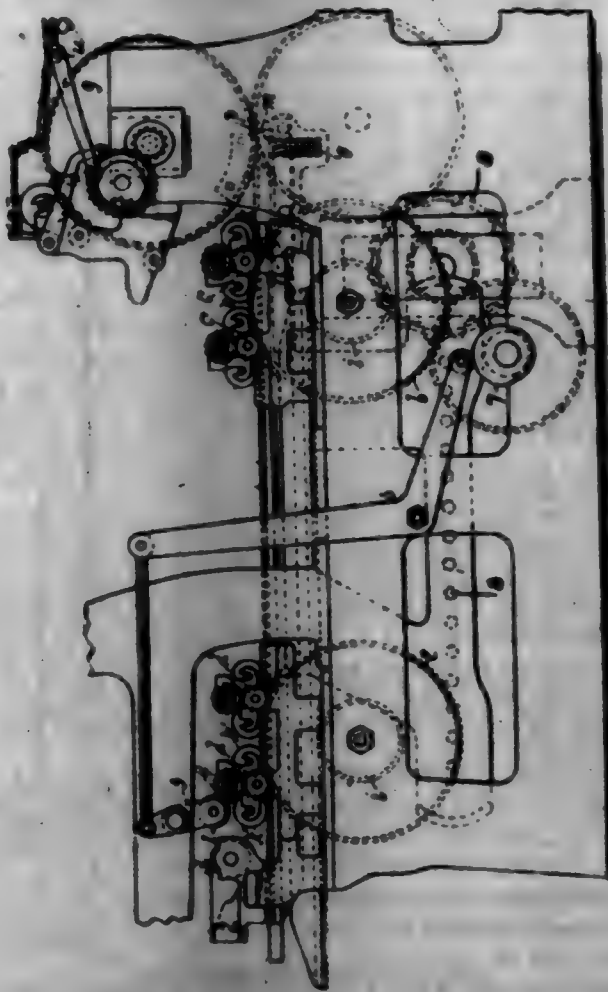
6. In a reproducing-machine of the class set forth, the combination with a plurality of rotatable record-holders, of a motor operating a hand-pulley, a belt engaging the holders at one end and adapted to continuously rotate the same and also passing over said hand-pulley, a series of records adapted to be mounted on the holders, a reproducer, a carriage supporting the same, means for reciprocating the carriage to traverse the reproducer longitudinally of a record, means for returning the carriage to initial position, and means for stopping the records successively in such position as to permit of the actuation of the reproducer.

7. In a machine of the class set forth, the combination of a plurality of rotatable record-holders, a motor for actuating said holders, a screw feed-rod, a carriage movable over said feed-rod and having a pivoted spring-actuated grip to engage the latter, a gravitating arm mounted in the carriage and adapted to contact with a portion of the grip to release the latter a reproducer supported by the carriage, and means for automatically raising the arm when the carriage reaches its limit of movement in one direction and starts to return to an opposite extreme position.

8. In a machine of the class set forth, the combination of a plurality of rotatable record-holders, a carriage supporting a movable reproducer, a motor for actuating the holders and carriage, a disk carrying the holders and having outer projecting devices and notches, a spring-arm to engage the notches of the disk, a vertically-slidable pawl to engage the said projecting devices provided with a trip-finger to release said arm, a crank-lever connected to the pawl, and a shifting rod movable by the carriage and having one end loosely engaging the one extremity of the crank-lever.

9. In a machine of the class set forth, the combination of a plurality of rotatable record-holders, a carriage supporting a movable reproducer, a motor for actuating the holders and carriage, a vertically-slidable pawl for bringing the successive holders into operative position with relation to the reproducer, and a shifting rod engaged by a portion of the carriage and movable by the latter to impart reverse movements to the said pawl.

701,698. PRINTING-PRESS. GEORGE F. FISHER, New London Conn. Filed Aug. 20, 1901. Serial No. 72,672. (No model.)



Claim.—1. A type-bed having a rack, a set of ink-rollers having gears made to engage the rack, a second set of gears engaged by the ink-roller gears, a second rack engaged by the second set of gears, a third set of gears engaged by the second rack, and a second set of ink-rollers engaged by the third set of gears.

2. A reciprocating type-bed and ink-rollers driven by the bed, combined with a rack geared to the ink-rollers, and a second set of ink-rollers geared to the rack and disconnected from the bed, said rack being made to move at a different rate of speed from the bed substantially as described.

3. A type-bed having a rack, two sets of ink-rollers actuated by the rack, two sets of gears made to engage the ink-rollers, and a rack connected to said sets of gears substantially as described.

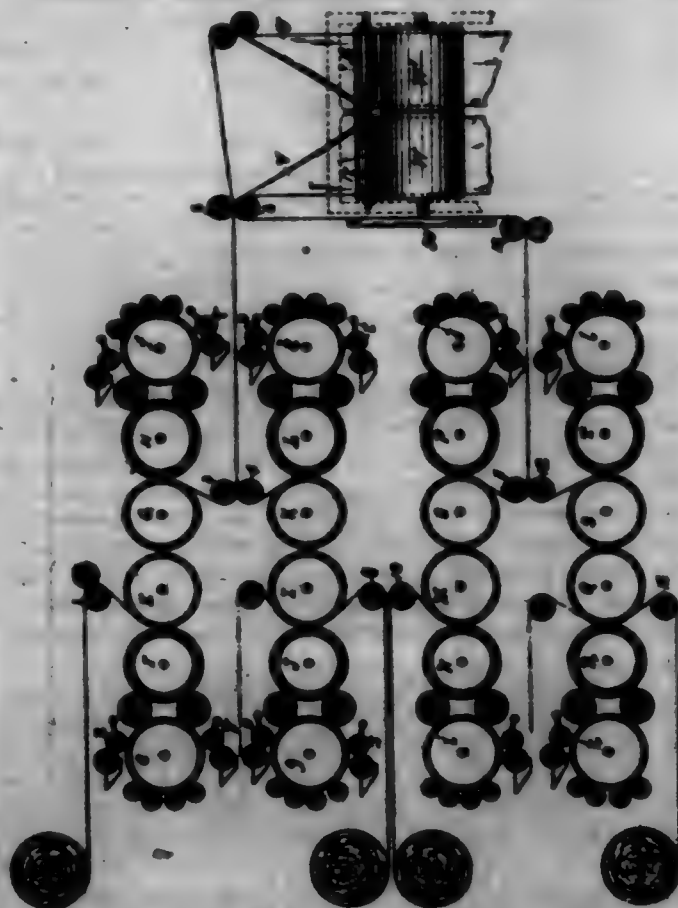
4. A type-bed and fountain and form-inking rollers, combined with a plurality of sets of gears, each set being mounted on a common shaft and made of varying sizes, and a rack, the fountain and form-inking rollers being engaged by the gears of the larger size, and the rack being engaged by the gears of the smaller size.

5. A type-bed having a rack and inking-rollers, combined with a plurality of sets of gears of different sizes, and a second rack free from the type-bed, one set of inking-rollers being engaged by the bed-rack, and a gear of large size, and the other set of inking-rollers being engaged by another gear of large size and being free from the bed-rack, and the second rack being made to transmit motion between the smaller gears, substantially as described.

6. A type-bed having a rack, ink-rollers geared to the rack, gears engaged by the ink-roller gears, a second set of ink-rollers, a second set of gears engaged to said second set of rollers, and a rack made to engage the two sets of gears substantially as described.

7. A type-bed having a rack, two sets of ink-rollers each provided with a set of gears one of which is engaged by the rack, gears engaged by the two sets of gears of the ink-rollers and provided with gears of smaller size, and a rack made to engage the smaller gears substantially as described.

701,699. PRINTING-MACHINE. JOSEPH L. FIRM, Chicago, Ill., assignor to The Gem Printing Press Company, Chicago, Ill. Filed Mar. 19, 1898. Serial No. 563,898. (No model.)

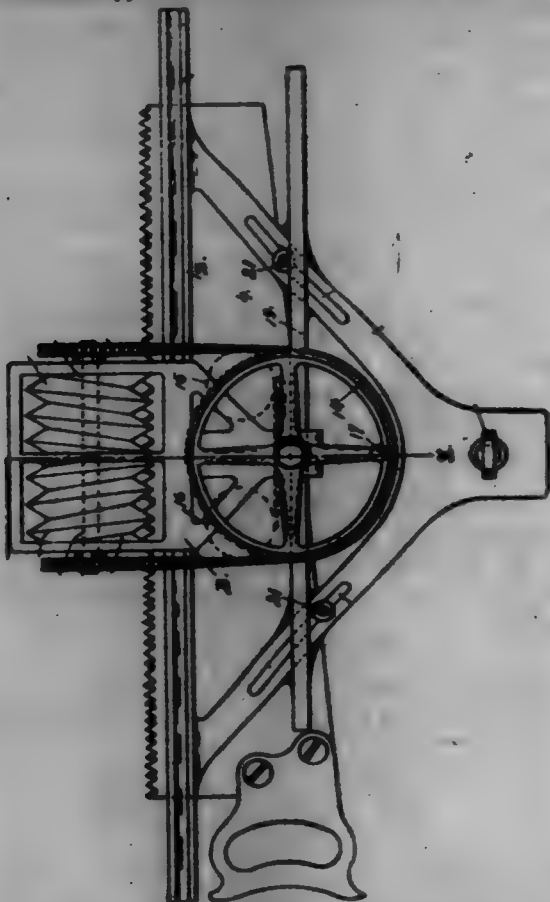


Claim.—1. In combination, a printing mechanism, two longitudinal folders U and V, two rotary carriers W and W' in axial alignment with each other and located in position to receive the paper from said longitudinal folders and adjustable means whereby said rotary carrier may be fixed together at various circumferential adjustments with respect to each other, substantially as described.

2. In combination, a printing mechanism, two longitudinal folders, the folding-rollers at the apices of said longitudinal folders, two rotary carriers in axial alignment and parallel with said folding-rollers and means whereby the circumferential position of said carriers may be adjusted relatively to each other, substantially as described.

701,700. DEVICE FOR FILING SAWS. JOHN E. L. FALKNER and HENRY A. W. FALKNER, Oakland, Cal. Filed Feb. 12, 1902. Serial No. 92,891. (No model.)

Claim.—1. A device for filing and sharpening saws consisting in the combination of a frame adapted to be rigidly secured to a support, a horizontal guide-bar against which the side portion of the saw is to be held, a filing-carriage straddling said saw and reciprocable along said guide and having oppositely-rotatable filing members adapted to engage the teeth of the saw, and a bar below the guide, parallel therewith and serving as a lateral support for the lower portion of the carriage.



2. A device for filing saws, consisting in the combination of a stationary frame having guides against which the saw is adapted to be held, a filing-carriage movable longitudinally of said frame, filing members adapted to engage the teeth of the saw and a chain-and-sprocket mechanism including sprockets on the outer ends of the filing members, a sprocket disposed in a plane below and between said first-named sprockets and a chain passing around both sets of sprockets by which said members are rotated.

3. A device for filing saws, consisting in the combination of a stationary frame, having a horizontal guide-bar against which the saw is adapted to be held, a filing-carriage reciprocable along and held to said guide, filing members adapted to engage the saw-teeth, and a chain-and-sprocket mechanism by which said members are rotated in opposite directions, said mechanism including a main power-wheel journaled in the lower portion and in the central vertical plane of the carriage, wheels fixed to the outer ends of the filing members, and an endless flexible connection passing around the power-wheel and the wheels on the filing members.

4. A device for filing saws, consisting in combination of a frame, a horizontal bar thereon, a longitudinal groove in said bar, a carriage straddling said bar, means upon the carriage engaging said groove, a second bar below and parallel with the grooved bar and serving as a lateral support for the forked portion of the carriage, independently-rotatable file members having helical abrading-surfaces, sprocket-wheels upon opposite sides of the carriage, other sprocket-wheels upon the shafts of said file members and a chain passing around and over said sprockets.

5. A device for filing saws, consisting in combination of a frame, a horizontal guide-bar thereon, having a longitudinal groove, a plate having a projection engaging said groove and slidable therein, a carriage supported on and movable with said plate and vertically adjustable in relation thereto, a bar below the guide-bar, parallel therewith and serving as a lateral support for the lower portion of the carriage, rotatable file members, and chain-and-sprocket mechanism by which said members are driven.

701,701. CONTROLLING DEVICE. THOMAS F. FORD, Rochester, N. Y. Filed Feb. 5, 1901. Serial No. 32,643. (No model.)

Claim.—1. A controlling device for dampers and other mechanisms, comprising a main cylinder, connected at one end with a fluid-pressure supply, a main piston reciprocating in the said main cylinder and connected with the mechanism to be controlled, an auxiliary cylinder con-

ried by the said main piston and extending within the inlet end of the said main cylinder and in communication therewith, and a spring-pressed auxiliary piston in the said auxiliary cylinder, controlling a passage from the inlet end of the main cylinder to the other end thereof, as set forth.



2. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a fluid-pressure supply, and a piston reciprocating in the said main cylinder, carrying an auxiliary cylinder having a port connection with the said main cylinder, an auxiliary piston in the said auxiliary cylinder, pressed on at one side by a spring and at its other side by the fluid-pressure passing into the main cylinder and means controlled by the said auxiliary piston to govern the passage of the fluid-pressure from the inlet end of the main cylinder to the other end thereof, as set forth.

3. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a fluid-pressure supply, and a piston reciprocating in the said main cylinder, carrying an auxiliary cylinder having a port connection with the said main cylinder, and an auxiliary piston in the said auxiliary cylinder, pressed on at one side by a spring and at its other side by the fluid-pressure passing into the main cylinder, the said auxiliary piston carrying means controlling the admission of the fluid-pressure to the other end of the main cylinder, as set forth.

4. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a fluid-pressure supply, a piston reciprocating in the said main cylinder, carrying an auxiliary cylinder having a port connection with the said main cylinder, and an auxiliary piston in the said auxiliary cylinder, pressed on at one side by a spring and at its other side by the fluid-pressure passing into the main cylinder, and the said auxiliary piston carrying means controlling the exhaust of the motive agent from the main cylinder, as set forth.

5. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a fluid-pressure supply, and a piston reciprocating in the said main cylinder, carrying an auxiliary cylinder having a port connection with the said main cylinder, and an auxiliary piston in the said auxiliary cylinder, pressed on at one side by a spring and at its other side by the fluid-pressure passing into the main cylinder, the said auxiliary piston carrying means controlling the admission and exhaust of the fluid-pressure to and from the other end of the cylinder, as set forth.

6. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a motive-agent supply, a main piston reciprocating in the said cylinder and supporting an auxiliary cylinder having a port connection with the said main cylinder, an auxiliary piston in the auxiliary cylinder, a spring pressing one side of the said auxiliary piston, the other side being pressed on by fluid-pressure passing from the main cylinder into the auxiliary cylinder, and a valve carried by the said auxiliary piston and controlling the connection between the auxiliary cylinder and the other end of the main cylinder, as set forth.

7. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a motive-agent supply, a main piston reciprocating in the said cylinder and supporting an

auxiliary cylinder having a port connection with the said main cylinder, an auxiliary piston in the auxiliary cylinder, a spring pressing one side of the said auxiliary piston, the other side being pressed on by fluid-pressure passing from the main cylinder into the auxiliary cylinder, a valve carried by the said auxiliary piston and controlling the connection between the auxiliary cylinder and the other end of the main cylinder, and a second valve controlled by the said auxiliary piston for controlling the exhaust from the main cylinder, as set forth.

8. A controlling device comprising a main piston, an auxiliary piston, the auxiliary piston moving bodily with the main piston and having movement independent thereof, the auxiliary piston being spring-pressed at one side and pressed on at the other side by the fluid-pressure controlling the main piston, and a fluid-pressure connection with the said auxiliary piston to reinforce its spring, as set forth.

9. A controlling device for dampers and other mechanisms, comprising a main cylinder connected at one end with a fluid-pressure supply, a piston reciprocating in the said cylinder and carrying an auxiliary cylinder having a port connection with the said main cylinder, an auxiliary piston in the said auxiliary cylinder, pressed on at one side by a spring and at its other side by the fluid-pressure passing into the main cylinder, and means controlled by the said auxiliary piston to govern the passage of the steam from the inlet end of the main cylinder to the other end thereof, the said means also controlling the exhaust of the fluid-pressure from the exhaust end of the said main cylinder, as set forth.

701,702. CULINARY SIFTER OR STRAINER. JAMES F. POTTER and ARTHUR F. FERRIS, Buffalo, N. Y., assignors to Sidney Shepard and Company, Buffalo, N. Y. Filed Sept. 28, 1901. Serial No. 70,590. (No model.)



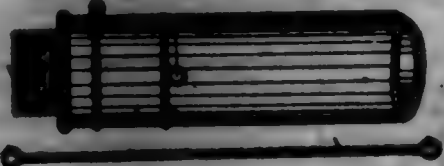
Claim.—1. In a sifter or strainer, the combination of a dish having a flared bottom, an upright shaft removably journaled in the dish and carrying an agitator which sweeps over the bottom of the dish, and a foldable stay-frame for the shaft removably attached to the dish and composed of radial arms having their inner ends connected to the shaft and provided at their outer ends with attachments constructed to engage with the rim of the dish, substantially as set forth.

2. In a sifter or strainer, the combination of a dish having a flared bottom, an upright shaft removably journaled in the dish and carrying an agitator, and a removable stay-frame for the shaft composed of foldable arms provided at their inner ends with eyes which loosely encircle the shaft and at their outer ends with hooks which embrace the rim of the dish, substantially as set forth.

3. In a sifter or strainer, an agitator and its operating-shaft bent from a single piece of wire and comprising upper and lower shaft-sections, a continuous agitator-bar extending across the lower shaft-section, a connecting-bar extending from one end of said agitator-bar to the lower end of the upper shaft-section, and a similar connecting-bar extending from the opposite end of said agitator-bar to the upper end of the lower shaft-section, substantially as set forth.

4. In a sifter or strainer, the combination of an upright shaft provided at its upper end with a crank and at its lower end with an agitator arranged in the plane of the said crank, and folding arms or stays pivoted at their inner ends to said shaft and provided at their outer ends with attachments constructed to engage over the rim of the sifter or strainer, substantially as set forth.

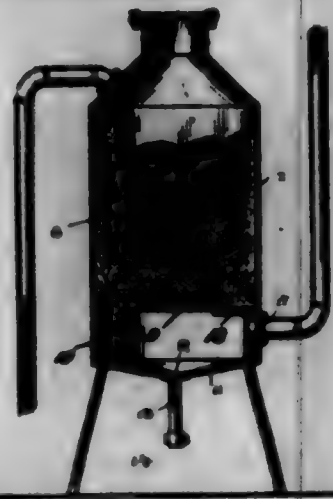
701,703. FASTENER FOR HOSE-COUPLES. CHARLES FRANKLIN, Ontario, Cal. Filed Aug. 14, 1901. Serial No. 72,041. (No model.)



Claim.—The fastener consisting of a metallic strip or band of sufficient length to encircle a flexible pipe or hose whereinto a coupling is

to be fastened, and having a closed loop at each end thereof, which loops when said fastener is bent around the flexible pipe or hose to be coupled are superposed, so as to admit of a sufficiently stout piece of wire or rod being passed through said loops or eyes, whereby, on twisting said wire or rod, the under portions of the fastener become twisted and tightened upon each other to any extent requisite for securely holding a coupling within the end of a flexible pipe or hose in the manner and for the purpose substantially as hereinbefore described.

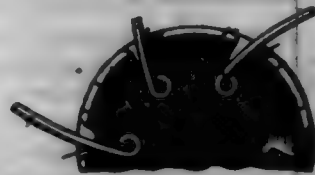
701,704. GAS-PURIFIER. DELBERT S. FERRIS, Binghamton, N. Y., assignor of one-half to the Rex Acetylene Generator Company, Binghamton, N. Y., a Corporation of New York. Filed Oct. 12, 1901. Serial No. 70,678. (No model.)



Claim.—1. A gas-purifying apparatus comprising a cylinder, inlet and outlet pipes communicating with the cylinder, a screen within the cylinder, means for supporting said screen above the bottom of the cylinder consisting of a ring depending therefrom and longitudinally slitted to form a flap, said flap bent inward and upward beneath the screen to provide a guard for the outlet.

2. A gas-purifying apparatus comprising a cylinder, inlet and outlet pipes communicating with the cylinder, a screen within the cylinder, and means for supporting said screen above the bottom of the cylinder consisting of a ring depending therefrom and longitudinally slitted to provide a guard for the outlet.

701,705. WHEEL. SAMUEL FURNISS, St. Louis, Mo., assignor to the Furniss Spring Wheel Company, Pierre, S. D., a Corporation. Filed Jan. 2, 1902. Serial No. 81,000. (No model.)



Claim.—1. A hub having notches extending from the periphery toward the center thereof and terminating in pockets at their inner ends, and spokes springingly fitted in said notches and pockets; whereby the spokes are movably connected to the hub, substantially as set forth.

2. In a wheel the combination of a rim, spring-spokes loosely connected to said rim, and a hub provided with inwardly-narrowing notches in which said spokes are loosely seated and adapted to play, substantially as set forth.

3. In a wheel, the combination of a rim, spring-spokes loosely connected to said rim, and a hub provided with V-shaped notches terminating at their inner ends in curved pockets in which said spokes are loosely seated and adapted to play, substantially as set forth.

4. In a wheel, the combination of a hub provided with V-shaped notches terminating at their inner ends in curved pockets, spokes having enlarged inner ends seated in said pockets and adapted to play in said notches, and a rim to which the outer ends of said spokes are loosely connected, substantially as described.

5. In a wheel, the combination of a hub, provided with notches terminating at their inner ends in pockets and open at the ends of the hub, spokes having enlarged inner ends loosely seated in said notches and pockets, and caps applied to said hub, and a rim to which the outer ends of said spokes are loosely connected, substantially as described.

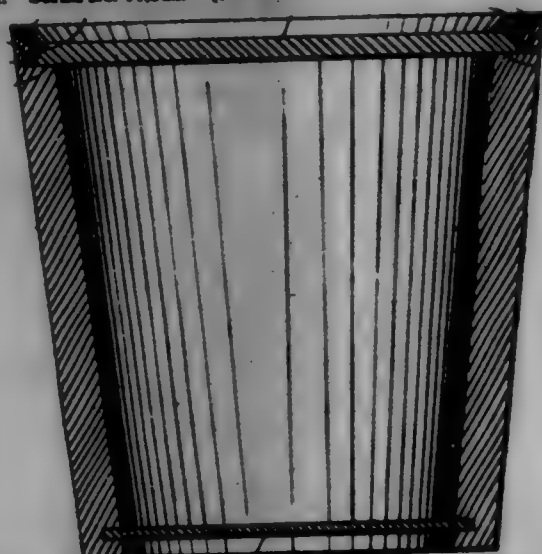
6. In a wheel, the combination of a hub provided with V-shaped notches terminating at their inner ends in curved pockets, spokes having eyes at their inner ends seated in said pockets and adapted to play in said

notches, and caps fitted to the ends of said hub, pins seated in said end caps and hubs, and passing through the eyes of said spokes, and a rim to which the outer ends of said spokes are loosely connected, substantially as described.

7. As a new article of manufacture, a spring-spoke having a narrow central portion and widened ends, substantially as described.

8. As a new article of manufacture, a spoke having a narrow central portion and widened ends, and provided at its ends with eyes, substantially as described.

701,706. PAUL. FRANK J. GARVEY, Chicago, Ill. Filed Oct. 2, 1901. Serial No. 77,312. (No model.)



Claim.—1. In a pul or the like, in combination, a drum having a deep cross therein forming a relatively thin elastic neck, a chime above the cross of less thickness than the drum below the cross, said chime having a bevel extending from the upper wall of the cross and forming an acute-angled shoulder therewith, and a head having a chamber engaged by the apex of the shoulder.

2. In a pul or the like, in combination, a drum having a cross of sufficient depth to form an elastic neck, the lower wall of the cross extending inwardly beyond the upper, whereby an inwardly-extending ledge is formed, a chime having a bevel extending from the upper wall of the cross and forming an acute-angled shoulder therewith, and a head the lower surface of which rests flatly upon said ledge forming a wide joint therewith, and the upper surface of which has a chamber engaged by the apex of the shoulder, the said neck being spaced from the edge of the head within the cross so that a constant pressure is exerted by the neck to bind the head against the ledge.

701,707. PROCESS OF PRODUCING SILICA BRICKS. WINFIELD H. GIBSON, Homestead, and HENRY WIMLING, Hopeworth, Pa. Filed Dec. 17, 1900. Serial No. 40,180. (No specimens.)

Claim.—1. The herein-described method or process of producing refractory brick or fireproof material consisting in mixing substantially pure coarsely crushed or ground silica with substantially pure silica reduced to a fine or impalpable powder, then drying and burning the same.

2. The herein-described method or process of producing refractory brick or fireproof material consisting in mixing substantially pure coarsely crushed or ground silica with substantially pure silica reduced to a fine or impalpable powder in the proportions of forty (40) parts of the coarse material mixed and commingled with one (1) part of the powdered material, then drying and burning the same.

701,708. SILICA BRICK. WINFIELD H. GIBSON, Homestead, and HENRY WIMLING, Hopeworth, Pa. Filed May 20, 1901. Serial No. 62,422. (Specimens.)

Claim.—1. As a new article of manufacture, a refractory brick or fireproof material composed of substantially pure silica substantially free from lime and alkaline-metal silicates, and being substantially non-porous and of relatively great density.

2. A refractory brick or fireproof material composed of substantially pure silica substantially free from lime and alkaline-metal silicates and having a porosity of substantially 0.21 per cent. and a density or specific gravity of substantially 2.31.

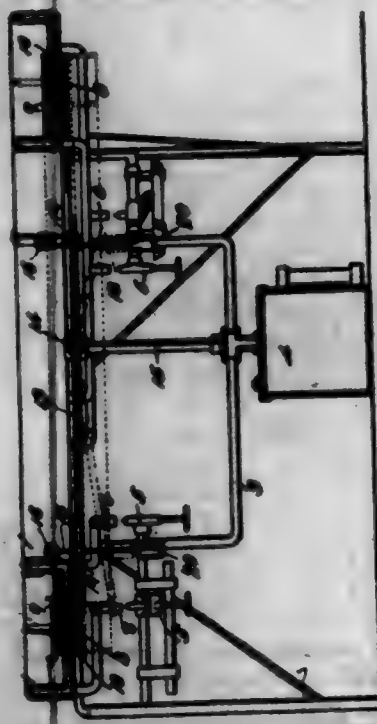
701,709. SPINNING-SPINDLE. WILLIAM GIBSON, Chicago, Mass., assignor of one-half to May A. Ramick, Augusta, Me. Filed Sept. 12, 1901. Serial No. 70,104. (No model.)

Claim.—1. In a spindle, a base-support provided with a lubricating-chamber, a spindle an end of which extends within the chamber and is provided with a rounded terminal and an exterior spiral groove extending up from the rounded terminal, a plug for an end of the lubricating-chamber, a tubular bearing within the lubricating-chamber provided with a shank which enters the said plug, the tubular bearing being open at the top and having opposing side openings, and a pin adjustable in said opening, having a flat upper surface which receives the rounded terminal of the spindle, whereby the support for the spindle is at all times surrounded by a lubricating material and said support may be shifted as it becomes worn, as described.



2. In a spindle, a device for closing an end of a lubricating-chamber and supporting a spindle, which consists of a plug having an interior chamber, a tubular bearing open at the top and provided with a shank fitted to the chamber in the plug, the said tubular bearing having opposing openings therein, and a pin adapted to support an end of a spindle, which pin is loosely passed through the openings for endwise adjustment therein, said pin having a flat upper surface and a cylindrical lower surface, as described.

701,710. TIRE-HEATER. SILAS GLEASER, Cooper, Wyo. Filed Nov. 10, 1901. Serial No. 22,268. (No model.)



Claim.—1. In a tire-heater, the combination with annular burners disposed one within the other and discharging toward each other, of a fender adapted to be moved through the space between said burners, and to be disposed between them, said fender having means to carry the tire, substantially as described.

2. The combination with a tire-heater having annularly-disposed con-

centrically-arranged burners discharging toward each other, of a fender movable between said burners, for the purpose set forth, said fender being adapted to carry the tire, and moving out of the interspace between said burners when the tire is disposed between them, substantially as described.

3. The combination with a tire-heater having annularly-disposed concentrically-arranged burners discharging toward each other, of a fender adapted to carry a tire, and yielding means to dispose the fender when unloaded, in the space between said burners, substantially as described.

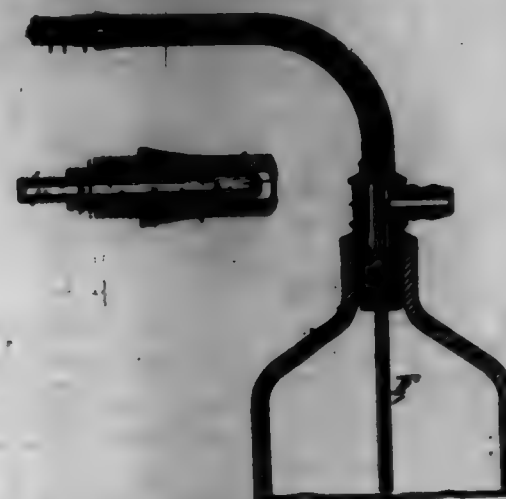
4. The combination with a tire-heater having burners discharging toward each other, of a yieldably-supported fender adapted to carry the work, said fender when unloaded, being disposed between the burners and when loaded supporting the work, between the burners, substantially as described.

5. The combination with a heater having burners disposed opposite and discharging toward each other, of a fender movable to and from the space between the burners, and counterbalancing means to support said fender, substantially as described.

6. The combination with a heater having burners disposed opposite and discharging toward each other, of a circular fender adapted to move to and from the space between said burners, said fender being adapted to carry the tire, a support arm pivoted thereto and connected to said fender, and weights to raise and support said arm and fender, substantially as described.

7. The combination with a tire-heater having concentrically-disposed burners discharging toward each other, of a circular fender adapted to move to and from the space between said burners, said fender being adapted to carry the tire, a support arm pivoted thereto and connected to said fender, and weights to raise and support said arm and fender, substantially as described.

701,711. ATOMIZER. HERMAN GOLDBERGER, New York, N. Y. Filed May 10, 1901. Serial No. 50,605. (No model.)



Claim.—The combination of a vessel containing liquid to be atomized, a cap for said vessel, an air-tube connected with said cap, means for supplying air under pressure to said vessel and air-tube, said air-tube having a contracted and interiorly-threaded outer end, a nozzle-tube located in the air-tube and provided at its outer end with a screw-thread engaging the contracted portion of the air-tube, and with flattened sides between the nozzle and air tubes at their outer ends, said air-tube being provided with two exteriorly-threaded shoulders of different size, the smaller in front, a nozzle of less diameter than the larger shoulder secured upon the smaller shoulder, said nozzle being provided with a metallic perforated cap, and an auxiliary nozzle secured upon said larger shoulder and including the smaller nozzle, substantially as set forth.

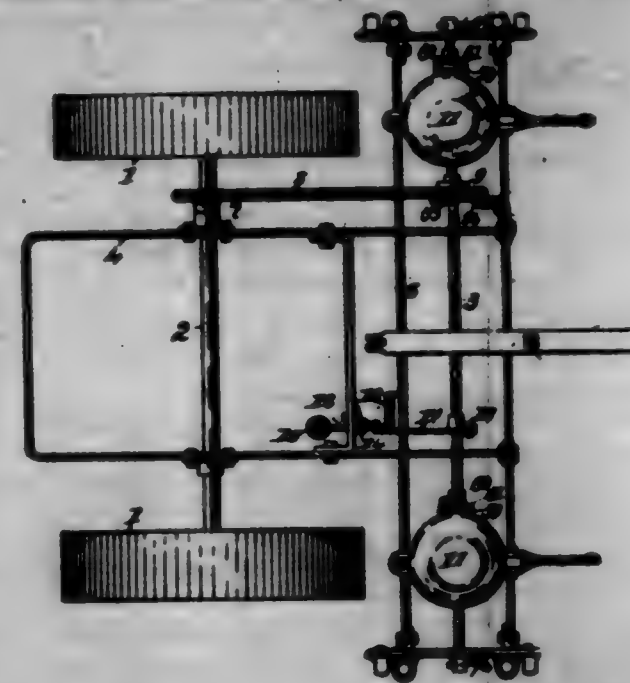
701,712. CORN-PLANTER. LEVI F. GRASMAN, DOVER, Ill. Filed Oct. 11, 1901. Serial No. 73,282. (No model.)

Claim.—1. A seed-disk having cells each adapted to receive a single grain of corn, the cells being grouped in accordance with the number of grains required in a hill and the distance between the cells of a group.

2. In a convertible check-row and drill planter, the combination of a hollow shank, a seed-exPELLING plunger in the shank, a valve-plate pivoted in the rear part of the shank with its lower end normally closing against the front wall of the shank below the plunger when the plunger is raised, and means for holding the valve-plate out of contact with the plunger and the front wall of the shank to convert the planter into a drill.

3. In a convertible check-row and drill planter, the combination of a hollow shank, a seed-exPELLING plunger in the shank, a valve-plate pivoted in the rear part of the shank with its lower end normally closing against the front wall of the shank below the plunger when the plunger

is raised, an inward extension on the valve normally closing against the lower end of the plunger when the plunger is raised, and means for holding the valve-plate out of contact with the plunger and the front wall of the shank to convert the planter into a drill.



4. In a convertible check-row and drill planter, the combination of a hollow shank, a seed-exPELLING plunger in the shank, a valve-plate pivoted in the rear part of the shank, means for holding the lower end of the valve-plate in position to coast with the plunger in retaining the seed and discharging it at intervals, and means for holding the valve-plate clear of the seed-exPELLING plunger while drilling the seed.

5. In a second drop for planter, the combination of a hollow shank, a seed-exPELLING plunger in the front part of the shank, a valve-plate in the shank in the rear of the plunger, a dotted cross-bar on the rear of the shank in the rear of the valve-plate, a rod pivotedly connected with the valve-plate and adapted to rest in the slot of the cross-bar, a head on the extended end of the rod, and a spiral spring on the rod adapted to fit between the cross-bar and the valve-plate to hold the plate in cooperation with the plunger, or between the head of the rod and the cross-bar to hold the plate out of contact with the plunger.

6. In a convertible check-row planter and drill, the combination of seed-dropping mechanism, a rock-shaft to actuate the seed-dropping mechanism, an arm on the rock-shaft, a potential-energy appliance exerting stored force lengthwise of the arm when the shaft is rocked forward in check-rowing, and means for shifting the stress of the potential-energy appliance to prevent the formation of a dead-center lock when the planter is used as a drill.

7. In a planter, the combination of seed-dropping mechanism, a rock-shaft to actuate the seed-dropping mechanism, an arm on the rock-shaft, a bent link connecting with the arm, a shiftable support for the extended end of the link, and a spring connected with the link.

8. In a planter, the combination of a rock-shaft, planting mechanism actuated by the rock-shaft, a wheel journaled on the rock-shaft, means for retaining the wheel, a catch on the rock-shaft adapted to engage the wheel, a throw-out to disengage the catch from the wheel at the termination of the motion of the rock-shaft in one direction, and means for rocking the shaft in the contrary direction.

9. In a planter, the combination of a rock-shaft, planting mechanism actuated by the rock-shaft, a wheel journaled on the rock-shaft, means for retaining the wheel, a catch on the rock-shaft adapted to engage the wheel, a throw-out to disengage the catch from the wheel at the termination of the motion of the rock-shaft in one direction, means for rocking the shaft in the contrary direction, and a yielding pressure to hold the catch out of engagement with the wheel while the shaft is rocking backward.

10. In a planter, the combination of a rock-shaft, planting mechanism actuated by the rock-shaft, a wheel journaled on the rock-shaft, means for retaining the wheel, a throw-out to disengage the catch from the wheel at the termination of the motion of the rock-shaft in one direction, an arm on the rock-shaft, a spring exerting pressure lengthwise of the arm when the throw-out acts on the catch, and means for giving the rock-shaft initial reverse motion to break the dead-center lock established by the potential force of the spring and the arm.

11. In a planter, the combination of a seed-plate having cells each adapted to hold a single grain of corn, a rock-shaft adapted to impart intermittent rotary motion in one direction to the seed-plate and discharge a plurality of grains consecutively at each forward rock, and means for

giving the rock-shaft a comparatively slow forward movement and a quicker return.

701,713. MANUFACTURE OF ELECTRICALLY-INSULATING AND WATERPROOFING MATERIALS. FREDERICK GREENUP, Flims-stand Common, England, assignor to Frederick Henry Bowden, London, England, and Sydney Herbert Dodd, Blackheath, England. Filed Dec. 6, 1900. Serial No. 33,857. (No specimens.)

Claim.—1. The herein-described process for the manufacture of an electrically-insulating and waterproofing material, consisting in mixing with fused anthracene a proportion of a copal resin.

2. As a new product, the electrically-insulating and waterproofing material produced by combining anthracene with a copal resin.

701,714. PEDAL ATTACHMENT. RUSSELL COOK, Brooklyn, Tex. Filed Jan. 16, 1901. Serial No. 33,905. (No model.)

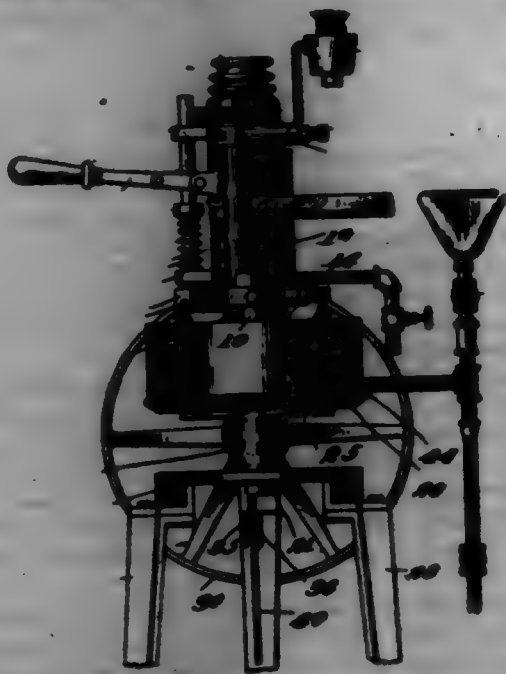


Claim.—1. A pedal attachment for piano, consisting of a flat spring having one end upwardly bent and recessed at the end edge thereof to engage the bottom and sides of the pedal-shank, and having an aperture at its opposite end, substantially as set forth.

2. The combination, with a pedal and a recess in the bottom of the casing of an instrument provided with pedals, of a spring having a shank which is attached at one end in said recess and having the up-bent end thereof retained in contact with the under side of said pedal, substantially as set forth.

3. In a piano having pedal-openings in the casing thereof, the combination, with the pedals, of auxiliary springs for said pedals arranged below the same and being secured to the under side of said casing, the outer ends of said springs being bent upwardly and recessed to engage with said pedals, said upwardly-bent ends being arranged exteriorly of and adjacent the front of said casing and covering said pedal-openings, substantially as set forth.

701,715. MACHINE FOR SHAPING AND SMOOTHING COLLARS OR LIKE ARTICLES. AXEL R. GUNTERSON, Chicago, Ill., assignor to Electric Laundry Machinery Co., Chicago, Ill., a Corporation of Illinois. Filed Oct. 15, 1900. Serial No. 33,933. (No model.)



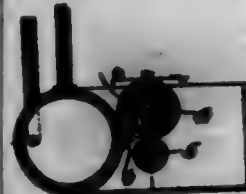
Claim.—1. In a machine for the purpose described the combination of a heated member, a friction-roller and a guide-roller arranged contiguous to said heated member and adapted to press the article to be treated against said heated member and advance said article past the same, on an annular support adapted to fit within the folds of the article to be treated, a shaft upon which said support is mounted operatively connected with said rollers, means for rotating said support and a smoothing-iron having a groove adapted to fit over the edge of said support, substantially as set forth.

2. In a machine for the purpose described the combination of a reversible ring or support for the article to be treated, a heated member placed concentrically with said ring or support, an iron supported in connection with said heated member and having a groove adapted to be depressed over said ring, a reversible iron having a groove for smoothing the edge of the article to be treated, arranged contiguous to and to receive the heat from said heated member, reversible rollers arranged contiguous to said heated member for guiding the article to be treated thereagainst, a driving-shaft and a train of gears connecting together said reversible iron, rollers and reversible ring, having one of its gear-wheels arranged concentrically with said ring and the pivot of said heated member, whereby said heated member may be adjusted around said ring without disconnecting the gears, substantially as set forth.

3. In a machine for the purpose described the combination of a rotating iron, a friction-roller, a guide-roller arranged adjacent to said friction-roller and a heated member presenting a smoothing-surface to said guide and friction rollers and also arranged contiguous to and heating said rotary iron so that the said heated member will be common to both said iron and rollers and serve the twofold function of acting as a heating and smoothing-surface for said rollers and a heater for said rotary iron, and means for rotating said iron while in operative relation to said heated member, substantially as set forth.

4. In a machine for the purpose described the combination of a heated member, two rollers arranged adjacent thereto and adapted to press the article to be treated thereagainst, means for driving one of said rollers, a rotary iron arranged adjacent to and heated by said heated member and means for operatively connecting one of said rollers with said rotary iron whereby said roller will serve the twofold purpose of a shaft for rotating said iron and pressing the article to be treated against said heated member, substantially as set forth.

701,716. MACHINE FOR SHAPING COLLARS OR OTHER LIKE ARTICLES. AXEL R. GUNTERSON, Chicago, Ill., assignor to Electric Laundry Machinery Co., Chicago, Ill., a Corporation of Illinois. Filed May 13, 1901. Serial No. 33,932. (No model.)



Claim.—In a machine for the purpose described the combination of a heated member having a projecting V-shaped tongue formed longitudinally on the surface thereof and provided with concave sides, a friction-roller arranged to conform to one of said concave sides and a guide member arranged contiguous to said friction-roller and opposite the other of said concave sides, substantially as set forth.

701,717. SHEET-METAL BUTTON AND BLANK THEREFOR. JAMES HAYES, JR., Augusta, Ky. Filed Aug. 23, 1901. Serial No. 73,080. (No model.)



Claim.—1. A sheet-metal button having pointed attaching-prongs, a head from the under side of which they project, each head being broader than the width of the prongs, which additional width is obtained by splitting, separating and spreading the split metal thereat.

2. A button made from a blank of sheet metal in the shape of an elongated rhomb, the points of which form attaching-prongs, being bent substantially at right angles to the central portion of the blank which is split and laterally spread to form the head.

3. A blank for a sheet-metal button, being in the shape of an elongated rhomb, the center portion of which is split and then laterally enlarged to form the head and the pointed end portions of which are adapted to form attaching-prongs after being bent substantially at right angles to the center portion which forms the head.

701,718. PAINT. CHARLES H. HALL, Niagara Falls, N. Y. Filed Jan. 13, 1901. Serial No. 33,933. (No specimens.)

Claim.—1. As a new article of manufacture, paint pigment composed of finely-pulverized metallic alloy containing iron with a sufficient

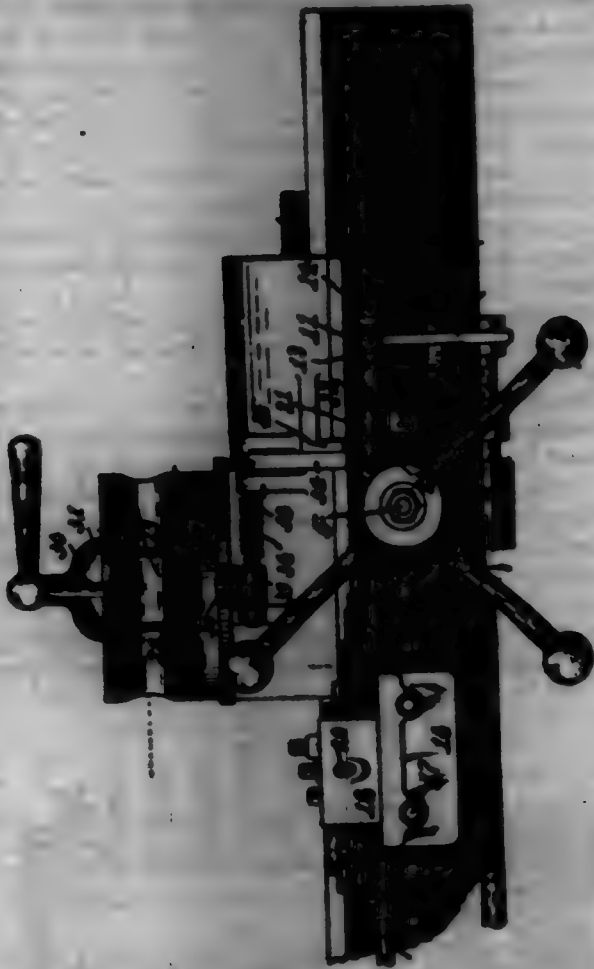
proportion of a more electropositive element or elements to render the alloy easily pulverized.

2. As a new article of manufacture, paint pigment composed of finely-pulverized metallic alloy containing iron with a sufficient proportion of a more electropositive element or elements to render the alloy easily pulverized, each powdered material being mixed with oil.

3. A paint pigment composed of an easily-pulverized alloy of iron containing silicon, each metallic alloy being finely pulverized.

4. A paint pigment composed of an easily-pulverized alloy of iron containing silicon and titanium, each metallic alloy being finely pulverized.

701,719. LATHE-TURRET STOP. EDWIN H. W. HARRIS, Hartford, Conn., assignor to the Pratt & Whitney Company, Hartford, Conn. Filed Dec. 2, 1901. Serial No. 94,239. (No model.)



Claim.—1. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and power mechanism for feeding the slide along the bed, of a series of endwise-movable parallel stop-rods supported by the lathe-bed independent of the turret-slide, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of and move any one of said rods, a cam turning in unison with the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret, a feed-release device, and mechanism connecting said endwise-movable stop-rods and feed-release device to cause the latter to release by the endwise movement of any of said stop-rods.

2. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and power mechanism for feeding the slide along the bed, of a series of endwise-movable longitudinally-adjustable parallel stop-rods supported by the lathe-bed independent of the turret-slide, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of and move any one of said rods, a cam turning in unison with the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret, a feed-release device, and mechanism connecting said stop-rods and feed-release device and causing it to release the latter upon the endwise movement of any of the stop-rods.

3. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and power mechanism for feeding the slide along the bed, of a series of endwise-movable parallel stop-rods supported by the lathe-bed independent of the turret-slide, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of and move any one of said rods, a cam upon the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret, a feed-release device, and mechanism connecting

said feed-release device and stop-rods to cause the former to be actuated upon the endwise movement of any of said stop-rods.

4. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the slide along the bed, of a block supported by and adapted for longitudinal sliding motion on the lathe-bed, a series of parallel stop-rods carried by said block, a trip-rod carried by said block and adapted as it moves endwise to trip and release the power feed mechanism, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of any one of said rods, and a cam turning in unison with the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret.

5. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the slide along the bed, of a block supported by and adapted for longitudinal sliding motion on the lathe-bed, a longitudinally-adjustable series of parallel stop-rods carried by said block, a trip-rod carried by said block and adapted as it moves endwise to trip and release the power feed mechanism, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of any one of said rods, and a cam turning in unison with the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret.

6. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the slide along the bed, of a block supported by and adapted for longitudinal sliding motion on the lathe-bed, a series of parallel stop-rods carried by said block, a trip-rod carried by said block and longitudinally adjustable therein and adapted as it moves endwise to trip and release the power feed mechanism, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of any one of said rods, a cam turning in unison with the turret and adapted to swing said arm to position corresponding with the angular adjustment of the turret, and a bracket longitudinally adjustable along the lathe-bed and furnishing the slide-bearing for said block.

7. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and power mechanism for feeding the slide along the bed, of a series of parallel stop-rods supported by the lathe-bed, an arm carried by the turret-slide upon an axis at right angles to that of the turret and adapted to be swung into position to engage the tail end of any one of said rods, a cam formed upon the turret, a cam-arm connected with the first-mentioned arm, a roll-carrier pivoted to the cam-arm on an axis at right angles to that of the turret, a roll mounted in said roll-carrier on an axis at right angles to that of the cam-arm and engaging said cam, and a feed-release device actuated upon the engagement of the first-mentioned arm with one of said stop-rods.

8. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and a feed-shaft, of a worm-wheel connected with the feed-shaft, a dropping worm-box, a worm therein, a lever connected with the worm-box, a latch carried by said lever, a sliding block supported by the lathe-bed, a trip-rod connected with said block and adapted to engage said latch, a series of parallel stop-rods carried by said block, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of any one of said stop-rods, and a cam turning in unison with the turret and cooperating with said arm to cause the same to swing to position corresponding with the angular adjustment of the turret.

9. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and a feed-shaft, of a worm-wheel connected with the feed-shaft, a dropping worm-box, a worm therein, a lever connected with the worm-box, a latch carried by said lever, a sliding block supported by the lathe-bed, a trip-rod connected with said block and adapted to engage said latch, a spring urging said trip-rod in the latch-engaging direction, a stop to limit the motion of the trip-rod in the disengaging direction, a series of parallel stop-rods carried by said block, an arm carried by the turret-slide and adapted to be swung into position to engage the tail end of any one of said stop-rods, and a cam turning in unison with the turret and cooperating with said arm to cause the same to swing to position corresponding with the angular adjustment of the turret.

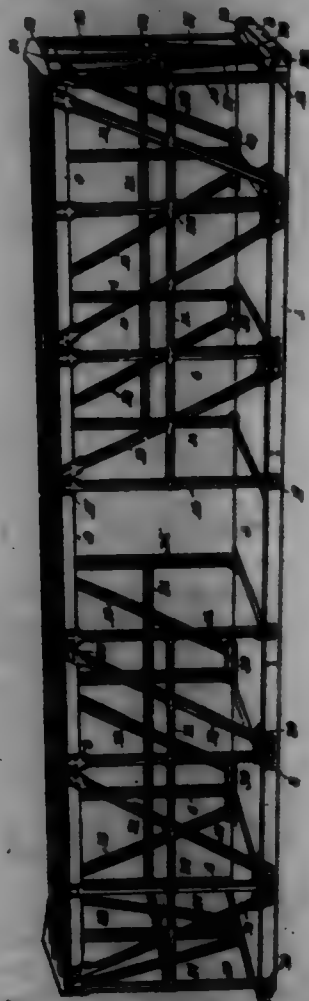
10. In a turret-lathe, the combination, substantially as set forth, with a lathe-bed, a turret-slide, a turret, and releasable power mechanism for feeding the slide along the bed, of a feed-releasing part, a hand-latch carried thereby, an endwise-moving trip-rod supported by the bed and adapted to engage said latch and hold the feed in action, and provision for causing said trip-rod to be moved in released direction by the advancing turret-slide, whereby the engagement of the latch and the trip-rod may be suppressed either by the hand movement of the latch or by the mechanical movement of the trip-rod.

11. In a turret-lathe, the combination, substantially as set forth, of a lathe-bed, a turret-slide mounted thereon, a turret mounted for rotation

upon the turret-slide and provided with a central bore counterbored from above, a pinion firmly secured in the turret-slide and fitting the lower portion of the bore of the turret and having a shoulder engaging the floor of the counterbore in the turret, a binding-screw projecting from the pinion to a point above the turret, a washer on said screw over the turret, and a binding-nut upon said screw over the washer.

12. In a turret-lathe, the combination, substantially as set forth, of a lathe-bed, a turret-slide mounted thereon, a turret mounted for rotation upon the turret-slide and provided with radial tool-sockets arranged in pairs so that the axis of one socket will be in alignment with the axis of the opposite socket, the turret having an axial bore counterbored from above to a diameter greater than that of said tool-sockets, a pinion firmly secured in said turret-slide and fitting the lower portion of the bore of the turret and having a body smaller than said counterbore and provided with a shoulder engaging the floor of the counterbore in the turret and provided with a transverse opening with its axis in the common plane of all the tool-sockets, a binding-screw projecting from said pinion to a point above the turret, a washer on said screw over the turret, and a binding-nut upon said screw over the washer.

701,730. METALLIC-FRAME BOX-CAR. JOHN H. HAMMER, Pittsburgh, Pa., assignor to Pressed Steel Car Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed July 26, 1901. Renewed Apr. 11, 1902. Serial No. 162,472. (No model.)



Claim.—1. A skeleton frame for car-bodies, having side and end sills, side and end plates, hollow, vertical posts secured to the sills and plates, and adapted to receive wooden nailing-strips, oblique braces interposed between the posts, sills and plates, and transverse girds secured to the posts and braces, said girds having flat portions at their points of intersection with the posts and braces and said posts, braces and girds terminating in flat ends.

2. A metal car-frame, having ends comprising essentially sills and plates, right-angle corner-posts, an intermediate vertical post, and oblique braces diverging upwardly from the foot of the intermediate post, the said intermediate post and braces being of substantially U shape in cross-section, with flat ends and secured to the said end sills and plates by riveting through such flat ends.

3. In a car-frame, an end having a central, vertical, hollow post, and oblique braces of similar construction, the upper ends of the said post and braces being flat and the lower ends being substantially horizontal, the said several ends being rigidly secured in place.

4. A metal frame for car-bodies, composed essentially of hollow, vertical posts, hollow diagonal braces, and transverse girds of channel cross-section, with flat portions at the points of intersection with the posts

and braces and riveted at such points and through such flat portions to the said posts and braces, substantially as described.

5. In a car-frame, a post constructed of pressed steel, U shape in cross-section midway between ends and having flat ends, similarly-constructed diagonal braces, and channel-girds having flat portions to fit the posts and braces, the said posts, braces and girds adapted to receive wooden nailing-strips.

6. In a car-frame, a vertical post arranged substantially in the plane of the bolster, diagonal braces springing from the foot of the post, and a girth connecting said post and braces, said several parts constructed of hollow or channelled metal with flat intervening portions and flat ends, substantially as described.

7. In a car-frame, vertical side, end and corner posts, diagonal braces between adjacent posts, and girths intersecting and riveted to said posts and braces and having flat portions at the points of intersection and flat ends, combined with the underframe and the roof construction to which the posts and braces are riveted, substantially as described.

8. A hollow metal door-post for cars, having one leg or flange projecting inwardly toward the center of the car, substantially as described.

9. A hollow metal door-post, for cars, of channel form, having one leg or flange projecting inwardly toward the center of the car, the other leg laterally flanged and its ends flattened.

10. A carline of pressed steel, provided with pockets in its upper solid face for the reception of the parline.

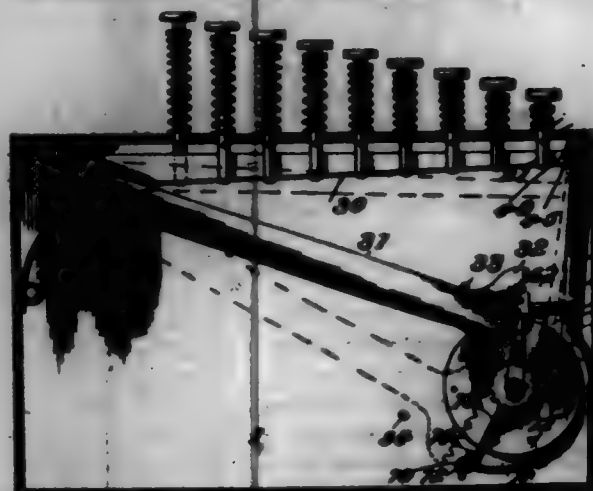
11. A hollow pressed-steel carline, provided with a foot-flange 30, end flanges 31, and pockets 32 in its solid face for the reception of the parline.

12. A pressed-steel post, for car-frames, of channel form, provided with lateral flanges extending continuously between its ends, and flat end portions.

13. A pressed-steel brace, for car-frames, of channel form, provided with lateral flanges extending continuously between its ends and flat end portions.

14. A pressed-steel girth, for car-frames, of channel form and having flat portions at its ends and at intervals throughout its length, and adapted to be riveted to the posts and braces of the frame, substantially as described.

701,731. CALCULATING-MACHINE. GEORGE F. HARRISON, Knoxville, Tenn. Filed July 26, 1901. Serial No. 70,374. (No model.)



Claim.—1. In a calculator or analogous machine, a series of numeral-wheels, means for collectively rotating said wheels in one direction and then in a reverse direction and means requiring all of the wheels to always move the same distance in one direction, and means for holding any wheel at rest while the others are rotating in the other direction.

2. In a calculator or analogous machine, two or more numeral-wheels, means for rotating said wheels together in one direction and then in a reverse direction and means requiring both wheels to always move the same distance in one direction, and means for holding either of said wheels at rest while the other is rotating in the other direction.

3. In a calculator or analogous machine, a series of numeral-wheels adapted to be collectively but not separately or singly rotated in one direction and any one or more of which may be held at rest while the others are rotated in the opposite direction, means for rotating the wheels in opposite directions, and means requiring all of the wheels to always move the same distance in one direction, and means for holding any wheel at rest while the others are rotated in the other direction.

4. In a calculator or analogous machine, two or more numeral-wheels, means for rotating said wheels together in one direction and then in a reverse direction, means for holding the wheel representing the lower order at rest while the other wheel is rotating in one of said directions, and automatically-operating means for carrying tens from one wheel to the other.

5. In a calculator or analogous machine, a series of numeral-wheels, means for collectively rotating said wheels in one direction and then in a reverse direction, means for holding any wheel at rest while the others are rotating in one of said directions, and automatically-operating means for carrying tens from each wheel to that representing the next higher order.

6. In a calculator or analogous machine, a series of numeral-wheels, a rotatable shaft on which said wheels are loosely mounted, connections between each wheel and the shaft requiring all of the wheels to move with the shaft when the latter is rotated in one direction but permitting any wheel to be held at rest while the shaft and other wheels are rotated in the reverse direction, means under control of the operator for rotating the shaft a desired distance in opposite directions and for holding any wheel at rest while the other or others are rotated in one of said directions.

7. In a calculator or analogous machine, a series of numeral-wheels, a rotatable shaft on which the wheels are loosely mounted, pawl-and-ratchet connections between each wheel and the shaft requiring all of the wheels to move with the shaft when the latter is rotated in one direction but permitting any wheel to be held at rest while the shaft and other wheels are rotated in the reverse direction, means under control of the operator for rotating the shaft a desired distance in opposite directions and for holding any wheel at rest while the other or others are rotated with the shaft in one of said directions.

8. In a calculator or analogous machine, two numeral-wheels, means under control of the operator for rotating said wheels together in one direction and for holding one wheel while the other is rotated in the opposite direction, pins on one wheel, a pawl on the other, and automatically-operating means for throwing the pawl into engagement with said pins to carry tens from one wheel to the other.

9. In a calculator or analogous machine, a series of numeral-wheels, a shaft upon which said wheels are loosely mounted, pawl-and-ratchet connections between each wheel and the shaft, means under control of the operator for rotating the shaft in opposite directions and for holding any wheel at rest during the rotation of the shaft in one direction, a series of pins projecting from each wheel, a pawl on each wheel adapted to engage the pin of an adjacent wheel, and automatically-operating means for throwing the pawls into engagement with the pins for carrying tens.

10. In a calculator or analogous machine, a series of numeral-wheels, a shaft upon which said wheels are loosely mounted, pawl-and-ratchet connections between each wheel and the shaft, means under control of the operator for rotating the shaft in opposite directions and for holding any wheel at rest during the rotation of the shaft in one direction, a series of pins projecting from each wheel, a pawl on each wheel adapted to engage the pin of an adjacent wheel and having a part projecting beyond the periphery of its wheel, a rod rigidly secured to the shaft and extending across the peripheries of the wheels and adapted by engagement with the projecting parts of the pawls to move the latter into engagement with the pins and automatically carry tens from each wheel to that of the next higher order.

11. In a calculator or analogous machine, a series of numeral-wheels, a rotatable shaft upon which said wheels are loosely mounted, means for locking each wheel to the shaft as the latter rotates in one direction but permitting it to be held at rest while the shaft rotates in the other direction, means under control of the operator for rotating the shaft in opposite directions and for holding any wheel at rest while the shaft and other wheels rotate in said other direction, and means for resetting all of the wheels to a predetermined position.

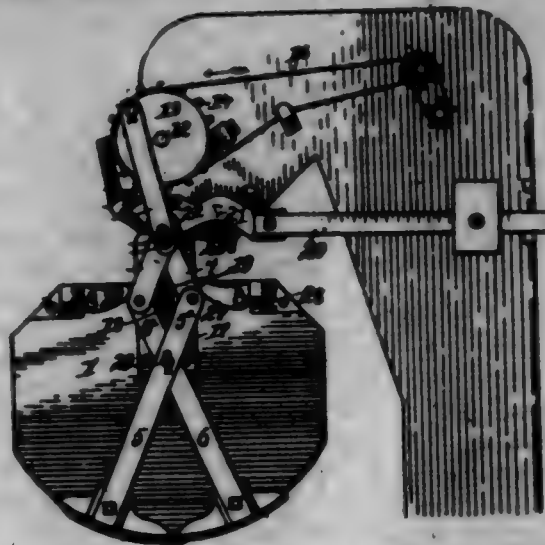
12. In a calculator or analogous machine, a series of numeral-wheels, a rotatable shaft upon which said wheels are loosely mounted, means for locking each wheel to the shaft in the forward rotation of the latter but permitting it to be held at rest during the backward rotation of the shaft, means under control of the operator for rotating the shaft in opposite directions and for holding any wheel at rest during the backward rotation, and means under control of the operator for arresting all of the wheels in this position on said backward rotation, whereby they are all reset at once or other desired position.

13. In a calculator or analogous machine, a series of numeral-wheels, a shaft upon which they are loosely mounted, means locking each wheel to the shaft as the latter rotates in one direction but permitting it to be held at rest while the shaft rotates in the other direction, means under control of the operator for rotating the shaft in opposite directions any desired distance corresponding to the number to be registered on any wheel and for holding any wheel upon which registry is to be made at rest while the shaft and other wheels are rotated in said other direction.

14. In a calculator or analogous machine, a series of numeral-wheels, a shaft upon which they are loosely mounted, means locking each wheel to the shaft as the latter rotates in one direction but permitting it to be held at rest while the shaft rotates in the other direction, a series of levers for each wheel the several levers of each series being movable different distances corresponding to the number to be registered thereby on the

numeral-wheel of its series, means actuated by the movement of any key for imparting a corresponding backward-and-forward rotation to the shaft, and means actuated by the movement of any key of a series to hold the numeral-wheel of that series at rest while the shaft rotates in said other direction.

701,722. WEIGHING-MACHINE. CHARLES J. HARTLEY and ARTHUR J. HARTLEY, DENTON, DE. Filed Nov. 20, 1901. Serial No. 84,154. (No model.)



Claim.—1. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and extended above the same and means for moving the extensions of the bars to and from each other to close and open the doors.

2. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and extended above the same, a pair of toggle-links pivotally connected and pivotally connected with the extensions of the bars, and means for moving the connecting pivot of the toggle-joint up and down to close and open the doors.

3. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and extended above the same, a vertically-movable slide above the pivot, a pair of toggle-links connected pivotally on the slide and pivotally connected with the extensions of the bars, and means for raising and lowering the slide to close and open the doors.

4. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and extended above the same, a pair of toggle-links pivotally connected with the extensions of the bars, means for moving the connecting pivot of the toggle-joint up and down to close and open the doors, and a pair of spring-actuated arms pivoted on the receptacle and exerting pressure against the toggle-links.

5. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and extended above the same, a pair of toggle-links pivotally connecting with the extensions of the bars, means for moving the connecting pivot of the toggle-joint up and down to close and open the doors, and a pair of spring-actuated arms pivoted on the receptacle approximately in line with the conjunction of the toggle-links with the extensions of the bars, when the doors are closed, and extended toward each other into contact with the toggle-links.

6. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-actuating bars swung on the concentric pivot and at-

tended above the same, a pair of toggle-links pivotally conjoined and pivotally connected with the upper ends of the bars, a rotatable disk journaled in relatively fixed bearings above the conjunction of the toggle-links and a pitman-link connecting the crank-pin on the disk with the toggle-joint.

7. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-containing bars swung on the concentric pivot and extended above the same, a pair of toggle-links pivotally conjoined and pivotally connected with the upper ends of the bars, a rotatable disk journaled in relatively fixed bearings above the conjunction of the toggle-links and a pitman-link connecting the crank-pin on the disk with the toggle-joint, one of the connections of the pitman-link being slotted longitudinally to give a limited amount of play.

8. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of arc-formed doors conforming to the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-containing bars swung on the concentric pivot and extended above the same, a pair of toggle-links pivotally conjoined and pivotally connected with the upper ends of the bars, a rotatable disk journaled in relatively fixed bearings above the conjunction of the toggle-links, a pitman-link connecting the disk with the toggle-joint, a drive-wheel journaled adjacent to and concentric with the disk, means for rotating the drive-wheel continuously and means for temporarily connecting the disk with the drive-wheel.

9. In a weighing-machine, the combination of a weighing-receptacle the discharge end of which forms an arc of a circle, a pair of doors for the bottom of the receptacle, a pivot on the receptacle concentric with the circle of which the bottom of the receptacle is an arc, a pair of door-containing bars swung on the concentric pivot, and extended above the same, a pair of toggle-links pivotally conjoined and pivotally connected with the upper ends of the bars, a rotatable disk journaled in relatively fixed bearings above the conjunction of the toggle-links, a pitman-link connecting the disk with the toggle-joint, a drive-wheel journaled adjacent to and concentric with the disk, means for rotating the drive-wheel continuously, a scale-beam sustaining the weighing-receptacle, and means controlled by the rise and fall of the beam for temporarily connecting the disk with the drive-wheel.

10. In a weighing-machine, the combination of a weighing-receptacle sustained by a scale-beam, doors for the bottom of the receptacle, means for opening and closing the doors and means for applying exterior door-opening force to the door-opening mechanism at a point approximately in line with the points of suspension of the receptacle.

11. In a weighing-machine, the combination of a weighing-receptacle sustained by a scale-beam, doors for the bottom of the receptacle, means for opening and closing the doors, a rotatable disk journaled in relatively fixed bearings located above the points of suspension of the receptacle, means for intermittently rotating the disk and a pitman-link connecting with a crank-pin on the disk and with the door-closing mechanism at a point approximately in line with the points of suspension of the receptacle.

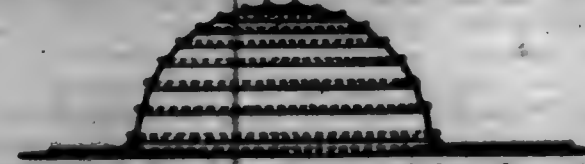
12. In a weighing-machine, the combination of a weighing-receptacle, a scale-beam sustaining the receptacle, a stop projection on the receptacle-containing end of the scale-beam, doors for the bottom of the receptacle, a drive-wheel journaled on relatively fixed bearings above the stop projection on the scale-beam, a disk journaled concentric with and adjacent to the drive-wheel, a pawl on the disk adapted to engage projections on the drive-wheel, a spring tending to force the pawl into engagement with the drive-wheel, an arm bearing against the pawl and extending far enough to engage the stop projection when the weighing-receptacle is raised, and a connection between the disk and the beam of the receptacle whereby the doors are opened and closed by a rotation of the disk.

13. In a weighing-machine, the combination of a weighing-receptacle, a chute to deliver material to the weighing-receptacle, a cut-off for the chute, doors for the bottom of the weighing-receptacle, a scale-beam to sustain the receptacle, a stop projection on the receptacle-containing end of the scale-beam, a disk fixed on the shaft journaled above the stop projection on the scale-beam, a drive-wheel journaled loosely on the shaft adjacent to the disk, a cam fixed on the shaft, a cut-off sustaining-bar pivoted near the shaft, an extension of the bar extending into the path of rotation of the cam when the cut-off is closed, a pawl on the disk tending to engage the drive-wheel, an arm pivoted on the shaft contiguous with the pawl and extended to engage the stop projection on the scale-beam when the receptacle is raised and a connection between the disk and the doors of the receptacle.

14. Mechanism for actuating the cut-off of supply-chutes for weigh-

ing-machines, comprising a cut-off sustaining-bar pivotally supported, an extension on the bar, a rotatable shaft, a cam on the shaft to engage the extension and open the cut-off against gravity and a stop to arrest the rotation of the shaft as the cam rides past the extension and the weight of the cut-off begins to exert pressure tending to rotate the shaft forward.

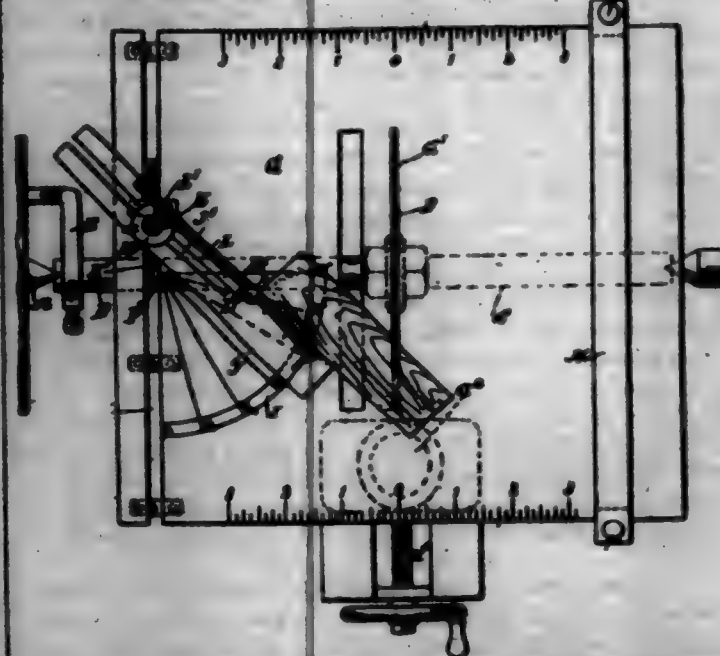
701,798. HAT OR HEAD-GEAR. JULIUS REINHARD, New York, N. Y., assignor to Reinhardt & Lichten, New York, N. Y., a Corporation of New York. Filed Dec. 4, 1901. Serial No. 94,967. (No model.)



Claim.—1. In a hat, the combination of a body portion constructed of brim formed of suitable material, and a stiffening for said brim consisting of a core of reed, strands of material cylindrical in cross-section, of less diameter than the core, surrounding and engaging the periphery of the same, said strands engaging each other, and a cover surrounding and engaging the said strands, substantially as shown and described.

2. A hat composed of brim and a stiffening secured thereto consisting of a core of reed, strands of suitable material circumferentially surrounding and engaging the periphery of said core and engaging each other, and a cover surrounding and engaging the said strands.

701,794. LATHE ATTACHMENT. JOHN R. HEWITT, Brooklyn, N. Y. Filed Dec. 6, 1901. Serial No. 94,912. (No model.)



Claim.—1. A lathe attachment, comprising a table, an arbor carrying a circular saw and driven from the lathe-spindle, the saw extending through a slot in the table, a protractor on the table, a gage adjustable on the table and adapted to be set to any desired angle on the said protractor, to bring the gage at the desired angle relative to the plane of rotation of the saw, and a slide movable transversely on the said table and carrying the said gage-bar, as set forth.

2. A lathe attachment, comprising a table having a depending arm for adjustment in the neck of the tool-post and movable transversely on the machine, an arbor carrying a circular saw and driven from the lathe-spindle, the saw extending through a slot in the table, a protractor on said table, a gage-bar adjustable on the table and adapted to be set to any angle on the said protractor, to hold the gage-bar at the desired angle relative to the plane of rotation of the saw, and an adjustable stop on said gage-bar, as set forth.

701,795. ELECTRIC SWITCH. GEORGE HOSKINS, Westminster, London, England. Filed Jan. 22, 1902. Serial No. 91,682. (No model.)

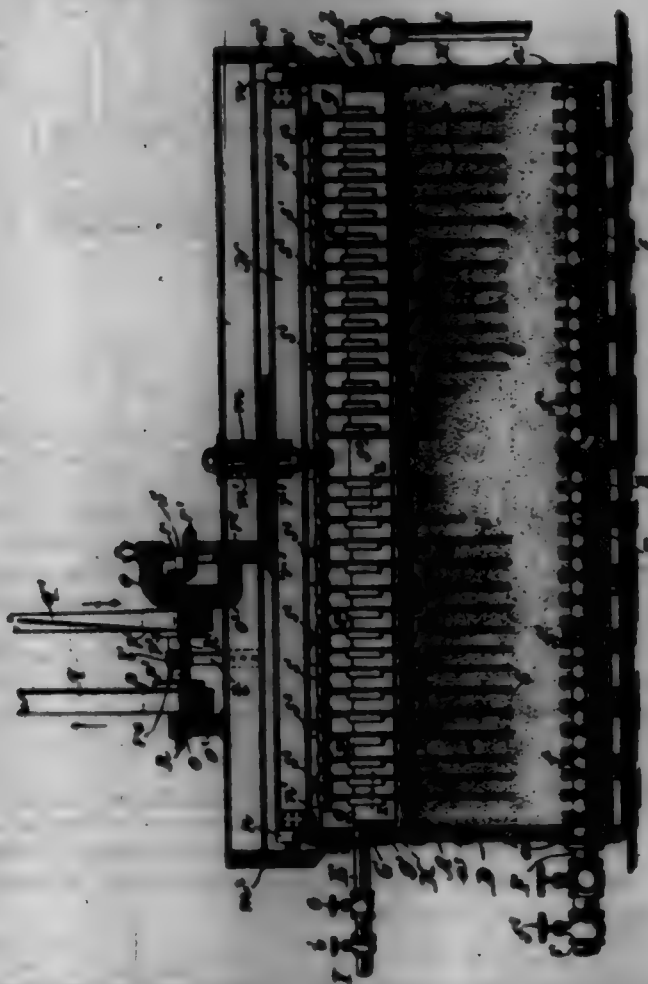


Claim.—1. An electric switch comprising an insulating-base having fixed on it two contact-pieces connected respectively to any electric wires, a sliding piece in form of a W-shaped elastic strip to form a bridge con-

meeting the contacts, and a disk having an eccentric recess engaging rollers on the sliding piece to effect its to-and-fro motion, constructed and operating substantially as described.

2. An electric switch comprising an insulating base, two contact-pieces mounted thereon, a sliding W-shaped elastic strip forming a bridge between the contacts, rollers on the strip, and a cam device arranged to reciprocate the sliding piece or strip; substantially as described.

701,796. FILTER. GEORGE F. HUCKMAN, Chicago, Ill. Filed Dec. 20, 1901. Serial No. 87,385. (No model.)



Claim.—1. The combination, with a filter, a filter-bed, and means for supplying water thereto from the source of supply, of an open-bottom trough arranged in close relationship to the upper surface of the filter-bed, and a conductor leading from the open-bottom trough to the place of discharge whereby the film or crust formed on the top of the filter-bed when broken may be removed therefrom, substantially as described.

2. The combination with a filter, a filter-bed, and means for supplying water thereto from the source of supply, of an open-top trough, an open-bottom trough, and a conductor leading from the open-bottom trough slightly above the level of the surface of the filter-bed to the place of waste, whereby the water is supplied to the filter, and the film or crust formed upon the surface of the filter-bed when broken may be floated away, substantially as described.

3. The combination, with a filter, a filter-bed, means for supplying water thereto from the source of supply, an open-bottom trough arranged in close relationship to the upper surface of the filter-bed, and a conductor leading from the open-bottom trough to the place of waste, of a series of rake-teeth arranged above the filter-bed and adapted to trail upon its upper surface, and means for supporting and revolving these teeth around over each upper surface, whereby not only is the water supplied to the filter, but the film or crust formed on the top of the filter-bed broken and carried away to the place of waste, substantially as described.

4. The combination, with a filter, a filter-bed, an open-top trough, an open-bottom trough, conductors for respectively supplying water to the open-top trough and to the under side of the filter-bed, and means for controlling the flow of water through these conductors, of conductors leading from both the open-top trough and the open-bottom trough to the place of waste, means for controlling the flow of water through these conductors, a series of rake-teeth arranged in relation to the filter-bed, a carrier for supporting these rake-teeth, and means for rotating said teeth in one and in the other direction, whereby not only may water be supplied to the filter, the film or crust formed on the top of the filter-bed broken, and the fragments carried away to the place of waste, but the washing of the filter-

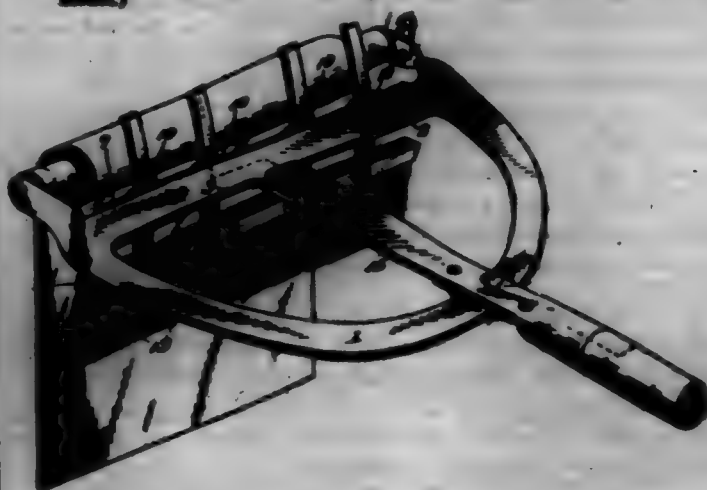
bed and the agitation and loosening up of the components thereof effected during the washing operation, substantially as described.

5. The combination, with a filter, and the filter-bed arranged therein, of a rake comprising a shaft and teeth fixedly secured thereto, a carrier in which each shaft is rotatably journaled whereby to permit of the teeth being swung upwardly by the action of the filter-bed upon them and trailed upon the upper surface thereof, when the rake is carried around in one direction, and of being swung downward by its action upon them, when the rake is carried around in the opposite direction, and mechanism for limiting the downward swinging movement of the teeth, and for rotating each carrier in one and in the other direction over the filter-bed, substantially as described.

6. The combination, with a filter provided with a track around its upper edge, and a filter-bed arranged therein, of a carrier extending across the filter-bed and provided with wheels for cooperation with each track, rakes, each of which comprises a shaft and teeth fixedly secured thereto, journaled to each carrier whereby to permit of the teeth being swung upward by the action of the filter-bed upon them and trailed upon its upper surface, when the rakes are carried around over the same in one direction, and of being swung downward by its action upon them, when the rakes are carried around over it in the opposite direction, and mechanism for limiting the downward swinging movement of each tooth and for rotating said carrier in one and in the other direction over the filter-bed, substantially as described.

7. The combination, with a filter, a filter-bed arranged therein, and a carrier H provided with the stands or hangers *s*, of rakes M, each of which comprises a shaft *t* journaled in each stand or hanger and provided with teeth *u* fixedly secured thereto, whereby each tooth is rendered capable of being swung upward by the action of the filter-bed upon them and trailed upon its upper surface, when the rakes are carried around over the same in one direction, and of being swung downward by its action upon them when the rakes are carried around over it in the opposite direction, stops *v* for limiting the downward swinging movement of said teeth, and mechanism for rotating the carrier in one and in the other direction over the filter-bed as required, substantially as described.

701,797. PAPER-HANGING MACHINE. OTTOMENT BAKER, Montgomery, W. Va. Filed Jan. 15, 1902. Serial No. 92,504. (No model.)



Claim.—1. In a machine for hanging wall-paper, the combination of a body, a roller removably mounted therein, and an adjustable brush cooperating with the said roller, the said brush being reversible to extend above or below the plane of the roller.

2. In a paper-hanging machine, the combination of a body, a roller removably mounted therein, a brush, cooperating with the roller, and an arm adjustable on the body and having a handle attached thereto.

3. A paper-hanging machine comprising a segmental body with paper-supporting and cutting means, and an arm having a portion embracing and slidable on the said body in the arc of a circle, the said arm having a handle attached thereto.

4. In a paper-hanging machine, the combination of a body, paper-supporting means carried by said body, and a brush having a series of curved arms adjustable in relation to a portion of the body.

5. A paper-hanging machine comprising a body with paper-supporting means, and a cutting device having curved arms adjustable and reversible in relation to a portion of the body.

6. A paper-hanging machine comprising paper-supporting means, and a cutting device adjustable and reversible in relation to the said supporting means.

701,798. CHAIR. SAMUEL H. BROWN, Athens, Ohio. Filed May 20, 1901. Serial No. 62,391. (No model.)

Claim.—1. The combination of two members, one having an opening formed with an enlargement, the other member having a pin entering said opening, and a metal washer cast on the pin and filling the enlargement of the opening and forming a rotatable journal therein, thereby permanently hinging or pivoting the parts together, substantially as described.



2. The combination of two members, one having an opening enlarged at one end, the other member having a pin engaging said opening, and a non-frictional metal washer fixedly secured on the end of the pin and rotatable therewith and filling the enlargement of the opening, thereby permanently hinging or pivoting the parts together, substantially as described.

3. The combination of a member having an opening provided with an enlargement, a second member having a lug or pin entering said opening and projecting into said opening; and a non-frictional washer or journal filling said enlargement and cast on the lug, said washer rotating with the pin and forming an antifriction-journal permanently pivoting the parts together, substantially as described.

4. The combination of a member having an opening provided with a circular enlargement at one end, a second member having a lug or pin entering said opening and projecting into said enlargement, and a non-frictional washer cast on the lug, said washer being rotatable with the lug and filling said opening and enlargement and permanently pivoting the parts together, substantially as described.

5. The combination of the standard and seat-bracket, an opening in one member having an enlargement; a pin or lug on the other member entering in said opening, and a non-frictional washer filling said enlargement and cast onto and rotatable with the pin for the purpose and substantially as described.

6. The combination of the standard having an opening provided with a circular enlargement at one end, a seat-bracket having a lug or pin entering said opening projecting into said enlargement, an antifrictional metal washer cast onto and rotatable with a pin, and said washer forming the journal of the seat-bracket and permanently seating the parts for the purpose and substantially as described.

7. The combination of the standard having an opening provided with a circular enlargement the brace-bar having a pin entering said opening, and a metal washer cast on this pin and filling the enlargement of the opening, thereby permanently hinging or pivoting the parts together; with a seat-bracket pivoted to the standard and having a pin-and-socket connection to the brace-bar for the purpose and substantially as described.

8. The combination of the standard, and brace-bar an opening in one member having an enlargement, a pin or lug on the other member projecting into said opening, and a non-frictional washer filling said enlargement and fixedly secured to the pin, with a seat-bracket pivoted to the standard and having a pin-and-socket connection to the brace-bar for the purpose and substantially as described.

701,799. HATCH-SAFE. WILLIAM C. HURLEY, Kewanee, Ind. Tex. Filed July 20, 1901. Serial No. 99,147. (No model.)

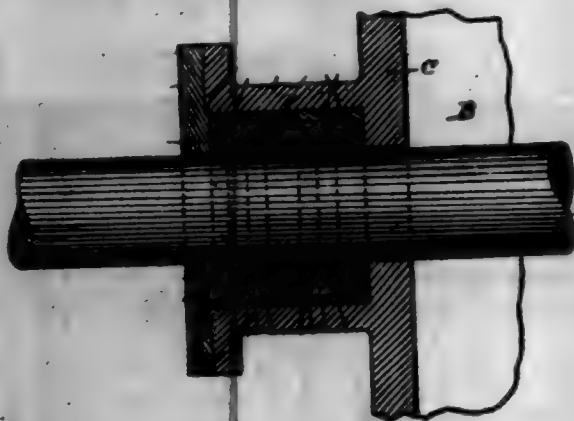


Claim.—1. An attachment for a miner's cap, comprising a back plate having oppositely-extending perforated ears at its upper part whereby it may be secured to the cap, a roll formed at one edge of the back and providing a cylindrical pick-tube, a spring-strip therein, a spring fitted in said tube and adapted to retain a pick therein, a cylindrical casing secured to the back and having a roughened outer surface, a segmental cover hinged to the casing at the rear thereof, a spring for holding the cover normally open, flanges on the casing adapted to extend under the cover when closed, a lip on the cover, a spring-controlled latch adapted to engage the lip and hold the cover closed, and a releasing-pin on the latch.

2. An attachment for miners' caps comprising a base-plate, a pick-holder formed integral therewith, and a catch-rod secured to said base,

said catch comprising a casing having a roughened surface, circular ends thereto, a cover hinged to the casing, flanges extending from the ends and adapted to seal the ends of the cover when closed, a spring for holding the cover normally open, a spring-controlled latch in the casing, a lip on the cover adapted to be engaged thereby, and a releasing-pin on the latch.

701,780. METALLIC PACKING DEVICE. FRED A. INMAN, Chicago, Ill., assignor of one-half to Eugene H. Gullett, Chicago, Ill. Filed July 10, 1901. Serial No. 67,722. (No model.)



Claim.—In a packing for piston-rods, the combination of a cup-like projection on the cylinder with a series of cups within each cup-like projection; a cap for the cup-like projection having an enlarged portion which fits therein, a ring fitting upon the outer cup, packing-rings one in each cup and formed of segments, an inner similar packing-ring within the first-mentioned packing-ring and also in segments, a coiled spring about the outer ring to hold the parts together and against the rod, the cups formed in segments and having free spaces about the rings so that the steam escaping along the rod is retained in the cup-like projection and tends to help set the packing-rings, and the several cups and packing-rings can be removed from the rod substantially as shown and described.

701,781. MAGAZINE-HAMMER. WILLIAM JAGG, Paldi, Minn., assignor of seventeen-thirtieths to John E. Snyder, Paldi Snyder, and James A. Wilson, residing in or near Paldi, Minn., and Mathias Rodlinger, Prospect, Ill. Filed May 7, 1901. Serial No. 66,678. (No model.)



Claim.—1. In a magazine-hammer, the combination with the driving-head, of a magazine terminating in said head, component mechanism in said head permitting the passage of a single nail to the driving-point, yielding means for holding the nail at the driving-point and permitting its partial driving while held thereby by one blow, and a trigger controlling said component mechanism, and automatically operated when the nail is driven home.

2. In a magazine-hammer, the combination with the driving-head, of a magazine terminating in said head, component mechanism in said head permitting the passage of a single nail to the driving-point, and a trigger controlling the operation of said component mechanism and projecting a very slight distance below the face of the hammer-head.

3. In a device of the class described, the magazine consisting of the channel 26 large enough to receive the heads of the nails, the slot 24 beneath the channel through which the bodies of the nails pass, and the walls 27 having the forwardly-pointing ratchet-teeth projecting inwardly.

4. In a magazine-hammer, the combination of the magazine-channel having its outer end closed by the pivoted component-lever and the guard-piece 25 extending longitudinally of the hammer-head, with the vertically-movable trigger 51 having one end projecting beyond the end of the hammer and its other end cooperating with said lever and guard-

piece to operate the lever as the trigger is raised, and means for holding the escapement-lever normally in non-releasing position; substantially as described.

5. In a device of the class described, the combination of the magazine-channel having its outer end closed by the escapement-lever 34 having the inclined slot 30 therein, with the trigger having the end 53 projecting through the slot 30 in a guard-piece 35 into the slot 30 so as to swing the escapement-lever as the trigger is raised; substantially as described.

6. In a device of the class described, the combination of the magazine-channel having its outer end closed by the escapement-lever having the inclined slot 30 therein, and the guard-piece 35 having the vertical slot 36 therein, with the vertically-movable trigger 51 having one end projecting beyond the head of the hammer and its other end 52 projecting beyond the slot 36 into the slot 30 so that the escapement-lever will be swung thereby as the trigger is raised; substantially as described.

7. In a magazine-hammer, the combination of the magazine-channel having its outer end closed by the escapement-lever 34 and the guard-piece 35 extending longitudinally of the head, with the vertically-movable trigger 51 having one end projecting beyond the end of the hammer and the other end 52 cooperating with said lever to release the nail, and the spring holding said escapement-lever normally in its non-releasing position.

8. In a device of the class described, the combination of the magazine-channel having its outer end closed by the escapement-lever 34 having the inclined slot 30 therein, and the guard-piece 35 having the vertical slot 36 therein, with the vertically-movable trigger 51 having one end projecting beyond the head of the hammer and its other end 52 projecting at right angles from the body of the trigger through the slot 36 and into the slot 30, and the spring cooperating with said trigger to hold it normally in its non-releasing position.

9. In a device of the class described, the combination with the magazine-channel, of the swinging escapement-lever 34 closing the end thereof and having the T-shaped recess 40 therein, the stationary guard-piece having the recess 37 therein and the finger 38, and means for swinging said lever when it is desired to release a nail.

10. In a device of the class described, the combination of the magazine-channel having its outer end closed by the escapement-lever 34 and the guard-piece 35, with the vertically-movable trigger 51 having one end 52 projecting horizontally from the vertical body thereof and adapted to move said escapement-lever to release a nail, and the helically-coiled expanding-spring secured above the arm 50 and serving to hold it yieldingly in its inoperative position.

11. In a device of the class described, the combination with the head having the channel 56 therein and the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, of the swinging piece 42 having its lower end above the shoulder 63, and means for yieldingly holding it in its normal position.

12. In a device of the class described, the combination with the head having the channel 56 therein and the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, of the swinging piece 42 having its lower end above the shoulder 63, and means for yieldingly holding it in its normal position, consisting of the spring 57 cooperating with it below its pivotal point.

13. In a device of the class described, the combination with the head having the channel 56 therein and the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, of the swinging piece 42 having the recess 50 in the lower end of said piece just above the shoulder 63, and means for holding said swinging piece yieldingly in its normal position.

14. In a device of the class described, the combination of the hammer-head having the magazine-channel extending into it, the outer end of which is closed by the escapement-lever 34 and the guard-piece 35, the channel 56 extending through the head and having the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, with the swinging piece 42 having its lower end above the shoulder 63, means for holding it yieldingly in position, and the vertically-movable trigger carried by said swinging piece and having one end projecting beyond the head of the hammer and its other end adapted to move said escapement-lever to release a nail; substantially as described.

15. In a device of the class described, the combination of the head having the channel 56 extending therethrough and provided at one portion with the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel, the magazine-channel opening into the channel 56 at its upper end and having its outer end closed by the escapement-lever 34 and the guard-piece 35, the swinging piece 42 having its lower end above the shoulder 63 and provided on its outer face with the channel 48 and the staple 55, the spring 57 and the trigger 51 having the body portion thereof extending along the channel 48 and

through the staple 55 and the end 52 thereof serving to operate the escapement-lever to release the nail; all combined and cooperating substantially as and for the purpose described.

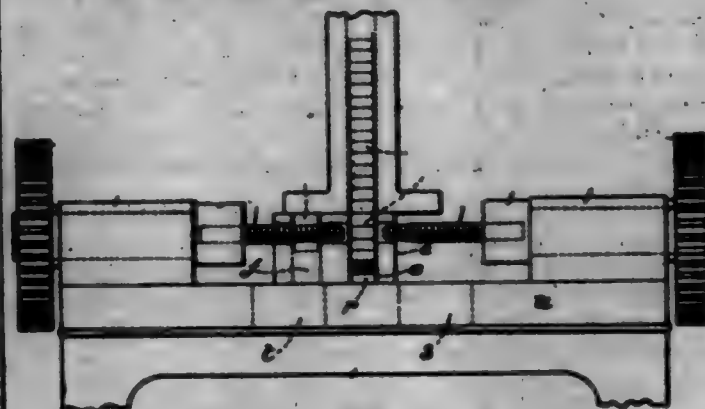
16. In a device of the class described, the combination with the head having the channel 56 therein and the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, of the swinging piece 42 having its lower end above the shoulder 63, means for holding it yieldingly in position, escapement mechanism for releasing the nail, and the spring-pressed trigger mounted to slide in said swinging piece; substantially as described.

17. In a device of the class described, the combination with the head having the channel 56 therein and the shoulder 63 on which the head of the nail is adapted to rest as its body extends through the channel 56, of the swinging piece 42 having its lower end above the shoulder 63 and having the channel 48 therein, the recess 49 terminating the channel 48 at its upper end, the staple 55, means for holding said piece yieldingly in its inoperative position, escapement mechanism for the nail, and the L-shaped spring-pressed trigger 51 having the body portion extending longitudinally of the channel 48 and its end projecting beyond the head of the hammer and its horizontal portion 52 projecting through the slot 40 and serving to operate the escapement mechanism; substantially as described.

18. In a device of the class described, the combination with the head having the channel 56 therein, the shoulder 63 for the purpose described, a recess above said channel; of the escapement mechanism in the upper end of said channel; and the yielding swinging piece having its lower end above the shoulder 63; said recess being so shaped as to cause a nail released from the escapement mechanism to slide down into position with its head on the shoulder 63.

19. In a device of the class described, the combination with the head having the channel 56 therein, the shoulder 63, a recess above said channel, the inclined surface 62 connecting said recess and said channel, of the escapement mechanism in the upper end of said channel adapted to discharge a nail point first on the inclined surface 62 and the yielding swinging piece having its lower end above the shoulder 63, said channel 56 extending downwardly from beneath the escapement mechanism, said channel and recess being so shaped as to cause a nail released from the escapement mechanism to slide down into position with its head on the shoulder 63; substantially as described.

701,789. THREAD-CUTTING MACHINE. CHARLES W. JONES, Philadelphia, Pa., assignor to the Russell, Barndall & Ward Belt and Nut Company, Fort Chester, N. Y., a Corporation of New York. Filed Apr. 12, 1901. Serial No. 55,617. (No model.)



Claim.—1. In a thread-cutting machine, the combination of a suitable holder for articles to be threaded, a slidable carrier adapted to successively receive said articles from the holder, and a combined threading and feeding device adapted to thread the article in said carrier and reciprocate the latter toward and from a position to receive articles from the holder.

2. In a thread-cutting machine, the combination of a suitable holder for a series of articles to be threaded, a slidable carrier adapted to successively receive said articles from the holder, two combined threading and feeding devices arranged to alternately engage and thread articles in and reciprocate said carrier, and means for actuating said devices, the parts being so arranged that each threading device is maintained in engagement with the article last threaded until the other threading device has engaged the next article to be threaded, whereby each threading device acts as a guide for the other with relation to the article to be threaded by it.

3. In a thread-cutting machine, the combination of a suitable holder for articles to be threaded, a slidable carrier adapted to successively receive said articles from the holder, and two combined threading and feeding devices arranged on opposite sides of said carrier and operating to

alternately thread articles therein and each reciprocating said carrier toward the other said device while being withdrawn from engagement with the article threaded by it.

4. In a thread-cutting machine, the combination with means for supplying articles to be threaded, of an apertured stand or support, two reciprocating, open at the top and bottom, slightly mounted on said stand and adapted to alternately receive the articles to be threaded, and a combined threading and feeding device arranged to thread articles in said receptacles and reciprocate the latter alternately into position to receive from the holder an article to be threaded and to discharge a threaded article through an aperture in the stand or support.

5. In a thread-cutting machine, the combination of a support or stand, a holder for articles to be threaded arranged above said stand, a carrier mounted on the stand and having two passages formed therein, and two combined threading and feeding devices arranged on opposite sides of said carrier to alternately thread articles therein and to reciprocate said carrier to bring the passages therein alternately into position to receive from the holder an article to be threaded and into alignment with an aperture in the stand or support to discharge a threaded article.

701,788. COMBINED BAKING-STOVE AND STEAM-COOKER. WILL A. JAMES, Port Worth, Tex. Filed July 14, 1901. Serial No. 63,548. (No model.)



Claim.—1. The combination of a lower casing having an inner shell forming an oven, upright pipes extending through the top of the casing, an upper casing mounted upon the lower casing and forming a steamer, an exterior pipe or tube connected with the said pipes, a receptacle having a nipple or spout fitting in the exterior pipe or tube, and means for controlling the flow of water into the said pipes, substantially as described.

2. The combination of a lower casing upon at the bottom and provided at its top with openings, an inner shell forming an oven, upright pipes arranged in the space between the inner shell and the lower casing and extending through the openings of the top of the latter, bottom pipes connecting the upright pipes, an exterior pipe or tube extending into the casing and connected with the said pipes, an upper steam-cooker consisting of a casing upon at the bottom and mounted upon the said casing, an exterior receptacle designed to contain water and supported by the lower casing and having a nipple or spout fitting in the exterior tube or pipe, and means for controlling the flow of water from the receptacle, substantially as described.

701,784. PAPER OF VARIABLE THICKNESS. CHARLES C. JAMES, Raleigh, N.C. Original application filed Mar. 5, 1901, Serial No. 48,678. Divided and this application filed June 26, 1901. Serial No. 65,586. (No specimens.)

Claim.—1. The method of manufacturing paper of variable thickness designed to be used where it is desired to attach independent sheets or leaves thereof to a book or to each other, so as to obtain a substantially uniform thickness or flush surfaces when the sheets or leaves are so united, consisting in: channeling the paper material before the same has been subjected to motion.

2. The method of manufacturing paper of variable thickness designed to be used where it is desired to attach independent sheets or leaves thereof to a book or to each other, so as to obtain a substantially uniform thickness or flush surfaces when the sheets or leaves are so united, consisting in: channeling the paper material before the same is subjected to motion, and then extracting a greater proportion of moisture from the thinner portion than from the thicker portion.

3. The method of manufacturing paper of variable thickness designed to be used where it is desired to attach independent sheets or leaves thereof to a book or to each other, so as to obtain a substantially uniform thickness or flush surfaces when the sheets or leaves are so united, consisting in: channeling the paper during the ordinary process of manufacture and before it is subjected to motion, and in extracting moisture from the channelled portion or portions.

701,785. SPIKE-TOOTH HARROW. THOMAS B. JAMES, Syracuse, N. Y. Original application filed Aug. 13, 1901, Serial No. 71,703. Divided and this application filed Jan. 6, 1902. Serial No. 66,895. (No model.)



Claim.—1. In a spike-tooth harrow, the combination of a frame-bar having a substantially flat normally lower face, a substantially flat and upright side face formed with a longitudinal channel, and an opposite side face provided with a lower surface extending upwardly at an angle from the contiguous part of said lower face; with a spike-tooth having its upper portion provided with an attaching and passed through the frame-bar, said upper portion being also provided with an integral shoulder having a substantially flat intermediate part and upwardly-extending forward and rearward parts respectively engaged with and substantially closely fitting said lower and opposite side faces of the frame-bar, substantially as and for the purpose described.

2. In a spike-tooth harrow, the combination of a frame-bar having a substantially flat normally lower face, a substantially flat and upright side face formed with a longitudinal channel, and an opposite side face provided with a lower surface curving upwardly from the contiguous part of said lower face; with a spike-tooth having its upper portion provided with an attaching and passed through the frame-bar, said upper portion being also provided with an integral shoulder extending laterally, forwardly and rearwardly beyond the underlying portion of the spike-tooth, the intermediate part of the shoulder being engaged with and substantially closely fitting the lower face of the frame-bar and the forward and rearward parts of the shoulder being of unequal height, the shorter one of said forward and rearward parts being substantially upright and engaged with the substantially flat and upright side face of the frame-bar, and the longer one of said forward and rearward parts being curved upwardly and engaged with said curving surface of the opposite side face of the frame-bar, substantially as and for the purpose specified.

701,786. GOLF-BALL. BLAINE KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Apr. 22, 1902. Serial No. 104,102. (No model.)



Claim.—1. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material; a perforation extending entirely through said ball, and the rubber being cut or covered in the region of said perforation and tending to expand the shell.

2. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material; perforations extending entirely through said ball, and the rubber being cut or covered in the region of said perforations and tending to expand the shell; said perforations being diametrical and intersecting at the center of the ball.

3. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material; three perforations extending each entirely through said ball, each at right angles to the others; the rubber being cut or covered in the region of said perforations and tending to expand the shell in all directions, and said perforations being diametrical and intersecting at the center of the ball.

4. A playing-ball comprising a filling which consists of windings of tensioned rubber, and a whole spherical shell of hard material including said filling; at least a portion of said windings of rubber being covered, and tending to expand said shell.

5. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material and provided with a perforation; the rubber being cut or covered in the region of said perforation and tending to expand the shell; and an outer tubular shell secured upon said shell and covering said perforation.

6. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material, the structure being provided with diametrical perforations, which intersect at the center of the ball, and the rubber being cut or covered in the region of said perforations and tending to expand the shell in all directions; and an outer shell of plastic material welded upon said shell.

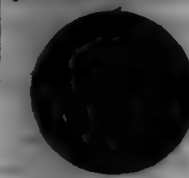
7. A playing-ball comprising windings of tensioned rubber incased by a shell formed of plastic material, the structure being provided with three diametrical perforations, which intersect at the center of the ball and extend at right angles to one another; the rubber being cut or covered

oved in the region of said perforations and tending to expand the shell in all directions; and an outer shell of similar plastic material welded upon said shell.

8. A playing-ball comprising a center piece, windings of tensioned rubber thereon, and a shell formed of gutta-percha upon said rubber; perforations extending entirely through said ball, and the rubber being cut or covered in the region of said perforations and tending to expand the shell.

9. A playing-ball comprising windings of tensioned rubber incased by a shell formed of gutta-percha, the structure being provided with perforations, and the rubber being cut or covered in the region of said perforations and tending to expand the shell; and an outer shell of gutta-percha compressed upon said shell and covering the perforations.

701,787. GOLF-BALL. BLAINE KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Apr. 22, 1902. Serial No. 104,316. (No model.)



Claim.—1. A playing-ball comprising a highly-compressed substantial fabric-lined gutta-percha shell expanded by plastic material injected thereto and forming a core, the shell constantly tending to compress the core and the latter to expand the shell.

2. A playing-ball comprising a highly-compressed substantial fabric-lined gutta-percha shell distended by gutta-percha injected thereto.

3. A playing-ball comprising a gutta-percha shell consisting of fabric-lined segments, and distended by gutta-percha injected thereto.

4. A playing-ball consisting of a highly-compressed shell built up from compressed gutta-percha fabric-lined segments, said segments being connected edge to edge, and said shell being expanded by gutta-percha forced thereto.

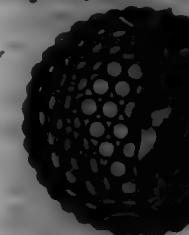
5. A playing-ball comprising a shell built up of highly solidified or compressed thick hemispherical sections of well-cured gutta-percha and lined with fabric, said shell being expanded by plastic material injected thereto.

6. A playing-ball comprising a highly-compressed fabric-lined gutta-percha shell distended by gutta-percha injected thereto and forming a core; the diameter of said core being about one-half that of the complete ball.

7. A playing-ball comprising a shell formed at least partially from plastic material lined with fabric, and distended by similar plastic material injected thereto.

8. A playing-ball comprising a highly-compressed substantial fabric-lined gutta-percha shell, and a sphere of gutta-percha held under permanent compression by said shell.

701,788. GOLF-BALL. BLAINE KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Apr. 22, 1902. Serial No. 104,316. (No model.)



Claim.—1. A playing-ball comprising a sphere of soft rubber, a shell of celluloid thereon, and a shell of gutta-percha upon said celluloid.

2. A playing-ball comprising a sphere of soft rubber, a shell of celluloid thereon, and a shell of gutta-percha upon said celluloid; said celluloid and gutta-percha shells holding said soft rubber under compression.

3. A playing-ball comprising a center piece of gutta-percha, a layer of soft rubber thereon, a shell of celluloid upon said soft rubber, and a shell of gutta-percha upon said celluloid.

4. A playing-ball comprising a sphere of soft rubber, a shell of fabric-lined celluloid thereon, and a shell of gutta-percha upon said celluloid.

5. A playing-ball comprising a sphere of soft rubber, a shell of fabric-lined celluloid thereon, and a shell of gutta-percha upon said celluloid, said celluloid and gutta-percha shells holding said soft rubber under compression.

6. A playing-ball comprising a center piece of gutta-percha, a layer of soft rubber thereon, a fabric-lined shell of celluloid upon said soft rubber, and a shell of gutta-percha upon said celluloid.

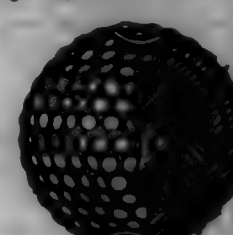
7. A playing-ball comprising a sphere of soft rubber, a fabric-lined shell of celluloid thereon, and a fabric-lined shell of gutta-percha upon said celluloid.

8. A playing-ball comprising a sphere of soft rubber; a shell of celluloid thereon, and a fabric-lined shell of gutta-percha upon said celluloid; said celluloid and gutta-percha shells holding said soft rubber under compression.

9. A playing-ball comprising a center piece of gutta-percha; a layer of soft rubber thereon, a shell or layer of fabric-lined celluloid upon said soft rubber, and a shell of fabric-lined gutta-percha upon said celluloid.

10. A playing-ball comprising a sphere of soft, yielding material, a shell thereon composed of celluloid and fibrous material, and an outer shell of gutta-percha.

701,789. GOLF-BALL. BLAINE KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Apr. 22, 1902. Serial No. 104,317. (No model.)



Claim.—1. A playing-ball comprising a rubber sphere, a layer of gutta-percha thereon, a layer of fabric-lined gutta-percha upon said first layer, and a casing of fabric-lined celluloid upon said second gutta-percha layer.

2. A playing-ball comprising a rubber sphere, a layer of gutta-percha thereon, a layer of fabric-lined gutta-percha upon said first layer, and a casing of fabric-lined celluloid upon said second gutta-percha layer; said gutta-percha and celluloid layers holding said celluloid sphere under compression.

3. A playing-ball comprising a hard center piece, a rubber sphere thereon, a fabric-lined gutta-percha layer upon said sphere, a second fabric-lined gutta-percha layer upon said first layer, and a fabric-lined celluloid layer upon said second layer.

4. A playing-ball comprising a hard center piece, a rubber sphere thereon, a fabric-lined gutta-percha layer upon said sphere, a second fabric-lined gutta-percha layer upon said first layer, and a fabric-lined celluloid layer upon said second layer; each of said gutta-percha layers consisting of welded hemispherical segments.

5. A playing-ball comprising a hard center piece, a rubber sphere thereon, a fabric-lined gutta-percha layer upon said sphere, a second fabric-lined gutta-percha layer upon said first layer, and a fabric-lined celluloid layer upon said second layer; each of said gutta-percha layers consisting of welded hemispherical segments, the welds of said segments crossing each other, so that the body of one layer reinforces the weld of the other; and said celluloid casing consisting of telescoped hemispherical cups welded upon said second gutta-percha layer.

6. A playing-ball comprising a hard center piece, a rubber sphere thereon, a fabric-lined gutta-percha layer upon said sphere, a second fabric-lined gutta-percha layer upon said first layer, and a fabric-lined celluloid layer upon said second layer; each of said gutta-percha layers consisting of welded hemispherical segments, the welds of said segments crossing each other, so that the body of one layer reinforces the weld of the other; and said celluloid casing consisting of telescoped hemispherical cups welded upon said second gutta-percha layer; the joint or weld of said casing running crosswise of the weld in said second gutta-percha layer.

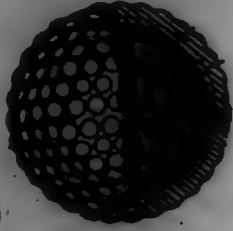
7. A playing-ball comprising a hard center piece, a rubber sphere thereon, a fabric-lined gutta-percha layer upon said sphere, a second fabric-lined gutta-percha layer upon said first layer, and a fabric-lined celluloid layer upon said second layer; each of said gutta-percha layers consisting of welded hemispherical segments, the welds of said segments crossing each other, so that the body of one layer reinforces the weld of the other; and said celluloid casing consisting of telescoped hemispherical cups welded upon said second gutta-percha layer; the joint or weld of said casing running crosswise of the weld in said second gutta-percha layer.

701,740. GOLF-BALL. BLAINE KENNEDY, Boston, Mass., assignor to The Kennel Manufacturing Company, a Corporation of New Jersey. Filed Apr. 22, 1902. Serial No. 104,157. (No model.)

Claim.—1. A playing-ball comprising a hard shell, a center piece, and an intermediate elastic soft-rubber shell partially collapsed and compressed between said shell and said center piece.

2. A playing-ball comprising a hard, wear-resisting cover, a distorted shell of soft rubber held under compression thereby, said shell being distorted throughout in radial direction, and a center piece within said shell.

3. A playing-ball comprising a shell of plastic material, an oversize soft-rubber seamless shell partially collapsed and confined under compression within said plastic shell, and an undersize springy center piece filling said collapsed rubber shell.



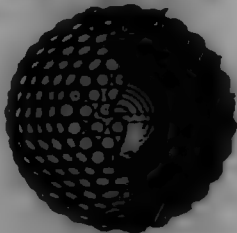
4. A playing-ball comprising a shell consisting of welded segments of gutta-percha; an oversize soft-rubber shell confined under compression within said gutta-percha shell; and a center piece of hard material within said soft-rubber shell.

5. A playing-ball comprising a center piece of plastic material; a rubber shell thereon; and a cover of hard, wear-resisting material upon said shell; the latter being in a state of partial collapse and held under compression by said cover.

6. A playing-ball comprising a shell formed of welded segments of plastic material; an oversize soft-rubber shell partially collapsed and confined under compression within said gutta-percha shell; and an undersize center piece filling said collapsed shell.

7. A playing-ball comprising a spherical center piece of gutta-percha; a seamless rubber shell thereon; and a cover of gutta-percha upon said shell; the latter being in a state of partial collapse and being held under compression by said cover.

701,741. GOLF-BALL. BRADEN KEMPSTALL, Boston, Mass., assignor to The Kempshall Manufacturing Company, a Corporation of New Jersey. Filed May 5, 1902. Serial No. 106,867. (No model.)



Claim.—1. A playing-ball comprising a shell having two layers of plastic material; the inner layer being harder than and distinct from the outer layer, said outer layer forming the cover of the ball.

2. A playing-ball comprising a yielding filling and a shell consisting wholly of two layers; the inner layer consisting of celluloid and the outer layer consisting of a more yielding plastic material.

3. A playing-ball comprising a shell consisting wholly of two layers, the outer layer consisting of plastic material and being materially thicker and more yielding than the inner layer, said outer layer forming the cover of the ball.

4. A playing-ball comprising a rubber sphere and a shell, the latter consisting wholly of two springy layers, and the outer layer being materially thicker than the inner layer and also consisting of more yielding material.

5. A playing-ball comprising a shell having an inner layer of celluloid and an outer layer of gutta-percha, and a yielding filling.

6. A playing-ball comprising a shell having two layers of plastic material, the inner layer being harder and distinct from the outer layer, and a yielding filling held under compression by said shell.

7. A playing-ball comprising a shell having an inner hard layer, an outer layer of gutta-percha, said outer layer being materially thicker than said inner layer; and a rubber sphere held under compression by said shell.

8. A playing-ball comprising a shell having an inner layer of celluloid and an outer layer of gutta-percha, said outer layer being materially thicker than said inner layer; and a springy filling held under compression by said shell.

9. A playing-ball comprising a shell consisting of an outer layer of molded springy material, and an inner supporting layer of harder springy material; said layers being interlocked.

10. A playing-ball comprising a shell consisting wholly of two layers, the inner layer being perforated, and the material of the outer layer penetrating the perforations; said inner layer being materially thinner than said outer layer.

11. A playing-ball comprising a shell consisting of two layers of plastic material; the inner layer being perforated and the material of the outer layer penetrating the perforations, said outer layer being materially thicker and of more yielding material than said inner layer.

12. A playing-ball comprising a shell and a yielding filling; said

shell consisting of two layers, one layer being perforated and the material of the other layer penetrating the perforations; and the outer layer being materially thicker than the inner layer and also of softer material.

13. A playing-ball comprising a shell having interlocked layers, the inner layer being of harder material than the outer layer, and a yielding filling held under compression by said shell.

14. A playing-ball comprising a shell consisting of a perforated inner layer of celluloid, an outer layer of gutta-percha, the material of said outer layer penetrating said perforations; and a yielding filling held under compression by said shell.

15. A playing-ball comprising a shell consisting of an inner layer of celluloid and an outer layer of gutta-percha; said layers being interlocked; and a yielding filling held under compression by said shell.

16. A playing-ball comprising a shell consisting wholly of two layers, the inner layer being perforated and the material of the outer layer penetrating the perforations; said outer layer being materially thicker than said inner layer and also of softer material; and a yielding filling held under compression by said shell.

17. A playing-ball comprising a shell having two layers of plastic material; the inner layer being perforated and also being harder than and distinct from the outer layer, and the latter consisting of welded segments; and a springy core.

18. A playing-ball comprising a yielding filling and a shell consisting wholly of two layers; the inner layer consisting of separated segments and the outer layer consisting of welded segments of plastic material; the weld portion of the outer layer protruding between the edges of said separated segments.

19. A playing-ball comprising a shell consisting wholly of two layers, the inner layer consisting of celluloid and the outer layer consisting of welded segments of gutta-percha and being materially thicker than the inner layer; and a yielding filling held under compression by said shell.

20. A playing-ball comprising a shell having an inner layer consisting of segments of celluloid and an outer layer consisting of welded segments of gutta-percha, and a yielding filling within said shell and forming the body of the ball.

21. A playing-ball comprising a shell having two layers of plastic material, the inner layer being harder and distinct from the outer layer and also being perforated, and a yielding filling held under compression by said shell.

22. A playing-ball comprising a shell having an inner hard layer, an outer layer consisting of welded segments of gutta-percha, said outer layer being materially thicker than said inner layer; and a rubber sphere held under compression by said shell.

23. A playing-ball comprising a shell having an inner perforated layer of celluloid and an outer layer of gutta-percha, said outer layer being materially thicker than said inner layer; and a springy filling held under compression by said shell.

24. A playing-ball comprising a shell having an outer layer consisting of welded segments of gutta-percha, and an inner thinner layer of harder springy material; said layers being interlocked, said outer layer forming the cover of the ball.

25. A playing-ball comprising a shell consisting wholly of two layers, the inner layer consisting of separated segments each of which is perforated, and the material of the outer layer penetrating the perforations; said outer layer consisting of welded segments, the welded portion of the outer layer extending between said separated segments, said outer layer forming the cover of the ball.

26. A playing-ball comprising a shell consisting of two layers, the inner layer being perforated and consisting of separated segments of celluloid, and the material of the outer layer penetrating the perforations, said outer layer consisting of welded segments of gutta-percha and being materially thicker than said inner layer; the welded portion of the gutta-percha layer extending between the celluloid segments, said outer layer forming the cover of the ball.

27. A playing-ball comprising a shell consisting of two layers, one layer being provided with perforations each whereof extends through said layer, the perforations being counterbored, and the material of the other layer penetrating the perforations.

28. A playing-ball comprising a shell having interlocked layers, the inner layer being of celluloid and perforated, and the outer layer consisting of welded segments of gutta-percha, and a yielding filling held under compression by said shell.

29. A playing-ball comprising a shell consisting of a perforated inner layer consisting of separated segments of celluloid, an outer layer consisting of welded segments of gutta-percha, the material of said outer layer penetrating said perforations; and a yielding filling held under compression by said shell.

30. A playing-ball comprising a shell consisting of an inner layer of celluloid and an outer layer consisting of welded segments of gutta-percha; said layers being interlocked; and a rubber sphere held under compression by said shell.

81. A playing-ball comprising a shell consisting wholly of two layers, the inner layer being perforated and the material of the outer layer penetrating the perforations; said outer layer being materially thicker than said inner layer and also of softer material; and a rubber shell held under compression by said shell and provided with a hard, springy center piece.

82. A playing-ball comprising a filling and a shell thereon consisting of welded segments of plastic material having embedded therein separated and distinct perforated segments of other plastic material.

83. A playing-ball comprising a filling and a shell thereon consisting of welded segments of plastic material having embedded on its inner side separated and distinct perforated segments of other plastic material.

701,742. GRANULAR MALTED BISCUIT AND METHOD OF MAKING SAME. JOSEPH LAMMER, Battle Creek, Mich. Filed Nov. 7, 1901. Serial No. 81,482. (No specimens.)

Claim.—1. As a new article of manufacture, a food product made from a leavened dough containing malted-barley flour and whole-wheat flour, said product being in molded form baked and dextrinized, coarsely granular, friable and readily absorbent and containing extract of malt for holding the granules together, substantially as described.

2. As a new article of manufacture, a food product made from leavened dough containing malt-flour and whole-wheat flour, baked and dextrinized, in the form of biscuits which are coarsely granular, friable and readily absorbent, and containing a digestive agglutinant for holding the granules together, substantially as described.

3. The herein-described process of producing a granular food-biscuit which consists in mixing malt-flour with whole-wheat flour and adding thereto water, salt, shortening and a leavening agent, to form a dough and allowing the dough to properly leaven, then forming into leaves and baking, then slicing, and browning or toasting said slices, next reducing to granular condition by grinding or crushing, next adding a digestive agglutinant, then molding into suitably-shaped biscuits or cakes, and then drying out, substantially as described.

4. The herein-described process of producing a granular food-biscuit, which consists in mixing malted-barley flour with whole-wheat flour, and adding thereto water, salt, shortening and a leavening agent to form a dough, and allowing the dough to properly leaven, then forming into leaves and baking; then slicing and toasting said slices, next reducing to granular condition, then adding extract of malt, then molding into suitable shapes and then drying out by rebaking, substantially as described.

5. The process of producing a granular food product which consists in taking malt and removing the hulls therefrom and grinding it into flour, mixing it with a suitable quantity of wheat-flour; then making a dough of the mixed flour by adding water, salt, shortening and leavening, permitting the same to properly leaven; then forming into leaves of suitable size and shape and baking the same; then cutting into thin slices, then browning or toasting the slices and reducing the thus browned or toasted slices into granules by grinding or crushing, and mixing the granules with extract of malt for causing the granules to adhere, and then rebaking, substantially as described.

701,743. PAINT. THOMAS L. LEE, Memphis, Tenn., assignor of one-half to Graham Martin, Edgar Lee, and Thomas L. Lee, Jr., Memphis, Tenn. Filed Jan. 12, 1902. Serial No. 80,533. (No specimens.)

Claim.—The herein-described paint composition consisting of distilled coal-oil, dead-oil, refined benzol, and Chickasaw oil, mixed in or about the proportions described.

701,744. WOMAN'S DRAWER. HENRY M. LOVE, Wilmington, Del. Filed Mar. 12, 1902. Serial No. 97,571. (No model.)

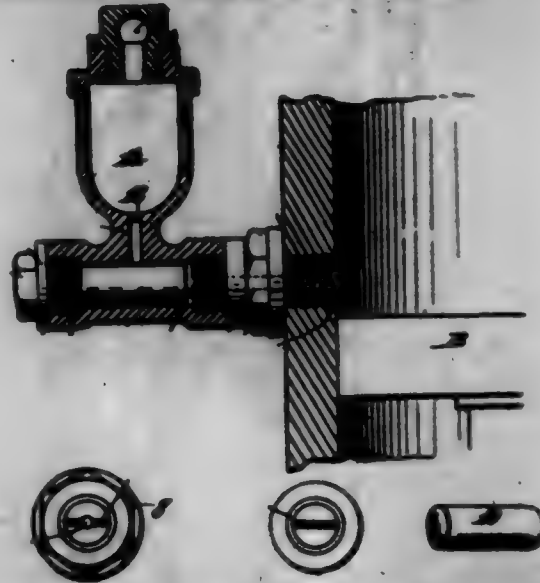


Claim.—1. A pair of knitted drawers having seamless legs and a body portion with central seam and overlapping diagonal flaps, substantially as specified.

2. A pair of knitted drawers having seamless legs and a body portion with open crotch, central seam and overlapping diagonal flaps, substantially as specified.

3. A pair of knitted drawers comprising a pair of seamless tubular webs diagonally slitted in their upper portions and having corresponding edges of these diagonal slits secured together, substantially as specified.

701,745. LUBRICATOR. RICHARD A. LYDGE, Richmond, Mich. Filed Nov. 27, 1901. Serial No. 82,578. (No model.)



Claim.—1. In a lubricator for connection with an air-cylinder, a casing having an inlet and an outlet adapted to communicate with the interior of said cylinder, an impermeable, cylindrical plunger of uniform diameter throughout its length and having a sliding fit in said casing and arranged to close at all times said inlet and to reciprocate in said casing solely by the action of the piston of said cylinder and a reservoir for a lubricant in communication with said casing through said inlet and the latter being transverse to, and between, the ends of the piston.

2. In a lubricator for connection with an air-cylinder, a casing having an inlet, plugs screw-threaded into the opposite ends of the casing and one of the plugs having a screw-threaded extension having a bore constituting an outlet for said casing, an impermeable, cylindrical plunger of uniform diameter throughout its length and having a sliding fit in said casing and arranged at all times to close said inlet and to reciprocate in said casing solely by the action of said piston of said cylinder and a reservoir for a lubricant in communication with said casing through said inlet.

3. In a lubricator for connection with an air-cylinder, a casing having an inlet and screw-threaded plugs in its opposite ends, one of the plugs having a groove at its inner end and a longitudinal bore, a plunger having a sliding fit in said casing and arranged to close at all times said inlet and to reciprocate in said casing solely by the action of the piston of said cylinder and a reservoir for a lubricant in communication with said casing through said inlet.

4. In a lubricator for connection with an air-cylinder, a casing having a single inlet and a single outlet adapted to communicate with the interior of said cylinder, a plunger having a sliding fit in said casing and arranged to close at all times, said inlet and to reciprocate in said casing solely by the action of the piston of said cylinder, and said inlet being transverse to, and between, the ends of the plunger, and means for supplying a lubricant to the casing through said inlet.

701,746. BOAT STOPPING AND HOLDING DEVICE. PHILIP H. MALONEY, Philadelphia, Pa. Filed May 20, 1901. Serial No. 82,947. (No model.)

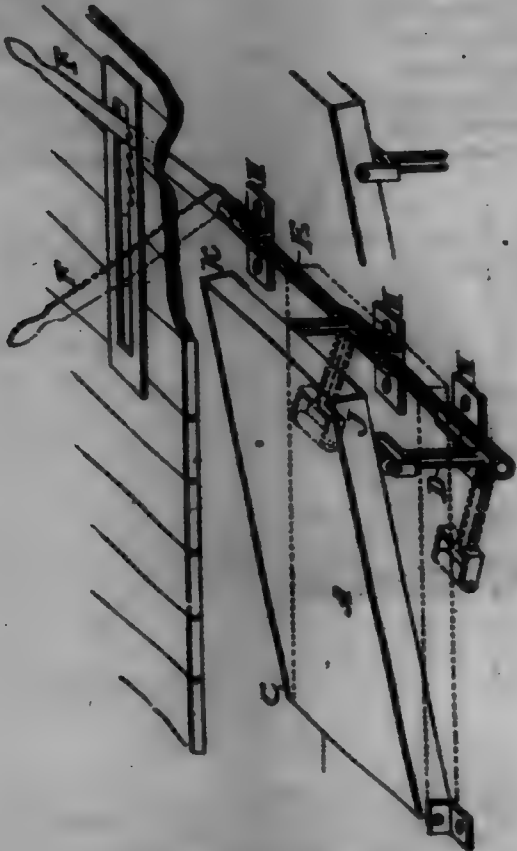
Claim.—1. An inclined frame for stopping and holding boats pivoted at its lower end beneath the water-level and provided with means for raising and lowering the upper end.

2. An inclined frame for stopping and holding boats pivoted at its lower end beneath the water-level and provided with pivoted arms for raising and lowering the upper end.

3. An inclined frame for stopping and holding boats pivoted at its lower end beneath the water-level and provided with arms for raising and lowering the upper end, said arms being revolvably mounted on a bar and carrying rollers bearing against the under side of said frame.

4. An inclined frame for stopping and holding boats pivoted at its lower end beneath the water-level and provided with spreading-arms rev-

ably mounted on a bar said bar being provided with an operating-lever and holding-rook.



701,747. **BIKYLE.** GEORGE W. HANSON, New York, N. Y. Filed Nov. 17, 1902. Serial No. 24,943. (No model.)

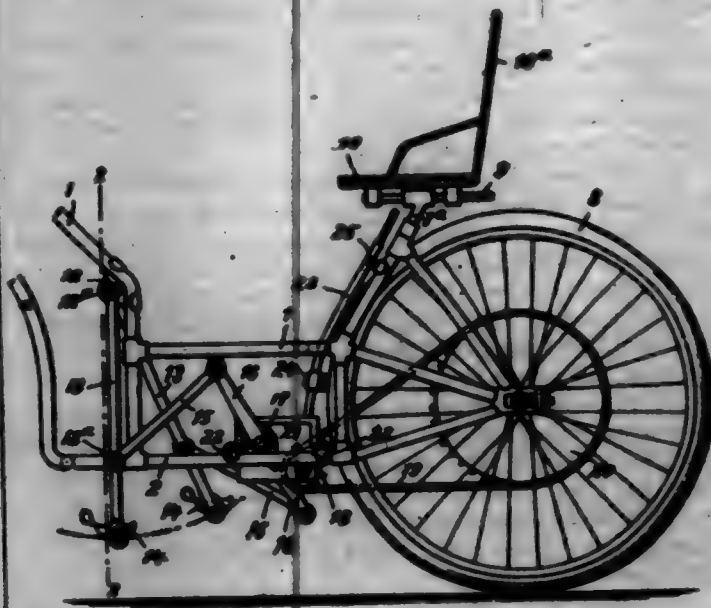


Claim.—The combination of the handle-bar, formed with rearwardly-projecting arms 26, the handles 28 separately adjustable longitudinally of said arms, the seat 10, 10' adjustable in height and longitudinally on the inclined standard 1' and the rearwardly-inclined pendant pedal-levers 13 mounted on a suitable frame, substantially as described, to enable the adaptation of the machine for advantageous use by riders of different arm-reach and stature.

701,748. **BIKYLE DRIVING MECHANISM.** GEORGE W. HANSON, New York, N. Y. Filed Nov. 17, 1902. Serial No. 24,944. (No model.)

Claim.—The combination of a suitable cycle-frame, a pair of pendant

pedal-levers 13 hung from their upper ends to the frame so that they swing forward and back in paths which are mainly in the rear of a vertical line from their fulcrum-pivots in the forward part of the frame, pedals 14 mounted on the lower ends of said levers, connecting-rods 15 pivoted to the pedal-levers at their forward ends, crank-arms 16 to which the rear ends of the connecting-rods are respectively pivoted, a crank-shaft 17 on the extremities of which the crank-arms 16 are mounted, gear-wheel 40 keyed thereon; gear-wheel 41 driven by the wheel 40; shaft 42 on which the wheel 41 is fixed; gear-wheel 43 also fixed on shaft 42; pinion 44 driven by the wheel 43; shaft 45 on which the pinion 44 is fixed; gear-wheels 46 and 49 of different diameters fixed on the shaft 45 and driven thereby; loose pinions 47 and 50 driven by the wheels 46 and 49 respectively; and having clutch-teeth on their opposed faces; sprocket-wheel shaft 48 on which the pinions 47 and 50 are loosely mounted; sprocket-wheels 18, 20 and chain 19 transmitting motion from the shaft 48 to the drive-wheel 8; sliding clutch-clove 51, 51', 51'', splined on shaft 48 so as to drive the same; and means for shifting the said clutch-clove into engagement with either of the pinions 47 and 50, or out of engagement with either so as to drive the sprocket-wheel shaft 48 at variable speed or permit it to run free, substantially as described.



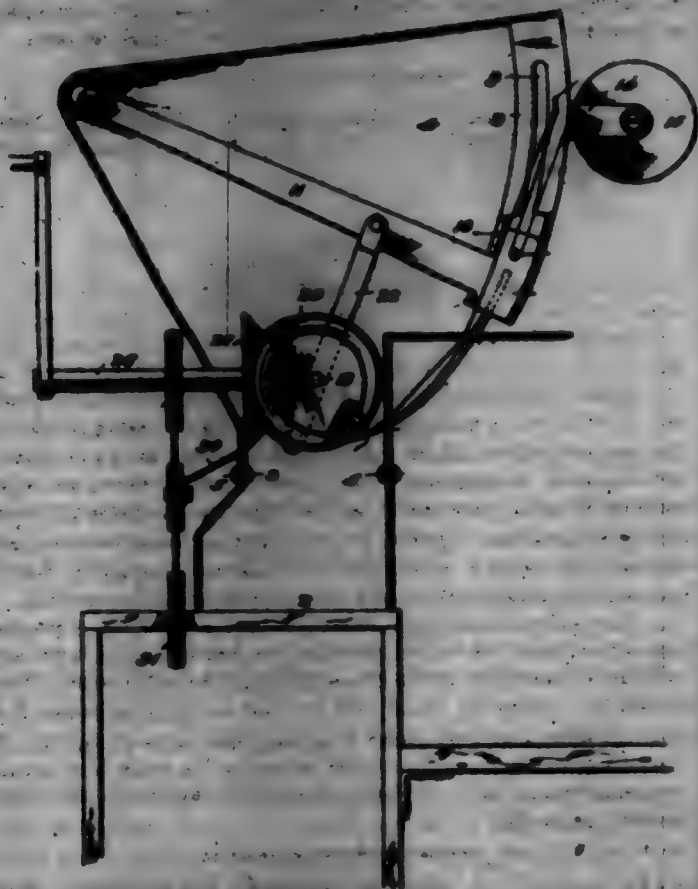
701,749. **MATTRESS-SEWING MACHINE.** HARRISON S. HARTMAN, Washington, D. C. Filed Nov. 12, 1902. Serial No. 611,393. (No model.)

Claim.—1. The combination with a horizontal rest or table to support the lower edge of a mattress, and tracks arranged at one side thereof, of a sewing-machine mounted on said tracks and having an angular guide-plate overhanging said rest or table to receive the upper, inner corner of a mattress; obliquely-angled needle-apertures being formed in the vertical and horizontal members of said guide-plate, a pivoted vertically-vibrating lever having a needle-head at its outer end above said guide-plate and provided with a needle to pass through said apertures and stitch the upper, inner corner of a mattress, a loop adjacent to the lower inner aperture, and means for operating and feeding the machine, substantially as specified.

2. In a machine of the class described, the combination with a framework having a track, of a machine-housing mounted for movement upon the track and having an overhanging right-angular plate at its lower-front edge, a lever fulcrumed at its upper end in the rear end of the housing and at its front end having a needle-carrying head, a hollow machine-head coincidentally curved with relation to the pivot of the lever and in line with needle-openings in the plate and serving as a guide for the needle-carrying head, a shaft journaled in the housing, a loop carried by the shaft and arranged adjacent to the path traversed by the needle, a crank formed in the shaft and a pinion-rod loosely connected to the crank and to the lever, and means for rotating the shaft and advancing the machine, substantially as specified.

3. In a machine of the class described, the combination with a housing provided at its lower front part with an angular plate having openings at opposite sides of its angle and above the same having a hollow, slotted machine-head, a needle-carrying head arranged in the latter, a lever fulcrumed in the housing and connected to and adapted to operate the needle-carrying head, a transverse shaft journaled in the housing in rear of the angular plate, means for conveying motion from the same to the lever for vibrating the latter, a loop arranged on the shaft adjacent

to the lower needle-opening in the angular plate, and eyes on the lower end of the bearing for loosely receiving the track, of a power-shaft journaled at an angle to the horizontal shaft, a gear-wheel on each of said shafts and intermeshing with each other and means for driving the power-shaft and advancing the machine, substantially as specified.



4. The combination with a rest-table to support the lower edge of a mattress, and tracks arranged parallel thereto and at one side thereof, of a sewing-machine having an angular portion arranged above and overhanging said rest-table, said angular portion being provided with obliquely-angled openings, a needle-carrying head arranged in the machine and provided with a needle, said needle-carrying head being inclined downwardly and inwardly with relation to the table, whereby the needle is adapted to pass through the oblique openings and stitch through the upper corner of the mattress, a lever cooperating with the needle, and means for operating said needle and lever.

701,750. APPARATUS FOR USE IN THE TREATMENT OF COFFEE.
 FRED. HERMAN & HAZEN, London, England. Filed Sept. 2, 1891. Serial No. 74,827. (No model.)

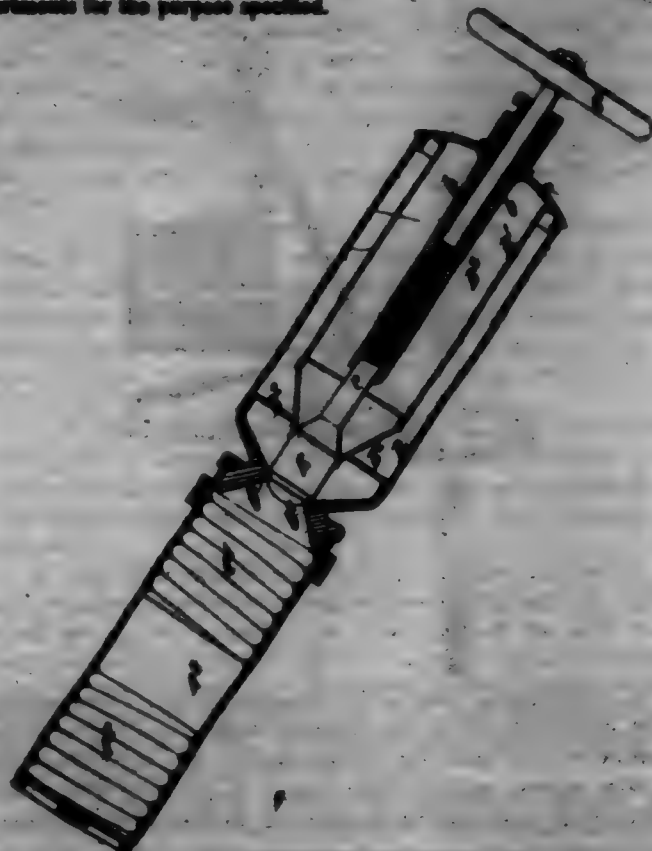
Claim.—1. In apparatus for treating coffee, the combination with a roasting-chamber, of an absorbing-chamber detachably connected therewith, of means for rotating the chamber, of means for opening and closing communication between them, of means for heating the roasting-chamber, of a condenser for condensing and collecting the steam and gases arising during the initial heating of said roasting-chamber, of means for disconnecting the condenser from the said roasting-chamber, of means for indicating the pressure in the roasting-chamber, and of means for enabling the contents of the roasting-chamber to be quickly discharged into the absorbing-chamber for the purpose specified.

2. In apparatus for treating coffee, the combination with a roasting-chamber, of an absorbing-chamber detachably connected thereto, of a valve capable of being actuated from the exterior of the apparatus for opening and closing communication between said chambers, of a governor for heating the roasting-chamber, said governor being substantially concentric with the roasting-chamber and being hinged for movement about a vertical axis to permit of its being tilted from its heating position, of a gage for indicating the pressure in said roasting-chamber, of a frame in which the chambers are rotatably mounted, of bearings carrying said frame so that it can be turned into a vertical position, and of means for temporarily maintaining said frame in a substantially horizontal position during the rotation of the chambers and the heating operation as described.

3. In an apparatus for treating coffee, the combination with an absorbing-chamber, of a perforated partition for dividing the chamber into a plurality of compartments and each of the latter having an inlet and a valve common to said inlet.

4. In apparatus for treating coffee, the combination with the absorbing-chamber, of a rotatable or perforated cylindrical partition for

dividing this chamber into two concentric compartments, and of a valve serving the double purpose of opening and closing this chamber and of opening and closing the communication between the two concentric compartments for the purpose specified.



5. In an apparatus for treating coffee, the combination with a roasting device, of means for imparting motion to the coffee-barrier while in said roasting device, an absorbing-chamber in communication with the roasting device, means for separating the chamber into a plurality of compartments, the separating means being such that different kinds of grains can be kept out of contact while in said absorbing-chamber and each compartment having an inlet, and a valve common to said inlet.

6. In an apparatus for treating coffee, the combination with a roasting device, of an absorbing-chamber, a perforated device for separating the chamber into a plurality of compartments having an inlet, and a valve common to said inlet.

7. In apparatus for treating coffee, the combination with the absorbing-chamber and its rotatable or perforated cylindrical partition, of a plug or valve operated from the exterior of the chamber and having a cylindrical portion for opening and closing the connection between the two concentric compartments and also having a seating-surface for closing the opening in the said chamber substantially as and for the purpose specified.

8. In an apparatus for treating coffee, an absorbing-chamber having a valve-controlled opening through which the gaseous contents can be withdrawn, and a rotatable device separating the said chamber into a plurality of compartments each of which has an inlet.

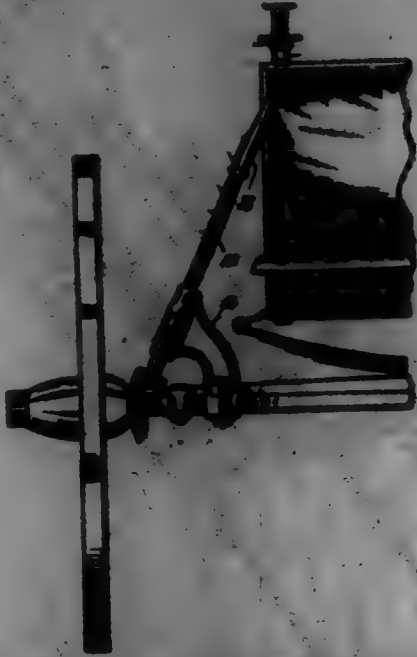
701,751. FASTENING DEVICE FOR DRIVING-BORERS. FRED. MAYNOR, Wells, Wash., assignor to himself and Richard Holman, Wells, Wash. Filed Nov. 12, 1891. Serial No. 81,550. (No model.)

Claim.—1. A fastening device, comprising a supporting-frame; a spindle mounted to turn in the supporting-frame; a pin-holding disk carried by the spindle; a ratchet carried by the spindle; a pawl engaging the ratchet; a spring-pressed rod connected with the spindle; a tube in which the said rod is received; a gear carried on the end of the tube; a gear on the vehicle-wheel, said gear meshing with the tube-gear; and a lever mounted on the rod and connected with the tube.

2. A pin-holder, comprising a supporting-frame; a pin-fastening device mounted to turn in the supporting-frame; means for preventing the rotation of the pin-fastening device in one direction; a spring-pressed rod connected with one end of the pin-fastening device; a tube within which the rod is received; a gear carried on the end of the tube; a gear on the vehicle-wheel; said gear meshing with the tube-gear; and a lever mounted on the rod and connected with the tube.

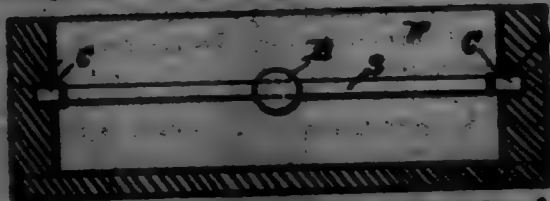
3. A pin-holder, comprising a supporting-frame; a pin-fastening device mounted to turn in the supporting-frame; means for preventing the rotation of the pin-fastening device in one direction; a spring-pressed rod connected with one end of the pin-fastening device; and a tube within which the rod is received, said tube being operatively connected with a wheel of a vehicle.

4. In a rein-holder, the combination of a spindle and two telescoping members, one of which is connected with the spindle and the other of which is adapted to be engaged with or disengaged from a vehicle-wheel.



5. A rein-holder, comprising a supporting-frame; a rein-fastening device mounted to turn in the supporting-frame; a spring-pressed rod connected with one end of the rein-fastening device; a tube within which the rod is received, said tube being operatively connected with a wheel of the vehicle; and means for disconnecting the tube and the said wheel.

701,753. CARD-INDEX-FLIPING TRAY. ARAN E. MILLER, Muskegon, Mich., assignor to the Shaw-Walker Company, Muskegon, Mich. Filed Aug. 29, 1901. Serial No. 73,000. (No model.)



Claim.—In combination, a tray having the inner face of its side walls provided with grooves, a follower, a tongue extending from each side of the follower and engaging in the grooves, a spring mounted within the follower and extending from each side thereof and engaging in the grooves for locking the follower in position, and means carried by the spring and projecting through the back of the follower and adapted when operating to release the spring thereby releasing the follower.

701,758. BURGLAR-ALARM. WILFRED E. HENRY, Dallas, Tex., assignor to Thomas J. Husted, Dallas, Tex. Filed Apr. 15, 1902. Serial No. 109,001. (No model.)



Claim.—1. A burglar-alarm, consisting of a body adapted for attachment to a support, an arm extending from the body and provided with a barrel-section to receive a cartridge-shell, a dotted locking-plate at one end of the body, a spring-lever secured at one end to the body, its opposite end extending freely in front of the barrel-section of said arm, a hammer carried by the free portion of the said spring-lever, and a locking-lever pivoted upon the locking-plate, having members adapted to bridge the slot in the said plate, for the purpose set forth.

2. In a burglar-alarm, the combination with a body plate or bar, an arm projected from the body plate or bar at a point between its ends, extending for a portion of its length at right angles to the body plate or bar, the outer end of the arm being inclined in direction of one end of the body plate, the said inclined outer end of the arm having an opening therein to receive a cartridge, and a locking-plate located at that end of the body plate or bar adjacent to the inclined end of the said arm and extending in direction of the inclined end of the arm, said locking-plate being provided with a slot in its outer end, of a spring-lever consisting of a spring-wire secured at one end to the body plate or bar where it connects with the said arm, the said wire having a coil formed therein adjacent to the arm and its opposite end carried at one side of the arm in direction of and above the locking-plate, a hammer secured to the upper

member of the said spring-lever, which hammer is adapted to strike the cartridge when in the barrel-section of the said arm, that portion of the spring-lever above the hammer being adapted in the cocked position of said hammer to enter the slot in the locking-plate, and a T-shaped locking-lever pivoted on the locking-plate, the head-section of the said T-lever having legs at an angle to the head-section, either of which legs is adapted to bridge the slot in the locking-plate, for the purpose set forth.

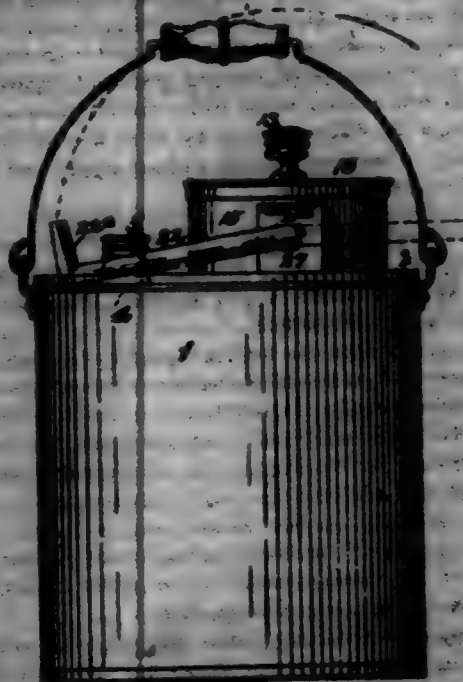
701,754. SAFETY FUEL-TANK FOR AUTOMOBILES. THOMAS W. BIRDA, Louisville, Ky. Filed Mar. 23, 1901. Serial No. 68,888. (No model.)



Claim.—1. A safety fuel-tank connected with a source of pressure, and provided with a feed-pipe to a burner, said tank having a valve device consisting of two tubular members, each member having a chamber, and an annular shoulder or abutment in rear of said chamber, one of said members having a valve-seat at its inner extremity, the screw-threads connecting said members together, the coil-springs in the chambers of said members, and having a bearing against said abutments, and the ball-valve between said springs, and locked thereby, substantially as specified.

2. A safety fuel-tank for automobiles connected with a source of pressure, and provided with a feed-pipe to a burner, said tank having a valve device consisting of the two members, each chambered for the reception of a coil-spring, one of said members having a valve-seat at its inner extremity, the screw-threads connecting said members together, the coil-springs in the chambers of said members, the valve between said springs, and means for forcing said valve from its seat when required, substantially as specified.

701,755. OIL OR GASOLINE CAN. LEWIS E. HENRY, Dallas, Tex., and CHARLES L. SCHUBERT, Dallas, Tex. Filed Feb. 4, 1902. Serial No. 92,700. (No model.)



Claim.—In an oil-can, the combination with a can provided with a cover, of a pump-barrel mounted in said can and passing through said cover, a pump mounted in said barrel and constructed to raise oil, a cap surrounding the upper end of said barrel and constructed to catch the oil raised by said pump, a larger cap containing said smaller cap and designed to catch the overflow therefrom, a tube fitting transverse apertures in said caps, an L-shaped spout rotatably mounted in said tube, and a housing surrounding the outer end of said tube, there being apertures in said cover within said housing to permit the return to the can of leakage through said tube, substantially as described.

701,756. FOOT-WARNER. JAMES P. McANUS, Richmond, Ala. Filed Feb. 24, 1902. Serial No. 95,504. (No model.)

Claim.—1. A foot-warmer comprising casing having an open front side, a central flue disposed within said casing and dividing the same into side compartments which have communication with said flue, heads for

the side compartments, and means for closing the front portions of said compartments.



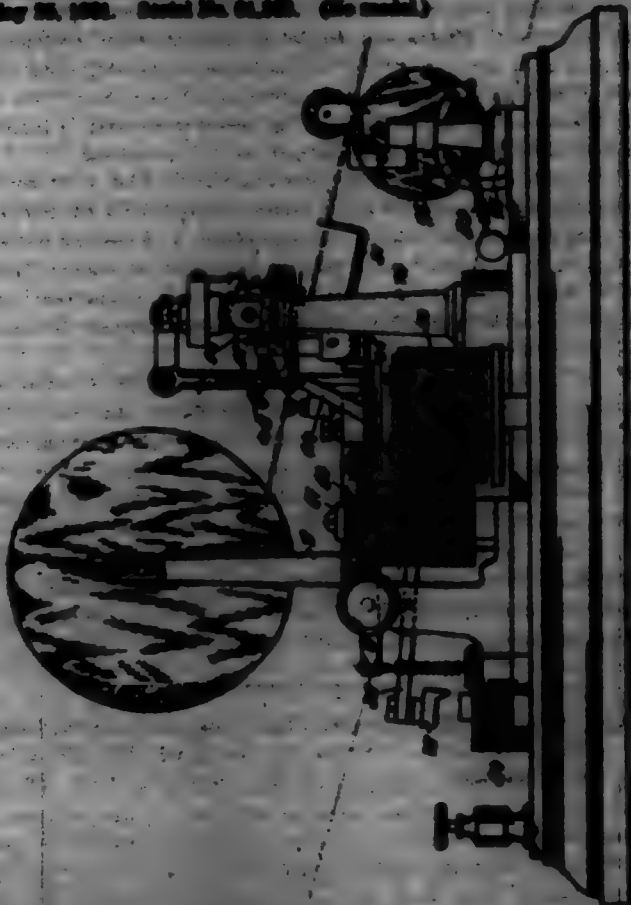
2. A hot-warmer comprising a casing having the side compartments, a vertical line disposed between the side compartments and separating them one from the other, ports or openings in the sides of said vertical line and establishing communication between said line and said compartments, and a front plate fitted removably in the casing and closing the front portions of both side compartments.

3. A hot-warmer comprising a casing divided to form side compartments, and an intermediate vertical line in communication with said compartments, suitable heaters in the side compartments, and hoods fitted removably in the casing, on opposite sides of the line, and closing the upper portions of side compartments.

4. A hot-warmer comprising a casing having side compartments, a control line in communication with the compartments, and a front plate fitted removably in guides provided within the casing, said line having a curved portion adapted to form a foot-rest which is exposed outside of the compartments.

5. A hot-warmer comprising a casing, side compartments, each closed at its upper part by a removable hood, a front plate fitted removably within the casing and extending across the side compartments, a control line communicating with the compartments and opening through the top of the casing, and means provided on the casing at one side of the line-opening for the attachment of a wire.

701,757. WHEAT AND PRESSURE RECORDING APPARATUS.
EDWARD H. HARRIS, Baltimore, Pa., assignor to John J. Walsh, Hugh A. Taylor, Sidney Kravitz, Guy C. Linn, Edward McGarvey, James F. Adams, Robert E. Taylor, and Ellis L. Davis, Baltimore, Pa. Filed May 25, 1901. Serial No. 61,325. (No model.)



Claim.—1. In a weight and pressure recording apparatus, a printing device, electrically-operated means for moving an impression-receiving strip relatively to the printing device, and a circuit-controller for said electrically-operated means, carried by and movable on a scale-beam, substantially as specified.

2. In a recording device, printing device, electrically-operated means

for imparting forward motion to the printing device, electrically-operated means for imparting reverse motion to the printing device, and a circuit-controller for said electrically-operated device, carried by a scale-beam, substantially as specified.

3. In a weight and pressure recording apparatus, printing device, a reel for supporting a strip to be printed upon, electrically-operated means for imparting reverse motion to the printing device, electrically-operated means for moving said strip, a plate for pressing the strip against the printing device, and means carried by a scale-beam and movable thereon for controlling the electrically-operated device, substantially as specified.

4. In a weight and pressure recording apparatus, printing-wheel, electrically-operated device for moving said printing-wheel in opposite directions, an electrically-operated feeding device for a strip of material to be printed upon, an electrically-operated plate for pressing the strip against the printing-wheel, an ink-roller, and means carried by and movable along a scale-beam for controlling the electric circuit, substantially as specified.

5. A weight and pressure recording apparatus, two series of rotary printing devices, electric motor for operating said printing devices, upper and lower scale-beams, and devices carried by said scale-beams for controlling respectively the motor for the printing device, substantially as specified.

6. In a weight and pressure recording apparatus, a series of printing-wheel, a driving frame, an ink-roller carried by said frame, ratchet-wheel arranged on the shaft of the printing-wheel, the teeth of said ratchet-wheel being revolved in relation, a pawl for engaging with either one of said ratchet-wheel, an electromagnet for operating said pawl, an electromagnet for moving the pawl from one of said ratchet-wheel to the other, and means carried by a scale-beam for controlling the electric circuit through said electromagnets, substantially as specified.

7. In a weight and pressure recording apparatus, a series of printing-wheel, a shaft on which said wheels are mounted, ratchet-wheel on said shaft, the teeth of the two wheels being in reverse order, a finger for engaging with the teeth of either one of the ratchet-wheel, an armature carrying said finger, an electromagnet coacting with the armature, an electromagnet, the armature of which has a spring-yielding connection with said finger, the said last-named electromagnet being a reversing-magnet, a source of electricity in which the two magnets are arranged, and means carried by and moving along a scale-beam for controlling the circuit through the magnets, substantially as specified.

8. A scale-beam having notches formed in its upper edge, a point movable along said scale-beam, a contact-finger carried by the point and adapted to make and break electrical connections when passed along the notched portion of the beam, and a recording device in the electric circuit controlled by said movable point, substantially as specified.

9. Upper and lower scale-beams, two series of printing-wheel, electric motor for operating said wheels, one series independently of the other, electric motor for causing the reverse movements of the wheels, one series independently of the other, a point movable along the upper beam and adapted to control the current through one of the first-named electric motor and its coacting reversing-motor, and a point movable along the other beam for controlling the current through the other two electric motor, substantially as specified.

10. A scale-beam, a point movable along the same, a spring-yielding contact-point carried by said point but insulated therefrom and adapted to be pressed into electrical connection with the point, a series of printing-wheel, a reversing-electromagnet for the printing-wheel, the said electromagnet being in connection with the spring-contact carried by the point and also in electrical connection with the point, and means electrically operated and controlled by movements of said point for imparting a forward movement to the printing-wheel, substantially as specified.

11. A scale-beam, a point movable along the same, a wheel carried by said point and having alternating contact-points and insulating-points in its periphery, a brush engaging with said wheel, a driving connection between said wheel and the beam, a series of printing-wheel, an electromagnet for imparting motion to said wheel, and a source of electricity in which the electromagnet and the brush and point are arranged, substantially as specified.

12. A scale-beam, a series of rotary printing device, an electric motor for operating said device, a source of electricity in which said motor is located, a plate, a motor for operating said plate, the said motor being arranged in the source of electricity, a point on the scale-beam, and circuit-closing device carried by said point, the said circuit-closing device being in the source of electricity, substantially as specified.

701,758. GAL-LINE. EDWARD F. HARRIS, Lake Placid, Minn., assignor to one-half to Oscar Redford, St. Paul, Minn. Filed Mar. 25, 1901. Serial No. 61,326. (No model.)

Claim.—In an ear-lock, the combination with the block 12 having a vertical hole in the shank of the fork or ear-lock proper, of a fork having a shank with an annular recess or groove, said block also having a cavity 25 in one side and a plate 24 covered over the same; the U-shaped wire 21 22 23 having a short arm engaging the groove in the shank of the fork, and a long arm extending horizontally, transversely through and beyond the opposite side of the block, where it serves as a push-button to disengage the short arm from the groove, the spring 27 inserted between the head 21 of the wire and the spring-retaining plate 24, substantially as and for the purpose set forth.



701,759. EAR LOCK. GEORGE C. McWILL, Chandlerville, Ill. Filed Oct. 28, 1901. Serial No. 71,737. (No model.)



Claim.—1. The combination with a row-beat, of an ear-lock comprising an inwardly-turned hook secured to the inner surface of the side of the beat, an ear comprising two sections having a gear connection and plates between which the gears are supported one of said plates having depending ears connected by a cross-rod engaging under the hook.

2. The combination with a row-beat, of an ear-lock comprising an inwardly-turned hook secured to the inner surface of the side of the beat to ear comprising two sections having a gear connection, plates between which the gears are supported one of said plates having depending ears connected by a cross-rod engaging under the hook, and a spring-dog for retaining the cross-rod in engagement with the hook.

701,760. WIRE-FENCE TOOL. WILLIAM HENRY BERRY, Tex. Filed Sept. 18, 1901. Serial No. 74,905. (No model.)

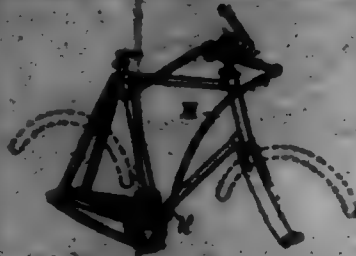


Claim.—A tool of the character described, comprising a straight rod or bar provided with a laterally-projecting head formed with an eye, said head being provided with a reduced neck portion and a wire-cutting edge, and being secured to said bar at a point intermediate its ends, whereby the outer end of the rod or bar forms a fulcrum, substantially as set forth.

701,761. CYCLE PROPPELLING MECHANISM. CHRISTIAN GRUBB, Stoughton, Wis. Filed Mar. 1, 1904. Serial No. 49,454. (No model.)

Claim.—1. In a bicycle propelling mechanism of the like, handle-bars having independent oscillating movement, a connecting-lever having connection with each of said handle-bars whereby movement of one is transmitted to the other, and operative connection between said handle-bars and the driving-wheel.

2. In a bicycle propelling mechanism of the like, handle-bars having independent oscillating movement, a housing upon each of said handle-bars, a connecting-lever pivoted between said housings and having its ends received in and engaged by said housings, and operative connection between said handle-bars and the driving-wheel.



3. In a bicycle propelling mechanism of the like, a handle-bar post, handle-bars mounted thereon and having independent oscillating movement, a connecting-lever pivotally supported upon said handle-bar post, connections between said handle-bars and the respective lever-arms for transmitting movement from one of said handle-bars to the other, and operative connection between said handle-bars and the driving-wheel.

4. In a bicycle propelling mechanism of the like, a clotted handle-bar head, a bolt-head having an eye and fitting between the parts of said handle-bar head, a bolt upon said bolt-head, a connecting-lever pivoted upon said bolt, a supporting-rod extending through said handle-bar head and through the eye of said bolt-head, and handle-bars mounted upon said supporting-rod.

5. In a bicycle propelling mechanism of the like, a handle-bar head having shoulders on opposite sides thereof, a bolt-head mounted on the handle-bar head and having laterally-extending ribs, a washer engaging said bolt-head and ribs, and the shoulders on the handle-bar head, whereby oscillation of said bolt-head is prevented, a bolt upon said bolt-head, and a lever upon said bolt.

6. In a bicycle propelling mechanism of the like, a handle-bar head having a recess therein, and shoulders on either side thereof, a bolt-head in said recess, a bar extending through said handle-bar head and said bolt-head, a washer engaging said bolt-head and extending over the same and upon the sides of the handle-bar head, said washer also engaging the shoulders upon the handle-bar head upon opposite sides of the said bar, a bolt upon said bolt-head and a lever upon said bolt; and handle-bars pivotally supported on the bar and engaging with the ends of said lever.

7. In a bicycle propelling mechanism of the like, the combination with a steering-head and driving-wheel, of a handle-bar made in two parts each capable of independent oscillating movement, an operating-lever clamped upon one part of said handle-bar and extending upon opposite sides thereof, an oscillatory lever connecting the two parts of the handle and interconnecting with one arm of the lever, and operative connections between the other arm of the lever and the driving-wheel.

8. In a bicycle propelling mechanism of the like, a handle-bar, an operating-lever having side plates connected together at one end, a block between the opposite ends of said side plates, a connecting-rod secured in said block, said lever being secured to the said handle-bar intermediate its ends, and a lever-operating member received between and engaged by the side plates between the handle-bar and the said connected ends of said plates.

9. In a bicycle propelling mechanism of the like, a handle-bar, a pedal-clamp upon the side of said handle-bar opposite the head and extending beyond the body portion of the handle, and a connecting-rod upon said handle and received between the head and the said clamp.

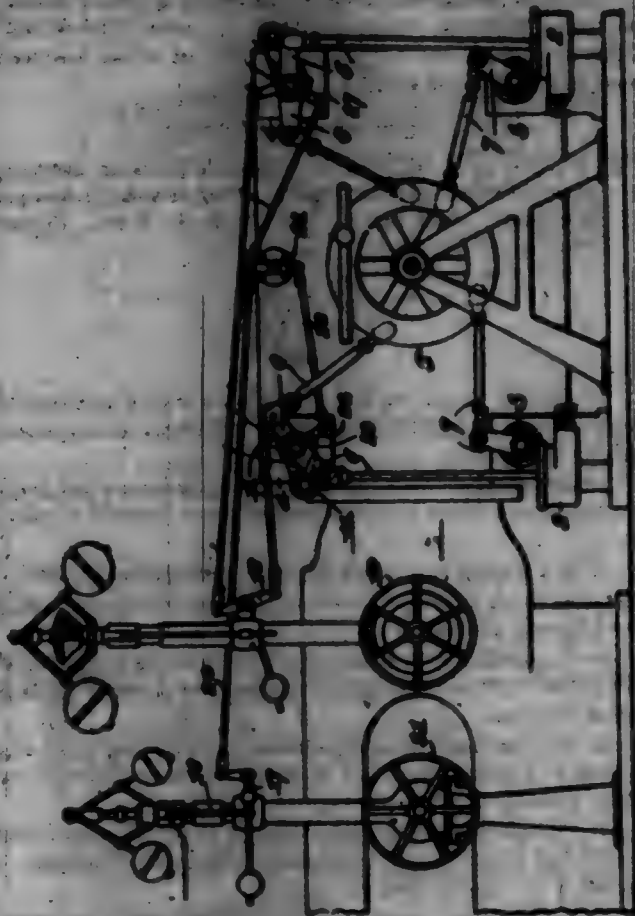
10. In a bicycle propelling mechanism of the like, the combination with a pedal-clamp, of a clamp comprising base-plates adapted to overlap, a plurality of complementary clamping members upon each of said base-plates, curved to fit said spindle, means located between the outer bearing edges of said clamping members for securing said base-plates together and an actuating-rod secured to said clamp.

701,762. ENGINE-GOVERNOR. JOHN F. VERN, St. Louis, Mo., assignor of one-half to Pullen Iron Works, St. Louis, Mo., a Corporation of Missouri. Filed July 20, 1901. Serial No. 69,619. (No model.)

Claim.—1. An engine having an inlet-valve, a dash-pot connected to said valve, suitable latching mechanism engaging said dash-pot, a governor, suitable connection between said governor and latching mechanism for tripping the latter when the engine reaches abnormally high speed; in combination with an auxiliary governor and suitable connection between said auxiliary governor and said latching mechanism for tripping the latter should said first-named governor fail to act.

2. An engine having an inlet-valve, a dash-pot connected to said valve, suitable latching mechanism engaging said dash-pot, a governor, a cam-disk adapted to be moved by the said governor to trip the latching

mechanism when the engine reaches abnormally high speed; in combination with an auxiliary governor, a cam-ring located within the first-mentioned ring and adapted to be moved by said auxiliary governor to trip the latching mechanism should the first-mentioned governor fail to act.



3. An engine having an inlet-valve, a dash-pot connected to said valve, suitable latching mechanism engaging said dash-pot, a governor, a cam-ring adapted to be moved by the governor to trip the latching mechanism when the engine reaches abnormally high speed; in combination with an auxiliary governor, a cam-ring located within the first-mentioned ring, an adjustable cam upon said inner ring, said cam adapted to be moved by said auxiliary governor and to trip the latching mechanism should the first-mentioned governor fail to act.

4. In an engine, the combination of the inlet-valve, governor and dash-pot; with latching mechanism engaging said dash-pot and a cam operated by said governor and tripping said latching mechanism to cause the steam-inlet valve to shut off the supply of steam when the engine reaches an abnormal rate of speed, of an auxiliary governor and a second cam operated by said auxiliary governor and tripping said latching mechanism in the event that the first-mentioned governor fails to act.

5. In an engine, the combination of an inlet-valve, a dash-pot connected to said valve, suitable latching mechanism engaging said dash-pot, a governor, an auxiliary governor, cam-rings, mounted one within the other upon said valve-stem, one upon said rings adapted to trip said latching mechanism, suitable connection between the first-mentioned governor and the exterior of said rings, whereby when the engine reaches abnormal speed said latching mechanism will be tripped, suitable connection between the auxiliary governor and the interior of said rings whereby said latching mechanism will be tripped if the first-mentioned governor fails to act.

6. In a double engine having a plurality of inlet-valves, a dash-pot connected to each of said valves, suitable latching devices for said dash-pots, a governor, suitable connection between said governor and latching devices for tripping the latter when the engine reaches abnormally high speed, an auxiliary governor, suitable connection between said auxiliary governor and said latching devices for tripping the latter should said first-mentioned governor fail to act.

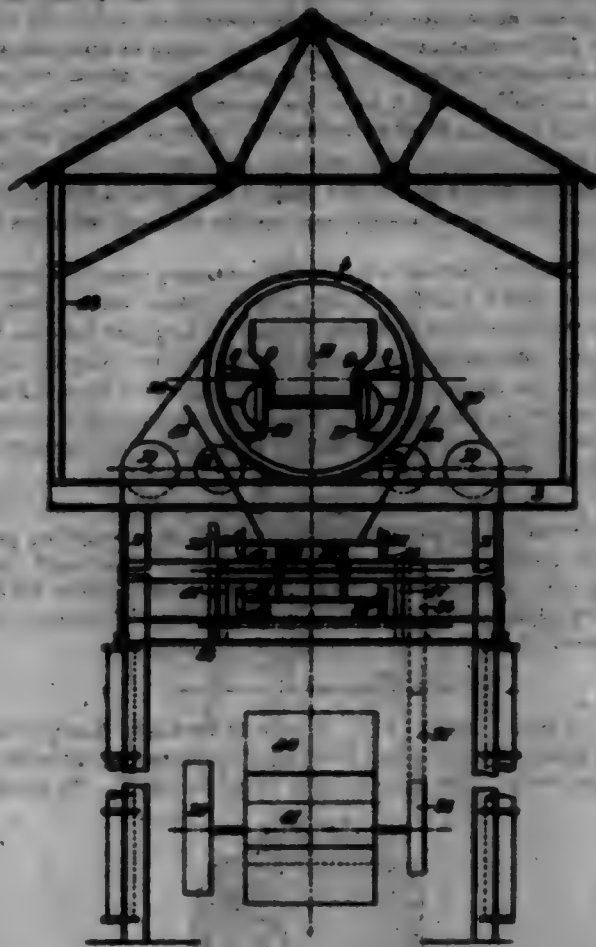
701,768. CARTRIDGE. JAMES CHERRY, Bridgeport, Conn., assignor to the Union Metallic Cartridge Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Feb. 24, 1898. Serial No. 56,078. (No model.)



Claim.—A cartridge having a ground wall and a grease-proof wall interspersed between the bullet and the powder, the grease-proof wall being composed of polyboard having a glazed grease-proof surface and fitting

snugly in the cartridge-shell and located between the powder and the ground wall.

701,764. REVOLVING CAR-DUMPING STRUCTURE. RICHARD RAINAY, Birmingham, Ala. Filed Dec. 12, 1898. Serial No. 52,708. (No model.)



Claim.—1. The combination with fixed track-rails, of a revolvable car-dumping structure provided with rails in alignment with the fixed track-rails and so arranged with relation to the axis of rotation of said dumping structure that the coupling-points of the cars will substantially coincide with the said axis of rotation, a hauling-rope connected to the cars substantially in line with said coupling-points, means for holding the cars in fixed relation to the dumping structure, and means for rotating said structure whereby one or more cars may be dumped by rotation of the dumping structure without uncoupling said cars from other cars, substantially as described.

2. The combination with fixed track-rails, of a revolvable car-dumping structure provided with rails in alignment with the said fixed track-rails and so arranged with relation to the axis of rotation of the said dumping structure that the coupling-points of the cars and the hauling-rope will substantially coincide with the axis of rotation of the dumping structure, a hauling-rope connected to the cars substantially in line with said coupling-points, means for holding the cars in fixed relation to the dumping structure, and means for rotating said structure whereby one or more cars may be dumped without detachment from the hauling rope or other cars, substantially as described.

3. The combination in a revolving car-dumping structure, of a revolvable structure consisting of a series of rings, side plates extending partly around and uniting said rings into a rigid structure of sufficient length to receive and hold one or more cars, a series of independent brackets secured to the opposite sides of the interior of said structure and having self-supporting ledges thereon, track-rails supported by ledges on said brackets, guard-rails carried by other ledges on the said brackets for holding the cars in fixed relation to the revolvable structure as it revolves, and means for causing said structure to revolve and dump the cars, substantially as described.

4. The combination, in a revolving car-dumping structure, of a revolvable structure having rails therein for receiving and holding a plurality of cars and guard-rails for holding the cars in fixed relation to the structure as the latter revolves, a ring on said structure, two ropes attached to the periphery thereof and leading in opposite directions, and a motor-cylinder having its piston-rod connected to one of the ropes on each side of the structure, substantially as described.

5. The combination, in a revolving car-dumping structure, of a revolvable structure comprising a series of rings, side plates extending partly around and uniting said rings into a rigid structure having an opening for

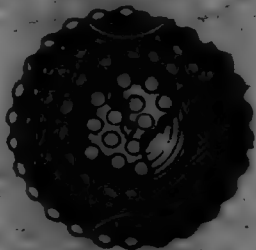
the passage of material, brackets secured to the inside of the structure, track-rolls mounted upon the brackets upon which the case may be run, guard-rolls for maintaining said case in fixed relation to the structure, a ring on said structure provided with grooves, ropes secured to said grooves and leading in opposite directions, a fixed frame upon which the reversible structure is rotatably mounted, guide-wheels over which the ropes lead, and a motor on each side of the structure having its piston-rod connected to one of the ropes, substantially as described.

6. The combination of a reversible car-dumping structure adapted to receive and hold a plurality of cars mounted upon a suitable frame and having an opening through which the material may pass from the cars, rails in said structure for receiving the cars, means for holding the cars in fixed relation to the structure, a conveyor-belt operating below the structure to receive the material as it is dumped from the cars when the structure is revolved, and means for revolving the structure, substantially as described.

7. The combination of a reversible car-dumping structure adapted to receive and hold a plurality of cars mounted upon a suitable frame and having an opening through which the material may pass from the cars, rails in said structure for receiving the cars, means for holding the cars in fixed relation to the structure, a conveyor-belt operating below the structure to receive the material as it is dumped from the cars when the structure is revolved, means for receiving the material from the conveyor, and means for revolving the structure, substantially as described.

8. A reversible car-dumping structure comprising a series of rings having internal lateral flanges at opposite sides, each extending partly around the periphery of the ring, plates secured to said flanges and making the rings into a rigid structure, brackets secured to the flanges of the rings and to the plates and having rail-supporting shelves or ledges, rails secured to said shelves or ledges, substantially as described.

701,785. GOLF-BALL. FRANK H. BERNARD, Hartford, Conn., assignor to The Kumpshall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1922. Serial No. 99,091. (No model.)



Claim.—1. A playing-ball comprising a shell compounded of fibrous material and celluloid, said shell being distended by a mobile mass of solid material injected therinto.

2. In a playing-ball, a spherical shell consisting at least partially of fabric and celluloid and distended by plastic material injected therinto.

3. In a playing-ball, a shell formed of a plurality of layers of celluloid and an intervening fabric layer; said shell being distended by a core of gutta-percha injected therinto.

4. In a playing-ball, a shell having a plurality of layers of fabric and a plurality of layers of celluloid, and distended by a core of gutta-percha injected therinto.

5. In a playing-ball, a shell formed of a plurality of layers of fabric compounded with plastic material and distended by a core of plastic material injected therinto.

6. In a playing-ball, an embossed shell formed of fabric and celluloid and distended by a gutta-percha core injected therinto; and a plug filling the injection-hole in the shell.

7. A playing-ball comprising an embossed shell of plastic material and fabric, said shell being distended by a core of plastic material injected therinto.

8. A playing-ball comprising a shell of fabric and celluloid, said shell being distended by a mobile mass of solid matter injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

9. In a playing-ball, a spherical shell consisting at least partially of fibrous material and celluloid and distended by plastic material injected therinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.

10. In a playing-ball, a shell formed of layers of celluloid and layers of fabric; said shell being distended by a core of gutta-percha injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

11. In a playing-ball, a shell having a plurality of layers of fabric compounded with celluloid, and distended by a core of gutta-percha injected therinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.

12. In a playing-ball, a shell formed of a plurality of layers of plastic material and fabric, and distended by a core of plastic material injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

13. In a playing-ball, a shell distended by a mass of mobile material injected therinto; said shell comprising layers of fabric and layers of fibrous material; and a layer of tensioned soft rubber intervening between said shell and said injected material.

701,786. GOLF-BALL. FRANK H. BERNARD, Hartford, Conn., assignor to The Kumpshall Manufacturing Company, a Corporation of New Jersey. Filed Mar. 24, 1922. Serial No. 99,092. (No model.)



Claim.—1. A playing-ball comprising a shell of gutta-percha, fabric and celluloid, said shell being distended by a mobile mass injected therinto.

2. In a playing-ball, a spherical shell consisting at least partially of gutta-percha and celluloid and distended by plastic material injected therinto.

3. In a playing-ball, a shell formed of gutta-percha, celluloid, and an intervening fabric layer; said shell being distended by a core of gutta-percha injected therinto.

4. In a playing-ball, a shell having an inner layer of gutta-percha and an outer layer of celluloid, and distended by a core of gutta-percha injected therinto.

5. In a playing-ball, a shell formed of a plurality of layers of different kinds of plastic material and distended by a core of plastic material injected therinto.

6. In a playing-ball, an embossed shell formed of gutta-percha and celluloid and distended by a gutta-percha core injected therinto; and a plug filling the injection-hole in the shell.

7. A playing-ball comprising a shell of cellulose or cellulose layers of gutta-percha and celluloid, said shell being distended by a core of plastic material injected therinto; and the outer of said layers being embossed.

8. In a playing-ball, a shell distended by a mass of mobile material injected therinto; said shell comprising a cellulose layer of gutta-percha isolated by a cellulose layer of fabric-lined celluloid.

9. A playing-ball comprising a shell of gutta-percha, fabric and celluloid, said shell being distended by a mobile mass injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

10. In a playing-ball, a spherical shell consisting at least partially of gutta-percha and celluloid and distended by plastic material injected therinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.

11. In a playing-ball, a shell formed of gutta-percha, celluloid, and an intervening fabric layer; said shell being distended by a core of gutta-percha injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

12. In a playing-ball, a shell having an inner layer of gutta-percha and an outer layer of celluloid, and distended by a core of gutta-percha injected therinto; and a layer of tensioned soft rubber intervening between said shell and said injected material.

13. In a playing-ball, a shell formed of a plurality of layers of different kinds of plastic material and distended by a core of plastic material injected therinto; and a layer of soft rubber intervening between said shell and said injected material.

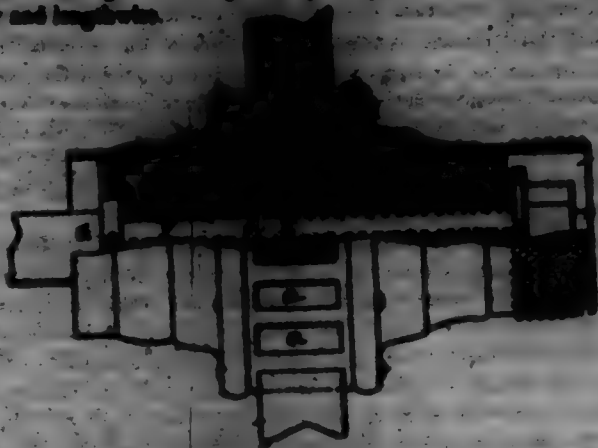
14. In a playing-ball, a shell distended by a mass of mobile material injected therinto; said shell comprising a cellulose layer of gutta-percha isolated by a cellulose layer of fabric-lined celluloid; and a layer of tensioned soft rubber intervening between said shell and said injected material.

701,787. VEHICLE-WHEEL. EDWARD BERNHARDT, Terre Haute, Ind. Filed Feb. 5, 1922. Serial No. 99,093. (No model.)

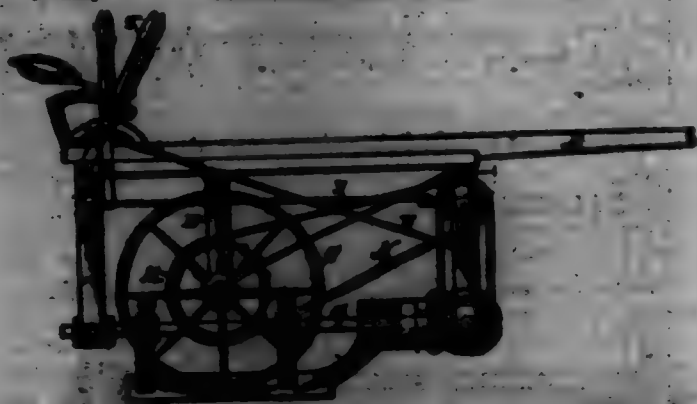
Claim.—1. A vehicle-wheel, consisting of a wooden body provided with a central enlargement having its ends lying substantially in planes perpendicular to its axis, metallic shells surrounding said body and provided with flanges fitting tightly against said enlargement, and lips on said flanges composed upon the outer surface of the enlargement.

2. In a vehicle-wheel, the combination with a wooden body provided with a central enlargement, of metallic shells surrounding the end portions of said body and having flanges fitting tightly against the ends of said enlargement, lips on said flanges comprising said enlargement.

radially, both clamping the flanges and subjugant together longitudinally, and splices having tapering stems-driven into said subjugant, the wood of the subjugant being thereby compressed and solidified both radially and longitudinally.



701,768. COTTON-CHOPPER. FRANK H. SHARP and LEWIS E. SHARP, Fort Dodge, Okla. Filed Aug. 6, 1901. Serial No. 71,000. (No model.)



Claim.—1. The improved cotton-chopper comprising a main frame, bent axle, and transporting-wheel, and a supplemental swinging frame which is pivoted to the main frame and adapted to swing in the direction of the travel of the machine, the means for suspension being here II arranged at front and rear as shown, a rotary shaft arranged longitudinally in the pendant frame and provided with a chopper, a horizontal shaft arranged in the front portion of the supplemental frame and geared with the chopper-shaft, a curved horizontal shaft supported in fixed bearings on the main frame, sprocket-gearing connecting the two horizontal shafts, means for imparting rotation to the upper horizontal shaft from one of the transporting-wheels, and lever mechanism for adjusting the swinging frame and connected parts forward or back and thus higher or lower without interrupting the operation of the chopper as shown and described.

2. The improved cotton-chopper, comprising the main frame transporting-wheel therefor, the supplemental frame comprising two pairs of bars pivoted to and pendant from each main frame, a rotary chopper carried in the supplemental frame, sprocket and bevel gearing connecting the chopper-shaft with one of the transporting-wheels, and a clutch, a rod and a hand-lever arranged as described, for throwing the chopper into and out of action, substantially as shown and described.

701,769. TALKING-MACHINE GAMING. HERMAN SUMNER, Philadelphia, Pa. Filed June 15, 1901. Serial No. 64,900. (No model.)



Claim.—The combination of the casing or inclosing structure, of the character described, a receptacle in the upper part of the case for a talking-machine, said receptacle having side supports for the base of said ma-

chine, receptacles arranged on either side of the talking-machine receptacle for the recording and reproducing needles and other parts of the machine, a compartment in the lower portion of the casing having a series of recesses or compartments for the records, said compartment adapted to swing outwardly to expose the records to view, a chamber or compartment to receive the base arranged between the talking-machine receptacle and the record-compartment, entrance to each chamber being at the side of the casing, and a door closing each entrance, said casing having an aperture registering with the winding-drum of the talking-machine when the latter is in place, such aperture being closed by the door of the base-compartment.

701,770. MACHINE FOR TREATING FLAX OR HEMP STRAW. JOHN T. SUMER, Haven Lake, Minn. Filed Sept. 7, 1900. Renewed June 17, 1901. Serial No. 64,900. (No model.)



Claim.—1. The combination, with a threshing-cylinder and concave, of a straw-rack wherein the material is delivered from said cylinder, a guide or feed board provided beneath the discharge end of said rack, a series of crushing-rolls provided near said straw-rack to receive the material from said feed-board, and a vertically-swinging carrier provided above said crushing-rolls and adapted to drop below the discharge end of said straw-rack and divert the material from said feed-board and crushing-rolls, substantially as described.

2. The combination, with a threshing-cylinder and concave, of a shaking straw-rack adapted to receive material therefrom, a removable feed-board provided beneath the discharge end of said straw-rack, crushing-rolls to receive the material from said feed-board, a vertically-swinging carrier provided above said crushing-rolls and adapted to drop below said straw-rack and divert the material from said feed-board and crushing-rolls, and a blast-fan arranged to receive the material from said crushing-rolls and from the discharge end of said carrier.

3. The combination, with a threshing-cylinder and concave, of a shaking straw-rack adapted to receive the material from said cylinder, a floor 40 beneath the lower end of said rack to receive the chaff and refuse material therefrom, a floor 44 beneath the upper portion of said rack and adapted to direct the material falling thereon to the receiving-floor 40, a hopper near the discharge end of said floor 40, a blast-fan communicating therewith, a series of crushing-rolls adapted to receive the straw from the discharge end of said rack and crush the woody portions and under-run said rolls, a perforated floor beneath said rollers adapted to discharge the fine material falling thereon into said hopper, a seed pan or plate beneath the perforated portion of said floor, and a conveyor to receive the seeds from said pan, substantially as described.

4. The combination, with a shaking straw-rack, of a feed-board be-

neath the discharge end of the same, a series of crushing-rolls provided near said feed-board and adapted to receive the straw from said rack and crush the woody portions and separate the fiber therefrom, a beater adapted to receive the material from said crushers, a perforated floor provided beneath said crushers and beater, a hopper adapted to receive the chaff and fine material falling upon said floor from said crushers, a blast-fan connected with said hopper, a seed-pan provided beneath the perforated portion of said floor, and a transverse conveyor adapted to receive the seeds from said pan.

5. The combination, with a threshing-cylinder and concave, of a straw-rack where the material is delivered from said cylinder a series of crushing-rolls provided near the discharge end of said rack to receive the straw therefrom, and a vertically-oscillating carrier provided above said crushing-rolls and adapted to drop its free end below the discharge end of said rack, whereby the material will be directed from said rolls, substantially as described.

6. The combination, with a straw-rack and feed-board provided beneath the discharge end of said rack, of a series of crushing-rolls adapted to receive the straw from said feed-board, and a vertically-oscillating carrier provided above said crushing-rolls and adapted to drop below the discharge end of said rack to divert the straw from said feed-board and said rolls, substantially as described.

7. The combination, with a shaking straw-rack, of floor whereon chaff and fine material are discharged from said rack, a hopper adapted to receive the chaff and waste material from said floor, a blast-fan connected with said hopper, a discharge-pipe through which the waste material is directed to the side of the machine, a feed-board provided beneath the discharge end of said rack, crushing-rolls to receive the straw from said board, and means provided beneath said crushing-rolls and adapted to receive the chaff therefrom and direct it to said hopper, substantially as described.

8. The combination, with a shaking straw-rack, of the floor provided beneath the same and adapted to receive the chaff and other waste material, a hopper beneath said rack and adapted to receive the chaff from said floor, a blast-fan connected with said hopper, a discharge-pipe extending laterally with respect to said hopper and fan and through which the waste material is directed to the side of the machine, a feed-board beneath the discharge end of said rack, crushing-rolls adapted to receive the straw from said feed-board, means provided beneath said crushing-rolls to receive the chaff and fine material therefrom and direct it to said hopper, means for receiving the seed separated from the straw by the action of the crushers, and a conveyor where the seed so separated is delivered, substantially as described.

9. The combination, with a shaking straw-rack, of a feed-board beneath the discharge end of the same, a series of crushing-rolls provided near said feed-board and adapted to receive the straw from said rack and crush the woody portions and separate the fiber therefrom, a perforated floor provided beneath said crushers, a hopper adapted to receive the chaff and fine material falling upon said floor from said crushers, a blast-fan connected with said hopper and a discharge-pipe through which the waste material falling into said hopper is directed to the side of the machine, substantially as described.

10. The combination, with a threshing-cylinder, of a straw-rack whereon the straw is delivered from said cylinder, floors provided beneath said rack to receive the chaff and other waste material, a transverse conveyor to receive the seeds from said floor, a repeat-elevator connected with said conveyor and adapted to return the seeds to said cylinder, a hopper provided near the discharge end of said floor to receive the chaff and waste material therefrom, a blast-fan connected with said hopper, a feed-board beneath the discharge end of said rack, crushing-rolls to receive the straw from said feed-board, and means provided beneath said rolls for receiving the chaff therefrom and delivering it to said hopper, substantially as described.

11. The combination, with a threshing-cylinder and concave, of a shaking straw-rack adapted to receive the material from said cylinder, a floor 40 beneath the lower end of said rack to receive the chaff and refuse material therefrom, a floor 44 beneath the upper portion of said rack and adapted to direct the material falling thereon to said floor 40, a hopper near the discharge end of said floor 40, a blast-fan communicating therewith, a series of crushing-rolls adapted to receive the straw from the discharge end of said rack to crush the woody portions and separate seed-balls and means provided beneath said crushers to receive the fine material falling therefrom and direct it into said hopper, substantially as described.

12. In a machine for treating flax and hemp straw, the combination with straw-shaking means, of a mechanism located beneath said shaking means to receive the chaff therefrom and deposit it at the side of the machine, crushing-rolls provided near said straw-shaking means, a feed-board near the discharge end of said shaking means to direct the straw therefrom to said rolls, and means provided beneath said rolls to direct

the chaff separated thereby to said chaff-receiving mechanism, substantially as described and for the purpose specified.

13. In a machine for treating flax and hemp straw, the combination with a shaking straw-rack, of means located beneath said rack to receive the chaff therefrom and convey it to one side of the machine, a feed-board beneath the discharge end of said rack, crushing-rolls near said feed-board to receive the straw therefrom, and a perforated floor provided beneath said crushers to receive the chaff and the seeds separated by the action thereof, and said conveyor being adapted to direct the chaff back to the chaff-receiving mechanism beneath said rack, while the seeds pass through said perforations, substantially as described.

14. In a machine for treating flax and hemp straw, the combination, with the threshing-cylinder, of a choker where the straw is delivered from said cylinder, means provided beneath said choker to receive the chaff and other waste material therefrom and direct it to the side of the machine, a transverse conveyor to receive the seeds separated by the action of said choker, a repeat-elevator connected with said conveyor and adapted to return the seeds to said cylinder, a feed-board provided beneath the discharge end of said rack, crushing-rolls to receive the straw from said board, and means provided beneath said rolls to receive the chaff therefrom and convey it back to the chaff-receiving means beneath said choker, substantially as described and for the purpose specified.

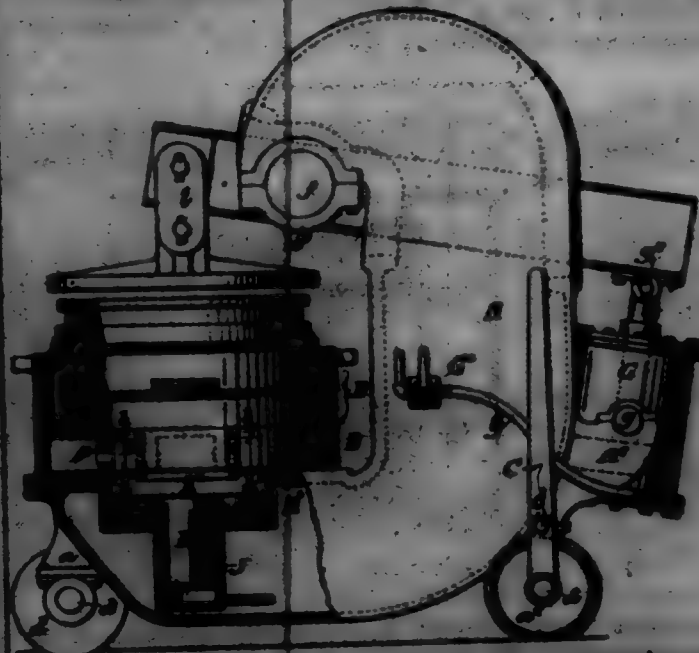
701,771. FREDERICK. RAMON R. BROWN, Newark, and JAMES H. RAM, Brooklyn, N. Y. Filed Oct. 25, 1899. Serial No. 24,695. (No model.)



Claim.—1. The U-shaped adjustable brace in combination with the flanged post, the said brace being pivotally secured thereto, and terminating in the curved neck, the same being threaded at its end and adjustably secured by the nuts to the flange of the post.

2. The combination with the U-shaped adjustable brace and centrally-flanged post, said brace being pivotally secured thereto, and terminating in the curved neck; of the tie-rod 5 threaded at its ends and having securing-nuts, and the angled U-shaped brace 6 all arranged and operating substantially as described and for the purpose set forth.

701,773. HOLLAND-REARER. JAMES STUART, Wilmington, Del., assignor to Lobell Car Wheel Company, Wilmington, Del., a Corporation of Delaware. Filed June 25, 1899. Serial No. 65,125. (No model.)



Claim.—1. The combination in a machine for pressing wheels, of a main casting forming an integral frame, a carriage for a mold, and a support.

part for the same carried by said frame, a lever pivoted to the frame and extending through an apertured portion of the main casing containing the same, a pressure-plate connected to the lever, a cylinder carried by the frame, and a piston in the cylinder connected to the lever with means for supplying fluid under pressure to the cylinder, substantially as described.

2. The combination of a frame having a table, a yielding support carried by said table, laterally-extending rails in line with said support, a carriage mounted on the rails and arranged to be moved onto the yielding support, and means for pressing the mold carried by the carriage, a portion of said carriage being over the table and constructed to engage a fixed portion of said table when pressure is applied to a mold, substantially as described.

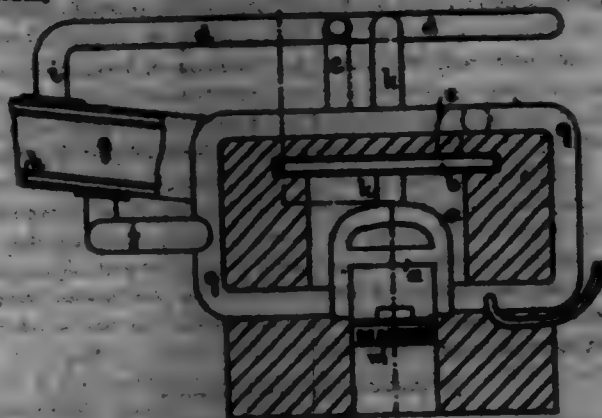
3. The combination of a frame, a table, beams extending from said table, a carriage, wheels on said carriage arranged to travel on the beams, means for pressing the mold mounted on the frame, a cylinder under the table, a plunger in said cylinder, a frame carried by said plunger and arranged to support the wheels of the carriage, with means for supplying fluid to the cylinder, the fluid in said cylinder being under such pressure that during the process of pressing the mold the carriage will rest directly upon the table and relieve the wheels from pressure, substantially as described.

4. The combination of a frame, a table, beams extending on each side of the table, one or more carriages mounted on the beams, a cylinder pivoted to the frame, a lever also pivoted to the frame, a piston mounted within said cylinder and connected to the long arm of the lever, a pressure-plate hung from the short arm of said lever, means for admitting fluid under pressure to the cylinder, said carriages having portions placed to rest upon the table independently of the supporting-frame when the machine is operated, substantially as described.

5. The combination of a frame, a table, beams carried by said table and extending from each side thereof and forming rails, one or more carriages mounted on said rails and arranged to receive the mold to be pressed, a cylinder below the table, a plunger in said cylinder, a frame carried by said plunger and having flanges in line with the beams so that the carriage can be transferred from the beams onto the flanged frame, a lever pivoted to the upper end of the main frame of the machine, a pressure-plate connected to the lever and mounted directly above the table, and means for operating the lever, substantially as described.

6. The combination of a frame, a table, a carriage, a support therefor yieldingly mounted on the table, means on the frame for pressing the mold on said carriage, the latter having portions placed to rest upon the table whereby it is carried independently of the support when the pressing means is operated, substantially as described.

701,778. WATER-HEATING APPARATUS. RICHARD SCOTT, Windsor, England. Filed Jan. 10, 1908. Serial No. 64,882. (No model.)

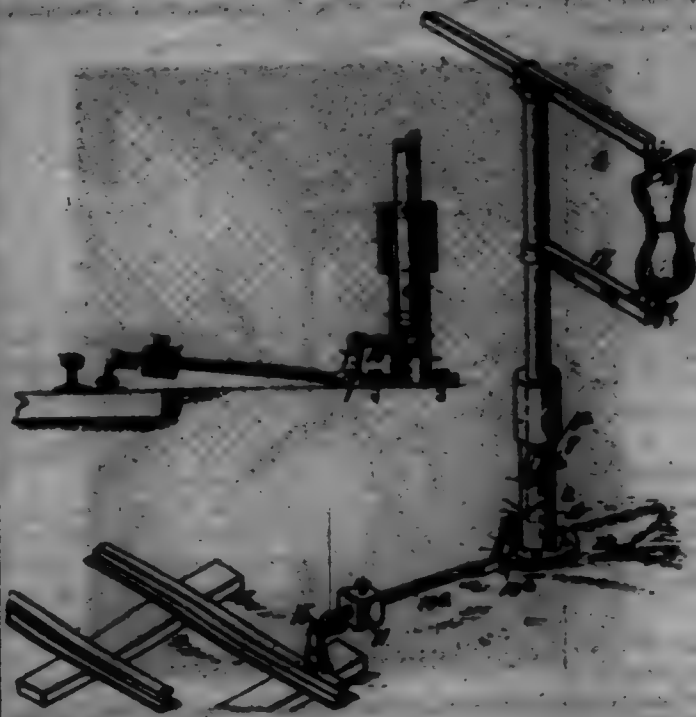


Claim.—A water-heating apparatus comprising the boiler, and its fire-box, a hollow metallic water-chamber extending horizontally above the boiler in the path of the products of combustion, an offshoot or main flow-pipe leading from the boiler, a pipe connecting the said water-chamber with said main flow-pipe, a return flow-pipe leading to the boiler, a pipe connecting the said water-chamber with said return flow-pipe, a smoke-flue leading from the fire-box, a water-jacket surrounding the said flue, a pipe connecting said water-jacket with said main flow-pipe, and a second pipe connecting said water-jacket with said return flow-pipe; substantially as described.

701,774. MAIL-BAG GRABER. LEONARD E. GORDON, Boston, Mass., Ind. Filed Feb. 22, 1908. Serial No. 65,740. (No model.)

Claim.—1. In a mail-car, the combination of a standard, a mast mounted to rotate in said standard and bearing arms constructed to support a mail-bag, means for rotating said mast, means for holding said mast

against rotation, said last-mentioned means being constructed to be operated by a passing train to release said mast and permit it to rotate, and carry the mail-bag supported by said arms toward said train within reach of the catcher on the mail-car, substantially as described.



2. In a mail-car, the combination with a standard, of a mast rotatably mounted on said standard and bearing arms constructed to support a mail-bag, means for rotating said mast from a position with its arms extending nearly parallel to the track into a position with its arms extending at right angles to the track, means for holding said mast against a movement of rotation, said latter means being constructed to be operated by a passing train to release said mast and permit it to swing around with its arms at right angles to the track, substantially as described.

3. In a mail-car, the combination of a standard having a V-shaped slot therein, a mast mounted in said standard and bearing a pin engaging said slot, arms on said mast for supporting a mail-bag, means for holding said mast against a movement of rotation, said means being arranged to be operated by a passing train to release said mast, to permit said arms to swing toward the said train to bring said bag into position to be engaged by the arm on the mail-car, substantially as described.

4. In a mail-car, the combination with a standard having a V-shaped slot therein, of a mast rotatably mounted on said standard and bearing a pin engaging said slot, an elbow-lever, a belt pivoted to the short arm of said lever and arranged to engage an aperture in said mast to hold it against rotation, a trip engaging the long arm of said lever, said trip being located to be operated by a passing train to release said lever and said mast, and permit it to swing around to bring the bag within reach of the catcher-arm, substantially as described.

701,775. JACQUARD-CARD AND METHOD OF MAKING SAME. JAN SCHNEIDER, Vienna, Austria-Hungary, assignor to Société des Inventions Jan Schepers & Co., Vienna, Austria-Hungary. Filed Mar. 10, 1908. Serial No. 65,739. (Continued.)

Claim.—1. The process of making weaving cards or designs, which consists in coating a suitable metallic plate with an organic film, photographically copying a weaving-pattern on said film, developing the latter to expose parts of the metal plate, substantially as described.

2. The process of making weaving cards or designs, which consists in coating a suitable plate with an organic film, coating this film with one or more coats of a transparent substance, then applying a second organic film, providing said plate with a suitable photographic record developing the second organic film, then exposing the plate to light and developing the first organic film, substantially as described.

3. The process of making weaving cards or designs, which consists in copying a disposition through a suitable screen on a divided metallic plate coated with an organic substance, developing and hardening said organic coating, substantially as described.

4. The process of making weaving cards or designs, which consists in coating a suitable metallic plate with a slow organic film, coating the latter with a transparent film, and then applying a second and more rapid organic coating, providing said plate with a suitable photographic record developing the second organic film, exposing the plate to light and developing the first organic film so as to expose parts of the metallic plate, substantially as described.

5. The process of making weaving cards or designs, which consists

in coating a suitable plate with an artistic pigment film, coating the pigment film with one or more coats of a non-conductive transparent substance, then applying an artistic coating, exposing said plate to a photographic dispositive, developing the outer artistic film, then exposing the developed plate to light and developing the pigment layer, substantially as described.



6. The process of making waving cards or designs, which consists in coating a suitable metallic plate with a slow artistic pigment film, coating the latter with a transparent non-conductive film, and then coating the latter with a more rapid artistic film, exposing the plate under a suitable photographic dispositive, developing the outer film, exposing the plate to light and then developing the second artistic film, substantially as described.

7. The process of making waving cards or designs, which consists in coating a suitable metallic plate with a slow artistic pigment film, then with a suitable lac, and then with a more rapid artistic film exposing the plate to a photographic dispositive and a suitable screen, thereby dividing the photographic record as to indicate the stitches of a weaver's pattern, developing the outer film, exposing the developed plate to light, removing the lac and developing the under film to expose parts of the metallic plate, substantially as described.

8. The process of making waving cards or designs, which consists in copying a photographic dispositive through a suitable screen on sensitized paper, developing the print, rendering the paper transparent, copying the print on sensitized pigment paper, developing this print, transferring the pigment film from the paper to a suitable metallic plate and hardening said pigment film, substantially as described.

9. The method of producing waving pattern cards or designs, which consists in coating an electrically-conductive support with an artistic film, copying a photographic plate through a suitable screen on said film, developing and fixing the latter to produce a positive, treating the film with a suitable chemical to cause the picture to fade out and washing to remove the dark portions on said plate to produce a negative picture, substantially as described.

10. A card or design for jacquard-weaving, comprising a metallic plate provided with a finished photographic record to indicate a waving-crown, substantially as described.

11. A card or design for jacquard-weaving, comprising a divided metallic plate provided with a finished photographic record to indicate a waving-stitch, substantially as described.

12. A card or design for jacquard-weaving, consisting of a divided metallic plate with a finished photographic record thereon having electrically conducting and non-conducting parts arranged to indicate a waving-crown, substantially as described.

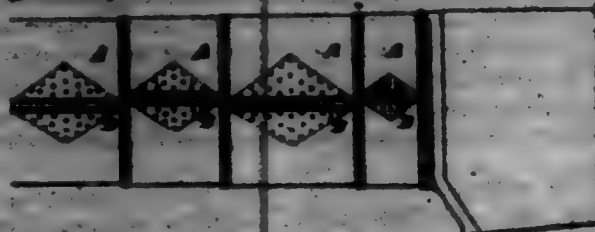
701,776. APPARATUS FOR MAKING HIGHT-CUTS FOR ICE-CREAM. ADOLPH VALUVA, Manchester, England. Filed July 12, 1901. Serial No. 60,902. (No model.)



Claim.—A combined mold and cover for producing blanch cups or dishes, consisting of two metal plates connected together by a hinge and provided with handles and means for opening said plates in closed position, the opening inner faces of the said plates being provided, one with a projecting rim and the other with an indented mold in the shape of such rim into which the one fits with a small space between the two, and the outer faces being so formed as to be adapted to rest on the top surface of a stove either side up so that heat may be evenly conducted through the body of the mold, all the heat absorbing and conducting films of the mold being of substantially the same thickness, whereby a cup may first be formed with the projections downward and afterward turned in the reverse position to facilitate the taking and allow the cup to be turned out of the mold, as and for the purposes described.

tion, the opening inner faces of the said plates being provided, one with a projecting rim and the other with an indented mold in the shape of such rim into which the one fits with a small space between the two, and the outer faces being so formed as to be adapted to rest on the top surface of a stove either side up so that heat may be evenly conducted through the body of the mold, all the heat absorbing and conducting films of the mold being of substantially the same thickness, whereby a cup may first be formed with the projections downward and afterward turned in the reverse position to facilitate the taking and allow the cup to be turned out of the mold, as and for the purposes described.

701,777. MEAN OR MEET FOR STRAIN-BULDER. SAMUEL M. VANLARK, Philadelphia, Pa., assignor to Burroughs, Williams & Company, Philadelphia, Pa., a Firm. Filed Jan. 2, 1901. Serial No. 60,100. (No model.)



Claim.—1. The combination of two plates to be joined together, with a cover-plate secured to the said plates by rivets arranged on lines diagonal to the line of fracture, substantially as described.

2. The combination of two plates to be joined together, with a cover-plate secured to the said plates by rivets arranged on lines diagonal to the line of fracture, the diagonal lines being such that the combined distance between the rivet-holes will be as great or greater than the width of the plates to be joined, substantially as described.

3. The combination of the two plates one abutting the other, a cover-plate, rivets securing the abutting plates to the cover-plate, said rivets being on lines diagonal to the line of fracture and forming a diamond, so that the combined distance between the rivets on each side of the joint will be greater than the width of the plate, substantially as described.

4. The combination of the two abutting plates, an outside cover-plate, an inside cover-plate in the form of a diamond with a row of rivets on each side of the joint, securing the cover plate and strip to the plates to be joined, and a diagonal row of rivets securing the inside cover-plate to the plates to be joined, substantially as described.

5. The combination of the two abutting plates, a cover-strip secured to each plate by a single row of rivets, a diamond-shaped plate also secured to the abutting plates by the said rivets, with a row of rivets securing the said plate to the abutting plates on diagonal lines, the outer rivets being further from the seam than the end rivets, so that the seam will be stronger than the plates secured together with the exception at the point where the outer rivets pass through the plate, substantially as described.

6. The combination of the abutting plates A, A, the cover-strip B, the inside cover-strip D in the form of a diamond, a row of rivets c securing the outer cover-strip and the inner cover-strip to the abutting plates, a row of rivets e arranged on an angle to the joint and adjacent to the edge of the diamond-shaped plate, substantially as described.

7. The combination of the abutting plates A, A, the cover-strip B, the inside cover-strip D in the form of a diamond, a row of rivets c securing the outer cover-strip and the inner cover-strip to the abutting plates, a row of rivets e arranged on an angle to the joint and adjacent to the edge of the diamond-shaped plate, with a series of rivets within the diamond securing the body of the diamond-shaped plate to the plates to be joined, substantially as described.

701,778. FERTILIZER-DISTRIBUTER. THOMAS J. WAGGONER, Philadelphia, Pa. Filed Oct. 12, 1901. Serial No. 70,002. (No model.)



Claim.—1. The combination with the scraper, of a flexible roller journaled across the rear end of the scraper, and star-wheels mounted on the journals of the roller to rotate it.

2. In a fertilizer-distributor, the combination with a suitable wheeled support, of a scraper adjustably and independently supported at each end, means to raise, lower, and tilt the scraper, a toothed roller journaled at the rear end of the scraper, and star-wheels on the journals thereof to turn the rollers.

3. In a fertilizer-distributor, the combination with a wheeled supporting-frame, of a scraper, a toothed roller journaled at the rear end of the scraper, star-wheels on the journals thereof, suspension-bars at the front end of the scraper, a lever to raise and lower the said bars, suspension-bars at the rear end of the scraper, and a lever to raise and lower the said bars.

701,779. PLANTER. JOHN E. WARDEN, Stephenville, Tex.
Filed Dec. 8, 1901. Serial No. 94,885. (No model.)



Claim.—1. In a seed-planter, the combination with a frame, of opposite supporting-wheels having journals, vertically-yieldable bearings carrying the journals and having opposite longitudinal slots, guide-pins carried by the frame and passed through the respective slots, and a seed-dropping hopper located between and carried by the wheels.

2. In a seed-planter, the combination with a frame, of opposite supporting-wheels having journals, vertically-movable bearings carrying the journals and provided with opposite longitudinal slots, one end of each bearing being provided with a laterally-projected stop-flange overlapping a portion of the frame to limit the movement of the bearing, and a seed-dropping hopper located between and carried by the wheels.

3. In a seed-planter, the combination of a frame having oppositely and rearwardly inclined handles, of vertically-angled guides carried by the handles and the sides of the frame, vertically-movable bearings mounted in the guides, wheels located within the frame and having journals mounted in the respective bearings, and a seed-dropping hopper carried by and rotatable with the wheels.

4. In a seed-planter, the combination with a frame, of upper and lower guide-loops carried by opposite sides of the frame, vertically-movable bearings mounted in the respective pairs of upper and lower guide-loops and provided at opposite ends with longitudinal slots, transverse pins entering the slots, a pair of supporting-wheels located within the frame and having journals which are mounted in the respective bearings, and a seed-dropping hopper carried by and rotatable with the wheels.

5. In a seed-planter, the combination with a frame, of handles inclined oppositely and rearwardly from the front portion of the frame, of guide-loops upon the handles and the respective sides of the frame, transverse pins extending across the loops, vertically-movable bearing-plates mounted in the respective pairs of upper and lower loops and having terminal bifurcations receiving the pins, the upper ends of the plates being provided with outwardly-directed stop-flanges overhanging the handles, a pair of supporting-wheels located within the frame and having journals mounted in the bearings, and a seed-dropping hopper carried by and rotatable with the wheels.

6. In a planter, the combination with a substantially rectangular frame, a draft connection at the forward end thereof, an opener located in rear of the draft connection, standards rising from the rear end of the frame, covers carried by the lower ends of the standards, handles extending upwardly and rearwardly from the front of the frame and connected to the tops of the standards, vertically-angled guide-loops carried by the handles and the sides of the frame, transverse pins extending across the loops, vertically-yieldable bearing-plates mounted in the guides and having opposite terminal bifurcations receiving the pins, the tops of the bearing-plates being provided with outwardly-directed flanges overhanging the handles to limit the downward movement of the bearing-plates, a pair of supporting-wheels located within the frame and provided with journals mounted in the respective bearing-plates, a seed-dropping cylinder carried by and rotatable with the wheels, said cylinder having its greater diameter at its center and also provided with discharge-openings at its point of greatest diameter, and a covering-coller mounted within the rear portion of the frame.

701,780. SHUTTLE MECHANISM FOR SEWING-MACHINE.
CHARLES T. WARDEN, San Antonio, Tex., assignor of one-half to George A. Houser, San Antonio, Tex. Filed Dec. 11, 1900. Serial No. 30,648. (No model.)



Claim.—1. The combination of the shuttle provided in its upper side near its nose with a cavity or recess and in its rear end with an upright groove, and the carrier forming a cradle for the shuttle and provided at its front end with a horizontal arm entering the recess or cavity in the nose of the shuttle and having at its rear end an upright rib entering the upright groove of the shuttle, substantially as set forth.

2. The combination of the shuttle provided at its rear end with an upright groove and the carrier therefor provided with an upright rib entering said groove and also provided with means engaging the nose end of the shuttle and adapted to cooperate with the rib and groove at the heel of the shuttle to prevent movement centrifugally of the shuttle against the recovery, and the recovery, substantially as described.

3. A shuttle-carrier, substantially as described, provided with a horn to lap upon and receive the nose end of the shuttle, and also provided with a rib to enter a groove in the heel end of the shuttle whereby to secure said shuttle and prevent its rolling and the shuttle formed for cooperation with said carrier, substantially as described.

4. A shuttle having on its outer side at its nose an offset providing a space between the shuttle and recovery in rear of said offset, and the tension-spring arranged in the space in rear of said offset and connected with the shuttle, and a carrier for said shuttle constructed to hold the shuttle from outward movement, substantially as set forth.

5. The combination of the shuttle open at its top and outer side whereby to expose the bobbin to view, and provided in its upper side near its nose with a cavity or recess for the nose of the carrier, and provided in its rear end with an upright groove, and the carrier having the horn extending horizontally over the nose of the carrier and entering the recess therein and provided with an upright rib entering the groove in the heel of the shuttle, the latter being constructed by the carrier at its side next the recovery and provided with the tension device on each side, substantially as described.

6. A shuttle provided at its rear end with an upright groove formed to receive the rib of the carrier and also provided within the lower portion of the upper side of its nose with a recess to receive the point of the horn of the carrier, combined with the carrier having an upright lip fitting the rear groove of the shuttle and the horn engaged in the recess thereof, substantially as set forth.

701,781. TRAIL-SWITCH. STEPHEN F. WARDEN, Philadelphia, Pa. Filed Dec. 10, 1901. Serial No. 94,886. (No model.)



Claim.—1. In a switch-operating device, the combination with the fixed and the movable members of a switch, of a lever pivoted to the fixed member and in engagement with the movable member, with mechanism to be carried by a car for engaging the lever and thereby operating the said movable member of the switch, said lever being placed relatively to the movable member so that it projects in the rear of the point of said member and is engaged by said mechanism after the latter has passed said point, substantially as described.

2. In a switch-operating device, the combination with the body of a switch having a movable member pivoted thereto, of a lever pivoted both to the body portion and to the movable member of the switch, and mechanism to be carried by a car for engaging said lever on one of its pivots, and thereby operating the movable member of the switch, said lever being placed so that it is engaged by said mechanism after the latter has passed the point of the movable member, substantially as described.

3. The combination of a switch, including portions of a main and a branch track, a movable member therefor constructed to guide the wheel of a vehicle into either of said tracks, a lever pivoted to the body of the switch having one of its ends in engagement with the said movable member

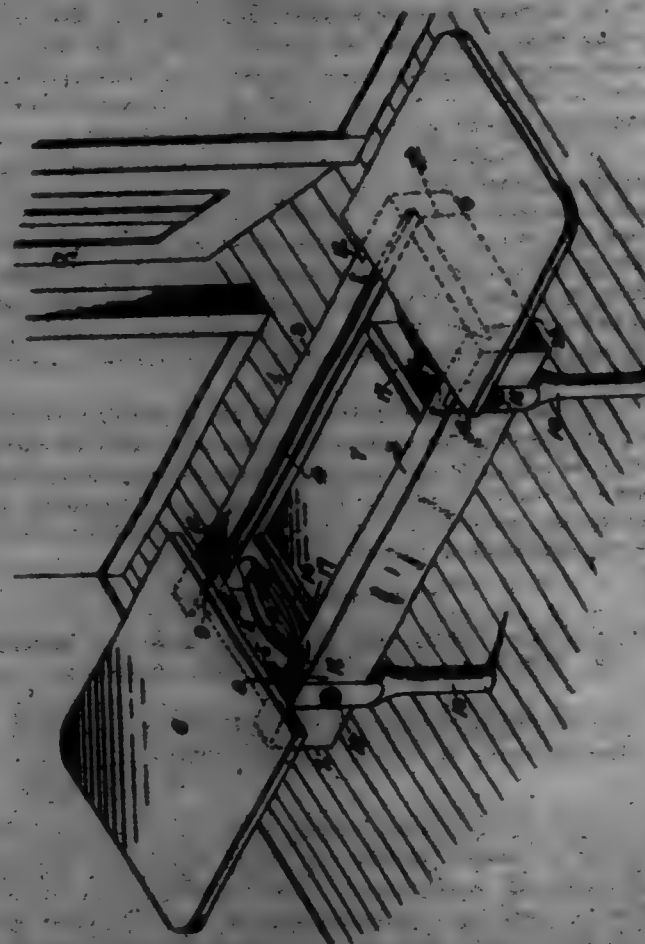
bar, and being placed so that the movable member projects beyond it at both ends, substantially as described.

4. The combination of a switch having a fixed and a movable member, a lever under the movable member in engagement with the same and pivoted to the fixed member, and a cam carrying a pivoted rod with means for bringing said rod to a level to contact with the lever to operate the movable member of the switch, said lever being placed on the switch so that the movable member extends beyond it at both ends, substantially as described.

5. The combination of a switch having a fixed and a movable member, a lever on the movable member in engagement with the same and pivoted to the fixed member, and a cam carrying a universally-movable rod, with means for normally retaining the rod in an elevated position, and means for depressing said rod at will to a level to contact with the lever, thereby operating the movable member of the switch, said lever being placed on the rear portion of the movable member, substantially as described.

6. The combination of a switch including portions of a main and of a branch track, a movable member to the switch, a lever pivoted to the body of said switch and engaging said movable member, so as to project in the rear of the point thereof, said lever being constructed to project to one side of the movable member toward the track for which said member is placed, a cam, and a device thereon provided with means whereby it may be caused to engage a projecting portion of said lever and thereby act the movable member of the switch for the other of the two tracks, substantially as described.

701,782. EXTENSION-TABLE. FRANKLIN WHITE, Landover, Md. assignor of one-half to Charles R. White, Landover, Md. Filed Feb. 28, 1902. Serial No. 95,735. (No model.)



Claim.—1. In an extension-table, the combination of a rigid frame having parallel grooved sides, a top formed in sections bearing guides mounted to slide in said grooves, and means for clamping said frame transversely of said sides to cause said sections against all movement, substantially as described.

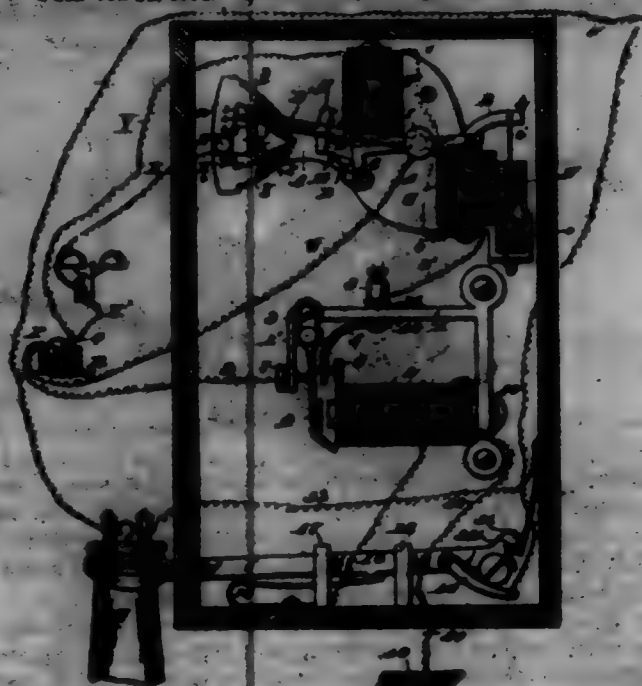
2. In a table, the combination of a frame having parallel grooved sides, a top formed in sections bearing guides mounted to slide in said grooves, the rods extending transversely of said sides and bearing turn-buckles constructed to be operated to clamp said guides against all movement, substantially as described.

3. In a knockdown table, the combination of a frame having parallel grooved sides, a top bearing guides mounted to slide in said grooves, legs detachably connected to said sides and having transverse apertures therein, the rods passing through said transverse apertures in said legs and said sides, and turn-buckles engaging said rods and constructed to be

operated to clamp said guides against all movement and to cause said legs, substantially as described.

4. In a table, the combination of a frame having parallel grooved sides and ends loosely fitted into said sides, a top comprising sliding sections bearing parallel guides slidably mounted in said grooves, the distance between the faces of said guides being greater than the length of said ends between shoulders, the ends fitting apertures in said sides, and turn-buckles mounted on said rods, substantially as described.

701,788. TELEPHONE-CALL FOR PARTY-LINE. WILSON A. WILLIAMS, CHARLES L. LAMAR, and JOHN R. WILSON, Waltham, Wash. Filed Oct. 22, 1901. Serial No. 95,348. (No model.)



Claim.—1. In a selective call for party-line, the combination with a graduated switch-support, of a contact-switch adjustably mounted on the said support and arranged to be fixed upon the same in a position for each station peculiar to that station and differing from all other stations, a movable contact-making piece arranged to traverse said support and its switch, a step-by-step actuating mechanism for said movable contact piece, and an electric circuit with signal device located therein, said circuit being completed through the switch and contact-making piece, substantially as and for the purpose described.

2. In a selective call for party-line, the combination with a curved and graduated switch-support, of a contact-switch adjustably mounted on said support and arranged to be fixed therein in a position for each station, peculiar to that station and differing from all other stations, a movable contact-making lever arranged to traverse said curved support for the switch, a step-by-step actuating mechanism for said lever, and an electric circuit with signal device located therein, said circuit being completed through said switch and lever substantially as described.

3. In a selective call for party-line, the combination with a graduated switch-support, of a contact-switch consisting of a contact-tongue and a guard extending over the same and made longer than the tongue, and insulated therefrom, said contact-switch being adjustably mounted on said support and arranged to be fixed therein in a position peculiar to that station and differing from all other stations, a movable contact-making piece arranged to traverse said switch-support and its switch, a step-by-step actuating mechanism for said movable contact-piece, and an electric circuit with signal device therein, said circuit being completed through the switch and contact-making piece, substantially as described.

4. A selective call for party-line having the same construction for all stations and comprising a graduated support for a differentiating-switch, and a single differentiating-switch of the same construction for all stations but located on the switch-support at a point thereon peculiar to that one station and differing from all other stations substantially as set forth.

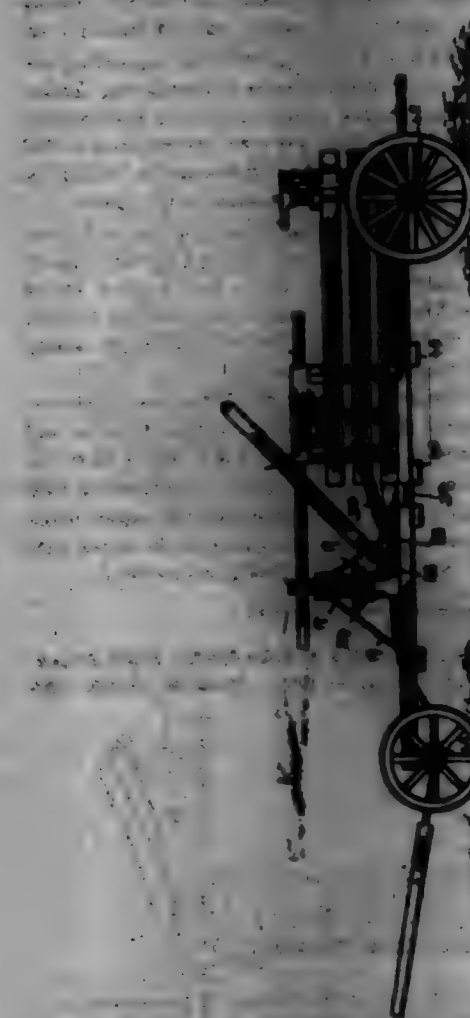
701,784. KITCHEN-CLAMP FOR FRAMING OR OTHER. JAMES F. ARNOLD, CHARLES L. ARNOLD, and CLAYTON R. ARNOLD, Springfield, Ohio. Filed Sept. 10, 1901. Serial No. 95,055. (No model.)

Claim.—1. A device of the character specified, the same consisting of a dog having a rectangular opening adapted to engage opposite sides of a cladding or joint, a handle to which said dog has a curved connection, and a locking-bar pivoted to said handle and adapted to engage with the cladding to lock the clamp in an operative position, substantially as specified.

2. In a clamp for laying siding or flooring, the combination of a handle, a dog adapted to engage with the sides of a cladding or joint, a curved connection between said dog and handle, the said handle being adapted to engage with the outer edge of the siding or flooring, which edge forms the fulcrum thereof in opening said handle to engage the dog with the cladding or joint, and a locking-bar having a pivotal connection with said handle and adapted to engage with the cladding or joint to hold the clamp in an operative position, substantially as specified.



701,785. RAILROAD-ENGINE. SYDNEY H. ARNOLD, Forester, Tex. assignor of two-thirds to L. A. Withers and Jessie Brown, Forester, Tex. Filed July 17, 1901. Serial No. 94,998. (No model.)



Claim.—1. In a hoisting-press, the combination with a hoisting-chamber, of a plunger extending therethrough, a power connected to and adapted to operate the plunger, and a coiled spring connecting the plunger and the hoisting-chamber, said spring being arranged to exert its tension during the outward movement of the plunger and retard such movement.

2. In a hoisting-press, the combination with a hoisting-chamber, of a plunger arranged therein, a power, means for connecting said plunger to said power, a cross-head upon the plunger and outside the hoisting-chamber, and springs connected to the ends of the cross-head and the hoisting-chamber for retarding the outward movement of the plunger from the chamber whereby the stroke of the plunger may be equalized.

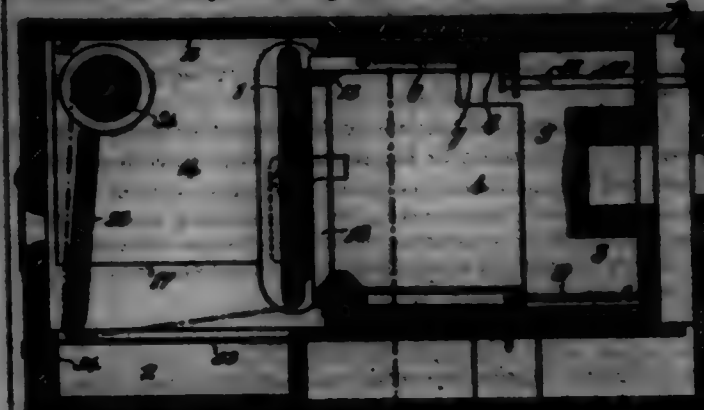
701,786. PHOTOGRAPHIC-CAMERA. EDWIN D. BASHNET, South Tottenham, London, England. Filed Mar. 11, 1902. Serial No. 97,728. (No model.)

Claim.—1. In a camera, the combination with a camera-box, of a removable section mounted in said box, a film-carrier carried by said section, and a collapsible lens-carrier mounted in said box.

2. In a camera, the combination with a camera-box, of a removable section mounted in said box, a rotary film-carrier carried by said section, and a sliding lens-carrier mounted in said box.

3. In a camera, the combination with a camera-box, of a removable

section mounted in said box, a rotary film-carrier carried by said section, and a collapsible, sliding lens-carrier mounted in said box.



4. In a camera, the combination with a camera-box, of a removable section mounted in said box, a rotary film-carrier carried by said section, and a collapsible, sliding lens-carrier composed of telescoping portions mounted in said box.

5. In a camera, the combination with a camera-box, of a removable section mounted in said box, a rotary film-carrier carried by said section, a rotary film-carrier-opening device in the wall of said section, and a collapsible lens-carrier mounted in said camera-box.

6. In a photographic camera, the combination with a camera-box, of a removable section carrying the film-support mounted in said box, horizontal ribs on said section for supporting it within said box, and distance-pieces for maintaining said section in proper position.

7. In a photographic camera, the combination with a camera-box, of a removable section carrying the film-support mounted in said box, horizontal ribs on said section for supporting it within said box, and a film-receptacle beneath said removable section.

8. In a photographic camera, the combination with a camera-box, of a removable section carrying the film-support mounted in said box, horizontal ribs on said section for supporting it within said box, a film-receptacle beneath said removable section, and light-enclosing strips carried by said removable section.

9. In a photographic camera, the combination with a camera-box, of a removable section carrying the film-support mounted in said box, horizontal ribs on said section for supporting it within said box, a film-receptacle beneath said removable section, and spring-pressed light-enclosing strips carried by said removable section.

10. In a photographic camera, the combination with the camera-box, of a removable section carrying the film-support mounted within said box, horizontal ribs on said section for supporting it within said box, distance-pieces for maintaining it in proper position therein, and a rotary coupling device to form a connection between the film carrier or support and a turning-bar.

11. In a photographic camera, the combination with a camera-box, of a removable section carrying the film-support, horizontal ribs on said section for supporting it within said box, distance-pieces for maintaining it in proper position, a film-receptacle beneath said removable section, a rotary coupling device to form a connection between said film-carrier and a turning-bar, and a winding-reel carried by said removable section.

12. In a photographic camera, the combination of a camera-box, of a removable section mounted in said box, a film-support carried by said removable section, a film-receptacle, and sliding light-enclosing strips bridging the opening between said receptacle and said removable section.

13. In a photographic camera, the combination with a removable section, of a film-support mounted therein, and a spring-pressed film-receptacle beneath said removable section.

14. In a photographic camera, the combination of a film-support and a collapsible sliding lens-carrier.

15. In a photographic camera, the combination of a film-support, and a collapsible sliding lens-carrier composed of telescoping portions.

16. In a photographic camera, the combination of a film-support, a collapsible sliding lens-carrier comprising two relatively movable portions, means for maintaining the portions in an extended position, and means for moving the lens-carrier bodily in a retracted direction, substantially as set forth.

17. In a photographic camera, the combination of a film-support, a collapsible sliding lens-carrier comprising two relatively movable portions, steps upon each of the portions, a spring for operating the portions so as to maintain the steps in contact with one another, and a spring for moving the lens-carrier bodily in a retracted direction, substantially as set forth.

18. In a photographic camera, the combination of a film-support,

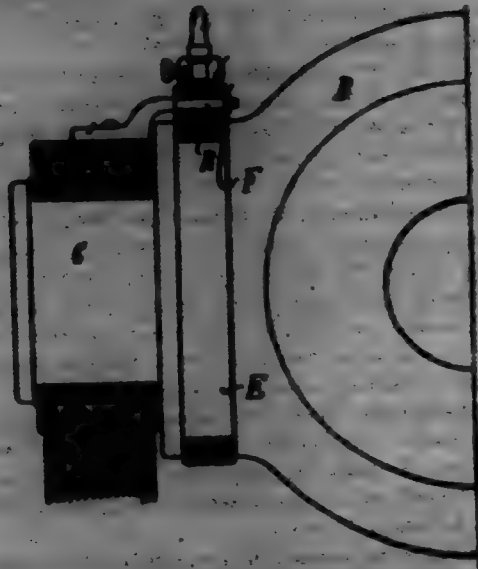
a collapsible sliding lens-carrier; and means for temporarily maintaining the said carrier in a collapsed condition, substantially as set forth.

19. In a photographic camera, the combination with a sliding lens-carrier, of means for moving said lens-carrier; and a cam device designed to temporarily delay the return movement of the carrier, substantially as set forth.

20. In a photographic camera, the combination with a sliding lens-carrier, of a locking device for maintaining the lens-carrier in one of its extreme positions, substantially as and for the purpose set forth.

21. In a photographic camera, the combination of a sliding lens-carrier, a retractable film-support for operating the carrier and a device for momentarily arresting the carrier in its return movement, substantially as and for the purpose set forth.

701,787. SHUTTER FOR CAMERA. JAMES BREWER, Essen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Feb. 2, 1901. Serial No. 92,276. (No model.)



Claim.—1. In combination with a gun having a tangent axis curved concentric to the trunnion, a front-sight carrier mounted independently of the tangent axis and rotatable about the axis of the trunnion, and an extension secured to a fixed part of the gun-mount in engagement with said front-sight carrier and holding it against rotation with the trunnion, so that the front sight maintains the same position for different elevations of the gun but is free to follow any lateral shifting of the trunnion in their bearings.

2. In combination with a gun having a tangent axis curved concentric to the trunnion, a front-sight carrier consisting of a ring, mounted in a groove in the trunnion independently of the tangent axis and rotatable about the axis of the trunnion; and an extension secured to a fixed part of the gun-mount in engagement with said front-sight carrier and holding it against rotation with the trunnion, so that the front sight maintains the same position for different elevations of the gun but is free to follow any shifting of the trunnion in their bearings.

3. In combination with a gun having a tangent axis curved concentric to the trunnion, a front-sight carrier consisting of a ring, mounted in a groove in the trunnion independently of the tangent axis and rotatable about the axis of the trunnion, and an extension secured to a fixed part of the gun-mount in engagement with said front-sight carrier and holding it against rotation with the trunnion, through the medium of a slide-block, on the end of said arm, and a slot in said carrier into which said slide-block enters, and has play, both vertically and parallel to the trunnion's axis, so that the front sight maintains the same position for different elevations of the gun but is free to follow any shifting of the trunnion in their bearing.

701,788. BINOCULAR MAGNIFYING-GLASS. BENJAMIN BROWN, Paris, France. Filed May 28, 1900. Serial No. 931,671. (No model.)



Claim.—A binocular optical glass for examining nearby objects, said glass having two prismatically-acting lenses inclined toward each other and arranged symmetrically with reference to the eye-axis of the user, to

transmit the visual rays to the two eyes in practically parallel lines, substantially as and for the purpose set forth.

701,789. CLOTHES-RACK. OWEN P. GALLAGHER, New York, N. Y. Filed Aug. 9, 1901. Serial No. 71,699. (No model.)



Claim.—1. In a clothes rack or drier, the combination with a base and a runner mounted to move vertically thereon; of means for raising and lowering the runner, a head-bracket mounted on said runner, a series of pivoted arms connected to said bracket, means for supporting said arms, said bracket comprising clamping members having notches to receive the inner ends of the pivoted arms, one of said head-bracket sections being provided with clamp-fingers and the other section provided with recesses to receive said fingers, and clamping means for holding the head-bracket sections together and securing the same to the runner.

2. In a clothes rack or drier, the combination with a base and a runner mounted to slide vertically thereon; of head and foot brackets mounted on said runner, arms pivotedly connected to the head-bracket, means for said arms having terminal hooks engaging openings in the foot-bracket, and stop projections on the outer side of the foot-bracket for preventing disengagement between the braces and foot-bracket.

3. In a clothes rack or drier, the combination with a base and a runner mounted to slide vertically thereon; of a bracket mounted on said runner a series of arms pivoted to said bracket and provided in their under side with sockets, a series of braces having pivotal connection with the runner and provided with stop-pins adapted to enter the sockets in the arms, and pivotal links interposed between said arms and the upper ends of the braces adjacent to the stop-pins, substantially as described.

701,790. SWITCH-OPERATING MECHANISM. FRED A. GARDNER, Penn Yan, N. Y. Filed Aug. 28, 1901. Serial No. 72,096. (No model.)



Claim.—1. In a switch-operating mechanism, the combination of a spring-actuated switch-point, a shifting bar connected therewith, a box or housing to receive said bar, a slide within said box, a tappet-pin projecting through a slot in the top of the box, and a lever connection between the shifting bar and slide as and for the purpose set forth.

2. In a switch-operating mechanism, the combination of a switch-point, means, on a spring, for holding said point in its normal position, a slotted plate between the main transverse to said switch, a slide beneath said plate, a pin connected with said slide projecting through the slot in said plate, and a yielding connection between said switch-point and said slide.

3. In a switch-operating mechanism, the combination of a switch-point, a shifting bar connected therewith, a box or housing to receive said bar, a slide within said box connected to said bar, a tappet-pin projecting through said slide and a slot in the top of the box, said pin projecting downward from said slide, a bar guided upon said slide and to which the tappet-pin is fastened, and springs on the ends to support said bar and allow for its depression.

701,791. AUTOMATIC CORRECTOR. RICHARD E. ANDERSON, Boston, Mass., assignor of one-half to Charles A. Hildreth, Boston, Mass. Filed Jan. 14, 1902. Serial No. 92,795. (No model.)

Claim.—The combination with the compression-link and handle; of the telescopic tubes *F* and *F'*, the former secured to the compression-link *A* and the latter secured to the handle, the screw-ping secured with the tube *F* at its upper end, the tubular shoulder formed integral with said screw-ping, the worm, the spiral formed integral therewith, and revolvably secured in the screw-ping located in the upper part of the tube *F*, a coil-spring surrounding the worm having its upper end secured to the tubular shoulder of the screw-ping, the nut to which the lower end of the coiled spring is secured, a channel formed through said nut corresponding to the form of the worm, and points located on the under side of the nut, substantially as described.



701,792. **WELL.** EDWARD E. ARTHUR, Ada, Okla., assignor of one-half to Ernest Oberlin, Ada, Okla. Filed Dec. 2, 1901. Serial No. 94,692. (No model.)



Claim.—1. In a drill, a stem, and a bit having interlocking portions provided with transversely-disposed aligned openings, and a key located within said openings, said key including a block having a journal-bearing, a wedge movable upon the block, and an actuating device journaled in the bearing of the block and being held against longitudinal movement therein, said actuating device having an engagement with the wedge to move it toward the journal upon the rotation of the actuating device.

2. In a drill, a stem, and a bit having interlocking portions provided with transversely-disposed aligned openings, and a key located within said openings, said key including a clamping-block having a journal-bearing, a wedge longitudinally movable upon the block, and a screw journaled in the bearing of the block and being held therein against longitudinal movement, said screw having a threaded engagement with the wedge to move it toward the journal upon the rotation of said screw.

3. In a drill, a stem, and a bit having interlocking portions provided with transversely-disposed openings, and a key located within said openings, said key comprising a pair of spaced blocks one of which is provided with an ear, a wedge movably located between the blocks to spread them apart, and an operating-screw journaled in the ear and held against longitudinal movement therein, said screw having a threaded engagement with the wedge, whereby upon its rotation said wedge will be moved.

4. In a drill, the combination with a stem and a bit having interlocking portions provided with transverse openings, the end walls of which are arranged out of alignment, of spaced clamping-blocks bearing against the opposite walls of the openings and having their inner walls arranged

in convergent relation, an ear secured to one of the blocks at their convergent ends, a wedge movable between the blocks, an operating-screw journaled in the ear and having its threaded end secured into the wedge, and a guard-plate fitted over the openings and covering the key.

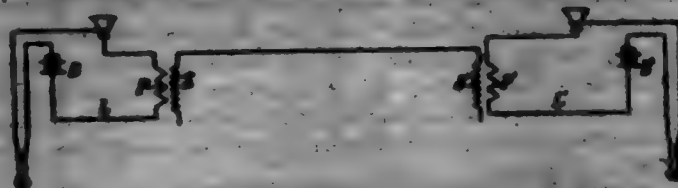
5. In a drill, a stem and a bit having interlocking portions provided with aligned openings, and a key removably mounted in the openings and comprising spaced clamping-blocks having parallel outer faces and inner faces disposed in inclined relation, one of said blocks having an ear projecting from its inner face, a wedge mounted between and slidable longitudinally of the blocks, an operating-screw journaled in the ear and having a threaded engagement with the wedge, and a guard-plate threaded upon the stem and covering the openings and the key.

701,793. **FRISURE-CAGE.** EDWARD C. BROWN, Boston, Mass., assignor to Crosby Steam Cages & Valve Company, Boston, Mass., a Corporation of Massachusetts. Filed July 2, 1902. Serial No. 729,502. (No model.)



Claim.—In a pressure-gage the combination of a Bourdon tube-spring with an elongated water-chamber entirely within the curve of the spring; said water-chamber having located within it a tube isolated from the internal walls; the upper end of said tube communicating with the upper portion of said chamber, and the lower end of said tube being connected with the steam-passage of the gage; substantially as described.

701,794. **TELEPHONE SYSTEM.** CHARLES C. BROWN, Brooklyn, N. Y., assignor of one-half to John G. A. Whittemore, Boston, Mass. Filed Feb. 14, 1901. Serial No. 67,191. (No model.)



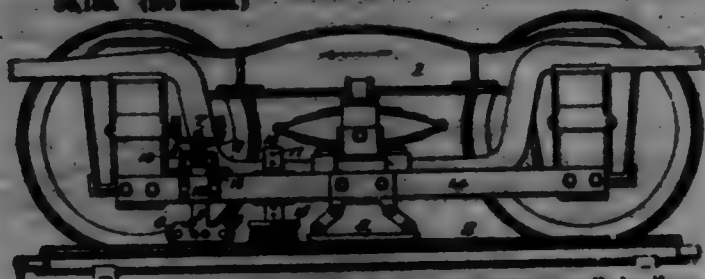
Claim.—1. In a telephone system the combination of local circuits and a line composed of a single ungrounded conductor, batteries and transmitters included in the local circuits, induction-coils having one terminal of the line-wire coils connected to the line conductor and their counter-wire coils included in the local circuits, and telephone-receivers connected up in the local circuits, as set forth.

2. In a telephone system the combination with a main line composed of a single ungrounded conductor, of local circuits, induction-coils having corresponding terminals of their line-wire coils connected to the line conductor, and their counter-wire coils included in the local circuits, and batteries and telephone-receivers connected up in the local circuits, as set forth.

3. In a telephone system, the combination with an ungrounded line conductor, of local circuits, induction-coils having corresponding terminals of their line-wire coils connected to the line conductor, and their counter-wire coils included in the local circuits, batteries and telephone-receivers connected up in the local circuits, supplemental induction-coils having their line-wire coils connected by corresponding terminals with the line-wire coils of the first-named induction-coils, and counter-wire coils in local

circuits, the free ends of the two-wire coils of the said two-wire induction-coils being connected with the corresponding ends of the three-wire coils of the supplemental induction-coils, and telephone-receivers in the local circuits of the three-wire coils of said supplemental induction-coils, as set forth.

701,795. MECHANISM FOR REMOVING ICE AND SNOW FROM THIRD-RAIL OR SIMILAR CONDUCTOR. EDWARD CHAMBERLIN and WALTER T. THOMPSON, Brooklyn, N. Y. Filed Apr. 3, 1901. Serial No. 54,124. (No model.)



Claim.—1. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of rotative members, one in advance of the other, supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, substantially as described.

2. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of rotative members, one in advance of the other, supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, and a brush in rear of said members for brushing the ice or snow from the conductor, substantially as described.

3. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of spring-pressed rotative members, one in advance of the other, supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, substantially as described.

4. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of spring-pressed rotative members, one in advance of the other, adjustably supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, substantially as described.

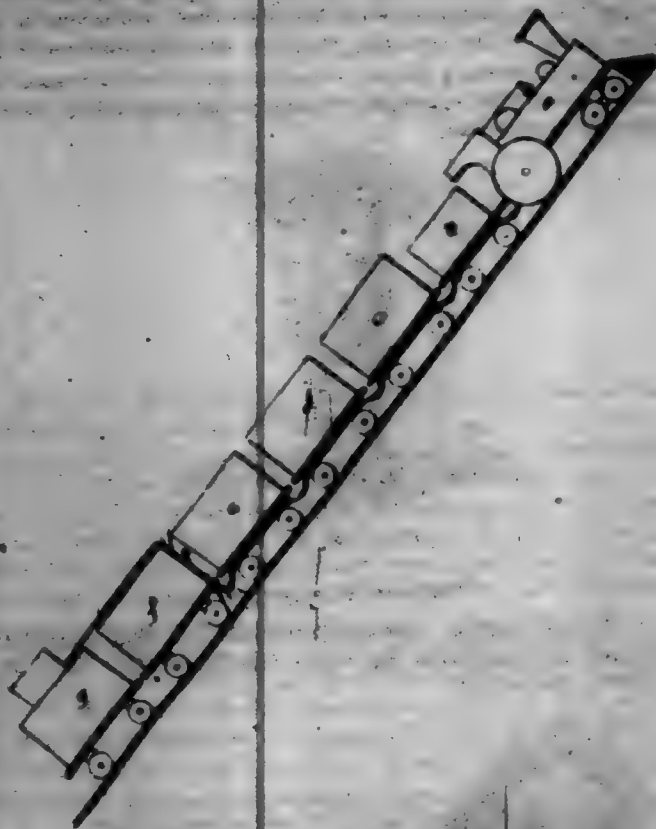
5. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said conductor, and bearing a pair of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, substantially as described.

6. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of spring-pressed bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said conductor, and bearing a pair of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, substantially as described.

7. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of spring-pressed bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said conductor, and bearing a pair of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, and brush 15 in rear of rollers 6, substantially as described.

701,796. AIR-BRAKE APPARATUS. WILLIAM L. CLARK, Col. wa, Iowa. Filed Dec. 20, 1900. Serial No. 57,348. (No model.)

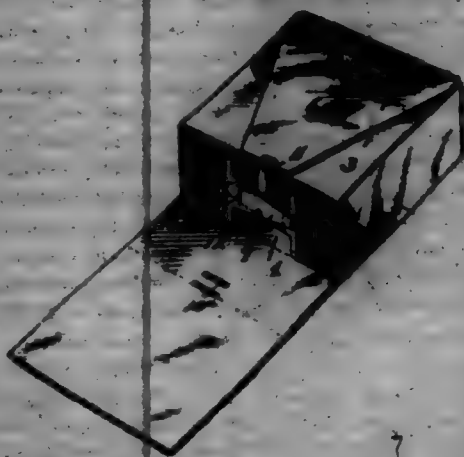
Claim.—1. In a device of the character described, the combination with a section of hose provided at one end with a coupling-head adapted to be attached to a train air-pipe and provided at its other end with a cock, and means connected to said cock for opening the same and automatically releasable from said cock after it has been opened, substantially as set forth.



2. In a device of the character described, the combination with a section of hose provided at one end with a coupling-head adapted to be attached to a train air-pipe and provided at its other end with a cock, and means connected to said cock for opening the same and automatically releasable from said cock after it has been opened, said means comprising a cord having a ring at one end which engages the handle of the cock, and a spring for holding said ring in place when the cock is in closed position and for permitting the withdrawal of the ring from the handle of the cock after the cock has been opened, substantially as set forth.

3. In a device of the character described, the combination with a section of hose provided at one end with a coupling-head adapted to be attached to a train air-pipe provided at its other end with a cock, means for opening said cock, and a clamp for removably connecting the hose in the end of a car, said clamp comprising a bar having at its rear end a jaw and at its forward end an upwardly-bent portion, a screw engaging said upwardly-bent portion, a pronged head swivelled to the inner end of said screw, and a yokehead for embracing and holding said hose, substantially as set forth.

701,797. BOX AND FASTENER. OTTO G. SLAYTON, Chester, Pa., Ind. Filed Oct. 12, 1901. Serial No. 78,428. (No model.)



Claim.—1. The combination in a box, having its front provided with a horizontal slit, of ends having front flaps provided with vertical slots and extensions having their ends inserted into the vertical slots to form a cheath within the box, and a metallic fastener secured to the cover of the box to be inserted through said horizontal slit into the cheath to engage the lower edges thereof.

2. The combination in a folding box, the front of which is provided

with a horizontal slit, of ends having front flaps provided with overlapping extensions, and a metallic fastener secured to the cover of the box to be inserted through said slit between the extensions and having oppositely-disposed turned-up ends to engage under the lower edges and embrace the sides of said extensions.

701,798. FIREARM. WILLIAM F. O'NEIL, Waco, Tex. Filed June 13, 1901. Serial No. 64,577. (No model.)

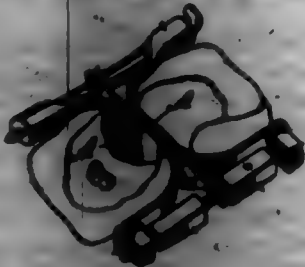


Claim.—1. The combination with a breech-loading gun having an elliptical bore, of a rearwardly-extended guiding-surface corresponding with the bore substantially as shown and described for the purpose specified.

2. A gun having an elliptical and twisted bore and its breech extension provided with opposite parallel guide-surfaces whose inclination or twist corresponds with that of the bore, whereby a ball-cartridge is guided while being inserted in such manner as to insure coincidence of its transverse axis with that of the bore and its proper insertion into the bore, as specified.

3. A breech-loading magazine firearm having an elliptical twisted bore and its frame provided interiorly with opposite longitudinal guide-rails arranged in due alignment with the barrel and their inner sides inclined or twisted corresponding to the bore of the gun, substantially as shown and described.

701,799. DENTAL MATRIX. WILLIAM CHAMBERLAIN, Atlanta, Ga. Filed July 27, 1901. Serial No. 65,965. (No model.)



Claim.—1. A dental matrix comprising flexible members, means connecting and cooperating with the members to cause the respective member to extend entirely around the inner surface of the tooth against which it bears and approximating the contour thereof, and serving, also, to adjust said members to cause them to bear toward each other to facilitate withdrawal from the tooth substantially as described.

2. A dental matrix comprising flexible members, means connecting and cooperating with the members to cause the respective member to extend entirely around the inner surface of the tooth against which it bears and approximating the contour thereof, and serving, also, to adjust said members to cause them to bear toward each other to facilitate withdrawal from the tooth, additional means carried by the members for placing them under tension, and means operating between the members for effecting additional pressure of a member upon a contacting tooth, substantially as described.

3. A dental matrix comprising members of reverse curvilinear form, means connecting with the members and adapted to cause them to approximate the contour of the portion of the tooth against which each bears, means for effecting tensioning of said members, additional means for effecting separation thereof while tensioned, and means for effecting displacement of said members to cause them to bear toward each other to facilitate withdrawal from the tooth, substantially as described.

4. A dental matrix comprising flexible members, means connecting and cooperating with the members to cause them to approximate the contour of the portion of the tooth against which it bears, and to bear toward each other to facilitate withdrawal from between the teeth, and a strip or tongue for insertion between the members for effecting separation thereof while bearing against the teeth, substantially as described.

5. A dental matrix comprising flexible members carrying means serving to cause the respective members to extend around the inner surface of the tooth against which it bears and approximating the contour thereof, and serving, also, to adjust said members to cause them to bear toward each other to facilitate withdrawal from between the teeth, and means for varying the bearing-surface of said members for application to different-sized teeth, substantially as described.

6. A dental matrix comprising two flexible, oppositely-disposed members adapted to be placed between adjacent teeth, a support constituting a connection between said members and carrying means for effect-

ing adjustment of the members to cause them to approximate the contour of the inner surface of the tooth against which they bear to give the face of the filling therein the general outline of the tooth and serving also to adjust said members to cause them to bear toward each other and away from the filling to facilitate withdrawal therefrom, substantially as described.

7. A dental matrix comprising flexible members adapted to be placed between adjacent teeth and formed, at contiguous ends, with tube-pieces, a distance-adjusting device disposed between the tube-pieces, and means at the opposite ends of the members for adjusting them to approximate the contour of the tooth and, also, cause them to bear toward each other to facilitate withdrawal from between the teeth, substantially as described.

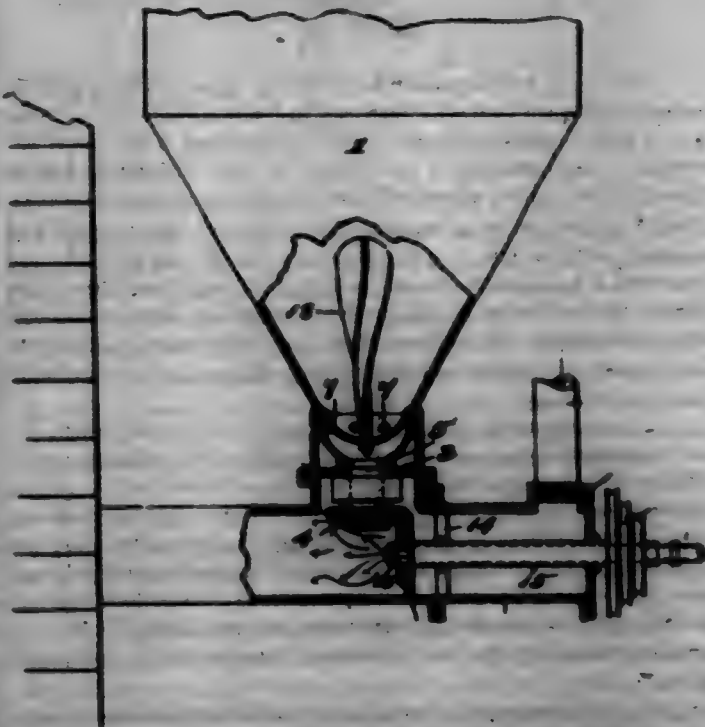
8. A dental matrix comprising members of reverse curvilinear form and provided at one end with a distance-piece, oppositely-threaded into secured at the free ends of said members, and an oppositely-threaded cover-rod adapted to engage said nuts to form an adjustable tension-bar for said members, substantially as described.

9. A dental matrix comprising members of a reverse curvilinear form and adapted to be placed between adjacent teeth, means carried by the outer ends of the members for effecting tensioning of the same, distance-pieces connecting with the inner ends of the members, one of said distance-pieces being replaceable, the parts being disposed and adapted to cause the members to bear toward each other to facilitate withdrawal from the teeth, substantially as described.

10. A dental matrix comprising members of reverse curvilinear form and adapted to be placed between adjacent teeth, means connecting with the members for tensioning them, said members being provided at contiguous ends with distance-pieces, and a strip or tongue having a pivotal connection with one of said pieces and adapted to extend between said members, substantially as described.

11. A dental matrix comprising flexible members adapted to be placed between adjacent teeth and formed, at contiguous ends, with tube-pieces, a distance-adjusting device, disposed between the tube-pieces, a pin adapted to engage the tube-pieces and distance-adjusting device to maintain them in relative position, and means engaging the remaining ends of said members for placing the same under tension, substantially as described.

701,800. FUEL-BURNER. CHARLES A. BALLY, Germantown, Pa., assignor of one-half to Nelson E. Whitaker, Wheeling, W. Va. Filed May 28, 1901. Serial No. 61,964. (No model.)

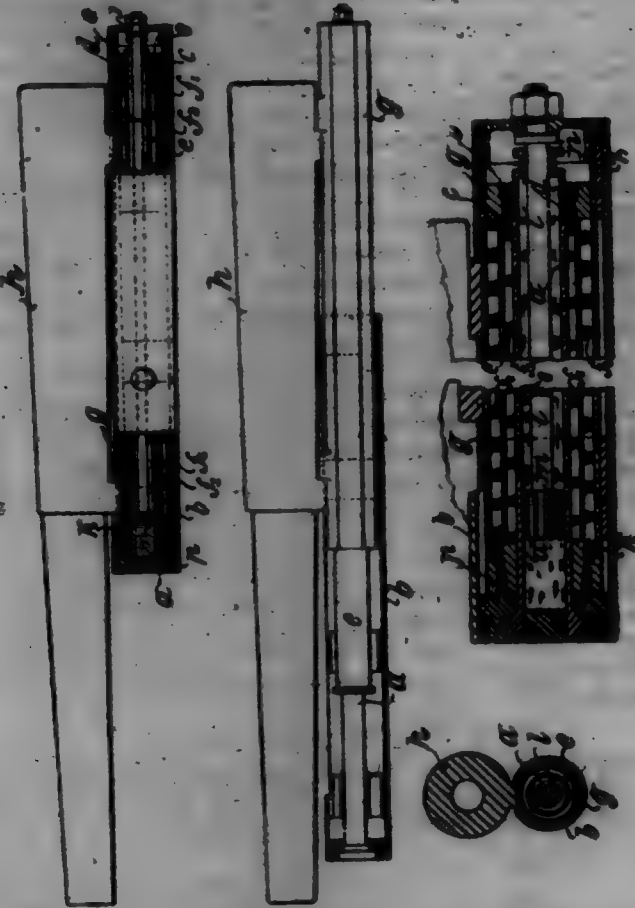


Claim.—1. A coal-dust burner for furnaces, comprising a hopper for holding the coal-dust; an air-chamber; a bladed gear-wheel mounted on a shaft running through said air-chamber; a perforated cup or shell loosely fitted in the base of said hopper; a gear-wheel secured to said cup to mesh with the bladed gear-wheel; a spiral bladed shaft connected to said cup or shell to extend into said hopper; means to rotate said shaft, and means for introducing air under pressure to the air-chamber, all arranged and combined to operate as set forth.

2. A combined oil and coal-dust burner for furnaces, comprising a burner-pipe, a hopper connected to said burner-pipe; an air-chamber connected to said pipe; a rotatable oil-spraying pipe extending through said air-chamber into said burner-pipe; a bladed gear-wheel mounted upon said rotatable pipe; a perforated cup or shell loosely fitted in the base of

said hopper; a gear-wheel secured to said cup to mesh with said oil-spraying pipe gear; a spiral bladed shaft connected to said cup or shell to extend into said hopper; means to rotate said oil-spraying pipe, and means for introducing air under pressure to the air-chamber, all arranged and combined to operate as shown and set forth.

701,801. RECOIL APPARATUS FOR ORDNANCE. KARL DIER-
LICH, Pilsen, Austria-Hungary, assignor to Steuderswerke Aottingen-
schmidt in Pilsen, Pilsen, Austria-Hungary, a firm. Filed Dec. 20, 1901.
Serial No. 87,200. (No model.)



Claim.—1. In an apparatus for returning a gun to its firing position, the combination with a top carriage provided with a slot in the top thereof, of a brake-cylinder mounted within and connected to one end of said carriage, a piston arranged in the cylinder, an inner tube surrounding the brake-cylinder, a spring interposed between said inner tube and said brake-cylinder and adapted to be compressed by said inner tube, an outer tube enclosing said inner tube, a spring interposed between the said inner and outer tubes and adapted to be compressed by said outer tube, connections between the outer tube and the gun, and connections between the outer tube and the piston, the compressing of the spring upon the inner tube being in advance of the compressing of the spring upon the cylinder during the action of firing.

2. In an apparatus for returning a gun to its normal position, the combination with a top carriage provided with a longitudinal slot, of a brake cylinder arranged within said carriage and connected to one end thereof, an inner tube enclosing said cylinder, a spring interposed between said inner tube and said cylinder and shutting a shoulder on the latter and adapted to be compressed by said inner tube, an outer tube enclosing said inner tube, a spring interposed between said inner and said outer tube and shutting against a shoulder on the inner tube and adapted to be compressed by the outer tube, and connections between said outer tube and the gun.

3. In an apparatus for returning a gun to its firing position, the combination with the top carriage provided with a longitudinally-extending slot in the top thereof, of a brake-cylinder mounted within and connected to one end of said carriage, a piston arranged in the cylinder, an inner tube surrounding the brake-cylinder and having at its forward end an internal shoulder and at its rear end an external shoulder, an annulus interposed between the rear end of the tube and said cylinder, a ring secured to the cylinder and arranged between the same and said annulus, a ring secured to said tube and interposed between the same and said ring *d*, a spring surrounding said cylinder and shutting against the internal shoulder of the inner tube and said annulus, an outer tube enclosing said inner tube and provided with an internal shoulder at its forward end, an annulus interposed between said outer and inner tube and shutting against the internal shoulder of the outer tube, a ring *p* secured to the

inner tube and arranged between the same and said outer tube, a spring mounted upon said inner tube and shutting against said annulus and external shoulder of the inner tube, connections between said outer tube and the gun, and connections between said outer tube and the piston.

701,802. SMOKELESS POWDER AND METHOD OF COMPOUNDING SAME. JAMES A. DUNTON and JAMES E. PERAZ, Johnson City, Tenn., assignors of one-third to HENRY C. KIRKPATRICK, Johnson City, Tenn. Filed Mar. 2, 1902. Serial No. 87,200. (No specimens.)

Claim.—1. A smokeless powder, consisting of chlorate of potash, wheat-flour and linseed-oil, prepared substantially as and in the proportions set forth.

2. The method of producing smokeless powder, which consists in grinding and mixing chlorate of potash and boiled linseed-oil with each other, incorporating therewith wheat-flour and water in sufficient quantities to obtain the mass in the consistency of bread-dough, thoroughly mixing these ingredients, drying the mass, and finally crushing or grinding the same to obtain the final product in a granulated condition.

701,808. COMBINED CLIP AND LAP-LINK. FREDERICK H. DE
ROOSCHER, Chattanooga, Tenn., assignor to Charles Morris, Chat-
tanooga, Tenn. Filed Oct. 20, 1901. Serial No. 38,987. (No model.)



Claim.—1. A combined clip and lap-link comprising a sleeve recessed on its inner surface and formed with openings, and headed overlapping hooks inserted through the said openings, the heads of said hooks resting in the recessed portion on the inner surface of the sleeve.

2. The combination with a vehicle single or double tree, of an attachment comprising a sleeve formed with openings and adapted to receive the single or double tree, and a pair of overlapping headed hooks recessed or flattened to form shoulders, said hooks loosely mounted in said openings and prevented from displacement by the said single or double tree.

3. A combined clip and lap-link comprising a sleeve recessed on the inner surface of its front wall and formed with openings in the said recessed portion adapted to receive overlapping headed hooks, the heads of said hooks fitting in the said recess and prevented from inward movement by the single or double tree inserted in the sleeve.

701,804. REVERSIBLE GALVANIC BATTERY. THOMAS A.
HARRIS, Libertyville Park, N. J., assignor to Edison Storage Battery Com-
pany, a Corporation of New Jersey. Original application filed Mar. 1,
1901, Serial No. 49,408. Divided and this application filed June 20,
1901. Serial No. 65,925. (No model.)

Claim.—1. An active element for a reversible galvanic battery, comprising a conducting-support, an electrolytically-active oxid of a specific magnetic metal other than iron carried by said support, and a flake-like inert conducting material intimately mixed with said oxid, substantially as set forth.

2. An active element for a reversible galvanic battery, comprising a conducting-support, an electrolytically-active oxid of a specific magnetic metal other than iron carried by said support, and flake-graphite intimately mixed with said oxid, substantially as set forth.

3. An active element for a reversible galvanic battery, comprising a conducting-support, an oxid of nickel carried thereby having more oxygen than Ni_2O_3 , and an inert flake-like conducting material intimately mixed with said oxid, substantially as set forth.

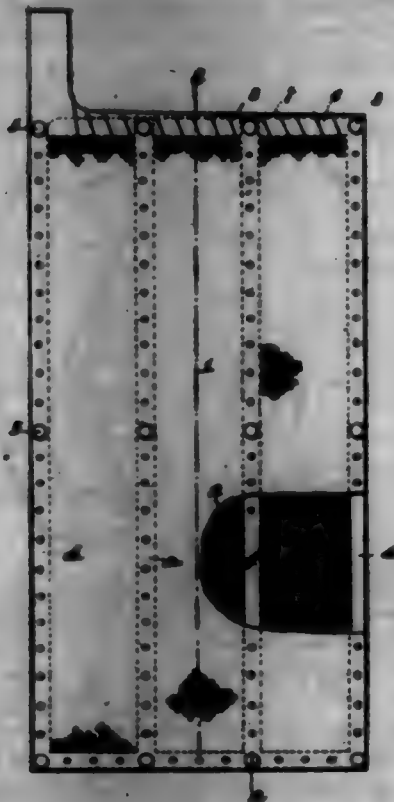
4. An active element for a reversible galvanic battery, comprising a conducting-support, an oxid of nickel carried thereby having more oxygen than Ni_2O_3 , and flake-graphite intimately mixed with said oxid, substantially as set forth.

5. An active element for a reversible galvanic battery, comprising a conducting-support, a hydrated oxid of nickel carried thereby, and a flake-like inert conducting material intimately mixed with said oxid, substantially as set forth.

6. An active element for a reversible galvanic battery, comprising a conducting-support, a hydrated oxid of nickel carried thereby, and flake-graphite intimately mixed with said oxid, substantially as set forth.

7. In a reversible galvanic battery, the combination of an electrolyte

which remains unchanged during all conditions of working, and two elements therein insoluble in each electrolyte, the depolarizing element having for its active material an electrolytically-active acid of a specific magnetic metal other than iron, substantially as set forth.



8. Is a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of working, and two elements therein insoluble in each electrolyte, the depolarizing element having for its active material an electrolytically-active acid of a specific magnetic metal other than iron and in a condition of oxidation higher than the peroxid state, substantially as set forth.

9. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support employing a receptacle having perforated walls, and a hydrated acid of a specific magnetic metal other than iron carried within said receptacle, substantially as set forth.

10. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, a hydrated acid of a specific magnetic metal other than iron carried by acid second support, and a flake-like inert conducting material intimately mixed with acid acid, substantially as set forth.

11. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, a hydrated acid of a specific magnetic metal other than iron carried by acid second support, and flake-graphite intimately mixed with acid acid, substantially as set forth.

12. Is a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of working, and two elements therein insoluble in each electrolyte, the depolarizing element having for its active material an electrolytically-active acid of nickel, substantially as set forth.

13. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, and an acid of nickel carried thereby having more oxygen than Ni_2O_3 , substantially as set forth.

14. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support employing a receptacle having perforated walls, and an acid of nickel carried within said receptacle and having more oxygen than Ni_2O_3 , substantially as set forth.

15. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, an acid of nickel carried thereby having more oxygen than Ni_2O_3 , and an inert conducting material intimately mixed with acid acid, substantially as set forth.

16. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting material, an acid of nickel carried thereby having more oxygen than Ni_2O_3 , and an inert flake-like conducting material intimately mixed with acid acid, substantially as set forth.

17. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, an acid of nickel carried thereby having more oxygen than Ni_2O_3 , and flake-graphite intimately mixed with acid acid, substantially as set forth.

18. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, a hydrated acid of nickel carried thereby, and a flake-like inert conducting material intimately mixed with acid acid, substantially as set forth.

19. Is a reversible galvanic battery, the combination of an alkaline electrolyte which remains unchanged during all conditions of working, a conducting-support therein, an insoluble oxidizable material carried by acid support, a second conducting-support, a hydrated acid of nickel carried thereby, and flake-graphite intimately mixed with acid acid, substantially as set forth.

701,805. SHOVEL. JOHN W. ELLER, Florence, Min. Filed Oct. 20, 1891. Serial No. 89,466. (No model.)



Claim.—A shovel comprising a blade having a forwardly-inclined integral socket at the center of the upper end thereof, said socket being hollow and internally screw-threaded at its upper terminal, a hollow handle with a lower externally-screw-threaded shouldered terminal to removably fit in the said socket, said handle being also provided with screw-threads at its opposite extremity, and a handhold having a central depending internally-screw-threaded socket to removably fit on the upper screw-threaded terminal of the handle, the said handhold being fashioned to adapt it for use as a tamper of substantially inverted triangular shape.

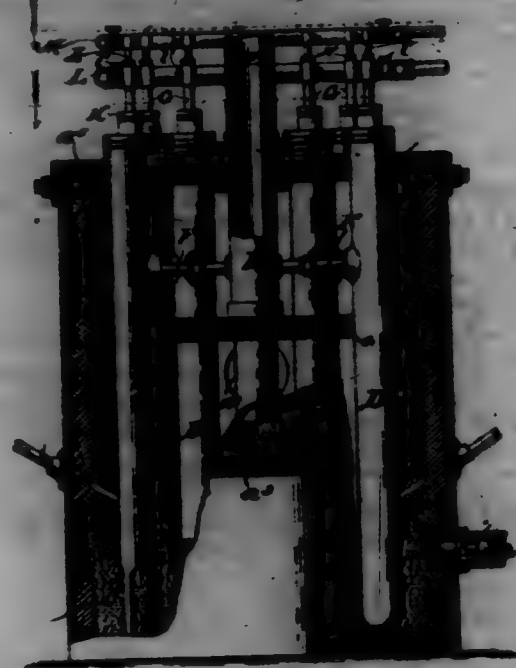
701,806. APPARATUS FOR GENERATING GAS. WILLIAM J. FARMER, Chicago, Ill. Filed Aug. 19, 1901. Serial No. 72,366. (No model.)

Claim.—1. In a gas-generating apparatus, the combination of a receptacle provided with a lining of refractory material, means for delivering into such receptacle molten material, means for introducing combustible fluid into the receptacle and directing such combustible fluid against the molten material, a series of depending generators extending below the surface of the molten material, and means to discharge gaseous fluid into the generators and to deliver gas from such generators; substantially as described.

2. In a gas-generating apparatus, a receptacle provided with a lining of refractory material and provided with an inlet for molten material, and molten material in such receptacle, in combination with a series of depending gas-generators open at the lower end thereof, respectively, each open end below the surface of the molten material, flues in the respective gas-generators, means for heating the molten material and the generators, and such gas-generators provided with outlets for gas; substantially as described.

3. In a gas-generating and superheating apparatus, a receptacle pro-

vided with a lining of refractory material, molten metal in the receptacle, and each receptacle, provided with an inlet for each molten metal, in combination with a series of depending gas-generators, provided, respectively, with inlets and outlets, a gas-discharge pipe common to all the generators, and provided with communicating passage-ways to the respective generators, and means to heat the molten metal and generators: substantially as described.



4. In a gas-generating apparatus, a receptacle provided with a lining of refractory material and provided with an inlet for molten metal, an inlet for combustible material and an outlet for the products of combustion, in combination with depending gas-generators, and gas-generators respectively extending to outside the receptacle, and feeders in the gas-generators, each feeder consisting of pipe respectively provided with apertures and additional pipes provided also with apertures, contained within the first-named pipes and each gas-generator provided, respectively, with outlets for the delivery of gas obtained therein: substantially as described.

5. In a gas-generating apparatus, a receptacle for molten material, molten material in such receptacle, a series of gas-generators partially immersed in such molten material, means for heating the molten material and the generators, means to deliver gaseous fluid into the generators a gas-pipe, each gas-pipe and the several gas-generators provided with communicating passage-ways, substantially as described.

6. In a gas-generating apparatus, a receptacle for molten material, molten material in such receptacle, a series of gas-generators partially immersed in such molten material, means to deliver gaseous fluid into the generators, and a gas-pipe, each gas-pipe and the several gas-generators provided with communicating passage-ways, and a partition in the apparatus, above the molten material, whereby a combustion-chamber is obtained, means to supply fuel to the combustion-chamber and each combustion-chamber provided with an inlet for air to support combustion and an outlet for the products of combustion: substantially as described.

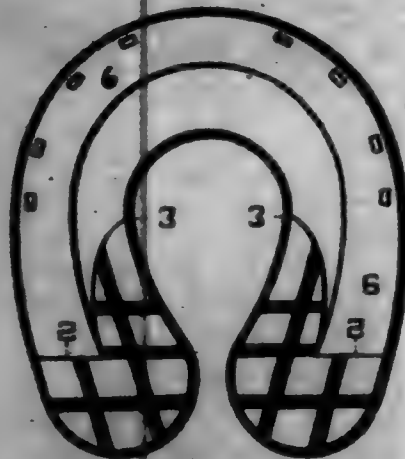
7. In a gas-generating apparatus, a furnace, molten material in such furnace, a series of gas-generators, means to heat the molten material and the generators, means to deliver gaseous fluid into the generators, and a gas-pipe, each gas-pipe and the several gas-generators provided with communicating passage-ways: substantially as described.

701,807. RUBBER-THREAD WORKING. HARRISON C. FARR, Akron, Ohio, assignor to the Goodyear Tire and Rubber Company, Akron, Ohio. Filed Dec. 26, 1901. Serial No. 67,516. (No model.)

Claim.—1. An improved machine for working rubber having the heel portions highest, each recessed from below in an abrupt plane from the outside inward for a portion of its width, and thence by a curved line to the inner curve of the cushion, with the portion in front of said recesses decreased in thickness to the toe in a plane slightly curved upward from the end of said recess, substantially as shown and described.

2. An improved machine for working rubber having the heel portions highest, each recessed from below in an abrupt plane from the outside inward for a portion of its width, and thence by a curved line to the inner curve of the cushion, with the part in front of said recesses decreased in thickness to the toe in a plane slightly curved upward from the end of said recess, in combination with a metal plate of suitable outline to fit within said cushion and embedded and vulcanized therein, substantially as shown and described.

3. An improved machine for working rubber having thick and portions divided by abrupt planes from the intermediate part, in combination with an embedded metallic plate of like general outline but narrower, and having holes to permit the rubber to flow through and unite, in combination with a metal shoe adapted to rest on said rubber portion, with its ends abutting the abrupt ends of the highest parts, substantially as shown and described.



4. The herein-described machine consisting of a rubber section having thicker portions at the heel, divided by abrupt planes from the front portion, the front portion gradually decreased in thickness toward the toe, with a metallic plate having enlarged ends and smaller intermediate portion, and with holes for the rubber to flow through, embedded in said shoe, said parts being united by vulcanization, and a metal shoe to abut said heel portions of the rubber portion and bear on the intermediate part, and having holes to receive retaining-nails, substantially as shown and described.

701,808. SPINNING-SPINDLE. WILLIAM CROOK, Chicago, Ill. Filed Apr. 4, 1901. Serial No. 54,294. (No model.)



Claim.—1. The combination with a spindle, and a whirl, of a ball-bearing operatively engaging said spindle and having the cone member of said bearing slidably connected to the spindle to rotate therewith, and a cushion-spring engaging with said whirl and said cone member of the bearing.

2. The combination with a spindle, and a casing, of independent ball-bearings spaced relatively to one another on the spindle and each bearing having a cone member connected by a loose joint to said spindle for re-

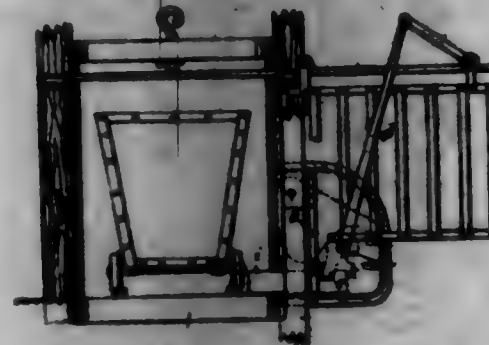
turning thereon, and a cushion-spring interposed between said bearings, whereby the spindle may be partly forced outward by the compression of said spring.

3. In a spinning-spindle, the combination, with a casing, a spindle extending within the casing, and a whirl attached to the said spindle, of spring-controlled ball-bearings for the spindle, the cones of which bearings are attached to the spindle and have limited movement longitudinally of the spindle, and means, substantially as described, whereby one spring-cushion is located between opposing ball-bearings and a second spring-cushion is located between the whirl and adjacent ball-bearing, as set forth.

4. The combination with a casing, and a spindle, of separate bearing-cups arranged to have limited movement relative to one another, bearing-cones revoluble with the spindle and disposed in co-operative relation to said bearing-cups, suitable bearing-balls, and a cushion-spring disposed between and in operative relation to said bearing-cups.

5. The combination with a casing, and a spindle, of bearing-cups loosely held within said casing and slidably connected together for movement relative to one another, bearing-cones cooperating with said bearing-cups and connected to said spindle as to rotate therewith and to have a limited slidable play thereon, a cushion-spring tending to normally separate the bearing-cups and retain them in operative relation to the cones, and suitable bearing-balls.

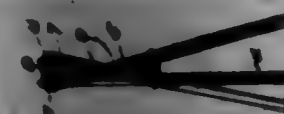
701,809. SHAFT-DOOR AND STAIR LOCKING DEVICE. ADOLF GOTTKE, Wanne, Germany, assignor of one-half to H. Krenner, Wanne, Germany. Filed Mar. 21, 1902. Serial No. 100,900. (No model.)



Claim.—1. The combination with a shaft-door, or a part provided with slanting flaps, against which the arriving stage strikes to push back the part, a bolt, a lever engaging said bolt and provided with a nose, and means for positively connecting said lever with said shaft-door, so that on opening and closing said shaft-door said bolt is caused to lock and unlock respectively the stage, the said part being provided with a projection for engaging said nose of said lever to lock said shaft-door, when the part is released by the traveling stage, substantially as set forth.

2. The combination with a sliding shaft-door, of a part provided with slanting flaps, against which the arriving stage strikes to push back the part, a bolt, a shaft mounted to turn in suitable bearings, a lever affixed on said shaft and engaging said bolt and provided with a nose, a lever affixed on said shaft and pivotally connected with said shaft-door by a link, so that on withdrawing and closing said shaft-door said bolt is caused to lock and unlock respectively the stage, the said part being provided with a projection for engaging said nose of said bolt-lever to lock said shaft-door, when the part is released by the traveling stage, substantially as set forth.

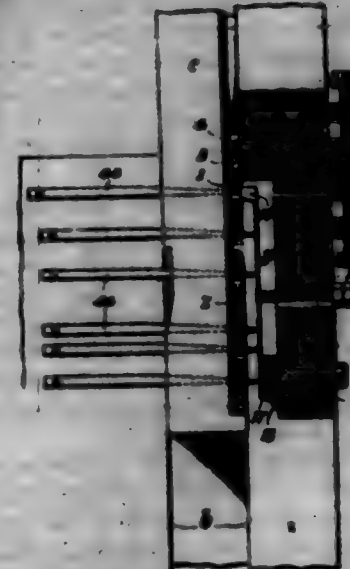
701,810. FENCE CONSTRUCTION. JAMES J. HARR, Chatham, N. H. Filed Oct. 24, 1901. Serial No. 73,370. (No model.)



Claim.—The herein-described fence comprising a plurality of bar-sections 2; a plurality of rail-sections 4 and 5, in combination with fence-posts proper 1, means to secure said posts and said rail-sections in operative combination with each other; bracing-sections 7 crossing each other near their upper ends and fitting recesses in a contiguous part of the rail-sections; and a locking-pin fitting in registering apertures in said rail and bracing sections, all substantially as specified and for the purpose set forth.

701,811. HATCHES FOR JUMPING TYPE. FRANKLIN HARRIS, New York, N. Y., assignor, by mesne assignments, to John C. Burt and John Burt, New York, N. Y. Filed June 20, 1901. Serial No. 68,000. (No model.)

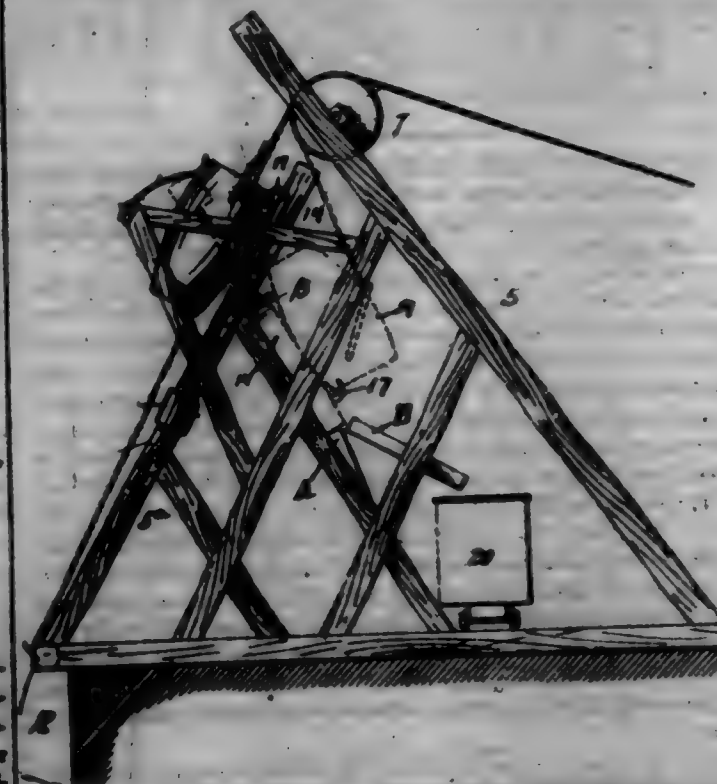
Claim.—1. The combination with the line-holder containing type in line, of a space-bar inserted therein crosswise of said type and projecting beyond the same; a device engaging with the projecting end of the space-bar for holding it, by means of said end, in the position to which it is advanced by the type-advancing mechanism and preventing it from moving backward.



2. The combination with the line-holder containing type in line, of a space-bar inserted therein crosswise of the type and projecting beyond the same; a movable stop attached to a suitable spring upon the side plate engaging with the projecting end of the space-bar for holding it, by means of such end, in the position to which it is advanced by the type-advancing mechanism and preventing it from moving backward.

3. The combination with the line-holder containing type in line, of a space-bar inserted therein crosswise of the type and projecting beyond the same; a movable stop attached to a suitable spring upon the side plate engaging with the projecting end of the space-bar for holding it, by means of such end, in the position to which it is advanced by the type-advancing mechanism and preventing it from moving backward; and means, substantially as described, for limiting the movement of the spring.

701,812. AUTOMATIC SICKER-DUMPING APPARATUS. THOMAS H. JONES, Grimsby, Ohio, assignor of one-half to Palmer C. Loveland, Grimsby, Ohio. Filed July 15, 1901. Serial No. 65,451. (No model.)



Claim.—1. In a bucket-dumping apparatus, the combination with a suitable supporting-frame, and a pulley mounted thereon, of an inclined guide-track mounted on the frame, a dumping device hinged at the upper extremity of said track and arranged to tip downwardly, a spring mounted on the frame, arranged to engage the bucket when mounted on the dumping device and adapted to collapse with the gravity of the bucket to perform the dumping function, means for normally holding the dumping

device in position to coincide with the position of the track, and a bucket-holding attachment mounted on the dumping device.

2. In a bucket-dumping apparatus, the combination with a suitable supporting-frame, and a sheave or pulley mounted on the upper portion thereof, of a bucket-guide track mounted on the frame in line with the pulley, a hinged dumping device normally forming a continuation of the track, means mounted on the dumping device for engaging and stopping the bucket when the latter has reached its limit of upward travel, said bucket-stop being arranged to support the bucket on the dumping device when the latter is tipped downwardly and the bucket inverted, and means mounted on the frame, arranged to engage the bucket when mounted on the dumping device and adapted to cooperate with the gravity of the bucket to perform the dumping function.

3. In a bucket-dumping apparatus, the combination with a suitable frame, a pulley mounted on the upper part of the frame, and arranged to be engaged by the bucket-cable, of an inclined track mounted on the frame, a hinged dumping device normally forming a continuation of the bucket-guide track, and a spring-held bucket-retaining device mounted on the dumping device, the arrangement being such that as the bucket is drawn up the inclined track, and loaded on the dumping device and the cable slackened, the gravity of the bucket tips the dumping device and throws the bucket to an inverted position.

4. In a bucket-dumping apparatus, the combination with a suitable supporting-frame located at the mouth of the shaft, a curved bucket-guide located in the upper part of the shaft, to cause the bucket to move easily out of the shaft to the bucket-dumping apparatus, an inclined guide-track mounted on the frame in alignment with the shaft-guide, a hinged or pivoted dumping device mounted on the frame in alignment with the bucket-guide, means for normally holding the dumping device in a position forming a continuation of the guide-track, and a yieldingly-retained bucket-holding device mounted on the dumping device.

5. In a bucket-dumping apparatus, the combination with a suitable supporting-frame, of an inclined guide-track mounted thereon, a hinged or pivoted device mounted on the frame in alignment with the guide-track, and a spring-retained hook mounted on the dumping device and adapted to engage the upper edge of the bucket and support the latter when in the inverted position.

6. In a bucket-dumping apparatus, the combination with a suitable supporting-frame, of a bucket-guide track mounted on the frame, a hinged or pivoted dumping device mounted on the frame in alignment with the bucket-guide track, a spring-held cross-head slidably mounted on the frame and provided with a hook adapted to engage the upper edge of the bucket as the latter is drawn upwardly to engagement with the dumping device, whereby the springs of the cross-head are placed under tension, and a leaf-spring mounted on the frame, arranged to engage the bucket when loaded on the dumping device, and arranged to cooperate with the gravity of the bucket to tip the dumping device downward, and weights applied to the dumping device and normally holding it in position to form a continuation of the bucket-guide track.

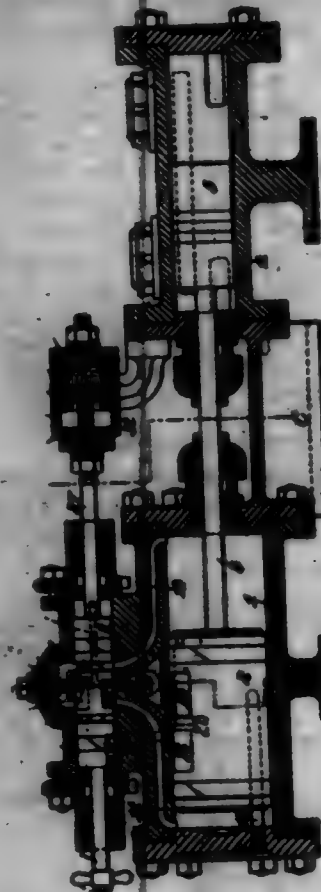
701,818. FLUID-PRESSURE PUMP. JAMES MCULLOCH, Perth, Scotland, assignor of one-half to George John Smith, Trellick, Kenwyn, Cornwall, England. Filed Feb. 28, 1899. Serial No. 48,548. (No model.)

Claim.—1. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, passages which respectively connect the ends of the valve-chamber directly with the opposite side of the working cylinder, a working piston of such length as to uncover one or other of said passages as it nears the end of each stroke, and passages respectively connecting the ends of the valve-chamber directly to an exhaust-opening common to both of said last-mentioned passages and adapted to be opened by said valve before completing its stroke, substantially as and for the purpose specified.

2. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, an exhaust-port having a central opening into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses in its upper face to cooperate with said passages and central exhaust-opening, and means for preventing angular movement of the working piston, substantially as described.

3. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, an exhaust-port opening centrally into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses adapted to cooperate with said passages and central exhaust-opening and passages respectively connecting the ends of the valve-chamber directly to exhaust and adapted to be opened by said valve before completing its stroke, substantially as described.

4. In a pump, the combination of the working cylinder, a guide-pin carried by the end cover of said cylinder, the piston-valve, the valve-chamber, an exhaust-port opening centrally into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, and a working piston provided with a guideway for said guide-pin and having recesses in its upper face to cooperate with said passages and central exhaust-opening, substantially as described.



5. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, an exhaust-port opening centrally into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses in its upper face adapted to cooperate with said passages and central exhaust-opening, means for preventing angular movement of the working piston, and passages respectively connecting the ends of the valve-chamber directly to exhaust and adapted to be opened by said valve before completing its stroke, substantially as described.

6. In a pump, the combination of the working cylinder, a guide-pin carried by the end cover of said cylinder, the piston-valve, the valve-chamber, an exhaust-port opening centrally into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having a guideway for said guide-pin and provided with recesses in its upper face to cooperate with said passages and the central exhaust-opening, and passages respectively connecting the ends of the valve-chamber directly to exhaust and adapted to be opened by said valve before completing its stroke, substantially as described.

7. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, passages which respectively connect the ends of the valve-chamber directly with the opposite sides of the working cylinder, a working piston of such length as to uncover one or other of said passages as it nears the end of each stroke, passages respectively connecting the ends of the valve-chamber directly to exhaust and adapted to be opened by said valve before completing its stroke, a rod carried by the piston-valve, disks carried by said rod, and means carried by the pump-casing for cooperating with said disks to cushion the said valve, substantially as described.

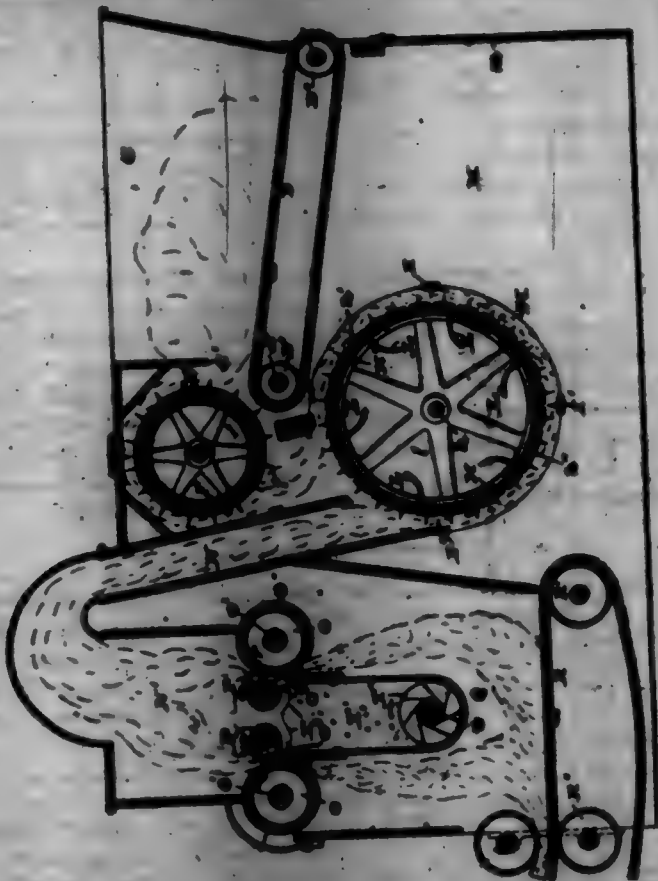
8. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, an exhaust-port having a central opening into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses to cooperate with said passages and central exhaust-opening, a rod carried by the piston-valve, disks carried by said rod, and means carried by the pump-casing for cooperating with said disks to cushion the said valve, substantially as described.

9. In a pump, the combination of the working cylinder, the piston-

valve, the valve-chamber, an exhaust-port having a central opening into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses to cooperate with said passages and central exhaust-opening, a rod carried by the piston-valve, disks carried by said rod, a cylinder carried by the pump-rod and a central partition in said cylinder with which the said disks cooperate to cushion the valve, substantially as described.

10. In a pump, the combination of the working cylinder, the piston-valve, the valve-chamber, an exhaust-port having a central opening into the working cylinder, passages which respectively connect the ends of the valve-chamber with the working cylinder on opposite sides of the central exhaust-opening, a working piston having recesses to cooperate with said passages and central exhaust-opening, a rod carried by the piston-valve, disks carried by said rod, a cylinder carried by the pump-rod, a central partition in said cylinder with which the said disks cooperate to cushion the valve, and elastic substance interposed between the disks and the said central partition, substantially as described.

701,814. **ROLLER COTTON-GIN.** CHARLES J. McFERRON, South Framingham, Mass., assignor to the American Cotton Improvement Company, Phoenix, Ariz., a Corporation of Arizona. Filed Apr. 14, 1901. Serial No. 65,814. (No model.)



Claim.—1. In a cotton-gin, the combination of a rotary ginning-roll provided with a covering of hard fitted material, a stationary bed-knife fixed adjacent to each roll, and a rotary comb-roller consisting of a shaft, a series of toothed washers arranged on the shaft, and intermediate disks disposed between the toothed washers, the teeth on the washers being disposed in parallel spiral lines about the shaft, substantially as shown and described and for the purpose specified.

2. In a cotton-gin, the combination of a rotary ginning-roll provided with a covering of hard fitted material, a stationary bed-knife fixed adjacent to each roll, and a rotary comb-roller consisting of a shaft, a series of toothed washers arranged on the shaft, intermediate disks arranged on the shaft between the toothed washers, and nuts secured on the threaded ends of the shaft and operating to clamp the toothed washers and intermediate disks upon said shaft, the teeth of the washers projecting beyond the periphery of the disks and being disposed in parallel spiral lines about the shaft, substantially as described.

701,815. **AUTOMATIC FIREARM.** JULIUS A. H. RASMUSSEN, Copenhagen, Denmark, assignor to the Dansk Rakyl-Med. Syndikat, Copenhagen, Denmark. Filed June 16, 1900. Serial No. 739,600. (No model.)

Claim.—1. In the recoil-arm and machine-gun of small caliber in which after the discharge by the recoil of the barrel and lock the spent cartridge is automatically ejected and a recoil-spring contained in each a

manner that after the finish of the recoil movement the barrel and lock automatically return to normal position and the rifle is rendered fit for discharge again, the combination of a breech-bolt G of suitably-shaped grooves 74, 75, movable studs 80, 81 supported in the guide-frame, of a movable cartridge-feeder, guided in grooves 71, 72 of the guide-frame, of a sliding frame E with guide-plates 87 provided in connection with the tailpiece 87 of the lock-rod, of the recoil-rod 112 and main lever 111, the recoil-spring 113 and the mainspring 115, of an angle-lever 107 in connection with the rear arm of the trigger-rod with nose 100 and of a projection on the upper side of an arm 103 of the trigger-rod.



2. In firearms of the kind described the combination of a cartridge-feeder composed of three interconnected members 62, 64, 65 of a stud 66 on the lower member 62 and of guide-grooves 71 and 72 for stud 66 in the side part 5 of the guide-frame, substantially as described and shown.

3. In combination with the recoil parts of the arm, a recoil-arm to be operated by the recoil of the parts, a spring placed under tension and acting through said recoil-arm to move the parts forward, and trigger mechanism controlled by the said recoil-arm to hold the same inoperative until the parts are moved forward into closed position by the recoil-arm, substantially as described.

4. In combination in a firearm, the parts to be affected by the recoil, a hammer, a main lever for operating the same, a pivoted rod 103 for controlling the main lever, an angle-lever having an arm 107 for controlling the rod 103, a trigger carrying the angle-lever, a recoil-lever and a spring for placing the same under tension, said recoil-lever being arranged to control the angle-lever, to keep the same inoperative until the parts are returned to closed position by the recoil-arm, substantially as described.

5. In combination with the frame of the arm having a cartridge-ejection opening and a lid covering the same, said lid having a tongue projecting therefrom, a sliding lock-rod and a wedge projection thereon for operating the lid 19, substantially as described.

6. In combination, a pivoted cartridge-feeder having grooves therein, a sliding part to which the cartridge-feeder is pivoted, the pins 80, 81 adjustable toward and from the cartridge-feeder to engage and disengage the grooves thereof, said pins being carried by the frame of the arm and the connection between the pins whereby when one is moved in the other is moved out, substantially as described.

701,816. **SHOW-CASE.** AUGUST RINKEL, Baltimore, Md. Filed Oct. 10, 1901. Serial No. 46,307. (No model.)

Claim.—1. The improvement in show-cases herein described, consisting in the combination with the adjoining plates, of a joint-strip extending longitudinally between the edge of one plate and the face of the other plate and formed with the base-wing to rest upon the edge of one plate, the inner wing extending at approximately a right angle from the inner edge of the base-wing, the top wing extending outwardly from the

upper edge of the inner wing and corrugated longitudinally, the flange extending from the outer edge of the top wing past the outer edge of the base-plate and overlapping the outer face of the glass plate upon the edge of which the joint-strip is placed, the corner-plates upon the upper face of the corrugated plate, the covers engaging said corner-plates and the lag extending from the joint-strip along the inner face of the glass plate upon the edge of which the joint-strip is applied and provided with means for connection with said glass plate, substantially as and for the purposes set forth.



2. A show-case provided between the face of one plate and the edge of the shutter plate with an approximately U shape resilient cushioning-spring having one wing resting against the inner face of one plate and the other wing resting against the edge of the shutter plate, and both wings of the spring being arranged between the glass plate, substantially as set forth.

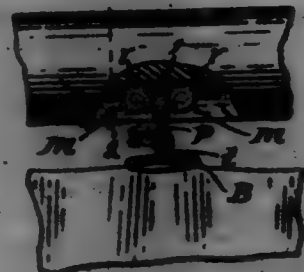
3. The combination with the adjoining glass plates arranged with the edge of one plate opposed to the inner face of the other plate, of the joint-strip having a base-plate resting upon the edge of one of the plates, an opposite plate overlying the base-plate and underlying the other glass plate and the flange projecting from the outer edge of said opposite plate past the base-plate and overlapping the outer face of the glass plate upon the edge of which the joint-strip is applied and means for covering the joint-strip in connection with the adjoining glass plates, substantially as set forth.

4. The combination with the adjoining glass plates, of the joint-strip extending between the same and having a base-wing, an inner upright wing, a top wing, and an outer wing extending past the outer edge of the base-wing, and overlapping the outer face of the glass plate upon which the base-wing is supported, substantially as set forth.

5. The combination with the adjoining glass plates, of the transversely-elastic joint-strip arranged between the same and extending in the direction of length of the joint, and provided at its outer side with a wing to overlap the outer face of the glass plate, the lag secured to the joint-strip at the inner side of the latter and means for securing said lag to the glass plate, substantially as set forth.

6. A joint-strip for show-cases having a base-plate and upright wing at the inner edge of the base-plate, a top-plate extending from the upper edge of the upright wing outwardly over the base-plate, and a flange projecting from the outer edge of the top plate past the free edge of the base-plate, substantially as set forth.

701,817. CURTAIN FOLD AND HANGER. HENRY P. BARNER, Boston, Mass., assignor to Albert S. Mitchell, Lexington, Mass., and William G. Jewett, Lancaster, Mass. Filed Aug. 17, 1906. Serial No. 27,186. (No model.)



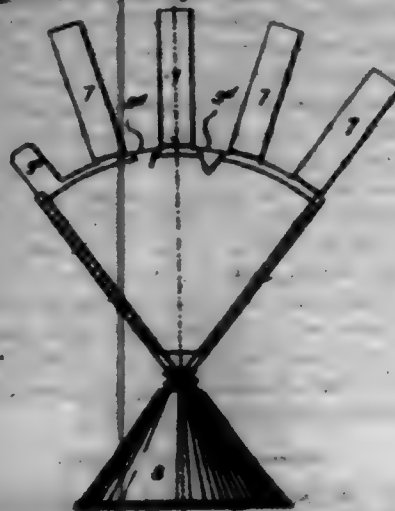
Claim.—In a curtain-fold of the class described the spring-hanger comprising a single strand of wire bent centrally upon itself to form a loop and the ends of its arms then formed being coiled to form journals, *a*, in the same plane as said loop; and trunnions, *b*, mounted in said journals, the parts being so arranged that said trunnions in action run in sequence.

701,818. CURTAIN DISPLAY-RACK AND ADVERTISING DEVICE. GEORGE B. SWALL, Denver, Colo., assignor to the Matinee Curtain Company, Denver, Colo. Filed Oct. 12, 1901. Serial No. 73,104. (No model.)

Claim.—1. An improved article of manufacture, an advertising device comprising a cone-shaped base and a fan-shaped top suitably connected together, the top having its opposite inclined edges bent to form a support for an advertising-card, substantially as described.

2. As an improved article of manufacture, a device of the class de-

scribed comprising a cone-shaped base and a fan-shaped top suitably connected together, the opposite inclined edges of the top being fashioned to support an advertising-card, substantially as described.



3. As an improved article of manufacture, a device of the class described comprising a cone-shaped base and a fan-shaped top suitably connected together, the opposite inclined edges of the top being fashioned to support an advertising-card, and the upper edge of the top being provided with a lip or projection adapted to be turned down to hold the top of the card securely in place.

4. As an improved article of manufacture, a device of the class described comprising a cone-shaped base and a fan-shaped top suitably connected together, the opposite inclined edges of the top being fashioned to support an advertising-card, and the upper edge of the top being provided with a series of lips or projections adapted to hold packages, substantially as described.

5. As an improved article of manufacture, a combined display-rack and advertising device comprising a base tapering from the top toward the bottom where it is largest and of sufficient area to give the device a suitable support, and a fan-shaped top, one of the said parts having a threaded socket, and the other a counterpart projection adapted to enter the socket, whereby the two parts are connected, the opposite inclined edges of the fan-shaped part being fashioned to support an advertising-card, and its upper edge having lips or projections adapted to support packages or articles of merchandise, substantially as described.

701,819. EYEGLASS. FREDERICK A. STEVEN, Providence, R. I., assignor of one-half to Albert E. Lane, Providence, R. I. Filed Feb. 3, 1902. Serial No. 91,695. (No model.)



Claim.—1. In eyeglasses, the combination with a part of a closed box composed of a single piece affixed thereto, slots at the opposite sides of said box, a spring and a guard within the box, a washer intermediate the top wall of the box and the spring and guard, said washer having lateral ears longitudinally movable in said slots, and a threaded member traversing the washer, spring and guard.

2. In eyeglasses, the combination with a part of a closed box composed of a single piece affixed thereto, slots at the opposite sides of said box, a spring and a guard within the box, a washer intermediate the top wall of the box and the spring and guard longitudinally movable in said slots, and a screw-threaded member whose head is seated upon the washer traversing the washer, spring and guard.

3. In eyeglasses, the combination with a part of a closed box composed of a single piece affixed thereto, slots at the opposite sides of said box, a spring and guard within the box, a washer intermediate the top wall of the box and the spring and guard, said washer having lateral ears longitudinally movable in said slots and a binding-convex whose head is seated upon the washer traversing the washer, spring and guard.

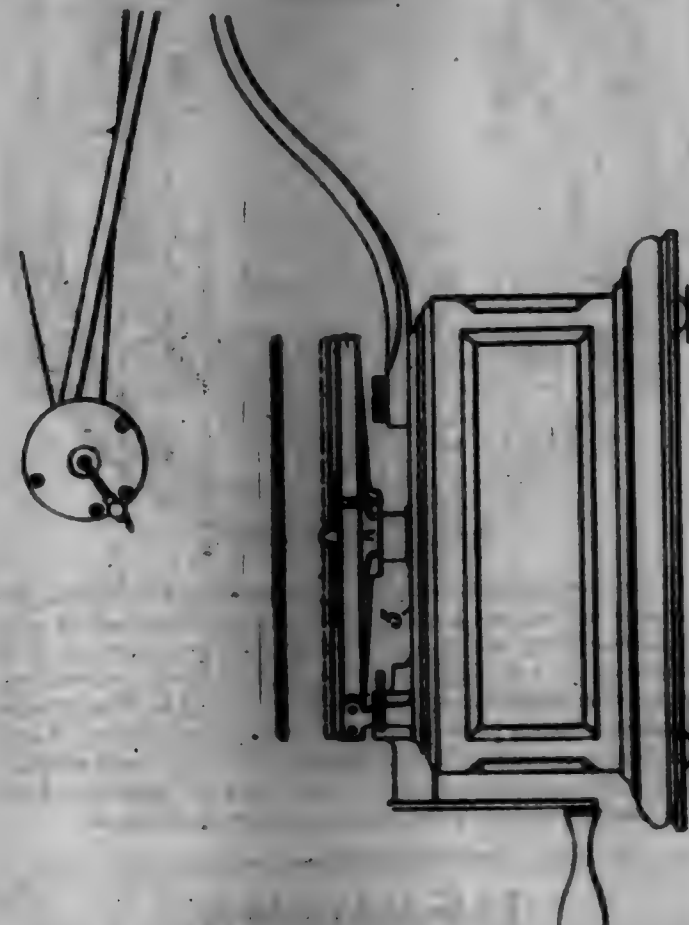
4. As a new article of manufacture, a blank for an eyeglass-lens consisting of an oblong metallic strip, four transverse channels upon the lower face of the same, two of which channels lie within the other two channels and upon either side of the center of the strip, said slots adjacent the two inner channels to receive the edges of an inclined washer after the strip is folded.

5. As a new article of manufacture, a blank for an eyeglass-lens consisting of an oblong metallic strip, four transverse channels upon the lower face of the same, two of which channels lie within the other two channels and upon either side of the center of the strip, and rectangular slots

adjacent the two inner channels to receive the edges of an inclined washer after the strip is folded.

6. As a new article of manufacture, a blank for an eyeglass-lens consisting of an oblong metallic strip, transverse channels upon the lower face of the same, two of which channels lie nearer the center of the strip than the other channels, slots adjacent the two inner channels to receive the edges of an inclined washer, and openings in one end of the strip adapted to register when the strip is folded.

701,820. SEAL FOR TALKING-MACHINE RECORDS. LOUIS F. VALERIE, New York, N. Y. Filed Mar. 27, 1902. Serial No. 100,207. (No model.)



Claim.—1. A sound-record tablet having a central recess for centering the record on the reproducing apparatus, with a thin film of the material of which the tablet is formed extending across said recess.

2. A sound-record tablet having a central recess in its under surface for centering the record on the reproducing apparatus, with a thin film of the material of which the tablet is formed extending across said recess in line with the upper surface of the tablet.

3. A sound-record tablet having a central recess for centering the record on the reproducing apparatus, with a thin film of the material of which the tablet is formed extending across said recess, combined with a reproducing-machine having a rotating table and an upwardly-projecting pointed member adapted to enter said recess and pierce said film.

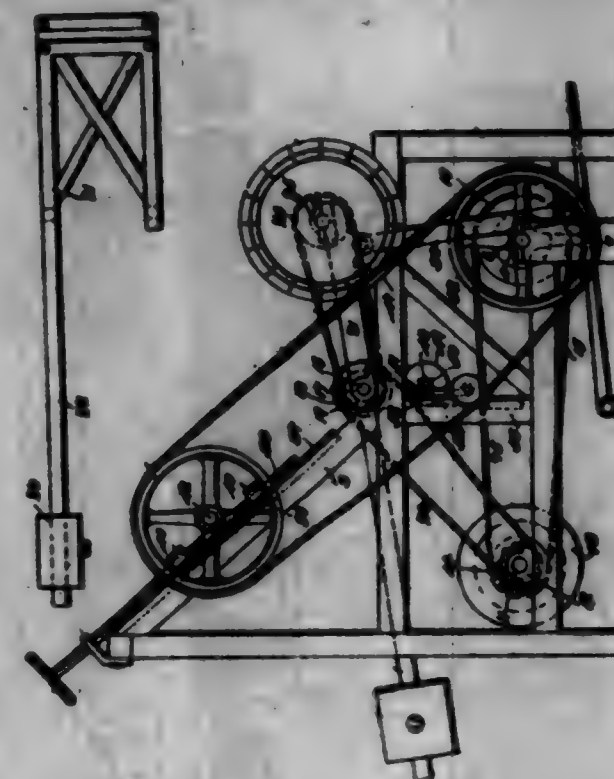
4. A sound-record tablet having a recess formed in it across which recess extends a thin film of the material of which the tablet is formed, combined with a reproducing-machine having a rigid projecting member adapted to enter said recess and pierce said film prior to the operation of reproduction.

701,821. MACHINE FOR SAND-FINISHING TOOL HOLDERS. ALFRED B. VOON, Omaha, Neb., assignor to Western Package Manufacturing Company, Omaha, Neb. Filed Sept. 27, 1901. Serial No. 73,780. (No model.)

Claim.—1. In a sand-finishing machine of the class described, a frame, pulleys on one side thereof near opposite ends and at different elevations, inclined endless bands connecting said pulleys, means to rotate the latter, a rock-arm, a shaft carried thereby, and having a work-holding element above said bands and disposed near the front end of the machine above the lower pulley, means to rotate said shaft, and means at the front end of the machine to raise and lower the front portion of said rock-arm, substantially as described.

2. In a sand-finishing machine of the class described, the combination with endless traveling sanding-bands and supporting-pulleys therefor, of a counterbalanced rock-arm, a shaft mounted thereon and having a

work-holding element above said sanding-bands, means to rotate said shaft and said work-holding element, and means to depress said rock-arm and lock the same in depressed position, substantially as described.



3. In a sand-finishing machine of the class described, the combination of a plurality of endless sanding-bands, means to rotate the same, a revolvable work-holding element adapted to be moved toward and from said sanding-bands, and means to independently tighten said sanding-bands, substantially as described.

4. In a sand-finishing machine of the class described, the combination of a power-shaft, a counter-shaft, in shiftable bearings, pulleys on said shafts, sanding-bands connecting said pulleys and means to tighten one of said sanding-bands independently of the other and a work-holding element adapted to be moved toward and from the sanding-bands, substantially as described.

5. In a sand-finishing machine of the class described, the combination of a power-shaft, a counter-shaft, in shiftable bearings, pulleys on said shafts, sanding-bands connecting said pulleys and yielding means bearing on one end of one of said sanding-bands, to tighten the same independently of the other, substantially as described.

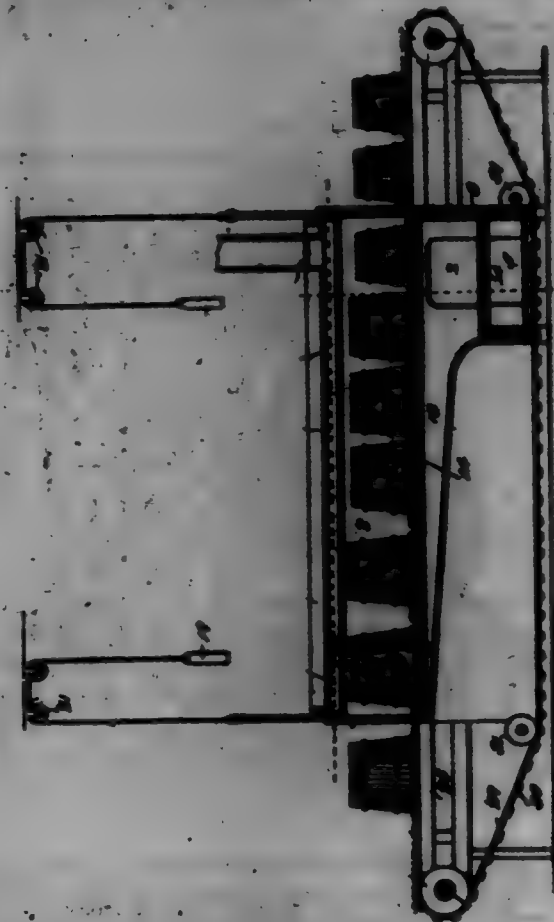
701,822. HEATER AND DRYER. LOUIS B. VOON, Omaha, Neb., assignor to Western Package Manufacturing Company, Omaha, Neb. Filed Sept. 28, 1901. Serial No. 73,805. (No model.)

Claim.—1. A heater and drier of the class described, comprising a fire-box having a flue leading therefrom, and a heating and drying chamber over the fire-box, apertures in the sides of said chamber at one end thereof, and leading from the flue of the fire-box, and an escape-flue formed in the top of said chamber and extending longitudinally through the same, said apertures leading to said escape-flue, and doors at the ends of said chamber; in combination with an endless traveling carrier having one end disposed in and adapted to travel longitudinally through said heating and drying chamber, substantially as described.

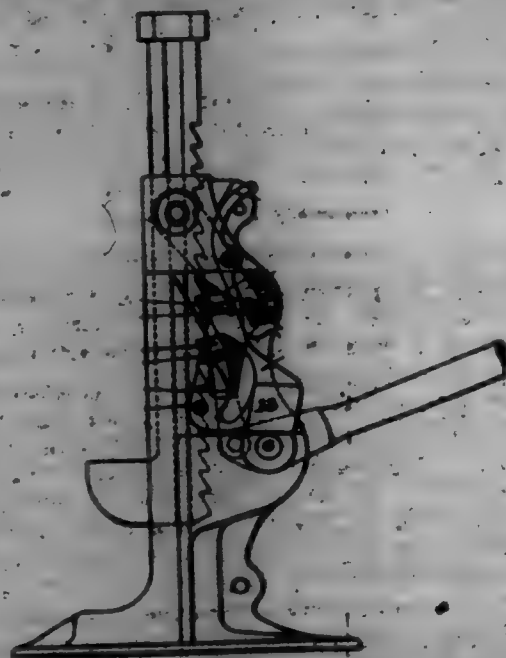
2. In a heater and drier of the class described, the combination with a fire-box having a flue leading therefrom, of a heating and drying chamber having one end disposed over said fire-box, said heating and drying chamber comprising an inner and outer casing, the space between the sides of said casings forming non-collecting chambers, the said sides of said chamber having apertures formed therein at one end thereof and communicating with the flue of the fire-box, and the space between the said inner and outer casings on the top of the said heating and drying chamber forming an escape-flue which leads from the said apertures; a cross-chest over said fire-box and the flue leading therefrom and under said heating and drying chamber; and an endless carrier having one end adapted to travel through and disposed in said heating and drying chamber, over said cross-chest, substantially as described.

3. A heater and drier of the class described, comprising a heating and drying chamber having an escape-flue extending longitudinally above the same, apertures in the sides of said chamber and communicating with said escape-flue, a fire-box under said chamber and having a flue

leading to said uptake-flue, and a carrier extending through said chamber, substantially as described.



701,898. LIFTING-JACK. EMANUEL WOODMAN, Oakmont, Pa., assignor to Verona Tool Works, Oakmont, Pa., a Corporation of Pennsylvania. Filed Sept. 4, 1901. Serial No. 74,331. (No model.)



Claim.—1. A jack having a toothed bar, a plurality of pawls engaging the bar, and a weighted lever pivoted to the frame and arranged to act upon both pawls to reverse their movement; substantially as described.

2. A jack having a toothed bar, a plurality of pawls engaging the bar, a weighted lever pivoted to the frame and having portions arranged to act upon both pawls, and a latch device arranged to hold the weighted lever in inoperative position; substantially as described.

3. A lifting-jack having a toothed lifting-bar, an operating-lever having a pawl engaging the teeth of the bar, a depending pawl pivoted to the frame and also engaging the teeth of the bar, and a weighted lever pivoted at one side to the frame and having a cam-surface bearing upon the lower pawl, and an upper portion arranged to engage the upper pawl, in lowering the bar step by step; substantially as described.

REISSUES.

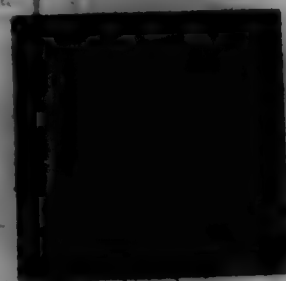
11,998. CONTINUOUS SHUFFLE-JURNACE. WILLIAM DUNN, Buxley, England, assignor, by mesne assignments, to the Glass Kilo Company, Limited, Buxley, England. Filed Jan. 31, 1902. Serial No. 90,608. Original No. 607,511, dated Apr. 17, 1899.



Claim.—The combination in a shuffle furnace or kiln for firing pottery-ware and enameled iron, with a continuous or endless circular shuffle-chamber having one opening where the goods to be fired are put in or taken out, of a turn-table or circular platform, means for revolving the turn-table from the outside of the furnace, a fire-brick, flame arranged in proximity thereto for conducting the flames and hot gases to a flue or flues along over and under the turn-table for a portion of the circuit and passing to a chimney without coming in contact with the goods being fired, all substantially as and for the purposes hereinbefore described.

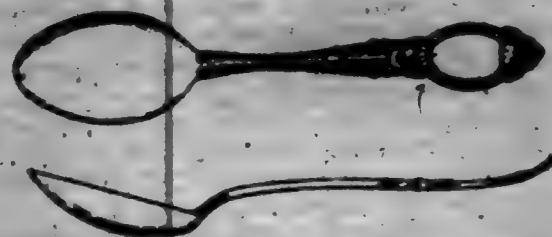
DESIGNS.

85,928. PAPER. GEORGE W. BUNNELL, New York, N. Y. Filed Aug. 8, 1901. Serial No. 71,418. Term of patent 7 years.



Claim.—The design for paper as herein shown and described.

85,929. SPOON. SAMUEL J. LARSEN, Bristol, Conn., assignor to American Silver Company, Bristol, Conn. Filed May 14, 1902. Serial No. 100,545. Term of patent 7 years.



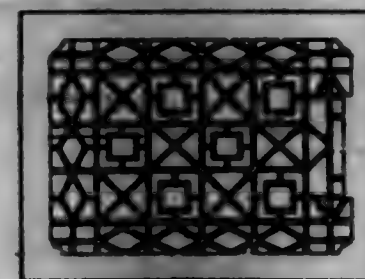
Claim.—The design for a spoon as herein shown and described.

85,980. KIP-STRAP HOOK FOR HARRIS. ALBERT HERRA, Lincoln, Neb. Filed Mar. 24, 1902. Serial No. 95,517. Term of patent 7 years.



Claim.—The design for a kip-strap hook as herein shown and described.

85,981. RECOVERED-PAGE. CHARLES W. REHMAN, Brooklyn, and JAMES F. REHMAN, New York, N. Y. Filed Apr. 11, 1902. Serial No. 100,426. Term of patent 14 years.



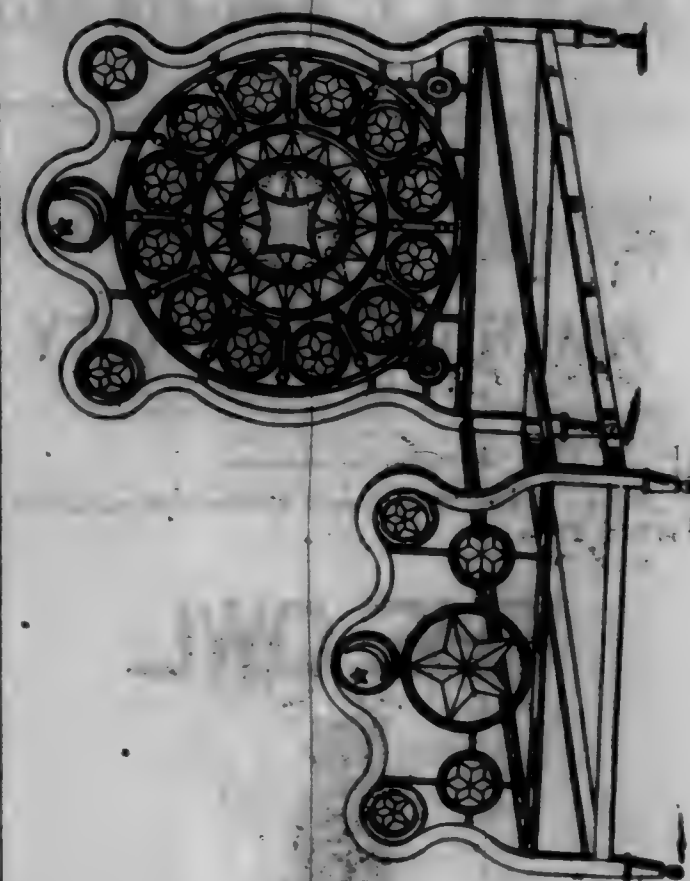
Claim.—The design for a recovered-page, as herein shown and described.

85,983. STOVE OR RANGE. THOMAS S. KENNEDY and EDWARD J. KING, Rochester, N. Y., assignors to Co-operative Foundry Company, Rochester, N. Y., a Corporation of New York. Filed May 12, 1902. Serial No. 107,048. Term of patent 7 years.



Claim.—The design for a stove substantially as herein shown and described.

85,988. BEDSTEAD. MARTIN V. HAMMACK, Thibault, Va., assignor of one-half to Cephus G. Grimes, Portsmouth, Va. Filed Mar. 20, 1902. Serial No. 100,657. Term of patent 7 years.



Claim.—The design for a bedstead substantially as herein shown and described.

85,984. RUG. EDWARD H. BROWLEY, East Orange, N. J., assignor to John H. Browley and Edward Browley, copartners trading as John Browley & Son, Philadelphia, Pa. Filed Apr. 20, 1902. Serial No. 100,600. Term of patent 3 1/2 years.



Claim.—The design for a rug substantially as shown and described.

TRADE-MARKS

REGISTERED JUNE 8, 1902.

88,873. DOLLS. THE SEYMOUR & WILSON Co., New York, N. Y. Filed Apr. 20, 1902.

AMERICAN BEAUTY

The words "AMERICAN BEAUTY." Used since 1895.

88,874. GAME-BOARDS. EDWARD HENNING, Chicago, Ill. Filed Apr. 16, 1902.

THE OWL



The words "THE OWL" and the picture of an owl represented as sitting on a perch. Used since August 15, 1901.

88,875. COTTON THREADS. NEW ENGLAND COTTON YARN COMPANY, Jersey City, N. J., and New Bedford, Mass. Filed Nov. 22, 1901.



The word "FEDERAL" and a circle inclosing the same. Used since June 1, 1901.

88,876. PRINTED COTTON THREADS. THE BOSTONIAN CO., Philadelphia, Pa. Filed Apr. 23, 1902.



The representation of the figure of three women in the dress of ancient Greece standing beside a microscope in an attitude of observing. Used since January 1, 1902.

88,877. SILK FINE GOWN, SILK RIBBON, AND SILK GARNER. THE VALLEY & BUCKLEY CO. Co., Boston, N. J. Filed Apr. 8, 1902.



The representation of two hands printed in black and in the act of exerting a tearing strain on a piece of woven silk fabric. Used since March 30, 1902.

88,878. LADIES' GLOVES AND SUITS. S. ROBINSON & SON, New York, N. Y. Filed Oct. 7, 1901.



The representation of a crown. Used since 1875.

88,879. HOME SEWING, JERSEY GLOVES, HITTERS AND CAPS. STRAND-CASE KNITTING CO., Chicago, Ill. Filed Apr. 2, 1902.

Colonial

The word "Colonial." Used since May, 1901.

88,880. PORTWINE. BAKER & BAKER, New York, N. Y. Filed Apr. 12, 1902.

D. R. Baker

The stylized signature "D. R. BAKER." Used since April, 1901.

JUNE 3, 1902.

U. S. PATENT OFFICE.

2515

88,881. WHISKY AND COGNAC. CHARLES E. HENNING & Co., Boston, Mass. Filed Jan. 15, 1902.



Th. Jefferson

The portrait of the deceased statesman and President, Thomas Jefferson, and also his facsimile signature, "TH. JEFFERSON." Used since December 24, 1901.

88,882. GLOVES. BERRY BROTHERS' SHOE COMPANY, Lynn, Mass. Filed Dec. 26, 1901.



The word "GLORIS," associated with the representation of a crown surmounted by the heraldic figure of a bird. Used since April, 1901.

88,883. WINDMILL DRAWN.

88,884. CERTAIN NAMED DRINK. Wm. Jay Greenleaf, New York, N. Y. Filed Feb. 15, 1902.

LAMINOID

The word "LAMINOID." Used since February 4, 1902.

88,885. MEDICAL COMPOUND FOR TREATMENT OF GONORRHOEA. LAYMOND D. BLANCH, Maple Heights, Mich. Filed Mar. 22, 1902.



The representation of a date and pencil. Used since March 6, 1902.

88,886. MEDICAL PREPARATION MADE FROM BARK. C. FARMER MEDICAL COMPANY, New York, N. Y. Filed Mar. 5, 1902.

VITALONGA

The word "VITALONGA." Used since December 15, 1900.

88,887. REMEDY FOR FEVERISH DISORDERS. JAMES WARD, Nottingham, England. Filed Apr. 24, 1902.

FEBRISUM

The word "FEBRISUM." Used since April, 1901.

88,888. REMEDY FOR CERTAIN NAMED DISEASES. JAMES WARD, Nottingham, England. Filed Mar. 31, 1902.



The word "CURMATION" hyphenated into the syllables "CUR-MA-TION" and arranged upon a shield. Used since February 4, 1902.

88,889. REMEDY FOR CERTAIN NAMED DISEASES. ALBERT T. WARDMAN, Algon, La. Filed Apr. 17, 1902.

COAL-ROLLER



The hyphenated word "COAL-ROLLER" and the representation of a man rolling a wheelbarrow filled with coal. Used since January, 1902.

88,890. REMEDY FOR CERTAIN NERVOUS DISEASES. WILLIAM BOWEN JR., London, England. Filed Nov. 15, 1901.

REMEDIATIVE

The word "REMEDIATIVE." Used since April 15, 1901.

88,891. LINIMENT. ALBERT C. CARLSON, Plymouth, Pa. Filed Mar. 16, 1902.



The representation of the figure of a man engaged in the art of spearing a snake. Used since January, 1902.

88,892. SALVE OR OINTMENT. RICHARD F. HARR, Jackson, Va. Filed Apr. 26, 1902.

BRESTORIA

The word "BRESTORIA." Used since March 1, 1902.

88,893. ALK. McCORMACK HERVEY Co., Charleston, W. Va., and Boston, Mass. Filed Apr. 17, 1902.

TRIUNE

The word "TRIUNE." Used since June 1, 1901.

88,894. COFFEY. THE ARLO-AMERICAN DISTILLERS TRADING CO., Ltd., Glasgow, Scotland. Filed Apr. 24, 1902.



The word "COFFY" and the picture of a coat drawn by a man. Used since November, 1901.

88,895. CERTAIN NERVOUS FORMS AND RELIEFING. DONALD BRADY JR., St. Louis, Mo. Filed Mar. 11, 1902.



The word "CUPID" and the representation of a winged cupid. Used since October 30, 1901.

88,896. CERTAIN NERVOUS PACKING-HOUSE PRODUCTS. SWIFT AND COMPANY, Chicago, Ill. Filed May 2, 1902.

EL VOLCAN

The word "EL VOLCAN." Used since April 15, 1900.

88,897. CERTAIN NERVOUS PACKING-HOUSE PRODUCTS. SWIFT AND COMPANY, Chicago, Ill. Filed May 2, 1902.

LA REMEDIANA

The word "LA REMEDIANA." Used since April 15, 1900.

88,898. CERTAIN NERVOUS PACKING-HOUSE PRODUCTS. SWIFT AND COMPANY, Chicago, Ill. Filed May 2, 1902.

LA GITANA

The word "LA GITANA." Used since January 1, 1902.

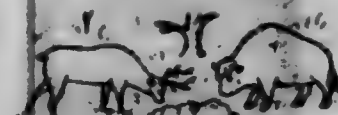
88,899. CERTAIN NERVOUS PACKING-HOUSE PRODUCTS. SWIFT AND COMPANY, Chicago, Ill. Filed May 2, 1902.

LA ORIENTAL

The word "LA ORIENTAL." Used since October 15, 1901.

88,400. STONE-FOOD. JOHN W. PETT, Winston, N. C. Filed Mar. 10, 1902.

LICK



The word "LICK" and the representation of a deer and buffalo standing facing each other, heads bent down, noses near the ground. Used since January 1, 1902.

88,401. CUFFING-BATHS AND CUFFING-GLASSES. EUREKA BATH-TUB CO., Chicago, Ill. Filed Apr. 15, 1902.

EUREKA

The word "EUREKA." Used since May 1, 1902.

88,402. MATCHES. CHARLES WILLIAMS, Philadelphia, Pa. Filed Feb. 10, 1902.



Arc Light

The word "ARC LIGHT" with the representation of an arc-lamp. Used since January 25, 1902.

88,403. SOAP. BRADSHAW SOAP CO., Highland, Ky. Filed Nov. 7, 1901.

THE ONLY SOAP MENTIONED IN SCRIPTURE

The word "THE ONLY SOAP MENTIONED IN SCRIPTURE." Used since July 1, 1901.

88,404. METAL LACQUER. NEW ERA LACQUER COMPANY, New Haven, Conn. Filed Apr. 20, 1902.

NEW ERA

The word "NEW ERA." Used since March 29, 1902.

88,405. BRUSHING AND POLISH. CIRCLE MANUFACTURING CO., Norwich, Mass. Filed Jan. 22, 1901.

CIRCLE

The word "CIRCLE." Used since June 20, 1900.

88,406. APPURTENANCES FOR THE CARE OF SHOES AND BOOTS. E. C. BARN & CO., Boston and Waltham, Mass. Filed Apr. 24, 1902.

Regal

The word "REGAL." Used since January 1, 1900.

88,407. BEAUTY. ALBERT H. HARR, Jackson, Va. Filed Apr. 2, 1902.

AMERICAN BEAUTY

The word "AMERICAN BEAUTY." Used since February 25, 1902.

88,408. LAMP-GLASS. FRANKLIN & CO., New York, N. Y. Filed Apr. 16, 1902.



The word "INDIFFERENT" within a rectangular frame, the full figure of a lion in standing position, and an oval including the letters and character "F & O." Used since September, 1901.

88,409. TOY WAGONS AND SIMILAR TOY VEHICLES. GARDNER TOY COMPANY, Chicago, Ill. Filed Apr. 15, 1902.

IRON CLAD

The word "IRON CLAD." Used since July, 1904.

88,410. SEAL-WIRE AND SOFT-METAL SEAL. KATYON SEAL & FINE COMPANY, New York, N. Y. Filed Apr. 20, 1902.

ANTI-STRIP

The compound word "ANTI-STRIP." Used since February 1, 1902.

88,411. HYGIENIC COMPOSITION OF CEMENT. WARREN
BROOKS COMPANY, Boston, Mass. Filed Apr. 7, 1902.

**RUBBER
MACADAN**

The word "RUBBERMACADAN." Used since January 1, 1902.

88,412. CEMENT FOR FLOORING, CEILING, AND SIDING.
THE AMERICAN CEMENT CO., New York, N. Y. Filed Apr. 18, 1902.

ASBESTOLITH

The word "ASBESTOLITH." Used since April 5, 1902.

88,413. CLOSED MASTER-ROLLS. THE KEND & BROWN PAPER
CO., Cincinnati, Ohio. Filed Apr. 20, 1902.

ACME

The word "ACME." Used since January 22, 1902.

88,414. OPEN MASTER-ROLLS. THE KEND & BROWN PAPER CO.,
Cincinnati, Ohio. Filed Apr. 20, 1902.

ECLIPSE

The word "ECLIPSE." Used since January 22, 1902.

88,415. CARPENTERS TOOLS AND APPLIANCES. STANLEY BROS.
& LEWIS CO., New Britain, Conn. Filed Feb. 17, 1902.



A figure generally of a cruciform outline having a wide body por-
tion and short projecting arms at each side of said body portion. Used
since January 20, 1902.

88,416. MACHINES AND TOOLS FOR MAKING PAPER BOXES.
AMERICAN TYPE FOUNDRY COMPANY, New York, N. Y. Filed Apr. 18,
1902.

Autobox

The word "AUTOBOS." Used since March 20, 1902.

LABELS

REGISTERED JUNE 3, 1902.

9,174.—Title: "HIGH GRADE DRESS SILKS AND TAILORS'
SILK FABRICS." (For Dress-Silks and Tailors' Silk Fab-
rics.) THE BRAINARD & ARNOLD CO., New London, Conn.
Filed May 8, 1902.

9,175.—Title: "SATISFACTION COTTON." (For Cotton Fab-
rics.) MOORE, TAYLOR & CO., New York, N. Y. Filed May 9,
1902.

9,176.—Title: "MEN'S WOOL FLEECE SHIRTS." (For Knit
Underwear.) L. E. HARBOUR, Amsterdam, N. Y. Filed
May 8, 1902.

9,177.—Title: "HYGIENIC FLEECE LINED SHIRTS." (For
Knit Underwear.) L. E. HARBOUR, Amsterdam, N. Y.
Filed May 8, 1902.

9,178.—Title: "SCHMIDT'S BREAD." (For Bread.) BERNARD
SCHMIDT, Harrisburg, Pa. Filed May 12, 1902.

9,179.—Title: "EGG NUT." (For Food Preparation.) EGG
NUT FOOD CO., Litchfield, Battlecreek, Mich. Filed May 12,
1902.

9,180.—Title: "CHILDREN'S HOUR." (For Syrup.) SAMUEL
H. WILLIAMS, Oakland, Cal. Filed May 10, 1902.

9,181.—Title: "WEDDING BELLS." (For Syrup.) SAMUEL
H. WILLIAMS, Oakland, Cal. Filed May 10, 1902.

9,182.—Title: "JEWELLED CROWN." (For Syrup.) SAMUEL
H. WILLIAMS, Oakland, Cal. Filed May 10, 1902.

9,183.—Title: "MASTERPIECE." (For Syrup.) SAMUEL H.
WILLIAMS, Oakland, Cal. Filed May 10, 1902.

9,184.—Title: "KHEDIVE." (For Tea.) MILLIKEN, TONKINSON
CO., Portland, Me. Filed May 10, 1902.

9,185.—Title: "PERFECTION CEREAL COFFEE." (For Ce-
real Coffee.) PERFECTION CEREAL COMPANY, Cleveland, Ohio.
Filed May 8, 1902.

9,186.—Title: "CINCO." (For a Beverage.) GEORGE S. PRES-
TOW, Knoxville, Tenn. Filed April 7, 1902.

9,187.—Title: "PURE OLD MELLOW TREADMILL RYE." (For
Whisky.) G. A. LORAN, New York, N. Y. Filed May
10, 1902.

9,188.—Title: "PADGETT'S OLD H & H RYE WHISKEY." (For
Whisky.) A. P. PADGETT, Augusta, Ga. Filed May 12,
1902.

9,189.—Title: "IROQUOIS CLUB." (For Cigars.) SANCHEZ
& HAYA CO., Tampa, Fla., and New York, N. Y. Filed April
18, 1902.

9,190.—Title: "LA FLOR DE SALVINI." (For Cigars.) SAN-
CHEZ & HAYA CO., Tampa, Fla., and New York, N. Y. Filed
April 18, 1902.

9,191.—Title: "LA ROSKILLA." (For Cigars.) DETVELAN
BROS., Red Lion, Pa. Filed May 7, 1902.

9,192.—Title: "KEEP YOUR EYE ON PAS-OO HEADACHE
CAPSULES." (For Headache Medicine.) PASCO HEAD-
ACHE CO., Lake Nebagumain, Wis. Filed May 12, 1902.

9,193.—Title: "X X X PEPSIN KOLA AND CIGERY." (For
Liquid Compound.) DAVID S. GATAS, Chicago, Ill. Filed
May 12, 1902.

9,194.—Title: "PHOSPHO." (For Medicinal Preparation.)
GEORGE F. L. REID, Marion, Ala. Filed May 12, 1902.

9,195.—Title: "DR. DANIELS' COLIC CURE." (For a Medi-
cine.) DR. A. C. DANIELS, Inc., Boston, Mass. Filed May 7,
1902.

9,196.—Title: "FAIRMONT." (For Almond-Meal.) VAIL
BROTHERS, Philadelphia, Pa. Filed April 18, 1902.

9,197.—Title: "KRAUSERS' NEW MATERIAL OR EXTRACT
OF WOOD ASHER." (For Soap-Making Material.) E.
KRAUSER & BRO., Milton, Pa. Filed April 18, 1902.

9,198.—Title: "ROMANFACE CREAM MASSAGE." (For Face
Cream Massage.) OTTO C. BARNTOLD, Cleveland, Ohio.
Filed May 12, 1902.

9,199.—Title: "GARLOCK PACKING." (For Packing.) THE
GARLOCK PACKING CO., Palmyra, N. Y. Filed May 7, 1902.

PRINTS

REGISTERED JUNE 3, 1902.

912.—Title: "MEN'S APPAREL." (For Apparel.) W. C. BOON,
Chicago, Ill. Filed May 9, 1902.

913.—Title: "PRETZINGER'S CATARRH BALM." (For Ca-
tarrh Remedy.) R. PRETZINGER & BRO., Dayton, Ohio. Filed
March 18, 1902.

914.—Title: "FARQUHAR'S EVERGREEN LAWN GRASS
SEED." (For Lawn Grass-Seed.) R. & J. FARQUHAR & CO.,
Boston, Mass. Filed May 7, 1902.

915.—Title: "SCHMIDT BROS. COMPANY CHINA GLASS." (For
Paints and Hardware.) SCHMIDT BROS. COMPANY, Chicago,
Ill. Filed May 12, 1902.

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS

ASENCIO S. RUSSELL.

Decided May 1, 1900.

BURDEN OF PROOF—RENEWAL OF FORFEITED CASE—APPLICANT AGAINST PATENTEE.

Where an application is allowed and becomes forfeited through a failure to pay the final fee within six months and during the time that it is forfeited an application is filed by another party covering the same invention and a patent is granted thereon, *Held* that in an interference between the patent and a renewal of the first application the burden of proof is upon the applicant notwithstanding the earlier date of his first application.

APPEAL ON MOTION.

FULFILLMENT.

Patent to Thomas Asencio granted October 2, 1900, No. 689,300. Renewal application of William M. Russell October 16, 1900, No. 83,313.

Messrs. Brown & Seward for Asencio.

Mr. T. P. Bourne for Russell.

ALLEN, Commissioner:

This is an appeal by Asencio from a decision of the Primary Examiner denying his motion to shift the burden of proof in the above-entitled interference.

It appears from the record that Russell filed an application July 22, 1897, which was allowed October 25, 1898, and became forfeited for non-payment of the final fee. On April 27, 1900, Asencio filed an application, which was allowed June 30, 1900, containing a claim which covers the subject-matter of the issue of this interference. This application became a patent October 2, 1900. On October 16, 1900, Russell's application was renewed, and an amendment containing the claim of Asencio's patent and descriptive matter relating thereto was filed therein October 19, 1900. In due course this claim was allowed and an interference declared between the application and the patent to Asencio. In the declaration of this interference Russell was made the senior party by virtue of the earlier filing date of his original application, whereby the burden of proof was placed upon Asencio. Asencio then brought the present motion to shift the burden of proof.

It is well settled that an application for the same invention filed in place of one which has become forfeited for non-payment of the final fee will under some circumstances relate back to and take the

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benefit of the filing date of the original application. (*Thomson v. Waterhouse*, 30 O. G., 177.) Thus under proper circumstances the inventor may become entitled to the original or forfeited application as a constructive reduction to practice. (*Christensen v. Noyes*, 90 O. G., 232.) In an interference in which both parties are applicants, therefore, it may happen that one may have the advantage of his earlier forfeited case to show constructive reduction to practice, so that the burden of proof will be thrown upon his opponent.

In the case now under consideration when Asencio filed an application and obtained a patent there was no conflicting application pending before the Office nor any unexpired patent with which it would interfere. His patent therefore was regularly and lawfully issued. In such a case the rule in regard to the burden of proof does not apply. (*Christensen v. Noyes*, 90 O. G., 237.) In this case the Court of Appeals of the District of Columbia said:

A subsisting patent lawfully issued, cannot be invalidated or in any manner affected by any subsequent proceeding in the Patent Office, even to the extent of imposing the burden of proof upon its holder that it was lawfully issued.

The decision of the Examiner denying the motion to shift the burden of proof is reversed.

EX PARTE BRILL.

Decided May 15, 1900.

DIVISION—RAILROAD-CARS—LOOKS FOR WINDOWS IN SAME.

Held that division was properly required between claims to the railroad-car and claims covering the combination between the car, the window-cash, and a lock for the same, since the devices are recognized by inventors and manufacturers as separate and independent articles of manufacture and sale, and from this it results that these devices possess a capacity for independent use.

ON petition.

REINVENTIBLE CASE.

Application of George M. Brill filed September 24, 1901, No. 76,593.

Mr. Joseph L. Levy and Messrs. Wilkinson & Fisher for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring that claims 5, 6, 8, 9, and 10 be divided from the remaining claims in the above-entitled application.

The invention relates to improvements in railroad-cars, and the claims, with the exception of those constituting the group above specified, cover improvements in said cars.

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Claims 5, 6, 8, 9, and 10, however, are drawn to cover alleged combinations between the car, window-sash, and a specifically-constructed lock for securing the window-sash to the car proper.

The broad combinations set forth in these claims are, as stated by the Examiner, old in the art, and the references cited by the Examiner from the class of Builders' Hardware, Sash-Fasteners, Mid-Rail, substantiate his statement. The invention covered in this group of claims is classified in class 10, Builders' Hardware, and applications for patents in the same are examinable in Division XX.

The invention covered in the remaining claims is classified in class 105, Railway Rolling-Stock, and applications for patents on the same are examinable in Division XXXIV.

Not only is the invention covered by claims 5, 6, 8, 9, and 10 regarded by this Office in its scheme of classification as a separate and independent invention from that covered in the remaining claims, but it is recognized as a separate article of manufacture and sale by inventors and manufacturers, and from this it results that these devices possess a capacity for independent use.

In view of this state of facts it follows that the requirement of division was a proper one.

The petition is denied.

EX PARTE SPILLER.

Decided May 15, 1902.

ABANDONED APPLICATION—INEFFECTIVE ACTION.

Where several claims are rejected by the Examiner and at the end of the time allowed by law for action the applicant requests reconsideration of some claims and says he intends to file an affidavit under Rule 15 as to others. Held not such action as the condition of the case requires and that it is abandoned.

ON petition.

FRAMES, ETC., FOR SELF-PROPELLING VEHICLES.

Application of Harry A. Spiller filed July 13, 1900, No. 23,495.

Messrs. Macleod, Calver & Randall for the applicant.

ALLEN, Commissioner:

This is a petition for a review of the Examiner's action holding that the action by applicant dated March 10, 1902, is not such as to put the case in condition for further action by the Office and save it from abandonment.

It appears that claims 1 to 7 were rejected on reference to a certain English patent and claims 9 and 10 on reference to a certain United States patent in an action by the Examiner dated March 26, 1901. On March 10, 1902, applicant filed a letter in this Office requesting reconsideration of the action on claims 9 and 10 and stating that he would file an affidavit antedating the English patent cited against claims 1 to 7.

It is clear that the only action which the Examiner could make in response to this letter would be to reconsider claims 9 and 10 and postpone the further consideration of claims 1 to 7 until the time when applicant might see fit to file his affidavit to

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overcome the reference cited against them. The reconsideration of claims 9 and 10, in case the references were still held to be pertinent, could not result in a final rejection, because such an action is not proper until all claims are in condition for final action. The action by applicant was not, therefore, an action having the effect of making a substantive advance toward the closing of the prosecution of the case. (*Ex parte Vaughan et al.*, 97 O. G., 937.) Its purpose and effect could be nothing more than to "keep the case alive." It was not such an action as the condition of the case required.

The petition is denied.

EX PARTE BROWN.

Decided May 17, 1902.

DIVISION—FILTER AND COFFEE-CARTRIDGE.

Division was properly required between the claims which cover a particular structure of "percolator-cartridge" for use in a coffee-filter for making drip-coffee and claims covering combinations between the cartridge and the particular filter, for the reason that each of the inventions is independent of the other in that they possess the capacity for separate use.

ON petition.

FILTER AND COFFEE-CARTRIDGE.

Application of Goodwin Brown filed January 17, 1902, No. 90,170.

Mr. Thomas Ewing, Jr., and Mr. Vernon M. Dorsey for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring division between claims 1 to 9, inclusive, and claims 10 to 15, inclusive, of this application on the ground that these two groups of claims cover separate and independent inventions.

Claims 1 to 9, inclusive, cover a package constructed in a certain specific way which is arranged to hold coffee or similar material. This package is called a "percolator-cartridge" and is to be used in conjunction with a dripper when placed over a coffee-pot for the purpose of making drip-coffee.

The petitioner states on page 1 of the specification that—

a percolator-cartridge made in accordance with this invention forms a convenient package for the transportation and use of the substance contained therein, and as such may be an article of merchandise.

Claims 10 to 15, inclusive, are drawn to cover combinations of elements. One of the elements in this combination is the "percolator-cartridge," more or less specifically stated. That this particular cartridge is useful with the particular form of dripper is self-evident; but it is equally clear that many other forms of percolator-cartridge could as well be used in the combination in the place of the particular one invented by the petitioner and that the cartridge here described could be used with many other forms of drippers for the purpose specified.

The package or cartridge covered in claims 1 to 9, inclusive, forms a distinct subject-matter of invention from the combination covered in claims 10 to 15, inclusive. Each of these inventions is separately classified in this Office, and they are in-

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dependent of each other, in that they possess the capacity of separate use.

The relation between this particular form of "percolator-cartridge" and the combination between the same and the dripper is very similar, as far as the question of independence of invention is concerned, to that of a particular form of explosive cartridge and the particular firearm in which it is to be used.

The inventions covered by the two groups of claims should be presented in separate applications.

The petition is denied.

EX PARTE ALABAMA TUBE AND IRON COMPANY.

Decided May 17, 1902.

TRADE-MARK—"ALABAMATUBE" REFUSED REGISTRATION.

The word "Alabamatube" can mean nothing different from the two words "Alabama tube"—that is, a tube produced in Alabama. The word is geographically descriptive and cannot be registered as a trade-mark for tubes.

ON appeal.

TRADE-MARK FOR IRON AND STEEL TUBE.

Application filed April 3, 1902, No. 65,525.

Mr. Chas. Denegre for the applicant.

ALLEN, Commissioner:

This is an appeal from a decision of the Examiner of Trade-Marks refusing to register as a trade-mark for iron and steel tubes the word "Alabamatube."

Appellant is a corporation located in the city of Birmingham, in the State of Alabama, and the word for which registration is sought is composed of the two words *Alabama* and *tube*.

The word "Alabama" alone is clearly not entitled to registration because it is purely geographical. As stated by the Supreme Court of the United States in *Columbia Mill Company v. Alcorn et al.*, (55 O. G., 1918,) it is one of those—

"... words in common use as designating locality, section or region of country."

The same Court in *Conal Company v. Clark* (13 Wall., 811) said:

These merely geographical names cannot be appropriated and made the subject of exclusive property.

The word "tube" is the name of the product and cannot be a valid trade-mark.

It is contended by applicant that by combining these two words into one the result is a word which is arbitrary or fanciful in meaning. Such a conclusion is, however, entirely unwarranted, for clearly the word "Alabamatube" can mean nothing different from the two words "Alabama tube"—that is, a tube produced in Alabama. The word is geographically descriptive.

The decision of the Examiner of Trade-Marks was right, and it is accordingly affirmed.

EX PARTE DOLAN.

Decided May 16, 1902.

APPEAL—DISCOVERY BY NEW GROUNDS FOR REJECTION—PRIORITY.

If the Examiner discovers new reasons for rejection after appeal has been taken, he should direct the attention to it of both the appellant and the Examiners-in-Chief. The appellant may then elect to proceed with the appeal or to withdraw it. (*Ex parte Mezey*, 55 O. G., 935.)

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ON protest.

BAR-BURNERS AND BAR-BURNING PROCESS.

Application of Edward J. Dolan filed June 27, 1898, No. 684,643.

Mr. E. N. Dickerson for the applicant.

ALLEN, Commissioner:

This is a protest against certain statements made by the Examiner in his answer to an appeal to the Examiners-in-Chief now pending in the above-entitled application.

It appears that in answer to the appeal the Examiner referred to a certain burner of the fish-tail type which he had purchased and used in a demonstration before applicant's attorney. No reference had been made to this burner or to the demonstration in the record of the case. The attorney then filed this protest, because, in his opinion, the statements are—

highly improper and should be expunged from the record as they are not in themselves legal grounds for rejection.

It is of course improper for an Examiner to refer in his answer to an appeal to the Examiners-in-Chief to matters constituting a ground for rejection which have not been made of record in the case. If he shall discover new reasons for rejection after appeal has been taken, the proper course for him to take is set forth as follows in the decision in *ex parte Mezey*, (55 O. G., 935):

The proper course to be pursued by an Examiner, on discovering a new ground for rejection subsequently to an appeal to the Examiners-in-Chief is to direct the attention to it of both the appellant and the Examiners-in-Chief. The appellant may then elect to continue the prosecution of the appeal or to withdraw the appeal and be heard by the Primary Examiner.

It appears from the record that the Examiner has now complied with the requirements set forth above and has notified applicant that he may either proceed with the appeal or may have further consideration of the case before the Examiner. There seems to be no basis for protest against his action, therefore, since the sufficiency of the grounds for rejection is a question to be reviewed in the first instance by the Examiners-in-Chief.

The protest is dismissed.

EX PARTE VOGEL AND SON.

Decided May 17, 1902.

1. TRADE-MARK—"MAPLE-LEAF" ANTICIPATED BY "SILVER LEAF."

A trade-mark consisting of the words "Maple Leaf" and the representation of maple-leaves refused registration upon a registered mark consisting of the words "Silver Leaf" and the representation of maple-leaves.

2. SAME—IDENTITY OF MARKS—APPEARANCE AS WELL AS SOUND TO BE CONSIDERED.

In determining the question whether or not one mark so nearly resembles the other as to cause confusion in the minds of the public the appearance of the marks is as important as the sound of the words used therein when those words are spoken.

ON appeal.

TRADE-MARK FOR LARD.

Application of Jacob Vogel and Son filed December 18, 1895, No. 59,490.

Messrs. Murray & Murray for the applicants.

ALLEN, Commissioner:

This is an appeal from the decision of the Ex-

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aminer refusing to register as a trade-mark for said the words "Maple Leaf" arranged in a curved line and the illustration of a group of three maple-leaves below the said words.

Registration is refused on the trade-mark of T. R. Jenkins and Son, No. 5,094, registered March 8, 1878, and of Swift and Company, No. 24,512, registered April 10, 1894.

The mark of Swift and Company consists of the words "Silver Leaf" arranged in a curved line and the representation of a group of two leaves, with their stems together, placed below the said words. The leaves in the registered mark are first described as "silver leaves;" but the mark is not confined to the use of any one color, for, as stated in the specification, "the color is not the essence of the trade-mark." The mark is specifically described as consisting of "the words 'Silver Leaf' and the representation of two leaves." In this latter description it is to be noticed that the limiting word "silver" is omitted before the word "leaves." The representation of the leaves in the registered mark is clearly that of maple-leaves. One of the varieties of maple is the silver or white maple.

In considering the identity of two trade-marks the appearance of the marks is as important as the sound of the words used therein when these words are spoken. Both senses are to be used in determining the question whether or not one mark so nearly resembles the other as to have the tendency to mislead and to cause confusion in the minds of the purchasing public.

The mark sought to be registered by the appellant is so nearly like the mark registered by Swift and Company as to have the tendency to mislead and to cause confusion in the minds of the purchasing public, and for this reason the registration of this mark was properly refused. (*Ex parte Kaufmann and Bloche*, 84 O. G., 145; *ex parte Kingan and Company*, 97 O. G., 2085.)

The decision of the Examiner refusing registration of the mark on the ground that it is anticipated by the registered mark of Swift and Company is affirmed.

Having reached this conclusion, it is not necessary to consider the formal matters raised by petition. The petition is therefore dismissed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia. SWIHART v. MAULDIN.

Decided April 1, 1902.

1. INTERFERENCE—PRIORITY—UNSUCCESSFUL DEVICE.

Where S. alleges the earlier dates of conception and reduction to practice, but the evidence shows that his first machines were unsuccessful and that he did not construct a satisfactory machine until after he had seen M.'s invention, *Held* that the decision awarding priority to M. must be affirmed.

2. SAME—SAME—DELAY IN APPLYING FOR PATENT—CONDUCT IN CONNECTION WITH CLAIM.

Where S. was engaged in the special work of devising means to remedy imperfections in scales of the class in controversy,

having taken out several patents upon that line; and where he claims to have completed the particular invention in issue, *Held* that his failure to apply for a patent until six months after he had seen M.'s device is peculiarly significant.

3. SAME—SAME—BARRER OF PRIOR—CONCURRENT DECISIONS.

Where an appellant comes to the court as the junior applicant and with three concurrent decisions of the tribunals of the Patent Office against him, *Held* that the presumption is strongly against his claim as the prior inventor.

4. SAME—SAME—IDENTITY OF INVENTIONS NOT CONSIDERED.

The court will not except in extreme cases go behind the declaration of interference in order to determine the question of identity of the inventions claimed by the parties.

Messrs. Thurston & Bates for the appellant.

Messrs. Church & Church for the appellee.

MORRIS, J.:

This is an appeal from a decision of the Commissioner of Patents (99 O. G., 665) in an interference case, wherein the subject-matter in controversy is an improvement in spring-balance scales stated in the following issues:

1. Is a spring-balance scale, the combination of a spring-suspended runner having on its lower end means for suspending the load, with a fixed dash-pot cylinder, its plunger, and a plunger-rod which is flexibly connected at one end with the runner and at the other end with the plunger.

2. Is a spring-balance scale, the combination of a cylindrical scale-case having a hole in its lower end, and a spring-suspended runner which extends out through said hole and has on its lower end means for suspending the load, with a pneumatic cylinder and means for suspending the load, with a pneumatic cylinder closed at one end and open at the other, and having at its closed end external wings which are secured to the cylindrical scale-case, a plunger movable in said cylinder, and a plunger-rod which is flexibly connected at one end with the plunger and at the other end with the runner.

The invention is stated to consist in the flexibility of the plunger-rod at both of its extremities; and this is construed by one party to mean universal flexibility in all directions, and by the other general flexibility backward and forward and side-wise. In the second issue there is an additional new feature in the addition of "external wings." All the other elements of both combinations are old and well known in the art.

Swihart, the appellant, who is the junior applicant, and whose application was filed on November 1, 1897, alleges in his preliminary statement that he conceived and disclosed the invention in question on or about November 1, 1896; that he never made a drawing or model of it; but that he reduced the invention to practice on or about December 24, 1896; and that the National Computing Scale Company, the assignee of the invention and application, has manufactured and sold more than four thousand spring-balance scales embodying the invention.

Mauldin, the appellee and senior applicant, whose application was filed on May 8, 1897, nearly six months before that of Swihart, alleges in his preliminary statement that he conceived the invention in the early part of the year 1897; that he explained it and made sketches illustrative of it within a week after his conception of the idea; that a model of it was made within two weeks before its reduction to practice; that he embodied the invention in a full-sized scale and successfully operated the same and reduced the invention to practice in March or April of 1897, since which time many thousands of scales embodying the invention have been made and sold by him and by his licensee and assignee, the Computing Scale Company.

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Upon the testimony taken in the case, all the tribunals of the Patent Office, while concurring in the recognition of Swihart's priority of conception of the invention, also concurred in holding that Mauldin was the first to reduce it to practice; and they awarded judgment of priority of invention to the latter on the ground of Swihart's lack of diligence. From the Commissioner's decision to that effect Swihart has appealed to this court.

There has been a suggestion in argument that the device of Swihart differs from that of Mauldin in the fact that the flexibility of the plunger-rod in the former is stated to be of a universal character, that is, in all directions, while the flexibility in Mauldin's device appears to be more limited, being only sidewise and backward and forward. It is not entirely apparent to us what the purpose is of this suggestion. If it be to show that the two devices are patentably different, and therefore that there is no interference in fact between the parties, we have repeatedly held that, except in extreme cases, we will not go behind the declaration of interference in order to determine the question of identity of invention. If, on the other hand, the suggestion be made merely to show the superiority of Swihart's device, it is very plain that this consideration can have no influence in the determination of the question of priority of invention.

With reference to the merits of the case, the appellant comes here, not only as the junior applicant required to establish his case by a preponderance of evidence, but also with three concurrent decisions of the tribunals of the Patent Office against him, a fact which imposes upon him a still greater burden of proof in this court, as we have repeatedly held. It is true that, in the Board of Examiners-in-Chief, there was dissent; but this does not materially alter the conditions. But apart even from this burden of proof upon the appellant, we think that he has wholly failed to establish his case against the appellee, and that the preponderance of evidence is greatly in favor of the latter.

There would seem to be no ground left to question the fact that the appellee conceived the invention in the latter part of April, 1897, immediately reduced it to practice, and applied for a patent on May 8, 1897, a few days thereafter. This does not seem to be controverted by the appellant. At all events, it is fully established by the testimony; and it is held to be the fact by all the tribunals of the Patent Office. It is unnecessary to enter into the proof of it in any detail.

The testimony on behalf of the appellant is of the most unsatisfactory character: some of it is open to the gravest suspicion. While he states in his preliminary statement that he conceived the invention about November 1, 1896, and reduced it to practice in December of 1896, yet he shows conclusively by his own testimony, which however is full of contradictions, that there was no attempted reduction whatever to practice by him, and probably even no conception of the idea, before the latter part of February, or the month of March, 1897. What he did then was confessedly unsuccess-

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cessful. Not until after knowledge of Mauldin's invention was communicated to him, which was almost immediately after it was made, did he construct a successful device.

A very peculiar circumstance about the case is that, although his special work with the company by which he was employed and which is the assignee of his application, was to devise means to remedy the imperfections complained of by the public in the computing-scales then in use, and he had taken out patents for previous inventions in the same precise line, and although he and his company knew of Mauldin's invention immediately after it was made, in May of 1897, yet he did not apply for Letters Patent until six months afterward.

Our examination of the testimony in this case leads us to the same conclusion that was reached by the Commissioner of Patents. To his exceedingly careful and well-considered opinion we can add nothing; and we adopt his decision that judgment of priority of invention is due and should be awarded to the appellee James L. Mauldin.

The clerk of the court will certify this opinion and the proceedings in this court in the premises according to law.

Court of Appeals of the District of Columbia.

IN RE VERLEY.

Decided April 2, 1902.

1. PATENTABILITY—OZONE APPARATUS—ANTICIPATION.

An apparatus for producing ozone by the use of electrical currents of high frequency *Held* not patentable in view of certain patents to Tesla cited. (Decision of the Commissioner, 99 O. G., 1221, affirmed.)

2. ANTICIPATION—COMBINATION—PARTS OLD IN SEPARATE PATENTS.

Where the claim covers an ozone apparatus in combination with particular means for producing currents of high frequency, *Held* anticipated by two patents, one disclosing the high-frequency apparatus used with electric lights and the other disclosing an ozone apparatus supplied by a different form of high-frequency apparatus.

3. SAME—INVENTION—DISCOVERY OF COMBINATION IS PRIOR ART.

Held that there was no invention in using a Hartman oscillator in an ozone apparatus when it had been used in other devices to obtain electric currents of high frequency and an ozone patent had described the use of devices of that class with an oscillator.

Mr. Philip Masro for the appellant.

Mr. John M. Cull for the Commissioner of Pat-

ents.

MORRIS, J.:

This is an appeal from the decision of the Commissioner of Patents, wherein he refuses to grant a patent to the applicant Albert Verley, of Courbevoie, France, for an alleged invention in electrical appliances for the production of the gaseous element known as ozone. The claim of invention is described as follows:

Is an electrical machine for producing ozone, the combination with the secondary circuit of a transformer, of a condenser connected in and adapted to be charged by said circuit, and an oscillation apparatus, into which said condenser discharges its electricity, one plate of the oscillation apparatus, and the other plate of the other condenser, having an interrupter or interrupter in its connection with the other plate of the oscillation apparatus.

Ozone, which is found to be useful in the manu-

facture of

facture of perfumes and flavors, is produced by electrical action as the result of exceedingly rapid oscillations, or oscillations of high frequency, as they are called, in an electric circuit; and the volume of ozone developed is in proportion to the frequency of oscillation. To effect the desired result the applicant uses what is known as the "Herzian exciter," or air-space, which gives rise to electrical waves of very short duration and very great frequency, amounting to millions and even billions in a second of time; and he locates his condenser, exciter, and oscillator all in the secondary circuit of the transformer. He has received a German patent for this appliance, apparently since the date of his application in the present proceeding. Whether he has received one from his own country, France, does not appear.

The application here has been rejected on the ground of anticipation of the invention in three several patents issued to Nikola Tesla—one, No. 454,622, dated June 26, 1891, purporting to be for a "system of electric lighting;" a second, No. 468,418, issued November 3, 1891, purporting to be for a "method of and apparatus for electrical conversion and distribution;" and the third, No. 538,177, issued September 23, 1896, which is specifically for an "apparatus for producing ozone." The first and second of these patents show appliances of the same general character as that of the present applicant. The appliance of the third patent is somewhat different; but the specifications of this patent refer to the two previous patents as showing appliances of the same kind that might be used for the same purpose.

All the tribunals of the Patent Office held that, in view of these patents to Tesla, there was now no patentable novelty in taking the appliances of the first and second patent and using them for the same purpose as that of the third patent, as Tesla himself had indicated might be done: and this they held was all that the present applicant did.

From the decision of the Commissioner of Patents to that effect the applicant has appealed to this court.

The appellant's contention is merely that he uses the Herzian exciter to produce ozone, while Tesla does not use that means for the same purpose, but only electrical currents of ordinary high frequency. But inasmuch as Tesla in his first and second patent does use the Herzian exciter, and that in the specifications of his third patent he says that the appliances of the other two patents may also be used for the production of ozone, as well as the

special appliance which he does use for that special purpose, we concur with the tribunals of the Patent Office in holding that this was a plain anticipation of Verley's idea. An attempt is made to distinguish between the Herzian exciter and other apparatus for the production of electric currents of high frequency, and between electrical currents having oscillations of twenty or thirty thousand a second and those having billions of such oscillations; but we fail to find any warrant for the distinction. The difference is plainly one of degree, not of kind. Moreover, Tesla expressly refers to currents of high frequency having many millions of oscillations a second. We can, therefore, find no patentable novelty in the use of the Herzian exciter to produce ozone.

There would seem to be some advantage in the applicant's location of his condenser, exciter and oscillator in the secondary circuit of his transformer, instead of having them in the primary circuit, where Tesla places them. It would seem that this special location tends to prevent the formation of arcs across the exciter or air-space, and that such prevention is desirable in the production of ozone. If there is patentable novelty in this arrangement, as possibly there may be, we presume that a patent would be allowed upon application and specifications distinctly directed thereto. The question of the patentability of the appellant's device in that special regard does not seem to have been passed upon by the Commissioner of Patents, or by the other tribunals of the Patent Office, except by their general refusal of a patent, notwithstanding that the point seems to have been made before all of them by the applicant's counsel. But we have no means of ascertaining on this appeal whether the result of the appellant's location of his condenser would be as claimed, or whether there is such superiority in it over Tesla's device as would justify its being regarded as patentable invention. There are modes by which this can be determined; and we think that the appellant should be remitted to some of those modes for the establishment of this special claim, if he can establish it.

It is our conclusion that no sufficient reason has been shown to induce us to disturb the decision of the Commissioner of Patents, and that the decision should be affirmed. It is accordingly hereby affirmed.

The clerk of the court will certify this opinion and the proceedings of the court in this cause to the Commissioner of Patents according to law.

[Vol. 92. No. 10]

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 92.—No. 11.

TUESDAY, JUNE 10, 1902.

Price—\$6 per year.

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TO CITIZENS OF THE UNITED STATES.			
States.	Patents and Designs.	Trade-Marks and Labels.	Prints.
Alabama	1		
Alaska Territory			
Arizona Territory			
Arkansas	1		
California	17	8	
Colorado	12		
Connecticut	3		
Delaware	1		
District of Columbia	1		
Florida	1	1	
Georgia	1		
Hawaii Territory	1		
Idaho	1		
Illinois	25	7	
Indiana Territory			
Indiana	12		
Iowa	12		
Kansas	1		
Kentucky	1		
Louisiana	1		
Maine	1		
Maryland	1		
Massachusetts	1		
Michigan	1		
Minnesota	1		
Mississippi	1		
Missouri	14	2	
Montana	1		
Nebraska	1		
Nevada			
New Hampshire			
New Jersey	1		
New Mexico Territory			
New York	24	3	
North Carolina	4		
North Dakota			
Ohio	24	6	
Oklahoma Territory			
Oregon			
Pennsylvania	75	3	
Rhode Island	4		
South Carolina	1	1	
Tennessee	4	1	
Texas	3		
Utah	1		
Vermont	1		
Virginia	7	1	
Washington	1		
West Virginia	1		
Wisconsin	1		
Wyoming	1		
U. S. Navy			
Total to citizens of the United States	508	28	

TO CITIZENS OF FOREIGN COUNTRIES.			
Countries.	Patents and Designs.	Trade-Marks and Labels.	Prints.
Austria-Hungary	3		
Barbados			
Belgium	1	1	
Bermuda			
Brunei			
Canada	15	1	
Cape Colony			
Chile			
China			
Cocos Island			
Colombia			
Cuba			
Denmark	1		
Egypt			
England	27	1	
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Netherlands			
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New South Wales			
New Zealand			
Norway			
Porto Rico			
Queensland			
Roumania			
Russia			
Scotland			
South Africa Republic			
Spain			
Sweden			
Switzerland			
Tasmania			
Texas			
Victoria			
Western Australia			
Total to citizens of foreign countries	11	2	

Attorneys.
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 4, 1902.
This Office has been advised by the Secretary of the Interior of the disbarment of the following attorneys from practice before the Department or any Bureau thereof: John Wainwright, Wilmington, Del., May 10, 1902; Lindsey Steele, Chester, Ill., May 10, 1902.
C. M. IRELAND,
Chief Clerk.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 4, 1902.
This Office has been advised by the Secretary of the Interior that Department Order of April 20, 1899, disbarring Thomas J. Devitt, of Montpelier, Vt., from practice before the Department and its Bureaus was rescinded May 21, 1902.
C. M. IRELAND,
Chief Clerk.

Access to Pending Applications.
Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 3, 1902.

Room No.	Divisions and subjects of invention.	Oldest new applications and oldest action by applicant awaiting of free action.		No. of applications awaiting action.
		New.	Amended.	
In arrears—Under one month.				
117	XXXIII. *DESIGNS, TRADE-MARKS, LABELS AND PATENTS, Optics, and Photography.	May 21	May 24	50
118	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	May 15	May 21	204
140	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	May 13	May 20	128
142	X. Carriages and Wagons.	May 7	May 17	120
143	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	May 7	May 8	201
144	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	May 5	May 21	100
145	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	May 5	May 21	165
206	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	May 5	May 20	111
187	XXVI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	May 5	May 20	108
208	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 5	May 20	121
64	XXXV. Accountants, Baggage, Baskets, Buttons, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	May 5	May 18	207
245	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trawling.	May 5	May 17	200
246	XV. Plastics, Paper-Making, Paying, Cutlery, Glass, Fuel, Bread-Making, etc.	May 5	May 16	206
261	XXIV. Railways, Railway-Breaks, Draft Appliances, and Rolling-Stock, Signals, and Car-Services.	May 5	May 16	246
67	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	May 5	May 14	128
268	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Sarsary, etc.	May 5	May 14	241
248	I. Tillage, etc., and Fences.	May 3	May 20	180
249	XXVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	May 3	May 20	200
187	XXX. Paper Manufactures, Lamps and Gas-Fittings.	May 3	May 19	200
198	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	May 3	May 13	240
Between one and two months.				
265	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	May 2	May 20	108
266	XXIII. Acoustics, Electric Signaling, Horology, Records, and Registers.	May 2	May 9	211
128	XIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	May 1	May 22	148
260	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Appliances.	May 1	May 19	220

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new applications and oldest action by applicant awaiting of action.		No. of applications awaiting action.
		New.	Amended.	
260	XIV. Metal Bending, Ornamenting, and Personal Wear, Farmery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Work, Making, etc.	Apr. 26	May 2	200
126	XXIII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping, and Boiling Vessels, Refrigerators, etc.	Apr. 21	May 20	271
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewage, and Water Distribution.	Apr. 21	Apr. 21	205
266	XXIX. Wood-Working Machines, Coopering and Hoisting.	Apr. 11	Apr. 19	254
242	XIV. Armies and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Grubbers.	Apr. 7	Apr. 7	200
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Apr. 4	Mar. 21	446
180	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Apr. 3	May 2	200
<i>Between two and three months.</i>				
245	XVIII. Steam-Engineering, etc.	Apr. 1	Mar. 26	200
11	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 20	Mar. 20	200
80	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 17	Mar. 15	200
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Mar. 4	Apr. 10	400
<i>Between three and four months.</i>				
105	XI. Boots and Shoes, Harness, Horse and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Feb. 17	Apr. 14	400

Total number of applications awaiting action..... 6,319

Under one month.

*Designs.....	May 13	May 15	121
†Trade-Marks.....	May 19	May 20	181
‡Labels and Prints.....	May 24	May 26	23

Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 4, 1897, corrected to January 2, 1902, has been published, and copies will be furnished at the price of ten cents each, two five-cent coupons being acceptable in payment therefor.

Registrants are requested to give notice of any error that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of his professional standing, does so without authority.

Hearings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 28, 1902.

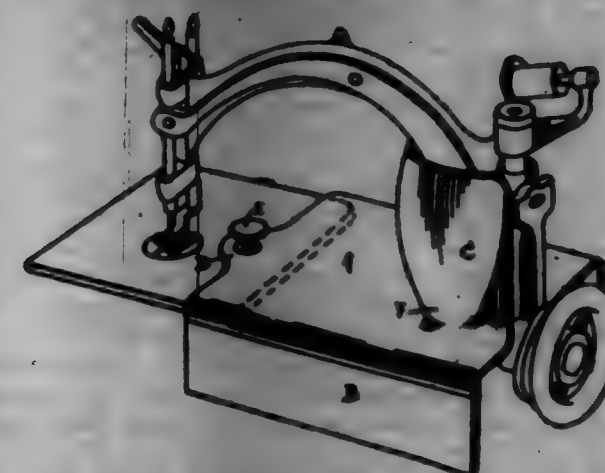
Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1902.

F. I. ALLEN,
Commissioner.

PATENTS

GRANTED JUNE 10, 1902.

701,824. COMBINED TABLE AND GUARD ATTACHMENT FOR SEWING-MACHINES. RALPH H. ANDERSON, Philadelphia, Pa. Filed Dec. 28, 1901. Serial No. 87,176. (No model.)



Claim.—1. A combined table and guard attachment for sewing-machines, comprising a plate or table adapted to be attached to a fixed part of the machine, and an upwardly-extending shield having the form of a conical frustum in cross-section, curved to said table and adapted to enclose the machine-arm, substantially as described.

2. A combined table and guard attachment for sewing-machines, comprising a plate, adapted to overlap the machine-table, an upwardly-extending conical shield adapted to enclose the machine-arm, and means for attaching said plate to the machine-table, substantially as described.

3. A combined table and guard attachment for sewing-machines, comprising a plate adapted to be attached to the machine-table, an upwardly-extending shield having a conical curved, reduced lower portion and a flaring upper portion adapted to enclose the machine-arm and means for attaching said plate to the machine, substantially as described.

4. A combined table and guard attachment for sewing-machines, comprising a plate adapted to be attached to the machine-table having an integral ear or flange extending from one end thereof and a downwardly-extending apron attached to one edge, an integral conical curved shield extending from the other end of said plate, said shield where connected to said plate having a gradually upwardly curving surface and reduced at its lower portion and fixed above to enclose the machine-arm and means for attaching said plate to the machine, substantially as described.

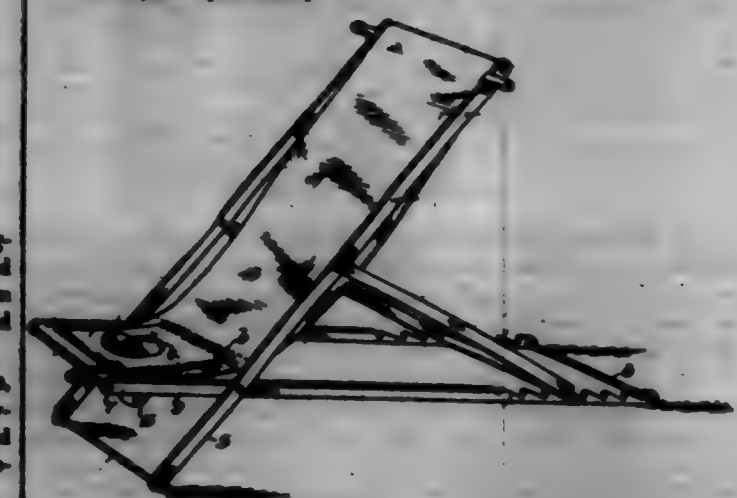
701,825. SMOOTHING-IRON. EDWARD F. ALDRICH, Covington, La. Filed Sept. 12, 1901. Serial No. 78,268. (No model.)



Claim.—1. In a smoothing-iron, a fuel-chamber having a flared or corrugated bottom, lateral air-flues open along their lower edges into said bottom, an end flue in the plane of the lateral flues at the heel of said iron connecting the lateral flues, an opening in the rear wall of said heel in the horizontal plane of said connecting-flue for leading the exhaust-air horizontally or directly into said connecting-flue, combined with a three-part damper consisting of an open part, a reversed part, and a closed part arranged as that any of said parts can be brought to coincide with said opening in the heel of the iron.

2. In a smoothing-iron, a fuel-chamber having a flared or corrugated bottom, an air-admission opening thereto in the heel of the iron in approximately the plane of the bottom, combined with a three-part damper comprising an open part, a reversed part, and a closed part, said damper being journaled so that any of said parts can be brought to coincide with the said air-admission opening.

701,826. INVALID RECLINING-CHAIR. EDWARD W. ANDERSON and EDWARD L. JOHNSON, Nevada, Mo. Filed Nov. 14, 1901. Serial No. 82,280. (No model.)



Claim.—The combination with a flexible chair-seat section having a double reinforced surrounding central opening therein, of a detachable rectangular flexible pad provided with a central opening, a downwardly-projecting curved flexible tube detachably connected with the reinforced opening, and a conical-shaped flexible apron secured to the tube and adapted to coast with the pad, substantially as and for the purpose specified.

701,827. SEWAGE-DISPOSAL PLANT. GEORGE E. ANDERSON, JOHN W. SEYMOUR, and ALEXANDER LOPEZ, New York, N. Y., assignors to the United States Sanitary and Utility Sewage Disposal Company of New Jersey, New York, N. Y. Filed Aug. 5, 1901. Serial No. 79,602. (No model.)

Claim.—1. In a sewage plant, the combination of a series of vertical filters and tanks arranged side by side so that the effluent drains side-wise from one to the other, a series of pipes adapted to drain the final tank of said series of filters, suitable spraying attachments for distributing said drainage, means for creating said spray consisting of blowers for driving in the pure air and drawing out the final air from said spraying-chamber and means for burning the gases in said air as it comes through the spray.

2. In a sewage plant, the combination with a series of suitable vertical filtering devices arranged side by side, drain-pipes therefor provided with branch pipes and spraying attachments to distribute and aerate the effluent as it is drained from the filters, a chamber in which said spraying is effected, a blower at either end of said chamber for forcing air in and out, for the purpose of aerating the effluent, and a return for destroying the gases in the air that come from said chamber, substantially as described.

3. The combination in a sewage plant, of a series of tanks and filters intermediate of said tanks, the whole arranged to insure the drainage of effluent from one to the other, connections for draining the last of said series, a system of perforated piping connected with said drainage adapted to finely distribute said effluent on a large area of surface, means for thoroughly aerating said distributed water as it falls from the pipe, a filter

ing-bed through which said water flows and perforated drains beneath said bed to convey the water therefrom.



4. In a sewage plant the combination with a filtering and settlement tank, of a series of fixed suction-pipes located therein, a track extending around said tank and portable pump mounted upon said track adapted to be successively connected with each of said suction-pipes, substantially as described.

5. In a sewage plant, the combination with a series of settlement-tanks arranged adjacent to each other, filters intermediate of said tanks to permit the effluent to drain from one to the other, a stationary main suction-pipe extended across said tanks, branch pipes extended into each tank from said main pipe, valves for cutting out any or all of said branch pipes and a pump for said pipes.

6. In a sewage plant the combination with a series of filtering-tanks for containing sewage and arranged side by side, of means for removing the sludge therefrom consisting of a series of transverse pipes extending across said series and having depending members for each section with suitable valves for opening and closing the several parts thereof and a portable pump adapted to be connected with either of said pipes to draw up said sludge and convey it to a suitable receptacle.

7. In a sewage plant, the combination with a series of tanks for containing sewage arranged adjacent to each other and filters intermediate of said tanks, of means for removing the sludge therefrom consisting of stationary sections of piping covering adjoining parts of the tanks, branch pipes on each of said sections, valves for opening and closing the several branches in said sections, a track adjacent to the tanks and a portable pump located upon the track adapted to be moved from one section of piping to another for attachment therewith to remove the sludge from the tanks through said sections and discharge it into any suitable vehicle.

8. In a sewage plant the combination with a receiving-tank, of a second tank adjacent thereto, one or more screens dividing said tank, the same adapted to fit in suitable ways and to float with the effluent in a manner to retard the light substances in said effluent, substantially as shown and described.

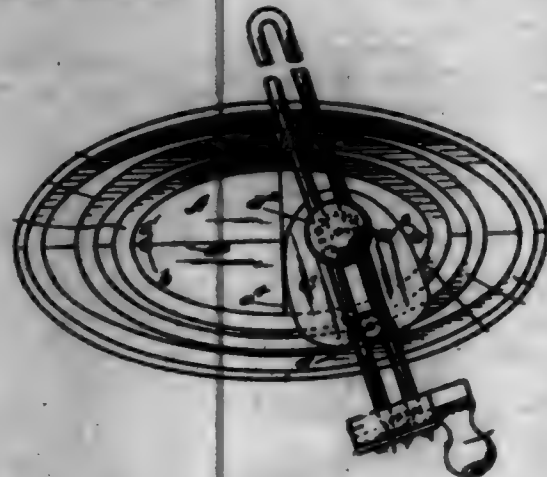
9. In a sewage plant, the combination with a receiving-chamber, of a mixing-wheel located therein adapted to receive the inflow from the sewer, means for grinding and feeding fine or coarse other suitable disinfectant thereon, tanks arranged adjacent to said mixing-chamber, valves for controlling the flow of sewage from said chamber to each of said tanks, a series of vertically-arranged tanks and filters and means for raising the effluent from the first-named tanks.

10. In a sewage plant, the combination with receiving-tanks, of a pump adapted to raise the effluent therefrom, a series of vertical tanks and filters through which the effluent is passed, blowers for purifying the effluent as it comes from said vertical filters and a robot to receive and burn the air as it comes from the blowers, a horizontal filtering-bed upon which said effluent is freely distributed during aeration.

11. In a sewage plant of the class described, the combination with

a receiving-tank, a series of vertical filters located side by side, means for feeding the water from the tank to the filters, a storm-cover connected with the tank adapted to receive the effluent therefrom after it reaches a given height, a drain-pipe for said vertical filters with perforations for distributing and aerating the water as it comes from said filters, a final horizontal filtering-bed through which said effluent passes, and drains for said bed connected with the storm-cover adapted to receive the purified water.

701,828. MAT-CUTTER. CHARLES ARNDT, Chicago, Ill., assignor to John E. McDonald, Chicago, Ill. Filed Nov. 4, 1901. Serial No. 51,082. (No model.)



Claim.—1. In combination, the guide-plate provided with oval grooves, a traveler-plate means for coming said plate to move in conformity with said oval grooves and an arm rigidly secured to said traveler-plate.

2. A guide-plate provided with guide-grooves therein, a traveler-plate, rollers on said latter plate to engage said grooves, an arm rigidly and adjustably secured to said traveler-plate and carrying a cutter.

3. A guide-plate provided with grooves adjustable holding-points, a traveler-plate provided with rollers or equivalent means adapted to engage with said grooves, an arm adjustably secured to said traveler-plate, a clotted center-head on said arm, a handle adapted to engage with said dot, means for adjustably holding said handle and means, comprising a pair of handles, for operating said arm and cutter substantially as described.

701,829. REUSE. SALON E. BARON, Paterson City, Cal. Filed Oct. 18, 1901. Serial No. 73,966. (No model.)



Claim.—1. A brush comprising brush fiber arranged in a bunch, a filler-block inclosed therein, a resilient clamping member adapted to engage the bunch and provided with a tang, the free end of the said member being located adjacent to the point of juncture of the tang, a handle loosely mounted on the tang and adapted to engage the said free end, and means carried by the tang for moving the handle into engagement with the said end.

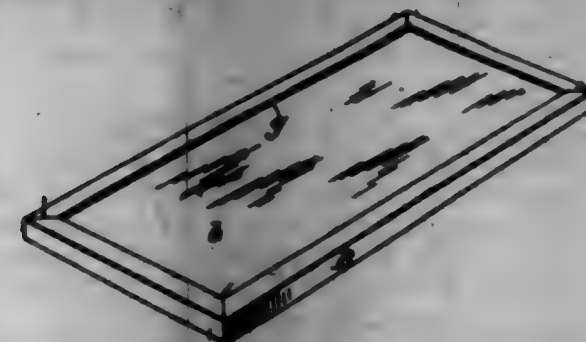
2. A brush comprising brush fiber arranged in a bunch, a resilient clamping member having oppositely-disposed outward bulges and provided with a tang, the free end of the member being arranged adjacent to the point of juncture of the tang, a filler-block inclosed in that portion of the bunch included between the bulges, a handle mounted on the tang, and means for moving the handle into engagement with the free end of the clamping member to bind the brush therein.

3. A brush comprising brush fiber arranged in a bunch, a resilient clamping member having oppositely-disposed outward bulges and constricted edge portions, and provided with a tang, the free end of the member being arranged adjacent to the point of juncture of the tang, a filler-block inclosed in that portion of the bunch included between the bulges, a handle mounted on the tang, and means for moving the handle into engagement with the free end of the clamping member to bind the brush therein.

701,830. PARTITION FOR MOLD-FLASKS. HARRY W. BELL, New York, N. Y. Filed Jan. 31, 1902. Serial No. 91,968. (No model.)

Claim.—1. A division-board or partition for molds for building-blocks, comprising a structure provided with a facing of relatively thin and flexible material the greater area of which is free or unattached and possesses

the capacity to be peeled from the surface of the molded block, said facing also having attached areas, whereby the facing is caused to restore itself to the side of said structure as the partition is drawn away from the block.



2. A division-board or partition for molds for building-blocks, comprising a structure provided with a facing of relatively thin and flexible sheet metal the greater area of which is free or unattached, and possesses the capacity to be peeled from the surface of the molded block, said facing also having attached areas, whereby the facing is caused to gradually restore itself to the side of said structure as the partition is drawn away from the block.

3. A division-board or partition for molds for building-blocks, comprising a structure provided with a facing of relatively thin and flexible material, and means clamping the facing to the structure at the edges, said facing having the capacity to be peeled from the surface of the molded block on separation of the partition from the block.

4. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and means independent of the side pieces of the flask also of metal holding the facing in place and soldered thereto.

5. A partition for molds for plastic blocks, comprising a structure provided with a facing having the capacity to be drawn outwardly from said structure by adhesion of the material of the block thereto, on separation of the partition from the block, and to peel from the surface of the block on gradually-changing lines; and means securing said facing to the partition at portions only thereof whereby the unsecured areas or portions are caused to restore themselves to the side of the structure on similarly-changing lines with each increment of force applied to separate the partition from the block.

6. A partition for molds for plastic blocks, comprising a structure provided with a facing of relatively thin and flexible sheet metal having the capacity to be drawn outwardly from said structure by adhesion of the material of the block thereto, on separation of the partition from the block, and also to peel from the surface of the block on gradually-changing lines; and means securing said facing to the partition at portions only thereof, whereby the unsecured areas or portions are caused to gradually restore themselves to the side of the structure on similarly-changing lines with each increment of force applied to separate the partition from the block.

7. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and means also of metal clamping the facing in place and soldered thereto.

8. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing, and a frame independent of the side pieces of the flask for holding said facing in place.

9. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing, and a frame of metal independent of the side pieces of the flask clamping the facing in place.

10. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and a frame independent of the side pieces of the flask for holding said facing in place.

11. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and a frame also of metal and independent of the side pieces of the flask for holding the facing in place.

12. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing, and a frame independent of the side pieces of the flask joined to the facing and holding the same in place.

13. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing, and a frame independent of the side pieces of the flask joined to said facing and holding the same in place.

14. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of

sheet metal, and a frame independent of the side pieces of the flask and joined to said facing and holding the same in place.

15. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and a frame also of metal independent of the side pieces of the flask and joined to said facing and holding the same in place.

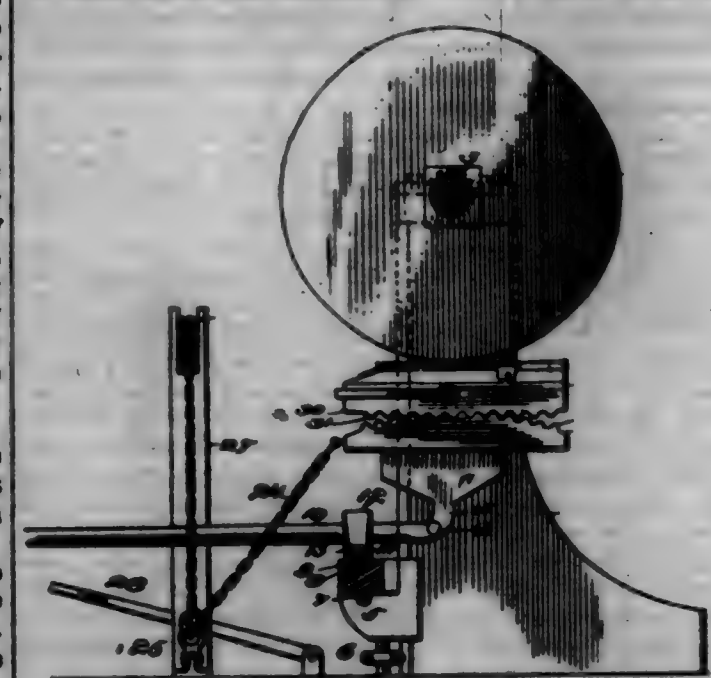
16. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing of sheet metal, and a frame also of metal soldered to said facing and holding the same in place.

17. A division-board or partition for flasks for brick and similar molds comprising a board or similar structure provided with a facing on either side thereof, and a frame bent to embrace the structure at the edges to hold the facings in place against the board, said frame being soldered along its edges to the facings.

18. A mold for building-blocks, comprising detachably-connected side portions and division-boards or partitions forming mold-spaces, each of said portions and partitions being provided with a facing of relatively thin and flexible material the greater area of which is free or unattached and possesses the capacity to be peeled from the surface of the molded block, said facings each also having attached areas whereby the facing is caused to gradually restore itself to the side of its support on drawing said portions and partitions away from the block.

19. A mold for building-blocks, comprising side portions having corresponding grooves at intervals of the lower surfaces thereof, and division-boards or partitions with their ends detachably fitting the grooves to form mold-spaces, each of said portions and partitions being provided with a facing of relatively thin and flexible material the greater area of which is free or unattached and possesses the capacity to be peeled from the surface of the molded block, said facings each also having attached areas whereby the facing is caused to gradually restore itself to the side of its support on drawing said portions and partitions away from the block.

701,831. MACHINE FOR GRINDING TROWELS. HARRY BROS. Frankford, Pa. Filed Dec. 31, 1901. Serial No. 97,911. (No model.)



Claim.—1. In a machine for grinding trowels, a trowel-block, a clamping-lever pivoted in one end thereof, a wire connected to the lever, the said wire passing through the said block at an angle, a cam-shaped lever pivoted in the block and connected to the wire, a pivoted arm upon the cam-shaped lever, a hook upon the said arm, a ratchet upon the side of the block adapted to engage the said hook, a plate upon the top of the block, the said plate having a depression and flanges, the bottom of the block having a central groove and corrugations substantially as shown and described.

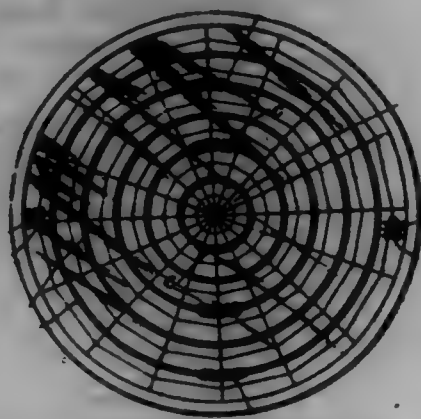
2. In a machine for grinding trowels, a trowel-block, a clamping-lever pivoted in one end of the said block, a cam-shaped lever pivoted in the other end, a wire passing through the block at an angle, the said wire connecting the two levers, an arm pivoted to the cam-shaped lever, a hook upon the free end of the said arm, a ratchet upon the side of the block adapted to engage the said hook, a plate upon the top of the block, a depression and flanges upon said plate, the bottom of the block being curved, a central groove and corrugations upon the curved portion of the block, substantially as shown and described.

3. A machine for grinding trowels, in combination with a grind-

ring mounted in said groove, the said carriage consisting of similar curved handles, braces connecting the said handles, a tongue upon one of the said braces, an enlarged portion upon the said tongue, curved faces formed upon the said handles, a block having slots in the bottom thereof engaging the curved faces upon the handles, the said block connected by a chain to and operated by a foot-lever, the top of the block being curved, a central rib and corrugations upon the curved portions, a travel-block adapted to rest upon the first-mentioned block, substantially as shown and described.

4. A machine for grinding troughs, in combination with a grindstone, an adjustable horizontal bar, a groove in said bar, a rocking carriage mounted in said groove, a sliding block mounted upon said carriage, a foot-lever connected to and controlling said block, a travel-block mounted upon the first-mentioned block, substantially as shown and for the purpose set forth.

701,882. GAME OR PUZZLE. JOHN H. BURNETT and MCHEN L. ZIEHENDRUM, Philadelphia, Pa. Filed Sept. 10, 1901. Serial No. 74,935. (No model.)



Claim.—1. In a game or puzzle, a box having compartments and passages therebetween, obstructions in the passages, movable pieces varying in susceptibility to the movement of the box, means whereby the pieces may be magnetically connected and whereby the movement of one is communicated to the other.

2. In a device of the character described, a box, plates movable therein, rollers for supporting the pieces, the roller on one piece being more sensitive to the movement of the box than the roller on the other pieces and means for magnetically connecting the pieces.

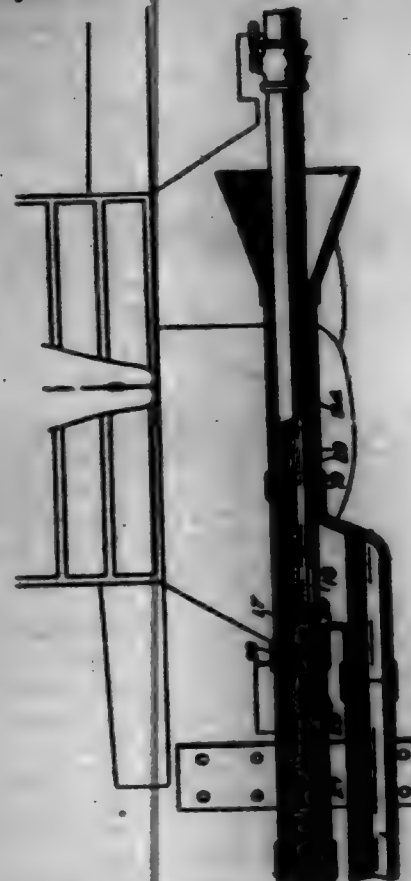
3. In a game or puzzle, a circular box, a transparent cover placed over said box, a circular central compartment, concentric circular partitions arranged around the central compartment at a distance one from the other so as to form a series of circular passages in between each two partitions, openings formed through said partitions at suitable places, the bottom of the box adapted to be painted or printed to represent a spider-web, ridges slightly raised above the bottom of the box and extending across the openings through the partitions, two movable objects, one formed to represent a spider and the other a fly adapted to move along the passages, small wheels or rollers journaled underneath and in the body of said movable objects, said wheels or rollers resting upon the bottom of the box, the wheel or roller within the fly adapted to roll more easily than the wheel or roller within the spider, a piece of magnetized steel secured in one of the objects and projecting outward therefrom, a piece of soft iron secured in the other object and projecting outwardly therefrom, substantially as and for the purpose set forth.

701,888. TRAIN-PIPE COUPLING. GUY L. BURNAN, Birmingham, Pa. Filed Jan. 15, 1902. Serial No. 55,053. (No model.)

Claim.—1. In a device of the class specified, an automatic coupling comprising a male member having an opening or passage, a female member having an opening or passage in communication with the train-pipe, an automatic valve carried by the female member and adapted to be moved to open position and wholly out of the path of the flow of air by contact with the male member, said valve having a closing movement in the direction of the mouth of the female member and curving to keep the same clear from foreign matter, substantially as specified.

2. In a device of the class specified, a male member comprising a tubular portion having a closed end, there being an opening formed in the wall of said tube, packing-rings arranged on the periphery of said male member, a female member having an opening or passage in communication with the train-pipe, a spring-pressed valve situated in said female member and normally held in closed position, said valve being adapted to be opened by contact with the male member, and to be moved thereby wholly out of the path of the flow of air, and the packing-rings of the

male member serving to prevent leakage of air from the female member, substantially as specified.



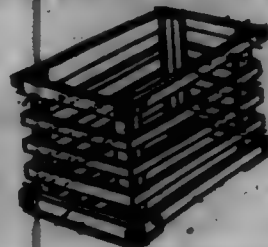
3. In a device of the class specified, a coupling comprising interfitting male and female members having registering and communicating openings, the opening in one of said members being elongated to permit longitudinal play of said coupling members, without diminishing the flow of air.

4. In a device of the class specified, a male member comprising a tubular portion having a closed end and an opening for the passage of air, packing-rings disposed on said male member at a point to the rear of the air-passage, a female member having at its rear and a valve-containing chamber and coupled at a point intermediate of its length to the train-pipe, a cylindrical valve adapted to said female member, a buffer disposed on the end of said valve for contact with the male member, and a compression-spring situated within the female member and normally holding said valve in closed position.

5. In a device of the class specified, a male member comprising a tubular portion having an air-passage or opening, a female member comprising an elongated tubular body, a coupling arranged intermediate of the length of the female member and having a narrow elongated passage in communication with the train-pipe, said female member having an enlarged conical mouth, a valve arranged within the female member, packing-rings disposed on said valve, and a spring situated within the female member and normally holding said valve at a point adjacent to the mouth of the tubular body and serving to prevent the accumulation of foreign matter therein, substantially as specified.

6. In a device of the class specified, a pair of interfitting coupling members, and an automatic valve carried by one of said members and adapted to be opened by contact with the mating member, said valve when opened being wholly out of the path of the flow of air.

701,884. KNOCKDOWN CRATE. BERNARD E. ROTA, Newark, Mich. Filed Mar. 12, 1902. Serial No. 57,592. (No model.)

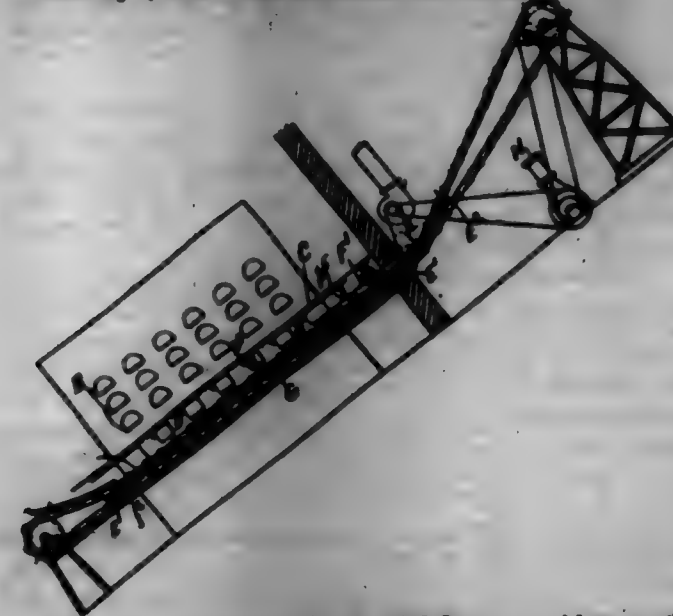


Claim.—1. A knockdown crate having side and end walls formed with horizontal top and bottom bars, the adjacent ends of said bars having a socket-and-tongue engagement one with the other, pins jointly connecting adjacent sockets and tongues, slanting interior upright corner-strips, and a separable bottom, said ends provided with ledges to support the bottom.

2. A knockdown crate having side and end walls formed with horizontal top and bottom bars, the adjacent ends of said bars having a socket-and-tongue engagement one with the other, pins jointly connecting adjacent sockets and tongues, interior slanting upright corner-strips, and a separable bottom, said ends provided with ledges to support the bottom, said corner-strips cut away at their lower ends to permit the bottom resting thereunder.

3. A knockdown crate having side and end walls formed with horizontal top and bottom bars, the adjacent ends of said bars having a socket-and-tongue engagement one with the other, pins jointly connecting adjacent sockets and tongues, interior slanting upright corner-strips, and a separable bottom, said ends provided with ledges to support the bottom, said corner-strips cut away at their lower ends to permit the bottom resting thereunder to hold the bottom from rising off from the support.

701,885. CONVEYER. GASTON A. BARNARD, Brooklyn, N. Y. Filed May 2, 1901. Serial No. 55,044. (No model.)



Claim.—1. A conveyor, a liquid-sealed flue, over and between the body of the conveyor and its running-gear, all in combination with means for propelling the conveyor in the said flue.

2. A conveyor, wheels journaled to the conveyor, a flue with its side walls extending between the body or buckets of the conveyor and the wheels thereof, all in combination with means for propelling the conveyor in the said flue.

3. The combination of a conveyor, wheels journaled to the conveyor, a trough below the conveyor, a flue extending from above the conveyor and between the body of the conveyor and the wheels thereof, and means for propelling the conveyor.

4. A conveyor, wheels carrying the conveyor, a flue with its side walls extending between the body or buckets of the conveyor and the wheels of the conveyor, in combination with an exhausting apparatus, and means to propel the conveyor.

5. A conveyor, wheels journaled to the conveyor, a liquid-sealed flue interposed between the body of the conveyor and the wheels thereof, in combination with an exhausting apparatus connected to the flue, and means for propelling the conveyor in the flue.

6. The combination of a conveyor, a trough below the conveyor, a flue covering the body of the conveyor, wheels of the conveyor located outside of the flue and the trough, and means for propelling the conveyor.

7. A cake-conveyor, a water-trough under and communicating the conveyor, a cooling-flue issuing the body of the conveyor and projecting into the said water-trough, chutes leading into the flue, means for spraying and quenching hot cake in its descent through the chutes, additional means for spraying and quenching the cake in its passage through the flue, means for preventing the cake choking up the flue, all in combination with an exhausting apparatus connected with said flue.

8. The combination of a water-trough, a cooling-flue projecting into the trough, a conveyor with its body located by the said flue and trough, and wheels of the conveyor located outside of the flue and trough, and means for propelling the conveyor through the said flue and trough.

9. The combination of a conveyor, a trough below the conveyor, a flue including the body of the conveyor, running-gear connected to conveyor outside of said flue, chutes leading into the flue, water-outlet pipes in the chutes, and means for propelling the conveyor through the trough and flue.

10. The combination of a conveyor, a trough below the conveyor, a flue over the conveyor, chutes leading into the flue, covers on the chutes, water-outlet pipes in the chutes, valves fitted in the said pipes, means to

operate the valves by the opening and closing of the covers, and means to drive the conveyor through the said trough and flue.

11. The combination of a conveyor, a trough below the conveyor and extending above the bottom of the conveyor, a flue covering the conveyor and projecting into the trough, chutes leading into the flue, water-outlet pipes in the chutes, a main water-supply pipe connecting the said outlet, covers swinging on the top of chutes, valves in the outlet-pipes, links connecting the covers and the said valves, and means to drive the conveyor.

12. The combination of a conveyor, a trough below the conveyor and projecting above the bottom of the conveyor, a flue covering the body of the conveyor and projecting into the trough, projecting pieces extending from the sides of the flue on the inside, cross-braces connecting the inside faces of the flue above the conveyor, chutes leading into the flue, and means for driving the conveyor.

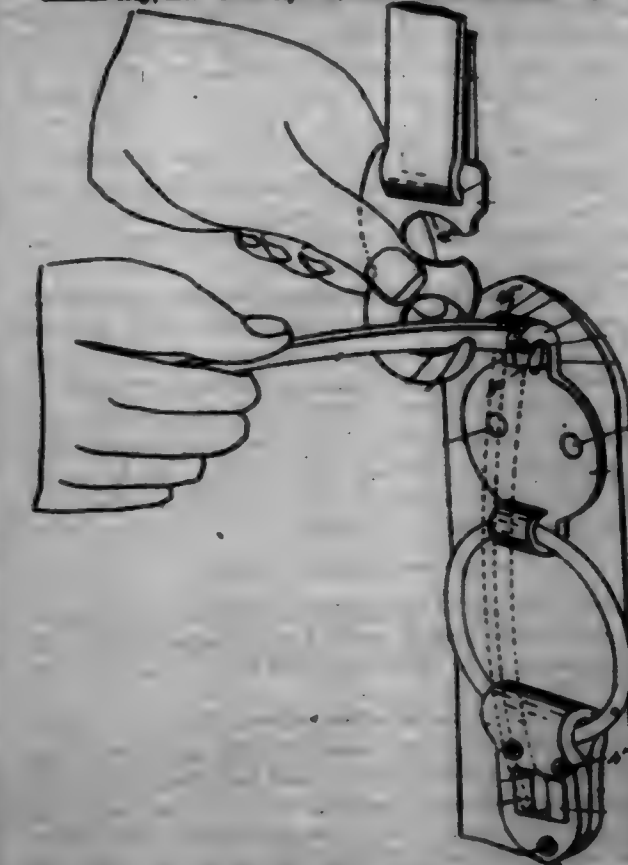
13. The combination of a conveyor, a trough below the conveyor, a flue covering the body of the conveyor and projecting into the trough, projecting pieces extending from the sides of the flue on the inside, cross-braces connecting the inside faces of the flue above the conveyor, chutes leading into the flue, and means for driving the conveyor.

14. The combination of a bucket conveyor, a trough with a depression and elevated end, a flue over the buckets of the conveyor and extending into the trough, ends projecting from the flue and extending below and between the sides of the conveyor-buckets and the running-gear wheels journaled to the conveyor outside of the said flue, and means for driving the conveyor.

15. A conveyor, wheels carrying the conveyor, a trough secured below the conveyor, a flue fixed above the conveyor and projecting into the trough, between the body or buckets of the conveyor and the wheels thereof, in combination with an exhaust apparatus connected to the flue, and means for driving the conveyor.

16. The combination of a bucket conveyor, openings in the body of the bucket, combined frames and links carrying the buckets, wheels journaled to the frames, a trough secured below the buckets of the conveyor, the wheels of conveyor rolling on the top faces of the sides of the trough, a flue above the conveyor and extending into the trough, chutes leading into the flue, an exhaust-blower connected to the flue, means for driving the blower, covers on the chutes, spray-pipes in the chutes, valves fitted to said pipes, a main supply-pipe connecting the spray-pipes, covers on the chutes, links connecting the covers and the valves, sprocket drive-wheels, idler-wheels, guiding-curves for the conveyor, secondary outlets extending into the flue from the main water-supply pipe, and means for driving the conveyor.

701,886. FASTENING FOR SADDLE-GIRTH. GUYTON I. BURN, Kansas City, Mo., assignor of one-half to Frank H. Crocker, Kansas City, Mo. Filed Apr. 15, 1901. Serial No. 55,057. (No model.)



Claim.—1. A fastening comprising a base-plate, and an extension of said base-plate at one end thereof, and extending and downwardly ex-

tended legs upon said extension having recesses in their under surfaces, and a notch intermediate said legs, a downwardly-curved projection of the under surface of said extension of the base-plate in rear of said notch, an operating-lever, and an extension of said lever at an angle thereto and inwardly between said legs, having a curved depression in the upper surface bearing upon the downwardly-curved projection of the extension of said base-plate, and a keeper-plate having an opening for the operating-lever extending beneath said legs and engaging with the mid extension of the operating-lever.

2. In fastenings for saddle-girths, &c., an extended lever, a leg upon the free end of said lever, and ribs on said leg, a strap having a socket, a reinforcing-plate in said socket having spring sides bent upon the upper surface of said strap, and a bottom to said plate extending beyond the plane of the lower surface of the strap, and a covering-strip upon the bottom of said plate engaging with the lower surface of said strap.

701,837. BOLSTER FOR CARR. SAMUEL F. BURN, Columbus, Ohio. Filed Aug. 12, 1901. Serial No. 73,551. (No model.)



Claim.—1. A car-bolster comprising an integrally-formed compression member and strut, in combination with a single plate tension member, and means for securing the ends of the tension and compression members together, substantially as described.

2. A car-bolster comprising an integrally-formed compression member, and strut, in combination with a separate single plate tension member, and means for securing the said tension member and compression member together at the ends of the same, comprising end castings secured upon one side of the tension member, and rivets passing through the end castings, the tension member, and the compression member, substantially as described.

3. A car-bolster having a channel-iron compression member, said compression member having a center plate and side bearings formed integrally therewith, a tension member, a strut, and means for securing the compression member and tension member together at the ends of the same, substantially as described.

4. A car-bolster comprising an integrally-formed compression member and strut, in combination with a tension member, means for securing the ends of the tension and compression members together, and a separately-formed tension-member seat for said strut, substantially as described.

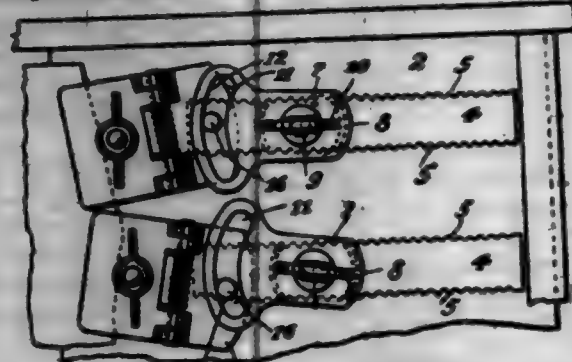
5. A car-bolster having an integrally-formed channel-iron compression member and strut, said compression member having flanges upon the strut side thereof, constructed to brace the strut, a plate-tension member, and means for securing the compression member and tension member together at the ends, substantially as described.

701,838. LEATHER-STRETCHING MACHINE. JOHN CALDWELL, Minneapolis, Minn., assignor to W. A. Holt Company, Minneapolis, Minn., a Corporation of Minnesota. Filed Jan. 4, 1902. Serial No. 34,578. (No model.)

Claim.—1. The combination with a leather-holder having a projection in rear of its leather-engaging means, of a coupling device provided with means for making laterally-variable pivotal connection with said projection, and means for adjustably and pivotally connecting the coupling device to a part of a stretching mechanism, substantially as set forth.

2. The combination with a leather-holder having a projection in rear of its leather-engaging means, of a coupling device having means for making laterally-variable connection with said projection, and means for

pivotally and adjustably connecting the coupling device to a part of a stretching mechanism, substantially as set forth.



3. The combination with a leather-holder having a projection in rear of its leather-engaging means, of a coupling device having a transverse slot converging to ward the leather-holder for making laterally-variable pivotal connection with said projection, and means for adjustably and pivotally connecting the coupling device to a part of a stretching mechanism, substantially as set forth.

4. The combination with a stretcher-head, of a series of leather-holders having projections in rear of their leather-engaging means, a corresponding series of coupling devices having means for making laterally-variable pivotal connection with said projections, and means for adjustably and pivotally connecting the coupling devices to the stretcher-head, substantially as set forth.

5. The combination with a stretcher-head having guideways extending parallel with the direction of tension of the machine, of a series of leather-holders having projections in rear of their leather-engaging means, a corresponding series of coupling devices having means for making laterally-variable pivotal connection with said projections and provided with pivotally-connected bodies adapted to be adjustably inserted and retained in said guideways, substantially as set forth.

701,839. ENVELOP. ARTHUR F. GALLAGHER, Chicago, Ill. Filed Dec. 9, 1901. Serial No. 55,117. (No model.)



Claim.—In combination with an envelop having a comparatively opaque face and a display-opening therein having transparent covering, of a folded communication sheet therein, said sheet being so folded with regard to the position of the sender's name and address upon the same side of the sheet with the communication, that only said name and address appear through the display-opening whereby the sender's name and address as a part of the communication serve also as the envelop address.

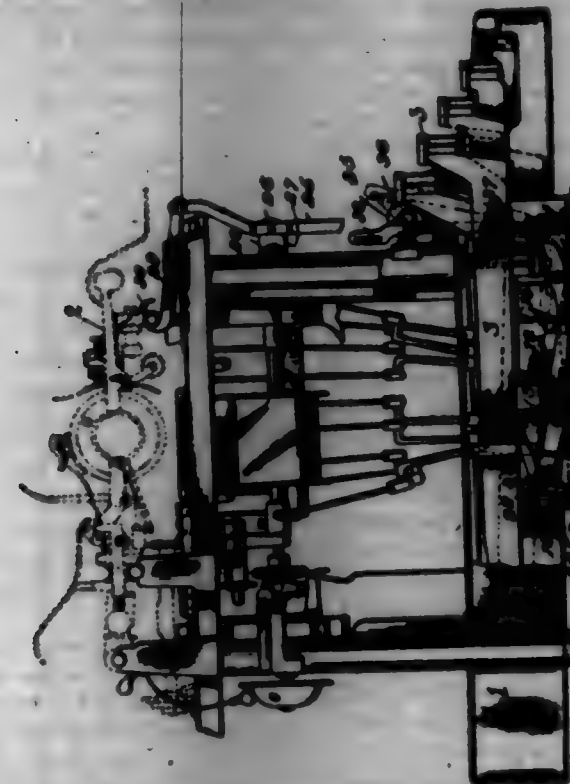
701,840. WORD-COUNTING ATTACHMENT FOR TYPE-WRITING MACHINES. HENRY A. GARY, Los Angeles, Cal. Filed Oct. 2, 1901. Serial No. 73,622. (No model.)

Claim.—1. A counting attachment for bar type-writing machines, consisting of a main frame carrying suitable registering mechanism, two independent rocking frames pivoted within the main frame and provided with projections for contacting with the key and spacing-bar levers, and means intermediate of the rocking frames and the registering mechanism for operating the latter, substantially as hereinafter set forth.

2. In a word-counting attachment for type-writing machines, a frame adapted to be secured to the type-writing machine and beneath the key-levers thereof, a rocking frame mounted upon a fulcrum and provided in front of its fulcrum with vertical contacts or projections for receiving the impact of the spacing-lever and punctuating key-levers, and with similar contacts or projections in rear of the fulcrum for receiving the impact of the alphabet key-levers, a registering mechanism and means intermediate of said registering mechanism and the rocking frame for transmitting the motion of the rocking frame to the registering mechanism, substantially as and for the purpose set forth.

3. In a counting attachment for type-writing machines, a frame adapted for movement to the type-writing machine, a rocking frame mounted upon a fulcrum within said frame and provided with fingers or projections for contacting with the alphabet key-levers and the spacing-bar and punctuating key-levers, a swinging ball provided with a rocking shaft curved with cam adapted to contact with the numeral and sign key-levers, mechanism intermediate of the rocking frame and also between the

swinging ball and indicator device for operating the indicators and mechanism between the swinging ball and paper-carriage-shifting bar for transmitting the shifting motion of the rocking shaft to the swinging ball, substantially as and for the purpose set forth.



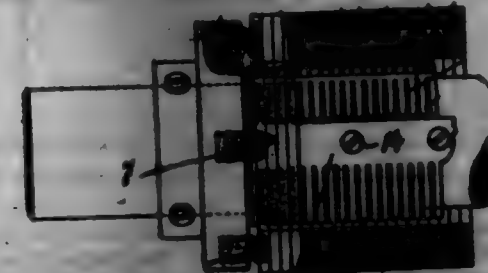
4. In a word-counting attachment for type-writing machines the combination with a suitable frame for attachment to the machine, a rocking frame adapted to contact with predetermined key-levers, and the spacing-bar, a swinging ball provided with a rock-shaft having a crank at one end, and means for contacting with the numeral key-levers in either upper or lower case, a spring for restoring the swinging ball to normal position, mechanism intermediate of the rocking frame and also the swinging ball and the respective indicators for operating the latter, and a vibrating pivoted lever attached to the front of the machine and pivotally connected at one end to a connection with the crank of the rock-shaft of the swinging ball, and at its upper end to an arm connected with the frame of the paper-carriage, substantially as and for the purpose set forth.

5. In a word-counting attachment such as described, the rock-shaft in the swinging ball provided with contact-cams adapted to contact with predetermined numeral key-levers whether in lower or upper case, in combination with means connecting the paper-carriage and the rock-shaft for rotating the rock-shaft, substantially as hereinafter set forth.

6. In a word-counting attachment for type-writing machines, in combination with the frame adapted to be clamped to a machine, a rocking frame provided with contacts for the alphabet key-levers, on one side of its fulcrum, and on the other side with contacts for the spacing-bar and punctuating key-levers, a swinging ball provided with contacts for the numeral key-levers, a knee-lever pivoted to the frame and connecting the rocking frame and an indicator, and a lever-arm pivoted to the frame connecting the rock-shaft of the swinging ball and an indicator, substantially as and for the purpose set forth.

7. In a word-counting attachment such as described, in combination with the crank-arm of the rock-shaft of the swinging ball, the arm 24, the lever 25 adapted to be pivotally connected with a machine, and the arm 26 pivoted at one end to the lever 25, and provided with a boss 30, adapted to pass over the end of the shifting-bar of a paper-carriage, substantially as and for the purpose set forth.

701,841. ROLL FOR PLATING MACHINES. DANIEL L. DEARDEN, Ayr, Mass., assignor to George J. Burns, Ayr, Mass. Filed Sept. 11, 1901. Serial No. 73,641. (No model.)



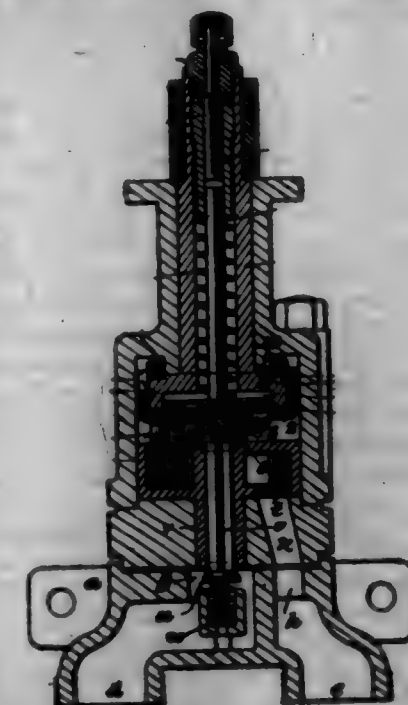
Claim.—1. A roll comprising a peripheral portion composed of a plurality of independently-movable annular sections, a supporting-shaft,

and independent spring devices interposed between said shaft and peripheral portion and each comprising a trunk portion and a plurality of spring-fingers integral therewith and bearing on a plurality of said sections, the said fingers extending substantially tangential to the shaft.

2. A roll comprising a peripheral portion composed of a plurality of independently-movable annular sections, a supporting-shaft, independent spring devices interposed between said shaft and peripheral portion and each comprising a plate extending longitudinally of the shaft and having a plurality of integral spring-fingers bearing upon a plurality of said sections and independent removable clamping devices detachably securing said plates to the shaft.

3. A roll comprising a peripheral portion composed of a plurality of independently-movable annular sections, and means yieldingly pressing said sections together in an axial direction and adapted to yield to permit their axial expansion.

701,842. ENGINEER'S VALVE. NILES A. CHANDLER, Milwaukee, Wis. Filed Aug. 27, 1900. Serial No. 24,148. (No model.)



Claim.—1. In an engineer's valve the combination of a valve-cam having main-reservoir and train-pipe connections and an exhaust-port, a main valve controlling the supply and release of fluid-pressure to and from the train-pipe, means for manually operating said valve, an automatic feed-valve for restoring and maintaining the desired pressure in the train-pipe when the main valve is in running position, a movable part exposed on one side to train-pipe pressure, a spring acting on said movable part in opposition to the train-pipe pressure, and tending to open said feed-valve, and a port or passage adapted to be opened and to admit pressure to the other side of said movable part when the main valve is in service position, substantially as and for the purpose set forth.

2. In an engineer's valve the combination of a valve-cam having main-reservoir and train-pipe connections and an exhaust-port, a main valve controlling the supply and release of fluid-pressure to and from the train-pipe, means for manually operating said valve, an automatic feed-valve for restoring and maintaining the desired pressure in the train-pipe when the main valve is in running position, a movable part for operating said feed-valve exposed on one side to train-pipe pressure, a spring acting on said movable part in opposition to the train-pipe pressure and tending to open said feed-valve, and means operated by the main-valve-opening means to admit fluid-pressure to the opposite side of said movable part when the main valve is in service position and to release such pressure when the main valve is in running position, substantially as and for the purpose set forth.

3. In an engineer's valve the combination with a main valve directly controlling the supply and release of fluid-pressure to and from the train-pipe, and a handle for operating said valve, of an automatic feed-valve controlling the supply of fluid-pressure to the main valve and adapted to restore and maintain the desired pressure in the train-pipe when the main valve is in running position, a movable part for operating said feed-valve, normally exposed on one side to train-pipe pressure, a spring tending to open said feed-valve and means operated by said handle for admitting pressure to the opposite side of said movable part when the main valve is in position to apply the brakes, substantially as and for the purpose set forth.

4. In an engineer's valve the combination with a main valve di-

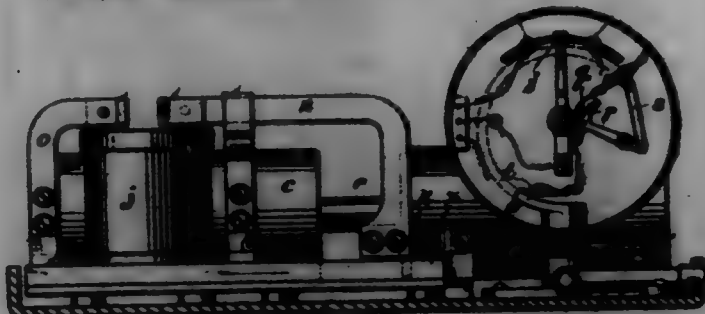
rectly controlling the supply and release of fluid-pressure to and from the train-pipe and a handle for operating said valve, of an automatic feed-valve for restoring and maintaining the desired pressure in the train-pipe when the main valve is in running position, a movable part for operating said feed-valve normally exposed on one side to train-pipe pressure, and means operated by said handle for admitting pressure to the opposite side of said movable part when the main valve is in a certain position and releasing such pressure when the main valve is in another position, substantially as and for the purposes set forth.

5. In an engineer's valve the combination with a main valve controlling the supply and release of fluid-pressure to and from the train-pipe and a handle for operating said valve, of an automatic feed-valve adapted to restore and maintain the desired pressure in the train-pipe when the main valve is in running position, a movable part normally exposed on one side to train-pipe pressure for operating said feed-valve, a push-pin for manually operating said movable part and opening said feed-valve provided with a valve for closing the opening in the valve-case through which said pin projects, and means operated by said handle for admitting pressure to the opposite side of said movable part and closing the valve on the push-pin when the main valve is in a certain position and releasing such pressure when the main valve is in another position, substantially as and for the purposes set forth.

6. In an engineer's valve the combination with a valve-case having main-reservoir and train-pipe connections and an exhaust-port and a main valve controlling the supply and release of fluid-pressure to and from the train-pipe, of an automatic feed-valve for restoring and maintaining the desired pressure in the train-pipe when the main valve is in running position, a stem for operating said main valve fitted to turn in said case and provided with a movable part which is normally exposed on one side to train-pipe pressure and with a port which is adapted to register with ports in the valve-case and to admit pressure to the other side of said movable part when the main valve is in service position and to gradually release such pressure when the main valve is in running position, and a spring acting on said movable part in a direction tending to open said feed-valve, substantially as and for the purposes set forth.

7. In an engineer's valve the combination with a valve-case having main-reservoir and train-pipe connections and an exhaust-port and a main valve for controlling the supply and release of fluid-pressure to and from the train-pipe, of an automatic feed-valve for restoring and maintaining the desired pressure in the train-pipe when the main valve is in running position, a tabular stem for operating said main valve, fitted to turn in said case and provided with a movable part which is normally exposed on one side to train-pipe pressure and with a port which is adapted to register with ports in the valve-case and to admit pressure to the other side of said movable part when the main valve is in service position and to gradually release such pressure when the main valve is in running position, a spring acting on said movable part in a direction tending to open said feed-valve, and a push-pin for manually operating said movable part and opening said feed-valve, provided with a valve which is adapted to close the opening through which said pin passes when pressure is admitted into said tabular stem, substantially as and for the purposes set forth.

701,843. AUTOMATIC CONTROLLER FOR ELECTRIC MOTORS.
STIM A. CHRISTENSEN, Milwaukee, Wis. Filed Oct. 31, 1901. Serial No. 79,398. (No model.)



Claim.—1. In an automatic controller the combination of two magnets having a common core or plunger movable axially therein, a spring-actuated arm mounted upon said plunger and provided with a contact-piece, and an opposing contact-piece arranged in the path of the movable contact-piece, substantially as described.

2. In an automatic controller the combination of two magnets having a common core or plunger movable axially therein, a contact-piece mounted upon said plunger and movable with said plunger, and an opposing contact-piece yieldingly mounted upon a fixed support in the path of said movable contact-piece, substantially as described.

3. In an automatic controller the combination of two magnets arranged in line with each other and having a common core or plunger movable axially therein, a spring-arm mounted upon said plunger and

provided with a contact-piece, and a spring-arm mounted on a fixed support and provided with a contact-piece in the path of the contact-piece carried by said plunger, substantially as described.

4. In an automatic controller the combination of two solenoid-magnets having a common core or plunger movable axially therein, an insulated arm mounted upon said plunger and provided with a contact-piece, a stationary electric conducting guide or slip with which said arm has a sliding contact, and a contact-piece arranged in the path of the contact-piece on said arm, substantially as described.

5. In an automatic controller the combination of two solenoid-magnets arranged in line with each other and having a common plunger movable axially therein, an insulated spring-arm mounted on said plunger approximately parallel therewith and provided with a contact-piece, another insulated contact-piece arranged in the path of the contact-piece on said spring-arm, and a switch controlling the circuit of said magnets and having a fluid-actuating connection, substantially as described.

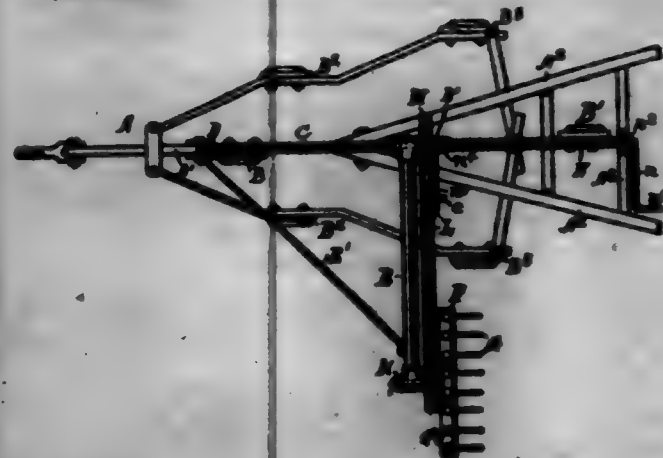
6. In an automatic controller the combination of two solenoid-magnets arranged in line with each other and having a common plunger movable axially therein, an insulated spring-arm mounted on said plunger and provided with a contact-piece, a stationary guide or slip with which said arm has a sliding contact, and with which one terminal of an electric circuit is connected, an insulated spring-arm mounted on a stationary support and provided in the path of the first contact-piece with another contact-piece with which the other terminal of said circuit is connected, and a switch controlling the circuit of said magnets and having a fluid-actuating connection, substantially as described.

7. In an automatic controller the combination of two solenoid-magnets having a common plunger movable axially therein, a main switch having a contact-piece mounted on and movable with said plunger, and another contact-piece arranged in the path of said movable contact-piece, a primary switch controlling the circuit of said magnets, and a circuit-breaker mounted on said plunger and adapted to open the circuit through the switch-opening magnet when the main-switch contact-pieces are separated, substantially as described.

8. In an automatic controller the combination of two solenoid-magnets arranged in line with each other and having a common plunger movable axially therein, a main switch having contact-pieces one of which is mounted upon said plunger and movable therewith into and out of engagement with the other, a primary switch having minimum and maximum pressure contact-pieces and a fluid-pressure-actuated contact-piece for controlling the circuit of said magnets, normally-engaged springs in the circuit of the switch-opening magnet, and a circuit-breaker carried by said plunger and adapted to separate said springs when the main switch is opened, substantially as described.

9. In an automatic controller the combination of two magnets arranged in line with each other and having a common core or plunger movable axially therein, a switch having a contact-piece mounted on said plunger and another contact-piece in the path of said movable contact-piece, and a blow-out magnet arranged in circuit with said contact-pieces and having one of its poles in proximity with the stationary contact-piece, substantially as described.

701,844. WHEEL ATTACHMENT FOR CULTIVATORS.
WILLIAM F. CLAFF, North Rush, N. Y. Filed Dec. 14, 1901. Serial No. 83,912. (No model.)



Claim.—1. The combination with a cultivator of a wheel; a support for the wheel, adapted to carry the wheel on either side of the cultivator, and means whereby the wheel is caused to assume its operative position on either side of the cultivator.

2. The combination with a cultivator of a wheel; a support for the wheel adapted to carry the wheel on either side of the cultivator; and means for attaching the wheel to its support, whereby the wheel is caused to assume its operative position on either side of the cultivator.

3. The combination with a cultivator of a wheel; a support for the wheel adapted to carry the wheel on either side of the cultivator; means whereby the wheel is caused to assume its operative position on either side of the cultivator; and means for transferring the wheel from one side of the cultivator to the other.

4. The combination with a cultivator of a wheel; a support for the wheel on one side of the cultivator and movably attached thereto; means for attaching the wheel to its support, whereby the wheel is adapted to assume its operative position on either side of the cultivator; and means for moving the support from one side of the cultivator to the other.

5. The combination with a cultivator of a wheel; a support for the wheel adapted to carry the wheel on either side of the cultivator; and means for pivotingly attaching the wheel to its support, whereby the weight of the wheel will cause it to assume automatically its operative position when the support is on either side of the cultivator.

6. The combination with a cultivator of a wheel; a support for the wheel, adapted to transfer the wheel from one side of the cultivator to the other; means for pivotingly attaching the wheel to the support; and means for connecting the wheel with the cultivator, whereby said wheel is caused to assume an operative position on either side of the cultivator.

7. The combination with a cultivator of a wheel; a support for the wheel, adapted to transfer the wheel from one side of the cultivator to the other; means for pivotingly attaching the wheel to its support, whereby its own weight will cause it to assume an operative position on either side of the cultivator; and means for connecting the wheel with the cultivator, whereby said wheel is caused positively to assume an operative position on either side of the cultivator.

8. The combination with a cultivator of a wheel; the arm K revolvably attached to the cultivator; means for pivotingly attaching the wheel to the arm K whereby the wheel is caused to assume automatically an operative position on either side of said cultivator; and means for transferring the arm K from one side of the cultivator to the other.

9. The combination with a cultivator of a wheel; the arm K revolvably attached to the cultivator; a support for the wheel revolvably secured to the arm K; and means for connecting said support with the cultivator, whereby the wheel is caused to assume an operative position on either side of the cultivator.

10. The combination with a cultivator of a wheel; the arm K revolvably attached to the cultivator; the sprocket-wheel I pivotally attached thereto; means for connecting the wheel with the sprocket-wheel I; the sprocket-wheel M, rigidly secured to a part of the cultivator; and the chain L connecting said sprocket-wheels.

11. The combination with a cultivator of a wheel; the arm K, revolvably attached to the cultivator; the sprocket-wheel I, pivotally attached thereto; means for connecting the wheel with the sprocket-wheel I; the sprocket-wheel M, rigidly secured to a part of the cultivator; the chain L, connecting said sprocket-wheels; and means for transferring the wheel from one side of the cultivator to the other.

12. The combination with a cultivator of a wheel; the arm K, revolvably attached to the cultivator; the sprocket-wheel I, pivotally attached thereto; means for connecting the wheel with the sprocket-wheel I; the sprocket-wheel M, rigidly secured to a part of the cultivator; the chain L, connecting said sprocket-wheels; the rod K, revolvably supported upon the cultivator; and a sliding connection between the arm K and said rod K.

13. The combination with a cultivator having the central beam A' of a wheel; the revolvable arm K supported by said central beam A'; means for pivotingly connecting the wheel to the arm K; and means for transferring the wheel from one side of the cultivator to the other.

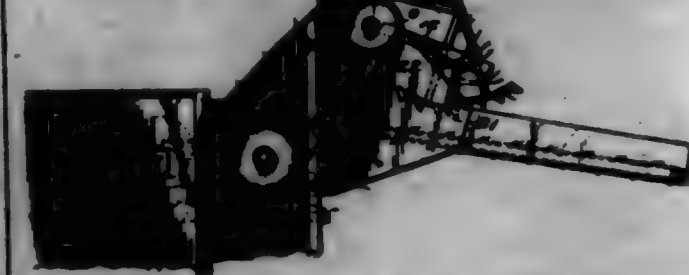
701,845. SHIPPING-PACKAGE. FRANK W. COLLIER, Eastford, Me. Filed Nov. 4, 1901. Serial No. 81,380. (No model.)



Claim.—1. A shipping-package comprising an inner and an outer casing spaced apart to form an air-compartment which entirely surrounds the sides and top of said inner casing, said compartment communicating with the inner casing at its upper and lower ends, whereby a cold-air circulation is maintained through the inner casing and air-compartment, the outer casing being provided with a waste-drip in its bottom, substantially as set forth.

2. A shipping-package comprising an inner and an outer casing spaced apart to form an air-compartment which entirely surrounds the sides and top of said inner casing, said compartment communicating with the inner casing at its upper and lower ends, whereby a cold-air circulation is maintained through the inner casing and air-compartment, the outer casing being provided with a waste-drip in its bottom, substantially as set forth.

701,846. BARR-GUTTER FOR TREEMING-MACHINES.
F. CUMBER, Fort Haven, Mich. Filed July 12, 1901. Serial No. 86,418. (No model.)



Claim.—The combination with the thrasher-frame, the thrasher-rotator and shaft, and the handle-thrower, of a drive-shaft mounted in the frame and in gear with said thrasher-shaft, a frame connected to swing upon the drive-shaft, a crank-shaft journaled in the swinging frame, gearing between the drive and crank shafts, crank-arms mounted intermediate upon the crank-shaft, V-shaped band-cutting and spreading devices provided with cutting-knives and carried by the lower ends of said crank-arms, links connecting the upper ends of the crank-arms to the thrasher-frame to control the action of said arms to swing said cutting and spreading devices in an elliptical path whose major axis lies parallel with the path of travel of the straw, and cushioning-stops upon the frame to take up the jar of impact upon the downward movement of the frame, thereby relieving the parts from strain, substantially as set forth.

701,847. INSULATOR. VERNER S. CONVERSE, Pittsburgh, Pa. Filed Aug. 2, 1901. Serial No. 78,574. (No model.)



Claim.—1. An insulator for currents of high voltage, consisting of separable sections, the number employed dependent upon the amount of insulation required, and means for holding the sections assembled against any force applied.

2. An insulator for currents of high voltage, having extreme sections and one or more separable mean sections, the number of the latter employed dependent upon the amount of insulation required and means for holding the sections assembled against any force applied.

3. An insulator for currents of high voltage including in its composition separable insulating-sections with outwardly-extending flanges, a gap being between the flanges of adjacent sections and beyond the flange of an extreme one of said sections, and means for holding the sections assembled against any force applied.

4. A high-voltage insulator made up of three or more parts which are separate articles of manufacture, one of which acts as a cap to cover or protect the pin or support from the elements, the second a tube or cylinder of a smaller diameter than the first part which surrounds or encloses the pin and electrically protects it, and the third one or more parts with outwardly-extending flanges or pot-heads which intervene between the first and second parts.

5. A high-voltage insulator made up of three or more parts which are separate articles of manufacture, one of which acts as a cap to cover or protect the pin or support from the elements and has a downwardly-extending flange or petticoat, the second a tube or cylinder of a smaller diameter than the first part which surrounds or incloses the pin and has an upwardly-extending groove which will hold oil or other insulating material, the third one or more parts with outwardly-extending flanges or petticoats which intervene between the first and second parts and have downwardly-extending flanges or petticoats, and upwardly-extending grooves which hold oil or other insulating material.

701,848. INSULATOR. VERNON G. CONVERSE, Pittsburg, Pa. Filed Mar. 17, 1902. Serial No. 94,962. (No model.)



Claim.—1. An insulator for currents of high voltage, consisting of sections separate in manufacture, the number employed dependent upon the amount of insulation required, and means for holding the sections permanently assembled against any force applied.

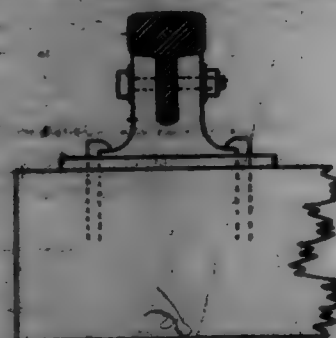
2. An insulator for currents of high voltage, having extreme sections and one or more mean sections separate in manufacture, the number of the latter employed dependent upon the amount of insulation required and means for holding the sections permanently assembled against any force applied.

3. An insulator for currents of high voltage including in its organization insulating sections separate in manufacture and with outwardly-extending flanges, a gap being between the flanges of adjacent sections and beyond the flange of an extreme one of said sections, and means for holding the sections permanently assembled against any force applied.

4. A high-voltage insulator made up of three or more parts which are separate articles of manufacture, one of which acts as a cap to cover or protect the pin or support from the elements, the second a tube or cylinder of a smaller diameter than the first part which surrounds or incloses the pin and electrically protects it, and the third one or more parts with outwardly-extending flanges or petticoats which intervene between the first and second parts, the said parts being permanently united for use.

5. A high-voltage insulator made up of three or more parts which are separate articles of manufacture, one of which acts as a cap to cover or protect the pin or support from the elements and has a downwardly-extending flange or petticoat, the second a tube or cylinder of a smaller diameter than the first part which surrounds or incloses the pin and has an upwardly-extending groove, the third one or more parts with outwardly-extending flanges or petticoats which intervene between the first and second parts and have downwardly-extending flanges or petticoats, and upwardly-extending grooves, the said parts being permanently united for use.

701,849. CONCRETE RAIL-JOINT AND TIE-PLATE. THOMAS OGDON, Kansas City, Mo. Filed Oct. 2, 1901. Serial No. 77,966 (No model.)



Claim.—A rail-joint comprising a tie-plate provided with recesses, a chair having projections entering said recesses, to prevent relative move-

ment therebetween, a longitudinal groove in the top of the chair, the rails having their bases cut away at the ends and the ends of their webs mounted in said groove, and bolts passing through the webs and the chair; substantially as described.

701,850. EXTENSION-CYLINDER FOR PIN-LOCKER. ALEXANDER GRAMMER, Lyons, Iowa. Filed Jan. 14, 1902. Serial No. 95,004 (No model.)



Claim.—1. In a lock, the combination with a shell, a cam mounted thereon, and operating-rods secured to the cam, of a block having a key-plate adjustably engaging the rods, and an adjustable connection between the shell and block.

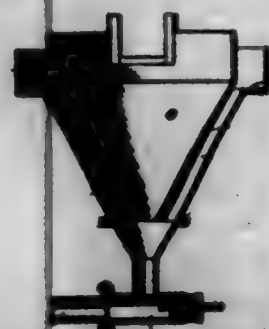
2. In a lock, the combination with a threaded shell provided with a series of holes, a cam mounted on the shell, and operating-rods secured to the cam, of a block having a key-plate adjustably engaging the rods, and a spring-pressed pin on the block adapted to enter the holes in the shell.

3. In a lock, the combination with a threaded shell provided with a series of perforations, a cam mounted thereon, and operating-rods secured to the cam, of a block adapted to the shell, a spring-pin on the block adapted to the perforations of the shell, and a key-plate in the block provided with longitudinal holes to receive the rods.

4. In a lock-cylinder the combination with a cup-shaped shell having interior ribs, and a cam mounted on the cap of the shell, of a block having grooves or channels adapted to receive the ribs, a key-plate within the block, extendible connections between the plug and cam, and extendible connections between the shell and block.

5. In a cylinder for locks, the combination with a shell having a series of holes in its wall and a perforation in its rear plate, a connecting washer in the perforation, a cam in the rear of the plate, and shoulder connecting-rods in the shell passing through the washer and stem and being headed to secure the parts together, of a block having a pin-chamber, a rotating key-plate normally communicating therewith and having longitudinal holes to receive the rods, and a spring-pressed pin on the rear of the block adapted to the holes in the shell-wall.

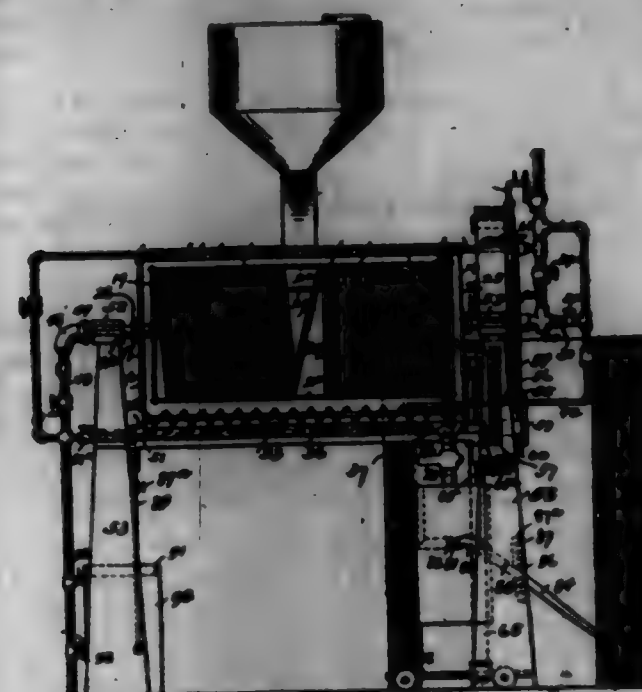
701,851. ORE SEPARATOR AND CLASSIFIER. CHARLES CULVER, London, Canada. Filed July 4, 1901. Serial No. 67,577. (No model.)



Claim.—1. An ore-classifier comprising a cone-shaped hopper forming a settling-chamber, an inflow-conduit leading into the top thereof, a secondary cone-shaped hopper forming an sorting-chamber and having its wide mouth attached to the reduced lower end of the main hopper, a pipe having a branch adapted to form a means for an upward current of water through said hoppers, one or more lines leading from the upper end of said second hopper upwardly, and a trough surrounding the upper end of the main hopper into which said lines debouch.

2. An ore-classifier comprising a cone-shaped hopper forming a settling-chamber, an inflow-conduit leading into the top thereof, a secondary cone-shaped hopper forming an sorting-chamber and having its wide mouth attached to the reduced lower end of the main hopper, a pipe having a branch adapted to form a means for an upward current of water through said hoppers, one or more lines leading from the upper end of said second hopper upwardly, a trough surrounding the upper end of the main hopper into which said lines debouch, and a baffle-plate comprising a vertical dam portion extending from side to side of the main hopper, across the open top thereof, and a horizontal portion extending toward said inflow-conduit, whereby to check the disturbance caused by the inflow of water.

701,852. ACETYLENE-GAS GENERATOR. AUGUSTUS DAVIS, Chicago, Ill. Filed Jan. 21, 1902. Serial No. 95,971. (No model.)



Claim.—1. In a gas-generator, the combination, with a generator-chamber, of a cylinder revolvably supported therein at both ends, provided with a ferrous body and a hollow axle and adapted to contain the carbide or other solid, a fixed or stationary perforated pipe or sprinkler located within the upper portion of the cylinder, and a water-supply pipe connected thereto and extending through the hollow axle of the cylinder to the exterior of the chamber, substantially as described.

2. In a gas-generator, the combination, with a generator-chamber, of a revolvable cylinder therein adapted to contain the carbide or other solid, and having a ferrous body, and a coil of pipe externally surrounding said body, connected to suitable water supply and discharge pipes and supporting and rotating along with the ferrous body, substantially as described.

3. In a gas-generator, the combination, with a generator-chamber, of a revolvable cylinder therein adapted to contain the carbide or other solid and comprising terminal heads and connecting-rods, a ferrous body of wire-netting or the like, and a coil of pipe surrounding and rotating along with said ferrous body and having suitable supply and discharge connections for a cooling medium such as water, substantially as described.

4. In a gas-generator, the combination, with a generator-chamber provided with a water-jacket, of a revolvable carbide-cylinder within said chamber provided with a surrounding cooling-coil, means for supplying water to the carbide in the cylinder, and means for simultaneously supplying water to the water-jacket and cooling-coil, substantially as described.

5. In a gas-generator, the combination, with a generator-chamber to contain the carbide or other solid and cooling device for said generator-chamber, of means controlled by the volume of gas generated for simultaneously supplying water to the carbide and to the cooling device, substantially as described.

6. In a gas-generator, the combination, with a generator-chamber, of a revolvable carbide-cylinder therein having a ferrous body, an inclined trough or receptacle in said chamber below said cylinder, a conveyor located in said trough or receptacle, a residuum-discharge opening at the upper end of said trough or receptacle, and a water-discharge opening at the lower end thereof, substantially as described.

7. In a gas-generator, the combination, with a generator-chamber, of a revolvable carbide-cylinder therein having a ferrous body, an inclined trough or receptacle in said chamber below said cylinder, a conveyor located in said trough or receptacle, a residuum-discharge opening at the upper end of said trough or receptacle, a water-discharge opening at the lower end thereof, and a water-supply pipe discharging into the upper end of said trough or receptacle, substantially as described.

8. In a generator of the character described, the combination, with a generator-chamber having a residuum-discharge pipe provided with a cover having a depending annular flange, of a residuum-receptacle provided with an annular water seal to receive said flange, and means for raising and lowering and supporting in a raised position said receptacle, substantially as described.

9. In a gas-generator of the character described, the combination, with a generator-chamber having a residuum-discharge pipe provided with a cover having a depending annular flange, of a residuum-receptacle provided with an annular water seal to receive said flange, and a lever

provided with a yoke to engage said receptacle and with means whereby said lever may be locked, substantially as described.

10. In a gas-generator of the character described, the combination, with a generator-chamber having an inclined bottom, a conveyor therein, and a water-supply pipe, of a water-discharge pipe, and a liquid-receptacle into which said discharge-pipe opens below the water-level, said liquid-receptacle being connected to a suitable discharge-pipe and provided with a water-sealed cover, substantially as described.

701,853. GEOGRAPHICAL TIMEPIECE. CHARLES E. DAVIS, New York, N. Y., assignor of one-third to Henry D. Hartman, New York, N. Y. Filed Feb. 12, 1901. Serial No. 47,596. (No model.)



Claim.—1. In a geographical timepiece, the combination with two fixed disks upon opposite faces thereof, one of said disks divided off into the twelve hours of the day or night, and the other of said disks divided off into the twenty-four hours of the day and night, of hour and minute hands for the twelve-hour dial, driving mechanism for driving the same, a geographical disk arranged to rotate in proximity to said twenty-four-hour dial, and a revolving gear-chain driven from the driving mechanism of the hands of the twelve-hour dial and driving said geographical disk adapted to drive the same at half the speed of the hour-hand of the twelve-hour dial, and composed entirely of continuous spur-gears whereby it is adapted to transmit motion continuously from said driving mechanism to the geographical disk, and to rotate the same in the opposite direction to the hands of the twelve-hour dial.

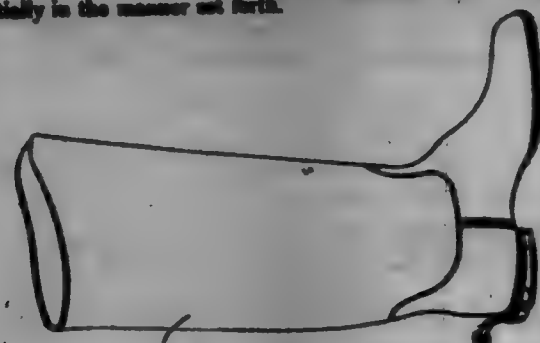
2. In a geographical timepiece, the combination with two fixed disks upon opposite faces thereof, of a minute-spindle, a pinion secured to rotate therewith, a pinion loosely mounted upon said minute-spindle, two intermediate gear-wheels secured to rotate together, one of said intermediate gear-wheels meshing with one of said pinions, an idler gear-wheel, independently mounted, and meshing with the other said pinion and with the other intermediate gear-wheel, the ratio of said gearing being such that the two said pinions rotate at the same rate of speed with respect to a fixed point, but in opposite directions to each other, and a hand secured to rotate with each said pinion, one in proximity to the said dial on one face of the timepiece and the other in proximity to the said dial on the opposite face thereof.

3. In a geographical timepiece, the combination with two fixed disks upon opposite faces thereof, one of the said disks divided off into the twelve hours of the day or night, and the other of the said disks divided off into the twenty-four hours of the day and night, of a minute-spindle adapted to make one revolution per hour, in a direction from left to right with respect to the twelve-hour dial, a pinion-rod secured to rotate in proximity to the said twelve-hour dial, an hour-dial mounted on said minute-spindle and geared to rotate therewith at a rate of one to twelve therewith, an hour-hand mounted on said hour-dial, a pinion secured to said minute-spindle, a pinion loosely mounted upon said minute-spindle, two intermediate gear-wheels secured to rotate together, one of said intermediate gear-wheels meshing with one of said pinions, an idler gear-wheel, independently mounted, and meshing with the other said pinion and with the other said intermediate gear-wheel, the ratio of said gearing being such that the two said pinions rotate at the same rate of speed with respect to a fixed point, but in opposite directions to each other, a minute-hand secured to rotate with the pinion which is loosely mounted upon the said minute-spindle, and in proximity to the said twenty-four-hour dial, another hour-dial loosely mounted upon the axle of the minute-spindle, and geared to rotate with respect to the last-mentioned pinion at the rate of one to twenty-four, and a geographical disk, having various location denoted thereon, secured to rotate with said last-mentioned hour-dial, and in proximity to the said twenty-four-hour dial.

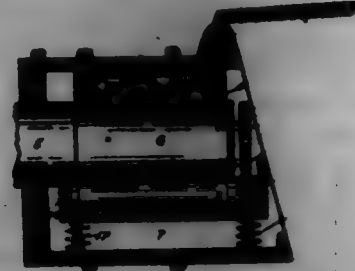
701,854. RIDING-SCUR. CHARLES W. DAVIES, Philadelphia, Pa. Filed Aug. 19, 1901. Serial No. 72,599. (No model.)

Claim.—A yoke comprising a single piece of spring metal and provided with a plurality of studs, a riding-scur carried by said yoke; in combination with the heel of a boot or shoe having chambers, circularly-saw-threaded plugs occupying the outer portions of the chambers and serving as seats to receive said studs, a plunger slidably mounted in each plug and having headed ends, the inner headed end of the plunger extending through

the inner end of the plug and occupying the inner portion of the plug-chamber and adapted to abut against said plug to limit the outward movement of the plunger, and a spring in the plug between the inner end of the plug and the outer beveled end of the plunger, and adapted, when the studs are removed, to force the plunger outward to close the plug-chamber, substantially in the manner set forth.

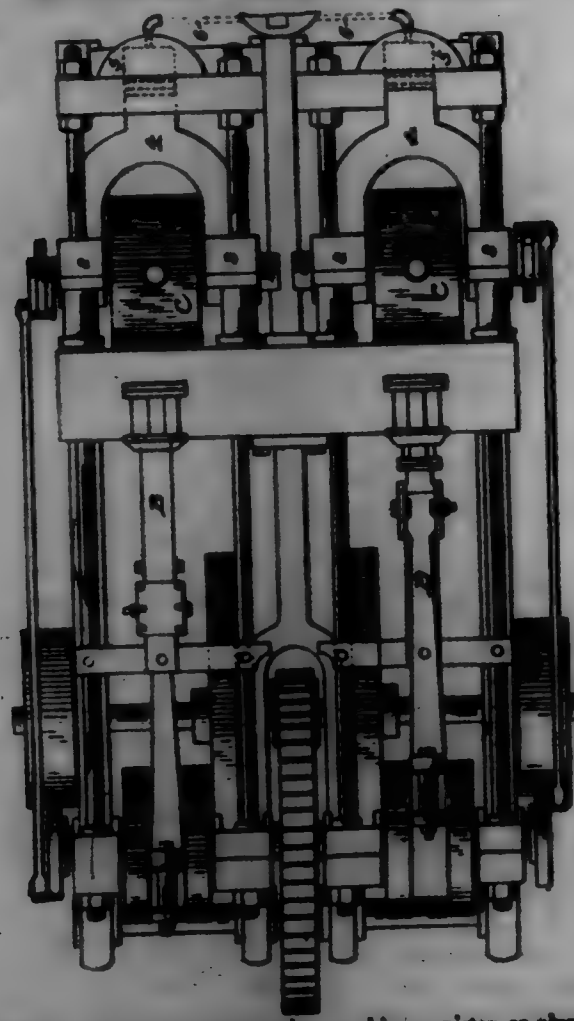


701,855. LUBRICATING ATTACHMENT FOR CAR-AXLES. Geo. W. DUNN, Scranton, Pa. Filed Aug. 9, 1904. Serial No. 71,472. (No model.)



Claim.—A car-axle-lubricating attachment comprised in an axle-box proper with a free open end, a lubricant-receptacle removably secured within the walls of said box, suitable supporting-springs arranged on the bottom of said receptacle, a take-up roller mounted within said lubricant-receptacle, and arranged to parallel the journal to be lubricated and to be contact therewith, in combination with means for revolving said take-up roller, substantially as specified.

701,856. FEAT-PRESS. ARTHUR A. DUNN, Toronto, Can. Filed June 24, 1901. Serial No. 85,571. (No model.)

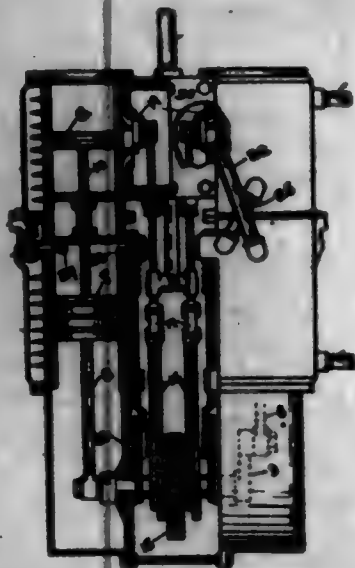


Claim.—1. In a feat-compressing machine, a piston or plunger, a die-block, a supplemental plunger carried by the die-block and adapted

to act as an ejector, the said plunger being actuated by the main compressing power through the said block being formed, the die-block being fixed in its relation to the main piston in the ordinary action of the machine and adapted to yield bodily to any excess of pressure beyond a predetermined limit.

2. A compressing-machine comprising one part having a die-cavity for the reception of the material to be compressed and a second part consisting of a plunger or piston operating to compress said material within the die-cavity and yielding means adapted to give only on an excess of pressure beyond a predetermined limit, the compressed material being held intact and unbroken at all times.

701,857. MOTOR. WILLIAM DUNN, Brooklyn, N. Y., and HARRY O'NEILL, Chicago, Ill.; said O'NEILL assignor of his right to Irving A. O'Hara, Brooklyn, N. Y. Filed Feb. 20, 1901. Serial No. 68,178. (No model.)



Claim.—In an engine of the character described, a steam-motor, an explosive-motor, operative connected, a steam-jacket interposed between the cylinders of said motors, a piston movable in the cylinder of the steam-motor, a plunger movable in the combustion-chamber of the explosive-motor, and a piston-rod carrying said piston and plunger and movable through said steam-jacket, substantially as shown and described.

701,858. TRACE-CARRIER. WILLIAM E. DUFFY, Des Moines, Iowa. Filed Mar. 20, 1908. Serial No. 708,778. (No model.)

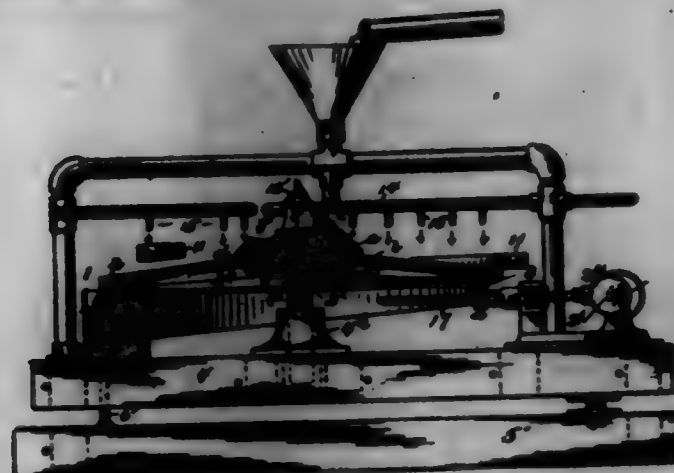


Claim.—A trace-carrier comprising a single imperforate base-ring, a single curved bar extending across the center of the ring with its ends integral with the inner portion of said ring, said cross-bar provided on opposite sides at its center with a downwardly-extending straight arm the ends of which terminate beyond the side of the said curved bar and below the plane of the upper portion of the base-ring, substantially as shown and described.

701,859. ORE-CONCENTRATOR. WILLIAM S. DUNN, San Francisco, Cal. Filed Feb. 3, 1902. Serial No. 82,328. (No model.)

Claim.—1. An ore-concentrator comprising an inclined circular table having an unrifled or plain portion adjacent its discharge for the removal of a series of curved rifled plates extending from approximately a radial division of the table onto the plain or unrifled portion thereof, means for

imparting an oscillatory motion to the table, and an inclined launder or trough attached to and carried by the table, said launder or trough arranged to receive the middlings from the table and to discharge same thereon for reworking.



2. An ore-concentrator comprising an inclined circular table having an unrifled or plain portion adjacent its discharge for the removal of a series of curved collecting-rifles arranged on the working face thereof and discharging onto the plain or unrifled portion of said table, means for imparting an oscillatory motion to the table, and a valve-controlled return launder or trough attached to and carried by the table, said launder or trough arranged to receive the middlings discharged from the table and to return the same thereto at its head.

3. The combination with an inclined circular concentrating-table, a series of curved rifled plates arranged on the working face thereof, means for imparting an oscillatory motion to the table, and an inclined launder or trough attached to and carried by the table, said launder or trough arranged to receive the middlings from the table and to discharge same thereon for reworking.

4. A circular concentrating-table comprising a body portion composed of a series of adjustable pieces, a cover therefor, a series of curved rifled plates arranged thereon and discharging onto a plain or unrifled portion of the table, and means for imparting vertical adjustment to the pieces composing the body portion of the table.

5. The combination with an inclined circular concentrating-table, of a series of curved rifled plates on the working surface thereof, the terminals of said rifled plates extending and discharging onto a plain or unrifled portion of the table, and means whereby the inclination of the table may be increased or decreased.

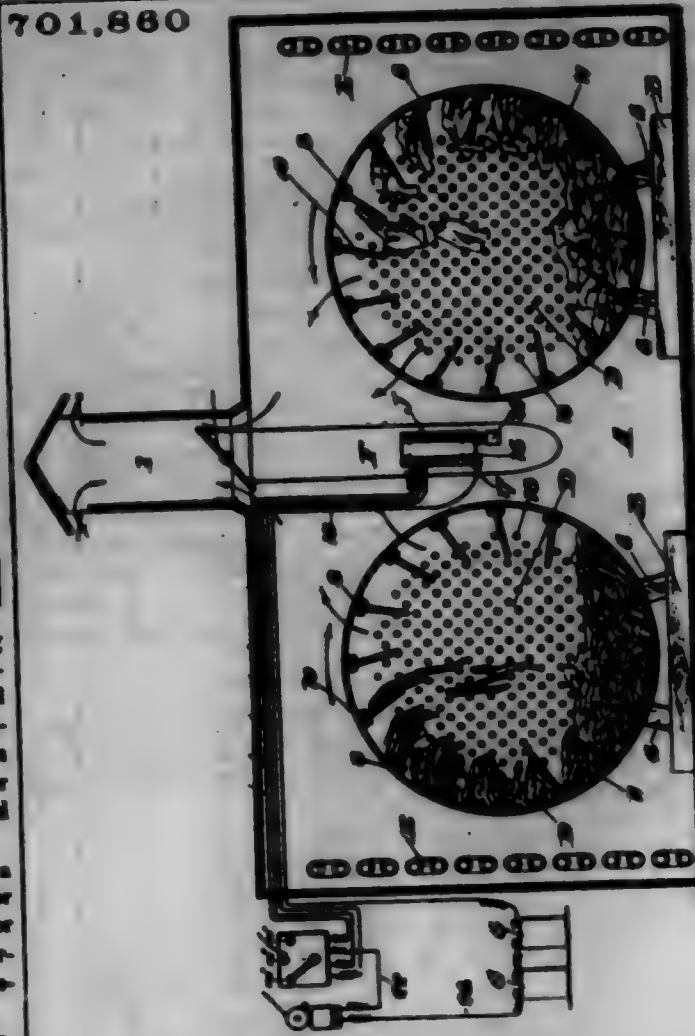
6. The combination with an oscillatory inclined circular concentrating-table having a plain or unrifled portion, of a series of curved rifled plates arranged on the working face thereof and discharging onto the plain or unrifled portion, the rifled plates having increasing terminals, and means for increasing or decreasing the inclination of the table.

701,860. OXIDIZING APPARATUS. ALEXANDER H. DUNN, Philadelphia, Pa. Filed Mar. 12, 1908. Serial No. 82,891. (No model.)

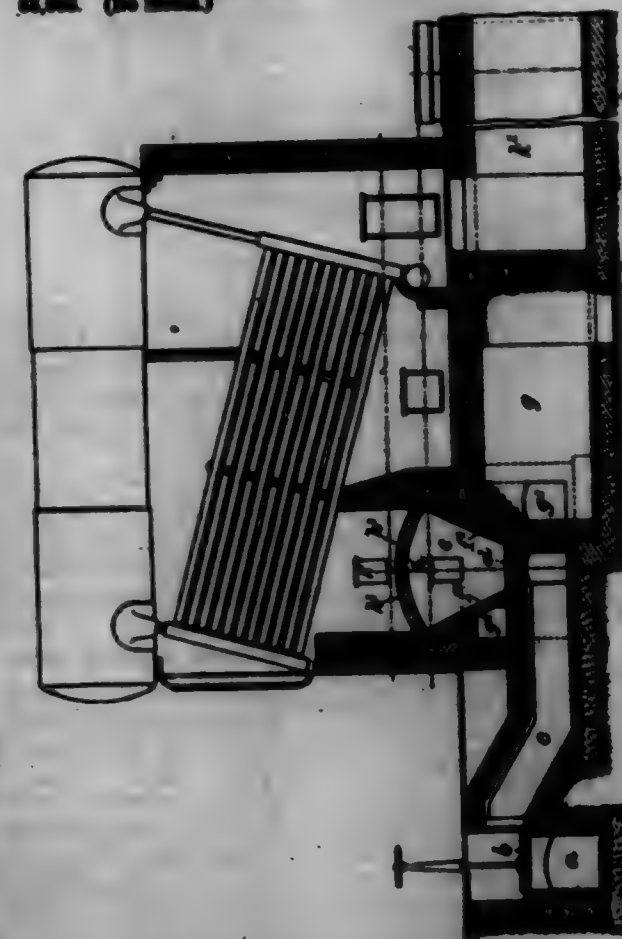
Claim.—1. In an apparatus for oxidizing dyed material, the combination with an inclosing compartment; of a pervious, revolvable drum or cylinder, and air-flooding means arranged therein, an alarm for indicating when the temperature within the compartment reaches a predetermined point, said device comprising a thermometer arranged within said compartment and provided with a plurality of contacts; a bell, battery and switchboard arranged upon the exterior of the compartment, said switchboard having contacts, and a controlling-switch, and wires extending to the exterior through the wall of the compartment and connected to the contacts of the thermometer with the bell, battery and contacts of the switchboard, together with a ventilator for allowing the heat to escape from the compartment, substantially as described.

2. In an oxidizing apparatus, an inclosing structure containing a revolvable pervious drum, means for heating the air upon the interior of said structure to the exclusion of outside air, means for sealing said structure and enclosing and admitting air to the interior of said structure and regulating the discharge of heat therefrom, a thermometer within the inclosing structure, an indicator on the exterior, electrical connections between the thermometer and indicator, and an adjustable controlling device in circuit with the thermometer, indicator and connections for regulating the passage of an electrical current to adapt the indicator to sound at different predetermined temperatures, whereby the indicating means may be adjusted from without while the chamber is sealed, so that when the temperature reaches a given point the sealing means may be opened to admit air to, and allow heat to discharge from, the inclosing structure, substantially as described.

701,860



701,861. GAS-FURNACE FOR STEAM-BOILERS. EDWARD J. DUFF, Liverpool, England, assignor of one-half to United Alkali Company, Limited, Liverpool, England. Filed July 17, 1901. Serial No. 82,892. (No model.)

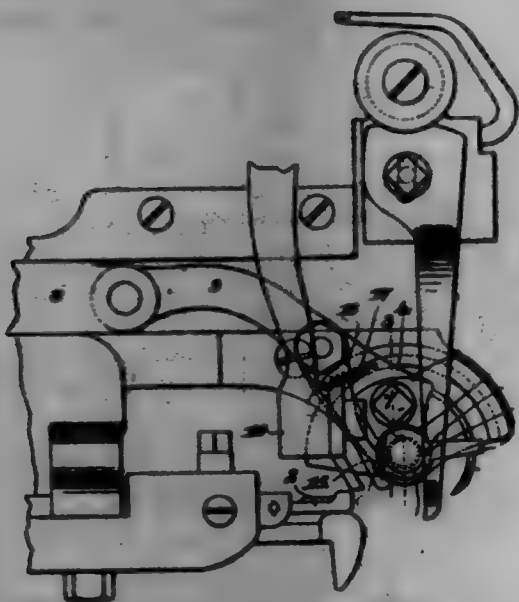


Claim.—1. In gas-furnaces, a combustion-chamber having a perforated arch at top and inlet-ports for gas at bottom and inlet-ports for air at each side so arranged that the streams of gas are met and crossed by incoming streams of air proceeding from opposite sides of the streams of gas, a heating-chamber into which the hot gases are discharged from said

combustion-chamber, discharge flue or flues leading from said heating-chamber, and an air-flue of elongated cross-section for supplying fresh air to the air-inlet ports, said flue having its narrow side in contact with and presenting a limited area to the heating-chamber and its wider side in contact with and presenting a larger area to the discharge flue or flues, whereby the maximum heat may be derived from the hot gases leaving the heating-chamber through the discharge flue or flues for preheating the air and the heat heat extracted from the heating-chamber, substantially as described.

2. In gas-furnaces, a combustion-chamber small at bottom and having a perforated arch at top, and gas-inlet ports at bottom and inlet-ports for air at each side so arranged that the streams of gas are met and crossed by incoming streams of air proceeding from opposite sides of the streams of gas, a heating-chamber into which the hot gases are discharged from said combustion-chamber, discharge flue or flues leading from said heating-chamber, and an air-flue of elongated cross-section for supplying fresh air to the air-inlet ports, said flue having its narrow side in contact with and presenting a limited area to the heating-chamber and its wider side in contact with and presenting a larger area to the discharge flue or flues, whereby the maximum heat may be derived from the hot gases leaving the heating-chamber through the discharge flue or flues for preheating the air and the heat heat extracted from the heating-chamber, substantially as described.

701,862. SEWING-MACHINE. ARTHUR W. HAYES, Boston, Mass., assignor to the Universal Sewing Machine Company, Paterson, N. J., a Corporation of New Jersey. Filed Aug. 9, 1900. Serial No. 96,396. (No model.)



Claim.—1. A sewing-machine, having, in combination, a needle, a needle-guide, mechanism for positively actuating the guide to advance toward the work, means for disconnecting the guide from such mechanism at the end of its positive movement permitting a forward movement of the needle with relation to the guide, and means for actuating the needle, substantially as described.

2. A sewing-machine, having, in combination, a needle, a needle-carrier, a needle-guide, connections between the guide and carrier for positively actuating the needle-guide, means for disconnecting said connections during the forward movement of the needle-carrier permitting a forward movement of the needle with relation to the guide, and means for actuating the needle-carrier, substantially as described.

3. A sewing-machine, having, in combination, a curved needle, a needle-segment, a needle-guide, a pawl pivoted to the needle-segment and engaging the needle-guide, a cam acting to disengage the pawl during the forward movement of the needle-segment, and means for actuating the needle-segment, substantially as described.

4. A sewing-machine, having, in combination, a needle, a needle-guide, mechanism for positively actuating the guide in both directions, means for disconnecting the guide from its actuating mechanism at the end of its positive forward movement permitting a forward movement of the needle with relation to the guide, and means for actuating the needle, substantially as described.

5. A sewing-machine, having, in combination, a needle, a needle-carrier, a needle-guide, connections between the guide and carrier for positively actuating the needle-guide to advance toward the work and thereupon permitting a forward movement of the needle with relation to the guide, and means for actuating the needle-carrier, substantially as described.

701,868. BINOCULAR GLASSES. CORTLAND PRINCE, Cleveland, Ohio, assignor to the Warner and Swasey Company, Cleveland, Ohio, a Corporation of Ohio. Filed Oct. 24, 1901. Serial No. 79,700. (No model.)

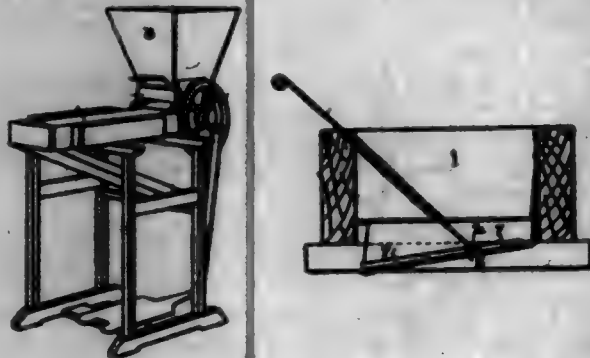


Claim.—1. A binocular glass composed of two barrels side by side and adjustably connected together, and two cap-plates secured to the objective ends of said barrels, said cap-plates projecting beyond the outer surface of their respective barrels and being there perforated to form strap-eyes, and guides for the straps secured respectively to said barrels and lying vertically over the said strap-eyes, substantially as and for the purpose specified.

2. A binocular glass composed of two barrels side by side and adjustably connected together, and four cap-plates secured respectively to the two ends of said two barrels, said four cap-plates being perforated beyond the sides of their respective barrels, substantially as and for the purpose specified.

3. A binocular glass composed of two connected members, each including a barrel having in its outer surface a longitudinal depression, and two cap-plates secured respectively to opposite ends of said barrel and having integral perforated extensions in alignment with said depression, substantially as and for the purpose specified.

701,864. FEEDING DEVICE FOR BEAN-SORTING MACHINES. ALBERT T. FRERELL, Saginaw, Mich. Filed May 24, 1901. Serial No. 81,715. (No model.)



Claim.—1. In a feeding device of the class described, a box located between the apron and the hopper and carrying a slidably-adjustable inclined gate; a reciprocating plate having a flange which is interrupted in its length to form a space for the lower edge of the inclined gate and having at its sides laterally-extending supporting-flanges; a wheel carrying ratchet-teeth; an arm or pawl attached to the plate and overriding the teeth; and a spring for holding the arm normally in contact with the teeth.

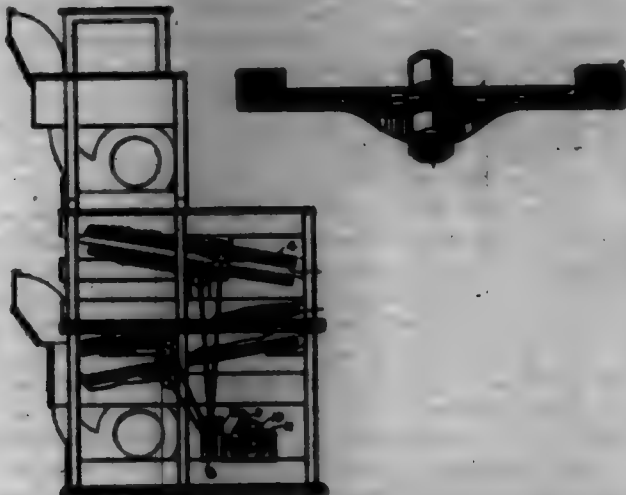
2. In a feeding device for sorting-machines, a reciprocating inclined feeding-plate having a flange which is interrupted in its length to form a space for the lower edge of the inclined gate, for the purpose set forth.

701,865. BRUSH ATTACHMENT FOR GRAIN-CLEANING MACHINES. ALBERT T. FRERELL, Saginaw, Mich. Filed May 24, 1901. Serial No. 81,716. (No model.)

Claim.—1. A screen-cleaning device comprising in combination: a brush-carrying bracket slidably mounted on a shaft in proximity to the screen; an eccentric-carrying bracket at each end of the shaft; an eccentric revolvably mounted in each of said brackets and supporting the shaft whereby the shaft and bracket can be adjusted toward or from the screen; a reciprocating block movable between guides; cords connecting the brush-carrying bracket with said block; sprocket-wheels near the extremities of travel of the block; a sprocket-chain on said wheels, carrying a laterally-projecting finger engaging a vertical slot in said block to traverse it along its guides; and means for rotating said sprocket-wheels, substantially as described.

2. In a screen-cleaning device the combination with a shaft parallel with the surface of the screen and having eccentrics near its ends whereby the shaft can be adjusted relatively to the screen; of a brush-carrying

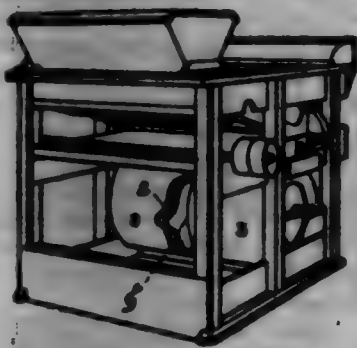
brush slidably mounted on the shaft by means of bearings having packing-boxes, for removing dirt from said shaft; together with means for traversing said brush along said shaft, substantially as described.



3. In a screen-cleaning device, a shaft arranged parallel with the surface of the screen; a brush-carrying bracket slidably mounted on the shaft; eccentrics near the ends of said shaft whereby the shaft can be adjusted relatively to the screen; and means for traversing the brush-carrying bracket back and forth along said shaft.

4. In a screen-cleaning device, the combination with a shaft parallel with the surface of the screen; of eccentrics near its ends whereby the shaft can be adjusted relatively to the screen; of a brush-carrying bracket slidably mounted on the shaft by means of a bearing intermediate its ends which permits a limited rotary motion around the shaft whereby the brush may assume an even bearing throughout its length against the under side of the screen, substantially as described.

701,866. BLAST-REGULATOR FOR GRAIN-CLEANERS. ALBERT T. FERRALL, Saginaw, Mich. Filed May 31, 1901. Serial No. 61,717. (No model.)



Claim.—1. An air or blast device comprising a drum divided into sections; a fan divided into sections operating in the drum-sections; double-leaf valves slidably adjustable between the drum-sections; the leaves of said valves being yieldingly held against the ends of said drum-sections, substantially as described.

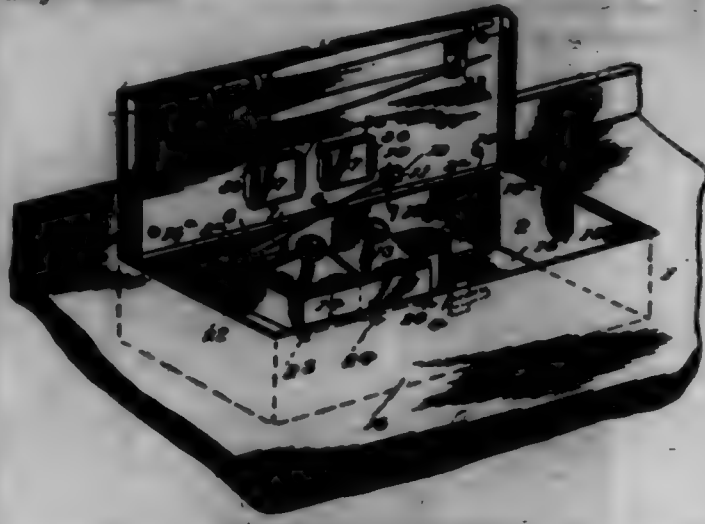
2. An air or blast device comprising a drum divided transversely into sections; a fan divided transversely into sections operating in the drum-sections; valves slidably adjustable between the drum-sections; said valves being yieldingly held against the ends of said drum-sections, substantially as described.

701,867. WRITING ATTACHMENT. JOHN C. FINE, Steelton, Pa. Filed Feb. 3, 1901. Serial No. 46,122. (No model.)

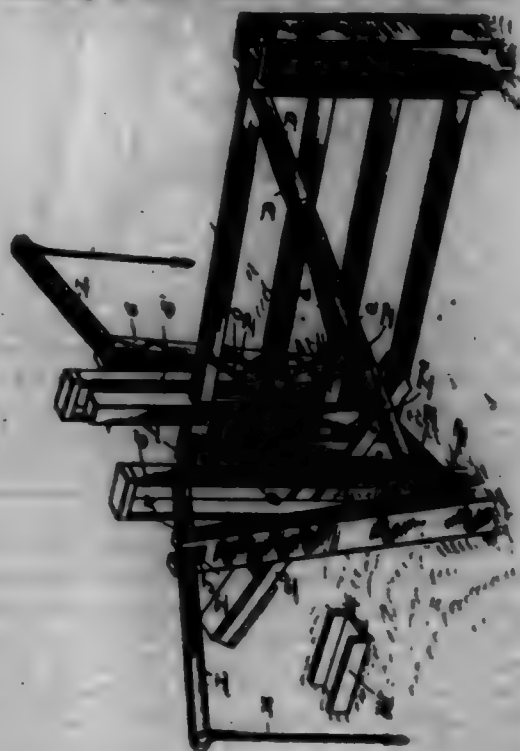
Claim.—1. In a device of the character described, a receptacle, and a partition forming an ink-well inclosure within said receptacle comprising a sheet of metal bent to form a front and sides and secured to the bottom and sides of the receptacle, one end of said partition being bent around to form a pen-wiper inclosure connected to the end of said ink-well inclosure and forming a partition between the two inclosures, substantially as described.

2. In a device of the character described, a receptacle having a cover hinged thereto, a partition within the receptacle forming an inclosure for an ink-well, one end of said partition being bent around to form a pen-wiper inclosure connected to the end of said ink-well inclosure and forming a partition between the two inclosures, lugs projecting from the inside of the cover and arranged to support pen-holder, lugs also projecting from the inside of the cover and holding a closure or stopper for the ink-well contained in one of said inclosures, and means for holding said cover shut,

whereby the said cover, when closed, supports the pen-holder and holds the ink-well closure or stopper against the mouth of the ink-well, substantially as described.



701,868. TILTING GATE. DEVLIN A. FINNEY, Hamilton, Mont. Filed July 18, 1901. Serial No. 63,464. (No model.)



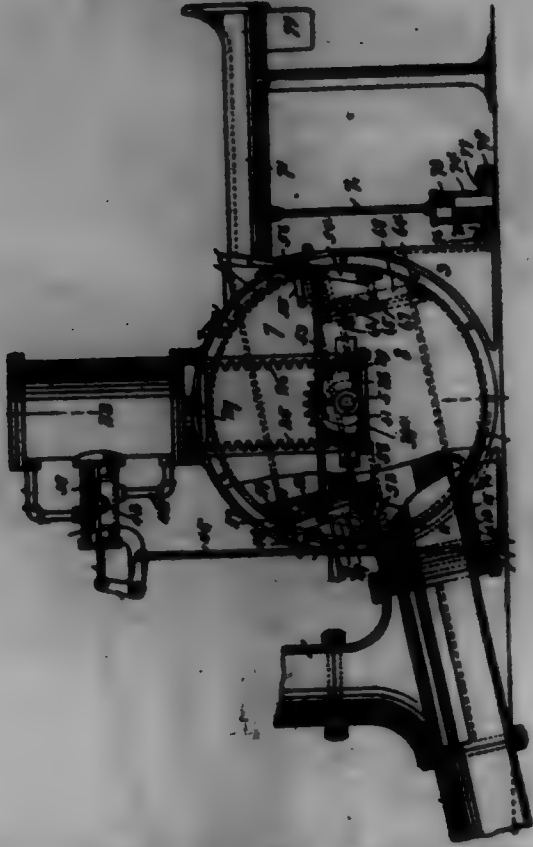
Claim.—In a tilting gate the combination of inclined lever-supports, bearing-posts, braces connecting said supports and posts, a roller journaled in said posts, a gate carried by said roller, stays connected to said roller upon each side of the gate having their upper ends connected to the gate, chains connected to said stays and to the gate, coupling or lifting rods connected to the said chains, levers pivoted in the upper ends of said inclined supports and connected to the said lifting-rods, supports connected by a bolt between the rails at the lower ends of the gate, a weight carried by the free ends of said supports, checks carried by the roller, and a stop upon each side of the gate adapted to be engaged by the lower ends of the supports which also contact with the checks when the gate is ascending or descending.

701,869. PNEUMATIC-DESPATCH SYSTEM. EDWARD W. FINE-LAND, Chicago, Ill., assignor to the American Pneumatic Service Company, Boston, Mass., a Corporation of Delaware. Filed Sept. 22, 1899. Serial No. 711,690. (No model.)

Claim.—1. In a pneumatic-despatch system, a terminal comprising a main tube and a receptacle adjacent thereto adapted to rotate intermittently and in but one direction across the open end of the main tube, said receptacle having an endwise-rotating carrier-tube section therein which is open at one end and closed at the other, said receptacle being adapted by its intermittent rotation to alternately present the open end or mouth of the carrier-tube section to the main tube and the open air, substantially as described.

2. In a pneumatic-despatch system, a terminal comprising a main tube and a receptacle adjacent thereto adapted to rotate intermittently in a vertical plane and in but one direction across the open end of the main tube, said receptacle having an endwise-rotating carrier-tube section

therein which is open at one end and closed at the other, said receptacle being adapted by its intermittent rotation to alternately present the open end or mouth of the carrier-tube section to the main tube and the open air, and sealing the end of the main tube when the carrier-tube is in the latter position, substantially as described.



3. In a pneumatic-dispatch system, a terminal comprising a main tube having an inclined end portion and a receptacle adjacent thereto adapted to rotate intermittently in a vertical plane and in but one direction across the open end of the main tube, said receptacle having an endwise-rotating similarly-inclined carrier-tube section therein which is open at one end and closed at the other, said receptacle by its intermittent rotation alternately presenting the open end or mouth of the carrier-tube section to the main tube and the open air, substantially as described.

4. In a pneumatic-dispatch system, a terminal comprising a main tube and a rotating receptacle adjacent thereto, having two carrier-tubes arranged oppositely to each other and transversely to the axis of rotation, their outer ends being open and their inner ends closed, one of said carrier-tubes presenting its mouth to the main tube and the other of said carrier-tubes presenting its mouth to the open air, and said receptacle being adapted by a half-revolution to reverse the positions of said carrier-tubes, substantially as described.

5. In a pneumatic-dispatch system, a terminal comprising a main tube, and a receptacle adjacent thereto adapted to rotate in a vertical plane, said receptacle having two parallel carrier-tubes arranged oppositely to each other and transversely to the axis of rotation and having their outer ends open and their inner ends closed, whereby the rotation of the receptacle will alternately present the mouth of each tube to the main tube and to the open air, substantially as described.

6. In a pneumatic-dispatch system, a terminal comprising a main tube having an inclined end portion and a receptacle adjacent thereto and rotating in a vertical plane, said receptacle having two parallel carrier-tubes arranged oppositely to each other and transversely to the axis of rotation, with a normal inclination substantially identical with that of the end of the main tube, the outer ends of said carrier-tubes being open and their inner ends closed, and said tubes being arranged to be successively presented to the main tube and to the outer air, substantially as described.

7. In a pneumatic-dispatch system, a terminal comprising a main tube and a receptacle adjacent thereto adapted to rotate intermittently and in but one direction across the open end of the main tube, an endwise-rotating carrier-tube section open at one end and closed at the other carried by said receptacle, an automatic mechanism for actuating said receptacle when a carrier is introduced into the same so as to alternately carry the open end or mouth of said tube-section into registration with the main tube and the open air, substantially as described.

8. In a pneumatic-dispatch system, a terminal comprising a main tube and a rotating receptacle adjacent thereto, having two parallel carrier-tubes arranged oppositely to each other and transversely to the axis of rotation, their outer ends being open and their inner ends closed, one of said carrier-tubes presenting its mouth to the main tube and the other of said carrier-tubes presenting its mouth to the open air, and means for

imparting a half-revolution to said receptacle to reverse the positions of said carrier-tubes, substantially as described.

9. In a pneumatic-dispatch system, a terminal comprising a main tube and a rotating receptacle adjacent thereto, having two parallel carrier-tubes arranged oppositely to each other and transversely to the axis of rotation, their outer ends being open and their inner ends closed, one of said carrier-tubes presenting its mouth to the main tube and the other of said carrier-tubes presenting its mouth to the open air, and automatic mechanism whereby, upon the advent of a carrier in one of said tubes, a half-revolution will be imparted to said receptacle to reverse the positions of said carrier-tubes, substantially as described.

10. In a pneumatic-dispatch system, a terminal comprising a main tube having an inclined end portion and a receptacle adjacent thereto and rotating in a vertical plane, said receptacle having two parallel carrier-tubes arranged oppositely to each other and transversely to the axis of rotation with a normal inclination substantially identical with that of the end of the main tube, one of said carrier-tubes presenting its mouth to the main tube and the other of said carrier-tubes presenting its mouth to the open air, and means for imparting to said receptacle a half-revolution, whereby the carriers are adapted to enter and leave said receptacle by gravity, substantially as described.

11. In a pneumatic-dispatch system, a terminal comprising a main tube and a rotating receptacle adjacent thereto, having two oppositely-directed transverse carrier-tubes therein, and means for imparting to said receptacle an intermittent rotary motion in a uniform direction of one hundred and eighty degrees, substantially as described.

12. In a pneumatic-dispatch system, a terminal comprising a main tube and a rotating receptacle adjacent thereto, having oppositely-directed transverse carrier-tubes, a motor having mechanism to impart an intermittent rotary motion of one hundred and eighty degrees in a uniform direction to said receptacle, and means actuated by the advent of a carrier in said receptacle for controlling said motor, substantially as described.

13. In a pneumatic-dispatch system, the combination, with a main tube and a rotating receptacle having oppositely-arranged transverse carrier-tubes, of a motor for imparting to said receptacle a half-revolution, automatic mechanism actuated by the carrier for controlling said motor, and means for throwing said automatic mechanism out of operative position, substantially as described.

14. In a pneumatic-dispatch system, the combination, with a main tube and a rotating receptacle having oppositely-arranged transverse carrier-tubes, of a motor for imparting to said receptacle a half-revolution, automatic mechanism actuated by the carrier for controlling said motor, means for throwing said automatic mechanism out of operative position, and means for manually controlling said motor when the automatic mechanism is inoperative, substantially as described.

15. In a pneumatic-dispatch system, the combination, with a main tube and a rotating receptacle having oppositely-arranged transverse carrier-tubes, of a motor for imparting a half-revolution to said receptacle, and means for controlling said motor both automatically by the carrier and manually, substantially as described.

16. In a pneumatic-dispatch system, the combination, with a main tube, of sending and receiving terminals thereof, each comprising a rotating receptacle having oppositely-arranged transverse carrier-tubes, automatic mechanism whereby said receptacles are actuated upon the introduction of a carrier, and mechanism for introducing the carriers into the sending-terminal and removing them from the receiving-chute of the receiving-terminal, substantially as described.

17. In a terminal of the character described, a rotating receptacle secured on an axis, a shouldered disk also secured on said axis, gear loosely mounted on said axis in different planes and having pawls to engage the shouldered disk, each engaging said gear on opposite sides, a motor comprising a cylinder having a piston connected with said racks, and means for controlling said motor, substantially as described.

18. In a terminal of the character described, a rotating receptacle having an axis on which it is secured, a shouldered and flattened disk also secured on said axis, two gear-segments loosely mounted on said axis in different planes and having pawls to engage the shouldered disk, two racks engaging the opposite sides of said segments, cross-bars connecting said racks at top and bottom and adapted to contact with the flat portion of the shouldered disk at the limits of their movement, a motor comprising a cylinder and a piston connected with said racks, and means for controlling said motor, substantially as described.

19. A pneumatic-dispatch terminal comprising a rotary receptacle having oppositely-arranged transverse carrier-tubes therein, each tube being provided at its inner end with a spring-controlled rock-shaft having a stop-arm and an actuating-arm, a motor for actuating said receptacle, a valve controlling said motor, and a lever connected to said controlling-valve and having projections adapted to be successively engaged by the actuating-arms of the carrier-tubes, substantially as described.

20. A pneumatic-dispatch terminal, comprising a rotating receptacle

having oppositely-arranged transverse carrier-tubes, each tube being provided at its inner end with a spring-controlled rock-shaft having a contact-arm adapted to be engaged by the carrier and an actuating-arm, a motor for actuating said receptacle, a valve controlling said motor, a lever connected with said valve and having projections adapted to be respectively engaged by the actuating-arms of the carrier-tubes when said lever is in one position, and a shifting-arm carrying said lever and adapted to shift the same out of operative position, substantially as described.

21. In a pneumatic-dispatch-tube system, the combination, with a main tube, of a rotating receptacle having an annular periphery or rim and transversely-arranged carrier-tubes, a casing inclosing said receptacle and having a tubular extension surrounding the end of the main tube, and a spring-actuating packing located between said tubular extension and the main tube and bearing against the rim of the receptacle, substantially as described.

22. In a pneumatic-dispatch-tube system, the combination, with a main tube, of a rotating receptacle having an annular periphery or rim and transversely-arranged carrier-tubes, a casing inclosing said receptacle and having a tubular extension surrounding the end of the main tube, a sleeve fitting and adapted to slide in the space between the main tube and said tubular extension and bearing against the rim of the receptacle at one end, a packing bearing against the other end of said sleeve, and springs for holding said packing in position and pressing the sleeve against the rim of the receptacle, substantially as described.

23. In a pneumatic-dispatch-tube system, the combination, with a main tube having an upwardly-inclined sending end and a downwardly-inclined receiving end, of terminals therefor each comprising a rotating receptacle having carrier-tubes the normal inclination whereof corresponds with that of the ends of the main tube with which they are connected, substantially as described.

24. In a pneumatic-dispatch system, the combination, with a main tube having an upwardly-inclined sending end and a downwardly-inclined receiving end, of sending and receiving terminals therefor, each comprising a receptacle adapted to rotate in a vertical plane and having oppositely-arranged transverse carrier-tubes, and automatic mechanism whereby said receptacles are actuated upon the introduction of a carrier, substantially as described.

25. The combination, with the sending-terminal of a pneumatic-dispatch system, of a tilting cradle or chute which is normally horizontal, said chute being pivoted eccentrically of its length, whereby it is adapted to be tilted or rocked to discharge the carrier into the terminal when the carrier is placed in said chute, and a counterbalance for returning said chute to its normal position after the discharge of the carrier, substantially as described.

26. The combination, with the sending-terminal of a pneumatic-dispatch system, of a tilting cradle or chute pivoted eccentrically of its length, means for holding said chute normally in a horizontal position and returning it to said position when displaced, and a dash-pot connected with said chute to retard its action, substantially as described.

27. The combination, with the sending-terminal of a pneumatic-dispatch system, of a tilting cradle or chute pivoted eccentrically of its length, means for holding said chute normally in a horizontal position and for returning it to said position when displaced, a piston connected with said chute, and a cylinder in which said piston moves, provided with a valve-controlled outlet and with an inlet having a check-valve, substantially as described.

28. In a pneumatic-dispatch apparatus, a dispatch-tube, a terminal, a receiver for the carriers consisting of receiving-tubes, and mechanism for moving one tube at a time into alignment with the dispatch-tube to receive the carriers, from said dispatch-tube, and means for stopping the carriers in the receiver.

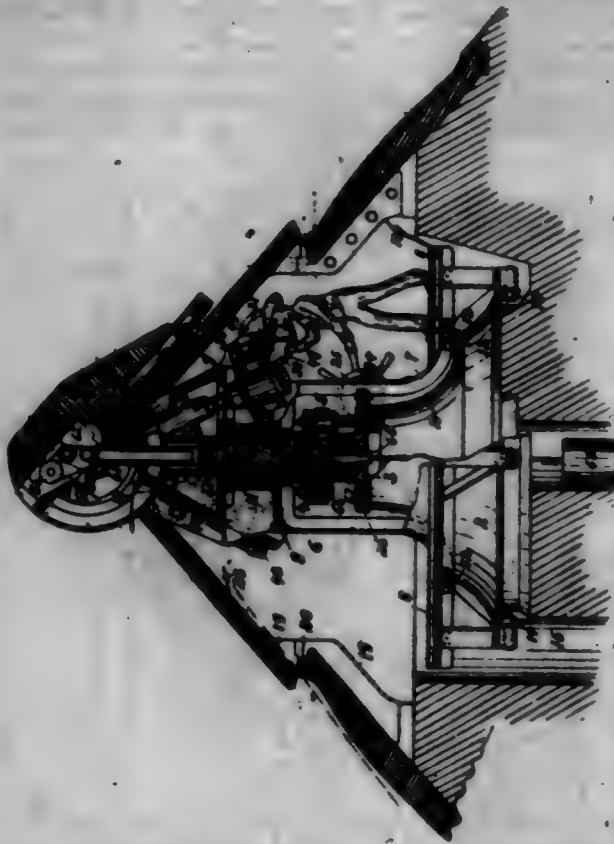
29. In a pneumatic-dispatch-tube apparatus, a dispatch-tube, a terminal, a receiver for the carriers consisting of two receiving-tubes, mechanism for automatically moving said receiving-tubes into alignment with the dispatch-tube to receive the carriers, from said dispatch-tube, and means for stopping the carriers in the receiver.

30. In a pneumatic-dispatch apparatus, a dispatch-tube, a terminal, a receiver for the carriers consisting of receiving-tubes, and mechanism operated by compressed air for automatically moving one tube at a time into alignment with the dispatch-tube to receive the carriers from said dispatch-tube, and means for stopping the carriers in the receiver.

701,870. ARMORED GUN-TOWER. ERIC GUNLUND, Winterthur, Switzerland. Filed May 22, 1901. Serial No. 51,459. (No model.)

Claim.—1. In an armored gun-tower the combination of a standard, with a rotatable carriage mounted thereon, a shield, a gun-casing exterior of said shield and means for rotating said carriage horizontally and gun-

casing vertically above and below the horizontal plane, substantially as described.



2. In an armored gun-tower the combination of a standard, with rotatable carriage mounted thereon, a gun-casing containing a gun running in a slide in said casing, a recoil mechanism, a mechanism for rotating said carriage horizontally and gun-casing vertically above and below the horizontal plane, and a shield protecting said mechanism, said gun being mounted anterior of said shield, substantially as described.

3. In an armored gun-tower the combination of a standard, a carriage mounted thereon, a gun-casing containing a gun running in a slide in said casing, a fluid recoil mechanism, means for rotating said carriage horizontally and gun vertically above and below the horizontal plane, a shield protecting said mechanism and a sighting or aiming mechanism operated from within said shield, substantially as described.

4. In an armored tower the combination of a standard, a carriage mounted thereon, a gun-casing containing a gun, a recoil mechanism a shield, said shield containing observing-scope, a sighting mechanism, means for rotating said carriage and means for rotating and fastening said gun-casing which latter is composed of two sets of gears in a spring-mounting in combination with bevel-gearing, worm-wheel and hand-wheel, substantially as described.

5. In an armored tower the combination of a standard, a carriage mounted thereon, a gun-casing containing a gun, a recoil mechanism, a shield and means for rotating said gun-casing vertically, said recoil mechanism consisting of rollers over which a hand passes, the latter being connected to a piston contained in a cylinder of fluid, substantially as described.

6. In an armored tower the combination of a standard, a carriage carrying an operating-platform, a gun-casing, a shield, and means for rotating said gun-casing vertically above and below the horizontal plane, substantially as described.

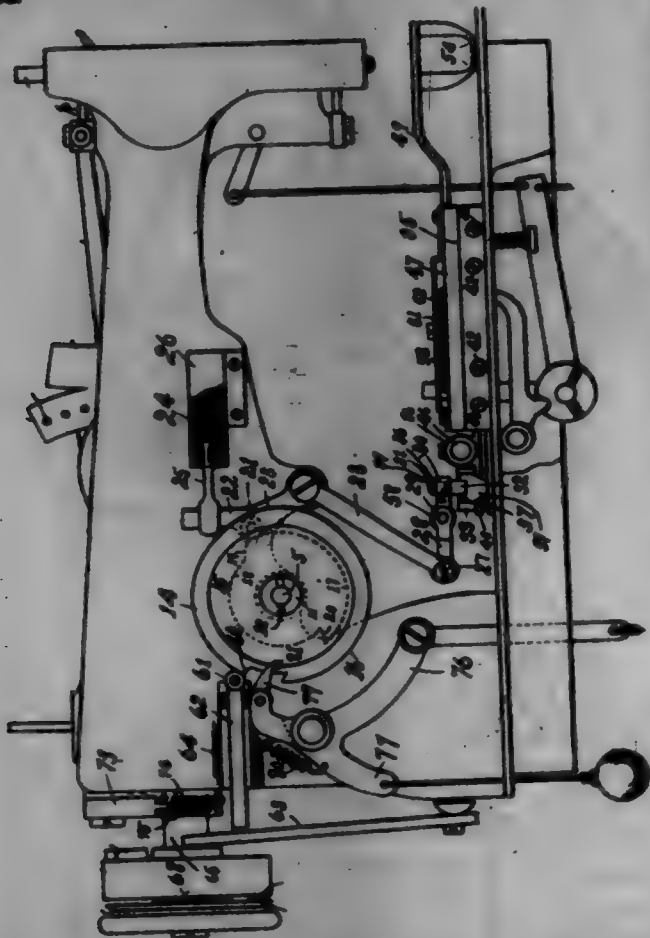
7. In an armored tower the combination of a cone-like shield with a gun mounted at the apex thereof and mechanism for swinging the same vertically above and below the horizontal plane, substantially as described.

701,871. BUTTON-SHEWING MACHINE. ARTHUR GLASSMAN, San Francisco, Cal., assignor to Andrew White, Vallejo, Cal. Filed July 8, 1901. Serial No. 57,257. (No model.)

Claim.—1. In a button-sewing machine, the combination of the main driving-shaft, the needle-bar carrier, a rock-shaft operatively connected therewith to shift the same horizontally and driven from the main driving-shaft, a button-clamp mechanism, a cam-wheel driven in a uniform direction from said shaft step by step synchronously with the rocking thereof, said cam-wheel having two cams, a lever for shifting said button-clamp mechanism vibrated by one of said cams, stopping and starting mechanism, and a lever for controlling the latter vibrated by the other cam, substantially as described.

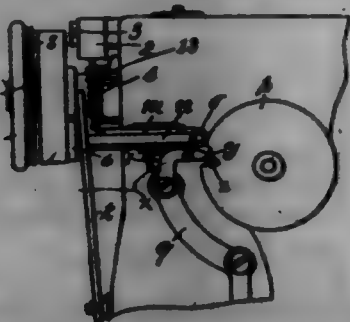
2. In a button-sewing machine, the combination of a shaft extending through the arm of the machine from front to rear, a ratchet-wheel

mounted on the front end of said shaft, and suitably driven from the main driving-shaft, a fixed disk behind the rear face of said ratchet wheel, friction material between said rear face and said disk, a nut on the rear end of the shaft for drawing said wheel toward said disk, a cam-wheel on the rear end of the shaft having a radial groove in its front face, a pin through said shaft arranged to enter said groove to key the cam-wheel to the shaft, and clamp mechanism shifted by said cam-wheel, substantially as described.



3. In a button-coring machine, the combination of a driving-pulley, a clutch sliding in the main driving-shaft, a lever for shifting said clutch, a slide having an arm engaging said lever, a cam-roller carried by said slide, a cam-wheel driven synchronously with the rotation of the main driving-shaft, a spring interposed between the driving-pulley and clutch and holding said roller to its cam, a stud projecting from the cam-wheel, and a pawl-carrying lever for engaging said stud to rotate said cam-wheel to shift the roller from the low to the high dwell, substantially as described.

701,872. STARTING OR STOPPING MECHANISM. AGNES M. MAGNIN, San Francisco, Cal., assignor to Andrew White, Vallejo, Cal. Filed July 8, 1901. Serial No. 67,530. (No model.)



Claim.—1. In a starting and stopping mechanism for sewing or other machines, the combination of a driving-shaft, a driving-pulley loosely mounted thereon, a clutch rotating with said shaft, but slidable thereon, a spring interposed between said driving-pulley and clutch to move the latter from the former, a lever having its free end shutting against the other side of the clutch to move the clutch up to the pulley against the action of said spring, a slide having an arm shutting against said lever to shift the latter, a roller carried by said slide and a cam-wheel, whose cam operates said roller to actuate said slide, substantially as described.

2. In a starting and stopping mechanism, the combination with the main driving-shaft, of a clutch rotating with said shaft and sliding thereon, a lag projecting from said clutch, a lever swinging in a plane at right angles to said shaft and outward therefrom, and a spring for drawing

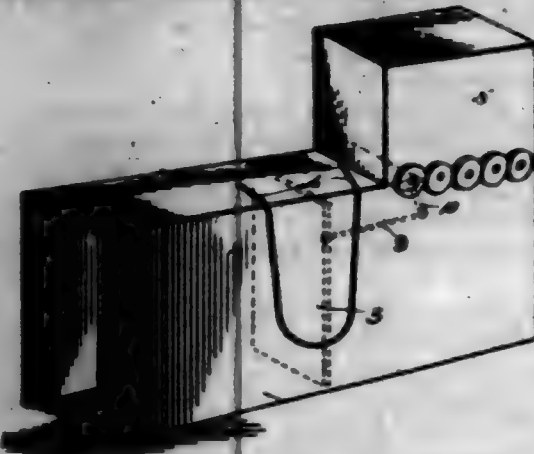
said lever toward said shaft, said lever having an inwardly-inclined surface arranged to engage said lag when the latter is brought into the plane of the lever to swing said lever outwardly against the action of said spring, the pressure of said spring-actuated lever upon said lag thereby acting as a brake, substantially as described.

3. In a starting and stopping mechanism the combination with the main driving-shaft, of a clutch rotating with said shaft and sliding thereon, a lag projecting from said clutch, a fixed stop upon which the lag impinges when the clutch is moved longitudinally on said shaft, a lever swinging in a plane at right angles to said shaft and outward therefrom, and a spring for moving said lever toward said shaft, said lever having an inclined under surface engaging said lag when said clutch is so moved laterally, thereby acting as a brake, and the end of the lever being distant from the stop substantially the width of the lag, whereby said lever prevents rebound of said lag after its arrest by the stop, substantially as described.

4. In a starting and stopping mechanism, the combination with the main driving-shaft, of a clutch rotating with said shaft and sliding thereon, said clutch comprising a clutch-body having an annular groove and an elongated aperture in its inner surface, a block in said groove having a lag extending through said aperture, a block secured in said groove, and a spring interposed between said blocks, and a stop engaging said lag to arrest said clutch, substantially as described.

5. In a starting and stopping mechanism the combination, with the main driving-shaft, of a driving-pulley loose on said shaft, a clutch rotating with said shaft and sliding thereon, a lag on said clutch, and a spring-actuated stud carried by the driving-pulley, movable in and out relative thereto, and arranged to engage said lag on said clutch, substantially as described.

701,878. DEVICE FOR BRUSHING FLIES FROM CATTLE AND TRAPPING SAME. O. E. CROSS, Thayer, Iowa. Filed Feb. 26, 1902. Serial No. 95,531. (No model.)



Claim.—1. In a device of this character the combination of an enclosure, an entrance-door mounted therein intermediate of its length, a trap in communication with said enclosure, a movable bottom for said trap, means for opening or closing said bottom operated by the entrance-door, and means for brushing the flies from the cattle as they leave the enclosure.

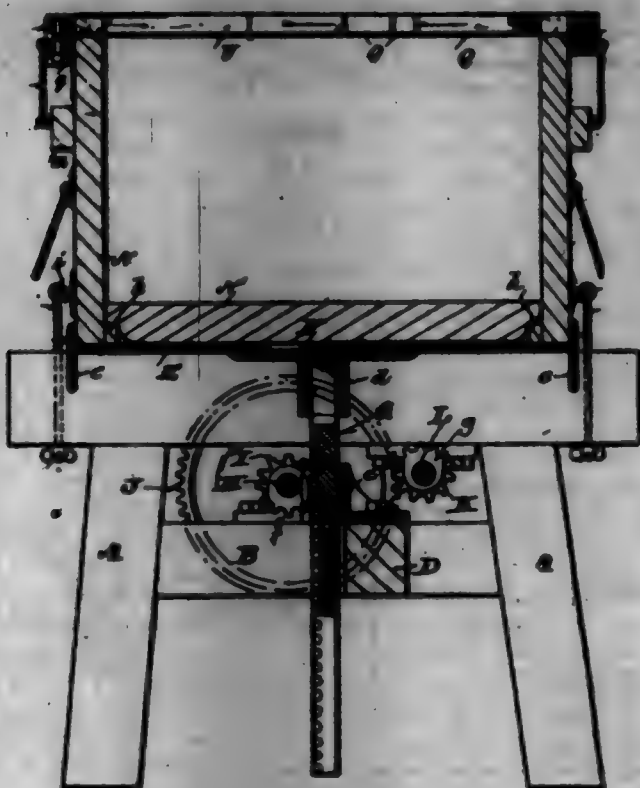
2. In a device of this character the combination of an enclosure, an entrance-door hingedly mounted therein, a trap in communication with said enclosure, a series of rollers mounted in the bottom of said trap to control communication between it and the enclosure, means operated by the entrance-door to revolve said rollers, and means for brushing flies from the cattle as they leave the enclosure.

701,874. BUTTER-CUTTING MACHINE. CHRISTIAN GLASS, Milwaukee, Wis. Filed Dec. 24, 1901. Serial No. 57,171. (No model.)

Claim.—1. A butter-cutting machine comprising a supporting-frame, a table on the frame, a vertically-movable platen having a depending Shank extending through the table central of the same, means in connection with said frame and Shank for actuating the platen, a tab on said table having vertical barbs, means for holding the tab in place, a loose bottom in the tab on said platen, an upper tab-fixing frame, and crossed wires in the latter frame engaging the tab-wall barbs.

2. A butter-cutting machine comprising a supporting-frame, a table on the frame, a vertically-movable platen having a depending Shank extending through the table central of the same, means in connection with said frame and Shank for actuating the platen, a tab on said table having vertical wall-barbs, means for holding the tab in place, a loose bottom in the tab on said platen, an upper tab-fixing frame, crossed wires in the latter frame engaging the tab-wall barbs, and a horizontal gage having a

vertical cone-arm adjustable between the overhead tub and said upper frame thereon.



701,875. CABLE-TERMINAL. BESSIE GORMAN, Wheaton, Ill. Filed Apr. 11, 1900. Serial No. 108,261. (No model.)

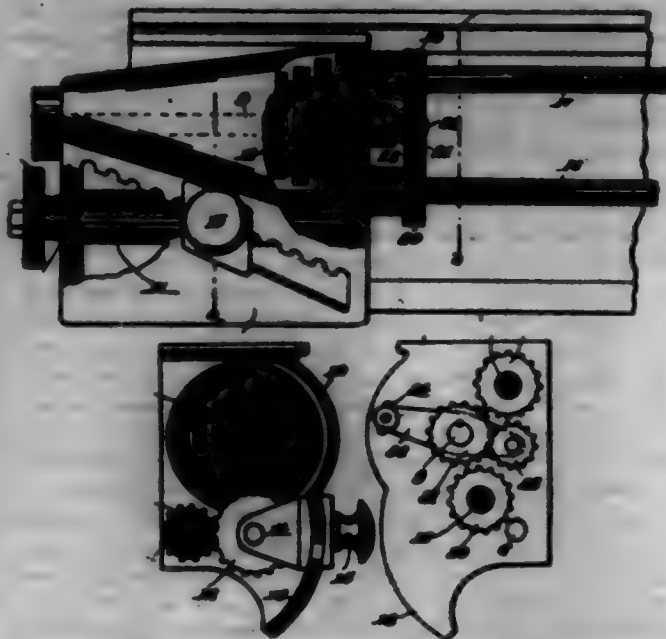


Claim.—1. A cable-terminal comprising a casting adapted to receive the end of the cable or conductor, an insulating-bushing interposed between said casting and cable or conductor, and a tapered sleeve adapted to be interposed between the cable or conductor and said bushing, all combined and arranged as and for the purpose set forth.

2. A cable-terminal comprising a casting adapted to receive the end of the cable or conductor, said casting being enlarged into bell shape, an insulating-bushing arranged to be received within the enlarged portion of said casting, and a tapered sleeve interposed between said bushing and the cable or conductor covering or sheathing, said parts adapted to be assembled while the casting is in a heated condition, whereby in shrinking the parts are bound tightly together, as and for the purpose set forth.

3. A cable-terminal comprising a casting, having a socket or nest adapted to receive the end of the cable, and having an enlarged chamber, an insulating-bushing arranged in the enlarged part of said casting, a tapered sleeve interposed between the bushing and the exterior of the cable or conductor, the cavity of said enlarged part adapted to be filled with an insulating compound, all combined and arranged as and for the purpose set forth.

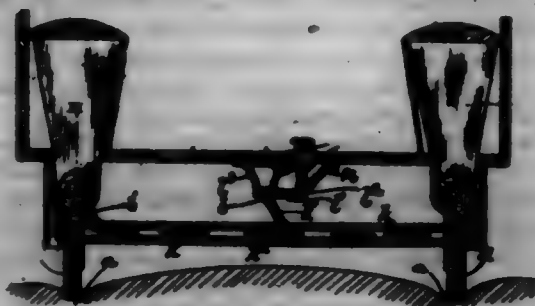
701,876. VARIABLE-SPEED GEARING. FREDERICK W. GORDON, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn. Filed Feb. 28, 1900. Serial No. 95,389. (No model.)



Claim.—1. In variable-speed gearing, the combination, substantially as set forth, of a first shaft, a shaft parallel therewith, a series of dissimilar-sized gears fast on the first shaft, a gear fast on the second shaft having a length equal to the length of the series of gears on the first shaft, a dotted wall-like support disposed concentric and parallel with said second shaft, a bracket seated upon the inner surface of said support and longitudinally and angularly adjustable upon the inner surface of said support, and a gear carried by said bracket and constantly engaging said long gear and adapted for engagement with any of said dissimilar-sized gears.

2. In variable-speed gearing, the combination, substantially as set forth, of two parallel shafts, selective gearing connecting said two shafts and adapted to serve in transmitting motion from one to the other at selective speeds, a third shaft and a fourth shaft arranged parallel with each other and with their axes parallel with those of the first-mentioned shafts, a gear on the third shaft, a gear on the fourth shaft in the place of the one on the third shaft, a gear on one of said first-mentioned shafts in the place of those on the third and fourth shafts but free of engagement therewith, a rocking tumbler, and a gear carried by said tumbler and constantly engaging the last-mentioned gear and adapted to engage the gear on the third shaft or the gear on the fourth shaft.

701,877. SANDING-MACHINE. OLIVER E. HANCOCK, Toronto, Canada, assignor of two-thirds to Alexander H. Campbell and Vernon Rubin, Toronto, Canada. Filed Jan. 26, 1900. Serial No. 91,178. (No model.)



Claim.—1. The combination with a railway car or vehicle having wheels arranged at opposite sides, respectively, of the car or vehicle, of hoppers arranged within the body of the car and at opposite sides thereof, conveyor-chains located beneath said car and in open communication with the respective hoppers, discharge-apertures depending from each of said chains, and arranged to discharge in advance of the said wheels of said cars, screw conveyors arranged within each of said chains, and having their shafts extending beyond the end of said casing, ratchet-wheels rigidly secured on each of the conveyor-shafts outside of said casing, a pawl-carrying head rotatably mounted on each conveyor-shaft adjacent to the ratchet-wheels and having the pawl in engagement with the teeth of the said ratchet-wheel and means for operatively connecting the respective pawl-carrying heads, substantially as described.

2. The combination with a railway car or vehicle having wheels arranged on opposite sides, respectively, of the car or vehicle, of hoppers arranged within the body of the said car, and at opposite sides thereof,

conveyer-arms located beneath said car and in open communication with the respective hoppers, discharge-spouts depending from each of said cars and arranged to discharge in advance of the said wheels of the said car, screw conveyers located within the respective casings and having the ends of the conveyer-shafts extending beyond the ends of the said casings, a ratchet-wheel rigidly secured on each of the conveyer-shafts outside of said casing, a pawl-carrying head rotatably mounted on each of the said conveyer-shafts adjacent to the respective ratchet-wheel, a pawl mounted upon each of the said heads and arranged to engage the teeth of the respective ratchet-wheel, a rod operatively connecting the said pawl-carrying heads, an operating-rod mounted vertically in an opening in the floor of said car and a bell-crank lever connecting said operating-rod and the said connecting-rod, substantially as described.

3. The combination with a railway car or vehicle having wheels arranged at opposite sides, respectively, of the car or vehicle, of hoppers arranged within the body of the said car and at opposite sides thereof, conveyer-arms located beneath said cars and in open communication with the respective hoppers, discharge-spouts depending from each of said cars and arranged to discharge in advance of the wheels of the said car, screw conveyers arranged within said casings having their ends projecting through the ends thereof, ratchet-wheels keyed on each of the conveyer-shafts outside of said casing, pawl-carrying heads rotatably mounted on each of the said conveyer-shafts adjacent to the said ratchet-wheel, a pawl mounted on the respective pawl-carrying heads and arranged to engage the teeth of the respective ratchet-wheel, a rod operatively connecting the said pawl-carrying heads, a shaft mounted above said connecting-rod and at right angles thereto, a lever-arm forming an operative connection between said connecting-rod and said shaft, an operating-rod mounted vertically in an opening in the floor of said car, a lever-arm forming an operative connection between the said shaft and the said operating-rod, and a spring for holding the last-mentioned lever-arm in its normal position, substantially as described and for the purpose set forth.

701,878. POCKET-KNIFE LEATHER-PUNCH. OWEN L. HARRIS, Calista, Ill. Filed Feb. 20, 1898. Serial No. 95,344. (No model.)



Claim.—1. In a device of the class described, the combination with a knife-handle, of a punch pivoted to the knife-handle and provided with a longitudinal groove to receive the adjacent outer side edge of the handle and to permit the escape of cuttings, said punch being provided with an inner longitudinal cutting edge arranged within the handle when the punch is closed and having an exterior longitudinal portion extending along the handle and arranged to be grasped, substantially as described.

2. In a device of the class described, the combination with a handle, of a punch pivoted to the handle and provided at its inner face with an angular longitudinal groove having flat faces to receive the adjacent portion of the handle and forming an enlarged exterior portion extending along the outer side edge of the handle and arranged to be grasped, said punch being tapered and provided with a curved outer face and having an inner longitudinal cutting edge adapted to be sharpened by grinding the flat face of the inner portion, substantially as described.

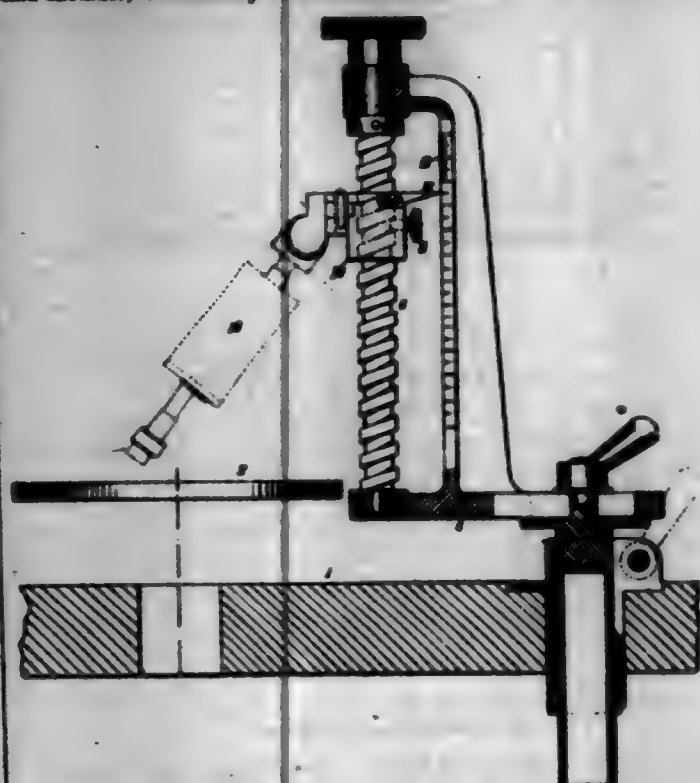
3. In a device of the class described, the combination of a knife-handle, and a tapering approximately conical punch, having a curved outer face and provided at its inner face with a longitudinal groove angular in cross-section to fit the adjacent portion of the knife-handle, said punch being composed of an enlarged outer portion extending along the outer side edge of the handle and arranged to be grasped and a thin inner portion having a longitudinal cutting edge and adapted to extend into the knife-handle, substantially as and for the purpose described.

4. In a device of the class described, the combination of a tapering knife-handle and a tapering approximately conical punch, having a curved outer face and provided at its inner face with a longitudinal groove, said punch being also provided with a solid conical point and consisting of an inner thin longitudinal cutting portion fitting within the knife-handle and provided with a longitudinal cutting edge, and an enlarged tapering outer portion extending along the outer side edge of the handle and arranged to be grasped and having a smooth exterior edge and fitting against the tapered portion of the handle, substantially as described.

701,879. APPARATUS FOR GRINDING AND POLISHING GEMS. FREDERICK E. HILLMAN, Brooklyn, N. Y., assignor to Lippman Manufacturing Co., New York, N. Y. Filed Dec. 23, 1891. Serial No. 7,122. (No model.)

Claim.—1. In a machine for cutting and polishing gems, the combination of a standard, means for adjusting same vertically and horizon-

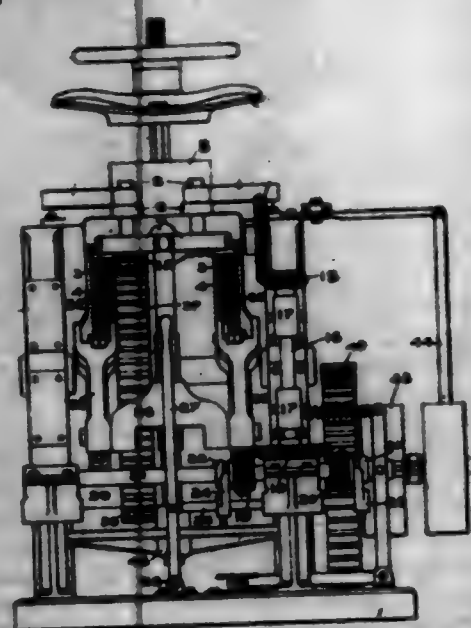
tally, a screw-down support from and revolvably mounted in said standard with means for revolving said shaft, a screw-threaded block arranged to travel on said shaft, means for setting said block rigidly at any point on said shaft, means for registering the elevation of said block, a shoulder on said block and means for adjusting the angle of inclination of the said shoulder, substantially as shown and described.



2. A dip-holder having a cylindrical casing, a spindle revolvably mounted therein, a plurality of toothed disks centered on said spindle, an equal number of toothed steps cut transversely through said casing, a corresponding series of springs on said casing engaging with said steps and tending to engage them with said disks, a corresponding series of latches on said casing holding said steps normally out of engagement and means for releasing the steps from engagement, substantially as shown and described.

3. In a dip-holder, the combination of a cylindrical casing, a spindle revolvably mounted therein, a contained means for positively locking said spindle at any desired point of rotation, with means for measurably indicating each degree of rotation, as and for the purposes set forth.

701,880. HORSE-COLLAR-MOCKING MACHINE. JOSE H. EBERHART, St. Paul, Minn., assignor to Frank E. Purgo and Joseph J. Purgo, Leominster, Wis. Filed Dec. 2, 1901. Serial No. 94,319. (No model.)



Claim.—1. In a machine for shaping horse-collars, means for holding a collar, blocking means arranged above and below said holding means and means for actuating said blocking means to carry the same against the belly and rim of an interposed collar.

2. In a machine for shaping horse-collars, means for holding a collar, blocking devices arranged respectively above and below said holding

means said devices being adapted by independent movement to apply pressure to the interposed collar, and means for actuating said devices.

3. In a machine for shaping horse-collars, clamping-arms for holding a collar, blocking means arranged above and below said arms, and means for actuating said blocking means to apply pressure to an interposed collar.

4. In a machine for shaping horse-collars, clamping-arms for holding a collar, blocking means arranged above and below said arms, and means for independently actuating said blocking means.

5. In a machine for shaping previously-stuffed horse-collars, means for holding a collar, a block supported above said holding means, a die having spring-support below the same, and means for actuating said block and die.

6. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms arranged upon opposite sides of said lower member, a die supported below said arms, and means for actuating said upper block member and said die for the purpose set forth.

7. In a machine for shaping previously-stuffed horse-collars, the combination with the framework, of lower and upper block members, clamping-arms arranged upon opposite sides of said lower member, a die supported below said arms, and means for actuating said block members and said die for the purpose set forth.

8. In a machine for shaping previously-stuffed horse-collars, the combination with the framework, of lower and upper block members, clamping-arms arranged upon opposite sides of said lower member, means for actuating said arms, a die supported below said arms, and means for actuating said block members and said die for the purpose set forth.

9. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms arranged upon opposite sides of said lower block member, means for carrying said arms toward and from said member, a die arranged below said arms, and means for actuating said block members and said die for the purpose set forth.

10. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms arranged upon opposite sides of said lower block member, means for carrying said arms toward and from said member, and means for raising and lowering said block members, for the purpose set forth.

11. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms supported upon opposite sides of said lower member, means for carrying said arms toward and from said member, a die supported below said arms, and means for raising and lowering said block members and said die for the purpose set forth.

12. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms supported upon opposite sides of said lower block member, means for carrying said arms toward and from said member, a die arranged below said arms, and means for actuating said block members and said die for the purpose set forth.

13. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, clamping-arms supported upon opposite sides of said lower member, means for carrying said arms toward and from said member, means for holding said arms in adjusted position, a die arranged below said arms, and means for actuating said block members and said die for the purpose set forth.

14. In a machine for shaping previously-stuffed horse-collars, the combination with the framework, of upper and lower block members, pivotally-supported clamping-arms arranged upon opposite sides of said lower member, means for actuating said arms, a supporting-shaft for said block members, a toggle-joint connection between said shaft and the framework, and driving mechanism connecting said toggle-joint with a source of power.

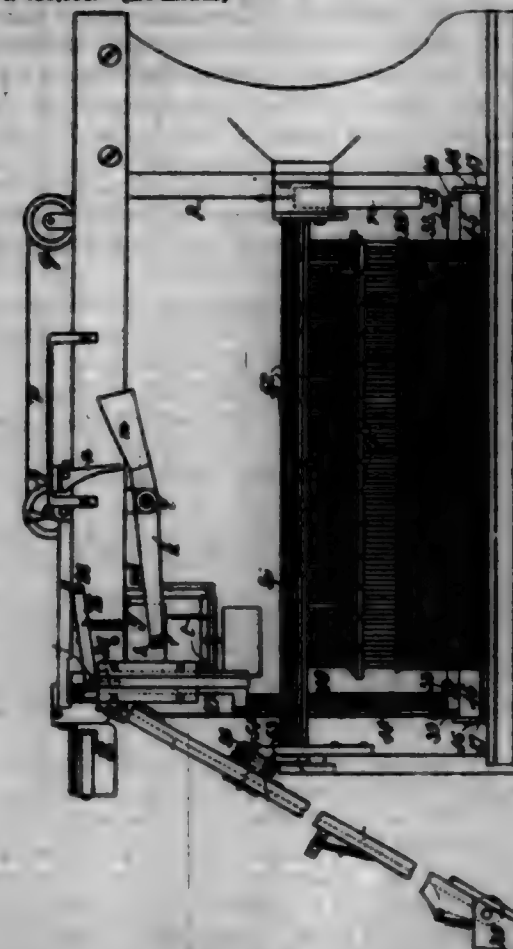
15. In a machine for shaping previously-stuffed horse-collars, the combination with the framework, of upper and lower block members, a spring-support for said lower member, a vertical shaft supporting said upper member, actuating means for said shaft, clamping-arms arranged upon opposite sides of said lower member, and means for actuating said arms.

16. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, a spring-support for said lower member, a vertical shaft supporting said upper member, actuating means for said shaft, clamping-arms arranged upon opposite sides of said lower member, means for actuating said arms, and means for holding said arms in adjusted position.

17. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, a spring-support for said lower member, a vertical shaft supporting said upper member, means for adjusting said member upon said shaft, means for actuating said shaft, clamping-arms arranged upon opposite sides of said lower member, and means for actuating said arms.

18. In a machine for shaping previously-stuffed horse-collars, the combination with framework, of lower and upper block members, a spring-support for said lower member, a vertical shaft supporting said upper member, means for adjusting said member upon said shaft, means for actuating said shaft, clamping-arms arranged upon opposite sides of said lower member, means for carrying said arms toward and from said lower block member, and means for holding said arms in adjusted position.

701,881. TYPE-DISTRIBUTING MACHINE. PHILIP E. HODGKIN and GEORGE E. KIMMEL, London, England. Filed Dec. 8, 1898. Serial No. 730,654. (No model.)



Claim.—1. A type-distributing machine comprising type-feeding mechanism adapted to feed the type in line, type-ejecting mechanism adapted to separate the types one at a time from the line thereof, a type distributing or grouping device arranged below said type-ejecting mechanism and into which all the type fall, said device being adapted to divide the types into groups and direct the types one by one into one or other of a series of channels corresponding to the particular group to which the ejected type belongs, and a plurality of type-separating devices corresponding to and in communication with the several grouping-channels and each adapted to automatically separate from each other the types corresponding to the particular group of types fed into the same.

2. A type-distributing machine comprising a feed-trough having an exit-opening for types and a separate exit-opening for spaces, mechanism for feeding mixed type and spaces along said trough, type-ejecting mechanism adapted to force the types one by one through the type exit-opening, a type distributing or grouping device adapted to receive the ejected types and divide them into groups, and stationary type-separating devices connected with the type distributing or grouping device and each adapted to automatically separate the types belonging to one group from each other.

3. A type-distributing machine comprising a support for types in column form, a type-trough having a type exit-opening, means for lifting lines of types one at a time from said support and placing them in said trough, mechanism for feeding a line of types along said trough toward said type exit-opening, mechanism adapted to eject the successive types through said exit-opening, a type distributing or grouping device adapted to receive ejected type and direct them into one or other of a series of channels, said channels being in number less than the different kinds of types to be distributed so as to divide the several types of a feed into groups, and a stationary type-separating device adapted to automatically separate the types fed through each channel from one another.

4. In a type-distributing machine, a type-galley having at one end a wall formed with a recess the bottom of which is above the level of said galley and is adapted to carry a line of types, means for pressing a column of types against said wall, a trough arranged in line with said recess and having at one end separate exit-openings for types and spaces,

a vertically-movable pusher adapted to raise the foremost line of types to the level of the bottom of said recess, means for operating said pusher, means for feeding a line of types along said recess and trough toward said exit-hole, and means for ejecting the foremost type through the type exit-opening.

5. In a type-distributing machine, a type-trough having a space exit-opening at one end of a height equal to that of the space to be distributed and a type exit-opening at one side thereof, a pusher adapted when operated to force the foremost type through said type exit-opening, means for operating said pusher, means for lifting a line of types from a column thereof to the level of said trough, means for feeding the raised line of types sidewise into the trough, feeding mechanism for feeding said line of types toward said exit-opening, and means carried by said feeding mechanism for actuating the type-lifting means when said feeding mechanism is drawn back to its starting position, substantially as described.

6. In a type-distributing machine, a type-trough having a type exit-opening one side of which is formed by a movable block or plate, that is normally held in a said position and is capable of moving in opposite directions from said said position and key-operated mechanism adapted to move said block or plate endwise from its normal position to different extents in each direction to vary the width of said type exit-opening to suit the particular type to be ejected.

7. In a type-distributing machine, a type-trough having a type exit-opening one side of which is formed by an endwise-movable block, but is capable of moving in opposite direction from its normal position, a device adapted to hold said block in its normal position but capable of yielding to allow of said block being moved endwise, separate adjusting devices each adapted to move said block endwise from its normal position to a different extent, type-ejecting mechanism, and key-actuated mechanism for operating said adjusting devices.

8. In a type-distributing machine, a type-trough having a type exit-opening one side of which is formed by an endwise-movable block having a projecting part, a spring-lever having a notched portion engaging said projecting part and adapted to hold said block in a yielding manner in its normal position, two sets of separate adjusting devices adapted to act against opposite sides of said pin and move said block endwise to different extents, and key-actuated mechanism connected to said adjusting devices.

9. In a type-distributing machine, a type-trough having a type exit-opening one side of which is formed by an endwise-movable block, a device adapted to hold said block in its normal position but capable of yielding to allow of said block being moved endwise, separate adjusting devices each adapted to move said block endwise from its normal or stationary position in either direction and to a different extent, pivoted frames or levers each connected to one of said adjusting devices, and a series of key-levers, key-levers corresponding to types of given thickness, connecting those of a given normal thickness, acting to operate the corresponding pivoted frame or lever, substantially as described for the purpose specified.

10. In a type-distributing machine, a type-trough having a type exit-opening one side of which is formed by an adjustable block, type-ejecting mechanism, a type discharge-passage arranged below said type exit-opening and leading to a type-separating device, and means comprising a pivoted weight adapted to prevent turning of the types while falling through said discharge-passage, substantially as described.

11. In a type-distributing machine, a type-trough having at one end an exit-opening in line with the trough and of a height above the floor of the trough corresponding to that of a space, and two transverse openings formed through the front and back walls of the trough adjacent to said exit-opening, the opening in the front wall being adjustable in width, a type-ejector arranged to work through the rear opening and force the foremost type of a line of types in said trough through the type exit-opening, key-actuated mechanism for adjusting the width of the type exit-opening to suit the width of the type to be ejected, and means for actuating said type-ejector.

12. In a type-distributing machine, a type grouping or distributing device comprising a support having an inlet-channel for the types to be distributed, a series of plates or shutters fixed at their lower ends to spindles journaled in the back wall of said support and spaced apart at their lower ends so that a series of type-distributing channels can be formed between them, a series of levers each fixed on the rear end of a shutter-spindle, a series of rock-shafts each carrying a lever provided with two pins arranged to embrace one of the levers on the shutter-spindle, and key-operated levers, each of the rock-shafts being adapted to be operated by each of the key-levers corresponding to the types belonging to a particular group of types.

13. In a type-distributing machine, a type grouping or distributing device comprising a chamber or space of gradually-increasing width from top to bottom and having a type-inlet channel at the top and a series of type-distributing channels at the bottom, a series of plates or shutters fixed at their lower ends to spindles journaled in the back wall of said

chamber or recess and arranged to rest against one another at their upper ends and spaced apart from each other and from the inner sides of said chamber at their lower ends, a series of levers each fixed on the rear end of a shutter-spindle, a series of rock-shafts each carrying a lever provided with two pins arranged to embrace one of the levers on the shutter-spindle, and key-operated levers, each of the rock-shafts being adapted to be operated by each of the key-levers corresponding to the types belonging to a particular group of types.

14. In a type-distributing machine, the combination with type-ejecting mechanism, of a type grouping or distributing device comprising a support having a type inlet-channel, a series of plates or shutters fixed to spindles in said support and capable of forming between them a series of type-distributing channels, a series of rock-shafts each adapted to rock the corresponding spindle and shutter and another shutter or shutter that may be resting against it, and key-operated levers, each of said rock-shafts being adapted to be operated by each of the said levers corresponding to the particular types corresponding to a given group of types.

15. In a type-distributing machine, the combination with type-ejecting mechanism, of a type grouping or distributing device comprising a support having a type inlet-channel, a series of plates or shutters pivoted to said support and capable of forming between them a series of type-distributing channels, and each carried by a spindle journaled in said support and provided on its rear end with a two-armed lever adapted to be rocked in opposite directions, a series of key-operated type-levers, and a series of rock-shafts, each adapted to be operated in one direction only from each of the type-levers corresponding to the particular types belonging to a given group of types, each of said rock-shafts except the outermost ones, being pivoted with an arm carrying a two-armed lever provided with pins or projections arranged to extend at opposite sides of the two-armed lever on the corresponding shutter-spindle, and the two outermost rock-shafts being each provided with an arm carrying a single pin, substantially as described for the purpose specified.

16. In a type-distributing machine, a type separating or selecting device comprising a box having a main inlet-channel that serves for the entrance of the different types to be automatically separated from each other and which at different parts is made of different thicknesses or heights corresponding to the different thicknesses of types to be separated, branch passages extending from the main channel at the points where the thickness or height is varied, and deflecting or guiding surfaces between the main and branch passages.

17. In a type-distributing machine, type-ejecting mechanism, a type grouping or distributing device comprising a support having a type inlet-channel through which the ejected types fall, a series of plates or shutters pivoted to said support and capable of forming between them a series of type-distributing channels, and key-actuated mechanism for moving one or other of said plates or shutters to open the proper channel for the type about to be ejected, and an automatic type separating or selecting device having a series of main type-channels corresponding to the several distributing-channels and each of which is made at different parts of its length of different thicknesses or heights corresponding to the different thicknesses of the types in the group of types to be separated from one another and is provided at the parts where the alteration of thickness or height takes place with branch channels and deflecting or guiding surfaces between said main and branch channels, substantially as described.

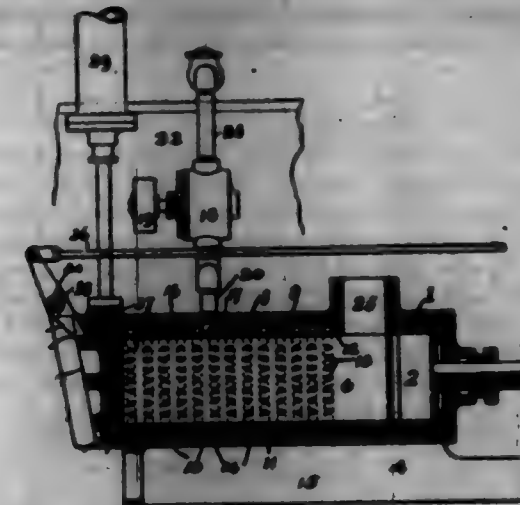
18. In a type-distributing machine, the combination with type-ejecting mechanism of a type grouping or distributing device comprising a chamber having a type inlet-channel through which the ejected types fall, a series of plates or shutters carried by spindles journaled in the back of said support and capable of forming between them a series of type-distributing channels, levers fixed to said spindles, key-operated type-levers and rock-shafts each adapted to be operated in one direction only from certain of said type-levers and to operate the lever on the corresponding shutter-spindle, and an automatic type separating or selecting device comprising a series of main type-channels corresponding to the several distributing-channels and each of which is provided at different parts along its length with bridge-pieces arranged at different distances from the bottom of the channel corresponding to the different thicknesses of the types to be separated and with branch passages and lateral deflecting or guiding surfaces adjacent to said bridge-pieces, substantially as described for the purpose specified.

19. A type-distributing machine comprising a main type-channel; a series of minor type-channels communicating with and leading from said main channel; means for feeding type into said main channel; and means for diverting the type, according to thickness from said main channel into said minor channels.

701,882. FRAME FOR KEY-MACHINES. DANIEL L. HOLMES, Philadelphia, Pa. Filed Aug. 14, 1901. Serial No. 73,992. (No model.)

Claim.—1. In an key-machine, rectangular-section frame therefor, horizontal flanges in the frame, vertical grooves around the side flanges,

horizontal grooves above the top flange and below the bottom flange, and passage-ways for air above the top flange and for water below the lower flange and connection from the top groove to an exit for the air.



2. In rectangular-section key-machine frame, perforated rectangular flanges therefor, vertical and horizontal grooves around the flanges and connected to the interior of the frame by the perforations thereof, water-passage from the grooves at the bottom of the frame, air and water channels connecting the grooves at the top of the frame, a control passage, and a pump having connection to said passage and adapted to remove the air from the passage-ways and grooves.

3. In an key-machine, rectangular-section frame therefor, perforated flanges for the frame, vertical and horizontal air and water grooves and passages around the flanges, a pump having its supply or suction connection in communication with said grooves and passages and to the frame by the flange-perforations, and a delivery from the pump to the forcing-tank of the machine.

4. In an key-machine, a pair of rectangular-section frames therefor, a pump having connection to each frame to remove the air therefrom, and a check-valve in the delivery-pipe of the pump.

5. In an key-machine, rectangular-section frame therefor, and gates therefor, having a vertical side next the press end, and an angular side opposite thereto, means to remove the gates and uncover the press end and means independent of the moving means to lock the gates when moved into position, to thereby prevent the pressure from forcing the gates upward on their inclined flange.

6. In an key-machine, frame therefor, vertical and gates for the press and means for their moving, shafts supported above the gates, notches in the gates, and means supported on the shafts to engage the notches and thereby lock the gates from raising.

7. In an key-machine, frame therefor having end gates and means for their vertical operation, and means under control of the operator for locking the gates when moved into position and thereby prevent their raising when subjected to pressure.

8. In an key-machine, rectangular-section frame, and gates thereof of wedge shape, means to lift and lower the gates to cover or to uncover the press end, and a yielding material inserted in the vertical face of the gates and adapted to be compressed to exclude air from the frame.

9. In an key-machine, rectangular-section frame therefor, wedge-section end gates for the press, means to operate the gates for closing and unclosing the press, and yielding material so placed and fixed in the vertical face of the wedge-shaped gates as to prevent air-passage between the ends of the frames and their gates when the gates are in operative position against and closing the press.

701,888. GAS-VENTILATOR. FRANK E. BOLT, Milwaukee, Wis. Filed Feb. 24, 1902. Serial No. 84,946. (No model.)



Claim.—1. A device of the class described comprising a bearing-bracket, designed to be mounted on a car or the like, an exterior shaft, mounted on the bracket and provided with an exterior fan, an inwardly-extending shaft also mounted on the bearing-bracket and projecting into

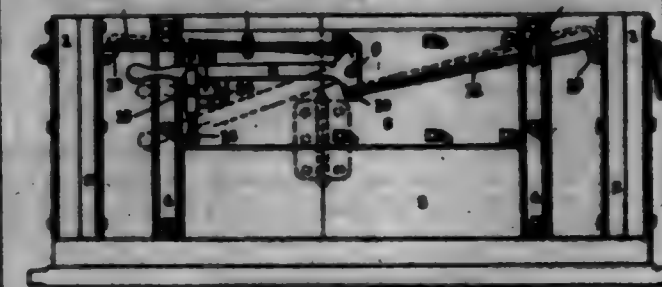
the car, wheels secured to the adjacent ends of the shafts, one of the wheels being resilient and being deflected by the other, and an interior fan connecting with the inwardly-extending shaft, substantially as described.

2. A device of the class described, comprising a bearing-bracket, consisting of a tubular body portion, provided at its outer end with an off-set arm and having an enlargement at its inner end, said body portion being also provided between its ends with a flange, adapted to be secured to a car, an exterior shaft, mounted on the arm, an inwardly-extending shaft arranged in the tubular portion of the bearing-bracket, wheels arranged at the adjacent ends of the shafts and connecting the same, a casing mounted on the outer portion of the bracket and receiving the wheels, an outer fan mounted on the exterior shaft, an inner fan having a socket receiving the enlargement of the bracket, and means for connecting the inner fan with the inwardly-extending shaft, substantially as described.

3. A device of the class described, comprising a bearing-bracket, an exterior shaft mounted thereon, an outer fan secured to the shaft, an inwardly-extending shaft, mounted on the bearing-bracket, and provided at its inner end with a notch, wheels connecting the shafts, an inner fan journaled on the bearing-bracket, and a spring-pressed, pivoted locking device mounted on the inner fan and arranged to engage the notch of the inwardly-extending shaft, substantially as described.

4. A device of the class described comprising a bearing-bracket, a shaft mounted thereon, an outer fan secured to the shaft, an inwardly-extending shaft, mounted on the bearing-bracket, and provided at its inner end with a notch, wheels connecting the shafts, an inner fan journaled on the bearing-bracket, and a spring-pressed, pivoted locking device mounted on the inner fan and arranged to engage the notch of the inwardly-extending shaft, substantially as described.

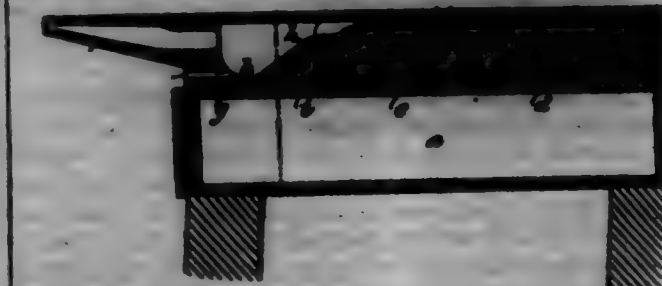
701,884. END-GATE FOR WAGON. FRANK LEE, Redford, Iowa. Filed Apr. 13, 1902. Serial No. 100,002. (No model.)



Claim.—1. In an end-gate, the combination of a wagon-body, an end-gate, cybels secured to the sides of the wagon-body, an operating-arm pivoted to the end-gate having projections opposite its pivot, hooked rods engaging the cybels and the opposite projections of the operating-arm, a recess in the operating-arm, and a lever-hatch pivoted in the end-gate having a detent and a holding-flap upon one end, adapted to embrace and enter the recess in the operating-arm.

2. In an end-gate, the combination of a wagon-body, a notched end-gate, locking device carried upon one of the notches for locking together the sides of the body, and a latch device carried by the other notches for holding the end-gate in alignment and also locking the sides, whereby the tail-board may be raised and withdrawn horizontally.

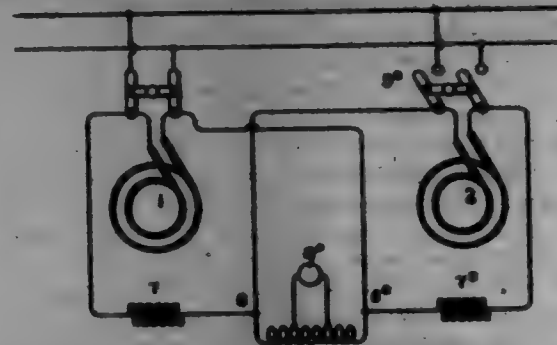
701,885. REFRIG. FLAP. H. H. HENRY, South Kensington, England. Filed Oct. 12, 1901. Serial No. 73,001. (No model.)



Claim.—The combination of a recess, a partition perforated with small holes at its inner end, dividing the recess into two chambers, the lower of carbonaceous material in the upper chamber, and a block in the upper chamber holding the flap in position and having a cavity for the reception of the air.

701,886. SYNCHRONIZING ALTERNATORS. ROBERT E. BUSH, New York, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Sept. 14, 1901. Serial No. 73,010. (No model.)

Claim.—1. A phase-indicator for synchronizing alternating-current machines, comprising an indicating device responsive to alternating currents, circuit connections in parallel between said device and a plurality of machines, and current-reducing devices in said parallel connections.



2. A phase-indicator for synchronizing alternating-current machines, comprising an indicating device responsive to alternating currents, circuit connections in parallel between said device and a plurality of machines, current-reducing devices in said parallel connections, and switches for coupling the several machines in parallel relation to a distribution-circuit.

3. A phase-indicator for synchronizing alternating-current generators, comprising a transformer in the secondary circuit of which is included an indicating device and having its primary terminals connected in parallel relation to the two generators to be synchronized, a resistance in series with the transformer and means for coupling said generators in parallel relation to the supply-circuit.

4. Means for coupling alternating-current machines in parallel relation to a common distribution-circuit, comprising controlling-switches for the several machines, a common phase-indicator for all the machines in parallel relation to their leads, and a current-reducing resistance in each parallel circuit, for the purpose described.

5. A synchronizing device for alternating-current dynamo-electric machines consisting of a transformer with means for connecting the machines to be synchronized in parallel relation to its primary, and an indicating device in the secondary.

6. A synchronizing device for alternating-current dynamo-electric machines consisting of a transformer with means for connecting both machines to be synchronized on its primary through a current-reducing device, and an indicating device in the secondary.

701,887. RIVETING AND CONVEYING MACHINE. SAMUEL JAMES, Fayetteville, N. Y. Filed Sept. 24, 1891. Serial No. 74,300. (No model.)

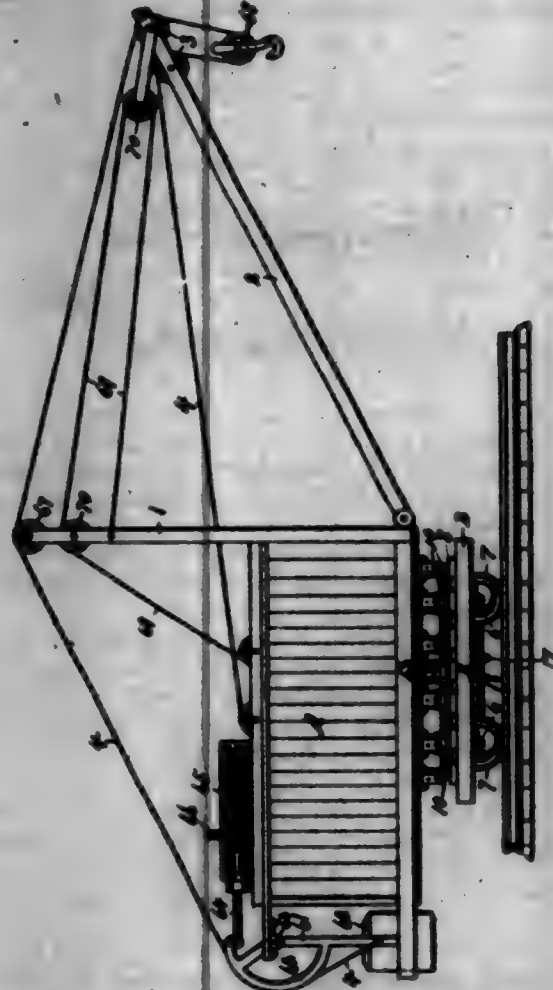
Claim.—1. The operating-lever 20, the rod 40 secured thereto at its lower end, the slotted arm 41 and the brake 42 to which the arm 41 is connected, and the strap 43 combined with the shaft 35, the gear 26 secured thereto provided with the hub against which the brake bears, the pinion 26 secured to the lower end of the shaft 35, an intermediate train of wheels, a platform mounted upon a truck, and having a circular trackway with which one of the train of wheels is made to engage, substantially as shown.

2. A windlass, a suitable train of gears for operating it, the main operating-shaft 29, a friction-clutch which operates with the last one of said train of gears, the rod 52, and the hand-lever 53 by which the friction-clutch is operated, a lever 54 secured to the rod 52, the shaft 55 to which the lever 54 is secured, an arm 56 secured to the shaft 55, an arm 57 pivoted to the outer end of the arm 56, a shoe 58 connected to and operated by the arm 57, and the wheel 59 mounted upon the central shaft 29, substantially as set forth.

3. In a hoisting and conveying machine, the combination with a truck and a rotary superstructure mounted thereon, a gear connected to rotate the wheels of the truck, a friction-drum on one of the revoluble parts, a driving-shaft having loose gears meshing with the former gear at opposite sides of its axis for rotating said former gear in reverse directions, a clutch movable with the shaft and arranged to lock either or neither of the latter gears to the driving-shaft, a brake-shoe normally engaged with the drum when the clutch is released from either of the gears, a clutch-operating member, and means connected to said member whereby the brake engages the drum when the clutch is released from said gears and is disengaged from the drum when the clutch is locked to either of the gears.

4. In a hoisting and conveying machine, the combination with a truck, a vertical shaft connected to the wheels of the truck for propelling the same, said vertical shaft being provided with a gear, a main driving-shaft having loose gears meshing with the former gear at opposite sides of its axis for rotating the said former gear in reverse directions, a clutch arranged to lock either of the latter gears to the former gear, said clutch having a neutral position whereby both of the gears are released, a lever

for holding the clutch in either of its operative positions, and also for rotating the same in its neutral position, a brake-shoe arranged to engage one of the revoluble parts, a toggle connected to the brake-shoe and to the clutch-operating lever, whereby the brake-shoe is forced into engagement with one of the revoluble parts when the clutch is moved to its neutral position.



5. In a hoisting and conveying machine, the combination with a truck and a rotary superstructure mounted thereon and provided with a circular rack, an upright shaft mounted on the superstructure and geared to the rack, said upright shaft being provided with a gear, a main driving-shaft having gears meshing with the former gear at opposite sides of its axis, a clutch arranged to lock either of the latter gears to the former gear, said clutch having a neutral position whereby both of the gears are released, a lever for holding the clutch in either of its operative positions and also for rotating the same in its neutral position, a toggle connected to the brake-shoe and to the clutch-operating lever, whereby the brake-shoe is forced into engagement with one of the revoluble parts when the clutch is moved to its neutral position.

6. In a hoisting and conveying machine, the combination with a truck and a rotary superstructure mounted thereon, of a main driving-shaft mounted on the superstructure, a pinion loose on the shaft, a windlass mounted on the superstructure and geared to the pinion, a friction-drum on one of the revoluble parts of the driving mechanism for the windlass, a clutch for locking the pinion to the shaft, a hand-lever connected to the clutch for moving the same into and out of operative position, a brake movable into and out of engagement with the drum for controlling the speed of movement of the windlass, and means connecting said hand-lever to the brake-shoe whereby as the clutch is moved to its inoperative position, the brake is simultaneously forced into engagement with the drum.

7. In a hoisting and conveying machine, the combination with a truck and a rotary superstructure mounted thereon, of a driving-shaft mounted on the superstructure, a pinion loosely mounted on the driving-shaft, a windlass mounted on the superstructure and geared to the pinion, a clutch for locking the pinion to the shaft and releasing the same therefrom, a drum secured to the pinion, a brake-band controlling the drum, a rock-arm connected to the clutch for moving the same into and out of operative position, a hand-lever, a bell-crank having one arm connected to the brake-band and its other arm connected to the hand-lever and to the rock-arm whereby the clutch is forced to its inoperative position and the brake-band is simultaneously drawn into engagement with the drum.

8. In a hoisting and conveying machine, the combination with a truck and a rotary superstructure mounted thereon, an upright shaft also mounted on the superstructure and geared to the traction-wheels of the truck for rotating the same, a circular rack secured to the truck and hav-

ing its center coincident with the axis of the upright shaft, a second upright shaft mounted on the superstructure and geared to said rack for rotating the superstructure, said upright shaft being provided with gears at their upper ends, independent pairs of gears loosely mounted on the main driving-shaft, the gears of each pair being engaged with the gears on the upright shaft at opposite sides of their respective axes, the gears on the upright shaft being provided with friction-drums, brake-shoes for engaging the drums, a pinion loosely mounted on the main driving-shaft, a windlass mounted on the superstructure and geared to said pinion which is provided with a friction-drum, a clutch interposed between each pair of gears, rock-arms for actuating said clutches, a toggle connected to each of the brake-shoes, a hand-lever connected to each of the clutches and connections between each of the hand-levers and their respective toggles whereby the brake-shoes are forced into engagement with the friction-drums of the upright shaft as the clutches are released, an additional clutch for locking the pinion to the main driving-shaft, a rock-arm for actuating said clutch, a hand-lever, a brake-band for engaging the drum on the pinion and a bell-crank having one arm connected to the brake-band and its other arm connected to the latter hand-lever and to the latter rock-arm for the purpose described.

701,888. SHOW-CASE. ALEXANDER JAMES, Philadelphia, Pa. Filed July 21, 1891. Serial No. 74,301. (No model.)



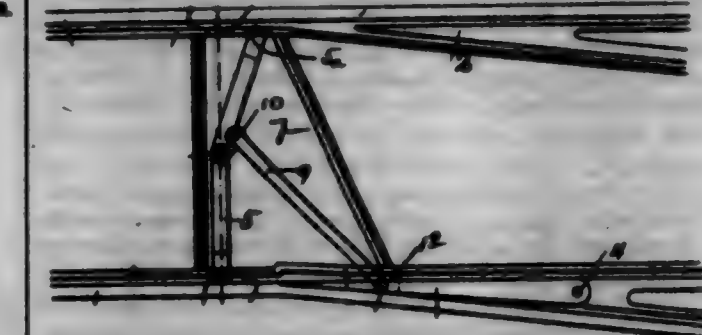
Claim.—1. In a show-case, a lower frame for embracing the lower edge of the sides, and means for holding the top in contact with the sides, said means consisting of a corner-frame comprising a flat strip resting on the upper edges of the sides at the corners, one struck from the outer edge of the strip and bent down to engage the outer surfaces of the sides and one struck down from the inner edge of the strip to engage the inner surfaces of the sides, said strips removably secured to the outer ends of the upper frame bent to engage the upper corners of the top of the case, as and for the purpose described.

2. In a show-case of the character described, a rectangular framework adapted to rest upon a suitable base, a channel formed in said framework in which the lower edges of the sides of the case are adapted to rest, a rectangular framework adapted to rest upon the upper edges of the sides, legs formed with the upper framework and adapted to be turned downward from the same at each corner and contact the sides upon the outside of the case, legs formed with the upper framework and adapted to be turned down from the same and contact the sides at each corner upon the inside of the case, holes formed in each corner of the upper framework, rods adapted to be passed downward through said holes, heads formed upon the upper end of said rods adapted to abut against the upper corners of the upper frame, holes formed through each corner of the lower framework, laterally-curved threaded nipples adapted to protrude upward through said holes, enlarged heads formed upon the lower end of said nipples adapted to abut against the under surfaces of the lower framework, screw-threads formed upon the lower end of the rods and adapted to be threaded within said nipples, the top of the case adapted to rest upon the upper framework, strips secured to the upper frame at one end, the other end of said strips adapted to be bent over the upper corners of the top and secure the same in position, substantially as described and for the purpose set forth.

3. In a show-case of the character described, a lower rectangular

frame adapted to rest upon a suitable base, the outer edges of said frame adapted to be turned up to form an outer flange, the inner edges of said frame adapted to be bent upward to form an inner flange, the lower edges of the sides of the case adapted to rest in the channel formed between said flanges, projections formed with the outside flanges at each corner and adapted to extend upward above the flanges to strengthen the corners, an upper framework adapted to rest upon the upper edge of the sides, said framework consisting of a flat rectangular strip of metal of about the same relative width as the thickness of the glass forming the sides, two legs formed with said frame at each corner and turned down from the same upon the outside of the sides, two legs formed with said frame at each corner and turned down from the same and adapted to contact the sides upon the inside, vertical connections at each corner adapted to connect the upper and lower framework together, the top of the case adapted to rest upon the upper frame, strips, one secured to each of the outside legs of the upper frame, said strips adapted to be hooked over the edge of the top and hold the same in position, substantially as and for the purpose set forth.

701,889. SWITCH-THROWING DEVICE. CHARLES C. JAMES, Memphis, Tenn. Filed Sept. 4, 1891. Serial No. 74,302. (No model.)



Claim.—1. In a switch-throwing device, the combination with operative devices on the car, of a switch-point, an arm pivoted in advance of the switch-point and a connecting-rod pivotally connected to said switch-point and said arm, and extending diagonally from said arm to said switch-point, all substantially as and for the purpose set forth.

2. In a switch-throwing device, the combination with means of operating said device, of a pivoted switch-point, a switch-throwing arm pivotally mounted between the rails of the track, a second pivot in said arm so located that the line of centers of it and the center pivot of the arm make an obtuse angle with the center line of the arm and a connecting-rod extending from said second center to the switch-point and pivotally connected thereto, substantially as and for the purpose described.

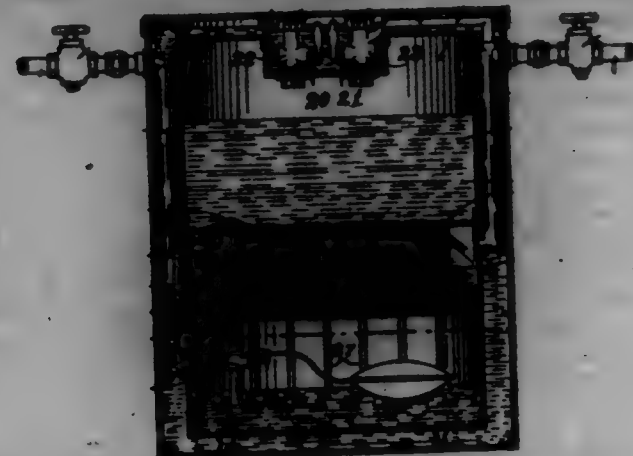
3. In a switch-throwing device, the combination with operative mechanism carried by a car, of a pivoted switch-point, a switch-throwing arm pivoted between the rails in advance of the switch-point, a short lever-arm extending from said throwing-arm at an obtuse angle thereto and a connecting-rod extending diagonally from said lever-arm to the switch-point, substantially as shown and described.

4. In a switch-throwing device, the combination with operating mechanism carried by a car, of a depressed box situated between the rails slightly in advance of the switch-point, a removable cover-plate for said box, a pivoted switch-point, a switch-throwing arm pivoted in said box and having its ends of such length that they swing just within the head of the rail and a connecting-rod extending diagonally from said throwing-arm to said switch-point, substantially as shown and described.

5. In a switch-throwing device for a track having a grooved rail, the combination with operating mechanism carried by a car, of a pivoted switch-point, a switch-throwing arm pivoted between the rails in advance of the switch-point and having its ends of such length that they swing just within the head of the rail and so located that they swing just above the bottom of the groove in said rail, slots cut through the guard-flange of said rail to permit the ends of said throwing-arm to swing into said groove and a connecting-rod extending diagonally from said throwing-arm to the switch-point, substantially as shown and described.

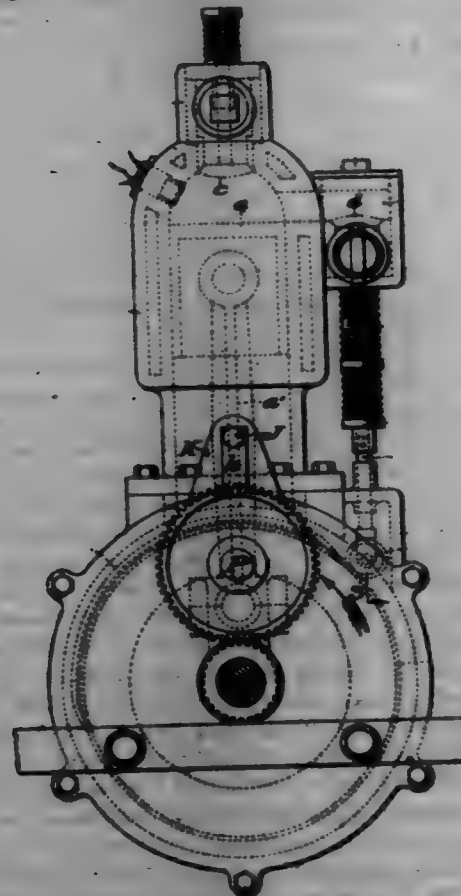
6. In a switch-throwing device, the combination with a pivoted switch-point, a switch-throwing arm pivoted between the rails in advance of said point, and operatively connected with said point, of means carried by the car of operating said switch, consisting of arms pivoted at one end to the underframing of the car and extending forward and terminating in pins which extend upward through the car-platform, a spring for each normally holding the arms in a raised position, switch-operating rods extending downward from same and which when depressed come directly in the path of the switch-throwing arm and guide-pins fastened to the underframing of the car and extending downward therefrom to guide the said operating-rods, substantially as shown and described.

701,890. CARBURIZER. FRED KILMER, Chicago, Ill., assignor, by mesne assignments, of one-half to WILLIAM A. KILMER, Chicago, Ill. Filed Aug. 12, 1900. Renewed Apr. 17, 1902. Serial No. 108,691. (No model.)



Claim.—A carburizer comprising a cylinder divided into three chambers by means of horizontal partitions, one of which is solid and one perforated, the upper and lowermost chambers being adapted to contain naphtha and communicating with each other through a vertical pipe extending from the bottom of the upper chamber to a point adjacent the bottom of the lowermost chamber, a valve in said pipe controlled by a float for maintaining a given level in said lowermost chamber, a filter at the upper end of said pipe, filtering material filling the intermediate chamber and resting upon said perforated partition, a gas-chamber formed in said intermediate chamber and communicating with said lowermost chamber through said filtering material only, a gas-inlet into said lowermost chamber, wicks of absorbent material depending from said perforated partition into said naphtha in said lowermost chamber and adapted to increase the evaporating-surface therein, a gas-outlet from said gas-chamber in said intermediate chamber, and means for filling said upper chamber, substantially as described.

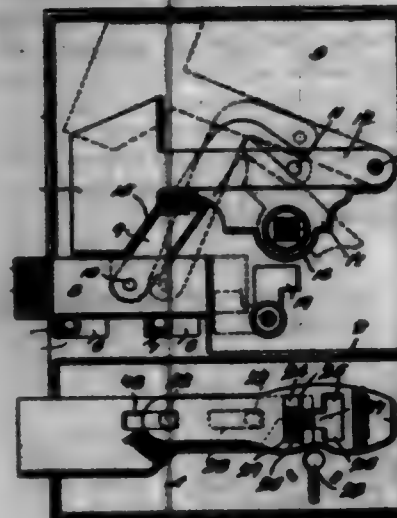
701,891. INTERNAL-COMBUSTION ENGINE. CARWILLAMER W. KILMER, Philadelphia, Pa. Filed Jan. 20, 1901. Serial No. 46,132. (No model.)



Claim.—In an internal-combustion engine, the combination with the cylinder and its inlet-valve, the enlarged chamber at the base of the cylinder, the piston in said cylinder and a fly-wheel in said chamber, connected to the piston for operation thereby and provided on its periphery with a cam-groove, of an exhaust-valve chamber on the cylinder and overhanging the fly-wheel chamber, an exhaust-valve in said valve-chamber and provided with a depending valve-stem having a collar between its

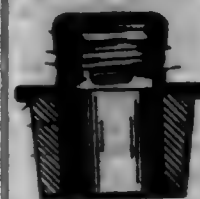
ends and springs at opposite sides of said collar, a vertical spindle extending through a gland or bearing in the fly-wheel chamber to slide and turn therein and provided at its upper end with a collar or sleeve engaged by the lower end of the valve-stem and also forming a bearing for the lower spring thereon, a transverse pivot or shaft on the lower end of said spring and a laterally-movable collar mounted thereon in engagement with said cam-groove, substantially as described.

701,892. GRAVITY-LOCK. DAVID J. KENNEDY, Independence, Mo., assignor of one-third to E. P. DAVIS, Nebraska, Mo. Filed Sept. 20, 1901. Serial No. 70,977. (No model.)



Claim.—1. In a lock, a latch-bolt, a tumbler pivoted in rear of the latch-bolt and carrying at its free end a weight disposed thereover, and a bent link having its terminals pivotally connected with the latch-bolt and with the tumbler intermediate of their ends and adapted to move vertically with the tumbler.
2. In a lock, a latch-bolt, a tumbler pivoted in rear of the latch-bolt and carrying at its free end a weight disposed thereover, a bent link pivotally connected at its terminals with the latch-bolt and with the tumbler intermediate of their ends, the link being adapted for upward movement with the tumbler, and a lifter engaging the under side of the tumbler.
3. In a lock, a latch-bolt, a tumbler pivoted in rear of the latch-bolt and carrying at its free end a weight disposed thereover, an L-shaped link pivotally connected at its terminals with the latch-bolt and with the tumbler intermediate of their ends and freely movable vertically with the tumbler, and a dog adapted to be turned into the path of movement of the rear end of the latch-bolt to lock all of the parts against movement.

701,893. TOP FOR TOOTH-POWDER BOTTLES OR CANS OR OTHER CONTAINERS. HENRY A. KENT, New Brunswick, N. J. Filed Mar. 6, 1902. Serial No. 94,974. (No model.)

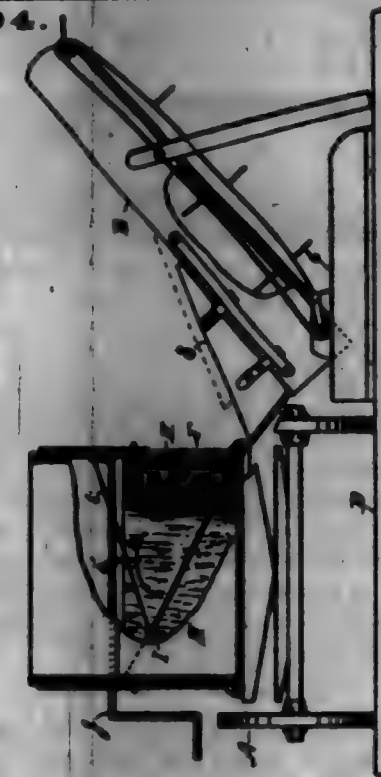


Claim.—In a bottle or can top, the combination with a neck portion formed with a discharge-aperture and, for a portion of its length, with screw-threads and at its end with a lateral bulge or shoulder, of a screw-threaded cap engaged with said neck portion and formed at its upper end with a bulge to receive that of the neck and of greater length than that of the neck to permit of the vertical movement of said cap in screwing it to close and expose the discharge-opening, substantially as set forth.

701,894. CRUIS-WAGON. BRAMBLE L. KETTER, Hopedale, Ill. Filed Apr. 12, 1902. Serial No. 102,997. (No model.)

Claim.—1. The box or body of a grain-wagon having a gate on one or both sides, two oppositely-inclined end-boards H H and the inclined side-board I, said boards being loose and their inclination changeable as shown and described.
2. The combination with the three-part false bottom H H I, of the pivoted lower A, seats A' and crank-shaft J, all arranged to operate as shown and described.
3. A wagon body or box having a three-part false bottom of which the side piece I is adapted to be used upon either side which happens to be next the elevator as described.

701,894.



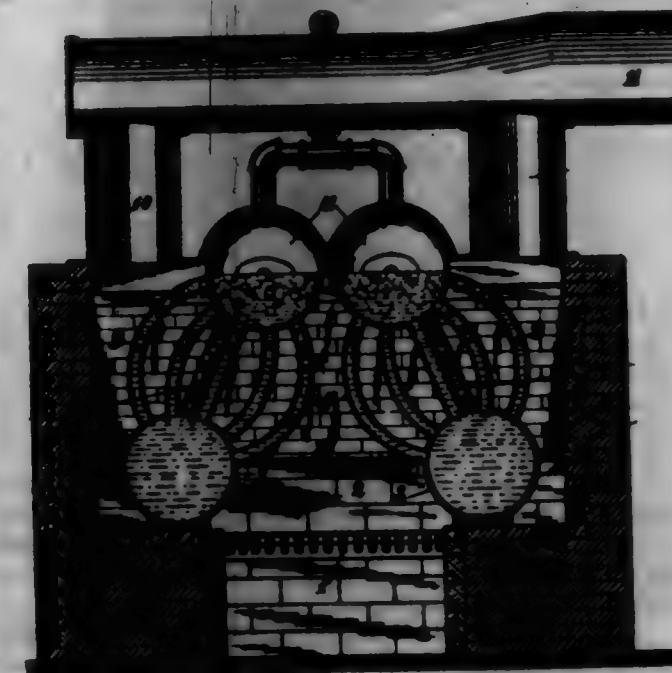
the ends of the chain cord, two similar hollow buttons 13 with eyes 14, one of which serves to secure one end of the chain cord to the shoe, and the other acting to secure a button or cap on the free end of the chain cord, and a spring-rod secured to the opposite side of the opening of the shoe, said parts being arranged so that when a shoe is fastened thereby it will present the appearance of rows of buttons symmetrically arranged on opposite sides of the shoe-opening, substantially as described.

701,897. SAW-CLAMP. WILLIAM I. KIRK, Dubois, Pa. Filed Nov. 14, 1901. Serial No. 82,588. (No model.)



Claim.—1. A device of the kind described comprising a stationary section having a longitudinal recess arranged therein, a shaft revolvably positioned in the said recess, transverse members arranged on the ends of the shaft, arms connected to the said transverse members at their inner ends, a jaw connected to the outer ends of the arms and means whereby said shaft may be operated, substantially as shown and described.
2. A device of the kind described, comprising a stationary section having a longitudinal slot arranged therein in its upper surface, and a shoulder upon its lower surface, a shaft held in the slot and having transverse members arranged on the ends thereof, arms connected at their inner ends to the transverse members and having their outer ends terminating in arched portions, the extreme ends being bent downwardly, a jaw connected to the said downwardly-bent portions, cushions arranged in the apex of the arched portions of the arms, and a handle secured to the said shaft, substantially as shown and for the purpose specified.

701,895. STEAM-GENERATOR. JOHN J. KILMER, Brooklyn, N. Y. Filed June 20, 1901. Serial No. 68,144. (No model.)



Claim.—In a steam-generator, the combination with a casing having within it a furnace, of water-drums at the sides of the furnace, a steam-drum above said water-drums, said steam-drum comprising two members arranged side by side, and out of water communication with each other except through the generating-tubes and water-drums, generating-tubes connecting the steam with the water-drums, and two longitudinal dividing-walls each located within the nest of generating-tubes connecting one of the said water-drums with one of the said steam-drum members, said longitudinal dividing-walls dividing the space into a combustion-chamber and two return-passages.

701,896. SHOES-FASTENER. DONALD H. KENNEDY and WILLIAM W. JONES, Boston, Mass. Filed Dec. 7, 1901. Serial No. 24,877. (No model.)



Claim.—In a shoe-fastener, the combination of an elastic cord or body portion 10, suitable washers 11 having sockets 12 clamped onto

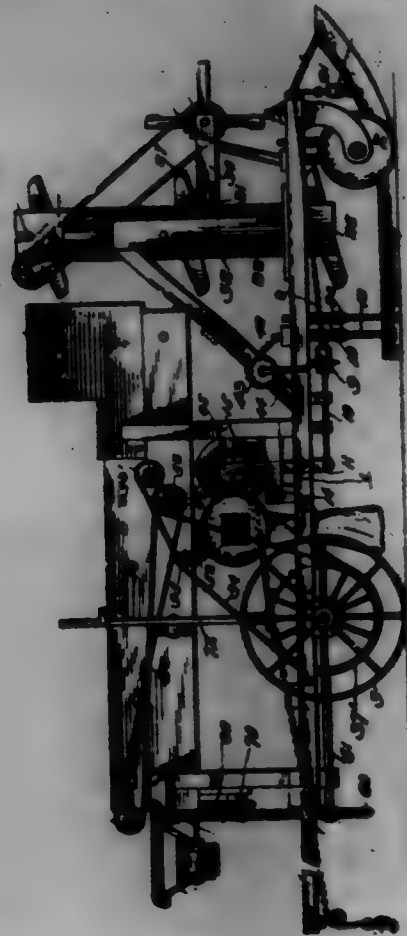
701,898. APPARATUS FOR COLLECTING AND SETTLING DUST. CHRISTIAN E. LARSEN, Chicago, Ill. Filed Mar. 20, 1901. Serial No. 82,023. (No model.)



Claim.—1. A dust-collecting and settling apparatus comprising a descending intake-leg, an ascending discharge-leg, and a part 6 establishing communication between said intake and discharge legs and forming a dust-trap, in combination with pneumatic means to discharge dust into said intake-leg, means to discharge a steam-jet downwardly in the latter, to precipitate the finer dust particles, and means to spray water downwardly in said intake-leg, at a point below said steam-jet, through which water spray the dust particles pass, said discharge-leg permitting the escape of the air after the separation of the dust particles therefrom, substantially as described.

2. A dust-collecting and settling apparatus comprising a descending intake-leg, an ascending discharge-leg, and a part 6 establishing communication between said intake and discharge legs and forming a dust-trap, in combination with pneumatic means to discharge dust into said intake-leg, means to discharge a steam-jet downwardly in the latter to precipitate the finer dust particles, and means to spray water downwardly in said intake-leg, at a point below said steam-jet, through which water spray the dust particles pass, said discharge-leg permitting the escape of the air after the separation of the dust particles therefrom, and means to spray water downwardly in said discharge-leg, to arrest such dust particles as may pass the part 6, substantially as described.

701,899. COMBINED CORN HARVESTER, HOOKER, AND
LOADER. JOHN R. LARSON, Silver Creek, Mo. Filed Mar. 5, 1902.
Serial No. 98,908. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a reel; of a gatherer comprising an endless conveyor provided with teeth or tines to engage and remove the ears from the stalks held by the reel, means for vertically adjusting the gatherer and horizontally adjusting the reel, and gearing for driving the gatherer and reel.

2. In a machine of the character described, the combination with a gatherer for detaching the ears from the stalks; of runners for engaging the stalks to prevent the uprooting of said stalks when the gatherer is detaching the ears, and springs yieldingly supporting said runners and normally pressing the same toward each other.

3. In a machine of the character described, the combination with a gatherer; of runners adapted to engage the stalks to prevent uprooting of said stalks while the gatherer is detaching the ears, springs acting on the runners to normally force them toward each other, and means for vertically adjusting said runners.

4. In a machine of the character described, the combination with a gatherer; of runners for engaging the stalks to prevent the uprooting thereof when the gatherer is detaching the ears, hangers pivoted to the runners and movably connected with the frame of the machine, springs acting on said hangers for normally pressing the runners toward each other, and means for vertically adjusting the runners, substantially as specified.

5. In a machine of the character described, the combination with a gatherer; of spring-actuated runners for engaging the stalks to hold the same fast while the gatherer is detaching the ears, and guides connected to said runners for guiding the stalks to the gatherer.

701,900. TOOL-BOX FOR HAND-CARS. LEWIS LARSON, Norway,
Iowa. Filed Apr. 11, 1902. Serial No. 102,658. (No model.)



Claim.—In combination with a hand-car, a tool-box conforming to the outline of the hand-car-lever standard, and secured thereto, said tool-box being provided with a series of shelves for tools, and a series of hinged, drop-doors, with suitable means for fastening them in closed position, substantially as described.

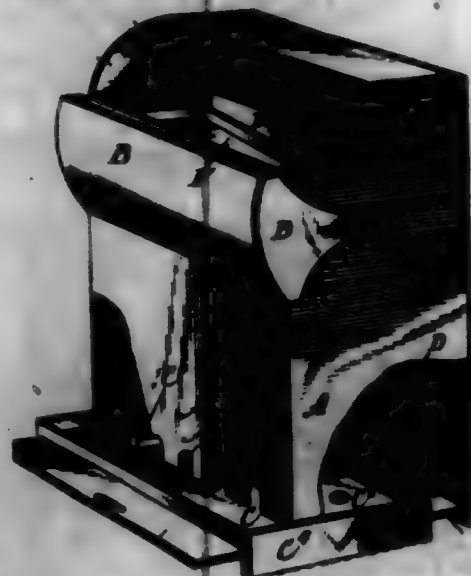
701,901. QUILTING-FRAME. THOMAS LEWIS SMITHFIELD, Pa.
Filed July 24, 1901. Serial No. 99,388. (No model.)



Claim.—1. In a quilting-frame, the combination with a brace and pairs of legs pivoted thereto, of quilting-rails connecting the legs, and disengageable rest-rods connected to the outer leg of each pair of legs and extending under the inner legs and connected to the brace, said inner legs resting against and being supported by said rest-rods.

2. In a quilting-frame, the combination with a brace and pairs of legs pivoted thereto, quilting-rails connecting the legs, stay-rods disengageably extending from one leg of each pair to the other leg of the same pair, and disengageable rest-rods connected to the outer legs and to the brace and extending underneath the inner legs.

701,902. BURNER FOR CRUDE OIL. THOMAS E. LEWIS, ALBERT
J. RAY, and HILEY R. WILSON, Fort Worth, Tex. Filed Aug. 10, 1901.
Serial No. 71,666. (No model.)



Claim.—1. In a burner for crude oil, a casing having apertures at its upper and lower portions, a wall for forming a flue within said casing, a closure for said upper opening therein, a liquid-conveying surface within said casing, and means for controlling the passage of air through said flue; substantially as specified.

2. In a burner for crude oil, a casing having openings at its upper and lower portions, a wall for forming a flue within said casing, a closure for said upper opening therein, a liquid-conveying surface within said casing, means for controlling the passage of air through said flue, and a perforated burner-plate at the lower portion of said casing; substantially as specified.

3. In a burner for crude oil, a casing, a reversible oil-conducting plate having edge flanges upon opposite faces and apertures therethrough flanged upon one face, and means for removably supporting said plate within said casing; substantially as specified.

4. An oil-conducting plate for a crude-oil burner having side flanges and one end flange upon one face, flanged apertures upon the same face in said plate; substantially as specified.

5. An oil-conducting plate for a crude-oil burner having side flanges and one end flange upon one face, flanged apertures upon the same face of said plate; and a flange upon both sides and ends of the opposite side of said plate; substantially as specified.

6. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, and means for controlling the passage of air through said plate and flue; substantially as specified.

7. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, and a damper-plate adapted to alternately open or close the openings in said burner-plate or said flue; substantially as specified.

8. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, a damper-plate adapted to alternately open or close the openings in said burner-plate and said flue, and an inclined conducting-plate extending from the upper portion of said casing to said burner-plate; substantially as specified.

9. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, a damper-plate adapted to alternately open or close the openings in said burner-plate and said flue, and a perforated inclined conducting-plate having flanges surrounding the perforations thereof; substantially as specified.

10. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, a damper-plate adapted to alternately open or close the openings in said burner-plate and said flue, a perforated inclined conducting-plate having flanges surrounding the perforations thereof, and a ridge or partition upon said burner-plate at the delivery end of the lowermost conducting-plate; substantially as specified.

11. In a burner for crude oil, a casing provided with openings at its upper and lower portions, a flue-wall therein to form a flue, a burner-plate at the lower portion of said casing having apertures therethrough, a damper-plate adapted to alternately open or close the openings in said burner-plate and said flue, a perforated inclined conducting-plate having flanges surrounding the perforations thereof, a ridge or partition upon said burner-plate at the delivery end of the lowermost conducting-plate, and a pivoted damper for the opening in the upper portion of said casing; substantially as specified.

12. In a burner for crude oil, the combination with a casing, an oil-conducting means therein, of a burner-plate having flanged perforations therethrough, depending flanges at the opposite portions of said burner-plate, and a slide-damper located therein to control the openings in said plate; substantially as specified.

13. A burner for crude oil, a casing provided with openings at its upper and lower portions and having a rear wall extended below its front wall, a flue-wall within said casing, a perforated burner-plate having a flanged edge and adapted to receive the front and rear walls of said casing, means for conducting oil from the upper portion of said casing to said plate, and a damper carried by said plate for controlling the openings therein and the flue within the casing; substantially as specified.

14. In a burner for crude oil, a casing provided with openings at its upper and lower portions and having a rear wall extended below its front wall, a flue-wall within said casing, a perforated burner-plate having a flanged edge and adapted to receive the front and rear walls of said casing, means for conducting oil from the upper portion of said casing to said plate, a damper carried by said plate for controlling the openings therein and the flue within the casing, a lateral rib or partition carried by the upper face of said plate for directing the oil received from the conducting means to the front of said plate beyond said casing; substantially as specified.

15. In a burner for crude oil, the combination with a casing, of an oil-conducting plate therein having flanged apertures therethrough, and a cap or cover for said apertures; substantially as specified.

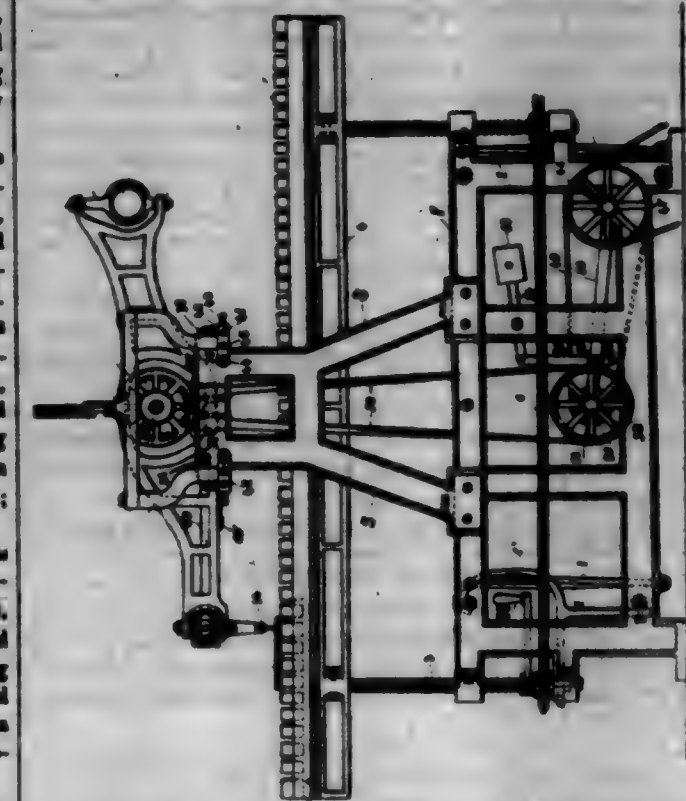
701,908. CARVING-MACHINE. EMIL R. LOEHMAN, St. Louis,
Mo. Filed July 4, 1901. Serial No. 67,667. (No model.)

Claim.—1. In a carving-machine, a suitable operating-table, a tool-carriage comprising an inner longitudinal shaft and an outer tube freely rotatable about the same mounted in proximity to said table, and having a motion of translation parallel therewith, swinging arms mounted on the carriage and adapted to sweep in planes parallel, and at right angles to the operating-table, and tools in cooperative connection with the free ends of said arms, substantially as set forth.

2. In a carving-machine, a suitable operating-table, means for adjusting the same in planes parallel and at right angles to the operating-surface thereof, a tool-carriage comprising an inner longitudinal shaft and an outer tube freely rotatable about the same mounted in proximity to the table and having a motion of translation parallel with the operating-surface of the table, swinging arms mounted on the carriage and adapted to sweep in planes parallel to and at right angles to the operating-surface of the table, and tools in cooperative connection with the free ends of said arms, substantially as set forth.

3. In a carving-machine, a suitable operating-table, a tool-carriage comprising an inner longitudinal shaft having a motion of translation in a plane parallel to the operating-surface of said table, and an outer tube freely rotatable about said shaft, swinging arms pivotedly connected about said tube and adapted to sweep in planes parallel and at right angles to

the said operating-surface, and tools in cooperative connection with the free ends of said arms, substantially as set forth.



4. In a carving-machine, a suitable operating-table, means for feeding or advancing the same in a plane parallel to the operating-surface thereof, a tool-carriage having an inner longitudinal shaft and an outer tube rotatable about the same mounted in proximity to the table and having a reciprocating motion parallel to said operating-surface, swinging arms mounted on the carriage and adapted to sweep in planes parallel, and at right angles to the operating-surface, and in lines at right angles to the direction of the feed of said table, and tools in cooperative connection with the free ends of said arms, substantially as set forth.

5. In a carving-machine, a suitable tool-carriage having a central longitudinal shaft, means for supporting and guiding the opposite ends thereof, a tube enveloping said shaft and freely rotatable about the same, and a series of arms connected to said tube, and tools in cooperative connection with the free ends of said arms, substantially as set forth.

6. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends of the shaft, ways on which said wheels travel, a tube enveloping said shaft and freely rotatable about the same, a series of tools, and intermediate connections between the tools, and the tube, substantially as set forth.

7. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends thereof, a hollow tube enveloping the shaft, terminal adjustable disks secured to the ends of the tube, a cup located along the outer surface of each disk, and antifriction-balls interposed between each cup and the hub of the adjacent wheel, substantially as set forth.

8. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends of the shaft, parallel peripheral grooves formed in the wheels, and cables wound about the grooves and having their free ends secured to a stationary part of the machine, substantially as set forth.

9. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends thereof, parallel peripheral grooves formed in the wheels, a cable wrapped about the grooves and having its opposite ends secured to a stationary part of the machine, a diagonal depression cut from the rib separating the grooves to allow the wrap of the cable to cross from one groove to the other, and a staple for securing the portion of the cable spanning said depression, substantially as set forth.

10. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends thereof, parallel peripheral grooves formed in the wheels, a cable wound about the grooves, suitable rounded and grooved projections formed on a stationary part of the machine about which the ends of the cable pass, a block having a fixed end and a free end, the free end having an eye for the reception of the end of the cable, a screw for securing the cable within the eye, and a screw operating through an intermediate portion of the block for forcing the free end away from the machine and thus tightening or drawing upon the cable, substantially as set forth.

11. In a carving-machine, a suitable reciprocating tool-carriage means for supporting the same, a main drive-shaft, a swinging arm having

one end loosely embracing said shaft, a second or counter shaft disposed parallel to the main shaft, and carried by the other end of said arm, belt-and-pulley connections between the shafts, a driving-pulley carried by the counter-shaft, a middle pulley suspended from the tool-carriage, guide-pulleys mounted in said saddle, a second pulley mounted on the tool-carriage, a belt passing over the driving-pulley on the counter-shaft and the second pulley on the tool-carriage, and having its respective legs passing over the pulleys of the saddle, the counter-shaft being adapted to rise and fall with the reciprocations of the carriage, a weighted balance-lever pivoted to the stationary part of the machine, and a link pivotally coupling the end of one arm of said lever, to the arm interposed between the main shaft and counter-shaft, substantially as set forth.

12. In a carving-machine, a suitable tool-carriage having an inner longitudinal shaft, stationary ways for supporting and guiding the opposite ends thereof, an outer tube enclosing said shaft, a tool-supporting arm pivoted to the tube, a tool-supporting bar carried between the free ends of said arm, a transverse arm pivotally connected to the tube, and having a forked forward end embracing the tool-supporting bar, and a coupling-pin passed through said fork and into said bar, substantially as set forth.

13. In a carving-machine, a tool-carriage having an inner longitudinal shaft, means for supporting the same, an outer tube enclosing said shaft, a stationary spindle projecting from the periphery of the tube, a pulley mounted on the spindle, a nipple coupled to the inner end of the spindle and having a longitudinally-perforated arm passing through the wall of the tube and an oil-cup at the other projecting end of said arm, the spindle being provided with suitable oil-passages leading to the pulley, substantially as set forth.

14. In a carving-machine, a series of swinging arms, a tool-supporting bar at the free ends of the said arms, the opposite ends of the bar having each formed therewith a cylindrical boss, a stem projecting beyond each of said bosses, a ring loosely embracing each boss, a clamping-screw passed about the stem, a washer interposed between the nut and boss, pins or pegs projecting from the ends of the boss and entering the washer, the free ends of the swinging arms pivotally embracing the rings, substantially as set forth.

15. In a carving-machine, a tool-carriage having a longitudinal shaft, stationary ways for guiding and supporting the opposite ends thereof, said shaft being movable in a direction parallel to itself, a tube enveloping said shaft and freely rotatable about the same, and a series of teeth connected to said tube, substantially as set forth.

16. In a carving-machine, a tool-carriage having a longitudinal shaft, wheels for supporting the opposite ends thereof, ways or tracks on which said wheels travel, a tube enveloping said shaft and freely rotatable about the same, and a series of teeth connected to said tube, substantially as set forth.

17. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends of the shaft, cables wound about the wheels and having each one end fastened to the wheel and the opposite end to a stationary part of the machine, substantially as set forth.

18. In a carving-machine, a tool-carriage having a central longitudinal shaft, wheels for supporting the opposite ends of the shaft, peripheral grooves formed in the wheels, and cables wound about the grooves and having their free ends secured to a stationary part of the machine, substantially as set forth.

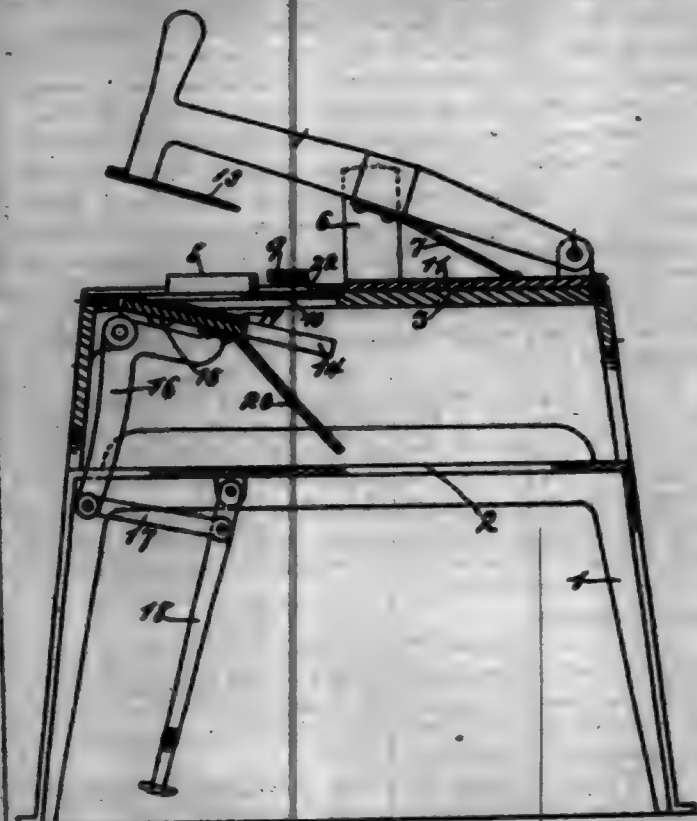
19. In a carving-machine, a tool-carriage having an inner longitudinal shaft, wheels for supporting the opposite ends of the shaft, cables wound about the wheels and having each one end fastened to the wheel and the opposite end to a stationary part of the machine, substantially as set forth.

701,904. MACHINE FOR FOLDING COLLAR-MAKER, &c. MARTIN J. LOVER, Troy, N. Y. Filed Dec. 26, 1891. Serial No. 57,543. (No model.)

Claim.—1. In an infolding machine a receiver to receive the object to be infolded; an arm having an upward and downward and a forward and rearward motion; said arm bearing a presser-foot arranged to enter the receiver and turn the edges of the object to be infolded; a movable former member or plate, formed in a continuous piece arranged to slide over the upturned edges of the object to be infolded and press them down; a hinged or pivoted movable pressing or heating table or form having a resilient surface, the resilience being inherent in the material of which said surface is formed, arranged to be forced against the object to be infolded; and means for automatically throwing the infolded article off the table when the article is finished, substantially as described.

2. In an infolding-machine, a swinging table or form consisting of a base; a plate-spring attached thereto and arranged to form a resilient surface to said table or form; a movable former-plate in proximity to said resilient surface; an infolding member arranged to act in conjunction with

the movable former-plate and infold the article to be operated on and hold it in position to be pressed and heated; a course of heat to heat the resilient surface; a discharging member consisting of a pin or stud free to have movement toward and away from the infolded article, its lower end being arranged to move over the material to be infolded in one direction without disturbing it, and to catch and eject it when moved oppositely, all operating substantially as herein shown and described.



3. In an infolding-machine, a tilting or hinged table or form consisting of a base or bed; a plate-spring attached thereto forming a surface movable by reason of the resilience of the plate-spring; a guide or chute attached to the table and arranged to guide the infolded article when finished from the table; means for throwing the finished infolded article upon the chute; means for forcing the table and its resilient face against and from the infolded article that it may be pressed; a course of heat arranged to heat the said resilient face of the table; a movable former member arranged to form the article to be infolded and hold it in position to be heated and pressed all operating substantially as herein shown and described.

4. In an infolding-machine, a movable former-plate arranged to press the edges of the article and infold them; a movable table; a pin or stud moving with said table and having free upward and downward movement, its contact end being beveled and arranged to slide over the infolded article when the table moves forward and to catch in the article when moved backward and remove the article at predetermined times; a blank-supporting member, and means for moving said former-plate and the above-named movable members substantially as described.

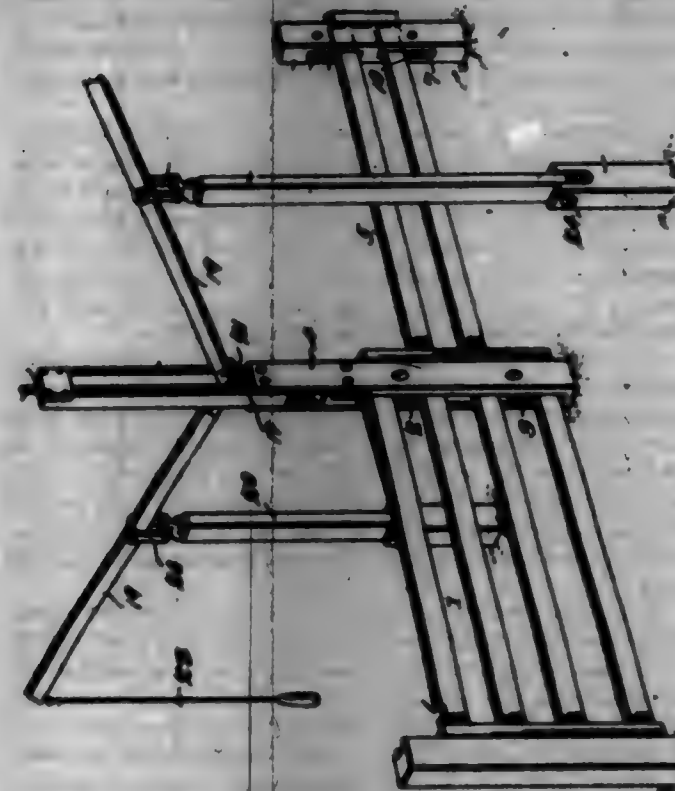
701,905. GATE. ELSON H. LOWERY, Henderson, Ky. Filed Mar. 5, 1898. Serial No. 94,593. (No model.)

Claim.—1. The combination of a frame or support, a gate, a vertically-movable locking-bar guided on the frame and arranged to engage the gate, supporting-bars pivotally mounted at opposite sides of the gate, operating-levers fulcrumed on the supporting-bars and connected to the vertically-movable locking-bar, and means for connecting the latter with the gate, substantially as described.

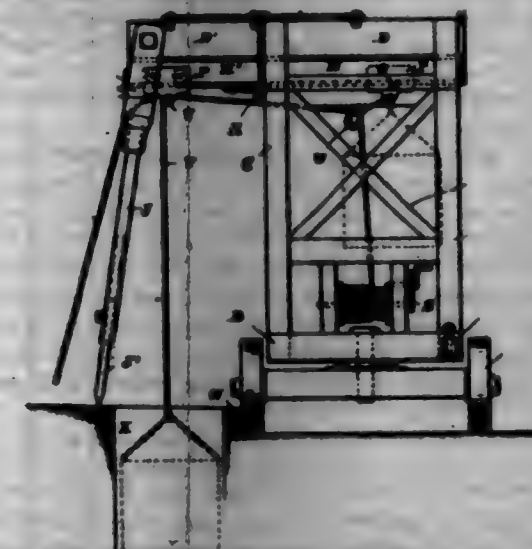
2. The combination of a frame or support, a sliding gate, a vertically-movable locking-bar mounted on the frame or support and located above and adapted to engage the gate at the limit of its movement, the supporting-bars pivotally mounted at opposite sides of the gate, the operating-levers fulcrumed on the supporting-bars and connected with the vertically-movable bar, and a flexible connection extending from the gate to the operating-levers, substantially as described.

3. The combination of a frame or support having a gate-receiving opening and provided with upper bars spaced apart to form an opening, a gate arranged to slide in the lower gate-receiving opening, a pair of pulleys located above the gate, a vertically-movable locking-bar and gate mounted on the frame or support, a tube or casing receiving the lower portion of the locking-bar and guide, operating-levers extending into the upper openings of the frame or support and connected to the said lock-

ing-bar and guide, movable fulcrums supporting the operating levers, and a flexible connection extending between the said pulleys and connected with the gate and with the operating-levers, substantially as described.



701,906. PORTABLE DERRICK. ALEXANDER LOWE, New York, N. Y., assignor to the United States Sanitary and Utility Storage Disposal Company of New Jersey, New York, N. Y. Filed Mar. 21, 1901. Serial No. 89,129. (No model.)



Claim.—1. In a portable hoisting apparatus the combination with a truck, of a suitable frame, a removable base portion therein, a central track located in the top of said frame and adapted to permit of a cart being placed thereunder, a carriage mounted on said track, a hoisting apparatus connected with said carriage whereby the object may be raised at one end of the truck and shifted to the other and lowered.

2. In a hoisting apparatus, the combination with a truck, of a frame having a track located in the upper portion thereof and provided with a collapsible extension, supporting-legs hinged to the outer end of said extension to support the same and means for adjusting said legs for various levels of ground, a carriage located on said track and adapted to operate thereon and on said extension, a winch connected to said carriage whereby objects may be raised beneath the extension and moved to within the main frame of the derrick, as and for the purpose described.

3. In a portable derrick of the class described, the combination with a suitable frame, of a transverse track located in its top portion, an extension hinged to said track, a support hinged to said extension with adjustment adapted to rest upon the ground to retain it in position, a carriage mounted on said track, a hoisting apparatus connected with the carriage for raising, shifting and lowering an object.

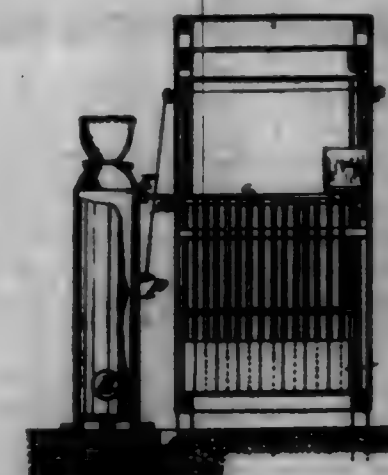
4. In a portable derrick of the class described, the combination with a suitable frame containing a transverse track located in its top portion, a carriage mounted upon said track, an extension hinged to said track, sup-

porting-legs hinged to said extension and adapted to rest upon the ground and permit of the free movement of the carriage thereon, a hoisting device whereby said extension is caused against side movement, means connected with the carriage whereby an object may be raised or lowered and shifted beneath the truck.

5. The combination of a suitable frame mounted upon a truck and provided with a removable bar whereby it may be disconnected to permit of the placement of a vehicle thereunder, a centrally-located transverse track situated in the top portion of said frame, a hinged extension for said truck and means for supporting the same in an extended position, means for retaining said extension in a closed or folded position, a carriage mounted upon the truck and connections therefor for raising and lowering an object.

6. The combination in a derrick of the class described, of a frame having a centrally-located track, a collapsible extension secured thereto, collapsible supporting-legs for said extension, adjusting engaging points for said legs to conform to the various levels of the surface beneath, means for retaining said extension in a true extended line from that of the main track, a carriage adapted to operate upon both the main and extended track, connections therewith for suspending an object and shifting the same laterally beneath the truck, substantially as shown and described.

701,907. DEVICE FOR PREVENTING RAIL BURNING. MAGGIORA, PASCAL MAGGIORI, and EMMANO MAGGIORI, Turin, Italy. Original application filed Jan. 26, 1901. Serial No. 45,177. Divided and this application filed Oct. 24, 1901. Serial No. 90,128. (No model.)



Claim.—1. In an apparatus of the character set forth, the combination of a plurality of closed boxes filled with substances to produce explosive gas by means of a suitable liquid, means for introducing liquid successively into said boxes, a suitable gas-holder, and communicative connections between the latter and the boxes, with a suitable explosion-chamber and communicative connections between the latter and the gas-holder, substantially as set forth.

2. In an apparatus of the character set forth, the combination of a plurality of closed boxes filled with substances to produce explosive gas by means of a suitable liquid, means for introducing liquid successively into said boxes, a suitable gas-holder and communicative connections between the latter and the boxes, with a suitable explosion-chamber, an outwardly-facing open mouth on the upper end thereof, communicative connections between the gas-holder and the explosion-chamber, means for admitting air into the explosion-chamber after each explosion, and an electric device for igniting the explosive mixture in said chamber, from a distant station, substantially as set forth.

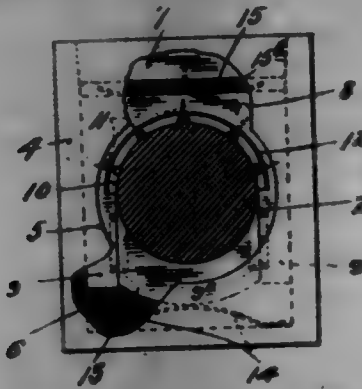
701,908. BOLT-GUARD. FRED MARTIN, St. Paul, Minn., assignor of three-fourths to Henry Martin, St. Paul, Minn. Filed Aug. 12, 1901. Serial No. 71,677. (No model.)

Claim.—1. The combination with the axle 1 and box 4, the latter having the axle-passages 5 and guard-seat 6, of the guard-section 8, and the supplemental lower guard-section 13 of such width that it may be inserted into working position when and only when the box is dropped on the axle, the plug-strip 7 driven into the upper end of said seat 6, and the springs 14 and 15 within said seat 6 acting on said guard-sections, substantially as described.

2. A bolt-guard for car-journals, &c., comprising a guard-plate having a segmental notch, a segmental wearing-strip of relatively hard material detachably secured within said notch, and a packing-strip of yielding material placed between said wearing-strip and said guard-plate, substantially as described.

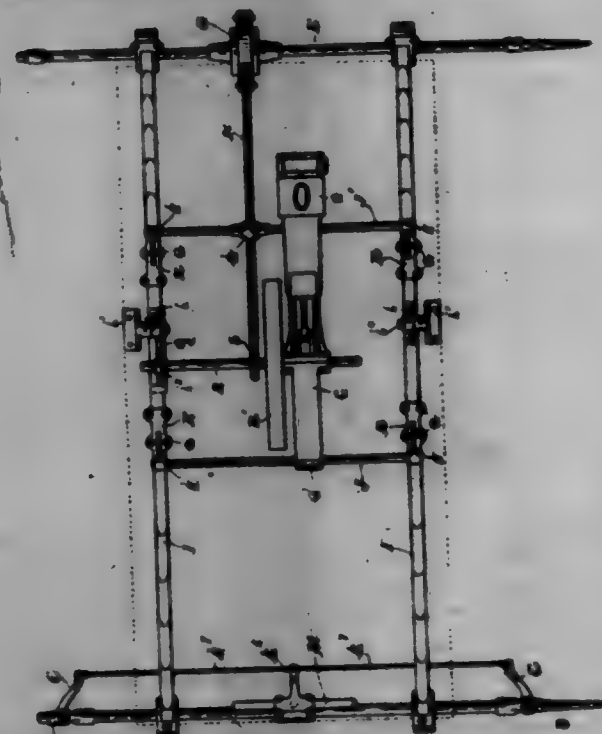
3. A bolt-guard for car-journals, &c., comprising the plate 8 with

prongs 9, the segmental wearing-strip 10 detachably secured to said plate 8, flanked with the inner edges of said prongs 9, and the flexible or yielding packing-strip 12 secured between said wearing-strip 10 and plate 8, substantially as described.



4. The combination with an axle and a journal-box, the latter having a vertical guard-seat, of a sand-guard within said seat approximately filling said guard-seat at its upper portion and reduced in thickness at its lower portion to afford increased clearance between the axle and the sides of said seat, substantially as described.

701,909. MOTOR-VEHICLE. JONATHAN D. MAXWELL, Detroit, Mich. Filed Feb. 14, 1902. Serial No. 94,010. (No model.)



Claim.—1. In a motor-vehicle running-gear, the combination with side springs of semi-elliptic or like shape and supported at their ends upon front and rear axles to which said ends are rigidly connected, of transverse rods supported upon said side springs at corresponding points intermediate their length and having their ends secured thereto independently of each other, the motor supported upon said transverse rods independently of the side springs and the body supported upon the side springs independently of the motor.

2. In a motor-vehicle running-gear, the combination with side springs of semi-elliptic or like shape and supported at their ends upon front and rear axles to which said ends are rigidly connected, of transverse rods supported upon said side springs at corresponding points intermediate their length and having their ends adjustably connected to said springs independently of each other, a motor supported upon said transverse rods intermediate between the side springs and forming with its frame a rigid connecting member between the transverse rods and a vehicle-body pivotally supported upon the side springs at points intermediate between the points at which the transverse rods are supported.

3. In a motor-vehicle running-gear, the combination with side springs the ends of which are secured to the front and rear axles and upon which the motor and the body are supported, of a motor having its frame formed with bearings at right angles to the frame, transverse rods passing through said bearings and having their ends rigidly supported upon and adjustably secured to said side springs independently of each other, the motor-frame being laterally adjustably secured upon the transverse rods.

4. In a motor-vehicle running-gear, the combination with side springs the ends of which are secured to the front and rear axles and upon which the motor and the body are supported, of a motor having its frame formed at or near the ends with clamping-bearings, of transverse rods passing through said bearings and adjustably supporting the motor upon said rods, and plates secured to the ends of the transverse rods said plates secured upon the side springs by clamping-bolts and forming means for the longitudinal adjustment of the motor.

5. In a motor-vehicle running-gear, the combination with side springs the ends of which are secured to the front and rear axles and upon which the motor and the body are supported, of a motor having its frame formed with bearings at right angles thereto, transverse rods passing through said bearings and having their ends supported upon and secured to the side springs independently of each other, and a body having side bearings supporting the body upon the side springs independently of the motor at a point intermediate between the ends of the transverse rods.

6. In a motor-vehicle running-gear, the combination with side springs secured at their ends to the front and rear axles and carrying the motor and the body, of transverse rods rigidly connecting the side springs together at points intermediate their ends and forming the supports of the motor, the frame of the motor being provided near its opposite ends with bearings through which the transverse rods pass, and a body provided with side bearings pivotally supporting the body upon the springs intermediate between the points at which the motor is supported upon said springs.

7. In a motor-vehicle running-gear, the combination with side springs secured at their ends to the front and rear axles and upon which the body and the motor are supported, of a motor having its frame provided with bearings at right angles to the frame, transverse rods passing through said bearings and supporting the motor upon the side springs the ends of said rods being rigidly secured to the side springs independently of each other and a vehicle-body pivotally connected to the side springs at a point between the points where the transverse rods are connected.

8. In a motor-vehicle running-gear, the combination with side springs secured at their ends to the front and rear axles and carrying the motor and the body, of a motor supported upon transverse rods secured in bearings in the frame of the motor and having their ends rigidly connected to the side springs, a vehicle-body provided with side bearings pivotally supporting the body upon the side springs independently of the motor, between the points at which the transverse rods are secured to said springs, an elliptic spring interposed between the front end of the body and the front axle, and means for causing friction upon the points of the side bearings of the body.

9. In a vehicle running-gear, the combination with the side springs and the axle to which the ends of the side springs are secured, of clips each comprised of a split collar securing the clip to the axle and formed with a bearing-plate extending crosswise over the axle and upon which the flattened end of a side spring is supported, a cap-piece having an outer end which bears upon the outer end of the spring, and an inner end formed of two side bars which bear upon the top of the axle and a cross-bar uniting the outer ends of the side bars and bearing against the under side of the inner end of the bearing-plate and a bolt which clamps the outer ends of the cap-piece and of the bearing-plate together.

10. In a vehicle running-gear, the combination with the side springs and the rear axle to which the ends of the springs are secured, of clips, each composed of a split collar secured upon the axle and formed with a bearing-plate extending crosswise over the axle and upon which the flattened end of the side spring is supported, a cap-piece having an outer end which bears upon the outer end of the side spring and confining it against end-wise movement and an inner end formed of two side bars extending inwardly over the axle and bearing upon the top of the axle and a cross-bar uniting the ends of the side bars and bearing against the under side of the inner end of the bearing-plate, a bolt adjustably clamping the outer end of the cap-piece to the outer end of the bearing-plate and a set-screw carried by the cross-bar of the cap-piece and adapted to adjust said cap-piece longitudinally upon the bearing-plate.

11. In a vehicle running-gear, the combination with the side springs supporting the body and motor, of the front axle rigidly secured to the ends of the side springs and having pivoted stub-axles provided with crank-arms, the block *k* centrally deaved upon the front axle and held in place thereon against longitudinal displacement, the spring *M* interposed between the front axle and the forward end of the body and having the upper and lower ends thereof pivotally supported in vertical bearings in the front end of the body and in the bearing-block *k* respectively, and the arm *A'* carried by the spring and connected with the crank-arms of the stub-axles.

12. In a vehicle running-gear, the combination with the side springs supporting the body and motor upon the axle and having their ends rigidly secured thereto, of the body having side bearings pivotally supporting the body upon the side springs, the elliptic spring *M* interposed between the front axle and the forward end of the body free to turn upon

its vertical axis and the block *k* deaved upon the front axle and to which the spring is pivotally connected in the vertical axis of the spring substantially as described.

13. In a vehicle running-gear, the combination with the side springs having their ends rigidly connected to front and rear axles, the front axle carrying steering wheels pivotally connected to the ends of the axle, of a vehicle-body pivotally supported upon the side springs, an elliptic spring interposed between the front axle and the front end of the vehicle free to turn upon its vertical axis, a steering-post mounted upon the top of the spring a pivot-pin secured to the under side of the spring in the axis of the steering-post a block deaved upon the front axle and provided with a vertical bearing for the pivot-pin, in which said pivot-pin is secured free to turn and steering connection between the lower end of the spring and the front wheels.

14. In a vehicle running-gear, the combination, with the vehicle-body supported upon side springs and the front axle to which the ends of the side springs are rigidly secured and carrying steering-wheels pivotally connected to the front axle, of the elliptic spring *M* interposed between the front axle and the front end of the vehicle-body, the steering-post *J* secured upon the top of the spring *M*, the bearing *J'* secured to the body of the vehicle and through which the steering-post passes, the clamping-plates *P* *P'* secured to the lower part of the spring *M*, the steering-arm *P'* carried by the clamping-plate *P'* and connected with the steering-wheel, the pivot-pin *P'* carried by the plate *P'* and provided with a nut upon its lower end, the block *k* deaved upon the front axle and provided with a bearing *P'* through which the pivot-pin passes and the split collar *P'* united by a cross-bar *P'* and securing the block *k* against end-wise movement upon the front axle.

15. In a vehicle running-gear, in combination with side springs and cross-bars connected therewith intermediate between the ends and supporting the motor, of a vehicle-body pivotally supported upon side bearings upon said springs at corresponding points intermediate between the cross-bars, each side bearing consisting of two plates, one secured upon the side spring and the other supporting the body, the two plates pivotally connected side by side upon the same horizontal plane by a pivot-pin secured in one of the plates and journaled in a bearing formed in the other plate at right angles to the side spring, the body-supporting plate being supported outside of the side spring free to oscillate upon the pivot.

16. In a vehicle running-gear, in combination with side springs supported upon the front and rear axles and having raised side portions, of a vehicle-body pivotally supported intermediate its ends upon the raised body portions of the side springs free to oscillate in a vertical longitudinal plane and an elliptic spring interposed between the front axle and the forward end of the body in the longitudinal center of the body, the top of said spring being substantially on a level with the top of the raised body portion of the side springs and pivotally connected with the vehicle-body in the vertical axis of the spring free to turn the spring upon said axle, the under side of said spring pivotally connected to a bearing-block deaved upon the front axle whereby said bearing-block pivotally supports the spring on the front axle free to turn said spring upon its vertical axis independent of the rocking motion of said front axle caused by the action of the side springs.

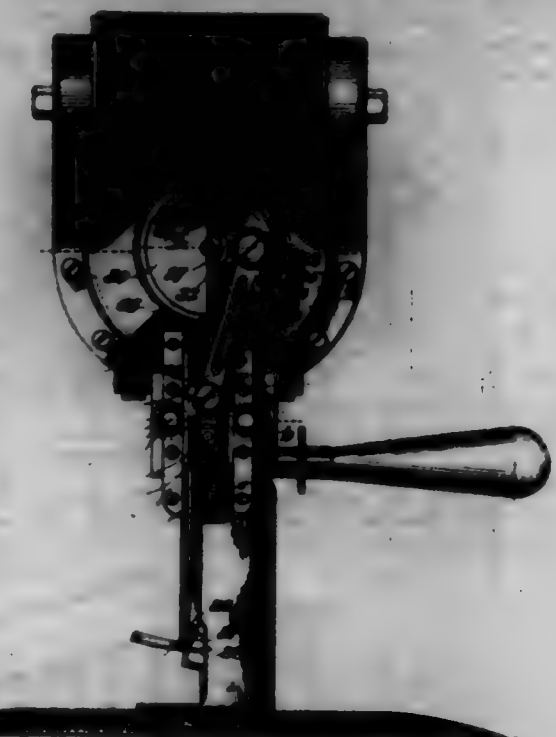
17. In a vehicle running-gear, in combination with side springs secured to the front and rear axles and formed with raised horizontal main portions of tubular cross-bars securing the side springs together at the ends of the raised main portions, bearing-plates supported upon the raised main portions of the side springs and provided with notches into which the ends of the cross-bars are secured, said bearing-plates independently adjustably secured upon the raised main portions of the side springs by clips clamping the plates and the component parts of the side springs together, and a motor adjustably secured upon the tubular cross-bars at right angles thereto by means of clamping-bearings formed on the motor-frame.

18. In a vehicle running-gear, in combination with the front and rear axles, and the side springs rigidly clipped at their ends to said axles and supporting the body and the motor, of a block centrally deaved upon the front axle, split clamping-collars secured upon said front axle on opposite sides of the block and an elliptic spring interposed between the front axle and the front end of the body free to turn upon its vertical axis, the lower end of said spring secured between clamping-plates one of which carries a steering-arm and the other a pivot-pin pivotally supporting the spring upon the block.

701,910. MACHINE FOR CUTTING FABRICS. HENRY A. MEYER, Cincinnati, Ohio, assignor to The Wolf Electrical Fracturing Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Apr. 18, 1901. Serial No. 95,129. (No model.)

Claim.—1. In a fabric-cutting machine, a foot-plate having a standard rising therefrom provided with confronting guideways, a block carrying a knife fitted between and engaging said guideways, auxiliary rotary guides for said block, antifriction-bearings for said rotary guides, and means for reciprocating the block, substantially as described.

2. In a fabric-cutting machine, a foot-plate having a standard arising therefrom provided with confronting guideways, a block carrying a knife fitted between and engaging said guideways, auxiliary rotary guides for said block, antifriction-bearings for said rotary guides, and means for reciprocating the block, substantially as described.



3. In a fabric-cutting machine, a slide-way, a reciprocating block therein, the two having corresponding beveled and grooved guiding edges, rotary rings or shells also guiding the block, a knife carried by said block, and means for operating the block, substantially as described.

4. In a fabric-cutting machine, a slide-way, a reciprocating knife-carrying block therein, the two having interengaging beveled and grooved guiding edges, and auxiliary rotary guides for said block, substantially as described.

5. In a fabric-cutting machine, a slide-way, a reciprocating knife-carrying block therein, the two having beveled and grooved guiding edges, and rotary auxiliary guides for the block comprising rings or shells constructed in conformity with the edges of said block, substantially as described.

6. In a fabric-cutting machine, a slide-way, a reciprocating knife-carrying block therein, the two having corresponding beveled and grooved guiding edges, rotary auxiliary guides for said block, and antifriction-bearings for said guides, substantially as described.

7. In a fabric-cutting machine, a slide-way, a reciprocating block therein, the two having corresponding beveled and grooved guiding edges, and rotary rings or shells also serving to guide the block and provided with ball-bearings, substantially as described.

8. In a fabric-cutting machine, the standard formed with the slide-way, the guide-plates at the sides of the latter having beveled guiding edges, a reciprocating block in said slide-way having correspondingly-grooved guiding edges, and antifriction-bearings also at the sides of the slide-way, said bearings each comprising a screw-bolt having an integral ring and an adjustable ring, the two constructed to form a groove, a series of balls seated in said groove, and an insulating ring or shell similarly grooved interiorly and beveled at the edge and received in the grooves of said block, substantially as described.

9. In a fabric-cutting machine, the standard formed with the slide-way, the guide-plates at the sides of the latter, a reciprocating block guided in said slide-way between the plates, rotary auxiliary guides for said block, and antifriction-bearings for said auxiliary guides, substantially as described.

10. In a fabric-cutting machine, a foot-plate having a standard rising therefrom provided with confronting guideways, a reciprocating knife-carrying block fitted between said guideways and engaging said guideways, auxiliary rotary guides for said block, and means for reciprocating said block.

701,911. STAMP AND ENVELOPE MOUNTING. CHARLES W. MILLER, Columbus, Ohio. Filed Oct. 30, 1901. Serial No. 95,130. (No model.)

Claim.—1. In a device of the character described, the combination of a foot-plate having a standard rising therefrom provided with confronting guideways, a block carrying a knife fitted between and engaging said guideways, auxiliary rotary guides for said block, and means for reciprocating the block, substantially as described.

with the water-receptacle, of a sponge-holder integral therewith, said receptacle being formed with grooves in its sides and base, a spring-clamp having portions thereof engaged with the grooves in the sides and base of the receptacle and their upper ends projecting over the receptacle and adapted to clamp said receptacle to the under side of a shelf, substantially as set forth.

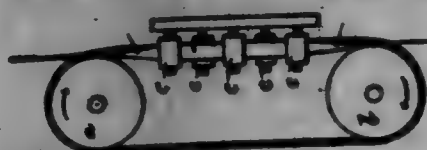


701,912. CLOVER-HARVESTER. ALAN D. HIGGINS, Portland, Ind. Filed Dec. 26, 1904. Serial No. 57,507. (No model.)



Claim.—In a clover-harvester, a front bar, bottom strips secured thereto extending rearwardly and having their ends curved upwardly, side plates converging toward the rear and increasing in height and having curved edges 7, standards secured to the sides, a shaft supported by the standards, fingers carried by the shaft and projecting to the upper ends of the bottom strips means for partially rotating the shaft, and hooks on the finger-bar engaging the front bar of the receptacle, as and for the purpose described.

701,913. DRAWING-FRAME. JOHN DE HEMMER, Lohr, Baden. Filed Oct. 11, 1905. Serial No. 595,948. (No model.)



Claim.—In an apparatus of the character described, the combination with two drawing-rollers and an endless elastic band passing around said rollers, of guide-rollers arranged intermediate the drawing-rollers and over which guide-rollers one section of the band intermediate the drawing-rollers passes, the guide-rollers being so arranged relatively to the drawing-rollers as to cause the section of the band passing over them to be folded in the manner and for the purpose specified.

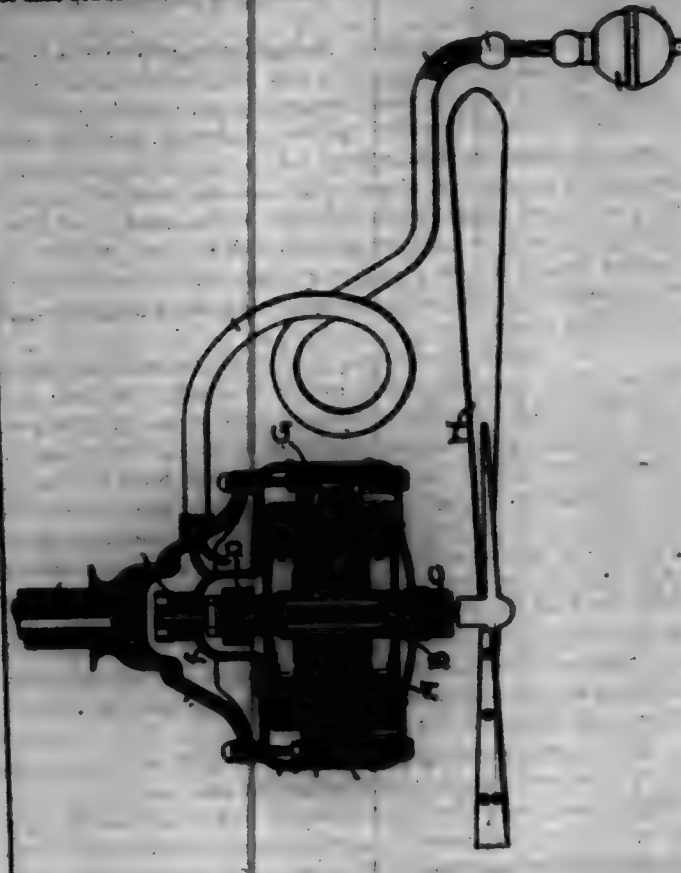
701,914. FAN-MOTOR ATTACHMENT. WALTER S. MOODY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 26, 1905. Serial No. 54,478. (No model.)

Claim.—1. The combination, with a suspended fan-motor and its casing, of an arm extending from the casing to a point beyond the tips of the fan-blades and capable of being permanently bent to adjust the same to various positions, and an electric conductor supported on said arm and provided at or beyond the end of the arm with a circuit-closer.

2. The combination, with a suspended fan-motor and its casing, of an arm extending from the casing to a point beyond the tips of the fan-blades and capable of being permanently bent to adjust the same to various positions, a flexible electric conductor supported on said arm and extending to a point beyond the end of the arm and provided at its end with a circuit-closer.

3. The combination, with a suspended fan-motor and its casing, of a tubular arm extending from the casing to a point beyond the tips of the fan-blades and capable of being permanently bent to adjust the same to various positions, a flexible double electric conductor included in the ar-

out of the motor and led through said arm, and a circuit-closer at the end of said conductor.



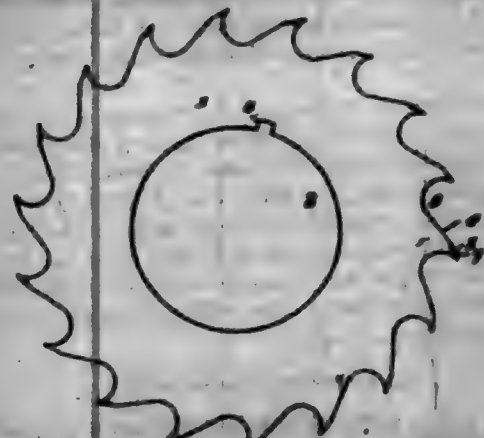
701,915. PROCESS OF FORMING SECONDARY-BATTERY PLATE. THOMAS WILLIAM HENNING, Chicago, Ill., assignor to the Electro-Upton Company, Chicago, Ill., a Corporation of New Jersey. Filed June 18, 1905. Serial No. 58,655. (No model.)



Claim.—1. The improved process in the art of forming battery-plates having undulating faces, which consists in covering the recessed faces with a sheet of thin substantially rigid formless material, securing the latter yieldingly against said face, then placing in a forming-boat and forming by the aid of an electric current and finally removing the formless sheet before use, substantially as described.

2. As an improvement in the art of forming double-faced recessed secondary-battery plates, first including the plate between two conducting substantially rigid formless sheets firmly but yieldingly pressed against the active surfaces of the plate, and then subjecting said battery-plate while included between said conducting-plates to the forming process and finally removing the including plates therefrom, substantially as described.

701,916. SAW FOR MAKING SECONDARY-BATTERY GRIDS. WILLIAM HENNING, Chicago, Ill., assignor to the Electro-Upton Company, Chicago, Ill., a Corporation of New Jersey. Filed June 18, 1905. Serial No. 58,655. (No model.)

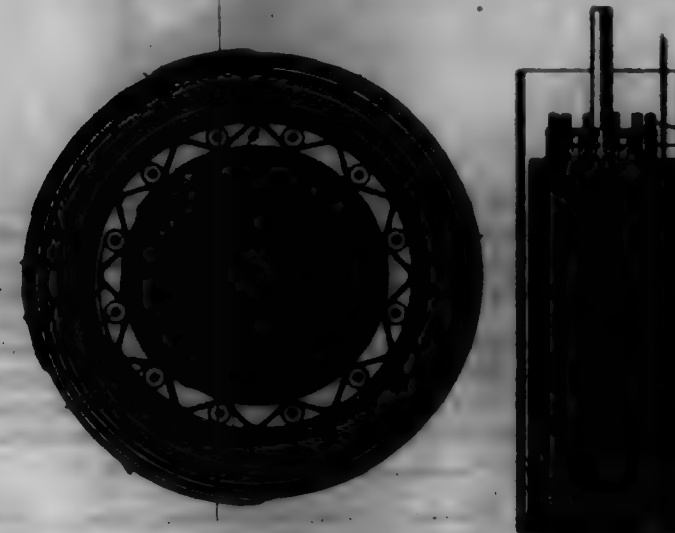


Claim.—1. A saw for making battery-grids, &c., having a body of less thickness than the width of its teeth and having teeth of regularly-tapered diminishing thickness from their cutting edges inwardly toward the body and laterally out away on alternate sides, substantially as described.

2. A gang of saws for use in making battery-grids, comprising an arbor, a plurality of saws secured thereon and each having a body of regularly-tapered diminishing thickness from its periphery toward its center and its teeth cut away laterally on alternate sides, and spacing disks or washers between the saws, substantially as described.

3. A circular saw for use in making battery-grids, having a body of regularly-tapered diminishing thickness from its periphery toward its center and provided with the teeth 4, each having the inclined chamfered 7 and the lateral chamfered 8, substantially as described.

701,917. SECONDARY BATTERY. WILLIAM HENNING, Chicago, Ill., assignor to the Electro-Upton Company, Chicago, Ill., a Corporation of New Jersey. Filed June 18, 1905. Serial No. 58,657. (No model.)



Claim.—1. An element for secondary batteries formed by electro-chemical action from a plurality of flat sheets of lead leaf or foil, said sheets being arranged in pairs in juxtaposition and having elongated apertures, the apertures of one leaf or sheet of each pair extending transversely across the apertures of the other leaf of said pair, substantially as described.

2. An element for secondary batteries, composed of a plurality of sheets of lead leaf or foil arranged in pairs, one sheet of each pair having cooperatively short apertures and the other leaf of said pair having long apertures arranged to cross two or more of the apertures of the first-mentioned leaf, substantially as described.

3. A secondary-battery element composed of a plurality of perforated sheets of lead leaf or foil, having elastic material interspersed between each pair of adjacent sheets, and rolled into spiral form, said element as a whole having the form of a relatively long cylindrical body, whereby access of an electrolyte to the main portion of the element, is had through the perforations chiefly, and expansion incident to forming is provided for.

4. In a secondary battery, the combination, with an inner element composed of a plurality of sheets of lead leaf or foil rolled into spiral shape, of a similarly-constructed outer element, including said first element and an expandable insulating material located between the two elements, substantially as described.

5. The combination, with an inner element composed of a plurality of perforated sheets of lead leaf or foil rolled into spiral form, of a similarly-constructed outer element, including said first element and a perforated sheet of insulating material located between said elements, substantially as described.

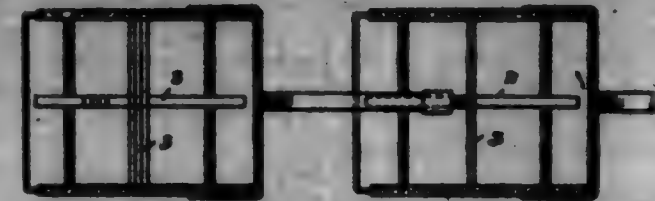
6. The combination, with the inner and outer elements composed of a plurality of sheets of lead leaf or foil spirally wound, of a corrugated sheet of insulating material interspersed between the two, and rods or tubes of insulating material inserted in the corrugations, substantially as described.

7. In a battery of the character described, the combination with an element having a body portion composed of a plurality of perforated sheets of lead-leaf, rolled into spiral form, of an including casing consisting of a discontinuously integral and uninterrupted tube of lead having terminal projection formed integral therewith, substantially as described.

8. A battery element consisting of a plurality of pairs of sheets of lead or foil wound spirally around each other, the members of each pair of sheets being arranged in juxtaposition and annular spaces being provided between each pair of a width greater than the thickness of single sheets, as and for the purpose set forth.

9. A battery element comprising a plurality of sheets of lead leaf or foil, formed spirally around each other, each pair of leaves consisting of flat perforated leaves arranged in juxtaposition to each other and annular spaces arranged between each adjacent pair of leaves, whereby the leaves of each pair are in contact with each other, but are free from contact with the leaves of adjacent pairs, substantially as described.

701,918. MEANS FOR PREVENTING THE DISTORTION OF SECONDARY-BATTERY PLATES DURING FORMING. WILLIAM HENNING, Chicago, Ill., assignor to the Electro-Upton Company, Chicago, Ill., a Corporation of New Jersey. Filed June 18, 1905. Serial No. 58,658. (No model.)



Claim.—The combination, with a battery-plate forming one electrode of an electric charging-circuit and a battery-plate, of a bridge-piece, formed of a board or slab of a width equal to the internal width of the coil and provided with a central slot extending from one end inwardly a distance equal to the vertical depth of the battery-plate and adapted to receive and fit closely upon the latter; the outer edges of said bridge-piece being adapted to bear against the walls of the coil, while the inner edges bear against the sides of the plate, substantially as described.

701,919. LAMP-BURNER. STEPHEN S. HOGAN, Rahway, N. J. Filed Aug. 21, 1891. Serial No. 73,795. (No model.)



Claim.—1. In a central-draft burner a wick and an air-distributor having an inwardly-extending flange or rim resting upon the wick and supported by the wick whereby the distributor will be raised and lowered by the wick, substantially as described.

2. In a central-draft burner, the combination of wick-casing tubes and a wick therebetween with a perforated air-distributor having an inwardly-extending flange or rim resting upon the wick when the latter is raised above the tubes and acting as an extinguisher by closing the space between the tubes when the wick is turned down, the distributor being provided with a depending guide guided to travel along the tube to direct the vertical movement of the distributor when raised or lowered by the wick, substantially as described.

3. As an article of manufacture, a perforated air-distributor for a lamp or stove having a flange or rim to overlie a wick, said flange or rim having grooves providing spaces between the wick and the flange or rim to receive gas or vapor, substantially as described.

701,920. BOLSTER FOR RAILWAY-CARS. GEORGE C. MURRAY, Chicago, Ill. Filed Mar. 4, 1904. Serial No. 57,355. (No model.)



Claim.—1. In a bolster of the class described, the combination of a compression member provided with box-shaped ends open at the top, a tension member passed through the box-shaped ends and around the end of the top portion, and an interposed strut, substantially as described.

2. In a bolster of the class described, the combination of a compression member formed of cast metal with box-like ends open for a portion of the top at the extreme ends thereof and returned downwardly and backwardly in a V-shaped manner to strengthen the box at each point, a compression member formed of plate metal passed through the box around and up over the return-ends of the compression member, and an interposed strut, substantially as described.

3. In mechanisms of the class described, the combination of a compression member provided with a box-shaped end with return-ends, a tension member of less length than the length of the compression member passed through the box-shaped portion and around the return-ends of the bolster, substantially as described.

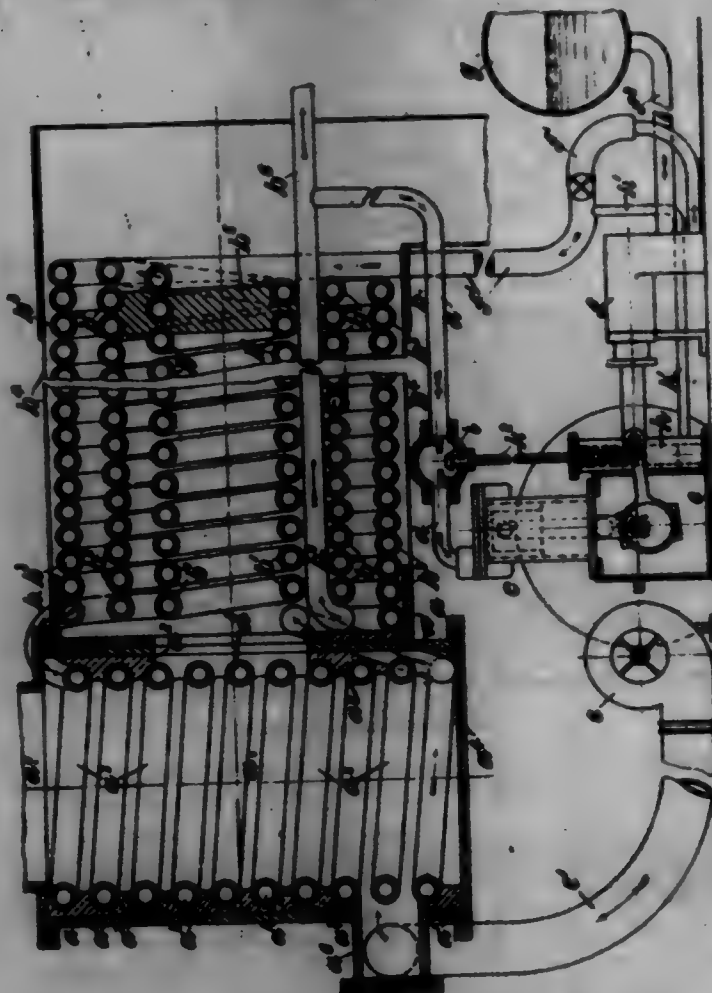
4. In mechanisms of the class described, the combination of a compression member formed of a central longitudinal web portion, laterally-integral flanges thereon extending beyond the ends of the web portion, a tension member passed around and above the ends of the web of the

compression portion and secured thereto, and an interposed strut, substantially as described.

3. In mechanism of the class described, the combination of a compression member formed of a longitudinal central web portion, integral flange extending downwardly and longitudinally thereof and beyond the ends of the web portion and connected together at their bottom and extreme end portions, a tension member of plate metal passed through the apertures at the ends of the compression member upwardly and around the ends of the web portion thereof to which it is secured, and an interposed strut, substantially as described.

4. In mechanism of the class described, the combination of a compression member formed of a central web portion, integral flange extending downwardly from the lateral edges longitudinally thereof and beyond the ends of the web portion and joined together at the bottom and end portions thereof in one integral casting and provided with an integral strengthening return-head flanged fillet where the ends of the web connect with the box-shaped ends, a tension member formed of plate metal passed through the box-shaped ends upwardly and around the return-head fillet of the web and to which it is secured, and an interposed strut substantially as described.

701,921. CONTROLLING THE GENERATION OF STEAM. OWAS HUNTER, ARTHUR HUNTER, and WILLIAM G. HAY, Liverpool, England. Filed Oct. 26, 1900. Serial No. 34,302. (No model.)

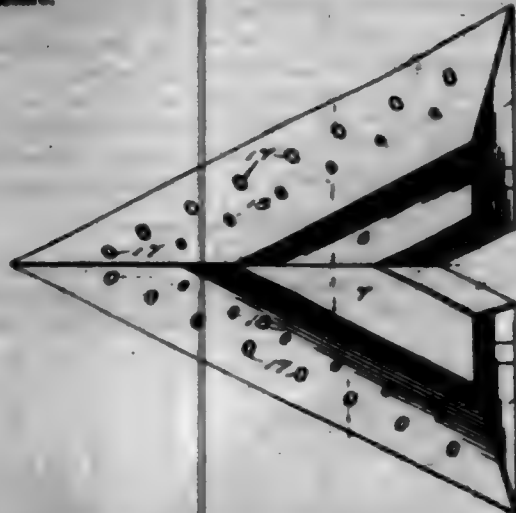


Claim.—In steam-power machinery, wherein the rate of generation of steam is automatically governed, the combination of a steam-generator, comprising a plurality of annular coils *b* *b'* *b''*; a closed furnace *a* adapted to receive and have solid fuel burned within it, in direct connection with the heating-space about said coils; an auxiliary steam-motor *c*; a pipe *d* connected with the steam-supply pipe of the generator, for supplying steam to the motor *c*; controlling-valve *e* on said pipe *d*; a pressure-governor *f* actuated by the pressure within the steam-generator, connected with and adapted to operate the valve *e*; a pipe *h* connecting said pressure-governor with a suitable pipe connected with the steam-generator and subject to the pressure thereof; an air-supplying fan *g* and feed-water pump *g'*, both driven by the auxiliary motor *c*; and conduits *i* and *j* connecting the fan with the closed furnace *a*, and the pump with the steam-coils of the steam-generator respectively; substantially as herein set forth.

701,922. CONSTRUCTION OF PORTS. PETER J. NELSON, Baltimore, Md. Filed Aug. 21, 1901. Serial No. 73,837. (No model.)

Claim.—1. A fortification structure having its roof and side walls inclined at varying angles, a platform within the structure, a plurality of

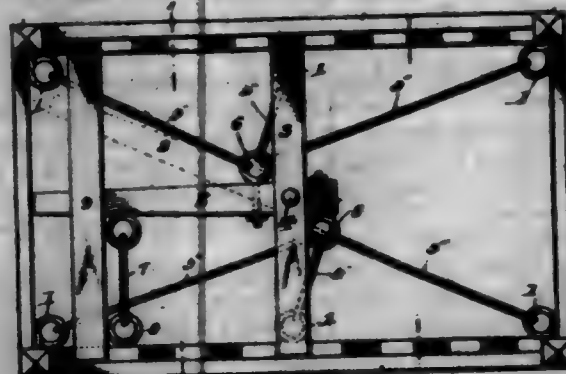
rows of port-holes and a search-light having an electric connection with the structure.



2. A fortification structure comprising a base of masonry and inclined top and sides formed of a composite plate consisting of inner and outer layers of steel, a layer of paper adjoining the inner steel layer and a layer of rubber interposed between the outer steel layer and the layer of paper.

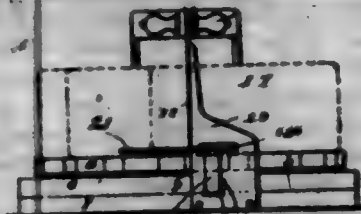
3. A fortification structure comprising oppositely-inclined side walls, a roof inclined at different angles, thereby avoiding the exposure of flat surfaces to the fire of the enemy, a platform located within the structure and tracks adjacent to said platform for the transportation of ammunition.

701,928. BED-MACHINE. WILLIAM D. NEWMAN, Toledo, Ill. Filed Aug. 1, 1902. Serial No. 26,578. (No model.)



Claim.—The combination of a bedstead having a centrally-arranged distal, the lever 2 permanently pivoted to the central distal and located wholly beneath the same and projecting beyond each side of the distal, the transversely-disposed cylinder passing through the lever at opposite sides of the central distal and having their eyes located at the opposite edges of the lever, the diagonal and transverse brace-rods 5, located wholly beneath the distal and provided at their ends with eyes, the lower eyes being linked into the eyes of the lever, permanently connected with the latter, the eyes 1 located at opposite sides of the bedstead at the center and at the ends of the same and receiving the outer eyes of the brace-rods and permanently securing the same to the bedstead, and the locking device also located wholly beneath the distal and consisting of the rod 7 hinged at its inner end to the lever and provided at its outer end with a hook, and an eye mounted on the bedstead at one side thereof and arranged to be engaged by the hook, substantially as described.

701,924. CHEESE-CUTTER. RUEL FROST, San Antonio, Tex. Filed Sept. 9, 1901. Serial No. 74,770. (No model.)



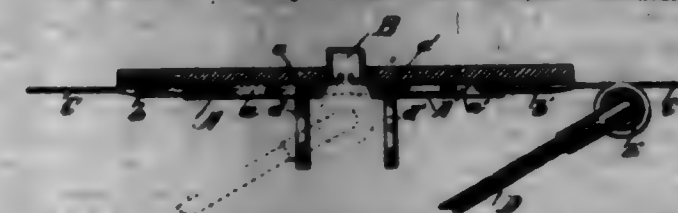
Claim.—1. In a cheese-cutter, the combination with a rotatable platform and a knife, of a radially-movable scale-plate bearing against the cheese on one side of the knife, and an extension of the scale-plate bearing against the cheese on the other side of the knife.

2. In a cheese-cutter, in combination, a stationary platform having brackets thereon, a rotatable platform thereon, knife-bars pivoted upon

said brackets, a knife attached to the knife-bars, and an expanding belt between the knife-bars adapted to cause them to bind at the pivot, against said brackets.

3. In a cheese-cutter, in combination, a stationary platform, a rotatable platform thereon, a yielding radially-slidable bar supported on the stationary platform, a scale-plate carried by the bar and adapted to bear against the side of the cheese, and a knife pivoted to the stationary platform.

701,925. TROLLEY-CROSSOVER. THOMAS NORTH, ARDEN, Ill. assignor to Wheeler Manufacturing Company, Arden, Ill., a Corporation of Illinois. Filed Sept. 4, 1901. Serial No. 74,590. (No model.)



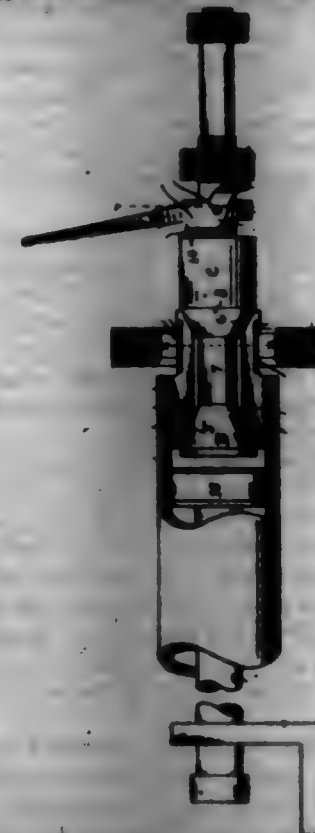
Claim.—1. The combination with the plate *A* having depending sides *a* and intermediate ribs *c*, of means for attaching at one end a trolley-wire, and a springing rod *d* located near the opposite end of the plate between the ribs *c* and held in place by a pin *e* passing through it and through said ribs, substantially as specified.

2. The combination with the plate *A* provided with ribs *c*, of means for attaching at one end a trolley-wire, and a springing rod located near the opposite end of the plate between the ribs *c* and held in place by a pin *e* passing through it and through said ribs, substantially as described.

3. In combination, a plate having a socket at one end adapted to receive a trolley-wire, ribs integral with the plate, a rod, and a pin passing through the rod and ribs for pivotally connecting the former to the latter.

4. In combination, a plate, ribs integral therewith, means for attaching one end of a trolley-wire to the plate, a springing rod, and means for pivotally connecting the rod between the ribs.

701,926. TUBE-DRAWING GRIP. HENRY OVERMANN, Toledo, Ohio. Filed June 12, 1901. Serial No. 64,525. (No model.)

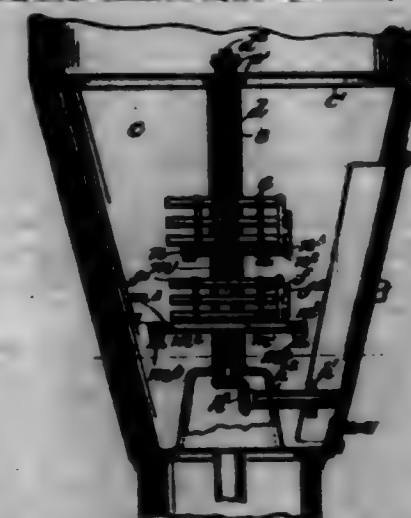


Claim.—1. A tube-drawing grip comprising an expandable sleeve formed of a plurality of sections held assembled around a pull-rod by an annular spring, the sleeve so formed having an external diameter to freely enter the open end of a tube and provided with exterior corrugations and internal conical counterbores at both ends, a central pulling-pipe on the rear end of the pull-rod, tapered to enter the conical bore of one end of the grip-sleeve, a plug-sleeve mounted upon the pull-rod and movable thereon, and provided with a conical shoulder to enter the conical bore of the opposite end of the grip-sleeve, and means mounted upon the pull-rod to simultaneously urge the plug-sleeve and the pulling-pipe into the conical counterbores of the grip-sleeve, to expand it to grip the tube.

2. In an internal grip for tube-drawing, the combination with a pull-rod, provided with a conical pulling-head at the rear end, and with a shoulder adjacent thereto, of a plug-sleeve movably mounted on the rail between the head and the shoulder, having a conical shoulder facing the conical pulling-head, an expandable grip-sleeve mounted on the pull-rod between the pulling-head and plug-sleeve, comprising a plurality of sections held yieldingly assembled by an annular spring around the circumference of the sleeve, the grip-sleeve being provided with internal corrugations for a portion of its length and with a conical counterbore at each end, adapted to receive the conical pulling-head at one end and the conical shoulder of the plug-sleeve at the other, a collar movably mounted on the pull-rod between the plug-sleeve and the rod-shoulder, and a lever pivotally mounted on the collar, having cams adapted to simultaneously engage the front end of the plug-sleeve and the rod-shoulder, and to force the plug-sleeve and pull-rod in opposite directions by the throw of the lever, substantially as shown and described, and for the purpose set forth.

3. In an internal grip for drawing tubes, the combination of a plurality of complementary longitudinal sections forming, when assembled, a conical tubular sleeve having an internal conical counterbore at each end, and external annular corrugations for a part of its length, and a reduced diameter for the remainder of its length, the reduced portion being provided with an internal annular groove, and an annular spring in the groove around the sections, adapted to yieldingly hold them assembled, substantially as shown and described, and for the purpose set forth.

701,927. MINE-EXPLOSION-APPARATUS. JOHN PAULI, Hoboken, N. J., assignor to the Knott & Burr Company, a Corporation of New Jersey. Filed Dec. 2, 1901. Serial No. 64,600. (No model.)



Claim.—1. In a mine-explosion-apparatus, the combination with a chamber, of a magnet-tray in said chamber composed of a plurality of parts one of which parts is mounted to be adjusted circumferentially on and relatively to another, a frame mounted on said adjustable part and provided with a plurality of tubes having means by which one end of each of the same may be opened and closed, magnets in said tubes, a threaded adjusting-rod extending through said tray, and means for adjusting said tray relatively to said rod, comprising a sleeve carried by the tray and threaded upon said rod and an actuating means for said rod extending to an easily-accessible place.

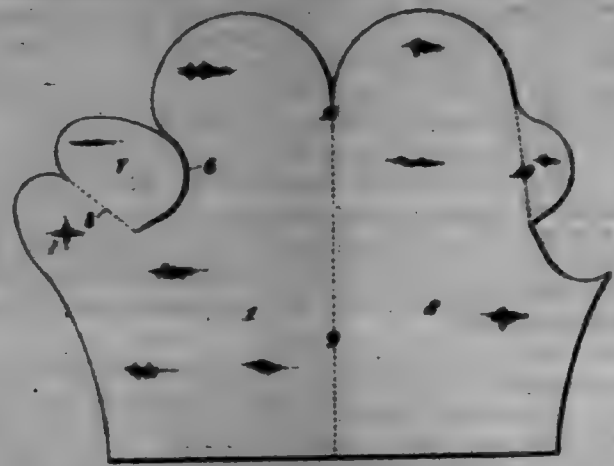
2. In a mine-explosion-apparatus, the combination with a tube and a heating-magnet therein, of a magnet-tray, composed of a plurality of parts of which one is mounted to be adjusted circumferentially with respect to another, magnets carried by said adjustable part and means for adjusting said tray and the latter magnets vertically, said adjusting means being independent of the tube of the heating-magnet.

3. In a mine-explosion-apparatus, the combination with a tube and a heating-magnet therein, of a magnet-tray; means for adjusting said tray relative to said tube, said adjusting means comprising a threaded rod, means for rotating the same and a sleeve extending from the tray and threaded upon said rod; said tray being composed of a plurality of parts of which one is adjustable circumferentially relative to another; and magnets carried by the latter part.

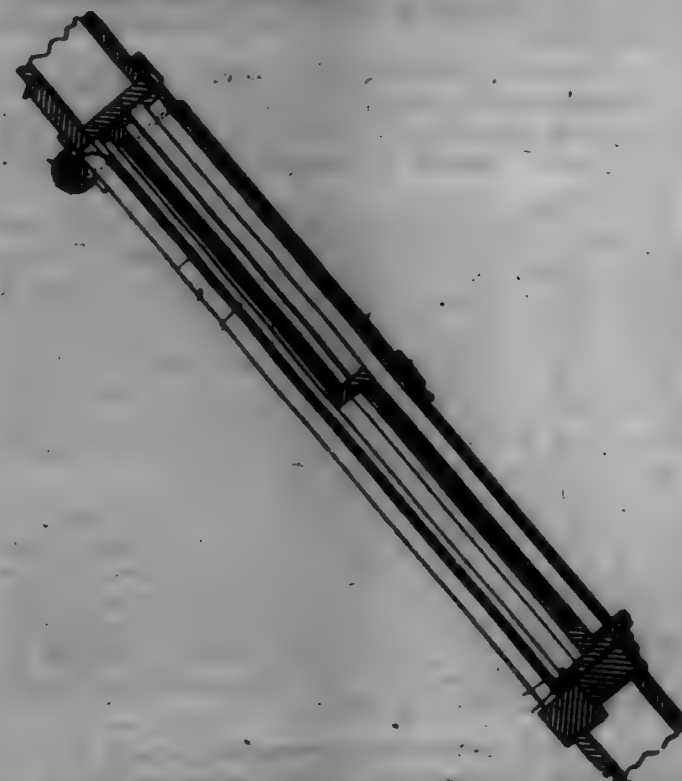
4. In combination with a heating-magnet, a suspending means therefor embracing chain-pulley mounted upon a rotatable bracket on the wall of the magnet-chamber, the bracket being provided with ears or steps whereby its rotation in a downward direction beyond a predetermined horizontal plane is prevented.

5. In a mine-explosion-apparatus, the combination of two magnet-carrying trays one of which has an opening into or through which the other may pass, and means for adjusting said magnet-carrying trays relative to each other.

1. A mitten constructed of a single piece of material and consisting of two portions having their lower ends straight and their upper ends semicircular, one of said portions having a recess, a thumb-piece having a rounded outer end, and a thumb-flap having a rounded outer end and integrally united to the thumb-piece at the inner margin of the latter, and having a rounded inner end produced in the formation of said recess, the other portion having a recess to receive the inner rounded end of said flap and a projection to enter the recess of the first-named portion, stitches uniting the edges of said portions from their lower margins to the meeting points of said thumb-piece and flap, stitches uniting the rounded inner end of the thumb-flap to the portion containing the recess in which the rounded inner end of said thumb-flap fits, and stitches uniting the edges of said portions around their semicircular ends and around the projection and recess to the junction with the thumb, all arranged substantially as and for the purpose set forth.



701,989. WINDOW-SCREEN. JOHN E. RANKIN, Verona, N. J. Filed Jan. 14, 1902. Serial No. 86,126. (No model.)

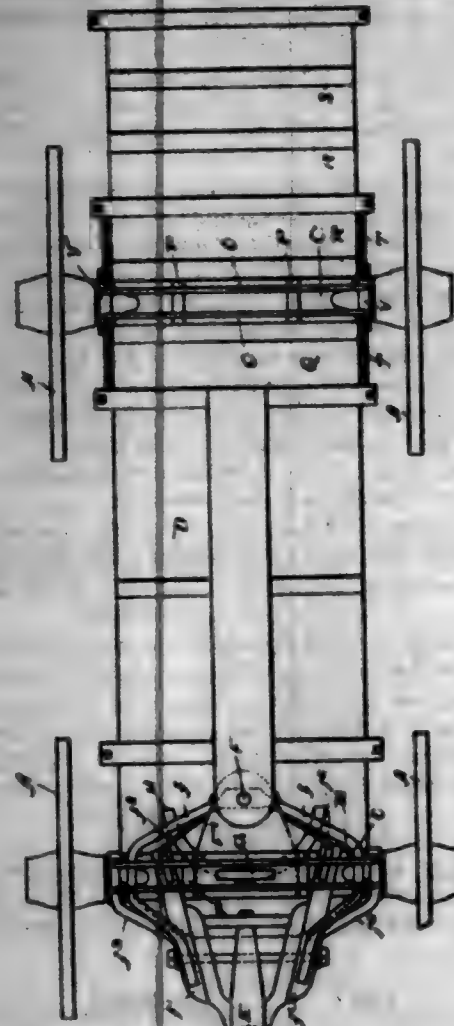


Claim.—1. The combination with a window, of a screen arranged on the exterior of the window and extending from the top to the bottom thereof, a roll arranged at the top of the window and receiving the screen and adapted to have the same wound on it, an operating-cord reversely wound on the roll and adapted to be drawn outward to wind up the screen, a belt mounted on the window at the bottom thereof and extending through an opening of the bottom of the screen and provided with a notch engaged by the said screen whereby the belt is prevented from being forced inward from the exterior when the screen is under tension, and means for securing the cord under tension, substantially as described.

2. The combination with a window, of a screen arranged on the exterior of the window and extending from the top to the bottom thereof, a roll arranged at the top of the window and receiving the screen and adapted to have the same wound on it, a movable locking device engaging the screen at the bottom of the window, an operating-cord reversely wound on the roll and adapted to be drawn outward to wind up the screen, and means mounted on the interior of the window for holding the oper-

ating-cord under tension, whereby the bottom of the screen will be positively maintained in engagement with the locking device to prevent the latter from being operated from the exterior of the window, substantially as described.

701,988. WAGON. RICHARD B. RAYMOND, Detroit, Mich., assignor to William G. Raymond, Charles E. Smith, and Samuel E. Smith, Detroit, Mich. Filed June 4, 1902. Serial No. 561,000. (No model.)



Claim.—1. The wagon having a front axle swivelled upon a king-bolt located in the rear of the axle, and also having a roller supported in the axle and adapted to sustain the weight of the wagon-body, substantially as specified.

2. The four-wheeled roadless wagon having a front axle swivelled upon a king-bolt located in the rear of the axle, and secured in the box or platform, and having its box or platform extended over and supported upon the front axle and also fixed to and incapable of vertical movement on the rear axle, substantially as specified.

3. The four-wheeled roadless wagon the box or platform whereof is rigidly attached to the rear axle, and is also joined to the front axle by a king-bolt located in the rear of the latter, the box or platform being supported from the front axle by a pivoted roller carried on that axle, substantially as specified.

4. The roadless wagon having its front axle swivelled upon a king-bolt located in the rear of the axle, and also having a roller pivoted in the axle and adapted to sustain the weight of the body, substantially as specified.

5. The wagon wherein are combined the front axle, the plate or frame F, the roller let into the axle and plate, and means for supporting the roller and attaching the plate or frame to the axle, substantially as specified.

6. The wagon wherein are combined the swivelled front axle, the king-bolt located back of the axle, plate or frame F, the yoke f and beams f' joined to the axle, substantially as specified.

7. The combination in an axle of a wide wood body, parallel transverse, and a roller G let into the body at the central longitudinal plane thereof, substantially as specified.

8. The combination of the wagon-body having the side standards U, of the rear axle, and the bolts extending from the axle and engaging said standards, substantially as specified.

9. The combination of the wagon-body having the side standards U, of the rear axle, and the bolts extending from the axle and detachably engaging said standards, substantially as specified.

10. The combination of the wagon-body having three or more standards U upon each side, of the rear axle and bolts T, T', extending from

the axle to the standards and having their ends fashioned to detachably engage said standards, substantially as specified.

11. The combination of the wagon-body having the side standards U, of the rear axle, the plate V, and the bolts passing through said plate and engaging said standards, substantially as specified.

701,984. TUFF-YARN SPOOL FOR TUFTED-FIRE-FABRIC. LOUISA JEAN F. KIDNEY, Clinton, Mass. Filed Mar. 11, 1901. Serial No. 59,800. (No model.)

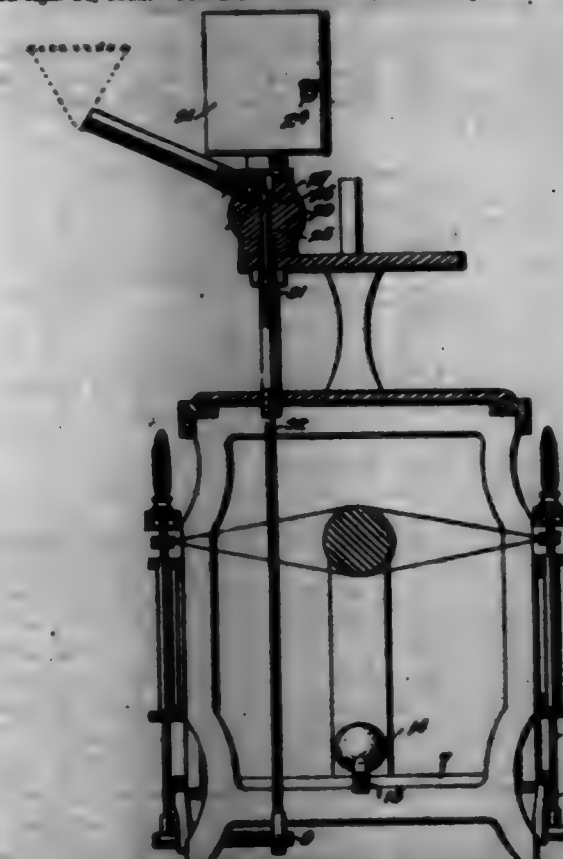
Claim.—1. In a construction for supplying differently-colored yarns to a loom for weaving tufted fabric, the combination of spool-sections having yarns supplied from the same yarn ends wound upon each of said spool-sections, so that said sections will have the same sequence of colors thereon, said sections being connected together so as to be independently rotatable.

2. In a construction for supplying differently-colored yarns to a loom for weaving tufted fabric, the combination of two independently-rotatable spool-sections having yarns of the same sequence of colors wound thereon, said spool-sections being journaled in line with each other, so that the color sequences on said spool-sections will be symmetrical with respect to the adjacent ends of the spool-sections, and said spool-sections being arranged to turn in opposite directions when supplying yarns for a design symmetrical with respect to its center line, substantially as described.

3. In a construction for supplying differently-colored yarns to a loom for weaving tufted fabric, the combination of spool-sections, a device for connecting said spool-sections so that they may rotate or turn independently of each other, and spool-heads adapted to be detachably connected to the ends of the spool-sections, substantially as described.

4. In a construction for supplying differently-colored yarns to a loom for weaving tufted fabric, the combination of spool-sections, a device for connecting the spool-sections, detachable heads having spindles fitting into the sockets in the ends of the spool-sections, and split spring-rings fitted into the spool-sections for engaging grooves in the connecting-device and spool-head spindles to detachably secure the parts together, substantially as described.

701,985. REGISTER. RICHARD C. KENNEDY, Lexington, N. C. Filed Apr. 14, 1902. Serial No. 102,994. (No model.)



Claim.—1. A defter-register for spinning-frames, comprising a casing having a vertically-disposed passage, a receiving-chamber in communication with the upper end of said passage, a ball-feed tube communicating with said passage, and a vertically-disposed rod guided in said passage, said rod having an operative connection with the ring-roll-actuating mechanism.

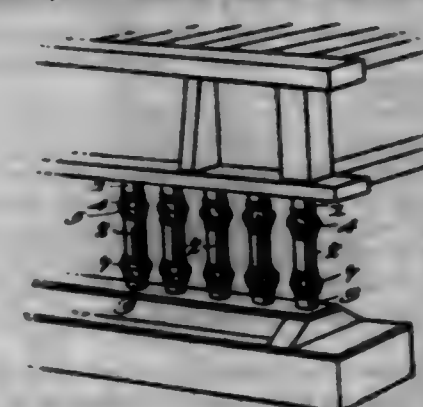
2. The combination with a spinning-frame including a ring-roll and its actuating mechanism, of a registering device comprising a casing hav-

ing a vertically-disposed passage provided with a ball-out, a ball-supply tube in communication with said passage at a point above the ball-out, registering-balls in said tube, a receiving-chamber in communication with the upper end of the vertical passage, and a vertically-disposed rod guided in said passage, said rod having an operative connection with the ring-roll-actuating mechanism.

3. The combination with a spinning-frame including a ring-roll and its actuating mechanism, of a registering device comprising a casing having a vertically-disposed passage provided with a ball-out, a ball-feed tube in communication with said passage at a point directly above the ball-out and so situated that a ball supported on the cast will prevent the passage of a succeeding ball from the tube, a receiving-chamber in communication with the upper end of said passage, the bottom of said chamber being situated at a point below the open top of the passage, and a vertically-disposed rod guided within said passage, said rod having an operative connection with the ring-roll-actuating mechanism, and its upper end being movable to a point below the valve-out each time the ring-roll is moved to drafting position.

4. A registering device comprising a casing having a vertically-disposed passage provided with a ball-out, a ball-feed tube in communication with a ball-receiving chamber, a ball-feed passage opening into the vertical passage at a point immediately above the ball-out, registering-balls, and a vertical rod disposed within the vertical passage, said rod having a reciprocating movement from a point below the ball-out to a point above the upper end of the vertical passage, substantially as specified.

701,986. SPOUT FOR FLOUR-SEIFERS. RICHARD C. KENNEDY, Northwood, Iowa. Filed Jan. 11, 1902. Serial No. 59,801. (No model.)



Claim.—1. A spout for flour-seifers, comprising a plurality of inflexible tubular sections, and flexible joint members, of double conical form connecting the inflexible tubular sections together, substantially as described.

2. In a flour-seifer spout, the combination of a flexible joint member comprising a pair of truncated conical sections of flexible material having their bases joined together and inflexible tubular sections having their ends secured to the truncated portions of the flexible sections, substantially as described.

3. In a flour-seifer spout, the combination of a flexible joint member comprising a pair of truncated conical sections of flexible material having their bases joined together and having their truncated portions provided with collars, and inflexible tubular sections having their ends secured in the said collars, substantially as described.

4. In a flour-seifer spout, the combination of a flexible joint member comprising a pair of truncated conical sections made of leather, having their bases joined together and provided at their truncated portions with collars, and inflexible tubular sections having their ends secured in the said collars, substantially as described.

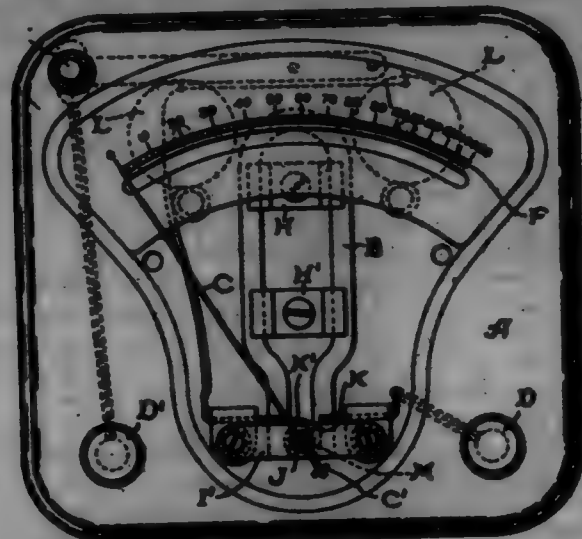
5. A flour-seifer spout comprising a plurality of inflexible tubular sections and flexible non-collapse joint members in which the opposing ends of the inflexible tubular sections are attached, the said flexible non-collapse joint members being of greater diameter than said tubular sections at points intermediate the ends of the latter, substantially as described.

701,987. INDICATING INSTRUMENT. LEWIS T. KENNEDY, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Nov. 20, 1900. Serial No. 737,006. (No model.)

Claim.—1. As a means of producing restoring torque in an indicating instrument, a strip of magnetic material magnetized above the head of the sinusoidal curve.

2. The combination in an electrical measuring instrument of a field-magnet, a deflecting mechanism, and a thin strip of magnetic material magnetized above the head of the sinusoidal curve.

2. The combination in an electrical measuring instrument of a field-magnet, a deflecting mechanism, and a thin strip of magnetic material too small to seriously distort the field.



4. The combination in an electrical measuring instrument of a field-magnet, a deflecting mechanism, and a thin strip of magnetic material proportioned so as to cause a distortion of the field so small that its variation with variation in flux will not seriously affect the reading of the instrument.

5. In an electrical measuring instrument, the combination of a field-magnet structure, a deflecting-coil, and a strip of magnetic material working in the field of the magnet, the said strip being thin and of such a width as to present an air-gap between the strip and the magnet large in proportion to the width of the strip.

6. A magnetic returning device for instruments, consisting of a body of non-magnetic metal, wholly or partially covered with magnetic metal.

7. In an electric measuring instrument, the combination of an electro field-magnet, a coil traversed by current from the circuit to be measured, a piece of magnetic material having a support in common with the coil, and acted upon by the same source of flux as the coil, for returning the moving system to zero when current ceases to flow in the coil, and a piece of good conducting material carried by the moving system to damp the oscillations.

8. In an electric measuring instrument, the combination of a pair of iron field-magnets forming an astatic couple, pole-pieces for the magnets separated from each other by small air-gaps, a flat coil mounted for movement between the pole-pieces, and a piece of iron located within the interstices of the pole-pieces for returning the moving coil to zero.

9. In an electric measuring instrument, the combination of two iron field-magnets arranged to form an astatic couple, pole-pieces for the magnets, separated by a small air-gap, a coil mounted on a shaft and at an angle thereto, and adapted to move between the pole-pieces, a magnetic return mechanism mounted on the coil-shaft and acted upon by the same magnets which move the coil, the arrangement of parts being such that the portion of the field-flux tending to move the coil is greater than the portion of the field-flux acting upon the magnetic return mechanism.

10. In an electric measuring instrument, the combination of a moving coil mounted on a shaft, a pair of field-magnets arranged to form an astatic combination, and situated with their poles above and below the moving coil and in close proximity thereto, and a magnetic return mechanism, situated between the pair of field-magnets, and acted upon by a flux which is at right angles to the main field-flux; the arrangement being such that both the coil and magnetic return mechanism are correspondingly acted upon by changes in field strength.

11. In an electric measuring instrument, the combination of a pair of iron field-magnets arranged to form an astatic combination, conical pole-pieces for the magnets, a coil mounted at an angle to its supporting-shaft, and moving between the pole-pieces, a magnetic return mechanism located between the pair of poles for returning the moving system to zero, and means for directing a portion of the field-flux so that it will pass through the magnetic return mechanism.

12. In an electrical measuring instrument, the combination of a pair of field-magnets arranged to form an astatic combination, a motor mechanism situated in one portion of the field, and a magnetic return mechanism situated in another portion of the field, the strength of which differs from the first-mentioned portion; the arrangement of parts being such that the motor and return mechanism are correspondingly acted upon by changes in field strength.

13. In an ammeter, a moving coil carried in series with the main current and a field-coil having means carried in multiple with the main current and a magnetic return piece for the moving coil.

14. In an electric measuring instrument, the combination of a pair of magnets united to form an astatic combination, a coil system mounted for movement between the poles of both magnets, and a magnetic return mounted for movement in the flux between the magnets the moving coil and magnetic return being alike subject to changes in strength of the field-magnet.

15. In an electric measuring instrument, the combination of a pair of magnets united to form an astatic combination, a moving coil system mounted for movement between the poles of both magnets, and a pair of magnetic return-strips, one of which is situated above the coil and the other below the coil, for returning the coil to its initial position; the field-flux in which the said return-strips are located being subjected to changes corresponding to those in the field-magnet.

16. In an electric measuring instrument, the combination of a magnet, a moving-coil system mounted for movement between the poles of the magnet, a shaft for supporting the moving-coil system, and magnetic return-strips for returning the moving system to zero, which are mounted in slots cut in the coil-shaft.

17. In an electric measuring instrument, the combination of a magnet, a coil system mounted for movement between the poles of the magnet, a damping-disk situated between the coil and the pole-face of the magnet, which extends beyond the outer periphery of the pole-face, and a magnetic return mechanism for the moving coil.

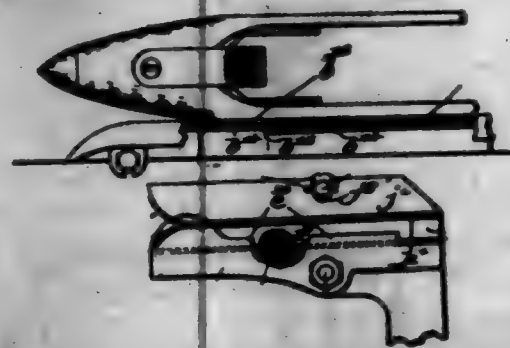
18. In an electric measuring instrument, the combination of a pair of magnets united to form an astatic combination, a coil system mounted for movement between the poles of both magnets, damping-disks situated between the coil and the pole-faces, which extend beyond the pole-faces at all points, and a magnetic return mechanism for the moving coil.

19. In an electric measuring instrument, the combination of a pair of magnets united to form an astatic combination, each magnet comprising two parallel cores with conical pole-pieces for the cores.

20. In an electric measuring instrument, the combination of a pair of magnets united to form an astatic combination, each magnet comprising two parallel cores with conical pole-pieces for the cores, and an energizing-coil wound on each core.

21. In an electric measuring instrument, the combination of a pair of electromagnets united to form an astatic combination, a coil mounted for movement between the poles of both magnets, parallel cores for each magnet, energizing-coils for the magnets, detachable conical pole-pieces for the cores, and classified portions on the cores, so arranged that they direct the direction of the field-flux.

701,988. THREAD-STARTING MECHANISM FOR LOOMS. GRAS F. BARN, Bepaisin, Mass., assignor to Ingers Company, Bepaisin, Mass., a Corporation of Maine. Filed Jan. 9, 1902. Serial No. 22,974. (No model.)



Claim.—1. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, means to act upon the thread of the filling-supply to be abandoned and clamp it at the shuttle, and means operative upon replenishment of filling to part the thread so clamped.

2. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, means to clamp against the shuttle the thread of the filling-supply to be abandoned, and a thread-parting operative upon replenishment of the filling to part the thread so clamped.

3. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, means to clamp, at the shuttle, the thread of the filling-supply to be abandoned, and means bodily movable upon replenishment of filling into position to successively hold and part the thread so clamped.

4. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, a clamp to automatically engage and hold the thread by or through entry of the shuttle into the box, to maintain the thread taut, and a thread-parting operative upon replenishment of filling to part the thread while it is maintained taut.

5. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, having an open-

tured front wall, a friction-clamp to automatically engage the filling-thread through the aperture and clamp it against the shuttle when the latter enters the box, to maintain the thread taut, and means operative upon filling replenishment to part the thread while it is maintained taut.

6. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, a spring-controlled friction-pad to engage and clamp the thread against the side of the shuttle when the latter enters the box, to maintain the thread taut between the shuttle and the cloth, and a thread-parting movable into position to part the thread upon filling replenishment.

7. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, having an aperture front wall, a spring-controlled friction-pad mounted on the latter and adapted to enter the aperture and clamp the thread against the shuttle when taut, to maintain the thread taut, and a thread-parting to part the thread upon filling replenishment.

8. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, a spring-controlled device to act upon the thread of the filling-supply to be abandoned and hold it against the shuttle when the latter is taut, to maintain the thread taut, a thread-parting and a thread-clamp, arranged in juxtaposition and movable upon filling replenishment into position to act upon the thread, and means to maintain the clamp and thereafter the parting, to part the thread between the clamp and the holding device.

9. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, the lay, a shuttle-box thereon, and means operative when the shuttle enters the box to hold the thread against the shuttle and maintain the thread taut between the shuttle and the cloth.

10. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, means to hold, at the shuttle, the thread of the filling supply to be abandoned, means operative upon filling replenishment to part the thread while maintained taut, and a thread-clamp to engage the thread between the cloth and the thread-parting.

11. In an automatic filling-replenishing loom, a temple thread-cutter, means to clamp the thread against the shuttle when the latter is taut, and thereby maintain the thread taut between the shuttle and the cloth, a thread parting and clamping device operative upon filling replenishment to clamp the thread and part it, the return of said device to normal position carrying the thread off held thereby, into the range of the temple thread-cutter, and means to effect movement of said device into and out of operative position.

12. In a loom provided with automatic filling-replenishing mechanism, a temple thread-cutter, means to act upon the thread of the filling-supply to be abandoned, to clamp and part the thread near the shuttle and thereafter to bring the thread while clamped into the range of the temple thread-cutter, and a thread-clamp to hold the piece of filling when parted by the latter, said thread-clamp comprising opposed jaws one of which is longitudinally movable relative to the other, means to intermittently effect such relative movement of the jaws, the latter having roughened opposed faces and smooth, facing entrance ends, and a guard at the entrance of said jaws to prevent premature entrance of the thread therebetween.

13. A thread-cutter for automatic filling-replenishing looms, comprising two opposed jaws relatively movable in the direction of their length, a support for the lower jaw upon which it can tilt, the upper jaw resting on the lower jaw, and means to effect relative longitudinal movement of the jaws.

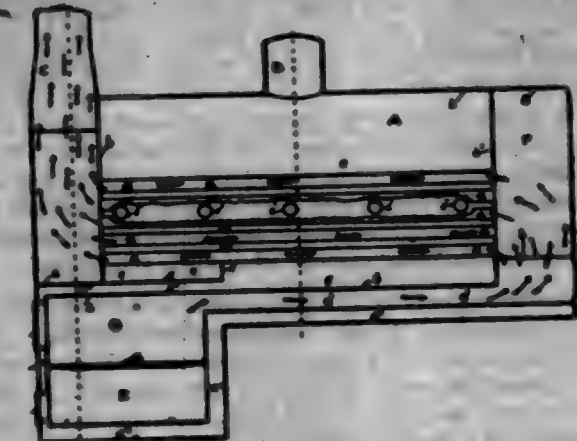
14. In a thread-cutter for automatic filling-replenishing looms, a fixed support, a lower jaw mounted thereupon to tilt and having a roughened upper surface, an opposed upper jaw having its under surface roughened and resting upon the lower jaw, and means to engage the upper jaw and move it longitudinally.

15. In a thread-cutter for automatic filling-replenishing looms, a fixed support having longitudinally-movable raised sides forming a thread-guard at one end, a lower jaw mounted to tilt on said support between the raised sides thereof, an upper jaw resting on the lower jaw, and means to move said upper jaw longitudinally, the entrance ends of the jaws being faced adjacent to the thread-guard.

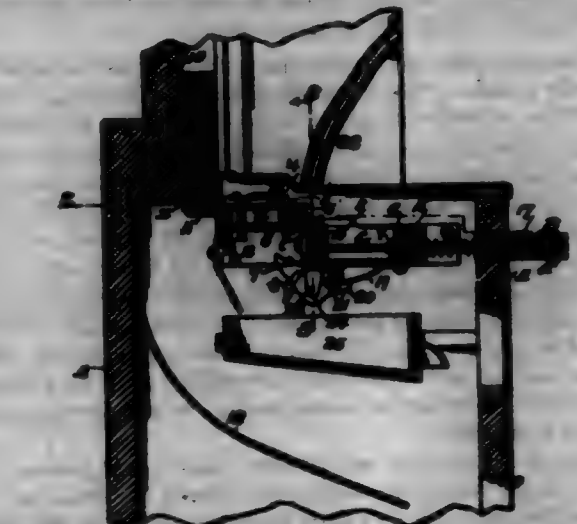
701,989. BOLLER. JAMES F. BELL, Bakers, Iowa. Filed July 4, 1901. Serial No. 27,321. (No model.)

Claim.—The combination with the shell of a boiler, the lower or inner surface thereof forming the upper part or covering of the fire-box underneath said boiler, a smoke-chest at the end of said boiler over the fire-box, flues connecting said smoke-chest with a space or compartment at the opposite end of said boiler, of a fire-box under one end of said boiler, a shallow chamber of the same shape as the lower part of the boiler covering the lower circumference of the boiler and freely communicating with the fire-box and space in front of the boiler, a water-chamber underneath

said shallow chamber extending upon the sides of the boiler and around said fire-box, said water-chamber having free communication with the water-space of the boiler through openings in the sides thereof, substantially as described.



701,940. COIN-CONTROLLED MACHINE. WILLIAM W. BOWEN, New York, N. Y., assignor to the Remond Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Aug. 12, 1901. Serial No. 94,692. (No model.)



Claim.—1. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a yielding support along which the coin is moved by the slide during the delivery movement of the delivery-slide, said support being provided with a stop preventing the passage of the coin during the delivery movement but preventing retrograde movement thereof, means opposed to the support for engaging the edge of the coin to hold it in engagement with the support and adapted to engage the face of a wider coin to prevent operation of the machine, and connections between the two slides for returning the delivery-slide to normal position after the operating-slide is partially returned, whereby the pressure of the two slides upon the coin is released before the return of the delivery-slide, substantially as described.

2. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a yielding support along which the coin is moved by the slide during the delivery movement of the delivery-slide, said support being provided with a series of steps permitting the passage of the coin during the delivery movement but preventing retrograde movement thereof, means opposed to the support for engaging the edge of the coin to hold it in engagement with the support and adapted to engage the face of a wider coin to prevent operation of the machine, and connections between the two slides for returning the delivery-slide to normal position after the operating-slide is partially returned, whereby the pressure of the two slides upon the coin is released before the return of the delivery-slide, substantially as described.

3. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a pocket in the delivery-slide for receiving the coin, a support along which the coin is moved by the slide during the delivery movement of the delivery-slide, said support being provided with a slit in the wall with the pocket for the passage of a thin coin and with a stop projecting into the path of movement of the coin and adapted to be depressed thereby during the delivery movement and to then return to normal position to prevent retrograde movement of the coin, and con-

connections between the two slides whereby the delivery-slide is returned to normal position by the operating-slide, substantially as described.

4. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a pocket in the delivery-slide for receiving the coin and open at its rear end for the discharge of a narrow coin, a support along which the coin is moved by the slides during the delivery movement of the delivery-slide, said support being provided with a slit in line with the coin-pocket for the passage of a thin coin and with a stop projecting into the path of movement of the coin and adapted to be depressed thereby during the delivery movement and to then return to normal position to prevent retrograde movement of the coin, and connections between the two slides whereby the delivery-slide is returned to normal position by the operating-slide, substantially as described.

5. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a pocket in the delivery-slide for receiving the coin, a yielding support along which the coin is moved by the slides during the delivery movement of the delivery-slide, said support being provided with a slit in line with the coin-pocket for the passage of a thin coin and with a stop permitting the passage of the coin during the delivery movement but preventing retrograde movement thereof, means opposed to the support for engaging the edge of the coin to hold it in engagement with the support and adapted to engage the face of a wider coin to prevent operation of the machine, and connections between the two slides whereby the delivery-slide is returned to normal position by the operating-slide, substantially as described.

6. The combination with an operating-slide, of a delivery-slide actuated by the pressure of the operating-slide transmitted through a coin interposed between the two, a pocket in the delivery-slide for receiving the coin and open at its rear end for the discharge of a narrow coin, a yielding support along which the coin is moved by the slides during the delivery movement of the delivery-slide, said support being provided with a slit in line with the coin-pocket for the passage of a thin coin and with a stop permitting the passage of the coin during the delivery movement but preventing retrograde movement thereof, means opposed to the support for engaging the edge of the coin to hold it in engagement with the support and adapted to engage the face of a wider coin to prevent operation of the machine, and connections between the two slides whereby the delivery-slide is returned to normal position by the operating-slide, substantially as described.

7. The combination with delivery-slides *a* and operating-slide *c*, of guide-rod *b* passing through the delivery-slide outside the normal path of the coin, but forming a stop for a piece projecting above said path, and coin-supporting yielding table *t* in line with the path of movement of the delivery-slides, substantially as described.

8. The combination with delivery-slides *a*, operating-slide *c*, and the coin-pocket between said slides, of a stop on the coin-receiving side of the coin-pocket and outside the normal path of a coin moving with the delivery-slides, and coin-supporting yielding table *t* in line with the path of movement of the delivery-slides, substantially as described.

9. The combination of an operating member acting through a coin, of a hinged yielding table having an inclined stop and also a slot 23 for a thin coin, substantially as described.

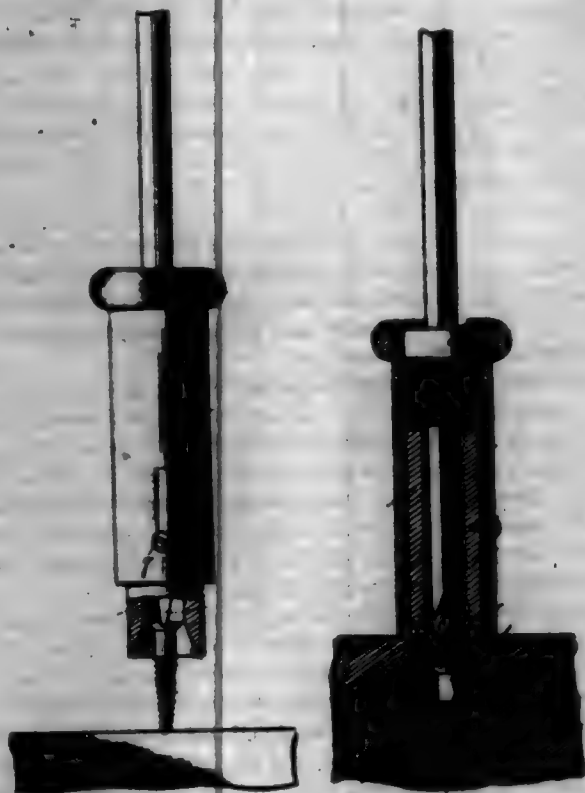
10. The combination with stationary bar 13, of hinged table *t* arranged with slot 23 between the rear edge of the table and the bar, substantially as described.

701,941. SCREW-DRIVER. RUSSELL G. BOWLANN, Boston, Wis. Filed June 26, 1891. Serial No. 69,547. (No model.)

Claim.—1. In a screw-driver, the combination with a rotatable stem having a beveled point, of an external sleeve rotatably embracing the stem, terminated short of the point thereof and fixed against endwise movement toward the point of the stem whereby the sleeve forms a handle for guiding the stem, and an inner endwise-slidable sleeve, which is spring-pressed and has its outer end provided with a screw-head cast, said inner sleeve being yieldingly connected with the external sleeve and arranged to be received wholly within the same.

2. In a screw-driver, the combination with a rotatable stem having a beveled point, of an external sleeve rotatably embracing the stem, terminated short of the point thereof and fixed against endwise movement toward the point of the stem and thereby forming a relatively fixed handle for guiding the stem, there being a longitudinal slot formed in the sleeve, an inner spring-pressed endwise-slidable sleeve mounted within the sleeve and embracing the stem, the outer end of the inner sleeve being provided with a screw-head cast, said inner sleeve normally projecting beyond the external sleeve and adapted to be depressed wholly within the same, and a guide-pin carried by the inner sleeve and work-

ing in the slot of the outer sleeve, the projected end of the pin forming a finger-piece for adjusting the inner sleeve.



3. In a screw-driver, the combination with a rotatable stem, having a beveled point, and a marginal shoulder, of an external sleeve rotatably embracing the shoulder and terminated short of the point of the stem, a cap applied to the inner end of the sleeve and rotatably embracing the shoulder, there being a longitudinal slot formed in the outer end portion of the sleeve, an inner sleeve mounted to slide endwise upon the stem and within the outer sleeve, the outer end of the inner sleeve having a conical screw-head cast, a coiled spring embracing the stem and bearing in opposite directions against the shoulder on the stem and the inner end of the inner sleeve, and a beveled pin projected outwardly from the inner sleeve and working in the slot in the outer sleeve.

4. The combination with a screw-driver bit, of a bit-centering sleeve in which the bit is revolvably mounted and in which it is axially movable, a second sleeve having a limited forward movement with relation to the bit, said bit-centering sleeve normally projecting beyond the other sleeve and capable of being received wholly within the latter, and connections between the sleeves for limiting the movement of the centering-sleeve with relation to the second sleeve.

5. The combination with a screw-driver bit, of a spring-advanced bit-centering sleeve in which the bit is revolvably mounted and in which it is axially movable, a second sleeve embracing the bit-centering sleeve and having a limited forward movement with relation to the bit, said bit-centering sleeve normally projecting beyond the other sleeve and capable of being received wholly within the latter, and connections between the sleeves for limiting the movement of the centering-sleeve with relation to the second sleeve.

6. The combination with a screw-driver bit of a spring-advanced bit-centering sleeve in which the bit is revolvably mounted and in which it is axially movable, a second sleeve having a limited forward movement with relation to the bit, said bit-centering sleeve normally projecting beyond the other sleeve and capable of being received wholly within the latter, and means for indicating the axial position of the centering-sleeve with relation to the second sleeve.

7. The combination with a screw-driver bit, of a spring-advanced bit-centering sleeve in which the bit is revolvably mounted and in which it is axially movable, a second sleeve having a limited forward movement with relation to the bit, and a limiting and indicating connection between said sleeves, for determining the limit of the axial movement of the centering-sleeve independently of the second sleeve, and also for indicating the relative positions of said sleeves, said bit-centering sleeve being normally projected beyond the second sleeve.

8. The combination with a screw-driver bit of a spring-advanced bit-centering sleeve in which the bit is revolvably mounted and in which it is axially movable, a grip including and housing the centering-sleeve, said centering-sleeve normally projecting beyond the grip and held from independent rotary movement while capable of independent axial movement with relation thereto, and a gauge carried by the bit-centering sleeve for indicating the position of the centering-sleeve with relation to the grip.

701,942. DISPLAY-HOLDER FOR SECTIONS. HENRY BROWN, Chicago, Ill. Filed Feb. 7, 1902. Serial No. 13,022. (No model.)

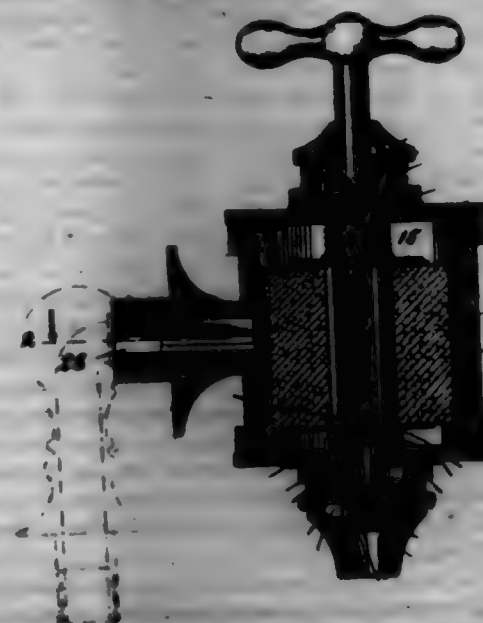


Claim.—1. A necktie display-holder in which is combined a common support, a plurality of sheet-metal standards each having a flat base, means for permanently securing the same to said common support, each of said standards consisting of a flat upwardly-projecting body portion integral with and inclined at an oblique angle to said base, said body having flanges or wings bent laterally from opposite sides or edges toward each other and folded substantially parallel to the inclined portion from which they are bent whereby an opening, oblong in cross-section may be formed between said parallel portions for the reception of the article to be supported thereby.

2. As an improved article of manufacture, a necktie display-holder formed from sheet metal, said holder having a base, an upwardly-extended body bent at an oblique angle thereto, said body being provided with a necktie at its upper end oblong in cross-section, formed by the lateral bending of the metal from opposite edges thereof open back.

3. In a necktie display-holder, the combination with a main support such as a card or box, of a sheet-metal standard having a flat base, means for permanently attaching said base to said support, said standard consisting of a flat body portion bent upwardly from one end of and inclined at an oblique angle to said base, provided with wings or flanges bent from opposite edges toward each other and hinged between said inclined body and base, said wings being formed from said inclined wings substantially as and for the purposes specified.

701,943. FILTER-FAUCET. JOHN F. RYAN, Brooklyn, and WILLIAM McILWAIN, Winfield, N. Y., assignors to Arthur H. Ryan, Atlantic City, Pa. Filed June 26, 1901. Serial No. 69,522. (No model.)



Claim.—1. In a filter-faucet, the combination of a filtering medium, a rotary spindle and a plurality of valves or washers carried by the rotary spindle and arranged on opposite sides of an annular diaphragm provided with valve-seats on opposite sides thereof.

2. In a filter-faucet, the combination of inlet and delivery ports, a filtering medium and a spindle carrying the said filtering medium and provided with a plurality of washers and valve-seats intervening between the washers.

3. In a filter-faucet, the combination of a cylindrical filtering medium, a winged spindle passing therethrough and provided with openings for the passage of water from the interior of the filtering medium.

4. In a filter the combination of a spindle provided with a plurality of washers, valve-seats intervening between the washers and a ferrule adapted to space the said washers apart.

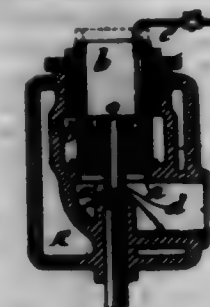
5. In a filter the combination of a filtering medium, a spindle carrying the said filtering medium, a plurality of washers carried by the spindle and valve-seats intervening between the said washers.

6. In a filter the combination of a filtering medium, a plurality of

valve-seats and a plurality of washers, the said valve-seats intervening between said washers and a ferrule also intervening between the said washers.

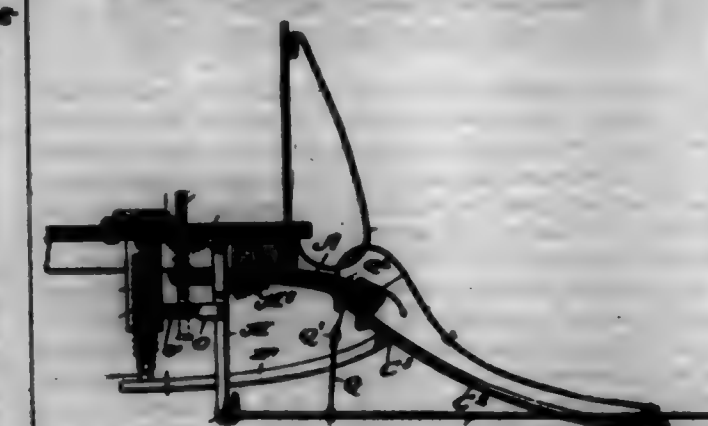
7. In a filter-faucet the combination of a hollow filtering medium, a spindle carrying the said filtering medium, a plurality of washers or valves carried by the said spindle, valve-seats intervening between the said washers and openings adapted to accommodate the flow of water, irrespective of the position of the washers with respect to their valve-seats.

701,944. EXHAUST-VALVE FOR INTERNAL-COMBUSTION ENGINES. JOHN SALZAR, JR., Philadelphia, Pa. Filed Sept. 19, 1900. Serial No. 10,554. (No model.)



Claim.—In an internal-combustion engine, the combination of an exhaust-valve; a casing; a cylindrical extension-chamber mounted on the valve and projecting through the casing, said extension-chamber being open to the atmosphere; a hollow valve-stem whose interior communicates with the interior of the extension-chamber; means for supplying water to one end of the conduit formed by the extension-chamber and the hollow valve-stem; and means for discharging water at the other end of said conduit, whereby a direct passage of water through said conduit in one direction only is effected, substantially as set forth.

701,945. CAR-FENDER. BENJAMIN A. SANDER, Fredericktown, Mo. Filed Jan. 14, 1902. Serial No. 69,602. (No model.)



Claim.—1. A car-fender comprising a fender-frame provided with rearwardly-extending arms, a cross-bar adapted to bear upon the rear ends of said arms, a longitudinal movable tripper carried by the fender-frame, a lever to which the rear end of the tripper is pivotally connected, means for normally holding the cross-bar upon the rearwardly-projecting arms of the fender, and means for releasing the same, substantially as described.

2. In a car-fender the combination with the fender-frame having the rearwardly-projecting arms, of the dotted sleeve carrying a plunger, the spring-extended cross-bar, the longitudinal movable tripper, the lever to which the said tripper is attached and means connected with the said lever for releasing the cross-bar, substantially as described.

3. In a car-fender, the combination with a fender-frame having rearwardly-extending arms, of the sleeve having bayonet-slot therein, the plunger working in the sleeve through the upper end, the cross-bar having a shank working in the sleeve from the lower end, a finger working in the slot of the sleeve, a longitudinal movable tripper carried by the fender, a lever to which the rear end of the tripper is attached, said finger being pivotally connected to the said lever, substantially as described.

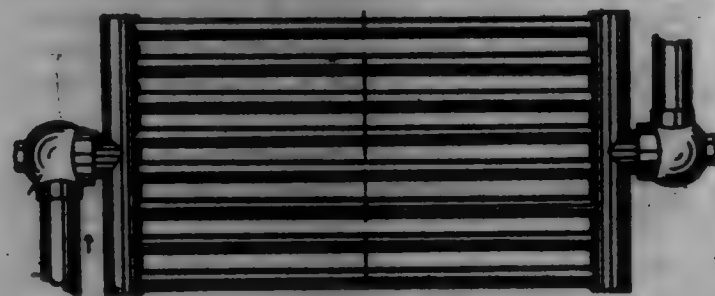
4. In a car-fender, the combination with the dotted sleeve, of the plunger working therein from the upper end, the cross-bar having a shank working therein from the lower end, springs connected to the cross-bar, the rearwardly-extending fender-arms upon which the cross-bar bears, the depending lever pivotally connected at its lower end to a tripper, a finger carried by the said shank and working in the dotted sleeve, and the lever pivoted between the sleeve and depending lever, and having a

curved lower end adapted to contact with the finger, substantially as shown and described.

5. In a car-finder, the combination with a finder-frame having rearwardly-extending arms, of the sleeve having a straight and a bayonet slot produced therein, a plunger working in the sleeve in the upper end, a cross-bar having a shank working in the sleeve from the lower end, a guide-finger attached to said shank and movable in the straight slot, a locking-pin movable upon the shank and adapted to engage the bayonet-slot of the sleeve, a longitudinally-movable tripper carried by the finder, a lever to which the rear end of the tripper is attached, said locking-pin being pivotally connected to the said lever, substantially as described.

6. In a car-finder, the combination with the sleeve having straight and bayonet slots, of the plunger or push-rod working therein from the upper end, the cross-bar having a shank working therein from the lower end, said shank and push-rod being connected, a guide-pin rigidly connected to the shank and working in the straight slot of the sleeve, a locking-pin movable vertically with the shank and transversely thereon, said locking-pin working in the bayonet-slot of the sleeve, springs connected to the cross-bar, the rearwardly-extending finder-arms upon which the cross-bar bears, the depending lever pivotally connected to the locking-pin, the forwardly-projecting tripper-arms connected at their rear ends to the lower end of the depending lever, said tripper-arms carrying the front cross-bar, and the foot-lever pivoted between the sleeve and the depending lever, the lower end thereof being adapted to contact with the locking-pin, substantially as set forth.

701,946. TILTING WATER-GRADE. HOWARD DE WOLFE LAWYER, Boston, Mass. Filed July 8, 1897. Renewed Nov. 12, 1901. Serial No. 52,044. (No model.)



Claim.—1. A tilting, tubular, water-containing grate provided with hallow transverse members formed with a water-passage through them, in combination with hallow bearings for said transverse members and communicating with said water-passages and with inlet and outlet pipes at the opposite ends of said grate, terminating in said bearings, and arranged at right angles to the axis of the grate, so as to yield laterally, to provide for expansion and contraction of the grate, and connected to a water-supply under pressure, whereby a water-current through the grate is maintained, substantially as set forth.

2. A tilting, tubular, water-containing grate consisting of a hallow grate-body provided at its ends with central, projecting, tapering transverse members having a lateral water-passage through their tapering walls, in combination with pressure inlet and outlet pipes at the opposite ends of said grate, at right angles to its axis, to provide for expansion and contraction of the grate, and with hallow bearings mounted on said pipes, formed with tapering apertures to receive and fit upon said transverse members and inlets and outlet water-passages, and with a nut on each transverse member adjacent to its bearing and adapted to tighten the joint, substantially as set forth.

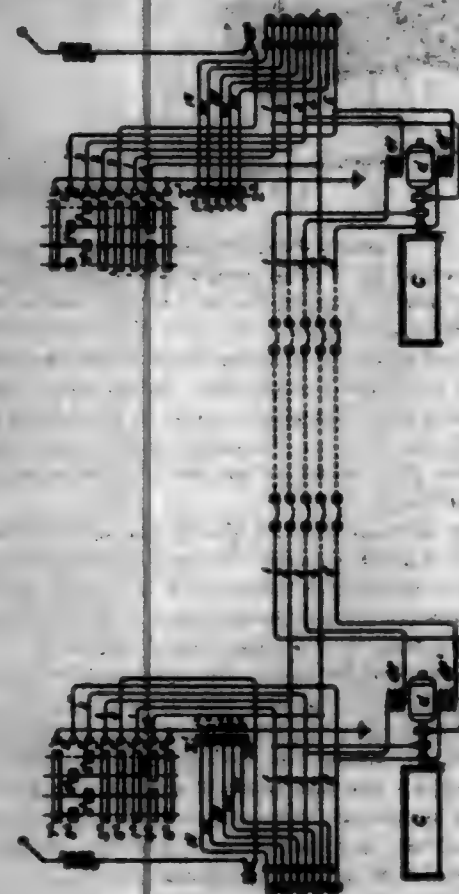
701,947. MEANS FOR TRANSMITTING SYNCHRONOUS MOTION TO DISTANT POINTS. LOUIS SARKIS, New York, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 12, 1891. Serial No. 79,146. (No model.)

Claim.—1. In a system for transmitting synchronous motion, the combination with a motor, having two relatively rotatable members, one provided with a given number of permanent poles and the other with twice as many pole-pieces, of means located at a distance from the motor and under the control of the operator, whereby said pole-pieces can be energized alternately and with alternate polarity.

2. In a system for transmitting synchronous motion, the combination with a motor having two relatively rotatable members, one provided with a given number of permanent poles and the other with twice as many pole-pieces and coils, of two separate circuits each including every alternate coil, and means located at a distance and under the control of the operator whereby each circuit can be supplied with current alternately, and in alternate direction.

3. In a system for transmitting synchronous motion, the combination with a motor having two relatively rotatable members, one provided

with a given number of permanent poles and the other with twice as many pole-pieces and coils, of two separate circuits each including every alternate coil, and a master-controller connected with said circuits whereby an operator can energize a different circuit at each movement of the controller.



4. In a system for transmitting synchronous motion, the combination with a motor having two relatively rotatable members, one provided with a given number of permanent poles, and the other with twice as many pole-pieces and coils, of two separate circuits each including every alternate coil, and a master-controller provided with segments arranged to connect said circuits alternately with a source of power and to reverse the direction of the current in each circuit each time it is cut in.

5. In a system of train control, the combination with one or more master-arms, of a main controller for the car-motors, a motor for actuating the controller having two relatively rotatable members, one provided with a given number of permanent poles and the other with twice as many pole-pieces and coils, and a master-controller connected with the motor whereby one member will be kept permanently polarized when the current is turned on, and the coils on the other member will receive current alternately and in alternate directions, as the master-controller is rotated.

6. In a system of train control, the combination with a train of two or more motor-cars, of a main controller on each car for controlling the car-motors, an actuating-motor for each main controller, having two separate sets of coils in one of its members, one of these main-controllers on each car, and circuit connections whereby the coils in one member of said motor are connected in series with each other and with one or the other of said sets of coils in the other member, and whereby current can be sent through said sets of coils alternately and in alternate directions as the master-controller is rotated.

7. In a system of train control, the combination with the main controller, of an actuating device therefor comprising a multipolar direct-current motor having a permanently-polarized armature and a field-magnet containing twice as many poles as the armature, and a master-controller for alternately energizing alternate poles in order to produce a step-by-step movement of the armature, in synchronism with the motion of the master-controller.

701,948. APPARATUS FOR EXTRACTING SCREW-BOLTS. ALFRED L. SAMP, Vincennes, Ind., assignor to Draper Company, Indianapolis, Ind., a Corporation of Indiana. Filed Apr. 9, 1898. Serial No. 102,008. (No model.)



Claim.—1. In a device of the class described, a frame, an adjustable nut-holder mounted thereon, a rotatable extruder in axial alignment with the nut-holder and having a threaded shank of the pitch of the screw to

be withdrawn, and a threaded bearing on the frame for the shank, the object containing the screw to be withdrawn being inserted between said nut-holder and extruder and the former set up to press firmly on the nut while the latter is in engagement with the screw-head, rotation of the extruder as it moves longitudinally in its bearing turning out the screw therewith, the pressure of the nut-holder on the nut being maintained by or through the like pitch of the screw-thread and the thread on the extruder.

2. In a device of the class described, a frame having opposite rigid upturned ears, a threaded bearing in each, in axial alignment, a threaded, longitudinally-adjustable nut-holder mounted in one bearing and having a capped end, to engage the outer face of the nut, and an extruder constructed at its inner end to engage the screw-head and having its shank threaded to correspond with the pitch of the screw to be removed, said extruder being mounted in the opposite threaded bearing of the frame, rotation of the extruder withdrawing the screw while the pressure of the nut-holder is maintained upon the nut to prevent rotation of the same.

3. In a device of the class described, a frame comprising a base and opposite, upturned ears having threaded bearings in axial alignment with each other, the ears being adapted to receive between them the end of a beam-elastic containing the screw to be removed, a nut-holder having a threaded shank, rotatably mounted in one bearing and having its inner end capped to bear against the nut of the screw in the elastic and to clear the adjacent end of the screw, and a rotatable extruder having a threaded shank of a pitch corresponding to that of the screw to be removed and rotatably mounted in the other bearing, the inner end of the extruder being adapted to enter the slot of the screw-head, the nut-holder being adjusted to tightly press upon and hold the nut from rotation when the extruder is in engagement with the screw-head, subsequent rotation of the extruder acting to unscrew the screw from the nut, the like pitch of the screw-thread and thread of the shank of the extruder maintaining the pressure of the nut-holder upon the nut to prevent its from turning with the screw.

701,949. ELECTRIC-INCANDESCENT-LAMP HOLDER. BENJAMIN G. SHERMAN, London, England, assignor of one-half to Horner Electric Light, Limited, London, England. Filed Dec. 11, 1899. Serial No. 59,628. (No model.)



Claim.—1. In an electric-incandescent-lamp holder the combination with two separable members of two hook-and-eye electric contacts coupling the members together and limiting the distance which they can move apart, and concentrically arranged between them, a spring-pressed electric contact forcing the said members apart substantially as set forth.

2. In an electric-incandescent-lamp holder the combination with two separable members of a hook-and-eye electric contact coupling the members together and limiting the distance which they can move apart, of a spring-pressed contact-plunger on one member, a contact on the other member and a contact for the plunger within the contact substantially as set forth.

3. In an electric-incandescent-lamp holder, two separable members, a set of three contacts on each member one of the contacts in each set being axially arranged and spring-pressed, and the remaining two contacts on one member slanted at unequal distances from the axial contact and consisting of double latches, for engagement with eye-contacts similarly slanted on the other member, substantially as set forth.

701,950. CULTIVATOR. HARRY SHAW, Cambridge City, Ind. Filed Sept. 12, 1891. Serial No. 75,182. (No model.)

Claim.—1. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of means pivotally connected to said frame to which said plows are connected, and through the medium of which said plows may be swung toward or away from each other and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue of the machine and extending longitudinally thereof, and a balancing-lever pivotally connected to said draft-bar and extending transversely thereof, said lever being adjustably connected to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.

2. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of a pair of radius-bars for each of said plows, said radius-bars being pivotally connected to the frame and to which bars the plows are connected, whereby the plows may be swung toward or away from each other and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue of the machine and extending longitudinally thereof, and a balancing-lever pivotally connected to said draft-bar and extending transversely thereof, said lever being adjustably connected to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.



3. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of a pair of radius-bars for each of said plows, said radius-bars being pivotally connected to the frame and to which bars the plows are adjustably connected, whereby the plows may be adjusted in a vertical plane and swung in a horizontal plane and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue of the machine and extending longitudinally thereof, and a balancing-lever pivotally connected to said draft-bar and extending transversely thereof, said lever being adjustably connected to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.

4. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of a pair of radius-bars for each of said plows, said bars being pivotally connected to the frame, a swivel-bar carried by each pair of said radius-bars and to which the respective gang-plows are adjustably connected, an arm carried by each of said swivel-bars, a link connected to each of said arms and also connected to the cultivator-frame, whereby the plows may be swung toward or away from each other and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue of the machine and extending longitudinally thereof, and a balancing-lever pivotally connected to said draft-bar and extending transversely thereof, said lever being adjustably connected to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.

5. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of means pivotally connected to said frame to which said plows are connected, and through the medium of which said plows may be swung toward or away from each other and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue of the machine and extending longitudinally thereof, and a balancing-lever pivotally connected to said draft-bar and extending transversely thereof, said lever being adjustably connected to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.

6. In a cultivator, the combination with the frame thereof, supporting-wheels carried thereby, and a pair of gang-plows arranged beneath said frame, of a pair of radius-bars for each of said plows, said bars being pivotally connected to the frame, a swivel-bar carried by each pair of said radius-bars and to which the respective gang-plows are adjustably connected, an arm carried by each of said swivel-bars, a link connected to each of said arms and also connected to the cultivator-frame, whereby the plows may be swung toward or away from each other and maintained parallel to the line of draft, a draft-bar slidably mounted upon the tongue

of the machine and extending longitudinally thereof, a balancing-arm pivotedly connected to said draft-bar and extending transversely thereof, and links extending from the draft-bar to the radius-bar, whereby the draft of the team is transmitted to the plows through the draft-bar and equally distributed to said plows.

701,951. WRENCH. WILLIAM SHINE, Panama, Iowa. Filed June 10, 1901. Serial No. 64,912. (No model.)



Claim.—The herein-described wrench comprising a stock or frame of uniform thickness throughout its length and breadth having one end contracted and constituting a handle and having its opposite end widened and provided with a slot extending laterally and opening through opposite sides of the stock, said slot being flared at its outer end, contracted at its inner end and widened at a point intermediate the ends of the contracted part, plates secured to opposite sides of the stock and closing the sides of the slot thereof and having longitudinal slots and openings in coexistent relation, jaws pivoted between the plates, springs secured to the stock and exerting an inward pressure upon the inner end of the jaws, a threaded stem located in the inner contracted end of the slot formed in the stock and having a nut or wedge to enter between the inner ends of the jaws and having extensions to operate in the longitudinal slots of the aforementioned plates, and a nut mounted upon the threaded stem and arranged to operate in the widened portion of the slot of the stock and having opposite portions projecting through the openings in the side plates, substantially as set forth.

701,952. NUT-WRENCH. CHARLES C. SMITH, Bellevue, Idaho. Filed Mar. 13, 1902. Serial No. 36,034. (No model.)



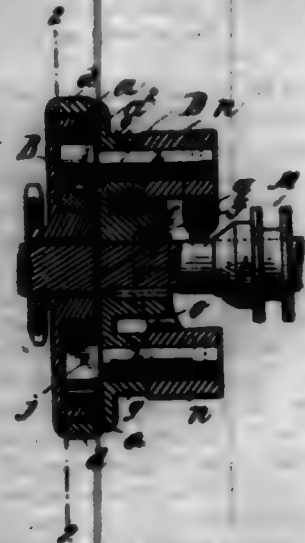
Claim.—In a nut-wrench of the character described, the combination with pivoted handles formed with jaws at their outer ends dovetail in cross-section, of removable chews having dovetail grooves to receive the dovetail jaws and provided with serrated gripping-edges and formed with slots in their rear ends, substantially as set forth.

701,953. FRICTION-CLUTCH. HERBERT SMITH, Springfield, Mass. Filed Aug. 21, 1901. Serial No. 72,967. (No model.)

Claim.—1. In a clutch of the character described, the combination with the power-shaft, of the disk free relatively thereto, having the annular flange, the support carried by the shaft, the detachable friction-chose located within the disk-flange and connected to the support for movement in unison therewith, the spindles having rocking motions on the support and provided with the cone operating on the friction-chose, and the centrifugal weight-arms affixed to the spindles.

2. In a clutch of the character described, the combination with the power-shaft, of the disk free relatively thereto, having the annular flange, the support carried by the shaft, the detachable friction-chose located within the disk-flange and connected to the support for movement in unison therewith, the spindles having rocking motions on the support and provided with the cone operating on the friction-chose, and the centrifugal weight-arms affixed to the spindles.

vided with the cone operating on the friction-chose, the double arms fixed to each spindle, one being a centrifugally-acting member, and the other a member to restrain such action, and a device movable into and from engagements with the restraining-arms, for the purpose set forth.



3. In a clutch, the combination with the power-shaft, having the carrier or support D affixed thereon, and which is provided with the journal-hubs *g g* of the disk to be driven mounted loosely relatively to the shaft and having the edge flange, the friction-chose *U U*, comprised of flexible arc-shaped members *u*, and integral with, cutting members *u'* and a central ring *h* located within the flange-disk, the ends of each chose being located adjacent, but separated from, the cutting member *u'*, the spindles *k* passed through the journal-hubs of the support, and each provided with the cone *j* at one end, and at the other with a centrifugal arm, substantially as described.

4. In a clutch, the combination with the power-shaft, having the carrier or support D affixed thereon, and which is provided with the journal-hubs *g g* of the disk to be driven mounted loosely relatively to the shaft and having the edge flange, the friction-chose *U U*, comprised of flexible arc-shaped members *u*, and integral with, cutting members *u'* and the central ring *h* located within the flange-disk, the ends of each chose being located adjacent, but separated from, the cutting member *u'*, and the cutting members having the partially-cylindrical cone-ends *u*, the spindles *k* passed through the journal-hubs of the support, and each provided with the cone *j* resting in said cone, at one end, and at the other end provided with a centrifugal arm, substantially as described.

5. In a clutch, the combination with the power-shaft, of the disk free relatively thereto, having the annular flange, the support carried by the shaft, the detachable friction-chose located within the disk-flange, the spindles having rocking motions on the support and provided with the cone operating on the friction-chose, the double arms fixed to each spindle, one being a centrifugally-acting member, and the other a member to restrain such action, provided with an adjustable contact-arm *a*, and a device movable into, and from, engagements with the said contact-arms, for the purpose set forth.

6. In a clutch of the character described, the combination with the power-shaft, of the disk free relatively thereto, having the annular flange, the support carried by the shaft, having the hub thereof provided with the opposite projections *e e*, the detachable friction-chose located within the disk-flange, the spindles having rocking motions on the support and provided with the cone operating on the friction-chose, and also with the centrifugal weight-arms affixed to the spindles, and the spring interposed between the said arms and said projections *e*.

7. In a clutch, the combination with the power-shaft, carrying the support D, of the disk to be driven loosely mounted on the shaft provided with the concentric hub *D* and the rim-flange *e*, the cone appliances consisting of the concentric ring *h*, the radial *u* members *u' u'*, and the arc-shaped chose members *U U* integral with the *u* members, and extending from their connections with the one into proximity to the other, as shown, the one side of each *u* member having a partial cylindrical cone-ends, the spindles having rocking motions on the support, and provided each at one end with the cone having its partially-cylindrical portion fitted in said cone-ends, and having the cone-circular portion thereof in engagement with the free end of the friction-chose, and each spindle having at its other end the centrifugal arm *a* and the oppositely-extended arm *g*, and the sliding cone-shoe arranged to engage and disengage the arm *g*, for the purpose set forth.

8. In a clutch, the combination with the driving-shaft, and a part free therefrom to be driven thereby, of a support mounted on the driving part provided with centrifugal members, friction-chose, consisting with the parts to be driven, arranged to be operated on by said centrifugal

members, and said centrifugal members having restraining-arms, extended into approach relation to the driving-shaft and the cone-shoe arranged to slide on the shaft to disengage, and to engage, said restraining-arms, for the purpose set forth.

9. In a clutch, the combination with the power-shaft, of the disk free relatively thereto, having the annular flange, the support carried by the shaft, the detachable friction-chose located within the disk-flange, the spindles having rocking motions on the support and provided with the cone operating on the friction-chose, the double arms fixed to each spindle, one being a centrifugally-acting member, and the other a member to restrain such action, and a device movable into, and from, engagements with the said restraining-arms, for the purpose set forth.

701,954. KERNAL TRUSS. NELSON B. SMITH, Kewanee, Ill. Filed Mar. 22, 1901. Serial No. 62,941. (No model.)



Claim.—1. A truss-brace comprising a spring member adapted to partly encircle the body and to carry at the front an adjustable pad, said spring member having at the front end an upwardly-extending bolt-engaging loop, and at the rear end a downwardly-extending portion for engagement with the rear of the body, and a bolt adapted to encircle the body and connected with the downwardly-extending portion and also engaging the said front loop at a point above the pad.

2. In a truss, a spring-brace adapted to partially encircle the body, said brace having an upwardly-bent side portion to avoid injurious pressure on the sides of the body, a downwardly-extending portion arranged at the rear end of the brace for engagement with the body, a pad secured to the forward end of said brace, and an auxiliary bolt extending around the body and engaging the front and rear ends of said brace.

3. In a truss, a spring member adapted to partly encircle the body and having at the front end an upwardly-bent bolt-engaging loop, a pad adjustably carried by the forward end of the spring member, the rear end of said spring member being downwardly and forwardly bent to form a loop, the lower end of which is in approximately the horizontal plane of the pad, and an auxiliary bolt extending around the body and engaging the front and rear ends of said spring member.

4. In a truss, a spring member adapted to partially encircle the body and having at the forward end a vertically-disposed bolt-engaging loop and at the rear end a downwardly and forwardly extending integral loop, a wire gauge or netting carried by the rear loop for engagement with the body, said integral loops forming the framework and support of the gauge, and a bolt adapted to encircle the body and to engage with both of said loops.

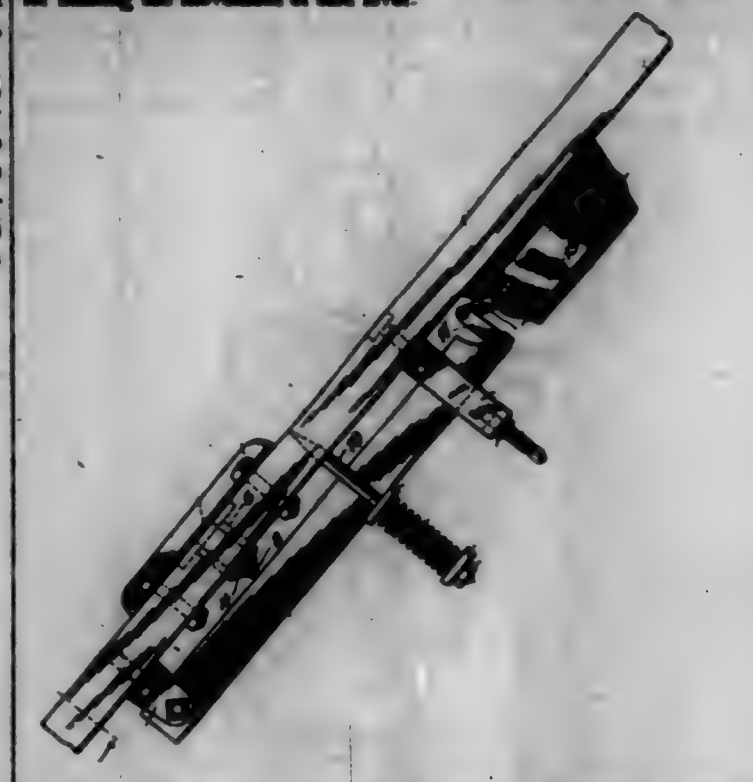
701,955. AUTOMATIC REGISTERING DEVICE. RALPH R. SPEARS, Wheeling, W. Va. Filed June 25, 1901. Serial No. 65,095. (No model.)

Claim.—1. In a device of the character described, the combination with a platform and registering mechanism, of a reciprocating actuator extended through the platform and having a bearing therein, a lever supported by the platform below the same and constituting a support for the actuator, an adjustable resistance device opposing the depression of the lever, and means operatively connecting the lever with the registering mechanism.

2. In a device of the character described, the combination with a platform and registering mechanism, of a lever located below the platform and fulcrumed at one end, means connecting the free end of the lever with the registering mechanism, a resistance device suspended from the platform and resisting the depression of the lever, and a reciprocating actuator passed through the platform and having a bearing therein, said actuator being supported upon the upper edge of the lever at a point between the resistance device and the fulcrum.

3. In a device of the character described, the combination with a platform and registering mechanism, of an actuator extended through the platform, a lever located below the platform and operatively related to the actuator and registering mechanism respectively, an adjustable resistance device opposing the movement of the lever, and an adjustable stop for limiting the movement of said lever.

4. In a device of the character described, the combination with a platform, registering mechanism and an actuator extended through the platform, of an operating-lever disposed below the platform and having operative connection with the actuator and registering mechanism respectively, a supporting-plate for said lever, a spring sustaining the plate, and means for regulating the tension of the spring.



5. In a device of the character described, the combination with a platform, registering mechanism and an actuator extended through the platform, of an operating-lever located below the platform and operatively related to the actuator and registering mechanism respectively, supporting-rods depending from the platform at opposite sides of the lever, a supporting-plate slidably mounted upon said rods, springs encircling the pendant rods and sustaining the supporting-plate, and means for regulating the tension of said springs.

6. In a device of the character described, the combination with a platform, a registering mechanism, and an actuator extended through the platform, of an operating-lever located below the platform and operatively related to the actuator and registering mechanism respectively, a guiding-bracket for said lever, an adjustable stop-rod carried by said bracket and disposed to limit the movement of the lever in one direction, pendant rods located at opposite sides of the lever, a supporting-plate slidably mounted on said rods, springs encircling the rods and sustaining the supporting-plate, a second plate carried by the rods and opposed to the lower ends of the springs, and said second plate upon the lower ends of the rods and designed to be adjusted thereon to regulate the tension of the springs.

7. In a device of the character described, the combination with a platform and registering mechanism, of an actuator extended through the platform and operatively related to the registering mechanism, and approach-guides disposed above the platform and defining an approach converging toward the actuator.

8. In a device of the character described, the combination with a platform, registering mechanism, and an actuator extended through the platform, of approach-guides located at opposite sides of the actuator and defining an approach converging toward the actuator from opposite directions.

9. In a device of the character described, the combination with a platform, registering mechanism, and an actuator extended through the platform, of approach-guides located at opposite sides of the actuator and defining an approach converging toward the actuator from opposite directions.

701,956. BOTTLE-WARNING MACHINE. FRANK I. SPRINGER, Buffalo, N. Y. Filed May 26, 1901. Serial No. 61,000. (No model.)

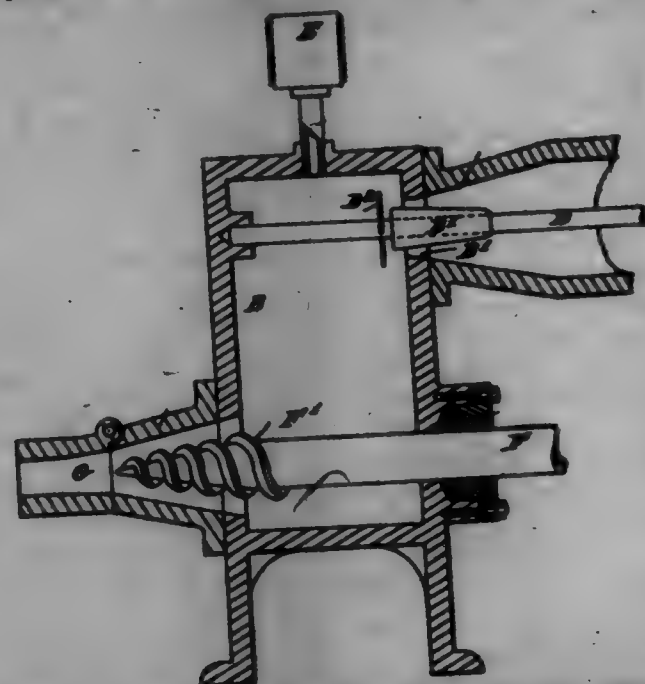
Claim.—1. In a device of the character described, the combination with a main-receptacle, of a water-pipe joined to said receptacle, a two-way valve connected in said water-pipe, a spray-pipe, a two-way valve connected to said spray-pipe, and to said receptacle, a rising-pipe connected to said valve, and means for operating said valve in unison to admit water in turn into said receptacle or into said rising-pipe, substantially as described.

2. In a device of the character described, the combination with a main-receptacle, a pipe joined to said receptacle and fitted with a two-way valve, a pipe open at the bottom, mounted in said receptacle and provided with a two-way valve, a pipe connecting said two-way valve, and a connecting-rod connecting said valves in unison to operate them in unison, substantially as described.

3. In a device of the class described, the combination with a sand-receptacle provided with a water-supply pipe and passages communicating therewith, of a central cup provided with legs and inverted over said water connection, said passages being constructed to direct the water to force sand under said cup, and a spray-pipe connected to said central cup, substantially as described.



701,957. METHOD OF WORKING CLAY. RALPH H. STALEY, Springfield, Ill. Filed Aug. 1, 1901. Serial No. 70,540. (No specimens)



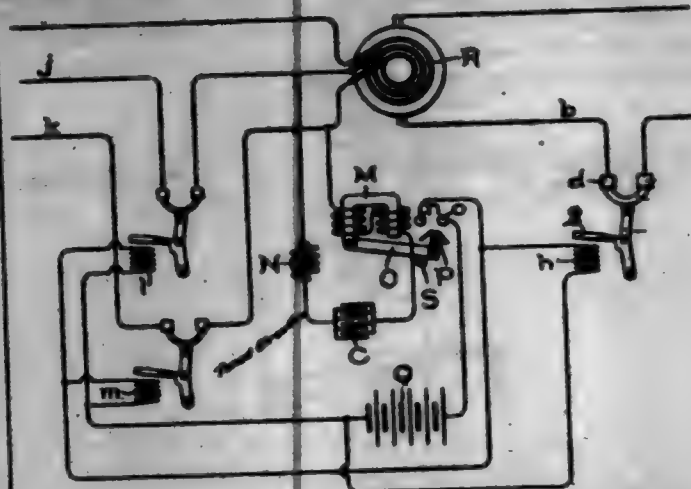
Claim.—1. The method of working clay, consisting in providing tempered clay, disintegrating said clay in vacuum, exhausting the air from said disintegrated clay and compressing said clay in vacuum, substantially as set forth.

2. The method of working clay, consisting in providing tempered clay, introducing said clay under pressure into a vacuum-chamber, disintegrating said clay in vacuum, exhausting the air from said disintegrated clay, compressing said clay in vacuum, and expelling said compressed clay from said vacuum-chamber, substantially as set forth.

3. The method for the continuous working of clay, consisting in providing tempered clay, introducing said clay continuously under pressure into a vacuum-chamber, utilizing said incoming clay as a seal against admission of air to the vacuum-chamber, disintegrating said clay in vacuum, exhausting the air from said disintegrated clay, compressing said clay in vacuum, expelling said compressed clay from said vacuum-chamber and utilizing said compressed clay as a seal against the admission of air into the vacuum-chamber, substantially as set forth.

701,958. AUTOMATIC CUT-OUT. CHARLES P. SCHENCK, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Mar. 4, 1902. Serial No. 707,500. (No model.)

Claim.—1. The combination of alternating-current and direct-current mains, a dynamo-electric machine connected to both sets of mains and driven by energy transmitted over one of said sets of mains, a circuit supplied with current from said alternating-current mains, means for causing the current in said circuit to increase with increase of frequency of current in said alternating-current mains, and means controlled by current in said circuit for interrupting the supply of energy to said dynamo-electric machine.



2. The combination of a dynamo-electric machine, alternating-current and direct-current mains extending therefrom, a circuit-interrupting device for one of said sets of mains, a circuit connected across the alternating-current mains, means for causing current in said circuit to increase with increase of frequency of the alternating electromotive forces impressed upon said alternating-current mains, and means actuated by current in said circuit for operating said circuit-interrupting device.

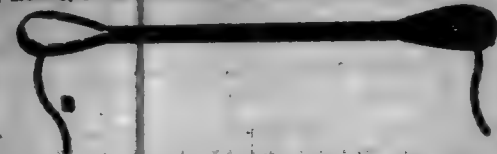
3. The combination of alternating-current mains, means for impressing thereon alternating electromotive forces of normal frequency, a circuit connected to said mains, means for causing the current in said circuit to increase with increase of frequency of current in said mains above the normal, and means operative upon increase of current in said circuit for interrupting the flow of current in said mains.

4. The combination of a dynamo-electric machine, conductors in connection therewith on which alternating electromotive forces are impressed of a frequency corresponding to the speed of the machine, a tuned circuit in connection with said conductors, a local circuit controlled by current in the tuned circuit, and means controlled by said local circuit for interrupting the driving power of said machine.

5. The combination of a rotary converter of variable speed, alternating-current and direct-current mains, circuit-interrupting devices for said mains, a tuned circuit connected across two of the alternating mains, and means operated by current in said circuit for controlling the circuit-interrupting devices.

6. The combination of a rotary converter alternating-current and direct-current mains, a tuned circuit supplied with energy from the alternating mains, and means responsive to current in said tuned circuit for interrupting both the alternating-current and the direct-current mains.

701,959. SLOWER FOR PYROELECTRIC LAMPS AND PROCESS OF MAKING SAME. CHARLES P. SCHENCK, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Nov. 6, 1901. Serial No. 61,304. (No model.)



Claim.—1. A slower for a pyroelectric lamp, consisting of a body of magnetism or the like, having leading-in wires, and magnets or the like including the joints between said wires and the body.

2. A slower for a pyroelectric lamp, consisting of a body of magnetism or the like provided at each end with a leading-in wire, and a mass of fused magnets including the joints between each wire and the body.

3. A slower for a pyroelectric lamp consisting of a body of magnetism or the like, leading-in wires wound on the ends of said body, and a mass of fused magnets surrounding each of said wire-wound ends.

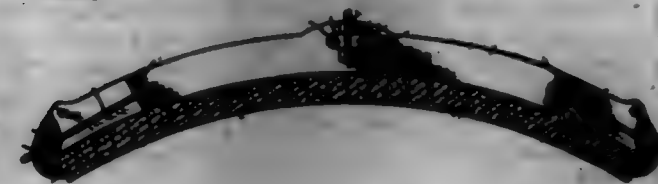
4. The process of making a pyroelectric slower, which consists in providing a body of suitable material with leading-in wires, and then including the joints between said wires and body in magnets or the like.

5. The process of making a pyroelectric slower, which consists in providing a body of suitable material with leading-in wires, including the

joints between said wires and body in magnets, and then fusing the magnets.

6. The process of making a pyroelectric slower, which consists in providing a body of suitable material with leading-in wires, placing powdered magnets on the joints between said wires and body, and then fusing said magnets.

701,960. SUPPORT FOR BRICK ARCHES. HERMAN A. STRATZ, Grand Rapids, Mich. Filed Aug. 20, 1901. Serial No. 71,402. (No model.)



Claim.—1. The combination of curved plates arranged in parallel vertical planes, a series of detachable bars and bolts for connecting the plates, grippers pivoted to the plates, bolts connected to the base of one end and passing through the grippers, and nuts on the bolts to adjust the grippers, substantially as described.

2. The combination of curved plates arranged in parallel planes, a bar connecting the middle of the plates and having perforated legs at each side, bolts passing through the plates and legs, bars connecting the plates near the ends thereof, bolts connecting the ends of the plates, grippers pivoted to said bolts, bolts passing through the end bars and grippers, and nuts on the bolts to adjust the grippers, substantially as described.

3. In combination with a brick arch, laterally-curved plates arranged in parallel planes, and having their concave edges engaging the convex top of the arch, grooves in the adjacent sides of the plates and near the ends thereof, detachable transverse bars inserted in the grooves, grippers pivoted to the plates and engaging the opposite ends of the arch, bolts connecting the bars and grippers, and nuts on the bolts to adjust the grippers, substantially as described.

4. In combination with a brick arch, laterally-curved plates arranged in parallel planes, and having grooves in their adjacent sides, said grooves being located at the ends and center of said curved plates, a transverse bar near the middle of the plates and having its ends in the opposing grooves, legs on the bar, bolts extending through the plates and legs, transverse bars near the ends of the plates, and having their ends in opposing grooves, transverse bolts connecting the ends of the plates, grippers pivoted on said bolts, and bolts connecting the grippers to the adjacent transverse bars, substantially as described.

701,961. MERCHANDISE-TRANSFER APPARATUS. ALEXANDER W. SWANICK, Chicago, Ill., assignor to Swannick Company, Chicago, Ill., a Corporation of Delaware. Filed Feb. 22, 1901. Serial No. 62,172. (No model.)

Claim.—1. A merchandise-transfer apparatus comprising a traction-floor, a truck for carrying merchandise thereon, a fluid-pressure motor for moving said truck, steering mechanism for guiding said truck on said floor, a storage-reservoir upon said truck for supplying said motor with pressure, a storage-reservoir intake upon said truck, a fluid-pressure-supply main supported adjacent to said traction-floor, a valve-controlled outlet from said main, and means for connecting said outlet with said intake, substantially as described.

2. A merchandise-transfer apparatus comprising a traction-floor, a truck for carrying merchandise thereon, a fluid-pressure motor for moving said truck, steering mechanism for guiding said truck on said floor, a storage-reservoir upon said truck for supplying said motor with pressure, a storage-reservoir intake upon said truck, a fluid-pressure-supply main supported adjacent to said traction-floor, a plurality of valve-controlled outlets from said main arranged at intervals thereon, and means for connecting said outlets with said intake, substantially as described.

3. A merchandise-transfer apparatus comprising a traction-floor, a truck for carrying merchandise thereon, a fluid-pressure motor for moving said truck, steering mechanism for guiding said truck on said floor, a storage-reservoir upon said truck for supplying said motor with pressure, a storage-reservoir intake upon said truck, a fluid-pressure-supply main at each side of said traction-floor supported adjacent to said traction-floor, valve-controlled outlets from said mains, and means for connecting said outlets with said intake, substantially as described.

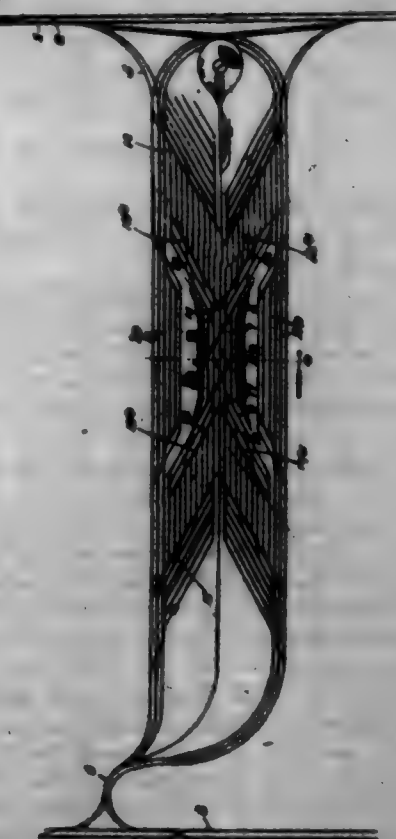
4. A merchandise-transfer apparatus comprising a traction-floor, a truck for carrying merchandise thereon, a fluid-pressure motor for moving said truck, steering mechanism for guiding said truck on said floor, a storage-reservoir upon said truck for supplying said motor with pressure, a storage-reservoir intake upon said truck, a fluid-pressure-supply main at

each side of said traction-floor, and under said platform, supported adjacent to said traction-floor, a valve-controlled outlet from said main, and means for connecting said outlet with said intake, substantially as described.



5. A merchandise-transfer apparatus comprising two parallel tracks, two platforms arranged within said tracks and adjacent thereto, a traction-floor between said platforms, a merchandise-carrying truck upon said floor, a fluid-pressure motor upon said truck provided with a storage-reservoir and a valve-controlled intake for said reservoir, a fluid-pressure-supply main supported adjacent to said traction-floor, a plurality of valve-controlled outlets from said main arranged at intervals thereon, and means for connecting said intake with the outlet on said main whereby the storage-truck can be charged while the same is being loaded adjacent to said platform, substantially as described.

701,962. RAILWAY CLEARING-HOUSE. ALEXANDER W. SWANICK, Chicago, Ill., assignor to Swannick Company, Chicago, Ill., a Corporation of Delaware. Filed Feb. 17, 1902. Serial No. 64,597. (No model.)

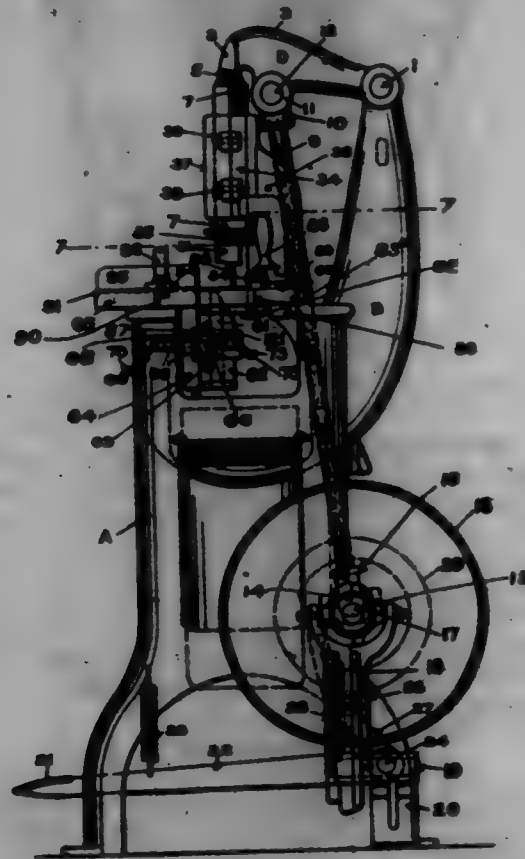


Claim.—1. A railway clearing-house comprising a gravity-mound, a distributing incline at each end of said gravity-mound, and a distributing-yard for each of said inclines, substantially as described.

2. A railway clearing-house comprising a gravity-mound, an incline at each end of said gravity-mound, a distributing-yard connected with each of said inclines, and crossovers-tracks, and switches so disposed as to permit simultaneous operation of trains coming from opposite directions, upon said gravity-mound, substantially as described.

3. A railway clearing-house comprising a gravity-mound, an incline at each end of said gravity-mound, a distributing-yard connected with each of said inclines, and diagonal tracks, adjacent to each of said distributing-yards, and arranged to permit trains requiring to be cleared to be switched onto said gravity-mound, from either end, and distributed at the other, substantially as described.

701,968. MACHINE FOR MITERING AND CORNERING BOX-BLANKS. ROBERT E. TAYLOR, LYNN, MASS. Filed Jan. 10, 1900. Serial No. 987. (No model.)



Claim.—1. In a box mitering and cornering machine, in combination, a work-support, an angular cutter transversely adjustable about a center located eccentrically and exteriorly with relation to the vertex of the angle of the cutter, and means to support and actuate the said cutter, substantially as described.

2. In a box mitering and cornering machine, in combination, a work-support, a pair of coacting angular cutters transversely adjustable about a center located eccentrically and exteriorly with relation to the vertex of the angle of the cutter, and means to support and actuate the said cutters, substantially as described.

3. In a box mitering and cornering machine, in combination, a work-support, an angular cutter, and means to adjust the same from its mitering position to its cornering position, and vice versa, and simultaneously therewith shift transversely the vertex of the said cutter to correspond with the required difference in the positions of the respective cuts, substantially as described.

4. In a box mitering and cornering machine, in combination oppositely-disposed angular cutters, each transversely adjustable about a center located eccentrically and exteriorly with relation to the vertex of the angle of each cutter, means to support and actuate the respective cutters, movable projecting handles by which to swing the cutters about their centers of adjustment, and locking devices controlled by the said handles and serving to retain the cutters in the opposite positions of adjustment, substantially as described.

5. In a box mitering and cornering machine, in combination, oppositely-located cutting devices, a support on which the said cutting devices are mounted with capacity for movement toward and from each other, means to actuate the movable cutters, means to effect simultaneous adjustment of the respective cutting devices in opposite directions, and devices whereby the respective cutting devices may be placed at will in

and out of operative connection with the said adjusting means, substantially as described.

6. In a box mitering and cornering machine, in combination, oppositely-located cutting devices, a support on which the said cutting devices are mounted with capacity for movement toward and from each other, means to actuate the movable cutters, a right and left screw and means to rotate the same when desired, half-cuts to engage with the respective threads of the said screw, and devices whereby the respective half-cuts may be placed at will in and out of engagement with the corresponding threads of the said screw, substantially as described.

7. In a box mitering and cornering machine, in combination, a work-support, an angular cutter comprising a stationary and a movable member, supporting means for the latter, comprising a cutter-block to which the blades of the cutter are secured, a cutter-bar, a securing-bolt passing through a slot in said cutter-block, and adjusting-screws engaging the rear face of the said cutter-block to adjust the said block laterally, substantially as described.

8. In a box mitering and cornering machine, in combination, a work-support, an angular cutter comprising a stationary and a movable member, a cutter-bar carrying the movable member, a reciprocating cross-head above the bar, a spring for holding the bar in contact with the cross-head, and an adjustable yoke intermediate the bar and the cross-head.

9. In a box mitering and cornering machine, in combination a work-support, a pair of coacting angular cutters, a carriage for each of said cutters, a right and left hand screw for adjusting said cutters laterally toward and from each other, a shaft at right angles to said screw and connected therewith by beveled gears and means to rotate said shaft to adjust the said carriage, substantially as described.

10. In a box mitering and cornering machine, in combination a work-support, an angular cutter, supporting means for said cutter comprising a sliding carriage and actuating means therefor, a table pivoted on said carriage, the pivot of the table being located eccentrically and exteriorly with relation to the vertex of the angle of the cutter, substantially as described.

11. In a box mitering and cornering machine, in combination a work-support, an angular cutter, supporting means therefor, comprising a carriage adjustable relatively to said work-support, a table pivoted on said carriage, a locking-pin on said table, a spring-actuated dog controlling said pin, said dog being provided with a handle whereby to release the locking-pin and move the table, substantially as described.

12. In a box mitering and cornering machine, in combination, a work-support, an angular cutter, means for supporting and actuating the cutter comprising a sliding carriage, an actuating-screw therefor, a sliding half-cut 71 to engage the screw, a pin 77, and cam-lever 73 for throwing the half-cut 71 into or out of engagement with the said actuating-screw, substantially as described.

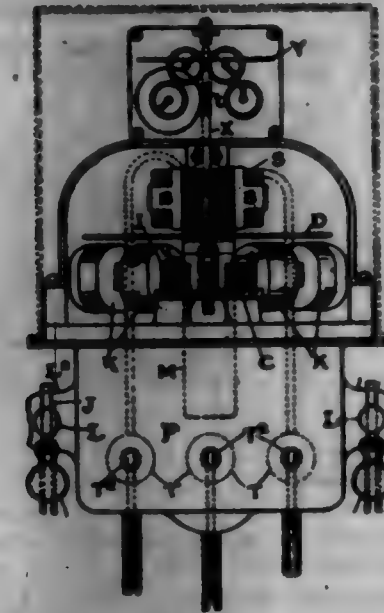
701,964. MITERING-POST. JAMES A. TAYLOR, DUNSMO, N.H. Filed Nov. 12, 1891. Serial No. 98,093. (No model.)



Claim.—1. A hitching-post having its upper end bifurcated to form laterally-spaced members, a latch pivotedly mounted for movement of its end between the members, means for holding the latch yieldably in position with its end between the members, and a keeper connecting the spaced members at the opposite side of the post from the latch and below the upper end of the latch.

2. A hitching-post having its upper end bifurcated to form laterally-spaced members, a latch having an ear pivotedly mounted between the members at the lower ends thereof, said latch being adapted for movement with its upper end between the members, means for holding the latch yieldably with its upper end between the spaced members, and a keeper connecting the spaced members at the opposite sides thereof from the latch and below the upper end of the latch, the spaced members of the post being in the form of loops, as and for the purpose set forth.

701,965. ELECTRIC MOTOR. RAY TOWNSEND, DUNSMO, N.H. Filed Oct. 22, 1899. Serial No. 94,057. (No model.)



Claim.—1. In combination, a connection-board provided with fixed terminals, and an electric motor having its extending-windings provided with corresponding terminals constructed and arranged to engage therewith.

2. A connection-board for electric motor, comprising a base and a set of terminals mounted thereon constructed and arranged to engage corresponding terminals connected to the motor-windings when the motor is placed in position.

3. A connection-board for electric motor, comprising a base, a set of terminals mounted thereon constructed and arranged to engage corresponding terminals connected to the motor-windings when the motor is placed in position, and means for fastening the motor to said base.

4. A connection-board for electric motor, comprising a base, a set of terminals mounted thereon constructed and arranged to engage corresponding terminals connected to the motor-windings when the motor is placed in position, and fastening devices for the motor also mounted on said base.

5. In an electric motor, a set of terminals supported from the motor-frame and connected to the motor-windings, said terminals being constructed and arranged to engage a corresponding set of terminals, connected to line, when the motor is placed in position.

6. In combination in an electric motor, a separate compartment, and a set of terminals to which the motor-windings are connected mounted therein, said terminals being constructed and arranged to engage a corresponding set of terminals connected to line.

7. In combination, in an electric motor, a compartment containing the actuating mechanism of said motor and a separate compartment containing a set of terminals to which the motor-windings are connected, said terminals being constructed and arranged to engage corresponding terminals connected to line.

8. An electric motor provided with terminals to which the motor-windings are connected, said terminals being constructed and arranged to engage corresponding terminals on the motor-support when the motor is placed in position.

9. An electric motor provided with terminals to which the motor-windings are connected, said terminals being constructed and arranged to engage corresponding terminals on the motor-support when the motor is placed in position, and means for fastening said motor in position on said support.

10. In an electric motor, a magnetized motor-shaft and a magnetized disk in rolling engagement therewith.

11. In an electric motor, a magnetized motor-shaft, a magnetized disk in rolling engagement therewith, an air-layer of non-magnetic material interposed between said shaft and said disk.

12. In an electric motor, a shaft of magnetic material, a disk of magnetic material in rolling engagement therewith, and means for magnetizing said disk and shaft.

13. In an electric motor, a shaft of magnetic material, a disk of magnetic material in rolling engagement therewith, and operatively connected to the recording mechanism, and means for magnetizing said shaft and disk.

14. In combination in an electric motor, a magnetized motor-shaft, a magnetized disk in rolling engagement therewith, and means for transmitting the motion of said disk to the recording mechanism.

15. In combination in an electric motor, a permanent magnet, a shaft of magnetic material adjacent to one of the poles of said magnet, and a

disk of magnetic material mounted on said shaft and arranged to have a rolling engagement with the said driving-shaft of the motor.

16. In combination in an electric motor, a retarding-magnet, and a magnetic gearing between the driving-shaft and the recording mechanism, arranged to be magnetized by said magnet.

17. In combination in an electric motor, a main driving-shaft of magnetic material, an armature of conducting material mounted thereon, a retarding-magnet having its poles extended to include a portion of said armature, a second shaft operatively connected to the motor recording mechanism, and a disk of magnetic material mounted on said shaft and arranged to have a rolling engagement with the main driving-shaft of the motor, said shafts and said disk being so positioned with respect to the retarding-magnet, that they are magnetized thereby.

18. In an electric motor a means for producing a short magnetic flux, lagging by substantially ninety degrees behind the flux due to the series winding on non-inductive load, comprising, in combination, a core of magnetic material constituting a nearly-closed magnetic circuit, a winding thereon connected across the mains, and a mass of conducting material interposed between the poles of said core.

19. In an electric motor a means for producing a short magnetic flux, lagging by substantially ninety degrees behind the flux due to the series winding on non-inductive load, comprising, in combination, a core of magnetic material constituting a nearly-closed magnetic circuit, a winding thereon, comprising a plurality of coils separated from one another, connected and across the mains, and a mass of conducting material interposed between the poles of said core.

20. In an electric motor an armature of conducting material, a short-winding having its magnetic axis so positioned that it does not intersect said armature, and means for diverting a portion of the short-flux toward the armature.

21. In combination in an electric motor, an armature, a series winding having its magnetic axis substantially at right angles to said armature, a short-winding having its magnetic axis substantially parallel to the surface of said armature, and means for diverting a portion of the short-flux toward the armature.

22. In an electric motor an armature of conducting material, a short-winding having its magnetic axis substantially parallel to the surface of the said armature, and means for diverting a portion of the short-flux toward the armature.

23. In an electric motor an armature of conducting material, a short-winding provided with a core of magnetic material having its magnetic axis substantially parallel to said armature, and a body of conducting material, constituting a closed circuit, interposed between the poles of said core.

24. In an electric motor, an armature of conducting material, a short-winding provided with a core of magnetic material having its magnetic axis substantially parallel to said armature, and a body of conducting material interposed between the poles of said core and extending into proximity to the motor-armature, the said body being so extended in other directions that the shortest magnetic path around the body of conducting material is on the side adjacent to the armature.

25. In an electric motor an armature of conducting material, a short-winding provided with a core of magnetic material having its magnetic axis substantially parallel to said armature, and a body of conducting material interposed between the poles of said core, said body having portions extended laterally beyond the said poles on the side away from the armature.

26. In an electric motor, an armature of conducting material, a short-winding provided with a core of magnetic material substantially concentric with said armature, and means for diverting a portion of the short-flux toward the armature.

27. In combination, in an electric motor, a metallic structure, a series winding adjacent to said armature on one side, a short-winding, provided with a core of magnetic material, located on the other side of said armature and having its magnetic axis substantially parallel thereto, said core being so positioned that its free poles lie opposite to said series winding, and means for diverting a portion of the short-flux toward the armature.

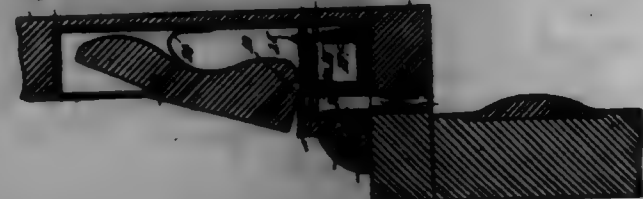
28. In combination, in an electric motor, a metallic structure, a series winding adjacent to said armature on one side, a short-winding provided with a core of magnetic material located on the other side of said armature and having its magnetic axis substantially parallel thereto, said core being so positioned that its free poles lie opposite to said series winding, and a body of conducting material, constituting a closed circuit, interposed between the poles of said core.

29. In combination, in an electric motor, a metallic structure, a series winding adjacent to said armature on one side, a short-winding provided with a core of magnetic material located on the other side of said armature and having its magnetic axis substantially parallel thereto, said core being so positioned that its free poles lie opposite to said series winding, and a body of conducting material, constituting a closed circuit, interposed between the poles of said core.

ing, and a body of conducting material interposed between the poles of said core and extending into proximity to the motor-armature, the said body being so extended in other directions that the shortest magnetic path around the body of conducting material is on the side adjacent to the armature.

30. As a means for deflecting flux toward an armature, conducting material in the normal path of said flux.

701,966. SASH-LOCK. JAMES H. THORNTON, Evanston, Ill. Filed July 12, 1901. Serial No. 61,080. (No model.)



Claim.—In a sash-lock, in combination with a window frame and sashes, a casing in the upper sash, a locking-latch pivoted therein, a spring to project the latch to engage the lower sash, a yielding bolt to engage the latch and retain the same when retracted, a push-pin to actuate the bolt to release the latch, and a rib on the stile of the lower sash adapted to strike and pass the push-pin in either direction when either sash is moved and thereby disengage the bolt and release the latch.

701,967. BICYCLE. ALBERT E. TURN, Newfield, Ind. Filed Apr. 2, 1901. Serial No. 54,157. (No model.)



Claim.—1. In a bicycle-frame, a rigid head and seat-post tube, and rigid connection between the bearing of the rear driving-wheel and said seat-post tube, in combination with T-slaves on said head and tube having slots in their interiors, and a rectangular spring-bar secured at its ends in said slots, substantially as set forth.

2. The combination with the head and seat-post tube having tubular portions, of the brace-bar composed of two spaced-apart members pivotally secured to said tubular portions, substantially as set forth.

3. The combination with the head and the seat-post tube, of the T-slaves on said head and tube having their interiors formed with hemispherically-curved ends and slots in said interiors and ends, of the rectangular spring-bar fitted in said slots, and means for holding said bar, said ends of the interiors connecting with the upper and lower surfaces of the bar, substantially as set forth.

701,968. BOTTLE FOR AERATED LIQUIDS. DOMENICO TOSCANI, Cesena, Italy. Filed July 15, 1901. Serial No. 63,457. (No model.)



Claim.—1. A bottle having a mouth and also having at a separate point a reflex integral nipple, said nipple consisting of an outwardly-projecting base portion and an inwardly-projecting reflex portion within and forming a continuation thereof, and adapted at its inner end to serve as a seat for a pressure-valve.

2. The combination with a bottle having a mouth and also having at a separate point a reflex integral nipple, said nipple consisting of an outwardly-projecting base portion and an inwardly-projecting reflex portion within and forming a continuation thereof, of a valve having a yielding portion which seats upon the inner end of said nipple, and a stem rigid with said valve and provided at its outer end with a head.

3. The combination with a bottle having a neck terminating in a mouth, and also having in said neck an integral reflex nipple, said nipple consisting of an outwardly-projecting base portion and an inwardly-pro-

jecting reflex portion within and forming a continuation thereof, of a valve seated upon the inner end of said nipple, and a stem rigid with said valve and housed wholly within said reflex nipple.

701,969. END SUPPORT FOR SPIRAL CONVEYER. JOHN C. VAN ARNOLD, Dallas, Tex. Filed Dec. 17, 1901. Serial No. 58,307. (No model.)



Claim.—1. A clamp for supporting the flights of spiral conveyers having a body portion for engaging the shaft of the conveyor and having arms to be riveted to the flights and means for tightening the said body portion on said shaft and drawing said flights against said shaft.

2. A clamp for supporting the flights of spiral conveyers having a body portion for engaging the shaft of the conveyor, arms to be riveted to the flights, a bolt for tightening said body portion on said shaft and drawing the flights against said shaft, and a set-screw for preventing the said body portion from sliding on said shaft.

701,970. PACKAGE FOR GRAIN PRODUCTS. THOMAS F. WALSH, Bridgeport, Conn. Filed Mar. 26, 1901. Serial No. 100,905. (No model.)



Claim.—1. A cylindrical package of the class described comprising, in combination with the concentrically-disposed rows of parcels of equal length arranged side by side, flexible coverings fitting entirely over the opposite flat sides of the package, a flexible covering encircling the periphery of the package, and common binding means for binding the coverings and holding the packaged parcels under centripetal pressure.

2. A cylindrical package of the class described, comprising, in combination with concentrically-disposed rows of parcels of equal length arranged side by side, flexible coverings fitting entirely over the opposite flat sides of the package, a flexible covering encircling the periphery of the package, binders also encircling the periphery of the package and comprising common means for binding the coverings and holding the packaged parcels under centripetal pressure, and auxiliary binders extending diametrically about the package and engaging with the binders encircling the periphery thereof.

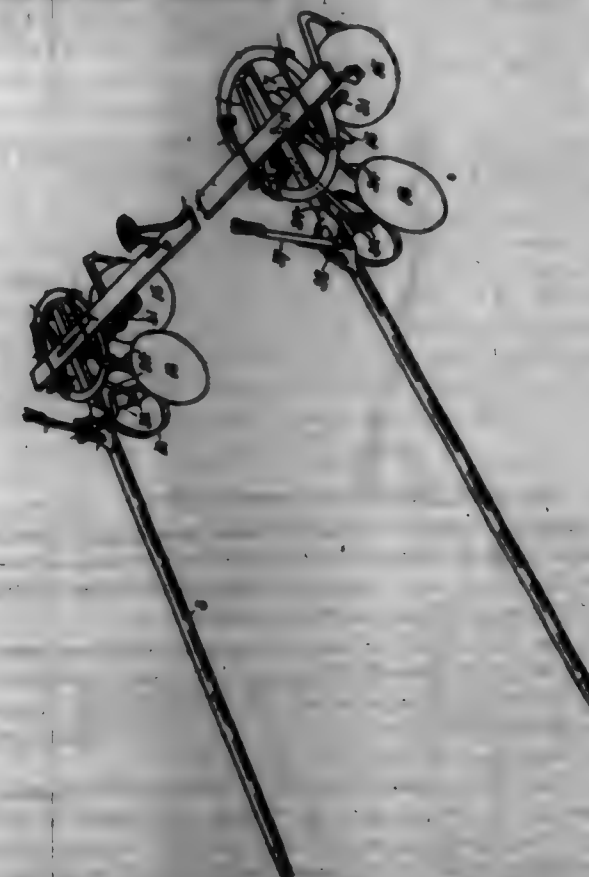
701,971. APPARATUS FOR COOLING STEUPE. WILLIAM WALTER, Rochester, N. Y. Filed Jan. 2, 1900. Serial No. 70,155. (No model.)

Claim.—1. The cooling-receptacle, combined with the cooling-coil mounted therein and comprising the head *a* having the hollow sides *c, d*, and series of hollow sections *e* connecting and in communication with said sides, the heat tubes *b* suspended from said head, the hollow couplings *f* extending vertically through said sides and having the side openings *g, h*, therein, and the hollow couplings *p* extending vertically through said sections *e* and having therein at one side the opening *r*, the said couplings *f* being in communication with the outer leg *s* of the outer side tubes *b*, and the couplings *p* being in communication with the leg *t* of said outer side tubes *b* and also in communication with the legs of the tubes *b* suspended from said sections *e*; substantially as set forth.

2. The receptacle, and the cooling-coil mounted therein, the latter consisting of the head and the maximum heat copper tubes *b* suspended therefrom, the middle portions of said tubes prior to their being bent being concentric with and materially less in diameter than the other portions of the tubes; substantially as set forth.



701,972. CULTIVATOR. THOMAS E. WARNER, Frankfort, Kans. Assignor to Carl L. Swenson, Frankfort, Kans. Filed Sept. 12, 1901. Serial No. 78,372. (No model.)



Claim.—1. In a cultivator, a suitable carrying-frame, a tongue therefor, a ring rigid with the tongue, and beams provided with cultivating appliances at one end and pivotally supported at the other from said ring so as to be capable of vertical movement independent of the ring.

2. A double-row cultivator, having a seat-plank pivotally connected to each cultivating member of the machine; a ring forming a part of each member and a support for one end of the seat-plank; and means for holding the plank across the faces of said rings without impeding its pivoted movement thereon.

3. A double-row cultivator, comprising two tongues, a ring secured to each tongue, a gang of cultivating devices secured to each ring, a seat-plank connecting and supported by said rings, and device for holding the seat-plank in contact with said rings, substantially as described.

4. In a cultivator, a tongue, a ring secured to the upper face thereof depending hangars secured to said ring, a horizontal rock-shaft mounted rotatably in said hangars, a pair of depending wheel-arms adjustably secured on said shaft, ground-wheels mounted upon said wheel-arms, and a depending disk-arm adjustably secured upon said shaft and forming approximately a right angle with said wheel-arms, substantially as described.

5. A double-row cultivator, having a seat-plank pivotally connected to each cultivating member of the machine; a ring forming a part of each member and a support for one end of the seat-plank; and means, movable in the plane of and by the plank and adapted to hold the latter flatly against the faces of the rings.

6. In a cultivator, a transverse rock-shaft, a depending wheel-arm secured thereon, a ground-wheel upon said wheel-arm, a hand-lever mounted above said wheel, a crank operated by said lever, a rod connecting said crank with the lower portion of said wheel-arm, a depending disk-arm secured on said rock-shaft and forming approximately a right angle with said wheel-arm, a disk mounted upon the disk-arm, and a shovel-beam secured to the portion of said disk-arm adjacent to said rock-shaft, and means for throwing forward the center of gravity by moving said wheel-arms toward a vertical position, substantially as described.

7. In a cultivator, a tongue, a ring secured to the upper face thereof, depending hangars secured to said ring, a transverse rock-shaft rotatably mounted in said hangars, a pair of obliquely and forwardly depending wheel-arms secured on said shaft, ground-wheels mounted on said wheel-arms, a hand-lever having its fulcrum secured to said tongue, a pair of crank-arms operated by said lever, rods connecting said crank-arms to said wheel-arms, and cultivating devices secured to said rock-shaft, and extending backward therefrom, whereby said wheel-arms may be pushed back toward a vertical position, for lifting the cultivating devices from the ground and throwing the center of gravity forward with respect to the ground-wheel, by operating said lever, substantially as described.

8. A double-row cultivator, comprising two tongues, a ring secured to each tongue, a gang of cultivating appliances secured to each ring, a seat-plank connecting and supported by said rings, and device slidingly mounted on the rings and adapted for holding the seat-plank in contact with said rings.

9. In a cultivator, a tongue, a ring secured to the tongue, hangars secured to said ring, a rock-shaft journaled in said hangars, wheel-arms secured to said shaft, ground-wheels carried by said wheel-arms, and a disk-carrying frame secured upon said shaft.

10. In a cultivator, the combination of a tongue, a ring mounted on the same, a pivot-pin projecting upward from the tongue centrally of the ring, a seat-plank upon the tongue and pivoted to said pivot-pin, and guides extending transversely of and above said plank and having a sliding connection at their ends with said ring, substantially as described.

11. In a cultivator, the combination of a tongue, a ring mounted thereon, hangars depending rigidly from said ring, a rock-shaft journaled in said hangars, cultivating appliances supported from said rock-shaft, arms depending from the rock-shaft, and ground-wheels carried by said arms, substantially as described.

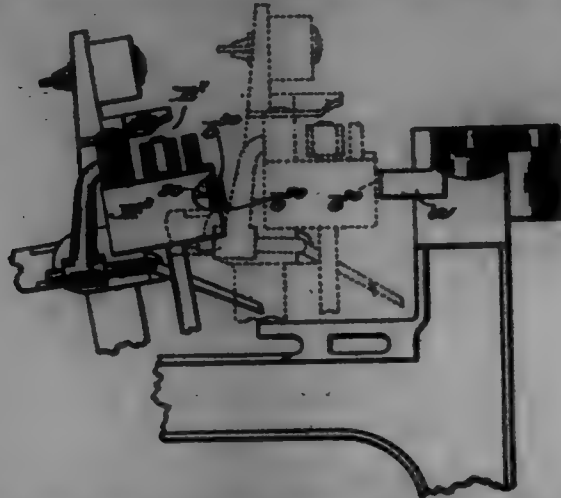
12. In a cultivator, a suitable carrying-frame, a tongue therefor, a rock-shaft suitably journaled, laterally-adjustable wheel-carrying arms supported from said rock-shaft so as to be capable of movement in a vertical plane with said shaft as their axis, beams diverging rearwardly from the wheel-carrying arms, and provided with cultivating appliances at one end and adjustably secured at their opposite ends to said shaft and adapted to move in a vertical plane as said wheel-carrying arms are likewise moved and said shaft is turned, and means for synchronously effecting the movement referred to of said wheel-carrying arms, said shaft, and said beams, and for holding the latter with their cultivating appliances out of contact with the ground.

13. In a cultivator, a transverse rock-shaft, a plurality of wheel-arms adjustably thereon laterally of the machine, ground-wheels upon said arms, cultivating devices supported from said shaft and adjustable laterally of the machine, a hand-lever mounted on the tongue, a crank-shaft operated by said lever, and rods connecting said crank-shaft with the lower portions of the wheel-arms.

701,978. MEANS FOR DEFINING THE BEAT OF THE LAY OF LOGS. CHARLES E. WARNER, Pittsboro, N. C., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Feb. 8, 1901. Serial No. 52,175. (No model.)

Claim.—1. In a beam, the lay, the breast-beam, and a yielding cushion on one to engage on any yielding part of the other as the lay reaches front center on each forward beat.

2. In a loom, the lay, and a yielding buffer therefor operative to take up lost motion and render the forward beat of the lay uniform.

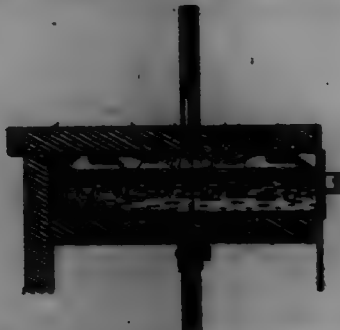


3. In a loom, the lay, a yielding buffer thereon, and a rigid bumper mounted on a fixed part of the loom, to engage the buffer each time the lay beats up, reducing the jar and defining the forward stroke of the lay.

4. In a loom, the lay, a shuttle adapted to contain a supply of filling, a feeder to intermittently engage the filling as the lay beats up, mechanism controlled by or through the feeder when the shuttle-filling is exhausted to a predetermined extent, and a yielding buffer for the lay, to define and render uniform its forward beat, and reduce shock.

5. In a loom, the lay, an elastic rubber buffer mounted on the front thereof, and a fixedly-positioned rigid bumper in the path of and to engage the buffer as the lay reaches its front center on each forward beat.

701,974. TOBACCO-CUTTER. WILLIAM W. WARDER, Ada, Minn. Filed Feb. 27, 1902. Serial No. 96,961. (No model.)



Claim.—1. The combination of a dotted table, a removable water-receptacle beneath the same, a knife vertically movable in the slot, to enter the receptacle, a spring for elevating the knife above the table, scraper-blades in the path of the knife arranged to be moved by the knife in its downward movement to enter the receptacle, a foot-lever connected with the knife to lower it, and means for locking the foot-lever when depressed to maintain the lowered position of the knife and scraper-blades.

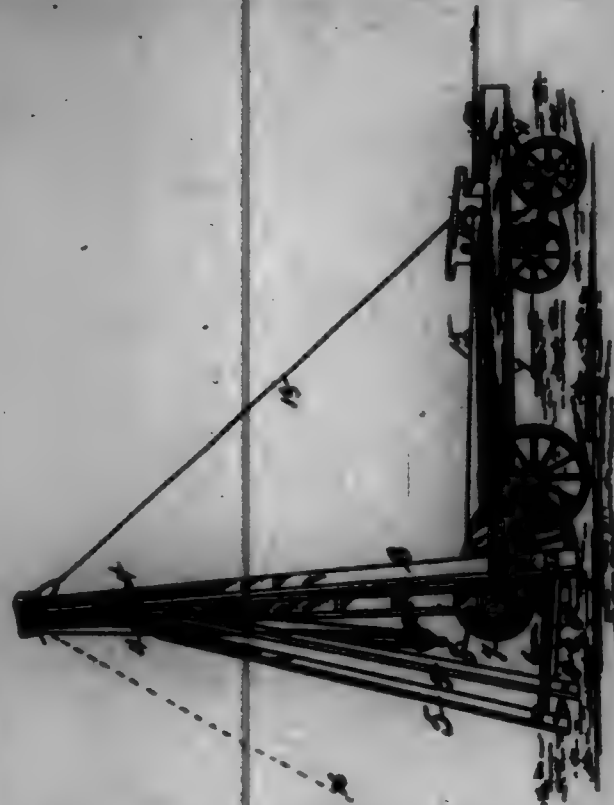
2. The combination of a dotted table, a slightly-removable water-receptacle beneath the same, a knife vertically movable in the slot to enter the receptacle, a spring for elevating the knife above the table, scraper-blades in the path of the knife arranged to be moved by the knife in its downward movement to enter the receptacle, an upright having a slot provided with an offset, a foot-lever connected with the knife to lower it and the scraper-blades and foot-lever moving in the upright slot and engaging the offset to lock the depressed knife and scraper-blades.

701,975. DERRICK. RAYN E. WAVER, Plain, Ohio, assignor of one-half to R. E. Stewart, Baya, Ohio. Filed Aug. 21, 1901. Serial No. 72,702. (No model.)

Claim.—1. In a derrick, a truck, a horizontal frame mounted thereon, side pieces for the frame which side pieces project horizontally rearwardly beyond the truck, derrick-masts, pivotal connections between the masts and the rear ends of the side pieces of the frame, the distance of the pivotal points from the bottom of the masts being such that when the masts are swung upon their pivots in a vertical plane into upright position the bottom of the masts will touch the ground, combined with bracing pivotedly connected with the masts near their upper and lower ends, the arrangement of the masts and bracing being such that they may be folded horizontally upon the truck into parallel relation with each other.

2. In a derrick, a truck, a horizontal frame mounted thereon, derrick-masts, pivotal connections between the rear ends of the side pieces of the frame and the masts, bracing pivotedly connected to the masts near

their top, and pieces adapted to fold into parallel relation and which are pivotedly connected with said masts and with said bracing.



3. In a derrick, a truck, a frame mounted thereon having side pieces which project rearwardly, a shaft journaled in said rearwardly-projecting ends, derrick-masts pivotedly mounted on said shaft, and a drum mounted upon said shaft between said masts.

4. In a derrick, a truck, a frame mounted thereon and having rearwardly-projecting side pieces, a shaft mounted and journaled in said projecting ends of the side pieces, derrick-masts pivotedly mounted upon said shaft, a drum journaled upon said shaft between said masts, bracing pivotedly connected with the masts near their top and pieces adapted to fold into parallel relation and which are pivotedly connected with said masts and with said bracing at bottom.

701,976. REEF-FOLDER. HAROLD WINGGREN, Ryde, England. Filed Sept. 20, 1901. Serial No. 76,914. (No model.)



Claim.—1. The herein-described device comprising a plate or support and a plurality of bars or supplemental supports adapted to be connected therewith at or near its opposite ends and to be held in an inclined position, substantially as shown and described.

2. The herein-described device comprising a plate or support, a bar pivotedly connected therewith at one end and adapted to be held in an inclined position and another bar adapted to be connected therewith at or near the opposite end and to be held in an inclined position, substantially as shown and described.

3. The herein-described device comprising a plate or support, a bar pivotedly connected therewith adjacent to one end thereof and provided with a pivoted pawl operating in connection with transverse notches or recesses formed in said plate or support and another bar adapted to be connected with the plate or support at or near the opposite end and to be held in an inclined position, substantially as shown and described.

701,977. CLOTHES-DRYING APPARATUS. JOHN WILLIAM COVINGTON, Ohio, assignor of one-third to William S. Redgen, Cleveland, Ohio. Filed Mar. 27, 1902. Serial No. 69,164. (No model.)

Claim.—1. A clothes-drying apparatus, comprising a clothes-containing chamber having air-inlets near the bottom, a heater above said

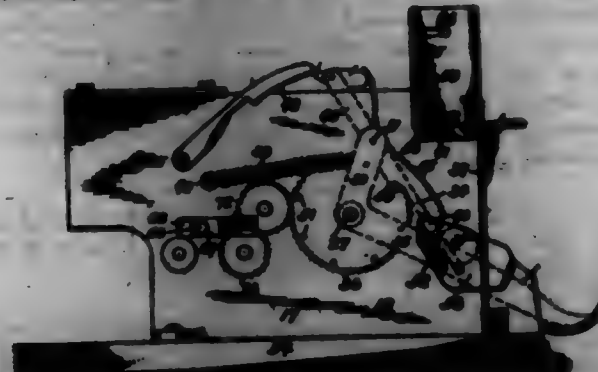
air-inlets, a pipe above said heater, racks above said pipes, pipes above said racks, means for conveying a portion of the air from the bottom pipes through the upper pipes and forcing it down through the racks, and an exhaust intermediate the top and bottom of the said chamber, substantially as described.



2. A clothes-drying apparatus comprising a clothes-containing chamber having air-inlets near the bottom, racks carried by the upper portion of said chamber, a heater above said air-inlets, a suction-pipe above the heater and provided with inlet-openings, a fan on the outside of said chamber and in communication with said pipe, a pipe located in the upper portion of said chamber above the racks and having outlet-openings, said pipe being in communication with said fan, and an exhaust-pipe between the racks and said suction-pipe, substantially as described.

3. A clothes-drying apparatus, comprising a clothes-containing chamber having air-inlets near the bottom, racks carried by the upper portion of said chamber, an elongated heater above said air-inlets, a suction-pipe extending along the entire length above the heater and provided with inlet-openings, a fan on the outside of said chamber and in communication with said pipe, a pipe located in the upper portion of the said chamber above the racks and having openings through said pipe in communication with said fan, and an exhaust-opening in the end of said chamber intermediate the inlet and suction pipes, whereby a portion of the heated air is directed through the clothes, substantially as described.

701,978. ONE-CONTROLLED-DUAL EXHAUSTING AND VENTILATING APPARATUS. DANIEL H. WHAM, Birmingham, N. Y., assignor to Albert L. Weaver, New York, N. Y. Filed Sept. 14, 1900. Serial No. 70,404. (No model.)

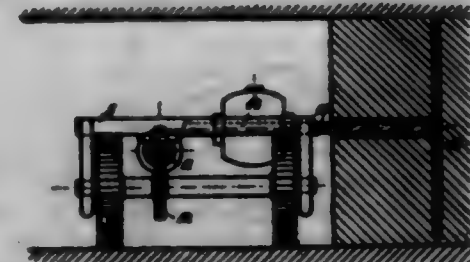


Claim.—1. In combination with a gravity-lever extended into the pathway of the discharge-opening of a coal-chute, and which is provided with a coil-revolving disk that registers with said opening, of a spring-controlled longitudinally-movable catch that is ranged to travel over said disk to vary its length, and which is adapted to rest in abutment against said chute, substantially as described.

2. In a coal-chute-closing device comprising a spindle mounted to partially rotate and carrying a rod that extends upward at substantially right angles, a cross-arm projecting from said rod, in a plane horizontally coincident with and into a slot in the side wall of the coal-chute; and a vibrating lever centered on said spindle in range of the travel of the delivery-drum, as and for the purpose set forth.

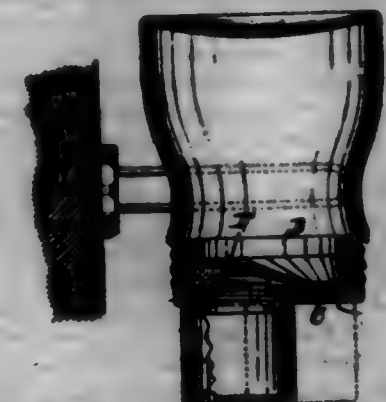
3. The combination with a main actuating-lever in a coal-operated machine, of a smaller bell-lever pivotedly mounted at one side of the coal-passage of the coal-chute, to prevent one arm that is held by a down-pulling spring, in normal contact with the main actuating-lever, while the other arm thereof is positioned to swing into the coal-passage to arrest a coin dropped therein, when the enter arm is allowed to be pulled down in consequence of the depression of the main actuating-handle, substantially as described.

701,979. MACHINE FOR EXTRACTING COAL IN PIECES FROM MINES. CORRAD WIEHLMANN, Schenckleben, Germany. Filed Apr. 9, 1901. Serial No. 84,988. (No model.)



Claim.—A coal-mining machine composed of a truck, a shaft of angular cross-section projecting laterally therefrom and adapted to cut its way through the coal-bed, a circular saw mounted upon the end of said shaft, a transverse arm in horizontal alignment with the shaft, and a wedge mounted upon said arm back of the saw, substantially as specified.

701,980. RECEPTACLE FOR HOLDING AND DELIVERING AMMONIAC SUBSTANCE. EDWARD C. WITMAN, Malden, Mass. Filed Dec. 19, 1901. Serial No. 90,679. (No model.)



Claim.—1. The combination of a receptacle, a cap therein provided with an aperture, a cover, movable on its end and cooperating with the cap-aperture to form a valve therefor, an opening in the cover, a receiver removably attached to the cover at the opening therein and closed from the outer air, the cover-opening and cap-aperture being so disposed that movement of the cover brings them into and out of register with each other as desired.

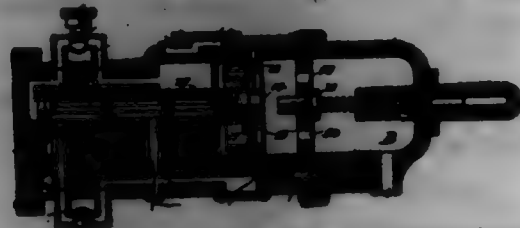
2. The combination of a receptacle, a funnel-shaped cap therein provided with an aperture, a cover, movable on its end and cooperating with the cap-aperture to form a valve therefor, an opening in the cover, a receiver removably attached to the cover at the opening therein and closed from the outer air, the cover-opening and cap-aperture being so disposed that movement of the cover brings them into and out of register with each other as desired.

3. The combination of a receptacle, a cap therein provided with an aperture, a cover lined with yielding material and movable on its end and cooperating with the cap-aperture to form a valve therefor, an opening in the cover, a receiver removably attached to the cover at the opening therein and closed from the outer air, the cover-opening and cap-aperture being so disposed that movement of the cover brings them into and out of register with each other as desired.

4. The combination of a receptacle, a cap therein provided with an aperture, a cover, movable on its end and cooperating with the cap-aperture to form a valve therefor, an opening in the cover, a transparent receiver removably attached to the cover at the opening therein and closed from the outer air, the cover-opening and cap-aperture being so disposed that movement of the cover brings them into and out of register with each other as desired.

8. The combination of a receptacle, a cup therein provided with an eccentrically-placed aperture, a cover-cover supporting with the cup-aperture to form a valve therefor, an opening in the cover, eccentrically placed, a receiver removably attached to the cover at the opening therein and closed from the outer air, whereby a turning movement of the cover brings the cover-opening and cup-aperture into or out of register with each other, as desired.

701,981. AUTOMATIC AIR-BRAKE. GRANVILLE T. WOOD, New York, N. Y., assignor, by means assignment, to the Westinghouse Air Brake Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Feb. 5, 1901. Serial No. 44,092. (No model.)



Claim.—1. In an air-brake system, the combination of a train-pipe having a direct communication with two adjacent pistons or valve chambers, a communication between an auxiliary reservoir and a brake-cylinder, a communication between the train-pipe and the brake-cylinder, a restricted exhaust-passage between the brake-cylinder and the atmosphere, a valve device in one of said chambers and adapted to control said exhaust and also admit air from the auxiliary reservoir to said brake-cylinder when such valve device is in its normal condition, and a normally inert valve device in the remaining or second of said chambers and adapted to admit air-pressure sufficient to apply the brake independently of the condition of the first-mentioned valve device in an emergency application, the said restricted exhaust being adapted to restrict the escape of air from the brake-cylinder if the first-mentioned valve device should fail to close the exhaust when an emergency-brake application is made.

2. In an air-brake system, the combination of a passage from the train-pipe, a passage from the brake-cylinder which is smaller or more restricted than said train-pipe passage, and a valve device, consisting of a valve connected with a ported piston, connecting with both of said passages and controlling communication between said train-pipe passage and the auxiliary reservoir and also between said brake-cylinder and the exhaust whereby when it is desired to release the brake, the train-pipe air will have a passage through said ported piston and thence through a large passage-way to the auxiliary reservoir, the brake-cylinder air will have a passage-way through a valve-controlled restricted passage to the atmosphere.

3. A valve apparatus for automatic air-brakes, having in combination two ports or passages communicating with the brake-cylinder, one of said passages being small and from the auxiliary reservoir and the other a large passage from the train-pipe, so that the flow of auxiliary-reservoir air is restricted as compared with the flow of train-pipe air when both are flowing to the brake-cylinder during an emergency brake action, a ported piston actuated in both directions by air-pressure, a stem having one end suitably connected with said piston, and a suitable valve operated by said stem to open and close the passage from the auxiliary reservoir while said piston controls the valve passage from the train-pipe to the brake-cylinder and opens the same for emergency stops only.

4. In an air-brake system, the combination of a passage from the train-pipe, a passage from the auxiliary reservoir which is smaller or more restricted than said train-pipe passage, and a valve device consisting of a valve which is mechanically connected to and moved in both directions by a ported piston, the said valve device connecting with both of said passages and controlling communication between them and the brake-cylinder whereby, when an emergency application of the brake is desired the train-pipe air and the auxiliary-reservoir air, the former at a lower pressure than the latter, will both have passages open to the brake-cylinder as follows: said train-pipe air-pressure being through said piston and thence through a by-path in the valve-assembly, the said auxiliary-reservoir air-pressure being through another path in the valve-assembly and controlled by said valve.

5. A valve mechanism for automatic air-brakes having in combination, a passage leading to the brake-cylinder from the train-pipe, a passage leading to the brake-cylinder from the auxiliary reservoir, which is smaller or more restricted than said train-pipe passage, a ported piston actuated in one direction, by pressure from the train-pipe to close said train-pipe passage, and actuated in the opposite direction by pressure from the auxiliary reservoir to open said train-pipe passage, a stem having one end suitably connected with said piston, and a valve suitably connected with said stem and moved thereby to control said passage between the auxiliary reservoir and the brake-cylinder, while said piston controls the passage between said train-pipe and the brake-cylinder and opens said passage for emergency stops only.

6. In an automatic air-brake system, the combination, with the train-pipe, an auxiliary reservoir, and a valve device, of a second valve device which is adapted to act absolutely independent of the action or inaction of the first-mentioned valve device and only when emergency brake applications are made, both of said valve devices being adapted to admit air from the auxiliary reservoir to brake-cylinder, and a passage from said train-pipe to said brake-cylinder, and controlled by said second valve device.

7. In an air-brake system, the combination of a train-pipe, two valve devices communicating therewith, the piston parts of both of said devices being constantly under the train-pipe air-pressure and each of said devices being adapted to operate absolutely independent of either the action or inaction of the other and each of such devices being adapted to control a passage leading from the auxiliary reservoir to the brake-cylinder.

8. In an air-brake mechanism, the combination of a train-pipe having a connection to a valve-chamber or casing, a communication between said chamber or casing and an auxiliary reservoir, a communication between said chamber or casing and a brake-cylinder, and a normally inert differential piston-valve device located within said chamber or casing and adapted to act when making emergency stops only, and establish a check-valved communication between said train-pipe and said brake-cylinder, the piston of said valve device being actuated by auxiliary-reservoir air-pressure in one direction to open or establish the latter communication, and moved by train-pipe air-pressure to cut off or close said communication, during such movements said device operating free from any other valve device.

9. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder, two valve devices adapted to act absolutely independent of each other, air communication between said train-pipe and the auxiliary reservoir, air communication between said train-pipe and said brake-cylinder, air communication between said auxiliary reservoir and said brake-cylinder and a restricted air-passage between said brake-cylinder and the atmosphere, each of said valve devices being adapted to influence the air movement from said auxiliary reservoir to said brake-cylinder, one of said valve devices operating only during emergency applications of the brake.

10. In an air-brake system, the combination of a valve device, substantially as described, having a ported piston mechanically connected with a valve, a chamber or case for said piston, a chamber for said valve, a passage from the train-pipe to said piston-chamber, a passage from said piston-chamber to the auxiliary reservoir, a passage from said piston-chamber to the brake-cylinder, a restricted passage from said auxiliary reservoir to the brake-cylinder, and a restricted passage from said brake-cylinder to the exhaust-opening, the said piston when at one end of its cylinder forms a part of a communication between said train-pipe and said auxiliary reservoir, said valve in the meantime forming a part of a communication between said brake-cylinder and said exhaust-opening, but when said piston is at the other end of its cylinder it becomes a part of a communication between said train-pipe and said brake-cylinder, said communication being open for emergency stops only, and said valve, in the meantime, opening a communication between the auxiliary reservoir and said brake-cylinder.

11. In an air-brake mechanism, the combination of a train-pipe having a tubular connection to two adjacent valve-chambers or casings, a tubular connection from each of said chambers or casings to a brake-cylinder, a tubular connection from each of said chambers or casings to an auxiliary reservoir, a passage from the brake-cylinder to the atmosphere, a graduating-valve device located within one of said chambers or casings, and a normally inert differential piston-valve device located within the other chamber or casing, the latter valve device being adapted to operate when making emergency stops only, and control the communication between said train-pipe and said brake-cylinder, each piston of said valve devices being actuated by auxiliary-reservoir air-pressure in one direction to open or establish said communications and moved by train-pipe air-pressure in the opposite direction to close or cut off said communications, in operation said valve devices acting absolutely independent of each other.

701,982. APPARATUS FOR CONVERTING ROTARY INTO RECIPROCATING MOTION. ROBERT H. YALE, Des Moines, Iowa. Filed July 26, 1901. Serial No. 73,122. (No model.)



Claim.—1. A device for converting rotary into reciprocating motion, comprising a prime mover, a closed casing containing a rotary piston chamber,

has a rotary piston therein actuated by said motor, tubular connections leading out of said piston-chamber, a reciprocating-piston chamber with which said tubes connect, a reciprocating piston within said last-mentioned chamber, a body of liquid within both said piston-chambers and said connecting-tubes, and valves for deflecting said liquid out of said rotary-piston chamber, through said connecting-tubes and against opposite sides alternately of said reciprocating piston, substantially as set forth.

2. A motion-converter comprising a closed casing, an annular rotary-piston chamber therein, a rotary piston within said chamber, tubular connections forming passage-ways leading from opposite portions of said annular chamber, a reciprocating-piston chamber in the ends of which said tubes connect, a reciprocating piston within said last-mentioned chamber, a body of liquid within both said piston-chambers and said connecting-passages, and sliding valves operated by said rotary piston across said annular chamber, for deflecting the flow of said liquid out of said rotary-piston chamber and against opposite sides alternately of said reciprocating piston, substantially as set forth.

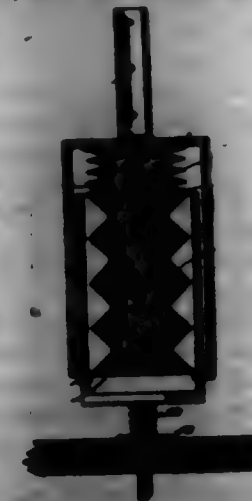
3. A motion-converter comprising a rotary-piston chamber, a rotary piston therein, tubular connections or passage-ways leading out of said chamber, a reciprocating-piston chamber with which said tubes connect, a reciprocating piston within said last-mentioned chamber, a body of liquid within both said piston-chambers and said connecting-tubes, and valves operated by said rotary piston for deflecting the flow of said liquid through said connecting-tubes against opposite sides alternately of said reciprocating piston, substantially as set forth.

4. A motion-converter comprising a prime mover, a rotary-piston chamber, a rotary piston therein, tubular connections or passage-ways leading out of said chamber, a reciprocating-piston chamber with which said tubes connect, a reciprocating piston within said last-mentioned chamber, a body of liquid within both said piston-chambers and said connecting-tubes, valves operated by said rotary piston for deflecting the flow of said liquid through said connecting-tubes against opposite sides alternately of said reciprocating piston, and suitable connections between said valves causing them to operate simultaneously, substantially as set forth.

5. A motion-converter comprising an annular rotary-piston chamber, a rotary piston therein, tubular connections or passage-ways leading from said annular chamber, a reciprocating-piston chamber with which said tubes connect, a reciprocating piston within said last-mentioned chamber, a body of liquid within both said piston-chambers and said connecting-passages, valves operated across said annular chamber for deflecting the flow of said liquid against opposite sides alternately of said reciprocating piston, and a rod connecting said valves to cause them to operate in unison, substantially as set forth.

6. A motion-converter comprising a rotary-piston chamber, a piston within said chamber, a reciprocating-piston chamber, a reciprocating piston therein, passage-ways connecting said chambers, a body of liquid within said chambers and said connecting-passages, and valves for directing the movement of said liquid out of said first-mentioned chamber through said passage-ways and against opposite sides alternately of said reciprocating piston, substantially as set forth.

701,983. STROKE-REGULATOR. ROBERT H. YALE, Des Moines, Iowa. Filed Aug. 20, 1901. Serial No. 73,572. (No model.)



Claim.—1. The combination with a reciprocating rod for communicating power from a prime mover to a machine to be operated, of a stroke-regulator adapted to be interposed between two sections of said rod, the same comprising a casing and a body of liquid therein, said body of liquid forming a cushion or abutment between the rod-termini, and said casing being capable of collapse and expansion, to reduce or increase longitudinally the space occupied by said liquid and the distance between said rod-termini, substantially as set forth.

2. The combination with a reciprocating rod for communicating

power, of a stroke-regulator for regulating the amount of work performed per stroke of said rod, the same comprising a casing interposed between two sections of said rod, said casing containing two chambers, a pressure-chamber and a relief-chamber, connected with each other by a passage-way, said pressure-chamber being held between the oppositely-extended rod-termini, and being capable of collapse and expansion, to vary the longitudinal distance between said terminus, a body of liquid within said chambers, and means for controlling the capacity of said passage-way, substantially as set forth.

3. In a stroke-regulator, the combination of the rod divided into two sections, the frames forming the termini of said rod-sections, the casing carried by said frames, a pressure-chamber within said casing, a body of liquid within said chamber, forming an abutment between the power and the work, a relief-chamber, a valve-controlled passage-way between said chambers, and means for collapsing and expanding the pressure-chamber, to vary the length thereof and the longitudinal distance between said rod-sections, substantially as set forth.

4. In a stroke-regulator, the combination of the two sections of the rod, the casing having a pressure-chamber and a relief-chamber therein, said pressure-chamber being held between the oppositely-extended rod-termini, and being capable of collapse and expansion, to vary the longitudinal distance between said terminus, a body of liquid within said chambers, a passage-way connecting said chambers, and a valve controlling said passage-way adapted to close and prevent the liquid from passing out of the pressure-chamber when the pressure is strong, and to remain open and permit the liquid to pass into the relief-chamber when the pressure is weak, substantially as set forth.

5. In a stroke-regulator of the character described, the combination of the casing having two chambers with a body of liquid therein, one of said chambers being collapsible and held between the rod-termini, so as to form a variable abutment between the power and the work, a passage-way between said chambers, a valve controlling said passage-way, and means for retarding the movement of said valve when pressure is applied thereto by said liquid, substantially as set forth.

6. In a stroke-regulator, the combination of the two sections of the rod, the casing, the collapsible pressure-chamber therein, the relief-chamber, the body of liquid within said chambers, the valve-controlled passage-way between said chambers, the terminal frame connected to the power-section of the rod and supporting the casing, and the terminal frame connected to the working section of the rod and carrying the partition and valve interposed between said chambers, substantially as set forth.

7. The combination with a source of power and a reciprocating rod actuated thereby of a stroke-regulator attached to and forming, with said rod, a connection between said power and the device to be operated, said regulator comprising a casing and a body of liquid therein, oppositely-extended termini connected with the power and the work respectively, said body of liquid forming a cushion or abutment between said termini, and said casing being capable of collapse and expansion, to reduce or increase longitudinally the space occupied by said liquid and the distance between said termini, substantially as set forth.

701,984. PILLOW-CHAM HOLDER. MARY A. YEMER, Chicago, Ill. Filed Oct. 4, 1900. Serial No. 23,097. (No model.)



Claim.—1. In a pillow-chamber holder, the combination of two clamping portions each having projecting ends, a rod spanning a projecting end of

each clamping portion, clamping-screw mechanism for holding the clamping portions in position on a bed, and a removable supporting-bar provided with projections at an angle with the main body portion thereof mounted non-rotatably in the sockets, substantially as described.

2. In a pillow-sham holder, the combination of two circular metallic clamps each having projecting ends one of which for each clamp is provided with a socket, clamping mechanism for holding each clamp in position on a bedstead, and a non-rotatable supporting-bar having two downwardly-projecting portions removably mounted in the sockets, and provided with means for securing the pillow-sham thereto substantially as described.

3. In a pillow-sham holder, the combination of two circular metallic clamps each having projecting ends one of which for each clamp is provided with a socket, clamping-screw mechanism for holding each clamp and socket adjustably in position on the posts of the bedstead, a one-piece web-covered removable supporting-bar having inwardly and downwardly projecting ends non-rotatably mounted in the sockets, substantially as described.

701,985. MOPPING DEVICE. HARRISON F. ASKERRAN, Cleveland, Ohio. Filed May 12, 1901. Serial No. 60,104. (No model.)



Claim.—1. In mopping-machines, a pair of continuously-moving mops, and means for driving the same in reverse directions in combination with means for wringing the mops while moving in contact with each other, substantially as set forth.

2. In mopping-machines, a suitable supporting-frame, endless mops movably held thereon, and means for causing said mops to travel in different directions in combination with suitable carrying-rollers for said frame, and means for controlling the position of the frame on said rollers, substantially as set forth.

3. In mopping-machines, a suitable supporting structure, endless webs of moisture-absorbing material movably held thereon, and means for causing said webs to travel in different directions in combination with rolling supports for said structure, and means for controlling the position of the structure on each support whereby either one of said webs may be brought into action, substantially as set forth.

4. In mopping-machines, a pair of mops running in contact with each other between wringer-rolls, a pair of tanks located in operative relation to the wringer-rolls, means for directing the extracted water into either tank, and means for delivering water in advance of either mop, in combination with means for movably supporting the mops tanks &c., and suitably controlling constructions whereby either mop may be brought into operation, substantially as set forth.

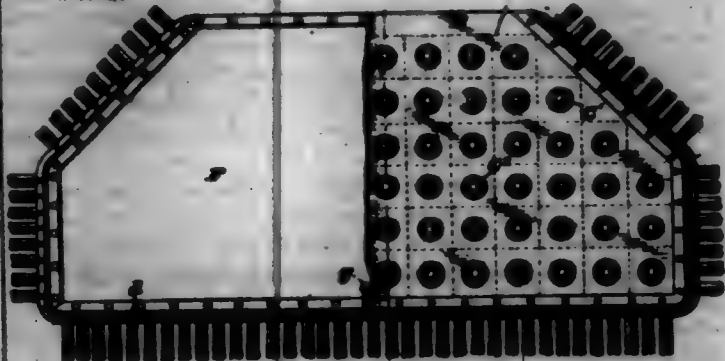
5. In mopping-machines, a pair of continuously-moving mops, means for wringing said mops simultaneously, and means for moving them in reverse directions, in combination with means adapted to bring either mop into action upon a surface to be mopped, substantially as set forth.

6. In mopping-machines, a movable structure, supporting-rollers therefor, and a pair of mopping devices secured thereto, in combination with a controlling-handle pivotally secured to the structure and means for

removably holding the same in extreme positions whereby either of the mopping devices may be brought into action, substantially as set forth.

7. In mopping-machines, a continuously-moving fabric, rollers for supporting the same, an enlarged cross-section of said fabric extending lengthwise thereof, and companion pieces of the rollers formed of smaller diameter, substantially as set forth.

701,986. TERMINAL FOR ELECTRIC FURNACES. EDWARD S. ASKINSON, Buffalo, N. Y. Filed May 24, 1900. Serial No. 712,000. (No model.)



Claim.—The combination with a graphic carbon electrode, of a connector comprising a plate, means for connecting the electrode and connector, a flange on the connector, and a plate secured to the flange forming in connection therewith and the connector a tank, substantially as described.

701,987. NON-REFILLABLE BOTTLE. URBAN S. ALB, Baltimore, Md., assignor of thirteen-twentieths to Augustus M. Danhard, Frederick Danhard, and William R. Engel, Baltimore, Md. Filed Sept. 20, 1901. Serial No. 73,004. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the neck of the bottle having beads therein; of the cap or head having a transverse opening through the same, a flat spring passed through said opening so that its ends project beyond opposite sides of the head; together with the valve stopper comprising the tube forming a valve-seat, a valve-plug having a stem, spiders forming guides for the valve-plug, a flange washer at the under side of the valve-plug, and a cork ring encircling the lower end of the tube, substantially as shown and described.

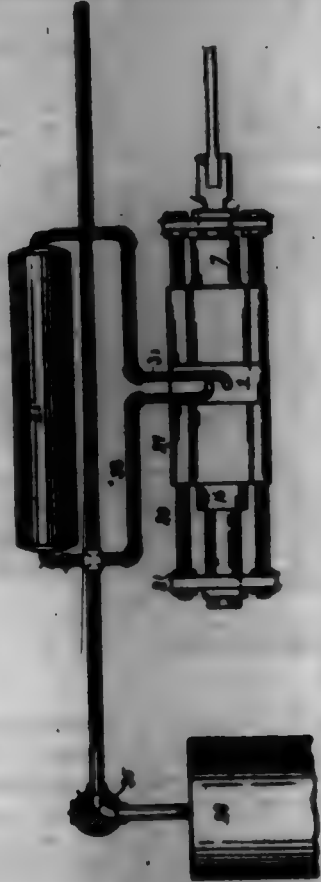
2. In a non-refillable bottle, the combination with the bottle, of a cap or head having springs adapted to engage a head in the neck of the bottle, a valve stopper comprising the tube D forming a valve-seat and having an internal groove, a valve-plug provided with a stem extending through the tube, a spider inserted in the tube and engaging the groove, a second spider embracing the lower end of the tube, and a cork ring placed over the lower spider, said spiders forming guides for the stem of the valve-plug; together with a spring adapted to move the valve-plug to its seat, substantially as shown and described.

3. In a non-refillable bottle, the combination with the bottle, of a cap or head comprising two disks, one having a T-shaped projection and the other a recess to receive said projection, flanges on one of the disks adapted to be upset upon the projection on the other disk, a flat spring interposed between the disk with its ends projecting beyond the sides of the cap or head; together with a valve stopper consisting of a tube or valve-seat, a valve-plug movable against the upper end of said tube, a stem on the valve-plug having a head at its lower end, spiders for guiding the valve-plug and limiting its upward movement, a spring for moving the valve-plug to its seat, and a cork ring around the lower end of the tube, substantially as shown and described.

701,988. AIR BRAKE. DENNIS EMMETT, Detroit, Mich., assignor of one-fourth to Otto Rosenbush, Detroit, Mich. Filed Sept. 7, 1901. Serial No. 74,007. (No model.)

Claim.—1. In an air-brake system, the combination of the double cylinders of different areas, pistons in said cylinders, side rods connecting

said pistons whereby they are caused to travel in unison, one of said pistons being connected with the brake mechanism, means for introducing air under equal pressure into said cylinders between said pistons and the opposed ends of said cylinders and means for reducing the air-pressure in the cylinder of larger area.



2. In an air-brake system, the combination of a double cylinder having a solid dividing-wall and having cylinder-chambers in its opposite ends of unequal area, pistons occupying said cylinders one of which is connected with the brake mechanism, means for connecting said pistons to cause them to travel in unison, means for introducing air under pressure into said cylinders between the pistons and said push-wall and means for reducing the air-pressure in the cylinder of the larger area.

3. In an air-brake system, the combination of two cylinders of different areas divided by a solid push-wall, pistons of different areas occupying said cylinders respectively, means connecting said pistons to cause them to travel in unison, one of said pistons being adapted to be connected with the brake mechanism, an auxiliary reservoir communicating with the cylinder of smaller area between its piston and said push-wall, a train-pipe communicating with the cylinder of larger area and means for reducing the train-pipe pressure below that of the auxiliary reservoir.

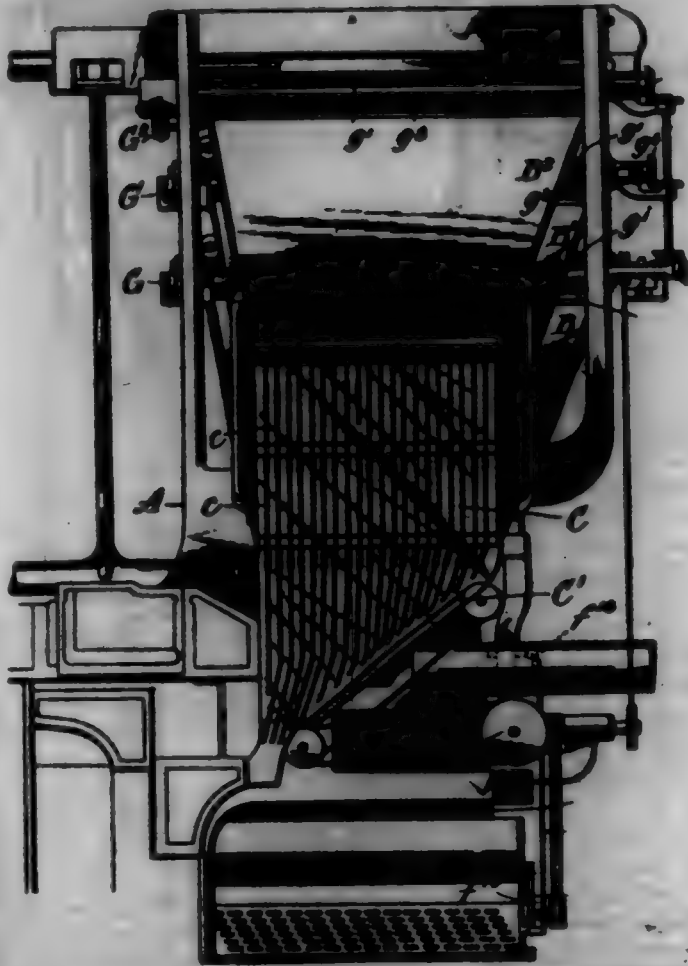
4. In an air-brake system, the combination of a duplex cylinder having a solid push-wall between the opposed chambers, the chambers in said cylinder being of unequal area, pistons located in said chambers, said pistons having outwardly-extending piston-rods, cross-heads in which said piston-rods are secured, side rods connecting said cross-heads, one of said piston-rods being adapted to be connected with a brake mechanism, the other of said piston-rods being adjustably connected to its cross-head, ports in said push-wall communicating with the cylinders respectively, an auxiliary reservoir communicating with the port of the smaller cylinder, a train-pipe communicating with the port of the larger cylinder, a main reservoir or source of pressure, communicating with the train-pipe and with the auxiliary reservoir and means for reducing the pressure in the train-pipe.

701,989. LINO-TYPE-MACHINE. JAMES B. BELL, Wilmington, Del. Filed Sept. 12, 1901. Serial No. 76,335. (No model.)

Claim.—1. In a linotype-machine the combination of a plurality of superposed magazines; an independent set of escapements for each magazine; an auxiliary rod and connections between the same and the escapement for each magazine, there being one longitudinal row of auxiliary rods for each magazine, and the several rods being limited one to the rear of the other; a set of operating-keys; a main rod for each key; and means for shifting all of the main rods bodily in a direction from front to rear or vice versa into operative relation with either one of the rows of auxiliary rods to the exclusion of the others, substantially as and for the purposes hereinbefore set forth.

2. In a linotype-machine the combination of a plurality of superposed magazines, an independent set of escapements for each magazine, a set of auxiliary rods for each set of escapements, said auxiliary rods

of each set of escapements above passing up through the magazine or magazines below between the channels therein, connections between the upper end of each auxiliary rod and its appropriate escapement, a set of operating-keys, a main rod for each key, and means for shifting all of the main rods bodily and together into operative relation with either one of the sets of auxiliary rods to the exclusion of the others, substantially as and for the purposes hereinbefore set forth.



3. In combination with the feed-screws of a linotype-distributor, a matrix-conducting chute through which matrices are fed to the feed-screws, having its lower end adjustable lengthwise of the screws with reference to the threads therein substantially as and for the purposes hereinbefore set forth.

4. In a linotype-machine having a plurality of superposed magazines and distributors, one for each magazine, combined with means for delivering a line of matrices from all the magazines to the topmost distributor and passing the same first through that distributor and thence through the other distributors in succession, reversely-arranged distributors each having a ribbed bar and feed-screws located so that the discharge end of the distributor above shall be over and in communication with the entrance end of the distributor next below, and actuated so that the feed-screws of any one distributor shall feed in a direction opposite to that in which the feed-screws of the next adjacent distributor feed, substantially as and for the purposes hereinbefore set forth.

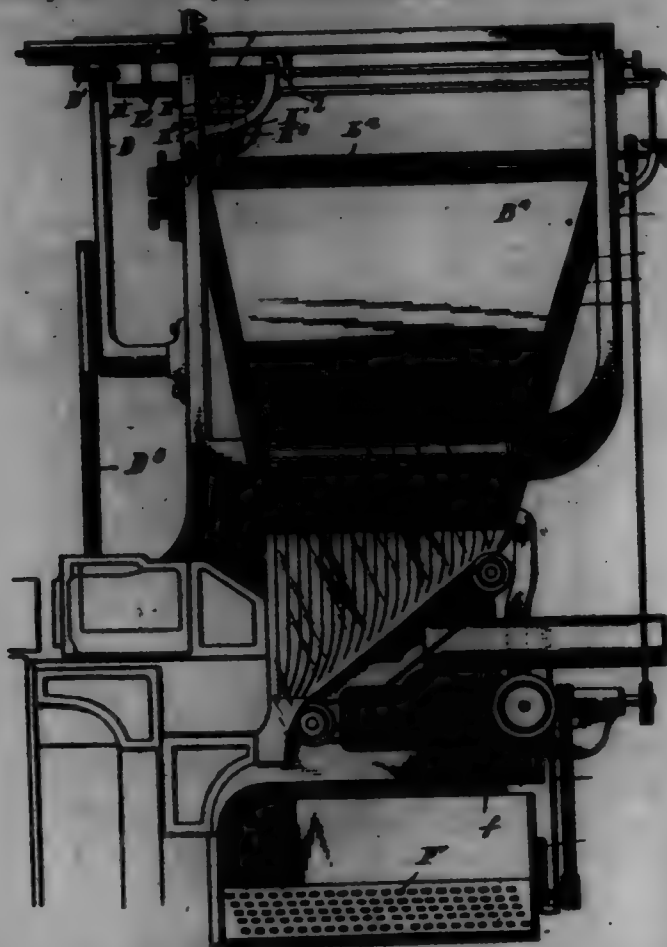
5. In combination with the feed-screws and distributor-bar of a linotype-distributor, a matrix-conducting chute through which matrices are delivered to the feed-screws, and inclined rails by which the matrices as they are fed along are raised into engagement with the distributor-bar, said chute and inclined rails being adjustable bodily and together lengthwise of the feed-screws, substantially as and for the purposes hereinbefore set forth.

6. In combination with the feed-screws and distributor-bar of a linotype-machine, a matrix-conducting chute through which the matrices are delivered to the distributor, having its delivery end directly over the threads of the feed-screw, so that the cam of the delivered matrix shall enter between and engage the threads of the feed-screws and a floor or stop for arresting the further descent of the matrix below this position, substantially as and for the purposes hereinbefore set forth.

701,990. LINO-TYPE-MACHINE. JAMES B. BELL, Wilmington, Del. Filed Nov. 14, 1901. Serial No. 76,331. (No model.)

Claim.—1. In a linotype-machine a plurality of superposed magazines each adapted to receive a full assortment of the characters used in the machine, and an individual distributor having a ribbed bar and feed-screws for each magazine, in combination with a selector having a ribbed bar and feed-screws located above the individual distributors, a separate

chain or matrix passage-way from the collector to each individual distributor, matrices having two sets of perforated teeth, the one to engage the collector-bar and the other to engage the appropriate individual distributor-bar, and means for delivering a line of said matrices to the collector, substantially as and for the purposes hereinbefore set forth.



2. In a linotype-machine, a plurality of magazines and an individual distributor for each magazine, in combination with ribbed collector-bar and feed-curveds for separating out the matrices of each magazine from those of the others, matrices having at the top a perforated set of teeth to engage the ribbed bar of its appropriate individual distributor, and at the bottom a perforated set of teeth to engage the ribbed collector-bar, means for delivering a line of said matrices to the collector-bar, and for conducting the same from said collector-bar each to its own individual distributor, means for turning the matrices upside down, before they engage the main collector-bar, and means for turning the matrices and for and so as to bring them again top uppermost after they have the collector-bar and before they reach their appropriate individual distributors, substantially as and for the purposes hereinbefore set forth.

3. In combination with the collector-bar and feed-curveds, the receiving-box having a ribbed or twisted base, and means for delivering matrices to and pushing them through said box, substantially as and for the purposes hereinbefore set forth.

4. In a linotype-machine the combination with a ribbed distributor-bar and feed-curveds and an elevator and pusher for delivering a line of matrices thereto, of an interspersed receiving-box formed to receive the matrices as they are pushed from the elevator, a central supporting-rib on, a vertically-reciprocating depressor which pushes downward the front matrix of the line into a position to be taken by the feed-curveds, and a shelf for arresting the descent of the matrix at a point where it will be in position as it is advanced by the feed-curveds, to engage the ribbed distributor-bar, substantially as and for the purposes hereinbefore set forth.

5. The combination with the collector-curveds and means for delivering a line of matrices thereto at a level above that at which they will engage the feed-curveds, of a vertically-reciprocating depressor for pushing down the matrices successively into position to be taken by the collector-curveds, and actuating mechanism for said depressor, substantially as and for the purposes hereinbefore set forth.

701,991. VIEL-FASTNER. ARNOLD BRYANT, Newark, N. J. Filed Feb. 11, 1902. Serial No. 93,498. (No model.)

Claim.—1. A veil-fastener comprising a brooch having upon the back the pivot *c* with curved goose-neck feet *e* attached to the edge of the brooch and holding the pivot considerably within each edge, the flap *f* hinged to the pivot and having the thumb-piece *i* concealed within the edge of the brooch and its end bent back sharply from the flap and thus adapted to open the flap at a wide angle, a spiral spring applied to the pivot *c* to

press the flap normally toward the brooch, and the end of the flap being bent toward the brooch to form a step at the edge of the brooch with an open channel extending across the breadth of the brooch between the step and the curved feet *e*, the thumb-piece and the body of the brooch thus being adapted to grasp between the fingers of one hand when applying to the veil.



2. A veil-fastener comprising a brooch having upon the back the pivot *c* with curved goose-neck feet *e* attached to the edge of the brooch and holding the pivot considerably within each edge, the flap *f* hinged to the pivot and having the thumb-piece *i* concealed within the edge of the brooch and its end bent back sharply from the flap and thus adapted to open the flap at a wide angle, a pin projected from the flap obliquely toward the end of the flap, a spiral spring applied to the pivot of the flap to press the same normally toward the brooch, and the casing *d* upon the flap to conceal the spiral spring, substantially as herein set forth.

701,992. POST-HOLE DIGGER. DAVID A. BOWEN, Johnstown, Pa., assignor to David H. Coleman and R. C. Kerr, Johnstown, Pa. Filed Jan. 28, 1902. Serial No. 90,900. (No model.)

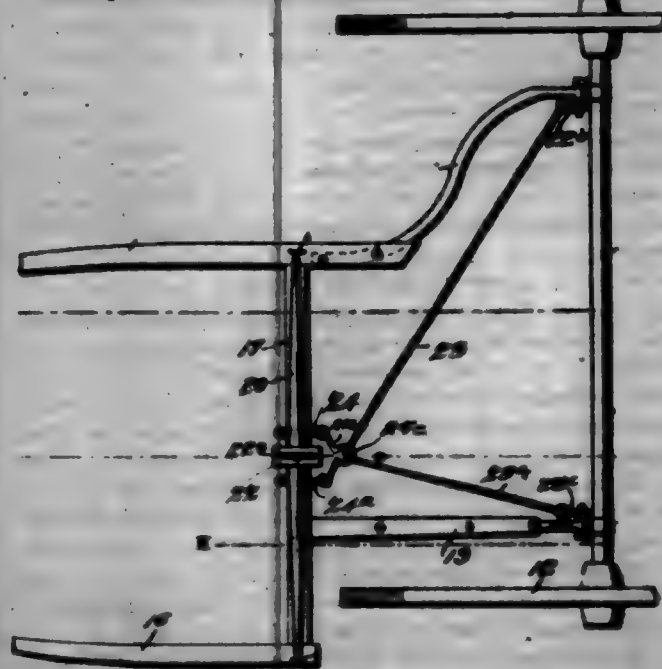


Claim.—In a post-hole digger, an expandable shaft comprising two sections divided longitudinally through the head and point and having their meeting faces provided with threaded grooves, mortise-and-tenon connections for the sections and a plug threaded approximately its full length engaging the threads of the sections in such manner as to separate the sections from end to end, substantially as described.

701,993. WATCH-DIAL. WILLIAM BRANK, Villars, Switzerland. Filed Feb. 18, 1902. Serial No. 94,670. (No model.)

Claim.—In combination with the dial and movement-plate *P*, the latter having a recess in its edge, a screw secured to the movement-plate and having a head reaching up and engaging the edge of the dial, the head of said screw being fitted in the recess of the movement-plate and having a projection at its upper edge extending out beyond the edge of the dial and movement-plate whereby said plate with its dial may be fitted into the watchcase, substantially as described.

701,994. VEHICLE-THRILL. HENRY C. BAKER, Lehigh, Iowa. Filed Apr. 28, 1902. Serial No. 100,124. (No model.)



Claim.—1. A vehicle-thrill connection comprising the shaft coupled to the axle at one side of the center line of the vehicle, a whiffletree mov-

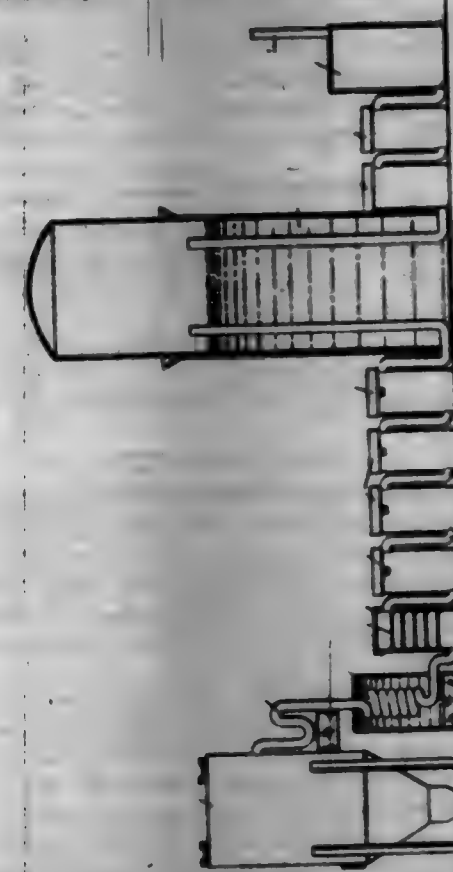
ably connected to said shaft, and draft-rod connecting said whiffletree to said axle at equidistant points on opposite sides of said center line, substantially as described.

2. A vehicle-thrill connection comprising the axle having jiff-couplings disposed thereon at equidistant points on opposite sides of the center, the shaft disposed at one side of the center line of the vehicle, means for connecting said shaft flexibly to said jiff-couplings, a whiffletree movably connected to said shaft, and draft-rod flexibly connecting said whiffletree to said shaft-couplings, substantially as described.

3. In a vehicle-thrill connection, the shaft connected to the vehicle at one side of the center, a whiffletree-bearing connected centrally to said whiffletree-shaft, a whiffletree movably connected in said bearing, draft-rod flexibly connected to said whiffletree and engaging said vehicle at equidistant points on opposite sides of its center, substantially as described.

4. In a vehicle-thrill connection, the shaft connected to the vehicle at one side of the center, a whiffletree-bearing having longitudinal slots and connected centrally to said shaft, a whiffletree engaging said bearing and having a pivot-pin loosely engaging said slots, draft-rod connected flexibly to said whiffletree and engaging said vehicle at equidistant points on opposite sides of its center, substantially as described.

701,995. METHOD OF PURIFYING ACETYLENE GAS. JOHN A. BROWN, Bradford, Canada. Filed Dec. 15, 1900. Serial No. 40,411. (No specimens.)



Claim.—1. The process of purifying acetylene gas, consisting in passing gas from the generator through charcoal, having the pores and surface thereof permeated with dry cotton of iron previously deposited from a solution of the same whereby the impurities of the gas are brought by the adhesive property of the charcoal into intimate contact with the metal throughout the pores.

2. In the process of purifying acetylene gas, consisting in passing it over and through a porous and absorbent refractory material, such as lava, having affinity for the residues of the oily hydrocarbons.

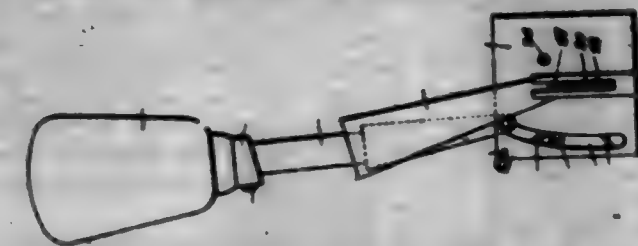
3. The method of treating and purifying acetylene gas consisting in first subjecting the generated gas to the action of a condenser, then passing the gas so treated over charcoal treated with a solution of metallic salt, then passing the gas over and through calcium carbide and then through a chamber containing lava or refractory material such as that of which the tips are made as specified.

4. The method of treating and purifying acetylene gas consisting in first subjecting the generated gas to the action of a condenser then passing the gas so treated over charcoal treated with a solution of metallic salt, then passing the gas through calcium carbide and then passing the gas through a chamber containing lava or refractory material such as that of which the tips are made previous to its entrance to the gasometer, then finally subjecting the gas in the gasometer before its entrance to the main to the action of charcoal treated with a solution of metallic salt and to the action of carbide as specified.

5. The method of purifying acetylene gas, which consists in passing the gas after it has been purified and before it enters the main into contact successively with charcoal treated with metallic salt, calcium carbide and refractory material such as lava as and for the purposes specified.

6. The method of purifying acetylene gas, which consists in passing the gas after it has been purified and before it enters the main into contact successively with charcoal treated with a solution of metallic salt and refractory material, such as lava, as specified.

701,996. STAMP-AFFIXER. BERNARD E. GALTIER, Montreal, Canada. Filed Sept. 24, 1900. Serial No. 36,914. (No model.)



Claim.—1. A device of the character described comprising a platen, a roller, means for guiding or directing a label-strip close to said roller, a gripper mounted on the platen to cooperate therewith, and means for actuating the platen and the gripper, as and for the purposes described.

2. A device of the character described comprising a frame, a roller, a movable affixing-platen, a gripper carried by the platen, means for opening the gripper as the platen is pressed to an affixing position, and a moistener having means adapted to supply moisture to a surface prior to the application of a stamp or label, as and for the purposes set forth.

3. A device of the character described comprising a suitable frame, a platen, a roller disposed adjacent to the path of the platen and above the affixing position thereof, a gripper mounted on said platen to cooperate therewith and adapted to travel with the roller, means for opening the gripper at two periods of its travel with the platen, and a moistener, substantially as set forth.

4. A device of the character described comprising a suitable frame, a platen, a roller, a gripper mounted on said platen and movable therewith through certain parts of the travel of the roller, means for closing the gripper as the platen approaches the roller, means for releasing the gripper prior to the adjustment of the platen to its affixing position, and a moistener, substantially as set forth.

5. A device of the character described comprising a suitable frame, a movable affixing-platen, a roller, means for directing or guiding a label-strip close to said roller, a gripper movable with the platen and occupying a closed relation thereto as it recedes from the roller, whereby the platen and gripper cooperate to draw the label-strip, means for releasing the gripper prior to the platen assuming an affixing position, and a moistener, substantially as set forth.

6. In an affixing implement, the combination with a movable pressure-platen, and means for actuating the same, of a gripper mounted on said platen and movable therewith, and a gripper-actuating mechanism to open the gripper with relation to the platen on the elevation of the latter and to keep the gripper closed on the descent of said platen, substantially as described.

7. In an affixing implement, the combination with a movable pressure-platen, and means for actuating the same, of a gripper loosely mounted on the platen and adapted to rise and fall therewith, means for closing the gripper on its descent with said platen, and means to positively open the gripper on the elevation of the platen, said means cooperating with the gripper-closing means to positively hold said gripper in the closed condition during certain periods of its movement with the platen, substantially as described.

8. In an affixing implement, the combination with a pressure-platen, and actuating means therefor, of a gripper connected with said platen to travel therewith, a crushed shaft connected with the gripper, means for actuating said shaft, and a retractor for the gripper, substantially as described.

9. In an affixing implement, the combination with a pressure-platen, and an actuating means therefor, of a flanged gripper, a yoke, a crushed shaft connected to said yoke and to the gripper, and springs acting against the gripper, substantially as described.

10. In an affixing implement, a pressure-platen provided with a receptacle and with a moistening-pad, and a gripper loosely fitted between said receptacle and the platen to be connected thereto for inversion with the parts, combined with a platen-actuating device arranged to invert the platen on its downward travel, and a gripper-actuating mechanism operable to hold the gripper operative during such inversion of the platen and to release the gripper at the period of pressing the platen upon the work, substantially as described.

11. In an affixing implement, the combination with a pressure-plate, an actuating means therefor and a gripper, of a stamp-slide pivotally mounted adjacent to the path of the platen and yieldable to the movement of the latter, a cutter and means for normally holding the stamp-slide in the path of the platen and in position to supply stamps or labels to the same, substantially as described.

12. In an affixing implement, the combination with a pressure-plate and an actuating means therefor, of a biased foot-plate provided with a guide-face and with fingers for a stamp or label, a cutter adjacent to the path of the fingers, and retractors for said foot-plate, substantially as described.

13. In an affixing implement, the combination of a pressure-plate, an actuating means therefor, a gripper movable with the platen and disposed in gripping relation thereto, gripper-actuating means to hold the latter in active relation to the platen during the descent thereof and operable to release the gripper on the final period of movement of the platen, a stamp-slide normally in the path of the platen, means for yieldably holding the stamp-slide in place, and a cutting device arranged to cover one stamp or label from a strip during the period of descent of the platen and the gripper, substantially as described.

14. In an affixing implement, the combination of a platen, an auxiliary yoke connected therewith, a gripper on the platen, a main yoke having a tube, a cranked shaft between the main yoke and the gripper, a handle, a resistance-screw, and the springs, substantially as described.

15. In an affixing device, a pressure-plate, and a gripper mounted loosely and in co-operating gripping relation to the platen, combined with means for giving reciprocating movement to the platen, and gripper-actuating devices arranged to positively hold the gripper in operative relation to the platen during the descent thereof and to release the gripper from its operative position at the final period in the downward travel of the platen, as set forth.

16. In an affixing device, the combination of a pressure-plate, a gripper movable with and in co-operating gripping relation to said platen, a platen-actuating device, and a gripper-actuating device to hold the gripper in operative relation to the platen during the descent thereof, said gripper-actuating device being operable to release the gripper at the final downward travel of the platen and thereby allow the gripper to be thrown out of operative position by the resistance offered by the surface upon which the label or other device is to be affixed, as set forth.

17. In an affixing device, the combination with a stand, a pressure-plate, and a hand-yoke connected to said platen, of a gripper co-operating with said platen, and another yoke having operative connection with the gripper, said yokes being operable with the platen and the gripper to depress the parts simultaneously and to keep the gripper closed until the platen reaches its affixing position, whereby the strain or pressure on the gripper is relaxed prior to the final downward thrust on the platen and said gripper is free from the stamp or label, as set forth.

18. In a stamp-affixing device, a pressure-plate, a gripper connected loosely thereto and disposed normally in co-operating relation therewith, and a retractor-spring acting against the gripper, combined with means for primarily actuating the platen, and means for actuating the gripper at the same time that the platen is made to rise and fall, said gripper-actuating means opening the gripper at the initial period of its descent with the platen, then closing the gripper into co-operative relation to the platen as the parts continue their downward movement, and finally releasing the gripper at the final period in the descent of the platen, substantially as described.

19. In an affixing device, the combination with a pressure-plate, and means for actuating the same, of a gripper, a gripper-actuating mechanism, a pivoted stamp-slide normally disposed in the path of the platen, and a spring for yieldably holding the stamp-slide in position and permitting it to clear itself on the descent of the platen, substantially as described.

20. In an affixing device, the combination of a stand, a movable affixing pressure-plate, a gripper, means for actuating said pressure-plate and the gripper, a cutter mounted on the stand and having a cross-formed cutting edge disposed adjacent to the path of said platen, and a stamp-slide mounted on the stand for yieldable movement relative to the path of the platen and to the cutter, substantially as described.

21. In an affixing device, the combination of a stand, a movable affixing pressure-plate, a gripper, actuating devices for the platen and the gripper, a cross-formed cutter mounted on the stand adjacent to the path of the platen, a stamp-slide, and retaining-fingers carried by the stamp-slide and disposed on opposite sides of the cross in the cutting edge of said cutter, substantially as described.

22. In an affixing device, the combination of a pressure-plate, a gripper co-operatively related to the platen, yokes having separate connections with the platen and the gripper to actuate the same simultaneously as set forth, and a yieldable heel disposed in the path of the platen and adapted to engage therewith on its return upward movement to normal position, substantially as described.

23. In an affixing device, a pressure-plate provided in rear of its working face with a receptacle having the inclined and perforated wall and arranged to normally enclose an upright position wherein the liquid contents of the receptacle lie away from the perforated wall, and a pad against the perforated wall, combined with a gripper, and means for actuating the platen and the gripper, substantially as described.

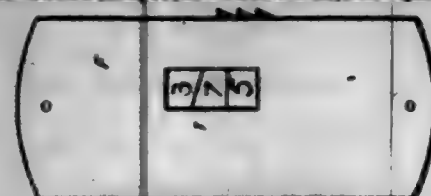
24. In an affixing device, a pressure-plate having a receptacle and a pad in rear of the active surface thereof, and a gripper loosely confined between the platen and the receptacle and provided with an element in opposing relation to the platen's active face to co-operate therewith in gripping the article to be affixed, combined with devices for actuating the gripper and the platen, a stamp-slide, and a cutter, substantially as described.

25. In a device of the character described, the combination with a movable affixing-plate, and means for actuating the same, of a gripper movably connected to the platen and held in normal closed position by a retractor, means arranged to guide a label-strip to the gripper and platen in the raised position of the parts, a cutter, and devices disposed in co-operative relation to the gripper for opening the same while in the raised position and for giving the movement to said gripper when depressed with the platen below said cutter.

26. In a device of the character described, the combination with a platen, and means for actuating the same, of a yieldable guide having means actuated by the platen-opening device, whereby the guide is positively thrown out of the path of the platen during certain periods in the movement of the latter, substantially as described.

27. In a device of the character described, the combination with a platen, and means for actuating the same, of a pivoted guide disposed in co-operative relation to the platen-actuating device and provided with a chute through which a stamp or label is adapted to be fed, substantially as described.

701,987. EDUCATIONAL DEVICE. FRANK W. DAVENPORT, Providence, R.I. Filed Feb. 1, 1902. Serial No. 38,032. (No model.)



Claim.—1. Two or more revolvable disks wholly disconnected, having figures on their faces and arranged to display some of the figures on each disk adjacent to some of the figures on the other, so they can be read in order, in combination with means that shall enable the finger by a single movement and by striking individual contact with each disk, to turn them all positively, and exactly a predetermined distance and continue such action indefinitely.

2. Two or more revolvable disks wholly disconnected, and having figures on their faces, and arranged to display some of the figures on each disk adjacent to some of the figures on the other disk so they can be read in order, in combination with means that shall enable the finger, in a single movement, and by making individual contact with each disk, to turn them all positively, and exactly a predetermined distance, and by repeating, cause each disk to make a complete revolution in a different period of time from its fellows.

3. A front plate, a back plate, and a central plate, a revolvable disk bearing figures on its face, pivoted to each plate, and free from connection with the other disks, all so combined that a figure on each disk shall be displayed at an opening in the front plate, and adjacent to figures on the other disks, means for causing at pleasure one or more of the figures at the point of display, and means to enable the finger by a single movement, and by making individual contact with each disk, to turn them all positively, and a predetermined distance and continue such action indefinitely.

701,998. GARMENT-SUPPORTER. FLETCHER DOUGLAS, Cleveland, Ohio, assignor to Peter W. Ward and Albert E. Collingsbourne, Cleveland, Ohio. Filed Oct. 7, 1901. Serial No. 77,314. (No model.)



Claim.—1. A garment-supporter comprising the combination with two relatively slidable members, of means for securing each member to each other, each member jointly forming fastening devices at each end of the supporter.

2. A garment-supporter comprising the combination of two relatively slidable members, means for securing each member to each other, contiguous ends thereof being provided with a button and keyhole-slot, and jaws respectively, and means for closing each jaw.

3. A garment-supporter comprising the combination of two relatively slidable members, means for securing each member to each other, contiguous ends thereof being provided with a button and keyhole-slot and jaws respectively, and a slidable sleeve engaging both members and adapted to close said jaws.

4. A garment-supporter comprising two fastening devices at opposite ends of the supporter, each device consisting of a pair of spring-jaws and means for closing same, and a button and keyhole-slot the latter being relatively slidable.

5. A garment-supporter comprising two fastening devices at opposite ends of the supporter, each device consisting of relatively slidable flexible metallic members and means for securing same to each other.

701,999. NON-CONDUCTING COVERING FOR PIPE FITTINGS OR JOINTS. JOHN W. FARLEY, Cleveland, Ohio. Filed Jan. 15, 1902. Serial No. 39,378. (No model.)



Claim.—1. A detachable covering for the joints and flanges of sections of covered pipes, comprising a casing with an enlarged central chamber having necks projecting from the ends thereof adapted to be inserted over the ends of the covered pipe-sections, and passages open from end to end of said casing by which a free circulation of air is established through the same, substantially as described.

2. A detachable covering for the joints and flanges of sections of pipes comprising a covering attached to the pipes, the covering on one pipe abutting against the flange thereof, while a space is left between the covering and flange of the other pipe for the purpose of allowing the withdrawing of the bolts from the flanges of the pipe-joints, an enclosing casing having air channels or passages open from end to end, and provided with end portions adapted to fit over the ends of said pipe-coverings, and an enlarged approximately central chamber, substantially as described.

702,000. NON-REFILLABLE BOTTLE. GEORGE FENNER, New York, N.Y. Filed May 4, 1901. Serial No. 54,894. (No model.)



Claim.—1. An improved non-refillable bottle, comprising a body portion, a neck portion and a stopper, said neck portion consisting of an upper part and a lower part, which are integrally connected in a line of severance, the lower part of said neck portion being formed into a seat for said stopper which latter is permanently connected with the upper part of said neck portion by means of a plurality of interior corrugations formed in said upper part of said neck portion.

2. An improved non-refillable bottle, comprising a body portion, a neck portion and a stopper, said neck portion consisting of an upper part and a lower part integrally connected by a plurality of frangible pillars, the lower part of said neck portion being formed into a seat for said stopper which latter is permanently connected with the upper part of said neck portion by means of a plurality of interior annular toothed corrugations formed in said upper part of said neck portion.

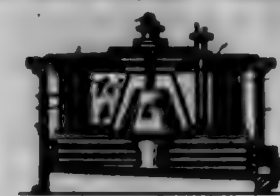
702,001. CORK-EXTRACTOR. HERBERT H. HAY, New York, N.Y. Filed Oct. 22, 1901. Serial No. 56,367. (No model.)

Claim.—In a cork-extractor, the combination of a resilient bow or fork, a hollow handle embodying a plurality of open-ended hollow parts, the said open-ended hollow parts being adapted for engagement with each other, one of the said hollow parts being slotted to receive the arms of the bow or fork adapted to be alternately contained within the said handle and to be fitted thereto to extend from the said handle, the middle portion of the bow being adapted to form a bearing against the interior of the hollow handle, substantially as described.

702,001.



702,002. APPARATUS FOR DYEING YARN. JOHN C. HANER, Rastatt, England. Filed Jan. 2, 1902. Serial No. 53,334. (No model.)



Claim.—1. In an apparatus for dyeing or otherwise treating yarn in cup and similar compact form, a casing, a revolving removable annular perforated cage therein, a perforated wall in the said cage having a flange at its bottom resting upon the bottom of the said cage and a liquid-inlet pipe internally adjacent to the said wall, the latter forming an annular space in the said cage which is open at the top, all combined substantially as and for the purpose set forth.

2. In combination, the casing, the driving-shaft depending therein having a conical boss, a hollow cone encircling said boss, a perforated cylindrical cage carried by said boss, a removable annular wall between the cage and cone, and a perforated pipe depending into the space between the cone and annular wall, substantially as described.

702,003. FAN ATTACHMENT FOR BICYCLES. PHILIP E. HANSEN, Carthage, Mo. Filed May 12, 1901. Serial No. 50,912. (No model.)



Claim.—1. A bicycle attachment comprising a support adapted for application to the frame of a bicycle, and a bladed fan-carrying canopy revolvably mounted upon the support.

2. A bicycle attachment comprising a revolvable canopy or sunshade provided on its upper side with blades and on its under side with a fan.

3. A bicycle attachment comprising a support adapted for application to a bicycle-frame, a rotatable socket mounted upon the support, and a bladed fan-carrying canopy having a standard detachably mounted in and rotatable with the socket.

4. A bicycle attachment comprising a support, adapted for application to the frame of a bicycle, and provided with a vertically-disposed opening, a rotatable head having a central opening corresponding to the first-named opening, and provided in its outer face with recesses intersecting the opening, a socket fitted in the corresponding openings and provided with lateral projections to engage the respective recesses to interlock the socket with the head, and a bladed fan-carrying canopy having a standard detachably mounted in the socket and rotatable therewith.

5. A bicycle attachment having a circular bracket provided with a central circular opening, a circular rotatable head mounted upon the bracket and provided with a central opening corresponding to that in the bracket, and with recesses intersecting the opening, a plurality of upstanding members

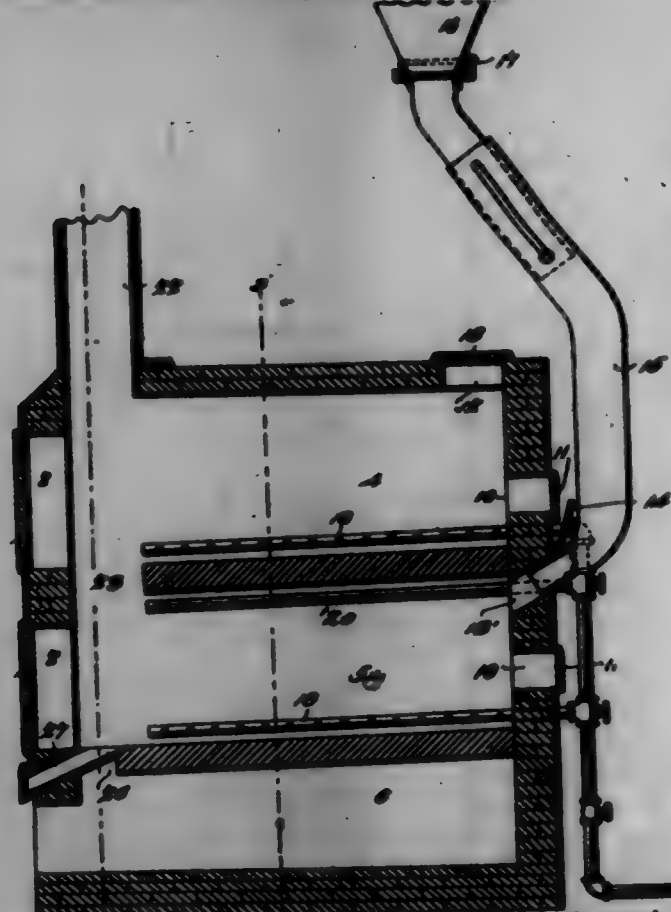
ginal guards rising from the bracket and embracing the margin of the head, a socket fitted through the corresponding openings and provided with lateral projections fitting in the recesses, pivoted latches upon the head and constructed to lie across the recesses and the projections, a standard removably fitted in the socket and rotatable therewith, and a bladed fan-carrying canopy mounted on the standard.

6. A bicycle attachment having a support provided with a vertical opening and a concentric groove in its upper face, a friction-balls movable in the groove, a rotatable head mounted upon the balls and provided with a central opening registering with that of the support, a standard removably fitted in the said opening and connected with the head, and a bladed fan-carrying canopy mounted upon the standard.

7. A bicycle attachment having a support provided with vertical openings, a sectional socket rotatably mounted in the openings, one or more elastic bands embracing the sections of the socket, and a bladed fan-carrying canopy having a standard clamped within the socket.

8. A bicycle attachment having a support, a rotatable head mounted thereon, a bladed fan-carrying canopy supported upon the head, and a set-screw pivoting the head and frictionally engaging the support.

702,004. ORE-ROASTER. JOHN L. HARRIS, Knoxville, Mo. Filed Dec. 28, 1901. Serial No. 57,317. (No model.)



Claim.—1. An ore-roasting furnace comprising the front and rear walls having feed and discharge openings, floors and partitions arranged within the furnace and dividing the same into upper and lower ovens, and perforated pipes extending within the ovens and connected to a supply of fluid fuel.

2. An oil-burning ore-roasting oven comprising the front and rear walls having feed and discharge openings, the side walls and flooring, and perforated oil-supply pipes arranged directly within the oven at a point near the opposite side walls and comprising the source of fuel-supply to said oven.

3. The combination in an ore-roaster, of the front and rear walls having feed and discharge openings, a flooring dividing the furnace into two or more tiers or ovens, perforated oil-supply pipes arranged along the opposite side walls of each oven at a point near the floor-level, and an auxiliary supply-pipe arranged within the lower oven at a point below the roof thereof.

4. The combination with two superposed ovens, of perforated fuel-supply pipes leading into each oven, the flooring of the upper oven being provided with a passage or flue to permit the escape of gas from the lower oven.

5. The combination of the superposed ovens having inclined floors, and provided with a connecting-flue, an escape-flue leading from the upper oven, and a discharge-chute leading from the lowermost point of the flooring of the lower oven, the chute and flue being disposed in vertical alignment thereby to permit the independent discharge of the contents of either oven.

5. The combination in an ore-roaster, of the lower cooling-chamber 2, superposed ovens arranged thereabove and having communicating flues or passages, oil-supply pipes 18 arranged within each oven at a point near the floor-level, an oil-supply pipe 20 arranged in the lower oven at a point near the top of the same, governing-valves on said pipes, and a removable chute 27 arranged at the front end of the floor of the lower oven, substantially as specified.

702,005. DRAFT-REGULATOR FOR LOCOMOTIVES. OTTO HÄHNEL, Dresden, Germany. Filed Jan. 20, 1901. Serial No. 48,318. (No model.)

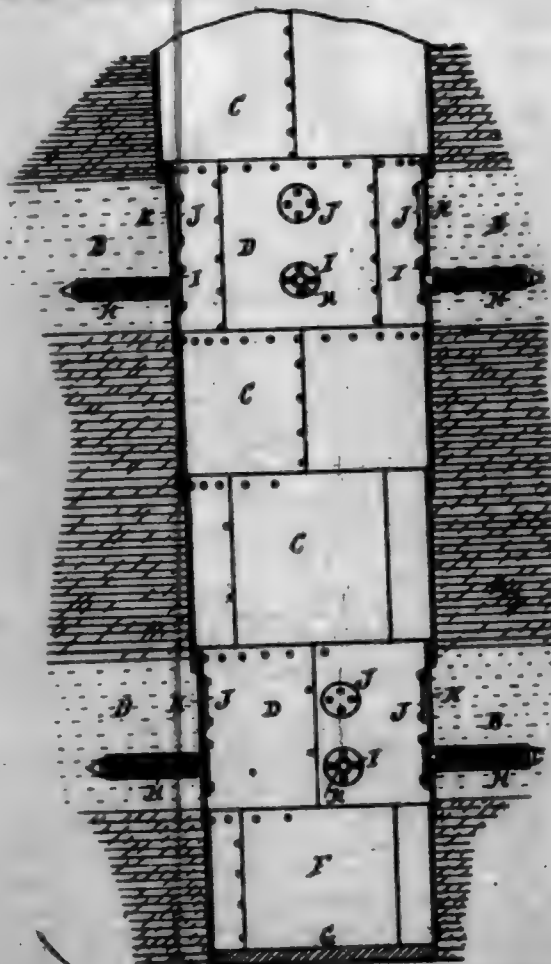


Claim.—1. An exhaust-regulator for locomotives, comprising an exhaust-pipe, a valve pivoted therein, a branch pipe connected to the exhaust-pipe, means in the branch pipe to control the valve, and a rod extending through the branch pipe to connect the valve and its controlling means.

2. An exhaust-regulator for locomotives comprising an exhaust-pipe, a valve pivoted therein, a branch pipe connected directly to the exhaust-pipe a valve-seat therein, a valve in the branch pipe, means to hold the said valve in position on the valve-seat, and means extending through the exhaust-pipe and branch pipe to connect the respective valves in the said pipe.

3. An exhaust-regulator for locomotives comprising an exhaust-pipe, a valve located therein, a branch pipe connected to the exhaust-pipe and provided with a valve-seat, a valve in the branch pipe normally held closed by a spring, means to regulate the tension on the spring and means extending through the branch pipe to connect the respective valves.

702,006. WELL-CASING AND STRAINER. JAMES G. RUTHERFORD, Para, Ill. Filed Aug. 2, 1900. Serial No. 28,360. (No model.)



Claim.—1. A tubular well-casing having strainer-holes communicating horizontally with water-bearing strata, closures for the holes, and

strainers adapted to the holes when the closures therefor are removed, substantially as described.

2. A tubular well-casing having strainer-holes communicating horizontally with water-bearing strata, closures-plugs for the holes inside the casing, bolts to hold the closures-plugs in place and strainers having securing-rings, bolt-holes of which coincide with the bolt-holes of the closures-plugs, substantially as described.

3. In a tubular well-casing a diametrically-diminished section secured in place by an intervening ring, and horizontal strainer-tubes insertible through normally closed holes in the diminished section, substantially as described.

4. The combination of a tubular well-casing having holes in its side walls and strainers of smaller diameter than the holes of the casing inserted through each hole from the inside outward and rigidly secured therein.

5. The combination of a tubular well-casing having holes in its side walls, strainers smaller in diameter than the holes of the casing extended through each hole from the inside of the casing outward and flanges on the inner ends of the strainers secured to the inner surface of the casing.

702,007. DEPOSIT CREDIT-BOOK. CHARLES T. DUNN, Akron, Ohio. Filed Mar. 22, 1902. Serial No. 59,426. (No model.)

The Ledger		The Ledger	
In and Out		In and Out	
Dr.	Cr.	Dr.	Cr.
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2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
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Claim.—1. An improved account-book, the pages of which have appropriately-headed columns for entries showing the dates and amounts of deposits and withdrawals, with the net balance and date of same and kind of rebate-cards issued, substantially as shown and described and for the purpose specified.

2. The combination with an account-book having columns for entries indicating the dates and amounts of deposit and withdrawals, the net balance resulting therefrom and the date and kind of rebate-cards issued on said net balance, of rebate-cards bearing on their exterior indicia corresponding to the entries on said rebate-column, substantially as shown and described.

702,008. OIL-BURNER. AUGUST JENSEN, San Francisco, Cal. Filed Apr. 12, 1901. Serial No. 55,545. (No model.)



Claim.—1. In an oil-burner, the combination with burner-tubes, an air-supply, and a fuel-feed pipe, of an inclined oil-distributing plate disposed below the discharge end of the fuel-pipe and having its lower edge turned upward to arrest the flow of oil and form a shallow reservoir and the upper portion of said upturned portion having notches with channels leading therefrom down the outer front of the upturned portion.

2. In an oil-burner the combination with burner-tubes, an air-supply, and a fuel-feed pipe, of an inclined oil-distributing plate disposed below the cold pipe and receiving the oil therefrom said plate being curved in the direction of its length and having its lower edge upturned to arrest the oil and form a shallow reservoir which extends transversely across the front end of the plate, and the upper edge of said upturned portion of the plate having notches with tapering channels extending from the bottom of the notches down the outer front of the upturned edge and made deepest at the base of the notches and becoming more shallow

and disappearing at a point above the bottom edge of said upturned portion.

3. The combination in an oil-burner of an exterior air and an interior air and oil pipe, means for supplying and regulating the flow of air through the two pipes, flattened horizontal elongated discharge-mouths for the two pipes approximately in the same vertical plane, an oil-supply pipe leading into the lower burner-pipe at the rear of the discharge-mouth, a declining plate upon which the oil is delivered, said plate having an upturned front with notches formed through the channels connecting with each of said notches extending down the outer front of the upturned portion, said channels having the greatest depth at their junction with the notches and disappearing on the surface-level at points above the bottom of the plate.

702,009. PROCESS OF MAKING CEMENT. FREDERICK C. JOHNSON, Spokane, Wash. Filed July 11, 1901. Serial No. 57,921. (No model.)

Claim.—1. The herein-described method of making Portland cement, which consists in decarbonating a lime-bearing substance, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, and then agitating the mixture in the presence of a hydrating agent.

2. The herein-described method of making Portland cement which consists in decarbonating a lime-bearing substance, mixing therewith, while in an incandescent state, a suitable quantity of moist silicious clay and then agitating the mixture in the presence of a hydrating agent.

3. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, and then agitating the mixture in the presence of a hydrating agent.

4. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay and then agitating the mixture in an air-tight holder in the presence of a hydrating agent.

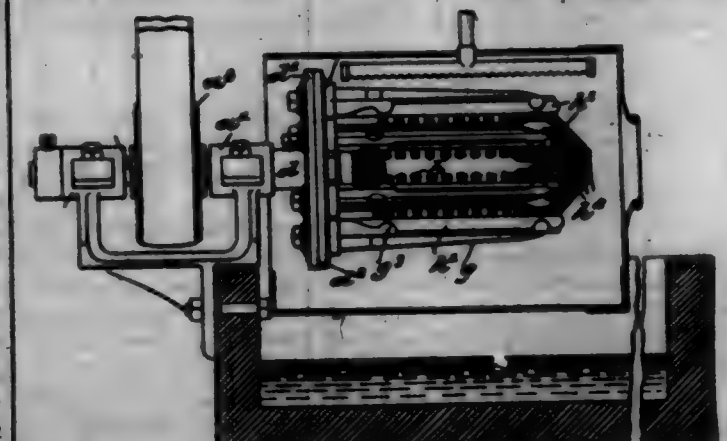
5. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, then passing the material to an air-tight holder and introducing into the mixture a fluxing agent, and then agitating the mixture in the presence of a hydrating agent.

6. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, then passing the material to an air-tight holder and introducing into the mixture a mixture of silicious soda and then agitating the mixture in the presence of a hydrating agent.

7. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, then agitating the mixture in the presence of a hydrating agent, and effecting thorough commingling of the materials, then molding, then burning, and finally reducing to a pulverulent mass.

8. The herein-described method of making Portland cement which consists in decarbonating limestone, mixing therewith, while in an incandescent state, a suitable quantity of silicious clay, then passing the material to an air-tight holder and introducing into the mixture a binding and fluxing agent, and then agitating the mixture in the presence of a hydrating agent.

702,010. BOTTLE-WASHING MACHINE. JAMES KAYNE, Philadelphia, Pa. Filed Sept. 20, 1901. Serial No. 78,702. (No model.)



Claim.—1. In a bottle-washing machine, a main or driving shaft, a central brush having its axis adjustable in said driving-shaft and forming a yielding support for the base of the bottle, a disk secured to and rotating with said driving-shaft, a series of brushes surrounding the central

brush and each provided with a standard, means for removably fixing said standard to the disk, and means for adjusting said standards in said disk to cause the series of brushes to approach toward or recede from the central brush and driving-shaft.

2. In a machine of the character described, a brush, a standard having a channelled portion adapted to receive and retain the back of said brush, a fin or rib extending along the entire back of said channelled portion to strengthen the standard, a round end formed on the standard beyond the channelled portion, and a rotating dotted disk in which the round end of said standard is adapted to be secured.

702,011. DEVICE FOR REMOVING BROKEN TAPS. JOHN K. YALL, Worcester, Mass., assignor of one-half to John Schroeder, Worcester, Mass. Filed Mar. 15, 1900. Serial No. 96,494. (No model.)



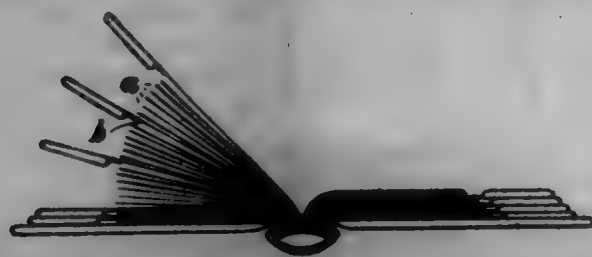
Claim.—1. In a device for removing broken taps, the combination of a holder provided with longitudinal grooves, of tap-engaging bars held in said grooves and capable of sliding therein, means for simultaneously sliding said bars in said grooves into engagement with the grooves in the tap, substantially as described.

2. The combination with a holder provided with longitudinal grooves for a series of tap-engaging bars, tap-engaging bars held in said grooves and capable of sliding therein, a collar for holding said bars and sliding them simultaneously in said grooves, substantially as described.

3. The combination of a holder having longitudinal grooves, tap-engaging bars held in said grooves, a clamping-collar capable of sliding on said holder and clamping the ends of said bars, substantially as described.

4. The combination of the grooved holder, tap-engaging bars held in said grooved holder and capable of sliding therein, a collar engaging said bars, and a sleeve enclosing said holder and bars, substantially as described.

702,013. BOOK-SHOOTING LEAVES WIDE AND NARROW LEAVES. ARTHUR G. KRYSTON, Springfield, Mass., and SUMNER B. KRYSTON, New York, N. Y., assignors to Account, Audit & Assurance Company, New York, N. Y., a Corporation of New Jersey. Original application filed Aug. 18, 1899; Serial No. 737,717. Divided and this application filed Nov. 12, 1901. Serial No. 51,978. (No model.)



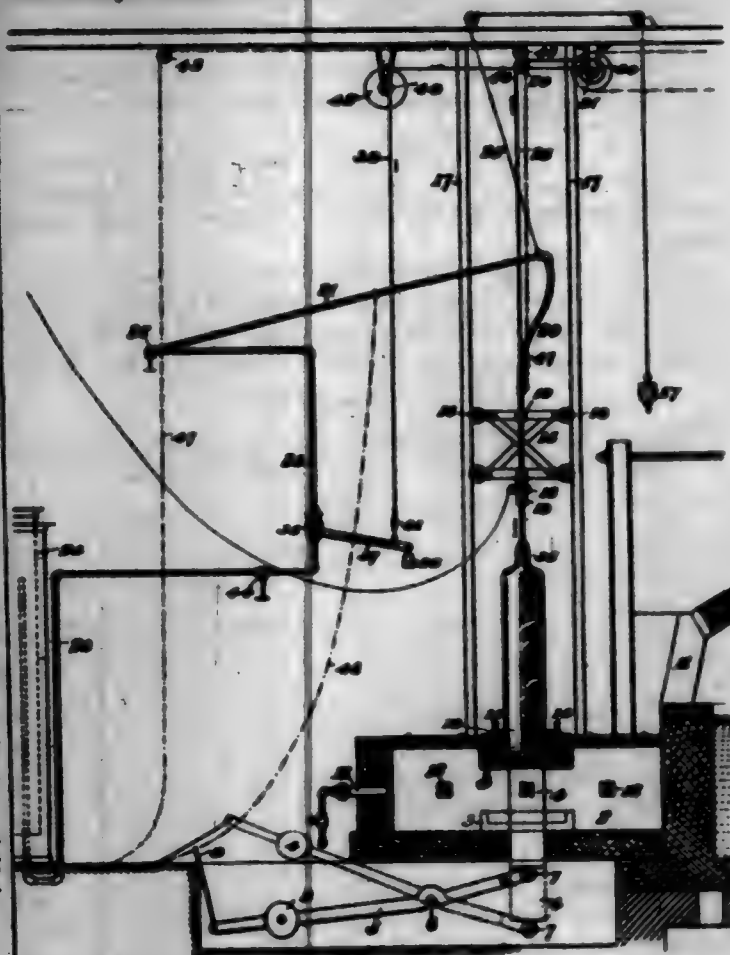
Claim.—A book having wide and narrow leaves and formed of unit-sections with an odd-number of narrow leaves in each section, and each section comprising a wide and narrow leaf in one piece with a group of narrow leaves in pairs inserted in the fold of each wide and narrow leaf, and the projecting margin of the wide leaf being reinforced to agree in thickness with the other leaves of the section, substantially as herein set forth.

702,018. APPARATUS FOR DRAWING GLASS. JOHN E. LONNEN, New Kensington, Pa., assignor, by direct and mesne assignments, to James A. Chambers, trustee, Pittsburgh, Pa. Filed Sept. 30, 1900. Serial No. 51,368. (No model.)

Claim.—1. Apparatus for forming glass cylinders, comprising a receptacle for molten glass, means for heating that portion of the body of glass from which the cylinder is drawn, a shield arranged to cut off the heat from the exterior of the cylinder adjacent to the drawing-point, a belt having a fluid-supply pipe connected thereto, and connections for raising and lowering the belt; substantially as described.

2. Apparatus for forming glass cylinders, comprising a receptacle for molten glass, a source of heat arranged to heat that portion of the body of glass from which the cylinder is drawn, a shield arranged to prevent access of the heat to the exterior of the cylinder, a movable belt having a fluid-supply connection, a chilling-ring surrounding the cylinder adjacent to the drawing-point and arranged to cool it by radiation, and means for applying a cooling medium to said ring; substantially as described.

3. Apparatus for forming hollow glass articles, comprising a receptacle for molten glass, a drawing-tool, an annular chilling-ring arranged to surround the article adjacent to the drawing-point and cool it by radiation, means for cooling the ring, and an air-supply channel arranged to supply air to the interior of the article during the drawing operation; substantially as described.



4. In glass-drawing apparatus, a hollow drawing-pipe connected to a source of fluid under pressure, and mechanism for automatically regulating the fluid-supply during the drawing operation; substantially as described.

5. In glass-drawing apparatus, a hollow drawing-pipe connected to a source of fluid under pressure, a valve controlling the fluid-supply, and a connection with a moving element arranged to automatically operate the valve during the drawing operation; substantially as described.

6. In apparatus for drawing hollow glass articles, a receptacle for molten glass, a vertically-movable frame thereover, a drawing-tool detachably fastened to the frame and connected to a source of fluid under pressure, and a cooling-ring surrounding the article adjacent to the drawing-point and arranged to cool it by radiation; substantially as described.

7. In glass-drawing apparatus, a heating-chamber, a glass-containing vessel with its bottom portion within said chamber, and a fluid-cooled ring above the level of the glass in the vessel; substantially as described.

8. In glass-drawing apparatus, a receptacle for molten glass, a heating-chamber arranged to heat the lower part of the receptacle, an annular shielding device, and a water-cooled ring within the shielding device and arranged to cool the article by radiation; substantially as described.

9. In apparatus for forming hollow glass articles, a hollow drawing-tool connected to a source of fluid under pressure, a cooling-ring arranged to chill the outer surface of the article by radiation adjacent to the drawing-point, and means for applying a cooling medium to said ring; substantially as described.

10. In glass-drawing apparatus, a hollow drawing-tool connected to a source of fluid under pressure, a hollow ring arranged to chill the exterior of the article by radiation adjacent to the drawing-point, and connections arranged to cause a flow of cooling fluid through said hollow ring; substantially as described.

11. In glass-drawing apparatus, a receptacle for molten glass, a movable belt, a fluid-cooled chilling device arranged to chill the glass by radiation, a source of heat, and a refractory shield between the chilling device and said heat; substantially as described.

12. In glass-drawing apparatus, a tank-furnace having a forehearth extension, drawing apparatus above the glass in the extension, means for heating that part of the body of glass from which the article is drawn, and a shield arranged to shield the glass adjacent to the point of drawing, from the heat; substantially as described.

13. In glass-drawing apparatus, a tank-furnace having a forehearth extension, drawing apparatus above the glass in the extension, means for

heating that part of the body of glass from which the article is drawn, a shield arranged to shield the article adjacent to the drawing-point from the heat, and a cooling device arranged to chill the article by radiation adjacent to the drawing-point; substantially as described.

14. In glass-drawing apparatus, a hollow fluid-cooled ring, and an annular shield surrounding the same; substantially as described.

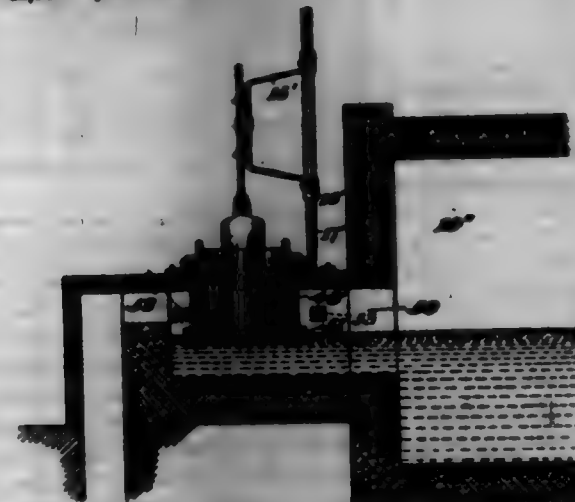
15. In apparatus for forming hollow glass articles, a receptacle for molten glass, a drawing device, a duct arranged to supply a fluid to the interior of the article, a cooling-ring arranged to chill the outer face of the article by radiation around its circumference, and means for uniformly applying a cooling medium to said cooling device; substantially as described.

16. In apparatus for forming hollow glass articles, a receptacle for molten glass, a drawing device above one part of the receptacle, means for heating that part of the body of glass from which the article is drawn, a duct arranged to supply a fluid to the interior of the article, a cooling-ring arranged to chill the outer face of the article by radiation around its circumference, and means for supplying a cooling medium to said ring; substantially as described.

17. In glass-drawing apparatus, a tank-furnace having a forehearth extension, apparatus for drawing glass upwardly from the extension and out of contact with any shaping-surface, and means for heating the glass in said extension; substantially as described.

18. Apparatus for forming glass articles comprising a receptacle for molten glass, means for heating that portion of the body of glass from which the article is drawn, a belt for drawing the article, means for shielding the article from the heat, and means for chilling the article by radiation adjacent to the drawing-point during its formation; substantially as described.

702,014. METHOD OF DRAWING GLASS. JOHN E. LONNEN, New Kensington, Pa., assignor, by direct and mesne assignments, to James A. Chambers, trustee, Pittsburgh, Pa. Filed Jan. 3, 1901. Serial No. 42,518. (No model.)



Claim.—1. The method of forming glass cylinders, consisting in drawing a cylinder from a bath of molten glass, heating that portion of the body of glass from which the cylinder is drawn, shielding the cylinder from the heat, and supplying air to the interior of the cylinder during the drawing operation; substantially as described.

2. The method of forming glass cylinders, consisting in drawing a cylinder from a bath of molten glass, heating that portion of the body of glass from which the cylinder is drawn, preventing access of the heat to the exterior of the cylinder, chilling the exterior of the cylinder by radiation adjacent to the drawing-point, and supplying air to the interior of the cylinder during the drawing operation; substantially as described.

3. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, chilling the article by radiation around its entire circumference adjacent to the drawing-point, and supplying air to the interior of the article during the drawing operation; substantially as described.

4. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, preventing access of heat to the exterior of the article, chilling the exterior of the article by radiation around its entire circumference adjacent to the drawing-point, and supplying air to the interior of the article during the drawing operation; substantially as described.

5. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, supplying air to the interior of the article, and increasing the rate of air-supply as the article increases in length; substantially as described.

6. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, supplying air to the interior of the article, and increasing the rate of air-supply as the article increases in length; substantially as described.

terior of the article as it is formed, and automatically regulating the rate of the air-supply as the article increases in length; substantially as described.

7. The method of forming hollow glass cylinders, consisting in lowering a bath into a bath of molten glass, drawing a hollow neck portion, increasing the air-supply, and enlarging the diameter to substantially the diameter of the desired cylinder, and then continuing the drawing operation and supplying air to maintain the cylinder at the desired diameter; substantially as described.

8. The method of forming hollow glass articles, consisting of lowering a hollow bath into a bath of molten glass, drawing a hollow article from the bath, supplying a gaseous fluid to the interior of the article during drawing, covering the lower end of the article from the bath, moving the drawing device with the hollow bath and article suspended therefrom to one side of the bath, lowering the article into horizontal position while attached to the drawing device, and then severing the article from the bath; substantially as described.

9. The method of forming hollow glass cylinders, consisting in lowering into a bath of molten glass a bath of small diameter relatively to the desired cylinder, drawing a glass neck, increasing the air-supply, and expanding the diameter to the desired size, drawing the cylinder, detaching the lower end of the cylinder from the bath, moving the bath with the cylinder suspended therefrom to one side, and severing the reduced neck portion; substantially as described.

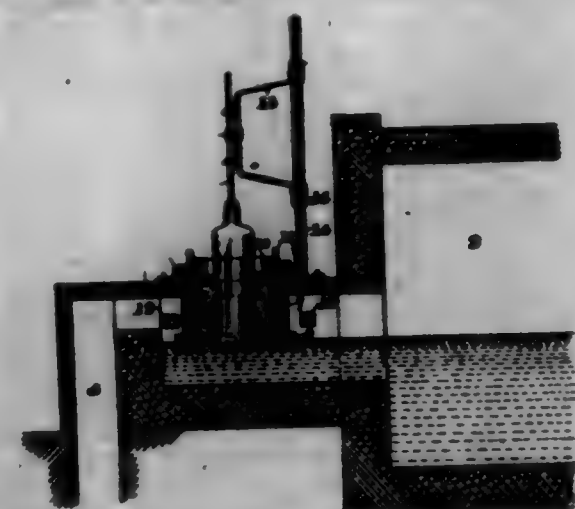
10. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, creating a partial vacuum therein to reduce the diameter at the lower end of the article, admitting heat-currents to this reduced portion, and removing the article; substantially as described.

11. The method of forming glass articles, consisting in drawing a glass article from a bath of molten glass, heating that portion of the body of glass from which the article is drawn, shielding the article adjacent to the drawing-point from the heat, and chilling the article by radiation adjacent to the drawing-point during its formation; substantially as described.

12. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, covering the lower end of the article from the bath by admitting heat-currents to the lower portion and then moving the article to one side and covering its upper end from the drawing device; substantially as described.

13. The method of forming glass articles, consisting in drawing a glass article from a bath of molten glass, heating that portion of the body of glass from which the article is drawn, and chilling the exterior surface of the article by radiation adjacent to the drawing-point during its formation; substantially as described.

702,015. GLASS-DRAWING APPARATUS. JOHN E. LONNEN, New Kensington, Pa., assignor, by direct and mesne assignments, to James A. Chambers, trustee, Pittsburgh, Pa. Filed Jan. 3, 1901. Serial No. 42,520. (No model.)



Claim.—1. In glass-drawing apparatus, a ring arranged to float upon a glass-bath, and a shield device arranged to form a sealing-joint with said ring above the level of the bath; substantially as described.

2. In glass-drawing apparatus, a sealing-joint therewith above the level of the glass; substantially as described.

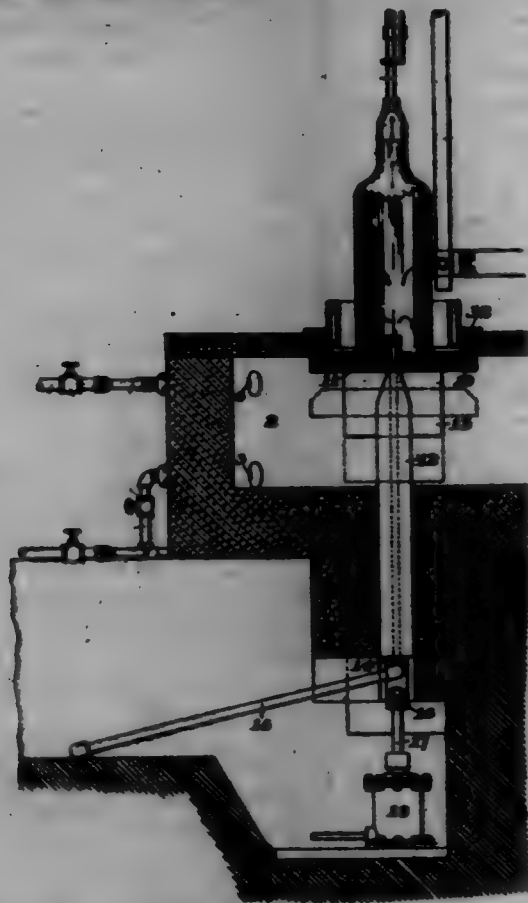
3. In glass-drawing apparatus, a water cooling device, a refractory shield therefor, and a flange with which the shield contacts; substantially as described.

4. In glass-drawing apparatus, an annular water-cooled ring, an annular refractory shield surrounding the same, and a flange ring with which the shield contacts; substantially as described.

5. In glass-drawing apparatus, a floating ring having holding device for retaining it in proper position, a shield arranged to form a cast-leg-joint with the ring, and glass-drawing apparatus arranged to operate within the shielding device; substantially as described.

6. In glass-drawing apparatus, a float, means for holding it in the desired position, a shielding device coacting with the float, and glass-drawing apparatus arranged to act upon the glass shielded by said parts; substantially as described.

702,016. METHOD OF DRAWING GLASS. JOHN E. LEHMAN, New Kensington, Pa., assignor, by direct and mesne assignments, to James A. Chambers, trustee, Pittsburgh, Pa. Filed Oct. 8, 1901. Serial No. 73,122. (No specimen.)



Claim.—1. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, and allowing a flow of gaseous fluid through the interior of the article; substantially as described.

2. The method of forming hollow glass articles, consisting in drawing the hollow article from a bath of molten glass, supplying a gaseous fluid to the interior of the article, and maintaining a substantially constant pressure therein by allowing the fluid to escape when the pressure rises above a determined limit; substantially as described.

3. The method of forming hollow glass articles, consisting in drawing a hollow article from a bath of molten glass, continuously supplying a gaseous fluid to the lower end of the article being drawn, and automatically withdrawing the fluid from the upper end of the article when the pressure rises above a certain limit; substantially as described.

4. The method of drawing glass articles, consisting in feeding glass to a receptacle, drawing an article therefrom while shielding the article from heat adjacent to the drawing-point, covering the article from the bath, and then heating the surface of the bath; substantially as described.

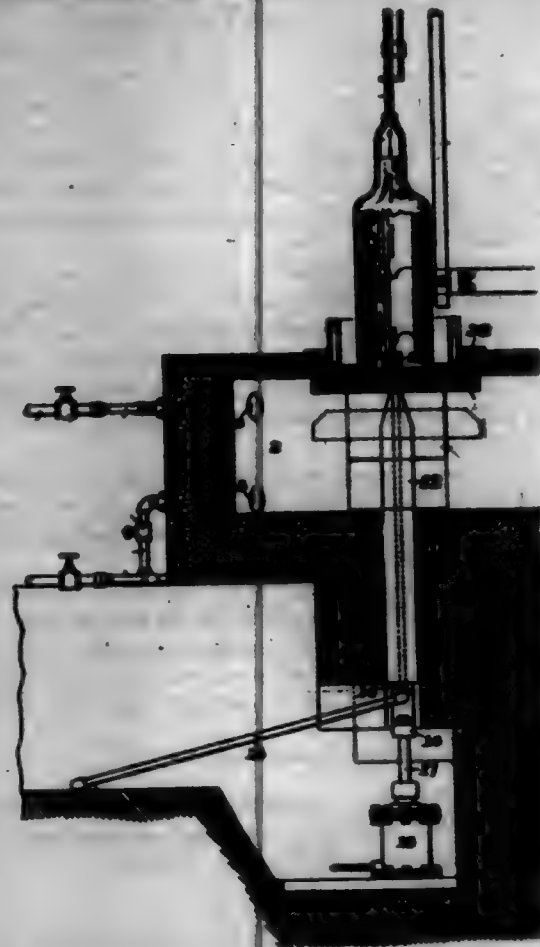
5. The method of drawing glass articles, consisting in supplying glass to a receptacle, heating the receptacle, raising the receptacle to cut off the heat from the drawing-point, drawing the article from the bath, and then lowering the pot and heating the surface of the glass therein; substantially as described.

6. The method of forming hollow glass articles, consisting in drawing the hollow article from a bath of molten glass, allowing a circulation of gaseous fluid through the interior of the article, and chilling the outer face of the article at or near the drawing-point; substantially as described.

702,017. APPARATUS FOR DRAWING GLASS. JOHN E. LEHMAN, Allegheny, Pa., assignor, by direct and mesne assignments, to James A. Chambers, trustee, Pittsburgh, Pa. Filed Jan. 10, 1902. Serial No. 82,122. (No model.)

Claim.—1. In apparatus for drawing hollow glass articles, a receptacle arranged to contain a bath of molten glass, and a drawing-tool, and

parts (the receptacle and drawing-tool) having a fluid inlet and outlet arranged to allow the circulation of gaseous fluid through the article being drawn; substantially as described.



2. Apparatus for drawing hollow glass articles, comprising a receptacle for molten glass having a fluid-port leading upwardly through the glass, a hollow drawing-tool, and means for allowing gaseous fluid to flow through the tool, the article and the port during the drawing operation; substantially as described.

3. In apparatus for drawing hollow glass articles, a hollow bath, mechanism for allowing a circulation of gaseous fluid through the article being drawn, and a relief-valve arranged to open at a certain pressure to allow the fluid to escape; substantially as described.

4. In apparatus for forming glass articles, a furnace, a receptacle for molten glass therein, a drawing-tool, and mechanism for raising and lowering the receptacle within the furnace; substantially as described.

5. In apparatus for drawing glass articles, a furnace, a vertically-movable pot therein arranged to shield the surface of the glass when in its upper position, and means for lowering the pot to allow access of the heat to the surface of the glass; substantially as described.

6. In apparatus for drawing hollow glass articles, a hollow drawing tool or bath, means for allowing flow of gaseous fluid through the article, and a yielding-pronged relief-valve; substantially as described.

7. Apparatus for drawing hollow glass articles, comprising a receptacle arranged to contain a bath of molten glass, a hollow drawing-tool, a fluid-inlet arranged to admit gaseous fluid to the article being drawn, and a fluid-outlet arranged to allow a portion of the gaseous fluid to escape during the drawing operation; substantially as described.

8. In apparatus for forming hollow glass articles, a heated chamber, a receptacle for molten glass located therein, a hollow drawing-tool, a fluid-inlet arranged to admit gaseous fluid to the article being drawn, a fluid-outlet arranged to allow a portion of the fluid to escape, and mechanism for raising and lowering the receptacle; substantially as described.

702,018. CAMERA-SUPPORT. WILLIAM A. HARRAGE, Cleveland, Ohio. Filed Mar. 2, 1901. Serial No. 49,572. (No model.)



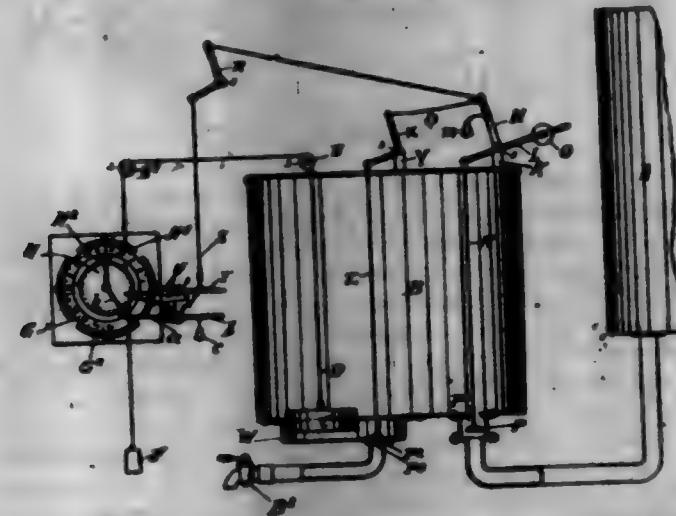
Claim.—1. In a support, a leg comprising in its construction two telescoping members slidable one within the other and each provided with a longitudinal slot, each slot being located upon the same side of the leg, and means for adjustably coacting such members to each other.

2. In a camera-support, a leg comprising in its construction two tele-

scoping members slidable one within the other and each provided with a longitudinal slot, each slot being located upon the same side of the leg, each member of said leg having a longitudinal head, and means for adjustably securing such members together.

3. A camera-support comprising a plurality of legs each of which consists of two members slidable one within the other and each provided with a longitudinal slot, each slot being located upon the same side of the leg, a bridge secured to the lower end of each outer member, a thumb-screw passing through the bridge, a nut provided with a leg, a leg on the inner member of each leg, said thumb-screw engaging the nut, substantially as described.

702,019. LIQUID-MEASURING APPARATUS. JAMES HARRIS, BARK AND WILSON P. BARKER, Bradford township, Victoria, Australia. Filed Jan. 18, 1902. Serial No. 50,043. (No model.)



Claim.—1. In combination, a main tank A, a measuring-tank B, an inlet-valve between the main and measuring tanks, an outlet-valve from the measuring-tank, a float C in the measuring-tank, a trip device, an adjustable pointer connected with the float for operating the trip, a bell-crank R connected to the trip, a pair of bell-crank levers L M and X connected with the bell-crank R and connections from the pair of bell-cranks to the inlet and outlet valves, substantially as described.

2. In combination, a main tank, a measuring-tank connected therewith, an inlet-valve P for the measuring-tank, an outlet-valve P' for the said measuring-tank, a cone-shaped barrel I mounted horizontally, a float C in the measuring-tank, a cord connecting said float and the barrel I, said barrel having a projecting rim F, pointers H and A adjustably connected to said rim, a scale G over which the pointers are adapted to be adjusted, legs O upon which the scale is mounted, segmental slots in the frame with means for adjustably holding the legs thereby, an adjustable cord-guide on one of the legs, a weight connected with the barrel for rotating it reversely so that imparted by the weight of the float, a trip device controlled by the pointer H, connections between the same and the inlet and outlet valves and a signal controlled by the pointer A, substantially as described.

3. In combination with the main and measuring tanks and the inlet and outlet valves for the latter, a float C in the measuring-tank, a trigger-arm U, a trigger-arm T controlled thereby, connections between the said trigger-arm T and the inlet and outlet valves, a rotary pointer H connected with the float and arranged to operate the trigger U, and a weight O for operating the valves reversely when the trigger-arm T is released, substantially as described.

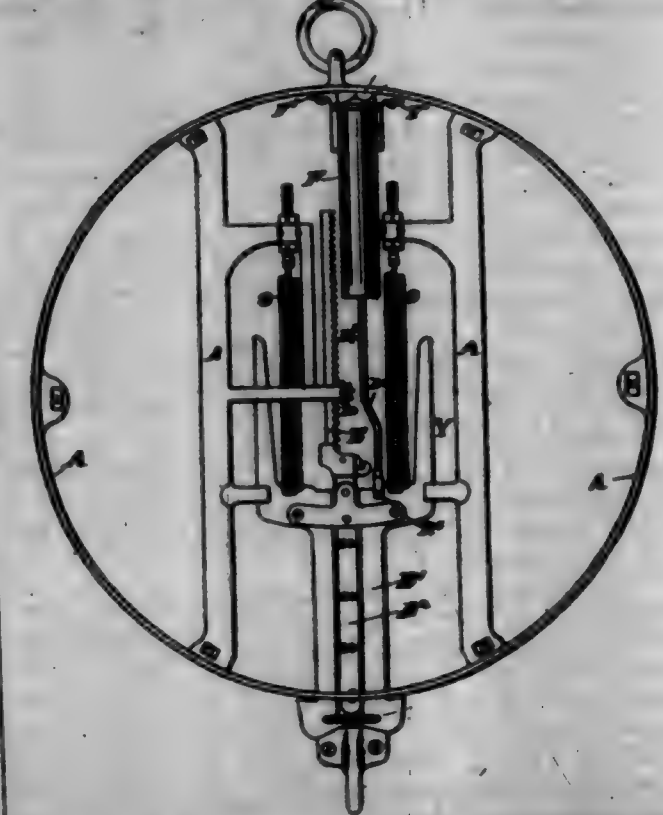
4. In combination, the main and measuring tanks, inlet and outlet valves for the latter, a float, a barrel with connections to the float whereby the barrel is operated, means for rotating the barrel reversely to the movement imparted by the float, a pointer connected with the barrel, a trip arranged to be operated thereby, and connections between said trip and the inlet and outlet valves, substantially as described.

5. In combination, the main and measuring tanks, inlet and outlet valves for the latter, a float, a barrel with connections to the float whereby the barrel is operated, means for rotating the barrel reversely to the movement imparted by the float, a pointer connected with the barrel, a trip arranged to be operated thereby, connections between said trip and the inlet and outlet valves, a second pointer controlled by the barrel and a signal-trip operated thereby to indicate when the measuring-tank is empty, substantially as described.

6. In an apparatus as specified, the combination with a measuring-tank, a cone-shaped or tapering barrel I, mounted horizontally and rotating on a set-screw P and projecting rim such as F; pointers H, A, each having an adjustable clamp and set-screw H' A'; a circular quantitative scale, G, and legs for mounting each scale, O'; segmental slots in a

frame, G', for reception of the feet of each leg secured thereto by bolts and nuts, G"; and adjustable sliding cord or chain guide and screw such as G', G", each barrel and pointers revolving together as one piece by the agency of cord or chain D and counterbalance-weight F, and reversely by float C, as and for the purposes before described and as illustrated.

702,020. SPRING-BALANCE SCALE. JAMES I. MARLER, Cleveland, Ohio, assignor to the Computing Scale Company, a Corporation of Ohio. Filed May 2, 1901. Serial No. 634,694. (No model.)



Claim.—1. In a scale, the combination of a draft-bar supported by oppositely-located lead-counterbalancing springs, a revolvable shaft intermediate said springs, a piston on said shaft, a rack-bar pivoted to said draft-bar and meshing with said piston, a casing containing bearings for said shaft, a downwardly-projecting open-mouthed tube secured to said casing and having its longitudinal center substantially parallel with and meshed between said springs, a piston in said tube, and a piston-rod which is flexibly connected at one end with the piston and at the other end with said draft-bar; substantially as specified.

2. In a scale, the combination of a draft-bar supported by oppositely-located lead-counterbalancing springs, a revolvable shaft intermediate said springs, a connection intermediate said bar and shaft for revolving said shaft, a casing containing bearings for said shaft, expanding means pivotally connected to said casing, a downwardly-projecting open-mouthed tube secured to and projecting within said casing, said tube, springs, and the pivotal point of suspension of said casing being in substantially the same plane, said tube being parallel with said springs, a piston in said tube, and a connecting-rod loosely pivoted to said draft-bar and to said piston; substantially as specified.

3. In a scale, the combination of a draft-bar supported by oppositely-located vertical lead-counterbalancing springs, a revolvable shaft intermediate said springs, a connection intermediate said bar and shaft for revolving said shaft, a casing containing bearings for said shaft, a downwardly-projecting open-mouthed tube secured within said casing and having its longitudinal center substantially parallel with and intermediate said springs, a relatively long piston in said tube, a bearing of authentication material between said piston and the base of said tube, a connecting-rod loosely pivoted to said draft-bar and to said piston; an indicator movable proportionately to the elongation of said springs; and said casing normally inclosing and protecting the parts from dirt, accident or manipulation; substantially as specified.

4. In a scale, the combination of a draft-bar supported by oppositely-located lead-counterbalancing springs whose axial lines are in the same plane with the draft-bar; a revolvable shaft intermediate said springs; a connection between said bar and shaft for revolving said shaft; a casing provided with bearings for said shaft; a cylinder secured within said casing parallel with and between the axis of said springs and extending a portion of the length of said springs; a relatively long piston in said tube; a room in one end of said piston; a connection loosely pivoted at its upper end to said piston intermediate its length and to said casing, said connection being loosely pivoted at its lower end to said draft-bar at a

point below said cylinder; an indicator movable proportionate to the movement of said springs; said casing normally inclosing and protecting said parts; and said springs, draft-bar, cylinder and connection being all in substantially the same plane; whereby a vacuum is formed in said cylinder on the application of a lead to said draft-bar, and whereby the vibration of said shaft and the lateral deflection of said draft-bar are prevented, substantially as specified.

8. In a scale, the combination of a draft-bar supported by oppositely-located lead-counterbalancing springs; means for applying lead to one end of said draft-bar; a reversible shaft intermediate said springs; a piston on said shaft; a rack-bar pivoted to said draft-bar and meshing with said piston; a casing containing bearings for said shaft and supporting said springs therein; an open-mouthed cylinder projecting toward the lead end of said draft-bar and secured within said casing parallel with and intermediate said springs; a relatively long piston in said tube; an opening for the exit and entrance of air to said cylinder; a shell of anti-friction material surrounding said piston; a connecting-rod extending toward the lead end of said draft-bar and being loosely pivoted to said draft-bar and to said piston at points between the axis of said springs; a band in said connection to avoid contact with one or more of said parts; suspending means pivoted to said casing at a point above and between said springs and vertically above the point of connection of the lead-applying means with the draft-bar; and the points of connection of said suspension and lead-applying means, the springs, cylinder, draft-bar, and said connection between said piston and draft-bar being all in substantially the same vertical plane; substantially as specified.

9. In a spring-balance scale, the combination of a spring-suspended draft-bar having on its lower end means for suspending the lead, with a fixed draft-pot cylinder, its piston, and a piston-rod which is flexibly connected at one end with the draft-bar and at the other end with the piston, substantially as specified.

7. In a spring-balance scale, the combination of a cylindrical scale-case having a hole in its lower end, and a spring-suspended draft-bar which extends one through said hole and has on its lower end means for suspending the lead, with a pneumatic tube closed at one end and open at the other, and having at its closed end external wings which are secured to the cylindrical scale-case, a piston movable in said tube, and a piston-rod which is flexibly connected at one end with the piston and at the other end with the draft-bar, substantially as specified.

702,091. PUS FOR JUMPER. EDWIN R. MEAD, Fort Scott, Kans. Filed Dec. 25, 1900. Serial No. 41,574. (No model.)



Claim.—A jumper consisting of a pocket, arranged vertically upon the jumper and having its opening or flap horizontal with relation thereto, a vertical division seam extending from the top toward the bottom of the pocket and a diagonal or horizontal seam extending from said vertical division seam to one of the side seams and closing the top of the pocket to form a sub-pocket therein; substantially as set forth.

702,092. DISK-PLOW ATTACHMENT. FRANK M. KOWEN, Chicago, Cal. Filed Feb. 27, 1902. Serial No. 95,940. (No model.)

Claim.—1. The combination with a disk plow of front and rear bearing and guide wheels, inclined axes upon which said wheels are turnable, said axes being swiveled and turnable with relation to the main frame, lever connections with each of said axes and connections between said levers and a single hand-lever whereby both wheels are turned simultaneously and in the same direction.

2. The combination with a disk plow and the frame thereof of front and rear bearing-wheels, axes swiveled and turnable in the main frame upon which said wheels are journaled, oppositely-moving levers by which said axes are turnable to change the direction of travel of the wheels, a hand-lever, connections between the first-named levers and said hand-lever at points above and below the fulcrum of the latter whereby both wheels are actuated therefrom and in the same direction, and means for holding the hand-lever at any point of adjustment.

3. The combination in a disk plow of inclined front and rear bearing and guide wheels, means by which the line of travel of said wheels is simultaneously changed in the same direction, the bearing-wheel mounted upon the crank-axis upon the left side of the plow, means for raising and lowering the frame thereon, a bracket in which the standard of the inclined front bearing-wheel is slidable and a lever and connections with said standard whereby the front portion of the frame may be raised and lowered.



4. In a disk-plow front, inclined rear and side bearing-wheels, means for raising and lowering the frame with relation to the front wheel consisting of a yoke fixed to the front of the frame, a vertical standard slidable through the yoke at the lower end to form an angular shaft upon which the front wheel is journaled, a horizontal arm projecting from the upper part of the standard, a lever fulcrumed to the frame and a rod connecting the lever with the outer end of the horizontal arm of the standard, and means for holding the lever at any point of adjustment.

5. A disk plow and the frame thereof, a pole pivoted to the front and having a removable locking-bolt, a yoke fixed to and projecting to one side of the pole, a front bearing-wheel having an angularly-disposed shaft and vertical standard swiveled and turnable in the bracket, a lever-arm projecting from the standard and a second lever pivoted upon the frame and connections whereby said lever acts to turn the front wheel and its standard.

6. The combination with a disk plow and the frame thereof of a pivoted swinging draft-pole, a bracket fixed to and projecting from one side thereof, a front bearing-wheel having an inclined axle and a vertical standard turnable in the bracket, a lever-arm projecting from the standard, a second lever-arm and a slidable connection between it and the standard-lever, said second lever carried upon the main frame and acting to turn the bearing-wheel and its standard with greater speed than the movement of the pole by which it is actuated.

7. The combination with a disk plow and frame thereof of a pole pivoted to the front having a fixed yoke or bracket projecting to one side, a bearing-wheel having a vertical standard turnable in the outer end of the bracket, a lever-arm projecting from the standard, a jointed connection between said lever-arm and the fixed portion of the frame whereby the turning of the pole acts to turn the standard and its wheel faster than the movement of the pole.

8. The combination with a disk plow and the frame, front rear and side bearing and guide wheels of a pole pivoted and turnable at the front of the frame, a bracket fixed to and projecting to one side of the pole, a vertical standard bent to form the axle of the front bearing-wheel and standard being turnable and slidable within the bracket, a yoke interior to the bracket, through the axle of which the standard is also slidable, a lever-arm fixed to the standard between the top and bottom of the yoke, a vertical rod fixed to the outer part of the yoke upon which the outer end of the lever-arm is slidable whereby the frame may be raised and lowered, and means by which the frame may be raised and lowered with relation to the bearing-wheel, and a lever fulcrumed upon the pole-pivot having a jointed connection with the yoke interior to the bracket.

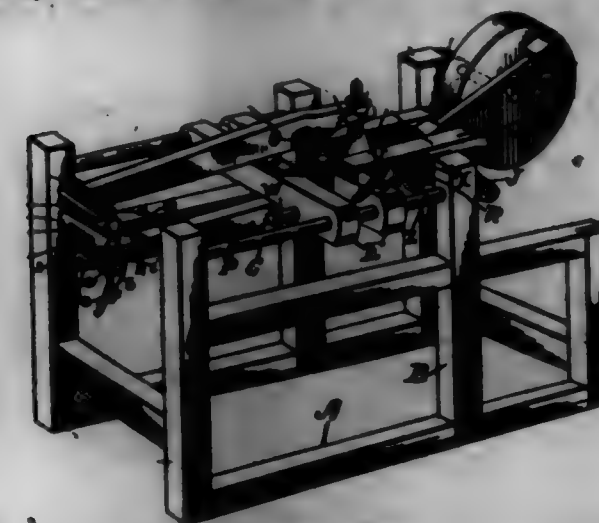
702,098. LEATHER-WORKING MACHINE. JOHN E. MILLER, Wilmington, Del. Filed Aug. 2, 1900. Serial No. 25,512. (No model.)

Claim.—1. In a leather-working machine, the combination with a sliding plate, of arms pivotally mounted thereon, a shaft mounted on said plate, eccentric carried by said shaft, connections between the inner ends of said arms and the eccentric, a reciprocating member for rocking said shaft, a crank-shaft carried by said plate, a connecting-rod connecting said reciprocating member and said crank-shaft, a driving-wheel, and a connecting-rod operatively attached to said crank-shaft and driving-wheel, substantially as described.

2. In a leather-working machine, the combination with pivoted arms, of cylindrical shells carried by said arms, one of said shells carrying a blade and the other being provided with a slot to receive said blade, substantially as described.

3. In a leather-working machine, the combination with the pivoted

arms, of shells carried by the outer ends of said arms, one of said shells provided with an opening and the other carrying a plurality of blades, and means for adjusting said blade-carrying shell to bring the blades into operative position, substantially as described.



4. In a leather-working machine, the combination with a driving-wheel, of a sliding plate, arms pivotally mounted upon said plate, a shaft carried by said plate having a crank and crank-pin upon one end thereof, eccentrics fixed upon said shaft, connections between the inner ends of said arms and said eccentrics, a rod reciprocable in said plate and formed with a slot to receive the crank-pin of said shaft, a second crank-shaft mounted in said plate, an operative connection between the crank thereof and said reciprocable rod, and an operative connection between said last-mentioned crank-shaft and the driving-wheel, substantially as described.

702,094. HOOP-LUG. BENJAMIN R. MOORE, San Francisco, Cal. Filed Mar. 4, 1900. Serial No. 54,571. (No model.)



Claim.—1. In a hoop-coupling, a coupling-block having one end adapted to embrace the head of a hoop-bolt, a plurality of bifurcated radially-disposed projections on said block, and means whereby said block may be held behind one or the other of said projections.

2. In a hoop-coupling, a coupling-block having a plurality of outwardly-extending projections arranged in pairs along the length of said block, said block adapted at one end to receive the headed end of a hoop-bolt, and means whereby the bolt may be held behind one or the other of said pairs of projections.

3. In a hoop-coupling, a block having an eye at one end adapted to receive the headed end of the hoop-bolt, said eye consisting of a slot on the under side of said block through which the bolt may be inserted, said slot enlarged in that portion adapted to receive the head, lateral projections on the walls of said enlarged portion between which the body por-

tion of the bolt alone may pass but which bear against the under side of the head and prevent the bolt disengaging from the block when the bolt is drawn forward to its end, and means by which the threaded end of the bolt may be held upon said block.

4. An adjustable hoop-lug including two separable interlocking members one of said members having a plurality of projections and the other member having a single projection to engage either of the projections of the first-named member, and means upon either of said members for engaging an end of a hoop-bolt.

5. An adjustable hoop-lug including two separable members said members having interlocking projections, and means upon the members for engaging an end of a hoop-bolt.

6. An adjustable hoop-lug including two separable members said members having lugs adapted to interlock said lugs formed to receive the hoop-bolt, and means upon either member for engaging an end of said bolt.

7. A hoop lug or coupling including two members having interlocking forked lugs, each of said members adapted to engage an end of a hoop bolt or rod.

8. A hoop lug or coupling consisting of two members each of which is adapted to engage an end of a hoop bolt or rod, hook projections on each of said members, said projections adapted to interlock on either side of the hoop-bolt.

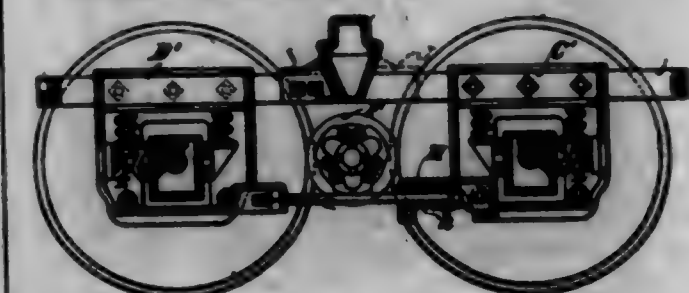
9. A hoop lug or coupling consisting of two members adapted to engage an end of a hoop bolt or rod, one of said members having a plurality of hook projections engaging on either side of the hoop-bolt and complementary hook projections on the other member engaging the hooks on said first member.

10. A hoop lug or coupling consisting of two members, one of said members provided with a perforated end block adapted to embrace the head of the hoop-bolt, a plurality of bifurcated hooks on said member, the other member having an eye in which the other end of the bolt is received and a bifurcated hook projection adapted to engage the hooks on the first member whereby the two members are adjustable in length.

11. A hoop lug or coupling consisting of two members, means upon one of said members by which the eye of the hoop-bolt may be embraced, a plurality of bifurcated hooks or projections on said member, means upon the second member whereby the other end of the bolt is engaged, hook projections on the latter member engaging the hooks of said first member, said interlocking hooks adapted as a knuckle-joint whereby the two members have a limited hinge movement to allow them to adjust themselves to arcs of different radii.

12. The combination with a hoop bolt or rod, of two coupling members, one of said members having an eye portion adapted to embrace the head of the hoop-bolt, a plurality of bifurcated hooks on said member, an eye portion on the second member adapted to engage the other end of the bolt, hooks on the second member engaging the hooks on the first member, said hooks adapted to straddle the hoop-bolt and serving to prevent lateral displacement of the members.

702,095. FRICTION DRIVEN TRUCK. JAMES F. McLEOD, Albany, N. Y., assignor to Consolidated Car-Mounting Company, Albany, N. Y., a Corporation of West Virginia. Filed Dec. 10, 1900. Serial No. 90,562. (No model.)



Claim.—1. In a car-truck, a truck-frame composed of two parts yieldingly connected arranged to overlap each other at the sides of the truck, with means for causing a slight horizontal movement of said parts in reference to each other, substantially as described.

2. In a car-truck, a truck-frame, composed of two parts yieldingly connected, overlapping each other at the sides of the truck, and means adapted to hold said parts in suitable relation to each other, with a pair of drive-wheels mounted in each of the parts of said frame, and means for opening the drive-wheel to revolve by the action of a motor, substantially as described.

3. In a car-truck, a truck-frame, consisting of two parts, arranged to overlap each other at the sides of the truck and yielding connections between the parts of said frame, with means, actuated by the weight of the car-body and load, for causing a slight horizontal movement of the parts of said frame in reference to each other, substantially as described.

4. A car-truck, consisting of a frame composed of two parts arranged to overlap each other at the sides of the truck, a pair of wheels mounted in each part of said frame, a friction-roller mounted to engage with two of said wheels on one side of the truck, with a means for interlocking said frames, substantially as described.

5. In a car-truck, a frame, consisting of two parts, a pair of drive-wheels mounted in each part of said frame, a friction-roller mounted to rotate between and in contact with said wheels, and means for interlocking the parts of said frame in such a manner that the weight of the car-body and the load will tend to draw the wheels in contact with the friction-roller, substantially as described.

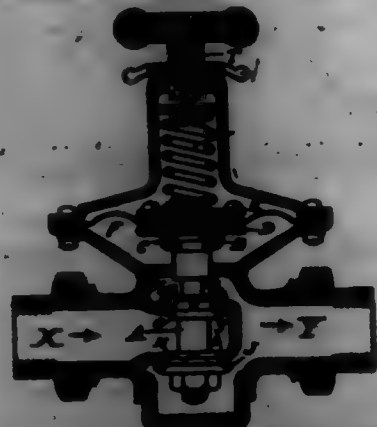
6. In a car-truck, two pairs of drive-wheels, pedestals in which said drive-wheels are mounted, the journal-bases in said pedestals provided with a resilient cushion allowing for a certain horizontal give of the drive-wheels, the friction-roller mounted between said drive-wheels, and a means for connecting the pedestals on the drive-wheels on one side of the car in such a manner that the drive-wheels will be drawn in contact with the friction-roller, substantially as described.

7. In a car-truck, a frame, consisting of two parts, a pair of drive-wheels mounted in each part, a friction-roller mounted to rotate between and in contact with said drive-wheels on one or both sides of said truck, a plate secured to each of said parts of said truck-frame on each side of the truck, each plate so arranged and located in reference to the drive-wheels on the part of the frame carrying said plate that pressure brought to bear upon said plate will cause said drive-wheels to move toward the friction-roller, with a means, actuated by the weight of the car-body and load, for bringing pressure to bear upon said plates, substantially as described.

8. In a car-truck, a frame, consisting of two parts, a pair of drive-wheels mounted in each of said parts, a friction-roller mounted to rotate between and in contact with said drive-wheels on one or both sides of said truck, a plate secured to each of said parts of the frame on each side of said truck, so arranged in reference to each other that a wedge-shaped block may be placed in contact with said plates on each side of the truck and that the weight placed on said blocks will tend to cause the parts of the frame to move upon each other, and means for mounting said wedge-shaped blocks in such a manner that the weight of the car-body and load will come upon them, substantially as described.

9. In a car-truck, a frame composed of two parts, a pair of drive-wheels mounted in each part of said frame, a friction-roller arranged to revolve in contact with two of said drive-wheels on one or both sides of said truck, a plate attached to each part of said frame and on each side of said truck, said plates arranged in reference to each other in such a manner as to allow for the entrance of a wedge-shaped block between adjacent faces of said plates on each side of the truck, wedge-shaped blocks mounted in connection with the body of said truck adapted to engage with said plates on each side thereof, all so arranged and connected up that the weight of the car-body and load on the car will tend to draw the parts of the frame horizontally toward each other, substantially as described.

702,026. VALVE REGULATOR AND GOVERNOR. JAMES F. McILROY, Albany, N. Y., assignor to Consolidated Car-Hoisting Company, Albany, N. Y., a Corporation of West Virginia. Filed Mar. 13, 1900. Serial No. 700,856. (No model.)



Claim.—1. In a regulating-valve, a valve-stem, a valve-disk, a seat, with a coil adjacent to the valve-seat provided with a restricted opening leading to the outlet-chamber, so arranged that the flow of the fluid into the coil and its retention there because of the restricted discharge, will tend to force further open the valve from the seat, and permit a greater flow of fluid to the system, substantially as described.

2. In a regulating-valve, a valve-stem, provided with a rounded head, a casting, a diaphragm secured to said casting, legs attached to said casting adapted to engage with said valve-head, permitting the movement of the diaphragm on the valve-stem without destroying the alignment of the valve-stem, substantially as described.

702,027. LOOSE-LEAF ALBUM. ROBERT F. CHRISTOPHER, Philadelphia, Pa., assignor to George S. Lane, William H. Isheter, and Leon B. Holman and said William H. Isheter, executors of William A. Holman, deceased, constituting the firm or copartnership of A. J. Holman & Company, Philadelphia, Pa. Filed Oct. 31, 1901. Serial No. 79,590. (No model.)



Claim.—1. The combination, constituting an album and its stand, of a pack of book-leaves, a box-base substantially flat and rectangular in planular outline, a cover pivotedly mounted thereon, pivoted flaps therefor adapted to support the cover at a distance above the box-base when the device is closed and to swing back the cover and support it in a vertical or upright position when the device is opened, and vertically-disposed angle-shaped leaf-guides secured to said box-base at each of the front corners thereof, adapted to guide the pack of leaves to, and maintain them in place on the box-base, and opening also to support the hinged cover at its front edge in spaced relation to the box-base.

2. The combination with a substantially flat box-base, rectangular in planular outline, of a hinged lid or cover having near its rearward edge two opposite downwardly extending and inclined arms pivotedly united to the box-base and operating as a hinge connection therewith as well as a supporting means for the rear edge of said cover; and vertically-disposed angle-shaped leaf-guides and cover-supports arranged between said box-base and cover at each of the four corners thereof.

3. The combination with a box-base substantially flat, rectangular in planular outline and hollowed out, of a movable cover for said hollowed-out portion, a cover or lid for the box-base with hinges connecting the same, consisting of links adapted to support the cover at a distance above the box-base and to swing it back to, and support it in, an upright position, vertically-disposed angle-shaped guides and supports secured to the corners of the box-base, and a pack of album-leaves adapted to be maintained within the leaf-guides while free to be raised leaf by leaf and thrown back against the inclined hinged cover or lid.

702,028. TELEPHONE SWITCHBOARD. JAMES M. OVERHILL, Elwood, Ind. Filed Dec. 15, 1900. Serial No. 30,961. (No model.)



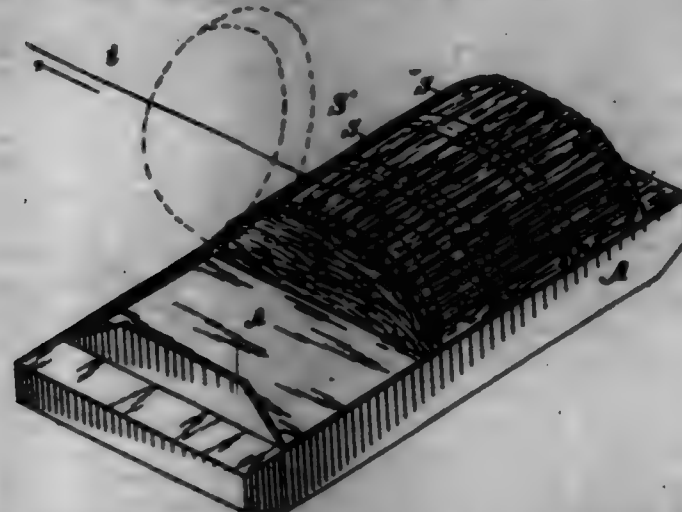
Claim.—1. The combination with a jack-cocket and a drop, of a longitudinally-movable slide or drop-lifter, a spring for normally holding the slide or drop-lifter in position to receive the drop when it falls and means for raising the end of the slide which receives the drop to restore the latter when a plug is moved in the jack-cocket.

2. The combination with a jack-cocket, a drop, and a plug having a groove or recess therein, of a sliding drop-restorer having a portion entering the jack-cocket, a lever having a part projecting into said cocket and adapted to enter the notch or recess in the plug and means for causing the restorer to rise and restore the drop when said restorer is slid by the insertion into or the withdrawal of the plug from the jack-cocket.

3. The combination with a jack-cocket and a drop, of a slide having an arm depending into the cocket and having a portion to receive the drop, a plug having a groove or recess, a pivoted lever having a part projecting into the cocket and to enter the groove or recess in the plug, whereby when the plug is withdrawn the lever will be made to engage the arm of the slide to move the latter and means for causing the slide to rise when thus moved, and restore the drop.

702,029. APPARATUS FOR UNLOADING SNOWS. DR. THOMAS F. FAYE, Irvington, N. J. Filed June 27, 1901. Serial No. 60,257. (No model.)

Claim.—1. The baling device consisting of the bale-tie *c* having the rings *b* at one end and the cross-bars *e* at set forth, and the chain ties *d* having cross-bars and adapted to loop through the rings, and provided with hooks *f* to engage the chain-links to secure the bale.



2. The baling device consisting of the bale-tie *c* having the rings *b* at one end and the cross-bars *e* at set forth, the chain ties *d* having cross-bars *f* secured thereto by loose connections *g*, and the chain ties being adapted to loop through the rings *b* and provided with suitable fasteners to engage the chain when the bale is tightened.

3. The baling and unloading device, consisting of the bale-ties provided with cross-bars, and one end of each tie being adapted to loop through the other end as set forth, in combination, with the tightening-tackle comprising the ropes *g* attached to one section of the bale-tie, the pulleys *h* attached to the other section of the bale-tie, and a draft-rope *i* for hauling the tightening-tackle and drawing the tie-sections together, and operated as set forth to invert the bale and roll it from its support.

4. The means for unloading snows and similar receptacles, comprising a series of baling devices arranged transversely upon the floor of the snow to support transverse sections of its load, and a draft-rope and tackle for successively tightening the baling device upon each of said load-sections, and rolling over the same to tear it from the remainder of the load and discharge it from the snow.

5. The means for unloading snows and filling in low grounds adjacent to water, comprising the deck for moving the snow, baling device arranged transversely upon the snow under sections of the load with tightening-tackle for tightening and overturning each load-section, posts upon the outer side of the snow with cable and pulley carrier thereon, and means for shifting the carrier upon the cable, a truck with two drums mounted movably thereon, and return-rope and draft-rope extended respectively from the said drums to the carrier-pulley and a bale upon the snow, a connection from the draft-rope to the bale or load-section to draw it upon the ground, and a connection from the return-rope to the baling device to return it from the snow when unloaded, substantially as herein set forth.

6. The means for unloading snows and filling in low grounds adjacent to water, comprising the deck for moving the snow, baling device arranged transversely upon the snow under sections of the load with tightening-tackle for tightening and overturning each load-section, posts upon the outer side of the snow with cable and pulley carrier thereon, and means for shifting the carrier upon the cable, a truck with two drums mounted movably thereon, and return-rope and draft-rope extended respectively from the said drums to the carrier-pulley and a bale upon the snow, a connection from the draft-rope to the bale or load-section to draw it upon the ground, and a connection from the return-rope to the baling device to return it from the snow when unloaded, substantially as herein set forth.

7. The means for unloading snows and filling in low grounds adjacent to water, comprising the deck for moving the snow, means upon the ground for hauling a draft-rope, a baling device arranged transversely upon the deck of the snow under a section of the load, and provided upon the side of the snow furthest from the deck with rings *b* as set forth, a portion of the baling device extended over the top of the bale and looped through each rings to hook up the bale when tightened, tightening-tackle connected with the draft-rope for tightening up the bale and overturning the load-section to tear it from the remainder of the load.

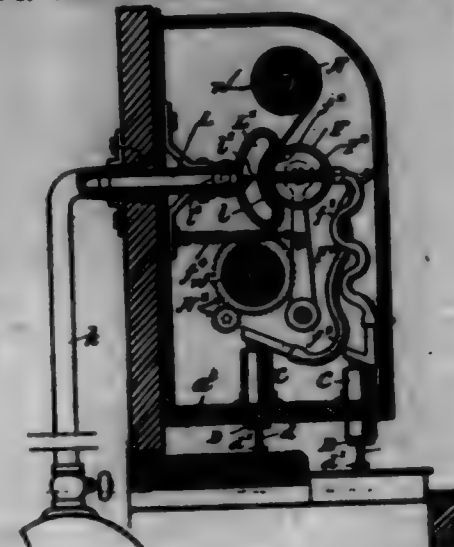
8. The two-part baling device consisting of the bale-tie *c* having the rings *b* at one end and the cross-bars *e* as set forth, and adapted to extend across the deck of a snow, and the bale-tie provided with cross-bars *f* and having the chain portions *d* and hooks *g*, and adapted for connection at one end with the tie *c* and at the other end to have the chains looped through the rings *b* and secured by hooks *g*, as and for the purposes set forth.

9. The two-part baling device consisting of the tie-tie *c* having the rings *b* at one end and the cross-bars *e* as set forth, and adapted to extend across the deck of a snow, and the bale-tie provided with cross-bars *f* and having the chain portions *d* and hooks *g*, and the two parts of the baling device being united by the distal-hooks *h* having an elastic

upon their shank to hold them normally closed, as and for the purposes set forth.

10. The baling device having bale-tie *c* formed of rope with rings *b* at one end and provided at intervals with half-bitches and the cross-bars *e* secured in the half-bitches as set forth, and chain ties attached to the bale-tie and provided with the hooks *g* and adapted to loop through the rings *b*, as and for the purposes set forth.

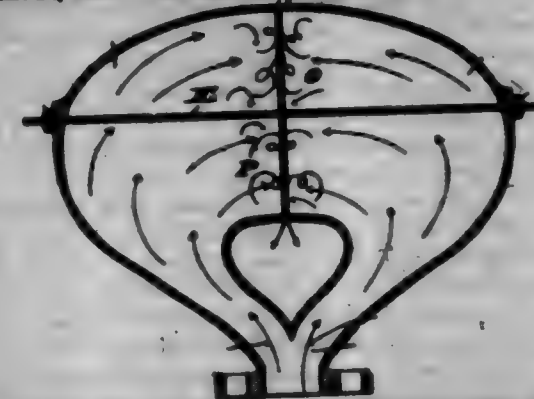
702,080. PNEUMATIC PIANO. STEPHEN K. REYNOLDS, New York, N. Y. Filed Nov. 15, 1900. Serial No. 24,565. (No model.)



Claim.—1. In a pneumatically-operated keyboard instrument, the combination of an air-chamber having a perforated wall, a series of tubes opening against said perforated wall, a series of air-cylinders connected with the respective tubes and a perforated sheet adapted to pass between the ends of the tubes and the perforated wall, substantially as described.

2. In a pneumatically-operated keyboard instrument, the combination of an air-chamber having a perforated wall, a series of tubes opening against said perforated wall, a series of air-cylinders connected with the respective tubes, a pivoted frame supporting the ends of said tubes, means for forcing said frame toward said wall and a perforated sheet adapted to pass between the ends of the tubes and the wall, substantially as described.

702,081. MUFFLER. ARTHUR C. BEMAN, Toronto, Canada. Filed June 24, 1901. Serial No. 60,903. (No model.)



Claim.—1. In combination with a muffler comprising a plurality of hollow members, each member being provided with an exhaust aperture or mouth, and an intake-aperture, the exhaust apertures or mouths of said members being of the same size and being placed directly opposite to each other and in close proximity to each other, of means for adjusting the distance apart of the exhaust apertures or mouths of said members.

2. In combination with a muffler comprising two hollow members provided with a common neck having a passage-way therein, each member having an intake-aperture opening from said neck, and being further provided with an exhaust aperture or mouth, the said exhaust apertures or mouths of said members being of the same size and being placed directly opposite each other and in close proximity to each other, of means for adjusting the distance apart of the exhaust apertures or mouths of said members, as described.

3. In combination with a muffler comprising two hollow members provided with a common neck having a passage-way therein, each member having an intake-aperture opening from said neck, and being further provided with an exhaust aperture or mouth, the said exhaust apertures or mouths of said members being of the same size and being placed directly opposite each other and in close proximity to each other, the said hollow members being smallest at their intake ends and gradually

getting larger toward their exhaust apertures or mouths, of an adjusting-rod provided with threaded ends passing through said members, near the upper portion of same and at right angles to their exhaust apertures or mouths, as shown, and nuts on the threaded ends of said adjusting-rod and on the inside of said member.

702,082. INDUCTION APPARATUS. WILLIAM SHERRER, Chicago, Ill. Filed Jan. 22, 1902. Serial No. 93,862. (No model.)



Claim.—1. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, and a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil, substantially as set forth.

2. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, and a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil by means of orifices formed in the end walls of the main casing, substantially as set forth.

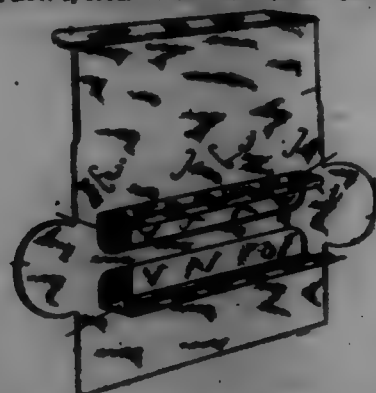
3. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil, and end bearings secured to the main casing and insulating the ends of the primary coil, substantially as set forth.

4. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil, and end bearings extending the height of the main casing and adapted to insulate the ends of the primary coil and form conduits for the wire connections, substantially as set forth.

5. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil, the said primary coil comprising a series of independent windings, and a series of switches and connections for coupling more or less of said windings in series or in parallel, substantially as set forth.

6. In an induction apparatus, the combination of an inclosing casing, a secondary coil composed of a series of bobbins supported independently in the interior of said casing, a primary coil arranged centrally within the secondary coil and supported at its ends independently of the secondary coil, the said primary coil comprising a series of independent windings, and bearings secured to main casing and insulating the ends of the primary coil, and a series of switches and connections for coupling more or less of said primary windings in series or in parallel, substantially as set forth.

702,083. FOLDING STAND OR RACK. JAMES A. SCOTT, Somerville, Mass., assignor of one-half to Charles E. Fuller, Somerville, Mass. Filed Nov. 6, 1901. Serial No. 81,208. (No model.)



Claim.—A postboard stand or rack comprising a front portion, a pair of wings folding back from the sides thereof and interlocked, as in

turned flap at the bottom of the front portion, and interlocked flaps at the bottom of the interlocked wings engaged with the first-mentioned flap and forming together therewith a substantial base for the stand, substantially as described.

702,084. DRAG AND HARROW-PULVERIZER COMBINED. FRANK B. SHAVER, Johnson township, Clinton county, Ind. Filed Dec. 7, 1901. Serial No. 85,054. (No model.)



Claim.—1. In a drag and harrow-pulverizer combined, the combination of the main frame members each having the journal-bearings and also the recesses therein, the clevis attached to each main frame member, the clevis-breaking members having their forward edges in said recesses and separated one from the other, the platform having the narrow rear end and attached to said clevis-breaking members between said main frame members, the rocking cylinder journaled in said bearings, the harrow-teeth in said cylinder, and the arm attached to said cylinder adjacent to the narrow rear end of said platform, substantially as set forth.

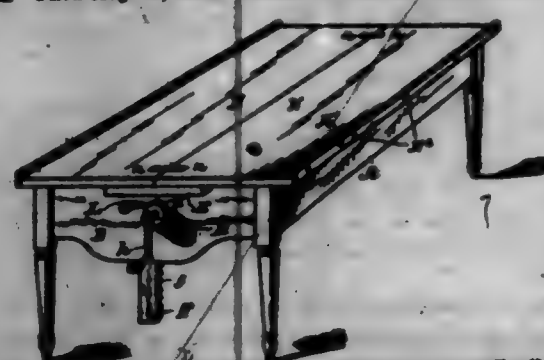
2. In a drag and harrow-pulverizer combined, the combination of the main frame members having the inclined lower forward flange, the clevis attached to said members independently, the harrow mounted at the rear ends of said main frame members, the clevis-breaking members attached to said main frame members between said harrow and the rear ends of said lower forward flange, the platform, and the arm attached to the harrow, substantially as set forth.

3. In a drag and harrow-pulverizer combined, the combination of the main frame members, the clevis attached to the forward ends of said frame members, the clevis-breaking members attached to said frame members, the journal-bearings in the rear ends of said frame members, the rocking cylinder mounted in said bearings, the harrow-teeth extending through said cylinder and projecting at each side thereof, the arm secured to said cylinder, the platform on said clevis-breaking members, the notched quadrant on said platform, the operating-lever connected to said quadrant, the lever-latch, the latch-trigger, and the push-rod connected to said lever and also to said arm, substantially as set forth.

4. In a drag and harrow-pulverizer combined, the combination of the main frame members, the clevis attached to the forward ends of said frame members, the clevis-breaking members attached to said frame members, the journal-bearings in the rear ends of said frame members, the rocking cylinder mounted in said bearings, the harrow-teeth extending through said cylinder and projecting at each side thereof, the arm secured to said cylinder, the platform on said clevis-breaking members, the notched quadrant on said platform, the operating-lever connected to said quadrant, the lever-latch, the latch-trigger, and the push-rod connected to said lever and also to said arm, substantially as set forth.

5. In a drag and harrow-pulverizer combined, the combination of the main frame members, the clevis attached to the forward ends of said frame members, the clevis-breaking members attached to said frame members, the journal-bearings in the rear ends of said frame members, the rocking cylinder mounted in said bearings, the harrow-teeth extending through said cylinder and projecting at each side thereof, the arm secured to said cylinder, the platform on said clevis-breaking members, the notched quadrant on said platform, the operating-lever connected to said quadrant, the lever-latch, the latch-trigger, and the push-rod connected to said lever and also to said arm, substantially as set forth.

702,085. DISPLAY TABLE. CHARLES A. SHAVER, Indianapolis, Ind. Filed May 30, 1901. Serial No. 81,128. (No model.)



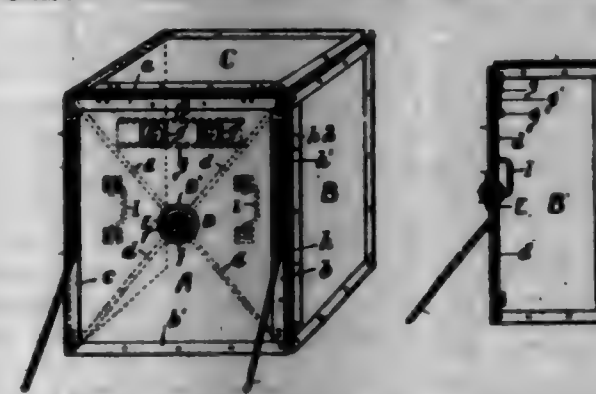
Claim.—1. In a display-table, a top divided longitudinally into two equal parts, means to permit lateral adjustment and to prevent movement in a longitudinal direction, an auxiliary section of the top underlying the

two first sections of the top when the latter is at its minimum width said auxiliary section having a pair of depending standards with cage being one of their edges, a shaft with a pair of cog-wheels mounted thereon one for each standard the cage wheels engaging the cage of its adjacent standard, a crank to revolve the shaft, a pair of rack-teeth mounted on the shaft, one at each end thereof, a pair of pawls to engage the teeth of the rack-teeth, and a rod connecting the two pawls whereby they will be simultaneously moved, substantially as described and shown.

2. A table with a two-part top, said parts being laterally adjustable and also adjustable vertically as to their adjacent or inner edges, an auxiliary section of top resting under the two-part top and adapted to be elevated into the same plane with or into a plane above said two-part top, a pair of depending standards secured to the auxiliary top having cage on one of their edges, and a crank-shaft, a pair of cog-wheels mounted thereon, one at each end thereof, the cage thereof engaging the cage of its adjacent standard, and means for simultaneously locking and unlocking both ends of the shaft, substantially as described and shown.

3. In a display-table, a top divided longitudinally into two equal parts, said parts having outer side flanges, a frame to support the top having sections to receive the flanges, an auxiliary shaft or top section, a pair of standards connected therewith at opposite ends of the top said standards having cage-like edges, guides to direct the movements of the standards, a crank-shaft with a pair of cog-wheels mounted on said shaft the cage of the said wheels engaging the cage of the adjacent standards and a pair of rack-teeth on said shaft a pair of pawls to engage the rack-teeth, and a rod to which both of the pawls are fixed so as to move simultaneously therewith, as and for the purposes specified.

702,086. FIREMAN'S SHIELD. FREDERICK W. SHUTTER, New York, N. Y. Filed Dec. 14, 1901. Serial No. 86,000. (No model.)

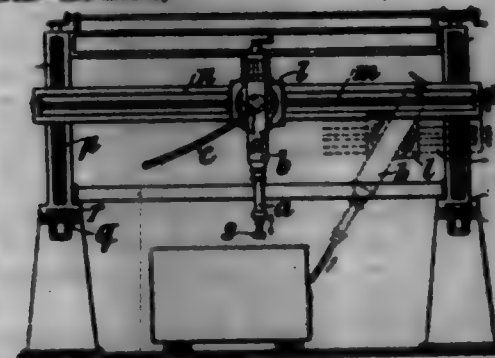


Claim.—1. In a fireman's portable protector, composed of front, side and top flaps, hinged together, a reinforced-brace extending over the front plate and a handle aperture and support in said brace.

2. In a fireman's protector, a vertical plate having an aperture for the passage of a fluid column, a collar about said aperture, a series of radial supports therefor, an annular grooved socket within said collar, and a ball revolvably fitted within said socket, said ball having a handle-bearing aperture.

3. In a fireman's protector, composed of a front plate with side and top plates hinged thereto and extending rearwardly therefrom, a forward support or stop composed of a pair of adjustable props extending from said front plate, in advance thereof.

702,087. MACHINE FOR WORKING STONE-SURFACES. THEODORE STEIGER, Vienna, Austria-Hungary. Filed June 14, 1902. Serial No. 82,512. (No model.)

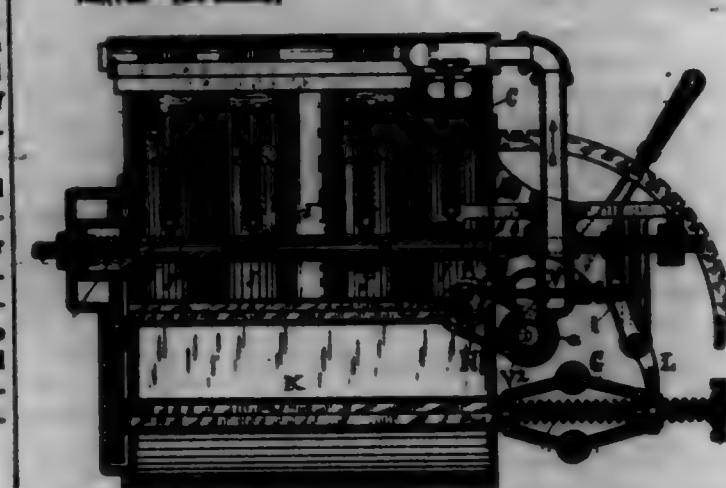


Claim.—1. A stone-cutting machine comprising a bed having longitudinal rails, vertical guides on said rails, means to simultaneously move the vertical guides, a transverse guide-rail vertically movable in said guides, a tool-holder movable along the transverse guide-rail and rotatably adjustable, and means to rotate a tool held in the holder.

2. A stone-cutting machine comprising a bed having longitudinal

rails, curves therein simultaneously movable, vertical guides on said rails moved by said curves, a vertical curve in each vertical guide said curves simultaneously rotated, a vertically-movable guide-rail a guide in the vertical guides and moved by the curves therein, an adjustable tool-holder movable along the rail a means to longitudinally move the tool-holder and means to mechanically reciprocate the tool, substantially as and for the purposes set forth.

702,088. REGULATION OF SPEED AND POWER ENGINE. BLAKE THOMSON, Swampscott, Mass. Filed Nov. 4, 1900. Serial No. 728,768. (No model.)



Claim.—1. In combination with a variable-speed engine, an automatic regulator acted upon by changes in speed, a cut-off valve, a throttle-valve, means for decreasing the period of opening of the cut-off as the speed rises, and means for correspondingly increasing the opening of the throttle as the closing of said cut-off takes place.

2. In combination with a variable-speed engine, an automatic regulator for governing the engine which acts progressively over a wide range of speed, a cut-off valve, a throttle-valve, and means actuated by the regulator for correspondingly decreasing the period of opening of the cut-off and increasing the opening in the throttle as the speed of the engine rises.

3. In an automatic regulating device for variable-speed steam or vapor engines, the combination of a cylinder a variable cut-off for admitting steam to the cylinder, a valve in the steam-supply pipe adjusted to be slightly open at the start, a speed-responsive device acting automatically, a means actuated by the device, which during the increase in speed, is arranged to vary the cut-off in a manner to diminish the time of steam admission, and also to open the throttle-valve in the steam-supply pipe, and manual means for varying the action of the speed-responsive device during operation.

4. In combination, an engine having a cylinder, a throttle and a cut-off valve with an automatic regulator for maintaining a constant engine torque comprising a speed-responsive device progressively operative over a wide range of speed, means actuated by the regulator as the speed rises for gradually opening the throttle-valve, means for rotating the cut-off valve, and a connection between said means and the regulator whereby as the throttle-valve is opened under an increase of speed, the opening of the cut-off valve is correspondingly decreased at or about the same instant, whereby a new and definite relation of the valves is established for each change in speed.

5. In an automatic regulating device for steam or vapor engines, the combination of a variable cut-off or steam admission, a throttle-valve in the steam-supply pipe adjusted to be slightly opened at the start, a speed-responsive device which, during an increase of speed, adjusts the cut-off so as to diminish the time of steam admission, and also acts to open the throttle-valve in the steam-supply pipe, thereby admitting more steam to the steam-chest of the engine, a manually-operated throttle for turning on and off the steam-supply, a reversing mechanism, and manually-operated means for operating the said mechanism.

6. In an automatic regulating device for steam or vapor engines, the combination of a main throttle-valve, an operating-handle therefor, a subsidiary throttle-valve normally open to a slight extent even when the engine is at rest, a variable cut-off controlling the steam admission to the cylinder, a speed-responsive device, and mechanism for opening the subsidiary throttle, and at the same time acting on the variable cut-off to diminish the steam admission as the speed rises.

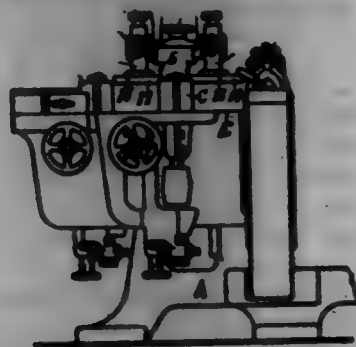
7. In an automatic regulating device for steam or vapor engines, the combination of a main throttle-valve, an operating-handle therefor, a subsidiary throttle-valve normally open to a slight extent even when the engine is at rest, a variable cut-off controlling the steam admission to the cylinder, a speed-responsive device, mechanism actuated by the device for opening the subsidiary throttle and at the same time diminishing the

steam admission at the cut-off as the speed rises, and normally-controlled means for adjusting the speed-responsive device for varying the position which it takes under different speeds of running, thereby changing its sensitivity.

8. In an automatic torque-regulator device for steam or vapor engines, the combination of a speed-responsive device, a subsidiary throttle-valve normally opened to a slight extent, poppet-valves for regulating the admission of steam to the engine, means for actuating the valves, and a lever which is acted upon by the speed-responsive device for simultaneously opening the subsidiary throttle and adjusting the same so as to decrease the interval that the admission-valves are opened on an increase in speed.

9. In an automatic regulating device for engines the combination of a main throttle-valve, a handle for actuating the throttle, valves for regulating the admission of steam to the engine, means actuated by the throttle-lever for varying the opening and closing of these valves, a subsidiary throttle-valve arranged to be opened at all times, a speed-responsive device, a pivotally-supported lever acted upon by the speed-responsive device for opening the subsidiary throttle and closing the steam-admission valves, the valves being so arranged that as the throttle-valves open the admission-valves remain closed for a longer period of time, means for opposing the action of the lever, and a spring or its equivalent for adjusting the effect of said means on the lever.

702,089. HOLD-DOWN DEVICE FOR WOODWORKING-MACHINES. JOHN R. THOMAS, Cincinnati, Ohio, assignor to J. A. Fry & Ryan Company, Cincinnati, Ohio, a Corporation of West Virginia. Original application filed May 20, 1901. Serial No. 25,413. Divided and this application filed Dec. 20, 1901. Serial No. 27,081. (No model.)



Claim.—1. In a woodworking-machine, a hold-down device comprising in combination a swinging frame, swinging and solely supported from one side of the machine, with means for rigidly holding the swinging frame above the table of the machine, with a slide for the swinging frame, and means for adjusting the slide for extending a greater or less distance over the table of the machine from said side, and a second slide, with means for adjusting the latter for extending a greater or less height above the table, with means for permitting the swinging of the frame and slides, substantially as described.

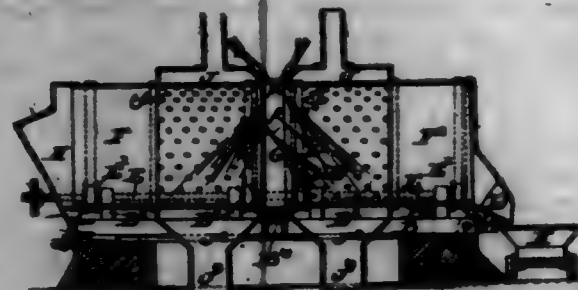
2. In a woodworking-machine, a hold-down device comprising in combination a swinging frame overhanging the table of the machine from the side and supported solely from said side, with means at said side for rigidly securing the swinging frame in normal overhanging position, slides for the swinging frame, with means for adjusting the slides on the swinging frame to overhang the table a greater or less distance, and second slides, with means for adjusting the latter toward or away from the table, and means for permitting the swinging frame and slides to be swung upwardly away from the table, substantially as described.

3. In a woodworking-machine, a hold-down device comprising in combination a bifurcated swinging frame, and a post extending between the forks, a clamp for securing the swinging frame rigidly in position, with a pair of slides longitudinally and independently adjustable on the swinging frame, and a pair of secondary slides transversely independently adjustable on the latter, with means for permitting the upward swinging of the frame with the slides thereon away from the table of the machine, substantially as described.

4. In a woodworking-machine, the combination of a frame, a swinging frame swinging from one side of the frame and supported solely from the side of the frame from which it swings, with a pair of slides, one adjustable for extending a greater or less distance over the table of the machine from the side from which the swinging frame swings, and the other adjustable for greater or less height above said table, with said slides and means for adjusting same on said swinging frame.

702,040. SAND-BLAST TUMBLING-BARREL. BENJAMIN C. TILGNER, Jr., Philadelphia, Pa. Filed Sept. 26, 1901. Serial No. 73,485. (No model.)

Claim.—1. In combination with a tumbling-barrel, a support for sand-blast nozzles situated outside of the barrel and two or more blast-nozzles secured to said supports outside of the periphery of the barrel and directed at varying angles into the barrel.



2. In combination with a sectional tumbling-barrel, means for revolving each section, sand-blast nozzles supported between one or more of the sections of the barrel and blast-nozzles secured to said support and directed into the barrel.

3. In combination with a sectional tumbling-barrel, means for revolving each section, and blast-nozzles supported between one or more of the sections of the barrel and blast-nozzles secured to said supports and directed at varying angles into the barrel.

4. In combination with a sectional tumbling-barrel, means for revolving each section, annular stationary rings situated between the barrel-sections and blast-nozzles secured to said rings and directed into the barrel.

5. A sectional tumbling-barrel having three sections, means for revolving said barrel-sections, supports for sand-blast nozzles, situated between two adjacent sections and blast-nozzles secured to said supports and directed into the barrel.

6. A sectional tumbling-barrel having three sections, means for revolving said barrel-sections and sand-blast nozzles directed to act on the inside of the central barrel-section.

7. A sectional tumbling-barrel made up of two or more sections set in line in combination with means for revolving one or more of the barrel-sections and sand-blast nozzles directed into one or more of the revolving barrel-sections.

702,041. APPARATUS FOR DYEING. CHARLES J. WALL, New York, N. Y., assignor to the West Dyeing Company, New York, N. Y., a Corporation of New York. Filed Nov. 14, 1900. Serial No. 26,455. (No model.)



Claim.—1. A dyeing apparatus comprising a reservoir, a dispensing cup or chamber in proximity thereto, a filling-tube extending from the dispensing-chamber into the reservoir, a discharge-tube extending from the lower portion of the reservoir to the upper portion thereof and thence into the dispensing-chamber and means for discharging the liquid from the dispensing-chamber or cup, substantially as set forth.

2. A dyeing apparatus comprising a reservoir for the dyeing liquid, a dispensing chamber or cup removably secured to the reservoir, means for maintaining the liquid at a predetermined height within the dispensing-chamber and means for automatically discharging the liquid from the dispensing-chamber, substantially as set forth.

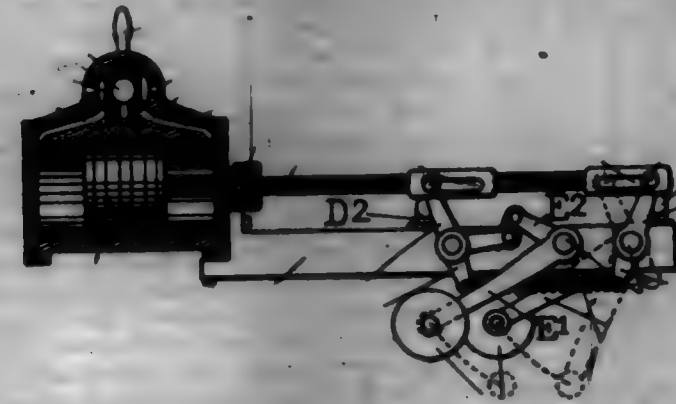
3. A dyeing apparatus comprising a reservoir for the dyeing liquid, a dispensing chamber or cup removably secured to the reservoir, a filling-tube secured by the said dispensing chamber or cup, means for maintaining the liquid at a predetermined height within the said chamber or cup and means for automatically discharging the liquid from the said chamber or cup, substantially as set forth.

4. A dyeing apparatus comprising a reservoir for the dyeing liquid, a dispensing chamber or cup in proximity to the reservoir, means for filling the reservoir from both top and bottom, a siphon-tube extending from a point within the dispensing chamber or cup to a point within the reservoir near its top and thence to a point near its bottom and means for automatically discharging the liquid from the dispensing chamber or cup, substantially as set forth.

5. A dyeing apparatus comprising a reservoir for the dyeing liquid, a dispensing chamber or cup in proximity to the reservoir, means for maintaining the liquid at a predetermined height within the dispensing chamber or cup, means for automatically discharging the liquid from the dispensing chamber or cup, a sub-chamber for receiving the li-

aid from the dispensing chamber or cup, the said sub-chamber being provided with an overflow-tube and a wick leading from the bottom of the sub-chamber upwardly along the outer wall of the reservoir, substantially as set forth.

702,042. LOCOMOTOR SWITCH-THROWING DEVICE. ARTHUR C. WALTON, Denver, Colo., assignor of one-fourth to Joseph F. Hovick, Allegheny, Pa. Filed Aug. 22, 1901. Serial No. 73,204. (No model.)



Claim.—1. In a locomotor switch-thrower, the combination with a double-acting cylinder and piston, of a right-truck and a left-truck selector connected with said piston; a double-acting controlling-valve for the admission of air to said cylinder; and opening springs for returning said valve to its neutral inoperative position.

2. In a locomotor switch-thrower, the combination with a double-acting cylinder and piston, of a right-truck and a left-truck selector operatively connected with said piston; a double-acting controlling-valve for the admission of air to and exhaust from both ends of said cylinder, the exhaust from both of said ends being normally open and the admission thereto being normally closed; and opening springs for yieldingly maintaining said valve in its normal position.

3. In a locomotor switch-thrower, the combination with a double-acting cylinder and piston, of a right-truck and a left-truck selector operatively connected with said piston; an oppositely-moving controlling-valve for governing the admission of said piston in opposite directions; yielding means for containing said valve in its non-admission position; and opposite selective pistons operatively connected with said valve, to cause either selector to be moved to the operative position.

4. In a locomotor switch-thrower, the combination with a car or carriage adapted to traverse a track, of a double-acting cylinder and piston; a right-truck and a left-truck selector operatively connected with said piston; an oppositely-moving controlling-valve for the motive agent for said cylinder; opening springs tending to contain said valve in its non-admission position; and opposite selective means at one or both ends of said car, operatively connected with said valve.

5. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of a right-truck and a left-truck selector connected with said piston; and means for operating said piston.

6. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of a right-truck and a left-truck selector connected with said piston, and adapted to be operated respectively by the reverse movements of said piston; and power means and a controlling-valve for moving said piston in either direction.

7. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of a right-truck and a left-truck selector connected to be operated respectively by the reverse movements of said piston; power means and a controlling-valve for moving said piston in either direction; and retracting means for returning said piston to its neutral position.

8. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of a right-truck and a left-truck selector; means moving with said piston, and engaging said selector; and retracting means and stops for said selector.

9. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of a right-truck and a left-truck selector; a reversing-lever connected with one of said selectors; and stops movable with said piston, and engaging said reversing-lever and the other of said selectors.

10. In a locomotor switch-thrower, the combination, with a cylinder and actuating-piston, of two reverse-connected switch-throwing selectors operated by said piston; a retracting-spring and stop for each of said selectors; and power means and a controlling-valve for moving said piston in either direction, and releasing the same.

11. In a locomotor switch-thrower, the combination with right-truck and left-truck selectors, of actuating means for moving either of said selectors into operative position; a single cushionable two-way controlling-valve for the admission of air from the air-brake system to said actuating

means; exhaust connections from said actuating means, normally maintained open by said valve; and opposing yielding means tending to maintain said valve in its normal position.

12. In a locomotor switch-thrower, the combination with a locomotive having right-truck and left-truck selectors, of a piston and opposite conductors adapted to move either selector into operative position upon the admission of a motive agent to the appropriate conductor; an cushionable valve located convenient to the engineer or switchman, or both, and normally closing both of said conductors when in its neutral position; exhaust connections to said valve, in position and adapted to have either one covered thereby upon tipping the valve to open the trailing admission-conductor; yielding means tending to move said valve to its neutral position; and means for operating said valve in opposite directions at will.

13. In a locomotor switch-thrower, the combination with a car adapted to traverse a track, of an air-operated switch-thrower having right-truck and left-truck selectors; a reservoir containing air under pressure; admission connections from said reservoir to said switch-thrower; exhaust connections from said switch-thrower; and a controlling-valve normally closing said air connections and maintaining open the said exhaust connection.

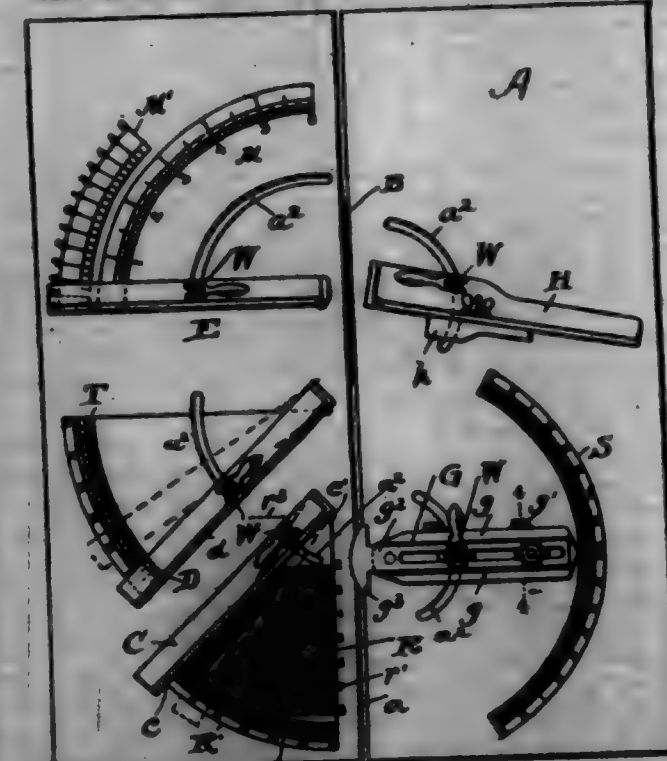
14. In a device of the class specified, the combination with an automatic brake-controlled air-compressing means, of a tank connected with the delivery of said air-compressing means; air-operated right-truck and left-truck selectors; oppositely-operative pairs of admission and exhaust passages from said tank to and from said selector-operating device; and a controlling-valve governing said passages.

15. In a device of the class specified, the combination, with a car adapted to traverse a track, of an air-reservoir containing air above atmospheric pressure; an air-piston adapted to operate a left-truck switch-thrower when moved in one direction, and to operate a right-truck switch-thrower when moved in the reverse direction; and a controlling-valve for the admission of air from the reservoir to either side of said piston.

16. In a device of the class specified, the combination with a car adapted to traverse a track, of an air-reservoir containing air above atmospheric pressure; an air-piston adapted to operate a right-truck switch-thrower when moved in one direction, and to operate a left-truck switch-thrower when moved in the opposite direction; a controlling-valve governing the admission of air from said reservoir to either side of said piston, and the exhaust from said piston; and opposite selective foot-pedals operatively connected with said valve.

17. In a device of the class specified, the combination with a car adapted to traverse a track, of an air-tank, controlling-valve and double-acting air-piston; right-truck and left-truck selectors connected for operation by means of opposite movements of said piston respectively; and vertically-disposed wheels in said selectors, in position and adapted to depress switch-throwing means operatively connected with said track.

702,043. METERING-MACHINE. JOSEPH T. BKA, Cleveland, Ohio. Filed Nov. 22, 1901. Serial No. 23,200. (No model.)



Claim.—1. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, a guide-block pivoted to said table and adapted to move about its pivot into various operative positions, and means for locking said

guide-block in any desired position, the table, in the field over which said block is movable, being graduated with a series of rectangular coordinates of which the base-line (theoretical or actual) pass through the axis of the block.

2. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, a guide-block pivoted to said table and adapted to move about its pivot into various operative positions, and means for locking said guide-block in any desired position, the table, in the field over which said block is movable, being graduated with a series of rectangular coordinates of which the base-line (theoretical or actual) pass through the axis of the block, there being also, in the field over which said guide-block is movable, a graduated arc-shaped scale of which the axis of graduation registers with the guide-face of said block when the block lies at an angle of forty-five degrees to said plane.

3. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, a guide-block pivoted to said table and occupying normally a position in which its guide-face is at an angle of forty-five degrees to said plane, which block is movable from said position toward a position in which the guide-face is parallel to said plane, and means for locking said guide-block in any of its possible positions, the table, in the field over which said block is movable, being graduated with a series of equally-spaced parallel lines of which the base-line passes through the axis of the pivot of the block, and another series of intersecting lines which are parallel to and corresponding distances from a base-line (theoretical or actual) which passes through the axis of said pivot at right angles to said plane.

4. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, two guide-blocks pivoted to said table and independently movable into various positions relative to said plane, mechanisms for independently locking said guide-blocks in any of their several positions, there being on the table associated with one of said guide-blocks and in the field over which the block moves, a series of rectangular coordinates of which the base-line (theoretical or actual) pass through the axis of the pivot of the block, and an arc-shaped scale of which the axis of graduation is in a plane lying at an angle of forty-five degrees from the plane of the cutting-tool and said graduations extend therefrom toward a plane parallel with said plane of the tool, there being on the table also associated with the other guide-block and in the field over which it moves, a correspondingly-graduated arc-shaped scale whose axis of graduation is in a plane which lies at an angle of forty-five degrees to the plane of the tool and extends therefrom toward a plane lying at an angle of ninety degrees from the plane of the tool.

5. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, three guide-blocks pivoted to said table and independently movable upon their pivots into various operative positions, independent mechanisms for locking said guide-blocks in any desired position, there being upon the table associated with one of the guide-blocks and in the field over which it moves, a system of rectangular coordinates of which the base-line (theoretical or actual) pass through the axis of the pivot of the block, and an arc-shaped scale whose axis of graduation is in a plane lying at an angle of forty-five degrees to the plane of the tool and which extends therefrom toward a plane lying at ninety degrees to the plane of said tool, there being associated with the third block a correspondingly-graduated arc-shaped scale whose axis of graduation is in a plane lying at an angle of sixty-seven and one-half degrees to the plane of the tool and whose graduations extend in both directions from the axis.

6. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, three guide-blocks pivoted to said table and independently movable upon their pivots into various operative positions, independent mechanisms for locking said guide-blocks in any desired position, there being upon the table associated with one of the guide-blocks and in the field over which it moves a system of rectangular coordinates of which the base-line (theoretical or actual) passes through the axis of the pivot of the block, and an arc-shaped scale whose axis of graduation is in the plane lying at an angle of forty-five degrees to the plane of the tool and which extends therefrom toward a plane parallel to the plane of the tool, there being associated with one of the other blocks a correspondingly-graduated arc-shaped scale whose axis of graduation is in a plane lying at an angle of forty-five degrees to the plane of the tool and which extends therefrom toward a plane lying at ninety degrees to the plane of said tool, there being associated with the third block a correspondingly-

graduated arc-shaped scale whose axis of graduation is in a plane lying at an angle of sixty-seven and one-half degrees to the plane of the tool and whose graduations extend in both directions from the axis, there being also associated with this third block another correspondingly-graduated arc-shaped scale whose axis of graduation is in a plane lying at an angle of ninety degrees to the plane of the tool and which extends therefrom toward a plane parallel with the plane of the tool.

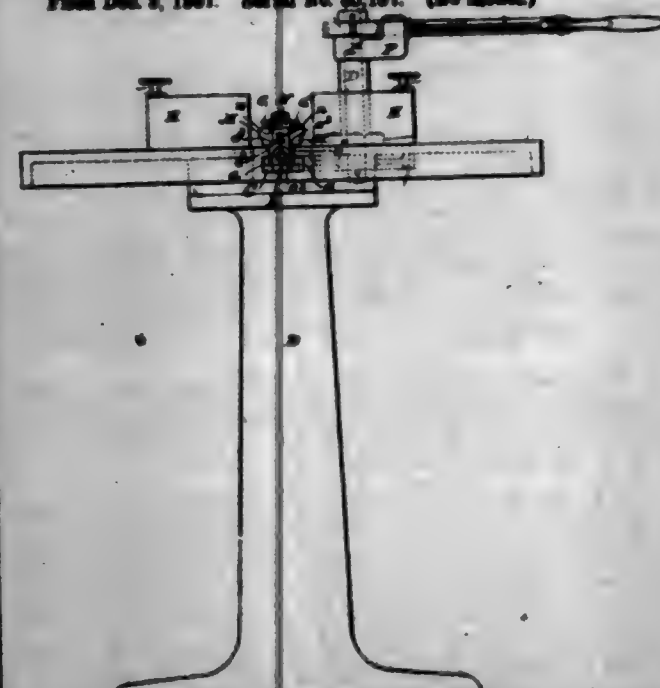
7. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, three guide-blocks pivoted to said table and independently movable upon their pivots into various operative positions, independent mechanisms for locking said guide-blocks in any desired position, there being upon the table, associated with one of the guide-blocks and in the field over which it moves, a system of rectangular coordinates of which the base-line (theoretical or actual) pass through the axis of the pivot of the block, and an arc-shaped scale whose axis of graduation is in the plane lying at an angle of forty-five degrees to the plane of the tool and which extends therefrom toward a plane parallel to the plane of the tool, there being associated with one of the other blocks a correspondingly-graduated arc-shaped scale whose axis of graduation is in a plane lying at an angle of ninety degrees to the plane of the tool and which extends therefrom toward the one-hundred-and-eighty-degree position.

8. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, and an adjustable guide-block pivoted thereon, there being in the field over which said block is movable four graduated arc-shaped scales, of which the axis of graduation of two of said scales is forty-five degrees removed in one direction from a plane at right angles to the plane of the tool, and the graduations on said two scales extend in opposite directions from said axis, while the axis of graduation of the other two arc-shaped scales is forty-five degrees removed in the opposite direction from a plane at right angles to the plane of the tool and the graduations thereon extend in the opposite direction from said axis.

9. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, an adjustable guide-block pivoted to said table, a shelf adjustably secured against the side of said guide-block, and a graduated scale on the table in the field over which said guide-block is movable.

10. The combination of a cutting-tool operating in a definite plane, with a work-supporting table relatively movable in a path parallel to said plane, an adjustable guide-block pivoted to said table, two work-supporting shelves adjustably secured to opposite vertical faces of said guide-block, and graduated scales on said table for cooperation with said guide-block.

702,044. COPING-MACHINE. JAMES T. REA, Cleveland, Ohio.
Filed Dec. 2, 1901. Serial No. 95,137. (No model.)



Claim.—1. In a coping-machine, the combination of a table having in its work-supporting surface a guide-groove, a slide movable in said guide-groove, a cope-chisel secured to said slide, an adjustable gage also secured to the slide, an adjustable guide-block secured to the table, and mechanism for operating said slide, substantially as specified.

2. In a coping-machine, the combination of a table having an undercut groove in its work-supporting surface, a slide mounted in said groove, a bar secured to said slide and having on one edge, rock-teeth which lie beneath one overhanging edge of the groove in the table, a plane engaging with said teeth, mechanism for turning said plane, a cope-chisel secured to said slide, and a guide-block adjustably secured to the top of the table, substantially as specified.

3. In a coping-machine, the combination of a table having a guide-groove in its work-supporting face, a slide mounted in said groove and carrying a tool-carrier which has an outwardly-projecting grooved shelf on its side, a clamping-plate secured to said tool-carrier and having a groove in the under side of its overhanging edge, a cope-chisel having dovetailed flanges for engagement with the groove in said shelf and clamping-plate, and mechanism for operating said slide, substantially as specified.

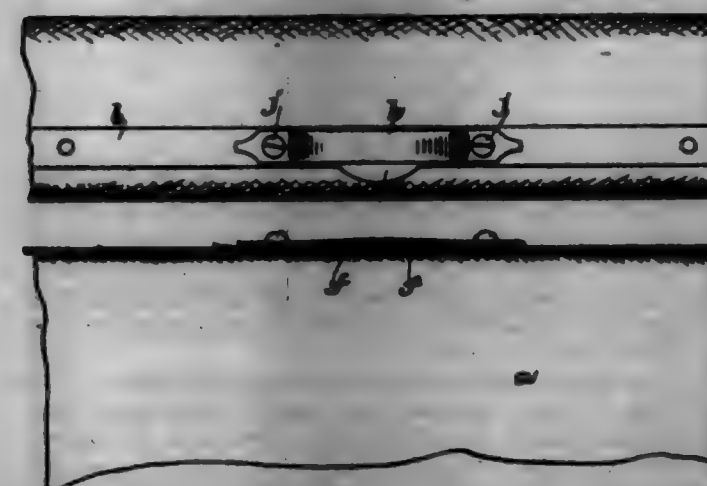
4. In a coping-machine, the combination of a table having a guide-groove in its work-supporting face, a slide mounted therein having an inclined top face, a tool-carrier having a beveled lower face which rests upon the beveled face on the slide, and laterally-extended shelf having a groove in its top surface, a set-screw for fastening the tool-carrier to the slide, a clamping-plate secured to the top of the tool-carrier and having a groove in the under side of its overhanging edge, and a cope-chisel having dovetailed flanges for engagement with said groove, substantially as specified.

5. In a coping-machine, the combination of a table having a guide-groove in its work-supporting face, a slide mounted in said guide-groove, a tool-carrier upon said slide having a laterally-projecting longitudinally-grooved shelf, a clamping-plate secured to said tool-carrier and having a groove in its overhanging edge, a cope-chisel having dovetailed flanges for engagement with said groove, a gage-spring secured to the sliding member, and a set-screw in the clamping-plate engaging with said spring to adjust it into various positions, substantially as specified.

6. In a coping-machine, the combination of a table having a guide-groove in its work-supporting face, a slide movable therein, mechanism for operating it, a tool-carrier upon said slide having on its side longitudinally-extended shelves, a clamping-plate secured upon said tool-carrier and overhanging the same at both edges and having two rearwardly-projecting talloons, cope-chisels clamped between said clamping-plate and shelves, two gage-springs secured to opposite sides of the clamping-plate, two set-screws serving through said talloons and engaging with said gage-springs, and a plurality of adjustable guide-blocks secured in the face of the table on opposite sides of the guide-groove therein, substantially as specified.

7. In a coping-machine, the combination of a work-supporting table, a tool-carrier movable in a guideway upon said table, an adjustable gage secured to and movable with the tool-carrier, an adjustable guide-block upon the table, and mechanism for operating said tool-carrier, substantially as specified.

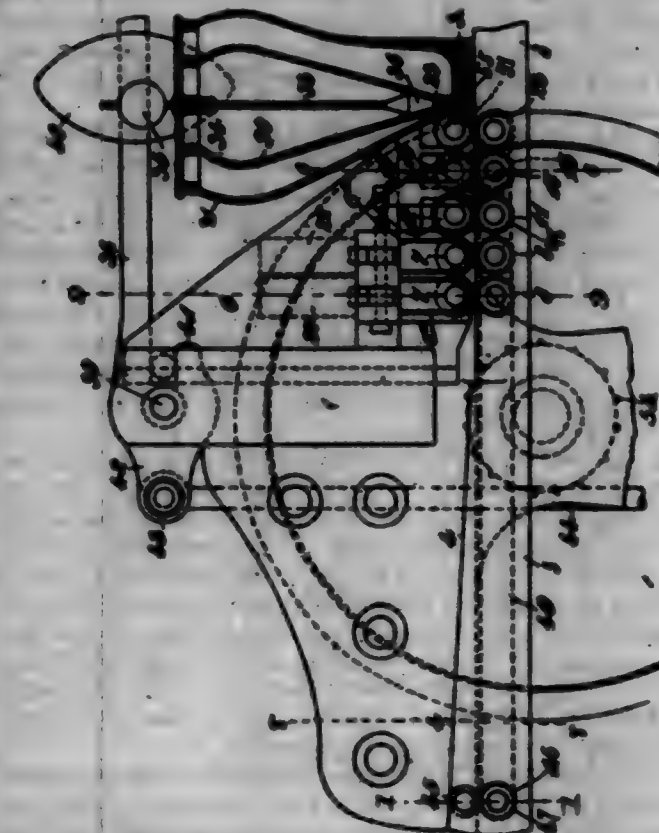
702,045. TICKET-HOLDER. ALONZO S. ADAMS, Boston, Mass.
Filed July 11, 1901. Serial No. 97,094. (No model.)



Claim.—1. In a ticket-holder, a blade having a guide, and independent spring-tegans integral with the blade extending along the medial line toward the center of the blade, combined with a strip fastened in contact with the blade at its ends but having its central portion clear of the blade, and projectors from the blade to form with the strip clamps to hold a ticket at points distant from each other to prevent the ticket twisting or slipping, substantially as described.

2. In a ticket-holder, a strip and a blade arranged to form a ticket-receiving opening between them, combined with a yielding projection to clamp the body of the ticket to the strip and means formed by the junction of the strip and blade to clamp along the edge of the ticket, substantially as described.

702,046. MACHINE FOR THE PRODUCTION OF FOLDED JOINTS OF SHEET METAL. THEO. L. GARDNER, Berlin, Germany. Filed July 14, 1900. Serial No. 98,116. (No model.)



Claim.—1. In a machine for the manufacture of sheet-metal cans and analogous cylindrical articles of sheet metal, the "former" 3 of a little less diameter, supported by the framing of the machine at one end only, grooves 4 and 5 at the supported end of each former, adapted to receive the sheet metal with its edges in each groove and to so present it as to loosely embrace the former, feeding and guiding rolls arranged to seize and move forward the sheet metal, and folding-rolls arranged to act in pairs on the overlapped edges and induce coinciding partial folds thereof while in the overlapped position, all combined and arranged to serve substantially as herein specified.

2. In a machine for the production of folded joints for sheet-metal cans, the combination with a lower set of guiding and bending rollers arranged within a "former" 3 of an upper set of rollers, means for independently rotating each set and means for strongly and yieldingly pressing them together, substantially as herein specified.

3. In a machine for the manufacture of sheet-metal cans and analogous cylindrical articles of sheet metal, having the "former" 3 of somewhat smaller diameter than the body of the machine at one end only, and grooves 4 and 5 at the supported end of the former, rolls arranged to seize and move forward the sheet metal as presented as to loosely embrace the former with its edges in each groove, the first pair 7, 8, of each roll flanged and arranged reversely to serve the double function of feeding-rollers and as guides for the entering sheet metal, and folding-rolls arranged to act in pairs on the overlapped edges, all combined and arranged to serve substantially as herein specified.

4. In a machine for the manufacture of sheet-metal cans and analogous cylindrical articles of sheet metal, having the "former" 3 of somewhat smaller diameter than the body of the machine at one end only, and grooves 4 and 5 at the supported end of the former, rolls arranged to seize and move forward the sheet metal as presented as to loosely embrace the former with its edges in each groove, the first pair 7, 8, of each roll flanged and arranged reversely to serve the double function of feeding-rollers and as guides for the entering sheet metal, and folding-rolls arranged to act in pairs on the overlapped edges, one member of each pair of rollers being mounted within the former and a pin-chain and impelling means therefor driven from the obtained end of the former and engaging with gear-wheels on the several rollers within the former, all combined and arranged to serve substantially as herein specified.

5. In a machine for the production of folded joints for sheet-metal cans, the combination with a grooved "former" serving as guiding means, of a pair of revolving folding-rollers adapted to simultaneously bend both parts of the superposed metal into a grooved and rigid form, means for revolving said rollers and means for bending over the ridged portions of both the overlapped parts of the metal and causing them to lie against the body of the can, substantially as described.

6. In a machine for the production of folded joints for sheet-metal cans, the combination with guiding-grooves 4 and 5, and feeding means the rolls 7 and 8, of a revolving roller having a groove 12, and a roller having a matching ridge or collar 14, of a stationary die 15 with a suitably-formed groove 19, firmly held in the path of such coinciding bent portions of the metal, adapted to bend such portions over and cause them to lie against the body of the can and means for strongly actuating such rollers so as to carry the partially-formed fold reliably through the die, all substantially as described.

7. In a machine for the production of folded joints for sheet-metal cans, the combination with guiding-grooves 4 and 5 and feeding means the rolls 7 and 8, of a revolving roller having a groove 12, and a roller having a matching ridge or collar 14, of a stationary die 15 with a suitably-formed groove 19, firmly held in the path of such coinciding bent portions of the metal, adapted to bend such portions over and cause them to lie against the body of the can, and means for strongly actuating such rollers so as to carry the partially-formed fold reliably through the die, and a pair of rollers 16, 16, and means for revolving the same arranged to act on the seam after its passage through such die and press the joint flat, all substantially as described.

8. In a machine for the production of folded joints for sheet-metal cans, having revolving feeding and guiding rollers 7 and 8, and a "former" 3 with the grooves 4, 5, in the final part, the combination therewith of revolving feeding-rollers adapted to bend the unprepared metal into coinciding grooved forms, the slide 6 carrying the bearings of the rollers 12, 14, and the weighted lever 20 pressing down such rollers, a slide 6 movable up and down in the first-named slide, carrying the bearings of the uppermost member 7 of a pair of guiding-rollers 7, 8, and a weighted lever 20 pressing on such slide, proportioned as shown so as to induce a stronger hold by the guiding than by the grooving rollers, all arranged for joint operation substantially as herein specified.

9. In a machine for the production of folded joints for sheet-metal cans, having the former 3 and grooves 4 and 5, revolving guiding and grooving rollers, a die 15 having a groove 19 for folding the coinciding grooved overlapping metal down into contact with the body of the can, and rollers 16, 16, for pressing such flat, the combination therewith of a tank with means for keeping solder melted therein, a soldering-iron, and means for moving the sheet metal slowly past these appliances, all substantially as herein specified.

10. In a machine for the production of folded joints for sheet-metal cans, having the former 3 and grooves 4 and 5, revolving guiding and grooving rollers, a die 15 having a groove 19 for folding the coinciding grooved overlapping metal down into contact with the body of the can, and rollers 16, 16, for pressing such flat, the combination therewith of a tank 20, and provisions for keeping solder melted therein, a soldering-iron, and means for moving the sheet metal slowly past these appliances, and means for warming the surfaces immediately before the presentation of the solder thereto, all substantially as herein set forth.

702,047. PROCESS OF REMOVING METALLIC SULFIDE SOLUBLE. GILLES S. COLLIER, Washburn, N. Y., assignor to Calvin Amory Stevens, New York, N. Y. Filed Aug. 22, 1901. Serial No. 73,222. (No specimen.)

Claim.—1. The process herein set forth of rendering metallic sulfide soluble, consisting in dissolving the crushed solid ore with aqueous ammonia, draining off the excess of aqueous ammonia, and exposing the ore then moistened to the action of an excess of oxygen, whereby the oxygen is brought into intimate contact with the moist particles of crushed ore and the chemical action is continued, substantially as set forth.

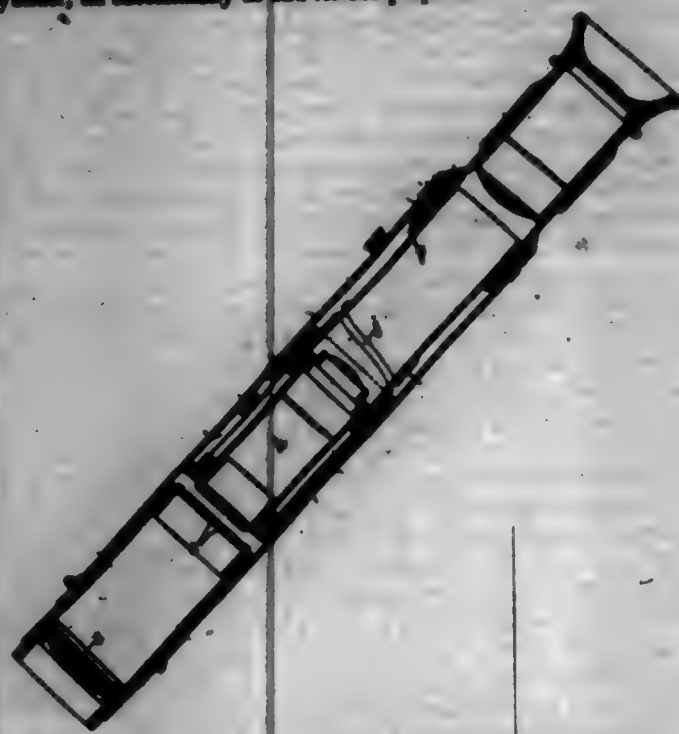
2. The process herein set forth of rendering metallic sulfide soluble, consisting in dissolving the crushed solid ore with aqueous ammonia, draining off the excess of aqueous ammonia, and exposing the ore then moistened to the atmosphere, whereby the crushed ore and the ammonia absorbed and held thereby, are treated to an excess of oxygen, for the purpose of accelerating chemical action, substantially as set forth.

3. The process herein set forth of rendering metallic sulfide soluble, consisting in dissolving the crushed solid ore with aqueous ammonia, draining off the excess of aqueous ammonia, treating the ore then moistened to an excess of oxygen, leaching the ore, and repeating the operation until the metal is all extracted from the pulp, substantially as set forth.

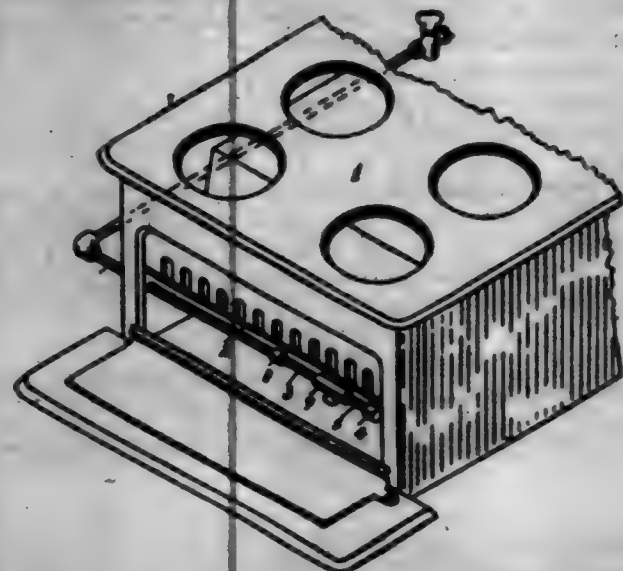
702,048. TELESCOPE. ANDREW A. CANNON, Belling, England. Filed May 11, 1901. Serial No. 20,717. (No model.)

Claim.—In a telescope, the combination of a main tube, an objective lens fixed at one end of said tube, an eyepiece fitted to turn without moving longitudinally in the opposite end of said tube, an ocular, a carrier consisting of a cylinder in which the ocular is fixedly secured and which is fitted within the main tube and slotted longitudinally, a further secured

within the main tube and carrying the longitudinal slot in the carrier, a tube connected with the eyepiece to turn therewith without moving longitudinally relatively thereto and having on its exterior a spirally-grooved cylinder which is fitted to turn within the carrier, and a piece projecting from and within the carrier and entering the spiral groove of the latter cylinder, all substantially as and for the purpose herein described.



702,049. FIRST-STARTER OR GAS-HEATER. THOMAS B. DRAPER, San Francisco, and GEORGE T. LEON, West Oakland, Cal. Filed July 25, 1901. Serial No. 62,604. (No model.)



Claim.—1. In a device of the character described, the combination with the grate of the fire-box of a coal-stove, of a gas-pipe fixedly secured immediately below the grate, said gas-pipe being closed at one end, and connected at the other end with a pipe from the source of supply, said pipe having an orifice near the closed end, said orifice discharging upwardly into said grate, and a shield or cover removably covering said orifice, substantially as described.

2. In a device of the character described, the combination with the grate of the fire-box of a coal-stove, of a gas-pipe fixedly secured immediately below the grate, said gas-pipe being closed at one end, and connected at the other end with a pipe from the source of supply, said pipe having an orifice near the closed end, said orifice discharging upwardly into said grate, and means for removably covering said orifice from above and for spreading the flame, substantially as described.

3. In a device of the character described, the combination with the grate of the fire-box of a coal-stove, of a gas-pipe fixedly secured immediately below the grate, said gas-pipe being closed at one end, and connected at the other end with a pipe from the source of supply, said pipe having an orifice near the closed end, said orifice discharging upwardly into said grate, and a shield or cover removably covering said orifice and suitably constructed on its under surface to deflect and discharge the gas issuing from said orifice when so covered, substantially as described.

4. In a device of the character described, the combination with the grate of a fire-box of a coal-stove, of a gas-pipe leading beneath the fire-

box and fixedly secured thereunder, and having an orifice, and a sleeve sliding on the pipe to cover the gas-orifice, the inner surface of said sleeve being suitably constructed to deflect and discharge the gas issuing from said orifice when the latter is surrounded by the sleeve, substantially as described.

5. In a device of the character described, the combination with the grate of a fire-box of a coal-stove, of a gas-pipe leading beneath the fire-box and fixedly secured thereunder, and having an orifice discharging upwardly beneath said fire-box, a sleeve sliding on the pipe to cover the gas-orifice, said sleeve having a flaring groove in its inner surface arranged to register with the orifice and distribute the gas issuing from said orifice, said sleeve having flanges a long to extend from the outer surface thereof, the position of which indicates the position of said orifice, substantially as described.

702,050. METHOD OF REMOVING SCALE OXIDE FROM THE SURFACE OF IRON OR STEEL. ARTHUR E. HANCOCK, Brooklyn, N. Y. Filed Sept. 26, 1900. Serial No. 20,547. (No specimen.)

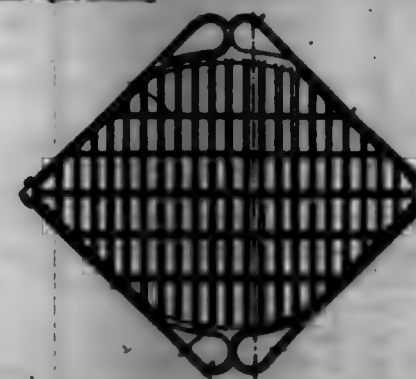
Claim.—1. The method herein described of removing hammer-scale from iron or steel, which consists in treating the same with an agent to reduce the more insoluble oxide of the scale to a soluble condition, and with a solvent for the resulting acid which does not injuriously attack the underlying metal, as set forth.

2. The method herein described of removing hammer-scale from iron or steel, which consists in immersing the same in a bath containing a reducing agent for the higher oxide, and sodium bisulfite, as set forth.

3. The method herein described of removing hammer-scale from iron or steel, which consists in treating the same with a bath containing in solution ammonium sulfite and sodium bisulfite, as set forth.

4. The method herein described of removing hammer-scale from iron or steel, which consists in treating the same with a bath containing in solution ammonium sulfite and sodium bisulfite, as set forth.

702,051. FILTERING-SCREEN. KARL REINHER, Worms, Germany, assignor to Filter, Industrietechnische Maschinen-Fabrik, Akt. Ges. vorm. L. A. Reuther, Worms, Germany. Filed July 2, 1901. Serial No. 62,522. (No model.)



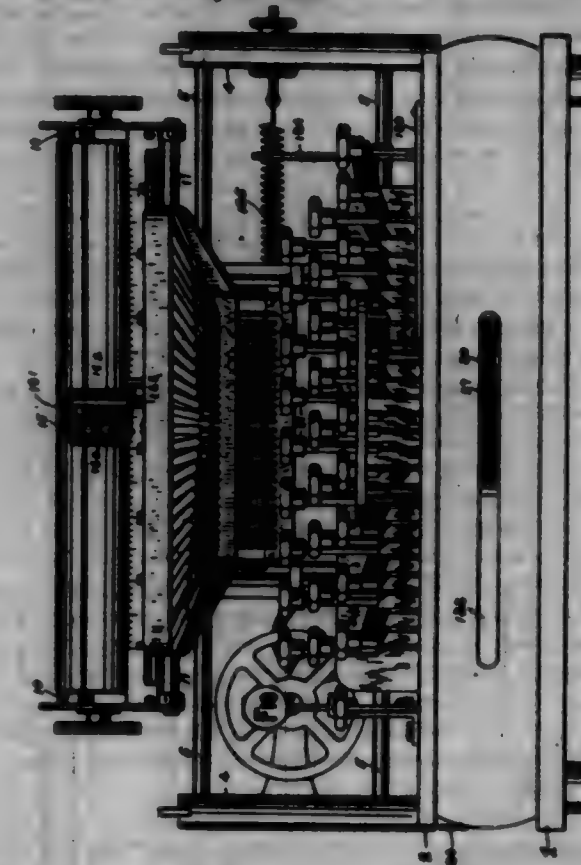
Claim.—1. Grid for filtering-press, comprising a central grating and an outer frame having apertures, which when the press is assembled constitute the liquid inlet and outlet conduits, said frame being formed with a lateral rim surrounding the apertures, which rim at two diagonally opposite apertures is removed in order to form a passage to connect the interior of the grating with the inlet and outlet conduits, substantially as described.

2. Grid for filtering-press comprising a central grating and an outer frame having inclined approximately pear-shaped apertures, which when the press is assembled constitute the liquid inlet and outlet conduits, said frame being formed with a lateral rim surrounding the apertures, which rim at two diagonally opposite apertures is removed in order to form a passage to connect the interior of the grating with the inlet and outlet conduits, substantially as described.

702,052. ADDRESS-MACHINE. ROBERT FINE, Astoria, N. Y., assignor to the United Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 22, 1900. Serial No. 62,612. (No model.)

Claim.—1. The combination of type mechanism, a carriage, an adding or registering mechanism, a second carriage on which the adding- or registering mechanism is mounted, and means for automatically connecting said carriages together at a predetermined point in the forward traverse of the

type-writer carriage, means independent of the moving means of the first-named carriage for moving the carriage on which the adding- or registering mechanism is mounted; substantially as described.



2. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, and independent spring-operated driving mechanism for said second carriage and automatically thrown or brought into operation when the type-writer carriage reaches a predetermined point in its forward traverse; substantially as described.

3. The combination of type mechanism, a carriage, an adding mechanism, one part of which has motion to and fro relatively to the other part, and an independent driving mechanism for moving said movable part and normally out of action until the said carriage reaches a predetermined point in its forward motion; substantially as described.

4. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, mechanism for connecting said carriages together when the type-writer carriage reaches a predetermined point in its forward traverse, and an independent spring for moving said second carriage but normally inactive before the type-writer carriage reaches said point and thrown into operation when said carriages are coupled together, substantially as described.

5. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, gearing continuously connected with one of said carriages and discontinuously connected with the other thereof, and a drive-spring connected with said gearing and on a center until the gearing is connected with both carriages, substantially as described.

6. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, an independent driving mechanism for said second carriage, and means for automatically connecting said driving mechanism with the type-writer carriage when the latter reaches a predetermined point in its forward traverse; substantially as described.

7. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, an independent driving mechanism for said second carriage and normally inactive during a part of the forward traverse of the type-writer carriage, and means for automatically throwing or bringing said driving mechanism into action when the type-writer carriage reaches a predetermined point in said forward traverse; substantially as described.

8. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which the adding- or registering mechanism is mounted, an independent driving mechanism for said second carriage, and means for automatically connecting said driving mechanism with said type-writer carriage at a predetermined point in the forward traverse of the latter; substantially as described.

9. The combination of type mechanism, a carriage, an adding or registering mechanism including a series of adding- or registering wheels, a second carriage on which the adding- or registering wheels are mounted, normally inactive independent driving mechanism for said adding- or registering mechanism; and

means for automatically throwing said driving mechanism into action when the type-writer carriage reaches a given point in its forward traverse; substantially as described.

10. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on the last-named carriage, a pinion meshing with said rack, a spring for rotating said pinion in one direction, and means for rendering said spring inoperative during a part and operative during the remainder of the forward traverse of the type-writer carriage; substantially as described.

11. The combination of type mechanism, a carriage, an adding or registering mechanism, a second carriage supporting the adding-wheel, a rack on said second carriage, a pinion meshing with said rack, and mechanism for automatically connecting said pinion with the type-writer carriage at a predetermined point in the forward motion thereof; substantially as described.

12. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which the adding-wheel is mounted, a rack on said second carriage, a pinion meshing with said rack, and a short rack connected with the type-writer carriage and adapted to move into and out of mesh with said pinion at a given point in the path of said type-writer carriage, and connections between said shaft and said adding-mechanism carriage for moving the latter to and fro; substantially as described.

13. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which the adding-wheel is mounted, a rack on said second carriage, a pinion meshing with said rack, and a short rack connected with the type-writer carriage and adapted to move into and out of mesh with the second pinion of said shaft at a given point in the path of the said type-writer carriage; substantially as described.

14. The combination of type mechanism, a carriage, an adding mechanism including a series of adding-wheels, a second carriage on which the adding-wheels are mounted, a short rack connected with the type-writer carriage, a pinion meshing with said rack, and a short rack connected with the type-writer carriage and adapted to move into and out of mesh with the second pinion of said shaft at a given point in the path of the said type-writer carriage; substantially as described.

15. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on said adding-mechanism carriage, a pinion meshing with said rack, a spring connected with said pinion and on a center during part of the forward traverse of the type-writer carriage, and means for moving said spring-driven mechanism off the center when the type-writer carriage reaches a predetermined point in its forward traverse; substantially as described.

16. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on said adding-mechanism carriage, a pinion meshing with said rack, a spring connected with said pinion and on a center during part of the forward traverse of the type-writer carriage, and means for moving said spring-driven mechanism off the center when the type-writer carriage reaches a predetermined point in its forward traverse; substantially as described.

17. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on said adding-mechanism carriage, a pinion meshing with said rack, a spring connected with said pinion and on a center during part of the forward traverse of the type-writer carriage, and means for moving said spring-driven mechanism off the center when the type-writer carriage reaches a predetermined point in its forward traverse; substantially as described.

18. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which the adding-wheel is mounted, a rack on the last-named carriage, a pinion engaging with said rack, a spring for rotating said pinion in one direction, mechanism for automatically connecting the type-writer carriage and said pinion at a given point in the path of the type-writer carriage, and means for holding said pinion against rotation prior to such automatically-made connection; substantially as described.

19. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which the adding-wheel is mounted, a rack on the last-named carriage, a pinion engaging with said rack, a spring for rotating said pinion in one direction, mechanism for automatically connecting the type-writer carriage and said pinion at a given point in the path of the type-writer carriage, and means for holding said pinion against rotation prior to such automatically-made connection; substantially as described.

20. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on the last-named carriage, a pinion engaging with said rack, a spring for rotating said pinion in one direction, a short rack connected with the type-writer carriage and meshing with the second pinion upon said shaft at a predetermined point in the forward traverse of the type-writer carriage, and

means for preventing rotation of said shaft before such predetermined point is reached; substantially as described.

21. The combination of type mechanism, a carriage, and adding mechanism, a second carriage on which part of said adding mechanism is mounted, a rack on the last-named carriage, a pinion meshing with said rack, a short rack on the last-named carriage, a pinion meshing with said rack, a short rack connected with the type-writer carriage for meshing with said second pinion at a given point in the forward traverse of the type-writer carriage, a flat-faced block connected with said shaft, a bar connected with the type-writer carriage and engaging with a flat or plane face of said block for preventing rotation of said shaft prior to such given point, and a spring connected to said shaft concentrically thereto and "on a center" while the shaft is locked against rotation as above; substantially as described.

22. The combination of a type-writer carriage, a bar 111 connected therewith, a rack 112 on said bar 111, an endwise-movable journal shaft, a pinion 109 on said shaft, a plate 114 connected with bar 111, and ending at 115, a flat-faced block 110 on said shaft, the plane of flat part of the said block and the bar 111 engaging to lock said shaft against motion, and the locking part of said bar 111 ending as at 113 to permit the rotation of said shaft, an adding-mechanism carriage, and connections between said shaft and said adding-mechanism carriage for moving the latter; substantially as described.

23. The combination of type mechanism, a carriage, an adding mechanism, an independent carriage on which the adding-wheel is mounted, and a shaft journaled in the framework of the machine and continuously geared with said adding-mechanism carriage and discontinuously geared with the type-writer carriage, whereby the type-writer carriage may move through part of its forward traverse while the adding-mechanism carriage remains stationary and the two carriages are connected together at a predetermined time or point and the motion of the adding-mechanism carriage is governed by that of the type-writer carriage; substantially as described.

24. The combination of type mechanism, a carriage, an adding mechanism, a second carriage on which part of the adding mechanism is mounted, a short rack connected with the type-writer carriage, a pinion meshing with said rack, and a pinion meshing with said rack and adapted to move into and out of mesh with the second pinion of said shaft at a given point in the path of the said type-writer carriage; substantially as described.

25. The combination of type mechanism, a carriage, a short rack connected with said carriage, a rotary pinion movable into and out of the path of said rack, an adding mechanism, a second carriage for carrying part of said adding mechanism, and continuously-operative connections between said second carriage and said pinion whereby the said carriages are automatically connected together at a given point in the forward traverse of the type-writer carriage whenever said pinion is in one position, and are not connected when said pinion is in another position; substantially as described.

26. The combination of type mechanism, a carriage, a short rack connected with said carriage, a rotary pinion movable into and out of the path of said rack, an adding mechanism, a second carriage for carrying part of said adding mechanism, and continuously-operative connections between said second carriage and said pinion whereby the said carriages are automatically connected together at a given point in the forward traverse of the type-writer carriage whenever said pinion is in one position, and are not connected when said pinion is in another position; substantially as described.

27. The combination of type mechanism, a carriage, a short rack connected with said carriage, a rotary pinion movable into and out of the path of said rack, an adding mechanism, a second carriage for carrying part of said adding mechanism, and continuously-operative connections between said second carriage and said pinion whereby the said carriages are automatically connected together at a given point in the forward traverse of the type-writer carriage whenever said pinion is in one position, and are not connected when said pinion is in another position; substantially as described.

28. The combination of type mechanism, a carriage, a short rack connected with said carriage, an endwise-movable journal shaft provided with a pinion for meshing with said rack in one endwise position of said shaft, a lever for moving said shaft endwise, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, and connections between said second carriage and said endwise-movable shaft whereby the shaft moves said second carriage to and fro; substantially as described.

29. The combination of a type-writer carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted,

ed, an endwise-movable rotary shaft, a short rack connected with the type-writer carriage, a pinion on said shaft and moved thereby into and out of position for meshing with said rack, connections between said shaft and the adding-mechanism carriage, and a drive-spring for the said shaft connected therewith "on a center" at such time as said rack moves out of mesh with the said pinion; substantially as described.

30. The combination of type mechanism, a carriage, adding mechanism, a second carriage on which part of said adding mechanism is mounted, a journal shaft continuously geared with one and discontinuously geared with the other of said carriages, a spring connected with said shaft for rotating it in one direction but normally inactive until the shaft is geared with both carriages, and means for preventing rotation of said shaft until said shaft is geared with both carriages; substantially as described.

31. The combination of a type-writer carriage, an adding mechanism, a second carriage on which part of said adding mechanism is mounted, an endwise-movable shaft, a short rack connected with the type-writer carriage, a pinion on said shaft moved thereby into and out of position for meshing with said rack, connections between said shaft and the adding-mechanism carriage, and a drive-spring for the said shaft connected therewith "on a center" at such time as said rack moves out of mesh with said pinion, with means for locking said shaft against rotation when said pinion is in the path of said rack and during a part of the traverse of the type-writer carriage; substantially as described.

32. The combination of a series of letter and figure types and keys thereof, a carriage, adding-wheel, independent means for rotating each wheel, a spring-driven rotary driver for operating said rotating means one at a time, an independent carriage for either the said rotating means or the said driver and moving at a rate of speed different from that of the carriage first named, and a common component, operated by any of the figure-keys for controlling the rotary motion of said driver, substantially as set forth.

33. The combination of type mechanism, a carriage, a second carriage moving at a rate of speed different from that of the first carriage, adding-wheel mounted upon the second carriage and provided with independently-operable relative means, a common driver adapted to operate said relative means and their associated adding-wheels one by one as they are moved along upon said second carriage, a spring for rotating said common driver progressively in one direction, and a variable-throw component mechanism controlled from the keyboard of the type mechanism for controlling the rotary motion of said driver; substantially as described.

34. The combination of type mechanism, having a keyboard, a carriage, adding-wheel, a second carriage on which said wheels are mounted, a rotary spring-driven driver for operating said adding-wheels as the carriage therefor moves the same in the direction of the axis of said driver, and a variable-throw component mechanism controlled from the keyboard for controlling said driver; substantially as described.

35. The combination of type mechanism, a carriage, adding-wheel, a spring-driven rotary driver for operating said adding-wheel, a second carriage on which two of said driving and adding elements is mounted and by which it is moved relatively to the other, a key-operated component mechanism for controlling said driver and spring, and said driver being normally out of operative relation with the adding-wheel during a part of the forward traverse of the type-writer carriage, and means for connecting or gearing said carriages together during a part of the forward traverse of the type-writer carriage; substantially as described.

36. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said adding-wheel is mounted, a spring-driven rotary driver out of operative relation with said wheel during a part of the forward motion of the type-writer carriage, a key-operated component for controlling the rotary motion of said driver, and means for discontinuously gearing said carriages together, whereby the type-writer carriage may progress to a predetermined point before said carriages are coupled together and said driver is brought into operative relation with said wheel; substantially as described.

37. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, component mechanism for controlling said driving mechanism, and connections between the type mechanism and said component mechanism for operating the latter; substantially as described.

38. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, component mechanism for controlling said driving mechanism, and connections between the type mechanism and said component mechanism for operating the latter, with driving mechanism for said second carriage, inactive until the first-

named carriage reaches a given point in its forward traverse; substantially as described.

39. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, component mechanism for controlling said driving mechanism, and connections between the type mechanism and said component mechanism for operating the latter, with spring-driven mechanism for moving said second carriage but inactive until the first-named carriage reaches a predetermined point in its forward traverse; substantially as described.

40. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, component mechanism for controlling said driving mechanism, and connections between the type mechanism and said component mechanism for operating the latter, with gearing continuously connected with one and discontinuously connected with the other of said carriages; substantially as described.

41. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, component mechanism for controlling said driving mechanism, and connections between the type mechanism and said component mechanism for operating the latter, with gearing continuously connected with one and discontinuously connected with the other of said carriages, and a spring connected to said gearing for operating the same but inactive until the gearing is connected with both carriages; substantially as described.

42. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven mechanism for operating said wheel and disengaged therefrom during a part of the forward traverse of said first-named carriage, an component-wheel connected to and controlling said driving mechanism, a detent for said wheel, a reciprocating feed-rack or ratchet-bar movable transversely into and out of mesh with said wheel and spring-pressed in one direction of its reciprocation, a series of stops adapted to arrest said bar in different positions, and connections with type mechanism for operating said stops, detent and bar; substantially as described.

43. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, an component-controlled driver adapted to operate the adding-wheel one by one as they are moved along, a spring for rotating said driver in one direction, and means connected with the first-named carriage for setting said spring, during the return movement of said first-named carriage; substantially as described.

44. The combination of type mechanism, a carriage, adding-wheel, a second carriage on which said wheel is mounted, a spring-driven driver for operating said adding mechanism, a variable-throw component mechanism controlled from the keyboard of the type mechanism for controlling said driver, and means connected with the first-named carriage for setting the spring operating said driver; substantially as described.

45. The combination of type mechanism having a keyboard, a carriage, adding-wheel supported upon another carriage, a spring-driven rotary driver for operating said adding-wheel one by one but out of operative relation thereto during a part of the forward traverse of the first-named carriage, means for coupling said carriages together at a given point in said forward traverse and causing the adding-mechanism carriage to move step by step with the first-named carriage, a variable-throw component mechanism controlled from the keyboard for controlling said driver, and means connected with the first-named carriage for setting said driver-operating spring; substantially as described.

46. The combination of type mechanism, a carriage, adding-wheel, a spring-driven rotary driver for said wheel, said driver and said adding-wheel being relatively movable, a second carriage upon which said movable element is mounted, a key-controlled variable-throw component for controlling the rotation of said driver, and means connected with said first-named carriage for setting the said driver-operating spring; substantially as described.

47. The combination of adding-wheel having independent driving means for the wheel, a driver for operating said adding-wheel, said driver and said adding-wheel being relatively movable, a carriage upon which said movable element is mounted, a spring for rotating said driver, type mechanism, a second carriage, mechanism connected with said second carriage for setting said spring, and an component controlling the rotation of said driver and operated from the keyboard of the type-operating mechanism; substantially as described.

48. The combination of type mechanism, a carriage, adding-wheel, independent operating mechanisms for the wheel, a spring-driven rotary driver for operating said wheel one by one, said driver and said add-

ing-wheel being relatively movable and a second carriage upon which said movable element is mounted, an component controlled by the type-operating mechanism for controlling the rotation of said driver, and means connected with said first-named carriage for setting the said driver-operating spring; substantially as described.

48. The combination of adding-wheel, independent operating means for the wheel, a rotatory spring-driven driver for operating said means one at a time, and said driver and said adding-wheel and means being relatively movable, a type-writer carriage, a sheave or pulley journaled on and connected to said carriage by a spring, a cord fast to said pulley and connected to set the driver-operating spring as the type-writing carriage is moved in one direction, and an component controlled from the type-operating mechanism of the type-writer for controlling the rotation of said driver; substantially as described.

50. The combination of type mechanism, a carriage, adding-wheel, independent operating means for the wheel, a driver for operating said means one at a time, said driver and said adding-wheel being relatively movable, and being disengaged one from the other during a part of the traverse of the said carriage, a shaft with which said driver is connected, a barrel loose on said shaft, a locking-ratchet connecting said barrel and said shaft, a cord connected with said barrel for rotating it in one direction and connected with a spring, a second cord connected with said barrel for rotating it in the opposite direction, said second cord also being connected with said carriage, and an component operated from the keyboard of the type mechanism for controlling the rotation of said driver; substantially as described.

51. The combination of type mechanism, a carriage, adding-wheel, independently-operable driving means for said wheel, a single driver for operating said driving means one at a time and disengaged therefrom during a part of the traverse of the said carriage, a spring and connections for operating said driver, an component controlled from the type-operating mechanism for controlling the rotation of said driver, means connected with the said carriage for setting said driver-operating spring, and means for causing engagement between said driver and said driving mechanisms of the adding mechanism one at a time after the said carriage has reached a given point in its forward traverse; substantially as described.

52. The combination of type mechanism, a carriage, adding-wheel, independent operating means for said wheel, a spring-driven driver for operating said independent means one at a time and disengaged therefrom during a part of the traverse of the said carriage, said driver and adding-wheel and operating means being relatively movable, means for causing said driver and said adding-wheel and operating means to move relatively after the said carriage has reached a given point in its forward traverse, an component operatively connected with the type-operating mechanism for controlling the rotation of said driver, and means for locking said driver against rotation at will; substantially as described.

53. The combination of a power-driven component-wheel, a movable holding-dog coacting therewith, and an endwise-movable rack or ratchet bar movable transversely of its length into and out of mesh with said wheel and constructed to coöperate with the holding-dog to permit the escape movements of the wheel; substantially as described.

54. The combination of a power-driven component-wheel, a movable detent coacting therewith, an endwise-movable rack or ratchet bar movable transversely of its length into and out of mesh with said component-wheel and constructed to coöperate with the holding-dog to permit the escape movements of the wheel, and means for arresting said rack or ratchet bar in its endwise motion at different distances from its initial position; substantially as described.

55. The combination of a power-driven component-wheel, a pivoted holding-dog coacting therewith, an independently-pivoted carrier, an endwise-movable rack or ratchet bar on said carrier adapted to coact with said holding-dog and said component-wheel, and a driver controlled by said component-wheel; substantially as described.

56. The combination of an component-wheel, a movable holding-dog coacting with said wheel, a rack or ratchet bar for coaction with said component-wheel, a movable carrier on which said bar is mounted to move endwise to and fro, independently-movable steps for arresting said rack or ratchet bar at different distances from its initial position, and a driver controlled by said component-wheel; substantially as described.

57. The combination of an component-wheel, a spring-pressed holding-dog coacting therewith, an endwise-movable rack or ratchet bar movable transversely into and out of mesh with said wheel, independently-movable steps for arresting said bar at different distances from its initial position, connections between said steps and said holding-dog whereby each step moves the dog to release the wheel, and a driver controlled by said component-wheel; substantially as described.

58. The combination of an component-wheel, a spring-pressed pivoted holding-dog for coaction with said wheel, a pivoted carrier, a rack or ratchet bar movable endwise to and fro on said carrier and adapted to mesh with said wheel, independently-movable steps for arresting said bar

at different distances from its initial position, means operated by each of said steps for disengaging said dog from the wheel, and a driver controlled by said component-wheel, substantially as described.

59. The combination of an component-wheel, a movable holding-dog, therefor, an endwise-movable rack or ratchet bar for coaction with said wheel and movable transversely into and out of mesh therewith, independently-movable steps arranged in line oblique to said bar and adapted to arrest the same at different distances from the initial position thereof, and a driver controlled by said component-wheel, substantially as described.

60. The combination of an component-wheel, a movable holding-dog, therefor, an endwise-movable rack or ratchet bar movable transversely into and out of mesh with said wheel, independently-movable steps arranged in a line oblique to said bar and adapted to stop the said bar at different distances from its initial position, connections whereby each step operates said holding-dog, and a driver controlled by said component-wheel, substantially as described.

61. The combination of an component-wheel, a movable holding-dog coacting therewith, a movable carrier, a rack or ratchet bar movable endwise to and fro on said carrier and moved into and out of mesh with said wheel by said carrier, independently-movable steps arranged in line oblique to the direction of reciprocation of said bar and adapted to arrest the said bar at different distances from its initial position, connections whereby each step operates said movable dog, and a driver connected with and controlled by said component-wheel; substantially as described.

62. The combination of an component-wheel, a spring-pressed holding-dog coacting with said wheel, an endwise-movable rack or ratchet bar movable transversely into and out of mesh with said wheel, independently-movable steps arranged in line oblique to the line of reciprocation of said bar and adapted to arrest said bar at different distances from its initial position, means intermediate said steps and said dog whereby each step disengages the dog from the said wheel, and a driver connected with and controlled by said component-wheel, substantially as described.

63. The combination of an component-wheel, a holding-dog, a frame provided with two rack or ratchet bars for coaction with said component-wheel, said frame being movable transversely thereof and also movable to and fro in the direction of said bars, independently-movable steps arranged in line across said frame and adapted to coact therewith to arrest the frame at different distances from the initial position thereof, and a driver connected with and controlled by said component-wheel; substantially as described.

64. The combination of an component-wheel, a holding-dog, a rectangular frame provided with two rack-bars for coaction with said wheel and movable into and out of mesh therewith, said frame being movable to and fro in the direction of said bars, independently-movable steps arranged in line oblique to the line of reciprocation of said frame and adapted to coact with an end thereof to arrest the frame at different distances from the initial position thereof, and a driver controlled by said component-wheel, substantially as described.

65. The combination of an component-wheel, a spring-pressed holding-dog, a pivoted carrier, a frame provided with two rack or ratchet bars and movable to and fro on said carrier in the direction of said bars, independently-movable steps adapted to coact with said bars at different distances from its initial position, means operated by each of said steps for moving said holding-dog away from the wheel, and a driver controlled by said component-wheel; substantially as described.

66. The combination of an component-wheel, a spring-pressed holding-dog, therefor, a pivoted carrier, a rectangular frame provided with rack or ratchet bars and movable to and fro on said carrier in the direction of said bars, steps arranged in line oblique to the line of reciprocation of said frame and independently movable into the path of an end of said frame, means whereby each step disengages said holding-dog from the wheel, and a driver controlled by said component-wheel; substantially as described.

67. The combination of an component-wheel, a spring-pressed holding-dog, therefor, pivoted arm 72 carrying said dog, a pivoted carrier, a rectangular frame movable to and fro on said carrier and provided with rack or ratchet bars, a pivoted ball operatively connected with arm 72 to move the same, a series of levers adapted to operate said ball and provided with stop lugs or projections arranged in a line across and oblique to the direction of the to-and-fro motion of said frame on said carrier, and a driver controlled by the said component-wheel; substantially as described.

68. The combination of an component-wheel 70, a dog 71, pivoted arm 72 carrying said dog, an obliquely-tilted plate 80 pivoted upon the same axis as the arm 72, a rack or ratchet bar frame slidable on said plate 80, a spring for holding said frame against steps on said plate, a pivoted ball, a series of levers 88 provided with steps or projections 94 and constructed to bear on said ball and said ball resting on the arm 72 or projections therefrom, a spring 76 coacting with the dog 71, means whereby the plate 80 and rack-bar frame are connected with the ball

to be moved in one direction thereby, and a driver-plate as 84 coacting with said component-wheel, substantially as described.

69. The combination of adding-wheel, a spring-driven component-controlled driver common to all of said wheels and constructed to operate one of said wheels at a time, a carriage on which one of said driver and adding elements is mounted and means for automatically bringing about the coöperative relation between said driver and said wheels in sequence; substantially as described.

70. The combination of a series of number-wheels independently rotatable on a shaft and each provided with operating and carrying gears, a series of driving-gears independently journaled on a shaft parallel to the first-named shaft and meshing with the operating-gears thereof, a spring-pressed pivoted pawl on each driver-gear over the last, and adapted to coact with the carrying-gear of the number-wheel of next higher denomination with an extension rigid with each pawl and adapted to coact with the second shaft above named to stop the motion of the pawl in one direction; and a single driver which is adapted to coöperate with all of said driving-gears; substantially as described.

71. The combination of a series of number-wheels, independent driving means therefor, and a frame for supporting said parts, with a power-driven driver, an component-wheel connected with said driver, a movable holding-dog coacting with said wheel, a key-controlled variable-thrown endwise-movable rack or ratchet bar movable into and out of mesh with said wheel, a frame for supporting said driver, and means for causing relative motion of said frame to engage the driver and said operating means one at a time, substantially as described.

72. The combination of adding-wheel, independent operating means for said wheel, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, a carriage for said movable element, a plate, a second carriage, key-operated digit-type carrier coacting with said plate, one of said plate and said key-operated digit-type-carrier elements being supported by said second carriage, an component for controlling the rotation of said driver, and means connecting said component and said type-operating mechanism; substantially as described.

73. The combination of adding-wheel, independent operating means for said wheel, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, a plate, a carriage, key-operated digit-type carrier coacting with said plate, an component for controlling the rotation of said driver, and means connecting said component and said type-operating mechanism, with a detent device movable into and out of position for coaction with and for locking said driver against rotation; substantially as described.

74. The combination of adding-wheel, independent operating means for said wheel, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, a carriage for said movable element, a plate, a second carriage, key-operated digit-type carrier coacting with said plate, one of said plate and type-carrier elements being mounted upon said second carriage, a variable-thrown component for controlling the rotation of said driver, and means for connecting said component and said type-operating mechanism; substantially as described.

75. The combination of adding-wheel, independent operating means therefor, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, a plate, a carriage, key-operated digit-type carrier coacting with said plate, a variable-thrown component for controlling the rotation of said driver, and means connecting said component and said type-operating mechanism, with a detent device movable into and out of position for coaction with and for locking the said driver against rotation; substantially as described.

76. The combination of adding-wheel, independent operating means for said wheel, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, a key-controlled component for controlling said driver, and a to-and-fro movable spring-actuated component with said driver-operating spring for setting the same from time to time; substantially as described.

77. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said mechanisms one at a time, said adding mechanism and said driver being movable one past or before the other, an component-wheel connected with said driver, an endwise-movable rack or ratchet bar movable transversely of its length into and out of mesh with said wheel, and a movable detent coacting with said wheel at each transverse movement of the rack, to permit the coöperative movements of the wheel; substantially as described.

78. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a movable detent coacting with said wheel, an endwise-movable rack or ratchet bar movable

transversely of its length into and out of mesh with said component-wheel, and constructed at such movements to coöperate with the said movable detent to permit the component movements of the wheel, and means for operating the endwise motion of said bar at different distances from the initial position of said bar, substantially as described.

79. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a pivoted holding-dog coacting with said wheel, an independently-pivoted carrier, and an endwise-movable rack or ratchet bar on said carrier adapted to be moved thereby transversely into and out of mesh with said wheel and to coöperate at such movements with the said holding-dog, to permit the component movements of the wheel; substantially as described.

80. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a movable holding-dog coacting with said wheel, a rack or ratchet bar for coaction with said wheel, a movable carrier on which said bar is mounted and responsive endwise, and steps movable independently into and out of position for arresting the bar at different distances from its initial position; substantially as described.

81. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a movable holding-dog for coaction with said wheel, a rack or ratchet bar for coaction with said wheel, a movable carrier on which said bar is mounted and responsive endwise, and steps movable independently into and out of position for arresting the bar at different distances from its initial position; substantially as described.

82. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a spring-pressed holding-dog coacting with said wheel, an endwise-movable rack or ratchet bar transversely movable into and out of mesh with said wheel, movable steps for arresting said bar at different distances from its initial position, and connections between said steps and said holding-dog whereby each step moves the dog to release the wheel; substantially as described.

83. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a spring-pressed holding-dog coacting with said wheel, an endwise-movable rack or ratchet bar transversely movable into and out of mesh with said wheel, independently-movable steps for arresting said bar at different distances from its initial position, and connections between said steps and said holding-dog whereby each step moves the dog to release the wheel; substantially as described.

84. The combination of adding-wheel, independent operating means therefor, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a spring-pressed pivoted holding-dog for coaction with said wheel, a pivoted carrier, a rack or ratchet bar movable endwise to and fro on said carrier and adapted to mesh with said wheel, movable steps for arresting said bar at different distances from its initial position, and means operated by said steps for disengaging said dog from the wheel; substantially as described.

85. The combination of adding-wheel, independent operating means therefor, a spring-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a spring-pressed pivoted holding-dog for coaction with said wheel, a pivoted carrier, a rack or ratchet bar movable endwise to and fro on said carrier and adapted to mesh with said wheel, independently-movable steps for arresting said bar at different distances from its initial position, and means operated by each of said steps for disengaging said dog from the wheel; substantially as described.

86. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an component-wheel connected with said driver, a movable holding-dog for said wheel, an endwise-movable rack or ratchet bar for coaction with said wheel, and movable transversely into and out of mesh therewith, and independently-movable steps arranged in line oblique to said bar and adapted to arrest the same at different distances from the initial position thereof; substantially as described.

87. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time

said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected to said driver, a movable holding-dog for said wheel, an endwise-movable rack or ratchet bar movable transversely into and out of mesh with said wheel, independently-movable stops arranged in a line oblique to said bar and adapted to stop the same at different distances from the initial position thereof, and connections whereby each stop operates said holding-dog, substantially as described.

95. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a movable holding-dog coacting with said wheel, a movable carrier, a rack or ratchet bar movable endwise to and fro on said carrier and into and out of mesh with said wheel thereby, independently-movable stops arranged in line oblique to the direction of reciprocation of said bar and adapted to arrest the said bar at different distances from its initial position, and connections whereby each stop operates said movable dog; substantially as described.

96. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said adding-wheel and means and said driver being relatively movable, an escapement-wheel connected with said driver, a spring-pressed holding-dog coacting with said wheel, an endwise-movable rack or ratchet bar movable transversely into and out of mesh with said wheel, independently-movable stops arranged in line oblique to the line of endwise motion of said bar and adapted to arrest said bar at different distances from its initial position, and connections intermediate said stops and said dog whereby each stop disengages the dog from the said wheel; substantially as described.

97. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a holding-dog for said wheel, a frame provided with two rack or ratchet bars for coaction with said escapement-wheel, said frame being movable transversely of its length and also movable to and fro in the direction of said bars, and independently-movable stops arranged in line across said frame and adapted to coast therewith to arrest the same at different distances from the initial position thereof in said endwise motion; substantially as described.

98. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one by one, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a holding-dog for said wheel, a frame provided with two rack or ratchet bars for coaction with said escapement-wheel, said frame being movable transversely of its length and also movable to and fro in the direction of said bars, and independently-movable stops arranged in line across said frame and adapted to coast therewith to arrest the same at different distances from the initial position thereof; substantially as described.

99. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a holding-dog for said wheel, a rectangular frame provided with two ratchet-bars for coaction with said wheel and movable into and out of mesh therewith, and frame being movable to and fro in the direction of said bars and independently-movable stops arranged in line oblique to the line of reciprocation of said frame and adapted to coast with an end thereof to arrest the frame and bars at different distances from the initial position thereof; substantially as described.

100. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a spring-pressed holding-dog for said wheel, a pivoted carrier, a frame provided with two rack or ratchet bars adapted to mesh with said wheel and movable to and fro on said carrier in the direction of said bars, independently-movable stops adapted to coast with said frame in arrest it at different distances from its initial position, and means operated by each of said stops for moving said holding-dog away from the wheel; substantially as described.

101. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a spring-pressed holding-dog for said wheel, a pivoted carrier, a rectangular frame provided with rack or ratchet bars adapted to mesh with said wheel and movable to and fro on said carrier endwise of said bars, stops arranged in line oblique to the line of reciprocation of said bars and independently movable into the path of an end of said frame, and means whereby each stop disengages said dog from the wheel; substantially as described.

102. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time,

said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a spring-pressed holding-dog for said wheel, pivoted arm 73 carrying said dog, a pivoted carrier, a rectangular frame provided with rack or ratchet bars adapted to mesh with said wheel and movable endwise of said bars to and fro on said carrier, a pivoted ball connected with arm 73 for moving the same, and a series of levers adapted to operate said ball and provided with stop lugs or projections arranged in a line oblique to the direction of the endwise motion of said frame on said carrier and adapted to coast with said frame, substantially as described.

103. The combination of adding-wheel, independent operating means therefor, a power-driven driver for operating said means one at a time, said driver and said adding-wheel and means being relatively movable, an escapement-wheel connected with said driver, a dog 71 for said wheel, pivoted arm 73 carrying said dog, a pivoted obliquely-slotted plate 80, a spring-pressed rack or ratchet bar frame slidable on said plate 80, a pivoted ball, a series of levers provided with stop lugs or projections resting on said ball and said ball resting on the arm 73 or projections therefrom, a spring 76 coacting with the dog 71, and means whereby the plate 80 and rack-bar frame carried thereby are connected with the ball to be moved in one direction thereby; substantially as described.

104. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel having independent operating means therefor, and said means being at distances apart greater than said step-by-step feed, a second carriage on which said wheel and means are mounted, a driver disengaged from said independent means during a part of the forward traverse of the first-named carriage, motion-multiplying mechanism for connecting said carriages and throwing into operation when the first-named carriage reaches a predetermined point in its forward traverse, a spring for resetting said driver, and an escapement mechanism operated from the type-operating mechanism and controlling the rotary motion of said driver.

105. The combination of a carriage, type mechanism, adding-wheel, independent operating means for said wheel, a second carriage upon which said wheel and independent means are mounted, driving mechanism for said second carriage and normally out of action until the first-named carriage reaches a predetermined point in its forward motion, a spring-driven rotary driver for operating said independent means and disengaged therefrom until the said driving mechanism is thrown into operation, escapement mechanism for controlling said driver and operatively connected with the type mechanism, and mechanism for throwing the driving mechanism for the second carriage into operation when the first-named carriage reaches said point and controlling the motion of the second carriage but permitting it to move faster than the first-named carriage, substantially as described.

106. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel having independent operating means therefor, said means being arranged at distances apart greater than the step-by-step letter-space feed of said carriage, a second carriage upon which said adding-wheel and operating means are mounted, a power-driven driver for operating said independent means one by one and disengaged therefrom during a part of the forward traverse of the first-named carriage, an escapement mechanism operatively connected with the type mechanism and controlling the rotary motion of said driver, speed-multiplying mechanism for connecting said carriages when the first-named carriage reaches a predetermined point in its forward traverse, and a drive-spring for the second carriage thrown into operation when said carriages are connected together, substantially as described.

107. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding mechanism having independent operating means for its number-carriers and said means being arranged at distances apart greater than the step-by-step feed of said carriage, a spring-driven escapement-controlled driver for operating said number-carrier-operating means one at a time and disengaged therefrom during a part of the forward traverse of said carriage, a second carriage upon which the number-carriers and their operating means are mounted, speed-multiplying mechanism continuously connected with one of said carriages and discontinuously connected with the other thereof, and a spring for moving said second carriage but normally inactive until said carriages are coupled together, whereby the motion of the second carriage is greater than but is governed by that of the first-named carriage, substantially as described.

108. The combination of type mechanism, a carriage having a step-by-step letter-space feed, number-carriers, independent operating means therefor spaced apart at distances greater than said step-by-step feed, a spring-driven escapement-controlled driver for but disengaged from said independent means during a part of the forward traverse of the first-named carriage, a rack on said first-named carriage, a pinion with which said rack meshes at a given point in the forward traverse of said first-named carriage, speed-multiplying mechanism connecting said pinion with the second carriage, and a spring automatically thrown or brought into operation

when the first-named carriage is connected with said pinion through said rack, substantially as described.

109. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel, independent operating means for said wheel and said means being at distances apart greater than said step-by-step feed, escapement-controlled driving mechanism for operating said means one at a time and operatively connected with the type mechanism, a second carriage on which one of said parts of said adding mechanism is mounted, and speed-multiplying mechanism for connecting a step-by-step moving part of or connected to the type-writing mechanism with the second carriage when the said first-named carriage reaches a predetermined point in its forward traverse.

110. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel, independent operating means for said wheel and said means being at distances apart greater than said step-by-step feed, escapement-controlled driving mechanism for operating said means one at a time and operatively connected with the type mechanism, a second carriage on which one of said parts of said adding mechanism is mounted, driving mechanism for said second carriage normally out of action until the first-named carriage reaches a predetermined point in its forward motion, and mechanism for throwing the said driving mechanism for the second carriage into operation when the first-named carriage reaches a predetermined point in its forward traverse and controlling the motion of the second carriage but permitting it to move faster than the first-named carriage, substantially as described.

111. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel, independent operating means for said wheel and said means being at distances apart greater than said step-by-step feed, escapement-controlled driving mechanism for operating said means one at a time and operatively connected with the type mechanism, a second carriage on which one of said parts of said adding mechanism is mounted, speed-multiplying mechanism for connecting said carriages when the first-named carriage reaches a predetermined point in its forward traverse, and a drive-spring for the second carriage which is inactive until said is thrown into operation when said carriages are connected together, substantially as described.

112. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel, independent operating means for said wheel and said means being at distances apart greater than said step-by-step feed, escapement-controlled driving mechanism for operating said means one at a time and operatively connected with the type mechanism, a second carriage on which one of said parts of said adding mechanism is mounted, speed-multiplying mechanism continuously connected with one of said carriages and discontinuously connected with the other thereof, and a spring for moving said second carriage but normally inactive until said carriages are coupled together, whereby the motion of the second carriage is greater than but is governed by that of the first-named carriage, substantially as described.

113. The combination of type mechanism, a carriage having a step-by-step letter-space feed, adding-wheel, independent operating means for said wheel and said means being at distances apart greater than said step-by-step feed, escapement-controlled driving mechanism for operating said means one at a time and operatively connected with the type mechanism, a second carriage on which one of said parts of said adding mechanism is mounted, a rack on said first-named carriage, a pinion with which said rack meshes at a given point in the forward traverse of said first-named carriage, speed-multiplying mechanism connecting said pinion with the second carriage, and a spring automatically thrown or brought into operation when the first-named carriage is connected with the second carriage through said pinion and connections.

114. The combination of type mechanism, a pinion, and a power-driven carriage for one of said parts, with independently-operable number-carriers, mechanism for operating said carriers one at a time and controlled from the keyboard of the type mechanism, a second carriage upon which one of said adding-mechanism elements is mounted to move past the other, a drive-spring for said second carriage, mechanism for connecting the second carriage with a step-by-step moving part of the type-writing mechanism when the first-named carriage reaches a predetermined point in its forward traverse, and an escapement mechanism for governing the motion of both of said carriages, substantially as described.

115. The combination of type mechanism, a pinion, and a power-driven carriage for one of said parts, with adding-wheel having independent operating means spaced at distances apart greater than the letter-space feed of said carriage, a driver for operating said means one at a time and controlled from the keyboard of the type mechanism, a second carriage upon which one of said driver and adding-wheel elements is mounted, a drive-spring for said second carriage independent of the power for the first-named carriage, speed-multiplying mechanism for connecting the second carriage with a step-by-step moving part connected to the first-named carriage as the first-named carriage reaches a predetermined point in its

forward traverse, and an escapement mechanism for controlling the motion of both of said carriages, substantially as described.

116. The combination of type mechanism, a pinion, and a power-driven escapement-controlled carriage for one of said parts, with number-wheel having independent operating means therefor placed at distances apart greater than the letter-space feed of the said carriage, a driver for operating said means one at a time and controlled from the keyboard of the type mechanism, a second carriage upon which one of said adding and driver elements is mounted, an independent drive-spring for said second carriage and normally inactive until the first-named carriage reaches a predetermined point in its forward traverse, and speed-multiplying mechanism continuously connected with one and discontinuously connected with the other of said carriages and thrown into operation when the first-named carriage reaches a predetermined point in its forward traverse, substantially as described.

117. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism operable from the keyboard of the type-writing mechanism and having a part thereof mounted upon a second power-driven carriage, said power for the said second carriage being normally inactive until the carriages are coupled together, and coupling mechanism thrown into operation when the first-named carriage reaches a predetermined point in its forward traverse, substantially as described.

118. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism having a spring-driven driver, a second carriage upon which part of said adding mechanism is mounted, an independent spring for moving said second carriage and normally inactive until the carriages are coupled together, an escapement for controlling said spring-driven driver and operatively connected with the type-operating mechanism above, and mechanism for coupling said carriages together when the first-named carriage reaches a predetermined point in its forward traverse, substantially as described.

119. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism having a power-driven escapement-controlled driver operable from the keyboard of the type-writing mechanism and thrown into operation when said mechanisms are coupled together, an independent power-driven carriage on which a part of said adding mechanism is mounted and said independent power being normally inactive until the type-writing and the adding mechanisms are coupled together, coupling mechanism thrown into operation when the first-named carriage reaches a predetermined point in its forward traverse, and means connected with the type-writing mechanism for restoring the power for operating said adding-mechanism driver, substantially as described.

120. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism operable from the keyboard of the type-writing mechanism and thrown into operation when the said mechanisms are coupled together, an independent power-driven carriage on which part of said adding mechanism is mounted, said independent power being normally inactive until the type-writing and adding mechanisms are coupled together, and coupling mechanism having a discontinuable part and thrown into operation when said part is in one position and when the first-named carriage reaches a predetermined point in its forward traverse and remaining inactive when said discontinuable part is in a different position, substantially as described.

121. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism having a spring-driven escapement-controlled driver operated from the keyboard of the type-writing mechanism, an independent power-driven carriage on which part of said adding mechanism is mounted, said independent power being normally inactive and said driver being disengaged from the number-carrier of the adding mechanism until the adding and the type-writing mechanisms are coupled together, coupling mechanism thrown into operation when the first-named carriage reaches a given point in its forward traverse, and means for resetting the driver-operating spring during the return movements of the first-named carriage, substantially as described.

122. The combination of type-writing mechanism having a power-driven escapement-controlled carriage, an adding mechanism having a spring-driven escapement-controlled driver operated from the keyboard of the type-writing mechanism, an independent power-driven carriage on which part of said adding mechanism is mounted, said independent power being normally inactive and said driver being disengaged from the number-carrier of the adding mechanism until the adding and the type-writing mechanisms are coupled together, coupling mechanism having a discontinuable part and thrown into operation when said part is in one position and when the first-named carriage reaches a given point in its forward motion and being inoperative to couple up when said part is in a different position, and means connected with the type-writing mechanism for resetting the driver-operating spring during the return movements of the first-named carriage.

116. The combination of key-operated type-writing mechanism having a power-driven component-controlled carriage, an adding mechanism having independently-operable number-carriers and a spring-driven component-controlled driver controlled by certain of said keys, an independent power-driven carriage on which part of said adding mechanism is mounted and said power being normally inactive until said second carriage is coupled with the type-writing mechanism and said driver also being disengaged from the number-carrier operating means until such coupling together, and means for coupling the second carriage with the type-writing mechanism and throwing into operation when the first-named carriage reaches a predetermined point in its forward traverse, substantially as described.

117. The combination of key-operated type-writing mechanism having a power-driven component-controlled carriage, an adding mechanism having independently-operable number-carriers and a spring-driven component-controlled driver controlled by certain of said keys, an independent power-driven carriage on which part of said adding mechanism is mounted and said power being normally inactive until said second carriage is coupled with the type-writing mechanism and said driver also being disengaged from the number-carrier operating means until such coupling together, and coupling mechanism having an adjustable part and adapted when said part is in one position to couple the adding-mechanism carriage with the type-writing mechanism when the first-named carriage reaches a predetermined point in its forward traverse and remaining inactive when said part is in another position, substantially as described.

118. The combination of key-operated type-writing mechanism having a power-driven component-controlled carriage, an adding mechanism having independently-operable number-carriers and a spring-driven component-controlled driver controlled by certain of said keys, an independent power-driven carriage on which part of said adding mechanism is mounted and said power being normally inactive until said second carriage is coupled with the type-writing mechanism and said driver also being disengaged from the number-carrier operating means until such coupling together, coupling mechanism having an adjustable part and adapted when said part is in one position to couple the adding-mechanism carriage with the type-writing mechanism when the first-named carriage reaches a predetermined point in its forward traverse and remaining inactive when said part is in another position, and means connected with the type-writing mechanism and resetting the spring for said adding-mechanism driver at each return of the first-named carriage, substantially as described.

119. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of power-rotated adding-wheels, means for connecting any adding-wheel to any figure-key, and means for enabling the key to limit the arc through which the wheel is power-rotated, substantially as described.

120. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, and a power-driven driver common to all the wheels and constructed to connect any figure-key to any adding-wheel and to also rotate the latter a distance limited by the key, substantially as described.

121. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of power-rotated adding-wheels, means called into action at a predetermined portion of the traverse of the said carriage for connecting any adding-wheel to any figure-key, and means for enabling the key to limit the arc through which the wheel is power-rotated, substantially as described.

122. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, and a power-driven driver common to all the wheels and constructed to be called into action at a predetermined portion of the traverse of the said carriage for connecting any figure-key to any adding-wheel and for also rotating the latter a distance limited by the key, substantially as described.

123. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, means normally called into action at a predetermined point of the traverse of the said carriage for connecting any adding-wheel to any figure-key, and means for rendering the adding-wheel inoperative at will, substantially as described.

124. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, and disconnectable means normally called into action at a predetermined point of the traverse of the said carriage for connecting any adding-wheel to any figure-key, substantially as described.

125. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, a spring for rotating the wheels to perform ad-

dition, and means for resetting the said adding-wheel spring, said resetting means being operated by the carriage during its return movement to begin a new line of writing.

126. The combination of a series of letter and figure types and keys therefor, a power-driven carriage connected for letter-space movements to all the keys, a series of adding-wheels, a spring for rotating the wheels to perform addition, and means for resetting the said adding-wheel spring, said resetting means being operated by the carriage during its return movement to begin a new line of writing.

127. The combination of a series of letter and figure types and keys therefor, a carriage connected for letter-space movements to all the keys, a series of adding-wheels, a spring for rotating the wheels to perform addition, and means for resetting the said adding-wheel spring, said resetting means being operated by the carriage during its return movement to begin a new line of writing.

128. The combination of type mechanism, a carriage, cooperating adding mechanism, and means for applying a source of power independent of that employed to move or control the carriage, to actuate the adding mechanism.

129. The combination of type mechanism, a paper-carriage, cooperating adding mechanism, a second carriage on which a portion of said adding mechanism is carried, and means for applying a source of power independent of that employed to move the type-writer carriage to actuate the carriage of the adding mechanism.

130. The combination of type mechanism, a carriage, adding-wheels, and means for applying a source of power which is independent of the carriage moving or controlling means, to rotate said adding-wheels.

131. The combination of type mechanism, a type-writer carriage, adding mechanism including adding-wheels, a second carriage on which a portion of said adding mechanism is carried, and means for applying a source of power which is independent of the type-writer carriage moving or controlling means, to move the carriage which carries a portion of the adding mechanism and to rotate said adding-wheels.

132. The combination of type mechanism, a type-writer carriage, an adding and registering mechanism which comprises a series of adding-wheels, a movable carriage on which said adding-wheels are mounted, and means for applying a source of power which is independent of the means for moving the type-writer carriage, to actuate or move the carriage which carries the adding-wheels.

133. The combination of type mechanism, a type-writer carriage, an adding and registering mechanism which comprises a series of adding-wheels, a movable carriage on which said adding-wheels are mounted, means for applying a source of power which is independent of the means for moving the type-writer carriage, to actuate or move the carriage which carries the adding-wheels, a driver for rotating said adding-wheels, and means independent of the type-writer carriage driving and controlling means for actuating said driver.

134. The combination of type mechanism, a power-driven type-writer carriage, an adding and registering mechanism which comprises a series of adding-wheels, a carriage for said adding-wheels, said adding-wheels being automatically brought into cooperative relation when the first-named carriage reaches a predetermined point of its travel, and means independent of the type-writer carriage driving means for effecting a movement of the adding-wheel carriage.

709,058. END-GATE AND FASTENING THEREFOR. LEVIN F. FARMER, Salisbury, Ill. Filed Apr. 14, 1902. Serial No. 100,572. (No model.)



Claim.—1. An end-gate composed of two sections hinged together, a securing-brace fixed to one of said sections, an elongated bar fixed to the same section, and fixed by arms integral therewith to said brace, said bar carrying a locking-bolt, a brace secured to the other of said sections and having an eye for the reception of an end of said bolt, substantially as described.

2. The combination with a wagon-body having doors in pairs near its rear end portion, of an end-gate composed of two sections hinged to-

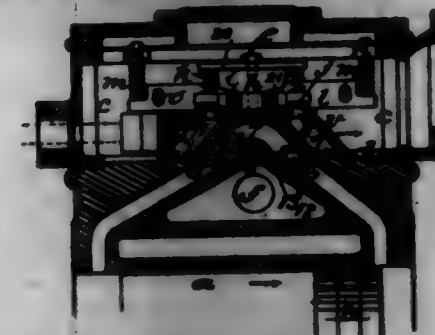
gether at their inner ends, their outer ends being adapted to engage said doors, a securing-brace, an elongated arm, secured to said brace, levers or guides integral with said arm, a bolt carried and supported by said guides or levers, and a brace having an eye with which said bolt engages, substantially as described.

3. An end-gate composed of two sections hinged together, a securing-brace fixed to one of said sections, an elongated bar fixed to the same section, and fixed by arms integral therewith to said brace, said bar carrying a locking-bolt, a brace secured to the other of said sections and having an eye for the reception of one end of said bolt, and bindings or reinforcements on the inner sides and upper surfaces of said sections, as and for the purpose specified.

4. An end-gate composed of two sections, hinged together, a securing-brace fixed to one of said sections, an elongated bar fixed to the same section, and fixed by arms to said brace, said bar having levers, a bolt contained within said levers, and having a handle, a stop for limiting the relative movement of said bolt in either direction, and a brace having an eye for engagement with the end of said bolt, substantially as described.

5. An end-gate composed of sections D, E, braces F, G, arm H, secured to one of said braces, plate O secured to the section D, a bolt J, levers or guides K, K' therefor, plate U, stop L, and brace Q, all combined substantially as and for the purpose specified.

709,054. VALVE FOR VACUUM-PUMPS. WILLIAM F. GARRISON, Brooklyn, N. Y., assignor to Smith & Garrison, Brooklyn, N. Y. Filed Feb. 7, 1901. Serial No. 65,595. (No model.)



Claim.—In a vacuum-pump, the combination with a slide-valve in which are two opposed passages extending through it for communication between the cylinder-ports and the discharge-outlet, valves hinged to the back of said slide-valve for closing said passages, springs for closing said hinged valves, and a cover on the slide-valve forming bearings for said springs and stops to said hinged valves, substantially as herein described.

709,055. KETTLE. LOUIS GRAMMAR, Waukegan, Ill. Filed Mar. 17, 1902. Serial No. 93,002. (No model.)

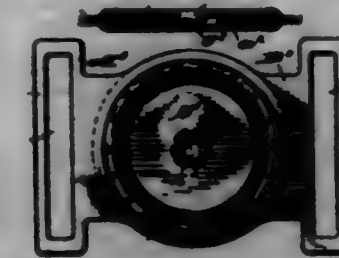


Claim.—The combination of a kettle having an opening of a size to snugly receive the discharge portion of a funnel, the holder G provided with the eyes b and top c and arranged within the kettle, a bolt extending through said loop c of the holder and a wall of the kettle and fixing the holder in position, a pin passing d in the eye of the holder, a valve pivoted on the pin and arranged to close the said opening, and a spring coiled on the pin, and having one arm bearing against the kettle; and another arm bearing against the inner side of the valve.

709,056. FASTENING DEVICE. CHARLES B. HANCOCK, Chicago, Ill. Filed Aug. 10, 1901. Serial No. 71,500. (No model.)

Claim.—1. A fastening device comprising two members each having an offset portion and an opening at one side of said offset portions, whereby the offset portion on one member may pass through the opening in the other member and be received within the recess formed by the

offset portion on the other member, said offset portions extending in opposite directions when the members of the device are in engagement, substantially as described.



2. A fastening device comprising two members having offset portions projecting in opposite directions and openings at other side of said offset portions forming shoulders, whereby the offset portion of one member may pass through the opening in the other member and be received within the recess formed by the offset portion thereon and the shoulder on the member brought into contact, substantially as described.

3. In a two-part fastening device, the combination with a member having a circular offset portion and a peripheral slot extending substantially around one-half of the circumference of said offset portion said slot adapted to permit the passage therethrough of the oppositely-projecting offset portion of the other member, of interlocking means for retaining the offset portions of the members in engagement and thereby holding the two members of the fastening device, substantially as described.

4. In a fastening device, a member comprising an annular raised portion, a circular projecting portion having a peripheral slot through one-half of its circumference said slot adapted to permit the passage therethrough of a reversely-projecting portion on a cooperating member of the fastening device, a boss located upon said circular projecting portion adapted to interlock with the other member of the fastening device, substantially as described.

5. In a fastening device, the combination with a member having a circular projecting portion through one-half of the periphery of which a slot extends, of a cooperating member having a semicircular oppositely-projecting portion, interlocking means located on the projecting portions of the two members whereby they are retained in engagement with the shoulders formed between the body portion and projecting portion of one member in contact with the corresponding shoulders of the other member, substantially as described.

6. In a two-part fastening device, the combination with a member having an annular raised portion, a circular portion projecting from the side of said member opposite the annular portion, and having a slot extending around one-half of the periphery of said circular portion, of a cooperating member having an annular raised portion, a semicircular portion projecting from the side of said second member opposite from its annular portion and interlocking bosses extending from said projecting portions in the same direction as the annular raised portions thereof, whereby when the semicircular portion of one member is passed through the peripheral slot in and overlaps the circular projecting portion of the other member, the bosses will interlock and retain the members in engagement, substantially as described.

709,057. TABLE. HENRY M. HANSEN, Janesville, Wis., assignor to Hansen Furniture Company, Janesville, Wis., a Corporation of Wisconsin. Filed Feb. 28, 1902. Serial No. 4,200. (No model.)

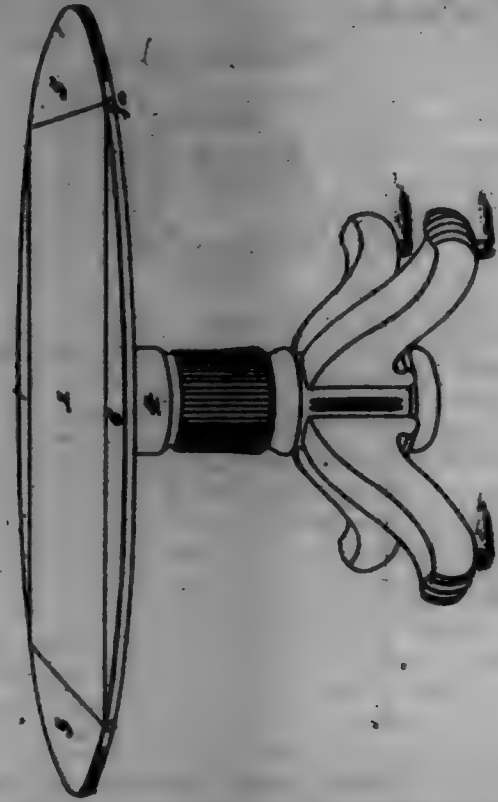
Claim.—1. A table comprising a central fixed section of polygonal form, a series of leaf-sections adapted to be adjusted edge to edge in direct engagement, and in the same plane with said central section, tripart hinged connections uniting said central and leaf sections and whereby the latter are capable of folding into a plane parallel with and beneath the central section, and means for holding said leaf-sections both in extended and folded positions.

2. A table, comprising in combination a polygonal central section having a suitable support, leaf-sections hinged thereto, and strips forming parts of the hinge connections, said strips being adapted to provide, when the leaves are folded, valance-strips, substantially as described.

3. A table, comprising in combination a central section of rectangular form mounted upon a suitable support and having leaf-sections hinged thereto, said hinge-connections comprising a member secured to the central section, a member secured to the leaf and an intermediate member to which the secured members are connected, which constitutes a filling-piece between the central section and the leaf when the latter is closed, whereby said leaves may be unfolded and extended in the plane of the table-top and folded beneath, parallel to and at a distance from said top, as and for the purposes set forth.

4. A table comprising in combination a rectangular central section having a suitable support and segmental leaf-sections hinged thereto, strips forming a part of the hinge connection, said strips being adapted to pro-

vide, when the leaves are folded, with or rim-stripe, substantially as described.



5. Is a table, the combination with a central section of general rectangular form, having its corners truncated, of strips hinged to said under side adjacent and parallel to its edges, leaf-sections hinged to said strips and supports for said leaf-sections in their extended position, and other supports for said leaves when in their folded position, substantially as described.

6. A table comprising a central fixed section of polygonal form, a series of leaf-sections adapted to be adjusted edge to edge in direct engagement, and in the same plane with, said central section, tri-part hinge connections uniting said central and leaf sections and whereby the latter are capable of folding into a plane parallel with and beneath the central section, the intermediate members of the tri-part hinges constituting valance-pieces between the central and leaf sections when in a folded position.

7. A table comprising a central fixed section of polygonal form, a series of leaf-sections adapted to be adjusted edge to edge in direct engagement, and in the same plane with, said central section, tri-part hinge connections uniting said central and leaf sections and whereby the latter are capable of folding into a plane parallel with and beneath the central section, the intermediate members of the tri-part hinges constituting valance-pieces between the central and leaf sections when in a folded position, and being entirely concealed from above when in extended position.

702,058. GRAIN-ELEVATOR FOR SEPARATORS. HART. R. HART, Fourth, N. Y. Filed Nov. 9, 1901. Serial No. 81,908. (No model.)

Claim.—1. In a grain-elevator, an elevator-tube constructed to be supported upon the side of a separator or the like with its top inclined outward therefrom, in combination with a discharge-spout centered to the tube, arranged to discharge the grain in a direction parallel to the supporting-machine, and having its discharge end formed at an angle to the tube, so that when the tube is inclined the discharge end of the spout will be in a horizontal plane.

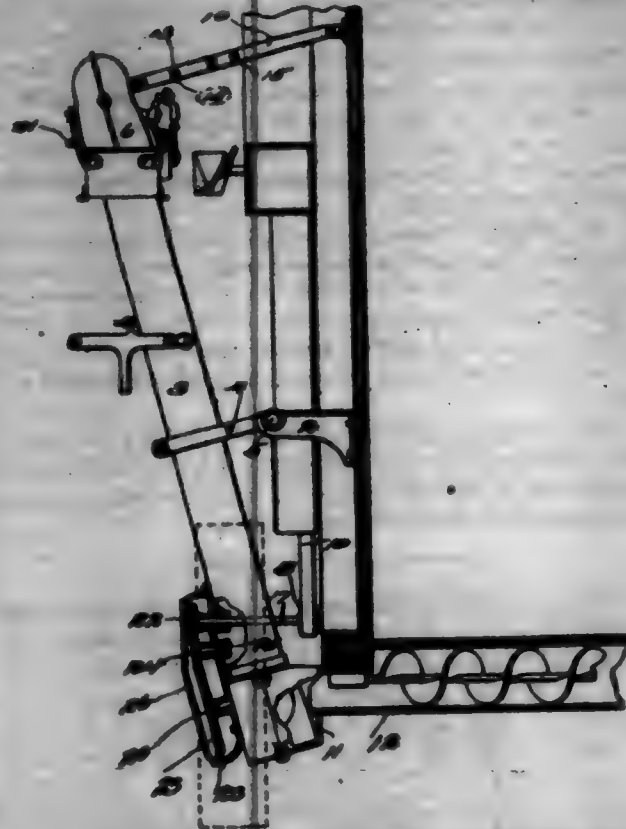
2. In a grain-elevator, an elevator-tube provided with a discharge-spout, twisted to extend at an angle thereto, substantially as described.

3. A grain-elevator, comprising an elevator-tube constructed to be supported upon the side of a separator or the like, with its top inclined outward therefrom, and to deliver the grain in a direction parallel to the supporting-machine, said tube being provided with a discharge-spout having its discharge end formed at an angle to the tube to terminate in a horizontal plane when the tube is inclined, in combination with means for elevating the grain in said tube and delivering it to the spout.

4. A grain-elevator, comprising a tube constructed to be supported upon the side of a separator or the like in an inclined position, and to elevate and deliver the grain in a direction parallel to the supporting-machine, said tube being provided with a discharge-spout constructed to extend vertically when the tube is inclined, in combination with means for elevating the grain in the tube and discharging the same through the spout.

5. A grain-elevator, comprising a tube constructed to elevate and deliver the grain in a direction parallel to the supporting-machine, and means

for supporting said tube upon the side of a separator or the like at an inclination thereto, in combination with a discharge-spout centered to the tube and having its free end formed to extend in a horizontal plane when the tube is inclined, and elevating means arranged in the tube.



6. In a grain-elevator, an elevator-tube provided with a discharge-spout having its end twisted to extend at an angle to the tube, in combination with means for adjusting the inclination of said tube and retaining the same in said adjusted position, substantially as described.

7. In a grain-elevator, an elevator-tube provided with a discharge-spout, the discharge end of said spout being extended in the general direction of the tube but twisted at an angle to said tube, in combination with means for pivotally supporting the said tube, and means for adjusting the inclination of the same and retaining the tube at each inclination, substantially as described.

8. In a grain-elevator, an elevator-tube provided with a discharge-spout constructed to discharge the grain in a direction parallel to the supporting-machine, but at an angle to the inclination of the tube, in combination with means for pivotally supporting said tube upon the side of a separator or the like at an inclination means for adjusting the inclination of said tube and retaining the same in position, and means for elevating the grain in said tube and discharging the same into said spout, substantially as described.

9. A grain-elevator, comprising a tube 3, provided with supporting straps or collars 4, secured to a shaft 5, a bracket 2, adapted to be secured to the supporting-frame and to pivotally support the said shaft 5, in combination with a power driving-shaft 17 provided with gear-wheel 22, the elevator driving-shaft 20, provided with gear-wheel 23, and an intermediate pinion inserted between said gear-wheels, and an adjusting-bar at the top of the tube adapted to regulate the inclination of the same, substantially as described.

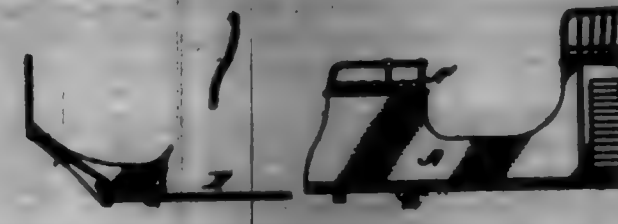
10. A grain-elevator, comprising a tube 3, provided with supporting straps or collars 4, secured to a shaft 5, and a bracket 2, adapted to be secured to a supporting-frame and to pivotally support the said shaft 5, in combination with a power driving-shaft 17, provided with gear-wheel 22, the elevator driving-shaft 20 provided with a gear-wheel 23, an intermediate pinion inserted between the said gear-wheels and means for adjusting the inclination of the tube 3 and maintaining the same in position, substantially as described.

11. An elevator-tube for separator and the like, constructed to deliver the grain in a direction substantially parallel to the supporting-machine, and having its discharge end twisted to extend at an angle to the tube.

702,059. VEHICLE. JAMES F. HATHAWAY, Somerville, Mass. Filed Oct. 26, 1901. Serial No. 80,988. (No model.)

Claim.—A vehicle-body having a permanent seat located on the front edge thereof and being in the front, provided with a detachable front door, in combination with a detachable extension adapted to form a footboard for said front seat, and means for temporarily attaching said extension to said vehicle-body, whereby said extension may be used to make said front seat available, said front door being removed or said extension being removed, and said front door being removed or said extension being removed.

extension being removed, said front door may be utilized to close and form a finish to the front of the vehicle, as described.



702,060. FLASHING-TANK FOR GLASS. LOUIS F. MATTHEW, Lumburg, Mass., assignor of one-half to Henry R. Conway and Charles F. Conway, Fitchburg, Mass. Filed Nov. 28, 1902. Serial No. 87,908. (No model.)



Claim.—1. A closed tank, an outlet-pipe leading therefrom, a valve in said pipe to control the discharge from the tank, the said outlet-pipe between the tank and valve being provided with a throat of gradually decreasing cross-sectional area from the tank to the valve, and a supply-pipe leading into the outlet-pipe and extended into the contracted portion thereof between the tank and valve.

2. A closed tank, a straight outlet-pipe connected to the bottom portion of said tank, a valve in said pipe for controlling the discharge from the tank, the opening in the said outlet-pipe gradually contracting from the tank to the valve, and a supply-pipe concentric with said outlet-pipe and extended into the contracted portion thereof above the valve.

3. A closed tank, a discharge-pipe leading from its bottom, a controlling-valve in said pipe, the said pipe contracting gradually between the tank and valve, a relatively small supply-pipe concentric with the discharge-pipe and extended into the latter, the end of the supply-pipe being located in the contracted portion of the discharge-pipe between the valve and tank.

4. A closed tank, a discharge-pipe communicating with its bottom, a supply-pipe entering the top of the tank and extended downward into and concentric with the discharge-pipe, a controlling-valve in the latter, beyond the mouth of the supply-pipe, a manual actuator for the valve, and means to automatically close the valve.

5. A closed tank having a large outlet in its lower end, a discharge-pipe leading therefrom and having a contracted throat, the outlet forming the entrance throat, a relatively small supply-pipe entering the tank through its upper end and extended downward through the outlet and into the throat concentric therewith, and a controlling-valve in the discharge-pipe beyond the mouth of the throat, a rotatable spindle on which said valve is threaded to slide, and means for turning said spindle.

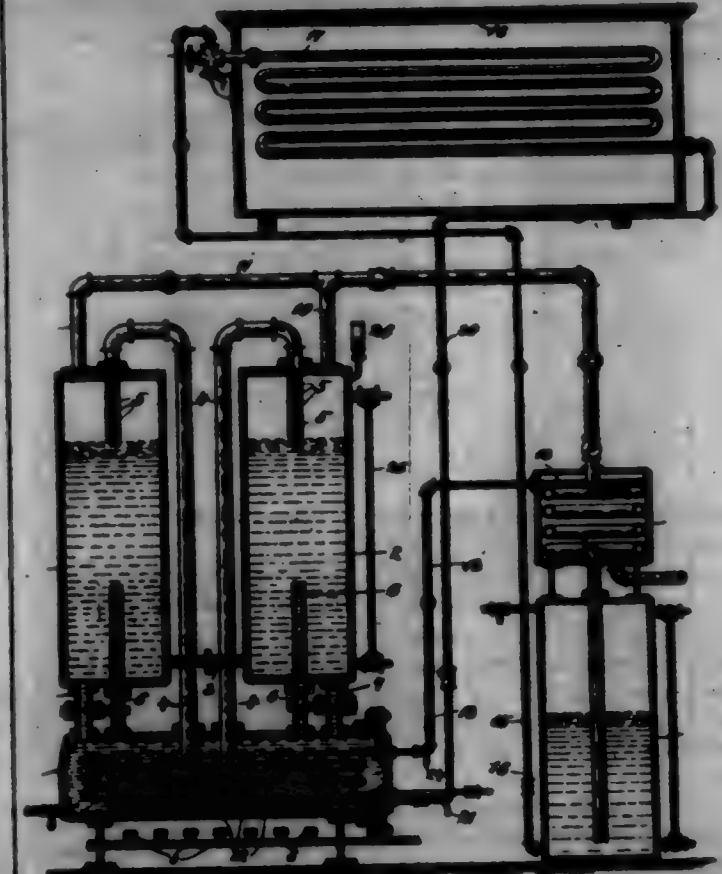
702,061. FOOT-DRUMMER FOR BOWLING-ALLEYS. SYLVANUS L. HANSEN, New York, N. Y., assignor of one-half to William Gordon, New York, N. Y. Filed Apr. 12, 1902. Serial No. 88,771. (No model.)



Claim.—A foot-drummer for bowling-alleys, composed of a suitable receptacle for the retention of water, and a saturated sponge and

provided with a cover composed of a surrounding frame, within which is fitted a diaphragm-like sheet of rubber, perforated as specified, and adapted to bridge up and down, all in the manner and for the purpose hereinbefore set forth.

702,062. REFRIGERATING APPARATUS. EDWARD W. HOWELL, New York, N. Y., assignor to Herbert L. May, New York, N. Y. Filed June 2, 1901. Serial No. 86,804. (No model.)



Claim.—1. In apparatus adapted for use either as the still or absorber of refrigerating apparatus, the combination of a chamber for heating or cooling the liquor, two equalizing-chambers arranged above the heating or cooling chamber so that the entire body of liquor in each equalizing-chamber shall be at a higher level than the body of liquid in the heating or cooling chamber and pipes freely connecting each of the equalizing-chambers with each other and with the lower chamber, and means connected only with the lower chamber for heating or cooling the liquor therein, whereby a circulation of the liquor will be established back and forth among the chambers, and the distillation of the gas from the liquor or its absorption therein will thereby be assisted.

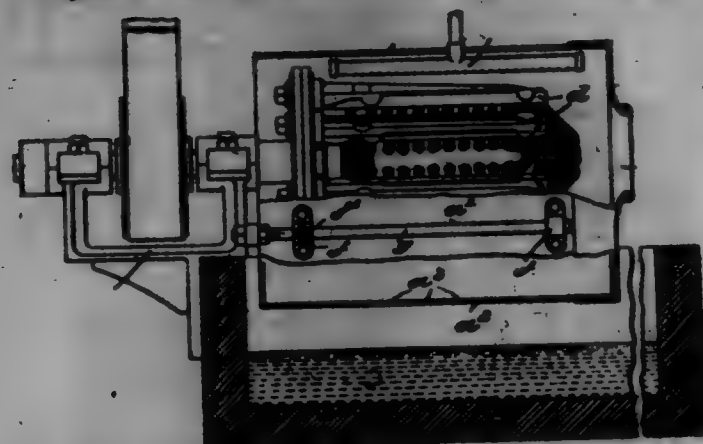
2. In apparatus adapted for use either as the still or absorber of refrigerating apparatus, the combination of a chamber for heating or cooling the liquor, two equalizing-chambers arranged above the heating or cooling chamber, a pipe connecting the equalizing-chambers with each other, two pipes freely connecting each equalizing-chamber with the lower chamber and having their mouths opening into one of the said chambers at different heights therein to permit a free flow of the liquor back and forth between each equalizing-chamber and the lower chamber, whereby a circulation of the liquor will be established back and forth among the chambers, and the distillation of the gas from the liquor or its absorption therein will thereby be assisted.

3. In apparatus adapted for use either as the still or absorber of refrigerating apparatus, the combination of two chambers for the liquor arranged one above the other and connected with each other by means of three pipes, one pipe running from near the bottom of the lower chamber to the top of the upper chamber, and opening therein another of the said pipes running from the top of the lower chamber and having its mouth opening into the upper chamber at a point part way between the top and the bottom of the said chamber, and the third pipe running from the top of the lower chamber to the bottom of the upper chamber, and means connected with the lower chamber for heating or cooling the liquor therein, whereby a circulation of the liquor will be established back and forth between the two chambers, and the distillation of the gas from the liquor or its absorption therein will thereby be assisted.

4. In apparatus adapted for use either as the still or absorber of refrigerating apparatus, the combination of a chamber for heating or cooling the liquor, two equalizing-chambers arranged above the heating or cooling chamber, a pipe connecting the equalizing-chambers with each other, and three pipes connecting each equalizing-chamber with the lower chamber, one pipe running from near the bottom of the lower chamber

to the top of the said equalizing-chamber and projecting downward there-in and provided in the said downward projection with openings for the escape of gas, another of the said pipes running from the top of the lower chamber and having its mouth opening into the said equalizing-chamber at a point part way between the top and the bottom of the said chamber, and the third pipe running from the top of the lower chamber to the bot-tom of the said equalizing-chamber, and means connected with the lower chamber for heating or cooling the liquor therein, whereby a circulation of the liquor will be established back and forth among the chambers, and the distillation of the gas from the liquor or its absorption therein will thereby be assisted.

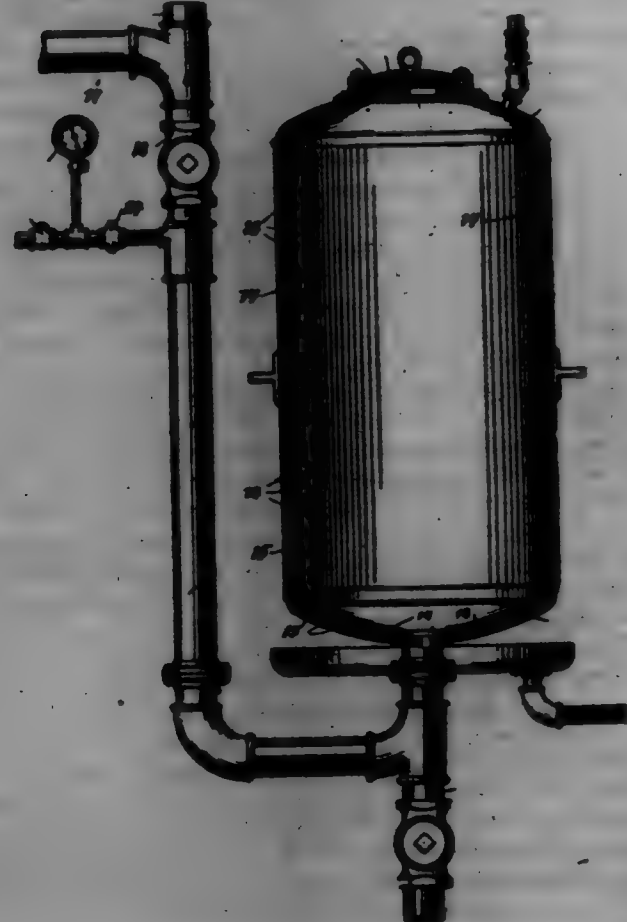
702,068. BOTTLE-WASHING MACHINE. JOSEPH KAYNE, Phila-delphia, Pa. Filed Sept. 20, 1901. Serial No. 70,708. (No model.)



Claim.—1. In a bottle-washing machine, a casing adapted to sur-round the brushes and other rotatable parts of the machine, said casing having a base provided with a series of perforations adapted to permit of the free passage of water from the casing and the rotation of paper or other impurities within said casing, and a water-distributing T-shape de-vice arranged within said casing.

2. In a bottle-washing machine, a casing adapted to surround the brushes and other rotatable parts of the machine, the roof of said casing being arched and the base flat and perforated, in combination with a lid for the front of said casing having a laterally-projecting flange engaging the casing and an opening arranged in alignment exactly with the space between the brushes, and a water-distributing T-shape pipe arranged within said casing.

702,064. METALLURGICAL FILTER. FREDERICK H. LOMB, Chi-cago, Ill. Filed June 24, 1901. Renewed Feb. 27, 1902. Serial No. 85,945. (No model.)



Claim.—1. In metallurgy filter, the combination with the closed perforated tank having an internal fabric capstan with stretcher-frame therefor to rest against the tank-wall of the feed-pipe leading into the tank-bottom and the separate wash-water-pressure tube united to said feed-pipe between the inlet and outlet valves thereof, substantially as de-scribed.

2. In metallurgy filter, the combination with the closed, perfo-rated tank having an internal fabric capstan and external drip-pan, of the feed-pipe opening into the tank-bottom and the separate wash-water-pres-sure tube, substantially as described.

3. In metallurgy filter, the combination with the closed, perfo-rated tank having an external drip-pan and an internal fabric capstan with stretcher-frame therefor to rest against the tank-wall, of the feed-pipe leading into the tank-bottom and the separate wash-water-pressure tube united to said feed-pipe between the inlet and outlet valves thereof, sub-stantially as described.

4. In metallurgy filter, the combination with the closed perfo-rated vertical tank having an internal fabric capstan with stretcher-frame therefor to rest against the tank-wall of the feed-pipe discharging into said tank and the wash-water-pressure tube leading into the tank-bottom, substantially as described.

702,065. EXPLOSIVE PAPER TOY. MORRIS T. LYNN and ALBERT R. HENSON, Brooklyn, N. Y., assignors to the National Folding Box & Paper Company, New Haven, Conn., a Corporation of New Jer-sey. Filed Jan. 12, 1901. Serial No. 48,000. (No model.)



Claim.—1. A knock-down or collapsible toy-blank, comprising a heel-section, a deck-section and hull-section, the latter being formed at their folding-points with upward curves which give a rake to the bow and stern of the boat when set up.

2. The combination of a frangible receptacle shaped to simulate a war vessel and provided with an opening in its top side, and an explosive device inserted in said opening, and projecting within the receptacle and the base of each device being exterior of the receptacle, substantially as set forth.

702,066. DEVICE FOR CHARGING OR DISCHARGING LIMITED-TANKS. SHERMAN W. MILLER, Chicago, Ill. Filed June 4, 1901. Se-rial No. 65,261. (No model.)



Claim.—1. The combination with a tank or receptacle, of a siphon having a sealed trap at its discharge end, said trap being so proportioned that the maximum liquid head in said tank is insufficient to start the si-phon in operation, of means for producing pressure in said siphon to start the operation thereof comprising a pipe communicating with said siphon and having a sealed discharge end, and means acting to produce air-pres-sure in said pipe which pressure is transmitted to the siphon to force the seal in the trap thereof.

2. An apparatus for the purpose set forth comprising a chamber, a siphon having a sealed trap at its discharge end, and means for starting the siphon into operation embracing a second receptacle or tank and a siphon connected with the same and provided with a sealed discharge end which communicates with the main siphon.

3. An apparatus for the purpose set forth comprising a chamber, a siphon having a trap at its discharge end and means for starting the said siphon into operation comprising a second chamber to which water is sup-plied from the source supplying the first chamber, a siphon in said second chamber provided with a sealed discharge and which communicates with the first-named siphon.

4. An apparatus for the purpose set forth comprising a main cham-ber, a main siphon having a trap at its discharge end and means for start-ing said main siphon comprising a second chamber, and a siphon in said second chamber the discharge end of which extends into the said main

siphon below the level of the water seal of the trap at the discharge end of said main siphon.

5. The combination with a principal siphon and an auxiliary siphon which latter discharges into and through the principal siphon, of means affording a seal between said principal siphon and the discharge-head of the auxiliary siphon.

6. An apparatus for the purpose set forth comprising a principal chamber, a discharge siphon-head in said chamber being insufficient to start said siphon into operation, an auxiliary chamber, and a siphon in the auxiliary chamber, the discharge-head of which enters the trap of the principal siphon below the normal liquid-level thereof after each opera-tion of the siphon.

7. The combination with a tank or receptacle, of a siphon therein having a sealed trap at its discharge end, the said trap being so propor-tioned that the maximum liquid head in the tank is insufficient to start the siphon into action, and means for producing pressure in said siphon to start the same, comprising a pipe communicating at one end with the siphon and having a sealed discharge end, and a chamber with which the other end of the pipe communicates, and means connected with said pipe in said chamber acting to produce pressure in the pipe and to transmit the same to the siphon upon the rise of water in said chamber, said parts being constructed to empty said chamber through said pipe when the siphon is brought into action.

8. An apparatus for the purpose set forth comprising a chamber, a siphon having a sealed trap at its discharge end, said trap being so pro-portioned that the maximum liquid head in the tank will not start the siphon into action, and means for starting the siphon into operation em-bracing a second receptacle or tank and a siphon connected with the same and provided with a sealed discharge and which communicates with the main siphon.

702,067. EXPANSION-FASTENER. EDWIN J. MCCORMACK, Syra-cuse, N. Y., assignor to the McCormack Manufacturing Company, New York, N. Y., a Corporation of West Virginia. Filed Mar. 21, 1902. Re-newed Apr. 10, 1902. Serial No. 102,204. (No model.)



Claim.—1. The combination of a sleeve consisting of a sheet-metal blank having its side edges separated for forming a lengthwise slot in the sleeve, and a substantially conical nut movable within the sleeve and hav-ing its periphery engaged with the inner face of the sleeve and provided with a tapering rib movable in said slot, substantially as and for the pur-pose described.

2. The combination of a sleeve having an intermediate portion formed more yielding than contiguous portions thereof, and means for compress-ing the sleeve endwise and buckling outwardly said intermediate portion, substantially as and for the purpose set forth.

3. The combination of a sleeve having an intermediate portion formed of less thickness than its ends and having one of its ends movable endwise toward the other for buckling outwardly said intermediate portion of the sleeve and an expanding-nut movable within said one of the ends of the sleeve, substantially as and for the purpose described.

4. The combination of a sleeve consisting of a sheet-metal blank hav-ing its intermediate portion formed of less thickness than its ends and hav-ing its side edges separated for forming a lengthwise slot in the sleeve, and a nut movable with the sleeve and provided with a tapering rib mov-able in said slot, substantially as and for the purpose set forth.

5. The combination of a sleeve having a lengthwise slot, and a sub-stantially conical nut movable within the sleeve and having its periphery engaged with the inner face of the sleeve and provided with a longitudi-nal rib movable in the slot of the sleeve, said rib having its opposite sides inclined forwardly toward each other, and having opposite portions there-of extended outwardly from said periphery in substantially parallel planes, substantially as and for the purpose specified.

6. The combination of a sleeve having a lengthwise slot, and a sub-stantially conical nut movable within the sleeve and having its periphery engaged with the inner face of the sleeve and provided with a tapering rib projecting into the slot and with engaging surfaces extending laterally from the base of the rib beyond the side walls of the slot and engaged with the inner face of the sleeve, substantially as and for the purpose set forth.

7. The combination of a sleeve having a lengthwise slot, and a sub-stantially conical nut movable within the sleeve and having its periphery engaged with the inner face of the sleeve and provided with longitudinal

ribs having their outer faces engaged with the inner face of the sleeve, substantially as and for the purpose described.

8. The combination of a sleeve having a lengthwise slot, and a sub-stantially conical nut movable within the sleeve and having its periphery provided with longitudinal ribs increasing in width toward their forward ends and having their outer faces engaged with the inner face of the sleeve, substantially as and for the purpose specified.

9. The combination of a sleeve having a lengthwise slot, and a sub-stantially conical nut movable within the sleeve and having its periphery engaged with the inner face of the sleeve, and provided with longitudinal grooves decreasing in width toward their forward ends, substantially as and for the purpose set forth.

10. The combination of a sleeve having separated lengthwise slots, and a substantially conical nut movable within the sleeve and having its periphery engaged with the inner face of the sleeve, and provided with longitudinal ribs projecting from said slots into the slots of the sleeve and having their opposite sides engaged with the walls of said slots, substantially as and for the purpose described.

11. The combination of a sleeve having separated lengthwise slots, and a substantially conical nut movable within the sleeve and provided with separated longitudinal ribs projecting from its periphery and mov-able in the slots of the sleeve, said ribs being also provided with additional ribs interposed between the former ribs and having their outer faces en-gaged with the inner face of the sleeve, substantially as and for the pur-pose specified.

12. The combination of a sleeve having separated lengthwise slots, and a substantially conical nut movable within the sleeve and provided with separated longitudinal ribs projecting from its periphery into the slots of the sleeve and having their opposite sides inclined forwardly to-ward each other and opposite portions of said ribs extended outwardly from the periphery of the nut in substantially parallel planes, said ribs being also provided with additional ribs interposed between the former ribs for engaging the inner face of the sleeve and having their opposite sides inclined forwardly toward each other, substantially as and for the pur-pose set forth.

13. The combination of a sleeve having separated lengthwise slots, and a substantially conical nut movable within the sleeve and provided with separated longitudinal ribs projecting from its periphery into the slots of the sleeve and having their opposite sides inclined forwardly to-ward each other and opposite portions of said ribs extended outwardly from the periphery of the nut in substantially parallel planes, said ribs being also provided with engaging surfaces extending laterally from the base of the ribs and inclining forwardly toward each other, substantially as and for the purpose described.

14. As a new article of manufacture, the herein-described expan-sion-fastener, the same being composed of a sheet-metal blank having its side edges separated for forming a lengthwise slot in the sleeve, and having an intermediate portion formed of less thickness than its ends and having one of its ends movable endwise toward the other for buckling outwardly said intermediate portion of the sleeve, substantially as and for the pur-pose specified.

15. As a new article of manufacture, the herein-described nut for expansion-fasteners, the same being formed substantially conical and hav-ing its periphery provided with projecting longitudinal ribs the opposite sides of which incline forwardly toward each other, engaging surfaces ex-tending laterally from the base of the ribs and inclining forwardly toward each other, and additional ribs interposed between said engaging surfaces, substantially as and for the purpose set forth.

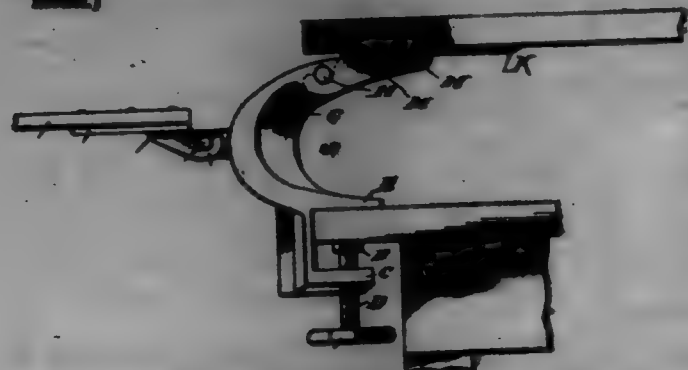
702,068. OIL-GUYP. JOHN R. L. MCKINNEY, Railway, N. J. Filed Jan. 12, 1902. Serial No. 65,622. (No model.)



Claim.—1. In a lubricator for use on moving parts of machinery, the valve-rod B and the collar H adjustable thereon, and the piston arm I' arranged to be vibrated by its momentum, in combination with the fork D' D' limiting its play, and with the toe F' rigidly connected to each arm and extending horizontally, adapted to fit said valve-rod at one ex-treme of its travel, all arranged for joint operation substantially as herein specified.

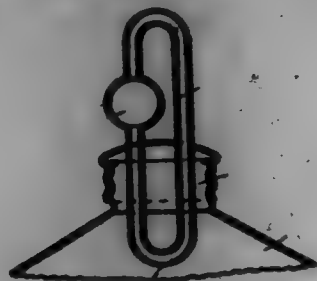
2. In a lubricator for use on moving parts of machinery, the valve-red B and the collar M adjustable thereon, and the pendant arm P arranged to be vibrated by its momentum, in combination with the fork D¹ D² limiting its play, and with the two F rigidly connected to each arm and extending horizontally, arranged to lift said valve-red at one extreme of its travel, and the means of communicating with the oil-passage below and receiving the nearly tight-fitting base of the said red, adapted to form a partial vacuum at each vibration, and with the spring F and adjustable pin G adapted to vary the force with which the red shall be depressed, all arranged in curve substantially as herein specified.

702,069. IRONING-BOARD. CHARLES W. FANNING and CHARLES R. KARR, Philadelphia, Pa. Filed Apr. 16, 1901. Serial No. 94,000. (No model.)



Claim.—In an ironing-board, an approximately C-shaped bracket having a nose, means for securing the bracket to a support, studs extending transversely below the upper surface of the nose of the bracket, a plate having hooks thereon slightly separated to embrace the nose of the bracket, said hooks engaging the sides of the nose to prevent sidewise displacement of the board and said hooks projecting outwardly and slightly downwardly to engage the studs of the nose.

702,070. OIL-CAN. WILLIAM J. PARK, Boston, Mass. Filed Sept. 11, 1901. Serial No. 75,000. (No model.)



Claim.—1. The combination, with an oil-can, of an air-vent pipe formed of a continuous tubular link which projects partially from the upper part of the can, said link having a hole at its lower part inside the can and a bulb at one side of it outside the can said bulb being provided with a lateral hole, substantially as set forth.

2. The combination, with an oil-can, and a cap for closing it; of an air-vent pipe formed of a tubular link which projects through the cap and has an air-hole at its lower part, said air-vent pipe having also an enlargement provided with a lateral air-hole in one of its side portions above the cap, substantially as set forth.

702,071. CLEARING ATTACHMENT FOR HARROWS. WARREN PARKMAN, John, Cal. Filed Oct. 20, 1901. Serial No. 93,500. (No model.)



Claim.—1. The combination with a harrow, of revolvable segments thereon and means for normally retaining them out of contact with the ground, said segments being weighted forward of their axis of rotation whereby they are turned to come in contact with the ground when released.

2. The combination with a harrow of a shaft journaled thereon, seg-

ments fixed to the ends of the shaft and means weighting the segments forward of the shaft, means including a stop on the shaft and a spring-pressed member engaging the stop, for normally retaining the segments out of contact with the ground, and means for withdrawing the spring-pressed member from its engagement with the stop.

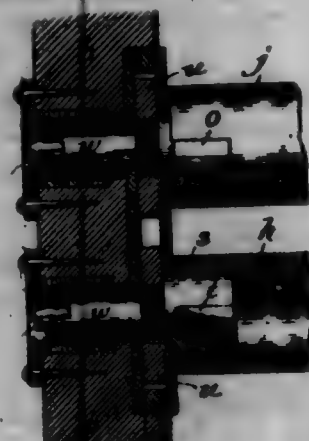
3. The combination with a harrow of a shaft journaled thereon, segments fixed to the shaft, means on the segments weighting them forward of the shaft, means normally retaining the segments out of contact with the ground, and means for releasing the segments to allow the weights to operate to bring the segments in contact with the ground.

4. The combination in a harrow of a single shaft journaled thereon and having a stop fixed to the shaft between its ends and a spring-pressed member on a right part of the harrow and adapted to engage said stop in normally retain the segments out of contact with the ground, and means for withdrawing the spring-pressed member out of engagement with the stop to allow the shaft to rotate and the segments to engage with the ground, said spring-pressed member automatically engaging the stop and locking the segments in normal position when the latter have completed their revolvable movement.

5. The combination with a harrow of a shaft journaled transversely thereon, segments fixed and revolvable with the shaft, a catch carried by the shaft and a latch carried by the harrow and engaging the catch to normally retain the segments with the convex side upward, weights carried by the segments forward of the shaft whereby they are turned to come in contact with the ground when released.

6. The combination with a harrow of a shaft journaled transversely thereon, segments fixed and revolvable with the shaft, a catch carried by the shaft and a latch carried by the harrow and engaging the catch to normally retain the segments with the convex side upward, weights carried by the segments forward of the shaft whereby they are turned to come in contact with the ground when released, and spurs or points projecting from the segments to engage the ground and cause the segments to turn.

702,072. SCORE-BOARD FOR BOWLING-ALLEYS. JAMES PAUL and GEORGE F. ROCHER, Chicago, Ill. Filed July 20, 1901. Serial No. 70,000. (No model.)



Claim.—1. In a score-board for bowling-alleys, the combination of a frame portion, a backing-board therein, a supply-roll formed of a hollow cylinder provided with a pivot at one end and slotted at the other hollow end, and a receiving-roll formed of a hollow cylinder pivoted at one end and slotted at the other, a pivot-plate for removably holding each pivots in position, and shafts rotatably mounted in the frame portion provided with flutings to removably engage the hollow slotted ends of the rolls, substantially as described.

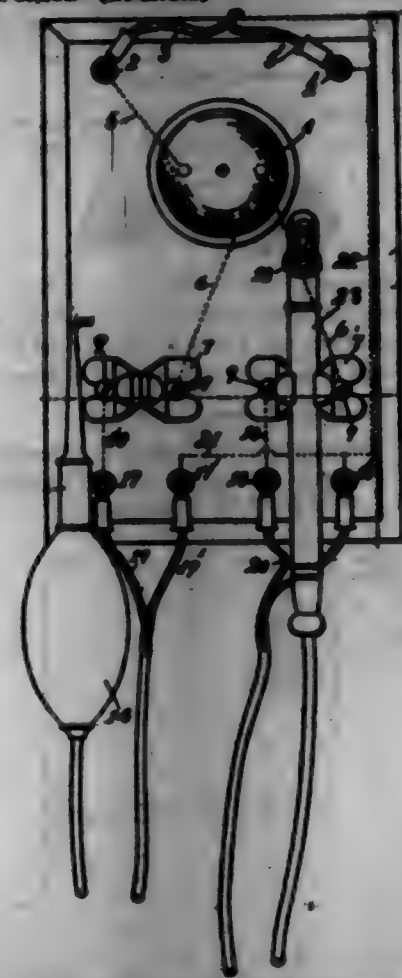
2. In a score-board for bowling-alleys, the combination of a frame portion, a backing-board therein, a supply-roll formed of a hollow cylinder provided with a pivot at one end and slotted at the other hollow end, a receiving-roll formed of a hollow cylinder pivoted at one end and slotted at the other hollow end, a pivot-plate for removably holding each pivots in position, shafts rotatably mounted in the frame portion provided with flutings to removably engage the hollow slotted ends of the rolls, and spring-pressed levers on the pivot-plate for yieldingly holding the pivots of the rolls in engagement with the pivot-plate, substantially as described.

3. In a score-board for bowling-alleys, the combination of a frame portion, a backing-board therein, a supply-roll formed of a hollow cylinder provided with a pivot at one end and slotted at the other hollow end, a receiving-roll formed of a hollow cylinder pivoted at one end and slotted at the other hollow end, a pivot-plate for removably holding each pivots in position, shafts rotatably mounted in the frame portion provided with flutings to removably engage the hollow slotted ends of the rolls, spring-pressed levers on the pivot-plate for yieldingly holding the pivots of the rolls in engagement with the pivot-plate, where-when on

the shaft-shells, and spring-pressed pawls engaging the wave-which to yieldingly hold said rolls in their desired position, substantially as described.

4. In a score-board for bowling-alleys, the combination of a frame portion, a backing-board therein, a supply-roll formed of a hollow cylinder provided with a pivot at one end and slotted at the other hollow end, a receiving-roll formed of a hollow cylinder pivoted at one end and slotted at the other hollow end, a pivot-plate for removably holding each pivots in position, shaft-shells rotatably mounted in the frame portion provided with flutings to removably engage the hollow slotted ends of the rolls, spring-pressed levers on the pivot-plate for yieldingly holding the pivots of the rolls in engagement with the pivot-plate, where-when on the shaft-shells, spring-pressed pawls engaging the wave-which to yieldingly hold said rolls in their desired position, and ball-and-rod ends on the shaft-shells arranged to be engaged by a proper key and rotated thereby in one direction only, substantially as described.

702,073. SUPPORT AND SWITCH FOR ELECTRIC DENTAL INSTRUMENTS. ROBERT G. PARKER, New York, N. Y. Filed Jan. 1, 1900. Serial No. 55,000. (No model.)

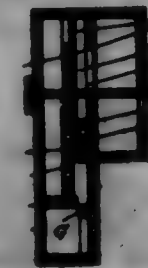


Claim.—1. A support and switch for an electric dental instrument comprising a switch board, an electric circuit, and a clamp comprising two strips of spring metal, the lower ends of which are supported upon the switchboard, and are connected with said circuit, and the upper ends converge and contact with each other when free to do so, said upper ends being shaped to receive an electric dental instrument, and thereby break said contact, in combination with such an instrument having a stem of insulating material arranged to be interposed between said strips and thus break the circuit between them, the wires of said instrument being in said circuit, substantially as described.

2. A support and switch for electric dental instruments comprising a switchboard, a plurality of switches thereon, each comprising two strips of spring metal secured at their lower ends to said switchboard, their upper ends converging toward each other and contacting when free to do so, said upper ends being suitably bent to receive the stem of an electric dental instrument and thereby break said contact, in combination with a corresponding plurality of electric dental instruments, the wires of which are connected in parallel with the members of the switches, and the members of the switches being connected in parallel with the source of supply of electricity, and each instrument having a stem of insulating material arranged to be interposed between the switch members when the instrument is hung up, substantially as described.

702,074. LATCH. GEORGE E. PARKER, New York, N. Y. Filed Nov. 11, 1901. Serial No. 75,000. (No model.)

Claim.—Is a latch, the combination, with a frame provided with a stationary front plate having an inner keyhole, of an outer keyhole on the said front plate having a stationary plate provided with an outer keyhole which is arranged out of line with the aforesaid inner keyhole, and a projecting guide-pin for the key arranged on the axis of the two said keyholes, substantially as set forth.

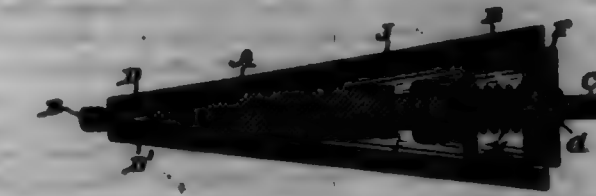


702,075. LIQUID-PRESSURE REGULATOR. MAXIMILIAN PERK, New York, N. Y. Filed Jan. 20, 1900. Serial No. 51,000. (No model.)



Claim.—In a liquid-pressure regulator, the combination of a valve with a seating valve, a diaphragm connected to the valve, a spring in-creasing the diaphragm, a pair of curves, one embracing the curves, and a hole that pivotally connects the valve with the spring, substantially as specified.

702,076. CENTRAL-TURN HOLDER FOR WINDING-MACHINES. CHARLES E. KELLY, Boston, Mass., assignor to Howard and Bullough American Machine Company, Limited, Portsmouth, N. I. Filed Nov. 22, 1901. Serial No. 65,000. (No model.)



Claim.—1. A shell-holder having an arbor provided with a central screw-threaded end, and a spring-supported central cap loose on the arbor, in combination with means for rotating the arbor with respect to the cap, as described.

2. A shell-holder for winding-machines, having a central arbor spirally threaded to engage with the shell near one end, a central cap loose on the arbor, means for turning the arbor with respect to the cap, in combination with a spring-support for the central cap, as described.

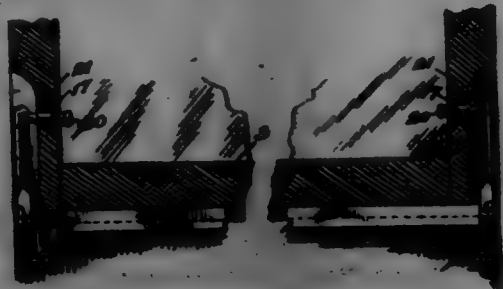
3. In a shell-holder for winding-machines, the combination with the arbor A, the spiral threads D' on the arbor and the radial arm F, of the cap E and the spiral spring H, whereby the shell is supported concentric with the arbor, as described.

702,077. WINDOW-SCREEN. HERBERT E. KIMMER, Leroy, N. Y. Filed Nov. 20, 1901. Serial No. 50,000. (No model.)

Claim.—1. The combination with a window-frame, and a mesh mounted therein, of a screen movable with the mesh, opposite catches carried by the free end of the screen and working between the mesh and the respective sides of the window-frame, and endwise-movable bolts carried by the mesh for engagement with the catches to detachably connect the screen to the mesh.

2. The combination with a window-frame, and a mesh mounted thereon and provided with open-ended recesses in its opposite outer edges, of a screen movable with the mesh, opposite catches carried by and projected

from the screen and normally lying within the recess in the opposite edge of the ash, and locking-belt placing the respective side rails of the ash from the inner to the outer edge thereof, the outer end of the belt working in the recess for engagement with the adjacent catches, and the inner end of the belt being accessible for adjustment at the inner edge of the side rail.



2. The combination with a window-cash having opposite terminal open-ended recesses formed in the opposite outer edges thereof, of a screen having opposite catches projected beyond the free end thereof and normally received within the recesses of the ash, a belt-casing placing each side rail of the ash from the inner to the outer edge thereof, and having a longitudinal slot and a transverse notch communicating therewith, and an endwise-movable spring-actuated belt working within the casing and having a lateral projection working in the slot and adapted to enter the notch to hold the belt rotated, the outer end of the belt working in the recesses in the ash and provided to automatically engage the catch at the closed limit of the ash, and the opposite end of the belt being accessible at the inner edge of the side rail.

4. The combination with a window-frame, and a cash mounted therein and provided with open-ended recesses in the opposite outer edges thereof, of a screen detachably connected to the ash, opposite catches carried by the screen, each catch being formed of a metal strap having one end secured to the screen, its intermediate portion being twisted to dispose its opposite ends at substantially right angles to each other, the outer end of the strap being provided with a lateral inwardly-directed catch-head to be received in the adjacent recess of the ash, and fastening devices carried by the opposite side rails of the ash and working in the respective recesses for engagement with the catch-head.

5. The combination with upper and lower window-cashes, of upper and lower screens connected thereto and movable therewith, spring-rollers for the respective screens, and means for interlocking the two screens when either cash is open.

6. The combination with upper and lower cashes, of upper and lower screens connected thereto, spring-rollers for the respective screens, and means for interlocking the two screens in differently-adjusted relations.

7. The combination with upper and lower window-cashes, of upper and lower screens connected to the respective cashes, spring-rollers for the screens, a plurality of keepers carried by the upper cash, and a spring-actuated belt carried by the lower cash and in operative relation to the keepers.

8. The combination with upper and lower window-cashes, of upper and lower screens connected thereto, spring-rollers for the screens, keepers carried by the upper cash, and a spring-actuated and rotatably-adjustable locking-belt working transversely through the lower cash and in operative relation to the keepers, the inner end of the belt being beveled.

9. The combination with upper and lower window-cashes, of upper and lower screens connected thereto, spring-rollers for the screens, a plurality of keepers carried by the upper cash, a tubular belt-casing transversely passing the lower cash, the inner end of the casing having diametrically opposite longitudinal slots and step projections at the outer end of the slots, an endwise-movable and rotatably-adjustable locking-belt working in the casing and having an enlarged beveled inner end co-operating with the keepers, the outer end of the belt having a head for engaging with the step projections, and a coiled spring embracing the belt and bearing in opposite directions against the outer end of the casing and the enlarged inner end of the belt.

10. The combination with a window-frame having a longitudinal slot in one end piece thereof, and a window-cash, of a screen working through the slot and connected to the ash, a roller located between the opposite sides of the frame at the outer side of the slotted end piece and having the screen connected thereto, opposite roller-journals mounted in and projected through openings in the respective sides of the frame, and a coiled spring embracing the projected end of one of the journals with its inner end connected thereto and its outer end connected to the window-frame.

11. The combination with a window-frame, and a cash, of a screen connected to the ash, a roller located within the frame and having the screen connected thereto, a journal projected through one side of the

frame and into the roller, the other end of the journal being projected beyond the side piece and provided with a longitudinal bifurcation, a coiled spring embracing the projected end of the journal with its inner end seated in the bifurcation and its outer end connected to the frame, a plate fitted to the outer end of the journal and covering the spring, and a key passing the journal to hold the plate in place.

12. The combination with a window-frame, of a screen, a roller located within the frame and having the screen connected thereto, a journal carried by the roller and projected through the adjacent side of the window-frame, a coiled spring embracing the projected end of the journal with its inner end connected thereto and its outer end connected to the window-frame, a plate fitted to the outer end of the journal and covering the outer edges of the bifurcations of the spring, and a device carried by the outer end of the journal to hold the plate in place thereon.

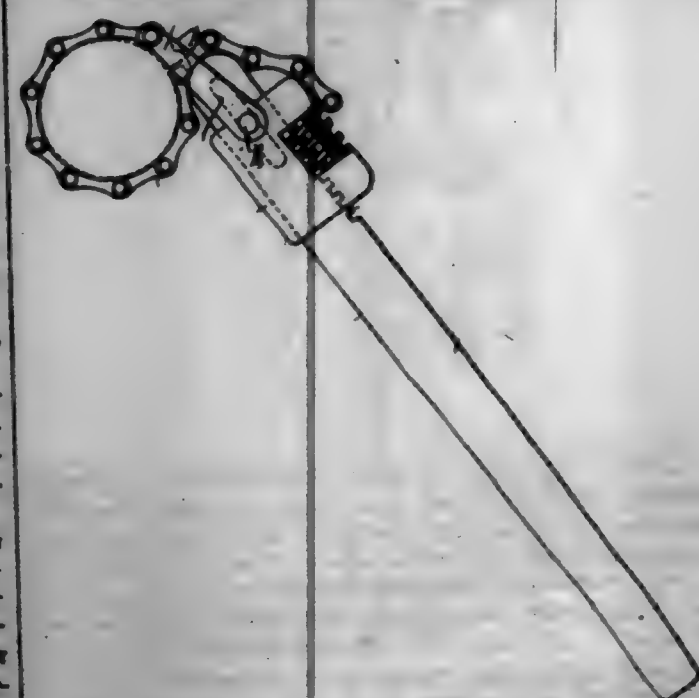
13. The combination with a window-frame having a longitudinal slot formed in one end piece thereof, of a cash working in the frame, a screen working through the slot, opposite catches secured to the screen and projected outwardly beyond the frame, the inner ends of the catches being provided with lateral step projections for engagement with the slotted end piece of the frame to prevent the screen from passing entirely through the slot thereof, and locking devices carried by the ash in operative relation to the catches.

702,078. GOLF-TEE. CHARLES E. STUCKER, JR., Meriden, Conn. Filed Nov. 22, 1901. Serial No. 22,222. (No model.)



Claim.—A portable golf-tee consisting of a truncated cone formed from finely-powdered substance combined with a soluble binder, said substance and binder molded and hardened and adapted to be readily disintegrated by moisture or pressure, substantially as described.

702,079. PIPE-WRENCH. GEORGE E. SWANSON, Phoenixville, Cal., assignor of one-half to MARCELLUS L. SMITH, Phoenixville, Cal. Filed Nov. 12, 1901. Serial No. 22,122. (No model.)



Claim.—1. A pipe-wrench consisting of a handle, a chain pivoted near one end of said handle, a member longitudinally movable upon the handle and to which the chain is pivoted, said chain having a link or member adjacent to the pivot-point of sufficient width to admit the passage of the chain therethrough, whereby the chain may be able to encircle a pipe completely, and a projection upon the handle with which the free end of the chain may be engaged.

2. The combination is a pipe-wrench of a handle, a member slidable longitudinally upon said handle, a chain pivoted to said slidable member, and means upon the end of the handle by which a link of the chain may be engaged.

3. The combination is a pipe-wrench of a handle, a member slidable longitudinally upon said handle, a chain pivoted to said member and freely turnable across the end of the handle, a chain secured to said chain and adapted to be passed therethrough to encircle a pipe completely, and a means upon the handle by which a link of said chain may be engaged.

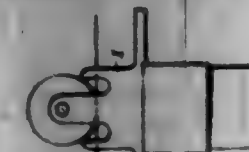
4. The combination is a wrench of a handle, a cleave movable lon-

gitudinally thereon, a flexible gripping member pivoted to said cleave and movable therewith, and means upon said handle whereby the free end of the gripping member may be engaged.

5. The combination is a wrench of a handle, a cleave pivoted to said handle and adjustable longitudinally thereon, a flexible gripping member secured to said cleave and adapted to pass through said cleave to encircle a pipe completely, and means upon the handle whereby said grip member as passed through the cleave may be engaged.

6. The combination is a pipe-wrench of a handle, a cleave movable longitudinally upon said handle, a chain pivoted to said cleave, a slot in the handle in which the pivot of said cleave is slidable, a chain secured to and adapted to be passed through said cleave so as to completely encircle a pipe and a projection upon the handle with which a link of the chain may be engaged.

702,080. STORE-SERVICE APPARATUS. MORRIS C. SWIFT, West Haven, Conn. Filed Apr. 1, 1900. Serial No. 100,901. (No model.)



Claim.—1. A store-service apparatus, a track-wire having near its termination an enlargement formed by a coiled spring, said coil tapering at opposite ends, the forward end rigidly secured to the track, and a bumper secured to the opposite end of the coil which is permitted to move longitudinally upon the wire substantially as described.

2. A store-service apparatus, a track-wire having near its termination an enlargement formed by a coiled spring, said coil tapering at opposite ends, the forward end rigidly secured to the track, a bumper secured to the opposite end of the coil which is permitted to move longitudinally upon the wire, and a cone tapering at opposite ends arranged within the coil, substantially as described.

3. A store-service apparatus, a track-wire having near its termination an enlargement formed by a coiled spring, said coil tapering at opposite ends, the forward end rigidly secured to the track, a bumper secured to the opposite end of the coil which is permitted to move longitudinally upon the wire, and a cone arranged within the coil, substantially as described.

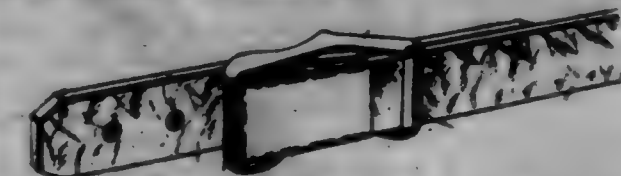
702,081. MANUFACTURE OF GLASS BY ELECTRICAL HEATING. AUGUST VOLKMER, Muenchen, Germany. Filed Sept. 27, 1900. Serial No. 21,212. (Specimen.)

Claim.—An improvement in the manufacture of glass by electrical heating, consisting in intimately mixing the ground raw materials with a conducting material and melting the mixture by forming it into a part of a circuit carrying an electric current, substantially as described.

702,082. BUCKLE. DAVID E. WHITE, Winchester, Mass. Filed May 11, 1901. Serial No. 22,027. (No model.)

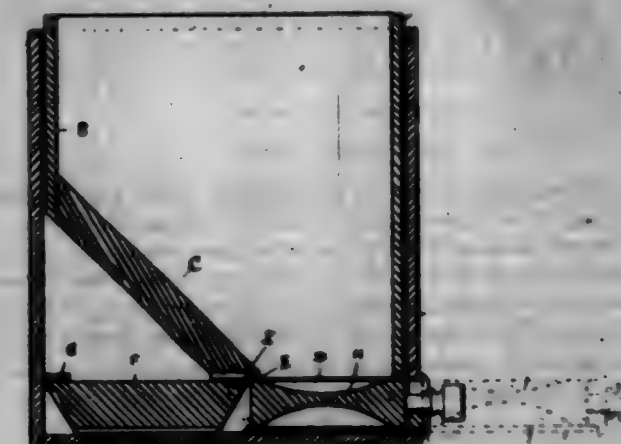
Claim.—1. In a buckle, the combination with a frame having an in-

termediate cross-bar, of a tongue hinged to said cross-bar and having its free end adapted to rest upon one of the end bars, and a tongue-shield comprising a metal plate having one end formed into a tubular offset which pivotally embraces the end bar against which a tongue is adapted to rest, and a flexible strap applied to the plate and adapted to be inserted beneath the other end bar of the frame to hold the shield entirely over the tongue, the opposite sides of the plate being folded over and engaged with the strap to hold the same to the tongue.



2. In a buckle, the combination with a frame having an intermediate cross-bar, of a tongue hinged to said cross-bar and having its free end adapted to rest upon one of the end bars, and a shield hinged to said end bar and having a flexible strap secured to its free end and adapted to be inserted beneath the other end bar, so as to hold the shield entirely over the tongue.

702,083. MEASURING-CASE. ALFRED E. WOODWARD and RALPH S. WOODWARD, Portland, Me. Filed Nov. 4, 1901. Serial No. 21,122. (No model.)



Claim.—1. In an article of the class described, in combination, an outer casing having an opening in one end and near the bottom thereof, a removable inner casing having an inclined bottom and opening therein, a drawer, one portion thereof being solid, the other portion being open for the reception of a removable measuring-receptacle, said inner casing adapted to rest upon the upper surface of said drawer.

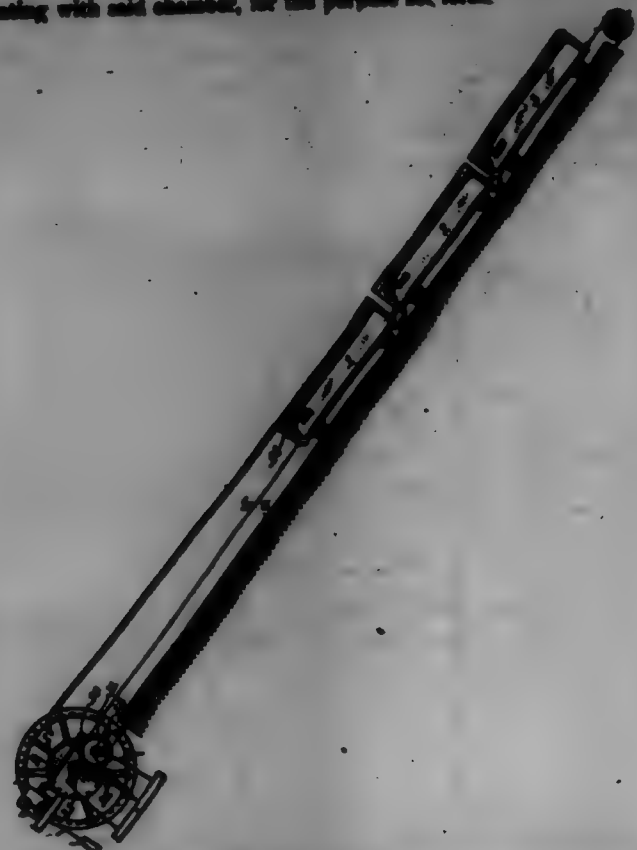
2. In an article of the class described, in combination, a plurality of cases, one fitting within the other, the inner case having an inclined bottom and an opening therein, a drawer consisting of a closed and an open portion, the open portion carrying a removable measuring device with a plurality of divisions, said drawer moving in an opening in the outer casing and underneath the inner case, said inner case resting lightly on said drawer and steps on the under side of said inner casing and on the upper side of said drawer and at the rear thereof to limit the forward movement of said drawer.

3. In a device of the class described, in combination, an outer casing having an opening in the end and near the bottom, an inner casing removably mounted in said outer casing and provided with an inclined bottom and an opening therein, a sliding member consisting of closed and open portions, the open portion carrying a removable receptacle consisting of various-sized measuring devices, the inner casing adapted to rest lightly on said sliding member, the solid portion of said sliding member adapted to close the opening in the bottom of the inner casing when said member is in extended position and the measuring-receptacle to be in registry with the opening in said inner casing when said member is in its closed position.

702,084. SYSTEM FOR CONTINUOUS HEATING AND METAL-ROLLING. THOMAS V. ALLEN, Bridgeport, Conn., assignor, by mesne assignments, to the International Tin Plate Corporation, a Corporation of New Jersey. Filed Feb. 1, 1901. Renewed Apr. 22, 1900. Serial No. 21,121. (No model.)

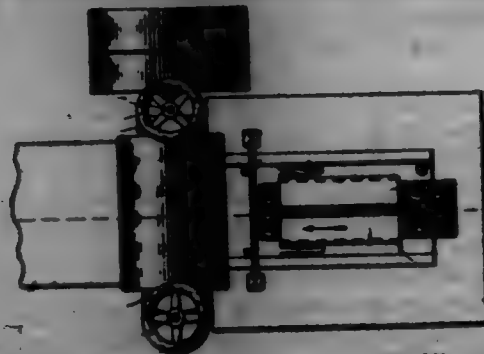
Claim.—1. The herein-described system for continuous heating and metal-rolling, which consists of one or more furnaces mounted on a section of track running at right angles to the feeding-line of a rolling-mill situated in close proximity to said furnaces, means for reciprocally propelling said furnace; a flexible tube for conveying fuel-gas to said furnaces connected therewith and to a winding-drum and communicating

with an interior gas-chamber in said drum, and a gas-supply pipe communicating with said chamber, for the purpose set forth.



2. The combination, with the system herein shown and described, of a rotating drum, a gas-chamber in said drum, means whereby gas is supplied to said chamber, a flexible gas-delivery tube communicating with said chamber and the furnace, and an operating-cable connected to said drum, with means adapted to rotate the drum and wind up the flexible gas-delivery tube when the furnace are moving in one direction, and to unwind said flexible tube when the furnace are moving in the opposite direction, for the purpose set forth.

702,085. FOLDING-MACHINE. LEWIS E. BARNER, Methuen, Mass. Filed Feb. 1, 1902. Serial No. 88,100. (No model.)



Claim.—1. The herein-described sample-cloth-folding machine, consisting in combination with a pair of rotary creasing-rollers, of a work-supporting table, a carrier adjustable on the latter relative to the rollers, said carrier being pivotally connected to the carrier and a former-plate K, substantially as and for the purpose set forth.

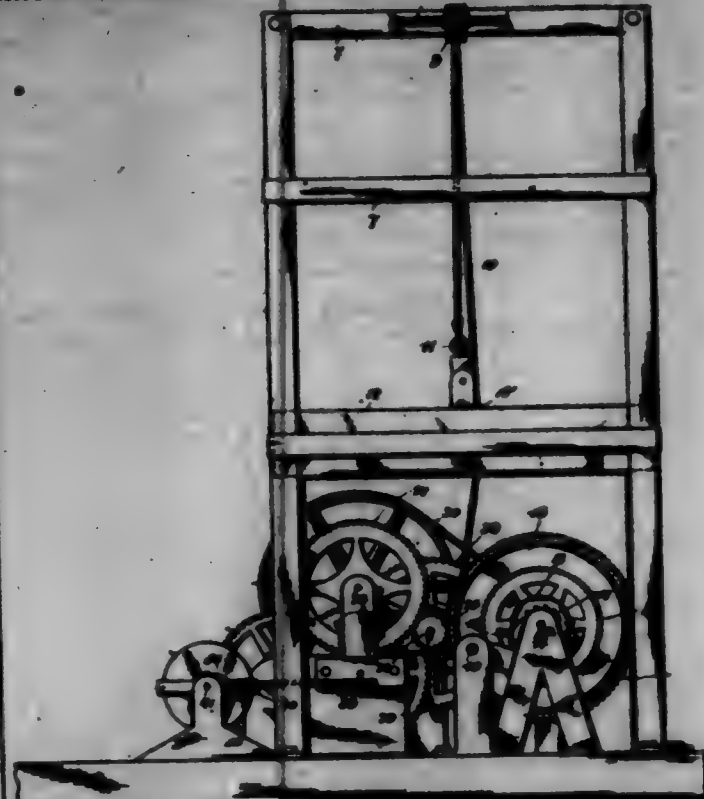
2. The cloth-folding device, as described, consisting of a longitudinally-movable carrier G, combined with folders I, I, pivotally connected to said carrier and a detachable former-plate K, adapted to be placed on the top of the sample-cloth before closing the binged folders substantially as and for the purpose set forth.

3. In a sample-cloth-folding machine, in combination a pair of rotary creasing-rollers, a longitudinally-movable carrier, a pair of folders binged to said carrier, a detachable former-plate adapted to be placed on top of the cloth previous to closing said folders and a stop device for limiting the motion of the carrier and its former-plate relative to the creasing-rollers substantially as and for the purpose set forth.

4. A cloth-folding machine, consisting in combination a pair of rotary creasing-rollers, a reciprocating carrier, binged folders on the latter, a detachable former-plate and stop device for limiting the forward motion of the carrier and former-plate substantially as and for the purpose set forth.

702,086. GRAVITY-MOTOR. WILLIAM S. BARNES, Lehigh, Pa. Filed June 23, 1901. Serial No. 64,466. (No model.)

Claim.—1. A device of the class described comprising a potential device including a winding-drum, a drive-shaft operatively connected with the drum, a governor for the potential device operatively connected with the drum and means for actuating the governor manually to stop and release the mechanism.



2. A device of the class described comprising a potential device including a winding-drum, a drive-shaft operatively connected with the drum, a governor for the potential device including an automatically-shiftable brake member, a brake-disc in the path of movement of the shiftable member, and means for manually moving the disc into and out of engagement with the shiftable member to stop and release the mechanism.

702,087. INSULATING HANDLE CONNECTION. GEORGE B. BARNES, Taunton, Mass. Assignor to Reed and Burton Corporation, Taunton, Mass. Filed Sept. 12, 1901. Serial No. 73,172. (No model.)



Claim.—1. A handle connection comprising a tubular fitting, designed to be secured to a vessel, a non-conducting piece, a plate, and a staple, the legs of the staple extending through the plate and insulating piece and secured within the tubular fitting by molten metal, substantially as described.

2. A handle connection consisting of an insulator, a plate, a tubular fitting and a staple, the legs of the staple being passed through the plate and the insulator and the terminal ends of said legs being clamped within the tubular fitting and secured in place by molten metal, the fitting secured to a vessel and a handle connected to the plate, substantially as described.

702,088. GAME-TABLE. PERLEY W. CANNON, New Haven, Conn. Filed Feb. 14, 1902. Serial No. 94,674. (No model.)



Claim.—1. In a game-table, the combination with the frame thereof, of stationary pockets within the frame and projecting beyond its feet, and a tail-board hinged to the base of said pockets and adapted to be turned up to close the outer ends of the pockets substantially as described.

2. In a game-table, the combination with the frame thereof, inclined from its top to its feet, and having stationary pockets within the frame and projecting beyond its feet, of a tail-board hinged to the base of said pockets and adapted to be turned up to close the outer ends of the pockets, guides on said frame inclined toward said pockets, and a game-table resting on said frame and formed with openings through it between said guides, substantially as described.

702,089. DETACHABLE FASTENER FOR WINDOW-SHUTTERS. ARTHUR L. BARR, Carroll, Iowa. Assignor to Winfield A. Barr and Harry R. Barr, Carroll, Iowa. Filed Mar. 2, 1902. Serial No. 87,280. (No model.)



Claim.—A fastening device consisting of a bracket adapted to be fixed to a window-frame to project outward and provided with an open slot to admit a link and a lever having an eccentric at one end pivoted to one end of a link and a link pivotally connected with the eccentric end of the lever and adapted to be pivotally connected with a window-shutter, for the purpose stated.

702,090. INLET-VALVE-GOVERNING MECHANISM FOR ENGINES. JAMES F. DUNN, Springfield, Mass. Filed Dec. 27, 1900. Serial No. 41,303. (No model.)



Claim.—1. In an engine, the combination, with a valve-limiting rod; of a casing having the chamber, m; the plunger, h, operated by the engine; the inlet-valve, c; the casing having also the chamber, p, and a passage connecting the chamber, m, and p; the check-valve, q, in said inlet passage; the piston, r, working in chamber, p, and actuated by the pressure generated by said plunger, h; the return-spring, t, the chamber, p, having the outlet, o, at its extremity and; the adjustment-valve, u, in said outlet; the piston-rod, s; and means for causing said rod to operate said valve-limiting rod, substantially as set forth.

2. The combination, with a cylinder, a valve and valve-stem therefor, of movable means for limiting the movement of the valve-stem, means connected with the cylinder for guiding said limiting means during its movement, and means for adjusting the position of said guiding means so as to vary the amount of said limitation caused by said limiting means in its several positions.

3. The combination of a cylinder, a valve and valve-stem therefor, the valve-stem projecting out of the cylinder and having an abutment on its free end, and a movable bar having a slot therein and being so arranged that the valve-stem moves through its slot, the bar having a cam-face arranged to engage said abutment and thereby limit its movement.

4. The combination of a cylinder, a valve and valve-stem therefor, the valve-stem projecting out of the cylinder and having an abutment on its free end, a bushing connected with the cylinder and through which the valve-stem reciprocates, the bushing having an annular groove, and a movable bar having a slot therein and having the margin of said slot arranged to engage said bushing at its groove, the bushing being adjustable on the cylinder in an axial direction, said bar having a cam-face so

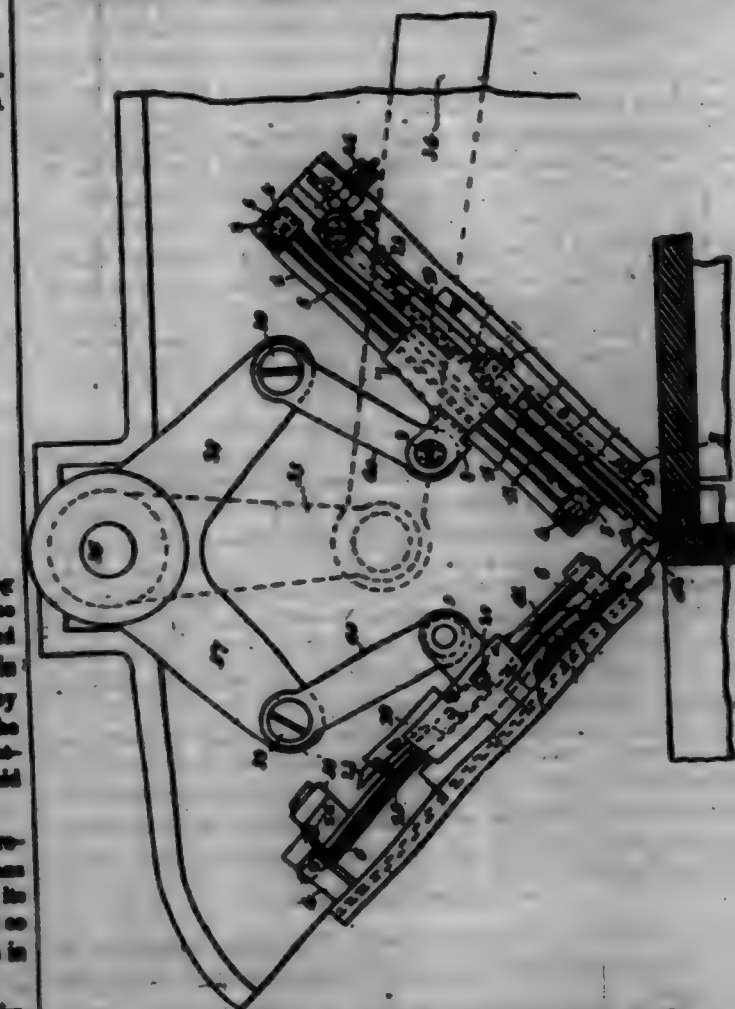
arranged to engage said abutment and thereby limit the movement of the valve.

5. The combination of a cylinder, a valve and valve-stem therefor, the valve-stem projecting out of the cylinder and having an abutment on its free end, a bushing connected with the cylinder and through which the valve-stem reciprocates, the bushing having an annular groove, a movable bar having a slot therein and having the margin of said slot arranged to engage said bushing at its groove, the bushing being adjustable on the cylinder in an axial direction, said bar having a cam-face arranged to engage said abutment and thereby limit the movement of the valve, an air-pump operated by the engine, a cylinder containing a piston that is operated by pressure from said air-pump, and a lever connecting said latter piston with said cam-face bar.

6. The combination of a cylinder, a valve and valve-stem therefor, the valve-stem projecting out of the cylinder and having an abutment on its free end, a cam-rod in the said cylinder having a lever engaging said valve-stem, a bushing threaded into said plug and through which the valve-stem reciprocates, the bushing having an annular groove, and a movable bar having a slot therein and having the margin, said slot arranged to engage said bushing at its groove, the bushing being adjustable on the cylinder in an axial direction, said bar having a cam-face arranged to engage said abutment and thereby limit the movement of the valve.

7. The combination, with a pair of cylinders each having a valve and stem therefor, said stems being arranged parallel, of a bar movable transversely to the valve-stems and having means for simultaneously limiting the movement of the valve-stems, a means connected with each cylinder for guiding its said limiting means during said movement, and means on each cylinder for adjusting the position of said guiding means so as to vary the amount of said limiting means in its several positions.

702,091. STAPLE FORMING AND DRIVING MECHANISM. WILLIAM BARR, Brooklyn, N. Y. Assignor to Alfred E. Benjamin, New York, N. Y. Filed Aug. 31, 1901. Serial No. 74,068. (No model.)



Claim.—1. In combination the base-plate having a track or way therein containing a female former having a sliding motion, a channel in said female former, in which the staple is formed, a stationary guide containing a corresponding channel, means for holding the female former and guide together while the staple is being driven and a male staple former and guide guided upon said base-plate, substantially as described.

2. In staple forming and driving mechanism, the male staple former and driver comprising a pivoted lever having a notched tongue at one end thereof, said notch being formed in the front end of the said tongue, the rear edge of the said tongue being adapted to engage the wire for forming the staple, substantially as described.

2. In staple forming and driving mechanism, the combination of a base-plate, a female former and guide upon said base-plate, each having a longitudinal channel, a retractile spring normally holding the former and guide together so that the slot is then continuous from one part to the other, a frame carrying a pivoted male former mounted on said base-plate, and means for tripping the male former when it has reached a predetermined point in its travel in the slot, substantially as described.

4. In combination the base-plate, a guide rigidly secured to the base-plate and having a longitudinal channel, a female former having a limited sliding motion and also having a longitudinal channel, a male staple former and driver guided in said channel, and means for tripping said male former and driver and lifting it clear of the staple which has been formed and is laid in the channel, substantially as described.

5. The combination of the base-plate, a continuous channel, one section of said channel being contained in a guide rigidly held on the plate and the other section being in a female former having a sliding motion therein, a spring for drawing the female former forward, an opening at the meeting-point of the former and guide for admitting the wire, a male staple former and driver moving in said channel, and means for tripping said male former and driver and lifting it clear of the staple when a staple has been formed therefrom, substantially as described.

6. In a staple forming and driving device a frame carrying a pivoted male former, said male former being provided with a notched tongue at its forward end and a trip near its rear end, a base-plate upon which the frame is mounted, carrying a channel in which the tongue travels and a tripping device for lifting said tongue out of the channel when the trip strikes the tripping device, said male former being pivoted intermediate of its length, substantially as described.

7. The combination of the base-plate, a guide-rod mounted thereon, a former-bar-carrying frame comprising a sleeve and a casing carrying a pivoted male former, a channel composed of two sections in which a tongue upon the forward end of the male former travels, a tripping device carried by the base-plate and a trip near the rear end of the male former for striking said tripping device and lifting the tongue clear of the channel when a staple has been formed therefrom, substantially as described.

8. The combination of a base-plate, a guide-rod mounted thereon, a former-bar-carrying frame suitably mounted on said rod, said former-bar comprising a male former pivoted in the frame, and means for tripping said male former comprising a trip on the rear end of said male former and a spring-actuated pin mounted in a lug projecting upwardly from the base-plate, against which said trip strikes, substantially as described.

9. In combination, a stationary channelled guide, a movable female former arranged in line therewith and channelled to conform thereto, means for feeding the wire transversely of said channel, a male former and driver moving in said channel in the female former and guide, and means for lifting said male former and driver on its backward stroke to discharge it from the staple and allow it to drop into driving position behind the staple, substantially as described.

10. In combination, a stationary channelled guide for the wire and male former, a female former arranged in line with the guide and channelled to conform thereto, said female former being longitudinally movable in relation to the guide, and a male former and driver combined working within said female former and guide, substantially as described.

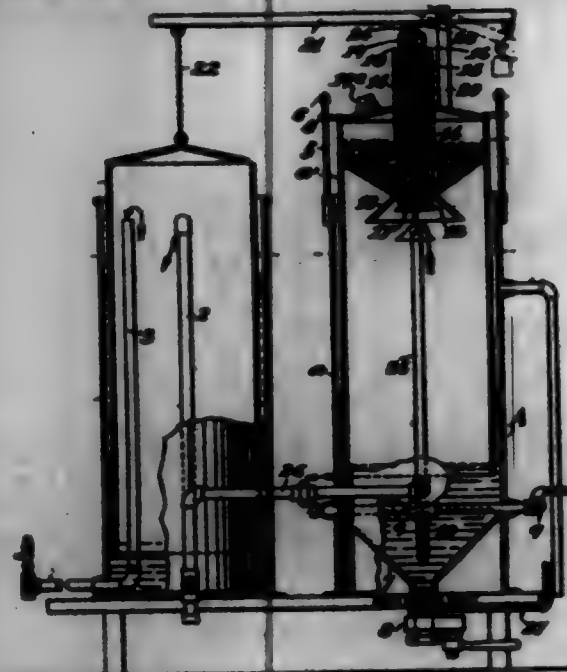
11. In combination, a channelled guide for the staple, a male former, a female former in which the male former works, said female former being channelled to provide a continuation of the channel in the guide and being movable away from the channelled guide in the forming operation, and means for returning the female former to normal position against the channelled guide, substantially as described.

12. In combination, a channelled guide for the staple, a male former, a female former in which the male former works, said female former being movable in relation to the channelled guide to separate therefrom in the formation of the staple, and means for returning the female former to normal position, the said male former serving also as a driver, substantially as described.

702,092. ACETYLENE-GAS APPARATUS. ARTHUR W. BOWMAN, Sacramento, Cal. Filed Sept. 20, 1901. Serial No. 78,711. (No model.)

Claim.—1. An acetylene-gas machine, comprising in combination a generator, a generator including a water-containing receptacle and a bell adapted to fit within the latter, seating-passages between the generator and generator, a carbide-containing chamber in the upper part of said generator-bell, a discharge-opening in said chamber, a valve opening outwardly and downwardly and adapted to control said opening, means including a spring-pressed stem extending through the top of said bell whereby said valve is normally closed against said opening, and a lever of the second class on the outside of the generator-bell and connected with the bell of the generator, by means of which lever said valve is made to open and close by the rise and fall of the bell.

2. In an acetylene-gas machine, the combination with a generator composed of separable, telescoping cylinders, water supply and discharge openings in said generator, a carbide-chamber in the top of said generator, a discharge-opening in the bottom of said chamber, a valve exterior to the chamber and fitting said opening, the stem of said valve extending through said chamber to the exterior of the generator, means including a tube extending above and below the top of the generator and an inverted cup within said tube and extending above the same said means forming a water seal about said stem to prevent the escape of gas from the generator, a spring by which the valve is normally kept closed, and a lever bearing upon the cup whereby said valve may be opened to admit carbide to the generator-chamber.



3. In an acetylene-gas machine, the combination with a generator, of a carbide-chamber therein, a discharge-opening in the bottom of said chamber, a valve seating in said opening exterior to the chamber, a valve-stem, a tubular guide for said stem, said guide closed at both ends and extending above and below the top of the generator-casing, means including a tube and an inverted cup both extending above and below the top of the generator-casing and forming a seal whereby gas may not escape through said guide, and a spring bearing upon the end of said guide and against the end of the stem whereby the valve is held in a normally closed position.

4. In an acetylene-gas machine, the combination with a generator, of a carbide-chamber, a discharge-aperture therein, cone-shaped valve-seating therein and adapted to open outwardly into the generator-chamber, a conical flange or hood upon said carbide-chamber and isolating said valve, a stem on said valve, said stem extending upwardly through said carbide-chamber, a closed tubular guide for said stem, a fixed cylinder isolating said guide, and extending above and below the top of the generator-casing, a means by which a seal with said cylinder may be formed to prevent the escape of gas around said stem, a spring by which said valve is made normally to seat, and a lever mechanism whereby said valve may be operated.

5. An acetylene-gas machine consisting in combination of a generator, a generator, water supply and discharge openings, a carbide-chamber in said generator, a discharge-aperture in said chamber, a conical hood or flange surrounding said aperture, a valve seating in the latter and adapted to discharge the carbide radially within the generator-chamber, a stem for said valve, a tubular guide in which said stem is slidable, a spring by which said valve is normally held in closed position, a fixed cylinder upon at its outer end extending into the carbide-chamber, and through which said guide passes, a second cylinder slidable within said fixed cylinder, and adapted to form a water or like seal therewith, said slidable cylinder including and supported by said stem, and both cylinders and the guide extending above and below the top of the generator-casing and a lever of the second class hinged upon the generator and adapted to bear upon the top of the slidable cylinder to operate the above-mentioned valve in relation to the rise and fall of the generator-bell.

702,093. FIREPROOF BUILDING STRUCTURE. JULIAN C. BULLOCK, Baltimore, Md. Filed Sept. 20, 1901. Serial No. 77,093. (No model.)

Claim.—1. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein, said framework comprising

a series of parallel tension-rods extending longitudinally throughout the lower part of the structure and a separate series of short suspension-rods for each support, each series of suspension-rods extending through the upper part of the structure over a support and thence downwardly in the lower part of the structure and terminating on either side of the support.



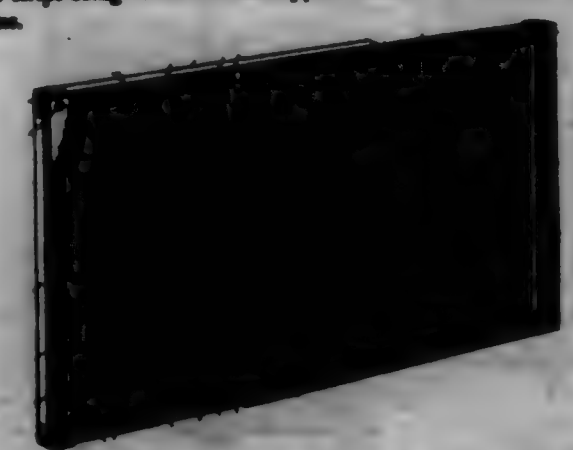
2. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein, said framework comprising a series of parallel tension-rods extending longitudinally throughout the lower part of the structure, a separate series of longitudinal brace-rods between each pair of supports in the lower part of the structure, and a separate series of short suspension-rods for each support, each series of suspension-rods extending through the upper part of the structure over a support and thence downwardly into the lower part of the structure on each side of the support and terminating adjacent to the ends of the brace-rods.

3. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein, said framework comprising a series of parallel tension-rods extending longitudinally throughout the lower part of the structure, a separate series of longitudinal brace-rods extending between each pair of supports in the lower part of the structure, a separate series of short suspension-rods for each support, each series of suspension-rods extending through the upper part of the structure over a support and thence downwardly into the lower part of the structure on each side of the support and terminating near the ends of the brace-rods, and stirrups extending beneath said rods and upwardly into the mass of cemented material.

702,094. ADJUSTABLE WINDOW-SCREEN. EDWIN E. FLEMING, Hingham, Mass. Filed July 15, 1901. Serial No. 80,779. (No model.)

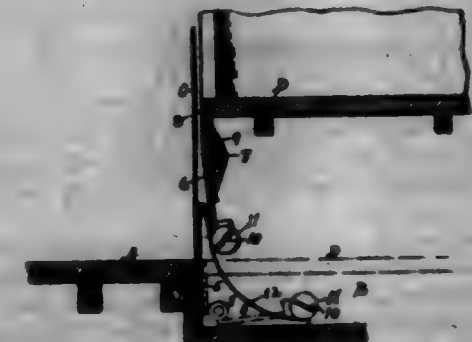
Claim.—1. A window-screen, comprising substantially duplicate overlapping frame-sections, wire screens secured to the adjacent faces of the respective frame-sections, and screen-strips secured to the inner faces of the outer ends of the respective frame-sections and covering the outer marginal edges of the respective screens, the inner faces of the opposite longitudinal sides of one frame-section being provided with longitudinal dovetailed grooves which open through the inner end of the section, and the inner faces of the opposite longitudinal sides of the other frame-section having integral longitudinal dovetailed tongues slidably mounted in the respective grooves of the first-mentioned frame-section.

2. A window-screen comprising opposite substantially rectangular duplicate overlapping frame-sections, wire screens secured to the adjacent faces of the frame-sections, and metallic U-shaped strips embracing the outer free edges of the respective wire screens to form the inner ends of the frame-sections, and folded over therewith against the inner faces thereof and lying in frictional engagement with the screens of the respective other section, whereby the folded-over portions of the strips travel in the same plane and form stops for mutual engagement to limit outward movements of the frame-sections, and also form closures for the space between the overlapped portions of the sections, the opposite ends of the strips being fastened to the opposite sides of the respective frame-sections.



3. A window-screen, comprising opposite substantially duplicate screen-sections, each of which has a three-sided frame, a wire-screen portion secured to the inner side of the frame, and a screen-strip secured to the inner side of the end of the frame and covering the outer marginal edge of the screen portion, the inner faces of the opposite longitudinal sides of one frame being provided with longitudinal dovetailed grooves which open through the inner end of the frame, the inner faces of the opposite longitudinal sides of the other frame having integral longitudinal dovetailed tongues slidably mounted in the respective grooves, and substantially U-shaped metallic edge strips embracing the inner and outer edges of the respective wire-screen portions and folded over therewith flat against the inner sides of said screens to form laterally offset stop-strips lying upon the inner sides of the respective screen portions and in frictional engagement with the respective opposite screen-sections.

702,095. ELEVATOR-GUARD. RALPH I. FURBER, Espokane, Wash. Filed Dec. 15, 1900. Serial No. 60,500. (No model.)



Claim.—The combination with the floor D, the depending plate 5 rigidly secured to said floor at the entrance portion thereof, the plate 6 hinged to said plate 5, the hinges 7 and 8, the spring 9 mounted on the spindle of said hinges and tending to swing the plate 6 into alignment with the plate 5, and the stud 10 secured to the lower portion of the plate 6 and furnished with the above 11, of the cam or way 12 positioned to interrupt the above 11 and direct the same out of its vertical path, as and for the purpose described.

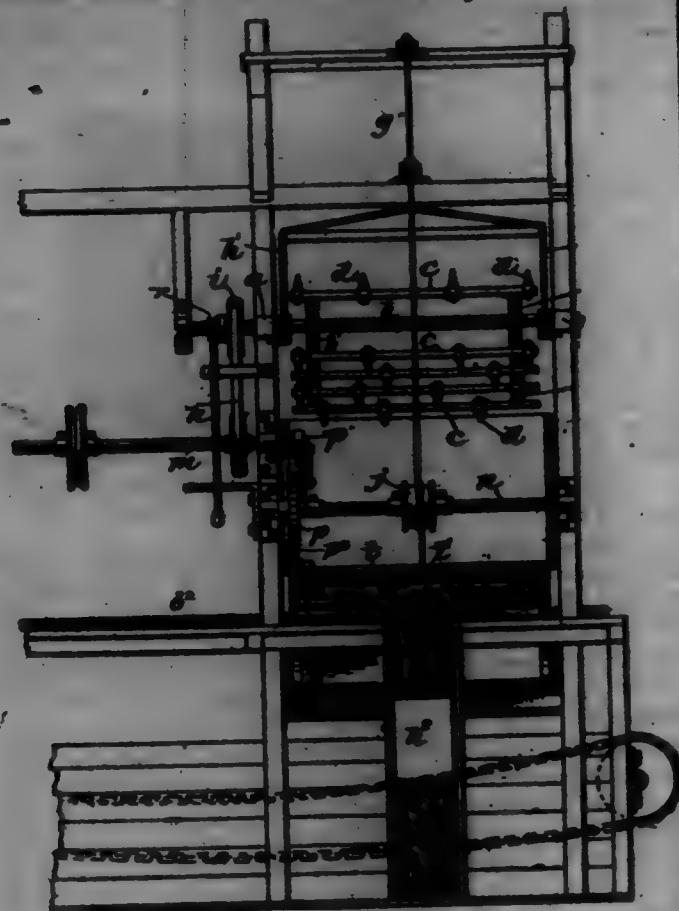
702,096. MACHINE FOR UNLOADING CANE-CARR. HENRY FROELICH, Lima, Peru. Filed Oct. 22, 1901. Serial No. 79,500. (No model.)

Claim.—1. In a cane-unloader, the combination of a pivoted frame, an endless toothed carrier traveling on said frame, means permitting the frame and carrier to descend as the unloading proceeds, and means for automatically discontinuing the descent at a predetermined point.

2. In a cane-unloader, the combination of a pivoted frame, an endless toothed carrier traveling on said frame, an operating-shaft for the carrier, a winding-drum having a flexible connection with the frame, means operated by the carrier-shaft for turning the drum to lower the frame, and an automatic device to discontinue the rotation of the drum at a predetermined point.

3. In a cane-unloader, the combination of a pivoted frame carrying an endless toothed carrier, a shaft A for operating the carrier, a shaft B having a winding-drum, a flexible connection C from the drum to the frame, a shaft D, a pawl-and-ratchet mechanism operated thereby to re-

wind the drum and allow the carrier-frame to descend, a weight *W* carried by the connection *g*, and a trip *f* adapted to be struck by the weight and disengage the unwinding of the drum at a predetermined time.



702,097. SHOVEL. JAMES F. HAYLAND, Paterson, N. J. Filed Mar. 27, 1902. Serial No. 100,174. (No model.)



Claim.—1. An auxiliary handle, adapted to be pivotally secured to the handle-bar of a shovel, near the blade, and provided with a U-shaped stop-yoke depending therefrom and passing down and under the handle-bar, substantially as set forth.

2. An auxiliary handle, adapted to be secured pivotally above the handle-bar proper of a shovel, and a U-shaped yoke rigidly secured to and depending from the side of said handle, above the point of pivotal connection, and passing down under said handle-bar to form a support therefor, and means for locking said U-shaped yoke at various points to such a handle-bar, substantially as set forth.

3. In a shovel, a handle-bar and blade, in combination with an auxiliary handle above said handle-bar and pivotally secured thereto, near the blade, and a U-shaped yoke having openings in the side thereof, rigidly secured to and depending from the side of said handle above the point of pivotal connection and passing down under the handle-bar, an opening passing laterally through the handle-bar and a pin adapted to pass through said opening and the openings in the side of the U-shaped yoke to lock the handle-bar, rigidly when required, in a desired position in said yoke, substantially as set forth.

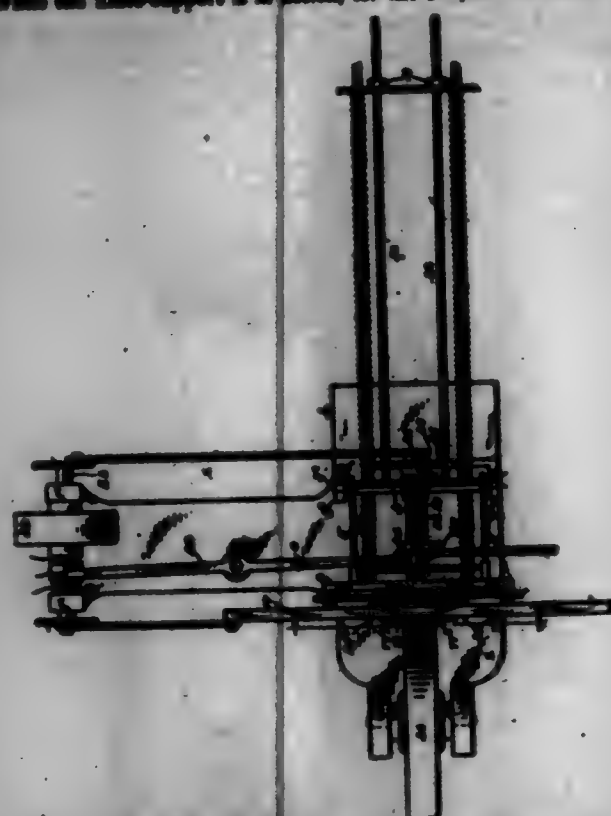
4. In a shovel, the combination with the handle-bar thereof, of an auxiliary handle, adapted to be secured rigidly, or pivotally, thereto, and means for locking said auxiliary handle at various angles in relation to the handle-bar, substantially as set forth.

702,098. AUTOMATIC CLAMBER-MACHINE. EDWARD C. HARRIS, New Haven, Conn. Filed July 10, 1901. Serial No. 67,704. (No model.)

Claim.—1. In a machine of the character described, comprising, in combination with a polishing-wheel, an oscillating frame, adapted to be automatically operated, a support therefor, an automatically-reciprocating knife-supporting slide mounted on said head, means for gradually elevating the knife-carrying end of said frame while the reciprocating knife-support is in action, for the purpose set forth.

2. The combination, in a machine of the character described, of a reciprocating knife-support, a supporting-head therefor, on which said

knife-support is adapted to reciprocate, means for gradually elevating said head while the knife-support is in action, for the purpose set forth.



3. In a machine of the character described, comprising, in combination, with a polishing-wheel, a pivotally-supported frame carrying a fixed head at its free end, an automatically-operating knife-supporting slide mounted on said head, said frame adapted to have an oscillating movement through the medium of an automatically-operating cam adjacent thereto, means whereby the machine is brought to a standstill when the polishing is completed with the head at or near its highest point so as to leave the head of said frame in an elevated position for a readjustment of the work.

4. The combination, in a machine of the character described, adapted to be used in connection with a polishing-wheel, of an oscillating frame carrying a reciprocating knife-support, means whereby an adjustable spring tension is maintained between said knife-support and the polishing-wheel, a cam adapted to elevate the knife-carrying end of said frame during the reciprocal action of said knife-support, means for automatically stopping the machine when the polishing operation is completed, for the purpose set forth.

5. The combination, in a machine of the character described, adapted to be used in connection with a polishing-wheel, of an oscillating frame carrying a reciprocating knife-support, means for supporting a knife thereon so that both sides thereof may be finished, means whereby an adjustable spring tension is maintained between said knife-support and the polishing-wheel, a cam for gradually elevating the knife-carrying end of said frame during the reciprocal action of said knife-support, means for rotating said cam, for the purpose set forth.

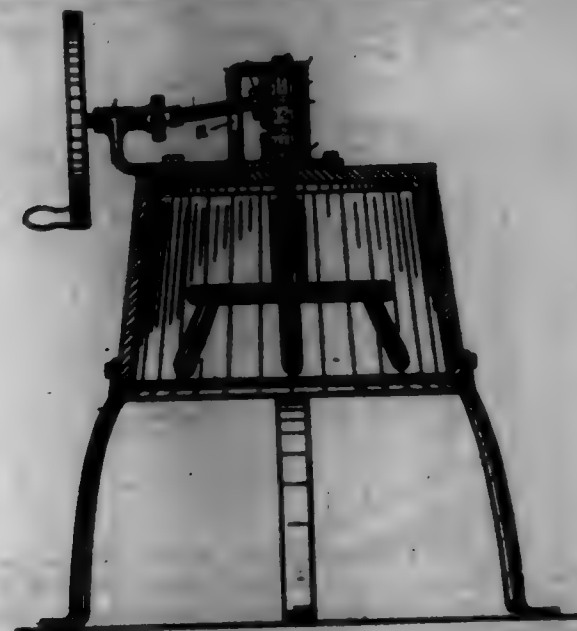
6. The combination, in a machine of the character described, of a reciprocating slide carrying a knife-support, a knife adapted to rest on one side of said support, the opposite side of said support cut away sufficient to form a yielding bed for the knife, for the purpose set forth.

702,099. MECHANICAL MOVEMENT. JOHN D. A. JENNINGS, Omaha, Neb., assignor to Richmond Cider Works, Harrodsburg, Va., a Corporation of Virginia. Filed Aug. 10, 1901. Serial No. 73,597. (No model.)

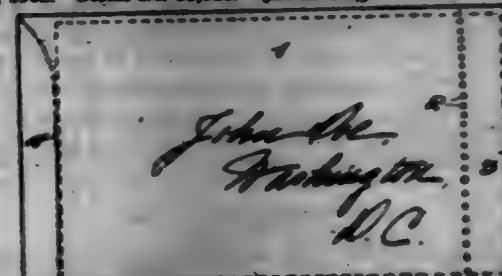
Claim.—1. In combination, a support, a driven shaft provided with a cylindrical portion having a row of pins or teeth radially arranged and extending part way around said cylindrical part, said cylindrical part being also provided in its periphery with an external groove extending around said row of pins, a drive-shaft and a stationary bearing therefor, said shaft being provided with a pin in constant mesh with the abutment row of pins and with a universal joint between its bearing and the pinion and having its inner end extending beyond said pinion and working in said groove, the bottom of the upper part of the groove serving as a bearing or rest to support the inner end of the shaft while the pinion is in engagement with the upper side of the pins or teeth, and an upright guide for the drive-shaft located between the pinion and the joint in the shaft as set forth for the purpose set forth.

2. In combination, a support, a driven shaft provided with a cylindrical portion having a row of pins or teeth radially arranged thereon

and extending part way around said cylindrical portion, bearings *b b* engaging the ends of said cylindrical enlargement and holding the driven shaft against endwise movement, a driving-shaft and a stationary bearing therefor, a pinion carried by said shaft and meshing with said pins or teeth, said shaft being jointed at a point between said pinion and said bearing and having its end projecting beyond the pinion, a slotted standard connecting the bearings *b b* through which said drive-shaft works, said standard being located between the pinion and the joint in the shaft, and guiding means whereby when said drive-shaft is rotated continuously in one direction said pinion will be caused to first engage the upper side of said row of pins or teeth and then the lower side thereof and so on alternately, said guiding means consisting of a groove in the cylindrical enlargement in which the projecting end of the shaft works and is supported.

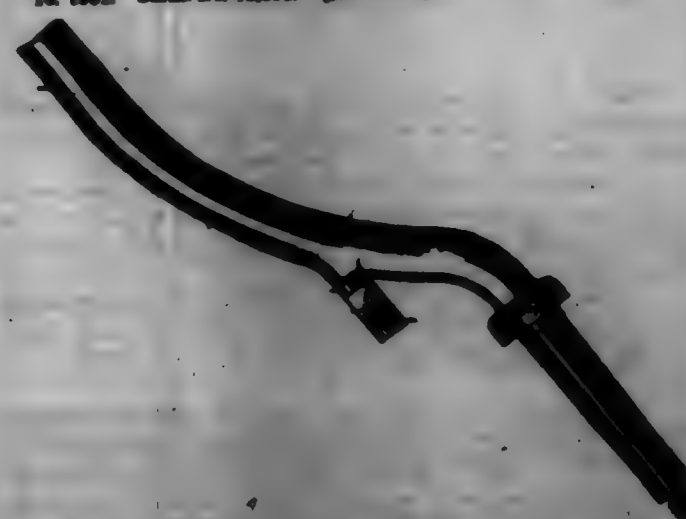


702,100. ENVELOP. DAVID H. KRAMER, Louisville, Ky. Filed Jan. 4, 1902. Serial No. 83,382. (No model.)



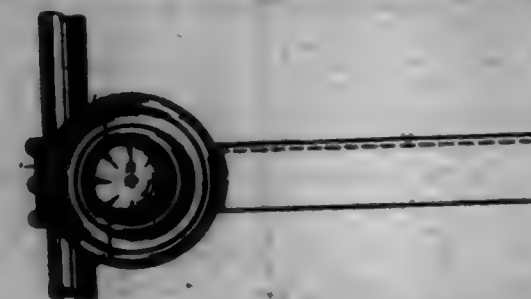
Claim.—An envelop having at one end a line of perforations *2* extending parallel with the end of the envelop, the front and rear faces of the opposite end of the envelop being sealed together by an adhesive material *4* extending in a curved or inclined line toward the end of the open flap of said envelop and thereby acting as a guide to facilitate the entrance of the letter or other contents.

702,101. AXLE. BENJAMIN KLINE, Wheeling, Pa. Filed Oct. 14, 1901. Serial No. 73,386. (No model.)



Claim.—An axled axle having tangent transverse arms projecting laterally from the axled portion of the axle, and two parallel forwardly-projecting perforated caps on each arm, substantially as described.

702,102. CONNECTING-JOINT FOR MIDDYTHAM. JOHN R. MIDDYTHAM, San Francisco, Cal., assignor of one-half to W. A. Schmitt, San Francisco, Cal. Filed June 10, 1902. Serial No. 84,181. (No model.)



Claim.—1. A hinged joint and fastening including supports fixed upon the posts, having the end rolls of the hinged joint thereon, said supports having faces which are straight vertically and beveled transversely, from side to side; side rolls having heads cast upon them and having faces straight vertically and beveled transversely, and adapted to engage the corresponding faces of the first-named supports, both of said supports having an enlarged plate or extension extending parallel with their outer side and provided with transversely-beveled meeting edges, and one of said supports having a bolt to pass through a hole in the plate or extension of the other support, and a nut engaging the bolt to draw the beveled faces of the supports and extensions in close contact, substantially as described.

2. A hinged-joint connection consisting of supports into which the vertical posts and end rolls of the hinged joint are cast, side rolls having heads cast upon their ends, transversely-beveled meeting faces upon these heads and upon the post attachment, enlarged ornamental faces formed and exterior to the heads of the side rolls, and similar sections formed upon post-supports, said sections having transversely-beveled meeting edges, holes projecting from the post-supports through holes in the segments of the side-roll heads and nuts adapted to screw upon said bolts so as to draw the beveled or inclined meeting faces of the parts together.

702,103. BUILDING-TILE. EDWARD L. LATTIN, Schenectady, N. Y. Filed Jan. 22, 1902. Serial No. 80,867. (No model.)



Claim.—1. A hollow tile having its wall or walls increased in thickness near one edge to provide an inwardly-extending flange or lip reduced in thickness toward the center of the cavity of the tile.

2. A hollow tile having its wall or walls provided with an inwardly-extending flange or lip which is continuously reduced in thickness toward the center of the cavity of the tile, and of which the outer surface is flush with one of the bearing or supporting surfaces of the tile.

3. A hollow tile having its wall or walls provided, flush with one of the bearing or supporting surfaces of the tile, with an inwardly-extending flange, which is continuously reduced in thickness toward its inner edge, and with its inner surface disposed obliquely to the plane of the surface of the wall.

4. A hollow tile having its wall or walls provided near one edge with a reduced inwardly-extending flange or lip having an outer flat surface flush with the adjacent bearing or supporting surface of the tile, and having its inner surface disposed obliquely to the plane of the wall.

5. A hollow tile provided at one of its bearing or supporting surfaces with a flange extending inward from the wall of the tile, the upper and lower surfaces of the flange or web being arranged in intersecting planes.

6. A hollow tile provided adjacent to one of its bearing or supporting surfaces with a strengthening flange or lip extending inward from the wall, and also provided in one of its side walls with an exterior terminal counter-sink or recess.

702,104. OTHER-TOUCH. MYNELL LAWRENCE, Chester, Md. Filed Nov. 9, 1901. Serial No. 81,304. (No model.)

Claim.—1. In combination with the jaws or members of an other-touch, a spring to open the same, a depending trip element, connection between the latter and said members of the touch, to open the latter

against the tension of said spring, and means to act said trip element, substantially as described.



2. In combination with the jaws or members of an oyster-tong, a spring to open the same, a depending trip element disposed between said members, flexible connections between said trip element and said members, to hold the latter open against the tension of said spring, means to raise and lower the tongue, and a set screw, operated by said raising and lowering means, to act said trip element, substantially as described.

3. In combination with the jaws or members of an oyster-tong, a spring to open the same, a vertically-movable depending trip element, disposed between said members, flexible connections between said trip element and said members to hold the latter open against the tension of said spring, a nut, a set-screw therein, to act said trip element, and means to hoist and lower said tongue, said hoisting and lowering means being connected in said set-screw, and adapted to be used for rotating the latter, substantially as described.

4. In combination with the jaws or members of an oyster-tong, a spring to open the same, a vertically-movable depending trip element, disposed between said members, flexible connections between said trip element and said members to hold the latter open against the tension of said spring, a nut, a set-screw therein to act said trip element, and a pole connected to said set-screw, and adapted to be used for rotating the latter, substantially as described.

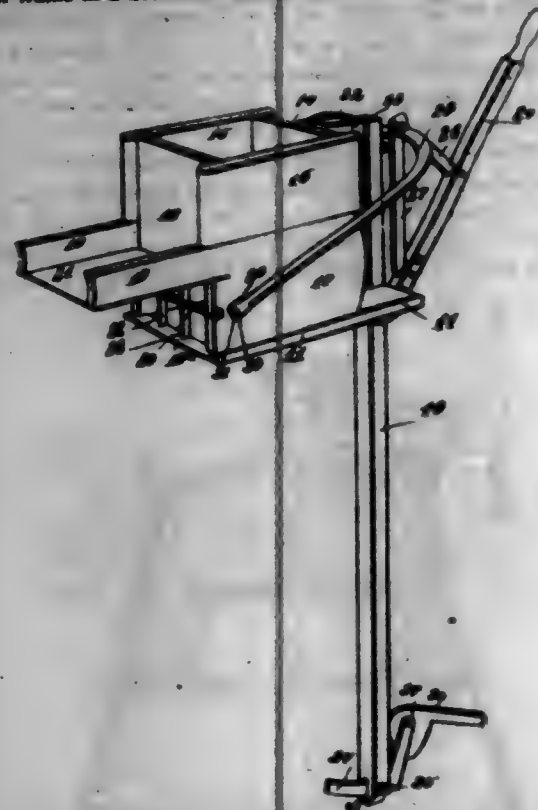
5. In combination with the members of an oyster-tong, a nut to which said members are pivotally connected, a spring to normally close said members, toggle-links, connecting said members, a trip element, carried by said toggle-links and depending therefrom, a set-screw, operating in the said nut, and coacting with said toggle-links and trip element, to open said members against the tension of said spring, and a pole to hoist and lower said tongue, said pole being connected to and adapted to be used for turning said screw, substantially as described.

702,105. CURD-CUTTER. JAMES LAMER, Drummondville, Canada, assignor to Louis Adolphe Rite, St. Germain de Grantham, Quebec, Canada. Filed Jan. 14, 1902. Serial No. 45,705. (No model.)

Claim.—1. In a curd-cutting device, in combination, an elongated vertically-extending post or standard; a platform fastened to the upper portion of said post, said platform having the bottom or strip 12; a curd-cutting mechanism mounted to reciprocate horizontally above said platform, said platform forming the bottom for said mechanism, the operating means for said mechanism being pivotally connected to said post and having a movement upwardly from and returning to a substantially horizontal position; and clamping means mounted on the lower portion of said post, said means extending forward and operating in opposition to said bottom or strip, to prevent lateral and vertical movement of the post, whereby the device may be removably clamped to the outer side of a vat, the rear end extending thereover and being unsupported.

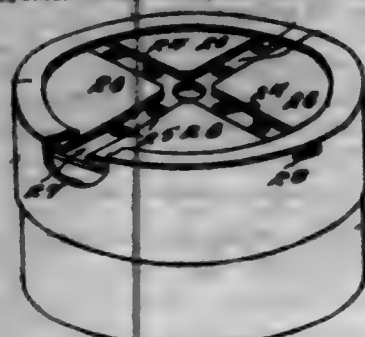
2. A curd-cutter comprising a hopper; a slidable outer-frame disposed below the hopper and provided with a valve-plate; a fixed platform below said outer-frame, extenders carried by the outer-frame and disposed below the valve-plate, the outer-frame in rear of the extenders and

below the valve-plate being cut away at the sides, whereby the space in rear of the extenders is freely accessible; and means for reciprocating said outer-frame in a horizontal direction, substantially as described.



3. A curd-cutter comprising a post or standard; a hopper secured thereto; a platform secured to the post in spaced relation to the hopper and provided with a depending portion 16; a withdrawable outer-frame slidably fitted between the platform and the hopper and provided with a valve-plate 21 arranged to travel close to the depending portion 16, said outer-frame having open sides and an open rear end below said valve-plate; a lever fulcrumed on the post and having an arm; a ball having a permanent pivotal connection with the lever-arm and arranged to straddle the post and the outer-frame and provided at its free forked ends with notches 30; and stile or plate 31 on the outer-frame, whereby the end portions of the ball are loosely and detachably connected to the outer-frame and the latter may be easily withdrawn from operative relation to the hopper, substantially as described.

702,106. VENTILATED BOX. LEONARD D. LEWIS, Adams, E. Y. Filed Jan. 14, 1902. Serial No. 45,906. (No model.)



Claim.—1. A receptacle provided at one end with a transverse channel forming a wall effect from the end face of the receptacle and provided at intervals with perforations, substantially as described.

2. A receptacle provided at one end with transverse channels having peripheral openings communicating with the same, said channels forming wall effect from the end face of the receptacle and provided at intervals with perforations, substantially as described.

3. A receptacle provided at one end with rows of perforations and having pieces arranged between the rows and forming channels extending inward from the outer edges of the receptacle, substantially as described.

4. A receptacle having its ends formed of perforated channelled plates, and provided with internal flanges engaging said plates, said receptacle having peripheral openings communicating with said channels.

5. A receptacle having perforated channels formed in its opposite ends and provided with peripheral openings communicating with said channels, and an imperforate plate disposed over one of said channelled ends.

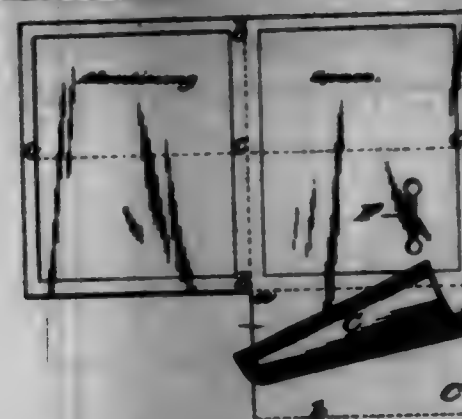
6. A receptacle having one end thereof provided with two rows of

perforations crossing each other at right angles, segments disposed between said intersecting rows of perforations, and forming channels, and an internal flange on said receptacle extending over said segments and provided with openings formed at its junctures with said receptacle, said openings communicating with said channels.

7. A receptacle having one end thereof composed of a plate having rows of perforations crossing each other at right angles, extenders disposed between said intersecting rows of perforations, and forming channels, and an imperforate plate disposed over said end and attached thereto, said receptacle having peripheral openings communicating with said channels.

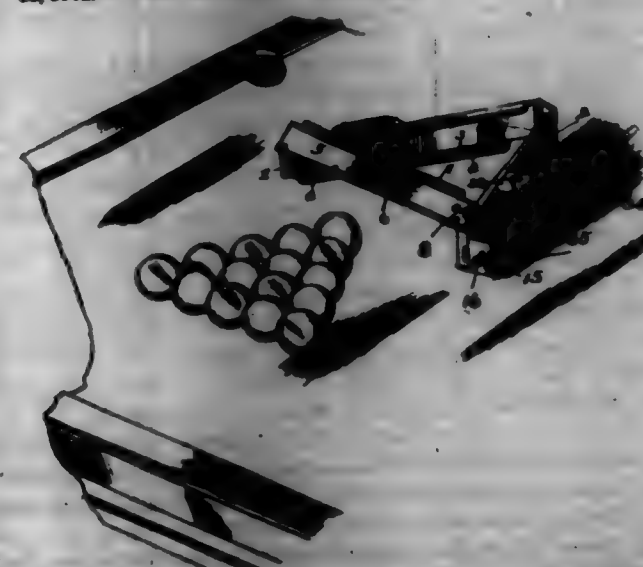
8. A receptacle having the bottom thereof formed of a perforated channelled inner plate, extenders disposed on said plate between said channels, said receptacle having a flange extending inwardly and engaging said extenders, and an imperforate plate disposed over said parts and attached thereto, and a perforated channelled cover adapted to fit over said receptacle.

702,107. HOLDER FOR THEATRE OR TRANSPORTATION TICKETS. BENJAMIN Q. LORAIN, Omaha, Neb. Filed July 4, 1902. Serial No. 45,951. (No model.)



Claim.—A ticket-holder consisting of a blank having a flap adapted to be folded over but once and secured to the blank to form therewith a pocket at one corner thereof, the said blank being provided with a slot within the outline of that portion to which the flap is secured and being further provided with space to contain advertisements and other printed matter.

702,108. COMBINED FRAME AND REGISTER FOR POOL GAMING. GEORGE E. HANDELL, Hamilton, Canada. Filed Apr. 19, 1902. Serial No. 45,778. (No model.)



Claim.—1. In a gaming apparatus of the character specified, the combination with a suitable frame of a registering device carried by the frame and co-operating with ball-releasing devices on the frame adapted to actuate the registering device when the balls are released as set forth.

2. In an apparatus substantially as described, the combination with a frame having suitable ball-releasing devices, whereby the group of balls will be held within the frame, and a co-operating registering device carried by the frame and suitable controlling means intermediate the ball-releasing devices and said register adapted to operate said register when the balls are released as set forth.

3. The combination with a suitable frame having means to confine the group of balls within the same and a registering device carried by and co-operating with the frame and means to manually release the group of balls within the frame and operate the register as set forth.

4. The combination with a suitable frame adapted to surround a group of balls and shape said group as desired, of retaining devices carried by the frame adapted to hold the balls within the frame; registering mechanism operatively connected to the retaining devices whereby said registering device will be operated when the retaining devices are controlled to release the balls as and for the purpose set forth.

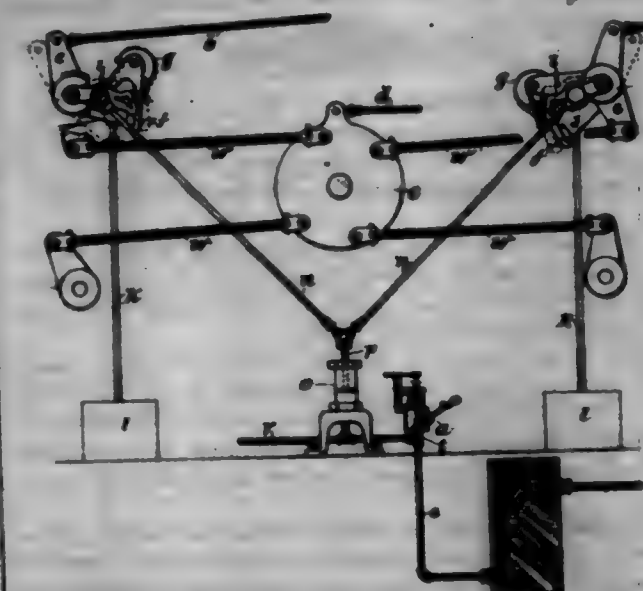
5. The combination with a ball rack or frame having one end removed, of a door pivoted to said open end and adapted to close the same; a registering mechanism attached to the frame and operatively connected to the door whereby when the door is opened the register will be operated and the balls released as and for the purpose set forth.

6. A triangle ball-rack, upper and lower flanges on the inner sides of the rack, an open side to the rack, a door hinged to said open side, a spiral spring connected to the door and to an upper flange to open the door, a casing on one side of the rack, a latch on the door to enter the casing, a push-bar, extending through the casing, bearings in the casing for the push-bar, a fulcrumed lever-hitch in the casing, a retaining-spring at the end of said lever, an arm on the push-bar to engage the lever and release the latch, substantially as described.

7. A ball rack or frame having an open side; a door hinged to said open side; a spring connected to the door adapted to hold it normally open; a catch and keeper for said door; a registering mechanism and a push-button having a bar operatively connected with said catch and keeper said with said registering mechanism whereby when the button is pushed the register will be operated and the door opened to release the balls, as and for the purpose set forth.

8. A ball rack or frame; one end of which is removed; a door hinged to said open end; inwardly-directed flanges carried by the frame and by the lower edge of said door; a registering mechanism attached to the frame and operatively connected with a door whereby when the door is opened the register will be operated and the balls released as substantially as specified and for the purpose set forth.

702,109. SHUT-OFF DEVICE FOR MOTORS. THOMAS D. HEALA, Springfield, Mass., assignor to Springfield Engine Shop Company, New York, N. Y., a Corporation of Maine. Filed July 31, 1902. Serial No. 45,922. (No model.)



Claim.—1. The combination of an engine of the "Corbin" type, with cam; arranged to throw out the grab-hooks, rods extending from the same to a device adapted to force said rods upwardly, an electrically-operated mechanism arranged to cause the rod-throwing device to act, suitable electrical conductors, one or more stations or switches, and a source of electrical energy, substantially as shown.

2. The combination of an engine provided with grab-hooks and cut-out cases adapted to throw said grab-hooks out of engagement, with a shut-off cylinder having a piston and piston-rod operatively connected with said cut-out cases, a conduit leading to a source of pressure, and an electrically-operated valve in said conduit, substantially as shown.

3. The combination of a reservoir, with a motor, shut-off mechanism comprising grab-hooks and cut-out cases adapted to throw said grab-hooks out of engagement, in operative connection with a cylinder and a piston therein, a conduit from said reservoir to said cylinder, a valve in said conduit, means to operate said valve, and a conduit from a source of pressure as steam, air, gas, or water, to the reservoir, substantially as shown.

4. The combination of a source of pressure-supply, with a reservoir, a conduit between the two, a cylinder having a piston and a piston-rod, a conduit from said reservoir to said cylinder, an electrically-controlled

valve in the last-mentioned conduit, grab-hooks for a motor, cut-out cone adapted to throw said grab-hooks out of engagement, and rod connections between said cut-out cone and said piston-rod, substantially as shown.

702,110. INSTRUMENT FOR INDICATING AND RECORDING THE SPEED OF VEHICLES. JOHN BUTT, Rochester, N. Y. Filed July 26, 1901. Serial No. 69,796. (No model.)



Claim.—In an instrument for indicating and recording the speed of vehicles, a centrifugal governor with means for attaching to vehicle and suitable gearing to operate it from a wheel of the vehicle, a slide on the governor-shaft operated by the governor, a quadrant or sector of a wheel connected to and moved by the slide, a piston geared to and driven by the quadrant, a pointer fixed to the piston-shaft and an index over which the pointer moves, a cam driven by gearing from the governor-shaft, a lever arranged to be operated by the cam in one direction and by a spring in the opposite direction, a needle at the free end of the lever, a piston having a slot for the entrance of the needle; in combination with a drum driven by a clock-movement and arranged to carry a ribbon against the piston, the lever and needle being arranged to perforate the ribbon with a straight line of holes, substantially as shown and described.

702,111. ARTIFICIAL TOOTH-CROWN. JAMES C. OSBORN, Louisville, N. C. Filed July 26, 1901. Serial No. 69,778. (No model.)



Claim.—1. An artificial tooth-crown having a longitudinal opening or cavity of square transverse contour, disposed with its greatest diameter extending from mesial to distal and from palatal to labial, and having a transverse opening piercing the palatal face of the tooth and intersecting the cavity.

2. The combination with an artificial tooth-crown having a longitudinal cavity and a transverse opening intersecting the cavity, of a crown-post extending into the cavity and having a reduced portion disposed opposite the transverse opening in the crown.

3. The combination with an artificial tooth-crown having a transverse angular longitudinal cavity and a transverse opening intersecting said cavity, of a crown-post corresponding in contour to the contour of the cavity and fitting therein to prevent the turning of the crown upon the post, and means preventing relative endwise movement of the crown and post.

4. The combination with an artificial tooth-crown provided with a longitudinal cavity having an angular transverse contour, and a transverse opening intersecting the cavity adjacent to its inner end, of a crown-post having a cross-sectional contour corresponding to the contour of the cavity and fitting therein, said post being provided with a reduced portion disposed opposite the transverse opening in the crown, and a filling surrounding the reduced portion of the post and extended into the transverse opening in the crown.

5. The combination with an artificial tooth-crown provided with a longitudinal cavity having a polygonal cross-sectional contour, and a transverse opening intersecting the cavity at its inner end, of a crown-post of polygonal cross-sectional contour fitted into the cavity in the crown and provided with a terminal head, and a filling extended under the head of the post and into the transverse opening in the crown.

6. The combination with an artificial tooth-crown having a longitudinal cavity of square cross-sectional contour, and a transverse opening intersecting the cavity adjacent to the inner end thereof, of a crown-post having a square and fitted into the cavity in the crown and provided with a reduced portion defining a head located at the end of the cavity, and a filling surrounding the reduced portion of the post below the head thereof and extended into the transverse opening in the crown, the greatest diameter of said post being disposed between the mesial and distal and between the palatal and labial walls of the crown, respectively.

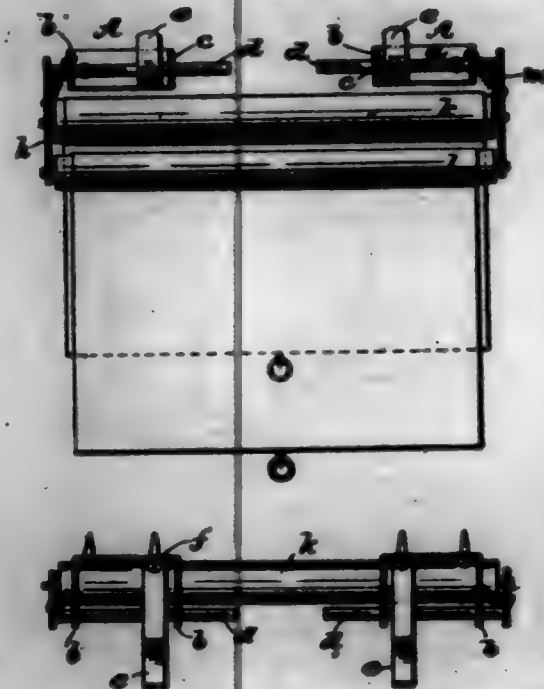
7. The combination with an artificial tooth-crown provided with a

longitudinal cavity of angular cross-sectional contour, of an angular crown-post fitted into the cavity and provided with a terminal head, and a filling extended under the head of the post to prevent detachment of the crown.

8. As a new article of manufacture, an artificial crown having a longitudinal cavity of square cross-sectional contour, and a transverse opening intersecting the cavity, the angle or corner of said cavity being disposed opposite the mesial, distal, palatal and labial sides of the crown.

9. As a new article of manufacture, a crown-post having a cylindrical screw-threaded portion at one end, a round head at its opposite end, a rounded reduced neck immediately adjacent to the head, and an angular portion extending from the neck to the cylindrical screw-threaded portion of the post.

702,112. AUTOMATIC EXTENSION SHADE-BRACKET. ALBERT H. OGDEN, Portland, R. I., assignor of one-half to Ulysses Rasmus, Providence, R. I. Filed Feb. 3, 1902. Serial No. 69,310. (No model.)



Claim.—1. As a new article of manufacture, a shade-roller-supporting device consisting of supports, rods pivotedly mounted in said supports, dotted arms fixedly attached to said rods, shade-rollers mounted in said dotted arms and means for causing the same to rest snugly against a window-frame, substantially as described.

2. As a new article of manufacture, a shade-roller-supporting device consisting of supports, rods pivotedly mounted in said supports, dotted arms fixedly attached to the outer extremities of said rods, and retractile means intermediate the dotted arms and supports.

3. As a new article of manufacture, a shade-roller-supporting device consisting of supports, rods in axial alignment loosely pivotedly mounted in said supports, arms downwardly projecting from said rods and retractile means for holding said arms in contact with the window-frame.

4. As a new article of manufacture, a shade-roller-supporting device consisting of supports, rods in axial alignment loosely pivotedly mounted in said supports, arms downwardly projecting from said rods, shade-rollers mounted in the arms, and a spring intermediate said arms and supports for holding the arms in engagement with the shade-rollers.

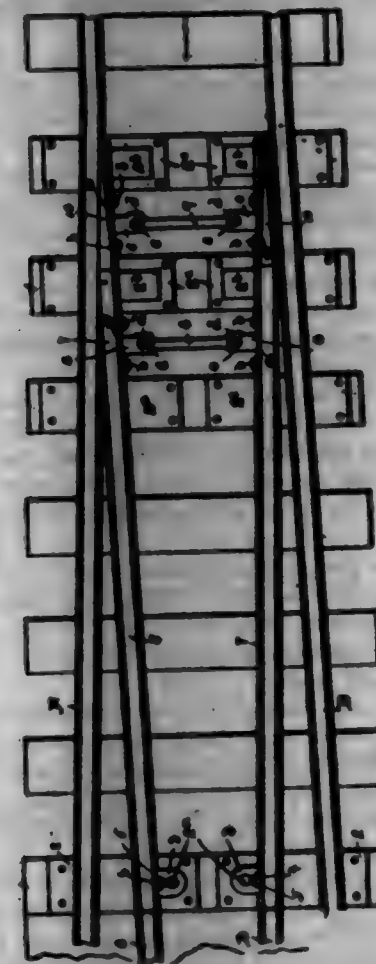
5. As a new article of manufacture, a shade-roller-supporting device consisting of supports for pivotedly-mounted rods, supports above said rods for holding a curtain-rod, pivotal rods with downwardly-projecting arms, and one or more shade-rollers mounted in said arms.

6. As an improved article of manufacture a support for shade-rollers composed of a single piece of material with perforated parallel arms and a connecting portion bent to form a channel, and a support having a depending portion held in said channel, as set forth.

702,113. RAILWAY SWITCH. LAPATINE PALMER, Matthews, Pa. Filed May 2, 1901. Serial No. 69,679. (No model.)

Claim.—The combination, with cross-ties and main rails; of the switch-sections having their bases supported on the cross-ties and provided with upwardly-inclined lower sides conforming to the bases of the main rails, and formed with extensions beyond the track throat, the points having upwardly-inclined lower sides conforming to the bases of the switch-sections and supported thereon, and slide receiving the extensions of the webs of the switch-sections and providing extensions located beneath the tread of the switch-sections the horizontal arms having vertical plates,

bolts securing the extensions and the vertical plates together and the rods connecting the horizontal arms.



702,114. SEED-TUBE FOR GRAIN-DRILLS. JOHN W. FENNELL, New City, N. Y. Filed Nov. 6, 1901. Serial No. 61,367. (No model.)

Claim.—1. In a grain-drill seed-tube of the character described, the combination with a closely-coiled-wire tube, of a downwardly-projecting cleaning portion secured to its lower end, substantially as described.

2. In a grain-drill seed-tube of the character described, the combination with a closely-coiled-wire tube, of a downwardly-projecting cleaning and guiding portion secured to its lower end, substantially as described.

3. In a grain-drill seed-tube of the character described, the combination with a closely-coiled-wire upper portion, of an openly-coiled-wire lower portion made integral with the upper portion and adapted to clean itself and the seed and also to form a guide for itself in the boot, substantially as described.

702,115. CONVERTER. HANFORD G. SHAW, Baltimore, Md. Filed Nov. 7, 1901. Serial No. 61,692. (No model.)

Claim.—1. In a converter, a cylindrical section, a continuous spiral flange arranged upon the said cylindrical section, a series of short spiral flanges of greater inclination arranged in juxtaposition to the said continuous spiral flange, a cylindrical section telescopically covering the whole, doors and an exit registering with the said flanges, substantially as shown and described.

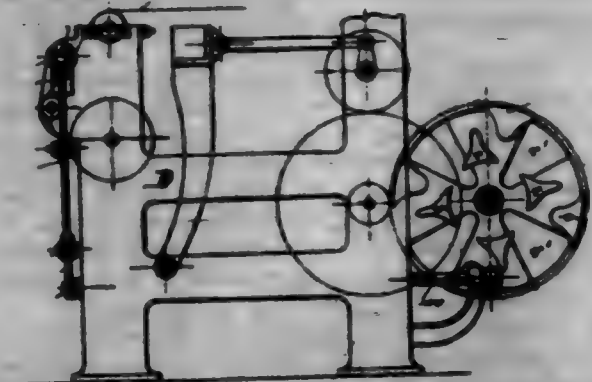
2. In a converter, a cylindrical section having a continuous spiral flange thereupon, a series of short spiral flanges of greater inclination arranged in juxtaposition to the first-mentioned flange, a cylindrical section adapted to enclose the first-mentioned cylindrical section and flanges, and being provided with doors registering with the upper ends of the short flanges and an exit registering with the lower end of the continuous flange, substantially as shown and described.

3. In a converter, a cylindrical section having a continuous spiral flange, a series of short spiral flanges arranged in juxtaposition to the said continuous flange, a cylindrical section adapted to telescopically cover the first-mentioned cylindrical section and flanges, the last-mentioned cylindrical section being provided with doors registering with the upper ends of the said short spiral flanges and an exit registering with the lower

end of the continuous spiral, and a deflector at the end of the continuous spiral flange, substantially as shown and for the purpose set forth.



702,116. FABRIC-COILING ATTACHMENT FOR LOOMS. PAUL SCHMIDT, Hildesheim, Germany. Filed Jan. 14, 1902. Serial No. 69,997. (No model.)



Claim.—1. A coiling attachment for looms consisting of a shaft carrying a coiling-blade, means for imparting a rocking movement to the shaft, and means for imparting an axially-reciprocating movement to the shaft, substantially as specified.

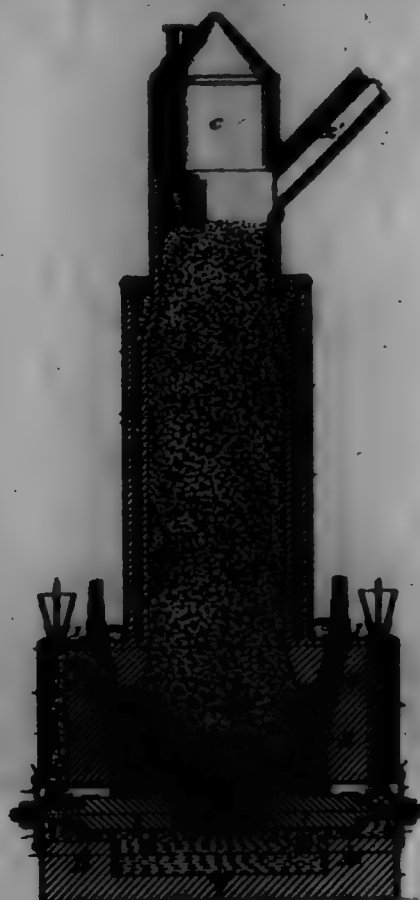
2. A coiling attachment for looms consisting of a shaft carrying a coiling-blade, a cam fitted upon the shaft, a pin engaging the cam, a power-pulley, and means for imparting an axially-reciprocating movement from said pulley to the shaft, substantially as specified.

3. A coiling attachment for looms consisting of a shaft carrying a coiling-blade, a cam fitted upon the shaft, a pin engaging the cam, a power-pulley having a cam-groove, a lever engaging the cam, a rock-shaft connected to the lever, and means for operatively connecting the rock-shaft with the shaft, substantially as specified.

702,117. ART OF PRODUCING CHEMICALS IN ELECTRIC FUEL. HAGER, EDWARD R. TAYLOR, Penn Yan, N. Y. Filed Oct. 6, 1900. Re-noved Nov. 12, 1901. Serial No. 62,699. (No specimens.)

Claim.—1. The method of producing chemicals in an electric furnace which consists in introducing a charge into the furnace, passing a suitable electric current through the charge by means of relatively permanent electrodes, continuously feeding upon each electrode and between the same and the charge fragmentary conducting material, and regulating the electric current by means of such fragmentary material.

3. The method of producing chemicals in an electric furnace which consists in introducing the ingredients of a charge into the furnace, the less fusible ingredient being introduced from above, passing a suitable electric current through the charge by means of relatively permanent electrodes, continuously feeding upon each electrode and between the same said less fusible ingredient fragmentary conducting material, and regulating the electric current by means of said fragmentary material.



5. The method of producing chemicals in an electric furnace which consists in introducing a charge into the furnace, passing a suitable electric current through the charge by means of relatively permanent electrodes and their conductors, lining in contact with each conductor fusible material on its way to the interior of the furnace, and thereby cooling each conductor.

4. The method of producing chemicals in an electric furnace which consists in introducing a charge into the working chamber, passing a suitable electric current through the charge by means of relatively permanent electrodes and their conductors, lining upon the conductors a metal-lead on its way to said chamber, and thereby cooling said conductors.

5. Is the art of producing chemicals in electric furnaces, the improvement which consists in lining in contact with the electric conductors streams of fusible material in crushed condition on its way to the interior of the furnace, and thereby cooling said conductors.

6. The method of producing chemicals in an electric furnace, which consists in gradually melting fusible material for a given reaction outside the wall of the working chamber by heat of the furnace that would otherwise be lost by radiation, and then vaporizing the same and combining it with less fusible material within each working chamber.

4. The method of producing chemicals in an electric furnace which consists in introducing a charge into the working chamber, passing a suitable electric current through the charge, gradually melting fusible material required for a given reaction within a passage or passages outside of and surrounding the wall of the working chamber by heat of the furnace that would otherwise be lost by radiation, and then combining the same in fused condition with other material within said working chamber.

8. The method of producing chemicals in an electric furnace which consists in gradually melting fusible material required for a given reaction within a passage or passages in the furnace-walls on its way to the inner part of the furnace, and then vaporizing the same, and combining it with other material within said inner part of the furnace.

9. The method of continuously producing bluish of carbon which consists in feeding carbon and sulfur separately and continuously into the working chamber of a suitable electric furnace and toward a heat zone therein, from above and below each heat zone, there passing through the charge a suitable electric current until the reaction is effected, and carrying off and condensing the CS_2 vapor.

10. The method of continuously producing bluish of carbon in an electric furnace which consists in supplying the working chamber with carbon, melting sulfur on its way to the working chamber and feeding it

into each chamber beneath the carbon up to a heat zone, there passing a suitable electric current through the charge until the sulfur is vaporized and the reaction is effected, and carrying off and condensing the CS_2 vapor.

11. In the continuous production of bluish of carbon in an electric furnace, the method which consists in making sulfur on its way to the working chamber, there feeding the same upwardly to the heat zone and vaporizing it, feeding carbon downwardly upon the melted sulfur, and passing a suitable electric current through the charge to effect the heating.

12. In the continuous production of bluish of carbon in an electric furnace, the method of introducing the carbon and sulfur and regulating the electric current which consists in feeding sulfur upwardly to the heat zone within the working chamber, there vaporizing it, feeding carbon downwardly upon the sulfur, introducing between the two conducting material in fragments, and passing the electricity through the furnace by way of said fragments.

13. In the production of bluish of carbon in an electric furnace, the method which consists in introducing carbon and sulfur into the working chamber, passing therethrough a suitable electric current, and feeding a portion of the sulfur upon the electric conductors so as to melt in contact therewith on its way to the working chamber, for the purpose of cooling said conductors.

14. In the production of chemicals within an electric furnace, the method which consists in introducing the charge, passing therethrough a suitable electric current, feeding into contact with more or less of the working surface of an electrode a non-conducting liquid, and regulating the electric current by each contact.

15. In the production of chemicals within an electric furnace, the method which consists in introducing the charge, passing therethrough a suitable electric current, and maintaining at any desired level in the furnace, with reference to an electrode, a bath of a non-conducting molten substance covering more or less of the working surface of said electrode, whereby the electric current is regulated.

16. In the production of chemicals within an electric furnace having horizontal electrodes, the method which consists in introducing the charge, passing therethrough a suitable electric current, and feeding molten sulfur upwardly more or less nearly to the top of the electrodes for the purpose of regulating the electric current.

17. In the production of chemicals within an electric furnace, the method which consists in feeding a fusible ingredient of the charge to the heat zone from beneath upwardly, feeding a less fusible ingredient downwardly to the heat zone, there passing through the charge a suitable electric current, and changing the path of the electric current through the furnace from time to time to turn out any piece of said less fusible ingredient that may prevent its regular descent, and to prevent the formation of such piece.

702,118. ELEVATOR OR STORAGE-HOUSE CONSTRUCTION. SENECA H. THOMAS, Minneapolis, Minn. Filed Mar. 22, 1901. Renewed Jan. 31, 1902. Serial No. 52,973. (No model.)

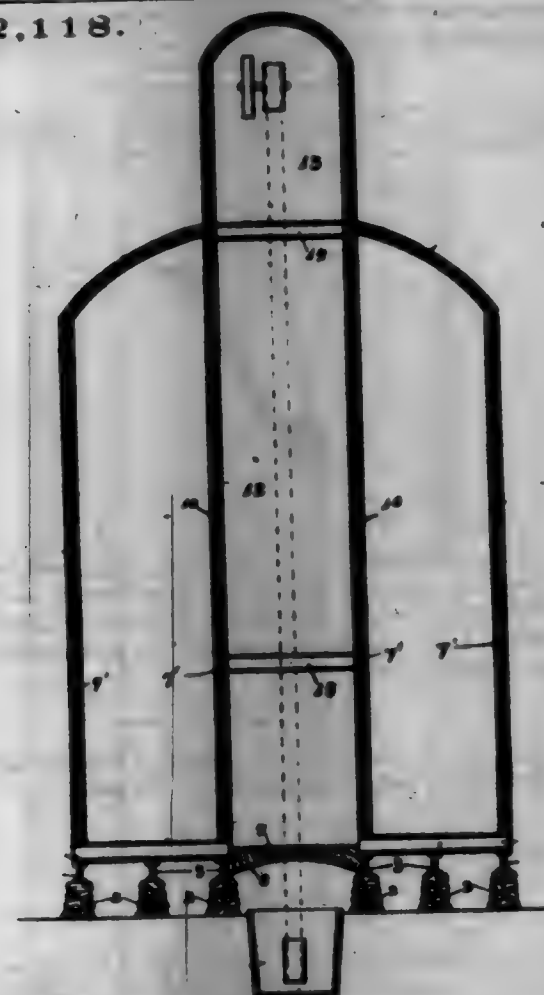
Claim.—1. An elevator or storage-bin having each of its walls in the form of an arch that lies in a substantially vertical plane with its convex surface on the inside of the bin, suitable upright columns or pilasters at the ends of each arch, each column or pilaster forming a support horizontally for two or more arches, and tie-rods anchored in said columns at intervals between the top and bottom of each arch and rigidly connecting its ends, substantially as described.

2. An elevator or storage-bin rectangular in form having each of its walls in the form of an arch that lies in a substantially vertical plane with its convex surface on the inside of the bin, suitable upright columns or pilasters at the ends of each arch, each column or pilaster forming a support horizontally for arches at right angles to each other, and tie-rods anchored in said columns at intervals between the top and bottom of each arch and rigidly connecting its ends, substantially as described.

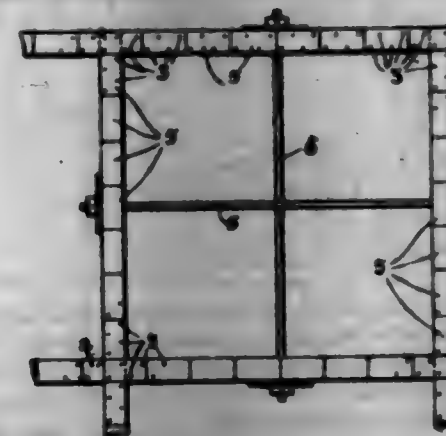
3. A series of abutting storage-bins substantially square in cross-section, each bin having its walls in the form of an arch that lies in a substantially vertical plane with its convex surface on the inside of the bin, the ends of each arch meeting the ends of the arches forming the abutting walls of the same bin and also meeting the corresponding ends of the oppositely-curved arch of the adjacent bin and each arch forming a complete wall of the bin, upright columns or pilasters provided at the corners and intersecting the meeting ends of said arches, and tie-rods anchored in said columns and extending between the opposite arches at intervals between the top and bottom of the same and rigidly connecting their ends, substantially as described.

4. An elevator or storage-bin having each of its walls in the form of an arch that lies in a substantially vertical plane with its convex surface on the inside of the bin, suitable upright columns at the ends of each arch and forming supports horizontally therefor, and means connecting said columns and binding or tying the arches together.

702,118.



702,119. BRICK FOR STORAGE-BIN CONSTRUCTION. SENECA H. THOMAS, Minneapolis, Minn. Filed June 17, 1901. Serial No. 54,906. (No model.)



Claim.—1. A series of grain-bins having walls intersecting each other substantially at right angles and composed of blocks laid in courses one upon the other with a suitable binding material between them, the length of the blocks intermediate to the intersections of the walls being with respect to their width in the ratio of two to one, and those at the intersections in the ratio of three to one to permit the blocks of the intersecting walls to be tied thereto and said intermediate and intersection blocks having a series of small holes or perforations regularly arranged therein, the holes in the blocks of one course registering with those in the blocks of the adjacent course, and dove-tail pins fitting into said holes to bind the intermediate blocks together and to the projecting ends of the longer blocks at the intersections of the walls, and a suitable filling material with which the holes in said blocks are filled and wherein the pins are firmly embedded and the courses bound together.

2. A grain-bin having its walls intersecting each other substantially at right angles and composed of blocks laid in courses one upon the other with a suitable binding material between them, each block having a series of holes or perforations arranged in groups, the holes of one group in a block being adapted to register with those in the abutting block of the adjacent course, the blocks at the intersections of the walls being longer than those intermediate to the intersections, the ends of said intersection-blocks projecting beyond the cross-walls, dove-tail pins fitting into said holes to bind the intermediate blocks together and to the projecting ends of the longer blocks at the intersections of the walls, a suitable filling material with which the holes in said blocks are filled and wherein the pins are firmly embedded and the courses bound together.

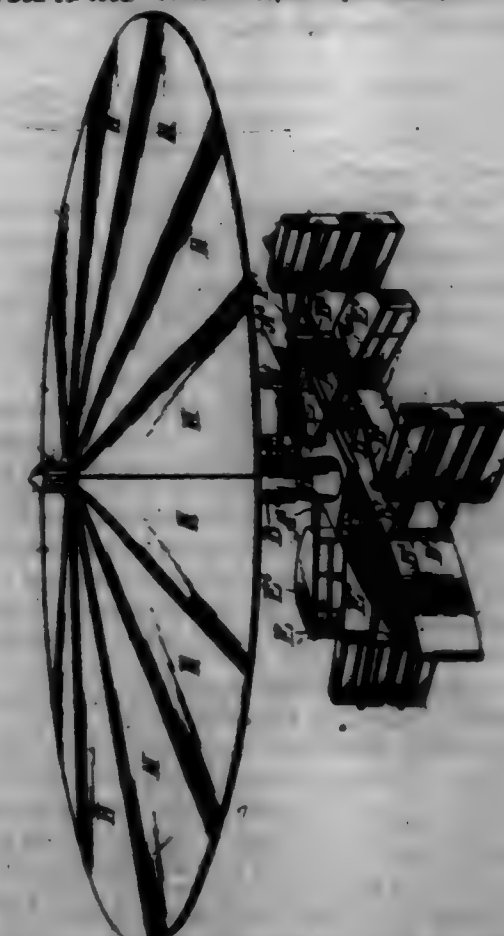
firmly embedded and the courses and walls bound together, and tie-rods connecting the opposite walls and preventing the same from being pressed or bulged outward by the contents of the bin.

3. A bin having double walls with a space between them, each wall being composed of bricks or blocks that are each provided with a series of small holes or perforations those of each brick coinciding with the corresponding holes in the bricks of the adjacent course, cross-bricks having their ends inserted between the courses at intervals from the top to the bottom of the bin and bridging the space between the walls, each cross-brick having holes registering with the corresponding holes in the bricks abutting thereon, dove-tail pins fitting the holes in said cross and abutting bricks and binding or tying the courses of abutting and cross bricks, and a filling material for said holes wherein said pins are embedded and firmly held and the walls and courses securely tied together, substantially as described.

4. A series of grain-bins having walls intersecting each other substantially at right angles and composed of blocks laid in courses one upon the other with a suitable binding material between them, the length of the blocks at the intersections of the walls being longer than those intermediate to the intersections to permit the blocks of the intersecting walls to be tied to them at the intersections and said intermediate and intersecting blocks having a series of small holes or perforations arranged therein, the holes in the blocks of one course registering with those of the blocks in the adjacent course, and dove-tail pins fitting into said holes to bind the intermediate blocks together and to the projecting ends of the longer blocks at the intersections of the walls, and a suitable filling material with which the holes in said blocks are filled and wherein the pins are firmly embedded and the courses bound together.

5. A grain-bin having its walls intersecting each other substantially at right angles and composed of blocks laid in courses one upon the other with a suitable binding material between them, each block having a series of holes or perforations arranged in groups, the holes of one group in the block being adapted to register with those of the abutting block in the adjacent course, the blocks at the intersections of the walls being longer than those intermediate to the intersections, the ends of said intersection-blocks projecting beyond the cross-walls, dove-tail pins fitting into said holes to bind the intermediate blocks together, and to the projecting ends of the longer blocks at the intersections of the walls, a suitable filling material with which the holes in said blocks are filled and wherein the pins are firmly embedded and the courses and walls bound together, and means for tying the walls together and preventing the same from being pressed or bulged outward by the contents of the bin.

702,120. AIR-SHIP. HARVEY E. VAN VOORSE, FRANKFURT, Pr. Filed Dec. 11, 1901. Serial No. 55,453. (No model.)



Claim.—1. In an air-ship, a car, ceilinging wings secured in the side thereof in different horizontal planes, and means for moving said

wings in parallel horizontal planes and alternately in opposite directions; substantially as specified.

2. In an air-ship, a car, oscillating wings secured to the sides thereof in different horizontal planes, means for moving said wings in parallel horizontal planes and alternately in opposite directions, and wings pivotally mounted at one end to rotate in a vertical plane at each side of said car; substantially as specified.

3. In an air-ship, a car, oscillating wings secured to the sides thereof in different horizontal planes, means for moving said wings in parallel horizontal planes and alternately in opposite directions, wings pivotally mounted at one end to rotate in a vertical plane at each side of said car, and blades at the rear of the car connected to oscillate laterally toward and from each other in unison with said oscillating wings; substantially as specified.

4. In an air-ship, a car, oscillating wings secured to the sides thereof in different horizontal planes, means for moving said wings in parallel horizontal planes and alternately in opposite directions, wings pivotally mounted at one end to rotate in a vertical plane at each side of said car, blades at the rear of the car adapted to oscillate laterally toward and from each other, a balloon for supporting said car, and driving means at each side of the car for connecting said wings and blades and operating them alternately; substantially as specified.

5. In an air-ship, a car, oscillating wings mounted in a vertical plane at opposite sides thereof and at the front and rear, a driving-shaft and connections for operating said wings in unison, oscillating wings in the same vertical plane as said first-mentioned wings and in a different horizontal plane, and means for oscillating said wings alternately in opposite directions in the first-mentioned wings; substantially as specified.

6. In an air-ship, a car, oscillating wings mounted in a vertical plane at opposite sides thereof and at the front and rear, a driving-shaft and connections for operating said wings in unison, oscillating wings in the same vertical plane as said first-mentioned wings, and in a different horizontal plane, means for oscillating said wings alternately in opposite directions to the first-mentioned wings, a rotating wing having an arm pivoted at one end to said car, and a crank-arm from said driving-shaft connected to said rotating wing for actuating the same in a vertical plane, substantially as specified.

7. In an air-ship, a car, a rotary propelling-wing pivoted thereto at one end and provided with overlapping slots, a solid top section to said wing, and means beyond its pivoted connection for rotating said wing in a vertical plane; substantially as specified.

8. In an air-ship, a circular balloon formed of a series of segmental sections disposed with their edges together, and means for introducing buoyant fluid into said sections; substantially as specified.

9. In an air-ship, a balloon, a filling-stack for supporting the same having inlet and outlet openings communicating with said balloon in different planes, and a valve at the upper end of said stack; substantially as specified.

10. In an air-ship, a circular balloon formed of a series of sections substantially V-shaped in vertical section, disposed with their edges together and a filling-stack having openings communicating with each section; substantially as specified.

11. In an air-ship, a car, a supporting-balloon therefor, independent wings disposed in a vertical plane at each end of said car on opposite sides thereof, a driving-shaft provided with a crank-arm, a pivoted lever upon said car, a connection between said crank-arm, lever, and one set of said wings, a connection between the opposite end of said lever and another set of said wings to oscillate the wings alternately in opposite directions; substantially as specified.

12. In an air-ship, a car, a supporting-balloon therefor, independent wings disposed in a vertical plane at each end of said car on opposite sides thereof, a driving-shaft provided with a crank-arm, a pivoted lever upon said car, a connection between said crank-arm, lever and one set of said wings, a connection between the opposite end of said lever and another set of said wings to oscillate the wings alternately in opposite directions, a standard carried by the connection from said crank-arm, a rotating wing having a pivoted support upon said standard and a pivoted connection at its inner end to the car, and a top section to said wing; substantially as specified.

13. In an air-ship, a car, a supporting-balloon therefor, independent wings disposed in a vertical plane at each end of said car on opposite sides thereof, a driving-shaft provided with a crank-arm, a pivoted lever upon said car, a connection between said crank-arm, lever and one set of said wings, a connection between the opposite end of said lever and another set of said wings to oscillate the wings alternately in opposite directions, a standard carried by the connection from said crank-arm, a rotating wing having a pivoted support upon said standard and a pivoted connection at its inner end to the car, a top section to said wing, opposite blades pivoted at the rear of said car and adapted to move toward and from each other in the movement of the wings, a rubber for guiding said

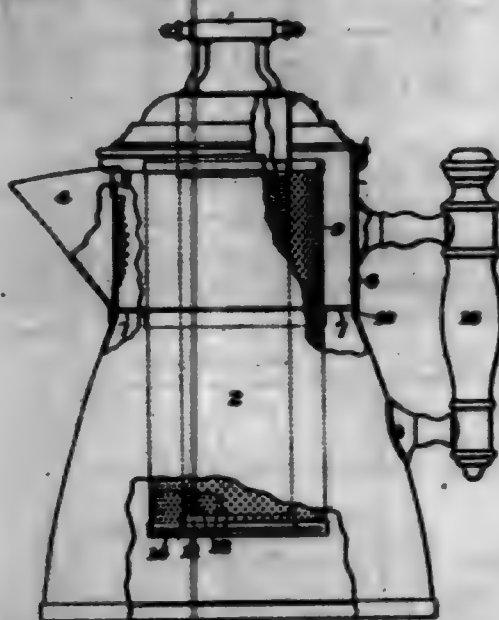
car, and means for driving the wings and blades upon either side of the car independently of the other side; substantially as specified.

702,181. FOOT-STRAP FOR DRAWERS. MARGARET D. WILSON, Portsmouth, Va. Filed Feb. 27, 1902. Serial No. 95,990. (No model.)



Claim.—The herein-described foot-strap to hold down drawers-legs, comprising a flexible strap having a pin whose frame is secured to one end of said strap; and a heel secured to the frame of said pin, there being provided holes in the other end of said strap to receive said heel, as and for the purpose set forth.

702,122. COFFEE-POT. CHARLES E. REIMER, Portsmouth, Pa. Filed Jan. 22, 1902. Serial No. 95,990. (No model.)



Claim.—1. A coffee-pot having its sides provided with intermediate inward projections, a cylindrical percolator supported upon said projections, said percolator having perforated sides and a closed bottom supported above the bottom of the pot, and a removable perforated metallic cylinder with an open top, within the percolator-cylinder and forming an annular space between the two cylinders substantially as described.

2. A coffee-pot having inward projections and a percolator supported on said projections and having perforated sides and a closed bottom above the bottom of the pot, an open-topped perforated cylinder of smaller diameter within the percolator-cylinder and extending to its bottom, and a centering device for holding the inner cylinder centrally within the percolator; substantially as described.

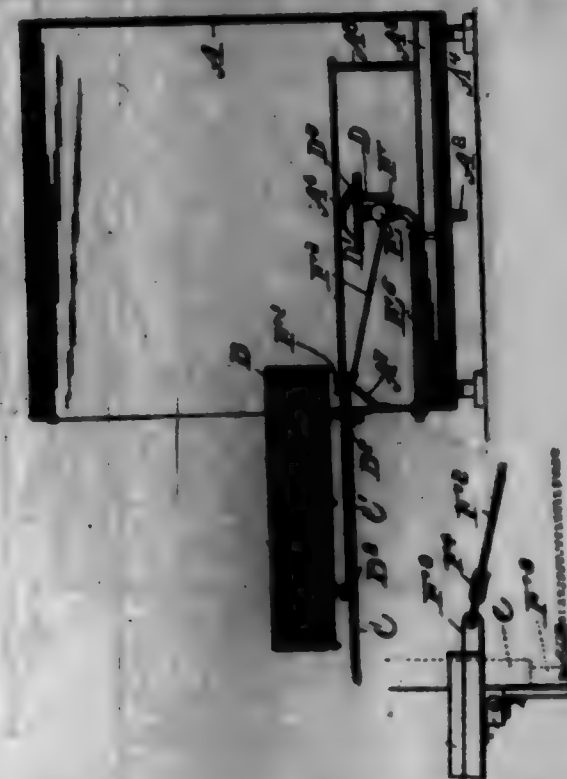
3. A coffee-pot having a percolator with a cylindrical perforated shell and a closed bottom, the percolator being supported within the pot with its bottom above the bottom of the pot, an inner removable perforated shell of smaller diameter than the percolator, and an outwardly-projecting flange at the bottom of the inner shell fitting upon the closed bottom of the percolator; substantially as described.

4. A coffee-pot having an upper cylindrical portion with inward projections at its lower end, a spout in said cylindrical portion, a cover having a reversible shell fitting within the cylindrical part of the coffee-pot and having a perforated side portion, and a percolator having a flange resting on the inward projections, the shell being arranged to hold the flange down upon said projections; substantially as described.

5. A coffee-pot having an upper cylindrical portion with an inward head at its lower end, a spout in the cylindrical portion, a percolator having projections resting on the head and supporting the percolator above the bottom of the pot, said percolator having perforated sides and a closed bottom, an inner perforated cylinder within the percolator having an annular space between the two, and a cover having a perforated reversible

shell within the upper cylindrical portion of the pot; substantially as described.

702,123. TOBACCO-STEAMER. CHARLES M. ARNOLD, Naperville, Ky. Filed Apr. 5, 1902. Serial No. 161,565. (No model.)



Claim.—1. In a tobacco-steamer, a casing provided with a door, a basket therein, a steaming device within said casing provided with a valve, and a connection between said valve and door for operating the former; substantially as specified.

2. In a tobacco-steamer, a casing provided with a door, a basket therein, a steaming device within said casing provided with a valve, a connection between said valve and door for operating the former, a track within said casing above said steaming device, and a track-section upon said door in alignment with the track of the casing; substantially as specified.

3. In a tobacco-steamer, a casing provided with a door, a basket therein, a steaming device within said casing provided with a valve, a connection between said valve and door for operating the former, a track within said casing above said steaming device, a track-section upon said door in alignment with the track of the casing, an angular apex to said casing, and a guarded drain connection at the lower portion of said casing; substantially as specified.

4. In a tobacco-steamer, a casing having a circular outline at its lower portion merged into an angular apex, at the upper central portion thereof, a door to said casing, a basket within the casing, and a steaming device therein; substantially as specified.

5. In a tobacco-steamer, a casing having a circular outline at its lower portion merged into an angular apex, a door to said casing, a basket within the casing, a steaming device therein, a drain connection at the base of said casing, an inclined guard-plate above said drain, and a curved outlet at the edge of said guard-plate; substantially as specified.

6. In a tobacco-steamer, the combination with a casing, of the tobacco-receptacle supported therein, a steaming device comprising a valve, a steam connection communicating therewith, a plate at the outlet side of said valve, and a disk vertically movable toward and from said plate; substantially as specified.

7. In a tobacco-steamer, the combination with a casing, of the tobacco-receptacle supported therein, a steaming device comprising a valve, a steam connection communicating therewith, a plate at the outlet side of said valve, a disk resting on said plate, a steam-chamber formed centrally of said disk, hinges to limit the vertical movement of the disk; substantially as specified.

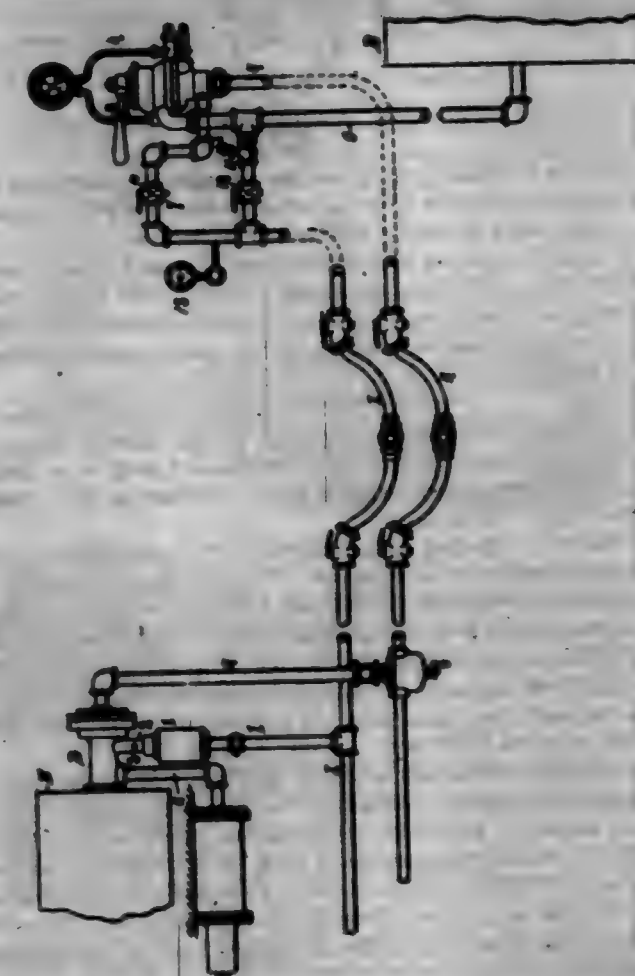
8. In a tobacco-steamer, the combination with a casing, of a tobacco-receptacle supported therein, a steaming device comprising a valve, a steam connection communicating therewith, a plate at the outlet side of said valve, a disk resting on said plate, a steam-chamber formed centrally of said disk, hinges to limit the vertical movement of the disk, a pivoted door for said casing provided with a lever-arm, and a connection therefrom to said valve; substantially as specified.

9. In a tobacco-steamer, the combination with a casing, of a receptacle supported therein, a steaming device comprising a valve, a steam connection communicating therewith, a plate at the outlet side of said

valve, a disk resting on said plate, a steam-chamber formed centrally of said disk, hinges to limit the vertical movement of the disk, a pivoted door for said casing provided with a lever-arm, a lever pivoted to the under face of said plate and bearing upon a stem from said valve, and a pivotal connection between the free end of said lever and the lever-arm from said door; substantially as specified.

10. In a tobacco-steamer, a casing provided with a door-opening, a door for said opening, having an end portion extending within said casing, legs secured to the outside of said casing, pivoting-legs secured to said door, a pivoting-rod extending through said legs, and a coiled spring disposed upon said rod for automatically closing said door into a vertical position; substantially as specified.

702,124. FLUID-PRESSURE BRAKE APPARATUS. NATHAN J. BURTON, New Decatur, Ala., assignor of one-half to William F. Thomas, Birmingham, Ala. Filed May 2, 1901. Serial No. 95,990. (No model.)



Claim.—1. In a fluid-pressure brake apparatus, a triple valve having an exhaust-port 3 that discharges into the outer air, in combination with a spring-pressed retaining-valve to close said port, said retaining-valve normally opening said exhaust-port, and fluid-pressure connections to operate said retaining-valve and cause the same to close said exhaust-port when the brakes are set; substantially as described.

2. In a fluid-pressure brake apparatus, the combination with a triple valve having an exhaust-port 3 that discharges into the outer air, of a spring-pressed retaining-valve to close said port, an engineer's brake-valve, a train-pipe line between said triple valve and said engineer's brake-valve, a train-pipe line between the main train-pipe exhaust-port of the engineer's brake-valve and said retaining-valve, whereby the latter can be operated by the exhaust from the engineer's valve, and a three-way cock in said retaining-valve pipe-line; substantially as described.

3. In a fluid-pressure brake apparatus, the combination of a triple valve having an exhaust-port 3, a fluid-pressure operated retaining-valve to close said port, said valve being normally open, an engineer's brake-valve, a train-pipe line between said valve and the triple valve, a train-pipe line between said retaining-valve and the main train-pipe exhaust-port of the engineer's valve, a three-way cock in said retaining-valve pipe-line, and a connection, including a cut-off valve, between said retaining-valve pipe-line and the main air-reservoir; substantially as described.

4. In a fluid-pressure brake apparatus, the combination of a triple valve having an exhaust-port 3 that discharges into the outer air, a normally open fluid-pressure operated retaining-valve to close said exhaust-port, a train-pipe line leading from said triple valve, a train-pipe line communicating with said retaining-valve, to operate and close the same, means to exhaust from said retaining-valve pipe-line and means to diffuse

exhaust from the brake-line, to operate said retaining-valve, substantially as described.

702,195. MANUFACTURE OF HEST TUBES. JAMES F. BOW-
LER, Detroit, Mich. Filed Jan. 4, 1901. Serial No. 48,894. (No model.)



Claim.—1. A hest tube made in two symmetrical parts joined together edge to edge, bound by hoops at their ends and united along their long meeting edges by hosing, substantially as described.
2. A tube constructed of symmetrical parts shaped to produce when assembled the complete tube, and having the ends bound by rings, said tube having the various parts united together and the surface covered with hosing material by being dipped in the molten hosing material, substantially as described.

702,196. PROCESS OF MAKING ALPHA-IONONE. PHILIPPE
CHERT and FRANK BACHMANN, Geneva, Switzerland, assignors to Chert,
Neef & Co., Geneva, Switzerland, a Firm. Filed Sept. 25, 1901. Serial
No. 78,898. (No specimens.)

Claim.—1. The herein-described process of producing alpha-ionone, consisting in reacting on pseudo-ionone with cyropy phosphoric acid at a low temperature, treating the product with a solution of sodium in the presence of ammonium chloride, adding sodium chloride and precipitating quantitatively from the thus-obtained mixture the sodium salt of the hydrocarbon acid of the alpha-ionone, and decomposing the same by suitable methods to yield alpha-ionone in a pure and entirely colorless form, substantially as described and for the purpose specified.

2. The herein-described process of producing alpha-ionone from a mixture of cyclo-isomers consisting in treating the acid mixture with a solution of sodium in the presence of ammonium chloride, adding sodium chloride and precipitating quantitatively from the thus-obtained mixture the sodium salt of the hydrocarbon acid of the alpha-ionone, and decomposing the same by suitable methods to yield alpha-ionone in a pure and entirely colorless form, substantially as described and for the purpose specified.

702,197. GRAIN-DRYER. JOHN F. CONNELL, Indianapolis, Ind.
Filed July 21, 1901. Serial No. 78,404. (No model.)

Claim.—1. In a grain-dryer, a drying-cylinder formed of cylindrical sections having an outside and an inside wall with a chamber between them, and means for securing said sections adjacent to each other to form the cylinder.

2. In a grain-dryer, a drying-cylinder formed of cylindrical sections with an independent annular steam-chamber in each section, and means for securing said sections adjacent each other to form the cylinder.

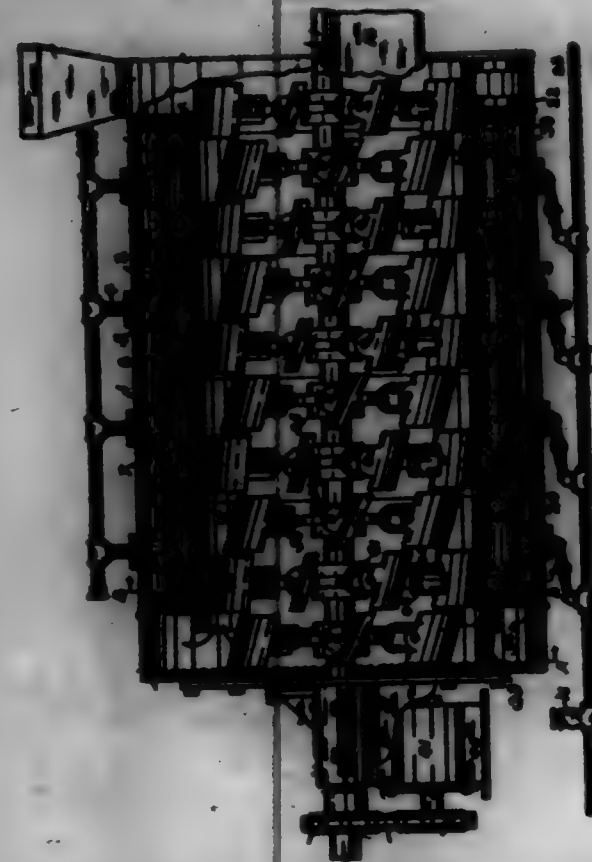
3. In a grain-dryer, a drying-cylinder formed of cylindrical sections with an independent annular steam-chamber in each section, means for introducing steam into the upper portion of each steam-chamber, and means leading from the lower portion of each chamber for draining the same.

4. In a grain-dryer, a drying-cylinder formed of cylindrical sections with an independent annular steam-chamber in each section, a valve-controlled steam-pipe, pipes therefrom to supply the steam-chamber in each section, a valve-controlled drainage-pipe, and a pipe leading therefrom from the lower portion of each of said steam-chambers.

5. In a grain-dryer, a drying-cylinder composed of a number of sections, a supporting-flange on each side of each section, a pair of horizontal bars, and means for securing the flanges of said sections to the bars, whereby the sections will be supported between the bars tightly against each other to form a cylinder.

6. In a grain-dryer, a drying-cylinder formed of sections with an annular steam-chamber in each section, the edge of one section overlapping a portion of the edge of the adjacent section, and means for secur-

ing them together in each position, whereby a closed drying-cylinder is formed.



7. In a grain-dryer, a heating-cylinder formed of sections, an annular steam-chamber in each section and having outward extensions from its periphery, a casing surrounding said sections, means for securing said casing to the extensions from the sections of the heating-cylinder, openings in the casing at one end for the admission of air between the casing and the cylinder, and a passage-way from the space between said casing and cylinder to the interior of the cylinder.

8. In a grain-dryer, a heating-cylinder formed of sections with an annular steam-chamber in each section and said sections having on each side a laterally-extending flange, a pair of bars one on each side of said cylinder, a conical casing surrounding the under side of the cylinder with its edges turned laterally and resting upon said bars beneath the flanges from the sections of the cylinder, a conical casing surrounding the upper portion of the cylinder with its edges turned laterally and resting upon the flanges from the sections of the cylinder, and means for securing the edges of the parts of the casing and the flanges of the sections of the cylinder and the supporting-bars together.

9. In a grain-dryer, cylindrical end frames mounted on suitable supports, supporting-bars extending between and secured to said end frames, one along each side of the machine, a drying-cylinder formed of sections with a laterally-extending flange on each side, and means for securing the flanges of said sections to the supporting side bars of the machine.

10. In a grain-dryer, a drying-chamber surrounded by a steam-heating chamber, an air-heating chamber surrounding the steam-heating chamber, means near the middle of the machine for withdrawing the air from the drying-chamber, and a passage-way at each end of the machine from the air-heating chamber into the drying-chamber.

11. In a grain-dryer, lighting means consisting of a shaft with a number of hubs secured thereto with radiating arms having a cover cap, a light-bulb with a screw cap fitting against said rotary arms and transversely clotted, and a bolt extending from said arms through the clotted shaft of the light-bulb, whereby the position of the bulb may be adjusted.

702,198. DEVICE FOR PERFORATING WELL-CAVITIES. THOMAS
E. CLARK, Vienna, Cal. Filed June 7, 1901. Serial No. 65,864. (No model.)

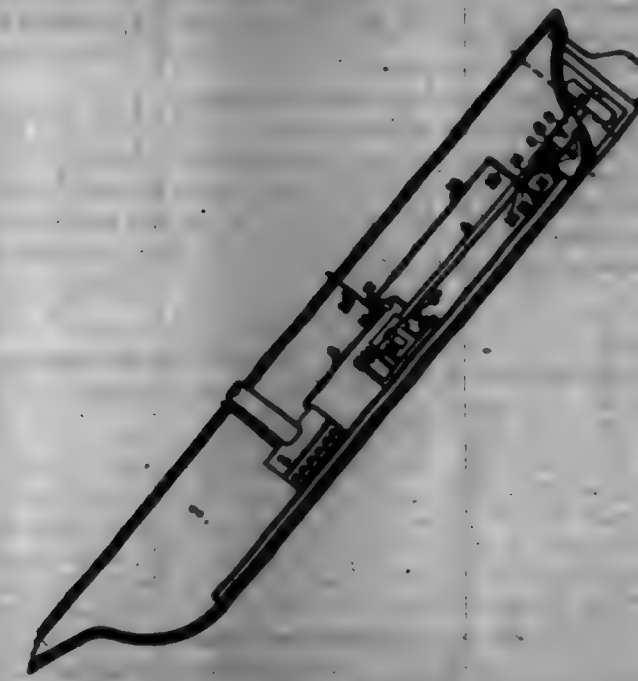
Claim.—1. In a device of the class described, the combination with the casing having an upper internally-threaded end, and a perforating mechanism including an expander having a shaft passed outwardly through the upper end of the casing, of a two-part guide-collar disposed slidably upon the shaft and having a lower threaded end for engagement with the threads of the casing.

2. In a device of the class described, the combination with the casing having the upper internally-threaded end, and a perforating mechanism including a shaft passed outwardly through the threaded end of the casing and movable throughout, of a collar having a lower threaded

end for engagement with the threads of the casing and having a central longitudinal bore in which the shaft is slidably received, the collar comprising two sections divided in a plane including the axis of the bore, said sections having laterally-extending flanges and clamping-bolts engaged with the flanges to hold the sections together.



702,199. CONTROLLER FOR PROPELLERS. WILLIAM COOPER,
Denver, Colo. Filed Apr. 27, 1901. Serial No. 57,006. (No model.)



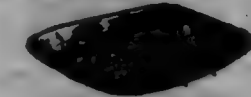
Claim.—1. In steam-driven vessels, the combination of a propeller; a horizontal cylinder in the hull of said vessel open to its full diameter to the sea at a point in the stern of said vessel adjacent to said propeller; a piston reciprocating in said cylinder and acted upon in one direction by sea-pressure and in the other direction by mechanical means; bellows; propelling-engines; a steam-line connecting said bellows and said propelling-engines; an exhaust-valve in said steam-line operated by said piston.

2. In steam-driven vessels, the combination of a propeller; a horizontal cylinder in the hull of said vessel open to its full diameter to the sea at a point in the stern of said vessel adjacent to said propeller; a piston reciprocating in said cylinder and acted upon in one direction by sea-pressure and in the other direction by mechanical means; bellows; propelling-engines; a steam-line connecting said bellows and said engines; a valve in said steam-line; an exhaust on said steam-line between the bellows and said valve and coupled with said valve, and means whereby said valve is operated by the movement of said piston in said cylinder.

3. In steam-propelled vessels, the combination of a propeller; a hori-

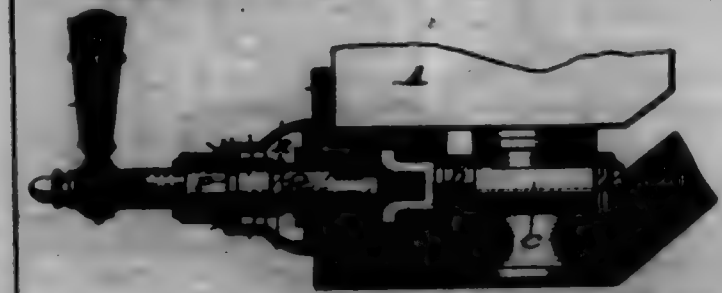
zontal cylinder in the hull of said vessel open to its full diameter to the sea at a point in the stern of said vessel adjacent to said propeller; a piston reciprocating in said cylinder and acted upon in one direction by sea-pressure and in the other direction by mechanical means; bellows; propelling-engines; a steam-line connecting said bellows and propelling-engines; a valve controlled by the reciprocation of said piston in said cylinder, and means for reducing the pressure in said steam-line between said bellows and said valve when said valve is closed.

702,180. MANUFACTURED TOBACCO. WILLIAM A. FOSTER,
South Boston, Va. Filed Feb. 15, 1902. Serial No. 54,251. (No model.)



Claim.—A sweetened or flavored leaf of tobacco, partly stemmed, and folded upon itself, having the blade ends locked between the folds, unwrapped, as a finished manufactured article.

702,181. SYRUP-COOK FOR SODA-WATER FOUNTAINS. ROBERT
H. GREEN, JR., Philadelphia, Pa., assignor to Robert H. Green &
Sons, Philadelphia, Pa., a Firm. Filed Feb. 25, 1901. Serial No. 44,782.
(No model.)



Claim.—1. In a soda-water fountain, a syrup-cook having a rotary stem formed in sections with means for detachably engaging one with the other, a cap on the fountain in which the handle-section is mounted and shiftable, and a resilient clamp in said cap, said clamp having on the circumference thereof differently-disposed shoulders with either of which said clamp may engage respectively in the in and out position of the section.

2. In a soda-water fountain, a syrup-cook having a rotary stem formed in sections, the handle-section being shiftable in and out, a cap on the fountain in which said section is mounted, differently-disposed shoulders on said handle-section, and a resilient clamp in said cap adapted to bear freely against either of said shoulders respectively in the in and out positions of the section and during the rotation of the latter.

3. In a soda-water fountain, a syrup-cook having a rotary stem formed in sections, with means for detachably connecting the same, a cap on the fountain in which the handle-section is mounted, differently-disposed shoulders on the periphery of said handle-section, and resilient clamps in said cap adapted to freely engage with either of said shoulders relatively to the in and out position of said section and during the rotation of the latter.

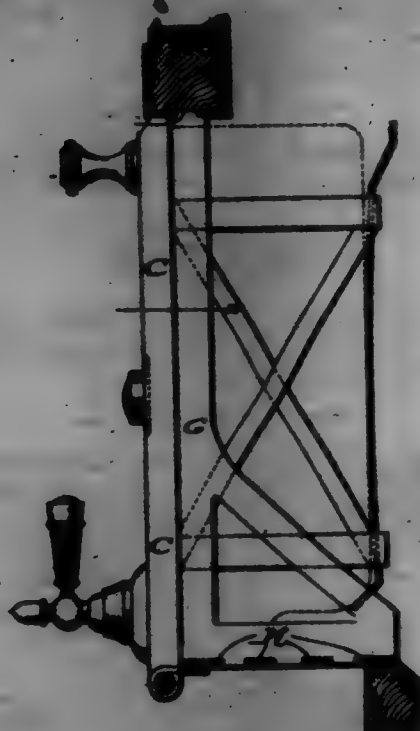
4. In a soda-water fountain, a syrup-cook having a rotary stem formed in sections with means for detachably connecting the same, the handle-section thereof being shiftable in and out and having differently-disposed shoulders circumferentially thereon, a cap on the fountain on which said sections are mounted, and a resilient clamp in said cap adapted to freely engage with either of said shoulders while said section is at rest and during the rotation of the same.

5. A syrup-cook having a stem formed in sections, the outer or handle section being shiftable in and out, a cap in which said section is mounted, the interior of the same having a shoulder thereon, and a clamping device within said cap adapted to engage said section, said device having a flange which abuts against said shoulder, and a ring connected with said cap and bearing against said flange.

6. In a soda-water fountain, a syrup-cook having a rotary stem formed in sections with means for detachably engaging and disengaging one with and from the other, a cap on the fountain in which the handle-section is mounted and shiftable, differently-disposed seats on the periphery of said section, and a tongue-shaped device secured to said cap and freely controlling said handle-section and adapted to engage respectively with said seats relatively to the in and out position of the section and during the rotation of the same.

702,182. SODA-WATER APPARATUS. ROBERT H. GREEN, JR.,
Philadelphia, Pa., assignor to Robert H. Green & Sons, Philadelphia,
Pa., a Firm. Filed Feb. 25, 1901. Serial No. 44,784. (No model.)

Claim.—1. In a soda-water apparatus, having an opening to permit access to the syrup-tank, a face-plate or door for said opening with a side or edge thereof of two or more thicknesses of metal folded on themselves, and means for connecting the axis of said plate or door with the folded side.



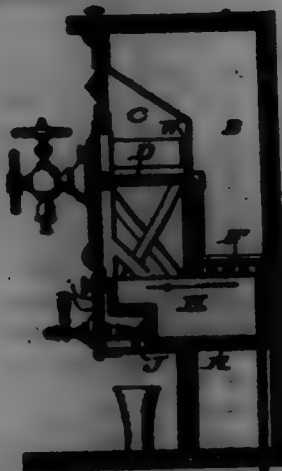
2. In a soda-water apparatus, having an opening to permit access to the syrup-tank, a face-plate or door for said opening with the sides or edges thereof folded or rebated on themselves, and means on said folded sides for supporting said plate or door on its axis.

3. In a soda-water apparatus having an opening to permit access to the syrup-tank, a face-plate or door for said opening with a side or edge thereof of two or more thicknesses of metal folded on themselves, and an axis connected with the folded side.

4. In a soda-water apparatus having an opening to permit access to the syrup-tank, a face-plate or door for said opening with a side or edge thereof folded on itself, and a filling-piece between the folds, and means for connecting the axis of said plate or door with the folded side.

5. In a soda-water apparatus having an opening to give access to the syrup-tank, a face-plate or door for said opening with the sides or edges thereof folded or rebated on themselves with a filling-piece under or between the folds preventing moist edges at the front of said door, and means on the folded sides for sustaining said plate or door on its axis.

709,188. SODA-WATER APPARATUS. ROBERT M. GARNER and HENRY M. GARNER, JR., Philadelphia, Pa. Filed Feb. 26, 1901. Serial No. 45,797. (No model.)



Claim.—In a soda-water apparatus, a main chamber, a draft-tube, a wall in the front of said chamber containing said tube, a supplemental chamber below said main chamber, an opening below said wall in communication with said supplemental chamber, a tank in the supplemental chamber, tanks in the main chamber aside of said wall and supplemental chamber, and doors for said main and supplemental chambers.

709,184. MILK-COOLER. WILLIAM L. HALEY, Albia, Tex. Filed Feb. 13, 1902. Serial No. 93,741. (No model.)

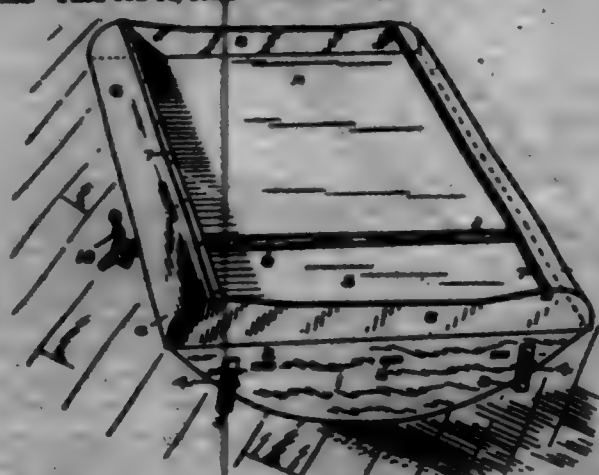
Claim.—1. A device of the class described comprising a removable bottom pan having openings, sockets or sleeves extending upward from the bottom of the pan at the said openings, posts or uprights extending through the sockets or sleeves and the openings of the bottom of the pan and projecting below the latter to form legs, shelves supported by the posts or uprights, a fabric covering extending into the bottom pan, and a water-receptacle, substantially as described.



2. A device of the class described comprising a bottom pan having openings, L-shaped sleeves extending upward from the bottom of the pan at the openings and forming sockets, angle-iron posts extending through the sleeves and through the openings of the bottom pan and extending below the same to form feet, shelves provided with flanges secured to the posts or uprights, a fabric covering extending into the bottom pan, and a water-receptacle, substantially as described.

3. A device of the class described comprising a frame composed of angle-iron corner-posts, shelves secured to the same, and the angle-iron top connecting-pieces having horizontal flanges, a fabric covering arranged on the frame and extending over the upper faces of the horizontal flanges of the top connecting-pieces, a water pan or receptacle having partitions arranged directly over the said horizontal flanges, and a bottom pan or receptacle supported by the frame, substantially as described.

709,185. DIPPING-TANK. GEORGE M. KIPPENHART, Indianapolis, Ind. Filed Oct. 14, 1901. Serial No. 73,602. (No model.)



Claim.—1. A dipping-tank having sides and a flat bottom with the two ends thereof curved upward and inward converge toward each other, and means for supporting the tank in a horizontal position so it can be tilted.

2. A dipping-tank consisting of sides and a bottom with its ends curved upward and inward toward each other, a bar secured to the inward edge of each end to reinforce the same, and means for tiltingly supporting said tank in a horizontal position.

3. A dipping-tank comprising a base with rebars, and a horizontal tank secured thereon with suitable sides and with the ends of the tank curved upward and inward toward each other, and a horizontal bar at

each end extending from one side of the tank to the other and secured to the inner edge of the upturned ends for reinforcing the same.

4. A horizontal dipping-tank with a depression or groove extending crosswise in the bottom thereof, and means for tiltingly supporting said tank.

5. A horizontal dipping-tank with a depression or groove in the bottom thereof, and a flange forming an outlet from said depression or groove.

6. A dipping-tank consisting of a rocking frame, and a tank mounted on said rocking frame having a flat bottom with its sides substantially vertical and its ends curved upward and inward with the inner edges of the inward ends reinforced by suitable bars, a depression in the bottom of said tank, and means for draining said depression.

709,186. FEED-BRUSH. MARION C. HALL, Chicago, Ill. Filed Nov. 3, 1901. Serial No. 81,152. (No model.)



Claim.—1. A brush for cleaning split fish, consisting of an edge-wise-operative base or handle composed of two sections each having the inner faces, and lying broadside to each other, a row of edge bristles and a row of side bristles adjacent to the edge bristles on each section of the base or handle, the rows of bristles extending longitudinally of the base or handle, and the rows of side bristles standing obliquely to the side faces of the base or handle and out or beveled at their free ends to converge toward each other and furnish with the edge bristles a brush-surface for cleaning the center and sides of a split fish, substantially as described.

2. A brush for cleaning split fish, consisting of an edge-wise-operative base or handle composed of two sections each having flat inner faces and lying broadside to a row of edge bristles and a double row of side bristles adjacent to the edge bristles on each section of the base or handle, the rows of bristles extending longitudinally of the base or handle, and the rows of side bristles standing obliquely to the side faces of the base or handle and out or beveled at their free ends to converge toward each other, furnishing with the edge bristles a brush-surface for cleaning the center and sides of a split fish, and a fastening-wire between the two sections securing the bristles from within, substantially as described.

3. A brush for cleaning split fish, consisting of an edge-wise-operative base or handle composed of two sections each having flat inner faces and lying broadside to each other, one of the sections having a depression in its face, a row of edge bristles and a double row of side bristles adjacent to the edge bristles inserted within holes in each section of the base or handle, the rows of bristles extending longitudinally of the base or handle and the rows of side bristles standing obliquely to the side faces of the base or handle and out or beveled at their free ends to converge toward each other, furnishing with the edge bristles a brush-surface for cleaning the center and sides of a split fish, and a wire lying between the two sections securing from within the bristles inserted into the holes in the sections, substantially as described.

709,187. RING FOR BOOTS OR SHOES. JAMES H. JAMMER, Chicago, Ill. Filed Mar. 27, 1901. Serial No. 65,899. (No model.)

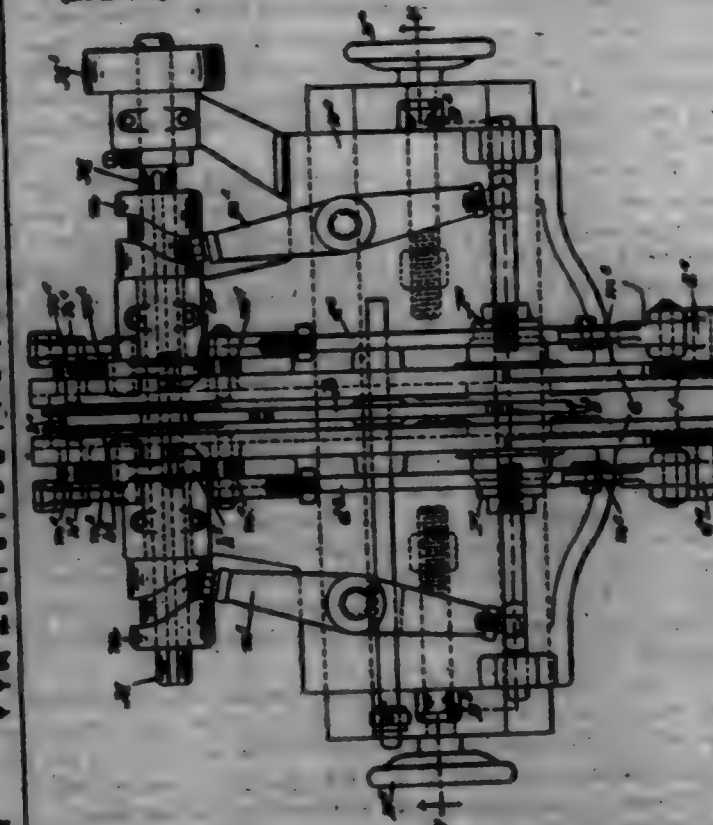


Claim.—1. A heel for boots and shoes made of an upper section or division and a lower section or division, a plate having therein a hole and being fixedly attached to one of the sections or divisions and provided on its face with a series of recesses formed by cutting tangens in the plate and bending the same back from the body of the plate to leave the cut and flange of the recesses free and to provide the back face with a beveled or cam surface, a companion plate fixedly attached to the other section or division provided with an outwardly-flanged stem or stud entered into the hole of the other plate and being further provided with a series of fixedly and permanently attached lugs projecting into and engaging with the series of recesses when the two sections of the heel are in engagement, and a spring outside of the stem or stud contacting with the

flange thereof to normally hold the two sections of the heel into engagement and to normally hold the series of lugs into engagement with the cut and flange of the series of recesses but allowing of lateral movement in one direction upon the application of sufficient lateral pressure to force the non-engaging faces of the lugs against the beveled or cam face of the recesses, thereby compressing the spring and releasing the catch, substantially as described.

2. A heel for boots and shoes made of an upper section or division angular at its forward side curving at its rear side and having its lower rear portion cut away, provided with a semicircular recess in its lower forward portion and a circular recess in its upper body a lower section or division fitting into the semicircular recess in the lower forward portion of the upper section or division, a plate fixedly attached to the upper section or division and having at its outer side edges guard-plates to protect the leather of the forward portion of the upper section or division and provided with a series of recesses beveled on their back or non-engaging faces to form cam-surfaces, a companion plate fixedly attached to the lower section or division and provided with an outwardly-flanged stem or stud entered into the hole of the other plate and the recess in the body of the upper section or division and being further provided with a series of fixedly and permanently attached lugs beveled on their back or non-engaging faces to form cam-surfaces, projecting into and engaging with the series of recesses when the two sections of the heel are in engagement, and a spring outside of the stem or stud and contacting with the flange thereof to normally hold the two sections of the heel in engagement and to normally hold the series of lugs in engagement with the series of recesses but allowing of lateral movement in one direction upon the application of sufficient lateral pressure to force the back or non-engaging faces of the lugs against the beveled or cam face of the recesses to compress the spring and release the catch, substantially as described.

709,189. CAN-HEADING MACHINE. FRANK H. LAVERIE, New York, N. Y., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 10, 1902. Serial No. 97,485. (No model.)



Claim.—1. In a can-heading machine, the combination of a rotary can-body carrier provided with a series of spring-pockets for receiving and holding the can-bodies, a curved and inclined guide for pressing the can-bodies into the spring-pockets, a can-body feed-chute provided with a vibrating can-body feeder, a pair of can-body feed-chutes provided with a pair of vibrating can-head feeders, a pair of header-rings provided with prongs for the can-heads and furnished with yielding guards to prevent the can-heads from tilting inward, a pair of heading-plungers reciprocating in said header-rings, two pairs of engaging heading-jaws, one pair mounted on each side of said rotary can-body carrier, a pair of adjustable carriages or slides upon which the header-jaws, opening-slides, the header-ring and can-head chutes are mounted, and a discharge for forcing the can-bodies out of the spring-pockets on the carrier as the carrier rotates and mechanism for operating the header-jaws, header-plungers, and can-body feeders, substantially as specified.

2. In a can-heading machine, the combination with an intermittently-rotating can-body carrier provided with spring-pockets to receive and hold the can-bodies, of an inclined and curved guide for forcing the can-bodies into the spring-pockets, substantially as specified.

3. In a can-heading machine, the combination with an intermittently-rotating can-body carrier provided with spring-pockets to receive and hold the can-bodies, of an inclined and curved guide for forcing the can-bodies into the spring-pockets, and an inclined discharger on the stationary frame of the machine for forcing the cans out of the spring-pockets after they are headed, substantially as specified.

4. In a can-heading machine, the combination with an intermittently-rotating can-body carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said rotary carrier, and two pairs of heading-jaws mounted one pair on each of said adjustable carriages, substantially as specified.

5. The combination, in a can-heading machine, with an intermittently-rotating carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said carrier, a header-ring, a can-head chute and a pair of header-jaws having a pair of reciprocating slides for operating the same, all mounted on each of said adjustable carriages or slides, substantially as specified.

6. The combination, in a can-heading machine, with an intermittently-rotating carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages, one on each side of said carrier, a header-ring, a can-head chute and a pair of header-jaws having a pair of reciprocating slides for operating the same, all mounted on each of said adjustable carriages or slides, and a pair of heading-plungers, substantially as specified.

7. The combination with a can-head chute, a header-ring having a plunger for the can-heads, a reciprocating heading-plunger, a pair of header-jaws, a pair of reciprocating slides for operating the same movable transversely to the axis of the can-body and an intermittently-rotary can-body carrier having pockets to receive and hold the can-bodies, substantially as specified.

8. The combination with a can-head chute, a header-ring having a plunger for the can-heads, a reciprocating heading-plunger, a pair of header-jaws, a pair of reciprocating slides for operating the same and an intermittently-rotary can-body carrier having pockets to receive and hold the can-bodies, and an adjustable slide or carriage *D'* upon which the can-head chute, header-ring, heading-plunger and their slides are mounted, substantially as specified.

9. In a can-heading machine, the combination with an intermittently-rotating can-body carrier *B* having pockets *b* to receive and hold the can-bodies, and provided with radially-slotted arms *B'*, a shaft *M* having a crank-arm *B'* provided with pin *B'* engaging said slotted arm on the carrier, a spring pawl or lock *B'*, a pair of reciprocating header-jaws *D D'*, a header-ring *F* and heading-plunger *F'*, substantially as specified.

10. In a can-heading machine, the combination with an intermittently-rotating carrier *B* having pockets *b* to receive and hold the can-bodies, of a pair of adjustable carriages or slides *D'*, adjusting-carriers *D'* therefor header-jaws *D D'* and *D D'*, header-slides *D'* and *D'*, header-rings *F F'*, heading-plungers *F F'*, a shaft *M* having arms *m m'*, and connecting-levers *m' m'* for operating the heading-plungers, substantially as specified.

11. In a can-heading machine, the combination with an intermittently-rotating carrier *B*, having pockets to receive and hold the can-bodies, of two pairs of header-slides and header-jaws, one pair on each side of said carrier, a shaft *M* having arms *m m'*, supplemental or operating slides *D' D'*, and connections for operating said header-slides from said slides *D'*, substantially as specified.

12. In a can-heading machine, the combination with an intermittently-rotating carrier *B*, having pockets to receive and hold the can-bodies, of two pairs of header-slides and header-jaws, one pair on each side of said carrier, a shaft *M* having arms *m m'*, supplemental or operating slides *D' D'*, connections for operating said header-slides from said slides *D'*, header-plungers *F F'* and arms *m m'* and connecting-levers for operating said heading-plungers, substantially as specified.

13. In a can-heading machine, the combination with a rotating carrier having pockets to receive and hold the can-bodies, of a pair of header-jaws and header-slides, a heading-ring, a heading-plunger, a can and a supplemental slide operated by the cam for operating said header-slides, a can-body chute, a vibrating can-body feeder, and a connecting-link and lever for operating said feeder by said supplemental slide, substantially as specified.

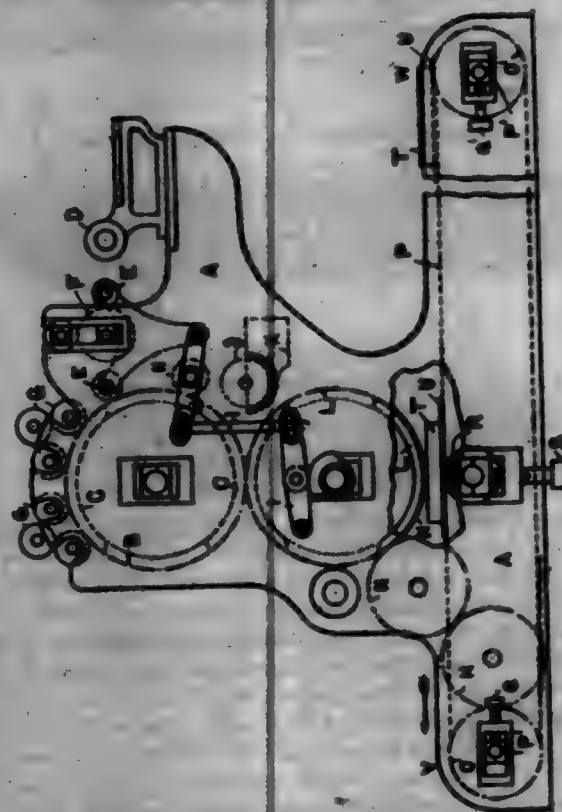
14. In a can-heading machine, the combination with a rotating carrier having pockets to receive and hold the can-bodies, of a pair of header-jaws and header-slides, a heading-ring, a heading-plunger, a can-head chute, a vibrating can-head feeder, and connecting mechanism between said feeder and one of said header-jaw slides for operating said can-head feeder, substantially as specified.

15. In a can-heading machine, the combination with carrier *B* hav-

ing pockets *b*, adjustable carriages *D'*, header-jaws *D D'*, header-slides *D' D'*, header-ring *F*, heading-plunger *F'*, and a can-chute provided with cam for operating both said header-slides and said heading-plunger, substantially as specified.

16. In a can-heading machine, the combination with a can-body carrier having pockets to receive and hold the can-bodies, of a pair of adjustable slides or carriages and header-rings, header-jaws and slides movable transversely to the axis of the can-body and mounted on said adjustable carriages, substantially as specified.

702,189. PRINTING-MACHINE. EDWARD LEE, Leeds, England.
Filed Dec. 22, 1901. Serial No. 26,999. (No model.)



Claim.—1. In a printing-machine, the combination of an impression-cylinder carrying the printing-surface on its periphery, and means for supplying the same with ink color or varnish, of a transfer-cylinder geared synchronously with it, said transfer-cylinder carrying on its periphery a series of rollers or carriages for carrying the articles to be printed under and against the transfer-surface, and an adjustable cylinder immediately below and between the ends of the upper run of the open pressing with adjustable pressure thereon and its contacts against the transfer-cylinder; substantially as described.

2. The combination of an impression device, taking device, and a transfer-roller with an open carrying the blanks to be printed, pulleys, shafts and sprocket-wheels carrying and driving said open sliding bearings for said shafts, adjusting devices for regulating the distance apart of said bearings, and an adjustable roller supporting the upper run of the open directly beneath the transfer-roller; substantially as described.

3. The combination with the impression device and transfer-cylinder, of an endless carrier below the transfer-cylinder and provided with transverse frames *U, U'* for the articles to be printed, and an elastic roller directly under the transfer-cylinder and supporting the upper run of the endless carrier between the bearings thereof; substantially as described.

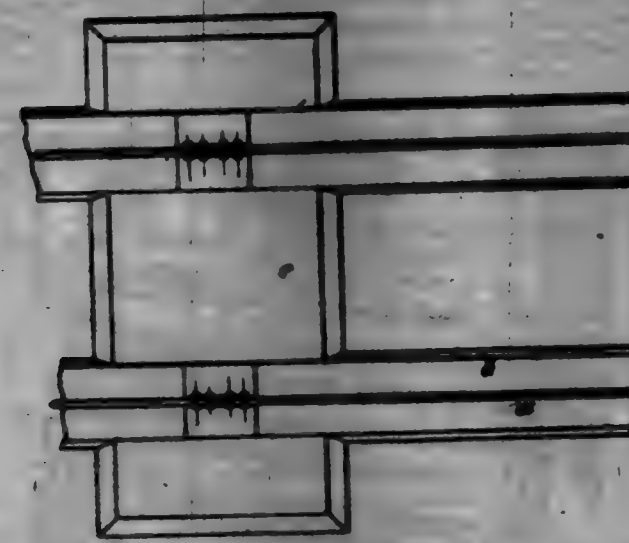
702,140. COMPOSITION OF MATTER. GUYOT LE ROY DE LAURENCE, Vienna, France. Filed Dec. 24, 1901. Serial No. 27,985. (No specimen.)

Claim.—The herein-described composition of matter, consisting of a heated and cooled mixture of simple or double salts of alumina and potash, silica, acid of manganese, sulfate of lime, sulfate of baryta, a hydrous oxide, and gravel, substantially as set forth.

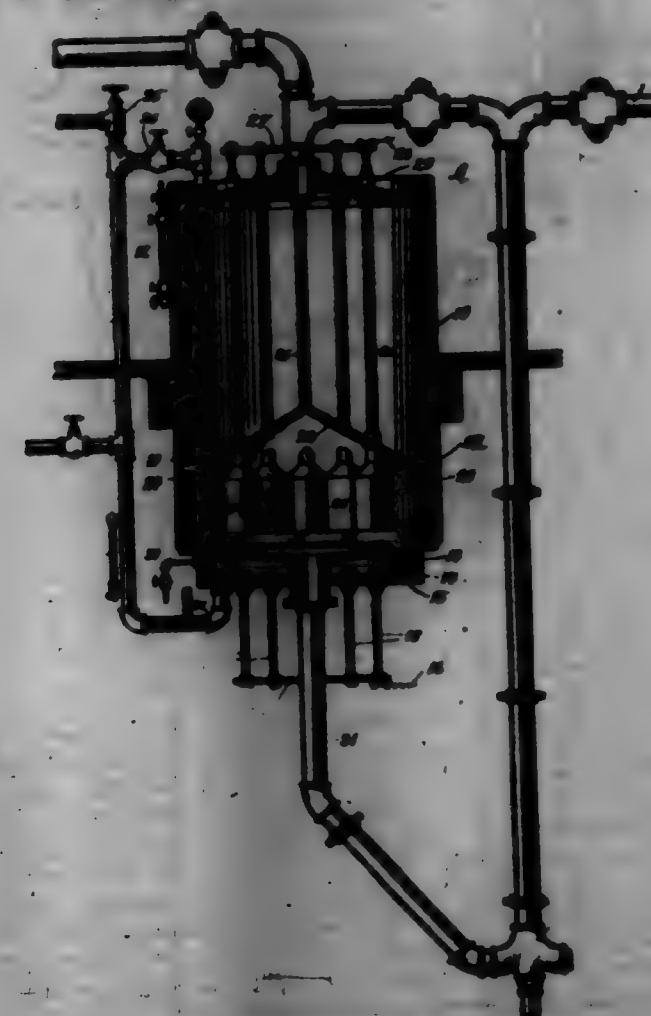
702,141. RAILWAY CONSTRUCTION. GUYOT LE ROY DE LAURENCE, Vienna, France. Filed Dec. 24, 1901. Serial No. 27,986. (No model.)

Claim.—A railway construction, consisting of longitudinal sleepers of alderite, rails embedded throughout their entire length continuously in said sleepers and projecting therefrom at the upper side of the same, transverse ties of alderite connecting said sleepers and forming integral

therewith, and gaps completely embedded in said transverse ties and connected at their ends with the rails within the sleepers, substantially as set forth.



702,142. METHOD OF BLEACHING PAPER-PULP. Dr. FREDERICK E. LOTT, Chicago, Ill., assignor to the Hyatt & Robinson Company, a Corporation of South Dakota. Filed June 24, 1901. Serial No. 28,748. (No specimen.)



Claim.—1. The process of bleaching pulp and the like in a closed vessel, which process consists in subjecting a mixed charge of pulp and dilute chloric solution to an electrolyzing-current and, while confined under pressure, maintaining the whole charge bodily in circulation between the anode and cathode elements, substantially as described.

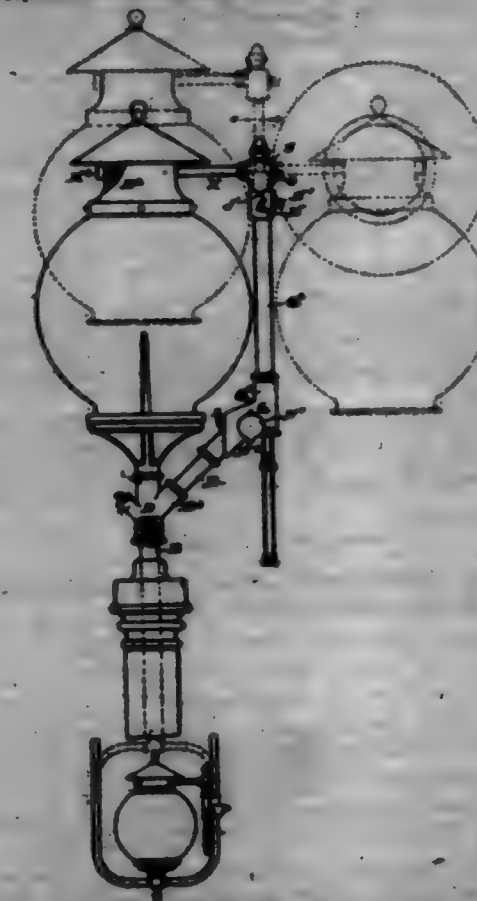
2. The process of bleaching pulp and the like in a closed vessel, which process consists in subjecting a mixed charge of pulp and dilute chloric solution to an electrolyzing-current, simultaneously insulating the gases and other volatiles produced from the body of the charge and, while confined under pressure, maintaining the whole charge bodily in circulation between the anode and cathode elements, substantially as described.

3. The process of bleaching pulp and the like in a closed vessel, which process consists in subjecting a mixed charge of pulp and dilute chloric solution to an electrolyzing-current, expelling the gases and other volatiles produced and, while confined under pressure, maintaining

the whole charge bodily in forced circulation between the anode and cathode elements, substantially as described.

4. The process of bleaching paper-pulp and the like in a closed vessel, which process consists in subjecting a mixed charge of pulp and dilute chloric solution with a controlling addition to an electrolyzing-current, and while confined under pressure, maintaining the whole charge bodily in forced circulation between the anode and cathode elements, substantially as described.

702,143. GAS-LAMP. THOMAS MANNING, Newcastle, Pa. Filed July 17, 1900. Serial No. 28,999. (No model.)



Claim.—1. In a gas-lamp, a primary support, a vertical rod carried thereon and free to move up and down, an arm carried on said rod and free to be turned in various directions horizontally and a globe carried on each arm and free to be partially revolved thereon in a vertical plane, thus allowing of three independent motions, all substantially as herein specified.

2. In a gas-lamp, the combination with a primary support, of a casting *G* having tubular bearing and a rocking dog *H*, a rod *I* vertically movable in said bearing and arranged to be held in an elevated position by frictional pressure from the dog, and a turning device *N N'* arranged transversely under said dog for lifting and holding the latter out of operative position at will, substantially as herein specified.

3. In a gas-lamp, the combination with a primary support, of a casting *G* having tubular bearing and a rocking dog *H*, a rod *I* vertically movable in said bearing and arranged to be held in an elevated position by frictional pressure from the dog, and a screw turning on adjustable pivot for each dog, all substantially as herein specified.

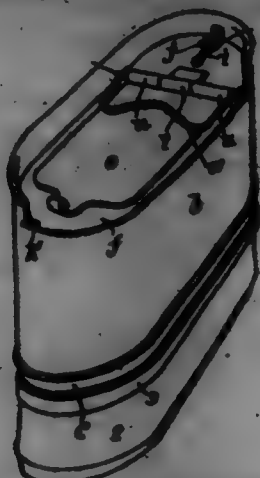
702,144. REFRIGERATOR. EDWARD M. MERRILL, Westmont, Canada. Filed June 12, 1901. Serial No. 28,916. (No model.)

Claim.—1. An isolator comprising a box closed at opposite points, a bandage passed through said slots across the interior of said box in slanting form, and a single retainer extending through the middle of the interior of said box transversely of said slots and engaging the layers of said bandage, holding the alternate opposite edges thereof from the slots of the box adjacent to the edges as held.

2. An isolator comprising a box closed at opposite points, a bandage passed through said slots across the interior of said box in slanting form, and a serpentine retainer extending through the middle of the interior of said box transversely of said slots and the middle of the folds thereof, receiving the layers of said bandage, holding the alternate opposite edges thereof from the slots of the box adjacent to the edges as held, substantially as described.

3. An isolator comprising a box to receive an isolant and having an opening in each end and a hinged valve cover for controlling the opening in one end, a hinge for connecting said cover to said box and

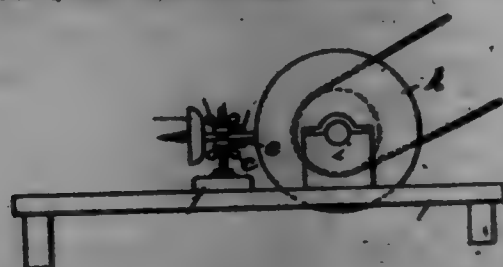
having a rigid hinge pin or spindle projecting at each end beyond said hinge, a bow-spring secured midway of its length to said cover and having its ends bearing upon said ends of the rigid hinge pin or spindle for causing an abnormal friction in said hinge to retain the valvular cover in any position to which it may be moved substantially as described.



4. The combination with the head of an inhaler, of an auxiliary thin elastic head and an elastic band of greater tension retaining said auxiliary head upon said head of the inhaler, substantially as described and for the purpose set forth.

5. The combination with the head of an inhaler, of an auxiliary thin elastic head and an elastic band of greater tension than and integral with said auxiliary head, substantially as described and for the purpose set forth.

702,145. SLATE-CLAMP. JAMES H. MONTGOMERY, Kingston, N. Y. Filed Feb. 4, 1902. Serial No. 28,502. (No model.)



Claim.—1. A device of the class described comprising a base, vertical screw near the opposite ends thereof, each of which is provided with two set-screws and two clamping-bars mounted on said screws between said ends, substantially as shown and described.

2. A device of the class described comprising a base, vertical screws near the opposite ends thereof, each of which is provided with two set-screws and two clamping-bars mounted on said screws between said ends, the central portions of said bars being curved backwardly, substantially as shown and described.

3. A clamp of the class described comprising a base-plate, vertical screw-headed end members connected therewith, two vertically-movable clamping-bars mounted on said end members, and two sets mounted on each of said end members above and below said bars, whereby the vertical position of said bars may be adjusted on said end members, and whereby said bars may be clamped together, substantially as shown and described.

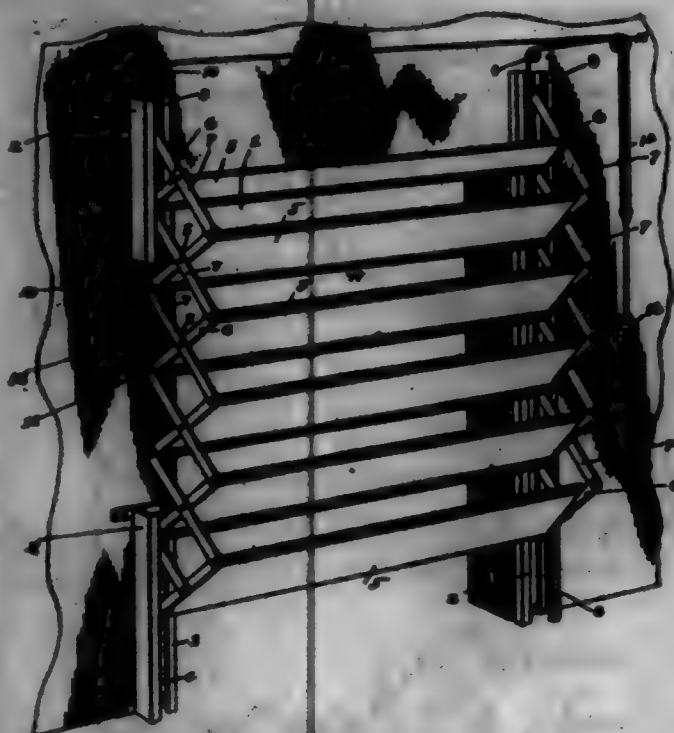
702,146. FOLDING DOOR. EDWARD H. McCLOSKEY, Columbus, Ohio. Filed Apr. 22, 1901. Serial No. 24,572. (No model.)

Claim.—1. In a folding door, the combination with a plurality of door-sections 5, of a folding-truss connection between the ends of said sections, the bars forming said folding truss being pivotally connected with each end of each of said sections at three points and a pivotal connection of one end of each of said folding trusses with a supporting structure, substantially as specified.

2. In a folding door, the combination with the door-sections 5, of a folding or jointed truss connection for the ends of said sections comprising bars 7 each pivotally connecting a set of three of said door-sections and means for hinging or pivotally connecting said folding door with a supporting structure, substantially as specified.

3. In a folding door, the combination with a door-frame and guide-rails on opposite sides thereof, of a folding sectional door comprising sections 5 and truss-bars 7 jointly connecting the ends of said sections as described, the inner pivots of one or more of said truss-bars carrying friction-rollers adapted to run in said guides, a hinged or pivotal connection of said door with a supporting structure and means for counterbalancing the weight of said door, substantially as specified.

4. In a folding door, the combination with a plurality of sections 5, each of said sections having its edge portions and opposite sides provided with projecting longitudinally-arranged plates 17 and recesses 18 formed in said sections on opposite sides from said plates, of a folding-truss connection for the ends of said sections, each of the truss-bars connecting three of said section ends, substantially as specified.



702,147. MINING-MACHINE. JAMES H. MONTGOMERY, Boston, Pa. Filed Jan. 12, 1901. Serial No. 23,000. (No model.)



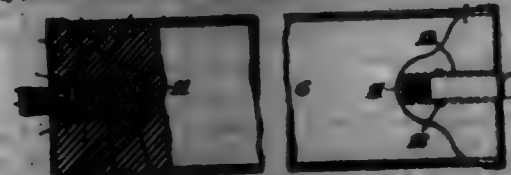
Claim.—1. In a mining-machine, the combination of a frame, two standard I-rails secured to said frame in substantially the same horizontal plane with their webs in a horizontal position and their flanges extending upward, the downwardly-extending flanges of said rails having grooves formed therein, a traveling carriage resting on the edges of said flanges, laterally-extending lips on said carriage adapted to enter the grooves in the rails, a cutter frame and chain supported by said carriage, and mechanism for moving said carriage along said rails and for driving said chain.

2. In a mining-machine, the combination of a suitable frame, a traveling carriage, a cutter-frame and cutter-chain, mechanism for moving

said carriage and driving said chain, a swinging frame at the forward end of said frame, said frame having an inclined guideway therein, a jack-bar in said guideway, and means for raising and lowering said bar.

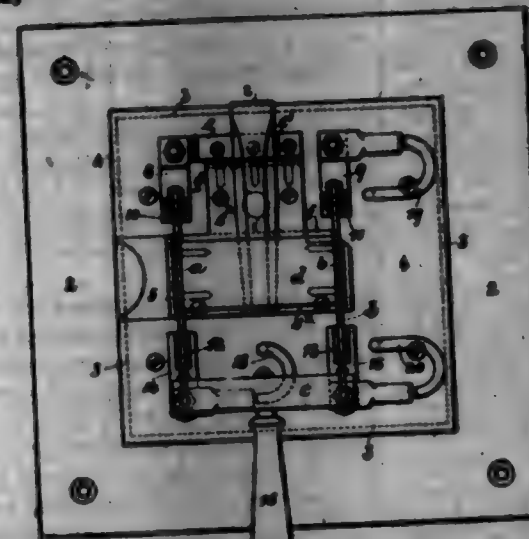
3. In a mining-machine, the combination of a suitable frame, a traveling carriage, a cutter-frame and cutter-chain, mechanism for moving said carriage and driving said chain, a swinging frame at the forward end of said frame, said frame having an inclined guideway therein, a jack-bar in said guideway, said bar having teeth therein, a pinion engaging said teeth, and a ratchet-and-pawl device for holding said bar in its adjusted position.

702,148. WINDOW-SHUTTER. JOHN L. FETTERSON, Waterville, Conn., assignor of one-half to Elroy Marsh, Thomaston, Conn. Filed Apr. 4, 1902. Serial No. 24,264. (No model.)



Claim.—A shutter for window-shutters, the ends of which are provided with detachable metal clips having inwardly-directed tubular sockets which fit in corresponding recesses formed in the ends of the shutter and spring-operated bolts mounted in said sockets and projecting therefrom, said bolts being provided with radial pins which pass through slots formed in said sockets and by means of which they are retained in said sockets, substantially as shown and described.

702,149. SWITCHBOARD FOR ILLUMINATING ELECTRIC LAMP SIGNS. MARTIN BROWN, New York, and LOUIS R. GRADY, Brooklyn, N. Y. Filed Mar. 12, 1902. Serial No. 26,000. (No model.)



Claim.—1. In a switchboard device for illuminating electric-lamp signs, the combination with groups of circuit-wires in a fixed position, of groups of circuit-selectors, a movable support therefor, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a switch for making and breaking the electric circuit, means for changing the position of the movable support of the circuit-selectors, means of greater force than the former means connected to the said movable support of the circuit-selectors and bearing against the switch device whereby a contact of the circuit-selectors and circuit-wires is made before the completion of the electric circuit, and means, the circuit is broken before the separation of the circuit-selectors from the circuit-wires, substantially as set forth.

2. In a switchboard device for illuminating electric-lamp signs, the combination with groups of circuit-wires in a fixed position, of groups of circuit-selectors, a movable support therefor, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a switch for making and breaking the electric circuit, a spring for changing the position of the movable support of the circuit-selectors, a second spring of greater strength than the former spring connected to the said movable support of the circuit-selectors and bearing against the switch device whereby a contact of the circuit-selectors and circuit-wires is made before the completion of the electric circuit, and means, the circuit is broken before the separation of the circuit-selectors from the circuit-wires, substantially as set forth.

3. In a switchboard device for illuminating electric-lamp signs, the combination with groups of circuit-wires having their ends in the same plane and a suitable support therefor, of groups of spring-actuated circuit-

selectors, a hinged support therefor, a metal plate upon the surface of the support forming electric contact with the circuit-selectors, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a switch for making and breaking the electric circuit, and springs of varying tension acting between the fixed support of the circuit-wires and the switch upon opposite sides of the movable support for the circuit-selectors, substantially as set forth.

4. In a switchboard device for illuminating electric-lamp signs, the combination with groups of circuit-wires in a fixed position and a suitable support therefor, of groups of spring-actuated circuit-selectors, a hinged support therefor, a metal plate upon the surface of the support forming electric contact with the circuit-selectors, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a switch for making and breaking the electric circuit, and springs of varying tension acting between the fixed support of the circuit-wires and the switch upon opposite sides of the movable support for the circuit-selectors, and conductors from a source of electricity to part of the switch device, from the mechanism of lamps to another part of the switch device and from the switch device back to the source, whereby a complete circuit is formed through the switch device, the circuit-selectors and circuit-wires and the mechanism of lamps, substantially as set forth.

5. In a switchboard for illuminating electric-lamp signs, the combination with groups of circuit-wires, a support to which the same are connected in a fixed position, a perforated card or sheet, a receptacle for the same in the support of the circuit-wires, whereby predetermined circuit-wires are exposed in the apertures of the sheet, of groups of circuit-selectors, a movable support therefor, a switch for making and breaking the electric circuit, a spring for actuating the support of the circuit-selectors to move the same away from the circuit-wires and a spring of greater tension for supporting the switch in its disconnected position and which acts to make contact of the circuit-selectors and circuit-wires before the completion of the electric circuit by the switch, substantially as set forth.

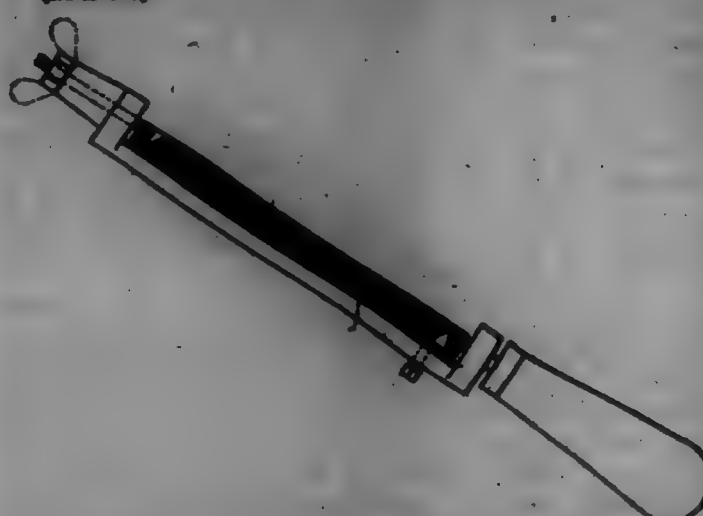
6. In a switchboard for illuminating electric-lamp signs, the combination with groups of circuit-wires, a support to which the same are connected in a fixed position, a perforated card or sheet, a receptacle for the same in the support of the circuit-wires, whereby predetermined circuit-wires are exposed in apertures of the sheet, of a block of insulating material, groups of circuit-selectors supported thereby, a plate of metal upon the outer surface of the block of insulating material, a hinge connected therewith, a switch device comprising parallel blade-bars, base-plates and pivot-supports therefor and spring-clips and base-plates engaged thereby, a plate forming the other part of the hinge electrically connected to one of the switch-supports, cross-bars of insulating material connecting the switch-bars and circuit connections from a source of electricity to the switch through the hinge to the circuit-selectors, from the circuit-wires to the mechanism of lamps, from the mechanism of lamps back to the other side of the switch and from the switch returning to the source of electric energy, substantially as set forth.

7. In a switchboard device for illuminating electric-lamp signs, the combination with a suitable support and groups of circuit-wires arranged in parallel, horizontal and vertical rows at predetermined spaced-apart intervals and connected thereto in a fixed position, of a block of insulating material having parallel, horizontal and vertical rows of offset apertures spaced apart between centers to agree with the centers of the circuit-wires, a plate *c'* overlying the outer surface of said block and covered thereby, and a plate *c* connected to the plates *c'* and *c''* by a hinged joint and secured to the support of the circuit-wires, circuit-selectors *a* comprising cap and stem portions received in the offset apertures in the block of insulating material, springs within the cap portions of the circuit-selectors with one end bearing against the inner surface of the plate *c'*, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a switch for making and breaking the electric circuit, springs of varying tension acting against the support of the circuit-wires and the switch and upon opposite sides of the hinged device supporting the circuit-selectors, substantially as set forth.

8. In a switchboard device for illuminating electric-lamp signs, the combination with a suitable support and groups of circuit-wires arranged in parallel, horizontal and vertical rows at predetermined spaced-apart intervals and connected thereto in a fixed position, of a block of insulating material having parallel, horizontal and vertical rows of offset apertures spaced apart between centers to agree with the centers of the circuit-wires, a plate *c'* overlying the outer surface of said block and covered thereby, and a plate *c* connected to the plates *c'* and *c''* by a hinged joint and secured to the support of the circuit-wires, circuit-selectors *a* comprising cap and stem portions received in the offset apertures in the block of insulating material, springs within the cap portions of the circuit-selectors with one end bearing against the inner surface of the plate *c'*, means for effecting a predetermined contact of the circuit-selectors and circuit-wires, a helical spring *p* received in sockets provided thereby in the face of the support of the circuit-wires and in the under surface of the hinged

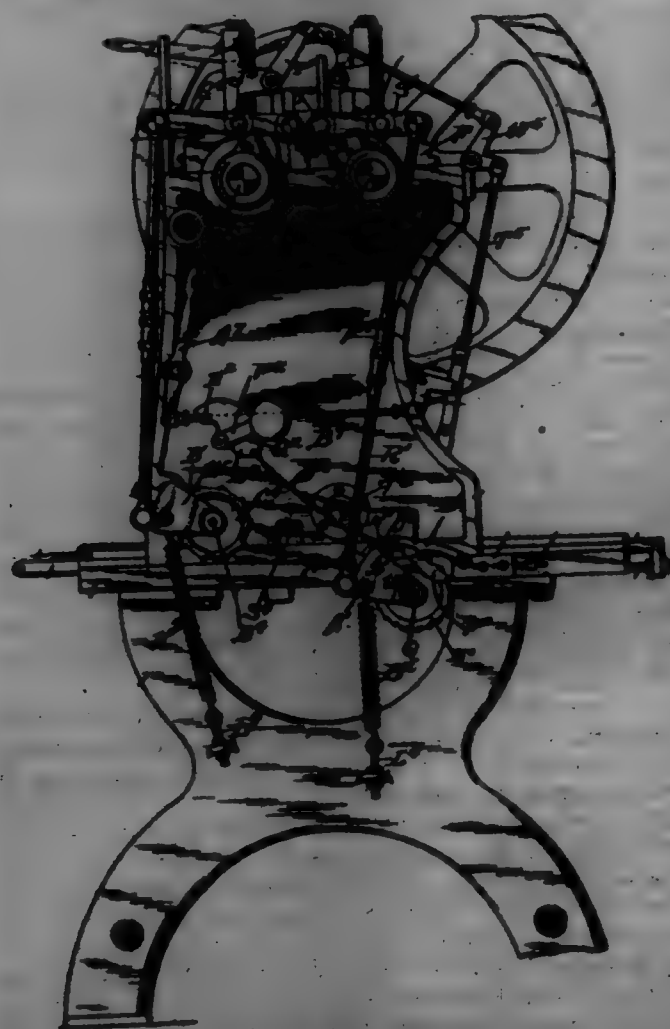
part carrying the circuit-circuit and acting to separate the block of insulating material from the base or support, a bow-spring i secured at one end to the plates c' and c' of the hinge, a switch having blade-bars, pivots and spring-arms, a cross-bar of insulating material against which the free end of the bow-spring i bears, and an insulating-material handle secured to the switch for actuating the same, substantially as and for the purposes set forth.

702,150. DEVICE FOR SHARPENING SAWS. GEORGE E. PIERCE, Rensselaer, Germany. Filed July 23, 1901. Serial No. 60,140. (No model.)



Claim.—A saw-sharpening device consisting of a holder said holder having two oppositely-arranged pointed curves and a projection arranged at its inner side a file adapted to fit between the curves said file being angular and of uniform cross-section, and provided at its ends near each corner with an indentation whereby the file is held concentrically in its holder for the purpose described.

702,151. METALLIC-CARTRIDGE-LOADING MACHINE. GEORGE E. PIERCE, Cincinnati, Ohio. Filed Aug. 2, 1900. Serial No. 70,007. (No model.)



Claim.—1. In a machine of the class described, a plunger, a series of wad cutting and plating punches mounted thereon, means for actuating said plunger, and a die-plate having a series of openings therethrough

through which said punches operate, in combination with an aligning-block having a compensating series of openings therethrough and through which said punches operate for guiding the punches in their work, and means for advancing the die-plate in successive rows to the action of said punches, as and for the purposes set forth.

2. In a machine of the class described, a wad cutting and plating mechanism, an actuating-plunger therefor, and intermediate connections between said wad cutting and plating mechanism and said actuating-plunger for varying the relative position of said mechanism with respect to said plunger, whereby shells of varying lengths may be operated upon, as and for the purposes set forth.

3. In a machine of the class described, a plunger, wad cutting and plating punches carried thereby, an operating-plunger for said plunger, and intermediate connections between said plunger and plunger for varying the relative position of said plunger and punches, whereby it may become operative at a higher or lower point in relation to the operating crank-shaft of said plunger, as and for the purposes set forth.

4. In a machine of the class described, a plunger, wad cutting and plating punches carried thereby, a plunger for actuating said plunger, means for adjusting the relative position of said plunger with reference to said punches, and means for locking the parts in adjusted position, as and for the purposes set forth.

5. In a machine of the class described, a wad cutting and plating mechanism and a shell-cripping mechanism, a main drive-shaft, and means actuated from said shaft for operating said wad cutting and plating mechanism, and means, also actuated by said shaft, for independently actuating said shell-cripping mechanism, as and for the purposes set forth.

6. In a machine of the class described, wad cutting and plating and shell-cripping mechanisms, a main drive-shaft for actuating the same, and means for independently actuating the operation of each of said several mechanisms, as and for the purposes set forth.

7. In a machine of the class described, wad cutting and plating devices and shell-cripping mechanism, and means for actuating the same, and means for automatically throwing said wad cutting and plating devices out of operation in advance of the start of said crimping mechanism, and means for successively presenting the shells to said parts, as and for the purposes set forth.

8. In a machine of the class described, the combination with an actuating-shaft and driving mechanism therefor, of means for disengaging said shaft from its driving mechanism automatically at a given stage in the loading operation, and means for independently disengaging said driving mechanism at the will of the operator, as and for the purposes set forth.

9. In a machine of the class described, wad cutting and plating mechanism, a drive-shaft therefor, means for automatically arresting said shaft at a given stage in the operation of the machine, and means for automatically actuating said shaft at any point in the operation at the will of the operator, as and for the purposes set forth.

10. In a machine of the class described, the combination of a driving-pulley, a shaft in engagement with said pulley and driven by said pulley, a clutch for disconnecting said pulley and shaft, said shaft having an eccentric for raising and lowering a crimping device, and means for disengaging said eccentric when the operation of the crimping device is not required, as and for the purposes set forth.

11. In a machine of the class described, the combination with a driving-shaft, of a cross-head or plunger, operated by said shaft and provided with guideways, means for adjustably regulating the distance through which said plunger operates, in opening through said plunger to admit of the passage of a wad-shoot, and an independently-movable crimping-bar arranged to operate upon the shells after they have passed beyond said plunger, as and for the purposes set forth.

12. In a machine of the class described, a plunger, wad cutting and plating punches carried thereby, a plunger, means for actuating the same, an eccentric carried by said plunger, and connections between said eccentric and plunger whereby the relative positions of said plunger and punches may be adjusted, as and for the purposes set forth.

13. In a machine of the class described, a plunger, wad cutting and plating punches carried thereby, a plunger for actuating said plunger, said plunger provided with a bearing, a block mounted in said bearing and having an eccentric-pin, said plunger being connected to said eccentric-pin, and means for relatively adjusting said block in its bearing, as and for the purposes set forth.

14. In a machine of the class described, a drive-shaft, wad cutting and plating and shell-cripping devices actuated therefrom, a feed-table, a rack connected thereto, a transverse shaft having gears for engaging said rack, feeding mechanism for said transverse shaft including a ratchet, means for operating said ratchet from said drive-shaft, means for locking said ratchet at each actuation thereof, manually-operated means for throwing said ratchet out of action, and manual device for returning said feed-table to initial position, as and for the purposes set forth.

15. In a machine of the class described, wad cutting and plating and shell-cripping devices, means for actuating the same, a feed-carriage, ratchet mechanism for imparting a step-by-step advancement thereof, means for locking said ratchet at each actuation thereof and manually-actuated device for throwing said ratchet mechanism out of action at will, as and for the purposes set forth.

16. In a machine of the class described, wad cutting and plating and shell-cripping devices, means for actuating the same, a feed-carriage, ratchet mechanism for imparting a step-by-step feed thereof, means for throwing said ratchet mechanism out of action, and manual device for returning said carriage to its initial position, as and for the purposes set forth.

17. In a machine of the class described, wad cutting and plating and shell-cripping devices, means for actuating the same, a feed-carriage, feeding device therefor, means for automatically arresting the wad cutting and plating devices, said means operating in advance of the arrival of the feed-carriage at the limit of its feed movement, and means for actuating the feed-carriage at will, as and for the purposes set forth.

18. In a machine of the class described, wad cutting and plating devices, a feed-carriage, racks connected thereto, actuating-gears engaging said racks, ratchet mechanism for actuating the same, manually-actuated device for throwing said ratchet mechanism out of operation at will, and manually-actuated device for returning said carriage to its initial position, as and for the purposes set forth.

19. In a machine of the class described, the combination with a driving-shaft for operating a crimping device, of a cam on said shaft for operating a ratchet for giving movement to a carriage for holding and conveying a shell-plate, means for adjustably regulating the throw of said ratchet, and manually-actuated device for positively throwing the same out of operation at a given point, as and for the purposes set forth.

20. In a cartridge-loading machine, wad cutting and plating devices and shell-cripping device, in combination with a primary driving-shaft, connections between said primary driving-shaft and said shell-cripping device for actuating the latter, a secondary driving-shaft, connections between said secondary driving-shaft and said wad cutting and plating devices for actuating the latter, said primary and secondary shafts having gears intermeshing with each other, means for rotating said primary shaft, and means for automatically disengaging the gearing intermediate said shafts at any desired given point, whereby the primary shaft may continue to rotate after the secondary shaft has been arrested, as and for the purposes set forth.

21. In a cartridge-loading machine, wad cutting and plating devices, shell-cripping device, a primary shaft and a secondary shaft, connections between said primary shaft and shell-cripping device for actuating the latter, connections between said secondary shaft and said wad cutting and plating devices for actuating the latter, intermeshing gearing respectively carried by said shafts whereby said secondary shaft is rotated from said primary shaft, said gearing including a clutch, and means for automatically actuating said clutch at any desired given point to disengage said gearing, whereby said secondary shaft is arrested without arresting said primary shaft, as and for the purposes set forth.

22. In a machine of the class described, the combination with a secondary driving-shaft having a crank and a plunger actuated thereby, of a crank-bar or plunger, punches carried thereby, and adjustable connections between said plunger and plunger, whereby the point to which said punches descend may be varied, as and for the purposes set forth.

23. In a machine of the class described, the combination with a shaft having a crank, a plunger operated by said crank, a plunger, wad cutting and plating punches carried by said plunger, a block journaled in said plunger and provided with an eccentric projection, said eccentric projection forcing a bearing for said plunger, a handle connected to said block for adjusting the same, and means for locking said handle in adjusted position, as and for the purposes set forth.

24. In a machine of the class described, the combination with a plunger, punches carried thereby, a die-block also mounted on said plunger for movement relative thereto and through which the punches operate, a die-plate carried by said die-block, the strip of wad material being arranged to pass over said die-plate, said die-plate having openings therethrough in which said punches operate, as and for the purposes set forth.

25. In a machine of the class described, the combination with a plunger, punches carried thereby, a die-block carried by said plunger and provided with a die-plate, said die-plate and die-block provided with openings through which said punches operate, a punch-guiding and wad-stripping plate located above said die-block and die-plate, means for feeding a strip of wad material between said guiding and stripping plate and said die-plate, and means for preventing the shells in line with the openings in said die-plate and die-block, as and for the purposes set forth.

26. In a machine of the class described, a plunger, punches carried thereby, a die-block also carried by said plunger but having last-motion connection therewith, whereby when the plunger descends the die-block

will also descend until it engages the cartridge-shell when its motion will be arrested but said last-motion connection will permit the further downward movement of the plunger, whereby when the shells are presented to the action of the punches they are engaged and held in alignment by said die-block during the advancing movement of the punches, as and for the purposes set forth.

27. In a machine of the class described, a plunger, punches carried thereby, a die-block having loose or last motion connection with said plunger, means for presenting a wad-strip over said die-block, a stripping-plate through which said punches operate, and means for actuating said plunger, as and for the purposes set forth.

28. In a machine of the class described, a plunger, punches carried thereby, a die-block having passages for receiving and guiding said punches, said die-block having loose or last motion connection with said plunger and serving as an aligning-block for the shells, wad-strip-feeding mechanism and a stripper arranged over said die-block and through which the punches operate, as and for the purposes set forth.

29. In a machine of the class described, the combination with a plunger, punches carried thereby, a die-block having loose or last motion connection with said plunger whereby it may be lowered upon the shells before the punches advance, as and for the purposes set forth.

30. In a machine of the class described, the combination with a plunger, punches carried thereby, of a die-block, dotted supporting-links therefor, bolts carried by said plunger and operating in the slots in said links, thereby providing a loose or last motion connection between said plunger and die-block whereby said die-block partakes but partially of the movement of said plunger, and means for locking said die-block in its lowered position, as and for the purposes set forth.

31. In a machine of the class described, the combination with a plunger, punches carried thereby, a die-block, dotted supporting-links for said die-block, bolts carried by said plunger and operating in the slots in said links thereby providing loose or last motion between said die-block and plunger, a lock for locking said die-block in its lowered position, and means for automatically releasing said lock, as and for the purposes set forth.

32. In a machine of the class described, the combination with a wad-cutting plunger, feed-rolls arranged in advance of said wad-cutting plunger for feeding the wad-sheet, of a secondary pair of rolls located parallel with the feed-rolls and beyond the crimping-plunger, and adapted to receive the wad-sheet after having passed through the wad-cutting device, and to aid in drawing said wad-sheet forward and finally discharging it from the machine, as and for the purposes set forth.

33. In a cartridge-loading machine, the combination with wad cutting and plating mechanism, of feed-rolls arranged on one side thereof operating to deliver a wad-sheet to said cutting and plating mechanism, and secondary rolls located on the opposite side of said cutting and plating mechanism and adapted to receive the wad-sheet from said feed-rolls, and means whereby said secondary rolls are connected with and are actuated by and in unison with said feed-rolls, as and for the purposes set forth.

34. In a machine of the class described, the combination with wad cutting and crimping devices, of a carriage moving in guideways, located in the table of the machine, and means for adjusting said guideways to take up wear, as and for the purposes set forth.

35. In a machine of the class described, wad cutting and crimping devices, actuating means therefor, a feed-carriage, a step adjustably mounted upon said carriage, a clutch device for connecting and disconnecting the actuating means of said wad cutting and crimping devices, and connections actuated by said adjustable step for disconnecting said clutch automatically when the carriage arrives at the limit of its movement, as and for the purposes set forth.

36. In a machine of the class described, a main drive-shaft and a secondary shaft, gearing for driving the latter from the former, a plunger carrying punches, connections operated from said secondary shaft for actuating said plunger, a second plunger carrying a crimping mechanism operated by said main shaft for operating said second plunger, and means for automatically arresting said secondary shaft in advance of the arrest of said main shaft, as and for the purposes set forth.

37. In a machine of the class described, a main shaft, a secondary shaft, gearing for driving the latter from the former, wad cutting and plating devices actuated by said secondary shaft, shell-cripping devices actuated from said main shaft, a carriage, means actuated by said main shaft for advancing said carriage, a clutch for disconnecting said secondary shaft from its actuating-gearing, a step mounted on said carriage, and means actuated by said step for automatically disconnecting said clutch, whereby said wad cutting and plating devices are arrested without arresting the feed action of said carriage or the actuation of said shell-cripping devices, as and for the purposes set forth.

38. In a machine of the class described, of a carriage for containing a shell-plate, means for registering and firmly holding the plate on said carriage, guides in which said carriage operates, an adjustable stop mounted on said car-

ring, and mechanism operated by said stop for arresting said wad-placing device without arresting said crimping device, as and for the purpose set forth.

39. In a machine of the class described, the combination with a shell-plate carriage, a feed-rack connected thereto, a transverse shaft having a gear thereon arranged to mesh with said feed-rack, means for automatically rotating said shaft periodically to advance said carriage step by step, including a ratchet mounted on said transverse shaft, manually-actuated devices for throwing said ratchet out of operation at will to arrest the advancing movement of said carriage and to permit the return thereof to initial position, and stops arranged to limit the forward and backward movements of said carriage whereby when said automatic step-by-step feed mechanism is thrown out of action said carriage is prevented from being advanced or retreated sufficiently to disengage the gear on said transverse shaft from said rack, as and for the purpose set forth.

40. In a machine of the class described, the combination with a drive-shaft, wad cutting and inserting and shell-crimping device, of a carriage for holding and conveying the shells, racks located underneath said carriage and meshing in pinions on a shaft operated by means of a pawl and ratchet connected with the driving-shaft, whereby a step-by-step movement is imparted to said carriage, and at such times as the wad-cutting and shell-crimping device are lifted from the shells, as and for the purpose set forth.

41. In a machine of the class described, the combination with a shell-feeding carriage, of a ratchet mechanism for operating the same, an operating-pawl and a locking-pawl for said ratchet, means for automatically lifting the locking-pawl at the moment the driving-pawl starts to move the ratchet forward, and manually-actuated device for raising said pawls out of action at will, as and for the purpose set forth.

42. In a machine of the class described, the combination of a shell-feeding carriage, a ratchet including a drive-pawl for operating the carriage, a locking-pawl, and means for lifting the driving-pawl and means actuated by the lifting or driving pawl for automatically lifting the locking-pawl, at the will of the operator, as and for the purpose set forth.

43. In a machine of the class described, the combination with a carriage, power mechanism for operating the same, automatic device for actuating said power mechanism, means for disengaging the connection between said carriage and said power mechanism, and manual means independent of said power mechanism for moving said carriage forward or backward, as and for the purpose set forth.

44. In a machine of the class described, the combination of a wad cutting and placing device, a crimping device, a releasable driving-pawl and primary driving-shaft connected with said pawl and operated by it, and having a releasable eccentric for operating the crimping device, a secondary driving-shaft releasably connected with and operated by said primary shaft by means of a releasable gear, adjustable means for regulating the stroke of said wad cutting and placing device, a die-block connected with the plunger and partaking in part of its movement, wad-punches operating through said die-block, releasable means for holding the die-block while the punches are being withdrawn, rollers for feeding the wad material, and corresponding rolls to receive it, connections actuated by the secondary driving-shaft for operating these parts, a carriage for conveying the shell-plate, mechanism including racks and pinions, ratchet and pawl, and connected with and operated step by step by the primary shaft for actuating said carriage, adjustable stops on said carriage by which the secondary shaft is arrested and the eccentric on said primary shaft is released, means for positively arresting the carriage at each of its movements and finally at the completion of the movements in either direction, means for disconnecting the carriage from the operation of the machine and means for moving it in either direction at the will of the operator, and adjustable guides for said carriage, as and for the purpose set forth.

45. In a machine of the class described, wad cutting and placing device, a shell-feeding carriage, driving mechanism for said wad cutting and placing device including a clutch, a trip, connections actuated thereby and operating to disengage said clutch, means for maintaining said trip under tension and said connections out of operative position with respect to said clutch, and a stop carried by said carriage for releasing said trip-retaining means, as and for the purpose set forth.

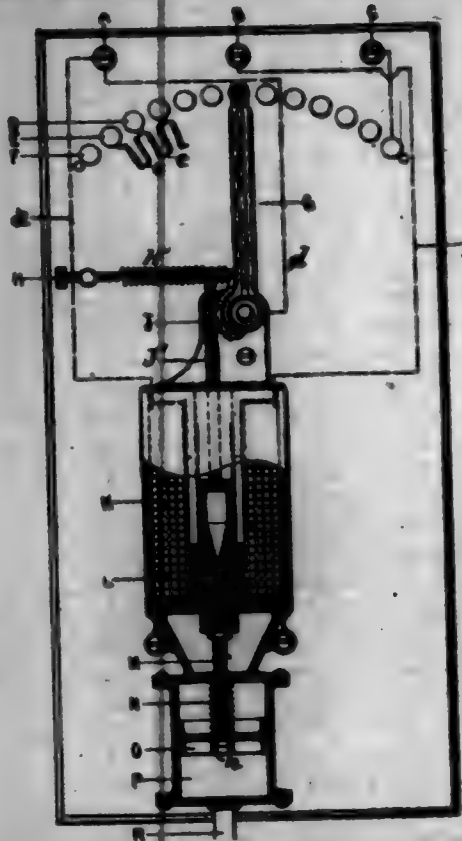
46. In a machine of the class described, wad cutting and placing device, an actuating-shaft therefor, a clutch for rendering said shaft inoperative, a trip, connections actuated thereby for disengaging said clutch, means for retaining said trip under tension and said connections out of operative position, a stop for automatically releasing said retaining means, and auxiliary manual device for releasing said trip at will, as and for the purpose set forth.

47. In a machine of the class described, a plunger carrying wad cutting and placing punches, and means for actuating the same, in combination with a guiding and aligning die-block carried by said plunger and having or least motion connection therewith to permit of movement relative

thereto, and a detachable lock for said die-block, as and for the purpose set forth.

48. In a machine of the class described, a plunger, wad cutting and placing punches carried thereby, a die-block carried by said plunger and having loose or lost motion connection therewith to permit of movement relative thereto, a locking-lever for locking said block in the limit of its movement, and means carried by said plunger for releasing said locking-lever, as and for the purpose set forth.

702,153. ELECTRICAL CONTROLLING APPARATUS. EDWARD F. PLATT, Louisville, Ky., assignor to Joseph McWilliams and Company, Louisville, Ky., a Corporation of Kentucky. Filed Feb. 20, 1902. Serial No. 95,990. (No model.)



Claim.—1. The combination with an electric motor and a fluid moving device operated thereby, of an electric stopping and starting device in circuit with the motor, provided with controlling means for controlling the speed of the motor after it has been started, and a fluid-pressure motor controlling said means for controlling the speed of the motor controlled by the pressure produced by said fluid moving device.

2. The combination with an electric motor and a fluid moving device operated thereby, of a solenoid in circuit with the motor, a contact-arm controlled by the magnetic core of the solenoid, resistance for controlling the motor controlled by the contact-arm, and a fluid-pressure motor controlling the magnetic core of the solenoid and controlled by the pressure produced by said fluid-moving device, whereby the motor is started by the solenoid and its speed is controlled by the movement of the magnetic core and contact-arm under the control of the fluid-pressure motor.

3. In controlling apparatus for the purpose described, the combination with an electric motor and a fluid moving device operated thereby, of an electric controller for controlling the speed of the electric motor, means to automatically throw said controller into "off" position when the circuit is open, a fluid-pressure motor controlling said electric controller and controlled by the pressure produced by said fluid moving device, and means to permit said controller to return to the "off" position, when the circuit is open, independently of the pressure acting on said pressure-motor.

4. In controlling apparatus for the purpose described, the combination with the electric motor and fluid moving device operated thereby, of an electric controller for controlling the speed of the electric motor, means to automatically throw said controller to the "off" position when the circuit is open, a cylinder communicating with said fluid moving device, a piston in the cylinder controlled by the pressure produced in the cylinder by the fluid moving device, and a loose connection between said controller and the piston, whereby said controller may return to the "off" position, when the circuit is open, independently of the pressure acting on said pressure-motor.

5. In controlling apparatus for the purpose described, the combination with an electric motor and a fluid moving device operated thereby, of an electric controller for controlling the speed of an electric motor, means to automatically throw said controller to the "off" position when the circuit is open, a cylinder communicating with said fluid moving device, a piston in the cylinder controlled by the pressure produced in the cylinder by the fluid moving device, and a loose connection between said controller and the piston, whereby said controller may return to the "off" position, when the circuit is open, independently of the pressure acting on said pressure-motor.

is open, a cylinder communicating with the said fluid moving device, a piston in said cylinder controlled by the pressure produced in the cylinder by the fluid moving device, a rod in connection with a moving part of the controller and extending through the piston and loosely connected therewith by the head or nut, and a spring acting on the piston.

6. In a controlling device for the purpose described, the combination of a solenoid and its magnetic core, a moving contact-arm operatively connected with the magnetic core, a fluid-pressure motor operatively connected with the magnetic core and adapted to control it by the pressure acting on said motor, an electric circuit embracing said solenoid, and an electric circuit embracing resistance-contacts controlled by said contact-arm.

7. In a controlling device for the purpose described, the combination of a solenoid and its magnetic core, a movable contact-arm operatively connected with the magnetic core, a fluid-pressure motor operatively connected with the magnetic core and adapted to control it by the pressure acting on said motor, an electric circuit embracing resistance-contacts controlled by said contact-arm, a spring acting on said contact-arm and adapted to return it to "off" position when the circuit through the solenoid is open, and means to permit the magnetic core to return, when said circuit is open, independently of the pressure acting on said pressure-motor.

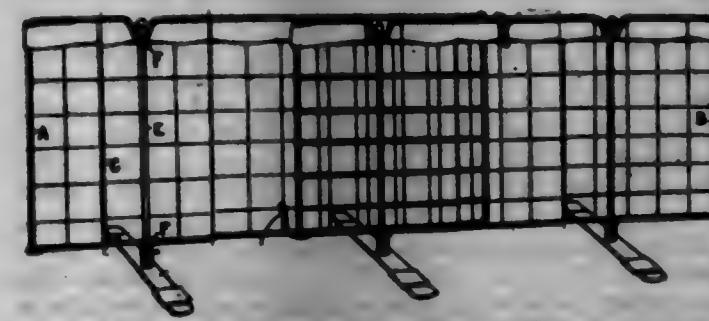
702,158. TREATMENT OF ORES AND MATERIALS CONTAINING ANTIMONY. JAMES F. VAN DER PLOEG, The Hague, Netherlands. Filed June 25, 1901. Serial No. 65,967. (No specimens.)

Claim.—1. The herein-described method of extracting antimony from ores, materials or residues containing it, consisting in finely pulverizing the material, mixing it with a suitable quantity of powdered quicklime and then mixing it with an adequate quantity of acid of an alkali-earth metal and water, so as to form a solution of the lower and most soluble double sulfide as being the best electrolyte without the use of artificial heat or application of pressure.

2. The herein-described process of obtaining antimony from ores, materials, or residues containing it, consisting in finely pulverizing the material, mixing it with a suitable quantity of powdered quicklime and then mixing it with an adequate quantity of acid of an alkali-earth metal and water, so as to form a solution of the lower and most soluble double sulfide as being the best electrolyte without the use of artificial heat or application of pressure, and then extracting antimony from said solution.

3. The herein-described method of extracting antimony from ores, materials or residues containing it, consisting in finely pulverizing the material mixing it with a suitable quantity of powdered quicklime and then mixing it with an adequate quantity of acid of an alkali-earth metal and water so as to form a solution of the lower and most soluble double sulfide as being the best electrolyte without the use of artificial heat or application of pressure winning the antimony from said acid solution as a metal by electrolysis and then using several times the solution from which the antimony has been separated for treating new quantities of ores or materials containing antimony as until the antimony contents are practically completely extracted from the ores or materials containing antimony under treatment, new quantities of quicklime and acid of an alkali earth metal being added according to the nature of the antimony compound.

702,154. TABLE-TENNIS NET. JAMES E. GORDON and WILLIAM C. GORDON, Liverpool, England. Filed Mar. 2, 1902. Serial No. 97,261. (No model.)



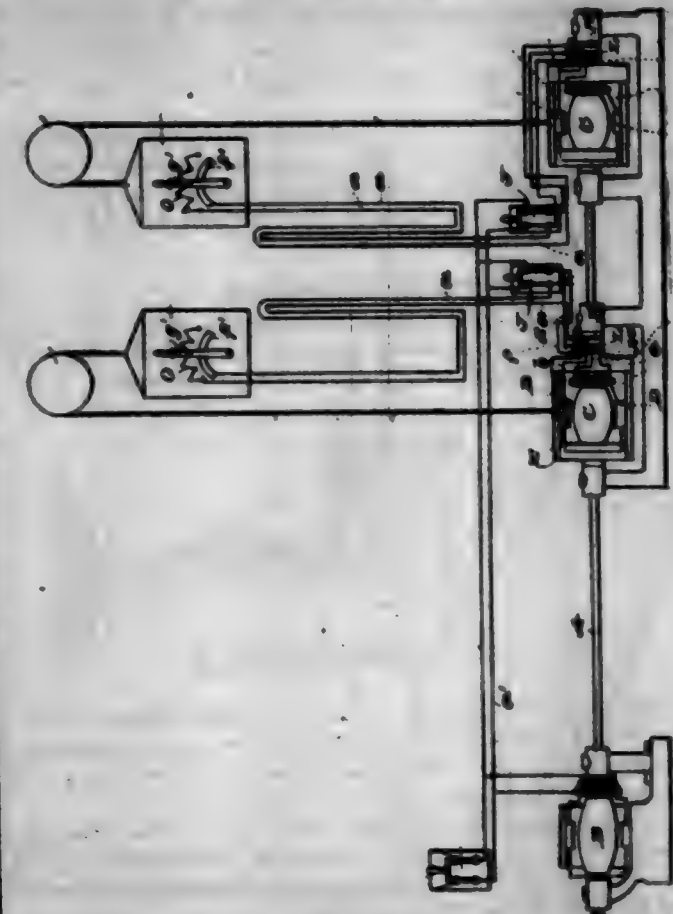
Claim.—1. A table-tennis net comprising a set of two or more separate pieces of wirework which can be placed alongside each other and caused to overlap, with means for holding them together with sufficient rigidity so as to adjust the length of the net to fit different-size tables.

2. A table-tennis net consisting of two rectangular frames filled in with wire-netting, appliances for securing them together, such frames being provided with feet or supports which when in use are at right angles to the network, but can be turned so as to be in line therewith and pack in a small compass, substantially as set forth.

3. A table-tennis net, comprising two rectangular frames, one having

ing a bottom hook and the other a top hook, to respectively overlap each other, and a series of winging supports for the rectangular frames; substantially as described.

702,155. ELECTRIC MOTOR. HAROLD ROYDEN, Chicago, Ill., assignor to Otto Elevator Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 22, 1900. Serial No. 797,900. (No model.)



Claim.—1. The combination with a car, a hoisting-cable therefor, a drum over which said hoisting-cable operates, of a motor having its armature and field mounted in rotative relation in opposite directions, said drum connected to one of said parts, means for driving one of said parts, and means for maintaining the rotation of the armature and field at different speed ratios, as and for the purpose set forth.

2. The combination with a car and a hoisting-drum therefor, of a motor having its armature and field mounted for rotation in opposite directions, said drum connected to one of said parts, driving mechanism for one of said parts, and a controlling-lever on the car, circuits therefor, whereby the speed ratios of rotation of the armature and field are varied, as and for the purpose set forth.

3. The combination with an electric motor having its armature and field independently revolvable, a drum connected to one of said parts, and means for maintaining the rotation of the armature and field at different speed ratios, as and for the purpose set forth.

4. The combination with a car, a hoisting-drum therefor, of an electric motor having its armature and field independently revolvable, said hoisting-drum connected to one of said parts, and means carried by the car for controlling the variations in relative speed ratios in rotation of the armature and field, as and for the purpose set forth.

5. In an electric elevator, a motor having its armature and field independently revolvable, a car, hoisting connections between said car and one of said independently-revolvable parts, and means controllable from the car for maintaining the rotation of the armature and field at different speed ratios, as and for the purpose set forth.

6. In an electric elevator, a motor having its armature and field independently revolvable, a hoisting-drum connected to one of said independently-revolvable parts, a car, hoisting connections between said car and drum, and means controllable from the car for maintaining the rotation of the armature and field at different speed ratios, as and for the purpose set forth.

7. The combination with an electric motor having its armature and field independently revolvable, of means for varying the relative speed of said independently-revolvable parts, a drum arranged to be driven by one of said parts, a brake for said motor, and means whereby said brake is applied when the circuit of the motor is broken, as and for the purpose set forth.

8. In an electric elevator, a car, a hoisting-motor therefor, said motor having an independently-revolvable armature and field, hoisting connections between the car and one of said parts, and means for varying

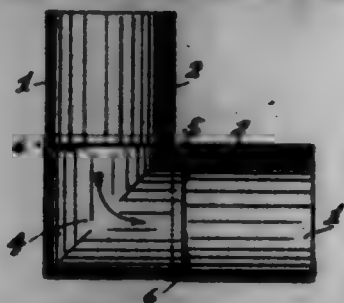
the relative speeds of the armature and field to vary the speed of the car, as and for the purpose set forth.

9. In an electric elevator, a car, a hoisting-motor therefor, said motor provided with an independently-revoluble armature and a field, hoisting mechanism between the car and one of said parts, and means from the car for varying the relative speed of the armature and field to vary the speed of the car, as and for the purpose set forth.

10. In an electric elevator, a car, a hoisting-motor therefor, said motor provided with an armature and a field, arranged for independent rotation, hoisting connections between the car and one of said parts, and means controllable from the car for varying the speed of the car, as and for the purpose set forth.

11. In an electric elevator, a hoisting-motor having an independently-revoluble armature and a field, a car, connections between said car and one of said parts, and means controllable from the car for varying the speed and direction of rotation of one of said parts with reference to the other, as and for the purpose set forth.

702,156. MITER-JOINT FOR EAVES-TROUGHS. THOR RYE, Minnesota, Minn., assignor of one-half to W. A. Grove, Minnesota, Minn. Filed Feb. 25, 1902. Serial No. 95,554. (No model.)

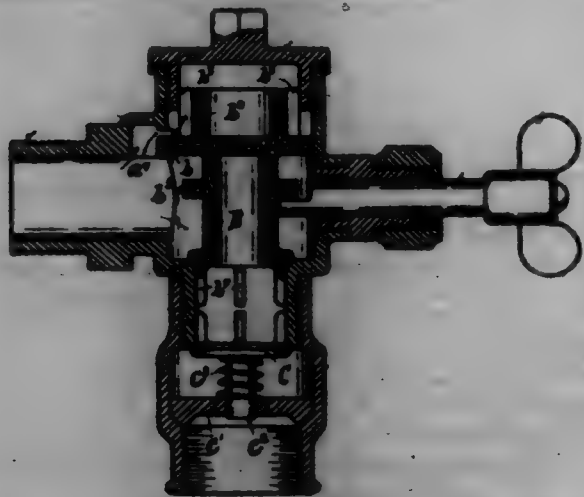


Claim.—1. An eaves-joint involving an elbow-section, and cooperating trough-sections which trough-sections extend at an angle to each other, are directly united at one edge, and are adapted to overlap with the ends of said elbow, substantially as described.

2. An eaves-joint comprising the elbow-section 4 with raised inner portion 5, and the trough-section 1 having the rolled band 2 and cut transversely at 3 and bent at right angles, which sections are adapted to be put together, substantially as described.

3. An eaves-joint comprising the elbow-section 4 with inner raised portion 5 and clenching-lips 6, and the trough-section 1 having the rolled rib 2, cut transversely at 3 and bent at right angles, which trough-sections are adapted to be put together, substantially as described.

702,157. RELIEF-VALVE. FRANK SCHMIDT, Mansfield, Ohio. Filed Oct. 7, 1901. Serial No. 77,905. (No model.)



Claim.—1. In a relief-valve a casing having an inlet and an outlet opening, a main valve therein normally closing the outlet-opening having an enlarged upper end contacting the walls of the casing and forming therewith a closed chamber above the valve, said chamber having a slot in its walls situated above the normal position of the upper end of the valve and placing the chamber in communication with the interior of the casing, substantially as shown and described.

2. In a relief-valve a casing having an inlet and an outlet opening, a main valve therein normally closing the outlet-opening having an enlarged upper end contacting the walls of the casing and forming therewith a closed chamber above the valve, said chamber having a slot in its walls situated above the normal position of the upper end of the valve and placing the chamber in communication with the interior of the casing, and a hand-wheel having its stem passing through the casing and engaging the main valve for lifting it from its seat when desired, substantially as shown and described.

gaging the main valve for lifting it from its seat when desired, substantially as shown and described.

3. In a relief-valve the combination of a casing having an inlet and an outlet opening, a main valve therein seated against the outlet-opening and consisting of a shell having an internal flange and an upper enlarged end contacting the walls of the casing and forming therewith a closed chamber above the valve, said chamber having a slot in its walls situated above the normal position of the end of the valve and placing the chamber in communication with the interior of the casing, a secondary valve to be seated downward against the internal flange of the main valve and a light spring for raising it from its seat, substantially as shown and described.

702,158. COMBINED BUSTLE AND HIP-FORM. CHARLES H. SHUTT, Chicago, Ill. Filed Oct. 17, 1901. Serial No. 78,912. (No model.)



Claim.—1. As an improved article of manufacture, a bustle and hip-form comprising a covering substantially semicircular in shape and filling therein, the said filling being tapered to a feather-edge at all of its edges, the cover and filling being tapered so that one side of the cover will be contracted, whereby the device may be reversed and two different sized and shaped concave-convex forms produced, substantially as described.

2. As an improved article of manufacture, a bustle and hip-form comprising a covering composed of two pieces connected together at their edges, each of said pieces having in its upper portion a circular recess and in its lower portion a series of ribs connected together at their edges, filling having all of its edges tapered and beveled between said pieces, and the whole formed so that it may be reversed and two different sized and shaped concave-convex forms produced, substantially as described.

702,159. JOURNAL-BOX. JOHN F. SUTHERLAND, Leonard, Ohio. Filed Jan. 27, 1902. Serial No. 91,305. (No model.)



Claim.—In a journal-box, the combination with a box-body 1 having a dust-guard compartment in its inner end portion and a journal-receiving opening therein, of a dust-guard comprising a main section 9 and a yielding or movable section 11 slidably mounted therein, and curved bearing-segments secured in oppositely-located recesses of said dust-guard sections, said bearing-segments having beveled end portions which are adapted to overlap each other and being of such width as to extend in front and in rear of the dust-guard body, substantially as specified.

702,160. CLAMP PARTICULARLY ADAPTED FOR SECURING FITTINGS TO THE FRAMES OF CYCLES. FREDERICK H. HARRISON, London, England. Filed Apr. 1, 1902. Serial No. 101,066. (No model.)



Claim.—1. In a clamp the combination of a strap adapted to encircle a support, means to permit the overlapping of the ends of the strap without their lying one upon the other, a projection on one end of the strap, a lever pivoted to the other end and adapted to operate against the projection as a fulcrum so that tension is put upon the strap, means for turning the lever upon its fulcrum, means for retaining the lever in its operative position and means for securing an article to the clamp substantially as set forth.

2. In a clamp the combination of a strap adapted to encircle a support, means to permit the overlapping of the ends of the strap without their lying one upon the other, a projection on one end of the strap, a lever pivoted to the other end and adapted to operate against the projection as a fulcrum so that tension is put upon the strap, means for turning the lever upon its fulcrum, a stop against which the lever is brought by

the tension put on the strap and means for securing an article to the clamp substantially as set forth.

3. In a clamp the combination of a strap adapted to encircle a support, means to permit the overlapping of the ends of the strap without their lying one upon the other, a projection on one end of the strap, a lever pivoted to the other end and adapted to operate against the projection as a fulcrum so that tension is put upon the strap, means for positioning the base of the fulcrum so that the line of tension passes between it and the support clamped by the clamp, means for turning the lever upon its fulcrum, a stop to limit the movement of the lever in one direction and means for securing an article to the clamp substantially as set forth.

4. In a clamp the combination of a strap adapted to encircle a support, a forked end to the strap adapted to receive the other end, a projection on one end of the strap, a lever pivoted to the other end and adapted to operate against the projection as a fulcrum so that tension is put upon the strap, means for positioning the base of the fulcrum so that the line of tension passes between it and the support clamped by the clamp, means for turning the lever about its fulcrum, a stop to limit the movement of the lever in one direction and means for securing an article to the clamp substantially as set forth.

5. In a clamp the combination of a strap adapted to encircle a support, a lug on one end of the strap and forming a continuation of it, a jaw on the lug to receive the free end of the strap, a projection on each end of the jaw approximately at right angles to the face of the free end of the strap, a lever pivoted to the free end of the strap and adapted to operate against the projections as a fulcrum so that tension is put upon the ends of the strap, a shoulder on the projections so positioned that the line of tension is made to pass between the fulcrum and the support clamped by the clamp, a recess in the lever to permit the passage of the strap when fixing the clamp, means for turning the lever upon its fulcrum, a stop to limit the movement of the lever in one direction and means for securing an article to the clamp substantially as set forth.

6. In a clamp the combination of a strap adapted to encircle a support, a lug on one end of the strap and forming a continuation of it, a jaw on the lug to receive the free end of the strap, a projection on each end of the jaw approximately at right angles to the face of the free end of the strap, a lever pivoted to the free end of the strap and adapted to operate against the projections as a fulcrum so that tension is put upon the ends of the strap, a shoulder on the projections so positioned that the line of tension is made to pass between the fulcrum and the support clamped by the clamp, a recess in the lever to permit the passage of the strap when fixing the clamp, an article secured to the lever of the clamp and a stop to limit the movement of the clamp in one direction substantially as set forth.

709,161. WINDMILL. GILBERT R. SNOW, Esq., III., assignor to High Wind Power and Pump Company, Esq., III., a Corporation of Illinois. Filed July 1, 1891. Serial No. 66,622. (No model.)

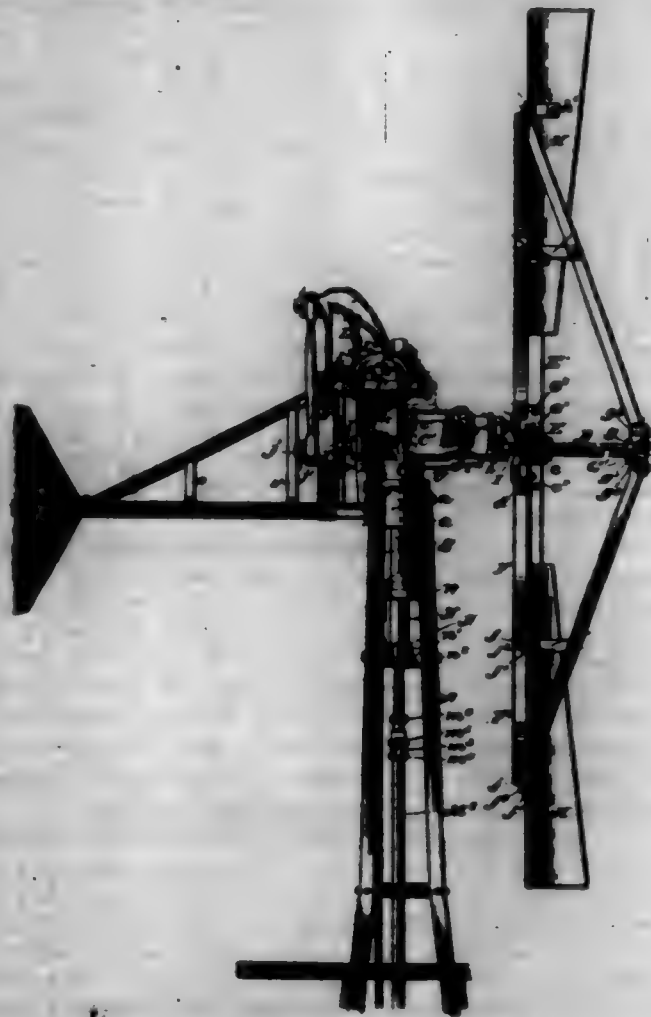
Claim.—1. In a windmill, the combination of a wind-wheel shaft, an inner hub or mounting and an outer hub or mounting on the wind-wheel shaft, spokes or arms radiating from the inner hub or mounting, an inner and an outer rim, both rims continuous and each rim having a horizontal flange and a vertical flange, both rims attached each by its vertical flange to the radiating spokes or arms, and radial diagonal braces extending from the outer hub or mounting to the inner rim and attached to the hub or mounting and to a flange of the outer rim, the braces alternating with the arms or spokes, substantially as described.

2. In a windmill, the combination of a wind-wheel shaft, an inner hub or mounting and an outer hub or mounting on the wind-wheel shaft, spokes or arms radiating from the inner hub or mounting, an inner and an outer rim, both rims continuous and each rim having a horizontal flange and a vertical flange, both rims attached each by its vertical flange to the radiating spokes or arms, radial diagonal braces extending from the outer hub or mounting to the outer rim, and attached to the hub or mounting and to a flange of the outer rim, the braces alternating with the arms or spokes, and fans attached to the outer and inner rims, substantially as described.

3. In a windmill, the combination of a wind-wheel shaft, an inner hub or mounting and an outer hub or mounting on the wind-wheel shaft, each hub or mounting having a center and radial ears or brackets extending from the center, arms or spokes attached at their inner ends to the ears or brackets of the inner hub or mounting, an outer and an inner rim, both rims continuous and each rim having a horizontal flange and a vertical flange, both rims attached each by its vertical flange to the arms or spokes, and diagonal braces attached at their inner ends to the ears or brackets of the inner hub or mounting and attached at their outer ends to the vertical flange of the outer rim, the braces alternating with the arms or spokes, substantially as described.

4. In a windmill, the combination of a wind-wheel shaft, an inner hub or mounting and an outer hub or mounting on the wind-wheel shaft,

each hub or mounting consisting of a center, radial ears or brackets and a plate or facing connecting the ears or brackets, arms or spokes attached at their inner ends to the ears or brackets of the inner hub or mounting and to the facing, an outer rim and an inner rim, both rims continuous and each rim having a horizontal flange and a vertical flange, both rims attached each by its vertical flange to the arms or spokes, and diagonal braces attached at their inner ends to the ears or brackets and the facing of the inner hub or mounting and attached at their outer ends to the vertical flange of the outer rim, the braces alternating with the arms or spokes, substantially as described.



5. In a windmill, the combination of a wind-wheel shaft, an inner hub or mounting and an outer hub or mounting on the wind-wheel shaft, each hub or mounting consisting of a center, radial ears or brackets and a plate or facing connecting the ears or brackets, arms or spokes attached at their inner ends to the ears or brackets of the inner hub or mounting and to the facing, an outer rim and an inner rim, both rims continuous and each rim having a horizontal flange and a vertical flange, both rims attached each by its vertical flange to the arms or spokes, diagonal braces attached at their inner ends to the ears or brackets and the facing of the outer hub or mounting and attached at their outer ends to the vertical flange of the outer rim, the braces alternating with the arms or spokes, and fans attached to the outer and inner rims, substantially as described.

6. In a windmill, the combination of a horizontal main frame or support having on its upper face an extended box or bearing for the wind-wheel shaft and an extended box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm upwardly and outwardly extending from the main frame or support, and a vibratable arm or lever pivotally mounted at its inner end on the fixed arm and having an upward, forward and lateral projection for connection with a wheel or disk on the gear-shaft and a lower forward continuation for connection with a pump-rod for giving the pump-rod its reciprocating movements, substantially as described.

7. In a windmill, the combination of a horizontal main frame or support having on its upper face an extended box or bearing for the wind-wheel shaft and an extended box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm upwardly and outwardly extending from the main frame or support, a vibratable arm or lever pivotally mounted at its inner end on the fixed arm and having an upward, forward and lateral projection, a pitman connecting the lateral end of the vibratable arm or lever with the disk or wheel on the gear-shaft, and a lower forward extension of the vibratable arm or lever for attachment thereto of the pump-rod, substantially as described.

8. In a windmill, the combination of a horizontal main frame or sup-

port having an extended box or bearing for the wind-wheel shaft and an extended box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm upwardly and outwardly extending from the main frame or support, a wind-wheel shaft mounted in the box or bearing therefor on the main frame or support, a pinion on the wind-wheel shaft, a gear-shaft mounted in the box or bearing therefor on the main frame or support and having a disk or wheel in mesh with the pinion of the wind-wheel shaft, a vibratable arm or lever pivoted at its inner end on the fixed arm of the main frame or support and having an upward, forward and lateral projection, a pitman connecting the disk or wheel with the lateral end of the vibratable arm or lever, and a lower forward extension of the vibratable arm or lever for attachment to the pump-rod, substantially as described.

9. In a windmill, the combination of a horizontal main frame or support having an extended box or bearing for the wind-wheel shaft and an extended box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm upwardly and outwardly extending from the main frame or support, a wind-wheel shaft mounted in the box or bearing therefor on the main frame or support, a pinion on the end of the wind-wheel shaft, a gear-shaft mounted in the box or bearing therefor on the main frame or support, a disk or wheel on the end of the gear-shaft in mesh with the pinion of the wind-wheel shaft, a vibratable arm or lever pivoted at its inner end on the fixed arm of the main frame or support and having an upward, forward and lateral projection, a pitman pivotedly connected with the disk or wheel of the gear-shaft and with the lateral end of the vibratable arm or lever, a lower forward extension on the vibratable arm or lever for attachment to a pump-rod, and a pump-rod reciprocated by the movement of the arm or lever, substantially as described.

10. In a windmill, the combination of a bearing-head at the top of the tower, a horizontal main frame or support mounted on the bearing-head and having a box or bearing for the wind-wheel shaft and a box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm outwardly and upwardly extending from the main frame or support, a vibratable arm or lever pivoted at its inner end on the fixed arm and having an upward, forward and lateral projection for connection with the gear wheel or disk on the gear-shaft, and a lower forward extension for connection with the pump-rod for reciprocating the pump-rod, substantially as described.

11. In a windmill, the combination of a bearing-head at the upper end of the tower, a horizontal main frame or support mounted on the bearing-head and having a box or bearing for the wind-wheel shaft and a box or bearing for the gear-shaft, the two boxes or bearings arranged side by side in a horizontal plane, a fixed arm upwardly and outwardly extending from the main frame or support, a wind-wheel shaft mounted in the box or bearing therefor on the main frame or support, a pinion on the end of the wind-wheel shaft, a gear-shaft mounted in the box or bearing therefor on the main frame or support, a disk or wheel on the gear-shaft in mesh with the pinion of the wind-wheel shaft, a vibratable arm or lever pivoted at its inner end on the fixed arm and having an upward, forward and lateral projection, a pitman connecting the projecting lateral end of the vibratable arm or lever with the disk or wheel of the gear-shaft, a forward extension of the vibratable arm or lever in line with the pump-rod, and a pump-rod connected to the extension of the vibratable arm or lever, substantially as described.

12. In a windmill, the combination of a bearing-head at the upper end of the tower, a horizontal main frame or support mounted on the bearing-head and revolvable thereon and having a box or bearing for the wind-wheel shaft and a box or bearing for the gear-shaft, the two boxes arranged side by side in a horizontal plane and parallel one with the other, a fixed arm upwardly and outwardly extending from the main frame or support, a wind-wheel shaft mounted in the box or bearing therefor on the main frame or support, a gear-shaft mounted in the box or bearing therefor on the main frame or support, a disk or wheel on the gear-shaft in mesh with the pinion of the wind-wheel shaft, a vibratable arm or lever pivoted at its inner end on the fixed arm and having an upward, forward and lateral projection for connection with the disk or wheel gear shaft and a forward extension for connection with the pump-rod for reciprocating the pump-rod, substantially as described.

13. In a windmill, the combination of a main frame or support, a rock-shaft mounted on the main frame or support, an arm on the rock-shaft for turning the vane to throw the mill out of the wind, a second arm on the rock-shaft for advancing and rearing a brake block or head with the end of turning the vane to throw the mill out of the wind, a slidable horizontal brake block or head, connected with and operated from the second arm of the rock-shaft and a center or hub for a wind-wheel and having a convoluted face engaged by the acting end of the brake block or head, substantially as described.

14. In a windmill, the combination of a main frame or support, a rock-shaft mounted on the main frame or support, an arm on the rock-

shaft for turning the vane to throw the mill out of the wind, a second arm on the rock-shaft, a rod connected with the second arm, a coil-spring encircling the rod, a slidable horizontal brake block or head connected with the rod, and a hub or center for a wind-wheel having a convoluted face engaged by the acting end of the brake block or head in turning the vane to throw the wheel out of the wind, substantially as described.

702,182. METHOD OF FORMING SPONGE SUBSTITUTES. ALEXANDER STRAIN, New York, N. Y. Filed Nov. 5, 1901. Serial No. 81,394. (No specimen.)

Claim.—1. The method of forming a sponge substitute, which consists in incorporating with rubber a sufficient quantity of a chemically-acting cell-forming solvent of rubber to only partially dissolve said rubber, and heating said compound to form cells therein and vulcanize the rubber.

2. The method of forming a sponge substitute, which consists in incorporating with rubber a sufficient quantity of a chemically-acting cell-forming hydrocarbon to only partially dissolve said rubber, and heating said compound to form cells therein and vulcanize the rubber.

3. The method of forming a sponge substitute, which consists in incorporating with rubber a sufficient quantity of paraffin to partially dissolve said rubber, and heating said compound to form cells therein and vulcanize the rubber.

4. The method of forming a sponge substitute, which consists in incorporating with a sulfurized rubber compound a sufficient quantity of a chemically-acting cell-forming hydrocarbon to partially dissolve said rubber, and heating said compound to form cells therein and vulcanize the rubber.

5. The method of forming a sponge substitute, which consists in incorporating with a sulfurized rubber compound a sufficient quantity of a chemically-acting cell-forming hydrocarbon to partially dissolve said rubber, adding a sufficient quantity of water or other liquid to distill the cells of said rubber, and heating said compound to form other cells therein and vulcanize the rubber.

6. The method of forming a sponge substitute, which consists in incorporating paraffin with rubber, and heating said compound to form cells therein and vulcanize the rubber.

7. The method of forming a sponge substitute, which consists in incorporating paraffin and water or other moistening ingredient with rubber, and heating said compound to form cells therein and vulcanize the rubber.

8. The method of forming a sponge substitute, which consists in incorporating with sulfurized rubber a hydrocarbon capable of partially dissolving said rubber and causing a distention of the remainder, and then heating said compound to form cells therein and vulcanize the rubber.

702,183. APPARATUS FOR SPINNING ARTIFICIAL-SILK FILAMENTS FOR FORMING STRANDS OR THREADS. ROBERT W. STRANDBERG, Stockholm, Sweden. Filed Feb. 24, 1901. Serial No. 82,444. (No model.)

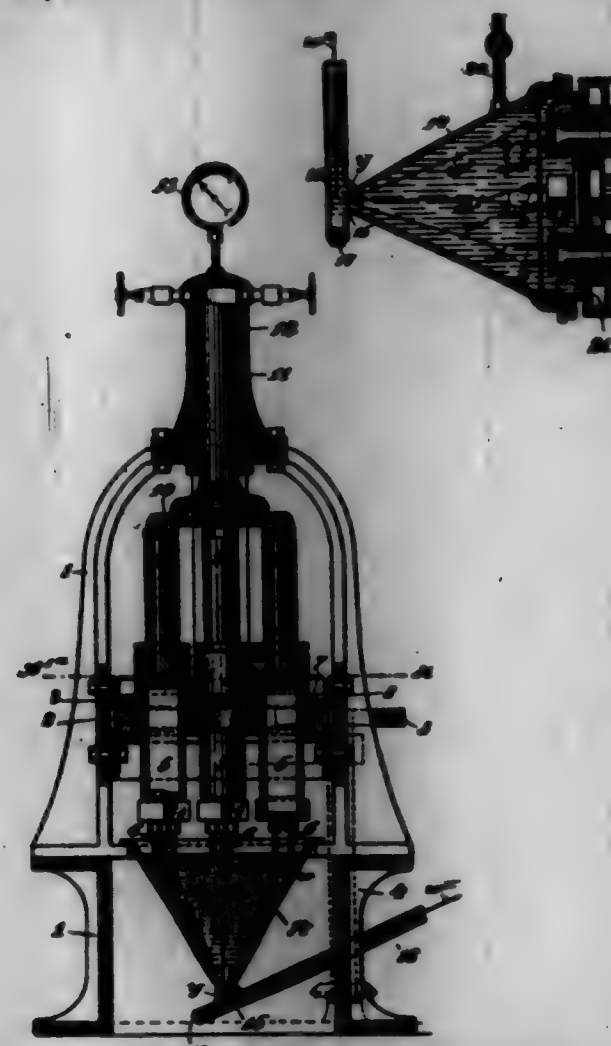
Claim.—1. An apparatus for making artificial silk having a reservoir of liquid in which the mouthpiece on the twisting mechanism is submerged, substantially as set forth.

2. An apparatus for making strands of artificial silk from a solution, having a mouthpiece with holes or a group of mouthpieces adapted to revolve about a common center, means for revolving said mouthpiece or mouthpieces, means for supplying the solution to said mouthpiece or mouthpieces, whereby the filaments produced from the mouthpiece or mouthpieces are twisted together in a continuous manner as fast as, and immediately after they are produced, and a reservoir containing a liquid in which said mouthpiece or mouthpieces revolve, whereby the operations are carried on in a liquid medium.

3. An apparatus for making strands of artificial silk from a solution comprising a mouthpiece with holes or a plurality of mouthpieces or groups of mouthpieces adapted to revolve about a common center, the mouthpiece or mouthpieces of each group being also adapted to revolve about a common center, means for effecting said revolutions, means for supplying the solution to said mouthpiece or mouthpieces, and a reservoir containing a fluid arranged adjacent to said mouthpiece or mouthpieces and in which the mouthpiece or mouthpieces are submerged during their operation, substantially as set forth.

4. In an apparatus for producing strands of artificial silk from a solution, the combination with a suitable frame and an annular rack 8, fixed therein, of a toothed gear-wheel, mounted rotatively in the frame concentric with the rack 8, means for rotating said gear-wheel, a cylinder or plurality of cylinders mounted rotatively in said gear-wheel and when more than one cylinder each provided with a pinion in gear with the rack 8, a mouthpiece or group of mouthpieces 6 on the end of each cylinder, and means for supplying the solution of artificial silk to the mouth-

piece or mouthpieces through the cylinder or respective cylinders, substantially as set forth.



5. In an apparatus for producing strands or artificial silk, the combination with a suitable frame and an annular rack 8, fixed therein, of a toothed gear-wheel, mounted rotatively in the frame concentric with the rack 8, means for rotating said gear-wheel, a cylinder or plurality of cylinders mounted rotatively in said gear-wheel and when more than one cylinder, each provided with a pinion in gear with the rack 8, a mouthpiece or group of mouthpieces 6 on the end of each cylinder, means for supplying the solution of artificial silk to the mouthpiece or mouthpieces through the respective cylinder or cylinders, and a reservoir 14, arranged adjacent to said mouthpiece or mouthpieces whereby they are adapted to revolve in a liquid contained therein, said reservoir having an outlet at its lower part for the thread, substantially as set forth.

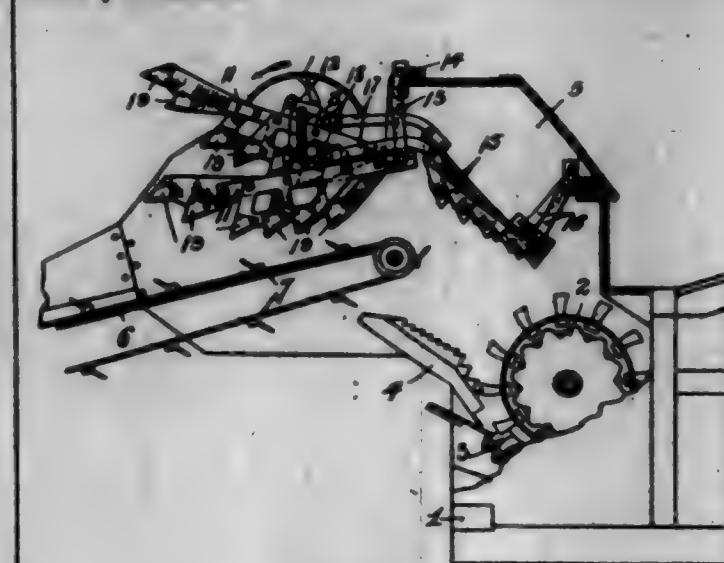
6. In an apparatus for the production of strands of an artificial silk from a solution, the combination with a suitable frame, a press mounted in the same and having a plunger 12, a plate or disk 10, coupled loosely to said plate, and an annular rack 8, fixed in the frame, of a gear-wheel 2, mounted rotatively in the frame concentric with said rack, a cylinder or plurality of cylinders 5, mounted rotatively in said gear-wheel 2 and when more than one cylinder, each provided with a pinion 7, in gear with the rack 8, plungers 9 in the respective cylinder or cylinders, the plate 10 bearing thereon, means for driving the gear-wheel 2, mouthpiece or mouthpieces 6 in the ends of the cylinder or respective cylinders and supplied therewith, a liquid-reservoir 14, adjacent to and embracing the mouthpiece or mouthpieces, whereby the latter are adapted to revolve in the liquid in said reservoir, and the tube 16, connected with the lower part of the reservoir for conducting away the thread.

702,184. HAND-OUTTER AND FEEDER. PAUL SWINNEY, Hopkinton, Mass. Filed Dec. 18, 1901. Serial No. 84,000. (No model.)

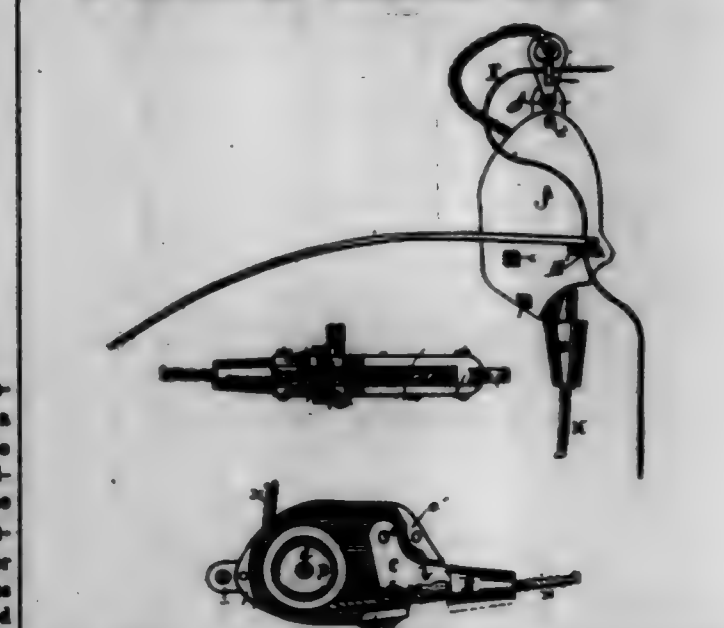
Claim.—1. In a hand-outer and feeder, the combination with the rotary crank-shaft, of a cutter-bar carried by said crank-shaft and supported at its forward end by an oscillating link, and a toothed or serrated overhead feed-bar extending forward of said cutter-bar and supported at its forward end by an independently-oscillating link and pivotally connected at its rear end to said cutter-bar, substantially as described.

2. In a hand-outer and feeder, the combination with a rotary crank-shaft 8, of a plurality of cutter-bars 11 carried by said crank-shaft, links 13 pivotally connecting the forward ends of said bars 11 to an overhead support, the overhead feed-bar 15 having the extensions 17 pivoted to said cutter-bars at 19 and overlapping said links 13, and the links 16 connecting the forward ends of said bars 11 from an overhead support, substantially as described.

porting the forward ends of said bars 11 from an overhead support, substantially as described.



702,185. CORN-SHOCK COMPRESSOR. ISA B. TAYLOR, Harvard, Ill. Filed Aug. 4, 1901. Serial No. 71,208. (No model.)



Claim.—1. In a corn-shock compressor comprising two companion side or face plates, the combination of a fixed jaw on one of the plates, a movable jaw pivoted between the plates, a guide or socket for the rope directly connected with the movable jaw and furnishing the operative means for engaging and disengaging the movable jaw and locking the jaw when engaged, and a pulley-wheel over which the rope travels, substantially as described.

2. In a corn-shock compressor comprising two companion side or face plates, the combination of a fixed jaw on one of the plates, a movable jaw pivoted between the plates and having a serrated edge coacting with the face of the fixed jaw, a guide or socket directly connected with the movable jaw and through which the rope passes and furnishing the operative means for engaging and disengaging the movable jaw and locking the jaw when engaged, and a pulley-wheel over which the rope travels, substantially as described.

3. In a corn-shock compressor comprising two companion side or face plates, the combination of a fixed jaw on one of the plates, a movable jaw pivoted between the plates, a guide or socket for the rope directly connected with the movable jaw and furnishing the operative means for engaging and disengaging the movable jaw and locking the jaw when engaged, a pulley-wheel over which the rope travels, and a retaining or anchoring wire pivotally secured at one end on one of the plates, substantially as described.

4. In a corn-shock compressor, comprising two companion side or face plates, the combination of a fixed jaw, a movable jaw pivoted between the plates, a socket attached to the movable jaw and through which the rope passes and furnishing the operative means for engaging and disengaging the movable jaw and locking the jaw when engaged, a pulley-wheel over which the rope travels, and a curved retaining or anchoring wire pivoted at one end to one of the side or face plates, substantially as described.

5. The combination, in a corn-shock compressor, a tackle-block, a

compressing-rope, having a snap on its end for engaging the tackle-block and rope, a retaining or anchoring wire, pivoted at one end to the tackle-block and having an eye or loop therein adjacent to the pivotal point of the wire to the block, a retaining-spring on the snap, and a tying cord or twine threaded through the eye or loop and having its free end caught beneath the retaining-spring, for passing the tying-cord around a check or handle with the encircling of the check or handle by the compressing-rope, substantially as described.

702,166. STRAP-GRIP FOR SHAFBLING HORSES. *Am. JOHN H. WALLACE, Scrabble, Scotland. Filed Nov. 12, 1900. Serial No. 28,406. (No model.)*

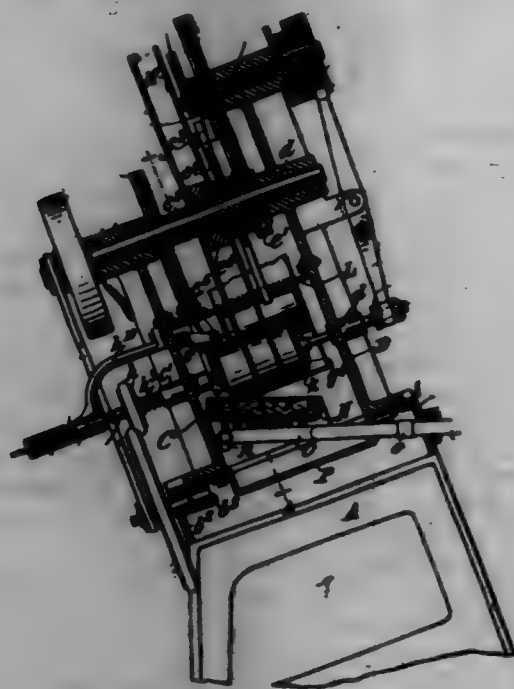


Claim.—1. The combination of the buckle-frame B, the gripping-plate A hinged to said frame at one end, gripping by its free end against the opposite end of the frame and having a slot intermediate of its ends, and a strap engaging with the slotted central part of the gripping-plate so as to draw the free end thereof into engagement with the strap to be gripped, as explained.

2. The combination of the frame B, the gripping-plate A hinged at one end to the frame, formed at its free end to engage a strap passing between it and the opposite end of the frame, and having a transverse slot F intermediate of its ends; and a minable strap passing through said slot, provided with steps G to limit its rendering therethrough, so as to draw the free end of the gripping-plate into or out of engagement with the buckle-frame, as explained.

3. The combination of the buckle-frame B formed at its hinge end with a stop-shoulder d; the gripping-plate A hinged to the said frame at one end, gripping by its free end against the opposite end of the frame; engaging by its hinged end against the stop d so as to limit its opening movement, and having a slot intermediate of its ends; and a strap engaging with the slotted central part of the gripping-plate so as to draw the free end thereof into engagement with the strap to be gripped, as explained.

702,167. MACHINE FOR MANUFACTURING SOLDERED CANS. *HARRY A. WILLIAMS, Brooklyn, N. Y., assignor to American Can Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 27, 1900. Serial No. 10,232. (No model.)*



Claim.—1. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for forwarding a can to a position with its corner in said solder, means for rotating said can in said position, and means for simultaneously removing superfluous solder from said can.

2. In a can-soldering machine, the combination with a molten-solder receptacle, of a runway for the cans, an intermittently-rotating notched feed-wheel for the cans, a pair of rotating and reciprocating checks or spindles bearing against the ends of the cans for automatically rotating the cans and immersing the corners thereof in the molten solder, substantially as specified.

3. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for forwarding a can to a position with its corner in said solder, and rotating said can in said position, and a brush adapted to bear simultaneously on the solder taken up by said can and to remove the superfluous portion thereof.

4. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for forwarding a can to a position with its corner in said solder and rotating said can in said position, a brush adapted to bear simultaneously on the solder taken up on the side of said can, and a brush adapted to bear simultaneously on the solder taken up on the end of said can, said brushes being adapted to remove the superfluous portions of solder taken up.

5. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for forwarding a can to a position with its corner in said solder and rotating said can in said position, a brush adapted to bear simultaneously on the solder taken up by said can, and means for rotating said brush to remove the superfluous portion of solder.

6. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, a runway, means for forwarding a can to a fixed point of said runway over said solder, means for moving said can axially to a position with its corner in said solder, rotating it in said position and then withdrawing it to its former position above the solder, and means for forwarding the same along said runway from its position above the solder.

7. In a can-soldering machine, the combination of a molten-solder receptacle, of a runway for the cans, an intermittently-rotating notched feed-wheel for the cans and a plurality of pairs of rotating and reciprocating checks or spindles for checking the cans endwise between them and rotating the cans and immersing the corners thereof in the solder-bath, substantially as specified.

8. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, a laterally-inclined runway, means for forwarding cans along said runway to a position over said solder, means for holding said cans within said runway while they are being forwarded to said position, and means for projecting said cans beyond the lower side of said runway and into said solder when in said position.

9. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for forwarding a can to a position above said solder, and means for moving said can downward into said solder and means controlled by said downward movement for rotating said can.

10. In a can-soldering machine, the combination of a receptacle for containing solder, means for liquefying said solder, means for holding a can in a position with its corner in said solder and rotating it in said position and a cover extending over the can in said position for preventing the escape of heat.

11. In a can-soldering machine, the combination of a molten-solder receptacle, of a runway for the cans, an intermittently-rotating feed-wheel for the cans, rotating checks or spindles for rotating the cans with the corners thereof in the molten solder, and a solder-removing brush, substantially as specified.

12. In a can-soldering machine, the combination of a molten-solder receptacle, of a runway for the cans, an intermittently-rotating feed-wheel for the cans, rotating checks or spindles for rotating the cans with the corners thereof in the molten solder, and a pair of solder-removing brushes embracing the corner of the cans, substantially as specified.

13. In a can-machine, the combination of a rotative spindle, a non-rotative brush-support thereon, a solder-removing brush on said support, means for connecting a can to said spindle whereby said can is rotated, said brush bearing against said can when the latter is connected to said spindle, and means for rotating said spindle.

14. In a can-machine, the combination of a rotative and longitudinally-movable spindle, a non-rotative brush-support carried by said spindle, a solder-removing brush on said support projecting beyond the end of said spindle, means for pressing a can into contact with said brush and against the end of said spindle, and means whereby said pressure rotates said spindle.

15. In a can-machine, the combination of a pair of solder-removing brushes, means for holding a can in a fixed position in which one of said brushes bears on the lower end of the can-body and the other on the outer edge of the can-head, means for rotating said can in said position, and a molten-solder bath or receptacle in which the corner of the can is immersed as it is rotated, substantially as specified.

16. In a can-machine, the combination of a pair of solder-removing brushes, means for holding a can in a fixed position in which one of said brushes bears on the lower end of the can-body and the other on the outer edge of the can-head, means for rotating said can in said position in a direction to bring the solder toward the corner of the can, and a molten-

solder bath or receptacle in which the corner of the can is immersed as it is rotated, substantially as specified.

17. In a can-machine, the combination of solder-removing brushes, means for holding a can in a fixed position in which one of said brushes bears on the lower end of the can-body and the other on the outer edge of the can-head, means for rotating said can in said position in a direction to brush the solder toward the corner of the can, means for rotating said can in said position, and a molten-solder bath or receptacle in which the corner of the can is immersed as it is rotated, substantially as specified.

18. In a can-machine, the combination of a series of rotative spindles and a single brush-support on said spindles whereby said brush-support is held stationary when said spindles are rotated, a solder-removing brush on said support, and means for rotating said spindles.

19. In a can-machine, the combination of a solder-removing brush, means for forwarding cans to a position in contact with said brush, means for rotating said cans when in said position, and a cover extending over the cans in their rotating position.

20. In a can-machine, the combination of a solder-removing brush, means for forwarding cans to a position in contact with said brush, means for rotating the cans in said position, a runway for directing the cans to said position, and a cover extending over said runway and over the rotating position of the cans.

21. In a can-machine, a solder-removing brush, means for moving a can inward and from said brush, and rotating said can, and means for pressing said brush toward said can so as to remain in contact therewith while said can is being moved in a direction away from said brush.

22. The combination of a runway for the cans, of an intermittently-rotating feed-wheel for the cans, a pair of rotating and reciprocating checks or spindles for grasping and rotating the cans mounted on the stationary frame of the machine, and a solder-removing brush also mounted on the frame of the machine, substantially as specified.

23. The combination of a runway for the cans, of an intermittently-rotating feed-wheel for the cans, a pair of rotating and reciprocating checks or spindles for grasping and rotating the cans mounted on the stationary frame of the machine, and a pair of solder-removing brushes embracing the corners of the rotating cans, substantially as specified.

24. The combination of a runway for the cans, of an intermittently-movable can-body feeder, a plurality of pairs of rotating checks or spindles for grasping and rotating a plurality of cans and mounted on the stationary frame of the machine, and a solder-removing brush, substantially as specified.

25. The combination of a runway for the cans, of an intermittently-movable notched wheel for feeding the cans, and a pair of rotating, opening and closing checks or spindles bearing against the ends of the cans, a molten-solder vessel, and means for alternately moving the feed-wheel and rotating the can checks or spindles, substantially as specified.

26. The combination of a runway for the cans, of an intermittently-rotating notched feed-wheel for the cans, a pair of rotating checks or spindles to grasp and rotate the cans, a molten-solder bath or receptacle, and means for alternately actuating said feed-wheel and said rotating checks or spindles, substantially as specified.

27. In a can-machine, in combination a pair of laterally-immovable spindles opposite each other, means for introducing a can between and into contact with the adjacent ends of said spindles, and means for rotating said spindles.

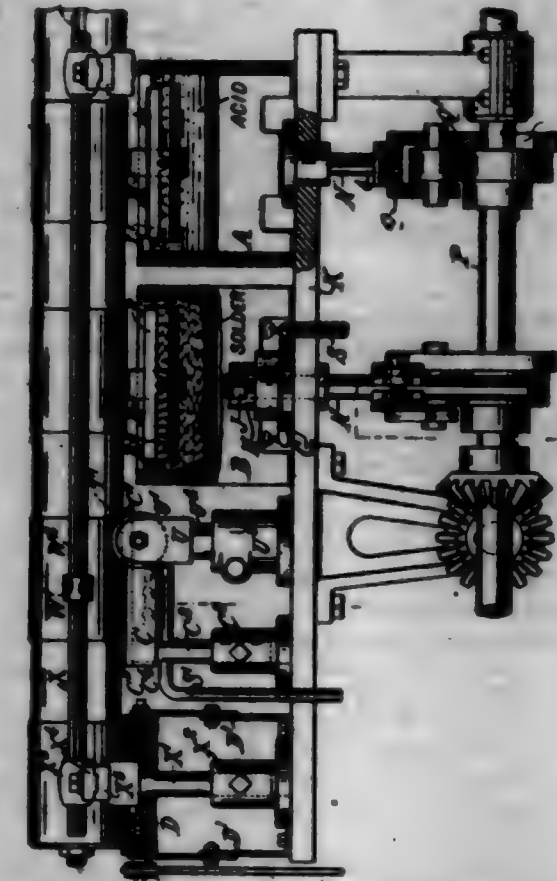
28. In a can-machine, in combination a runway, a forwarding device consisting of a wheel having notches in its circumference adapted to receive and hold said cans, a can-rotating device consisting of a pair of spindles adapted to embrace said cans between their ends, and means controlled by the pressure of one of said spindles toward the other for rotating said spindles, and means for alternately rotating said notched wheel to introduce a can between said spindles and pressing one of said spindles toward the other to embrace said can and rotate the same.

29. The combination with a runway for the cans, of an intermittently-movable can-body-feed wheel, a pair of opening and closing rotating checks or spindles for grasping and rotating a can between them mounted on the stationary frame of the machine, a molten-solder bath or receptacle, means for reciprocating one of said checks or spindles, and means for communicating rotary motion to one of said spindles, substantially as specified.

30. The combination with a molten-solder bath or receptacle, of a laterally-inclined runway for the cans, an intermittently-movable feeder for the cans, and a pair of rotating and reciprocating checks or spindles for grasping and rotating the cans and projecting its corner beyond the lower side of the runway into the molten solder, substantially as specified.

702,168. SIDE-SHAF-SOLDERING MACHINE. *HARRY A. WILLIAMS, Brooklyn, N. Y., assignor to American Can Company, New York, N. Y., a Corporation of New Jersey. Filed May 2, 1900. Serial No. 10,232. (No model.)*

Claim.—1. In an apparatus for soldering seams, the combination of a molten-solder receptacle and a reciprocating bar therein for applying a coating of solder to a seam, and separate means for molting said coating of solder and pressing it into said seam.



2. In an apparatus for soldering seams, the combination of a molten-solder receptacle and a reciprocating bar therein for applying a coating of solder to a seam, an iron, means for heating the same, and means for pressing said iron and seam together and simultaneously giving them a relative movement so as to melt the solder and wipe the seam.

3. In an apparatus for soldering seams the combination of a reciprocating solder-applying iron, a molten-solder receptacle in which said iron moves up and down for applying said iron with molten solder, means for bringing the solder on said iron into contact with a seam to apply a coating of solder thereto, and means for remelting said coating of solder and pressing it into said seam.

4. In an apparatus for soldering seams the combination of a reciprocating solder-applying iron, a molten-solder receptacle in which said iron moves up and down for applying said iron with molten solder, means for bringing the solder on said iron into contact with a seam to apply a coating of solder thereto, a second iron, means for heating the same, and means for pressing said second iron and seam together and giving them a relative movement so as to remelt the solder and wipe said seam.

5. The combination with a receptacle for molten solder, of means for supporting a can-body above such molten solder, and a vertically-reciprocating longitudinally-grooved bar in said receptacle for applying a portion of such molten solder to said can-body.

6. The combination with a receptacle for molten solder, of means for supporting a can-body above such molten solder, a vertically-reciprocating iron, and means for moving said iron into the solder to receive a supply thereof and upward to bring its supply of solder into contact with the can-body.

7. The combination with a receptacle for molten solder, of means for supporting a can-body above such molten solder, a vertically-reciprocating iron, and means for moving said iron upward to bring its supply of solder into contact with the can-body and downward away from said can-body while said can-body is stationary.

8. The combination with a receptacle for molten solder, of means for supporting a can-body above such molten solder, a vertically-reciprocating trough-shaped iron, and means for moving said iron into the solder to receive a supply thereof and upward to bring its supply of solder into contact with the can-body.

9. The combination with a receptacle for molten solder, of means for supporting a can-body above such molten solder, an iron, a support on which said iron is pivotally mounted, and means for reciprocating said support to move said iron into the solder to receive a supply thereof and upward to bring its supply of solder into contact with the can-body.

10. A solder-applying tool comprising a bar and a support therefor, said bar pivoted in said support, in combination with a molten-solder receptacle in which said tool moves up and down, substantially as specified.

11. A solder-applying tool comprising a trough-shaped bar R, and a support therefor, said bar pivoted in said support, in combination with a molten-solder receptacle in which said tool moves up and down, substantially as specified.

12. The combination of a horn F, bars W carrying pawls V, and means for reciprocating said bars to advance a series of can-bodies intermittently along said horn, a molten-solder receptacle and a vertically-reciprocating solder-applying bar in said receptacle.

13. The combination of an iron, a molten-solder receptacle for supplying said iron with molten solder in which said iron is mounted to move up and down, a horn adapted to carry a can-body, and means for moving said iron to bring the solder thereon into contact with said can-body, said horn being cut away to avoid receiving solder from said iron when there is no can thereon.

14. In an apparatus for soldering seams, the combination of a molten-solder receptacle and a reciprocating bar therein for applying solder to both sides of a seam, and separate means for melting said solder and pressing it into said seam on both sides.

15. In an apparatus for soldering seams, the combination of a molten-solder receptacle and a reciprocating bar therein for applying solder to both sides of a seam, a pair of irons opposite each other, means for heating the same, and means for pressing said irons toward each other and simultaneously passing said seam between them so as to melt the solder and wipe said seam on both sides.

16. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, means for advancing a can intermittently along said horn, and a molten-solder receptacle and a reciprocating bar therein for applying solder to the seam of said can at one of its resting-points.

17. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, means for advancing a can intermittently along said horn, means for applying solder to the seam of said can at one of its resting-points, and means for wiping said seam while it is moving.

18. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, means for advancing a can intermittently along said horn, and a molten-solder receptacle and a reciprocating bar therein for applying solder to the seam of said can at one of its resting-points, and means for sweating said seam at another resting-point.

19. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, means for advancing a can intermittently along said horn, and means for applying solder to the seam of said can at one of its resting-points, means for sweating said seam at another resting-point, and means for wiping said seam while it is moving.

20. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, and a rod passing through said horn axially and adapted to be attached at one end to the horn of a body-forming machine, a molten-solder receptacle and a vertically-reciprocating solder-applying bar in said receptacle.

21. In an apparatus for soldering the side seams of can-bodies, the combination of a horn adapted to receive said can-bodies, and a rod passing through said horn axially and adapted to be attached at one end to the horn of a body-forming machine, and a support for the free end of said horn adapted to permit the passage of a can-body between itself and said horn.

702,169. DREDGE-BOX. HARRY B. WILLIAMS, New York, N. Y. assignor to American Can Company, a Corporation of New Jersey. Filed Oct. 19, 1901. Serial No. 70,397. (No model.)



Claim.—1. The dredge-box comprising in combination a box A, perforated cover B, having a central opening and rotary perforated closing-plate D, having a central portion closing said central opening in the cover B and furnished with a series of integral lips projecting through the central opening in the cover, and turned or clamped to rotatably secure the plate to the cover, substantially as specified.

2. The combination with the perforated cover B having a central opening of rotary perforated closing-plate D, having a central portion closing said central opening in the cover B and having integral lips d' turned or clamped to rotatably secure the plate to the cover, said cover being provided with a counterflange to receive the plate substantially as specified.

3. The combination of perforated dredge-box, cover B having a central opening, having a counterflange to receive a rotary plate, and a rotary

plate D having a central portion closing said central opening in the cover B and having integral lips d' turned or clamped to rotatably secure the plate to the cover, said plate being also provided with upturned lips or projections for turning the plate substantially as specified.

702,170. DEVICE FOR REMOVING CORNS. GE. JAMES F. ALLISON, Chicago, Ill. Filed Aug. 2, 1901. Serial No. 70,610. (No model.)



Claim.—1. In a device for removing corns, an elastic plate flexible to tubular shape, a sheet of abrasive material adapted to be wrapped around the elastic plate, and retaining-caps slidable over the ends of the elastic plate and the ends of the abrasive material carried thereon when the same are fitted to tubular shape to clamp the abrasive material to the plate and hold the plate in contracted condition, substantially as described.

2. In a device for removing corns, a split tubular body of springy material, abrasive material mounted thereon, and retaining-caps covering and holding the ends of the tubular body and clamping the ends of the abrasive material carried thereon to the tubular body, substantially as described.

3. In a device for removing corns, a longitudinally-split plate tubular body of springy material, a sheet of abrasive material mounted thereon, and retaining-caps of tubular shape having their inner edges depressed to hold the ends of the tubular body under tension in contracted condition and clamp the ends of the abrasive material smoothly around the body, substantially as described.

4. In a device for removing corns, a longitudinally-split tubular body of springy material, a sheet of abrasive material mounted thereon so that its edges project beyond and are bent down into the longitudinally-split tubular body, and retaining-caps of tubular shape having their inner edges depressed to fit around and hold the ends of the tubular body under tension in contracted relation and to clamp the ends of the abrasive material and hold the same around the body, substantially as described.

5. In a device for removing corns, a longitudinally-split tubular body of springy material, a sheet of abrasive material mounted thereon so that its edges project beyond and are bent down into the longitudinally-split tubular body, and retaining-caps of tubular shape adapted to fit and hold the ends of the tubular body under tension in contracted condition and to clamp the ends of the abrasive material and hold the same around the body, substantially as described.

702,171. PROCESS OF MAKING PHTHALIC AND BENZOIC ACID. AUGUSTUS BRUNLER, Basel, Switzerland, assignor to Basle Chemical Works, Basel, Switzerland, a Firm. Filed Aug. 2, 1901. Serial No. 71,476. (No specimens.)

Claim.—The herein-described process for the manufacture of phthalic and benzoic acids, which consists in heating to a temperature above 200° centigrade, naphthalene derivatives with an oxidizing metallic oxide and an alkali.

702,172. PROCESS OF EFFECTING THE DRYING OF NON-DRYING OILS AND PRODUCT PRODUCED BY SUCH PROCESS. WILLIAM E. BLAKEMAN, JR., New York, N. Y. Filed Mar. 4, 1901. Serial No. 69,706. (No specimens.)

Claim.—1. The process herein described of making a paint compound possessing drying and hardening properties, which consists in combining, substantially in the proportions specified, a non-drying fatty oil and a pigment capable of forming a hard metallic soap therewith.

2. The process herein described of making a paint compound possessing drying and hardening properties, which consists in combining, substantially in the proportions specified, a non-drying fatty oil and a pigment capable of forming a hard metallic soap therewith, and adding a drier.

3. The process herein described of making a paint compound possessing drying and hardening properties, which consists in combining, substantially in the proportions specified, a non-drying fatty oil and acid of zinc.

4. The process herein described of making a paint compound possessing drying and hardening properties, which consists in combining, substantially in the proportions specified, a non-drying fatty oil and acid of zinc, and adding a drier.

5. A paint compound, possessing drying properties, composed of a

non-drying fatty oil and a pigment capable of forming a hard metallic soap therewith, combined substantially in the proportions specified.

6. A paint compound, possessing drying properties, composed of a non-drying fatty oil and a pigment capable of forming a hard metallic soap therewith, combined substantially in the proportions specified, and a drier.

7. A paint compound, possessing drying properties, composed of a non-drying fatty oil and acid of zinc, combined substantially in the proportions specified.

8. A paint compound, possessing drying properties, composed of a non-drying fatty oil and acid of zinc, combined substantially in the proportions specified, and a drier.

9. A paint compound, possessing drying properties, composed of cotton-seed oil and a pigment capable of forming a hard metallic soap therewith, combined substantially in the proportions specified.

10. A paint compound, possessing drying properties, composed of cotton-seed oil and a pigment capable of forming a hard metallic soap therewith, combined substantially in the proportions specified; and a drier.

11. A paint compound, possessing drying properties, composed of cotton-seed oil and acid of zinc, combined substantially in the proportions specified.

12. A paint compound, possessing drying properties, composed of cotton-seed oil and acid of zinc, combined substantially in the proportions specified; and a drier.

702,173. PROCESS OF IMPARTING DRYING PROPERTIES TO PIGMENTS. WILLIAM E. BLAKEMAN, JR., New York, N. Y. Filed Oct. 31, 1900. Serial No. 706,000. (No specimens.)

Claim.—1. The process herein described of imparting quicker drying properties to oil pigments, which consists in first attenuating an oxidizing-drier in a volatile vehicle, then incorporating such attenuated drier with a pigment, and then evaporating the vehicle.

2. The process herein described of imparting quicker drying properties to oil pigments, which consists in first attenuating an oxidizing-drier in a volatile vehicle, then incorporating such attenuated drier with a pigment, then evaporating the vehicle, and then grinding the pigment in oil.

3. The process herein described of imparting quicker drying properties to oil pigments, which consists in first attenuating a salt of manganese in a volatile vehicle, then incorporating the same with a pigment, and then evaporating the vehicle.

4. The process herein described of imparting quicker drying properties to oil pigments, which consists in first attenuating a salt of manganese in a volatile vehicle, then incorporating the same with a pigment, then evaporating the vehicle, and then grinding the pigment in oil.

5. The process herein described of imparting quicker drying properties to zinc-white pigment, which consists in first attenuating an oxidizing-drier in a volatile vehicle, then incorporating such attenuated drier with the zinc-white, and then evaporating the vehicle.

6. The process herein described of imparting quicker drying properties to zinc-white pigment, which consists in first attenuating an oxidizing-drier in a volatile vehicle, then incorporating such attenuated drier with the zinc-white, then evaporating the vehicle, and then grinding the pigment in oil.

7. The process herein described of imparting quicker drying properties to zinc-white pigment, which consists in first attenuating a salt of manganese in a volatile vehicle, then incorporating the same with the zinc-white, and then evaporating the vehicle.

8. The process herein described of imparting quicker drying properties to zinc-white pigment, which consists in first attenuating a salt of manganese in a volatile vehicle, then incorporating the same with the zinc-white, then evaporating the vehicle, and then grinding the pigment in oil.

9. As a new article of manufacture, a dry pigment having an oxidizing-drier combined therewith, substantially in the proportions specified.

10. As a new article of manufacture, a dry pigment composed of zinc-white and having an oxidizing-drier combined therewith substantially in the proportions specified.

11. As a new article of manufacture, a dry pigment having a salt of manganese combined therewith, substantially in the proportions specified.

12. As a new article of manufacture, a dry pigment composed of zinc-white and having a salt of manganese combined therewith before grinding it in oil, substantially in the proportions specified.

702,174. PROCESS OF TREATING PIGMENTS FOR PAINTS. WILLIAM E. BLAKEMAN, JR., New York, N. Y. Filed Oct. 26, 1900. Serial No. 704,000. (No specimens.)

Claim.—1. The process of imparting to oil pigments, body or spread-

ing power and improved drying properties, which consists in attenuating in a volatile vehicle or vehicles, a drier and a separate body-giving agent, then incorporating such attenuated agents with the pigment, and then evaporating the vehicle.

2. The process of imparting to oil pigments body or spreading power and improved drying properties, which consists in attenuating in a volatile vehicle or vehicles, a drier and a separate body-giving agent, then incorporating such attenuated agents with the pigment, then evaporating the vehicle, and then grinding the pigment in oil.

3. The process of imparting to oil pigments body or spreading power and improved drying properties, which consists in attenuating in a volatile vehicle or vehicles, a salt of manganese and a separate body-giving agent, then incorporating such attenuated agents with the pigment, and then evaporating the vehicle.

4. The process herein described of imparting body and drying properties in oil to oil pigments, which consists in attenuating in a volatile vehicle or vehicles a drier and a paraffin-wax, incorporating such attenuated substances with the pigment, and evaporating excessive moisture before the pigment is ground in oil.

5. The process herein described of imparting body and drying properties in oil to oil pigments which consists in attenuating in a volatile vehicle or vehicles a salt of manganese and a paraffin-wax, incorporating such attenuated substances with the pigment, and evaporating excessive moisture before the pigment is ground in oil.

6. The process of imparting to oil pigments body or spreading power and improved drying properties, which consists in attenuating a drier in a volatile vehicle, incorporating the vehicle with the pigment, and evaporating the vehicle; then attenuating a separate body-giving agent in a volatile vehicle, incorporating this solution with the combined pigment and drier, and evaporating the vehicle.

7. The process of imparting body or spreading power and improved drying properties to zinc-white pigment, which consists in attenuating in a volatile vehicle or vehicles a drier and a separate body-giving agent, then incorporating such attenuated agents with the zinc-white, and then evaporating the vehicle.

8. The process of imparting body or spreading power and improved drying properties to zinc-white pigment, which consists in attenuating in a volatile vehicle or vehicles a salt of manganese and a separate body-giving agent, then incorporating such attenuated agents with the zinc-white, then evaporating the vehicle, and then grinding the pigment in oil.

9. The process of imparting body or spreading power and improved drying properties to zinc-white pigment, which consists in attenuating in a volatile vehicle or vehicles a salt of manganese and a separate body-giving agent, then incorporating such attenuated agents with the zinc-white, and then evaporating the vehicle.

10. The process herein described of imparting body and drying properties in oil to zinc-white pigment, which consists in attenuating in a volatile vehicle or vehicles a drier and a paraffin-wax, incorporating such attenuated substances with the zinc-white, and evaporating excessive moisture before the pigment is ground in oil.

11. The process herein described of imparting body and drying properties in oil to zinc-white pigment, which consists in attenuating in a volatile vehicle or vehicles, a salt of manganese and a paraffin-wax, incorporating such attenuated substances with the zinc-white, and evaporating excessive moisture before the pigment is ground in oil.

702,175. PROCESS OF MANUFACTURING PAINTS. WILLIAM E. BLAKEMAN, JR., New York, N. Y. Filed Jan. 2, 1900. Serial No. 69. (No specimens.)

Claim.—1. The process herein described, which consists in first incorporating a drier with a pigment, and then grinding the pigment in a non-drying fatty oil.

2. The process herein described, which consists in first incorporating a drier with a pigment; then grinding said pigment in a non-drying fatty oil; and then adding an additional drier.

3. The process herein described, which consists in incorporating a drier with a pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then combining the pigment and oil so treated.

4. The process herein described, which consists in first incorporating a drier with a pigment, and then grinding the pigment in a vehicle composed of a non-drying fatty oil and a drying oil.

5. The process herein described, which consists in incorporating a drier with a pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in a vehicle composed of the non-drying fatty oil so treated and a drying oil.

6. The process herein described, which consists in attenuating a drier in a volatile vehicle; incorporating such attenuated drier with a pigment; evaporating the liquid portion of the vehicle; and then grinding said pigment in a non-drying fatty oil.

7. The process herein described, which consists in first incorporating a manganese salt with a pigment, and then grinding said pigment in a non-drying fatty oil.

8. The process herein described, which consists in incorporating a manganese salt with a pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in said oil.

9. The process herein described, which consists in first incorporating a drier with a zinc-white pigment, and then grinding said pigment in a non-drying fatty oil.

10. The process herein described, which consists in first incorporating a drier with a zinc-white pigment; then grinding said pigment in a non-drying fatty oil; and then adding an additional drier.

11. The process herein described, which consists in incorporating a drier with a zinc-white pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in said oil.

12. The process herein described, which consists in first incorporating a drier with a zinc-white pigment, and then grinding said pigment in a vehicle composed of a non-drying fatty oil and a drying oil.

13. The process herein described, which consists in first incorporating a manganese salt with a zinc-white pigment, and then grinding said pigment in a non-drying fatty oil.

14. The process herein described, which consists in incorporating a manganese salt with a zinc-white pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in said oil.

15. The process herein described, which consists in incorporating a manganese salt with a zinc-white pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in said oil.

16. The process herein described which consists in incorporating a drier with a zinc-white pigment; heating a non-drying fatty oil in the presence of an oxidizer; and then grinding said pigment in a vehicle composed of said non-drying fatty oil and a drying oil.

17. The process herein described which consists in first incorporating with a zinc-white pigment a drier capable of giving spreading power to the pigment, and then grinding the pigment in a non-drying fatty oil.

18. The process herein described which consists in first attenuating in a suitable vehicle a drier capable of giving spreading power to a pigment, then incorporating said drier with a pigment, then evaporating the vehicle and then grinding the pigment in a non-drying fatty oil.

702,176. PAINT COMPOUND OR MIXTURE. WILLIAM H. BLAKEMAN, JR., New York, N. Y. Filed Dec. 14, 1899. Serial No. 740,575. (No specimens.)

Claim.—1. A paint compound or mixture composed of a non-drying fatty oil; and a pigment having a drier incorporated therewith prior to its being ground in the oil.

2. A paint compound or mixture composed of a non-drying fatty oil; a pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

3. A paint compound or mixture composed of a non-drying fatty oil; a pigment having a drier incorporated therewith prior to its being ground in the oil; a drying oil; and an additional drier.

4. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a pigment having a drier incorporated therewith prior to its being ground in the oil.

5. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; a pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

6. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; a pigment having a drier incorporated therewith prior to its being ground in the oil; a drying oil; and an additional drier.

7. A paint compound or mixture composed of a non-drying fatty oil; and a pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

8. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

9. A paint compound or mixture composed of a non-drying fatty oil; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

10. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

11. A paint compound or mixture composed of a non-drying fatty oil; a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

12. A paint compound or mixture composed of a non-drying fatty oil; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

13. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

14. A paint compound or mixture composed of a non-drying fatty oil treated with an oxidizer; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

15. A paint compound or mixture composed of cotton-seed oil; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

16. A paint compound or mixture composed of cotton-seed oil; and a zinc-white pigment having a salt of manganese incorporated therewith prior to its being ground in the oil.

17. A paint compound or mixture composed of cotton-seed oil treated with an oxidizer; and a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil.

18. A paint compound or mixture composed of cotton-seed oil treated with an oxidizer; and a zinc-white pigment having a manganese salt incorporated therewith prior to its being ground in the oil.

19. A paint compound or mixture composed of cotton-seed oil; a zinc-white pigment having a drier incorporated therewith prior to its being ground in the oil; and a drying oil.

702,177. PIGMENT AND PROCESS OF PRODUCING SAME. WILLIAM H. BLAKEMAN, JR., New York, N. Y. Filed Aug. 6, 1901. Serial No. 71,005. (No specimens.)

Claim.—1. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a substance of lead; and then evaporating the liquid before grinding the pigment in oil.

2. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a substance of lead; then evaporating the liquid; and then grinding the pigment in oil.

3. The process herein described, which consists in first making a solution of a substance of lead; then saturating a pigment with said solution; and then evaporating the solvent before grinding the pigment in oil.

4. The process herein described, which consists in first making a solution of a substance of lead; then saturating a pigment with said solution; then evaporating the solvent; and then grinding the pigment in oil.

5. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a substance of lead; then evaporating the liquid; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

6. The process herein described, which consists in first making a solution of a substance of lead; then saturating a pigment with this solution; then evaporating the solvent; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

7. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a substance of lead; and then evaporating the liquid before grinding the pigment in oil.

8. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a substance of lead; then evaporating the liquid; and then grinding the pigment in oil.

9. As a new article of manufacture, a dry pigment having a substance of lead combined therewith.

10. As a new article of manufacture, a dry pigment composed of zinc-white having a substance of lead combined therewith.

702,178. PROCESS OF TREATING PIGMENTS AND PRODUCT PRODUCED BY SUCH PROCESS. WILLIAM H. BLAKEMAN, JR., New York, N. Y. Filed Aug. 6, 1901. Serial No. 71,004. (No specimens.)

Claim.—1. The process herein described, which consists in combining with a pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; and then evaporating the liquid.

2. The process herein described, which consists in combining with a pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in oil.

3. The process herein described, which consists in first making a solution of a lead salt and a manganese salt substantially as described; then saturating a pigment with said solution; and then evaporating the solvent.

4. The process herein described, which consists in first making a solution of a lead salt and a manganese salt substantially as described; then saturating a pigment with said solution; then evaporating the solvent; and then grinding the pigment in oil.

5. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

6. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

7. The process herein described, which consists in first combining with a pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

8. The process herein described, which consists in first making a solution of a lead salt and a manganese salt substantially as described; then saturating a pigment with this solution; then evaporating the solvent; and then grinding the pigment in a vehicle composed of raw oil and boiled oil.

9. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt, substantially as described; and then evaporating the liquid.

10. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt, substantially as described; then evaporating the liquid; and then grinding the pigment in oil.

11. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a non-drying fatty oil.

12. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a non-drying fatty oil.

13. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a non-drying fatty oil.

14. The process herein described, which consists in first combining with a zinc-white pigment, by the aid of a liquid, a lead salt and a manganese salt substantially as described; then evaporating the liquid; and then grinding the pigment in a non-drying fatty oil.

15. As a new article of manufacture, a dry pigment having a lead salt and a manganese salt combined therewith.

16. As a new article of manufacture, a dry pigment composed of zinc-white having a lead salt and a manganese salt combined therewith.

702,179. ANALOGATING APPARATUS. MARCELYN BLONDE, Paris, France. Filed May 28, 1901. Serial No. 698,006. (No model.)



Claim.—1. The combination with a tank having sheet-iron sides, of vertical sheet-iron partitions arranged in the tank and dividing the same into a series of main compartments, vertical partitions E therein, dividing each main compartment into three compartments—a central compartment and lateral compartments, the bottom of the partitions E not reaching the bottom of the compartments whereby to afford communication between the lateral compartments and the central compartment, and each of said central compartments being closed at the top, an air-outlet pipe and a water-inlet pipe for each central compartment and a reservoir for the overflow of mercury in communication with each series of compartments.

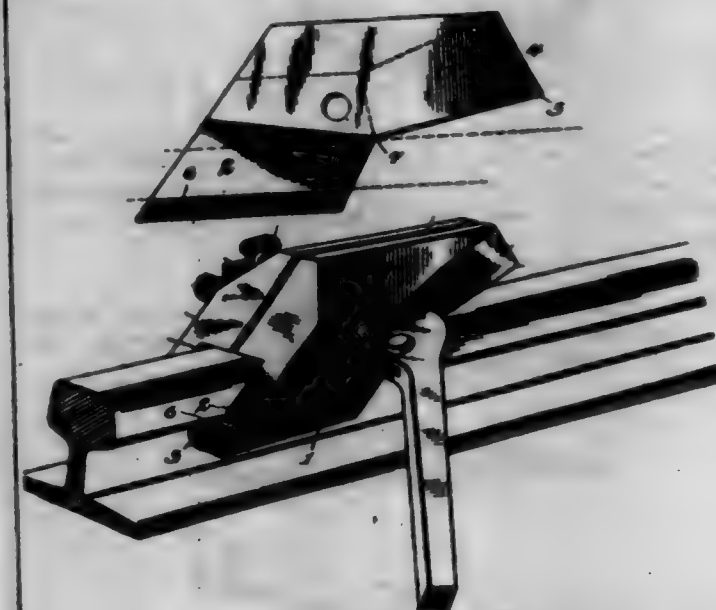
2. The combination with a tank having sheet-iron sides, of vertical sheet-iron partitions arranged in the tank and dividing the same into a series of main compartments, vertical partitions dividing each main compartment into three compartments—a central compartment and lateral compartments, the bottom of the partitions E not reaching the bottom of the compartments whereby to afford communication between the lateral compartments and the central compartment, and each of said central compartments being closed at the top, an air-outlet pipe and a water-inlet pipe for each central compartment, and a reservoir for the overflow of mercury in communication with each series of compartments, and a gas-

ing arranged in each lateral compartment, and each comprising angular bars arranged in staggered relation to each other to form a vertical zig-zag fluid-passages.

3. An amalgamator comprising a tank, vertical partitions dividing it into main compartments, partitions subdividing the said compartments into three other compartments communicating at their lower parts, the central compartment of each element being closed at its upper part, an evacuating-tube for the air and an inlet-tube for the substance to be dressed for the said central compartments, a grating in each of the lateral compartments and comprising angular bars arranged in staggered relation to each other to form a vertical zig-zag conduit, a reservoir adapted to receive the excess of mercury according to the production of the amalgam, and tubes placing the central lateral compartments of the main compartments in communication with the reservoir, substantially as and for the purposes set forth.

4. The combination with a tank, of vertical partitions arranged in the latter and dividing the same into a series of compartments, each series comprising a central compartment and lateral compartments communicating with the central compartment, each of the central compartments being closed at the top, an air-outlet pipe and a water-inlet pipe for each central compartment, a reservoir for the overflow of mercury in communication with each series of compartments, electrical conductors one leading within one of the series of compartments and the other being connected with the tank, and a source of electrical energy in communication with said conductors.

702,180. CHECK. EDWARD A. BUCKNER, Lexington, Ky. Filed Feb. 8, 1901. Serial No. 98,308. (No model.)



Claim.—1. In a check, a body having a recess to receive the head of the rail, a nose carried by the body, said nose being tapered upwardly to its end, and a rail-engaging edge forming a fulcrum at the junction of the body and nose.

2. In a check, a body having a recess forming a shoulder, said recess being flared toward the rear, a nose carried by the body and tapering upwardly to its end, a fulcrum at the intersection of the body and nose, and means for securing the body to the rail.

3. In a check, two sections clamped to a rail, noses carried by the sections, and edges forming fulcrums, at the junction of the noses and bodies.

702,181. DRIP ATTACHMENT FOR DISPENSING APPARATUS. GEORGE W. BETH, Washington, D. C. Filed Dec. 9, 1901. Serial No. 98,309. (No model.)

Claim.—1. A drip attachment for faucets and the like comprising a supporting member adapted to be secured to the faucet, hanger-links having a shiftable pivotal connection with the supporting member, said shiftable pivotal connection providing an adjustment for watering purposes, and a drip-receptacle pivotally suspended from said links.

2. A drip attachment for faucets and the like, comprising a supporting member having opposite brackets provided with a series of bearing-sockets, hanger-links having pivot-ends shiftable engaging said sockets, and a drip-receptacle suspended from said links.

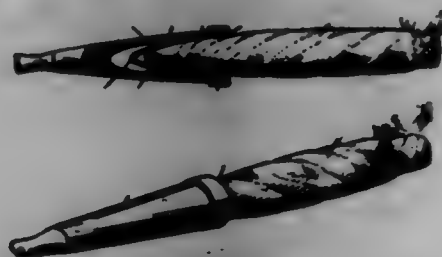
3. A drip attachment for faucets and the like comprising a swinging hanger, a shiftable drip-receptacle carried by the swinging hanger and having pivotal connection therewith, and a locking member also carried

by the swinging hanger coacting with the receptacle for preventing the tilting thereof.



4. A drip attachment for faucets and the like, comprising suitably supported swinging hanger-links, a drip-receptacle pivotally connected with said links and provided with catch-legs, and fastening-latches slidably mounted upon said links and having notches engaging with said legs.

702,182. CIGAR OR CIGARETTE HOLDER. CHARLES E. BRADLEY, Bangor, Me., assignor to Samuel E. Preston, Bangor, Me. Filed May 13, 1902. Serial No. 17,370. (No model.)



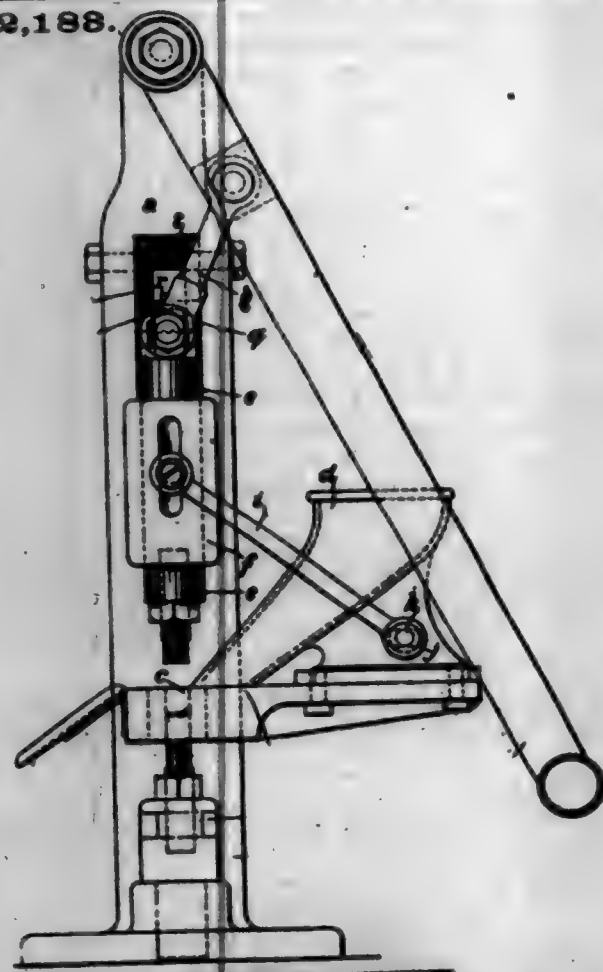
Claim.—A device of the kind described comprising in combination, a cigar or cigarette holder, a thumb inserted in the open end of the holder, said thumb being conical in shape, closed at its apex and having an opening adjacent to its apex, a yielding wiper secured to the outer end of the thumb and a band or ring attached to the wiper and adapted to abut against the end of the holder, substantially as shown and described.

702,183. MOLDING-PRESS. JAMES F. DOWLEY, Dartford, England, assignor to Company of Allen and Hanbury, Limited, London, England, a Corporation of Great Britain. Filed Aug. 14, 1901. Serial No. 71,900. (No model.)

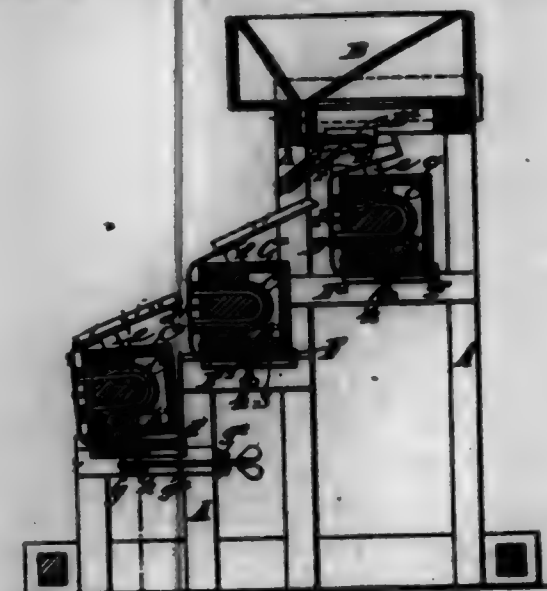
Claim.—1. A press for molding tablets comprising a die, a plunger cooperating therewith, a handle consisting of a lever capable of moving to and fro past the axis of the plunger, and a link so connecting said handle directly with the plunger that the said link and handle constitute two members of a toggle whereby the plunger is caused to make two to-and-fro movements for each to-and-fro movement of the handle, substantially as set forth.

2. In a molding-press for tablets comprising a die, a plunger and a rising-and-falling die-bottom by which the molded tablets are ejected, the means described for operating the said die-bottom consisting of a lifting-rod connected with said bottom, a spring-actuated on said rod, a tappet on the plunger with which said catch is adapted to engage on its upward stroke, and an inclined fixed surface by which the said catch is thrust clear of the plunger-tappet when the upstroke is completed, substantially as herein set forth.

702,188.



702,184. MAGNETIC ORE-SEPARATOR. JOHN W. CARTER, Franklin, N. J. Filed Nov. 20, 1901. Serial No. 94,957. (No model.)



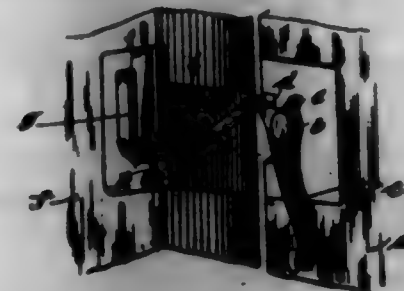
Claim.—1. In a magnetic ore-separator, the combination, with a supply-hopper, of a plurality of gangs of magnets, each gang of magnets being arranged in suitable boxes and having their poles in approximately vertical planes, said boxes disposed in step arrangement with vertical spaces between the front and rear sides of adjacent boxes, apertures secured in the front side of said boxes over the poles of said magnets, chutes supported on said boxes, means for horizontally adjusting and tilting said boxes, and means for independently adjusting said chutes in inclined position, substantially as set forth.

2. In a magnetic ore-separator, the combination of a gang of magnets enclosed in a suitable box having the poles of said magnets projecting from the front of the box, a vertically-disposed optimum secured stationary to the front of said box and over the poles of said magnets, said optimum having a resilient upper and extending rearwardly in oblique direction, a chute connected with said optimum in the same plane as the upper end of said optimum and supported on said box, and means for simultaneously adjusting said box and optimum in forward-tilted position, substantially as set forth.

3. In a magnetic ore-separator, the combination of a gang of magnets enclosed in a suitable box having the poles of the magnets projecting from the front face thereof, a chute supported on said box having an upper inclined portion arranged over said box and a vertically-disposed

lower portion arranged in front of the poles of said magnets, means for simultaneously adjusting said chute with said box, and cut-strap adjustably connecting the inclined upper portion of said chute with said box, for independently adjusting same in inclined position, substantially as set forth.

702,185. LATCH. ARTHUR CHARLES, Liège, Belgium. Filed Jan. 22, 1901. Serial No. 45,042. (No model.)



Claim.—1. An automatic safety-latch for doors, comprising a pivoted latch, a latch-catch carried by the door, and means carried by said door for successively engaging and rotating said latch and causing it to engage the catch; substantially as described.

2. An automatic safety-latch for doors, comprising a pivoted latch having a plurality of offset, inclined guides carried by the door with which the offset successively respectively engage, and a latch-catch on the door; substantially as described.

3. An automatic catch for doors comprising the pivoted latch c, having the offset or legs d, e, in combination with a door provided with inclined guides h and i, with which the offset d, e, respectively successively engage, and a latch-catch g; substantially as described.

702,186. CAR-COUPLER. JAMES A. CHASE, Detroit, Mich., assignor of two-thirds to Deumer C. Ross and Edmund D. Bremer, Detroit, Mich. Filed Jan. 14, 1902. Serial No. 98,707. (No model.)



Claim.—In a car-coupler, the combination of the draw-bar, the swinging jaw, an apertured bracket secured to and projecting beneath the bar, a laterally-reversible washer mounted upon the bracket, and the fulcrum-pin supported at its lower end upon the washer and carrying a pintle extending through the washer and bracket.

702,187. BOX FOR FOUNTAIN-SYRINGES. ARTHUR C. BOSSER, New York, N. Y., assignor to the Goodyear India Rubber Glove Manufacturing Company, New York, N. Y., a Corporation of Connecticut. Filed Feb. 14, 1902. Serial No. 94,071. (No model.)

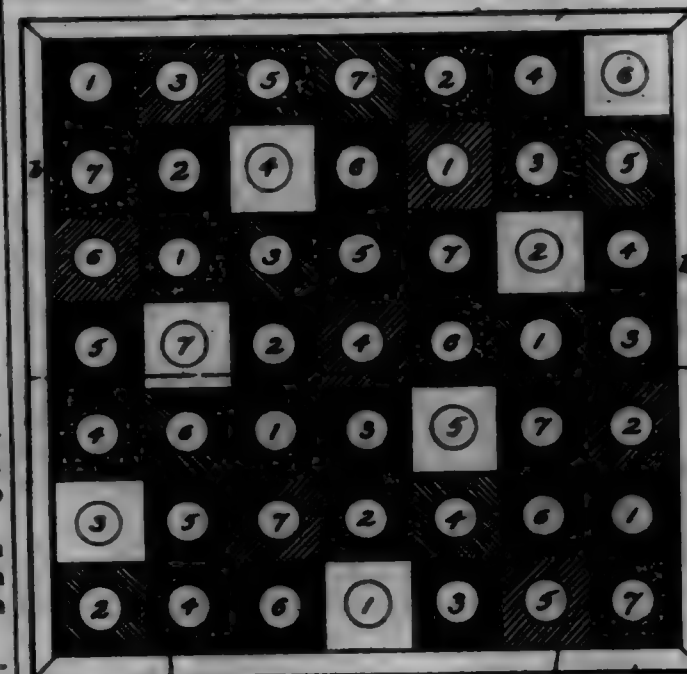


Claim.—A box for fountain-syringes, consisting of an open box, a raised portion on the base thereof, at one end, and a trough-like frame arranged in said box above said raised portion and supported thereon, the side walls of said raised portion extending to the level of the sides of said box, said trough-like frame forming openings between its side walls and the sides of the box, substantially as set forth.

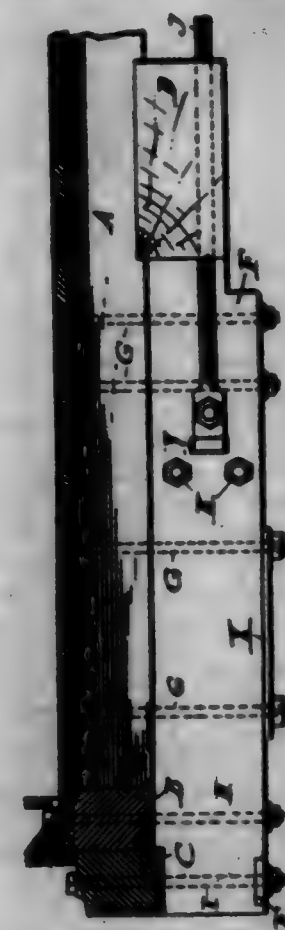
702,188. PUMPER. JOHN BLANCK, Swanton, Pa. Filed Feb. 21, 1902. Serial No. 93,845. (No model.)

Claim.—A pump comprising a plurality of blocks or cards which

equal in number the square of a predetermined number, whereby a number of blocks or cards are employed and divided into a predetermined number of equal series, the blocks of each series being separately numbered from one upwardly and being also separately or distinctively colored, substantially as shown and described.



702,189. DRAFT-BEAM FOR CARS. JONATHAN K. EVANS, Dickerson Run, Pa. Filed July 25, 1901. Serial No. 62,604. (No model.)



Claim.—1. The combination with the stringers A A, of two metal draft-beams, each beam having a top wall Q, bottom wall P parallel with the top wall, the Q, said bottom wall, top wall and the Q extending inwardly from the vertical wall, walls or abutments H bounding the pocket L for the follower-plates, perforated beams E intermediate the top and bottom walls and the ribs Q, perforated by F, and bolts G passing through the stringers and beams E; in substance as set forth.

2. The combination with the stringers A A, of two metallic draft-beams, each beam having a perforated lag S located in the rear of the pocket L for the follower-plates and adapted to form a step for a coupling-yoke, a top wall Q, a bottom wall P broken away the length of the pocket, strengthening-ribs Q extending from the pocket L to the ends of the beams, and taking the strains and blows imparted to the abutments H, and beams E between the top and bottom walls; the said beams being united by bolts

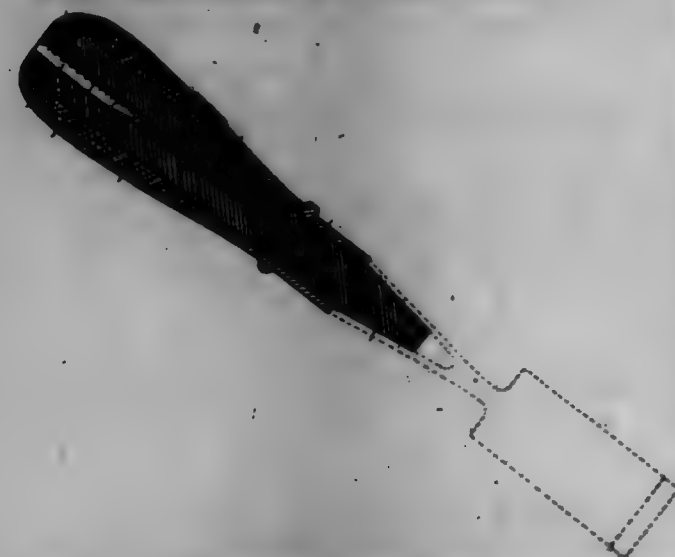
K which pass through the stop for the center-yoke, and secured in the stringers by bolts G; and the lower portion of the pocket L closed by a removable plate X detachably held in place by the bolts G, G, and nuts, which are located adjacent the pocket L; as set forth.

3. A metallic draft-beam having the top wall O, bottom wall P, perforated lug S, abutments M, pocket L open at the bottom, ribs Q, hollow space W at the front and closed by the top, bottom, end, and outside walls and by the wearing-base T, and bases R perforated for the reception of bolts G; the end of the said beam being adapted to be secured to the head-block by bolts passing through the hollow space W; as set forth.

4. Two metallic draft-beams each having a plain outer flange with a recess Y, a top wall, a bottom wall, perforated lug S, pocket L open at the bottom, ribs Q, perforated bases R, in combination with bolts K, stringers, bolts G, a removable plate X, and strain-rod J, each strain-rod being bent at the end and seated in a recess Y and the opposite end extended through the body-beam and adapted to be attached to a needle-beam.

5. The combination of the two draft-beams F, F, having substantially parallel outer flanges and horizontally-projecting walls on their inner flanges with connected shoring legs intermediate of their ends and wearing-bases at their front ends; said walls being of less width between said wearing-bases and said shoring legs than in the rear of the latter; in substance as set forth.

702,190. TOOL-HANDLER. FRANKLIN BROWN, Buffalo, N. Y., assignor to Fawcett Shaping Company, Buffalo, N. Y. Filed Aug. 2, 1901. Serial No. 70,611. (No model.)



Claim.—1. A tool-handle comprising an inclosing shell, a core arranged in the shell and having its upper end terminating within the same and separated therefrom by an intervening space, and a filling occupying said space and contained wholly within the shell, substantially as set forth.

2. A tool-handle comprising a shell which is open at its upper and lower ends, a core arranged in the shell and fitting at its lower end in the opening in the lower end of the shell while its upper part is separated from the surrounding shell by an intervening space, and a filling of molten material occupying said space, substantially as set forth.

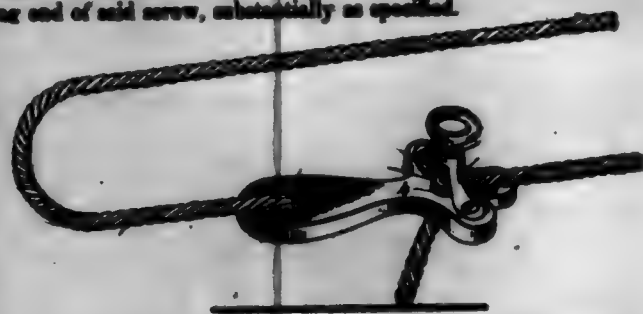
3. A tool-handle comprising a shell, a core arranged in the shell and having its upper and split lengthwise, a wedge whereby the split parts of the core are separated, and a filling which occupies the space between the core and the surrounding shell, substantially as set forth.

4. A tool-handle comprising a shell which is open at its upper and lower ends and which has an internal shoulder around the opening in its upper end, a core arranged in the shell and fitting at its lower end into the lower opening of the shell while its upper part is split lengthwise and terminates below said shoulder, a wedge whereby the split parts of the core are separated so as to extend underneath said shoulder, and a filling which occupies the space between the shell and the core, substantially as set forth.

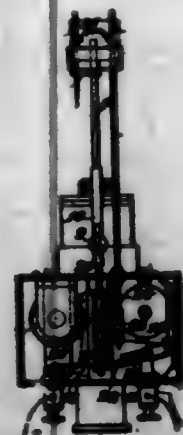
5. A tool-handle comprising a shell which is open at its upper and lower ends and which has an internal shoulder around the opening in its upper end, a core arranged in the shell and fitting at its lower end into the lower opening of the shell while its upper part is split lengthwise and terminates below said shoulder, a wedge whereby the split parts of the core are separated so as to extend underneath said shoulder, and a filling which occupies the space between the shell and the core and which forms an integral key extending throughout the split part of the core, substantially as set forth.

702,191. LINE-GRIP. FRANK I. FERRIS, New York, N. Y. Filed Oct. 1, 1901. Serial No. 77,390. (No model.)

Claim.—In a line-grip, comprising a plate-like body portion having openings near its ends, a nut supported in axial line with one of said openings, a clamping-screw operating in said nut, and a head on the clamping end of said screw, substantially as specified.

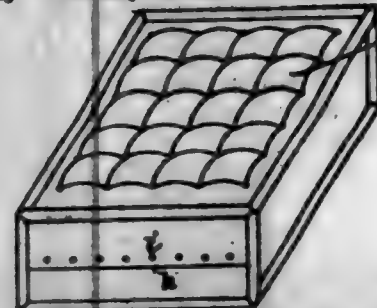


702,192. GAS-IGNITING OR KILN-IGNITING DEVICE. VANCE FERRIS, Paris, France. Filed Oct. 24, 1900. Serial No. 34,124. (No model.)



Claim.—In a gas-igniting device, the combination with an igniting-tube, of a cylindrical casing having a nipple at its top to receive the burner, an inlet at the bottom for gas to both the burner and the igniter, and a lateral outlet-port leading gas to the igniting-tube, an apertured plate in said casing between the burner and gas-inlet, said plate being adapted to close the lateral port for supplying the igniter, a valve on the under side of the plate for closing the gas-inlet, an electromagnet and its structure, the latter coupled to said plate for opening the gas-ports, and means for sending a current of electricity through said magnet and the igniting-wire simultaneously, substantially as set forth.

702,193. MATRESS. DAVID FRANKENTHAL, Frankfurt-on-the-Main, Germany. Filed May 22, 1901. Serial No. 61,600. (No model.)



Claim.—In a mattress in combination, a cover, two longitudinal and four transverse pockets formed therein corresponding in length respectively to the length and width of the mattress, stuff or filling material in said pockets, said pockets forming the edges of the mattress, substantially as described.

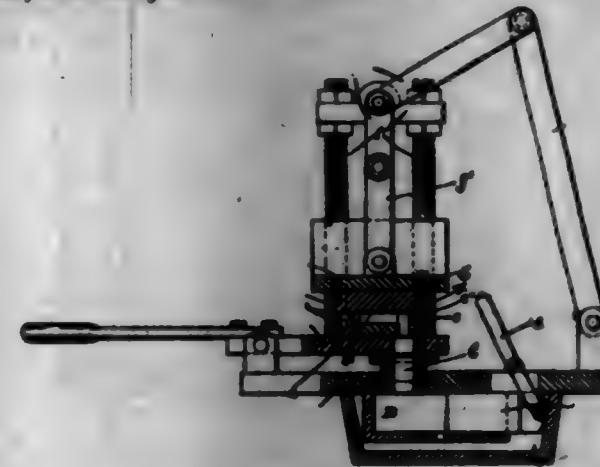
702,194. CASTING APPARATUS. HERBERT H. FRANKLIN, Syracuse, N. Y. Filed Sept. 20, 1901. Serial No. 76,913. (No model.)

Claim.—1. The combination with a sectional mold; of means for holding contiguous surfaces of sections of the mold separated during the entrance of the material to be cast and thereby permitting the escape of air from the mold, substantially as and for the purpose described.

2. The combination with a sectional mold; of means for holding contiguous surfaces of sections of the mold separated during the entrance of the material to be cast and thereby permitting the escape of air from the mold, and for moving one of the sections of the mold away from the contiguous portion of the mold and thereby permitting withdrawal of the cast article, substantially as and for the purpose specified.

3. The combination with a sectional mold; of means for forcing the material to be cast under pressure into the mold, and means for holding contiguous surfaces of sections of the mold separated during the entrance

of the material to be cast and thereby permitting the escape of air from the mold, substantially as and for the purpose set forth.



4. The combination with a sectional mold; of means for forcing the material to be cast under pressure into the mold, and means for holding contiguous surfaces of sections of the mold separated during the entrance of the material to be cast and thereby permitting the escape of air from the mold, and for moving one of the sections of the mold away from the contiguous portion of the mold and thereby permitting withdrawal of the cast article, substantially as and for the purpose described.

5. As a new article of manufacture, the herein-described sectional mold having flat or projections for separating contiguous surfaces of sections thereof during the entrance of the material to be cast, substantially as and for the purpose set forth.

702,195. SAFETY DEVICE FOR GAS-LINE. JOHN C. FURMAN, Strattonville, Pa., assignor of one-fourth to James W. Jones, Strattonville, Pa., and Irvin M. Shannon, Clarion, Pa. Filed Jan. 21, 1902. Serial No. 90,008. (No model.)



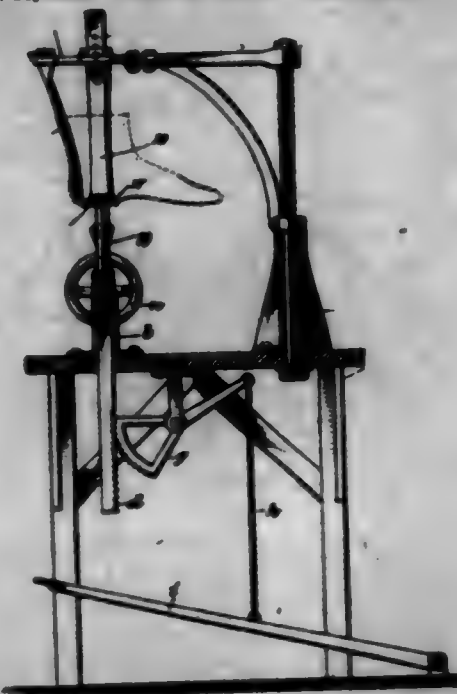
Claim.—1. A safety device for gas-line, comprising a casing in the line and having a transverse partition to form two compartments, of which one is connected with the gas-inlet and the other with the gas-outlet, a valve-seat in the said partition to establish communication between the compartments, a valve-seat in the outlet end of the casing and opening to the atmosphere, a valve-seat in the inlet end of the casing and opening to the atmosphere, valves for the said valve-seats, and a connection between the valves to hold one to its seat at the time the other is open, and vice versa, as set forth.

2. A safety device for gas-line, comprising a casing in the line and having a transverse partition to form two compartments, of which one is connected with the gas-inlet and the other with the gas-outlet, a valve-seat in the said partition to establish communication between the compartments, a valve-seat in the outlet end of the casing and opening to the atmosphere, valves for the said valve-seats, and a connection between the valves to hold one to its seat at the time the other is open, and vice versa, the said connection being in the form of a lever weighted at the end carrying the valve for the valve-seat opening to the atmosphere, as set forth.

3. A safety device for gas-line, comprising a casing in the line and having a transverse partition to form two compartments, of which one is connected with the gas-inlet and the other with the gas-outlet, a valve-

seat in the said partition to establish communication between the compartments, a valve-seat in the outlet end of the casing and opening to the atmosphere, valves for the said valve-seats, a connection between the valves to hold one to its seat at the time the other is open, and vice versa, and a resetting device under the control of the operator, for engaging the said connection to allow of resetting the valves, as set forth.

702,196. SHOE-TURNING DEVICE. GEORGE R. GARDNER, Hartford, Conn., assignor of one-half to Fred J. Hastings, Hartford, Conn. Filed Oct. 16, 1901. Serial No. 73,624. (No model.)



Claim.—1. The combination of two members adapted to hold between them the heel of a shoe, said members being reciprocal together in a fixed path, and a turning-arm held stationary with respect to said members and disposed longitudinally of the direction of movement of the said heel-holding members.

2. The combination of means for holding the heel of a shoe, said means comprising opposing members bearing on the top and bottom of the heel and side and rear turning-arms projected into the shoe, the heel-holding means and turning-arms being relatively movable and the turning-arms being disposed longitudinally of the direction of such movement.

3. The combination of a bracket, a heel-plate yieldingly contained therein, a second heel-plate movable against the first heel-plate to clamp and move the heel of a shoe, and a turning-arm carried by the bracket stationary with respect to the heel-plate thereof.

4. The combination with the vertically-movable bar d, of the heel-plate removably carried thereby, the bracket arranged to swing over said bar, the heel-plate yieldingly carried by the bracket opposite the first heel-plate, to arrange the heel of a shoe between said plates, and the turning-arm carried on the bracket stationary with respect to the heel-plate.

5. The combination of a support, a heel-plate held yieldingly thereby, a second heel-plate movable against the first heel-plate to clamp and move the heel of the shoe, and a turning-arm held stationary with respect to the heel-plate and adjacent thereto, for the purpose specified.

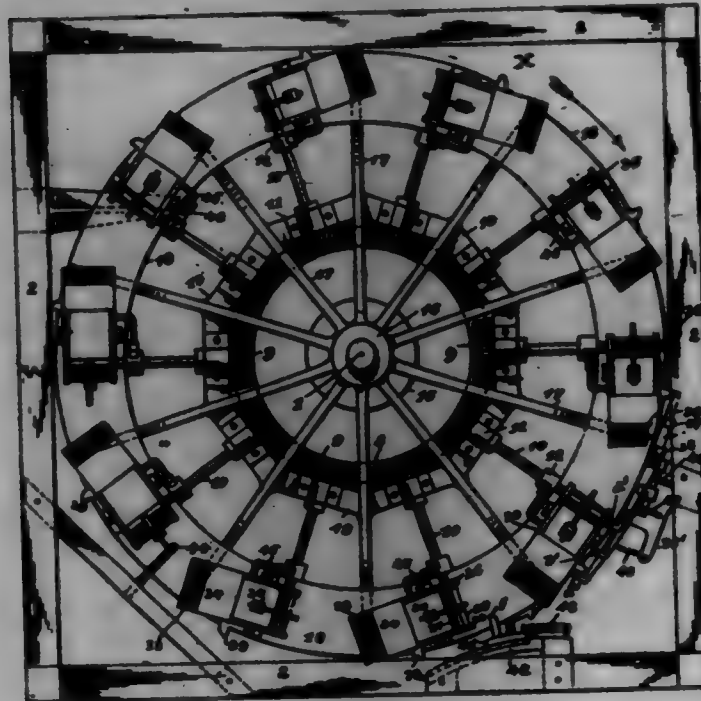
702,197. TUBE-MACHINE. JAMES J. GARETT, Philadelphia, Pa. Filed June 17, 1901. Serial No. 64,947. (No model.)

Claim.—1. In an apparatus for forming paper shells for dynamite sticks, the combination with the horizontally-arranged rotatable spider, or table, of means for driving same, a series of forming mechanisms carried by the spider, a series of forming-rolls in each mechanism, a former or mandrel working between the forming-rolls of each mechanism, device for rotating the former or mandrel during travel of the spider or table, of means whereby the projecting end of the rolled shell is crimped, and device for opening and closing the forming mechanisms as carried toward the delivery and feeding stations.

2. The combination with the forming mechanism, of device whereby the projecting end of the rolled shell is crimped during travel of the forming mechanism, the spring-held slide-plate carrying projecting pins, means for causing the pins to engage with the forming mechanism during a portion of its travel and firmly press down the crimped end of the shell.

3. In a machine of the character described, the combination with a rotary carrier, of mechanism mounted upon the surface thereof adapted to receive the blanks and roll the same around a mandrel or former, means

for imparting rotation to the mandrel or former, and devices arranged adjacent to the periphery of the carrier adapted to successively engage the end of the rolled shell to close the same.



3. The combination with the spider loosely mounted upon a fixed shaft, of means for imparting rotation thereto, a series of forming mechanisms carried by the spider, a mandrel or former working therein, a piston attached to the inner end of each former or mandrel, a gear rigidly attached to the fixed shaft with which mesh the piston of the former or mandrel, said piston meshing with the fixed gear so as to impart rotation to the former or mandrel during travel of the spider, and means exterior to the carrier in the path of rotation thereof whereby the projecting end of the rolled shell is crimped or closed.

5. The combination with the forming mechanism comprising a fixed and a hinged section, of a series of rolls secured within each section, a mandrel or former working between said rolls, devices whereby said former or mandrel is rotated, means for crimping the projecting end of the rolled shell, and means for automatically throwing said hinged section out of operative position.

6. The combination with the rotary carrier or spider, of a series of transverse platforms, a series of forming-rolls secured therein, a section hinged thereto and carrying a series of rolls, a mandrel or former working between said rolls, of devices whereby rotation is given to the former or mandrel during the travel of the rotary carrier, and means whereby the hinged section is opened and closed automatically.

7. The combination with a rotary carrier, of a series of transverse platforms carried thereby, and forming devices associated with said platforms, substantially as described.

8. In a machine of the character described, a former comprising a mandrel, hinged sections normally disposed around said mandrel, a plurality of rolls supported by each section and means for automatically throwing one of the sections out of operative position, substantially as described.

9. In a machine of the character described, tube-forming instrumentalities, means for conveying the same from point to point, and means supported independently of said conveying means adjacent to the edge thereof for crimping the end of the tube, substantially as described.

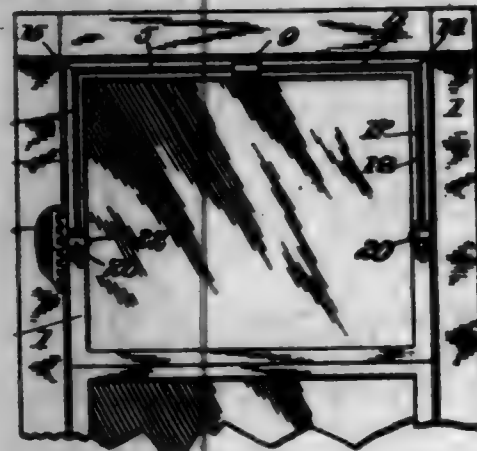
10. In a machine of the character described, a former comprising a mandrel, hinged sections disposed around said mandrel one above and the other beneath the same, rolls supported upon the surface of said sections, means for normally causing the hinged sections to approach, and means for throwing one of said sections up out of operative position, substantially as described.

11. In a machine of the character described, a rotary carrier, tube-forming instrumentalities supported by said carrier, end-closing means including a pin and a shiftable support therefor, and means brought into operation by the movement of the carrier for engaging the pin-support to force the pin against the end of the tube, substantially as described.

702,198. WINDOW-LOCK. SAMUEL J. GOSWORTHY, Mount Pleasant, Pa. Filed Mar. 8, 1902. Serial No. 94,804. (No model.)

Claim.—1. In a sash-lock, the combination of a window frame and sash, sash-bars rigidly secured in said window-frame, operating-rods carrying sash-bars secured upon said window-frame, a piston for simultaneously operating said operating-rods in opposite directions, rods pivoted to

said operating-rods telescoped near their center, and locking-bolts secured to said last-named rods engaging said sash-bars, substantially as described.



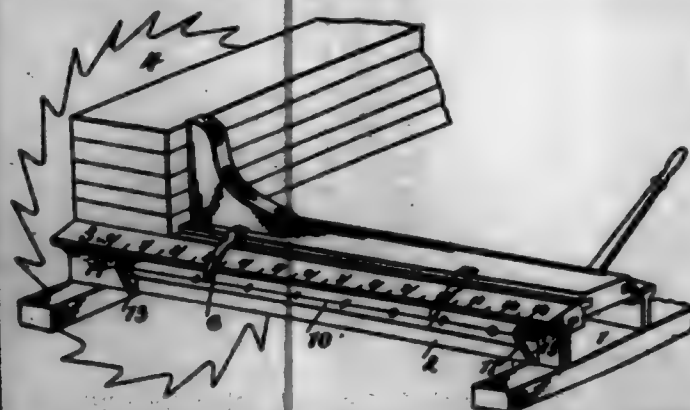
2. In a sash-lock, the combination of a window frame and the sash, sash-bars secured in the frame, lock-casings having a locking-bolt slidably mounted therein carried by the sash, a casing carried by the sash and having a shaft carrying a piston therein, operating-rods having sash-bars formed on their one ends engaging said piston and adapted to be simultaneously actuated thereby, centrally-pivoted rods carried by the sash with their lower ends extending into said lock-casing and engaging said locking-bolt, the upper ends of said rods being pivoted to the outer ends of said rods, and a spring mounted upon said shaft, secured thereto and to the said casing and adapted to return the said shaft to its normal position when the shaft is revolved, substantially as described.

702,199. RYELINE. MAAS W. GILM, New Bedford, Mass., assignor to Atlas Tack Company, Fairhaven, Mass., a Corporation of New Jersey. Filed July 20, 1901. Serial No. 70,114. (No model.)



Claim.—As an improved article of manufacture, the cylinder composed of a tubular body having uniform thickness, and a curved flange having a greater thickness, said curved flange on its upper side and separated from the body by a narrow groove, as and for the purpose specified.

702,200. LUMBER-MEASURE. JOHN GEMER, Rome, N. C., assignor of one-half to J. J. T. ROSS, Rome, N. C. Filed June 10, 1901. Serial No. 65,982. (No model.)



Claim.—1. The combination with a saw mill-carriage head-block and knee; of a scale appropriated to a certain length of leg and bearing indicating-marks respectively defining each distance of the knee from the plane of the saw as, multiplied by the length of leg appropriated to each scale, will have as product an even whole number of feet.

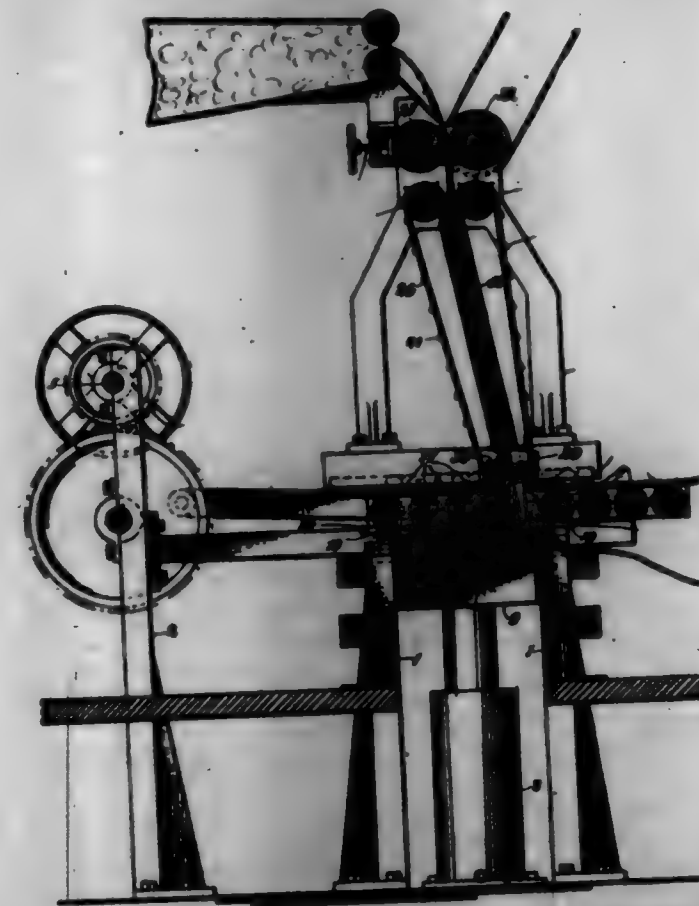
2. The combination with a saw mill-carriage head-block and knee; of a shiftable gage having a series of scales each appropriated to a certain length of leg and each scale bearing indicating-marks respectively defining each distance of the knee from the plane of the saw as, multiplied by the length of leg appropriated to each scale, will have as product an even whole number of feet.

3. The combination with a saw mill-carriage head-block and knee, and a pointer carried by the knee; of a series of scale-lines appropriated to bearings on the head-block and having a series of scale-lines appropriated to various lengths of legs, numerals indicating each length and stamped respectively adjacent said lines, each scale adapted to coast with said pointer and bearing indicating-marks respectively defining each distance of the knee from the plane of the saw as, multiplied by each numeral, will have as product an even whole number of feet.

4. The combination with a sawmill-carriage head-block and knee, and a pointer carried by the knee; of a series of interchangeable rollers removably journaled in bearings on the head-block and having a series of scale-lines appropriated to various lengths of legs, numerals indicating each length and stamped respectively adjacent said lines, each scale adapted to coast with said pointer and bearing indicating-marks respectively defining each distance of the knee from the plane of the saw as, multiplied by each numeral, will have as product an even whole number of feet.

5. The combination with a sawmill-carriage head-block and knee, and a pointer carried by the knee; of a series of rollers each removably journaled in bearings on the head-block and having a series of scale-lines appropriated to various lengths of legs, numerals indicating each length and stamped respectively adjacent said lines, each scale adapted to coast with said pointer and bearing indicating-marks respectively defining each distance of the knee from the plane of the saw as, multiplied by each numeral and by the thickness of the material appropriated to that roller, will have as product an even whole number of feet.

702,201. COMPRESS AND PACKER. JOHN B. GRIFFIN and SAMUEL C. ANDERSON, Van Alstyne, Tex. Filed Nov. 13, 1901. Serial No. 32,654. (No model.)



Claim.—1. A compressor and packer comprising a pressing-head, a reciprocating frame, two series of pressing-rollers carried in said frame, two endless feeding-aprons mounted to swing back and forth, flexible flaps on the aprons, and batter-rollers above said aprons, substantially as specified.

2. A compressor and packer, comprising a frame, a hydraulic press arranged in said frame, swinging holding-plates on said frame at the front and rear for engaging with a bat, spring connections between said plates, a reciprocating frame, two series of rollers carried by said frame, the inner adjacent rollers of the two series being considerably spaced apart, bars mounted on the frame and having recesses, bearing-rollers engaging in said recesses and bearing in the upper side of the reciprocating frame, swinging arms extended down between said inner rollers, and endless feeding-aprons carried by the arms, substantially as specified.

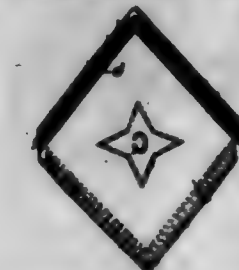
3. A cotton compressor and packer, comprising a frame, a hydraulic press arranged in said frame, a reciprocating frame, means for causing the back-and-forth movements of the reciprocating frame, two series of pressing-rollers carried by said frame, the inner adjacent rollers of the two series being considerably spaced apart, swinging arms, hangers on said arms extended downward between the said inner adjacent rollers, blocks mounted to swing in the hangers, rollers having bearings in said blocks, rollers in the upper portion of the machine-frame, endless aprons extending around the upper and lower rollers, and batter-rollers arranged above the said aprons, substantially as specified.

4. A cotton compressor and packer comprising a frame, a hydraulic

press arranged in the frame, a reciprocating frame, two series of pressing-rollers mounted in said reciprocating frame, a fixed rack, gears on the rollers for engaging with said rack, holding-plates mounted to swing, a spring connection between the plates, the two inner rollers of the series being spaced apart to permit the plates to swing upward between them, crank-wheels, and connections between the wrist-pins of said crank-wheels and the reciprocating frame, substantially as specified.

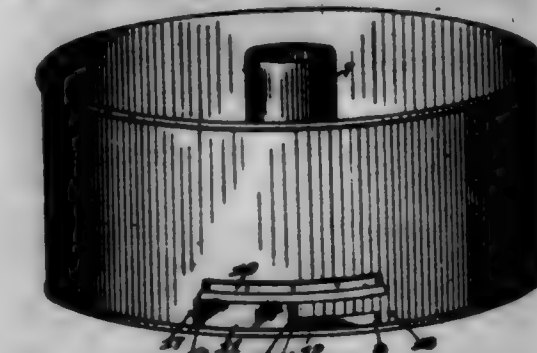
5. A cotton compressor and packer comprising a frame, batter and feed rollers at the upper portion of the frame, one of said rollers having its bearings in adjustable boxes, rollers arranged in the frame below the first-named rollers, arms mounted to swing on the frame, blocks mounted to swing on the lower ends of said arms, rollers having bearings in said blocks, endless aprons extended around the said rollers and the rollers above them, a reciprocating frame, two series of pressing-rollers arranged in said reciprocating frame, a press arranged on the frame below the pressing-rollers, and means for causing the movements of the reciprocating frame, substantially as specified.

702,202. ROOFING-TILE. ALBERT GUTHER, Bonn, Germany. Filed Nov. 17, 1900. Serial No. 28,917. (No model.)



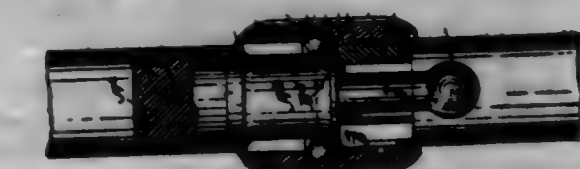
Claim.—A quadrangular roofing-tile having on one portion flanges with an inner and an outer interposed groove, a projection and groove on opposite side edges of the tile, a prolongation at the upper end of the inner groove, a hook on the opposite side of the upper end of the tile, and projections arranged below the same, substantially as specified.

702,203. CAKE-PAN. BERTHA HAYTER, Boston, Ma. Filed Feb. 21, 1902. Serial No. 26,194. (No model.)



Claim.—In a cake-pan, the wall 6 having the opening 8 formed through the wall, and leaving the narrow strip 9 at its lower edge, the bottom 5 secured to the wall 6 and having the flange 12 projecting upwardly parallel with the strip 9, the Z-shaped bar 10 secured to the wall 6 some distance above the opening 8, the slide 11 mounted between the strip 9 and the flange 12 and between the Z-bar 10 and the wall 6, the beads 13 and 14 formed upon the ends of the slide, the handles 15 and 16 secured to said beads, and the steps 17 and 18 secured to the wall to limit the motion of the slide, substantially as specified.

702,204. HINGE-JOINT FOR CONNECTING ROD-SECTIONS. FREDERICK A. E. HAMILTON, Beverly, Mass., assignor, by direct and mesne assignments, to HARRY HUNT, Boston, Mass. Filed May 3, 1901. Serial No. 24,872. (No model.)

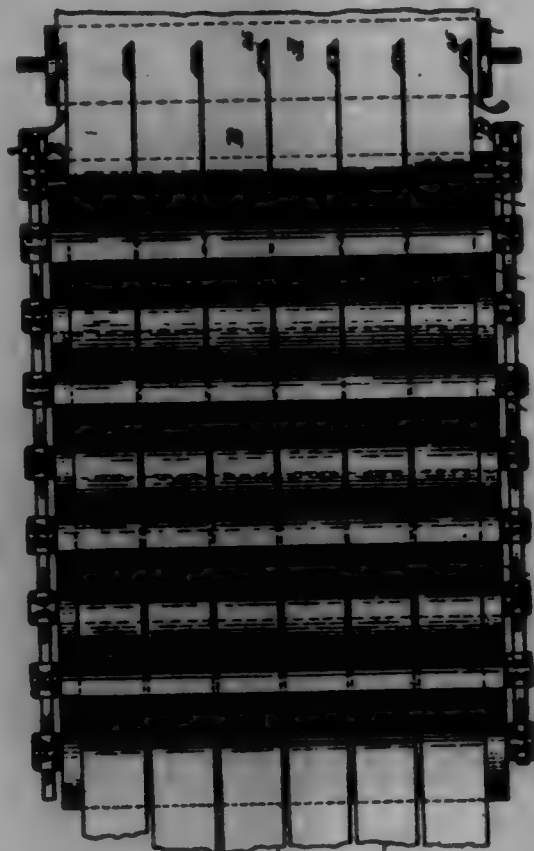


Claim.—1. In a lock hinged joint, an upper member including a hinge-piece which has a neck extending downward and terminating in a ball; a lower socket member having a bushing adapted to receive said neck and ball, said bushing having an inwardly-projecting flange and a lateral opening; a sleeve adapted to move freely on the upper member,

and to drop onto and engage with the said lower member whereby the two members are locked together, substantially as and for the purpose set forth.

2. In a lock hinge-joint, an upper member having a hinge-piece which has a neck terminating in a ball, and also has a broad annular groove adapted to receive said ball; a lower member adapted to receive said neck and ball; a sleeve having an annular groove also adapted to receive said ball; said sleeve adapted to work in said groove; and screw-threads upon said sleeve and lower member adapted to engage with each other and to lock the members together, substantially as and for the purpose set forth.

703,905. PROCESS OF MAKING PAPER. JOHN R. HANCOCK, East Walpole, Mass., assignor to F. W. Bird and Son, East Walpole, Mass., a firm. Filed Sept. 20, 1901. Serial No. 78,187. (No model.)



Claim.—1. In the process of paper-making, dividing a web of unfinished paper into longitudinal strips prior to drying the same.

2. In the process of paper-making taking a web of paper from the last machine-roll, dividing each web into longitudinal strips and subjecting each strip to the action of heated surfaces or cylinders.

3. In the process of paper-making that intermediate step, in a continuous process which consists in cutting an unfinished web into strips and subjecting said strips simultaneously to a drying medium.

4. In the process of paper-making dividing a web of paper containing moisture into a series of longitudinal strips and subsequently expelling the moisture from the strips simultaneously.

702,206. CIGARETTE-MACHINE. JACOB C. HANSEN-ELLSHANSSEN, Copenhagen, Denmark. Filed June 3, 1901. Serial No. 68,721. (No model.)

Claim.—1. In cigarette machinery, the combination with a table having a pocket and cooperating mold, of a filter-feed mechanism, a plunger arranged to traverse the pocket in the table, a reciprocating plunger-frame in which the plunger is slidably mounted, means for giving movement to the plunger in one direction with relation to the plunger-frame, means for actuating the plunger-frame, and a filter-cutting knife having its active edge disposed above the similar face of the plunger.

2. In cigarette machinery, the combination with a table having a pocket, and a filter-feeding mechanism, of cooperative mold, one of which is movable relative to the other, means for opening and closing said mold, a reciprocating plunger-frame, means controllable by the mold-actuating device for depressing the plunger-carrying frame when the molds are opened, a plunger yieldably mounted in the plunger-carrying frame, and a filter-cutting knife.

3. In cigarette machinery, the combination of a table provided with a pocket, a filter-feed mechanism disposed in cooperative relation to said table and arranged to form a layer of filter material of appropriate thick-

ness across said table and to the pocket therein, a plunger arranged to traverse the pocket in said table, a cutter movable with said plunger and adapted to sever a length of filter material from the layer on said table, means for actuating said plunger and the cutter, and coating means in operative relation to the table.



4. In cigarette machinery, the combination of a table provided with a pocket, cooperating mold in active relation to said table, a filter-feed mechanism disposed to form a layer of filter material of appropriate thickness across said table and to the pocket therein, means movable relative to said table, a yieldable plunger actuated by the means and adapted to traverse the pocket, a cutter controlled by said means and adapted to cover a length of filter material from the layer on said table, a hand-lever having operative connection with the plunger and cutter-carrying levers, and means connected with said carrying-levers to normally hold them, the plunger, and the cutter, in raised position.

5. In cigarette machinery, the combination of a table provided with a vertical pocket, cooperating mold in active relation to said table, a filter-feed mechanism disposed to form a layer of filter material of appropriate thickness across said table and to the pocket therein, a yieldable-mounted plunger arranged to traverse said pocket, and a knife movable with said plunger into and from the pocket, and having its active edge normally occupying a position raised above the under face of said yieldable plunger.

6. In cigarette machinery, the combination of a table provided with a pocket, cooperating mold in active relation to said table, a filter-feed mechanism disposed to form a layer of filter material of appropriate thickness across said table and to the pocket therein, a reciprocating frame normally contained above said table, suitable means for positively actuating said frame, a plunger yieldably mounted in said frame and arranged to traverse the pocket in the table, and a knife carried by the frame and adapted to be moved with the plunger to and from the pocket of the table.

7. In a cigarette-machine, the combination with a feed-table and a filter-compressing mechanism, of a traveling apron movable around a suitable guide and having upper and lower lengths which diverge from said table, separate drums on which are coiled said upper and lower lengths of the apron and means for imparting intermittent feed motion to said apron.

8. In a cigarette-machine, the combination with a table and a filter-compressing mechanism, of a guide-roller adjacent to said table, a traveling apron fitted to the roller and having its upper length arranged to deposit tobacco upon the table, a drum on which the upper length of the apron is wound, another drum adapted to receive the lower length of the apron, and means for rotating one of said drums.

9. In a cigarette-machine, the combination with a table and a filter-compressing mechanism, of a guide adjacent to said table, a drum, an apron coiled on said drum and having engagement with said guide to co-

operate an operative relation to the table, a take-up drum on which the idle portion of the apron is coiled, and automatic feed mechanism for intermittently turning the take-up drum.

10. In a cigarette-machine, the combination with a filter-compressing mechanism and a feed-apron, of a drum on which the operative length of the apron is wound, a take-up drum receiving the idle length of said apron, means for intermittently turning the take-up drum, and a brake mechanism adapted to have engagement with the supply-drum and to release the latter on the operation of the feed mechanism for the take-up drum.

11. In a cigarette-machine, the combination with a filter-compressing mechanism and a traveling feed-apron, of a feed-drum for said apron, and a brake mechanism in operative relation to the feed-drum and controlled by the filter-compressing mechanism to release the apron feed-drum when said filter-compressing mechanism is open to receive a charge of tobacco.

12. In a cigarette-machine, the combination with a filter-compressing mechanism and a feed-apron, of a feed-drum for said apron, and connections between the brake mechanism and the filter-compressing mechanism.

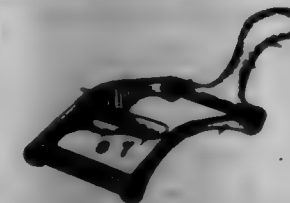
13. In a cigarette-machine, the combination with a filter-compressing mechanism and an apron, of a take-up roller on which the idle length of the apron is coiled, a pawl-and-ratchet feed mechanism for turning the said take-up roller, and operative connections between the filter-compressing mechanism and the ratchet of said feed mechanism, whereby the take-up roller is rotated when the filter-compressing mechanism is closed upon a charge of tobacco.

14. In a cigarette-machine, the combination with a filter-compressing mechanism, an apron, a feed-drum for said apron and a take-up roller for the apron, of a feed-rod operated by connections with the filter-compressing mechanism, a brake normally in active engagement with the apron feed-drum and controllable by said feed-rod, and a feed mechanism engaging with the take-up roller and having operative connection with said feed-rod.

15. In a cigarette-machine, the combination with a slidable mold, a feed-apron, and suitable drums for the operative and idle lengths of the said apron, of a feed-rod provided with a shoulder, a pawl actuated by the slidable mold, a pawl-and-ratchet feed mechanism for turning the said take-up roller, and a plunger having operative connections with the pawl-and-ratchet, as and for the purpose described.

16. In a cigarette-machine, the combination, with a feed-apron and a feed-drum therefor, of a brake-lever having means for engagement with said feed-drum, a feed-rod slidable relative to said brake-lever and provided with a bushing, and a collar engaging adjustably with said bushing and having operative relation to the brake-lever.

702,207. REIN-SUPPORT. SAMUEL R. HARRIS, Wabash, Ind. Filed July 22, 1901. Serial No. 68,185. (No model.)



Claim.—In a rein-support, the combination of the end bar, a rein-supporting prong secured to one of said bars, side bars secured in said end bar, a central bar integral with one side bar extending therefrom and reaching almost to the opposite side bar, whereby said rein-support is secured to a strap by means of inserting said strap edgewise between said central bar and said side bar, and securely held in position by said side bars, substantially as described.

702,208. CARTRIDGE. WILLIAM E. HATYER, Springfield, Ohio. Filed Feb. 25, 1902. Serial No. 68,621. (No model.)



Claim.—1. In a cartridge, the combination with a firing-head, of a cylinder of powder, a projectile, and stays or coupling-bars rigidly connected to the projectile and detachably secured to the firing-head.

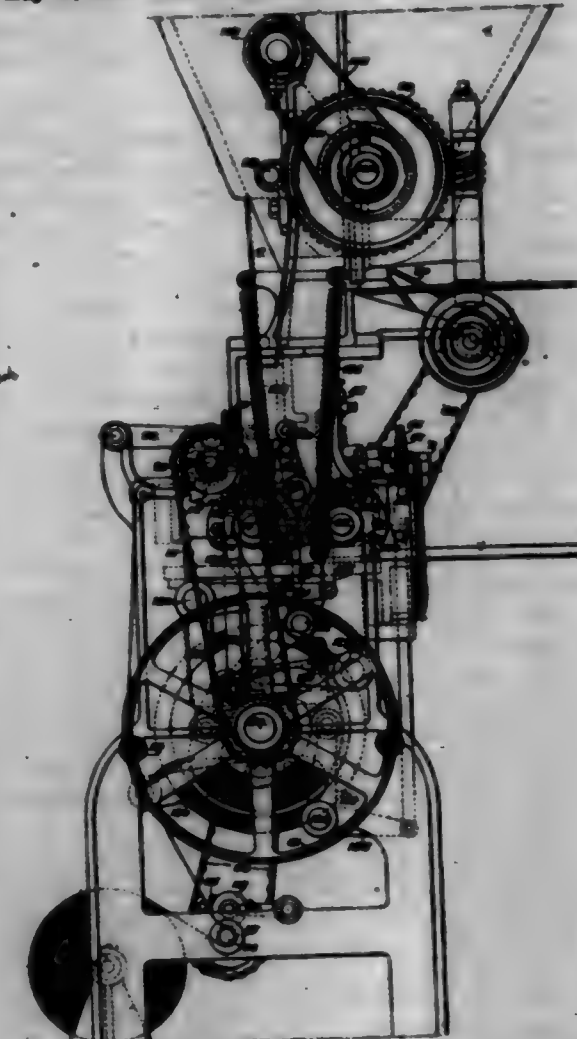
2. A cartridge comprising a firing-head having prongs, a charge of powder, a projectile, and stays or coupling-bars rigidly secured to the projectile and detachably secured to the firing-head through the medium of the prongs.

3. A cartridge comprising a firing-head having prongs, a charge of

powder, a projectile having dovetailed recesses, and stays or coupling-bars having their outer ends dovetailed and their inner ends recessed.

4. A cartridge comprising a firing-head having prongs, a cylinder of powder having longitudinal recesses, a projectile, a stem upon said projectile having a reduced portion, and stays or coupling-bars having their outer ends dovetailed and provided near their inner ends with recesses.

702,209. CIGARETTE-MACHINE. HENRY C. BRIDGEMAN, Philadelphia, Pa., assignor to James A. Brunner, Philadelphia, Pa. Filed May 18, 1902. Serial No. 717,664. (No model.)



Claim.—1. The combination in a cigarette-machine, of a mold in which a cigarette is formed, means for rocking said mold back and forth between a filling and a discharging position, and devices for feeding a strip of wrapper-paper, said feeding device being independent of the movement of the mold, substantially as specified.

2. The combination in a cigarette-machine, of a mold in which the cigarette is formed, means for rocking said mold back and forth between a filling and a discharging position, mechanism for feeding a strip of wrapper-paper, and clearing devices for said strip independent of the mold, substantially as specified.

3. The combination in a cigarette-machine, of a mold in which the cigarette is formed, with a device independent of the mold for feeding a strip of wrapper-paper, said feeding device consisting of a rotating segment having a friction-surface for acting upon and carrying forwardly the paper strip, substantially as specified.

4. The combination of a cigarette-mold having a sliding discharger, a friction-plate in one side of the mold bearing upon said discharger, a spiral spring acting upon said plate and contained in a hollow box on the side of the mold, a cap acting on said spring, and a set-screw bearing upon said cap, substantially as specified.

5. The combination in a cigarette-machine, of primary and secondary molds, and means for rocking the same back and forth throughout a portion of a turn, whereby, when in one extreme position, they will register with each other, means for pressing a bunch of tobacco and a wrapper into the primary mold, means for folding the wrapper around the bunch as the mold swings from one position to the other, and means for pushing the partially-formed cigarette from the primary mold into the secondary mold and thereby further folding the wrapper around the cigarette, substantially as specified.

6. The combination in a cigarette-machine, of a pair of molds and means for rocking the same back and forth throughout a portion of a turn so that they will register with each other when in one extreme position, means for feeding a bunch of tobacco and a wrapper into the primary

mold when the same is in one extreme position, a wedge for folding the wrapper around the bunch of tobacco as the primary mold moves from one extreme position to the other, and means for pushing the partially-wrapped bunch from the primary mold into the secondary mold and thereby still further folding the wrapper around the same, the wedge being so disposed as to further fold the wrapper around the cigarette as the secondary mold swings from its receiving position, substantially as specified.

7. The combination in a cigarette-machine, of primary and secondary molds, means for forcing a bunch of tobacco and a wrapper into the primary mold, means for pushing the partially-formed cigarette from the primary mold into the secondary mold, a tucker-mold operating in conjunction with said secondary mold, and means for transferring the cigarette from said secondary mold to said tucker-mold, substantially as specified.

8. The combination in a cigarette-machine, of a primary mold, a secondary mold, means for pushing a bunch of tobacco and wrapper into said primary mold, means for pushing the partially-formed cigarette from the primary mold into the secondary mold, a tucker-mold operating in conjunction with said secondary mold, means for pushing the cigarette from the secondary mold into the tucker-mold, and means for ejecting the cigarette from said tucker-mold, substantially as specified.

9. The combination in a cigarette-machine, of primary and secondary molds, means for pushing the bunch of tobacco and a wrapper into said primary mold, means for pushing the partially-formed cigarette from the primary mold into the secondary mold, a tucker-mold acting in conjunction with said secondary mold, a discharger in said tucker-mold, a discharger in the secondary mold, and means for operating the latter discharger, whereby the cigarette is transferred from the secondary mold to the tucker-mold, and is confined between the two dischargers while its ends are being tacked, substantially as specified.

10. The combination in a cigarette-machine, of primary and secondary molds, means for pushing the bunch of tobacco and a wrapper into said primary mold, means for pushing the partially-formed cigarette from the primary mold into the secondary mold, a tucker-mold acting in conjunction with said secondary mold, a discharger in said tucker-mold, a discharger in the secondary mold, and a slide for operating said secondary and tucker mold dischargers, said slide having a two-stage return movement whereby the discharger of the tucker-mold will not eject the cigarette until the secondary mold has moved away, substantially as specified.

11. The combination in a cigarette-machine, of a primary mold, a secondary mold, means for pushing the bunch of tobacco and wrapper into said primary mold, means for pushing the partially-formed cigarette from the primary mold into the secondary mold, a tucker-mold operating in conjunction with said secondary mold, means for pushing a partially-formed cigarette from the secondary mold into the tucker-mold, a receiving-trough carried by the secondary-mold shaft, and means for ejecting the cigarette from the tucker-mold into said trough, substantially as specified.

12. The combination in a cigarette-machine, of primary and secondary molds having sliding dischargers, a trough on one of the mold-carriers, a trough for receiving the finished cigarette from said first trough, a pusher-bar for moving the cigarette along in said first trough, a pusher-plate for operating the mold-dischargers, and connections between said pusher-plate and pusher-bar, substantially as specified.

13. The combination in a cigarette-machine, of a rocking mold-shaft having a mold thereon, wrapper-strip feeding and covering device, and a segment mounted upon the mold-shaft and curving as a support for the wrapper-strip when the mold is moved away from the supporting position, said segment being independent of the feed mechanism, substantially as specified.

14. The combination in a cigarette-machine, of primary and final tucking-blades for the end of the wrapper, said final tucking-blade having movement around but a single axis and a lost-motion-operating device for effecting the movement of said final tucking-blade around its axis, substantially as specified.

15. The combination in a cigarette-machine, of primary and final tucking-blades for acting upon the projecting end of the wrapper, said final tucking-blade having movement around but a single axis, and gearing for connecting the shafts of the two blades, one of the elements of said gearing being a swinging dog which acts upon an arm on the shaft of the final tucking-blade throughout a portion only of its movement, substantially as specified.

16. The combination in a cigarette-machine, of primary and final tucking-blades for the end of the wrapper, said final tucking-blade having movement around but a single axis, gearing for connecting the shafts of said blades having as an element a swinging dog which acts upon an arm on the final tucker-shaft throughout a portion only of its swing, a spring for restoring said final tucker-shaft to its normal position, and a stop for arresting said return movement, substantially as specified.

17. The combination of the primary and final tucking-blades, rock-shafts carrying the same, a pinion on the primary tucker-shaft, a second pinion having a lost-motion connection with the final tucker-shaft, a duplex rack engaging with said pinions, and means for restoring said rack, substantially as specified.

18. The combination in a cigarette-machine, of a forming-mold, a rock-shaft carrying the same, mechanism for rocking said shaft, fixed stops cooperating with a shaft element for restricting the rocking movement of said shaft, and a spring tending to bring the shaft element into contact with the fixed stops at each limit of movement of the shaft, substantially as specified.

19. The combination in a cigarette-machine, of a pair of molds, each carried by a rock-shaft, whereby they can rock from and toward each other, gearing for connecting said rock-shafts, mechanism for rocking the shafts, fixed stops cooperating with an element on each shaft to restrict the rocking movement of the same, and a spring acting upon each shaft and tending to bring its stop element into contact with the fixed stops at each limit of movement of the shaft, substantially as specified.

702,910. ANTI-SHOOTING RAILWAY-TRAIN GUARD.
WILSON R. HAYDEN, Wallasey, Idaho. Filed Jan. 22, 1902. Serial No. 90,771. (No model.)



Claim.—1. A railway-vehicle provided with an anti-shooting metallic guard of considerable height and having a single beveled impact-face diagonal to the length of the train or to the railway and which face is of an extent to practically reach across the width of said vehicle.

2. A railway-vehicle provided with an anti-shooting metallic guard of a height as nearly equal to the body of the vehicle as is practicable, said metallic guard being supported on wheels and having a single beveled impact-face diagonal to the length of the train or to the railway and of an extent to practically reach across said vehicle.

3. A railway-locomotive provided with a heavy and strongly-built pilot of a height as near to the height of the locomotive as is practicable, and having a single vertical beveled front face of the height of the body of the pilot, and diagonal to the railway, and practically extending across the latter.

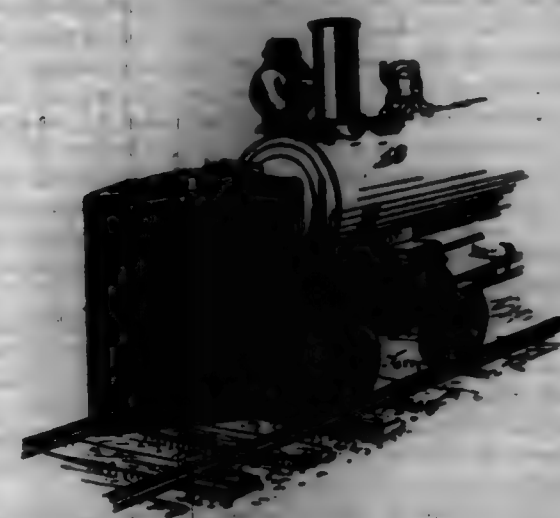
4. A railway-locomotive provided with a heavy and strongly-built pilot having a single vertical beveled front face diagonal to the railway and practically extending across the latter, said pilot being provided with wheels by which its considerable weight is supported.

5. A rear-end railway-guard car, for cooperation with a locomotive-pilot having a front beveled face, said car being provided with a strongly-built rear-end guard portion forming a rigid part of the car and having a single vertical beveled rear face diagonal to the railway and practically extending across the latter, said rear-end guard being of a height practically equal to the height of the body of the car.

6. A rear-end railway-guard car, for cooperation with a locomotive-pilot having a front beveled face, said car being provided with a strongly-

built rear-end guard portion constructed of metal and forming a rigid part of the car, said guard portion of said car being of a height practically equal to the height of the body of the car and having a single vertical beveled rear face diagonal to the railway and practically extending across the latter.

702,911. ANTI-SHOOTING RAILWAY-TRAIN GUARD.
WILSON R. HAYDEN, Wallasey, Idaho. Filed Jan. 22, 1902. Serial No. 90,772. (No model.)



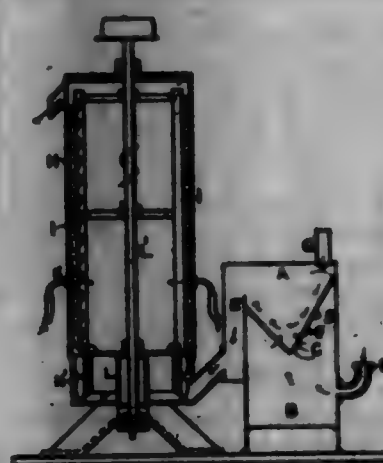
Claim.—1. A locomotive-engine provided with an anti-shooting, heavy and strongly-constructed, pivoted, pointed pilot, with extended beveled vertical faces.

2. A locomotive-engine provided with an anti-shooting, heavy and strongly-constructed, pivoted, pointed pilot, with beveled vertical faces, combined with means for normally holding the said pilot in a central position, and means, under the control of the engineer, for swinging said pilot to either side, when desired.

3. A locomotive-engine provided with an anti-shooting, heavy and strongly-constructed, pivoted, pointed pilot, with beveled vertical faces, combined with means for normally holding the said pilot in a central position, a cylinder, a piston therein connected with said pilot, and means, under the control of the engineer, for admitting a fluid under pressure to said cylinder, for the purpose of swinging said pilot to one side or the other.

4. A locomotive-engine provided with an anti-shooting, heavy and strongly-constructed, pivoted, pointed pilot, with beveled vertical faces, combined with means for normally holding the said pilot in a central position, means, under the control of the engineer, for swinging said pilot to either side, when desired, and a rear car provided with a strongly-constructed, pointed rear guard, for cooperation with said pivoted pilot.

702,912. WHEAT-CLEANING MECHANISM. JAMES HUGHES, Liverpool, England. Filed Dec. 20, 1901. Serial No. 90,773. (No model.)

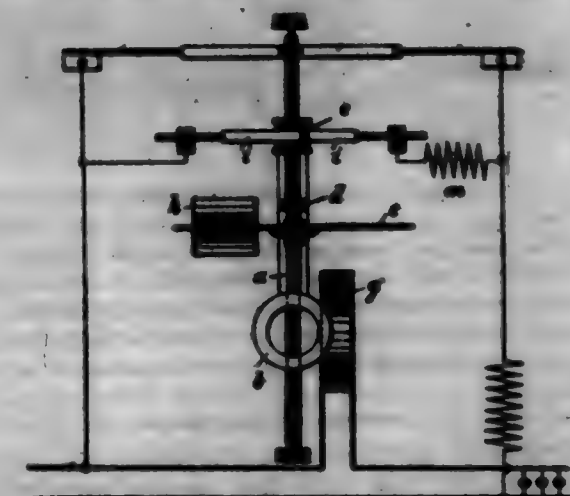


Claim.—1. In a grain-cleaning machine the combination of the upper water-chamber A, having a perforated hopper-shaped bottom, and an aperture at its side, the lower water-chamber B, pipe F for admission of water under pressure to chamber B, the grain-discharge pipe G at top of chamber A, and weighted valve O at the lower part of chamber A, whereby the grain, mud and stones are caused to fall through the valve to the bottom of chamber A where mud and stones are automatically delivered through the weighted valve to the chamber B, while the grain flows with the water over the aperture at the side of chamber A.

2. The combination with a cleaning device, of a vertical cylinder H

and H', the lower portion H' being imperforate, the upper portion H being perforate, bottom I, all set at an angle, adapted to rotate at high speed within this cylinder, and jet-pipe K placed in the perforate portion of the cylinder, substantially as and for the purpose described.

702,913. ELECTRICITY-METER. BENJAMIN C. HOLZ, Berlin, Germany. Filed Dec. 21, 1901. Serial No. 90,774. (No model.)



Claim.—1. In a meter electricity-meter in which one pressure-coil and two commutator-segments are employed, an armature, a piece of soft iron attached to said armature, a magnet disposed in such relation to said piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, substantially as described.

2. A meter electricity-meter, in which one pressure-coil and two commutator-segments are employed, an armature, a piece of soft iron secured to said armature, a brake-magnet, said brake-magnet being arranged in such position in relation to the piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, substantially as described.

3. In a meter electricity-meter in which one pressure-coil and two commutator-segments are employed, an armature, a piece of soft iron secured to said armature, a brake-magnet, said brake-magnet being arranged in such position in relation to the piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, a brake-disk, said brake-disk being out away at those points, which while the armature traverses the dead-angle, lie between the poles of the brake-magnet, substantially as described.

4. A meter electricity-meter in which one pressure-coil and two commutator-segments are employed, an armature, a piece of soft iron attached to said armature, a brake-magnet disposed in such relation to said piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, and a brake-disk out away at those points which while the armature traverses the dead-angle, lie between the poles of said brake-magnet, substantially as described.

5. In a meter electricity-meter in which one pressure-coil and two commutator-segments are employed, an armature, a piece of soft iron attached to said armature, a magnet disposed in such relation to said piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, and means for short-circuiting the main brushes at the moment of reversion of the current, for the purpose and substantially as hereinbefore described.

6. In a meter electricity-meter, in which one pressure-coil and two commutator-segments are employed, an armature provided on the rotating spindle, a piece of soft iron attached to said armature, a magnet disposed in such relation to said piece of soft iron as to exercise an attraction upon it to move the armature away from the dead-point position, an insulated short-circuiting piece secured to the rotating spindle, and auxiliary brushes which cooperate with said insulated short-circuiting piece to short-circuit the main brushes at the moment of reversion of the current, substantially as hereinbefore described.

702,914. STOP-CLAMP. WILLIAM F. BELL, Youngstown, Ohio. Filed Dec. 20, 1901. Serial No. 90,775. (No model.)

Claim.—1. A clamp of the character described, comprising a stem having a coupling device at one end and an engaging hook at the other, a sliding member adjustable upon the stem and provided at one end with a biting-flange adapted to work over and past the nose of the hook, and a locking member also adjustable upon the stem and adapted to work against the end of the biting-flange member opposite the biting-flange of the latter.

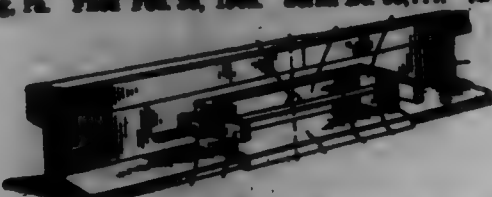
2. A device of the class described, comprising a stem having a coupling device at one end and an engaging hook at the other, a sliding member adjustable upon the stem and provided at one end with a biting-flange adapted to work over and past the nose of the hook, and a locking member also adjustable upon the stem and adapted to work against the end of the biting-flange member opposite the biting-flange of the latter.

into right and left threaded portions, and at one end an engaging hook provided with an inner gripping element, a sleeve binding-out engaging one of the threaded portions of the stem and provided at its outer end with an annular biting-flange designed, in its active position, to overlap and receive within itself the nose of the engaging hook, and a sleeve lock-out engaging the other threaded portion of the stem and working against the inner end of the binding-out.



3. A device of the stem described comprising a threaded stem provided with means for engaging and clamping the rope, and a separate hollow globular coupling-bush receiving and swiveling directly on one end of the threaded stem, said coupling-bush being provided with a rope-receiving opening aligned with the threaded stem, and also with a plurality of side strand-holes to permit of the knotting of the individual strands of a rope and exterior to the bush after the insertion of said rope and therein.

702,215. RAIL-JOINT. EDGAR F. HUNTER and HARRY C. HUNTER, Pittsburg, Pa. Filed Feb. 28, 1900. Serial No. 94,777. (No model.)



Claim.—1. In a rail-joint, the combination with the rails having openings formed therein, bars extending through said openings, fish-plates carrying an integral base, legs extending from said fish-plates, cross-threaded rods extending through said legs and bars, and means to fasten said cross-threaded rods, substantially as described.

2. In a rail-joint, the combination with the rails having openings formed therein, bars extending through said openings, fish-plates carrying an integral base, legs extending from said fish-plates, cross-threaded rods extending through said legs and bars, means to fasten said cross-threaded rods, and a central bolt and nut to secure said fish-plates to gather, substantially as described, and for the purpose set forth.

702,216. AUTOMATIC GAGE FOR HYDRAULIC TESTING-MACHINE. WILLIAM HERRICK, McKeesport, Pa. Filed Dec. 21, 1901. Serial No. 94,804. (No model.)



Claim.—1. In combination with a pressure-supply pipe, an automatic pressure-relieving gage comprising a tube having its lower end connected to said supply pipe and provided with a discharge-outlet intermediate its ends, a hollow cylindrical valve provided at its upper end with an arch formed integral therewith, whereby pressure is admitted both above and below the said valve and a weight-receiving rack mounted on the tube and connected to the said valve, substantially as described.

2. In combination with a pressure-supply, a tube directly connected thereto, said tube closed at its outer end and provided with a discharge-part, a cylindrical valve hollower for its entire length fitted to slide in the tube and provided at its upper end with an arched portion and a stem connected to the said arched portion extending through the closed end of the tube, a weight-receiving rack fitted to slide on the tube and secured to said stem, and a counterbalance-lever connected to the said stem, substantially as described.

3. In an automatic pressure-gage, the combination of a tube in direct communication with the pressure-supply and provided in its wall with a series of vertically-arranged openings, a valve having closed walls and open ends fitted in the tube to normally close one or more of the said openings, a hand spring and formed integral with the upper end of said valve, a stem connected to the said arched head and having its upper end

extending through the closed outer end of the tube, and a weight-receiving rack fitted to slide on said tube and secured to the said stem, substantially as described.

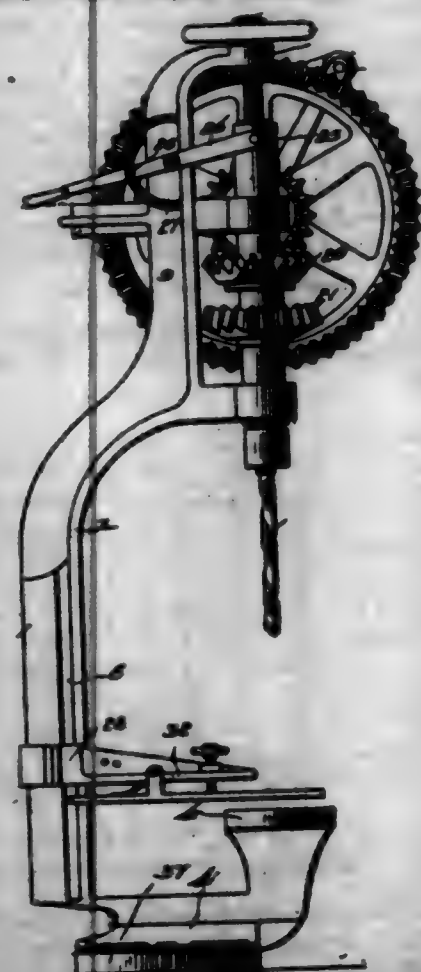
4. In an automatic pressure-gage, the combination with the pressure-supply, of a tube having a closed outer end and having its lower end in communication with the pressure-supply, said tube provided in its wall intermediate its ends with a series of vertically-arranged openings, a head detachably secured to the said tube and including the said openings, said head provided in its side with an exhaust-port, a hollow cylindrical valve fitted to slide in said tube and provided at its upper end with an integral arch, a stem connected to the said arch and extending through the closed end of the said tube, and a weight-receiving rack extending the upper end of the tube and having its lower end controlling the tube, and a hand mounted therein, said hand being rigidly secured to the said stem, substantially as described.

5. In combination with a pressure-supply pipe, a tube connected to said supply-pipe and provided with a discharge-outlet, a valve slidably mounted in said tube, means whereby pressure is admitted both above and below the said valve, a stem connected to the said valve, and a counterbalance connected to the said stem.

6. In combination with a pressure-supply pipe, a tube connected to said supply-pipe and provided with a discharge-outlet intermediate its ends, a detachable head including the said outlet and provided with an exhaust-port, a valve provided with closed side walls and open ends slidably mounted in said tube, a transversely-arranged portion secured across the bore of the said valve, a stem connected to the said valve, and means for holding the said valve in its adjusted position.

7. In combination with a pressure-supply, a tube, said tube having its outer end closed and its inner in direct communication with the pressure-supply, and formed intermediate its ends with a discharge-part, a valve slidably mounted in said pipe, means whereby pressure is admitted both above and below the said valve, an annular head including the said discharge-part, and provided with an exhaust-port, a weight-rack slidably mounted on said tube, means for limiting the movement of the said rack, and a stem connecting the said valve with the said rack.

702,217. DRILL. HARRY R. JAMES, Cullington, Utah. Filed Aug. 17, 1901. Serial No. 72,416. (No model.)



Claim.—1. The combination with a drill; of a drill-frame comprising a standard, arms projecting from each end of the standard, one of said arms forming a bearing, an extension on the top of the standard, an arm projecting from the top of the extension and having a bearing concentric with the first-named bearing, a right-angled bearing carried by the last-named arm, a U-shaped arm also carried by the last-named arm and having a bearing concentric with the right-angled bearing.

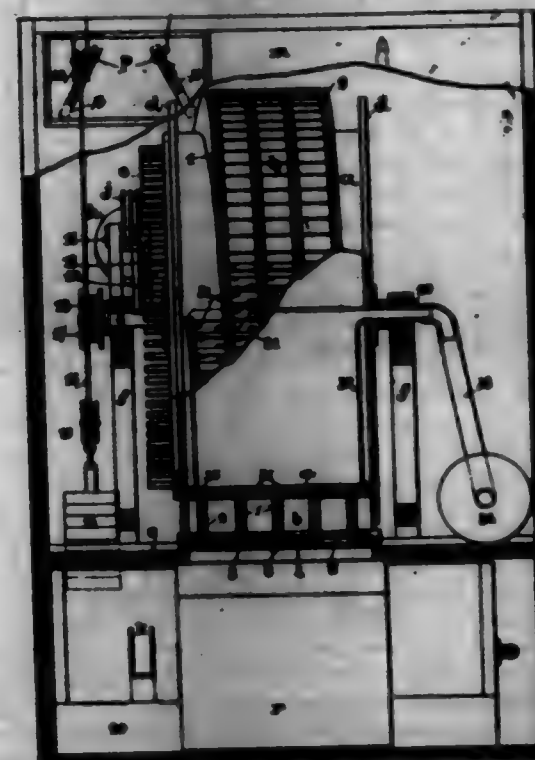
2. A frame for a drill comprising a standard having an arm at its top, an extension at the top of the standard, and provided with bearings concentric with the bearing in the first-named arm, and an extension or arm at the lower end of the standard, a drill-table carried thereby, said extension being formed in the shape of a dovetail in combination with a base-plate being correspondingly grooved to receive the dovetail extension.

3. A frame for a drill comprising a standard having an arm at its top, an extension at the top of the standard, and provided with bearings concentric with the bearing in the first-named arm, and an extension or arm at the lower end of the standard, a drill-table carried thereby, said extension being formed in the shape of a dovetail in combination with a base-plate being correspondingly grooved to receive the dovetail extension, and a threaded bolt adapted to be secured to a suitable support and provided with a head designed to engage the lower face of the base-plate.

4. The combination with a frame; of a work-holder comprising an arm adapted to embrace the said frame, an integral plate carried by said arm and a spring-pressed guide-plate secured to the first-named plate and means for adjusting said guide-plate.

5. A work-holder comprising an arm, an integral plate or support carried by the frame, a pivoted plate carried by the first-named plate, a spring interposed between the two plates and a set-screw carried by the first-named plate for adjusting the guide-plate.

702,218. VENDING-MACHINE. JOSEPH G. DE JAMBER, Paris, France. Filed Apr. 26, 1900. Serial No. 14,406. (No model.)



Claim.—1. A vending-machine, comprising a slide, a delivery-channel in operative relation to the slide, a rotary compartment drum adapted to hold the articles to be vended, and provided with a spiral rib engaging the slide to move the same, the articles being adapted to drop into said slide successively from the several compartments of the drum, and means for imparting a partial rotation to the drum.

2. A vending-machine, comprising a drum mounted to rotate and compartmented to hold the articles to be vended, the drum being operated peripherally for the discharge of said articles, means for turning the drum, a stationary air-casing located within the drum and in engagement therewith, and an air-firing device connected with said casing to blow the articles out of the drum.

702,219. HEATING APPARATUS. HANAUER H. JOHNSON, Gray Center, Neb. Filed Mar. 4, 1900. Serial No. 94,808. (No model.)

Claim.—1. In a heating apparatus the combination of two water-radiators situated at opposite sides of the apartment to be warmed and having communication with each other forming a water-circuit, of hot-air drums in communication with each other, one being situated within one of the hot-water radiators and the other disposed in the opposite side of the apartment and adapted to receive heat directly into the apartment, and a heater in direct communication with said hot-air drum which is situated within the radiator.

2. A heating apparatus comprising main water-circulating pipes, cross-pipes connecting the ends of the main pipes, a hot-air-conducting pipe arranged within one of the main pipes, and a hot-air drum located

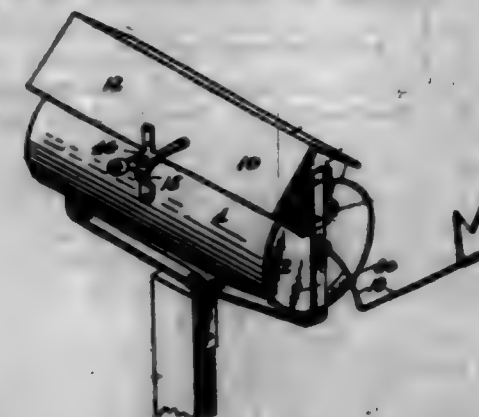
adjacent to and adjustable toward and from the other main pipe, and in communication with said hot-air pipe, substantially as set forth.



3. A heating apparatus comprising main water-circulating pipes, cross-pipes connecting the ends of the main pipes, a hot-air-conducting pipe arranged within one of the main pipes, a hot-air drum located adjacent to the other main pipe, and a telescopic pipe connecting the drum with the hot-air pipe, whereby the drum is made adjustable toward and from the contiguous main pipe, substantially as set forth.

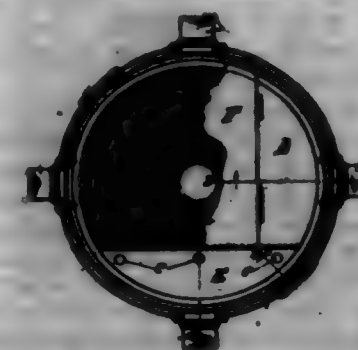
4. A heating apparatus comprising main water-circulating pipes, cross-pipes connecting the ends of the main pipes, a hot-air-conducting pipe arranged within one of the main pipes, one of said cross-pipes being connected at the top and the other at the bottom of the main pipes, a hot-air drum located adjacent to the other main pipe, and a telescopic pipe connecting the drum with the hot-air pipe, whereby the drum is made adjustable toward and from the contiguous main pipe, substantially as set forth.

702,220. MAIL-BOX. SAMUEL A. JONES, Des Moines, Iowa. Filed July 24, 1901. Serial No. 94,815. (No model.)



Claim.—In a mail-box, the combination with arms secured to a support, of a roof connected to said arms, a cylinder having heads provided with apertures journaled in said arms, an arm pivoted on one of said apertures and bearing a cam-sphere, a catch mounted on said roof, and a lug mounted on one of said heads and located to engage said pivoted arm and raise it up into engagement with said catch, substantially as described.

702,221. WASH-TUB. FREDERICK C. KAHN, Chicago, Ill. Filed Dec. 2, 1901. Serial No. 94,822. (No model.)



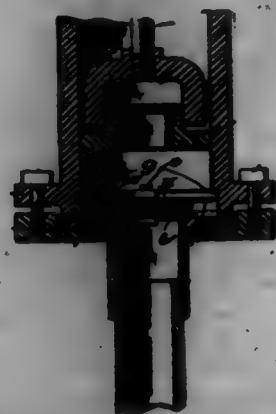
Claim.—In a tub, the combination of the tub-body, with the fixed portion of the cover secured to the inner portion of the body and overlapping the upper part thereof and provided with an arm to form a part support for the wringer-box, the said wringer-box having its upper edges bent to overlap said arm and the rim, and being located between the said arm and rim of the body, and an angle-iron hoop located on the rim of the body on the top of the overlapping portion of the fixed part of the cover and on the top of that portion of the wringer-box overlapping a portion of the rim of the body, substantially as described.

702,922. CARPET-STRETCHER. FRANK L. KING, BROOKLYN, N. Y., assignor of one-half to Paul Taylor Brown, Brooklyn, N. Y. Filed Dec. 27, 1900. Serial No. 733,083. (No model.)



Claim.—As a new article of manufacture, a carpet-stretcher formed with an elongated head portion having depending therefrom two V-shaped prongs producing a A-shaped recess at the center and a recess at each end; with a row of teeth projecting upwardly from the head; and with a flat integral handle having a slight apex curve and projecting rearwardly from the center of the head above the A-shaped recess and between the V-shaped prongs, approximately at right angles to said head, substantially as described.

702,923. CHECK OR PUMP VALVE. EDWARD KEMMER, BROOKLYN, N. Y. Filed May 22, 1901. Serial No. 61,415. (No model.)



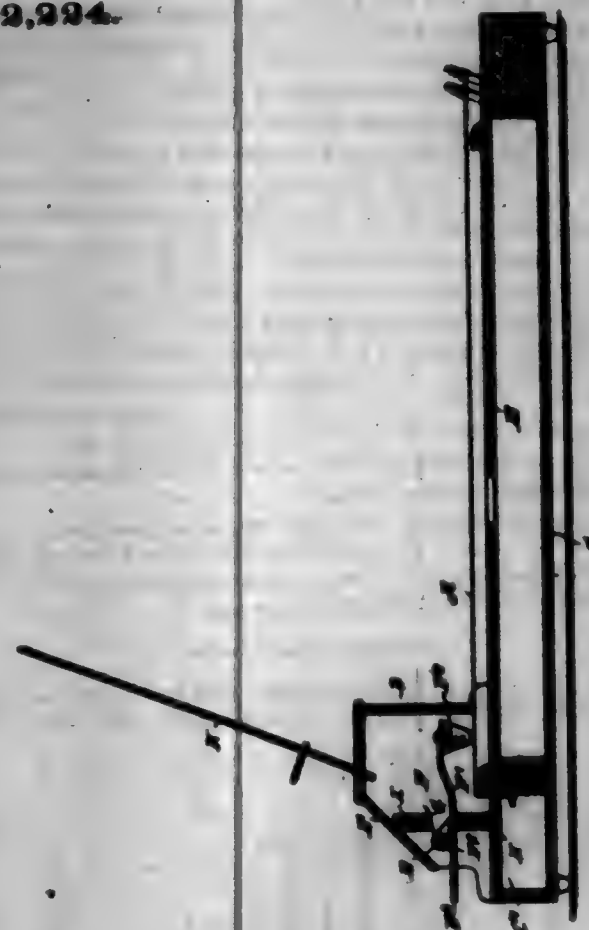
Claim.—In a check or pumping valve the combination of a leather disk, with a supporting-disk provided with an annular rib a perforated guiding-disk and a bolt for clamping same together.

702,924. MUSICAL INSTRUMENT. ERNEST LAMPHERE, BIRMINGHAM, Germany, assignor to Oscar Schmidt, Jersey City, N. J. Filed July 11, 1901. Serial No. 67,570. (No model.)

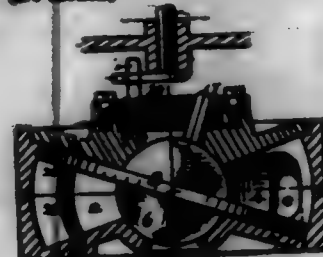
Claim.—1. In a diaphragm, the combination with the sounding-board, and strings; of two stop-rolls H and I arranged one above the other beyond the ends of the strings and spaced apart and cushioned on adjacent edges as described, a horizontal rod E arranged in front of the stop-rolls and opposite the opening between them, the horizontal hammer-hoys having upturned ends F, and coil-springs G wound around the rod between the ends of each hammer-hoy and having their upper free ends bearing against the bottom of the upper stop-roll substantially as described.

2. In a diaphragm, the combination with the sounding-board and strings; of two stop-rolls H and I arranged one above the other beyond the ends of the strings and spaced apart and cushioned on adjacent edges as described, a horizontal rod E arranged in front of the stop-rolls and opposite the opening between them, the horizontal hammer-hoys having upturned ends F, coil-springs G wound around the rod between the ends of each hammer-hoy and having their upper free ends bearing against the bottom of the upper stop-roll, a bearing D insuring the stop-rolls and hammer-hoys and having an inclined front portion D' for receiving a scale, and an inclined rack K mounted upon the bearing for holding the scale-shells above the scale substantially as described.

702,924.



702,925. DIAPHRAGM-WATER-METER. WILLIAM H. LARRABEE, WORCESTER, Mass., assignor to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Filed Mar. 2, 1902. Serial No. 64,682. (No model.)



Claim.—1. In a disk-meter, the combination of the rotating disk-piston provided with a projecting stem or shaft, a rotatable disk or plate supported in a circular bearing-rim perpendicular to the vertical axis of the disk-chamber casing, said disk or plate having a side slot embracing the disk-piston shaft, and a pin or projecting member disposed on said disk near the edge thereof, and adapted for traveling in a circle about the central axis, and for contact with the register-actuating member, for the purpose set forth.

2. The rotating top disk carrying an upwardly-projecting, eccentrically-disposed pin, and having a radial slot terminating at a position corresponding to the angular relation of the disk-piston shaft; in combination with the disk-chamber casing having a top bearing within which said rotating disk is peripherally mounted, the rotating disk-piston within said casing, the disk-piston shaft, its end movably engaged in the slot in said rotating disk, and the register-actuating crank or member adapted for actuation by said disk-carried pin.

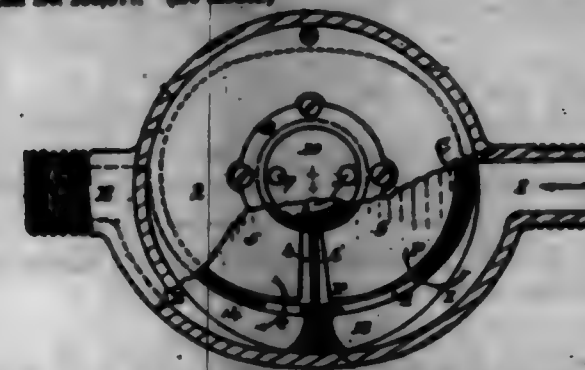
3. The combination of the disk-chamber casing provided with a top bearing-rim, a rotatable disk-plate mounted in said bearing, said disk-plate having a radial slot, an eccentrically-disposed wrist-pin fixed in said disk, a guard plate or ring enclosing said disk to its bearing, the disk-piston within the chamber, its shaft projecting into the slot in said disk-plate, means for preventing rotary movement of the disk-piston, the register-actuating shaft and an arm attached to said shaft and extending into the path of said wrist-pin.

4. In a disk water-meter, the combination of a rotating or rocking disk-piston having a hole through its plate at an intermediate position between the bearing-hall and the peripheral edge, and a curved pin or guide-rod supported at its respective ends only, within the disk-chamber casing and extending through said hole in the disk-piston plate, for the purpose set forth.

5. In a disk water-meter, in combination, the separable disk-chamber casing having the partition-diaphragm, the disk-piston having its plate

slotted to receive said diaphragm, and provided with a guide-hole, and a stationary guide rod or pin disposed in the disk-chamber intermediate to the center bearing and peripheral wall, one end of said guide-rod rigidly fixed in one section of the casing, and its other end removably retained in connection with the other section of the casing, said guide-rod passing through the hole or opening in the disk-piston plate.

702,926. DIAPHRAGM-WATER-METER. WILLIAM H. LARRABEE, WORCESTER, Mass., assignor to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Filed Mar. 20, 1902. Serial No. 100,677. (No model.)



Claim.—1. In a disk water-meter, a disk-piston of elliptical shape on its peripheral outer surface in combination with a casing provided with a corresponding elliptical disk-chamber, for the purpose set forth.

2. In a disk meter for water-meters and the like, a disk-piston of elliptical shape, and having the diaphragm-disk therein coincident with the minor axis; in combination with a disk-chamber casing having a chamber of corresponding elliptical shape on plan.

3. The disk-chamber casing having an inlet-port consisting of a substantially triangular opening disposed with its broader open furthest from the diaphragm, and said opening tapering toward the diaphragm; in combination with the diaphragm, the rotating disk-piston having a central bearing-hall, and a waterway leading to said inlet-port.

4. The disk-chamber casing having an inlet-port the opening of which is widest near its forward end and converging toward the diaphragm, and an exit-port the opening of which is widest adjacent to the diaphragm; in combination, with a disk-piston of approximately elliptical peripheral contour, with the diaphragm-coinciding slot at its minor axis.

5. The combination in a disk water-meter, of a casing having a chamber the dimensions of which is greater on a diameter transverse to the diaphragm than on the diameter coincident with the diaphragm, a diaphragm radially disposed in said chamber with inlet and outlet ports at the respective sides thereof, a disk-piston comprising a disk-plate of approximately elliptical peripheral contour, with a radial slot and axial bearing-hall, a rotatable controlling member mounted in a bearing upon the casing, and the piston-shaft obliquely journaled in said member, and means for connecting said rotatable member with the register-actuating device.

6. The combination in a disk water-meter, of a disk-chamber casing internally provided with a disk-chamber of elliptical or approximately elliptical shape on plan, the exterior of said casing being circular and provided with recessed spaces and inlet and outlet ports, a disk-piston of elliptical shape mounted for rotating action within said chamber, and an outer casing having a circular opening in which said disk-chamber casing fits, and provided with waterways that communicate with said recessed spaces, substantially as set forth.

702,927. BURNING-FRAME AND JOINT-COUPLED THERE-TO. JAMES H. LAMSON, BOSTON, Pa. Filed Mar. 6, 1902. Serial No. 64,738. (No model.)



Claim.—1. In a derrick, the combination with angular post-sections, of coupling-beams adapted to embrace the end portions of adjacent post-sections.

2. In a derrick, the combination with a plurality of angular post-sections, of coupling-beams, each recessed to receive the angularly-disposed flanges on aligned ends of post-sections, and T-shaped boys adapted to detachably lock the coupling-beams and post-sections together.

3. In a derrick, the combination with a plurality of angular post-sections and nesting coupling-beams thereof, of transverse opening-beams which have their ends engaged with the coupling-beams, and means to detachably secure the post-sections and beams to the coupling-beams.

4. In a derrick, the combination with a plurality of angular post-sections, of substantially L-shaped coupling-beams, each having two spaced angular walls between which the flanges of aligned ends of the post-sections will fit, and means to detachably secure the angular post ends within the spaces between the angular walls of the coupling-beams.

5. In a derrick, the combination with a plurality of angular post-sections, of substantially L-shaped coupling-beams, each adapted to receive the end portions of angular post-sections, cross-beams engaged at their ends with opposite coupling-beams, and keys insertible in perforations in the beams and in flanges of the post-sections, said keys being adapted by partial rotation to lock the posts, beams and beams together.

6. In a derrick, the combination with a plurality of angular corner-post sections and a plurality of nesting L-shaped coupling-beams adapted to receive the end portions of aligned post-sections, of cross-beams engaged by their ends with the walls of the beams, diagonal braces in the manner engaging their ends with the beams, and T-shaped keys passed through aligned perforations in the beams, beams and braces, said keys by partial rotation securing the braces on the beams and the ends of the cross-beams thereon.

7. In a derrick, the combination with four angular posts, of a set of corner-brackets, each adapted to rest upon a respective post and embrace its flange, a cap-ring engaging the corner-brackets, and means to secure the post ends, corner-brackets and cap-ring together.

8. In a derrick, the combination with a plurality of angular posts, of recessed corner-brackets thereon, a recessed cap-ring seated over the corner-brackets in return-bent hooks thereon, and a cap-plate seated upon the cap-ring.

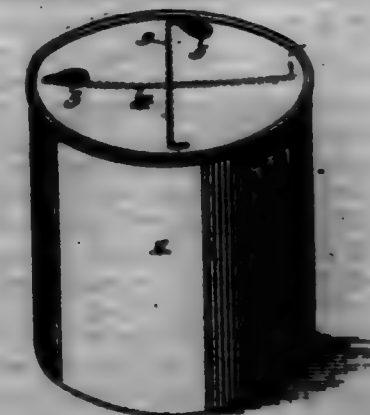
9. In a derrick, of the character described, a plurality of coupling-beams, each comprising two L-shaped wall-plates spaced apart by a transverse web-block disposed intermediate of their ends.

10. In a derrick of the character described, a plurality of locking-keys, each comprising a straight cylindrical shaft, a cross-handle at one end of the shaft, and a toe projected laterally at the opposite end of said shaft.

11. In a derrick of the character described, a plurality of corner-brackets for the top of the derrick-frame, each comprising two L-shaped wall-plates, spaced apart in parallel planes by an integral web at their upper ends, each wall-plate having a hook-plate bent outward and upward at the lower end thereof.

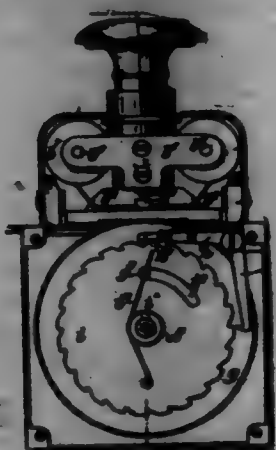
12. In a derrick of the character described, the cap-ring, having rectangular form and also having an L-shaped recess at each corner.

702,928. CAP-STOPPER. WILLIAM H. KETTER, BOSTON, N. Y. Filed Nov. 27, 1901. Serial No. 63,009. (No model.)



Claim.—The combination with a cap-top, of two wire strands primarily located below the under side of said top while the cap and each having one extremity exteriorly exposed and the opposite extremities secured to the under side of the top, the said strands being crossed in phase at right angles below the center of the under side of the top and normally slack to render them effective in cutting the top, the crossed and exteriorly-exposed ends of the strands being arranged in diametrical relation to the top, the cutting operation of the strands dividing the top into loose flaps inside of the periphery of said top, said flaps being adapted to be bent upwardly to form an outlet for the contents of the can.

702,289. TIME-STAMP. STANLEY C. MILLER, Philadelphia, Pa., assignor to John Wimmer, Philadelphia, Pa. Filed Apr. 24, 1901. Serial No. 57,394. (No model.)



Claim.—1. In a time-stamp the combination of clock mechanism having a main spindle, a type-wheel loosely carried thereby having fixed to it a toothed wheel, an component for governing the motion of the toothed wheel, a second wheel also on the spindle, having teeth constructed to engage said component and operatively connecting said first wheel to the shaft and means for flexibly connecting the type-wheel to the second wheel, substantially as described.

2. In a time-stamp, the combination with a device for printing from type, of clock mechanism, a spindle connected thereto having a type-wheel loosely mounted upon it, a toothed wheel geared to the clock, a spring operatively connecting the said wheel with the type-wheel and an component actuated by the toothed wheel and governing the action of the type-wheel whereby the latter is allowed to periodically move forward, substantially as described.

3. In a time-stamp, the combination with a device for printing from type, of clock mechanism, a spindle connected thereto having on it a toothed wheel turned by said mechanism, a type-carrying wheel having teeth also on the spindle, a projection on one of said wheels, and a spring on the other wheel engaging said projection whereby the operation of the clock mechanism has a tendency to revolve the wheel, an component actuated by the toothed wheel and engaging the teeth of the type-wheel whereby the said type-wheel is allowed to move periodically forward, substantially as described.

4. The combination in a time-stamp, of a device for printing from type with a clock mechanism, a spindle revolved thereby, a toothed wheel loosely mounted on the spindle constructed to be turned by the clock mechanism at a rate different from that of the said spindle, a second toothed wheel fixed to the spindle, type-wheels with a flexible connection between them and the said toothed wheel, an component mechanism actuated by the toothed wheel and engaging with the type-wheels whereby the said type-wheels are allowed to periodically move forward under the action of the clock mechanism transmitted to them through the flexible connection from the toothed wheel, substantially as described.

5. In a time-stamp the combination of a clock mechanism having a main spindle, a type-wheel loosely carried thereby having fixed to it a wheel provided with two sets of teeth in parallel planes, an component for governing the motion of the toothed wheel, a second wheel also on the spindle having teeth constructed to engage and operate said component, gearing connecting said second wheel with the shaft and means for connecting the type-wheel and the second wheel, said means being constructed to permit of motion of said second wheel to a limited extent independently of the type-wheel, substantially as described.

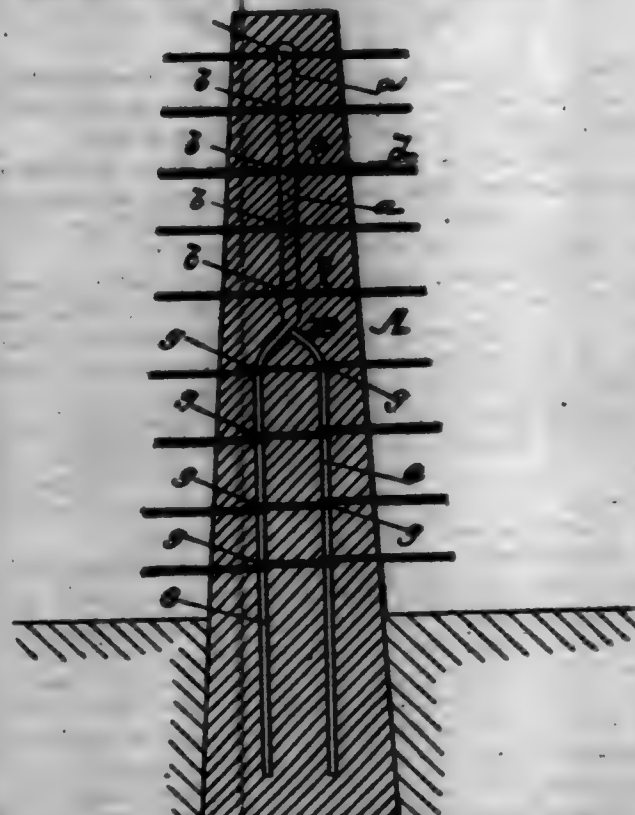
6. In a time-stamp, the combination of a clock mechanism having a main spindle, a type-wheel loosely carried thereby having fixed to it a toothed wheel, an component for governing the motion of the toothed wheel, a second wheel also on the spindle, having teeth constructed to engage and operate said component, gearing connecting the said second wheel with the shaft, a plate projecting from the second wheel, a spring connected to the type-wheel engaging said plate and means for limiting the motion of the type-wheel relatively to the said second wheel, substantially as described.

7. In a time-stamp the combination of a clock mechanism, having a main spindle, a type-wheel loosely carried thereby having fixed to it a toothed wheel, an component for governing the motion of the toothed wheel, a second wheel also on the spindle having teeth constructed to engage and operate said component, gearing connecting said second wheel with the shaft, a bar projecting from one face of the second wheel and passing through an opening in the first toothed wheel, a spring being placed so that the clock mechanism operates the second wheel against the action of the same, substantially as described.

8. In a time-stamp the combination of a clock mechanism having a main spindle, two type-wheels adjacent to one another loosely carried thereby, each having fixed to it a toothed wheel, components for governing the motion of the toothed wheels, a second pair of toothed wheels also on the spindle for operating the respective components and connected to their respective type-wheels so as to allow limited movement thereof independently of the said second pair of toothed wheels, one of said second pair being geared to the main spindle and the other being fixed directly to said spindle, substantially as described.

9. In a time-stamp the combination of a clock mechanism having a main spindle, a wheel fixed thereto having depressions in its periphery forming teeth, each tooth having a face equal in length to the distance between the teeth, a second wheel loosely carried by the spindle provided with two sets of teeth, those of one set coming opposite to the space between the teeth of the other set, a type-carrying wheel fixed to the said second wheel and an component operated by the first toothed wheel and governing the action of the second toothed wheel, and means for operatively connecting the said toothed wheels, substantially as described.

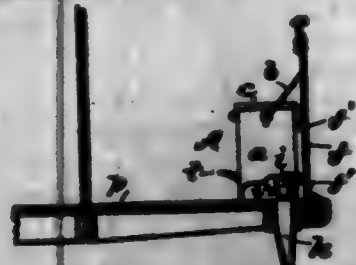
702,280. FEEDER-POST. JAMES A. EYRELL, Chicago, Ill., Filed Apr. 10, 1902. Serial No. 125,395. (No model.)



Claim.—1. The combination in a plastic fence-post of the embedded support or brace consisting of the twin parallel portions and the upper single portion, the wires passing horizontally through the post and connected to the interior support, having their free ends projecting on either side of said post substantially as described.

2. The within-described fence-post comprising the post A, formed of plastic material and an interior brace consisting of the forked bar having the single upper stem and twin vertical supports and the tie-wire connecting said supports and extending out on either side of the post, substantially as described.

702,281. TRACK-GATHERING DEVICE FOR RAILROADS. ABRAHAM C. HANCOCK, New Providence, R. I. Filed Mar. 6, 1902. Serial No. 58,395. (No model.)



Claim.—1. The improved sand-box or track-gathering device hereinbefore described, the same comprising a portable box or casing, adapted to be removably secured to the underbottom of a street-car, a removable sand-holding reservoir mounted within the casing, a spring-pressed reversible

table charging member d having a measuring-rod therein registering with an opening formed in the bottom of said reservoir, an operating-lever e extending through the wall of the box, a connection arranged wholly within the box uniting said charging and lever members, d and e, and a chute through which the charges of sand are discharged from the apparatus.

2. The portable track-gathering apparatus A herein described, adapted to be attached to a street-car, the same consisting of a casing or box provided with a carrying handle or handle, a vertically-movable reservoir A for the sand mounted within the casing and having a discharge-outlet, suitable guides and stops for controlling the movements of the reservoir, a reversible charging-roll provided with pockets adapted to register with the said discharge-outlet of the reservoir, and a handle-lever connected with and adapted to rotate said roll upon depressing the lever, substantially as shown and described.

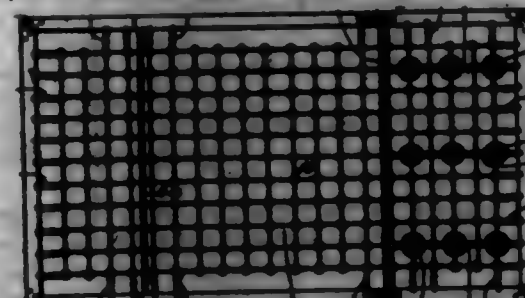
3. In a track-cleaning device, a vertically-movable apertured reservoir A for containing the sand, fixed stops for limiting the downward movement of the reservoir, guide-rolls r or other analogous means attached to the reservoir, fixed guides or ways g having said rolls r fitted to slide therein, whereby the reservoir is prevented from moving except in a vertical direction, and means, substantially as shown and described, for discharging predetermined quantities or charges of sand from the reservoir.

702,282. DISPLAY-RACK. GEORGE B. HOGAN, St. Louis, Mo., Filed Oct. 22, 1899. Renewed Dec. 4, 1901. Serial No. 54,392. (No model.)



Claim.—In a display-rack having a plurality of spring-actuated fingers, loops 10 formed on the ends of said fingers, and points 11 projecting from said loops, as and for the purpose specified.

702,283. CONNECTION FURNITURE. JAMES MORAN, New York, N. Y. Filed Mar. 22, 1901. Serial No. 55,393. (No model.)



Claim.—1. A combination article of furniture comprising a main oblong frame composed of three separate parts hinged together, one of the end parts being provided with legs and the adjacent middle part being provided adjacent to the opposite end part with hinged legs, said legs

being provided with locking devices and said legs and said first-named end part being also provided with locking devices whereby the legs of the middle part may be held at right angles thereto, and the middle part be held in an upright position, substantially as shown and described.

2. An article of furniture of the class described, comprising a main oblong frame composed of three separate hinged parts, one of the end parts being provided with legs and keepers, the middle part being provided adjacent to the opposite end part with hinged legs, said hinged legs being provided with hooks, and said last-named end part with a pivoted attachment operating in connection with said hooks, rods also pivotedly connected with said hinged legs, and locking-bolts connected with said rods e-d operating in connection with the keepers secured to the first-named end portion to hold the middle part in an upright position, substantially as shown and described.

3. A combination article of furniture comprising an oblong frame composed of three separate hinged parts provided with a bed-spring connected with the sides and ends thereof by spiral springs, said bed-spring being foldable at the points where the parts of the main frame are hinged, and device in connection with one of the end parts of the main frame and with the middle part, for holding the middle part in an upright position with reference to said end part, the other end part being adapted to fold downwardly and backwardly adjacent to the middle part, substantially as shown and described.

702,284. CHAIR. ALFRED J. MURLEY, Victoria, Canada. Filed June 27, 1901. Serial No. 56,394. (No model.)



Claim.—1. A chair having a lever engaging the seat at the front end thereof, and a spring-pressed cam-arm engaging both the lever and the seat, as set forth.

2. A chair-seat having a lever engaging the seat at the front end thereof, a spring-pressed cam-arm engaging both the lever and the seat, and a dash-pot connected with the seat to control the speed of the seat in its upward and downward motion, as set forth.

3. A chair having a seat-frame, a post, levers fulcrumed on the seat-frame and pivotedly connected with the seat at the front end thereof, and spring-pressed cam-arms fulcrumed on the seat-frame and engaging the said seat and the levers, as set forth.

4. A chair having a seat-frame, a seat adapted to rest on the said seat-frame when in a lowermost position, levers fulcrumed on the rear of the seat-frame and pivotedly connected with the seat at the front end thereof, and spring-pressed cam-arms fulcrumed on the seat-frame and engaging the said seat and the said levers, as set forth.

5. A chair having a seat-frame, a seat adapted to rest on the said seat-frame when in a lowermost position, levers fulcrumed on the rear of the seat-frame and pivotedly connected with the seat at the front end thereof, spring-pressed cam-arms fulcrumed on the seat-frame and engaging the said seat and the said levers, and a locking device for locking the said seat to the said seat-frame, as set forth.

6. A chair having a seat-frame, a seat, levers fulcrumed at their rear ends on the rear of the seat-frame, the levers being pivotedly connected

at their forward ends with the seat, at the front end thereof, cam-arms engaging the under side of the said seat, friction-rollers carried by the said cam-arms and engaging the under side of the said lever, and a spring-pressed shaft journaled in the seat-frame and carrying the said cam-arms, as set forth.

7. A chair having a seat-frame, a seat, levers fulcrumed at their rear ends on the rear of the seat-frame, the levers being pivotally connected at their forward ends with the seat, at the front end thereof, cam-arms engaging the under side of the said seat, friction-rollers carried by the said cam-arms and engaging the under side of the said lever, a spring-pressed shaft journaled in the seat-frame and carrying the said cam-arms, and means, substantially as described, for adjusting the tension of the spring on the said shaft, as set forth.

8. A chair having a movable seat, spring-actuated means for moving the seat upward from a lowered position when the seat is released from its load, and restraining means connected with the said seat for gradually restraining the upward movement of the seat as set forth.

9. A chair having a movable seat, spring-actuated means for moving the seat upward from a lowered position when the seat is released from its load, and restraining means connected with the said seat for gradually restraining the upward movement of the seat, the power of the said restraining means diminishing gradually and at the time that the power of the spring-actuated means decreases, as set forth.

702,285. FIRE-DRYING APPARATUS. ALBERT MORRIS, Rochester, N. Y. Filed Feb. 27, 1902. Serial No. 95,994. (No model.)



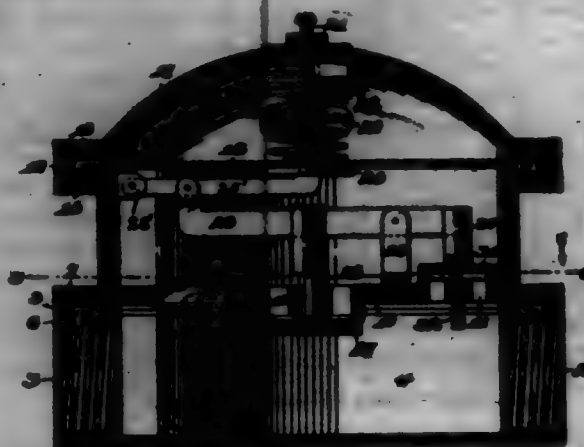
Claim.—1. In an apparatus of the character described, the combination with a furnace or heater having a smoke-stack for the discharge of the products of combustion; of a boiler arranged therein, a drying-cylinder arranged within the boiler, a vapor-chamber in communication with the drying-cylinder and provided in its upper portion with an outlet whereby the particles of material carried along with the vapors and gases will be precipitated in said chamber, means for agitating the material within the drying-cylinder, and means for forcing air and a part of the products of combustion passing into the stack through the drying-cylinder, substantially as described.

2. In an apparatus of the character described, the combination with a furnace; of a boiler arranged therein, a drying-cylinder extending longitudinally within the boiler and provided at its ends with inlets for the supply of the material therein, and outlets for the withdrawal of the material, means within the cylinder for agitating the material, a vapor-chamber in communication with one end of the drying-cylinder and provided with an outlet to the atmosphere, and means for supplying air and a portion of the products of combustion from the smoke-stack of the furnace to the opposite end of the cylinder, whereby the heated air and products will be caused to pass through said cylinder and from the cylinder to the vapor-chamber and thence discharge to the atmosphere, whereby the drying off of the gases and vapors is facilitated, substantially as specified.

3. In an apparatus of the character described, the combination with a furnace provided with a smoke-stack, and a passage communicating between the fire-box and smoke-stack for the outlet of the gases and products of combustion; of a boiler arranged within the furnace casing, drying-cylinders arranged within the boiler, means for supplying the material to be dried to said cylinders, means within the cylinders for agitating the material under treatment, a vapor-chamber, means for conducting the gases and vapors from the drying-tubes to said chamber, an outlet communicating with the upper portion of the vapor-chamber, whereby the particles of material carried along with the vapors are caused to

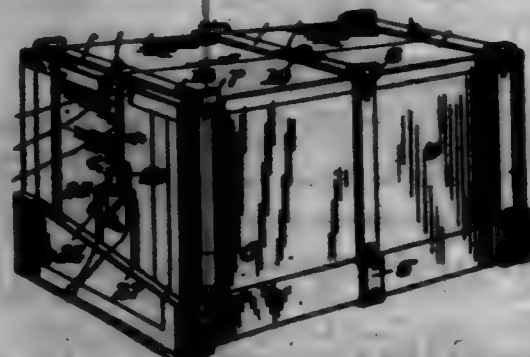
be precipitated in said chamber, and means for utilizing the heat from the products of combustion entering the stack and applying the same to the drying-cylinders for promoting the drying action, substantially as and for the purpose described.

702,286. GAS-REGULATOR. SYLVESTER L. MAGRAN, Denver, Colo. Filed Apr. 12, 1901. Serial No. 54,704. (No model.)



Claim.—In a gas-regulator, the combination of a single-casing, having a horizontal dividing-wall forming an upper and a lower compartment in said casing, a vertical partition in the lower compartment formed integral with the dividing-wall forming an inlet and an outlet chamber, the said horizontal dividing-wall having openings 11, 12, establishing communication between the upper compartment and the inlet-chamber, and having an opening 14 establishing communication between the upper compartment and the outlet-chamber, an upwardly-extending standard carried by the horizontal dividing-wall, a beam pivotally secured to said standard, a valve carrying a depending stem connected to one end of said beam, said valve being seated on the upper face of said horizontal dividing-wall and having its stem operating therethrough, a stem carrying a check pivotally connected to said beam intermediate of its length, said stem operating through the said horizontal dividing-wall and carrying a valve on its lower end which valve seats against the under face of the horizontal dividing-wall, a lever having its one end pivotally secured to the casing and carrying a dial on its free end, the other end of said lever being pivotally secured to said lever, said beam and lever being substantially parallel with one another and with said horizontal dividing-wall, a flat diaphragm forming the upper end of said upper compartment mounted in said casing and engaged by said dial, said diaphragm being in horizontal alignment with said lever and beam, a dome secured to the casing, and a spring having its one end bearing against said diaphragm above said dial and means carried by the dome for guiding and adjusting said spring whereby the desired pressure for consumption may be had by adjustment of said spring, substantially as described.

702,287. FOLDING CRATE. CHARLES E. McCULLOUGH, Leep, Pa. Filed Mar. 29, 1902. Serial No. 100,084. (No model.)



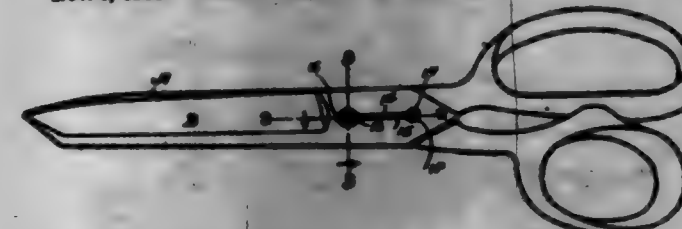
Claim.—1. In a folding crate, the combination of a base, hinged sides and ends, a lid or cover formed in two sections hinged to said sides, yokes secured to said base, handles attached to said yokes, rods carrying engaging ends dovetailed to said yokes and extending through said lid or cover, substantially as described.

2. In a folding crate, the combination of a base, hinged sides and ends, a lid or cover formed in two sections hinged to said sides, yokes secured to said base, rods carrying hooked ends engaging said yokes, the upper end of said lid or cover, and a rod extending through said lid or cover, and means whereby said rods are locked in position, substantially as described.

3. In a folding crate, the combination of a base having beveled ends, hinged sides and ends, a lid or cover formed in two sections hinged to said sides, yokes secured to said beveled ends, handles pivotally attached

to said yokes, and means to secure said ends in a closed position, substantially as described, and for the purpose set forth.

702,288. SCISSORS OR SHEARS. DAVID McKINNA, Waterbury, Conn., assignor of one-half to James McKinnon, Waterbury, Conn. Filed Nov. 7, 1901. Serial No. 51,499. (No model.)



Claim.—1. The combination with the blades of scissors and shears, of a pivot upon which one of the blades turns and which is provided with a threaded end to engage the other blade and an open groove or recess in its end, and a removable spring retaining device which engages the groove to prevent the pivot from turning, and which may be lifted from said groove to enable the pivot to be adjusted.

2. The combination with the blades of scissors and shears, of a pivot upon which one of the blades turns and which is provided with a threaded end to engage the other blade and an open groove or recess in its end, and a removable spring retaining device recessed into the blade and engaging the groove to prevent the pivot from turning, and which may be lifted from said groove to enable the pivot to be adjusted.

3. The combination with the blades A and B of scissors and shears, said blade B having a slot 18, of a pivot upon which blade A turns and which is threaded to engage blade B, the threaded end of the pivot having an open groove or recess 19 in its end, and a spring retaining device rigidly secured in slot 18, the free end of said retaining device engaging the groove 19 to prevent the pivot from turning.

702,289. CAR-COUPLING. JOHN C. NELSON, Dayton, Tenn. Filed Jan. 4, 1902. Serial No. 93,445. (No model.)



Claim.—1. The combination with draw-bars, or draw-heads secured thereto, and having formed integral therewith fingers having laterally-inclined faces, jaws pivotally mounted upon the draw-heads and having recesses forming a slot when brought together, said jaws being adapted to engage the inclined faces whereby they are swung in a horizontal plane to bring the recesses together, and a coupling-pin adapted to be inserted into said slot to lock the jaws.

2. The combination with draw-heads having seats therein, of jaws secured thereto, and having grooves or recesses forming a slot when brought together, a coupling-pin inserted into said slot locking the jaws, and means for raising and swinging said pin in the arc of a circle whereby it is withdrawn from the slot and placed in one of the seats.

3. The combination with draw-heads, of jaws secured thereto and having grooves or recesses forming a slot when brought together, a shifting-lever having a horizontal arm and a vertical arm, the latter being journaled on one of the draw-heads, a coupling-pin mounted upon the horizontal arm to have a longitudinal movement thereon, and means for opening and closing said shifting-lever.

4. The combination with draw-heads, of jaws pivotally secured thereto and having grooves or recesses forming a slot when brought together, and also having lugs or projections, fingers secured to the draw-heads and having laterally-inclined faces, against which is adapted to be directed the lugs or projections swinging the jaws in a horizontal plane to bring and hold the jaws together, a pin inserted into said slot locking the jaws, and means for withdrawing said pin.

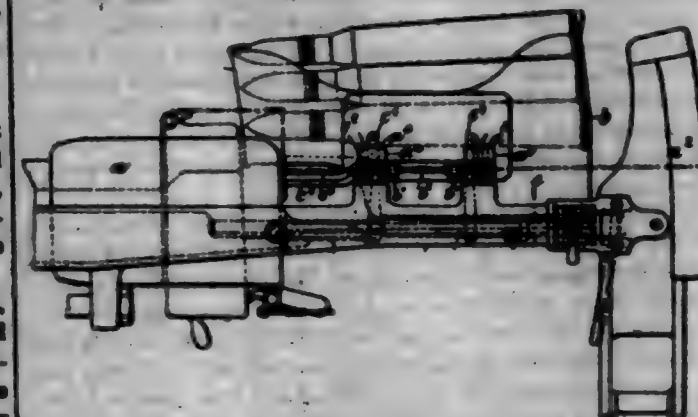
5. The combination with draw-heads, of jaws secured thereto and having grooves or recesses forming a slot when brought together, and a coupling-pin to be inserted into said slot locking the jaws, and consisting of a casing having a shoulder, a core within said casing and a rod passing through the casing-pin is so attached to a shifting mechanism.

6. The combination with draw-bars, or draw-heads secured thereto, jaws pivotally secured to the draw-heads, and having recesses forming a slot when brought together, a shifting-lever having a horizontal arm, and a vertical arm, the latter being journaled on one of the draw-heads, a coupling-pin mounted upon the horizontal arm, a coupling and uncoupling rod provided with a disk having an opening for the reception of the

vertical arm, and fingers upon the disk to engage the horizontal arm whereby it may be swung in the arc of a circle.

7. The combination with draw-bars, or draw-heads secured thereto and having formed integral therewith fingers having laterally-inclined faces, jaws pivotally secured to the draw-heads and having recesses forming a slot when brought together, a shifting-lever having a horizontal arm and a vertical arm, the latter being journaled on one of the draw-heads, a coupling-pin mounted upon the horizontal arm to have a longitudinal movement thereon, a coupling and uncoupling rod provided with a disk having an opening for the reception of the vertical arm, and fingers upon the disk to engage the horizontal arm whereby it may be swung in the arc of a circle.

702,240. AUTOMATIC GUN. ANDREW SCOTT, Newmarket-on-Tyne, England, assignor to W. & A. Armstrong, Whitworth & Company, Limited, Newmarket-on-Tyne, England. Filed Jan. 21, 1902. Serial No. 92,662. (No model.)



Claim.—1. In an automatic gun the combination of a cartridge-belt, a spool at the lower part thereof, a lowering-arm and a retaining-arm both fast on the spool and means for giving a partial rotation to the spool first in one direction and then in the other.

2. The combination of a gun-mounting a gun sliding therein, a cartridge-belt carried by the mounting, a spool at the lower part of the belt, a lowering-arm and a retaining-arm both on the spool, means for giving a partial rotation to the spool first in one direction and then in the other, and means carried by the mounting for injecting a cartridge into the gun.

3. The combination of a gun-mounting, a gun sliding therein, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a cartridge-belt carried by the mounting, a spool at the lower part of the belt, a lowering-arm and a retaining-arm both on the spool, means for giving a partial rotation to the spool in one direction to allow a cartridge in the belt to drop onto the lowering-arm means for opening the breech and ejecting the empty cartridge-cases while the gun runs out, means for subsequently turning the spool back again to bring the cartridge on the lowering-arm in line with the bore of the gun and means for injecting this cartridge into the gun.

4. The combination of a gun-mounting, a gun sliding therein, a cartridge-belt carried by the mounting, a spool at the lower part of the belt, a lowering-arm and a retaining-arm both on the spool, a groove on the gun and an arm on the spool engaging the groove.

5. The combination of a gun-mounting, a gun sliding therein, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a cartridge-belt carried by the mounting, a spool at the lower part of the belt, a lowering-arm and a retaining-arm both on the spool, means for giving a partial rotation to the spool first in one direction then in the other, a transversely-sliding block on the gun, a spring carried by the mounting, a rod compressing the spring during recoil, a link connecting the rod with the arm on the shaft, a catch retaining the rod in its rearmost position, a crank on the shaft operating the breech-block and an arm on the gun releasing the catch to free the arm and allow the spring to close the breech.

6. The combination of a gun-mounting, a gun sliding therein, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a bolt on the block engaging a recess in the breech for holding the block down, a lever engaging the bolt and adapted to be operated by an injected cartridge, a cartridge-belt carried by the mounting, a spool at the lower part of the belt, a lowering-arm and a retaining-arm both on the spool, means for giving a partial rotation to the spool first in one direction and then in the other, a transversely-sliding block on the gun, a spring carried by the mounting, a rod compressing the spring during recoil, a link connecting the rod with the arm on the shaft, a catch retaining the rod in its rearmost position, a crank on the

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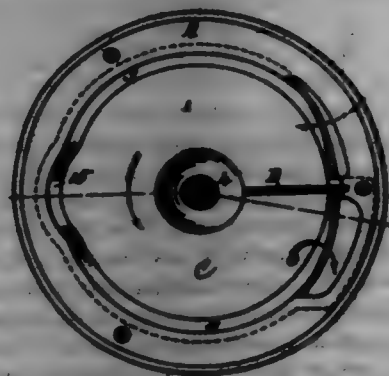
shaft operating the breech-block and an arm on the gun releasing the catch to free the arm and allow the spring to close the breech.

7. The combination of a gun-mounting, a gun sliding therein, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a cartridge-hopper carried by the mounting, a spindle at the lower part of the hopper, a lowering-arm and a retaining-arm both on the spindle, means for giving a partial rotation to the spindle first in one direction and then in the other, a transverse shaft on the gun, an arm on the shaft, a spring carried by the mounting, a link connecting the arm on the shaft, a removable pin connecting the rod and link, a catch retaining the rod in its rearward position, a crank on the shaft operating the breech-block and an arm on the gun releasing the catch to free the arm and allow the spring to close the breech.

8. The combination of a gun-mounting, a gun sliding therein, a cartridge-hopper carried by the mounting, a spindle at the lower part of the hopper, a lowering-arm and a retaining-arm both on the spindle, a groove on the gun, an arm on the spindle engaging the groove, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a transverse shaft on the gun, an arm on the shaft, a spring carried by the mounting, a rod connecting the arm on the shaft, a catch retaining the rod in its rearward position, a crank on the shaft operating the breech-block and an arm on the gun releasing the catch to free the arm and allow the spring to close the breech.

9. The combination of a gun-mounting, a gun sliding therein, a cartridge-hopper carried by the mounting, a spindle at the lower part of the hopper, a lowering-arm and a retaining-arm both on the spindle, a groove in the gun, an arm on the spindle engaging the groove, means for running out the gun after recoil, a transversely-sliding breech-block in the gun, a bolt on the block engaging a means in the breech for holding the block down, a lever engaging the bolt and adapted to be operated by an injected cartridge, a transverse shaft on the gun, an arm on the shaft, a spring carried by the mounting, a rod connecting the arm on the shaft, a catch retaining the rod in its rearward position, a crank on the shaft operating the breech-block and an arm on the gun releasing the catch to free the arm and allow the spring to close the breech.

702,941. DISK WATER-METER. FRANK L. NORTON, Des. No., assigned to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Filed Feb. 2, 1902. Serial No. 99,599. (No model.)



Claim.—1. In a disk-meter, a disk-plate having its peripheral edge formed with an eccentric outwardly-curved protuberance beyond the regular circle curvature; in combination with a disk-chamber casing having a lateral enlargement of its chamber, the inner surface of which enlargement is approximately of spherical curvature and in conformity to the surface developed by the protuberant extension of the rotating disk-plate in its motion.

2. A disk-meter comprising a disk-plate having at one side an inclination to accommodate the displacement, and at an approximately opposite position provided with a rounded peripheral bulge in the outline of its edge; in combination with a disk-chamber casing having an inlet and outlet port, a partition-diaphragm, and a lateral conical enlargement or recess of substantially similar rounded contour, counterbalancing said disk, and within which said peripheral enlargement engages and has rotating motion with the movement of the disk-plate.

3. In a disk water-meter, a disk-plate having a regularly-curved protuberance on its peripheral outline, in combination with a disk-chamber casing having on its interior face a deviating curve of the wall surface corresponding in vertical outline to the vertical contour of the chamber-wall surface, and in horizontal outline to the contour of the curve of the disk periphery.

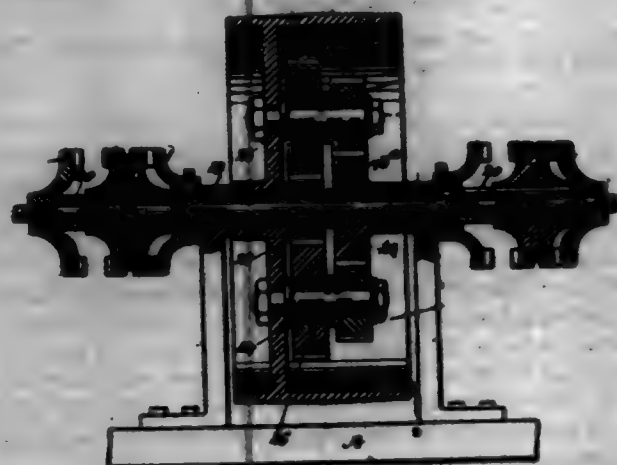
702,942. IRONING-BOARD. EMERSON GRAY, Pittsburg, Pa. Filed Feb. 12, 1902. Serial No. 99,598. (No model.)



Claim.—1. An attachment for ironing-boards comprising a series of pivoted links supported by the ironing-board, with a pair of sub-parallel rods carried by the links, and having an open connection to said rods, substantially as described.

2. An attachment for ironing-boards comprising a brace secured to the under face of the ironing-board and projecting from the side thereof, a series of pivoted links carried by the brace, a rod secured to the outer end of said links and a second rod carried by said links adjacent to the ironing-board, and an open connection by its ends to said rods, substantially as described.

702,943. REVERSIBLE DRIVING MECHANISM. CHARLES A. PARONELLA, Wheeling, N. Y. Filed Feb. 27, 1902. Serial No. 99,597. (No model.)



Claim.—1. In a reversible driving mechanism, a driven shaft, tubular shafts mounted to turn upon the driven shaft, a driving-pulley loosely mounted upon the tubular shafts, tubular shafts mounted upon the driving-pulley, a gear and a pinion fixed on each link, a gear on one of the tubular shafts in mesh with the pinions of the driving-pulley, a pinion upon the opposite tubular shaft meshing with the gear on said pulley, and clutches arranged to bring either tubular shaft in locking engagement with the driven shaft and for checking the rotation of either tubular shaft, as described.

2. In a reversible driving mechanism, the combination with the driven shaft, tubular shafts loosely mounted on the driven shaft, bearings for the tubular shafts, disks secured to said bearings, and clutch-disks attached to the driven shaft, of a pulley loosely mounted on the tubular shafts, pinions carried by the said pulley, tubular shafts mounted on the said pin, a pinion and a gear secured to each tub, a pinion attached to the inner end of one of the tubular shafts, meshing with the gear carried by the pulley, a gear secured upon the inner end of the opposite tubular shaft meshing with the pinions carried by the pulley, and clutches mounted to turn with the tubular shafts yet slide thereon, which clutches are adapted for engagement with the said disks or clutches on the driven shaft, as described.

702,944. PREVENTIVE FOR TREATMENT OF COPPER-WATER. ANDREW J. FALGOUT, Whitehall, Me., assigned to two-thirds to Joseph Hinch and Albert C. Dygart, Bates, Me. Filed Mar. 21, 1902. Serial No. 99,596. (No specimen.)

Claim.—1. The herein-described precipitant for copper-water, containing in solution a salt of sodium, and an excess of sodium hydroxide, substantially as described.

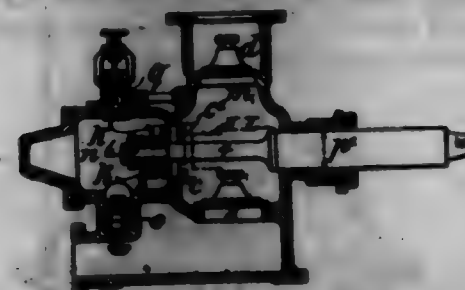
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2. The herein-described precipitant for copper-water, containing in solution a salt of sodium, and an excess of sodium hydroxide, substantially as described.

702,945. PUMP. ANDREAS RADOVANOVICH, Zurich, Switzerland. Filed Jan. 12, 1902. Serial No. 99,595. (No model.)



Claim.—1. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a short cylinder interposed between them, of a plunger having an enlargement thereon to move in the pump-chamber and cylinder, whereby hydrostatic pressure is produced in the suction-chamber to suck said valve, substantially as described.

2. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a short cylinder interposed between them, of a plunger having an enlargement thereon adapted to move into the short cylinder and vent fluid from the latter to the former chamber and communicate hydrostatic pressure to said valve, substantially as described.

3. In a pump, the combination with a pump-chamber having a reduced end, a suction-valve chamber and valve therein, and a short cylinder interposed between the reduced end of the pump-chamber and valve-chamber; of a plunger and an enlargement on the end thereof to move in the pump-chamber and cylinder, to cooperate with the reduced end of the pump-chamber and cylinder to produce hydrostatic pressure on the suction-valve, substantially as and for the purpose set forth.

4. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a short cylinder between the two chambers, of a plunger, an enlargement thereon cooperating with the short cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, and means to prevent the formation of a partial vacuum in the pump by reason of the displacement of the plunger, substantially as described.

5. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a cylinder between the two chambers, of a plunger, an enlargement thereon cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, and auxiliary means to vent fluid between the two chambers, substantially as described.

6. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a cylinder between the two chambers, of a plunger, an enlargement thereon cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, auxiliary means to vent fluid between the two chambers and means to prevent the formation of a partial vacuum in the pump, substantially as described.

7. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a cylinder between the two chambers, of a plunger, an enlargement thereon cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, and auxiliary means to vent fluid between the two chambers, substantially as described.

8. In a pump, the combination with the pump-chamber, suction-valve and chamber and a short cylinder between the two chambers; of a plunger, a yielding enlargement on the plunger cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, and auxiliary valve-controlled means to vent fluid between the two chambers, substantially as and for the purpose set forth.

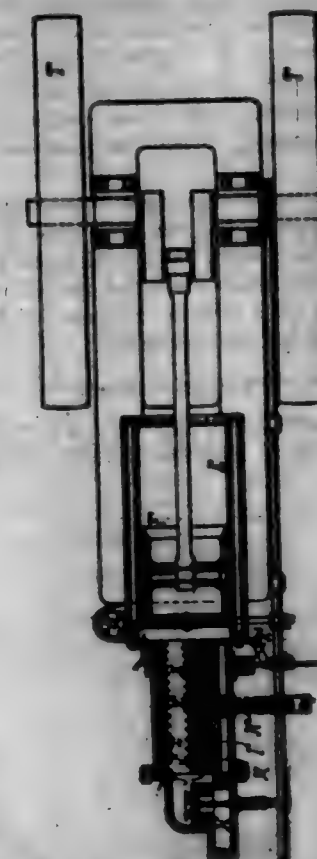
9. In a pump, the combination with the pump-chamber, suction-valve and chamber and a short cylinder between the two chambers; of a plunger having a reduced end and a spring-held enlargement on the end thereof cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, substantially as and for the purpose set forth.

10. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a short cylinder interposed between them, of a plunger and an enlargement thereon adapted to yield to a predetermined fluid-pressure, whereby hydrostatic pressure is produced in the suction-valve chamber to suck said valve, substantially as described.

11. In a pump, the combination with the pump-chamber, suction-valve and chamber, and a short cylinder between the two chambers; of

a plunger having a reduced end, a spring-held enlargement on the end of the reduced portion cooperating with the cylinder to vent fluid between the two chambers and produce hydrostatic pressure on the suction-valve, auxiliary valve-controlled means to vent fluid between the two chambers, and an auxiliary piston adapted to move into the pump-chamber to prevent the formation of a vacuum therein, substantially as and for the purpose set forth.

702,946. INTERNAL-COMBUSTION ENGINE. J. S. BROWN, New York, N. Y. Filed May 4, 1901. Serial No. 99,594. (No model.)



Claim.—1. A combination or explosive engine combined with a refrigerator and a regenerator or heater, said refrigerator and regenerator arranged parallel with one another and both opening into the combustion-chamber of the engine and mechanism substantially as described for opening the refrigerator and closing the regenerator while the engine is charging and compressing, and for closing the refrigerator and opening the regenerator while igniting and exhausting substantially as described.

2. An internal-combustion engine having a cylinder, a receptacle made to communicate with said cylinder, a refrigerator and regenerator in said receptacle, and a displacer made to alternately contact with the refrigerator and regenerator, said engine having an entrance or charge opening and an exhaust substantially as described.

3. An engine having a cylinder and a receptacle provided with cooling and heating faces, a displacer having cooling and heating faces, and mechanism for shifting the displacer from and to contact with the receptacle-faces, said faces being corrugated or having ridged contact portions substantially as described.

4. An engine having a cylinder, a receptacle provided with a cooler and a heater, a shiftable displacer made to contact with the cooler and heater, and a water-jacket of said cooler substantially as described.

5. A cylinder provided with a supply-port, a regenerator and refrigerator opening at one end into the forward end of said cylinder, and a displacer forming the top wall of the refrigerator and the bottom wall of the regenerator.

6. A cylinder and piston combined with a shaft driven by the piston, a secondary shaft actuated at varying speed from the first-named shaft, a receptacle made to communicate with the cylinder, a port and combustible-supply for the cylinder actuated by the secondary shaft, and a refrigerating and regenerating displacer and exhaust for the receptacle actuated by said secondary shaft substantially as described.

7. An internal-combustion engine of the four-cycle type combined with a regenerator comprising interlocking and separating parts, and mechanism substantially as described for actuating the regenerator so as to cause the latter to control the instant of explosion or ignition of the combustible-mixture substantially as described.

8. An internal-combustion engine combined with a regenerator for storing heat, a refrigerator, said refrigerator and regenerator comprising interlocking or separating parts and mechanism substantially as described for actuating the refrigerator and the regenerator so as to cause the heated

parts of the regenerator to ignite the suitably-compressed explosive mixture substantially as described.

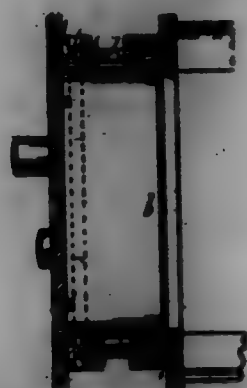
9. An internal-combustion engine comprising a cylinder combined with a regenerator made to open permanently into the cylinder and having a liquid-fuel inlet and adapted for starting heat, and mechanism substantially as described for transversely actuating the regenerator so as to cause the heated parts of the same to vaporize and ignite the fuel substantially as described.

10. An internal-combustion engine of the four-cycle type provided with a regenerator and a refrigerant opening directly into one end of the cylinder of the engine, and a liquid-fuel inlet, combined with an exhaust-valve, a cam for opening said valve during the operation of the first part of the compression-stroke of the engine thereby allowing a portion of the air sucked in during the suction-stroke to escape through said exhaust-valve and then allowing said valve to close so that the remainder of said air will be compressed by said compression-stroke, substantially as described.

11. Is an internal-combustion engine, a combined refrigerating regenerator and refrigerant opening into the cylinder of the engine.

12. An internal-combustion engine combined with a regenerator and a refrigerant communicating directly at one end with one end of the cylinder of an engine, and a shiftable displacer for alternately opening and closing said refrigerant and regenerator.

702,247. ADJUSTABLE SWITCH OR OUTLET BOX. JAMES H. EMMET, Butley, N. J. Filed Dec. 20, 1901. Serial No. 57,000. (No model.)



Claim.—1. A switch box and support, comprising a plurality of adjustable sections one of which is provided with slots, adjusting or leveling screws between said sections extending through said slots, and means for locking said screws against rotation, the said slots providing for the lateral or torsional adjustment of said sections.

2. A switch box and support, comprising a plurality of telescopic sections, and leveling-screws between the same, one of said sections being provided with slots through which said screws pass, to allow a lateral or torsional adjustment.

3. A switch box and support, comprising a plurality of sections, one of which is fixed, and the other of which is adjustable within the same, a switch-supporting frame secured to, and adjustable or movable with, the adjustable section, and leveling-screws fitting within corresponding taps in the fixed section, and provided with shoulders against which the adjustable section bears.

4. A switch box and support, comprising a fixed section, an adjustable section having outwardly-extending lugs thereon, leveling-screws fitting corresponding taps in the fixed section, extending into said lugs, provided with shoulders bearing thereon, and a switch-supporting frame carried by the adjustable section.

5. A support comprising sections combined with tapped adjusting-screws and binding or firing screws adapted to engage the taps substantially as described.

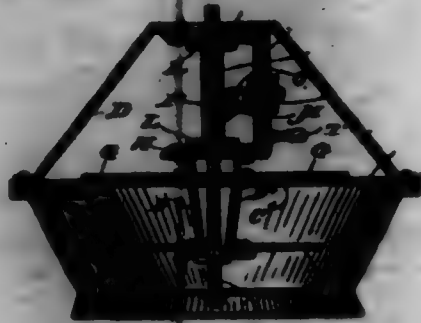
6. A support comprising a section, shoulder screws carried by the section, a second section supported on the screw-shoulders, and binding-screws adapted to fit with the shoulders for clamping or securing the second section, substantially as described.

702,248. BUSH-KRAMEL. MARGARET J. KRAMEL, Stamford, N. Y. Filed Mar. 14, 1902. Serial No. 62,284. (No model.)

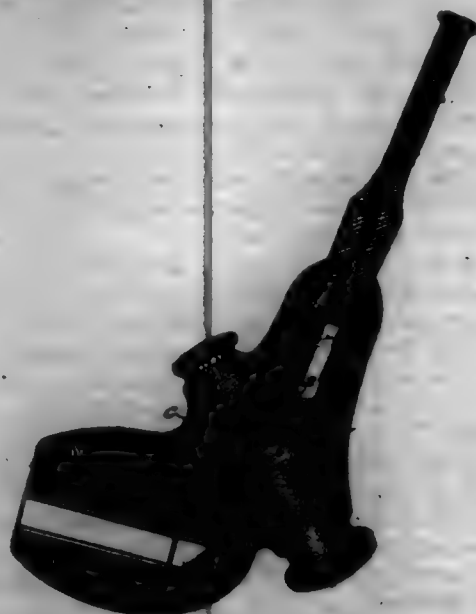
Claim.—1. In combination with a pan and cover therefor, a shaft mounted in said pan in a socket in the bottom of the pan, a stirrer journaled to rotate on said shaft, a plate mounted above the cover, straps connecting said plate with said stirrer and adapted to rotate therewith, a gear-wheel rotating about said shaft and connected in said straps, and means for rotating said gear-wheel, as set forth.

2. In combination with a pan and cover, which latter is supported,

a shaft supported in said pan in a socket therein, a stirrer-disk journaled on said shaft and points fastened to said disk, a rotatable plate mounted above the cover, straps connecting said plate with said stirrer, a gear-wheel journaled on the shaft and fastened to said straps, a tubing with disks fastened to its ends, mounted upon said shaft, a gear-wheel journaled above said tubing, and a vertically-mounted gear-wheel in mesh with said gear-wheel which is connected to the stirrer, and the straps connected at their ends to the edge of the cover, and radiating from a disk which is mounted on said shaft, as set forth.



702,249. PIPE. THOMAS M. SARRMAN, Norristown, Pa. Filed Jan. 28, 1902. Serial No. 51,554. (No model.)



Claim.—A tobacco-pipe having a chamber closed at the outer end and containing a mass of absorbent material less in diameter and length than said chamber so that it is exposed both at the end and sides, a passage leading from said chamber to the stem of the pipe and a passage leading from the chamber to the bowl of the pipe, said latter passage comprising two parts separated by a chamber of larger diameter than each of said parts, and a removable cap closing the said chamber, substantially as described.

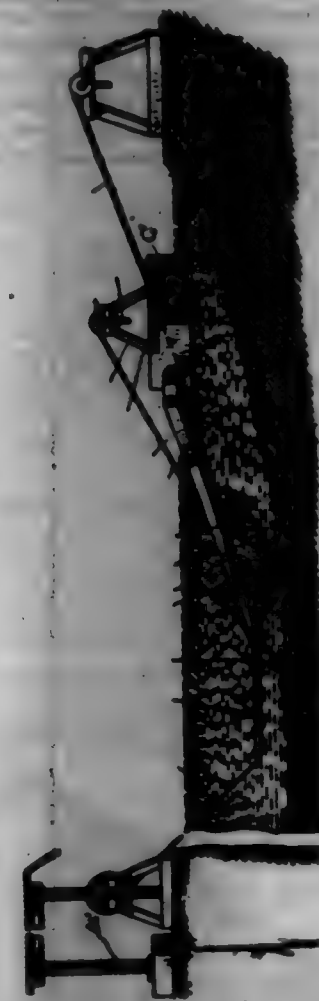
702,250. DRAG FOR GATHERING MUSHROOMS. JOHN W. SEARS, Sidney, Ark. Filed Mar. 1, 1902. Serial No. 52,208. (No model.)

Claim.—1. A drag or device for gathering mushrooms comprising a frame having teeth at its forward edge, runners on which the frame rests, a bag for receiving the mushrooms, handles connected to the drag, and a shaft for supporting said handles, and means for raising and lowering the drag or device, as set forth.

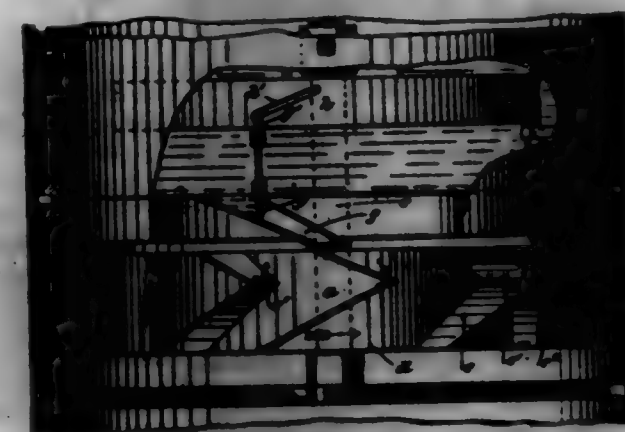
2. A drag for gathering mushrooms comprising a frame having teeth at its forward edge, runners for said frame, handles projecting from the ends of the frame, boots or shoes and a platform connecting the same, the ends of said handles supported by said boots, a winch mounted on said platform and having ropes winding about the same connected to the frame of the drag whereby the latter may be raised or lowered, as set forth.

3. In combination with a drag for gathering mushrooms having teeth at its forward end, runners for the frame, a bag for receiving the mushrooms, handles projecting from the rear end of the frame, boots having socket members on the adjacent edge thereof adapted to receive the ends of said handles, a platform connecting the boots, a winch mounted on said platform and having ropes wound about said winch and connected to the opposite side of the frame, a second winch designed to be mounted on the shore of a stream having cable wound about the same connected to the said frame, and power means for drawing the drag forward, as set forth.

702,250.



702,251. WATER-WHEEL. SAMUEL BOWLER, Strongstown, Pa. Filed Dec. 2, 1901. Serial No. 73,000. (No model.)



Claim.—The combination with a casing, of a reservoir supported therein, a vertical shaft revolvably mounted in the casing, and extending upwardly through the center of the reservoir, a wheel carried by said shaft and arranged below the reservoir and having buckets on its periphery, discharge-spouts extending diagonally downward from the bottom of the water-reservoir, a gate commanding each spout, vertically-extending rods carrying said gates and provided with transverse pins at their upper ends, and a hand or wheel mounted to turn on the shaft within the reservoir and provided with a series of similar diagonal slots engaging said pins, whereby the gates may be simultaneously raised or lowered.

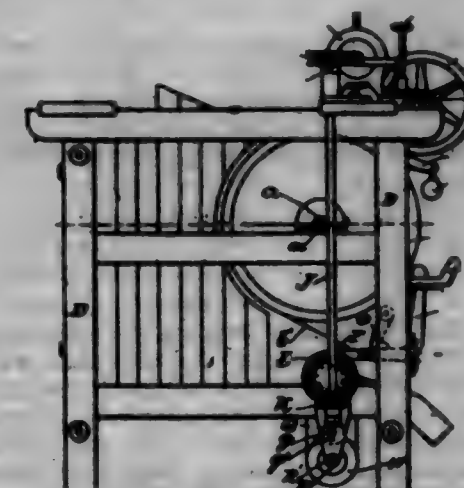
702,252. HAND-PRINTING MACHINE. CHARLES GRAMMERS, Boston, Mass. Filed Dec. 10, 1901. Serial No. 55,370. (No model.)

Claim.—1. In a photographic-printing machine, a diaphragm flexible traveling apron, and a coincidently-traveling bed, the two having a contacting zone and being separated on both sides of said zone to receive and discharge the work.

2. In a photographic-printing machine, a rotary drum and a coincidently-traveling diaphragm flexible apron partially enclosing said drum and expanding therefrom on both sides of the zone of contact for the purpose of receiving and discharging the work.

3. In a photographic-printing machine, a diaphragm flexible traveling apron, a coincidently-traveling bed, the two having a contacting zone and being separated on both sides of said zone to receive and discharge

the work, and rolls attached to both ends of said apron and on which the latter may be alternately wound and unwound.



4. In a photographic-printing machine, a diaphragm flexible traveling apron, a coincidently-traveling bed, the two having a contacting zone and being separated on both sides of said zone to receive and discharge the work, a set of mechanism associated with one end of the work and having provisions for flexibly returning the rollers of the apron, an automatic take-up mechanism connected with the other end of the apron, and expandable feed-rolls located between the contacting zone and said take-up mechanism for propelling said apron.

702,253. PIPE-WRENCH. JOHN F. GRAMMERS, Michigan City, Ind., assignor of one-half to Peter Hinkley, Michigan City, Ind. Filed Nov. 18, 1901. Serial No. 62,744. (No model.)

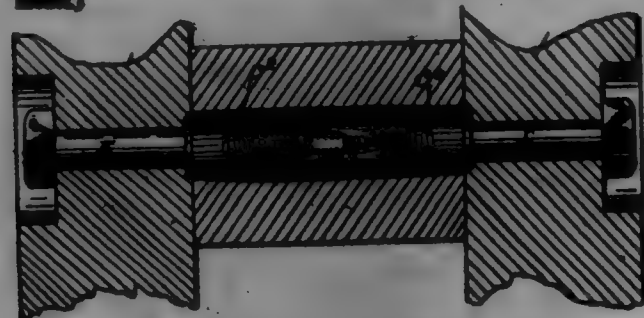


Claim.—1. The combination with a handle or lever carrying a fixed jaw; of a pivoted jaw provided at its upper end with a series of sliding perforations having communicating rectangular openings, a supporting-shaft journaled in one series of said perforations and having a central opening in which is adjustably secured said handle or lever, and rectangular lugs upon the ends of said shaft.

2. A wrench comprising a handle or lever carrying a fixed jaw and screw-threaded for a portion of its length, a pivoted jaw having at its upper end a series of sliding perforations, a supporting-shaft having an enlarged central portion with a screw-threaded opening and a shoulder, and a spring secured to said shoulder having its free end resting upon the back of the pivoted jaw.

3. A wrench comprising a handle or lever screw-threaded for a portion of its length and having one of its ends curved and serrated to provide a fixed jaw, a pivoted jaw composed of parallel side bars having their lower ends curved and serrated, and their upper ends having a series of perforations and communicating rectangular openings, a supporting-shaft adapted to fit in one series of said perforations and having an enlarged central portion having a screw-threaded opening to receive said handle or lever, and a screw-wound screw-threaded shoulder, a spring having one end provided with a perforation and the opposite end enlarged, forming arms having their ends bent, and means for securing said spring to the supporting-shaft.

702,254. BOLT-LOCK. HARRY A. STECKMAN, Johannesburg, South African Republic. Filed July 16, 1901. Serial No. 69,496. (No model.)



Claim.—1. The bolt-holder herein described consisting of a tubular body having end rings and longitudinal slots on diametrically opposite faces extending between the end rings and provided at their ends with enlarged portions producing narrow necks at the ends of the bars formed by said slots and between the same and the end rings and having each bar threaded internally and the end rings unthreaded, the bars being provided with the longitudinal outwardly-projecting ribs all substantially as and for the purposes set forth.

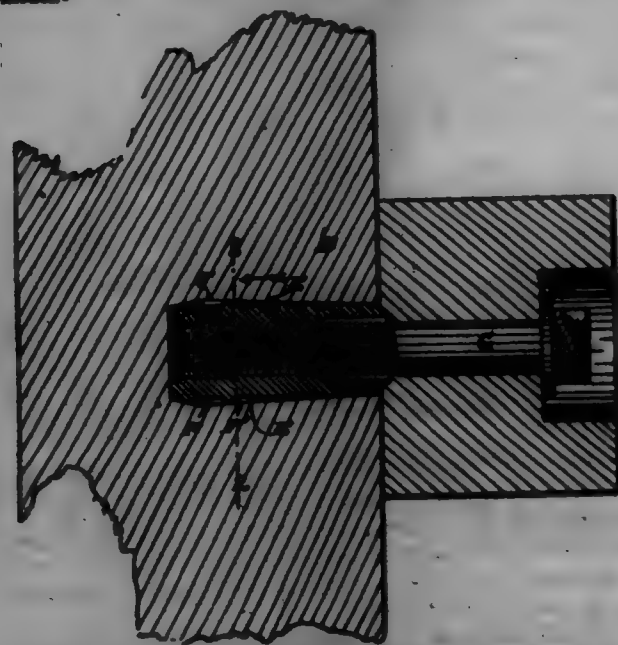
2. A bolt-holder having the end rings, the longitudinal slots between the same forming the separated bars and enlarged at their ends producing the narrow necks at the ends of said bars, the said bars being threaded internally substantially as set forth.

3. A bolt-holder having the continuous end rings and provided between the same with the separated internally-threaded compressible bars substantially as set forth.

4. A bolt-holder comprising the end rings, and the separated bars connecting the said rings and provided at their juncture with the rings with reduced necks, the bars being threaded internally and the necks and rings being unthreaded substantially as set forth.

5. The bolt-holder herein described consisting of the tubular body having the end rings, and the longitudinal slots forming the bars and enlarged at their ends producing the narrow necks connecting said rings and bars, the bars being threaded internally substantially as set forth.

702,255. BOLT-LOCK. HARRY A. STECKMAN, Johannesburg, South African Republic. Filed Nov. 5, 1901. Serial No. 81,189. (No model.)

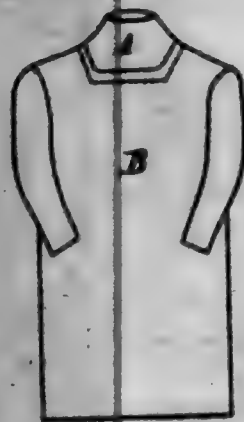


Claim.—In a bolt-lock, a holder for the bolt comprising an end ring, arms projecting from said ring and separated throughout their lengths at both edges, and having their extremities opposite the said ring free, and arranged to be expanded and contracted, said arms being provided internally with threads and having their outer sides tapered from their extremities toward the ring, and provided between said tapered portion and the ring with the longitudinal ribs, and with the shoulders facing toward the ring, the holder being adapted to be compressed by the tapered ends of the arms as the holder is inserted in a beam, and to be expanded within said beam by the introduction of the bolt, substantially as and for the purposes set forth.

702,256. WATERPROOF HAT. HENRY A. STECKMAN and ALBERT STECKMAN, Paris, France. Filed Dec. 2, 1901. Serial No. 94,412. (No model.)

Claim.—A waterproof coat comprising a body portion of water-

proof, non-elastio material, closed on all sides and having an opening at the top sufficiently large to pass over the head, and an elastic waterproof upper portion for enclosing the neck secured at its lower edge of the coat around its opening, said upper portion, in its normal or unstretched condition, being slightly smaller than the edge of the coat to which it is attached, and the parts of the body and neck which it encloses when in use, substantially as described.



702,257. SLIDING SPRING. HENRY G. SWAN, Cobham, Wm. Filed Mar. 7, 1902. Serial No. 97,111. (No model.)



Claim.—1. An elliptic spring having an upper and a lower leaf, one of said leaves having a straight curved end portion, the other leaf having a hook and engaging said straight end portion of the first leaf and a cap free from through-bolts and including said ends, said cap being secured only to the leaf having the plain end; substantially as described.

2. An elliptic spring having an upper and a lower leaf, one of said leaves having a plain rounded end, the other leaf having a hook portion engaging said rounded end, and a cap having closed ends and including the ends of the leaves, said cap being unconnected with the leaf having the hooked end and having a projection secured to the leaf with the rounded end; substantially as described.

702,258. RUBBER PUMPER. CLARENCE W. TAYLOR, New York, N.Y. Filed Apr. 7, 1902. Serial No. 101,736. (No model.)



Claim.—1. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, and means mounted upon the burner-tube for regulating the supply of air to said passages.

2. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, a regulating-plate mounted in said burner-tube, and means mounted upon the burner-tube for regulating the supply of air to the said passages and adapted to engage the said plate for operating it.

3. In combination, a burner-tube having a portion of its length corrugated to form a series of air-passages, a perforated sleeve mounted upon the burner-tube and adapted to have its perforations register with

the said passages, and a hood integral with the sleeve for rotating it to regulate the supply of air through the perforations of the sleeve to the passages.

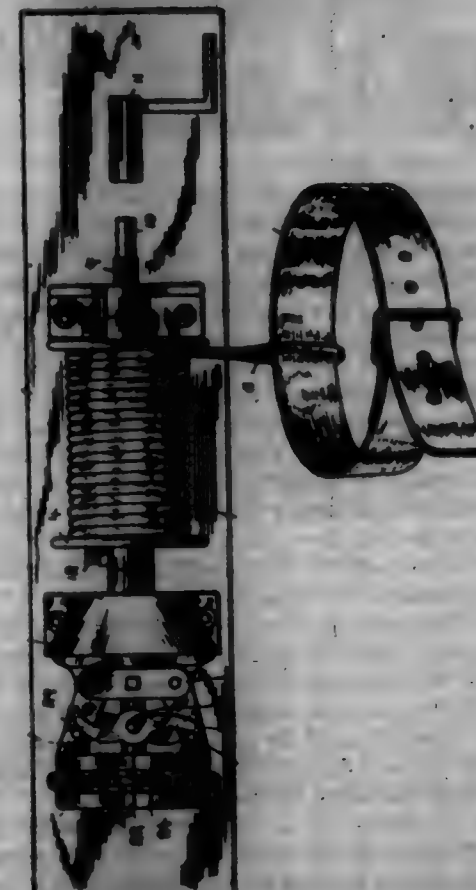
4. In combination, a burner-tube having a portion of its length corrugated to form air passages or channels, a perforated rotatable sleeve mounted upon the burner-tube and adapted to have the perforations thereof register with the said air passages or channels for regulating the supply of air therein, a gas-regulating plate arranged in the burner-tube, and means connected with the sleeve for rotating it and engaging with the plate for simultaneously operating it with the said sleeve.

5. In combination, a burner-tube provided with air-intake and corrugations to form air passages or channels, and means mounted thereon for regulating the supply of air to the said channels or passages.

6. In combination, a burner-tube provided with air-intake and corrugations to form air channels or passages, a regulating-plate for the supply of gas arranged in the said tube, and means mounted upon the tube for regulating the supply of air to the channels or passages and for simultaneously with such regulation, operating the said plate.

7. In combination, a burner-tube provided with air-intake and corrugations forming air passages or channels, a rotatable sleeve having diagonally-extending slots registering with the said passages or channels for supplying air therein, and means for rotating the said sleeve for regulating the passage of air through said slots to said channels.

702,259. FIRE-SCAPE. GEORGE TAYLOR, Thorncliffe, Canada. Filed July 12, 1901. Serial No. 69,599. (No model.)



Claim.—1. The combination with a fire-scape embodying a rotatable reel or winch and a cable wound thereon; of brake mechanism for retarding the motion of the reel or winch, said mechanism comprising cooperating clutch members one of which is stationary and the other loosely mounted upon the winch-shaft, governor-arms rotatable with the shaft and pivotally connected therewith and adapted to force the clutch members into engagement with each other, a spring for relieving the governor-arms, and means for causing the governor-arms to move equally toward or away from the winch-shaft.

2. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is fixed and the other loosely mounted upon the winch-shaft, oppositely-located grooved governor-arms pivotally connected to the shaft and having a sliding engagement with one of the clutch members, and a contractile spring controlling the governor-arms for normally relieving the pressure between the governor-arms and the adjacent clutch member.

3. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is

stationary and the other movable on the winch-shaft, flanges on one of the clutch members, governor-arms pivotally carried by the winch-shaft and having their corresponding ends operatively associated with the flanged clutch member, a groove in the outer end of each of the governor-arms, and a contractile spring fitted in the said groove and controlling the governor-arms and operating to normally relieve pressure between the governor-arms and the adjacent clutch member.

4. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a cable wound thereon; in combination with brake mechanism comprising a pair of clutch members one of which is stationary and the other movable on the winch-shaft, governor-arms pivotally connected with the shaft and adapted to force one of the clutch members into engagement with the other clutch member, means for normally relieving pressure between the governor-arms and clutch member, pins projecting laterally from the governor-arms against which they bear, and means for equalizing the movement of the governor-arms consisting of a regulating-lever fulcrumed intermediate in ends and having oppositely-extending and reversely-curved arms cooperating with the projections on the governor-arms.

5. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a cable wound thereon; in combination with brake mechanism comprising male and female clutch members, governor-arms pivotally connected with the winch-shaft and operating against one of the clutch members, pins projecting laterally from the governor-arms, means for normally relieving the pressure between the governor-arms and clutch member, and regulating-levers arranged on opposite sides of the winch-shaft and governor-arms and comprising oppositely-projecting and reversely-curved arms which cooperate with the pins on the governor-arms.

6. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other loosely mounted on the winch-shaft, guide-flanges on the outer surface of the male member, projecting arms connected to and rotatable with the winch-shaft, governor-arms pivotally connected to the projecting arms and having their inner ends operatively associated with the flanged clutch member whereby when their outer ends are thrown outward their inner ends will force the flanged clutch into frictional contact with the female member.

7. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other movable on the winch-shaft, a pair of governor-arms pivotally carried by the winch-shaft and having their inner ends operatively associated with one of the clutch members and having their outer ends formed of semi-circular weights having openings in their meeting edges to embrace the said clutch, and a contractile spring controlling the outer ends of the governor-arms and operating to normally relieve pressure between the governor-arms and the adjacent clutch member.

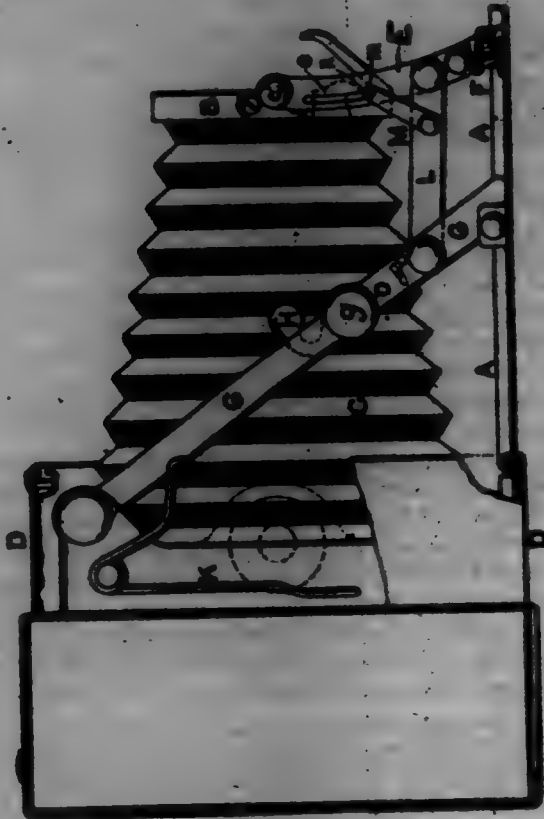
8. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other movable on the winch-shaft, flanges on the movable clutch member, a pair of governor-arms pivotally carried by the winch-shaft and having their inner ends operatively associated with the flanged clutch member, semi-circular weights secured on the outer ends of the governor-arms and having their meeting edges provided with half-cylindrical openings to embrace the reel-shaft and having their curved edge provided with an annular groove, and a contractile spring in the annular groove of the said weights operating to normally relieve pressure between the governor-arms and the adjacent clutch member.

9. A fire-scape embodying a rotatable reel or winch, a winch-shaft and a cable wound thereon; in combination with brake mechanism comprising male and female clutch members, an expansible relief-spring interposed between said clutch members, governor-arms pivotally connected with the winch-shaft and operating against one of the clutch members, pins projecting laterally from the governor-arms, means for normally relieving the pressure between the governor-arms and clutch member, and regulating-levers arranged on opposite sides of the winch-shaft and governor-arms which cooperate with the pins on the governor-arms.

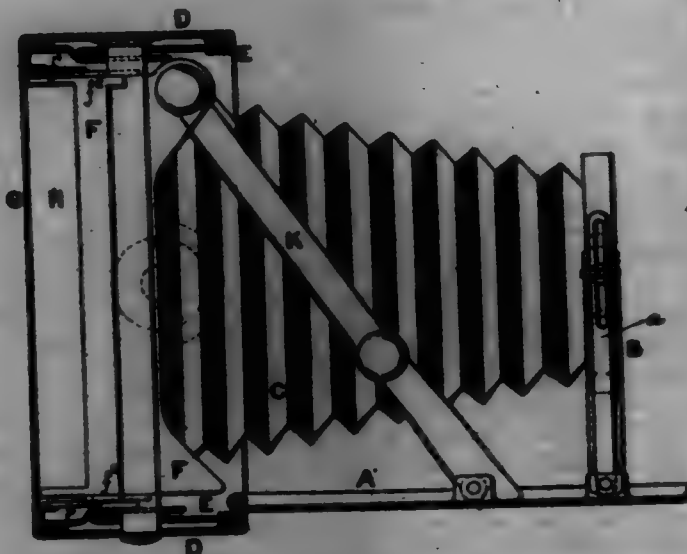
702,260. PHOTOGRAPHIC CAMERA. JOHN E. THOMPSON, Manchester, England. Filed Jan. 2, 1902. Serial No. 712. (No model.)

Claim.—In a folding camera the combination with the body D, the lens-board pivoted thereto, the bellows E pivoted to the lens-board, the front B pivoted thereto, and the bellows connecting the front and body, of the stretching G of two parts pivoted together, the springs H under the stretching, the links I connecting the front to the stretching, the second links J for holding the front vertical, and the spring F connected to the

Arch B to cause the fork and with it the front into a vertical position when the base-board is released, substantially as described.



702,261. PHOTOGRAPHIC CAMERA. John R. Thompson, Manchester, England. Filed Jan. 4, 1902. Serial No. 712. (No model.)



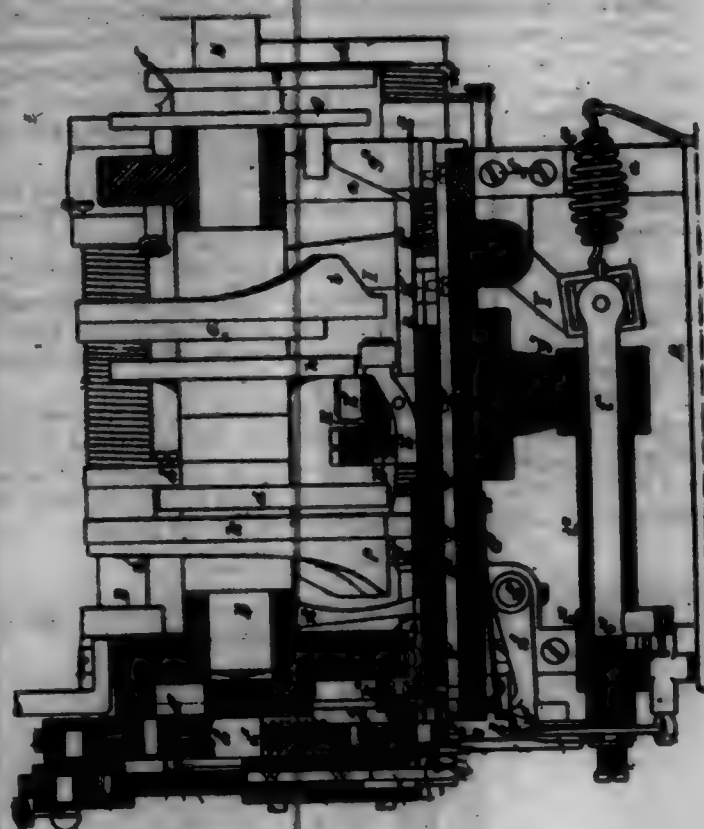
Claim.—1. In a camera the combination with the base A, the front B, bellows C and casing D connected together, of the sliding expandable back G connected thereto, the second inner frame E, the lens F by which it is suspended, and the lens F' to permit of its opening wider at the aperture to receive the holder, substantially as described.

2. In a photographic camera, a body consisting of a rigid frame E, a foundation-frame F within the frame E, said foundation-frame F suitably connected to the frame E, and a back G adapted to slide within the said frame, in combination with a base A connected to the body and a bellows and front B suitably connected to the base and to the body.

3. In a photographic camera, a body consisting of a frame, a foundation-frame F suitably attached to the said frame, a back G sliding within the said frame, and an inner frame E for the said back, in combination with means connected to the foundation-frame and engaging with the back adapted to permit of one side of the back opening in advance of the other, and a bellows suitably connected to and supported by the body portion.

4. In a photographic camera, a frame E, a foundation-frame F suitably attached thereto, a back G sliding within the said frame, means connected to the frame F and engaging the back G for permitting one side of the back opening in advance of the other side, in combination with a bellows suitably connected with and supported by the said frame,

702,262. MACHINE FOR INSERTING AND FASTENING STRINGS IN LABELS. Stephen S. Galt, John S. Ransom, and Martin O. Ransom, Philadelphia, Pa., assignors to John Wessinger, Philadelphia, Pa. Filed May 21, 1901. Serial No. 68,077. (No model.)



Claim.—1. In a label-stringing machine the combination of mechanism for inserting a string through a hole in a label, means for cutting off a length of said string from a source of supply of the same, means for cutting off a piece of metallic ribbon, means for bringing the two ends of the string adjacent to a portion of the body thereof, and means for clamping the cut-off piece of said ribbon around the body and said adjacent ends of the length of string, substantially as described.

2. The combination in a label-stringing machine of mechanism for inserting a string through the hole in a label, means for cutting off a length of said string from a source of supply of the same, means for cutting off a piece of metallic ribbon and means for clamping the cut-off piece of said ribbon around the two ends of said length of string and a piece of said ribbon around the two ends of said length of string and a portion of the body thereof with means for bringing the said ends and a portion of the body into the same plane before the ribbon is clamped in position, substantially as described.

3. The combination in a machine for stringing labels, of mechanism for inserting a string through a hole in the label, means for forming the length of said string into two loops, means for cutting off said length of string from the source of supply of the same, and means for clamping a piece of material around the body and the two ends of the said string, whereby the two loops are held together, the label being string in one of the same, substantially as described.

4. The combination in a label-stringing machine, of mechanism for holding one end of the string, means for inserting a loop of the same through a hole in the label, means for cutting off this loop from the body of the string, means for laying the two ends and the body of the piece cut off in substantially the same plane, and means for clamping a piece of material around the three strands of the string and thereby forming two loops, substantially as described.

5. The combination in a machine for stringing labels, of mechanism for inserting a string through the hole in the label, means for holding one end of the string, means for cutting off a length of the same from a source of supply, means for holding the end of the piece cut off to the body part of the same, means for cutting off a piece of material, means for laying the two ends and the body of the piece cut off in substantially the same plane, and means for clamping the cut-off piece of material around the said three strands of the string substantially as described.

6. The combination in a machine of the character described, of a needle for inserting a string through a hole in a label, means for holding the said label, means for forming a loop in the string after it has been put through the label, means for cutting the string from the main supply of the same, mechanism for clamping a piece of material around the ends of the string, with means for tightly holding the string both in front of and behind the said clamping mechanism while it is in action, substantially as described.

7. The combination in a machine of the character described, of mechanism for cutting off and holding a piece of string, mechanism for

intermittently feeding a piece of material to be clamped around the end of said string, means for corrugating said material, means for cutting a piece of it off from the main body of the same and means for clamping it around said end of the piece of string, substantially as described.

8. The combination in a label-stringing machine of the character described, of mechanism for inserting a string in a label, means for cutting off a length of said string, means for cutting off a piece of material to be used for fastening the ends of said string together with means for bringing the ends and a part of the body portion of the string adjacent to each other and under the piece of cut-off material, and means for fastening said piece of material around the said ends and the body, substantially as described.

9. The combination in a label-stringing machine, of a table, a reciprocating plunger, a stringing-needle carried thereby, mechanism actuated by said plunger for holding and retaining one end of the string, an arm for forming a loop in the string after it has been passed through a hole in the label, with means for cutting off the string from its source of supply, means for bringing the ends and a portion of the body of said string adjacent to each other, and means for clamping a piece of material around the said two ends and the body of the string, whereby two loops are formed, the label being in one of the same, substantially as described.

10. In a machine of the character described, a reciprocating plunger carrying a needle having a passage within and on one side of it, and a second passage through it from front to rear, in combination with mechanism for forming a length of string into a loop as it passes from one of the passages to the other, together with means for cutting off the said length of string from the main supply thereof, means for bringing the ends of the cut-off length adjacent to each other, and means for fastening the said ends thereof together, substantially as described.

11. The combination of a reciprocating plunger, a needle carried thereby, having one passage through its side and a second passage through it from front to rear, with a groove connecting the passages, a notch in the side of the needle, a pivoted arm having one end connected to pass through said notch and to engage the string extending from one of said passages to the other, together with means for cutting off lengths of string, and means for fastening together the ends thereof after the said string has been inserted through the loop in the label, substantially as described.

12. In a label-stringing machine, the combination of mechanism for inserting a string through a hole in a label, means for cutting off a definite length of said string, with means for feeding a strip of material, means for periodically cutting off pieces of the same, a pair of jaws constructed to grasp one of said pieces and means for operating the same whereby they may be made to curl said piece of material around the ends and a portion of the body of the piece of string inserted through the label together with means for bringing the said three strands of the string into substantially the same plane previous to the operation of the jaws, substantially as described.

13. In a label-stringing machine, the combination of mechanism for inserting a string through a hole in a label, means for cutting off a definite length of said string, means for feeding a strip of material, means for curling the edges of the same, a knife for cutting off the strip, jaws having a curved recess in them constructed to grasp said cut-off piece of strip, and means for causing said jaws to place the piece of strip material over the ends and the body of the piece of string which had been inserted in the label, together with means for bringing the said three strands of the string into substantially the same plane previous to the operation of the jaws, substantially as described.

14. The combination in a machine having means for inserting a string in a label and for cutting off said string from its source of supply, a reciprocating shell or carriage for feeding forward a strip of material, a knife for cutting said material into pieces, an anvil on which said pieces are deposited when cut off, a pair of jaws having in them a recess, means for moving the anvil into a position in which the jaws may grasp the piece of material and means for operating the jaws whereby the said piece of material is clamped around the ends of the string substantially as described.

15. The combination in a machine of the character described, of means for inserting a string through a hole in a label, means for cutting off said string from its source of supply, jaws for clamping a piece of material around the body of the cut-off piece of string and the two ends thereof, means for holding together the three strands of the string, said means including an arm against which said jaws act when in operation and means for rigidly supporting said arm during the operation of the jaws, substantially as described.

16. In a label-stringing machine, the combination with means for inserting a string through the hole in a label and means for cutting off a length of said string from the source of supply, of means for bringing both ends and the body of said piece of string into the same plane and mechanism for fastening said ends and said body together, thereby forming two loops, the label being on one of the same, substantially as described.

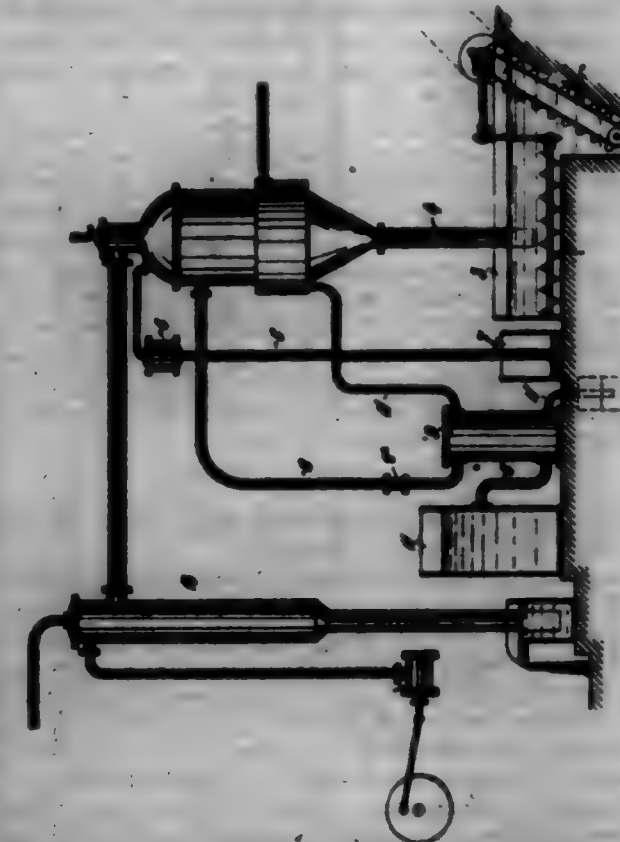
17. In a machine of the character described, the combination of a table for holding a label, a needle-plunger, a slide movable in guides and in which said plunger is constructed to move, jaws pivoted together and yieldingly connected to said slide, with means for operating the needle-plunger whereby it is made to insert a piece of string in the hole in a label, means for cutting off said string from its source of supply, means for feeding and cutting off a strip of material for fastening the ends of the string, and means for operating the jaws whereby they act to curl the said piece of material around the ends of the string, substantially as described.

702,268. AUTOMATIC TELEGRAPHIC TRANSMITTER. John A. Tuckey, Goshen, Ind. Filed Feb. 14, 1902. Serial No. 94,816. (No model.)



Claim.—In an automatic telegraphic transmitter, a keyboard having a base of non-conducting material, a metal plate supported thereon, a stencil-plate of non-conducting material in which a telegraphic code is accurately cut out, said stencil-plate covering the metal plate and a fine-wire connected directly with said plate, said wire traversing the base of the keyboard, a stylus comprising a hollow shell of insulating material, a metal pin inserted in one end of said shell and a plurality of metallic wires projecting in the form of a brush from said pin beyond said shell, said brush fitting accurately the opening in said stencil-plate, and a second fine-wire traversing the shell and connected to said pin, said second fine-wire flexibly connecting the stylus to the base of said keyboard, substantially as and for the purposes described.

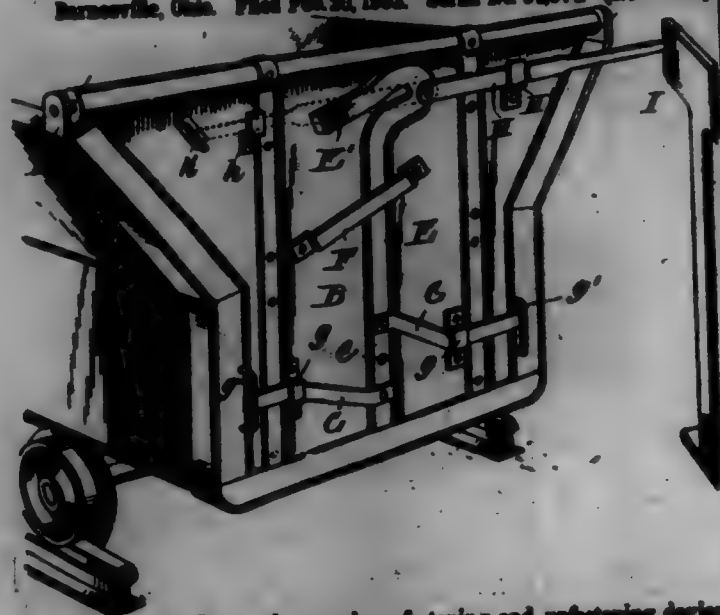
702,264. VACUUM APPARATUS FOR BOILING BRINE. Gustav E. Vm. Schweizerhals, Switzerland. Filed July 12, 1900. Serial No. 22,004. (No model.)



Claim.—It apparatus for boiling brine the combination with a brine vessel open to the atmosphere, a pan provided at its lower end with a tubular extension located in said vessel, a system of heating-pipes located in said pan, means for creating a vacuum in said pan, a pipe descending from the top part of the pan, and a liquid seal for the lower open end of said pipe, of a pipe connecting the pan at a point above the heating-pipes

with the brine-supply reservoir, a heat-exchanging apparatus the heat-receiving member of which is constituted by a portion of said pipe, and a pipe for supplying the heat-transmitting member of said apparatus with the condensed water formed in the heating system of the pan, substantially as and for the purpose stated.

702,265. MINING-CAR-DOOR FASTENING. JAMES E. WATT, Birmingham, Ohio. Filed Feb. 20, 1902. Serial No. 94,974. (No model.)



Claim.—1. In a mine-car-door fastening and unfastening device, the combination of a latch-operating lever pivoted to the door, and a bar connected to said latch-lever and adapted to project beyond the side of the car; with a cam fixed beside the track and adapted to engage said bar and cause it to move the latch-lever and release the catches, and an overbalancing-weight on the latch-operating lever adapted to move the lever still further so as to retract the bar and said bar within the recess or area of the car-door, substantially as described.

2. The combination of a mine-car, its swinging door, the latch-lever pivoted thereto, the bar connected to said lever, and a latch-bar connected to the said latch-lever, and adapted to project beyond the side of the car; with a cam-plate fixed beside the track adapted to engage said bar and cause it to move the latch-lever and release the bolts, and an overbalancing-weight on said latch-lever adapted to move it still further after the bolts are released so as to retract the bar and said bar within the area or edge of the car-door so that they will not interfere with the free swinging movement of the door, substantially as described.

3. The herein-described mine-car-door fastening, comprising a latch-lever pivoted to the door, opposite bolts pivoted to the latch-lever above and below its pivot, and adapted to engage keepers on the sides of the car, and a locking and tripping bar pivoted to the upper end of the latch-lever and adapted in one position to lock the latch-lever, and in another position to project beyond the side of the car; with a cam-plate fixed beside the track adapted to engage the projecting end of said bar and force the same inward causing it to rock the latch-lever and release the bolts from the keepers, and a weight on the upper end of the latch-lever adapted to move it further upon the release of the bolts so as to retract the latter and the bar within the edge or area of the door, for the purpose and substantially as described.

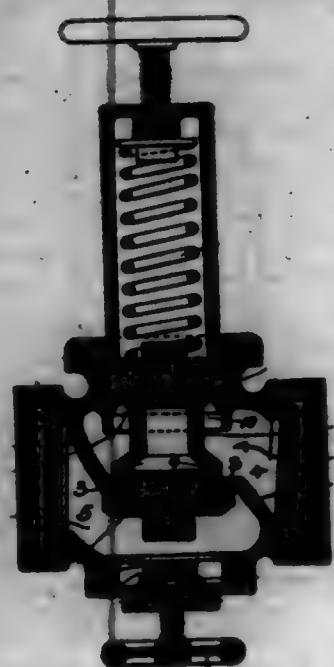
702,266. VALVE. HOWARD WHEA, Reading, Mass. Filed Dec. 1, 1900. Serial No. 733,723. (No model.)

Claim.—1. A device of the character specified, comprising inlet and outlet chambers, a partition separating said chambers and having a valve-seat, a valve controlled to close against said seat upon the attainment of a predetermined pressure in the outlet-chamber, a waste or vent outlet leading from the outlet-chamber, and a manually-operated spindle mounted for movement independently of the valve and adapted to close the valve against its seat when moved in one direction and having provision for closing said waste-outlet when moved in an opposite direction.

2. A device of the character specified, comprising inlet and outlet chambers, a partition separating said chambers and having a valve-seat, a valve adapted to close toward the inlet-chamber against said seat, a spring forcing the valve yieldingly away from its seat, an externally-actuable screw-spindle movable independently of the valve and adapted to abut and force the valve to its seat against the tension of the spring, and a waste or vent outlet leading from the outlet-chamber and controlled by the movement of said spindle.

3. A device of the character specified, comprising inlet and outlet chambers, a partition separating said chambers and having a valve-seat,

a valve controlled to close against said seat upon the attainment of a predetermined pressure in the outlet-chamber, a waste or vent outlet leading from the outlet-chamber and terminating in a valve-seat opposite the said valve, and a screw-spindle passing through the wall of the outlet-chamber and movable independently of the valve, said spindle being adapted to abut the valve and move the same to its seat when screwed in one direction, and having a head or enlargement acting as a valve which closes against the said waste-outlet valve-seat when the spindle is moved in an opposite direction.



702,267. MACHINE FOR STRIPPING TOBACCO. CHARLES G. WELLS, Hartford, Conn. Filed Feb. 20, 1902. Serial No. 94,948. (No model.)



Claim.—1. The combination, with a device having a series of receptacles for the reception of articles, and also having a passage, of a punch or needle constructed to receive a cord, said punch serving to perforate, and insert the cord in, the articles.

2. The combination, with a bed having transverse recesses for the reception of the articles to be connected, and a longitudinal passage, of a perforating device constructed to receive and carry a cord through the articles.

3. The combination, with a bed having a series of separated recesses and a longitudinal passage, of a punch having an end shaped to receive a cord; and means for reciprocating said punch.

4. The combination, with a bed having a series of transverse passages and a longitudinal passage, of a punch having an end shaped to receive a string; and means for reciprocating said punch.

5. The combination, with a bed having a series of transverse passages and a longitudinal bore, of a punch having a barbed end to receive a cord; and means for reciprocating said punch.

6. The combination, with a bed having a series of transverse passages and a longitudinal bore, of a punch movable in said bore; ejecting devices; and means for actuating said ejecting devices.

7. The combination, with a bed having a series of transverse passages and a longitudinal bore, of a punch having a barbed point; means for actuating said punch; a series of ejectors; and means for actuating said ejectors.

8. The combination, with a bed having a series of transverse pas-

sages and a longitudinal bore, of a punch movable in said bore; a series of individual ejectors, one ejector for each passage; and means for actuating said ejectors.

9. The combination, with a bed having a series of transverse passages and a longitudinal bore into which said passages open; of a punch movable in said bore; and means for actuating the punch.

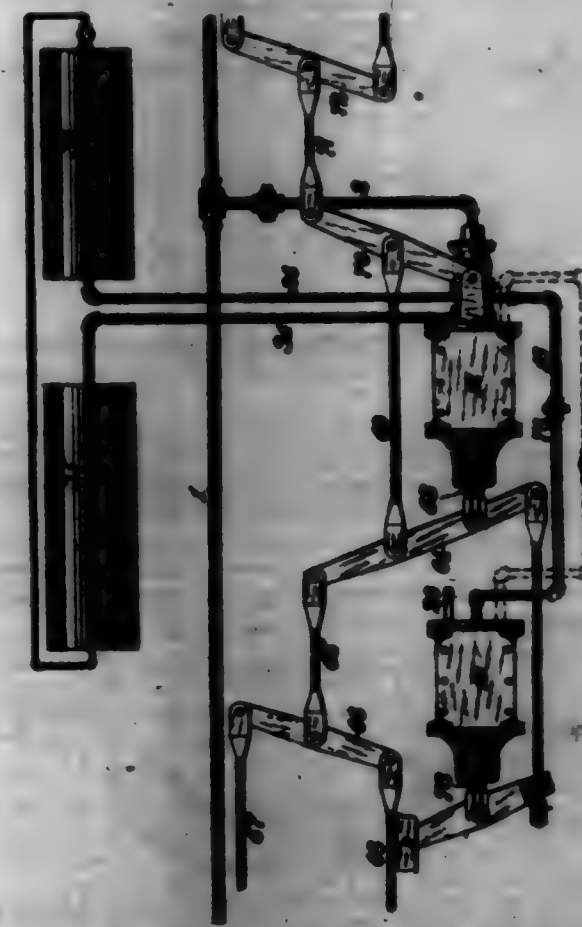
10. The combination, with a bed-plate, of a block mounted to said bed-plate, said block having a series of transverse passages and a longitudinal bore communicating with said passages; a punch having an end shaped for the attachment of a cord; and means for actuating the punch to cause it to perforate and carry the cord through articles placed in the passages of the block.

11. The combination, with a bed-plate, of a guide-block; a punch reciprocable in said guide-block and constructed to carry a cord; means for actuating the punch; and a bed having a series of transverse passages, and a longitudinal passage.

12. The combination, with a bed-plate of a guide-block; a punch having an end shaped to receive a cord movable in said guide-block; lower mechanism for actuating the punch; and a bed having a series of transverse passages and a longitudinal passage communicating with the transverse passages.

13. The combination, with a bed-plate, of a guide-block; a punch mounted in said guide-block; mechanism for actuating the punch; a bed having a series of separated, transverse passages and a longitudinal passage; a series of ejectors; and means for actuating said ejectors.

702,268. APPARATUS FOR APPLYING AND CONTROLLING BRAKING FORCE. HOWARD W. WHITCOMB, Reading, Pa., assignor to the Westinghouse Air Brake Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Nov. 14, 1900. Serial No. 461,987. (No model.)



Claim.—1. In an automatic fluid-pressure brake mechanism, the combination, with a train-pipe, an auxiliary reservoir, and two brake-cylinders, of a valve device controlling the supply of fluid to one of the cylinders, and which is opened automatically by changing the other cylinder with greater rapidity than during a service application of the brakes, substantially as set forth.

2. In a fluid-pressure automatic brake mechanism, the combination, with an auxiliary reservoir, a plurality of brake-cylinders, and a train-pipe which is normally charged with fluid under pressure, of a valve device controlling the supply of fluid to one of the cylinders, and which is opened automatically by effecting an unusually rapid reduction of pressure in the fluid under pressure in the train-pipe, substantially as set forth.

3. In an automatic fluid-pressure brake system, the combination,

with a train-pipe, an auxiliary reservoir, and a series of two or more brake-cylinders, of means whereby fluid under pressure is gradually admitted to one of the brake-cylinders for service applications of the brakes, and a valve device which automatically admits fluid under pressure to another brake-cylinder by effecting a more rapid flow to the first cylinder than is necessary for a service application of the brakes, whatever the degree of pressure in the train-pipe, substantially as set forth.

4. In an automatic fluid-pressure brake system, the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of a triple valve for supplying fluid under pressure to one of the brake-cylinders in making service applications of the brakes, and a valve device, operated by the fluid which charges the brake-cylinder, for supplying fluid to another cylinder to apply the brakes with maximum force, substantially as set forth.

5. In a quick-action fluid-pressure railway-brake, and in combination with the parts or passages by which train-pipe pressure is vented directly from a train-pipe to a brake-cylinder, a valve in the line of such parts or passages, intermediate between the emergency-valve and the brake-cylinder, adapted to be opened only by the excessive pressure employed in a quick-action operation, and when opened, opening a part or passage which leads from another source of compressed air, substantially as set forth.

6. In a fluid-pressure brake apparatus an extra-service valve in a chamber on the delivery side of a source of supply, and in the line of the flow thereof, and suitable mechanism for varying the supply or charging pressure, in combination with air ports or passages leading thence to two brake-cylinders, one of which shall be open at low pressure, and both at high pressure.

7. In a fluid-pressure automatic brake mechanism, in which application of the brakes may be effected by varying the pressure in the train-pipe between certain limits above the pressure of the atmosphere, the combination with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of means whereby fluid under pressure is admitted to one of the brake-cylinders on a moderate or gradual reduction of the train-pipe pressure, and a valve device which admits fluid under pressure to another brake-cylinder on a more rapid reduction of train-pipe pressure, substantially as set forth.

8. In an automatic fluid-pressure brake mechanism, the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of valve mechanism, operated by a partial reduction of train-pipe pressure, for automatically supplying fluid-pressure to one or more of the brake-cylinders, according to the rapidity of the variations in train-pipe pressure between certain limits above the atmosphere, substantially as set forth.

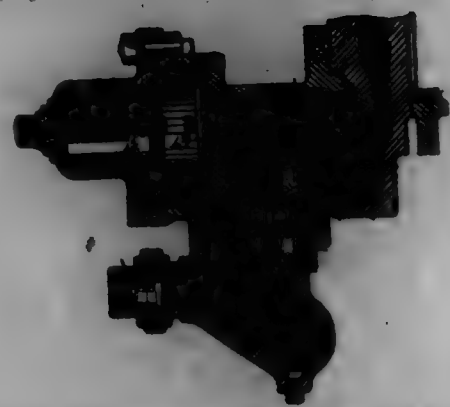
9. In an automatic fluid-pressure brake system, the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of means whereby fluid under pressure is admitted to one of the brake-cylinders on a moderate or gradual reduction of the train-pipe pressure, and a valve device which admits fluid under pressure to another brake-cylinder on a more rapid but partial reduction of train-pipe pressure, substantially as set forth.

10. In a fluid-pressure automatic brake mechanism the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of means whereby fluid under pressure is admitted to one of the brake-cylinders on a moderate or gradual reduction of the train-pipe pressure, and a valve device which admits fluid under pressure to another brake-cylinder on a more rapid but partial reduction of train-pipe pressure, substantially as set forth.

11. In an automatic fluid-pressure brake mechanism, the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of valve mechanism for automatically supplying fluid-pressure to one or more of the brake-cylinders according to the rapidity of the variations in train-pipe pressure, between certain limits above the pressure of the atmosphere, substantially as set forth.

12. In an automatic fluid-pressure brake system, the combination, with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of a triple valve operated by gradual variations of train-pipe pressure to supply fluid under pressure to one of the brake-cylinders, and an extra-service valve which is brought into action by making a more rapid reduction of train-pipe pressure between certain limits above the atmospheric pressure, whereby fluid-pressure is applied simultaneously to more than one of the brake-cylinders under each car, substantially as set forth.

13. In an automatic fluid-pressure brake mechanism, the combination, with a train-pipe, an auxiliary reservoir, and two brake-cylinders, of means for admitting fluid under pressure to both cylinders by a partial release of fluid under pressure from the train-pipe, whereby the charging of one cylinder only may be effected by a moderate or gradual reduction of train-pipe pressure, and the charging of the other cylinder by a rapid reduction of train-pipe pressure, substantially as set forth.



Claim.—1. In an air-brake system, the combination with the triple and emergency valves, of a second brake-cylinder controlled by said emergency-valve, substantially as set forth.

2. In an air-brake system, the combination with the triple and emergency valves, of a second brake-cylinder and a piston therein operated by train-pipe air and controlled by said emergency-valve, substantially as set forth.

3. In an air-brake system, the combination with the triple and emergency valves, of a chamber interposed between them, a port therein closed by the emergency-valve and an emergency brake-cylinder connected to said chamber to receive train-pipe air through the emergency-valve, substantially as set forth.

4. In an air-brake system, the combination with the triple and emergency valves, of a chamber below the emergency-valve piston, a port therein controlled by said emergency-valve, the rod connecting said piston and emergency-valve passing through said chamber, and a supplementary air-operated brake-piston connected to said chamber, substantially as described.

5. In an air-brake system, the combination with an auxiliary reservoir and a triple valve, of a brake-cylinder arranged to receive air only from said reservoir through said valve, an emergency-valve and a supplementary brake-cylinder, arranged to receive train-pipe air through said emergency-valve only, substantially as described.

702,270. WEATHER-STRIP. BARNET M. WHITING, Spokane, Wash. Filed Mar. 10, 1902. Serial No. 97,476. (No model.)



Claim.—1. A weather-strip comprising a longitudinal panel provided with apertures and with a weatherproof edge, links pivoted upon said panel adjacent to said apertures, and means to be secured to a closure member and to project through said apertures so as to engage said links, said apertures being of proper conformity to allow said panel to rock with a parallel motion upon said closure member, and means for automatically actuating said panel when the door is opened and closed.

2. A weather-strip comprising a longitudinal panel provided with apertures and with a weatherproof edge, links pivoted upon said panel adjacent to said apertures, and means to be secured to a closure member and adapted to project through said apertures for the purpose of engaging said links, a head mounted upon one end of said panel for engaging the jamb of a door, thereby actuating said panel in one direction, and a spring for retracting said panel to its original position.

3. A weather-strip comprising a longitudinal panel provided with a weatherproof edge, and also provided with a head for engaging a jamb, means for supporting said panel upon a swinging closure member, links pivotally connecting said panel to said means, and a leaf-spring mounted upon said panel and engaging one of said links.

702,271. ELASTIC TIRE. WILLIAM F. WILLIAMS, London, England. Filed Apr. 12, 1902. Serial No. 103,701. (No model.)

ing by narrow ribs into the spaces having enlarged portions extending inwardly toward the core and reducing the cross-sectional area thereof so as to form a neck portion united with the tread portion of the tire, the sides of the core being convexly curved from the neck to the base.



2. An elastic tire of approximately D-section, provided near its base with a transversely-elongated bore, a band arranged in said bore and provided with abutments fitted to the edge portions thereof and corresponding to the shape of the bore, the ends of the abutments on the outer or tread face of the band meeting edge to edge to form a continuous bearing-surface, and an internal core integral with the tread portion and having a bearing-face at its base for engaging the said bearing-surface, the core being separated from the lateral walls of the tire by intervening spaces opening as narrow slots to the bore at or near the sides thereof, the said spaces having enlarged portions extending inwardly toward the core and reducing the cross-sectional area thereof so as to form a neck portion united with the tread portion of the tire.

702,272. COMMUTATOR SEGMENT. WILLIAM E. WHEELER, Philadelphia, Pa. Filed Apr. 21, 1902. Serial No. 104,022. (No model.)

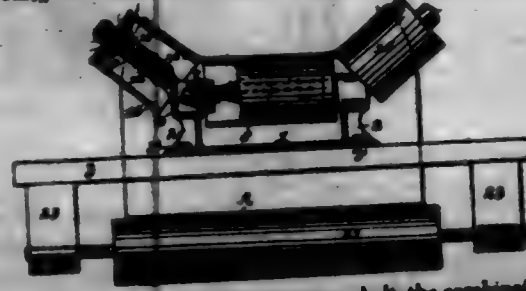


Claim.—1. A commutator-segment consisting of a metallic bar having a projecting finger bent up therefrom at one end, substantially as specified.

2. A commutator-segment consisting of a metallic bar having a projecting finger bent up therefrom at one end, said finger being notched at the outer end for the reception of the armature-terminal, substantially as specified.

3. A commutator-segment consisting of a metallic bar having a projecting finger bent up therefrom at one end, said finger being twisted in the extent of a partial turn and having at its outer end a slot for the reception of the armature-terminal, substantially as specified.

702,273. CONVEYER-BELT APPARATUS. ALFRED M. AXELER, Pittsburgh, Pa. Filed Jan. 6, 1902. Serial No. 94,475. (No model.)



Claim.—1. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, shafts adapted to fit within said sockets or openings and be solely contained by the same, and pulleys, wheels or rollers fitting around said shafts.

2. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, shafts adapted to fit within said sockets or openings and be solely contained by the same, and pulleys, wheels or rollers secured to said shafts.

3. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, said standards being provided with slots communicating with said sockets

or openings, shafts adapted to fit within said sockets or openings, and pulleys, wheels or rollers secured to said shafts.

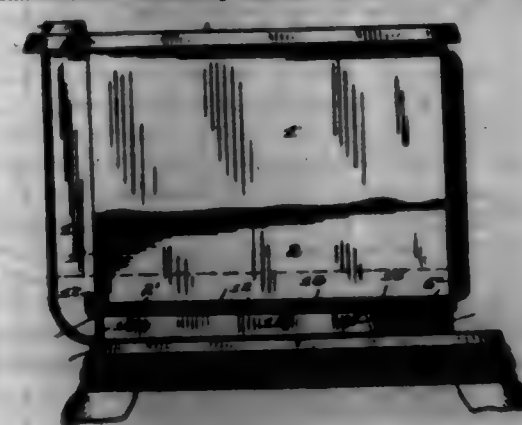
5. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, said standards provided with recesses on the outer ends thereof, shafts adapted to fit within said sockets or openings, and pulleys, wheels or rollers fitting around said shafts.

6. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, said standards provided with recesses on the outer ends thereof, shafts adapted to fit within said sockets or openings, and pulleys, wheels or rollers secured to said shafts.

7. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, said standards provided with slots communicating with said sockets or openings and leading into recesses on the outer ends of said standards, shafts adapted to fit within said sockets or openings and be solely contained by the same, and pulleys, wheels or rollers fitting around said shafts.

8. In a support for a conveyor-belt, the combination of inclined standards having sockets or openings therein the lower ends of which are closed, said standards provided with slots communicating with said sockets or openings and leading into recesses on the outer ends of said standards, shafts adapted to fit within said sockets or openings and be solely contained by the same, and pulleys, wheels or rollers secured to said shafts.

702,274. STOVE RANGE. DR. FRANK ARTHUR, Allegheny, Pa. Assignor to the J. C. Bartlett Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed May 12, 1901. Serial No. 69,961. (No model.)



Claim.—1. A stove, range, &c., provided with a bottom having a sheet or single flue therein, an oven, a supporting-standard on said bottom under said oven and within said flue, and a movable flue-strip adapted to be raised and supported by and within said standard for permitting said flue to be cleaned.

2. A stove, range, &c., provided with a bottom and having a sheet or single flue therein, a movable oven, a supporting-standard on said bottom under said oven and within said flue, and a movable flue-strip adapted to be raised and supported by and within said standard for permitting said flue to be cleaned.

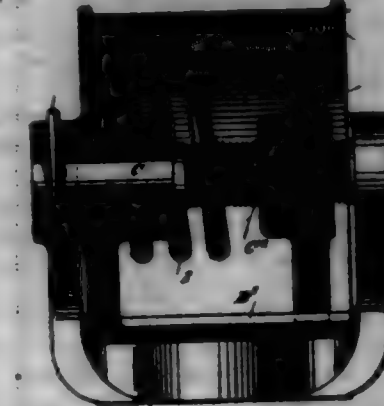
3. A stove, range, &c., provided with a bottom and having a sheet or single flue therein, a movable oven, a supporting-standard on said bottom under said oven and within said flue having a slot at one end thereof, and a movable flue-strip adapted to be raised and supported within said slot for permitting said flue to be cleaned.

4. A stove, range, &c., provided with a bottom and having a sheet or single flue therein, an oven, a supporting-standard on said bottom under said oven and within said flue having a slot at one end thereof, and a movable flue-strip supported by said slot and adapted to be locked therein in its raised position for permitting said flue to be cleaned.

5. A stove, range, &c., provided with a bottom and having a sheet or single flue therein, an oven, a supporting-standard on said bottom under said oven and within said flue having a slot at one end thereof, a movable flue-strip supported within said slot, and a plate on said strip adapted to engage with said slot in its raised position to hold the same and permit said flue to be cleaned.

6. A stove, range, &c., provided with a bottom and having a sheet or single flue therein, an oven, a supporting-standard on said bottom un-

702,275. DEVICE FOR ARRESTING RUNAWAYS. FREDERICK A. ARDRELL, Salt Lake City, Utah. Filed Sept. 20, 1901. Serial No. 73,722. (No model.)



Claim.—1. A runaway-arrester comprising a reel, a flexible member, a reel resistance device having normally separated members, and means actuated by said reel to bring said resistance members in operative engagement with the reel and to oppose the continued rotation of the latter with increasing force.

2. In a runaway-arrester, the combination with a reel, and a flexible member, of a reel resistance device having normally separated members, one of which is revolvable with the reel and the other member is arranged to oppose the rotation thereof, and means for bringing said members into cooperative relation on the withdrawal of a certain length of the flexible member.

3. In a runaway-arrester, the combination with a reel, and a flexible member, of a resistance member revolvable with said reel and slidable thereon, another resistance member adapted to be engaged by the slidable member, and means for bringing said resistance members into cooperative relation on the continued withdrawal of said flexible member.

4. In a runaway-arrester, the combination with a reel, and a flexible member, of a compressible resistance member, a slidable resistance member normally separated from said first-named resistance member, and means for bringing said slidable member into active engagement with said compressible member on the rotation of said reel.

5. In a runaway-arrester, the combination of a shaft having a threaded portion, a reel, a compressible resistance member within the reel, and a resistance-disk having threaded engagement with said shaft and slidable connection with the reel.

6. A runaway-arrester, comprising opposite posts at the sides of a street, a reel carried by one of the posts, a cable winding on the said reel and having fastening means at its free end to secure it to the other post, and a resistance in the reel and controlled by the rotation of the reel, to resist the unwinding of the cable after the same is stretched across the street from one post to another, the said resistance comprising a spring, a plate turned by and sliding in the reel and adapted to engage and compress the said spring, and a screw-rod on which the plate screws, as set forth.

7. A runaway-arrester, comprising a plurality of posts at the corners of intersecting streets, a reel on one of the posts, a cable winding in the reel and adapted to be fastened to either of the other posts, and a guide-roller on one of the posts and having its frame mounted to turn on the post, as set forth.

702,276. CLOSING AND LOCKING DEVICE FOR DENTAL FLASKS. DANIEL A. BAKER, Schenectady, N. Y. Filed July 21, 1901. Serial No. 70,266. (No model.)



Claim.—1. A closing and locking device, comprising a stirrup, a lever pivoted thereon, and a ball pivotally connected with said lever and movable in a guideway on the stirrup, as set forth.

2. A closing and locking device, comprising a stirrup, a lever fulcrumed thereon, and a ball pivotally connected with said lever and movable in a guideway on the stirrup, said ball having a bent middle portion, as set forth.

3. A closing and locking device, comprising a stirrup having guideways in its side arms, a U-shaped lever fulcrumed on the side arm of the stirrup, and a ball pivotally connected with said lever and mounted to slide in said guideways, as set forth.

4. A closing and locking device, comprising a stirrup having guideways in its side arms, a U-shaped lever fulcrumed on the side arm of the stirrup, and a ball pivotally connected with said lever and mounted to slide in said guideways, said ball having its middle portion bent downward, as set forth.

5. In a flask closing and locking device, the combination with a flask-receiving member, of a yieldable pressure member, and means for forcibly moving said pressure member.

6. In a flask closing and locking device, the combination with a flask-receiving member, of an elastic pressure member movable relative to the receiving member, and means for imparting relative movement to said members.

7. In a flask closing and locking device, the combination with a flask-receiving member, of a yieldable pressure-ball movable relative to said receiving member, and a lever for adjusting said ball.

702,277. GLASS-CUTTER. WILLIAM L. BARNETT, Bristol, Conn. Filed May 6, 1901. Serial No. 58,092. (No model.)



Claim.—1. A glass-cutter comprising a sheet-metal body portion folded along its longitudinal medial line to produce the parallel sides and having a biting-slot formed in said parallel sides, and a suitable cutter mounted in said body portion, substantially as described.

2. A glass-cutter comprising a sheet-metal body portion folded along its longitudinal medial line to produce the parallel sides, with a space between, and having biting-slots formed in said parallel sides, and a suitable cutter mounted in said body portion, substantially as described.

3. A glass-cutter comprising a sheet-metal body portion folded along its longitudinal medial line to produce the parallel sides and having at its rear and the struck-up ferrule or socket, and a suitable cutter mounted in said body portion, substantially as described.

4. A glass-cutter, comprising a body portion folded along its longitudinal medial line forming the parallel sides with a space between, and provided along its lower edges with the notches *d* and at its rear and with the legs *g*, said legs being struck up into conical shape and forming the ferrule for the reception of the handle, a handle fitted in said ferrule, and a suitable cutter mounted in said body portion, substantially as described.

702,278. BUTTON-CLEANING SHIELD. GEORGE H. BARNES, Chicago, Ill. Filed Jan. 25, 1902. Serial No. 51,152. (No model.)



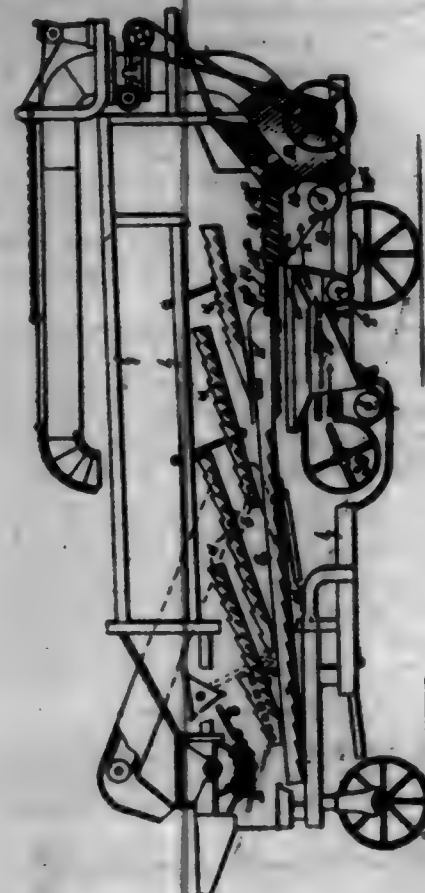
Claim.—1. A button-cleaning shield, comprising a wire bent at about its middle to form a spring and two members, and shield-pieces secured to each of said members, said pieces being formed with recesses in their adjacent edges to receive the stem of the button when the members are pressed together, substantially as described.

2. A button-cleaning shield, comprising a wire bent at about its middle to form a spring and two members, and shield-pieces rotatably secured on each of said members and having in their adjacent edges recesses to receive the stem of the button, substantially as described.

3. A button-cleaning shield, comprising a wire bent at about its middle to form a spring and two members, and shield-pieces rotatably secured on each of said members and having in their adjacent edges recesses to receive the stem of the button, substantially as described.

die to form a spring and two members, and shield-pieces rotatably secured on each of said members and having in their adjacent edges recesses to receive the stem of the button, and an upturned flange at its outer edge, substantially as described.

702,279. GRAIN-SEPARATING MACHINE. WILLIAM L. BARNETT, Washington, D. C. Filed May 23, 1901. Serial No. 58,264. (No model.)



Claim.—1. In a thrashing machine and separator, a pneumatic stacker having its receiving-opening below the discharge end of the separator; a blower, a shaker interposed between the discharge end of the separator and the receiving-opening of the stacker, adapted to separate the chaff from the grain, and means for deflecting the separated chaff to the outside of the machine, substantially as shown and described.

2. In a thrashing and separating machine, a pneumatic stacker held to cooperate therewith; of a shaker held to receive from the discharge end of the separating device and located between the discharge end of the separating device and the entrance-opening of the pneumatic stacker, and devices for deflecting the chaff separated from the straw by the shaker, substantially as shown and for the purpose described.

702,280. POWER-TRANSMITTING MECHANISM. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Nov. 14, 1901. Serial No. 52,002. (No model.)

Claim.—1. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, one being revolvable with the driven member and the others being capable of revolution relatively to the driven member, a plurality of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member, and means for preventing the rotation of said gears capable of revolution relatively to the driven member, substantially as and for the purpose described.

2. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, the gear of intermediate size being revolvable with the driven member and the small and large gears being capable of revolution relatively to the driven member, a plurality of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member and rotating said driven member at different speed than the driving member and in reverse direction, and means for preventing the rotation of said small and large gears, substantially as and for the purpose specified.

3. The combination of revolvable driven and driving members, a pair of gears of unequal diameter, one being revolvable with the driven member and the other being capable of revolution relatively to the driven member, a pair of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting

motion from the driving member to the driven member, and means for connecting to the driving member said gear capable of revolution relatively to the driven member and causing the same to rotate with the driving member, substantially as and for the purpose set forth.



4. The combination of revolvable driven and driving members, a pair of gears of unequal diameter, the large gear being revolvable with the driven member and the small gear being capable of revolution relatively to the driven member, a pair of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for rotating the driven member in the same direction as the driving member and at less speed, and means for connecting said small gear to the driving member and causing the same to rotate with the driving member, substantially as and for the purpose described.

5. The combination of revolvable driven and driving members, a pair of gears of unequal diameter, one being revolvable with the driven member and the other being capable of revolution relatively to the driven member, a pair of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member, means for preventing the rotation of said gear capable of revolution relatively to the driven member, and means for connecting to the driving member said gear capable of revolution relatively to the driven member and causing the same to rotate with the driving member, substantially as and for the purpose specified.

6. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, the gear of intermediate size being revolvable with the driven member and the small and large gears being capable of revolution relatively to the driven member, a plurality of gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member and rotating said driven member at different speed than the driving member and in reverse direction, means for preventing the rotation of said small and large gears, and means for connecting said small gear to the driving member and causing the same to rotate with the driving member, substantially as and for the purpose set forth.

7. The combination of revolvable driven and driving members having their axes substantially coincident, a plurality of spur-gears of unequal diameter, the spur-gear of intermediate size being revolvable with the driven member and the small and large spur-gears being capable of revolution relatively to the driven member, a plurality of spur-gears of unequal diameter fixed together and supported by the driving member concentrically to its axis, said latter spur-gears being revolvable with the driving member and cooperating with the former spur-gears for transmitting motion from the driving member to the driven member and rotating said driven member in one direction at different speeds and also in reverse direction, means for preventing the rotation of said small and large spur-gears, and means for connecting said small spur-gear to the driving member and causing the same to rotate with the driving member, substantially as and for the purpose described.

8. The combination of revolvable driven and driving members, the driving member being formed with an opening or chamber having peripheral and side walls, a pair of gears of unequal diameter, one being revolvable with the driven member and the other being capable of revolution relatively to the driven member, a pair of planetary gears of unequal diameter supported by the driving member in the opening or chamber thereof, said planetary gears being revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member, and means for preventing the rotation of said gear capable of revolution relatively to the driven member, substantially as and for the purpose set forth.

9. The combination of a shaft, a driving member fixed to the shaft and provided with a hub, a driven member loosely mounted on the shaft and provided with a hub and a spur-gear fixed thereto, said hub being mounted, respectively, on the hubs of the driving and driven members and having their openings facing each other, one of said spur-gears being of less diameter than the first spur-gear and the other being of greater diameter than said first spur-gear, a plurality of spur-gears of unequal diameter fixed together and supported by the driving member concentrically in its axis, said latter spur-gears being meshed with the former spur-gears, means for preventing the rotation of either of the gears provided on the shaft, and means for connecting to the driving member one of the gears provided on said shaft, substantially as and for the purpose specified.

10. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, one being revolvable with the driven member and the other being capable of revolution relatively to the driven member, means for preventing the rotation of said gear capable of revolution relatively to the driven member, and a plurality of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears and said means for connecting the gear revolvable with the driven member to the driving member and to the gear capable of revolution relatively to the driven member and thereby transmitting different rotary motions from the driving member to said gear revolvable with the driven member, substantially as described.

11. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, one being revolvable with the driven member and the others being capable of revolution relatively to the driven member, a plurality of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member, means for preventing the rotation of said gear capable of revolution relatively to the driven member, and means for connecting to the driving member one of said gear capable of revolution relatively to the driven member and causing the same to rotate with the driving member, substantially as described.

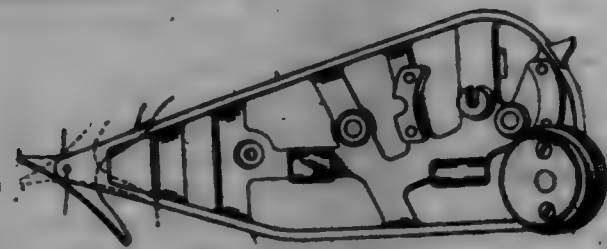
12. The combination of revolvable driven and driving members, a plurality of gears of unequal diameter, one being revolvable with the driven member and the others being capable of revolution relatively to the driven member, means for preventing the rotation of said gear capable of revolution relatively to the driven member, a plurality of planetary gears of unequal diameter revolvable with the driving member and cooperating with the former gears and said means for connecting the gear revolvable with the driven member to the driving member and to the gear capable of revolution relatively to the driven member and thereby transmitting different rotary motions from the driving member to said gear revolvable with the driven member, and means for connecting to the driving member one of said gear capable of revolution relatively to the driven member and causing the same to rotate with the driving member, substantially as described.

13. The combination of revolvable driven and driving members, the driving member being formed with an opening or chamber having peripheral and side walls, a plurality of gears of unequal diameter, one being revolvable with the driven member and the others being capable of revolution relatively to the driven member, a plurality of planetary gears of unequal diameter supported by the driving member in the opening or chamber thereof, said planetary gears being revolvable with the driving member and cooperating with the former gears for transmitting motion from the driving member to the driven member, and means for preventing the rotation of said gear capable of revolution relatively to the driven member, substantially as and for the purpose described.

702,281. SHUTTLE FOR LOOM. CHARLES H. BROWN, Boston, Mass. assignor to James C. Wilson, Chelsea, Mass. Original application filed June 10, 1901. Serial No. 52,002. Divided and this application filed Jan. 6, 1902. Serial No. 54,052. (No model.)

Claim.—A self-shuttling shuttle comprising a frame, a nose pivoted upon said shuttle, and means arranged to be engaged by warp-threads to change the plane of said nose, whereby the nose on said shuttle is auto-

nationally caused or made to occupy a predetermined plane with respect to a predetermined warp-thread.

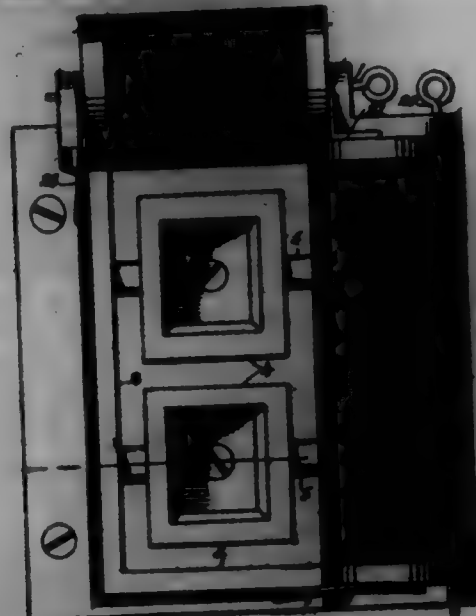


702,282. DRILL-BIT GEAR. WILLIAM W. CAMPBELL, Petrolia, Pa. Filed Oct. 31, 1901. Serial No. 78,373. (No model.)



Claim.—A drill-bit and gear comprising two plates connected by bolts and spaced apart, said plates being provided with parallel registering recesses formed with serrated edges, a shank bolted to said plates and extending rearwardly and provided with brackets, a rod having a sliding movement in said brackets and provided with a fixed collar and with a roughened end, and a coil-spring about said rod confined between one of said brackets and the fixed collar thereon, and exerting its energy to force the inner end of said rod toward the serrated edges aforesaid, substantially as set forth.

702,283. EMBOSHING-MACHINE. ISAAC CLAPPER, Cumbury, Ohio. Filed Mar. 14, 1902. Serial No. 73,187. (No model.)



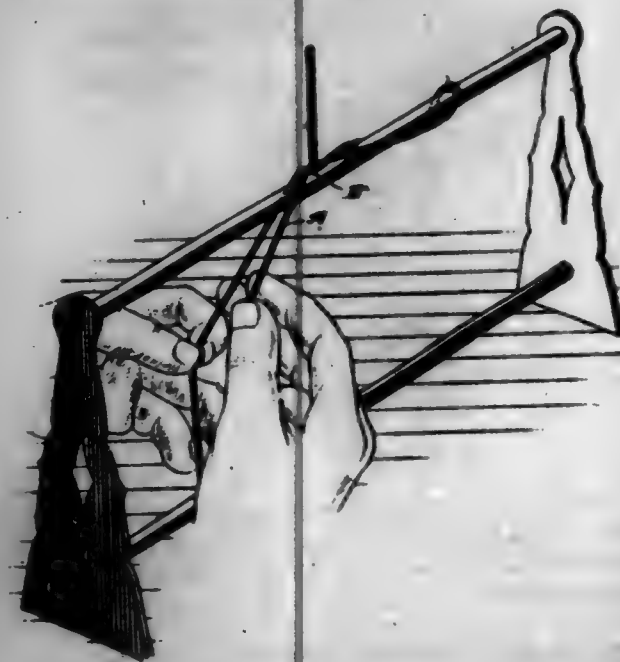
Claim.—1. An embosHING-machine comprising a mold, an embosHING-roller mounted to swing on one side of the mold, and an embosHING-roller mounted to swing on one end of the mold, substantially as specified.
2. An embosHING-machine comprising a mold, legs extended from the upper and lower ends of the mold, disks or plates mounted to swing on said legs, rollers on the inner surfaces of said disks or plates, an embosHING-roller

supported on said rollers, and an embosHING-roller mounted to swing on one end of the mold, substantially as specified.

3. An embosHING-machine comprising a die, a side embosHING-roller, plates mounted to swing on the die and supporting said roller, an end embosHING-roller, plates mounted to swing on the die and supporting said end embosHING-roller, means for securing adjacent disks or plates together, and link connections between the other disks or plates and the mold, substantially as specified.

4. An embosHING-machine comprising a die, one side wall and one end wall being narrower than the respective opposite walls, an angular continuation-piece for said narrower walls, and embosHING-rollers mounted to swing on the mold, substantially as specified.

702,284. PUMPER. MARTIN CODY, New York, N. Y. Filed Apr. 18, 1902. Serial No. 102,800. (No model.)

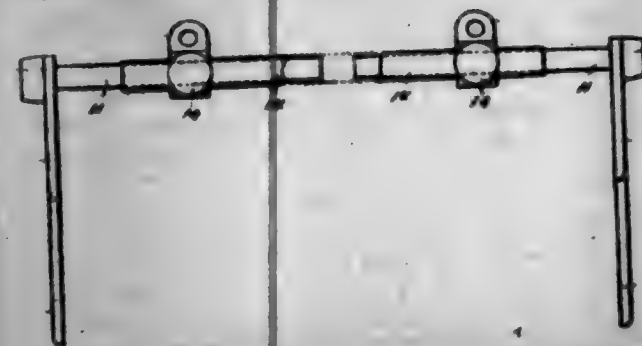


Claim.—1. A pumper in which a flexible tie is employed, comprising a rod, a fixed shooting device on the rod for engagement by a loop on the flexible tie, and a retainer removably held on the rod, a distance from the shooting device, and likewise adapted to be engaged by the said tie, as set forth.

2. A pumper in which a flexible tie is employed, comprising a rod, a fixed shooting device on the rod for engagement by a loop on the flexible tie, and a retainer removably held on the rod, a distance from the shooting device, and likewise adapted to be engaged by the said tie, the said removable retainer being in the form of a peg, engaging an aperture in the rod and extending from the rod in the same direction as the said shooting device, as set forth.

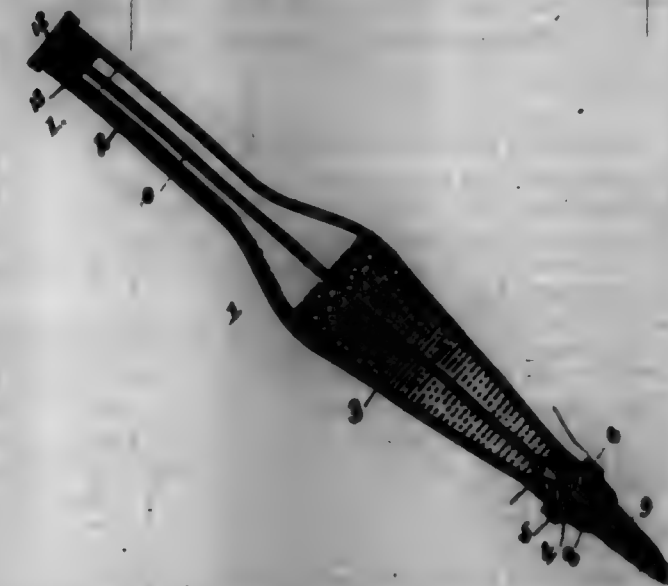
3. A pumper, comprising a flexible tie, a frame carrying a rod, a short leg projecting from the top of the said rod, a distance from one end of the frame, and a peg adapted to be inserted in an aperture on the said rod, a distance from the said leg, as set forth.

702,285. ADJUSTABLE WINDOW-CURTAIN SUPPORT. CHAS. F. H. COOK, Pequotash, Conn. Filed Jan. 11, 1901. Serial No. 68,005. (No model.)



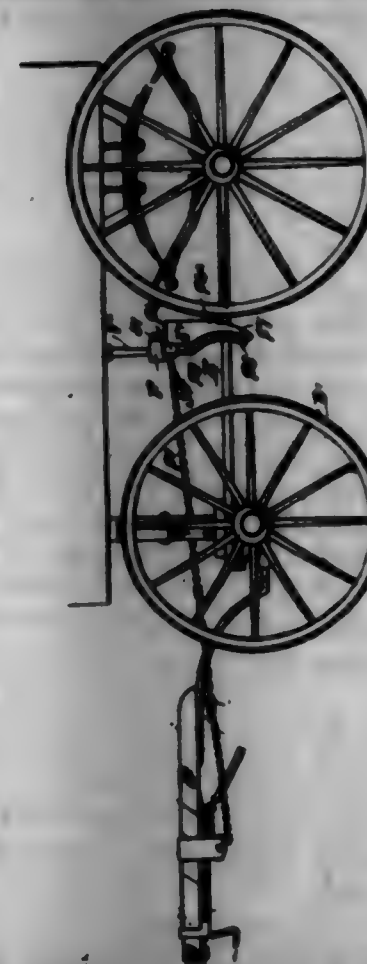
Claim.—An adjustable window-curtain support consisting of frame, each frame having two cohes adapted to support shade-tips, and a curved arm adapted to support a drapey-hanger, rods projecting side-wise toward each other from the frame, a tube receiving the rods, blocks for supporting the tube, and end-covers turning in the blocks and clamping the rods, substantially as specified.

702,286. FOUNTAIN MARKING-BRUSH. JAMES A. GRADDALE, Brooklyn, N. Y., assignor to S. V. White, Brooklyn, N. Y. Filed Dec. 4, 1901. Serial No. 84,798. (No model.)



Claim.—In a marking-brush, the combination of a tubular reservoir open at its ends and internally threaded at each end and provided at its upper end with a lateral vent 12, a brush-head externally threaded and screwed into the lower end of the reservoir and provided with a central passage leading to the brush and flared upward and outward at its upper end, said brush-head being provided with an annular groove or notch 5 below its threaded portion to receive the lower end of the reservoir, said groove or notch forming an annular upwardly-extending flange 7 fitting and embracing the lower end of the reservoir, the external surface of this flange being rifled, a packing-ring in the annular groove, an externally-threaded cap screwed into the upper end of the reservoir and adapted to open and to close said vent 12, a valve-rod secured to this cap and carrying a tapered valve at its lower end adapted to seat in the flared passage of the brush-head, as set forth for the purpose set forth.

702,287. VEHICLE-BRAKE. WILLIAM A. CHITWELL, Vancouver, Canada. Filed Sept. 12, 1901. Serial No. 78,375. (No model.)



Claim.—1. In vehicles, the combination with the running-gear, including a brake-beam, levers fulcrumed on the brake-beam, brake-chains carried by the said levers and having vertical movement thereon, a draft device connected with the running-gear, slides carried by the draft de-

vices, guides for the said slides, ropes or chains connected with the said slides, pulley-guides for the ropes or chains, a connection between the ropes or chains and the inner ends of the said levers, bolts mounted on the brake-beam and adapted to be passed over the upper portion of the brake-chains, and means, substantially as described, for preventing the brake-chains from leaving the said levers, as set forth for the purpose specified.

2. In vehicles, the combination, with the running-gear thereof including the brake-beam and shafts, or a pole, of guide-plates attached to the under faces of the shafts, slides mounted to travel on the said guide-plates, friction-rollers carried by the said plates, ropes or chains attached to the rear ends of the slides and passed over the said friction-rollers and friction-rollers located on the running-gear, the rear ends of the slides being adapted for attachment to the holdback portion of a harness, levers fulcrumed upon the brake-beam and connected with the said ropes or chains, brake-chains having a curved lower rear face, a curved lower front face, and an opening at the forward portion, extending from top to bottom and conforming to the contour of the brake-chain at each point, the outer ends of the said levers being passed through the said opening, and bolts carried by the brake-beam and adapted to be passed over the upper ends of the brake-chains, for the purpose described.

702,288. PLUMB-BOB. WILLIAM M. CUBAY, California, Pa. Filed Dec. 21, 1901. Serial No. 85,943. (No model.)



Claim.—1. A plumb-bob consisting of a body comprising two longitudinal sections and provided with means at its upper and lower ends for connecting the said sections together, and a spring-actuated cord-winding drum mounted within the said body-sections, substantially as set forth.

2. A plumb-bob comprising a body portion formed of two longitudinal sections, the opposing faces of which are recessed, a spring-actuated drum located within the said recess, a perforated cap-piece connecting the upper ends of the body-sections, and a cord connected to the spring-actuated drum passing between the sections and through the perforation of the cap-piece, as described.

3. A plumb-bob comprising a body portion composed of two sections, the opposing faces of which are recessed, a spring-actuated drum located in the said recess, said body portions having threaded projections at their upper and lower ends, perforated cap or thimble secured upon the threaded projection at the upper end, the tip or point secured upon the threaded projection at the lower end, and a cord connected to the spring-actuated drum and passing through the perforation of cap or thimble, substantially as described.

4. A plumb-bob comprising a body portion composed of two sections, the opposing faces of which are recessed, a spring-actuated drum located in the said recess, perforated cap or thimble connecting the upper ends of the body-sections, the point or tip for connecting the lower ends of the said sections, a cord connected to the spring-actuated drum and passing upwardly through the perforated cap or thimble and a spring-actuated brake-lever arranged in one of the sections and adapted to bear against the side of the spring-actuated drum, substantially as set forth.

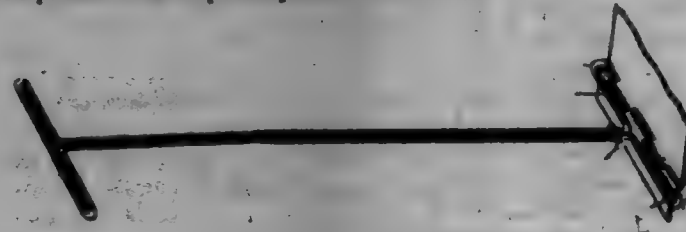
702,289. SHOE-POLISHER. BOWEN DE RAILL, Passaic, N. J. Filed Dec. 13, 1901. Serial No. 86,544. (No model.)

Claim.—1. A handle for shoe-polishing cloths, comprising elongated body portions formed of two relatively movable members, pins at the lower ends of said members, and means for holding the members with the pins in close proximity.

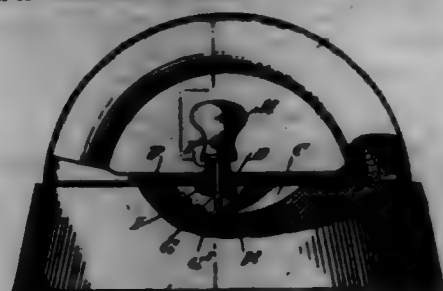
2. A handle for shoe-polishing cloths, comprising elongated body portions formed of two relatively movable members, pins at the lower ends of said members, and means for holding the members with the pins in close proximity, said means comprising a ring slidable on the parts of the handle-body portions.

3. A handle for shoe-polisher cloths, comprising a body portion formed of two arms movable toward and from each other, said arms having their lower ends formed with return-heads terminating in pins, and the pins lying parallel with and in close proximity to each other when the arms of the handle are moved together.

4. A handle for shoe-polisher cloths, comprising an elongated body portion with a handle proper at one end and means at its other end for removably connecting the cloth therewith, the said means comprising a transversely-elongated loop receiving the cloth and a spur carried by each end portion of the loop to impale the cloth.



702,290. SHOE-IRON HANDLE. CHARLES T. DENARE, New York, N. Y. Filed Feb. 11, 1902. Serial No. 93,081. (No model.)



Claim.—A shoe-iron handle having a bottom bar provided with an opening at about its center forming a bearing, a downwardly-inclined leg on its under face at one side of the bearing and having its point extending to within a short distance of the vertical plane of the wall of the bearing next to the leg, and an abutment on the under face of the said bar at the side of the opening opposite the said leg, and a gravity locking-bar sliding in the bearing of the bottom bar and provided with a handle at its upper end and with stop-lugs projecting from opposite edges of its lower end, said locking-bar standing when in its lowermost position with its lower end in close proximity to the point of the said leg, as set forth.

702,291. TONGUE-SUPPORT. SAMUEL BENNETT, Georgetown, Md., assignor to Mary Bennett, Georgetown, Md. Filed Apr. 5, 1902. Serial No. 191,457. (No model.)



Claim.—1. The combination with a hinged tongue, of a bolt slidably mounted in guides carried by said tongue, a spring mounted to yieldingly hold said bolt, a spring-arm connected to said bolt, guides carried by said spring-arm and embracing said tongue and a center-wheel carried

by said arm and located to run on the ground to support said tongue, substantially as described.

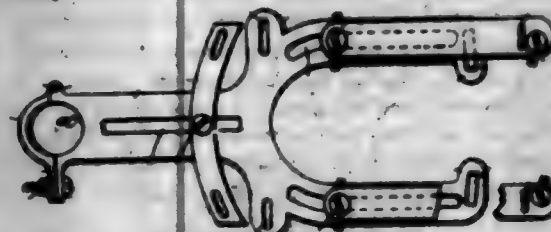
2. The combination with a hinged tongue, of a spring-arm connected to said tongue, a center-wheel carried by the free end of said arm, guides carried by said arm and embracing said tongue, an aperture cut in said guides, a pin slidably mounted in said aperture, a spring yieldingly holding said pin against longitudinal movement, a lever mounted on said pin, and pivoted to said pin, and means for operating said lever.

3. The combination with a hinged tongue, of a spring-arm connected to said tongue, a center-wheel carried by the free end of said arm, guides mounted on said arm and embracing said tongue, a cross-pin connecting said guides, an elbow-lever mounted in a standard supported by said tongue, one arm of said lever being connected to said cross-pin, and means for operating the other arm of said elbow-lever to incline said tongue, substantially as described.

4. The combination with a hinged tongue, of a spring-arm connected to said tongue, a center-wheel carried by the free end of said arm, guides carried by said arm and embracing said tongue, a lever mounted on said tongue and having one arm connected to said guides, a standard pivoted to said tongue, a lever fulcrumed on the body of the wagon and having one arm connected to said standard, and a connecting-rod connecting said standard and the other arm of said lever, substantially as described.

5. The combination with a hinged tongue, of guides embracing said tongue, means for yieldingly holding said guides against movement, a center-wheel carried by said guides and located to bear on the ground, a lever carried by said tongue and having one arm connected to said guides, and means for operating the other arm of said lever, substantially as described.

702,292. MOTOR PACKAGE-CARRIER. THOMAS H. BROWN, Washington, D. C. Filed Mar. 27, 1902. Serial No. 100,573. (No model.)



Claim.—1. A package-carrier for bicycles comprising a main stem or shaft having a longitudinally-adjustable clamping-jaw, and at its lower end an eye and fastening device, and at its upper end two arms and clamping-pots, provided with heads having sharp edges, longitudinally adjustable on said arms, substantially as described.

2. A package-carrier for bicycles comprising a shaft having at its lower end an eye and fastening device, and at its upper end two arms, a transverse clamping-jaw having means for adjusting it longitudinally on said shaft, extension-bars having clamping-pots at their outer ends and means for adjusting them longitudinally and securing them to said arms, substantially as described.

3. A package-carrier for bicycles comprising a shaft and two slotted arms, an adjustable clamping-jaw working in the slot of the shaft, and adjustable clamping-pots working in the slots of the arms, substantially as described.

4. In a package-carrier for bicycles, a frame composed of a shaft having means for securing it to a bicycle-frame, and two slotted arms in combination with a clamping-jaw secured to the shaft, and adjustable pots having screw-threaded ends in the slots of said arms and thumb-screws for engaging them with the shaft for the pots in place to engage with a package, substantially as described.

5. In a package-carrier for bicycles, the combination with a frame composed of a shaft and two slotted arms, of a clamping-jaw secured to the shaft and two adjustable extension-bars having clamping-pots, and screws provided with thumb-screws connecting said bars through the slots with said arms, substantially as described.

6. In a package-carrier, the combination with a frame composed of a shaft, having an eye and fastening device, and two outwardly-projecting arms having adjustable clamping-pots and transverse slots for receiving straps, of a clamping-jaw secured to the shaft and having strap-slots adjacent to its ends, substantially as described.

7. In a package-carrier, the combination with the shaft and slotted arms, of the clamping-pots, each composed of a screw, a sleeve and a thumb-screw for quick adjustment in the slots of said shaft and arms, substantially as described.

702,293. POCKET COIN-HOLDER OR BANK. BROWN & BROWN, Joliet, Ill., assignors to two-thirds to Thomas McPherson, John Turner, Eugene Belmont, and Richard Meyer, Peterson, N. Y. Filed June 20, 1901. Serial No. 90,570. (No model.)

Claim.—1. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom movable longitudinally therein, and a sliding bolt within the follower-bottom for locking said follower-bottom at various points of adjustment lengthwise of the case.



2. In a pocket-bank, the combination with an elongated coin-holding case; of a follower-bottom movable lengthwise within the case, means within the follower-bottom for yieldingly supporting the same, and means for locking the follower-bottom in a fixed position.

3. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom mounted therein and comprising a spring-supported coin-rest, and means connected therewith for adjusting and locking the follower-bottom.

4. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom adjustably mounted therein and comprising a spring-supported coin-rest, a sliding bolt, and means for operating said bolt and throwing the same into and out of engagement with the case.

5. In a pocket-bank, the combination with a coin-holding case provided with a notch; of a follower-bottom adjustably mounted therein and comprising a spring-supported coin-rest, a spring-pressed bolt adapted to snap into engagement with one of said notches, and means for retracting the bolt and unlocking the follower-bottom.

6. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom adjustably mounted therein and comprising a spring-supported coin-rest, a cam on said rest, and a locking-bolt adapted to engage the cam and having a projection or lug adapted to be operated upon by the case for retracting the bolt.

7. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom movable longitudinally therein, a locking-bolt mounted between bolt-guiding plates, a yielding coin-rest, an expansive spring interposed between the coin-rest and bolt-guiding plates, a cam carried by the coin-rest and adapted to operate upon the bolt for retracting the latter, and means connected with the follower-bottom for operating the cam.

8. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom movable longitudinally therein and comprising a sliding bolt mounted between bolt-guiding plates, a yielding coin-rest provided with a cam for operating the bolt, an expansive spring interposed between the coin-rest and one of the bolt-guiding plates, and means for operating the case consisting of a spindle having a sliding engagement with the cam.

9. In a pocket-bank, the combination with a coin-holding case; of a follower-bottom movable longitudinally therein, means for locking the bottom in any of its adjusted positions, bolt-guiding means comprising a spindle provided with a notch in one end, and an operating device consisting of a blade detachably mounted upon the exterior of the case and having the end thereof shaped to engage the notch of the spindle.

10. In a pocket-bank, the combination with a coin-holding case; of a reversible sleeve removably fitted upon one end thereof, means for locking the sleeve on the end of the case, a blade connected rigidly with said sleeve and reversible therewith, and a guard arranged exteriorly of the case and extending along one edge of the blade when closed.

11. In a pocket-bank, the combination with a coin-holding case; of a reversible sleeve detachably mounted on one end of the case, means for locking said sleeve thereon, a blade rigidly connected with the sleeve and adapted to extend lengthwise of the case, and a cap at the opposite end of the sleeve provided with a guard for covering the extremity of the blade.

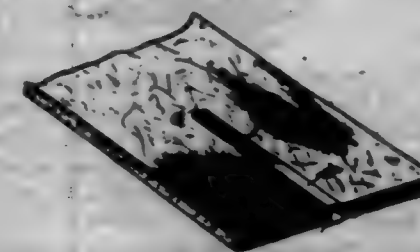
12. In a pocket-bank, the combination with a coin-holding case provided adjacent to one end with a laterally-projecting rib; of a reversible sleeve mounted upon the end of the case and provided with a groove to receive said rib, means for fastening the sleeve on the end of the case, and a blade rigidly connected with said sleeve and adapted to extend lengthwise upon the outside of the case.

702,294. EXTRACTOR FOR PLUG-TOBACCO. DR. ALEXANDER J. FLEMING, Raleigh, N. C. Filed Feb. 21, 1902. Serial No. 90,082. (No model.)

Claim.—1. An extractor for plug-tobacco, designed to be applied to each plug and pushed therewith, consisting of a thin strip of flexible material bent to form inner and outer folds or members, which extend over the inner and outer sides, respectively, of the plug, the connecting portion between the two folds or members being passed over one end or edge thereof, said outer fold being drawn outwardly away from the plug in removing the latter, as set forth.

2. As an article of manufacture, an extractor for plug-tobacco and

other articles designed to be applied to each article and pushed therewith, consisting of a flexible strip having inner and outer folds or members and an intermediate connecting portion, said inner fold or member having teeth at its inner end, the outer end of the outer fold or member being bent or turned up, as and for the purpose set forth.



3. A box or caddy of plug-tobacco having the several plugs packed in rows, one upon another, and a separate extractor for each plug packed therewith and detachably engaging the same, each extractor having a flexible portion by pulling on which the extraction of a plug is effected, as set forth.

4. A box or caddy of plug-tobacco having the several plugs packed in rows, one upon another, and a separate extractor for each plug packed therewith, said extractors engaging the several plugs at the ends or edges thereof, and having each a flexible portion extended over the outer face of its respective plug, as set forth.

702,295. WIRE-STRUTTER. HENRY L. FISKE, Harvard, Ill., assignor to Hunt, Main, Firth & Company, Harvard, Ill., a Copartner ship. Filed Oct. 2, 1901. Serial No. 73,021. (No model.)



Claim.—1. In a wire-strutter, the combination with a bar notched upon the opposite sides, of a hollow rectangular slide, comprising a metal plate cut away upon its sides to form a narrowed central portion, a second plate, similarly cut away and having its narrowed central portion turned to form a yoke, and suitable struts connecting said upper and lower plates, a lever pivoted between its ends to the opposite plates of the slide, and bar-engaging dogs pivoted to the lower upon opposite sides of the pivot, between the lever and the slide; substantially as described.

2. In a wire-strutter, the combination with a bar notched upon the opposite sides, of a hollow rectangular slide, comprising a metal plate cut away upon its sides to form a narrowed central portion, a second plate similarly cut away and having its narrowed central portion turned to form a yoke, a suitable outwardly-projecting lug upon each of said plates, said lugs being arranged opposite one another, a lever pivoted between its ends to the opposite plates of the slide, and bar-engaging dogs pivoted to the lower upon opposite sides of the pivot between the lever and the slide; substantially as described.

702,296. HORSESHOE. ROBERT R. PIER, West Nashville, Tenn. Filed Nov. 2, 1901. Serial No. 81,728. (No model.)



Claim.—1. A horseshoe formed with grooves in its inner and outer edges, beginning at a point near the center of the toe portion and terminating in advance of the heel, a calk having a base and vertical flanges secured thereto, tangens carried by said flanges and adapted to fit within said grooves, whereby the calk is secured to the shoe, and means for securing the calk against displacement.

2. A horseshoe formed with grooves in its inner and outer edges beginning at a point near the center of the toe portion and terminating in advance of the heel, a cut-out portion communicating with the groove in the inner flange and the under side of the shoe, a recess in the front end at the top of the toe portion, a calk having a base and vertical flanges at opposite ends thereof, tangens secured to the flanges to engage in the grooves, the front flange being extended vertically adapted to fit in said recess and formed with a prong adapted to be driven into the hoof of the animal.

3. As a new article of manufacture, a calk for a horseshoe, consisting of a base-plate having the calk fixed to the under side thereof, a vertical flange at the inner end of the base formed with a rib or tongue across its inner face, and a vertical flange at the outer end of the base formed with a rib across its inner face, and an upward extension formed with a prong, substantially as and for the purpose specified.

702,297. LAP-RIDER. JOHN T. FURTER, Dandenong, Victoria, Australia. Filed Sept. 11, 1901. Serial No. 78,088. (No model.)



Claim.—1. A stomach, leg, and saddle cover for horsemen, comprising a body of suitable material, a flap at the upper end of and turned back upon and underneath said body, means for retaining the flap in said position, the pocket so formed being designed to be passed over the crupper end of a saddle for the protection of the saddle, substantially as described.

2. A stomach, leg and saddle cover for horsemen, comprising a body of suitable material, a flap at the upper end of and turned back upon and underneath said body, and a strip of flexible material secured thereto for retaining the flap in said position, the pocket so formed being designed to be passed over the crupper end of a saddle for the protection thereof, substantially as described.

3. A stomach, leg and saddle cover for horsemen, comprising a body of suitable material, a flap turned back upon the same, and a strip of elastic material folded in the edge of said flap and secured thereto and also secured to said body for retaining said flap in its turned-back position, the pocket so formed being designed to be passed over the crupper end of a saddle and to protect the same for the protection thereof, substantially as described.

4. A stomach, leg and saddle cover for horsemen comprising a body of suitable material, a downwardly-opening pocket formed at the upper end thereof, designed to be passed over the crupper end of a saddle, and means carried by said body for securing its lower end to the front of said saddle, substantially as described.

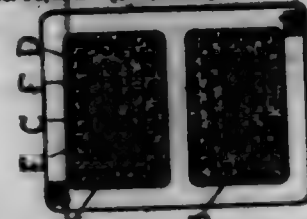
5. A stomach, leg and saddle cover, comprising a body of suitable flat material, bifurcated, and the legs being designed to be passed on either side of a saddle, straps carried by said body for securing the same to the front end of said saddle, and means formed on said body for securing the upper end thereof about the crupper end of the saddle, substantially as described.

6. In a device of the class described, the combination with a belt designed to encircle the waist of the user and provided with safety-eyes, of a bifurcated piece of material, each leg of the bifurcation being designed

to inclose one of the legs of the user, and straps carried by the upper portion of said piece of material for engaging said safety-eyes, substantially as described.

7. In a device of the class described, the combination with a belt designed to encircle the waist of the user and provided with safety-eyes, of a bifurcated piece of material, one leg of the bifurcation being designed to inclose each leg of the user, a strap secured to and extending across the upper portion of said piece of material, and straps carried near the ends of said strap and designed to engage said safety-eyes, substantially as described.

702,298. PLAYING-CARD. LEO FRANKENBERG, Chicago, Ill. Assignor of one-half to Harry W. Perry, Chicago, Ill. Filed May 2, 1901. Serial No. 84,044. (No model.)



Claim.—1. A pack or set of playing-cards having on their faces a portion of the music-staff, a clef-mark and different notes placed thereon, notes of different values being used to mark different suits in the pack, substantially as described.

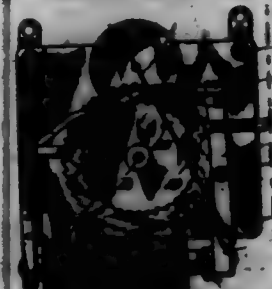
2. A pack or set of playing-cards, having on their faces a portion of the written or printed music-staff with the clef-sign and different notes thereon, the suits being represented by the different values of the notes, the whole notes constituting one suit, the half-notes another suit, the quarter-notes a third suit, and the eighth-notes a fourth suit, substantially as shown and described.

3. A pack or set of playing-cards having on their faces a portion of the music-staff, some having the sign of the treble clef and different notes thereon, from C on the line below the staff to A on the line above the staff, and others having the sign of the bass clef and different notes on the staff, from E on the line below the staff to C on the line above the staff, the cards in the pack constituting suits of thirteen cards each, all of the whole-note cards in the treble clef forming one suit, all of the half-note cards in the treble clef another suit, all of the quarter-note cards in the treble clef a third suit, and all of the eighth-note cards in the treble clef a fourth suit, and all of the whole-note cards in the bass clef forming a suit, all of the half-note cards in the bass clef another suit, all of the quarter-note cards in the bass clef a third suit, and all of the eighth-note cards in the bass clef a fourth suit, substantially as shown and described.

4. A pack or set of playing-cards showing on their faces a portion of the music-staff with the sign of the clef and different notes thereon, divided into several suits of an equal number of cards each, all the cards of each suit differing in time value of their notes from all the cards in all of the other suits, and the notes or notes on each card in any suit differing in name or position on the staff from all the notes on all the other cards in the same suit, substantially as shown and described.

5. In a pack or set of playing-cards, each card having on its face a portion of the music-staff with the sign of the clef and a natural note of the scale thereon, the printing of the sharp note of the same name at one side of the natural note and the flat note of the same name on the other side of the natural note, the signs of the sharp and the flat being used, substantially as shown and described.

702,299. ELECTRIC CLOCK. FRANK FRANK, Waynesboro, Va. Filed Sept. 18, 1901. Serial No. 78,088. (No model.)



Claim.—1. In an electric clock, the combination of an escape-wheel, means for applying power to said escape-wheel, and means for controlling the movement of said escape-wheel, which last means is operated by this means for applying the power to the escape-wheel.

2. In a secondary clock, the combination, of the frame, the magnet, the armature, the driving mechanism, an escape-wheel mounted on an arbor, a wheel mounted loosely on said arbor alongside said escape-wheel, a spring connected to the escape-wheel at one end and connected at its other end to said loosely-mounted wheel, connections from the armature to said escape-wheel for controlling its movement, and

connections from said armature to said loosely-mounted wheel for moving it with said escape-wheel, substantially as set forth.

3. An electric clock comprising an escape-wheel connected with means for holding it under a constant forward tension, means for maintaining the tension, means for controlling the escape-wheel, and an armature connected both with the means for maintaining the tension of the escape-wheel, and with the means for controlling its movement, whereby both are operated from the same armature, substantially as set forth.

4. In an electric clock, the combination, of the frame, and the operating mechanism comprising a magnet, an armature, a pivoted lever connected with said armature, an escape-wheel, the pallet, a connection between said pallet and said lever, a connection between said lever and a winding-wheel, said winding-wheel, a coiled spring mounted around the arbor on which said wheel is mounted with one end connected in the escape-wheel and the other to said winding-wheel, and means for holding said parts against backward movement, substantially as set forth.

5. In an electric clock, the combination, of the frame, the magnet, the train of gears, the escape-wheel mounted rigidly on its arbor, said arbor, the pallet also mounted rigidly on its arbor, said arbor, a second wheel mounted loosely on the escape-wheel arbor alongside said escape-wheel, a coiled spring surrounding said arbor and connected at one end to said escape-wheel and at its other end to said loosely-mounted wheel, means for holding said wheels against backward movement, an armature mounted on one end of a lever adjacent to the pole of the magnet, said lever mounted on an arbor, said arbor, a connection from said arbor to the arbor of the pallet for operating said pallet, and a pawl on said lever engaging the teeth of said loosely-mounted wheel for advancing it as said escape-wheel advances, whereby the tension of said spring is maintained, substantially as set forth.

6. An electric clock comprising an escape-wheel, a spring arranged with its tension directed to move said escape-wheel forward, means for positively locking and releasing said escape-wheel, and a single operating mechanism to maintain the tension of the spring and to operate the escape-wheel-controlling device, substantially as set forth.

7. In an electric clock, the combination of the escape-wheel, means for positively locking and releasing said escape-wheel, a spring for forcing the said escape-wheel forward, mechanism for winding said spring to maintain its tension, and an armature connected both with the escape-wheel-controlling device and the mechanism for winding the spring for operating them, whereby both are positively and simultaneously operated, substantially as set forth.

8. In an electric clock, the combination of an escape-wheel, means for controlling it, means for operating it, a single armature connected to both the controlling and the operating means, and the magnet for controlling the operation of the armature, substantially as set forth.

9. In an electric clock, the escape-wheel, the pallet or verge, the magnet, an armature, a connection from said armature to said verge for operating it, a spring for forcing the escape-wheel forward, and mechanism for maintaining the tension of said spring operated through a connection with the same armature, substantially as set forth.

702,300. COMBINED SHAFT SUPPORT AND COUPLING. HARRY HARRIS, London, Ohio, assignor of one-half to Missouri Carter and John Carter, London, Ohio. Filed Sept. 21, 1901. Serial No. 78,088. (No model.)



Claim.—1. In a combined shaft support and coupling, a shaft being connected with a member constituting a keeper, said shaft being connected

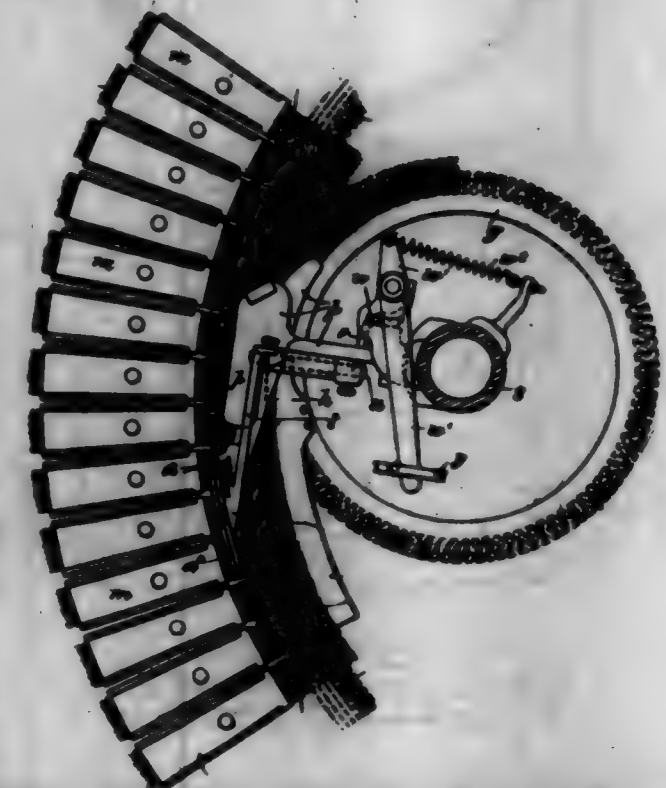
to the shaft, and a shaft carrying a pivoted spring-pressed lengthwise-adjustable latch for engaging the keeper.

2. In a combined shaft support and coupling, a shaft carrying a plate, a pivoted adjustable latch carried by the plate, and a latch-actuating spring secured to the plate and having a yoke or looped end to engage the latch.

3. In a combined shaft support and coupling, a shaft carrying a plate, a pivoted latch carried by the plate and having a limited range of downward movement, and a latch-actuating spring secured to the plate and having a yoke or looped end to engage the latch.

4. In a combined shaft support and coupling, the combination with an axle of a shaft having one member constituting a keeper, and the other member one element of a shaft-coupling, and a pivoted spring-pressed latch to engage the extremity of the keeper, substantially as and for the purpose specified.

702,301. MACHINE FOR COMBING WOOL. DR. ISRAEL HAY, Oakworth, England. Filed Nov. 22, 1901. Serial No. 84,012. (No model.)



Claim.—1. A combing-machine comprising in its construction a comb and a series of inclined blades of varying length, the shorter ones being mounted to depress the fibres into the comb after the action of the longer blades and at points nearer the outer or free ends of the fibres.

2. A combing-machine comprising in its construction an outer comb and an inner comb, and a series of inclined blades of varying length, the shorter ones being mounted to depress the fibres into the comb after the action of the longer blades and at points nearer the outer or free ends of the fibres.

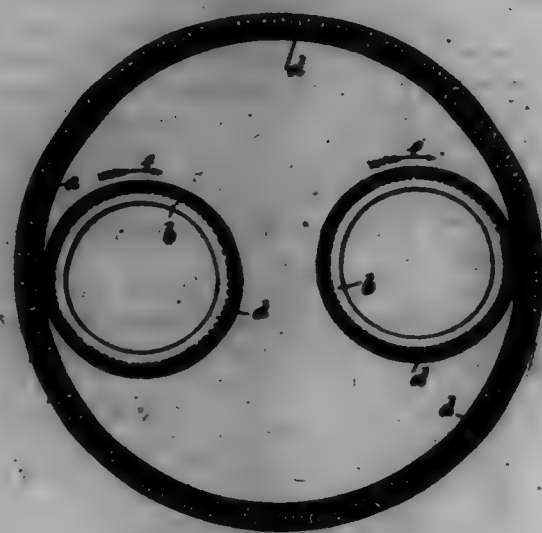
3. In combing machinery of the class described, circular combs mounted to rotate in contiguity with each other, fiber-depressing blades of varying length mounted in position relatively with the several rows of teeth to gradually and successively depress the fibres into said combs, and a guard-plate cut away to allow the fibres substance to be brought into contact with the comb arranged first to receive it and extended at the proper part to also allow the fiber to be brought into contact with the teeth of the next or succeeding comb substantially as herein specified.

4. In combing machinery of the class described, the combination with circular combs mounted to rotate in contiguity with each other, of fiber-depressing blades of varying length mounted to gradually and successively force the fibres substance upon the teeth of the combs, and lever-arms and connections for releasing the power from the machine.

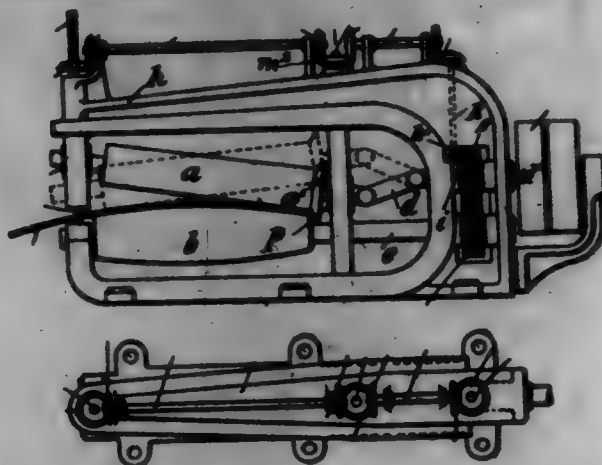
5. A combing-machine comprising in its construction circular combs operative in contiguity with each other and a series of fiber-depressors mounted and relatively arranged to gradually and successively depress the fibres into the combs, said depressors first acting on the fibres at points distant from their free ends and then at points nearer the outer ends of the fibres, substantially as and for the purpose described.

702,302. COMB FOR COMBING-MACHINE. ISRAEL HAY, Oakworth, England. Filed Nov. 22, 1901. Serial No. 84,012. (No model.)

Claim.—In combing machinery of the class described, combs having their pins or teeth leading in the direction of or toward their path of motion, in combination with incline plates located in the path of movement of said pins or teeth and the fibrous substances carried thereby.



702,808. ROLLING MACHINERY. BUREAU W. HARTEN, Berlin, Germany. Filed Mar. 30, 1901. Serial No. 52,748. (No model.)



Claim.—1. In a rolling-mill the combination of a pair of positively-driven rolls one member of which is tapered and means for tipping or tilting one member axially along the other so as to cause any point along its length to cooperate with the corresponding point along the length of the other member to work the plate between them in the manner and for the purpose substantially as described.

2. In a rolling-mill the combination of a pair of positively-driven rolls, one member of which is tapered and means for tipping or tilting one member axially along the other so as to cause the longitudinal surfaces of the two rolls to contact with the metal between them at corresponding points consecutively throughout the length of both rolls and means for pivotally supporting the metal to rotate in an approximately horizontal plane between the said rolls substantially as described.

3. In a rolling-mill the combination of a pair of positively-driven rolls, one member of which is tapered toward its ends and provided with a corrugated longitudinal section, the second member being also provided with corresponding corrugations and means for tipping or tilting one member longitudinally on the other so as to cause the corresponding points along the length of the two rolls to contact with the metal between them in the manner and for the purpose substantially as described.

4. In a rolling-mill the combination of a pair of positively-driven rolls one member of which is tapered toward the ends and both members of which are provided with corrugated longitudinal sections the convex parts of one being adapted to engage the concave corrugations of the other, means for tipping or tilting one member along the other axially, so as to cause the corresponding points of the length of both rolls to contact with the metal between them consecutively and means for pivotally supporting the plate or metal being worked at a point slightly distant from one end of the two rolls in the manner and for the purpose substantially as described.

702,804. ROLLER. EDWIN H. HULME and JAMES E. HOOVER, Columbus, Ohio; said Hoover assignor to said Hulme. Filed Mar. 3, 1902. Serial No. 94,099. (No model.)

Claim.—1. In combination with a rest and the part to which it is to be attached, a hinge connecting them, a toothed arm, having legs projecting therefrom at the extremities of the toothed portion thereof, a pawl arranged to be shifted by said legs into and out of position to be engaged by the toothed portion of said arm, and a catch independent of said arm for holding said pawl firmly in each of the two positions to which it is shiftable.



2. In combination with a rest and the part to which it is to be attached, a hinge connecting them, a toothed arm, having legs projecting therefrom at the extremities of the toothed portion thereof, a pawl arranged to be shifted by said legs into and out of position to be engaged by the toothed portion of said arm, and a spring-actuated pawl having two ends 5° and 5° to engage said pawl and into which said pawl is shifted from one to the other for holding said pawl in and out of position to be engaged by the teeth of said arm, substantially as described.

3. In combination with a rest and the part to which it is to be attached, a hinge connecting them, a curved arm toothed on its edge nearest the pin of said hinge, and having legs projecting therefrom at the extremities of the toothed portion thereof, a pawl arranged to be shifted by said legs into and out of position to be engaged by the intermediate teeth, and a spring for engaging said pawl having two ends into one or the other of which said pawl is shifted by contact with said legs to hold said pawl firmly in the position to which it is shifted, substantially as described.

702,805. PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. EDWARD D. KENDALL, Brooklyn, N. Y. Filed Feb. 27, 1901. Serial No. 46,098. (No specimens.)

Claim.—1. The process of treating ores carrying precious metals, which consists in treating such ores with a fixating solution, consisting of a cyanid, potassium persulfate and water, substantially as described.

2. The process of treating ores carrying precious metals, which consists in treating such ores with a fixating solution, consisting of a cyanid, potassium persulfate, and water, and finally extracting the precious metal from such fixative, substantially as described.

3. The process of treating ores carrying precious metals which consists in treating such ores with a fixating solution, consisting of potassium cyanid, potassium persulfate and water, substantially as described.

4. The process of treating ores carrying precious metals which consists in treating such ores with a fixating solution, consisting of a cyanid of substantially from one-tenth to one-half per cent. by weight, potassium persulfate and water.

702,806. SLED. ARTHUR F. LAMBERTSON, Chicago, Ill. Filed May 20, 1901. Serial No. 92,369. (No model.)



Claim.—A sled constructed from a U-shaped blank, with runners, a flat cross-bar connecting the forward ends of the runners, vertical knees, and a rectangular body surrounding the knees formed with upwardly-flaked side portions and with vertically-flaked and portions having inwardly-flaked rings of the same width as and located over the knees and meeting the sides on vertical lines edge to edge and flush therewith whereby the openings formed by the formation of the knees, side portions and rings are closed.

702,807. BOOK-SUPPORT. JAMES H. LORRA, Bryn Mawr, Pa. Filed Mar. 1, 1901. Serial No. 92,368. (No model.)

Claim.—1. A book support and holder, consisting of a concave base, and standards rising therefrom in parallel to each other, a wire ledge adjustable along said standards, and having a rest portion, arms on opposite sides of said book portion, and a weighted thread connected to one of said arms, and adapted to engage the other, substantially as specified.

2. A wire book support and holder consisting of a base adapted to

rest on the person, and having two parallel standards carrying a longitudinally-adjustable book-ledge, a neck cord or ribbon adjustable for length connected to the support, and a weighted thread adapted to be held across the pages of the book, substantially as specified.



2. A wire book-support having a transverse base, parallel standards rising therefrom, an adjustable clamp on said standards, a weighted cord for holding the book open, in combination with a neck-cord adjustable for length and a prop adjustable for length, substantially as specified.

3. A book-support consisting of the transverse base, the standards rising therefrom, the adjustable book-ledge on said standards, the adjustable slide upon said standards having laterally downwardly-extending blades for holding the book open, and the weighted cord for holding the book open, substantially as specified.

4. A book support and holder, having the transverse base, a standard rising therefrom, a longitudinally-adjustable book-ledge upon said standard, a cord adapted to engage the person of the reader and adjustable for length for holding the support in proper position for reading, and a weighted cord carried by the book-ledge for holding the book open, substantially as specified.

702,808. SAFETY-PIN. GEORGE W. LAMOT, Atlanta, Ga. Filed Sept. 7, 1901. Serial No. 74,574. (No model.)

Claim.—1. A safety-pin comprising a body portion, a resiliently-secured pin projecting therefrom, a catch carried by one end of the body portion and adapted to be engaged by the pin, a loop extending from the body portion through which the pin projects, and a guard for normally holding the pin in engagement with the catch.

2. A safety-pin constructed of a single piece of wire bent to form a body portion, a resiliently-secured pin projecting therefrom, a catch formed at one end, the strand being coiled around the body portion for a portion of its length, said coils terminating at the juncture of the pin with the body portion, the strand then being bent and coiled toward the catch and formed at its extremity with a loop through which the catch projects and which is adapted to bear against the pin to hold it in a locked position.

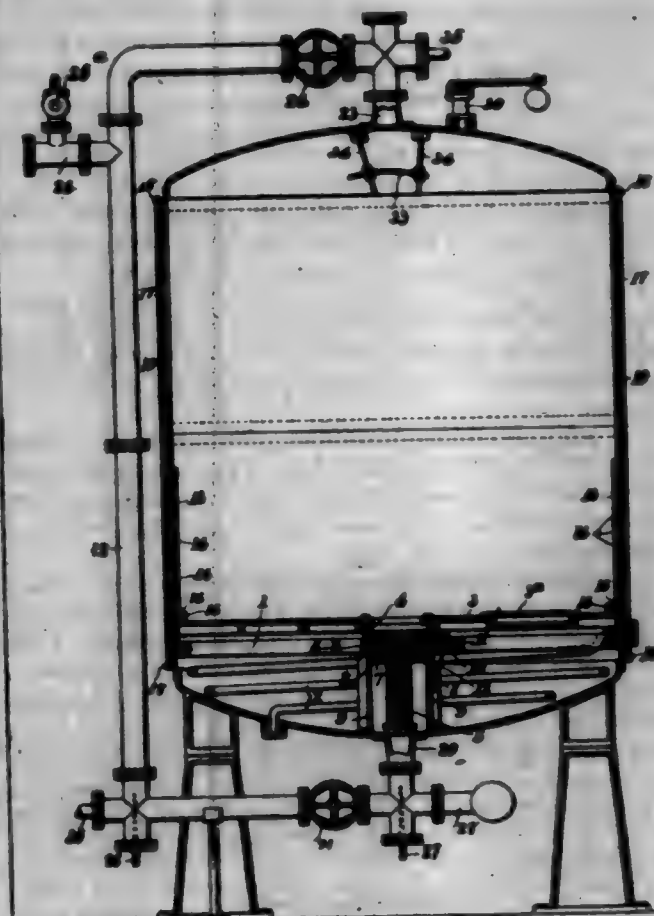
3. The combination with a body portion having a resiliently-secured pin at one end thereof, a catch at the other end, said pin adapted to engage the catch, a spring-bar secured to the body portion near the junction of the same with the pin, the free end of said bar extending adjacent the catch and a loop-guard formed on the free end of said bar and through which the catch projects, said loop being adapted to bear against the under side of the pin to hold it in a locked position with relation to the catch.

702,809. KEEF FOR BLEACHING. DR. WALTER W. L. LEMMON, Cornubria, England, and THOMAS W. HANCOCK, Canterbury, and JOHN J. KIMFATHER, Ballyclare, Ireland, assignors to the Litchman Process Bleaching Company, Limited, Cornubria, England. Filed Mar. 18, 1901. Serial No. 91,268. (No model.)

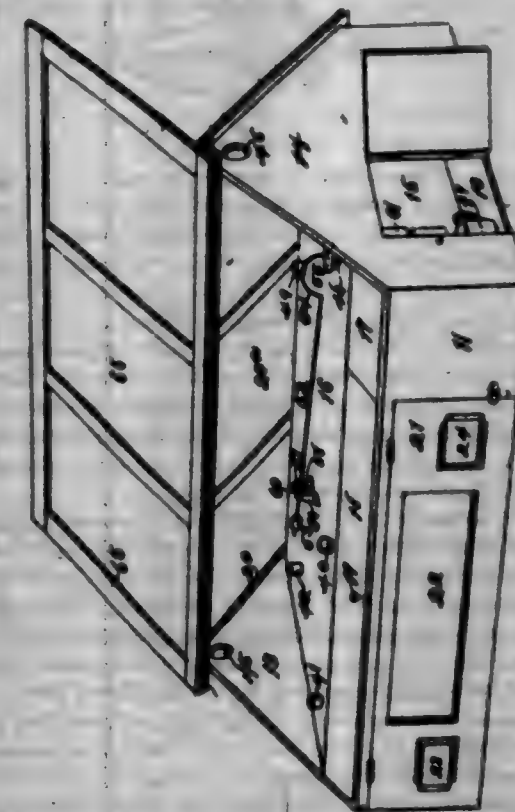
Claim.—1. In a keef, and in combination, an open false bottom, means for securing it therein, a further movable open false bottom situated over it, a screw carried by the movable bottom, a worm-wheel forming a nut for said screw, means for holding the nut and allowing it to rotate, and a worm for rotating the nut to raise and lower the screw and bottom.

2. In a keef, a fluid-inlet pipe 20, 23 respectively at either end of same, a circulating-pipe 22 connecting such inlet-pipes, valves for each inlet-pipe, a connection 25 in each circulating-pipe communicating with a source of liquid supply, a steam-injector 26 in circulating-pipe 22 for moving the liquid therein in one direction, a steam-injector 27 in inlet-pipe 20 for moving the liquid in the other direction, a steam-pipe 28 communicating with inlet-pipe 23 for introducing a large body of steam into one end of the keef, a steam-pipe 29 communicating with the circulating-pipe 22 and inlet-pipe 20 for introducing a large body of steam into the other

end of the keef, and a discharge-pipe 30 communicating with the inlet-pipe 20.



702,810. BROODER. JEROME L. MAUT, Des Moines, Iowa. Filed July 18, 1901. Serial No. 92,599. (No model.)



Claim.—1. In a brooder, the radiator open at its bottom and formed with side and end bars and a top plate fixed thereto, said top plate consisting of plates spaced apart and packed with mineral wool, a slide-bearing for a thermometer on one of the side bars of said radiator, the thermometer extending through an opening in the roof of the chick-chamber, a fan leading from a lamp, a damper controlling said fan, an air-pipe 49 leading laterally from said fan within and along these sides of the radiator and out through the top plate thereof, a fan surrounding the first fan and spaced apart therefrom and a ventilating-pipe 43, leading laterally from the outer fan concentric with the air-pipe and extending part way across the radiator and terminating with an open end within the radiator.

2. In a broader, the radiator open at its bottom throughout its length and width and formed of side and end bars and a top plate fixed thereto, a slide-bearing for a thermometer on one of the side bars of said radiator, the thermometer extending through an opening in the roof of the chick-chamber, a line leading from a lamp, a damper controlling said line, an air-pipe leading laterally from the line within and along three sides of the radiator and out through the top plate thereof, a line surrounding the first line and spaced apart therefrom and a ventilating-pipe leading laterally from the outer line concentric with the air-pipe and extending part way across the radiator and terminating with valve opening laterally toward the center of the radiator immediately beneath the top plate thereof, and having fixed to said depending from the sides of the radiator.

3. In a broader, the chick-chamber, the radiator therein, flange depending from said radiator, the slide-bearing on one of said flanges, an opening in the top of the chick-chamber and the thermometer mounted for vertical movement in said slide-bearing and opening in said chick-chamber.

4. In a broader, the combination of a chick-chamber, a radiator therein, having depending from said radiator, a slide-bearing for a thermometer on said radiator, a lamp-chamber containing a lamp, and a thermostatic-controlled heat-conductor connecting said lamp-chamber with said chick-chamber and the radiator therein.

5. In a broader, the combination of three compartments, one a chick-chamber, another a lamp-chamber, and the third an upper chamber, doors opening into each compartment and from the upper compartment to the chick-chamber, a radiator and depending therefrom in the chick-chamber, a thermometer mounted in a slide-bearing on said radiator and extending through the roof of the chick-chamber into the upper chamber, ventilating-pipes connecting the chick-chamber and the upper chamber, a lamp in the lamp-chamber, a heat-conductor starting in the lamp-chamber traversing the chick-chamber and ending in the upper chamber, and a damper in the upper chamber to control the heat regulated by a thermostatic cell in the chick-chamber.

702,811. GAS-LIGHTING DEVICE. GEORGE MEIER, Berlin, Germany. Filed Jan. 11, 1902. Serial No. 32,344. (No model.)



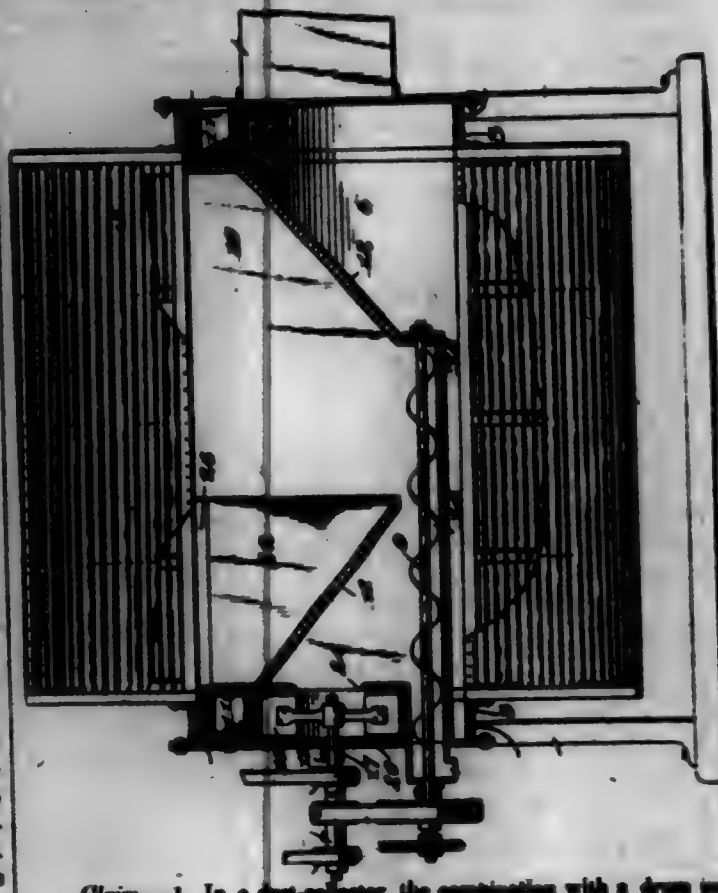
Claim.—1. The combination, with a diaphragm, of a chamber arranged on each side of said diaphragm and including same, the lower chamber having a gas-inlet and a narrow central pipe reaching therefrom to near the diaphragm, the upper chamber having a wide central pipe reaching inward to near the diaphragm and leading outward to the chief burner, said pipes separated by said diaphragm a wide passage leading from the gas-inlet of said lower chamber to said upper chamber, a narrow pipe leading from said lower chamber to the subsidiary or igniting burner, and yielding means for pressing said diaphragm against the end of the central pipe of said upper chamber at a low gas-pressure and allowing said diaphragm to bear against the central pipe of said lower chamber at the normal gas-pressure, substantially as set forth.

2. In combination, a diaphragm having a chamber arranged on each side thereof, an outlet-pipe for one of said chambers, an inlet-pipe for the other of said chambers, a passage opening into the inlet-pipe of one chamber and opening into the other of said chambers for supplying gas thereto, a gas-outlet passage communicating with one chamber and extending partly around the other of said chambers, and valves carried by the diaphragm and engaging the said pipes for suitably closing them.

3. In combination, a casing, a diaphragm mounted therein and dividing the casing into an upper and a lower chamber, an outlet-pipe for the said upper chamber, an inlet-pipe for the said lower chamber, a passage communicating with the inlet-pipe of the lower chamber and opening into the upper chamber for supplying gas thereto, a gas-outlet passage for said lower chamber, and a pair of valves connected approximately centrally to the said diaphragm and adapted to engage with said pipes for suitably closing them.

4. In combination, a casing, a diaphragm mounted therein and dividing the casing into an upper and a lower chamber, an outlet-pipe for said upper chamber, an inlet-pipe for said lower chamber, a passage communicating with the inlet-pipe of the lower chamber and opening into the upper chamber for supplying gas thereto, an outlet-passage for said lower chamber, means extending in the inlet-pipe for regulating the passage of gas therethrough, and means extending in the said outlet-pipe for regulating the passage of gas therethrough.

702,812. DUST-COLLECTOR. JOHN R. HEDGECOCK, St. Louis, Mo. Filed Feb. 27, 1902. Serial No. 32,373. (No model.)



Claim.—1. In a dust-collector, the combination with a drum into which dust-laden air is introduced, filtering-pockets communicating with said drum, and a cut-off chamber for successively cutting off said pockets from said drum, of a back-draft or suction fan independent of the fan for forcing the dust-laden air into said drum, and having its inlet-opening communicating directly with said cut-off chamber.

2. In a dust-collector, the combination with a drum into which dust-laden air is introduced, filtering-pockets communicating with said drum, and a cut-off chamber for successively cutting off said pockets from said drum, of a back-draft or suction fan located within said drum, and having its inlet-opening communicating directly with said cut-off chamber.

3. In a dust-collector, the combination with a drum into which dust-laden air is introduced, filtering-pockets communicating with said drum, and a cut-off chamber for successively cutting off said pockets from said drum, of a back-draft or suction fan located within said drum, independent of the fan for forcing the dust-laden air into said drum, and having its inlet-opening communicating directly with said cut-off chamber.

4. In a dust-collector, the combination with a drum into which dust-laden air is introduced, filtering-pockets communicating with said drum, and a cut-off chamber for successively cutting off said pockets from said drum, of a back-draft or suction fan, and a longitudinally-extending partition at one end of said chamber, forming two passages, one of which has its upper end open, and the other of which has its upper end closed and communicates directly with the inlet-opening of said fan.

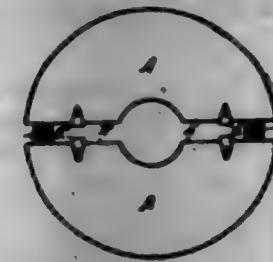
5. In a dust-collector, the combination with a drum into which dust-laden air is introduced, filtering-pockets communicating with said drum, and a cut-off chamber for successively cutting off said pockets from said drum, of a back-draft or suction fan located within said drum, and a partition in said cut-off chamber extending longitudinally thereof from the end adjacent to said fan to a point intermediate its ends, the said partition forming two passages, one of which has its upper end open, and the other of which has its upper end closed and communicates directly with the inlet-opening of said fan.

702,813. STOVE-DAMPER. WILLIAM C. MONTGOMERY, Erie, Pa. Assignor of one-half to Michael F. Peck, Erie, Pa. Filed Mar. 25, 1902. Serial No. 32,113. (No model.)

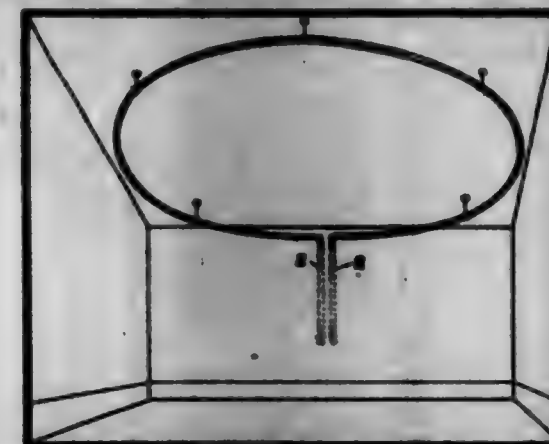
Claim.—1. The combination in a damper, of a slotted plate, bridges on one side of the plate connecting the two halves thereof together, lugs on the opposite side of the plate overhanging the slot therein, a spindle having slots in opposite sides thereof through which the lugs on the plate will pass, flattened surfaces on one side of the spindle adapted to pass under the lugs on the plate, and a spring on the cheek of the spindle, substantially as and for the purpose set forth.

2. The combination in a damper, of a damper-plate having a central transverse slot therein, semicircular bridges or connections on one side of the plate connecting the two halves thereof together, two sets of lugs

on the opposite side of the plate overhanging the slot therein, a round spindle having two sets of transverse slots in the sides thereof through which the lugs on the plate will pass when the spindle and plate are brought together, flattened surfaces on said spindle adapted to pass under and engage the lugs on the plate, and a spring on the cheek of the spindle, substantially as and for the purpose set forth.



702,814. ELECTRO-TUBE LIGHTING. DANIEL H. MOORE, New York, N. Y. Filed Dec. 13, 1901. Serial No. 32,327. (No model.)



Claim.—1. In an electric-lighting system wherein the light is produced by electrical agitation of a rarefied gas or vapor, a lamp of glass having its light-giving portion extended longitudinally to give a gaseous column of great length, as and for the purpose set forth.

2. In an electric-lighting system wherein the light is produced electrically in a rarefied gas or vapor, a lamp of glass having its light-giving portion extended longitudinally to give a gaseous column of great length, as and for the purpose set forth.

3. An electric lamp substantially as described, comprising a glass tube containing a rarefied gas or vapor and having opaque conducting sleeves, caps or terminals through which electric energy is supplied by electrostatic action to the contents of the tube at the terminals or ends thereof, the translucent portion of said tube between terminals being elongated or extended longitudinally as described to give a great length of luminous column with relation to the length of cap or terminal, as and for the purpose set forth.

4. In an electric lamp containing a rarefied gas or vapor to be rendered luminous by electric energy supplied at the terminals of the glass column, a glass tube provided with conducting terminals or caps applied in the exterior thereof, said tube being elongated as described longitudinally to give a great length of light-giving tube as compared to the length of cap or terminal, as and for the purpose set forth.

5. In an electric-lighting system wherein the light is produced by the electrical agitation of a rarefied gas or vapor contained in a translucent receptacle, a tube-lamp having a gaseous column of great length included between the conducting caps or terminals which supply energy to the contents of the tube, substantially as and for the purpose described.

6. An electric lamp consisting of an all-glass tube containing a rarefied gas or vapor and having conducting sleeves, caps or terminals through which the electric energy is supplied by electrostatic action to the contents of the tube, said tube being elongated as described to increase the length of the luminous column with relation to the length of conducting caps or as to secure a more useful expenditure of energy in overcoming the total resistance of the lamp, as and for the purpose described.

702,815. ELECTRO-TUBE LIGHTING. DANIEL H. MOORE, New York, N. Y. Filed Dec. 13, 1901. Serial No. 32,328. (No model.)

Claim.—1. In an electric-lighting system, a translucent non-conducting tube or receptacle containing a gas or vapor adapted to be rendered luminous when electrically agitated and disposed as described throughout the area or space to be illuminated and terminating at its ends in a suitable box or receptacle where it is provided with conducting caps or terminals adapted for connection to the source of electric energy and for rendering its gaseous contents luminous.

2. In a system of electric lighting, a translucent tube disposed or located through a room or rooms of a building and terminating at its ends in a box or receptacle where it is provided with suitable conducting caps or terminals and means whereby they may be protected or sealed against contact or disturbance and connected to a suitable source of electric energy, said tube containing only a rarefied gas or a vapor adapted to be rendered luminous when agitated electrically by the energy supplied to said caps or terminals.



3. In a system of electric lighting, a translucent tube disposed or located through a room or rooms of a building and terminating at its ends in a box or receptacle where it is provided with suitable conducting caps or terminals and means whereby they may be protected or sealed against contact or disturbance and connected to a suitable source of electric energy, said tube containing only a rarefied gas or a vapor adapted to be rendered luminous when agitated electrically by the energy supplied to said caps or terminals.

4. In a system of electric lighting, a translucent tube disposed or located through a room or rooms of a building and terminating at its ends in a box or receptacle where it is provided with suitable conducting caps or terminals outside of said room or rooms, and means whereby they may be protected or sealed against contact or disturbance and connected to a suitable source of electric energy, said tube containing only a rarefied gas or vapor adapted to be rendered luminous when agitated electrically by the energy supplied to said caps or terminals.

5. An improved electric-lighting system comprising an alternating-current transformer supplied with a suitable alternating-current main combined with a sealed translucent tube of glass containing the light-radiating vapor and having its two metallic electrodes located in immediate connection with the terminals of the secondary of said transformer, while its radiating or light-giving portion is distributed through or over the space to be illuminated.

6. In a high-potential system of electric lighting, an electric lamp consisting of lengths of glass tubing joined together in situ and forming substantially all of the high-potential circuit, said lamp having terminal sections provided with suitable conducting-electrodes connected with a source of energy proper for rendering the gaseous contents of the tube luminous.

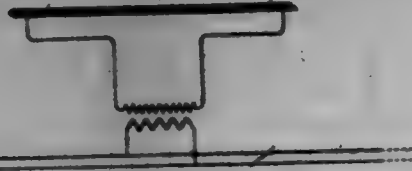
7. In a high-potential system of electric lighting, an electric lamp consisting of lengths of glass tubing joined together and forming substantially all of the high-potential circuit, said lamp having terminal sections provided with suitable conducting-electrodes connected with a source of energy proper for rendering the gaseous contents of the tube luminous.

8. In an electric-lighting system, the combination of a tube of glass or other translucent material having a luminous or light-giving column of light-radiating gas of considerable length as compared with the length of the terminal energy-supplying caps or electrodes, said tube being of a form which returns upon itself as described so as to bring said electrodes into proximity, and a suitable static transformer having its primary supplied with alternating current and having its secondary terminals connected to the tube caps or electrodes directly.

9. An electric lamp consisting of a tube of glass returned upon itself so that its ends will be brought into proximity to one another for the purpose described, said tube containing a rarefied gas adapted to be rendered luminous by the application of electric energy and being provided with conducting caps or electrodes applied upon its terminals, as and for the purpose described.

10. In an electric-lighting system, the combination substantially as described of lighting-tubes containing a rarefied gas or vapor and disposed or described through the area or space to be lighted, and alternating-current mains carrying currents of the usual commercial frequency, supplying energy to conducting-terminals of said tube located in a suitable protecting inclosure, as and for the purpose described.

702,816. ELECTRIC-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J. Filed Dec. 18, 1901. Serial No. 85,300. (No model.)



Claim.—1. The novel system of electric lighting herein described, comprising lamps consisting of sealed tubes of glass containing a rarefied gas or vapor and provided with conducting caps or terminals such as described, in combination with alternating-current supply-mains furnishing alternating currents of established commercial frequency and voltage substantially as herein set forth.

2. The system of electric lighting hereinbefore described, and comprising electric lamps which consist of tubes of glass containing a rarefied gas and provided with conducting-electrodes as set forth, and alternating-current mains carrying alternating currents of the commercial frequency and voltage as described, and a potential-raising transformer interposed between said mains and the lamps.

3. The system of electric lighting hereinbefore described and comprising electric lamps which consist of tubes of glass containing a rarefied gas and provided with exterior conducting caps or devices such as described, and alternating-current mains carrying alternating currents of the commercial frequency and voltage as described, and a potential-raising transformer interposed between said mains and the lamps.

4. The novel system of electric lighting herein described, comprising lamps consisting of sealed tubes of glass containing a rarefied gas or vapor and provided with conducting caps or terminals such as described, in combination with an alternating-current dynamo source furnishing alternating currents of definite frequency and voltage the area of said conducting caps or terminals being proportioned to said frequency and voltage.

702,817. ELECTRIC-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J. Filed Dec. 18, 1901. Serial No. 85,300. (No model.)



Claim.—1. In an electric-lighting system, the combination with a luminous gas column excited by regularly-recurring electromotive forces derived from a suitable prime source of energy, of a condenser charged from said source at each extinction of the luminous column by the prime source and adjusted as described to cause additional flashes of light therein, as and for the purpose set forth.

2. The combination of a transparent tube or tubes containing a conducting gas or gases and subjected to a definite number of primary varying electromotive forces per unit of time, and a condenser connected to said tubes and adjusted as described to cause additional flashes of light in said tube or tubes, as and for the purpose set forth.

3. The combination of a transparent tube or tubes containing a conducting gas or gases and subjected to a definite number of primary varying electromotive forces per unit of time, and conducting caps or sleeves for said tube adjusted as described to have a condenser action whereby additional flashes of light may be produced in the tubes.

4. The combination of an alternating-current dynamo or transformer and a tube or tubes having terminals adapted to cause flashes of light additional to the number of dynamo-alternation per unit of time.

5. The combination of an alternating-current dynamo or transformer, a tube or tubes connected thereto and a condenser also connected thereto and designed to cause flashes of light in said tube or tubes additional to those of the dynamo.

6. The combination with an electric lamp comprising a luminous gas contained in a transparent receptacle and excited by rapidly-varying electric vibrations or disturbances, of conducting-electrodes at the terminals of the luminous gas column operating as condenser-plates and by discharging through said column acting to produce additional flashes of light, as and for the purpose described.

7. The combination with a transparent tube containing a gas or vapor properly rarefied so as to be rendered luminous by rapidly-varying electric current passing through the same, of conducting caps or terminals upon said tube having a superficial area designed with relation to the length of the luminous gas column and to the potential of the primary exciting

electromotive force as described so as to act upon the column by an oscillatory condenser-discharge superposed upon the original exciting electromotive force and to produce in said tube additional flashes of light.

8. The combination with an electric lamp containing a column or body of gas rendered luminous by the application of electric energy at the terminals of said column, of a condenser in circuit with said column and with the primary exciting source of currents and having a definite capacity such as described proper for increasing the frequency of the emitted flashes of light.

9. The combination in an electric-lighting system wherein the luminous agent is a column or body of gas, of a generator or source of varying currents connected thereto, and a condenser connected also to the circuit of the generator and lamps, and having its capacity designed with relation to the length or resistance of the gas column and to the inductance of the circuit so as to produce from said column a doubled frequency of emitted flashes of light.

702,818. AUTOMATIC CIRCUIT-INTERRUPTER. DANIEL M. MOORE, Newark, N. J. Filed Jan. 2, 1902. Serial No. 85,008. (No model.)



Claim.—1. In an automatic circuit-interrupter, an actuating-magnet having two coils conspiring to actuate the armature of the interrupter and placed respectively on opposite sides of the break.

2. In an automatic interrupter, the combination substantially as described with a double-wound magnet having its coil on opposite sides of the break, of interrupter-contacts contained in a sealed receptacle and having an armature guided in the walls of said receptacle, as and for the purpose described.

3. In an automatic circuit-interrupter, interrupter-contacts composed respectively of hardened steel and iridium.

4. In an automatic interrupter, a sealed and exhausted receiver containing interrupter-contacts composed respectively of hardened steel and iridium or its equivalent.

5. In an automatic interrupter, a sealed all-glass receptacle containing an armature guided in the glass wall of said receptacle and carrying one of the contacts, and an opposite electrode supported on a stem or column projected into the interior of said receptacle, as and for the purpose described.

6. In an automatic interrupter, the combination with a sealed all-glass receptacle having a stem or column supporting one of the electrodes, and a glass tubular extension in line therewith, of an armature working in said tubular extension and carrying at its lower end an electrode or contact of the interrupter.

7. In an automatic interrupter, the combination substantially as described of a fixed contact supported or carried by a wire sealed in the bulb or column projecting inwardly, and an opposite electrode carried by an armature guided in the wall of said receptacle, of a contact-terminal in the side of said receptacle loosely connected with the armature-contact.

8. In an automatic interrupter, the combination with the receptacle carrying an armature guided in the wall thereof and provided with one of the contacts, and an opposite outspreading contact rigidly supported in the wall of said receptacle, of a socket for said receptacle one member of which is located in proximity to the core of an electromagnet, while the other or opposite support co-operating therewith is a spring-pressed support carrying one of the contact-terminals of the apparatus.

9. In an automatic interrupter, the combination with the sealed receptacle carrying the armature guided in a tubular extension thereof, of a socket adapted to receive said extension, a spring-pressed actuated plunger carrying a contact and a co-operating laterally-pressing spring adapted

to engage with a contact secured in a wall of said receptacle and joined by flexible conductors with the movable contained contact of the device.

10. The combination substantially as described of a base 1 carrying the post 15, an actuating-magnet mounted on said post, the plunger 19 mounted in the base 1, and a socket carried by the supporting-frame for the magnet in line with said plunger, as and for the purpose described.

11. The combination in an automatic interrupter of the base 1, an electromagnet supported over the same by a suitable standard secured to said base and an automatic interrupter consisting of a closed glass receptacle containing an armature to be actuated by the magnet, a socket for receiving the upper end of the receptacle, and a spring-actuated plunger supported in the frame 1 and carrying a contact, as and for the purpose described.

12. The combination with an automatic interrupter having an all-glass receptacle containing the interrupter-contacts, of the snap-switch consisting of the blade-spring 27, provided with an actuating-stem rounded as described and co-operating with two contact-steps and an intermediate pin, as and for the purpose described.

702,819. ELECTRIC-TUBE LAMP. DANIEL M. MOORE, Newark, N. J. Filed Jan. 2, 1902. Serial No. 85,007. (No model.)



Claim.—1. An electric-tube lamp containing a luminous column of gas or vapor and provided with a reflecting-surface extending the whole length of said column, as and for the purpose described.

2. In an electric-tube lamp, a non-conducting reflecting-surface applied over substantially the whole length of the tube, as and for the purpose described.

3. In an electric-tube lamp, a tube having a reflecting-surface beneath its conducting caps or terminals.

4. In an electric-tube lamp, conducting electrodes or terminals at the same side of the tube extending partially around the same.

5. In an electric-tube lamp, conducting electrodes or terminals extending partially around the tube, and paint between the electrodes and tube.

6. In an electric-tube lamp, conducting terminals or electrodes extending partially around the lamp and projecting from a terminal completely encircling the same.

7. In an electric-tube lamp, conducting terminals or electrodes extending partially around the lamp projecting and completely encircling the same, and paint between the electrodes and tube.

8. In an electric-tube lamp, a transparent tube having a square end and an exhaust-ipple applied to the side of the tube, said tube being provided with a conducting cap or terminal extending partially around the same.

9. In an electric-tube lamp, a reflecting-surface consisting of a white paint formed from a composition adapted to adhere to glass and free from discoloration by heating, as and for the purpose described.

10. In an electric-tube lamp of glass, a reflecting-surface of non-conducting material applied to the exterior of the lamp and having superposed upon it a conducting material to form a conducting cap or terminal.

11. In an electric-tube lamp, an exterior reflecting-surface of non-conducting material having a superposed conducting-surface of carbon or similar material as described.

12. In an electric-tube lamp, a conducting cap or terminal superposed upon a reflector applied to said tube, as and for the purpose described.

13. An electric-tube lamp containing a luminous column of gas or

vapor and provided with an adherent reflector of non-conducting material applied to its exterior.

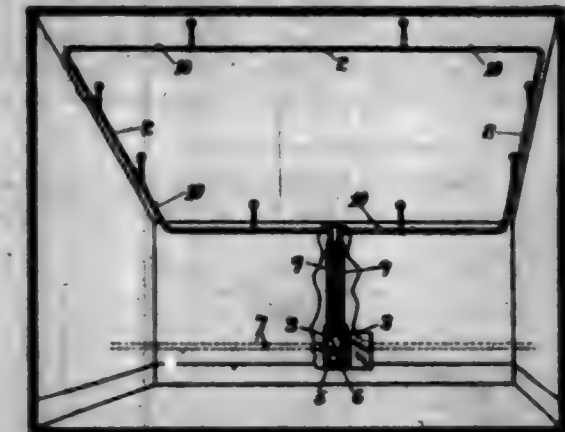
14. An electric-tube lamp having a non-conducting light-reflecting coating of adhesive material.

15. An electric-tube lamp containing a luminous column of gas or vapor and provided with a light-reflecting coating back of the luminous column.

16. An electric-tube lamp containing a luminous column of gas or vapor and provided with a reflector painted upon its exterior.

17. An electric-tube lamp, a coating applied thereto and extending partially around the same and adapted to form condenser-surfaces and to reflect the light.

702,820. ELECTRIC-TUBE LAMP. DANIEL M. MOORE, Newark, N. J. Original application filed Dec. 18, 1901, Serial No. 85,008. Divided and this application filed May 7, 1902. Serial No. 100,261. (No model.)



Claim.—1. An electric lamp consisting of a transparent tube or receptacle containing a rarefied gas or vapor and having conducting caps or terminals applied to a portion of the receptacle whose walls are of reduced thickness.

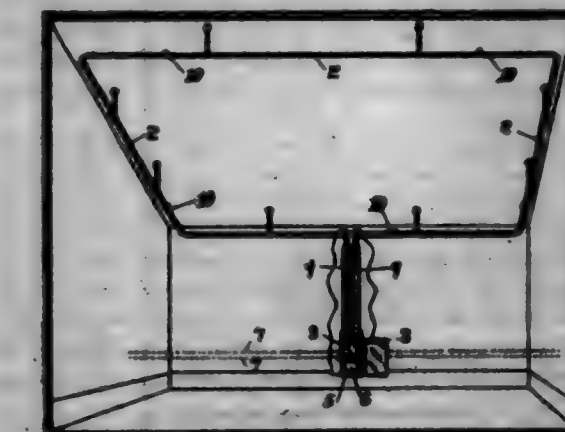
2. In an electric-lighting system, an electric lamp consisting of a transparent tube or receptacle containing a rarefied gas or vapor and provided with a sectional conducting cap or terminal the sections of which are insulated from one another, as and for the purpose described.

3. An electric lamp consisting essentially of a transparent tube or receptacle containing a rarefied gas or vapor and having an end portion of enlarged superficial area for the application or transfer of electric energy to the contents of said tube.

4. An electric lamp consisting of a transparent tube or receptacle containing a rarefied gas or vapor and terminating in branches each provided with a conducting-cap, as and for the purpose described.

5. In an electric-lighting system, an electric lamp consisting of a transparent tube or receptacle containing a rarefied gas or vapor and provided with a sectional conducting cap or terminal, in combination with means for varying a number of said terminals in action.

702,821. ELECTRIC-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J. Original application filed Dec. 18, 1901, Serial No. 85,008. Divided and this application filed May 7, 1902. Serial No. 100,262. (No model.)



Claim.—1. The herein-described improvement in electric-tube lighting, consisting in installing a transparent tube and then introducing into the same while in place the gaseous agent which is to be rendered luminous and then exhausting the tube to cause the desired revolution of its contents.

2. The herein-described improvement in treating a transparent tube

designed to contain a luminous gas rendered luminous by electric currents, consisting in introducing the desired chemicals at different points along the tube and exhausting at the end to ensure a thorough and uniform distribution of the chemical, as and for the purpose described.

3. The herein-described improvement in electric-tube lighting, consisting in installing a translucent tube, exhausting the tube and then introducing into the same the material from which the gaseous agent is evolved.

4. The herein-described improvement in electric-tube lighting, consisting in first installing a translucent tube, then exhausting the tube, and finally admitting the gaseous agent.

5. The herein-described improvement in electric-tube lighting, consisting in building up a length of tubing in sections with air-tight joints and distributed over the area to be lighted the end sections of said tube being provided with suitable conducting-terminals, and after the building up of said tube in place, suitably exhausting or treating the same so that the gaseous contents may be rendered luminous by the application of electrical energy to the ends or terminals.

6. The herein-described improvement in electric-tube lighting, consisting in first installing a translucent tube in sections connected by air-tight joints and finally exhausting the tube in place, as and for the purpose set forth.

702,822. MINDER FOR TRUNKS OR PACKAGES. CHRISTOPHER C. F. McGUIRE, Cincinnati, Ill. Filed Feb. 26, 1902. Serial No. 55,542. (No model.)



Claim.—1. A binder for trunks, packages and the like comprising a flexible tie, a straining-lever fitted to one end of the tie and having a series of notches, a pin fitted to the opposite end of the tie and adapted to make adjustable connection with the straining-lever by engagement with any one of the said series of notches, and means for securing the straining-lever after the tie has been tightened, substantially as set forth.

2. A binder for trunks, packages and the like comprising a flexible tie, a straining-lever fitted to one end of the tie and having a loop at one end and corresponding notches along one edge of the side bar of said loop, a pin applied to the opposite end of the tie and adapted to make adjustable connection with the straining-lever by engaging any one of the series of notches thereof, and means for securing the straining-lever after the tie has been tightened, substantially as set forth.

3. A binder for trunks, packages and the like comprising a straining-lever having a loop at one end, a series of notches along one edge of the side bar of said loop, a flexible tie having an end portion folded about the cross-bar of said loop, a pin fitted in a fold at the opposite end of the tie and adapted to enter any one of the notches of the said straining-lever, and means for securing the straining-lever after the tie has been tightened, substantially as set forth.

4. In combination, a flexible tie having its end portions folded, a straining-lever having a hook at one end and a loop at the opposite end, the side bar of the loop having a series of notches along one edge, the cross-bar of the loop being fitted in one of the folds of the tie, a pin inserted in the fold at the opposite end of the tie and adapted to make engagement with any one of the series of notches of the straining-lever, and a link fitted upon the end portion of the tie carrying the straining-lever and adapted to engage over the hooked end of the said straining-lever and secure the same after the tie has been tightened, substantially as set forth.

702,823. IMPROVED CARPET FABRIC. JAMES C. McGUIRE, Philadelphia, Pa. Assignor to James C. McGUIRE, Philadelphia, Pa. Filed Oct. 11, 1901. Serial No. 73,522. (No specimens.)

Claim.—1. A two-ply carpet fabric having the warp-threads homogeneously bound together by binder warp-threads which are disposed singly throughout the fabric, and a stuffer-thread for giving additional body to the fabric and also serving as a figuring-warp which may be disposed

on either face of the fabric at will whereby solid-color portions of the fabric may be produced in connection with one or more of the warp-threads, said stuffer-thread consisting of two ends which are disposed at the face of the fabric in pairs and which are spread by one of the binder-warps during the shedding action while weaving, substantially as described.

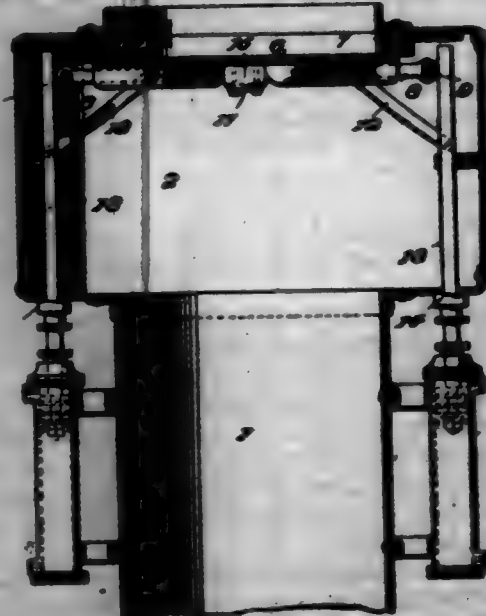


2. A two-ply carpet fabric having the warp-threads homogeneously bound together by binder warp-threads which are disposed singly throughout the fabric, said fabric having two acceptable faces, and a stuffer-thread for giving additional body to the fabric and also serving as a figuring-warp which may be disposed on either face of the fabric at will whereby solid-color portions of the design may be produced in connection with one or more of the warp-threads, said stuffer-thread consisting of two ends which are spread by one of the binder-warps when brought to the face of the fabric during the shedding operation in weaving and thereby caused to exert their greatest covering effect and hiding said binder-warp, substantially as described.

3. A two-ply carpet fabric having the warp-threads arranged in sets of four homogeneously bound together by two binder warp-threads arranged singly throughout the fabric, said fabric having two acceptable faces, and a stuffer-thread for giving additional body to the fabric and also serving as a figuring-warp which may be disposed on either face of the fabric and located between the two surfaces of the warp-threads of the fabric at will whereby portions of the design may be produced in solid colors in connection with one or more of the warp-threads, said stuffer-thread being spread by one of the binder-warps during the shedding operation whereby it is caused to exert its greatest covering effect, substantially as described.

4. A two-ply carpet fabric having the warp-threads homogeneously bound together by two binder warp-threads arranged singly, said fabric having two acceptable faces, upon either of which said warp-threads may appear at will, and a stuffer-thread giving additional body to the fabric and also serving as a figuring-warp which may be disposed on either surface of the fabric at will, said stuffer-thread adapted to cover the crossing-points of the warp-threads, whereby each figure of the design may be given a definite and clearly-defined outline and the production of solid-colored figures in connection with one or more of the warp-threads secured, said stuffer-thread being spread by one of the binder-warps during the shedding operation so as to exert its greatest covering effect, substantially as and for the purpose set forth.

702,824. AIR-LOCK FOR GARDEN. WILLIAM HOLLYN, Jersey City, N. J. Filed Apr. 14, 1902. Serial No. 108,908. (No model.)



Claim.—1. An air-lock for gardens, comprising a casing having exterior lateral extensions, upper and lower gates, and means for actuating

said gates to open outside of the casing within the vertical planes of said lateral extensions, and connected within the casing of the gates, as set forth.

2. An air-lock for gardens, comprising a casing having exterior lateral extensions, upper and lower gates, piston-rods connected to said gates and extended outward through the casing, and cylinders for the pistons located on the exterior of the casing within the vertical planes of said lateral extensions, as set forth.

3. An air-lock for gardens comprising a casing having a diametrically-reduced portion, upper and lower gates, piston-rods connected to said gates and extended through the casing parallel with the reduced portion thereof, and cylinders for the pistons of said rods located adjacent said diametrically-reduced portion, as and for the purpose stated.

4. An air-lock for gardens, comprising a gate or gates designed to move upwardly against their seats, vertically-movable piston-rods, and links connecting said rods to the gates, as set forth.

5. An air-lock for gardens having a gate formed in sections and with central meeting edges, each section being hinged or hung at its outer side, vertically-movable piston-rods, and links connected to said rods and to said gate-sections, said links being forced into oblique positions when the gate-sections are against their seat, thereby holding the meeting edges of said sections in firm engagement, as set forth.

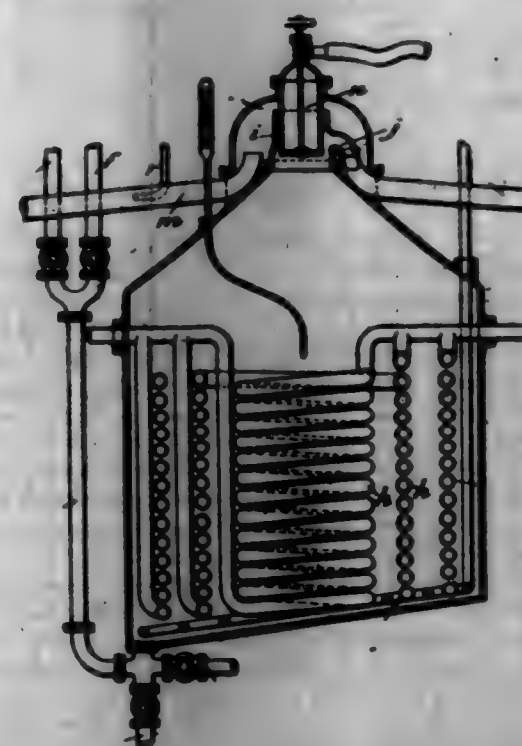
6. In an air-lock for gardens, a gate having an opening formed with a recess and a bushing for said opening having a peripheral enlargement fitted in said recess, said bushing having an opening therein for the passage of the rope, as set forth.

7. An air-lock for gardens having a gate formed in two sections with opposite openings in their meeting edges, bushings located in said openings having each a hemispherical cut-away portion forming a rope-opening, and a retaining-cover for each bushing, as set forth.

8. An air-lock for gardens having a gate formed in two sections with opposite openings in their meeting edges, a recess being formed in each opening, a bushing formed in two sections, one for each gate-section, having peripheral enlargements fitting in said recesses, and central cut-aways bolted at their ends and forming collectively a rope-opening, and retaining-covers for said bushing-sections, as set forth.

9. An air-lock for gardens having its gate or door formed in sections, said sections having a rope-opening in their meeting edges, a removable bushing in said opening, having half an opening bolted at its ends, said bushing being formed in two parts, and means for securing each part to its respective gate-section, substantially as set forth.

702,825. APPARATUS FOR THE MANUFACTURE OF NITRO-GLYCERINE. FREDERICK L. BAYNE, JAMES H. FENNELL, and WILLIAM BIRTON, Waltham Abbey, England. Filed Mar. 7, 1902. Serial No. 97,106. (No model.)



Claim.—Apparatus for the manufacture of nitro-glycerine, consisting of a vessel provided with an air-blank pipe, coils for circulation of cooling-water, pipes for supply of acid and of waste acid, a valved arrangement for supply of glycerin and pipes for discharge of the nitro-glycerine produced and of the fumes, substantially as described.

702,826. VALVE. JOSEPH W. BERRY, Indianapolis, Ind., assignor to the Berry Hydraulic Valve Company, Indianapolis, Ind., New York, N. Y., and Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 11, 1901. Serial No. 25,723. (No model.)



Claim.—1. The combination, in a valve, of a casing having an inlet and outlet with a valve-seat between them, a cage with restricted openings in its sides extending up from said seat, a piston valve mounted to operate in the casing above said seat with the valve in said cage and adapted to seat on said valve-seat, a by-pass extending from the chamber above the valve around to the outlet, an automatically-closing valve to said by-pass, and a separate fluid-supply pipe leading into said chamber the inlet whereof is smaller than said by-pass, substantially as set forth.

2. The combination, in a valve, of a valve-casing containing a cage having openings in its sides in which the lower end of the valve travels, and a chamber larger in diameter than said cage and located above the same, the valve-seat being located below said cage, a piston-valve having two heads the lower one of which is adapted to travel within the cage and seat itself on the valve-seat and the upper one of which is adapted to travel within the cylindrical chamber above the cage, and suitable means for opening said main valve, substantially as set forth.

3. The combination, in a fluid-supply system, of the valves in said system connected with a supply-pipe, each of said valves comprising a casing having a valve-seat, a chamber above said seat, a valve therein connected to a piston operating in said chamber, a discharge-opening below said piston, a by-pass leading from above said piston around into said discharge-opening, and a separate fluid-supply pipe leading from the primary source of supply connected with each of said chambers above the piston by an orifice smaller than said by-pass, substantially as set forth.

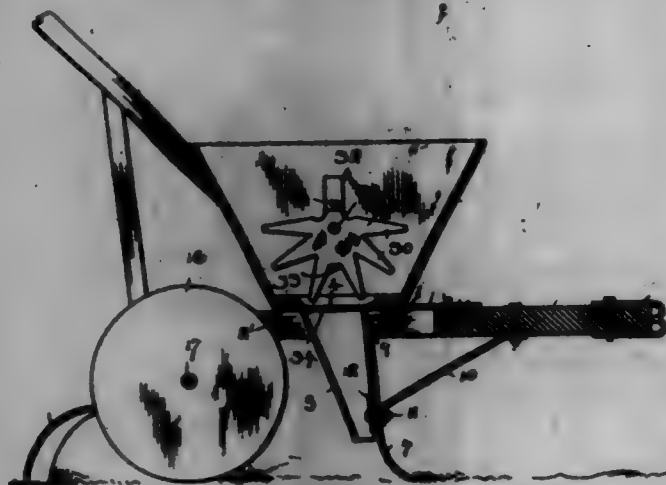
4. The combination, in a valve, of the main-valve casing, the main valve contained and operating therein, a chamber above said main valve larger in area than the valve-seat, a second supply-pipe leading directly from the primary source of supply communicating through a small passage with said chamber, a discharge-opening leading from said chamber, and an automatically-closing valve to said discharge-opening, said discharge-passage leading into the main outlet to the valve, said main outlet being provided with a reducing-socket outside the point where the said passage discharges therefrom, substantially as and for the purposes set forth.

5. The combination, in a valve, of a casing having a valve-seat, inlet and outlet openings on opposite sides thereof, a chamber above said seat, a valve adapted to open a larger area for the discharge of the fluid as it flows from said seat, a piston operating in said chamber and connected to said valve, a by-pass leading around into the discharge-pipe, and a restriction formed in said discharge-pipe adapted to partially close or restrict its area at a point beyond the point where said by-pass discharges thereinto, a valve to said by-pass, and a separate fluid-supply leading directly from the primary source of supply into said chamber above said piston, substantially as set forth.

6. The combination, in a fluid-supply system, of a main source of fluid-supply, a pipe leading therefrom, a valve-casing connected to said pipe having a suitable chamber therein with a valve-seat of smaller diameter than the large portion of said chamber at one end thereof, a main-valve structure situated in said chamber having a valve at one end of suitable form to rest upon said valve-seat and a piston-head of larger diameter within the chamber, inlet and outlet openings to said valve, a separate pipe leading directly from the source of supply to said valve and communicating with the portion of the chamber above the piston by a passage of small diameter, a by-pass of larger diameter leading from the

portion of the chamber above the piston around and communicating with the opening to the main valve, and a valve to said by-pass.

702,827. PLASTER. ALBERT J. OWEN, OREGON, OR. Filed Dec. 5, 1901. Serial No. 84,520. (No model.)



Claim.—1. In a plaster of the character described, the combination with a supporting-frame, of blocks secured thereto and having their under sides oppositely beveled, and covering-teeth secured to the blocks to permit their free ends to have vertical movements.

2. In a plaster of the character described, the combination with a supporting-frame, of blocks secured thereto and having their sides oppositely beveled, covering-teeth secured to the blocks to permit their free ends to have vertical movements, and means for limiting the downward movements of the covering-teeth.

3. In a plaster of the character described, the combination with a supporting-frame, of blocks secured thereto, covering-teeth secured to the blocks to permit their free ends to have vertical movements, and braces secured to the frame and provided with supporting-feet to receive the covering-teeth limiting their downward movements.

4. In a plaster of the character described, the combination with a supporting-frame, of blocks secured thereto, covering-teeth secured to the blocks to permit their free ends to have vertical movements, handles secured to the supporting-frame, and braces having their upper ends secured to the handles, and their lower ends provided with supporting-feet to receive the covering-teeth limiting their downward movements.

5. In a plaster of the character described, the combination with a supporting-frame, of a pivot-foot depending therefrom, a feed-spout provided with a pair of inwardly-extending flanges, a clamping-plate engaging said flanges, a bolt carried by the pivot-foot for holding said clamping-plate, feed-spout and pivot-foot together, blocks secured to the supporting-frame, and covering-teeth secured to the blocks to permit their free ends to have vertical movements.

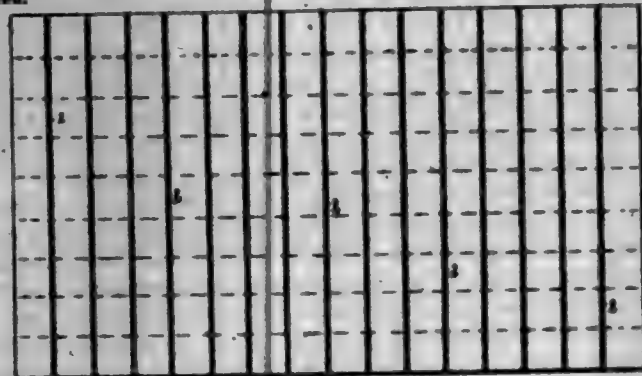
6. In a plaster of the character described, the combination with a supporting-frame, of a pivot-foot carried thereby and depending therefrom, a feed-spout carried by the pivot-foot, a feed-hopper carried by the frame, a feeder arranged within said hopper, a U-shaped agitator carried by the feeder, blocks secured to the supporting-frame, and covering-teeth secured to the blocks to permit their free ends to have vertical movements.

7. In a plaster of the character described, the combination with a supporting-frame, of a pivot-foot carried thereby and depending therefrom, a feed-spout provided with a pair of inwardly-extending flanges, a clamping-plate engaging said flanges, a bolt carried by the pivot-foot for holding said clamping-plate, feed-spout, and pivot-foot together, a feed-hopper carried by the frame, a feeder arranged within the hopper, a U-shaped agitator carried by the feeder, a regulator interposed between the feed-hopper and the feed-spout, bearing-blocks secured to the supporting-frame, and having their under sides oppositely beveled, a shaft journaled on the bearing-blocks, a wheel mounted on the shaft, means for imparting motion to the feed-hopper, handles secured to the supporting-frame, covering-teeth secured to the bearing-blocks to permit their free ends to have vertical movements, and braces carried by the supporting-frame and connected to the handles, the braces being provided at their lower ends with supporting-feet to receive the covering-teeth limiting their downward movements.

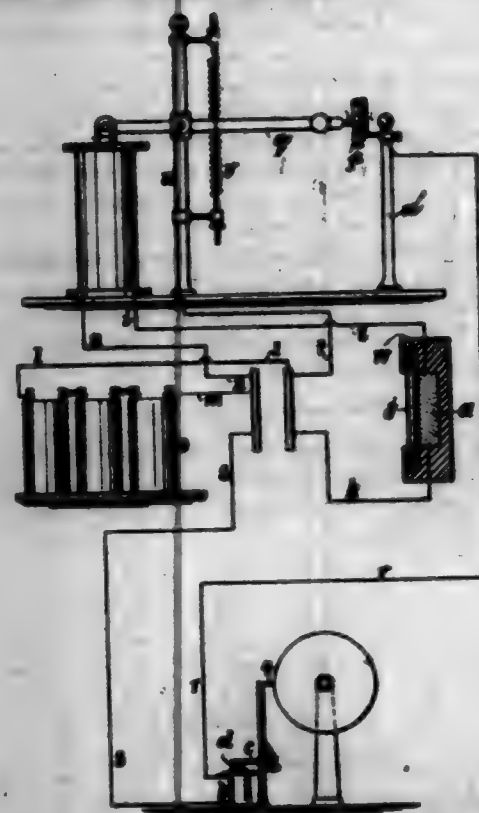
702,828. METHOD OF MAKING MOSAIC WORK. JOHN S. PARKER, NEWYORK, N.Y. Filed June 26, 1901. Serial No. 85,264. (No specimens.)

Claim.—The herein-described method of making glass mosaic work and of securing uniformity of tint or coloring of the blocks, said method consisting in applying coloring-matter to one side of a sheet of glass, then

scoring the opposite sides of the sheet, the scorings on one side being at an angle to the scorings of the opposite side, then breaking up the plate into blocks in accordance with the scoring thereof, then setting up the blocks in an ornamental design in a cellular frame with the colored sides or faces underneath, then applying an adhesive sheet to the exposed faces of the block, then inverting the cellular frame and removing the same from the blocks, then applying to the back of the blocks and the spaces between them a coating or backing of cement for holding said blocks in position, and finally removing the adhesive sheet, substantially as specified.



702,829. PHOTOMETRIC RECORDER AND INDICATOR. JOSEPH POLJAKOFF, CHARLESTON, S.C. Filed July 18, 1900. Serial No. 34,078. (No model.)



Claim.—1. In combination with a set of electromagnets and an electro-magnet; a photo-electric resistance in circuit with said magnet and an indicating device operated by the latter, substantially as set forth.

2. The combination with a source of electricity and an electrically-operated indicating device; of a photo-electric resistance in circuit with said electrically-operated indicating device, and means for reducing the light passing to said resistance, substantially as set forth.

3. The combination with a source of electricity and an electrically-operated stylus arranged to trace a record; of a selenium-cell in series in the stylus-operating circuit, and a removable shutter covering said cell, substantially as set forth.

4. In combination with a source of electricity, a branch circuit, a recording instrument and a switch in said circuit, a second branch circuit, a photo-electric resistance and electrical means for operating said switch included in said second circuit, whereby current is interrupted through the first branch circuit, substantially as described.

5. In combination with a photo-electric resistance, a controlled medium arranged to reduce light admitted to said resistance, substantially as set forth.

6. In combination with a photo-electric resistance, a controlled medium arranged to send light to said resistance in decreasing intensity, substantially as set forth.

7. In combination, a selenium-cell, a controlled medium arranged to reflect light to said cell, substantially as set forth for the purpose set forth.

8. In combination, a pair of selenium-cells, a reflector arranged to concentrate light on one of said cells, and a reflector sensitive to light arranged to reflect light to the other, substantially as set forth.

9. In combination in an electric circuit, a pair of selenium-cells, a reflector of predetermined reflecting power arranged to direct light to one of said cells, and a removable controlled medium arranged to reflect light to the other, substantially as set forth.

10. In combination in an electric circuit, a pair of selenium-cells, a reflector sensitive to light and directing rays to said cells, and means for admitting light from different sources, substantially as set forth for the purpose set forth.

11. In combination, a selenium-cell, a tube admitting light to a non-variant reflector, a second reflector receiving light from the first, sensitive to light and arranged to reflect said light to the cell, substantially as set forth for the purpose set forth.

12. In a photometer, the combination with a source of electricity, of a selenium-cell and a solenoid electrically connected and a circuit-breaker operated by said solenoid, substantially as set forth.

13. In combination, a photo-electric cell, a tube admitting light to a non-variant reflector, arranged at an angle to said tube and cell to reflect light sent through the former to the latter; a second tube and photo-electric cell and a reflector sensitive to light arranged to reflect light sent through the second tube to the second cell, electrical connections, and means for indicating the relative intensity of the light, substantially as set forth.

14. In a photometer, the combination with a source of electricity, of a selenium-cell and a solenoid connected in series in one circuit, a circuit-breaker actuated by said solenoid and a recording instrument in a parallel circuit, substantially as set forth.

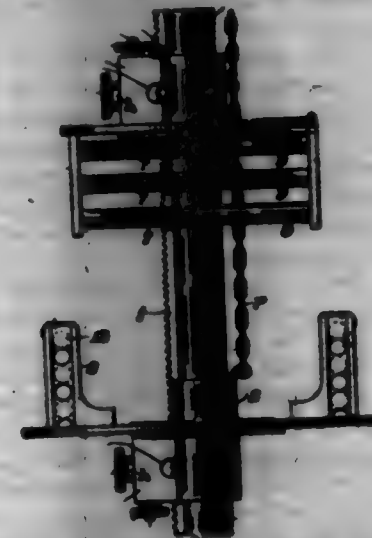
15. In a photometer, the combination with a source of electricity, of a pair of solenoids connected in parallel and a selenium-cell in one circuit; a circuit-breaker actuated by said solenoids and a recording device in another parallel circuit, substantially as set forth.

16. In a photometer, the combination with a source of electricity, of a pair of electromagnets, a photo-electric cell and a comparison photo-electric cell in one circuit, and a circuit-breaker operated by said magnets and electrically-operated indicating device in a branch circuit, substantially as set forth.

17. In a photometer, the combination with a source of electricity, of a pair of electromagnets, a standard and a comparison photo-electric cell in one circuit, and a contact moved by each magnet, and a suitable indicating device in a branch circuit, substantially as set forth.

18. In a photometer, the combination with a source of electricity, of a pair of solenoids each arranged to operate a spring-actuated contact, said contacts arranged to have their ends close circuit, and a standard and a comparison photo-electric cell in one circuit and said contacts, and a recording device in a branch circuit, substantially as set forth.

702,830. MAGNET HOLDING AND ADJUSTING APPARATUS FOR COMPENSATING BINNAGLES. ANDREW M. RITCHIE, BROOKLYN, N.Y. Filed Jan. 21, 1901. Serial No. 48,481. (No model.)



Claim.—1. An apparatus of the character specified, comprising a vertical standard, a plurality of magnet-holders each composed of an inner member fitted to slide without rotating on the standard, and an outer member rotatable horizontally on the inner member, means for giving each holder a vertical adjustment independently of the other, means for securing the holders in any position to which they may be vertically adjusted, and means for securing the outer members of the holders in any position to which they may be relatively adjusted.

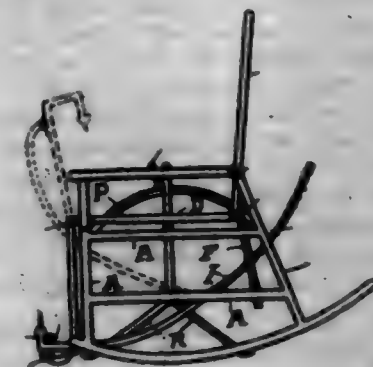
2. An apparatus of the character specified, comprising a fixed stand-

and having a fixed elongated locking member, a magnet-holder adapted to slide vertically on said standard, a sliding locking member mounted on said holder, an adjusting device supported by the sliding locking member for vertically adjusting the magnet-holder when the sliding locking member is locked, and means for moving said sliding member and adjusting device toward and from the fixed member, the magnet-holder being free to receive a quick adjustment when said members are out of engagement with each other.

3. An apparatus of the character specified, comprising a fixed standard having a fixed elongated locking member, a magnet-holder adapted to slide vertically on said standard, a sliding locking member mounted on said holder, a vertical curve-and offset to the sliding member, an adjusting-out engaged with said standard and with horizontal guides on the magnet-holder, a horizontal adjusting-rod connected with the sliding locking member, and a nut engaged with the adjusting-rod and with vertical guides on the magnet-holder.

4. The combination of an elongated standard having an elongated locking member, a holder or carrier movable relatively to the standard, a movable locking member mounted on said holder, an adjusting device supported by the movable member, whereby the holder may be moved relatively to the movable locking member when the latter is locked, to give the holder a minute adjustment, and an adjusting-rod and a nut engaged therewith for moving the movable locking member into and out of engagement with the elongated locking member, the holder being quickly adjustable when the locking members are separated.

702,831. ADJUSTABLE ROCKING AND RECLINING CHAIR. JAMES H. ROBERTS, ANDOVER COUNTY, MA. Filed Aug. 10, 1901. Serial No. 85,204. (No model.)



Claim.—1. In an adjustable rocking and reclining chair, the combination with the frame, back and rockers, of the chair-seat, a foot-rest, a lever attached to said back near the point of its hinged connection with the seat and provided with a slot at its lower end, a bar provided with notches at one end and having pivotal connection with the lower part of said foot-rest whose upper end is hinged to the front edge of the chair-seat, of the pin across said slot adapted to engage said notches and the lever at the back of the lever to disengage the bar from said pin connection and permit the adjustment of the chair to a different angle, substantially as shown, for the purpose specified.

2. In an adjustable rocking-chair, the combination with the frame and rockers thereof, of a ratchet extending across one side of the chair, of a standard pivoted to the chair-frame and having extensions at the lower portion thereof adapted to contact with the floor, the arm of which extends near the arm of the chair, and of the pawl attached to said arm near its upper end and adapted to engage with the ratchet, the whole adapted to serve as a rocker-lock and hold the chair at any angle desired, substantially as described and for the purpose specified.

3. In an adjustable rocking-chair the combination with the frame and back thereof, of a ratchet at the side of the chair, of a standard pivoted to the chair-frame and having two feet or extensions at the lower portion thereof adapted to contact with the floor and the pawl attached to said standard and adapted to engage with said ratchet, substantially as described and for the purpose specified.

702,832. METAL TRUSS. EDWARD W. BAKER, IOWA, ILL. Filed Jan. 15, 1902. Serial No. 89,918. (No model.)



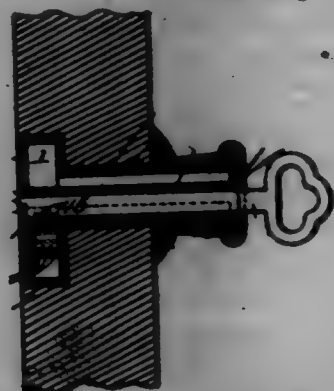
Claim.—1. A truss consisting of a tension member and a compression member, the ends of the compression member being lapped over the tension member to form joints, and said parts being suitably secured together at the joints, plates fastened to the tension and compression members, respectively, said plates having feet projecting beyond the flange of

the compression member, and struts secured to the webs of the tension and compression members respectively.

2. In a truss, tension and compression members, the webs of each being of variable depth, and the ends of the compression member overlapping the tension member and secured thereto and struts secured to the webs of the said tension and compression members.

3. In a truss, tension and compression members, the webs of each being of variable depth, and the ends of the compression member overlapping the tension member and secured thereto, struts secured to the webs of the said tension and compression members, and plates secured to the truss where the parts thereof overlap.

702,888. LOOK. MARTIN SCHAEFER, Chesham, Ohio. Filed Jan. 18, 1901. Serial No. 89,484. (No model.)



Claim.—In a lock, the combination of a casing having a cylinder immovably projecting therefrom and communicating with the interior thereof, said cylinder having an outer internal retaining flange, lock mechanism within the casing, a rotatable key-guide in the cylinder and casing and having a longitudinal slot extending the full length thereof and also provided with a slotted disk-head rotatably bearing against the inner portion of the flange of the cylinder, a key longitudinally insertible through the cylinder and key-guide, and a pull device attached to the outer extremity of the spindle and forming the sole means for securing the lock in applied position.

702,884. PUMP-PIPE GRAPPLE. LEVI N. SCHULTZ and SAMUEL H. SCHULTZ, Oregon, Mo. Filed Jan. 31, 1902. Serial No. 92,082. (No model.)



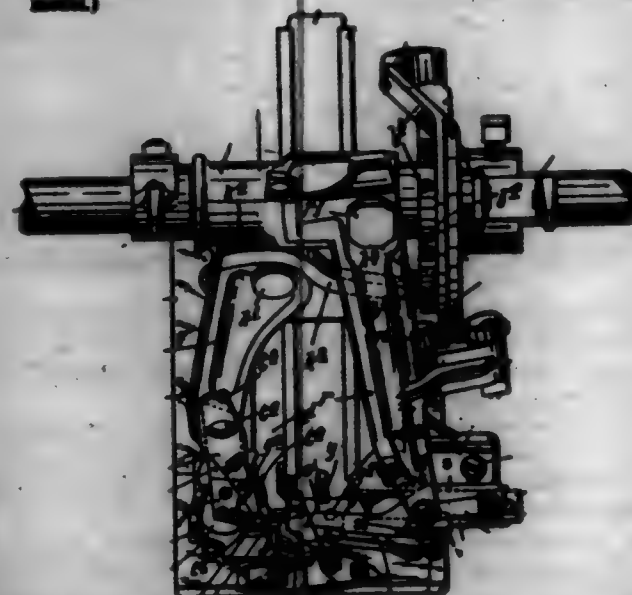
Claim.—1. In a grapple of the class described, the combination of a stock having a rigid jaw on one side, a cam-lever and a shoe-jaw pivoted to the stock, said shoe-jaw being disposed opposite the rigid jaw and adapted to bear against the cam, a bail connected to and longitudinally movable on the stock and a connection between the bail and the cam-lever, whereby the latter is operated by the bail, substantially as described.

2. In a grapple of the class described, the combination of a stock having a rigid jaw on one side and a longitudinal guide-disk, a cam-lever, and a shoe-jaw pivoted to the stock, said shoe-jaw being disposed opposite the rigid jaw and adapted to bear against the cam, a bail, a connecting element pivotally connecting the bail to the stock, said connecting

element operating in the guide-disk, and a link pivotally connected to the bail and the cam-lever, substantially as described.

3. In a grapple of the class described, the combination of a stock having a rigid jaw on one side thereof, the said rigid jaw having a lateral extension disposed opposite one side of the stock, a cam-lever and a shoe-jaw pivoted to the stock, said shoe-jaw being disposed opposite the lateral extension of the rigid jaw and adapted to bear against the cam, a bail connected to and longitudinally movable on the stock, and a connection between the bail and the cam-lever, whereby the latter may be operated to operate the shoe-jaw, substantially as described.

702,885. GRAIN-BINDER. JAMES L. WARE, St. Paul, Minn. Filed Sept. 7, 1900. Renewed May 2, 1902. Serial No. 106,004. (No model.)



Claim.—1. In a grain-binder employing a clip-former, a die composed of separable sections and means for separating the same, in combination with a driving device for forcing the clip-forming material into said die when the sections are closed.

2. In a grain-binder employing a clip-former, the combination with a die composed of separable sections, of automatic means for locating the ends of the band between said die-sections, means for forcing the clip within said die and around the ends of the band, and automatic mechanism for separating the die-sections to afford clearance for the discharge of the formed clip.

3. In a grain-binder employing a clip-former, the combination with a die composed of separable sections arranged to form a clip-forming throat with tangential entrance-passages for the clip-forming material, with automatic means for locating the ends of the band within the throat of said die, a driving device for forcing the clip-forming material through said entrance-passages into the throat and around the ends of said band, and automatic mechanism for separating the die-sections to afford clearance for the discharge of the formed clip.

4. In a grain-binder employing a clip-former, the combination with a die composed of separable sections arranged to form a clip-forming throat with tangential entrance-passages for the clip material, of automatic devices for locating the ends of the band within the throat of said die, a driving device operating to force the clip-forming material into the throat of said die and around the ends of said band and by a continued movement to link and press the same onto said band, and automatic mechanism for separating the die-sections.

5. In a grain-binder employing a clip-former, the combination with a banking-carriage against which the clip-forming material is pressed, of a die composed of separable sections arranged to form a clip-forming throat and receiving from said banking-carriage, a driver mounted to move at an angle to said banking-carriage whereby the nose of said driver is given an increasing projection from said banking-carriage in the driving action thereby insuring the engagement of the blank and giving an increasing hold while forming the clip, and means for separating the die-sections, substantially as described.

6. In a grain-binder employing a clip-former, the combination with a banking-carriage against which the clip-forming material is pressed, of a die composed of separable sections arranged to form a clip-forming throat and receiving from said banking-carriage, a driver mounted to move at an angle to said banking-carriage for the purpose of blank, said driver having a projecting beveled driving-rod and an extended linking edge, and means for separating the die-sections, substantially as described.

7. In a grain-binder employing a clip-former, the combination with a die composed of separable sections arranged to form a clip-forming throat with a tangential entrance thereto, of a clip-driver mounted to move

transversely of and into the clip-forming throat of said die, the said driver having a projecting beveled driving-rod and an extended linking edge for action on the clip, and means for separating the die-sections, substantially as described.

8. In a grain-binder employing a clip-former, the combination with a banking-carriage against which the clip-blanks are delivered laterally, of a die having a clip-forming throat, receiving from said banking-carriage, a blank-driver, and an adjustable guide-plate for said blank-driver, having a guiding-carriage extending at an angle to said banking-carriage, whereby said plate may be adjusted to take up the wear and preserve the proper position of said guide-carriage, substantially as described.

9. In a grain-binder employing a clip-former, the combination with a magazine for the clip-blanks, of a banking-carriage against which the blanks are delivered laterally from said magazine, a die having a clip-forming throat receiving from said banking-carriage, a blank-driver, and an adjustable guide-plate for said blank-driver, having its guiding-carriage extending at an angle to said banking-carriage, whereby said guide-plate may be adjusted to take up the wear and preserve the proper position of the guiding-carriage, substantially as described.

10. In a grain-binder employing a clip-former, the combination with a divided separable die having a clip-forming throat with an entrance for the clip-forming material, of connections for moving one of the die-sections with respect to the other, involving a yielding part, and a driver movable transversely of and into the clip-forming throat of said die, in the clip-forming action, said parts operating substantially as described.

11. The combination with a divided separable die having a clip-forming throat with an entrance-passages, one of the die-sections having laterally-extended spring jaws or plates, for the purpose of blank, and a driver mounted to move transversely of and into the clip-forming throat of said die, substantially as described.

12. In a grain-binder employing a clip-former, the combination with a die composed of separable sections arranged to form a clip-forming throat with an entrance-passages, of connections for moving one of said die-sections with respect to the other, comprising an actuating lever with a spring-arm or yielding part, and automatic mechanism for imparting positive and predetermined movement to the motion-receiving end of said lever whereby breaking or straining of the parts in the die-closing action is prevented.

13. In a grain-binder employing a clip-former, the combination with a die having a clip-forming throat, of a banking-carriage against which the clip-blanks are delivered laterally, a blank-driver, an adjustable guide-plate having a guiding-carriage against which said driver is mounted to move, and a cam or eccentric operating as a stop to said guide-plate, substantially as described.

14. In a grain-binder employing a clip-former, the combination with a die formed in separable sections and provided with a clip-forming throat, of means for moving one of the die-sections with respect to the other, comprising a reciprocating part carrying a clip-forming finger extending from the throat-section of the movable die member, and a driver for forcing the material from which the clips are to be formed, into the throat of said die, substantially as described.

15. In a grain-binder employing a clip-former, the combination with a divided die having a clip-forming throat, of means for moving one of the die-sections with respect to the other, comprising a reciprocating part carrying a cord-leading finger extending from the throat-section of the movable die member, a pivoted tucker cooperating with said finger and actuated by or with the movable die member, and a driver for forcing the material from which the clips are to be formed, into the throat of said die, substantially as described.

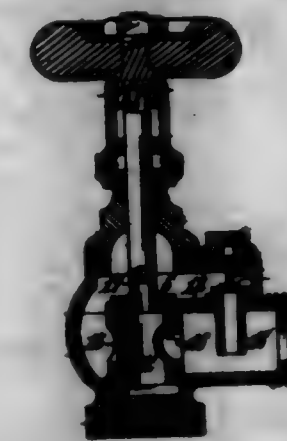
16. In a grain-binder employing a clip-former, the combination with a die composed of separable sections, each of said sections having cooperating approximately complementary notches forming a clip-forming throat, of cheek-plates having cord-leading notches and arranged to hold the cord or band clear of the walls of said throat when said die-sections are in closed relation, and means for locating the ends of the cord within the notches of said cheek-plates.

17. In a grain-binder employing a clip-former, the combination with a die composed of separable sections, said die-sections having cooperating approximately complementary notches forming a clip-forming throat, of cheek-plates having cord-leading notches extending approximately concentric with said throat-forming notches when said die-sections are in closed relation, and arranged to hold the cord or band clear of the walls of said throat, one of said cheek-plates having a projected cord-leading finger extended tangentially in the cord-leading notch thereof.

702,886. FITTING FOR STEAM-HEATING SYSTEMS. CHARLES A. HALL, Washington, D. C. Filed Mar. 3, 1902. Serial No. 98,967. (No model.)

Claim.—1. A fitting for steam-heating systems, consisting of a casing adapted to communicate with the radiator and return sides of the system, and a valve in said casing for establishing either direct communication

therethrough for cleaning or throwing out, or indirect communication for relief of entrained air and water of condensation.



2. A fitting for steam-heating systems, consisting of a casing adapted to communicate with the radiator and return sides of the system, and a valve in said casing for establishing either direct communication therethrough for cleaning or blowing out, or indirect and adjustable communication for relief of entrained air and water of condensation.

3. A fitting for steam-heating systems, consisting of a casing having an outlet, a partition therein dividing said casing into two chambers, one adapted to communicate with the radiator side of the system, means for affording relief of entrained air and water of condensation from the chamber on the radiator side to the other chamber, and a valve adapted to establish either direct communication between the chamber on the radiator side and the outlet or between the other chamber and the outlet.

4. A fitting for steam-heating systems, consisting of a casing having an outlet, a partition therein dividing said casing into two chambers, one adapted to communicate with the radiator side of the system, means for affording communication between said chambers, and a valve in said partition controllable from the exterior and adapted to establish either direct communication between the chamber on the radiator side and the outlet or between the other chamber and the outlet.

5. A fitting for steam-heating systems, consisting of a casing having an outlet and divided into two chambers, one adapted to communicate with the radiator side and the other normally with the outlet, and a substantially vertical pipe communicating between the two chambers for permitting the relief of entrained air and water of condensation from the chamber on the radiator side to the other chamber in an upward direction only.

6. A fitting for steam-heating systems, consisting of a casing having an outlet, a partition therein dividing said casing into two chambers, one adapted to communicate with the radiator side of the system, said partition having ports opening from each chamber into the outlet, a valve for controllably opening either of said ports or closing both of them, and means for affording communication between said chambers.

7. A fitting for steam-heating systems, consisting of a casing having an outlet, a partition therein dividing said casing into two chambers, one adapted to communicate with the radiator side of the system, said partition having ports opening from each chamber into the outlet, a valve for controllably opening either of said ports or closing both of them, and a pipe communicating between the two chambers for permitting relief of entrained air and water of condensation from the chamber on the radiator side to the other chamber in an upward direction only.

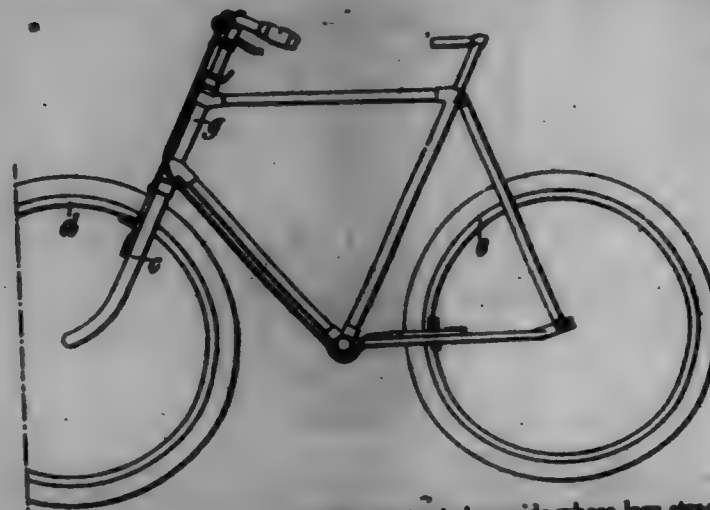
8. A fitting for steam-heating systems, consisting of a casing having an outlet, a partition dividing said casing into two chambers, one adapted to communicate with the radiator side and the other normally with the outlet, a substantially vertical pipe communicating between said chambers and projecting at its lower end into the chamber on the radiator side to a point above the bottom of said chamber, and a check-valve in said pipe permitting passage therethrough from the radiator side to the outlet side only.

702,887. BRAKE MECHANISM FOR CYCLES, MOTOR-CARS, &c. GEORGE E. BARNETT, Oroyden, England. Filed Mar. 10, 1902. Serial No. 97,989. (No model.)

Claim.—1. A brake, comprising in combination, a suitably fulcrumed operating-lever, an adjustably fulcrumed power-distributing rod, an operating part in proximity to each wheel, a connection extending from the opposite ends of said adjustably fulcrumed power-distributing rod to the operating parts and means for adjusting the fulcrum relatively to the opposite ends of said power-distributing rod, substantially as described.

2. A brake comprising, in combination, a lever, hinged upon one end, a tubular part supported by said lever, a rod adjustably fulcrumed to said tubular part, means serving to adjust said tubular part and the supported fulcrum of the rod relatively to said rod, an operating part in prox-

larity to each wheel, and a connection extending from each operated part to opposite ends of said rod, substantially as described.



3. The combination of a bifurcated tubular guide whose legs straddle the wheel-rim, and which are provided with guideways at their ends, brake-blocks sliding in said guideways; springs for disengaging the brakes from the wheel, and flexible connections which pass through the tubular guide to the brake-block slides, substantially as described.

4. A brake comprising, in combination, a lever, brackets upon said lever, a tubular part supported by said brackets, a rod adjustably fulcrumed to said tubular part, means serving to adjust said tubular part and the supported fulcrum of the rod relatively to said rod, a brake-stirrup consisting of a bifurcated tubular guide in proximity to each wheel, a slide-guideway at the extremity of each of said stirrup-legs, slides located in each guideway, bifurcated connections extending from the opposite ends of said adjustably-fulcrumed rod to the said slides, and brake-blocks pivoted to said slides, substantially as described.

702,888. PAPER-HANGER'S TOOL. THOMAS E. BOER, Cincinnati, Pa. Filed Nov. 13, 1901. Serial No. 68,001. (No model.)



Claim.—1. In a device of the character described, the combination with a handle having at one end a brush-scurring device comprising a forked extension and a curved spring; of a socketed brush adapted to fit on the forked extension and provided with a lateral groove adapted to be engaged by said spring to normally hold the brush in engagement with the handle.

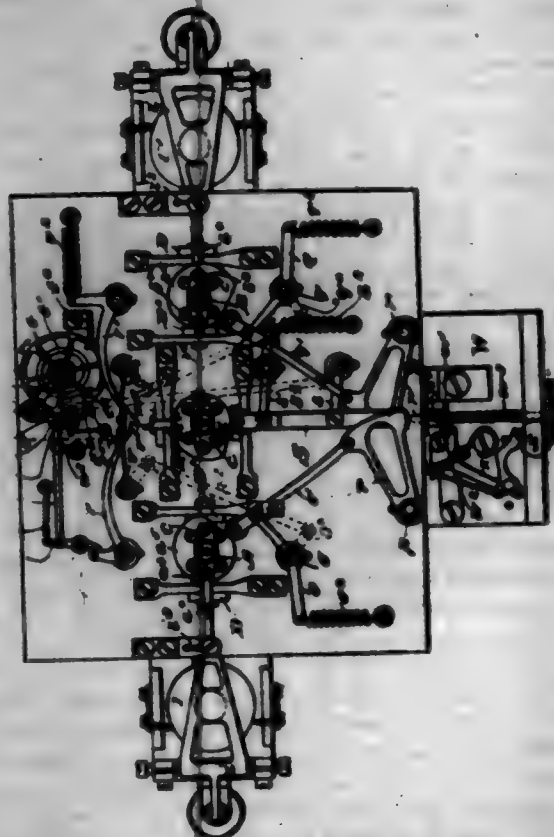
2. In a device of the character described, the combination with a handle having at one end a brush-scurring device comprising a forked extension and a curved spring; of a socketed brush adapted to fit on the forked extension and provided with a lateral groove adapted to be engaged by said spring to normally hold the brush in engagement with the handle, a sleeve on said handle and a laterally-arranged roller carried by said sleeve.

3. In a device of the character described, the combination with a telescopic handle having at one end a brush-scurring device comprising a forked extension and a curved spring; of a socketed brush adapted to fit on the forked extension and provided with a lateral groove adapted to be engaged by said spring to normally hold the brush in engagement with the handle.

4. In a device of the character described, the combination with a

handle having at one end a brush-scurring device comprising a forked extension and a curved spring; of a socketed brush adapted to fit on the forked extension and provided with a lateral groove adapted to be engaged by said spring to normally hold the brush in engagement with the handle, a tubular extension on one end of said handle, a plug inserted therein, and a removable hand-roller secured to said plug.

702,889. TELEGRAPHIC APPARATUS. RICHARD G. BROWN, Pat-
ent, England. Original application filed Mar. 20, 1900, Serial No. 10,666.
Divided and this application filed Jan. 30, 1901. Serial No. 66,284. (No
model.)



Claim.—1. An electric-telegraph apparatus, comprising constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted on said spindles, means for moving the clutch-slides along the spindles out of gear with the clutch-collars once during every revolution of the clutch, means operated by the clutch-slides for punching signaling-perforations in the tape, means for normally holding the clutch-slides out of gear with the clutch-collars, and means for releasing the clutch-slides when signaling-perforations are to be punched, substantially as described.

2. In an electric-telegraph apparatus, the combination of punches for perforating signals in a tape, a punch for perforating spaces in a tape, means operated by received signals from a line or cable circuit for actuating said punches, and means for limiting the length of blank tape perforated by the spacing-punch when no signals are received, substantially as described.

3. Electric-telegraph apparatus comprising constantly-rotating spindles, clutch-slides adapted to be moved lengthwise of said spindles, means operated by signals received from a cable or line which normally engage and hold said clutch-slides stationary but release the said-slides when signaling-currents are received, means for moving the clutch-slides into engagement with the rotary spindles when thus released, means operated by said clutch-slides for punching perforations in a signaling-tape, and means for limiting the length of blank tape passed through the apparatus after the cessation of signals, substantially as described.

4. Electric-telegraph apparatus comprising constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted on said spindles, cams carried by said clutch-slides, pins projecting laterally from said clutch-slides, means arranged in the path of said lateral pins and adapted to lift the clutch-slides out of gear with the clutch-collars during part of the revolution of the clutch-slides, means operated by said pins for punching signaling-perforations in a tape, means engaging with the lateral pins for normally holding the clutch-slides out of gear with the spindles and means for releasing the lateral pins when signaling-perforations are to be punched, substantially as described.

5. Electric-telegraph apparatus comprising constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted loosely on said spindles, cams carried by the clutch-slides, springs which tend to throw the clutch-slides into gear with the clutch-collars, pins projecting laterally from the clutch-slides, rollers arranged in the path of the

lateral pins and adapted to lift the clutch-slides out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the pins for punching signaling-perforations in a tape, means for normally engaging the lateral pins for holding the clutch-slides out of gear with the clutch-collars, and means for releasing the lateral pins for punching perforations in a tape, substantially as described.

6. Electric-telegraph apparatus comprising constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted loosely on said spindles, cams carried by the clutch-slides, springs which tend to throw the clutch-slides into gear with the clutch-collars, pins projecting laterally from the clutch-slides, rollers arranged in the path of the lateral pins and adapted to lift the clutch-slides out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the pins for punching perforations in the tape, means for normally engaging with the lateral pins so as to hold the clutch-slides out of gear with the clutch-collars, and electromagnets adapted to be energized and to move the armatures so as to release the lateral pins to receive received signals, substantially as described.

7. Electric-telegraph apparatus comprising three constantly-rotating spindles, clutch-slides mounted on said spindles, cams on said clutch-slides, strikers operated by said cams two of which strikers are adapted to operate lateral punches for perforating lateral signaling-holes and also a central punch for perforating central holes in a tape, and the third of which punches is adapted to operate the clutch-slides for operating the lateral punches out of gear with their rotary spindles, means for throwing the clutch-slides for separately operating the central punch out of gear after the cessation of signals and when a definite length of tape has passed through the apparatus and means for throwing the clutch-slides for operating the lateral punches into gear with their spindles for perforating signals, substantially as described.

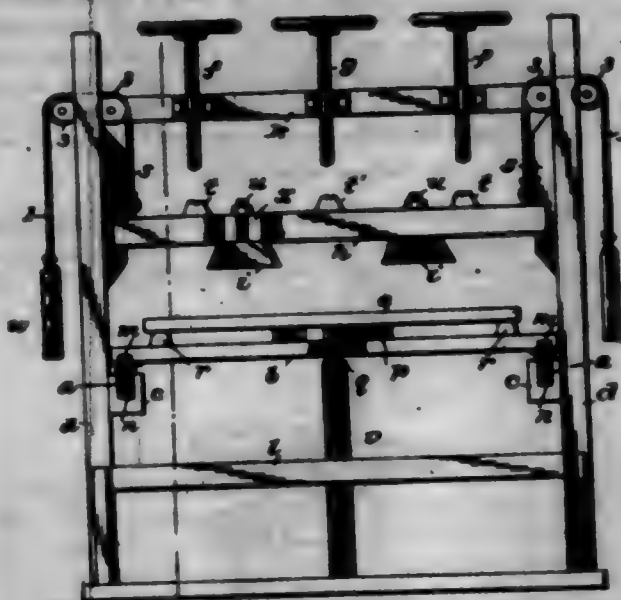
8. Electric-telegraph apparatus comprising three constantly-rotating spindles, clutch-slides mounted on said spindles, cams on said clutch-slides, strikers operated by said cams two of which strikers are adapted to operate lateral punches for perforating lateral signaling-holes and also to simultaneously operate a central punch for perforating central holes in a tape, and the third of which strikers is adapted to operate the central punch only, means for normally holding the clutch-slides for operating the lateral punches out of gear with their rotary spindles, a stop operated by pawl and ratchet-wheel gear for throwing the clutch-slides for separately operating the central punch out of gear when a definite length of tape has passed through the apparatus after the cessation of signals, means for releasing the clutches for operating the lateral punches and for simultaneously releasing the pawls and permitting the said stop and ratchet-wheel to return to zero, and means for holding the clutch-slides for separately operating the central punch out of gear when the clutch-slides for operating the lateral punches are in action, substantially as described.

9. Electric-telegraph apparatus comprising three constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted loosely on said spindles, cams carried by the clutch-slides, springs which tend to throw the clutch-slides into gear with the clutch-collars, pins projecting laterally from the clutch-slides, rollers arranged in the path of the lateral pins and adapted to lift the clutch-slides out of gear with the lateral pins and adapted to lift the clutch-slides out of gear with the clutch-collars during part of the revolution of the clutch, strikers operated by said cams two of which strikers are adapted to operate lateral punches for perforating lateral signaling-holes and also to simultaneously operate a central punch for perforating central holes in a tape, and the third of which strikers is adapted to operate the central punch only, means for normally engaging the lateral pins of and holding out of gear the clutch-slides which operate both the lateral and central punches, means for engaging the lateral pins of and holding out of gear the clutch-slides which operate the central punch when a definite length of tape has passed through the apparatus after the cessation of signals, means for releasing the clutch-slides which operate the lateral punches, and means for simultaneously engaging the lateral pins of and holding out of gear the clutch-slides which operate the central punch, substantially as described.

10. In electric-telegraph apparatus the combination of three constantly-rotating spindles, clutch-collars fixed to said spindles, clutch-slides mounted loosely on said spindles, cams carried by the clutch-slides, springs which tend to throw the clutch-slides into gear with the clutch-collars, pins projecting laterally from the clutch-slides, rollers arranged in the path of the lateral pins and adapted to lift the clutch-slides out of gear with the clutch-collars during part of the revolution of the clutch, strikers operated by said cams two of which strikers are adapted to operate lateral punches for perforating lateral signaling-holes and also to simultaneously operate a central punch for perforating central holes in a tape, and the third of which punches is adapted to operate the central punch only, means for normally engaging the lateral pins of and holding out of gear the clutch-slides which operate both the lateral and central punches, a lever carrying a projection adapted to be moved into the path

of the lateral pin on the clutch-slides adapted to operate the central punch, a ratchet-wheel, spring-pawl adapted to rotate said ratchet-wheel by a step-by-step movement against the pressure of a spring, a pin carried by said ratchet-wheel, means operated by said central clutch-slides for operating the said pawl at every revolution of said slide, whereby the pin carried by the ratchet-wheel is caused to strike the lever carrying the projection and thus move said projection into the path of the lateral pin of the central clutch-slide after the central clutch-slide has made a definite number of revolutions, means for releasing the clutch-slides which operate the lateral punches when signaling-perforations are to be punched in the tape, and means operated by said lateral clutch-slides when thus released for releasing the pawls from the ratchet-wheel so as to permit said ratchet-wheel to return to zero under the influence of its spring, and means operated by the lateral clutch-slides when released for operating the lever carrying the projection so as to move said projection into the path of the lateral pin on the central clutch-slide, substantially as described.

702,840. MACHINE FOR MAKING CUSHIONS. GEORGE BOW-
MAN, Burlington, N. J. Filed Apr. 10, 1901. Serial No. 64,922. (No
model.)



Claim.—1. The combination in a cushion-making machine, of a supporting frame, pressing device, and a sliding carriage and yielding bearings therefor, substantially as set forth.

2. The combination with the sliding carriage of a cushion-making machine, of a table supported thereby, rails upon which said carriage runs, and yielding bearings for said rails, substantially as set forth.

3. The combination with the frame of a cushion-making machine, of recessed beams, rails fitted to the recesses in said beams, springs supporting the rails, and a sliding carriage provided with wheels resting upon the rails, substantially as set forth.

4. The combination in a cushion-making machine, of a supporting frame, pressing device, a movable carriage, yielding bearings for the carriage, and a fixed bearing to be engaged by the carriage when the yielding bearings are depressed, substantially as set forth.

5. The combination of the carriage 6, yielding supports therefor, a table 7 pivoted to said carriage, pressing device, and a support 8 in position to be engaged by the middle portion of the carriage when the latter is depressed, substantially as set forth.

6. The combination of the carriage 6 and yielding supports therefor, and a table 7 pivoted to said carriage and pressing device, substantially as set forth.

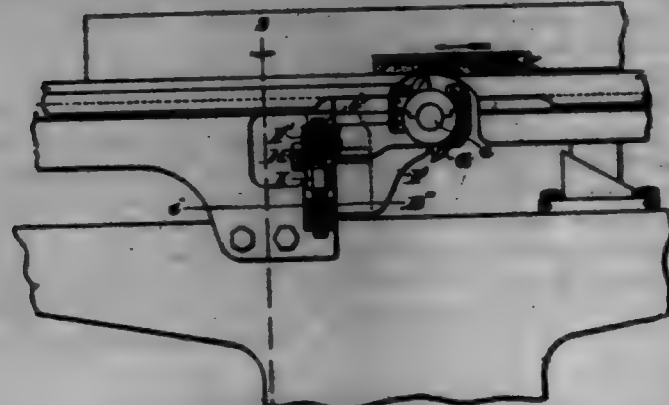
7. The combination with the frame, the table, and the follower-board, of a cushion-making machine, of a movable presser-beam, and adjustable blades carried by the said beam, substantially as set forth.

8. The combination of the frame, the table, the follower-board, the presser-beam provided with slots 9, and the blades 1 provided with bolts extending through the slots and with nuts bearing upon the presser-beam, substantially as set forth.

702,841. PLANING-MACHINE. WILSON W. CARR, Lowell, Mass.
Filed Dec. 17, 1901. Serial No. 66,281. (No model.)

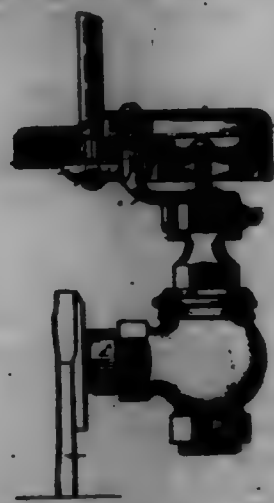
Claim.—1. In a beam or hand planing-machine, the combination of back and front tables, a cutter-carrying head-stock of yoke form, the transverse portion of which is adapted to bear flatwise against the framework of the machine, and each framework having elongated vertical slots, curves adapted to pass through the respective slots, and the transverse portion of the head-stock having tapered ends to receive said curves, and said

head-stock having legs at its opposite ends, and the framework having co-operating legs arranged in vertical alignment with the other legs, and independent adjusting means connected with the respective legs.



2. In a beam or head plating-machine, the combination of beam and front tables, a cutter-carrying head-stock of yoke form, the transverse portion of which is adapted to bear flatwise against the framework of the machine, and each framework having elongated vertical slots, curves adapted to pass through the respective slots, and the transverse portion of the head-stock having tapered ends to receive said curves, and said head-stock having legs arranged in vertical alignment with the other legs, and right and left headed adjusting-screws tapped into the respective legs.

702,842. VALVE-ACTUATING MECHANISM FOR RADIATORS. WILLIAM F. CLARK, Everett, Mass., assignor of two-thirds to Gustavus Cooper, Cambridge, Mass., and Almon Coleman, Boston, Mass. Filed Oct. 3, 1901. Serial No. 77,574. (No model.)



Claim.—1. A radiator provided with a valve having a rotatable spindle, provided with a usual hand-wheel connection for operating the valve, a pinion interengageable with said hand-wheel, means for securing the pinion detachably to said connection, a bracket detachably mounted on and supported by the valve-rod and provided with a shaft-bearing, a manually-operated actuating-shaft supported to rotate in said shaft-bearing and held from longitudinal movement, said shaft having a gear in mesh with the said pinion on the valve-spindle, and a second bearing for the shaft secured to the upper part of the radiator, rotation of the shaft acting through the gear and pinion to operate the valve.

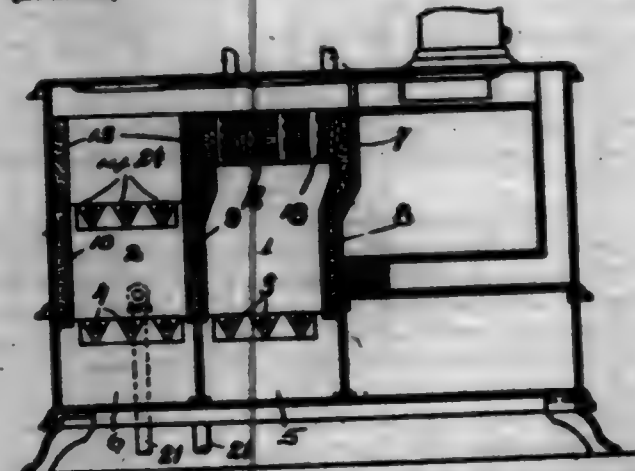
2. A radiator provided with a valve having a rotatable spindle, provided with a usual hand-wheel connection for operating the valve, a pinion interengageable with said hand-wheel, means for securing the pinion detachably to said connection, a bracket detachably mounted on and supported by the valve-rod, said bracket being provided with a shaft-bearing, a manually-operated actuating-shaft supported at its lower end by and to rotate in said bearing and held from longitudinal movement, a gear carried by said shaft in mesh with the pinion on the valve-spindle, a second bearing for the shaft secured to the upper part of the radiator, rotation of the shaft acting through the gear and pinion to operate the valve, and a housing carried by the bracket and including the gear and pinion.

3. A radiator and its controlling-valve having a rotatable spindle having at its end a usual hand-wheel connection, a wide-faced pinion rigidly but detachably secured at the end of the spindle to said connection, a bracket having a shaft-bearing, means to detachably secure the bracket to the gland of the valve-rod, a manually-operated upright actuating-shaft supported at its lower end in said bearing and carrying a gear in mesh with the wide-faced pinion, means to prevent longitudinal movement of the gear with respect to the wide-faced pinion and a second shaft-bearing secured to the top of the radiator to maintain the shaft in upright position.

4. A radiator-valve-actuating mechanism adapted to be detachably secured to the stem of any usual radiator-valve and comprising a bracket having a notched portion to receive the top of the valve-gland, means for securing the bracket by its notched portion to said gland to support the same and parts carried thereby, a pinion adapted for detachable engagement with the valve-stem, said bracket having a shaft-bearing, an upright shaft mounted at its lower end in said bearing, a gear fixed on said shaft and adapted to mesh with said pinion on the valve-stem.

5. A radiator and its controlling-valve having an upright rotatable spindle at the base of the radiator, a wide-faced pinion fixed on the spindle, a bracket having a notch to embrace the spindle-gland and opened to receive the spindle, a shaft-bearing on the bracket, an upright shaft mounted at its lower end in said bearing and having a gear thereon in mesh with and to rotate the pinion, means to prevent longitudinal movement of said shaft, a second bearing for the shaft, mounted on the upper part of the radiator, a housing on the upper end of shaft to rotate it, and a protective housing for the gearing, mounted on the bracket, said housing being open at its bottom to permit the ready attachment of the pinion to the top of the valve-stem.

702,848. COMMON RANGES AND WATER-HEATER. HARRIS and W. CONNOR, Boston, Mass. Filed Jan. 31, 1902. Serial No. 62,312. (No model.)



Claim.—1. A combined cooking-stove and water-heater having a top or support for stands, a water-chamber separated therefrom by a space or passage for the gases, upper and lower grates arranged in a tier, the lower grate being in direct heating relation to the walls of said chamber and the space which said grates occupy having an outlet to said passage, and a third grate positioned to one side of said grates and in heating relation to said chamber, the space which it occupies having a separate outlet for gases.

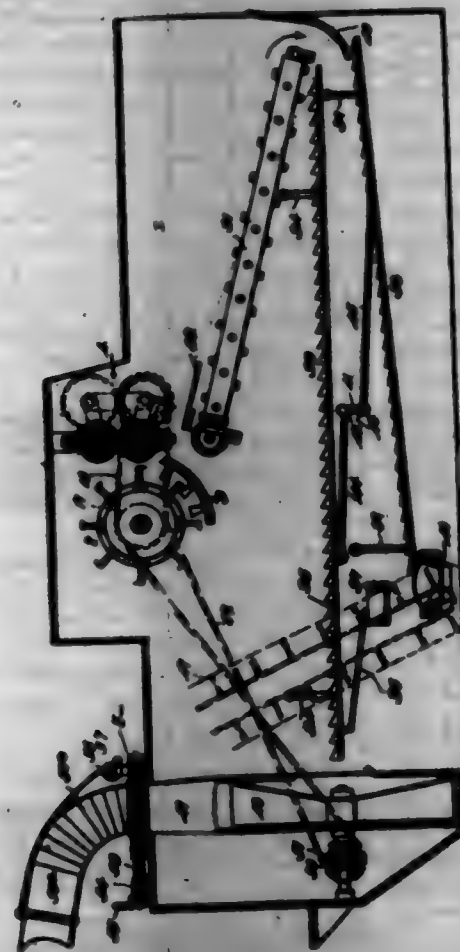
2. A combined cooking-stove and water-heater having a top or support for stands, a water-chamber separated therefrom by a space or passage for the gases, upper and lower grates arranged in a tier, the lower grate being in direct heating relation to the walls of said chamber and the space which said grates occupy having an outlet to said passage, a refractory lining forming the walls of said space above the upper grate, and a third grate positioned to one side of said grates and in heating relation to said chamber, the space which it occupies having a separate outlet for gases.

702,844. CORE-BUCKER AND FODDER-SHREDDER. JOHN CHERRY, Modesto, Minn. Filed July 13, 1901. Serial No. 65,947. (No model.)

Claim.—1. In a machine of the class described, the combination of a shredding mechanism, snapping-rolls which feed the mass, backing-rolls, a feed-pan into which shelled grains of corn are dropped from said backing-rolls, a feed-pan 35 into which the ear-corn is dropped from said backing-rolls, a stacker-tube and a blower to exhaust through the casing of the machine over said feed-pans and discharge a blast through the said stacker-tube, whereby the shelled fodder is pneumatically discharged from the machine and the shelled and husked corn is cleaned, substantially as described.

2. In a machine of the class described, the combination of a shredding mechanism, snapping-rolls which feed the mass, backing-rolls below said snapping-rolls, a feed-pan into which shelled grains of corn are dropped from said backing-rolls, said feed-pan having openings to discharge said grains, a feed-pan 35 below the first-mentioned feed-pan and into which ear-corn is dropped from said backing-rolls, and a pneumatic stacker for the shelled fodder, said pneumatic stacker including a drum having an intake opposite the discharge end of said pan, and a fan in said drum, to create an exhaust-current over said feed-pans and thereby clean said grains and ear-corn, and carry off the hullings from said feed-

pass, together with the shredded fodder, through said stacker, substantially as described.



3. The combination of a pair of snapping-rolls, means to rotate one of said rolls, gears on said rolls at one end thereof, a pair of intermeshed gears 13, 25, meshed respectively with the gears on said snapping-rolls, a link connecting the axle of said gear 13, 25, together, links connecting the said axle respectively to the axle of said snapping-rolls, supports, forming bearings for the latter, rods connecting said supports at the ends of said rolls, said rods being free to play laterally in said supports, and springs on said rods to press said snapping-rolls together, said rods having means to adjust them longitudinally and thereby vary the tension of said springs, substantially as described.

4. The combination of a snapping-roll, bearings at the ends thereof, a yoke-bar connecting said bearings, and an element at the center of said yoke-bar bearing frictionally on the center of said snapping-roll, said element and said yoke-bar forming a truss to sustain the central portion of said snapping-roll, substantially as described.

5. The combination of a snapping-roll, bearings at the ends thereof, a yoke-bar connecting said bearings and an element at the center of said yoke-bar bearing frictionally on the center of said snapping-roll, said element and said yoke-bar forming a truss to sustain the central portion of said snapping-roll, and means to lubricate said element, substantially as described.

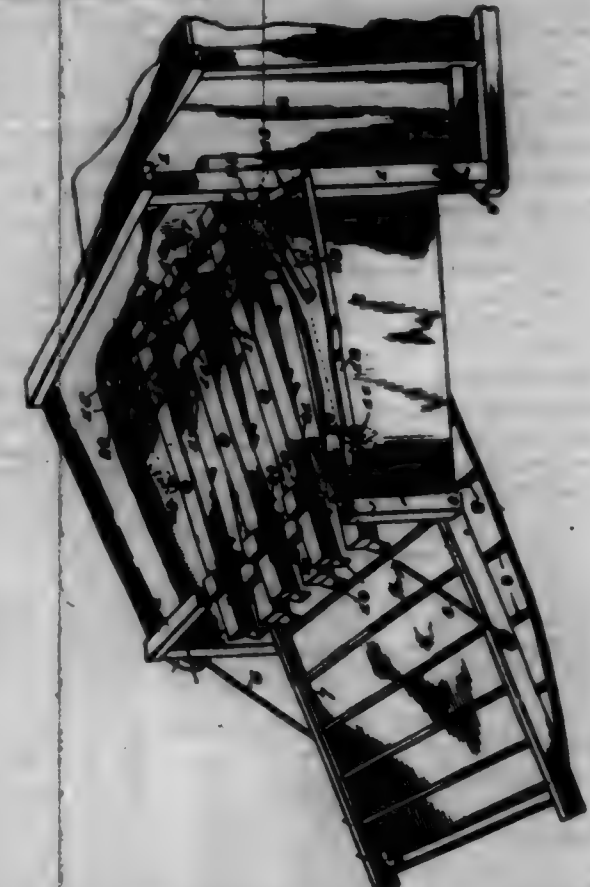
702,845. THRESHING-MACHINE. ROWLAND DAVIS, Utica, Wis. Filed Sept. 23, 1900. Serial No. 36,774. (No model.)

Claim.—1. In a hand-cutter and feeder, the combination with the framework of a threshing-machine, of a plurality of cutter-bars mounted therein, a rock-shaft near one end thereof, rods extending parallel with said shaft, means connecting said rods with said cutter-bars, and means pivotally supporting the free end of said cutter-bars, substantially as described.

2. In a hand-cutter and feeder, the combination with the framework of a threshing-machine, of a crank-shaft carried thereby, a plurality of cutter-bars pivoted to said crank-shaft, a rock-shaft mounted in said framework, laterally-extending arms carried by said rock-shaft, rods parallel with said shaft, connecting said arms, means connecting said rods with said cutter-bars, means for rotating said crank-shaft, and means for controlling said rock-shaft in unison with said crank-shaft, substantially as described.

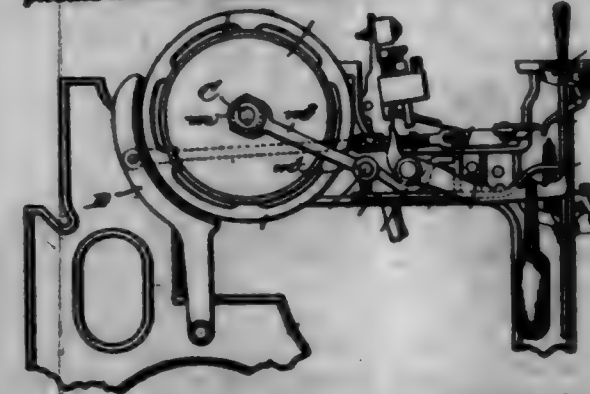
3. In a hand-cutter and feeder, the combination with the framework of a threshing-machine, of a crank-shaft carried thereby, a plurality of cutter-bars carried by the crank of said shaft, a rock-shaft in the rear of said crank-shaft and provided with a crank, a pinion connecting a crank on the crank-shaft with the crank of the rock-shaft, laterally-extending

arms carried by said rock-shaft, rods extending parallel to said rock-shaft and secured to said laterally-extending arms, alternate pairs of links connecting the opposite parallel rods with alternate bars carried by said crank-shaft, and fingers extending rearwardly and downwardly from said last-mentioned bars, substantially as described.



4. In a hand-cutter and feeder, the combination with the sliding of a threshing-machine, of a plurality of parallel bars pivotally supported at their front ends, a rock-shaft near the rear ends thereof, means for controlling said rock-shaft, means connecting said rock-shaft to said parallel bars, downwardly-extending fingers carried by each of said bars, movable bearings supporting said rock-shaft in said sliding, a rod connected to each of said bearings, an operating-lever connected with said rod, and means for retaining said lever in a given position, substantially as described.

702,846. LOOM SHIPPER MECHANISM. CHARLES M. DAY, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Dec. 26, 1901. Serial No. 57,180. (No model.)



Claim.—1. In a loom, actuating means, including a clutch, a shipper operatively connected therewith, a device to hold the shipper in running position, and means to normally compel a definite movement thereof beyond such position as a prerequisite to engagement with the holding device, to insure complete and rapid initial action of the clutch.

2. In a loom, actuating means, including a clutch, a shipper operatively connected therewith, a device to hold the shipper in running position, and means to normally compel a definite movement thereof beyond such position as a prerequisite to engagement with the holding device, and to thereafter permit limited retrograde movement of the shipper to running position, for the purpose set forth.

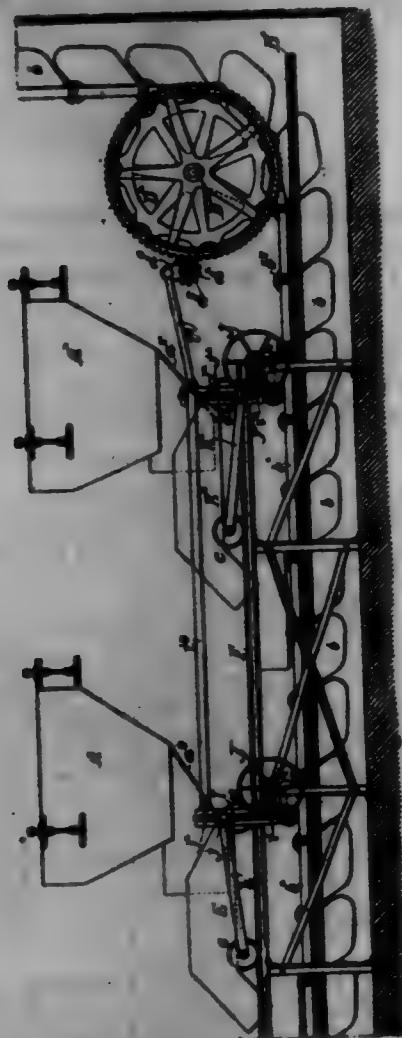
3. In a loom, actuating means, including a clutch, a shipper operatively connected therewith, a notched holding-plate for the shipper, and means to normally compel a definite movement of the latter beyond its running position prior to engagement with the notched holding device, so thereby insure effective and rapid initial action of the actuating means when the clutch is set.

4. In a loam, actuating means, including a clutch, a shipper operatively connected therewith, a device to hold the shipper in running position, and means to the shipper to normally compel a definite movement thereof beyond such running position as a prerequisite to engagement with the holding device.

5. In a loam, actuating means, including a clutch, a shipper operatively connected therewith, a device to hold the shipper in running position, and a movable dog on the holding side of the shipper normally leaving a clearance between them, whereby movement of the shipper to start the loam must be extended sufficiently to permit engagement of the dog with the holding device, to effect complete and quick initial action of the clutch, retrogression of the shipper to running position being permitted by the clearance, to relieve the operative connection between the clutch and shipper from undue friction.

6. In a loam, actuating means, including a clutch, a shipper operatively connected therewith, a notched holding-plate for the shipper, and a gravity-controlled dog on the holding side of the shipper, normally swung out to leave a clearance between it and the shipper, whereby movement of the shipper to start the loam must be extended sufficiently to permit entrance of the dog into the holding-notch, to effect complete and rapid initial action of the clutch, the clearance permitting an equal retrograde movement of the shipper to running position thereafter, to relieve the operative connection between the clutch and shipper from undue friction.

702,847. FEEDING MECHANISM FOR CONVEYERS. JAMES H. DODGE and ARTHUR D. SHAW, Philadelphia, Pa., assignors to the Link Belt Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 12, 1900. Serial No. 26,708. (No model.)



Claim.—1. The combination of a conveyor, two hoppers mounted above the conveyor, a positively-driven discharge device for each hopper mounted clear of the conveyor, and means for operating the discharge device in unison so as to feed a certain proportion of material from each hopper into the conveyor and thereby mixing the same, substantially as described.

2. The combination of an endless bucket conveyor, two hoppers mounted above the conveyor and a positively-driven reciprocating discharge device for each hopper, and means for reciprocating the discharge device in unison, whereby each bucket is supplied with material from both hoppers and said material is thereby mixed, substantially as described.

3. The combination of a conveyor, two hoppers mounted above the conveyor, a discharge-carriage for each hopper arranged as to discharge the material from the hopper into the conveyor, means for operating the

mid carriage, and means for adjusting the operating mechanism so that the proportion of material discharged into the conveyor from each hopper can be varied to make the proper mixture, substantially as described.

4. The combination of a conveyor, two hoppers, two independent discharge-carriages, one carriage controlling the flow of material from one hopper and the other carriage controlling the flow of material from the other hopper, a lever, means for vibrating said lever, and means whereby the two carriages may be independently connected to the lever, substantially as described.

5. The combination of a conveyor, two hoppers mounted above the conveyor, a reciprocating carriage mounted between each hopper and the conveyor, two levers, means for vibrating said levers, an adjustable block on each lever, a rod connecting the block on one lever with one carriage and the block on the other lever with the other carriage, and means for adjusting said blocks to regulate the extent of movement of each carriage, substantially as described.

6. The combination of a conveyor, a hopper, a reciprocating carriage mounted between the hopper and the conveyor, a pivoted lever, means for vibrating said lever, a block, a screw for adjusting said block, means for turning said screw, and a rod connecting the block with the carriage, substantially as described.

7. The combination of a conveyor, a hopper, a reciprocating discharge-carriage for the hopper, a pivoted lever, means for moving the said lever, an adjustable block on said lever, a rod connecting the block with the carriage, a screw for adjusting the block, a shaft at the pivot-point of the lever geared to the screw, and means for turning the shaft to move the block to or from the pivot-point of the lever to alter the movement of the carriage, substantially as described.

702,848. DOOR SLIDE OR GUIDE FOR FURNITURE. FRANK L. FORTNER, Shelbyville, Ind., assignor of one-half to Jacob A. Conroy, Harry Conroy, and Albert H. Schroth, Shelbyville, Ind. Filed Jan. 10, 1902. Serial No. 28,167. (No model.)



Claim.—1. In combination with a case having a rod which is maintained parallel with and in proximity to the under side of the top, a vertically-swinging and horizontally-sliding door, and a jointed coupling which is pivotally attached to the door at one end and the other end being held in slidable engagement with the rod, substantially as shown.

2. In combination with a case having a guide-rod maintained within the case to be parallel with and in proximity to the under side of the top of the case, a vertically-swinging and horizontally-sliding door, and connected links which engage the door and guide-rod.

3. In combination with a case having a rod attached to the center to be maintained parallel and in proximity to the under side of the top, of a door, a plurality of connected links one of the end links being in slidable engagement with the rod, the other end link being attached to the door, substantially as shown.

4. The combination is a sectional case, of a top thereof having a recess adjacent and parallel to its front edge, pins which project from the ends and pins being below the recess, a central guide-rod maintained parallel with the top of the case, a vertically-swinging and horizontally-sliding door having hooks for engagement with the pins, and links which connect the door to the guide-rod, substantially as shown.

5. In a case having top, bottom, and end side walls, a vertically-swinging and horizontally-sliding door for the front thereof, a centrally-disposed rod carried by the case in close proximity and parallel to the top thereof, means for movably connecting the door to the rod, hooks attached to the door, and pins which project inward from the ends of the case near its front to be engaged by the hooks when the door is closed and by the under side of the door when it is open, substantially as shown.

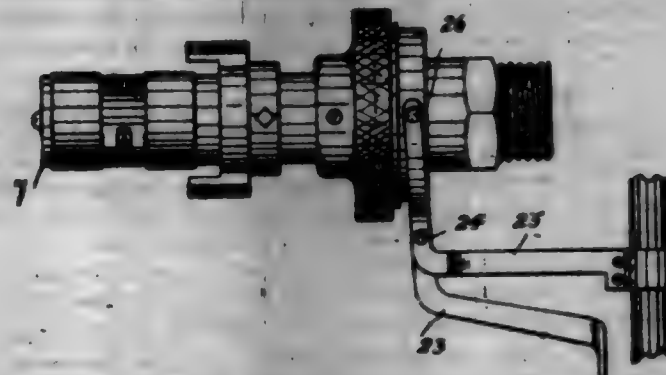
6. The combination is a case, of a horizontally-sliding and vertically-swinging door, a guide-rod attached to the upper portion of the case on its under side, a recess in the under side of the top of the case parallel with and adjacent to its front edge, and a jointed coupling in slidable engagement with the rod and pivotal engagement with the door the point of attachment being on the lower side of the door and below its upper edge, substantially as shown.

7. In a case which is open on one side and provided with a recess in the under side of the top adjacent to its front edge, a rod having at its front an angular portion the upper end of which engages the top rear of the recess therein, means for supporting the rod at its rear end, a horizontally-sliding and vertically-swinging door, flexible connections between the

door and rod one end of said connections being attached to the door to be low in upper edge, substantially as shown.

8. A door connected to a case to slide horizontally therein and to be swung vertically to close the open end of the case, in combination with jointed and swinging connecting means attached pivotally at one end to the door below its upper edge when closed, a rod carried by the case which is controlled by one of the end portions of the connecting means, and a top for the case having a recess beyond the front end of the rod into which recess the upper edge of the door swings when its position is being changed from horizontal to vertical.

702,849. FLUID-OUTTER ATTACHMENT. IRVING C. HENR, Minneapolis, Minn. Filed Feb. 2, 1901. Serial No. 66,473. (No model.)



Claim.—1. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, an operating collar or sleeve loosely mounted on said sleeve, and an eccentric ring connecting said collar and shaft whereby the rotation of said operating-collar first rotates said shaft to throw said cutter against the boiler-flue and then rotates said sleeve and cutter within said flue, substantially as described.

2. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, an operating collar or sleeve loosely mounted on said first-named sleeve and adapted to be driven concentrically therewith, and means operatively connecting said loose collar and said shaft, substantially as described.

3. The combination, with a sleeve, of a shaft mounted eccentrically therein, a cutter carried thereby, an operating collar or sleeve mounted on said first-named sleeve, an eccentric ring connecting said operating collar and shaft, a collar fixed on said first-named sleeve, a friction-collar loosely mounted on said sleeve and adapted to engage said fixed collar, and means for forcing said friction-collar into engagement with said fixed collar, substantially as described.

4. The combination, with a sleeve, of a shaft mounted eccentrically therein, a cutter mounted in arm formed integral with said shaft, an operating-sleeve loosely mounted on said first-named sleeve, an eccentric ring mounted on said shaft and connecting said shaft and operating-sleeve, and a steady-collar adjustably mounted on said first-named sleeve, substantially as described.

5. The combination with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, a collar fixed on said main sleeve, a friction-collar loosely mounted on said operating-sleeve, and means for throwing said friction-collar into frictional contact with said fixed collar, substantially as described.

6. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, and a friction feeding device whereby the rotation of said main sleeve may be retarded, substantially as described.

7. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, a collar fixed on said main sleeve, a friction-collar loosely mounted on said operating-sleeve, means for throwing said friction-collar into contact with said fixed collar, and a loose collar provided on the front end of said main sleeve, substantially as described.

8. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, operating means adapted to operate concentric with said main shaft whereby said shaft is rotated within said sleeve to automatically throw said cutter into engagement with the boiler-flue and then said sleeve rotated by and with said shaft revolving said cutter within and against said flue, and a loose collar provided on the front end of said sleeve, substantially as described.

9. The combination, with a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, operating means adapted to operate concentric with respect to said main sleeve whereby said shaft is rotated within said sleeve to automatically throw said cutter into engagement with

the boiler-flue and then said sleeve thereby rotated by and with said shaft revolving said cutter within and against the flue, and means whereby the rotation of said sleeve is retarded to accelerate the rotation of said shaft in said sleeve, substantially as described.

10. The combination, with a main sleeve, of a shaft mounted eccentrically therein, a cutter carried thereby, operating means operating concentric with respect to said main sleeve whereby said shaft is rotated to automatically throw said cutter into engagement with the boiler-flue and said sleeve then rotated by and with said shaft revolving said cutter within and against the flue, means whereby the rotation of said sleeve is retarded to accelerate the rotation of said shaft in said sleeve, and a loose collar provided on the front end of said sleeve, substantially as described.

11. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve 9, a groove 14 adapted to be passed into a slot in said sleeve 9 and rest in a groove in said main sleeve, a collar 15 fixed on said main sleeve, a friction-collar 17 mounted loosely on said sleeve 9 and adapted to engage with said fixed collar 15, an eccentric ring 12 fixed on said shaft and operatively connected with said operating-sleeve, and a loose collar 16 provided on said main sleeve, said operating-sleeve adapted to be connected with the motive power, substantially as described.

12. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, an operating collar or sleeve loosely mounted on said sleeve, an eccentric ring connecting said collar and shaft whereby the rotation of said operating collar or sleeve first rotates said shaft to throw said cutter against the boiler-flue and then rotates said sleeve and cutter within said flue, and a steady-collar mounted on said first-named sleeve, substantially as described.

13. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, an operating collar or sleeve loosely mounted on said sleeve, an eccentric ring connecting said collar and shaft whereby the rotation of said operating collar or sleeve first rotates said shaft to throw said cutter against the boiler-flue and then rotates said sleeve and cutter within said flue, a steady-collar mounted on said first-named sleeve, and a collar loosely mounted on the front end of said main sleeve, substantially as described.

14. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, a friction feeding device whereby the rotation of said shaft in said main sleeve may be accelerated, and a steady-collar mounted on said main sleeve, substantially as described.

15. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, a friction feeding device whereby the rotation of said shaft in said main sleeve may be accelerated, and a collar loosely mounted on the front end of said main sleeve, substantially as described.

16. The combination, with a main sleeve, of a shaft mounted eccentrically therein and carrying a cutter, an operating-sleeve loosely mounted on said main sleeve, an eccentric ring connecting said operating sleeve and shaft, a friction feeding device whereby the rotation of said shaft in said main sleeve may be accelerated, a steady-collar mounted on said main sleeve, and a collar loosely mounted on the front end of said main sleeve, substantially as described.

17. The combination, of a sleeve, a shaft mounted eccentrically therein, a cutter carried thereby, operating means whereby said shaft is rotated within said sleeve to throw said cutter into engagement with the boiler-flue and said sleeve rotated by and with said shaft revolving said cutter within said flue, and a friction feeding device whereby the rotation of said shaft within said sleeve may be accelerated, substantially as described.

18. The combination, with a main sleeve, of a shaft mounted eccentrically therein, a cutter carried thereby, operating means whereby said shaft is rotated within said sleeve to throw said cutter into engagement with the boiler-flue and said sleeve then rotated by and with said shaft as said shaft continues to rotate revolving said cutter within and against the flue, means whereby the rotation of said main sleeve may be retarded to accelerate the rotation of said shaft in said sleeve, a loose collar provided on the front end of said sleeve, and a steady-collar mounted on said main sleeve, substantially as described.

19. The combination, with a main sleeve, of a shaft mounted eccentrically therein, a cutter carried thereby, operating means adapted to rotate in a forward direction first rotating said shaft within said sleeve and then carrying said sleeve with said shaft automatically feeding said cutter outward by the rotation of said shaft within said sleeve, and a steady-collar mounted on said main sleeve, substantially as described.

20. The combination, of a main sleeve, a shaft mounted eccentrically therein, a cutter carried concentrically thereby, and an operating collar or sleeve loosely mounted on said main sleeve and operatively connected with said shaft, said operating-collar operating concentric with respect to

said main sleeve, whereby the forward rotation of said operating-collar first rotates said shaft within said main sleeve to throw said outer into operative contact with the boiler-flue and then rotates said main sleeve and shaft together within said flue carrying said outer around against the inner surface thereof, substantially as described.

21. The combination, of a main sleeve, a shaft mounted concentrically therein, a outer carried concentrically thereby, an operating collar or sleeve loosely mounted on said main sleeve and operatively connected with said shaft, said operating-collar operating concentrically with respect to said main sleeve, whereby the forward rotation of said operating-collar first rotates said shaft within said main sleeve to throw said outer into operative contact with the boiler-flue and then rotates said shaft and sleeve together within said flue carrying said outer around against the inner surface thereof, and means in connection with said main sleeve whereby the rotation thereof may be retarded to accelerate the rotation of said shaft within said main sleeve, substantially as described.

702,850. LABEL. GEORGE E. HOWARD, Washington, D.C. Filed Dec. 6, 1901. Serial No. 94,946. (No model.)



Claim.—1. A label comprising a sheet of gelatin, which is dissolvable in water and adhesive, and has the label subject-matter printed thereon in reverse on its reverse side, which subject-matter is translatable upon the object to be marked or labeled.

2. A label consisting of a webbing having a gelatin or film spread thereon and carrying the label subject-matter printed in reverse on the medium thus formed.

3. A label consisting of a webbing having an adhesive gelatin or film spread thereon and carrying the label subject-matter printed in reverse on the medium thus formed.

4. A transparent label composed of a webbing having a transparent gelatin or film spread thereon and the medium thus formed carrying the label subject-matter.

5. A transparent label composed of a textile of comparatively fine fiber and coarse mesh and a transparent gelatin or film spread thereon, the medium thus formed carrying the label subject-matter.

6. A transparent label composed of a coarsely-woven transparent web, a transparent gelatin or film thickly spread thereon and having an adhesive surface, the label subject-matter printed in reverse on the adhesive surface of the gelatin or film.

702,851. SEALING IMPLEMENT. HARRY W. ABBOTT, Chicago, Ill., assignor to Porter Safety Seal Company, a Corporation of Illinois. Filed Aug. 20, 1901. Serial No. 73,644. (No model.)



Claim.—1. In an implement of the character described, the combination with suitably-connected hand-levers and dies carried thereby, of a hand-operated cord or tie-tightening device located adjacent to said dies, substantially as and for the purpose set forth.

2. In an implement of the character described, the combination with suitably-connected levers and dies carried thereby, of a cord or tie-tightening device located adjacent to said dies, and comprising a pivoted movable gripping member supported from one lever and a second gripping member pivotally connected with said first-named gripping member and serving to rotate said first-named gripping member.

3. In an implement of the character described, the combination with suitably-connected levers and dies carried thereby, of a laterally-project-

ing bracket, a gripping member pivotally connected therewith, and a gripping member pivotally connected with said first-named gripping member.

4. In an implement of the character described, the combination with suitably-connected levers and dies carried thereby, of a laterally-projecting bracket adjacent to said dies, and a gripping device supported from said bracket and movable in a transverse plane, said gripping device serving for tightening a cord or loop, substantially as described.

5. In an implement of the character described, the combination with suitably-connected levers and dies carried thereby, of a yieldingly-held pivoted gripper-disk provided with an arm, and a gripper-lever pivotally connected with said arm, the lower end of said last-named lever and an adjacent surface of said gripper-disk having coating gripping-surfaces.

6. In an implement of the character described, the combination of two levers pivotally connected at their rear ends, dies carried by the front ends of said levers, and a lever pivotally connected with the front end of one of said last-named levers and engaging and serving to depress the other of said levers, substantially as and for the purpose set forth.

7. In an implement of the character described, the combination of two levers pivotally connected at their rear ends, dies carried by the front ends of said levers, a lever pivotally connected with the front end of one of said last-named levers and engaging and serving to depress the other of said levers, and a gripping device supported from the front end of one of said last-named levers and movable in a transverse plane.

8. In an implement of the character described, the combination of a lever, a die connected with the front end thereof, a laterally-projecting bracket connected with the front end of said lever, a lever pivotally connected with said enlargements, an intermediate lever pivotally connected at its rear end with the rear end of said first-named lever and actuated by said second-named lever, and a gripping device carried by said laterally-projecting bracket.

9. In an implement of the character described, the combination of suitably-connected levers, dies carried thereby, one of said dies having a lateral flange or stop, a laterally-projecting bracket, and a gripping device carried by said bracket and movable in a transverse plane, said flange serving to prevent movement of the sealing-block during the operation of said gripping device, substantially as and for the purpose set forth.

10. In an implement of the character described, the combination of a slotted lever having upwardly-projecting side enlargements at its front end, a lever pivotally connected between said enlargements, an intermediate lever slotted in said first-named lever and pivotally connected at its rear end with the rear end of said first-named lever, a bracket carried by the front end of said first-named lever, and a transversely-movable gripping device carried by said bracket, substantially as and for the purpose set forth.

702,852. STEAM-HEATING APPARATUS. CHARLES H. ATKIN, Chicago, Ill., assignor to Warren Webster, Merchantsville, N.J. Filed Mar. 20, 1902. Serial No. 2,002. (No model.)



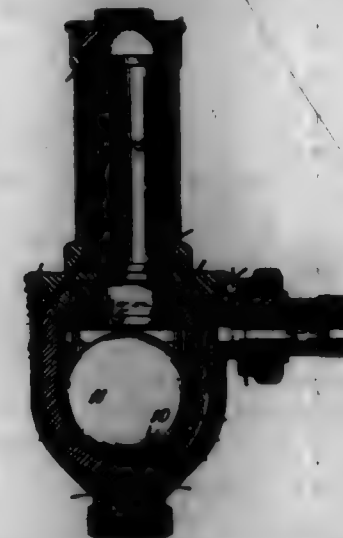
Claim.—1. A relief-valve device for steam-heating apparatus, consisting of a valve-body provided with an inlet and an outlet, an automatic valve controlled by the conditions on the inlet side of said valve-body to control said outlet, said valve device being provided with an air passage-way between the inlet and the outlet beyond the automatic valve, and a steam-barrier interposed in said air passage-way and composed of porous material pervious to air but impervious to steam in a state of vapor, whereby the air may escape through said steam-barrier and air passage-way independently of the operation of said automatic valve.

2. A relief-valve device for steam-heating apparatus, consisting of a valve-body provided with an inlet and an outlet, an automatic valve controlled by the conditions on the inlet side of said valve-body to control said outlet, said valve device being provided with an air passage-way between the inlet and the outlet beyond the automatic valve, and a steam-barrier interposed in said air passage-way and composed of porous material pervious to air and impervious to steam in a state of vapor, in combination with means to create a partial vacuum or lower pressure in the outlet of the valve device, whereby the air may be drawn out through said steam-barrier and air passage-way independently of the operation of said automatic valve.

3. A relief-valve device for steam-heating apparatus, consisting of a valve-body provided with an inlet and an outlet, an automatic float-valve controlled by the water of condensation on the inlet side of said valve-body to control said outlet, said valve device being provided with an air passage-way between the inlet and the outlet beyond the float-valve, and a steam-barrier interposed in said air passage-way and composed of porous material pervious to air but impervious to steam in a state of vapor, whereby the air may escape through said steam-barrier and air passage-way independently of the operation of said automatic valve.

4. In a steam-heating apparatus, the combination of a steam-radiating device provided with an outlet, a return-pipe communicating with said outlet, means to create a partial vacuum or lower pressure in said return, an automatic valve to control the communication between said radiator-outlet and the return, an air by-pass forming a communication between the radiator-outlet and the return beyond the said automatic valve, and a steam-barrier interposed in said by-pass between the outlet of the radiating device and the return consisting of porous material pervious to air and impervious to steam in a state of vapor, whereby the air is drawn out of said radiating device through said steam-barrier into the return without loss of uncondensed steam and the water of condensation may be discharged through said automatic valve.

702,853. WATER AND AIR RELIEF-VALVE FOR STEAM-PIPES. CHARLES H. ATKIN, Chicago, Ill., assignor to Warren Webster, Merchantsville, N.J. Filed July 22, 1902. Serial No. 24,462. (No model.)



Claim.—1. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, a movable cage within said valve-body fitting said outlet and provided with a valve passage-way communicating therewith, said cage being provided with an air passage-way communicating with said outlet, an automatic valve within said cage controlling the valve passage-way therein, and a porous steam-barrier between the inlet and the air passage-way in said cage.

2. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, an automatic valve normally controlling the thoroughfare between said inlet and outlet, a removable cage within the valve-body carrying said automatic valve and provided with an air passage-way communicating with the outlet beyond said valve, and a porous steam-barrier between the inlet and the air passage-way in said cage.

3. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, an automatic valve normally controlling the thoroughfare between said inlet and outlet, a removable cage within the valve-body carrying said automatic valve and provided with an air passage-way communicating with the outlet beyond said valve, a cap for said valve-body carrying said cage provided with an air passage-way communicating with the air passage-way in said cage, and a porous steam-barrier carried by said cap and interposed between the inlet of the valve-body and the air passage-way in the cap.

4. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, an automatic valve normally controlling the thoroughfare between said inlet and outlet, a removable cage within the valve-body carrying said automatic valve and provided with an air passage-way communicating with the outlet beyond said valve, a cap for said valve-body carrying said cage and provided with an extension, a tubular porous steam-barrier carried by said cap and having one side in communication with the inlet, said cap being provided with an air passage-way leading from the other side of the tubular steam-barrier to the air passage-way in the cage.

5. In a relief-valve for the purposes described, the combination of a

valve-body having an inlet and an outlet, an automatic valve normally controlling the thoroughfare between said inlet and outlet, a cap closing said valve-body and carrying a casing having an air passage-way communicating with the outlet beyond the automatic valve, a tubular porous steam-barrier in said casing having one end sealed against the casing, a cap closing the other end of the casing and sealed against the other end of the said porous barrier, said air passage-way in the casing opening to the exterior of the tubular barrier and the interior of the barrier communicating with the inlet.

6. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, a cap closing said valve-body and having a supplemental threaded nipple, a valve-cage carried by said nipple independently of the valve-body and having a valve passage-way communicating with the outlet, a valve in said cage to control said valve passage-way, said cap being provided with an air passage-way communicating with the outlet beyond said valve, and a porous steam-barrier between said air passage-way and the inlet of the valve-body.

7. In a relief-valve for the purposes described, the combination of a valve-body having an inlet and an outlet, a cap closing said valve-body and having a supplemental nipple, a valve-cage carried by said nipple independently of the valve-body and having a portion fitting and partially closing said outlet and provided with a valve passage-way communicating therewith, and an automatic valve carried by said cage and controlling said valve passage-way.

702,854. SURVEYING INSTRUMENT. JOHN BRAL, Denver, Colo. Filed Feb. 5, 1902. Serial No. 23,265. (No model.)



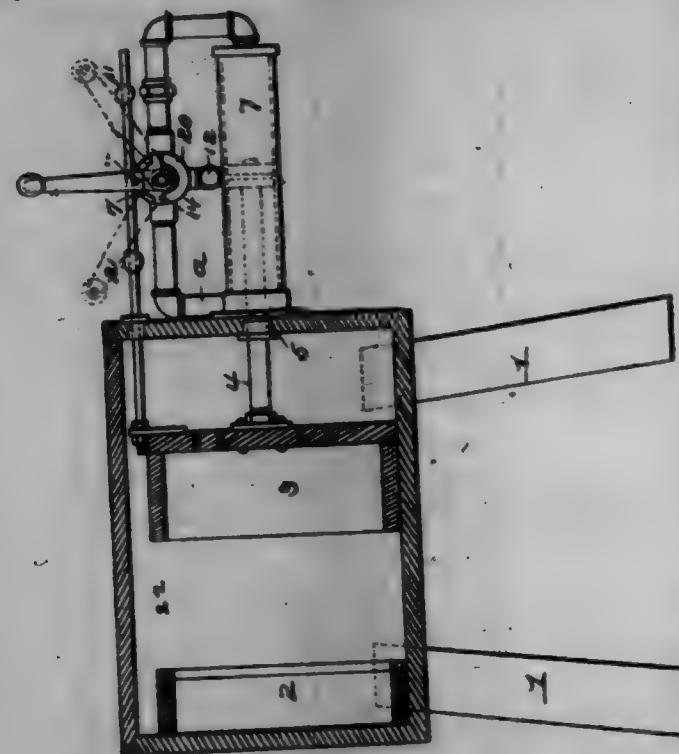
Claim.—1. The combination, of a frame revolvably mounted and provided with two upwardly-projecting arms, a telescope transverse on said arms, a graduated concentric plate, attached to the telescope and occupying a plane perpendicular to the platform, one frame-arm having an offset end projecting upwardly therefrom and outwardly through an opening in the graduated plate, the arrangement being such that the plate is free to move with the telescope as the latter is turned on its transverse, the graduated part of the plate adjacent the offset of the frame-arm, being outside of the latter, substantially as described.

2. The combination of a frame revolvably mounted and comprising a base and upwardly-projecting arms, a telescope transverse on said arms at their upper extremities, a concentric graduated plate attached to the telescope and occupying a position perpendicular to the platform, one of the frame-arms having an offset, the said arm projecting upwardly and outwardly from said offset through an opening in the plate whose lower portion is outside of the frame, a micrometer-screw journaled on the offset part of the arm and engaging the edge of the plate which is toothed therefor, and an index or pointer mounted on the offset adjacent the graduated edge of the plate, substantially as described.

3. The combination of a frame revolvably mounted and comprising a base and upwardly-projecting arms, a graduated plate attached to the base of the frame parallel with the platform, a compass mounted on the base of the frame between the arms, a telescope transverse on the upper extremities of the arms, a graduated plate mounted to move with the telescope and occupying a position perpendicular to the platform of the instrument, one of the frame-arms having an offset projecting inwardly above the base of the frame, the said arm projecting outwardly through an opening in the last-named graduated plate, whereby the lower part of the latter is outside of the frame-arm, a micrometer screw journaled in the offset of the frame-arm and engaging the edge of the perpendicular plate which is toothed for the purpose, and an index or pointer mounted on the offset adjacent the said plate, substantially as described.

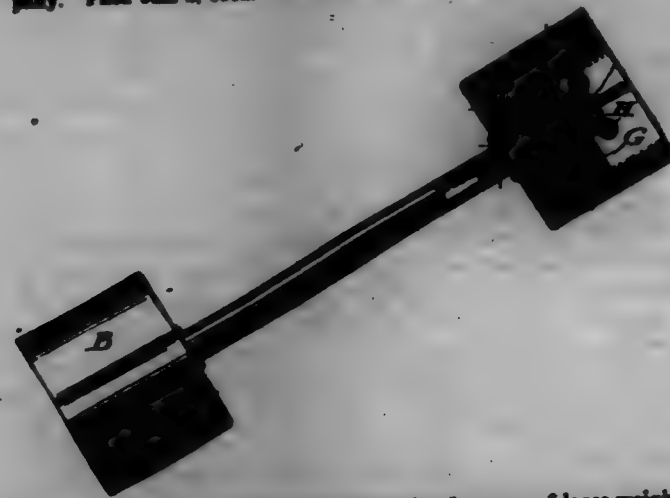
702,855. WARNING-MACHINE. DAVID BOORMAN and ALBERT F. SHARP, Auburn, Pa.; said Sharp assignor to WILLIAM H. SHARP and JOHN E. WILLIAMS, Allentown, Pa. Filed Nov. 15, 1901. Serial No. 736,908. (No model.)

Claim.—1. In a washing apparatus, the combination with a clothes-receptacle, a plunger disposed therein and a plunger-rod projecting through one end of the clothes-receptacle, of a cylinder secured to one end of the clothes-receptacle and into which plunger-rod projects, a piston secured to the plunger-rod within said cylinder, inlet-pipes communicating with the respective ends of said cylinder, a valve for controlling the alternate entrance and exhaust of motive fluid through said pipes and means connected with and actuated by the movements of the plunger in the clothes-receptacle for operating said valve, substantially as set forth.



2. In a washing apparatus, the combination with a clothes-receptacle, a plunger therein and a plunger-rod projecting through one end of the clothes-receptacle, of a cylinder secured to one end of the receptacle and into which said plunger-rod projects, a piston in the cylinder and secured to the plunger-rod, a valve-cock having four ports, supply-pipes connecting two of said ports with the respective ends of the cylinder and the other two ports constituting inlet and exhaust ports respectively, a valve in said cock to connect the respective supply-ports alternately with the inlet-port and exhaust-port, a plate or arm secured to the stem of the valve, a weighted arm mounted loosely on said stem and having a part to engage said plate or arm alternately at respective sides of its center, a rod connected to and movable with the plunger in the clothes-receptacle, and adjustable lugs on said rod to throw the weighted arm and effect the shifting of the valve as said plunger moves from end to end of its throw.

702,856. BAR-BELL. ALAN CALVERT, Philadelphia, Pa., assignor to himself and Anro Darby Lamm, trading as the McE Bar Bell Company. Filed Jan. 2, 1902. Serial No. 94,103. (No model.)



Claim.—1. A bar-bell having a hallow head, a mass of loose weighting pieces therein, a follower adapted to adjust the weight-receiving capacity of the chamber in said head and tighten said pieces, said follower being provided with an opening offering access to said chamber without displacement of the follower and a closure for said opening.

2. A bar-bell having a hallow head, a mass of loose polist-weights therein, a follower therein adapted to be moved in and out to adjust the

weight-receiving capacity of the chamber in said head, said follower being provided with an opening adapted to form a communication with said chamber from the exterior of the head, and a closure for said opening.

3. In a bar-bell, a hallow head, a screw rising from the base thereof, a follower in said head mounted on said screw, said follower being provided with an opening, means for connecting said screw with said head, means for connecting said head with the handle of the device and a removable closure for said opening.

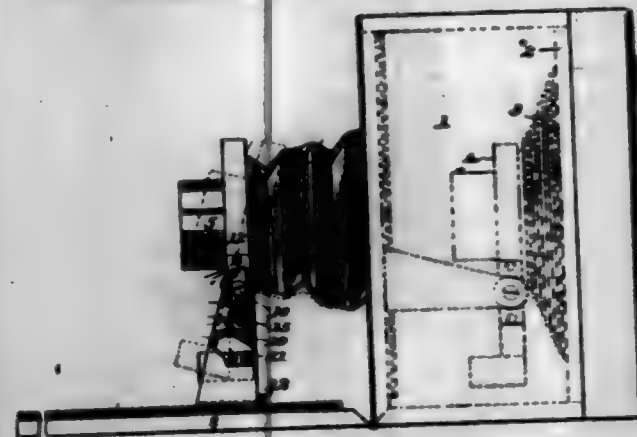
702,857. DETONATING COMPOSITION. HANS VON DANKER, Vienna, Austria-Hungary. Filed Dec. 2, 1901. Serial No. 94,468. (No specimens.)

Claim.—1. A detonating composition consisting of a mixture of copper-ammonium nitrate, potassium nitrate, sulfur and aluminium, substantially as described.

2. A detonating composition consisting of a mixture of substantially from thirty to forty parts of copper-ammonium nitrate, forty-two to twenty-five parts of potassium nitrate, ten to seven parts of sulfur and eighteen to twenty-eight parts of aluminium.

3. A detonating composition consisting of a mixture of copper-ammonium nitrate, potassium nitrate, sulfur, aluminium and a suitable nitrate-of-ammonium explosive substantially as described.

702,858. PHOTOGRAPHIC CAMERA. ALBERT D. DAVIS, York, N. Y., assignor of one-half to Frederick W. Livermore, New York. N. Y. Filed Apr. 18, 1901. Serial No. 94,710. (No model.)



Claim.—1. In a camera, a frame carrying the focusing member of the camera, and a stop and spring co-operating together to maintain the focusing-member-carrying frame in an upright position, said spring exerting a pressure in one direction on said frame and the stop acting in opposition thereto, and said frame adapted to move away from the stop when the tension of the spring is overcome in the operation of closing the camera, substantially as described.

2. In a camera, a frame carrying the focusing member of the camera, an adjustable stop and means co-operating therewith to maintain the focusing-member-carrying frame, in an upright position at various adjustments, substantially as described.

3. In a camera, a frame carrying the focusing member of the camera, a support with which said frame has a swinging connection, a spring connected with a part of said frame and with a member against which it bears, and a stop co-operating with said spring to maintain said frame in an upright position, said spring exerting a pressure in one direction on said frame and the stop acting in opposition thereto, and said frame adapted to move away from the stop when the tension of the spring is overcome in the operation of closing the camera, substantially as described.

4. In a camera, a frame carrying the focusing member of the camera, a support with which said frame has a swinging connection, means for limiting the movement of said frame in one direction consisting of a stop and a pawl, and a spring co-operating with said means for maintaining said frame in an upright position, substantially as described.

5. In a camera, a frame carrying the focusing member of the camera, a support with which said frame has a swinging connection, means for limiting the movement of said frame in one direction consisting of a pawl and a series of steps for stopping the movement at various adjustments, and a spring co-operating with said means for maintaining said frame in an upright position, substantially as described.

6. In a camera, a frame carrying the focusing member of the camera, a support with which said frame has a swinging connection, means for limiting the movement of said frame in one direction consisting of a stop and a spring-influenced pawl, and a spring co-operating with said means for maintaining said frame in an upright position, substantially as described.

7. In a camera, a frame carrying the focusing member of the camera, a support with which said frame has a swinging connection, means for

limiting the movement of said frame in one direction consisting of a spring-influenced pawl and a stop, and means co-operating with said means for maintaining said frame in an upright position, substantially as described.

8. In a camera, a frame carrying the focusing member of the camera, a support for said frame, a piston effecting a swinging connection of said frame with said support, a spring connected at one point with said support and at another point with a part of said frame, a shell formed with a ratchet and connected to said frame, a pawl to engage said ratchet and having a slotted shank, through which a guiding pin or pinion passes, and a spring acting on said pawl, substantially as described.

702,859. GUN-CLEANING TOOL. ALFRED H. DUNSTON, Syracuse, N. Y. Filed Jan. 2, 1901. Serial No. 41,794. (No model.)



Claim.—1. A gun-cleaning tool comprising a main body, a part having its rear end normally fixed to the main body, supporting members arranged on opposite sides of said part and formed of spring material, said supporting members having their rear ends fixed relatively to the main body and their front ends movable lengthwise of said part, and abrasive members mounted on the supporting members, substantially as and for the purpose described.

2. A gun-cleaning tool comprising a main body, a part having its rear end adjustable lengthwise of the main body and normally fixed thereto, supporting members arranged on opposite sides of said part and formed of spring material, said supporting members having their rear ends fixed relatively to the main body and their front ends movable lengthwise of said part, and abrasive members mounted on the supporting members and connected to said part, substantially as and for the purpose specified.

3. A gun-cleaning tool comprising a main body, opposite supporting members formed of spring material and having their rear ends fixed to the main body, abrasive members mounted on the supporting members, and an adjusting part for forcing outwardly the intermediate portions of the supporting members, said adjusting part having its rear end adjustable lengthwise of the main body and normally fixed thereto and having its front end connected to the corresponding ends of the supporting members, substantially as and for the purpose described.

4. A gun-cleaning tool comprising a main body formed with a threaded longitudinal socket, opposite supporting members formed of spring material and having their rear ends fixed to the main body, abrasive members mounted on the supporting members, and an adjusting part for forcing outwardly the intermediate portions of the supporting members, said adjustable part having its rear end adjustable lengthwise in the threaded socket and normally fixed thereto and having its front end provided with a shoulder for forcing rearwardly the front ends of the supporting members, substantially as and for the purpose specified.

5. A gun-cleaning tool comprising a main body, opposite supporting members formed of spring material and having their rear ends fixed to the main body and their front ends provided with laterally-extending portions lapped upon each other, abrasive members mounted on the supporting members, and an adjusting part for forcing outwardly the intermediate portions of the supporting members, said adjusting part having its rear end adjustable lengthwise of the main body and normally fixed thereto and having its front end connected to the laterally-extending portions of the front ends of the supporting members, substantially as and for the purpose set forth.

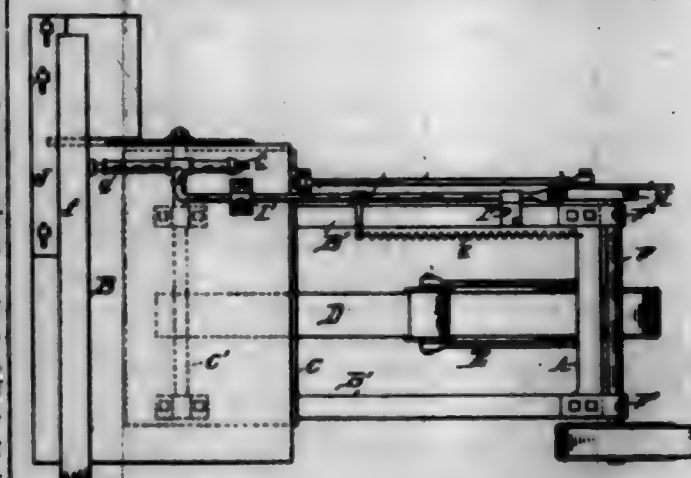
6. A gun-cleaning tool comprising a main body formed with a threaded longitudinal socket, opposite supporting members formed of spring material and having their rear ends fixed to the main body and their front ends provided with laterally-extending portions lapped upon each other and formed with notches aligned with each other, abrasive members mounted on the supporting members, and an adjusting part for forcing outwardly the intermediate portions of the supporting members, said adjustable part having its rear end adjustable lengthwise in the threaded socket and normally fixed thereto and having its front end passed through the notches in the laterally-extending portions of the supporting members and provided with a shoulder arranged in advance of said laterally-extending portions for forcing the same rearwardly, substantially as and for the purpose described.

7. A gun-cleaning tool comprising a main body, opposite supporting members formed of spring material and having their rear ends fixed to the main body and their front ends separable, abrasive members mounted on the supporting members and having their rear ends fixed to the main body and their front ends united together in advance of the separable ends of the supporting members, and an adjusting part for forcing outwardly the intermediate portions of the supporting members, said adjusting part having its rear end adjustable lengthwise of the main body and normally fixed thereto and having its front end provided with a shoulder

arranged in advance of the point of union of the abrasive members, substantially as and for the purpose specified.

8. A gun-cleaning tool comprising a main body formed with a threaded longitudinal socket and slots arranged on opposite sides of the socket, opposite supporting members formed of spring material and having their rear ends fixed to the main body within said slots and their front ends separable and provided with laterally-extending portions lapped upon each other and formed with notches aligned with each other, abrasive members mounted on the supporting members and having their rear ends fixed to the supporting members within said slots and their front ends united together in advance of the separable ends of the supporting members, and an adjusting part having its rear end adjustable lengthwise in the threaded socket and normally fixed thereto and having its front end passed through the notches in the laterally-extending portions of the supporting members and provided with a shoulder arranged in advance of the point of union of the abrasive members, substantially as and for the purpose set forth.

702,860. AUTOMATIC-CUT-OFF SAWING-MACHINE. WILLIAM M. DUNSTON, Detroit, Mich. Filed Jan. 30, 1902. Serial No. 91,946. (No model.)



Claim.—1. In a device of the character described, the combination with the frame formed with guides and a feed-table secured thereto and located above the said frame-guides, of a shaft journaled in the frame; a cam and crank disk upon the shaft, means for rotating said shaft, a saw-carriage mounted in the said guides of the frame below the said feed-table, a rod connecting said saw and disk, a second rod co-operating with said cam and having its forward end mounted in bearings on the upper face of the feed-table, a yielding finger secured to the forward end of said second rod, a stop on said feed-table against which said finger is adapted to clamp the material to be cut, said finger and carriage being driven from a common shaft in timed relation to each other.

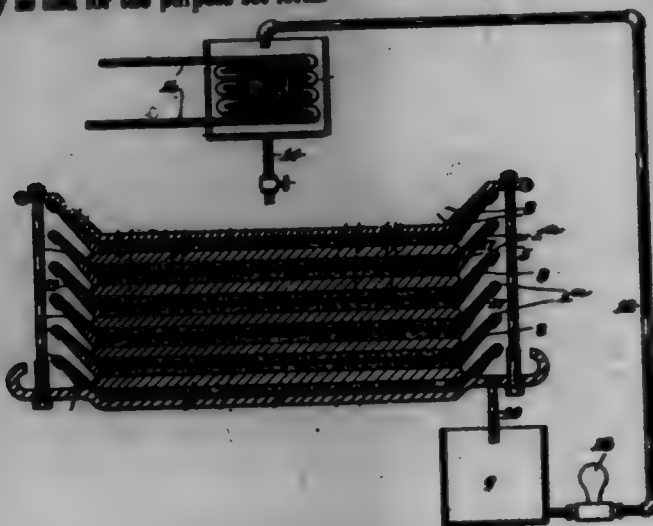
2. In a device of the character described, the combination with the main frame formed with guides, of a saw-carriage mounted in said guides, a shaft and actuating means therefor, a cam-disk carried by said shaft, a rod connecting said disk and carriage, a second rod extending above the saw-carriage and at one end carrying an antifriction-wheel traveling in rolling contact with said cam and bent at its other end at an approximate right angle, a tubular sleeve secured to outer end of said bent portion and lying in a plane parallel to the body portion of said rod, a finger provided with a curved-threaded shank mounted in said sleeve, a coil-spring connected to the said finger and sleeve, whereby the said finger will be yieldingly held, and adjusting-nuts on the inner end of the said screw-threaded shank.

702,861. STORAGE BATTERY. ARTHUR D. ROCHSTER, Philadelphia, Pa., assignor of one-half to Harry C. Oampton and John W. Jennings, Philadelphia, Pa. Filed Nov. 12, 1900. Serial No. 94,948. (No model.)

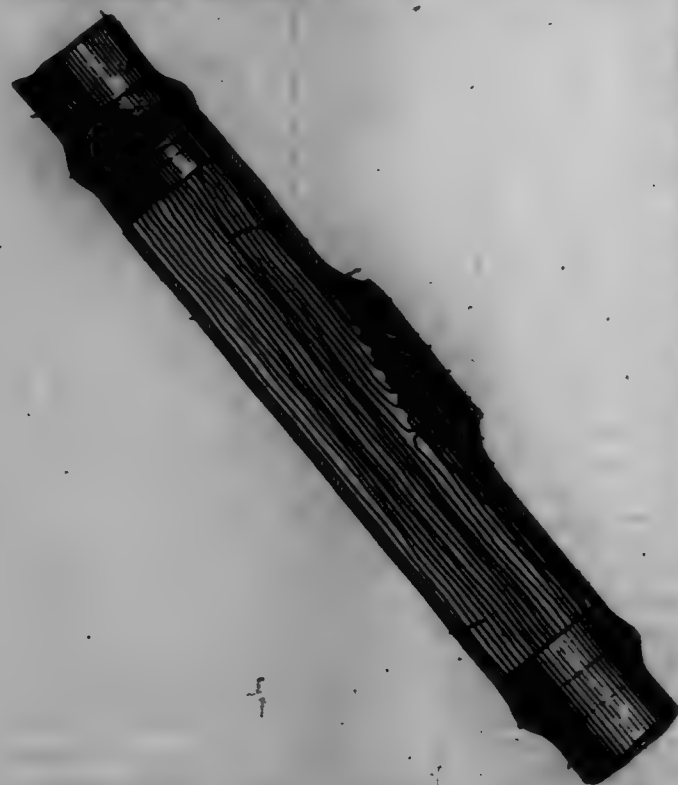
Claim.—1. In a storage battery of the character recited, the combination of the series of superposed, pan-shaped lead plates having their flaring sides provided with perforations, the perforations of each plate leading into the space between it and the next succeeding plate, whereby the excess of the electrolyte in one of said plates will overflow into the next plate, and so on, and a separating layer between said plates consisting of an absorbent, non-conducting, acid-resisting material, substantially as and for the purpose set forth.

2. In a storage battery of the character described, the series of superposed pan-shaped lead plates having their flaring sides provided with perforations on opposite sides of successive plates, the perforations of each plate leading into the space between it and the next succeeding plate, substantially as and for the purpose specified.

3. In a storage battery of the character described, the combination of the series of pan-shaped lead plates, having the perforated sides, intervening energizing substance, a separating layer between said plates consisting of an absorbent, non-conducting, acid-resisting substance, and means for effecting the recirculation of the electrolyte, and means for regulating the temperature of the same before it is returned to the battery, substantially as and for the purpose set forth.



702,862. TEST-CLIP. WILLIAM W. KENNEDY, Boston, Mass., assignor to Charles S. Gooding, Brookline, Mass. Filed Nov. 5, 1901. Serial No. 81,313. (No model.)



Claim.—1. As an article of manufacture, a test-clip for cables, comprising a plate adapted to be attached to a cable, provided with a chamber, and a cover detachably attached to said plate.

2. As an article of manufacture, a test-clip for cables comprising a plate adapted to be attached to a cable, provided with a chamber extending therefrom, and a cover detachably attached to said plate and closing said chamber on one side thereof.

3. As an article of manufacture, a test-clip for cables comprising a plate adapted to be attached to a cable, provided with a chamber, a cover detachably attached to said plate, and a packing introduced between said cover and plate.

4. As an article of manufacture, a test-clip for cables comprising a plate adapted to be attached to a cable, provided with a chamber, a cover detachably attached to said plate and means contained within said chamber for connecting the free ends of two wires to each other.

5. As an article of manufacture, a test-clip for cables comprising a plate adapted to be attached to a cable, provided with a chamber, a cover detachably attached to said plate, and means contained within said chamber and insulated from said test-clip for connecting the free ends of two wires to each other.

6. In combination, a cable consisting of strands of wire incased in a

lead covering, said covering having an opening in the periphery thereof and a test-clip fast to said covering and inclosing said opening.

7. In combination, a cable consisting of strands of wire incased in a lead covering, and a test-clip comprising a plate fast to said covering, provided with a chamber, and a cover detachably attached to said plate.

8. In combination, a cable consisting of strands of wire incased in a lead covering, a test-clip comprising a plate fast to said covering, provided with a chamber extending therefrom, and a cover detachably attached to said plate and closing said chamber on one side thereof.

9. In combination, a cable consisting of strands of wire incased in a lead covering, a test-clip comprising a plate fast to said covering, provided with a chamber, a cover detachably attached to said plate, and means contained within said chamber for connecting the free ends of two wires leading from said cable to each other.

702,863. FUL-LOCK AND KEY. JOHN F. FINNER, Dundee, Ill. Filed Apr. 5, 1901. Serial No. 84,484. (No model.)



Claim.—1. The combination with an axle having a reduced end portion, of a recessed nut adapted to such reduced portion and having a perforation for the reception of a locking-pin, and a spring-pressed locking-pin carried by the reduced portion of the axle and adapted to extend centrally through the perforation to prevent access of foreign matter therein, said pin having fixed limits of inward and outward movement.

2. The combination with an axle having a reduced end portion, of a nut adapted to said reduced end portion, and having a perforation for the reception of a locking-pin, and a spring-pressed locking-pin carried by the axle and adapted to said perforation, said pin having a shoulder for engagement with the inner wall of the nut, and a second shoulder adapted to prevent excessive inward movement of said pin.

3. The combination with an axle having a reduced end portion, of a recessed nut adapted to such reduced portion and having a perforation for the reception of a locking-pin, interfitting and abutting lugs provided on both the reduced end portion of the axle and the nut to prevent excessive movement of the latter, and a locking-pin carried by the axle and adapted to extend within said perforation.

4. The combination with an axle having a reduced end portion, a recessed nut adapted thereto and having a perforation for the reception of a locking-pin, interfitting and abutting lugs provided on the axle and nut, a locking-pin having an enlarged central portion forming end shoulders for preventing excessive outward movement of the pin, said pin being adapted to a suitable opening in the end of the axle, and a spring seated within said opening and normally projecting the pin, substantially as specified.

702,864. ELEVATOR SWITCH. JAMES J. FLINT, Denver, Colo. assignor to the Flint-Lamex Electric and Manufacturing Company, Denver, Colo. Filed July 20, 1901. Serial No. 70,082. (No model.)



Claim.—1. In an electric switch, the combination with a switch-base, push-button, and a frame attached to the base, of a rocking plate pivoted on the frame at its inner extremity and projecting laterally on opposite sides of said pivot, the plate having an outwardly-projecting arm, a rocking bar pivoted on the frame between the rocking plate and the push-button, and provided with a central opening into which the outwardly-projecting arm of the rocking plate passes, the rocking bar having inwardly-projecting arms arranged on opposite sides of the arm of the rocking plate, the outer extremity of the rocking-plate arm having a cross-piece, coil-springs connecting the respective extremities of the cross-piece with the inner extremities of the rocking-bar arms, and rods or links passing through the central opening of the rocking bar, and connecting the extremities of the rocking plate on opposite sides of the pivot, with the push-button.

2. In an electric switch, the combination with a switch-base and

push-button, of a frame attached to the base and having two separated inwardly-projecting parts whose inner extremities are bent toward each other, a rocking plate mounted between the inner extremities of the frame parts, a rivet connecting the said frame-part extremities and forming the fulcrum of the rocking plate which is provided with an arm, a rocking bar pivoted on the frame and provided with an arm, the plate and the bar being separated and having their arms projecting in opposite directions, a spring connecting the arms of the two parts and arranged to hold them firmly in either position of adjustment, and two links or rods attached to the push-button and connecting the rocking plate on opposite sides of its fulcrum.

3. In an electric switch, the combination with a base, a frame and push-button, of a rocking plate fulcrumed on the inner extremity of the frame, having laterally-projecting arms and an outwardly-projecting arm, a rocking bar pivoted on the frame and centrally bifurcated, the said bar being located between the rocking plate and the push-button, its opposite extremities being provided with contacts insulated from the body of the bar, the arrangement being such that the inwardly-projecting arm of the rocking plate passes into the central opening of the rocking bar which is provided with two inwardly-projecting arms, one extending from each part of its bifurcated portion, coil-springs connecting the inner extremities of the rocking-bar arms, with the outer extremity of the rocking-plate arm, and rods or links connecting the rocking plate on opposite sides of its pivot with the respective push-button.

4. In an electric switch, the combination with a base, a frame and push-button, of a rocking plate pivoted on the frame at its inner extremity, projecting equally on opposite sides from said pivot, the parts on the opposite sides of the pivot, having lateral projections, the rocking plate having also an outwardly-projecting arm, a rocking bar fulcrumed on the frame between the rocking plate and the push-button, said bar being centrally bifurcated, its extremities having contacts insulated from the body of the bar which is provided with two inwardly-projecting arms one extending from each part of its bifurcated portion, one of the said rocking-bar arms projecting into the path of the said lateral projections of the rocking plate, coil-springs connecting the outer extremity of the rocking-plate arm, with the inner extremities of the rocking-bar arms, and links or rods connecting the rocking plate with the push-button.

5. In an electric switch, the combination with a base, a frame, push-button, and brushes, of a rocking plate pivoted on the inner extremity of the frame and provided with parts extending equally on both sides of its pivot, and an outwardly-projecting arm, a rocking bar fulcrumed on the frame between the rocking plate and the push-button, said bar being centrally bifurcated, and its extremities being provided with contacts insulated from the body of the bar and arranged to engage the brushes, the inwardly-projecting arm of the rocking plate projecting into a central opening of the bar, the said bar having an arm projecting inwardly from each bifurcated part, coil-springs connecting the inner extremities of the rocking-bar arms with the outer extremity of the rocking-plate arm, and links passing through the central opening of the rocking bar, and connecting the rocking plate with the push-button.

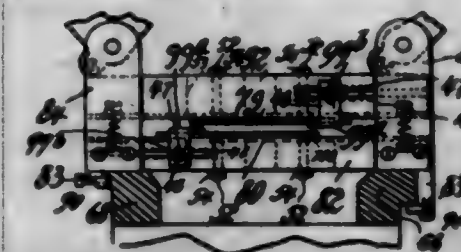
6. In an electric switch, the combination with a base, a cover, push-button and brushes, of a frame attached to the base and having two separated inwardly-projecting parts whose inner extremities are bent toward each other, a bridge-piece connecting said extremities and secured to the cover, a rocking plate pivoted between the inner extremities of the frame parts, and provided with an outwardly-projecting arm, a rocking bar fulcrumed on the frame between the rocking plate and the push-button, its central part being bifurcated and its extremities having contacts insulated from the body of the bar and arranged to cooperate with the brushes, the arm of the rocking plate entering the central opening of the said bar which is provided with inwardly-projecting arms, one arm extending from each part of the bar's bifurcated portion, the rocking plate being provided with projections arranged to engage one of the rocking-bar arms, coil-springs connecting the arm of the rocking plate with the arms of the rocking bar, and rods or links connecting the rocking plate with the push-button, substantially as described.

702,865. GRABBING OR SCORING AND HITTING MECHANISM FOR PAPER-BOX MANUFACTURE. CHAMBERLAIN W. SALT, West Spring, Md. Filed Oct. 18, 1900. Serial No. 33,671. (No model.)

Claim.—1. In a paper-box-blank-making machine, the combination with cross-cutting devices comprising plates or blades arranged for operation as described, of a die for marginally operating on the blank, which is adjustable overwise of the machine, and having its follow die formed by a part of one of the cross-cutting blades.

2. In a paper-box-blank-making machine, a pair of cross-cutting plates or blades and supports on which they are endwise adjustable, opposite ends of the blades being V ends, of two dies for marginally operating on the blank, also adjustable on said supports, independently of

said plates, and in the line of the length of the latter, all arranged to have matching positions to transversely score and marginally miter blanks of different widths, substantially as described.



3. In a blank-making mechanism, the combination with the die-carrier 82, 83, each having three or more endwise-adjustable scoring-plates, and opposite ends thereof constituting marginally-operating die members, and means for confining said plates in their adjustments; of the die members 80 overlying opposite end portions of the scoring-plates, and each said member 80' consisting with a die-forming end of the relatively opposite scoring-plate, and having an angular extension overlying the face of its respective die-carrier; and having means engaged therewith for confining it in its adjusted position relatively to the length of the die-carrier.

4. The one die-carrier having a slot; and a die plate or blade, having its end formed V shape, provided with a threaded stud or bolt playing in and along said slot, and having a confining end therefor; combined with a second die support or carrier having a slot; and a mitering die provided with a threaded stud playing in and along said slot, and having a confining end therefor.

5. The combination with the die supports or carriers having the longitudinal slots 53 and 41; the scoring-die plates, or blades, 79 and 80, having their opposite ends constructed with V-shaped recesses 100, and having the threaded studs extending through the slots 53, and having the confining ends 47; of the mitering-die 80', having the angular extension 46, arranged to overlie opposite end portions of the die-plates 79, 80; screw studs or bolts, playing in and through the slots 47, and engaging the die extensions, and confining ends 80' therefor, substantially as described and shown.

6. In a paper-box-blank-making machine, the duplicated device for scoring the strip longitudinally each consisting of separated stationary die-walls having the space between each set stopped, and the stop in the one device being opposite the location of the stop in the other device.

7. In a paper-box machine, the duplicated device for scoring the strip longitudinally each consisting of separate stationary die-walls having the space between each set stopped, the stop in the one device being opposite the location of the stop in the other device, and each device being bodily adjustable overwise of the line of feed of the stock there-through, substantially as described.

8. In a paper-box-blank-making machine, cross-cutting devices comprising plates or blades arranged for operation as described, of a mitering-die which is adjustable overwise of the machine, and having its follow die formed as a part of one of the cross-cutting blades, combined with the pair of longitudinal scores each comprising separated die-walls having the space between them stop-formed, the stop of the one being opposite that of the other, and each device being bodily adjustable overwise, for the purpose set forth.

702,866. GATE. CHARLES R. FENNELL, Georgetown, Tex. Filed Nov. 4, 1901. Serial No. 81,000. (No model.)



Claim.—1. In a gate of the class described, the combination of a frame, an upright shaft having its ends journaled in bearings formed in or attached to the frame, arms radiating from and fixed by hubs to the

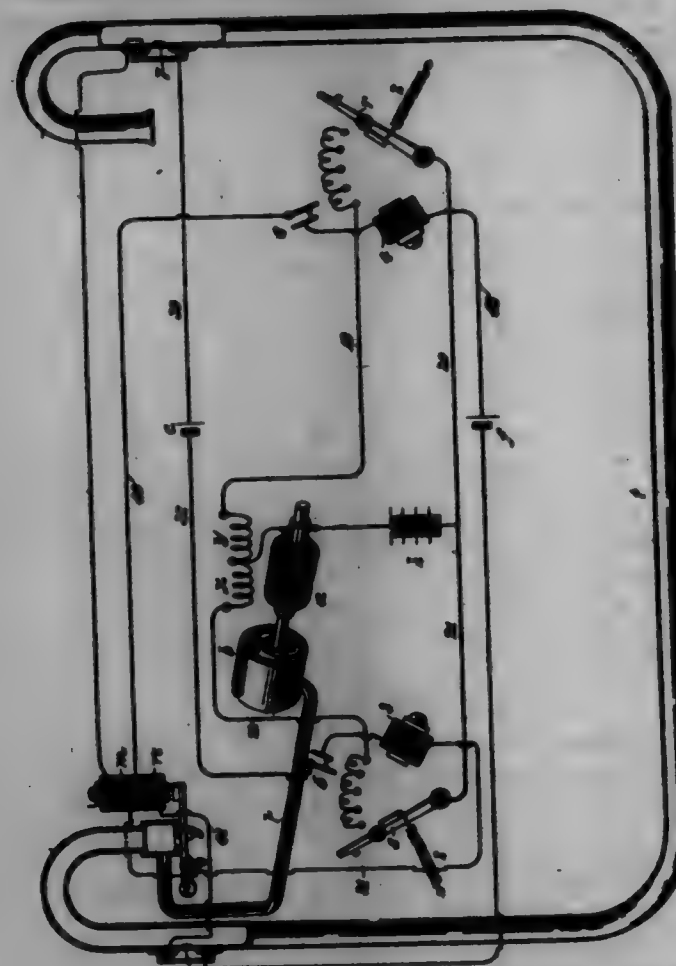
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shaft, a band held to the arms concentrically with the shaft, and wire connecting the arms to the said band, substantially as described.

2. In a gate of the class described, the combination of a frame, an upright shaft having its ends journaled in bearings formed in or attached to the frame, arms radiating from and fixed to the shaft, and a band held to the arms concentrically with the shaft, substantially as described.

3. As an improved article of manufacture in a gate of the class described a shaft having its ends journaled in bearings, and having staple-shaped or analogous rods radiating therefrom, a band held to the said rods, and wire connecting the rods to the said band, substantially as described.

702,867. PNEUMATIC-TRANSFER-TUBE SYSTEM. FRANK W. JOURN, New York, N. Y., assignor to the Transfer Tube Company, New York, N. Y., a Corporation of New York. Filed Apr. 26, 1902. Serial No. 104,805. (No model.)



Claim.—1. The combination with a tube of a reversible air-pump connected to one end thereof, a hinged gate at one end of the tube, an electromagnetic device to hold the gate closed, an automatic circuit-breaker at each station in the path of a moving carrier, a circuit-closer at each station and two circuits each including said electromagnetic device, a circuit-closer at one station and an automatic circuit-breaker at the other station.

2. The combination of a pneumatic tube, a reversible, motor-driven, air-pump, a tubular connection between said pump and one end of the tube, a gate at one end of the tube, a motor-starting device at each station, a circuit-closer at each station operated by the starting device, an automatic circuit-breaker at each station in position to be moved by a passing carrier, an electromagnetic device to hold said gate closed and electrical conductors arranged in two circuits each circuit including said electromagnetic device, a circuit-breaker at one station and a circuit-closer at the other station.

702,868. REIN-HOLDER. THOMAS KEMPTER, Philadelphia, Pa. Filed Apr. 5, 1902. Serial No. 101,915. (No model.)



Claim.—1. A rein-holder consisting of a plate adapted to be attached to the dashboard of a vehicle, a slot in said plate, and a clip consisting of a plurality of yielding members which are on opposite sides of said slot.

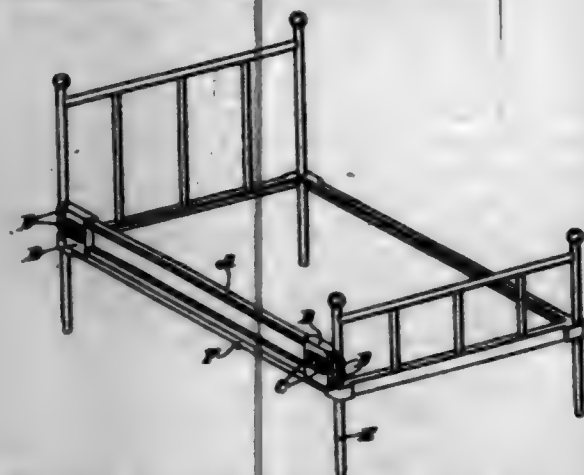
2. A rein-holder consisting of a plate adapted to be secured to the dashboard of a vehicle, a longitudinally-extending slot in said plate, a clip composed of two members located in said slot, one of said members having an outwardly-flaring and projecting beyond the extremity of said slot.

702,869. BLACK SULFUR DYE AND PROCESS OF MAKING SAME. IVAN LEVINSKY and CARL MANNING, Manchester, England, assignors to Levinstein, Limited, Manchester, England. Filed Oct. 2, 1901. Serial No. 77,226. (Specimen.)

Claim.—1. The heretofore-described process for the production of black sulfid coloring-matters, which consists in heating in the wet way and with the condition of dilution maintained, the heretofore-described nitrophenols with oxysulfonates and with sulfur and a sulfid of an alkali metal, substantially as set forth.

2. As new black sulfid coloring-matters, a black powder produced by heating in the wet way and with the condition of dilution maintained, the heretofore-described nitrophenols with oxysulfonates and with sulfur and a sulfid of an alkali metal, which powder is insoluble in water, insoluble in alcohol, soluble in a solution of sodium sulfid with a greenish-black color, soluble in concentrated sulfuric acid and precipitated therefrom on dilution with water, and dyes unmercerized cotton shades varying from bright red-black to greenish black.

702,870. BED-RAIL. ERNE G. LANGEWEY, Los Angeles, Cal. Filed Mar. 2, 1902. Serial No. 94,504. (No model.)



Claim.—1. The combination with the bedstead of the supplementary extension-rail A provided with the head-block B, adjustably secured thereto; adjusting-strap D removably secured to said extension-rail, and adapted to partly surround the corner-posts of the bedstead and to hold the same, in combination therewith.

2. In a bedstead the combination with the bedstead of an extension-rail A, the head-block B, adjustably secured thereto, adjusting-strap D interposed between the block and the rail and having a longitudinal movement therebetween, the strap being adapted to partly surround the bed-post and hold the rail and head-block in engagement therewith, and binding-balls C to hold the rail, the head-block and the adjusting-strap in frictional engagement, substantially as shown and described.

702,871. MOTOR-DRIVEN DEVICE OR MECHANISM. EMERY A. MEYER, Cincinnati, Ohio. Original application filed Apr. 13, 1901. Serial No. 94,729. Divided and this application filed July 12, 1901. Serial No. 93,103. (No model.)

Claim.—1. In a motor-actuated mechanism, driving and driven members, and a wrist connection therebetween comprising a pin on one member, and a removable bushing, constituting the bearing for the other member, fitted on said pin and having an outer integral retaining-flange, substantially as described.

2. In a motor-actuated mechanism, driving and driven members, and a wrist connection therebetween comprising a threaded pin on one member, and an interiorly-threaded bushing constituting the bearing for the other member, secured upon said pin and having an outer peripheral flange, substantially as described.

3. In a motor-actuated mechanism, driving and driven members, and a wrist connection therebetween comprising a threaded pin on one member, and an interiorly-threaded bushing, constituting the bearing for the other member, secured upon said pin and having a screw-headed cap provided with a peripheral retaining-flange, substantially as described.

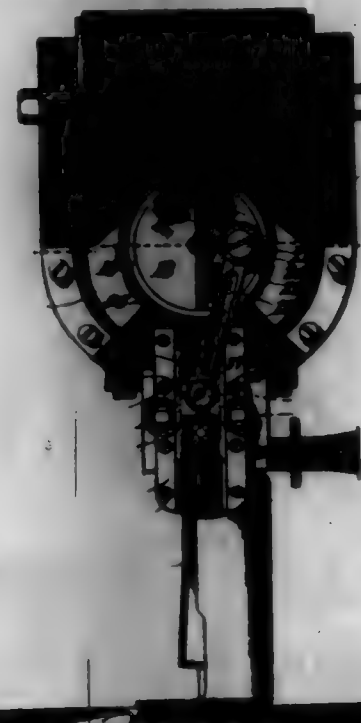
4. In a motor-actuated mechanism, driving and driven members, and a wrist connection therebetween comprising a hollow pin adapted to contain a lubricant and having a lateral oil-part, and a removable bush-

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ing, constituting the bearing for the other member, fitted on said pin and having integrally therewith an outer cap and peripheral retaining-flange, substantially as described.



5. In a motor-driven mechanism, including an electric motor, the combination with the armature having a core, of the shaft enclosed within said core, a sleeve fitting on said shaft and coupling the same with the core, a crank driven by said shaft, and a block or cross-head reciprocated from said crank, substantially as described.

6. In a motor-driven mechanism including an electric motor, the combination with the armature having a core, of the shaft screw-threaded at one end, a coupling member screwing thereon and notched at one end to engage said core, said clutch member being threaded externally at its other end, a crank screwd thereon, a block or cross-head, and reciprocating connections between the latter and the crank, substantially as described.

7. In a motor-driven mechanism including an electric motor, the combination with the armature and its core, of the shaft screw-threaded at one end, a coupling member screwing thereon and notched at one end to engage said core, said clutch member being threaded externally at its other end, a crank screwd thereon, a block or cross-head, and reciprocating connections between the latter and said crank, substantially as described.

8. In a motor-driven mechanism, the combination with the motor-shaft, of a coupling member on one end thereof locking the shaft to the motor, said coupling member being grooved externally, and anti-friction-bearings comprising adjustable grooved rings and rotatable balls confined between the grooves of said rings and coupling member, substantially as described.

9. In a motor-driven mechanism including an electric motor, the combination with the armature-shaft, and the motor-frame having the circular frame at each side thereof, of the coupling member between the shaft and the armature, the same having an external groove, the stationary rings in said rings, the duplicate rings in each stationary ring sitting in forming raceways containing anti-friction-balls, a crank driven by the shaft, a block or cross-head, and reciprocating connections between said block and the crank, substantially as described.

10. In a motor-driven mechanism including an electric motor, the combination of the armature-shaft having a core, a coupling member locking the core to the shaft, a crank fitted on said coupling member and operating a device, and anti-friction ball-bearings for each end of said shaft, substantially as described.

702,872. CONDUCTOR FOR CONCRETE. WILLIAM W. MONTGOMERY, Chicago, Ill., assignor of one-half to Thomas H. Montgomery, Chicago, Ill. Filed May 27, 1901. Serial No. 92,084. (No model.)

Claim.—1. In an apparatus of the class set forth, the combination of a conveyor consisting of a series of hollow cylindrical sections telescoped partially into each other at their adjacent ends and having rigid, close joints at each of said telescopic connections, a supporting-cable detachably attached to each of said sections, means for raising and lowering said supporting-cable and the attached conveyor, and means detachably connected to the topmost section for introducing the material to be conveyed into said topmost section, whereby the conveyor may be swung about at its lower end without pivotal or telescopic action at the joints and may be

extended by the addition of sections to or shortened by the removal of sections from the upper end of the conveyor.



2. In an apparatus of the class described, the combination of a conveyor consisting of a series of hollow cylindrical sections having the same diameter and tapered to telescope partially into each other at their adjoining ends, these joints being rigid but detachable, a supporting-cable attached to the lowermost section of the conveyor and adapted thereby to support the entire conveyor, means for detachably connecting the remaining sections to the cable, whereby said sections may be removed one by one from the upper end of the conveyor as the conveyor is bodily raised, means for bodily raising and lowering the conveyor, and a hopper having a spout detachably connected to the topmost section of the conveyor, for the purposes set forth.

3. In an apparatus of the class set forth, the combination of a conveyor consisting of a series of hollow cylindrical sections detachably connected together and having closed rigid joints at their adjoining ends, a supporting cable and means for connecting it to the lowermost section and detachably to the remaining sections, means for raising and lowering said cable and the attached sections, and means detachably connected to the topmost section for depositing the material to be conveyed thereinto, for the purposes set forth.

4. In a device of the class described, the combination with a conveyor composed of separate sections, with telescoping joints, a slotted car on each section, a cable passing through the slots of all the cars, a latch on each car to confine the cable in the slot, means such as an enlargement of the cable beneath the several cars to prevent the same from drawing through said cars, and a winch upon which the cable may be wound to raise and lower the conveyor.

5. In a device of the class described, the combination, with a conveyor composed of separately-detachable sections rigidly connected together and having their ends telescoped into each other to make a tight joint and enable the conveyor to be shifted bodily laterally and vertically, means for raising and lowering the conveyor, and means for depositing the material to be conveyed into the upper end of the conveyor.

6. In a device of the class described, the combination with a conveyor composed of independently detachable and attachable sections, a spout fitting into the top of the upper section, a hopper connected with the other end of the spout, a cable supporting said conveyor, a winch or drum about which the said cable is wound to hoist or lower the conveyor, and means to permit said spout to fit within the said top-section of the conveyor in the different positions of the conveyor determined by the wrapping of the cable upon, or its unwrapping from, the said winch or drum.

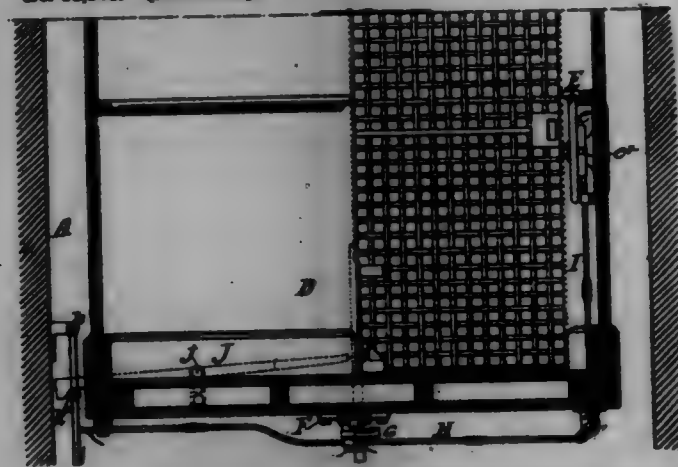
7. In a device of the class described, the combination with a conveyor composed of independently-detachable partially-telescoped sections, a spout fitting into the top section, a hopper connected with the other end of the spout, a cable supporting said conveyor, a drum about which

the said cable is wound to hoist or lower the conveyor, said spool being made extensible by telescoping sections and provided with a rotatable connection with the hopper.

8. In combination with a series of depending supporting-sections detachably connected together, means for raising and lowering said sections and supporting them, of sections of a speaking-tube secured respectively to the sections of said support and adapted to register and connect when said supporting-sections are put together, as and for the purposes set forth.

9. In a device of the class described, the combination with conveyor-sections having slotted lugs or ears, speaking-tube sections secured to said conveyor-sections in similar relation to the said lugs or ears, a cable passing through said lugs or ears to support the conveyor-sections, the said tube-sections registering with each other when the conveyor is so built up.

702,878. LOCKING DEVICE FOR ELEVATORS. MARK E. MCKEIL, JR., Philadelphia, Pa., assignor of one-third to John S. Muckle and Thomas Carpenter Smith, Philadelphia, Pa. Filed Nov. 4, 1901. Serial No. 81,572. (No model.)



Claim.—1. The combination in an elevating mechanism, of a landing, a door, an arm on the door, a car, a plate on the car and a lever pivoted to the car, said lever being in the path of the arm, starting and stopping mechanism, a bolt arranged to engage with said mechanism, means connecting the operating-bolt and the lever, a casing on the plate and a spring-plunger carried thereby in engagement with the lever, said plunger being arranged to complete the movement of the lever when this is moved by the opening of the landing-door, together with means for limiting the motion of the lever, substantially as described.

2. The combination in an elevator, of the landing, a door at the landing having an arm, a car, a lever pivoted to the car and having two arms arranged to be engaged by the arm on the door, starting and stopping mechanism on the car, a bolt arranged to engage the said return, a connection between the bolt and the said lever, the lever having a projecting hub portion provided with two bearing-faces one at an angle to the other, a spring-plunger arranged to bear against either of said faces, bearing against one face when the door is opened and bearing against the other face when the car-door is closed, substantially as described.

3. The combination of an elevator, a landing, a door at the landing, an arm projecting from the door, a car, starting and stopping mechanism on the car, a locking-bolt arranged to engage the starting and stopping mechanism, a plate on the bottom of the car, a lever pivoted to said plate and connected to the locking-bolt, said lever having two bearing-faces one at an angle to the other and joining on a center line through the lever, a casing on the plate, a plunger in said casing having a head arranged to bear against either one or the other of the said bearing-surfaces of the lever, a spring back of the plunger within the casing, and a reservoir back of the spring, substantially as described.

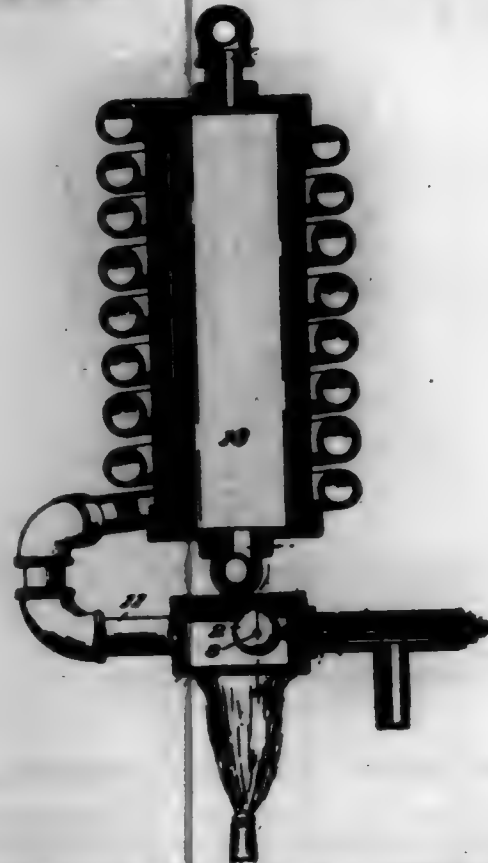
702,874. AIR SUPERHEATER OR CARBURETOR. HARRY H. MCGILL, Pittsburg, Pa., assignor to Pittsburg Gas Engine Company, Pittsburg, Pa. Filed Mar. 7, 1902. Serial No. 97,979. (No model.)

Claim.—1. A device of the character as described, consisting of a heating-chamber, a sphere located in said chamber and adapted to deflect the elements as they are introduced into the chamber against the walls of the same.

2. An apparatus of the character as described, consisting of a heating-chamber, a deflector means located within said chamber, a valve-casing connecting said chamber, said casing having an inlet, a hollow needle-valve located in said casing and a means for adjusting said valve.

3. A device of the character as described, consisting of a heating-chamber, a deflector located in the interior of said chamber, a valve-casing connecting said chamber, said valve-casing having an inlet, a hollow needle-valve located within the casing and a means for adjusting said

needle-valve with relation to the casing to regulate the capacity of the opening into the chamber.



4. A device of the character as described, consisting of a heating-chamber, a deflector located in said chamber, a means for introducing an element into the chamber against said deflector, a coil connected with said chamber and located above the heating means, a reservoir being connected with said coil and also being located above said heating means.

5. A device of the character as described, consisting of a heating-chamber, a deflector located in said chamber, a valve-casing entering said chamber, said valve-casing having an inlet a hollow needle-valve located within said casing and a means for adjusting said needle-valve, a coil connected with said chamber being located above the heating means, a reservoir surrounded by said coil, and also being located above the heating means and being connected to said coil.

702,875. GAS-ENGINE. FRANK L. HENCKA, Brooklyn, N. Y., assignor of one-half to Walter W. Rootwick, Brooklyn, N. Y. Filed Oct. 13, 1900. Serial No. 23,912. (No model.)

Claim.—1. In an internal-combustion motor in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-chamber within the casing and around the working piston, an air-passage from said chamber through the piston-head and to the exhaust-ports, and means to control the same.

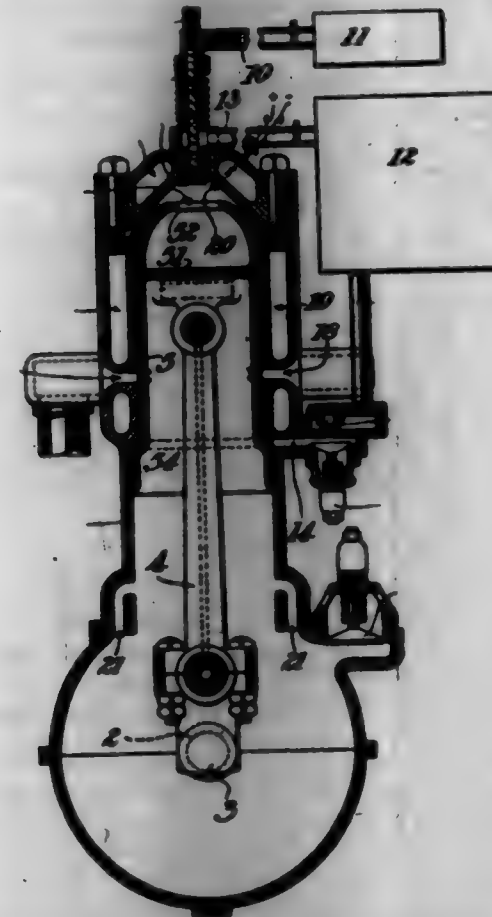
2. In an internal-combustion motor in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-chamber within the casing and around the working piston, an air-passage from said chamber through the piston-head and to the exhaust-ports, the working piston being the valve therefor.

3. In an internal-combustion motor in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-cylinder, a piston within said cylinder carried by the working piston, and a passage from the compression-cylinder through the working piston through the combustion-chamber to the exhaust-ports, and means to control the same.

4. In an internal-combustion motor in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-cylinder, a piston within said cylinder carried by the working piston, and a passage from the compression-cylinder through the working piston through the combustion-chamber to the exhaust-ports, the working piston being the valve therefor.

5. In an internal-combustion motor in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-cylinder, a piston within said cylinder carried by the working piston, a compression-chamber formed by the crank-casing, an air-passage from the in-

side of said chamber around the compression-piston to the annular compression-cylinder to and through the working piston, combustion-chamber and exhaust-ports, and means to control the same.



6. In an internal-combustion motor, in combination, a casing, an admission-valve, an air-supply, a fuel-supply, a working piston, exhaust-ports adjacent thereto and controlled thereby, an annular compression-cylinder, a piston within said cylinder carried by the working piston, a compression-chamber formed by the crank-casing, an air-passage from the inside of said chamber around the compression-piston to the annular compression-cylinder to and through the working piston, combustion-chamber and exhaust-ports, said ports and passages being within the casing, the pistons acting as a valve therefor.

7. In an internal-combustion motor, a casing, exhaust-ports and air-passages therein, means comprising a working piston and a pump-piston integral therewith and of larger diameter, said means casing with said ports and passages as a valve therefor.

8. In an internal-combustion motor in combination, a closed casing, exhaust-ports and air-passages therein, means comprising a working piston, a combustion-chamber in the head thereof, and a compression-piston, an air-passage through the working piston, said means casing with the casing as a valve for the several ports and passages.

9. In an internal-combustion motor in combination, a closed casing, exhaust-ports and air-passages therein, means comprising a working piston, a combustion-chamber in the head thereof, and a compression-piston, an air-passage through the head of the working piston communicating with the combustion-chamber therein, said means casing with the casing as a valve for the several ports and passages.

10. In an internal-combustion motor in combination, a casing, exhaust-ports and air-passages therein, a working piston movable therein and controlling said exhaust-ports, an air-passage through the piston communicating with an annular cylinder around the piston, means for compressing the air in the space below the piston, an air-passage from said space communicating with the annular cylinder, and a valve for said air-passage.

11. In an internal-combustion motor in combination, a casing, exhaust-ports and air-passages therein, a working piston movable therein and controlling said exhaust-ports, an air-passage through the piston communicating with an annular cylinder around the piston at each end of the piston, means for compressing the air in the space below the piston, said means acting as a valve for said air-passage.

12. In an internal-combustion motor in combination, a working cylinder, a compression-cylinder, an air-compressing space formed by the crank-casing, a working piston, a compression-piston said piston acting as a valve controlling the ports from the crank-casing and also as a means for compressing air within the compression-cylinder.

13. In an internal-combustion motor in combination, a working cylinder, a compression-cylinder, an air-compressing space formed by the

crank-casing, a working piston, a compression-piston said piston acting as a valve controlling the ports from the crank-casing and also as a means for compressing air within the compression-cylinder, an air-storage tank and an air-passage between said tank and compression-cylinder, and a check-valve in said passage.

14. In an internal-combustion motor, in combination, a crank-casing, a working cylinder, a compression-cylinder of larger diameter with their corresponding pistons, ports from the compression-cylinder to the working cylinder and to a fuel-supply, and a port from said compression-cylinder to the crank-casing whereby said compression-cylinder is in conjunction with the ports forms the means of communication between the crank-casing and the working cylinder and also the means for compressing air to supply the engine with fuel.

15. In an internal-combustion motor in combination, a casing comprising, with their respective ports and passages, a working cylinder, a compression-cylinder, a crank-casing, movable means within said cylinders for controlling said ports, an admission-valve in the head of said working cylinder and located in the path of both the fuel and compressed-air supply and controlling the admission of the same into the working cylinder.

16. In an internal-combustion motor in combination, a casing comprising a working cylinder, a compression-cylinder, a crank-casing with their several ports and passages, a compound piston common to both cylinders, a combustion-chamber formed in the head thereof, an admission-valve located in the head of the working cylinder and communicating directly with the combustion-chamber and in the path of both the fuel and air supply and controlling the admission of the same to the combustion-chamber.

17. In an internal-combustion motor, the combination of the casing, the cooling device, the working piston, the combustion-chamber in the head thereof, an igniter, means for admitting fuel, an air-storage tank connected to said means, and means by which the piston furnishes air to said tank and for removing the spent charge.

18. In an internal-combustion motor in combination, a casing, a cooling device, means for admitting fuel-supply, an igniter device, a combustion-chamber formed in the head of the working piston, means within the casing for compressing air, means within the casing for removing the spent charge, means within the casing for pumping air to a supply-tank for supplying fuel to the engine, means for supplying air for the compression and for the pump.

19. In an internal-combustion motor in combination, a casing, a cooling device, means for admitting fuel-supply, an igniter device, a combustion-chamber formed in the head of the working piston, combining means for compressing air and for pumping air to a supply-tank for supplying fuel to the engine, a means for removing the spent charge, and a means for supplying air for the compression and for the pump.

20. In an internal-combustion motor in combination, a casing, a cooling device, a fuel-supply, means for injecting and atomizing fuel, an igniter device, a combustion-chamber formed in the head of the working piston, means for compressing air, means for removing the spent charge, means for pumping air to a supply-tank for supplying fuel to the engine, means for supplying air for the compression and for the pump.

702,876. RIBBON-CAP MACHINERY. LAWRENCE A. BORTER, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 22, 1900. Serial No. 98,994. (No model.)

Claim.—1. In a machine for bending sheet-metal disks or caps with solder, the combination with a ribbon-solder-feed device, of an inner pair of solder-ring cutting and forming dies, an outer pair of solder-ring cutting and forming dies, a cap or disk feed-chute and feeder, a cap-guide-ring, movable between plates thereof, solder ring and cap connecting dies or fingers, a transverse guide and cap-registering guide, removable guide-plates thereof, and a pair of folder-dies, substantially as specified.

2. The combination with a ribbon-solder-feed device or a cap-feeder, a pair of inner solder-ring-cutting dies, a pair of outer solder-ring-cutting dies, and a pair of hammer or folder dies, substantially as specified.

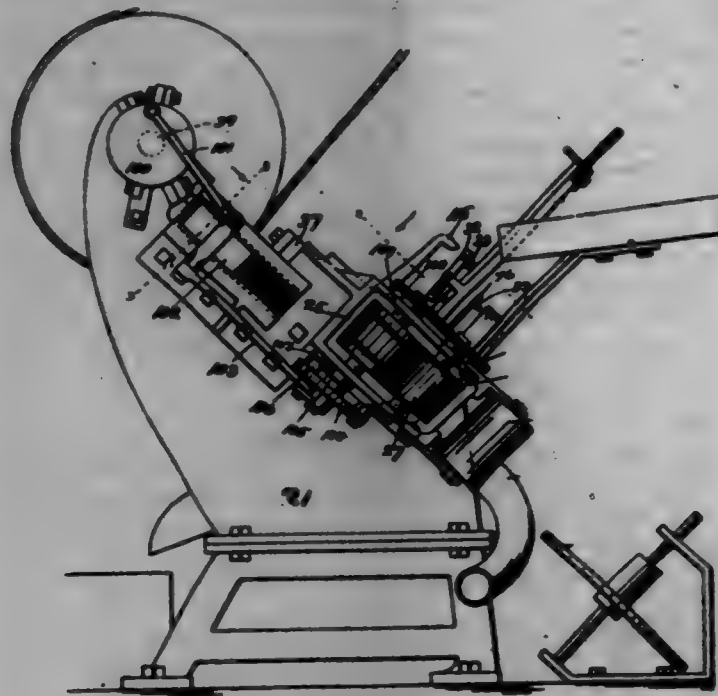
3. The combination with a ribbon-solder-feed device, of solder-ring-cutting dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, and means for raising the cap and solder ring, substantially as specified.

4. The combination with a ribbon-solder-feed device, of solder-ring-cutting dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, means for retracting said movable bottom plates, and means for raising the cap and solder ring, substantially as specified.

5. The combination with a ribbon-solder-feed device, of solder-ring-cutting dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, and hammer or folder dies, substantially as specified.

6. The combination with a ribbon-solder-feed device, of a cap feed-

chute and feeder, a lower die-plate, an upper or reciprocating die-plate, a pair of inner ring cutting and forming dies, a pair of outer ring cutting and forming dies, a cap-guide, a block on the lower die-plate, and movable bottom plates for said guide, a pair of folder-dies, substantially as specified.



7. The combination with a ribbon-solder-feed device, of a cap feed-chute and feeder, a lower die-plate, an upper or reciprocating die-plate, a pair of inner ring cutting and forming dies, a pair of outer ring cutting and forming dies, a cap-guide, a block on the lower die-plate, movable bottom plates for said guide, and a pair of solder-ring-connecting dies or fingers below the lower outer cutting-die, substantially as specified.

8. The combination with a ribbon-solder-feed device, of a cap feed-chute and feeder, a lower die-plate, an upper or reciprocating die-plate, a pair of inner ring cutting and forming dies, a pair of outer ring cutting and forming dies, a cap-guide, a block on the lower die-plate, movable bottom plates for said guide, a pair of solder-ring-connecting dies or fingers below the lower outer cutting-die, and a transverse cap-guideway below said lower outer-die, substantially as specified.

9. The combination with a ribbon-solder-feed device, of a cap feed-chute and feeder, a lower die-plate, an upper or reciprocating die-plate, a pair of inner ring cutting and forming dies, a pair of outer ring cutting and forming dies, a cap-guide, a block on the lower die-plate, movable bottom plates for said guide, a pair of solder-ring-connecting dies or fingers below the lower outer cutting-die, a transverse guideway below said lower cutting-die, and removable guide-plates for said guideway, substantially as specified.

10. The combination with a pair of solder-ring-cutter dies, of a cap-guide having movable bottom plates, and means for uniting the cap and solder ring, substantially as specified.

11. The combination with a pair of solder-ring-cutter dies, of a cap-guide having movable bottom plates, and means for retracting said movable bottom plates, and means for uniting the cap and solder ring, substantially as specified.

12. The combination with a pair of solder-ring-cutter dies, of a cap-guide having movable bottom plates, the upper die having a movable cap holding and centering plunger inside the same, substantially as specified.

13. The combination with a pair of solder-ring-cutter dies, of a cap-guide having movable bottom plates, the upper die having a movable cap holding and centering plunger inside the same provided with an inside centering-plunger engaging the vent-hole of the cap, substantially as specified.

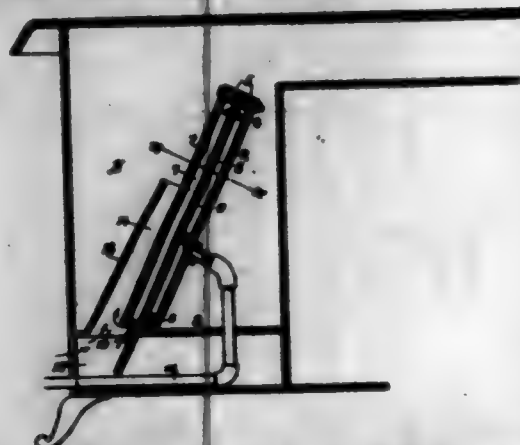
14. The combination with a pair of solder-ring-cutter dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, a transverse guideway for the caps, and a pair of bending or folding dies, substantially as specified.

15. The combination with a pair of solder-ring-cutter dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, a transverse guideway for the caps, a pair of bending or folding dies, and a pair of solder-ring connecting or attaching dies or fingers, substantially as specified.

16. The combination with a pair of solder-ring-cutter dies, a cap feed-chute and feeder, a cap-guide having movable bottom plates, a transverse guideway for the caps, a pair of bending or folding dies, a pair of solder-ring connecting or attaching dies or fingers, and a cap guide or registering device furnished with upper movable guide-plates, substantially as specified.

17. The combination with an upper movable die-plate, provided with cap-plugs, of a cap-guide ring having movable bottom plates provided with caps or projections engaged by the cap-plugs on the upper die-plate, and a lower die-plate substantially as specified.

702,877. OIL-BURNER. JAMES R. PAYNE, Hartford, Cal., assignor to Hartford Oil Burner Company, Limited, a partnership. Filed Apr. 17, 1901. Serial No. 64,194. (No model.)



Claim.—1. The combination in an oil burner of a horizontal base plate having a draft-opening, a vaporizer consisting of a plurality of substantially flat parallel plates separated from each other to form a plurality of compartments, means whereby one compartment is made to communicate with another near one end of the plates, a supply-pipe entering one of said compartments, a discharge-opening in the lower portion of the final compartment, and a deflecting-plate substantially parallel with and separated from the final plate of the vaporizer, and rising above the base-plate so as to inclose the lower portion of the vaporizer said deflecting-plate having its sides diverging upwardly from the lower portion.

2. The combination in an oil-burner of a base-plate, said vaporizer consisting of three parallel plates bolted together at the edges said edges separated by interposed packing whereby the chamber is divided into two compartments, perforations in the upper part of the central partition by which the two compartments are connected, a feed-pipe entering one of said compartments, a discharge-opening in the lower portion of the other compartment, the said central plate being longer than the other whereby it is projected through the draft-opening in said base-plate and projected below said plate, and a deflecting-plate extending upwardly from said draft-opening to form a draft-flue.

3. The combination with a base-plate adapted to occupy substantially the position of a grate-bar in a combustion-chamber, and provided with a draft-opening, of a vaporizer rising from and inclined in relation to said base-plate and consisting of a plurality of flat plates and means separating them to form a plurality of compartments said compartments communicating one with the other at the upper portions of the plates and one of said plates extending below the others and into the line of draft, and a deflecting-plate rising from the draft-opening and forming substantially an inclosing housing for the lower portion of the vaporizer said deflecting-plate separated from the front and sides of the vaporizer to form a draft-passage.

702,878. CARBURETER. PAUL ROSENBERG and ALB. ORR, Chicago, Ill.; said Rosenberg assignor, by mesne assignments, of his right to Burton R. Rosen, Chicago, Ill. Filed Apr. 26, 1901. Serial No. 57,468. (No model.)

Claim.—1. In a gas-generator of the character described, the combination of a reservoir and a mixing-chamber connected therewith and provided with a gas-discharge opening, a compressed-air holder opening into said mixing-chamber, an air-tube within and discharging into said holder and adapted to be connected with an air-compressor, and a supply-tube for liquid fuel leading from said reservoir into the mixing-chamber.

2. In a gas-generator of the character described, the combination of a reservoir for liquid fuel and a mixing-chamber connected therewith and provided with a gas-outlet adapted to be connected with a pyrographical or other hand tool, a compressed-air holder in said reservoir, discharging into said mixing-chamber, an air-tube adjustably confined in said holder and forming with its discharge-opening a valve device, said tube being adapted to be connected with an air-compressor, and a supply-tube for liquid fuel leading from said reservoir into the mixing-chamber.

3. A gas-generator of the character described, formed of tubular sections coupled endwise together, one section forming a reservoir for liquid fuel and being closed at its opposite ends, an air-pipe passing through a mixing-chamber closed at its opposite ends, an air-pipe passing through

said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-compressor, a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber and open therein to the compressed air discharged from said air-tube, and a gas-discharge opening in the mixing-chamber adapted to be connected with a pyrographical or other tool.



4. A gas-generator of the character described, formed of tubular sections coupled endwise together, one section forming a reservoir for liquid fuel and being closed at its opposite ends, and the other section forming a mixing-chamber closed at its opposite ends and provided at its outer end with a gas-discharge opening having a gas-neck extension for a rubber-tube connection with a pyrographical or other tool, an air-pipe passing through said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-compressor, and a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber and open therein to the compressed air discharged from said air-tube.

5. A gas-generator of the character described, comprising sections A' and A'' coupled endwise together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe passing through said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-compressor, a needle-valve device in said air-pipe at its communication with said mixing-chamber, and a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber.

6. A gas-generator of the character described, comprising sections A' and A'' coupled together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe passing through said reservoir and terminating at its inner end in a minute opening leading into the base of the mixing-chamber, an air-pipe extending through and adjacently connected with said air-pipe and terminating at its inner end in a needle-valve point to form with said opening a needle-valve, said air-pipe having one or more openings P, a tube leading from said reservoir into said mixing-chamber, and a gas-discharge opening in the outer end of said mixing-chamber.

7. A gas-generator of the character described, comprising sections A' and A'' coupled together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe passing through said reservoir and terminating at its inner end in a minute opening leading into the base of the mixing-chamber, said pipe being threaded about its protruding end, a hollow nipple covered upon the protruding end of said pipe and carrying therein an air-pipe terminating at its inner end in a needle-valve point P and provided with one or more openings P', a tube leading from said reservoir into said mixing-chamber, and a gas-discharge opening in the outer end of said mixing-chamber.

702,879. WRITING-MACHINE CARRIAGE. JOHN T. SHAW, Washington, D. C. Filed Apr. 14, 1902. Serial No. 102,224. (No model.)

Claim.—1. In a type-writing machine the combination of the carriage, a platen-carrier and means for connecting the platen-carrier with the carriage comprising a shaft journaled in bearings on the platen-carrier, supports fast on the shaft adapted to roll relatively to the carriage and flexible connections each secured at one end to the carriage and at the other end to one of the supports substantially as described.



2. In a type-writing machine the combination of a carriage, a platen-carrier and means for connecting the platen-carrier with the carriage comprising a shaft journaled in bearings on the platen-carrier, supports fast on the shaft adapted to roll relatively to the carriage and flexible connections each secured at one end to the carriage and at the other end to one of the supports substantially as described.

3. In a type-writing machine the combination of a carriage, a platen-carrier and means for connecting the platen-carrier with the carriage comprising a shaft journaled in bearings on the platen-carrier, supports fast on the shaft adapted to roll relatively to the carriage and a pair of flexible connections for each of the supports, one end of each of the flexible connections being secured at one end to the carriage and at the other end to one of the supports substantially as described.

4. In a type-writing machine the combination of a carriage, a platen-carrier and means for connecting the platen-carrier with the carriage comprising a shaft journaled in bearings on the platen-carrier, supports fast on the shaft adapted to roll relatively to the carriage and flexible connections each secured at one end to the carriage and at the other end to one of the supports, and a bracket secured to the carriage having an arm extending over the shaft substantially as described.

5. In a type-writing machine the combination of a carriage, a platen-carrier and means for connecting the platen-carrier with the carriage comprising a shaft journaled in bearings on the platen-carrier, supports fast on the shaft adapted to roll relatively to the carriage and flexible connections each secured at one end to the carriage and at the other end to one of the supports, and stops carried by the carriage for limiting the movement of the platen-carrier substantially as described.

6. In a type-writing machine and in combination, a carriage, a platen, a transversely shifting and tilting platen-carrier, a supporting member for the latter, and flexible connecting devices associated with each end thereof for imparting a uniform rotary movement to said ends in the shifting of said carrier, the said rotation of said member controlling the movement of the carrier, whereby the alignment of the same is maintained.

702,880. BATHING-TUB. HERMAN SCHULZ, Cumboldt, by Dresden, Germany. Filed Oct. 3, 1901. Serial No. 77,498. (No model.)



Claim.—A bath-tub, the bottom and one end of which are defined by an unbroken curve, and an approximately crescent-shaped plate in said tub having a semicylindrical foot on its under side located at one side of the center of gravity of said plate and the rear upper side of said plate being located normally above the upper edge of the bath-tub, whereby said plate is adapted to receive the back and shoulders of a man.

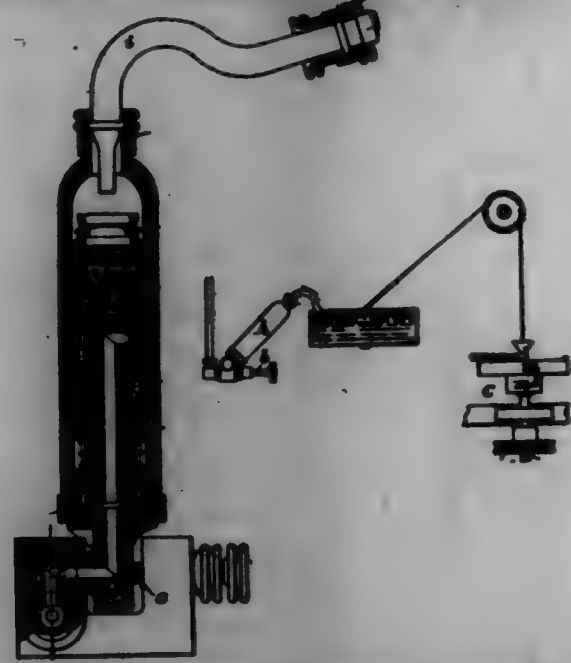
702,881. HAND-WHEEL. EDWARD H. SEDGWICK, Brookline, England. Filed Jan. 7, 1902. Serial No. 68,766. (No model.)



Claim.—A hand-wheel consisting of the combination of an annular rubber tube of a given diameter and having an inflating-valve, an annular rubber extension of smaller diameter on the inner periphery of the first-named tube, the cross-section of the tube with its extension being

approximately pear-shaped, and a metallic rim for said wheel, a plane smaller extension *c'* on the smaller rubber extension fitting upon said rim, a metal annulus, and fastening device for clamping said annulus and extension *c'*, to said rim.

702,882. APPARATUS FOR USE IN THE PRODUCTION OF TEXTILE FIBERS OR FILAMENTS FROM SOLUTIONS OF GELATINE OR OF OTHER MATERIAL FROM WHICH FIBERS OR FILAMENTS CAN BE FORMED, AND FOR TWISTING AND PUTTING INTO COIL FIBERS SUCH OR OTHER FIBERS OR FILAMENTS. CHARLES F. TURNER, Lew, England, assignor to James Yates Johnson, London county, England. Filed Jan. 15, 1901. Serial No. 63,412. (No model.)



Claim.—1. In apparatus for forming fibers, or filaments, from solutions of gelatine, or other material, a plug having a passage extending therethrough communicating with grooves in its external surface, a filtering medium covering the plug, a cap or isolating casing for the plug, and a forming-nozzle connected to the discharge-opening of said casing.

2. In apparatus of the kind described, a nozzle-pipe, a perforated cup-like forming-nozzle having a flange for removably connecting it to the nozzle-pipe.

3. In apparatus of the kind described, a filter and its isolating cap or casing, a nozzle-tube projecting into said cap or casing so as to leave an air-space about its inwardly-projecting end, and a forming-nozzle on the nozzle-tube.

4. In apparatus of the kind described, a filter, an isolating casing therefor adapted to be turned about a center, a supply-passage leading into the casing, a nozzle-pipe projecting at one end into the casing, the dimensions of said inwardly-projecting end being less than the internal dimensions of the casing so as to form an air-space about the same, means for allowing the air to be expelled from said space, and a perforated cup-piece or nozzle at the discharge end of the nozzle-pipe.

5. In apparatus for coiling filaments, the combination with a rotatable box having an inwardly-extending projection or overhang about an opening through which the filaments are introduced at the top of the box, means for rotating the box, and means for introducing the filaments through said opening.

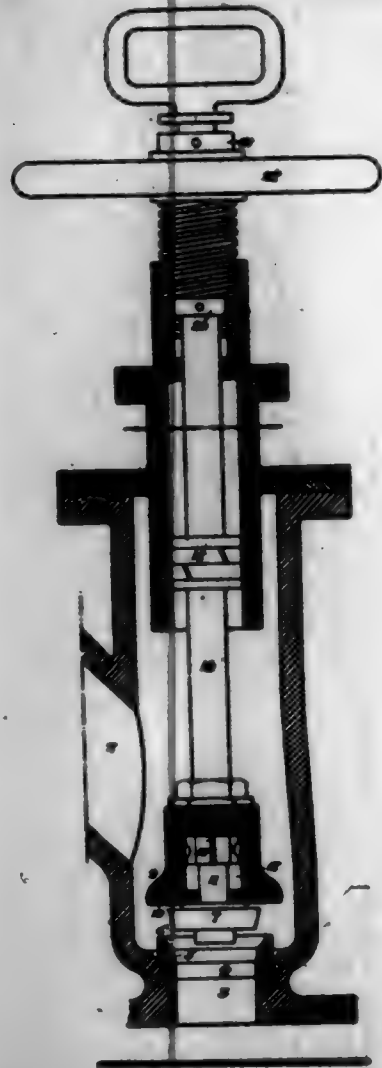
6. In an apparatus for coiling filaments, the combination of a filter, a perforated nozzle arranged in close proximity to said filter, a rotatable box provided with a cover having a central aperture therein, means for rotating said box, and means for introducing the filaments through said aperture, substantially as described.

7. In an apparatus for coiling filaments, the combination of a rotatable vessel having a reduced opening in its upper portion, means for rotating said vessel, and means for introducing the filaments through said opening, substantially as described.

702,888. STOP-VALVE. WILLIAM C. TYLER, Philadelphia, Pa., assignor of one-half to Frank Tyler, Philadelphia, Pa. Filed Aug. 7, 1901. Serial No. 11,111. (No model.)

Claim.—1. The combination of a stop-valve located in the inlet-chamber of the valve-chest and having a check-valve projecting therefrom and capable of limited longitudinal movement independently thereof, with a valve-chest having two seats, one for the stop-valve and another, beyond the same, in the direction of the outlet from the chest for the check-valve, substantially as specified.

2. The combination of a stop-valve having a chamber therein, a check-valve projecting from said stop-valve and having a stem with enlarged head contained within the chamber of said stop-valve and having longitudinal play therein, and a valve-casing having a seat for the stop-valve, and, beyond the same, a seat for the check-valve, substantially as specified.



702,884. BRAKE MECHANISM. LUDWIG VAN COTT and JOHN D. KEELY, New York, N. Y. Filed May 12, 1901. Serial No. 63,622. (No model.)

Claim.—1. The combination with a vehicle, of a track-brake, a wheel-brake, mechanism actuated from the vehicle-wheels for setting said brakes, and mechanism including a single line of connection by which both brakes are operated, and means for throwing the setting mechanism into and out of action, substantially as described.

2. The combination with a vehicle of a set of track-brake shoes, a set of wheel-brake shoes, connections between the two sets of shoes whereby as the brakes are applied one set of shoes acts as a fulcrum for the other set of shoes, mechanism actuated from the vehicle-wheels for setting said brakes and mechanism including a single line of connection through which both brakes are operated, and means for throwing the setting mechanism into and out of action, substantially as described.

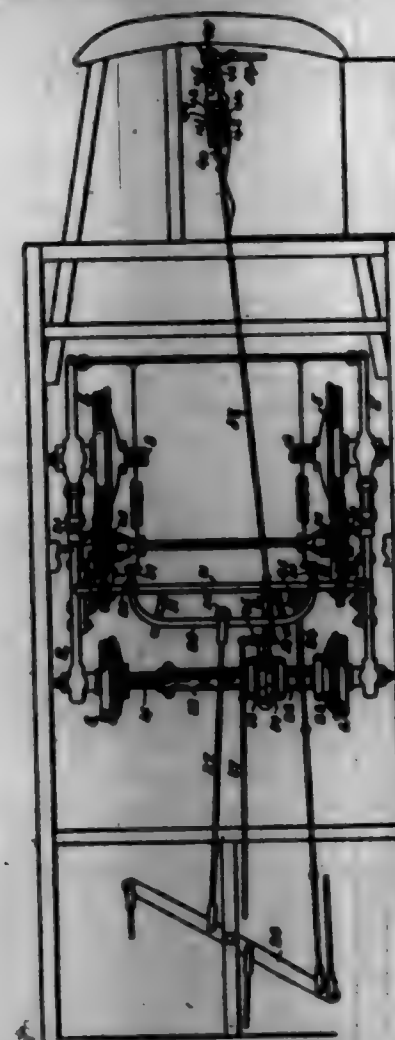
3. The combination with a vehicle, of a track-brake, a wheel-brake, friction mechanism actuated from the vehicle-wheels for setting said brakes, and mechanism including a single line of connection by which both brakes are operated, and means for throwing the friction mechanism into and out of action, substantially as described.

4. The combination with a vehicle, of a set of track-brake shoes, a set of wheel-brake shoes, connections between the two sets of shoes whereby as the brakes are applied one set of shoes acts as a fulcrum for the other set of shoes, friction mechanism actuated from the vehicle-wheels for setting said brakes, and mechanism including a single line of connection through which both brakes are operated, and means for throwing the friction mechanism into and out of action, substantially as described.

5. The combination with a vehicle, of a track-brake, a wheel-brake, a friction mechanism actuated from the vehicle-wheels for setting said brakes, and mechanism including a single line of connection whereby the brakes are operated, and hand-controlled means for throwing the friction mechanism into and out of action, substantially as described.

6. The combination with a vehicle, of a track-brake, a friction mechanism actuated from the vehicle-wheels for setting said brakes, hand-controlled means for throwing the friction mechanism into and out of action, and connections between the hand-controlled means and the friction

mechanism, said connections including a yielding device, the parts of which have a limited movement with respect to each other and are maintained under tension, substantially as described.



7. The combination with a vehicle, of a track-brake, a wheel-brake, friction mechanism actuated from the vehicle-wheels for setting said brakes, hand-controlled means for throwing the friction mechanism into and out of action, and connections between the hand-controlled means and the friction mechanism, said connections including a yielding device, the parts of which have a limited movement with respect to each other and are maintained under tension, substantially as described.

8. The combination with a vehicle, of a track-brake, a friction mechanism actuated from the vehicle-wheels for setting said brakes, hand-controlled means for throwing the friction mechanism into and out of action, connecting means between said hand-controlled means and said friction mechanism, and a connection including a spring maintained under tension and the parts of which have a limited movement with relation to each other located in said connecting means, substantially as described.

9. The combination with a vehicle, of a track-brake, a wheel-brake, a friction mechanism actuated from the vehicle-wheels for setting said brakes, hand-controlled means for throwing the friction mechanism into and out of action, connecting means between said hand-controlled means and said friction mechanism, and a connection including a spring maintained under tension and the parts of which have a limited movement with relation to each other located in said connecting means, substantially as described.

10. The combination with a vehicle, of a set of brake-shoes operating upon the track on which the vehicle runs, a set of brake-shoes operating upon the wheels of the vehicle, a friction mechanism actuated from the vehicle-wheels, hand-operated connections for throwing the friction mechanism into operation, and a single line of setting connections between the friction mechanism and the sets of brake-shoes, substantially as described.

11. The combination with a vehicle, of a set of brake-shoes operating upon the track upon which the vehicle runs, a set of brake-shoes operating upon the wheels of the vehicle, connections between the sets of shoes whereby one set acts as a fulcrum for the other set, a friction mechanism actuated from the vehicle-wheels, hand-operated connections for throwing the friction mechanism into operation, and a single line of setting connections between the friction mechanism and the sets of brake-shoes, substantially as described.

12. The combination with a vehicle, of a pair of brake-shoes operating upon the track on which the vehicle runs, a pair of brake-shoes operating upon the wheels of the vehicle, a pair of bell-cranks levers, each

of said levers operating a track-brake shoe and a wheel-shoe, a shaft to which the bell-cranks levers are connected, a crank-lever, connections between said lever and the shaft, a friction-plate mounted on one of the ends of the crank of the vehicle, and hand-operated connections by which the friction-plate is thrown into action and the brakes set, substantially as described.

702,885. LEVER-FASTENING FOR GLASSES. HENRY H. WATTS, Brooklyn, N. Y., assignor to Charles F. Wall, trading as the firm of Wall and Onda, Philadelphia, Pa. Filed June 21, 1901. Serial No. 63,422. (No model.)



Claim.—1. In a fastening for frame and lens of glasses, the combination with the lens, two arms adapted to lie upon opposite sides of the lens and a removable securing member passing through the lens and binding the arms thereto, of a removable sleeve surrounding the securing member within the side faces of the lens, said sleeve and an arm having interlocking irregularities to prevent the sleeve from turning.

2. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to be on opposite sides of the lens, said lens and arms having registering holes, of a separable sleeve passing through the hole in one arm and the lens, a securing member passing through the sleeve and binding the arms upon the lens, and means for preventing said sleeve from turning.

3. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to be on opposite sides of the lens, of a separable sleeve passing through one arm and the lens, and a screw passing through said sleeve and engaging the two arms to bind them upon the lens and means for preventing said sleeve from turning.

4. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to embrace the lens, of a separable sleeve passing through one arm and the lens, said sleeve and an arm having interlocking irregularities preventing the sleeve from turning, and a securing member passing through said sleeve and engaging the arms to bind them upon the lens.

5. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to embrace the lens, of a sleeve passing through one arm and the lens and having a flange on its outer end engaging the arm to limit its insertion, said sleeve and one arm having interlocking irregularities preventing the sleeve from turning, and a screw passing through the sleeve and engaging the opposite arm to bind the arms upon the lens.

6. In a fastening for frame and lens of glasses, the combination with the lens, and arms extending from the frame and adapted to engage the opposite sides of the lens, said arms and lens having registering holes, of a screw adapted to pass through said arms and lens, and a nut therefor independent of the arms and having a sleeve extending through one arm and interposed between said screw and lens, and means for engaging said nut with its engaged arm to prevent its turning.

7. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to embrace the lens, said arms and lens having screw-receiving holes adapted to register, of a screw, a sleeve not therefor adapted to be interposed between screw and lens and having a flange or head at one end and non-circular in outline, one of the arms having a recess in its inner surface adapted to receive said head.

8. In a fastening for frame and lens of glasses, the combination with the lens and arms adapted to engage opposite sides of the lens, said lens and arms having registering holes, of an interiorly-threaded removable sleeve having a head or flange on one end and adapted to pass through the hole in one arm and the lens and to enter the hole in the other arm, a screw engaging by its head the arm opposite that engaged by the head of the sleeve and screwing into said sleeve, and means for preventing turning of said sleeve.

702,886. COW-MILKER. DAVID T. WILSON, Cochransville, Pa., assignor of one-half to Robert Hamill, Cochransville, Pa. Filed June 12, 1901. Serial No. 63,173. (No model.)

Claim.—1. In a cow-milker, the combination with the body having open-sided teat-receiving recesses in its opposite side faces, of pressure elements pivoted to the body and extending across the open sides of the recesses, and operating levers located between and having opposite connections with each of the pressure elements for simultaneously and positively moving those of one set into and those of the other set out of their respective recesses.

2. In a cow-milker, the combination with a body having teat-receiving recesses, of movable pressure devices operating in said recesses, and means for operating the pressure devices, said means having independent detachable connections with outside of said devices.

3. In a cow-milker, the combination with a body having open-sided recesses in its opposite faces, of pressure elements pivoted upon the body and movable out of and into the recesses through their open sides, a shaft mounted upon the body, and separate connections between the shaft and each of the pressure elements to positively move them out of and into the recesses on the movement of the shaft.



4. In a cow-milker, the combination with a body having test-receiving recesses in its opposite faces, of pressure elements movably mounted upon the body and movable out of and into the recesses, a shaft mounted longitudinally upon the body between the opposite recesses, and connections between the shaft and the pressure elements.

5. In a cow-milker, the combination with a body having test-receiving recesses in its opposite faces, of pressure elements movably mounted upon the body and movable out of and into the recesses, a shaft mounted upon the body, and independent detachable connections between the shaft and the pressure elements.

6. In a cow-milker, the combination with a body having test-receiving recesses in its opposite faces, of independent pressure elements movably mounted upon the body and movable out of and into their respective recesses, a shaft mounted upon the body, and an independent detachable connection between the shaft and each pressure element.

7. In a cow-milker, the combination with a body having test-receiving recesses in its opposite faces, of pressure elements movably mounted upon the body and movable out of and into the recesses, a rock-shaft also mounted upon the body and having crank-arms, and an independent detachable connection between the crank-arms and each pressure device.

8. In a cow-milker, the combination with a body having recesses in its opposite faces, of pressure-plates pivoted to the body and carrying yielding blocks that are movable into and out of the recesses, a rock-shaft mounted upon the body between the recesses and having crank-arms, and latches connecting the plates and the crank-arms.

9. In a cow-milker, the combination with a body having recesses in its opposite faces, of pressure-plates pivoted to the sides of the body and between the recesses thereof, carrying yielding blocks that are movable into and out of said recesses, a rock-shaft journaled upon the body and having crank-arms, and latches pivoted to the crank-arms and detachably engaging the free ends of the plates.

10. In a cow-milker, the combination with a body having spaced test-engaging elements, of a rigid udder-praising device located upon the body between the test-engaging elements, and yielding supporting means connected to the body for supporting the same in operative relation to a cow's udder.

11. In a cow-milker, the combination with a body having spaced test-engaging elements, of a rigid udder-praising device located upon the body between the test-engaging elements and projecting above the upper face of the same, and means for yieldingly suspending the body in operative relation to a cow's udder.

12. In a cow-milker, the combination with a body having spaced test-engaging elements, of an udder-praising device located upon the body between the test-engaging elements and projecting above the upper face of the same, and yielding supporting means connected to the body and arranged to engage a cow to hold said body in operative relation to the udder thereof.

13. In a cow-milker, the combination with a body having spaced test-engaging elements, of a rigid udder-praising device located upon the body between the test-engaging elements and projecting above the upper face of the same, straps secured to the body and arranged to pass over the cow, and yielding devices interposed in said straps.

14. In a cow-milker, the combination with a body having spaced test-engaging elements, of a rigid udder-praising device located upon the body between the test-engaging elements and projecting above the upper face of the same, straps arranged to pass over the cow, and coiled springs interposed between and secured to the ends of the straps and the body.

15. In a cow-milker, the combination with a body, of test-engaging

devices carried by the body, a positioning-frame pivotally connected to the body and arranged when in operative position to engage the under side of a cow, and means for holding said frame in operative position.

16. In a cow-milker, the combination with a body, of test-engaging devices carried by the body, a positioning-frame comprising a body-band having hinge-eyes that are pivoted to the body, and a strap arranged to surround a cow, and having a detachable connection with one end of the body-band.

17. In a cow-milker, the combination with a body, of test-engaging devices carried by the body, and leg-engaging arms also carried by the body and arranged to engage the front portions of a cow's leg to prevent kicking.

18. In a cow-milker, the combination with a body, of test-engaging devices carried by the body, plates pivoted to the body, a strap arranged to surround a cow and connected to the free ends of the plates, and leg-engaging arms secured to the plates and arranged to engage the front portions of a cow's legs to prevent her kicking.

19. In a cow-milker, the combination with a body having open-ended test-receptacles, of a milk-receiving funnel located beneath the body and having openings in its side walls, and spring-latches carried by the body and engaging in the openings of the funnel.

20. In a cow-milker, the combination with a body having recesses in its opposite sides, of yielding pressure-blocks having a pivotal connection with the body and movable into and out of the recesses, said blocks tapering from their upper toward their lower ends and having their inner faces disposed in inclined relation to the opening walls of the recesses.

21. In a cow-milker, the combination with a body having open-sided test-receiving recesses and ears located between the recesses, of pressure elements pivoted to the ears and extending in opposite directions across the recesses, and means connected to the outer ends of the pressure elements to move them into and out of said recesses.

22. In a cow-milker, the combination with a body having recesses in its opposite faces, of pressure-plates pivoted to the sides of the body between the recesses thereof, and carrying yielding blocks that are movable into and out of said recesses, a rock-shaft journaled upon the body and having crank-arms, latches pivoted to the crank-arms and detachably engaging the free ends of the plates, and spring-pressed bolts mounted upon the latches to hold the same in operative position to lock the same to the plates.

702,387. CLINICAL THERMOMETER. JAY F. WINDOLPH and RICHARD C. STUTER, New York, N. Y. Filed Dec. 4, 1901. Serial No. 84,892. (No model.)



Claim.—1. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the open end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

2. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the open end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, the head having an opening for the passage of a thermometer and a vent for the air from the casing, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

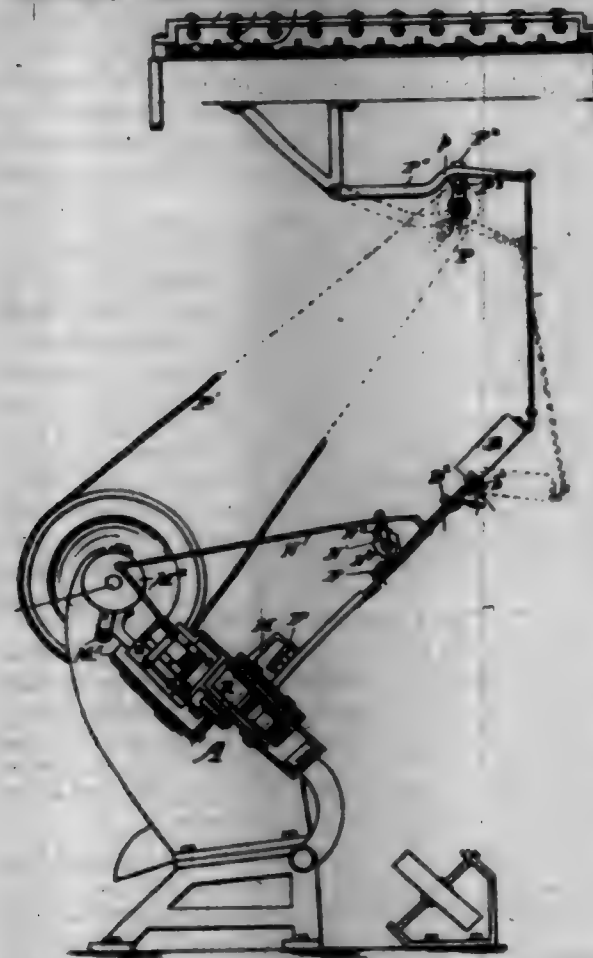
3. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the upper end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, the latter having an opening for the passage of the thermometer, a valve integral with the diaphragm for normally closing the said opening, the valve being adapted to open downwardly on inserting the thermometer, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

4. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the open end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, the latter having a central opening, a valve integral with the diaphragm for normally closing the said opening and adapted to open inwardly on inserting the thermometer, the valve sliding into a recess on the under side of the diaphragm to close the opening when the thermometer is withdrawn, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

5. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the open end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, the latter having a central opening, a valve integral with the diaphragm for normally closing the said opening and adapted to open inwardly on inserting the thermometer, the valve sliding into a recess on the under side of the diaphragm to close the opening when the thermometer is withdrawn, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

6. A clinical thermometer, comprising a casing for containing an antiseptic solution, and provided with a head screwing on the open end of the said casing, a diaphragm held on the upper edge of the casing and engaged by an annular shoulder on the head to securely hold the diaphragm in position, the latter having a central opening, a valve integral with the diaphragm for normally closing the said opening and adapted to open inwardly on inserting the thermometer, the valve sliding into a recess on the under side of the diaphragm to close the opening when the thermometer is withdrawn, and a cap screwing in the mid head and in which the upper end of the thermometer is rigidly secured, as set forth.

702,888. AUTOMATIC SHEET-METAL DISK OR CAP FOLDING MACHINE. JOHN F. WINE, Maywood, Ill., assignor by mesne assignments to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 22, 1900. Serial No. 22,822. (No model.)



Claim.—1. In a machine for automatically folding metal disks or caps, the combination with a tilting or vibrating box or receptacle furnished with a series of discharge-cripples at one end and provided with a yielding gate permitting the passage of caps or disks which are right side up and arresting those which are wrong side up, and means for slightly opening and relieving the gate when the box is tilted downward thus releasing the arrested caps, a series of chutes or passage-ways for the caps, each provided with a vibrating cap-fed controller permitting the caps to pass along one by one, mechanism for operating said cap-fed controllers successively one after another, a collecting chute or passage-way, and a delivery chute or passage-way provided with a cap-fed controller, substantially as specified.

2. The combination with a tilting box or receptacle furnished with a narrow, horizontally-extending discharge-cripples and a gate, of a series of chutes or passage-ways provided with cap-fed controllers, and means for successively operating the cap-fed controllers, substantially as specified.

3. The combination with a tilting receptacle having a narrow, horizontally-extending discharge-cripples and a yielding gate permitting the passage of disks right side up, and means for slightly opening said gate when the receptacle is tilted downward, substantially as specified.

4. The combination with a tilting box or receptacle having a narrow, horizontally-extending discharge-cripples and a gate furnished with a spring for holding it in its normal position, and provided with a projecting arm, and a stop which said arm engages when the box is tilted downward, substantially as specified.

5. The combination with a tilting box or receptacle having a series of narrow, horizontally-extending discharge-cripples for disks or caps, of a series of chutes or passage-ways, and a collecting-chute, substantially as specified.

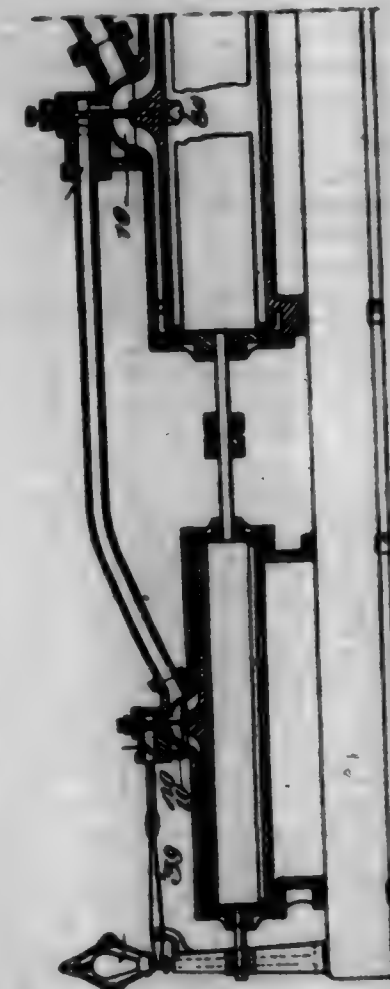
6. The combination with a tilting box or receptacle having a series of discharge-cripples for disks or caps, of a series of chutes or passage-ways, a collecting-chute, and a series of cap-fed controllers in said series of chutes or passage-ways, substantially as specified.

7. The combination with a tilting box or receptacle furnished with a narrow, horizontally-extending discharge-cripples, of mechanism for imparting a quick downward or dropping movement and a slow rising movement to said box or receptacle, substantially as specified.

8. The combination with a tilting box or receptacle furnished with a discharge-cripples, of mechanism for imparting a quick downward or dropping movement and a slow rising movement to said box or receptacle, said mechanism comprising a revolving shaft having an arm and a vibrating lever furnished with a curved portion, substantially as specified.

REISSUES.

11,999. STRAIN-TURNER. JOHN J. JONES, Rio Janeiro, Brazil. Filed Dec. 24, 1891. Serial No. 57,228. Original No. 941,074, dated Jan. 8, 1900.



Claim.—1. The combination, in a steam-turbine, of an external fixed cylinder and an internal revolving drum, having their interior and exterior surfaces provided with a series of longitudinal steam-directing blades, and a series of transverse steam-directing partitions intersecting said blades; the blades and partitions terminating centrally between the ends of the cylinder and drum to provide a central annular steam-chamber and the outer edges of said partitions being substantially in line with the outer edges of the blades.

2. The combination, in a steam-turbine, of a fixed cylinder having attached steam-directing blades 23 and partitions 27 on its interior, a revolving drum arranged within said cylinder and having attached steam-directing blades 24 and partitions 29 on its exterior coacting with those on the interior of the fixed cylinder, and steam-ports and a steam-covering valve arranged centrally between the ends of said cylinder and drum and governing all of said ports, to admit steam at the center and exhaust from the opposite ends of the cylinder and drum, or to admit steam at the opposite ends of said cylinder and drum and exhaust from the center thereof, substantially as described.

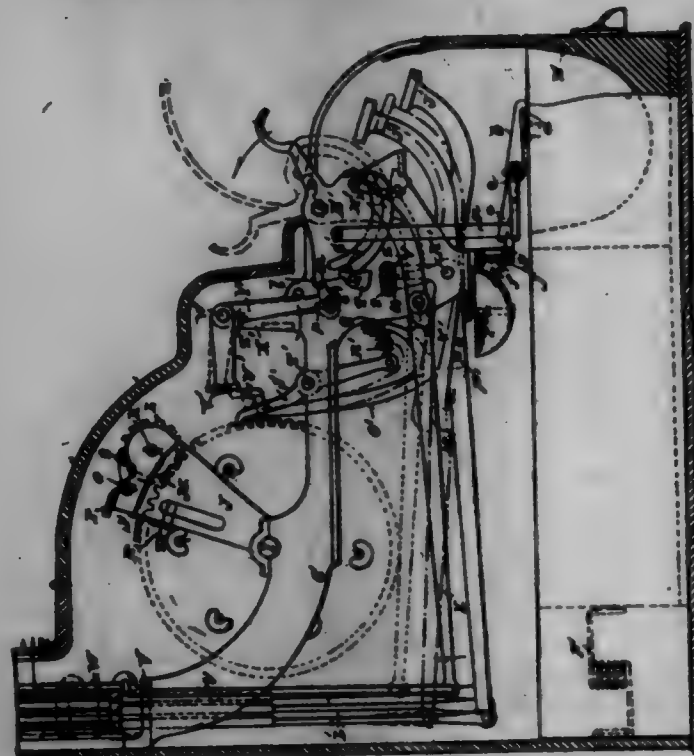
3. The combination, in a steam-turbine, of a fixed cylinder having an annular steam-chamber centrally between its ends, and a plurality of steam-directing blades and partitions on its interior from the annular steam-chamber to its opposite ends, a revolving drum arranged within the fixed cylinder and having a plurality of steam-directing blades and partitions on its exterior from said annular steam-chamber to its opposite ends, the steam-ports leading from the center of the cylinder to its opposite ends and to said annular steam-chamber, and a steam-covering valve controlling said ports to admit steam direct to the central annular steam-chamber and exhaust from opposite ends of the cylinder and drum or to admit steam to the opposite ends of the cylinder and drum and exhaust from the central annular steam-chamber, substantially as described.

4. The combination, in a steam-turbine, of a fixed cylinder having a set of steam-ports and an annular steam-chamber centrally between its ends, a longitudinal, rotary meter-shaft, a rotary drum arranged on said shaft within the fixed cylinder, and an oscillatory reversing-valve controlling the set of steam-ports at the center of the cylinder and serving to admit steam direct to said central annular steam-chamber and exhaust from opposite ends of the cylinder and drum, or to admit steam to the opposite

ends of the cylinder and drum and exhaust from the central annular steam-chamber, substantially as described.

8. The combination, in a steam-turbine, of an external fixed cylinder and an internal revolving drum having their interior and exterior surfaces provided with a series of longitudinal steam-directing blades, and a series of transverse steam-directing partitions intersecting said blades; the blades and partitions terminating centrally between the ends of the cylinder and drum to provide a central, annular steam-chamber, with a steam-inlet and steam-valve in the cylinder opposite to, or in coincidence with, said central, annular steam-chamber, substantially as described.

12,000. CASH-REGISTER. RALPH F. THORNTON, Springfield, Ohio, assignor to the National Cash Register Co., Dayton, Ohio, a Corporation of Ohio. Filed May 28, 1896. Serial No. 582,885. Original No. 582,884, dated Jan. 22, 1895.



Claim.—1. In a cash-register, the combination with a cover adapted to inclose the keys, a cancel-card and intermediate device connecting the said cover and said card and acting to display the card when the cover is opened.

2. In a cash-register, the combination with a pivoted cover adapted to inclose the keys, cam mechanism, a lever actuated thereby, said cover moving with the cam during at least a part of the latter's motion, and a cancel-card connected to said lever, the cam mechanism including a race adapted to maintain the card displayed until the cover is substantially closed.

3. In a cash-register, the combination with the pivoted cover adapted to inclose the keys, a cam connected with the cover and having a main slot and a branch slot, a pivoted lever engaging with the walls of the slot by a stud and adapted by the movement of the cam to be elevated and lowered at one end and to have said end maintained elevated, and a cancel-card connected with said end.

4. In a cash-register, the combination with a series of keys, and indicators adapted to be displayed by the keys, of a key-cover normally inclosing the keys, and devices intermediate of the cover and keys which operate to return a depressed key to normal position as the cover is opened and before the cover is sufficiently opened to expose the keys.

5. In a cash-register, the combination with a series of keys, a cover normally inclosing them, indicators attached to the keys, and intermediate primer devices arranged to force a depressed key back to normal position by the action of the cover as it is opened.

6. In a cash-register, the combination with a cover adapted to inclose a series of keys, a series of such keys mounted on a pivot, an indicator connected to each of said keys, primer devices and trip devices between the keys and the cover, the cover being adapted to depress the primer devices until each key yields to the opening of the cover and the trip devices permitting the cover to close without being affected by the depressed key.

7. In a cash-register, the combination with a pivoted cover having a plate connected therewith, a series of pivoted keys inclosed by the cover, a rod connected to each key and carrying an indicator, a pivoted primer-bar engaging with the keys and a trip carried by said plate and engaging in one end engaging in the other direction with and from the primer-bar,

the arrangement being such as to depress the keys by the opening of the cover, yet permitting the cover to close while a key remains depressed.

8. In a cash-register, the combination with a cover, a series of keys adapted to be normally inclosed thereby, and exposed on opening the cover, registering mechanism operated by depressing the outer end of the keys, indicators displayed by operating the keys, supporting devices for the keys to maintain any actuated key in actuated position, primer devices for the keys, and intermediate devices which, by opening the cover, release the supporting devices and operate the primer devices, whereby the cover cannot open except by returning the depressed key to normal position and withdrawing the indicator.

9. In a cash-register, the combination with a cover, a series of keys adapted to be normally closed thereby, and exposed on opening the cover, registering mechanism operated by said keys, indicator-cards displayed by said keys, supporting devices for the keys, primer devices therefor, a cancel-card and a lever connected thereto, and intermediate devices which by opening the cover release said supporting devices, actuate said primer devices and display said cancel-card in the proper succession.

10. In a cash-register, the combination with a cover, a series of keys adapted to be normally closed thereby, and to be exposed on opening the cover, indicators displayed by said keys, registering mechanism operated by said keys through pawls which also act to support said keys, stop devices for said pawls, primer devices for said keys, a cancel-card and a lever connected thereto, and devices connected with the cover and adapted to release the operating and supporting pawls, to actuate the primer devices, and return a depressed key to normal position and to actuate said lever to display the cancel-card, all in the proper succession.

11. In a cash-register, the combination with a cover, a series of keys normally covered thereby and exposed on opening the cover, indicators displayed by said keys, a lever and a cancel-card displayed by said lever, and intermediate devices connected with the cover and adapted to press a depressed key back to normal position as the cover is opened and also adapted to actuate said lever, in the proper succession.

12. In a cash-register, the combination with a cover, a series of keys adapted to be normally inclosed thereby, and exposed on opening the cover, an indicator displayed by each key, a primer-bar for the keys, a lever and a cancel-card displayed thereby, a cam, and a trip device connected to said cam and adapted to operate the primer-bar to return a depressed key to normal position as the cover is being opened and to operate said lever, and display a cancel-card in proper succession.

13. In a cash-register, the combination with a cover, a series of keys adapted to be normally inclosed thereby, and exposed on opening the cover, primer devices for the keys, registering mechanism and intermediate devices actuated by the keys to operate said mechanism, a stop bar or device to engage with the said devices between the keys and register mechanism to prevent their disengagement from the latter at the limit of the throw, to prevent "overthrowing" and devices connected to said cover and arranged to release the stop bar or device and to actuate the primer device, whereby on returning a depressed key to normal position the stop bar or device is released.

14. In a cash-register, the following instrumentalities: a cover, a series of keys adapted to be normally inclosed thereby and exposed on opening the cover, an indicator displayed with each key, a primer device for all the keys, a key-pawl for each key and an associated arresting-pawl, register mechanism engaged and operated by each key-pawl, a stop-bar for the key-pawls, a lever, a cancel-card displayed thereby, a money-drawer, locking device therefor and a sounding-gong, a cam-plate connected to the cover and acting to operate the primer-bar, the stop-bar, the drawer lock and gong; the actuation of these several parts being properly timed, whereby a depressed key is made incompressible after registering, whereby each key is pressed back to normal position as a condition to the opening of the cover, whereby the cancel-card is displayed as the indicator is so withdrawn, and whereby "overthrowing" is prevented.

15. In a cash-register, the following instrumentalities: a cover, a series of pivoted keys adapted to be inclosed thereby when closed, and exposed when open, a pivoted primer-bar for all the keys, an indicator for each key, a pawl carried by each key, and register mechanism operated by each of said pawls, an associated arresting-pawl for each key-pawl, a pivoted stop-bar adapted to engage with all of the key-pawls to prevent "overthrowing," a pivoted arm carrying a pivoted trip to actuate the stop-bar, a lever connected with a cancel-card, a drawer, a lock therefor and a sounding-gong, a cam-plate connected with the cover and having a main and branched slot, a pivoted trip and projecting lug and operating a plunger to release the drawer-lock and operate the bell, the said slot, pivoted trip and lug of the cam-plate, respectively opening the said lever the primer-bar and the stop-bar-actuating arm, all substantially as described.

16. In a cash-register, the combination with a series of keys, of a pivoted primer-bar extending across the entire number of keys and having a projection by which it is operated, a cover and intermediate de-

vices between the cover and said projection adapted to move in contact with the latter and move the same, substantially as and for the purpose described.

17. In a cash-register, the combination with a series of registering-wheels, of a series of keys, a key-pawl carried by each key and engaging with the registering-wheel, and a retaining-pawl for each wheel, the key-pawls being adapted to engage with the retaining-pawls and to withdraw the latter from engagement with the wheels when the key-pawls are manually drawn outward, whereby the said wheels may be set back to zero by thus releasing them from engagement with the key-pawls and retaining-pawls.

18. In a cash-register, the combination with a series of keys, and registering mechanism, of a pawl pivoted to each key, extending upward and so engaging with said mechanism as not to slip or slide thereon, and a stop-bar extending across the line of said pawls and arranged to engage with them to prevent their withdrawal from engagement with said mechanism and then dropping down, whereby said pawls are made to act to suspend and hold the keys in operated position.

19. In a cash-register, the combination with a registering mechanism, operating keys and pawls, of a stop-bar located near to said pawls and arranged to come in contact with them on operating device for the stop-bar actuated from outside of the machine-casing, and intermediate device within the casing connecting the outside operating device with the said stop-bar, whereby the stop-bar may be manually moved out of engagement with the pawls.

20. In a cash-register, the combination with the registering mechanism, a series of keys and pawls pivoted to and actuated by the latter and engaging with teeth in the former, of arresting-pawls also engaging with said teeth and a stop-bar arranged to oppose the key-pawls, and prevent their disengagement from said teeth at or about the limit of their throw, whereby "overthrowing" is prevented and the keys are suspended, the arresting-pawls preventing back motion of the registering mechanism.

21. In a cash-register, the combination with registering mechanism consisting in part of a rotatable wheel, and a double-shouldered spring-pawl attached thereto, of a fixed plate having a slot, the double-shouldered pawl being arranged to engage with said plate, substantially as shown and described.

22. In a cash-register, the combination with a series of keys, a pawl connected with each key, a pawl associated with each key-pawl, a spring connecting each key-pawl with its associated pawl and registering mechanism including toothed wheels with which both kinds of said pawls engage, the key-pawls to actuate the wheels and the other pawls to prevent the return movement of the wheels, whereby the keys are suspended as well as the wheels actuated.

23. In a cash-register, the combination with an outer casing, registering-wheel mounted therein, keys and actuating-pawls for operating said registering-wheel, arresting-pawls for preventing the registering-wheel from turning backward, a movable stop-bar for holding the actuating-pawls in engagement with the registering-wheel at the end of the stroke, the movable key-cover and suitable intermediate mechanism for operating the stop-bar to release said actuating-pawl and allow it to engage the succeeding teeth when the cover is opened.

24. In a cash-register, the combination with a series of keys, a key-controller, and a key-primer device, of an operating device, and connecting mechanism between said operating device and said key-controller and key-primer, respectively, whereby a movement of said operating device will press a previously-moved key back to normal position and will permit any of the keys to be moved to indicating position.

25. In a cash-register, the combination with a series of keys, a key-controller, and a key-primer device, of an operating device, a plate connected to said operating device a trip carried by said plate and adapted to act on the primer in one movement of the plate but not on the other movement, and a connection between said plate and key-controller which acts on the latter after said action on the primer.

26. In a cash-register, the combination with a series of keys, of a key-controller, an operating device, and connecting mechanism between said operating device and said controller, whereby one movement of said operating device will permit any of said keys to be moved to indicating position, and another movement thereof will prevent any of said keys from being moved while any key is still in indicating position.

27. In a cash-register, the combination, of a series of keys, a key-controller, an operating-lever, and a connection between said lever and said controller which acts on the latter to move it relatively to the keys by the movement of the lever so that one movement of said controller will permit any of said keys to be moved to indicating position and another movement thereof will prevent any of said keys from being moved while any key is still in operating position.

28. In a cash-register, the combination of a series of keys, a key-controller, an operating-lever, a plate connected to said lever, and a con-

nection between said plate and a key-controller which acts on the latter to move it relatively to the keys by the movement of the lever.

29. In a cash-register, the combination of a series of keys, a key-primer, an operating device, and connecting mechanism between said primer and operating device whereby one movement of said operating device will press any key in indicating position back to normal position, and means for locking the keys in their operated position when the machine is in normal position.

30. In a cash-register, the combination with a series of keys, a key-primer extending across said series of keys, an operating-lever, and a connection between said lever and said primer, whereby one movement of the lever will press said primer against any key in indicating position and return it to normal position, and means for locking the keys in their operated position when the machine is in normal position.

31. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, means controlled by an independent lever or handle for preventing operation of the key-levers while said lever or handle is in normal position, means for temporarily holding the key-levers in depressed position when moved thereto after the handle or lever has been moved from normal position to permit their operation, and means cooperating with said handle or lever for releasing the depressed key-levers upon the next succeeding movement of said handle or lever, whereby operation of the key-levers is prevented until said handle is moved from normal position, and whereby the key-levers are temporarily held in depressed position after being operated subsequent to the movement of the handle from normal position, and whereby the operated key-levers are released and returned to normal position upon the next succeeding movement of said handle from normal position.

32. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, means controlled by an independent handle or lever for preventing operation of the key-levers while said handle or lever is in normal position, means for temporarily holding the operated key-levers in depressed position when operated subsequent to the movement of the handle from normal position, and means controlled by said handle for releasing the operated key-levers and positively returning them to normal position at the next succeeding movement of said handle from normal position.

33. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, an independent handle or lever and means controlled by the same for preventing operation of the key-levers while said handle is in normal position, a money-drawer and a latch for holding it in closed position, and connections between said handle and drawer-latch, whereby operation of said handle serves both to permit depression of the key-levers and to release the money-drawer.

34. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, an independent handle or lever and means controlled by the same for preventing operation of the key-levers while said handle is in normal position, a money-drawer, and a latch for holding it in closed position, an alarm-gong and a striker therefor, and connections between the independent handle and the drawer-latch and gong-striker, whereby operation of said handle serves to permit depression of the key-levers and also to release the money-drawer and sound the gong.

35. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, indicators cooperating with said levers to indicate the values of the operated levers, means for temporarily holding the operated levers in depressed position, an independent handle or lever and means controlled by the same for releasing the operated levers when said handle is moved from normal position, and cancel cards or screens actuated by said handle for hiding or obstructing the view of the indicators when said handle is moved from normal position to release the previously-depressed key-levers.

36. In a cash register and indicator, the combination of a series of key-levers adapted to be operated by depressing their front ends, indicators cooperating with said levers to indicate their respective values, means for temporarily holding the operated key-levers in depressed position, a money-drawer and a latch for normally holding the same in closed position, cancel-cards adapted to alternately hide and expose the indicators, and an independent handle or lever and means cooperating therewith to release the operated key-levers, to move the cancel cards or screens into position to hide the indicators, and to release the money-drawer, upon operating said independent handle.

37. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, indicators cooperating with said levers to indicate their respective values, a handle or lever movable independently

of the key-levers and means controlled by the same for preventing operation of the key-levers while said handle is in normal position, and cancel cards or screws cooperating with said handle and moved by it into position to hide the indicators when said handle is moved from normal position to permit operation of the key-levers.

38. In a cash register and indicator, the combination of a series of key-levers adapted to be operated by depressing their front ends, indicators cooperating therewith to indicate their respective values, means for temporarily holding the operated key-levers in depressed position, an independent handle or lever and means controlled by the same for preventing operation of the key-levers while said handle is in normal position and operating when the handle is moved from normal position to not only permit operation of the key-levers but also release the key-levers depressed at the preceding operation of the machine, and cancel cards or screws for the indicators cooperating with said independent handle and moved by it into position to hide the indicators when said handle is moved to permit operation of the key-levers and release previously-operated key-levers.

39. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, an independent handle or lever and means controlled by the same for preventing operation of the key-levers while said handle is in normal position, a money-drawer and a latch for normally holding the same closed, indicators cooperating with the key-levers to indicate their respective values, cancel cards or screws cooperating with the indicators, and means intermediate said independent handle and the drawer-latch and cancel-cards for releasing the drawer and canceling the indication upon operating said handle.

40. In a cash register and indicator, the combination of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, indicators cooperating therewith to indicate their respective values, means for temporarily holding the operated key-levers in depressed position, an independent lever or handle and means controlled by the same for preventing operation of the key-levers while said handle is in normal position and operating when the handle is moved from normal position to not only permit operation of the key-levers but also to release the key-levers depressed at the preceding operation of the machine, a money-drawer and a latch for normally holding the same closed, cancel cards or screws cooperating with the indicators, and means intermediate said independent handle and the drawer-latch and cancel-cards for releasing the drawer and canceling the indication upon operating said handle.

41. In a cash register and indicator employing a forwardly and backwardly sliding money-drawer, and a latch for normally holding it closed and a spring for throwing it open, the combination, with said drawer and its latch or latch, of a series of key-levers representing different amounts and adapted to be operated by depressing their front ends, means for temporarily holding the operated key-levers in depressed position, an independent handle or lever, and means controlled by said handle for preventing movement of the key-levers from normal position and for releasing the money-drawer and the depressed key-levers upon operating such independent handle after the depression of any of the key-levers.

42. In a cash register and indicator employing a forwardly and backwardly sliding money-drawer, a latch for normally holding it closed and a spring for throwing it open, and an alarm-gong, the combination, with the money-drawer and its latch and with the alarm-gong and its stirrer, of a series of key-levers adapted to be operated by depressing their front ends, means for temporarily holding the operated key-levers in depressed position, an independent handle or lever, and means controlled by said handle for preventing movement of the key-levers from normal position and for releasing the operated key-levers, sounding the gong and releasing the money-drawer upon operating such handle or lever subsequent to depression of any of the key-levers.

43. In a cash-register the combination with a series of keys, of a lock for holding the keys in their depressed positions when operated, an independent handle and means connected to said handle for operating the key-locking means upon the initial movement of the handle to permit the keys to return to normal position and means for preventing operation of the keys until the handle is moved from its normal position.

44. In a cash-register the combination of a series of keys and locking means for retaining the same in their depressed positions, an operating-handle, a cash-drawer, a latch for the drawer, means connecting the handle for operating the key-locking means, means connecting the handle and drawer-latch and means actuated by the handle for preventing the operation of the keys until the handle has been moved from its normal position.

45. In a cash-register the combination of a series of keys as independent handle or lever, means controlled by the lever for preventing operation of the keys while said handle is in normal position, an alarm-gong and connections between the handle and gong, whereby the operation of said handle sounds the gong and permits the depression of the keys.

46. In a cash-register the combination of a series of keys as independent handle or lever, means controlled by the lever for preventing operation of the keys while said handle is in normal position, a series of indicators operated by the keys, a flash for said indicators operated by the handle; the construction being such that the operation of the handle will leave the keys free to be operated and will raise the flash.

47. In a cash-register the combination of a series of keys, a series of indicators controlled by the same means for locking the keys in their depressed positions so that an indicator corresponding to the depressed key will remain exposed as independent handle, a flash for the indicators controlled by the handle and means carried by the handle for releasing the keys that are in depressed position.

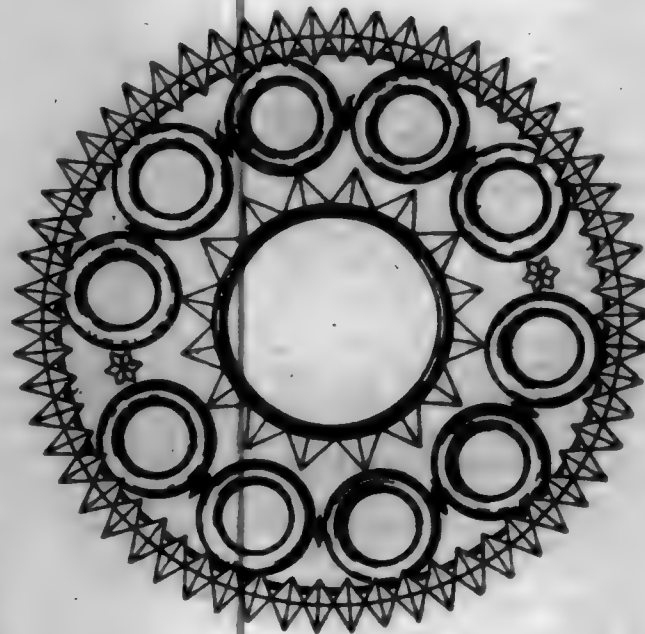
48. In a cash-register the combination with a series of keys, a series of pawls operated by said keys, a series of registering-wheels actuated by said pawls, a movable locking device for locking the pawls to the registering-wheels and a handle for operating said locking device.

49. In a cash-register the combination with a series of keys, of a series of registering-wheels, a series of pawls operated by the keys and engaging the registering-wheels, movable locking device for locking the pawls to the wheels, a cash-drawer and a handle arranged to control the movable locking device and to release the cash-drawer.

50. In a cash-register the combination with a series of keys of a pivoted frame arranged to cooperate with all of said keys, an operating-handle, means operated by said handle for preventing the operation of the locking-frame by the keys when the handle is in one position and permitting such operation when the handle is in a different position.

DESIGNS.

85,985. PICTURE-FRAME. MARTIN V. KARRACK, Toledo, Va., assignor of one-half to Charles G. Grimes, Portsmouth, Va. Filed Mar. 20, 1902. Serial No. 100,694. Term of patent 7 years.



Claim.—The design for a picture-frame, as herein shown and described.

85,986. BADGE. JEAN BAPTISTE HOLIE, Montreal, Canada. Filed Jan. 11, 1902. Serial No. 99,368. Term of patent 14 years.



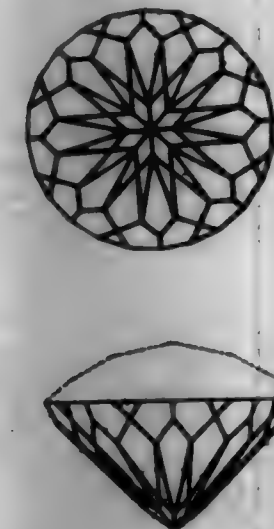
Claim.—The design for a badge as herein shown and described.

85,987. CUT STONE. RICHARD C. H. SCHNEIDER, Orange, N. J. Filed Apr. 7, 1902. Serial No. 101,006. Term of patent 14 years.



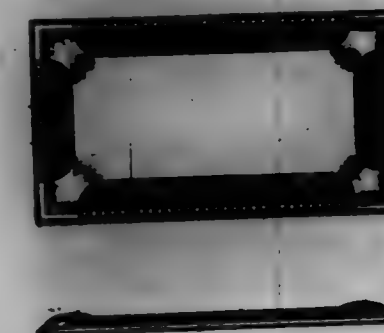
Claim.—The design for a cut stone, substantially as shown and described.

85,988. CUT STONE. RICHARD C. H. SCHNEIDER, Orange, N. J. Filed May 8, 1902. Serial No. 104,600. Term of patent 14 years.



Claim.—The design for a cut stone, substantially as herein shown and described.

85,989. NAME-PLATE. WILLIAM D. HAMILTON, Allegheny, Pa. Filed Apr. 22, 1902. Serial No. 104,401. Term of patent 7 years.



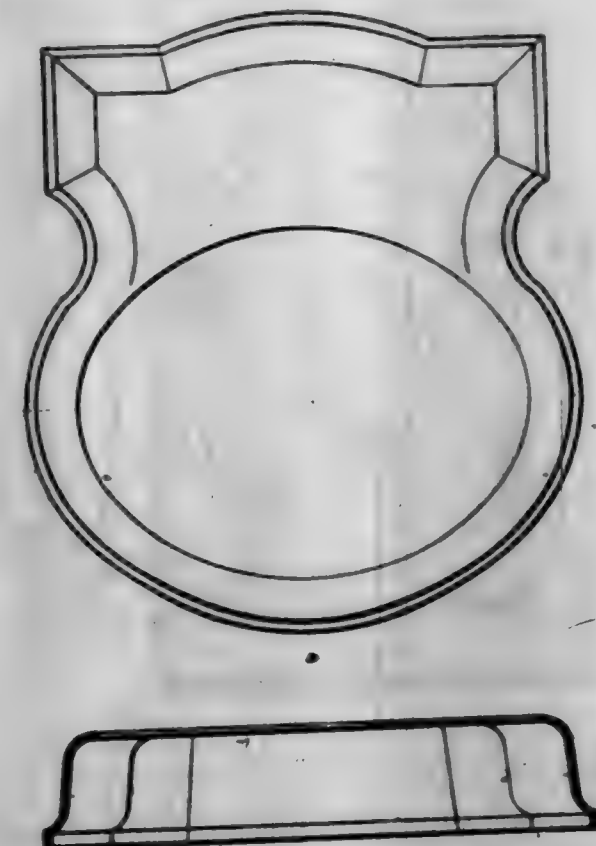
Claim.—The design for a name-plate substantially as herein shown and described.

85,940. CLOCK-CASE. PAUL TETTERMAN, Chicago, Ill., assignor to the Angelus Prayer Clock Company, Chicago, Ill., a firm. Filed Mar. 18, 1902. Serial No. 99,942. Term of patent 7 years.



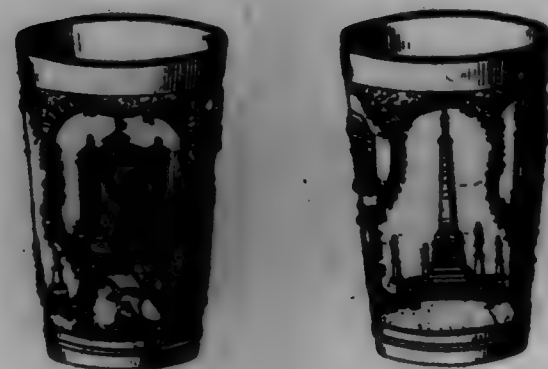
Claim.—The design for a clock-case, substantially as herein shown and described.

85,941. SCALE-BASE. ORANGE O. OHAR, Dayton, Ohio. Filed July 6, 1900. Serial No. 22,793. Term of patent 14 years.



Claim.—The design for a scale-base, substantially as shown and described.

85,942. CUP. GEORGE LANE, Dallas, Tex. Filed May 10, 1902.
Serial No. 100,542. Term of patent 7 years.



Claim.—The design for a cup, substantially as herein shown and described.

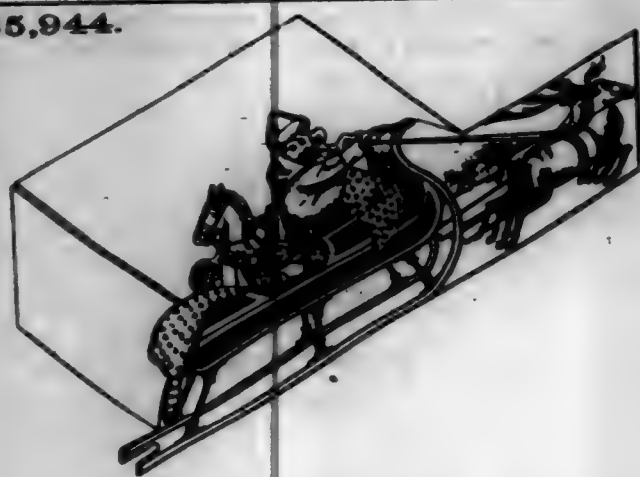
85,943. CALENDAR. HENRY BOTTE, New York, N.Y. Filed Apr. 1, 1902. Serial No. 100,563. Term of patent 24 years.



Claim.—The design for a calendar as herein shown and described.

85,944. PAPER BOX. ROBERT L. MYERS, Brooklyn, N.Y., assignor to J. and P. B. Myers, New York, N.Y., a firm. Filed May 5, 1902. Serial No. 100,106. Term of patent 24 years.

85,944.



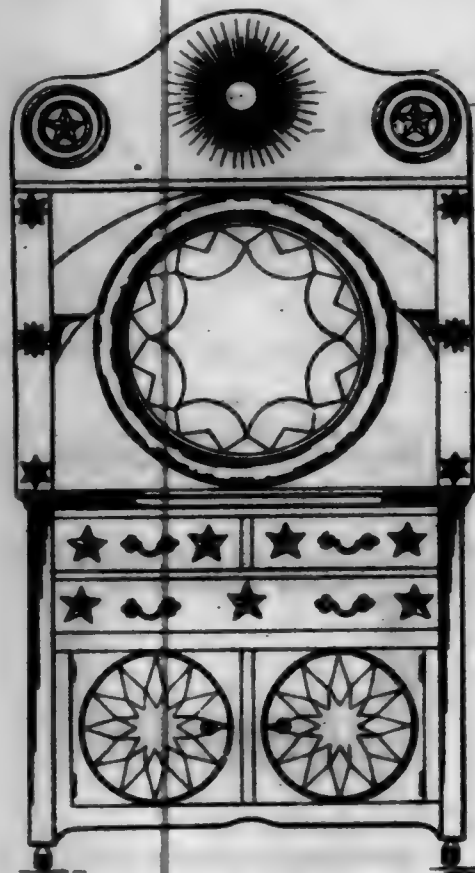
Claim.—The design for a paper box, substantially as herein shown and described.

85,945. FONT OF PRINTING-TYPE. EDWARD EVERARD, Bristol, England. Filed May 2, 1902. Serial No. 100,100. Term of patent 14 years.

A B C D E F G H I J K L
M N O P Q R S T U V W
X Y Z a b c d e f g h i j
k l m n o p q r s t u v
x y z a b c d e f g h i j
1 2 3 4 5 6 7 8 9 0

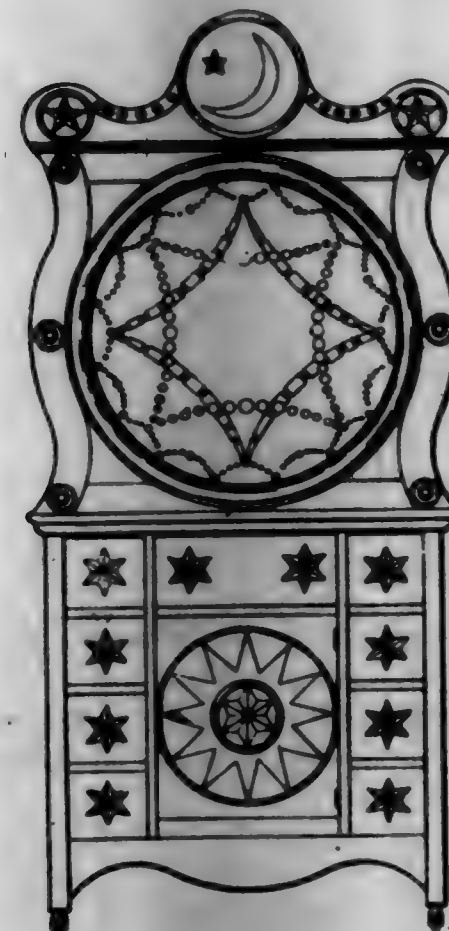
Claim.—The design for a font of printing-type, substantially as shown and described.

85,946. SIDINGBOARD OR SIMILAR ARTICLE. MARTIN V. HAMMACK, Thibault, Va., assignor of one-half to Ophimus O. Grimes, Portsmouth, Va. Filed Mar. 1, 1902. Serial No. 99,360. Term of patent 7 years.



Claim.—The design for a sidingboard, or similar article, substantially as herein shown and described.

85,947. BUREAU OR SIMILAR ARTICLE OF FURNITURE. MARTIN V. HAMMACK, Thibault, Va., assignor of one-half to Ophimus O. Grimes, Portsmouth, Va. Filed Mar. 1, 1902. Serial No. 99,361. Term of patent 7 years.



Claim.—The design for a bureau or similar article of furniture, substantially as herein shown and described.

85,948. BUREAU OR SIMILAR ARTICLE. MARTIN V. HAMMACK, Thibault, Va., assignor of one-half to Ophimus O. Grimes, Portsmouth, Va. Filed Feb. 24, 1902. Serial No. 99,120. Term of patent 14 years.



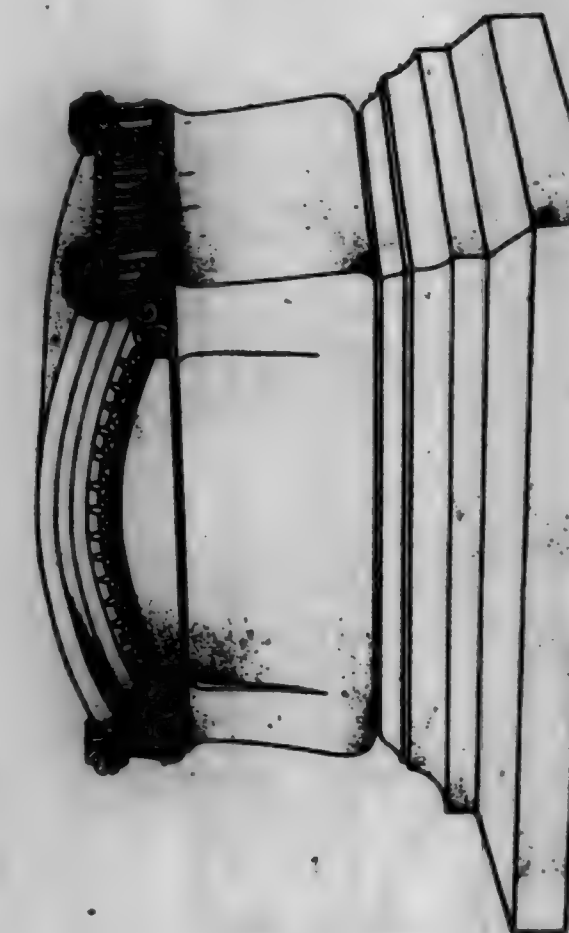
Claim.—The design for a bureau or similar article substantially as herein shown and described.

85,949. Mosaic FLOOR-COVERING. EDWIN B. WHARTY, Chicago, Ill. Filed Apr. 20, 1902. Serial No. 100,517. Term of patent 24 years.



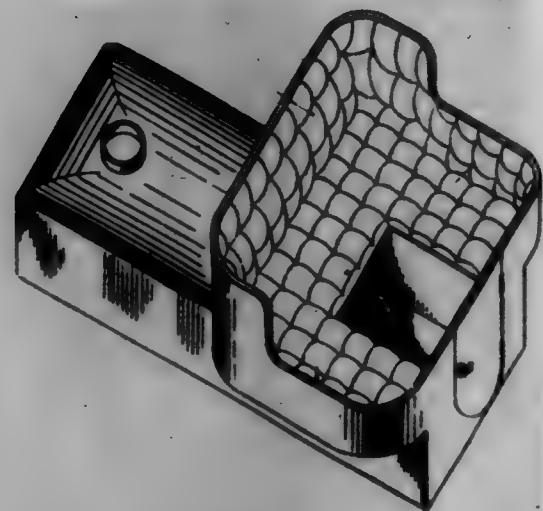
Claim.—The design for mosaic floor-covering herein shown and described.

85,950. MONUMENT. RAY E. WOLFF, Mansfield, Ohio. Filed Mar. 17, 1902. Serial No. 99,674. Term of patent 24 years.



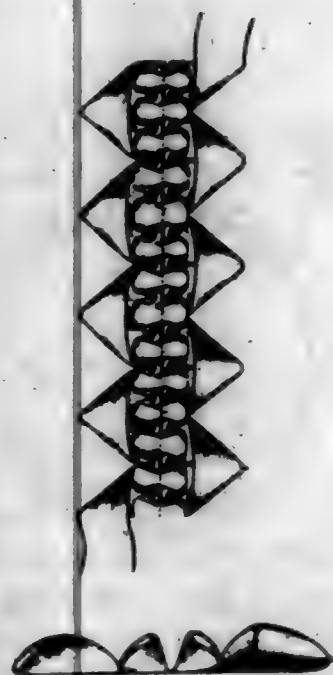
Claim.—The design for a monument substantially as illustrated and described.

85,951. VEHICLE-BODY. WINFIELD S. ROSEN, Kama, N. H.
Filed Apr. 14, 1902. Serial No. 100,940. Term of patent 7 years.



Claim.—The design for a vehicle-body substantially as herein shown and described.

85,952. TRIMMING. GEORGE E. TAYLOR, New York, N. Y., assignor to the Kurewood Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Apr. 22, 1902. Serial No. 100,122. Term of patent 24 years.



Claim.—The design for a trimming substantially as shown and described.

TRADE-MARKS

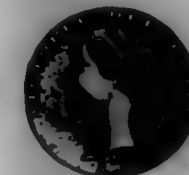
REGISTERED JUNE 10, 1902.

88,417. EYE-GLASSES FOR EYEGLASSES AND SPECTACLES. BENNETT & CO., Chicago, Ill. Filed Apr. 22, 1902.



Two substantially horizontal upwardly-curved and shaded lines, between which are downwardly-depending lines forming a loop which connects the upwardly-curved lines. Used since March 4, 1902.

88,418. PRINTED COTTON DRESS GOODS. THE BOUTINIERE MFG. CO., Philadelphia, Pa. Filed Apr. 22, 1902.



A low-relief profile portrait of the late Queen Victoria and the words "VICTORIA DEI GRATIA." Used since 1890.

88,419. COTTON SHIRTING. ANDERSON COTTON MILLS, Anderson, S. C. Filed Oct. 10, 1901.



The representation of the picture known as "Pharaoh's Horse," consisting of three horses' heads inclosed within a circle, the two outer ones with outstretched necks and the center one having its neck arched. Used since October, 1890.

88,420. SHIRTING, SHIRTING, AND DRILLS. EDWARD L. CUTLER, New York, N. Y. Filed May 1, 1902.



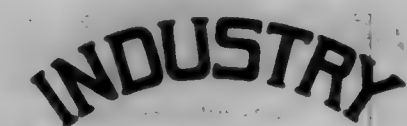
The word "WANASSETT." Used since March 22, 1902.

88,421. Hosiery. PHILIP E. KIMMOT, Galveston, Tex. Filed May 4, 1902.



The words "BLACK CROW" associated with the representation of a crow perched upon a stocking. Used since March, 1899.

88,422. BOOTS AND SHOES. HANF PHOENIX & CO., INCORPORATED, Spencer and Boston, Mass. Filed May 7, 1902.



The word "INDUSTRY." Used since May 1, 1899.

88,423. CUSHION-GOODS. ADAM EMM. ST. JOSEPH, Mo. Filed Apr. 4, 1902.



The letters "E. Z." Used since February 15, 1902.

88,444. SEWING AND TYPE-WRITER MACHINES. **BONITA**.
HARDWARE & STAMP CO., San Francisco, Cal. Filed Mar. 12, 1902.

BONITA

The word "BONITA." Used since February 1, 1902.

88,445. WASHBOARD. **THE AMERICAN WASHBOARD CO.**, Cleveland, Ohio. Filed Apr. 25, 1902.



The representation of Uncle Sam, an eagle, and two aliens, Uncle Sam being seated in a chair, holding a washboard in his lap, explaining its characteristics to the aliens, and the eagle being perched upon the back of the chair. Used since January 1, 1902.

88,446. RIBS, STRAPTS, SPURS, AND BUCKLES. **NEXTOSTEEL**.
LINTON & CO., New York, N. Y. Filed May 2, 1902.

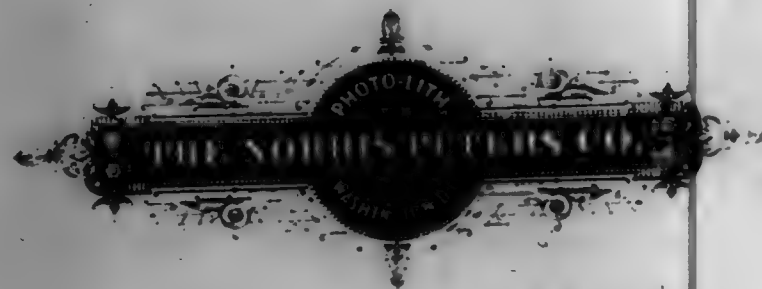
NEXTOSTEEL

The word "NEXTOSTEEL." Used since January 7, 1902.

88,447. SOFT-COAL FUEL-BURNER. **SOLID COMFORT**. **FRANK FENNELL**, Akron, Ohio. Filed Oct. 24, 1901.

SOLID COMFORT

The words "SOLID COMFORT." Used since September 15, 1901.



LABELS

REGISTERED JUNE 10, 1902.

- 9,300.—Title: "THE AMERICAN PUZZLE GAME OF ADVERTISMENTS AND TRADE MARKS." (For a Game.) HARRIST E. LAMPS, San Francisco, Cal. Filed January 20, 1902.
- 9,301.—Title: "THE GREAT FOUR CABLE WHALEBONE." (For Whips.) HENRY M. VAN DEUSEN, Westfield, Mass. Filed May 17, 1902.
- 9,302.—Title: "TI-KI RAWHIDE." (For Whips.) HENRY M. VAN DEUSEN, Westfield, Mass. Filed May 17, 1902.
- 9,303.—Title: "THE LINCOLN." (For Whips.) HENRY M. VAN DEUSEN, Westfield, Mass. Filed May 17, 1902.
- 9,304.—Title: "BLUE BELL." (For Cigars.) SAMUEL BUTLER & CO., Columbus, Ohio. Filed May 14, 1902.
- 9,305.—Title: "74TH REGIMENT." (For Cigars.) HARRY J. DEMOND, Buffalo, N. Y. Filed May 15, 1902.
- 9,306.—Title: "SHAKESPEARE." (For Cigars.) SANCHEZ & HAYA CO., Tampa, Fla., and New York, N. Y. Filed May 19, 1902.
- 9,307.—Title: "MIRAFIOR." (For Cigars.) SANCHEZ & HAYA CO., Tampa, Fla., and New York, N. Y. Filed May 19, 1902.
- 9,308.—Title: "TACITA." (For Cigars.) SANCHEZ & HAYA CO., Tampa, Fla., and New York, N. Y. Filed May 19, 1902.
- 9,309.—Title: "SPECIAL BOTTLING PURE EYE WHISKEY." (For Whisky.) ROXBURY LIQUOR DEALERS' ASSOCIATION, Boston, Mass. Filed May 12, 1902.
- 9,310.—Title: "WHIST CLUB." (For Chocolates.) F. H. DOW & COMPANY, Boston, Mass. Filed May 16, 1902.
- 9,311.—Title: "PEERLESS COMPOUND TABASCO CHILI SAUCE." (For Chili-Sauce.) J. NAVARRO & CO., Oakland, Cal. Filed May 12, 1902.
- 9,312.—Title: "GOLD EAGLE." (For Grain.) ROSENBAUM BROTHERS, Chicago, Ill. Filed May 8, 1902.
- 9,313.—Title: "BUCKEYE BRAND MEATS." (For Meats.) ARNACOTT, RILEY & CO., Cincinnati, Ohio. Filed May 20, 1902.
- 9,314.—Title: "BELGIAN SOAP." (For Soap.) WILLIAM C. HALLOWITZ, Chicago, Ill. Filed May 12, 1902.
- 9,315.—Title: "GERHART'S CLEANO." (For Washing Compounds.) CHARLES C. GERHART, Clarksville, Tenn. Filed May 20, 1902.
- 9,316.—Title: "GLASBRITE." (For a Cleaning Preparation.) HARRY N. CLARK, Cleveland, Ohio. Filed May 5, 1902.
- 9,317.—Title: "ROUMANIAN CREAM SKIN-FOOD." (For a Toilet Cream.) LOUISE DEE SMITH, New York, N. Y. Filed May 16, 1902.
- 9,318.—Title: "WINDSOR SOOTHING SYRUP." (For Soothing-Syrup.) DINET & DELPOSS, Chicago, Ill. Filed May 10, 1902.
- 9,319.—Title: "ESKAY'S NEURO PHOSPHATES." (For Medicine.) SMITH, KLINE & FRENCH CO., Philadelphia, Pa. Filed May 20, 1902.
- 9,320.—Title: "ESKAY'S CASCAROID." (For Medicine.) SMITH, KLINE & FRENCH CO., Philadelphia, Pa. Filed May 20, 1902.
- 9,321.—Title: "STEWART'S ODORLESS AND TASTELESS CASTOR OIL." (For Castor-Oil.) STEWART MANUFACTURING CO., Santa Rosa, Cal. Filed April 20, 1902.
- 9,322.—Title: "KING SALVE LINIMENT." (For Liniment.) PRICE MAY, Owensboro, Ky. Filed May 20, 1902.
- 9,323.—Title: "DR. DANIEL'S LINIMENT POWDER." (For Liniment.) DR. A. C. DANIELS, INC., Boston, Mass. Filed May 19, 1902.
- 9,324.—Title: "DOWLER'S MICROBE OINTMENT." (For Ointment.) F. K. DOWLER, Jamestown, N. Y. Filed May 19, 1902.
- 9,325.—Title: "TIP TOP BUG KILLER." (For Insecticide.) FLEISCHMANN BROS., Newark, N. J. Filed May 19, 1902.
- 9,326.—Title: "PAULET." (For Insect-Exterminator.) LUDWIG G. B. EBB, New York, N. Y. Filed May 15, 1902.
- 9,327.—Title: "BLACK ELASTIC ROOF PAINT." (For Roof-Paint.) TANNER PAINT & OIL CO., Richmond, Va. Filed May 12, 1902.

PRINTS

REGISTERED JUNE 10, 1902.

516.—Title: "THIS IS NOT OURS." "THIS IS OURS." (For Loose-Leaf Binders.) UNION FILE & RUBBER COMPANY, Chicago, Ill. Filed April 20, 1902.

517.—Title: "GUARDING A GOOD THING IN ARIZONA." (For Whisky.) BROWN, FORMAN CO., Louisville, Ky. Filed May 12, 1902.

DECISIONS

OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

CORY AND BARKER v. TROUT.

Decided May 8, 1908.

INTERFERENCE—ADDITION OF NEW PARTY—DECISION RENDERED
ON PRIORITY.

After a decision by the Examiners-in-Chief and the Commissioner upon the question of priority of invention it is too late to add a new party to the interference.

ON MOTION.

SET-WORKS FOR SAW-MILL CARRIAGES.

Application of Michael Cory and Ruben F. Barker filed December 14, 1899, No. 740,620. Application of William H. Trout filed August 18, 1897, No. 648,691.

Mr. L. K. Gillson and Mr. H. H. Bliss for Cory and Barker.

Messrs. Dodge & Sons for Trout.

ALLEN, Commissioner:

This case comes up on a motion by Trout that the decision of the Commissioner of Patents (73 MS. Dec., 374) awarding priority of invention to Cory and Barker be withheld, that proceedings be suspended, and that the issue be suggested to one McDermott with a view to a redeclaration of the interference including McDermott as one of the parties.

Cory and Barker have made a motion to dismiss Trout's motion on the ground that it is not warranted by the rules.

This interference having proceeded so far that a decision on priority has been rendered by the Examiner of Interferences, the Examiners-in-Chief, and the Commissioner, it is too late, under the well-settled practice of the Office, to dissolve it merely for the purpose of adding a new party. If there is another applicant before this Office claiming or entitled to claim the invention here in controversy, he may, after the decision in this case has become final, be placed in interference with the successful party.

The motion by Trout being without merit should be denied rather than dismissed because of irregularity. Both motions are therefore denied.

EX PARTE SMITH.

Decided May 8, 1908.

DIVISION—SHOE-SEWING MACHINE.

Where the stitch-forming mechanism and the combined awl and feeding mechanism of a shoe-sewing machine have not acquired a distinct status in art and manufacture and are not separately classified in this Office, *Held* that division should not be required notwithstanding the fact that the mechanisms are capable of separate use.

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ON petition.

SHOE-SEWING MACHINE.

Application of Eugene Smith filed August 8, 1901, No. 71,825.

Mr. Walter F. Rogers for the applicant.

ALLEN, Commissioner:

This is a petition from that part of the Examiner's action requiring division between claims 1, 2, and 3, which cover a stitch-forming mechanism, and claims 4, 5, and 6, which cover a combined awl and feeding mechanism.

The invention relates to improvements in a shoe-sewing machine for sewing welts to the uppers and insoles of shoes.

The stitch-forming mechanism and the combined awl and feeding mechanism, though independently operated by a common cam, are so related to each other that they cooperate to produce a unitary result. While it may be true, as the Examiner contends, that any other awl and feeding mechanism might be substituted for the one invented by the petitioner and that any other known or unknown stitch-forming mechanism might be substituted for the one here disclosed and claimed, it does not appear that a stitch-forming mechanism and an awl and feeding mechanism have acquired a distinct and independent place in the arts and manufactures and are independently manufactured and sold.

They are not separately classified by the Office. It is true that each of these mechanisms is separately constructed and either one of them can be removed from the machine without disturbing the other; nevertheless each one so coacts with the other as to mutually contribute to produce a unitary result, and in view of the further fact that they are not recognized by the inventors and manufacturers as having a distinct place in the arts and manufactures, in that they are not separately manufactured and sold, the requirement of division should not be insisted upon.

The petition is granted.

PATTEN v. WIESENFELD.

Decided May 10, 1908.

1. INTERFERENCE—RECORD DATE—TWO APPLICATIONS DISCLOSED INVENTION.

Where W. had two applications pending in either of which the claims in controversy could be made and he elects to make them in the later case, *Held* that he is entitled to the date of his earlier case as his record date upon the question of priority.

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2. SAME—IRREGULARITY—MERELY TECHNICAL OBJECTIONS.

Where priority was awarded to W. by reason of a prior application not directly included in the interference and P. moves to dissolve on the ground of irregularity, alleging that the earlier case should have been positively included in the interference, *Held* that the motion relates to a technicality rather than to the merits and was properly denied.

APPEAL ON MOTION.

DOCKING TOL.

Application of James S. Patten filed February 5, 1901, No. 46,112. Application of Robert S. Wiesenfeld filed March 6, 1901, No. 50,024.

Messrs. Munn & Co. for Patten.

Messrs. Watson & Watson for Wiesenfeld.

ALLEN, Commissioner:

This is an appeal by Patten from the decision of the Primary Examiner denying a motion to dissolve the above-entitled interference on the ground that there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority.

The records show that Wiesenfeld has two applications which disclose this invention, which were filed, respectively, on December 8, 1900, and March 6, 1901. Patten filed his application on February 5, 1901. The interference was declared between Patten's application and the later of the two applications filed by Wiesenfeld.

Before declaring the interference it was found that Patten was entitled to some of the claims of the Wiesenfeld application and that Wiesenfeld was entitled to some of the claims of the Patten application. These claims were duly suggested to each party under the provisions of Rule 93. Before the interference was declared the earlier of the two Wiesenfeld applications was withdrawn from issue and Wiesenfeld was notified that he should elect which one of the two applications filed by him he wished to prosecute and abandon the other.

Wiesenfeld elected to prosecute the later application, but did not formally abandon the earlier application. When the application filed by Patten and the later application filed by Wiesenfeld were in proper condition, the Examiner declared the interference between them, making Patten and Wiesenfeld, respectively, the senior and junior parties thereto, and omitted to refer in any way to the earlier application filed by Wiesenfeld.

After the preliminary statements had been received and approved and times had been set for taking testimony the Examiner informed the Examiner of Interferences that—

in arranging the parties as required by Rule 97, Wiesenfeld should have been made the senior party, since he has an earlier application, No. 39,181, filed December 8, 1900, for precisely the same invention, action upon which has been suspended at his request, until the termination of this interference.

The Examiner of Interferences thereupon made Wiesenfeld the senior party and Patten the junior party and duly informed them of this action.

On the same date judgment of priority on the record was awarded to Wiesenfeld in accordance with the provisions of Rule 114.

The Examiner stated in his decision that—when the interference was declared, the circumstances were such that the earlier application was ignored or forgotten.

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It is contended by Patten on this appeal that the irregularity consists in the fact that the Primary Examiner erred in not including the earlier application in the interference. It is insisted that if the earlier application is to be considered at all in this interference it should be directly included therein and not referred to, as is now the case.

The points argued raise the question of form and do not go to the merits of the case. The contention is that the interference was irregularly declared, in that the practice followed by the Examiner was not strictly regular, not that the irregularity consists in such vital defects as to preclude the proper determination of the question of priority. It is nowhere contended that the earlier application of Wiesenfeld does not disclose the same invention as that disclosed by the later application. It is not contended that had the interference included the earlier application of Wiesenfeld instead of the later one the award of priority would have been different from that rendered.

In *Bundy v. Rumbarger* (93 O. G., 2002) it was said:

As stated by the court in *Cain v. Park*, the Office is justified in taking notice of facts shown by its records in order that justice may be done. (See also *Hunter v. Wightman*, C. D., 1907, 178; 81 O. G., 1783.)

The invention in issue being disclosed in the prior application and the second application being filed while the first was pending, the second is a continuation of the first for the purpose of giving . . . the benefit of its date for a constructive reduction to practice.

In the case of *Silverman v. Hendrickson* (90 O. G., 1171) the Court of Appeals of the District of Columbia said:

The appellee Hendrickson on June 9, 1897, filed his original application in the case, for which the application now in interference (filed August 20, 1897) is only a substitute. This original application disclosed the invention in controversy and must be regarded, according to the usual rule, as a constructive reduction to practice . . . as of the date of June 9, 1897.

It is clear from the records of this interference that there has been no such irregularity in the declaration of the same as to preclude the proper determination of the question of priority of invention.

The decision of the Primary Examiner refusing to dissolve this interference is affirmed.

EX PARTE HOLLAND.

Decided May 13, 1902.

INTERFERENCE—REJECTED CLAIMS—COUNTERCLAIMS.

Where the claims of an application are rejected upon references and without overcoming the rejection the applicant petitions to have an interference declared with a patent to another party granted while his application was pending, *Held* that his remedy is by an appeal from the rejection when it shall have been repeated.

ON petition.

PLAYING-CARDS.

Application of Thomas Osborne Holland filed October 6, 1897, No. 654,143.

Mr. R. G. Dyrenforth for the applicant.

ALLEN, Commissioner:

This is a petition that the Examiner be directed to reconsider his action rejecting the claims of the above-entitled application on the ground of lack of invention and to declare an interference between said application and a certain patent to Holman.

It appears that the Examiner has rejected all of the claims in this application for lack of invention in view of certain references and for reasons which are of record. Included in these claims are four claims which were copied from the patent to Holman referred to above. The application on which this patent was granted was pending contemporaneously with the present application. For this reason it is urged by petitioner that the claims of this application should be allowed and placed in interference with those of the patent. There has been but one rejection of the claims as amended.

It is clear from this statement of the case that the present petition has no standing. The Examiner has not acted twice upon the question presented by it. For this reason alone it should be dismissed. (*Ex parte Shone*, 90 O. G., 863.) Moreover, the question presented is one relating to the merits of the case. Lack of invention is one of the grounds for rejection specified in Rule 133. From a second rejection of the claims on this ground appeal lies under this rule to the Examiners-in-Chief.

The petition is dismissed.

EX PARTE POWRIE.

Decided May 15, 1902.

1. INTERFERENCE—RULE 105—CONCEALING PART OF INVENTION FROM OPPONENT—PROCESS AND PRODUCT.

Where an interference is declared as to a process and one of the parties has claims to the product which is the necessary result of the process, *Held* that he will not be permitted to conceal his product claims from his opponent by filing certified copies of the parts of his application relating to the process under Rule 105.

2. SAME—SAME—ADDITIONAL STEP TO PROCESS—INDEPENDENT INVENTION.

Where an interference is declared as to a process and one of the parties has claims to an additional step performed after the process as set forth in the issue is completed and the opposing party does not disclose that step, *Held* that the additional step may be concealed from the other party to the interference under Rule 105.

ON petition.

PHOTOGRAPHS IN COLORS AND METHOD OF PRODUCING SAME.

Application of John H. Powrie filed October 25, 1901, No. 79,967.

Mr. L. K. Gillson for the applicant.

ALLEN, Commissioner:

This is a petition from an action of the Examiner holding that the above-entitled application is not properly divisible and refusing to permit the use of certified copies of a part of the application to be used in an interference in which it is involved.

The claims of this case which are included in the interference cover a process. The application contains other claims covering a product resulting from this process and also one claim which covers the process more specifically than those which are in the interference. An inspection of this claim (claim 7) shows that it includes a step in the process which is not included in the other process claims. By reason of this step the process covered by claim 7 is a different process from that covered by the other claims and would be patentable thereover if

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included in a separate application. Moreover, it is not essential to a complete understanding of the process covered by the remaining claims that the additional step included in claim 7 should be disclosed. Claim 7, therefore, is for an invention distinct from the other process claims and one which is not a part of the invention included in the issue of the interference. It may therefore, together with parts of the specification relating thereto, be withheld from inspection by the other party to the interference, as provided by Rule 105.

Claims 1 to 4 cover the product resulting from the process set forth in the other claims. This product is the necessary result of the process, though it might, perhaps, be made in other ways. A disclosure of the process, therefore, is necessarily such a disclosure of the product as to form a basis for claims for the product, and a party disclosing and claiming the process would be entitled to claim the product either in the same application or in a separate application—that is, the inventions are not absolutely independent and a party claiming both should not be allowed to conceal one of them from a party claiming the other. (*Ex parte Walrath*, 87 O. G., 1397; *Zwietusch v. Wittemann*, 75 O. G., 183.)

Claims 1 to 4 should be left open to inspection to the other party to the interference.

To the extent above indicated the petition is granted.

EX PARTE MORIARTY.

Decided May 17, 1902.

DIVISION—COMBINATION CLAIM AND CLAIM TO A SPECIFIC ELEMENT.

Held that division was properly required between a combination including a buoy as one of the elements and a claim to a specific form of buoy where that buoy is capable of use in other relations.

ON petition.

MEANS FOR LOCATING SUNKEN ARTICLES.

Application of Thomas J. Moriarty filed November 8, 1901, No. 81,546.

Messrs. Edgar Tate & Co. and Mr. Wm. N. Cromwell for the applicant.

ALLEN, Commissioner:

This is a petition from the action of the Examiner requiring division in the above-entitled application.

The records show that the Examiner originally divided the claims into three groups and held that two of the groups covered two distinct species of the same generic invention and that the third group covered a separate and independent invention from that covered in the first two groups of claims.

The Examiner has withdrawn his requirement of division on the ground that two separate forms of the same generic invention are specifically claimed, but insists on his requirement of division between the third group and the remaining claims in the case.

The third group comprises claims 17, 18, 19, 20, and 21.

The claims, except those numbered 17, 18, 19, 20, and 21, cover combinations more or less specifically stated between a vessel, a floating device or buoy attached to the same, and a connecting means between the two. The object of the float or buoy is to indicate the position of the vessel when sunk, the connecting mechanism being so constructed that the float will be released from the vessel and rise to the surface of the water when the vessel sinks, thereby indicating the position of the sunken vessel.

Claims 17, 18, 19, 20, and 21 cover a specific form of buoy. A buoy alone is a distinct subject-matter of invention from a combination of elements which includes a buoy as one of said elements. The buoy which is included as an element in the combination claimed is not limited to any particular construction. The specific buoy defined in claims 17, 18, 19, 20, and 21 is useful in other relations and for other purposes than as an element in the combination claimed. Each of these inventions is capable of separate and independent use. They should not, therefore, be presented in the same application.

The petition is denied.

DICKINSON v. THIBODEAU v. HILDRETH.

Decided May 17, 1902.

INTERFERENCE—MOTION TO DISSOLVE—AFFIDAVITS AS TO OPERATIVENESS.

Where on a motion to dissolve the question as to the operativeness of one of the inventions is raised, *Held* that affidavits supporting or traversing the allegation may be received and considered.

ON motion.

CANDY-PULLING MACHINE.

Application of Herbert M. Dickinson filed November 5, 1901, No. 81,377. Application of Charles Thibodeau filed November 26, 1900, No. 37,734. Application of Herbert L. Hildreth filed September 21, 1900, No. 30,703.

Mr. Edward Taggart and Mr. James L. Norris for Dickinson.

Messrs. Wright, Brown & Quimby for Thibodeau.

Mr. Alex. P. Browne and Messrs. Watson & Watson for Hildreth.

ALLEN, Commissioner.

This is a motion by Thibodeau that certain affidavits filed by Hildreth and Dickinson in connection with a motion to dissolve the above-entitled interference be removed from the files and such disposition thereof made as the Commissioner may determine.

It appears that a motion to dissolve the interference has been transmitted to the Primary Examiner for his determination and is now pending before him. This motion was brought by Hildreth and is based on the ground, among others, that the Dickinson machine is inoperative and is for this reason not patentable. In connection with this motion Hildreth and Dickinson have filed affidavits by various persons supporting or traversing

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the proposition that the Dickinson machine is inoperative.

In the *ex parte* prosecution of an application affidavits supporting or traversing a rejection on the ground that a device is inoperative may be received under the provisions of Rule 76, and there appears to be no good reason why such affidavits should not be received when the question of operativeness is raised in *inter partes* proceedings. This question is of course to be determined from the record; but there is no reason why arguments relating thereto should not be considered. The fact that such arguments are presented under oath in the form of affidavits does not render them irrelevant.

The moving party has based his motion on the decision in the case of *McKensie v. Gillespie v. Ellis v. McElroy v. Ocumpaugh v. Norton*, (93 O. G., 2103). In this case, however, affidavits were presented tending to show that the invention was unpatentable because of more than two years prior public use. That such a question will not ordinarily be considered during interference proceedings is well established; nor can such a bar be established by *ex parte* affidavits. As was said, therefore, in this case—

upon motion to dissolve an interference on the ground that the issue is not patentable affidavits which under the law cannot be considered in determining the patentability of the issue should not, when their true nature is perceived, remain in the files.

In the present case the affidavits are presented in connection with a question to which under the law they are relevant. They should therefore remain in record and have such consideration as they are entitled to receive.

The motion is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

ROE v. HANSON.

Decided April 1, 1902.

1. INTERFERENCE—PRIORITY.

Where Roe conceived the invention in November, 1898, made a machine embodying it in August, 1899, and operated it at that time in such manner as to show its practicability, and in March, 1900, first used it in a mill and made the first commercial test of it, *Held* that he is entitled to the decision on priority as against Hanson, who conceived in April, 1899, and reduced to practice in July, 1899.

2. SAME—REDUCTION TO PRACTICE—COMMERCIAL USE UNNECESSARY.

Where Roe in August, 1899, completed the shifting device for the saws of a gang-edger and embodied it in a full-sized machine adapted for practical use and then tested it, but did not place it in a sawmill and test it commercially until March, 1900, *Held* a reduction of the invention to practice in August, 1899.

3. SAME—PRIORITY—DILIGENCE.

Where Roe conceived the invention in November, 1898, completed drawings in April, 1899, and then commenced work on a machine which was completed in August, 1899, and it appears that he was a very busy man and devoted all of the time that he could spare to work upon this invention, *Held* that he was not lacking in diligence.

4. SAME—SAME—DELAY IN COMMERCIAL USE.

Where Roe completed his machine in August, 1899, and wished to place it in the sawmill which he was then building for his company, but was not permitted to do so, and where he placed it in the next mill built in March, 1900, *Held* that there was no unreasonable delay by him in making commercial use of his invention.

Messrs. Wilkinson & Fisher for the appellant.

Messrs. Dodge & Sons for the appellee.

MORRIS, J.:

This is an appeal from the Commissioner of Patents in an interference case, wherein the subject-matter of controversy is the question of priority of invention of an improvement in machines for sawing timber, which is described in four issues formulated in the Patent Office, as follows:

1. In a gang-edger, the combination of a saw-arbor, a series of saws mounted thereon, a series of slides of like form and dimensions having their outer ends at an angle to the body of the slide, and connections between said slides and the saws.
2. In a gang-edger, the combination of a saw-arbor, a series of saws mounted thereon, a series of slides of like form and dimensions having their outer ends at an angle to the body of the slide, an arm connected to each of said slides, a guide for said slides and arms, and connections between said slides and the saws.
3. In a gang-edger, the combination of a saw-arbor, a series of saws mounted thereon, guides or ways adjacent to said arbor, a series of slides of like form and dimensions, mounted on said ways, said slides having a straight body portion with their outer ends bent at an angle thereto; an arm extending from each of the slides at an angle to the straight portion and in a direction opposite to that of the bent portion of the slides; a guide for said slides and arms, and connections between said slides and the saws.
4. In a gang-edger, the combination of a saw-arbor, a series of saws mounted thereon, guides or ways, a series of slides of like form mounted thereon, said slides having their outer ends bent at an angle substantially as described, arms extending from the under face of the slides to one of the guides, means for holding the slides in their adjusted position, and connections between said slides and the saws.

A gang-edger is a gang or combination of circular saws for splitting and edging boards; or, as it is defined in the *Century Dictionary*, it is—

a machine having from three to six circular saws on a common mandrel, capable of being so adjusted as to split wide planks into boards or scantlings of the width required.

It is a machine well known and widely used in the lumber regions of the Western States of our Union. In the issues above recited, which are taken from the claims of the application of the appellant Roe, a complete gang-edger is described; but the subject-matter of the controversy between the parties, and the subject of invention here, is greatly more limited. It is merely the shifting device for adjusting the circular saws into their desired positions. This adjustment is effected by the use of hand-levers.

The appellant Alphens E. Roe, who is the junior applicant, alleges in his preliminary statement that he conceived the invention, first made drawings of it, and disclosed it to others, on or about November 1, 1898; that on or about May, 1899, he showed and explained these drawings to his opponent, the appellee Dempsey B. Hanson; that he first embodied his invention in a full-sized machine which was completed and operated before August 1, 1899, and which was at that time examined by Hanson; that, on March 19, 1900, this machine was successfully operated and used in the city of New Whatcom, in the State of Washington, where the appellant resided; that he has since continued to use the same; and that he has also manufactured another machine for use in the sawmills of the company by which he was employed, the Bellingham Bay Im-

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provement Company. He filed his application for a patent on January 2, 1900.

The appellee Dempsey B. Hanson in his preliminary statement alleges that he conceived the invention on or about March 25, 1899; that he communicated it to others about April 1, 1899; that he made drawings or sketches of it about April 15, 1899, or rather that he caused such drawings or sketches to be made by a draftsman for him; that the invention was commenced to be embodied in full-sized operative form about May 1, 1899, and completed in the early part of July, 1899; and that other machines have since that time been in public use.

Hanson's application for patent was filed in the Patent Office on September 6, 1899, and Letters Patent were issued to him on January 9, 1900, seven days after the filing of Roe's application, and probably in ignorance of the filing of that application. At all events, although a patentee, he cannot, as against Roe, be entitled to any special advantage from his patent. He is, however, the senior applicant; and, as such, he is entitled to have the burden of proof placed upon his opponent Roe. This was the relative position in which they were placed by the Patent Office.

Upon the testimony and the record made for themselves by the parties, the Examiner of Interferences and the Board of Examiners-in-Chief held that the appellant Roe was entitled to judgment of priority of invention. But upon appeal to the Commissioner of Patents, the Assistant Commissioner, who sat in his place, reversed the decision of the Board, and awarded judgment of priority of invention to the appellee Hanson. By all three of the tribunals of the Office it was held that Roe was the first to conceive the invention, but second to Hanson in his reduction to practice. The decision, therefore, turned upon the question of the due diligence of Roe; and in this regard the Examiner of Interferences and the Board of Examiners held in his favor, and the Assistant Commissioner against him.

From the decision of the Assistant Commissioner the applicant Roe has appealed to this court.

That the appellant Roe was the first to conceive the invention in controversy may be assumed as the result of the testimony in the case. It is so held by all the tribunals of the Patent Office, and is not very seriously controverted on behalf of the appellee Hanson. We deem it unnecessary, therefore, to examine the testimony so far as it relates to this point. The conception and disclosure are shown to have occurred in November, 1898.

The appellee Hanson's conception and disclosure are not claimed to have occurred until about April 1, 1899, five months after the disclosure of the invention by Roe. Undoubtedly, therefore, in the matter of conception of the invention he was anticipated by the latter. The difficulty in the case is as to the question of reduction to practice, and as to the diligence of Roe, if it should appear that Hanson was the first to reduce to practice. If there were no actual reduction to practice by either party

before September 6, 1899, the date of the filing of Hanson's application, the latter would be entitled to priority of first constructive reduction to practice. But there is proof tending to show actual reduction to practice by both parties before that date.

Both parties were evidently working at the invention during the same period of time, the spring and summer of 1899. Hanson was undoubtedly the more diligent about this time; although there may have been a special motive for his activity, if the attempt on the part of Roe to show that Hanson derived the idea from disclosure to him by Roe about May 1, 1898, be regarded as successfully shown by the testimony. On this point, however, it is unnecessary to express an opinion.

It seems that about the end of April, 1899, Hanson communicated his idea to the Vulcan Iron Works, a company which constructed machines of this general character, and that drawings were made for him by a draftsman in the employment of the company. Thereupon during the months of May, June, and July, a machine embodying the invention was built by that company at its factory, in the city of Seattle, in the State of Washington, which was sold on July 14, 1899, to the Rock Creek Lumber Company, and thereafter used by this latter company. Hanson at this time had no specially engrossing occupation; while Roe, who was a mechanical engineer in the service of a company known as the Bellingham Bay Improvement Company, with its headquarters at New Whatcom, in the same State, was an extremely busy man, and could only give his attention to the invention at odd moments when his time was not demanded by the service of his company. After his conception and disclosure of the invention in November of 1898, it is shown that he worked diligently enough in the preparation of drawings, which he finished in April or May of 1899; and thereupon that he commenced forthwith the construction of a machine embodying the invention, which was finished in August of 1899. He was occupied at the time in the restoration of a mill for his company which had been destroyed in June of the previous year. He first constructed a small mill, and thereafter a larger one. The gang-edger, which he had procured to be finished in August he was desirous to place in the first or smaller of the two mills, which was finished soon afterward; but

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the officers of the company preferred to have their old gang-edger repaired and used in this mill. The gang-edger with the appellant's shifting device was placed in the larger mill subsequently completed and was first operated in that mill in March of 1900. This was the first commercial test of it; but it had already been operated in such manner as to show its practicability, and it was and remained in condition adapted for practical operation.

Under these circumstances we cannot hold that there was any want of diligence on the part of the appellant. His device was complete and embodied in a full-sized machine adapted for practical application in August of 1899. For the failure to test it by putting it forth with into practical commercial use, there is sufficient reason shown. It was tested in fact at the time and shown to be operative; and when it was finally put to the test of actual commercial use, it was shown that there was nothing wanting to its practicability. We think that in this regard this case falls within the principle of the case of *Mason v. Hepburn* (18 D. C. App., 86; 84 O. G., 147) and *Lindemeyer v. Hoffman*, (18 D. C. App. 1.)

The Examiner of Interferences and the Board of Examiners-in-Chief are not clear that the construction of Roe's machine in August of 1899, without actual test of it by commercial use, was reduction to practice; and the Commissioner in great measure basing his opinion upon the theory that Roe's reduction to practice was not earlier than the filing of his application on January 2, 1900, holds that there was too great delay and want of due diligence on his part. We are of opinion that the construction of his machine in August of 1899 was actual reduction to practice by him, that the delay in using that machine commercially and thereby testing it by actual use was not unreasonable under the circumstances, and that there was no want of due diligence on his part between his conception and disclosure in November of 1898 and his actual reduction of the invention to practice in August of 1899. And being of this opinion we must hold, in opposition to the decision of the Assistant Commissioner, that judgment of priority of invention should be awarded to the appellant Alpheus E. Roe.

The clerk of this court will certify this opinion and the proceedings in this court in the premises to the Commissioner of Patents according to law.

No. 11.]

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 99.—No. 12.

TUESDAY, JUNE 17, 1902.

PRICE—\$5 per year.

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Prints	7—No. 515 to No. 521, inclusive.
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Total issue..... 897

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	1	Nebraska	1	1
Alaska Territory	1	1	Nevada	1	1
Arizona Territory	1	1	New Hampshire	1	1
Arkansas	1	1	New Jersey	1	1
California	10	10	New Mexico Territory	1	1
Colorado	10	10	New York	10	10
Connecticut	1	1	North Carolina	1	1
Delaware	1	1	North Dakota	1	1
District of Columbia	1	1	Ohio	1	1
Florida	1	1	Oklahoma Territory	1	1
Georgia	1	1	Oregon	1	1
Hawaii Territory	1	1	Pennsylvania	1	1
Idaho	1	1	Rhode Island	1	1
Illinois	11	11	South Carolina	1	1
Indian Territory	1	1	South Dakota	1	1
Indiana	16	16	Tennessee	1	1
Iowa	11	11	Texas	1	1
Kansas	1	1	Utah	1	1
Kentucky	1	1	Vermont	1	1
Louisiana	1	1	Virginia	1	1
Maine	1	1	Washington	1	1
Maryland	1	1	West Virginia	1	1
Massachusetts	1	1	Wisconsin	1	1
Michigan	1	1	Wyoming	1	1
Minnesota	1	1	U. S. Navy	1	1
Mississippi	1	1	Total to citizens of the United States	490	490
Missouri	1	1			
Montana	1	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Austria-Hungary	1	1	Netherlands	1	1
Barbados	1	1	Newfoundland	1	1
Belgium	1	1	New South Wales	1	1
Bermuda	1	1	New Zealand	1	1
Brazil	1	1	Norway	1	1
Canada	1	1	Peru	1	1
Cape Colony	1	1	Queensland	1	1
Chile	1	1	Roumania	1	1
China	1	1	Russia	1	1
Cocos Island	1	1	Scotland	1	1
Colombia	1	1	South Africa	1	1
Cuba	1	1	Spain	1	1
Denmark	1	1	Sweden	1	1
Egypt	1	1	Switzerland	1	1
England	1	1	Tasmania	1	1
France	1	1	Victoria	1	1
Germany	1	1	Western Australia	1	1
Haiti	1	1	Total to citizens of foreign countries	64	64
India	1	1			
Ireland	1	1			
Italy	1	1			
Mexico	1	1			

Classification Bulletin.

CLASSIFICATION BULLETIN No. 6, containing the revision made during the months of March and April, 1902, is now out. Price, ten cents.

Communications to the Patent Office.

RULE 2. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Amendment to English Patent Law.

CHAPTER 12.

An Act to amend the Law with reference to International Arrangements for Patents, 17th August 1901.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1.—(1) In the first proviso to subsection one of section one hundred and three of the Patents, Designs, and Trade Marks Act, 1888 (which section relates to the time for making applications for protection under international arrangements), the words "twelve months" shall be substituted for the words "seven months."

(2) An application under that section shall be accompanied by a complete specification, which, if it be not accepted within the period of twelve months, shall, with the drawings (if any), be open to public inspection at the expiration of that period.

2.—(1) This Act may be cited as the Patents Act, 1901, and may be cited and shall be construed as one with the Patents, Designs, and Trade Marks Acts, 1888 to 1891.

(2) This Act shall come into operation on the first day of January one thousand nine hundred and two.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 10, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
<i>In arrears—Under one month.</i>				
217	XXXIII. *DESIGNS, *TRADE-MARKS, *LABELS AND PRINTS, Optics, and Photography.	May 20	May 31	57
105	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	May 20	May 28	216
80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyors, Hoisting, etc.	May 17	May 13	267
228	I. Carriages and Wagons.	May 14	June 2	108
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	May 14	May 27	206
220	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 13	May 27	109
113	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	May 12	May 26	140
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	May 12	May 27	176
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	May 12	May 27	307
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	May 12	May 27	228
242	I. Tillage, etc., and Fences.	May 12	May 27	159
212	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	May 12	May 27	240
137	XXX. Paper Manufactures, Lamps and Gas-Fittings.	May 12	May 26	280
280	VIII. Furniture, Store Furniture, Beds, Kitchens and Table Articles, and Check-Controlled Apparatus.	May 12	May 26	264
108	XX. Stoves and Furnaces and Steam-Boiler Furnaces.	May 12	May 31	225
281	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	May 10	May 22	281
281	XXIII. Acoustics, Electric Signaling, Micrology, Recorders, and Registers.	May 10	May 18	225
280	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	May 10	May 18	225
<i>Between one and two months.</i>				
286	XXXVI. Curtains, Shades, and Screens, Drafting, Drivers, Measuring Instruments, and Wind-Wheels.	May 9	May 26	215
285	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	May 8	May 27	150
120	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Cases, and Toilet.	May 6	May 27	140
44	XXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	May 7	May 20	220
281	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Motor-Service.	May 6	May 24	210
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	May 5	May 20	127

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
136	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	May 3	May 20	210
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farmery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Apr. 30	May 2	202
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Apr. 21	May 21	406
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Apr. 14	Apr. 14	280
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Apr. 12	May 3	216
128	XXIX. Wood-Working Machines, Coopering and Tooling.	Apr. 11	Apr. 10	205
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Apr. 11	Apr. 1	464
<i>Between two and three months.</i>				
240	XVIII. Steam-Engineering, etc.	Apr. 9	Apr. 12	474
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Mar. 26	Mar. 19	527
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 20	Mar. 20	600
<i>Between three and four months.</i>				
145	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Mar. 4	Apr. 8	208
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Mar. 1	Apr. 14	446

Total number of applications awaiting action..... 9,225

Under one month.

*Designs.....	May 28	May 26	73
†Trade-Marks.....	May 21	June 5	120
‡Labels and Prints.....	June 6	June 6	18

Design Patents.

AN ACT to amend section forty-nine hundred and twenty-nine of the Revised Statutes, relating to design patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-nine hundred and twenty-nine of the Revised Statutes be, and the same is hereby, amended so as to read as follows:

"Sec. 4929. Any person who has invented any new, original, and ornamental design for an article of manufacture, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, the same as in cases of inventions or discoveries covered by section forty-eight hundred and eighty-six, obtain a patent therefor."

Approved May 9, 1902.

Hearings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 16, 1902.

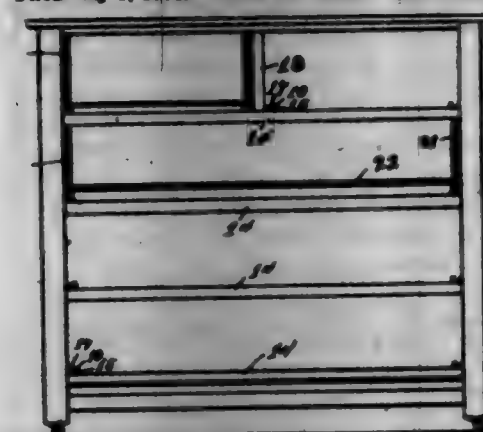
Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1902.

F. I. ALLEN,
Commissioner.

PATENTS

GRANTED JUNE 17, 1902.

702,889. DRAWER-SUPPORT. FRANK O. ARDENSON, Jamestown, N. Y. Filed July 5, 1901. Serial No. 67,097. (No model.)



Claim.—1. A drawer-support having its upper edge formed as a guide for the upper edge of the drawer end, the rear end of said support attached and the front end supported and left free for lateral adaptation to the drawer end, a suitable case or frame for mounting said support, substantially as shown.

2. A drawer-support having its upper and under edges formed as a guide for the upper and under edges of drawer end, the rear end of said support attached and the front end supported and left free for lateral adaptation to the drawer end, a suitable case or frame for mounting said support, substantially as shown.

3. Drawer-supports consisting of a single strip for each drawer end, said strip grooved on its upper edge and having its rear end attached and the front end supported and free for lateral adaptation to the drawer end, a suitable case or frame for mounting said support, substantially as shown.

4. Drawer-supports consisting of a single strip for each drawer end, said strip grooved on its upper and under edges to receive the top and bottom of drawer end and having its rear end attached and the front end supported and free for lateral adaptation to the drawer end, a suitable case or frame for mounting said support, substantially as shown.

5. A drawer-support consisting of a grooved strip a suitable case or frame for mounting said support, the rear end of said strip attached to the frame and the front end supported and free to move sideways for lateral adaptation to the drawer end, said front end extended out as a drawer-stop, substantially as shown and described.

6. In drawers, commodes and like pieces of furniture, the frame having the front cross-piece, grooved on its inner side, a single strip for a drawer-end support attached to said frame at the rear end, said strip grooved on its upper side and having a tongue to fit said groove in said front cross-piece, the front end of said strip left free for lateral adaptation to the drawer end, said front end extended out as a drawer-stop, substantially as shown and for the purpose specified.

702,890. MEAN FOR UNITING FABRICS. BATTERMAN ARNOLD, Verona, N. J., assignor to Anna M. Arnold, Verona, N. J. Filed Mar. 17, 1902. Serial No. 700,657. (No model.)

Claim.—1. The combination with abutting folded edges of fabric or similar materials, of uniting-stitches passing through the fabric obliquely to the plane of the fabric, substantially as described.

2. The combination with abutting folded edges of fabric or similar materials, of uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric, substantially as described.

3. The combination with abutting folded edges of fabric or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric, substantially as described.

and uniting-stitches passing through the fabric obliquely to the plane of the fabric, substantially as described.

4. The combination with abutting folded edges of fabric, or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric, substantially as described.

5. The combination with abutting edges of fabric or similar materials folded over on the back of the fabric, of uniting-stitches passing through the fabric obliquely to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

6. The combination with abutting edges of fabric or similar materials folded over on the back of the fabric, of uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

7. The combination with abutting folded edges of fabric or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the fabric obliquely to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

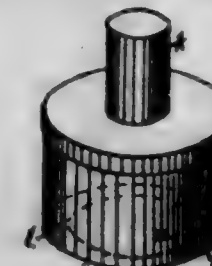
8. The combination with abutting folded edges of fabric or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

9. The combination with abutting folded edges of fabric or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches and uniting-stitches of equal length with the covering-stitches on the back of the fabric and binding down the folded edges and the uniting-stitches oblique to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

10. The combination with abutting folded edges of one-edge knit fabric, of overseam-stitches securing the folded edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the knit fabric obliquely to the plane of the fabric, substantially as described.

11. The combination with abutting folded edges of one-edge knit fabric, of overseam-stitches securing the folded edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabric and lying substantially within the face of the fabric, substantially as described.

702,891. DIE FOR CUTTING MOSAIC BLOCKS. WILLIAM A. ARNOLD, Paterson, N. J. Filed Apr. 30, 1901. Serial No. 52,122. (No model.)



Claim.—1. A female die for cutting mosaics, having an inner cutting edge in combination with exterior cutting edges or ridges, points and valleys, for the purpose of crushing and carrying away the covered and waste portions from the outer edges of the mosaic pieces as and for the purpose set forth and described.

W. O. G.—153

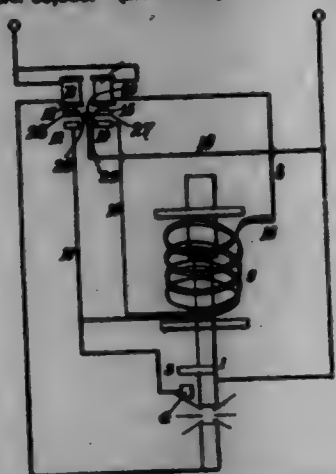
2. The combination between a punch having a cutting edge *l* and a cutting edge *m*; and a female die having an ordinary cutting inner edge in connection with auxiliary triangular-shaped exterior cutting edges and rows of points *n* and for the purpose set forth and described.

3. In a female die for cutting means having an ordinary cutting inner edge in combination with an auxiliary triangular-shaped exterior cutting edge and rows of perforating-points forming the same shaped piece as the required piece, as set forth and described.

4. The combination in an ordinary female die having an ordinary cutting edge, and an auxiliary exterior triangular-shaped cutting edge and in connection with additional rows of perforating pyramidal points, parallel to the first-mentioned cutting edge, and covering or cutting lines, *n* *a*, *n* *a*, and for the purpose set forth and described.

5. The combination between a punch having cutting edge *l* and cutting edge *m*, and a female die, the cutting edges of the triangles, the perforating-points *n*, the covering-lines *n* *a*, covering-line *h*, and valleys *h'* for carrying away the broken portions as and for the purpose set forth and described in the annexed drawings and specification.

702,892. CIRCUIT AND CUT-OUT FOR ELECTRIC-ARC LAMPS.
MILWAUKEE E. BAKER, Newark, N. J., assignor to Manhattan General Construction Company, a Corporation of New York. Filed June 10, 1901. Serial No. 63,398. (No model.)



Claim.—1. In an arc-lamp, a shunt-magnet having a high-resistance winding and a low-resistance winding, means for cutting out the high-resistance winding and starting the lamp through the low-resistance winding, and means for restoring the high-resistance winding and cutting out the low-resistance winding when the lamp begins to operate.

2. In an electric-arc lamp, an initial circuit of low resistance for starting the lamp, inductive restraining means applied to the said circuit for preventing the premature starting of the lamp, and means for cutting out the restraining means and permitting the low-resistance circuit to operate without hindrance.

3. In an electric-arc lamp, means for preventing excessive tension in the lamp-circuit at the starting of the lamp, such means consisting of a low-resistance starting-circuit, inductive restraining means applied thereto, means for automatically cutting out the restraining means, and devices for cutting out the starting-circuit when the lamp begins to operate.

4. In an electric-arc lamp, a divided initial circuit one part of which is of low resistance and the other part of which constitutes an inductive restraint upon the low-resistance circuit, and automatic means for cutting out the restraining means and permitting the low-resistance part of the circuit to operate without hindrance.

5. In an electric-arc lamp, a high-resistance initial circuit and a low-resistance initial circuit, means for cutting out the high-resistance circuit and starting the lamp through the low-resistance circuit, and means for restoring the high-resistance circuit and cutting out the low-resistance circuit, when the lamp begins to operate.

6. In an electric-arc lamp, means for preventing excessive tension in the lamp-circuit at the starting of the lamp and for operating the lamp as an ordinary arc-lamp, such means consisting of a low-resistance starting-circuit, a high-resistance initial circuit acting as an inductive restraint upon the first-mentioned circuit, devices for cutting out the starting-circuit when the lamp begins to operate, and devices for cutting in the high-resistance circuit alone as a shunt to the arc for carrying on the operation of the lamp.

7. In an electric-arc lamp, a high-resistance initial circuit connected through a shunt-magnet to one terminal of an electromagnetic cut-out, a second initial circuit of low resistance connected through the same shunt-magnet to one terminal of a second electromagnetic cut-out, means for operating the first-mentioned cut-out, at the starting of the lamp, and thereby breaking the high-resistance circuit, means operated by the low-resistance

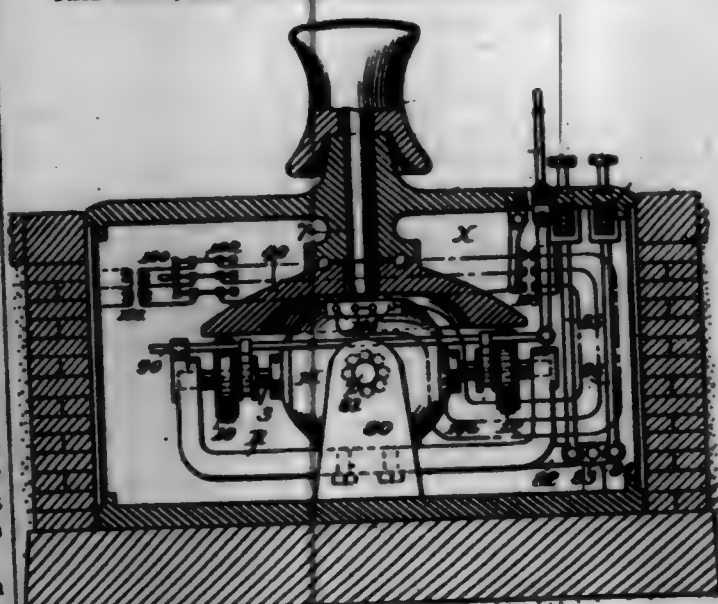
ance coils of the shunt-magnet for breaking the circuit of the second cut-out and permitting the restoration of the high-resistance initial circuit for controlling the further operation of the lamp.

8. In an electric-arc lamp, a high-resistance initial circuit connected through a shunt-magnet to one terminal of an electromagnetic cut-out, a second initial circuit of low resistance in inductive relation to the first-mentioned circuit, connected through the shunt-magnet to one terminal of a second electromagnetic cut-out, means for operating the first-mentioned cut-out and thereby breaking the high-resistance circuit, means operated by the low-resistance coils of the shunt-magnet for breaking the circuit of the second cut-out and thereby breaking the low-resistance circuit, and means for short-circuiting the first-mentioned cut-out, and restoring the contacts thereof, whereby the lamp will continue to operate as an ordinary arc-lamp.

9. The combination with an electric-arc lamp, of a double cut-out consisting of a pair of solenoids arranged side by side, a pair of cores therefor, and a pair of springs, each supporting one of the said cores, the cores having free movement within the solenoids, one of the solenoids being in series with the carbons and the other in shunt thereto.

10. The combination with an electric-arc lamp, of a double cut-out consisting of two solenoids arranged side by side, cores for the said solenoids having free movement within the same, and separate springs attached to and supporting the cores, the springs being themselves secured to a common support, one of the said solenoids being in series with the carbons and the other in shunt thereto.

702,893. SHIFTING DEVICE FOR PIERES &c. WILLIAM D. BALDWIN, New York, and AUGUST SUMER, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Dec. 17, 1901. Serial No. 58,398. (No model.)



Claim.—1. The combination with a capstan, and its shaft, of a driving-disk upon the said shaft, a motor provided with a shaft supporting pinions on opposite sides of the shaft of the capstan, and means for swinging the motor to bring one or the other of the pinions into frictional engagement with the disk, substantially as set forth.

2. The combination with a capstan, and its shaft, of a driving-disk upon the said shaft, a motor provided with a shaft supporting pinions on opposite sides of the shaft of the capstan, means for swinging the motor to bring one or the other of the pinions into frictional engagement with the disk, and means for shifting the pinions to vary the speed imparted to the disk, substantially as set forth.

3. The combination with a capstan, its shaft, and disk, of a motor adapted to turn in one direction only arranged below the disk and supported upon trunnions, a shaft extending to opposite sides and carrying pinions 10, 12, and means for rocking the motor to bring either pinion into frictional engagement with the disk, substantially as set forth.

4. The combination with a capstan, disk, motor arranged below the disk and provided with pinions 10, 12, of supports for the motor adapting it to swing therein, and means extending to a position adjacent to the capstan for swinging the motor, substantially as set forth.

5. The combination of a capstan, shaft, disk, and motor supported upon trunnions below the disk and provided with pinions 10, 12, rods extending upward to a position adjacent to the capstan, and connections between the rods and frame of the motor, whereby the motor may be swung by pressure upon the rods, substantially as set forth.

6. The combination with a capstan, disk, swinging motor provided with pinions, and devices for swinging the motor from a position adjacent to the capstan, of a device *B* arranged adjacent to the capstan and

connected to shift the pinions in respect to the center of the disk, substantially as and for the purpose set forth.

702,894. RUBBER-DAM HOLDER. EDWARD H. BELL, St. Louis, Mo. Filed Mar. 27, 1902. Serial No. 100,348. (No model.)



Claim.—1. A dam-holder comprising a body portion having hooks thereon adapted to engage the mouth, substantially as described.

2. A dam-holder comprising a body portion having adjustable hooks thereon adapted to engage the mouth, substantially as described.

3. A dam-holder comprising a flexible body portion having hooks thereon for engaging the mouth, substantially as described.

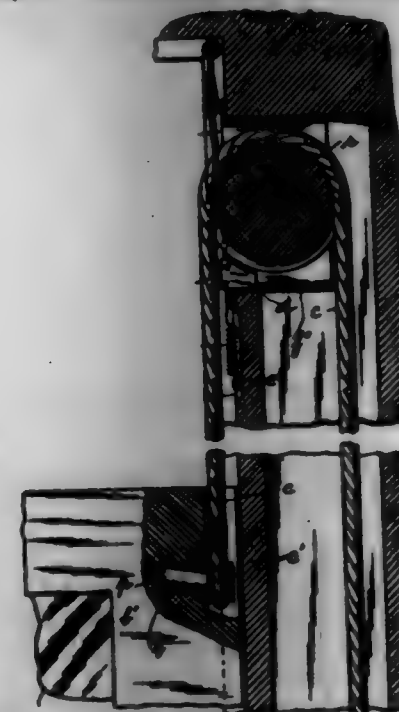
4. A dam-holder comprising a body portion having fastening devices for holding a rubber dam and also having hooks thereon adapted to hold said body portion in position, substantially as described.

5. A dam-holder comprising a body portion and hooks thereon adapted to engage the mouth, said body portion being arranged to vary the distance between said hooks, substantially as described.

6. A dam-holder comprising a body portion and hooks thereon adapted to engage the mouth, said body portion being arranged to vary the distance between said hooks, and a device for locking said body portion as desired, substantially as described.

7. A dam-holder comprising a body portion, hooks adjustably secured on said body portion and adapted to engage the ends of the mouth, and means on said body portion for engaging the dam, substantially as described.

702,895. SHAW-CORD FASTENER. EDWARD L. BAKERMAN, Brooklyn, N. Y. Filed Mar. 27, 1901. Serial No. 65,388. (No model.)



Claim.—1. A Shaw-cord fastener consisting of a plug adapted to be interposed between the cord and its pulley to choke the aperture in the face-plate through which the cord runs, means for placing the plug between the cord and the pulley and means for retracting the plug to position after use.

2. A Shaw-cord fastener consisting of a plug adapted to press upon the cord and choke the aperture between the cord and the face-plate through which the cord runs in combination with elastic means for normally holding the plug away from the cord.

702,896. SUSPENDER-END. WILLIAM BLOOMING, New York, N. Y. Filed Dec. 18, 1901. Serial No. 66,411. (No model.)

Claim.—1. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise to form a pendant drawer-support.

2. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise to form a drawer-support, and said support being secured to hang intermediate the edges of the tabs.



3. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise to form a drawer-support, and said support being secured to hang intermediate the edges of the tabs on the inner side thereof.

4. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise to form a drawer-support, and said support being secured to hang intermediate the edges of the tabs and provided with attaching means to a garment.

5. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise to form a drawer-support, and said support being secured to hang intermediate the edges of the tabs and provided with a clamp for attachment to a garment.

6. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise a suitable distance from each edge thereof to form duplicate appendages or drawer-supports, and means uniting the lower ends of said appendages adapted for attachment to a garment.

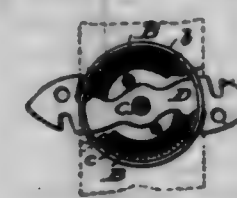
7. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise a suitable distance from each edge to form duplicate appendages or drawer-supports, said supports being secured to hang within the edges of the tabs at the inner side thereof, and means uniting the free ends of said appendages adapted for attachment to a garment.

8. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise a suitable distance from each edge to form duplicate appendages or drawer-supports, said supports being fixed outwardly and secured to hang intermediate the edges of the tabs, and means uniting the supports at their lower ends and maintaining the flexure thereof, said means being adapted for attachment to a garment.

9. A suspender-end comprising tabs for attachment to trousers, one of said tabs being slit lengthwise a suitable distance from each edge to form duplicate appendages or drawer-supports, said supports being fixed outwardly and secured to hang within the edges of the tabs, and a clamp uniting the supports at their lower ends and maintaining the flexed relation thereof, said clamp being provided with a clamp for attachment to a garment.

10. A blank from which to form suspender-ends combining both a trousers-support and a drawer-support, the same comprising a suitable strip formed with buttonholes at the ends and slit from one end only thereof a suitable distance from the edge.

702,897. BLIND-FASTENING DEVICE. HATHAN O. BURN, Hingham, Mass. Filed Aug. 2, 1901. Serial No. 71,474. (No model.)



Claim.—1. In a blind-fastener device, a cylindrical casing, legs bent inward from the sides of said casing, also formed by bending inward said legs, a pivoted catch adapted to extend through said casing, and engage a fixed member, and springs mounted between the legs and the

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catch to force it into engagement with the fixed member substantially as described.

2. In a blind-fastener device the combination of a double-ended pivoted catch, a cylindrical casing, legs bent inward from said casing slots through which the ends of the catch project, springs mounted on the catch, and carried by the legs, and an extender or rod by means of which the catch may be forced against the pressure of the springs.

702,398. SUPPORTING DEVICE. EVA M. BOWYER, Chicago, Ill. Filed June 18, 1901. Serial No. 64,784. (No model.)



Claim.—As an article of manufacture, a relatively broad strap of flexible material, one end thereof being adapted to depend over a belt or the like and provided with glove-buttons for fastening the same thereon and having near its other end a plurality of elastic straps or bands having the ends thereof projecting on opposite margins of the strap and having complementary fastening means on the ends thereof, said strap being materially reduced in width at the point of connection therewith with said elastic straps.

702,399. LIFE-BOAT. LAMUEL BROWN, Bangor, Mich. Filed June 7, 1901. Serial No. 63,953. (No model.)



Claim.—1. The herein-described life-boat comprising a central compartment and end sections, a false bottom, a pivotally-mounted floor-section in the form of an auxiliary boat suspended from above and above the false bottom, and means for adjusting the height of said floor-section and allowing it to rock to compensate for the rocking movement of the boat, all substantially as shown and described.

2. In boats of the character specified, a water-tight opening comprising the disk 19 suitably secured in the wall of the boat and having a central opening and a yielding closure for said opening formed of rubber or the like said closure adapted to serve as a water-tight closure and affording the sole support for an ear having an opening adapted to tightly receive the handle of an ear whereby the ear may be operated without admitting water to the boat all substantially as specified and for the purpose set forth.

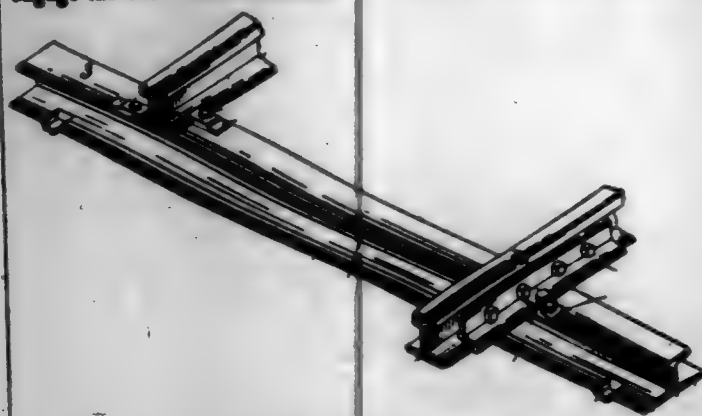
702,400. METALLIC RAILWAY-TIE. CAMPER BURNER, Sandusky, Ohio. Filed Aug. 7, 1901. Serial No. 71,348. (No model.)

Claim.—1. A metallic railway-tie comprising a single, vertical, integral web, top flanges extending each side of the web and presenting a plain level surface to receive track-rails, bottom flanges extending each side of the web and of greater width than the top flanges, and anchoring means projecting from the under surface of the lower flanges of the tie, and extending crosswise thereof; the said top flanges adjacent the ends, where they are to receive the flanges or bases of the track-rails, being integral and of the same width as the other portions of the top flanges.

2. A metallic railway-tie having a web, top flanges, bottom flanges, and depressions formed in the lower flanges to serve as anchoring means.

3. The combination with a metallic railway-tie having a single, vertical, integral web, top flanges with holes each side of the web, bottom flanges, and anchoring means at the lower flanges extending crosswise of the tie and projecting downwardly, of track-rails, perforated clamping-

plates; and bolts; the said clamping-plates being located upon the top plain surface of the flanges of the tie and being provided with lips which engage the base of the track-rail.



702,401. SEED-PLANTER. HENRY L. CARAWAY, Piquette, Ark. Filed Sept. 20, 1901. Serial No. 70,890. (No model.)



Claim.—1. In a seed-planter, the combination with a seed-plate, of operating mechanism adjustable to effect differential movements of the said plate.

2. In a seed-planter, the combination with the seed-plate, of reciprocating mechanism adjustable to effect differential movements of the said plate.

3. In a seed-planter, the combination with the seed-plate, of reciprocating mechanism adjustable from an approximately vertical to an approximately horizontal plane, whereby to increase or decrease the throw of the said plate in accordance with the work to be done.

4. In a seed-planter, means for imparting differential rates of movement to the seed-plate, comprising a motion-imparting member, a reciprocating member associated therewith, a vibratory member operatively connected with the motion-imparting member and the reciprocating member, means for changing the working planes of the latter member thereby to vary the throw of the vibratory member, and connections between the reciprocating member and the seed-plate.

5. In a seed-planter employing two seed-plates, means for imparting like or differential rates of reciprocation to the plates, comprising a crank-shaft, slide-rods mounted on the terminals thereof, pitman-rods mounted on the crank and connecting with the slide-rods intermediate of their ends, slide-rod-shifting means, and connections between the slide-rods and the seed-plates.

6. In a seed-planter, a seed-hopper, seed-plates arranged therein and having seed-escape openings of different sizes, and reciprocating mechanism connected with the said plates and adjustable to effect differential movements thereof.

7. In a seed-planter, a frame supporting a seed-hopper, a crank-shaft

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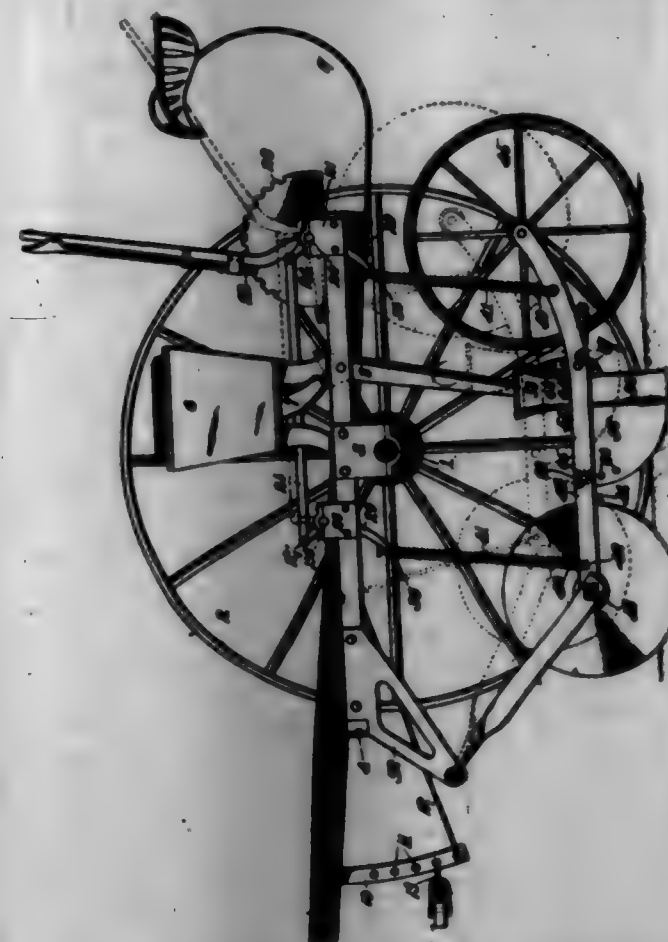
journalled in suitable bearings on the frame and carrying the frame-supporting wheels, slide-rods mounted on the terminals of the shaft, pitman-rods mounted on the crank and connecting with the rods intermediate of their ends, seed-plates carried by the hopper, connections between the seed-plates and the slide-rods, and rock-levers carrying guides engaged by the upper terminals of the slide-rods and provided with means whereby the said slide-rods may be locked at any desired adjustment.

8. In a seed-planter, two seed-plates, in combination with means for imparting like or differential rates of reciprocation thereto.

9. In a seed-planter, two seed-plates having different-sized seed-escape openings, in combination with means for imparting like or differential rates of reciprocation to the said plates.

10. In a seed-planter, a rock-lever movable about a fixed axis and including locking mechanism, a slide-rod carried by the lever, a seed-plate, means for pivotally connecting the slide-rod and the seed-plate, and means for imparting a reciprocating motion to the slide-rod.

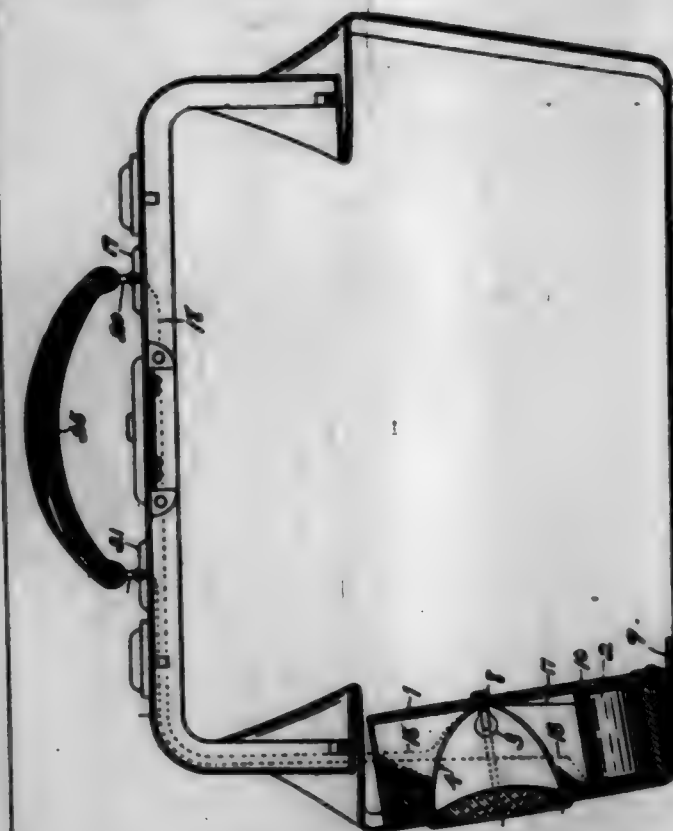
702,402. SEED-DRILL. ALBERT CHAPMAN, Warsaw township, Seneca county, Kans. Filed Jan. 2, 1901. Serial No. 41,804. (No model.)



Claim.—1. In a seed-drill, the combination of a wheeled frame, having seed-dropping mechanism, a seed-planting mechanism below and connected to the same, comprising a collar at its front end, a covering-wheel at its rear end, a shoe between and in line with the collar and covering-wheel and provided with a seed-escap, and parallel bars connecting the shoe, the collar, and the covering-wheel, headed rods pivoted at their lower ends to and near the opposite ends of said bar, and provided with shoulders, on cybers slidingly connecting said rods, spiral expansive springs upon said rods and engaging said shoulders and cybers at their opposite ends, a pair of rock-shafts provided with crank-arms pivotally connected to said cybers at their free ends, and means to operate said rock-shafts and secure them at the desired point of adjustment, substantially as described.

2. In a seed-drill, a frame consisting of a pair of parallel bars a furrow-making device carried at the front end and centrally of the space between said bars, a furrow-closing device centrally and secured at the rear end of said frame, and a drill-chase interposed between said furrow making and closing devices and consisting of a perforated thin front portion arranged centrally of said bar, a bracketed rear portion, a base-plate surrounding and adapted to discharge into the chamber formed between the shoulders or walls of the rear portion, and provided with a rearwardly-projecting perforated rib, a clamping-bolt extending through said bar and one of the perforations of the front portion, sleeves upon said bolt between said portion of the shoe and said bar, a clamping-bolt extending through said bar and one of the perforations of the rib, and sleeves upon said bolt between said rib and said bar, substantially as described.

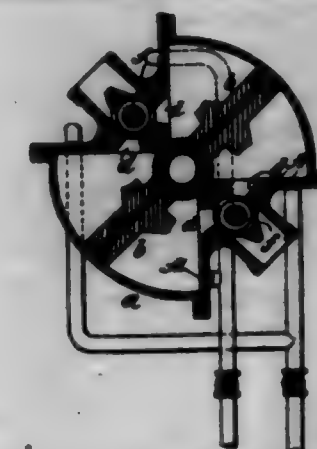
702,403. VALISE, HAND-BAG, OR SUIT-CASE. SAMUEL D. CHAPMAN, Kansas City, Mo. Filed Apr. 7, 1902. Serial No. 101,708. (No model.)



Claim.—1. In a valise, suit-case, grip, or hand-bag, the combination of an opening in one end thereof, a lens behind said opening, an electric lamp behind said lens, a battery, a handle, a pair of contact-springs therein, connected to the respective handle-rings, and connections between the handle-rings, the battery and the lamp, whereby the lamp will be lighted when said springs in the handle are in contact with each other; substantially as described.

2. In a valise, suit-case, grip or hand-bag, the combination of an opening in one end thereof, a lens behind said opening, a box, a ring outside of said opening, bolts secured to said ring and passing through the box, an electric lamp behind said lens, a reflector between the lens and lamp, a battery in said box, a handle, a pair of contact-springs therein, connected to the respective handle-rings, a wire connecting said lamp to one of the handle-rings, a wire connecting the other handle-ring to the battery, and a wire connecting the battery to the lamp; substantially as described.

702,404. MOTOR. HILAIRE DE CHARDONNET, Paris, France. Filed Apr. 12, 1900. Serial No. 712,580. (No model.)



Claim.—1. In a motor-engine, the combination of a pair of solid pistons arranged to balance each other on opposite sides of a shaft and arranged to oscillate in two opposite quadrants of a spherical casing, and a device for the introduction and discharge of the motor-fluid arranged in each of the spaces between said quadrants and connected to each of said quadrants, substantially as described.

2. In a motor-engine the combination of a pair of solid pistons arranged to balance each other on opposite sides of a shaft, a pair of opposite quadrant-chambers in which said pistons are arranged to oscillate, a device for the introduction and discharge of the motor fluid arranged in each of the spaces between said quadrants and connected to each of said

quadrants, means for cutting off the supply of fluid at a determined point of the stroke or as to effect expansion, and means for admitting the fluid simultaneously and symmetrically into the opposite chambers.

702,405. INCLOSED-ARC LAMP. WALTER L. CHERRY and GEORGE R. DAVISON, Newark, and ROBERT W. SKINNER, Arlington, N. J., assignors to Westinghouse Electric and Manufacturing Company, a Corporation of Pennsylvania. Filed Jan. 6, 1902. Serial No. 98,480. (No model.)



Claim.—1. In an inclosed-arc lamp, a pair of carbons, a gas-check, a globe surrounding the meeting-point of the carbons, and an open tube extending from the neighborhood of the arc to a point above the gas-check.

2. In an inclosed-arc lamp, a pair of carbons, a gas-check, a globe surrounding the meeting-point of the carbons, and a tubular support for the lower carbon, said tubular support being open at the top, closed at the bottom, and having a side opening communicating with the top opening through an air-passage.

3. In an inclosed-arc lamp, a gas-check, and a side rod extending therefrom and forming a support for the lower carbon, the said side rod being provided with an opening extending from the neighborhood of the arc to a point above the gas-check.

4. In an inclosed-arc lamp, a side rod forming a support for the lower carbon, and provided with an opening extending from a point in the rod between the ends thereof to a point above the gas-check.

5. In an inclosed-arc lamp, a pair of carbons, a transparent globe surrounding the meeting-point of the carbons, a pair of side rods supporting the lower carbon, the said rods being curved to conform to the inner curve of the lamp-globe, one of the side rods being provided with a side perforation which connects through an air-passage with an opening above the gas-chamber.

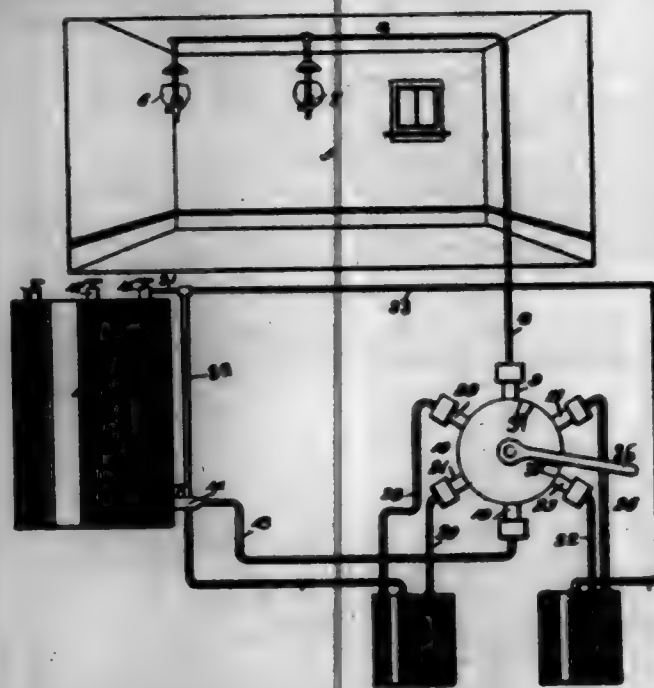
6. In an inclosed-arc lamp, a gas-check, a pair of carbons, a transparent globe surrounding the meeting-point of the carbons, the said globe being constricted at its mouth and provided with a curved lower portion, a pair of side rods having a curve corresponding to the inner curve of the globe, the said side rods being attached to the gas-check at points less than one hundred and eighty degrees apart.

7. In an inclosed-arc lamp, a gas-check, a pair of carbons, a transparent globe surrounding the meeting-point of the carbons, the said globe being constricted at its mouth and provided with a curved lower portion, a pair of side rods having a curve corresponding to the inner curve of the globe, the said side rods being attached to the gas-check at points approximately ninety degrees apart.

702,406. HYDROCARBON-BURNING SYSTEM. FREDERICK A. CURT and ROBERT D. CURT, Chicago, Ill. Filed May 29, 1901. Serial No. 98,582. (No model.)

Claim.—1. The combination of a reservoir, a plurality of tanks ar-

ranged below said reservoir, a valve-casing, a distributing-pipe connected to each casing, and pipes connecting said reservoir and tanks to each casing, a multiway valve-pipe in the casing arranged to be turned to connect either of said tanks to the distributing-pipe and the other tank to the reservoir, and a connection between the upper end of each tank and the reservoir.



2. In fluid-delivery apparatus, the combination with a supply-tank, of plural delivery-tanks, suitable pipes for passage of gasolene or like liquid connecting said delivery-tanks to said supply-tank and with a discharge-main, equalizing-pipes extending between said supply-tank and said delivery-tanks, and suitable valve mechanism whereby when the supply of gasolene or like liquid is admitted from the supply-tank to one of said delivery-tanks connection between said supply-tank and the other of said delivery-tanks is cut off and said delivery-tank thus cut off from the supply-tank is placed in communication with the delivery-main.

702,407. MOTOR-GENERATOR. PATRICK J. COLLIER, Scranton, Pa., assignor of one-half to Christopher G. Schmid, Scranton, Pa. Filed Oct. 11, 1901. Serial No. 78,572. (No model.)

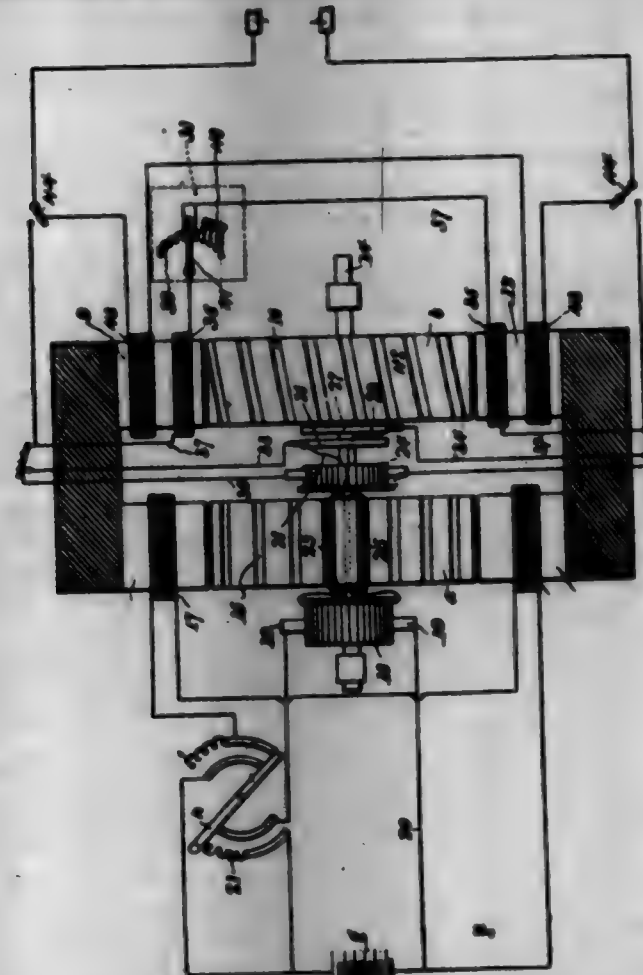
Claim.—1. In a motor-generator, an armature having a direct-current winding, and a commutator therefor, secondary direct-current windings, and a commutator to which said latter windings are connected, insulated rings carried by the armature-shaft and connected to opposite sections of one of said commutators, an inductor upon the armature-shaft, field-poles opposite said inductor, primary and secondary field-coils upon said poles, an electrode-circuit connected to said secondary field-coils, and a switch arranged to connect said primary field-coils with the secondary commutator or the insulated rings, as desired.

2. In a motor-generator, an armature having a direct-current winding and a commutator therefor, secondary direct-current windings and a commutator to which said latter windings are connected, insulated rings carried by the armature-shaft and connected to opposite sections of one of said commutators, an inductor upon the armature-shaft, field-poles opposite said inductor, primary and secondary field-coils upon said poles, an electrode-circuit connected to said secondary field-coils, a regulating device in the primary field-coil circuit adapted to vary the ohmic or inductive resistance of the same, and a switch arranged to connect said primary field-coils with the secondary commutator or the insulated rings, as desired.

3. In a motor-generator, an armature having a direct-current winding, and a commutator therefor, secondary direct-current windings, and a commutator to which said latter windings are connected, insulated rings carried by the armature-shaft and connected to opposite sections of one of said commutators, an inductor upon the armature-shaft, field-poles opposite said inductor, primary and secondary field-coils upon said poles, an electrode-circuit connected to said secondary field-coils, a switch arranged to connect said primary field-coils with the secondary commutator or the insulated rings, as desired, and means for varying the speed of the motor.

4. In a motor-generator, an armature having a direct-current winding and a commutator therefor, secondary direct-current windings and a commutator to which said latter windings are connected, insulated rings carried by the armature-shaft and connected to opposite sections of one of said commutators, an inductor upon the armature-shaft, field-poles opposite said inductor, primary and secondary field-coils upon said poles, an electrode-circuit connected to said secondary field-coils, a regulating de-

vice in the primary field-coil circuit adapted to vary the ohmic or inductive resistance of the same, a switch arranged to connect said primary field-coils with the secondary commutator or the insulated rings, as desired, and means for varying the speed of the motor.



5. In a motor-generator, an armature having a direct-current winding, and a commutator therefor, secondary direct-current windings, and a commutator to which said latter windings are connected, insulated rings carried by the armature-shaft and connected to opposite sections of one of said commutators, an inductor upon the armature-shaft, field-poles opposite said inductor, primary and secondary field-coils upon said poles, an electrode-circuit and switch arranged to connect said electrode-circuit with the secondary field-coils, the secondary commutator is the insulated rings, as desired.

6. The combination with a motor-generator arranged to produce direct and alternating currents, of an inductor upon the armature-shaft of said motor-generator, said inductor having teeth or projections upon its periphery, field-poles opposite said inductor, primary and secondary windings in inductive relation to one another upon said field-poles, means for passing either a direct or alternating current from said motor-generator through the primary coils, a device arranged to insert either an inductive or ohmic resistance in said primary coils, and an electrode-circuit connected to the secondary coils, and means for varying the speed of the motor-generator.

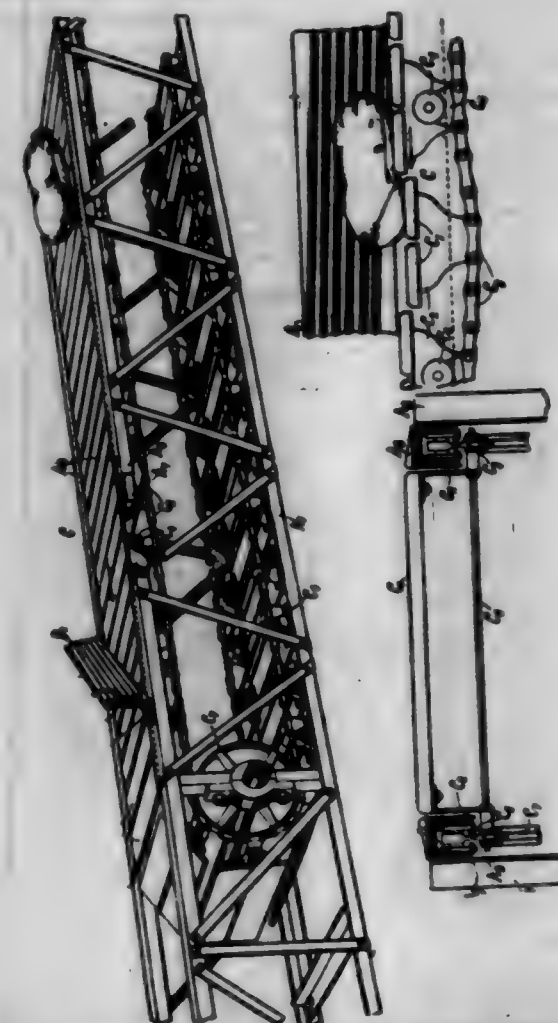
702,408. CONVEYER. JOHN H. COOK, Brooklyn, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Dec. 28, 1901. Serial No. 98,597. (No model.)

Claim.—1. In a conveyer system, a feeder-conveyer extending longitudinally of a building mounted in a substantially central position therein upon the roof-trusses of the same, said feeder-conveyer comprising slats supported by trolleys and sprocket-chains, an inclined throw-off board adjustably mounted upon said feeder-conveyer and bodily-movable distributor-conveyers provided with throw-off boards on either side of said feeder-conveyer.

2. In a conveyer system, a hoist, an inclined trough communicating with said hoist, two feeder-conveyers with either of which said trough may communicate extending longitudinally of a building, ejectors adjustably mounted on said feeder-conveyers, distributor-conveyers bodily movable longitudinally of said feeder-conveyers to receive material therefrom and ejectors adjustably mounted on said distributor-conveyers.

3. In a conveyer system, a feeder-conveyer, an ejector adjustably mounted on said feeder-conveyer to eject material therefrom, a distributor-conveyer bodily movable longitudinally of said feeder-conveyer to receive material ejected from said feeder-conveyer and an ejector mounted on said distributor-conveyer to eject material therefrom.

4. In a conveyer system, a feeder-conveyer comprising self-aligning trolley-trucks, slings secured to said trolley-trucks, sprocket-chains, conveyer-slats, brackets secured at either end of said conveyer-slats, said brackets being secured to said sprocket-chains, trolleys secured to part of said brackets and engaging said trolley-trucks and an inclined throw-off board adjustably mounted upon said conveyer, said throw-off board being provided with inclined guides.



5. In a conveyer, sprocket-chains, brackets having slats rigidly secured thereto and connected to said sprocket-chains, means to support part of said brackets rigidly and means to yieldingly support the rest of said brackets and an inclined throw-off board adjustably mounted with respect to said conveyer to engage material upon said slats and to eject the same from said conveyer, said material being engaged by the front edge of said rigidly-supported slats to prevent said material slipping back along said slats.

6. In a conveyer, a series of slats, means to move said slats forward in unison, means to rigidly support part of said slats, means to yieldingly support the rest of said slats, an ejector adjustably mounted to cooperate with said slats to remove material laterally from said slats, said material being engaged by the front edge of said rigidly-supported slats and being forced thereby into contact with said ejector.

7. In a conveyer, a series of slats, means to horizontally move said slats in unison, means to rigidly support part of said slats, means to support the rest of said slats to allow them to assume a position below the rigidly-supported slats, a stationary facing adjacent the ends of said slats and a throw-off board adjustably mounted in an inclined position to cooperate with said slats.

8. In a conveyer, a series of slats, means to move said slats in unison, an ejector mounted adjacent said slats to crowd material off the same, means to rigidly support part of said slats during their movement and means to yieldingly support the rest of said slats during their movement.

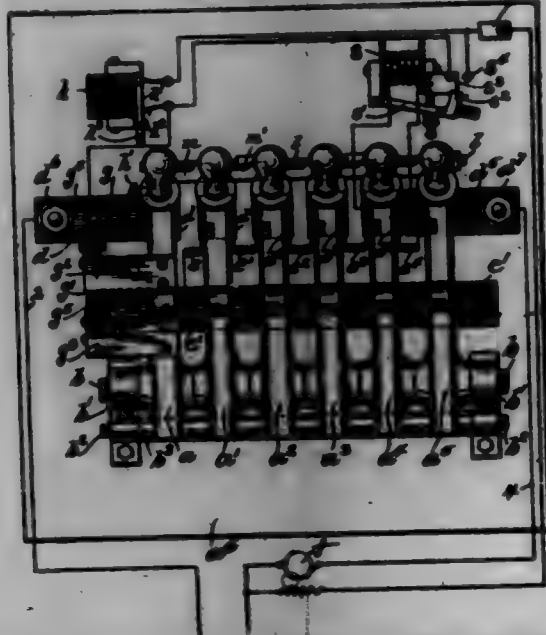
9. In a conveyer, conveying means and an inclined throw-off board adjustably mounted with respect to said conveying means, said throw-off board being provided with a series of upwardly-inclined guides upon its face to engage an article and crowd the same laterally from said conveying means.

10. In a conveyer, a series of slats, means to move said slats in unison, an inclined throw-off board mounted adjacent said slats to engage articles on said slats, and means on said throw-off board to raise said articles as they are being forced laterally from said slats.

11. In a conveyer, a series of slats, means to move said slats and an inclined throw-off board adjustably mounted with respect to said slats to engage material and crowd the same laterally from said slats, said throw-off board being provided with vertically-inclined guides.

12. In a conveyor, self-aligning trolleys and tracks, a series of connected slats supported by said trolleys, slings secured to said tracks adjacent said slats and an ejector to cooperate with said slats to force material laterally therefrom.
13. In a conveyor, self-aligning trolleys and tracks, a series of slats supported by said trolleys, and means to force material laterally from said slats.
14. In a conveyor, self-aligning trolleys and tracks, and a series of conveying-slats mounted between said tracks and supported by said trolleys.
15. In a conveyor, trolley-tracks, trolleys to engage said tracks, means to maintain the lateral alignment of said trolleys and tracks, a series of slats supported by said trolleys and means to force material laterally from said slats.
16. In a conveyor self-aligning trolleys and tracks and a conveying surface mounted between said tracks and supported by said trolleys.

702,409. MULTIPLE SWITCH. HENRY H. CUTLER, Milwaukee, Wis. Filed Apr. 17, 1901. Serial No. 94,948. (No model.)



- Claim.—1. The combination with a plurality of independently-actuated manual switches arranged in a series, of means for preventing the closure of the same except in a definite order, and means for automatically opening the same, substantially as described.
2. The combination with a plurality of independently-actuated manual switches arranged in a series, of means for preventing the closure of the same except in a definite order, and means for automatically opening the same in a definite order, substantially as described.
3. The combination with a plurality of independently-actuated manual switches arranged in a series, of means for preventing the closure of the same except in a definite order, and means for opening all of said switches, substantially as described.
4. The combination with a rheostat, of a plurality of independently-actuated manual switches for controlling the resistance thereof, means for preventing the closure of said switches, except in a definite order, and means for automatically opening said switches, substantially as described.
5. In a rheostat, the combination with a plurality of independently-actuated manual switches for controlling the resistance thereof, of means for preventing the closure of said switches except in a definite order, and means for opening said switches in a definite order, substantially as described.
6. The combination with a plurality of switches arranged in a series, of retaining mechanism for holding said switches in the closed position, and means for releasing the said retaining mechanism, substantially as described.
7. The combination with a plurality of manual switches arranged in a series, of electromagnetic retaining mechanism for holding the same in the closed position, and means for actuating said electromagnetic retaining mechanism to cause the release of said switches, substantially as described.
8. The combination with a plurality of switches arranged in a series, of means for preventing the closure of the same except in a definite order, retaining mechanism for holding said switches in a closed position, and means for automatically actuating said retaining mechanism to release said switches, substantially as described.
9. The combination with a plurality of switches arranged in a series, of interlocking mechanism whereby each switch controls the next succeeding switch and an electromagnetic retaining device for the first switch of the series, substantially as described.

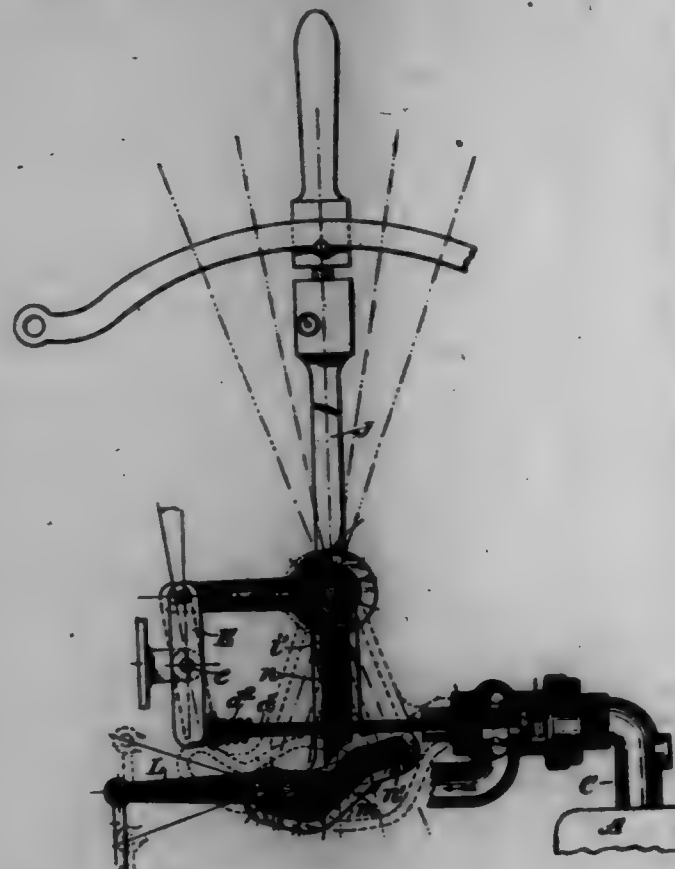
10. The combination with a plurality of switches arranged in a series, of interlocking mechanism whereby each switch controls the next succeeding switch, a retaining-electromagnet for holding the first switch of the series in a closed position, and means for controlling said retaining-magnet, substantially as described.
11. The combination with a plurality of switches, of a plurality of independent interlocking devices for preventing the closure of the switches except in a definite order, substantially as described.
12. The combination with a plurality of switches, of a plurality of independent interlocking devices for preventing the closure of the switches, except in a definite order, and means carried by the switches for operating the interlocking devices, substantially as described.
13. The combination with a plurality of switches, of a plurality of independent interlocking devices for preventing the closure of the switches except in a definite order, and means carried by each switch for operating the interlocking device associated therewith to permit the closure of the succeeding switch, substantially as described.
14. The combination with a plurality of switches arranged in a series, of interlocking mechanism for preventing the closure of the switches except in a definite order, and retaining means for holding the switches in the closed position, substantially as described.
15. The combination with a plurality of switches, of interlocking devices for preventing the closure of the switches except in a definite order, and means associated with the interlocking devices for retaining the switch in its closed position only when the immediately-preceding switch has been closed, substantially as described.
16. The combination with a plurality of switches, of an interlocking device controlled by each switch and adapted upon the closure of said switch to serve as a retaining device for the next succeeding switch, substantially as described.
17. The combination with a plurality of switch-arms, of a mechanical retaining device adapted to hold the switch in the closed position and constructed to release said switch unless the immediately-preceding switch has been closed, substantially as described.
18. The combination with a plurality of switches, of a plurality of rocking dogs adapted to be moved into the retaining position by the closure of one switch to thereby retain the next succeeding switch in the closed position, substantially as described.
19. The combination with a plurality of switches each carrying a latch, of a retaining device adapted to be engaged by said latch to hold the switch-arm in a closed position, and means controlled by the closure of a preceding switch for placing said retaining device in position to be engaged by said latch, substantially as described.
20. The combination with a plurality of switches arranged in a series, of a retaining-magnet for holding the first switch in the closed position, and interlocking device controlled by said first switch for retaining the succeeding switch in position, substantially as described.
21. The combination with a plurality of switches, of a retaining-magnet for holding the first switch in the closed position, and a plurality of interlocking devices for holding the remaining switches in the closed position, substantially as described.
22. The combination with a plurality of switches arranged in a series, of a retaining-magnet for holding the first switch in position, means controlled by said first switch for holding the remaining switches in position, and means for automatically opening all of the switches when released by said retaining-magnet, substantially as described.
23. The combination with a plurality of switches, of a plurality of pivoted blocks or dogs limited in their movement and provided with an upwardly-extending lip at one end of the front edge thereof and having the lower opposite corner thereof cut away, substantially as described.
24. The combination with a plurality of switches, of a plurality of interlocking devices preventing the closure of the switches except in a definite order, and means controlled by each switch for placing said interlocking devices in position to retain the next succeeding switch in the closed position, substantially as described.
25. The combination with a plurality of switches, of means for opening the circuit therethrough when part of the switches remain unclosed for a time longer than a predetermined period, substantially as described.
26. The combination with a plurality of switches, of electromagnetic retaining means for holding the same in a closed position and means for releasing said switches when a part of the switches remain unclosed for a time longer than for a predetermined period, substantially as described.
27. In a rheostat, the combination with a plurality of switches, of means operated by the abnormal heating of the resistance for opening the switches when part of the same remain unclosed for a longer time than a predetermined period, substantially as described.
28. In a rheostat, the combination with a plurality of switches, of electromagnetic retaining mechanism for holding the same in the closed position, and means responsive to an abnormal heating of the resistance

- for actuating said electromagnetic retaining device to cause the release of said switches, substantially as described.
29. In a rheostat, the combination with a plurality of switches, of electromagnetic retaining mechanism for holding the same in the closed position and an electromagnetic device connected in parallel with a portion of the resistance of the rheostat for controlling said retaining device, substantially as described.
30. The combination with a plurality of like manual switches adapted to be independently actuated, of means for preventing the closure of the same except in a definite order, and means for automatically opening all of said switches, substantially as described.
31. The combination with a plurality of like switches, of means for preventing the closure of the same except in a definite order, retaining mechanism for holding said switches in a closed position, and means for automatically operating said retaining mechanism to release said switches, substantially as described.
32. The combination with a rheostat, of a plurality of like manual switches for controlling the resistance thereof and adapted to be independently actuated, means for preventing the closure of said switches except in a definite order, and means for automatically opening said switches, substantially as described.
33. The combination with a base-board, of a series of switches mounted in alignment upon said base-board, and interlocking mechanism whereby each switch controls the next succeeding switch of the series and means for automatically opening said switches, substantially as described.
34. The combination with a base-board, of a plurality of independent manual switches mounted in alignment thereon, a rheostat having its resistance controlled by said switches, and means to prevent the closure of said switches except in a definite order, and further means for automatically opening said switches, substantially as described.
35. The combination with a base-board, a plurality of switches mounted thereon, a common bar for said switches upon which they are loosely journaled, suitable supports for said bar, and means to prevent the closure of the switches except in a definite order, and means for opening all of said switches, substantially as described.
36. The combination with a base-board, brackets mounted thereon, a common pivot-bar extending between the brackets, a plurality of switches pivoted upon said bar, and a common stop-bar also carried by said brackets with which said switches are adapted to engage to limit their outward movement, substantially as described.
37. The combination with a vertical base-board, of a plurality of like levers mounted in alignment upon one face thereof and adapted to move in planes perpendicular to the said face, means for preventing the closure of the same, except in a definite order, a retaining means for holding said switches in closed position, and means to automatically open said switches, substantially as described.
38. The combination with a base-board, of a plurality of switches mounted in alignment on the face of said board and adapted to be moved perpendicularly thereto, a common circuit-terminal on said board and extending beneath all of said switches, an individual terminal for each switch also mounted upon the board, and bridging contact members carried by the switches and each adapted to electrically connect the common terminal with the proper individual terminal when the switches are closed, substantially as described.
39. The combination with a vertical base-plate, a plurality of like switch-levers mounted upon said plate and adapted to swing outward from the face of the plate, each switch carrying a bridging contact member, a common circuit-terminal carried by the said plate and extending by all of said switches, individual circuit-terminals also carried by said plate beneath each of the said switches, the said bridging members being adapted to connect the common bar with the individual circuit-terminals, a retaining means to hold the said switches closed and means to cause the switches to fall outward from the base-board when the retaining means is released, substantially as described.
40. The combination with a vertical base-board, of a plurality of like switches pivoted in alignment at their lower ends upon said board and adapted to fall outward by gravity, retaining-catches for said switches to hold them against the face of the board and means for preventing the closure of said switches except in a definite order, substantially as described.
41. The combination with a pivoted lever, of a magnetic retaining means to hold the same in one position, said means comprising a catch member out of the field of the magnet when the switch is opened, but adapted to be brought within the field by the switch itself when the switch is closed and to thereafter retain the lever in closed position, substantially as described.
42. The combination with a base-board, of a plurality of levers mounted thereon interlocking retaining-catches for said levers, and a common bar on which said catches are mounted, substantially as described.
43. The combination with a vertical base-board, of a plurality of like

- levers pivoted at their lower ends upon said base-board, a catch for each lever extending out from the face of said board and adapted to engage the lever near its upper end, a common bar upon which said catches are mounted, and suitable stops carried by the catches and adapted to engage the face of the plate, whereby they are allowed a limited vibration, substantially as described.
44. The combination with a plurality of like switch-levers mounted in alignment, interlocking mechanism to prevent the closure of the same except in a definite order, means to automatically open said switches and circuit terminals for the first switch of the series, substantially as described.
45. The combination with a rheostat, of a plurality of like switch-levers controlling the resistance thereof, said manual switches being independently actuated, means to prevent the closure of said switches except in a definite order, means for automatically opening said switches, circuit switching-terminals for the first lever of the set, and means to prevent the opening or closing of the circuit except through said first lever, substantially as described.
46. The combination with a rheostat, of a plurality of manual switches each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order and means for opening all of said switches within a short interval of time, substantially as described.
47. The combination with a rheostat, of a plurality of manual switches each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order, and means for effecting the rapid opening of all of said switches, substantially as described.
48. The combination with a rheostat, of a plurality of manual switches each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order, and electrically-controlled means for opening said switches, substantially as described.
49. The combination with a rheostat, of a plurality of switches, each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order and electrical means for effecting the opening of said switches when the current therethrough becomes abnormal, substantially as described.
50. The combination with a rheostat, of a plurality of switches, each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order, and electrical means for opening said switches when the current therethrough tends to abnormally heat the apparatus, substantially as described.
51. The combination with a rheostat, of a plurality of manual switches, each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order and electrical means for opening said switches when the current therethrough falls below a predetermined limit, substantially as described.
52. The combination with a rheostat, of a plurality of switches each controlling an individual section of the resistance thereof, means for preventing the closure of said switches except in a definite order, a magnet responding to a current tending to abnormally heat the apparatus for effecting the opening of said switches, and a magnet responding to an under-current for effecting the opening of said switches, substantially as described.
53. The combination with a plurality of like electrical elements to be connected in varying relations, of a plurality of switches each controlling one of said like elements, means for preventing the closure of said switches except in a definite order, and means for effecting the opening of said switches, substantially as described.
54. The combination with a suitable base-plate, of a plurality of switches mounted in alignment thereon, and adapted to move perpendicularly to the face of said plate, and suitable means for breaking the shock upon the fall of said switches, substantially as described.
55. The combination with a base, of a plurality of switches mounted in alignment thereon, and adapted to move perpendicularly to the face of said plate, and a rod carrying a rubber covering adapted to serve as a buffer to break the fall of said switches, substantially as described.
56. The combination with a base-plate, of terminals mounted thereon, a plurality of switches adapted to move perpendicularly to the face of said plate and leaf-contacts carried upon each of said switches, said leaf-contacts being secured to the switch at the middle and having free ends adapted to engage said terminals and suitable retaining mechanism for normally maintaining said switches in a closed position, substantially as described.
57. The combination with a plurality of manual switches arranged in a series, of means for preventing the closure of the same except in a definite order, and means for automatically opening the same, substantially as described.
58. The combination with a plurality of like manual switches arranged in a series, of means for preventing the closure of the same except in a

definite order, and means for automatically opening all of said switches, substantially as described.

702,410. ENGINE CONTROLLING MECHANISM. OTTO F. DANKENBERG and RALPH L. MORRIS, Toledo, Ohio, assignors to American Meyeke Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed Dec. 19, 1901. Serial No. 90,482. (No model.)



Claim.—1. In an engine, the combination with the power-controlling mechanism and the reversing mechanism, of a shaft provided with separate means for actuating each of said mechanisms, said actuating means being in different planes and adapted to actuate the controlling mechanism and the reversing mechanism at different times, substantially as described.

2. The combination with the power-controlling and reversing mechanism of an engine, of a controller-shaft provided with a cam engaging the reversing mechanism and with means for actuating the power-controlling mechanism, said cam being adapted to operate the reversing mechanism before the power-controlling mechanism is operated to open the throttle-valve, and means for automatically closing the throttle-valve before the reversing mechanism is returned to its original position.

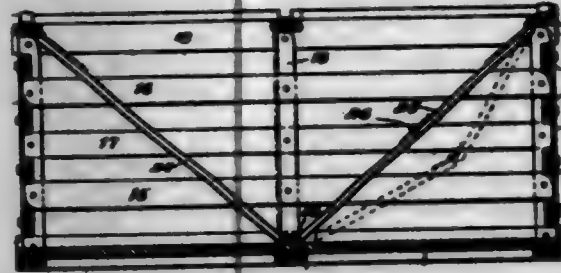
3. In an engine, the combination with the power-controlling and the reversing mechanism, of a controller-shaft provided with a cam engaging the reversing mechanism to actuate same and with means for actuating the power-controlling mechanism to open the throttle-valve, and means for automatically closing the throttle-valve.

4. The combination with the power-controlling and the reversing mechanism of an engine, of a controller-shaft provided with a cam engaging the reversing mechanism and with means for actuating the power-controlling mechanism being held out of engagement therewith when the controller-shaft is in its non-operative position.

5. The combination with the power-controlling and the reversing mechanism of an engine, of a controller-shaft provided with a cam engaging the reversing mechanism to actuate same, and with a segmental flange adapted to engage with the power-controlling mechanism after the reversing mechanism has been actuated to open the throttle-valve, and a spring for automatically closing the throttle-valve when the controller-shaft is returned toward its non-operative position.

6. In an engine, the combination of a controller-shaft, a cam secured to said shaft having an intermediate actuating portion and end dwell portions, a lever connected with the reversing mechanism and operatively engaging said cam, power-controlling mechanism comprising an arm movably mounted on said shaft and a segmental flange secured to said shaft so as to be held out of contact with the arm when the controller-shaft is in its non-operative position, said flange being adapted to engage with the arm to open the throttle-valve after the reversing mechanism has been actuated.

702,411. FOLDING CRATE FOR POULTRY. ANDREW F. DICK, Joliet, Ill. Filed Mar. 26, 1902. Serial No. 100,080. (No model.)



Claim.—1. The folding crate having posts at its corners pivoted at top and bottom so they may be turned sidewise in the same direction, side slats extending from post to post and pivotally attached thereto so they will permit the changes in position of the posts, and diagonal braces adjustable to positions in which they will retain the crate in its expanded condition, one of said braces being an extensible one, substantially as specified.

2. The folding crate having its posts pivoted at top and bottom so they may be turned sidewise, side slats pivotally attached to the posts, and diagonal braces adjustable to positions in which they retain the crate in its expanded condition, one of said braces being extensible, substantially as specified.

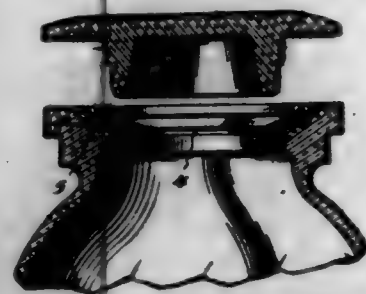
3. The folding crate having posts at its corners pivoted at top and bottom so they may be turned sidewise in the same direction, side slats pivotally attached to said posts and extending from one corner-post to the other corner-post upon the same side, and adjustable and opposing diagonal braces for holding the crate expanded, one of said braces being extensible, substantially as specified.

4. The folding crate having corner-posts pivoted at top and bottom so they may be turned sidewise in the same direction, side slats pivotally attached to said posts and extending from the post at one corner to the post at the other corner on the same side of the crate, an abutment upon the floor of the crate, and opposing braces hinged to the top of the crate and adapted to be positioned so as to bear against the abutment, substantially as specified.

5. The folding crate having its posts pivoted at top and bottom so they may be turned sidewise, side slats pivotally attached to the posts, and slats attached to the posts at the corners, and adjustable oppositely-acting braces for holding the crate expanded, substantially as specified.

6. The folding crate having its posts pivoted at top and bottom so they may be turned sidewise, side slats pivotally attached to the posts, and slats attached to the posts at the corners, and adjustable oppositely-acting braces for holding the crate expanded, the side slats having their ends rounded off, substantially as specified.

702,412. JAR-CLOSURE. FRANK E. DOWDING, Peabody, Ill. Filed Nov. 27, 1901. Serial No. 95,362. (No model.)



Claim.—1. The combination with a jar having an inner marginal groove or seat formed in the neck thereof and provided with back, top and bottom walls and open at its front only, of a thin flat packing-ring of greater width than the depth of the groove with its outer edge seated in the groove and its inner edge projected out of and beyond the open front of the groove or seat, and a closure-plug slightly less in diameter than the inner diameter of the neck of the jar at the lower side of the groove therein, and provided with an intermediate marginal enlargement or flange to bind the packing-ring between the lower outer edge of the groove or seat and the lower edge of the flange, whereby the packing-ring will be pushed up in the neck upon an initial outward movement of the closure-plug and thereby prevent accidental displacement thereof.

2. The combination with a jar having an inner marginal groove or seat formed in the neck thereof, a thin flat packing-ring having its outer edge seated in the groove and its inner edge projected inwardly and downwardly into the neck of the jar, and a closure-plug having its outer end provided with a marginal cap-flange to engage the upper edge of the jar, and an intermediate marginal flange or enlargement to engage the inner projected edge of the packing-ring and bind the same between the

lower edge of the flange and the lower outer edge of the groove or seat in the jar.

3. The combination with a jar, having an inner marginal groove or seat formed in the neck thereof, with the lower side of the groove projected into the neck-opening beyond the upper side thereof, a packing-ring of greater width than the depth of the groove with its outer edge fitted in the groove or seat and its inner edge projected out of the groove, and a closure-plug having a diameter slightly less than that of the neck at the lower side of the groove therein, and also provided with an intermediate marginal enlargement or flange to bind the packing-ring between the lower edge of the groove or seat and the lower side of the flange, whereby the packing-ring will be pushed up in the neck upon an initial outward movement of the closure-plug and thereby prevent accidental displacement thereof.

4. The combination with a jar having an inner marginal groove or seat formed in the neck thereof, the lower side of the groove being projected into the neck and beyond the upper side of the groove, a thin flat packing-ring having its outer edge fitted in the groove and its inner edge projected out of the groove, and a closure-plug of slightly less diameter than the inner diameter of the neck at the lower side of the groove, and provided with an intermediate marginal enlargement or flange having a beveled lower side to bind the packing-ring between said lower side and the lower edge of the groove or seat, and an outwardly-directed marginal cap-flange at the outer end of the plug to overlap the upper edge of the jar.

5. The combination with a jar having an inner marginal groove or seat formed in the neck thereof and provided with back, top and bottom walls, and an open front, of a flat packing-ring of greater width than the depth of the groove, with its outer edge seated in the groove and having its inner edge projected out of and beyond the open front of the groove or seat, and a closure-plug slightly less in diameter than the neck of the jar at the lower side of the groove therein, and capable of frictional engagement with the projected inner edge of the packing-ring to bind the latter between the lower edge of the groove or seat and the plug, whereby the packing-ring will be pushed up in the neck upon an initial outward movement of the closure-plug and thereby prevent accidental displacement thereof.

6. The combination with a jar having an inner marginal groove or seat formed in the neck thereof and provided with back, top and bottom walls, and an open front, of a flat packing-ring of greater width than the depth of the groove, with its outer edge seated in the groove and having its inner edge projected out of and beyond the open front of the groove or seat, and a closure-plug which has a reduced end, an intermediate external diameter capable of frictional engagement with the projected inner edge of the packing-ring to bind the latter between the lower edge of the groove or seat and the plug, and a cap-flange to overlap the outer edge of the neck of the jar, whereby the packing-ring will be pushed up in the neck upon initial outward movement of the closure and thereby prevent accidental displacement thereof.

7. The combination with a jar having an internal marginal flange or shoulder within the neck thereof, of a closure-plug, a flat packing-ring lying between and in frictional engagement with the plug and the neck, with its outer edge underlying the flange or shoulder, whereby the ring will be pushed up upon an initial outward movement of the closure-plug, and thereby prevent accidental displacement thereof, and means to prevent the packing-ring from being pushed into the jar by the insertion of the closure-plug.

702,413. ART OF MAKING BOOKS. ALBERT R. DUNHAM, Brooklyn, N. Y., assignor of one-half to David Williams, New York, N. Y. Filed Apr. 19, 1900. Serial No. 12,412. (No model.)



Claim.—1. A double signature, ready for binding, composed of two different series of pages, one series above the other, with one binding edge extending lengthwise each two series, the ends of the pages of one series abutting the same ends of the pages of the other series.

2. A double signature, ready for binding, composed of two different series of pages, one series above the other, with one binding edge extending lengthwise each two series, each series consecutively numbered, the ends of the pages of one series abutting the same ends of the pages of the other series.

3. A double signature, ready for binding, composed of two uninterrupted, oppositely-running series of consecutive pages, one series above the other, with one binding edge extending lengthwise each two series, the ends of the pages of one series abutting the same ends of the pages of the other series.

4. A double signature, ready for binding, composed of two discontinuous, uninterrupted series of consecutive pages, one series above the other with one binding edge extending lengthwise each two series, the ends of the pages of one series abutting the same ends of the pages of the other series.

5. A double signature, ready for binding, composed of an initial series and a final series of pages, one series above the other with one binding edge extending lengthwise each two series, the ends of the pages of one series abutting the same ends of the pages of the other series.

6. A parallel-fold double signature, ready for binding, composed of two different series of pages, one series above the other with one binding edge extending lengthwise each two series, the ends of the pages of one series abutting the same ends of the pages of the other series.

7. A parallel-fold double signature composed of two uninterrupted oppositely-running series of consecutive pages one end of the pages of one series abutting the same end of the pages of the other series.

8. A parallel-fold double signature comprising two discontinuous uninterrupted series of consecutive pages one end of the pages of one series abutting the same end of the pages of the other series.

9. A double book comprising two united oppositely-disposed duplicate double signatures made up of two consecutive uninterrupted oppositely-running series of consecutive pages one end of the pages of one series abutting the same end of the pages of the other series.

10. A double book comprising two united oppositely-disposed duplicate sets of double signatures, said sets comprising two consecutive uninterrupted oppositely-running series of consecutive pages, one end of the pages of one series abutting the same end of the pages of the other series.

11. A printed sheet having its pages forming a parallel-fold signature composed of different series of consecutively-numbered pages, said series being disposed edge to edge one above another transversely to the binding edge of the signature.

12. A printed sheet having its pages forming a parallel-fold double signature composed of two different series of consecutively-numbered pages disposed one at one side and the other at the other side of the central transverse division-line of the double signature and transversely to the binding edge of said signature.

13. A parallel-fold double signature having three folds therein, the second and third of which are parallel to each other and transverse to the first fold, said signature being composed of two series of consecutively-numbered pages disposed one at one side and the other at the other side of the central transverse division-line of the double signature and transverse to the binding edge of said signature.

14. A parallel-fold double signature composed of two uninterrupted series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

15. A parallel-fold double signature composed of two uninterrupted oppositely-running series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

16. A parallel-fold double signature comprising two discontinuous uninterrupted series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

17. A parallel-fold double signature composed of an initial series and a final series of consecutive pages, the tops of the pages of one series facing the tops of the pages of the other series.

18. A set of parallel-fold double signatures assembled in consecutive order and composed of two different series of consecutively-numbered pages disposed one at one side and the other at the other side of the central transverse division-line of the double signatures and transversely to the binding edges of said double signatures.

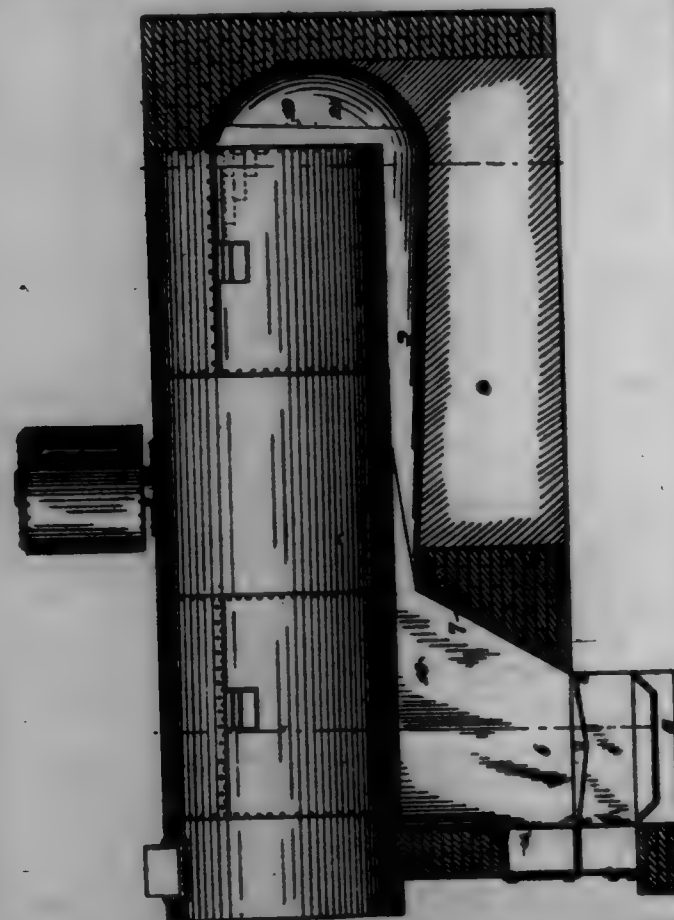
19. A set of parallel-fold double signatures assembled in consecutive order and composed of two consecutive series of consecutively-numbered pages disposed one at one side and the other at the other side of the central transverse division-line of the double signatures and transversely to the binding edges of said double signatures.

20. A set of gathered parallel-fold double signatures comprising two consecutive uninterrupted oppositely-running series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

21. A double book comprising two united oppositely-disposed duplicate double signatures made up of two consecutive uninterrupted oppositely-running series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

22. A double book comprising two united oppositely-disposed duplicate sets of double signatures, said sets comprising two consecutive uninterrupted oppositely-running series of consecutive pages having the tops of the pages of one series facing the tops of the pages of the other series.

702,414. BOILER-SETTING. EDWARD R. EDGEM, St. Louis, Mo.
Filed Mar. 11, 1902. Serial No. 97,782. (No model.)



Claim.—1. A boiler-setting comprising a fire-box; a bridge-wall extending upwardly behind the fire-box to a point near the boiler, the upper face of said bridge-wall being flat and horizontal; a foundation extending backwardly from the bridge-wall, said foundation being slightly lower at its rear end than the top of the bridge-wall, and said foundation being curved at its rear end to match the curvature of the boiler, the change from the flat top of the bridge-wall to the curve of the rear end being gradual; side walls extending upwardly from the fire-box, bridge-wall and foundation some distance outside of the boiler and above the center thereof; top walls extending inwardly from the upper edges of the side walls to the boiler, the lower faces of said top walls being inclined downwardly at their rear ends; and a rear wall connecting the ends of the side walls, said rear wall having a top wall extending forwardly to the end of the boiler and having a vertical central rib, the spaces on each side of said rib being curved in vertical section to a semicircle and curved in horizontal section to a semicircle, substantially as specified.

2. In a boiler-setting, suitable side walls; top walls; and a rear wall connecting the side walls and having a top wall joining to the boiler, said rear wall having a vertical central rib, the spaces on each side of said rib being curved to a semicircle in vertical section and to a semicircle in horizontal section, substantially as specified.

702,415. MECHANICAL BASE-BALL PITCHER. CHARLES EDWARDS, Brooklyn, N. Y. Filed Jan. 13, 1902. Serial No. 98,464. (No model.)

Claim.—1. A mechanical base-ball pitcher, comprising a base provided with screened sides, a spring provided with a cup to hold the ball and carried by a revolving shaft, means of mechanically collecting and placing the balls in said cup, means of arresting the movement of said spring for a limited time, and means of operating the same.

2. The combination with a mechanical base-ball pitcher, of a screened inclosure to prevent the escape of the ball, a floor inclined from all directions to a predetermined point to guide the ball to such point, an endless belt carrying buckets to elevate the ball, means for operating said belt and delivering the ball to the pitcher.

3. The combination with a mechanical base-ball pitcher, provided with means for recovering the ball, of an open-ended chute having its bottom slotted for some distance from its open end and provided with a pivoted stop projecting at one end through the bottom to engage the ball and at the other end into the slot and with springs projecting from the sides of its open end to clamp the ball between them, and means for tilting the stop and releasing the ball and for pressing apart the springs and delivering the ball to the pitcher.

4. The combination with a mechanical base-ball pitcher provided

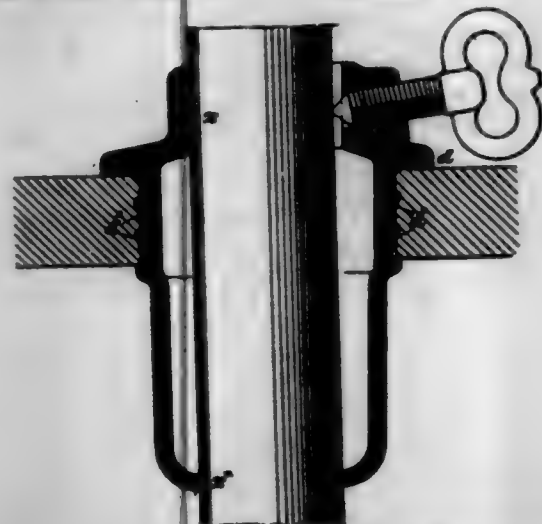
with means of recovering the ball and delivering the ball to the pitcher, of shafts carrying sprocket-wheels connected by sprocket-chains provided with buckets interposed between the recovering means and the delivery means and adapted to carry the ball from one to the other, and means for operating one of said shafts.



5. A mechanical base-ball pitcher, comprising two speed standards, a shaft mounted on said standards and provided at one end with a pulley, an arm carried by said shaft and projecting therefrom at right angles to the axis of said shaft, a spring secured at one end to said shaft and normally resting against said arm and provided near its other end with a cup to receive a ball, means for tensioning said spring, and means for driving said shaft.

6. The combination with a mechanical base-ball pitcher provided with a spring carried by a revolving shaft, of two speed standards, and a cross-piece adjustably secured on said standards and adapted to engage said spring and temporarily arrest its movement during the rotation of the shaft.

702,416. CLAMP. JOSEPH FELLOWS, Philadelphia, Pa. Filed Nov. 17, 1900. Serial No. 34,832. (No model.)



Claim.—1. The combination in a clamp, of two sections, each section having internal bearing-points at top and bottom only and a single external bearing-point between the two internal bearing-points, one of the internal bearing-points on one section being adjustable, substantially as and for the purpose specified.

2. The combination in a clamp, of two sections adapted to be inserted in the hole in a barrel, and to encircle a pump, each of said sections having an outer bearing-surface engaging with the barrel, an extended portion engaging the pump, and means for forcing one of said sections out at the top, the lower bearing acting as a fulcrum whereby the clamp

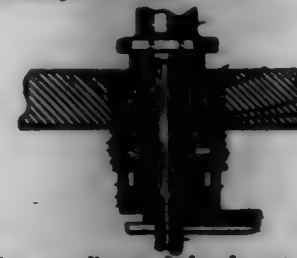
is securely fastened to the barrel and to the pump, substantially as described.

3. The combination in a clamp for securing pumps to barrels, of the two sections adapted to be inserted in a hole in a barrel and encircling a pump, each of said sections having a flange, and a ribbed or roughened portion directly under the flange to engage the barrel and having an extended portion, the lower edge of said extension bearing upon the pump, and means carried by one of said sections for forcing the upper portion of the said section out, thus expanding the clamp and securing the pump to the barrel, substantially as described.

4. The combination of a clamp made in two sections, each section having a flange, a ribbed portion under the flange arranged to engage the barrel, the upper edge of each rib being abrupt and the lower edge inclined, each section having an extension with an internal rib arranged to bear against the pump, and means carried by the upper portion of one of the sections for forcing the upper end of said section away from the pump, and against the barrel whereby the clamp secures the pump to the barrel, substantially as described.

5. The combination of a clamp made in two sections, each section having internal bearing-points at top and bottom and a single external bearing-point between the two internal bearing-points, and a set-screw at one end of the clamp for forcing that end outward, substantially as described.

702,417. VALVE. WILLIAM GATSA, Woodbridge, and LOUIS W. GATSA, Orange, Conn., assignors of two-fifths to John H. Barnes, Norwich, Conn. Filed Apr. 6, 1901. Serial No. 54,828. (No model.)



Claim.—1. In an appliance of the character described, the combination with a valve movable to and fro in a straight line, of a tubular operating-key provided with means for the attachment of a conduit for the delivery of a pressure medium.

2. In an appliance of the character described, the combination with a valve movable to and fro in a straight line, and a tubular operating-key provided with means for the attachment of a conduit for the delivery of a pressure medium, of a discharge-pipe adapted to pass through said tubular key.

3. In an appliance of the character described, the combination with a valve movable to and fro in a straight line, a body portion, a valve-actuator, and a tubular operating-key provided with means for the attachment of a conduit for the delivery of a pressure medium, of a discharge-pipe adapted to pass through said tubular key.

4. An appliance of the character described, having a body portion adapted to be attached to the containing vessel with its exterior surface substantially flush with the exterior surface of the vessel, in combination with a valve-actuator secured to the body portion, and a valve mounted in the casing and movable in a straight line transversely to the axis of the opening through the appliance.

5. In an appliance of the character described, the combination with a body portion adapted to be secured to a vessel, of a valve-actuator secured to the body portion; a valve mounted in the casing to slide to and fro in a straight line; a valve-actuator mounted in the appliance; and a key for operating the valve-actuator.

6. In an appliance of the character described, the combination with a body portion adapted to be secured to a vessel, of a valve-actuator secured to the body portion; a valve mounted in the casing to slide to and fro in a straight line; a valve-actuator mounted in the appliance; and a tubular key separate from and adapted to be engaged with and disengaged from the actuator for operating the valve-actuator.

7. In an appliance of the character described, the combination with a tubular body portion whose bore is adapted to receive an operating-key, of a sliding plate constituting a valve; means for guiding such plate and confining the same to a to-and-fro rectilinear movement; and a valve-actuator separate from the sliding plate and the operating-key, and having projecting pins engaging with the sliding plate and adapted to engage with the operating-key.

8. The combination in an appliance of the character described, of a body portion; a valve-actuator secured to the body portion; a sliding plate constituting a valve movable to and fro in a straight line; an actuator mounted in the valve-actuator and provided with a pin engaging with the sliding plate; and shoulders formed in said valve-actuator for limiting the movement of the actuator.

9. The combination with a body portion, of a valve-actuator secured

thereto; a sliding plate constituting a valve mounted in the valve-actuator to slide to and fro in a straight line; and a valve-actuator provided with a projecting pin engaging with the sliding plate and with projections adapted to engage with an operating-key insertible in the bore of said body portion.

10. In an appliance of the character described, the combination with a tubular body portion whose bore is adapted to receive an operating-key, of a valve; means for guiding the valve and confining the same to a to-and-fro rectilinear movement; a rotatable valve-actuator separate from the valve and having projecting pins engaging with the valve and adapted to engage with the operating-key; and a friction device for preventing the valve from moving too freely.

11. In an appliance of the character described, the combination, of a body portion; a valve-actuator; a sliding plate constituting a valve movable to and fro in a straight line; a rotatable valve-actuator for actuating the sliding plate; a key insertible in the bore of said body portion and adapted to engage with the valve-actuator; and a friction device for preventing the free movement of the actuator.

12. The combination with a sliding plate constituting a valve; an actuator for actuating the sliding plate; an independent guard-piece extending across the passage through the valve when the sliding plate is closed; and means for operating the actuator to open the passage through the valve and shift the guard-piece away from said passage.

13. The combination with a sliding plate constituting a valve; an actuator for actuating the sliding plate; an independent guard-piece consisting of a pivoted finger extending across the passage through the valve when the sliding plate is closed; and means for operating the actuator to open the passage through the valve and shift the guard-piece away from said passage.

14. In an appliance of the character described, the combination with a body portion; a valve-actuator secured to said body portion; a sliding plate constituting a valve mounted in said valve-actuator; a valve-actuator for actuating the sliding plate provided with opposite shoulders; and an independent guard-piece shiftable into and out of position across the opening through the valve by the operation of the shoulders on the valve-actuator.

15. In an appliance of the character described, the combination of a body portion; a valve-plate movable to and fro in a straight line transversely to the axis of the bore extending through the body portion; a key for effecting the movement of the valve-plate; and means for effecting the longitudinal movement of the key when operated to open the valve to form a tight joint with the body portion.

16. In an appliance of the character described, the combination with a valve-actuator, of a valve mounted therein; means for guiding the valve and confining the same to a to-and-fro rectilinear movement; and a rotatable actuator separate from the valve and the operating-key of the device, and having projecting pins engaging with the valve and adapted to engage with the operating-key, whereby motion may be transmitted from the key to the valve.

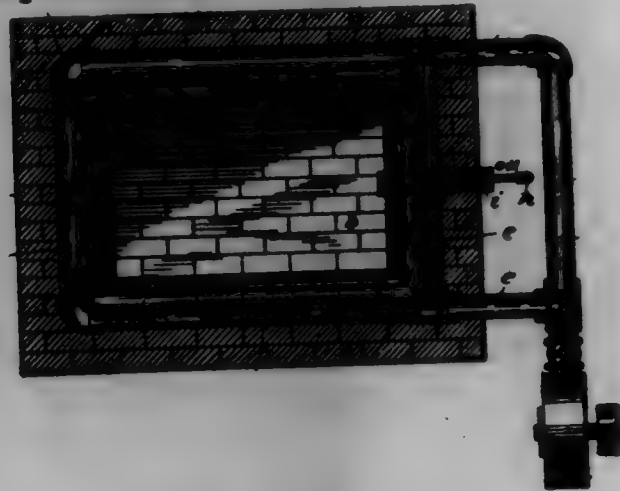
17. In an appliance of the character described, the combination of a sliding plate constituting a valve; a valve-actuator; an actuator extending through the casing and engaging with said sliding plate; means for preventing the free movement of the sliding plate; a tubular body portion; a tubular key insertible in the bore of said body portion and adapted to engage with the valve-actuator; an independent guard-piece actuated by the operation of said key; means for attaching a conduit to said tubular key for the delivery of a pressure medium; a discharge-pipe adapted to pass through said tubular key; and means for effecting the longitudinal movement of the key to form a tight joint when the key is operated to open the valve.

702,418. GAS GENERATING AND BURNING FURNACE. CHARLES M. GRADIN, Brownwood, Tex., assignor of three-fourths to Charles W. Brown, Adolph Grivot, and Alexander C. Landry, New Orleans, La. Filed June 10, 1901. Serial No. 63,573. (No model.)

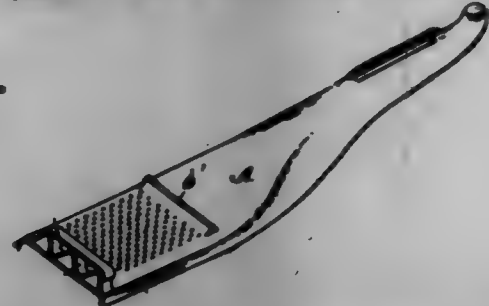
Claim.—1. In an oil-gas generating and burning furnace the combination of a fire-box, having a bottom of refractory material and an open recess or chamber extending entirely around the fire-box and opening directly thereto, a perforated air-pipe encircling the fire-box and located back in said recess and provided with perforations opening directly thereto, this piping being of smaller diameter than the outlet of said recess, an air-supply pipe connected to each of the front corners of said pipe and extending out through the front wall of the furnace, a common pipe connecting said two pipes and means for supplying air under pressure to this common pipe, an air-nozzle connected to the front portion of the encircling pipe at a point between the supply-pipes and extending into the furnace, and an oil-supply pipe extending into this air-nozzle, as and for the purpose set forth.

2. In an oil-gas generating and burning furnace, the combination of a fire-box having a bottom of refractory material a recess or chamber formed in its inner wall above said bottom and extending entirely around

the fire-box and opening directly into the same, an air-pipe extending entirely around the fire-box and located back in said recess and provided with numerous perforations opening directly into said recess, this enclosing pipe being of smaller diameter than the outlet of said recess, means for supplying air under pressure to this enclosing pipe, and means for supplying oil to the fire-box.



702,419. PAPER AND CUTTER. GEORGE GIOVANNA, New York, N. Y. Filed June 1, 1901. Serial No. 62,722. (No model.)



Claim.—Is a fruit or vegetable parer and cutter, a body having a flattened-shank formation at one end and a semitubular formation at its opposite end, a corrugated blade secured upon, and extending across the said flattened shank and a straight blade secured upon the said corrugated blade, substantially as described.

702,420. CURTAIN-HANGER. ALFRED F. GOMBERG, Canton, Ohio. Filed July 30, 1901. Serial No. 70,234. (No model.)



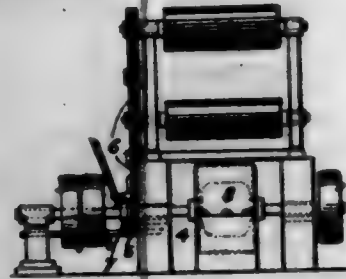
Claim.—1. For a curtain-hanger, the combination of a window-frame, a multiplicity of rods directed outward from said frame, there being pin-pointed hooks formed on the outer free ends of said rods, and means for rigidly attaching the inner ends of the rods directly to the window-frame, substantially as specified.

2. For a curtain-hanger, the combination of a window-frame, a multiplicity of rods directed outward from said frame, there being means for attaching a curtain to the outer ends of said rods and bent-down loops formed on the inner ends thereof, a plate located on the outer side of said loops having its upper edge in contact with said rods, there being holes in said plate registering respectively with said loops, and screws passing respectively through said holes and loops into the window-frame, substantially as specified.

3. For a curtain-hanger, the combination of a window-frame, a multiplicity of rods directed outward from said frame, there being means for attaching a curtain to the outer ends of said rods and bent-down loops formed on the inner ends thereof, plates located on the outer and inner sides of said loops, the upper edge of said outer plate being in contact with said rods, there being holes in said plates registering respectively

with said loops, and screws passing respectively through said holes and loops into the window-frame, substantially as specified.

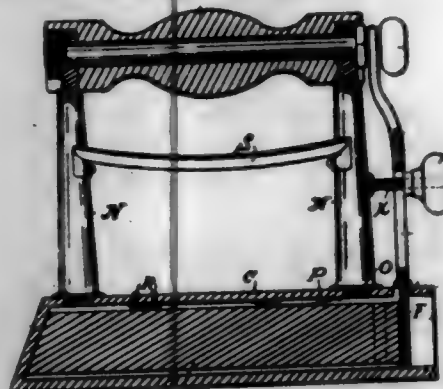
702,431. MEANS FOR DRIVING PRINTING-PRESS. SAMUEL S. GUN, Chicago, Ill., assignor to the Gun Printing Press Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 23, 1897. Serial No. 591,042. (No model.)



Claim.—1. The combination with a printing-press, of a motor geared directly thereto for driving it, means for disconnecting said motor from said press, and means for transmitting power from said motor for driving other mechanisms than said press.

2. The combination with a printing-press, of a motor geared directly thereto for driving it, auxiliary driving mechanism for said press, means for connecting said auxiliary driving mechanism to said press independently of said motor, means for disconnecting said motor from said press, and means for transmitting power from said motor for driving other mechanisms independently of said press.

702,432. RAD-IRON. HARRY GRANT, Milwaukee, Wis. Filed Dec. 24, 1901. Serial No. 57,694. (No model.)

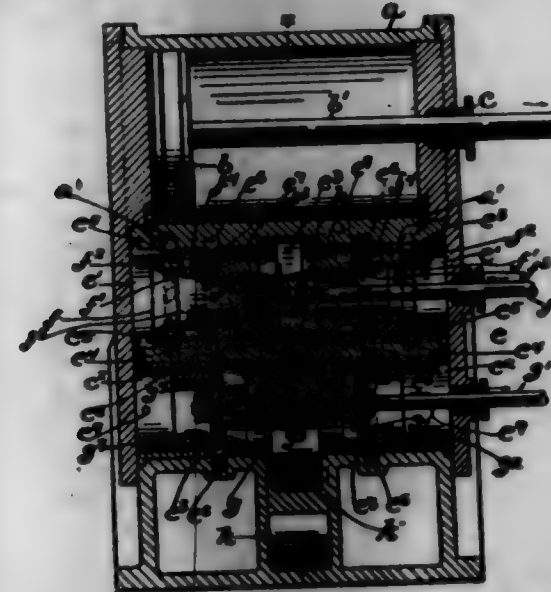


Claim.—In a rad-iron, the combination of a metallic shell provided with a smoothing-surface, and having its side walls converging forwardly and its front end inclining downwardly toward a common center; a heating-core located in, and conforming in shape to, the interior shape of said shell; a vertically-slidable door having bearings in said shell; a connecting-bar secured to the upper side of said door, provided with an elongated aperture and an operating-handle; a horizontal screw rigidly affixed at one end to one of the handle-supporting standards of said rad-iron, and having its opposite end projecting through the elongated slot of said connecting-bar; a hand-nut operating on said screw, and adapted, as it is turned forward thereon, to force said door against the rear end of said heating-core and said core against the front end of said shell, whereby said core is retained in place and prevented from rattling, all substantially as and for the purpose specified.

702,433. VALVE MECHANISM FOR ENGINE. THOMAS H. HENDERSON, Fort Wayne, Ind. Filed June 12, 1901. Serial No. 64,312. (No model.)

Claim.—1. The combination, with an engine-cylinder, and the piston within the said cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two chambers c' and c'' formed in the valve-rod and arranged longitudinally of the cylinder, with the chamber c' between the chamber c'' and the cylinder; means for exhausting the cylinder; a fluid-pressure-supply part k connected with the chamber c' centrally between the ends of the said chamber; two passage-ways connecting opposite ends of the chamber c' with opposite ends, respectively, of the chamber of the cylinder; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve g contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' fitting the surrounding wall of the said chamber c' and arranged a suitable distance apart longitudinally of the valve as to form a fluid-pressure-receiving chamber g' between the said heads, and a main valve f contained within and movable endwise of the chamber c' and having two external annular chambers f' and f'' arranged a suitable distance apart longitudinally of the valve, with the end walls of the said chambers formed by cylindrical piston-heads fitting the surrounding wall of the said chamber c' , all relatively arranged and operating substantially as shown, for the purpose specified.

tained within and movable endwise of the chamber c' and having two external fluid-pressure-receiving chambers f' and f'' arranged a suitable distance apart longitudinally of the valve, all relatively arranged and operating substantially as shown, for the purpose specified.



2. The combination, with an engine-cylinder, and the piston within the said cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two parallel cylindrical chambers c' and c'' formed in the valve-rod and arranged longitudinally of and parallel with the cylinder, with the chamber c' between the chamber c'' and the cylinder; means for exhausting the cylinder; the fluid-pressure-supply part k connected with the chamber c' centrally between the ends of the said chamber; two passage-ways connecting opposite ends of the chamber c' with opposite ends, respectively, of the chamber of the cylinder; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve g contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' fitting the surrounding wall of the said chamber c' and arranged a suitable distance apart longitudinally of the valve as to form a fluid-pressure-receiving chamber g' between the said heads, and a main valve f contained within and movable endwise of the chamber c' and having two external annular chambers f' and f'' arranged a suitable distance apart longitudinally of the valve, with the end walls of the said chambers formed by cylindrical piston-heads fitting the surrounding wall of the said chamber c' , all relatively arranged and operating substantially as shown, for the purpose specified.

3. The combination, with an engine-cylinder and the piston within the said cylinder, which cylinder has two parts c' and c'' connected with opposite ends, respectively, of the cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two chambers c' and c'' formed in the valve-rod and arranged longitudinally of the cylinder, with the chamber c' between the chamber c'' and the cylinder; the fluid-pressure-supply part k connected with the chamber c' centrally between the ends of the said chamber; two parts c' and c'' surrounding the chamber c' near opposite ends, respectively, of the said chamber and communicating with the different exhaust-ports, respectively; an annular series of apertures formed in the surrounding wall of the chamber c' and connecting one of the parts c' with the said chamber; another annular series of apertures formed in the said wall and connecting the other part c'' with the said chamber c' ; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve g contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' arranged a suitable distance apart longitudinally of the valve as to form the fluid-pressure-receiving chamber g' between them, and a main valve contained within and movable endwise of the chamber c' and comprising two external chambers f' and f'' arranged a suitable distance apart longitudinally of the valve, all relatively arranged and operating substantially as shown, for the purpose specified.

4. The combination, with an engine-cylinder, and the piston within the said cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two chambers c' and c'' formed in the valve-rod and arranged longitudinally of the cylinder, with the chamber c' between the chamber c'' and the cylinder; the fluid-pressure-supply part k connected with the chamber c' centrally between the ends of the said chamber; two passage-ways connecting opposite ends of the chamber c' with opposite ends, respectively, of the chamber of the cylinder; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve g contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' arranged a suitable distance apart longitudinally of the valve as to form the fluid-pressure-receiving chamber g' between them, and a main valve contained within and movable endwise of the chamber c' and comprising two external chambers f' and f'' arranged a suitable distance apart longitudinally of the valve, all relatively arranged and operating substantially as shown, for the purpose specified.

5. The combination, with an engine-cylinder, and the piston within the said cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two chambers c' and c'' formed in the valve-rod and arranged longitudinally of the cylinder, with the chamber c' between the chamber c'' and the cylinder; an exhaust-rod h connected with the chamber c' centrally between the ends of the said chamber; the fluid-pressure-supply part k connected with the chamber c' centrally between the ends of the said chamber; two passage-ways connecting opposite ends of the chamber c' with opposite ends, respectively, of the chamber of the cylinder; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' arranged a suitable distance apart longitudinally of the valve to form an annular fluid-pressure-receiving chamber g' between the said heads, which valve has a stem g extending through and attached to the central portion of the valve, and a main valve contained within and movable endwise of the chamber c' and comprising two parts or sections f' and f'' arranged in line and a suitable distance apart endwise with each of the said sections f' provided with two piston-heads f' and f'' separated to form a chamber f' between them, which main valve is provided, also, with the following: a bridge or web f connecting the two sections f' and f'' together, passage-ways extending through the said sections f' from the outer ends of the said sections to the exhaust-rod, and a stem f attached to the said web or bridge, all relatively arranged and operating substantially as shown, for the purpose specified.

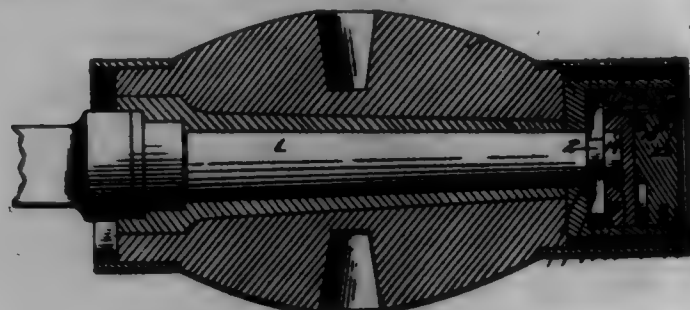
6. The combination, with an engine-cylinder and the piston within the said cylinder, of valve mechanism comprising the following: a valve-rod arranged externally and longitudinally of the chamber of the cylinder; two parallel chambers c' and c'' formed in the valve-rod and arranged longitudinally of the cylinder, with the chamber c' between the chamber c'' and the cylinder; means for exhausting the cylinder; the fluid-pressure-supply part k connected with the chamber c' between the ends of the said chamber; two passage-ways connecting opposite ends of the chamber c' with opposite ends, respectively, of the chamber of the cylinder; two passage-ways connecting together the chambers c' and c'' between the fluid-pressure-supply part and the different exhaust-ports, respectively; a cut-off valve contained within and movable endwise of the chamber c' and having two piston-heads g' and g'' arranged a suitable distance apart longitudinally of the valve to form a fluid-pressure-receiving chamber g' between them; two vent ports or orifices c' and c'' formed in the surrounding wall of the chamber c' at opposite ends, respectively, of the travel of the cut-off valve, and a main valve contained within and movable endwise of the chamber c' , having two external chambers f' and f'' arranged a suitable distance apart longitudinally of the valve and piston-heads forming the end walls of the said chambers f' , all relatively arranged and operating substantially as shown, for the purpose specified.

702,434. VEHICLE-AXLE ATTACHMENT. JOHN W. HAFER, Baltimore, Pa. Filed Apr. 16, 1902. Serial No. 105,114. (No model.)

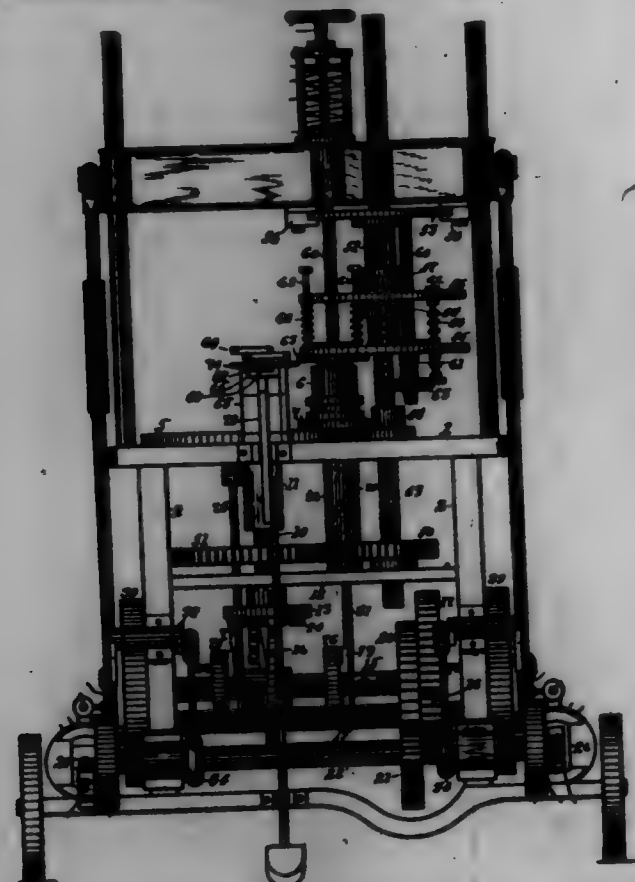
Claim.—1. In a vehicle-axle attachment, the combination with a shell having radial recesses, blocks mounted in said shell and provided with pins, a cam-disk rotatably mounted in said shell, a cap-pin mounted in said disk and provided with a curved det formed with a rest, and a head secured to the end of said pin and adapted to engage said rest to lock the cam-disk against movement, substantially as set forth.

2. In a vehicle-axle attachment, the combination with an axle-pin

die provided with an annular groove, of an attachment consisting of a shell having an annular shoulder formed with radial seats or recesses, locking-blocks mounted to slide in said radial seats or recesses and provided with pins, a cam-disk mounted to rotate within said shell and provided upon one face with cam-grooves into which the pins of the blocks project, a pin having a sliding movement in a hole formed in said disk, a spring secured to said disk and connected to said pin and exerting its pressure to move the same inwardly, a cap secured to said disk and formed with a depression and with a curved slot through which said pin projects, said slot being formed with a seat or recess in its walls, and a head secured to the outer end of the pin and adapted to be held seated by the spring in said seat or recess of the cap-plate, substantially as set forth.



702,425. TUMBLER-PRESS. JONATHAN HALEY, AKRON, Ohio.
Filed Feb. 28, 1901. Serial No. 48,516. (No model.)

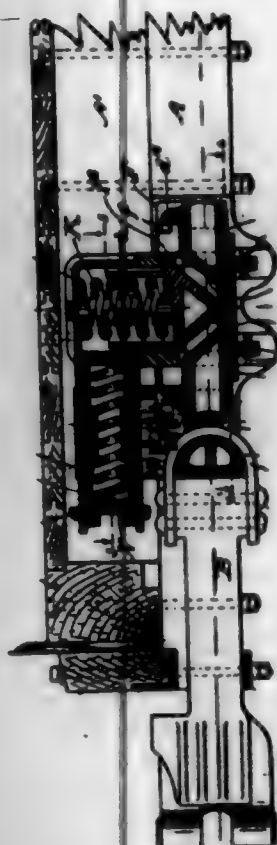


Claim.—In a machine of the kind designated, the combination with a revoluble mold-bearing table, arranged to be moved with progressive runs, and a vertically-reciprocating plunger to meet one of said molds at each run, and an ejector to force the pressed article from the mold of a horizontally-moving arm arranged to reciprocally swing over and from said table, and having a fork to seize the pressed article and remove it, substantially as shown and described.

702,426. COMBINED FRICTION AND DIRECT-ACTING SPRING DRAFT-RIGGING. JOHN J. HANSEN, MILWAUKEE, Wis. Filed Mar. 24, 1902. Serial No. 98,787. (No model.)

Claim.—1. In a railway draft-rigging, the combination with the draft-timbers or center sills, of side plates fitting between and secured thereto, a draw-bar, a draft-iron in line therewith and fitting between said side plates, a stationary friction-plate in line with the draw-bar and in sliding friction engagement with one of the horizontal sides of the draft-iron, double-incline friction-faces on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having double-incline friction-faces, a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, a direct-acting longitudinally-arranged spring, longitudinally-movable followers bearing against said spring, a guide for said followers, and wings or projections on the draft-iron engaging said followers, said followers partially compressing the longitudinal spring before the transversely-movable friction-block begins to compress the transversely-arranged spring, substantially as specified.

mid stationary friction-plate, a direct-acting longitudinally-arranged spring, longitudinally-movable followers bearing against said spring, a guide for said followers, and wings or projections on the draft-iron engaging said followers, substantially as specified.



2. In a railway draft-rigging, the combination with the draft-timbers or center sills, of side plates fitting between and secured thereto, a draw-bar, a draft-iron in line therewith and fitting between said side plates, a stationary friction-plate in line with the draw-bar and in sliding friction engagement with one of the horizontal sides of the draft-iron, double-incline friction-faces on the opposite side of said draft-iron from said stationary friction-plate, a transversely-movable friction-block having double-incline friction-faces, a transversely-arranged spring acting against said friction-block and centrally pressing said draft-iron against said stationary friction-plate, a direct-acting longitudinally-arranged spring, longitudinally-movable followers bearing against said spring, a guide for said followers, and wings or projections on the draft-iron engaging said followers, said followers partially compressing the longitudinal spring before the transversely-movable friction-block begins to compress the transversely-arranged spring, substantially as specified.

3. In a friction draft-rigging, the combination with a draw-bar and a draft-iron in line therewith, of a stationary friction-plate, double-incline friction-faces on the opposite side of the draft-iron, a transversely-movable block having double-incline friction-faces, a transversely-arranged spring acting against said block and pressing the draft-iron against said stationary friction-plate, a direct-acting longitudinally-arranged spring, followers therefor, and connections for operating the followers, said draft-iron, friction-plate, friction-block and transversely-arranged spring being all directly behind the draw-bar and in the line of draft, substantially as specified.

4. In a friction draft-rigging, the combination with a draw-bar and a draft-iron in line therewith, of a stationary friction-plate, double-incline friction-faces on the opposite side of the draft-iron, a transversely-movable block having double-incline friction-faces, a transversely-arranged spring acting against said block and pressing the draft-iron against said stationary friction-plate, a direct-acting longitudinally-arranged spring, followers therefor, and connections for operating the followers, the transversely-arranged spring and friction-block coming subsequently into action, said draft-iron, friction-plate, friction-block and transversely-arranged spring being all directly behind the draw-bar and in the line of draft, substantially as specified.

5. In a friction draft-rigging, the combination with a draft-iron having double-incline friction-faces and a straight friction-plate, of a stationary friction-plate, a transversely-movable friction-block, a spring acting against said block, a direct-acting longitudinally-arranged spring, followers therefor, a guide for the followers, and wings or projections on the draft-iron to operate the followers, substantially as specified.

6. In a friction draft-rigging, the combination with a draw-bar and draft-iron, of a direct-acting longitudinally-arranged spring above the same, followers therefor, connections for operating the followers, a transversely-

movable friction-block, and a transversely-arranged spring acting against said block, substantially as specified.

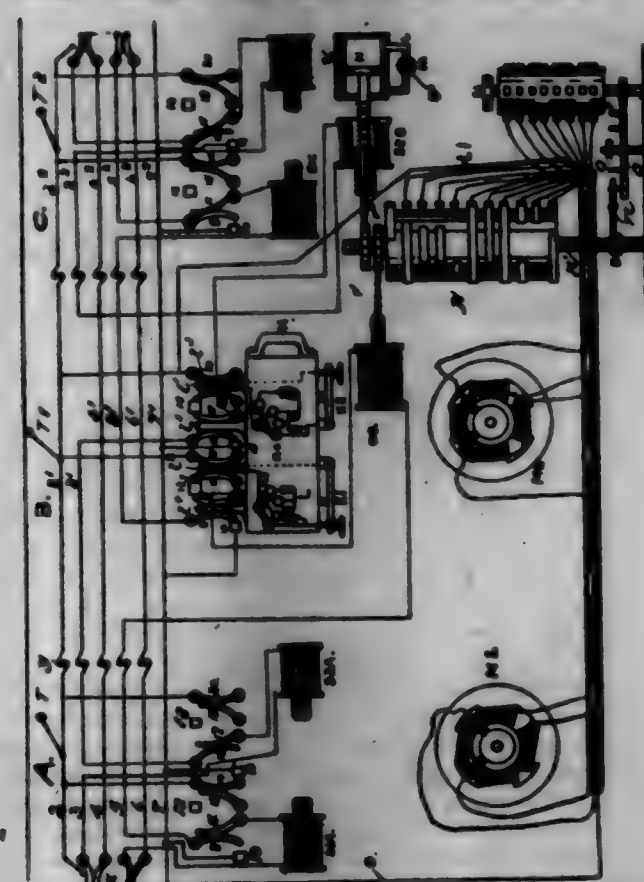
7. In a friction draft-rigging, the combination with a draw-bar and draft-iron, of a direct-acting longitudinally-arranged spring above the same, followers therefor, connections for operating the followers, a transversely-movable friction-block, a transversely-arranged spring acting against said block, and a stationary friction-plate against which the transversely-arranged spring presses the draft-iron, substantially as specified.

8. In a friction draft-rigging, the combination with the draw-bar and a draft-iron connected therewith, of side plates, a stationary friction-plate, a transversely-movable friction-block having double inclines, a transversely-arranged spring acting against said block, a longitudinally-arranged spring, followers therefor, a guide for said followers, and projections or wings on the draft-iron for operating the followers, substantially as specified.

9. In a friction draft-rigging, the combination with a frame or side plates, having a longitudinal guide for longitudinally-movable followers, and a transverse guide for a transversely-movable friction-block, of a draft-iron having double inclines for operating the transversely-movable block, projections for operating the longitudinally-movable followers, a transversely-movable block having double inclines, longitudinally-movable followers, a transversely-arranged spring, and a longitudinally-arranged spring, substantially as specified.

10. In a friction draft-rigging, the combination with a frame or side plates, having a longitudinally-extending guide for longitudinally-movable followers, and a transverse guide for a transversely-movable friction-block, of a draft-iron having double inclines for operating the transversely-movable block, projections for operating the longitudinally-movable followers, a transversely-movable block having double inclines, longitudinally-movable followers, a transversely-arranged spring, and a longitudinally-arranged spring, substantially as specified.

702,427. ELECTRIC RAILWAY. JOHN C. HENRY, DENVER, Colo.;
Stuart A. Henry, executor of said John C. Henry, deceased, assignor
to Stanley Electric Manufacturing Company, a Corporation of New
Jersey. Filed Apr. 1, 1901. Serial No. 54,008. (No model.)



Claim.—1. In an electric-railway system where a plurality of cars are controlled simultaneously, controller-magnets on the separate cars, controllers and step-by-step device whereby said controllers are moved a step at a time by said magnets, the said magnets being arranged in series and a manually-operated switch located on one of the cars controlling the circuit of said magnets.

2. In a multiple-unit train-control system, in combination with the main circuit, a train-circuit connected therewith, controllers connected to said train-circuit, local circuits and electromagnetic devices therein arranged to move all of said controllers in unison in either direction, and a switch located in any part of the train arranged to operate said controllers.

3. In a multiple-unit train-control system, in combination with the main circuit, a train-circuit connected therewith, controllers connected to said train-circuit, a local circuit and electromagnetic devices therein arranged to move all of said controllers in unison, the magnets in said local

circuit being arranged in series, and a switch located in any part of the train arranged to operate said controllers.

4. In a multiple-unit train-control system, the combination of a plurality of controller-magnets, local circuits connecting the controller-magnets together, spring circuit-closures at the terminals of the cars, and a portable switch adapted to cooperate with said spring circuit-closures for the purpose set forth.

5. In a multiple-unit train-control system, the combination of a plurality of controller-magnets, a local circuit connecting the controller-magnets together in series, having circuit-closing springs at the terminals of the car, in combination with a portable switch, adapted to engage said springs.

6. In a multiple-unit train system having local circuits in which are included controller-operating magnets, and self-closing circuit-breaking switches at the ends of the cars, a portable key or switch to open said circuit and control it.

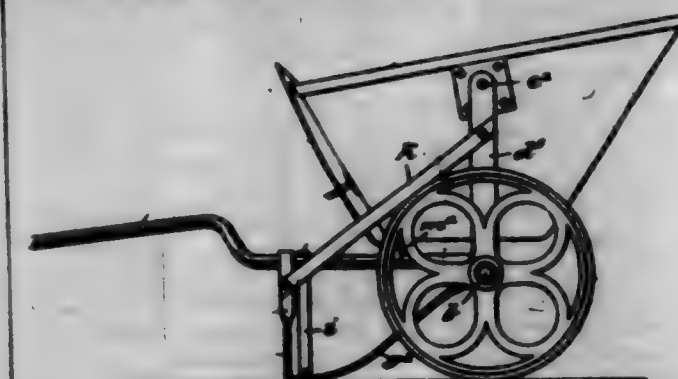
7. In a multiple-unit train system, having local circuits in which are included the controller-operating magnets, a switch arranged to control said circuits having an adjustable resistance, arranged to maintain the current practically constant, irrespective of the number of magnets in the circuits, said switch being removable and adapted to connect with contacts in the several local circuits.

8. In a multiple-unit train system, having a plurality of electromagnetically-operated controllers and local circuits independent of the motor-circuits and including the controller-operating magnets, a switch arranged to control said circuits having an adjustable resistance, arranged to maintain the current practically constant, irrespective of the number of magnets in the circuits.

9. In combination with a controller adapted to vary the speed of motors and comprising two electromagnets and step-by-step device operated thereby to move the controller in opposite directions, a reversing-switch connecting said controller and arranged to be automatically operated by said controller when the latter is in off position, substantially as set forth.

10. In combination with a rotary controller, a rotary switch adapted to reverse the direction of the motor, controlled thereby, each reversing-switch being connected to the controller only when the latter is in off position, and being arranged to move only by the backward movement of said controller, substantially as described.

702,428. WHEELBARROW. CHARLES REWITT, PHILADELPHIA, Pa.
Filed Mar. 11, 1902. Serial No. 97,002. (No model.)

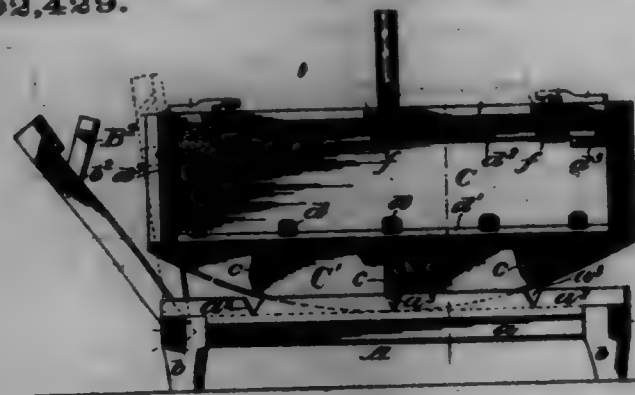


Claim.—In a metal wheelbarrow, an axle and wheels, standards secured to said axle and arranged in vertical alignment therewith, a box pivotedly secured to the upper ends of said standards and having its point of support beyond its central vertical axle, handles secured to said axle, a cross-bar connected with and arranged above said handles and below the pivotal point of said box and adapted to support the same at one end thereof, a spring arm or catch secured to said cross-bar and adapted to engage said box at its upper edge and to lock the same to said cross-bar, frames secured to said handles and axle and supporting said handles and box in substantially horizontal position, and brace-bars connecting said standards and frames and adapted to maintain said standards in vertical position.

702,429. WRINGER-MACHINE. SPENCER S. HIGGINS, HOSEA,
Ill. Filed Jan. 20, 1902. Serial No. 95,427. (No model.)

Claim.—In a wringing-machine, the combination of a supporting-frame, a side-bar in rotating engagement therewith, a wringer-frame pivoted to one end of the supporting-frame, a recess B^1 in one of the side bars of the wringer-frame, a latch having an inwardly-projecting end portion, the latch being pivoted to the side bar adjacent to the recess therein, a blank B^2 attached to the side-bar so that one end will enter the recess and the other end will be engaged by the projecting end portion of the latch, substantially as shown and for the purpose set forth.

702,429.



702,430. INTERNAL-COMBUSTION ENGINE. JAMES F. HOBART, Brooklyn, N. Y., assignor to Clarence F. Wyckoff, Ithaca, N. Y., and James R. Chisholm, Borough of Manhattan, New York, N. Y. Filed Mar. 30, 1901. Serial No. 53,007. (No model.)



Claim.—1. An internal-combustion engine, comprising two pistons, connections between the said pistons whereby one moves faster than the other, a combustion-chamber for one piston acting therewith upon the four-cycle principle and a second combustion-chamber for the other piston acting therewith upon the two-cycle principle, substantially as described.

2. An internal-combustion engine comprising a cylinder, two pistons therein and two combustion-chambers, one piston and combustion-chamber having a two-cycle action and the other piston and its combustion-chamber having a four-cycle action, substantially as described.

3. An internal-combustion engine comprising a cylinder, two pistons therein and two combustion-chambers, one piston and combustion-chamber having a two-cycle action and the other piston and its combustion-chamber having a four-cycle action, one of the combustion-chambers being common to both pistons, substantially as described.

4. An internal-combustion engine comprising a cylinder, two pistons and two combustion-chambers therein, one of said pistons having a two-cycle action and with a combustion-chamber on each side of the same, whereby said piston receives an impulse in each direction and the other piston having a four-cycle action and receiving an impulse in one direction, substantially as described.

5. An internal-combustion engine comprising a cylinder, two pistons therein, a combustion-chamber between the pistons, a second combustion-chamber for one of the pistons, the latter piston acting on the two-cycle principle and receiving an impulse in each direction and the other piston acting on the four-cycle principle and receiving its impulse from the intermediate combustion-chamber, substantially as described.

6. In combination in an internal-combustion engine, a cylinder, two pistons and two combustion-chambers therein, one piston with its combustion-chamber having a two-cycle action and the other with its combustion-chamber having a four-cycle action, the piston-rod of one piston extending through that of the other and the two to one gear between the piston-rods, substantially as described.

7. In combination in an internal-combustion engine, a single cylinder, two independent power-pistons and two combustion-chambers in the cylinder, and an air-compression chamber in said cylinder, substantially as described.

8. In combination in an internal-combustion engine, two pistons with their combustion-chambers, an air-compression chamber and a connection between the combustion-chamber of one piston and the air-compression chamber whereby the said combustion-chamber will receive compressed air therefrom, substantially as described.

9. In combination in an internal-combustion engine, a two-cycle piston with its combustion-chamber, a four-cycle piston with its combustion-chamber and an air-compression chamber in which air is compressed by one of the pistons, substantially as described.

10. In combination in an internal-combustion engine, a cylinder, two pistons therein, a combustion-chamber intermediate the pistons, a combustion-chamber at one end of the cylinder and an air-compression chamber at the other end of the cylinder, substantially as described.

11. In combination in an internal-combustion engine, the two pis-

tons moving at different speeds, a combustion-chamber for each piston, an air-compression chamber, a connection between the air-compression chamber and one of the combustion-chambers leading through said piston, and a connection leading from the air-compression chamber to a point outside the engine substantially as described.

12. In combination in an internal-combustion engine, a cylinder, a piston, a combustion-chamber, an air-compressor chamber in the cylinder, a storage-reservoir, and means whereby the compressed air is controlled to pass to the storage-reservoir at times directly from the air-compressor chamber and at other times to the combustion-chamber, substantially as described.

13. In combination in an internal-combustion engine, two pistons, two combustion-chambers, an air-reservoir, a compressed-air chamber and means whereby the compressed air is at times sent to the air-reservoir or again expanded in the compressed-air chamber and at other times to one of the combustion-chambers, substantially as described.

14. In combination in an internal-combustion engine, a cylinder, a piston and a combustion-chamber therein having a two-cycle action, a second piston and a combustion-chamber therein having a four-cycle action, an air-reservoir, an air-compression chamber in the cylinder and means whereby the compressed air is caused to pass alternately to the air-reservoir or to expand again in the compression-chamber and to one of the combustion-chambers, substantially as described.

15. In combination in an internal-combustion engine, a cylinder, a piston and a combustion-chamber therein having a two-cycle action, a second piston and a combustion-chamber therein having a four-cycle action, the hollow piston-rods having openings to allow at certain times, an air-compression chamber to communicate with the hollow piston-rod through the said openings, said hollow piston-rod communicating with one of the combustion-chambers, substantially as described.

16. An explosion-engine comprising two cylinders, a pair of pistons in each, one piston having a two-cycle action and the other having a four-cycle action, the said pistons being all connected together, substantially as described.

17. In combination, a cylinder, the two pistons therein with their combustion-chambers, one of said pistons having a four-cycle action derived from the combustion-chamber on one side and having alternately on its other side an air-compressing action and an air-transferring action, said transfer of air taking place to the combustion-chamber of the other piston, substantially as described.

702,431. FOLDABLE TRUSS. HARRY E. HOWARD, Chicago, Ill. Filed Jan. 24, 1902. Serial No. 91,008. (No model.)



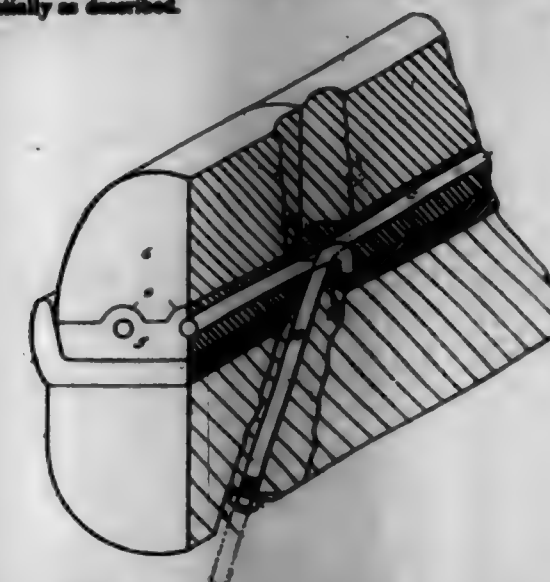
Claim.—1. A truss composed of four legs pivoted together in pairs, one pair adapted to fold between the other pair, the oppositely-placed legs of each pair connected at their upper ends by bolts, the bolt connecting the outer pair being longer than the thickness of said legs whereby they may freely move longitudinally on said bolt when the legs are folded and unfolded, a right strap connecting the outer pair of legs above their pivotal point, a top bar pivoted on the bolt connecting the upper ends of the outer legs and slidably mounted on the bolt connecting the upper ends of the inner legs, and a spreader for the outer legs, all substantially as set forth.

2. In a truss of the character described having two pairs of legs pivoted together, a top bar pivoted between one pair of legs, and an outwardly and downwardly extending catch secured to the under side of the top bar near its free end, said catch adapted to positively engage the bolt connecting the ends of the other pair of legs and to hold the top bar against upward movement, substantially as set forth.

702,432. VEHICLE-TIRE. WILLIAM R. HUFFMAN, Boston, Mass. Filed Nov. 20, 1900. Serial No. 31,008. (No model.)

Claim.—1. A vehicle-tire comprising a base or inner portion of hard rubber and a tread or outer portion of soft rubber, said portions being

permanently united to form a unitary structure, and retaining devices located wholly within the hard-rubber base portion and consisting of retaining-wires located in longitudinal apertures in said base portion, the soft-rubber portion of the tire having no retaining devices located therein, substantially as described.



2. A vehicle-tire, comprising a hard-rubber base and a soft-rubber tread, the base being provided with a longitudinal aperture or apertures to receive a retaining wire or wires and having a corresponding rib or ribs on its outer surface, substantially as described.

3. A vehicle-tire, comprising a relatively thin base of hard rubber provided with longitudinal apertures and with corresponding ribs on its outer surface, and a relatively thick tread portion of soft rubber having its inner surface adapted to fit the outer surface of the base and permanently united thereto, substantially as described.

4. A vehicle-tire provided with a soft-rubber tread and a hard-rubber base, said base having transverse grooves or recesses in its under side, in combination with a channelled rim to receive said tire, a plurality of bars located at intervals transversely of the rim and adapted to fit the recesses of the tire-base, each bar being provided with a shank or projection engaging the rim and having its ends abutting against the flanges of the rim to prevent displacement of the bar, and suitable retaining-wires extending through the tire, substantially as described.

5. The combination with a tire having a soft-rubber tread and a hard-rubber base provided at intervals with transverse recesses, of a wheel having a flange and a channelled rim apertured at suitable intervals, a plurality of cross-bars adapted to fit transversely in the channel and to engage the recesses of the tire-base, each cross-bar being provided with a shank adapted to extend through the corresponding apertures of the rim and flange and threaded at its outer end, and nuts fitting the projecting threaded ends of said shanks and suitable retaining-wires under tension extending through the tire outside of the rim, substantially as described.

6. The combination with a tire having a soft-rubber tread and a hard-rubber base provided at intervals with transverse recesses, of a wheel having a flange and a channelled rim apertured at suitable intervals, a plurality of cross-bars adapted to fit transversely in the channel and to engage the recesses of the tire-base, each cross-bar being provided with a shank adapted to extend through the corresponding apertures of the rim and flange and threaded at its outer end, and nuts fitting the projecting threaded ends of said shanks and suitable retaining-wires under tension extending through the tire outside of the rim, substantially as described.

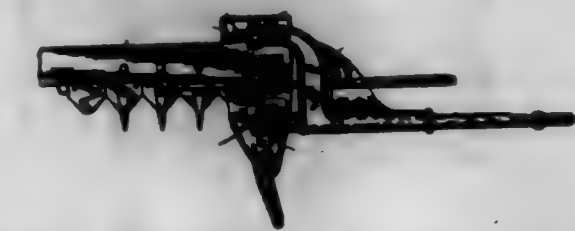
7. The combination with a flange and a channelled metallic rim, of a transverse bar fitting therein and removably connected therewith, said cross-bar being provided with apertures, a longitudinally-apertured elastic tire fitting said rim, and retaining-wires extending through said apertures, one end of each wire being secured in the corresponding aperture of the cross-bar by riveting or otherwise and the other end of each wire extending through a suitable passage in the rim and flange to the interior of the latter, and threaded at its projecting end, and nuts mounted on said threaded ends, substantially as described.

8. A vehicle-wheel, comprising a flange and a channelled metallic rim provided with a cross-bar fitting and detachably connected therewith, said cross-bar being provided with apertures to receive the inner ends of the retaining-wires, an elastic tire fitting said channelled rim and provided with longitudinal apertures, and retaining-wires extending through said apertures, having their inner ends secured in the apertures of the cross-bar and their outer ends extending through passages in the rim and flange and threaded, and nuts mounted on said threaded portions, the flange being provided with shoulder recesses to receive said nuts, substantially as described.

9. In a tire of the character described, the combination with a metallic channelled rim and a longitudinally-apertured elastic tire fitting therein, of retaining-wires, and a cross-bar fitting within the channelled rim

and detachably connected therewith, the inner ends of the retaining-wires being secured to said cross-bar and said cross-bar being provided with inclined seats for the other ends of said wires, which extend over said cross-bar to the inner edge of the wheel, substantially as described.

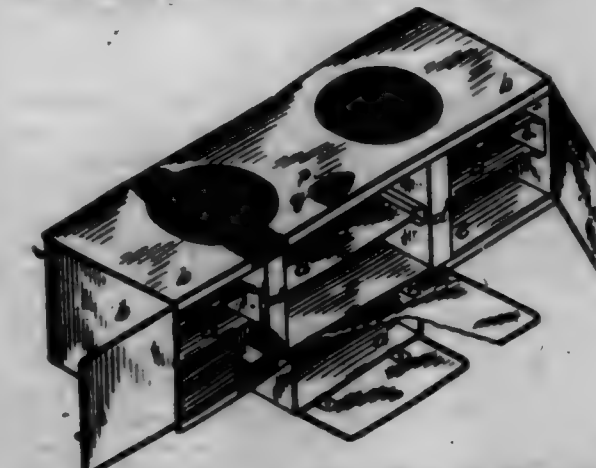
702,433. FINGER-BAR-ADJUSTING DEVICE FOR MOWING-MACHINES. CHARLES C. HUNTER, LAWRENCE, Ind. Filed Feb. 15, 1900. Serial No. 5,304. (No model.)



Claim.—1. The combination, in a mowing-machine, of the finger-bar, the shoe, the frame to which it is attached, two attaching-joints one on each side of said finger-bar, one of said attaching-joints being mounted to be adjusted longitudinally in relation to the finger-bar, whereby said finger-bar may be aligned with the direction of the motion of the outer-bar, substantially as set forth.

2. The combination, in a mowing-machine, of the finger-bar, the shoe, the frame to which the same is attached, bearings on said shoe forming a part of the means of attachment, one of said bearings being slotted and attached to said shoe by means of bolts passing through said slots, a screw-rod projecting from said means of attachment and passing through a suitable eye on said shoe, and a nut on said screw-rod whereby an adjustment of the finger-bar relative to the parts to which it is attached may be secured, substantially as shown and described.

702,434. GAS-RANGE. WILLIAM D. EYMON, Toronto, Canada. Filed Apr. 11, 1901. Serial No. 53,414. (No model.)



Claim.—A gas-stove comprising a casing, two vertical flues dividing the casing into three compartments, each of said compartments being an oven, two outwardly-hinged doors for the two outer ovens, a drop-hinged door for the central oven, and a plate-warming compartment located below the central oven and between the lower ends of the vertical flues.

702,435. STRENGTH-TESTER. GEORGE JAMES and HERBERT HENRIKSEN, Chicago, Ill. Filed Dec. 24, 1900. Serial No. 62,526. (No model.)

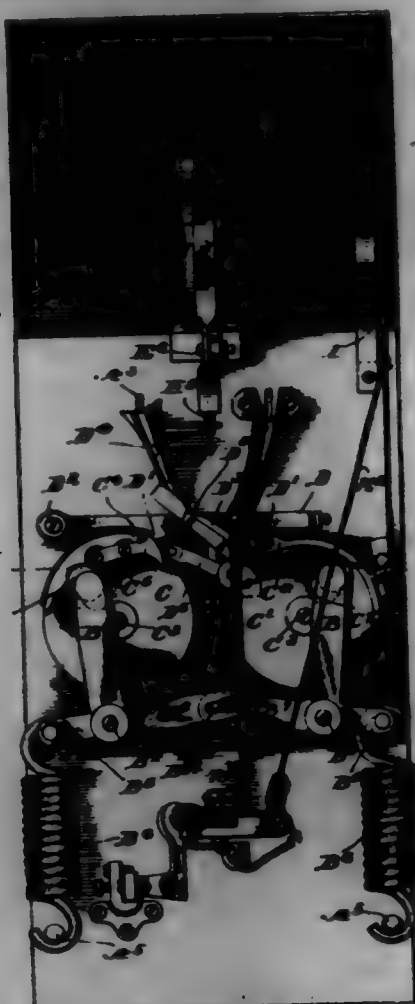
Claim.—1. In a coin-controlled strength-testing mechanism, in combination, two pivoted hand-levers; a connection between said levers; a tension-spring for each of said levers; a pivoted shutter for one of said levers; a stop projection on said shutter; a detent for engaging said stop projection; and a coin-controlled mechanism for withdrawing the detent.

2. In a coin-controlled strength-testing mechanism, in combination, two pivoted hand-levers; a connection between said levers; a tension-spring and a shutter for each of said levers; a stop projection on each of said shutters; a detent-lever having a tooth for engaging each of said stop projections; and a coin-controlled mechanism for withdrawing the detent.

3. In a coin-controlled strength-testing mechanism, in combination, two pivoted hand-levers; a tension-spring for each of said levers; means for connecting the movement of said levers; and a coin-controlled mechanism for releasing the levers to action.

4. In a coin-controlled strength-testing mechanism, in combination, two pivoted hand-levers; a connection between said levers; a tension-spring and a shutter for each of said levers; a stop projection for each of

said shutters; a detent-lever having a tooth for engaging each of said stop projections; a coin-pocket fixed with relation to said detent-lever; a stop-pin in said pocket; and means adapted to engage the coin and move said coin-pocket and said detent-lever.



5. In a coin-controlled strength-testing mechanism, in combination, two pivoted hand-levers; a connection between said levers; a tension-spring and a shutter for each of said levers; a stop projection for each of said shutters; a fixed cam for one of said shutters; a detent-lever having a tooth for engaging each of said stop projections; a coin-pocket fixed with relation to said detent-lever; a stop-pin in said pocket; a lever pivoted with relation to said coin-pocket; and a coin-engaging pin on said lever.

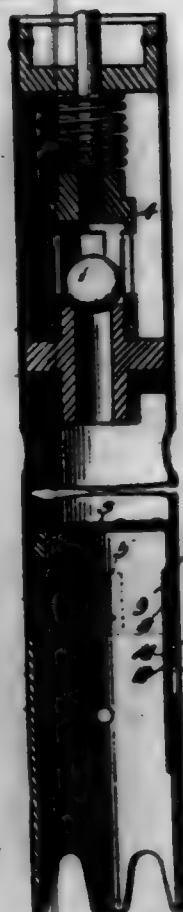
6. In a coin-controlled strength-testing mechanism, in combination, a face-plate having two elongated openings therein; two hand-levers extending through said openings, pivotally mounted with relation to said face-plate; a connection between said levers; a bell-crank on each of said levers; two tension-springs fixed with relation to said face-plate and having connection with said bell-crank levers; a shutter for each of said levers; a stop projection for each of said shutters; a fixed cam for one of said shutters; a pivoted detent-lever having a tooth for engaging each of said stop projections; a coin-pocket fixed with relation to said detent-lever; a stop-pin fixed with relation to the face-plate, extending into said coin-pocket; a lever pivoted with relation to said coin-pocket, which lever is adapted to be engaged by the fixed cam on one of said shutters; and a coin-engaging pin on said lever.

7. In a coin-controlled strength-testing mechanism, in combination, a pivoted hand-lever; a tension-spring; means for preventing the operation of the hand-lever; a coin-controlled mechanism for releasing the hand-lever to action; an indicator-dial; a longitudinally-slidable shaft; a dial-hand fixed to said shaft; a sleeve rigidly mounted on said shaft; a cord extending over said sleeve and connected with said hand-lever; a coil tension-spring surrounding said shaft, adapted to restore said sleeve to its normal position after said sleeve has been rotated by the movement of the hand-lever; a friction-surface adjacent to said sleeve; a spring for sliding said shaft to move said sleeve into frictional engagement with said friction-surface; and a lever and a thumb-latch for releasing said sleeve from its engagement with said surface.

702,486. SAND PUMP AND RAILER. WILLIAM E. JOHNSON, Conneaut, Pa. Filed July 9, 1901. Serial No. 67,572. (No model.)

Claim.—1. In a sand pump and railer, the combination of a cylinder having bayonet-shut at the lower end thereof and a locking-dot, a removable section having an upper reduced end with studs to fit in said lower cylinder end and also provided with a locking-dot to coincide with

that of the cylinder end, the upper portion of the section also being formed with a slot below the locking-dot, a spring-arm on the inner side of the section and extending over the lower slot and having an upper outwardly-projecting head to engage the said locking-dot, and a releasing-lever fulcrumed in the lower slot of the section to engage the spring-arm to release the head thereof from the said locking-dot, the parts all being flush with the exterior of the cylinder and section.



2. The combination of a stationary and a removable member, each of said members having slots therein adapted to register one with the other, the removable member having a slot disposed below said registering slot, a spring-arm fastened to the inner face of said removable member below the second slot and adapted to extend thereover, said arm having a head adapted to project through the registering slots in the two members and lock them together, and a lever fulcrumed in said slot and adapted to engage said arm.

3. The combination of a cylinder having an aperture near the lower end thereof, a removable section having an upper reduced end to fit in said cylinder and provided with an aperture adapted to register with the aperture in the cylinder, said section also having a slot disposed therein below said aperture, a spring-arm attached to the lower face of said section below said slot and extending thereover, said arm having a head adapted to project through the registering apertures in the cylinder and removable section and lock said parts together, and a lever fulcrumed in said slot and adapted to engage said arm.

702,487. ELECTRIC CIGAR-LIGHTER. WILLIAM F. KIMBLE, Auburn, Ind. Filed Oct. 27, 1900. Serial No. 24,567. (No model.)



Claim.—1. In an electric cigar-lighter, a tubular supporting-stand and provided upon its front face with an insulated bracket for the spark-lever, and with a fixed snuffing-cup; a vertically-arranged wick-tube pivotally suspended from said stand, having its upper end in co-operative relation with said snuffing-cup, and provided upon its lower end with a detachable tubular extension; an oil-receptacle removably mounted on the lower end of the wick-tube; a striking-plate fixed on the upper end of the wick-tube to prevent mutilation thereof by the spark-lever; a pivoted spark-lever in co-operative relation with the said striking-plate; and a wind-shield having a central notched tongue by which it is detachably mounted on said wick-tube as described.

2. The combination in an electric cigar-lighter of a tubular stand, having a fixed snuffing-cup and a pendant pivoted spark-lever; a vertical wick-tube pivotally suspended from the said stand, having an offset at its lower portion for the purpose specified; and provided with a

detachable pendant tubular extension; a striking-plate on the upper end of said wick-tube to prevent mutilation of said tube in co-operative relation with the said spark-lever; and a wind-shield detachably mounted on the said wick-tube as shown by means of a centrally-arranged tongue or lug.

3. In an electric cigar-lighter, the combination of a tubular stand, having a fixed snuffing-cup and a pendant pivoted spark-lever; a vertical wick-tube pivotally suspended from the said stand, having an offset at its lower portion for the purpose specified, and provided with a detachable pendant tubular extension; and a striking-plate on the upper end of said wick-tube to prevent mutilation of said tube, in co-operative relation with the said spark-lever.

702,488. CIGAR-LIGHTER. WILLIAM F. KIMBLE, Auburn, Ind. Filed June 28, 1901. Serial No. 66,577. (No model.)



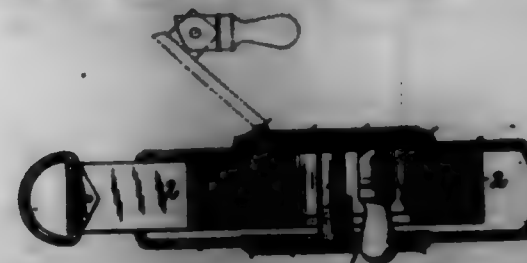
Claim.—1. A cigar-lighter consisting of a pivoted hanger-bracket; a sleeve pivotally suspended in said bracket; a wick-tube suspended in said sleeve and adapted for a limited vertical movement therein; a bellows handle removably mounted on the lower end of said wick-tube; a ventilated flame-shield mounted on the upper end of the said sleeve and adapted to normally maintain the flame in the interior thereof.

2. In a cigar-lighter a pivoted hanger-bracket; a supporting-sleeve pivotally suspended from said bracket; a wick-tube movably mounted in said sleeve; an oil-receptacle handle removably mounted on the lower end of said wick-tube; a flame-shield mounted on the upper end of said sleeve provided upon its upper end with a ventilated air-chamber within which a small flame is normally maintained.

3. In a cigar-lighter the combination of a wick-tube; an insulating pivotally-suspended sleeve slightly connected with the said wick-tube; a flame-shield mounted on the upper end of the said sleeve having an open-topped and ventilated chamber adapted to normally maintain a low flame therein and means for operating the said slidable sleeve.

4. In a pivoted cigar-lighter a pivotally-suspended sleeve; a wick-tube slidably mounted within said sleeve; means for so connecting the said sleeve and wick-tube that the wick-tube will be automatically elevated within said sleeve by the act of raising the lighter to the normal position for lighting a cigar, and will resume its normal position in said sleeve by gravity; and a flame-shield mounted on said sleeve within which a small flame is normally maintained.

702,489. TAP-REEL. WILLIAM KIMBLE, Hoboken, N. J., assignor to the Krouff & Bess Company, a Corporation of New Jersey. Filed Jan. 8, 1901. Serial No. 62,665. (No model.)



Claim.—In a tap-reel, the combination with a tap-case, and a tap-drum having registering openings through its opposite plates near one edge thereof, of a crank of a length equal to the width of the drum blinged externally to one drum-plate at the edge thereof diametrically opposite to the openings in the plate, and a knuckle-jointed handle projecting from

the outer end of the crank, when extended, and passing through the openings in both of the tap-drum plates, and projecting in and slightly beyond the opposite plate when closed, substantially as, and for the purpose set forth.

702,440. GRAIN-SPOUT. BERNARD KIMBLE, Hoboken, Minn. Filed July 31, 1901. Serial No. 70,301. (No model.)



Claim.—In a grain-spout having an opening formed through the lower side thereof, a wire-mesh screen adapted to be secured within said opening, a trough-shaped secondary spout arranged below said screen, guideways secured to each edge of the secondary spout, bolts adapted to slide within said guideways, levers secured to the spout proper, into which the ends of the bolts are adapted to be shot to secure the secondary spout to the spout proper, a gate-valve arranged within the spout near the receiving end, means for raising and lowering said valve, a pivoted cover pivoted to the side of the spout and adapted to open or close the discharge end of the same, latches adapted to secure said cover in either its raised or lowered position, substantially as and for the purpose set forth.

702,441. CENTRIFUGAL SEPARATOR. PERLEY L. KIMBALL, Hoboken, N. J. Filed Sept. 12, 1900. Serial No. 29,323. (No model.)



Claim.—1. In combination, the separator-body, the separator-cover secured to the top of the body, and the partition smaller in diameter than the interior diameter of the body; said partition being separable from both the body and the cover and supported at feet vertically and laterally by the floor of the separator-body and raised a short distance above the same, and at top laterally by the separator-cover, all substantially as described and for the purposes set forth.

2. In combination, the separator-body, the separator-cover secured to the top of the body, and the partition, open at one end, smaller in diameter than the interior diameter of the body; said partition being separable from both the body and the cover and supported at feet vertically and laterally by the floor of the separator-body and raised a short distance above the same, and at top laterally by the separator-cover, and openings formed through the bottom of said partition, all substantially as described and for the purposes set forth.

3. In combination, the separator-body; the separator-cover; and the longitudinally-arranged, open-top partition separable from both body and cover and provided with sets of flow-passage at different distances from the center of rotation and supported at feet vertically and laterally by a plate entering the floor of the separator-body and at the top laterally by the separator-cover; all substantially as described and for the purposes set forth.

4. In combination, the separator-body; the separator-cover; the

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partition separable from both body and cover and supported at foot vertically and laterally by the floor of the separator-body and at top laterally by the separator-cover; and the open-bottom partition supported laterally and vertically at foot by the first-named partition and at top laterally by the separator-cover, all substantially as described and for the purposes set forth.

5. In combination; the separator-body; the separator-cover; the partition separable from both body and cover and supported at foot vertically and laterally by the floor of the separator-body and at top laterally by the separator-cover; and the open-bottom partition, separable from both body and cover, and supported laterally and vertically at foot by the first-named partition and at top laterally by the separator-cover; all substantially as described and for the purposes set forth.

6. In combination; the separator-body; the separator-cover; the corrugated, open-top partition separable from both body and cover provided with sets of flow-passages at different distances from the center of rotation and supported at the foot laterally and vertically by a pin entering the floor of the separator-body and at the top laterally by the separator-cover; and the corrugated open-bottom partition separable from both body and cover, provided with sets of flow-passages at different distances from the center of rotation, and supported at the foot laterally and vertically by the floor of the said first-mentioned partition and at the top by the separator-cover, all substantially as described and for the purposes set forth.

7. In combination; the separator-body; the separator-cover provided with the stop-pin-socket; the two partitions both separable from body and cover and both supported laterally at top by the cover; and the stop-pin attached to one of the partitions and intermeshing with the other partition; all substantially as described and for the purposes set forth.

8. In a separator the corrugated partition and reinforcing-rings therefor passing through the inner apices of the corrugations.

9. In a separator the corrugated partition and reinforcing-rings therefor located in notches formed in the outer apices.

10. The combination in a separator with the body, the removable partitions located one within the other in said body, of the reinforcing-rings secured to the inside of the inner partition and to the outside of the outer partition.

11. The combination in a separator with the body and the longitudinally-corrugated partitions located one within the other in said body, of reinforcing-rings for the inner partitions passing through the inner apices of the corrugations and reinforcing-rings for the outer partition located in notches formed in the outer apices.

702,442. GEARING FOR MOWING-MACHINES. WILLIAM A. KIRBY, Newbury, N. Y. Filed Jan. 31, 1902. Serial No. 98,051. (No model.)



Claim.—In gearing for mowing-machines, the combination with the main shaft, and the carrying-wheels for driving said shaft, of a bevel-gear loose on the shaft and having a pawl-and-ratchet engagement with one driving-wheel, a second bevel-gear fast on the shaft opposite the first bevel-gear, one or more bevel-pinions interposed between the bevel-gears, a train of gears one of which carries the bevel pinion or pinions, and pawl-and-ratchet devices interposed between the shaft and the other driving-wheel, substantially as set forth.

702,448. SURGICAL INSTRUMENT. LOUIS R. KRATZMUELLER, Chicago, Ill. Filed May 15, 1901. Serial No. 90,346. (No model.)

Claim.—1. A surgical instrument comprising a pair of jaws pivoted together and each having a shank, one of the shanks having a laterally-extending part lying in the plane of its pivotal movement with said shank, and the other shank having a pair of members which have a resilient action toward each other and against opposite sides of said laterally-extending part, said members being adapted to control the relative pivotal position of said jaws through frictional contact with the sides of said laterally-extending part.

2. A surgical instrument comprising a pair of jaws pivoted together and each having a shank, one of the shanks having a laterally-extending part lying in the plane of its pivotal movement with said shank, and having a trigger extending oppositely to said laterally-extending part, and the other shank having a pair of members which have a resilient action toward each other and against opposite sides of said laterally-extending part, said members being adapted to control the relative pivotal position of said jaws through frictional contact with the sides of said laterally-extending part.



3. A surgical instrument comprising a pair of jaws pivoted together and each having a shank, one of the shanks having a laterally-extending part lying in the plane of the pivotal movement of each shank, and the other shank being formed of resilient material bent upon itself and around said laterally-extending part in suitable manner to bear against each side of same and through frictional contact with opposite sides of said laterally-extending part, to control the relative pivotal positions of said jaws.

4. A surgical instrument comprising a pair of jaws pivoted together and each having a shank, one of said shanks being bent upon itself to form a laterally-extending bight and thence continuing to form a trigger extending oppositely to said bight, and the second shank bearing against the side of and extending rearward of said bight, being thence bent upon itself to form a handle, thence returning across and bearing against the opposite side of said bight and having its free end hooked over the opposite part of said second shank forward of said bight.

5. A surgical instrument comprising a pair of jaws pivoted together and each having a shank, one of the shanks having a laterally-extending part lying in the plane of the pivotal movement of each shank, and the other shank having a member bearing against each side of said laterally-extending part and through frictional contact therewith controlling the relative pivotal positions of said jaws; the pivotal connection of the jaws consisting of a pin rigid on one jaw and having an unthreaded end projecting loosely into a recess in the other jaw and adapted for freely disconnecting the jaws in the manner specified when said laterally-extending part is withdrawn free from the members bearing against its sides.

702,444. SHOW-CASE OR SHOW-FRONT. CHARLES F. KERR, Cleveland, Ohio. Filed May 10, 1901. Serial No. 89,686. (No model.)



Claim.—1. In a show-case or show-front, the combination, with two glass plates arranged at an angle to each other with one of the said plates overlapping an edge of the other plate, of a fastening device instrumental in holding the said plates together and comprising a metal strap attached at opposite ends to the different plates, respectively, with the central portion of the straps of spring metal and bowed laterally, substantially as and for the purpose set forth.

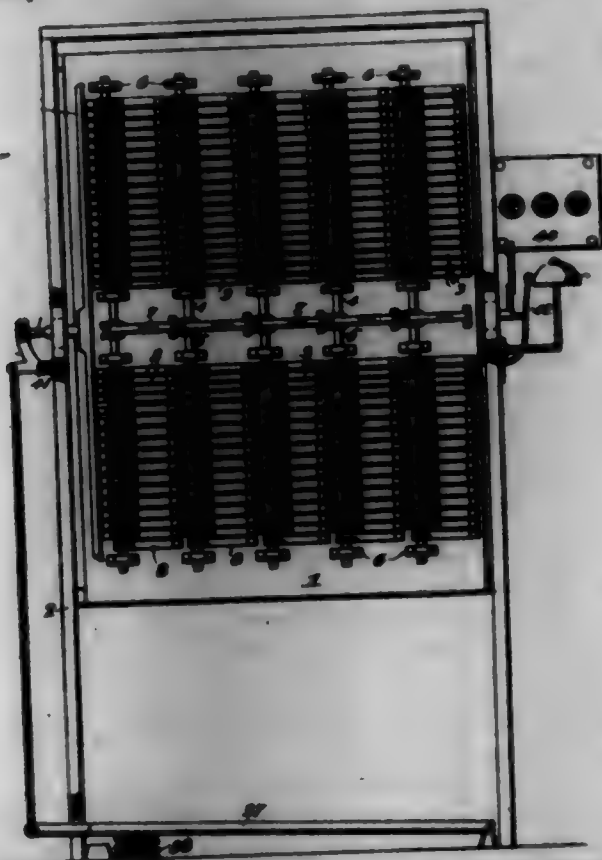
2. In a show-case or show-front, the combination, with an upright glass plate and a top plate resting upon and overlapping the upper edge of the said upright plate, of fastening devices for attaching the said top plate to the said upright plate, which fastening devices comprise, respectively, a metallic strap attached at opposite ends to the inner side of the different plates, respectively, and having its central portion of spring metal bowed inwardly to form a spring, and the top-plate-connected end of the strap being separated a short distance from the upright plate, substantially as and for the purpose set forth.

3. In a show-case or show-front, the combination, with an upright plate and a top plate overlapping and resting upon the said upright plate, of a spring-metal strap arranged at the inner sides of the said plates at the corner formed between the plates, which strap has its upper end extending along the under side of the top plate and provided with a screw-threaded hole so as to form a nut and has its opposite end extending along the inner side of the upright plate and provided with a hole extending therethrough so as to form an ear, which strap is bowed inwardly between its ends so as to form a spring, a screw extending through the top plate and engaging the hole in the nut-forming member of the strap and having a head arranged at the upper or outer side of the top plate, another screw extending through the upright plate and through the hole in the ear-forming member of the strap and having a head arranged at the outer side of the said upright plate, and a nut mounted upon the last-mentioned screw at the inner side of the strap.

702,445. PROCESS OF MAKING MORDANT COLORS. MARTIN LANGE and TADEUSZ BULLEWIK, Amsterdam, Netherlands. Filed Dec. 11, 1900. Serial No. 33,473. (Specimens.)

Claim.—The herein-described process of making a yellow-mordant color, by condensing 1,8 dioxynaphthalene with a substance containing the carboxylic-acid molecule; whereby said carboxylic-acid radical is bound to the nucleus of the 1,8 dioxynaphthalene, substantially as described.

702,446. VOTING-MACHINE. JOHN E. MARARA and WILLIAM F. REY, Elmhurst, Wash. Filed July 22, 1901. Serial No. 62,302. (No model.)



Claim.—1. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, each intermediately interrupted to form two parts, keys mounted on both parts, and an oscillating crank for each shaft, the said crank being capable of engaging with either or both shaft parts, substantially as set forth.

2. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts, a register carried by each key, means for oscillating said shafts and depressing the keys thereon, and connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, substantially as set forth.

3. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts, a register carried by each key, cranks for oscillating said shafts and depressing the keys thereon, and connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, substantially as set forth.

4. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts, a register carried by each key, means for oscillating said shafts and depressing the keys thereon, and pawl-and-ratchet connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, substantially as set forth.

5. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts, a register carried by each key, cranks for oscillating said shafts and depressing the keys thereon, and pawl-and-ratchet connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, substantially as set forth.

6. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, means for oscillating said shafts and depressing the keys thereon, connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

7. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, cranks for oscillating said shafts and depressing the keys thereon, connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

8. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, means for oscillating said shafts and depressing the keys thereon, pawl-and-ratchet connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

9. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, cranks for oscillating said shafts and depressing the keys thereon, pawl-and-ratchet connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

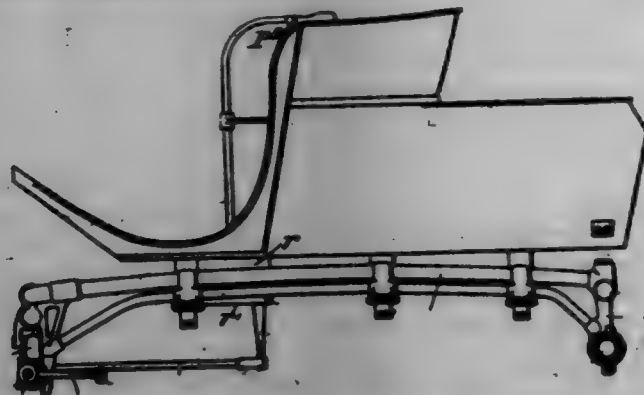
10. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, a register carried by each key, means for oscillating said shafts and depressing the keys thereon, connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

11. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, a register carried by each key, cranks for oscillating said shafts and depressing the keys thereon, connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

12. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, a register carried by each key, means for oscillating said shafts and depressing the keys thereon, pawl-and-ratchet connections between said keys and shafts to allow of a key being depressed without oscillating its supporting-shaft, and connections actuated by the depression of a key to disengage the oscillating connection from all the remaining keys in the same line, substantially as set forth.

13. As an improvement in automatic voting-machines, the combination of the following elements: a base, a plurality of shafts thereon, keys fulcrumed on said shafts in lines at right angles to the shafts, a register carried by each key, cranks for oscillating said shafts and depressing the keys thereon, pawl-and-ratchet connections between said keys and shafts

and free, a link connected at one end by a universal joint with said arm and at the other end by a universal joint with said steering-frame at a point at one side of its axis, a steering-shaft, and a gear mounted on said shaft and meshing with the first-named gear.



2. In a vehicle, the combination with a running-gear frame, and an axle and wheels mounted to oscillate with respect to said axle, of a steering-frame supported by said running-gear frame upon a vertical axle and connected by links with said wheels, a skew-gear supported upon a horizontal axle below the vehicle-body and having an arm to swing to and fro, a link connected at one end by a universal joint with said arm and at the other end by a universal joint with said steering-frame at a point at one side of its axis, a vertical steering-shaft, and a gear mounted on said shaft, and meshing with said skew-gear.

3. In a vehicle, the combination with a body, a steering-shaft supported upon said body and provided with a skew-gear, a second gear supported by said body in mesh with the first-named gear, an arm carried with said last-named gear, and a link connected with said arm, of a steering-frame having an arm at substantially right angles to the direction of the link and connected therewith with freedom of movement in different directions, an axle, wheels mounted to oscillate with respect to said axle, and links connecting the supports of said wheel with said steering-frame at separated points on opposite sides of a central line.

4. In a vehicle, the combination of a body, a steering-shaft and co-operating skew-gears mounted upon said body, a running-gear frame comprising a horizontally-pivoted axle adapted to have movement in a vertical plane, independent steering-wheels carried by said axle, a steering-frame pivoted to said axle and having the axis of its pivot substantially in the plane of movement of the axle, a fixed arm on said steering-frame, connections between said arm and one of the skew-gears permitting free movement in different directions and connections from said frame to said wheels.

5. In a vehicle, the combination of a running-gear frame comprising a horizontally-pivoted axle, wheels mounted to oscillate with respect to said axle, a steering-frame pivotally mounted upon the axle and having a plurality of arms diverging from the pivotal point, connections between two of said arms and the wheels, a vehicle-body, a steering-shaft mounted upon said vehicle-body and provided with a gear, a skew-gear supported by the body and in mesh with the gear of the steering-shaft, an arm carried with the last-named gear, and connections between said arm and the third arm of the steering-frame permitting free movement in different directions.

6. In a vehicle, the combination of a running-gear frame comprising a relatively movable axle provided with wheels pivotally mounted to oscillate with respect to the axle, a vehicle-body spring supported with relation to the axle, a steering-frame pivoted to said axle on a substantially vertical axis, a steering-shaft mounted upon the body and bearing a gear, an arm adjustably mounted with relation to said shaft, a segmental skew-gear fixed to said arm and meshing with the gear of the steering-shaft, connections between said arm and the steering-frame permitting free movement in different directions, and connections between the steering-frame and the wheels.

7. In a vehicle, the combination of a running-gear frame including an axle relatively movable in a vertical plane, wheels mounted to oscillate with respect to said axle, a series of arms diverging from a common center, said central point forming a pivotal connection between the arms and axle, a vehicle-body spring supported with relation to the axle, a steering-shaft supported upon the body and provided with a gear, a skew-gear meshing with the gear of the steering-shaft adjustably toward and away from said gear and having a dependent arm, connections between said arm and one of the diverging arms permitting free movement in different directions, and connections between the other arms and the wheels.

8. In a vehicle, the combination of a running-gear frame including an axle relatively movable in a vertical plane, wheels mounted to oscillate with respect to said axle, a series of arms diverging from a common center, said central point forming a pivotal connection between the arms and axle, the pivot being located below the axle substantially in the plane

of the axle, a vehicle-body, a steering-shaft supported upon said body and provided with a gear, a skew-gear meshing with the gear of the steering-shaft mounted upon an adjustable pivot and having a dependent arm, connections between said arm and one of the diverging arms permitting free movement in different directions, and connections between the arms and the wheels.

9. In a vehicle, the combination of a running-gear frame including an axle relatively movable in a vertical plane, wheels mounted to oscillate with respect to said axle, a vehicle-body spring supported upon the running-gear frame, a steering-frame comprising a series of divergent arms, the frame as a whole pivoted to the axle of the running-gear frame and having its axis obliquely disposed to the axis of the axle-pivot, a pair of skew-gears mounted upon the body and adjustable with relation to each other, a steering-shaft secured to one of said gears, an arm dependent from the second of said gears, connections between the arm and the steering-frame, and connections between the steering-frame and the wheels.

10. In a vehicle, the combination of a running-gear frame including an axle member pivoted for vertical oscillation and bearing wheels mounted to oscillate with respect to said axle, a pivoted steering-frame adapted to oscillate in a substantially horizontal plane, and having its axis substantially in the plane of movement of the axle, a steering-shaft, a gear secured thereto, a skew-gear in mesh with the gear of the steering-shaft and mounted upon a rotarily-adjustable pivot, connections between the last-named gear and the steering-frame permitting free movement in different directions, and connections between the steering-frame and the wheels whereby relative movement is permitted between the steering-shaft and the steering-frame and between the axle and the wheels.

11. In a vehicle, the combination of a spring-supported body, a steering-shaft and back-lock transmitting mechanism mounted upon said body, a running-gear frame, an axle relatively movable in a vertical plane, wheels pivotally mounted to oscillate with respect to the axle, a steering-frame pivotally mounted on the axle, positive link connections between said frame and said wheels, and positive, but flexible, link connections between said frame and said transmitting mechanism on the body.

12. In a vehicle, the combination of a spring-supported body, a steering-shaft and back-lock transmitting mechanism mounted upon said body, a running-gear frame, an axle relatively movable in a vertical plane, wheels pivotally mounted to oscillate with respect to the axle and positive, but flexible, connections between said back-lock transmitting mechanism and said wheels.

13. In a vehicle, the combination of a spring-supported body, a steering-shaft and back-lock transmitting mechanism mounted upon said body, a running-gear frame, wheels pivotally mounted to oscillate with respect to said frame, and positive, but flexible, connections between said back-lock transmitting mechanism and said wheels.

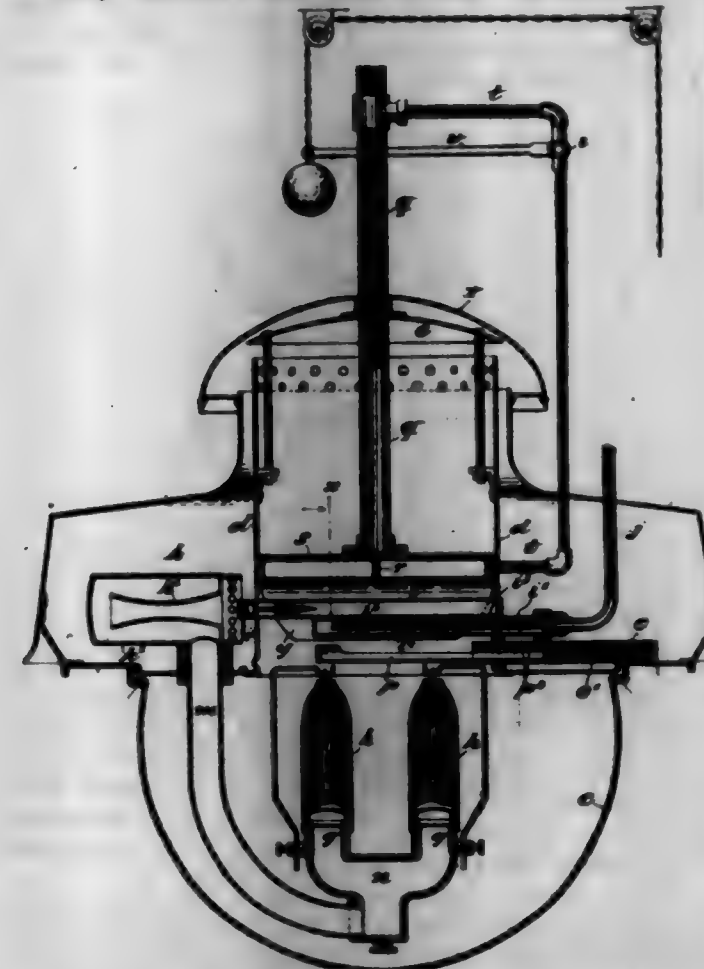
14. In a vehicle, the combination of a spring-supported body, a steering-shaft and back-lock transmitting mechanism mounted upon said body, an axle relatively movable in a vertical plane, wheels pivotally mounted to oscillate with respect to the axle, and operative link connections between said back-lock transmitting mechanism and said wheels having joints capable of movement in different directions whereby positive action is secured with flexibility to accommodate the relative movements of the body and axle.

15. In a vehicle, the combination of a spring-supported body, a steering-shaft and back-lock transmitting mechanism mounted upon said body, an axle relatively movable in a vertical plane, wheels pivotally mounted to oscillate with respect to the axle, a vertical arm secured to said back-lock transmitting mechanism and connections between said arm and said wheels including links and levers connected by joints capable of movement in different directions whereby positive action is secured with flexibility to accommodate the relative movements of the body and axle.

16. In a vehicle, the combination of an axle, a body-spring supported with reference to the axle, a steering-shaft having a skew-gear at its lower end, bearings for said shaft mounted on said body, a gear-center also mounted on the body in mesh with said skew-gear, a substantially vertical arm connected with said gear-center, a substantially horizontal link connected to said arm, a second arm connected to said link and substantially at right angles therewith, said axle pivoted on said axle, and operative connections from said last-named arm to said axle.

17. In a vehicle, the combination of an axle, a body-spring supported with reference to the axle, a steering-shaft having a skew-gear at its lower end, bearings for said shaft mounted on said body, a gear-center also mounted on the body in mesh with said skew-gear, a substantially vertical arm connected with said gear-center, a substantially horizontal link connected to said arm by a joint having freedom for movement in different directions, a second arm also connected to said link by a joint having freedom of movement in different directions and substantially at right angles with said link, said axle pivoted on said axle and operative connections between said second arm and said axle and axle where by said axle and axle are moved together but through different angles.

702,449 HYDROCARBON-BURNER. ARTHUR MEARS, New York, N. Y., assignor to the Pan American Light Company, of New Jersey. Filed Apr. 2, 1901. Serial No. 54,019 (No model.)



Claim.—1. In a hydrocarbon-lamp, the combination with the drum of the lamp, a vaporizer for the oil situated within said drum, a burner or burners below said vaporizer, and means for mixing air with said vapor and supplying it to the burner, of means for primarily heating the vaporizer, said means comprising a tubular guide fixed at one end radially in the wall of the drum below the level of the vaporizer, a trough to contain a volatile liquid mounted in the guide, said trough and tube having igniting apertures which register when the trough is pushed in under the vaporizer, and means for guiding said trough in its movements in the tube, substantially as set forth.

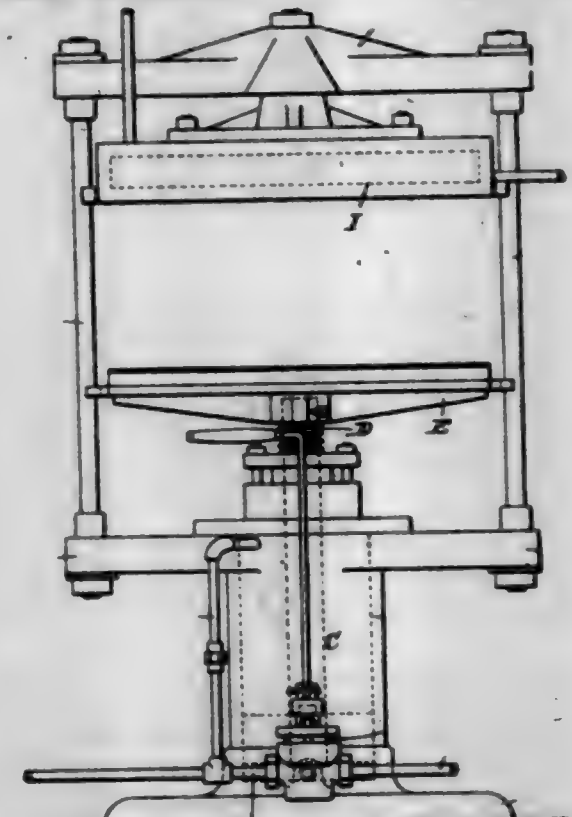
2. In a hydrocarbon-lamp, the combination with the drum of the lamp, a vaporizer in the drum, a burner below the vaporizer, a mixer in operative relation to the vaporizer, and a conduit connecting the mixer and burner, of a tubular guide secured in the drum in a radial position and provided with a slot and a hole or holes, of the trough slidably mounted in the guide and provided with a thumb-piece engaging the slot in the guide, and a hole or holes, adapted to register with the holes in the guide when the trough is pushed in, substantially as set forth.

3. In a hydrocarbon-lamp, the combination with the drum of the lamp, the burner or burners thereunder, the vaporizer in the drum above the burner, said vaporizer having its outlet or discharge exterior to the drum, a mixer exterior to the drum and in operative relation to the vaporizer, said mixer comprising an outer casing and an inner tubular receiver, said receiver being contracted at its middle and flared at its ends, and a pipe leading from the lower side of said outer casing to the lower portion of the burner, substantially as set forth.

4. In a hydrocarbon-lamp, the combination with the drum, the burner or burners below the drum, a transverse vaporizer above and over the burner, a mixer connected with the vaporizer, and a pipe to conduct the mixed vapor and air to the burners, of means for primarily heating the vaporizer, said means consisting of a guide extending into the drum below the vaporizer, its receiving and being exterior to the drum, and a trough to contain a combustible slidably mounted in said guide and extending out into the guide exterior to the drum, said guide and trough having coincident holes for igniting the combustible, substantially as set forth.

5. In a hydrocarbon-lamp, the combination with the drum and the vaporizer extending across the same diametrically, of a burner-tube extending across said drum above the vaporizer and fixed rigidly in the drum, an upright pipe in the axis of the drum and forming the suspending stem of the lamp, the small jet-tube at the lower end of the said pipe to provide a permanent jet, and means for admitting gas to the burner-tube, substantially as set forth.

702,450. METHOD OF FINISHING THE SURFACE OF LEATHER. CHARLES J. MILLER, Philadelphia, Pa. Filed May 2, 1902. Serial No. 106,578 (No specimens.)



Claim.—The hereinbefore-described method of finishing the surface of leather, which consists in pressing the leather between two parallel surfaces, one or both of which are heated.

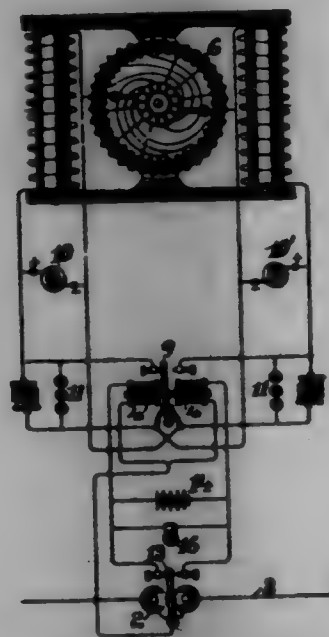
702,451. FOLDING OPERA-CHAIR. ALBERT R. MILLER, Canal Dover, Ohio, assignor to the A. R. Miller Seating Co., Canal Dover, Ohio. Filed May 25, 1901. Serial No. 61,578 (No model.)



Claim.—1. A folding chair comprising a suitable standard bifurcated at its upper end, a seat, brackets secured to the bottom thereof, a pivot-bolt passing through the brackets and the bifurcated portion of the standard, extensions on said brackets, a spring for automatically throwing the seat out of operative position comprising oppositely-disposed members looped around the pivot-bolt, and extended in opposite directions to respectively engage the standard and the seat-bottom, a back, oppositely-disposed brackets on said back pivotally connected to the standard, downwardly-extending projections on the brackets, springs on the standard adapted to normally throw the back into vertical position, upwardly-extending projections also on the brackets, adapted to be engaged by the extensions on the seat-bracket, and stops on the standard adapted to limit the forward movement of the back.

2. A folding chair comprising a suitable standard bifurcated at its upper end, a seat-section, brackets thereon, a pivot-bolt extending through said brackets and the bifurcated portion of the standard, a spring coiled around the pivot-bolt and adapted to normally hold the seat in vertical position, a back, brackets thereon, a pivot-bolt extending through the bifurcated portion of the standard and through the brackets on the back, stops on the standard, downwardly-extending projections on the back-brackets, extensions on the seat-brackets, said projections being adapted to engage the extensions on the back-brackets to automatically incline the back when the seat is lowered.

702,452. ELECTRIC SYNCHRONOUS APPARATUS. WILLARD M. MINER, Plainfield, N. J. Filed July 25, 1901. Serial No. 69,642. (No model.)



Claim.—1. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination of a vibrator, two generators brought into action in turn thereby, a synchronizing circuit to whose opposite terminals said generators are respectively connected by poles of the same sign, and connections from the poles of said batteries of the opposite sign to the two portions of the vibrator respectively, as and for the purpose set forth.

2. The combination in a synchronizing apparatus for telephonic, telegraphic and other purposes, of a vibrator, a number of actuating-magnets therefor, a main-line relay having a vibrating tongue controlling the action of said magnets as to keep the vibrator in oscillation in time with the reversals of current through the relay, two local batteries or generators connected respectively by poles of the same sign to contacts closed in alternation by said vibrator, and a local synchronizing-circuit having its opposite terminals connected respectively to portions of said battery of the same sign, as and for the purpose described.

3. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described of the vibrator, two battery or generator circuits closed alternately thereby, an electric motor the terminals of whose armature-circuit are connected respectively to poles of said generators of the same sign, the remaining poles of the generator being connected respectively to the two portions of the vibrator but with the same polarity, and field-magnets for said motor retained in shunt or branches respectively from said local generators.

4. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described of a vibrator having two sets of contacts closed in alternation to batteries or generators whose circuits are closed by said contacts, a synchronously-operating motor, an armature therefor through which the currents from said batteries are made to flow in alternation by the operation of the vibrator, but in opposite directions, and field-magnets for said motor maintained in shunt or branches taken from the generator-circuits at points between said generators and the vibrator-contacts.

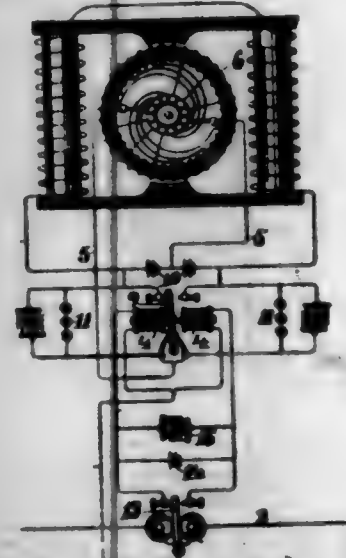
702,453. ELECTRIC SYNCHRONOUS APPARATUS. WILLARD M. MINER, Plainfield, N. J. Filed July 25, 1901. Serial No. 69,643. (No model.)

Claim.—1. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described of a synchronous vibrator, a pair of actuating-magnets therefor, a synchronizing-relay and contacts and connections as described whereby said relay may close and open short or short circuits for a suitable source of energy, around said vibrator-magnets in turn, as and for the purpose described.

2. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described, of a vibrator, a local synchronizing-circuit controlled thereby, an actuating magnet or magnets for the vibrator, a synchronizing-relay responsive to pulsations or changes of electrical condition periodically produced upon a main line and contacts and connections whereby the relay-lever may alternately open and close a shunt or circuit for a suitable source of energy around the vibrator-magnets in turn, as and for the purpose described.

3. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described of a vibrator controlling a local synchronizing-circuit and a main-line relay responsive to po-

litical reversals of current on a main line, actuating-magnets for the vibrator provided with circuits and connections to the relay-contacts and to a suitable generator whereby a short circuit for said generator may be closed around said magnets alternately, and a spark-preventing device in a shunt across the terminals of one or both magnets for the vibrator, as and for the purpose described.



4. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination with the vibrator and its actuating-magnets, of the line-relay, a suitable source of electric energy and contacts and connections as described whereby a short circuit for the generator-current may be completed around said magnets alternately and synchronously with the main-line pulsations and an electric lamp placed in a shunt across terminals of the vibrator-actuating magnets.

5. In a synchronizing apparatus for telephonic, telegraphic and other purposes, the combination substantially as described with supply-wires or connections 18 leading from a source of any voltage or potential, of two or more lamps placed in series across said wires, a vibrator having a pair of actuating-magnets, a relay controlling the flow of current through said vibrator-magnets in turn and a local supply-circuit for said magnets formed by a shunt around one or more of said lamps and including contacts of the relay, as and for the purpose described.

6. In a synchronizing apparatus, the combination with an electric motor of a vibrator, generators connected alternately to the armature of the motor by the action of said vibrator and a field-magnet circuit for the motor supplied by a shunt from the outside terminals of said generators.

7. In a synchronizing apparatus, the combination of an electric motor, a local generator, a vibrator controlling the connection of the generator and motor-armature, and a field-magnet circuit connected to said generator but in shunt to the armature and vibrator contacts.

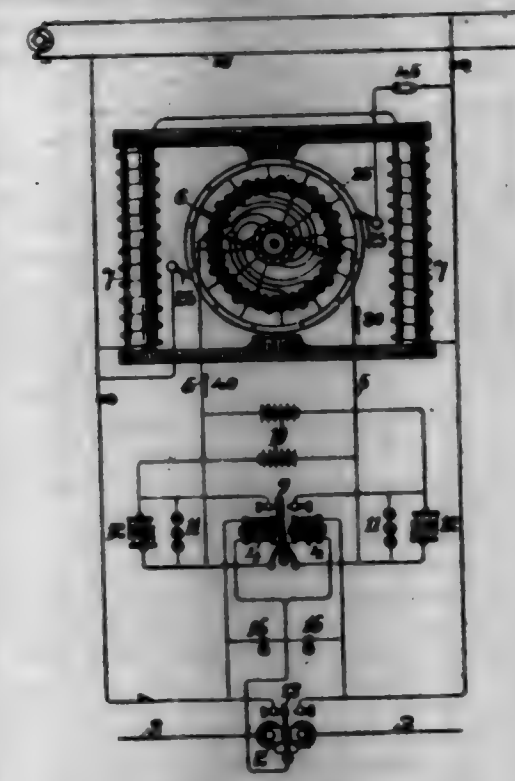
702,454. ELECTRIC SYNCHRONOUS APPARATUS. WILLARD M. MINER, Plainfield, N. J. Filed July 25, 1901. Serial No. 69,644. (No model.)

Claim.—1. The combination substantially as described with a synchronous motor, of a main-line relay in a synchronizing-circuit, an electromagnetic vibrator having its operating-magnets in circuits leading from a suitable electric-power circuit through the contacts of the relay, an armature-winding for the motor, two local batteries and connections from the same to the contacts of the vibrator adapted to be closed to cause a reversal of current-flow in the armature-winding by the action of said batteries alternately, and a separate armature-winding supplied from the electric-power circuit in multiple with the operating-magnets of the vibrator.

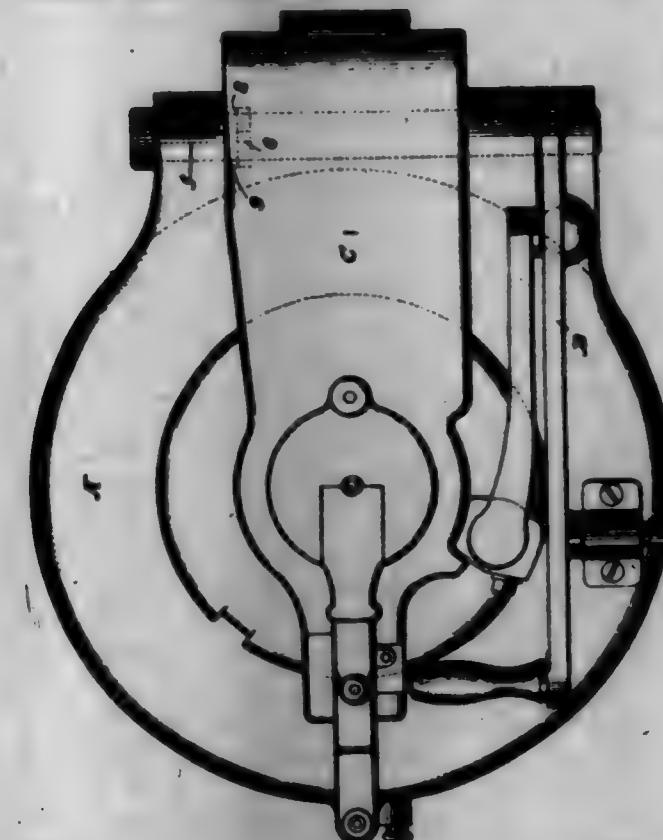
2. In a synchronizing apparatus for an electric motor, the combination substantially as described of a main-line relay, an electromagnetic vibrator, a power-circuit supplying energy to the vibrator magnets through the contacts of the relay, a synchronizing-circuit on the motor-armature, a local battery or generator from which currents are made to flow alternately in opposite directions through the said synchronizing-winding by the action of the vibrator, an independent armature-circuit for the motor, a field-winding therefor and connections for supplying said independent armature and field with current from the power-wire in multiple with the operating-magnets of the vibrator.

3. In a synchronizing apparatus for an electric motor, the combination substantially as described of a main-line relay in the synchronizing-circuit, a vibrator having a number of operating-magnets brought into action alternately through the vibration of the relay, a synchronizing-circuit on the armature of the motor, two or more local generators or sections of generator connected alternately into the circuit of the armature over

the contacts of the vibrator to cause reversal of current-flow thereon, an independent power-winding on the armature, an electric-power circuit supplying current continuously in the same direction to the commutator of said power-winding, and a field-magnet for the motor supplied in multiple with said armature power-winding from the power-circuit.



702,455. BREECH MECHANISM FOR GUNS. LEONARD H. D. MINER, Bethlehem, Pa., assignor to Bethlehem Steel Company, Smith Bethlehem, Pa., a Corporation of Pennsylvania. Filed Nov. 13, 1901. Serial No. 62,143. (No model.)



Claim.—1. The combination with the breech of a gun, of lugs 1, 2 separated to receive a portion of the carrier-plate between them, and a lug 3 below and separated from the lug 2 to receive the end of the operating-lever, said lugs, carrier-plate and lever being perforated for the reception of a hinge-pin, substantially as set forth.

2. The combination with the breech of a gun and with the carrier-plate thereof, of a hinge-pin passing through coinciding openings in the breech and plate, a key, a lug below the same on the pin, an annular groove around the opening in the plate below the top edge thereof, and a recess extending from said groove to the said edge, substantially as set forth.

3. The combination with the breech of a gun, of separated lugs, a

carrier-plate extending between said lugs, a hinge-pin extending through the lugs and carrier-plate, a groove forming an annular shoulder on the carrier-plate below the upper edge thereof, a recess extending from said shoulder to the said edge, a key on the pin adapted to a key-slot in the upper lug, and a projection below said key adapted to said recess, substantially as set forth.

4. The combination with the breech of a gun and with a carrier-plate, and a lever having coinciding openings to receive a hinge-pin, of a key, a projection below the same on the pin, a keyway in the breech to receive the key, a shoulder on the carrier-plate below the top edge, and a recess between the said edge and the shoulder arranged to coincide with the keyway when the carrier-plate is at an angle to the breech, substantially as set forth.

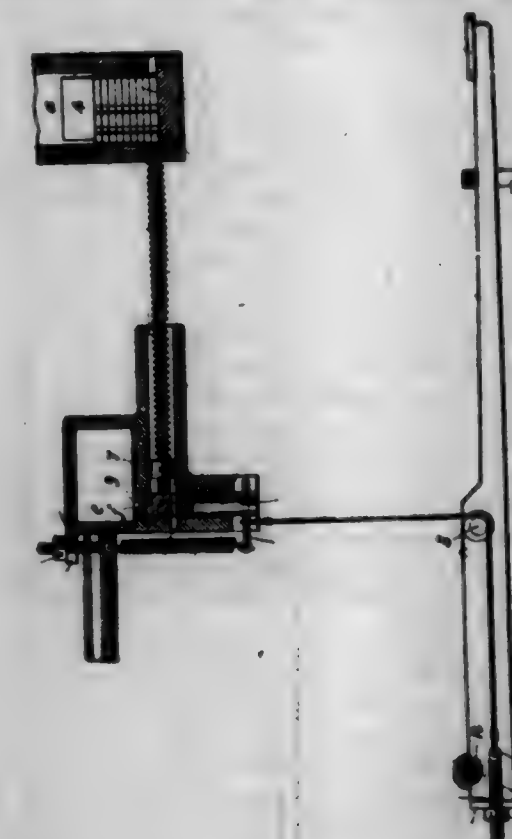
5. The combination of a gun having lugs arranged to receive a carrier-plate and an operating-lever between them, a hinge-pin passing through perforations in the lugs, plate and lever, and with a key and projection below the same, a keyway in the upper lug for said key, an annular shoulder on the plate occupying a position above the projection, and a recess between the shoulder and the upper edge of the plate arranged to coincide with the keyway when the plate is at an angle to the breech, substantially as set forth.

702,456. DRESS-SUPPORTER. ROBERTA F. MONTGOMERY, Barrie, Canada. Filed Aug. 19, 1901. Serial No. 72,816. (No model.)



Claim.—A dress-supporter, consisting of an upper member, comprising a bar having two plane portions inclined at an angle to each other, a hook-shaped lug or hanger depending from the center of the lower inclined portion, a horizontal sleeve formed upon the edge of the said portion near the end, a vertical sleeve formed upon this end of the bar, a shield formed upon the upper edge of the upper portion at the same end as the sleeve, a pin having a coil securely fastened in the two sleeves and the shield, and a hook formed upon the edge of the upper portion to receive the pointed end of the pin, the shield and hook being upon the inner side of the bar while the lug or hanger and the horizontal and vertical sleeves are upon the outer side of the bar; and a lower member to engage the skirt supported by the lug or hanger of the bar.

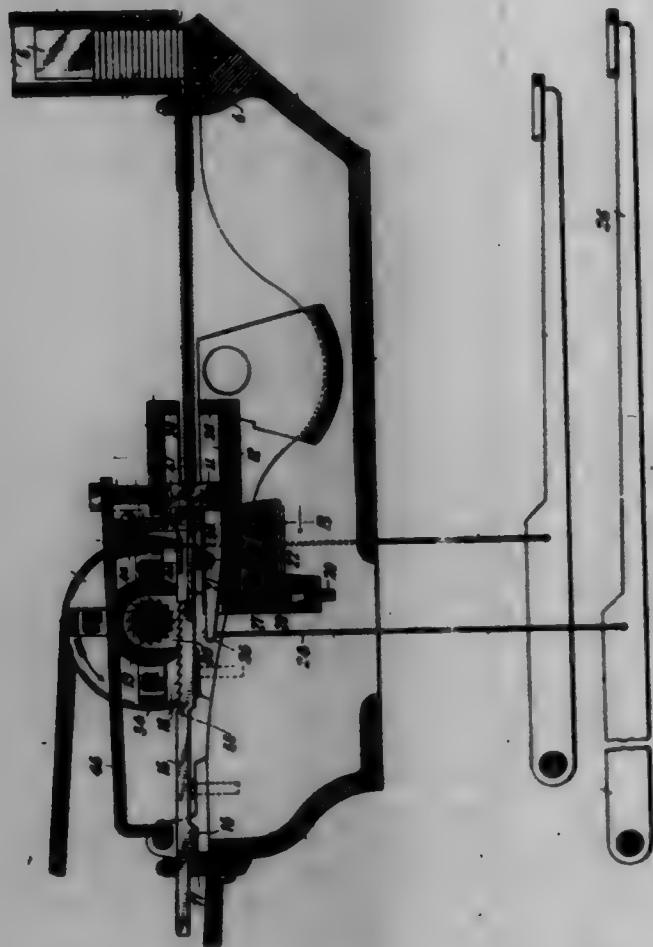
702,457. KEY MECHANISM FOR TYPE-SETTING MACHINES. FRANK MCCLISTOCK, Mount Vernon, N. Y., assignor, by mesne assignments, to Edwin C. Hoyt and Felix Rosen, New York, N. Y. Filed May 12, 1900. Renewed Jan. 16, 1902. Serial No. 90,063. (No model.)



Claim.—1. In combination with a key-lever, means for causing the operation of type-ejecting mechanism, a flexible connecting-wire whereby the movement of the key-lever is imparted to the type-ejecting mechanism, and means substantially as described, located at the rear end of the said key-lever for adjusting the length of the wire.

2. In combination, a key-lever notched at the inner end as shown, means for causing the operation of type-ejecting mechanism, a flexible connecting-wire, and flat adjusting-screw to which said wire is attached fitted in an open slot at the rear end of the key-lever for adjusting the length of the wire.

702,458. MACHINE FOR SETTING TYPE. FRANK MCCLINTOCK, Mount Vernon, N. Y., assignor, by mesne assignments, to Edwin C. Hoyt and Felix Rosen, New York, N. Y. Filed June 24, 1901. Serial No. 65,733. (No model.)



Claim.—1. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod arranged to eject the lowest type from the type-case; a sliding rod provided with ratchet-teeth arranged to engage with the ratchet-wheel and to intermittently advance the type-ejector; a lever actuated by a key-lever for effecting connection between the type-ejecting rod and the ratchet-wheel; means for automatically releasing the type-ejector after the same has been advanced; and spring devices for retracting the same to its original position.

2. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod arranged to eject the lowest type from the type-case; a sliding rod provided with ratchet-teeth arranged to be temporarily brought into engagement with the ratchet-wheel and adapted to advance the type-ejector; means, substantially as described, for holding the rod in engagement until the ejector has ejected a type; means for automatically releasing the type-ejector after the same has been advanced; a lever actuated by a key-lever for effecting the connection between the rod and the ratchet-wheel; and spring devices for retracting the type-ejector to its original position.

3. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod, arranged to eject the lowest type from the type-case; a sliding rod, one end of which is arranged to engage the type-ejector, provided with ratchet-teeth arranged to engage with the ratchet-wheel, and having a projecting shoulder; a stud on the frame which holds the rod in engagement with the ratchet-wheel by means of the projecting shoulder until the end of the line of travel is reached and then per-

mits it to drop, and a lever actuated by a key-lever for effecting the connection between the rod and the ratchet-wheel.

4. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod, arranged to eject the lowest type from the type-case; a sliding rod, one end of which is arranged to engage the type-ejector, provided with ratchet-teeth arranged to engage with the ratchet-wheel, and having a projecting shoulder; a stud on the frame which holds the rod in engagement with the ratchet-wheel by means of the projecting shoulder until the end of the line of travel is reached and then permits it to drop, and a lever actuated by a key-lever one end of which raises the sliding rod into engagement with the ratchet-wheel, and a spring for retracting the lever after the engagement has been effected.

5. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod, arranged to eject the lowest type from the type-case; a sliding rod, one end of which is arranged to engage the type-ejector, provided with ratchet-teeth arranged to engage with the ratchet-wheel and having a projecting shoulder; a stud on the frame which holds the rod in engagement with the ratchet-wheel by means of the projecting shoulder until the end of the line of travel is reached and then permits it to drop; a lever actuated by a key-lever for effecting the connection between the rod and the ratchet-wheel; and device actuated at the will of the operator for restoring the parts if they become blocked.

6. In a type-setting machine, the combination of a constantly-rotating shaft carrying a ratchet-wheel; a type-case from which the types are ejected; a type-ejecting rod, arranged to eject the lowest type from the type-case; a sliding rod, one end of which is arranged to engage the type-ejector, provided with ratchet-teeth arranged to engage with the ratchet-wheel and having a projecting shoulder; a stud on the frame which holds the rod in engagement with the ratchet-wheel by means of the projecting shoulder until the end of the line of travel is reached and then permits it to drop, a lever actuated by a key-lever one end of which raises the sliding rod into engagement with the ratchet-wheel and serves as a stop to engage the projecting shoulder of the sliding rod, and prevent the mechanism from repeating, a spring for retracting the lever after the engagement has been effected; and a guide-block for positively retaining the sliding rods in engagement.

7. In a type-setting machine, the combination of a constantly-rotating source of power; a type-case from which the types are ejected; a type-ejecting rod arranged to eject the lowest type from the type-case; means, substantially as described, for intermittently advancing the space-ejector bar by means of the rotating shaft; means actuated by a key-lever for effecting the connection between the actuating device and the shaft; a suitable frictional connection between the source of power and the device for intermittently advancing the space-ejector; and spring devices for retracting the space-ejector to its original position.

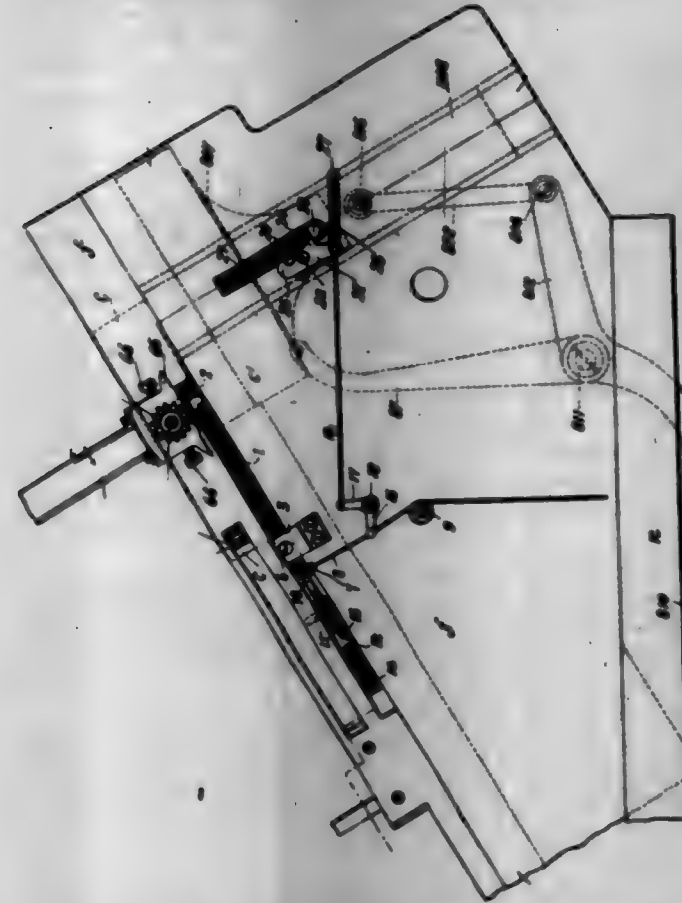
8. In a type-setting machine, the combination of a constantly-rotating shaft; a ratchet-wheel connected thereto by a frictional connection; a type-case from which the types are ejected; a type-ejecting rod arranged to eject the lowest type from the type-case; a sliding rod provided with ratchet-teeth arranged to engage with the ratchet-wheel and to intermittently advance the type-ejector; a rod actuated by a key-lever for effecting the connection between the ejector-rod and the ratchet-wheel; and spring devices for retracting the space-ejector to its original position.

9. In a type-setting machine, the combination of a constantly-rotating shaft; a ratchet-wheel connected thereto by a frictional connection; means, substantially as described, for intermittently advancing the space-ejector by means of the rotating shaft; spring devices for retracting the same to its original position; and devices connected with the channels in the type-case, substantially as described, whereby the exhaustion of the type causes the locking of the mechanism.

10. In a type-setting machine, the combination of a constantly-rotating shaft; a ratchet-wheel connected thereto by a frictional connection; means, substantially as described, for intermittently advancing the space-ejector by means of the rotating shaft; spring devices for retracting the same to its original position; devices, connected with the channels in the type-case, substantially as described, whereby the exhaustion of the type causes the locking of the mechanism; and device, substantially as described, actuated at the will of the operator, for unlocking and restoring the mechanism to its original position.

11. In a type-setting machine, the combination of a constantly-rotating shaft; a ratchet-wheel connected thereto by a frictional connection; means, substantially as described, for intermittently advancing the space-ejector by means of the rotating shaft; spring devices for retracting the same to its original position; devices, connected with the channels in the type-case, substantially as described, whereby the exhaustion of the type causes the locking of the mechanism; mechanism, substantially as described, for unlocking and restoring the parts to their original position, and a lever for actuating the unlocking mechanism.

702,459. TYPE-JUSTIFYING MACHINE. FRANK MCCLINTOCK, Mount Vernon, and FREDERICK HOLZOWORTH, New York, N. Y., assignors, by mesne assignments, to Edwin C. Hoyt and Felix Rosen, New York, N. Y. Filed June 24, 1901. Serial No. 65,514. (No model.)



Claim.—1. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; and device substantially as described for retracting the lever and releasing the line-holder at the will of the operator.

2. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; device substantially as described, for regulating and controlling the tension of the spring; and a suitable key-lever for retracting the lever and releasing the line-holder at the will of the operator.

3. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; a second lever pivoted in the groove, provided with a spring at one end arranged to engage with and retard the movement of the line-holder as it descends the track; and means substantially as described for retracting the lever and releasing the line-holder at the will of the operator and at the same instant actuating the lower lever and causing the spring to assume a position where it engages with and retards the line-holder as it descends.

4. The combination of a side plate; a line-holder elevator moving thereon, having a projection arranged to extend outwardly through an opening in the side plate; an escapement-lever attached to the side plate, arranged to engage therewith; and device substantially as described, for actuating the escapement-lever.

5. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; a line-holder elevator having a projection arranged to extend outwardly through an opening in the side plate of the machine; an escapement-lever attached to the side plate, arranged to engage therewith and device substantially as described for retracting the lever and releasing the line-holder at the will of the operator, and for actuating the escapement-lever at the appropriate moment.

6. The combination of a side plate; an inclined track or way upon which the line-holder travels; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring where-

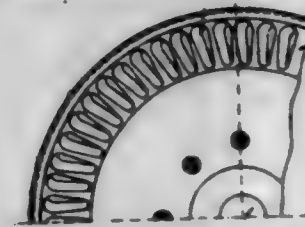
by the lever is normally held in engagement with the line-holder; a second lever pivoted in the groove; provided with a spring at one end arranged to engage with and retard the movement of the line-holder as it descends the track; a line-holder elevator, having a projection arranged to extend outwardly through an opening in the side plate of the machine; an escapement-lever attached to the side plate, arranged to engage therewith; and means substantially as described for retracting the lever and releasing the line-holder at the will of the operator and at the same instant actuating the lower lever and causing the spring to assume a position where it engages with and retards the line-holder as it descends, and for actuating the escapement-lever at the appropriate moment.

702,460. SHADE-HOLDER. AUGUST MCNEER, Providence, R. I. Filed Nov. 14, 1901. Serial No. 59,960. (No model.)



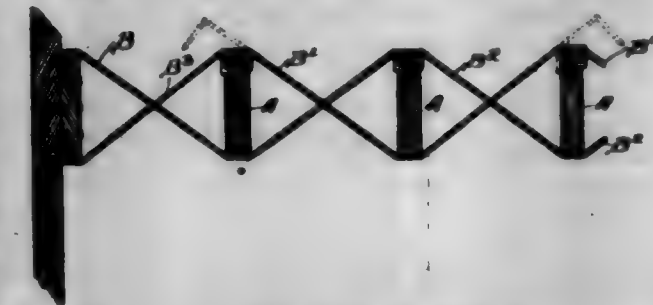
Claim.—In a shade-holder of the character described, the combination with a supporting-ring provided with fixed ears, a bar hinged to the supporting-ring and provided with an ear at its free end and with a catch-clip to engage the inner periphery of the ring and hold the ear at the end of the bar in locked position, and means for securing the ring to the lamp-socket, substantially as set forth.

702,461. TURNING WHEEL. JOHANNES HANSEN, Dresden, Germany. Filed Dec. 10, 1901. Serial No. 56,282. (No model.)



Claim.—A turbine wheel composed of a series of thin metal plates having a series of channels around their edges, clamping-checks to hold said plates together and means for attaching the whole to a driving-shaft, a peripheral ring to support and close around the edges of all the plates in the manner and for the purpose substantially as described.

702,462. BRIDGING FOR JOINTS. CHARLES O. NELSON, Winnetka, Ill., assignor of eleven-fifths to Horace H. Capron, Winnetka, Ill. Filed Dec. 22, 1901. Serial No. 56,955. (No model.)



Claim.—1. An improved metallic bridging for joints, &c., comprising a rod or web provided at its ends with oppositely-turned points adapted to be driven into the upper and lower portions of adjacent joints, substantially as and for the purpose set forth.

2. An improved metallic bridging for joints, &c., comprising a body portion or web of sufficient length to extend from near the top of one joint to near the bottom of the adjacent joint and provided with oppositely-turned points and adjacent to said points with driving-heads, substantially as and for the purpose set forth.

3. An improved metallic bridging for joints, &c., comprising a web *a*, driving-heads *a'* on opposite sides of the web *a*, said driving-heads being formed by swaging the material at the ends of the web, and oppositely-turned driving-points adjacent to said driving-heads, substantially as and for the purpose set forth.

4. The combination with joints *A, A'*, of metallic bridging members *B, B'* connecting said joints, each of said members extending from the top of one joint to the bottom of the adjacent joint and having at its ends op-

positively-turned driving-points embedded in the material of the joints, substantially as and for the purpose set forth.

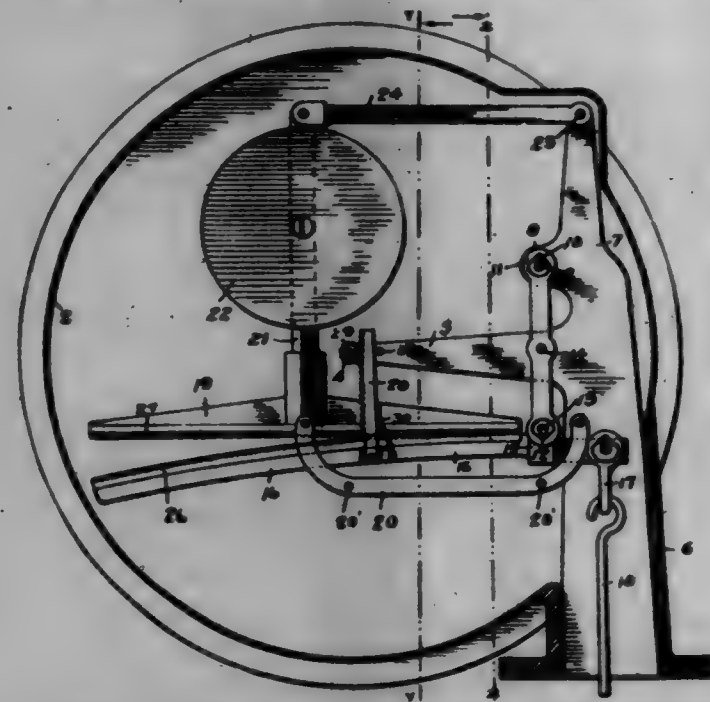
5. A metallic bridging comprising a web and angularly-disposed ends arranged to extend diagonally between joints and to be secured thereto by having said angular ends driven therein, substantially as described.

6. A metallic bridging for joints comprising a web arranged to extend across one edge of a joint and thence diagonally to the further edges of the next adjoining joints on each side thereof, and sharpened ends adapted to engage each of said adjoining joints, substantially as described.

7. A metallic bridging comprising a web adapted to extend diagonally between joints, and sharpened ends angularly disposed with relation to said web so as to form driving-heads whereby said ends may be driven into joints, substantially as described.

8. A metallic bridging comprising a web, sharpened ends angularly disposed with relation to said web, the bridging having its sides flattened at the angle between the web and the ends so as to form driving-heads, substantially as described.

702,463. AUTOMATIC WEIGHING-SCALE. ELLA NILSON, Wayzata, Minn. Filed Mar. 11, 1901. Serial No. 50,373. (No model.)



Claim.—1. In an automatic scale, engaging members rocking one upon the other and each having movable pivots one near the end of one member and the other centrally disposed with respect to the contacting surface of the other member.

2. In an automatic scale, the combination, with opposing contacting members rocking one upon the other, of relatively movable pivots therefor provided one near the end of one member and the other centrally disposed with respect to the contacting surface of the other member, and means for preventing the longitudinal movement of one member with respect to the other.

3. In an automatic scale, the combination, with opposing members acting one upon the other each having movable pivots one near the end of one member and the other centrally disposed with respect to the contacting surface of the other member, of platform and scale connections for one of said members, substantially as described.

4. In an automatic scale, opposing contacting members having respectively plane and curved faces and rocking one upon the other, the pivots of said members being located respectively near the end of one member and centrally arranged with respect to the other and said members having respectively a longitudinal and a vertical oscillating movement, substantially as described.

5. In an automatic scale, the combination, with an opposing contact-lever and a bar rocking one upon the other and having relatively movable pivots located respectively near the end of one and the center of the other, of an indicator a dial, and operative connections provided between said lever and said indicator, for the purpose specified.

6. In an automatic scale, an opposing or contacting lever and a bar having respectively curved and plane faces and rocking one upon the other, said lever and bar having respectively a longitudinally and vertically oscillating movement, and a balance-weight adapted to exert its force centrally with respect to said bar.

7. In an automatic scale, a rocking lever 10 and links 11 whereon said lever is suspended, in combination, with a bar 19 engaging said lever 10, a yoke 20, and a link 24, the pivots of said yoke and link being equally spaced.

8. In an automatic scale, the combination, with a rocker-lever 10 and links 11, of a bar 19 contacting with said lever 10, a yoke 20 and a link 24 whereon said bar 19 is centrally pivoted, and a balance-weight centrally supported on said bar 19, substantially as described.

9. In an automatic scale, the combination with standards 4, of an opposing lever 10 and bar 19, links 11 and 24 and a yoke 20 pivoted in said standards and whereon said lever and bar are pivoted respectively, an indicator-hand, a dial, and operative connections provided between said lever 10 and said indicator-hand.

10. In an automatic scale, the combination, with a support, of an opposing or contacting lever and a bar rocking one upon the other, pivoted connections 20 and 24 provided between said support and said bar, the centers of said pivoted connections being a corresponding distance apart whereby said bar will describe a true arc in its vertical movement, and a weight carried by said bar between said pivoted connections, substantially as described.

11. The combination, with the standards 4, of an opposing contacting lever and a bar rocking upon the other, links 11 whereon said lever is supported upon said standards, a yoke 20 pivotally connecting said standards with the middle portion of said bar, a rod 21 provided on said bar, a link 24 connecting the upper portion of said rod 21 with said standards, the pivotal centers of said link 24 and said yoke being an equal distance apart, and a balance-weight carried by said rod 21, substantially as described.

12. In an automatic scale, opposing members rocking one upon the other each having movable pivots arranged one near the end of one member and the other near the center of the contacting surface of the other member, and a balance-weight centrally supported upon one of said members, substantially as described.

13. In an automatic scale, the combination, with a lever and a bar pivoted one near its end and the other near its center and having a rocking contact one upon the other, link members having their pivots equally spaced and whereon said bar has a substantially vertical oscillating movement, and a balance-weight centrally supported on said bar between said link members.

14. In an automatic scale, a rocking lever and its pivots, in combination, with an oscillating member opposing said lever, a support, guiding means pivotally connecting said support and said member, the pivots of said guiding means at one end thereof being equally spaced from the corresponding pivots at the other end, for the purpose specified.

15. In an automatic scale, a rocking lever and its pivots, in combination, with an oscillating member opposing said lever, a support, guiding means pivotally connecting said support and said member, the pivots of said guiding means at one end thereof being equally spaced from the corresponding pivots at the other end, and a balance-weight supported by said member, substantially as described.

16. In an automatic scale, a rocking lever and an oscillating member opposed thereto, a support, guiding means pivotally connecting said support and said member, the pivots of said guiding means on said support and the pivot of said lever being at corresponding ends of said means and said lever, and the pivots of said guiding means at one end of said member being equally spaced from the opposite corresponding pivots, substantially as described.

17. In an automatic scale, a standard or support, in combination with a rocking lever suspended thereon, a bar opposing said lever and whereon said lever rocks, and guiding devices pivoted on said support and between which said bar is suspended, substantially as described.

18. In an automatic scale, a suitable standard or support, in combination, with a rocking lever suspended thereon, a member opposing and contacting with said lever, a balance-weight carried by said member, and guiding devices pivoted on said support and between which said member is suspended, said guiding devices being at the end of said member adjacent to the suspended end of said lever, substantially as described.

702,464. PHOTOGRAPHIC CAMERA. CHRISTIAN F. J. NIM, Hinkley, Ill. Filed Sept. 25, 1901. Serial No. 78,560. (No model.)

Claim.—1. In a camera, a bellows having a rear opening, said bellows being adjustable to permit the contraction and expansion of said opening.

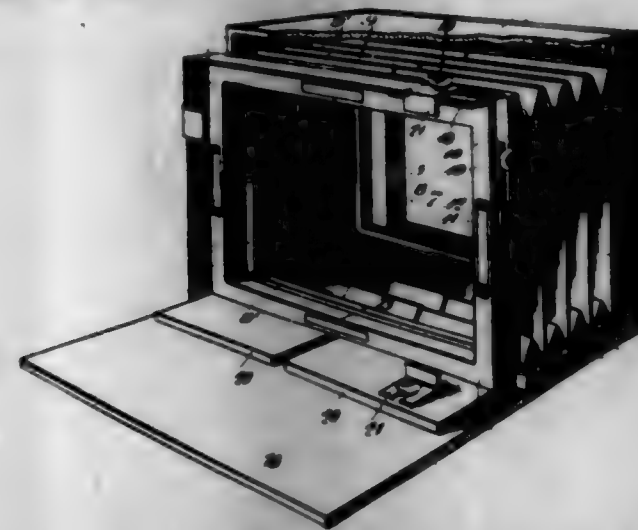
2. In a camera, a bellows having longitudinal divisions and covering-strips therefor.

3. In a camera, a bellows divided longitudinally into a number of sections, covering-strips arranged at the division-point, said covering-strips being flexibly connected to the body of the bellows.

4. In a photographic camera, an extensible rear frame having adjustable members to permit its expansion and contraction.

5. In a photographic camera, a fixed forward frame, and extensible rear frame having adjustable members to permit its expansion and contraction, and a laterally-adjustable bellows connecting said frames.

6. In a photographic camera, a frame having corner-sections, central blocks connecting the corner-sections, a bellows divided longitudinally and having its main body portion formed into sections connected to said corner-sections, covering-strips arranged at the divisional points, said covering-strips being secured to said blocks, substantially as specified.



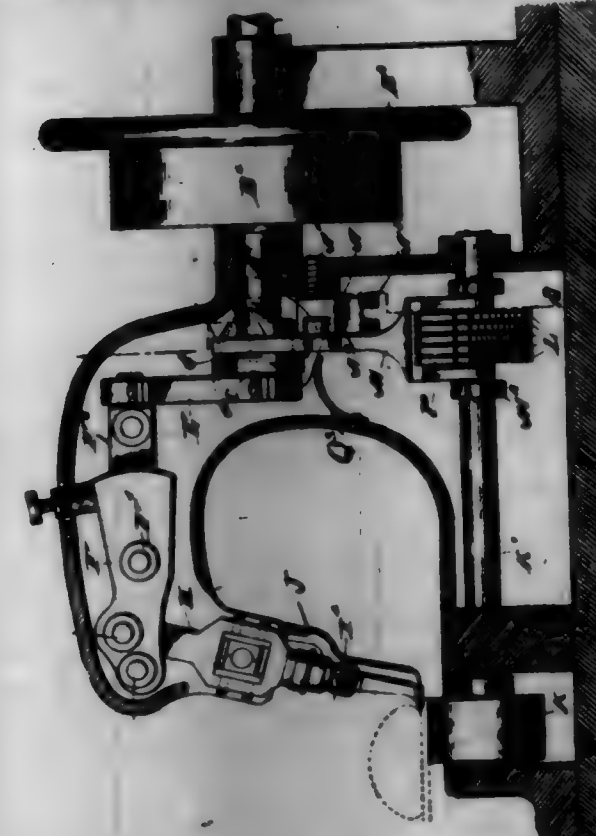
7. In a photographic camera, a rear frame having adjustable corner-sections, central blocks adapted to recess in the corner-sections, exterior slotted strips on said frame, means for locking the frame in any adjusted position, and an adjustable bellows connected to said frame, substantially as specified.

8. In a photographic camera, a sectional frame, plate-holding clips secured thereto, said clips being adjustable to different distances from the rear of the frame to accommodate the plate-holders of varying thickness.

9. In a photographic camera, a sectional frame comprising corner-pieces having dovetail slots, centrally-disposed sections for uniting the corner-sections, said central sections each comprising a slotted strip disposed in front of the corner-pieces and a dovetail block adapted to the recesses of the corner-sections, a sectional bellows having portions secured to the corner-sections and other portions secured to the central sections, and means for locking said sections in an adjusted position.

10. In a photographic camera, a sectional frame, edge strips arranged exteriorly thereof, the top and one of the side strips being extended rearwardly beyond the frame to form a pocket for the reception of the plate-holder.

702,465. STITCH-INDENTING MACHINE. ADOLPH OLSEN, Philadelphia, Pa. assignor of one-third to John G. McKoon, Philadelphia, Pa. Filed May 23, 1901. Serial No. 62,341. (No model.)



Claim.—1. In a sole-indenting machine, a reciprocating bar and means for actuating it, an indenting-tool adjustable in the slide-bar, a

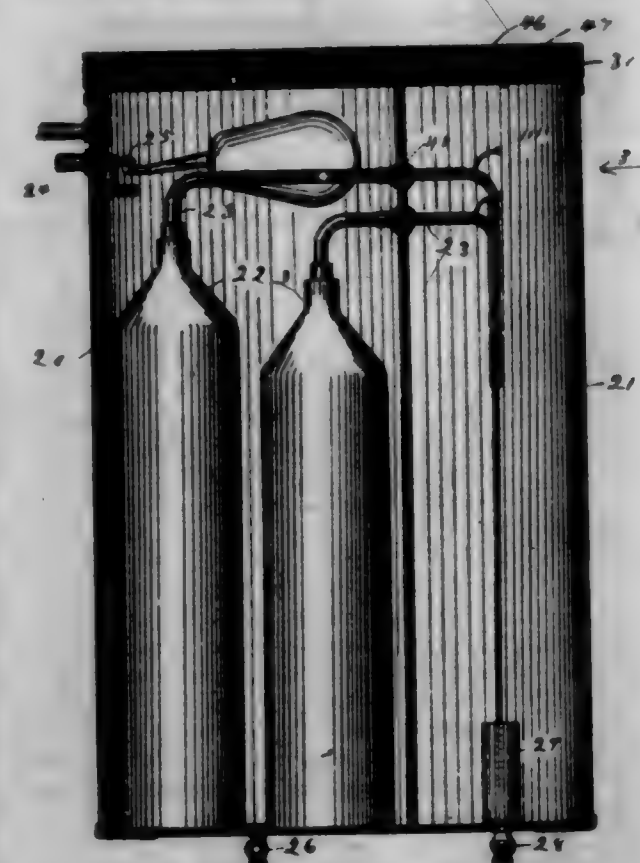
roller for feeding the shoe step by step alternately with the descent of the indenting-tool, ratchet wheels and pawls for rotating the rollers, means for permitting the operation of one ratchet-wheel independent of the others and means for indicating the distance the roller is actuated by the ratchet, substantially as described.

2. In a shoe-sole-indenting machine, an indenting-tool, a slide-bar to which the tool is secured, guideways for the slide-bar, a power-shaft, a pitman journaled eccentrically on the power-shaft, a lever pivoted at one end of the main frame, a pitman to which the opposite end is connected, a guide for the shoe, a feeding mechanism, means for regulating the feed and for indicating same, substantially as described.

3. In a machine of the character described, a suitable framework adapted to support the operating parts of said machine, an indenting-tool, a slide-bar in which said tool is secured, means for adjusting said tool vertically within said slide-bar, guides arranged upon the framework for guiding said slide-bar, a power-shaft, a pitman journaled eccentrically upon said power-shaft, a lever pivoted at one end to the main frame, and at its other end to the pitman, a pivotal point arranged between two ends of the lever to which the slide-bar is connected, said lever adapted to be composed of two parts pivoted together, each of the parts having a limited movement relative to the other part, means for regulating this movement, a guide against which the upper of the slide-bar is adapted to be held, means for adjusting said guide as to both vertical and horizontal positions, a spring connected to said guide against which the pressure is adapted to be exerted, a roller upon which the shoe is adapted to be held, means for revolving said roller a predetermined distance when the pricking-tool is raised, means for regulating the distance the roller is revolved, and means for indicating such distances, substantially as described and for the purpose specified.

4. In combination with a machine of the character described, an automatic feeding mechanism consisting of a roller upon which the shoe is adapted to be held, a shaft to which said roller is secured, a series of ratchet-wheels secured upon said shaft, each of said series of ratchet-wheels being provided with a different number of teeth to the inch, a series of pawls, one for each of the ratchet-wheels, means for causing the pawls to engage the ratchet-wheels to engage the teeth of the same, springs adapted to hold the pawls in engagement with the teeth, a common lever to which all of said pawls are pivoted, means primarily actuated by the power-shaft to cause said pawls to rotate a predetermined distance concentric with the ratchet-wheel, means for regulating the distance of rotation of the pawls concentric to the ratchet-wheels, and means for indicating at what feed the machine has been set, as and for the purpose specified.

702,466. FILTER. VALENTINE OSTER, St. Louis, Mo., assignor of one-half to Otto F. Knicker, St. Louis, Mo. Filed Oct. 23, 1901. Serial No. 60,573. (No model.)



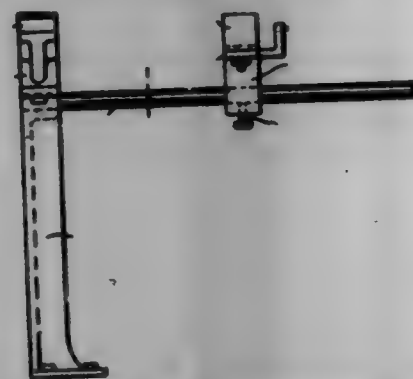
Claim.—1. In a water-filter, a muddy-water tank; a clear-water tank mounted on the same level and beside the muddy-water tank; a

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strainer in a muddy-water tank; and a siphon connection between the strainer in the muddy-water tank and the clear-water tank; said siphon connection consisting of the flexible tube 33; the nipple 34 connected to the flexible tube; the union 35 connected to the nipple; the washer 36 placed between the walls of the tanks; the washer 37 placed inside of the muddy-water tank; the washer 38 inside of the clear-water tank; the tube 39 inserted through the walls of the tanks and through said washers; the nut 40 placed upon said tube against the inner face of the washer 38; the nut 41 placed upon said tube against the inner face of the washer 37.

2. In a filter, a muddy-water tank; a supply-pipe leading to said tank; a valve controlling the supply-pipe; a float controlling the valve pipes leading from the valve strainers mounted under the pipes; sprinklers attached to the pipes in position to wash the strainers so that when the float opens the valve to admit water, the water will pass through the sprinklers as required to wash and clean the strainers substantially as specified.

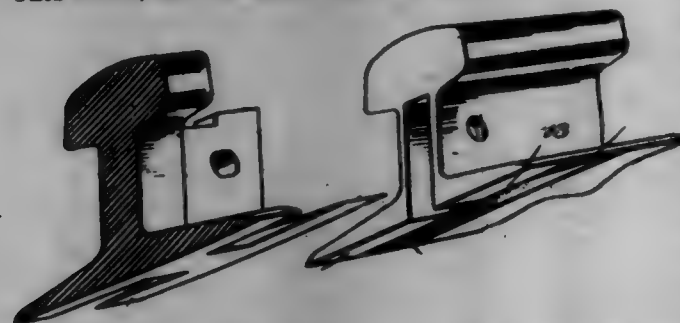
702,467. LINING-HOOP-MAILING HORSE. WILLARD J. OTT, Chicago, Ill., assignor to Veneer Barrel Machine Co., Chicago, Ill. Filed Mar. 21, 1902. Serial No. 90,336. (No model.)



Claim.—1. In a lining-hoop-mailing horse, the combination of an anvil having a curved upper surface, and having an arm extending rearwardly below said surface and parallel with the axis thereof; and a support mounted on said arm and adjustable along same toward and from said anvil; said support having on its rear part an upwardly-extending stop for the rear end of a barrel, and having a pair of upwardly-disposed lateral arms adjustable toward and from each other for bearing against the periphery of the barrel.

2. In a lining-hoop-mailing horse, the combination of an anvil having a curved upper surface, and having a rod extending rearwardly below said surface and parallel with the axis thereof; and a collar mounted on said rod adjustable longitudinally thereof, having at its rear part an upwardly-extending stop for the rear end of a barrel and having at its upper part a pair of opposite lateral members and an upwardly and outwardly inclined arm movably mounted on each of said lateral members; said inclined arms being adjustable toward and from each other for bearing against the periphery of the barrel.

702,468. RAIL-JOINT. WILLIAM A. FAIR, Dunbar, W. Va. Filed Dec. 31, 1901. Serial No. 57,962. (No model.)

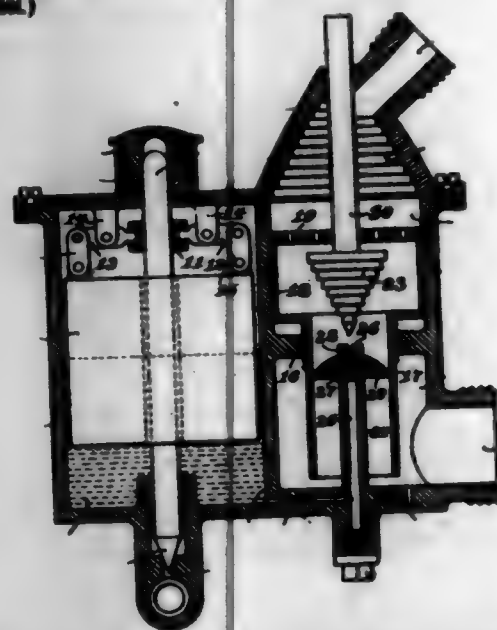


Claim.—1. In a rail-joint, the combination with a rail having a recess in its end and extending through the bottom thereof, said recess having a seat at the upper end thereof and inwardly from the end of the rail, and the bottom of the rail having cut-away portions leading to the recess and disposed in line with the seat, of a second rail having a tongue for engagement with the recess, said tongue having a top lug disposed to engage the seat and having laterally-directed legs disposed to engage the cut-away portions.

2. In a rail-joint, the combination with a rail having a recess in its end extending through the bottom thereof, said recess having a seat at its upper end and disposed inwardly from the end of the rail, and the bottom of the rail having cut-away portions disposed inwardly from the end of the rail and leading to the recess, of a second rail having a terminal

tongue engaged with the recess, said tongue having an upwardly-directed leg engaged with the seat and having laterally-directed legs engaged with the cut-away portions, said walls having aligning perforations, and a bolt engaged with the perforations.

702,469. CARBURTER FOR EXPLOSIVE-ENGINEER. JOSEPH W. PARKIN, Oxford, Pa. Filed Mar. 12, 1901. Serial No. 50,919. (No model.)



Claim.—1. In a carburter, an air-chamber, a substantially cylindrical air-tube having an inlet in said chamber, an oil-nozzle having an outlet in said tube, and an inclined wire-gauze diaphragm in said tube supported by said nozzle between the air-inlet and oil-outlet, substantially as specified.

2. In a carburter, an air-chamber, an air-tube having an inlet in said chamber, said tube being adjustable to regulate the admission of air from said chamber thereto, an oil-nozzle having an adjustable outlet within said tube, and an inclined diaphragm having capillary members in said tube between the air-inlet and oil-outlet, substantially as specified.

3. In a carburter, an air-chamber, a movable mixing-chamber having a substantially cylindrical air-tube depending therefrom and opening into said air-chamber, said mixing-chamber having a perforated head fixed therein, in combination with an oil-nozzle having an outlet within said tube, and a perforated diaphragm in said tube between the air-inlet and oil-outlet, substantially as specified.

4. In a carburter, an air-chamber, a movable mixing-chamber having a substantially cylindrical air-tube depending therefrom and opening into said air-chamber, said mixing-chamber having a perforated head fixed therein, an inverted conical baffle in said mixing-chamber, in combination with an oil-nozzle having an outlet within said tube, and a perforated diaphragm in said tube between the air-inlet and oil-outlet, substantially as specified.

5. In a carburter, an air-chamber, a carburting-chamber, a movable mixing-chamber in said carburting-chamber and having an air-tube depending therefrom into said air-chamber, said mixing-chamber having a perforated head fixed therein, an inverted conical baffle in said mixing-chamber, in combination with an oil-nozzle having an adjustable outlet within said tube, and a wire-gauze diaphragm in said tube between the air-inlet and oil-outlet, said diaphragm being supported by said nozzle and inclined downwardly therefrom, substantially as specified.

6. In a carburter, an air-chamber, a carburting-chamber having a corrugated conical dome or outlet, a movable mixing-chamber in said carburting-chamber and having an air-tube depending therefrom into said air-chamber, said mixing-chamber having a perforated head fixed therein, in combination with an oil-nozzle having an adjustable outlet within said tube, and a wire-gauze diaphragm in said tube between the air-inlet and oil-outlet, said diaphragm being supported by said nozzle and inclined downwardly therefrom, substantially as specified.

7. In a carburter, an air-chamber, an air-tube having an inlet opening in said chamber, an oil-nozzle having an outlet in said tube, a valve for controlling the outlet from said nozzle, an adjustable rod for regulating said valve and outlet, a tube surrounding said rod within said nozzle, said tube having its lower end fixed in the bottom of said air-chamber and its upper end rising above the top of said nozzle, substantially as specified.

8. In a carburter, a casing containing an oil-reservoir and a carburting-chamber, an oil-nozzle leading from said reservoir to said carburting-chamber, said reservoir being provided with a float and a valve controlled thereby for regulating the pressure of oil delivered through said

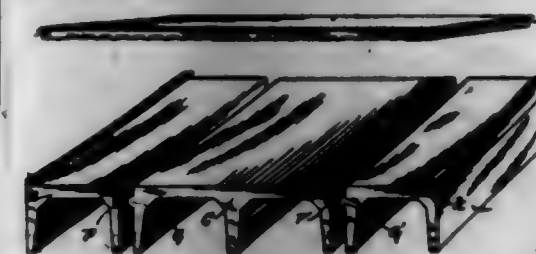
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nozzle, a movable mixing-chamber in said carburting-chamber, an air-tube depending from said mixing-chamber, an air-chamber communicating with said air-tube, and a wire-gauze diaphragm in said air-tube, said diaphragm being supported by said nozzle and inclined downwardly therefrom, substantially as specified.

702,470. STEREOTYPE-PLATE AND BASE. CHARLES S. PARTRIDGE, Chicago, Ill., assignor, by direct and mesne assignments, to Partridge & Anderson Company, Chicago, Ill., a Corporation of Illinois. Filed July 2, 1901. Serial No. 67,947. (No model.)

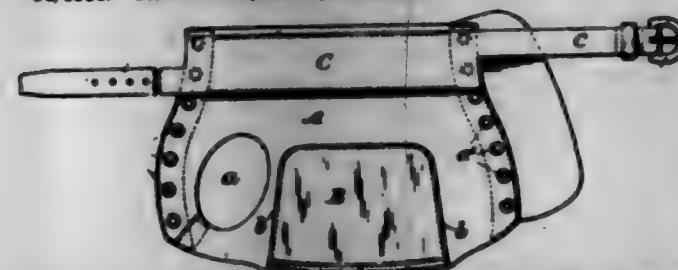


Claim.—1. The combination with a stereotype-plate having longitudinal grooves in its side edges, of a base comprising separable, interlocking sections and a channelled clamping-strip secured to the column-rule side of each of the outer sections, the lower flange of said clamping-strip being bent along its edge at an angle and embedded in and engaging the body of the section throughout its length, and its upper flange being adapted to engage the adjacent grooved edge of said plate and detachably lock the latter in its entire length.

2. The combination with a stereotype-plate having longitudinal grooves in its side edges, and a sectional base thereof, of channelled clamping-strips secured to the column-rule side of the outer sections of said sectional base, the interlocking lower flange of each of said strips being bent at an angle throughout its length near its edge, and embedded in the body of the section, the outer web face of said channelled strip being flush with the side of said section, and the upper flange of said strip extending inwardly, parallel to and above the upper bearing-face of said section, and engaging the groove of the adjacent edge of said plate throughout its length, the upper part of said plate edge being flush with the outer web face of the strip and the side of said section.

3. The combination with a sectional base of a stereotype-plate having longitudinally-grooved side edges, the lower lip of each of said edges projecting a less distance than said upper plate, and a channelled clamping-strip, secured to the column-rule side of the outer sections of said sectional base, the interlocking lower flange of each of said strips being bent at an angle throughout its length near its edge, and embedded in the body of the section, the outer web face of said channelled strip being flush with the side of said section, and the upper flange of said strip extending inwardly, parallel to and above the upper bearing-face of said section, and engaging the groove of the adjacent edge of said plate throughout its length, the upper part of said plate edge being flush with the outer web face of the strip and the side of said section.

702,471. HAND-GUARD AND WRIST-SUPPORTER. GEORGE L. PIERCE, Brooklyn, N. Y., assignor to A. G. Spaulding & Bros., Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed June 14, 1901. Serial No. 64,081. (No model.)



Claim.—1. The combination in a glove of a hand-guard comprising a layer of protective material secured to the back thereof, and a wrist-supporter comprising a flexible strap secured to the wrist portion thereof.

2. A hand-guard and wrist-supporter comprising a glove having a layer of protective material secured to the back thereof and having the edge portion of the glove turned over the edge of said protective layer and secured to the outside thereof, and a flexible strap secured to the wrist portion of the glove, substantially as described.

3. A hand-guard and wrist-supporter comprising a glove having a layer of protective material secured to the back by sewing and having the edge portion of the glove turned over the edge of said protective layer and secured to the outside thereof by sewing, and a wrist-supporter secured to the wrist portion of the glove by sewing and provided with flex-

ible ends adapted to be wound around the wrist portion of the glove and secured at the back thereof, substantially as described.

702,472. SURGICAL FORCEPS. LOUIS M. PROBOLET, Orange, N. J. Filed Aug. 2, 1898. Serial No. 688,072. (No model.)



Claim.—1. In a pair of surgical forceps, the combination of an electric resistance contained within one of the jaws, a terminal-block on one of the handles, an electric conductor passing from the resistance within the jaw, to and through the said block, said a tube of material impervious to fluids surrounding the said conductor, and having fluid-tight joints with both the interior of the jaw and the interior of the said block.

2. In a pair of surgical forceps, the combination of a hollow jaw, an insulated electric conductor therein extending along the outside of the shank of said forceps, a metallic tube containing said conductor and extending from said hollow jaw to near the end of said conductor along and fastened to the said shank, insulation within the tube and surrounding said conductor, an enlarged end 16, on said conductor out of contact with said metallic tube, and insulation 17, surrounding said conductor and between said tube and said enlarged end.

3. Surgical forceps consisting of the combination of shanks, pivoted together, handles thereon, an electrical resistance carried by one of the jaws and insulated therefrom, a terminal-block 12, attached to one of the handles obliquely to the plane of the handle, a tubular conduit secured in a groove formed along one shank and extending from said jaw to said block, and containing an insulated conductor which is connected to said resistance, the other end of which is electrically connected to the jaw, a terminal 16 for receiving a socket 26 and forming a continuation of said conductor, and a second terminal 15 extending from said block for receiving a socket 25, both of said sockets being adapted to be connected up with a source of electricity.

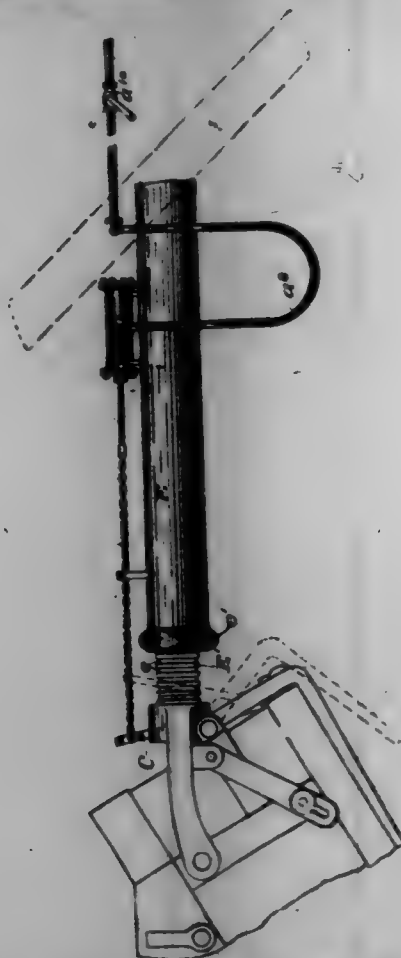
4. In a pair of surgical forceps, the combination of a hollow jaw having a hole at one end where it joins the shank an insulated electric resistance within the jaw, a metallic conduit hermetically passing through the hole and carrying an insulated electric conductor connected to one end of said resistance, the other end of the resistance being connected to the jaw, a terminal-block upon the handle of the forceps and having a passage-way for said conductor, and hermetically connected to said tube, and a terminal forming the end of said conductor, sealed hermetically within said passage-way, and insulated from said block, the other electric terminal of the forceps being attached electrically to said block, which is connected metallically to said hollow jaw.

5. In a pair of surgical forceps having a hollow jaw, an insulated electric resistance therein, one end being connected hermetically and electrically to the jaw and the other to an electric conductor passing hermetically through and being insulated from said jaw.

6. A pair of surgical forceps consisting of the combination of jaws and handles pivoted together, one of the jaws being provided with a cover applied, to the back of the jaw, an insulating-sheet lying inside of the said jaw, a bare conductor lying on and along the said insulator, a second insulator on said conductor, a tube hermetically connected to the jaw and communicating with its interior, and connected with the same and containing an extension of said conductor, the other end of which is connected electrically with the jaw, as and for the purpose set forth.

7. In a pair of electrical surgical forceps, a terminal-block formed upon a handle thereof, and having a hole extending through the same, lined with an electrical insulating-tube, a tubular electric conductor 16, fitting hermetically within one end of the said insulating-tube, a conduit 8, terminating in hermetical contact with the said terminal-block, and a wire, 9, passing through the said conduit and extending into the said lining, and terminating in the conductor, 16, hermetically and in electric contact therewith.

702,478. BUCKET-DUMPING DEVICE FOR STEAM-SHOVEL. HARRY T. FOSTER and GEORGE H. BRADSHAW, Cleveland, Ohio, assignors of one-third to Willard T. Moore, Cleveland, Ohio. Filed Feb. 6, 1902. Serial No. 98,963. (No model.)



Claim.—1. In a steam-shovel, the combination of a dipper, a movable dipper-arm, tripping mechanism for controlling the discharge of the dipper, and means mounted upon each arm for operating such mechanism.

2. In a steam-shovel, the combination of a dipper, a movable dipper-arm, tripping mechanism for controlling the discharge of the dipper, and a motor cylinder and piston mounted upon each arm connected with and adapted to operate said mechanism.

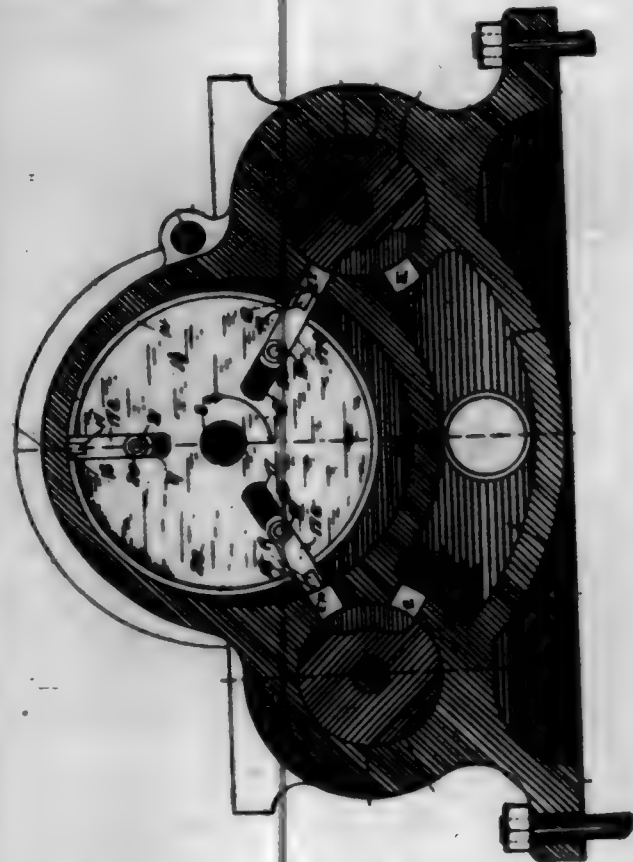
3. In a steam-shovel, the combination of a dipper, a movable dipper-arm, tripping mechanism for controlling the discharge of the dipper, a motor cylinder and piston mounted upon said arm connected with and adapted to operate said mechanism, and a flexible pneumatic conduit intermediate of said cylinder and the shovel-frame.

4. In a steam-shovel, the combination of a dipper, a movable dipper-arm having said dipper secured thereto so as to be movable substantially about the axis of said arm, a motor cylinder and piston mounted upon the latter, tripping mechanism for controlling the discharge of the dipper, and a flexible connection intermediate of said cylinder and piston, and said tripping mechanism.

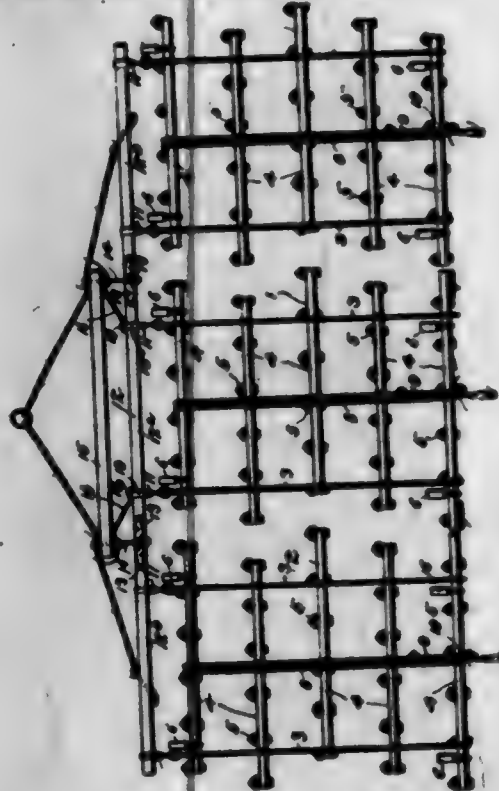
702,474. ROTARY ENGINE. JAMES A. FORTER, Crawfordsville, Ind., assignor of two-thirds to Joseph L. Bentley and Edgar Stone, Crawfordsville, Ind. Filed Sept. 12, 1901. Serial No. 75,177. (No model.)

Claim.—In a reversible rotary engine, the combination with a cylinder having opposing steam inlet and exhaust ports, the opposing inlet-ports situated at one end of said cylinder and the exhaust-ports situated on the opposite end of said cylinder and in alignment with their adjacent steam-ports, continuously-rotating steam-distributing valves contiguous to each of said opposing steam-inlet ports, a steam-supplying chamber situated between said steam-distributing valves and a reversing-valve situated between said steam-chamber and each of said distributing-valves, exhaust-valves situated contiguous to said exhaust-ports, and means whereby said steam-reversing valves and said exhaust-valves are all moved si-

multaneously into their respective positions to cause the engine to rotate in either a right or a left hand direction of rotation.



702,475. HARROW. WILLIAM POWERS, Central City, Iowa. Filed Feb. 14, 1902. Serial No. 94,116. (No model.)



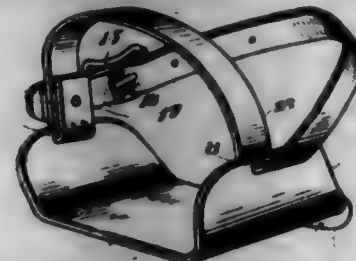
Claim.—1. In combination with a plurality of harrow-sections, a brace-bar comprising a plurality of sections, to which the front ends of the harrow-sections are respectively connected, pivot-rods to which the meeting ends of the brace-bar sections are hingedly connected, a draw-bar connected to the said rods, in front of the intermediate section of the brace-bar, and braces secured to the sections of the brace-bar and pivoted on said pivot-rods, substantially as described.

2. In combination with a plurality of harrow-sections, a brace-bar comprising a plurality of sections, to which the front ends of the harrow-sections are respectively connected, pivot-rods, to which the meeting ends of the brace-bar sections are hingedly connected, a draw-bar connected to the said pivot-rods in front of the intermediate section of the brace-bar, brace-straps, secured to the intermediate section of the brace-bar and having their outer ends pivoted on the pivot-rods and bearing against the rear side of the draw-bar, and brace-rods, pivoted on the said pivot-

rods, extending outwardly, and connected to the outer harrow-sections, substantially as described.

3. In combination with a plurality of harrow-sections, a brace-bar comprising a plurality of sections, to which the front ends of the harrow-sections are respectively connected, pivot-rods to which the meeting ends of the brace-bar sections are hingedly connected, a draw-bar connected to the said pivot-rods in front of the intermediate section of the brace-bar, brace-straps, secured to the intermediate section of the brace-bar and having their outer ends pivoted on the pivot-rods and bearing against the rear side of the draw-bar, brace-rods pivoted on said pivot-rods and connected to the outer harrow-sections, and a draft element, in front of the draw-bar and having its ends connected to the front portions of the pivot-rods, substantially as described.

702,476. SHOE-PROTECTOR. JAMES M. PRICE, New Rockford, N. D. Filed Jan. 7, 1902. Serial No. 93,790. (No model.)



Claim.—1. A shoe-protector comprising a plate having upturned and slotted ends and having a downturned side edge to lie against the front face of a shoe-heel, a strap engaged through one of the slots and passed loosely through the other slot, and a buckle adjacent to the engaged end of the strap and adapted to receive the free end of the strap.

2. A shoe-protector comprising a plate adapted to lie against the under side of the instep of a shoe and having upturned ends having horizontally-extending slots, a strap engaged through one of the slots and passed loosely through the other slot to lie in a horizontal plane, and a buckle attached to the strap adjacent to its engaged end and adapted to receive the free end of the strap and hold it in a vertical plane, the rear edge of the plate being bent downwardly to lie against the front face of the shoe-heel.

702,477. GAME OR PUZZLE. JOHN POTTER, Cornell, Pa. Filed June 14, 1901. Serial No. 64,518. (No model.)



Claim.—1. A game or puzzle consisting of an open, shallow box, the bottom thereof provided with series of rows of cavities, separated by ridges, and a marginal rim around said box, in combination with a cover adapted to close over said box, together with a series of movable balls or the like, adapted to said cavities, and extended upward, when in said cavities, above the same, and said cover adapted to prevent said balls or the like from being shifted from one cavity to another when said cover is down in place, and means for detachably maintaining said cover in said position, substantially as and for the purposes described.

2. The combination of shallow box having rows of cavities, A' A', arranged in equal series in a square, a marginal rim, A', around said cavities, supporting-foots, A' A', movable balls, B B, and detachable cover, C C', constructed to rest upon said rim, and said balls, and prevent escape of said balls from said cavities, the whole constructed and arranged substantially as and for the purposes described.

702,478. WATER-GUN. CHARLES E. RADSHAW, Elgin, Ill. Filed Dec. 19, 1901. Serial No. 94,481. (No model.)

Claim.—1. A toy or device for use in initiating candidates into lodges, secret societies and other like organizations, consisting of a gun-stock, a gun-barrel mounted upon said stock, a trigger, said barrel being adapted to contain water or other fluid and having a rear discharge-opening, ejecting mechanism for ejecting water or other fluid through said discharge-opening, and a locking device for locking the ejecting mechanism in position to eject the water, said locking device being connected with and operated by the said trigger.

2. A toy or device for the purpose described, consisting of a device having substantially the shape and appearance of an ordinary gun, the same being provided with a rear discharge-opening and also with a chamber for water or other fluid, ejecting device for ejecting the water or

other fluid through said discharge-opening, and a trigger for releasing said ejecting device and thereby discharging the water into the face of the operator.



3. A toy or device for the purpose described, consisting of a device having the shape and appearance of an ordinary gun, the same being provided with a rear discharge-opening, ejecting device for ejecting any desired substance or fluid through said discharge-opening, and a trigger for releasing said ejecting device.

4. A toy water-gun for use in the manner described, comprising a gun-stock, a gun-barrel, said gun-barrel being constructed with a water-chamber and also a rear discharge-opening, a spring-pressed plunger inclosed by said barrel and adapted for ejecting the water through said discharge-opening, and trigger mechanism for holding said plunger in position to eject the water.

5. A toy or the like for the purpose described, consisting of a device in the nature of and having substantially the shape and appearance of a gun, the rear end of the gun-barrel being provided with a discharge-opening, a water-chamber in said gun, a spring-pressed plunger inclosed by said gun-barrel and adapted to eject water through said discharge-opening, trigger mechanism for releasing said plunger, and a valve device operated by said trigger and adapted to control said discharge-opening.

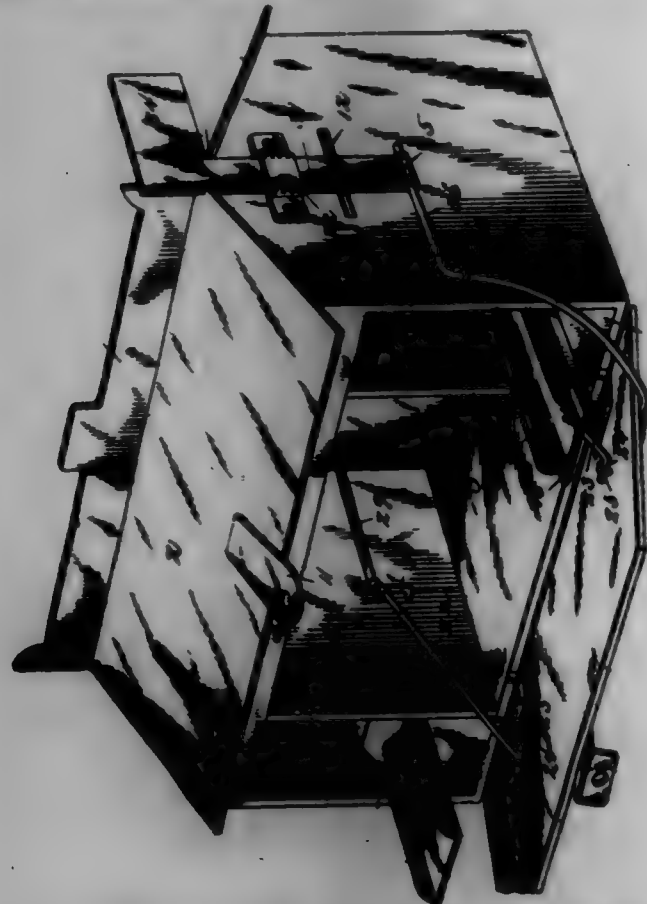
6. In a toy device of the character and for the purpose specified, the combination of a gun-stock, a gun-barrel, said gun-barrel being provided with a rear discharge-opening and a water-chamber, a spring-pressed plunger inclosed by said gun-barrel and adapted to eject the water through said discharge-opening, a trigger device for releasing said plunger, a reciprocating valve held normally seated by a spring and adapted to control said discharge-opening, and a locking-bolt operated by said trigger device and adapted for releasing said valve, the trigger thereby operating to simultaneously release said plunger and open said discharge-opening.

7. A toy for use in initiating candidates into lodges, secret societies and like fraternal organizations, consisting of a device having substantially the shape and appearance of a firearm, the same being constructed with a water-chamber and a rear discharge-opening adapted to direct the discharge into the face of the operator, ejecting mechanism for forcing the water through said discharge-opening, and a trigger device for releasing said ejecting mechanism at the moment when the usual discharge or report is expected from the fire-arm.

702,479. MAIL-BOX. JAMES M. RADSHAW, Matthews, Ind. Filed Jan. 7, 1902. Serial No. 93,772. (No model.)

Claim.—1. A mail-box comprising a body divided into three compartments each having means for depositing matter therein from the exterior, the one side of the box being primarily left fully open to give access to the compartments, a door hinged at its lower edge to the bottom of the side of the box primarily left open and adapted to close said side,

trays slidingly mounted in the end compartment and horizontally disposed to receive the matter deposited in said compartments, and connecting devices between opposite ends of the door and the said trays, whereby the latter will be moved outwardly and inwardly simultaneously with the corresponding movement of the door.



2. A mail-box comprising a body divided into three compartments with slides leading thereto from the exterior, supplemental bottoms in the end compartments, a slide on one of the said supplemental bottoms carrying a tray having its opposite side portions closely bearing against the side walls of its compartment, a tray slidingly mounted on the other supplemental bottom and provided with a directing-enlargement at the rear, a drop-door hinged to the body, and connecting means between the movable parts in the end compartments and the said door whereby said movable parts will be drawn outwardly from and moved inwardly into their compartments simultaneously with the opening and closing movements of the door.

3. A mail-box having a money-receiving compartment at one end, a supplemental bottom in the said compartment, a tray slidingly mounted on the supplemental bottom and provided with a directing-enlargement at the rear end that inclines at the front downwardly toward the tray, the said tray being at all times maintained in a true horizontal position in its movement over the supplemental bottom, a drop-door hinged to one side of the box to expose the said compartment, and connecting means between the tray and the door whereby said tray will be drawn outwardly from and pushed inwardly into the box simultaneously with the opening and closing movements of the door.

4. A mail-box having an end compartment with a supplemental bottom therein, a door hinged over one side of the box, a slide mounted on the supplemental bottom and carrying a tray consisting of a sheet-metal strip upturned at the opposite side portions and closely bearing against the side walls of the said compartment, and means between the said slide and door for causing the slide and tray to open and close simultaneously with the corresponding movements of the door.

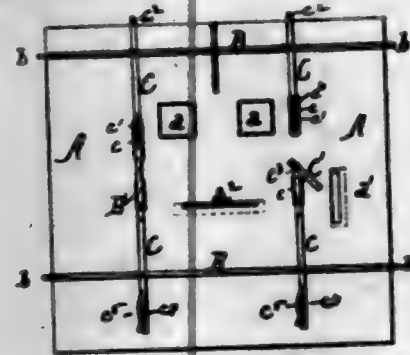
5. A mail-box having a letter-compartment accessible by means of a slide in one of the walls thereof, a hinged door for said compartment, a slide vertically movable over the said slot and having an upper laterally-projecting head, and means between the said slide and door for moving the slide simultaneously with the door.

702,480. STORM-CURTAIN FOR VEHICLES. EDWARD REEBER, Butler, Pa. Filed Dec. 7, 1901. Serial No. 96,986. (No model.)

Claim.—1. In a storm-curtain for buggies or carriages, the combination of the curtain A, braces B fixed crosswise on the same and the upright brace C two or more in number, having the two parts C each end of the connecting parts C' and the cleaves c, substantially as described and shown.

2. In a storm-curtain for carriages, the brace C, having at the upper

end the hooked extension c' and spring c' to attach to the buggy-top, and the forked extension c' with spring c' to attach the curtain to the dashboard; and the brace B terminating in hooks b to attach the curtain to the uprights of the buggy-top; all combined and arranged, substantially as described and shown.



702,481. FIRE-MASK. JAMES R. REID, Gloversville, N. Y., assignor of two-thirds to J. Leobenheim & Son, Gloversville, N. Y., a firm. Filed Sept. 28, 1901. Serial No. 76,928. (No model.)



Claim.—1. A fire-mask, comprising a flexible inclosure, containing filtering material, open to the atmosphere at or near its outer edges to admit smoke and air, and near its central portion to admit the nostrils of the wearer, and having eye-apertures there-through, closed at their outer ends to the atmosphere by a transparent covering impervious to the smoke, and means for securing the inclosure upon the face of the wearer.

2. A fire-mask, comprising a flexible inclosure, containing filtering material, open to the atmosphere at or near its outer edges to admit smoke and air, and near its central portion to admit the nostrils of the wearer, and having an eye-aperture there-through, closed to the filtering-chamber by a tube and to the atmosphere at their outer ends by a transparent covering, and means for securing the inclosure upon the face of the wearer.

3. A fire-mask, comprising a concavo-convex inclosure, containing filtering material, open to the atmosphere at or near its outer edges to admit smoke and air, and near its central portion to admit the nostrils of the wearer, means for admitting visual rays to the eyes, and means for securing the inclosure upon the face of the wearer.

4. A fire-mask inclosure comprising two sheets of material secured together around their outer edges, containing filtering material integral with one of each sheet, open to the atmosphere at or near its outer edges to admit smoke and air, and near its central portion to admit the nostrils of the wearer, means for admitting visual rays to the eyes, and means for securing the inclosure upon the face of the wearer.

5. A fire-mask inclosure, open to the atmosphere at or near its outer edges to admit smoke and air, and near its central portion to admit the nostrils of the wearer, having one of its side walls composed of animal integument dressed with its dermal appendages which project from its inner side and are adapted to approximately fill the inclosure, and means for securing the inclosure upon the face of the wearer.

702,482. MACHINE FOR FILLING AND WRAPPING POWDERS. FRANK A. ROBINSON, Auburn, N. Y., assignor to MATTIE LARY, New York, N. Y. Filed Jan. 13, 1902. Serial No. 96,981. (No model.)

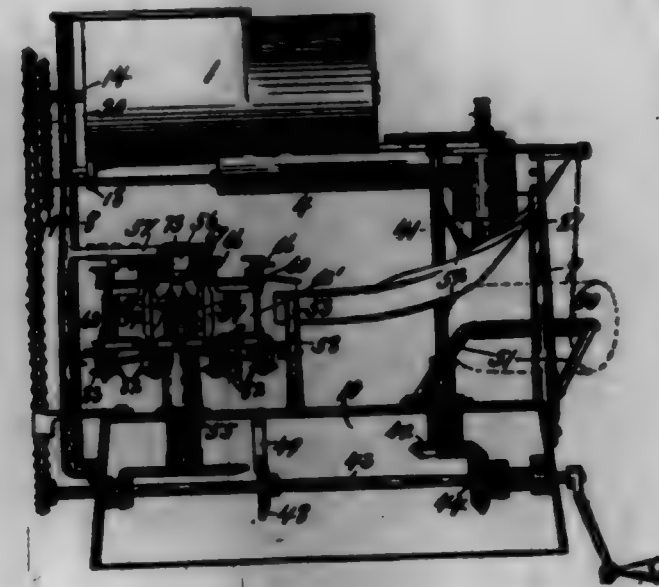
Claim.—1. In a machine for feeding and wrapping powders, a conduit having an outlet, and an automatic means including a closure to intermittently close and open the outlet, a rotary screw-feed, and an expandable helices carried by the screw.

2. In a machine for feeding and wrapping powders, an upright conduit having an outlet, and an intermittently-moving feed comprising a screw having expandable helices, and a closure carried by said screw and movable across the outlet to open and close the same.

3. In a machine for feeding and wrapping powders, a conduit having an outlet, and a rotary screw-feed having a closure movable across the opening for the purpose specified.

4. In a machine for feeding and wrapping powders, a conduit having an outlet, and a screw-feed carrying a closure intermittently opening and closing the outlet.

5. In a machine for feeding and wrapping powders, a conduit having an outlet, and a rotary screw-feed having a closure between adjacent helices for the purpose specified.



6. In a machine for feeding and wrapping powders, a conduit having an outlet, a rotary screw-feed having expandable helices, and a closure carried by the screw for the purpose specified.

7. In a machine for feeding and wrapping powders, a conduit having an outlet, a rotary screw-feed having expandable helices, and a closure secured to the periphery of one of the helices and movable across the outlet.

8. In a machine for feeding and wrapping powders, a conduit having an outlet, a revolving stem carrying a closure for the outlet, and an expandable spiral blade mounted on the stem.

9. In a machine for feeding and wrapping powders, a hopper having an outlet, an intermittently-rotating spiral blade, a closure carried by the lower end of said blade and movable across the outlet for intermittently opening and closing said outlet, and a curved agitator-arm carried by the upper end of said spiral blade, substantially as described.

10. In a machine for feeding and wrapping powders, a rotary spiral blade and an inclosure therefor having a discharge-opening, in combination with a closure for the opening revolving with the blade, and means to rotate the blade one revolution at regular predetermined intervals.

11. In a machine for feeding and wrapping powder, a screw having an axially-movable helix, and an additional helix fixed from axial movement and provided with a gate or closure for the purpose set forth.

12. In a machine for feeding and wrapping powder, a screw comprising a fixed helix and an expandable spiral blade, a gate or closure on the fixed helix, and a single operating member for expanding the helices of the spiral blade.

13. In a machine for feeding and wrapping powder, a conduit having a discharge-opening, a rotary spiral blade having its helices provided with nuts, a stem having different threads engaged with the nuts, and a gate rotating with the blade across the opening.

14. In a machine for feeding and wrapping powder, a conduit having a discharge-opening, a rotary spiral blade having its helices provided with nuts, a stem having different threads engaged with the nuts, a lock-nut engaged with the threaded stem, and a gate rotating with the blade across the opening.

15. A feeding device for powder-wrapping machines comprising a chamber one discharging into the other, the latter chamber having a discharge-opening, and a screw-feed in each chamber, one being movable intermittently and provided with a gate or closure for the opening.

16. A feeding device for powder-wrapping machines comprising a vertical hopper, a screw-feed in the hopper, a horizontal chamber discharging into the hopper, a screw in said chamber, a receptacle discharging into the chamber, a screw between the receptacle and chamber, and an agitator in the receptacle movable across the screw.

17. A feeding device for powder-wrapping machines comprising a vertical hopper, a screw-feed in the hopper, a horizontal chamber discharging into the hopper, a screw in said chamber, a receptacle discharging into the chamber, a screw between the receptacle and chamber, and a rotary feed and agitator in the receptacle for the purpose set forth.

18. A feeding device for powder-wrapping machines, comprising a receptacle, a subchamber and a vertical hopper discharging respectively from one to the other, the hopper being arranged at right angles with the subchamber and having a discharge-opening, an intermittently-operated

screw-feed in the hopper and provided with a closure for the opening, a feeding device in the receptacle, and a prime mover connected to said feeding device and screw-feed.

19. A feeding device for powder-wrapping machines, comprising a receptacle, a subchamber, and a hopper discharging respectively from one to the other, the hopper being arranged at an angle with the subchamber and having a discharge-opening, an intermittently-moving feeding device in the hopper, a gate or closure carried thereby for the discharge-opening, feeding devices in the receptacle and subchamber, and a prime mover connected to the feeding devices for imparting continuous movement to those in the receptacle and subchamber and intermittent movement to the feed in the hopper.

20. A feeding device for powder-wrapping machines, comprising a receptacle, subchamber and a hopper discharging respectively from one to the other, the hopper being arranged at an angle with the subchamber, a prime mover, feeding devices in the receptacle and subchamber actuated by the prime mover, and an expandable spiral blade in the hopper actuated intermittently by the prime mover.

21. A feeding device for powder-wrapping machines, comprising an upright conduit having a discharge-opening, a rotary expandable spiral blade in the conduit moving intermittently one revolution at a time, a closure for the opening moving with said blade, means for expanding and holding the spiral blade in its adjusted position, and additional means for feeding the powder to said spiral blade.

22. A wrapping and folding mechanism for powders, comprising a former, a moving frame having means to draw the wrapper through the former, automatic means on the frame for separating the wrappers and folding their ends toward each other, and additional means for interlocking one end of the wrapper in the fold of the other end.

23. A wrapping and folding mechanism for powders, comprising a former, a rotary head having means to draw the wrappers from the former, end-folding gates carried by the head, one of which is arranged to separate the wrappers, means for folding the ends of the wrapper, and means operated by one of the gates to interlock one end of the wrapper in the fold of the other.

24. A wrapping and folding mechanism for powders, comprising a former and mechanism to draw the wrappers through the former and fold the same and to simultaneously separate the wrappers and interlock one end in the fold of the other end.

25. A wrapping and folding mechanism for powders, comprising a former, and automatically-operating mechanism to draw the wrappers from the former and fold the same and to simultaneously separate and interlock the ends of the wrapper with each other without interruption in the operation of said mechanism.

26. A wrapping and folding mechanism, comprising a former, a continuously-rotating head having means to draw the wrappers from the former, an end-folding gate for separating the wrappers, means for folding the wrappers, and means for interlocking one end in the fold of the other end, substantially as described.

27. A wrapping and folding mechanism comprising a former, a rotary head, a gripper carried by the head to engage and hold the wrapper, a cam for actuating the gripper, end-folding gates carried by the head, one of said gates arranged to separate the wrappers, means to close the gates independently of each other, and means operated by one of the gates to interlock one end of the wrapper in the fold of the other.

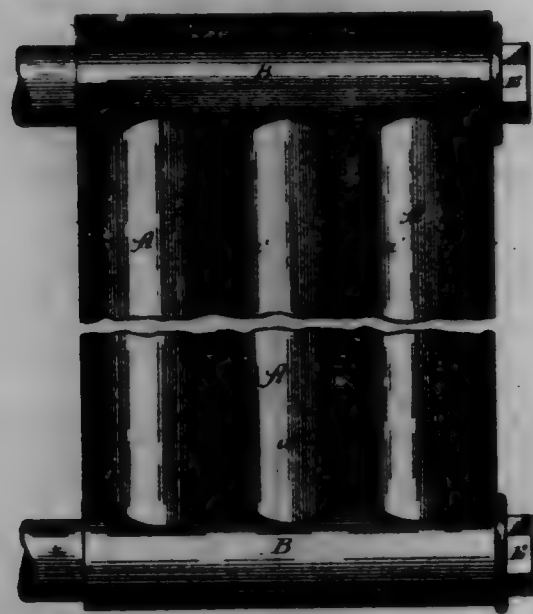
28. A wrapper and folding mechanism comprising a former, a continuously-rotating head, a gripper carried by the head to engage and fold the wrapper, a cam operating the gripper, end-folding gates on the head, one of said gates arranged to separate the wrappers, means operated by one of the gates to interlock one end of the wrapper in the fold of the other, and means to close the gates one in advance of the other.

29. A wrapping and folding mechanism, including a former, a rotary head, a gripper carried by the head, means to operate the gripper, gates mounted on the head to fold the ends of the wrapper, and additional means for interlocking the ends of the wrapper with each other.

30. A machine for filling, wrapping and folding powders comprising an upright conduit and a horizontal chamber and a rotary screw-feed in each, one screw having a spiral blade expandable axially, means to expand the helices of the spiral simultaneously, a former for supporting the wrapper material at the discharge-opening of the upright conduit, a rotary head having grippers to engage and draw the wrapper through the former, and mechanism carried by the head for folding and interlocking the ends of the wrappers.

31. A machine for filling, wrapping and folding powders comprising a former, an upright conduit, an intermittently-rotating spiral blade, a fixed former for the wrapper, and a rotary head carrying mechanism to separate the wrappers and to fold their ends inwardly, and automatic means on said head to interlock one end of the wrapper with the other end as the head is rotated.

702,488. RADIATOR. CHARLES W. ROSE, Chicago, Ill., assignor of sixty-nine one-hundredths to Julian W. Mathis, Eugene Worthing, and Crampton L. Linley, Chicago, Ill. Filed Jan. 22, 1900. Serial No. 2,332. (No model.)



Claim.—1. A radiator consisting of a body or tubular portion and headers, the body or tubular portion embracing, as a unit, a plurality of tubes, and having the entire series of body-tubes with the headers made from two companion plate halves or sections, each stamped or pressed into shape to form a multiplicity of straight-line body depressions, with the body depressions of one plate half or section in alignment with and parallel with the body depressions of the companion plate half or section, the two series of body depressions running in straight lines across the plate halves or sections and to form on two opposite sides edge depressions with the edge depressions of one plate half or section in alignment with and parallel with the edge depressions of the companion plate half or section, the two sets of edge depressions running in a straight line and in a right-angle relation to the body depressions and intersecting the ends of the body depressions, each body depression constituting one-half of a straight-line body-tube and each edge depression constituting one-half of the straight-line header integral with the half-tubes of the body, and to form edge flanges on the sides and ends of the plate halves or sections and interior contact-faces on the sides of the body-tubes, for the two plate halves or sections to be joined together by uniting the flanges and contact-faces, substantially as described.

2. A radiator consisting of a body or tubular portion and headers, the body or tubular portion embracing, as a unit, a plurality of tubes, and having the entire series of body-tubes with the headers made from two companion plate halves or sections, each stamped or pressed into shape to form a multiplicity of straight-line body depressions, with the body depressions of one plate half or section in alignment with and parallel with the body depressions of the companion plate half or section, the two series of body depressions running in straight lines across the plate halves or sections and to form on two opposite sides edge depressions with the edge depressions of one plate half or section in alignment with and parallel with the edge depressions of the companion plate half or section, the two sets of edge depressions running in a straight line and in a right-angle relation to the body depressions and intersecting the ends of the body depressions, each body depression constituting one-half of a straight-line body-tube and each edge depression constituting one-half of a straight-line header integral with the half-tubes of the body, and to form edge flanges on the sides and ends of the plate halves or sections and interior contact-faces on the sides of the body-tubes, for the two plate halves or sections to be joined together by uniting the flange and contact-faces, and a reinforcement or thimble at each end of each header, substantially as described.

703,484. CAR-FENDER. WILLIAM B. ROSE, Bay St. Louis, Miss. Filed Nov. 30, 1901. Serial No. 84,362. (No model.)

Claim.—1. In a car-fender, the combination with a downwardly-movable catch member, of a support for normally holding the catch member in elevated position, said support comprising a slidably-mounted section, and a trip-section hinged to the slidably-mounted section and having a detachable engagement with the catch member to normally support the same.

2. In a car-fender, the combination with a downwardly-movable catch member, of a support for normally holding the catch member in elevated position, said support comprising a slidably-mounted section, a trip-section hinged to the slidably-mounted section and having a detachable engagement with the catch member to normally support the same, and a spring carried by one section and engaging the other to automatically elevate the trip-section when it is detached from the catch member.

able engagement with the catch member to normally support the same, and a spring carried by one section and engaging the other to automatically elevate the trip-section when it is detached from the catch member.



3. In a car-fender, the combination with a downwardly-movable catch member, of a support for normally holding the catch member in elevated position, said support comprising a slidably-mounted section, a trip-section hinged intermediate its ends to the slidably-mounted section and having a detachable engagement with the catch member to normally support the same, and a spring carried by the slidably-mounted section and engaging the inner end of the trip-section to automatically elevate the latter when it is detached from the catch member.

4. In a car-fender, the combination with a downwardly-movable catch member, of a support for normally holding the catch member in elevated position, said support comprising a box provided with spaced sets of rollers, a section slidably mounted at its inner end between the sets of rollers and having its outer end bifurcated, a trip-section hinged intermediate its ends in the bifurcated end of the slidable section and having a detachable engagement with the catch member to normally support the same, and a spring carried by the slidable member and bearing upon the inner end of the trip-section to elevate the same when it is detached from the catch member.

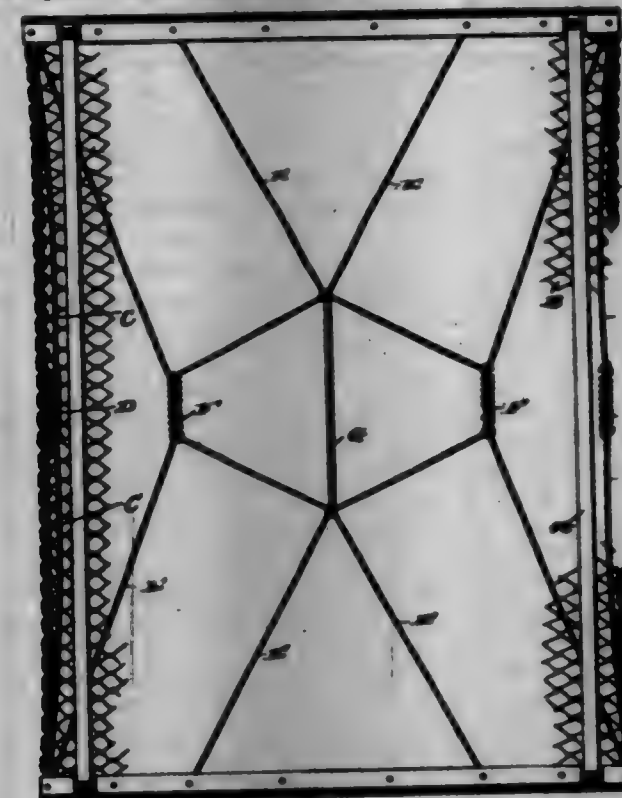
5. In a car-fender, the combination with a fastening-plate arranged to be secured to the front portion of a car, of a downwardly-movable catch member hinged to the plate, a spring carried by the plate and bearing upon the catch member to move the latter downwardly, and an upwardly-swinging rearwardly-movable support having a portion extending in front of the catch member, said support having a detachable engagement with the catch member.

6. In a car-fender, the combination with a fastening-plate arranged to be secured to the front portion of a car, of a downwardly-movable catch member hinged to the plate, a spring carried by the plate and bearing upon the catch member to move the latter downwardly, and an upwardly-swinging rearwardly-movable support comprising bearings mounted upon the ends of the fastening-plate, sections slidably mounted in the bearings, a trip-section extending around in front of the catch member and hinged to the slidable section, said trip-section carrying rollers that detachably engage the catch member, and springs mounted upon the slidable sections and bearing against the trip-section to elevate the latter when detached from the catch member.

702,485. BED-BOTTOM. PATRICK R. ROBERT, New York, N. Y. Filed Feb. 1, 1902. Serial No. 25,181. (No model.)

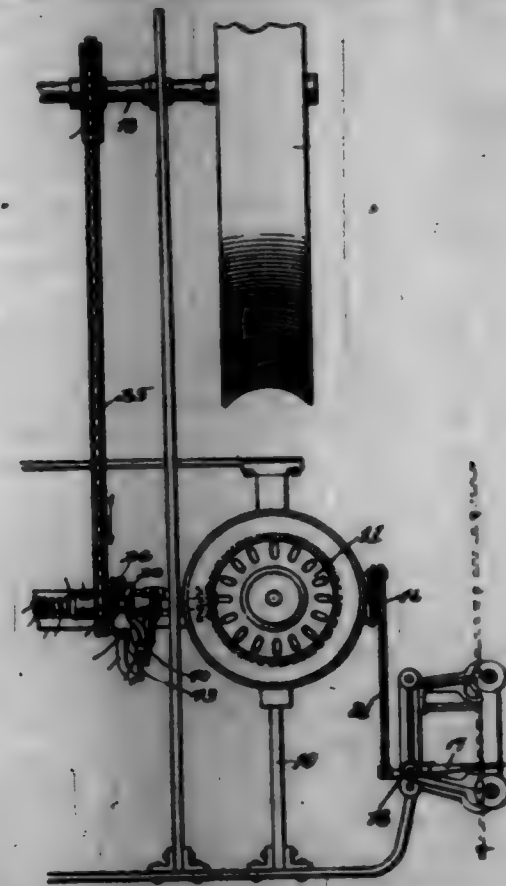
Claim.—1. In a bed-bottom, the combination of a frame, a fabric

connected thereto, and a fabric-support comprising looped cables connected in pairs to opposite bars of the frame and arranged so that the inner legs of each pair intersect each other, a connection between the intersecting portions of one pair of the cables and the intersecting portions of the other pair, and connections between the heights of the cables of one pair and the heights of the corresponding cables of the other pair.



2. In a bed-bottom, the combination of a frame, a fabric connected thereto, and a fabric-support comprising looped cables connected at their ends in pairs to opposite bars of the frame and arranged so that the inner legs of each pair intersect each other, a connection between the intersecting portions of one pair of the cables and the intersecting portions of the other pair, and coiled springs connecting the heights of the cables of one pair and the heights of the corresponding cables of the other pair.

702,486. SEEDING-MACHINE. JONATHAN H. SANDER, Moline, Ill., assignor to D. H. Seidler Carriage Company, Moline, Ill., a Corporation of Illinois. Filed Nov. 1, 1901. Serial No. 22,722. (No model.)



Claim.—1. The combination of a seed-plate shaft, driving mechanism, clutch mechanism for connecting said seed-plate shaft with said driving mechanism, a rock-shaft, a throw-out device mounted on and rigidly connected to said rock-shaft for operating said clutch mechanism to disconnect said seed-plate shaft from said driving mechanism, and a spring for normally holding said throw-out device in operative position, substantially as described.

vice mounted on and rigidly connected to said rock-shaft for operating said clutch mechanism to disconnect said seed-plate shaft from said driving mechanism, substantially as described.

2. The combination of a seed-plate shaft, driving mechanism, clutch members adapted to connect said seed-plate shaft with said driving mechanism for rotating said shaft, a rock-shaft, and a throw-out arm rigidly connected to said shaft and normally lying in position to hold said clutch members out of engagement, and being moved by the rocking of said rock-shaft to permit said clutch members to engage, substantially as described.

3. The combination of a seed-plate shaft, driving mechanism, clutch mechanism for connecting said seed-plate shaft with said driving mechanism for rotating said shaft, a rock-shaft, a throw-out device mounted on and connected to said rock-shaft for operating said clutch mechanism to disconnect said seed-plate shaft from said driving mechanism, and a spring for normally holding said throw-out device in operative position, substantially as described.

4. The combination of a seed-plate shaft, driving mechanism, clutch mechanism for connecting said seed-plate shaft with said driving mechanism for rotating said shaft, a rock-shaft, a throw-out device mounted on and rigidly connected to said rock-shaft for operating said clutch mechanism to disconnect said seed-plate shaft from said driving mechanism, a check-row-wire-operated lever for rocking said rock-shaft, and a spring for normally holding said throw-out device and said check-row-wire-operated lever in operative position, substantially as described.

5. The combination of a seed-plate shaft, driving mechanism, clutch members adapted to connect said seed-plate shaft with said driving mechanism for rotating said shaft, a rock-shaft, a throw-out arm rigidly connected to said shaft and normally lying in position to hold said clutch members out of engagement, and being moved by the rocking of said rock-shaft to permit said clutch members to engage, a check-row-wire-operated lever for operating said rock-shaft, and a spring for normally holding said lever and said throw-out arm in operative position, substantially as described.

6. In a corn-planter, the combination of driving-wheel, a seed-plate shaft, a clutch member carried by said shaft and adapted to rotate independently thereof, means connecting said clutch member with the carrying-wheel, whereby it will rotate by the forward movement of the planter, a clutch member carried by said seed-plate shaft and fixedly secured thereto, said clutch member being adapted to engage said first-mentioned clutch member for rotating said shaft, a rock-shaft, a throw-out device mounted on and rigidly secured to said shaft, said throw-out arm being adapted to disconnect said clutch members when in its normal position, a spring for holding said throw-out device in its normal position, and a check-row-wire-operated lever for rocking said shaft to move said throw-out device out of its operative position, substantially as described.

7. The combination of a seed-plate shaft, a clutch composed of a ratchet-wheel and a pawl, one of said clutch members being rigidly connected to said shaft so as to rotate therewith, means operated by the forward movement of the machine for rotating the other clutch member, and throw-out mechanism for disconnecting said clutch members, consisting of a rock-shaft, a throw-out arm rigidly mounted thereon, and means for rocking said shaft, substantially as described.

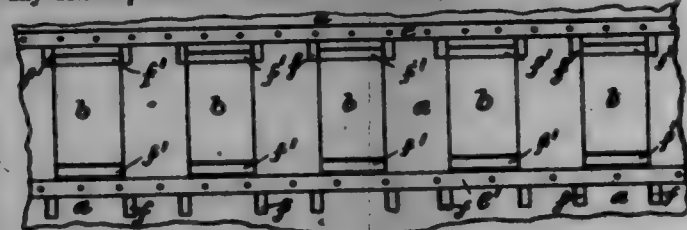
8. The combination of a seed-plate shaft, a clutch composed of a ratchet-wheel and a pawl, one of said clutch members being rigidly connected to said shaft so as to rotate therewith, means operated by the forward movement of the machine for rotating the other clutch member, throw-out mechanism for disconnecting said clutch members, consisting of a rock-shaft, a throw-out arm rigidly mounted thereon, means for rocking said shaft, and a spring normally holding said throw-out arm in operative position, substantially as described.

9. The combination of a seed-plate shaft, a clutch composed of a ratchet-wheel and a pawl, one of said clutch members being rigidly connected to said shaft so as to rotate therewith, means operated by the forward movement of the machine for rotating the other clutch member, throw-out mechanism for disconnecting said clutch members, consisting of a rock-shaft, a throw-out arm rigidly mounted thereon, a lever for rocking said shaft, and a spring normally holding said rock-shaft and lever in operative position, substantially as described.

10. The combination of a seed-plate shaft, a clutch composed of a wheel having ratchet-teeth on its periphery and a pawl adapted to engage said ratchet-teeth, one of said clutch members being rigidly connected to said shaft so as to rotate therewith, means operated by the forward movement of the machine for rotating the other clutch member, and throw-out mechanism for disconnecting said clutch members at intervals, substantially as described.

11. The combination of a seed-plate shaft, a clutch composed of a wheel having ratchet-teeth on its periphery and a pawl adapted to engage said ratchet-teeth, one of said clutch members being rigidly connected to said shaft so as to rotate therewith, means operated by the forward movement of the machine for rotating the other clutch member, and throw-out mechanism for disconnecting said clutch members at intervals, substantially as described.

plates, and for definitely positioning and holding said frame in relation to any desired plates of said series, substantially as described.



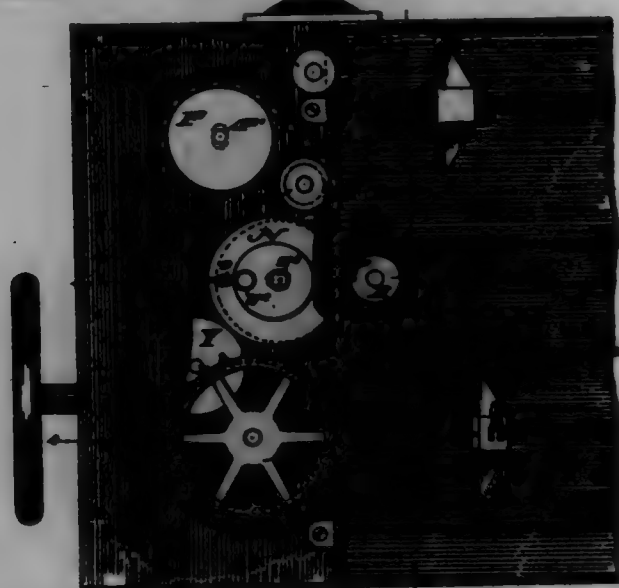
2. In combination with an extended table, plates disposed thereon at different points, rails extending longitudinally in front of and in rear of the plates, a type-writer having a rectangular under frame; antifrictional means adapted to each frame for running on said rails; and means whereby a type-writer may be definitely located and held in proper position in relation to the desired plates, the said rails serving to support and guide the type-writer in its movement along the said table, substantially as described.

3. In combination, an extended table, plates disposed thereon at different points; rails running longitudinally in front of and in rear of said plates; a type-writer having a rectangular under frame; means supporting said type-writer frame and adapted to run on the said rails; and means for definitely positioning and holding the said type-writer frame in relation to the desired plates, substantially as described.

4. In combination an extended table; plates fixed thereon at different points; rails extending longitudinally in front of and in rear of the said plates; a type-writer having a rectangular under frame; means upon which the said type-writer frame is supported, to move easily on the rails; and slots in the said table extending at right angles to the rails, and having inclined bottoms, whereby the said type-writer frame will be definitely located and held in proper position to the desired plates, substantially as described.

5. A type-writer table having a plurality of plates disposed at different points; a type-writer having a rectangular under frame; supports under said frame adapted to permit movement of frame easily in any direction; means for guiding the type-writer frame when moved longitudinally to the table; and means for positioning and holding the said type-writer frame in relation to the plates when the type-writer frame is moved transversely to the table, substantially as described.

702,494. STAMP-CANCELING MACHINE. GEORGE R. SHAW, Worcester, Mass. Filed July 24, 1900. Serial No. 24,887. (No model.)



Claim.—1. In a stamp-canceling machine, a feeding mechanism comprising a compressible holder provided with a plurality of air-chambers each having an open mouth, the several mouths opening within the area of the letter to be fed, a carrier for said holder, means by which the holder may be compressed to discharge the air from its chambers whereby it will when expanded, operate to hold by atmospheric pressure a letter fed against its open mouth, and means for compressing the holder to cause it to release the letter so held substantially as set forth.

2. A stamp-canceling machine provided with a letter-feeding mechanism comprising a carrier composed of front and rear hand-wheels, an endless feeding-band thereon, and a section-holder secured thereto, and means for operating said holder whereby it is caused to secure and release the letter, and guides whereby the letter-holder is directed in a straight line between the point where it receives the letter and the canceling device, substantially as set forth.

3. In a stamp-canceling machine, the combination of the front and rear hand-wheels, the endless feeding-band, and a compressible holder carried by the band and having a plurality of independent chambers with their mouths opening independently whereby the holder will operate to secure the letter at different points, substantially as set forth.

4. In a stamp-canceling machine, a compressible holder provided with an air-chamber having an open mouth and having adjacent to said mouth a flat face to fit against the letter and a projecting head or nipple surrounding said mouth, substantially as set forth.

5. A stamp-canceling machine comprising a carrier and a compressible holder provided with a plurality of independent chambers having open mouths arranged in longitudinal and lateral series, substantially as set forth.

6. In a stamp-canceling machine, the combination of a compressible holder provided with an air-chamber having an open mouth against which the letter may be held by atmospheric pressure, and with a spring-holding chamber with a spring operating in said chamber by which to expand the holder to open the air-chamber, and a double-winged plate receiving said spring, substantially as set forth.

7. In a stamp-canceling machine, a compressible holder of resilient material provided with an air-chamber having an open mouth and with a spring-holding chamber and a series of independent springs operating in each chamber by which to expand said holder, substantially as set forth.

8. In a stamp-canceling machine, the combination of a compressible holder provided with an air-chamber having an open mouth and with a recess, and a spring in said recess to open or expand the holder, substantially as set forth.

9. In a stamp-canceling machine, a letter-feeding mechanism comprising a carrying-band; and a compressible holder carried thereby and provided with an air-chamber projecting beyond the rear face of the band and having an open mouth at the front or outer side of the band, substantially as set forth.

10. In a stamp-canceling machine, a letter-feeding mechanism comprising a carrying band or plate having a plurality of openings, and an expandable holder having a plurality of air-chambers whose mouths are open and are surrounded by projecting nipples, said holder being secured on one side of the band or plate with its nipples projecting through the openings thereof and protruding beyond the opposite side of the band or plate, substantially as set forth.

11. In a stamp-canceling machine, a letter-feeding mechanism, comprising the carrier band or plate having an opening for the nipple of the air-chamber of the holder, the compressible holder provided with the nipple fitted in said opening and secured at one face to the band or belt and having in said face an air-chamber whose mouth coincides with the opening in said band and also having in said face a recess for the expanding-spring, and the expanding-spring fitted in said recess and operating between the band or plate and the holder to open or expand the holder, substantially as set forth.

12. In a stamp-canceling machine, a letter-feeding mechanism comprising the endless carrier, the compressible letter-holder carried thereby and provided with an air-chamber projecting normally from the rear face of the band and having an open mouth, and the driving and supporting pulleys around which said carrier is passed and arranged to operate upon the air-chambers substantially as set forth.

13. In a stamp-canceling machine, the letter-feeding mechanism comprising the drive-pulley having the drum portion and the sprocket-wheel above and below the same, the carrier band or belt, the compressible holder thereon having an air-chamber, and the guide-pulleys co-operating with the drive-pulley in supporting the carrier, substantially as set forth.

14. In a stamp-canceling machine the combination of the pulleys supporting the carrier, the carrier having a band or plate passed around said pulleys, and the compressible holders secured to the inner side of said band or plate, substantially as set forth.

15. In a stamp-canceling machine, the combination of the letter-feeding mechanism consisting of an endless carrier having compressible letter-holding devices and guides for directing said carrier and for compressing the holding devices, and the canceling device operating along-side one edge of the said carrier, substantially as set forth.

16. In a stamp-canceling machine, the combination of the canceling device, a carrier movable past said canceling device and provided with a compressible holder provided with a series of independent chambers whose mouths open within the area of the letter to be fed and arranged to secure the letter by the action of atmospheric pressure and means in advance and rear of the canceling device by which to compress the holder whereby to provide for securing the letter by atmospheric pressure in advance of the canceling device and for releasing it in rear of said device, substantially as set forth.

17. In a stamp-canceling machine, the combination of a base-disk having on its periphery one portion of the cancellation device and one or

more lines of characters designating the postal station, a crown-disk concentric with and connected with the base-disk, an eccentrically-located stud, an intermediate disk rotatable on said stud and having on its periphery a series of characters representing the usual subdivisions of a day and so positioned that at all times one of the said series shall extend outwardly and register with the line or lines of characters on the base, a locking-plate having in its periphery a series of cavities and on its upper side a series of pins, the said cavities and pins being of the same number as the subdivisions of the intermediate disk, a pin for securing the locking-plate to the intermediate disk, and a stud rotatable in the crown-disk and having cross-arms adapted to mesh with and transmit motion to the pins of the locking-plate and also having a portion adapted to engage with the peripheral concavities of the said locking-plate and hold the same except at such times as the said arms and pins are in operative contact substantially as shown and described.

18. In a stamp-canceling machine, the canceling and doing wheel comprising the base-disk, the cap-disk fitted on and held to the base-disk, the time-disk between and concentric to the base and cap disks and provided with a wheel having peripheral notches and pins or spurs projecting from its face, and the piston having a wheel notched to mesh with the said peripheral notches and having lateral pins to mesh with the faces of the said wheel substantially as set forth.

19. In a stamp-canceling machine, the canceling-wheel comprising the base-disk, the cap-disk concentric with and secured to the base-disk, provided in its inner face with a central, main circular recess and with a circular recess lateral to and communicating with the main recess, the time-disk between and concentric to the base and cap disks, the wheel held to said time-disk and fitted in the main recess of the cap-disk and the shaft journaled in the cap-disk and provided with a wheel fitted in the lateral recess in the cap-disk and meshed with the wheel in the main recess, substantially as set forth.

20. In a stamp-canceling machine the canceling-wheel comprising the base-disk, the cap-disk, the time-disk between the base and cap disks, the pin extended between the base and cap disks and the screw device for clamping the base and cap disks together and upon the time-disk, substantially as set forth.

21. In a stamp-canceling machine, the combination of a canceling-wheel, a letter-feeding device having an endless carrier movable in an uninterrupted straight line past the face of the canceling-wheel adjacent to the periphery thereof and provided with a plurality of letter-holding devices, a letter-guide normally impinging the face of the carrier, opposite and above the cancellation-wheel, and a positively-driven resilient drum inflexibly mounted opposite the said cancellation-wheel.

22. A stamp-canceling machine provided with a letter-feeding mechanism comprising an endless carrier-band and a holder thereon arranged to secure the letter by the action of atmospheric pressure, means for expanding and contracting said holder whereby it is caused to secure and release the letter, and guides whereby the letter-holder is directed in a straight line between the point where it receives the letter and the canceling device.

23. A stamp-canceling machine comprising a letter-feeding mechanism composed of an endless carrier-band, a section-holder secured thereto, supporting and operating devices for the carrier, and means for positively expanding and contracting the section-holder substantially as set forth.

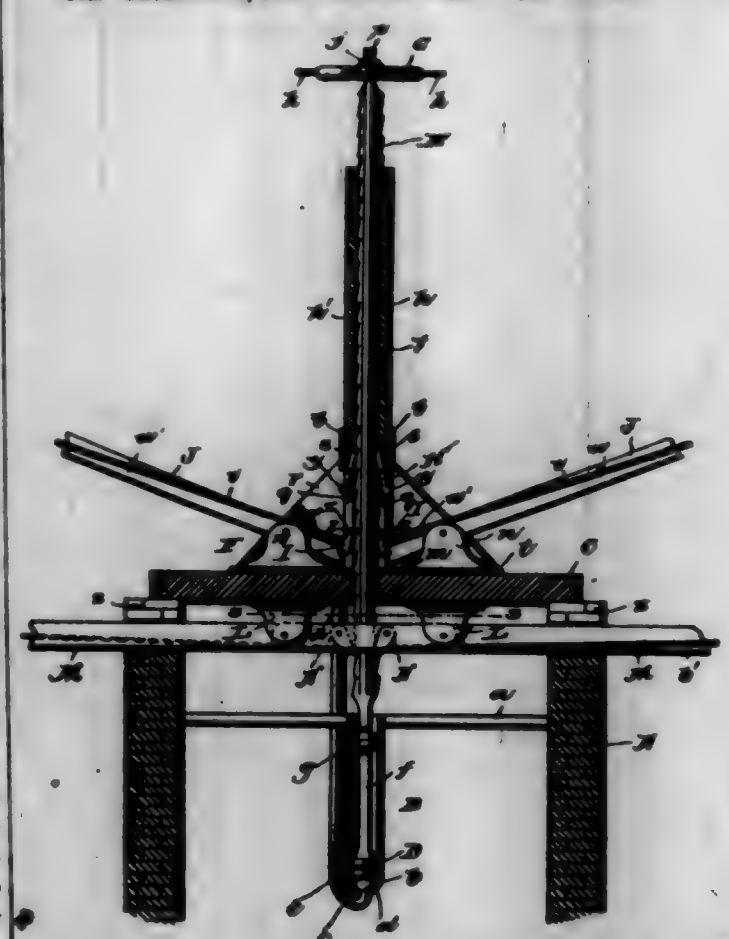
24. In a stamp-canceling machine, the combination of a compressible section-holder, an endless carrier to which said holder is secured, means carried by the holder by which it may be expanded and means independent of the holder for compressing the same substantially as set forth.

702,495. FILTER. DELLA R. SMITH, Brooklyn, N. Y. Filed Dec. 31, 1901. Serial No. 87,986. (No model.)



Claim.—As an article of manufacture, a filter comprising a glass body portion having reduced, cylindrical, tubular ends having threads pressed thereon, a sheet-metal sleeve for each tubular end comprising a major portion, a minor portion and an intermediate shoulder, said major and minor portions having threads pressed therein the major portions of the sleeves being screwed onto the reduced portions of the body, a pair of rubber washers, disposed between the end of each reduced portion of the body and the shoulder of the sleeve engaged therewith, a perforated plate held between each pair of washers, a reducing bushing formed of sheet metal and having tapered end portions, a rubber bushing having exterior threads formed thereon said bushings being screwed into the minor portions of the sleeves and each being adapted for engagement with either of said minor portions, and a filter-bed in the body between the perforated plates.

702,496. PUMPING APPARATUS. JAMES W. BARNES, Alhambra, Tex. Filed Jan. 20, 1902. Serial No. 91,251. (No model.)



Claim.—1. In a pumping or water-elevating apparatus, the combination of a main frame, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame and having beveled teeth A', a latch fulcrumed in the frame in a position to engage the teeth A' of the ratchet-bar and having a beveled hook at its lower end, a lever fulcrumed on the frame, a dog carried by said lever in a position to engage the beveled hook of the latch, and having a hook at its upper end adapted to engage the beveled hook of the latch, and means on the lever for drawing the dog out of engagement with the teeth of the ratchet-bar and into a position to enable its hook end to engage the hook end of the latch.

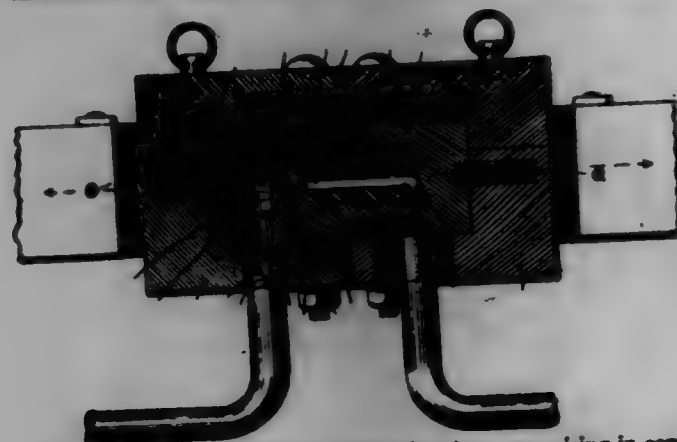
2. In a pumping or water-elevating apparatus, the combination of a main frame, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame and having the oppositely-beveled teeth A', a latch fulcrumed in the frame in a position to engage the teeth A' of the ratchet-bar and having a beveled hook at its lower end, a lever fulcrumed on the frame, a dog carried by said lever in a position to engage the beveled hook of the latch, means on the lever for drawing the dog out of engagement with the teeth A' of the ratchet-bar and into a position to enable its hook end to engage the hook end of the latch, a second lever, a dog carried thereby and arranged to engage the teeth A' of the ratchet-bar, and means on the second lever for drawing the dog thereof out of engagement with the ratchet-teeth A'.

3. In a pumping or water-elevating apparatus, the combination of a main frame, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet, and a discharge, a vertically-movable

piston arranged in the cylinder, a ratchet-bar connected to the piston and guided in the frame, and having beveled teeth A', a head arranged on said ratchet-bar, and having projections adapted to receive weights, a latch-folium in the frame in a position to engage the teeth A' of the ratchet-bar, a lever fulcrumed on the frame, and a dog carried by said lever in a position to engage the teeth A'; said dog and the latch being provided with coacting means whereby when engaged they are held out of engagement with the ratchet-bar.

4. The pumping or water-elevating apparatus described comprising the main frame having the tubular upright provided in two opposite walls with slots, a cylinder arranged to receive from a source of supply and having a valve-controlled inlet and a discharge, a vertically-movable piston arranged in the cylinder, a bar connected to the piston and having sets of two oppositely-disposed ratchet-teeth A A', at two opposite sides, the latches fulcrumed in the slots of the upright in positions to engage the teeth A' of the ratchet-bar and having beveled hooks at their lower ends, levers fulcrumed on the frame at opposite sides of the tubular upright, dogs carried by said levers in positions to engage the ratchet-teeth A', and having hooks at their upper ends, rods connected to the dogs and movable in guides on the levers, a head on the ratchet-bar having projections for the connection of weights, levers fulcrumed in suitable supports below the main frame, dogs carried by said levers and arranged to engage the teeth A of the ratchet-bar, and rods movable in guides on the last-named levers and connected to the dogs thereof.

702,497. FLUID-PRESSURE COUPLING. WILLIAM H. BERNSON, Alexandria, Va. Filed Nov. 8, 1901. Serial No. 81,562. (No model.)

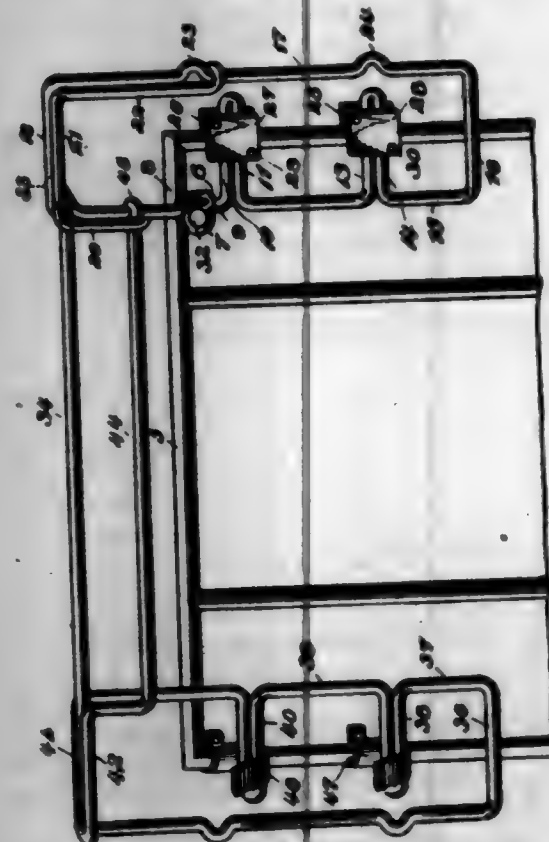


Claim.—1. A fluid-pressure coupling for pipes, comprising in combination with the heads of draw-heads, recessed on opposite sides of its car-coupler a boxing seated in one of said recesses, and a coupling-head in the other, a passage-way leading through said boxing and a pipe communicating with said passage-way, ball-valve in said pipe, and a valve-seat at the inner end of said pipe, a valve-regulated pipe connected to said coupling-head, a valve in the coupling-head, and means carried by said boxing for holding said valve in the coupling-head from seating as two draw-heads similarly equipped with couplings come together, as set forth.

2. A fluid-pressure coupling for pipes, comprising in combination with a draw-head, recessed on opposite sides of the car-coupler mounted on said draw-head, a boxing seated in one of said recesses, said boxing being spring-actuated having a vertical play, a pipe secured to said boxing and having communication with a passage-way therein, a valve in said pipe, a valve-seat near the inner end of said pipe, a coupling-head in the other of said recesses, a pipe secured to said head and communicating with a passage-way in the head, the outer end of the coupling-head being tapered, a ball-valve positioned in said tapering end, and means in said boxing for holding the ball-valve open when two draw-heads equipped with similarly constructed couplings come together, and the car-couplers for holding the pipe-couplings connected, as set forth.

3. A fluid-pressure pipe-coupling, comprising in combination with the draw-heads of car-couplings, each draw-head having recesses on its coupling edge, a boxing seated in one of said recesses, the outer face of said boxing being recessed and having tapered walls, a cushion forming the bottom of said recess in the boxing, a fixed pin projecting through a central aperture in said cushion with a space about same, a pipe connected to the boxing and communicating with a passage-way therein, the latter leading to the aperture in said cushion, a ball-valve in said pipe, a valve-seat at the inner end of the pipe, a spring on which the boxing is mounted, a coupling-head spring-actuated and seated in the other recess, the outer end of the head being tapered, a valve-seat at the apex of said tapered portion about an aperture in the head, which passage-way leads to and communicates through said aperture in the tapered portion of the said pipe adapted to be connected to the main air-supply pipe, as set forth.

702,498. REIN-SUPPORT. JAMES T. SMITH, Chapel Hill, Tenn. Filed Mar. 10, 1902. Serial No. 97,582. (No model.)



Claim.—1. A rein-support comprising an attaching member including a wire frame adapted for attachment to one end of the dashboard, one end of the wire of the frame being bent to form a double hook the members of which are in spaced relation, said frame having a socket, and a rein-supporting member consisting of a wire bent to form a frame including a body portion and a laterally-projecting terminal portion, adapted to support the reins interchangeably, the body portion of the second member lying at one end between the members of the double hook of the first member and having an end of the wire of which it is formed bent to form an eye and disposed between the eyes of the first member to receive a pivot-pin, the second member having a lug for engagement with the socket of the first member to hold the second member at one point of its pivotal movement.

2. A rein-supporting device comprising an attaching member and a second member pivotally connected thereto for movement into erect and reclining positions, said support having separate active supporting portions 34 and 35 disposed for movement into operative positions interchangeably as the pivoted member is moved into erect and reclining positions.

3. A rein supporting and holding device comprising an attaching member and a second member pivotally connected thereto for movement into erect and reclining positions, said member having separate rein-supporting portions 34 and 35 disposed for movement into operative positions interchangeably as the pivoted member is moved into erect and reclining positions, and having a rein-clamping portion disposed for operation in both positions of the movable member.

702,499. HAND ROCK-DRILL. VALERIE Y. SMITH, Oakland, Cal. Filed July 17, 1901. Serial No. 68,694. (No model.)

Claim.—1. The combination in a drill of a slotted casing, a drill-shank guided and longitudinally slidable within the casing, means by which the drill and shank are partially rotated at each reciprocation, a double centrally-pivoted lever, slide-bars connected to the arms of said levers, spring-pressed bell-crank levers pivoted in the rear ends of the slide-bars and having one arm extending in the direction of the length of said bars and the other arm projecting laterally through the slot in the casing and into the path of the drill-shank, to engage and retract the latter, and means for alternately engaging one of the arms of a bell-crank lever to withdraw the other arm from engagement with the drill-shank.

2. The combination in a drill of a casing, a drill-shank guided longitudinally therein, means by which the shank is given a partial rotation during each reciprocation, a centrally-pivoted lever on the outside of the casing, two slide-bars extending in the same direction and one disposed over the other said bars each having one end connected to one arm of the centrally-pivoted lever, bell-crank levers pivoted in the rear ends of the

slide-bars, having one arm extending in the direction of the length of said rods and the other member projecting laterally into the casing in the path of the drill-shank, and adapted to engage and retract the latter, means in the path of the first-named members of the bell-crank levers adapted to engage said members and alternately withdraw the other members from engagement with the drill-shank, and a spring by which the shank is impelled forward after the release.

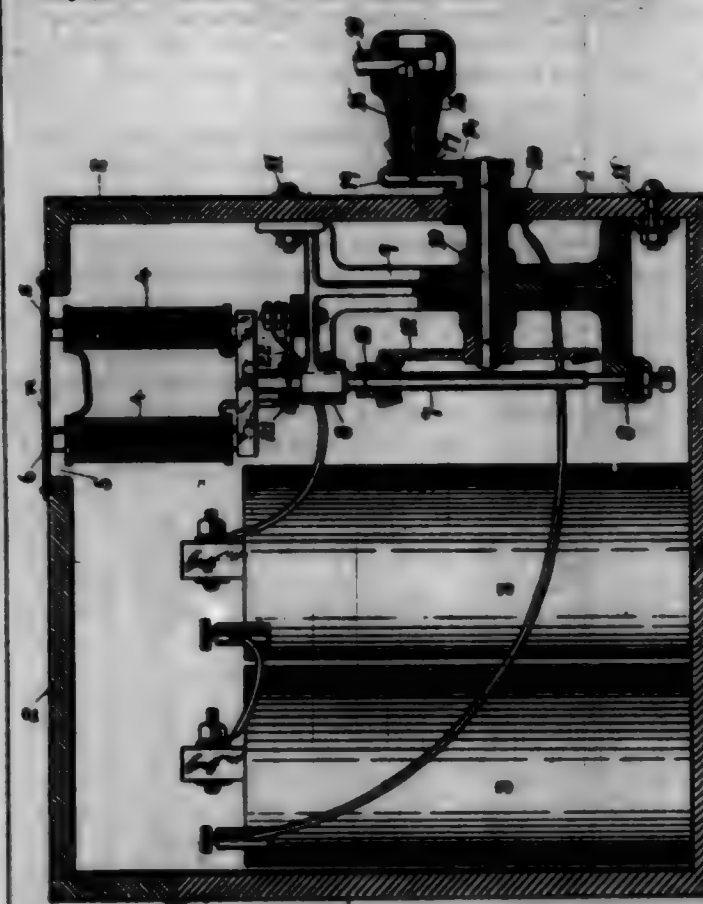


3. The combination in a drill of a casing, a spring-impelled drill-shank, means for partially rotating the same at each reciprocation, said shank having a head fixed to the rear end, and said casing having an opening in its side leading to said head, a double centrally-fulcrumed lever exterior to the casing, slide-bars disposed one above the other and both extending in the same direction, and having their front ends connected to the double lever, bell-crank pawl-levers mounted in the rear ends of the slide-bars, each having one arm extending in the direction of the length of the bars and another arm extending transversely and entering through the slot of the casing, adapted to engage the head on the drill-shank, springs acting against said pawl-levers, and means in the path of the levers for depressing them to cause the release of the retracted drill-shank.

4. The combination in a drill of a closed casing having an internal abutment, a centrally-guided slidable drill-carrying shank having a head upon its inner end, and a spring surrounding the shank and having one end to rest against said abutment, said spring being compressible by the retraction of the drill-shank and acting to impel the latter forward when released; bell-cranks carried by rods longitudinally slidable upon opposite sides of the cylinder, one arm of each bell-crank extending in the direction of the length of the rods and another arm extending transversely and entering an opening in the casing, and adapted to alternately engage the head of the drill-shank; fixed inclines on the outside of the casing in the path of travel of the other arms of the bell-cranks, acting to disengage the first-named arms from the head of the drill-shank, and springs acting against the bell-cranks to return them to normal position after being depressed by the inclines; a double centrally-fulcrumed lever with opposite ends of which the rods carrying the bell-cranks are connected, and a single hand-lever connected with the center of the double lever, by the up-and-down movement of which said lever is actuated.

5. The combination in a drill, of a closed cylindrical casing having a front guide for the drill-shank, a centrally-guided slidable drill-carrying shank having a head upon its inner end, spring-pressed bell-crank levers fulcrumed in the rear end of the longitudinally-movable rods, one arm of each lever engaging the head on the drill-shank at each rearward movement, fixed inclines with which the other arms of the bell-cranks engage to release the drill-shank at the termination of its rearward movement, a fixed stop in the casing in front of said head and forming a rear guide for the drill-shank, a collar and means for changing its position upon the drill-shank, a spring interposed and compressible between the two when the drill is retracted, and a cushion-spring located between the collar and the front of the casing, said collar capable of regulating the tension of both springs, substantially as described.

702,500. WATCH-DEMAGNETIZER. PETER SCHMIDT, Brooklyn, N. Y. Filed Jan. 9, 1902. Serial No. 88,979. (No model.)



Claim.—1. In a demagnetizing apparatus, the combination of a rotatable electromagnet, the shaft carrying the same and having one end of the magnet-coil in electrical connection with it, the bracket of conducting material secured to a wall of the casing, a conducting-ring upon said shaft in electrical connection with the other end of the magnet-coil, a spring mounted upon an insulated support carried by the bracket and bearing upon said ring, a battery connected with one pole to said spring, and means for closing a connection from the other pole of the battery to the supporting-bracket for the shaft.

2. In a demagnetizing apparatus, the combination substantially as described of a rotatable electromagnet, a battery for charging the same, an actuating-handle for rotating said magnet and an automatic circuit closer and breaker mounted in the handle, an actuating-button mounted in said handle for closing the circuit, and a spring for automatically breaking the circuit of said battery and electromagnet when the operator lets go the handle, as and for the purpose described.

3. In a demagnetizing apparatus, the combination substantially as described, of a rotating electromagnet, an actuating-handle secured to the arm of the actuating-shaft, a hollow screw mounted in a counterbore opening in the handle and serving to secure the same to the crank, a circuit making and breaking pin passing longitudinally through said screw and handle, and an actuating-button therefor mounted in a transverse opening in the handle.

4. The combination substantially as described with a crank 14 connected to one pole of an electric circuit through the shaft carrying the same, a stationary ring or collar 20 surrounding said shaft and connected to the other pole of the circuit, means for making and breaking electrical connection between the crank and the ring, an actuating-pin therefor mounted in a longitudinal opening passing through the handle and crank, an actuating-button mounted in a transverse opening in said handle for actuating the pin in a direction to close the circuit, and a suitable spring for operating the pin in the other direction to open the circuit, all as described, whereby during rotation of the shaft the circuit will be automatically maintained by rotating contact with the ring 20, while the circuit will be automatically opened when the operator lets go of the handle.

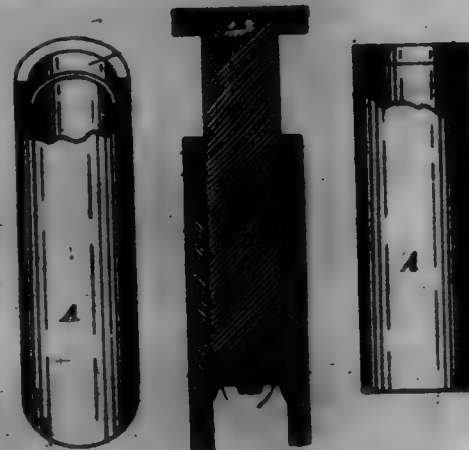
5. The combination substantially as described of the crank 14, shaft 10, ring 20, handle 12, hollow screw 16 fastening said handle to the crank, a longitudinally-movable pin therein, a spring adapted to engage with ring 20 and bearing against one end of the pin, and an operating-button 18 engaging with the opposite end of the pin.

6. In a demagnetizing apparatus, the combination substantially as described of the rotatable electromagnet or shaft carrying the same and provided with an insulated conducting-ring to which one end of the magnet-coil is secured, the transverse operating-shaft 10 passing through the wall of the casing and surrounded by conducting-ring 20 fixed in said

well, a suitable bracket 9 provided with bearings for said shaft, contact-spring 22 engaging the ring 21 but insulated from the bracket, and an actuating-crank in electrical connection with the shaft and bracket and carrying contact devices whereby continuous connection may be maintained with ring 20, to maintain the circuit of the electromagnet during rotation of the same.

7. The combination substantially as described of a battery, a casing, a rotatable shaft within said casing, an actuating-handle for rotating said shaft and an automatic circuit-closer and breaker mounted in the handle, an actuating-button mounted in said handle for closing the circuit, and a spring for automatically breaking the circuit of said battery when the operator lets go the handle, as and for the purpose described.

702,501. HYDRAULIC JACK. WILLIAM K. STANBURY, Middle-town, N. Y., assignor to William H. Dodgeon, executor of Richard Dodgeon, deceased. Filed Mar. 4, 1902. Serial No. 54,331. (No model.)



Claim.—1. In a hydraulic jack a cylinder having a ring at or near the upper end of its bore of softer material than that of the ram, for the purpose set forth.

2. In a hydraulic jack a cylinder having a ring at or near the upper end of its bore of softer material than that of the ram, the interior diameter of the ring being slightly less than that of the bore of the cylinder, for the purpose set forth.

3. In a hydraulic jack a cylinder having a recess formed at or near the upper end of its bore and a ring of softer material than that of the ram, rigidly fastened within said recess, for the purpose set forth.

4. In a hydraulic jack a cylinder having a recess formed at or near the upper end of its bore and a ring of softer material than that of the ram rigidly fastened within said recess, the interior diameter of the ring being slightly less than that of the bore of the cylinder, for the purpose set forth.

702,502. BEAN-HARVESTER. JOHN E. STANTON, Franklin, Ohio. Filed Sept. 26, 1901. Serial No. 70,573. (No model.)



Claim.—1. In a harvester of the class described, a pair of revoluble pulling elements adapted for universal angular movement, in combination with means to incline the same so that their lower sides converge, substantially as described.

2. A pair of revoluble pulling elements adapted for universal angular movement, in combination with yielding means to incline the same so that their lower sides converge, substantially as described.

3. In a harvester of the class described, a pair of revoluble pulling elements comprising rines and spring-supporting spines therefor, whereby the said rines are adapted for universal angular movement, in combination with means to incline the same so that their lower sides converge, substantially as described.

4. In a harvester, of the class described, a pair of flexible revoluble pulling elements adapted for universal angular movement, in combination with means to incline the same so that their lower sides converge, substantially as described.

5. In a harvester of the class described, a pair of flexible revoluble pulling elements having rines adapted for universal angular movement, the said rines forming jaws for engaging the plants and lifting the same, in combination with springs bearing against the outer sides of said rines to incline the same so that their lower sides converge, substantially as described.

702,503. DEVICE FOR GUIDING WAGONS ON TRACKS. STEPHEN H. STEWART, Brooklyn, N. Y. Filed Apr. 2, 1901. Serial No. 54,794. (No model.)



Claim.—The combination with the axle or pole of a vehicle, of means for guiding the latter along supporting-tracks, said means comprising an axle having flanged wheels on its outer ends, and attaching devices carried by the axle and removably applied to said axle or pole at sufficient distance from the front axle of the vehicle to turn said front axle and accurately guide the vehicle.

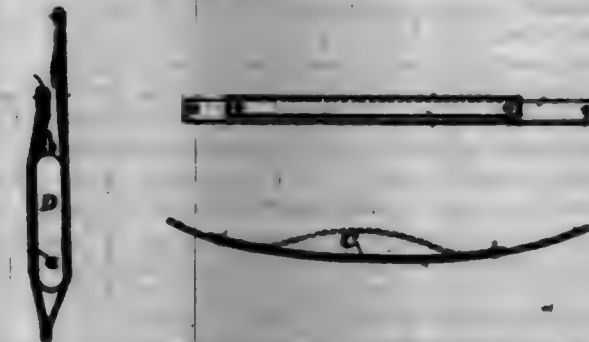
702,504. VEHICLE. FRANKLIN STANTON, Buffalo, N. Y. Filed July 3, 1900. Serial No. 23,208. (No model.)



Claim.—1. A vehicle or the like having a front block and a rear axle, a reach having rotatable rods connecting said front block and rear axle, front and rear crank-arms extending from said rods, a body, springs between said body and the front block and rear axle, connections between the front and rear crank-arms and the respective extremities of the body, a rotatable transverse rod supported by the body, crank-arms extending from said rod and connections between the crank-arms and one of the axles, substantially as set forth.

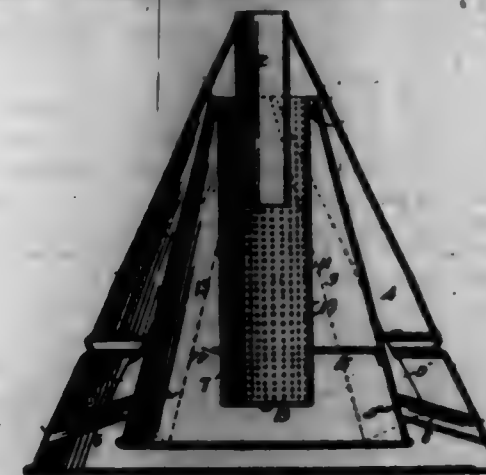
2. In a vehicle or the like, the combination with the body, front block and rear axle and springs between said block and axle and the body, of a reach connecting said front block and rear axle and having two rods rotatably supported from the block and axle, crank-arms rigidly mounted on said rods and rods pivoted at their ends to the body and the ends of the crank-arms, a transverse rod rotatably supported by the body above the axle or block and two-part pivotally-joined connections between the transverse rod and the ends of the axle or block, substantially as set forth.

702,505. POCKET-CLOSURE. JOHN E. STYER, Chicago, Ill. Filed Jan. 14, 1901. Serial No. 42,348.



Claim.—In a pocket-closure, the combination of two flat resilient strips of different lengths, riveted together and curved around the upper edge of the pocket, the longer strip projecting at each end of the shorter strip, and one of the strips projecting above the other at the edge of the pocket, whereby the opening of the pocket is facilitated, substantially as set forth.

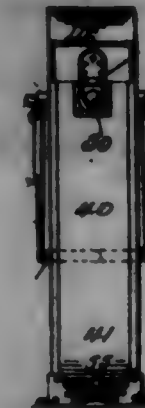
702,506. CLOTHES-POUNDER. STERLING B. TAYLOR, Junction City, Ark. Filed Apr. 11, 1901. Serial No. 55,277. (No model.)



Claim.—1. A clothes-pounder comprising an outer shell, an inner shell spaced throughout its entire length from the outer shell and supported from the same, said inner shell being open at its top to permit water to flow upward in the space between it and the outer shell and to flow over its upper edges and pass downward through it, and a soap-holder arranged within the inner shell and detachably connected with the same at the top thereof, said soap-holder being open at the top and arranged to receive the water flowing over the upper edges of the said inner shell, substantially as described.

2. A clothes-pounder comprising a shell, open at the top to permit water to flow over its upper edges a cylindrical soap-holder detachably interlocked at its upper end to the shell, and a brace mounted on the shell and provided with a ring arranged to receive the soap-holder, substantially as described.

702,507. NAVIGATIONAL SOUNDING APPARATUS. SARA L. TAYLOR, U. S. Navy. Filed Nov. 1, 1901. Serial No. 50,754. (No model.)



Claim.—1. In a navigational sounding apparatus, the combination with a winding-drum, of the frame supporting said drum, brake-shoe, on the frame, and a hand-lever operating on the frame to compress the brake-shoes on the drum.

2. In a navigational sounding apparatus, the frame-supporting drum, an elastic metallic frame supporting said drum, brake-shoes on the frame at the sides of the drum, right and left screws connected to the frame, and

a sleeve with right and left screw-thread embracing said screws, whereby the rotation of the sleeve springs the frame and applies the brake-shoes to the drum.

3. The combination with the winding-drum of a machine as described, of the metallic frame having spring-bars projecting above said drum, the brake connected to said bars so as to bear on the drum, and the brake-operating lever directly above the drum, so that the drum and brake are under immediate observation, substantially as described.

4. In a navigational sounding apparatus, the combination with the drum having flanges as described, the wire on each drum, the frame supporting the drum, tie-bolts extending from side to side of the frame, and sleeves on the tie-bolts extending within the periphery of the drum-flanges and acting as guards to the sounding-wire, substantially as described.

5. The combination, in a machine for navigational sounding, of the supporting-frame, a drum-shaft and drum carried thereby, a sleeve on the shaft and free to rotate but held against longitudinal movement, a crank hinged to said sleeve, and means for engaging the crank-bar, near the hinge, with the drum-shaft, so that the crank may be operative, or turned out of the way and the drum left to run free.

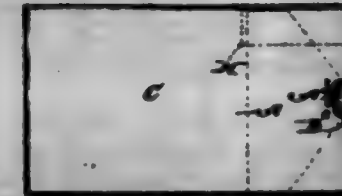
6. The combination, in a navigational sounding-machine, of a metallic frame, a drum and drum-shaft supported on the frame, a crank held by hinged connection to the shaft, means for engaging the crank with the shaft or for permitting the shaft to run free, and a brake connected to the frame in position to operate on the drum as an auxiliary to the crank.

7. In a navigational sounding-machine, the combination with the frame, drum, and drum-shaft, of cranks having hinged connection to the shaft at each end, and means for disengaging the cranks with the shaft or for turning them out of working engagement, and means for holding the cranks against swinging when so turned out of working engagement with the shaft, substantially as described.

8. In a navigational sounding apparatus, the combination of the frame, the drum-shaft and drum, said drum-shaft having polygonal ends, sleeves near the ends of the shaft free to turn but secured against longitudinal movement, a crank-bar hinged to each sleeve and having a polygonal mortise to turn over the shaft and as described, a handle on each crank, and friction apparatus on the casing to hold the cranks when swung away from operative engagement with the shaft.

9. In a navigational sounding-machine provided with means for attachment to a ship's deck, the combination with the frame and drum, of a box including the frame, the shaft extending through the box, the cranks hinged to the shaft outside the box and connected by hinged connection to the shaft, said box having notches into which the crank-handles may swing to hold the cranks when not in operative engagement with the shaft.

702,508. ENVELOP AND ADVERTISING-OPENER THEREFOR. FREDERICK TWILLEGGERMAN, Memphis, Tenn. Filed Mar. 26, 1902. Serial No. 100,117. (No model.)



Claim.—1. The combination with an envelop having a small aperture at one margin, of a cutting-plate lying within the envelop and having a member passed out through said aperture and provided with a shoulder normally projecting beyond the limit of the aperture and thereby preventing the member from moving inward.

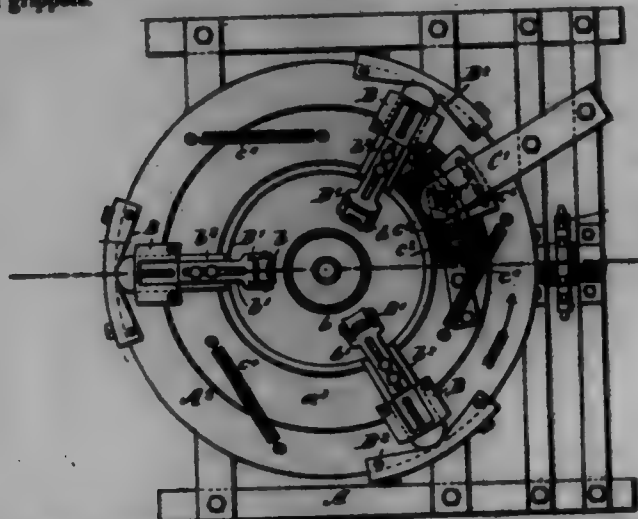
2. The combination with an envelop having a suitable slot at one margin, of a narrow cutting-plate lying within the envelop on the side toward said margin, extending the full length of the latter, and provided with a member extending through said slot and having its external portion wider than the latter, whereby the plate is prevented from moving from said side.

3. The combination with an envelop, of a cutting-plate lying within the envelop, and means whereby said plate may be drawn outward while the envelop is closed and made to cut through and thus open the same, said envelop being provided with a flap preventing the edge of the plate from engaging the latter as it is passing into the open envelop.

702,509. APPARATUS FOR ROTATING TUBES OR SIMILAR OBJECTS. SILAS W. TITUS, Brooklyn, N. Y., assignor to Pneumatic Engineering Company, New York, N. Y., a Corporation of West Virginia. Filed Mar. 9, 1901. Serial No. 50,037. (No model.)

Claim.—1. The combination, in an apparatus for rotating tubing or similar objects, of two annular members relatively mounted with respect to each other, and both adapted to surround the object to be rotated, a

plurality of grippers carried by one of said members, and movable thereon, and means operating upon a relative rotary movement of the two members with respect to each other, to impart an inward movement to the said grippers.



2. The combination, in an apparatus for rotating tubing or similar objects, of two annular members relatively mounted with respect to each other, and both adapted to surround the object to be rotated, a plurality of grippers carried by one of said members, and movable thereon, and means operating upon a relative rotary movement of the two members with respect to each other, to impart an inward movement to the said grippers.

3. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, and adapted to have a substantially radial movement thereof with respect to its axis of rotation, and means carried by the other of said members for imparting such radial movement to the said grippers, upon a relative movement of the two members with respect to each other.

4. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers, carried by one of said members, and adapted to have a substantially radial movement thereof with respect to its axis of rotation, and means carried by the other of said members for imparting such radial movement to the said grippers, upon a relative movement of the two members with respect to each other in either direction.

5. The combination, in an apparatus for rotating tubing or similar objects, of two members through which the said tubing or other object to be rotated extends, said members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, and each adapted to have a longitudinal movement in a substantially radial line toward and away from the object to be rotated, and means carried by the other of said members for imparting such radial movement to the said grippers, upon a relative rotary movement of the two members with respect to each other.

6. The combination, in an apparatus for rotating tubing or similar objects, of a rotatable gripper-ring, a plurality of grippers mounted upon said ring and each adapted to have a longitudinal movement in a substantially radial line with respect to the axis of rotation of the member carrying it, a rotatable base-plate with respect to which said gripper-ring is adapted to have a limited relative rotary movement, and means operated by the movement of the base-plate relatively with the gripper-ring, for imparting such substantially radial movement to the grippers.

7. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, and each adapted to have a longitudinal movement in a substantially radial line with respect to the axis of rotation of the member carrying it, and means carried by the other of said members for imparting such radial movement of the said grippers, upon a relative movement of the two members with respect to each other, together with springs between the two members tending to return them to their normal relative positions.

8. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, and grippers comprising roll-holders and rolls for engaging the object to be rotated, so as to lock the same in a lateral or circumferential direction, but to permit a longitudinal movement of the said tube or other object with respect thereto, each of said grippers adapted to have a longitudinal movement in a substantially radial direction of the member by which they are carried, and means carried by the other of said members for imparting such radial movement to the said grippers, upon a relative rotary movement of the two members with respect to each other.

9. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, means upon a relative rotary movement of the two members, for operating the said grippers, and a stop for temporarily locking one of the said members against rotation during said relative rotation of the other said member.

10. The combination, in an apparatus for rotating tubing or similar objects, of two members relatively mounted with respect to each other, a plurality of grippers carried by one of said members, means upon a relative rotary movement of the two members for operating the said grippers, a stop for temporarily locking one of the said members against rotation during a relative rotation of the other said member, and means for withdrawing the said stop, after the last said member has passed through a limited portion of its movement, to permit the members to rotate together.

11. The combination, in a rotating apparatus, of a base-plate and means whereby same may be rotated, a gripper-ring carried by said base-plate but adapted to have a limited relative rotary movement therewith, grippers carried by said gripper-ring, means on said base-plate adapted to operate said grippers, a spring between said base-plate and said gripper-ring, a ratchet and pawl carried, the one by the base-plate and the other by the gripper-ring, means for holding the gripper-ring during a partial revolution of the base-plate and during the initial operation of the grippers, and whereby the base-plate and gripper-ring are permitted to rotate together after the initial operation of the grippers.

12. The combination, in a rotating apparatus, of a plurality of grippers, a gripper-ring upon which said grippers are mounted, a base-plate upon which said gripper-ring is mounted and with which it is adapted to have a limited relative rotary movement, means upon said base-plate for operating said grippers, a pawl or latch carried by said gripper-ring, teeth upon said base-plate with which said pawl or latch is adapted to engage, a cam on said base-plate adapted to hold said pawl or latch out of engagement with said teeth against spring tension, and a stationary stop in engagement with said pawl or latch and adapted to hold same during a limited movement of the base-plate.

702,510. ATTACHMENT FOR LETTER-BOXES. CHARLES E. TRACY, Berkeley, and FRANK C. GOULD, Alameda, Cal. Filed Nov. 30, 1900. Serial No. 31,341. (No model.)



Claim.—1. In combination with a mail-box provided with suitable openings leading to the exterior thereof, of a slatted tray adapted to hold disinfestant material adjacent said openings outside the box, and a screw passing through the slot in the tray and engaging the box to hold the tray in place, substantially as described.

2. In combination with a mail-box provided with openings in its bottom, a holder, means for securing the holder to the bottom over the openings therein, means permitting access to the interior of the holder and a lock for said means, substantially as described.

3. In combination with a mail-box provided with suitable openings in the body portion thereof, a holder, means for securing the holder to the surface of the body over the openings therein, a removable tray in said holder, and means for locking the tray within the holder, substantially as described.

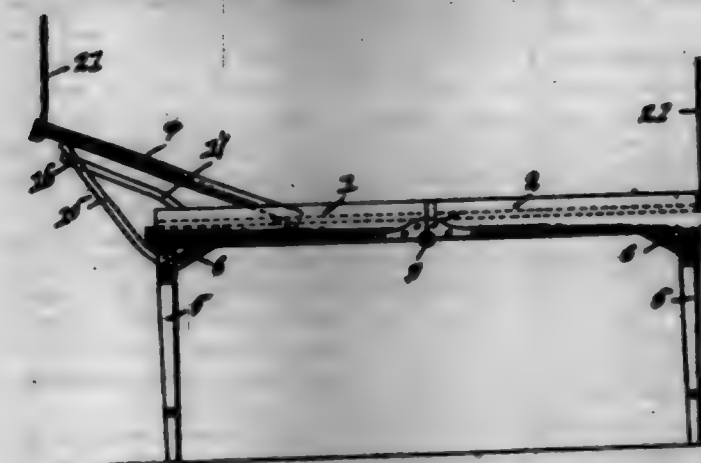
4. In combination with a mail-box provided with suitable openings in the body thereof, a holder, a removable tray in said holder, and a screw passing through said holder from the outside thereof and engaging the box to secure the holder thereto, substantially as described.

5. In combination with a mail-box provided with suitable openings in the body thereof, a flanged holder, means for detachably securing the

holder to the exterior of the box over the openings therein, a packing interposed between the surface of the box and the holder, and means for securing the holder to the box and forcing the flange of said holder against the packing, substantially as and for the purpose described.

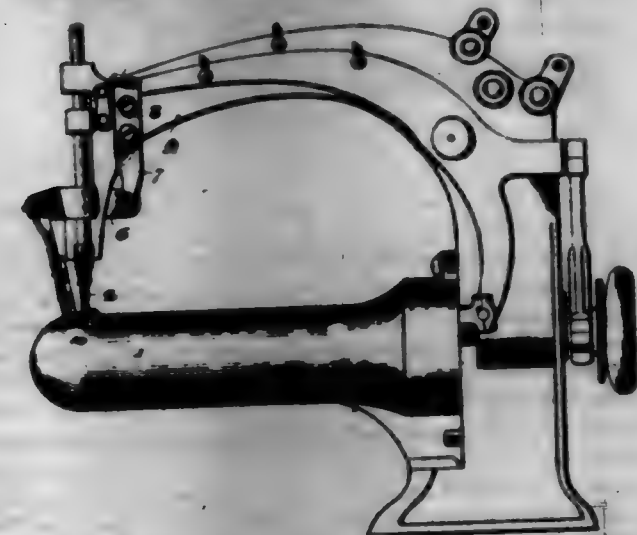
6. In combination with a mail-box, a flanged holder adapted to receive disinfestant material, and means for detachably securing said holder upon the surface of the box, said box being provided with suitable inlets for fumes from the disinfestant material in the holder, substantially as described.

702,511. ENRALLING AND COOLING BOARD. JAMES A. TUNNEY and EDWARD F. O'DONOVAN, Toledo, Ohio. Filed July 4, 1901. Serial No. 67,410. (No model.)



Claim.—In an enralling and cooling board, the slatted main sections 1 and 2, hinged together at 3, the same being provided with suitable leg-supports, the grooved side pieces 13 of the main sections, the cross-pieces 14, secured crosswise between the outer ends of the side pieces 13, the slatted adjustable sections, slidably mounted with relation to the slatted main sections, having cross-pieces 10 at their inner ends provided with pivotal ends 11 adapted to occupy the grooves in the side pieces 13, and the means for supporting the adjustable section 9 at an inclination to the main section comprising a U-shaped member pivoted to a stationary part of the main section, a second U-shaped member pivoted to the outer end of the first-named U-shaped member, an engaging rod or plate secured to the main section, and teeth provided at the free ends of the second-named U-shaped member adapted to engage the rod or plate upon the main section, substantially as shown and described.

702,512. FOLDING-GUIDE FOR SEWING-MACHINES. CHARLES L. WATTEWAL, St. Louis, Mo., assignor to the Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed May 17, 1902. Serial No. 680,967. (No model.)

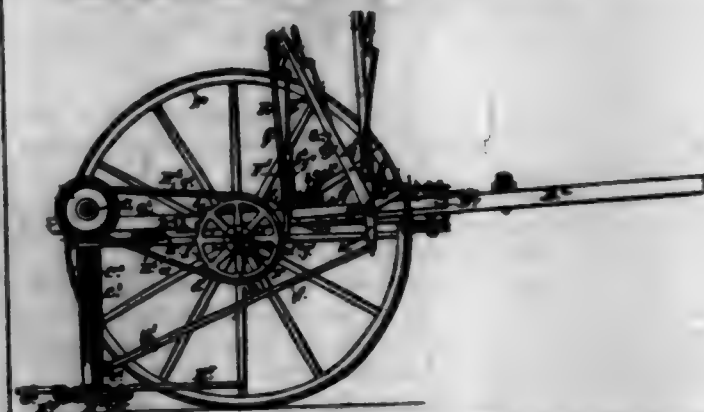


Claim.—1. In a sewing-machine having a suitable bed-plate, and stitch-forming mechanism, two independently-movable folding-guides, one right hand and one left hand, pivotally attached to the machine-frame and adapted to be swung down into operative position with relation to the stitch-forming mechanism, substantially as described.

2. In a sewing-machine, having a cylindrical bed-plate, upwardly and outwardly swinging independently-movable folding-guides one right hand and one left hand pivotally attached to the machine-frame and adapted to be swung down into operative position with relation to the stitch-forming mechanism, whereby tubular fabrics with either right or left hand folds may be sewed on the machine, substantially as described.

3. In a sewing-machine having two needles and complementary stitch-forming mechanism, and a presser-foot, two alternating swinging folders, one right hand and one left hand, pivotally attached to the machine-frame and adapted to be swung down into operative position with relation to the needles, the outer edge of one folder when in position being slightly at one side of said needles while when the other folder is swung into position its outer edge is slightly at the other side of said needles, whereby said folders when in operative position will occupy substantially the same position relatively to the needles: substantially as described.

702,513. STALK-CUTTER. WHITLEY B. WELSH, Parkersburg, Pa. Filed Aug. 24, 1900. Serial No. 57,572. (No model.)



Claim.—1. In a stalk-cutter, a frame, a rock-shaft, a tubular hanger provided with arms having hubs at their upper ends, said hubs rigidly mounted on the rock-shaft, a vertical shaft mounted in said tubular hanger provided with a disk at the lower end, radial knives fixed to said disk, means for operating said vertical shaft and knives and means for keeping said knives in a plane parallel with the ground, said means consisting of a lever pivoted to the frame, and a link, one end connected to the tubular hanger and the opposite end to the lever, substantially as described.

2. In a stalk-cutter, a tilting frame having two members pivoted together with their forward ends movable toward and from each other, means to effect said movement and to hold them in a fixed position, said frame mounted on an axle having wheels, a non-slidable clutch and a slidable clutch mounted on said axle, said slidable clutch having a sprocket-wheel secured thereto, means to move it into and out of engagement with said non-slidable clutch, a horizontal rock-shaft supported on the rear end of the frame, a tubular hub loosely mounted upon said rock-shaft having a sprocket-wheel and a beveled gear, a chain connecting said sprocket-wheel with the sprocket-wheel of said slidable clutch, a pivoted tubular hanger provided with arms having hubs rigidly mounted on the said horizontal rock-shaft, a vertical shaft mounted in said tubular hanger, provided with a disk, radial cutting-knives fixed to the top of said disk, and means for adjusting the hanger consisting of a lever having a link connected to the hanger, substantially as described.

3. In a stalk-cutter having a tilting frame as described and mounted on a revolvable axle with forwardly-engaging wheels on the extremities thereof and a sprocket-wheel secured to a clutch member movable back and forth thereon, with a rock-shaft and journaled in the rearward end of said frame and having a tubular hub carrying a sprocket-wheel and a beveled gear-wheel rotatably sleeved thereon, with an endless chain mounted on said sprocket-wheel, a tubular hanger with a yoke at the upper end thereof depending from said rock-shaft, said yoke embracing the ends of said tubular hub and the arms of the yoke rigidly secured to the shaft, a revolvable shaft journaled through said hanger having at its upper end a beveled gear-wheel intermeshing with the gear-wheel of the hub, and at its lower end a disk with radial cutting-blades having their inner ends rigidly secured to said disk, and a lever provided with a link connected to the hanger adapted to adjust said hanger for the purpose of keeping the knives in a plane parallel with the ground, substantially as described and for the purpose hereinbefore set forth.

702,514. CARBON-HOLDER. SAMUEL B. WHEAT, Pittsburgh, Pa., assignor to the Pittsburgh Blue Print Company, a Corporation of Pennsylvania. Filed Mar. 14, 1902. Serial No. 98,768. (No model.)

Claim.—1. In an are-lamp, a holder for one of the carbons having rotation about a vertical axis which includes the prolongation of the axis of the other carbon, the rotation of the holder producing lateral movement of the first carbon.

2. In an are-lamp, an axially-rotatable carbon-holder having a carbon-receiving opening which includes the axis of rotation of the holder, the rotation of the latter producing lateral movement of the carbon.

3. In an are-lamp, a carrier having an opening, a tubular carbon-holder rotatable in the opening, and means for holding the carbon inclined in the

opening, the rotation of the holder producing lateral movement of the carbon.



4. In arc-lamps, a rotatable carbon-holder adapted to hold a carbon inclined, whereby the rotation of the holder produces lateral movement of the carbon.

5. In arc-lamps, a carbon-holder rotatable about a fixed axis and having a bore central at one end and eccentric at the other, and means for holding the carbon in the bore.

6. In arc-lamps, a holder having a bore to receive a carbon, means for securing the carbon in the holder, the bore being flared so as to permit the adjustment of the carbon in a plane at an angle to the plane that includes the carbon and the said securing means.

702,515. MECHANICAL TOY. OSCAR C. WINNER, Kansas City, Mo. Filed Sept. 30, 1901. Serial No. 77,122. (No model.)



Claim.—1. A toy of the character described, comprising spring arm wires or pieces of substantially right-angular outline, having a V-shaped extension at one end and secured at the opposite end to a support, and a handle provided with means adapted to alternately engage said wires at their lower ends, substantially as set forth.

2. A toy of the character described, comprising spring arm wires or pieces secured at their lower ends and having bent extensions or branches, means adapted to alternately engage said wires, at their lower ends, and an overhanging support having suspended therefrom a "punching-bag" arranged in proximity to said bent extensions, substantially as set forth.

3. A toy of the character described, comprising spring arm wires or pieces fixed at their lower forward ends, means adapted to alternately engage and vibrate said wires, at their rear angular portions, and an upright fixed frame, with its vertical portions arranged in parallel lines to the vertical portions of said arm-wires and its top connecting portion arranged slightly above the upper ends of said vertical portions of said arm-wires for supporting the head and garment of the figure, substantially as set forth.

702,516. RIGHT AND LEFT NAIL-CLIPPER. HENRY WILCOX, Newark, N. J. Filed Oct. 12, 1901. Serial No. 73,194. (No model.)



Claim.—1. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, and a spring to hold the jaws normally separated.

2. A nail-clipper having two levers formed each with a flat plate and side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, a spring to hold the jaws normally separated, and the side flanges of one lever arranged to contact with the plate of the opposite lever to limit the separation of the jaws.

3. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward

ends, a pivot extended through the flanges adjacent to the jaws, and a roughened finger-piece supported upon the flanges of each lever in the rear of the pivot.

4. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, a roughened finger-piece supported upon the flanges of each lever in the rear of the pivot, and a spiral spring inserted within the jaws to hold them normally separated.

5. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, a spiral spring inserted within the jaws to hold them normally separated, and a catch to lock the levers together and hold the jaws closed when desired.

6. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, a roughened finger-piece supported upon the flanges of each lever in the rear of the pivot, a spring to hold the jaws normally separated, and a catch arranged to slide upon the plate of the upper jaw and engage the finger-piece upon the opposed lever to hold the jaws normally closed.

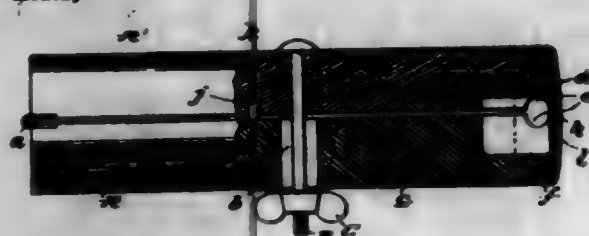
7. A nail-clipper having two levers formed each with a sheet-metal body-plate having integral side flanges, and having jaws at their forward ends, a pivot extended through the flanges adjacent to the jaws, a spring to hold the jaws normally separated, a finger-piece attached to the flanges of the lever carrying the lower jaw, and a file hinged to the lever of the upper jaw and roughened to form an opposed finger-piece, substantially as herein shown and described.

8. A nail-clipper having two curved cutting-flanges arranged respectively at the right and left sides of a central point, and adapted to trim the right and left sides of the finger-nail with very little change of position on the part of the body of the cutter.

9. A nail-clipper having two curved cutting-flanges arranged respectively at the right and left sides of a central point, and finger-levers carrying jaws forming each cutting-flange and joined together by a pivot adjacent to each cutter, and projected backward from each pivot.

10. A nail-clipper having two curved cutting-flanges arranged respectively at the right and left sides of a central point, finger-levers formed each with a flat face and side flanges and provided with the jaws forming each cutting-flange, a pivot extended through the flanges adjacent to the jaws, a spring to hold the jaws normally separated, and a roughened finger-piece supported upon the flanges of each lever in the rear of the pivot.

702,517. HAND-VISE. WALTER H. WILKINSON and WILLIAM A. HERRA, Cincinnati, Ohio. Filed Mar. 14, 1902. Serial No. 90,191. (No model.)



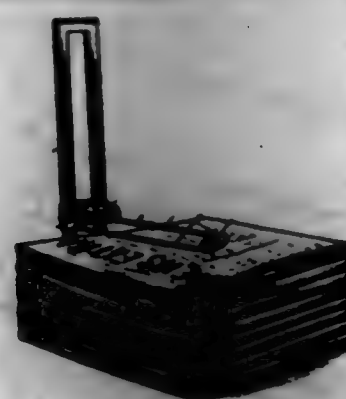
Claim.—1. In a hand-vise, the combination of the jaws comprising the wooden portions hinged together at one end and having the recesses *d* and grooves *e* in their inner sides at their opposite ends, and the metallic caps or end portions connected to the wooden portions and having clamping edges provided with notches, disposed in front of the recesses and grooves of said wooden portions, and means for holding the jaws together.

2. In a hand-vise, the combination of the jaws comprising the wooden portions of semicircular form in cross-section hinged together at one end with their flat sides inwardly and having the recesses *d* and grooves *e* in said flat sides at their opposite ends, and the metallic caps or end portions connected to the wooden portions, and having notched clamping edges disposed in the same plane as the flat inner sides of the wooden portions, adjustable means for holding the jaws together, and means for holding said jaws against lateral deflection incident to their movements toward and from each other.

702,518. NEWSPAPER-HOLDER. JOSEPH WILLON, New York, N. Y. Filed Apr. 2, 1902. Serial No. 100,019. (No model.)

Claim.—1. In a newspaper-holder of the character herein set forth, the combination with a standard having a base for application to a table or board, of a slide mounted and movable upon the standard, projecting arms hinged upon the slide, a roller applied upon and between said arms, and a spring bearing upon the arms and against the slide and arranged

to press the roller down independently of the position of the slide, substantially as shown and described.



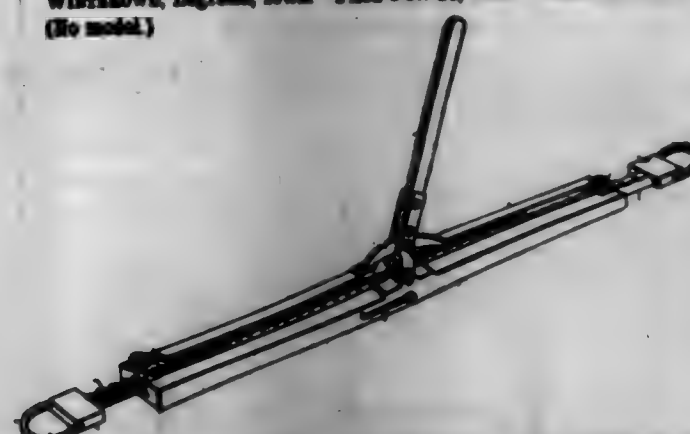
2. In a newspaper-holder of the character herein set forth, the standard composed of two pieces united at top and bottom and having a base for application to a table or board, the slide mounted upon the standard as explained, the arms hinged upon the slide, the roller applied between and upon the outer extremity of the hinged arms, and a coiled spring bearing against the slide and upon the arms, the whole being combined and arranged substantially as shown and described.

702,519. SHADE-BRACKET. EDGAR H. WINFREY, Wichita Falls, Tex. Filed Oct. 17, 1901. Serial No. 79,017. (No model.)



Claim.—A window-shade bracket, consisting of telescopic sections, bracket-arms fitted in the outer ends of said telescopic sections, and fastenings having eyes to engage each section and frictionally hold the same in adjusted position, and frictionally hold the bracket-arms in the ends of said telescopic sections, said fastenings having attaching means whereby they may be secured to a window-frame, substantially as set forth.

702,520. DEVICE FOR HINDING HAY ON WAGON. JAMES E. WHITEBORN, Laguard, Iowa. Filed Feb. 12, 1902. Serial No. 94,626. (No model.)



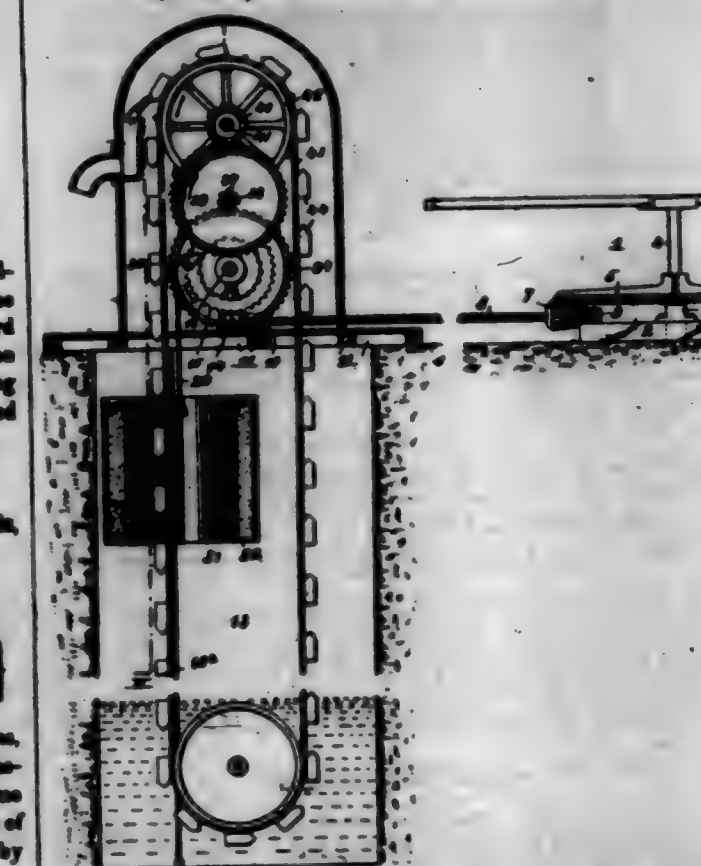
Claim.—1. In a device for hindering hay on a wagon, a straight frame having a longitudinal groove in its top extending from end to end, two straight racks fitted in the groove to slide in reverse ways, means for fastening ropes to the ends of the racks, a lever fulcrumed to the central portion of the frame, a duplex pawl pivoted in a recess at the lower end of the lever to alternately engage the slidable racks, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a device for hindering hay on a wagon, a straight frame having a longitudinal groove in its top extending from end to end, two straight racks fitted in the groove to slide in reverse ways, means for fastening ropes to the ends of the racks, a lever fulcrumed to the central portion of the frame, a duplex pawl pivoted in a recess at the lower end of the lever to alternately engage the slidable racks, pawls mounted at the ends of the frame to engage the racks, grooves in the outside faces of the racks and devices fixed to the frame to enter the grooves, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a device for hindering hay on a wagon, a straight frame having a longitudinal groove in its top extending from end to end, two straight racks fitted in the groove to slide in reverse ways, means for fastening ropes to the ends of the racks, a lever fulcrumed to the central portion of the frame, a duplex pawl pivoted in a recess at the lower end of the lever to alternately engage the slidable racks, pawls mounted at the ends

of the frame to engage the racks, grooves in the outside faces of the racks, devices fixed to the frame to enter the grooves, and ropes connected with the ends of the racks arranged and combined to operate in the manner set forth for the purposes stated.

702,521. PUMP-MOTOR. PRINCE & WOOD, Smithville, Mo. Filed Sept. 12, 1901. Serial No. 74,021. (No model.)



Claim.—1. A pump-motor, comprising a train of gearing, a hollow weight, a cable connection between the weight and gearing whereby the latter is actuated by the descent of the weight, and means encircled by the weight for preventing the latter when moving from contacting with that portion of the pump which it surrounds, substantially as described.

2. A pump-motor, comprising a train of gearing, a hollow weight, a cable connection between the weight and the gearing, a horse-power mechanism for winding the cable on the drum of the gearing, a governor for regulating the speed of the descending weight, and a guide extending through the hollow weight to prevent it from contacting with that portion of the pump which it surrounds, substantially as described.

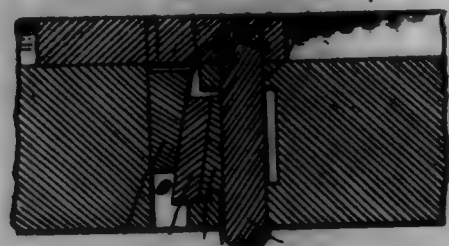
3. A pump-motor, comprising a shaft, drums mounted thereon, a hollow weight adapted to encircle the water-elevating portion of the pump, an equalizing-bar pivoted thereon, cables connecting the drums and the weight in such a way as to prevent lateral movement of the latter when ascending or descending, means for simultaneously winding the cables on the drums, and suitable gearing for transmitting power from the drums, substantially as described.

4. In a pump-motor, a drum, a shaft upon which it is rigidly mounted, a worm-wheel loosely mounted upon the shaft, an integral clutch member formed on the worm-wheel, a compression clutch member reciprocally mounted upon the shaft and adapted to turn therewith, a lever for locking or unlocking the clutch members, a worm meshing with the worm-wheel, means for rotating said worm, a ratchet-wheel rigidly mounted upon the shaft, a cog-wheel loosely mounted thereon, a spring-actuated pawl secured to the side of the cog-wheel and adapted to engage the ratchet-wheel when the latter rotates in a certain direction, a sprocket-wheel, a shaft upon which it is rigidly mounted, a pinion also rigidly mounted upon said shaft, intermediate cog-wheels for transmitting motion from the cog-wheel on the drum-shaft to the pinion, a brake-wheel rigidly mounted upon the pinion-shaft, a brake-shoe adapted to embrace the brake-wheel, a governor adapted to operate the brake-shoe, a weight, and a cable support securing it to the drum, substantially as described.

702,522. RAILWAY-SWITCH. WILLIAM C. WOOD, New York, N. Y. Filed Dec. 12, 1901. Serial No. 94,121. (No model.)

Claim.—1. In a railway-switch, a hinge-pin entering from the lower face of the tongue and extending to a point below its upper face, and means for flexibly fastening said pin into the tongue to turn with the swinging movement of the tongue, substantially as described.

2. In a railway-switch wherein a vibrating tongue is used for shifting the course of a track from a single track to a branch thereof, a vertical pin entering from the lower face of said tongue and extending upwardly to a point below the upper face of the tongue and having its upper end concealed by said tongue, and means for fixedly fastening the said pin to said tongue to turn with the swinging movement of the tongue, substantially as specified.



3. In a railway-switch, the combination with a tongue having on its under side a socket or recess, the end wall of which is located in a plane below that of the upper face of the tongue, and a pin inserted in the socket or recess, and means for fixedly fastening the pin in the socket or recess to turn with the swinging movement of the tongue, substantially as and for the purpose set forth.

4. In a railway-switch, the combination with a vibrating tongue having a recess or socket in its under side, the end wall of which is in a plane below that of the upper face of the tongue, in combination with a pin for connecting the hinge-pin to the switch-tongue, a vertically-adjustable bearing-bar, and an adjusting-wedge, substantially as set forth.

5. The combination with a vibrating switch-tongue having a socket or recess in its lower face, the lower wall of said socket or recess being in a plane below that of the upper face of the tongue, said pin at that point which enters the socket or recess being formed with a groove, and a rabbitt metal let into said groove to lock the pin in place, substantially as set forth.

702,528. CLIP. PHILIP H. YAWMAN, Rochester, N. Y., assignor to the Yawman & Bibo Mfg. Co., Rochester, N. Y., a Corporation of New York. Filed Jan. 31, 1901. Serial No. 45,414. (No model.)



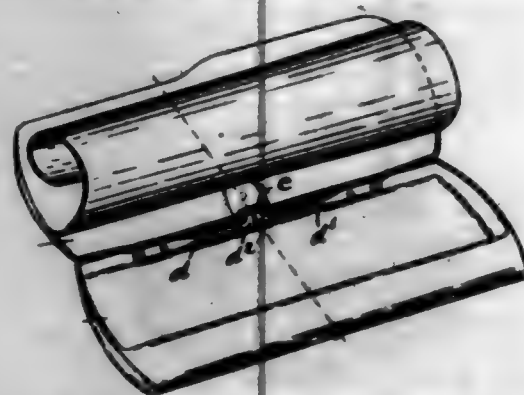
Claim.—1. In a paper-clip, the combination with the stationary member constructed of a single piece of sheet material embodying the base-flange having the loop and leg therein, the front flange extending beyond the base at the ends, the legs extending rearwardly from the front flange, and the spurs extending downwardly from the ends of the latter, of the pin arranged in the perforated rearwardly-extending legs, the movable member provided with the perforated legs journaled on the pin and having the handle, and the spring controlling the pin having the loop at the center engaging the leg on the stationary member and the arm engaging the movable member.

2. In a paper-clip, the combination with the stationary member adapted to be applied to a support having the base-flange provided with the loop and the leg therein, the front flange having the rearwardly-extending perforated ears and the projections extending below the base-flange, of the movable member having the downwardly-extending perforated legs, the pin and the spring controlling it and engaging the two members, and the catch pivoted on the front flange and adapted to engage the movable member forward of its pivot to hold it out of operative position.

702,524. EYEGLASS-CASE. WILLIAM EDGES and JOHN J. HARRIS, Boston, Mass., assignors, by mesne assignments, to Elizabeth Zerk, Boston, Mass. Filed Jan. 6, 1902. Serial No. 52,494. (No model.)

Claim.—1. In an eyeglass-case, the combination of the lids and lining and a spring-hinge connection concealed beneath the lining, comprising a spring-acting element on one lid, constructed and arranged to support the lining at a predetermined elevation as the lids open and close,

and a cam on the other lid working up and down uniformly below the top of said spring-acting element, substantially as described.



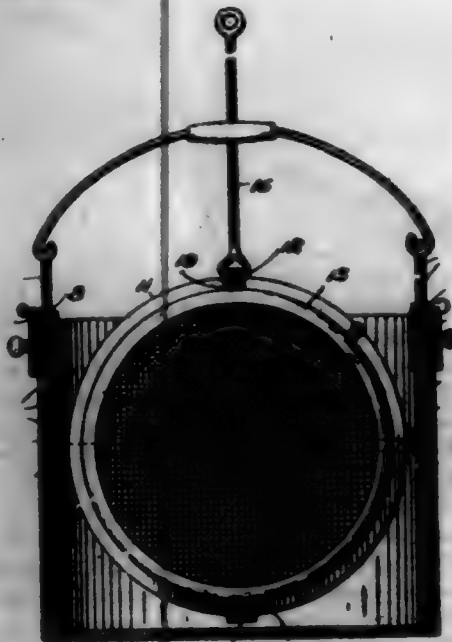
2. In an eyeglass-case, the combination of the lids and lining and a spring-hinge connection concealed beneath the lining, comprising a spring-acting element on one lid having a vertically-disposed end portion to support the lining at a predetermined elevation as the lids open and close, and a cam on the other lid engaging said spring-acting element and working up and down uniformly below the top of the end portion thereof, substantially as described.

3. In an eyeglass-case, the combination of the lids and lining and a spring-hinge connection concealed beneath the lining, comprising a spring-acting element on one lid consisting of a pair of spring-acting arms having vertically-disposed end portions located side by side, and a cam on the other lid engaging said spring-acting element and working up and down below the top of the end portions of said spring-acting arms, substantially as described.

4. In an eyeglass-case, a spring-hinge connection for the lids comprising a spring-acting element on one lid consisting of a spring-acting arm disposed lengthwise the case and attached at one end to the upturned rear edge of one of the lids and having at its extremity a broad end portion, vertically disposed, and a cam on the other lid engaging said broad end portion and working up and down below its top, substantially as described.

5. In an eyeglass-case, a spring-hinge connection for the lids comprising a spring-acting element on one lid having a vertically-disposed portion formed with angularly-disposed faces on its rear side and a cam on the other lid working up and down below the top of said portion and across the junction of said faces, substantially as described.

702,525. CAKE COOKER AND TURNER. HARRY W. AAKER and CHARLES M. GOODWIN, Cuba, N. Y. Filed Aug. 29, 1901. Serial No. 73,728. (No model.)

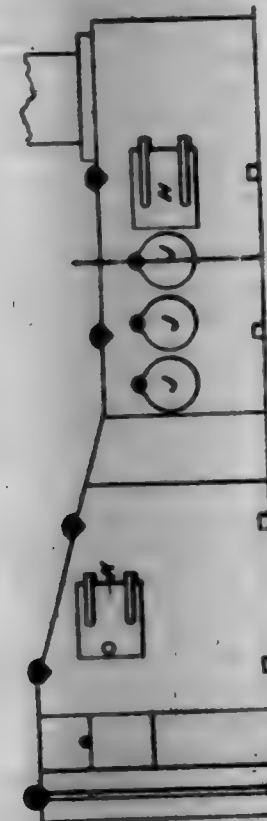


Claim.—1. A cake cooking and turning device comprising a supporting-ring having two sets of diametrically opposite sockets arranged at right angles to each other, means for raising and lowering said ring, and a cake-pan provided with transverse flanges in one set of sockets to turn upon the ring and consisting of hinged sections, one having a handle attached thereto and the other sockets at diametrically opposite sides thereof for the reception of the handle to open and close said later-mentioned section and to lower and raise the pan to and from its supporting-ring, said handle being adapted to rest in one socket of the other set of sockets

when the pan is in a lowered position to prevent said pan from turning, substantially as described.

2. In a cake cooker and turner, the combination with a vessel; of guides adapted to fit over the upper edge of the vessel, a supporting-ring, perforated bars connected to the ring and sliding through said guides, pins adapted to be passed through the perforations in the bars to support them in adjusted position upon said guides, and a cake-pan provided with transverse flanges to turn upon the ring, and consisting of hinged sections, one having a handle attached thereto and the other sockets at diametrically opposite sides thereof for the reception of the handle to open and close said later-mentioned section and to lower and raise the pan to and from said supporting-ring, substantially as set forth.

702,526. SWEETEN-FURNACE. ALFRED J. ABE, Peterborough, England. Filed Feb. 2, 1902. Serial No. 92,572. (No model.)



Claim.—1. A sweetening furnace for refining hard sugar comprising an inclined liquation-bed, a fire-grate discharging hot products of combustion into direct contact with said liquation-bed, said inclined liquation-bed having an unobstructed lower edge and a plurality of refining and collecting pins adjacent to said lower edge, substantially as described.

2. A sweetening furnace comprising a plurality of refining and collecting pins, an inclined liquation-bed sloping downwardly to said pins, a fire-grate adjacent to the elevated end of said liquation-bed and discharging hot products thereon and a second fire-grate separated from said first-mentioned grate and discharging its products directly into proximity to the pins, substantially as described.

702,527. TRACE-FASTENER. THOMAS A. BAKER, De Soto, Wis. Filed Aug. 28, 1901. Serial No. 73,005. (No model.)



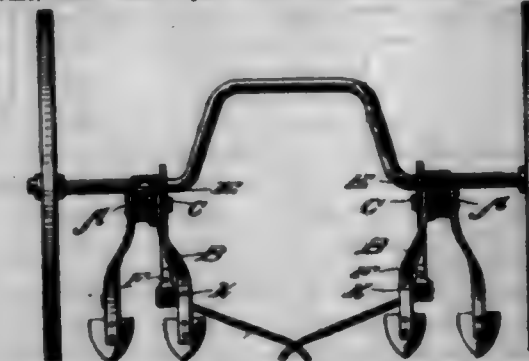
Claim.—1. A trace-fastener, comprising a body portion, a grooved head formed thereon, an arm pivoted near one end in said groove and notched in its upper face, and a spring interposed between the upper wall of said groove and the notched portion of said arm, whereby said arm is adapted to have its free end normally projecting beyond said groove but may be pressed into the same until its upper face lies in contact with said upper face of the groove, the notch of said arm including said spring, and the under face of the arm lying flush with the under face of said head, the said groove being thereby substantially wholly filled, substantially as described.

2. A trace-fastener, comprising a body portion, a longitudinally-grooved head, an arm movable within said groove, means pivotally securing said arm near one end thereof, whereby the free end of said arm is adapted to normally project beyond the side walls of said groove, while

the opposite end, beyond said pivot is designed to contact with the upper wall thereof for limiting the outward movement of said free end, substantially as described.

3. A trace-fastener, comprising a body portion, a grooved head formed thereon, an arm pivoted at one end within said groove, a notch being formed in said arm, a lug projecting inwardly from the base of said notch, a coiled spring interposed between said arm and the upper wall of said groove, and having its lower end surrounding said lug, whereby the said spring is prevented from lateral movement, and means for preventing the notched portion of said arm from being exposed beyond the wall of said groove, substantially as described.

702,528. COIL-SPRING WEED-HOOK. GEORGE T. BAPPE, Nevada, Mo. Filed Apr. 2, 1902. Serial No. 101,128. (No model.)

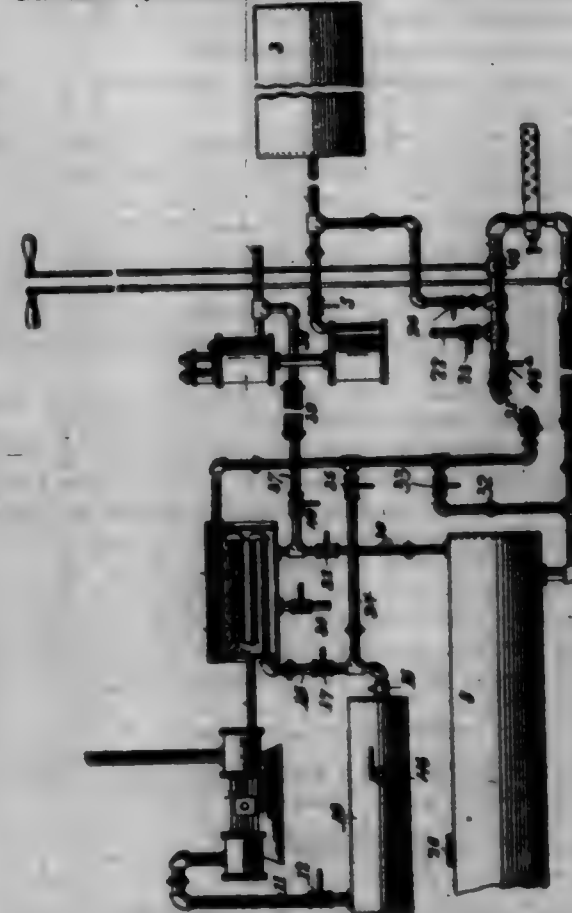


Claim.—1. A weed attachment for cultivators, comprising a post adapted to be held to the beam of a cultivator and vertically adjustable, and a coil-spring having a flexible end held to said post, as set forth.

2. An attachment for cultivators comprising a vertically-adjustable post, a coil-spring detachably held upon the end of said post and having a flexible arm adapted to project at right angles from the post, as set forth.

3. In combination with a cultivator-beam, a perforated post, a plate carried by the beam, and the bolt passing through said bolt, plate and beam, a jaw mounted upon said post, and a coil-spring about the lower end of said post, and held thereto by said jaw, an end of said spring being bent to form a flexible arm at right angles to the post, as set forth.

702,529. APPARATUS FOR SUPPLYING AIR AND HYDROCARBON. WILLIAM H. RUBY, Los Angeles, Cal., assignor of two-thirds to John H. Rust and Ezra Spet, Quincy, Ill. Filed June 2, 1901. Serial No. 62,907. (No model.)



Claim.—1. The combination with a main air reservoir and compressor and a burner; of fuel-supplying means including a liquid-fuel reser-

error, auxiliary air-supplying means for supplying air to said burner, means for heating the air supplied from said auxiliary means, steam-supplying means, means for controlling the flow of air and steam to the burner, means for cutting off communication between the main air-reservoir and the main air-compressor and establishing communication between said reservoir and the auxiliary air-supplying means, and means for cutting out the said heating means, substantially as described.

2. The combination with a main air-reservoir and compressor; of an auxiliary compressor, an auxiliary air-reservoir in communication with the auxiliary compressor, a drum receiving the exhaust-steam from said auxiliary compressor, a burner, an air-supply pipe heated by the drum and extending between the auxiliary air-reservoir and burner, a short-circuiting connection between the auxiliary reservoir and air-supply pipe, a connection between the air-pipe and main reservoir, and valve controlling the flow of air through said pipe and connections, substantially as specified.

3. The combination with a main air-reservoir and compressor; of an auxiliary air-compressor, an auxiliary air-reservoir in communication with the auxiliary compressor, a burner, a heating-drum, a steam-exhaust pipe leading from the compressor to said drum, an air-conducting pipe for conveying air from the compressor to the burner and passing through said drum, a short-circuiting connection between the compressor and the air-conducting pipe whereby the air may be caused to pass from said compressor to the pipe without passing through the drum, and valve for controlling the flow of air through the pipes, substantially in the manner set forth.

4. The combination of an air-compressor, a burner, oil-supplying means including an oil-reservoir for the burner, a heating-drum, a steam-exhaust pipe leading from the compressor to said drum, an air-conducting pipe for conveying air from the compressor to the burner and passing through said drum, a short-circuiting connection between the compressor and the air-conducting pipe whereby the air may be caused to pass from said compressor to the pipe without passing through the drum, and valve for controlling the flow of air through the pipes, substantially in the manner set forth.

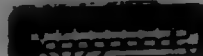
5. In a hydrocarbon-fuel feed for burners, the combination of a burner and oil-supply tank, a pipe leading therefrom to the burner, an air-compressor, an air-tank connected thereto, a heating-drum receiving the exhaust-steam from the compressor, an air-supply pipe leading to the burner and connected with the air-tank and heated by the drum, a short-circuiting pipe between the air-tank and the air-conducting pipe, an air-blend connection between said air-conducting pipe and the oil-conducting pipe, and valve for controlling the flow of air and oil through the several pipes, substantially as described.

6. In a hydrocarbon-fuel supply, the combination of an air-compressor, a storage-tank connected therewith, a burner, a pipe for conducting the air from the tank to said burner, a heating-drum heated by the exhaust-steam from the compressor and adapted to heat the air passing through said pipe, and a short-circuit connection whereby the air may be conducted to the burner without being heated by said heating device, substantially as specified.

7. In a hydrocarbon-fuel feed, the combination with a main air compressor and reservoir; of a burner, means for supplying steam to the burner, an auxiliary air-compressor, an auxiliary air-reservoir, a hydrocarbon-fuel tank, means for supplying oil from the tank to the burner, means for conducting oil from the tank to the burner, means for regulating the supply of oil, air and steam to the burner, and means whereby in case of injury to the main air-compressor, air from the auxiliary compressor may be supplied to the main air-reservoir, substantially as specified.

8. In a hydrocarbon-fuel feed, the combination of a burner, means for supplying steam thereto, an air-compressor, an air-reservoir supplied therewith, a hydrocarbon-fuel tank, a pipe for conveying air from the air-reservoir to the burner, a pipe for conducting oil from the hydrocarbon-fuel tank to the burner, a heating device for heating the air passing through the air-supply pipe, means for regulating the supply of steam, air and oil to the burner, a short-circuiting connection in the air-supply pipe whereby the air may be caused to pass therethrough without being heated by said heating device, and a connection between the said air-supply pipe and oil-supply pipe, whereby a blast of air may be supplied to the latter-named pipe for freeing the same from obstructions, substantially as described.

702,580. BUSH. June 7, 1901. Serial No. 81,142. (No model.)



Claim.—1. A brush having the holder provided with a projecting tongue, two brush-sections which are secured to opposite sides of said tongue, each of said sections comprising a metal ferrule, a mass of bristles

which are arranged therein, and a series of nails which are driven through one side of each ferrule and clamped on the opposite side thereof to clamp the respective sides of the bristles upon the bristles which they inclose.

2. A brush having the holder provided with a projecting tongue, brush-sections which are arranged on opposite sides of said tongue, each of said sections consisting of a metal ferrule having a mass of bristles which is inclosed thereby, means for clamping the sides of the ferrule about the bristles, a plate having a series of transversely-projecting teeth, which is secured to said tongue, said teeth projecting over the edges of the ferrule opposite the holder and holding said sections against the head thereof, and means for securing said sections to the sides of said tongue.

3. A flat brush having the holder provided with a rectangular-shaped tongue at the end of its head, two brush-sections which are secured to opposite sides of said tongue, said sections each comprising a metal ferrule having the bristles arranged therein, means for clamping the sides of each ferrule about the bristles, the opposite ends of said ferrules being bent transversely about the ends of said tongue and meeting so that the bristles which are clamped within said ends will meet to form a substantially continuous end for the brush.

4. A brush having its holder provided with a tongue which is shaped to correspond with the desired shape of the brush, brush-sections which are secured to opposite sides of said tongue, and a series of transversely-projecting teeth which are secured to the end of said tongue and penetrate and subdivide the mass of bristles on each side thereof.

5. A flat brush having two flexible metal ears which are secured to opposite ends of the head thereof and extend along the ends of the mass of bristles comprising the brush, said ears being adapted to be bent into various positions to vary the width of the brush at its working end.

6. A brush comprising a head, two oppositely-arranged brush-sections, each of which comprises a metal ferrule and a mass of bristles which are clamped thereby, means for pressing said sections together, a securing-plate which is arranged between said sections and is provided with projecting teeth which extend over the edges of said ferrules, and means for securing said plate to said head.

7. A brush comprising a holder, two brush-sections, each of which comprises a metal ferrule and a mass of bristles which is clamped thereby, and means for securing said sections together and to said holder.

702,581. SOAP CAKE. WALKER E. DOWNS, San Francisco, Cal. Filed Aug. 27, 1901. Serial No. 73,444. (No model.)

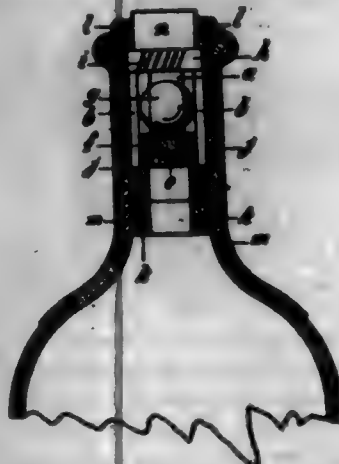


Claim.—1. A cake of soap provided with a disked metallic plate having a flanged edge embedded in the material of the soap, said plate cooperating with the cake of soap to form an air-chamber therebetween, substantially as and for the purpose described.

2. A cake of soap provided with a guard-plate having a hollow interior secured exterior thereof and constituting an air-chamber, substantially as and for the purpose described.

3. A cake of soap provided with a guard-plate having a hollow interior secured exterior thereof and constituting an air-chamber, and means separating said chamber from the soap, substantially as and for the purpose described.

702,582. NON-REFILLABLE BOTTLE. FRANKS J. BRACONIER, St. Germain, France. Filed Jan. 24, 1902. Serial No. 91,099. (No model.)



Claim.—A non-refillable bottle comprising a stop-valve *a*, a ball *b* and guide-ring *c* for receiving the valve when the bottle is held vertically or substantially so, an obturator *d* above the valve, ball and ring, a frame

a carrying all the said parts and having also, openings *b* for the passage of the liquid, a cork, washer *e* within the neck of the bottle engaging the said frame *a*, a ring *f* engaging the top of said frame and strips *g* connected with said ring and secured to the outside of the bottle, substantially as described.

702,588. GRATE FOR HIDE-TANK. ALFRED BARNET, Leipzig, Austria, Germany. Filed June 12, 1901. Serial No. 84,973. (No model.)



Claim.—1. In combination with a hide-tank, a folding lattice supported thereon and arranged to extend along the side board with means for adjustably holding the free end of the lattice to the side board, substantially as described.

2. In combination with a hide-tank, a folding lattice at both the head and foot, and means for holding the free ends of said lattices to the side board, adjustably, said means being located substantially midway of the side board whereby an opening may be left at the center of the side board, substantially as described.

3. In combination with the hide-tank a folding lattice at both the head and the foot, rods at the free ends of the lattices and a plate secured to the hide-tank having a plurality of loops or eyes to receive the lower ends of the rods substantially as described.

702,584. SYSTEM AND APPARATUS FOR FACILITATING THE ASCENT OF STAIRS OR INCLINED WAYS. LOUIS BARNESMAN, Gillingham, England. Filed Sept. 2, 1901. Serial No. 74,854. (No model.)



Claim.—1. In an apparatus for facilitating the ascent of stairs and inclines, a suitable guiding-support, a part to be grasped by the hand adapted to reciprocate back and forth on said guiding-support, a power-propelling-band, means for operating it in either direction, a device for connecting and disconnecting the movable part with the band, substantially as described.

2. An apparatus for facilitating the ascent of stairs and inclines comprising in combination: a movable part to be grasped by the hand which is permanently connected to a motor; means for starting the motor, means for automatically reversing the motor to return the movable part to its original position, and means for automatically stopping the motor when the original position is reached.

3. An apparatus for facilitating the ascent of stairs and inclines comprising in combination: a movable part to be grasped by hand; a cylinder containing a piston operated and controlled by fluid-pressure, the piston being connected to said movable part; means for admitting discharging and controlling flow of fluid to and from the said cylinder; means for reversing the direction of the fluid-flow to return the piston and the movable part to its original position, and means for automatically stopping the piston when the original position is reached.

4. An apparatus for facilitating the ascent of stairs and inclines comprising in combination a movable part to be grasped by hand; a cylinder containing a piston operated and controlled by fluid-pressure, the piston connected to the said movable part by a flexible band which passes over pulleys and is stretched by them; means for varying the tension of the band controlled from the movable part grasped by hand whereby the centers of the pulleys are caused to vary their distance from each other; means for operating the valves controlling the motive fluid by the change of position of the pulleys whereby the rate of motion of the piston is varied as desired; means for reversing the direction of the fluid-flow to re-

turn the piston and the movable part to its original position, and means for automatically stopping the piston when the original position is reached.

5. An apparatus for facilitating the ascent of stairs and inclines comprising in combination: a movable part to be grasped by the hand, a cylinder containing a piston operated and controlled by fluid-pressure, the piston being connected to said movable part, means for admitting and discharging the flow of fluid to and from said cylinder, means whereby the amount of flow of motive fluid may be controlled by the person using the apparatus, and means for reversing the direction of the flow of fluid to return the movable part to initial position.

6. In an apparatus facilitating the ascent of stairs or inclines, (a) a tractor, (b) a motor-cylinder fitted with a piston, (c) a flexible band or cord, (d) a movable forward pulley and a stationary rearward pulley around which the flexible band or cord passes, (e) means for counterbalancing the pull upon the handle or tractor which means comprise a compound valve for controlling the distribution of motive fluid to and from the forward end of the motor-cylinder and a cylinder which communicates with the forward end of the motor-cylinder and contains a piston which serves as a support or abutment to the movable pulley, substantially as described.

7. An apparatus for facilitating the ascent of stairs and inclines comprising a motor cylinder and piston, a handle or tractor, a flexible connector between the said piston and the said handle or tractor which flexible connector passes around movable and stationary pulleys, means for counterbalancing the pull upon the handle or tractor, and means whereby a force additional to and independent of the pull on the handle or tractor may be applied by the user through the connector to the movable pulley thereby admitting motive fluid to the upper end of the motor-cylinder so as to increase the pressure therein which pressure (being unbalanced by the pull on the handle or tractor) will cause movement of the motor-piston and upward movement of the handle or tractor according to the requirements of the user, substantially as described.

8. In apparatus of the kind hereinbefore referred to, the combination of a slotted guide, a slide mounted thereon, a handle hinged to a portion of the said slide which projects through the said slot, and a cover band or tape which extends in the form of a wave over the said projecting portion of the slide and through the slide in such wise as to protect the working parts of the apparatus from dirt, dust and insects, substantially as described.

9. In apparatus of the kind hereinbefore referred to, the combination of a guide, a slide mounted thereon, a handle hinged to the said slide, a fixed rack, and a non-return pawl which is brought into its operative position relatively to the said rack by the turning of the handle into the position for use, substantially as described.

10. For facilitating the ascent of stairs and inclines, apparatus comprising a handle or tractor which is arranged to slide on a guide more or less parallel to the stairs or incline, and is attached by a flexible connector to a piston working in a cylinder, characteristic features of the arrangement being that the said handle or tractor is hinged in such a manner that by raising it the device controlling the distribution of motive fluid to the two ends of the cylinder will be brought from its mid or central position to such a position as to just open the admission-valve to the upper end of the cylinder, whereas the fall of the handle or tractor will permit the movement of the said controlling device into such a position that motive fluid will be admitted to the lower end of the motor-cylinder and the handle or tractor will then be caused to travel downward along the guide until stopped, and a further characteristic feature being that the said handle or tractor is provided with means whereby, at all parts of its travel, the distribution of motive fluid to and from the cylinder can be controlled by the user to suit his or her requirements.

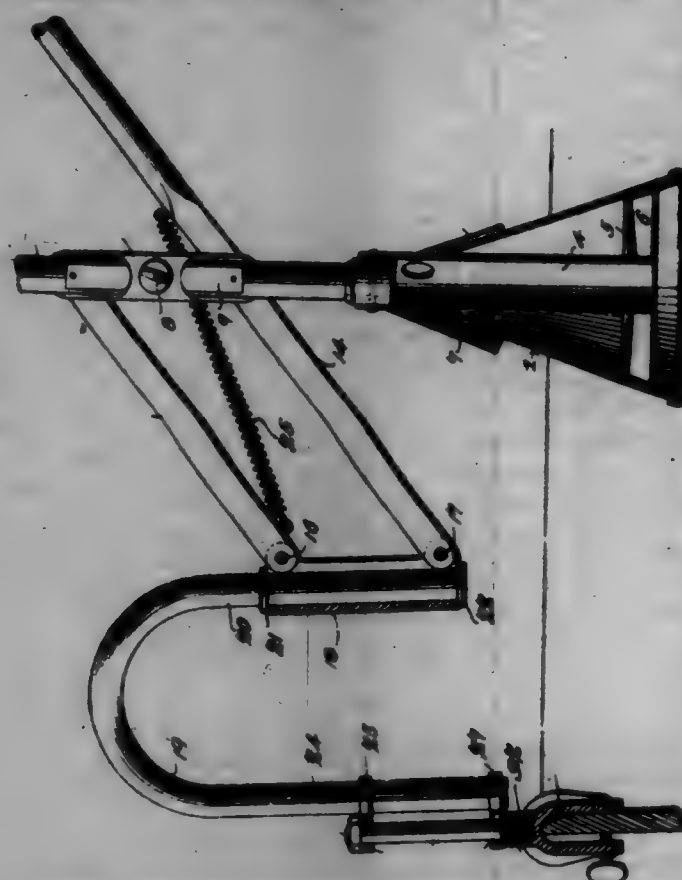
11. In apparatus of the kind hereinbefore referred to, means for stopping the descent of the handle or tractor comprising a bar having a cam-surface adapted to so act on a lever as to increase the tension of the flexible connector and bring the device which controls the movement of the distribution-valve to its mid or central position substantially as described, whether such bar be fixed at the bottom of the guide, or be movable at intermediate points thereof.

12. In apparatus of the kind hereinbefore referred to, a compound fluid-pressure-regulating valve which comprises admission and release valves whereof the former can be opened and the latter closed by a hand which is capable of variation at the will of the user, the arrangement being such that the loads on the admission and release valves of the compound valve are equal, substantially as described.

13. In apparatus of the kind hereinbefore referred to, an automatic stop-valve interposed between the motive-fluid supply and the admission valve of the apparatus, for the purpose of preventing leakage when the apparatus is not in use; the relief-valve which regulates the opening and closing of the said stop-valve being adapted to be opened to allow the stop-valve to also open only when one or other of the admission-valves is about to be opened, substantially as described.

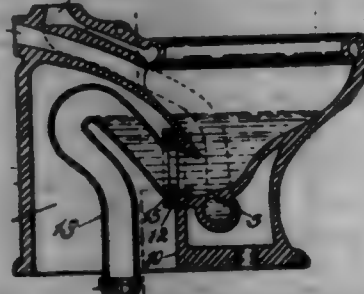
14. In apparatus of the kind hereinbefore referred to, a slide having a handle or tractor hinged thereto and provided with connections to the ends of the flexible connector between it and the piston of the motor-cylinder and means for tightening the said connector, the construction, arrangement and operation being substantially such as described and illustrated.

702,585. WASHING-MACHINE. LEONARD R. BROOKS, Independent, Iowa. Filed Feb. 26, 1902. Serial No. 96,763. (No model.)



Claim.—In a washing-machine, the combination of a clamp provided with means for engaging the upper portion of a tub and having an upwardly-extending threaded socket, an upright pintle-rod provided with threaded ends, the lower end being arranged within the threaded socket of the clamp and rigidly connected therewith, the approximately U-shaped support provided at its rear leg with upper and lower bearing-plates having inner and outer openings and arranged adjacent to the upper and lower ends of the pintle-rod and receiving the latter in the outer openings, the rear leg of the support being arranged in the inner openings and the bearing-plates being fixed to the said leg, a nut arranged on the upper end of the pintle-rod and engaging the upper bearing-plate, a clip mounted on the front leg of the support, an operating-lever fulcrumed on the clip, an oscillating bar pivoted to the clip and arranged parallel with the lever, a pounder-receiving clamp connected with the bar and with the lever, and a spring for raising the clamp, the lever and the bar, substantially as described.

702,586. WATER-CLOSET. WILLIAM BENTLEY, Jr., Brookline, Mass. Filed Aug. 2, 1901. Serial No. 70,708. (No model.)



Claim.—1. A water-closet of the character described, comprising a bowl having a discharge-passage which leads rearwardly from the bottom thereof, said bowl being provided with a substantially vertical face on its rear side which completely surrounds the end of said passage, laterally-extending walls on each side of the bowl, the rear surfaces of which are continuous with said face, rearwardly-extending walls which extend from said laterally-extending walls beyond said face and from the rear side of the bowl above said face to the floor-line and which unite into a continuous wall to form a chamber which is completely closed except at

the bottom, said laterally-extending walls being provided with apertures which pass through to said chamber from the outside, all of said parts being formed of one integral piece of earthenware, for the purpose set forth.

2. A water-closet of the character described, comprising a bowl having a discharge-passage which leads rearwardly from the bottom thereof, said bowl being provided with a substantially vertical face on its rear side which completely surrounds the end of said passage, laterally-extending walls on each side of the bowl, the rear surfaces of which are continuous with said face, rearwardly-extending walls which extend from said laterally-extending walls beyond said face and from the rear side of the bowl above said face to the floor-line and which unite into a continuous wall to form a chamber which is completely closed except at the bottom, said laterally-extending walls being provided with apertures which pass through to said chamber from the outside, all of said parts being formed in one integral piece of earthenware, a metal siphon-pipe which is located in said chamber and is adapted to be connected to a soil-pipe at its outlet end, a vertically-arranged flange which is securely connected to the opposite end of said pipe and is provided with apertures which register with the apertures of said laterally-extending walls when the inlet end of said pipe registers with the end of said discharge-passage, a packing which is interposed between said flange and face, and bolts which pass through said apertures and are adapted to clamp said packing between said face and flange, said bolts being adapted to be tightened from the outside, for the purpose set forth.

3. A water-closet of the character described, comprising a bowl having a discharge-passage which leads rearwardly from the bottom thereof, said bowl being provided with a substantially vertical face on its rear side which completely surrounds the end of said passage, laterally-extending walls on each side of the bowl, the rear surfaces of which are continuous with said face, rearwardly-extending walls which extend from said laterally-extending walls beyond said face and from the rear side of the bowl above said face to the floor-line and which unite into a continuous wall to form a chamber which is completely closed except at the bottom, said laterally-extending walls being provided with apertures which pass through to said chamber from the outside, all of said parts being formed in one integral piece of earthenware, a short metal siphon-pipe which is located in said chamber and is adapted to be connected to a soil-pipe at its outlet end, a vertically-arranged flange which is securely connected to the opposite end of said pipe and is provided with a series of projecting bosses on its front face, said bosses being provided with screw-threaded apertures which register with the apertures of said laterally-extending walls when the inlet end of said pipe registers with said outlet-passage, a sheet packing of rubber, or other suitable material, which is provided with apertures and recesses in which said bosses are located, and bolts which are adapted to be screwed into said bosses from the outside and clamp the packing between said plate and face, for the purpose set forth.

702,587. CURTAIN-FIXTURE. JONAS BURLY, Baltimore, Md. Filed Aug. 2, 1902. Renewed Nov. 30, 1901. Serial No. 94,546. (No model.)

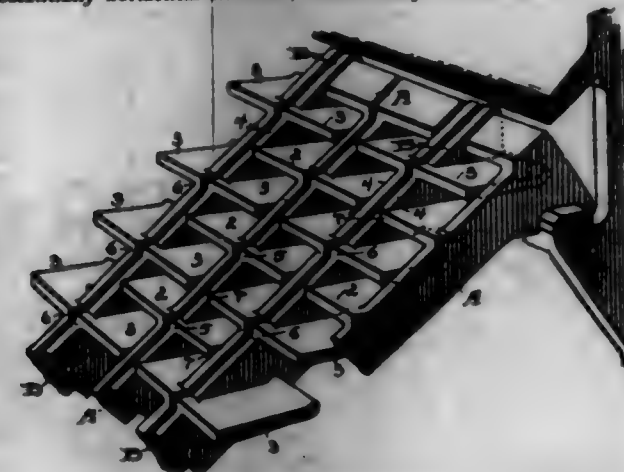


Claim.—In a curtain-fixture, the combination with a perforated base provided with a casing, the outer wall of which is corrugated longitudinally on its outer face and slotted in the direction of the corrugations, a bracket which has its base corrugated transversely upon its inner face and provided with a slot at right angles to the corrugations, a nut in the casing of substantially the same area in cross-section as the cross-section of the casing and a screw passed through the slot in the bracket and the casing and engaging with said nut, said nut being of a greater thickness than the height of the corrugations, whereby the bracket may be adjusted vertically without removing the screw from the nut.

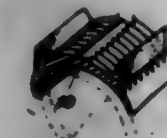
702,588. INCLINED GRATE FOR AUTOMATIC STOKING. HENRY R. CAMPBELL, Cleveland, Ohio. Filed July 2, 1900. Serial No. 866,113. (No model.)

Claim.—In furnace-grates, a set of fixed grate-bars A arranged in pairs and a set of movable grate-bars B arranged in pairs and alternating with the said fixed bars, both said bars A and B having horizontal shelves which extend laterally to the next adjoining bar on each side, the shelves of the movable bars interlocking with those of the fixed bars, and the shelves of all the bars extending out beyond the upper surface of the bars and forming projections thereon, all the bars being supported in an

inclined position, and means to impart movement to the movable bars in a substantially horizontal direction, substantially as described.

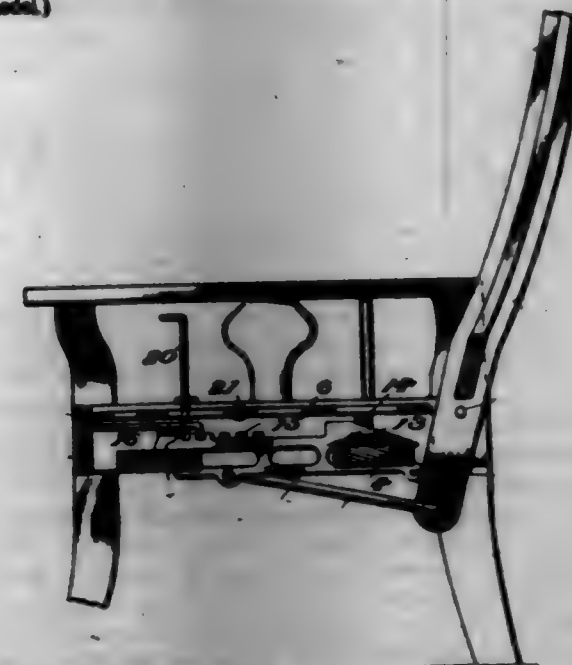


702,589. VEHICLE-TIRE. FREDERICK K. CHRISTENSEN, Study, Utah. Filed Apr. 7, 1902. Serial No. 101,729. (No model.)



Claim.—In a tire, the combination with the air-tube, of an armor secured thereto, said armor having transverse ribs having aligning slots through their central portions, and circumferential ribs spaced laterally from the central line of the tire, the circumferential ribs projecting beyond the transverse ribs at the points upon the armor at which they lie and lying inwardly of the tire from the middle portions of the transverse ribs.

702,540. RECLINING-CHAIR. JAMES W. CLARK and ELMER A. CLARK, Janesville, Wis. Filed Nov. 18, 1901. Serial No. 82,706. (No model.)

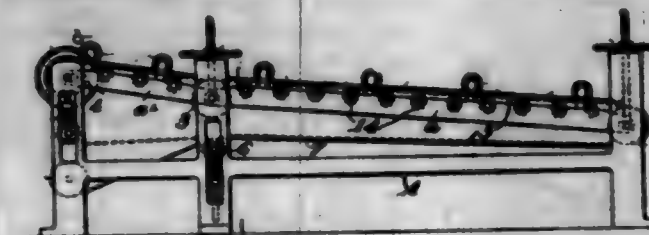


Claim.—1. In a chair, the combination with the frame comprising spaced cross-pieces and the back pivoted thereto, a slide embracing opposite sides of the said cross-pieces and connected with the chair-back and provided with cog-teeth, and a pawl connected with the frame and adapted to cooperate with the said teeth to secure the slide and chair-back in a given position, substantially as specified.

2. In a chair, the combination with the frame, a pivoted back, a vertically-adjustable seat, a slide mounted for rectilinear movement and connected with the said back for simultaneous action therewith and having an inclined portion upon which the seat rests to move up or down as the slide is shifted either forward or backward, and means cooperating with the slide to hold it and the seat and back in an adjusted position, substantially as specified.

702,541. ORE-CONCENTRATOR. LOUIS COMES and JOHN GROSS, San Francisco, Mexico. Filed Sept. 11, 1901. Serial No. 73,097. (No model.)

Claim.—1. The combination in an ore-concentrator of a plurality of bed-sections and a single axis passing through the meeting ends of said sections and conjoining the sections whereby the pitch and inclination of the sections may be simultaneously varied, rollers upon the sections, endless concentrating surfaces supported upon said rollers and extending continuously over the bed-sections, and means for simultaneously moving the conjoined ends of the sections and varying the inclination of the sections in relation to each other.



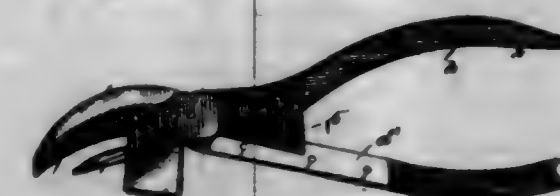
2. The combination in an ore-concentrator, of a plurality of conjoined bed-sections, rollers upon these sections, a belt passing over said rollers and conforming to the pitch or inclination of said sections, a second belt lying upon and inclining said first-named belt, and means whereby the pitch or inclination of said sections may be varied.

3. In an ore-concentrator, the combination of a plurality of aligned bed-sections having rollers and sections having their meeting ends directly conjoined; a plurality of endless traveling belts, one within and supporting the other said belts passing over said bed-sections; and means whereby said belts and bed-sections may be moved in a vertical plane and a double inclination be given the continuous face of the concentrating surface.

4. In an ore-concentrator, the combination of two aligned bed-sections having their adjacent ends pivotally connected, pivotal supports for their outer ends, one of said sections longer than the other, a traveling belt adapted to be supported upon and inclined by said sections, and a second or concentrator belt supported upon and inclining said first-named belt.

5. A concentrator consisting in combination of two horizontally-disposed bed-sections having their ends pivotally supported, means by which said sections may be moved so as to change their relative angles of inclination, rollers upon said sections, an endless belt supported upon said rollers and having its upper surface conforming to the inclination of said sections, a second belt supported upon and inclining said first-named belt, means by which said belts are driven in unison, lateral guides upon the outer belt and sheaves having grooves in which said guides are adapted to travel.

702,542. PLIERS. ISAAC A. COOK, Elmenville, N. Y. Filed May 22, 1902. Serial No. 17,867. (No model.)



Claim.—1. As an article of manufacture a pair of pliers comprising a member provided with a jaw and having an opening therethrough at the rear of the jaw, a second member reduced transversely and passed through the opening in the first member, and having a jaw beyond said reduced portion, plates removably secured in the reduced portions of the second member at the opposite side of the first member from the jaw of the second member, to be flush with the sides of the first member, and a pivot-pin engaging the members.

2. A pair of pliers comprising a member provided with a jaw and a lateral projection at the base of the jaw, and a blade mounted upon the lateral projection and extending in the same direction as the jaw, said blade terminating short of the outer end of the jaw.

702,543. WIRE-STRETCHER. ALFRED CROSS OF ALBERT, Mitchell, Okla. Filed Oct. 14, 1901. Serial No. 73,908. (No model.)

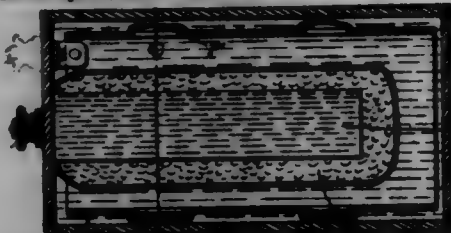
Claim.—1. In a wire-stretcher, a frame, a windlass having integral heads and terminal journals mounted in the said frame, and having a longitudinal slot, the heads having a portion toothed and one of the heads having integral ratchet-teeth, an operating-shaft journaled at its ends in the said frame and provided at or near its ends with pinions in mesh with the toothed portions of the windlass-heads, a pawl cooperating with the said ratchet-teeth, a fixed and a movable grip, and a cord having one end passed through the longitudinal slot of the windlass and its other end attached to the movable grip, substantially as described.

2. A wire-stretcher, comprising longitudinal bars offset between their

terminals, and bars of different lengths joining the longitudinal bars and having their extremities recessed to receive them, the shorter bar being centrally apertured, and the longer bar having an integral lug, a cam-lever fulcrumed on the longer bar for cooperation with the lug thereof, a windless journaled between the more widely spaced longitudinal frame-bars, and a movable grip connected with the windless by means of a cord or rope which passes through the opening in the shorter end frame-bar, substantially as specified.

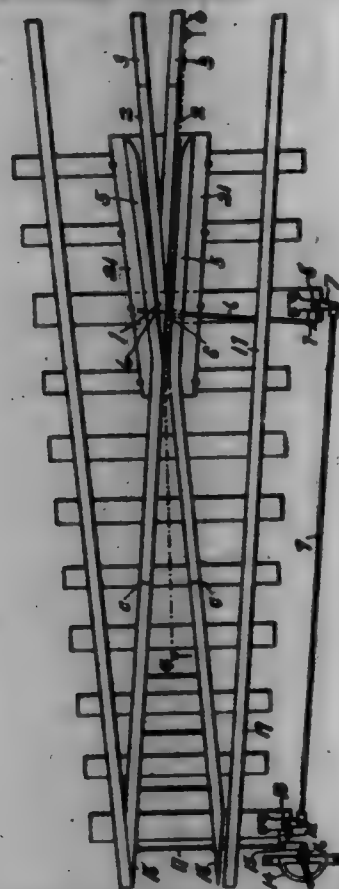


702,544. ELECTRIC BATTERY. PHILIPPE DELAPOR, Paris, France. Filed Apr. 2, 1900. Serial No. 11,261. (No model.)



Claim.—A dry electric battery comprising a suitable casing, a carbon element therein comprising a carbon plate or rod with binoid of manganese encircling the same and an insulating wrapper retaining the same in position, an annular zinc element, having openings, and an electrolyte composed of chlorid of zinc and an inert material on both sides of said zinc element, substantially as described.

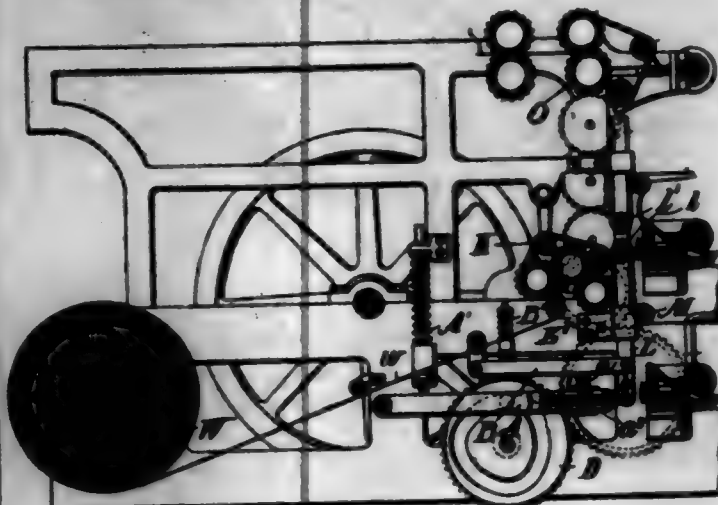
702,545. RAILWAY SWITCH. STEPHEN A. DOUGLAS, Leavenworth, and MELVIN ALGER, Leavenworth county, Kans. Filed Dec. 10, 1901. Serial No. 85,322. (No model.)



Claim.—A switch comprising a movable frog-point 1, a frog-plate 21 having upwardly-struck transverse ribs supporting said frog-point, a rod 6 secured to said point and passing through the wing-rails, a bell-crank lever 7 connected to said rod, a rod 9 having one end connected to said bell-crank lever, a switch-stand, a bell-crank lever 12 adjacent thereto, and connected to the opposite end of said rod 9, a switch-arm 16, a link 15, connecting said switch-arm to bell-crank lever 12, and a

rod 17 connected to said link, substantially as and for the purpose described.

702,546. PRINTING PRESS. ARTHUR E. DOWELL, Washington, D. C., assignor, by mesne assignments, to Detroit Trust Company, Trustee, Detroit, Mich., a Corporation of Michigan. Filed Sept. 20, 1901. Serial No. 75,941. (No model.)



Claim.—1. In a printing-press, the combination of web-forwarding mechanism a web-looping roller, a vibrating lever for operating said looping-roller, a cam for operating said lever, and a fulcrum for said lever adjustable to and from the cam whereby the extent of vibration of both lever and looper may be regulated, substantially as described.

2. The combination of changeable-speed web-forwarding mechanism a web-looping roller, a vibrating lever operating the looping-roller, a cam for vibrating said lever, and an adjustable fulcrum below and directly engaging the under side of the lever and adjustable to and from the cam whereby the throw thereof produced by the cam and the throw of the looping-roller may be varied, substantially as described.

3. The combination in a printing-press, of web-feed rollers, a looping-roller adapted to take up the web fed in by the feed-rollers during an impression, a pivoted lever for operating the looping-roller, a second pivoted lever for operating the first pivoted lever, an adjustable fulcrum between the first and second levers, and means for vibrating the second lever, substantially as described.

4. The combination in a printing-press of web-feed rollers and means for changing their speed, a looping-roller adapted to take up the web fed in thereby during an impression, a pivoted lever for operating the looping-roller, a second pivoted lever and an adjustable fulcrum thereon for operating the first pivoted lever, and means for vibrating the second lever, substantially as described.

5. The combination of continuously-operating changeable-speed web-feed rollers, a movable looping-roller for giving an intermittent movement to the web, a vibrating lever for operating the looping-roller, a cam for actuating said lever, and an adjustable fulcrum for said lever adjustable to and from the cam whereby the throw of the lever and connected looping-roller may be changed in accordance with the changed speed of the feed-rolls, substantially as described.

6. In a printing-press, the combination of the continuously-operating web-feed rollers, means for changing the speed of said rolls, a movable looping-roller for the web, a vibrating lever for operating the looping-roller, a second vibrating lever below the first lever, a cam for actuating said second lever, and an adjustable fulcrum on the latter lever engaging the first lever whereby the throw of the looping-roller may be changed in accordance with the changed speed of the feed-rolls, substantially as described.

7. In a web-printing press, the combination of means for continuously feeding a web, a vibrating looping-roller cooperating with the feed devices in handling the web, a vibrating lever for operating the looping-roller and a cam for operating said lever; with means for changing the speed of the feed devices and a fulcrum for the lever adjustable toward and from the cam whereby the extent of the vibration thereof can be changed to compensate the movement of the looping-roller for the changed speed of the feed-rollers, substantially as described.

8. The combination of continuously-acting rolls for moving a web of paper, and a movable looping-roller for causing an intermittent movement of part of the web, a vibrating lever for actuating the looping-roller and a cam for operating said lever; with means for changing the speed of the rolls, and a fulcrum for the lever adjustable to and from the cam whereby the extent of the vibrations imparted thereto by the cam may be varied to compensate the movement of the looping-roller for the changed speed of the feed-rollers, substantially as described.

9. In a web-printing press, the combination of continuously-acting rolls for moving a web of paper, and a movable looping-roller for causing an intermittent movement of part of the web, a vibrating lever for actuating the looping-roller; with a second uniformly-vibrating lever, and an adjustable fulcrum thereon for actuating the first lever therefrom whereby the vibrations of the first lever may be varied to compensate the movement of the looping-roller for any change of speed of the feed-roll, and means for changing the speed of the feed-roll, substantially as described.

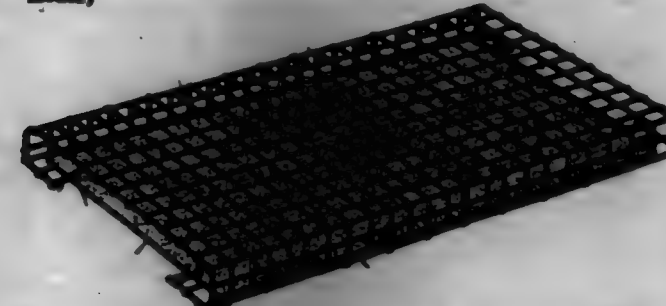
10. The combination in a printing-press of changeable-speed web-feed rollers, a looping-roller adapted to give up a loop of web to the feed-rollers during an impression, a lever for operating the looping-roller, and an adjustable fulcrum for said lever whereby the extent of vibration of the lever and looper can be regulated in accordance with the speed of the feed-rolls, substantially as described.

11. The combination in a printing-press, of changeable-speed web-feed rollers a looping-roller adapted to take up the web fed in by the feed-rollers during an impression; a lever for operating the looping-roller and an adjustable fulcrum for said lever to regulate the extent of vibration thereof according to the speed of the feed-rolls, substantially as described.

12. The combination of means for continuously feeding a web of paper; a web-looping roller cooperating with the feed devices; means for changing the speed of said devices; a lever for actuating said looper, and a cam for operating the lever, with a fulcrum adjustable to and from the cam for varying the movement of said lever so that it will move the looper in accordance with the speed of the feed devices, substantially as described.

13. The combination of the continuously and synchronously acting feed and delivery rolls, a pair of looping-rollers cooperating therewith to alternately stop and move the intermediate portion of the web, a vibrating lever for operating said looping-rollers and a cam for vibrating said lever; with means for changing the speed of the feed and delivery rolls, and an adjustable fulcrum for the lever whereby the extent of vibration imparted thereto by the cam can be changed so that it will properly move the looping-rollers in accordance with the speed of the feed and delivery rolls.

702,547. FLY-PAPER HOLDER. CARP D. EATON and ALFRED L. HORTON, Allen, Mich. Filed Apr. 16, 1902. Serial No. 105,350. (No model.)



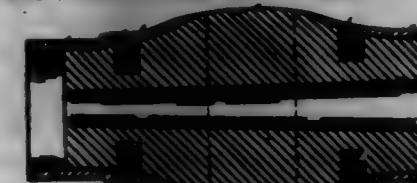
Claim.—1. As a new article of manufacture, a fly-paper holder and protector, consisting of a frame formed of a single piece of wire-netting having the edges turned inwardly and adapted to support the fly-paper out of contact with the frame, substantially as described.

2. As a new article of manufacture, a fly-paper holder and protector, consisting of a frame formed of a single piece of wire-netting having the edges turned inwardly and having upwardly-projecting spurs adapted to engage the fly-paper, substantially as described.

3. As a new article of manufacture, a fly-paper holder and protector, consisting of a frame formed of a single piece of wire-netting having the edges turned inwardly and having some of the ends of the wire forming the netting turned upward to form spurs to support the fly-paper, substantially as described.

4. As a new article of manufacture, a fly-paper holder and protector consisting of a sheet of perforate material having opposite edges turned downwardly and inwardly to form ribs to support the fly-paper beneath and out of contact with the body portion of the sheet.

702,548. VEHICLE-HUB. JOHN E. FOLEY, Pontiac, Mich. Filed Oct. 18, 1901. Serial No. 73,776. (No model.)



Claim.—1. In a vehicle-hub, a wood portion, metallic plugs recessed in said wood portion and tapered to receive a screw, collars encircling said wood portion and the plugs, said collars provided with holes

adapted to register with the holes in the plugs, and screws for engaging the collars with the plugs, substantially as described.

2. In a vehicle-hub, a wood portion, metallic plugs having a screw-threaded engagement with said wood portion, the ends flush with the surface of the wood portion, said plugs tapered to receive a screw, collars encircling said wood portion, and the plugs and provided with holes registering with the holes tapered in the plugs, and screws to engage the collars with the plugs, substantially as described.

3. In a vehicle-hub, a wood portion, metallic plugs recessed in said wood portion and tapered to receive a screw, collars to encircle said wood portion and plugs provided with holes registering with the holes in the plugs, said collars formed with a knife-edge on the inside so as to form a flush joint with the wood and screws to engage the collars to the plugs, substantially as described.

702,549. CHAIN RETAINING AND RELEASE MEANS. JOHN J. GALWAY, Duluth, Minn., assignor of one-half to Kenneth McDonald, Duluth, Minn. Filed Feb. 26, 1902. Serial No. 86,308. (No model.)



Claim.—1. A load-securing mechanism, comprising a load-inclosing means, a bolt secured to said load-binding means, a housing carried by a car or other vehicle having a recess formed therein for receiving the said bolt, means within said housing for locking the bolt therein, and means within the control of an operator standing out of the way of danger for releasing the said bolt, substantially as described.

2. In a chain securing and releasing device the combination with a supporting structure of a housing secured thereto, an eyebolt seated in said housing and provided with a key-receiving slot, a key supported in said housing, comprising a vertical shaft, parallel with said eyebolt, and provided with a horizontal tongue adapted to engage the said key-receiving slot, said housing being provided with an interior chamber adapted to permit the reciprocation of said tongue radially with respect to the longitudinal axis of said shaft, substantially as described.

3. In a chain securing and releasing device the combination with a supporting structure of a housing secured thereto and provided with an interior chamber to permit the radial reciprocation of the tongue of a key, a detachable chain-terminal pin seated in said housing and provided with a key-receiving slot and with chain-attaching means, a key comprising a shaft and an angular tongue, supported in said housing, said tongue being adapted to be radially reciprocated by said shaft with respect to the longitudinal axis of said shaft, and to engage said key-receiving slot, means to operate the said key, substantially as described.

4. In a chain securing and releasing device the combination with a suitable supporting structure of a housing secured thereto and adapted to receive a chain-terminal pin and a key, and provided with an interior chamber to permit the radial reciprocation of said key, a pin seated in said housing and adapted at its outer end to engage a chain and provided intermediate of its ends with a slot adapted to receive a key-tongue having a transversely-radial movement, a key, supported in said housing, comprising a shaft and an angular tongue adapted to radially reciprocate with said shaft about an axis longitudinal of said shaft, and to extend in operative position, into the slot in said pin and in inoperative position to lie wholly within said chamber, a lever mounted on the outer end of said key-shaft, a draw-rod pivotedly secured to the opposite end of said lever, means to support said draw-rod and means to secure the same in operative position against movement, substantially as described.

702,550. STEAM-GENERATOR. JOSEPH L. GIBSON, Jerome, Ariz. Filed Nov. 22, 1901. Serial No. 83,304. (No model.)

Claim.—1. An annular tubular horizontally-disposed steam-generator, and a furnace and means for supplying fuel continuously thereto.

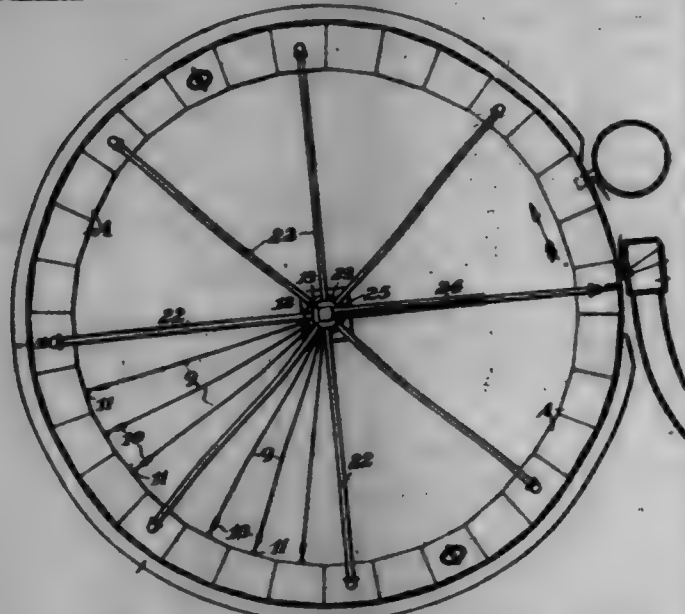
2. An annular tubular horizontally-disposed steam-generator shell, a furnace and means for continuously supplying fuel to the furnace.

3. An annular tubular horizontally-disposed shell having an annular channelled furnace around its periphery, and means for supplying fuel continuously to said furnace.

4. An annular tubular horizontally-revoluble generator having an annular channel-furnace formed around its periphery, means for supplying fuel to said furnace during the revolution of the generator.

5. An annular tubular horizontally-revoluble generator having an inwardly-projecting furnace-channel formed around its periphery, and a raised flange about the bottom of said channel to retain the fuel therein.

6. An annular tubular horizontally-revoluble shell, a furnace consisting of an annular channel formed in the side of the shell adapted to retain a molten or liquid fuel, a passage through which said fuel is admitted, a wall surrounding the shell and forming a closure for the open side of the furnace.



7. A horizontally-revoluble steam-generator having an open channel around its periphery forming a furnace, a wall surrounding the generator in close proximity with the mouth of the furnace, and a flange projecting above the furnace and revoluble in close proximity to the wall to maintain a tight joint.

8. A horizontally-revoluble steam-generator consisting of short tubular sections riveted together, a furnace consisting of a channel opening into the interior around the periphery of the generator, and means for supplying fuel thereto, a wall surrounding the generator and forming a closure for the open mouth of the furnace, and a flange secured above the furnace having a circular periphery turnable in close proximity with the furnace-wall to form a joint therewith.

9. An annular horizontally-revoluble steam-generator having a channelled annular furnace opening inwardly from the periphery, a track and antifrictional supports upon which said shell is borne and mechanism through which power is applied to revolve the shell.

10. An annular horizontally-revoluble steam-generator having an annular channelled furnace opening into the periphery thereof, antifrictional bearings and mechanism whereby the generator is revolved, a centrally-revoluble hub and rods extending radially therefrom having the outer ends fixed to the boiler-shell sections.

11. An annular horizontally-revoluble steam-generator having an annular channelled furnace upon the periphery, means for supplying fuel to said furnace, and means for removing the waste fuel therefrom.

12. An annular horizontally-revoluble steam-generator having an annular channelled furnace extending from the periphery to its interior, means for supporting and revolving the furnace, means for supplying fuel thereto and means for removing waste products therefrom, consisting of a fixed plow projecting into the furnace and the path of travel of the fuel whereby the latter is excavated and discharged.

13. An annular horizontally-revoluble steam-generator having a channelled annular furnace extending from the periphery into the interior, means for supplying fuel and removing waste products therefrom, means for feeding water consisting of a centrally-disposed pipe with branches extending therefrom to the peripheral generator and a turnable joint at the junction of the vertical and movable branches.

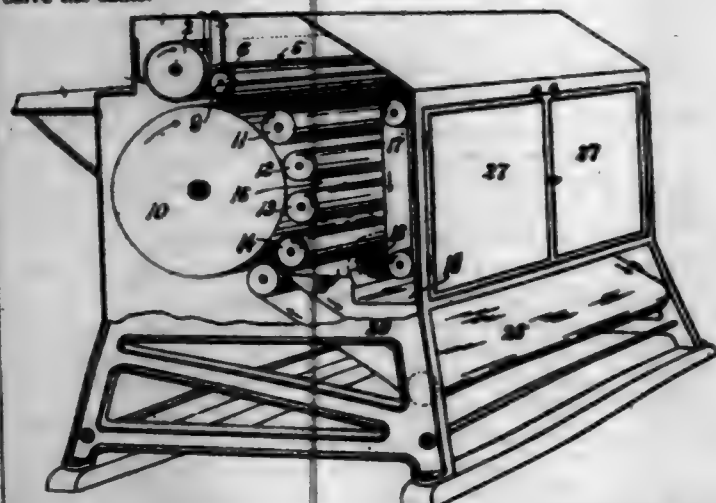
14. An annular horizontally-revoluble steam-generator having a channelled annular furnace extending from the periphery into the interior, means for supplying fuel and removing waste products therefrom, steam-pipes leading from the upper part of the boiler to a centrally-located turnable joint and a stationary conducting-pipe connecting with said joint.

15. An annular horizontally-revoluble steam-generator, means for supplying water thereto consisting of a stationary centrally-disposed pipe, pipes connecting said first-named pipe with the boiler, a packed joint turnable in unison with the pipes and forming a connection with the stationary pipe, steam-pipes converging from the upper part of the boiler and a centrally-located joint or coupling with which they connect, and a stationary conducting-pipe having a steam-tight connection with the turnable joint.

702,551. **BRONZING-MACHINE.** GEORGE HARR, Los Angeles, Cal. Filed Aug. 27, 1901. Serial No. 72,484. (No model.)

Claim.—1. In a bronzing-machine, the combination with a plush

fountain-roller; of a sprayer provided with blades to remove the dust from the fountain-roller and to throw it onto the surface which is to receive the same.



2. The combination of the fountain-roller, of a spraying-roller, and means for rotating said spraying-roller at a speed greater than that of the fountain-roller.

3. In a bronzing-machine, a sprayer comprising a barrel furnished with scrapers or blades.

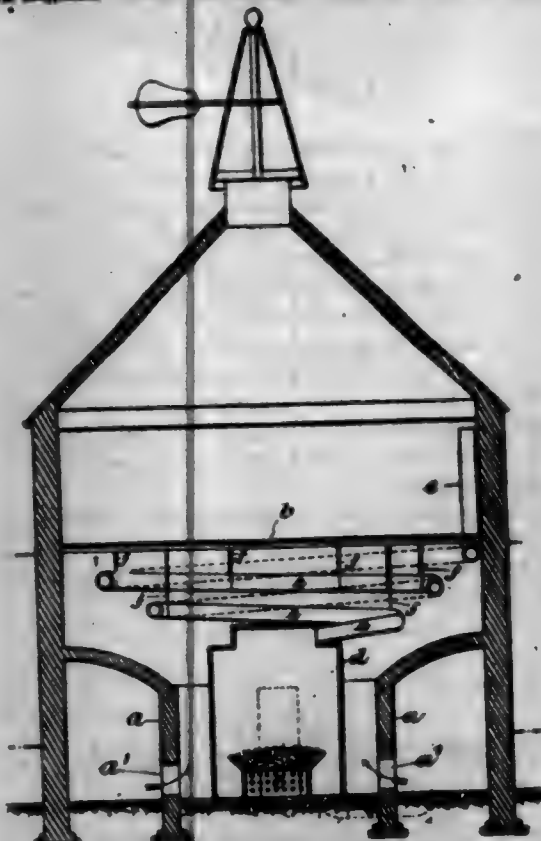
4. A sprayer for a bronzing-machine consisting in heads and blades fastened to said heads to form scrapers for removing the dust from the piles of the fountain-roller.

5. The combination with the cylinder and duster of a bronzing-machine, of an apron having a face located in the path of the dust thrown by said dusters; means for moving the apron; and means for removing the dust from the apron.

6. In a bronzing-machine, a dust-receptacle; a dust-catching apron arranged in the path of the dust, and means for moving said apron to deliver the dust to the dust-receptacle.

7. A bronzing-machine furnished with a removable dust-receiving receptacle; a moving apron to receive the dust thrown by the dusters of said machine; means for moving the apron at one speed; and a dust-brush arranged to brush the face of said apron and to deliver the dust therefrom into said removable receptacle.

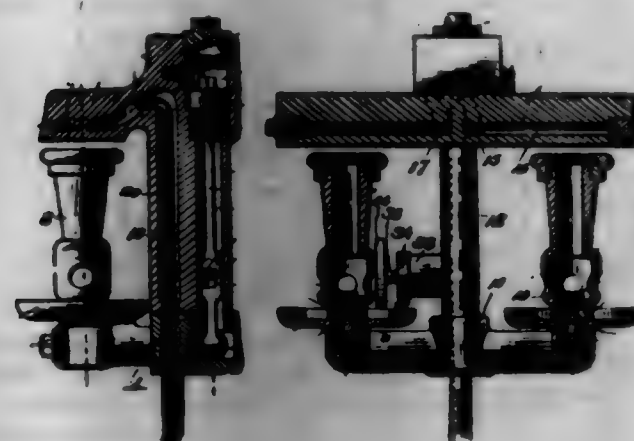
702,552. **MALT-KILN.** THOMAS HAYES, JR., Buxton, England. Filed Jan. 27, 1902. Serial No. 61,457. (No model.)



Claim.—The combination with a malt-kiln having a perforated mashing-floor, of a basket or holder for containing an open fire, a casing of conducting material surrounding the basket and having its walls arranged at such distance from the fire as to be out of contact therewith and the flame therefrom, a casing of non-conducting material surrounding the in-

ner casing, air-inlets in said outer casing for admitting air around the inner casing beneath the mashing-floor, and a coiled fire leading upward from the top of the inner casing arranged beneath the mashing-floor and discharging above the malt-level.

702,553. **HYDROCARBON-VAPOR BURNER.** LEO G. HARR, Philadelphia, Pa., assignor of one-half to Charles J. Wilson, New York, N. Y. Filed Oct. 21, 1901. Serial No. 78,270. (No model.)



Claim.—1. In a burner of the character described, the combination with the tubular base, and burner-heads communicating therewith, of a generating-chamber located above the burner-heads, a stem provided with inlet and outlet passages, the latter of which communicates with the tubular base, a trap-chamber establishing communication between the outlet-passages of said stem and the generating-chamber, said inlet-passages communicating with the generating-chamber, and means for controlling the flow of vapor from the generating-chamber to the burner-heads, said means comprising valves, one located in the trap-chamber and the others at the burner-heads and means for simultaneously operating said valves, substantially as set forth.

2. In a burner of the character described, the combination with a semicircular tubular base, provided with burner-heads, of a generating-chamber, a trap-chamber communicating therewith, a stem connecting the generating-chamber and the trap-chamber to the base and provided with inlet and outlet passages, the latter of which establishes communication between the generating-chamber, the trap-chamber and tubular base, said inlet communicating with the generating-chamber, valves arranged to regulate the supply of gas at the burner-heads, a valve arranged to regulate the supply of gas from the trap-chamber, connections between said valves, and means for simultaneously operating said valves, substantially as set forth.

3. In a burner of the character described, the combination with the tubular base provided with a burner-head and with a valve-seat, means for supplying gas to said tubular base, a bar mounted to move vertically in said tubular base, a valve loosely seated on said bar and provided with a chamber in its side, a headed stud projecting upwardly from said bar into said chamber, and a stud projecting laterally through the side wall of the valve within the path of movement of the head of the first-named stud so that in the downward movement of said bar, the first-named stud will engage the second-named stud and pull the valve from engagement with its seat, substantially as set forth.

4. In a burner of the character described, the combination with the tubular base provided with a valve-seat and with jet-orifices, means for supplying gas to the tubular base, a bar mounted to move vertically in said tubular base, a valve loosely supported upon said bar to engage said valve-seat and provided with points or needles to engage the jet-orifices, and having formed on its under side a chamber, a headed stud projecting vertically from said bar into said chamber, and a stud projecting laterally through the side wall of said valve within the path of movement of the head of the first-named stud, substantially as set forth.

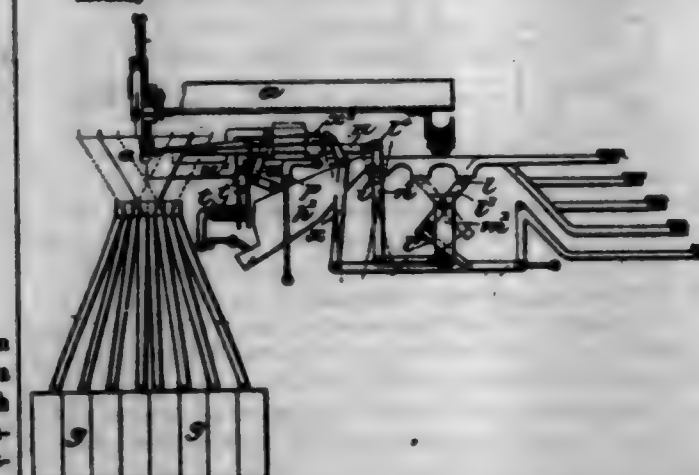
5. In a burner of the character described, the combination with the semicircular tubular base, burner-heads communicating therewith, of a generating-chamber located above said burner-heads, a trap-chamber communicating between the generating-chamber, a stem having a passage communicating between the trap-chamber and the tubular base, a vertically-movable valve-stem located in the vertical passage, a curved bar secured to the lower end of the vertically-movable stem and located in the semicircular base, a valve-seat within said trap-chamber, valve-seats at the burner-heads, valves, one supported above the upper end of the vertically-movable stem, and the others above the curved bar, and a shaft provided with an eccentric-pin adapted to work in a slot in the valve-stem to raise and lower said stem to open and close said valves, substantially as set forth.

702,554. **PHOTOGRAPHIC PLATE FOR REPRODUCING INK IMPRESSIONS.** LOUIS C. HENRIOT, Rhodan, France. Filed Oct. 25, 1901. Serial No. 50,361. (No specimens.)

Claim.—1. An emulsion for the purpose specified composed of a mixture of gelatin, mercuric bromide, and potassium bichromate, substantially as described.

2. The herein-described process of preparing sensitive coating material, which consists in dissolving a mixture of mercuric nitrate and potassium bromide in a solution of gelatin, and adding nitric acid until a milky-white substance is formed, substantially as described.

702,555. **TYPE-DISTRIBUTING MACHINE.** JOSEPH BARKLEY, Frankfurt-on-the-Main, Germany, assignor to Fritz Levy, Frankfurt-on-the-Main, Germany. Filed Dec. 26, 1901. Serial No. 57,631. (No model.)



Claim.—1. In a type-distributor, the combination of a carriage for supporting the type to be distributed, a hopper to receive the detached type, a plunger to detach the type, a series of keys corresponding to the type to be distributed, a series of channels below the hopper, also corresponding to the types to be distributed, mechanism actuated by any key of the series for operating the plunger, and mechanism actuated by the respective keys for moving the hopper to register with the channel corresponding to the key which is moved, substantially as set forth.

2. In a type-distributor, the combination of means for detaching the type, a hopper to receive the detached type, a series of channels, corresponding with the types to be distributed, into which the hopper may discharge, a series of keys also corresponding to the types to be distributed, and mechanism actuated by the respective keys for moving the hopper to register with the channel corresponding to the key depressed, substantially as set forth.

3. In a type-distributor, the combination of means for detaching the type, a hopper to receive the detached type, a series of channels corresponding with the types to be distributed, and into which the hopper may discharge, a series of keys also corresponding to the types to be distributed, and mechanism actuated by the keys for imparting a rectilinear movement and also an oscillating movement transversely to the rectilinear movement, substantially as set forth for the purpose set forth.

4. In a type-distributor, the combination of means for detaching the type, a hopper to receive the detached type, a series of channels, corresponding with the types to be distributed, and into which the hopper may discharge, a series of keys also corresponding to the types to be distributed, lever mechanism actuated by the keys to impart rectilinear movement to the hopper, and an auxiliary key for shifting the lever mechanism to change the direction of said rectilinear movement of the hopper, substantially as set forth.

5. In a type-distributor, the combination of means for detaching the type, a hopper to receive the detached type, a series of channels, corresponding with the types to be distributed, into which the hopper may discharge, a series of keys also corresponding to the types to be distributed, mechanism actuated by the keys for imparting an oscillating movement to the hopper, and stops controlled by the keys for determining the extent of said oscillating movement, substantially as set forth.

6. In a type-distributor, the combination of a carriage for supporting the type to be distributed, a plunger for detaching a single type, a series of keys, and mechanism actuated by any key of the series for actuating said plunger, substantially as set forth.

7. In a type-distributor, the combination of means for detaching the type, a hopper to receive the type, a series of channels, corresponding with the types to be distributed, into which the hopper may discharge, a series of key-levers also corresponding with the types to be distributed, a lever system connected to the hopper to impart rectilinear movement to the latter, said system being common to all of said key-levers, projections on said key-levers to engage and operate the lever system, said projections

tion being of different lengths on different key-levers, substantially as set forth.

702,556. PULP-WASHING APPARATUS. ALBERT KIMMER, Elmsted Park, Mo. Filed Feb. 27, 1902. Serial No. 26,906. (No model.)



Claim.—1. A washing-tank comprising an inclined trough having parallel rows of chambers, the chambers of each row being in communication with each other through alternate up and down passages, and the end chambers of each of the intermediate rows being in communication with the end chambers of the next adjacent rows at opposite sides of the tank, forming a zigzag passage, substantially as described.

2. A washing-tank comprising an inclined trough having a zigzag longitudinal passage-way consisting of vertical chambers arranged in longitudinal and transverse rows, said chambers being formed of fixed and movable partitions, the fixed partitions in the transverse rows forming underflow and the movable partitions overflow passages, substantially as specified.

3. A washing-tank comprising an inclined trough having a zigzag longitudinal passage-way provided with alternate over and under flow passages, substantially as and for the purpose specified.

4. A washing-tank comprising an inclined trough having a zigzag longitudinal passage-way consisting of vertical chambers arranged in longitudinal and transverse rows, said chambers being formed of fixed and movable partitions, the fixed partitions in the transverse rows forming underflow and the movable partitions overflow passages, means for controlling the inflow and discharge of the pulp and the discharge of the residuum, a water-supply pipe, means for conveying water from said supply-pipe to said chambers, and means for also supplying water from said pipe for flushing the interior of the tank to wash away the residuum, substantially as set forth.

5. A washing-tank having a zigzag passage-way consisting of vertical chambers arranged in longitudinal and transverse rows, said chambers being formed by longitudinal and transverse stationary partitions and longitudinal and transverse movable partitions, the longitudinal stationary partitions forming underflow and the movable partitions overflow passages, said movable partitions being capable of an upward adjustment to also form underflow-passages for the circulation of water along the bottom of the tank, substantially as described.

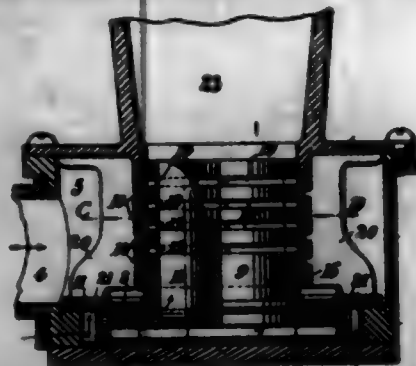
6. An apparatus of the character described comprising a tank provided with a zigzag passage-way, and a perforate false bottom with passages below the false bottom for the discharge of the waste water, a trough communicating with said passages, valves establishing communication between the passages and trough, and means for supplying water to the trough and passage-way for cleaning the interior of the tank, substantially as specified.

7. In an apparatus of the character described, the combination of a tank provided with chambers forming an irregular or zigzag passage-way for the circulation of the pulp, with means for controlling the inflow and discharge of the pulp and the discharge of the residuum, a water-supply pipe, means for conveying water from said supply-pipe to said chambers, and means for also supplying water from said pipe for flushing the interior of the tank to wash away the residuum, substantially as specified.

702,557. SOUND-PRODUCING DEVICE SUITABLE FOR MACHINES. ED. SUMNER BURN-JONES, Hartford, England, assignor to the Hamilton-Foster Pig Signal Company, New York, N. Y., a Corporation of Connecticut. Filed Nov. 26, 1901. Serial No. 28,726. (No model.)

Claim.—1. The combination with a piston, means for positively operating same by fluid-pressure on both sides, and a surrounding cylinder, of two parts having passages in same, one of said parts being movable, a connection between it and the piston, and a chamber, on one side of said parts containing fluid under pressure adapted to pass through the passage when they coincide the other side of the parts being open to the atmosphere substantially as described.

2. In combination a cylinder having a passage in the walls of same, a chamber for a fluid under pressure on one side of the cylinder, a second chamber to which the cylinder is open on the other side, a piston having a passage in same open to the atmosphere on one side and adapted to correspond with the passage in the cylinder at times for exhaust purposes and a sound-producing device carried by said piston and capable of being vibrated thereby, substantially as described.



3. A sound-producing device comprising a piston-engine, means for positively operating the piston of same in both directions, a vibrating sound-producing device operated by the engine, and a resonator the size of the column of air in which, is adapted to directly modify the periodicity of the engine substantially as described.

4. In a sound-producing device the combination with a resonator and a chamber for a supply of fluid under pressure of a series of passages forming a communication between the resonator and the air-supply, means for opening and closing each series of passages and a piston-engine connected to each means for positively operating same, substantially as described.

5. In a sound-producing device, the combination with a resonator, and a chamber for a supply of fluid under pressure, of a tubular part having a series of passages forming a communication between the resonator and the air-supply, a second part having a similar series of passages, a piston-engine connected to one of these parts to reciprocate same and operated by the fluid from the chamber above mentioned, and stops for limiting the movement of the reciprocating part so that it shall not move so far as to be put out of action when idle, substantially as described.

6. In a sound-producing device and in combination, a resonator, a tubular part having passages therein communicating with same, a cylinder having corresponding passages communicating with a supply of fluid under pressure, a piston carried by the tubular part, in communication with the air-supply, a cylinder for each piston, and suitable air inlet and exhaust passages, substantially as described.

7. The combination with a cylinder having a series of passages therein, a tubular piston having a similar series of passages, a chamber for fluid under pressure surrounding same, a piston 8 carried by the first-named piston, and having an exhaust-passage in same communicating with its periphery and with the tubular part, a second cylinder surrounding the piston 8 having a chamber in same, and a passage adapted to communicate with it and with the chamber for fluid under pressure or the exhaust-passage in the piston.

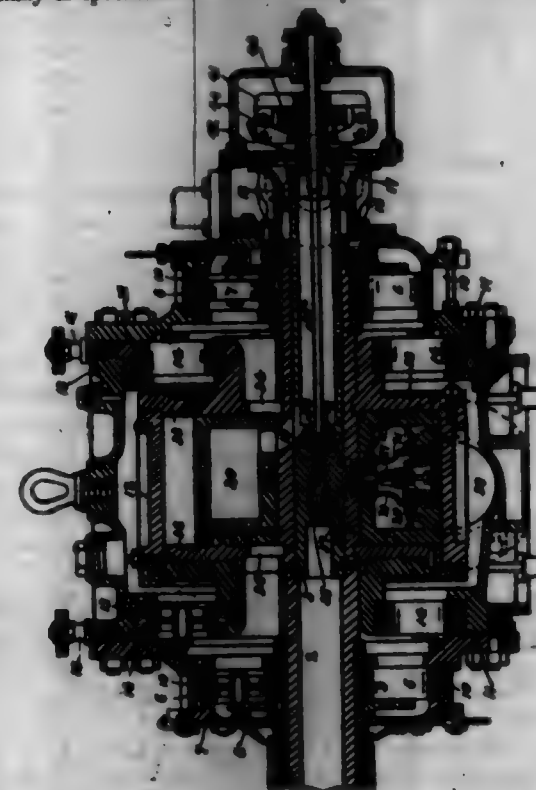
8. In a sound-producing device, a cylinder having a series of smaller passages, a chamber for fluid under pressure surrounding same, valve 20 connecting the parts of the cylinder between the passages, a second cylinder 3 carried by each valve and having a passage communicating with its interior and the chamber for fluid under pressure, a tubular piston for the first cylinder having a series of smaller passages, valve 13 connecting the parts of the piston between the passages, a second piston 5 carried by the first piston, and having an exhaust-passage adapted to communicate with the passage in cylinder 3 and with its interior, and means for limiting the movement of piston 5 in its cylinder substantially as described.

702,558. ROTARY ENGINE. CARL A. HERR and OSCAR W. HERR, Stockholm, Sweden. Filed Mar. 17, 1902. Serial No. 28,726. (No model.)

Claim.—1. In rotary engine, in combination, equilibrated inlet-valves 26 for controlling the supply of driving fluid, each valve arranged in the rotary working piston 1 of the engine and connected to a controlling-piston 26 movable in the said rotary working piston, passages 19, 20, 21 communicating with the inlet and leading through the working piston 1 to one side of each of the controlling-pistons 26 for the inlet-valves, and passages 4, 5 leading to the opposite side of the controlling-pistons 26, one of said passages 5 communicating periodically with the exhaust, the other passage 4 being put in communication with the inlet after the former passage 5 is shut off from the exhaust, substantially as specified.

2. In a rotary engine, the combination of equilibrated inlet-valves

26 placed in the rotary working piston 1 of the engine for controlling the supply of driving fluid, each valve being connected to a controlling-piston 26 movable in the said rotary working piston, passages 19, 20, 21 communicating with the inlet and leading through the working piston 1 to one side of each of the controlling-pistons 26 for the inlet-valves, a distributing-valve 35 located in the hollow shaft 2 of the rotary working piston and provided at its ends with bores or holes 36, 37 one of which 36 communicates with the inlet and the other 37 with the exhaust, openings 39, 40 in the wall of the distributing-valve 35 leading from each of the bores or holes 36, 37 in the distributing-valve to the outer side of said valve, and passages 4, 5 leading from the outer side of the distributing-valve to the side of the controlling-pistons 26 opposite to that permanently communicating with the inlet, the parts of said passages periodically passing the openings 39, 40 in the wall of the distributing-valve, substantially as specified.



3. In a rotary engine, the combination of equilibrated inlet-valves 26 placed in the rotary working piston 1 of the engine for controlling the supply of driving fluid, each valve being connected to a controlling-piston 26 movable in the said rotary working piston, passages 19, 20, 21 communicating with the inlet and leading through the working piston 1 to one side of each of the controlling-pistons 26 for the inlet-valves, a distributing-valve 35 located in the hollow shaft 2 of the rotary working piston and provided at its ends with bores or holes 36, 37 one of which 36 communicates with the inlet and the other 37 with the exhaust, openings 39, 40 in the wall of the distributing-valve 35 leading from each of the bores or holes 36, 37 in the distributing-valve to the outer side of said valve, passages 4, 5 leading from the outer side of the distributing-valve to the side of the controlling-pistons 26 opposite to the side permanently communicating with the inlet, and a regulator connected to the distributing-valve for controlling the position of same, substantially as specified.

702,559. SOCKET FOR STIKELS OF CORSETS. MRS. WYTHAMER, F. F. HERR, Braintree, Mass., assignor of one-third to Peter W. French, Weymouth, Mass. Filed Oct. 17, 1901. Serial No. 28,726. (No model.)

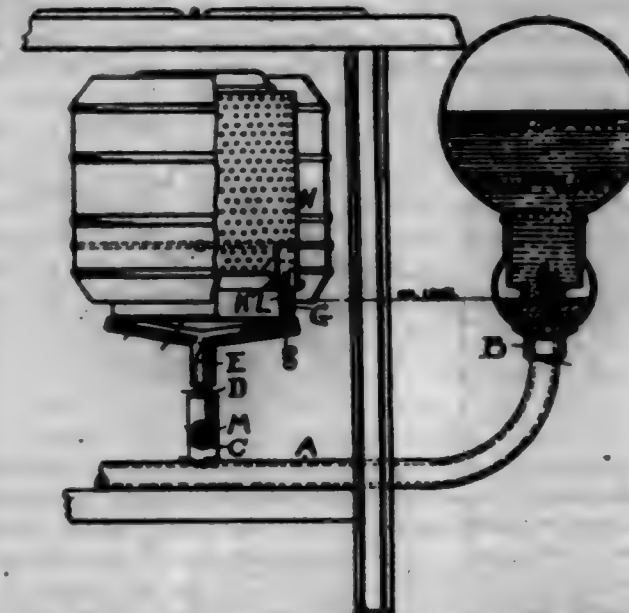


Claim.—The improved socket for sticks of corsets and dress-stays consisting of a strip of stiff sheet material bent near its middle, curved transversely at the bend and cupped at one side of the bend, substantially as shown.

702,560. OIL-BURNER. WILLIAM R. JEAISON, Cleveland, Ohio. Filed Aug. 18, 1902. Serial No. 27,966. (No model.)

Claim.—1. In an oil-stove, the combination of an oil-supply tank provided with means for the maintenance of a substantially constant level of oil therein, a burner-trough with its top edge above the plane of the maintained oil-level in said tank, a supply-pipe between said tank and trough, and a valve and stem to control the outflow therefrom, and a sleeve for said valve-stem extending upwardly to a plane above the maintained level of oil in said tank and open at its top, the said valve-stem adapted

to be reciprocated in said sleeve, whereby the contents of the oil-passages may be forcibly ejected and the said passages cleaned with the head of oil open to the burner-trough, substantially as described.



2. In an oil-stove, the combination of an oil-supply tank provided with means for the maintenance of a constant level of oil therein, a burner-trough in position with its top edge above the level of oil in said tank, an oil-feed pipe projecting downwardly from said trough and a valve below said feed-pipe controlling the flow of oil to the burner-trough, a supply-pipe for the said trough below said valve, and a sleeve for the said valve extending upwardly to a point above the level of oil in the said tank, said valve adapted to be reciprocated and to serve as a piston to force oil through the oil-passages leading to the burner-trough, substantially as described.

3. The combination of an oil-supply tank and means for the maintenance of a substantially constant level of oil therein, a burner-trough and a valve-body and oil-supply connections from the tank to said body and thence to the burner-trough, a sleeve projecting from said valve-body having its upper end above the maintained oil-level in the tank and a plunger in said sleeve adapted to force oil forward through the oil-passages, substantially as described.

4. The combination of an oil-supply tank and means for the maintenance of a substantially constant level of oil therein, a burner-trough with its top edge above the maintained level of the oil in said tank and a valve-body and oil-supply connections from the tank to said body and thence to the burner-trough, a sleeve projecting from said valve-body having its upper end above the maintained oil-level in the tank and a plunger in said sleeve adapted to force oil forward through the oil-passages, substantially as described.

5. In an oil-stove, the combination of an oil-supply tank and means for the maintenance of a substantially constant level of oil therein, a burner-trough with its top edge above the level of the oil in said tank, and an oil supply passage from the tank to the said burner, a tubular sleeve open to said passage and having its upper end above the maintained level of the oil in the supply-tank, and means adapted to be reciprocated in said sleeve and to force oil to the burner-trough, substantially as described.

6. In an oil-stove, the combination of an oil-supply tank and means for the maintenance of a substantially constant level of oil therein, a burner-trough with its top edge above the plane of the constant oil-level of said oil-supply, a valve-body below said trough and in open connection therewith through an upwardly-extending part, a tube for the valve-stem extending outwardly and upwardly from said valve-body with its top end above the plane of the said constant oil-level, and a valve-stem supported in said tube, said parts constructed and arranged to allow the reciprocation of the valve-stem in the said tube, substantially as described.

7. In a burner, perforated tubes forming a combustion-chamber between them, an annular vapor-trough supporting said tubes, a transversely-arranged oil-supply pipe supporting said vapor-trough and open thereto at its ends, and a heat-radiating plate spanning the space at the bottom of the trough, whereby vaporization of the oil in the vapor-trough is promoted, substantially as described.

702,561. COMBINATION-FLOW ATTACHMENT. WILLIAM A. JEFFERS, Hailberry, Ark. Filed Mar. 7, 1902. Serial No. 27,966. (No model.)

Claim.—1. In a right and left hand cultivator, the combination of a double-fluted-plow stock 1, having its head 2, slotted; a scraper 3, its outer end nearly straight horizontally, its inner end curved forward and

to a greater degree at the bottom; said end and cutting edge curved sharply downward to a point 6, and having the cutting-flange bent forward, forming a collar; said scraper provided near its under end with a circular slot 8, and bolt-holes; a winged stirrer 9, secured to the rear foot and inside of the outer end of said scraper, substantially as shown and described, and for the purposes set forth.

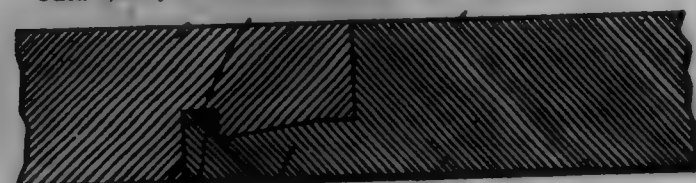


2. In a right and left hand cultivator, the combination of a double-footed-plow stalk 1, having its hook 2, slotted; a scraper, its inner end extending downwardly, forming a point 6, and turning forward forming a collar 5; said scraper provided near its inner end with bolt-holes and a circular slot 8; a right-angle-bar support 7, its two ends coming to a point, its flat side 7', fitting against the face of the forward foot 2, its two edges 7'', and 7''', fitting against the rear face of the scraper, and a stirrer 9, secured to the rear foot 2, and inside of the line of the free end of the scraper, substantially as shown and described and for the purposes set forth.

3. In a right and left hand cultivator, to be used in combination with a double-footed-plow stalk 1, and wheeled cultivator 2; a scraper 3, its outer end nearly straight horizontally, its inner end curved forward and to a greater degree at the bottom; said end and cutting edge curved sharply downward to a point 6, and having the cutting-flange bent forward, forming a collar; said scraper provided near its under end with a circular slot 8, and bolt-holes; a winged stirrer 9, secured to the rear foot and inside of the outer end of said scraper, substantially as shown and described and for the purposes set forth.

4. In a right and left hand cultivator, to be used in combination with a double-footed-plow stalk 1, and wheeled cultivator; a scraper, its inner end extending downwardly forming a point 6, and turning forward forming a collar 5; said scraper provided near its inner end with bolt-holes and a circular slot 8; a right-angle-bar support 7, its two ends coming to a point, its flat side 7', fitting against the face of the forward foot 2, its two edges 7'', and 7''', fitting against the rear face of the scraper, and a stirrer 9, secured to the rear foot, and inside of the line of the free end of the scraper, substantially as shown and described and for the purposes set forth.

702,569. RAIL-JOINT. CHARLES R. JONES, St. Albans, W. Va. Filed Oct. 17, 1901. Serial No. 79,916. (No model.)



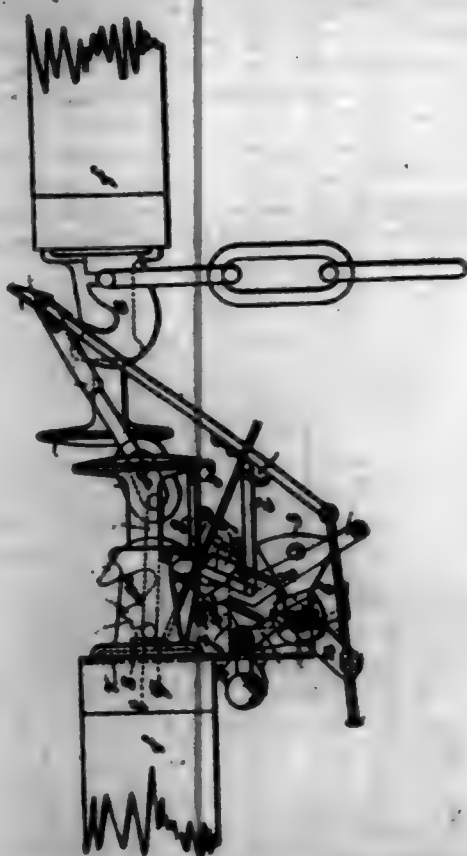
Claim.—The combination with two rails, the web portions thereof at the ends of said rails being thickened or enlarged, one end of one rail having projecting longitudinally therefrom near its base a Shank formed with an upwardly-projecting rectangular lug, and the abutting end of the other rail being provided with a longitudinal slot which terminates in a vertically-disposed socket, the walls of which are rectangular and closely fit said lug, substantially as set forth.

702,568. RAILWAY COUPLING APPARATUS. WILLIAM E. A. JONES, London, England. Filed Mar. 14, 1902. Serial No. 94,497. (No model.)

Claim.—1. In a link-coupler, the combination with the buffers, the draw-hook, and the coupling-chain; of means for supporting the outer link in a position to receive therein the draw-hook of an adjacent vehicle; means actuated by the movement of one or both of the buffers for raising said supporting means to cause said outer link to engage the hook of the adjacent car; and means actuated on the loosening of the coupling-chain for causing the supporting means to raise the outer link from engagement with the draw-hook of the adjacent vehicle.

2. In a link-coupler, the combination with the buffers, and the coupling-chain; of a draw-hook having a notch in its upper edge between its hook portion and the vehicle; of means for supporting the outer link in

a position to receive therein the draw-hook of an adjacent vehicle; means actuated on the loosening of the coupling-chain for causing the supporting means to raise the outer link from engagement with the draw-hook of the adjacent vehicle, and place the link in the said notch portion of the draw-hook.



3. In a link-coupler, the combination with the buffers, the draw-hook, and the coupling-chain; of a lifting-shaft arranged to be operated from either side of the vehicle; a link-carrier having the outer link of the coupling-chain connected therewith; a crank on said shaft connected with the link-carrier at an intermediate portion of the latter; a reversing-shaft; a lever on said latter shaft; and a connecting-rod attached to the free end of said latter lever, and connected to the lower extremity of the link-carrier.

4. In a link-coupler, the combination with the buffers, the draw-hook, and the coupling-chain; of a lifting-shaft arranged to be operated on either side of the vehicle; a link-carrier having one extremity connected with the outer link of the coupling-chain; a crank on said shaft connected with the link-carrier at an intermediate portion of the latter by a slotted joint; a reversing-shaft; a lever on said latter shaft; and a connecting-rod having one end connected with the lower end of the link-carrier, and having its other end loosely connected with the free end of said lever.

5. In a link-coupler, the combination with the buffers, the draw-hook, and the coupling-chain; of a lifting-shaft arranged to be operated from either side of the vehicle; a link-carrier having the outer link of the coupling-chain connected therewith; a crank on said shaft connected with the link-carrier at an intermediate portion of the latter; a reversing-shaft; a lever on said latter shaft; a connecting-rod attached to the free end of said latter lever, and connected to the lower extremity of the link-carrier; and a U-shaped support pivoted to the draw-hook below the inner link of the coupling-chain and arranged to rest on the said crank and support said inner link.

6. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of an upwardly-extending link-carrier having its upper end joined to the outer link of said chain near to the outer end thereof and adapted to move said coupling-link onto and from said draw-hook, a lifting-crank whereon said link-carrier is loosely mounted to turn, means for operating said lifting-crank from either side of said vehicle, and means connected to the lower end of said link-carrier and whereby said link-carrier can be turned about said lifting-crank as a center.

7. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of a slotted link-carrier joined at its upper end to the outer link of said chain near to the outer end thereof, and capable of moving said outer link onto and from said draw-hook, separate transverse lifting and reversing shafts mounted to turn on the end of said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being turned about a horizontal axis from said lifting-shaft and whereby said slotted link-carrier is mounted to turn, a reversing-lever capable of being turned about a hori-

zontal axis by movement of said reversing-shaft, and a connecting-rod joined to the lower end of said link-carrier and to said reversing-lever, and capable of moving said link-carrier to a limited extent relatively to said reversing-lever, and of being moved endwise by said lever, substantially as described for the purposes specified.

8. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of separate transverse lifting and reversing shafts mounted to turn on said vehicle and each capable of being operated from either side thereof, a lifting-crank fixed to said lifting-shaft, a reversing-lever mounted on said reversing-shaft and capable of being operated thereby, a slotted link-carrier loosely mounted on said lifting-crank and joined at its upper end to the outer link of said chain near to the outer end thereof and capable of moving said outer link onto and from said draw-hook and a connecting-rod joined to the lower end of said link-carrier and to said reversing-lever, capable of moving said link-carrier to a limited extent, and of being moved endwise by said lever.

9. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of separate transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being turned from either side thereof, a lifting-crank capable of being lifted by said lifting-shaft, a reversing-shaft mounted to turn to a limited extent on said reversing-shaft and of being moved in a forward direction by said shaft, a stop arranged to limit backward movement of said reversing-lever, a slotted link-carrier loosely mounted on said lifting-crank joined at its upper end to the outer link of said chain, and capable of turning about a horizontal axis, and a connecting-rod joined to the lower end of said link-carrier and to said reversing-lever and capable of endwise movement to a limited extent on said lever.

10. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of separate lifting and reversing shafts mounted to turn on said vehicle, a lifting-crank fixed to said lifting-shaft, a reversing-lever on said reversing-shaft and capable of being operated thereby a stop to limit backward motion of said reversing-lever, an upwardly-extending link-carrier joined at its intermediate portion to said lifting-crank, and at its upper end to the outer link of said chain, and a connecting-rod between the lower end of said link-carrier and said reversing-lever.

11. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts A and B, respectively mounted to turn on said vehicle, a lifting-crank C, fixed to said lifting-shaft A, a reversing-lever D, mounted to turn on said reversing-shaft B and which when turned in one direction being adapted to turn said reversing-lever in a forward direction and when turned in the opposite direction to move said reversing-lever in a backward direction, a link-carrier E, having its upper end joined to the outer link of said chain so as to compel the same from points near to the outer end thereof and provided with a slotted intermediate portion F, loosely mounted on said lifting-crank, and a connecting-rod G, joined to the lower end of said link-carrier and to said reversing-lever and capable of sliding endwise on said lever to an extent limited by stops H on said rod, substantially as described for the purposes specified.

12. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of separate transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being operated from said lifting-shaft, a reversing-lever capable of being operated from said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted on said lifting-crank and joined at its upper end to the outer link of said coupling-chain, a connecting-rod connecting said reversing-lever to the lower end of said link-carrier, and a top cross-piece joined to the upper end of said link-carrier and arranged to extend over the outer end of said outer chain-link, substantially as described for the purposes specified.

13. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of separate transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being operated from said lifting-shaft, a reversing-lever capable of being operated from said reversing-shaft, a cradle or holder for the outer link of said chain, an upwardly-extending slotted link-carrier loosely mounted on said lifting-crank and joined at its upper end to the outer end of said cradle or holder near to the outer end of said outer link, and a connecting-rod joined to the lower end of said link-carrier and to said reversing-lever, substantially as described.

14. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-

crank capable of being turned by said lifting-shaft, a reversing-lever capable of being turned by said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted at its intermediate portion to turn upon said lifting-crank, joined at its upper end to the outer link of said chain and capable of moving said link onto and from said draw-hook, a connecting-rod between the lower end of said link-carrier and said reversing-lever, and means adapted to support said lifting-shaft, crank, slotted lever and coupling-chain in position for automatic coupling.

15. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being turned by said lifting-shaft, a reversing-lever capable of being turned by said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted at its intermediate portion to turn upon said lifting-crank, joined at its upper end to the outer link of said chain and capable of moving said link onto and from said draw-hook, a connecting-rod between the lower end of said link-carrier and said reversing-lever, means adapted to support said lifting-shaft and the parts carried thereby in position for automatic coupling, and means adapted to support said vehicle coming into contact with another vehicle to release said supporting-shaft and attached parts and permit automatic coupling to take place.

16. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, with a draw-hook, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being turned by said lifting-shaft, a reversing-lever capable of being turned by said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted at its upper end to the outer link of said chain and capable of moving said link onto and from said draw-hook, a connecting-rod between the lower end of said link-carrier and said reversing-lever, holding means adapted to support said lifting-shaft and the parts carried thereby in position for automatic coupling, and means controlled by said buffers and adapted to cause said holding means to release said lifting-shaft and attached parts by inward movement of either buffer and permit automatic coupling to take place.

17. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, with a draw-hook, and a coupling-chain joined to said draw-hook, of operating apparatus capable of being operated from either side of the vehicle and to bring the outer coupling-link of said chain in position for automatic coupling, holding means adapted to support said operating apparatus and coupling-link in position for automatic coupling, and means controlled by the inner end of each buffer-rod and adapted on either of the buffer-rods being forced inward to cause said holding means to release said lifting-shaft and attached parts and permit automatic coupling to take place.

18. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, with a draw-hook, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being turned by said lifting-shaft, a reversing-lever capable of being turned by said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted at its intermediate portion to turn upon said lifting-crank, joined at its upper end to the outer link of said chain and capable of moving said link onto and from said draw-hook, a connecting-rod between the lower end of said link-carrier and said reversing-lever, holding means adapted to support said lifting-shaft and the parts carried thereby in position for automatic coupling, and means controlled by the inner end of each buffer-rod and adapted on either buffer-rod being forced inward to cause said holding means to release said lifting-shaft and attached parts and permit automatic coupling to take place.

19. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, with a draw-hook, and a coupling-chain joined to said draw-hook, of transverse lifting and reversing shafts mounted to turn on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being turned by said lifting-shaft, a reversing-lever capable of being turned by said reversing-shaft, an upwardly-extending slotted link-carrier loosely mounted at its intermediate portion to turn upon said lifting-crank, joined at its upper end to the outer link of said chain and capable of moving said link onto and from said draw-hook, a connecting-rod between the lower end of said link-carrier and said reversing-lever, holding means adapted to support said lifting-shaft and the parts carried thereby in position for automatic coupling, and means adapted to move said holding means into a position to release said lifting-shaft arranged to be normally held out of action by said buffer-rods but to act when either buffer-rod is pushed inward.

20. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, a draw-hook, and a coupling-chain joined to said hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank operated by said lifting-shaft, a reversing-lever operated by said reversing-shaft, a link-carrier mounted at an intermediate part of its length on said lifting-crank and connected at its upper end to the outer link of said chain, a connecting-rod between the lower end of said link-carrier and reversing-lever, a projection in connection with said lifting-shaft, two connected arms mounted on said vehicle and one of which is provided with a holding-teeth adapted to engage said projection and hold the lifting-crank in the raised position for automatic coupling after it has been moved into that position, and operating devices normally held in an inoperative position by the inner ends of the buffer-rods but each adapted when released by inward motion of either buffer-rod to automatically move and operate both arms and cause the holding-teeth to release said projection and lifting-shaft.

21. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, a draw-hook, and a coupling-chain joined to said hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank operated by said lifting-shaft, a reversing-lever operated by said reversing-shaft, a link-carrier mounted at an intermediate part of its length on said lifting-crank and connected at its upper end to the outer link of said chain, a connecting-rod between the lower end of said link-carrier and reversing-lever, a projection in connection with said lifting-shaft, two connected arms mounted on said vehicle and one of which is provided with a holding-teeth adapted to engage said projection and hold the lifting-crank in the raised position for automatic coupling after it has been moved into that position, two rods each adapted when moved backward to engage one of said connected arms and move it and the other arm and the holding-teeth into a position to release the projection connected to said lifting-shaft, and spring devices each adapted, when released, to move one of said rods into its operative position but normally held out of action by the forward thrust of the corresponding buffer-rod.

22. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, a draw-hook, and a coupling-chain joined to said hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank operated by said lifting-shaft, a reversing-lever operated by said reversing-shaft, a link-carrier mounted at an intermediate part of its length on said lifting-crank and connected at its upper end to the outer link of said chain, a connecting-rod between the lower end of said link-carrier and reversing-lever, a projection in connection with said lifting-shaft, a cross-shaft mounted on said vehicle, two arms fixed on said cross-shaft, one of which is provided with a holding-teeth, and both of which are normally pressed in a forward direction to bring said holding-teeth into a position to engage said projection and hold said lifting-crank in the raised position, connecting-rods adapted to engage said arms and move them backward, and spring-operated devices that are normally acted upon by the inner ends of the buffer-rods and hold said connecting-rods in their forward and inoperative positions but each of which will act to move back the corresponding connecting-rod and arm and withdraw said holding-teeth from said projection when the corresponding buffer-rod is forced inward.

23. In railway coupling apparatus, the combination with a vehicle provided with endwise-movable buffers, a draw-hook, and a coupling-chain joined to said hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank operated by said lifting-shaft, a reversing-lever operated by said reversing-shaft, a link-carrier mounted at an intermediate part of its length on said lifting-crank and connected at its upper end to the outer link of said chain, a connecting-rod between the lower end of said link-carrier and reversing-lever, a projection in connection with said lifting-shaft, a cross-shaft mounted on said vehicle and provided with forwardly-extending weighted arms, two upwardly-extending arms fixed to said cross-shaft and one of which is provided with a forwardly-extending holding-teeth adapted to engage with said projection and hold the lifting-crank in the raised position when the same is lifted into that position, two rods each adapted to engage the upper end of one of said arms each connected to one of said rods, each spring-actuated arm and rod being normally held in the forward and inoperative position by the inner end of the corresponding buffer-rod but adapted to automatically move backward and actuate said connected arms and withdraw said holding-teeth from said projection, when the corresponding buffer-rod is forced inward.

24. In railway coupling apparatus, the combination with a vehicle provided with a draw-hook, a coupling-chain joined thereto, and buffers having rods extending through the head-stock of the vehicle to the inner side thereof, of a transverse lifting-shaft mounted on said vehicle and provided at its central portion with a lifting-crank and at its ends with

lifting-handles one of which is provided with a lateral projection 21", a transverse reversing-shaft mounted on said vehicle and provided at its central portion with a reversing-lever and at its ends with weighted arms that normally extend in a forward direction, a slotted link-carrier mounted to turn on said lifting-crank and jointed at its upper end to the outer link of said chain, a connecting-rod between the lower end of said link-carrier and reversing-lever, upwardly-extending arms 24" fixed to said transverse shaft and one of which is provided with a holding-teeth 26" adapted to engage with said lateral projection, slotted connecting rods 29" engaging the upper ends of said arms 24", and spring-carriers 30, carried by said vehicle and each connected to one of said rods and arranged between the head-stock of the vehicle and an enlarged part of the inner end of the corresponding buffer-rod and normally compressed thereby, substantially as described for the purpose specified.

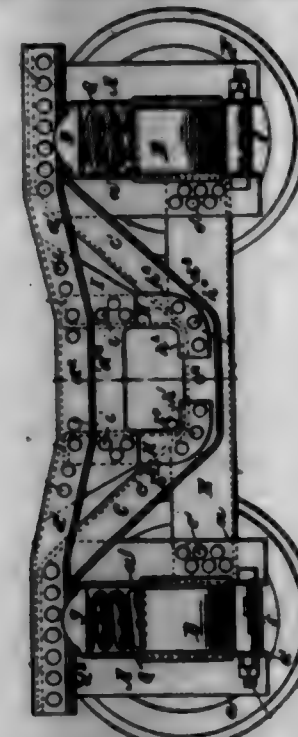
25. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon and a coupling-chain connected to said draw-hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank, capable of being operated by said lifting-shaft, a reversing-lever capable of being operated by said reversing-shaft, a stop to limit backward movement of said reversing-lever, a slotted link-carrier mounted to turn on said lifting-crank, jointed at its upper end to the outer link of said chain, and adapted to move said outer link from over said draw-hook to a position over the draw-hook of an adjacent vehicle and vice versa, a connecting-rod jointed to the lower end of said link-carrier and to said reversing-lever and capable of endwise motion, to a limited extent, relatively to said reversing-lever and of being operated by said reversing-lever, holding means adapted, when released, to hold said lifting-crank in the raised position into which it will be moved by said link-carrier when said chain is coupled to another vehicle and a pull is exerted thereon, and means whereby said reversing-shaft and lever can be caused to exert a thrust on said connecting-rod that will tend to move the lower end of said link-carrier outward and the upper end thereof inward, substantially as described for the purpose specified.

26. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain connected to said draw-hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being operated by said lifting-shaft, a reversing-lever capable of being operated by said reversing-shaft, a stop to limit backward movement of said reversing-lever, a slotted link-carrier mounted to turn on said lifting-crank, jointed at its upper end to the outer link of said chain, and adapted to move said outer link from over said draw-hook to a position over the draw-hook of an adjacent vehicle and vice versa, a connecting-rod jointed to the lower end of said link-carrier and to said reversing-lever and capable of endwise motion, to a limited extent, relatively to said reversing-lever and of being operated by said reversing-lever, holding means adapted, when released, to hold said lifting-crank in the raised position into which it will be moved by said link-carrier when said chain is coupled to another vehicle and a pull is exerted thereon, weighted arms fixed to said reversing-shaft and adapted when moved into a backward position to cause said reversing-lever to exert a forward thrust on said connecting-rod, and means carried by said reversing-shaft and adapted when said arms are turned into the backward position to release said holding means and allow the same to come into operation, and means for automatically disengaging said holding means from said lifting-crank when the coupling-chain falls back into its inoperative position.

27. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain connected to said draw-hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being operated by said lifting-shaft, a reversing-lever capable of being operated by said reversing-shaft, a stop to limit backward movement of said reversing-lever, a slotted link-carrier mounted to turn on said lifting-crank, jointed at its upper end to the outer link of said chain, and adapted to move said outer link from over said draw-hook to a position over the draw-hook of an adjacent vehicle and vice versa, a connecting-rod jointed to the lower end of said link-carrier and to said reversing-lever and capable of endwise motion, to a limited extent, relatively to said reversing-lever and of being operated by said reversing-lever, holding means adapted when said reversing-lever is turned into a forward position to hold said lifting-crank in the raised position into which it will be moved by said link-carrier when said chain is coupled to another vehicle and a pull is exerted thereon, a weighted arm fixed to said reversing-shaft and adapted when moved into a backward position to cause said reversing-lever to exert a forward thrust on said connecting-rod, and a cam carried by said reversing-shaft and adapted when said reversing-lever is moved forward, by said connecting-rod, under the action of said link-carrier and chain, to disengage said holding means from said lifting-crank, substantially as described for the purpose specified.

28. In railway coupling apparatus, the combination with a vehicle, a draw-hook thereon, and a coupling-chain connected to said draw-hook, of transverse lifting and reversing shafts mounted on said vehicle and capable of being operated from either side thereof, a lifting-crank capable of being operated by said lifting-shaft, a reversing-lever capable of being operated by said reversing-shaft, a stop to limit backward movement of said reversing-lever, a slotted link-carrier mounted to turn on said lifting-crank, jointed at its upper end to the outer link of said chain, and adapted to move said outer link from over said draw-hook to a position over the draw-hook of an adjacent vehicle and vice versa, a connecting-rod jointed to the lower end of said link-carrier and to said reversing-lever and capable of endwise motion, to a limited extent, relatively to said reversing-lever, and of being operated by said reversing-lever, a weighted arm fixed to said reversing-shaft and adapted when moved into a backward position to cause said reversing-lever to exert a forward thrust on said connecting-rod and the lower end of said link-carrier, a toothed segment connected to said lifting-shaft, a pawl pivoted to said vehicle and adapted, when said weighted arm is turned into its backward position, to engage said toothed segment and hold the lifting-crank in the raised position into which it will be moved by said link-carrier when said chain is coupled to another vehicle and a pull is exerted thereon, and a cam-like projection carried by said reversing-shaft and adapted, when said reversing-lever is moved forward to a further extent by a pull of said connecting-rod, caused by automatic turning movement of said link-carrier, to force said pawl out of engagement with said segment, substantially as described for the purpose specified.

702,564. CAR-TRUCK. HENRY R. KENTLEY, Buffalo, N. Y.
Filed Jan. 20, 1902. Serial No. 90,472. (No model.)



Claim.—1. In a trucked side frame for railway-car trucks the combination of two pedestals, a tension member formed with a vertical web and oppositely-projecting lateral flanges, a compression member formed with a vertical web and oppositely-projecting lateral flanges, the end portions of the webs of said tension and compression members being arranged vertically and secured to said pedestals, and the end portions of the lateral flanges of one of said members being arranged directly above the end portions of the lateral flanges of the other member, substantially as set forth.

2. In a trucked side frame for railway-car trucks, the combination of pedestals each having a vertical web and a laterally-projecting flange, a tension member formed with a vertical web and a horizontal flange, and a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of said tension and compression members being arranged vertically side by side and riveted to each other and to the vertical webs of said pedestals, and the end portions of the horizontal flanges of one of said members being arranged directly above the end portions of the horizontal flanges of the other member, substantially as set forth.

3. In a trucked side frame for railway-car trucks, the combination of two pedestals each having a vertical and a lateral flange, a tension member formed with a vertical web and oppositely-projecting upper and lower flanges, a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of the tension and compression members being arranged side by side and parallel with the vertical webs

of the pedestals, and the end portions of the flanges of said tension and compression members being superposed, and connecting-rivets or the like passing through the vertical webs of said tension and compression members and the vertical webs of said pedestals, substantially as set forth.

4. In a trucked side frame for railway-car trucks, the combination of two pedestals each having a vertical web and a lateral flange, a tension member formed with a vertical web and oppositely-projecting upper and lower flanges, a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of the tension and compression members being arranged side by side and parallel with the vertical webs of the pedestals, and the end portions of the upper flanges of said tension and compression members being superposed and extending over the vertical webs of the pedestals and connecting-rivets or the like passing through the vertical webs of said tension and compression members and the vertical flanges of said pedestals, substantially as set forth.

5. In a trucked side frame for railway-car trucks, the combination of two pedestals each having a vertical web and a lateral flange, a tension member formed with a vertical web and oppositely-projecting upper and lower flanges, a compression member formed with a vertical web and oppositely-projecting upper and lower flanges, the end portions of the webs of the tension and compression members being arranged side by side and parallel with the vertical webs of the pedestals and the end portions of the upper flanges of said tension and compression members being superposed and extending over the vertical webs of the pedestals and end portions of the lower flanges of said tension and compression members being superposed and being arranged over the lateral flanges of the pedestals, and connecting-rivets or the like passing through the vertical webs of said tension and compression members and the vertical flanges of said pedestals, substantially as set forth.

6. In a railway-car truck, the combination of two side frames, each composed of two pedestals having vertical webs, a tension member formed with a vertical web and a horizontal flange, a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of said tension and compression members being arranged side by side and parallel with the vertical webs of the pedestals and the end portions of the horizontal flanges of said members being superposed and extending over the vertical webs of the pedestals, rivets or the like connecting the webs of said tension and compression members to the vertical webs of said pedestals, a transverse having vertical end flanges, the lower portions of which are secured to the vertical webs of the tension members, and the upper portions of which are secured to the vertical webs of said compression members, substantially as set forth.

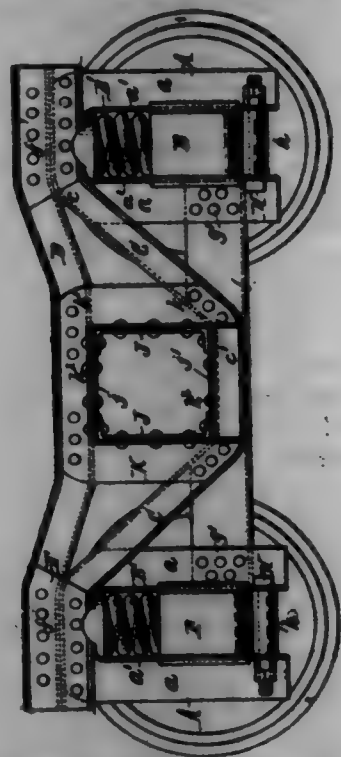
7. In a railway-car truck, the combination of two side frames, each composed of pedestals having vertical webs and laterally-projecting flanges, a tension member formed with a vertical web and a horizontal flange, a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of said tension and compression members being arranged side by side and parallel with the vertical webs of the pedestals, and the end portions of their horizontal flanges being superposed and extending over the vertical webs of said pedestals, rivets or the like connecting the end portions of the webs of the tension and compression members together and to said pedestals, a transverse arranged between said side frames and composed of two Z members each having vertical end flanges, rivets or the like securing the lower portions of the end flanges of the transverse members to said tension members, a plate arranged between the upper portions of the end flanges of said transverse members and the vertical webs of the compression members, and rivets or the like connecting said plates to said compression members and to the end flanges of said transverse members, substantially as set forth.

8. The combination of two side frames each composed of pedestals, a tension member formed with a vertical web and oppositely-projecting lateral flanges, a compression member formed with a vertical web and oppositely-projecting lateral flanges, the end portions of the webs of said tension and compression members being arranged vertically and secured to the pedestals, and the end portions of their flanges being superposed, a transverse engaging said side frames, a bolster, and springs arranged between the end portions of the transverse and the bolster, substantially as set forth.

702,565. RAILWAY-CAR TRUCK. HENRY R. KENTLEY, Buffalo, N. Y. Filed Apr. 11, 1902. Serial No. 100,657. (No model.)

Claim.—1. In a trucked side frame for railway-car trucks, the combination of two pedestals, a tension member formed with a vertical web and a horizontal flange, and a compression member formed with a vertical web and a horizontal flange, the end portions of the webs of said tension and compression members being arranged side by side and parallel with the vertical webs

2. In a trussed side frame for railway-car trucks, the combination of pedestals each having a vertical web and a laterally-projecting flange, a tension-chord formed with a vertical web and a horizontal flange the end portions of the web being connected to the webs of said pedestals, and a compression-chord formed with a vertical web and a horizontal flange, the end portions of the web of said compression-chord being arranged in substantially the same vertical plane and above the end portions of the web of the tension-chord, and the end portions of the horizontal flange of the compression-chord resting on and riveted to the end portions of the flange of the tension-chord, substantially as set forth.



3. In a trussed side frame for railway-car trucks, the combination of two pedestals, a tension-chord connected to said pedestals and formed with a vertical web and a horizontal flange, a compression-chord formed with a vertical web and a horizontal flange, the end portions of the webs of said tension and compression chords being arranged in substantially the same plane, and the end portions of the horizontal flange of one member being arranged directly above and riveted to the end portions of the horizontal flange of the other chord, and vertical plates arranged beside and secured to the end portions of the webs of said chords, substantially as set forth.

4. In a trussed side frame for railway-car trucks, the combination of pedestals each having a vertical web and a laterally-projecting flange, a tension-chord formed with a vertical web and a horizontal flange the end portions of the web being connected to the webs of said pedestals, a compression-chord formed with a vertical web and a horizontal flange, the end portions of the web of said compression-chord being arranged in substantially the same vertical plane and above the end portions of the web of the tension-chord, and the end portions of the horizontal flange of the compression-chord resting on and riveted to the end portions of the flange of the tension-chord, and vertical plates arranged beside and secured to the end portions of the webs of said chords, substantially as set forth.

5. In a trussed side frame for railway-car trucks, the combination of two pedestals, a tension-chord in the form of a Z-bar connected to said pedestals and arranged with its web vertical, a compression-chord in the form of a Z-bar arranged with its web vertical, the end portions of the web of the compression-chord being arranged in substantially the same vertical plane and above the end portions of the web of the tension-chord, and the end portions of the lower horizontal flange of the compression-chord resting upon the end portions of the upper horizontal flange of the tension-chord, and vertical plates arranged beside and secured to the end portions of the webs of said chords between the separated flange thereof, substantially as set forth.

6. The combination of two side frames, the chords of each of which are formed with a vertical web and a horizontal flange, a transom composed of channel-beams the ends of which project between the chords of said side frames, and bars each having a vertical web secured to the webs of the chords of the adjacent side frame and a flange secured to the adjacent end of the transom, substantially as set forth.

7. The combination of two trussed side frames, the chords of each of which are formed with a vertical web, and a horizontal flange, a transom composed of channel-beams the ends of which project between the chords of said side frames, and bars each having a vertical web secured to the webs of the chords of the adjacent side frame and a flange secured to the adjacent end of the transom, substantially as set forth.

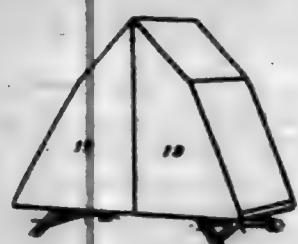
to the webs of the chords of the adjacent side frame and a flange secured to the adjacent end of the transom, substantially as set forth.

8. The combination of two trussed side frames, the chords of each of which are formed with a vertical web and a horizontal flange, a transom composed of channel-beams the ends of which project between the chords of said side frames, plates connected to the upper and lower flanges of the transom-channels and to the chords of the side frames, and bars each having a vertical web secured to the webs of the chords of the adjacent side frame and a flange secured to the adjacent end of the transom, substantially as set forth.

702,566. PROCESS OF RESERVE AND DISCHARGE OF TEXTILE FABRICS. EDWARD KESNER, Manchester, England. Filed Mar. 18, 1902. Serial No. 95,257. (No specimens.)

Claim.—The process of preventing the production and effecting the discharge of color in textile fabrics, which consists in treating the goods with a titanium salt contained in a solvent medium, substantially as set forth.

702,567. COMBINED FOLDING COT AND TENT. DAVID I. KERN, Verona, Pa.; John L. Kahn administrator of said David I. Kern, deceased. Filed June 8, 1902. Serial No. 19,153. (No model.)



Claim.—1. In a combined tent and cot, the combination with the cot-frame, of bails pivotally secured thereto and adapted to overlap each other; means for securing said bails in folded position, and braces for supporting the tent-cover above said bails.

2. In a combined tent and cot, the combination with the side bars of the frame, formed with recesses on their inner sides; of legs pivotally secured to said side bars, and connected in pairs by crossed braces, the upper ends of which project beyond the legs to support the side bars; and catches for securing the free ends of the legs.

3. In a combined tent and cover, the combination with the cot-frame, of a tent-frame comprising overlapping pivoted bails; a bail secured to the ridge of the tent-cover, and adapted to rest upon said pivoted bails; cross-braces also secured to the tent-cover and adapted to rest upon the pivoted bails; and means for securing the bails in their overlapping or folded position.

4. In a combined tent and cot, the combination with the cot-frame, of a tent-cover the ends of which are secured to the ends of said cot-frame; folding frames or bails pivotally secured to the cot-frame and adapted to overlap each other when folded; a ridge-support comprising a bail having forked ends to engage the folding bails; and cross-rods secured to fit upon said pivoted bails; and devices for securing the pivoted bails in folded position.

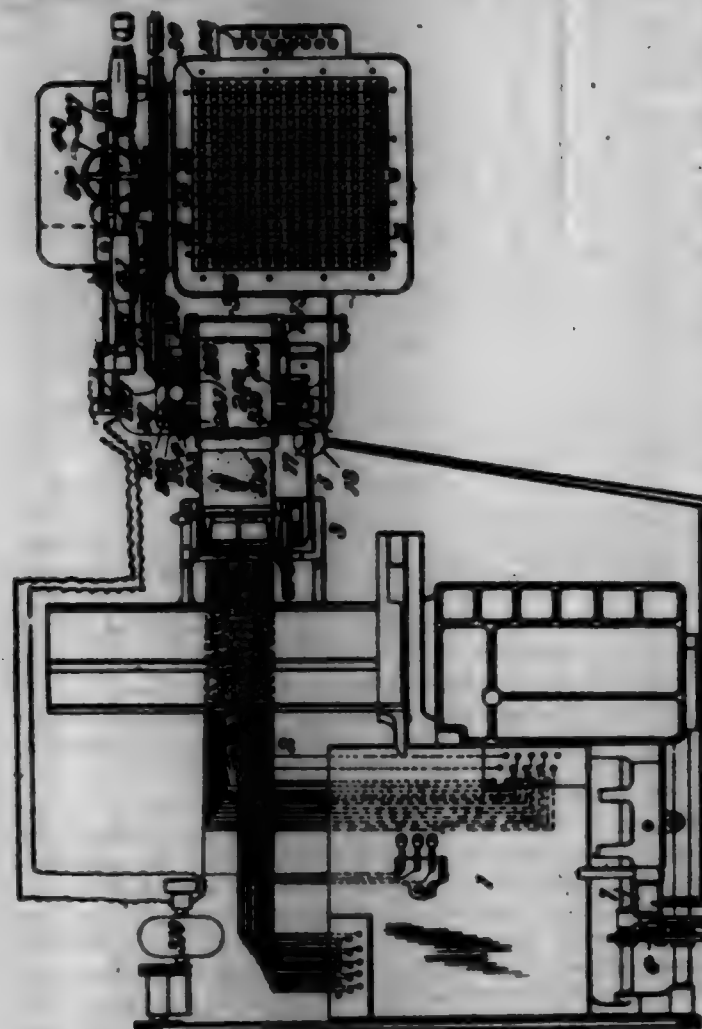
702,568. COMPOSING MECHANISM FOR TYPE-MACHINES. TOLBERT LANTIER, Washington, D. C., assignor to Lanston Monotype Machine Company, Washington, D. C., a Corporation of Virginia. Filed Mar. 9, 1901. Serial No. 30,107. (No model.)

Claim.—1. In a composing-machine the combination with a record-strip-composing mechanism or keyboard provided with character and justification punches, of independent feeds for said two varieties of punches; two sets of keys controlling the character and justification punches and feeds respectively; and a lock-out controlled by the character-keys and operating to arrest the movement of the justification-feed after the formation of a predetermined series of character-perforations; substantially as described.

2. In a composing-machine such as described, the combination with a record-strip-composing mechanism or keyboard provided with character and justification punches, of independent feeds for each set of punches with actuating mechanism therefor; a lock-out for suspending the action of one of said feeds; and a take-up for effecting the withdrawal of slack between the feeds after the completion of each line, to restore initial conditions preparatory to the formation and delivery of the next succeeding line.

3. In a composing mechanism or keyboard for type-setting machines such as described, the combination of the following elements, to wit: a series of character-punches; a feed pertaining to said punches; a series of justification-punches removed from said character-punches; a feed per-

taining to said justification-punches; and a take-up acting through the justification-feed to advance the strip after the justification perforations have been produced.



4. In a record-strip-composing mechanism or keyboard such as described, the combination of the following elements, to wit: a series of character-punches; a character-feed; a series of justification-punches; a justification-feed; a variable actuating mechanism for effecting simultaneous and separate movements of the said two feeds; and a lock-out for the justification-feed for suspending its action after a predetermined number of feed movements.

5. In a record-strip-composing mechanism or keyboard the combination of the following elements, to wit: a series of character-punches; an independent series of justification-punches; individual feeds for each of said series of punches; a lock-out for the justification-feed; and a take-up mechanism operating through the justification-feed to take up or draw off the accumulation of strip between the two feeds due to the suspension of the justification-feed.

6. In a record-strip-composing machine the combination of the following elements, to wit: a series of character-punches provided with a paper-feed; a series of justification-punches provided with an independent feed; actuating mechanism for the said independent feeds; and a lock-out for the justification-feed connected to the actuating device of the character-feed to suspend the action of the justification-feed after a predetermined number of feed movements of the character-feed.

7. In a record-strip-composing machine the combination of the following elements, to wit: a character-feed; a justification-feed; a lock-out for the justification-feed; a take-up mechanism operating through the justification-feed; independent actuating mechanism for each of said feeds and an intermittent feed for the lock-out and take-up.

8. In a record-strip-composing machine containing character and justification punches, independent feeds therefor, and a lock-out for the justification-feed, and in combination therewith, an actuating or setting mechanism for the lock-out including a spring-actuated lock-bar, a rack-bar engaged by said lock-bar to restrain its motion, and an intermitting feed mechanism driven from the character-feed-actuating device for advancing the said rack-bar each time the character-feed is actuated, to arrest the justification-feed at any predetermined number of movements of the character-feed.

9. In a record-strip-composing machine or keyboard such as described, the combination with character and justification punches, independent feeds therefor, and a lock-out for the justification-feed, of a take-up provided with an intermitting actuating or setting mechanism for measuring the feed movements of the character-feed; substantially as described.

10. In a record-strip-composing mechanism or keyboard the combi-

nation with the character and justification feeds, a lock-out for the justification-feed, and a take-up, of actuating or measuring devices controlling the application of the lock-out and the extent of effective movement of the take-up; substantially as described.

11. In a record-strip-composing mechanism or keyboard, the combination with the character and justification feeds, a lock-out for the justification-feed and a take-up, of an actuating or measuring mechanism connected to the character-feed or the actuating device therefor and controlling the engagement of the lock-out and the extent of the take-up action; substantially as described.

12. In a record-strip-composing machine or keyboard containing character and justification punches, an independent feed for each set of punches, and a lock-out for the justification-feed, and in combination therewith, a take-up and an actuating mechanism therefor the latter including the following elements, to wit: a movable member—such as the rack-bar; a ratchet mechanism engaging said movable member to shift it one degree each time the character-feed is actuated, thereby measuring the feed movements; a connection intermediate said movable member and the justification-feed, permitting limited independent movement; trip devices for releasing said movable member; and a motor for returning the movable member to initial position, and in so doing advancing the justification-feed; substantially as described.

13. In a record-strip-composing machine or keyboard the combination with independent feeds for the strip, a lock-out for one of said feeds, a take-up and an actuating or setting mechanism for measuring the degree of take-up motion.

14. In a record-strip-composing machine or keyboard, the combination with two sets or series of punches arranged in sequence and an independent feed for each set of punches, of a lock-out and a take-up connected to one of said feeds and a feed device or controller for measuring the time of application of the lock-out and the extent of movement of the take-up; substantially as described.

15. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: a series of key-controlled character-punches and a feed mechanism; a series of key-controlled justification-punches and a feed mechanism; an indicating mechanism responding to the keys of the character-punches and designating the keys of the justification-punches; a lock-out for the justification-feed act or adjusted by the action of the character-keys; and a take-up whose measured movements are governed by both character and justification keys; substantially as described.

16. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: a series of key-controlled character-punches and associated feed mechanism; a series of key-controlled justification-punches and associated feed mechanism; an indicating mechanism responding to the character-keys and designating the justification-keys; a lock-out for the justification-feed act or adjusted from the character-keys; and a take-up act or adjusted from both character and justification keys and operating to advance the justification-feed a distance equal to the total character-feed movements minus a predetermined number of such movements.

17. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: key-controlled character-punches and a feed; key-controlled justification-punches and a feed; an indicating mechanism responsive to the character-keys; a ratchet-key and connections for the indicating mechanism; a lock-out for the justification-feed controlled from the character-keys; a take-up adjusted from both character and justification keys; and a release mechanism for the take-up and lock-out controlled by the ratchet-key; substantially as described.

18. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: key-controlled character-punches and a feed; key-controlled justification-punches and a feed; an indicating mechanism responsive to the character-keys; a ratchet-key for the indicating mechanism; a lock-out for the justification-feed; and a take-up provided with a motor controlled from the ratchet-key.

19. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: two independent feeds—character and justification—each provided with an actuating mechanism; two series of keys—character and justification—each controlling both of said feed-actuating mechanisms; and a lock-out act or adjusted by the actuating mechanism of one feed and acting upon the other to suspend its action; substantially as described.

20. In a record-strip-composing machine or keyboard the combination of the following elements, to wit: two independent feeds—character and justification—each provided with an actuating mechanism; a lock-out act or adjusted by the actuating mechanism of one feed and acting upon the other to suspend its action after a predetermined number of feed motions and a take-up also act or adjusted by the actuating mechanism of one feed and acting upon the other feed to take up the slack between the two feeds caused by the interruption of one of said feeds; substantially as described.

21. In a record-strip-composing machine or keyboard the combination with the character and justification punches and their independent feeds, of a lock-out for the justification-feed comprising the following elements, to wit: a rack-bar; an intermittent driving mechanism connected to the actuating device of the character-feed and engaging said rack-bar, to advance the latter at each movement of the character-feed; and a lock-bar engaged by the rack-bar and movable therewith into engagement with the justification-feed.

22. In a record-strip-composing machine or keyboard the combination with the character and justification feeds, of a lock-out and take-up for the justification-feed comprising the following elements, to wit: a rack-bar movable in guides; an actuating mechanism connected thereto and driven from the actuating device of the character-feed; a lock-bar controlled by said rack-bar in its movements toward the justification-feed to lock the latter; and a slotted pawl-carrier engaging the justification-feed and engaged by a pin moving in unison with said rack-bar; substantially as described.

23. In a record-strip-composing machine or keyboard such as described provided with independent character and justification feeds, a lock-out for the justification-feed and justification-punches, of connections intermediate said punches and the lock-out for withdrawing the latter when a justification-punch is operated; substantially as described.

24. In a record-strip-composing machine or keyboard such as described, the combination with the lock-out for the justification-feed, of the bell-crank controlled by the justification-keys and engaging the lock-out to withdraw the latter, and a lock for retaining said bell-crank in retracted position, as and for the purpose specified.

25. The combination with the justification-punches, the feed therefor, and the lock-out, of a release mechanism responding to the movement of any justification-punch and acting upon the lock-out to withdraw the latter and permit movement of the justification-feed; substantially as described.

26. The combination with the justification-punches, the feed therefor, the lock-out, and key-controlled actuating mechanism for said punches, and feed, of a lock-out retractor responding to the movement of the punch-actuating mechanism, a lock for said retractor, and a key-controlled release for said lock.

27. In a record-strip-composing machine or keyboard such as described provided with independent character and justification punches and separate feeds therefor, the combination therewith of separate motors for the two feeds and a single controller or valve responding to the action of both sets of punches; substantially as described.

28. The combination with the character and justification punches, their individual feeds, and actuating device, of a single control-valve for the two feed-motors, and means for actuating said control-valve from either set of punches; substantially as described.

29. In a record-strip-composing machine or keyboard the combination with the character-punches, of a feed provided with radial punches and a rotary die with which said radial punches engage to form the feeding-perforations for the strip; substantially as described.

30. In a record-strip-composing machine or keyboard the combination with the character-punches, of a feed provided with a rotating member located at each end of the series of punches and furnished with radial punches, a series of dies mounted upon a rotating support opposite each series of radial punches and engaged thereby, and a tension device engaging the strip; substantially as described.

31. The combination with the justification-feed, the lock-out therefor, the take-up mechanism, and the ratchet-actuating device for said feed and take-up, of the tripping or releasing mechanism comprising a retractor engaging the lock-out, a trip for the take-up ratchet mechanism, and a trip for the feed-actuating mechanism, said lock-out retractor being actuated by the justification-punches and said trips by a motor controlled from a key; substantially as described.

32. The combination with the shaft controlling the tripping device of the justification-feed-actuating mechanism and the lock-out-actuating mechanism and the retractor or bell-crank for releasing the lock-out, of the latch engaging said retractor and the arm carried by said shaft for engaging said latch when said tripping device are operated; substantially as described.

33. The combination with a feed-shaft, such as that of the justification-feed, provided with a toothed wheel and a ratchet-wheel fast thereon, of a slotted pawl-carrier or disk whose pawl engages said ratchet-wheel, a ratchet mechanism and a gear-wheel driven thereby, the latter carrying a pin riding in the slot of the pawl-carrier; a lock-bar for engaging the toothed wheel fast on the feed-shaft; and a rack-bar driven by the gear of the ratchet mechanism and engaged by the lock-bar to limit the approach of the latter to its wheel, substantially as and for the purpose specified.

34. The combination with the ratchet-driving mechanism of the justification-feed, of the sectional locking-pawl and a trip device contacting

with one section thereof, to withdraw the engaging section and release the feed so that it can advance under the influence of the take-up mechanism; substantially as described.

35. In a record-strip-composing machine or keyboard such as described, the combination of the following elements, to wit: a series of character-punches, actuating devices, and a feed; a series of justification-punches, with actuating devices and a feed; an indicating mechanism and actuating device therefor; a series of keys controlling the actuating devices of the indicating mechanism and of the character-punches; a series of keys controlling the actuating devices of the justification-punches; a key controlling the resetting of the indicating mechanism; a lock-out and take-up for the justification-feed; and a motor for the take-up controlled by said resetting-key.

36. In a take-up for record-strip-composing machines or keyboards such as described, the combination with the slotted pawl-carrier or disk, the feed mechanism, the propelling rack-bar, and the pin engaging the rack-bar and provided with a pin for engaging opposite walls of the slot in the pawl-carrier, of a detainer, such as the spring-pawl, engaging the pawl-carrier for detaining the latter while the pin is traversing the interval between the engaging surfaces; substantially as described.

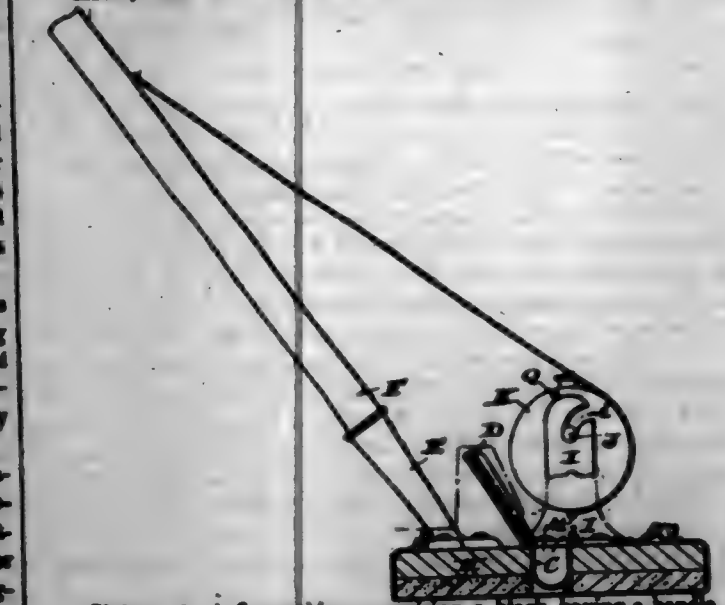
37. In a record-strip-composing machine or keyboard such as described, and in combination with the chart-carrying device provided with main and supplemental motors, of a lock engaging the supplemental-motor-actuating device, and means for unlocking the same at a predetermined point in the traverse of the main motor; substantially as described.

38. In a record-strip-composing machine or keyboard such as described, and in combination with the chart-carrying device and the main and supplemental motors acting thereon, of a lock for retaining the chart in position preliminary to the engagement of the main motor, the same including a locking-pin and a motor therefor the latter controlled by the piston of the main motor; substantially as described.

39. In a record-strip-composing machine or keyboard, such as described, and in combination with the chart-carrying mechanism of the indicating device, and the main motor, of a lock for the chart-carrying mechanism when disconnected, temporarily, from the main-motor device, the same comprising a bolt arranged to project into the path of a portion of the chart-carrying mechanism; a piston working in a cylinder and connected to said bolt; and a supply duct or passage communicating with said cylinder and with the cylinder of the main motor for effecting the withdrawal of the lock when the piston of the main motor passes a predetermined point and the driving device connected therewith is about to engage the chart-carrying mechanism, as and for the purpose described.

40. In a composing-machine and as a means for controlling the traverse of a strip or ribbon with relation to two fixed points in the line of its motion, the combination of two independent feeds arranged for simultaneous and discontinuous action, a cut-off for automatically arresting one of said feeds, and an automatic take-up act or adjusted to advance the arrested feed as many units as the one feed is operated in excess of the other; substantially as described.

702,569. FLOOR-RUBBER. CHARLES F. LEMER, NEWARK, N.J., assignor of one-half to Joseph H. HANCOCK, NEWARK, N.J. Filed Mar. 4, 1902. Serial No. 94,664. (No model.)



Claim.—1. A floor-rubber comprising a block having a handle, a pad on the under side of the block, a pad-facing cloth drawn on the block over the upper edge of same, and cloth-binding spring-clips each consisting of a single bent plate of spring metal made fast at one end on the top of said block and having its other or free bent end pointed in opposition to the same.

2. A floor-rubber comprising a slotted block having a handle, a slotted pad on the under side of the block, the pad and block slots being in register; a removable pad-facing cloth drawn on said block over the upper edge of same, means by which the cloth is detachably held in place, a reservoir suspended over the slotted block, and means for regulating feed of fluid contents of the reservoir to said cloth through the block and pad slots.

3. A floor-rubber comprising a slotted block having a handle, a slotted pad on the under side of the block, the pad and block slots being in register; a gutter engaging said slots and provided with a rear shield extension, standards on the block, a reservoir in transverse connection with the standards and having preponderance of weight below its transverse, a pull-cord arranged in connection with the reservoir to turn the same toward the rear and bring a normally upper outlet thereof over the gutter, a pad-facing cloth, and means in connection with said block for holding the cloth in place.

4. A floor-rubber comprising a slotted block having a handle, a slotted pad on the under side of the block, the pad and block slots being in register; a gutter engaging said slots and provided with a rear shield extension, standards on the block, a reservoir in transverse connection with the standards and having preponderance of weight below its transverse, a pull-cord in connection with the reservoir to turn the same toward the rear and bring a normally upper outlet thereof over the gutter, a standard opposing stop-lag extending from said reservoir to limit rotary adjustment of same by the cord, a pad-facing cloth, and means in connection with said block for holding the cloth in place.

702,570. CORNED APPLICATOR AND STRAINER. LEONARD J. LOHMEYER, Lusk, Wyo. Filed Aug. 1, 1901. Serial No. 70,493. (No model.)



Claim.—The combination with the cylinder, provided with the shoulder and threaded upper end, of the hopper having the shouldered and interior threaded lower end; the shield, interposed between the shoulder of the cylinder and the lower end of the hopper; the plug-rod having the stop at and colored female screw-threaded lower end, the whole adapted to operate substantially as described.

702,571. PROCESS OF MANUFACTURING STARCH. JENKINS LEONARD, Paris, France, assignor to Societe des Produits Amylaceux, Paris, France. Filed Feb. 28, 1902. Serial No. 94,706. (No specimens.)

Claim.—1. An improvement in the manufacture of starch which consists in subjecting the material from which the starch is derived to a suitable acid solution, washing and grinding the mass, purifying the ground mass, then diluting the purified mass, electrolyzing the diluted mass, removing the organic precipitate from the product, purifying the product, diluting the product, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

2. An improvement in the manufacture of starch which consists in subjecting the material from which the starch is derived to a sulfurous-acid solution, washing and grinding the mass, purifying the ground mass, then diluting the purified mass, electrolyzing the diluted mass, removing the organic precipitate from the product, purifying the product, diluting the product, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

the organic precipitate from the product, purifying the product, diluting the product, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

3. An improvement in the manufacture of starch which consists in subjecting the material from which the starch is derived to a sulfurous-acid solution, washing and then grinding the mass while in contact with a jet of pure water, purifying the ground mass, diluting the purified mass, electrolyzing the diluted mass, removing the organic precipitate from the product, purifying the product, diluting the product, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

4. An improvement in the manufacture of starch consisting in subjecting the material from which the starch is derived to a suitable acid solution, washing and grinding the mass, purifying the ground mass on inclined planes, diluting the purified mass, electrolyzing the diluted mass, removing the organic precipitate from the product, purifying the product on inclined planes, diluting the product, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

5. An improvement in the manufacture of starch consisting in subjecting the material from which the starch is derived to a suitable acid solution, washing and grinding the mass, purifying the ground mass on inclined planes, diluting the purified mass, electrolyzing the diluted mass, removing the organic precipitate from the product, purifying the product on inclined planes, diluting the product to the consistency of cream, and then suitably drying the diluted product, substantially as set forth and for the purpose specified.

702,572. GRAIN-EJECTOR FOR CORN-PLANTERS. ANDREW J. MARSHALL, THUNDER, Tenn. Filed Aug. 24, 1901. Serial No. 73,167. (No model.)



Claim.—1. In a corn-planter, the combination with a reciprocating seed-slide, of a rotary vertically-yieldable ejector, and a cut-off adapted for vertical yielding and rocking motion independently of the ejector.

2. A grain-ejector for corn-planters comprising a casing provided with oppositely-disposed shoulders having elongated orifices, an ejector having projections working in the orifices, and a spring-pressed cut-off straddling the shoulders and having rounded faces coating therewith.

3. A grain-ejector for corn-planters comprising a casing provided with oppositely-disposed shoulders having elongated openings therein, a seed-slide movable in the casing, a rotary ejector having projections working in the said orifices, a cut-off straddling the shoulders and having rounded shoulders coating therewith, and springs associated with the casing and bearing upon the cut-off.

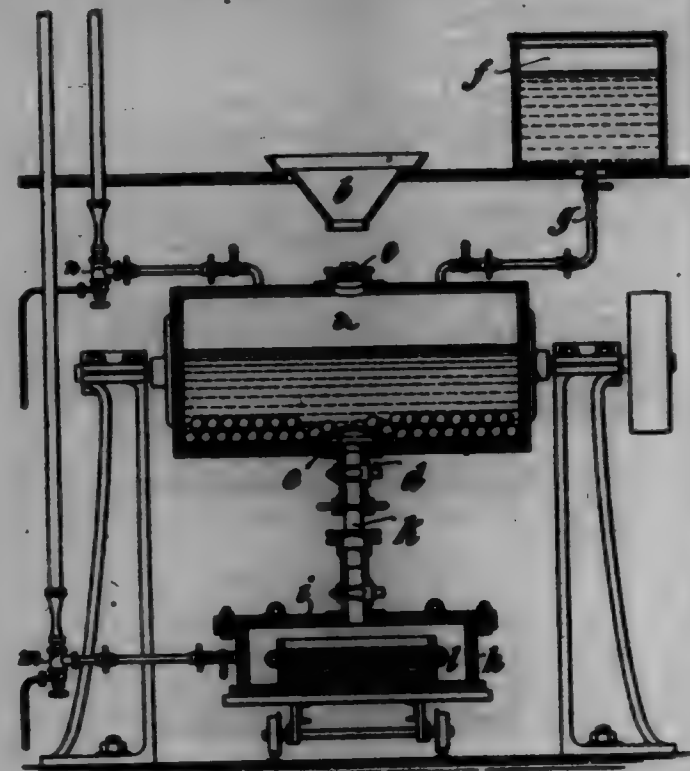
4. A grain-ejector for corn-planters, comprising a casing provided with oppositely-disposed shoulders having elongated orifices, an ejector having projections working in the orifices, a spring-pressed cut-off straddling the shoulders and having rounded faces coating therewith, and a cover provided with means to interlock with the casing.

5. A grain-ejector for corn-planters, comprising a bottom plate, a seed-slide guided for movement thereby, and a casing including an ejector and a cut-off, said casing comprising two members each of which is provided with a base-flange for attachment to the bottom plate, with a side wall extending at right angles to the base-flange, and with an end wall undercut to permit movement of the seed-slide, each side wall being provided with an angular groove and each end wall being provided with a beveled edge and with a top flange projecting beyond the edge, the angular grooves, when the members are assembled, being engaged by the beveled edges of the end walls, and the ends of the side walls being engaged by the projected portions of the flanges, a cover having internal flanges to interlock with those of the end walls, and locking means carried by the cover.

702,573. APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL STONE. FRIEDRICH MARK, Leipzig, Germany. Filed May 17, 1901. Serial No. 94,708. (No model.)

Claim.—In an improved apparatus for the manufacture of artificial stone free of pores, from a mixture of burnt magnesia, calcium carbonate and a hy of magnesium chloride as maintaining means, from which later the impurities have been removed by sublimating in atmospheric air, whereby the said impurities settle down and, in consequence of the extraction of the salts, a consistent and unvariable product is obtained, especially suitable for lithographic stones, the combination of a horizontally-rotatable drum, mounted rotatably, containing mixing-balls and pro-

vided with maintaining means *f* and *g*, an opening *e* in the drum, a funnel *h* thereabove for the charge of the drum, a hermetically-shuttable mold-casing *A* containing a mold-box *l* and a connecting-piece between the mixing-drum *a* and the casing *A*, this connecting-piece being provided with a telescopically-extending pipe *k*, adapted to slide into the union *d* of the mixing-drum in such manner that the said drum *a* and the casing *A* become hermetically connected, whereby after exhaustion of the air, for instance by means of an injector or the like, no more air can again enter through the connecting-piece *k* and the production of the stone is effected in vacuo, essentially as and for the purpose set forth.



702,574. STEP-LADDER. ALBERT MAR, Chicago, and CHARLES FARRER, Clyde, Ill., assignors to Peter Bunt. Filed Nov. 2, 1901. Serial No. 60,574. (No model.)



Claim.—1. In a step-ladder the combination of steps, side rails to which the steps are secured, each side rail extending above the upper step of the step-ladder, combined angle-pieces and straps formed of sheet metal and attached to the side rails and to the steps, folding legs on the outside of the side rails, a rod extending underneath the top step of the ladder through the folding legs, through the side rails and through the parts of the combined angle-pieces and straps which are attached to the side rails, with means for securing the rod in place, whereby each rod constitutes the pivot of the folding legs and a tie binding the top step, the side rails and the folding legs together, and the parts of the combined angle-pieces and strap which are attached to the side rails form sheet-metal plates to prevent splitting of the side rails by each rod; substantially as described.

2. In a step-ladder, side rails and steps, in combination with a combined angle-piece and straps, each angle-piece and straps formed from a sheet-metal blank to obtain a vertical part contacting with the side rails, a table on which the steps may rest, and extensions of each table, each end extension respectively bent into plane substantially at right angles to the table, and straps extending from the side of the end extensions which are adjacent to the vertical part, and each strap extending partially around the side rails; substantially as described.

3. A combined angle-piece and straps consisting of a blank of sheet

metal formed to obtain a vertical part, a table on which the steps may rest, and extensions of each table, each end extension respectively bent into plane substantially at right angles to the table, and straps extending from the side of the end extensions which are adjacent to the vertical part, with perforations provided in each combined angle-piece and straps whereby the same may be secured to the steps and side rails of a ladder; substantially as described.

4. In a step-ladder the combination of side rails, steps, folding legs and additional folding legs, and a rod extending through the folding legs, through the additional folding legs and through the side rails underneath the top step of the ladder, with means for securing each rod in place, the side rails of the step-ladder extending above each top step, the folding legs and the additional folding legs independently movable on the rod, as a pivot, whereby each folding leg or each additional folding leg may be used as the support of the side rails and steps, as preferred; substantially as described.

702,575. PHOTOGRAPHIC-FILM-PROTECTING STRIP. WILLIAM F. MARSH, Columbia, Pa. Filed Jan. 20, 1902. Serial No. 61,791. (No model.)



Claim.—1. A film-protecting strip having perforations forming designating-marks, and strips formed of non-sensitive material and of a contrasting color arranged at the rear of the protecting-strip to cover said perforations.

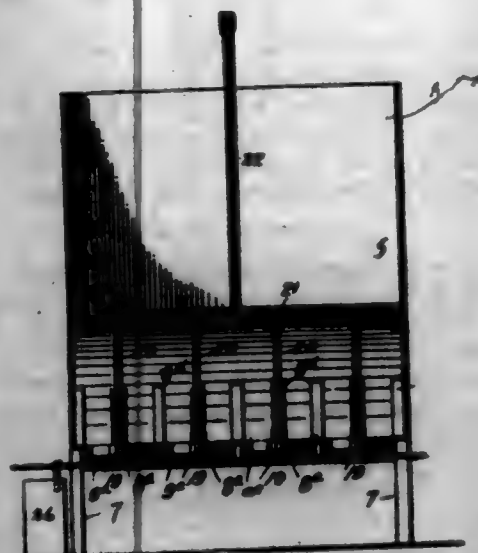
2. A film-protecting strip having perforations forming designating-marks, strips of a contrasting color so disposed as to cover said perforations, and an opaque material covering said colored strips.

3. A film-protecting strip having perforations forming designating-marks, strips of material of contrasting color arranged at the rear of the protecting-strip to cover said perforations, and an auxiliary strip of opaque material covering said colored strip.

4. A film-protecting strip formed of opaque material and adapted to be wound on the delivery and receiving roll-holders of a roll-film camera, said strip having on one side a plurality of longitudinal and vertically-disposed strips forming adjacent pockets for the reception of separated film-sections.

5. A film-protecting strip having a series of perforations forming designating-marks, strips arranged on one face of said protective strip to cover said perforations, the auxiliary strips being arranged to form pockets for the reception of sectional films.

702,576. CUP-CAKE-DROPPING APPARATUS. WILLIAM J. NIELSEN, Denver, Colo. Filed June 13, 1901. Serial No. 66,042. (No model.)



Claim.—1. In a cup-cake-dropping apparatus, the combination with a suitable tank having shallow cells in its bottom, the said cells having bottom openings while their side walls are closed, the tank being provided

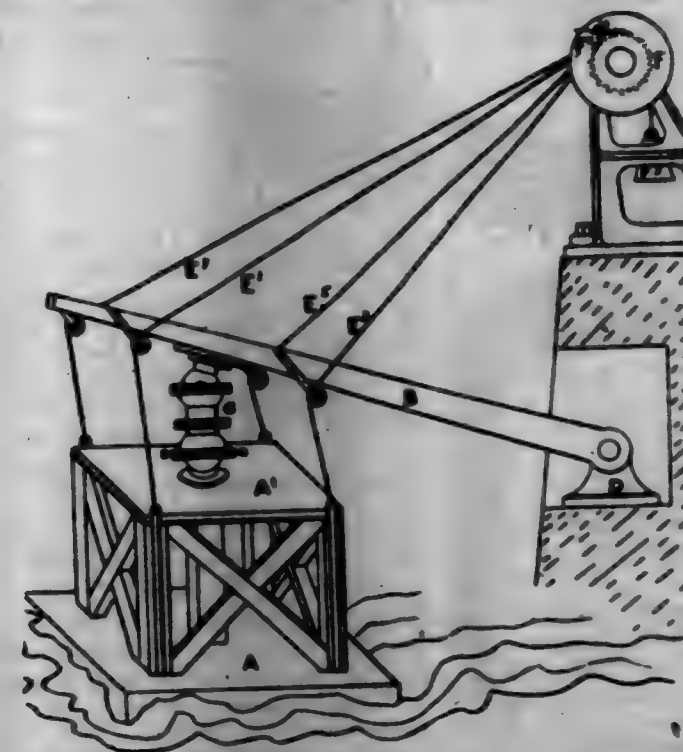
with vertical guides extending above the cells and arranged to allow the dough to enter the cells between the guides, a cut-off slide normally held in position to close the openings of the cells, but having openings so arranged that when the slide is actuated, its openings are made to register with the openings in the bottom of the cells, and plungers movable vertically in the guides and adapted to enter the cells to eject their contents.

2. In a device of the class described, the combination with a suitable tank having shallow cells in its bottom, the said cells having bottom openings while their side walls are closed, the tank being provided with vertical guides extending above the cells and adapted to allow the dough to pass from the bottom of the tank to the cells, a cut-off slide normally held in position to close the openings of the cells, the said slide having openings arranged to register with the openings in the cells when the slide is actuated, plungers movable vertically in the guides and adapted to enter the cells to eject their contents, means with which the plungers are connected, means for connecting the plunger-stems, and means for simultaneously operating the series of plungers.

3. The combination with a suitable tank having sloping sides and shallow cells in its bottom, the said cells having bottom openings while their side walls are closed, the tank being provided with vertical guides extending above said openings and adapted to allow the dough to enter the cells when the plungers are raised, a cut-off slide normally held in position to close the openings of the cells, means for operating said slide, means for limiting the movement of the slide in both directions, the said slide having openings arranged to register with the openings in the bottom of the cells when the slide is properly actuated, plungers movable vertically in the guides and adapted to enter the cells to eject their contents, and suitable means for simultaneously operating the plungers.

4. In a cup-cake-dropping apparatus, the combination with a suitable tank having shallow cells in its bottom, the said cells having bottom openings, the tank being provided with vertical guides extending above said openings and adapted to allow the dough to pass between them into the cells when the plungers are raised, a cut-off slide normally held in position to close the openings of the cells, means for operating said slide which is slotted at one extremity, and a stationary device protruding through said slot in the slide whereby the movement of the slide is properly limited in both directions, the said slide having openings arranged to register with the openings in the bottom of the cells when the slide is actuated, plungers movable vertically in the guides and adapted to enter the cells to eject their contents, and suitable means for simultaneously operating the plungers.

702,577. WAVE-MOTOR. RUSSET MILLAR, Dunedin, New Zealand. Filed Apr. 8, 1902. Serial No. 101,914. (No model.)



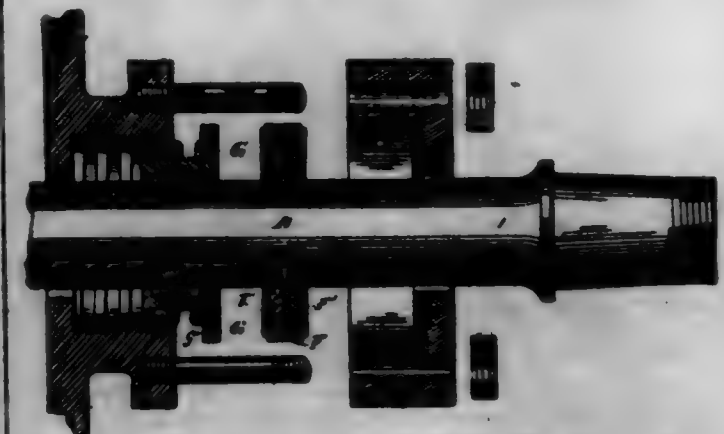
Claim.—1. In a wave-motor, the combination of a suitable support, a power-shaft mounted on said support, a float, a connection between the float and support, such as to permit any movement of said float but that of twisting, and connections between three or more points on the outer edge of said float and said power-shaft.

2. In a wave-motor, the combination with a float and a power-shaft, of a beam, a connection between said beam and said float such as to permit any movement of said float but that of twisting, and connections between the outer edges of said float and said power-shaft.

3. In a wave-motor the combination of a suitable support, a power-shaft mounted on said support, clutch mechanism on said power-shaft for operating the same, a float, a jointed connection between the float and support such as to permit any movement of said float but that of twisting, flexible connections between the outer edges of said float and said clutch mechanism, and guides for said flexible connections located between said float and said clutch mechanism.

4. In a wave-motor, the combination with a float of a beam, a jointed connection between said beam and said float such as to permit any movement of said float but that of twisting, a power-shaft, clutch mechanism on said power-shaft for operating the same, flexible connections between the outer edges of said float and said clutch mechanism, and guides for said flexible connections, located between said float and said clutch mechanism.

702,578. ROD-PACKING. THOMAS W. HITCHCOCK, Omaha, Neb. Filed Sept. 18, 1901. Serial No. 73,222. (No model.)



Claim.—1. In a rod-packing, the combination with the stuffing-box, a cylindrical chamber therein and a removable cover, with an opening through said stuffing-box and cover of sufficient diameter for the two passages of the rod, of a packing-ring adapted to embrace the rod and having bearing-surfaces on its opposite sides of a follower adapted to press said ring against one end of the chamber, said follower being formed in sections with a cylindrical prolongation, and a spring surrounding said prolongation to hold the sections together and bearing against the opposite end of the chamber for advancing the follower; substantially as described.

2. In a rod-packing, the combination with the stuffing-box having the chamber therein, the removable cover having a chamber therein, said stuffing-box and cover having openings for the two passages of the rod and a sectional bushing for reducing the size of one of said openings, of a packing-ring having segments with springs for advancing the same into contact with the rod and parallel flat bearing-surfaces on opposite sides, a sectional follower for advancing the ring against the bushing, having a cylindrical prolongation, a spring surrounding said prolongation to hold the sections together and bearing against the opposite end of the chamber to advance the follower parallel with the rod; substantially as described.

3. In rod-packing, the combination with the stuffing-box having a cylindrical chamber therein, the removable cover having a cylindrical chamber therein of larger diameter than the chamber in the stuffing-box and a sectional bushing for reducing the size of the rod-opening in the cover and having a flat-face flange, of the packing-ring segments seating against said flat face with springs for advancing them against the rod, a sectional follower bearing against the side of the packing-ring opposite the bushing and having a cylindrical prolongation extending back into the chamber in the stuffing-box, and a spring located in said last-mentioned chamber for advancing the follower and having its forward coils around the cylindrical prolongation of the follower for holding the sections of the follower together; substantially as described.

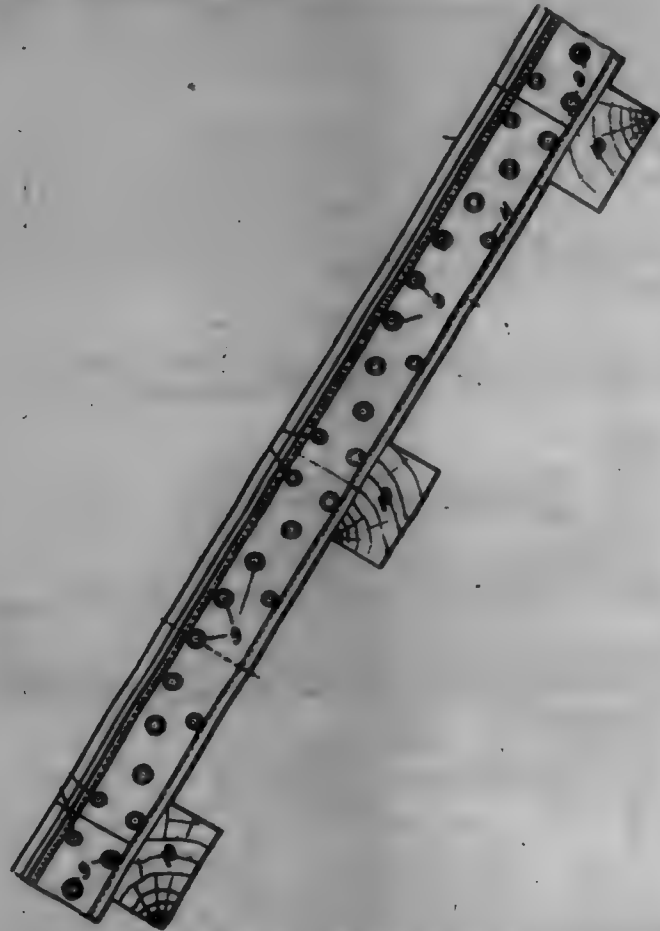
702,579. COMPOUND TRUSS-RAIL. BENJ. T. MOGLAR, Pittsburgh, Pa. Filed Oct. 20, 1901. Serial No. 73,967. (No model.)

Claim.—1. A continuous compound rail consisting of a plurality of base members and a plurality of head members, each provided with interfitting web portions, overlapping each other, and connected together by securing means constituting an arch.

2. A continuous compound rail consisting of base members provided with a web portion and a square recess at the base thereof, head members provided with a web portion, and a square recess at the upper edge thereof, such members overlapping each other and connected together by securing means constituting an arch.

3. A continuous compound rail consisting of base members provided with a web portion and a square recess at the base thereof, head mem-

been provided with a web portion and a square recess at the upper edge thereof, such members overlapping each other and connected together by rivets arranged in the form of an arch between the joints.



4. A continuous compound rail consisting of base members provided with a web portion and a square recess at the base thereof, head members provided with a web portion and a square recess at the upper edge thereof, such members overlapping each other and connected together by rivets arranged in the form of an arch between the joints, and supplementary rivets located at intervals.

5. A compound-rail base member consisting of a vertical web having a square upper edge, a corresponding square recess at the base of the web, a flanged bottom, and provided with a series of rivet-holes through the web, arranged in the form of an arch.

6. A compound-rail head member consisting of a vertical web having a square lower edge, a corresponding square recess at the upper edge thereof, a wheel-base, and provided with a series of rivet-holes through the web, arranged in the form of an arch.

7. A compound rail consisting of a base member having flanges and a web, a head member having a head and a web, and means connecting the webs arranged in the form of an arch.

702,580. APPARATUS FOR PRODUCING GAS. THOMAS H. MULLIN, New York, N. Y. Filed Apr. 2, 1901. Serial No. 54,017. (No model.)

Claim.—1. In an apparatus for producing gas, the combination of a retort, a furnace for heating the same, a steam-pipe connected with the said retort and coiled around the same in the furnace in the path of the combustion-gases, and means for collecting the gas produced.

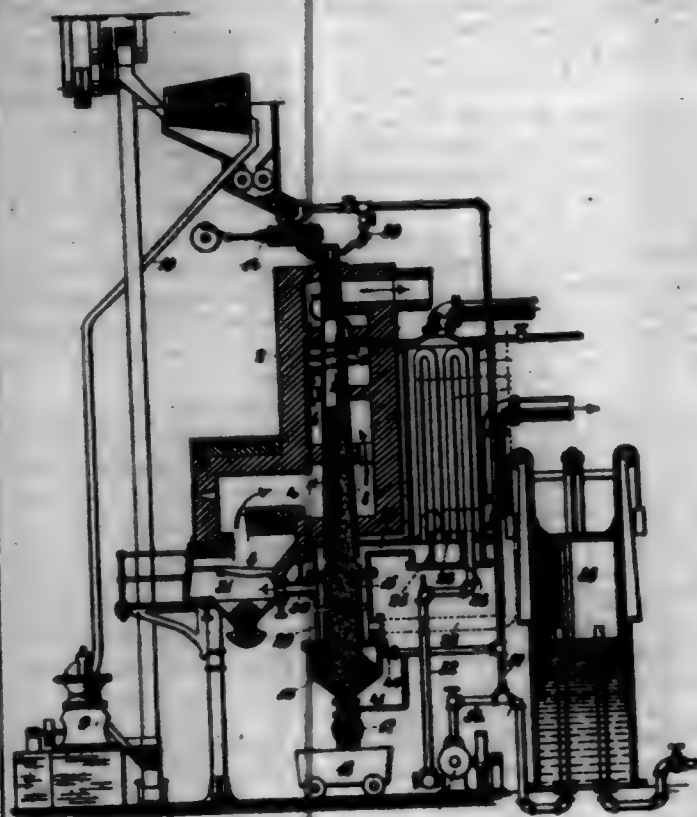
2. In a gas-producing apparatus, the combination of a retort having a feed end and a discharge end, means for heating the retort, and means for supplying a gas under pressure at each end of the said retort so as to prevent the entry of atmospheric air into the retort.

3. In an apparatus for producing gas, the combination of a retort, means for heating said retort, a feeder for the retort, a gas-pressure device located exteriorly of the retort, and a connection from said pressure device to a point on the opposite side of the feeder from the retort so that the gas under pressure will pass through the feeder with the material on its way to the retort.

4. In an apparatus for producing gas, the combination of a retort, means for heating said retort, a feeder for the retort, a gas-pressure device located exteriorly of the retort, and a double connection from said pressure device to points on opposite sides of the feeder so that a portion of the gas will pass through the feeder with the material and a further portion of the gas will be supplied to the material after its passage through the feeder.

5. In an apparatus for producing gas, the combination of a retort,

means for heating the same, a gas-pressure device located exteriorly of the retort, connections from said pressure device to both ends of the retort, and an outlet pipe or conduit leading from the central portion of the retort.



702,581. VENTILATOR. WILLIAM McDONNELL, Boston, Mass. assignor to Anna L. Wood, Boston, Mass. Filed Jan. 23, 1901. Serial No. 46,001. (No model.)



Claim.—1. A ventilator having a horizontal passage for the wind, and a vertical passage for the air, the wind in passing through said horizontal passage producing an exhaust effect for drawing the foul air out through the vertical passage, allowing mechanism for maintaining said ventilator in the direction of the wind, and means for permitting the free turning of the ventilator by said allowing mechanism, said means comprising a shaft provided with a plurality of stationary bearings at its lower end for giving lateral rigidity, and having a bearing at its upper end above the center of gravity of the ventilator, said bearing including a lower cone on the shaft and supporting the weight of all the apparatus.

a lower cup adjacent said cone, balls between the two for receiving the weight of the ventilator, an upper cone and cup, and balls between them for centering and balancing the ventilator, and a sleeve independent of the shaft and rigidly secured to the ventilator for transmitting the weight thereof to said lower cone and provided with means for retaining said movable bearing in place.

2. In a ventilator, a bearing for centering and supporting the ventilator and permitting it to turn freely in the direction of the wind, said bearing comprising a sleeve mounted in the upper side of the ventilator, a carrier secured rigidly in said sleeve and provided with an annular rib, a shaft passing loosely centrally through said rib and provided with a lower cone, a cup resting against the under side of said rib, balls traveling between said cone and said cup, said cone supporting the weight of the ventilator, a second cup carried by said rib on the upper side thereof, balls thereon, and an upper cone, said lower cone being integral with said shaft, and said upper cone being mounted adjustably on said shaft for co-operating with said upper cup and balls in centering and balancing the ventilator.

3. In a ventilator, a bearing for centering and supporting the ventilator and permitting it to turn freely in the direction of the wind, said bearing comprising a sleeve mounted in the upper side of the ventilator, a carrier secured rigidly in said sleeve and provided with an annular rib, a shaft passing centrally through said rib and provided with a lower cone, said cone being integral with said shaft and said carrier being independent of said shaft, a cup resting against the under side of said rib, balls traveling between said cone and said cup, the latter transmitting the weight of the ventilator from said rib to the lower cone to be borne by the latter, a second cup carried by said rib on the upper side thereof, balls thereon, and an adjustable cone mounted on said shaft for co-operating with said upper cup and balls in centering and balancing the ventilator, said shaft being threaded to receive said adjustable cone, and having a retaining nut and washer for maintaining the parts in adjustment.

4. In a ventilator, a bearing for centering and supporting the ventilator and permitting it to turn freely in the direction of the wind, said bearing comprising a sleeve mounted in the upper side of the ventilator, a carrier secured rigidly in said sleeve and provided with an annular rib, a shaft passing centrally through said rib and provided with a lower cone, said cone being integral with said shaft and said carrier being independent of said shaft, a cup resting against the under side of said rib, balls traveling between said cone and said cup, said cone supporting the weight of the ventilator from said rib to the lower cone, a second cup carried by said rib on the upper side thereof, balls thereon, and an adjustable cone mounted on said shaft for co-operating with said upper cup and balls in centering and balancing the ventilator, said shaft being threaded to receive said adjustable cone, and a false washer or bottom fitting tightly around said shaft within said sleeve below the bearing, said bearing being carried by said ventilator entirely above the air-passage thereof out of the way of the smoke and gas.

5. In a ventilator, a conical funnel, a second conical funnel within the same, providing a conical passage between the two for the passage of wind, and a stationary, vertical shaft for supporting said ventilator and permitting the same to follow the direction of the wind, said shaft having a movable bearing at its upper end, comprising a tubular sleeve or shell provided with a flange at its lower end and secured to the inner side of said sleeve and immovably secured thereto, said carrier having a heavy annular rib extending laterally transversely of said shaft, and a cone, cup and balls mounted on opposite sides of said rib about said shaft, for the rotation of the ventilator, the cone being rigid with the shaft, the lower cup bearing all the weight and downward thrust, and the upper cup receiving the sidewise thrust and acting to center the ventilator and maintain it steady.

702,582. PROCESS OF RECOVERING METALS FROM ORES. JAMES W. HILL and JOSEPH H. BISHOP, Salt Lake City, Utah. Filed Feb. 6, 1901. Serial No. 46,172. (No specimens.)

Claim.—1. The herein-described improvement in leaching copper ores, consisting in forcing sulfuric-acid gas through a charge of pulp to agitate the same mechanically and thereby assist in the leaching action, separating the solution from the ore, recovering the metal from such solution, thereby releasing the gas and returning the gas released by such operation for use in agitating and dissolving the metal from fresh charges of ore.

2. The herein-described improvement in leaching copper ores consisting in forcing sulfuric-acid gas through a charge of pulp to agitate the same mechanically and thereby assist in the leaching action, separating the solution from the ore, recovering the metal from the solution thereby releasing the gas and returning the sulfuric-acid gas released by the precipitating process for use in agitating and dissolving metal from fresh charges of ore.

3. The herein-described improvement in leaching copper ores con-

sisting in subjecting the ore-pulp to successive leaching operations in a series of tanks and forcing through the tanks in succession a gas containing the solvent agent, beginning with that tank in which the ore is subjected to the final leaching operation, as and for the purpose described.



4. The herein-described improvement in treating ores in metallurgical operations consisting in subjecting the ore to successive operations in a series of tanks and forcing through the tanks in succession a gas containing the treating agent beginning with that tank in which the ore is subjected to the final operation and ending with that tank in which the ore is subjected to the initial treatment, as and for the purpose described.

5. The herein-described improvement in treating ores, consisting in forcing sulfuric-acid gas through a charge of pulp to agitate the same mechanically and to assist in the leaching action, then filtering the pulp to obtain the metal-bearing solution, precipitating the metal from such solution thereby releasing the gas and returning the sulfuric-acid gas released by the precipitating process for use in agitating and dissolving metals from fresh charges of ore.

6. The herein-described improvement in treating copper or other ores, consisting in agitating a charge of pulp containing the ore by gas from roasting-furnaces charged with material suitable for producing sulfuric-acid gas, separating the resultant solution, precipitating the metal from the solution thereby releasing gas and employing the sulfuric-acid gas released by the precipitating process to enrich the gas derived from the furnace and used in leaching a charge of ore.

702,583. CRANBERRY-SORTING APPARATUS. ALVIN E. HENTENBACH, Plymouth, Mass. Filed Aug. 31, 1901. Serial No. 73,908. (No model.)

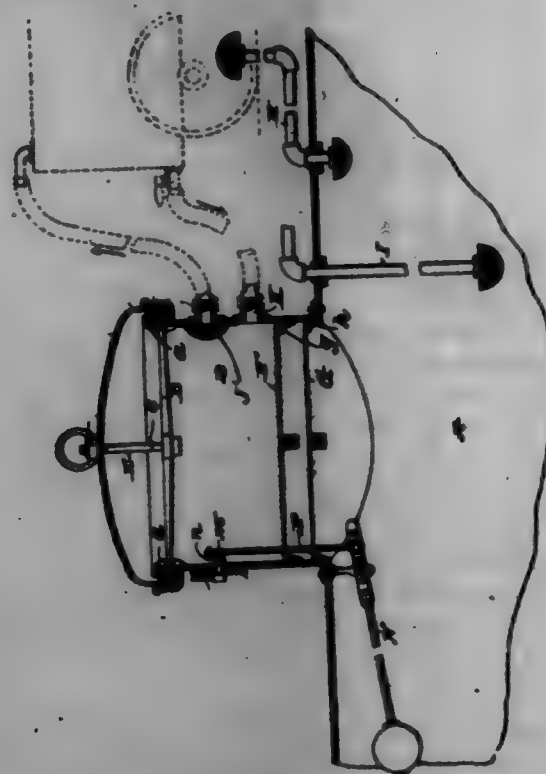


Claim.—1. An apparatus for sorting cranberries, comprising a frame, a removable rack, consisting of two longitudinal strips with diagonal

essally disposed ends, a series of rollers journaled in said strips, cross-pieces mounted between said rollers, and fastened to said strips, cleats supporting said rack, and a longitudinally-movable stop-carrying rack, held in contact with the roller-carrying rack, as set forth.

2. An apparatus for ascertaining cross-berries, comprising in combination with the frame, a removable roller-carrying rack, having its ends diagonally disposed, cleats on which said rack is supported, cross-pieces fastened to said rack, and positioned between the rollers, a longitudinally-movable rack and stops carried thereby, cross-pieces I, against which the upper ends of the racks contact, and a wedge underneath said stop-carrying rack, provided to hold the latter against the under edges of said strips I, the adjacent longitudinal edges of said racks, adapted to be held in contact with each other, as shown and described.

702,584. OIL-TANK. JOHN J. FAUGHT, New Orleans, La. Filed Feb. 6, 1902. Serial No. 90,946. (No model.)



Claim.—1. In the closure described, the combination of a tank having a drum provided with interior hoops-hugs at diametrically opposite points, and also having an exterior trough around its upper portion, and a sealing substance in said trough, a cover having a depending flange disposed in the trough of the drum, a bar arranged in the drum with its ends in engagement with the hoops-hugs thereof, and a connection between an intermediate part of the bar and the cover; the said bar being of such strength that it will retain the cover in position under normal conditions, and yet give way and release the cover when extraordinary pressure less than that necessary to burst the tank is developed therein.

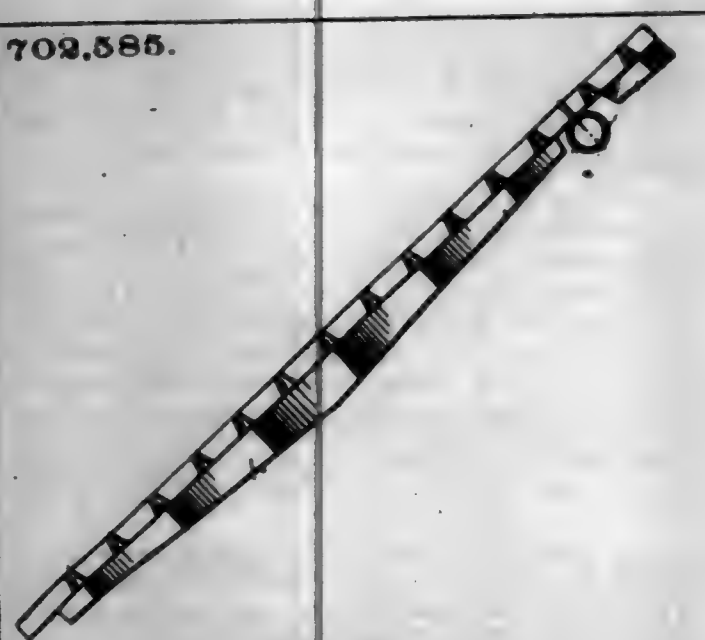
2. An oil-tank having a filling-drum, means for closing the upper end of said drum, an oil-straining diaphragm disposed in said drum, a diaphragm of fine wire-gauze capable of retaining the passage of fire, disposed in the drum below the oil-straining diaphragm, an oil-inlet pipe connected to the drum above the straining-diaphragm and adapted to be connected with a supply-tank, a gas-outlet pipe also connected with the drum above the oil-straining diaphragm and adapted to be connected with the said supply-tank, and wire-gauze arranged in the drum over the end of said gas-outlet pipe.

702,585. GRATE-BAR. HENRY B. PARSON, Brooklyn, N. Y. Filed Sept. 29, 1900. Serial No. 733,083. (No model.)

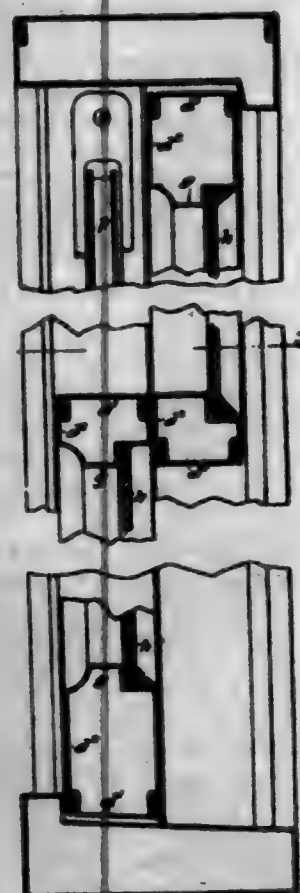
Claim.—1. A grate-bar provided with longitudinal rows of tapering perforations arranged in staggered position relatively to one another, and a longitudinal rib of serpentine shape integral with said bar at its under side, the undulations of said rib extending in the spaces between and tangentially to the perforations of the central group of longitudinal rows of perforations of the bar, substantially as set forth.

2. The combination of two adjacent grate-bars provided with alternate interlocking tongues and recesses, and intermediate straight connecting portions between said tongues and recesses, said tongues being provided with corrugations at their edges, and a tubular transverse supporting-bar for the adjacent ends of the grate-bars, substantially as set forth.

702,586.



702,586. WINDOW FRAME AND SASH. ABRAHAM RAMMER, Pittsburg, Pa., assignor to Rammer & Dinger Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Jan. 21, 1900. Renewed Apr. 30, 1902. Serial No. 100,200. (No model.)



Claim.—1. In a metallic frame and sash, the combination of a frame, comprising the top, bottom, and side pieces, the side pieces having grooves formed in the face thereof for the reception of the parting and bead strips, whereby guides are formed, the said parting-strip being formed of a strip of metal, the ends of which are brought together when inserted in the grooves, the tension thereof maintaining the same therein, and metallic mashes, comprising the top, bottom, and sides, substantially as set forth.

2. In a metallic frame and sash, the combination of a frame, comprising the top, bottom, and side pieces, the side pieces having grooves formed in the face thereof for the reception of the parting and bead strips, whereby guides are formed, the said parting-strip being formed of bent metal, the ends or edges of which are compressed in and inserted in the grooves, the tension thereof maintaining the same therein, and metallic mashes, comprising the top, bottom, and sides having grooves formed in the face of the same for the reception of the glass, substantially as set forth.

3. In a fireproof window, the combination, with the frame, having a channel formed therein, of an expansible guide strip or stop seated in said channel, and a sash held in place by said strip or stop, substantially as set forth.

4. A window-frame, composed of sheet metal, the sides of which are provided with vertically-disposed grooves, detachable beads, and detachable parting-strips mounted therein, substantially as set forth.

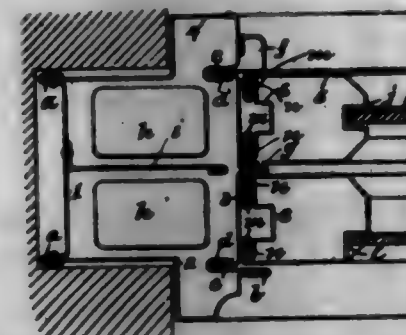
5. The combination, with a sheet-metal window-frame, of sheet-metal mashes, the frame having detachable beads of sheet metal and detachable parting-strips, the frame being provided with grooves in which said beads and parting-strips are placed, substantially as set forth.

6. The combination, with a sheet-metal window-frame, of sheet-metal mashes, the frame having detachable beads of sheet metal, and detachable parting-strips, the said parting-strips being strips of sheet metal folded longitudinally, the frame being provided with grooves in which said beads and parting-strips are placed, substantially as set forth.

7. A metallic window-mash comprising the parts d' and d'' , the said part d' having U-shaped flanges adapted to receive the bent ends of the part d'' , substantially as set forth.

8. The combination, with a sheet-metal window-frame, of sheet-metal mashes, the frame having detachable guide-strips of sheet metal, said guide-strips being strips of metal folded longitudinally, the frame being provided with grooves in which said guide-strips are placed, substantially as described.

702,587. WINDOW FRAME AND SASH. ABRAHAM RAMMER, Pittsburg, Pa., assignor to Rammer & Dinger Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Jan. 24, 1900. Serial No. 702,521. (No model.)



Claim.—1. As a new article of manufacture, a hollow metallic frame for windows, comprising parts 1, 2, 3, and 4, part 2 forming the outer edge of the frame and having an exterior stop or guide for the sash integral therewith, and an inward U-shaped groove, and part 3, the inner edge of the frame, being formed in two sections, and having an outwardly-projecting rib forming the parting-strip, the lower one of said sections, or that below the meeting-rib of the sash, being detachably secured to parts 2 and 4, whereby the same may be removed to enable access to be had to the interior of the frame and the removal of the sash, substantially as set forth.

2. As a new article of manufacture, a hollow metallic frame for windows comprising parts 1, 2, 3, and 4, part 2 forming the outer edge of the frame and having an exterior stop or guide for the sash integral therewith, and an inward U-shaped groove, and part 3 the face of the frame being formed in two sections and having an outwardly-projecting rib forming the parting-strip, and a stop integral therewith the lower of said sections or that below the meeting-rib of the sash being detachably secured to the parts 2 and 4, whereby the same may be removed to enable access to be had to the interior of the frame and the removal of the sash, substantially as set forth.

3. A hollow metallic sash the side rails of which are formed of a body-piece 5 and a piece 6 having an inwardly-projecting recess or channel the said parts terminating in U-shaped hooks adapted to interlock, said piece 6 being inside of the outer side edges of the body part 5, whereby they are kept out of contact with the stationary frame substantially as herein set forth.

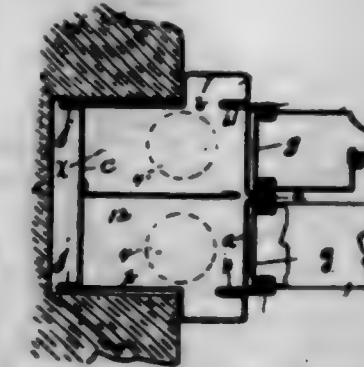
4. A hollow metallic sash the side rails of which are formed of a body-piece 5 and a piece 6 having an inwardly-projecting recess or channel, the ends of said piece 6 terminating in U-shaped hooks adapted to interlock with correspondingly-shaped hooks or flanges of the body-piece, said part 6 being supported by the part 5 out of contact with the stationary frame and the top rail of said sash having a removable or detachably-secured top for the purpose of enabling the glass to be inserted in the sash, substantially as set forth.

5. A hollow metallic sash the side rails of which are formed of two independent parts 5 and 6, part 5 forming the body of the side rail its inner edges terminating in U-shaped hooks in which the correspondingly-shaped parts of the part 6 are adapted to interlock, the outer edge of said part 5 having a channel centrally of the same longitudinally for the reception of the glass, the said part 6 projecting outwardly into said part 5 forming a channel for the reception of the cord or chain and having its surfaces supported out of contact with the stationary frame, substantially as set forth.

6. A metallic sash for windows, having a horizontal rail consisting of separable halves adapted to receive the glass between them and being provided with flanges, an outer fastening-strip having flanges adapted to engage the flanges on the rail, a clamping-strip engaging the flanges on the rail, and detachable fasteners connecting the fastening-strip to the clamping-strip, whereby the halves of the rail are held together.

7. A metallic sash for windows having upright members constituting its sides each of which consists of a box-like or hollow body-piece having two free portions, and an independent or separate strip for the outer face of the body, said strip being attached to the free portions of the body-piece and provided with a channelled portion recessed in the hollow body-piece and curving to meet the sash-cord.

702,588. WINDOW FRAME AND SASH. ABRAHAM RAMMER, Pittsburg, Pa., assignor to Rammer & Dinger Company, Pittsburg, Pa., a Corporation of Pennsylvania. Original application filed Jan. 21, 1900. Serial No. 907,593. Divided and this application filed July 30, 1902. Serial No. 23,270. (No model.)



Claim.—1. A window-frame composed entirely of sheet metal bent up to form a hollow body having top, bottom, and side members, the walls of said side members adjacent to the mashes being formed in two sections the lower one of which is detachably secured to the body of said side members and the said walls being pressed or bent to form outwardly-projecting ribs which form the sides of channels or grooves for the retention of the mashes, substantially as set forth.

2. A window-frame composed entirely of sheet metal bent up to form a hollow body having top, bottom, and side members, the walls of said side members adjacent to the mashes being formed in two sections the lower one of which is detachably secured to the body of said side members and the said walls being pressed or bent to form outwardly-projecting ribs which form the sides of channels or grooves for the retention of the mashes, substantially as set forth.

3. A window-frame composed entirely of sheet metal bent up to form a hollow body having top, bottom, and side members, the walls of said side members adjacent to the mashes being formed in two sections the lower one of which is detachably secured to the body of said side members and the said walls being pressed or bent to form outwardly-projecting ribs which form the sides of channels or grooves for the retention of the mashes, in combination with counterbalance-weights operating in said hollow side members and the mashes connected with said weights, substantially as shown and described.

4. In a fireproof window, a sash having a hollow sheet-metal top rail slotted vertically for the introduction of the window-glass, the edges of the top of said top rail having downwardly-projecting prongs adapted to be detachably secured in the loop on the body of said rail, substantially as set forth.

5. In a fireproof window, a sash having a hollow sheet-metal top rail slotted vertically for the introduction of the window-glass, the body of said rail terminating on top in separated downwardly-bent lips forming guides, and a slide forming the top of said rail and substantially flush with the vertical front and rear faces of the rail-body, said slide being movable lengthwise of the body of the rail, into and out of engagement therewith and having guides engaging the guides on the rail-body and consisting of lips bent around the said lips or guides on the rail-body.

6. In a fireproof window, the combination with a frame composed of sheet metal having its side members bent to form three sides of an inclosure, the end wall forming the fourth side of said inclosure, said end wall having the extreme edges doubled back upon themselves, to form grooves, and the other having its edges fitted into said grooves, and said end wall being provided with an inward-curved sheet-metal partition dividing said inclosure into two compartments, and said frame having a part thereof arranged to engage with the masonry of the wall, substantially as described.

7. In a fireproof window, the combination with a frame, of a sash having at each side a vertical part composed of two strips of metal, the outer one of which constitutes one of four margins of the sash while the inner one is bent at an angle to form a ridge or flange extending lengthwise of said outer strip, said strips being secured together by the edges of one sliding around the edges of the other.

8. A window-frame having hollow metallic side walls adapted for

the guiding of the respective window-cases and provided with a transverse partition extending substantially thereacross, which defines independent chambers for the movement of the anti-weights.

9. A window-frame having hollow metallic side walls or members comprising a back piece, side piece, and an outer or front piece which is adapted for the guiding of the window, all of said pieces being independently constructed, and being attached to each other.

10. A window-frame having hollow metallic side walls or members comprising a back piece, side piece, an outer or front piece, and an interior partition-piece, said front piece being adapted for guiding the window and the partition being adapted for preventing interference of the anti-weights, all of said pieces being independently constructed, and being attached to each other.

702,589. BICYCLE-POST CLAMP. JULIAN H. RASE, Charleston, S. C. Filed Nov. 12, 1901. Serial No. 22,745. (No model.)



Claim.—1. A bicycle-post clamp adapted for fastening at variable heights to the post-stem and having a laterally-movable part adapted to mark the bicycle-frame for precisely indicating the place of boring said frame to later receive said laterally-movable part for preventing accidental detachment of the post-stem from the bicycle-frame, substantially as described.

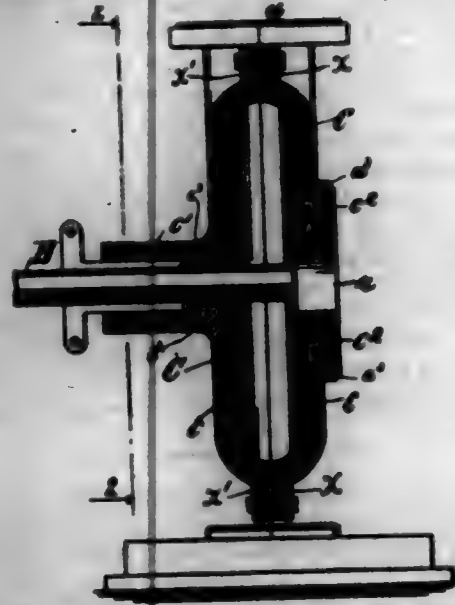
2. A bicycle-post clamp adapted for fastening at variable heights to the post-stem and comprising a collar having a part adapted to interlock laterally with the bicycle-frame to prevent sideways turning of the post-stem and saddle on the frame and also having a laterally-movable part adapted to mark the bicycle-frame for precisely indicating the place of boring said frame to later receive said laterally-movable part for preventing accidental detachment of the post-stem and saddle from the bicycle-frame, substantially as described.

3. The combination, with a bicycle-frame having a notch 8 and an oppositely-arranged hole 13, and a post-stem having a stem or spring-barrel entering the frame, of a collar 2, vertically adjustable on the post-stem or barrel and having a lug 5 adapted to the frame-notch 8 and also having a latch-bolt 10 and a spring 12 normally forcing said bolt into the frame-hole 13 when the collar-lug 5 is engaged with the frame-notch 8; said bolt being adapted when the lug 5 is first entered into the frame-notch 8 to mark the frame to precisely indicate the place for boring the hole 13 which later receives it, substantially as described.

702,590. PUMP. JOHN W. REYNOLDS, Babylon Spa, N. Y. Filed Mar. 21, 1901. Serial No. 22,188. (No model.)

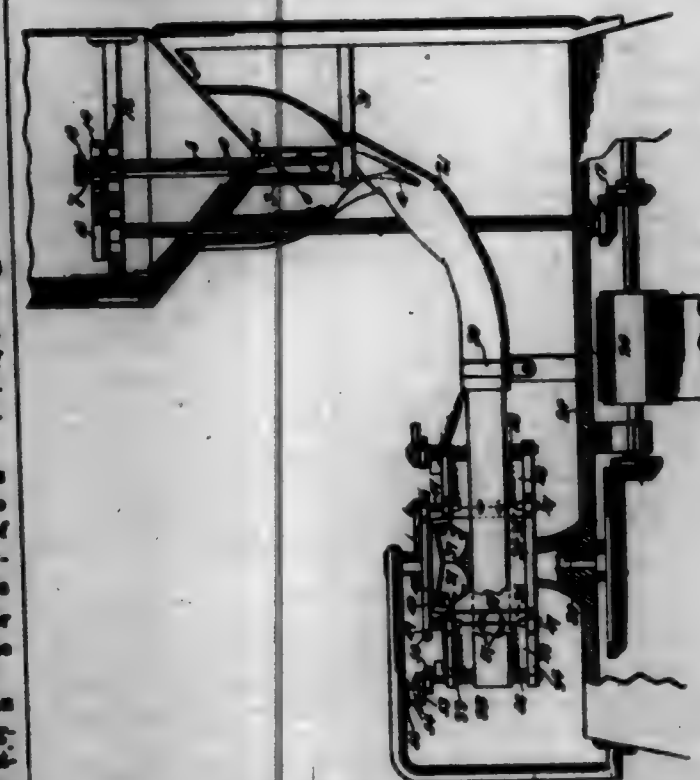
Claim.—1. A pump-comprising a pair of hard-metal sections bolted together, an opening *c* being formed in one side of the meeting portions of said sections, one of the latter having a central inlet shouldered opening *a* in one side of the casing and the other having the centrally-disposed stuffing-box *c'* having an annular shoulder therein in the opposite side of the casing, said sections being further provided with outwardly-flared openings, said casing having a lead flange thereon and

formed integrally with tapered projections in said flared openings, said flange being contained into the said stuffing-box and through the said inlet-opening and engaged with the shoulder of the stuffing-box and inlet-opening, substantially as described.



2. A centrifugal pump casing, of hard material having a shouldered inlet-opening in one side, a shouldered stuffing-box in the other, and a lining of soft material, said lining having integral portions extending into and through said opening and stuffing-box and engaged with the shoulder thereof, substantially as described.

702,591. POWDER FILLING AND FOLDING MACHINE. FRANK A. RICHMOND, Auburn, N. Y., assignor, by direct and mesne assignments, to Morris Lory, New York, N. Y. Filed Apr. 1, 1901. Serial No. 22,905. (No model.)



Claim.—1. In a wrapping-machine, the combination with wrapper-folding mechanism, of a hopper, and mechanism for feeding material from the hopper to the wrapper comprising an expandable spiral feeder and means within the feeder for expanding the helices of the spiral.

2. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper for the material to be wrapped, a spiral feeder for conveying the material from the hopper to the wrapper, and a single operating member having means actuated thereby for expanding the spiral feeder.

3. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper for the material to be wrapped, a feeder for the material comprising a spiral web, and rotary means engaged with the helices of the spiral web for expanding the same.

4. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper for the material to be wrapped, a dis-

charge-rod therefor, an expandable spiral feeder for the material operable within the means for expanding and contracting the helices of the spiral, and a single member to operate said means.

5. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper, and an expandable feeder comprising a tubular shaft, a spiral web, and a threaded stem operatively connected to portions of the spiral web.

6. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper, and an expandable feeder comprising a tubular shaft, a spiral web, a threaded stem, and a plurality of nuts attached to the spiral web at intervals and operatively associated with the threaded stem.

7. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper and an expandable feeder comprising a tubular shaft, a spiral web, and threaded stem having threads of different pitch and a plurality of nuts attached to the spiral web at intervals and operatively associated with the threaded stem.

8. In a wrapping-machine, the combination with wrapper-folding mechanism, of a supply-hopper and an expandable feeder comprising a tubular shaft provided with a spiral slot; a threaded stem, and a plurality of nuts attached to the spiral web at intervals and operatively associated with the threaded stem and working in the spiral slot.

9. In a wrapping-machine, the combination with wrapper-folding mechanism and means for feeding material to the wrapper, of a reel and independently-movable means carried by the reel for covering and folding the wrapper.

10. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having wrapper-grippers, a wrapper-covering and end-folding device carried by the reel, and means for intermittently actuating the gripping, covering, and folding device.

11. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having wrapper gripping, covering and end-folding devices carried by the reel, a stationary cam for operating the gripping devices and independent means for operating the covering and end-folding devices.

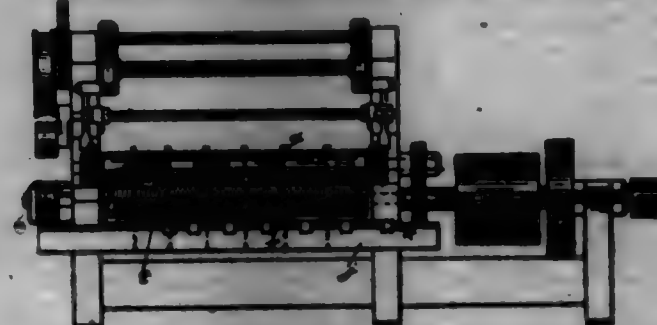
12. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having oscillatory wrapper-grippers carried by the reel, pivotally-mounted end-folding devices on the reel, an operative connection between said end-folding devices and means for imparting movement to one of the end-folding devices.

13. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having oscillatory wrapper-grippers carried by the reel, pivotally-mounted end-folding devices also on the reel, an operative connection between said end-folding devices whereby one actuates the other, means for actuating one of said devices and a release-spring connected with the other end-folding device.

14. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having wrapper-gripping and end-folding devices, and means for crimping the end folds of the wrapper.

15. In a wrapping-machine, the combination with wrapper-folding mechanism, and means for feeding material to the wrapper, of a reel having wrapper-gripping and end-folding devices having means for forming crimps across the end folds of the wrapper.

702,592. GANG-EDGER SAWING-MACHINE. ALPHRED E. ROE, New Whetson, Wash., assignor to himself and Bruce Cornwall, San Francisco, Cal. Filed Jan. 2, 1902. Serial No. 192. (No model.)



Claim.—1. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; a series of slides of like form and dimension, having their outer ends at an angle to the body of the slide; and connections between said slides and the saws.

2. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; a series of slides of like form and dimension, having their outer ends at an angle to the body of the slide; an arm connected

to each of said slides; a guide for said slides and arms; and connections between said slides and the saws.

3. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; guides or ways adjacent to said arbor; a series of slides of like form and dimension, mounted on said ways; said slides having a straight body portion with their outer ends bent at an angle thereto; an arm extending from each of the slides at an angle to the straight portion and in a direction opposite to that of the bent portion of the slides; a guide for said slides and arms, and connections between said slides and the saws.

4. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; guides or ways; a series of slides of like form mounted thereon, said slides having their outer ends bent at an angle substantially as described; arms extending from the under face of the slides to one of the guides; means for holding the slides in their adjusted position; and connections between said slides and the saws.

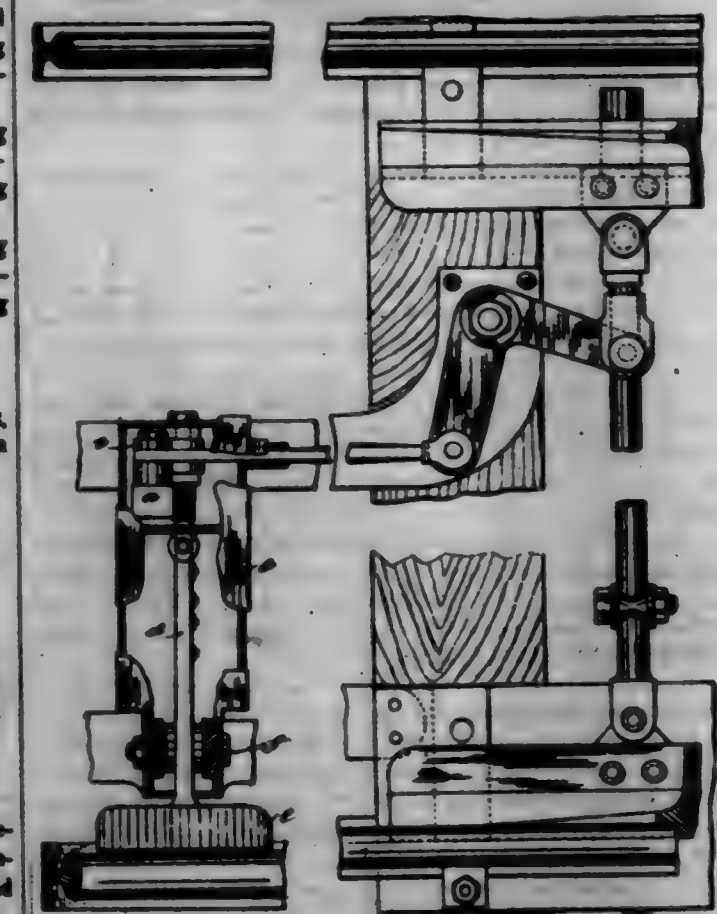
5. In a gang-edger sawing-machine, the combination of an arbor, a saw longitudinally movable thereon, a shifting device engaging said saw, said device having arms, diverging obliquely, one on each side thereof and a guide in which the extended ends of said arms slide, the arms extending in one direction sliding on one portion of said guide and these in the other direction on another portion thereof, substantially as described.

6. In a gang-edger sawing-machine, the combination of an arbor a saw longitudinally movable thereon, a shifting device engaging said saw, said device having upper and lower spreading-arms, the upper arm of one shifter being adapted to pass over the lower arm of an adjoining shifter, and a guide on which the extended ends of the arms slide, substantially as described.

7. In a gang-edger sawing-machine, the combination of an arbor, a saw longitudinally movable thereon, a shifter for shifting said saw longitudinally, said shifter extending symmetrically and equally on both sides of the plane of the saw, and from the front to the rear thereof, and being provided at the front with means for operating said shifter, and a spreader carried in the plane of the saw by the rear end of said shifter, substantially as described.

8. In a gang-edger sawing-machine, the combination of a frame, a saw at one end, an arbor, a battery of saws longitudinally movable on said arbor, said saws being adapted to receive said battery when not in use, and a shifter for shifting said battery along said arbor, substantially as described.

702,598. SAFETY DEVICE FOR RAILWAY POINTS OR SWITCHES. RAYMOND, RUMBLE, Belgium. Filed Mar. 12, 1902. Serial No. 22,721. (No model.)



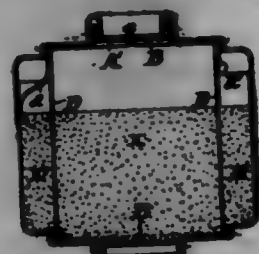
Claim.—1. In a safety device for insuring the closing of switch-points before the passage of the wheels over said points, the combination of a pivoted lever, a pedal on one end of said lever in such position as to

be depressed by a portion of a wheel approaching the switch, a spring adapted to normally hold up said pedal, a pyramidal head mounted on said lever, a block having an edge and two beveled faces adapted to be engaged by said pyramidal head, and means for connecting said block to the switch-points, whereby the throwing over of said points to one side or other is insured before the wheel reaches the switch-points.

2. In a safety device for locking switch-points in a closed position and maintaining them closed until a predetermined time after the passage of the wheels, the combination of a pivoted lever, means for resiliently holding up said lever, a pedal connected to said lever and adapted to be depressed by a wheel approaching the points, means connected to the switch and adapted to be operated upon by said lever to lock the switch-points, an arm upon said lever, a rod attached to said arm, two pistons mounted upon said arm with a space between them, cylinders in which said pistons are adapted to operate, a box in communication between said cylinders, a fluid between said pistons, a valve mounted to slide upon the rod in said box between said pistons, means for holding said valve normally against the end of the foremost cylinder and notches in said rod, whereby the return of the fluid into the foremost cylinder is allowed to take place slowly, and the release of the switch-points is retarded.

3. In a safety device for insuring the closing of switch-points and for maintaining them closed until a predetermined time after the passage of a wheel over said points, the combination of a pivoted lever, means for resiliently holding up said lever, a pedal upon said lever adapted to be operated by a wheel approaching the points, a locking-head upon said lever, means connected with the switch adapted to be engaged by said head, a pair of fluid-pressure cylinders, pistons fitting in said cylinders, means for connecting said pistons to said lever, and means for permitting the passage of the fluid out of one cylinder and for retarding the return of the fluid, whereby the throwing over of the points in one direction or other is insured, and whereby the release of the point-locking device is retarded.

702,594. CARTRIDGE-CARRIER. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Original application filed Feb. 4, 1899. Serial No. 704,422. Divided and this application filed Dec. 14, 1899. Serial No. 749,008. (No model.)



Claim.—1. A carbid-cartridge, comprising an outer shell, a removable partition, forming separate carbid-compartments within said shell, and means arranged to retain said partition in normal relation with said shell, substantially as set forth.

2. A carbid-cartridge, comprising an outer shell, a removable partition, forming separate carbid-compartments within said shell, and removable means arranged to retain said partition in normal relation with said shell, substantially as set forth.

3. A carbid-cartridge, comprising an outer shell, a removable partition, forming separate carbid-compartments within said shell, and resilient means arranged to retain said partition in normal relation with said shell, substantially as set forth.

4. A carbid-cartridge, comprising an outer cylindrical shell, a removable cylindrical partition, forming separate carbid-containing compartments within said shell, and resilient means, attached to said partition, arranged to maintain the same in normal relation with said shell, substantially as set forth.

5. A carbid-cartridge, comprising an outer cylindrical shell, a removable cylindrical partition, forming separate concentric carbid-containing compartments within said shell, and resilient means, attached to said partition, arranged to normally maintain the same in concentric relation with said shell, substantially as set forth.

6. A carbid-cartridge, comprising an outer shell, formed of separable telescoping members, opposed ends in said respective members, a partition fitted at its opposite extremities to said ends and arranged to form a plurality of compartments within said shell, an opening in said shell in communication with one of said compartments, a porous diaphragm extending across said opening, and removable means to seal said opening, substantially as set forth.

7. A carbid-cartridge, comprising an outer shell, an opening in said shell provided with a neck, corrugations in said shell, adjoining said neck, a porous diaphragm resting upon said corrugations, and extending across said neck, and removable means to seal said neck, substantially as set forth.

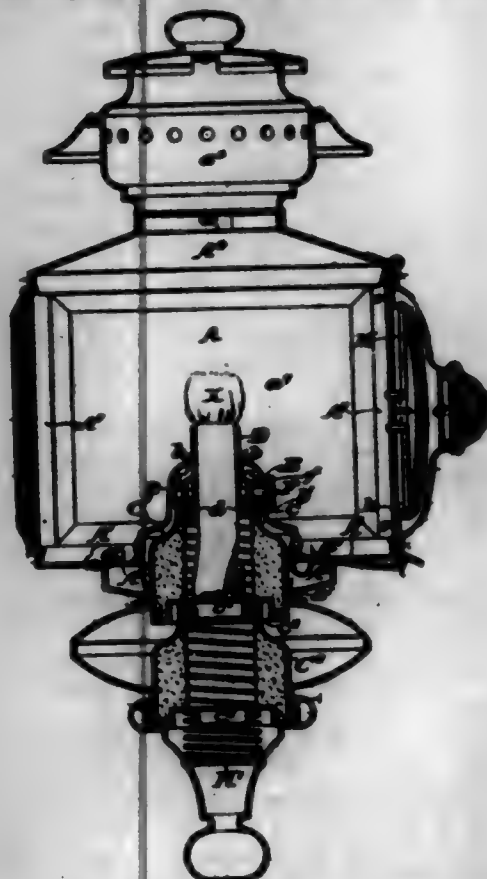
8. In a carbid-cartridge, comprising an outer shell; including a plu-

rality of compartments; a hopper fitted concentrically to said shell and arranged to deliver carbid to a predetermined one of said compartments, substantially as set forth.

9. In a carbid-cartridge, comprising an outer shell; an opening in said shell provided with a neck in integral relation with said shell; a porous diaphragm secured across said neck; a removable cap arranged to seal said neck exterior to said diaphragm; and a recessed portion of said cap, arranged to support said diaphragm, substantially as set forth.

10. In a reversible carbid-cartridge, comprising an outer shell; openings in opposite extremities of said shell respectively provided with necks in integral relation with said shell; a partition intermediate of the necked extremities of said shell; and removable means to seal said necks, substantially as set forth.

702,595. CARRIAGE-LAMP. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed Sept. 12, 1900. Serial No. 20,502. (No model.)



Claim.—1. In a lamp, the combination with a casing provided with a burner; of a plurality of interchangeable fluid-containing receptacles removably supported by the casing, each of said receptacles being adapted to be brought into communication with the burner, substantially as set forth.

2. In a lamp, the combination with a casing provided with a burner; of a plurality of interchangeable fluid-containing receptacles removably supported by the casing, substantially as set forth.

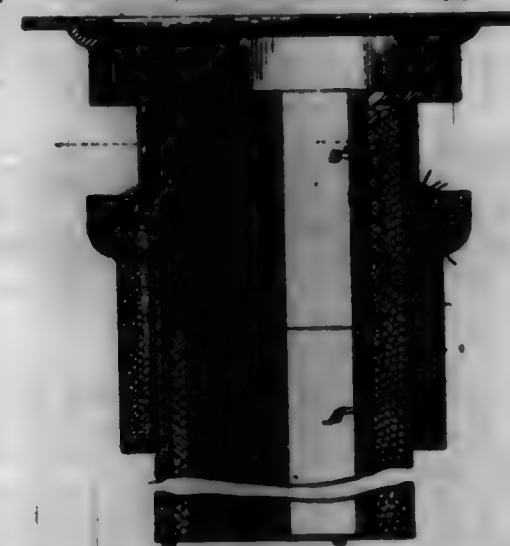
3. In a lamp, the combination with a casing provided with a burner; of a plurality of interchangeable fluid-containing receptacles supported by the casing, and detachably connected to each other, substantially as set forth.

4. In a lamp, the combination with a burner; of a plurality of oil-receptacles adapted to be operatively connected with said burner; one of said receptacles being provided in its bottom with a cap for removably attaching a counterpart receptacle thereto; the said oil-receptacles being reversible to bring them successively into communication with the burner, substantially as set forth.

5. In a carriage-lamp, the combination with a removable burner; of a flame-chamber inclosing said burner, comprising three integral side walls, and a separate door in movable relation therewith; a floor for said chamber uniting said side walls; a roof for said chamber uniting said side walls; a chimney in said roof; a removable oil-receptacle operatively connected with said burner; a draft-chamber inclosing said receptacle; a removable cap for the bottom of said draft-chamber; reflector-recesses respectively fixed in one of said side walls and in said door; exterior openings for said reflectors; air-chambers intermediate of said reflectors and their respective casings; and air-vents for said reflector air-chambers, substantially as set forth.

702,596. PIPE CONNECTION. GEORGE F. RYAN, Chicago, Ill. Filed Sept. 27, 1901. Serial No. 79,719. (No model.)

Claim.—1. The combination of an earthenware pipe provided with interior screw-threads, a metal fitting provided with a sleeve having exterior screw-threads, said earthenware pipe having an annular shoulder and the fitting being provided with an annular bearing-face which opposes the shoulder when the sleeve is inserted in said pipe, and a packing ring or gasket located between said shoulder and the said annular bearing-face of the fitting, and a bolt connecting said fitting with the earthenware pipe to prevent the turning of the said sleeve in the pipe.



2. The combination of an earthenware pipe provided with interior screw-threads of large size and rounded form, a metal fitting provided with a sleeve provided with exterior screw-threads corresponding with those of the pipe, said pipe being provided with an annular shoulder and the fitting having an annular bearing-face which opposes the said shoulder when the sleeve is inserted in the pipe, and an annular packing or gasket located between said shoulder and said annular bearing-face.

3. The combination of an earthenware pipe provided with interior screw-threads, a metal fitting provided with a sleeve having exterior screw-threads, said pipe having an annular shoulder and a flange exterior thereto forming a bell, and the fitting being provided with a radial flange which forms a bearing-surface opposing the said shoulder, a gasket between said shoulder and annular bearing-surface, and a filling of cement or the like applied in the said bell over the said flange.

4. The combination of an earthenware pipe provided with interior screw-threads, a metal fitting provided with a sleeve having exterior screw-threads, said pipe having an exterior annular shoulder, and the fitting having an exterior sleeve which embraces the end of the pipe and which is provided with an annular bearing-surface, and a gasket interposed between said shoulder and annular bearing-surface.

5. The combination of an earthenware pipe provided with interior screw-threads, a metal fitting provided with an annular shoulder and the fitting having an exterior sleeve which embraces the end of the pipe and which is provided with a radial flange on which is formed an annular bearing-surface opposing said shoulder on the pipe, a gasket interposed between said annular shoulder and bearing-surface, and a filling of cement or the like applied within said bell over said radial flange.

6. The combination of an earthenware pipe and an exterior separate earthenware sleeve having a shoulder and with a flange exterior thereto to forming a bell, said sleeve being secured in place on the pipe by cement.

7. The combination with an earthenware pipe, a separate earthenware sleeve surrounding the pipe and provided with a shoulder and with a flange exterior thereto forming a bell, a fitting provided with an interior sleeve which enters the pipe and with an exterior sleeve which embraces the end of the said pipe, said exterior sleeve having an annular bearing-surface opposing the shoulder on said exterior earthenware sleeve, and a gasket interposed between said shoulder and the annular bearing-surface on said exterior sleeve of the fitting.

8. The combination of an earthenware pipe provided with interior screw-threads, a fitting provided with a sleeve having exterior screw-threads, and a bolt engaging said fitting and passing endwise through the wall of said pipe.

9. The combination of an earthenware pipe provided with interior screw-threads, an earthenware sleeve surrounding said pipe and provided with an annular shoulder and a flange exterior thereto forming a bell, a fitting provided with an interior sleeve having exterior screw-threads and with an exterior sleeve which embraces the end of the pipe and has at its end a radial flange, a gasket interposed between said flange and the annular shoulder on the earthenware sleeve, and a filling of cement applied in said bell over the said radial flange on the exterior sleeve of the fitting.

10. The combination of an earthenware pipe provided with interior

screw-threads, an earthenware sleeve surrounding said pipe and provided with an annular shoulder, a fitting provided with an interior sleeve having exterior screw-threads and with an exterior sleeve which surrounds the end of the pipe and is provided with an annular bearing-surface, a gasket interposed between said shoulder and annular bearing-surface, and a bolt engaging the said fitting and passing endwise through the wall of the said pipe.

702,597. STEAM COOKING APPARATUS. WILLIAM C. SALMON, Washington, D. C. Filed July 19, 1901. Serial No. 64,326. (No model.)



Claim.—1. In a steam cooking apparatus, the combination with a boiler and a series of food-cooking sections superimposed upon the boiler, a pipe for conveying steam from the boiler to each of said sections, a flange-receptacle located in one of said sections, and means for discharging the liquid of condensation from the other sections into said receptacle.

2. In a steam cooking apparatus, the combination with a boiler and a series of food-cooking sections superimposed upon the boiler, a steam-pipe located wholly within each section for conveying steam from the boiler to the several sections, a bellows cap having a reduced upper end located within the pipe of the lower food-cooking section and curving to direct the liquid of condensation from the upper sections into said lower section and preventing said liquid from entering the boiler.

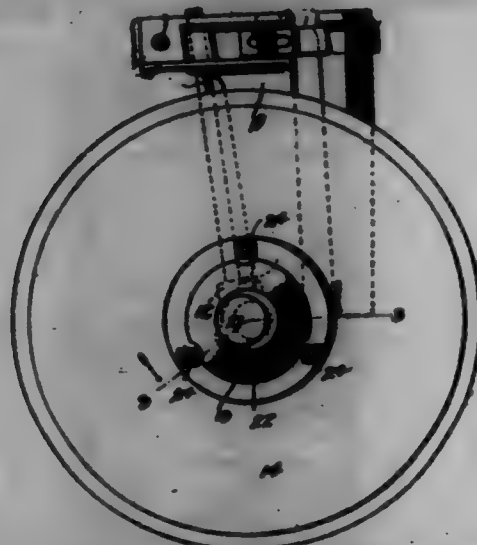
3. In a steam cooking apparatus, the combination with a boiler, and a series of food-cooking sections superimposed upon the boiler, a steam-pipe for conveying steam from the boiler to each of said sections, and means for directing the liquid of condensation from the several sections into the lower food-cooking section and preventing said liquid from entering the boiler.

4. In a steam cooking apparatus, the combination with a boiler and a series of food-cooking sections superimposed upon the boiler, a steam-pipe for conveying steam from the boiler to the several sections, a bellows cap having a reduced upper end fitted upon the end of the steam-pipe in the lower food-section, and an inclined flange on said cap curving to direct the liquid of condensation from the upper sections into said lower food-section.

5. In a steam cooking apparatus, the combination with a boiler and a series of food-cooking sections, superimposed upon the boiler, a steam-pipe for conveying steam from the boiler to the several sections, a flange-receptacle located in the lower food-section, and means for discharging the liquid of condensation from the several upper sections into said receptacle and for preventing said liquid from entering the boiler.

702,598. FURROW-OPENER FOR DINK GRAIN-DRILL. ROBERT H. SCHLAGETER, Clay Center, Neb. Filed Dec. 31, 1901. Serial No. 87,960. (No model.)

Claim.—1. In combination with a standard having an outwardly-projecting axle-spindle, and a shoulder at the base thereof, an annular washer-plate detachably secured to the standard, bearing on the said shoulder and disposed concentrically with relation to the axle-spindle, a cap having a box revolvable on the axle-spindle, bearing against the shoulder at the base thereof and having an annular channel in which the washer-plate is disposed and a disk having a central opening to clear the said shoulder, the said cap being secured concentrically to the said disk and the latter being disposed on one side of the washer-plate, substantially as described.



2. A standard having outwardly-projecting axle-spindles on opposite sides thereof, and formed with shoulders at the base of said axle-spindles, in combination with washer-plates bearing on the said shoulders and detachably connected together and to the standard, disks having central openings to clear the said shoulders, the said disks being disposed on the inner sides of the washer-plates, and caps formed with bearings revolvable on the axle-spindles and with recesses on their inner sides to receive the washer-plates, the said caps being detachably secured to the disks, substantially as described.

3. The combination with a standard having an axle-spindle, and a shoulder at the base thereof, of a washer-plate non-revolvably secured on the said shoulder, a disk having a central opening clearing the said shoulder and a cap detachably secured to the outer side of the disk, said cap being formed with a recess on its inner side to receive the washer-plate and with a journal-box revolvable on the axle-spindle, the outer end of the said journal-box being closed, substantially as described.

4. A standard having outwardly-extending axle-spindles, shouldered at their bases and provided with lubricant-conducting boxes extending to their outer ends, and means to conduct lubricant to said boxes, in combination with washer-plates non-revolvably secured on said shoulders, disks having central openings clearing said shoulders and caps detachably secured to the outer sides of the disks, said caps being formed with recesses on their inner sides to receive the washer-plates and with journal-boxes revolvable on the axle-spindles, substantially as described.

5. A standard having outwardly-projecting axle-spindles on opposite sides thereof, and formed with shoulders at the base of said axle-spindles, in combination with washer-plates bearing on the said shoulders, bolts extending through the standard and the said washer-plates and having their heads and caps on the outer sides of said washer-plates, said bolts securing the washer-plates on the shoulders of the standard, disks having central openings to clear the shoulders, the said disks engaging the inner sides of said washer-plates, and caps detachably secured to the outer sides of said disks, said caps having journal-boxes revolvable on the axle-spindles, bearing against the shoulders of the standard and having channels or recesses to receive the washer-plates, the sides of the bolt-heads and nuts engaging the sides of said channels, whereby the said caps lock said bolts and nuts, substantially as described.

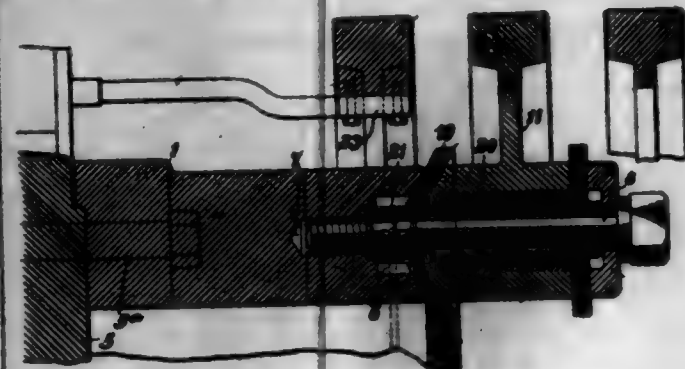
6. A standard having outwardly-extending axle-spindles, shouldered at their bases, in combination with washer-plates non-revolvably secured on said shoulders, disks having central openings clearing said shoulders, and caps detachably secured on the outer sides of the disks, said caps being formed with recesses on their inner sides to receive the washer-plates and spindle, substantially as described.

7. In a screw-driver, the combination of a standard, a drill-tube, a sleeve supporting the drill-tube, connected to the standard and adjustable longitudinally with respect to its own axis, on the standard, said sleeve displacing the drill-tube on the rear side of the standard and adapting the drill-tube to be disposed at any desired distance therefrom, substantially as described.

8. A standard of the class described having a head with shouldered recesses in its sides, in combination with draw-bars secured to the head,

disposed in said recesses and having shoulders engaging those of the head, substantially as described.

702,599. COLLECTOR-RING FOR ELECTRICAL MACHINES
ROBERT B. BROWN, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Feb. 1, 1902. Serial No. 92,194. (No model.)



Claim.—1. The combination with a rotatable support, of a plurality of collector-rings, arranged side by side and having supporting-arms that project into approximately the same plane and means for fastening the said arms to the support.

2. The combination with a rotatable support, of a plurality of collector-rings, arranged side by side and having supporting-arms that project into approximately the same plane and are provided with cylindrical bosses at their inner ends and bolts extending through said bosses and into the support.

3. The combination with an annular support, of a plurality of collector-rings, arranged side by side and having supporting-arms that project into approximately the same plane, means for insulating the rings from each other and from the support and fastening devices for clamping the rings and insulating means in position.

4. The combination with an annular support, of a plurality of collector-rings, arranged side by side and having supporting-arms that project inwardly into approximately the same plane and alternate with each other on the several rings, and bolts, insulating washers and tubes for attaching the rings to the support and insulating them therefrom and from each other.

5. The combination with an annular support, of a plurality of collector-rings, arranged side by side and having supporting-arms that project inwardly into approximately the same plane and terminate in hollow bosses having beveled inner ends and means for fastening said bosses to the annular support, the latter having beveled surfaces to cooperate with the beveled ends of the bosses.

6. The combination with an annular support, of a plurality of collector-rings each of which is made in two parts and is provided with supporting-arms that project inwardly at such an angle to the plane of the ring as to bring the inner ends of all the arms into substantially the same plane and means for fastening said arms to the support and for insulating the rings from the support and from each other.

7. The combination with an annular support, of a plurality of collector-rings each of which is provided with a plurality of inwardly-projecting arms that terminate in tubular bosses having beveled inner ends, the corresponding ends of all the bosses being in the same plane, and bolts and caps for fastening the bosses to the annular support and insulating washers and tubes interposed between said parts.

8. The combination with an annular support having beveled end surfaces, of a plurality of collector-rings having arms which terminate in tubular bosses provided with beveled inner ends, insulating-washers interposed between the beveled portions of the support and the beveled ends of the bosses and stud-bolts projecting through the bosses and into the annular support.

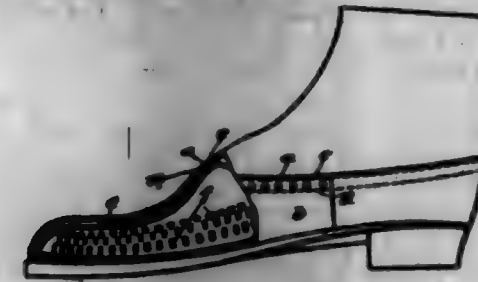
9. The combination with an annular support having end surfaces that are beveled inward toward each other in pairs, of a plurality of collector-rings each of which has uniformly-spaced arms terminating in hollow bosses having beveled inner ends, insulating washers for separating the bosses from the support, and bolts for fastening the bosses to the support and tubes for insulating the bosses from the stud-bolts.

10. The combination with an annular support adapted to be detachably fastened to an armature-spider, of a plurality of collector-rings arranged side by side and having supporting-arms that project into approximately the same plane and means for fastening the arms independently to said annular support.

11. The combination with an annular support adapted to be detachably fastened to an armature-spider, of a plurality of collector-rings arranged side by side and having supporting-arms that project into approximately the same plane and means for fastening the arms of each

ring independently to the support and for centering the rings with reference to the support and to each other.

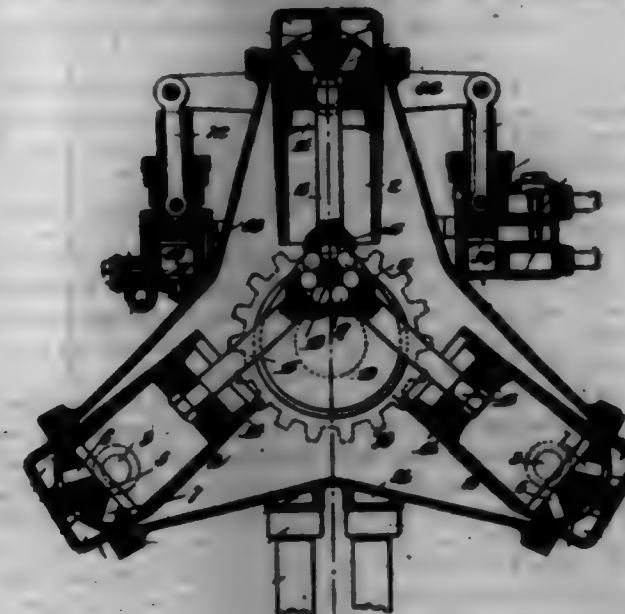
702,600. BOOT OR SHOE. FRANK W. SLATER, Montreal, Canada, assignor to George C. Clifford, Brockton, Mass., and George A. Slater and Winthrop Allen Halliagh Slater, Montreal, Canada. Filed May 15, 1902. Serial No. 714,266. (No model.)



Claim.—1. In a leather boot or shoe having a sole, a vamp, a quarter, and a lining for the vamp, secured at its bottom edge by lacing to the sole and at its top edge to said vamp by two rows of stitching, one row (the uppermost) passing through both vamp and lining along the entire top edge of same, and the other row (the undermost) passing through the vamp only for a portion of the length of the lining, a series of ventilating-perforations formed in the vertical portion of the vamp that is situated between the said two rows of stitching, the contents of part of the undermost row of stitching from the lining allowing said perforations to communicate with the air-space formed between the vamp and lining, and a series of perforations in said lining allowing communication between the air-space and the interior of the boot, substantially as described.

2. A leather boot or shoe having a vamp & whose inner and outer surfaces are entirely even and smooth throughout, a lining whose inner and outer surfaces are also entirely even and smooth throughout, said lining having its extreme upper edge only secured to the upper edge only of said vamp by stitching so as to form a single uninterrupted air-chamber *g* between the vamp and lining, a series of perforations *a* in the vertical and slanting upper portion of the vamp immediately beneath the line of stitching *c* that secures the top edge of the lining to the top edge of the vamp, and parallel with each last-mentioned top edge, and a series of apertures *f* in the lining adjacent to its lower edge and extending upward somewhat throughout same, said perforations *a* and apertures *f* communicating with the air-space *g*, for the purpose set forth.

702,601. FLUID-PRESSURE ENGINE. ADOLF C. SMITH, New York, N. Y., assignor to Edward & Jeffery, trustees, Irvington, N. Y. Filed July 24, 1901. Serial No. 69,227. (No model.)



Claim.—1. In a fluid-pressure motor, the combination of a casing, a plurality of cylinders mounted to oscillate in said casing, a main shaft, a crank on the shaft, pistons in the cylinders connected to said crank, a valve-casing cooperating with the outer end of each cylinder, parts in the cylinder end and in each of said valve-casings, two closed passages leading to each valve-casing, all of said passages communicating with a centrally-located chamber, a hollow controlling-valve in said chamber, a plurality of pistons in the face of said valve, a plurality of passages extending through said valve to its hollow center, a nipple mounted in the hollow center of said valve, a packing between said nipple and the valve, and a passage leading from said nipple, substantially as set forth.

2. In a fluid-pressure motor, the combination of a casing, a plurality of cylinders in said casing, a piston in each cylinder, a piston-rod connected to each piston, a main shaft, a crank on the shaft, a wrist-pin on the crank connected with all the pistons, a series of anti-friction-balls supporting the main shaft, two inclined rings forming a track for said balls, a sleeve threaded into the casing for adjusting one of said rings, and a sleeve threaded into said sleeve for adjusting the other of said rings, substantially as set forth.

3. In a fluid-pressure motor, the combination of a casing, a plurality of cylinders in said casing, a piston in each cylinder, a piston-rod connected to each piston, a main shaft, a crank on the shaft, a wrist-pin on the crank connected with all the pistons, a series of anti-friction-balls supporting the main shaft, two inclined rings forming a track for said balls, a sleeve threaded into the casing for adjusting one of said rings, and a sleeve threaded into said sleeve for adjusting the other of said rings, the threads of both of said sleeves being oppositely cut, substantially as set forth.

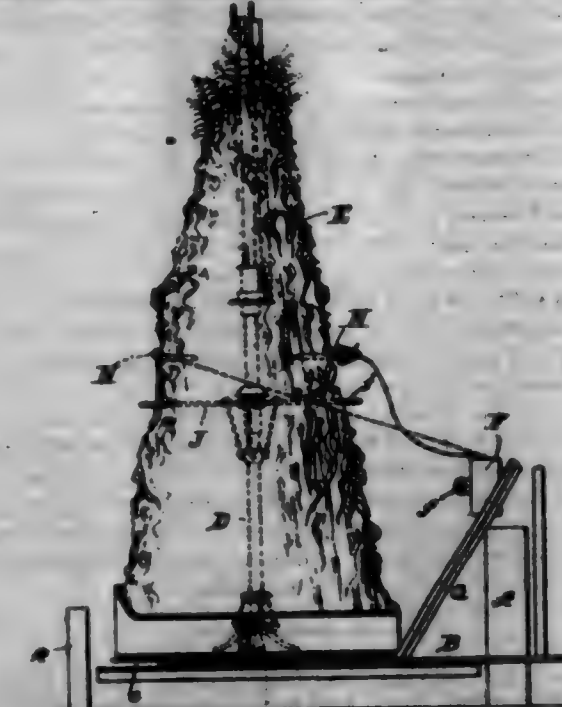
4. In a fluid-pressure motor, the combination of a casing, a plurality of cylinders in said casing, a piston in each cylinder, a piston-rod connected to each piston, a main shaft, a crank on the shaft, a wrist-pin on the crank connected with all the pistons, a series of anti-friction-balls supporting the main shaft, two inclined rings forming a track for said balls, a sleeve threaded into the casing for adjusting one of said rings, and a packing between the second sleeve and the shaft, substantially as set forth.

5. In a fluid-pressure motor, the combination of a casing, a plurality of cylinders in said casing, a piston in each cylinder, a piston-rod connected to each piston, a main shaft, a crank on the shaft, a wrist-pin on the crank connected with all the pistons, a series of anti-friction-balls supporting the main shaft, two inclined rings forming a track for said balls, a sleeve threaded into the casing for adjusting one of said rings, a sleeve threaded into said sleeve for adjusting the other of said rings, a packing between the second sleeve and the shaft, and a ring engaging the second sleeve for holding said packing in place, substantially as set forth.

6. In a fluid-pressure motor of the class described, the combination of a casing, a cylinder therein mounted in transverse and arranged to oscillate, a yoke straddling the cylinder and connected to each of said transverse, and a pump operated from said yoke, substantially as set forth.

7. In a fluid-pressure motor of the class described, the combination of a casing, a cylinder therein mounted in transverse and arranged to oscillate, a yoke straddling the cylinder and connected at its center to each of said transverse, and two pumps operated from the ends of said yoke, substantially as set forth.

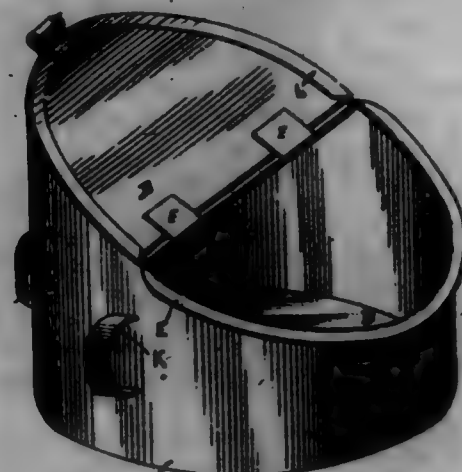
702,602. GORE-SHOOTER. JOHN F. STOWARD, Chicago, Ill. Filed Jan. 6, 1902. Serial No. 65,698. (No model.)



Claim.—1. In combination with a rotary sheet-forming table, a twine-receptacle and a twine-carrying device, said device independent of said sheet-forming table and consisting of a pin provided with means for holding the end of said twine and, when the pin is engaged by the table forming the sheet, carrying the said twine around the said sheet as the latter rotates, substantially as described.

2. In a rotary core-sheeting machine, a twine-receptacle and a pin having the twine-receiving hook *H* and the knife *K*, all combined substantially as described.

702,608. BED-PAN. EMILY A. STOCKDALE, Washington, D.C.
Filed Aug. 8, 1901. Serial No. 71,305. (No model.)



Claim.—1. A bed-pan consisting of a reservoir having an inclined top extending downwardly and forwardly, a cover closing the upper half of the said top, a lid hinged to said cover in such a manner that the same may be folded down on the cover in its open position.

2. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening, a cover closing the upper half of the said opening, a lid hinged to the lower edge of said cover in such a manner that the same may be folded down on the cover in its open position.

3. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of the said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening; a cover closing the upper half of the said opening; a lid hinged to the lower edge of the said cover, the said lid being of such a contour that when folded down on the cover its periphery will coincide with that of the cover.

4. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of the said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening and having its lower half continued outwardly to form a flat flange; a cover closing the upper half of the said opening, a lid hinged to the lower edge of the said cover the said lid being of such a contour that when folded down on the cover its periphery will coincide with that of the cover.

5. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening and having its lower half continued outwardly to form a flat flange; a cover closing the upper half of the said opening; a lid hinged to the lower edge of the said cover having its outer edge terminating in a catch to take over the flange to fasten the lid in its closed position.

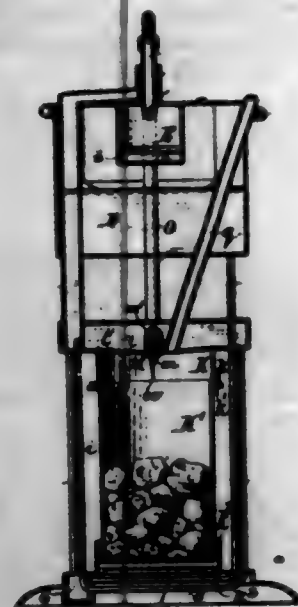
6. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening and having its lower half continued outwardly to form a flat flange; a cover closing the upper half of the said opening; a lid hinged to the lower edge of the said cover having its outer edge terminating in a catch to take over the flange to fasten the lid in its closed position, the said lid being of such a contour that when folded down on the cover its periphery will coincide with that of the cover.

7. A bed-pan consisting of a reservoir having a flat bottom and a substantially cylindrical wall the top edge of said wall extending downwardly and forwardly to form substantially an elliptically-shaped opening; a cover closing the upper half of said opening; a lid hinged to the lower edge of said cover said lid being of such a contour that when folded down on the cover its periphery will coincide with that of the cover, and handles attached to the outer side of the reservoir.

702,604. ACETYLENE-GAS GENERATOR. DANIEL H. TRENNER, Niagara Falls, N. Y. Filed July 5, 1901. Serial No. 67,072. (No model.)

Claim.—1. In an acetylene-generator, the combination with the base, the generating-chamber arranged above the base, the equalizing-chamber arranged above the generating-chamber and the water-supply tank arranged above the equalizing-chamber, of a conduit connecting the water-tank with the equalizing-chamber and extending from the water-tank downwardly on one side of the generating and equalizing chambers to the base, thence horizontally underneath the base to the opposite side thereof, thence upwardly to the equalizing-chamber on the opposite side of the generating-

chamber, thence downwardly on the same side of the generating-chamber to the base, thence horizontally underneath the base to the first-mentioned side of the base and thence upwardly on the first-mentioned side of the generating-chamber to the equalizing-chamber, substantially as set forth.



2. In an acetylene-generator, the combination with the base and the elevated water-supply tank rigidly connected with the base, of a generating-chamber arranged above the base and detachably connected at its upper end with the water-supply tank, and a clamping device which is arranged wholly above the base and which is connected with the lower end of the generating-chamber, substantially as set forth.

3. In an acetylene-generator, the combination with a base having an annular shoulder on its upper side, and an elevated water-supply tank rigidly connected with the base, of a generating-chamber having its upper end detachably connected with the water-supply tank, and a clamping device which is arranged wholly above the base and which consists of a rotatable ring having a screw connection with the lower end of the generating-chamber and bearing against the upper side of the base around the annular shoulder thereof, substantially as set forth.

4. In an acetylene-generator, the combination with the generating-chamber and the equalizing-chamber of the water-supply tank arranged above the generating-chamber, of a gas-delivery conduit connected with the generating-chamber, a stand-pipe connected at its lower end with the equalizing-chamber and at its upper end with said conduit, and a valve having its inlet opening into the equalizing-chamber and its outlet opening into the generating-chamber, substantially as set forth.

5. In an acetylene-generator, the combination with the generating-chamber and the equalizing-chamber of the water-supply tank arranged above the generating-chamber, of a gas-delivery conduit connected with the generating-chamber, a stand-pipe connected at its lower end with the equalizing-chamber and at its upper end with said conduit, and a valve arranged out of line with said stand-pipe and having its inlet opening into the equalizing-chamber and its outlet opening into the generating-chamber, substantially as set forth.

6. In an acetylene-generator, the combination with the generating-chamber, and the water-supply tank, of a stand-pipe connected at its lower end with the water-supply tank, and a gas-delivery conduit which is connected with the generating-chamber and with the upper end of the stand-pipe and which contains a coil, substantially as set forth.

7. In an acetylene-generator, the combination with the generating-chamber, and the water-supply tank, of a stand-pipe connected at its lower end with the water-supply tank, and a gas-delivery conduit which is connected with the generating-chamber and with the upper end of the stand-pipe and which contains a horizontal coil arranged above said water-supply tank, substantially as set forth.

8. In an acetylene-generator, the combination with the generating-chamber, and the water-supply tank, of a stand-pipe connected at its lower end with the water-supply tank, and a gas-delivery conduit having a horizontal coil which is arranged above said water-supply tank and which has an elevated inlet connected with the generating-chamber and a depressed outlet communicating with the upper end of said stand-pipe, substantially as set forth.

9. In an acetylene-generator, the combination with the generating-chamber, of a purifying-chamber, and a gas-conduit connecting the generating-chamber and the purifying-chamber and provided between its ends with a coil which is arranged outside of the purifying-chamber, substantially as set forth.

10. In an acetylene-generator, the combination with the generating-chamber and the water-supply tank, of a stand-pipe connected at its lower

end with the water-supply tank and with the generating-chamber, a purifying-chamber connected with the upper end of the stand-pipe, and a gas-conduit connecting the generating-chamber and the purifying-chamber and provided between its ends with a coil which is arranged outside of the purifying-chamber, substantially as set forth.

11. In an acetylene-generator, the combination with the generating-chamber and the water-supply tank, of a purifying-chamber having a wide upper part and a contracted lower part, a stand-pipe connected with the water-supply tank and the purifying-chamber, and a gas-delivery conduit connected at its inlet end with the generating-chamber and opening at its outlet end into the contracted part of the purifying-chamber, substantially as set forth.

12. In an acetylene-generator, the combination with the generating-chamber and the water-supply tank, of a purifying-chamber, a stand-pipe connected with the water-supply tank and the purifying-chamber, and a gas-delivery conduit having its inlet end connected with the generating-chamber and its outlet end extending into the lower part of the purifying-chamber and provided with slots, substantially as set forth.

13. In an acetylene-generator, the combination with the generating-chamber, and the water-supply tank, of a purifying-chamber, a stand-pipe connected with the water-supply tank and the purifying-chamber, a gas-delivery conduit having its inlet end connected with the generating-chamber and having its outlet end projecting downwardly into the lower portion of the purifying-chamber, and a deflecting-plate arranged on said outlet within the purifying-chamber, substantially as set forth.

14. In an acetylene-generator, the combination with the generating-chamber and the water-supply tank, of a purifying-chamber, a stand-pipe connected with the water-supply tank and the purifying-chamber, a gas-delivery conduit having its inlet end connected with the generating-chamber and having its outlet end projecting downwardly into the lower portion of the purifying-chamber, and a screen having a fixed section which is secured within the purifying-chamber around said outlet end and a removable section which fits into the fixed section, substantially as set forth.

15. In an acetylene-generator, the combination with the generating-chamber, and the water-supply tank, of a purifying-chamber having an opening in its top which is closed by a cover, a stand-pipe connected with the water-supply tank and the purifying-chamber, a gas-delivery conduit having its inlet end connected with the generating-chamber and having its outlet end projecting downwardly into the lower part of the purifying-chamber, a deflecting-plate arranged on the gas-delivery conduit above the outlet thereof, and a screen arranged in the purifying-chamber above the deflecting-plate and consisting of a fixed section and a removable section constructed to pass through the opening in the top of the purifying-chamber, substantially as set forth.

16. In an acetylene-generator, the combination with the generating-chamber, the water-supply tank and the purifying-chamber, of a gas-delivery conduit connecting the generating-chamber and the purifying-chamber, a stand-pipe connected at its lower end with the water-supply tank, and a burner-pipe having a branch which opens into the purifying-chamber and a branch which connects with the upper end of the stand-pipe, substantially as set forth.

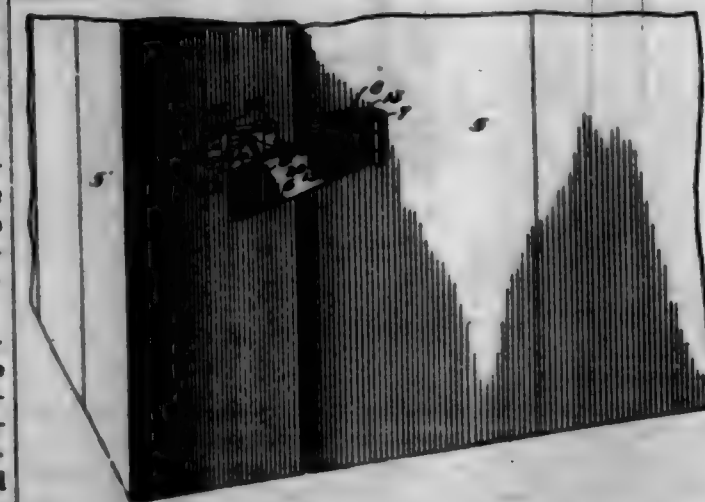
17. In an acetylene-generator, the combination with the generating-chamber, the water-supply tank and the purifying-chamber, of a gas-delivery conduit connecting the generating-chamber and the purifying-chamber, a stand-pipe connected at its lower end with the water-supply tank, and a burner-pipe having a branch which connects with the upper end of the stand-pipe and a branch which extends into the central part of the purifying-chamber, substantially as set forth.

18. In an acetylene-generator, the combination with the generating-chamber, the water-supply tank and the purifying-chamber, of a gas-delivery conduit connecting the generating-chamber and the purifying-chamber, a stand-pipe connected at its lower end with the water-supply tank, a burner-pipe having a branch which connects with the upper end of the stand-pipe and a branch which opens into the purifying-chamber, and a perforated nipple arranged in said last-mentioned branch of the burner-pipe, substantially as set forth.

19. In an acetylene-generator, the combination with the generating-chamber, the water-supply tank and the purifying-chamber, of a gas-delivery conduit connecting the generating-chamber and the purifying-chamber, a stand-pipe connected at its lower end with the water-supply tank, a burner-pipe having a branch which connects with the upper end of the stand-pipe and a branch which opens into the purifying-chamber, a perforated nipple removably arranged in said last-mentioned branch of the burner-pipe, and a cover which closes an opening in the top of the purifying-chamber, substantially as set forth.

702,605. HARP-FASTENER. ASHLEY VANDER, New Britain, Conn., assignor to the Stanley Works, New Britain, Conn., a Corporation of Connecticut. Filed Mar. 6, 1902. Serial No. 68,660. (No model.)

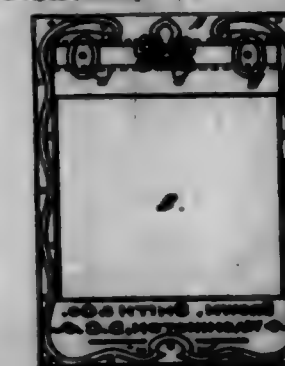
Claim.—1. A staple-carrier comprising a metallic plate having a slotted offset portion; a staple the legs of which pass through the slots of said offset portion; and a plate fitted in the recess formed by the offset portion on the back of the staple-carrier and to which plate the legs of the staple are secured, said plate being of less width than said recess, and being adapted to bear against the support to which the staple-carrier is secured.



2. A staple-carrier consisting of a sheet-metal plate with a stamped-up offset portion, said offset portion having a pair of slots; a staple, the legs of which are inserted through said slots; and a plate to which the legs of the staple are secured, said plate being of less width than the recess formed by the offset portion in the staple-carrier.

3. The combination, with a harp having a slot, of a staple-carrier having an offset portion provided with a pair of separated slots; a staple, the legs of which are inserted in said slots; and a plate to which the legs of said staple are secured, said plate fitting in the recess formed by the offset portion on the back of the staple-carrier and being of less width than said recess.

702,606. FRAME OR BASE FOR ZINC OR ELECTROTYPE PLATES. STEPHEN WATERMAN, Providence, R. I. Filed Mar. 2, 1901. Serial No. 60,333. (No model.)



Claim.—1. An enclosing frame-like base or support of yielding material for zinc, electrotype or similar plates having recesses filled with a yielding material.

2. An enclosing frame-like base or support of unyielding material for zinc, electrotype or similar plates having holes filled with a yielding material and an elongated recess filled with a similar substance.

3. An enclosing frame-like base or support of unyielding material for zinc, electrotype or similar plates having a series of holes and an elongated undercut recess filled with a yielding material.

4. A rigid frame-like base or support adapted to inclose type and having a series of holes and an elongated undercut recess filled with a yielding material, and a border-plate and an independent cut or cut detachably secured to said base by nails driven into said yielding material.

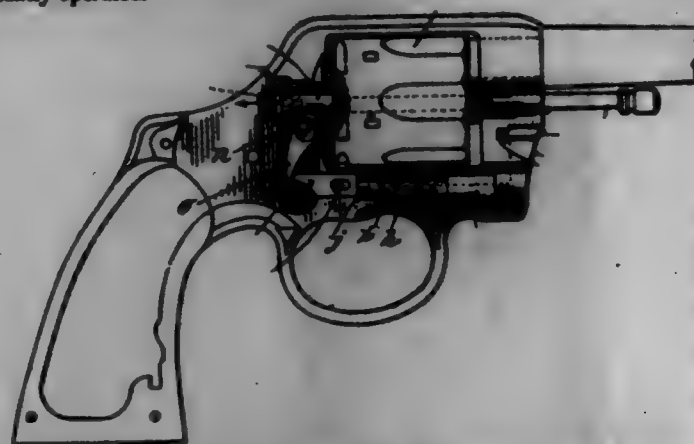
5. A rigid frame-like base or support adapted to inclose type and having a series of holes filled with a yielding material and a border-plate detachably secured to said base by nails driven into said yielding material.

702,607. REVOLVING FIREARM. JOSEPH H. WILSON, Springfield, Mass. Filed Jan. 2, 1902. Serial No. 53,154. (No model.)

Claim.—1. In a revolver having a side-swiveling cylinder, a cylinder-yoke, and a locking device between the yoke and the frame in front of the cylinder; a locking device between the rear end of the cylinder and the frame, and a device located in the frame between the yoke-lock and the cylinder-lock, and operatively connected with each, whereby both of said locks may be simultaneously operated.

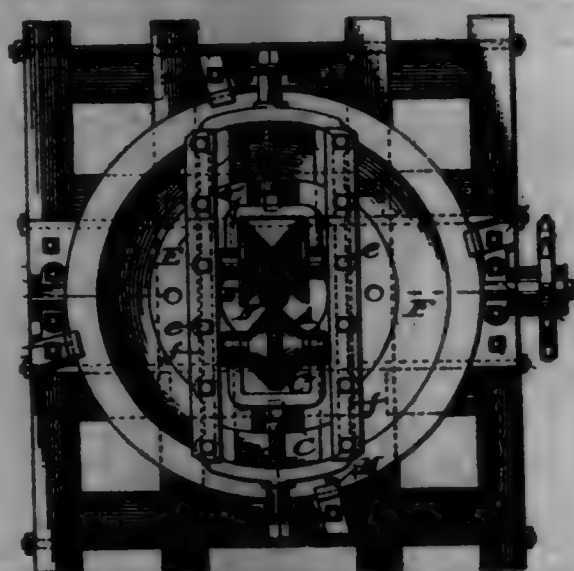
2. In a revolver having a side-swiveling cylinder, a cylinder-yoke,

and a locking device between the frame and said yoke in front of the cylinder; a locking device between the rear end of the cylinder and the frame; connecting members extending through the axis of the cylinder-yoke between said two locking devices, whereby they may be coindently operated.



3. In a revolver having a side-owing cylinder, a cylinder-yoke, and a locking device between said yoke and the frame coinguous thereto, consisting of an L-shaped locking-bolt, one arm of which is parallel with the yoke and the other arm of which extends through the axis of the yoke; an offset member on the arm of said bolt in the yoke extending across the meeting line of the frame and yoke and adapted to engage the former; a locking device for the rear end of the cylinder, and connecting means between the yoke-lock and the cylinder-lock, whereby the operation of both may be simultaneously effected.

702,608. WELL-BORING MACHINE. FRANK J. WOOD, San Antonio, Tex. Filed Oct. 4, 1901. Serial No. 71,574. (No model.)



Claim.—1. In a well-boring machine, the combination of the revolvable pipe or drill-rod clutch mounted in horizontal bearings having biting-surfaces milled into a series of curvilinear grooves or depressions for the purpose specified.

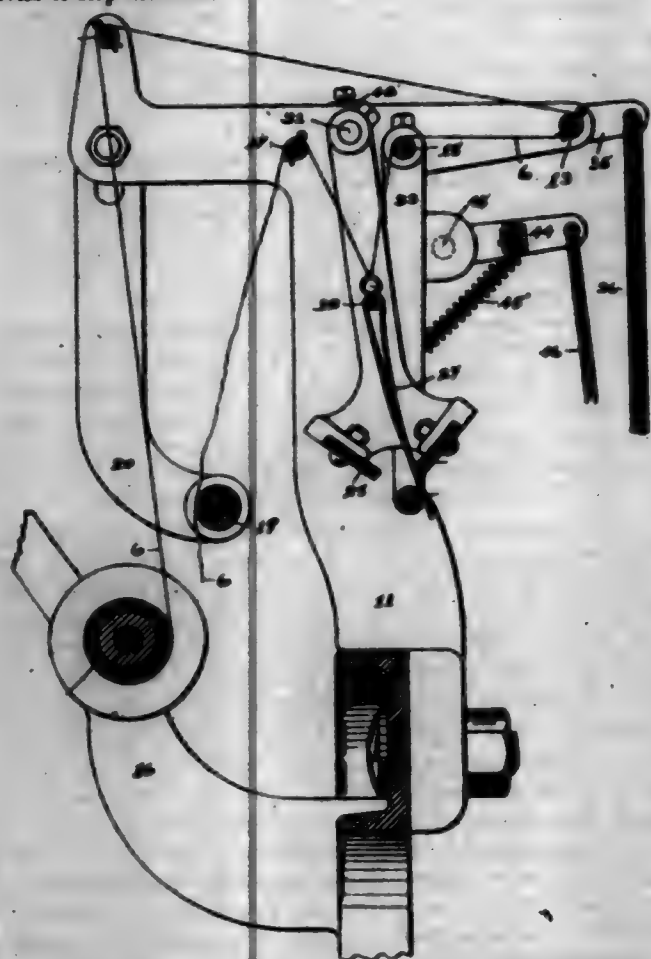
2. A clutch for operating a drill-rod or pipe of a well-boring machine comprising two or more revolvable members having their biting-surfaces milled in oblique grooves or depressions which intersect the grain of said pipe or rod.

3. In a well-boring machine, the combination of a revolvable head having cogs thereon meshing with a driving-pinion, of a series of idler-pinions meshing with said cogs which together with the driving-pinion support said head and which are interchangeable with the driving-pinion in drive said head.

4. The combination of the rotary head having shrouded beveled cogs, a driving-pinion having shrouded beveled cogs meshing with the cogs of the head, a series of idler-pinions having shrouded beveled cogs meshing with the cogs of the head each interchangeable with the driving-pinion to drive the head the shrouding of the cogs of the head and those of the pinions being arranged on the pitch-line whereby an antifrictional support is formed for the head and it is held against lateral play.

702,609. MECHANICAL WARP STOP-MOTION FOR LOOM. HERMAN WYMAN, Worcester, Mass., assignor to Crumpton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 12, 1901. Serial No. 85,929. (No model.)

Claim.—1. In a loom, the combination of a loom-thread-supporting beam and loom-needles, a series of drop devices supported by the loom-threads between the loom-beam and needles, means interposed between the drop devices and loom-needles for maintaining a normal condition and preventing deflection of the loom-threads as they pass through the drop devices, and means operative on the dropping of a drop device to stop the loom.



2. In a loom, the combination of a loom-thread-supporting beam and loom-needles, a series of drop devices supported by the loom-threads between the loom-beam and needles, guiding means and tension devices for the loom-threads interposed between the drop devices and loom-needles for maintaining a normal condition of the loom-threads as they pass through the drop devices and means operative on the dropping of a drop device to stop the loom.

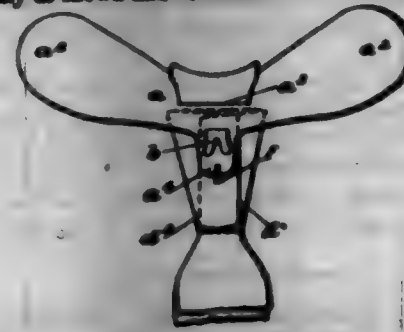
3. In a loom, the combination of a loom-thread-supporting beam and loom-needles, a series of drop devices supported by the loom-threads between the loom-beam and needles, guide-rod and tension devices for the loom-threads interposed between the drop devices and loom-needles for maintaining a normal condition of the loom-threads as they pass through the drop devices, said drop devices, guide-rod and tension devices being disposed above the plane of the warp-threads and mechanical devices operative on the dropping of a drop device to stop the loom.

4. In a loom, the combination of a loom-thread-beam and loom-needles, drop devices normally supported by the loom-threads between the beam and loom-needles, means disposed between the loom-threads and drop devices for maintaining a normal condition of the loom-threads as they pass through the drop devices, a guide-rod for the drop devices and a mechanical stop-motion comprising a transverse bar extending below the drop devices, a movable slider rod or bar extending below said transverse bar and coacting mechanism intermediate said bar and the stop-motion to move the stop-motion and stop the loom on the dropping of a drop device.

5. In a loom, the combination with the loom-beam and loom-needles, supporting-rod for the loom-threads disposed between the loom-beam and loom-needles, a series of drop wires or bars hung upon the loom-threads between said supporting-rod and extending in a plane above the ordinary warp-threads, a guide rod or bar for the drop wires or bars, and a mechanical stop-motion comprising two transverse inclined bars having a space between them and disposed between the loom-beam and loom-needles, a movable slider rod or bar extending below the said inclined bars and coacting mechanism to move the stop-motion and stop the loom on the breaking of a loom-thread.

702,610. KNITTING-FASTENER. EDWARD A. ASHMAN, New York, N. Y. Filed Feb. 24, 1902. Serial No. 85,297. (No model.)

Claim.—A made-up necktie comprising a shield *a* having a central longitudinal slot and a downwardly-directed central portion, the body portion of the tie consisting of a strip of suitable material, one end of which is passed through the slot in the shield from the back to the front thereof and folded back over the top edge thereof and downwardly and the two ends of which form the bottom portion of the tie and a supplemental piece secured to the back of the tie below the slot in the shield and folded over around and secured to form the head of the tie, the downwardly-directed portion of said shield being secured to the back of the head, substantially as shown and described.



702,611. MANUFACTURE OF ARTIFICIAL STONE OR BRICK AND THE PREPARATION OF LIME THEREFOR. OSCAR E. ANDERSON, Stockholm, Sweden, assignor, by mesne assignments, to Illinois Brick Syndicate, Montreal, Canada, a Corporation of Delaware. Filed Dec. 4, 1901. Serial No. 94,089. (No specimen.)

Claim.—1. The process of simultaneously making brick or other articles out of lime and sand and slaking lime, the same consisting in mixing the sand and lime with the minimum amount of moisture necessary to hold the mixture in form, next molding the mixture into the desired shape, including the molded articles in a chamber together with a separate quantity of unslaked lime, and finally hardening the bricks, and slaking the lime by the application of high-pressure steam only, substantially as described.

2. The process of simultaneously making brick or other articles out of lime and sand and slaking lime, the same consisting in mixing the sand and dry-slaked lime in substantially the proportions specified, maintaining the mixture with the minimum amount of moisture necessary to hold it in form, next molding the mixture, including the molded articles in a chamber together with a quantity of unslaked lime approximately equal to that contained in the batch of articles to be hardened, and finally hardening the bricks and slaking the lime by the application of high-pressure steam only, the chamber being free from excessive humidity throughout the operation, substantially as described.

3. The process of making brick or other articles out of lime and sand, the same consisting in mixing substantially sixty-five parts by weight of silicious sand with five parts by weight of dry and finely-divided lime and with the minimum amount of moisture necessary to hold the mixture in form, next molding the mixture into the desired shape, including the molded articles in a chamber, together with a quantity of unslaked lime approximately equal to that contained in the batch of articles to be hardened, and finally hardening the mixture and slaking the lime by the application of dry steam only at a pressure of not less than one hundred pounds to the square inch, the chamber being free from excessive humidity throughout the operation, substantially as described.

4. In the manufacture of silicious stone or bricks and the preparation of lime required therefor, first mixing a quantity of sand with a mixture, previously heated to redness, of sand and slaked lime, maintaining the mass with diluted hydrochloric acid, pressing same into brick form, placing the bricks in a chamber and also placing in the same chamber, but separate from said bricks, a quantity of lime to be slaked, closing said chamber and introducing thereinto high-pressure steam, whereby vaporized moisture will be derived from said bricks and caused to thoroughly permeate the separate quantity of lime to be slaked, as set forth.

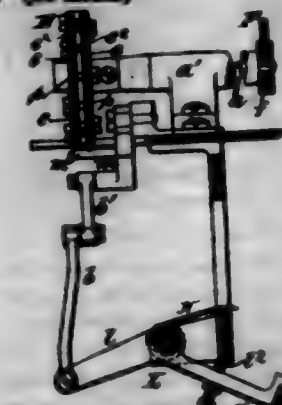
702,612. COMBINED AXLE-NUT AND OIL-CAP FOR WHEELS. ARTHUR C. AYER, Amherst, New Zealand. Filed July 29, 1901. Serial No. 79,125. (No model.)



Claim.—In a lubricating-axle, an axle-arm having a bore forming a feed-passage for the lubricant, said passage extending from the outer end of said arm downwardly at an inclination and terminating at its lower end in a groove on the under side of the said arm, said passage having its

outer end arranged essentially with respect to the center of the axle-arm, an integral axle-nut and an oil-cap, said oil-cap forming a reservoir for the lubricant, said axle-nut adapted to be mounted upon the axle-arm so that the latter with the outer end of the feed-passage will extend through the nut and into the reservoir without engaging the walls of the latter, a washer interposed between the nut and arm, there being a flange integral with the nut and cap surrounding and engaging the washer to prevent the former from rotating, substantially as herein shown and described.

702,613. ENGAGEMENT MECHANISM FOR TYPE-WRITERS. WILLIAM G. BARBER, Brooklyn, N. Y.; Bertha G. Barber, administratrix of said William G. Barber, deceased. Filed Aug. 24, 1901. Serial No. 73,511. (No model.)



Claim.—1. In a type-writer component the combination of an engagement-wheel formed with retractable and protrudible pawl-teeth, a stationary dog protruding into the path of said pawl-teeth, and a movable dog arranged to force the pawl-teeth successively out of engagement with said stationary dog together with means for actuating said movable dog through the medium of the key mechanism.

2. In a type-writer component the combination of an engagement-wheel formed with retractable and protrudible pawl-teeth, a stationary dog protruding into the path of said pawl-teeth, and a movable dog arranged to force the pawl-teeth successively out of engagement with said stationary dog and to engage the next succeeding pawl-teeth temporarily, together with means for actuating said movable dog through the medium of the type-writer key mechanism, substantially as set forth.

3. In a type-writer component the combination of an engagement-wheel having retractable pawl-teeth, means for returning said pawl-teeth to their normal position automatically, a stationary dog protruding into the path of said pawl-teeth, and a movable dog arranged to force the pawl-teeth successively out of engagement with said stationary dog and to engage the next succeeding pawl-teeth temporarily, together with means for actuating said movable dog through the medium of the type-writer key mechanism, substantially as set forth.

4. In a type-writer component the combination of the engagement-wheel *E*, formed with the retractable and protrudible pawl-teeth *a, c*, the stationary dog *r*, the movable dog *m*, and means for actuating said movable dog through the medium of the key mechanism of a type-writing machine, substantially as set forth.

5. In a type-writer component the combination of the engagement-wheel *E*, formed with the retractable and protrudible pawl-teeth *a, c*, the stationary dog *r*, the movable dog *m*, formed with the tripping-rod *w*, and with the detaining-shoulder *u*, and means for actuating said movable dog through the medium of the key mechanism of a type-writing machine, substantially as set forth.

6. In a type-writer component the combination with the carriage-track *F*, pinion *f*, and shaft *a*, of the engagement-wheel *E*, mounted on said shaft, and formed with the retractable and protrudible pawl-teeth *a, c*, the stationary dog *r*, projecting into the path of said pawl-teeth the movable tripping-dog *m*, and means for actuating said movable dog through the medium of the key mechanism of a type-writing machine.

7. In a type-writer component the combination of an engagement-wheel, formed with the retractable pawl-teeth on said engagement-wheel, a rigid stationary dog projecting into the path of said pawl-teeth when in their normal position, and means for releasing said pawl-teeth successively from engagement with said stationary dog through the medium of the key mechanism of a type-writing machine, substantially as set forth.

8. In a type-writer component the combination of an engagement-wheel, formed with the retractable pawl-teeth on said engagement-wheel, a rigid stationary dog projecting into the path of said pawl-teeth when in their normal position, a movable dog formed with a tripping-rod for releasing a preceding pawl-teeth from the said stationary dog and with a retaining-shoulder for holding the next succeeding pawl-teeth temporarily and means for actuating said movable dog through the medium of the key mechanism of a type-writing machine, substantially as set forth.

9. In a type-writer attachment, the combination of an escapement-wheel, formed with the retractable and protrudible spring-pawls pivotally connected to said escapement-wheel, a rigid stationary dog projecting in the path of said spring-pawl teeth when protruded, a movable dog formed with a tripping-toe for releasing said spring-pawl teeth from said stationary dog, and means for actuating said movable dog by the key mechanism of a type-writing machine, substantially as set forth.

702,614. SHEET FOR ROOF-COVERING. WILLIAM H. RAGAN, Southbrook, N. J. Filed Jan. 20, 1902. Serial No. 90,542. (No model.)



Claim.—1. A sheet for roof-covering having a row of perforations and folded on itself, the fold extending through the perforations.

2. A sheet for roof-covering having a plurality of rows of perforations and folded on itself and the folds extending through the perforations and having another fold situated between the other folds.

3. A sheet for roof-covering having a perforation and folded on itself the fold extending through the perforation.

4. A sheet for roof-covering having a row of perforations and a fold and the fold extending through the perforations and being in turn folded on itself thereby forming a plurality of thicknesses.

5. A sheet for roof-covering composed of felt and having a plurality of perforations and folded on itself and the fold-line extending through the perforations.

6. A sheet for roof-covering having a plurality of rows of perforations, and the perforations of the respective rows being out of transverse alignment with each other.

702,615. FUELLE. GEORGE F. BARBER, Springfield, Mass. Filed Jan. 31, 1902. Serial No. 91,961. (No model.)



Claim.—1. A puzzle comprising a suitable support and a plurality of blocks adapted to be superposed and strung on said support and provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence, said blocks and support being so formed that when the blocks are strung on said support they are held thereby against turning, substantially as described.

2. A puzzle comprising a suitable support and a plurality of blocks adapted to be superposed and strung on said support and provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence, said blocks being provided with openings inside their edges for the passage of the support, the said openings and support being so formed that the blocks when strung on said support are held against turning, substantially as described.

3. A puzzle comprising a suitable support and a plurality of blocks adapted to be superposed and strung on said support and provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence and alignment, said support being so formed as to permit the blocks to be strung thereon in proper alignment and also out of proper alignment and in either of said positions of the blocks to prevent turning thereof, substantially as described.

4. A puzzle comprising a suitable support and a plurality of blocks adapted to be superposed and strung on said support and provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence and proper alignment, said blocks being each provided with a plurality of openings inside their edges for the passage of the support, said openings and support being so formed

as to permit the blocks to be strung on the support in proper alignment and also out of proper alignment and to prevent turning of the blocks on the support in either of said positions, substantially as described.

5. A puzzle comprising a plurality of rods connected together and a plurality of blocks each provided with a like number of openings adapting them to be superposed on said support and provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence and alignment, said rods and openings being so disposed as to permit the blocks to be strung on said rods in proper alignment and also out of proper alignment and in either of said positions of the blocks to prevent turning thereof, substantially as described.

6. A puzzle comprising a plurality of rods B and a plurality of blocks A provided on their edges with sections of a picture or the like which is completed when said blocks are superposed in proper sequence and alignment, said blocks being provided with openings B' equal in number and corresponding in position to the rods B, said rods being of such length as to each pass through the several blocks, substantially as described.

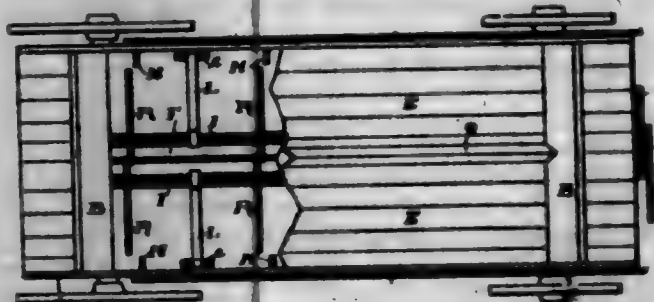
702,616. FLOOR CONSTRUCTION. WILLIAM H. BARBER, Boston, Mass. Filed Apr. 4, 1902. Serial No. 94,945. (No model.)



Claim.—1. In a floor construction the combination of I-beams; sets of plates forming an arch with a flat top, the I-beams forming the abutments of the arch and the middle plates of the sets forming the keystones, the end plates each having a horizontal web and a vertical web, with rib connections between the webs; and lower plates supporting the ends of the arch, and each extending from I-beam to I-beam and supported by the I-beams.

2. In a floor construction the combination of I-beams; sets of plates forming an arch with a flat top, the I-beams forming the abutments of the arch and the middle plates of the sets forming the keystones, the end plates each having a horizontal web and a vertical web, with rib connections between the webs; and lower plates supporting the ends of the arch, and each extending from I-beam to I-beam and supported by the I-beams, each lower plate being ribbed upwardly, substantially as shown.

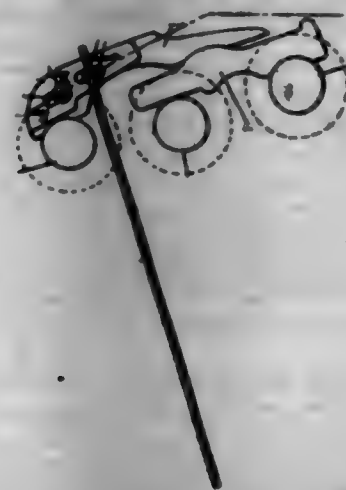
702,617. DUMPING-WAGON. MARTIN BREKER, Albany, N. Y. Filed Mar. 22, 1902. Serial No. 100,412. (No model.)



Claim.—1. In a dumping-wagon, the combination with a forward head-block and rear axle-block, of a central longitudinal supporting-bar secured to said head-block and axle-block, a wagon-box having a bottom consisting of two leaves hinged at their inner edges to said central longitudinal bar and extending between said head-block and axle-block, rock-shafts provided with lifting-arms adapted to bear against the outer edges of said leaves, operating-levers secured to said rock-shafts, rock-shafts secured to the outer sides of said box and provided with hand-levers and latches adapted to engage the outer edges of said leaves, substantially as shown and described.

2. In a dumping-wagon, the combination with a forward head-block and rear axle-block, of a central longitudinal supporting-bar secured to said head-block and axle-block, a wagon-box having a bottom composed of leaves hinged at their inner edges to said central longitudinal supporting-bar, and extending between said head-block and axle-block, rock-shafts secured to said head-block and axle-block and provided with lifting-arms adapted to bear against the outer edges of said leaves, operating-levers secured to said rock-shafts, rock-shafts secured to the outer sides of said box and provided with latches adapted to engage the outer edges of said leaves, hand-levers secured to said rock-shafts, and a central longitudinal dividing-plate arranged over the lower edges of said leaves and provided with inclined sides converging toward a central upper edge, substantially as shown and described.

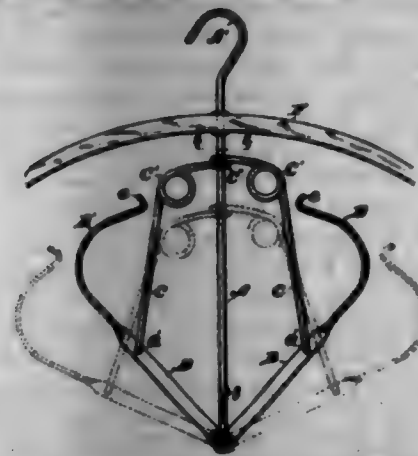
702,618. TOP-ROLL SADDLE. JOHN BLANCKSON, Bristol, R. I. assigner, by mesne assignments, to Mary M. Blumhough, Bristol, R. I. Filed Jan. 31, 1902. Serial No. 92,047. (No model.)



Claim.—1. A keeper for stirrups of top-roll saddles, the same comprising a plate placed against the saddle and secured thereto with provisions for a sliding longitudinal adjustment thereon, said plate having shoulders between which the stirrup engages, substantially as described.

2. The combination with a top-roll saddle topped in its body portion with a screw-threaded hole; of a stirrup-keeper comprising a plate having a longitudinal slot registering with the said hole, and shoulders between which the stirrup engages; together with a screw entered through the slot and engaging the hole to secure the keeper at different adjustments.

702,619. GARMENT-HANGER. JULIUS BLACK, Toledo, Ohio, assigner to the Elmhurst Manufacturing Company, Durkay, Mich. Filed Nov. 18, 1901. Serial No. 92,730. (No model.)



Claim.—1. In a garment-hanger, the combination of a supporting-rod A formed into a hook at its upper end; arms B, B, curved upwardly and inwardly at their outer ends, pivotally secured to said support A; springs C pivotally secured to said arms and embracing said support, as specified.

2. In a garment-hanger, the combination of a central support; distending-arms pivotally secured thereto; and extending upwardly; and a spring U secured to said arms and embracing said support, whereby said arms are normally held upwardly, as specified.

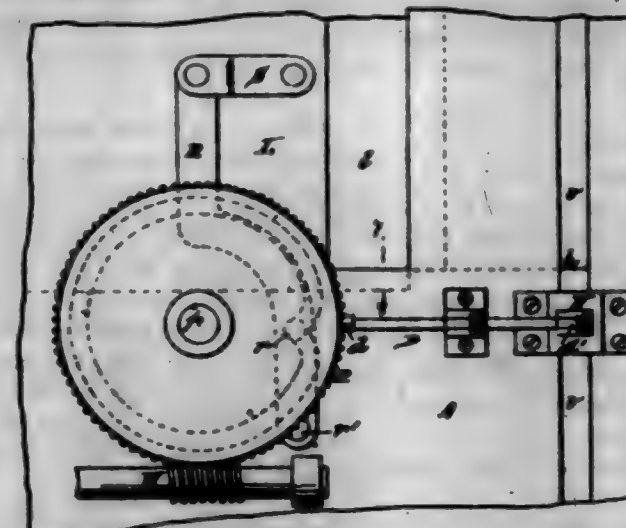
702,620. CHAPLET FOR SUPPORTING CORNS IN MOLD. WILLIAM A. BULL, Pittsburgh, Pa. assigner to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Oct. 10, 1900. Serial No. 22,901. (No model.)



Claim.—1. A chaplet for supporting and supporting corns in mold, comprising a stem and two heads which have outer faces of relatively large area and are adjustably mounted upon the ends of the stem.

2. A chaplet for supporting and supporting corns in mold, comprising a screw-threaded stem and two internally-screw-threaded heads which have outer faces of relatively large area and are mounted upon the ends of the stem.

702,621. TYPE-DISTRIBUTING APPARATUS. JAMES DRAKE, Brooklyn, N. Y. Filed Oct. 21, 1901. Serial No. 92,712. (No model.)

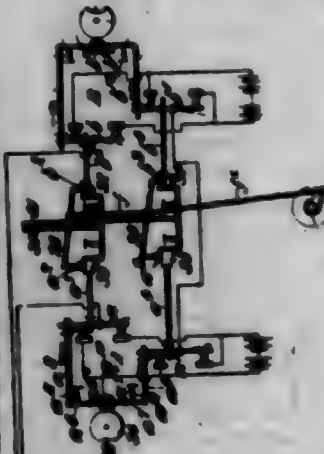


Claim.—1. In a device for forwarding lines of type, the combination of the vertical type-channel V, the abutment B, the reciprocating line-forwarder L, the rotatable wheel P, the driving-worm W, the cam K, the rocker R, the link S, and means for temporarily supporting a line of type while it is being forwarded into the said vertical type-channel V, substantially in the manner and for the purpose set forth.

2. In a device for forwarding lines of type, the combination of the vertical type-channel V, the abutment B, the reciprocating line-forwarder L, the rotatable wheel P, the driving-worm W, the cam K, the rocker R, the link S, the peripheral cam C, formed with the type-support A, the whole arranged and operating substantially in the manner and for the purpose described.

3. In a device for forwarding lines of type, the combination of the vertical type-channel V, the abutment B, the reciprocating line-forwarder L, the rotatable wheel P, the driving-worm W, the cam K, the rocker R, the link S, the peripheral cam C, formed with the grooves a, a', the lever D, and the spring-plunger H, formed with the type-support A, the whole arranged and operating substantially in the manner set forth.

702,622. ELECTRIC TELEGRAPHY. SIDNEY G. BROWN, Putney, England. Original application filed Nov. 8, 1900. Serial No. 33,541. Divided and this application filed June 15, 1901. Serial No. 64,733. (No model.)



Claim.—4. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-antennae, automatic transmitting

instruments adapted to control said batteries so as to send signals out of phase or which "overlap," means for receiving said signals, means for neutralizing the effect of the last part of each signal upon the said receiving means so that each signal shall be free from any overlapping effect from its preceding signal, and means for recording said signals, substantially as described.

2. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, two pairs of signaling-levers adapted to control said batteries in series with one another, a pair of rocking arms interposed between the signaling-levers, a pair of signaling-needles, pivoted cranked levers having their ends at one extremity connected to said signaling-needles, blocks depending from the ends of the rocking arms, sliding rods adapted to be moved by said depending blocks so as to operate the signaling-levers for closing the battery-circuits, means for returning said levers so as to open the battery-circuits after being thus operated, means for receiving the signals, means for neutralizing the effect of the last part of each signal upon the said receiving means so that each signal shall be free from any overlapping effect from the preceding signal, and means for recording said signals, substantially as described.

3. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, automatic transmitting instruments adapted to control said batteries so as to send signals which are out of phase or which "overlap," a receiving-condenser, a receiving-relay operated by said signals, means operated by the receiving-relay for neutralizing the effect of the last part of every received signaling-current on the coil of said relay, means also operated by said receiving-relay for overcoming the effect on said relay-coil caused by the charging up of the receiving-condenser by a series of signals of the same sign, and means for recording the signals, substantially as described.

4. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, transmitting instruments adapted to control said batteries so as to send signals which are out of phase or "overlap," a receiving-relay operated by said signals, secondary relays operated by the receiving-relay, recording instruments operated by the secondary relays and adapted to respectively record the positive and negative signals received, an electromagnet in the circuit of each recording instrument, a divided battery, an armature operated by said electromagnets for closing the circuit of one or other half of the divided battery when signals are recorded, and means included in the circuit of said divided battery for neutralizing the effect of the last part of every received signaling-current on the coil of the receiving-relay so that each signal shall be free from any overlapping effect from the preceding signal, substantially as described.

5. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, transmitting instruments adapted to control said batteries so as to send signals which are out of phase or "overlap," a receiving-condenser, a receiving-relay operated by said signals, secondary relays operated by the receiving-relay, means operated by said secondary relays for sending a current through the coil of said receiving-relay to overcome the effect caused by the charging up of the receiving-condenser by a series of signals of the same sign, recording instruments operated by the secondary relays and adapted to respectively record the positive and negative signals received, an electromagnet in the circuit of each recording instrument, a divided battery, an armature operated by said electromagnets for closing the circuit of one or other half of the divided battery when signals are recorded, and means for neutralizing the effect of the last part of every received signaling-current on the coil of the receiving-relay so that each signal shall be free from any overlapping effect from the preceding signal, substantially as described.

6. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, transmitting instruments adapted to control said batteries so as to send signals which are out of phase or which "overlap," a receiving-relay operated by said signals, recording instruments for recording said signals, a pair of rotatable shafts, sweepers carried by said shafts, sectional ring-contacts over which said sweepers are adapted to sweep, batteries in the sweepers-circuits, a winding on the coil of the receiving-relay included in the sweepers-circuits, means connected to the sections of the ring-contacts and included in the sweepers-circuits for affecting the currents sent through the sweepers-circuits so as to neutralize the last part of every signal on the coil of the receiving-relay, radial pins carried by said rotatable shafts, armatures adapted to normally engage said radial pins, electromagnets in the circuit of the said divided battery for operating said armatures so as to release one or other of the rotatable shafts when a signal is received, a contact-maker in the circuit of said divided battery, means operated by one of the rotatable shafts for actuating said contact-maker so as to close the circuit of that electromagnet in the divided battery-circuit which controls the armature engaging the radial pin on one of the rotatable shafts, until the other of said rotatable shafts has completed a revolution, a split battery included in each of the sweepers-circuits, a winding on the coil of the receiving-relay included in the sweepers-circuits, and relay instruments included in the circuit of the first-mentioned divided battery and adapted to close the circuits of the split batteries in the sweepers-circuits, substantially as described for the purpose specified.

7. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, transmitting instruments adapted to control said batteries so as to send signals out of phase or which "overlap," a receiving-relay operated by said signals, secondary relays op-

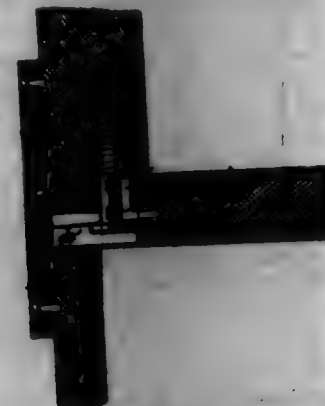
erated by the receiving-relay, recording instruments operated by the secondary relays and adapted to respectively record the positive and negative signals received, a pair of rotatable shafts, sweepers carried by said shafts, sectional ring-contacts over which said sweepers are adapted to sweep, batteries in the sweepers-circuits, a winding on the coil of the receiving-relay included in the sweepers-circuits, means connected to the sections of the ring-contacts and included in the sweepers-circuits for affecting the currents sent through the sweepers-circuits so as to neutralize the effect of the last part of every signal on the coil of the receiving-relay, means for normally holding the rotatable shafts stationary, electrical means operated by the secondary relays for releasing one of the rotatable shafts and closing the circuit of its sweepers-battery when a signal is received, and means operated by the rotatable shafts whereby the circuit of the means for releasing one rotatable shaft is closed while the other rotatable shaft is completing its revolution, substantially as described for the purpose specified.

8. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, a pair of transmitting instruments adapted to control said batteries so as to send signals which are out of phase or which "overlap," a receiving-relay operated by said signals, secondary relays operated by the receiving-relay, recording instruments operated by the secondary relays and adapted to respectively record the positive and negative signals received, an electromagnet in the circuit of each recording instrument, a divided battery, an armature operated by said electromagnets so as to close the circuit of one or other half of said divided battery when signals are recorded, a pair of rotatable shafts, sweepers carried by said shafts, sectional ring-contacts over which said sweepers are adapted to sweep, means connected to the sections of the ring-contacts and included in the sweepers-circuits for affecting the currents sent through the sweepers-circuits so as to neutralize the last part of every signal on the coil of the receiving-relay, radial pins carried by said rotatable shafts, armatures adapted to normally engage said radial pins, electromagnets in the circuit of the said divided battery for operating said armatures so as to release one or other of the rotatable shafts when a signal is received, a contact-maker in the circuit of said divided battery, means operated by one of the rotatable shafts for actuating said contact-maker so as to close the circuit of that electromagnet in the divided battery-circuit which controls the armature engaging the radial pin on one of the rotatable shafts, until the other of said rotatable shafts has completed a revolution, a split battery included in each of the sweepers-circuits, a winding on the coil of the receiving-relay included in the sweepers-circuits, and relay instruments included in the circuit of the first-mentioned divided battery and adapted to close the circuits of the split batteries in the sweepers-circuits, substantially as described.

9. In a system of electric telegraphy, the combination with the line or cable, of a pair of transmitting-batteries, a pair of transmitting instruments adapted to control said batteries so as to send signals which are out of phase or which "overlap," a receiving-condenser, a receiving-relay operated by said signals, secondary relays operated by the receiving-relay, means operated by said secondary relays for sending a current through the coil of the said receiving-relay to overcome the effect caused by the charging up of the receiving-condenser by a series of signals of the same sign, recording instruments operated by the secondary relays and adapted to respectively record the positive and negative signals received, an electromagnet in the circuit of each recording instrument, a divided battery, an armature operated by said electromagnets so as to close the circuit of one or other half of said divided battery when signals are recorded, a pair of rotatable shafts, sweepers carried by said shafts, sectional ring-contacts over which said sweepers are adapted to sweep, means connected to the sections of the ring-contacts and included in the sweepers-circuits for affecting the currents sent through the sweepers-circuits so as to neutralize the last part of every signal on the coil of the receiving-relay, radial pins carried by said rotatable shafts, armatures adapted to normally engage said radial pins, electromagnets in the circuit of the said divided battery for operating said armatures so as to release one or other of the rotatable shafts when a signal is received, a contact-maker in the circuit of said divided battery, means operated by one of the rotatable shafts for actuating said contact-maker so as to close the circuit of that electromagnet in the divided battery-circuit which controls the armature engaging the radial pin on one of the rotatable shafts, until the other of said rotatable shafts has completed a revolution, a split battery included in each of the sweepers-circuits, a winding on the coil of the receiving-relay included in the sweepers-circuits, and relay instruments included in the circuit of the first-mentioned divided battery and adapted to close the circuits of the split batteries in the sweepers-circuits, substantially as described for the purpose specified.

702,828. FURNITURE-COUPLES. JAMES BROWNE and HIRAN J. ROY, Shelbyville, Ind. Filed Mar. 12, 1902. Serial No. 95,017. (No Model.)

Claim.—1. A coupling for joints of furniture, comprising a brace-bar, a wedge which engages the brace-bar and is maintained at substantially right angles thereto, each wedge having a slot therethrough, and openings through the end portions of the brace-bar, for the purpose set forth.



2. A coupling for joints of furniture consisting of a brace-bar, a slotted wedge connected to the brace-bar to project at right angles therewith, a bolt carried by one of the parts which it is desired to connect, an opening for the passage of the bolt and a means in a part which is to be connected to the first-mentioned part, the wedge engaging the means to frictionally engage the part and the head of the bolt, the brace-bar overlying both of the connected parts, substantially as shown.

3. In a coupling and brace for furniture, a wedge which frictionally engages one part and a headed bolt attached to another part, a bar which overlies the connected parts and to which the wedge is attached, and means for holding the bar against the connected parts, substantially as shown.

4. As an article of manufacture, a furniture fastening or coupling consisting of a bar having apertures adjacent to its ends, a wedge having a keyhole-slot therethrough, each wedge being maintained at substantially right angles with the bar, for the purpose set forth.

5. As an improvement in fastening device of the class described, the combination with the furniture body member having an aperture, of a detachable part which runs upon the body member and over the aperture, said detachable part having an adjustable screw-bolt the head of which is passed through the aperture in the body member to position the head beyond the aperture through each part, a wedge which exerts a clamping action upon the head of the bolt and upon the part of the body member adjacent to the aperture, and a brace-bar which overlies the connected parts to hold them in engagement and to hold the wedge against displacement, the brace-bar being positively connected to the parts which are clamped by the bolt and wedge, substantially as shown.

6. As an improvement in fastening device of the class described, the combination with the furniture body member having an aperture therethrough, of a detachable vertical back piece the lower edge of which runs upon the body member, a screw-bolt which projects from the lower end of the detachable back piece so that its head will be beyond the aperture, a wedge which spans the stem of the bolt and engages the head and the body member adjacent to the aperture through said body member, and a brace-bar which is connected to the wedge and is also connected to the parts which are clamped to each other by the bolt and wedge, substantially as shown.

702,824. ROTARY ENGINE. WILLIAM L. CAGNEY, South Bend, Ind. Filed Dec. 5, 1900. Serial No. 720,727. (No Model.)

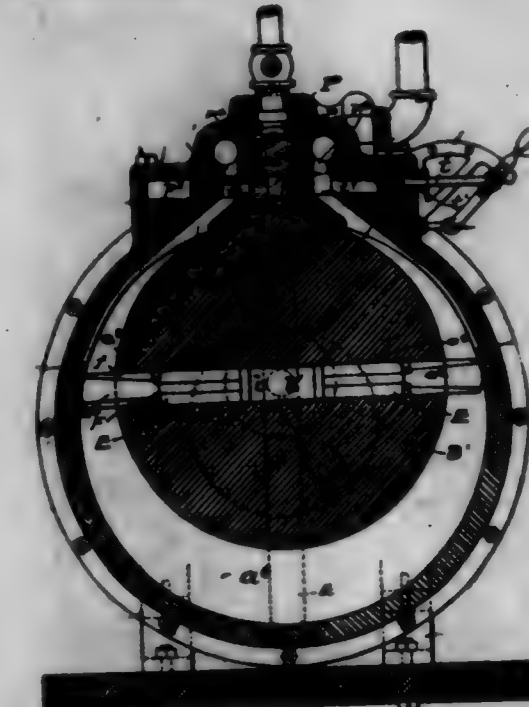
Claim.—1. A rotary engine casing comprising two cone frustum-shells bolted together at their bases and having eccentrically-disposed journal-slides at their truncated ends on engine-shaft and pistons adapted to rotate said shaft and conform to the inner conical wall of the casing, substantially as described.

2. The combination with a rotary engine casing in the form of two cone frustums placed base to base and having journal-bearing sleeves extending eccentrically therefrom, of an engine-shaft having a piston-hub formed of two conical ends adapted to fit the tapering inner wall of the casing and pistons fitted to slide diametrically upon said hub and having outer ends to conform to the surface of said casing, substantially as described.

3. The combination with a rotary engine casing having two conical ends and bearing-sleeves eccentric thereto of a shaft, a hub having ends to conform to the conical ends of the casing journal-bearings upon the shaft and within the casing sleeves extending to the conical ends of the hub and pistons having their outer ends adapted to fit the angles of the casing and hub and slidably supported in the hub, substantially as described.

4. In a rotary engine the combination with a casing having cone-shaped ends of a shaft and a hub seated to fit the said casing and supports

eccentrically thereto, of pistons slidably supported in the hub and having the outer ends thereof inclined to conform to the cones of the casing and rounded on their corners with gradually-increasing curves from the inner to the outer ends thereof, substantially as described.



5. In a rotary engine the combination with a casing, a shaft and hub fitted eccentrically within the casing, pistons slidably supported within the hub to project therefrom and having parallel sides to follow the flat cone-shaped ends of the casing and packing-strips having a head to fit a corresponding groove in the sides of the piston, substantially as described.

6. In a rotary engine the combination with the casing of a shaft and a conical hub fitted eccentrically thereon, pistons supported and movable therein, abutment-strips pivotally supported upon the oppositely-inclined walls of the casing and apex abutment-blocks pivoted to the casing between the ends of the abutment-strips to bear against the hub and steam-apertures in the casing leading to the back of the abutment-strips and apex-blocks substantially as described.

7. In a rotary engine the combination with a casing having conical ends of a hub correspondingly coned and fitted therein and two abutment-strips pivoted to the casing to bear against the said conical ends of the hub, substantially as described.

8. In a rotary engine the combination with the engine-casing of the shaft and a journal thereon comprising stepped sections and two bearings fitted upon said stepped sections: one of said bearings being secured to the casing and the other section adapted to be set up independently thereof and a steam-pipe leading to the space between the said bearings, substantially as described.

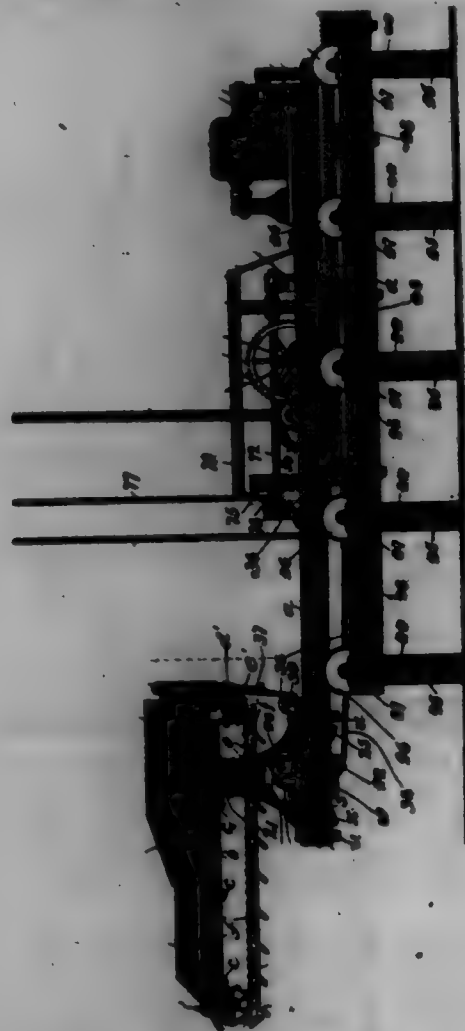
9. In a rotary engine the combination with the casing of the shaft and a journal thereon comprising an inner coned section a number of short sections of gradually-decreasing diameter, a self-adjusting bearing adapted to said journal-sections, an outer conical journal-section and a bearing adjustably secured to the casing and adapted to the outer cone-shaped journal-section, substantially as described.

10. In a rotary steam-engine the combination of a casing a shaft, a hub and pistons having cone-shaped ends an abutment-strip extending to the end of the hub a shaft-journal having an inner cone extension from the conical end of the hub and a bearing adapted thereto and extending to the end of the said abutment-strip, substantially as described.

11. In a rotary engine, the combination with the casing of the rotary shaft and hub located eccentrically to the inner wall of the casing, slidable pistons carried thereon, a steam-chest, a steam-pipe leading to the top thereof, a rotary steam-valve having a slot passing diametrically through the same, an oscillatory cut-off valve adapted to the steam-valve, and a slide reversing-valve located between the steam-valve and steam-pipe, having ports leading both vertically and laterally therein, and a valve-chamber having ports leading from the lateral parts of the slide-valve and across the axis of the steam-valve.

12. In a rotary engine, the combination with the casing, of the rotary shaft, the rotary pistons, and the rotary steam-valve geared to the said shaft, and having a slot passing diametrically through the same, the oscillatory cut-off valve adapted to the steam-valve, having ports located upon opposite sides thereof, a valve-box having a steam-pipe leading to the outer end of said ports, and an abutment-block upon the valve-box projecting through the said outer port and bearing upon the outer surface of the steam-valve.

702,625. BOX-CAR LOADER. DULAS A. CHAFFELL, DUNVER, Colo., assignor to the Victor Box Car Loader Company, Dunver, Colo., a Corporation of Colorado. Filed Mar. 4, 1901. Serial No. 80,368. (No model.)



Claim.—1. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at several points, a supporting-plate provided with a circular opening secured to such supporting-carriage, a turret mounted on such plate, and a flexible conveyor mounted on such turret so as to rotate in a horizontal plane, substantially as described.

2. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at two or more points, a two-part plate providing a circular opening secured to the supporting-carriage, a turret rotatably mounted on such two-part plate, a flexible conveyor pivotally mounted on the turret, means for swinging the conveyor in a vertical plane, and means for turning the turret with its conveyor in a horizontal plane, substantially as described.

3. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at two or more points, a rotatable turret having an annular groove and a central perforation, a two-part plate secured to the I-beams of the main supporting-carriage and entering the annular groove of the turret, a bridge provided with an upwardly-projecting hub portion entering the central opening of the turret to assist in supporting the same and secured to the I-beams of the main supporting-carriage, a flexible conveyor pivotally secured to the turret, means for swinging the flexible conveyor in a vertical plane, and means for rotating the turret, substantially as described.

4. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at two or more points, a rotatable turret provided with upwardly-extending arms or pillars, an annular groove, a central perforation, and a worm-gear on its lower portion, a plate secured to the I-beams and entering the annular groove to rotatably support the turret, a bridge secured to the I-beams and provided with a central upwardly-projecting hub entering the central opening of the turret to assist in supporting the same, a worm in engagement with the worm-gear to rotate the turret, a flexible conveyor arranged in substantially a horizontal plane and pivotally mounted upon the upwardly-extending arms or pillars of the turret, and means for swinging the flexible conveyor in a vertical plane, substantially as described.

5. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at two or more points, a rotatable turret provided with an annular groove and a central perforation, plate mechanism secured to the I-beams and entering the annular groove

of the turret to rotatably support the same, a metallic bridge secured to the I-beams and provided with a vertical hub portion entering the central opening of the turret to assist in rotatably supporting the same, a two-faced bevel-gear rotatably mounted on the hub portion between the turret and the bridge members, a conveyor-frame provided with a flexible conveyor pivotally secured to the turret portion in a horizontal plane, gear mechanism engaging with the upper part of the two-faced bevel-gear and the flexible conveyor to operate the same, and means for swinging the flexible conveyor-frame in a vertical plane, substantially as described.

6. In a box-car loader, the combination of a supporting-carriage formed of two metal I-beams joined together at two or more points, a rotatable turret provided with a central groove in its periphery and a central opening and carrying a flexible conveyor arranged in substantially a horizontal plane and adapted to be swung in horizontal and vertical planes, plate mechanism secured to the I-beams of the supporting-carriage and entering the annular groove of the turret, a metallic bridge secured to the I-beams of the main carriage and provided with a central vertical hub entering the central opening of the turret to assist in supporting the same, a two-faced bevel-gear rotatably mounted in the hub in the space between the turret and the bridge members, a main shaft rotatably mounted in the bridge and provided with a bevel-pinion engaging the lower toothed surface of the two-faced bevel-pinion, and a second bevel-pinion arranged opposite the first-named bevel-pinion rotatably mounted in the bridge and engaging the lower toothed surface of the two-faced bevel-gear to act as a balancing idler, substantially as described.

7. In a box-car loader of the class described, the combination of a main supporting-carriage formed of two longitudinal members joined together at two or more points, a turret rotatably mounted on the main supporting-carriage at or near the front end thereof and provided with a flexible conveyor arranged in substantially a horizontal plane and adapted to be swung in horizontal and vertical planes, a threaded shaft, flexible means connecting the threaded shaft with the frame of the flexible conveyor, whereby the longitudinal movements of the threaded shaft impart a swinging movement in a vertical plane to the flexible conveyor and its frame, a rotatable nut, a main shaft, and means for throwing the rotatable nut into and out of engagement with the main shaft to operate it and thereby give the threaded shaft its longitudinal movement, substantially as described.

8. In a box-car loader, the combination of a main supporting-carriage, a turret rotatably mounted on the same at or near its forward end, a conveyor-frame provided with a flexible conveyor arranged in substantially a horizontal plane and pivotally connected to the turret so as to be swung in horizontal and vertical planes, a threaded shaft rotatably mounted in the supporting-carriage and flexibly connected with the conveyor-frame, a rotatable nut on the threaded shaft, the rotations of which impart longitudinal movement to the threaded shaft, a main shaft provided with a wheel, an auxiliary shaft in operative engagement with the main shaft and also provided with a wheel, and means for throwing the threaded nut into engagement with either one or the other of the shafts to impart the desired rotation thereto, substantially as described.

9. In a box-car loader, the combination of a main supporting-carriage, a turret rotatably mounted thereon at or near its forward end and provided with a worm-gear on its lower surface, a frame provided with a flexible conveyor pivotally connected to the upper part of the turret and arranged to be swung in vertical and horizontal planes, a worm-shaft arranged longitudinally of the carriage and provided with a worm engaging the worm-gear on the turret, a main driving-shaft, a supplementary shaft in engagement therewith, an auxiliary shaft in engagement with the worm-shaft at one end and provided with pulley-engaging mechanisms on the main and supplementary shafts, and means for throwing each pulley into and out of engagement with each of such shafts—the main and supplementary—to impart the desired rotation thereto for the operation of the screw-shaft, substantially as described.

10. In a box-car loader, the combination of a main supporting-carriage formed of two metallic I-beams provided with a rotatable turret carrying a flexible conveyor at or near its front end, a main shaft adapted to operate the conveyor, a support for the main carriage provided with a plurality of flanged wheels upon which the I-beams are movably mounted and with a toothed rack, a driving-gear on the supporting-carriage engaging the toothed rack, a stub-shaft mounted transversely in the supporting-carriage with the driving-gear, a bevel-gear in the other end of such stub-shaft geared with the driving-gear, a spur-gear at one end of such stub-shaft, two loosely rotatably mounted bevel-gears on the main shaft in engagement with the bevel-gear, and a clutch slidingly mounted on the main shaft so as to rotate therewith but have independent longitudinal movements for engaging each of the loosely-mounted bevel-pinions to impart rotations in either direction to the main bevel-gear, and thereby to the driving-gear so as to move the supporting-carriage backward and forward, substantially as described.

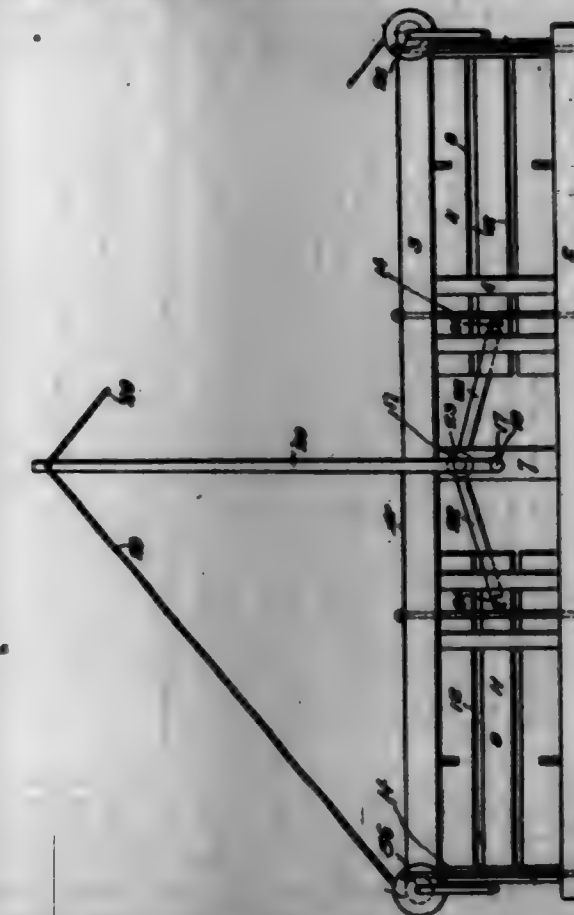
11. In a box-car loader, the combination of a main supporting-carriage, a conveyor-frame provided with a flexible conveyor arranged in substantially a horizontal plane and pivotally mounted on the main supporting-carriage so as to be swung in the desired plane, flanged sides connected with the conveyor-frame on each side of the flexible conveyor so as to confine the same for a portion only of the length of the flexible conveyor, and a single flange pivotally secured to the conveyor-frame so as to cover one of the open sides of the flexible conveyor and be moved to the opposite side and back again, substantially as described.

12. In a box-car loader, the combination of a supporting-carriage, a conveyor-frame pivotally secured thereto, rotatable shafts in the conveyor-frame rotatably mounted in or near each end thereof, a conveyor formed of flexible belt mechanism passed around the shafts above mentioned and carrying a plurality of flights, and flights secured thereto and formed of the horizontal members and upwardly-extending rear members secured to the flexible belt at or near their forward edges so as to give their rear edges an increased impulse while making the discharging-turn, substantially as described.

13. In a box-car loader, a conveyor formed of a plurality of flexible elements, a plurality of flights having a horizontal or base portion, an upwardly-extending portion at the rear edge thereof, and a downwardly-extending portion overlapping the forward edge of the next succeeding flight, and means for securing the flights to the flexible elements at or near the forward edges, whereby the rear portion of the flights is given an accelerated motion as it reaches the turn at the discharging-point, substantially as described.

14. In a box-car loader, the combination of a supporting-carriage, a supporting-plate secured thereto and provided with an inner circular opening forming an inner circular edge adapted to enter the annular groove of a turret mounted on such supporting-plate, a turret consisting of a single unitary structure rotatably mounted upon such supporting-plate and provided with an annular groove arranged to admit the inner edge of the supporting-plate, and a flexible conveyor mounted upon such turret and rotatable therewith, substantially as described.

702,626. BALING-PRESS. FRANK M. CHAFFELL, BOWERS, Ga. Filed Oct. 14, 1901. Serial No. 78,410. (No model.)

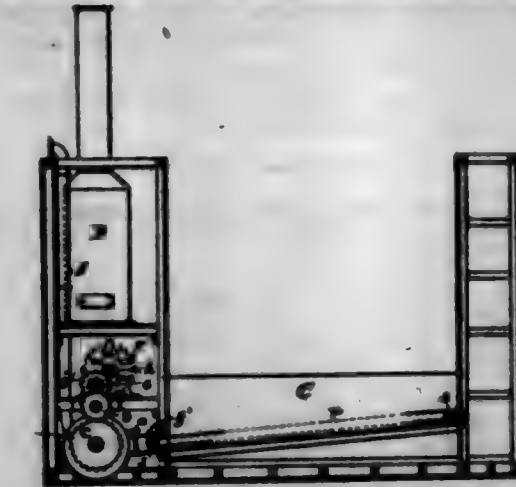


Claim.—1. In a baling-press, the combination of a pair of oppositely-disposed connected press-boxes, followers in the said press-boxes, a shaft journaled in a bearing disposed between said press-boxes, said shaft having a crank, connections between the latter and said followers, to move said followers simultaneously, when said shaft is oscillated, an extensible lever secured to the said shaft, independently-revoluble power elements mounted on the said press-boxes and flexible connections between said power elements and the outer portion of said extensible lever, substantially as described.

2. In a baling-press, the combination of a pair of oppositely-disposed connected press-boxes, followers in the said press-boxes, a shaft journaled in a bearing disposed between said press-boxes, said shaft having a crank, connections between the latter and said followers, to move said followers simultaneously, when said shaft is oscillated, an extensible lever secured to the said shaft, independently-revoluble power elements mounted on the said press-boxes and flexible connections between said power elements and the outer portion of said extensible lever, substantially as described.

connected press-boxes, followers in the said press-boxes, a shaft journaled in a bearing disposed between said press-boxes, said shaft having a crank, connections between the latter and said followers, to move said followers simultaneously when said shaft is oscillated, an arm secured to said shaft, an extensible sweep-lever secured to said arm, independently-revoluble power elements mounted on the said press-boxes and flexible connections between said power elements and the outer portion of said extensible lever, substantially as described.

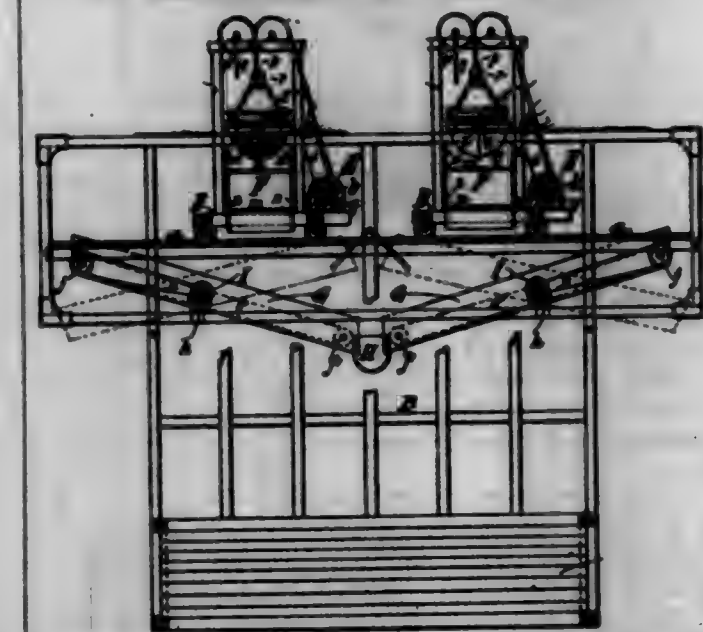
702,627. LAND-RECLAIMING DOCK. EPHRAIM CHAQUETTE, New Rochelle, N. Y. Filed Oct. 6, 1901. Serial No. 77,861. (No model.)



Claim.—1. A land-reclaiming dock adapted to be moved near the locality to be reclaimed and provided with a waterway which allows the passage of scows or other vessels through the same, receiving channels or vats arranged transversely thereunder and inclined toward the pump side, and suitable pumping and conveying apparatus by which the dredged material received from said scows or other vessels may be conveyed to or deposited on said locality substantially as described.

2. A land-reclaiming dock provided with a suitable waterway, receiving-vats thereunder, pumping and conveying apparatus, and a stirring and agitating chain at the bottom of each vat and adapted to feed the dredged material to the pump, substantially as described.

702,628. CLAM-DREDGE. EPHRAIM CHAQUETTE, New Rochelle, N. Y. Filed Jan. 7, 1902. Serial No. 88,768. (No model.)



Claim.—1. The above-described dredge which consists of a suitable boat provided with a stationary frame projecting over one end thereof, two independently-operated clams mounted upon said frame and adapted to be moved in the direction of the boat's width and their operating mechanism, and a pair of inclined troughs mounted upon said frame and adapted to be tipped so as to receive the excavated material from said clams both in their converging and diverging positions, substantially as and for the purpose set forth.

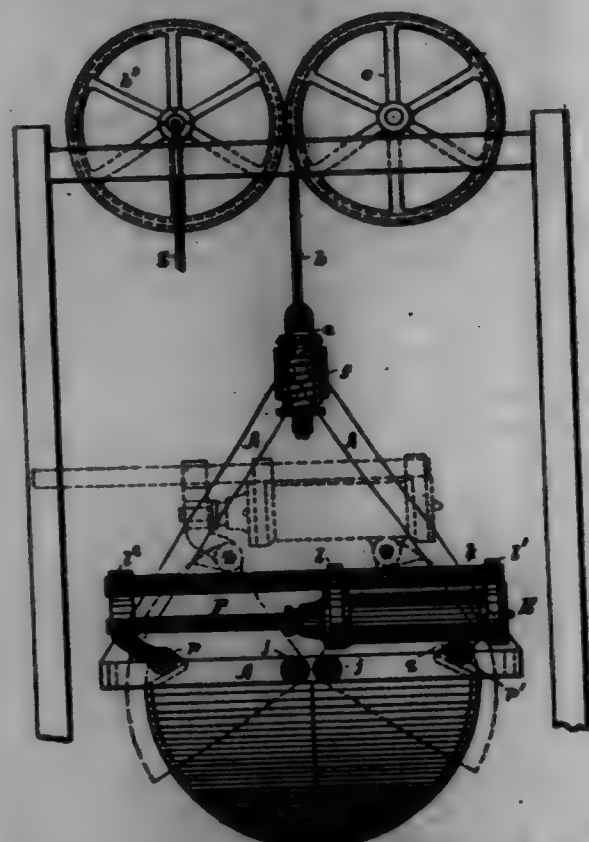
2. The above-described dredge which consists of a suitable boat provided with a stationary frame projecting over one end thereof, two independently-operated clams mounted upon said frame and adapted to be moved in the direction of the boat's width and their operating mechanism, and a pair of converging troughs mounted upon said frame and adapted to receive the excavated material from said clams and convey it to the

middle of the boat and an inclined trough extending lengthwise of said boat and adapted to receive the excavated material from said conveying-troughs and convey it to the end of said boat substantially as and for the purpose set forth.

3. The above-described clam-dredge which consists of a suitable boat, a stationary frame mounted thereon and extending over one end thereof, a clam mounted on said frame and adapted to rise and fall vertically beyond the end of said boat, a collapsible apron mounted upon said frame adapted to open in advance of said clam in its descent and to be closed by said clam in its ascent, and suitable troughs adapted to receive the excavated material from said collapsible apron substantially as and for the purpose set forth.

4. A clam-dredge provided with a pair of receiving and conveying troughs hung upon a suitable frame and adapted to converge toward each other and deliver the excavated material to a central trough or to diverge from each other and discharge the excavated material over the sides of said dredge substantially as shown and described.

702,629. CLAM FOR DREDGING. EPHRAIM CRAGGHEIT, New Rochelle, N. Y. Filed Feb. 26, 1902. Serial No. 95,512. (No model.)



Claim.—The above-described clam for dredges which consists of a shell composed of two hinged portions pivoted upon a suitable frame, a guide-rod mounted on said frame, a cylinder mounted upon said guide-rod and pivoted to one of said hinged portions of the shell, a piston adapted to work in said cylinder and an arm loosely mounted on said guide-rod near the other end and pivoted to the other hinged portion of the shell, the said arm supporting the outer end of said piston, and means substantially as described for operating said piston-rod, so as to open and close said clam.

702,680. VARIABLE-SPEED SHAFT. BENJ. CHRISTENSEN, Portland, Ore. Filed July 15, 1901. Serial No. 63,202. (No model.)

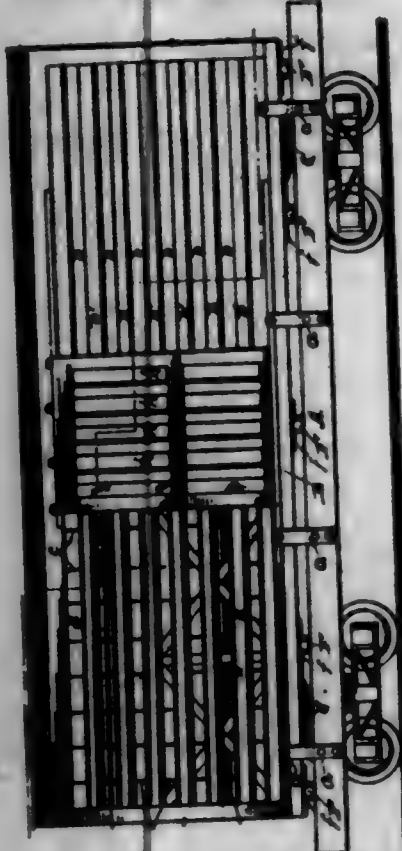
Claim.—1. The combination of a shaft, a hub element thereon, having radial slots, a plurality of radially-disposed ball-crank levers disposed transversely of said slots, pivoted to said hub element and having circumferentially-grooved segments at their outer ends adapted to engage an endless flexible power-transmitting element, a ring to which the inner ends of said ball-crank levers are pivotally connected, and a shiftable sleeve, on said shaft, having an annular groove engaged by said ring, substantially as described.

2. A variable-speed shaft, comprising a hub element having radial slots, a plurality of radially-disposed ball-crank levers pivoted to said hub element, having their outer arms disposed in and transversely of the slots and provided at their outer ends with circumferentially-grooved segments adapted to engage an endless flexible power-transmitting element, and means, connected to the inner arms of the ball-crank levers, to turn the latter on their pivots and thereby vary the radius of the grooved segments, substantially as described.

702,680.



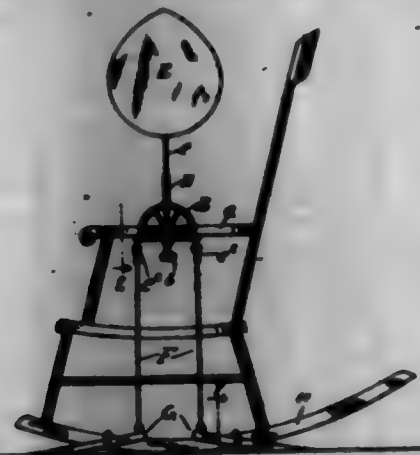
702,681. STOCK-CAR. JOHN F. CLARK, Chicago, Ill. Filed Aug. 14, 1901. Serial No. 72,202. (No model.)



Claim.—1. In a car, the combination of the car-frame mounted on trucks and wheels, with the car-body having the side edges of its bottom projecting outwardly from the upright sides thereof, upright standards secured to the sides of the car-frame and having on their upper ends rollers to downwardly impinge the projecting side edges of the bottom of the car-body, rollers journaled to the lower surface of the bottom of the car-body and resting on the frame, and springs interposed between the car-frame and body, substantially as described.

2. In a car, the combination with the car-body having on its inner surfaces of its sides longitudinally-extending angle-rails, of a series of movable partitions having at their upper portions angle-brackets in engagement with said rails and at their vertical edges openings, pins or bolts passing through suitable openings in the sides of the car and engaging the openings in the partitions to adjustably secure them in place, and means to raise and suspend said partitions, substantially as described.

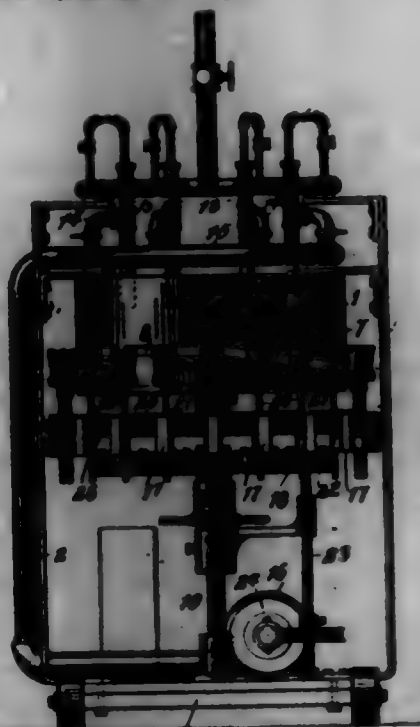
702,682. ATTACHMENT FOR ROCKING-CHAIRS. DENNIS F. CLAYTON, Chicago, Ill. Filed Dec. 18, 1901. Serial No. 98,148. (No model.)



Claim.—1. In an attachment for rocking-chairs, the combination with a clamp secured to the arm-rest of the chair and having an outwardly and upwardly extending shaft, of a segmental gear mounted on the horizontal portion of said shaft, a pinion journaled on the upright portion of said shaft and meshing with the segmental gear, a fin-holder mounted on the upper surface of the pinion, two levers pivotally and adjustably secured on one of the rockers and connecting-pieces uniting said levers and the ends of the segmental gear, substantially as described.

2. In an attachment for rocking-chairs, the combination with a clamp secured to the arm-rest of the chair and having an outwardly and upwardly extending shaft, of a segmental gear mounted on the horizontal portion of said shaft, a pinion journaled on the upright portion of said shaft and meshing with the segmental gear, a fin-holder mounted on the upper surface of the pinion, means pivotally secured on one of the rockers to contact with the floor and connecting-pieces uniting said means and the ends of the segmental gear, substantially as described.

702,683. APPARATUS FOR GLAZING GLASS. THOMAS OLDHAM, JR., and CHARLES BENTON, Charlottesville, W. Va. Filed July 22, 1901. Serial No. 68,212. (No model.)



Claim.—1. In an apparatus for glazing glass articles, the combination of a holder for the article and a heat-applying mechanism, and means for shifting one of said parts relatively to the other, the heat-applying mechanism being inclined in a direction relative to the line of travel of the movable part or element whereby the glass article is progressively heated along and around its exterior surface, substantially as set forth.

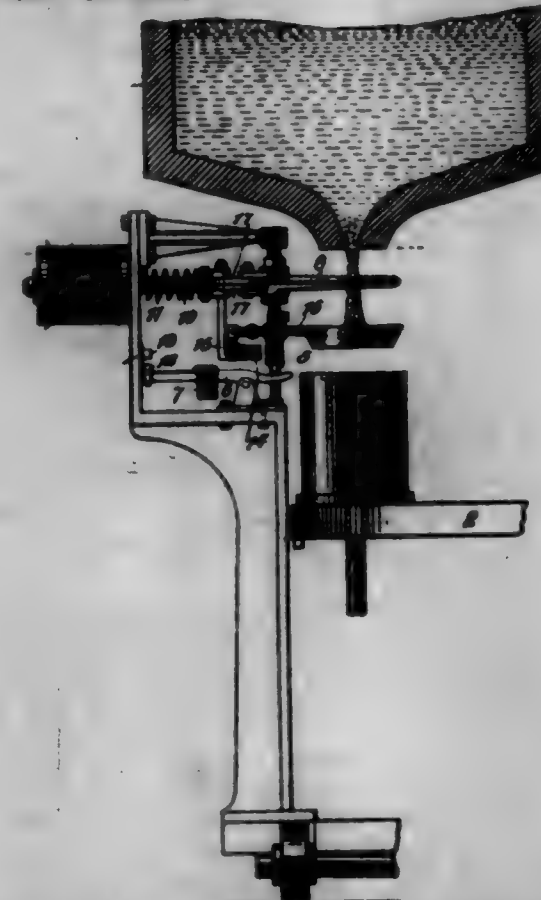
2. In an apparatus for glazing glass articles, the combination of two or more appliances for applying heat to the articles, said appliances being arranged in different planes relative to the path of movement of the articles, holders for the articles and means for moving the holders in suitable proximity to the heaters, the heating appliances being so arranged relative to the movement of the holders that the heat will be applied progressively along and around the articles, substantially as set forth.

3. In an apparatus for glazing glass articles, the combination of a combustion-chamber having two or more outlets arranged in different

planes, a carrier, holders for the articles mounted on the carrier, means for rotating the holders and means for shifting the carrier, whereby the articles are carried past the heat-outlets in succession and rotated during such movement, substantially as set forth.

4. In an apparatus for glazing glass articles, the combination of a circular combustion-chamber having two or more outlets arranged in different planes, one or more intermediate outlets arranged at an angle to the other outlets, a rotating carrier, holders for the articles mounted on the carrier and means for rotating said holders, substantially as set forth.

702,684. MECHANISM FOR FEEDING GLASS TO HOLDS. THOMAS OLDHAM, JR., Charlottesville, W. Va. Filed July 22, 1901. Serial No. 68,214. (No model.)



Claim.—1. In an apparatus for forming glass articles, the combination of a shaping-mold, a receiving-basin, a cutting mechanism, means whereby the same is operated on the reception by the basin of a predetermined amount of glass and means for shifting the basin to deposit the glass into the mold, substantially as set forth.

2. In an apparatus for forming glass articles, the combination of a shaping-mold, a counterweighted receiving-basin, a cutting mechanism, means controlled by the basin for operating the cutting mechanism and for effecting a discharge of the glass contained in the basin, substantially as set forth.

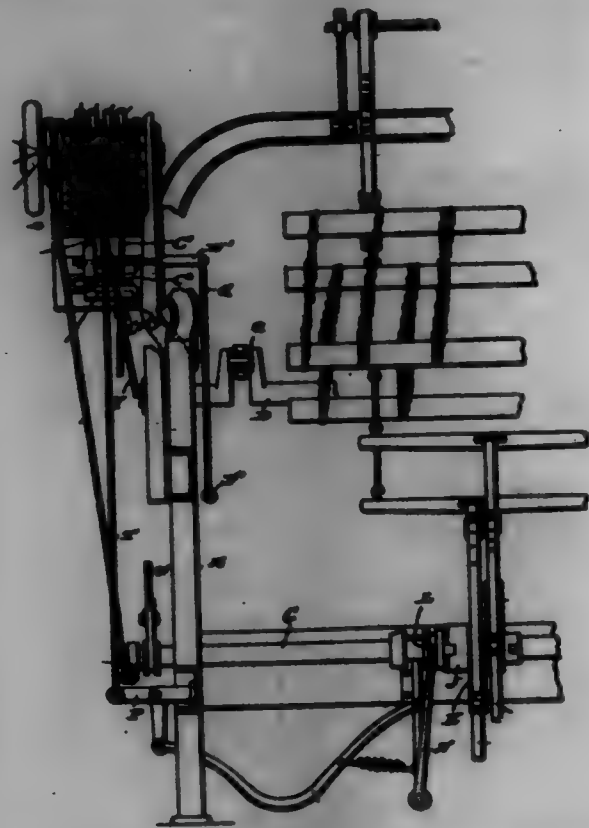
3. In an apparatus for forming glass articles, the combination of a shaping-mold, a weighing mechanism, including a receiving-basin as a part thereof, a cutting mechanism controlled by the weighing mechanism, and means for shifting the basin controlled by the weighing mechanism, substantially as set forth.

4. In an apparatus for forming glass articles, the combination of a shaping-mold, a lever having an adjustable weight at one end, a sectional receiving-basin supported by the opposite end of the lever, a cutting mechanism controlled by the lever and means for separating the sections of the basin, substantially as set forth.

702,685. LOOM FOR WEAVING BORDERED FABRICS. GEORGE W. CONROCK and FRED E. WARREN, Woonsocket, R. I., assignors, by direct and mesne assignments, to the Feltex Mills, Fall River, Mass., a Corporation of Massachusetts. Filed June 5, 1902. Serial No. 682,867. (No model.)

Claim.—1. In a loom, the combination of a cam-shaft, means loosely mounted on said shaft and having a clutch-disk, the harness operated by the same, a sleeve arranged to slide on and turn with the shaft and having a clutch-disk adapted to engage that of the cam, a pattern, a drive-shaft therefor, a finger arranged to be engaged by tappets of the pattern and connected with the sleeve-clutch member, a spring for normally holding the sleeve in engagement with the cam, a crank on the cam-shaft, a pattern-shaft, a ratchet-wheel fixed on the pattern-shaft, a lever loose on

the pattern-shaft and connected with the crank of the cam-shaft, a pawl on the lever having an arm, a second finger arranged to be engaged by tappets of the pattern, and a bell-crank lever connected with said second finger and having a tappet arranged to engage the arm of the pawl, substantially as specified.



2. In a loom, the combination of a cam-shaft, cam loosely mounted on said shaft and having a clutch-flange, a harness operated by the cam, a sleeve arranged to slide on and turn with the shaft and having a clutch-flange adapted to engage that of the cam, a pattern, a pattern-shaft, one or more fingers arranged to be engaged by tappets of the pattern and connected with the sleeve-clutch member, a spring for normally holding the sleeve in engagement with the cam, a crank on the cam-shaft, a ratchet-wheel fixed on the pattern-shaft, a lever loose on the pattern-shaft and connected with the crank of the cam-shaft, a pawl on the lever having an arm, a second finger arranged to be engaged by tappets of the pattern, a bell-crank lever connected with said second finger and having a tappet arranged to engage the arm of the pawl, and also having a lateral arm, mechanism for taking up the cloth as it is woven, and device connected with the lateral arm of the bell-crank lever and operated by the take-up mechanism for releasing the pawl, substantially as specified.

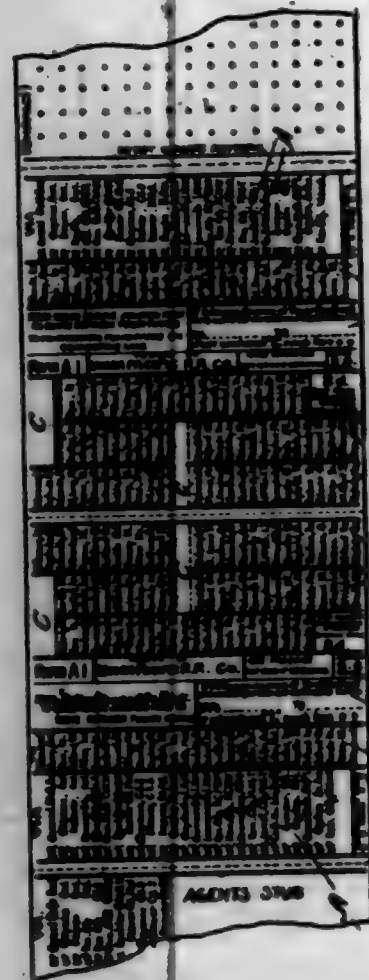
3. In a loom, the combination of a harness, a shaft, a driving connection from the shaft to the harness for actuating the latter; said connection comprising a harness-stop-motion device, a pattern, suitable means controlled by the pattern for moving the stop-motion device and causing the harness to dwell, mechanism intermediate of the shaft and the pattern for separating the pattern; said mechanism comprising a pattern-stop-motion device controlled by the pattern, mechanism for taking up the cloth as it is woven comprising a ratchet-wheel, a dog actuated by the shaft for rotating the ratchet-wheel, a grating pawl arranged to engage the ratchet-wheel, means operated by the pattern for disengaging said pawl from the ratchet-wheel, and mechanism controlled by the take-up mechanism for releasing the stop-motion device of the pattern-operating mechanism, substantially as specified.

4. In a loom, the combination of the harness, a shaft, a driving connection from the shaft to the harness for actuating the latter; said connection comprising a stop-motion device, a pattern provided with tappets, fingers arranged to be alternately engaged by different tappets of the pattern, and a connection common to the two fingers interposed between said fingers and the stop-motion device, substantially as specified.

702,886. RAILROAD-TICKET. TON G. DAVIES, Omaha, Neb., assignor of 66 2/3% to Robert A. Smith, Omaha, Neb. Filed June 17, 1901. Serial No. 64,567. (No specimens.)

Claim.—1. A railroad-ticket coupon provided with a list of routes each composed of the initial line of road, a junction-point upon said line, and a connecting line of road, the junction-point upon said initial line being repeated in said list in connection with each line of road connecting with the initial line at each junction-point, and the names of the initial and connecting lines and intermediate junction-points composing each route being arranged in a distinct group in said list, whereby the entire route may be indicated by a single punching operation; substantially as described.

may be indicated by a single punching operation; substantially as described.



2. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, the name of each connecting line being repeated in said list in connection with each junction-point at which it connects with the initial line, and the names of the initial and connecting lines and intermediate junction-points composing each route being arranged in a distinct group in said list, whereby the entire route may be indicated by a single punching operation; substantially as described.

3. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, each junction-point being repeated in said list at each junction-point, and the name of each connecting line of road being also repeated in said list in connection with each junction-point at which it connects with the initial line, and the names of the initial and connecting lines and intermediate junction-points composing each route being arranged in a distinct group in said list, whereby the entire route may be indicated by a single punching operation; substantially as described.

4. A railroad-ticket coupon provided with a list of routes each composed of the initial line of road, a junction-point upon said line, and a connecting line of road, whereby the entire route may be indicated by a single punching operation, and each route requiring a transfer between depots at each junction-point being provided with an indication to that effect.

5. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with a list of destination-stations upon each connecting line, the names of the initial and connecting lines and intermediate junction-points composing each route being arranged in a distinct group in said list, whereby the entire route may be indicated by a single punching operation, and whereby the entire route of the ticket over the initial and connecting lines, and the destination-station, may be indicated by two punching operations; substantially as described.

6. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, the name of each junction-point upon the initial line being repeated in connection with each line of road connecting with the initial line at each junction-point; substantially as described.

7. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, the name of each connecting line of road being repeated in

the list of routes in connection with each junction-point at which it connects with the initial line; substantially as described.

8. A railroad-ticket coupon provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon each connecting line, each junction-point upon the initial line being repeated in the list of routes in connection with each connecting line connecting with the initial line at each junction-point, and each connecting line being repeated in said list in connection with each junction-point at which it connects with the initial line; substantially as described.

9. A railroad-ticket form comprising a contract portion and a plurality of coupons each provided with a like list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, the names of the initial and connecting lines and the intermediate junction-points composing each route in said list of routes being arranged in said list, whereby the entire route may be indicated by a single punching operation, and the lists of routes and destination-stations upon the respective coupons being so arranged as to register with each other when the coupons are folded one upon another, whereby the entire route of the ticket over the initial and connecting lines, and the destination-station, upon all of the coupons may be indicated by two punching operations, and a separate coupon having the route and destination-station unambiguously indicated upon it to be provided for each line of road; substantially as described.

10. A railroad-ticket form comprising a plurality of regular passage-coupons and a supplemental extension-coupon, each of said coupons being provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, and the extension-coupon being also provided with appropriately designated spaces for the insertion of the name of any line of road connecting with any of the connecting lines included in the list of routes and the name of any station upon said line of road, whereby the ticket may be issued to any station upon any line of road connecting with the initial line by two punching operations, to indicate the route and destination-station, and each route and station be likewise indicated upon the extension-coupon, and may be extended from each station to any station upon any line of road leading from each station by inserting the name of the last-mentioned line of road and the final destination-station thereon in the spaces provided therefor upon the extension-coupon; substantially as described.

11. A railroad-ticket form comprising a contract portion, a plurality of regular passage-coupons projecting from one end thereof, and a supplemental extension-coupon projecting from the opposite end thereof, each of said coupons being provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, and the extension-coupon being also provided with appropriately designated spaces for the insertion of the name of any line of road connecting with any of the connecting lines included in the list of routes and the name of any station upon said line of road, whereby the ticket may be issued to any station upon any line of road connecting with the initial line by two punching operations, to indicate the route and destination-station, and each route and station be likewise indicated upon the extension-coupon, and may be extended from each station to any station upon any line of road leading from each station by inserting the name of the last-mentioned line of road and the final destination-station thereon in the spaces provided therefor upon the extension-coupon; substantially as described.

12. A railroad-ticket form comprising a contract portion, a plurality of regular passage-coupons projecting from one end thereof and by means of which the ticket may be issued to any one of a plurality of terminal points, a supplemental extension-coupon projecting from the opposite end of the contract portion of the ticket form and provided with appropriately designated spaces for the insertion of the name of a connecting line of road leading from each terminal point and the name of a final destination-station thereon, and a transfer-coupon projecting from the end of the extension-coupon opposite the contract portion of the ticket, to cover the passenger's transfer between the station of the road over which the last regular passage-coupon reads and the station of the road over which the supplemental extension-coupon is made to read; substantially as described.

13. A railroad-ticket form comprising a contract portion, a plurality of regular passage-coupons projecting from one end thereof, a supplemental extension-coupon projecting from the other end of the extension-coupon, and a transfer-coupon projecting from the center end of the extension-coupon, each and all of said coupons being provided with a list of routes each composed of the initial line, a junction-point upon said line, and a connecting line of road, and with the names of destination-stations upon said connecting lines, whereby the ticket may be issued to any of the destination-stations upon the connecting lines over any of the routes in the list by indicating each route and station with suitable punch-marks, and the entire route

of the ticket and primary destination-station be thereby indicated upon all of the coupons, including the extension and transfer coupons, and the extension-coupon being further provided with appropriately designated spaces for the insertion of the name of any line of road leading from any one of said stations and the name of any station upon said line of road, whereby the ticket may be extended to read from the primary destination-station indicated by the punch-marks to any station upon any line of road leading from each primary destination-station, and the transfer-coupon being further provided with appropriately designated spaces for the insertion of the name of the terminal line of road and the final destination-station thereon; substantially as described.

14. A railroad-ticket form comprising a plurality of passage-coupons, an agent's stub, and a transfer-coupon sent to the agent's stub and detachable therefrom, but adapted if a transfer is required to be reattached to the back of one of the passage-coupons and to extend beneath the immediately-preceding coupon in position for use for transfer between the depots used by the two lines of road over which the said coupons respectively read; substantially as described.

15. A railroad-ticket form comprising a plurality of passage-coupons, an agent's stub, and a detachable transfer-coupon adapted to be permanently detached from the ticket if no transfer is required in the route over which the ticket is issued, and provided with a gummed margin by means of which, if such a transfer is required, it may be pasted to the back of one of the passage-coupons in position to underlie the immediately-preceding passage-coupon and be used for transfer between the depots of the two lines of road over which said coupons respectively read; substantially as described.

16. A railroad-ticket form comprising a plurality of passage-coupons and provided at one extremity with a transfer-coupon detachable from the ticket without mutilation of the latter and adapted if a transfer is required in the route of the ticket to be reattached to the back of one of the passage-coupons and to extend beneath the immediately-preceding coupon; substantially as described.

17. A railroad-ticket form comprising a plurality of passage-coupons and provided at one extremity with a transfer-coupon having a gummed margin, said transfer-coupon being detachable from the ticket without mutilation of the latter, and adapted if a transfer is required in the route of the ticket to be reattached to the back of one of the passage-coupons and to extend beneath the immediately-preceding coupon; substantially as described.

18. A railroad-ticket form comprising a plurality of coupons and an agent's stub, and provided with a transfer-coupon at the extremity of the ticket adjacent said agent's stub, said transfer-coupon being detachable from the ticket with the agent's stub and provided with a gummed margin adapting it, if a transfer is required in the route of the ticket, to be reattached to the back of one of the passage-coupons and to extend beneath the immediately-preceding coupon; substantially as described.

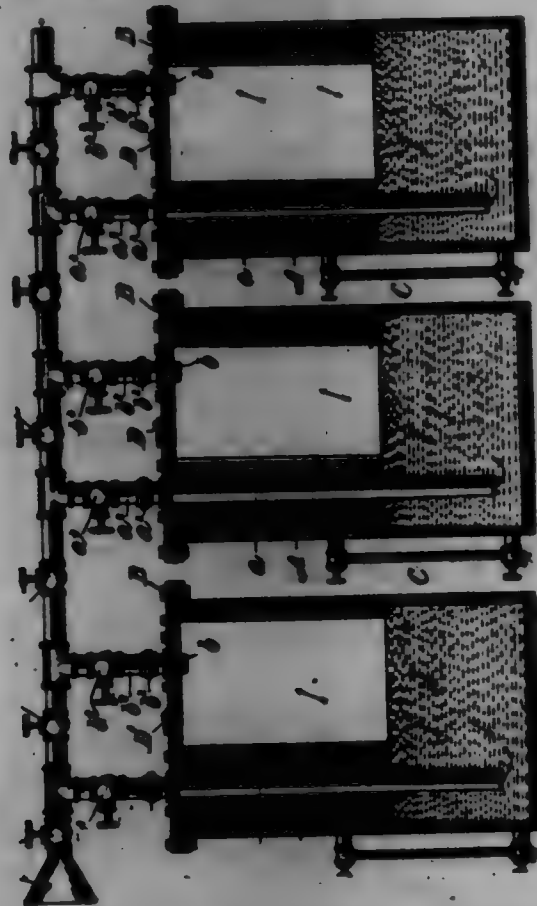
19. A railroad-ticket form comprising a plurality of passage-coupons, an agent's stub, and a detachable transfer-coupon each of said coupons and the agent's stub being provided with a list of routes and a list of destination-stations, each of said routes composed of the initial line of road, a junction-point thereon, and a connecting line of road, and each route requiring a transfer at each junction-point having that fact indicated in the name of the route in said list, whereby the route of the ticket and destination-station and the fact as to whether a transfer is required at the junction-point may be indicated upon each of the coupons and the agent's stub by two punching operations, and said detachable transfer-coupon being adapted to be reattached to the back of one of the passage-coupons and underlie the immediately-preceding coupon, in position for use for the transfer of the passenger between the depots used by the two lines of road over which said coupons respectively read; substantially as described.

20. A railroad-ticket form comprising a plurality of passage-coupons, an agent's stub, and a detachable transfer-coupon each of said coupons and the agent's stub being provided with a list of routes and a list of destination-stations, each of said routes composed of the initial line of road, a junction-point thereon, and a connecting line of road, and each route requiring a transfer at each junction-point having that fact indicated in the name of the route in said list, whereby the route of the ticket and destination-station and the fact as to whether a transfer is required at the junction-point may be indicated upon each of the coupons and the agent's stub by two punching operations, and said detachable transfer-coupon being provided with a gummed margin for its reattachment to the back of one of the passage-coupons in position to underlie the immediately-preceding coupon and be used for transfer between the depots of the two lines of road over which said coupons respectively read; substantially as described.

21. A railroad-ticket comprising a contract portion, a plurality of regular passage-coupons projecting from one end thereof, a supplemental extension-coupon projecting from the opposite end thereof, a transfer-cou-

pen projecting from the outer end of the extension-coupen and adapted to be used for the transfer between the depot of the road over which the last regular passage-coupen route and the depot of the road over which said extension-coupen route, and said ticket-form being provided at its end opposite said extension and transfer portions with a detachable transfer-coupen adapted, if a transfer be required in the route over which the regular passage-coupen of the ticket road, to be reattached to the back of one of said passage-coupen and to extend beneath the immediately-preceding coupon and be used for transfer between the depots of the two lines of road over which said coupons respectively read; substantially as described.

702,687. CARBURETER. MILES S. DUNHAM, Butteville, W. Va., assignor of one-half to Franklin W. Hether, Jesse A. L. Hether, and Ernest W. Hether, Butteville, W. Va. Filed Apr. 12, 1900. Serial No. 12,788. (No model.)



Claim.—In a gas-generator, the combination with a series of tanks for containing hydrocarbon liquid, each provided with an inlet-pipe having a regulating-cock, and an outlet-pipe having a regulating-cock, of a single air-inlet and mixing pipe connected with the inlet and outlet pipes of all of said tanks, said air-inlet and mixing pipe having one end open to the atmosphere and provided with a series of cocks located between the connections of the air-inlet and mixing pipe with the inlet and outlet pipes of each tank, whereby a communication may be established from the air-inlet directly through said air-inlet and mixing pipe in addition to the communication between the air-inlet and mixing pipe and said tanks, substantially as described.

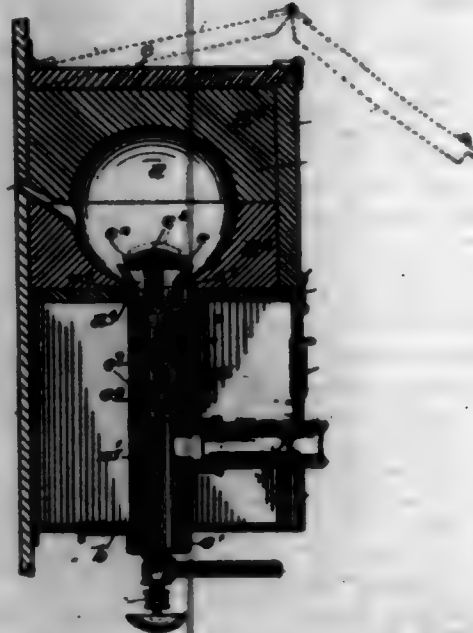
702,688. RETORT HYDROCARBON-BURNER. ALFRED D. DUNHAM, Galveston, Tex., and WILLIAM H. WATERS, Chicago, Ill. Filed July 1, 1901. Serial No. 64,991. (No model.)

Claim.—1. The combination with a retort having a discharge-opening and another opening in its lower portion, of a tube extending into the retort and having communication with a supply of steam or air, a pipe extending through said tube into the retort and communicating with a supply of oil, a valve seated on the end of said pipe in the retort and having on its lower surface a series of curved corrugations, and means to control the flow of oil, air or steam, substantially as described.

2. The combination with a retort having a discharge-opening and another opening in its lower portion, of a tube extending at one of its ends through said lower opening into the retort and having a communication with a supply of steam or air under pressure, a pipe extending through said tube into the retort and communicating with a supply of oil under pressure, a flaring valve-seat on the end of the pipe in the retort, a gravity-valve located in said seat and having on its lower surface a series of curved corrugations, substantially as described.

3. The combination with a furnace, of a casing covered in the front

plate thereof and having a discharge-opening in its bottom and front, a retort on said casing and having a discharge-opening communicating with the fire-box and another opening communicating with the casing, a tube extending through the casing and into the retort and connected to a supply of steam or air, a pipe extending through said tube into the retort and connected to a supply of oil, a drip-cup on the lower portion of said pipe, a valve seated on the end of said pipe in the retort, means to control the flow of oil, and means to control the flow of air and steam, substantially as described.



4. The combination with a furnace, of a retort supported on the front plate thereof and having a discharge-opening communicating with the fire-box and another opening in its lower portion, hinged plates seated to the furnace to protect the top and front of the retort, a burner located in the retort and having communication through the opening in the lower portion thereof with a reservoir containing oil and air, or oil and steam under pressure, substantially as described.

5. The combination with a retort having a discharge-opening and another opening in its lower portion, of a tube extending at one of its ends through said lower opening into the retort and having a communication with a supply of steam or air under pressure, a pipe having on its upper outer surface spiral ribs and extending through said tube into the retort and communicating with a supply of oil under pressure, a flaring valve-seat on the end of the pipe in the retort, a gravity-valve located in said seat and having on its lower surface a series of corrugations curved in the opposite direction from the curve of the ribs on the pipe, substantially as described.

702,689. GRAIN-VENTING MACHINE. WILLIAM E. DUTCHER, Auburn, R. I. Filed Feb. 7, 1902. Serial No. 22,967. (No model.)



Claim.—1. As a new and improved article of manufacture, a grain-venting machine provided with a casing arranged to receive therein an original or factory box of grain, a manually-actuated cigar selecting and carrying device working in an opening formed in said casing adapted to select any visible cigar in the box and convey it therefrom, and means for automatically releasing the selected cigar and discharging it from the machine, substantially as described.

2. In a grain-venting machine, arranged to receive a factory-box of cigars, having its casing provided with a slotted opening and a passage through which the cigars are dispensed, the combination therewith of a filter member or device capable of being moved back and forth in said opening and adapted to be detachably secured to any visible cigar in the box, and means for automatically releasing the cigar from said filter member into said passage, substantially as described.

3. In a grain-venting machine arranged to receive therein an origi-

nal or factory box of cigars, a longitudinally-movable member or carrier provided with a vertically-movable cigar-selecting device or filter arranged with respect to the box of cigars, a movable stop or lever for limiting the forward movement of said carrier in case the cigar-selecting device is not sufficiently elevated, and mechanisms for automatically releasing the carrier from said stop and detaching the cigar from the filter, substantially as described.

4. In a cigar-venting machine, the combination with the casing having a slotted opening formed in its cover, of the carrier slidably mounted in said opening, the cigar-selecting device or filter vertically movable in said carrier, a flexible member arranged to automatically close the exposed portion of said opening, and means for automatically releasing the cigar from said filter, substantially as described.

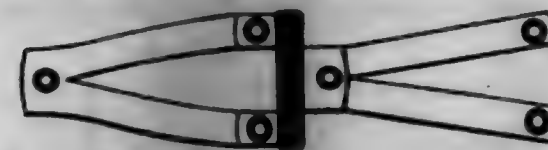
5. In a cigar-venting machine, the combination with a spring-pressed lever as provided with a notch or abutment, of a sliding carrier-bar having a follow abutment on its under side adapted to engage with that of said lever, and a vertically-movable filter or cigar-selecting member having a dog or cam arranged to contact with the free end of the lever, whereby the latter is retracted to permit the passage of said bar, substantially as described.

6. In a cigar-venting machine, provided with a casing having a slotted opening communicating with the interior chamber containing a factory-box of cigars, the combination of a carrier member slidable in said opening, a vertically-movable filter, mounted in said carrier, having its lower portion adapted to have a cigar attached thereto, fixed ways arranged to receive and support said filter and means for automatically releasing the cigar from the filter member while the latter is in engagement with said ways, substantially as described and for the purpose set forth.

7. In a cigar-venting machine, provided with fixed ways d, a suitably-guided combined cigar selecting and lifting member c capable of being moved both laterally and endwise or vertically, and having its under side or head portion arranged to be supported by said ways, thereby for the time being locking the member c against any movement in a vertical direction, substantially as described.

8. In a cigar-venting machine, provided with fixed ways d and dogs or cams d', a suitably-mounted movable filter member c having its lower end provided with means adapted to select and retain a cigar, arranged whereby upon sliding the member c onto said ways the cigar will engage the same thereof and be freed from the filter, the latter meanwhile being prevented from vertical movement.

702,640. HINGE. PATENT DYM, Pasadena, Cal., assignor of one-half to Henry T. Dym and George E. Marple, Los Angeles, Cal. Filed Oct. 2, 1902. Serial No. 22,968. (No model.)



Claim.—1. A strap-hinge, composed of two hinge-sections, having necessary screw-holes, united by a pin-bolt, each of which sections is formed from a single blank, longitudinally separated in the center thereof a portion of its length, the separated portions bent outwardly, as shown, to impart bracing strength therein.

2. In a hinge, a leaf formed from a single metal blank longitudinally separated at one end for a portion of its length into equal portions, said portions being bent outward and provided with pin-bolts thereby forming separated bearing members, substantially as described.

3. In a hinge the combination with a leaf formed from a single metal blank separated centrally and longitudinally for a portion of its length, at one end, the separated portions provided with pin-bolts and bent outwardly thereby forming braced bearing-arms and a V-shaped space between said portions, of a complementary hinge-leaf having a pin-bolt adapted to be seated between the knuckles of the braced bearing-arms of the other leaf, and a pin-bolt pivoting the two leaves, substantially as described.

4. In a hinge, a leaf formed from a single blank, longitudinally separated in the center thereof a portion of its length, the separated portions bent outwardly, as shown, to impart bracing strength therein.

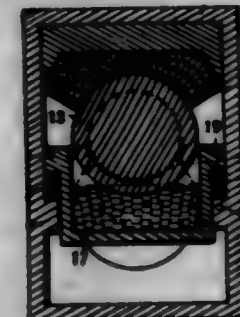
5. In a hinge, the combination with a leaf formed from a single metal blank separated longitudinally for a portion of its length, at one end, the separated portions provided with pin-bolts and bent outwardly thereby forming braced bearing-arms and a V-shaped space between said portions, of a complementary hinge-leaf having a pin-bolt adapted to be seated between the knuckles of the braced bearing-arms of the other leaf, and a pin-bolt pivoting the two leaves, substantially as described.

6. In a hinge, a leaf formed of a single metal blank longitudinally

separated at one end for a portion of its length into equal portions, said separated portions being bent outward to impart bracing strength and provided with screw-bolts; said united portion being bent to form a pin-bolt-knuckle.

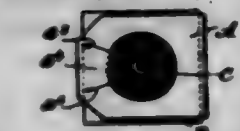
7. Is a hinge, a leaf formed of a single metal blank longitudinally separated at one end for a portion of its length into equal portions, said separated portions being bent outward to impart bracing strength and provided with screw-bolts; said united portion being bent to form a pin-bolt-knuckle in combination with a companion leaf having separated pin-bolt-knuckles adapted for the reception therebetween of the pin-bolt-knuckle of the first section and a pin-bolt adapted to unite said section.

702,641. BRACING. JAMES H. EVERETT, Pacific, Mo. Filed June 17, 1901. Serial No. 64,796. (No model.)



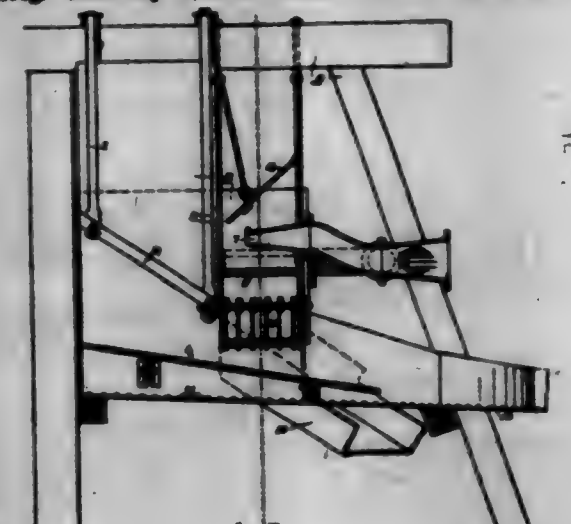
Claim.—A bearing comprising a suitable axle-box, an oil-collar confined within the same, lateral flanges formed with the walls of the collar, ribs disposed along the inner walls of the box below the flanges, wedges interspersed between the flanges and ribs, means for securing the wedges to the walls of the box, an axle having an enlarged portion confined within the oil-collar, and having a peripheral groove exterior thereto snugly embraced by the walls of the openings formed in the axle-box and oil-collar respectively, substantially as set forth.

702,642. NUT-LOCK. CHRISTIAN W. FARR, Jr., Troy, N. Y., assignor of one-third to Edward E. Farr, Troy, N. Y. Filed Feb. 21, 1902. Serial No. 22,969. (No model.)



Claim.—In a nut-lock, the combination with the nut and bolt, of a plate A having openings at opposite ends through which the bolt is adapted to pass, the said plate being bent around the nut and across the face thereof, a reduced portion of the outer end of the plate adapted to be bent down alongside of the nut and provided with ribs at opposite sides thereof, and a tongue, substantially as shown and for the purpose set forth.

702,643. GOLD-SEPARATOR. CHARLES W. GARDNER, Portland, Ore. Filed May 17, 1901. Serial No. 63,971. (No model.)



Claim.—1. The combination in a gold-separator of a shell or casing, a grating or screen upon which the gravel is received and grading or sifting

being inclined in the direction of the length of the shell or casing, a second screen inclined in the direction of the width of the shell or casing and discharging laterally through the side walls thereof, a chute leading from the side of the shell or casing and a chute in line longitudinally with the shell or casing, a ferrous plate below the second screen and extending longitudinally of the casing, and a water-supply adapted to discharge upon the screens in opposition to the flow of gravel thereon.

2. The combination is a gold-separator of a shell or casing inclined except at the top, a grating or screen within the casing and inclined in the direction of the length thereof, links suspending said screen, a second screen within the casing and receiving the discharge from the first-named screen, and inclined from substantially the center of the casing toward each side thereof, links suspending the second screen within the framework, a discharge-chute leading outwardly from the side of the casing and receiving the discharge from the second-named screen, a ferrous plate below the second-named screen, and a water-supply having nozzles discharging upon the gravel on the screens in a direction contrary to the flow of material thereon.

3. In a gold-separator, the combination with a chamber inclosed except at the top, of an inclined grating or screen, a secondary set of screens disposed transversely to said grating, and inclined toward each side of the chamber, extensions of said secondary screens through the side walls of said chamber, separate water-inlets through said side walls by which a stream of water is adapted to be directed upon each of said screens, deflecting-plates whereby the gravel entering the machine is directed away from said inlets and upon the screens and means including a rifled chute by which the gold from said screens is collected.

4. A gold-separator consisting in combination of a casing open at the top, screening devices and links by which they are suspended within said casing, said devices consisting of a grating, oppositely-disposed screens arranged transversely to, and receiving and dividing the overflow from said grating, chute extensions of said screens through the side walls of said casing, a perforated plate beneath said grating and screens and inclined substantially in the same direction as the grating, riffles beneath said plate, a flume extending through said casing in the direction of the length thereof, a water-supply having nozzles entering a plurality of the sides of said casing, each of said nozzles adapted to direct its flow upon a respective grating, and screens and deflecting-plates disposed in relation to each of said nozzles.

702,644. CAR-WHEEL. MAX F. SHERRIN, Waverly, Mo. Filed Jan. 31, 1902. Serial No. 91,908. (No model.)



Claim.—1. A railway-car wheel provided with an annular groove at the junction of its flange and rim, and a central opening having its outer mouth flaring.

2. A railway-car wheel, comprising the central hub having an axle opening therethrough with a flaring outer mouth and a recess the full length of the opening, a periphery integral with the hub and a flange extending beyond said periphery, said periphery and flange being provided with an annular groove at their junction.

702,645. DENTAL IMPRESSION-CUP. WILLIAM E. GRISWOLD, Denver, Colo., assignor, by direct and mesne assignments, to Griswold Dental Bridge Company, Denver, Colo., a Corporation of Colorado. Filed July 28, 1900. Serial No. 28,171. (No model.)

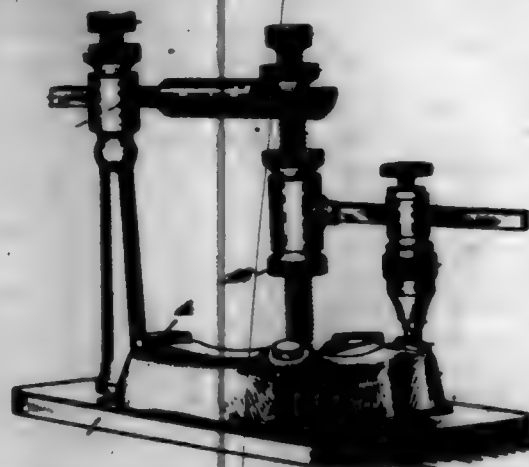


Claim.—1. The combination with an impression-cup, of a pressure-rod, one end of the rod adapted to engage a saddle and the other end adapted to rest upon the opposite jaw to force the saddle into the tissues of the mouth by the action of the jaw in biting.

2. The combination with an impression-cup, of an adjustable pressure-rod playing through the cup, one end of the rod adapted to engage a saddle and the other end adapted to rest upon the opposite jaw to force the saddle into the tissues of the mouth by the action of the jaw in biting.

3. The combination with an impression-cup, of a combined pressure-rod playing through the cup for the purpose described.

702,646. DENTAL TOOL. WILLIAM E. GRISWOLD, Denver, Colo., assignor, by direct and mesne assignments, to Griswold Dental Bridge Company, Denver, Colo., a Corporation of Colorado. Filed July 28, 1900. Serial No. 28,172. (No model.)



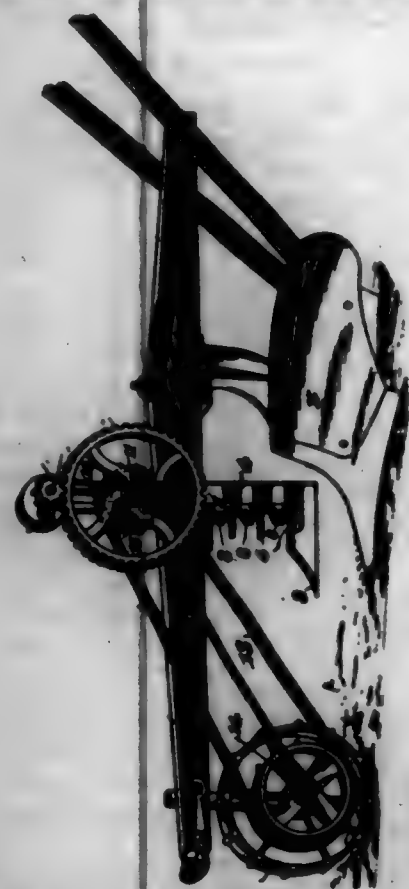
Claim.—1. In a dental tool, the combination of a standard, a centering-post to rest upon a model, and an adjustable chuck or holder connected with the centering-post to carry tooth-scoring devices.

2. In a dental tool, the combination of a standard, an adjustable securing or centering post to rest upon a model, and an adjustable and removable chuck or holder for carrying spring-studs or cups for teeth.

3. In a dental tool, the combination of a standard, a centering-post, a swinging arm carried by the centering-post and vertically adjustable thereon, and a chuck carried by the swinging arm.

4. In a dental tool, the combination of a standard, a screw-threaded centering-post, a sleeve having a screw-threaded head working on the centering-post, a journal-sleeve turning on the first-named sleeve and bearing a horizontal arm, and an adjustable chuck carried by the arm, substantially as described.

702,647. FLOW ATTACHMENT. WILLIAM S. HALL, Graham, W. Va. Filed Aug. 21, 1901. Serial No. 72,531. (No model.)



Claim.—1. The combination with a plow-beam, and a plow carried thereby, of means for cutting vegetation located in advance of the plow-point with a space between the cutting means and the plow-point thereby to form an unobstructed passage through the vegetation for said plow-point.

2. The combination with a plow-beam having a plow, and a ground-wheel, of a vertically-reciprocating cutting apparatus hung from the beam and aligned in advance of the plow-point, with a space between the latter and the cutting apparatus and means for operating the cutting apparatus from the ground-wheel.

3. The combination with a plow-beam having a plow, and a ground-wheel, of a hanger hung from the beam and aligned in advance of the plow-point, a pendent fingered bar carried by the hanger and provided at its lower end with a forwardly-projected shoe having a downwardly-inclined sharpened front and portion extended in front of the bar, a vertically-reciprocating outer-bar mounted upon the hanger in rear of the shoe and cooperating with the fingers, there being an open space between the cutting apparatus and the plow-point, and means for working the outer-bar from the ground-wheel.

4. The combination with a plow-beam having a plow, and a ground-wheel, of a vertically-reciprocating cutting apparatus hung from the beam in front of the plow-point, with an open space between the latter and the cutting apparatus, a sprocket-wheel mounted upon the beam, another sprocket-wheel carried by the ground-wheel, a sprocket-chain connecting the two sprocket-wheels, a gear in operative relation to the first-named sprocket-wheel, a crank-disk driven from the gear, and a pinion connection between the disk and the cutting apparatus.

5. The combination with a plow-beam having a plow, and a ground-wheel, of a hanger hung from the standard and aligned in front of the plow-point, a forwardly-directed foot or shoe carried by the lower end of the hanger and located above the forward end of the plow-point, a reciprocating outer-bar mounted upon the hanger, a standard rising from the beam, a gear-wheel mounted upon the standard and in operative relation to the ground-wheel, a spindle carried by the upper end of the standard and projected at opposite sides thereof, a pinion carried by one end of the spindle and in mesh with the gear-wheel, a crank carried by the opposite end of the spindle, and a pinion connection between the crank and the cutting apparatus.

6. A plow attachment, comprising an upright hanger having means for connection with a plow-beam, and also provided with a forwardly-directed shoe at its lower end, forwardly-projected guard-fingers carried by the hanger, a vertically-reciprocating outer-bar mounted upon the hanger and in operative relation to the fingers, the cutting apparatus including the shoe being disposed for arrangement in front of the plow-point so as to have a clear space between the cutting apparatus and the plow, a standard having its foot provided with means for attachment to a plow-beam, a lower transverse spindle carried by the standard, an upper spindle carried by and projected at opposite sides of the standard, a drive-wheel mounted upon the lower spindle, means for operating the drive-wheel from the ground-wheel of a plow, a gear carried by the lower spindle, a pinion carried by one end of the upper spindle, a crank at the opposite end of said spindle, and a pinion connection between the crank and the outer-bar.

7. The combination with a plow-beam having a plow, of a vertically-reciprocating cutting apparatus hung from the beam and aligned in advance of the plow-point, with a clear space between the latter and the cutting apparatus and means for operating the cutting apparatus.

702,648. WIRE-STRETCHER. EDWARD M. HARR, Orient, S. D. Filed Aug. 12, 1901. Serial No. 72,151. (No model.)



Claim.—1. A wire-stretcher, comprising a lever having an intermediate fulcrum, long and short connecting-rods pivotally connected to the lever at opposite sides of the fulcrum and projected laterally at one side thereof, terminal clamps slidably carried by the outer ends of the respective connecting-rods, each clamp having a movable member which is connected to the outer end of the adjacent rod, and springs to normally hold the movable members in cooperative relation with the other members of the respective clamps.

2. A wire-stretcher having a connecting-rod, a wire-clamp comprising a body having a rear laterally-projected perforate ear slidably receiving the rod, and a forward laterally-projected jaw, a dog pivoted intermediate of its ends upon the body and in operative relation to the jaw, the rod being pivotally connected to the opposite end of the dog, a shoulder upon the rod and in rear of the clamp-body, and a helical spring co-

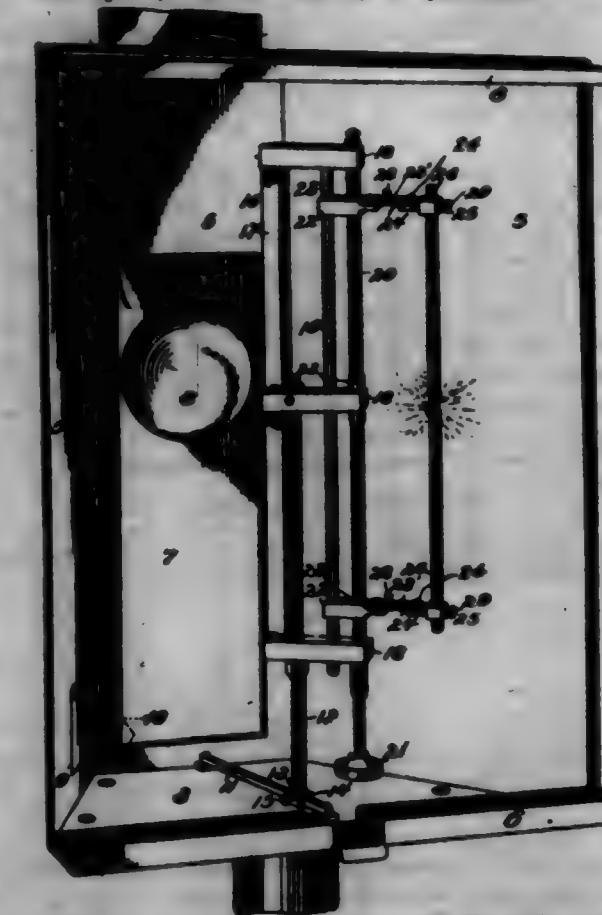
acting the rod and bearing in opposite directions against the shoulder and the rear end of the clamp-body.

3. A wire-stretcher, comprising a lever having an intermediate fulcrum, long and short connecting-rods pivotally connected to the lever at opposite sides of the fulcrum thereof and projected laterally at one side of the lever, terminal clamps slidably carried by the outer ends of the respective connecting-rods, each clamp having a movable member which is connected to the outer end of the adjacent rod, and springs carried by the rods and bearing in opposite directions against the latter and the rear ends of the respective clamps.

4. A wire-stretcher, comprising a wire-clamp having a laterally-projected jaw, which is provided at its outer end with an overhanging portion to form a wire-embracing guide or guard, the forward end of the guide or guard being outwardly flared to form an enlarged entrance-opening, a dog pivoted intermediate of its ends upon the jaw with its inner end working between the jaw and the overhanging portion thereof, and in cooperative relation with the back of said overhanging portion, and a connecting-rod slidably carrying the clamp and connected to the outer end of the dog.

5. A wire-stretcher comprising a lever, a chain or the like pivotally connected to an intermediate portion of the lever and forming a fulcrum-support therefor, a terminal wire-clamp carried by the free end of the chain, a comparatively short rod pivotally connected to the lever at one side of the fulcrum, a longer rod pivotally connected to the lever at the opposite side of the fulcrum thereof, said rods being projected at the same side of the lever, wire-clamps carried by the outer free ends of the rods, each clamp comprising a relatively fixed body slidably receiving the adjacent rod and provided with a laterally-projected jaw, and an intermediate-pivoted dog in cooperative relation to the jaw, the outer end of the rod being pivotally connected to the opposite end of the dog, dog-shoulders carried by the rods, and helical springs embracing the rods and bearing in opposite directions against the shoulders thereof and the rear ends of the respective clamps.

702,649. ILLUMINATOR. WILLIAM HARVEY, New York, N. Y. Filed Apr. 26, 1901. Serial No. 66,948. (No model.)



Claim.—1. In an illuminator, the combination with a cabinet adapted to carry colored slides, of a vertically-adjustable reflector located in said cabinet, and a revolvable member also mounted in said cabinet for adjustment with reference to said reflector and carrying a source of light, said source of light being adjustable upon said frame and with respect to the reflector.

2. An illuminator comprising a cabinet having three closed sides, one of said sides provided with a door, and an open front provided at top and bottom with ways adapted to receive interchangeable colored-glass slides; an adjustable reflector mounted at the rear of said cabinet; and a revolvable light-carrying frame slidably mounted in said cabinet in front of said reflector and in rear of said slides.

3. An illuminator comprising a cabinet having three sides closed, one of said sides provided with an operating-aperture; an open front provided with ways at the top and bottom adapted to receive interchangeable colored-glass slides; a vertically-adjustable reflector mounted in the rear of said cabinet; an adjustable carrying means therein in front of the reflector; and means whereby a light may be emitted, carried thereby.

4. In an illuminator, the combination with supporting means, of a reflector carried thereby; a light-carrying frame also carried thereby and adjustable toward and from said reflector, one part of said frame having a rotary adjustment relative to another part thereof, and one part of said frame carrying means whereby a light may be emitted, and having an adjustment in a plane transverse to the plane of the axis of said rotary adjustment.

5. In an illuminator, the combination with supporting means, of an adjustable reflector carried thereby; a light-carrying frame also carried thereby and adjustable toward and from said reflector, one part of said frame having a rotary adjustment relative to another part thereof, and one part of said frame carrying means whereby a light may be emitted, and having an adjustment in a plane transverse to the plane of the axis of said rotary adjustment.

6. In an illuminator, the combination with supporting means, of an adjustable reflector carried thereby; means whereby a light may be emitted; a frame effective to support said light-emitting means, said frame having a rotary adjustment relative to the reflector; one part of said frame having a rotary adjustment relative to another part thereof, and one part of said frame having an adjustment in a plane transverse to the plane of the axis of the rotary adjustment of said part of said frame.

7. In an illuminator, the combination with a cabinet adapted to support colored slides, of a reflector located within said cabinet, a revolvable frame also mounted in said cabinet and movable toward and from said reflector; and means whereby a light may be emitted adjustable upon said frame.

8. In an illuminator, the combination with a cabinet adapted to carry colored-glass slides and an adjustable sliding reflector carried therein, of a revolvable frame also carried in said cabinet and movable toward and from said reflector; and means whereby a light may be emitted adjustable upon said frame.

9. An illuminating device, comprising, in combination, a cabinet arranged to carry screens or slides; a reflector; a burner; and supporting means between said reflector and burner to provide a relative adjustment vertically, laterally, and to and fro between the reflector and the burner.

10. An illuminating device comprising, in combination, a cabinet arranged to carry glass screens or slides; a reflector; a burner; and means for supporting said burner; said supporting means being so constructed as to enable an adjustment of said burner toward and from said reflector and also from side to side.

11. An illuminating device comprising, in combination, a cabinet arranged to carry glass screens or slides; a reflector; a burner; means for supporting said burner; said supporting means so constructed as to enable an adjustment of said burner toward and from said reflector and also from side to side; and means for supporting said reflector so constructed as to enable a vertical adjustment of the latter.

702,650. FOLDING BASKET OR BUCKET. ROBERT E. HARRIS, Lub. Minn. Filed Oct. 21, 1901. Serial No. 79,464. (No model.)



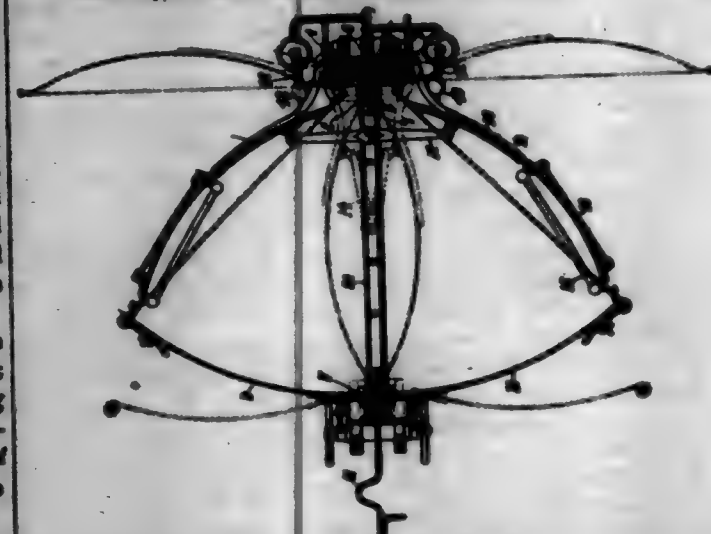
Claim.—1. The combination, with a foldable receptacle, of the levers pivoted to the top and bottom of the receptacle and terminating in ears pivoted together and in flanges struck from the ears at right angles thereto and to the levers, so that the ears do not engage the flanges, and the latter engage each other only when the levers are in extended position.

2. The combination, with a foldable basket or bucket, of the upper and lower levers having ears and pivoted together in pairs and to the bottom and top of the basket or bucket, an internal flange or heel from the ears of the upper levers, and an outwardly-turned flange or heel from the ears of the lower levers, one pair of said levers adapted to open and close in a direction opposite to that of the other pair of levers, without the ears engaging the flanges.

3. The combination, with a foldable basket or bucket having bottom legs, of the upper and lower levers having ears and pivoted together in

pairs and to the top and bottom of the basket or bucket, and flanges at right angles to the ends of the levers at their central pivot-point, one pair of levers opening and closing in a direction opposite to that of the other pair, and the bottom levers engaging said legs to assist the said flanges in holding the levers in rigid upright position.

702,651. BULKHEAD-DOOR. WALTER W. IVE, Buffalo, N. Y. Filed May 28, 1901. Serial No. 61,948. (No model.)



Claim.—1. In a bulkhead-doorway, in combination, a pair of similar, intercommunicated doors positioned at substantially a right angle with each other and both hinged to the same door-jamb, a concave camment upon the opposite jamb within which the free edges of said doors caulk and closely fit, and sealing device, the bulkhead co-operating with either door when in closed position.

2. In a bulkhead-doorway, a pair of similar doors independently hinged to one jamb and connected at right angles to each other, a cylindrical camment for the free edge of each door, and sealing device for the door edges.

3. In a bulkhead-doorway, in combination a pair of intercommunicated doors substantially at right angles with each other, a cylindrical camment for each door, an intermediate stop for both doors, and sealing device for the door edges, as and for the purposes set forth.

4. In a bulkhead, a pair of doors, hinged to the same jamb on opposite sides of the bulkhead and intercommunicated so as to be maintained at substantially right angles with each other, a cylindrical camment for each door, adjusted closely to its arc of movement, and means whereby the joints around each door are sealed when the door is closed against the edges of the doorway.

5. In a bulkhead-doorway, in combination, a pair of angularly-disposed doors hinged at their adjacent edges to one door-jamb and arranged one on each side of the bulkhead, and a concave camment upon the opposite jamb within which the doors closely fit, said doors being larger than the doorway-opening, substantially as and for the purposes specified.

6. In a bulkhead-doorway, in combination, a pair of doors each larger than the opening arranged on opposite sides of the bulkhead at an angle with each other and hinged to the same jamb, a concave camment upon the opposite jamb to receive the free edges of the doors, and sealing device between the faces of the doors and the edges of the doorway.

7. In a bulkhead-doorway, in combination, the pair of intercommunicated doors positioned substantially at right angles to each other and hinged to the same jamb, the concave camment upon the opposite jamb, the steps intermediate of said doors in the plane of the bulkhead, and the devices between said doors and said steps serving when either door is brought into contact therewith to seal the doorway-opening.

8. In combination with a bulkhead-doorway, a pair of angularly-disposed doors hinged to one door-jamb and caulked within concave camments upon the opposite jamb, a jointed intercommunicating brace for said doors, and means for gripping the doors against the opposite faces of the door-jamb to seal the joints between the same.

9. A bulkhead-doorway having sealing device upon both faces, a concave camment upon one door-jamb, a pair of doors hinged to the opposite jamb, a collapsible detachable brace intercommunicating the doors and normally holding them at substantially right angles with each other, and means when said doors are folded together for gripping them against said sealing device.

10. In a structure of the class described, a pair of oppositely-disposed doors adapted to be closed against opposite sides of the door-ways, each door being caulked or caulked outwardly but with plane-convex margins along all its edges.

11. In combination with a bulkhead-doorway, a pair of outwardly-

convexed doors, one on each side of the doorway and hinged to the same jamb, devices for sealing the joints between the edges of the doors and the casing of the doorway, and means for gripping the doors upon the sealing device.

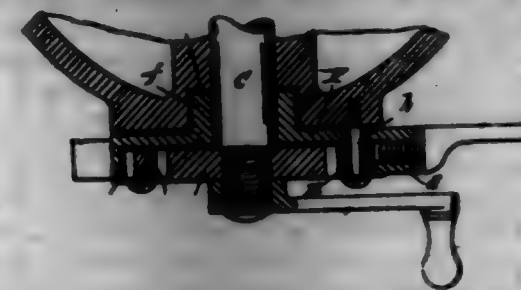
12. In an organism of the character described, having a pair of intercommunicated, caulked doors, a still for each door adjusted to lift the same as it turns outwardly, as and for the purposes set forth.

13. In a structure of the class described, a pair of doors hinged to the same jamb and swinging on opposite sides of the bulkheads and adapted each to be closed against the casings of the doorway, each door being centrally convexed outwardly, but with margins plane-convexed, and sealing attachments upon the door casings or jambs with which the door-margins contact when closed.

14. In combination with a pair of doors as described, gravity-closing devices for both doors, consisting of stops or levers having a water-soluble support, and a cushion connecting said support with the compartment on the opposite side of the bulkhead, as and for the purposes set forth.

15. In a structure of the class described, a door-jamb comprising the bulkhead-chest, the casing-strip upon the edge of the chest, the marginal strip on each side of the chest slightly spaced from the casing-strip and cushion-strips in the channels between the marginal and casing strips substantially as and for the purposes specified.

702,652. MECHANICAL MOVEMENT. BARRY IVES, Chicago, Ill., assignor to Charles M. Rogers and Louis G. Rolfe, Chicago, Ill. Filed Feb. 2, 1901. Renewed Dec. 2, 1901. Serial No. 64,464. (No model.)

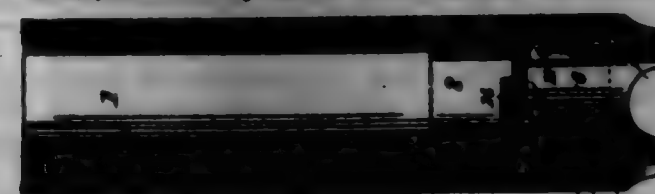


Claim.—1. In a mechanical movement, the combination with a support, of a rotatable shaft journaled thereon, a ratchet-wheel fixed on said shaft, a disk loosely mounted on the shaft and provided with a segmental slot, a spring-actuated pawl pivoted to the face of the disk adjacent to the ratchet-wheel and engaging the teeth thereof, an arm or lever secured to the periphery of the disk, a pivot passing through the slot of the disk and into the support, and a spring-actuated pawl secured on said pivot, substantially as described.

2. In a mechanical movement, the combination with a rotatable shaft suitably journaled, of a ratchet-wheel fixed on said shaft, a disk loosely mounted on the shaft and provided with a segmental slot and having a peripheral flange surrounding the ratchet-wheel, a spring-actuated pawl pivoted to the face of the disk adjacent to the ratchet-wheel, and engaging the teeth thereof, an arm or lever secured to the disk, means to move said arm back and forth, a pivot passing through the slot of the disk and a spring-actuated pawl secured on said pivot and engaging the teeth of the ratchet-wheel, substantially as described.

3. The combination with a shaft suitably journaled, a disk mounted thereon, an arm secured to the disk and provided with a longitudinal slot, of an engine having a reciprocating piston-rod, a link movably secured in the slot of the arm and having a dot parallel thereto, and a pin in said dot pivotally uniting the piston-rod and link, substantially as described.

702,653. SAND PUMP AND RAILER. FREDERICK W. JACOBSON, Chicago, Ill. Filed July 10, 1901. Serial No. 67,738. (No model.)



Claim.—1. In a pump, the combination with a pump stock or tube, and a fixed reinforce or lining mounted within the lower end thereof, of a valve seat or casing mounted within the lower end of the reinforce said valve-seat being supported by the reinforce and detachably connected therewith by interlocking means, substantially as described.

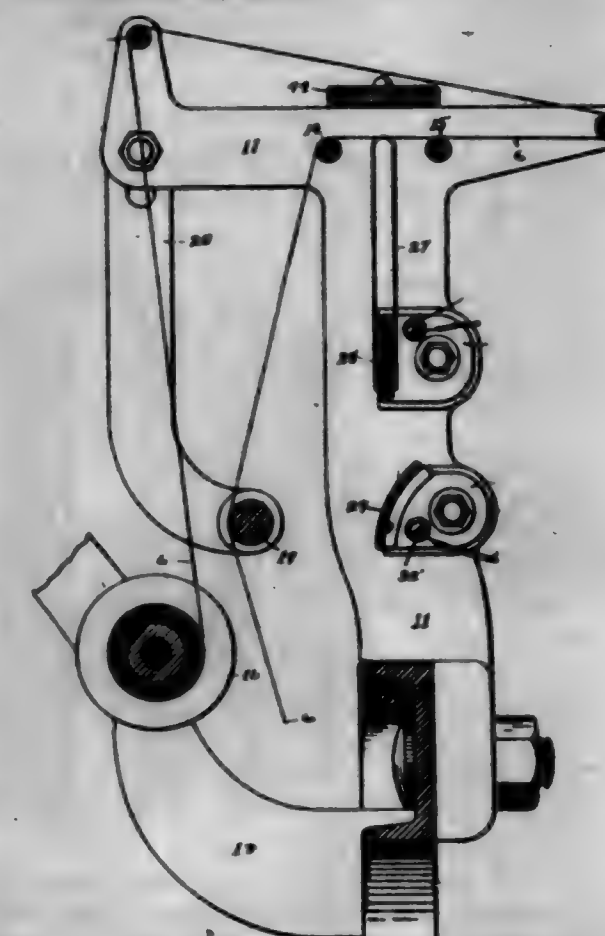
2. In a pump, the combination with a pump stock or tube, and a reinforce or lining inserted in the lower end thereof and provided with a bayonet-socket covered exteriorly by the pump-tube, of a valve-seat removably mounted within said reinforce or lining and provided with a key

to engage the bayonet-socket, and means for preventing relative movement between the reinforce and valve-seat.

3. In a pump, the combination with a pump stock or tube, and a reinforce or lining fixed within the lower end thereof and provided with a bayonet-socket exteriorly covered by the pump-tube, of a valve-seat or casing removably mounted in the lower end of the pump-stock and provided with a key to engage the bayonet-socket, and a spring-pressed locking-pin engaging openings in the pump-stock and valve-casing and serving to prevent disengagement between the key and socket.

4. In a pump, the combination with a pump stock or tube, and a reinforce or lining inserted in the lower end thereof and provided with a bayonet-socket covered exteriorly by the pump-tube, of a valve-seat removably mounted within said reinforce or lining and provided with a key to engage the bayonet-socket.

702,654. WARP STOP-MOTION FOR LOOMS. EMERY J. JARRY, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 9, 1901. Serial No. 84,317. (No model.)



Claim.—1. In a loom, the combination of a loom-thread-supporting beam, needles for introducing the loom-threads, drop devices supported by the loom-threads between the loom-beam and loom-needles, means interposed between the loom-needles and drop devices for maintaining a normal condition of the loom-threads as they pass through the drop devices, and electrically-controlled stop devices operative on the dropping of a drop device to stop the loom.

2. In a loom, the combination of a loom-thread-supporting beam, needles for introducing the loom-threads, drop devices supported by the loom-threads between the loom-beam and loom-needles, guides and tension mechanism for the loom-threads disposed between the loom-needles and drop devices for maintaining a normal condition of the loom-threads as they pass through the drop devices, and electrically-controlled stop devices operative on the dropping of a drop device to stop the loom.

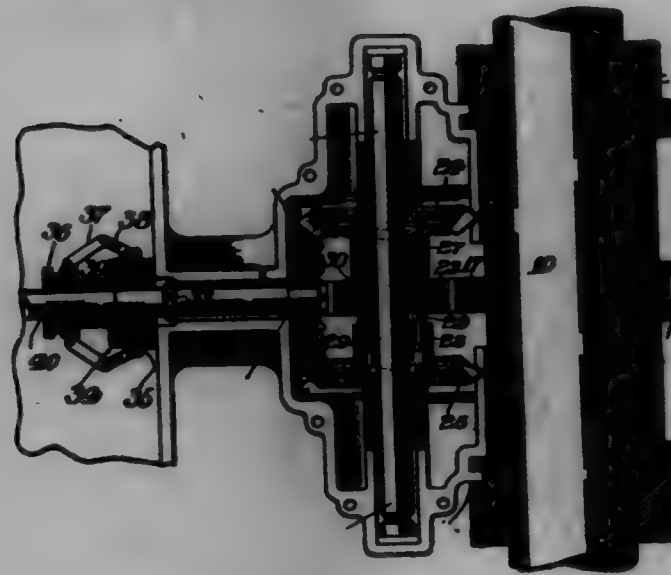
3. In a loom, the combination of a loom-thread-supporting beam, loom-needles for introducing the loom-threads, means for maintaining the loom-threads in normal condition as they pass through the drop wires or bars, said an electric stop-motion for the loom-threads, consisting of a series of drop wires or bars supported on the loom-threads, and extending in a plane above the plane of the ordinary warp-threads, a clasp guide-bar for the drop wires or bars, and a second clasp-bar to be engaged by the drop wires or bars in their lowered position, to complete the electric circuit and put into operation mechanism for stopping the loom, substantially as shown and described.

4. In a loom, the combination of a loom-thread-supporting beam, a key, loom-needles for introducing the loom-threads, and an electric stop-motion for the loom-threads, consisting of a series of drop wires or bars supported

on the lappet-threads, and extending in a plane above the plane of the ordinary warp-threads, a bar extending over the drop wires or bars, a circuit guide-bar for the drop wires or bars, and a second circuit-bar to be engaged by the drop wires or bars in their lowered position, to complete the electric circuit and put into operation mechanism for stopping the loom, and guides for the lappet-threads to lead the said threads direct from the stop-motion to the lappet-needles, and means interposed between the lappet-needles and drop wires or bars for maintaining the lappet-threads in normal condition as they pass through said drop wires or bars, substantially as shown and described.

5. In a lappet-loom, the combination with lappet-thread beam and lappet-needles, two supporting-rods for the lappet-threads, of a series of drop wires or bars hung on the lappet-threads, between said two supporting-rods, and extending in a plane above the ordinary warp-threads, and a circuit guide-bar for the drop wires or bars, and a second circuit-bar to be engaged by the drop wires or bars in their lowered position, said circuit-bar provided with binding-posts, and in electric connection with an electromagnet, and an armature, and a trigger-support, which is operated on the closing of the circuit by the dropping of a wire or bar, to allow the trigger to drop, and cause the trigger-lever, through intermediate mechanism, to operate to stop the loom, and a tension mechanism for the lappet-threads disposed between the needles and the drop device, substantially as shown and described.

702,655. MEANS FOR TRANSMITTING POWER FROM CAR-AXLES. BENJ. H. JOHNSON, Lafayette, Ill. Filed Mar. 27, 1901. Serial No. 58,587. (No model.)



Claim.—1. A means for transmitting power from car-axles, comprising a gear mounted upon the axle, a counter-shaft arranged parallel to the axle, a gear-casing adapted to be clamped about the car-axle to inclose the gear thereon and the counter-shaft, gears arranged within said casing and connected to the counter-shaft and clutch mechanism whereby rotary motion of the car-axle in either direction may be transmitted through said gears in the same direction to a power-using device, substantially as described.

2. In means for transmitting power from car-axles, the combination with a gear mounted upon the axle, a counter-shaft, a gear fixed thereon and connected with the axle-gear, gear-wheels loosely mounted upon the counter-shaft, a power-transmitting shaft geared with said loose gears, and clutch mechanism whereby either of the loose gears may be made fast with the counter-shaft whereby rotary motion in the same direction may be imparted to the power-transmitting shaft when the axle and counter-shaft are rotated in either direction, substantially as described.

3. In means for transmitting power from car-axles, the combination with the axle of a sleeve secured thereon, a gear-wheel secured with the sleeve, a counter-shaft arranged parallel to the axle, gear-wheels loosely mounted thereon and being each other, a gear fixed to the counter-shaft and connected with the axle-gear, a clutch mechanism adapted to connect either of the loose gears with the fixed gear, and a shaft adapted to be driven in the same direction by either of the loose gears when secured to turn with the counter-shaft, substantially as described.

4. Means for transmitting power from car-axles, comprising, a sleeve adapted to embrace a car-axle and having a gear member thereon, means for fixedly securing the sleeve to the axle and a casing loosely mounted on and surrounding the sleeve, gearing journaled in and carried by the casing meshing with the gear member on the sleeve, and means for securing the casing on the sleeve.

702,656. BLOCK-SIGNAL SYSTEM. PIERRE O. KNEBELER, Baltimore, Md. Filed Mar. 6, 1902. Serial No. 94,970. (No model.)



Claim.—1. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the opposite rails of each block, and means whereby the electrical condition of the rail-circuit of one block controls the current to the track-coils of the following block, as set forth.

2. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the rails near the end of each block, an electromagnet connected to the rails near the other end of each block, an armature in position to be actuated by said electromagnet, and contacts carried by said armature and arranged to control the current to the track-coils of each successive block, as set forth.

3. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the rails near the end of each block, an electromagnet connected to the rails near the other end of each block, an armature in position to be actuated by said electromagnet, and sets of contacts carried by said armature, so arranged that the movement of said armature in either direction reverses the current through the track-coils of each successive block, as set forth.

4. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the opposite rails of each block, means whereby the electrical condition of the rail-circuit of one block controls the current to the track-coils of the following block, a train-coil in each position that movement over a track-coil generates an induced current therein, and a signaling device on the train and in circuit with said train-coil, as set forth.

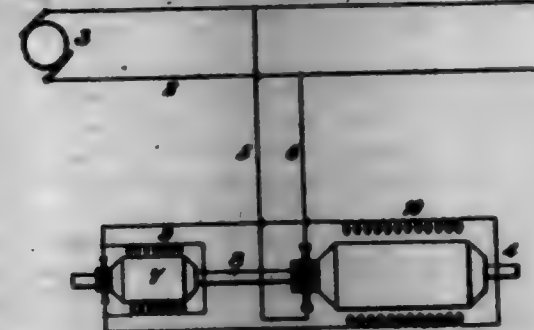
5. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the rails near the end of each block, an electromagnet connected to the rails near the other end of each block, an armature in position to be actuated by said electromagnet, contacts carried by said armature and arranged to control the current to the track-coils of each successive block, a train-coil in each position that movement over a track-coil generates an induced current therein, and a signaling device on the train and in circuit with said train-coil, as set forth.

6. A railway signal system, comprising a track divided into a series of sections or blocks, one or more track-coils in each block, a source of electric current for the track-coils of each block, a source of electric current connected to the rails near the end of each block, an electromagnet connected to the rails near the other end of each block, an armature in position to be actuated by said electromagnet, sets of contacts carried by said armature, so arranged that the movement of said armature in either direction reverses the current through the track-coils of each successive block, a train-coil in each position that movement over a track-coil generates an induced current therein, and a signaling device on the train and in circuit with said train-coil, as set forth.

7. A train having a coil in proximity to the track, and a signaling device in circuit with said coil and comprising a movable member and electromagnet mechanism constructed to move said member in either direction, according to the direction of flow of current through said coil, as set forth.

8. A train having a coil in proximity to the track, and a signaling device in circuit with said coil and comprising a movable member, separate indicators behind said member, and electromagnet mechanism for shifting said member and moving said indicator according to the direction of flow of current through said coil, as set forth.

702,657. SPEED-REGULATING MEANS FOR ELECTRIC MOTORS. BENJAMIN G. LAMER, Pittsburgh, Pa., assignor to Westinghouse Electric & Manufacturing Co., a Corporation of Pennsylvania. Filed Apr. 24, 1901. Serial No. 58,587. (No model.)



Claim.—1. The combination with a source of direct-current electromotive force, of a direct-current motor driven by energy from said source and having a separately-excited field-magnet, a generator having a self-excited and normally unexcited field-magnet and driven by said motor for supplying current to the motor-field-magnet winding.

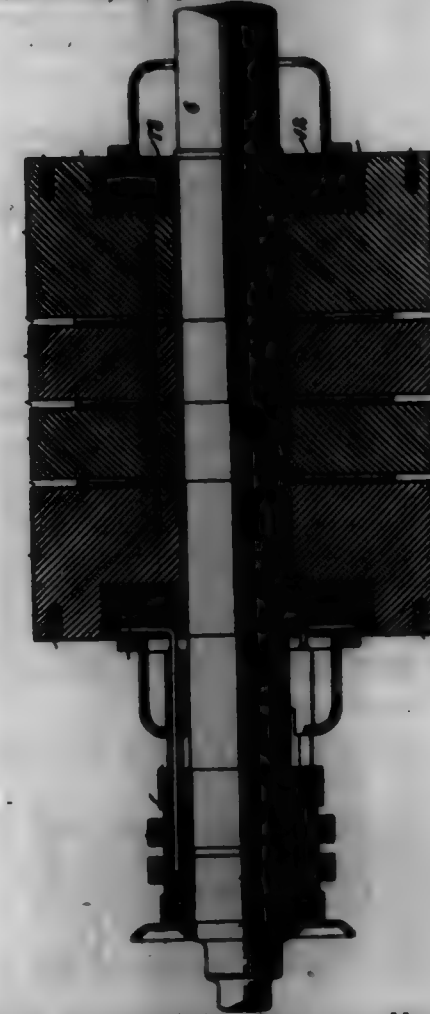
2. The combination with an electric motor driven from a source of variable electromotive force, of a generator having a self-excited and normally unexcited field-magnet and driven by the motor to supply its field-magnet winding with exciting current.

3. The combination with an electric motor driven from a source of variable electromotive force, of an exciting-generator for the field-magnet of the motor having a self-excited and normally unexcited field-magnet and having its armature mechanically connected to the motor-armature.

4. The combination with an electric motor driven from a source of variable electromotive force, of an exciting-generator therefor having a self-excited and normally unexcited field-magnet and driven by said motor, whereby the motor is operated at approximately constant speed.

5. The combination with an electric motor driven from a source of variable electromotive force, of an exciting-generator therefor having a self-excited and normally unexcited field-magnet and having its armature coupled to that of the motor, whereby the field of the motor is adjusted to maintain an approximately constant speed.

702,658. DYNAMO-ELECTRIC GENERATOR. BENJAMIN G. LAMER, Pittsburgh, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Sept. 24, 1901. Serial No. 73,578. (No model.)



Claim.—1. In an electrical machine, a rotatable member comprising a core and an insulated winding completely embedded therein.

2. In an electrical machine, a rotatable member comprising a cylindrical core and an insulated winding completely embedded therein.

3. In an electrical machine, a rotatable member comprising a cylindrical, sectional core and an insulated winding completely embedded therein.

4. In an electrical machine, a rotatable member comprising a slotted core formed of cylindrical sections fastened together by dovetail-pieces and an insulated winding located in the core-slots and beneath the core-surface.

5. In an electrical machine, a rotatable member comprising a cylindrical core having communicating longitudinal and transverse ventilating-passages and an insulated winding completely embedded in the core.

6. In an electrical machine, a rotatable member comprising a core having deep, narrow slots extending entirely around it and an insulated winding each turn of which occupies the entire width of a slot.

7. In an electrical machine, a rotatable member comprising a core having slots extending entirely around it and an insulated winding completely inclosed in said slots each turn of which occupies the width of its slot.

8. In an electrical machine, a rotatable member comprising a cylindrical core having a plurality of slots extending completely around it in planes parallel to the shaft and an insulated winding completely inclosed in said slots and having no side-by-side turns in any slot.

9. In an electrical machine, a rotatable member comprising a core formed of cylindrical sections of different internal diameters, an insulated winding completely embedded in said core and a shaft having a plurality of diameters corresponding to the internal diameters of the core-sections.

10. In an electrical machine, a rotatable member comprising a cylindrical core having a set of endless slots disposed in longitudinal planes, an insulated winding located in said slots and non-magnetic strips located in the outer portions of the slots and flush with the surface of the core.

11. In an electrical machine, a rotatable member comprising a core formed of cylindrical sections and having a set of endless slots disposed in longitudinal planes, an insulated winding located in said slots and non-magnetic metal locking-strips in the outer portions of said slots and flush with the surface of the core.

702,659. HOE. EDWIN C. LAMER, Detroit, Mich. Filed Dec. 22, 1901. Serial No. 94,984. (No model.)



Claim.—1. The combination of a handle having a longitudinally-divided lower end, forming two yielding scouring-arms, two hoe-blades arranged side by side, rigid attaching-chunks rising from the inner sides of said blades and secured to said arms, and an adjusting device connecting said chunks below said yielding scouring-arms for holding said yielding scouring-arms spaced apart more or less, substantially as set forth.

2. The combination of a handle having a longitudinally-divided lower end, forming two yielding scouring-arms, two hoe-blades arranged side by side, rigid attaching-chunks rising from the inner ends of said blades and provided at their upper ends with half-sockets, means for securing said half-sockets to said arms, and a transverse adjusting-screw connecting said chunks below said arms for holding said yielding scouring-arms spaced apart more or less, substantially as set forth.

3. The combination of a handle having a longitudinally-divided lower end, forming two yielding scouring-arms, two hoe-blades arranged side by side, attaching-chunks rising from the inner ends of the hoe-blades and provided at their upper ends with socket-plates which are arranged against the outer sides of said arms, screw-plates arranged against the in-

the sides of said arms, and fastening-screws inserted through said socket-plates and arms into said screw-plates, substantially as set forth.

4. The combination of a handle having a longitudinally-divided lower end, forming two yielding scoring-arms which are provided on their inner sides with longitudinal grooves, two hoe-blades arranged side by side, attaching-chunks rising from the inner ends of the hoe-blades and provided at their upper ends with socket-plates which are arranged against the outer sides of said arms, screw-plates arranged in the grooves on the inner sides of said arms, and fastening-screws inserted through said socket-plates and arms into said screw-plates, substantially as set forth.

5. The combination of a handle, attaching-chunks secured to said handle and adjustable toward and from each other, and two substantially horizontal hoe-blades secured to said handle side by side and provided at their inner ends with upright blades extending the inner or opposing faces of which converge forwardly in all positions of the handle, substantially as set forth.

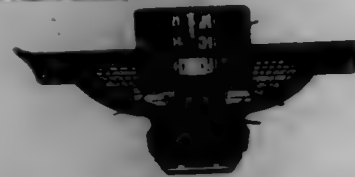
6. The combination of a handle having a longitudinally-divided lower end, forming two yielding scoring-arms, two substantially horizontal hoe-blades arranged side by side and provided at their inner ends with upright blades extending the inner or opposing faces of which converge forwardly, attaching-chunks rising from said blades extensions and secured to said arms, and an adjusting device connecting said handle below said arms, substantially as set forth.

702,660. PROCESS OF MAKING INSULATORS. FRED M. LORER, Victor, N. Y. Filed Mar. 12, 1902. Serial No. 97,572. (No specification.)



Claim.—The process herein described of constructing insulators formed of two or more shells of suitable insulating material consisting in forming it in two or more parts, dipping them in liquid glass, the outer shells being dipped bottom side upward and allowing a portion of the liquid glass to remain in the outer shell or shells, nesting them together in this position with their petticoats uppermost and then firing them so as to fuse the parts together so as to form practically but a single piece.

702,661. INSULATOR AND PROCESS OF MANUFACTURING SAME. FRED M. LORER, Victor, N. Y. Filed Apr. 19, 1902. Serial No. 102,722. (No specification.)



Claim.—1. The herein-described process of securing together two or more shells or parts of an insulator consisting in first firing the shells or parts in a kiln, then nesting them together and pouring in liquid glass or glass or similar material in its molten or semimolten state and then allowing the parts to cool.

2. The herein-described method of forming an insulator consisting in first molding the parts separately, firing them in a kiln, then pouring in liquid glass or glass or similar material in its molten or semimolten state and inserting the inner shell into the outer shell and allowing the parts to cool.

3. The herein-described method of constructing an insulator consisting in first molding the parts separately, then applying liquid glass, glass or similar material in the molten or semimolten state between the joints and allowing the parts to cool.

702,662. CONDUIT FOR ELECTRIC WIRES OR CABLES. ROBERT W. LYLE, Perth Amboy, N. J. Filed Apr. 10, 1902. Serial No. 102,109. (No model.)

Claim.—1. A conduit-section having a longitudinal external groove, the end wall of which is undercut.

2. A conduit-section having a longitudinal external groove, the end wall of which is beveled inward.

3. A conduit-section having a longitudinal external groove opening

into one end thereof, the closed end wall of the groove being undercut, and a key having an end shaped to fit in said undercut end wall.



4. A conduit the sections of which have registering external grooves the end walls of which are undercut, and a key fitted in each groove; the ends of the key being shaped to enter the undercut end walls of the grooves.

5. A conduit the sections of which have registering external grooves the end walls of which are beveled, and a key fitted in each groove and bridging the abutting ends of the sections, the opposite ends of the key being beveled to fit under the beveled end walls of the grooves.

702,663. CONDUIT FOR ELECTRIC WIRES OR CABLES. ROBERT W. LYLE, Perth Amboy, N. J. Filed Apr. 10, 1902. Serial No. 102,170. (No model.)



Claim.—1. The combination with a series of tiles arranged end to end, each tile having external grooves at its opposite ends, of clips embracing the outer faces of abutting tiles and having portions thereof entering said grooves to center and lock the tiles in alignment.

2. A conduit comprising a series of tiles arranged end to end, and clips embracing the corners of said tiles at the abutting ends thereof.

3. A conduit comprising a series of tiles arranged end to end, and spring-clips embracing the corners of said tiles at the abutting ends thereof.

4. A conduit comprising a series of tiles arranged end to end, and metallic clips embracing the corners of said tiles at the abutting ends thereof, said clips covering the joints between adjacent tiles.

5. The combination with a series of tiles arranged end to end, each tile having external grooves at its opposite ends, of angular clips embracing the corners of abutting tiles and having portions thereof entering said grooves to center and lock the tiles in alignment.

6. The combination with a series of tiles arranged end to end, each tile having external grooves at its opposite ends, of angular clips embracing the corners of abutting tiles and having flanges that enter said grooves to center and lock the tiles in alignment.

7. The combination with a series of tiles arranged end to end to form a conduit, each tile having external grooves at its opposite ends, of angular clips embracing the corners of abutting tiles and having flanges that enter said grooves, and a covering of flexible material surrounding the abutting ends of the tiles and including said clips.

8. As a new article of manufacture, a corner-clip comprising integral spring-arms normally arranged at an angle to each other less than a right angle, said arms being provided with inwardly-projecting portions.

9. As a new article of manufacture, a corner-clip comprising a strip of spring metal bent intermediate its ends to provide two resilient arms that are normally disposed at an angle to each other less than a right angle, said arms being provided with inwardly-projecting portions.

10. As a new article of manufacture, a corner-clip comprising a strip of resilient material bent intermediate its ends to provide two spring-arms that are normally disposed at an angle to each other less than a right angle, said arms being provided with inwardly-projecting portions.

11. As a new article of manufacture, a corner-clip comprising a strip of spring metal bent intermediate its ends to provide two resilient arms that are normally disposed at an angle to each other less than a right angle, the ends of said arms being flanged inward toward each other.

702,664. PROJECTILE. AXEL W. MATTHEW, Oakley, Mass. Filed Nov. 20, 1901. Serial No. 92,008. (No model.)



Claim.—1. A projectile comprising a firing-head, a stem projecting from the firing-head, and formed with radially-extending legs, arranged

at intervals, and a point carried by the inner end of the stem, and a charge of powder surrounding the stem and having the legs embedded therein.

2. A projectile comprising a firing-head, a cylinder carrying a charge of rapid-burning powder and projecting from the firing-head, and formed with radially-extending legs arranged at intervals, and a point carried by the inner end of the cylinder, and a charge of smokeless powder surrounding the cylinder and having the legs embedded therein.

3. A projectile comprising a firing-head provided with an annular flange and a channelled collar, a cylinder carrying a charge of rapid-burning powder, and perforated at intervals throughout its entire length, and formed with radially-extending legs arranged at intervals, one end of said cylinder being open and detachably secured in the channel of said collar, and a point carried by the inner end of said cylinder, and a charge of smokeless powder surrounding the cylinder and having the legs embedded therein.

4. A projectile comprising a firing-head provided with an annular flange and a channelled collar, a cylinder carrying a charge of rapid-burning powder, and perforated at intervals throughout its entire length, and formed with radially-extending legs arranged at intervals, one end of said cylinder being closed and solid for a portion of its length, and the opposite end thereof open and detachably secured in the channel of said collar, a point having a reduced portion and a central recess to receive the solid portion of said cylinder, and a charge of smokeless powder surrounding the cylinder and reduced portion of the point, and having the legs embedded therein.

702,665. SNOW-FASTENERS. ALBERT C. REAR, Medford, Mass., assignor of one-half to Charles J. Addy and John T. Higgins, Medford, Mass. Filed Feb. 2, 1902. Serial No. 92,492. (No model.)



Claim.—1. In a fastening of the class described, a slotted plate having longitudinal grooves and adapted to be connected at one end with part of a shoe, and a complementary device comprising a body having internal portions to enter said grooves and having a projecting tongue to enter one of said slots, the device thereafter being capable of being turned on the slotted plate to cause the extremities of the tongue to enter the slot and confine the device on the face of the plate.

2. In a fastening of the class described, a slotted plate adapted to be connected with a part of a shoe, and a complementary device having a rigidly-connected tongue extending outwardly therefrom toward the point of attachment of said complementary device, the tongue being adapted to enter one of the slots of the plate and the complementary device as a whole being thereafter turned about the engaging portion of the tongue and plate as a fulcrum to complete the locking of said fastening, the tongue and complementary device being extended inward and brought together to form an operating hand portion.

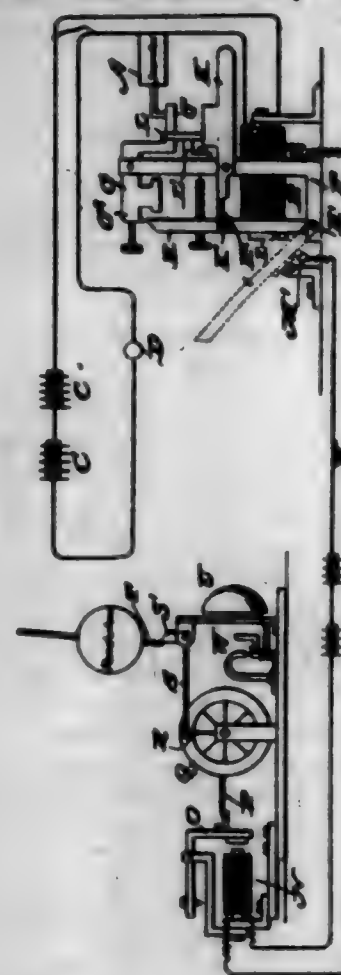
3. In a fastening of the class described, a slotted plate adapted to be connected with a part of a shoe, and a complementary device having a rigidly-connected tongue projecting from the outer end of the device, and provided with a slot at the portion of the device adjacent the free end of the tongue for connection with a part of a shoe, said tongue being offset between its ends, the tongue being adapted to enter one of the slots of the plate, the device being thereafter turned on the body of the plate as a lever to complete the locking of the device on the plate, said tongue and complementary device being extended inwardly and brought together to form an operating hand portion.

4. In a fastening of the class described, a slotted plate adapted to be connected to one part of a shoe, and a complementary device having an integrally-formed tongue extending toward the point of attachment of the complementary device, said tongue being offset or inclined in the direction of its length from the under side of said complementary device, the free end of the tongue projecting beyond the outer end of said complementary device, said tongue and complementary device being extended inwardly and brought together at the portions thereof remote from the free end of the tongue to form an operating hand portion.

5. A fastening of the class described comprising a slotted plate for attachment to a part of a shoe, a complementary device having a rigidly-connected tongue for engagement with the slotted plate, the side edges of said device on opposite sides of the tongue being downturned to bear upon the opposed edges of the plate when the parts are in locking position.

702,666. ELECTRIC CLOCK-SYNCHRONIZER. CHARLES F. REAR, Medford, Mass. Filed May 19, 1901. Serial No. 90,591. (No model.)

Claim.—1. In a device of the kind described, the combination with the sounder, an electro-magnet arranged in connection therewith, an armature arranged in connection with the said magnet, an arm carrying the said armature, a lever mechanism for releasing the said arm, the elbow-lever for checking the motion of a pendulum, the electro-magnetic means for releasing the said lever, the line connecting the said electro-magnetic device, and the sounder, the swinging arm carrying a contact-point adapted to close the circuit, substantially as set forth.



2. The combination with a sounder, of an upright arm carrying a lever at its upper end and a lever intermediate its end, and a third lever adapted to hold the other levers in position, a pivoted arm carrying an armature, and a contact-point, the line-wire and circuit-closer, the electro-magnet and its armature, the rotating wheel carrying the arm and pin, and the elbow-lever adapted to rest upon the pin, and the bell and striking mechanism, all arranged and adapted to operate, substantially as described.

702,667. DRESS-SHIELD. JOHN F. MURPHY, Adrian, Mich. Filed Sept. 26, 1901. Serial No. 79,599. (No model.)



Claim.—1. A dress-shield, having a continuous arcuate holder and spreader fitted in the right thereof, and connected thereto, and an attaching-clamp carried by the intermediate portion of the holder and embodying a clip to straddle an arm-axle, and a pivotal jaw carried by one side of the clip and to clamp against the opposite side thereof.

2. A dress-shield, having an arcuate continuous spreader and holder fitted in the right thereof, and provided with an intermediate substantially U-shaped clip embracing and fixed to the holder, and a clamping-jaw pivoted intermediate of its ends to one side of the clip and to cooperate with the other side thereof, the outer free end of the jaw being connected to the adjacent section of the shield.

3. A holder and spreader for dress-shields, comprising a continuous arcuate body having opposite terminal eyes, and an intermediate inverted substantially U-shaped clip embracing the body and projected at one end of the clip, the inner end of the jaw being provided with teeth and ly-

leg between the sides of the clip to cooperate with the opposite side thereof, and the outer free end of the jaw being constructed for connection with one section of a drum-chill.

4. A drum-chill holder and spreader, comprising a continuous arcuate rod-like body having a portion twisted into a spring-coil located in the longitudinal axis thereof to give flexibility to the device, and an arm-engage-clip carried by the spreader and projected at the convex side thereof.

5. A drum-chill holder and spreader, comprising an arcuate rod-like body having portions twisted into spring-coils located at opposite sides of the middle of the device and in the longitudinal axis thereof, and an arm-engage-clip carried by the device between the opposite spring-coils and projected at the convex side of the spreader.

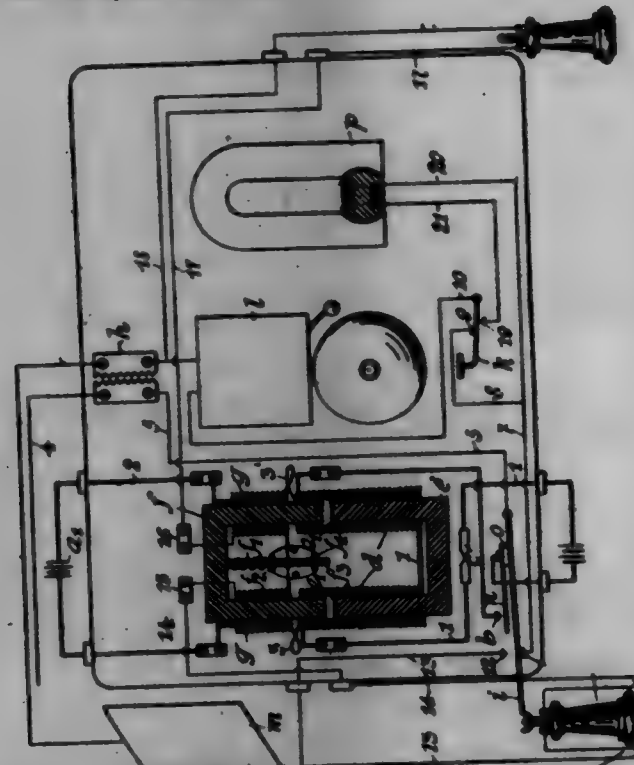
702,668. SEAM FOR SEWED ARTICLES. CHERRY HENRI, Chicago, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 5, 1900. Serial No. 711,810. (No model.)



Claim.—1. The herein-described seam, comprising a fabric with an inwardly-turned hem-fold thereon, a second fabric with an oppositely-turned hem-fold superposed upon the other hem-fold, and a row of loops uniting the two hem-folds and entering and emerging at adjacent points on the face of the same hem-fold; substantially as described.

2. The herein-described seam, comprising a fabric with an inwardly-turned hem-fold thereon, a second fabric with an oppositely-turned hem-fold superposed upon the other hem-fold and a row of loops uniting the two hem-folds and entering and emerging at adjacent points on the face of the same hem-fold, and cooperating locking-threads for the loops; substantially as described.

702,669. SOUND-STRENGTHENING APPLIANCE FOR TELEPHONE-STATIONS. FRANK ORENBURG, Vienna, Austria-Hungary, assignor to Louis Rider, Vienna, Austria-Hungary. Filed Apr. 29, 1901. Serial No. 58,064. (No model.)

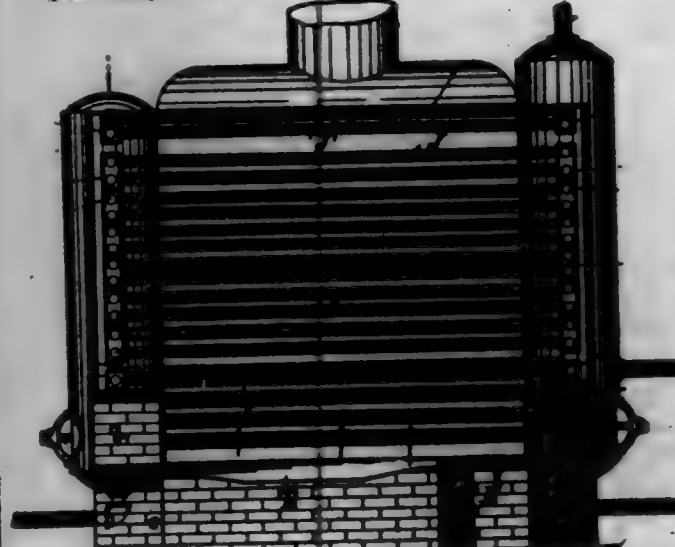


Claim.—1. In a telephone-station, the combination with the inductorium of a soft-iron core inserted into the same, a soft-iron armature so mounted in front of the pole of the said core as to be enabled to oscillate under the action of the variations of the magnetic force, a magnetizing coil or coils interposed in the circuit of a special current-generator and so surrounding the said armature as to cause an unlike pole or unlike poles to be formed in front of the pole or poles of the core, and a secondary coil or coils surrounding the said magnetizing-coils of the armature and connected in series with the secondary coil or coils of the inductorium, substantially as set forth and for the purpose described.

2. In a telephone-station, the combination with the inductorium of a soft-iron core inserted into the same, a soft-iron armature so mounted in front of the pole of the said core as to be enabled to oscillate under the action of the variations of the magnetic force, a magnetizing coil or coils interposed in the circuit of a special current-generator and so sur-

rounding the said armature as to cause an unlike pole or unlike poles to be formed in front of the pole or poles of the core, and a secondary coil or coils surrounding the said magnetizing-coils of the armature and connected in series with the secondary coil or coils of the inductorium, the bobbin or bobbins of the said inductorium being extended beyond the pole of the core, and the pole or poles of the armature projecting into the extended bobbin or bobbins of the inductorium, substantially as set forth and for the purpose described.

702,670. WATER-TUBE BOILER. OWEN D. OWEN, New York, N. Y. Filed Mar. 29, 1901. Renewed Feb. 29, 1902. Serial No. 95,890. (No model.)



Claim.—1. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, combined with a furnace having grates adapted to be fired from opposite sides of the front drum, and deflecting-walls over the first header extending transversely from the longitudinal walls of the furnace into proximity to the drums for directing the products of combustion inwardly between the drums, substantially as described.

2. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, longitudinal tubes directly connecting the two vertical drums, combined with a furnace having grates adapted to be fired from opposite sides of the front drum, and deflecting-walls over the first header extending from the walls of the furnace into proximity to the drums for directing the products of combustion inwardly between the drums, substantially as described.

3. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, longitudinal tubes directly connecting the two vertical drums, combined with a furnace having grates adapted to be fired from opposite sides of the front drum, deflecting-walls extending from the walls of the furnace into proximity to the drums for directing the products of combustion inwardly between the drums, and horizontal deflecting-plates located above the deflecting-walls for directing the products of combustion outwardly, substantially as described.

4. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, a combustion-chamber formed between the adjacent ends of the headers and containing longitudinal tubes connecting the two vertical drums, deflecting-walls arranged between the headers and extending from the walls of the furnace to the combustion-chamber, and deflecting-plates extending from the headers, substantially as described.

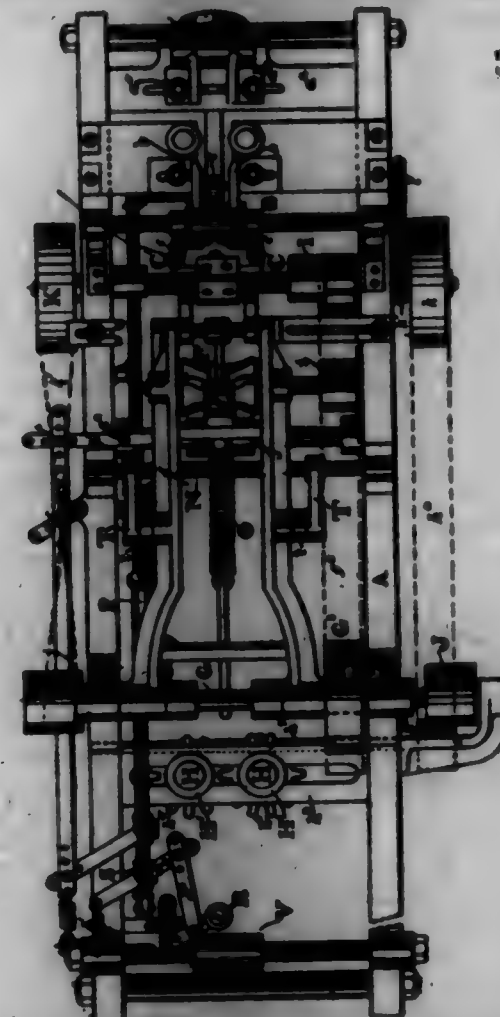
5. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, longitudinal tubes directly connecting the two vertical drums, combined with a furnace having grates on opposite sides of the drums, and deflecting-surfaces arranged at different levels for re-

spectively directing the products of combustion inwardly and outwardly with respect to the longitudinal tubes connecting the drums, substantially as described.

6. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, longitudinal tubes directly connecting the two vertical drums, one of said drums being provided with a transverse perforated partition having an opening therein, combined with a furnace having grates on opposite sides of the drums, and deflecting-surfaces arranged at different levels for respectively directing the products of combustion inwardly and outwardly with respect to the longitudinal tubes connecting the drums, substantially as described.

7. A water-tube boiler comprising two vertical drums placed at opposite ends of the furnace and each having a water and a steam space, horizontal headers extending laterally from the said drums and connected by longitudinal tubes, part of which form water-tubes and part form drying or superheating tubes, longitudinal tubes directly connecting the two vertical drums, combined with a furnace having grates on opposite sides of the drums, and deflecting-surfaces arranged at different levels for respectively directing the products of combustion inwardly and outwardly with respect to the longitudinal tubes connecting the drums; the lower deflecting-surfaces being arranged between the headers and part of the upper deflecting-surfaces being arranged between the tubes connecting the headers while the remaining parts of said upper deflecting-surfaces extend from the headers to the connecting-tubes of the drums, substantially as described.

702,671. MACHINE FOR FINISHING TONGUES. GEORGE W. FACKER, Chicago, Ill., assignor to the Dearing Harvester Company, Chicago, Ill. Filed Mar. 29, 1900. Serial No. 9,990. (No model.)



Claim.—1. In a machine for operating upon the sides and edges of tapering pieces, two cutting-heads, one arranged above and the other below the path of the material to be acted upon, mechanism for operating said cutting-heads, fluid-operated means independent of said mechanism for holding said cutting-heads above and below the path of the material and for positively moving said cutting-heads toward each other to act upon said material, and a trip for admitting the fluid to operative relation with said means, said trip being located beyond the cutting-heads to be engaged and actuated by the material after a predetermined length of said material has passed the cutting-heads whereby said means is caused to operate to move the cutting-heads toward each other.

2. In a machine for operating upon the sides and edges of tapering

pieces, two cutting-heads, one arranged above and the other below the path of the material to be acted upon, mechanism for operating said cutting-heads, fluid-operated means independent of said mechanism for moving said cutting-heads toward each other and for yieldingly holding them in operative relation to the material to be acted upon, and a trip for admitting fluid into operative relation to said means, said trip being located beyond the cutting-heads to be engaged and actuated by the material after a predetermined length has passed the cutting-heads, whereby said fluid-operated means is caused to operate to move the cutting-heads toward each other and yieldingly hold them in operative position.

3. In a machine of the character described, a feeding device, a presser adapted to act in opposition thereto and means made operative by the material being placed in the machine, for moving the presser upon said material, supports and passage-ways for the material being acted upon, a cutting-head, means for holding said cutting-head out of the path of the material until a predetermined length has been fed past the cutting-head and for thereafter moving said cutting-head into operative relation to said material, and a trip for said means located beyond the cutting-head in the path of the material to cause said means to become operative to act on a part only of said material.

4. In a machine for the purpose described, supports and passage-way for the material to be operated upon, a cutting-head, means for holding said cutting-head out of the path of the material and for positively lowering the cutting-head as required, and a trip for said means located beyond the cutting-head in the path of and to be actuated by the material after a predetermined length has passed the cutting-head to cause said means to operate and positively lower the cutting-head to act on a part only of said material.

5. In a machine for the purpose described, one or more cutting-heads, a feeding-roller adapted to operate upon one side of the wood or other material operated upon, a pressing-roller upon the opposite side thereof, mechanism for forcing said pressing-roller against the material operated upon; in combination with a tripping device, controlled by the material to be operated upon, whereby the latter is thus held against the said feeding-roller, all combined, substantially as described.

6. In a machine for the purpose described, a feeding-roller, a presser to force the material being operated upon against the said feeding-roller, tripping mechanism operated by the material to be acted upon to estimate the said presser and thus cause it to force the material being operated upon against the feeding-roller, a planing-head adapted to plane the under surface of the material being operated upon, and a chamfering-head adapted to operate upon the said material, all combined, substantially as described.

7. In a machine for the purpose described, a feeding-roller, a presser adapted to act in opposition thereto, a tripping device adapted to be actuated by the material being placed in the machine, and then cause the presser to force the material against the feeding-roller, and to press downward upon tapering pieces of material operated upon, as it passes through the machine, all combined, substantially as described.

8. In a machine for the purpose described, a feeding-roller, a presser adapted to act in opposition thereto, a tripping device adapted to be moved by the material being placed in the machine, and then cause the presser to force the material against the feeding-roller, and to press downward upon any tapering piece of material operated upon, as it passes through the machine, a cutting device adapted to act upon the said tapering material being operated upon, and mechanism for causing it to follow down the incline of said taper, all combined, substantially as described.

9. In a machine for the purpose described, a cutting-head, a feeding-roller, a presser normally held in such position as to permit the entrance of the material to be operated upon, and the tripping device, in combination with the air-pressure cylinder and its mechanism, suitably connected to the said presser, all combined, substantially as described.

10. In a machine for the purpose described, a support and passage-way for the material to be operated upon, cutting-heads above and below said passage-way, an air-pressure cylinder, provided with suitable valves and piston, the latter connected to said cutting devices and adapted to move them, and mechanism adapted to cause air to be admitted to the said cylinder and the said heads thus be forced to position to operate, substantially as described.

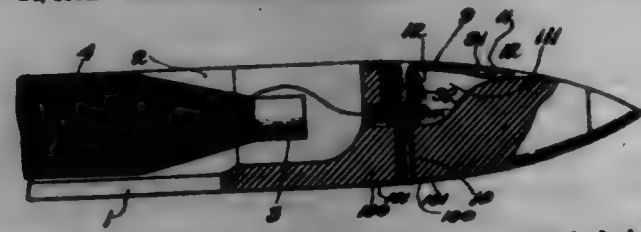
11. In a machine for the purpose described, a support and passage-way for the material to be operated upon, a cutting device below said passage-way movably supported upon the main frame, a cutting device above said passage-way, also suitably supported upon the said main frame, mechanism adapted to raise the cutting device located below the line of said supports and passage-way, and maintain it in a definite position, said cutting device that is located above said supports and passage-way adapted to be moved gradually downward during the passage of any tapering piece being operated upon, all combined, substantially as described.

12. In a machine for the purpose described, a support and passage-way for the material to be operated upon, a cutting device below said

passage-way movably supported upon the main frame, a cutting device above said passage-way, also suitably supported upon the said main frame, mechanism adapted to raise the cutting device that is located below the line of said supports and passage-way, and maintain it in a definite position, said cutting device that is located above said supports and passage-way adapted to be moved gradually downward during the passage of the tapering piece being operated upon, and means in common for moving the said cutting device to their work, said means adapted to move the lower one to a definite position, and permit the upper one to act in a constantly-varying position, all combined, substantially as described.

13. In a machine for the purpose described, a support and passage-way for the material to be operated upon, a cutting device located below said passage-way and movably supported upon the main frame, a cutting device located above said passage-way and also suitably supported upon the main frame, and mechanism for moving said cutting devices toward each other and thereafter for maintaining the cutting device located below the passage-way in a definite position and continuing the movement of the cutting device located above the passage-way toward the cutting device located below the said passage-way.

702,672. LOOM-SHUTTLE. ISA F. FINE, Warwick, R. I., assignor of one-half to Charles L. Levering, Taunton, Mass. Filed Aug. 24, 1901. Serial No. 78,122. (No model.)



Claim.—1. In a loom-shuttle, in combination, a shuttle-body having open yarn-passages, a threading-plate having a depending sleeve, and a tubular end entering the said sleeve and having the entering end thereof expanded to thereby secure the threading-plate to the shuttle-body, the said sleeve forming with said tubular end an elongated joint, thereby giving strength and stability, substantially as described.

2. In a loom-shuttle, in combination, the shuttle-body having the open yarn-passages, the threading-plate having the screw-threaded depending sleeve, and the tubular end entering the said sleeve and screw-threaded to engage therewith, the said end having its entering end expanded to secure the parts against loosening, substantially as described.

3. In a loom-shuttle, in combination, a shuttle-body having open yarn-passages, a threading-plate having a depending sleeve, a tubular end entering the said sleeve and having the entering end thereof expanded to thereby secure the threading-plate to the shuttle-body, and the sleeve is surrounded by the said depending sleeve, substantially as described.

4. In a loom-shuttle, in combination, the shuttle-body having the open yarn-passages, the threading-plate having the screw-threaded depending sleeve, the tubular end entering the said sleeve and screw-threaded to engage therewith, the said end having its entering end expanded to secure the parts against loosening, and the sleeve is surrounded by the said depending sleeve, substantially as described.

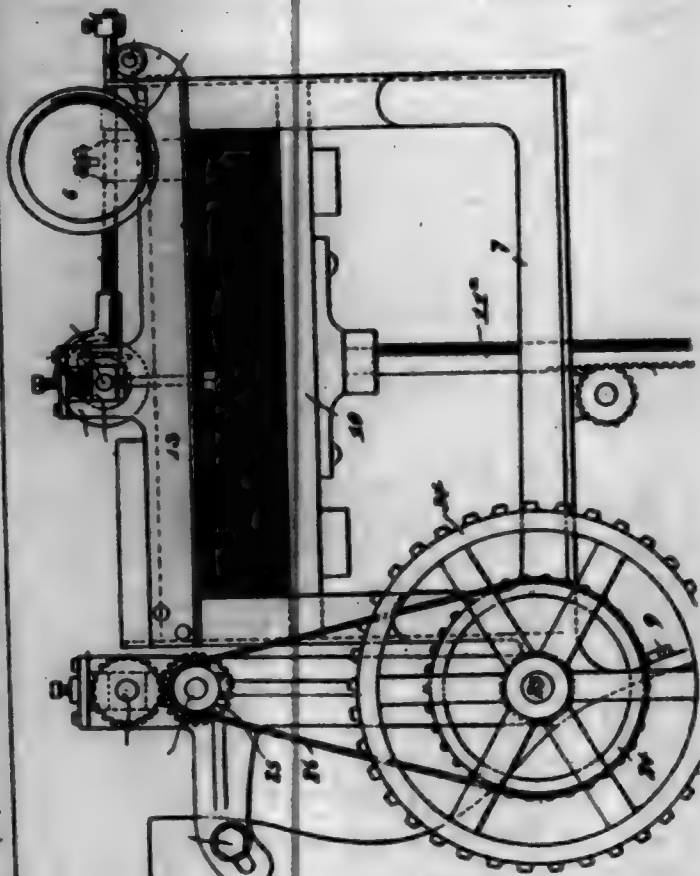
5. In a loom-shuttle, in combination, a shuttle-body having open yarn-passages, a threading-plate having a depending screw-threaded sleeve, a end in screw-threaded engagement with the said sleeve and forming therewith an elongated joint giving strength and stability, and a second sleeve as 12 surrounding the said parts, the yarn making contact with the sleeve 12 in its path as it issues from the shuttle, substantially as described.

702,673. PAPER-FEED MECHANISM. FRANK M. PETERSON and HENRY H. HENDERSON, Chicago, Ill.; said Henderson assignor to said Peterson. Filed July 12, 1901. Serial No. 67,981. (No model.)

Claim.—1. In a paper-feed mechanism, the combination with a vertically-movable carrier adapted to support a stack of sheets of paper, of a feed-roll journaled transversely thereabove and adapted to frictionally engage and feed forward the sheets of the stack successively at each rotation thereof, of continuously-rotating separating-fingers automatically operating to withdraw the opposite side edge portions of the successive top sheets from the next underlying sheet immediately prior to the engagement of the feed-roll therewith, and holding devices automatically operated immediately after the operation of the separating devices to hold the remaining sheets of the stack against displacement during the feeding forward of the top sheet, substantially as described.

2. In a paper-feed mechanism, the combination with a suitable frame and a vertically-movable carrier-plate guided therein and adapted to support a stack of sheets of paper, of a feed-roll journaled in the upper por-

tion of said frame transversely thereof and directly above said stack of paper, said roll being provided with a friction-surface on its periphery whereby it is adapted to engage and feed forward the top sheet of the stack at each rotation thereof, a pair of separating-fingers supported above the rear edge portions of the stack, means for continuously rotating said fingers driven from the feed-roll whereby the free ends of said fingers are caused during the lower portion of their rotary travel to wipe over the upper face of the stack and frictionally carry the opposite side edge portions of the top sheet inwardly toward each other, and automatically-operated clamping-fingers adapted to bear upon and hold the remaining sheets of the stack while the top sheet is being fed forward, substantially as described.



3. In a paper-feed mechanism, the combination with a suitable frame and a vertically-movable carrier-plate guided therein and adapted to support a stack of sheets of paper, of a feed-roll journaled transversely above the upper portion of said frame, an oscillatory rod journaled across the upper rear portion of said frame parallel with the feed-roll, a pair of hangers journaled on the spindle of said feed-roll, a pair of shafts at one end independently journaled in said hangers and geared to the spindle of the feed-roll and extending rearwardly of and at right angles to the latter and at their rear ends overlying said rod, a pair of separating-fingers fixed on said shafts and at their free ends frictionally engaging the side marginal portions of the top sheet in directions at right angles to the direction of the feed, a pair of clamping-fingers keyed on said rod and overlying the rear edge of the stack, arms on the opposite ends of said oscillatory rod, a spring between the outer end of one of said arms and a stationary point on the frame and leading to depress said clamping-fingers, a disk geared to the spindle of the feed-roll and having a cam projection on its periphery, and a lever pivoted on the frame and having one end engaging the periphery of said cam-disk, and its other end adapted to engage the other arm of the oscillatory rod to estimate the latter against the tension of the said spring and thereby raise the clamping-fingers, substantially as described.

4. In a paper-feed mechanism, the combination with a suitable frame and a movable carrier-plate guided therein and adapted to support the stack of sheets of paper, of a spring-pressed feed-roll journaled horizontally across the top portion thereof, a pair of shafts extending rearwardly of and at right angles to the feed-roll and independently geared at their inner ends to the spindle of said feed-roll, a pair of separating-fingers fixed on said last-named shafts and rotating synchronously but in a phase at right angles to that of the feed-roll, and serving, through frictional engagement with the top sheet, laterally thereof, to separate the side edge portions thereof from the next underlying sheet, an oscillatory rod supported at the rear upper end of the frame parallel with the feed-roll, a pair of clamping-fingers fixed on said rod and operating upon the stack at points outside the points of contact of the separating-fingers upon the stack and suitably-timed driving connections whereby said feed-roll, separating-fingers, and clamping-fingers are adapted to cooperate to effect the forward feeding of the sheets successively from the top of the stack, substantially as described.

5. In a paper-feed mechanism, the combination with a suitable frame of a vertically-movable carrier guided therein and adapted to support a stack of sheets of paper thereon, a feed-roll transversely journaled across the top of said frame, a pair of hangers journaled on the spindle of said feed-roll, a pair of rearwardly-extending shafts journaled in said hangers at right angles to the feed-roll and capable of independent automatic ver-

tical adjustment, intermeshing driving-gears on said last-named shafts and the spindle of the feed-roll, an oscillatory rod journaled in the upper rear portion of the frame upon which rod the free ends of said shafts are supported, a pair of separating-fingers fixed on said shafts, a pair of adjustable counterweights carried on the free ends of said shafts, a pair of clamping-fingers keyed on said rod, and mechanism for actuating said parts in properly-timed order to first separate the side marginal portions of the top sheet from the next underlying sheet, and then feed the same forward while the remaining sheets of the stack are securely clamped in place upon the carrier, substantially as described.

6. In a paper-feed mechanism, the combination with a suitable frame and a vertically-movable paper-carrier guided therein and adapted to support a stack of sheets of paper, of a feed-roll journaled horizontally above the upper portion of said frame, an oscillatory rod journaled across the upper rear portion of said frame parallel with the feed-roll, a pair of hangers journaled on the spindle of said feed-roll, a pair of shafts at one end journaled in said hangers and geared to the spindle of the feed-roll and extending rearwardly of and at right angles to the latter and having their rear ends suitably counterweighted and overlying said rod, a pair of separating-fingers fixed on said shafts and at their free ends frictionally engaging the side marginal portions of the top sheet in directions at right angles to the direction of the feed, a pair of clamping-fingers keyed on said rod and overlying the rear edge of the stack, shafts means operating upon said rod whereby said clamping-fingers are caused to clamp and hold the rear portion of the stack, and other positively-driven connections between the spindle of the feed-roll and said rod whereby said clamping-fingers are raised when the separating-fingers are operative to withdraw the side edge portions of the top sheet from contact with the corresponding portions of the underlying sheet preparatory to the feeding forward of the top sheet, substantially as described.

7. In a paper-feed mechanism, the combination with a suitable frame and a vertically-movable paper-carrier guided therein and adapted to support a stack of sheets of paper, of a feed-roll journaled horizontally above the upper portion of said frame, an oscillatory rod journaled across the upper rear portion of said frame parallel with the feed-roll, a pair of hangers journaled on the spindle of said feed-roll, a pair of shafts at one end independently journaled in said hangers and geared to the spindle of the feed-roll and extending rearwardly of and at right angles to the latter and at their rear ends overlying said rod, a pair of separating-fingers fixed on said shafts and at their free ends frictionally engaging the side marginal portions of the top sheet in directions at right angles to the direction of the feed, a pair of clamping-fingers keyed on said rod and overlying the rear edge of the stack, arms on the opposite ends of said oscillatory rod, a spring between the outer end of one of said arms and a stationary point on the frame and leading to depress said clamping-fingers, a disk geared to the spindle of the feed-roll and having a cam projection on its periphery, and a lever pivoted on the frame and having one end engaging the periphery of said cam-disk, and its other end adapted to engage the other arm of the oscillatory rod to estimate the latter against the tension of the said spring and thereby raise the clamping-fingers, substantially as described.

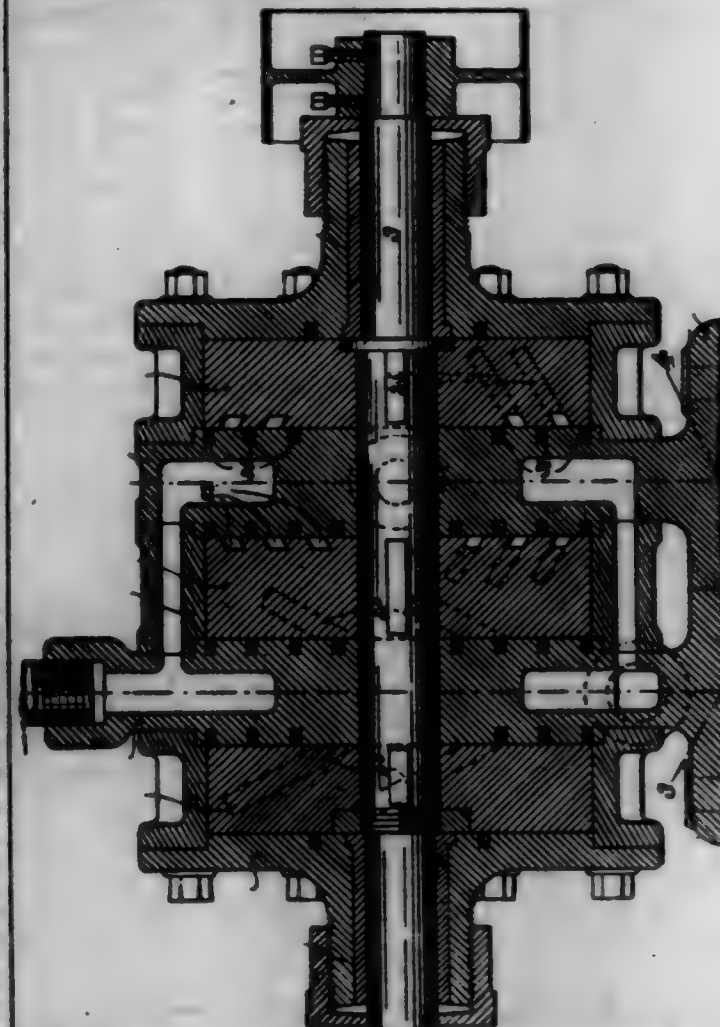
8. In a mechanism of the character described, the combination with the paper-carrier, the feed-roll and the laterally-operating separating-fingers serving to curl upwardly and inwardly the opposite side margins of successive sheets, of a pair of oscillatory clamping-fingers adapted to overlie the rear margin of the paper-carrier and having their free ends formed with convex engaging surfaces curved in a direction transversely of the carrier, substantially as and for the purpose described.

9. In a mechanism of the character described, the combination with the paper-carrier, the feed-roll and the laterally-operating separating-fingers serving to curl upwardly and inwardly the opposite side margins of successive sheets, of a pair of oscillatory clamping-fingers adapted to overlie the rear margin of the paper-carrier and having their free ends curved inwardly and upwardly so as to provide convex engaging surfaces curved in a direction transversely of the carrier, said convex engaging surfaces of the fingers being corrugated or roughened, substantially as and for the purpose described.

702,674. ROTARY ENGINE. FRANK PHILLIPS, Chicago, Ill. Filed Oct. 24, 1901. Serial No. 78,817. (No model.)

Claim.—1. A rotary engine comprising a cylinder divided longitudinally into a plurality of compartments by means of heads, a shaft passing centrally through said cylinder, passages through said heads connecting adjacent compartments, inlet-ports, passages connecting said inlet-ports with one of said chambers, disks rigidly mounted on said shaft and adapted to completely fill said compartments, pockets in the faces of one disk adapted as said shaft revolves to register successively with said inlet-passages and said other passages, pockets in the adjacent faces of said other disks adapted to register with said other passages simultaneously with the pockets in said first-mentioned disk, whereby steam entering said pockets at said inlet-passages will expand as same registers with said other passages, thereby imparting an impulse to said shaft, and exhaust-ports connecting with the last of said other passages.

2. A rotary engine comprising a cylinder divided longitudinally into three compartments by means of heads, a shaft passing centrally through said cylinder, passages through said heads connecting adjacent compartments, inlet-ports, passages connecting said inlet-ports with the middle one of said compartments, disks rigidly mounted on said shaft and entirely filling said compartments, pockets in each face of the middle one of said disks adapted as said shaft revolves to register successively with said inlet-passages and said other passages, pockets in the adjacent faces of said other disks adapted to register with said passages simultaneously with said pockets in said middle disk, whereby steam entering said pockets in said middle disk from said inlet-passages will expand into said other pockets, thereby imparting an impulse to said shaft, and an exhaust-ports connected with one of said passages in each of said heads.



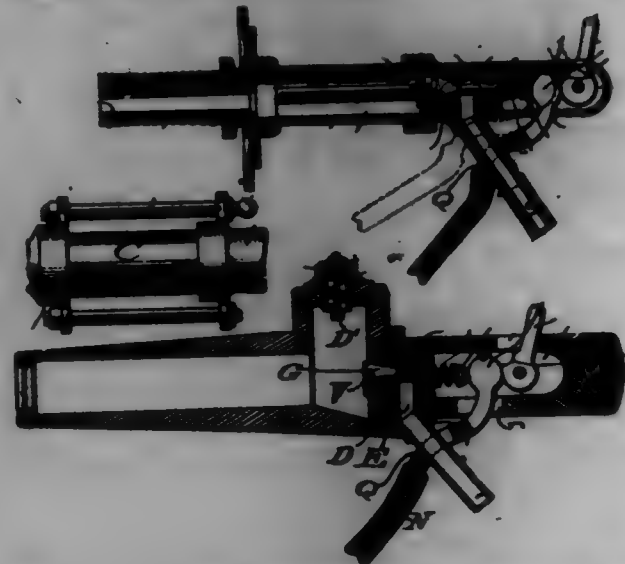
3. A rotary engine comprising a cylinder divided longitudinally into a plurality of compartments by means of heads, a shaft passing centrally through said cylinder, passages through said heads connecting adjacent compartments, a plurality of inlet-ports, passages connecting said inlet-ports with one of said chambers, disks rigidly mounted on said shaft and adapted to completely fill said compartments, pockets in the faces of one disk adapted as said shaft revolves to register successively with said inlet-passages and said other passages, pockets in the adjacent faces of said other disks adapted to register with said other passages simultaneously with the pockets in said first-mentioned disk, whereby steam entering said pockets at said inlet-passages will expand as same registers with said other passages, thereby imparting an impulse to said shaft, and exhaust-ports connecting with the last of said other passages.

4. A rotary engine comprising a cylindrical casing divided longitudinally into a plurality of compartments by means of heads, a shaft passing centrally through said cylinder, passages through said heads connecting adjacent compartments, said passages being divided and having one more opening at their delivery ends than at their inlet ends, inlet-ports in said heads, passages in said heads connecting one of said compartments with said inlet-ports, disks rigidly mounted on said shaft and entirely filling said compartments, pockets in one of said disks adapted as said shaft revolves to register successively with said inlet-passages and said other passages, pockets in said other disks in alignment with said first-mentioned pockets and adapted as said shaft revolves to register simultaneously with said passages, whereby steam entering said pockets at said inlet-passages will expand as same registers with said other passages, thereby imparting an impulse to said shaft, and exhaust-ports connecting with the last of said other passages, whereby the expanded steam is allowed to escape.

5. A rotary engine comprising a cylindrical casing divided longitudinally into a plurality of compartments by means of heads, a shaft passing centrally through said cylinder, passages through said heads connect-

trading between the engineer's valve and the triple valve and a cock located in said pipe and having a supplemental restricted port through which air may be exhausted from the triple-valve casing.

702,680. FAUCET. FRANK P. SPANNAKER, Philadelphia, Pa., assignor to James S. Spannaecker Manufacturing Company, a Corporation of Delaware. Filed Nov. 22, 1901. Serial No. 88,589. (No model.)



Claim.—1. In a faucet, the combination with a normally closed valve controlling the passage to the delivery-spout and operating within said passage, and a delivery-spout communicating with said passage, of a lever engaging said valve, said lever being situated adjacent said spout and extending around the same and being guided thereby.

2. In a faucet, the combination with a valve controlling the passage to the delivery-spout thereof, of a lever engaging the stem of the valve, the free end of said lever being situated adjacent the delivery-spout, and a supplemental lever engaging said lever for locking the same.

3. In a faucet, the combination with a valve controlling the passage to the delivery-spout, of a lever having a head engaging the stem of said valve, the free end of said lever being situated adjacent the delivery-spout, and a supplemental lever provided with a socket to engage the head of said lever when the latter is in position to hold the valve open.

4. In a faucet, the combination with a body portion having a valve-seat communicating with the inlet-passage of the faucet, a passage leading from said valve-seat to the delivery-spout, a valve within said seat, a stem extending from said valve through the body of the faucet, a casing upon the forward portion of said faucet receiving the end of said valve-stem, and a spring engaging said stem for holding the valve normally closed, of a lever pivoted in said casing and provided with a head engaging the end of the valve-stem, the free end of said lever being situated adjacent the delivery-spout, and a supplemental lever pivoted within said casing and having a socket engaging the head of said lever when the latter is moved to open the valve.

5. In a faucet, the combination with a plug having a non-corrodible lining, and a head, of a glass tube interposed between said plug and head, and a spout leading from said head provided with non-corrodible lining.

6. In a faucet, the combination with a plug and head, of a tube interposed between said plug and head, said plug and head being removably held against the ends of said tube and a spout connected with said head and removable therefrom.

7. In a faucet, the combination of a plug and a head, of a tube interposed between said plug and head, the rods connecting said plug and head and serving to hold the same in contact with the ends of the tube, and a spout connected with said head and removable therefrom.

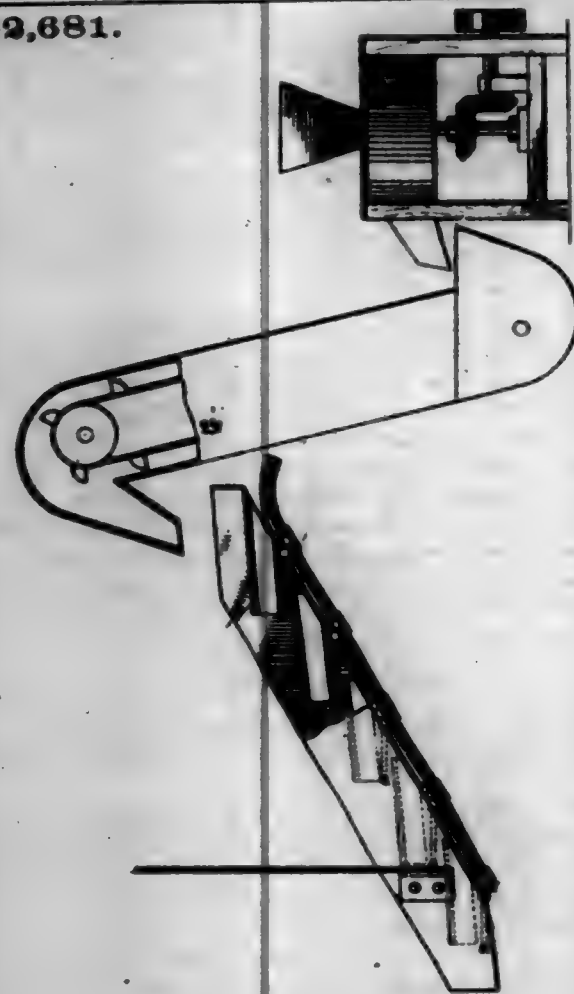
702,681. TREATMENT OF COTTON-SEED HULLS. JOHN C. W. STANLEY, New York, N. Y. Filed Sept. 28, 1901. Serial No. 70,006. (No specimens.)

Claim.—1. The process of obtaining coarse meal free from fiber from cotton-seed hulls, which consists in reducing said hulls to a matted mass of fiber and coarse meal, and subjecting said mass to the action of shearing and sifting, substantially as set forth.

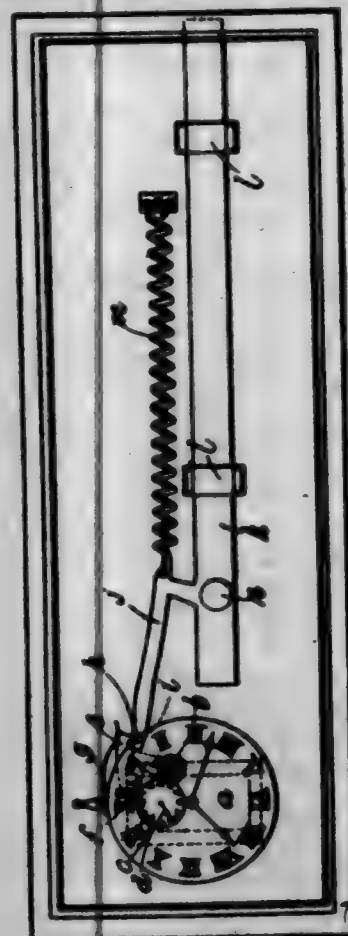
2. The process of obtaining coarse meal free from fiber from cotton-seed hulls, which consists in reducing said hulls to a matted mass of fiber and coarse meal, and subjecting said mass to a series of shearing and sifting actions, the shearing alternating with the sifting, substantially as set forth.

3. As an improved product from cotton-seed, coarse hull-meal carbonized and free from cotton fiber.

702,681.



702,682. APPARATUS ACTUATED BY CLOCK-MOVEMENTS FOR STARTING OR STOPPING MACHINERY. JOHN S. SCHMIDT, London, England. Filed Feb. 12, 1902. Serial No. 92,002. (No model.)



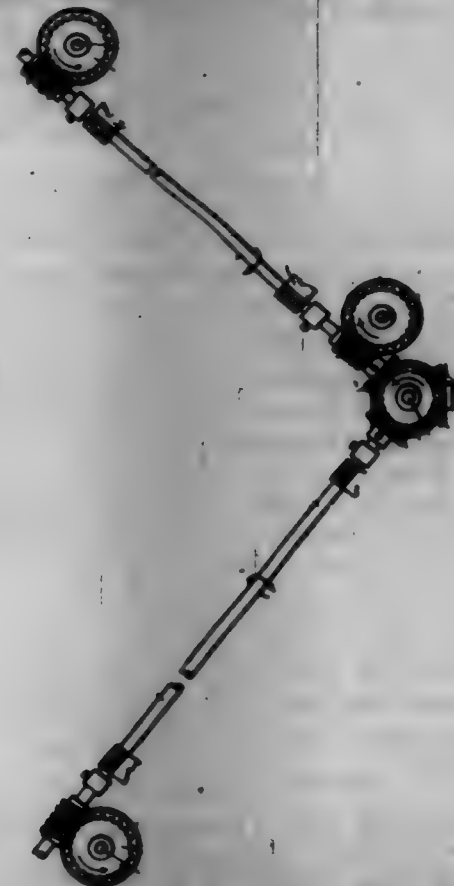
Claim.—1. In a mechanical starting or stopping device, the combination with a clock-movement, a spring, means for putting said spring under tension, a starting or stopping rod, a hooked arm carried thereby, interengaging means between said arm and pivoted member, and means acting on said member to normally hold said interengaging means in locked position.

2. In a mechanical starting or stopping device, the combination of

a clock-movement, a spring, means for putting said spring under tension, a pivoted member arranged to be engaged directly by the spring as it unwinds, a starting or stopping rod, a hooked arm carried thereby, interengaging means between said arm and pivoted member, and means acting on said member to normally hold said interengaging means in locked position.

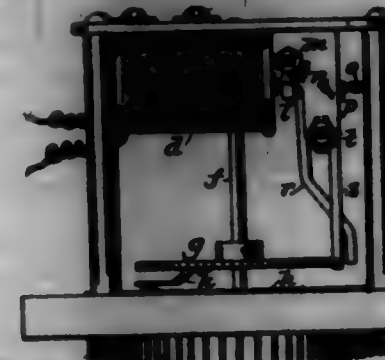
3. In a mechanical starting and stopping device, the combination of a clock-movement, a spring, means for putting said spring under tension, an escapement-wheel, a gear-train connecting said escapement-wheel with the spring, means for normally holding said escapement-wheel stationary, a pivoted pawl which bears upon the spring, a starting or stopping rod, a spring which tends to move said rod away from the pawl, a hook carried by the rod and adapted to engage with the pawl when the spring is under tension and thereby hold the rod against the resistance of its spring, and means operated by the clock-movement for releasing the escapement-wheel at a prearranged time substantially as described.

702,683. POWER-TRANSMITTING DEVICE FOR MATCH-MACHINES. THOMAS W. SYMPTON, Wrentham, N. J. Filed June 4, 1901. Serial No. 63,578. (No model.)



Claim.—In a power-transmitting device for match-machines, a power-shaft, a main shaft positively geared thereto, angularly-disposed shafts positively geared to said main shaft, worms on said shafts, and gears meshing with said worms, shafts carrying said gears, and sprocket-wheels on said shafts.

702,684. RATCHET MECHANISM. ANTHONY VAN WAGEN, St. Louis, Mo. Filed Aug. 14, 1901. Serial No. 72,928. (No model.)



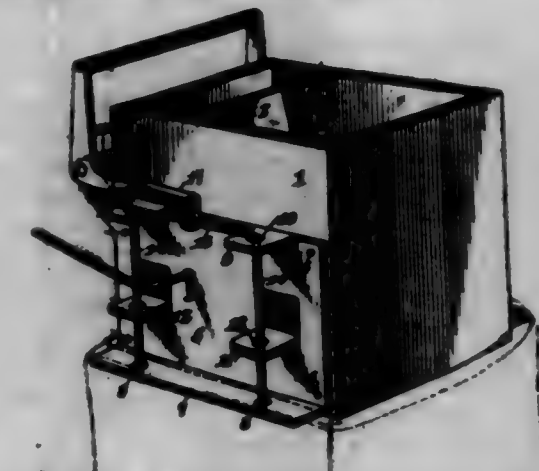
Claim.—1. In a ratchet mechanism, the combination, with a ratchet-wheel revolvably mounted, of two pawls therefor, independently pivoted, and engaging said wheel on the same side thereof, an actuating device for reciprocating one of them, and a connecting device connecting said pawls and arranged to impart motion to that pawl which is not directly driven by the actuating device, and to cause it to reciprocate in opposition to the reciprocation of said first pawl.

2. In a ratchet mechanism, the combination, with a ratchet-wheel revolvably mounted, of two pawls therefor, separate adjustable pivots or transmitters for said pawls, whereby they may be adjusted laterally and independently, an actuating device for reciprocating one of them, and a connecting device connecting said pawls and arranged to impart motion to that pawl which is not directly driven by the actuating device, and to cause it to reciprocate in opposition to the reciprocation of said first pawl.

3. In a ratchet mechanism, the combination, with a ratchet-wheel revolvably mounted, of two pawls therefor, independently pivoted, an actuating device for reciprocating one of them, and a link connected to one pawl at a point between its pivot and the ratchet-wheel, and to the other pawl at a point on the side of the pivot opposite the ratchet-wheel, and adapted to cause the second pawl to reciprocate in opposition to the first.

4. In a ratchet mechanism, the combination, with a ratchet-wheel revolvably mounted, of two pawls therefor, an electromagnet for reciprocating said pawls, an armature carried by one of them, separate pivot-screws for said pawls, whereby they may be adjusted independently in lateral position, a link connected to one pawl at a point between its pivot and the ratchet-wheel, and to the other pawl at a point on the side of the pivot opposite said ratchet-wheel, and a retractile spring.

702,685. BAG-HOLDER. JOSEPH P. ADAMS, Garfield, Wash. Filed Dec. 22, 1901. Serial No. 86,910. (No model.)



Claim.—1. A bag-holder, comprising a chute, outwardly-directed bag-engaging flanges carried externally by opposite sides of the chute and provided with perforations, vertically-reciprocating bag-engaging impaling-pins mounted upon the chute and working through the perforations in the flanges, and means for raising and lowering the pins.

2. A bag-holder, comprising a chute, outwardly-directed perforate flanges carried externally by opposite sides of the chute, bag-impaling pins mounted upon the chute and working through the perforations, and means mounted upon the chute for simultaneously raising and lowering the pins to project the same through and withdraw them from the perforations of the flanges.

3. A bag-holder, comprising opposite outwardly-directed perforate flanges, vertically-reciprocating pins working through the perforations, opposite upstanding bell-crank levers connected to the pins, and a handle connecting the bell-crank levers for simultaneous manipulation.

4. A bag-holder, comprising opposite members having outwardly-directed perforate flanges, and perforate guides located above and in vertical alignment with the perforations in the flanges, corresponding laterally-projecting arms carried by the members, vertically-reciprocating bag-impaling pins working in the respective guides and perforations of the flanges, levers fulcrumed intermediately upon the arms and connected to the adjacent pins, and a handle connecting the outer end portions of the levers for simultaneous manipulation.

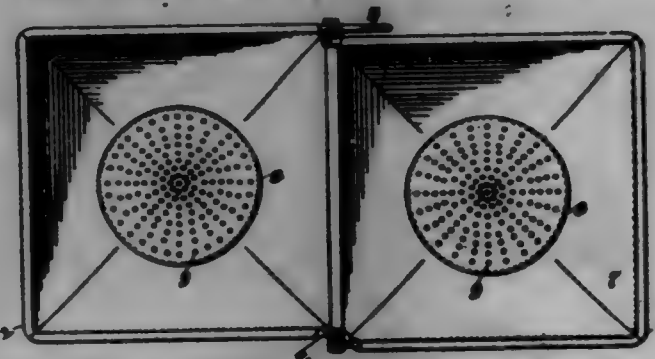
5. The combination with a chute or hopper, of opposite outwardly-directed perforate bag-engaging flanges carried by the discharge end thereof, vertically-reciprocating bag-impaling pins working through the perforations of the flanges, intermediately-fulcrumed levers connected to the pins, and a handle connecting the levers for simultaneous operation.

6. The combination with a chute or hopper, of a bag-holder comprising plates secured to opposite sides of the chute or hopper and having lower outwardly-directed perforate flanges, perforate guide-arms projected laterally outward from the plates and aligned with the perforations in the flanges, lateral arms projected from the upper portions of the plates, bell-crank levers fulcrumed upon the respective arms, a handle connecting the bell-crank levers for simultaneous manipulation, and bag-impaling pins working in the perforations in the flanges and the guides and also connected to the respective levers.

7. A bag-holder, comprising opposite plates having outwardly-di-

rosted perforate flanges at their lower edges, outwardly-directed perforate guide-arms struck from the plates and aligned with the perforations in the flanges, corresponding integral arms projected from the upper portions of the plates and lying in the plane thereof, a cross-bar connecting the arms, inverted substantially U-shaped impaling-pins working in the guides and the perforations of the respective plates, bell-crank levers fulcrumed upon the respective arms and connected to the heads of the respective impaling-pins, and a cross-bar handle connecting the upper ends of the levers for simultaneous manipulation.

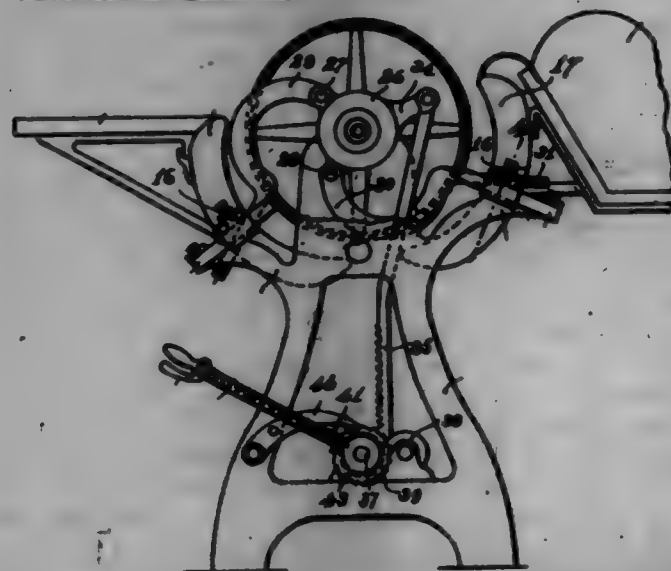
702,686. FRED TROUSE. JUNE E. ALLEN, St. Louis, Mo., assignor of one-half to Charles W. Springer, St. Louis, Mo. Filed Nov. 5, 1901. Serial No. 81,308. (No model.)



Claim.—1. In a feed-trough, the two frames 1 each composed of a rod bent into suitable form; the connecting-rod 2 hinging said frames together; the curved heads 3 extending from the front ends of the frames, and adapted to engage the loops of the wagon-tongue; said heads being adapted to fold together when the frames are folded so that they may be readily passed through the loop of the wagon-tongue; and said heads being adapted to spread out when the frames are spread out as required to hold the feed-trough in position; the curved arms 4 extending from the rear ends of the frames as required to form a ring, and engage the wagon-tongue when the frames are spread open for use; thus holding the feed-trough in position upon the tongue; and a suitable material attached to said frames and forming troughs or receptacles for the feed.

2. In a feed-trough, suitable frames hinged together; heads extending from the forward ends of said frames; said heads being adapted to fold together and pass through the loop of the wagon-tongue when the frames are folded and to spread out as required to engage the loop of the wagon-tongue and hold the frames in position; curved arms extending from the rear ends of the frames and together forming a ring to engage and encircle the wagon-tongue to hold the ends of the frames in position; and suitable material attached to said frames to form troughs or receptacles for the feed, substantially as submitted.

702,687. MARBLE WILLIAM H. ANDREWS, Chicago, Ill., assignor to Nelson & Krutner, Chicago, Ill., a firm. Filed Feb. 27, 1902. Serial No. 35,322. (No model.)



Claim.—1. In a mangle, the combination with the cylinder and the frame carrying guides, steam-chests supported upon and movable on said guides toward and away from said cylinder, of disks revolvably mounted on said frame concentric with said cylinder, projections on said disks, and arms pivotally connected at one end with said projections and at their other ends with said steam-chests, whereby when said disks are revolved said steam-chests will be moved.

2. In a mangle, the combination with the cylinder, the frame carrying guides, and the steam-chests supported upon and movable on said guides toward and away from said cylinder, of devices for imparting motion to said steam-chests, comprising disks revolvably mounted on said frame, peripheral projections on said disks, arms having curved ends adapted to embrace said disks connected at said curved ends with said projections and at their other ends with said steam-chests, whereby when said disks are revolved said arms will impart reciprocating motion to said steam-chests, said motion being variable and exerting variable leverage on said chests.

3. In a mangle, the combination with the cylinder, the frame carrying guides, and steam-chests supported upon and movable on said guides toward and away from said cylinder, of disks revolvably mounted on said frame concentric with said cylinder, peripheral projections on said disks, arms connected at one end with said peripheral projections and at their other ends with said steam-chests, springs interposed in said connections, and devices for revolving said disks.

4. In a mangle, the combination with the cylinder, the frame carrying guides, and steam-chests supported upon and movable on said guides toward and away from said cylinder, of disks revolvably mounted on said frame, peripheral projections on said disks, arms connected at opposite ends with said disks and said steam-chests, said arms having each one end bent concentric with said disks and adapted to embrace the latter when said steam-chests are in contact with said cylinder, and means for revolving said disks to move said chests, said disks being adapted to impart variable motion to said arms and exert variable leverage on said chests.

5. In a mangle, the combination with the cylinder, the frame carrying guides, and steam-chests supported upon and movable on said guides toward and away from said cylinder, of disks revolvably mounted on said frame, peripheral projections on said disks, arms connected at opposite ends with said disks and said steam-chests, springs interposed in said connections, said arms being concentric with said disks at one end and adapted to embrace the latter when said steam-chests are in action, means for revolving said disks to impart motion to said steam-chests, and means for locking said disks against revolution in one direction to hold said steam-chests compressed against said cylinder.

6. In a mangle, the combination with the frame, a cylinder revolvably mounted thereon, and guides on said frame extending radially from the axis of rotation of said cylinder, of steam-chests supported upon and movable on said guides, disks revolvably mounted on said frame concentric with said cylinder, peripheral projections on said disks, and arms having semicircular ends concentric with said disks secured at one end to said peripheral projections and adapted to embrace said disks, and connected at their other ends with said steam-chests in alignment with said guides, whereby when said steam-chests are in action said disks will be held a little past dead-center by said arms, thereby locking said steam-chests against movement.

702,688. MED. LEVI H. BACHMAN, Chicago, Ill. Filed Aug. 22, 1902. Serial No. 27,577. (No model.)

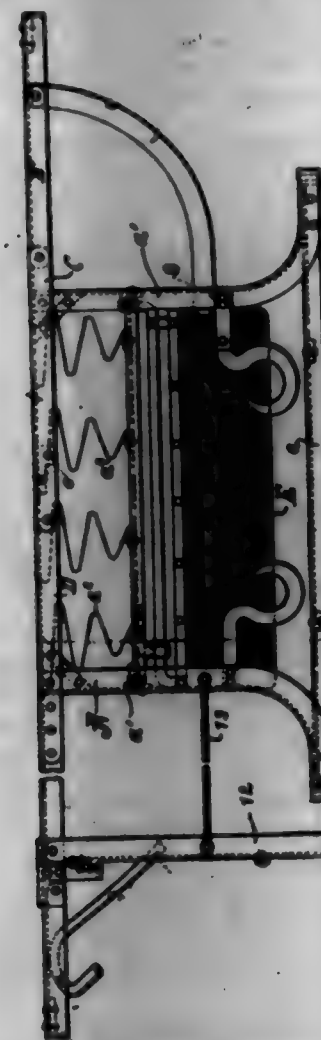
Claim.—1. In a bed structure, the combination with downwardly and upwardly adjustable end portions, of side rods, or links, connected with said downwardly-adjustable portion, and a second set of side rods, or links, secured rigidly to the upwardly-adjustable portion, and pivotally connected with the first-mentioned side rods, or links, whereby the upward swinging movement of the upwardly-adjustable end portion will lower the first-mentioned side rods, or links, and thereby cause the depression of the downwardly-adjustable end portion, substantially as described.

2. In a bed structure, the combination with the main fixed portion of the bed-bottom, of front and end sections thereof pivotally connected therewith, the front end section being adapted for downward adjustment, and the rear end section for upward adjustment, a pair of side rods pivotally connected to the front end section, and a second pair of side rods secured rigidly to the rear end section and pivotally connected with the rods which are connected to the front end section, substantially as described.

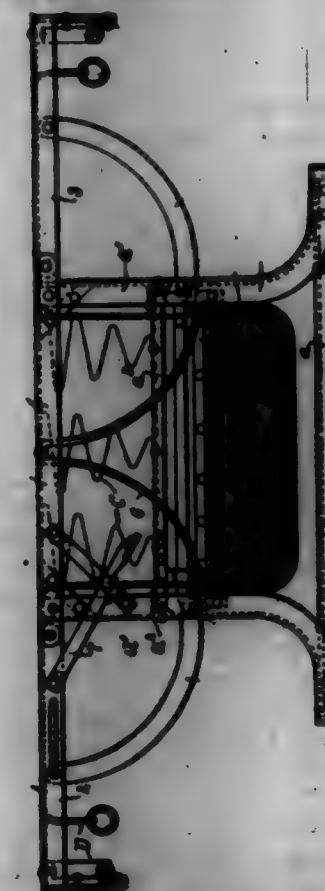
3. In a bed structure, the combination with the downwardly-adjustable end portion and the upwardly-adjustable rear end portion, of a pair of side rods pivotally connected to the front adjustable portion, a second pair of side rods rigidly secured to the rear end portion, and pivotally connected directly to the first-mentioned side rods, and means attached to the front end section and adapted to engage the bed-frame, whereby the said sections will lock the front end portion in downward adjustment, and will thereby also lock the rear end portion through the medium of the two sets of side rods, substantially as described.

4. In a bed structure, the combination with the main or body portion of the bed-bottom, of an end portion thereof adjustable relatively to said main portion, the said end portion comprising three relatively adjust-

able portions pivotally connected with one another, whereby the one near the body portion of the bed-bottom is relatively long and the intermediate portion is relatively short, whereby the outermost portion can be bent back closely to the first portion so as to lie parallel therewith, substantially as described.



702,689. MED. LEVI H. BACHMAN, Chicago, Ill. Filed Aug. 22, 1902. Serial No. 27,578. (No model.)



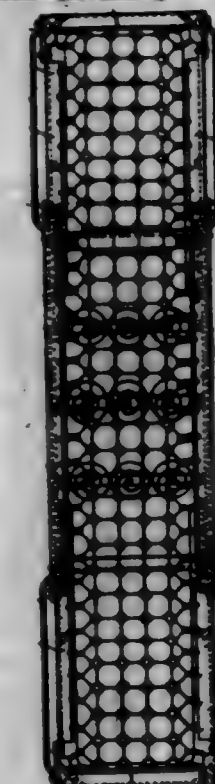
Claim.—1. In a bed structure, the combination with an angularly-adjustable side portion, of a section attached to said side portion and having sliding connections therewith, said section being adapted to engage

the frame of the bed structure, and arms connected with said adjustable side portion and provided with notches adapted to engage the bed-frame, substantially as described.

2. A bed structure comprising a middle longitudinal portion, and side longitudinal portions pivotally connected with the middle longitudinal portion, sections attached to said sections and provided with notches adapted to engage the bed-frame, the sections of one side portion having connections therewith, arms connected with the last-mentioned side portion and provided with notches or recesses, abutments on the bed-frame adapted to engage said notches or recesses, and means for releasing both of the sections attached to one or the other of the side sections, substantially as described.

3. The combination in a bed structure, of a receptacle, here connected with said receptacle and provided with sockets, and bars on the bed-frame adapted to serve as guideways for said sockets, and also provided with sockets adapted to receive the bars on the receptacle, and to permit the same to slide through them, substantially as described.

702,690. MED. LEVI H. BACHMAN, Chicago, Ill. Filed Sept. 24, 1902. Serial No. 30,332. (No model.)



Claim.—1. In a bed structure, the combination with the stationary portion of the bed, of a swinging end portion pivotally connected with the end of said stationary portion and composed of relatively long and short portions pivotally connected together with the short portion outermost, a downwardly-extending projection on the relatively long section, sections pivotally connected with said downwardly-extending projection and provided with notches adapted to engage the bed-frame, and a pair of side rods each of which has one end pivotally connected directly with said relatively short section, and the other end pivotally connected with the bed-frame, substantially as described.

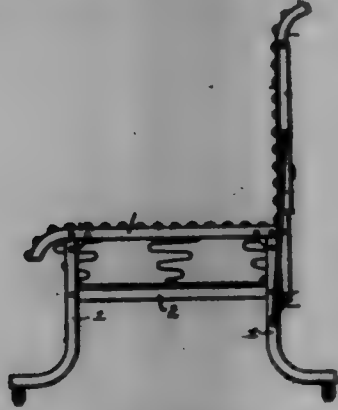
2. In a bed structure, the combination of a central stationary middle portion, swinging end portions each consisting of long and short sections, sections carried by the end portions and having notches flanges on the legs of the structure with which said notches can engage, cords attached to said sections for unlatching the same and rods pivotally connected with the outer ends of the short sections of the swinging end portions and also pivotally connected with the framework of the bed structure, substantially as described.

702,691. DAVENPORT MED. LEVI H. BACHMAN, Chicago, Ill. Filed Jan. 11, 1901. Serial No. 45,821. (No model.)

Claim.—1. In a bed structure, the combination of a stationary body part, a swinging part comprising a swinging frame pivotally connected with the body part having end rods extended beyond the points of pivotal connection, and means for engaging the extended portions of said rods so as to lock the swinging frame in an elevated position, substantially as described.

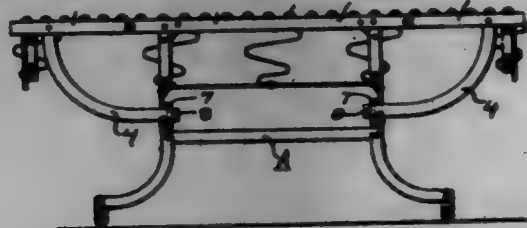
2. In a bed structure, the combination of a body part, a swinging frame having end rods extended beyond the points of pivotal connection, a locking device consisting of a pair of longitudinally-slidable rods adapted for projection beyond the ends of the body part so as to engage the said

extended portions of the end rods of the swinging frame, and means for shifting said rods, substantially as described.



3. In a bed structure, the combination with the body part and the swinging pivoted frame having side rods provided with extensions, of a pair of longitudinally-shiftable rods adapted for projection beyond the ends of the body part so as to engage the extensions of said end rods, guides for the ends of said shiftable rods, and a pivoted hand-lever connected with the inner ends of said shiftable rods, the points of connection being on opposite sides of the point of pivotal support, substantially as described.

702,692. BED. LEVI H. RAGHMAN, Chicago, Ill. Filed Mar. 1, 1901. Serial No. 48,401. (No model.)



Claim.—1. In a bed structure, the combination of a swinging side portion, sectors attached thereto, the said sectors having their inner or free ends provided with notches, the legs of the bed structure being provided with long slots in which the sectors can work and whose lower edge the notches in the sectors can engage, pins arranged upon the inner ends of the sectors, and swinging catches pivoted to the legs of the bed structure and having recesses adapted to engage the pins on the ends of the sectors, whereby upon a supplemental elevation of the swinging side portion the pins on the sectors will engage the recesses on the swinging catches, and will cause the inner ends of the sectors to be retained in an elevated position, and thereby permit the swinging portion of the bed-bottom to descend, substantially as described.

2. A bed structure comprising a central, stationary, longitudinal portion, a couple of swinging side portions pivoted to the opposite sides of the central portion, sectors attached to the swinging side portions near their outer ends, the said sectors having slots formed in their lower sides near their inner ends and being provided with laterally-projecting pins at or near each end, the legs of the bed structure being provided with slots in which the sectors can travel and with whose lower edges the notches in the sectors can engage, and pivoted catches pivoted to the legs of the bed structure below the slots therein, the said catches being provided with recesses adapted to engage the pins on the sectors, whereby the inner ends of the sectors will be raised by the engagement of the pins with the catches upon a supplemental elevation of the swinging side portions and will thereby permit the side portions to descend without interference, substantially as described.

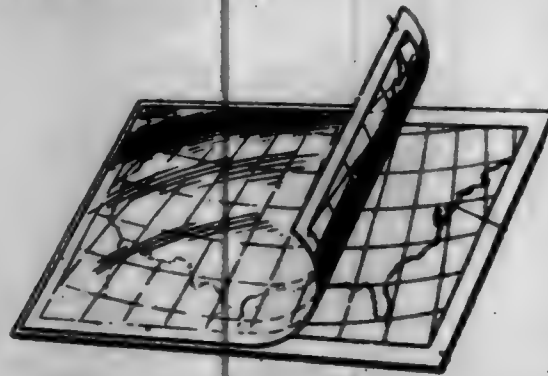
3. A device for supporting a swinging structure in an elevated position, comprising a bar or rod, means for engaging the same when the swinging section is elevated, and means for disengaging the bar or rod upon a supplemental elevation of the swinging section, said means consisting of a swinging arm or catch, and means on the bar for engaging the same, the swinging arm or catch being arranged to swing outwardly and thereby elevate the bar or rod upon a supplemental outward movement of the said bar or rod, substantially as described.

4. A device for supporting a swinging section in an elevated position, consisting of a locking bar or rod, means for engaging the same so as to hold the section in an outward or elevated position, a swinging arm or catch, and means on the locking bar or rod for engaging such arm or catch, the latter being arranged so that when engaged it will swing the supporting bar or rod so as to disengage the same upon a supplemental upward or outward movement of the swinging section and will prevent

the reengagement of the bar during the inward or return movement of the same, substantially as described.

5. The combination with the locking bar or rod 4, of means for engaging the same, and the swinging arm 6 pivoted to the engaging means, the said locking bar being provided with means for engaging the swinging arm 6 whereby when so engaged the swinging movement of the arm 6 will shift the lateral position of the locking-bar, substantially as set forth.

702,698. PROCESS OF PRODUCING DESIGNS OR DELINEATIONS ON METAL SURFACES. RUDOLPH F. BARTLA, Philadelphia, Pa., and ALBERT R. HORN, Baltimore, Md. Filed Feb. 24, 1902. Serial No. 48,188. (No specimen.)



Claim.—1. The herein-described process of producing a design on a metal surface which consists in forming the design on a flexible sheet with a substance which will serve as a vehicle for a mordant, placing said sheet on the metal surface and applying pressure thereto for causing said substance to adhere in whole or in part to said surface, and causing the design to be chemically produced on the metal by a suitable mordant associated with said substance.

2. The herein-described process of producing a design on a metal surface which consists in forming the design on a flexible sheet with a substance which will serve as a vehicle for a mordant, placing said sheet on the metal surface and applying pressure thereto for causing said substance to adhere in whole or in part to said surface, and associating a suitable mordant with said substance.

3. The herein-described process of producing a design on a metal surface which consists in mixing a suitable mordant with a suitable vehicle, forming the design with said compound on a flexible sheet, placing said sheet on the metal surface, and applying pressure to said sheet for causing said compound to adhere in whole or in part to said surface.

4. The herein-described process of producing a design on a metal surface which consists in forming the design on a flexible sheet with a substance which will serve as a vehicle for a mordant, placing said sheet on the metal surface and applying pressure thereto for causing said substance to adhere in whole or in part to the metal, associating a suitable mordant with said substance at any time prior to the next step in the process, and treating the metal surface to a bath of a suitable liquid carbon compound.

5. The herein-described process of producing a design on a metal surface which consists in forming the design on a flexible sheet with a substance which will serve as a vehicle for a mordant, placing said sheet on the metal surface and applying pressure thereto for causing said substance to adhere in whole or in part to said surface, associating a mordant with said substance at any time prior to the next step in the process, heating said surface, and thereafter treating it to a bath of some suitable liquid carbon compound.

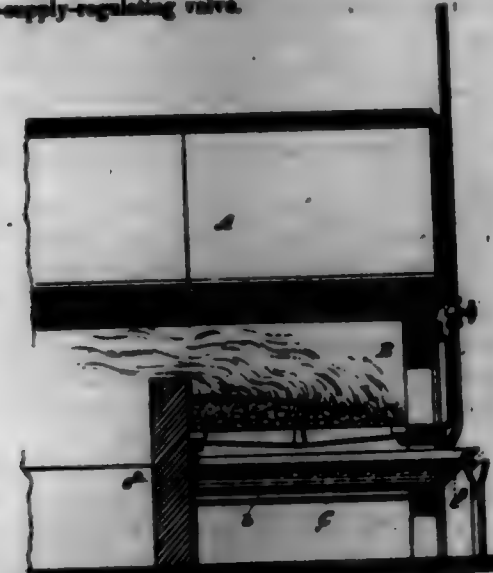
6. The herein-described process of producing a design on a metal surface which consists in mixing a mordant with a suitable vehicle, forming the design with said compound on a flexible sheet, placing said sheet on the metal surface and applying pressure thereto for causing said substance to adhere in whole or in part to the metal, and thereafter treating the metal surface to a bath of some suitable liquid carbon compound.

7. The herein-described process of producing a design on a metal surface which consists in mixing a suitable mordant with a suitable vehicle, forming the design with said compound on a flexible sheet, placing said sheet on the metal surface and applying pressure thereto for causing said compound to adhere in whole or in part to the metal, applying heat to the metal surface and thereafter treating it to a bath of some suitable liquid carbon compound.

702,694. BOLLER. HENRY BUNDELTON, New York, N. Y. Filed Mar. 18, 1902. Serial No. 47,481. (No model.)

Claim.—1. A boiler and furnace with grate-bars substantially as set forth in combination with a water-pan located right beneath the grate-bars and having a rectangular rear portion, an obliquely-angular front por-

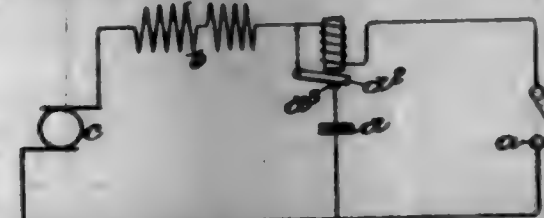
tion forming a mouth extending beyond the furnace-door and boiler-wall, a flow-off pipe in the top portion of the obliquely-angular front part, a cover adapted to close the flow-off pipe, a waste-pipe, and a water-pipe with water-supply-regulating valve.



2. In an improved boiler and furnace grate-bars substantially as set forth, a water-pan located right beneath the grate-bars having a rectangular rear portion, an obliquely-angular front portion forming a mouth which extends beyond the furnace-door and boiler-wall, a flow-off pipe in the top portion of the obliquely-angular front part, a cover on the top opening of the flow-off pipe adapted to close same, and a waste-pipe.

3. In an improved boiler and furnace a water-pan located beneath the fire having a rectangular rear portion, an obliquely-angular front portion forming a mouth which extends beyond the furnace-door and boiler-wall, a flow-off pipe in the top portion of the obliquely-angular front part and a cover on the top opening of the flow-off pipe adapted to close same.

702,695. SPARKING DEVICE. DONALD M. HALL, Brooklyn, Mass. Assignor to Halsey-Cutler Electric Company, Brooklyn, Mass., a Corporation of Massachusetts. Filed Nov. 7, 1901. Serial No. 41,432. (No model.)



Claim.—1. The combination with a series-wound dynamo; of a sparking device in the main circuit thereof; a branch circuit connecting the conductors of the main circuit; a circuit-controller in said branch circuit; and means for operating said circuit-controller to close said branch circuit when the main circuit is open and vice versa, substantially as and for the purpose described.

2. The combination with a series-wound dynamo; of a sparking device in the main circuit thereof; a branch circuit connecting the conductors of the main circuit; a circuit-controller in said branch circuit; and means operated by said sparking device for operating said circuit-controller, substantially as described.

3. The combination with a series-wound dynamo; of a sparking device in the main circuit thereof; a branch circuit connecting the conductors of the main circuit; an adjustable load in said branch circuit; a circuit-controller in said branch circuit; and means operated by said sparking device for operating said circuit-controller, substantially as described.

702,696. DOOR-STRIKE. BENJ. BOWEN, Brooklyn, N. Y. Filed Apr. 8, 1902. Serial No. 101,008. (No model.)



Claim.—1. A strike for spring-actuated doors, consisting of a box-shaped body formed of two L-shaped sections, guided one on the other, one of said sections being provided with an elastic cushion along its edge,

and means for attaching said body to the partition-wall, substantially as set forth.

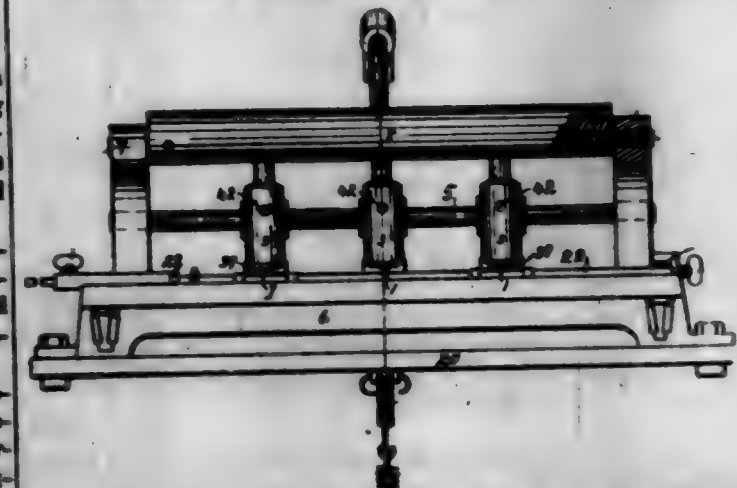
2. A strike for spring-actuated doors, consisting of a box-shaped body formed of two L-shaped sections, guided one on the other, one of said sections being provided with guide-flanges at its upper and lower ends and with an outwardly-bent dovetailed flange at its edge, an elastic cushion in said flange, transverse fastening-bolts connecting the ends of said sections, and screw-nuts for said bolts, substantially as set forth.

702,697. HOUSE-TENNIS RACKET. EMILE BOULANGER, St. Louis, Mo. Filed Apr. 9, 1902. Serial No. 103,081. (No model.)



Claim.—The improvement in house-tennis rackets, comprising the combination with an ordinary house-tennis racket, having the usual frame and a movable cover stretched upon the frame; of a suitable stay extending from the handle outwardly to the opposite side of the frame, substantially as specified.

702,698. BOOKBINDER'S PRESS-PUNCH. PHILIP A. BOWER, Milwaukee, Wis. Filed Jan. 17, 1902. Serial No. 92,113. (No model.)



Claim.—1. In a press-punch of the class described, the combination of a supporting-base, provided with a longitudinal channel; a plurality of punch sets, each set comprising a punch and a die registering with each other and with said longitudinal channel; a punch-guide; a stationary shaft for adjustably connecting all of said punch sets together, located above said base; means for locking said sets at any desired point of adjustment in relation to each other, on said stationary shaft; a separate eccentric shaft adapted to bear against the upper ends and simultaneously operate all of said punches, and permit of any desired adjustment of said punch sets in relation to each other; and means for turning said eccentric shaft on its supporting-axis, and simultaneously operating all of said punch sets, as set forth.

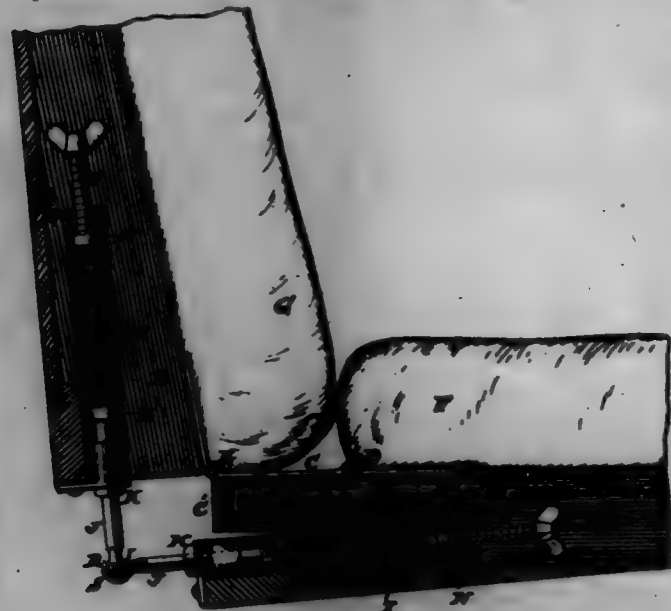
2. In a press-punch of the class described, the combination of a supporting-base, provided with a longitudinal channel; a plurality of punch sets, each set comprising a punch and detachable die-plate, provided with a die, said punch and die registering with each other and with said lon-

longitudinal channel; a punch-guide; a stationary shaft adjustably connecting all of said sets together; means for locking said sets at any desired point of adjustment in relation to each other on said stationary shaft; an eccentric shaft adapted to bear against the upper ends and simultaneously operate all of said punches, and permit of any desired adjustment of said punch sets in relation to each other; and an operating-lever attached to said eccentric shaft, as set forth.

3. In a press-punch, of the class described, the combination of a supporting-base; a plurality of punch sets, each comprising a punch, a die registering with said punch and a punch-guide, the parts of each set being permanently connected together; a single stationary shaft connecting all of said sets together; means for locking said sets in any desired relative position to each other on said stationary connecting-shaft; a single eccentric shaft adapted to bear against and simultaneously operate all of said punches and permit of any desired adjustment of said punch sets in relation to each other; a longitudinal adjustable gage-bar for limiting the rearward movement of the paper to be punched; and a transverse gage-bar adjustably secured to said longitudinal bar; a spring for raising the punches of said several sets when relieved from the downward pressure of said eccentric shaft; an operating-lever connected with said eccentric shaft; a treadle adapted to be operated by foot-power; means for communicating motion from said treadle to the operating-lever of said eccentric shaft, as downward pressure is applied to said treadle; and means for raising said treadle and reversing the movement of said operating-lever when said treadle is relieved from downward pressure, as set forth.

4. In a press-punch of the class described, the device herein described for cutting an elongated recess in connection with a hole, consisting in the combination with the punch proper; of a vibratory lever pivotally connected at one end with the supporting-base, and connected at its opposite end with said punch; a secondary punch secured to said vibratory lever in close proximity to said first-mentioned punch; die registering with said punches; and means for simultaneously raising both of said punches when relieved from pressure, substantially as and for the purpose specified.

702,699. JOINTED FRAME FOR SOFA-BEDS, RECLINING-CHAIRS, &c. GEORGE W. BARTON, Camden, N. J., assignor to the Hale and Elbert Manufacturing Company, a Corporation of Pennsylvania. Filed Nov. 14, 1901. Serial No. 23,171. (No model.)



Claim.—1. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, and an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint consisting of two rods hinged together and springs carried by the seat-back and seat-frame for respectively pressing the rods toward each other.

2. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint consisting of two rods hinged together and springs carried by the seat-back and seat-frame for respectively pressing the rods toward each other, and means for adjusting the power of the spring-hinge.

3. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint and consisting of two rods jointed together, springs acting to force the rods toward each other and

coils or cylinders for holding the springs attached respectively to the two frames.

4. In a counterbalanced sofa-bed or chair, the combination of the seat-frame, the back-frame, a hinged joint between the frames, an adjustable spring-hinge also between the seat and back frames and to one side of the axis of the first-mentioned hinge-joint and consisting of two rods adjusted together, springs acting to force the rods toward each other, coils or cylinders for holding the springs attached respectively to the two frames, and adjusting-screws carried by the cylinders to adjust the tension of the springs.

5. The combination in a sofa-bed or reclining-chair of the seat-frame and back-frame hinged together, a spring counterbalancing device secured to each frame and consisting of a sliding rod J, a cylinder I secured to the frame and through the end of which the rod moves, a spring M within the cylinder acting upon the rod, and an adjusting-screw P extending through the cylinder and acting upon the spring to adjust its tension, the sliding rod of the two devices being hinged together at their free ends to one side of the axis of the hinge between the frames.

6. In a counterbalanced sofa-bed or chair, the combination of a seat-frame, a back-frame, a double hinge D E between the said frames, and an adjustable spring-hinge also between the said frames to one side of the axis of the double hinge D E.

7. In a counterbalanced sofa-bed or chair, the combination of a seat-frame, a back-frame, a double hinge D E between the said frames, and an adjustable spring-hinge also between the said frames to one side of the axis of the double hinge D E and consisting of a spring-actuated rod on each frame detachably joined together at their free ends.

702,700. SASH-LOCKING MECHANISM. JAMES A. BROWN and EDWARD R. WHITTAKER, Paterson, N. J. Filed Mar. 17, 1901. Serial No. 95,514. (No model.)



Claim.—1. In a sash-locking mechanism, the combination of the window-frame, sashes arranged to slide therein, a rack carried by one of said sashes, a dog adapted to engage the rack and pivotally arranged in said frame, and means for actuating said dog, a portion of said means being carried by the other sash, substantially as described.

2. In a sash-locking mechanism, the combination of the window-frame, sashes arranged to slide therein, a dog pivoted in the frame and adapted to engage one of said sashes, a lever also pivoted in said frame and engaging said dog, a slide-rod arranged in one of said sashes and engaging said lever, and means for actuating said slide-rod, substantially as described.

3. In a sash-locking mechanism, the combination, with the window-frame, of sashes arranged to slide therein, a dog pivoted in said frame and adapted to engage one of said sashes, a lever engaging said dog, a slide-rod arranged in the other sash and adapted to register with and actuate said lever, and means for actuating said slide-rod, said window-frame having a recess adapted to receive the end of said slide-rod to lock the sash carrying said slide-rod, substantially as described.

702,701. CAR-BOLSTER. HARRY C. BUNCE, Chicago, Ill. Filed Mar. 14, 1902. Serial No. 96,299. (No model.)

Claim.—1. The combination of companion bolsters each having a central pot or cavity substantially within the normal lines of said bolsters, and an intermediate bearing element having a seat or bearing in each of said pots or cavities; substantially as and for the purpose specified.

2. The combination of companion bolsters each provided with a central cavity having spherical bearing-surfaces substantially within the normal lines of said bolsters, and an interposed spherical bearing element, substantially as and for the purpose specified.

3. The combination of companion bolsters having cavities whose bearing-faces are compounded of concentric spheres, and an interposed bearing element having corresponding surfaces, substantially as and for the purpose specified.

4. The combination with companion bolsters having cavities whose bearing-faces are spherical, of an interposed bearing element having the form of a sphere with radial projections therefrom, substantially as and for the purpose specified.

5. The combination with companion bolsters having cavities whose bearing-faces are spherical, of an interposed bearing element having the form of a sphere and intersecting cylinder, substantially as and for the purpose specified.

6. A cast-metal bolster having a centrally-disposed cavity or pot substantially within its normal lines and provided with spherical bearing-surfaces, the depth of said pot or cavity being substantially equal to the radius of curvature of the lowest part of said spherical bearing-surfaces, substantially as and for the purpose specified.



7. A cast-metal bolster having a centrally-disposed pot or cavity provided with spherical bearing-surfaces, the depth of said pot or cavity being substantially equal to the radius of curvature of the lowest part of said spherical bearing-surfaces, and also provided with a clearance-opening, substantially as and for the purpose specified.

8. A cast-metal bolster having a centrally-disposed pot or cavity provided with spherical bearing-surfaces, the depth of said pot or cavity being substantially equal to the radius of curvature of the lowest part of said bearing-surfaces, and also provided with spaced side bearing-plates concentric with said pot or cavity, substantially as and for the purpose specified.

9. A cast-metal bolster having a centrally-disposed bearing-cavity compounded of concentric spherical surfaces, substantially as and for the purpose specified.

10. A cast-metal bolster having a centrally-disposed bearing-cavity with spherical bearing-faces adjacent to the face of the bolster and a radially and laterally extending pocket; substantially as and for the purpose specified.

702,702. FRUIT-JAR. HENRY S. BROWN, New Orleans, La., assignor of one-fourth to Henry A. Brown, New Orleans, La. Filed Oct. 21, 1901. Serial No. 95,095. (No model.)

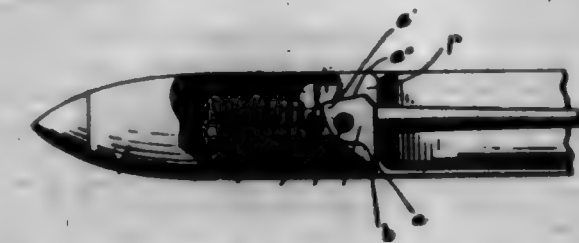


Claim.—In a fruit-jar, the combination with the neck having L-shape recesses in the inner side thereof, a top or cover having a portion which fits within the neck of the jar and provided with a flange which rests upon the neck and also provided with legs adapted to engage the L-shaped recesses, said lower portion provided with grooves extending from the lower edge thereof upward; of a rubber band placed over the joint between the top and neck, and a clamping-band placed over the rubber band, substantially as shown, the under side of the top or cover being convex.

702,703. LOOM-SHUTTLE. ELLISON GAMES, Williamsport, Pa., assignor to D. T. Dudley & Son Company, Williamsport, Pa., a Corporation of Massachusetts. Filed Dec. 11, 1901. Serial No. 95,699. (No model.)

Claim.—1. In a loom-shuttle, the combination of a shuttle-body provided with a recess, a spindle having a base and pivoted within said recess, the base of said spindle being provided with an extension, as a, in front of the pivotal connection of the spindle with the shuttle-body, and a heel as a', a spring-pressed pin having a head bearing upon the

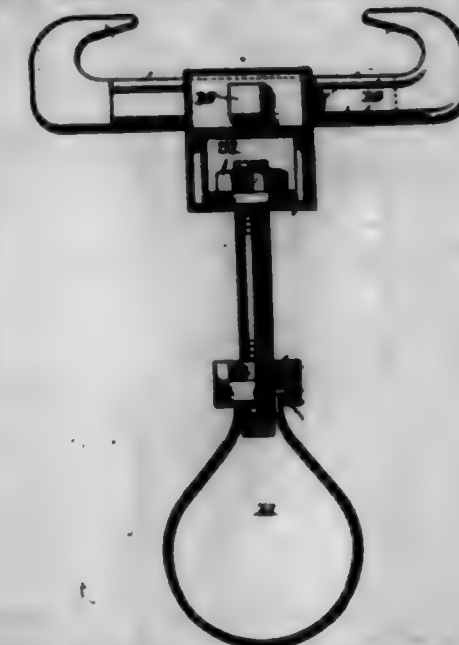
heel, said pin having an offset or extension and an angular recess at the junction of the head and extension to engage the heel when the spindle is turned into the shuttle, the said offset or extension having an inclined surface to engage the base of the spindle when the latter is turned to its outward position.



2. In a loom-shuttle, the combination with the spindle, having its base pivoted within a recess in the shuttle-body, and an extension on the base in front of its pivot-point, to engage a wall of the recess, and an extension or heel back of the pivot-point, and a plane surface above said extension or heel, of a spring-actuated pin extending in a recess in the shuttle-body at the rear of the spindle, said pin having on its head or end, which engages the base of the spindle, an offset or extension having an inclined surface and forming a recess to receive the heel of the spindle, when it is in its lowered position, and the inclined outer or upper surface of the offset or extension adapted to engage the base of the spindle, when it is in its raised position, to limit the raising of the spindle, substantially as shown and described.

3. In a loom-shuttle, the combination with the spindle having its base pivoted within a recess in the shuttle-body, and an extension as a on the base in front of its pivot-point, to engage a wall of the recess, and an extension or heel a' back of the pivot-point, said base of the spindle having a forwardly-extending plane surface above said extension or heel, a, of a spring-actuated pin extending in a recess in the shuttle-body at the rear of the spindle, said pin having on its head or end, which engages the base of the spindle, an offset or extension forming a recess to receive the heel of the spindle, said offset or extension having an inclined surface to engage the spindle-base, and the projecting end of the offset or extension engaging the split part of the spindle, when it is raised, to hold it against the main part of the spindle, substantially as shown and described.

702,704. HANGER FOR PIPES, &c. ADOLPH R. CARL, New York, N. Y. Filed June 27, 1901. Serial No. 94,294. (No model.)



Claim.—1. In a hanger for pipes and analogous articles, a beam-clamp comprising a head having a transverse rectangular opening there-through, oppositely-disposed jaws having shanks slidably arranged in overlapping relation within the opening of the head, said jaws having their adjacent faces flattened and bearing against each other and their outer faces provided with longitudinally-disposed ribs, forming channels therebetween, and a set-screw threaded into the wall of the head and having its inner end located in the channel of the adjacent jaw-shank the ribs of the other shank bearing against the inner wall of the head opposite the set-screw whereby the shanks are held against rotary movement in the head.

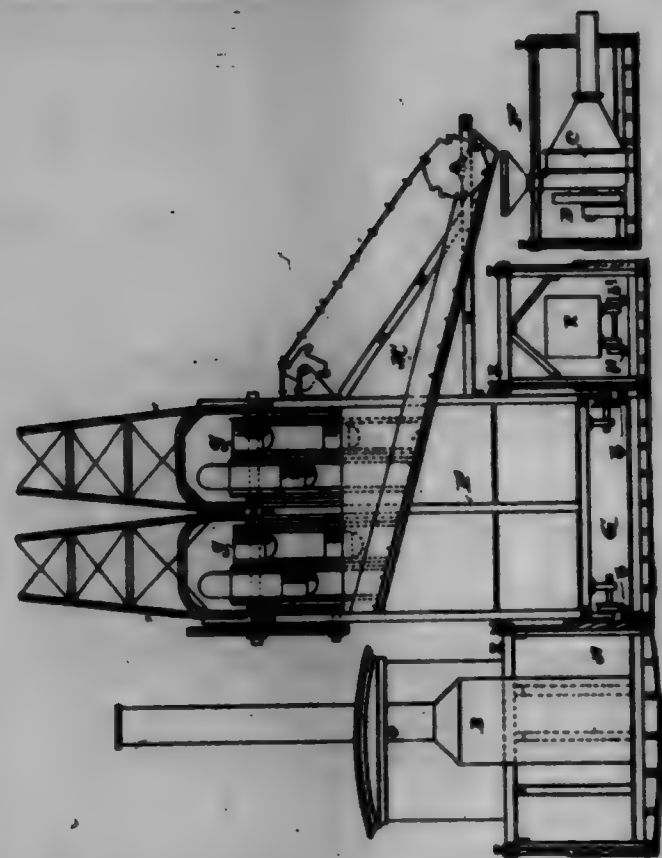
2. In a hanger for pipes and analogous articles, the combination with a fastening element having an opening therein, said opening having an enlarged portion extending in from one end of the fastening element and a socket located at the inner end of and opening solely into said enlarged

portion, of a pipe-engaging element extending into the enlarged portion of the opening and having a shoulder that engages in the socket, and a supporting device for the fastening element, said device passing through the opening of the fastening element and bearing against that side of the pipe-engaging element which is opposite the shoulder to hold said shoulder in the socket.

3. In a hanger for pipes or analogous articles, the combination with a fastening element comprising a nut having a screw-threaded bore, an inclined counterbore concentric therewith extending into the nut from one end and an internal annular groove communicating with the inclined counterbore, of a pipe-engaging element consisting of a band, the opposite ends of which have offset studs that engage in the annular groove of the nut and are slidable laterally therein, and supporting means for the fastening element, said means including a screw-threaded chuck engaging in the bore of the nut and having a portion located in the counterbore between the terminals of the band to hold the offset studs thereof in the annular groove.

4. In a hanger for pipes or analogous articles, the combination with supporting means including a band having oppositely-disposed adjustable jaws, of a fastening element comprising a nut having a screw-threaded bore, an inclined counterbore concentric therewith extending into the nut from one end and an internal annular groove communicating with the inclined counterbore, a pipe-engaging element consisting of a band, the opposite ends of which are engaged in the counterbore and have offset studs that are located in the annular groove of the nut said ends being spaced apart, and slidable laterally in said groove, and a vertically-arranged hanger-rod having its opposite ends threaded, the upper end of said rod having a connection with the supporting-band, and the lower end being threaded in the bore of the fastening-nut and projecting into the counterbore thereof between the spaced terminals of the pipe-band.

702,705. FLOATING DREDGE. EPHRAIM GRASSETT, New Rochelle, N. Y. Filed Nov. 26, 1901. Serial No. 88,720. (No model.)



Claim.—1. A floating dredge provided with a longitudinal channel therethrough with its ends inclosed, a dredge-carriage moving on a suitable track extending along said channel near the water-line, a chain-bucket dredging apparatus and its operating mechanism supported on and carried by said carriage, and a dumping-upon or adapted to receive material from said chain-bucket dredge and convey it to the discharging apparatus, substantially as described.

2. A floating dredge provided with a dredge-carriage moving on a suitable track, means for driving said carriage, a chain-bucket dredging apparatus supported on and carried by said carriage, means for operating said chain-bucket dredging apparatus to perform the cutting operation, means for raising and lowering said chain-bucket dredging apparatus and adjusting the same to the required depth and angle of cut, and a ballast-car moving in unison with said dredge-carriage, substantially as set forth for the purpose set forth.

702,706. TYPE-WRITING MACHINE. GUSMAN W. CUTHMAN, Gaines City, Kan. Filed Nov. 5, 1901. Renewed Nov. 21, 1901. Serial No. 88,157. (No model.)



Claim.—1. In a type-writing machine, a base, a rack-bar thereon, a bed-plate longitudinally adjustable relatively to the base and provided with an opening, a frame mounted on the bed-plate and provided with an opening registering with that of the bed-plate, a second frame pivoted to work vertically in the first-named frame at one end, and yieldingly up-held, and provided with character-indicating points, a longitudinally-adjustable slide-plate mounted in said vertically-operating frame, a flexible type-bar secured to said plate, means for holding depressed that portion of the flexible type-bar which is vertically over the bed-plate opening, a key-lever also secured to said plate, a key on said lever, and adapted when registering with one of said character-indicating points to depress the corresponding character on the type-bar vertically over the bed-plate opening, and a dog pivotally depending from the said second frame and engaging said rack-bar, substantially as described.

2. In a type-writing machine, a base, a rack-bar thereon, a bed-plate longitudinally adjustable relatively to the base and provided with an opening, a frame mounted on the bed-plate and provided with an opening registering with that of the bed-plate and with an ink-pad at opposite ends of said opening, a second frame pivoted to work vertically in the first-named frame at one end and yieldingly up-held, and provided with character-indicating points, a longitudinally-adjustable slide-plate mounted in said vertically-operating frame, a flexible type-bar secured to said plate, means for holding depressed that portion of the flexible type-bar which is vertically over the bed-plate opening, a key-lever also secured to said plate, a key on said lever, and adapted when registering with one of said character-indicating points to depress the corresponding character on the type-bar vertically over the bed-plate opening, and a dog pivotally depending from the said second frame and engaging said rack-bar, substantially as described.

3. In a type-writing machine, a base, a frame movable longitudinally and laterally thereof and provided with an opening, a vertically-movable frame mounted on the first-named frame and provided with character-indicating points, means for holding said vertically-movable frame pressed yieldingly upward, a flexible type-bar adjustably mounted in the vertically-movable frame, and having one or more rows of type, and means, by reference to said indicating-points, to dispose any desired character on the type-bar vertically over the opening of said longitudinally-movable frame, substantially as described.

4. In a type-writing machine, a base, a frame movable longitudinally and laterally thereof and provided with an opening, means for yieldingly holding said frame in its forward position, a vertically-movable frame mounted on the first-named frame and provided with character-indicating

ing points, means for holding said vertically-movable frame pressed yieldingly upward, a flexible type-bar adjustably mounted in the vertically-movable frame, and having one or more rows of type, and means, by reference to said indicating-points, to dispose any desired character on the type-bar vertically over the opening of said longitudinally-movable frame, substantially as described.

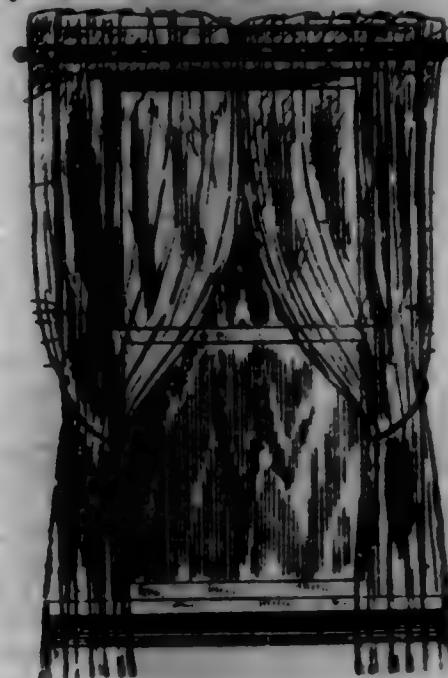
5. In a type-writing machine, a base, a frame movable longitudinally and laterally thereof and provided with an opening, a spring holding said frame normally in its forward position, a vertically-movable frame mounted on the first-named frame and provided with character-indicating points, means for holding said vertically-movable frame pressed yieldingly upward, a flexible type-bar adjustably mounted in the vertically-movable frame and having one or more rows of type, and means, by reference to said indicating-points, to dispose any desired character on the type-bar vertically over the opening of said longitudinally-movable frame, substantially as described.

6. In a type-writing machine, a base, a rack-bar thereon, a bed-plate longitudinally adjustable relatively to the base and provided with an opening, a frame mounted on and pivoted to the bed-plate near one end, to work laterally, and provided with an opening registering with that of the bed-plate, a second frame pivoted to work vertically in the first-named frame adjacent to the pivotal point of connection of the latter with the bed-plate, and provided with character-indicating points, a longitudinally-adjustable slide-plate mounted in said vertically-operating frame, a flexible type-bar secured to said plate, means for holding depressed that portion of the flexible type-bar which is vertically over the bed-plate opening, a key-lever also secured to said plate, a key on said lever, and adapted when registering with one of said character-indicating points to depress the corresponding character on the type-bar vertically over the bed-plate opening, and a dog pivotally depending from the said second frame and engaging said rack-bar, substantially as described.

7. In a type-writing machine, a base, a rack-bar thereon, a bed-plate longitudinally adjustable relatively to the base, and provided with an opening, a frame pivoted near one end to the base and having a pin-and-socket connection with it at the opposite end, and provided with a registering opening and ink-pads at opposite ends of said opening, a second frame pivoted to work vertically in the first-named frame and provided with character-indicating points, a roller, and a dog, the latter engaging said rack-bar, a spring holding said frame normally elevated, a slide-plate mounted in said frame, a flexible type-bar connected at its opposite ends to said slide-plate and underlying said roller, a lever connected to said slide-plate and provided with a key at its free end to register with one or another of said character-indicating points, substantially as described.

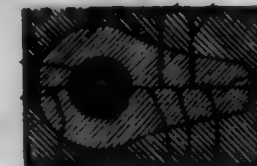
8. In a type-writing machine, a base, a bed-plate having an opening, a frame upon the bed-plate and provided with a registering opening and with ink-pads, a second frame adapted to fold down into the first-named frame and provided with a longitudinal slot and character-indicating openings, a slide-plate fitting in said second frame, a flexible type-bar carried by the slide-plate, a roller depressing that portion of the type-bar which is vertically over the registering openings, a lever extending through said slot and secured to said slide-plate, and a key to engage one of the character-openings, and thereby depress the corresponding type of the type-bar over said registering openings, substantially as described.

702,707. CURTAIN-ROD. HENRIK F. CUNNINGHAM, PHILADELPHIA, Pa. Filed Apr. 22, 1901. Serial No. 84,014. (No model.)



Claim.—In combination with a curtain-pole, a series of spring-fingers rigidly attached at one end to the pole, the other end of said fingers being free and being curved outwardly from the pole, all of the fingers extending in longitudinal alignment with the pole and some of the fingers having their free ends extending in one direction and others in the opposite direction, said fingers adapted to engage intermediate of their ends with the fold of a curtain and clamp the same to the pole, substantially as described.

702,708. PROCESS OF MANUFACTURING SMOKING-PIPE. WALTER C. CUNNINGHAM, St. Paul, Minn., assignor to W. L. Cunningham, St. Paul, Minn., and Otto F. Higdon, Ottumwa, Iowa. Filed Mar. 21, 1902. Serial No. 88,342. (No model.)



Claim.—1. The herein-described improvement in the art of making open smoking-pipes, which consists in first molding a section of the bowl and its shank, subsequently molding the companion section of the bowl and its shank with its inner face against and in contact with the inner face of the section first molded, and finally separately uniting said sections in operative and complete form, substantially as described.

2. The herein-described improvement in the art of making open smoking-pipes, which consists in first molding a longitudinal half-section of the bowl and its shank, subsequently molding the companion half-section of the bowl and shank with its inner face against and in contact with the inner face of the section first molded, and finally separately uniting said sections in operative and complete form, substantially as described.

3. The herein-described improvement in the art of making open smoking-pipes, which consists in first molding a longitudinal half-section of the bowl and its shank, then molding the companion half-section of the bowl and shank with its inner face against and in contact with the inner face of the section first molded, then engaging the sections and hardened sections to an oil-bath, and finally separately uniting said sections in operative and complete form, substantially as described.

702,709. NON-REFILLABLE BOTTLE. GEORGE J. DAVIES, New York, N. Y. Filed Nov. 12, 1901. Serial No. 81,980. (No model.)



Claim.—1. The combination with the neck of a bottle having an enlarged recess therein, of a ring seated in said recess, a stopper-body adapted to engage said ring, a cage composed of gauze and having feet at its lower portion adapted to engage suitable recesses in said stopper-body, a valve-seat in the upper portion of said stopper-body, a valve-stem depending from said valve and a guide for said valve-stem, in combination with a spring interposed between the top of said valve and said cage, a wall of the latter serving as a strainer for the liquid contained in the bottle during the act of emptying the same.

2. In a non-refillable bottle, a stopper-body having an opening therethrough and a valve-seat in its upper portion, a stem depending from said valve, a guide within said stopper-body for said stem, a cage including said valve and consisting of a strip provided with feet at its lower portion, interlocking devices common to said feet and stopper-body and a frame-work covering supported on said strip, an extension projecting upwardly from said valve, and a spring surrounding said extension and interposed between said valve and the top of said cage.

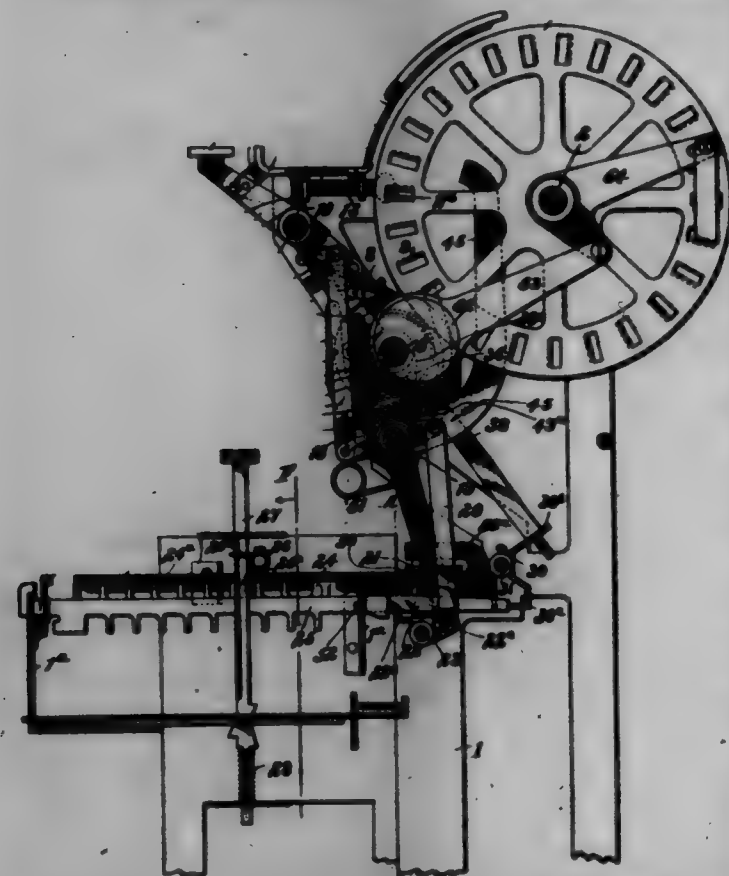
3. In a non-refillable bottle, a stopper-body having an opening there-through and a valve-seat in its upper portion, a stem depending from said valve, a guide within said stopper-body for said stem, a cage inclosing said valve and consisting of a strip provided with feet at its lower portion, interlocking devices common to said feet and stopper-body and a frangible covering supported on said strip, an extension projecting upwardly from said valve, and a spring surrounding said extension and interposed between said valve and the top of said cage, in combination with the neck of a bottle having an enlarged recess therein, and a ring seated in said recess and supporting said stopper-body.

4. In a non-refillable bottle, a stopper-body having an opening there-through recess therein and a valve-seat in its upper portion, a stem depending from said valve, a guide for said stem, a cage inclosing said valve and consisting of a strip provided with enlarged feet at its lower portion which are adapted to engage and interlock with said recesses in said stopper-body, and a frangible covering supported on said strip.

5. In a non-refillable bottle, a stopper-body having an opening there-through recess therein and a valve-seat in its upper portion, a stem depending from said valve, a guide for said stem, a cage inclosing said valve and consisting of a strip provided with enlarged feet at its lower portion which are adapted to engage and interlock with said recesses in said stopper-body, and a frangible covering supported on said strip, in combination with the neck of a bottle having a recess therein and a ring seated in said recess and supporting said stopper-body.

6. In a non-refillable bottle, a stopper-body having an opening there-through, recess therein and a valve-seat in its upper portion, a cage inclosing said valve and consisting of a strip having feet interlocking with said recesses in said stopper-body and a frangible covering supported on said strip and inclosing said valve, said covering serving as a strainer during emptying of the bottle.

702,710. MECHANICAL CASHIER. MAAS & DENEHY, Chicago, Ill., and ARTHUR D. KING, Grand Rapids, Mich., assignors, by mesne assignments, to American Mechanical Cashier Company, a Corporation of New Jersey. Filed Jan. 4, 1901. Serial No. 48,081. (No model.)



Claim.—1. In a mechanical cashier, the combination with the cash-receipts, of a locking-dog preventing its operation in either direction, and a controller-key and an operating means, adapted to move the cash-receipts in opposite directions and both adapted to release the said dog to permit movement of the cash-receipts.

2. In a mechanical cashier, the combination with a cash-receipts and a casing having a cash-opening, of a controller-key arranged to engage the cash-receipts to move the deposited cash away from said opening and means for moving said receipt in reverse direction to move the deposited cash back to the opening.

3. In a mechanical cashier, the combination with a cash-wheel of a pivoted controller-key provided with a yielding portion arranged to engage the cash-wheel to move it in one direction of movement of the key,

but allow return movement of the key without operation of the cash-wheel, and means for moving the cash-wheel in the other direction independently of the controller-key.

4. In a mechanical cashier, the combination with a cash-wheel having teeth, of a pivoted controller-key-lever arranged to engage said teeth to turn the cash-wheel in one direction only, an operating device adapted to engage said teeth to turn the cash-wheel in reverse direction, and means for locking the cash-wheel from movement in either direction.

5. In a mechanical cashier, the combination with a cash-receipts wheel and means for moving same to expose or withdraw a receipt, of means for locking the cash-receipts wheel in the position to which it is moved.

6. In a mechanical cashier, the combination with a cash-receipts and locking means for same, of a controller arranged to move the cash-receipts and connected to the locking means to release same.

7. In a mechanical cashier the combination with a cash-wheel and a locking-catch engaging same, of a controller-key arranged to engage the locking-catch to release the cash-wheel and also adapted to engage the cash-wheel to move same after such release.

8. In a mechanical cashier, the combination with a cash-wheel and a locking-catch engaging same, of a controller-key arranged to engage the cash-wheel to move same and provided with a projection engaging the locking-catch and arranged to release the cash-wheel to allow it to be moved by the controller, and to then release the catch to allow it to again lock the cash-wheel.

9. In a mechanical cashier, the combination with a cash-receipts and a controller means adapted and arranged to move same in one direction, of operating means, separate from the controller means, for moving the cash-receipts in the other direction.

10. In a mechanical cashier, the combination with a cash-receipts and a casing having an opening opposite the cash-receipts, of a controller means adapted to move said receipts, away from said opening, and operating means, separate from the controller means for moving the receipts back to said opening.

11. In a mechanical cashier, the combination with a cash-receipts wheel and a controller means adapted to move same to withdraw a receipt thereof, of operating means, separate from the controller means to move the said wheel to expose such receipt.

12. In a mechanical cashier the combination with a cash-receipts, of controller means adapted to move the receipts in one direction, operating means separate from the controller means to move the said receipts in opposite direction, and locking means for said operating means controlled by the controller means.

13. In a mechanical cashier, the combination with a cash-receipts, controller means adapted to move the receipts to withdraw same, purchase-key mechanism, operating mechanism, separate from the controller means for moving the cash-receipts to expose same, and mechanism controlled by the controller means and by the purchase-key mechanism and controlling the operating mechanism.

14. In a mechanical cashier the combination with a cash-receipts wheel and its controller means adapted to move same in one direction, of an operating means separate from said controller means for moving said wheel in reverse direction comprising an operating shaft, an operating device loose on said shaft, clutching means for clutching said operating device to the shaft, and connecting mechanism whereby operation of said controller means controls the said clutching means.

15. In a mechanical cashier, the combination with a cash-receipts wheel, of an operating means for same, comprising a shaft, an operating device loose on said shaft and a clutching means for clutching said operating device to said shaft comprising a spring-pin on one of said parts adapted to engage the other part, and controlling means adapted to engage said spring-pin to control the engagement of said clutching means.

16. In a mechanical cashier, the combination with a cash-receipts wheel, controller means adapted to move said wheel in one direction and a purchase-key mechanism, of an operating device for the receipts-wheel in reverse direction, an actuating-shaft therefor, a clutch connection between said shaft and operating device, mechanism controlled by said controller and by the purchase-key mechanism and means controlled by the said mechanism to control the said clutch.

17. In a mechanical cashier, the combination with a cash-receipts wheel, of an operating means therefor comprising a shaft arranged to rotate in one direction only, and provided with an operating-handle, means operated by the rotation of said shaft to turn said cash-receipts wheel, a lock for said cash-receipts wheel and means controlled by said shaft to release said lock.

18. In a mechanical cashier, the combination with a cash-receipts wheel, of operating means therefor, comprising a shaft, a handle on said shaft and means operated by rotation of the shaft to turn the cash-receipts wheel, means for preventing backward movement of the shaft, a lock for said cash-receipts wheel and means controlled by said shaft to release said lock.

19. In a mechanical cashier, the combination with a cash-receipts wheel, of operating means therefor, comprising a shaft, a handle on said shaft and means operated by rotation of the shaft, to turn the cash-receipts wheel, pawl-and-ratchet means for preventing backward movement of the shaft, locking means for preventing movement of the cash-receipts wheel in either direction, and means controlled by the said shaft to release said locking means.

20. In a mechanical cashier, the combination with a cash-receipts wheel, of operating means therefor, comprising a shaft, a handle on said shaft and means operated by rotation of the shaft to turn the cash-receipts wheel, locking means for preventing such rotation of the shaft and means for releasing such locking means.

21. In a mechanical cashier, the combination with a cash-receipts wheel and purchase-key mechanism, of operating means for the cash-receipts comprising a shaft and means operated by rotation of said shaft to turn the cash-receipts wheel, detent means for preventing such rotation of the shaft and means operated by the purchase-key mechanism to release said detent means.

22. In a mechanical cashier, the combination with a cash-receipts wheel and a purchase-key, of operating means for the cash-receipts comprising a shaft and means operated by rotation of said shaft to turn the cash-receipts wheel, detent means for preventing such rotation of the shaft, a slide operating said detent means and a shaft provided with means adapted to engage the said slide and with means engaged by the purchase-key, to release the operating-shaft for the cash-receipts, upon operation of a purchase-key.

23. In a mechanical cashier, the combination with a plurality of cash-receipts wheels, of operating devices adapted to move the wheels to position for ejecting cash, and comprising an operating-shaft, operating devices loose on said shaft, and clutching means for connecting the said operating devices to said shaft, and ejecting devices operated independently and respectively by said operating devices.

24. In a mechanical cashier, the combination with a plurality of cash-receipts wheels, of an operating-shaft, and operating devices carried thereby and adapted to engage the cash-receipts wheels to move the same to ejecting position, and ejecting devices engaged respectively and operated independently by each operating device.

25. In a mechanical cashier, the combination with a cash-receipts wheel, of an operating-shaft and operating device carried loosely thereby and adapted to engage the cash-receipts wheel, clutching means adapted to connect said shaft and operating device, and a controlling device adapted to engage the said operating device to stop same and to engage the said clutching device to connect same.

26. In a mechanical cashier, the combination with a plurality of cash-receipts wheels, of operating devices adapted to move the said cash-receipts wheel to ejecting position, independent ejecting devices for the respective wheels, a shaft operating all of said ejecting devices, and clutch connection between said shaft and ejecting devices controlled by said operating devices.

27. In a mechanical cashier, the combination with a cash-receipts wheel and locking means therefor, of an operating-shaft, a cam operated by said shaft and means operated by said cam to release the aforesaid locking means, and an operating device also operated by said shaft and adapted to operate the cash-receipts.

28. In a mechanical cashier, the combination with the cash-receipts, its operating mechanism comprising a rotatable shaft and handle and purchase-key mechanism, of resetting means for the purchase-key mechanism, operating means for said resetting means and means carried by said rotatable shaft and engaging positively with each operating means to move it alternately in opposite directions in the rotation of the shaft.

29. In a mechanical cashier, the combination with the cash receiving and delivery mechanism, and the purchase-key mechanism, of resetting means for the purchase-key mechanism, a rotatable operating-shaft and means engaged positively by said shaft in its rotation to move the resetting means alternately in opposite directions.

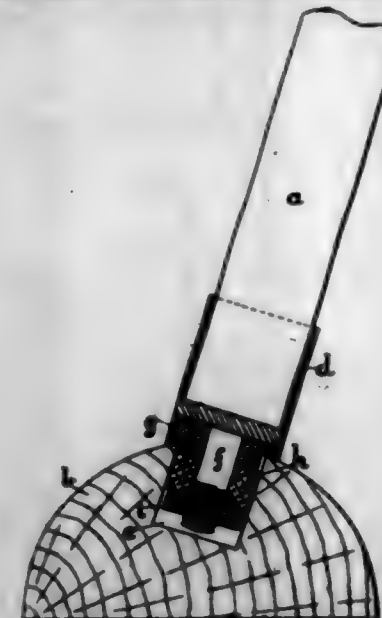
702,711. PANEL-RAISER. LAWREN & BURR, Washington, Pa. Filed Aug. 31, 1901. Serial No. 73,008. (No model.)



Claim.—A panel-raiser comprising an approximate cylindrical body portion having a bore, and provided on its upper face with a central base,

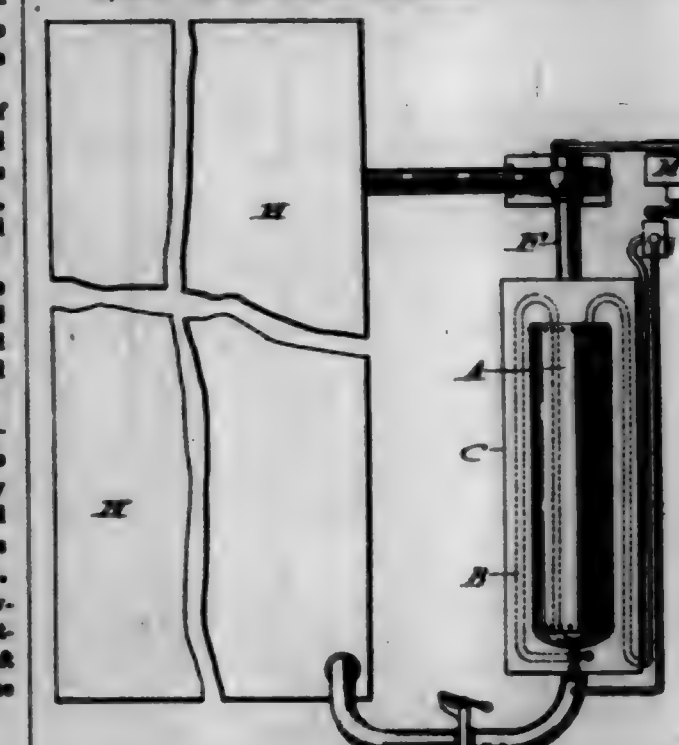
curved arms formed integral with the said body portion at diametrically opposite points, said arms being substantially circular in cross-section, and a cutter-blade adjustably mounted on the inner edge of each arm and having their inner ends abutting against the said body portion, substantially as described.

702,712. APPARATUS FOR ATTACHING OR DETACHING HANDLES OF BRUSHES, BROOMS, OR THE LIKE. JOSEPH EATON, Haverhill, England. Filed Apr. 1, 1902. Serial No. 100,980. (No model.)



Claim.—The combination, with the handle or shaft *a* and the head *b* having socket *c*, of the metal cylinder or socket *d*, spindle *e*, metal cap-washer *f*, expanding washer *g*, and metal nut *h*, substantially as described, for the purpose specified.

702,713. APPARATUS FOR EXTINGUISHING FIRES IN CLOSED COMPARTMENTS. HENRY B. FISHER, Philadelphia, Pa. Filed Jan. 14, 1901. Serial No. 45,116. (No model.)



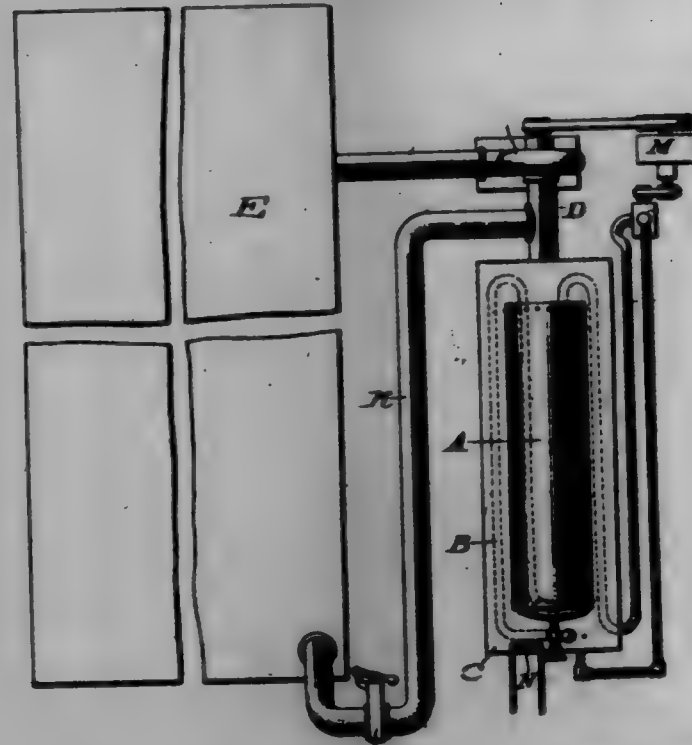
Claim.—1. The process of extinguishing fire in a closed compartment which consists in employing a liquefied combustion-non-supporting gas, changing the state of the same to a gas employing heat from the fire to assist in the evaporation of said gas and then introducing the gas into the compartment.

2. The process of extinguishing fire in a closed compartment, which consists in employing a liquefied combustion-non-supporting gas, evaporating the same in a proper evaporator, directing hot air from the compartment in which fire exists against a suitable portion of said evaporator to assist in the evaporation of said gas and introducing the gas into the compartment.

3. The process of extinguishing fire in a closed compartment, which consists in employing a liquefied combustion-non-supporting gas, changing the state of the same and discharging into an evaporator, directing

hot air from the compartment into the evaporator, and introducing the gas into the compartment.

702,714. PROCESS OF EXTINGUISHING FIRE IN CLOSED COMPARTMENTS. HENRY R. FISHER, Philadelphia, Pa. Filed Jan. 21, 1901. Serial No. 43,963. (No specimen.)



Claim.—1. The process of extinguishing fire in a closed compartment, which consists in employing a liquefied combustion-non-supporting gas, changing the state of the same to a gas in a suitable evaporator, using heat at a suitable point, creating a vacuum in the chamber, to assist in the evaporation, and then introducing said gas into the compartment.

2. The process of extinguishing fire in a closed compartment, which consists in employing a liquefied combustion-non-supporting gas, changing the state of the same to a gas in a suitable evaporator, using heat at a suitable point, creating a vacuum in the chamber, to assist in the evaporation, then introducing said gas into the compartment, removing said gas from said compartment, and then again introducing said gas into said compartment.

3. The process of extinguishing fire in a closed compartment, which consists in employing a liquefied combustion-non-supporting gas, changing the state of the same to a gas in a suitable evaporator, using heat at a suitable point, creating a vacuum in the chamber, to assist in the evaporation, then introducing said gas into the compartment, removing said gas from said compartment, then enriching the same by the addition of more gas, and then again introducing said gas into said compartment.

4. The process of extinguishing fire in closed compartments, which consists in employing a liquefied combustion-non-supporting gas, changing the same into a gas in an evaporating-chamber, whereby the temperature is reduced, then passing the gas around the exterior of the evaporating-chamber so that the temperature is still further reduced and then introducing the gas into the compartment.

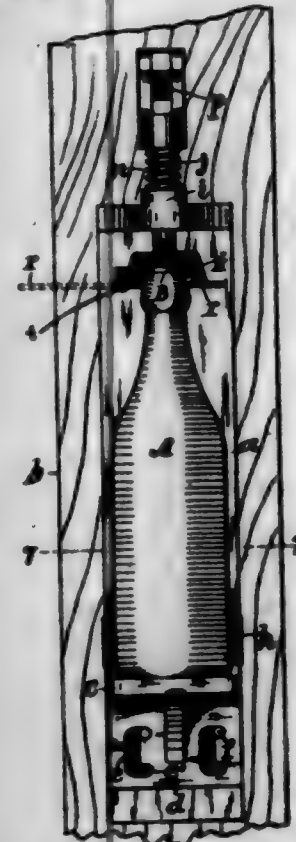
5. The process of extinguishing fire in a closed compartment which consists in employing a liquefied combustion-non-supporting gas, changing the same into a gas, creating a vacuum during the said change of state, whereby a very low temperature is obtained and then introducing the gas into the compartment.

702,715. WEATHER-STRIP FOR DOORS. FREDERICK FISHER, Pittsboro, Wm., assignor of one-half to Charles Lister, Pittsboro, Wm. Filed Dec. 7, 1901. Serial No. 85,083. (No model.)



Claim.—A weather-strip for doors consisting of a hinged strip for the door-ill provided at one end with a tongue projecting beyond the edge of the strip, and a strip for the door having a downwardly-inclined portion provided on its under face near its opposite end with tongues spaced apart from the under surface of the strip, said tongues and the tongue of the door-strip being adapted to cooperate, substantially as described.

702,716. BOTTLE-CAPPING MACHINE. JOHN H. FOX, New York, N. Y. Filed Aug. 6, 1901. Serial No. 71,080. (No model.)



Claim.—1. The bottle-capping machine having a table for supporting the bottle, the socket *k* having recess *s* with its outer edge adapted to crowd inwardly the flange of the cap, the pivot *t* upon the face of the socket at one side of the recess, with the collar *r* pivoted thereon and movable laterally over the recess, and having central aperture *r'* a little smaller than the flange of the cap to sustain the cap when placed in the socket, and means for pressing the socket upon the bottle-mouth.

2. The bottle-capping machine having a table for supporting the bottle, the socket *k* having recess *s* with its outer edge adapted to crowd inwardly the flange of the cap, the pivot *t* upon the face of the socket at one side of the recess, with the collar *r* pivoted thereon and movable laterally over the recess, and having central aperture *r'* a little smaller than the flange of the cap to sustain the cap when placed in the socket, but such aperture being larger than the diameter of the cap after compression, whereby the bottle-neck may be inserted through the collar and withdrawn therefrom with the compressed cap thereon.

3. The bottle-capping machine having a table for supporting the bottle, the socket *k* having recess *s* with its outer edge adapted to crowd inwardly the flange of the cap, the pivot *t* upon the face of the socket at one side of the recess, with the collar *r* pivoted thereon and movable laterally over the recess, and having central aperture *r'* a little smaller than the flange of the cap to sustain the cap when placed in the socket, the stop-pin *u* upon the face of the socket to adjust the collar with its aperture *r'* concentric with the socket, and means for pressing the socket upon the bottle-mouth.

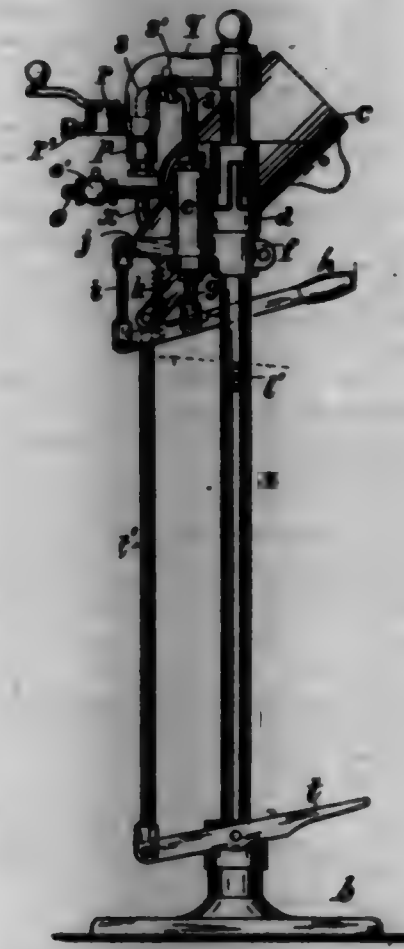
4. The bottle-capping machine having a table for supporting the bottle, the socket *k* having recess *s* with its outer edge adapted to crowd inwardly the flange of the cap, the pivot *t* upon the face of the socket at one side of the recess, with the collar *r* pivoted thereon and movable laterally over the recess, and having central aperture *r'* a little smaller than the flange of the cap to sustain the cap when placed in the socket, and the collar being sloped upon its inner side near the aperture *r'* to afford clearance for the flange of the cap when the collar is slid under the cap, substantially as herein set forth.

5. The bottle-capping machine herein shown and described, comprising the flat frame-plate *a* for attachment to the post, the table *c* secured upon each plate, the vertical guide *i* upon the top of the plate, the spindle *j* movable vertically in each guide and having the socket *k* upon its lower end with pivot *t* and stop-pin *u* upon the face of the socket, and collar *r* hinged upon each pivot with aperture *r'* concentric with the socket by the stop-pin, the shoulder formed upon the upper part of the spindle with spring *h* inserted between the shoulder and the guide *i*, and the hand-lever *p* pivoted to the spindle with link *q* hinging the same to the plate *a*, the whole being adapted to have the cap placed in the socket by hand, the collar turned to support the cap, the bottle sustained upon the table, and a cap attached to the bottle by depressing the hand-lever, substantially as herein set forth.

6. The bottle-capping machine herein shown and described, com-

prising the flat frame-plate *a* having upon its upper end the guide *i* with spindle *j* having socket to cap the bottle, and the table *c* with first *d* fitted to the frame-plate with bolts extended through the plate and the foot, and the foot having two vertical slots *e* with lateral recess *f* at coincident levels, to engage the bolts in specific positions of the table and to hold the table level in each position, substantially as herein set forth.

702,717. SALTS-INJECTOR FOR SIPHON-FILLING MACHINES. JOHN H. FOX, New York, N. Y. Filed Aug. 6, 1901. Serial No. 71,081. (No model.)



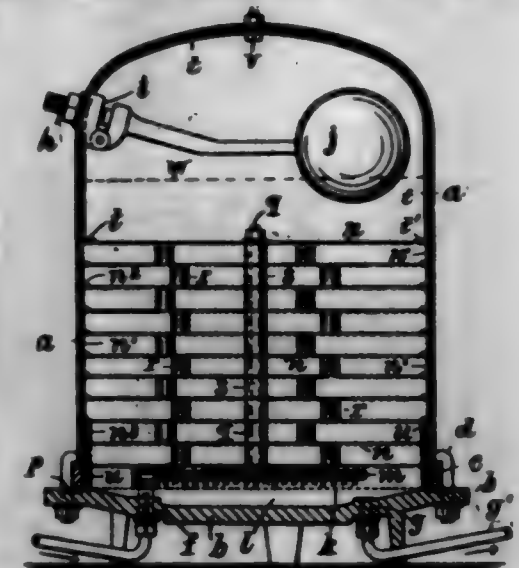
Claim.—1. In a siphon-filler having the post *a* with siphon-holder *c* movable vertically thereon and actuated by handle *t* and link *l*, the combination, with each part, of the supply-socket *p* attached to the top of the post by bent arm *g*, the valve-chamber *r* connected with the nozzle *r'*, the pump-cylinder *e* attached to the post below the collar *d* by clamp *f*, and having an inlet-pipe *o*, and an outlet having the pipe *o* connected with the socket *p*, the rod *g* of the pump-plunger projected downwardly from the cylinder, and the hand-lever *h* connected to each rod and projected past the post *a*, so and for the purpose set forth.

2. In a siphon-filler having the post *a* with siphon-holder *c* movable vertically thereon and actuated by handle *t* and link *l*, the combination, with each part, of the supply-socket *p* attached to the top of the post by bent arm *g*, the valve-chamber *r* connected with the nozzle *r'*, the pipe *o* provided with check-valve *s* opening toward the socket, the vertical pump-cylinder *e* attached to the post below the collar *d* by the clamp *f*, and having the arm *j* projected from its lower end with link *i* hinged thereto, the cylinder being provided with inlet-pipe *o* having check-valve *s* opening toward the cylinder and having its upper end connected with the socket *p* by the pipe *o*, the rod *g* of the pump-plunger projected from the lower end of the cylinder, the hand-lever *h* jointed to the rod and to the link *i*, and the spring *k* connecting the hand-lever and the arm to hold the pump-plunger normally raised, substantially as herein set forth.

3. The attachment herein shown and described for the siphon-filling machines having the post *a* with siphon-holder *c* movable vertically thereon and actuated by handle *t* and link *l*, and having the supply-socket *p* attached by the arm *g* to the top of the post, and provided with the valve *r*, the attachment comprising the vertical pump-cylinder *e* having the inlet-pipe *o* at the side and supply-pipe *o* at the top provided with check-valve *s* and adapted for connection with the top of the supply-socket, and having at one side the clamp *f* adapted to embrace the post below the sleeve of the siphon-holder, and at the opposite side the arm *j* provided with link *i*, the pump-plunger rod *g* projected from the bottom of the cylinder, the hand-lever *h* pivoted to the link *i* and to the rod *g*, and the spring *k* connecting the hand-lever and the arm to hold the pump-plunger normally raised, substantially as herein set forth.

4. The attachment herein shown and described for the siphon-filling machines having the post *a* with siphon-holder *c* movable vertically thereon, and having the supply-socket *p* with inlet for milk at the top and valve *r* at the side, and attached to the top of the post by the arm *g*, the attachment comprising the vertical pump-cylinder *e* having the inlet-pipe *o*, and the pipe *o* and check-valve *s* connecting the top of the pump with the top of the supply-socket, the pump having the clamp *f* for securing it upon the post, the pump-plunger projected downwardly from a cylinder, the hand-lever pivoted by link to the cylinder, and a stop upon the post projected in the path of the hand-lever to vary its stroke and the volume of milk delivered to the supply-socket, substantially as herein set forth.

702,718. CARBONATOR FOR BEVERAGES. JOHN H. FOX, New York, N. Y. Filed Oct. 17, 1901. Serial No. 79,051. (No model.)



Claim.—1. In a carbonator, the combination, with the shell *a* having water-inlet at the top, and provided with removable bottom having gas-inlet and water-outlet, of the series of perforated disks *n* each having its edge flanged and connected to a hoop *u* to strengthen the same, and the central rod and bushings to secure the disks together, substantially as herein set forth.

2. In a carbonator, the combination, with the shell *a* having water-inlet at the top, and provided with removable bottom having gas-inlet and water-outlet, of the series of perforated disks *n* having the flanges *n'* at the edges to space them apart, a spaced series of studs *r* soldered to each of the disks, and the bolt connecting the disks and having the bushings *s* fitted between the same, substantially as herein set forth.

3. In a carbonator, the combination, with the shell *a* having water-inlet at the top, and provided with removable bottom having gas-inlet and water-outlet, of the series of perforated disks *n* flanged at the edges to space them apart, and the stop *t* upon the shell *a* to contact with the upper disk and hold the series in place, substantially as herein set forth.

4. In a carbonator, the combination, with the shell *a* having water-inlet at the top and provided with removable bottom having gas-inlet and water-outlet and having a perforated grating secured just above the bottom, of the series of perforated disks *n* having the flanges *n'* at the edges to space them apart, the flange of the bottom disk resting upon the grating as set forth, and the bolt *g* connecting the disks and having the bushings *s* fitted between the same, and the nut for the bolt sustained above the grating by the flange of the bottom disk.

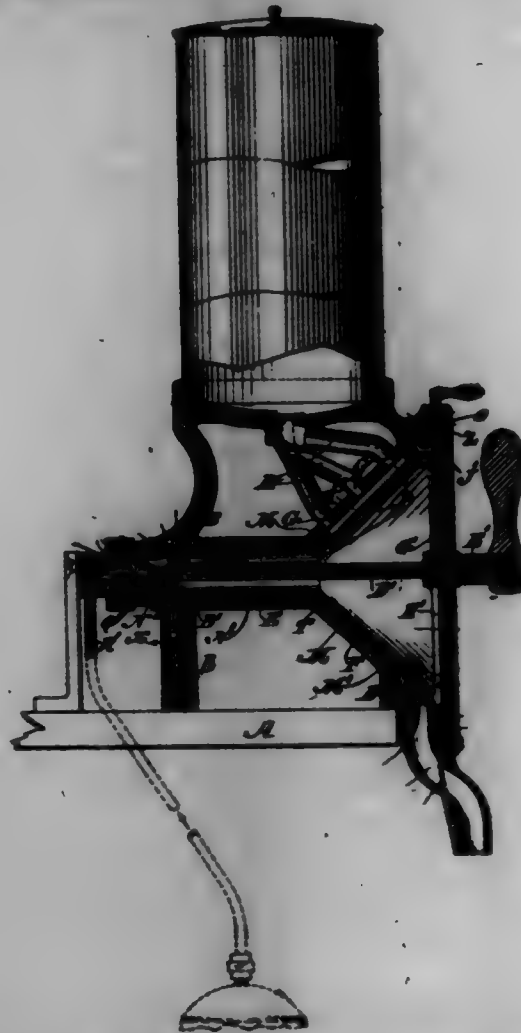
5. In a carbonator, the combination, with the shell *a* having water-inlet at the top, of the removable dish bottom having gas-inlet and water-outlet and provided with the perforated grating *t* forming chamber *q* next above the gas-inlet and water-outlet, and the series of perforated disks *n* having the flanges *n'* at the edges to space them apart, with bolt *g* and bushings *s* connecting the disks, and the flange of the bottom disk resting upon the grating, as set forth.

6. In a carbonator, the combination, with the shell *a* having water-inlet at the top and provided with removable bottom having gas-inlet and water-outlet and having a perforated grating secured just above the bottom, of the series of perforated disks *n* having the flanges *n'* at the edges to space them apart, and the bolt *g* to secure them together, and the gas-inlet pipe *f* extended from the bottom between the grating and the bottom disk and perforated to project the gas downwardly in the grating, so and for the purpose set forth.

7. In a carbonator, the combination, with the shell *a* having water-inlet at the top and provided with removable bottom having gas-inlet and water-outlet, with the series of perforated disks *n* having flanges *n'* at the edges to space them apart, of the strap *r* secured within the top of the

casing by the bolt *v* with its ends extended downward to the upper screen to hold the screens in place.

702,719. SODA-WATER-DISPENSING APPARATUS. CHARLES A. GEDDES, Philadelphia, Pa., assignor to George F. Laubenstein and William R. Boyer, Philadelphia, Pa. Filed Feb. 12, 1902. Serial No. 90,718. (No model.)



Claim.—1. In a dispensing apparatus, a plurality of syrup-receptacles, a casing having independent openings communicating with said receptacles, discharge-nozzles for said casing, a revoluble thimble within said casing having independent ports adapted to register with said openings and with one of said discharge-nozzles when the thimble is revolved, a revoluble hollow plug within said thimble having a port adapted to be moved into longitudinal alignment with all of said first-mentioned openings, another port in said plug adapted to register with said discharge-nozzle, a source of supply communicating with said casing by a plurality of ports, a port in said plug adapted to communicate with the interior of the plug, and a jet-passage extending from another port in said plug adapted to communicate with the other casing-part and having a port at its other end adapted to communicate with the other discharge-nozzle.

2. In a dispensing apparatus, a casing communicating with a plurality of syrup-receptacles and having discharge-nozzles, a revoluble hollow plug provided with ports, means for establishing communication between said plug and said syrup-receptacles and one of said discharge-nozzles, a source of supply adapted to communicate with the interior of said plug, and a jet-passage through said plug adapted to communicate at its opposite ends with a source of supply and with the other discharge-nozzle.

3. In a dispensing apparatus, a casing communicating with a plurality of syrup-receptacles and having discharge-nozzles, a hollow plug provided with ports within said casing, means for establishing communication between said receptacles and said plug and one of said discharge-nozzles, means for establishing communication between said plug and source of supply; an independent passage leading through said plug adapted to communicate at its ends with said source of supply and the other discharge-nozzle.

4. In a dispensing apparatus, a casing communicating with a plurality of syrup-receptacles and having a plurality of discharge-nozzles, a revoluble hollow plug within said thimble adapted to communicate with said syrup-receptacles, a port in said plug adapted to communicate with one of said discharge-nozzles, a jet-passage through said plug having a port adapted to communicate with the other of said discharge-nozzles, independent ports communicating with the source of supply and independent

ports in said plug communicating respectively with the interior of said plug and with said passage, and adapted to communicate with the independent ports communicating with source of supply.

5. In a dispensing apparatus, a casing communicating with a plurality of syrup-receptacles having a vent-port and a plurality of discharge-nozzles, a revoluble thimble within said casing having a plurality of ports to communicate with said syrup-receptacles and a plurality of vent-ports to communicate with the vent-ports of the casing, said thimble being also provided with a plurality of outlet-ports to communicate with the discharge-nozzles of said casing, a revoluble hollow plug situated within said thimble and having a longitudinal port to communicate with said inlet-ports of the thimble and having a vent-port to communicate with said vent-ports of the thimble, said plug being also provided with an outlet-port to communicate with one of said discharge-nozzles, an independent jet-passage through said plug having a port at one end to communicate with the other of said discharge-nozzles, and independent ports in said plug to communicate respectively with the interior thereof and with said passage and adapted to communicate independently with the source of supply.

6. In a dispensing apparatus, a casing having a tubular bearing and a flaring end portion, syrup-receptacles communicating with said flaring end portion, discharge-nozzles leading from said flaring end portion, a revoluble thimble mounted within said flaring end portion and having ports to communicate with said receptacles and with said nozzles, a revoluble hollow plug having a cylindrical portion mounted in said tubular bearing, a flaring portion situated within said thimble and provided with ports to communicate with the syrup-receptacles and with the discharge-nozzles, a closure secured to the flaring end portion of the casing and over the ends of said thimble and plug and means for establishing a communication between said plug and with source of supply.

702,720. MACHINE FOR HUSKING CORN. WILLIAM H. GUN-BAKER, Alton, Ill. Filed May 22, 1900. Serial No. 17,090. (No model.)



Claim.—1. In a husking-machine, a husking-roll having grippers mounted thereon and movable transversely to the periphery to permit one edge of the gripper to be projected while the opposite edge retreats whereby as one edge engages the ear of corn the opposite edge is projected to engage the butt-end of the ear of corn in the rotation of the roll, substantially as described.

2. In a husking-machine, a husking-roll provided with concave slidable grippers adapted in the rotation of the roll to have one edge of the gripper to retreat while the other edge is projected into engagement with the butt-end of the ear of corn in the rotation of the roll, substantially as described.

3. In a husking-machine, a husking-roll provided with grippers slidable transversely of its periphery with one free edge to be projected as the opposite edge retreats to adapt them by engagement of one edge with an ear of corn to have the other edge projected into engagement with the butt-end of the ear in the rotation of the roll, and a yielding roll arranged opposite to the first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the two rolls, substantially as described.

4. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a yielding roll arranged opposite to the first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the rolls, and a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, substantially as described.

5. In a husking-machine, a husking-roll provided with movable grippers adapted in the rotation of the roll to have one edge projected to engage the butt-end of the ear of corn, a yielding roll arranged opposite to said first-named roll and adapted to exert a yielding pressure on the cornstalk in passing between the rolls, and a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, substantially as described.

6. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a pressure-roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides to the rolls, and an endless feed operating between said guides to act upon the stalks as they pass between the guides to the rolls, substantially as described.

7. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides to the rolls, an endless chain or belt provided with fingers operating in the space between the guides, sprockets around which said endless belt or chain passes, one of said sprockets being arranged back of the forward ends of the rolls, and means for transmitting motion to one of said sprockets for the purpose of actuating the chain or belt, substantially as described.

8. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides, an endless chain or belt provided with fingers operating in the space between the guides, sprockets around which said endless belt or chain passes, one of said sprockets having a bevel-gear connected therewith, and a bevel-gear connected with one of said rolls and meshing with the bevel-gear of the sprocket to transmit motion to the endless chain or belt, substantially as described.

9. In a husking-machine, a husking-roll adapted in its rotation to have a part thereof engage the butt-end of the ear of corn, a roll arranged opposite to the first-named roll, a third roll lying over the line of separation of said two rolls and adapted to press the ear of corn to one side as it is detached from the stalk, guides arranged in advance of said rolls to direct the stalk between the guides, an endless traveling feed operating in the space between the guides, a toothed wheel engaging with said traveling feed, a toothed wheel connected with the husking-roll and meshing with the toothed wheel of the endless feed, and a system of gears for transmitting motion from a driving-wheel to the husking-roll, substantially as described.

10. In a husking-machine, the combination of a husking-roll having its periphery provided with grippers adapted in the rotation of the roll to engage the butt-end of the ear of corn, a yielding roll arranged opposite to the first-named roll, said two rolls being spaced apart so as to permit a cornstalk to pass between them, a third roll lying over the line of separation of said two rolls and adapted to bear against and deflect to one side an ear of corn as it is covered from the stalk by the two first-named rolls, and a trough arranged to one side of said rolls to receive the detached ears of corn and have them pass through the same to a wagon-body or other receiver, substantially as described.

11. In a husking-machine two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle of forty-five degrees in advance of the forward portion of the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to move transversely to the periphery of the roll, a trough for each set of husking-rolls arranged to receive the detached ears of corn from each set of rolls, and a trough arranged to receive the detached ears of corn from the troughs of the separate sets of rolls and deliver the corn into a wagon-body or other receiver, substantially as described.

12. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to move transversely to the periphery of the roll, a system of power-transmitting gears for each set of husking-rolls, and a power-transmitting wheel common to both sets of power-transmitting gears, substantially as described.

13. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to move transversely to the periphery of the roll, a trough for each set of husking-rolls arranged to receive the detached ears of corn from each set of rolls, and a trough arranged to receive the detached ears of corn from the troughs of the separate sets of rolls and deliver the corn into a wagon-body or other receiver, substantially as described.

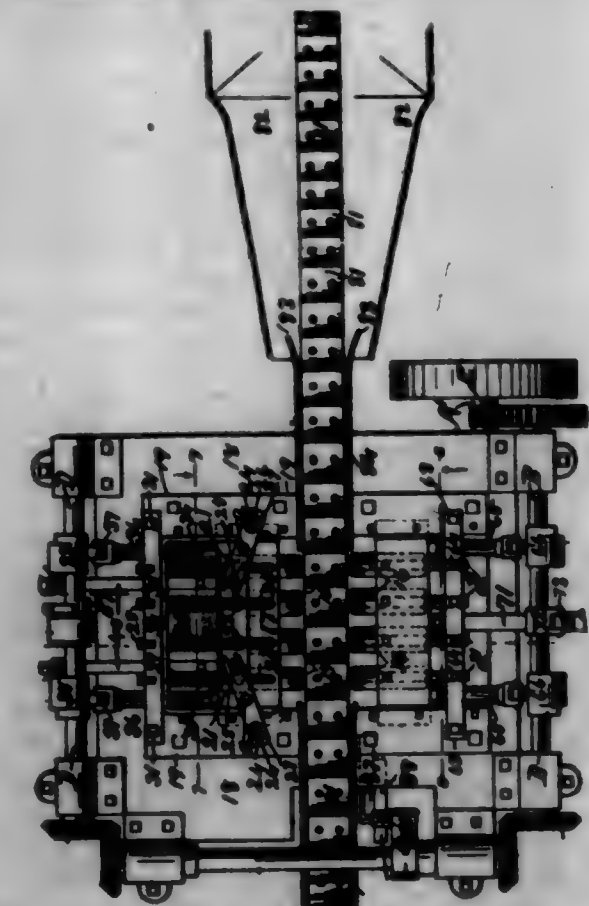
14. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to move transversely to the periphery of the roll, a gear-wheel for one roll of each set of husking-rolls, shafts provided with wheels meshing with the wheels of the husking-rolls, one for each, sprocket-wheels mounted on said shafts, a power-transmitting wheel-shaft provided with sprocket-wheels, and chains connecting said sprocket-wheels with the sprockets of the first-mentioned shafts, substantially as described.

15. In a husking-machine, two sets of husking-rolls arranged opposite to each other, the forward portion of one set of rolls being located at an angle other than forty-five degrees in advance of the forward portion of the other set of rolls, that is, so that each set of rolls will operate in alternation on separate rows of stalks as the machine is moved forward, one roll of each set of rolls being provided with grippers mounted thereon to move transversely to the periphery of the roll, a trough for each set of husking-rolls extending substantially the length of said rolls and arranged to receive the detached ears of corn from each set of rolls, a trough arranged to receive the detached ears of corn from the troughs of the separate sets of rolls, an endless carrier for moving the ears of corn through the last-mentioned trough, mechanism for positively rotating one roll of each set of husking-rolls, and means for transmitting power from said mechanism to the endless carrier in the delivery-trough, substantially as described.

16. In a husking-machine, the combination with a wagon, of an independently-wheeled frame carrying husking-rolls, means for operably connecting the husking-rolls-carrying frame with the wagon, said means comprising slidably-connected members attached to the wagon and to said frame to adapt the frame to be tilted and to be adjustably connected to the wagon, a trough for delivering ears of corn from the husking-rolls to the wagon-body, and means for tilting the husking-rolls-carrying frame in its connection to the wagon, substantially as described.

17. In a husking-machine, the combination with the wagon, of an independently-wheeled frame carrying husking-rolls and provided with brackets having curved slots formed therein, rods connected with the wagon-body and passing through the curved slots of the brackets for connecting the wagon and husking-rolls frame together and permitting the frame to be moved in the arc of a circle, and means for adjusting said frame in relation to the wagon-body, substantially as described.

702,721. NUT-CRACKING MACHINE. ARTHUR GUNSMITH, Chicago, Ill., assignor of one-half to Leopold A. Dunn, Chicago, Ill. Filed May 16, 1901. Serial No. 90,331. (No model.)



Claim.—1. In a machine of the class described, the combination with a number of piston-heads, of a carriage in which said heads are loosely

mounted, means for imparting a forward-and-back movement to said carriage, and means for reciprocating said piston-heads independently of the movement of the supporting-carriage, substantially as described.

2. In a machine of the class described, the combination with a supporting-bed, of a carriage having a forward-and-back movement thereon, the piston-heads loosely mounted in said carriage and adapted to have both a movement with said carriage and a movement independent thereof, means for actuating the carriage, and means for reciprocating the piston-heads, substantially as described.

3. In a machine of the class described, the combination with a carriage provided with vertical slots and having a forward-and-back movement, of a number of piston-heads loosely mounted therein, a movement-plate mounted on said carriage, the companion fulcrum-levers, and the operative connection between the piston-heads, the movement-plate and said fulcrum-levers, substantially as described.

4. In a machine of the class described, the combination with a supporting-bed, of a traveling carriage provided with vertical slots, of a movement-plate, slotted in line with said vertical slots, the series of piston-heads, the screws or posts, inserted down through the slots in the carriage and movement-plate and fixed in the piston-heads, the fulcrum-levers pivoted at their longitudinal center to said carriage, the operative connection between said movement-plate and fulcrum-levers, whereby said piston-heads are retracted, and means for imparting a forward movement thereto, substantially as described.

5. In a machine of the class described, the combination with a supporting-bed, of a traveling carriage provided with vertical slots and seated on said bed, a movement-plate correspondingly slotted and loosely mounted on the traveling carriage and having an independent movement thereon, a number of piston-heads having a reciprocating movement in said carriage, the screws or posts inserted down through said slotted parts and fixed in the piston-heads, the companion fulcrum-levers pivoted at their outer ends to said carriage and the inner ends loosely engaging the movement-plate, means for advancing the piston-heads on their forward movement, and the operative connection for actuating the fulcrum-levers in returning said heads to their normal position, substantially as described.

6. In a machine of the class described, the combination with a traveling carriage, of the companion rods having their inner ends secured thereto and friction-rollers journaled in the outer ends thereof, a counter-shaft D, the companion cams mounted thereon and adapted once in each revolution, to engage said rollers and impart a forward movement to said carriage, and means for returning the same to its normal position when said cams have passed out of contact, substantially as described.

7. In a machine of the class described, the combination with a traveling carriage, of a number of piston-heads, adapted to have a reciprocating endwise movement thereon, the locking-plungers inserted from the under side of said carriage in line with each of the piston-heads, and means for periodically throwing said plungers into and out of engagement with said heads, substantially as described.

8. In a machine of the class described, the combination with a traveling carriage provided with apertures starting in from the under side, a number of piston-heads loosely mounted in said carriage, the locking-plungers inserted in said apertures, a yoke, a transverse bar having its respective ends loosely inserted in the open ends of said yoke and in which the lower stem ends of said plungers are secured, and means for rocking said yoke in throwing said plungers into and out of engagement with the stems to said piston-heads, substantially as described.

9. In a machine of the class described, the combination with a yoke, comprising companion side bars, provided with slots in their open ends, and an upturned stem end, a transverse bar, having its respective ends loosely inserted in said slots, a plurality of vertically-moving plungers, having their lower ends secured in said transverse bar, the series of piston-heads, with which said plungers are adapted to periodically engage and lock the same against an endwise movement, and means for imparting a rocking movement to said yoke, substantially as described.

10. In a machine of the class described, the combination with the piston-heads, the plurality of locking-plungers, the tilting yoke, the yoke-actuating cam, the shaft on which said cam is mounted, and means for returning said yoke to its normal position when the actuating-cam rolls out of contact, substantially as described.

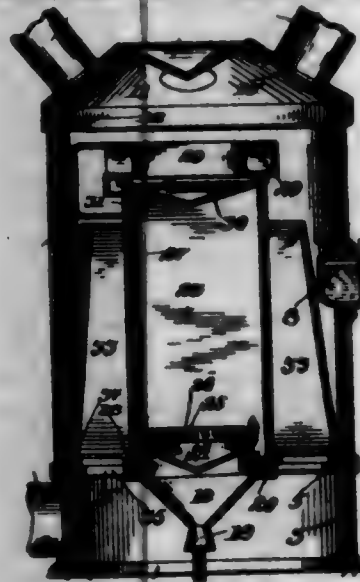
11. In a machine of the class described, the combination with a carriage having a forward-and-back movement, of a number of crushing-heads adjustably mounted therein, the companion rods having their inner ends secured to said carriage and provided with friction-rollers in the outer disengaged ends, the companion cams having two contacts with said rollers in each revolution and imparting two distinct forward movements to said carriage with a pause between said movements, and means for returning the carriage to its normal position, substantially as described.

12. In a machine of the class described, the combination with a supporting-bed, of a traveling carriage mounted thereon, the crushing-heads, inserted in said carriage and in line with the piston-heads opposite there-

to, the companion cams, the operative connection between said carriage and cams, whereby said cams are adapted to have two advancing contacts with said carriage in each revolution, the cam-shaft, and means for returning said carriage to its normal position, substantially as described.

13. In a machine of the class described, the combination with a supporting-bed, of the companion carriages located thereon and having a reciprocating movement toward and away from each other, a number of piston-heads loosely mounted in one of said carriages, means for temporarily locking the piston-heads against a back movement when the limit of their forward movement is reached, a number of crushing-heads rigidly mounted in the companion carriage, means for advancing said companion carriage to its forward position step by step, and means for returning the carriage to its normal position, substantially as described.

702,722. HEATING-FURNACE. WILLIAM GORHAM, PITTSBURG, Pa. Filed Nov. 21, 1901. Serial No. 83,121. (No model.)



Claim.—1. In a heater, the combination of a base having formed therein an annular recess, a cylindrical casing seated in said recess having formed therein an air-inlet, a removable base arranged above said casing having formed therein a series of openings, a burner secured in said removable base, an outer casing secured above said casing, a water-compartment extending into said outer casing, an inner casing forming a combustion-chamber, a deflector arranged at the upper end of said inner casing, a radiating-pipe communicating with said combustion-chamber arranged above said inner casing, a removable hood, a deflector secured at the upper end of said hood, a series of distributing-pipes communicating with said hood, all parts being arranged substantially as described.

2. In a heater, the combination of an inner and outer casing, a series of tapering air-pipes arranged around said inner casing, a burner, a grate or basket secured to the upper face of said burner, refractory material arranged in said grate or basket, a deflector arranged at the upper end of said inner casing, a radiating-pipe communicating with said combustion-chamber, a suitable hood, and a series of distributing-pipes extending from said hood, substantially as described.

3. In a heater, the combination of a suitable support having formed therein an annular recess, an annular casing seated in said recess having formed therein an air-opening, a removable base-plate arranged to support said casing having formed therein a series of openings, a burner arranged in said base-plate, a deflector secured in said burner, a grate having arranged therein refractory material secured above said burner, an inner and outer casing, a series of tapering air-pipes arranged around said inner casing, a deflector secured to the upper end of said inner casing, a radiating-pipe secured upon said inner casing and communicating therewith, a hood carrying a deflector, and a series of distributing-pipes connected to said hood, substantially as described.

702,723. CURTAIN-POLE. LOUIS J. GRAY, PITTSBURG, Pa. Filed Dec. 4, 1901. Serial No. 84,846. (No model.)

Claim.—1. A curtain-pole comprising two metal sections one having an elongated spring-pocket and the other having a tongue for engagement in said pocket, flanges formed integral with said sections between which the curtain is held, and means for securing the sections in a locked position, substantially as described.

2. A hollow metallic curtain-pole comprising a male and a female section, the female section having a spring-pocket throughout its length at the upper edge, and the male section having a tongue for engagement in said pocket, and flanges carried by said sections between which the curtain is held, substantially as described.

3. A hollow metallic curtain-pole comprising a male and a female section the female section having its upper edge bent upon itself to form a pocket and the male section having an inclined tongue for frictionally engaging with the walls of said pocket, means carried by said sections at their lower edges for securing the curtain, and means engaging the ends of the sections for securing same in a locked position, substantially as described.



702,724. GARMENT-FASTENER. GEORGE W. OWEN, BALTIMORE, Md., assignor to the Raymond Button Company of Baltimore City, a Corporation of Maryland. Filed Nov. 7, 1901. Serial No. 81,447. (No model.)

Claim.—1. In a garment-fastener, the combination with a stud member comprising a hollow post having an outwardly-projecting annular recessed flange at its lower end and its upper end split into a plurality of branches curved over to form a resilient head, of a socket member adapted to be sprung over the resilient head of the stud member and having a flange at its upper end and its lower end upturned and adapted to rest in the recess in the outwardly-projecting flange of the stud member, as and for the purpose described.

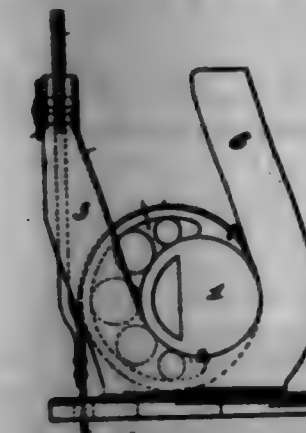
2. In a garment-fastener, the combination of a stud member comprising a hollow post having an outwardly-projecting annular recessed flange at its lower end and provided with a number of holes, and its upper end split into a plurality of branches and curved over to form a resilient head, of a socket member having an annular flange at its upper end and provided with a number of holes and its lower end upturned and adapted to rest in the annular recess in the outwardly-projecting flange of the stud member, as and for the purpose described.

702,725. ELECTRIC CONDUCTING-WIRE. HERMAN HANSEN, FAIRFAX AND ROBERT HANSEN, FAIRFAX, New York, N. Y. Filed Feb. 26, 1902. Serial No. 82,104. (No model.)

Claim.—1. An insulated electric conductor, consisting of a wire, and a covering layer formed of strands of filaments consisting solely of open glass braided on said wire, substantially as set forth.

2. An insulated electric conductor, consisting of a wire, a plurality of covering layers formed of strands of filaments consisting solely of open glass braided on the same, and intermediate braided layers of textile threads, substantially as set forth.

702,726. AUTOMATIC BALANCE OR SCALE. ERIC S. HENMAR, STOCKHOLM, Sweden. Filed Jan. 11, 1902. Serial No. 82,265. (No model.)



Claim.—1. In a balance or scale, the roller, the track for it to roll on, means which compel the roller to move along the track when it rotates, the eccentric secured to and forming part of said roller, the combined roller and eccentric having their common center of gravity at the axis of the roller, and the flexible, depending connector over and attached at one end to said eccentric, substantially as set forth.

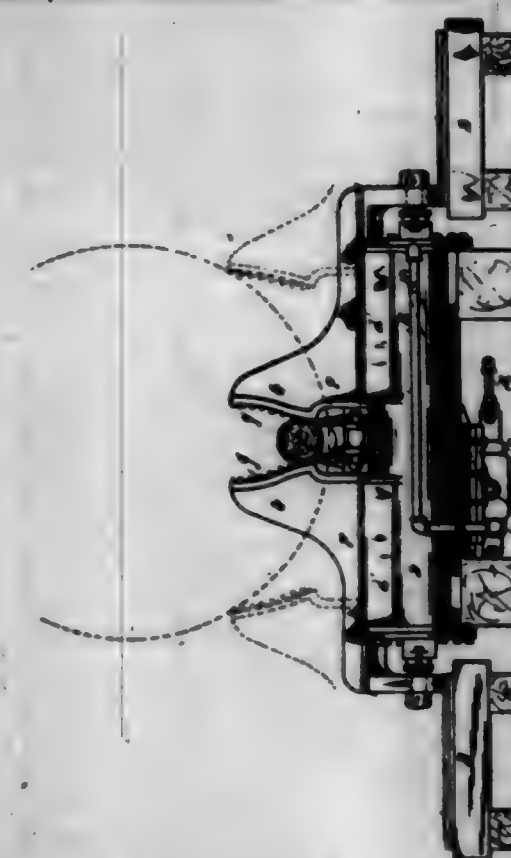
2. In a balance or scale, the roller, the inclined track for the roller to move over, means which compel the roller to move along said track when it rotates, the eccentric secured to and forming a part of said roller, said roller and eccentric being so mounted that a plane passing through their centers will be substantially horizontal when the roller is at rest at its lowest point, and the strap over and attached at one end to said eccentric and dependent at the other end to receive the article to be weighed, substantially as set forth.

3. In a balance or scale, a cylindrical roller, an inclined track for the roller to move over, means consisting of straps which compel the roller to move along the track when it turns about its axis, a circular or cylindrical part fixed to the roller in a manner to form an eccentric thereon, and a strap over said eccentric, secured to the latter at one end and depending from the periphery of the eccentric at the other end to support the article to be weighed, substantially as set forth.

4. In a balance or scale, a cylindrical roller, an inclined track for said roller, means which compel the roller to move over the track when it rotates, an eccentric on said roller, and a strap over said eccentric, one end of which depends from the periphery of the eccentric to support the object to be weighed, the other end being secured to the eccentric, the common center of gravity of the combined roller and eccentric being at the axis of the former, and the inclination of the track being just sufficient to compensate for the lateral movement of the supporting-strap as the eccentric rotates, substantially as set forth.

5. In a balance or scale, the combination with a circular eccentric, a flexible connector over the periphery of same, said connector being secured at one end to the eccentric and depending from the periphery of same to support the object to be weighed, and means compelling said eccentric to rise bodily when it is rotated by the descent of the object being weighed, the eccentric having its center of gravity at its center of rotation, substantially as set forth.

702,727. STRAM DOGGING-MACHINE. ARTHUR S. HILL, Kalamazoo, Mich. Filed June 26, 1901. Serial No. 83,057. (No model.)



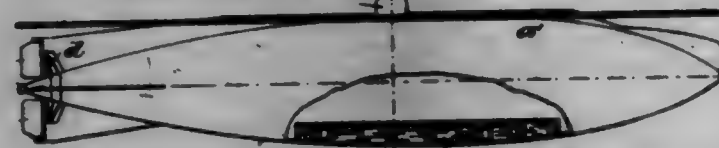
Claim.—1. The combination with a steam-cylinder, two pistons working therein, each respectively actuated, a piston-rod connected to each piston, a pair of sliding jaws, means connecting each jaw to one of said piston-rods, a steam-chest and appropriate parts, a valve mechanism as described whereby the steam-pressure in said cylinder may be controlled.

2. In a steam dogging-machine, the combination of means for supporting and causing logs to travel longitudinally, a pair of steam-actuated jaws adapted to reciprocate transversely on straight lines and grasp the log between them, and means for controlling the application of steam thereto.

3. The combination of two movable jaws adapted to approach or recede from each other, a steam-cylinder located adjacent to said jaws, double pistons in said cylinder, and means connecting each of said pistons respectively with each of said jaws, and means for controlling the inlet and outlet of steam therefrom.

4. In a steam digging-machine, the arrangement and combination of two movable jaws adapted to approach and recede from each other transversely on straight lines, the inner faces of said jaws being so constructed that their lower portions approach more nearly than the upper portions, means on said jaws to engage the logs to be operated upon and means for actuating said jaws.

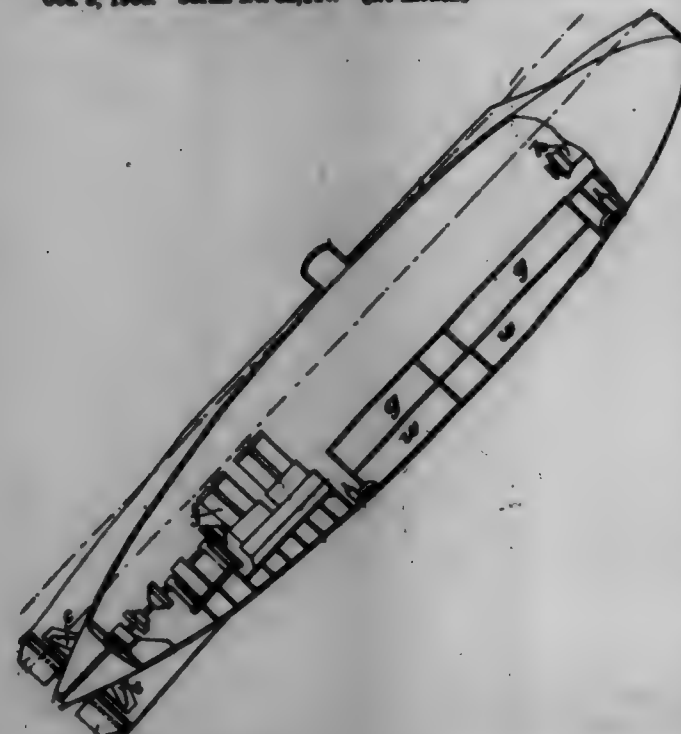
702,728. SUBMARINE BOAT. JOHN P. HOLLAND, Newark, N. J., assignor to Electric Boat Company, a Corporation of New Jersey. Filed Oct. 2, 1900. Serial No. 31,574. (No model.)



Claim.—1. A submarine vessel designed to float on an even keel when running on the surface of the water, having the center of volume of the emerged portion of its body situated forward of the center of buoyancy of the vessel, to counterbalance the weight of the bow-wave tending to depress the boat at the stem, and having water-ballast tanks of which the center of gravity is placed forward of the center of buoyancy of the vessel such a distance that the volume of the water-ballast tanks, multiplied by the distance of their center of volume forward of the vessel's center of buoyancy when the water-ballast tanks are empty, is equal to the volume of the emerged portion of the vessel's body multiplied by the distance of its center of volume forward of the vessel's center of buoyancy under the same conditions, whereby, when said tanks are filled for diving, the buoyancy of said emerged portion may be neutralized and the boat brought with its longitudinal axis substantially parallel with the surface of the water, for the purpose set forth.

2. A submarine vessel designed for operation both on and under the surface of the water, and having water-ballast tanks of capacity for sinking it to the crash condition, said vessel having its center of gravity situated, when said tanks are empty, aft of the center of buoyancy, and said tanks being of such capacity as, when they are filled, to put the vessel on an even keel, substantially as set forth.

702,729. SUBMARINE BOAT. JOHN P. HOLLAND, Newark, N. J., assignor to Electric Boat Company, a Corporation of New Jersey. Filed Oct. 2, 1900. Serial No. 31,575. (No model.)

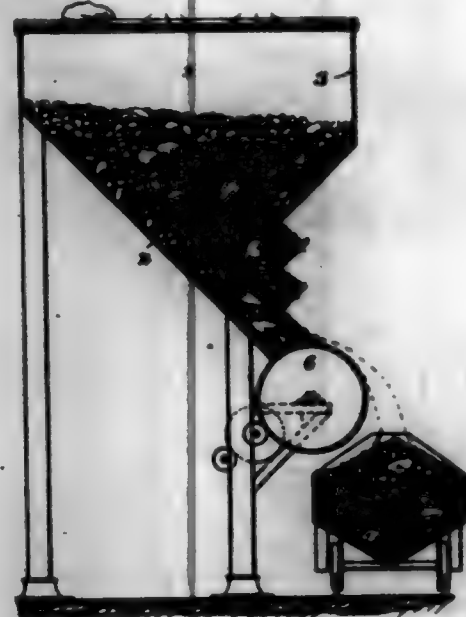


Claim.—In a submarine boat, the combination with water-ballast means having a fixed capacity to contain just sufficient water to overcome the normally emerged portion of the boat, less the reserve buoyancy, of the means for propelling and steering the boat, whereby the boat may be made to dive, to run while submerged, and return to the surface without varying the amount of water-ballast.

702,730. PURIFYING RAW INDIGO. BENNO HEDDLE, Frankfurt-on-the-Main, Germany, assignor to Farbwerke, vorm. Meister, Loeb & Co., Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Oct. 15, 1901. Serial No. 73,955. (No specimens.)

Claim.—The herein-described process of purifying raw indigo, which consists in extracting raw indigo with pyridin bases, substantially as set forth.

702,731. ORE-POCKET. FRANK K. HOOPER, Kansas City, Mo., and ARTHUR J. MARSH, Chicago, Ill. Filed June 18, 1901. Serial No. 68,111. (No model.)



Claim.—1. An ore pocket or hopper having converging front and rear walls, in combination with a roller journaled below the same and forming a movable bottom wall for the discharge-outlet, the rear wall of the hopper extending substantially into contact with the periphery of the roller, and the front wall terminating above the roller below the line marking the natural angle of repose of the material operated upon and at a distance from the nearest point on the periphery of the roller which is substantially equal to the distance between such lower termination of the front wall and the nearest point on the opposite rear wall, substantially as described.

2. An ore pocket or hopper having front and rear walls converging to a discharge-outlet, in combination with a roller journaled below the same and forming a movable bottom wall for the hopper, the rear wall of the hopper extending substantially into contact with the periphery of the roller and the front wall terminating above the roller and at a minimum distance from the periphery thereof which is approximately equal to one-third the diameter of the roller, and which is also substantially equal to the transverse dimension of the opening between such lower termination of the front wall and the nearest point on the opposite rear wall, substantially as described.

3. An ore pocket or hopper having front and rear walls converging to a discharge-outlet, in combination with a roller forming a bottom wall for said hopper, the rear wall of the hopper extending substantially into contact with the upper face of the roller, and the front wall terminating at a distance above the roller such as to provide discharge-openings of substantially equal cross-sectional area between the bottom of the front wall and the nearest points on the rear wall and roller, respectively, substantially as described.

4. An ore pocket or hopper having converging front and rear walls and a lateral discharge, one of said walls being provided above the discharge-outlet with a lever, said lever being located at such point in the wall above the discharge-outlet as to prevent the arching of the material within the hopper, substantially as described.

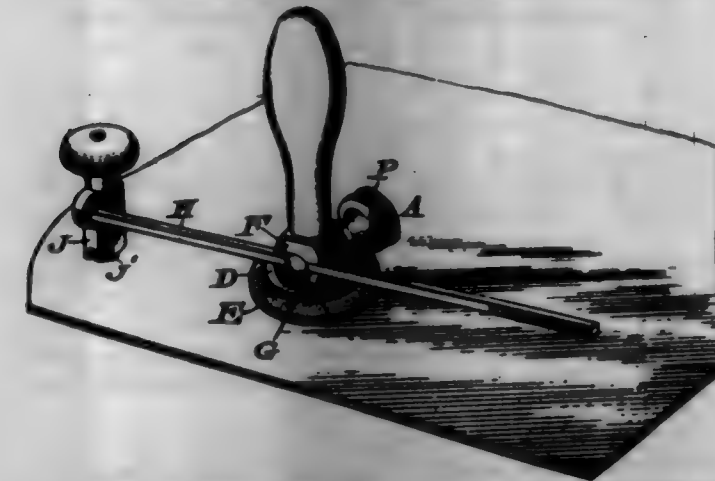
5. An ore pocket or hopper having a discharge-outlet at its bottom and a lever opening in one of its walls above the discharge-outlet and a movable wall forming a bottom wall for the discharge-outlet, adapted when at rest to retain the material within the hopper and when in motion to withdraw the material from the hopper and to discharge it laterally through said outlet, substantially as described.

6. An ore pocket or hopper having a discharge-outlet at its bottom and a lever opening extending across the discharge side above said opening and a roller located in and forming the bottom wall of the outlet and upon which the material runs and adapted when moved to withdraw the material from the hopper and discharge it laterally through said outlet, substantially as described.

7. An ore pocket or hopper having formed on its lower contracted end a discharge-outlet and means for effecting the discharge of material therefrom, in combination with a series of bars disposed over the mouth of the hopper and serving to break the impact of material delivered to the hopper, to prevent the admission thereto of any masses of material

too large to pass through the discharge-outlet and to retain the same thereon until broken up or removed, substantially as described.

702,732. CIRCULAR GLASS-CUTTER. DAVID R. JOHNSON, Allentown, Pa. Filed Sept. 25, 1901. Serial No. 74,558. (No model.)



Claim.—1. In a circular glass-cutter, a rotatable block, a bolt having a head fitted to slide in said block, a base, a chuck passing freely through said block, and head, a handle on said chuck, and a center-carrying arm adjustably fitted in a slot in said head, said block having a groove in its side in register with said slot of the bolt-head.

2. A circular glass-cutter, comprising a handle, a chuck extending therefrom, a base upon the said chuck, a frictional centering-plate upon said base, a center rotatably mounted upon said chuck, a block mounted on said chuck, a bolt having its head adapted to slide in said block, and a center-carrying arm adjustably fitted in said head and adapted to be carried by said head against said block, said bolt and block having openings for the free passage of said chuck therethrough.

3. A circular glass-cutter, comprising a handle having a centering-plate connected therewith by a chuck, a rotatable block mounted upon said chuck, and provided in its side with a guide-groove, an arm adjustably secured in said groove and provided with a glass-cutter, a bolt having a head adapted to slide in said block and provided with a slot in which said arm is adjustably received, said chuck passing freely through said block and head, and means for moving said bolt and carrying said arm into said groove.

4. A circular glass-cutter, comprising a handle having a centering-plate connected therewith by a chuck, a block rotatably mounted upon said chuck and provided with a guide-groove, a bolt passing through said block and having a slot registering with said guide-groove, a thumb-screw upon said bolt adapted to engage said block, and an arm passing through said guide-groove and slot and provided with a glass-cutter.

5. A circular glass-cutter comprising a handle, a chuck, a centering-plate, said chuck connecting said handle and plate, a longitudinally-moving arm having a center, said arm being rotatably mounted on said handle, a block mounted on said chuck, a bolt having its head adapted to slide in said block, said arm being passed through a slot in said head, and said chuck passing freely through said block and head, and means on said bolt whereby said arm is carried against said block.

6. A circular glass-cutter, comprising an arm having a centering-plate connected therewith by a chuck, a block rotatably mounted upon said chuck and movable longitudinally thereon, an arm connected with said block and having a glass-cutter, a bolt having its head adapted to slide in said block and carrying said arm and a tightening-nut fitted on the threaded end of said bolt and adapted to engage said block.

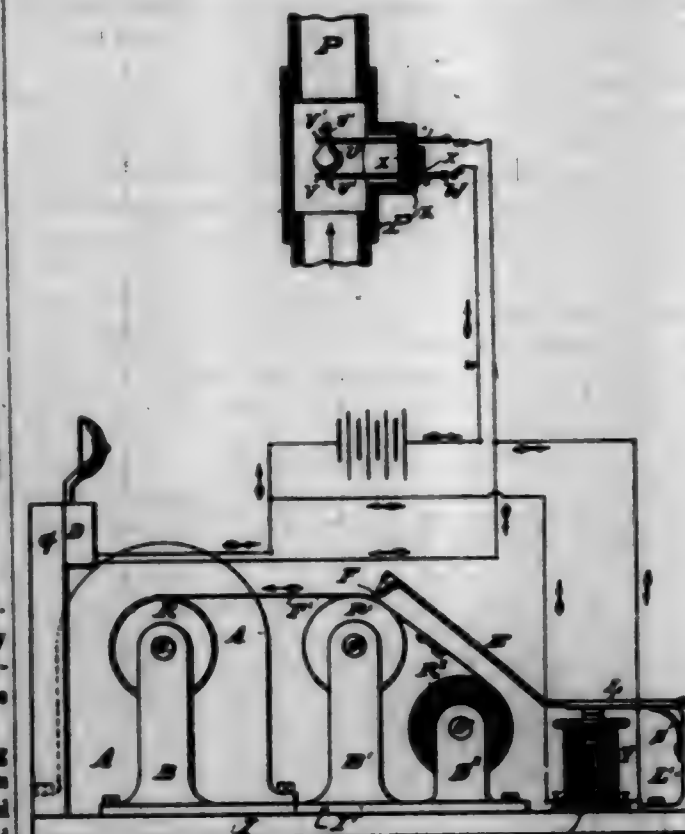
702,733. WITHDRAWN.

702,734. ELECTRIC WATER-RECORDING DEVICE. WILLIAM H. KIMM and ALFRED THOMSEN, New York, N. Y. Filed Mar. 15, 1901. Serial No. 51,512. (No model.)

Claim.—1. In an electric water-recording device, the combination of a water-supply pipe with an electric-circuit-closing device consisting of an electroconducting body, arms extending from said body, guide-arms provided with openings in which said arms fit and having their free ends connected in an electric circuit.

2. In combination, a water-supply, arms extending into and out of said supply, an electric-circuit closer mounted between the arms inside

the supply-pipe, and electrical connections with the outside ends of said arms for operating an indicator and to ring an alarm.



702,735. REVOLVER. HENRY M. KOLS and CHARLES FORBES, Philadelphia, Pa. Filed Sept. 23, 1901. Serial No. 74,954. (No model.)



Claim.—1. In a revolver, a cylinder rotatably mounted upon an arm, a link pivotally connected with the barrel of the revolver, and a pivot connecting said link and arm, the same being eccentric to said arm.

2. In a revolver, an arm upon which the cylinder is rotatably mounted, said arm being provided with an offset, and a link pivotally connected with the barrel of the revolver and pivoted to said offset.

3. In a revolver, an arm upon which the cylinder is pivotally mounted, an offset at the forward end of said arm, a link pivoted upon the barrel and pivotally connected with said offset, said link being recessed to receive the end of said arm, and the forward portion of the frame of the revolver being recessed to receive said arm.

4. In a revolver, a tubular arm upon which the cylinder is rotatably mounted and a pivotally-mounted member pivotally connected with said arm, an ejector-plate at the rear end of said cylinder carried by a tube situated within said tubular arm, said tube being longitudinally movable within said arm, a spring situated between said cylinder and tube for moving the tube in one direction, a locking-pin passing through said tube and arm, said locking-pin and tube being capable of a limited relative longitudinal movement, said cylinder, tube and pin being held against relative rotation, and a socket in the frame of the revolver to receive said pin.

5. In a revolver, a tubular arm upon which the cylinder is rotatably mounted and a pivotally-mounted member pivotally connected with said arm, an ejector-plate at the rear end of said cylinder carried by a longitudinally-movable tube situated within said arm, a spring situated

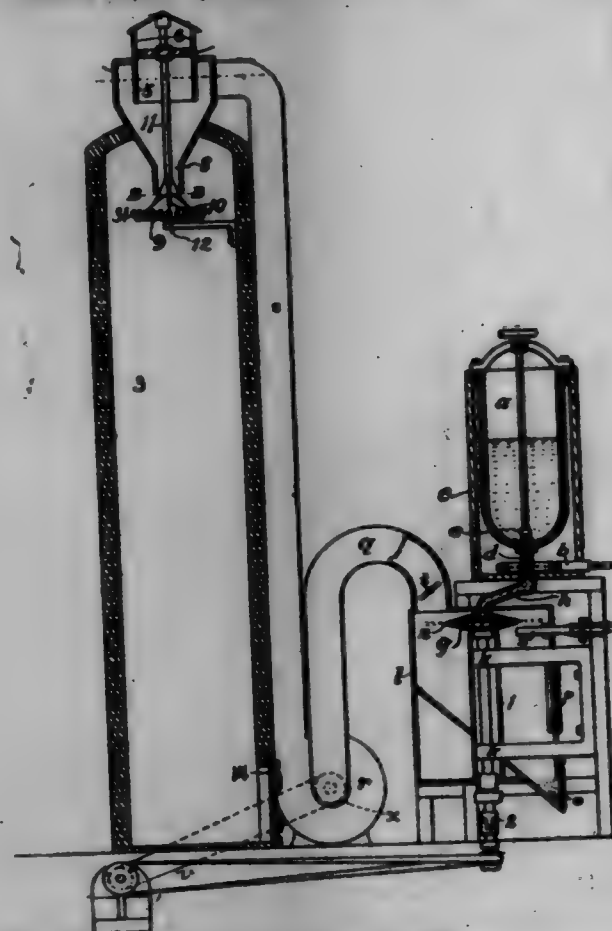
6. In a revolver, a tubular arm upon which the cylinder is rotatably mounted and a pivotally-mounted member pivotally connected with said arm, an ejector-plate at the rear end of said cylinder carried by a longitudinally-movable tube situated within said arm, a spring situated

between said tube and cylinder for moving the former in one direction, a locking-pin passing through said arm and tube, legs upon said locking-pin situated within slots in said tube, said cylinder, tube and pin being held against relative rotation, and a socket in the frame of the revolver to receive said pin.

7. In a revolver, a frame, a cylinder, an ejector, a pin extending through said ejector and adapted to lock said cylinder to said frame, a slotted tube through which said arm passes and legs on said pin engaging in said slots and a spring adapted to return said ejector to its normal position after the shells have been removed and by engagement with the legs on said pin causing the same to lock the cylinder to said frame when the parts are in proper position.

8. In a revolver, a frame, a cylinder, a tube having slots near its rear end, a pin movable in said cylinder and having legs moving in said slots, an ejector carried by said tube at its rear end, the cylinder having notches at its end, a flange on the forward end of the said tube, a spring around the tube and a ring, between which said flange, said spring is disposed.

702,786. APPARATUS FOR REDUCING FUSIBLE MATERIALS TO DUST. ALBERT F. MARSH, Newark, N. J. Filed May 14, 1900. Serial No. 717,083. (No model.)



Claim.—1. A machine for converting fusible material into dust, comprising a rotary vessel having unobstructed peripheral openings, means for heating said vessel above the melting-point of the fusible material and means for rotating said vessel at a speed sufficient to spray the melted material from the peripheral openings into the form of dust.

2. An apparatus for converting a fusible material into dust, comprising a rotary vessel having unobstructed peripheral openings, means for heating the vessel above the melting-point of the fusible material, means for supplying the melted fusible material to the vessel and means for rotating said vessel at a speed sufficient to cause spraying of the melted material from such openings in the form of dust.

3. A machine for converting fusible material into dust, comprising a rotary vessel having unobstructed peripheral openings, means for heating said vessel, means for rotating said vessel at a speed sufficient to spray the melted material from the peripheral openings into the form of dust, and a casing surrounding said vessel.

4. A machine for converting fusible material into dust, comprising a rotary double-cone-shaped vessel, mounted on a shaft arranged in line with the cone-axis, and provided at its periphery with openings to permit passage of the fused material and having an axial opening through which each material may be supplied, means for heating said vessel, and means for rotating said vessel at a speed sufficient to spray the melted material from the peripheral openings into the form of dust.

5. An apparatus for converting fusible material into dust, comprising a rotary vessel perforated to allow of the discharge of melted mate-

rial therefrom, means for supplying melted material to said vessel, means for heating said vessel, means for rotating said vessel to cause the melted material to be ejected through the perforations of the vessel at a sufficient speed to cause spraying of the same, an insulating casing and means for passing a current of air or gaseous medium through said casing to entrain the dust particles suspended therein.

6. An apparatus for converting fusible material into dust, comprising a rotary vessel perforated to allow of the discharge of melted material therefrom, means for supplying melted material in said vessel, means for rotating said vessel to cause the melted material to be ejected through the perforations of the vessel at a sufficient speed to cause spraying of the same, an insulating casing and means for passing a current of air or gaseous medium through said casing to entrain the dust particles therein, and a dust-separator for separating the dust so entrained from the entraining-air.

7. An apparatus for converting fusible material into dust, comprising means for melting such material, spraying means for converting the melted material into impalpable dust, air-draft apparatus for producing a current of air to entrain the dust suspended in such air, a separator for separating the dust from the entraining-air, a chamber and means for discharging the separated dust into such chamber, and for breaking up the vertical air-current to enable the dust to settle.

8. The combination with a machine for converting fusible material into dust, of air-draft apparatus for entraining the dust, a settling-chamber, a centrifugal dust-separator communicating with such air-draft apparatus and having a contracted mouth communicating with such chamber, a rotatable obstructing device in proximity to such mouth, and means for rotating same, substantially as and for the purpose set forth.

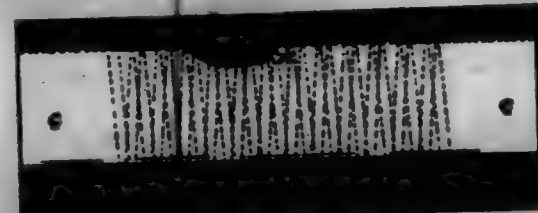
9. The combination with a machine for converting fusible material into dust, of air-draft apparatus for entraining the dust, a settling-chamber, a centrifugal dust-separator communicating with such air-draft apparatus and having a contracted mouth communicating with such chamber, a rotatable obstructing device in proximity to such mouth, and means for rotating same, substantially as and for the purpose set forth.

10. The combination with a machine for converting fusible material into dust, of air-draft apparatus for entraining the dust, a settling-chamber, a centrifugal dust-separator communicating with such air-draft apparatus and having a contracted mouth communicating with such chamber, a rotatable obstructing device in proximity to such mouth, and means for rotating same, in opposite direction to the vertical movement in the separator, substantially as and for the purpose set forth.

702,787. BADGE-MEDALLION. JOHN E. MILLER, Denver, Colo. Filed Oct. 14, 1901. Serial No. 73,577. (No model.)

Claim.—In a badge-medallion, the combination with a badge, of a single piece of sheet metal, comprising a concavo-convex disk, stamped out of sheet metal and having its peripheral edge bent upon itself toward the convex side of said disk to form an inverted rim integral with the back, in combination with a flexible transparent disk of celluloid or other suitable material secured against the convex side of said disk by said inverted integral rim, and tongue portions stamped free from said concavo-convex disk, and arranged and adapted to be inserted through and fastened to said badge, substantially as described.

702,788. FLEXIBLE HOSE ADAPTED FOR COUPLINGS. GEORGE M. HALL, MONTGOMERY, Philadelphia, Pa. Filed Aug. 13, 1901. Serial No. 71,914. (No model.)



Claim.—1. A pipe-coupling consisting of a rubber tube combined with a flexibly-flexible metallic coil yieldable in all directions without material resistance and embedded within the rubber walls of the tube so as to be wholly covered, the said coil permitting the tube to collapse when necessary without injury to said tube or coil.

2. A rubber-tube coupling combined with a spiral textile tube encircling the rubber tube and wholly embedded within the rubber of the tube and also terminating at a considerable distance from each end thereof, and a flexible metallic cable incased within the spiral textile tube and thereby held out of contact with the rubber of the tube and leaving the ends of the rubber tube without metal.

2. A pipe-coupling consisting of a rubber tube combined with a metallic coil of twisted wire coiled into a helix and wholly embedded in the walls of the rubber tube.

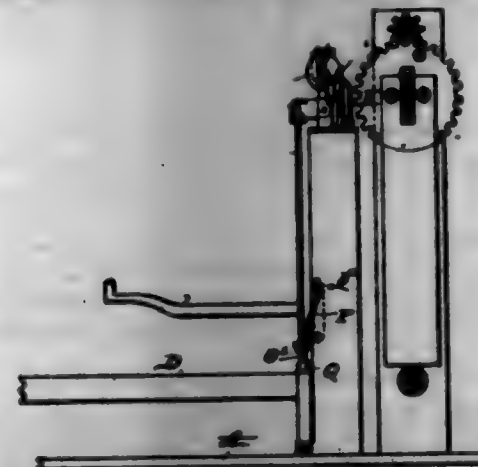
702,789. PENHOLDER. ROBERT L. MOTT, Chicago, Ill. Filed Apr. 17, 1902. Serial No. 168,284. (No model.)



Claim.—1. A penholder comprising an oval handle conforming to the oval between the thumb and first finger when in proper position for writing, so as to sit in between them; capped for their reception and to maintain its position without lateral slip; elastic to permit flexion, and provided at the end of the finger branch with a socket for the reception of a pen.

2. The improved penholder having a curved elastic base conforming to the bend of the hand of thumb and forefinger when in proper position for writing, a thumb branch extending out from the lower end of the curve and capped and spirally twisted for the reception of the thumb, a longitudinally-capped finger branch terminating in a deep cup for the fingertip, and a socket for the pen projecting from said terminal cup.

702,740. INKING DEVICE FOR TYPE-WRITING MACHINES. FREDERICK F. HILMAN, JEROME, N.Y. Assignor, by mesne assignments, to the Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 2, 1900. Serial No. 738,940. (No model.)



Claim.—1. A type-writing machine provided with an inking device, comprising a pivoted fountain having an ink-pad, a spring tending to move said fountain away from the path of the types, and a releasable locking device for locking the fountain against the action of the spring and holding it in the path of the type-bars, whereby when the locking device is released by the impact of the type-bars against the fountain, the fountain will be moved out of the path of the type-bars, substantially as described.

2. A type-writing machine, provided with an inking device comprising a fountain having an ink-pad, a rock-shaft upon which the fountain is secured, a spring tending to cause said shaft to move the fountain away from the path of the types, a releasable locking-lever, and means secured to the shaft and with which the lever engages to hold the fountain in the path of the type-bars, substantially as described.

3. A type-writing machine, provided with an inking device comprising a fountain having an ink-pad, a rock-shaft upon which the fountain is secured, a disk on one end of the shaft, a spring tending to move said disk and cause the fountain to be moved away from the path of the type-bars, and a spring engaging this disk to hold the fountain in the path of the type-bars, substantially as described.

4. A type-writing machine provided with an inking device, comprising a fountain having an ink-pad, a shaft carrying the fountain, a spring-pressed disk held on the said shaft and having a notch, and a spring having a leg engaging the said notch for locking the disk and fountain in place, substantially as shown and described.

5. A type-writing machine provided with an inking device comprising a fountain having an ink-pad, a shaft carrying the fountain, a spring-pressed disk held on the said shaft and having a notch, a spring having a leg engaging the said notch for locking the disk and fountain in place, and means for returning the said disk and controlled from the keys, substantially as described.

6. A type-writing machine, provided with an inking device comprising a fountain having an ink-pad, a shaft carrying the fountain, a disk on the said shaft, a bell-crank lever adapted to engage a pin on the said disk, a connection between the said bell-crank lever and the keys, and a spring pressing the said disk, substantially as shown and described.

7. In a type-writing machine, the combination with the type-bars mounted to swing to bring the type to a common center on the impression-roller, of a pivoted fountain having an ink-pad, a spring tending to move said pad away from the path of the types, and a releasable locking device for locking the fountain in the path of the type-bars, and means for returning the fountain to its normal position after it has been struck by the type-bars and moved thereby out of the path of the same, substantially as shown and described.

8. In a type-writing machine, the combination with the keys, and type-bars mounted to swing to bring their types to a common center on the impression-roller, of a rock-shaft, a fountain having an ink-pad and secured to the shaft, a disk on the shaft a spring engaging the disk to hold the fountain in the path of the type-bars, a spring-pressed bell-crank lever engaging the said disk, and means for operating the bell-crank lever from the keys, substantially as described.

9. In a type-writing machine, the combination with the keys and type-bars mounted to swing to bring their types to a common center on the impression-roller, of a rock-shaft, a fountain on the shaft, and having an ink-pad, a notched disk on the end of the shaft, a spring-pressed bell-crank lever engaging a pin on the said disk, and intermediate mechanism between the keys and bell-crank lever for operating the latter from the former, substantially as shown and described.

10. In a type-writing machine, the combination of a series of type-bars, a series of keys, a piston, inking mechanism arranged near the piston and normally in the path of the types, means for moving said inking mechanism and holding it out of contact with said type-bars while the types are making their impressions, and means for returning said inking mechanism to normal position.

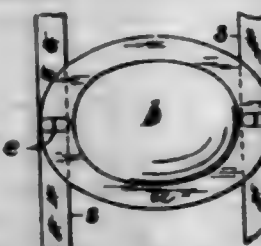
11. In a type-writing machine, the combination of a series of type-bars, a series of key-levers, a universal bar operated by said levers, an inker normally in the path of said type-bars, and operative connections from said universal bar to said inker.

12. In a type-writing machine, the combination of a series of type-bars, a series of keys, an inker arranged in the path of the type-bars, means controlled by the type-bars for moving said inker out of its normal position, and means controlled by said keys independently of said type-bars for returning said inker to normal position.

13. In a type-writing machine, the combination of a series of type-bars, a series of keys, an inker arranged in the path of the type-bars and constructed to be moved by any of said bars during their printing strokes, and mechanism connecting said keys to said inker independently of said type-bars for returning the latter to normal position.

14. In a type-writing machine, the combination of a type, a key, an inker arranged in the path of the type and constructed to be moved by the type during the printing stroke of the latter, and mechanism connecting said key to said inker independently of the type for returning the said inker to normal position during the return of said key to normal position.

702,741. DETACHABLE FASTENING FOR VACCINATION. RICHARD E. OLIVER, Newark, N. J. Filed Nov. 4, 1901. Serial No. 80,886. (Specimens.)



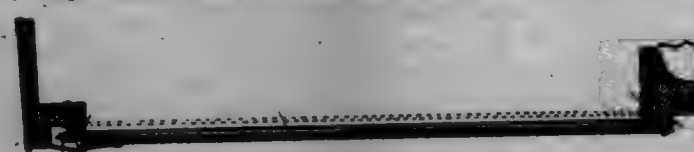
Claim.—1. The combination, with a vaccination or analogous shield having holes at opposite ends for the passage of a fastener, of separate adhesive tapes having non-corrosive metallic fasteners with heads upon the adhesive sides of the tape and prongs projected outwardly through the tape, and engaged with the holes at the opposite ends of the shield, whereby the shield can be repeatedly engaged with and disengaged from the prongs without disturbing the tapes when once attached to the skin of the patient.

2. The combination, with an aluminum vaccination or analogous shield having holes at opposite ends for the passage of a fastener, of separate adhesive tapes having non-corrosive metallic fasteners with heads upon the adhesive sides of the tape and prongs projected outwardly through the tape and engaged with the holes at the opposite ends of the shield, whereby the shield can be repeatedly engaged with and disengaged from the

prongs without disturbing the tapes when once attached to the skin of the patient.

3. The combination, with a vaccination or analogous shield, having holes near its opposite edges to receive fasteners as set forth, of a pair of straps for securing the shield in place, and aluminum fasteners of staple shape having the bar *f* crossing a part of the strap and their arms *g* inserted through the holes in the shield and bent upon its surface, whereby the strap is securely held, and the part of the fastener upon the adhesive side of the tapes in contact with the skin is of non-corrosive character.

702,742. SLIDING DOOR FOR RAILWAY CARS. JOHN FLAYER, Topeka, Kans. Filed Jan. 20, 1902. Serial No. 93,574. (No model.)



Claim.—1. In combination, a car-body having a door-opening, a sliding door therefor, a pair of interlocking strips one thereof being secured to the bottom of the door and the other thereof being secured to the car-body.

2. In combination, a car-body having a door-opening, a sliding door therefor, a pair of interlocking strips, one thereof being channelled, one of said strips being secured across the bottom of the door and the other strip being secured to the car-body below the door-opening.

3. In combination, a car-body and a sliding door, a depending strip secured to the body and below the car-door opening, and an elongated strip secured to the door along the bottom thereof and extending upwardly behind the first-named strip.

4. In combination, a car-body and a sliding door, a strip secured to the car-body across and below the doorway and having one edge spaced apart from the body, and a U-shaped strip of a length substantially that of the width of the door and secured to the inner face thereof and including the first-named strip between its flanges.

5. In combination, a car-body and a sliding door, a U-shaped strip secured to the inner face of the door across its bottom and having its flanges upturned, and a strip secured to the car-body across the doorway, its lower edge projecting into the channel of the first-named strip.

6. In combination, a car-body having a door-opening, a sliding door therefor the bottom of which projects below the door-opening and is spaced from the car-body, a depending strip secured to the body across and below the door-opening and having its lower edge located between the bottom of the car-door and the car-body and spaced apart from the body, and an elongated U-shaped strip secured through one of its flanges to the inner face of the door and including the first-named strip between its flanges, the other of said flanges extending into the space between the car-body and the strip secured thereto.

702,743. BICYCLE CONSTRUCTION. JOHN C. PRATT, Hartford, Conn., assignor of one-half to Arthur L. Foster, Hartford, Conn. Filed May 7, 1901. Serial No. 90,097. (No model.)

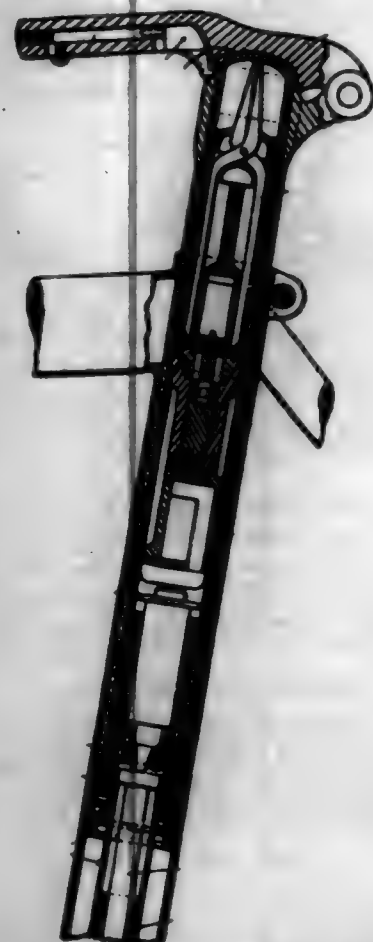
Claim.—1. The combination with the frame member of a bicycle in which the saddle-post is secured, of a pump of which said frame member constitutes the body, a piston-rod in the pump, the outer end of which normally projects beyond the upper end of the frame member, means to depress and lock the rod within the said frame member and means to eject the said rod when it is released.

2. The combination with the frame member of a bicycle in which the saddle-post is secured, of a pump of which said frame member constitutes the body, a piston-rod in the pump the outer end of which projects beyond the upper end of the frame member, a saddle-bar pivotally supported on the said post and unattached to the pump-rod and adapted to be swung over the said rod to depress and hold it within the pump and means to eject the rod when the seat is swung out of engagement therewith.

3. The combination with the frame member of a bicycle, of a pump of which said frame member constitutes the body, of a pump therein, a pump-rod comprising telescopic sections, suitable screw-threads on said sections, a partition in said pump-body through which said rod passes, lugs on the partition, and lugs on one of the pump-rod sections to engage the lugs on the partition, whereby one of said sections may be held against rotation and the sections screwed together.

4. The combination with a frame of a bicycle, one of whose members constitutes a pump-body, of a pump therein, a pump-rod comprising telescopic sections, suitable screw-threads on said parts, radial projections on one of the sections, a partition through which the pump-rod passes, said partition comprising upper and lower plates spaced apart to provide a chamber, pins in the chamber and radial slots in the lower plate to per-

mit the pins on the pump-rod to enter the chamber and be lodged against the pins therein, whereby the said rod is held against rotation and the parts may be screwed together.



5. The combination with a frame member of a bicycle, in which the saddle-post is secured, of a pump of which said frame member constitutes the body, a fixed transverse partition in said frame member, a pump-rod extending through said partition and consisting of several sections adapted to be contained in said member, a spring on said partition for engaging with said rod, whereby the latter may be forced into said member against said spring, and the rattling of the parts be thereby prevented, and means for locking said sections temporarily in said member, substantially as described.

702,744. RAILWAY REPLACING-FROG. ALEXANDER FURLEY, St. Paul, Minn. Filed July 30, 1901. Serial No. 70,807. (No model.)



Claim.—1. A railway replacing-frog, consisting of a guide-head sloping downward toward each of its ends and the rail, a cap on the lower side of said head adapted to engage the head of the rail, and a guideway, at the base of said guide-head, sloping upward from the ends of the frog to the top of the rail adapted to form a runway for the car-wheel and to guide the wheel onto the rail.

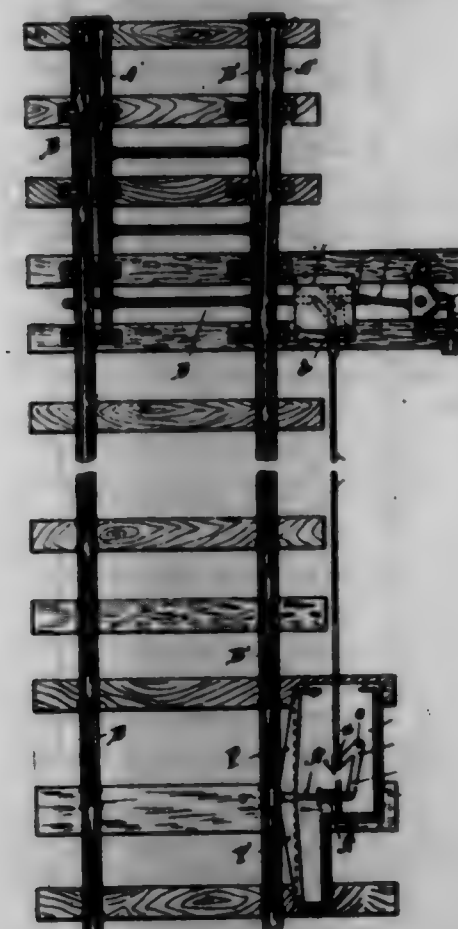
2. In a railway replacing-frog, a guide-head sloping downward toward each of its ends and the rail, a cap on the lower side of said head, adapted to engage the head of the rail, a shoulder on said guide-head sloping upward from its ends toward the top of the rail, and a bearing-surface at the base of said shoulder, sloping downward from the top of the cap to the ends of the head.

702,745. AUTOMATIC SWITCH-THROWING DEVICE. JOHN H. QUINN, Cincinnati, Ohio. Filed Mar. 2, 1902. Serial No. 97,231. (No model.)

Claim.—1. A switch mechanism adapted to throw a switch-rail into or out of contact with the main rail, comprising a housing, a sliding frame therein movable to and from the track, a switch-lever, a bar connected thereto and to the frame, a switch-bar connected to the switch-rail, pivotal connections between the last-named switch-bar and the sliding frame forming a break-joint by means of which the switch can be thrown independent of the sliding frame and mechanism for actuating the said break-joint, substantially as described.

2. A railroad-switch comprising a main rail and a switch-rail adapted to be moved into and out of contact therewith, a switch-lever, a sliding frame actuated thereby movable in a direction to and from the main

rail, members pivoted on said sliding frame and connected to said switch-rail, rigid in a direction of movement of said sliding frame and movable in a direction transverse thereto, a trip device adapted to be actuated by the moving train, and connections between said trip device and one of said pivotal members mounted on said sliding frame whereby the switch can be closed independent of said switch-lever, substantially as specified.



3. A railroad-switch comprising a main rail and a switch-rail adapted to be moved into and out of contact therewith, a switch-lever, a sliding frame movable toward and from the main rail, a bar connecting said sliding frame to the switch-rail, a second bar connecting the said sliding frame to the switch-lever, pivotal connections on said sliding frame connecting said sliding frame to the bar attached to the switch-rail, said pivotal connections being rigid in a direction of movement of the said sliding frame and adapted to yield to a strain in a direction transverse thereto, to throw the switch-rail independent of the movement of the sliding frame, a trip device adapted to be actuated by the moving train, and connections between the said trip device and pivotal members mounted on the sliding frame, whereby the switch can be closed independent of the position of said switch-lever, substantially as specified.

4. In combination with a railroad-switch and switch-stand operating a sliding frame to throw the switch, a switch-closing mechanism comprising a switch-bar, a lever pivoted thereto and to the sliding frame detachably connected to the switch-stand lever and a tripping mechanism adapted to engage said pivoted lever and connected to an actuating device alongside of the track in advance of the switch whereby said pivoted lever may be operated from the train to close the switch when partially or fully open, substantially as specified.

5. In combination with a switch-stand lever a sliding frame and a switch-bar, a lever pivoted to said sliding frame and to the switch-bar, and detachably connected with the switch-stand lever, a tripping mechanism detachably engaging with said pivoted lever and adapted to be operated independent of the switch-stand for closing the switch, substantially as specified.

6. In combination with a switch and switch-bar connected to an intermediate sliding frame of a lever pivoted to said sliding frame and to the switch-bar, mechanism for holding said pivoted lever into right position against the throwing strain of the switch-stand lever, substantially as specified.

7. The combination with a sliding frame forming the operating parts of a switch-stand of a lever pivoted to said sliding frame and detachably connected to the switch-stand lever, mechanism for holding said pivoted lever against movement on its pivot, a stop on the frame-bed for locking said lever in position when the switch is closed and tripping mechanism for releasing said lever when the switch is partially open and bringing into engagement a tripping mechanism whereby said lever can be thrown

to close the switch by mechanism independent of the switch-stand, substantially as specified.

8. In combination with a sliding frame adapted to be operated by a switch-stand lever, of a switch-closing mechanism consisting of a lever pivoted to said sliding frame, an arm carrying a tripping device adapted to engage said lever when said sliding frame is moved forward, locking devices affixed to the pivoted lever and to the sliding frame with the parts so disposed that they will engage and lock said lever when the switch is closed, by said tripping-arm thereby requiring a resetting of said pivoted lever before said sliding frame can be operated, substantially as specified.

9. In combination with a switch-bar, a switch-stand and its operating-lever, of a sliding frame intermediate thereof, a lever pivoted to the sliding frame and to the switch-bar and detachably connected to the switch-stand lever, a tripping-arm intermediate of the parts of said sliding frame provided with means for engaging said pivoted lever and having connection with actuating mechanism independent of the switch-stand for operating said pivoted lever to close the switch, and mechanism for locking said lever in position after the switch has been closed by said tripping-arm, substantially as specified.

10. The combination with a switch-bar, a switch-stand and a sliding frame operated by the switch-stand lever, of a switch-closing lever pivoted to the said sliding frame and to the switch-bar, a tripping-arm adapted to be engaged with said pivoted lever, an extended rod connected to an actuating lever located alongside of the track and mechanism adjacent to said track connected to said actuating-lever adapted to be operated from a moving train and throw said lever on the sliding frame to close the switch, substantially as specified.

11. In combination with a sliding frame operated by a switch-stand lever, of a lever pivoted to said sliding frame and to the switch-bar, a tripping-arm operated by an actuating-lever located alongside of the track in front of the switch-stand, means located adjacent to the track for operating said actuating-lever whereby the switch may be closed by moving said actuating-lever independent of the switch-stand, substantially as specified.

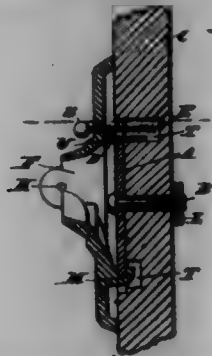
12. A switch mechanism adapted to throw a switch-rail into or out of contact with the main rail comprising a housing, a sliding frame therein movable to and from the track, a switch-lever, a bar connected thereto and to the frame, a switch-bar connected to the switch-rail, pivotal connections between said switch-bar and the sliding frame forming a break-joint by means of which the switch can be thrown independent of the sliding frame, mechanism adapted to break said joint and close the switch, and locking means located in the housing adapted to be automatically engaged by one of said pivotal members when the joint is broken, whereby the switch is locked in its closed position, substantially as described.

13. A switch mechanism adapted to throw a switch-rail into or out of contact with the main rail comprising a housing, a sliding frame therein movable to and from the track, a switch-lever, a bar connected thereto and to the frame, a switch-bar connected to the switch-rail, pivotal connections between said switch-bar and the sliding frame forming a break-joint by means of which the switch can be thrown independent of the sliding frame, mechanism adapted to break said joint and close the switch, and locking means located in the housing adapted to be automatically engaged by one of said pivotal members when the joint is broken, whereby the switch is locked in its closed position, and a slot in the side of said housing allowing a portion of one of the said pivotal members to project externally when the break-joint is operated thereby indicating that the joint has been broken, substantially as described.

14. In combination with a switch-operating mechanism, an independent safety-trip therefor, consisting of a base-plate located adjacent to the track, a lever pivoted to the base-plate opposing one of the tracks and adapted to be actuated by the moving train, a connecting-rod parallel to the track for transmitting motion to the switch-operating device and a bell-crank lever pivoted respectively to said base-plate, to said trip-lever and to said connecting-rod, the said bell-crank being shaped and fulcrumed so as to form a positive limit to the throw of the connecting-rod, substantially as described.

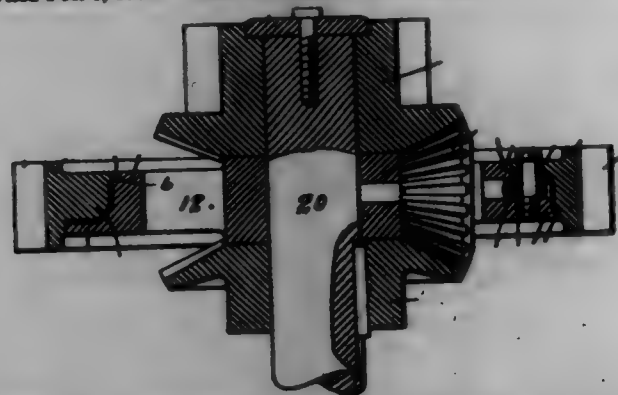
15. In combination with a switch-operating mechanism, a bed-plate, a toggle-lever having its ends pivoted to the bed-plate and its middle joint flared toward one of the track-rails, means for holding said central joint normally in its position, the said central joint normally in this position, the said central joint forming an abutment adapted to be actuated by a moving train in a direction to and from the rail, a connecting-rod leading from the bed-plate to the switch-operating mechanism, movable in a direction parallel to the track, a bell-crank lever the middle joint of which is pivoted to the bed-plate, one of the ends of said bell-crank lever being pivoted to the end of the connecting-rod, and a link pivoted respectively to the other end of said bell-crank lever and to the said central joint of the toggle-lever, the said bell-crank lever being shaped and fulcrumed to limit the length of throw of the connecting-rod irrespective of the length of throw of the said central joint of the toggle, substantially as described.

702,746. CASKET-HANDLE ATTACHMENT. HARRY RIBSEL, Pontiac, Ill. Filed Nov. 23, 1901. Serial No. 93,341. (No model.)



Claim.—The casket-handle attachment comprising the plate A, with opening at bottom to admit hook M; with opening at top to admit part of plate U, and catch E, to hold leg in place, and with spring H, to secure catch E.

702,747. COG-WHEEL. FRANK BAXON, Worthington, Minn. Filed Feb. 8, 1902. Serial No. 93,136. (No model.)



Claim.—1. A compensating cog-wheel, comprising an outer section having a series of teeth and an annular inwardly-projecting flange on one side, an inner section fitting within said outer section and having a corresponding outwardly-projecting flange on the opposite side from said first-named flange between which flange chambers are formed, inwardly and outwardly projecting lugs provided respectively on said sections, and cushion-springs provided between the lugs of each section and the adjacent lugs of the other section.

2. A compensating cog-wheel, comprising an outer section having a series of teeth and a series of inwardly-projecting lugs, an inner section fitting within said outer section and having a series of outwardly-projecting lugs alternating with those of the outer section, a series of cushion-springs provided between the lugs of one section and the adjacent lugs of the other section, beveled pinions provided within recesses in said inner section, and radial pins passing through the lugs and hub of said inner section and whereon said pinions are mounted.

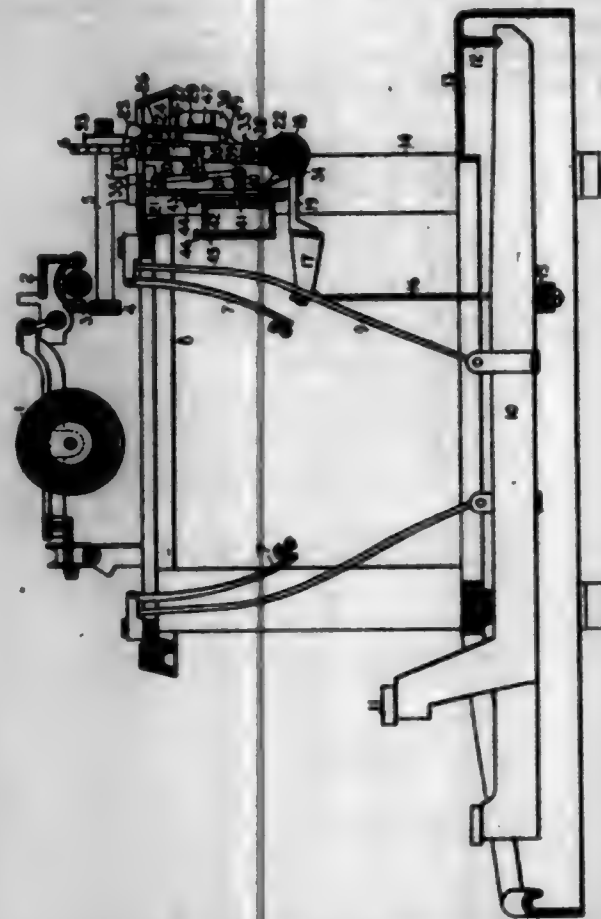
3. A compensating cog-wheel, comprising an outer section having a series of teeth and a series of inwardly-projecting lugs, an inner section arranged within said outer section and having a series of lugs alternating with the lugs of the outer section, springs provided between the lugs of said sections and adapted to be compressed by the relative rotary movement of the same, and studs provided on the lugs of the inner section and adapted to travel within slots in the face of the outer section and regulate the travel of said sections and the compression of said springs.

4. A compensating cog-wheel, comprising an outer section having a series of teeth and a series of inwardly-projecting lugs, an inner section fitting within said outer section and having a series of lugs alternating with the lugs of the outer section, cushion-springs provided between the lugs of said sections and adapted to be compressed by the relative rotary movement of the same, pinions provided within recesses in said inner section, radial pins passing through the lugs and hub of said inner section and whereon said pinions are mounted, and bolts adapted to travel in slots provided in said outer section and passing through the lugs and pins of said inner section and whereby the relative movement of said sections and the compression of said springs is regulated.

702,748. TYPE-WRITING MACHINE. CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Seamans & Benedict, Inc., N. Y., a Corporation of New York. Filed Apr. 1, 1901. Serial No. 93,048. (No model.)

Claim.—1. In a type-writing machine, the combination of a carriage, an escapement-rack, a yielding dog normally disengaged from the rack, means for moving said dog into engagement with the rack, means

for preventing said dog from yielding under the pressure of the rack, and an air-check for releasing said dog.



2. In a type-writing machine, the combination of a carriage, an escapement-rack, a yielding dog normally disengaged from the rack, means for moving said dog into engagement with the rack, a catch for preventing said dog from yielding under the pressure of the rack, and a retarding device connected with said catch and which may operate automatically to withdraw said catch so that the dog may yield under the rack-pressure.

3. In a type-writing machine, the combination of a carriage, an escapement-rack, a yielding dog normally disengaged from the rack, a catch for preventing said dog from yielding under the pressure of the rack, and an air-check connected to said catch so as to cause it to release said dog during a quick movement of the latter into engagement with the rack.

4. In a type-writing machine, the combination of a carriage, an escapement-rack, a key-controlled rocker, a yielding dog carried by said rocker and normally disengaged from the rack, a catch upon said rocker for preventing the dog from yielding under the pressure of the rack, and an air-check for releasing said catch.

5. In a type-writing machine, the combination of a carriage, an escapement-rack, a key-controlled rocker, a yielding dog carried by said rocker and normally disengaged from the rack, a catch upon said rocker for preventing said dog from yielding under the pressure of the rack, and an air-check mounted upon the framework of the machine and connected to said catch so as to cause the latter to release the dog when said rocker is quickly actuated.

6. In a type-writing machine, the combination of a carriage, an escapement-rack, a key-controlled rocker which vibrates transversely of the rack, a dog independently movable upon said rocker and normally disengaged from the rack, means for preventing independent movement of said dog, and an air-check for releasing said dog.

7. In a type-writing machine, the combination of a carriage, an escapement-rack, a rocker which vibrates transversely of said rack, two yielding dogs mounted upon said rocker, means for preventing one of said dogs from yielding under the pressure of the rack, and an air-check for releasing said dog.

8. In a type-writing machine, the combination of a carriage, an escapement-rack, a rocker which vibrates transversely of the rack, a dog pivoted upon an axis transversely to the rocker-axis and normally disengaged from the rack, a catch, controlled by an air-check, for both supporting said dog during a slow movement of the rocker and releasing said dog during a quick movement of the rocker, and a spring for returning said dog to normal position upon said rocker.

9. In a type-writing machine, the combination of a carriage, an escapement-rack, a rocker vibrating transversely of said rack, a dog pivoted upon said rocker and normally disengaged from the rack, a catch also mounted upon said rocker for preventing a pivotal movement of said

dog, a spring for maintaining the connection of said catch with said dog, and an air-check mounted upon the framework of the machine and connected to said catch.

10. In a type-writing machine, the combination of a carriage, an escapement-rack 6, feeding-dog 23 normally engaging said rack, rocker 30 upon which said feeding-dog is mounted, spring-actuated dog 25 normally disengaged from said rack and mounted upon arm 26 which is pivoted upon said dog-rocker, tooth 29 upon said arm, catch 30 pivoted upon said dog-rocker and engaging said tooth, spring 33 mounted upon said rocker and actuating said catch, cylinder 42 mounted upon the framework of the machine, and piston 41 connected to said catch and working in said cylinder.

11. In a type-writing machine, the combination of a carriage, an escapement-rack 6, feeding-dog 23 normally engaging said rack, rocker 30 upon which said feeding-dog is mounted, spring-actuated dog 25 normally disengaged from said rack and mounted upon arm 26 which is pivoted upon said dog-rocker, tooth 29 upon said arm, catch 30 pivoted upon said dog-rocker and engaging said tooth, spring 33 mounted upon said rocker and actuating said catch, cylinder 42 mounted upon the framework of the machine, piston 41 in said cylinder, lever 37 mounted upon the framework of the machine and connected to said piston, and link 34 connecting said lever to said catch.

12. In a type-writing machine, the combination of a spring-propelled carriage, an escapement-rack, a yielding dog normally disengaged from the rack, a cooperating dog normally engaged with the rack, means for moving said yielding dog into engagement with the rack and simultaneously moving the other dog out of engagement with the rack, and adjustable means for causing said normally-disengaged dog either to withstand the rack-pressure, thus affording a natural feed of the carriage, or to yield under the rack-pressure, thus affording a reverse feed of the carriage, the range of adjustment being such as to enable the mechanism to afford either a natural feed at all speeds of operation or a reverse feed at all speeds of operation, or an automatically-convertible feed.

13. In a type-writing machine, the combination of a carriage, an escapement-rack, a key-controlled rocker which vibrates transversely of the rack, cooperating dogs upon said rocker, and adjustable means for causing said dogs to afford either a natural feed at all speeds of operation or a reverse feed at all speeds of operation, or an automatically-convertible feed.

14. In a type-writing machine, the combination of a carriage, an escapement-rack, a dog normally engaging the rack, a yielding dog normally disengaged from the rack, means for moving said yielding dog into engagement with the rack and the other dog out of engagement with the rack, a catch for preventing said yielding dog from yielding under the rack-pressure, and adjustable means for releasing said catch, the construction being such that said catch is released or not according to the rate of speed at which the mechanism is operated, and the release being effected at lower or higher speed according to the adjustment.

15. In a type-writing machine, the combination with a carriage, of an escapement-rack, a key-controlled rocker vibrating transversely of said rack, cooperating dogs upon said rocker, one of which is yielding, a catch for preventing said yielding dog from yielding under the rack-pressure, and adjustable means for releasing the dog from said catch, the construction being such that the dog is released or not according to the speed of operation of the rocker, and the release being effected at lower or higher speed according to the adjustment.

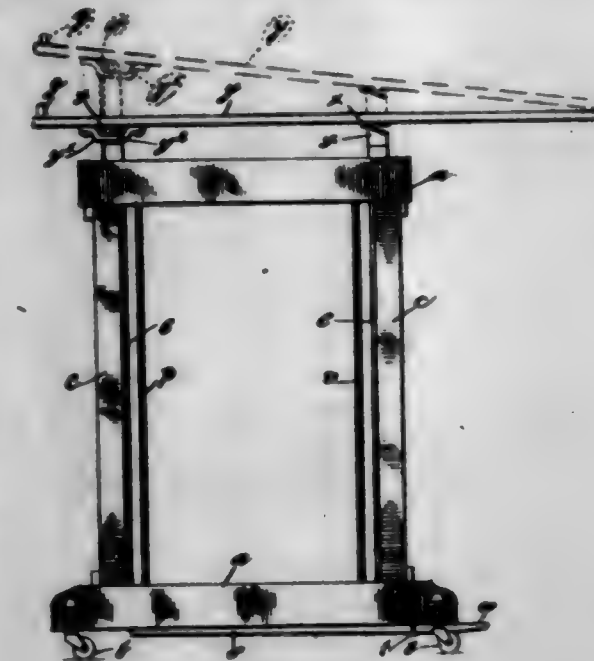
16. In a type-writing machine, the combination of a carriage, an escapement-rack, a yielding dog normally disengaged from the rack, means for moving said dog into engagement with the rack, a catch or lock for said dog, an air-check for releasing said dog from the control of said catch or lock, and an adjustable vent for said air-check.

17. In a type-writing machine, the combination of a carriage, an escapement-rack, a key-controlled rocker, a yielding dog carried by said rocker and normally disengaged from the rack, a catch upon said rocker for preventing the dog from yielding under the pressure of the rack, an air-check for releasing said catch, and an adjustable vent for said air-check.

702,749. CAMERA-STAND. JAMES E. SMITH, Chicago, Ill. Filed Feb. 24, 1902. Serial No. 93,149. (No model.)

Claim.—1. The combination with the stationary frame of a camera-stand, of vertically-movable guide-frames at front and rear, a supporting camera-bed hinged to the upper ends respectively of said supporting guide-frames, vertical supporting-rods rigidly attached to said guide-frames, automatic friction-clamps attached to said stationary frame for normally clamping said rods against downward movement, transverse levers pivotally attached to the bottom of the frame and projecting outwardly therefrom, and means for connecting said foot-levers with said friction-clamps.

2. The combination with the stationary frame of a camera-stand, of vertically-movable guide-frames at front and rear, a supporting camera-bed hinged to the upper ends respectively of said supporting guide-frames, vertical supporting-rods rigidly attached to said guide-frames, automatic friction-clamps attached to said stationary frame for normally clamping said rods against downward movement, transverse levers pivotally attached to the lower portion of the frame, foot-levers f in operative connection with said transverse levers, and rods p for connecting said transverse levers with said friction-clamps.



702,750. COOLING ATTACHMENT FOR INTERNAL-COMBUSTION MOTORS. FREDERICK THORNTON, New York, N. Y., assignor of one-half to William Kammerer, Jersey City, N. J. Filed Jan. 23, 1902. Serial No. 91,777. (No model.)



Claim.—1. A cooling attachment for internal-explosion motors, consisting of a hollow body having an enlarged upper end formed with a laterally-extending portion, the under side of said laterally-extending portion being provided with a screened opening, and a connecting-tube provided at the lower end of said hollow body, substantially as set forth.

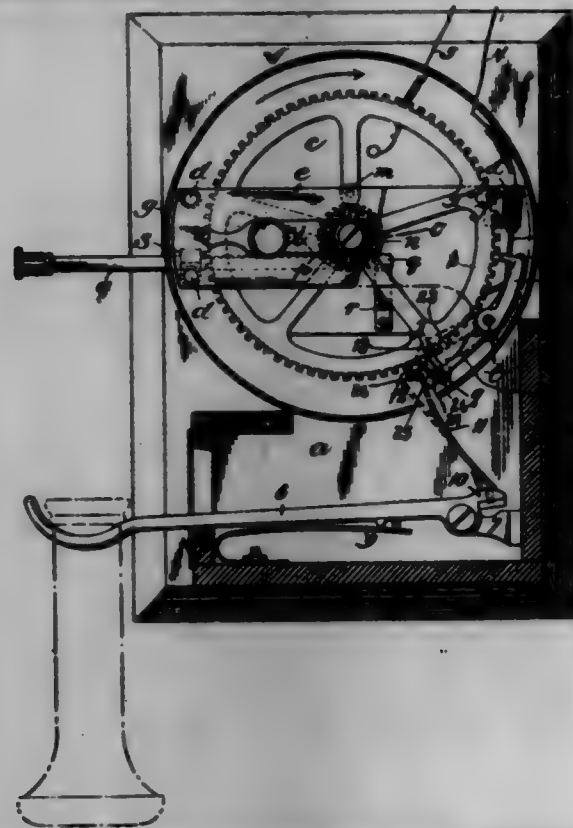
2. A cooling attachment for internal-explosion motors, consisting of a hollow body having an enlarged upper end formed with a laterally-extending portion, said laterally-extending portion having a screened opening in the under side thereof, a connecting-tube projecting from the lower end of said body, and a baffle-plate arranged in said body at the lower end thereof, opposite said connecting-tube, substantially as set forth.

3. The combination, with the casing of an internal-explosion motor provided with a suitable discharge-opening, of a cooling attachment consisting of a hollow body having an enlarged upper end and provided with a screened opening, a connecting-tube at the lower end of said body, and an internal baffle-plate arranged opposite the inner end of said connecting-tube, substantially as set forth.

702,751. TRANSMITTER. ANTHONY VAN WAGEN, Sioux City, Iowa. Filed Mar. 27, 1901. Serial No. 93,098. (No model.)

Claim.—1. In a transmitter, the combination, with circuit-varying

mechanism having an operating member movable in a prescribed path, and an indicator adapted to arrest the movement of such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.



2. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, and an indicator adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

3. In a transmitter, the combination, with circuit-varying mechanism having an operating member movable in a prescribed path, an indicator, and means operated thereby, adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

4. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, an indicator, and means operated thereby adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

5. In a transmitter, the combination, with circuit-varying mechanism, having an operating member movable in a prescribed path, hand-operated power-storing mechanism for driving said operating member, an indicator movable independently of said power-storing mechanism provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating member, and a releasing device adapted to release the indicator, when so locked, thereby permitting the operating member and indicator to return to their initial positions.

6. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, hand-operated power-storing mechanism for driving said operating member, an indicator movable independently of said power-storing mechanism provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement, according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock

the indicator and for releasing the said operating member, and a releasing device adapted to release the indicator, when so locked, thereby permitting the indicator and operating member to return to their initial positions.

7. In a transmitter, the combination, with circuit-varying mechanism, having a revoluble operating member, a stationary dial, an indicator, a dial-wheel beneath the dial, but connected with the indicator, provided with means whereby it may be held in different positions, corresponding to the divisions of the dial, and having also means for arresting the operating member of such circuit-varying mechanism at different stages of its movement according to the position of the indicator, of locking means for holding said operating member in an initial position normally and for holding the dial-wheel in positions corresponding to the dial-divisions, means for releasing the operating member from such initial position, and a releasing device adapted to release the dial-wheel when so held and permit the same and the operating member to return to their initial positions.

8. In a transmitter, the combination, with a toothed contact-wheel, a stationary brush therefor, and means for driving said wheel, whereby, when the wheel rotates, a circuit is alternately made and broken, of a dial-wheel correspondingly toothed, a stationary dial, a pointer connected to the dial-wheel, a locking device adapted to hold the contact-wheel normally in an initial position, and to release the same and hold the dial-wheel when the pointer has been set, said dial-wheel and contact-wheel having corresponding and engaging projections whereby the contact-wheel, when released, is arrested in a position corresponding to that to which the pointer has been set, and a releasing device adapted, when operated, to release the dial-wheel and contact-wheel and permit them to return to their initial positions.

9. In a transmitter, the combination, with circuit-varying mechanism having an operating member movable continuously forward in a prescribed path, and having no backward movement, means for driving such operating member, an indicator, and means operated thereby adapted to arrest the movement of the operating member at different stages of the operation of the circuit-varying mechanism according to the position of the indicator, of a releasing device, adapted to support a telephone instrument, and operated to release said operating member by the replacing of such instrument.

10. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member movable continuously forward and having no backward movement, means for driving such operating member, an indicator, and means operated thereby adapted to arrest the movement of the operating member at different stages of the operation of the circuit-varying mechanism according to the position of the indicator, of a releasing device, adapted to support a telephone instrument, and operated to release said operating member by the replacing of such instrument.

11. In a transmitter, the combination, with circuit-varying mechanism, having an operating member movable in a prescribed path, hand-operated power-storing mechanism for driving said operating member, an indicator provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating member, and a releasing device adapted to support a telephone instrument, and to release the indicator if so locked, when such telephone instrument is placed upon it, thereby permitting the operating member and the indicator to return to their initial positions.

12. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, hand-operated power-storing mechanism for driving said operating member, an indicator provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating device, and a releasing device adapted to support a telephone instrument, and to release the indicator if so locked, when such telephone instrument is placed upon it, thereby permitting the operating member and the indicator to return to their initial positions.

13. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, means for driving said member, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement member adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release

the operating member and hold the dial-wheel stationary, means for moving said escapement member, and a releasing device, adapted to support a telephone instrument, and to operate said escapement member, and arranged when such telephone instrument is placed upon it, to operate the escapement member and release the dial-wheel.

14. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, power-storing means for driving said member, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement-lever adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release the operating member and hold the dial-wheel stationary; said power-storing mechanism being arranged to operate said escapement-lever and release said operating member when power has been stored in such mechanism to the full extent, and a releasing device, adapted to support a telephone instrument, and to operate said escapement-lever, and arranged to operate the escapement-lever and release the dial-wheel when said telephone instrument is placed upon it.

15. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, a spring for driving said member, a hand-operated member for winding up said spring, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement-lever adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release the operating member and hold the dial-wheel stationary, said spring-winding member being arranged to operate said escapement-lever and release the operating member, when the spring has acquired full tension, and a releasing device, adapted to support a telephone instrument, and to operate said escapement-lever, and arranged to operate the escapement-lever and release the dial-wheel when said telephone instrument is placed upon it.

16. In a transmitter, the combination, with circuit-varying mechanism having a rotary contact-wheel, a brush adapted to contact therewith, and a spring for rotating said wheel, a dial-wheel mounted concentrically with respect to said contact-wheel, engaging the same, and adapted to arrest, or to be driven by, said contact-wheel, and means for winding up said spring, of an escapement member adapted, when the parts are in normal position, to hold said contact-wheel stationary, and when in the opposite position to release said contact-wheel and hold the dial-wheel stationary, means for so operating said escapement-lever, and a receiver-support, movably mounted and spring-supported, and adapted to operate the escapement-lever and release the dial-wheel when the receiver is placed upon it.

17. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, a spring for driving said member, a hand-operated member for winding up said spring, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement member which, when the parts are in normal position, holds said operating member stationary, and which when in its opposite position releases the operating member and holds the dial-wheel stationary, means tending to move the escapement member to such opposite position, a releasing-lever, a spring tripping-piece carried thereby and adapted to engage a locked portion of the escapement member, said tripping-piece being bent when the parts are in normal position, but being adapted, upon the movement of the releasing-lever, when the dial-wheel is locked, to engage said escapement member and move the same into position to release the dial-wheel and engage and arrest the operating member of the circuit-varying mechanism upon the return of the latter to its initial position; and the spring-winding member being adapted, when operated with the parts in normal position, to engage the escapement member and operate the same to release said spring tripping-piece from engagement with the escapement member and so to permit said tripping-piece to spring outward, thereby permitting the escapement member to release the operating member of the circuit-varying mechanism and to engage the dial-wheel.

18. In a transmitter, the combination, with signal-transmitting mechanism, and a detent device adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a releasing device, and a tripping-piece interposed between said detent and releasing device, carried by one of said devices, and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and releasing device are in normal positions, and being adapted to operate the detent device and release the signal-transmitting mechanism upon the operation of the releasing device after the transmission of a signal.

19. In a transmitter, the combination, with signal-transmitting mechanism comprising circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation and adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a receiver-support, a tripping-piece interposed between said detent and receiver-support, carried by one of said devices and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and receiver-support are in normal positions, and being adapted, when the parts are in such positions, to prevent release of the signal-transmitting mechanism; and means for releasing such tripping device and causing the detent to release the signal-transmitting mechanism when full power has been stored in said power-storing mechanism; said tripping-piece being arranged to operate the detent upon depression of the receiver-support after transmission of a signal, and thereby to release the signal-transmitting mechanism and to permit the same to return to normal condition.

20. In a transmitter, the combination, with signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation and adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a releasing device, a tripping-piece interposed between said detent and releasing device, and adapted, upon operation of the releasing device, after the transmission of a signal, to operate the detent device and thereby to release the signal-transmitting mechanism and permit the same to return to normal condition, and means for operating the detent and causing the same to release the signal-transmitting mechanism when the power-storing mechanism has stored full power.

21. In a transmitter, the combination, with signal-transmitting mechanism, and a detent device adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon the removal of a receiver therefrom, a tripping-piece interposed between said detent and receiver-support, carried by one of said devices and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and receiver-support are in normal positions, and being adapted to operate the detent device and release the signal-transmitting mechanism upon the depression of the receiver-support after the transmission of a signal.

22. In a transmitter, the combination, with signal-transmitting mechanism comprising circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation, and adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a receiver-support, a tripping-piece interposed between said detent and said receiver-support, and adapted, upon depression of the receiver-support, after the transmission of a signal, to operate the detent and thereby to release the signal-transmitting mechanism and to permit the same to return to normal condition, and means for operating the detent and causing the same to release the signal-transmitting mechanism when the power-storing mechanism has stored full power.

23. In a transmitter, the combination, with signal-transmitting mechanism comprising circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation and provided with means tending to cause it to release said mechanism, said detent device being adapted likewise to hold such signal-transmitting mechanism against return to normal condition after transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon the removal of the receiver therefrom, a tripping-piece interposed between the receiver-support and detent, and normally preventing release of the signal-transmitting mechanism by the detent, and means for operating the detent and releasing the signal-transmitting mechanism when full power has been stored in said power-storing mechanism; said tripping-piece being adapted, upon depression of the receiver-support after the transmission of a signal to operate the detent and permit such signal-transmitting mechanism to return to normal condition.

24. In a transmitter, the combination, with signal-transmitting mechanism, power-storing mechanism for operating the same, and a detent device normally holding the signal-transmitting mechanism against operation and provided with means tending to cause it to release said mechanism, said detent device being likewise adapted to hold such signal-transmitting mechanism against return to normal condition after transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon removal of a receiver therefrom, a tripping-piece interposed between said receiver-support and said detent, operatively connected to one of said devices and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and receiver-support are in normal positions, and being adapted, when the parts are in such positions, to prevent release of the signal-transmitting mechanism; and means for releasing such tripping device and causing the detent to release the signal-transmitting mechanism when full power has been stored in said power-storing mechanism; said tripping-piece being arranged to operate the detent upon depression of the receiver-support after transmission of a signal, and thereby to release the signal-transmitting mechanism and to permit the same to return to normal condition.

25. In a transmitter, the combination, with circuit-varying mechanism adapted to transmit a plurality of signals, an adjustable arresting device, adapted to arrest the operation of the circuit-varying mechanism in

accordance with the signals to be sent, and a detent device adapted in normal position to hold the circuit-varying mechanism in normal position, or to arrest such circuit-varying mechanism upon its return to normal position, said detent device being likewise adapted when in opposite position to release the circuit-varying mechanism and to hold the arresting device against further adjustment, of a releasing device, a tripping-piece interposed between said releasing device and said detent device, secured to one of said devices, and adapted to engage the other, and which is under stress tending to cause it to move out of such engagement when in such engagement and when the releasing and detent devices are in normal position, and means for operating the detent device to permit the transmission of a signal; said tripping-piece being adapted, upon operation of the releasing device after transmission of a signal, to operate the detent and release the circuit-varying mechanism.

25. In a transmitter, the combination, with circuit-varying mechanism adapted to transmit a plurality of signals, power-storing mechanism for operating the same, an adjustable arresting device, adapted to arrest the operation of the circuit-varying mechanism in accordance with the signals to be sent, and a detent device adapted in normal position to hold the circuit-varying mechanism in normal position, or to arrest such circuit-varying mechanism upon its return to normal position, said detent device being likewise adapted when in the opposite position to release the circuit-varying mechanism and to hold the arresting device against further adjustment, of a releasing device, a tripping-piece interposed between said releasing device and said tripping device, secured to one of said devices, and adapted to engage the other, and which is under stress tending to cause it to move out of such engagement when in such engagement and when the releasing and detent devices are in normal position, and means for operating the detent device and causing it to release the circuit-varying mechanism and lock the arresting device, when the power-storing mechanism has stored full power; said tripping-piece being adapted, upon operation of the releasing device after the transmission of a signal, to operate the detent and release the circuit-varying mechanism.

702,753. ELECTROURGICAL INSTRUMENT. RICHARD E. WATKINS, New York, N. Y. Filed June 10, 1901. Serial No. 65,542. (No model.)



Claim.—1. In an electrourgical instrument and in combination, two concentrically-placed inner and outer tubes connected at their contacting surfaces, means for closing the space between the tubes at their respective ends, an insulated conductor longitudinally of the tubes in the space between the same, and means for sealing the tubes at the respective ends of the electrical conductor, substantially as specified.

2. In an electrourgical instrument and in combination, two concentrically-placed inner and outer tubes connected at their contacting surfaces, means for closing the space between the same at their respective ends,

an insulated conductor longitudinally of the tubes in the space between the same, and means for connecting to one end of said tubes an electric lamp and means connected to the other end of said tubes for attachment thereto of electric terminals, substantially as set forth.

3. In an electrourgical instrument and in combination, two concentrically-placed inner and outer tubes connected at their contacting surfaces so that the inner tube is open-ended, means for closing the space between the same at their respective ends, an insulated conductor longitudinally of the tubes in the space between the same, and means for sealing the tubes at the respective ends of the electrical conductor and providing for contact therewith of electrical devices, a device adapted to be inserted through the open-ended inner tube for complementing the functions of the instrument, substantially as set forth.

4. In an electrourgical instrument, and in combination, two tubes placed the one within the other and connected together, means for closing the space between the same at their respective ends, an insulated conductor longitudinally of the tubes in the space between the same and means for sealing the tubes at the respective ends of the electrical conductor and providing for contact therewith of electrical devices, substantially as specified.

5. In an electrourgical instrument, the combination with two concentrically-placed tubes secured together at their contacting surfaces and having the open space between the same at the ends thereof sealed, of an electric lamp secured in an offset position at one end of said tubes, terminals secured to the other end of said tubes, electrical connections between one of said terminals and one of the lamp-terminals, and means connecting with the said terminals for opening and closing the circuit through the lamp, substantially as set forth.

6. In an electrourgical instrument and in combination, two tubes placed the one within the other and connected together, means for closing the space between the same at their respective ends, an insulated conductor longitudinally of the tubes in the space between the same and means for connecting to one end of said tubes an electric lamp, and means connected to the other end of said tubes for attachment thereto of electric terminals, substantially as specified.

7. In an electrourgical instrument the combination with two concentric tubes secured together, having one end cut at an angle and the open space between the tubes at both ends sealed, of an electric lamp in an offset position secured to the tubes at the end thereof cut at an angle, electrical terminals at the other end of the said tubes, a switch having spring-contacts adapted to bear upon said terminals, electrical connections between the said tubes from the said terminals to the said lamp, and a device adapted to be inserted through the open-ended inner tube for complementing the functions of the instrument, substantially as specified.

8. In an electrourgical instrument, the combination with two concentric tubes secured together having one end cut at an angle and the open space between the tubes at both ends sealed, of an electric lamp in an offset position secured to the tubes at the end thereof cut at an angle, electrical terminals at the other end of the said tubes, a switch having spring-contacts adapted to bear upon said terminals, and electrical connections between the said tubes from the said terminals to the said lamp, substantially as specified.

9. In an electrourgical instrument, the combination with two concentric tubes secured together, having one end cut at an angle and the open space between the tubes at both ends sealed, of an electric lamp in an offset position secured to the tubes at the end thereof cut at an angle, electrical terminals at the other end of the said tubes, a switch having spring-contacts adapted to bear upon said terminals, electrical connections between the said tubes from the said terminals to the said lamp, and a tube fitting the inner of the said tubes and carrying each position during the insertion of the instrument and having one end made to conform to the concentric tubes which are cut at an angle, the said tube being provided with independent ducts which are employed as a supply and return for the fluid used for cleaning purposes, substantially as specified.

10. In an electrourgical instrument, the combination with a pair of tubes one within the other, an insulated conductor longitudinally of the tubes in the space between the same, means for closing the space between the tubes at their respective ends, a sleeve of greater diameter than the outer tube surrounding the same at one end and connecting with the closing device at the said end, and exteriorly threaded, and devices surrounding the said sleeve and in part insulated therefrom and which devices form electrical contacts with the outer tubes and with the inner insulated conductor respectively and are adapted for connection with external electric conductors, substantially as set forth.

11. In an electrourgical instrument, the combination with two concentrically-placed inner and outer tubes connected at their contacting surfaces with the inner tube at one end longer than the outer tube, of means for closing the space between the tubes at one end, a sleeve surrounding the outer tube at its end and of greater diameter exteriorly threaded and extending to the end of the inner tube, an annulus between the sleeve

and the inner tube secured thereto for closing this end of the concentrically-placed tubes, an insulated conductor longitudinally of the tubes in the space between the same and having a terminal within the sleeve, devices surrounding the said sleeve and insulated from one another and through which metallic contacts are formed with the sleeve and with the end of the insulated conductor within the sleeve and which devices are adapted for contact with external electrical devices, substantially as set forth.

12. In an electrourgical instrument, the combination with two concentrically-placed inner and outer tubes connected at their contacting surfaces with the inner tube at one end longer than the outer tube, of means for closing the space between the tubes at one end, a sleeve surrounding the outer tube at its end and of greater diameter exteriorly threaded and extending to the end of the inner tube, an annulus between the sleeve and the inner tube secured thereto for closing this end of the concentrically-placed tubes, an insulated conductor longitudinally of the tubes in the space between the same, an insulating-ring and an outer metal ring surrounding the inner tube with one end of the said conductor connected to said metal ring, a series of rings insulated from one another and surrounding the said sleeve, one of said rings being in metallic contact with the sleeve and another of said rings in metallic contact with the end of the insulated conductor within the sleeve and said rings adapted for connection with outside electrical devices, substantially as set forth.

13. In an electrourgical instrument, the combination with two concentrically-placed inner and outer tubes connected at their contacting surfaces with the inner tube at one end longer than the outer tube, of means for closing the space between the tubes at one end, a sleeve surrounding the outer tube at its end and of greater diameter exteriorly threaded and extending to the end of the inner tube, an annulus between the sleeve and the inner tube secured thereto for closing this end of the concentrically-placed tubes, an insulated conductor longitudinally of the tubes in the space between the same, an insulating-ring and an outer metal ring surrounding the inner tube with one end of the said conductor connected to said metal ring, a ring *g* surrounding and covering upon the sleeve *f*, a ring *h* larger than the sleeve surrounding the same and a lock-out *i* also covering upon the sleeve with the ring *h* between and insulated from the lock-out and the ring *g*, a pin passing through the ring *h* and freely through a hole in the sleeve and contacting therewith with the ring to which the insulated conductor is connected, substantially as set forth.

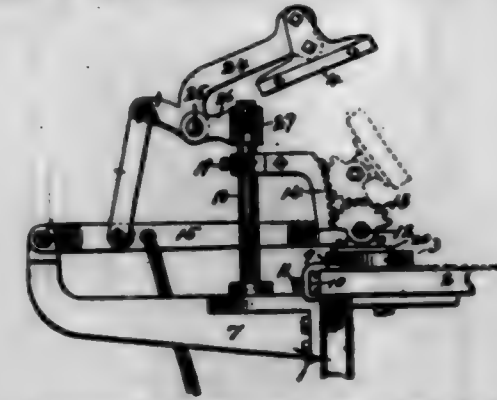
14. In an electrourgical instrument, the combination with two concentrically-placed inner and outer tubes connected at their contacting surfaces with the inner tube at one end longer than the outer tube, of means for closing the space between the tubes at one end, a sleeve surrounding the outer tube at its end, of greater diameter, exteriorly threaded and extending to the end of the inner tube, an annulus between the sleeve and the inner tube secured thereto for closing this end of the concentrically-placed tubes, an insulated conductor longitudinally of the tubes in the space between the same, an insulating-ring and an outer metal ring surrounding the inner tube with one end of the said conductor connected to said metal ring, a ring *g* surrounding and covering upon the sleeve *f*, a ring *h* larger than the sleeve surrounding the same, and a lock-out *i* also covering upon the sleeve with the ring *h* between and insulated from the lock-out and the ring *g*, a pin passing through the ring *h* and freely through a hole in the sleeve and contacting therewith with the ring to which the insulated conductor is connected, the ring *h* being flared in cross-section and the opposing edges of the ring *g* and the lock-out *i* being undercut, so that the insulating-washers are at an inclination, the said parts exerting a wedge-like action to hold the ring *h* in position, the rings *h* and *g* having annular semi-circular grooves adapted for connection with external electrical devices, substantially as set forth.

15. In an electrourgical instrument and in combination, a pair of tubes one within the other, an insulated conductor longitudinally of the tubes in the space between the same, means for closing the space between the tubes at their respective ends, means for sealing the tubes at the respective ends of the insulated electrical conductor, means for connecting to one end of said tubes an electric lamp in an offset position, and electric connections therefrom to one end of the insulated conductor, lead-wires and terminals from a source of electric energy, an insulated terminal connected to the other end of the insulated conductor, means for covering the latter insulated terminal and to which means one lead-wire is electrically connected and insulated devices electrically connecting the other lead-wire with the insulated terminal, substantially as set forth.

702,758. STAMPING-MACHINE. HENRY WATKINS, Utica, N. Y., assignor to Robert H. Antisell, Utica, N. Y. Filed May 31, 1901. Serial No. 65,622. (No model.)

Claim.—1. A garment-stamping machine comprising a bed-plate, an invertible die and an ink-pad both movable toward and away from the bed-plate and each forming a stop for the other and means for actuating the die and ink-pad.

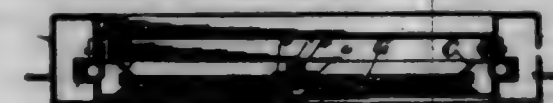
2. In a garment-stamping machine, the combination with a bed-plate, a die movable toward and away from the bed-plate, inking means movable into contact with the stamping-face of the die and means to simultaneously actuate the die and inking means said die and inking means forming stops for each other.



3. A garment-stamping machine comprising a bed-plate for supporting the articles to be stamped, a die and inking-pad movable toward and away from each other means for inverting the die as it is moved toward and from the pad, the die being movable into engagement with the article to be stamped and means for simultaneously actuating the die and inking-pad in opposite directions.

4. In a machine for stamping garments, the combination with a bed-plate, a lever having a rock-shaft and a die secured to the rock-shaft and rock-shaft and its die being movable toward and away from the bed-plate, a graduated scale on the bed-plate extending in either direction from the printing position of the die, index-fingers movable along said graduations means for operating the lever, and additional means for rocking the shaft and its die as the lever is rocked.

702,754. WINDOW. WILLIAM D. WARREN, Chicago, Ill. Filed Oct. 4, 1901. Serial No. 77,576. (No model.)



Claim.—1. In a window, the combination with a plurality of panes of glass, of a cash grooved to inclose said panes of glass, a bar fixed to and extending across the cash in front of the plane of the groove and past which the panes may be slid laterally to introduce them to and withdraw them from the lateral portions of the groove, a clamping-bar interposed between the panes when slid into the side grooves and bearing against their adjacent edges opposite to the fixed bar, and means for detachably securing the clamping-bar in place, substantially as described.

2. In a window, the combination with a plurality of panes of glass, of a cash grooved to inclose said panes of glass, a bar fixed to and extending across the cash in front of the plane of the groove and past which the panes may be slid laterally to introduce them to and withdraw them from the lateral portions of the groove, a clamping-bar interposed between the panes when slid into the side grooves and bearing against their adjacent edges opposite to the fixed bar, and clamping-screws detachably securing the clamping-bar to the fixed bar, substantially as described.

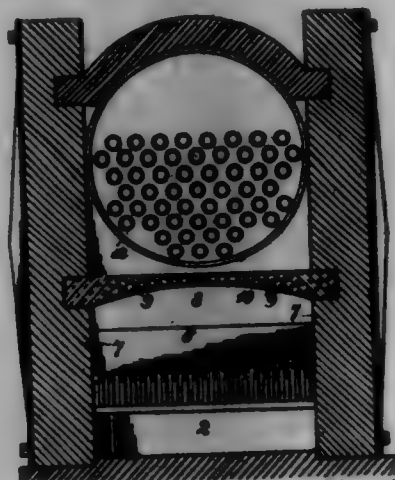
3. In a window, the combination with a plurality of panes of glass, of a metal cash grooved to receive said glass, the upper portion of said groove being an open slot through which the glass may be abnormally projected, a bar extending across the cash in front of the groove and against which the adjacent edges of the panes bear on their front sides, a clamping-bar interposed between the panes and bearing against their adjacent edges on their rear sides, and means for detachably securing the clamping-bar in place, substantially as described.

4. In a window, the combination with a plurality of panes of glass, of a metal cash grooved to receive said glass, a bar extending across the cash in front of the groove and against which the adjacent edges of the panes bear on their front sides, a clamping-bar interposed between the panes and bearing against their adjacent edges on their rear sides, screw-plates secured in the cross-bar, and screws passing into the screw-plates to secure the clamping-bar detachably in place, substantially as described.

702,755. FURNACE. WILLIAM F. WILSON, New York, N. Y., assignor to American Furnace Company, New York, N. Y., a Corporation of New York. Filed Oct. 12, 1901. Serial No. 78,178. (No model.)

Claim.—1. In a furnace, the combination, with furnace-walls, of an arch over the combustion-chamber composed of separable cast-iron-sections extending from the side walls to the center, supported from the side walls tapering therefrom toward the center, and joined at the center.

2. In a furnace, the combination with furnace-walls, of an arch over the combustion-chamber having a substantially flat top, and composed of separable cast-iron-sections set into the side walls, and extending therefrom to the center, supported from the side walls, tapering from said side walls toward the center, and joined at the center.



3. In a furnace, the combination, with furnace-walls, of a substantially horizontal arch covering the greater portion of the combustion-chamber composed of cast-iron-sections supported from the side walls and joined at the center, an opening being provided, at the front of the furnace, for the escape of a portion of the furnace-gases, and another opening at the rear for the escape of the remainder of the furnace-gases, and an air-flue at the front of the furnace which directs entering air along the surface of said arch.

4. In a furnace, the combination, with furnace-walls, of an arch covering the greater portion of the combustion-chamber, an opening being provided at the front of the furnace, for the escape of a portion of the furnace-gases and another larger opening being provided at the rear for the escape of the remainder of the furnace-gases, and an air-flue for admitting air to the furnace in the immediate vicinity of said arch, arranged to direct such air along the upper surface of said arch, whereby the air becomes highly heated before encountering the furnace-gases issuing through such larger opening.

5. In a furnace, the combination with furnace-walls, and a central support for an arch over the combustion-chamber of said furnace, formed of refractory material, and supported at one end only, of an arch over the combustion-chamber composed of cast-iron-sections supported from the side walls and provided with means for transferring weight from one to the other and finally to said support, by which support a portion only of the arch is directly supported.

6. In a furnace, the combination with furnace-walls, a bridge-wall, and a central support for an arch over the combustion-chamber of said furnace, formed of refractory material, projecting from the bridge-wall, and supported at one end only, of an arch over the combustion-chamber composed of cast-iron-sections supported from the side walls and provided with means for transferring weight from one to the other and finally to said support, by which support a portion only of the arch is directly supported.

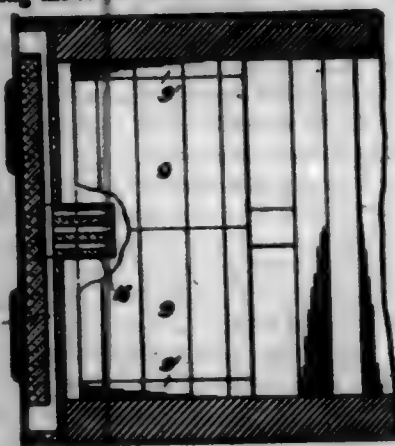
7. In a furnace, the combination with furnace-walls, and a central support for an arch over the combustion-chamber of said furnace, formed of refractory material, projecting from the front wall, and supported at one end only, of an arch over the combustion-chamber composed of cast-iron-sections supported from the side walls and provided with means for transferring weight from one to the other and finally to the said support, by which support only a portion of the arch is directly supported.

8. In a furnace, the combination with furnace-walls, a bridge-wall, and independent central supports for an arch over the combustion-chamber, projecting from the front and from the bridge walls, respectively, and formed of refractory material, of an arch over the combustion-chamber composed of cast-iron-sections supported from the side walls, and provided with means for transferring weight from one to the other and finally to the said supports, by which supports portions only of the arch are directly supported.

702,756. STEAM-BOILER OR OTHER FURNACE. WILLIAM F. WILSON, New York, N. Y., assignor to American Furnace Company, New York, N. Y., a Corporation of New York. Original application filed Oct. 12, 1901, Serial No. 79,178. Divided and this application filed Mar. 8, 1903. Serial No. 94,951. (No model.)

Claim.—1. In a furnace, the combination with furnace-walls, an arch over the combustion-chamber, openings being provided at the front and rear of the arch for the escape of furnace-gases, and a 'baffle-plate' which directs forward and over the arch the furnace-gases escaping through

the said rear opening, of an air-flue which admits air beneath the arch and directs it along the lower surface thereof.

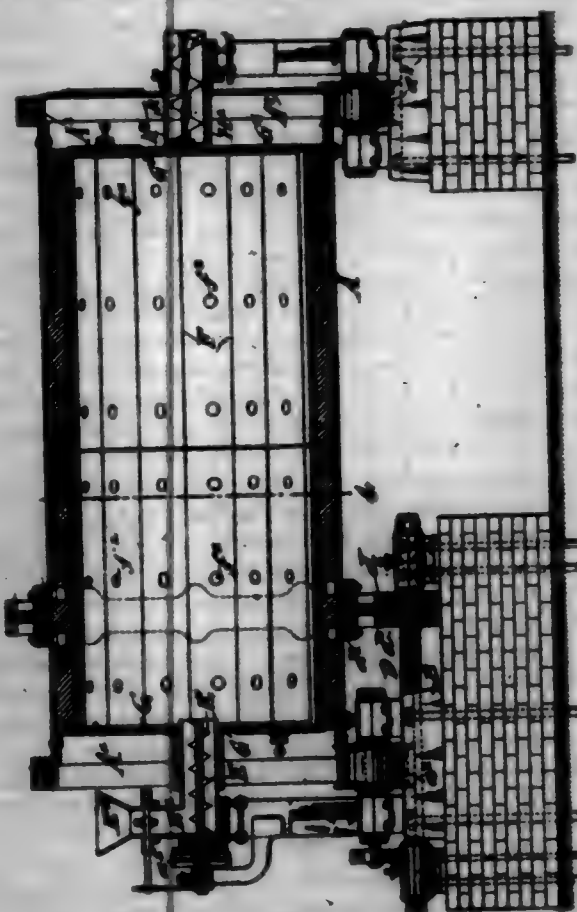


2. In a furnace, the combination with furnace-walls, of an arch over the combustion-chamber, an opening being provided at the front of the arch for the escape of a portion of the furnace-gases, and another opening being provided at the rear for the escape of the remainder of the furnace-gases, an air-flue at one end of the combustion-chamber for admitting air to the furnace, and means opening up of said openings and containing a flue forming a continuation of such air-flue, for delivering air in the immediate vicinity of said arch.

3. In a furnace, the combination with furnace-walls, of an arch over the combustion-chamber, an opening being provided at the front of the arch for the escape of a portion of the furnace-gases, and another opening provided at the rear for the escape of the remainder of the furnace-gases, and a support for the arch, opening one of said openings, and containing an air-flue which admits air beneath the arch and directs it along the lower surface thereof.

4. In a furnace, the combination with furnace-walls, of an arch over the combustion-chamber comprising showback supports supported and projecting from the furnace-walls and forming part of the span of the arch, and main cast-iron-sections extending from the center to the ends of the arch, supported by said showbacks but not to said side walls, supported by said showbacks and joined at the center.

702,757. BALL GRINDING-MILL. MAX F. ANGE, New York, N. Y. Filed Sept. 22, 1902. Serial No. 30,555. (No model.)



Claim.—1. In a ball grinding-mill, the combination of a cylindrical drum, a head at the ingoing end of the drum, a perforated head at the outgoing end of the drum, a smaller extension, one at each end of the drum extending beyond the heads of the drum, a flange applied one to each of said extensions, a screw conveyor passing through the ingoing head,

a closing-plate closing the extension of the outgoing end of the drum, a screw conveyor passing through said closing-plate, a plurality of cushioning-blocks in step arrangement longitudinally at the interior circumference of the drum, reversible flange-plates secured in said cushioning-blocks, and angular flanges secured, one to the projecting edge of each of said cushioning-blocks, each flange extending upon its block beneath the flange-plate and downwardly over the exposed front of the block, and being attached at its front portion thereto, substantially as set forth.

2. In a ball grinding-mill, the combination, with a rotary drum and grinding-balls within the same, of a gear-ring applied to said drum, and a cushioning-ring interposed between the gear-ring and drum for taking up the oscillations within the latter, substantially as set forth.

702,758. METHOD OF GRAPHITIZING ELECTRODES. EDWARD G. JOHNSON, Buffalo, N. Y., assignor to the International Acme Graphite Company, Niagara Falls, N. Y., a Corporation of New Jersey. Filed Dec. 18, 1902. Serial No. 24,748. (No specimens.)



Claim.—1. The herein-described method of subjecting electrodes and other articles, composed of carbon and impurities capable of determining the conversion of the carbon into graphite, to a high temperature through the agency of electricity, which consists in arranging said electrodes or other articles with their longest dimensions in the same general direction, and then passing a current of electricity through the same in a direction approximately transverse to the direction of their longest dimensions.

2. The herein-described method of graphitizing electrodes and other articles, composed of carbon and impurities capable of determining the conversion of the carbon into graphite when subjected to a high temperature through the agency of electricity, which consists in embedding said electrodes or other articles, with their longest dimensions in the same general direction, in a mass of material having a lower coefficient of electrical conductivity than said articles, and then passing an electric current through the electrodes or other articles in a direction approximately transverse to the direction of their longest dimensions.

3. The herein-described method of graphitizing electrodes and other articles, composed of carbon and impurities capable of determining the conversion of the carbon into graphite when subjected to a high temperature through the agency of electricity, which consists in arranging the electrodes and other articles in separate piles with the longest dimensions of said electrodes or other articles in each pile in the same general direction, surrounding the piles with a mass of material having a lower coefficient of electrical conductivity than the articles themselves, and then passing an electric current through said electrodes or other articles in a direction approximately transverse to the direction of their longest dimensions.

4. The herein-described method of graphitizing electrodes and other articles composed of carbon and impurities capable of determining the conversion of carbon into graphite when subjected to a high temperature which consists in arranging said electrodes or other articles in piles separated by a mass of material having a lower coefficient of electrical conductivity than said articles, and then subjecting the electrodes or other articles to a temperature sufficiently high and for a sufficient length of time to convert a greater or less proportion of the amorphous carbon into graphite.

702,759. WATER-BAG. THOMAS L. ALLENBURY, Chicago, Ill. Filed Oct. 14, 1901. Serial No. 78,888. (No model.)

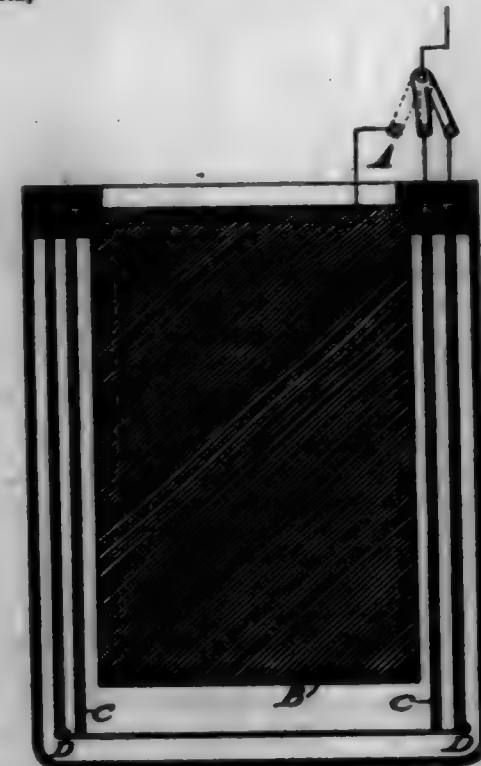
Claim.—1. A water-bag adapted to be applied to the upper portion of the foot, which comprises a water-tight oblong receptacle a portion of which is adapted to cover the forefoot and has one of the upper corners extended with a flange-aperture therein, and a plug for closing said aperture, depending lobes made integral with the lower edge of the receptacle having a curved portion therebetween for the reception of the toes, one made integral with the ends of the oblong receptacle about midway of its width, and strings attached to said ends for binding the receptacle to the foot, substantially as described.

2. A water-bag adapted to be applied to the foot, which comprises a water-tight flexible receptacle having an aperture for filling the same and a plug for closing the aperture, a covering of thick non-conducting material secured to the outer line of said receptacle for retaining the heat within the bag, a thin covering of conducting material on the opposite side

of the bag for contact with the foot, and strings carried by the receptacle for securing the same to the wearer's foot, substantially as described.



702,760. ELECTROCHEMICAL GENERATOR. HARRY S. AWAKE, Camden, N. J., assignor to Charles H. Graham and George D. Burton, Philadelphia, Pa. Filed Mar. 12, 1902. Serial No. 94,978. (No model.)



Claim.—1. An electrochemical generator consisting of a single fluid-cell, provided with a positive electrode and a negative fixed electrode, an electrolyte, and a current-conducting baffle-partition in said electrolyte, between said electrodes and normally insulated therefrom.

2. An electrochemical generator, consisting of a positive electrode, a negative fixed electrode, an electrolyte, an electric-current-conducting baffle-partition normally insulated from said electrodes and means for making said baffle-partition part of either of said electrodes to act there-with.

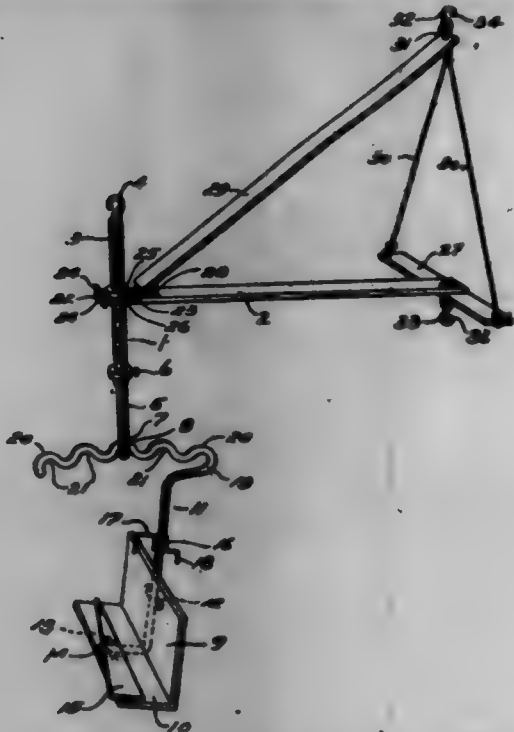
3. An electrochemical generator consisting of a single fluid-cell having positive and negative electrodes and a current-conveyor of high conducting or current-carrying capacity interposed as a modifier, screen or baffle between the positive and negative electrodes and adapted to control the rate of change of position of the electrolyte attacking the electrodes must be acted upon without interfering with the current-flow between the electrodes in the case.

4. An electrochemical generator consisting of a single fluid-cell provided with a positive electrode and a negative fixed electrode, an electrolyte and a current-conducting baffle-partition in said electrolyte between said electrodes and normally insulated therefrom, providing means for causing a higher temperature of the electrolyte between the largest areas of the baffle-partition and the positive electrode and lower temperature between the smallest areas exposed.

702,761. BOOK-HOLDER. EDWIN S. ANTHURIALE, Chicago, Ill. Filed Aug. 28, 1901. Serial No. 78,179. (No model.)

Claim.—1. In a book-holder the combination of a back-rest and a lower supporting-ledge, a horizontally-disposed arm secured in and above said back-rest and having a plurality of shoulders thereon, and a hanger

having thereon a stop adapted to engage either of said shoulders, whereby said back-rest may be suspended at different angles of inclination.



2. In a book-holder the combination of a back-rest and a lower supporting-ledge, a horizontally-disposed arm secured to and above said back-rest and having a plurality of shoulders thereon, and an extensible hanger having thereon a stop adapted to engage either of said shoulders, whereby said back-rest may be suspended at different angles of inclination.

3. In a book-holder, the combination of a supporting-frame, a book-rack having a vertically-disposed arm secured to its rear part, the upper part of said arm being bent forward in a horizontally-disposed position and having a plurality of shoulders on said horizontally-disposed part, and a hanger on said frame having thereon a stop adapted to engage either of said shoulders, whereby said rack may be suspended at different angles of inclination.

4. In a book-holder, the combination of an arm 29, a brace 3 hinged to one end of said arm, a hook at the free end of the arm 29, a cross-piece secured to the free end of the brace 2, a tie connecting said free ends, a vertically-adjustable hanger secured to the arm 2 near said hinge, and a book-rack secured to said hanger by adjustable means permitting same to be tilted to different angles of inclination.

5. In a book-holder, the combination of a back-rest and a lower supporting-ledge having an upwardly-projecting pin or shoulder near its forward edge, and a wedge-shaped member acting against said shoulder and toward said back-rest for engaging an interposed book in the manner specified.

6. A book-holder comprising a back-rest, a lower supporting-ledge secured thereto, an arm secured to said back-rest, said arm having its upper part horizontally disposed and provided with a plurality of shoulders and means connected with said back-rest for holding an open book against same.

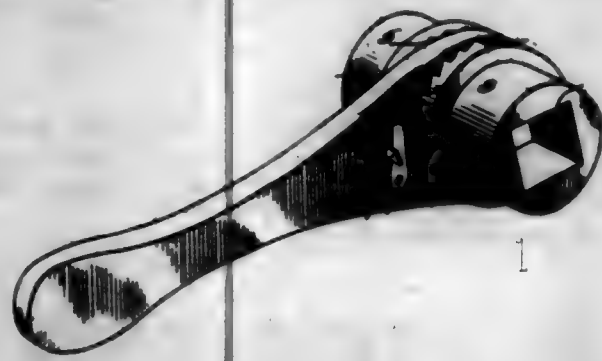
7. A book-holder comprising a back-rest, a lower supporting-ledge secured thereto, and an arm secured under said ledge and bent upwardly along said back-rest and secured thereto, said arm having its upper part bent forward to a horizontally-disposed position and crimped substantially as shown.

8. In a book-holder, the combination of a back-rest and a lower supporting-ledge, a horizontally-disposed arm secured to and above said back-rest, and a hanger having thereon a stop for supporting said arm at different points of its length and means for securing said arm against its longitudinal shifting on said stop.

702,782. RATCHET-WRENCH. DAVID B. ARNOLD, Terto Haute, Ind., assignor of one-half to Edwin H. Terto Haute, Ind. Filed Mar. 31, 1902. Serial No. 100,801. (No model.)

Claim.—1. In a wrench of the character described, the combination of a head provided with ratchets the teeth of which project in opposite directions, an operating-handle pivoted to the head and provided in its opposite sides with recesses and a transverse bar connecting the inner ends of said recesses, pawls loosely mounted in said recesses, a coiled spring in the bore and acting on reverse ends of the pawls, pivoted buttons or levers engageable with the pawls to hold them out of action or permit them to project and vibrate, and means for securing the levers against movement when adjusted to hold the pawls out of action, substantially as set forth.

2. In a wrench of the character described, the combination of a head provided with ratchets the teeth of which project in opposite directions, an operating-handle pivoted to the head and provided in its opposite sides with recesses and a transverse bar connecting the inner ends of said recesses, pawls loosely mounted in said recesses, a coiled spring in the bore and acting on reverse ends of the pawls, pivoted buttons or levers engageable with the pawls to hold them out of action or permit them to project and vibrate, and means for securing the levers against movement when adjusted to hold the pawls out of action, substantially as set forth.



702,788. BICYCLE-MIRROR. FERN A. AUSTIN, Minneapolis, Minn. Filed May 7, 1900. Serial No. 14,573. (No model.)



Claim.—1. The combination, with a bicycle handle-bar, of a mirror attached to the tip of the grip portion of said bar and included substantially within the circumference of the same.

2. The combination, with a bicycle handle-bar, of a mirror attachment on the end thereof and in continuation of the handle portion, substantially as described.

3. The combination, with a bicycle handle-bar, of a mirror adjustably arranged upon the end of said bar and forming a continuation of the handle portion thereof, as and for the purpose specified.

4. The combination, with a bicycle handle-bar, of a mirror arranged at the end of the grip portion at an angle to the axis thereof and forming a continuation of the handle portion, substantially as described.

5. The combination, with the bicycle handle-bar, of a convex mirror provided at the end of said bar and substantially concentric with the axis thereof, substantially as and for the purpose specified.

6. The combination, with a bicycle handle-bar, of a convex mirror provided upon the end thereof and angularly adjustable thereon, forming a continuation of the handle portion of said bar.

7. The combination, with a bicycle handle-bar, of a ferrule or fastening provided upon the tip end of the grip portion thereof, and a disk mirror provided in said ferrule and supported thereby on said grip portion substantially concentric with the axis thereof, substantially as described.

8. The combination, with a bicycle handle-bar, of a ferrule removably secured on the end of the grip portion thereof, and a convex mirror provided in said ferrule and removable therefrom from said grip portion, substantially as described.

9. The combination, with a bicycle handle-bar, of a convex mirror removably secured to the tip of the grip portion thereof, substantially as described.

10. The combination, with a bicycle handle-bar, of a convex mirror removably secured to the tip of the grip portion thereof, substantially as described.

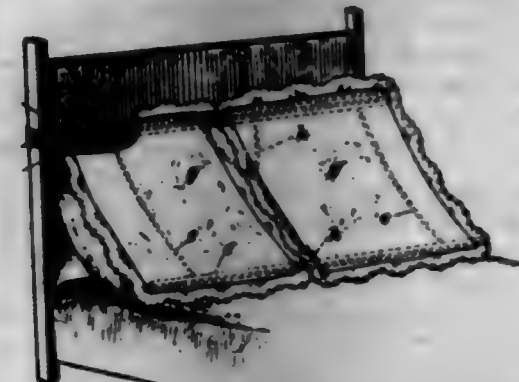
702,784. PROCESS OF EXTRACTING ZINC. JULIAN L. RAB and ALEXIS TRIGANT, Paris, France. Filed June 28, 1900. Serial No. 22,057. (No specimens.)

Claim.—1. The process herein described of extracting metallic zinc from ores poor in zinc, which consists in forming briquets from a mixture of the ore, carbonate of soda and carbon, subjecting said briquets to the action of heat suitable for driving off the zinc-vapors from said briquets, condensing the said vapors driven off, whereby a condensation product containing zinc acid is formed, mixing said product with carbonate of soda and carbon, subjecting said mixture to a suitable temperature for driving off the metallic zinc in the form of vapors, and condensing said vapors, substantially as set forth.

2. The process herein described of extracting metallic zinc from ores poor in zinc, which consists in forming briquets from a mixture of the ore, carbonate of soda and carbon, subjecting said briquets to the action of heat suitable for driving off the zinc-vapors from said briquets, condensing said vapors, whereby a condensation product containing zinc acid is formed, mixing said product with carbonate of soda and carbon, subject-

ing the mixture to a temperature of from 800° to 1,000° centigrade for about two hours, and condensing the vapors of metallic zinc distilling off therefrom, substantially as set forth.

702,785. PILLOW-SHAPE HOLDER. WILLIAM RABENHUT, Volta, Cal. Filed Oct. 22, 1891. Serial No. 79,422. (No model.)



Claim.—1. The combination, of a rotatably-mounted shaft, a pillow-shape frame slidably mounted thereon to move transversely thereof, and a latch for holding the frame in raised position.

2. The combination, of a rotatably-mounted shaft, a pillow-shape frame carried thereby to slide transversely thereof, said frame comprising transverse rods sliding on the shaft, and end bars fastened to and connecting together the said rods.

3. The combination, of a rotatably-mounted shaft, a pillow-shape frame carried thereby to slide transversely thereof, said frame comprising transverse rods sliding on the shaft, and end bars fastened to and connecting together the said rods, and a latch-arm fastened to the top bar and extending downward to the lower bar to engage the shaft and hold the frame raised.

4. The combination, of a rotatably-mounted shaft, a pillow-shape frame slidably mounted thereon to move transversely thereof, and releasable means for holding the frame stationary on the shaft.

702,786. PNEUMATIC STACKER. JOHN B. BARTHOLOMEW, Peoria, Ill., assignor, by mesne assignments, to Avery Manufacturing Company, Peoria, Ill., a Corporation of Illinois. Filed Mar. 15, 1894. Re-noved Feb. 14, 1902. Serial No. 94,184. (No model.)

Claim.—1. In a pneumatic stacker the combination with the straw-jester mechanism and the dust, of a deflector for the outer end of the dust, a power device for automatically moving the deflector relatively to the dust, and means for automatically varying the path of the deflector, substantially as set forth.

2. In a pneumatic stacker the combination with the straw-jester and the straw-dust, of a deflector movable relative to the dust, power device for simultaneously moving the dust and moving the deflector relatively to the dust, and means for varying the path of the deflector simultaneously with its movement, substantially as set forth.

3. In a pneumatic stacker the combination with the straw-jester and the straw-dust, of power devices for horizontally rotating the straw-dust, the deflector movable relative to the dust, power devices connected to the dust for moving the deflector relatively to the dust, and means for automatically varying the path through which the deflector is moved by the last said power devices, substantially as set forth.

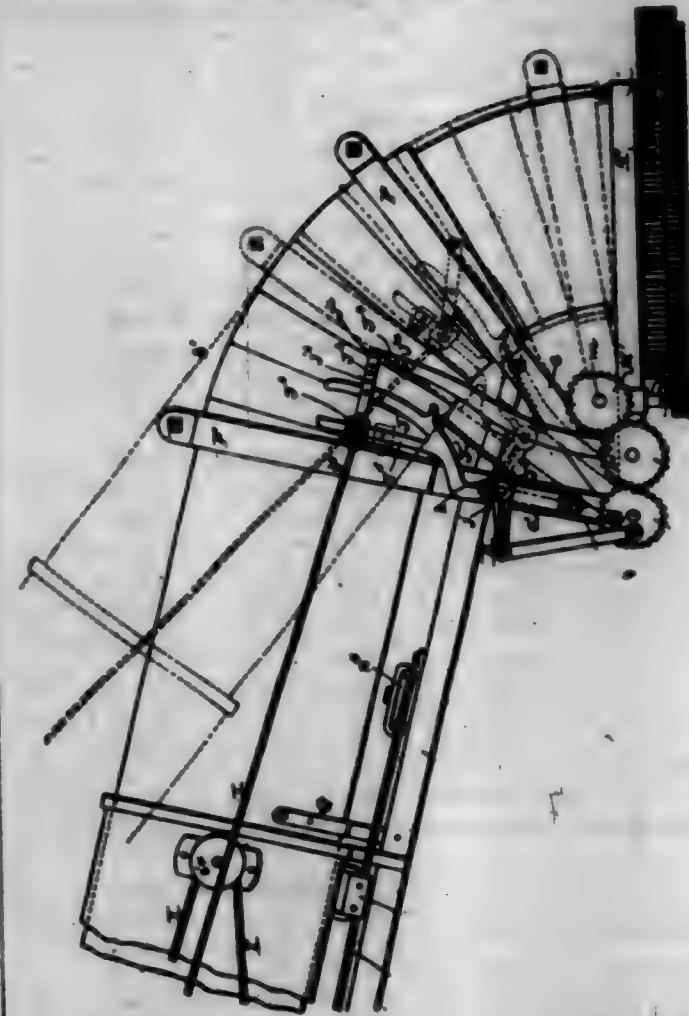
4. In a pneumatic stacker the combination with the straw-jester and the rotary base, of the straw-dust mounted on such rotary base, means for horizontally vibrating the said dust, the adjustable deflector, means for permanently adjusting the deflector, power devices supported upon the rotary base for moving the deflector relatively to the dust, and means for automatically varying the path of the deflector after each permanent adjustment, substantially as set forth.

5. In a pneumatic stacker, the combination with the straw-jester and straw-dust, of means for horizontally vibrating the straw-dust, the movable deflector, and automatically-actuated power devices adapted to impart a fast movement and a slow movement to the deflector substantially as set forth.

6. In a pneumatic stacker the combination with the straw-jester and the straw-dust, of the deflector at the outer end of the straw-dust, automatically-actuated means for moving the deflector with a relatively fast speed and automatically-actuated means for moving it with a relatively slow speed relatively to the dust, substantially as set forth.

7. In a pneumatic stacker the combination with the straw-jester, the straw-dust, and the means for horizontally vibrating the straw-dust, of a movable deflector and a two-part power device for moving the deflector relatively to the dust, the two parts of which while in position can

be held apart whereby one part may be made stationary while the other remains normally in motion, substantially as set forth.



8. In a pneumatic stacker the combination of the straw-jester, the straw-dust, the means for horizontally vibrating the straw-dust, a deflector at the outer end of the dust, a two-part power device for moving the deflector and means for throwing one part of the power device out of action while the other part is in motion, substantially as set forth.

9. In a pneumatic stacker the combination with the straw-jester, the straw-dust, and the means for horizontally vibrating the dust of the movable deflector, the pivotal lever, differential gear-wheels, means connecting such gear-wheels with the lever, and means connecting the lever with the deflector, substantially as set forth.

10. In a straw-stacker the combination with the dust for air and straw and the deflector movably supported at the outer end of the dust, of a cord having its two ends fixed independently of the deflector, and having the part intermediate of its ends engaging with a cord-guide on the deflector, and an automatically-adjustable support for one end of such cord whereby the path of movement of the deflector may be automatically caused to vary, substantially as set forth.

11. In a straw-stacker the combination with the dust for the passage of air and straw and the deflector movably supported at the outer end of said dust, of the cord connected to the deflector and attached to a movable cord-holder, and means for automatically adjusting the position of the cord-holder to vary the movement of the deflector, substantially as set forth.

12. In a straw-stacker the combination of the dust for air and straw, the deflector movably supported at the outer end of the dust, a vibrating cord-holder and means for varying the path of travel of the cord-holder, for varying the travel of the deflector, substantially as set forth.

13. In a pneumatic stacker the combination of the dust for air and straw, the deflector movably supported to the dust, a cord connected to the deflector, a vibrating cord-holder, means for automatically vibrating the cord-holder and means for adjusting vertically the dust and simultaneously adjusting the position of the vibrating cord-holder, substantially as set forth.

14. In a straw-stacker the combination of the dust for air and straw, the deflector movably supported across the path of the straw, the cord connected to the deflector and having one part connected to an automatically-moving and adjustable cord-holder and another part detachably connected to a supplemental holder adapted to permit adjustment of the cord by hand, substantially as set forth.

15. In a straw-stacker the combination of the dust for air and straw, a vertically-swinging support for said dust, a deflector movably supported

in the path of the straw, a deflector-moving device, power mechanism for actuating the deflector-moving device and means for automatically varying the path of the deflector-moving device in correspondence with the vertical adjustments of the straw-dust, substantially as set forth.

16. In a straw-stacker the combination with the dust for air and straw, the deflector movably supported in the path of the straw and means for adjusting the dust to different positions vertically, the means for automatically moving the deflector across the path of the straw and means actuated by the dust-adjusting device for varying the path of the deflector, substantially as set forth.

17. In a straw-stacker the combination with the thrasher and separating mechanism, the straw-ejecting mechanism, the dust for the straw communicating with the ejector at a relatively high point, device accessible from the ground for adjusting the dust vertically, the deflector movably supported across the path of the straw, means for automatically moving the deflector across said path and means actuated by the dust-adjusting device for varying the path of travel of the deflector, substantially as described.

18. The combination with the separating mechanism and its casing, of the straw-ejector arranged inside of but adjacent to one side of said casing, the straw and chaff receptacle extending from the ejector to the oppositely-lying wall and having the downwardly-inclined bottom extending from the left said wall to the eye of the ejector and the upwardly-extending conveyor arranged to carry the chaff from the winnowing upward to the said receptacle, and the supplemental conveyor for the straw arranged to deliver it to the said receptacle, substantially as set forth.

19. In a stacking mechanism, the combination of the rotary base, the stacking device mounted thereon, rotating device engaging with the base, a clutch for reversing the rotating mechanism, power device for actuating the rotating mechanism and the clutch hand device for actuating the rotating mechanism and the clutch, and a supplemental clutch interposed between the rotating device and hand device, substantially as set forth.

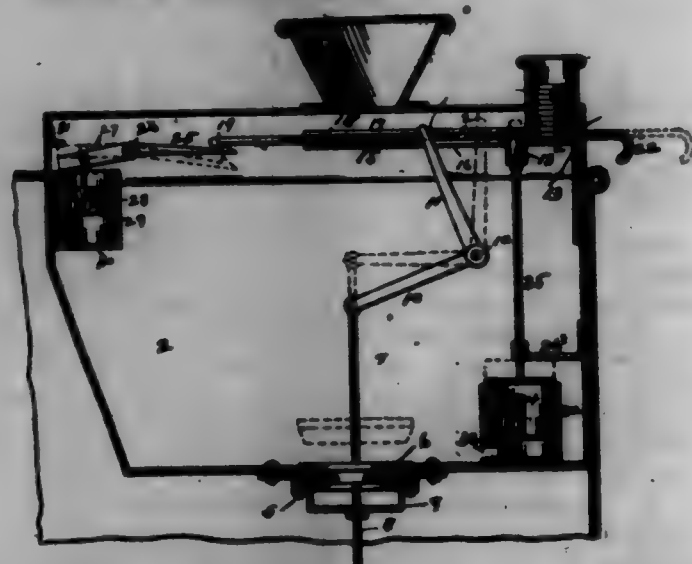
20. The combination of the dust, a deflector for the outer end of the dust, a power device at the forward or inner end of the dust for automatically moving the deflector relatively to the dust, and automatically-acting means for varying the path of the deflector.

21. The combination of the extensible dust, a deflector for the outer end of the dust, a power device at the forward or inner end of the dust for automatically moving the deflector relatively to the dust, and means for varying the path of the deflector acting irrespective of the extension or retraction of the dust.

22. The combination of the dust, a deflector for the outer end of the dust, an inwardly and outwardly moving part, means for actuating the same, a cord connecting the deflector with said movable part, and means for automatically varying the operative length of the movement of said part.

23. The combination of the dust, a deflector for the outer end of the dust, an inwardly and outwardly movable arm, means for actuating the same, a cord connecting the deflector with said movable arm, and means for varying the operative length of said arm.

702,767. OIL-MEASURE. GEORGE R. BURNHAM, St. Louis, Mo. Sept. 2, 1901. Serial No. 74,064. (No model.)



Claim.—1. The combination with a measuring-tank, a check-holder and a check-extractor, of means within the tank locking said extractor against movement until a predetermined amount of fluid has been introduced into the tank.

2. The combination with a measuring-tank having an inlet and an

outlet, and an outlet-valve, of a check-holder, and means for extracting checks from said holder and operating said valve adapted to be released for actuation by a predetermined amount of fluid introduced into the measuring-tank.

3. The combination with a measuring-tank having an inlet and an outlet, and an outlet-valve, of a check-holder, means for extracting checks from said holder and operating said valve, released by a predetermined amount of fluid introduced in the measuring-tank.

4. In a measure of the class described, the combination of a tank having an inlet and an outlet, an outlet-valve, an apertured slide, a bell-crank forming connection between said slide and said outlet-valve and occupying an aperture in said slide, means for holding said slide in its inner position, and means for holding said slide in its outer position, substantially as described.

5. In a measure of the class described, the combination of a tank provided with an inlet and an outlet, an outlet-valve, an apertured slide, a bell-crank forming connection between said slide and said valve and occupying an aperture in said slide, a hook carried by said slide, a swinging hook adapted for engagement with said slide-hook, and a float having connection with said swinging hook, substantially as described.

6. In a measure of the class described, the combination of a tank provided with an inlet and an outlet, an outlet-valve, a slide having connection with said valve, a hook carried by said slide, a swinging hook adapted to engage said slide-hook, and having a rearwardly-extending arm, a float connected to said arm, and a perforate wall in which said float is arranged to move, substantially as described.

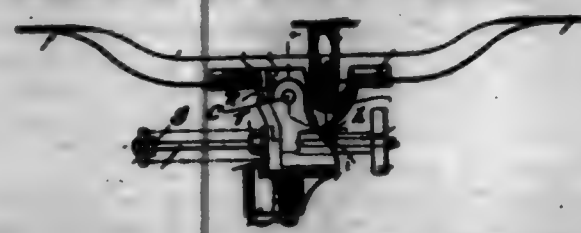
7. In a measure of the class described, the combination of a tank provided with an inlet and an outlet, an outlet-valve, an apertured slide having connection with said valve, means for holding said slide when in its inner position, a float, and a stem carried by said float adapted to enter an aperture in said slide when the slide is in its outer position, substantially as described.

8. In a measure of the class described, the combination of a tank having an inlet and an outlet, an outlet-valve, a slide having connection with said valve, a check-holding pocket located above said slide, said slide being provided with an opening adapted to receive checks from said pocket for the extraction thereof, substantially as described.

9. In a measure of the class described, the combination of a tank having an inlet and an outlet-valve, means for actuating said valve, a hook arranged for engagement with said valve-actuating means, a float carried by said hook, and a wall in which said float is seated, said wall being provided with a perforate bottom, substantially as set forth for the purpose set forth.

10. In a measure of the class described, the combination of a tank having an inlet and an outlet, an outlet-valve, means for actuating said valve, a float, a stem carried by said float adapted to engage said valve-actuating means, a cup in which said float is seated, said cup having an opening at the lower end thereof through which oil may enter and escape in the rise and fall of said float, substantially as set forth for the purpose set forth.

702,768. CHAIR. HARRY W. BOLLEN, Port Washington, Wis. Filed Dec. 12, 1901. Serial No. 65,868. (No model.)



Claim.—1. In a chair-spider, a spreader provided with intersecting spider-arm seats, combined with spider-arms mounted in said seats.

2. In a chair-spider, a spreader provided with spider-arm seats disposed at an angle to each other, combined with spider-arms mounted in the seats.

3. In a chair-spider, a spreader provided with spider-arm seats located in different planes and intersecting each other, combined with spider-arms located in the seats, the said spider-arms terminating in the same plane in attaching ends.

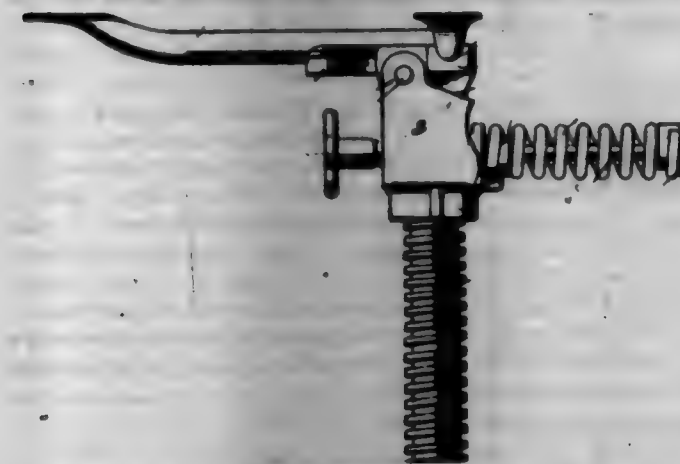
4. In a chair-spider, a spreader provided with intersecting extended seats grooved to receive spider-arms, combined with intersecting spider-arms mounted in and secured to said seats.

5. In a chair-spider, a hollow adjusting-arc provided with an integrally-cast base at its upper end having upwardly-disposed standards and at one side thereof seats, combined with a spreader having depending ears, a pin passing through the ears and standards, notches formed in the ears, a bowed bridge-piece engaging the notches, a threaded adjusting-bolt passing through, a hand-nut on the end of the bolt, a cross-piece having seats on the other end thereof, springs interposed between

the seats of the base and those of the cross-piece, and means for attaching the spreader to a chair.

6. In a chair-spider, an adjusting-arc, a base at the upper end thereof provided with upwardly-disposed perforated standards, and between the same with spring-receiving seats, combined with a spreader having means of attachment to a chair and provided with depending perforated ears having notches, a pin passing through the ears and perforated standards, an adjusting-bolt, a cross-piece carried thereby and having seats, springs interposed between the seats of the cross-piece and those of the base, a bridge-piece seated in the notches of the ears and having an eye receiving the adjusting-bolt, and a hand nut or wheel mounted on the bolt beyond the bridge-piece.

702,769. CHAIR-SPIDER. HARRY W. BOLLEN, Port Washington, Wis. Filed Mar. 7, 1902. Serial No. 67,060. (No model.)

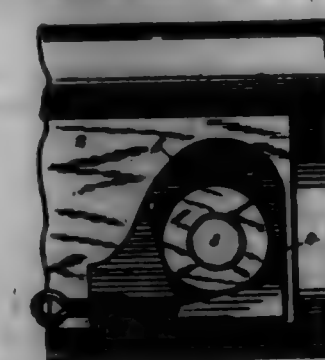


Claim.—1. The combination, in a chair-spider, of a spreader provided with a pair of spider-arm seats located in the same horizontal plane and at an angle to each other, and spider-arms located in said seats and terminating in the same plane in attaching ends.

2. The combination, in a chair-spider, of a spreader provided with a pair of right-angularly-disposed spider-arm seats located in the same horizontal plane and substantially U-shaped in cross-section, and spider-arms located in the seats, said arms being semicircular or substantially U shape in cross-section and conforming to their seats and at their extremities terminating in attaching ends.

3. The combination, in a chair-spider, of a substantially U-shaped yoke, the opposite side standards of which are provided with deep-notches, a spider-frame having depending ears pivoted between the standards, said spider-frame having a rear longitudinally-disposed seat extending beyond the ears and opposite the recesses on their under sides forming stop-logs for limiting the backward tilt of the spider, a transverse nut intersecting the said longitudinal seat of the spider, and spider-arms mounted upon and fitting the seats.

702,770. NUT-LOCK. THOMAS G. BURNHAM, Summit, N.H. Filed Jan. 26, 1902. Serial No. 61,160. (No model.)



Claim.—A nut-lock, one member of which consists of a washer having one corner portion turned to form a tube, the other member consisting of a spring-cutter movable in the tube, the inner end of the cutter when in position being arranged to be engaged by the nut to force it outward when the nut is turned for tightening, substantially as specified.

702,771. CLAMP. CHARLES A. REHART, Wakefield, Mass., assignor to Consolidated Safety Pin Company, Wakefield, N. J., a Corporation of New Jersey. Filed Aug. 26, 1901. Serial No. 73,646. (No model.)

Claim.—1. In a clamp, the combination with a U-shaped frame, of a clamping-jaw loosely hung or pivoted within said frame, and an operating-lever pivoted on one member of the frame and having a finger which positively engages said jaw both to open and to close the same, substantially as shown and described.

2. In a clamp, the combination with a U-shaped frame, of a clamping-jaw loosely hung or pivoted within said frame and having a shoulder, and an operating-lever pivoted on one member of the frame and having a finger to engage said shoulder to open the jaw, substantially as shown and described.



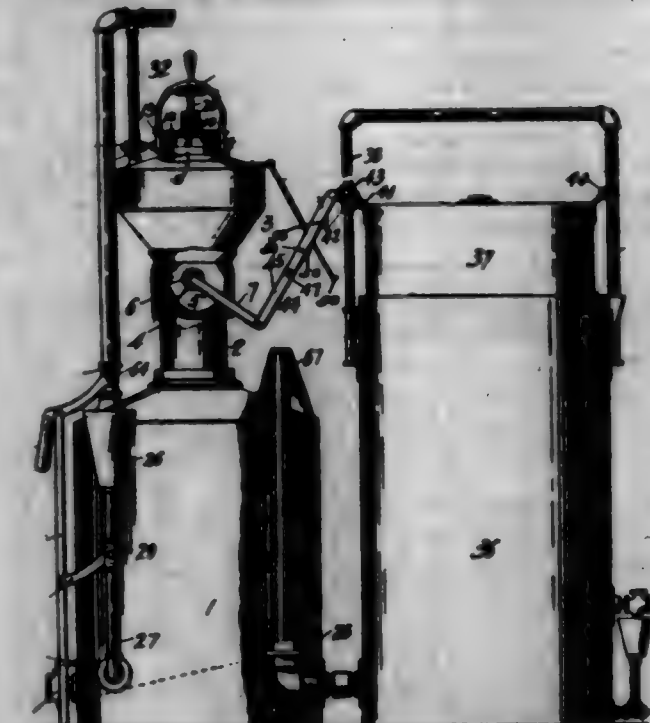
3. In a clamp, the combination with a U-shaped frame, of a clamping-jaw loosely hung or pivoted within said frame and having a bridge-piece struck up to form shoulders, and an operating-lever pivoted on one member of the frame and having fingers to straddle said bridge-piece and engage said shoulders, substantially as shown and described.

4. In a clamp, the combination with a U-shaped frame, of a clamping-jaw loosely hung or pivoted within said frame, and an operating-lever having a part looped around a portion of the frame and other parts bent down to form fingers to engage said jaw, substantially as shown and described.

5. In a clamp, the combination with a U-shaped frame, of a clamping-jaw having its inner end curved to fit within said frame and swing therein, and an operating-lever pivoted on one member of the frame and having a finger which positively engages said jaw both to open and to close the same, substantially as shown and described.

6. In a clamp, the combination with a U-shaped frame, having legs near its curved part, of a clamping-jaw having its inner end curved to fit within said frame loosely and formed to engage said legs, and an operating-lever pivoted on one member of the frame and having a finger which positively engages said jaw both to open and to close the same, substantially as shown and described.

702,772. ACETYLENE-GAS GENERATOR. JOHN D. BUCKLEY and EDWARD H. FERNET, Brunswick, Me. Filed Aug. 26, 1901. Serial No. 73,760. (No model.)



Claim.—1. In an acetylene-gas generator, the combination with the carbide-holder, of an escape-pipe communicating with the said carbide-holder, a valve in said escape-pipe, a cover for said carbide-holder, studs projecting laterally from said cover, a pivoted yoke-shaped locking-lever having curved arms to engage said studs when the valve is closed, and a connection between said locking-lever and the valve for actuating said valve to allow the escape therefrom of the gas within the carbide-holder previous to the disconnection of said cover from the curved arms, substantially as set forth.

2. In an acetylene-gas generator, the combination with the generating-tank, of a carbide-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a generator, a jointed bar connected to said crank-arm and the dome of the generator, a lock for holding the two parts of the jointed bar rigid, a cover for the carbide-holder, means for locking the cover in position, and means connected to the first-named means for unlatching and "breaking" the jointed bar, substantially as set forth.

3. In an acetylene-gas generator, the combination with the generating-tank, of a carbide-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gnometer, a jointed bar connected to said crank-arm and to the dome of the gnometer, a lock for holding the two parts of the jointed bar rigid, a cover for the carbide-holder, means for locking the cover in position, means connected to the first-mentioned means for "breaking" the jointed bar when the cover is unlocked, and a valve escape-pipe communicating with said carbide-holder, the valve thereof being connected with the first-mentioned means and adapted to be opened thereby in the act of unlocking the cover from the carbide-holder, substantially as set forth.

4. In an acetylene-gas generator, the combination with the generating-tank, of a carbide-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gnometer, a jointed bar connected to said crank-arm and to the dome of the gnometer, a lock for holding the two parts of the jointed bar rigid, a cover for the carbide-holder, a locking-lever for said cover, a crank connected to said locking-lever, and a connection between said crank and the means for locking the jointed bar, whereby when said locking-lever is moved to release the cover from the carbide-holder, the locking means will unlock and break the jointed bar and permit of the closing of the valve by the further movement of the locking-lever, substantially as set forth.

5. In an acetylene-gas generator, the combination with the generating-tank, of a carbide-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gnometer, a jointed bar connected to said crank-arm and to the dome of the gnometer, a stud projecting from one member or part of the jointed bar into and adapted to cooperate with a recess or notch in the edge of the other member, a link carried by the notched or recessed member and adapted to engage said stud and lock the two members rigidly together, a cover for the carbide-holder, a locking-lever for said cover, a crank secured to said locking-lever, and a connection between said crank and the said link for releasing said link from said stud when said locking-lever is swung to a position to permit of the removal of said cover, substantially as set forth.

6. In an acetylene-gas generator, the combination with the generating-tank thereof provided with a vent-pipe, a valve located therein, a draw-off cock located at the bottom of the tank and provided with a handle, a lever for operating the valve, a filling-pipe leading into the tank and provided with a valve, a bar connected to said valve and projecting downward into the path of movement of the handle of the draw-off cock to form an interference for said handle while the valve of the vent-pipe is closed and thus permit of the opening of the draw-off cock, and the valve in the filling-pipe only when the valve in the vent-pipe is open, substantially as set forth.

702,773. BURIAL-ROBE. HENRY K. BUNNEN, Omaha, Neb. Filed Mar. 24, 1902. Serial No. 95,757. (No model.)



Claim.—1. A burial-robe, open at front and provided with an opening at the back from its upper edge downward for a suitable distance, the portion of the garment to one side of the rear opening carrying a complete collar, and means for securing the collar in position, substantially as described.

2. A burial-robe, open at front and provided with an opening at the back from its upper edge downward for a suitable distance, the portion of the garment to one side of the rear opening provided with an integral complete collar, means for securing the collar in position, and fastening means for securing the garment in position in front, substantially as described.

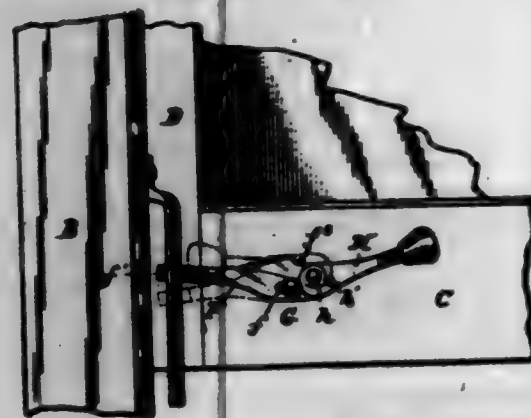
3. A burial-robe, open at front and provided with an opening at the back extending from the upper edge thereof downwardly for a short distance, the portion of the garment to one side of the rear opening provided with an integral complete collar, one end of the collar projecting

beyond the edge of the garment, so that it can be adjusted to fit any size neck, and fastening-strings for drawing and holding the ends of the collar to position, and fastening means for securing the garment in front, substantially as described.

4. A burial-robe, open at front and provided with an opening at the back extending from the upper edge thereof downwardly for a short distance, the portion of the garment to one side of the rear opening provided on its inner side with a plurality of vertically-arranged fastening means which engage fastening means on the vertical edge of the other portion of the robe on the other side of the rear opening, and another set of vertically-arranged fastening means on the edge of the first-mentioned portion of the garment, which engage fastening means arranged on the second-mentioned portion of the garment, said latter fastening means being located back of the edge fastening means, and a fold carried by the second-mentioned portion which laps over and conceals the last-mentioned fastening means, and means for securing the garment at the neck, substantially as described.

5. A burial-robe, open at front and provided with an opening at the back extending from the upper edge thereof downwardly for a short distance, a portion of the garment to one side of the rear opening provided with an integral complete collar, fastening-strings for drawing and holding the ends of the collar to position, and portion of the garment provided on its inner side with a plurality of vertically-arranged fastening means, which engage fastening means on the vertical edge of the other portion of the garment on the other side of the rear opening, and another set of vertically-arranged fastening means on the edge of the first-mentioned portion of the garment, which engage fastening means arranged on the second-mentioned portion of the garment, said latter fastening means, and a fold carried by the second-mentioned portion which laps over and conceals the last-mentioned fastening means, and means for securing the garment at the neck, substantially as described.

702,774. BASK-BASTONER OR MOLDER. JAMES W. CAMP, Mount Carmel, S. C., assignor to Charles B. Cowan, Dumas, S. C. Filed July 24, 1901. Serial No. 68,585. (No model.)



Claim.—1. In a window holding and locking device, the combination with a fixed rod, of a pivoted locking-lever the free end of which embraces the rod, and a weighted lever pivotally connected to the locking-lever and adapted to counterbalance and overbalance the latter, substantially as described.

2. In a window holding and locking device, the combination with a fixed rod, of a pivoted locking-lever having an opening through which the fixed rod passes, a weighted lever pivotally connected to the locking-lever, and a stud for controlling the position of the weighted lever with relation to the locking-lever, substantially as described.

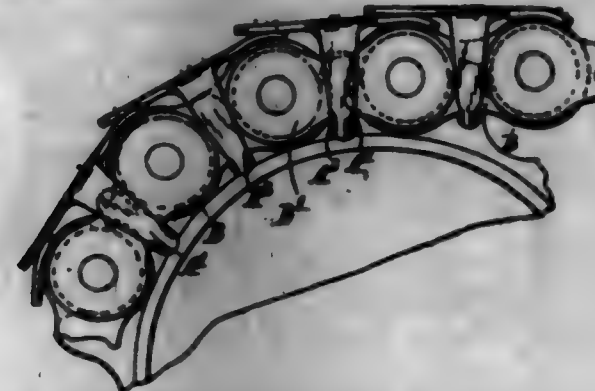
3. In a window holding and locking device, the combination with a fixed rod, of a pivoted locking-lever having an opening with parallel sides through which the fixed rod passes and having recesses, and a weighted lever pivoted to the locking-lever, said weighted lever having a stud adapted to engage the recesses for controlling the position of the weighted lever, substantially as described.

702,775. PROTECTION OF DRIVING-CHAINS. ERNEST CASSE-ROSE, Deal, England. Filed Feb. 27, 1902. Serial No. 95,855. (No model.)

Claim.—1. The combination with an endless chain, of a series of protecting devices, each consisting of a shield or plate extending across one edge of the side bars of the link, and the space between said bars, and having means engaging the opposite edges of the side bars of the link.

2. The combination with a chain-link, of a shield or plate extending across the space between the side bars of the link, and arms projecting from opposite sides of said plate and having lugs engaging with the side bars of the link.

3. The combination with a chain-link, of a shield or plate extending across the space between the side bars of the link and having arms extending across said side bars and engaging the edges thereof opposite those adjacent the shield or plate.

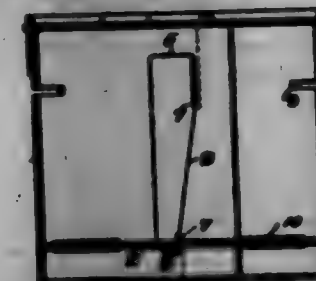


4. The combination with a chain-link, of a shield or plate extending across the space between the side bars of the link, and arms extending across said side bars and connected at one end to said plate and provided at their opposite ends with lugs that extend across the edges of said side bars opposite those adjacent the shield or plate.

5. As an article of manufacture, the herein-described chain-link protector, consisting of a shield or plate adapted to extend across the space between the side bars of a chain-link, and arms connected to said plate and provided with means for engaging with the edges of the side bars of the link opposite those adjacent said plate.

6. As an article of manufacture, the herein-described chain-link protector consisting of a shield or plate adapted to extend across the space between the side bars of a chain-link, and arms projecting from opposite sides of said plate, to extend across the side bars of a link and having at their ends inwardly-extending lugs adapted to engage with the edges of said side bars opposite those adjacent the shield or plate.

702,776. FRUIT-BOX. WILLIAM CLARK, Troy, Mich. Filed Mar. 12, 1902. Serial No. 97,905. (No model.)



Claim.—1. A multiple-blank box comprising in its construction a strip adapted to be bent upon itself and connected at its ends, and a bottom substantially circular in form and adapted to protrude through apertures in the strip, whereby when the free ends of the strip are connected, the box will be substantially polygonal in plan.

2. A multiple-blank box comprising in its construction a strip adapted to be bent upon itself and connected at its ends by a locking-tongue, and a bottom substantially circular in form and adapted to protrude through apertures in the strip and to bear against the tongue.

3. A multiple-blank box comprising in its construction a strip adapted to be bent upon itself and connected at its ends by a two-membered locking-tongue, and a bottom substantially circular in form and adapted to protrude through apertures in the strip and to bear against the lower member of the tongue.

4. A multiple-blank box comprising in its construction a strip provided with two series of apertures, one series of which constitutes venting-apertures, said strip being adapted to be bent upon itself and connected at its end by a locking-tongue, and a bottom substantially circular in form and adapted to protrude through the other series and to bear against the tongue.

5. A multiple-blank box comprising in its construction a strip adapted to be bent upon itself and connected at its ends by two two-membered locking-tongues, the lower terminals of which are disposed respectively near the center and the lower portion of the strip, and a bottom and a partition substantially circular in form and adapted to protrude through apertures in the strip and to bear against the lower terminals of the locking-tongues.

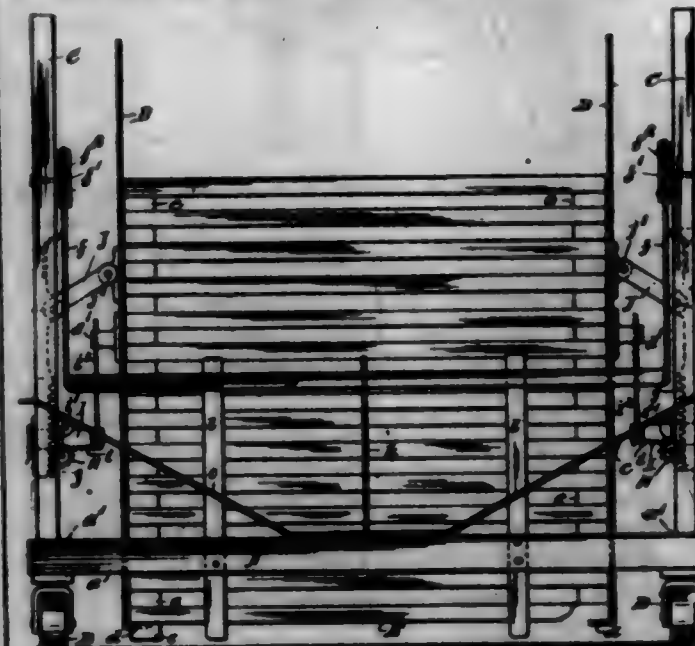
6. A fruit-box comprising a body and a lid, one of which is constructed of a strip bent upon itself and connected at its ends by a locking-tongue, and an end substantially circular in form and adapted to protrude through apertures in the strip and to bear against the tongue.

702,777. WATCH-PROTECTOR. JAMES COWEN, New York, N. Y. Filed Oct. 20, 1901. Serial No. 95,695. (No model.)



Claim.—The combination with a pocket consisting of front and rear flaps or walls, of a watch protector or guard consisting of two parallel bars hinged together and of less length than the opening into the pocket, the hinged end approximately coinciding with the side seam of the pocket, the bars being secured respectively to the front and rear flaps of the pocket, the rear bar having an offset portion forming an opening for the watch-chain, and a fastening device for the bars at the ends opposite the hinge, substantially as described.

702,778. LIFTING-TRUCK. BARBARA COLBERT, Chicago, Ill. Filed Jan. 8, 1902. Serial No. 93,682. (No model.)



Claim.—1. In a truck, the combination of a frame, a lever pivoted to said frame, a pair of bars or clamps adapted to engage the load and means operated by said lever for automatically projecting the bars forward to engage the load and raising said bars after engagement with the load.

2. In a truck the combination of a rectangular bed-frame open at one side, standards on said frame, vertically-slidable rack members in said standards, levers pivoted to said standards and connected by links to said sliding members, pinions mounted on said standards and engaging said racks, horizontally-slidable racks engaging the unslotted ends of said pinions, vertical rods rigidly secured to said racks, engaging with bearings on vertical lifting-bars, and links connecting said bars with the vertically-slidable members.

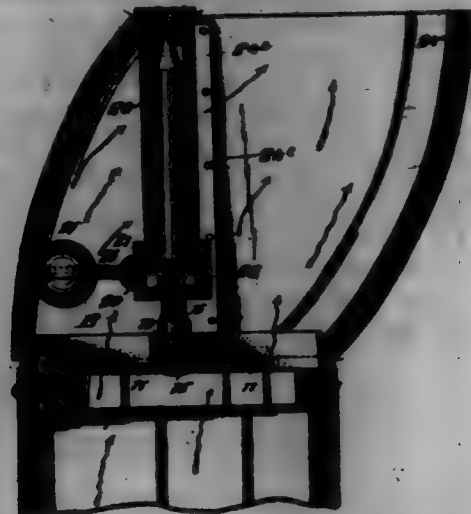
3. The combination in a lifting-truck of lifting-bars a vertically-slidable rack member, a pinion operated by said member, a rack-bar operated by a unslotted portion of said pinion to project the lifting-bars, and links connecting said lifting-bars and vertically-slidable member substantially as described.

702,779. REVOLVING CHIMNEY-CAP. ANNA E. COOK and FREDERICK J. COOK, Lawrenceburg, Ind. Filed May 25, 1901. Serial No. 91,922. (No model.)

Claim.—1. In a chimney-cap, the combination, with a lower head-section having openings therein and adapted for attachment to a stack or to a chimney, and a vertical shaft secured to said head-section, the upper end of which shaft is pointed, of an upper section open at the top and mounted to revolve upon the said pointed portion of the shaft and around the lower head-section, the upper section being in two connected members inclined in the same direction at opposite sides of the vertical axis of the cap from the head-section upward and having more or less conical outer faces, ball-bearings provided for the upper sections of the cap, the balls whereof engage with the said shaft, a screw within the upper section, extending from the said ball-bearings, and a weight adjustable upon the said screw, for the purpose set forth.

2. In a chimney-cap, the combination, with a lower head-section of spider formation, having means for attachment to a chimney or to a stack, a shaft secured to the said head-section at its lower end, the upper end of the shaft being conical, a cap-screw mounted upon the conical end of the shaft,

and a tube detachably connected to the cap-screw at its upper end, of a ball-bearing located around the lower portion of the shaft, the balls whereof engage with the shaft, the said tube supporting the said bearing, a screw extended from said bearing, a weight adjustable upon the screw, and an upper revolvable portion for the cap attached to the said cap-screw, and free to turn at its lower end around the lower head-section of the cap, as set forth.



2. In a chimney-cap, the combination, with a lower head-section of spiral formation, having means for attachment to a chimney or to a shaft, a shaft secured to the said head-section at its lower end, the upper end of the shaft being conical, a cap-screw mounted upon the conical end of the shaft, and a tube detachably attached to the cap-screw at its upper end, of a ball-bearing located around the lower portion of the shaft, the balls whereof engage with the shaft, said tube supporting the said bearing, a screw extended from said bearing, a weight adjustable upon the screw, an upper revolvable portion for the cap attached to said cap-screw, and free to turn at its lower end around the lower head-section of the cap, the said upper portion of the cap consisting of a casing which is directly attached to the cap-screw and a member of lighter material secured to the casing, the entire revolvable section having a slope from the bottom upward in direction of one side of the lower head-section, as described.

702,780. BEE-TRAY. WINFIELD DARLINS, South Benning, N. Y.
Filed Nov. 2, 1901. Serial No. 81,867. (No model.)



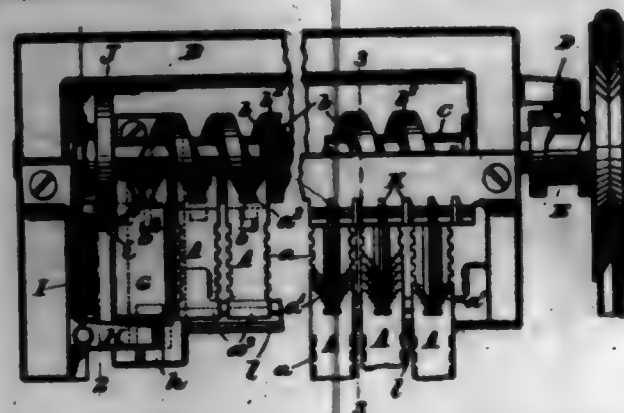
Claim.—1. In a pedigree egg-tray, the combination of an incubating-tray, provided with an open bottom and movable partitions; a nursery-tray with a solid bottom and movable partitions; and, an independent partition to divide the two trays and to serve for a cover for the latter, all substantially as shown and described and for the purposes set forth.

2. In combination with a nursery-tray, of an incubating-tray adapted to be placed over the nursery-tray, the movable partitions of each being adapted to be placed in alignment with each other, substantially as shown and described, and for the purposes set forth.

3. In a pedigree egg-tray, the combination, of the incubating-tray and the nursery-tray each formed with an outer rim and divided into compartments with an independent partition to be used between them, all substantially as shown and described.

702,781. LINO-TYPE-MACHINE. PHILIP T. DODGE, Washington, D. C., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Feb. 11, 1902. Serial No. 96,694. (No model.)

Claim.—1. In a distributing mechanism, a carrier-screw, having its threads provided with longitudinal distributing-teeth, varied in arrangement at different points in the length of the screw, substantially as described and shown.



2. In a distributing mechanism, a matrix-carrying distributing-screw, having its threads tapered in cross-section and provided on their two sides with distributing-teeth following the course of the thread and varied in arrangement at different points in their length, whereby they are adapted to deliver differing matrices at different points.

3. In a distributing mechanism, a distributor-screw having a thread of varying cross-section at different points in its length, in combination with a series of matrices having their upper ends notched in varying forms to engage the thread of the screw, whereby the screw is adapted to carry said matrices in succession and to deliver them at different points.

4. In a distributing mechanism, a carrier-screw having a thread of tapering section, with permuted distributing-teeth on its sides, and with a widened outer edge *P* reduced in width at intervals, as described.

5. In a distributing mechanism, a screw having a toothed matrix-carrying thread, the teeth on each turn differing from those on the next, substantially as described and shown.

6. In a distributing mechanism, a carrying-screw, having its thread provided with permuted teeth, substantially as described, in combination with means for reciprocating the screw in an axial direction.

7. In combination with a screw having permuted distributing-teeth on the sides of its thread, means for moving the screw endwise in opposition to the trend of the screw when the screw is in position to release the matrices, whereby the tendency of the screw to advance the matrices is neutralized and longer time afforded for the delivery of the matrices.

8. In combination with a distributor having a rotary toothed screw, substantially as described, a cam applied thereto, and a cooperating device, whereby the cam is caused to shift the screw endwise.

9. The supporting-frame, the distributing-screw having a toothed thread, mounted to rotate and reciprocate in said frame, the grooved cam on said screw, and the fixed device engaging said cam, whereby end motion of the screw is effected during its rotation.

10. In a distributing mechanism, the combination of a carrying-screw having its thread provided with distributing-teeth, and the magazine-rails *K*, having their upper ends arranged in position to receive the matrices as they are released from the screw.

11. In a distributing mechanism, a screw having its thread provided with distributing-teeth, in combination with mechanism substantially as shown for presenting the matrices successively with their toothed ends in position to engage the screw-thread.

12. The carrying-screw provided with distributor-teeth, in combination with a pusher device *F* for advancing the line of matrices beneath the screw, and a lifting device *H* for presenting the matrices successively in position to engage the screw.

13. In combination with a screw provided with distributing-teeth, a matrix-stop *G*, a feed device *F*, and a lifting device *H*, substantially as shown.

14. In combination with the toothed distributor-screw *C* and its cam *J*, the matrix-feeding slide *H*, subject to the depressing influence of the cam, and a spring *I* acting in opposition to the cam to RA the slide.

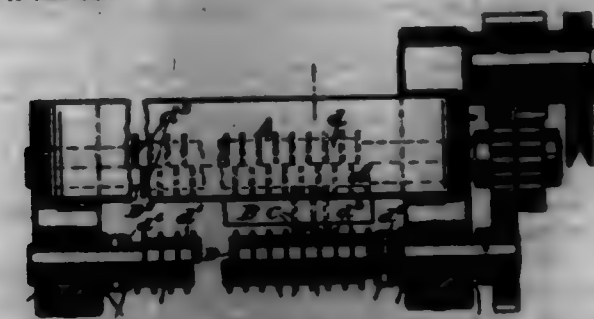
15. In combination with the toothed distributor-screw, an underlying matrix-support *L* and magazine-rails *K*, terminating below the screw and above the support, substantially as shown.

16. In combination with the toothed distributor-screw and a feed-slide *H*, a series of matrices having their upper ends reduced in thickness and provided with teeth, substantially as shown.

702,782. LINO-TYPE-MACHINE. PHILIP T. DODGE, Washington, D. C., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Feb. 17, 1902. Serial No. 94,697. (No model.)

Claim.—1. The distributor-bar, in combination with an adjacent

toothed feed-bar and means for imparting rotary and reciprocating movements to said bar.



2. In combination with the distributor-bar, a device for feeding the matrices along said bar, consisting of two conical transverse-toothed members, and means for rotating them and reciprocating them in reverse directions, whereby they are caused to engage and advance the matrices.

3. In a distributing mechanism, a feed device consisting of a bar or shaft extending lengthwise of the mechanism and transversely toothed on one side, means for rotating the bar to throw its teeth into and out of engagement with the matrices, and means for reciprocating the bar endwise that it may advance the matrices.

4. In a distributor, two complementary conical transverse-toothed members, transversely toothed, in combination with means for rotating them and means for reciprocating them in reverse directions, whereby they are caused alternately to engage and advance the matrices.

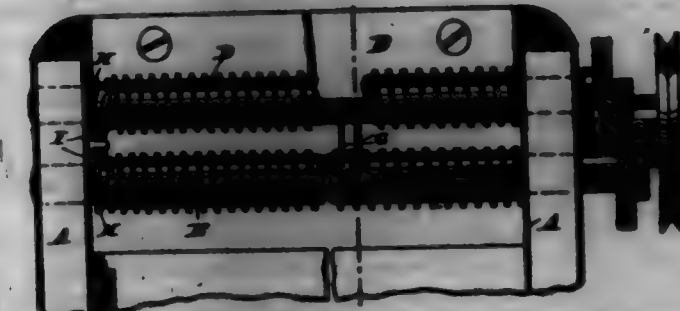
5. In a distributing mechanism, a transversely-toothed rotating member, in combination with means to cause longitudinal reciprocation of said member.

6. In a distributing mechanism, a longitudinal distributor, in combination with a plurality of parallel shafts transversely toothed, and means for rotating them and moving them endwise in unison.

7. Two conical transverse-toothed bars, mounted to turn about a common axis, in combination with rollers thereon and means co-operating with the rollers to reciprocate the bars endwise in reverse directions.

8. In a distributing mechanism, a transversely-toothed bar, mounted to reciprocate endwise and to turn transversely; whereby it is adapted to engage and disengage the matrices by a rolling motion and to advance them by a longitudinal motion.

702,783. LINO-TYPE-MACHINE. PHILIP T. DODGE, Washington, D. C., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Mar. 24, 1902. Serial No. 96,700. (No model.)



Claim.—1. In a distributing mechanism, a feed-screw and means for imparting thereto an axial reciprocation and a continuous rotation.

2. A feed-screw and means for imparting thereto an axial reciprocation and a rotary motion in one direction.

3. In a distributing mechanism, the combination of a toothed distributor-bar to hold the matrices in suspension, a plurality of feed-screws adjacent thereto, and means for rotating said screws and moving them axially.

4. In a distributor in combination with a distributor-bar, rotary feed-screws lying parallel therewith, each carried by said screws to effect their longitudinal movement, and fixed studs or rollers engaging said cams.

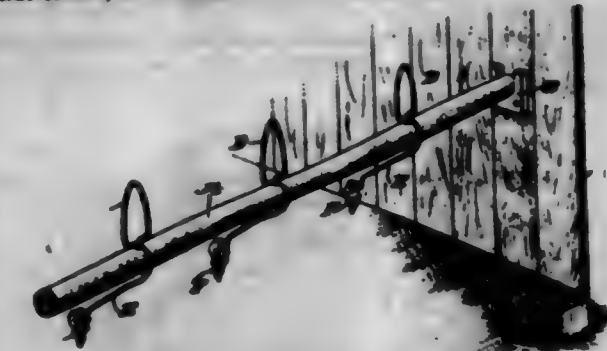
702,784. POULTRY-ROOST. JOHN E. F. EVANS, Wakefield, Wash. Filed Mar. 1, 1902. Serial No. 96,594. (No model.)

Claim.—1. A poultry-roost comprising supporting-bar for the fowl, and spacers secured thereon to keep the fowl apart, each spacer having a depending arm extending lengthwise under the supporting-bar, for supporting a vermin-carrier, as set forth.

2. A poultry-roost having a combination spacer and supporting-arm, the latter depending from the spacer and extending approximately in vertical alignment thereto, the said arm having retaining means for a vermin-carrier, as set forth.

3. A poultry-roost having a combination spacer and supporting-arm,

the latter depending from the spacer and extending approximately in vertical alignment thereto, the said arm having retaining means for a vermin-carrier, as set forth.

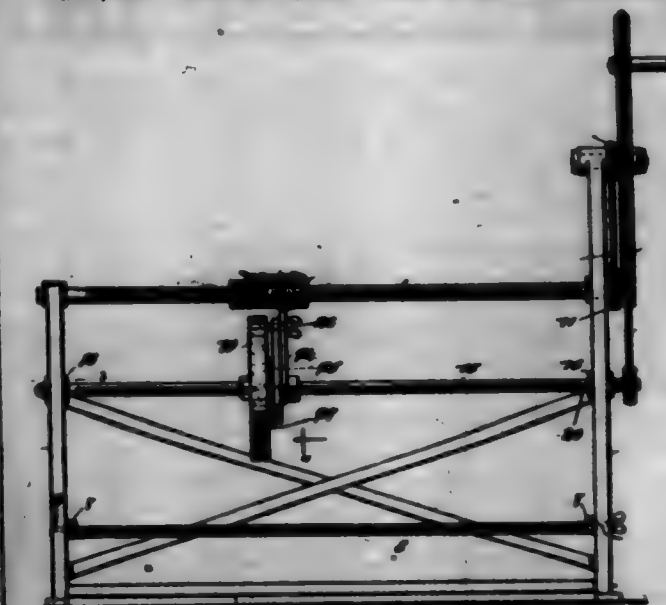


4. A poultry-roost comprising a supporting-bar for the fowl, a spacer provided with means for attaching it to the top of the supporting-bar, and an arm integral with the spacer and depending therefrom, and extending lengthwise under the supporting-bar, as set forth.

5. A poultry-roost comprising a supporting-bar for the fowl, a spacer provided with means for attaching it to the top of the supporting-bar, and an arm integral with the spacer and depending therefrom, and extending lengthwise under the supporting-bar, the arm being corrugated at the free end for retaining a cloth carrying the verminicide, as set forth.

6. A poultry-roost having a combination spacer and supporting-arm formed of a single piece of wire, bent into a loop, one end of which terminates in a point engaging an eye on the other end of the loop, the eye terminating in the depending portion of the supporting-arm, as set forth.

702,785. GRINDING-MACHINE. WILLIAM E. FETTER, Wyomere, Ohio. Filed Mar. 7, 1902. Serial No. 97,000. (No model.)



Claim.—1. A grinding-machine comprising a shaft, a grinding-wheel mounted to rotate with said shaft and to move longitudinally thereof, a feeding-shaft provided with a screw-thread, a sleeve movable on said feeding-shaft, a spring-pressed pin carried by the sleeve for engaging with the screw-thread, and a connection between said sleeve and the grinding-wheel, substantially as specified.

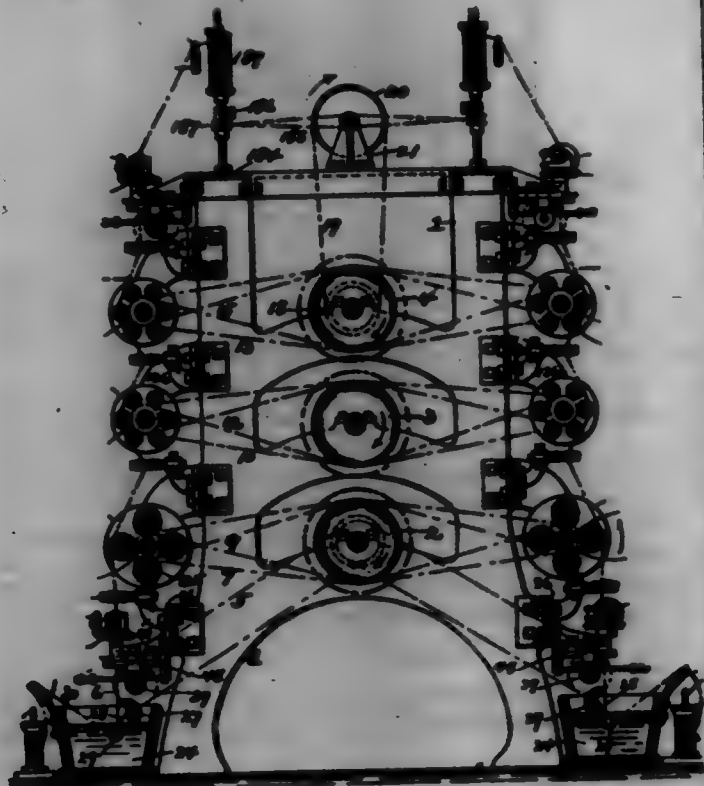
2. A grinding-machine comprising a shaft, a grinding-wheel mounted to rotate with said shaft and movable longitudinally thereof, a threaded feeding-shaft, a sleeve mounted on said feeding-shaft and operated by the thread thereof, a connection between said shaft and the grinding-wheel, an arm carried by said connection, and a spring-pressed finger pivoted to the arm, substantially as specified.

3. A grinding-machine comprising a main frame, a shaft, spring-pressed boxes in said frame and in which the shaft has bearings, a grinding-wheel mounted to rotate with said shaft and having a longitudinal movement thereof, a screw-shaft having bearings in the frame, a sleeve on said screw-shaft, a spring-pressed pin carried by said sleeve and engaging with the thread of the screw-shaft, an arm extended from said sleeve and having engagement with the hub of the grinding-wheel, a guide carried by said arm, and an adjustable frame in the lower portion of the main frame, substantially as specified.

4. A grinding-machine comprising a main frame, a shaft having bearings in said main frame, a grinding-wheel mounted to rotate with said shaft and having a longitudinal movement thereof, a screw-shaft, a sleeve mounted on the screw-shaft and having connection with the grinding-wheel, a pin movable in the sleeve for engaging with the screw-shaft and

means for driving the two shafts, the first-named shaft having a faster movement than the second shaft, substantially as specified.

702,786. THREAD-DRESSING MACHINE. GEORGE A. FRIEDMAN, Pawtucket, N. I. Filed Jan. 7, 1902. Serial No. 33,904. (No model.)



Claim.—1. In a thread-dressing machine, the combination of a trough, a rod properly mounted, a lever centrally mounted loosely on said rod and having a chambered hub provided with a barf on its edge, a fixed collar on said rod and provided with a wedge-shaped projection capable of engagement with said barf, a second fixed collar on said rod and provided with a tubular projection which enters said chambered hub, a spiral spring in the chambered hub surrounding the rod and bearing against the projection of the second-named collar, and a grooved wheel at the lower end of said lever, substantially as described.

2. In a thread-dressing machine, a twister consisting of a vertical shaft properly mounted and having two parallel standards extending up from the upper end thereof, means adapted to rotate said shaft, a beveled gear secured to a horizontal shaft which is mounted in said standard, a roller fastened upon said horizontal shaft and a second roller mounted loosely in said standards and rotatable by friction of the first-named roller and suitable thread-guides, in combination with a fixed beveled gear upon another support in engagement with the first-named beveled gear, said last-named beveled gear and said vertical shaft being radially slotted to allow the passage of a thread to its geometrical center, and means adapted to prevent said thread from having said slots, substantially as specified.

3. In a thread-dressing machine, the combination of a bracket or frame having a tubular bearing, and provided with a V-shaped radial opening at its bottom, a beveled gear fixed upon said tubular bearing and having in its hub a central bore in line with the bore of said bearing, a sleeve or tube loosely mounted in the bore of said beveled gear and bearing and provided with a longitudinal slot and with a handle which projects through the radial opening, a vertical shaft having a radial longitudinal slot and mounted rotatably in said tube or sleeve, a gear upon the lower end of said vertical shaft, a circular disk integral with said vertical shaft upon the upper end thereof, which disk has a radial slot and runs upon the web of said fixed beveled gear, two parallel standards extending up from said disk and integral therewith, which standards have a horizontal slot extending on one side inwardly, a roller fastened on said horizontal shaft, a beveled gear on the end of said horizontal shaft and in mesh with the fixed beveled gear, a second roller mounted rotatably in the slot of said standards and in frictional contact with the first-named roller, a thread-guide on the top of said standards, and gearing rotated by power in mesh with the gear at the bottom of said vertical shaft, substantially as shown.

4. In a thread-dressing machine, the combination of two steam-cylinders rotatable and mounted on a hollow shaft which is adapted to discharge steam therein, a plurality of steam-pipes mounted rotatably at their ends respectively in said steam-cylinders and opening therein, a

cylindrical brush fixedly mounted on each of said steam-pipes, means adapted to rotate said steam-cylinders, and means adapted to rotate each of said brushes and the hollow shafts thereof, substantially as set forth.

5. In a thread-dressing machine, the combination of two steam-cylinders mounted upon a hollow shaft which is adapted to discharge steam therein, means adapted to rotate said steam-cylinders at the same speed, a plurality of steam-pipes mounted at their ends respectively in said steam-cylinders and opening therein, a cylindrical brush fixedly mounted on each of said steam-pipes, and means adapted to rotate each of said brushes and the hollow shafts thereof at a greater speed than that of the said steam-cylinders, substantially as described.

6. In a thread-dressing machine, the combination of a frame, two brackets secured upon the frame and each having a tubular bearing, two steam-cylinders one of which has a short tubular hub and the other of which has a long tubular hub mounted in one of said bearings, a pulley on said long cylindrical hub and adapted to be rotated by a belt, a tubular shaft connecting said two steam-cylinders, a shaft contained in the tubular shaft last named and having its center solid but its two ends tubular with each of said tubular ends provided with a hole adapted for the passage of steam between it and the adjacent steam-cylinder, a plurality of tubular shafts mounted rotatably in said two steam-cylinders and each opening at or near its end into said two steam-cylinders, a cylindrical brush fixedly mounted on each of said tubular shafts, a pulley having a long tubular hub by which it is mounted rotatably in the other of said bearings and through which one of the tubular ends of the second-named shaft extends, which pulley-hub enters into the adjacent steam-cylinder, a belt to rotate the last-named pulley, a gear upon the lower end of said pulley-hub and fastened thereto, a gear having a diameter less than that of the last-named gear fastened upon the end of each of said plurality of tubular shafts of the brushes and engageable with the gear which is upon the lower end of said pulley-hub, and a steam-pipe connected with each tubular end of the second-named shaft, substantially as specified.

7. In a thread-dressing machine, the combination of two rotatable disks mounted upon a proper support and a plurality of rollers mounted at their ends respectively on said disks, levers having tubular hubs by which they are mounted fast on said rollers, respectively, means to rotate said disks, and means to rotate said rollers, substantially as shown.

8. In a thread-dressing machine, the combination of two steam-cylinders rotatable and mounted on a tubular shaft which is adapted to discharge steam therein, a plurality of tubular shafts mounted rotatably at their ends in said steam-cylinders and opening therein, levers having tubular hubs by which they are mounted fast on said tubular shafts last mentioned, respectively, means adapted to rotate said two steam-cylinders and means adapted to rotate said last-named tubular shafts, substantially as set forth.

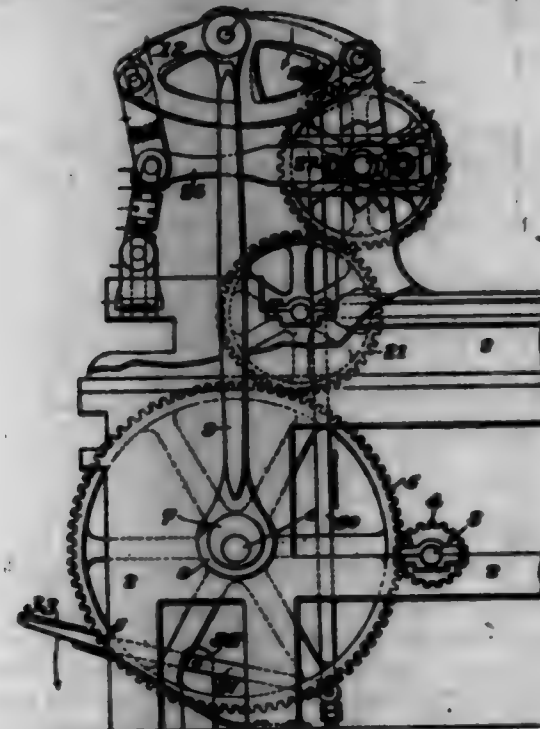
9. In a thread-dressing machine, the combination of two steam-cylinders rotatably mounted on a tubular shaft which is adapted to discharge steam therein, means adapted to rotate said two steam-cylinders at the same speed, a plurality of tubular shafts mounted rotatably at their ends in said steam-cylinders and opening therein, levers having tubular hubs by which they are mounted fast upon said tubular shafts last mentioned, respectively, and means adapted to rotate each of said levers-shafts at a greater speed than that of the said steam-cylinders, substantially as specified.

10. In a thread-dressing machine, the combination of a frame, two brackets secured upon said frame and each having a tubular bearing, two steam-cylinders one of which has a short tubular hub and the other of which has a long tubular hub mounted in one of said bearings, a pulley on said long tubular hub and adapted to be rotated by a belt, a tubular shaft connecting said two steam-cylinders, a shaft contained in the tubular shaft last mentioned and having its center solid but its two ends tubular with each of said tubular ends provided with a hole adapted for the passage of steam between it and the adjacent steam-cylinder, a plurality of tubular shafts mounted rotatably in said two steam-cylinders and each opening at or near its end into said two steam-cylinders, levers having tubular hubs by which they are mounted fast upon the tubular shafts last mentioned, respectively, a pulley having a long tubular hub by which it is mounted rotatably in the other of said bearings and through which one of the tubular ends of the second-named shaft extends, which pulley-hub enters into the adjacent steam-cylinder, a belt to rotate the last-named pulley, a gear upon the lower end of said pulley-hub and fastened thereto, a gear having a diameter less than that of the last-named gear fastened upon the end of each of said levers-shafts and engageable with the gear which is upon the lower end of said pulley-hub, and a steam-pipe connected with each shaft, substantially as specified.

11. In a thread-dressing machine, the combination of thread-twisting, thread-brushing, thread-winding and thread-winding devices, with a traversing mechanism for the thread-winding means consisting of a horizontal traverse-roll having thread-eyes contiguous to the winding-spools, a driving-pulley deriving motion and power from the main shaft of the

machine, a shaft properly mounted and rotated by said pulley, a beveled gear mounted on each end of said shaft, a traverse-shaft mounted at each end of the machine, a beveled gear on each traverse-shaft meshing with the first-named beveled gear, a crank-arm on the end of each traverse-shaft, a guide-rod extending from each end of the traverse-roll, two vertical standards on the top of the machine, each provided with a vertical opening or passage through which one of said guide-rods extends, and a link pivotally connected with the end of the adjacent crank-shaft and also pivotally connected with the end of the adjacent guide-rod, substantially as specified.

702,787. PLATE-PRINTING AND ENDOSSING PRESS. WILLIAM WILLARD, COLUMBIA, Pa. Assignor, by direct and mesne assignments, to Pullard Manufacturing Company, Philadelphia, Pa., a Corporation of New Jersey. Original application filed Mar. 27, 1901. Serial No. 33,922. Divided and this application filed May 31, 1901. Serial No. 33,474. (No model.)



Claim.—1. In a plate-printing and endossing press, a die-plunger, a lever, connections between the lever and plunger, an arm attached to said connections, means for imparting movement to said lever, and means for imparting motion to said arm, whereby a quick movement will be imparted to said plunger.

2. In a plate-printing and endossing press, a die-plunger, a lever, connections between the lever and plunger, a rod connected with said lever, an eccentric contacting with said rod adapted to impart movement thereto, an arm attached to said connections, and a cam adapted to operate said arm.

3. In a plate-printing and endossing press, a die-plunger, connections between said plunger and a suitable support, an arm suitably connected with said connections, a shaft, means on said shaft for imparting motion to said arm, a gear on said shaft, and means for imparting motion from a main gear, whereby the first-named gear will move faster than the main gear.

4. In a plate-printing and endossing press, a die-plunger, connections between the same and a suitable support, an arm connected with said connections, rollers on said arm, a shaft, a cam on said shaft adapted to contact with said rollers, a gear on said shaft, an intermediate gear meshing with said gear, and a main gear meshing with said intermediate gear, whereby said first-named gear-shaft is adapted to revolve faster than the said main gear.

5. In a plate-printing and endossing press, a die-plunger, a lever, connections between said plunger and lever, a main gear, means for imparting motion thereto, a main shaft, an eccentric thereon, a rod connected with said eccentric, a lever, an arm connected with said connections, rollers on said arm, a shaft, a cam thereon adapted to contact with said rollers, and a gear mounted on said shaft adapted to impart motion thereto.

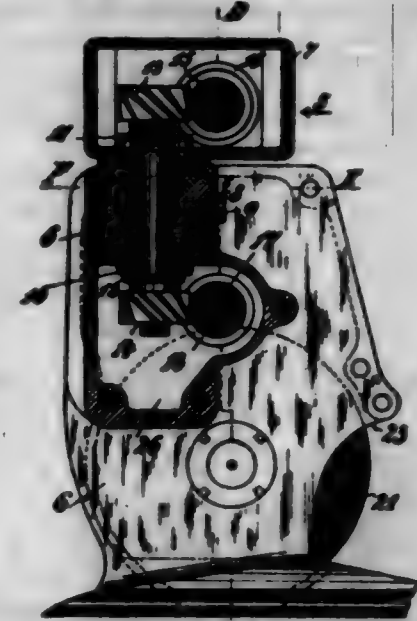
6. In a plate-printing and endossing press, a die-plunger, a lever, connections between said plunger and lever, a rod connected with said lever, means for imparting movement to said rod, an arm connected with said connections, rollers on said arm, and a cam adapted to engage said rollers and operate said arm.

7. In a plate-printing and endossing press, a die-plunger, a lever, connections between said plunger and lever, means for operating said le-

ver, means intermediate said plunger and lever, whereby an additional motion of quick nature may be imparted to said plunger.

8. In a plate-printing and endossing press, a lever, a die-plunger, means for imparting motion to said lever, a yielding connection intermediate of said plunger and lever, and means for imparting proper motion to said connection, whereby an additional movement of quick nature will be imparted to said plunger.

702,788. CLOTH-CUTTER. DANIEL GUNTER, Berlin, Germany. Filed Feb. 10, 1902. Serial No. 33,430. (No model.)



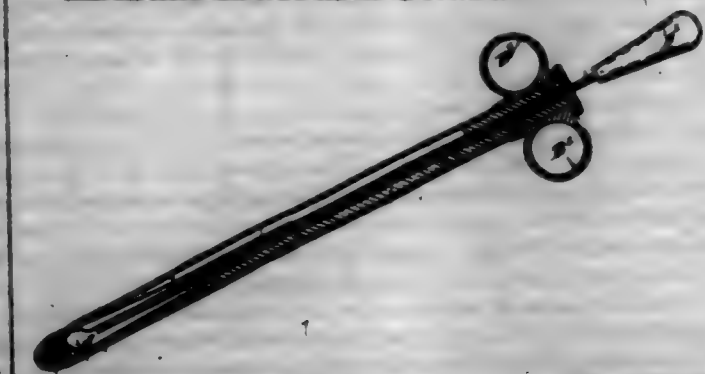
Claim.—1. In a machine of the class described, the combination of a lower casing, a cutter mounted therein, an upper casing rotatably mounted upon the lower casing, a driving-shaft mounted in the upper casing, and connecting mechanism between the driving-shaft and the cutter.

2. The combination of a lower casing, an upper casing, a driving-shaft mounted in the upper casing, a shaft 17, mounted in the lower casing, a vertical shaft connecting the driving-shaft and the shaft 17, a shaft 20, a cutter upon the shaft 20, and gearing connecting the shaft 17 and the shaft 20.

3. The combination of a lower casing provided with an opening, an upper casing mounted upon the lower casing and provided with a downwardly-extending hollow pivot, which projects into the opening in the lower casing, a vertical shaft mounted within the hollow pivot, a driving-shaft connecting with the upper end of the vertical shaft, a cutter mounted in the lower casing, and connections between the vertical shaft and the cutter.

4. The combination of a lower casing, provided with an opening, an upper casing mounted upon the lower casing, and provided with a downwardly-extending hollow pivot, a vertical shaft mounted within the hollow pivot, a hubbing also secured within the opening of the lower casing around the vertical shaft, a driving-shaft mounted within the upper casing and connected to the vertical shaft, a shaft 17 mounted in the lower casing and connected to the vertical shaft, a spur-wheel carried by the shaft 17, a shaft 20, a spur-wheel smaller than the one upon the shaft 17, mounted upon the shaft 20, and a cutter also mounted upon the shaft 20.

702,789. DILATOR. CHARLES G. GIBSON, Sioux City, Iowa. Filed Mar. 20, 1902. Serial No. 33,105. (No model.)



Claim.—1. A dilator for surgical purposes, comprising a tube open at both ends, a plurality of segments or bars, the bore of the said tube being widened at one end, a plunger movable lengthwise in the tube and arranged to engage the said widened end of the body of the tube to expand said tube, and an expansible sheath in which the said tube is housed.

2. A dilator for surgical purposes, comprising a tube split so as to consist of a plurality of segments or bars, the bore of the said tube being gradually widened in direction of one end, a plunger movable lengthwise in the tube and arranged to engage said widened end and the body of the tube to expand said tube, a nut held to revolve at the outer end of the tube and engaging a threaded portion of the plunger-rod, and an expandable sheath in which the said tube is inclosed.

3. A dilator for surgical purposes, comprising a split tube, a plunger movable lengthwise in the tube and arranged to expand the same, means for actuating the plunger, and an expandable sheath in which the said tube is inclosed.

4. A dilator for surgical purposes, comprising a split tube having its bore tapered in direction of its forward end, the diameter of the bore of the said tube at its forward end being greater than at any other point throughout its length, a plunger movable lengthwise in the tube and arranged to expand the same, means for actuating the plunger, and an expandable sheath in which the said tube is inclosed.

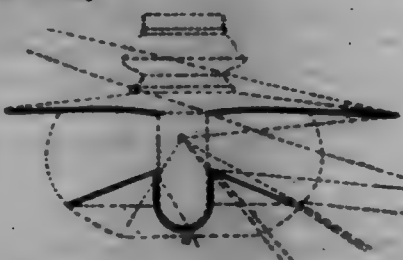
5. A dilator for surgical purposes, comprising a split tube, a handle at the outer end of said tube, a nut mounted to turn on the tube adjacent to the handle, a plunger mounted to slide within the tube and adapted to expand the same, said plunger having a screw-threaded rod extending through the nut, and an expandable sheath in which said tube is inclosed.

702,790. MUSTACHE-GUARD. RICHARD C. GLADWIN, Oakland, Cal. Filed Nov. 20, 1901. Serial No. 93,369. (No model.)



Claim.—A device of the character described comprising two comb members flexibly connected together at their inner adjacent ends, and guard-plates, of approximately the same size as the comb members, flexibly connected to the bottoms of said comb members and adapted to fold upwardly thereupon; substantially as described.

702,791. ELECTRIC-ARC-LAMP REFLECTOR-SHADE. WISDOM E. COLLMANSON, Lafayette, Ind. Filed Sept. 13, 1900. Serial No. 30,426. (No model.)



Claim.—1. The combination with a non-flaming source of light, of a reflector, the reflecting-surface of which is disposed with reference to the light source so as to receive the light-rays emanating therefrom within given angles to the horizontal, and uniformly to reflect the same to points within given limits, irrespective of the vertical shifting of the light source, substantially as described.

2. The combination with a non-flaming source of light, of a reflector, the reflecting-surface of which is disposed at an angle of approximately four degrees to the horizontal and so arranged relative to the light source that it will receive the light-rays emanating therefrom, within given angles to the horizontal, and uniformly reflect the same to points on the ground within given limits, irrespective of the vertical shifting of the light source, substantially as described.

3. The combination with a non-flaming source of light, of a reflector, the reflecting-surface of which is so disposed with reference to the light source that it will receive the light rays emanating therefrom between the angles of twenty-five degrees and forty degrees to the horizontal and uniformly reflect the same to points on the ground between fifty feet and one hundred feet distant, irrespective of the shifting of the light source within the usual limits, substantially as described.

4. The combination with a non-flaming source of light, of reflecting-surfaces arranged at such an angle as uniformly to receive the light-rays emanating from the light source within given angles in the horizontal and to reflect the same within given limits, irrespective of the shifting of the light source within a vertical plane, substantially as described.

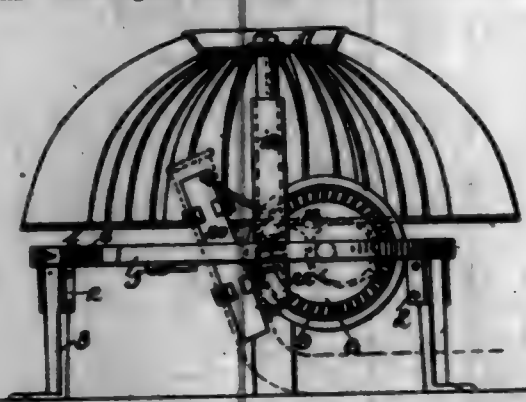
5. A reflector formed with a reflecting-surface adapted to direct light-rays in a downward and outward direction, and having a central opening, the said opening being provided with a covering of translucent material,

whereby light-rays from above may be diffused to points beneath the reflector, substantially as described.

6. The combination with a source of light, of a reflecting-surface so arranged relative to the light source as to distribute the strongest light-rays to points distant, and having a central opening covered with a translucent medium, whereby a portion of the light-rays will be evenly diffused, thus reducing the intensity of any shadow of the reflecting-surface, substantially as described.

7. The combination with a source of light, of an upper and lower reflecting-surface, the upper reflecting-surface being so arranged with relation to the light source as to reflect the strongest upper light-rays to points distant and the weaker light-rays to points comparatively near, the lower reflecting-surface being so arranged relative to the light source as to reflect the strongest lower light-rays to points distant, and having a central opening covered with a translucent medium, whereby the light-rays from above will be evenly diffused to points more immediately beneath, and means for supporting said reflecting-surfaces relative to the light, all co-operating to effect a reduction and concentration of the light-rays within given limits and to reduce the intensity of any shadows from parts of the apparatus, substantially as described.

702,792. LAWN-SPRINKLER. HOWARD H. GRAY, Huntington, Ind. Filed Aug. 14, 1901. Serial No. 73,081. (No model.)



Claim.—1. A sprinkler comprising an annular supporting-frame, a rotatable frame supported thereby, a propeller-wheel supported by said rotatable frame, an intermediately-pivoted hose-supporting clamp adapted to travel around said propeller-wheel, and means carried by the rotatable frame for oscillating said hose-clamp, substantially as described.

2. A sprinkler comprising an annular supporting-frame, a propeller-wheel supported by the inner periphery of said supporting-frame, a rotatable frame mounted therein, a centrally-located vertical shaft carried by said rotatable frame, a worm-gear carried by the rotatable frame and driven by said shaft and meshing with the gear on the supporting-frame, a propeller-wheel carried by the upper end of said shaft, and a hose-clamp carried by said rotatable frame and adapted to travel around said propeller-wheel, substantially as described.

3. A sprinkler comprising an annular stationary member having cage upon its inner periphery, a revolvable member carrying a worm-gear in engagement with the said cage, a revolvable shaft being operatively connected with the worm-gear, substantially as described.

4. A sprinkler comprising an annular horizontal stationary member having cage upon its inner periphery, an annular revolvable member supported thereby, a worm-gear carried by the revolvable member, a vertically-arranged shaft supported by the revolvable member, a propelling member connected with the said shaft, the shaft and worm-gear being operatively connected, and the worm-gear in engagement with the said cage, of the stationary annular member, and a nozzle or hose support, substantially as described.

5. A sprinkler comprising an annular horizontal stationary member having cage upon its inner periphery, a circular horizontal revolvable member supported thereby, a vertically-arranged worm-gear carried by the revolvable member and meshing with the said cage, a vertically-arranged revolvable shaft carried by the revolvable member and having a worm-gear in engagement with the said vertically-arranged wheel, a propeller-wheel attached to said shaft, and an eccentrically-arranged hose clamp or support carried by the said revolvable member, substantially as described.

6. A sprinkler comprising an annular horizontal stationary member having cage upon its inner periphery, a revolvable member carrying a worm-gear in engagement therewith, a propelling member carried by the revolvable member and operatively connected with the said worm-gear, and an eccentrically-arranged hose or nozzle carrier connected with the said revolvable member, substantially as described.

7. A sprinkler comprising a supporting member, a rotatable member supported thereby, a propeller-wheel carried by the rotatable member, a worm-gear in engagement with the supporting-frame, means carried by

one side of said worm-gear by means of which it is driven, a hose-supporting clamp carried by said member, and means carried by the opposite side of said worm-gear for oscillating said hose-clamp, substantially as described.

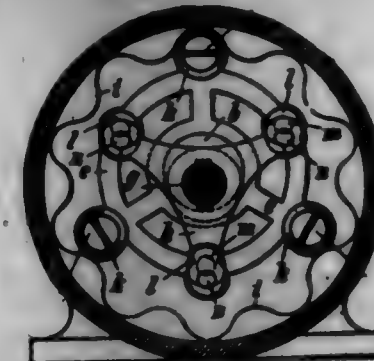
8. A sprinkler comprising an annular supporting member, a revolvable member, a wheel journaled therein and having a worm, engaging cage formed upon the inner periphery of the annular member, a vertically-arranged shaft carrying a worm in engagement with said cage carried by the side of said wheel, a propeller-wheel carried by the upper end of said shaft, a hose-clamping member pivotally connected to said revolvable frame, and an eccentric connected in the side of said wheel and connected in the hose-clamping member, substantially as described.

9. A sprinkler comprising an annular horizontal stationary member having cage upon its inner periphery, a circular horizontal revolvable member supported thereby, a vertically-arranged wheel carried by the revolvable member and having a worm-gear meshing with the said cage, a vertically-arranged revolvable shaft carried by the revolvable member and having a worm-gear in engagement with the cage carried by one side of said vertically-arranged wheel, a propeller-wheel attached to the upper end of said shaft, an eccentrically-arranged pivoted hose-clamp, and an eccentric carried by the opposite side of said vertically-arranged wheel and connected to the said hose-clamp, substantially as described.

10. A sprinkler comprising a supporting-frame, a rotatable frame supported thereby, a propeller-wheel carried by the rotatable member, an intermediately pivoted hose-clamp, and means operated by the propeller-wheel for revolving the rotatable member and oscillating said hose-clamp, substantially as described.

11. A sprinkler comprising an annular supporting-frame, a rotatable member supported thereby, a centrally-located propeller-wheel carried by the said rotatable member, means operated by the said wheel for engaging the inner periphery of the stationary member and rotating the revolvable member, an intermediately-pivoted hose-clamp carried by the revolvable member, and means operated by the propeller-wheel for oscillating said hose-clamp, substantially as described.

702,798. DIFFERENTIAL GEARING. CARL E. G. HANSEN, Bergedorf, near Hamburg, Germany. Filed Dec. 3, 1900. Serial No. 31,243. (No model.)



Claim.—1. The combination with a driving-shaft, an eccentric thereon, a wheel on said eccentric and rollers carried at the periphery of said wheel; of an internally-toothed drum larger than said wheel, the rollers of which are arranged to engage the teeth on said drum during the revolution and rotation of the wheel, a driven shaft concentric with the driving-shaft, a spider thereon and a link connection between said spider and wheel, substantially as and for the purpose set forth.

2. The combination with a driving-shaft, an eccentric thereon, a wheel on said eccentric and rollers carried by the wheel; of a drum, provided with an undulating inner surface, larger than said wheel, the rollers of which are adapted to travel over said undulating surface, a driven shaft concentric with the driving-shaft, a spider thereon and a connection between the wheel and spider capable of revolving and rotating, substantially as and for the purpose set forth.

702,794. ANTI-SLIPPING PAD FOR HORSE FEET. THOMAS F. HAYES, New York, N. Y. Filed Dec. 3, 1901. Serial No. 94,517. (No model.)

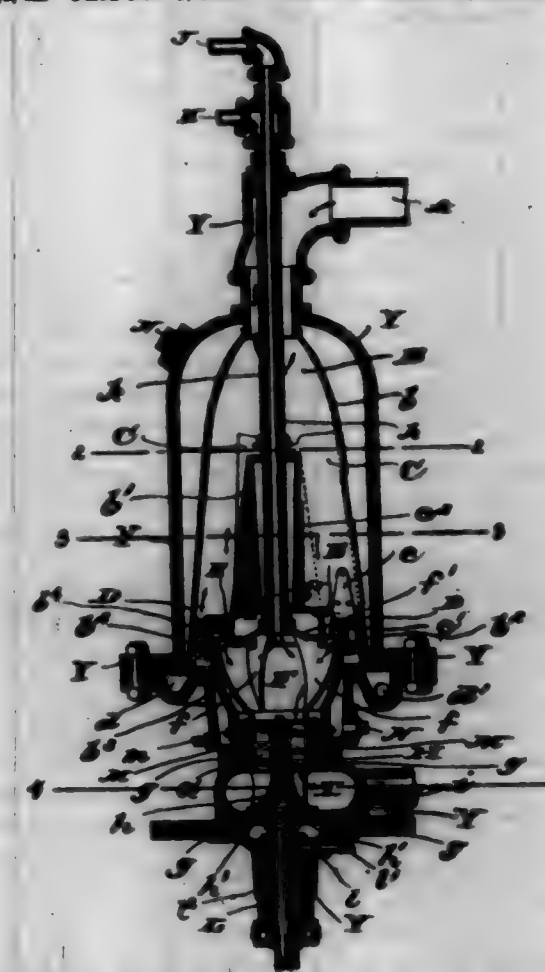


Claim.—1. An anti-slipping pad for horse feet, the same comprising a base of soft-leather or like soft material having openings therein,

headed pins studding the base, a filler of rubber or like cushioning material overlying the base and secured thereto near its outer edge leaving the intermediate portion free to move according as the air is forced to enter or leave by way of the said openings in the base, a protective piece of canvas or like textile placed over the filler, and means for securing the pad to the horse's foot, substantially as specified.

2. An anti-slipping pad for horse feet, the same comprising a base of soft-leather or like soft material having openings therein, headed pins studding the base, a filler of rubber or like cushioning material overlying the base and secured thereto and having the side next to the base ribbed, a protective piece of canvas or like textile placed over the filler, a flap projected from the rear of the base to extend upward in the rear of the horse's foot, and crossed straps having connection with the front of the base and the rear corners of the said flap, substantially as set forth.

702,795. CENTRIFUGAL SEPARATOR. EDGAR V. BOLAND, Chicago, Ill. Filed Nov. 1, 1900. Serial No. 735,495. (No model.)



Claim.—1. A centrifugal separator comprising a revolvable drum having at one end an inlet, a centrally-arranged hub, a ring surrounding said hub and separated from said hub and the interior of the drum to form respectively inner and outer outlet-passages, an outlet-chamber in communication with the inner passage, and a surrounding chamber in communication with the outer outlet-passages, substantially as described.

2. A centrifugal separator comprising a revolvable drum having at one end an inlet, a centrally-arranged hub, a ring surrounding said hub at the opposite end of the drum, outlet-passages located respectively at the inner and outer edges of the ring, a chamber below the ring in communication with the inner outlet, a member in said chamber adapted to arrest the motion of the liquid, said chamber having upwardly and downwardly extending outlets, substantially as described.

3. A centrifugal separator comprising a revolvable drum having at one end an inlet, the opposite end having relatively inner and outer outlet-passages, a member provided with an outlet-passages having a forcing-worm in communication with said inner outlet-passages, substantially as described.

4. A centrifugal separator comprising a revolvable drum having at one end an inlet-passages, the opposite end of the drum having relatively inner and outer outlet-passages, a stationary chamber in communication with the inner outlet, stationary wings in said chamber, and the chamber having oppositely-extending outlet-passages, substantially as described.

5. A centrifugal separator comprising a revolvable drum having at one end an inlet-passages and at its opposite end relatively arranged inner and outer outlet-passages, a centrally-arranged hollow hub, a chamber at one end of the hub in communication with the inner outlet-passages, one

end of the hollow hub in communication with said chamber and the opposite end of the hub having a communication extending outside of said drum, substantially as described.

6. In combination, a revoluble drum having a hub, concentric pipes extending through the hub, a chamber below the hub in communication with the lower end of the inner pipe, the outer pipe having passages at the upper end of the drum and in communication therewith, the upper ends of the pipes extending outside of the drum, substantially as described.

7. In combination, a revoluble drum having a central hub, the outlet end of the drum having outlet-passages located, respectively adjacent the hub and the inner side of the wall of the drum, a shell located below the hub and having open ends, the upper end of the shell in communication with the inner outlet-passages, and a casing surrounding the shell and communicating with the outer outlet-passages, substantially as described.

8. In combination, a revoluble drum, a bowl-shaped extension for the lower end of the drum, an annular bottom supported by the said bowl-shaped extension, the said bottom having peripheral outlet-passages, substantially as described.

9. In combination, a revoluble drum having at its lower end a bowl-shaped extension, the exit end of the drum connected with said extension, the extension constituting a chamber with open upper and lower ends, the exit end of the drum having concentric annular outlet-passages, the inner outlet-passages in communication with the upper end of said chamber, and a worm connected with said extension and located in the lower open end thereof.

10. In combination, a revoluble drum, a centrally-arranged rotatable hub, laterally-extending partitions connecting the said hub and drum, a casing surrounding the said drum the upper end of the drum having a drum inlet-opening, the said casing provided with an inwardly-extending projection engaging the wall of the drum inlet-opening, a ring-like bottom for the said drum having its outer periphery out of contact with the inner side of the said drum, and its inner periphery out of contact with the said hub, constituting concentric annular outlet-passages, a bowl-shaped extension at the lower end of the drum and connected therewith through the medium of the said bottom, a bottom for the said opening having an annular passage surrounding the said bowl-shaped extension of the drum and in communication with the outer annular outlet-passages substantially as described.

11. In combination, a revoluble drum having a central hub with a central non-rotary outlet-pipe extending through the said hub and ending at a point below the same, a chamber located below the hub and in communication with the said pipe, and wings located in said chamber and connected with the said non-rotary pipe, substantially as described.

12. In combination, a hub, a concentrically-arranged drum having an exit end, laterally-extending partitions connecting the hub and the drum and serving to support the latter, the exit end of the drum disconnected with the wall thereof, said exit end having respectively inner and outer passages, the drum having an extension provided with a supporting-bearing, the said extension being out of contact with the wall of the said drum, substantially as described.

702,796. SHOCK-LOADING APPARATUS. AARON C. HOUTSMA, Iowa. Filed Dec. 11, 1901. Serial No. 95,481. (No model.)

Claim.—1. A portable loading apparatus comprising a wheeled truck, a reversible derrick having the extendible and non-extendible legs pivoted to the truck and adapted to be shifted from side to side thereof, means for extending or contracting the extendible leg and thereby imparting the reversible or shiftable adjustment to the derrick, and a hoisting mechanism mounted on the derrick and shiftable therewith from one side to the other of the truck.

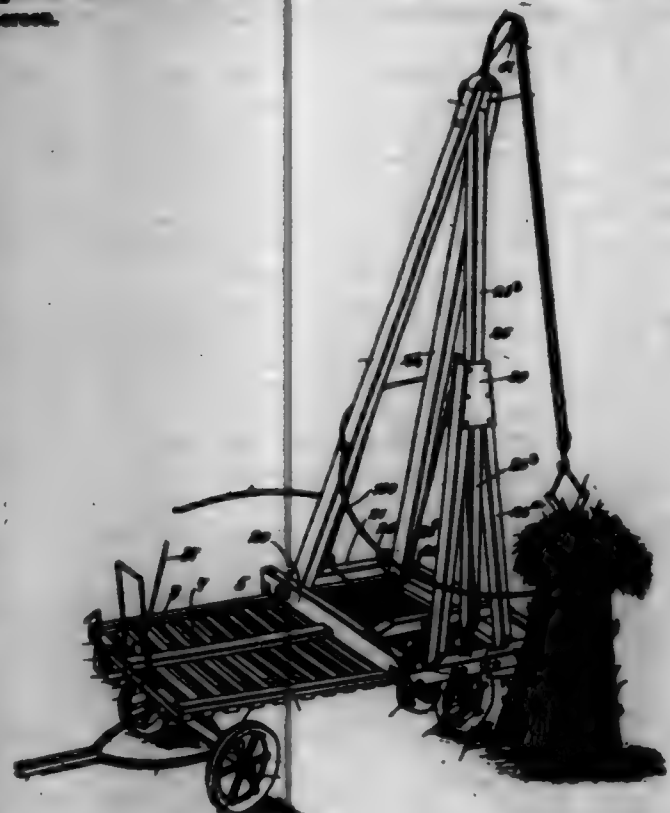
2. A portable loading apparatus comprising a truck, a reversible derrick having its members pivoted to the truck and shiftable from side to side thereof, means for giving the shiftable or reversible adjustment to said derrick, and a hoisting-cable guided on the derrick for adjustment therewith and operable by the advancing movement of the apparatus.

3. A portable loading apparatus comprising a truck, a derrick having its legs pivoted to the truck, means for adjusting the derrick and shifting it from one side to the other of the truck, an arm mounted on the derrick and shiftable therewith to project from either side of the truck and a hoisting-cable guided by the arm and operable by the advancing movement of the apparatus.

4. A portable loading apparatus, comprising a wheeled truck, a reversible derrick mounted thereon to swing from one side to the other of the truck, a crank supported on the derrick to be shiftable therewith and also capable of an independent movement thereon, and a hoisting-cable operatively related to the crane and adapted to be operated by the travel of the apparatus.

5. A portable loading apparatus provided with a reversible derrick, a crane carrying a sheave and mounted on the derrick to be adjusted there-

with and also capable of an independent movement thereon, and a hoisting-cable attached at one end to said crane and reeved through the sheave thereon.



6. A portable loading apparatus, comprising a wheeled truck, a derrick reversibly mounted on said truck for adjustment from side to side thereof, a yieldable or elastic crane-arm mounted on said derrick for adjustment therewith, and a hoisting-cable operatively related to said crane-arm.

7. A loading apparatus comprising a wheeled truck, a derrick reversibly mounted on said truck to be shiftable to either side of the same and provided at its upper end with a bearing, an arched crane swivelled in said bearing of the derrick and adapted to project therefrom in either of the operative positions of the derrick, and a hoisting-cable guided by said crane.

8. A portable loading apparatus, comprising a wheeled truck, a derrick reversibly mounted thereon, an arched yieldable crane-arm swivelled on the upper portion of the derrick and adapted to be shifted therewith and capable of a limited elastic movement under the strain of the load, and a hoisting-cable connected to and guided by said crane-arm.

9. In a loading apparatus, the combination of a portable truck, a shiftable derrick mounted thereon and adapted to assume an operative position on either side of said truck, a swivelled crane mounted on the derrick to be shiftable therewith and arranged to project beyond one side or the other of the platform, and a hoisting-cable extended by the advancing movement of the apparatus.

10. In a loading apparatus, the combination of a wheeled truck, a base-frame mounted on the truck and extending beyond the opposite sides thereof, a shiftable derrick having its legs pivoted on the truck, a crane carried by said derrick, and a hoisting-cable operable by the advancing movement of the apparatus.

11. A portable loading apparatus, comprising a wheeled truck, a shiftable derrick pivotally supported thereon, an arched crane-arm mounted at the head of the derrick for adjustment thereon and adapted to project beyond the truck in either adjusted position of said derrick, guide-sheaves attached to the crane-arm and to the derrick, and a hoisting-cable attached to the crane-arm and reeved through the guide-sheaves.

12. A portable loading apparatus, comprising a wheeled truck, a derrick reversibly mounted thereon to swing from side to side and having pivoted legs and an extendible leg, devices actuated by the travel of the truck and connected operatively with the extendible leg, whereby the members of said leg may be positively moved with relation to one another, and a hoisting mechanism supported by and adjustable with said derrick.

13. A portable loading apparatus, comprising a wheeled truck, a derrick reversibly mounted thereon and having pivoted legs and an extendible leg connected with said pivoted legs, a shaft adapted to be driven by the travel of the truck, a winding-spool on said shaft, and connections between said extendible leg and said spool, whereby the derrick may be shifted in one direction by power device and is adapted to be shifted by gravity in the opposite direction.

14. A loading apparatus comprising a wheeled truck, a derrick reversibly mounted thereon and having an extendible leg, a shaft adapted to be rotated by the travel of the truck, a winding-spool loose on said

shaft, a clutch adapted to make the spool fast with said shaft, and a cable connecting the extendible leg and said spool.

15. In a loading apparatus, the combination of a shiftable derrick having pivoted and extendible legs, power connections for positively extending said legs, and a pull-cable having operative connection with one member of the extendible leg.

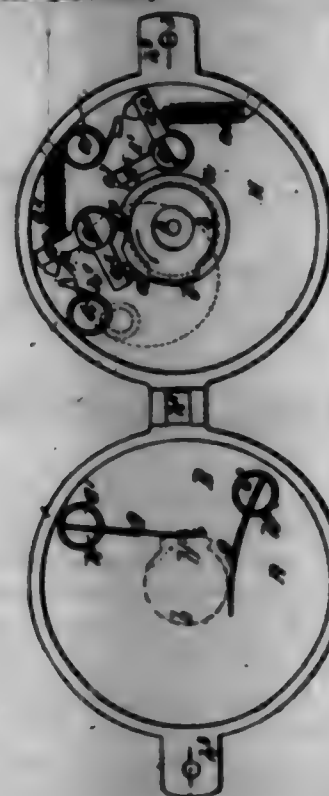
16. In a loading apparatus, the combination of a wheeled truck and a derrick thereon, of a hoisting-cable, an endwise-adjustable shaft on the truck, a pulley mounted idly on said shaft and adapted to be driven from one of the truck-wheels, a drum on said shaft, and means whereby the shaft and the drum may be thrown into and out of operation.

17. In a loading apparatus, the combination of a truck, a shiftable derrick, a main shaft, clutch-controlled device driven from said shaft and operatively related to the derrick for shifting the latter, a hoisting-cable, and clutch-controlled device driven operatively related to said shaft and independent of the derrick-shifting mechanism for operating the hoisting-cable.

18. In a loading apparatus, the combination of a truck, a shiftable derrick erected thereon, a hoisting mechanism supported by said derrick, and a guard curved outwardly from and beyond said derrick and projecting into the path of the load adapted to be elevated by the hoisting mechanism.

19. A loading apparatus, comprising a wheeled truck having a platform, and a base-frame on said platform, a derrick mounted on the base-frame, guards arranged at the corners of the base-frame, and a hoisting mechanism supported by the derrick.

702,797. MEANS FOR FACILITATING THE STARTING OF GAS OR SIMILAR ENGINES. JAMES HUTTON, Chamberlain, England, assignor to Messrs. Limited, London, England. Filed May 16, 1902. Serial No. 102,797. (No model.)



Claim.—1. In a combustion-engine having a plurality of working cylinders, the combination with said cylinders of an electrical starting device comprising separate circuits for the several cylinders, said circuits being provided with breaks adapted to be successively closed by the engine when working, and also with breaks adapted to be closed simultaneously with each other by hand.

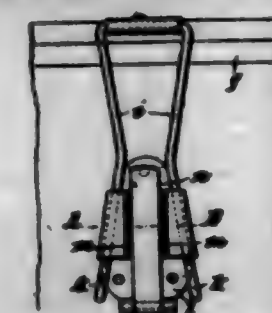
2. In a combustion-engine having a plurality of working cylinders, the combination with said cylinders and the crank-shaft of an electrical starting device comprising a corresponding number of circuits each of which is broken at two points, means, co-operating with the crank-shaft, for successively closing said circuits at one broken point in each, and hand-operated means for closing simultaneously at the second broken point in each all of said circuits, substantially as and for the purpose specified.

3. In a combustion-engine having a plurality of working cylinders, the combination with said cylinders and the crank-shaft of an electrical starting device comprising circuit-breakers that are in communication with the respective cylinders and each broken at two points, an individual stationary contact-piece in each circuit at one of said broken points, a rotary contact-piece co-operating with the crank-shaft and adapted to make contact successively with said stationary contact-pieces, and a hand-operated

circuit-closer common to all of said circuits and located at the second broken point in each so as to close said second broken points and thus complete one of the circuits, substantially as described.

4. In a combustion-engine having a plurality of working cylinders, the combination with said cylinders and the crank-shaft of a corresponding number of circuit-breakers communicating therewith, said circuits each being broken at two points, a terminal in each circuit at one of said points, an elastic blade contact-piece carried by each of said terminals, a common rotary contact-piece in said circuits, said rotary contact-piece being adapted to co-operate with the crank-shaft so as to successively make contact with the stationary contact-pieces, and a push-commutator to all said circuits and adapted to close the said circuits simultaneously at the second broken point in each for the purpose of completing one of the circuits, substantially as described.

702,798. MIX-FASTENER. JOHAN H. & JOHANSSON, Stockholm, Sweden. Filed Mar. 17, 1902. Serial No. 94,478. (No model.)



Claim.—In a fastening device, the combination with a pivoted loop composed of two spring-arms having loops formed on their free ends, of a catch formed with a base-plate having one bent inwardly and then outwardly at an angle to the base and adapted to receive both arms of the loop above the loops, and a tongue hinged to said base-plate adapted to be projected in the horizontal plane of the arms of the loop, for the purpose specified.

702,799. PLAYING-BALL. ELEANOR KEMPWELL, Boston, Mass., assignor to the Kempwell Manufacturing Company, a Corporation of New Jersey. Filed Apr. 18, 1902. Serial No. 102,008. (No model.)



Claim.—1. A playing-ball comprising a cloth-covered sphere of plastic material, said cover consisting of telescoped hemispherical sections cemented together and embedded in the plastic material and having apertures into which the plastic material protrudes.

2. A playing-ball comprising a cloth-covered solid sphere of gutta-percha, said cover consisting of telescoped hemispherical sections and being embedded in the gutta-percha and having apertures into which the gutta-percha protrudes.

702,800. ARTIFICIAL EAR-DRUM. ULRICH KLEINER, Brookline, Mass. Filed Aug. 6, 1901. Serial No. 71,597. (No model.)



Claim.—1. An artificial ear-drum consisting of a cup, with a flat end, composed of fibrous absorbent material compressed with wax and adapted by its shape and proportion to penetrate and fit the auditory canal.

2. An artificial ear-drum consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum, and composed of fibrous absorbent material, the apex whereof is of waxy material.

3. An artificial ear-drum, consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum, and composed of fibrous absorbent material having smooth waxy surface.

4. An artificial ear-drum, consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum and composed of fibrous absorbent material, reinforced at the apex by a sheet of woven material, the whole compressed into an integral structure with wax and presenting a smooth waxy surface.

5. An artificial ear-drum, consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum, and made of a thin sheet of absorbent cotton, compressed with wax and presenting a smooth waxy surface.

6. An artificial ear-drum, consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum and made of a thin sheet of absorbent cotton, reinforced at the apex by a piece of woven silk, the whole compressed into an integral structure with wax and presenting a smooth waxy surface.

7. An artificial ear-drum, consisting of a truncated cone adapted to penetrate the auditory canal as far as the tympanum, and composed of fibrous absorbent material into which is incorporated a strip of woven material having frayed edges, in such manner that the apex of the cone is reinforced by the web portion of the said strip and the frayed edges thereof are incorporated with the sides of the cone.

702,801. FOLDING FRAME FOR TRUCKS. PHILIP J. KREMER, Somerton, Ohio. Filed Mar. 17, 1900. Serial No. 98,710. (No model.)



Claim.—1. A folding frame for trucks, &c., comprising four legs, and a lazy-tongs connection between each adjacent pair of legs, both at the sides and ends of the frame, comprising intersecting bars pivotally connected together at their intersection, and also pivotally connected at their lower ends to the lower portions of the legs, and opposite bars pivotally connected to the upper ends of said intersecting bars and to the upper ends of the leg to which the intersecting bar is not attached, substantially as described.

2. A folding truck, comprising four legs, a lazy-tongs connection between each adjacent pair of legs, each connection comprising two intersecting bars pivotally connected at their intersection, and pivotally connected at their lower ends to the lower portions of the legs, and bars pivotally connected to the upper ends of said intersecting bars and to the upper ends of the adjacent legs; with stays connecting the intersecting bars below their intersection.

3. In a frame, the combination of four uprights, a lazy-tongs connection between the adjacent legs at each side and end of the frame, comprising intersecting bars pivoted together at their intersection and pivoted at their lower ends to the opposite legs, and bars pivoted to the upper ends of said legs, and at their inner ends pivoted to the upper ends of the intersecting bars connected to the opposite leg, the top bars at the sides extending beyond the legs; with folding braces connecting the intersecting bars below their points of intersection, and the folding stays connecting the outwardly-extending portions of said bars to the lower ends of the adjacent legs, substantially as described.

4. A folding frame for trucks, &c., comprising four legs, and a lazy-tongs connection between each adjacent pair of legs, both at the sides and ends of the frame, comprising intersecting bars pivotally connected together at their intersection, and also pivotally connected at their lower ends to the lower portions of the legs, and opposite bars pivotally connected to the upper ends of said intersecting bars, and to the upper ends of the leg to which the intersecting bar is not attached; with braces between the upper ends of the legs, substantially as described.

5. A folding truck, comprising four legs, a lazy-tongs connection between each adjacent pair of legs, each connection comprising two intersecting bars pivotally connected at their intersection, and pivotally connected at their lower ends to the lower portions of the legs, and bars pivotally connected to the upper ends of said intersecting bars and to the upper ends of the adjacent legs; with stays connecting the intersecting bars below their intersection; and stays connecting the outwardly-extending portions of said bars to the lower ends of the adjacent legs, substantially as described.

6. A folding truck, comprising four legs, a lazy-tongs connection between each adjacent pair of legs, each connection comprising two inter-

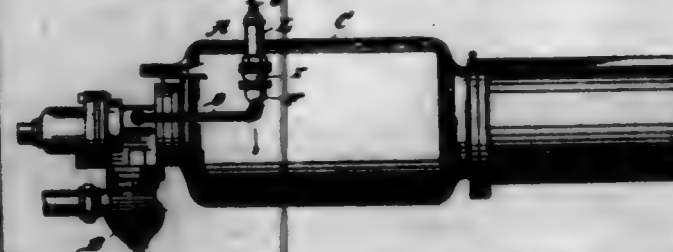
secting bars pivotally connected at their intersection, and pivotally connected at their lower ends to the lower portions of the legs, and bars pivotally connected to the upper ends of said intersecting bars and to the upper ends of the adjacent legs; with stays connecting the intersecting bars below their intersection; and braces connecting the upper ends of the legs.

7. In a frame, the combination of four uprights, a lazy-tongs connection between the adjacent legs at each side of the frame, comprising intersecting bars pivoted together at their intersection and pivoted at their lower ends to the opposite legs, and bars pivoted to the upper ends of said legs, and at their inner ends pivoted to the upper ends of the intersecting bars connected to the opposite leg, the top bars at the sides extending beyond the legs; with folding braces connecting the intersecting bars below their points of intersection, and the folding stays connecting the outwardly-extending portions of said bars to the lower ends of the adjacent legs, substantially as described.

8. In a frame, the combination of the four uprights, the lazy-tongs connection between the adjacent legs at each side and end of the frame, composed of intersecting bars pivoted together at their intersection and pivoted at their lower ends to the opposite legs, and top bars pivoted to the upper ends of said legs, and at their inner ends pivoted to the upper ends of the intersecting bars connected to the opposite leg, the top bars at the sides extending beyond the legs; with folding braces connecting the intersecting bars below their points of intersection, and the folding stays connecting the outwardly-extending portions of said bars to the lower ends of the adjacent legs, and horizontally-disposed foldable braces connecting the upper ends of the legs.

9. In a frame, the combination of the four uprights, the lazy-tongs connection between the adjacent legs at each side and end of the frame, composed of intersecting bars pivoted together at their intersection and pivoted at their lower ends to the opposite legs, and top bars pivoted to the upper ends of said legs, and at their inner ends pivoted to the upper ends of the intersecting bars connected to the opposite leg, the top bars at the sides extending beyond the legs; with folding braces connecting the intersecting bars below their points of intersection, and the folding stays connecting the outwardly-extending portions of said bars to the lower ends of the adjacent legs, and horizontally-disposed foldable braces connecting the upper ends of the legs.

702,802. RETAINING-VALVE. WILLIAM G. LAMB, Mexico. Filed May 7, 1901. Serial No. 98,148. (No model.)



Claim.—1. In a fluid-pressure brake system of the class specified, the combination with the auxiliary reservoir and ordinary triple valve, of the valve mechanism described, consisting of the valve-casing and pipe D and E connecting it with the triple-valve exhaust and auxiliary reservoir as shown, and having a partition with valve-seat at P, the valve J, its spring and adjusting device O, arranged in the upper chamber of the valve-casing the valve being provided with a needle-point seating at P and controlling the air-passage, the second or lower valve G seating upward at a point below the air-outlet a, the piston G' connected with the valve G and arranged above such air-outlet, and acted on by air-pressure from above as shown and described.

2. In a fluid-pressure brake system, the combination with the auxiliary reservoir and the triple valve, of a valve-casing having an atmospheric vent therein, a means establishing communication between the triple-valve exhaust and the valve-casing, a valve located in the valve-casing, said valve controlling communication between the triple-valve exhaust and the vent in the casing, a connection between the valve-casing and the auxiliary reservoir, and a second valve within the valve-casing, the second valve being controlled by the auxiliary-reservoir pressure and commanding a passage in the valve-casing through which passage the auxiliary-reservoir pressure may pass to actuate the first-named valve.

702,808. SPRING-CLAMP FOR LENSES OR THE LIKE. EMIL L. LEMMER, New York, N. Y. Filed Dec. 26, 1901. Serial No. 97,282. (No model.)



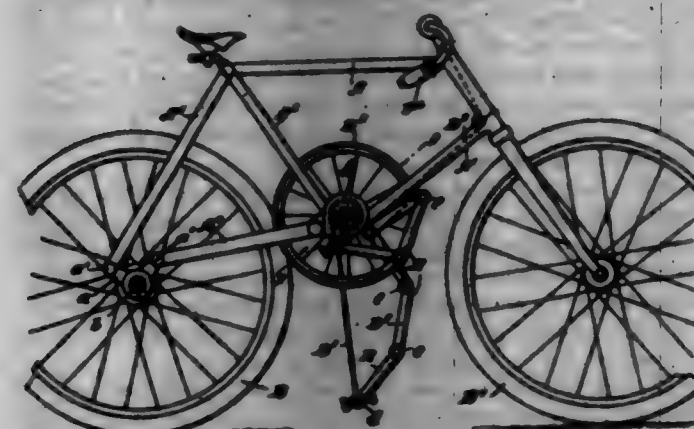
Claim.—1. A spring-clamp for lenses and the like made of a single piece of spring-wire, and comprising registering front and rear mem-

bers clamping opposite faces of the lens, each member being formed to inclose a free portion of the lens adjacent to the edge thereof, and a connecting portion connecting at each end with an end of the free members to leave the other ends of the free members free, as set forth.

2. A spring-clamp for lenses and the like made of a single piece of spring-wire, and comprising registering front and rear members clamping opposite faces of the lens, each member being formed to inclose a free portion of the lens adjacent to the edge thereof, a connecting portion connecting at each end with an end of the free members to leave the other ends of the free members free, and a pivot-pin integral with the end of one of the free members for the temple to swing on, as set forth.

3. A spring-clamp for lenses and the like made of a single piece of spring-wire, and comprising registering front and rear members clamping opposite faces of the lens, each member being formed to inclose a free portion of the lens adjacent to the edge thereof, a connecting portion connecting at each end with an end of the free members to leave the other ends of the free members free, a pivot-pin integral with the end of one of the free members for the temple to swing on, and a piece of rubber tubing on one of the free members, as set forth.

702,804. BICYCLE. GEORGE H. LEAHMAN, New York, N. Y. Filed Apr. 13, 1900. Serial No. 712,448. (No model.)



Claim.—1. A driving mechanism comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, an auxiliary drum on which an intermediate portion of said strap winds at one end and off which it winds at the other end to vary the diameter of the strap on said auxiliary drum and consequently the speed or power, said drum also forming a means for projecting a portion of the strap sideways from the frame and clear of the operator's legs, a stirrup secured to and supported by another portion of said strap and by which the strap is unwound from the power-drum to rotate it in one direction, and means for reversing the motion of said power-drum to wind the strap thereon, substantially as described.

2. A driving mechanism comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding stationary the other end of the strap, a stirrup having a roller journaled therein immediately over the free-opening of the frame, and about which an intermediate portion of the said strap passes, and by means of which and of said stirrup the said strap is unwound from the power-drum to rotate it in one direction, and means for reversing the motion of the power-drum to wind the strap thereon, substantially as described.

3. A driving mechanism comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding stationary the other end of the strap, a set of jointed links pivoted at one end of the set to the frame and carrying a stirrup or pedal having a roller or pulley journaled therein at the other end of the set and about which an intermediate portion of the said strap passes and by means of which the said strap is unwound from the said drum to rotate it in one direction, and means for reversing the motion of said drum to wind the strap thereon, substantially as described.

4. A driving mechanism comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding stationary the other end of the strap, a set of tubular joints having guide rollers or pulleys at their joints and pivoted at one end of the set to the frame and carrying a stirrup or pedal having a roller or pulley journaled therein at the other end of the set, an intermediate portion of said strap passing about said rollers or pulleys and through said tubular joints, by means of which the said strap is unwound from said drum to rotate it in one direction, and means for reversing the motion of said drum to wind the strap thereon, substantially as described.

5. A driving mechanism comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding stationary the other end of the strap, an auxiliary drum for projecting the strap clear of the frame in which drum portions of said strap wind, said drum, by the differing diameters of its end, effecting means for meeting varying requirements of speed and power, a set of tubular joints having guide rollers or pulleys at their joints and pivoted at one end of the set to the frame, and carrying a stirrup or pedal having a roller or pulley journaled therein at the other end of the set, an intermediate portion of said strap passing about said rollers or pulleys and through said tubular joints by means of which the said strap is unwound from said power-drum to rotate it in one direction, and means for reversing the motion of said power-drum to wind the strap thereon, substantially as described.

6. A driving mechanism having duplicate sets of driving means located upon each side of the part to be driven and each comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding the other end of the strap connection, a footpiece engaging said strap connection and supported thereby, by which the strap is unwound from said drum to rotate it in one direction, and means for positively connecting the duplicate sets of driving means to work respectively, so that the unwinding of the strap from the power-drum on one side will wind the strap upon the power-drum on the other side, substantially as described.

7. A driving mechanism having duplicate sets of driving means located upon each side of the part to be driven and each comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, means for securing and holding the other end of the strap connection, a footpiece engaging said strap connection and supported thereby, by which the strap is unwound from said drum to rotate it in one direction, and means whereby the duplicate sets of driving means can be positively connected to work respectively, so that the unwinding of the strap from the power-drum on one side will wind the strap upon the power-drum on the other side; or can be disconnected to work separately, so that each set is independent of the other entirely at the will of the operator, substantially as described.

8. A variable-speed driving mechanism, comprising a power drum, means for imparting the forward motion of said drum to the part to be driven, a strap connection having one end secured to and winding upon and off said drum, a storage device receiving and holding the other end of the strap normally stationary, by which the amount of strap wound upon said power-drum is controlled, a footpiece engaging said strap connection and supported thereby, by which the strap is unwound from said power-drum to rotate it in one direction, and means for reversing the motion of the power-drum to wind the strap thereon, substantially as described.

9. A variable-speed driving mechanism having duplicate sets of driving means located upon each side of the part to be driven, and each comprising a power-drum having a clutch driving device, a strap connection having one end secured to and winding upon and off said drum, a storage device receiving and holding the other end of the strap normally stationary and by which the amount of strap wound upon the power-drum is controlled, a footpiece engaging said strap connection and supported thereby, by which the strap is unwound from the power-drum to rotate it in one direction, and a drum-reversing device, whereby the duplicate sets of driving means can be positively connected to work respectively, so that the unwinding of the strap from the power-drum on one side will wind the strap upon the power-drum on the other side; or can be disconnected to work separately, so that each set is independent of the other at the will of the operator, substantially as described.

10. A drum-reversing device, comprising duplicate spring-drums having strap connections with duplicate sets of power-drums located upon each side of the part to be driven, said straps winding upon and off the respective drums on each side, duplicate spring-pressed clutches sliding upon splines or flutings upon a common shaft and having teeth adapted to engage similar teeth on said spring-drums, by means of which the said spring-drums and the power-drums are positively connected to work respectively or disconnected to work independently, and means for operating the said clutches with toggle-levers and handpieces conveniently located, substantially as described.

11. A clutch driving device, comprising a series of radial links pivoted at their inner ends to an axial shaft extending of a power-drum and at their outer ends carrying friction-blocks adapted to engage a suitable extension of the part to be driven, said friction-blocks being formed into engagement with said shaft extension upon the forward motion of said power-drum by the thrust of said links and blocks, by means of which the forward motion of the power-drum is imparted to the part to be driven, said links being pivoted intermediate of their ends to another shaft, by which the links are supported at equal distances apart and additional inertia obtained to force the said friction-blocks into engagement; the en-

gaging from said blocks being formed to be freed from the sleeve extension upon a cessation or reversing of said motion of said power-drum, substantially as described.

12. A storage device, comprising a storage-drum journaled within an appropriate casing conveniently located, a strap connection having one end secured to and winding upon said drum, a power-drum to which the other end of the strap is secured and upon which it winds, a hand engageable relative member or grip connected with said storage-drum to turn the same forward and backward to wind and unwind the strap thereon, and a ratchet-and-pawl locking arrangement, whereby the storage-drum is normally held stationary and the amount of strap wound upon the power-drum controlled and consequently the speed and power.

13. In a driving mechanism, the combination with duplicate clutch driving devices located on each side of and arranged to impart forward motion to the part to be driven, and pedals having independent driving connections each with the clutch driving device on its respective side, of duplicate spring-drums conveniently located and each operatively connected with the clutch driving device on its respective side for causing the return stroke, and means by which the said spring-drums and two sets of driving means may be united to work reciprocally or be disconnected to work separately and independently at the will of the operator, substantially as described.

14. In a driving mechanism, the combination, with a driving-wheel and a friction-wheel engaging the driving-wheel, of a power-drum having a clutch driving connection with said friction-wheel, a strap connection having one end secured to and winding upon and off said drum, means for causing and holding the other end of the strap normally stationary, a footpiece engaging said strap connection and supported thereby, by which the strap is unwound from said drum to rotate it in one direction, and means for reversing the motion of said drum to wind the strap thereon, substantially as described.

15. In a bicycle, the combination, with a hollow handle-bar and a drum mounted in a casing carried by the handle-bar, of a grip mounted to turn on the handle-bar, and provided with ratchet-teeth at its inner end, a spring-pressed roller sliding upon a spline or feather on the handle-bar, and provided with teeth to engage the teeth of the grip, and a flexible shafting in the hollow handle-bar connecting the outer end of the grip with the drum, substantially as described.

16. In a bicycle, the combination with the frame carrying the front wheel, a friction-wheel and the saddle, of levers in which the ends of the rear wheel is mounted, of the rear fork having its upper end pivoted to the upper part of the frame and the lower end of its fork to the rear ends of the said levers, and rear bracci pivoted to the forward ends of the said levers and to the rear lower portion of the frame, substantially as herein shown and described.

17. A variable-speed driving mechanism, comprising a power-drum, means for imparting the motion of the drum to the part to be driven, a strap having one end secured to the drum and winding upon the same, a spring-drum to which the other end of the strap is secured and upon which more or less of the strap can be wound, said spring-drum being normally stationary, a pedal connected with and supported by the strap and by which the said strap is unwound from the power-drum to rotate it in one direction and without affecting the movement of the spring-drum, and means for turning the power-drum in the opposite direction to wind the strap thereon, substantially as described.

18. A variable-speed driving mechanism, comprising a spring-power drum having a clutch mechanism, a strap having one end secured to the said drum and winding upon the same, a normally stationary spring-drum to which the other end of the strap is secured, means for rotating the spring-drum to wind a portion of the strap thereon, and a pedal connected with and supported by the strap between the said drums and by which the strap is unwound from the power-drum to rotate it in one direction and without affecting the movement of the spring-drum, substantially as described.

19. A variable-speed driving mechanism, comprising a spring-power drum having a clutch mechanism, a strap having one end secured to said drum and winding thereon, a normally stationary spring-drum to which the other end of the strap is secured, means for rotating the spring-drum to wind a portion of the strap thereon, and jointed links arranged between the said drums, the lowermost link carrying a pedal and a roller about which the strap from the power-drum to the spring-drum passes, substantially as described.

20. A variable-speed driving mechanism, comprising a spring-power drum having a clutch mechanism, a strap having one end secured to the said drum and winding thereon, a spring-drum to which the other end of the strap is secured and upon which a portion of the said strap can be wound to vary the amount of strap on the power-drum, and hollow jointed links through which the said strap passes, the lower link carrying a pedal and a roller about which the strap passes, substantially as described.

21. A variable-speed driving mechanism, comprising a spring-power drum having a clutch mechanism, a strap having one end secured to the drum and winding thereon, a spring-drum mounted upon the head of the frame and upon which a portion of the strap can be wound to vary the amount of strap on the winding-drum, means for operating the spring-drum from the grip of the handle-bar, and jointed hollow links through which the said strap passes, the lower link carrying a pedal, and a roller over which the strap passes, substantially as described.

22. A variable-speed driving mechanism for bicycles, comprising a friction-wheel engaging the rear wheel, a spring-drum having a clutch connection with the friction-wheel, a strap having one end secured to the drum and winding thereon and its other end secured to a support, and hollow jointed links pivoted to the frame and carrying a pedal at one end and a roller over which the said strap passes, substantially as described.

23. A variable-speed driving mechanism for bicycles, comprising a friction-wheel engaging the rear wheel, a spring-drum having a clutch connection with the friction-wheel, a strap having one end secured to the drum and winding thereon, a spring-drum to which the other end of the strap is secured, means for rotating the spring-drum to wind a portion of the strap thereon, and hollow jointed links pivoted to the frame, and through which the strap passes, the lower link carrying a pedal and a roller over which the strap passes, substantially as described.

24. A bicycle driving mechanism, comprising a set of tubular jointed links having guide-pulleys at their joints, and pivoted at one end of the set to the frame and carrying a pedal at the other end of the set, a flexible band or strap passing through the links and having one end secured to a support, and a pulley carrying the other end of the band and having a ratchet or clutch driving connection with the bicycle driving-wheel, substantially as described.

25. A bicycle driving mechanism, comprising a set of jointed links pivoted at one end of the set to the frame and carrying a pedal at the other end of the set, a pulley having a ratchet or clutch driving connection with the bicycle driving-wheel, a strap having one end secured to said pulley, and a storage-drum receiving the other end of the strap and adapted to be normally held stationary, the strap intermediate the pulley and drum being engaged by the pedal, substantially as described.

26. A bicycle driving mechanism, comprising a set of tubular jointed links having guide-pulleys at their joints and pivoted at one end of the set to the frame, a pedal carried by said links at the other end of the set, a pulley having a ratchet or clutch driving connection with the bicycle driving-wheel, a strap connected with said pulley to wind thereon, a storage-drum receiving the other end of the strap, and a strap intermediate the pulley and drum passing through the tubular links and about the pedal, substantially as described.

27. A bicycle, comprising a drum having a ratchet or clutch driving connection with a ground-wheel of the bicycle, a strap winding upon and off of said drum, means for winding the strap on said drum, a pedal or footpiece engaging said strap, a spring-drum located on the bicycle-head and receiving the other end of the strap, a hand-engageable relative member or grip connected with the spring-drum to turn it and a ratchet-and-pawl locking device for said drum for locking it stationary, substantially as described.

28. A bicycle, comprising a drum having a ratchet or clutch driving connection with a ground-wheel of the bicycle, a strap winding upon and off of said drum, means for winding the strap upon said drum, means with which the other end of the strap is secured and by which the amount of strap wound upon the drum is controlled, and a stirrup or pedal having a pulley or roller engaging the strap intermediate its ends, substantially as described.

29. A bicycle, having duplicate sets of driving means located one on each side thereof and each comprising a drum having a ratchet or clutch driving connection with a ground-wheel of the bicycle, a strap winding upon and off of said drum, means for causing and storing the other end of the strap, a stirrup having a pulley or roller engaging a loop of the strap, and means for connecting the two sets of driving devices, whereby the unwinding of the strap from one drum will wind the strap upon the other drum, substantially as described.

30. A bicycle, having duplicate sets of driving means located one upon each side thereof, and each comprising a drum having a ratchet or clutch driving connection with a ground-wheel of the bicycle, a strap winding upon and off of said drum, a pedal or footpiece engaging said strap, a spring-drum located on the bicycle-head, and receiving the other end of the strap, and a positive connection between the duplicate sets of driving mechanism, whereby the withdrawal of the strap from one driving-drum will wind it upon the other, substantially as described.

31. A bicycle, having duplicate sets of driving means located upon each side thereof, and each comprising a drum having a ratchet or clutch driving connection with a ground-wheel of the bicycle, a strap winding upon and off of said drum, a pedal or footpiece engaging said strap, and

storing-drum located on the bicycle-head and receiving the other end of the strap, and a connection between the two sets of driving mechanisms containing a clutch by which they may be positively connected to work reciprocally or be disconnected to work separately, substantially as described.

32. In a bicycle, the combination with the frame, a spring-pulley, and means for operating the rear or drive wheel therefrom, of a strap having one end secured to the said pulley, a second pulley on the frame near the head thereof, and to which the other end of the strap is secured, means for operating the second pulley to wind the strap thereon, a pedal, and hollow links connecting the pedal with the frame and provided with pulleys, over which the strap in its passage through the said links to the second pulley passes, substantially as described.

33. In a bicycle, the combination with the rear wheel, and a friction-wheel engaging the rear wheel, of a spring-pulley, a clutch connection between the pulley and friction-wheel, a strap having one end secured to the pulley, a second pulley to which the other end of the strap is secured, said pulley being normally held stationary, means for turning the second pulley to wind a portion of the strap thereon, and a pedal carried by the strap for reciprocating it to turn the spring-pulley, substantially as described.

34. In a bicycle, the combination with the frame, the rear wheel, and a friction-wheel engaging the rear wheel, of a spring-pulley, a clutch connection between the pulley and friction-wheel, a second pulley to which the other end of the strap is secured, means for rotating the second pulley to wind the strap thereon, a pedal, and hollow links connecting the pedal with the frame and provided with pulleys, the said strap passing from the spring-pulley through the links and the forward brace of the frame to the second pulley, substantially as described.

35. In a bicycle driving mechanism, the combination with a driving-wheel, and a driving-pulley, of a series of links pivoted to the pulley, friction-blocks at the outer ends of the links and adapted to engage the hub of the driving-wheel, and means for supporting the links and blocks at regular distances apart, substantially as described.

36. In a bicycle driving mechanism, the combination with a driving-wheel having an axial sleeve and a flange on its hub, and a driving-pulley mounted on the sleeve of the driving-wheel, of a series of radial links pivoted at their inner ends to the pulley, friction-blocks secured to the outer ends of the links and adapted to engage the inner surface of the flange of the driving-wheel, and a ring to which the outer ends of the arms and the blocks are pivoted, substantially as described.

702,805. DENTAL APPLIANCE. EMERY E. LEBLANC, Birmingham, Tenn. Filed Oct. 21, 1901. Serial No. 73,374. (No model.)



Claim.—1. A dental appliance, comprising arch-bars one arranged above the other, spring-yielding hinge members with which said arch-bars are adjustably connected, and braces extending between the portions of the hinges and the arch-bars, substantially as specified.

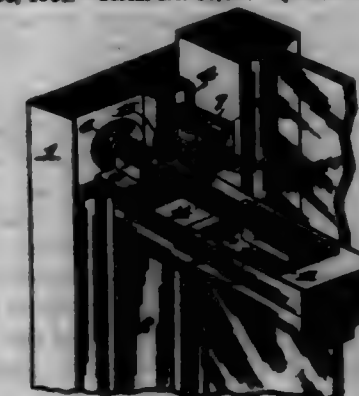
2. A dental appliance, comprising arch-bars one arranged above the other, elbow members in which the side portions of the arch-bars are arranged to slide, spring-yielding hinges having adjustable connection with the upwardly-disposed surfaces of the elbows, spring-yielding brace-connections between the outer members of the hinges and the lower arch-bar, and adjustable brace connections between the inner members of the hinges and the upper arch-bar, substantially as specified.

3. In a dental appliance, upper and lower arch-bars, elbow members in the horizontal portions of which the side portions of the upper arch-bar are inserted to slide, elbow members in the horizontal portions of which the side of the lower arch-bar are inserted to slide, adjustable collars on the side portions of the lower arch-bar, springs arranged between said collars and the ends of the elbows, spring-yielding hinges, stems extending from the outer surfaces of the hinges into the upwardly-disposed surfaces of the elbows connecting with the lower arch-bar, means for holding said stems as adjusted, stems extending from the inner members of the hinges and adjustable in the upwardly-disposed members of the elbows connecting with the upper arch-bar, means for holding said stems as adjusted, braces pivotally connected at one end to the inner members of the hinges and at the other end to studs on the upper side of the upper arch-bar, and braces pivotally connected at the upper ends to the outer members of the hinges and at the lower ends to the lower arch-bar, substantially as specified.

4. A dental appliance, comprising upper and lower arch-bars having spring-yielding and sliding connection, substantially as specified.

5. A dental appliance, comprising upper and lower arch-bars pivotally connected together, the pivotal connection being above the plane of the bars.

702,806. SASH-FASTENER. RICHARD B. LOGAN, St. Louis, Mo. Filed Oct. 20, 1901. Serial No. 66,482. (No model.)



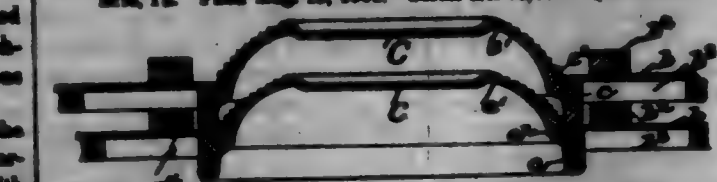
Claim.—1. In a sash-fastener, the combination of a slide-bolt adapted to be mounted on the lower sash of a window for engagement with the window-frame, of an auxiliary slide-bolt parallel to and rigid with said slide-bolt, and keepers carried by the upper sash of the window, said auxiliary bolt adapted to engage said keepers.

2. In a sash-fastener, the combination of a main slide-bolt carried by the lower sash of a window and adapted to engage keepers in the window-frame, of a parting-strip and keepers carried by said parting-strip, of keepers carried by the upper sash of the window and an auxiliary bolt parallel to and rigid with the main slide-bolt and adapted to pass through the keepers carried by the upper sash to engage the keepers in the parting-strip.

3. In a sash-fastener, in combination with the lower sash of a window, a bar-plate carried by said sash, a slide-bolt carried by said plate and adapted to engage keepers in the window-frame, of an auxiliary slide-bolt parallel to and rigid with said slide-bolt and adapted to engage keepers carried by the parting-strip and the upper sash of the window, of a recess in said bar-plate, said auxiliary bolt provided with a tapered end, and a retaining-screw carried by said auxiliary bolt and adapted to engage the recess and to hold the bolt against movement.

4. In a sash-fastener, the combination with the lower sash of a window, of a bar-plate carried by said sash, of a slide-bolt carried by said bar-plate and adapted to engage keepers in the window-frame, of a second bar-plate, said bolt also sliding therein, of a recess in said bar-plate, of a key adapted to fit in said recess, a recess in said bolt, said key also engaging the recess in said bolt, whereby movement of the bolt is stopped and an auxiliary bolt parallel to and rigid with said slide-bolt and adapted to engage suitable keepers in the parting-strip and upper sash of the window.

702,807. PACKAGES FOR FRAGILE ARTICLES. EDWIN C. LOGAN, Erie, Pa. Filed Aug. 15, 1901. Serial No. 71,857. (No model.)



Claim.—1. In a package for fragile articles of concave-convex form, means for holding a series of articles one nested in another and for separately supporting them, comprising a series of removable ribs formed with perforated plates and separating-strips, the strips being of sufficient thickness to support the plates a distance apart to form a space between the plates to receive the edges of the articles with the upper and lower opposing surfaces of the edges in supporting engagement with the opposing surfaces of the separated plates and the perforations being of such size as to permit the corners of the articles to project into the next adjacent article.

2. In a package for fragile articles, means for holding a series of articles, one nested in another and for separately supporting and registering them, comprising a series of removable ribs formed with perforated plates and separating-strips, the strips being of sufficient thickness to support the plates a distance apart to form a space to receive the edges of the articles with the upper and lower surfaces of the edges in supporting engagement with the opposing surfaces of the separated plates, and the perforations being of a size to permit the corners of the articles to project into the next adjacent article.

3. A rib for packages for fragile articles comprising a plate and sepa-

rating-strips arranged at intervals on both sides of said plate; the intervals being proportioned to the size of the article, the strips on one side being placed in a direction opposite to those on the opposite side; and means for securing the strips on the opposite side of the plate together.

4. A till for packages for fragile articles comprising a plate provided with rows of perforations and separating-strips secured to the plate and arranged in opposite directions between the rows.

5. A till for packages for fragile articles comprising a plate provided with rows of perforations; and separating-strips secured to the plate arranged in opposite directions between the rows, said strips being secured together at the points of crossing.

4. A sill for packages for fragile articles comprising a plate provided with rows of perforations; and separating-strips arranged between the rows of perforations on both sides of the plate, these on one side being placed in a direction opposite those on the opposite side; and means for securing the strips on the opposite sides of the plate together.

7. A fill for packages for fragile articles comprising a plate provided with rows of perforations and expanding-strips arranged between the rows of perforations on both sides of the plates, these on one side being placed in a direction opposite to those in the opposite side; and means at the points of crossing for securing the strips to the plates and to each other.

8. A fill for packages for fragile articles comprising a plate provided with rows of perforations; and separating-strips arranged between each row of perforations on both sides of the plate, these on one side being placed in a direction opposite those on the opposite side; and means for securing the strips together.

3. In a package for fragile articles the combination of a series of three thin compressing plates, two of which have rows of perforations of equal size arranged in register; mid plates being stiffened by strips secured to the plate and extending in opposite directions between the rows of perforations, mid strips being arranged to support the plates an equal distance apart.

10. In a package for fragile articles the combination of a series of stiff supporting plates with perforations of equal size arranged in regular, said plates being stiffened by strips secured to the plate and extending in opposite directions between the rows of perforations, said strips being arranged to support the plates at equal distance apart.

11. A package for targets of cone-cone-cone form, having the rim, *a*, crown, *c*, and shoulder, *d*, the exterior diameter of the shoulder, *d*, being less than the interior diameter of the rim; *a* comprising the plate, *b*, having the perforations, *b'*, approximately of the size of the shoulder, *d*, and means for holding the perforations in register and for supporting the plates a sufficient distance apart to receive the rim, *a*, and engage the upper and lower surfaces of the said rim.

12. A passage for targets of cone-cone form, having the radius r , the crown, ϕ , a shoulder, δ , the exterior diameter of the shoulder α being less than the interior diameter of the rim α comprising the plates α , and having the perforation, β ; means for holding the perforation in register; separating-strips secured to the plates, said strips being of a thickness to separate the plates a sufficient distance to receive the rim α , between the plates and engage the upper and lower surfaces of the said rim

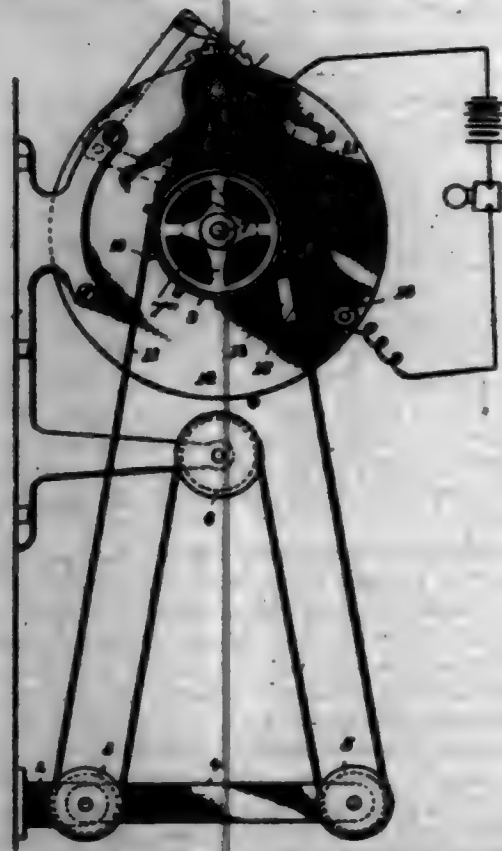
13. A passage for targets of concrete-concrete form, and having a rim, *a*, crown, *b*, shoulder, *c*, comprising the plate, *d*, having the perforations, *e*, the strips, *f*, arranged in one direction and the strip, *g*, in the opposite direction; means for securing the strips together and to the plate at the points of crossing, the perforations, *h*, being of approximately the size of the shoulder, *c*, and the combined thickness of the strip, *f*, is approximately the height of the rim, *a*.

14. A passage for targets of *concreto-canvas* form, having the parts *a*, *groove*, *b*, *shoulder*, *c*, comprising the plate, *d*, having rows of perforations, *e*, the strips, *f*, arranged on one side of the plate, between the rows, the strips, *g*, arranged on an opposite side of the plate between the rows; means for securing the strips together and to the plate at the points of securing; means for holding the plate in register, and perforations, *h*, being approximately the size of the shoulder, *b*, and the combined thickness of the strips, *f* and *g*, being approximately the height of the rim, *a*.

15. In a package for fragile articles, the combination of the box having the projecting edge pieces, *a*, and supporting-strips, *a'*, away from the edge pieces; and tiles arranged to slip into the box in contact with the supporting-strips, *a'*.

16. In a package for fragile articles, the combination of the box in-
 cluding projecting edge pieces, *a*, and supporting-strips, *a'*, away from
 edge pieces; tiles arranged to slip into the box in contact with the sup-
 porting-strips, *a'*; and tiles provided with expanding-strips at inter-
 vals, *b*, and on both sides of the tiles, there on one side being arranged in oppo-
 sition to the tiles on the other, the supporting-strips, *a'*, being arranged
 to support the tiles at points opposite expanding-strips other than
 other expanding-strips.

702,808. ELECTRIC PROGRAM-CLOCK. JAMES O. LYMAN, Watertown, Conn. Filed Aug. 28, 1901. Serial No. 72,967. (No model.)



Claim.—1. In a program-signaling device, the combination with a plate, a shaft projecting therefrom, and means for rotating said shaft, of a wheel mounted upon said shaft, a program-tape carried by said wheel and driven thereby, said tape being provided with a series of openings arranged at spaced intervals in accordance with the number of signals to be transmitted, a guiding lever pivoted upon said plate and normally riding upon the program-tape, a stationary post also carried by said plate and provided upon one of its faces with a contact-point over which said tape passes, said lever, post and plate forming part of an electric circuit including a signaling mechanism, a program-wheel arranged adjacent to the driven wheel and provided with detectable pins arranged thereon in accordance with the periods of time during which it is desired to prevent the transmission of signals, said pins contacting with said lever to hold the latter out of contact with the program-tape, and means for rotating said program-wheel.

2. In a program-signaling device, the combination with a plate, a shaft projecting therethrough, and means for rotating said shaft, of a wheel mounted upon said shaft, a program-tape carried by said wheel and driven thereby, said tape being provided with a series of openings arranged at spaced intervals in accordance with the number of signals to be transmitted, a series of blade-wheels arranged in proximity to the driven wheel and over which said tape passes, one of said wheels being bodily movable and adapted to gravitate for tensioning said tape, a gear-wheel bolted to a crank lever pivoted upon said plate and normally riding upon the program-tape, a stationary pin also carried by said plate and provided upon one of its flues with a contact-piece over which said tape passes, said lever, pin and plate forming part of an electric circuit including a signaling mechanism, a program-wheel arranged adjacent to the driven wheel and provided with detachable pins arranged therein in accordance with the periods of time during which it is desired to prevent the transmission of signals, said pins contacting with said lever to hold the latter out of contact with the contact-piece, and means for rotating said program-wheel.

3. In a program-signaling device, the combination of a main plate, shaft projecting therethrough, and means for rotating said shaft, of a wheel mounted upon said shaft, a program-tape carried by said wheel and driven thereby, said tape being provided with a series of openings arranged at spaced intervals in accordance with the number of signals to be transmitted, a series of filter-wheels arranged in proximity to the driven wheel and over which said tape passes, one of said wheels being bodily movable and adapted to pivotally rotate the remaining said wheels, a camming lever pivoted upon said plate and normally riding upon the program-tape, a delivery post also carried by said plate and provided upon one of its flaps with a contact-plate over which said tape passes, said lever, post and plate forming part of an electric circuit including a driving wheel and provided with detachable pins arranged thereon in accordance with the period of time during which it is desired to prevent the transmission of signals, said pins contacting with said lever to hold the latter

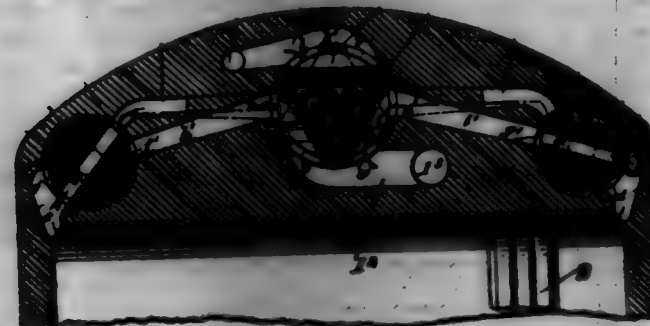
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out of contact with the program-tape, a lever for operating the program-wheel, and a cam carried by the shaft of the driven wheel for operating said lever.

702,809. LOCOMOTIVE VALVE-GEAR. HARRY MAXWELL, West
Oakland, Cal. Filed Aug. 14, 1901. Serial No. 71,200. (No model.)



Claim.—1. A locomotive-engine having steam admission and exhaust valves, a valve-gear for actuating said valves and controlled by the engine, and a reversing-valve arranged between the admission and exhaust valves and controlling the admission of the steam to and the exhaust of said steam from said admission and exhaust valves, the reversing-valve being under the control of the engineer; as set forth.

2. An engine valve-gear, comprising admission and exhaust valves, a valve-gear controlled by the engine and connected with said admission and exhaust valves, to periodically rock the same, and a reversing-valve under the control of the engineer and having its valve-rod connected with the inlet-chamber and the exhaust-chamber, said reversing-valve being between the admission and exhaust valves and arranged to connect the inlet-chamber with both the admission and exhaust valves, and to connect the latter with said exhaust-chamber, as set forth.

3. In an engine valve-gear, admission and exhaust valves at opposite ends of the cylinder, a valve-gear controlled by the engine for admitting said valve, and a rocking covering-valve arranged between the admission and exhaust valves and having its casing connected with the inlet and exhaust chambers, said valve being under the control of the engine and provided with parts for connecting the inlet-chamber with both the inlet and exhaust valves, and the exhaust-valve with the said exhaust chamber, as set forth.

4. In an engine valve-gear, admission and exhaust valves at opposite ends of the cylinder, a valve-gear controlled by the engine for opening said valves, a rocking reversing-valve arranged between the admission and exhaust valves and having its moving connected with the intake and exhaust chambers, said valve being under the control of the engine and provided in its periphery with oppositely-arranged sets of ports for connecting the intake-chamber with both the admission and exhaust valves and the exhaust-valve with the exhaust-chamber, as set forth.

5. In an engine valve-gear, the combination with a cylinder, and steam-chest thereon, said chest having ports leading to the opposite end of the cylinder, of admission and exhaust valve casings in the chest and each provided with a pair of oppositely-arranged ports, a valve in each casing and provided with a port leading therethrough, means for opening the said valves from the engine, a reversing-valve casing in the side chest between the admission and exhaust valves, and provided with a plurality of ports, two of which are in communication with the inlet-chamber, two in communication with the exhaust-chamber, and two in communication with ports leading to the ports of each of the admission and exhaust valve casings, a rocking reversing-valve in said casing and provided in its periphery with oppositely-arranged sets of ports, and means for operating the reversing-valve, as set forth.

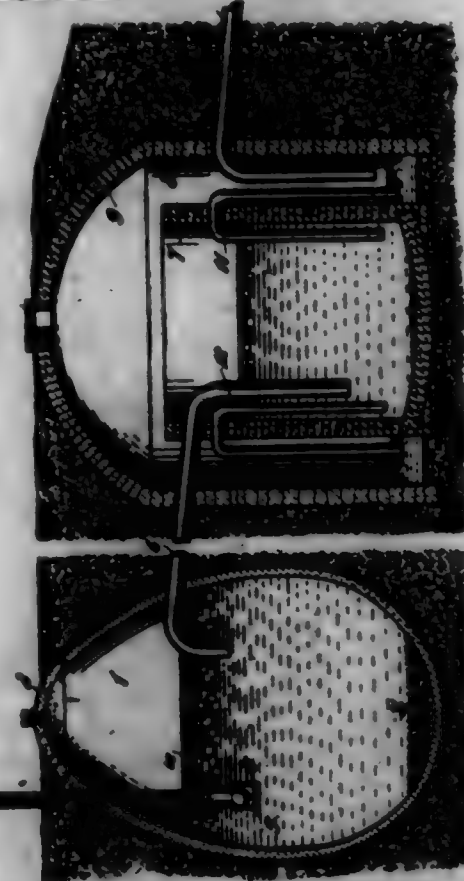
702,810. VALVE STOPPER FOR RECEPTACLE, &c. SAMUEL
HUBBARD, New York, N. Y., assignor of one-half to Joseph Harnettstein,
New York, N. Y. Filed Oct. 17, 1904. Serial No. 73,974. (No model.)



Claim.—A valve-closer for receptacles adapted to contain volatile and effervescent liquids comprising a main body or shell having an air chamber within, an inlet tube connected with said chamber, an adjustable outlet tube also connected with the chamber and having a portion thereof formed into a valve or closure for controlling the inlet-passage, a

adjustable perforated thumb-screw secured to said body enclosing the outlet-tube and for adjusting the same to control the inlet-passage, washers impervious to and insulated by the gases and liquid surrounding the outlet-tube and located in the air-chamber between the thumb-screw and the closure portion of the outlet-tube, and a washer in the lower end of the body surrounding the inlet-passage whereby ingress of the emanations of the various parts with the liquid and gases is prevented, and a tubular air having auxiliary bore connected with the outlet-tube.

702,811. SANITARY RECEPTACLE AND OVERPOOL. JOHN F. MCCOY and THOMAS N. CHENEY, New Orleans, La. Filed Sept. 22, 1900.
Serial No. 81,821. (No model.)



Claim.—1. The combination with a venturi receptacle and a pipe leading thereon, of a pump consisting of an inner chamber and an outer chamber, the walls of said chamber being adapted for the discharge of liquid through the same, a pipe leading from the receptacle into the inner chamber, and a siphon leading from said inner chamber into the outer chamber, substantially as specified.

2. The combination with a sanitary receptacle and a pipe leading therein, of a compound consisting of an inner chamber and an outer chamber, the walls of said chamber being adapted for the discharge of liquid through the same, a pipe leading from the receptacle into the inner chamber, a siphon leading from said inner chamber into the outer chamber, and a pipe leading from the outer chamber into the ground, substantially as specified.

3. The combination with a practically air and gas tight receptacle and a valved pipe leading therein, of a compost, having a porous wall, a discharge-pipe leading from the receptacle into said compost, and a pipe of porous material leading from said compost into the ground, substantially as modified.

702,812. BRAKE MECHANISM. PAUL J. McCULLOUGH, St. Louis.
Mo. Filed May 14, 1904. Serial No. 52,204. (No model.)

Claim.—1. A brake-staff, a guide therefor, a ratchet-wheel on the staff, and a holding-dog for engaging with the ratchet-wheel, the said dog having swinging connection at its upper end with the staff and a lower and bearing at one side of the staff, substantially as specified.

2. A turn-staff, a guide therefor arranged on the end of a cap-bolt passing horizontally through said guide and through the end of the car, a ratchet-wheel on the staff, and a holding-dog consisting of a member mounted to swing at its upper end on the staff and having a bearing at its lower end in a guide at one side of the staff, the said dog having a crank portion for engaging with the ratchet-wheel, substantially as specified.

2. A brake-staff, a guide in which said brake-staff is mounted to turn, a ratchet-wheel on the staff, and a holding-dog for engaging with the ratchet-wheel, the said holding-dog having a laterally-extended collar at its upper end through which the staff passes and the said dog having

bearing at its lower end and at one side of the shaft, said dog having a crank portion for engaging with the ratchet-wheel and a return portion or shoulder for engaging upon the upper side of the wheel, substantially as specified.



709,818. SUGAR-CANE CONVEYER. CHARLES E. McHALLY, Waipahu, Territory of Hawaii. Filed Mar. 20, 1901. Serial No. 68,980. (No model.)



Claim.—1. A cane-loading machine comprising a frame provided with a driving ground-wheel on each side, two motors one at each side of the center of the frame, a clutch-controlled operating mechanism between each motor and a driving-wheel, a conveyor mounted in the frame, and a clutch-controlled operating mechanism between each motor and the conveyor, as set forth.

2. A cane-loading machine, comprising a frame provided with a driving ground-wheel on each side, two motors, one at each side of the center of the frame, a clutch-controlled mechanism between each motor and a driving-wheel, a conveyor extending transversely of the frame, a clutch-controlled operating mechanism between each motor and the conveyor, and an elevator at one side of the frame and driven from the conveyor, as set forth.

3. A cane-loading machine comprising a supporting-frame, a pair of wheels at each side, one in front of the other of the frame, two motors, one at each side of the center of the frame, a clutch-controlled operating mechanism between each motor and one of the wheels of a pair, a conveyor mounted in the frame and extending between the wheels of each pair, and a clutch-controlled operating mechanism between each motor and the conveyor, as set forth.

4. A cane-loading machine, comprising a supporting-frame, a pair of wheels at each side of the frame one in front of the other, two motors, one at each side of the center of the frame, a clutch-controlled operating mechanism between each motor and one of the wheels of a pair, a con-

veyor mounted in the frame and extending between the wheels of each pair, a clutch-controlled operating mechanism between each motor and the conveyor, an elevator adjustably connected with one side of the supporting-frame, and means for operating the elevator from the conveyor, as set forth.

5. In a cane-loading machine, the combination with a wheel-supported frame, of a boiler on the frame, independent steam-engines on the frame one on each side of the boiler, and connected therewith, a conveyor mounted in the frame, and an operating mechanism between each motor and one of the supporting-wheels and the conveyor, as set forth.

6. In a cane-loading machine, the combination with a frame provided with a driving ground-wheel on each side, and a transversely-extending conveyor mounted in the frame, of two independent motors, shafts each having a clutch-controlled connection with one of the driving-wheels, gearing between each shaft and the conveyor, and clutch-controlled gearing between each shaft and one of the motors, as set forth.

709,814. OIL-FILTER. THOMAS HENRY, Liège, Belgium. Filed Dec. 2, 1901. Serial No. 64,800. (No model.)



Claim.—1. In an oil-filter, the combination of a vessel adapted to contain hot water, an orifice near the top end of said vessel, a cover to close said vessel, a tube fixed to said cover and reaching down to about the bottom of the vessel, the lower end of said tube being formed with apertures, and a series of superposed filtering-sheets of successively finer mesh fixed around said tube and fitting against the vessel, all for the purpose and substantially as set forth.

2. In an oil-filter, the combination of a vessel adapted to contain hot water, an orifice near the top end of said vessel, a cover to close said vessel, a tube fixed to said cover and reaching down to about the bottom of the vessel, the lower end of said tube being formed with apertures, a series of superposed filtering-sheets of successively finer mesh fixed around said tube and fitting against the vessel, a reservoir mounted on the vessel and in communication by a channel with the tube, a valve, valve-spindle, regulating-screw, and a filtering-sheet near the bottom of said reservoir, all for the purpose and substantially as set forth.

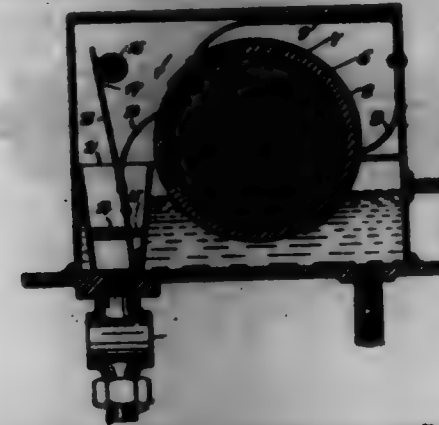
3. In an oil-filter, the combination of a vessel adapted to contain hot water, an orifice near the top end of said vessel, a cover to close said vessel, a tube fixed to said cover and reaching down to about the bottom of the vessel, the lower end of said tube being formed with apertures, a series of superposed filtering-sheets of successively finer mesh fixed around said tube and fitting against the vessel, a reservoir mounted on the vessel and in communication by a channel with the tube, a valve, valve-spindle, regulating-screw, a filtering-sheet near the bottom of said reservoir, a receptacle on the side of the vessel, a filtering-sheet in said receptacle, and draw-off cocks in and on, all for the purpose and substantially as set forth.

709,815. OIL-FILTER. LAM C. FRANK, New York, N. Y., assignor to Richard M. Fisher and Harry A. Fisher, New York, N. Y., and Hildah Andersen, New Haven, Conn. Filed Sept. 6, 1901. Serial No. 74,660. (No model.)

Claim.—1. An oil-filter comprising a rotary part, a scraper adjustably transversely thereof, and means for holding the scraper as adjusted, substantially as specified.

2. An oil-filter comprising an oil-receptacle, a part mounted to rotate in said receptacle, an apron partially surrounding said rotary part

and adapted to have its lower end extended into oil, and a scraper bearing on the rotary part at the outlet end of the apron, substantially as specified.



3. An oil-filter comprising an oil-receptacle, a cylinder mounted to rotate therein, an apron partially surrounding the cylinder, and a spring-pressed finger bearing upon the cylinder at the outlet of the apron, substantially as specified.

4. An oil-filter comprising an oil-receptacle, a cylinder mounted to rotate therein, an apron partially surrounding the cylinder, a spring-pressed scraper bearing upon the cylinder, and means for adjusting the scraper, substantially as specified.

5. An oil-filter comprising an oil-receptacle, an oil-carrying device mounted to rotate in the receptacle, an apron partially surrounding said oil-carrying device, a scraper bearing upon the oil-carrying device, and a funnel into which said scraper is designed to discharge oil, substantially as specified.

6. An oil-filter comprising a receptacle for oil, a cylinder mounted to rotate in the receptacle and having a plurality of oil-carrying surfaces, aprons partially surrounding the oil-carrying surfaces, scrapers bearing upon said oil-carrying surfaces, and means for simultaneously adjusting the several scrapers, substantially as specified.

7. An oil-filter comprising a receptacle for oil, a rotary part in said receptacle and having a plurality of oil-carrying surfaces, aprons partially surrounding said surfaces, spring-pressed scrapers bearing upon said surfaces, arms extended upward from the scrapers, and a screw-rod with which teeth upon said arms are adapted to engage.

709,816. GARMENT-SUPPORTER. EDWARD E. FARMER, West Somerville, Mass., assignor of one-half to Mary Anthony, Whitefield, Mass. Filed Apr. 2, 1902. Serial No. 101,000. (No model.)



Claim.—1. A garment-supporter, having a plate terminating at one end in a hook and having its other end split, and a pin slidable on one of the split end members and having an angular arm engaged by another split end member, as set forth.

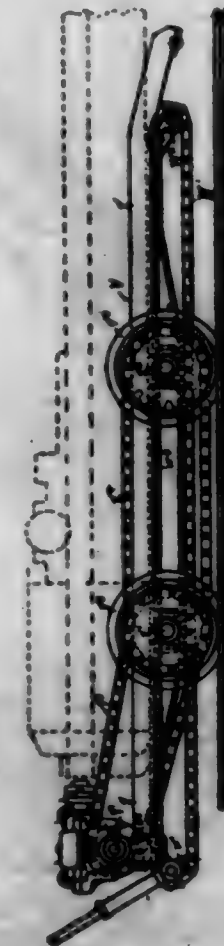
2. A garment-supporter, comprising a plate terminating at one end in a hook and having its other end split to form two members of which one is formed into an eye extending on the back of the plate, and a pin extending along substantially the middle of said plate at the back thereof, the said pin having a pivot, connected by a bent portion with the shank of the pin, the pivot engaging the said eye and the said pivot terminating in an angular arm pressed on by the other spring member of the split end of the plate, as set forth.

3. A garment-supporter comprising a plate terminating at one end in a hook and having its other end split, and a pin slidable upon the plate near said split end and having an angular arm engaged by one of the split members.

709,817. WEAVING-MACHINE TRUCK. ALFRED PALMER, Columbus, Ohio, assignor to the Feltner Manufacturing Company, Columbus, Ohio, a Corporation of Ohio. Filed Nov. 21, 1900. Serial No. 57,990. (No model.)

Claim.—1. In a combined coal cutting and transporting mechanism, the combination of the truck, the supporting-wheel, the power-shafting, means connecting the power-shafting to the supporting-wheel, the worm-gearing, the clutch element, and the separable cutting apparatus, having an electric motor and counterpart clutch element, said cutting apparatus

being adapted to be drawn to such position on the transporting mechanism as to have the two clutch elements mutually engage, substantially as set forth.



2. In a combined coal cutting and transporting mechanism, the combination of the truck, the supporting-wheel, the transverse shaft, the sprocket-gearing connecting the transverse shaft with the supporting-wheel, the longitudinally-arranged shaft, the worm-gearing connecting the longitudinal and the transverse shafts, the clutch element on the longitudinal shaft, and the cutting apparatus adapted to be drawn onto the truck, and having a clutch element counterpart to, and adapted to be engaged with the abovementioned clutch element, substantially as set forth.

3. In a transporting-truck for transporting mining-machines, the combination of the platform having a guideway for the mining-machine, the supporting-wheel, the endless chain mounted longitudinally of the platform, and adapted to move a mining-machine with an abovementioned power device for actuating said chain, substantially as set forth.

4. In a wheeled truck for transporting mining-machines, the combination of the platform, the supporting-wheel, the endless chain mounted longitudinally of the platform and adapted to detachably engage with the mining-machine and move it longitudinally, and means for imparting power to the chain substantially as set forth.

5. In an apparatus comprising a wheeled truck and a separable mechanism adapted to be transported by the truck and provided with a motor and a rotary power-transmitting element actuated by the motor and otherwise having a fixed position, the combination of the truck-frame, the wheels thereon, the power-transmitting device connected with the wheels, the initial power-receiving element actuating said power-transmitting device having a fixed position and adapted to mesh or be engaged with the power-transmitting element on the separable mechanism when the latter is moved bodily onto the truck, substantially as set forth.

6. In an apparatus comprising a wheeled truck and a separable mechanism adapted to be transported by the truck and provided with a motor, the combination of the truck-frame, the wheels thereon, the power-transmitting device connected with the wheels, and a shaft longitudinal of the truck, said separable mechanism having also a longitudinal shaft adapted to be actuated by its power device, and means for connecting said longitudinal shafts.

709,818. POLYMER. NEW W. PALMER, St. Louis, Mo., assignor to Leighton & Howard Steel Company, St. Louis, Mo., a Corporation. Filed Mar. 2, 1902. Serial No. 57,817. (No model.)

Claim.—1. A belt consisting of an upper and lower chord, and a connecting-web, said upper chord and the upper portion of the connecting-web being formed with a king-bolt opening, and said web having a

horizontal opening at the base of the king-bolt opening, substantially as set forth.



2. A bolster having an upper and lower chord, a connecting-web, a part formed integral with the upper chord and the upper part of said web, and which is provided with a king-bolt opening and a horizontal beam formed integral with said web and through which an aperture is formed, substantially as described.

702,819. CAR-ROUTE INDICATOR. MAXIM G. PARENTIAN, Springfield, Mass. Filed Dec. 12, 1900. Serial No. 20,040. (No model.)



Claim.—1. In a car-route indicator, the combination with a reversible polygonal sign, having a plurality of indicator-faces and one blank face, of a lantern in position to illuminate all the faces of the sign, and a series of movable transparent slides for the lantern, which slides carry indices which may be thrown on the blank face of the sign, substantially as described.

2. In a car-route indicator and in combination, a reversible polygonal sign having one blank face, a lantern in position to illuminate the face of the sign, and a series of transparent slides one being blank and all mounted end to end and constituting approximately a ring arranged to rotate about the light within the lantern, so as to pass the light from the lantern through any one of the slides and exhibit the same on the sign.

3. The combination with a reversible sign having a blank face acting as a screen, of a lantern arranged at an angle to said screen, and a transparent slide connected to the lantern and having letters on its face differing in size in determined relation to the screen, so that the letters on the screen may appear of uniform size, substantially as described.

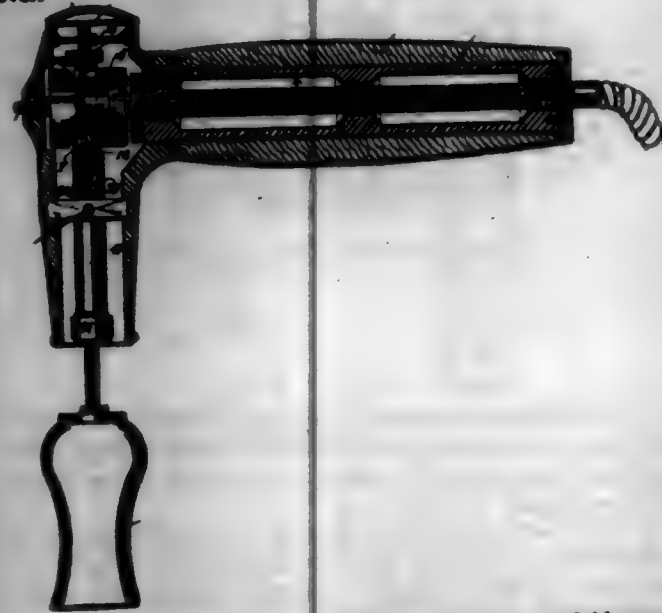
4. In a car-route indicator, the combination of a lantern having a plurality of movable transparent slides, with a movable sign-carrier having a plurality of sign-faces, any one of which faces can be turned into the illuminating-field of the lantern, and serve as a screen therefor.

702,820. MASSAGE-MACHINE. CHARLES FRANKLIN and JOHN SHIFFER, Chicago, Ill. Filed Nov. 26, 1901. Serial No. 23,460. (No model.)

Claim.—1. A massage-machine, comprising a frame, a massage member, a longitudinal handle mounted upon said frame, and mechanism connected with said frame and said massage member, and free to rotate said member in a direction substantially parallel to the general direction of said handle.

2. A massage-machine, comprising a frame provided with a longitudinal head, a handle loosely connected with said frame and disposed at right angles to said head, a revolvable member extending through said handle and provided with a cam, the axis of said cam being at right an-

gles to the general direction of said head and parallel with said handle, a rocking lever pivotally mounted in said head and provided with a member engaging said cam, and means for securing a massage member to said lever.



3. A massage-machine, comprising a frame, a revolvable member mounted thereon and provided with a spiral cam, a lever provided with a yoke embracing said cam, a beam mounted upon said yoke and engaging said cam, means for securing a massage member to said lever, and means for actuating said revolvable member.

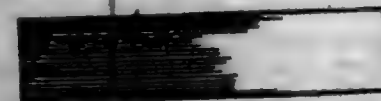
4. A massage-machine, comprising a hollow frame, a rocking lever journaled within the same and provided with a receptacle for the purpose of holding a lubricant, a cam for actuating said lever, and an absorbent member engaging said receptacle and said cam for the purpose of lubricating said cam, means for securing a massage member to said lever, and mechanism for actuating said cam.

5. A massage-machine, comprising a hollow frame having two longitudinal members forming an angle with each other, a longitudinal handle mounted upon one of said members, a longitudinal rocking lever journaled in the other member and normally disposed in a general direction parallel therewith, said lever being free to rock in a plane parallel with the axis of said handle, fastenings for mounting a massage member to said lever, and means for actuating said lever, the arrangement being such that said massage member is free to move in a direction substantially parallel with the general direction of said handle.

6. A massage-machine, comprising a hollow frame, a cam mounted thereon, means for actuating said cam, a rocking member provided with a beam for engaging said cam, means for adjusting said beam relatively to said cam for the purpose of regulating the stroke of said rocking member, and means for securing a massage member to said lever.

7. A massage-machine, comprising a hollow frame, a cam revolvably mounted thereon, means for actuating said cam, a rocking member provided with a beam for engaging said cam, a guide for preventing said rocking member from moving in a direction other than its normal direction of rocking movement, and means for securing a massage member to said rocking member.

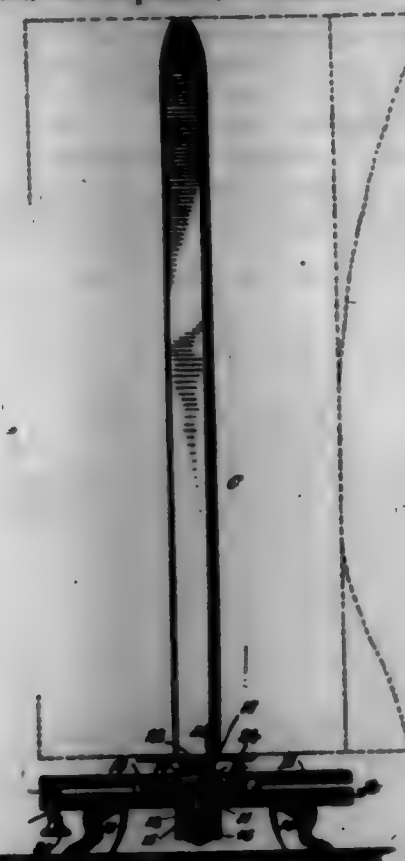
702,821. METHOD OF MAKING SHUNT-BAKES. GLEN H. FORTMAN, Westboro, Pa. Filed Feb. 27, 1902. Serial No. 25,000. (No model.)



Claim.—The art of manufacturing shunt-bakes from single blanks or plates of sheet metal of a substantially oblong shape, consisting in cutting the longitudinal edges of the blank transversely at opposite points, folding the opposite longitudinal edges of the plate over upon the main part of the plate and forging said folded parts and main part into a homogeneous shank portion and at the same time lengthening said shank portion, then bending it at approximately right angles to the main part of the blank at a distance therefrom and splitting in two and to form a handle-socket, longitudinally slitting the main part of the plate from the opposite end thereof to near the shank and then forging the members thus formed into tines and a head portion, as set forth.

702,822. DEVICE FOR UNROLLING CLOTH OR OTHER FABRIC. HARRY L. BOWEN, New York, N. Y. Filed Jan. 20, 1902. Serial No. 21,000. (No model.)

Claim.—1. In a device for unrolling cloth or other fabric, a base, a platform having rotary motion on said base, ball-bearings interposed between the base and platform, a brake carried by the base and engaging with the platform, and a sustaining member for the belt or roll of cloth, comprising a bottom plate and upright, and means carried by said plate for locking engagement with the platform, as described.



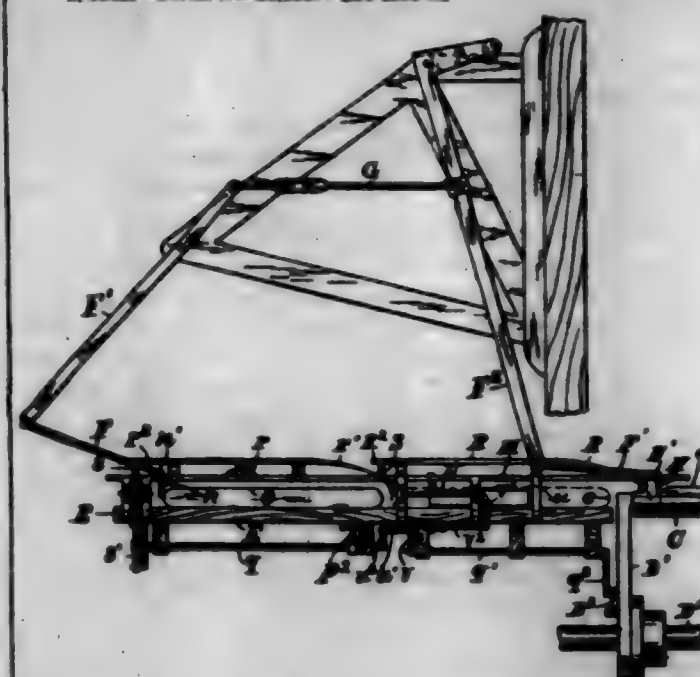
2. In a device for unrolling cloth or other fabric, the combination, with a base having a central opening and a downwardly-extending collar surrounding the opening, a platform provided with a central opening and a sleeve surrounding the opening and extending downward from the platform loosely through the collar of the base, the lower end of which sleeve is provided with a nut, ball-bearings located between the opening from of the platform and the base, a curve-brake carried by the base and engaging with the under face of the platform, and a socket formed at the upper portion of the platform, consisting of a collar having recesses in its upper edge, of a sustaining member for the belt or roll, consisting of an upright adapted to be passed through the central portion of a belt or roll, a bottom plate upon which the lower portion of the belt or roll is adapted to rest, a pin extending from the base and adapted to be loosely passed through the sleeve of the platform, and studs extending from the plate at opposite sides of the pin, adapted to enter the recesses in the socket on the platform when the pin of the said sustaining member is entered in the sleeve of the platform, as set forth.

702,823. BOAT. GEORGE SCHAEFER, Superior, Minn. Filed Oct. 12, 1901. Serial No. 24,712. (No model.)



Claim.—A marine vessel, having in the bottom of its hull a downwardly-opening longitudinally-extending groove, a downwardly-extending shield located at and forming a continuation of the forefoot of the hull and in line with the groove in the hull, tubular trunks projecting up from the bottom of the hull and lying immediately over the groove, a centerboard capable of lying longitudinally in the groove in the bottom of the hull with its front and just aft of the shield, center posts attached to the centerboard and projecting up through the trunks, and means working with one post whereby to raise or lower the board, the board being capable of dropping below the bottom of the hull, for the purpose specified.

702,824. SAFETY APPLIANCE FOR HANDING AND FEEDING MOLDS. HERBERT SCHWABER, Kansas, U. S. Filed Feb. 1, 1902. Serial No. 20,120. (No model.)



Claim.—1. The combination, with a sanding-machine having a platform and means for automatically delivering the molded molds thereon, of a pusher movable along the platform to shift the molds thereon, and means actuated by the mold when shifted upon the platform to prevent the engagement of the pusher with a succeeding mold until the preceding mold is removed.

2. The combination, with a sanding-machine having a platform and means for automatically delivering the molded molds thereon, of a pusher for shifting the molds upon the platform, a pusher guide or track for containing the pusher in an operative position adjacent to the platform, a safety-truck adjacent to the pusher-guide, the safety-truck having a removable section at its rear end as set forth, and means actuated by the mold when shifted upon the platform for holding the track closed by such section and preventing the access of the pusher to a succeeding mold upon the platform, until the preceding mold is wholly removed from the platform.

3. The combination, with a sanding-machine having a platform and means for automatically delivering the molded molds thereon, of a pusher for shifting the molds upon the platform, a pusher guide or track for containing the pusher in an operative position adjacent to the platform, a safety-truck adjacent to the pusher-guide, the safety-truck having a removable section at its rear end as set forth, a lever or toe projected in the path of the mold when shifted and connections from such lever to the removable track-section, to hold the track closed until the shifted mold is wholly removed.

4. The combination, with a sanding-machine having a delivery-chute and a platform extended therefrom to hold two or more of the molds, of a primary pusher to shift the molds successively to the adjoining portion of the platform when delivered from the chute, a secondary pusher connected thereto for pushing the molds off of the platform, a safety truck or support to hold the primary pusher from engagement with the mold, and means actuated by each mold to prevent the engagement of the primary pusher with the mold, until the secondary pusher has removed them from the platform.

5. The combination, with a sanding-machine having a delivery-chute and a platform extended therefrom to hold two or more of the molds, of a primary pusher to shift the molds successively to the adjoining portion of the platform when delivered from the chute, a secondary pusher to shift the molds from the platform, a pusher guide or track for containing the primary pusher in an operative position adjacent to the platform, a safety-truck adjacent to the pusher-guide, the safety-truck having a removable section at its rear end as set forth, means to hold such section normally open, and a lever projected in the path of the mold when shifted by the primary pusher, and having connections to the removable track-section and operating to hold the track closed until the secondary pusher removes such mold.

6. The combination, with a sanding-machine having a platform and means for automatically delivering the molded molds thereon, of a pusher for shifting the molds upon the platform, a pusher guide or track for containing the pusher in an operative position adjacent to the platform, a safety-truck adjacent to the pusher-guide, the safety-truck having a removable section at its rear end as set forth, means for holding such section normally open, and the toe projected in the path of the mold when

wholly discharged upon the platform from the sowing-machine, and connections between each toe and the removable track-section to open the same, when the toe is moved.

7. The combination, with a brick-machine having a table to receive the molds for filling, of a platform extending from each table, a sowing-machine with devices for delivering the sanded molds upon each platform, a pusher reciprocated by connection with the brick-machine to shift the molds from the platform to the table, and means actuated by the molds in their transit to the table for preventing the access of the pusher to a succeeding mold upon the platform, until the preceding mold is removed from the table.

8. The combination, with a brick-machine having a table to receive the molds for filling, and the shifter D to shift the molds thereon, of a platform extending from each table, a sowing-machine with devices for delivering the sanded molds upon each platform, a pusher reciprocated by connection with the brick-machine to shift the molds from the platform to the table, a pusher guide or track for containing the pusher in an operative position adjacent to the platform, a safety-track adjacent to the pusher-guide, the safety-track having a removable section at its rear end as set forth, and means connected with the mold-shifter D upon the table for closing the track by such section and preventing the access of the pusher to a succeeding mold upon the platform, until the preceding mold is removed from the table.

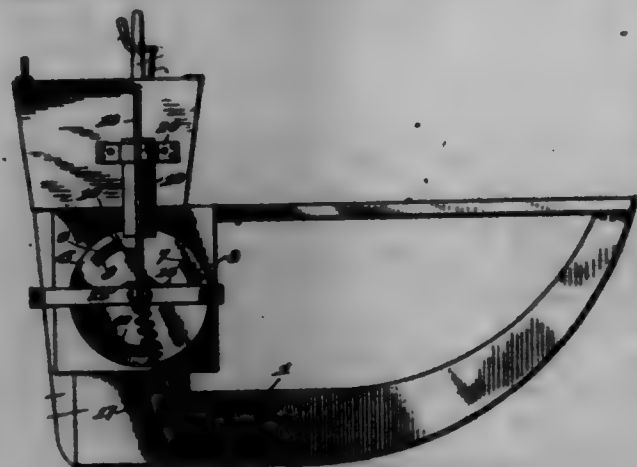
9. In a brick-mold-sanding machine, the combination, with a sanding-cylinder having rotary heads to move the mold therein, and having opening at the side to insert the molds, of anti-friction-rolls arranged at opposite ends of the opening to support the molds, and the rolls at each end being formed in an overlapping series to furnish a nearly continuous support, substantially as herein set forth.

10. In a brick-mold-sanding machine, the combination, with a sanding-cylinder having a central driving-shaft *a*, of heads *b* to move the molds in the cylinder, the heads having seats for the molds with a driving-lag *c* at one end of each seat, and a curved guide-rib *d* adjacent to the opposite end of each seat to support the molds and deliver them gradually to the seat.

11. In a brick-mold-sanding machine, the combination, with a sanding-cylinder having a central driving-shaft *a*, of heads *b* to move the molds in the cylinder, the heads having seats for the molds with a driving-lag *c* at one end of each seat, and a safety-rib *d* upon each seat adapted to enter the inverted molds and to prevent non-inverted molds from access to the seat.

12. In a brick-mold-sanding machine, a sanding-cylinder having rotary heads to move the molds therein and having an opening in the side to insert the molds, and an opening in the top to discharge the same, a reversing-cylinder mounted over the opening in the top of the sanding-cylinder with discharge-outlet upon one side, ways adapted to transfer the molds from the rotary heads into the bottom of the reversing-cylinder, the rotary disks in each cylinder with projections adapted to carry the molds around within the same and deliver them right side up to the discharge-opening, and a hammer within the reversing-cylinder actuated by a cam upon the disk shaft to strike the bottom of each mold in its transit to the reversing-cylinder.

702,825. MARKER FOR SEED-PLANTERS. HENRY E. SCHROEDER, Inventor, by Joseph C. Beck and William W. Burrill, Attorneys, Akron, Iowa. Filed Apr. 17, 1902. Serial No. 100,417. (No model.)

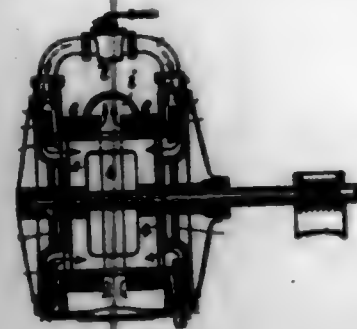


Claim.—1. In a marking device for seed-plants, the combination with a rotary frame, dogs carried by said frame, a pivoted marker, one end of which is arranged within the path of movement of said dogs, means for thrusting the outer end of the marker in contact with the ground, and a spring-actuated plunger for elevating said marker from contact with the

ground and restoring it to its normal position within the path of movement of the dogs, substantially as set forth.

2. In a marking device for seed-plants, the combination with a rotary frame, of dogs pivoted to said frame to yield inwardly during a portion of their rotation with said frame and to be moved outwardly into their normal position, a pivoted marker, one end of which is arranged within the path of movement of said dogs, a spring for thrusting the outer end of the marker in contact with the ground, and a spring-actuated plunger for elevating said marker from contact with the ground and restoring it to its normal position within the path of movement of the dogs, substantially as set forth.

702,826. COMBINED AXIAL AND RADIAL TURBINE. RICHARD BERNHARD, Berlin, Germany. Filed Sept. 20, 1901. Serial No. 78,894. (No model.)



Claim.—1. In a turbine, the combination with a suitable casing, gates thereon and a shaft, of an axial turbine, buckets thereon cooperating with the gates and a radial turbine on one end of the axial turbine having buckets on one face thereof, and means to admit live steam to both faces of the radial turbine to balance the axial thrust on the turbine, substantially as described.

2. A combined axial and radial turbine, comprising a suitable casing provided with an annular inlet and an annular exhaust chamber, gates arranged on the casing, a drum carrying the buckets to form an axial turbine and a radial turbine formed on the end of the axial turbine and arranged in the annular inlet-chamber, substantially as described.

3. A combined axial and radial turbine, comprising a suitable casing provided with annular inlet and outlet chambers and suitable gates, a drum carrying the buckets to form an axial turbine, a radial turbine formed on the end of said drum and projecting into the annular inlet-chamber, and a passage through the interior of said drum, whereby steam can be exhausted from the radial turbine through said drum to the annular exhaust-passage, substantially as described.

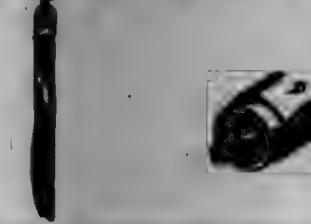
4. In a turbine, the combination with a casing, gates thereon and annular inlet and exhaust chambers formed thereon, and suitable heads one of which is provided with gates, of a turbine-drum intermediate the inlet and exhaust chambers, an annular plate projecting into the inlet-chamber, suitable buckets thereon cooperating with the gates on the head, and a passage between the radial turbine-body and a wall of the inlet-chamber along its face to admit steam to the turbine on said drum and thereby produce an axial pressure on the back of said radial turbine contrary to that produced on the working face, substantially as described.

5. The combination of a suitable casing, an annular inlet-chamber formed at each end, an annular chamber formed intermediate the ends, heads for the casing, gates thereon and on the casing, of a pair of turbine-drums provided with buckets cooperating with the gates on the drum, a passage between the drums in register with the exhaust-chamber, an annular plate on each drum projecting into an inlet-chamber and provided with buckets to cooperate with the gates on the casing-heads, and means for admitting steam to one or the other of said drums, substantially as described.

6. The combination of a suitable casing provided with annular inlet and exhaust chambers, of a combined axial and radial turbine, the latter arranged to neutralize its own axial thrust, and another turbine or turbines on the same shaft arranged to run in an opposite direction, substantially as described.

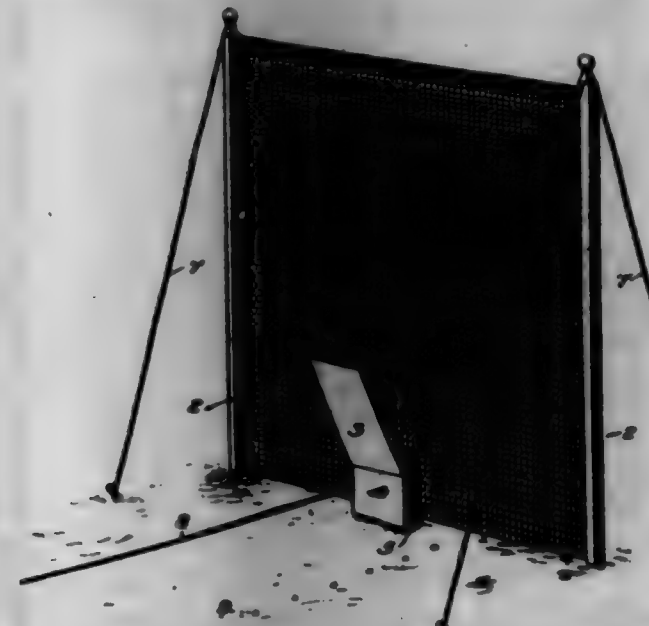
7. In a turbine, the combination with a suitable casing, gates thereon, an annular inlet-chamber formed at one end and a suitable exhaust-passage, of a shaft, an axial turbine thereon cooperating with gates on the casing and having a central passage therethrough, a radial turbine on an end of the axial turbine and projecting into the inlet-chamber, whereby steam will be admitted to both faces of the radial turbine to balance its thrust and be divided thereby, one part passing through the radial turbine to drive it, then through the interior of the axial turbine to the exhaust and the other passing through the axial turbine to drive it, substantially as described.

702,827. CURTAIN OR SHADE FIXTURE. FRANK E. SHERIDAN, Denver, Colo. Filed Oct. 18, 1901. Serial No. 78,898. (No model.)



Claim.—In a curtain or window-shade fixture, suitable hanger, a curtain or shade roller engaging the hanger and a cord connecting therewith, one of said hangers having spring locking-flanges on its side to bind against the flat projecting end of the roller to hold the roller in engagement with the hanger, substantially as and for the purpose set forth.

702,828. APPARATUS FOR GOLF PRACTICE. ALFRED R. SMITH, Reading, England. Filed Oct. 27, 1901. Serial No. 78,897. (No model.)



Claim.—1. In a golf-practice apparatus, a target consisting of a vertical base-plate and a forwardly-inclined and upwardly-extending plate, substantially as specified.

2. In a golf-practice apparatus, a target consisting of a base portion and a forwardly-inclined upper portion, and downwardly-extending fastening-rods to hold the target against rearward movement.

702,829. BICYCLE-WHEEL CARRIER. CLAUDE R. SMITH, Claim, N. Y., assignor of one-half to Harry J. Smith, Claim, N. Y. Filed Nov. 1, 1901. Serial No. 80,798. (No model.)

Claim.—1. The combination with a bicycle, of a supplemental axle rotatably hinged thereto at one end, a spindle adapted to be detachably secured in the free end of the supplemental axle, a combined lock-out and cone for retaining the spindle in position in the auxiliary axle, a wheel mounted on the free end of the axle, a delivery-box attached to the axle, a tongue secured at one end to the box, the opposite end of the tongue having hinged connection with the bicycle.

2. The combination with a bicycle of an auxiliary axle, a knuckle formed on one end thereof, a hinged clamp pivotally secured to the knuckle, means for detachably securing the clamp to any convenient portion of the bicycle, a spindle detachably received in the free end of the axle, a combined lock-out and cone for retaining the spindle in position, a wheel mounted on the free end of the axle, a delivery-box attached to the axle, a tongue secured to the delivery-box, the opposite end of the tongue hinged to the bicycle.

3. The combination with a bicycle, provided with a lateral projection, of an auxiliary axle, a knuckle connected to one end of the axle, a socket connected to the knuckle, the lateral projection receivable within the socket, means for removably retaining the projection in the socket, a wheel mounted on the free end of the axle, a delivery-box attached to the axle, a tongue connected to the box, the opposite end of the tongue having hinged connection with the bicycle.

4. The combination with a bicycle, of a supplemental axle, means for connecting one end of the axle to the frame of the bicycle, the axle provided with spindle detachably connected to its free end, a combined lock-out and cone for retaining the spindle in position, a wheel detachably mounted on the spindle, a delivery-box mounted on the axle, a tongue

secured to the delivery-box, the free end of the tongue detachably hinged to the frame of the bicycle.



5. The combination with a bicycle, of a supplemental axle, a knuckle pivotally secured to one end of the axle, an arm to which the knuckle is pivoted, a pair of hinged jaws to which the arm is secured at its opposite end, and means for detachably securing the jaws to the frame of the bicycle.

702,830. INCANDESCENT GAS-BURNER. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed Apr. 7, 1902. Serial No. 101,781. (No model.)



Claim.—1. In an incandescent gas-burner, the combination with a mantle and a burner-tube, the latter provided with air-inlets, of a mixing-tube having a portion thereof corrugated or fluted, a cap mounted upon said corrugated portion for forming a series of air-passages independent of the mantle, a hood mounted on the burner-tube for supporting the mixing-tube, and a regulating-plate mounted in the burner-tube and adapted to be engaged by the hood for operating it.

2. In an incandescent gas-burner, a burner-tube, a gas-regulator mounted therein, a mixing-tube, and a cap mounted thereon, said cap and mixing-tube forming a series of air-passages independent of the mantle of the burner.

3. In an incandescent gas-burner, a mantle, a mixing-tube, means mounted upon the said mixing-tube to form air-passages between it and said tube, a burner-tube, a gas-regulating plate mounted therein, and means supported by the burner-tube and supporting the mixing-tube and adapted when rotated to operate the regulating-plate.

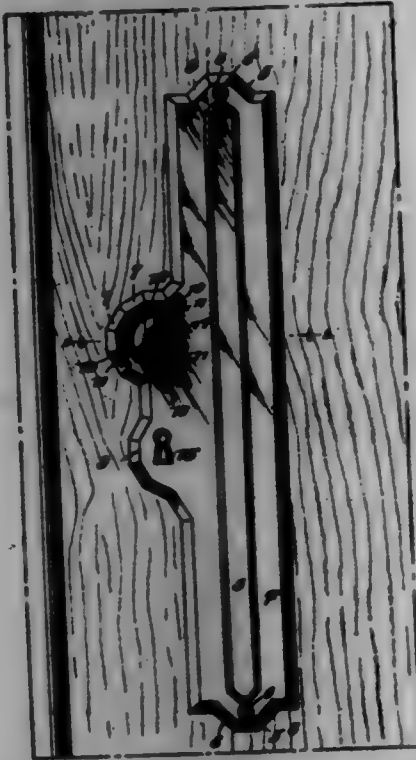
4. In a gas-regulating burner, a mantle, a gas and air mixing chamber, means mounted upon the gas and air mixing chamber to form per-

manent air-passages between said mantle and chamber, a burner-tube provided with permanent air-inlets, a gas-regulating plate within the burner-tube for supporting the gas and air mixing chamber, and a depending hood mounted upon the burner and engaging the plate for operating it.

5. A gas-burner consisting of a burner-tube provided with permanent air-inlets, a gas-regulating plate arranged in the burner, a sleeve supported by the burner, a hood carried by the sleeve and engaging with the said plate for operating it when said hood is rotated, a mixing-tube supported by the hood, said mixing-tube having its upper portion forming a gas and air mixing chamber with the walls thereof corrugated, a cap mounted upon the corrugated portion of the mixing-tube for forming between the said cap and walls of the mixing-chamber a series of independent air-passages, and a mantle supported by the said cap.

6. In an incandescent gas-burner, a burner-tube, a gas and air mixing-tube having its upper and forming a gas and air mixing chamber with the walls thereof corrugated, and a cap mounted upon the upper end of the mixing-tube and forming a series of independent air-passages between it and the walls of the mixing-chamber.

702,881. COMBINED DOUBLE ESCUTCHEON AND PAINT PROTECTOR. SAMUEL THURMAN, Chicago, Ill. Filed Aug. 20, 1901. Serial No. 73,946. (No model.)



Claim.—1. As an article of manufacture, a glass plate to be secured to a door, and provided with screw-holes, and annular bushings of soft metal mounted in said screw-holes for protecting said plate from strains.

2. As an article of manufacture, a glass plate to be secured to a door and provided with an integral circumferential bead for the purpose of reducing the area of contacting surfaces between said plate and said door, and also provided with holes fitted with annular bushings of soft metal to equalize strains on said plate, and with a rasping-surface to protect the plate from injury by the hand.

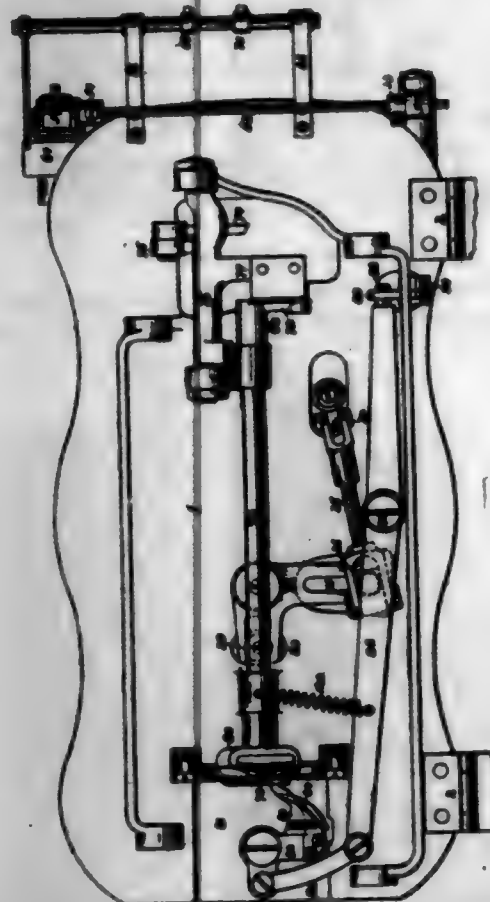
3. As an article of manufacture, a plate to be secured to a door, and provided with an integral circumferential bead for the purpose of reducing the area of contacting surfaces between said plate and said door, said plate having a general arched form for the purpose of strengthening the same, and also being provided with bushings of soft metal for further strengthening said plate by equalizing strains thereon.

702,882. THREAD-CUTTING MECHANISM FOR SEWING-MACHINES. ROBERT W. THOMAS, Lynn, Mass., assignor to the Philadelphia Sewing Machine Company, Camden, N. J., a Corporation of New Jersey. Filed June 7, 1902. Serial No. 69,742. (No model.)

Claim.—1. The combination of the sewing mechanism of the machine, with a knife for cutting the loop of needle-thread after the formation of a group of stitches, and mechanism for operating said knife by a two-stage movement, said mechanism having as elements a cam and intervening device for imparting the first stage of the movement to the knife, and a stop for preventing the knife from exceeding this first stage of movement, substantially as specified.

2. The combination of the sewing mechanism of the machine, with a knife for cutting the loop of needle-thread after the formation of a group

of stitches, and mechanism for operating said knife, said mechanism comprising a cam and intervening device for imparting the first stage of movement to the knife, a movable arm for arresting the movement of the driving-shaft of the machine, and means for transmitting the movement of said arm to the knife-operating device so as to impart the second stage of movement to the knife, substantially as specified.



3. The combination of the sewing mechanism of the machine, with a knife for cutting the loop of needle-thread after the formation of a group of stitches, and mechanism for operating said knife, said mechanism comprising a cam and intervening device for imparting the first stage of movement to the knife, a stop for arresting the parts in the position to which they have been adjusted by said cam, a movable arm for arresting the movement of the driving-shaft of the machine, means for transmitting the movement of said arm to the knife-operating device so as to impart the second stage of movement to the knife, and provision for releasing the stop, before each second movement, substantially as specified.

4. The combination of the sewing mechanism of the machine, a knife for cutting the loop of needle-thread on the completion of a group of stitches, and mechanism for imparting movement to said knife, said mechanism having as elements a rock-shaft with two arms, one of which carries a trip-lever adapted to restrict its movement in one direction, and a cam-disk having a cam for acting upon one arm of the rock-shaft to impart movement thereto, and another cam for tripping said stop-lever in order to permit further backward movement of the shaft, substantially as specified.

5. The combination of the sewing mechanism of the machine, the movable stop-arm which receives the impact of a moving part of the machine in stopping the same, a work-holding clamp and means whereby the movement of the stop-arm is transmitted to the movable jaw of said work-holding clamp so as to open the same, substantially as specified.

6. The combination of the sewing mechanism of the machine, the movable stop-arm which receives the impact of a moving part of the machine in stopping the same, a work-holding clamp, means whereby the movement of the stop-arm is transmitted to the movable jaw of said work-holding clamp so as to open the same, and a lock for retaining it in the opened position, substantially as specified.

7. The combination of the sewing mechanism of the machine, a knife for cutting the loop of needle-thread after the completion of a group of stitches, the work-holding clamp, mechanism for operating the cutting-knife by a two-stage movement, the second stage being due to a movable stop-lever, means for transmitting the movement of said stop-lever to the work-holding clamp so as to release the work, and locking device for both the knife-operating mechanism and the clamp-releasing device, whereby the movement of the knife is arrested after it has received the first stage of its movement, and the work-holding clamp is held in the opened position until released, substantially as specified.

8. The combination of the driving-shaft of the sewing-machine, a

movable stop which receives the impact of a moving part of the machine and arrests its forward movement when a group of stitches has been completed, and an automatic catch independent of said stop for preventing backward movement of the driving-shaft after its forward motion has been arrested, substantially as specified.

9. The combination of the sewing mechanism of the machine, a needle-thread clamp mounted upon the needle-bar, and mechanism whereby said clamp is caused to confine and release the needle-thread, substantially as specified.

10. The combination of a sewing-machine having sewing mechanism for forming, in the work, a group of stitches with a two-thread lock-stitch, and cutting mechanism arranged and operated on one side of the work for automatically covering both the threads substantially at the stitching-point upon the completion of the group of stitches, substantially as specified.

11. The combination of a sewing-machine having sewing mechanism for forming a group of stitches with double-thread lock-stitch, with an arm having knives, one for cutting the loop of needle-thread and the other for cutting the under thread after formation of the group of stitches has been completed, and means for operating said knives, substantially as specified.

12. The combination of a sewing-machine having sewing mechanism for producing a group of stitches with a double-thread lock-stitch, with knives for automatically covering both threads after the completion of the group of stitches, and means for operating said knives, the knife for covering the under thread following the knife for covering the needle-thread in its action, substantially as specified.

13. The combination of a sewing-machine having sewing mechanism for producing a group of stitches with a double-thread lock-stitch, and knives, one for covering the needle-thread and the other for covering the under thread after the completion of the group of stitches, and means for operating said knives, said under-thread-covering knife occupying a position between the needle-thread-covering knife and the under side of the throat-plate of the machine, substantially as specified.

14. The combination with a sewing-machine having sewing mechanism for producing, in the work, a group of stitches, of a cutting mechanism comprising a thread-cutting knife having a forwardly-projecting finger and, in the rear of the same, a cutting edge consisting of a blade projecting in a different plane from the body of the knife, substantially as specified.

15. In a sewing-machine, stitch-forming device, comprising upper-thread mechanism and under-thread mechanism, and automatically-cutting means for cutting the upper and under threads below the work.

16. In a sewing-machine, the combination with stitch-forming device comprising upper-thread mechanism and under-thread mechanism, of a cutting device and automatic means for causing said device to cover first one of the threads and then the other.

17. In a sewing-machine, stitch-forming device, comprising an upper-thread mechanism, and an under-thread mechanism, a cutting device, and automatic means for actuating said cutting device to cover the under thread below the work.

18. A sewing-machine, comprising two-thread stitch-forming device, a cutting device located below the work and having two cutting edges, one for the upper thread and the other for the lower thread, and means for operating said cutter.

19. In combination with a two-thread sewing-machine, a cutter and automatic means to cause it to cover the under thread below the work immediately upon the completion of a stitching operation.

20. In combination with a two-thread sewing-machine, a device located below the work-plate for cutting the upper and under threads, means for operating said device, and means for locking said device in an inoperative position.

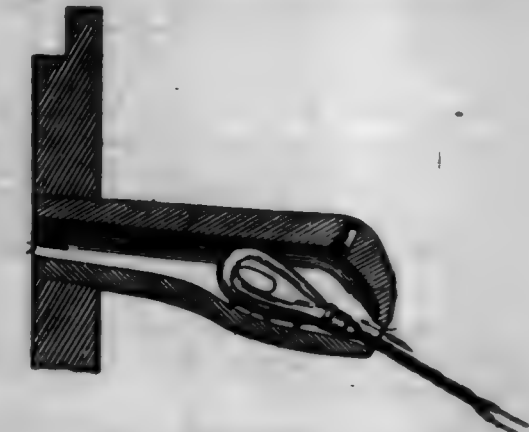
21. In combination with a two-thread sewing-machine, a device located below the work for cutting the under and the upper threads, means for intermittently operating said cutting device, and means for intermittently locking said device in an inoperative position.

22. In a sewing-machine, the combination with stitch-forming device comprising an upper-thread mechanism and an under-thread mechanism, of a cutting device movably mounted on the machine, and means for actuating said cutting device to cover the under thread independently of the needle-thread, substantially as described.

702,883. ELECTRIC HEATING-HEATER. EMERY VOGLER, New Orleans, La. Filed Mar. 15, 1902. Serial No. 94,977. (No model.)

Claim.—1. The combination, with a beehive, of an exterior, detachable, air-heating attachment comprising an open-end tube which is held in a bore in the hive and projects therefrom, and a heating medium, contained within the tube, and means for heating the air passing through the tube into the hive as described.

2. The combination with a beehive of an air-heating attachment comprising an open-end tube held in an opening in the hive-wall, an incandescent electric lamp, supported within said tube, and having conductors extended out of the same, as shown and described.



3. The combination with a beehive of an air-heating attachment consisting of an open-end tube which is held in an opening in the hive-wall, and inclined downward therefrom, and a lamp contained and duly supported in the tube, as shown and described.

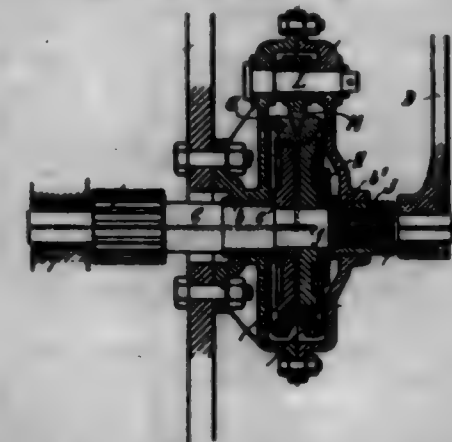
4. The air-heating attachment for a beehive, consisting of an open-end tube and an incandescent electric lamp secured within the tube, as shown and described.

5. The combination with a beehive of an air-heating attachment comprising an open-end tube made in two longitudinal parts adapted to be easily separated, and a lamp contained in an enlargement of the passage in said tube and having greater diameter than the opening at either end of the tube, as shown and described.

6. The combination with a beehive of the air-heating attachment comprising an open-end tube having its passage provided with support for a lamp whereby the latter is held out of contact with the bottom of the same, as shown and described.

7. The combination with a beehive of the air-heating attachment comprising a lamp and a tube which is open at each end and provided with an inspection-opening at the point where the lamp is located, said opening being closed to passage of air by a transparent medium, as shown and described.

702,884. BRAKE FOR HOISTING APPARATUS. HERMANN VOIGT, Essen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Jan. 26, 1901. Serial No. 44,785. (No model.)



Claim.—1. The combination of two friction-disks having relative lateral movement, means tending to hold the disks together continuously, a friction-ring surrounding the disks, and means adapted to hold the ring against movement.

2. The combination of two friction-disks having relative lateral movement, a spring tending to hold the disks together, a friction-ring surrounding the disks, and means adapted to hold the ring against movement.

3. The combination of two friction-disks having relative lateral movement, means tending to hold the disks together continuously, a friction-ring surrounding the disks, and an eccentric wedging-dog adapted to hold the ring against movement.

4. The combination of the shaft, two friction-disks to turn in unison upon the shaft, one of which is movable from and toward the other, two cup-shaped springs mounted upon the shaft, tending to hold the disks together, a friction-ring surrounding the disks, and an eccentric wedging-dog adapted to hold the ring against movement upon rotation of the shaft in one direction, and to release the ring upon rotation of the shaft in the reverse direction.

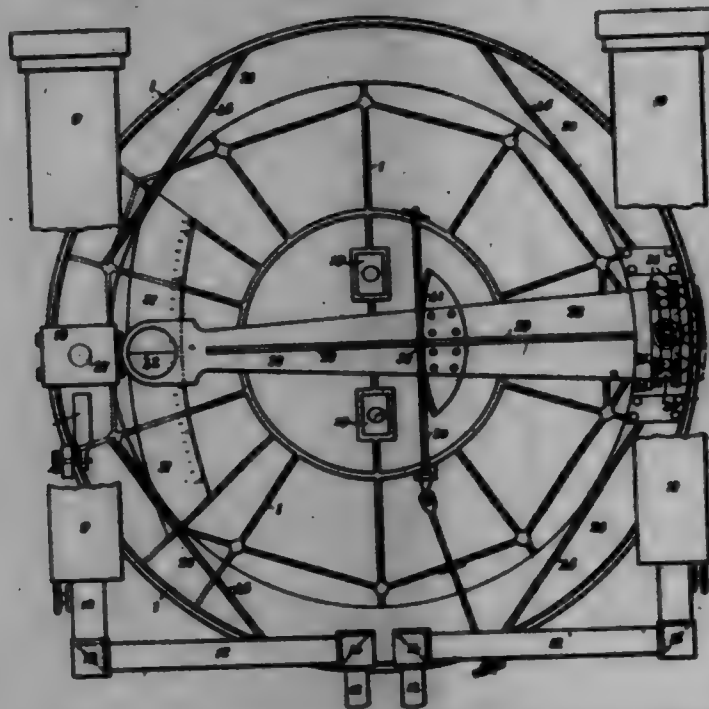
5. The combination with the shaft, of disks mounted thereon, a friction-ring surrounding the disks, and an eccentric wedging-dog forcing the ring into engagement with the disks.

6. The combination with the shaft, of friction-disks mounted thereon, a spring tending to force the disks together, and means adapted to be forced into engagement with the disks to act as a brake.

7. The combination of the friction-disks, a spring tending to force the disks together, a friction-ring surrounding the disks, and an eccentric wedging-dog adapted to force the ring into engagement with the disks.

8. The combination with a shaft of two friction-disks having conical peripheries mounted upon the shaft and movable longitudinally thereon, cup-shaped springs mounted upon the shaft and tending to force the disks together, a friction-ring surrounding the disks, and an eccentric wedging-dog adapted to force the ring into engagement with the disks.

702,885. RANGE-FINDING AND SURVEYING INSTRUMENT.
JAMES WADSWORTH, Glasgow, Scotland. Filed July 2, 1901. Serial No. 64,890. (No model.)



Claim.—1. A range-finder having a base, a telescope mounted on one side thereof, a ring pivoted to the base, and extending inward across the ring, substantially as described.

2. A range-finder having a base, a telescope, a saddle mounted on one side thereof, a ring pivoted beneath said telescope and passing through the saddle, a telescope on the opposite side of the pivot on the ring and an arm pivoted to the frame, and to the ring, and extending across the ring, substantially as described.

3. A range-finder having a base, a telescope mounted on one side thereof, a ring pivoted to the base, a telescope on the ring, an arm pivoted to the base and to the ring, and extending across the ring, a rack on the arm, a worm and worm-wheel on the frame, to turn the rack, substantially as described.

4. A range-finder having a base, a telescope mounted on one side thereof, a ring pivoted to the base, a telescope on the ring, an arm pivoted to the base and to the ring, and extending across the ring, a rack on the arm, a worm and worm-wheel on the frame, to turn the rack, and a graduated scale at the end of the arm, substantially as described.

5. In range-finding instruments, a frame, a telescope carried thereon, a ring pivoted to the frame, and a telescope rigidly mounted on the ring, an indicating arm and scale on the frame extending across the ring, link connections between the ring and arm and means for operating the ring through the medium of the arm, in combination with an adjustable cradle to support the frame, a pillar and a tripod, said tripod having turning and clamping appliances and a graduated stay-rod, as and for the purpose described.

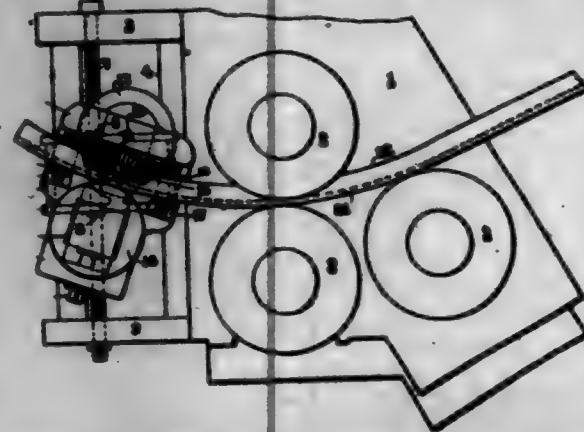
6. A range-finder having a base, a telescope mounted on one side thereof, a ring pivoted to the base, a telescope on the ring, an arm pivoted to the base, carrying a stud, links pivoted to the stud and to the ring, and an opening in the ring through which the stud passes free from contact with the sides thereof, substantially as described.

7. A range-finder having a base, a telescope mounted on one side thereof, a ring pivoted to the base, a telescope on the ring, an arm pivoted to the base, carrying a stud, links pivoted to the stud and to the ring, and an opening in the ring through which the stud passes free from

contact with the sides thereof, and arms extending inward across the ring, in combination with gearing for moving said arm and a scale on the frame over which said arm moves, substantially as described.

8. In combination with a range-finder having a frame, a supporting pillar, two telescopes and a graduated scale, a stay-rod secured to the frame at one end, and adjustably secured to the pillar at the other end, and a graduated scale on the stay-rod, as and for the purpose described.

702,886. GUIDE FOR METAL-BENDING MACHINES. CHARLES WHEAT, Pittsburgh, Pa. Filed Mar. 3, 1901. Serial No. 65,408. (No model.)



Claim.—1. In a metal-bending machine, a bending mechanism, a guide receiving the bent metal and having a rotatable and transverse adjustment to the line of feed.

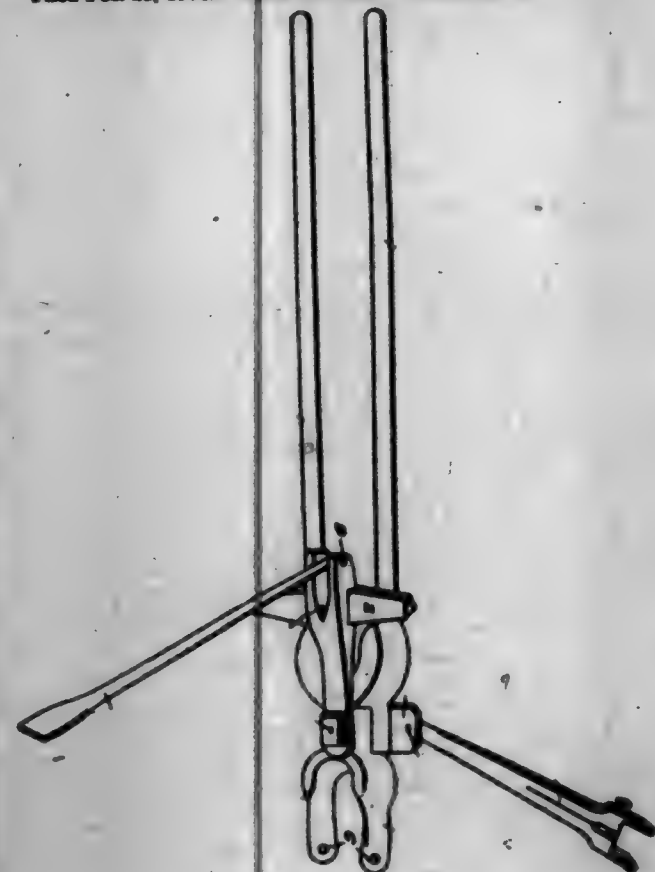
2. In a metal-bending machine, a bending mechanism, a guide receiving the bent metal, and rotatable and adjustable in a plane transversely of the working face of the bending mechanism.

3. In a metal-bending machine, a bending mechanism, a guide for receiving the bent metal and preventing its distortion, having a carriage adjustable transversely of the line of feed, a table rotatably mounted on the carriage, and a set of rolls carried by the table.

4. In a metal-bending machine, a set of bending-rolls, and a guide for receiving the bent metal, having a table rotatable in a plane transversely of the axis of the bending-rolls and adjustable in the plane of the table.

5. In a bending-machine, a bending mechanism, a guide receiving the bent metal and having a table adjustable transversely of the line of feed, horizontally and vertically adjustable journal-bases thereon, and rolls carried by the journal-bases, one of said rolls having a bevel-face.

702,887. FLOOR-JACK. ROBERT J. WHELAN, Orem, Utah, U. S. A. Filed Feb. 25, 1901. Serial No. 65,417. (No model.)



Claim.—1. In a floor-jack, the combination with the tongue, of the leg pivotally mounted thereon, the catch-dog fork pivotally mounted on the pivot of the tongue and the catch-dog pivotally mounted on said fork, all substantially as shown and described.

2. In a floor-jack, the combination with the tongue, of the leg pivotally mounted thereon, the catch-dog fork pivotally mounted on the pivot of the tongue, the catch-dog base secured thereto, the catch-dog pivotally mounted thereon on a pivot at right angles to the pivot of the fork, and the page carried by the jaws of the tongue, as set forth.

3. In a floor-jack, the combination with the tongue and the leg pivotally mounted thereon, of the catch-dog base, the catch-dog fork to which the same is secured pivotally mounted on the pivot of the tongue and the catch-dog pivotally mounted on said fork, all substantially as described.

4. In a floor-jack, the combination with the tongue, of the leg pivotally mounted thereon and bifurcated and provided with a thumb-screw, the catch-dog fork pivotally mounted on the pivot of the tongue, the catch-dog base secured within a mortise therein, and the catch-dog pivotally mounted on said fork, the dog and leg being upon opposite sides of the tongue to move in opposite directions, and the fork movable on its pivot at right angles to the plane of movement of the dog, as shown and described.

702,888. FOLDING BED AND WARDROBE. CHARLES J. WHEAT, Alexandria, Ind. Filed Feb. 25, 1902. Serial No. 65,500. (No model.)



Claim.—1. In a folding bed, the combination with two movable sections and a flexible mattress secured at both ends to one section, of means secured to the other section holding the mattress stretched irrespective of the position of the said sections.

2. In a folding bed, the combination with two sliding sections and a flexible mattress attached at both ends to one section, of means secured to the other section holding the mattress taut irrespective of the relative position of the said sections.

3. In a folding bed, the combination with two sliding sections and a flexible mattress fixed at its ends to one of said sections, of movable means secured to the other section to take up the slack in the mattress when the sections are closed together.

4. In a bed, of the character described, the combination with a movable foot-section comprising a wardrobe, a slot formed in the base of said section, a movable head-section having side plates rigidly attached thereto and adapted to slide in the slot of the other section, a roller journaled between the outer ends of said head-section and a roller journaled to the head-section, of a flexible mattress secured at both ends to the foot-section, the body portion of the mattress traveling over said rollers whereby it is held taut.

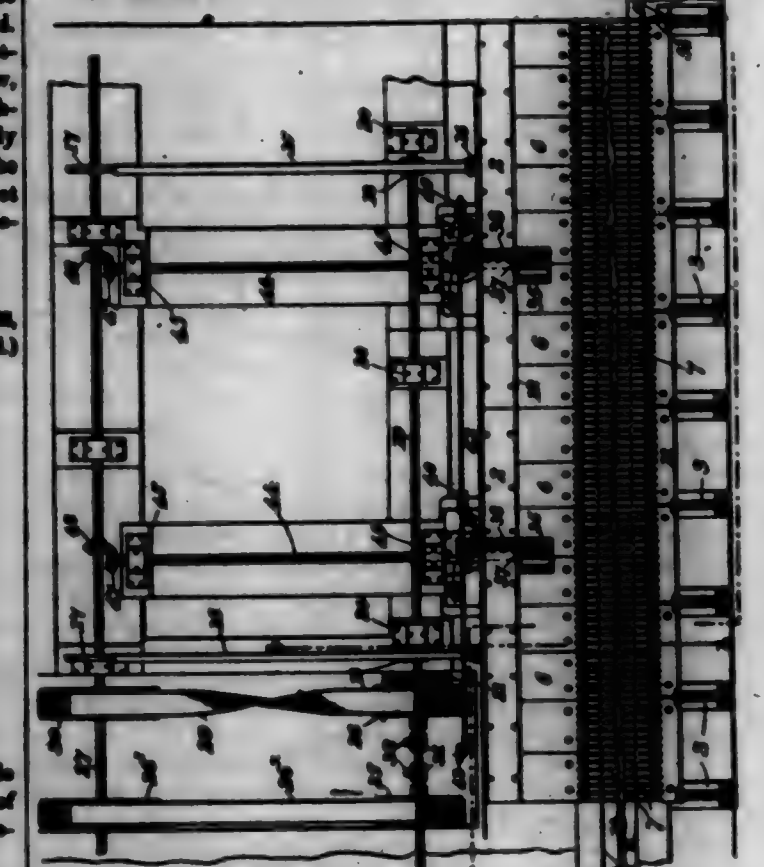
702,889. BEDSTEAD. CHARLES E. WHITE and FRANKLIN WHITE, Lancaster, Md. Filed Apr. 3, 1902. Serial No. 101,915. (No model.)



Claim.—1. In a bedstead, the combination of four bedposts, side bars each consisting of two bars placed in contact and fitting notches in said posts, bowed springs having downturned ends extending between said bars, and means for connecting said posts and clamping said bars together to hold said springs firmly in place, substantially as described.

2. In a bedstead, the combination with four posts, of side bars each comprising two bars in contact and fitting notches in said posts, bowed springs having downturned ends engaged by said bars, the rods fitting transverse apertures in said side bars and said posts, said rods having heads thereon which bear on the outer faces of said side bars, nuts mounted on said rods and bearing on the inner side of said posts and turn-buckles mounted on said rods, substantially as described.

702,840. MECHANISM FOR STRAIGHTENING BAILS, BARS, OR CHAINS. CHARLES E. WHITE, Moline, Ill. Filed Feb. 14, 1902. Serial No. 94,368. (No model.)



Claim.—1. In combination with a cooling-bed, means for pushing the bars to be straightened across the same, and a removable stop device adapted to temporarily arrest the advance of the bars.

2. In combination with a cooling-bed, means for pushing the bars to be straightened across the same, a removable stop device and means for setting the same in front of the bars.

3. In combination with a cooling-bed, means for successively advancing the bars to be straightened across the same, and means at or near the outer end of the bed for arresting temporarily the advance of the first bars delivered; whereby a number of bars may be accumulated and pressed against each other by the advancing means, and the accumulated bars thereafter advanced as mass and discharged from the bed.

4. In combination with a cooling-bed, means for delivering on the same the bars to be straightened, means for pushing the bars across the bed, a removable stop device adapted to be adjusted in front of the bars, whereby the bars are accumulated against the stop device, and means for removing the stop device to permit the accumulated bars to be advanced across the bed in a body.

5. In combination with a cooling-bed, a longitudinal straightening-bar movable thereover, means for controlling the operation of the same, a vertically-movable bar at the outer edge of the bed, and means for setting the said bar above the level of the bed.

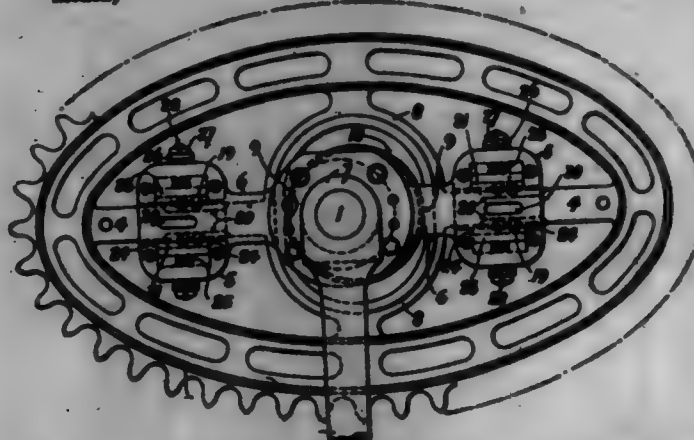
6. In combination with a cooling-bed, a longitudinal straightening-bar movable from the inner end of the bed across the same, a longitudinal rocking bar at the opposite end of the bed, means for setting said rocking bar flush with the bed to form a continuation of the same, and means for setting the bar above the bed to form a stop.

7. In combination with a cooling bed, a rotary feed-roller below the same with its surface exposed through the bed, means for engaging the bars to be straightened with the exposed surface of the roller, a pushing or straightening bar in rear of the roller and movable thereover, and means for controlling the operation of said bar.

8. In combination with a cooling-bed, a pushing or straightening bar at one edge of the same and movable thereover, a series of feeding devices in front of the bar adapted to successively engage the bars to be straightened and to advance the same endwise along the bed, and means for operating the pushing-bar to push the bars to be straightened across the bed.

9. In an apparatus of the type described the combination with a cooling-bed of a longitudinal bar movable thereon and adapted to act on heated bars delivered to the bed, said longitudinal bar being composed of two sections in adjacent faces with longitudinal continuous channels and secured fixedly together face to face; whereby the bar as a whole will contain continuous longitudinal chambers made up of the channels in the opposing sections.

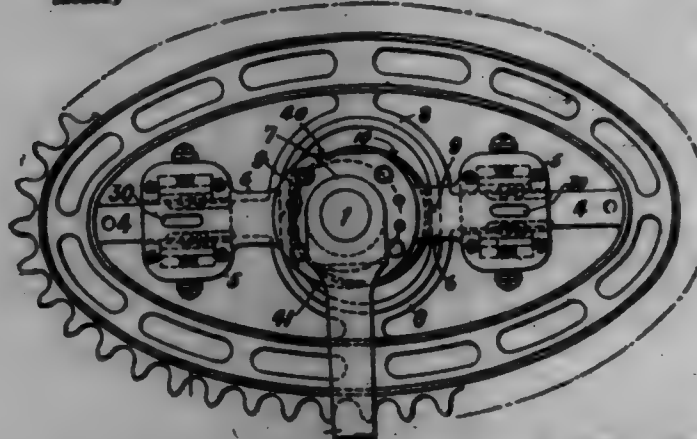
702,841. ELLIPTIC CHAIN DRIVING-GEAR. WILLIAM F. WILLIAMS, London, England. Filed June 20, 1901. Serial No. 65,999. (No model.)



Claim.—1. In rectilinear ball-bearings constituted by a pair of opposed grooves with interposed balls, the combination with a grooved block forming the one ball-race and fitted in a holder so as to be adjustable toward and away from the other ball-race, of a tubular set-screw screwing through the holder and bearing against the back of the adjustable block so as to hold said block unyieldingly up to its work, a screw-threaded stem attached to the block and passing through the tubular set-screw, and a lock-nut screwing on said stem and bearing against the end of the tubular set-screw so as to lock the block in the position to which it has been brought by said set-screw, substantially as specified.

2. In an elliptical chain driving-gear, the combination of a pedal-crank, an elliptical sprocket-wheel having diametrical arms, grooves in the opposite sides of the said arms, oppositely-arranged driving-arms secured to the boss of the pedal-crank and carrying guide-brackets, bearing-blocks fitted one in each bracket at opposite sides of the arms of the sprocket-wheel so as to be capable of adjustment toward and away from the sprocket-wheel arms and each provided with a groove of V-section registering with a groove of similar section in the arm, balls in the race formed by said grooves, a tubular set-screw screwing through each bracket and bearing against the adjustable block therein so as to unyieldingly hold said block up to its work, a screw-threaded stem attached to each adjustable block and passing through the tubular set-screw and a lock-nut screwing on each said stem and bearing against the corresponding set-screw so as to enable the correct position of the sprocket-wheel relatively to its driving-arms to be maintained in all positions of adjustment.

702,842. ELLIPTIC CHAIN DRIVING-GEAR. WILLIAM F. WILLIAMS, London, England. Filed Jan. 19, 1901. Serial No. 48,328. (No model.)



Claim.—1. In a pedal-operated driving-gear in which an elliptical sprocket-wheel is movable in its own plane relatively to its axle but maintained in driving connection therewith, the combination with the opposite faces of the sprocket-wheel of sets of cover-plates cooperating to exclude dust, and comprising for each set a plate fixed to the wheel and apertured to give clearance for the axle and attached parts relatively to which the wheel is transversely movable, a second or intermediate cover net

movable transversely of the axle and adapted to cover the aperture in the first plate and to make light rubbing contact with said plate, and a third cover-plate attached to the first, adapted to inclose the joint between the first and second plates; apertured to give clearance to the axle and attached parts and adapted to make light rubbing contact with the second or intermediate plate, substantially as specified.

2. In a pedal-operated driving-gear the combination with a sprocket-wheel movable in its own plane relatively to the axle, of a set of superposed cover-plates whereof the one is attached to the sprocket-wheel and movable therewith relatively to the other, and is apertured to clear the said axle and attached parts in all positions of the wheel, and of a dust-excluding packing surrounding the aperture of the movable plate, and formed of fibrous material attached to and projecting from the face of the one cover and pressing against the adjacent surface of the other cover-plate, substantially as specified.

3. In a pedal-operated driving-gear the combination with a sprocket-wheel movable in its own plane relatively to its axle, of a set of superposed cover-plates whereof the one is attached to the sprocket-wheel and is movable therewith relatively to the other, and is apertured to clear the said axle and attached parts in all positions of the wheel, and of a dust-excluding packing surrounding the aperture of the movable plate, and formed of fibrous material held in and projecting from a groove formed in the one plate and projecting therefrom so as to press against the adjacent surface of the other cover-plate, substantially as specified.

4. In a pedal-operated driving-gear the combination with a sprocket-wheel movable in its own plane relatively to its axle, of a series of three superposed cover-plates comprising a plate attached to the wheel and apertured to clear the axle and attached parts in all positions of the wheel, an intermediate plate attached to the axle-hub and covering the said aperture, an outer cover-plate apertured to clear the axle, overlapping the margin of the intermediate plate and in interlocking connection with the first plate so as to move therewith, and fibrous packings respectively surrounding the said apertures, said packings being respectively attached to and projecting from the face of the one of two adjacent plates and bearing against the other plate, so as to make a dust-excluding sliding joint between the two adjacent plates as described.

702,843. MANUFACTURE OF SEAMLESS SOCKS WITH LACEWORK STRIPES. WALLACE WILSON, Philadelphia, Pa. Filed June 16, 1901. Serial No. 64,642. (No model.)



Claim.—1. A continuously-knit seamless stocking, the leg of which is provided on all sides with alternate sections of plain knitting and sections containing lines of tuck-stitches; of the stripes thus formed these down the back of the leg being formed by the alternation of tuck-stitches and plain stitches; these down the front of the leg being formed by the interstep of the foot; and the heel and toe patches and the sole of the foot being formed of plain knitting, substantially as described.

2. A continuously-knit seamless stocking, the leg of which is provided on all sides with alternate sections of plain knitting and sections containing lines of tuck-stitches; of the stripes thus formed these down the back of the leg being formed by the alternation of tuck-stitches and plain stitches; these down the front of the leg being formed with alternate tuck-stitches and omitted stitches, and being prolonged down the instep of the foot; and the heel and toe patches and the sole of the foot being formed of plain knitting, substantially as described.

3. The process of knitting a seamless stocking, with lacework stripes down both the front and back of the leg and the instep of the foot, upon a circle of needles comprising plain needles and tuck-needles at intervals, both front and rear, corresponding to the position of the stripes to be produced, which comprises the following cycle of operations: first, knitting the leg upon the whole circle with the tuck-needles operating to tuck at regularly-recurring intervals; second, knitting the heel upon the rear fashioning set with the tuck-needles operating as plain needles; third, knitting the foot upon the whole circle with the front tuck-needles operating to tuck and the rear tuck-needles operating as plain needles; fourth, knitting the toe upon the rear fashioning set with the tuck-needles operating as plain needles, substantially as described.

4. A machine-knit stocking having a tubular portion formed of a single thread at one continuous operation; said stocking having in one half of its tubular surface a section or sections of tuck-stitches alternating with a section or sections of plain knitting; and upon the other half of its tubular surface a section or sections of open or lace work tuck-

stitches alternating with a section or sections of plain knitting, substantially as described.

5. A machine-knit stocking, having a tubular portion formed of a single thread at one continuous operation; said thread being knit into alternate sections of plain knitting and sections of tuck-stitches consisting of a plurality of threads formed into a single elongated loop, to form one half of the tubular surface of the fabric; the said thread being knit into alternate sections of plain knitting and sections of lace work, consisting of a series of elongated superimposed loops separated from adjacent loops by a space with a series of loose crossing threads spanning said space and interlocked with the elongated loops, to form the remaining half of the tubular surface of the fabric, substantially as described.

6. A machine-knit stocking having a toe, heel, and leg portion knit continuously from a single thread at one operation; the rear portion of the leg of the stocking being formed of tuck-stitches alternating with plain knitting; the heel, sole, and toe portions of the stocking being formed of plain knitting; and the front of the leg and instep portion of the foot of the stocking being formed of alternate sections of regular and open or lace work tuck-stitches, substantially as described.

7. A machine-knit seamless tubular stocking having a toe, heel, and leg knit continuously from a single thread at one operation; the rear portion of the leg portion being formed of alternate sections of tuck-stitches and plain knitting extending down to the heel portion of the stocking; and the heel, sole, and toe portions being formed of plain knitting, substantially as described.

702,844. ELECTRICITY-METER. ARTHUR WASSER, Brighton, England, assignor to Mutual Electric Trust, Limited, Brighton, England. Filed May 20, 1902. Serial No. 14,194. (No model.)



Claim.—1. An electrolytic mercury-meter comprising a means for setting up currents in the electrolyte near the anode whereby that portion of the electrolyte which has been enriched by mercury is removed from the neighborhood of the anode, substantially as described.

2. An electrolytic meter comprising two electrodes of mercury, the anode being placed at a higher level than the cathode for the purpose stated.

3. An electrolytic mercury-meter comprising two electrodes, one at least of mercury, the anode being placed at a higher level than the cathode, for the purpose stated.

4. An electrolytic meter comprising two electrodes of mercury, and a heating device for setting up convection-currents in the electrolyte near the anode for the purpose stated.

5. An electrolytic meter comprising two electrodes, one at least of mercury, and a heating device for setting up convection-currents in the electrolyte near the anode, for the purpose stated.

6. An electrolytic meter comprising two electrodes, one at least of mercury, and an electric heating resistance for setting up convection-currents in the electrolyte near the anode, for the purpose stated.

7. An electrolytic mercury-meter comprising an intermediate chamber inserted in the path of flow of the mercury for the purpose of feeding the mercury in minute quantities, substantially as described.

8. An electrolytic mercury-meter comprising an intermediate chamber inserted in the path of flow of the mercury of the cathode for the purpose of feeding the mercury in minute quantities, substantially as described.

9. An electrolytic mercury-meter comprising a receptacle for the mercury anode and a lip or ridge in the path of flow of the mercury of the anode, substantially as described.

10. An electrolytic mercury-meter comprising an anode-chamber and an anode-feeder for supplying mercury thereto, substantially as described.

11. An electrolytic mercury-meter comprising an anode-chamber and a graduated anode-feeder for supplying mercury thereto, substantially as described.

12. An electrolytic meter comprising a primary measuring-chamber for the mercury and a secondary measuring-chamber of more delicate calibration connected therewith, substantially as described.

13. An electrolytic mercury-meter comprising a primary measuring-chamber for the mercury and a secondary measuring-chamber connected thereto and constructed to empty its entire contents into the primary chamber when filled, substantially as described.

14. An electrolytic mercury-meter comprising a primary measuring-chamber and a secondary measuring-chamber in the form of a siphon-tube connected therewith, substantially as described.

15. An electrolytic mercury-meter comprising the anode and cathode chamber, a primary measuring-chamber, a secondary measuring-chamber in the form of a siphon-tube connected with the above-specified chambers and a tube for the flow of the electrolyte connecting the primary measuring-chamber with the anode and cathode chamber, substantially as described.

16. An electricity-meter comprising a primary measuring-chamber and a secondary measuring-chamber connected thereto and constructed to empty its entire contents into the primary chamber when filled, substantially as described.

17. An electricity-meter comprising a primary measuring-chamber and a secondary measuring-chamber in the form of a siphon-tube connected therewith, substantially as described.

702,845. DIRECT OR CONTINUOUS CURRENT ELECTRICITY-METER. ARTHUR WASSER, Brighton, England, assignor to the Mutual Electric Trust, Limited, Brighton, England. Filed May 21, 1902. Serial No. 14,208. (No model.)



Claim.—1. An electric measuring device for direct currents comprising an electrolytic meter and a means for producing a difference of potential arranged to counterbalance the back electromotive force of the meter, substantially as described.

2. An electric measuring device for direct currents comprising an electrolytic meter and a means for producing a difference of potential in

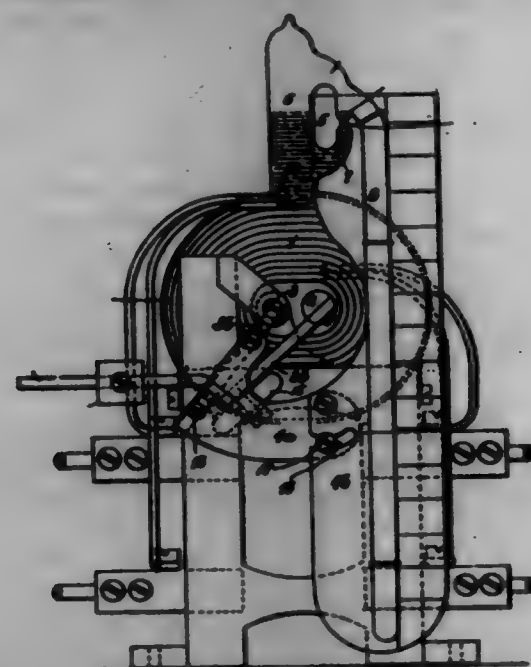
series therewith arranged to counterbalance the back electromotive force of the meter, substantially as described.

3. An electric measuring device for direct currents comprising an ohmic resistance in the circuit and in a shunt thereto an electrolytic meter and a means for producing a difference of potential arranged to counterbalance the back electromotive force of the meter, substantially as described.

4. An electric measuring device for direct currents comprising an ohmic resistance in the circuit and in a shunt thereto an electrolytic meter and a means for producing a difference of potential in series with the meter, and arranged to counterbalance the back electromotive force of the meter, substantially as described.

5. The combination of a bridging resistance between the two direct-current mains or conductors, an ohmic resistance interposed in one of said conductors and an electrolytic meter one of whose electrodes is connected to a point on the bridging resistance between the two conductors and the other electrode to that conductor in which the ohmic resistance is interposed, substantially as described.

702,846. ELECTRIC MAXIMUM-DEMAND INDICATOR. ARTHUR WHEAT, Brighton, England, assignor to The Mutual Electric Trust, Limited, Brighton, England. Filed June 20, 1900. Serial No. 21,834. (No model.)



Claim.—1. A meter for indicating the maximum electric demand in a period of time, comprising an angularly-movable vessel containing a material to be decanted and including a reservoir and receiver, the angular movement of the vessel decanting a portion of the material from the reservoir to the receiver, which varies with the extent of the maximum movement, substantially as described.

2. A meter for indicating the maximum electric demand in a period of time comprising an angularly-movable vessel, containing a material to be decanted, and including a reservoir and a receiver, and an electrical actuating device for angularly moving the vessel, substantially as described.

3. A meter for indicating the maximum electric demand in a period of time comprising an angularly-movable vessel, containing a material to be decanted, and including a reservoir and a receiver, and an electromagnet actuating device for angularly moving the vessel, substantially as described.

4. A meter for indicating the maximum electric demand in a period of time comprising an angularly-movable vessel, containing a material to be decanted, and including a reservoir and a receiver, and an actuator for angularly moving the vessel, substantially as described.

5. A meter for indicating the maximum electric demand in a period of time comprising an electric actuating device, and a liquid-indicator having a constricted passage operated thereby, substantially as described.

6. A liquid-indicator for indicating the maximum electric demand in a given time, comprising a tilting vessel including a reservoir, a feed-pipe, and a receiver fed therefrom by an amount of liquid which varies with the maximum tilt of the vessel, substantially as described.

7. A tilting liquid-indicator for indicating the maximum electric demand in a period of time comprising a reservoir, a feed-pipe having a constricted passage and a receiver fed therefrom by an amount of liquid varying with the maximum tilt of the indicator, substantially as described.

8. A tilting liquid-indicator for indicating the maximum electric demand in a period of time comprising a reservoir, a feed-pipe, a receiver

fed therefrom by an amount of liquid varying with the maximum tilt of the indicator, and a receiving-tube, substantially as described.

9. A meter for indicating the maximum electric demand in a period of time, comprising an armature, a heavily-irradiated coil actuating it, and a liquid-indicator consisting of a tilting vessel including a reservoir and a receiver fed therefrom by decantation, substantially as described.

10. A meter for indicating the maximum electric demand in a given limit of time comprising an armature, a heavily-irradiated coil actuating it, and a tilting liquid-indicator with a constricted feed-aperture operated by the armature, substantially as described.

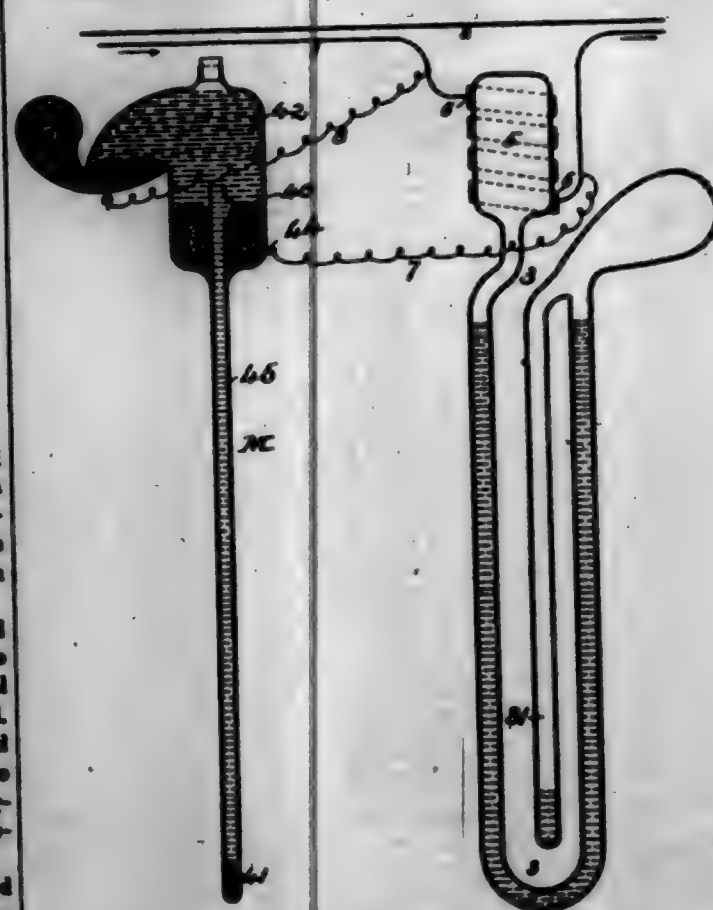
11. A meter for indicating the maximum electric demand in a given limit of time comprising an armature, a heavily-irradiated coil actuating it, and a tilting liquid-indicator with a constricted feed-aperture and return-pipe operated by the armature, substantially as described.

12. A meter for indicating the maximum electric demand in a given limit of time comprising a stationary axial armature provided with a wing or wings at each end, a movable axial armature provided with a wing or wings at each end and actuated by the wings of the stationary armature and an indicator actuated by the movable armature, substantially as described.

13. A meter for indicating the maximum electric demand in a given limit of time comprising an electric actuating device and a tilting liquid-indicator adjustably connected to its movable part, substantially as described.

14. A meter for indicating the maximum electric demand, in a given limit of time comprising an electric actuating device and a tilting liquid-indicator connected to its movable part by a pivot upon which it may turn for resetting, substantially as described.

702,847. METERING OF ELECTRICITY. ARTHUR WHEAT, Brighton, England, assignor to The Mutual Electric Trust, Limited, Brighton, England. Filed June 20, 1900. Serial No. 21,699. (No model.)



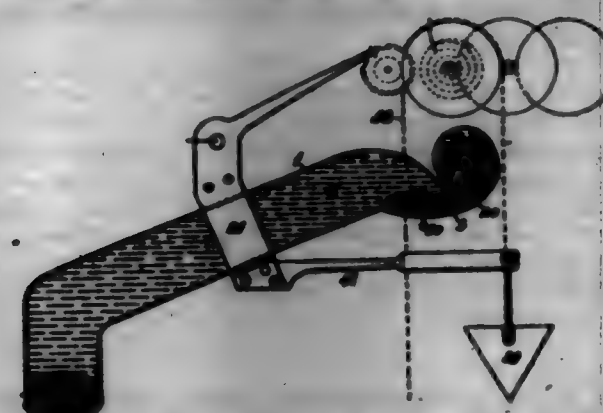
Claim.—1. The combination of a demand-indicator and an electricity-meter in shunt thereof, substantially as described.

2. The combination of a demand-indicator and an electricity-meter in shunt thereof, the resistance or the demand-indicator, or part of it, serving as the shunting resistance for the electricity-meter, substantially as described.

3. The combination of a thermal demand-indicator and an electricity-meter in shunt thereof, the heating resistance of the demand-indicator, or part of it, serving as a shunting resistance for the electricity-meter, substantially as described.

4. The combination of a demand-indicator and an electrolytic meter in shunt thereof, the resistance of the demand-indicator or part of it, serving as the shunting resistance for the electrolytic meter, substantially as described.

702,848. ELECTRICITY-METER. ARTHUR WHEAT, Brighton, England, assignor to The Mutual Electric Trust, Limited, Brighton, England. Filed June 20, 1900. Serial No. 21,642. (No model.)



Claim.—1. An electrolytic mercury-meter comprising a movable electrode, the weight of the mercury on which varies during the passage of the current, and an indicator operated by its change of weight, substantially as described.

2. An electrolytic mercury-meter having its anode above the cathode, and having one or both electrodes movable, the weight of the mercury of the movable electrode varying during the passage of the current, and an indicator operated by its change in weight, substantially as described.

3. An electrolytic mercury-meter comprising a tilting electrode-chamber, the change in weight of the mercury on the cathode during the passage of the current causing a tilting of the chamber, and an indicator controlled by the tilting chamber, substantially as described.

4. An electrolytic mercury-meter, comprising a tilting electrode-chamber, the change in weight of the mercury on the electrodes causing a tilting of the chamber, and an indicator controlled by the tilting chamber, substantially as described.

5. An electrolytic mercury-meter comprising a tilting electrode-chamber, the increased weight of the mercury on the cathode and the diminished weight of the mercury-anode each causing a tilting of the chamber, and an indicator controlled by the tilting chamber, substantially as described.

6. An electrolytic mercury-meter comprising a tilting chamber, having the anode situated above the cathode, the change in weight of the mercury on the electrodes causing a tilting of the chamber, and an indicator controlled by the tilting chamber, substantially as described.

7. An electrolytic mercury-meter comprising a tilting electrode-chamber, the change in weight on the electrodes causing a tilting of the chamber, and an indicator comprising a driven register checked or restrained by the tilting chamber and permitted to be operated by the tilt of the chamber, and a restoring mechanism for the tilting chamber operated by the register, substantially as described.

8. An electrolytic mercury-meter comprising a tilting electrode-chamber, the change in weight on the electrodes causing a tilting of the chamber, an indicator comprising a driven register checked or restrained by the tilting chamber and permitted to be operated by the tilt of the chamber, and a restoring mechanism comprising a basket and chain for restoring the tilting chamber to engagement with the register, substantially as described.

9. An electrolytic mercury-meter comprising a tilting electrode-chamber, the change in weight on the electrodes causing a tilting of the chamber, an indicator comprising a driven register checked or restrained by the tilting chamber and permitted to be operated by the tilt of the chamber, and a restoring mechanism comprising a basket and chain for restoring the tilting chamber to engagement with the register, substantially as described.

702,849. MAXIMUM AND MINIMUM RECORDING ELECTRICITY-METER. ARTHUR WHEAT, Brighton, England, assignor to The Mutual Electric Trust, Limited, Brighton, England. Filed July 1, 1901. Serial No. 66,799. (No model.)

Claim.—1. A maximum and minimum electric recording-meter comprising an expansion-bulb, an expansion-lead and a trap between the two, substantially as described.

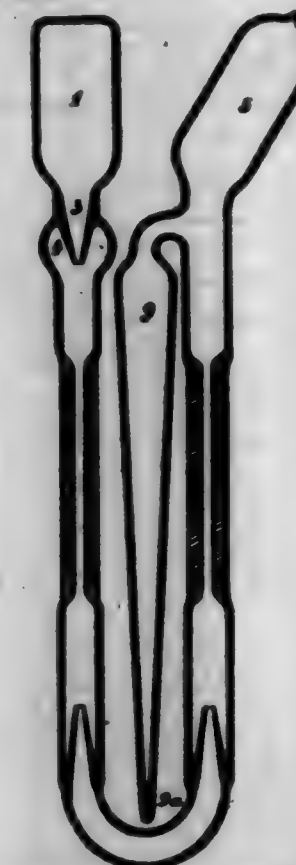
2. A maximum and minimum electric recording-meter comprising an expansion-bulb, a screw connected therewith and a trap-bulb surrounding the screw, substantially as described.

3. A maximum and minimum electric recording-meter comprising a plurality of expansion-bulbs on an expansion-lead and a screw or cross-tube therebetween, substantially as described.

4. A maximum and minimum electric recording-meter comprising a plurality of expansion-bulbs, cross-tubes, or cross-tubes connected to the expansion-bulbs and an expansion-lead connected to the cross-tubes, substantially as described.

5. A maximum and minimum electric recording-meter comprising an

index-tube, in which liquid collects, which is of substantially conical form, substantially as described.



6. A maximum and minimum electric recording-meter comprising an index-tube, in which liquid collects, which is substantially of a flat conical form, substantially as described.

7. A maximum and minimum electric recording-meter comprising a series of index-tubes connected with each other at their upper ends, substantially as described.

8. A maximum and minimum electric recording-meter comprising a series of index-tubes connected with each other and with the meter at their upper ends, substantially as described.

9. A maximum and minimum electric recording-meter comprising a series of index-tubes connected with each other at their upper ends, one of said tubes being conical, substantially as described.

702,850. ELECTRICITY-METER OF THE ELECTROLYTIC TYPE. ARTHUR WHEAT, Brighton, England, assignor to The Mutual Electric Trust, Limited, Brighton, England. Original application filed May 26, 1900, Serial No. 15,194. Divided and this application filed Aug. 5, 1902. Serial No. 101,623. (No model.)



Claim.—1. In a meter of the mercury electrolytic type, the combination of a mercury anode and a platinum cathode, the said cathode

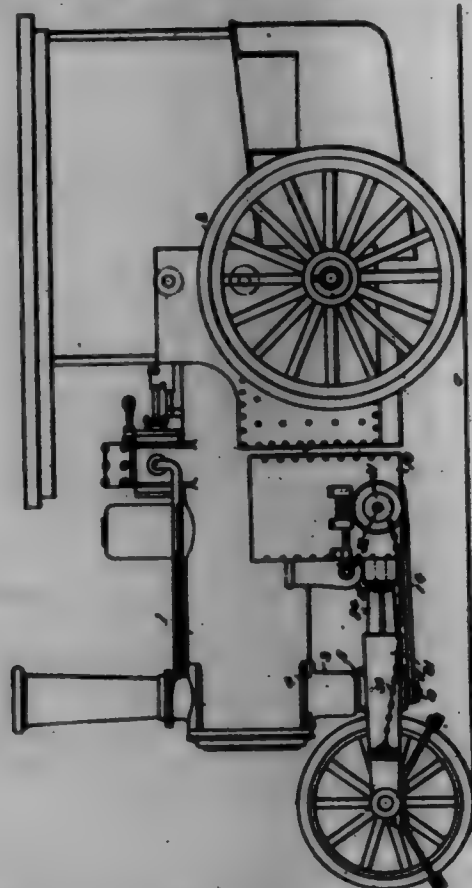
having a portion below the level of the said anode substantially as set forth.

2. In a mercury electrolytic meter, the combination of a mercury anode and a conical platinum cathode, having a portion below the level of the said anode, substantially as described.

3. In a mercury electrolytic meter, the combination of a mercury anode and a hollow conical platinum cathode the said cathode having a portion below the level of the said anode, substantially as described.

4. In a mercury electrolytic meter, the combination of a mercury anode and a hollow conical platinum cathode, with its apex pointing downward and with an orifice at the said apex, the said apex being placed below the level of the said anode, substantially as described.

702,851. STEAM ROAD-ROLLER. THOMAS WISNET, Springfield, Ohio. Filed Feb. 26, 1902. Serial No. 95,799. (No model.)



Claim.—1. In a steam road-roller, the combination, with a horizontal roller provided with driving-wheels at its rear end, of a steering-roller located at the front of the roller, a horizontal yoke in which said roller is mounted, said yoke extending rearward from said roller under the roller, and a universal joint connecting said yoke with the under side of the boiler, said joint being located under the boiler and back of the front end of the same, whereby the boiler-front is unobstructed, substantially as described.

2. In a steam road-roller, the combination, with a horizontal roller provided with driving-wheels at its rear end, of a steering-roller located at the front of the roller, a horizontal yoke in which said roller is mounted, said yoke extending rearward from said roller under the roller, and a universal joint connecting said yoke with the under side of the boiler, whereby the boiler-front is unobstructed, said yoke being provided with a rearward extension, and fixed horizontal guides between which said extension moves, substantially as described.

3. In a steam road-roller, the combination, with a horizontal roller provided with driving-wheels at its rear end and having a vertical housing located under its front end, of a king-post pivotally mounted in said housing, a horizontal yoke connected with said king-post by a horizontal pivot, and a steering-roller mounted in said yoke, substantially as described.

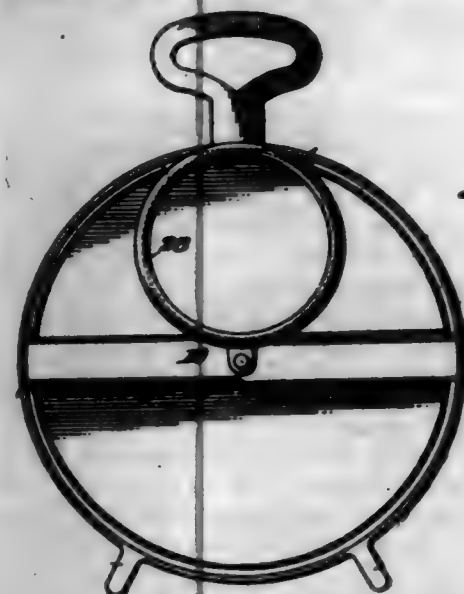
4. In a steam road-roller, the combination, with a boiler having a saddle-casting secured to its under side at the front and provided with a vertical housing, of a king-post mounted in said housing, a horizontal yoke pivotally connected with said king-post by a horizontal pivot and provided at its forward end with a steering-roller and at its rear end with a bearing-roller, and horizontal guides secured to a fixed part of the machine and receiving between them said bearing-roller, substantially as described.

5. In a steam road-roller, the combination, with a horizontal roller having a vertical housing secured underneath its front end, of a king-post mounted in said housing and having a bearing-surface upon which the lower end of the housing rests, and a transverse portion terminating in

front and rear bearing-disks, a steering-roller, a horizontal yoke in which said steering-roller is mounted, said yoke being provided with an opening having bearing-surfaces to abut against the bearing-disks of the king-post, and a horizontal pin passing through said yoke and through the king-post, substantially as described.

6. In a steam road-roller, the combination, with a horizontal roller having driving-wheels at the rear and a front tank, of a housing located under the front end of the roller, a king-post pivotally mounted in said housing, a horizontal yoke connected with said housing by a longitudinal pivot, a steering-roller mounted in the forwardly-extending arm of the yoke, said yoke being provided with a rearward extension, horizontal guide-pieces secured to the front of the tank, the rearward extension of the yoke being provided with a bearing-roller located between said pieces, and a brace-rod connecting the lower end of the king-post and the tank, substantially as described.

702,852. SLICING-MACHINE. CHARLES E. SUMNER, Brighton, N. Y. Filed Nov. 27, 1901. Serial No. 93,940. (No model.)



Claim.—1. In a slicing-machine, a frame comprising an annular ledge, an adjustable gage-plate, an orbitally-movable cup or holder pivotally mounted centrally within the frame and provided with a segmental runner which travels on the annular ledge, and a stationary ledge-blade connected with the frame and interposed between the gage-plate and cup or holder.

2. In a slicing-machine, the combination with a frame having an annular ledge, and a stationary ledge-blade extending across the frame, of an adjustable gage-plate arranged at one side of the ledge-blade, an orbitally-movable cup or holder at the opposite side of the ledge-blade, and a rotatable annular hand-grip mounted on said cup or holder.

3. In a slicing-machine, the combination with an annular frame provided with a groove extending transversely of the rim thereof, of an adjustable gage-plate fitted within the annular frame and provided with a tongue or projection movable in said groove, means for adjusting and holding the gage-plate, an orbitally-movable cup or holder, and a ledge-blade connected with the frame and interposed between the gage-plate and said cup or holder.

4. In a slicing-machine, the combination with an annular frame having a rim provided with openings, and an annular ledge connected with the rim and having diametrically opposite depressions, of a ledge-blade having its ends fitted flush within said depressions and provided with studs fitting the openings in the rim, an adjustable gage-plate located at one side of the ledge-blade, and an orbitally-movable cup or holder at the opposite side of the ledge-blade, substantially as described.

5. In a slicing-machine, an annular frame, a cross-bar extending diametrically thereof and provided with an upstanding stud and a depending post, in combination with an orbitally-movable cup or holder journaled on said stud, a movable gage-plate adjustable on said post, and a stationary ledge-blade interposed between the gage-plate and cup or holder and connected with the frame, substantially as described.

702,853. JEWELRY-DISPLAY TRAY. JOHN P. ANHILL, Pitts. Mass. Art. Filed May 7, 1902. Serial No. 14,794. (No model.)

Claim.—1. A display-tray for jewelry, having means for locking the separate pieces of jewelry therein, a key for unlocking such means, and means controlled by the piece of jewelry which prevents the withdrawal of the key until the piece of jewelry has been replaced, substantially as and for the purpose set forth.

2. A lock for a display-tray for jewelry, having means for locking the separate pieces of jewelry, a key for unlocking such means, means for locking the key, and means operated by the piece of jewelry for releasing the key-locking means, substantially as and for the purpose specified.



3. A lock for a display-tray for jewelry, having a jaw for locking a piece of jewelry, a jaw for locking a key, each first-mentioned jaw being adapted to be opened by said key, and each last-mentioned jaw being adapted to be opened by the engagement of the piece of jewelry therewith, substantially as and for the purpose described.

4. A lock for a display-tray for jewelry, having a jaw for locking a piece of jewelry, a jaw for locking a key, each last-mentioned jaw having notches to engage the key and prevent its withdrawal, and having an inclined surface or surfaces by the engagement of which with the piece of jewelry, said jaw is adapted to be moved to disengage the key, substantially as and for the purpose described.

5. A lock for a display-tray for jewelry, consisting of a plate having an opening therein, a jaw that normally overlies such opening, a spring tending to hold said jaw in its normal position, a second jaw having an inclined leg that normally overlies such opening, a spring tending to hold said second jaw in its normal position, in combination with a key that is adapted to move each first-mentioned jaw from over said opening, said second jaw having a part that is adapted to prevent the withdrawal of the key, and a holder for a piece of jewelry, each holder being adapted to enter the opening in the plate and to engage said inclined leg to release the key, and having a projection for engagement with each first-mentioned jaw, substantially as and for the purpose described.

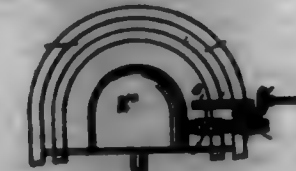
6. A holder for displaying a ring, consisting of a body having means for engaging the inner surface of the ring, and having spring-arms that are adapted to fit against and extend along the rim of the ring, substantially as and for the purpose described.

7. A holder for displaying a ring consisting of a body, spring-arms that are adapted to fit against said ring, and a tongue that is adapted to be bent over and to secure such ring in the holder, substantially as and for the purpose set forth.

8. A holder for displaying a ring, consisting of an elongated body having a lock-engaging projection, spring-arms that are adapted to fit against said ring, and a tongue that is adapted to be bent over and to secure such ring in the holder, substantially as and for the purpose described.

9. In a display-tray for jewelry, the combination of a lock, and a part to cooperate therewith, adapted for attachment to a piece of jewelry, substantially as and for the purpose described.

702,854. APPARATUS FOR PRODUCING FINE OR NAP FABRICS. JOHN HAYES, Stockport, England, assignor of four-fifths to Robert John Chadwick Mitchell, Waterlool, England. Filed Jan. 11, 1902. Serial No. 93,971. (No model.)



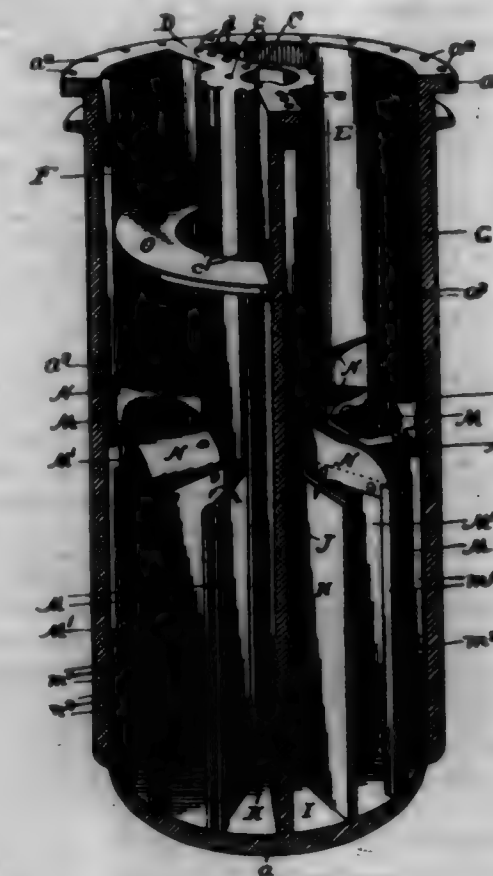
Claim.—1. Apparatus for raising a pile on filled hat-bodies, consisting of a hat-form to the surface of which the hat-body is applied, a raising-roller secured near the surface of the hat-body and grooved guiding means for the raising-roller conforming to the contour of the hat-body, substantially as described.

2. Apparatus for raising a pile on filled hat-bodies consisting of a hat-form to the surface of which the hat-body is applied, a raising-roller secured near the surface of the body, two rollers, one on each side of the raising-roller, each arranged to bear on the fabric on the form near the raising-roller to prevent displacement of the fabric thereon by the raising-roller, and grooved guiding means for the latter to conform to the contour of the hat body and form, substantially as described.

3. Apparatus for raising the pile on filled hat-bodies consisting of a hat-form to the surface of which the hat-body is applied, a raising-roller adjustably secured near the surface of the body, two rollers, one on each side of the raising-roller, each arranged to bear on the fabric on the form near the raising-roller to prevent displacement of the fabric thereon by

the raising-roller, and grooved guiding means for the latter to conform to the contour of the hat body and form, substantially as described.

702,855. RETORT FOR GENERATING OXYGEN. FRANK A. FILLZ, Chicago, Ill., assignor of one-half to Morris Green, Marshalltown, Iowa. Filed Nov. 8, 1901. Serial No. 91,381. (No model.)



Claim.—1. In a retort of the class described, the combination with the outer wall, of partitions forming oxidizing and decolorizing chambers, a series of compartments in each chamber opening alternately near top and bottom, into the next succeeding compartments, a settling-compartment into which the last oxidizing-compartment opens at the top, a supply-chamber having an overflow-opening from the settling-chamber and opening near the bottom into the first decolorizing-compartment, an opening near the bottom of the last decolorizing-compartment into the first oxidizing-compartment, a series of air-pipes in the oxidizing-chamber, a series of steam-pipes in the decolorizing-chamber, said pipes terminating in an upward direction in the lower portion of the compartments which open near the top into the next succeeding compartments, and the oxidizing and decolorizing chambers being provided respectively with means for the escape of the nitrogen and the withdrawal of the oxygen, substantially as described.

2. In a retort of the class described, the combination with the outer wall, of a central hollow partition and partitions extending therefrom to the outer wall, suitable guides on the hollow partition and the outer wall, removable sliding partitions fitted to said guides, and suitable oxidizing and decolorizing apparatus located in the respective chambers between the said partition and the outer wall, substantially as described.

3. In a retort of the class described, the combination with a hollow cylindrical partition and partitions radiating therefrom to divide the retort into oxidizing and decolorizing chambers, said cylindrical partition being provided with openings above and below, opening respectively into the oxidizing and decolorizing chambers, of a series of radial partitions extending from the cylindrical partition to the outer wall, the alternate radial partitions terminating respectively short of the top and bottom of the retort, and suitable oxidizing and decolorizing apparatus located in the respective chambers and adapted to maintain a continuous circulation around the retort, substantially as described.

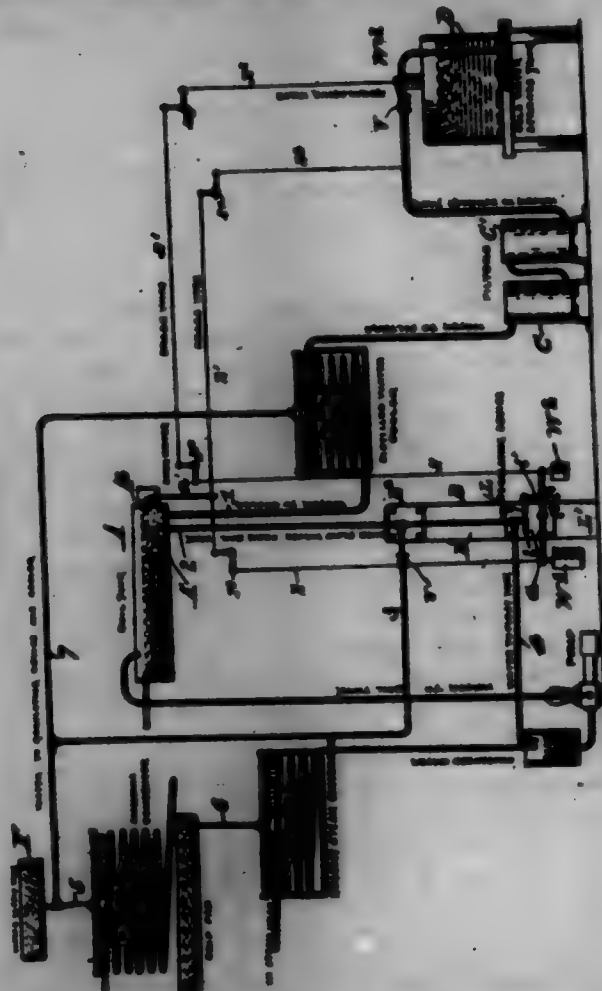
4. The combination with the cylindrical vessel, A, adapted for the purpose described, of the partitions, C, D, E, dividing the retort into an oxidizing and decolorizing and a supply chamber, the latter of which opens above the bottom into the oxidizing-chamber and near the bottom into the decolorizing-chamber, the partitions, M, terminating above and the partitions, M', open below the liquid-level, the deflectors, N, secured to the partitions, M', and suitable apparatus in the alternate compartments, formed by the partitions, M, M', adapted to effect the alternate oxidation and decolorization of a suitable liquid and also to keep the same in occasional circulation through the various compartments, substantially as described.

5. In a retort of the class described, the combination with the cylindrical vessel, A, and the partitions, C, D, E, therein, of the short permanent partition, H, the partition, G, having the opening, J, between the partitions, E, H, and terminating below the top of the latter, the radial partitions, M, M', open alternately at the bottom, and means for successively oxidizing and decalcifying a suitable liquid and at the same time passing it continuously around the retort; substantially as described.

6. In a retort of the class described, the combination with an outer wall, of a cylindrical partition forming a central supply-chamber, radial partitions extending from said cylindrical partition to the outer walls of the retort, and dividing the remainder of the retort into an oxidizing and a decalcifying chamber, said oxidizing and decalcifying chambers being crossed by various partitions extending part way up, said partitions being so arranged that the chambers formed by them open, one into another, alternately at the top and bottom, the alternate chambers being provided with injectors, these in the oxidizing-chamber being air-injectors, and these in the decalcifying-chamber being steam-injectors, the alternate ones of said short partitions being provided with deflectors so arranged that the liquid which is turned upward by the injector will be turned into the next compartment, suitable means of communication from the oxidizing-chamber to the central supply-chamber, from the central supply-chamber to the decalcifying-chamber, and from the decalcifying-chamber to the oxidizing-chamber; substantially as described.

7. In a retort of the class described, the combination with an outer wall, of a cylindrical partition forming a central supply-chamber, with radial partitions extending from said cylindrical partition to the walls of the retort and dividing the remainder of the retort into an oxidizing and a decalcifying chamber, said oxidizing and decalcifying chambers being crossed by various partitions extending part way up, said partitions being so arranged that the chambers formed by them open, one into another, alternately at the top and bottom, the last chamber of the oxidizing series opening at the top into the central supply-chamber, also at the top into the next oxidizing-chamber, said last chamber being adapted to serve as a settling-chamber for the liquid, suitable means of communication from the central supply-chamber to the lower part of the decalcifying-chamber and from the last chamber of the decalcifying series to the first chamber of the oxidizing series; substantially as described.

702,855. AUTOMATIC SKIMMING-REGULATOR FOR ICE-MAKING APPARATUS. ABRAHAM O. FRANK, Waynesboro, Pa., assignor to the Frick Company, Waynesboro, Pa., a Corporation of Pennsylvania. Filed Mar. 19, 1900. Serial No. 674,468. (No model.)



Claim.—1. A regulating device for the skating apparatus of an ice-making apparatus, which consists of a part of material adapted to be

quickly expanded and contracted by heat and cold, a connection between said part and the valve which controls the flow of water from the bell-tank, and means for connecting said part with an overflow from said bell-tank, substantially as set forth.

2. A regulating device for the skating apparatus of an ice-making plant, which consists in a contractible and expansible part connected with an overflow from the bell-tank, and also with a cold-water supply, and a connection between said part and the valve which controls the flow of water from said bell-tank, substantially as set forth.

3. The combination in an ice-making apparatus, of the bell-tank, the skin-dish, overflow-openings leading from one to the other, a discharge-pipe for the pure water leading from said bell-tank to the storage-tank, a valve therein for controlling the flow of water, another pipe leading from within said bell-tank the top of which is substantially on a level with the overflow-openings and the lower end of which discharges into the surface of a contractible and expansible part, and a connection between said part and said valve, substantially as set forth.

4. In an ice-making apparatus, the combination of the bell-tank, the pipe leading therefrom to the storage-tank, a second pipe leading therefrom through which an overflow is adapted to discharge connected to a contractible and expansible pipe, a lever pivoted to its lower end and hinged at one end to an adjacent point and at its other end connected by suitable connections for transmitting motion to the valve for controlling the flow of water from the bell-tank, substantially as set forth.

5. In an ice-making apparatus, the combination, of the bell-tank, the overflow-pipe 2, the part of pipe B of the character described, a lever hinged at one end to the post alongside the lower end of said part or pipe, pivoted to said lower end at a point between its ends, and connected by its other end and by suitable means to the operating-handle of the valve which controls the flow of water from the bell-tank, a weight being attached to said handle, and another weight of slightly greater gravity being attached to the other end of the lever connected with the pipe B, substantially as set forth.

6. In an ice-making apparatus, the combination, of the bell-tank, the skating apparatus, and the regulating device consisting of a part of contractible and expansible material located in the path of an overflow of hot water from said bell-tank and connected by suitable means to the means for controlling the outflow from the bell-tank, whereby its contraction and expansion caused by the intermittent flow of hot water therethrough will operate said means, substantially as set forth.

7. In an ice-making apparatus, the combination, of the bell-tank, the skating apparatus, the regulating device, a jointed lever mounted on a fixed pivot between its joint and one of its ends a connection to the regulating device joined thereto between its joint and its other end, a connection of suitable material running from the end of said part connected to the regulating device to the valve for controlling the flow from said bell-tank, a weight also attached to said end, a weight of less gravity attached to the operating-handle of said valve, a connection of similar material and length joined to the outer end of the other member of said lever and running through corresponding space and attached to a fixed point, and a weight of greater gravity than either of said other weights attached to the same end of said lever, substantially as set forth.

8. In an ice-making apparatus, the combination, of the bell-tank, the overflow-pipe 2, the regulating part B, the lever L pivoted to its lower end at a point between its ends, the jointed lever L' mounted at a point between its joint and one end on a fixed pivot, a link connecting the free end of said lever L to said lever L' at a point a distance from the joint equal to the distance from said joint to the pivot, a weight and connecting-wire attached to the other end of said member, said wire extending to the operating-handle of the valve which controls the flow from said bell-tank to which it is attached, a weight of less gravity also attached to said handle, another wire attached to the opposite end of said lever L', and running to correspond with the other, a weight of greater gravity than that on the other end attached to this end of said lever, the distance from the connection of said link with the one member to its end being the same as the distance from the pivot of the other member to its end, all substantially as described and for the purpose specified.

9. In an ice-making apparatus, the combination, of the bell-tank having overflow-openings at the skimming level, the skimming apparatus, the overflow-pipe extending up within said tank to a point substantially even with the skimming-discharge, and an adjustable tap thereon, whereby the extent of skimming may be regulated, and the apparatus adjusted to waste the least amount of good water possible, substantially as set forth.

10. The combination in an ice-making plant, the bell-tank having overflow-openings at the skimming level, the skimming apparatus, the overflow-pipe 2 connected with the regulating device and extending up within the tank to the skimming level, and a shell with openings around its bottom surrounding said pipe and extending to above its end in said tank, substantially as set forth.

11. The combination in an ice-making plant, of the bell-tank having

overflow-openings at the skimming level, the skimming apparatus, the regulating device arranged to be operated by an overflow from said tank, the overflow-pipe provided with an adjustable tap, the edge of which is normally at substantially the skimming level, a shell surrounding said overflow-pipe within said tank and extending to a point above the water-line and formed with openings around its lower end and at or near the bottom of said tank, substantially as set forth.

702,857. DENTAL FASTENING AND BRIDGEWORK. WILLIAM E. GRISWOLD, Denver, Colo., assignor to Griswold Dental Bridge Company, Denver, Colo., a Corporation of Colorado. Filed Apr. 6, 1901. Serial No. 64,960. (No model.)



Claim.—1. In dental bridgework, the combination of a spring-steel screw to be engaged the cap of a root, a spring-steel screw to the side of a crown, and complementary attaching parts on opposite ends of the saddle.

2. The combination of a dental fastening substantially U-shaped in elevation and having converging sides or wedge-shaped in cross-section, and a corresponding reverse cap or cover.

3. A spring-fastening device attached to the side of a crown and flaring outwardly, so that the complementary attaching parts may be forced down over the fastening device and be locked from any but a vertical movement.

4. A dental spring-fastening substantially U-shaped in elevation and having converging sides in cross-section, and having a locking element formed in its side.

5. The combination of a bent and flaring spring-fastening device, and a complementary cap or cover, both having interlocking ribs.

6. The combination of a bent and flaring spring-fastening device, a complementary reverse cap or cover, the cap or cover having an open bottom and all of its sides but one closed.

7. The combination of a saddle, a spring-fastening element soldered to the saddle and embedded in the material by which the teeth are fastened to the saddle, and a complementary part secured to the side of a crown or artificial tooth, and adapted to enter the spring-fastening element.

702,858. FIRE-ESCAPE. BENJAMIN F. HENNINGSEN and HENRY W. THOMPSON, Quincy, Ill. Filed Nov. 2, 1901. Serial No. 80,320. (No model.)



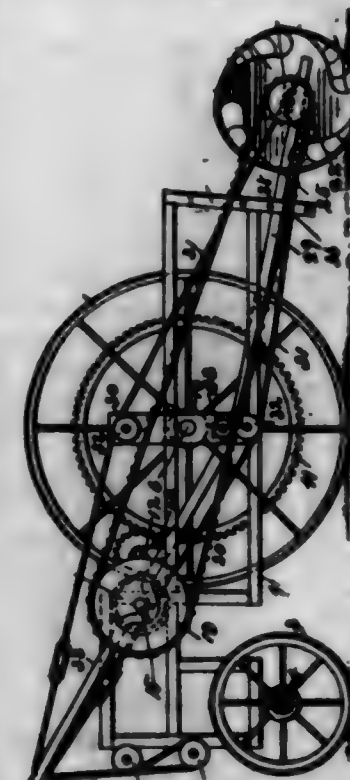
Claim.—1. A fire-escape comprising in combination a block having an opening therein, friction-drums arranged in said opening, brake-blocks bearing against the journals of the said friction-drums, regulating-crooks bearing against the said friction-drums, the intermeshing gears connected to the friction-drums, and an operating-handle connected to one of the said drums, substantially as described.

2. A fire-escape of the kind described, comprising in combination a block having an opening therein, friction-drums arranged in the said opening, friction-drums journaled in the said bearing-frames, the

brake-blocks and regulating-crooks, the intermeshing gears attached to the friction-drums, the operating-handle and the supporting-barrows attached to the block, substantially as described.

3. A fire-escape of the kind described, a block having an opening therein, and a vertical bar traversing the said opening, the slotted bearing-frames arranged in the said opening in the block, the friction-drums journaled in the said bearing-frames, the brake-blocks sliding in the said frames and bearing upon the journals of the friction-drums, the regulating-crooks passing through the ends of the block and bearing against the ends of the friction-drums, the intermeshing gears mounted upon the ends of the friction-drums, the operating crank-handle attached to one of the friction-drums, the supporting-barrows and floor-plates, all arranged to operate as shown and described.

702,859. LAND-PULVERIZER. EMMERSON HOWE, Omaha, N. Y. Filed July 17, 1901. Serial No. 63,066. (No model.)



Claim.—1. A trans member comprising the combination of a transverse member constructed to be pivotally connected to a shaft, and bearing two sheaves one mounted on each end thereof, a longitudinal member, and a pair of trans-rod connected at their extremities to the extremities of said longitudinal member and bearing intermediately on said sheaves, substantially as described.

2. The combination with the frame of the machine, bearing a shaft, of a pair of parallel trans members pivotally mounted on said shaft, each of said members comprising a transverse member pivoted on said shaft and bearing a sheave on each end, a longitudinal member, and a pair of trans-rod connected at their extremities to the extremities of said longitudinal member and bearing on said sheaves, a pulverizing-drum carried by said trans members, and means for adjusting said trans members at different heights, substantially as described.

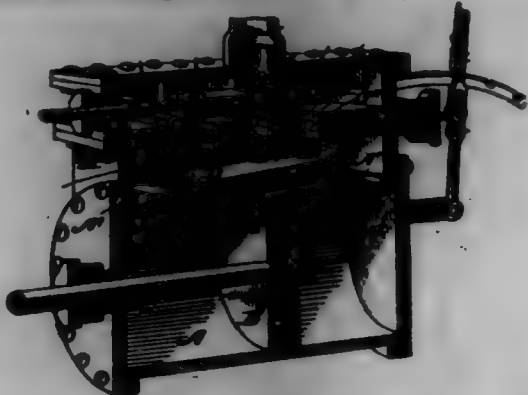
3. The combination with the frame of the machine, of a shaft, of a pair of parallel trans members mounted on said shaft, each of said trans members comprising a transverse member pivoted on said shaft and bearing a sheave, a longitudinal member, and a pair of trans-rod connected at their extremities to the extremities of said longitudinal member and bearing intermediately on said sheaves, and a pulverizing-drum journaled in said longitudinal member, substantially as described.

702,860. VALVE FOR REVERSIBLE STEAM-ENGINE. AUGUST E. KOON, Martinsville, Ind. Filed May 16, 1901. Serial No. 60,344. (No model.)

Claim.—1. In a reversing-gear for steam-engines, the combination with the bearing-plate and valve-seat having aligning parts or openings upon opposite sides of a central longitudinal line, of a reversing plate arranged between the bearing-plate and valve-seat and having non-aligning openings or parts upon opposite sides of a central longitudinal line, said plate being movable horizontally for the purpose of bringing certain of its parts into register with the parts or openings in the bearing-plate and valve-seat, substantially as shown and described.

2. In a reversing-gear for steam-engines, the combination with a

bearing-plate and valve-seat having aligning ports or openings and arranged above a central partition in the steam-chest, of a reversing plate arranged between the bearing-plate and valve-seat and having ports or openings adapted to be alternately brought into register with the ports or openings of the valve-seat and bearing-plate, substantially as shown and described.



3. The combination with a cylinder, of a steam-chest and chest having a longitudinal partition provided with oppositely-inclined partitions upon its opposite sides, a bearing-plate having openings or ports therein, a valve-seat having openings or ports arranged in alignment with the openings or ports of the bearing-plate, and a reversing plate arranged to work between the bearing-plate and valve-seat and provided with non-aligning openings or ports, substantially as shown and described.

4. In a reversing-gear for steam-engines, the combination with the bearing-plate having steam inlet and exhaust ports or openings, of a valve-seat having inlet and exhaust openings upon opposite sides of a central longitudinal line adapted for alignment with the openings or ports of the bearing-plate, and the reversing plate having non-aligning inlet openings or ports, and an exhaust-part of a size to be continually in register with the exhaust ports or openings in the valve-seat and bearing-plate, substantially as shown and described.

5. The combination with the cylinder and steam-chest of a longitudinal partition arranged in the said steam-chest, the oppositely-inclined partitions arranged upon opposite sides of the longitudinal partition, the bearing-plate and valve-seat having aligning ports or openings, the reversing plate sliding between the bearing-plate and valve-seat and having non-aligning inlet openings or ports and a continuously-aligning exhaust-part, and means for shifting or reversing the said plate, substantially as described.

702,861. TOL. WILLIAM P. LYLE, Philadelphia, Pa. Filed Sept. 28, 1901. Serial No. 78,924. (No model.)



Claim.—1. A toy comprising a receptacle to be held in and moved by the hand, a movable pellet therein, a tube adapted to engage said pellet when the latter is in its proper position but serving by its own movement to obstruct the movement of the pellet to said position, and a stopper having a projecting spindle serving as a rigid guide for the tube and restricting the movement of the latter to a plane transverse to that of the movable pellet, substantially as specified.

2. A toy comprising a receptacle to be held in and moved by the hand, a movable pellet contained within said receptacle, and a secondary movable element guided in the receptacle and adapted to engage said pellet when the latter occupies its proper position in the receptacle, but serving by its own movement to obstruct such movement of the pellet, the portion of the receptacle over which the pellet moves being convex or beveled, substantially as specified.

3. A toy comprising a receptacle to be held in and moved by the hand, a movable pellet contained in said receptacle, and a secondary movable element contained in the receptacle and adapted to engage the pellet when the latter is in proper position but curving normally to obstruct the proper movement of the pellet, and a rigid guide on the receptacle whereby the said secondary element can move only in a plane transverse to that of the movable pellet, substantially as specified.

4. A toy comprising a receptacle to be held in and moved by the hand, a pellet movable therein, a secondary movable element adapted to engage said pellet when the latter is in its proper position, but serving by its own movement to obstruct the movement of the pellet to said position, and a stopper having a projecting spindle serving as a guide for said secondary movable element, substantially as specified.

5. A toy comprising a receptacle to be held in and moved by the hand, a pellet movable therein, a secondary movable element adapted to engage said pellet when the latter is in its proper position, but serving by

its own movement to obstruct the movement of the pellet to said position, and a stopper having a projecting spindle serving as a guide for said secondary movable element, and also having a shoulder for restricting the movement of said element in one direction, substantially as specified.

702,862. NICHOLS-HUFFORD. ERIC NICHOLS, Part Arthur, Tex. Filed May 4, 1902. Serial No. 10,490. (No model.)



Claim.—A bicycle-support comprising in combination the barrel 1, the upper end of which has a clamp attached thereto, said clamp comprising the semicylindrical members 2 and 3, hinged together at one side, a swinging nut 4, the lip 5 to which the nut is secured, said lip depending from the front edge of the member 2, the free end being adapted to move in a notch 6 produced in the flange 7, said flange projecting forwardly from the free end of the member 3; the rod 8 having a head 10 and flange 11, the set-screw 12, all of said parts being arranged and operating as set forth.

702,868. HERR. JOHN R. BERNHART, St. Louis, Mo. Filed Apr. 28, 1901. Serial No. 54,106. (No model.)



Claim.—1. The herein-described sign consisting of the bottom having a zigzag rear edge and the segmental front edge, sides D secured to the outer rear edge of the bottom and extending upward therefrom, a metallic frame provided with a large rectangular opening and having turn-over edges upon its sides, said frame having its lower edge and turn-over edges engaging to the segmental front edge of the bottom and the front edges of the sides and providing a space between the edges of the side and turn-over edges, a convex sheet of glass fitting upon the bottom, and in said space and back of the opening in the frame, back sheet E secured to the rear edge of the bottom and the rear edge of the sides, a top fitting upon said frame sides and sheet consisting of the base, the downwardly-extending edges to surround said above-mentioned parts, and an illuminator carried by the lower side of the top.

2. A sign consisting of a bottom having a zigzag rear edge and a segmental front edge, sides secured to and extending upward from the outer edges of the rear, two back sheets secured to and extending upward from the remainder of the bottom and secured to the sides, said sides and back being the same height, a metal plate of substantially the same shape as the bottom, overlapping edges or flanges carried by said plate and adapted to surround or overlap the upper ends of the back and sides to form a top for the sign, a metal frame having curved upper and lower pieces and flanged sides engaging the bottom and sides, a curved sheet of transparent material carrying a sign held in place by the metallic frame, a reflector secured to the under side of the top, and an illuminator carried by the reflector.

702,864. METHOD OF PREPARING SKINS FOR TANNING. WASHINGTON L. ALDER, Buffalo, N. Y., assignor of one-half to Schoellkopf & Company, Buffalo, N. Y., a firm. Filed Mar. 28, 1901. Serial No. 68,810. (No specimens.)

Claim.—1. The herein-described method of tanning skins preparatory to tanning which consists in steeping the skins in a watery solution of sulfid of sodium, bicarbonate of soda and borax, then agitating the skins in a watery solution of sulfid of sodium, bicarbonate of soda, borax and caustic soda, and then agitating the skins in a watery solution of bicarbonate of soda and borax, substantially as set forth.

2. In the art of cleaning skins preparatory to tanning, the method of preparing the skins for treatment with the main cleaning solution

which consists in steeping the skins in a watery solution of sulfid of sodium, bicarbonate of soda and borax, substantially as set forth.

3. In the art of cleaning skins preparatory to tanning, the method of treating the skins with a main cleaning solution which consists of a watery solution of sulfid of sodium, bicarbonate of soda, borax, and caustic soda, substantially as set forth.

702,865. RY-MENSH GUARD. DANIEL W. RYMER, Muffin, Ind., assignor of one-half to Lewis L. De Haven, Muffin, Ind. Filed Dec. 27, 1901. Serial No. 87,498. (No model.)

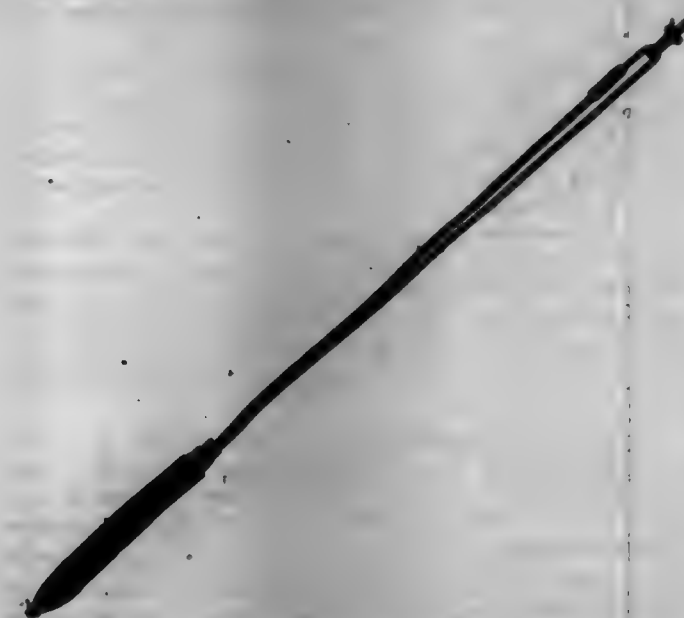


Claim.—1. A protector for the projecting portion of a fastening applied to a rotating part, the same comprising a band to be fitted to the rotating part, and a guard spanning the projecting end of the fastening and having its end-portion detachably connected to the band at opposite sides of the fastening by means of a slip-joint, substantially as set forth.

2. A protector for the projecting portion of a fastening applied to a rotating part, the same comprising a band having openings at opposite points, and a guard for spanning the projecting portion of the fastening and having its end-portion passed through the said openings and held between the band and the part to which the band is fitted, substantially as specified.

3. A protector for the projecting portion of a fastening applied to a rotating part, the same comprising a split band adapted to have its end-portion overlapped and formed with openings to receive the projecting portion of the fastening, and a guard of approximately U form for spanning the fastening and having its end-portion fitted to the band at opposite sides of the said fastening, substantially as set forth.

702,866. RASOR-STROP. WILLIAM O. BRITTON, Triston, E. J., assignor to Joseph R. Turvey and Lewis R. Turvey, composing firm of J. R. Turvey & Co., Worcester, Mass. Filed Sept. 11, 1901. Serial No. 70,012. (No model.)



Claim.—1. A swing-strop for rasors having a handle portion provided with an open-ended pocket to receive and hold a rasor or other toilet article.

2. A swing-strop for rasors comprising flexible stopping members and a handle portion, said handle portion being provided with an open-ended pocket on each side to receive and hold a rasor or other toilet article.

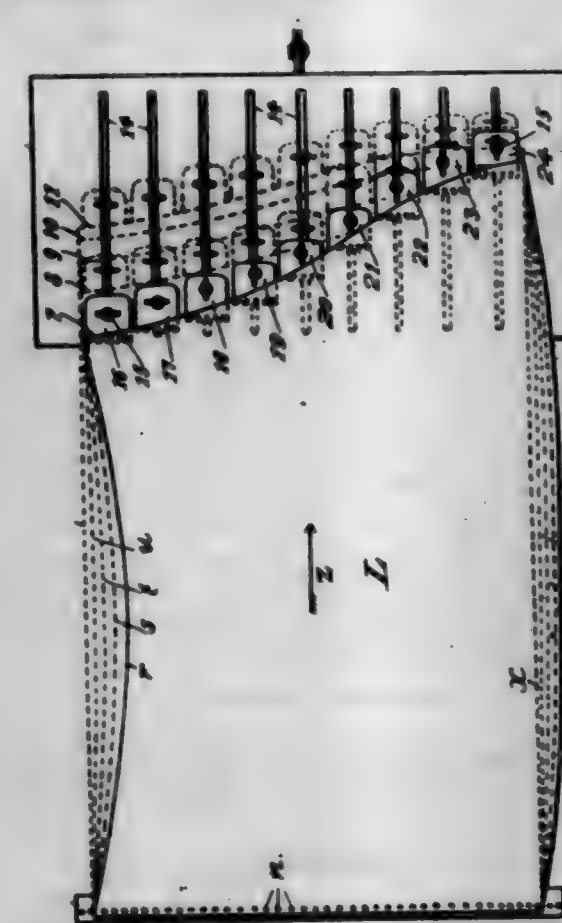
3. A swing-strop for rasors comprising flexible stopping members, and a handle portion formed of strips secured along their sides and outer ends to said stopping members, said strips being left unsecured at their inner ends so as to form one or more open-ended pockets to receive and hold rasors or other toilet articles.

4. A swing-strop for rasors comprising flexible stopping members and a handle portion, said handle portion being formed of strips attached along their sides and outer ends to the opposite sides of said stopping members, but unsecured at their inner ends so as to form an open-ended

pocket on each side of said handle portion to receive and hold rasors or other toilet articles, said flexible stopping members being adapted to be folded about said handle portion as a protection to the articles therein.

5. A swing-strop for rasors, comprising a flexible stopping member and a handle portion therefor, said handle portion being formed of a strip attached along its sides and outer end to said stopping member, but being unsecured at its inner end so as to form an open-ended pocket to receive and hold a rasor or other toilet article, said flexible stopping member being adapted to be folded about the said handle portion as a protection to the article therein.

702,867. PROCESS OF STRETCHING LEATHER. JOHN CALDWELL, Minneapolis, Minn. Filed Mar. 18, 1901. Serial No. 61,594. (No specimens.)



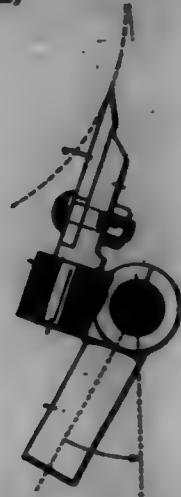
Claim.—1. The herein-described method of preparing skins, centers, backs, and similar divisions of leather for bolting, consisting in first stretching longitudinally the outer portions of such divisions of leather to a degree sufficient to make them substantially as unyielding as the firmer portions, and then stretching all portions longitudinally to an equal degree.

2. The herein-described method of preparing leather for bolting, consisting in successively and unequally stretching in longitudinal direction contiguous portions of a side, center, back, or similar division of leather that differ in degrees of firmness, beginning with the softest longitudinal portion and stretching that and then each succeeding, together with each preceding, portion until each other portion is stretched sufficiently to make it substantially equal to the adjacent firmer portion in ability to resist tension, and continuing the operation until all portions are stretched sufficiently to make them substantially equal in ability to withstand tension.

3. The herein-described method of preparing leather for bolting, consisting in first stretching longitudinally the softest portion of a side, center, back, or similar division of leather until it is approximately equal to an adjoining firmer portion in ability to resist tension; next stretching said two portions in like manner until they are approximately equal to another adjoining portion in ability to resist tension; and so on with successive portions until all portions are stretched sufficiently to make them substantially equal to the hardest portion in ability to withstand tension.

4. The herein-described method of preparing leather for bolting, consisting in cutting hides into backs, centers, and sides, or other suitable divisions, saturating such divisions with water and green, partially drying them, and then stretching longitudinally the softest longitudinal portion of one of such bodies of leather until its ability to resist tension is approximately equal to a portion contiguous to it; next stretching said two portions until their ability to resist tension is approximately equal to another contiguous portion; and so on until all portions are stretched sufficiently to make them substantially equal to the hardest portion in ability to resist tension.

702,868. SCRAPER FOR ROLLERS. RICHARD CLARKE, Liverpool, England, assignor to the Liverpool Milk Company, Limited, Liverpool, England. Filed July 11, 1900. Removed Apr. 22, 1902. Serial No. 104,430. (No model.)



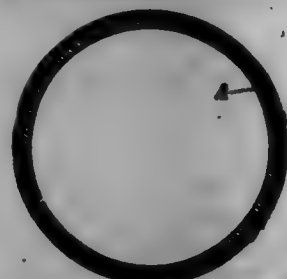
Claim.—1. A scraper for rollers, wheels, and similar rotary bodies, consisting of a single blade centrally pivoted on a carrier-bracket which is freely mounted upon a rod parallel with the axis of the rotary body, substantially as described.

2. A scraper for rollers, wheels, and similar rotary bodies, consisting of a plurality of sections, each of which comprises a blade centrally pivoted upon a carrier-bracket, which is freely mounted upon a rod fixed parallel with the axis of the rotary body, substantially as described.

3. A scraper for rollers, wheels, and similar rotary bodies, consisting of a plurality of sections each of which comprises a blade centrally pivoted upon a carrier-bracket, the sections being mounted successively upon a plurality of rods parallel with the axis of the rotary body, substantially as described.

4. In combination with a roller-scraper, a carrier-bracket constructed with a hole to fit upon a supporting-rod freely, and provided with means whereby the scraper can be centrally pivoted thereto at right angles to the said hole, substantially as described.

702,869. AIR-TUBE FOR PNEUMATIC TIRES. ARTHUR T. COLLIER, St. Albans, England, assignor of one-half to Edgar Oliver Goss and Arnold Hewarty Williams, London, England. Filed Apr. 15, 1902. Serial No. 105,040. (No specimen.)



Claim.—1. In an air-tube for a pneumatic tire, the combination of an inner layer of india-rubber, cured with an antimony compound and an outer layer cured with sulfur, substantially as, and for the purpose specified.

2. In an air-tube for a pneumatic tire, the combination of an inner layer of india-rubber cured with an antimony compound, an outer layer cured with sulfur, and an intermediate layer acted upon by the curing agents from the said inner and outer layers, substantially as, and for the purpose hereinbefore described.

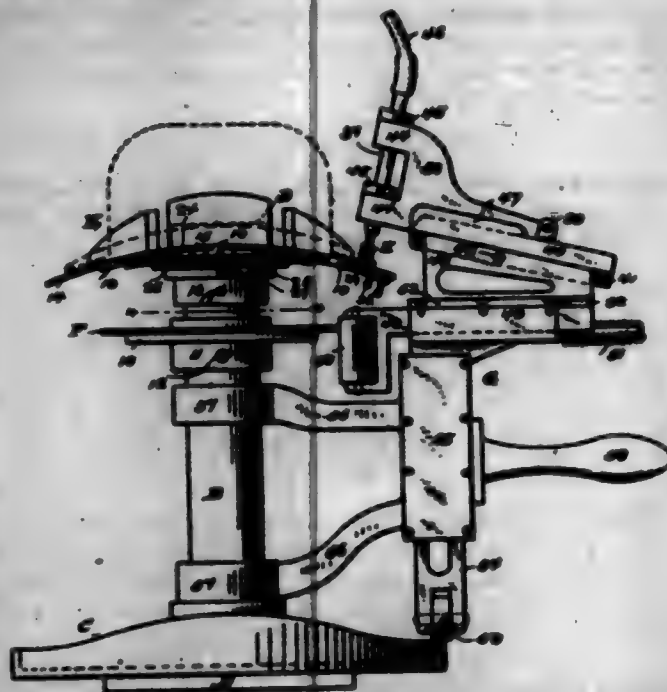
702,870. HAT-BRIM TRIMMER. JAMES R. CRIVETT, Norwalk, and HARRIS MORSEBORN, East Norwalk, Conn. Filed Nov. 12, 1901. Serial No. 91,322. (No model.)

Claim.—1. In a machine of the character described the combination with means for holding a hat-body, means for clamping the edge of the brim externally, a rotating planing-tool, a swinging head by which the planing-tool is carried, means for causing the planing-tool to describe an oval when the head is swung around and means for causing the planing-tool to rise from end to side and then descend from side to end of a hat-brim during each half-rotation.

2. In a machine for trimming curled hat-brims, the combination with a stationary external brim-clamp, of a rotating planing-tool, and means for causing said tool to describe an oval.

3. In a machine for trimming curled hat-brims, the combination with a stationary external brim-clamp, of a rotating planing-tool, means for causing said tool to describe an oval and means for causing said tool to rise and fall respectively at the sides and ends of a hat-brim.

ing said tool to describe an oval and means for causing said tool to rise and fall respectively at the sides and ends of a hat-brim.



4. In a machine for trimming curled hat-brims, the combination with a rotating planing-tool, means for causing said tool to describe an oval and means for causing said tool to rise and fall at the sides and ends respectively of a hat-brim, of a stationary clamp adapted to engage the hat-brim externally while the inner edge of the brim is being acted on by the planing-tool.

5. The brim-clamp E comprising movable side plates 21 and quarter-plates 22, and means for independently moving said side plates and said quarter-plates to grip a brim.

6. The brim-clamp E comprising side plates 21, quarter-plates 22, and independently-movable rings to which said side plates and said quarter-plates are connected respectively.

7. The brim-clamp E comprising a brim-plate having slots 18, slides in said slots, side plates and quarter-plates adjustably secured to said slides, independently-movable rings and links connecting the blocks carrying the side plates to one ring and the blocks carrying the quarter-plates to the other ring.

8. The combination with a fixed standard B, a hat-holder and a pattern-plate, of a track-plate highest at the sides and lowest at the ends, for the purpose set forth, a swinging head movable around the standard, a vertically-movable standard carried by said head and engaging the track-plate and a horizontally-movable body carried by said standard and engaging the pattern-plate.

9. The combination with a standard B, a hat-holder and a brim-clamp adapted to engage the brim externally, of a horizontal pattern-plate, a track-plate made highest at the sides and lowest at the ends, for the purpose set forth, and a swinging head movable around the standard and carrying a vertically-movable standard 54 having a roller engaging the track-plate, said standard carrying a horizontally-movable body having a roller engaging the pattern-plate.

10. The combination with a standard B, a hat-holder and a brim-plate having slots 18, of slides 19 lying in the slots, side and quarter plates carried by said slides and adapted to engage the brim externally, oscillating rings upon the standard, links connecting the side plates to one ring and the quarter-plates to the other ring, a pattern-plate carried by the standard, a track-plate highest at the sides and lowest at the ends and a swinging head carrying a vertically-movable standard 54 engaging the track-plate, said standard carrying a horizontally-movable body engaging the pattern-plate.

11. In a machine of the character described the combination with a track-plate highest at the sides and lowest at the ends and a horizontal cam-plate, of a swinging head carrying a vertically-movable standard 54 engaging the track-plate, said standard carrying a horizontally-movable body engaging the pattern-plate.

12. In a machine of the character described the combination with a pattern-plate and a track-plate lowest at the ends and highest at the sides, of a swinging head comprising a housing 55, a vertically-movable head in said housing which engages the track-plate, a housing 49 carried by the standard, and a spring-controlled body adapted to slide in housing 49 and carrying a roller engaging the pattern-plate.

13. The combination with a hat-holder, an external brim-clamp, a pattern-plate and a track-plate lowest at the ends and highest at the sides, of a swinging head, a vertically-movable standard carried by said head

and engaging the track-plate, a spring-controlled body carried by said standard and engaging the pattern-plate and a rotating planing-tool carried by the body and adapted to act on the inner edge of a hat-brim.

14. The combination with a hat-holder, an external brim-clamp, a pattern-plate and a track-plate lowest at the ends and highest at the sides, of a swinging head, a vertically-movable standard carried by said head and engaging the track-plate, a spring-controlled body carried by said standard and engaging the pattern-plate, a downwardly and backwardly inclined plate adjustably secured in the body and a rotating planing-tool journaled in said carrier at an incline to the vertical plane.

15. The combination with a standard B, a hat-holder and a pattern-plate lying in the horizontal plane, of a track-plate highest at the sides and lowest at the ends, for the purpose set forth, and a swinging head carrying a vertically-movable standard 54 having a roller engaging the track-plate, said standard carrying a horizontally-movable body having a roller engaging the pattern-plate.

16. In a machine for trimming curled hat-brims, the combination with an external brim-clamp, of a rotating planing-tool and means for moving said tool around the hat and to cause it to rise and fall respectively at the sides and ends of a hat-brim.

17. In a machine for trimming curled hat-brims, the combination with an external brim-clamp, of a rotating planing-tool journaled in a plate at an incline to the vertical plane, and means for moving said tool around the hat and to cause it to rise and fall respectively at the sides and ends of a hat-brim.

18. The combination with a hat-holder, an external brim-clamp, a pattern-plate and a track-plate lowest at the ends and highest at the sides, of a swinging head, a vertically-movable standard carried by said head and engaging the track-plate, a spring-controlled body carried by said standard and engaging the pattern-plate, a plate 40 adjustably secured in said body, a swinging carrier pivoted to said plate and a rotating planing-tool journaled in the carrier.

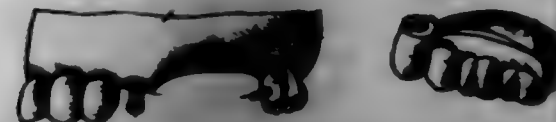
19. In a machine of the character described the combination with a hat-holder and an external brim-clamp, of a swinging head, a rotating planing-tool carried thereby and means for causing said tool to describe an oval.

20. In a machine of the character described the combination with a hat-holder and an external brim-clamp, of a swinging head, a rotating planing-tool carried thereby, and means for causing said tool to rise and fall respectively at the sides and ends of a hat-brim.

21. In a machine of the character described the combination with a hat-holder and an external brim-clamp, of a swinging head and a rotating planing-tool carried by said head and journaled at an incline to the vertical plane.

22. The combination with a hat-holder, an external brim-clamp, a pattern-plate and a track-plate lowest at the ends and highest at the sides, of a swinging head, a vertically-movable standard carried by said head and engaging the track-plate, a spring-controlled body carried by said standard and engaging the pattern-plate, a carrier adjustably secured in the body and a planing-tool journaled in said carrier at an incline in the vertical plane.

702,871. SECURING DEVICE FOR DENTAL BRIDGEWORK. WILLIAM H. CHAPMAN, Denver, Colo., assignor, by direct and several assignments, to Griswold Dental Bridge Company, Denver, Colo., a Corporation of Colorado. Filed Oct. 12, 1900. Removed May 12, 1902. Serial No. 125,061. (No model.)



Claim.—1. A spring-actuated fastener for dental use, having a series of spring-arms and a reducing-ring applied to the arms to converge their ends and furnish a means of adjustment in a root or crown.

2. A spring-actuated fastener for dental use, having a series of spring-arms, a ring controlling the arms and set upon the arms at the same angle as the base of the root or crown to which it is to be applied.

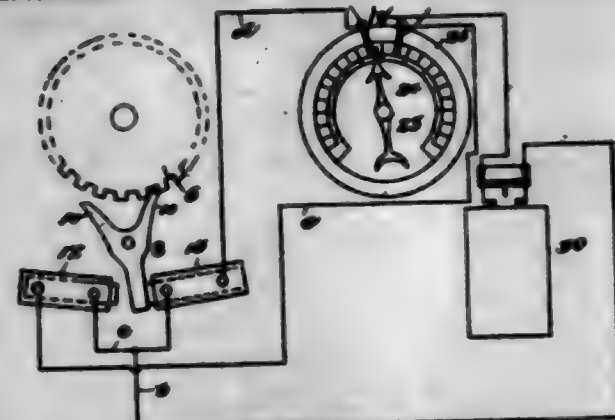
3. The combination in a dental securing device, of a spring-actuated fastener carrying a reducing-ring and a complementary cap and base-ring.

4. In removable bridge-work, the combination of posterior and anterior attaching devices, one a solid steel fixed in an artificial tooth, the other a spring-actuated secured in a root or crown, and a middle having a metal sheath perforated to take over the solid steel as a pivot and to receive the spring-actuated to secure the middle.

702,872. FLUID-PRESSURE REGULATOR. PAUL H. HANSEN, Tempe, Ariz., assignor of one-half to John S. Sappington, Tempe, Ariz. Filed Dec. 22, 1901. Serial No. 94,061. (No model.)

Claim.—1. In a fluid-pressure regulator, the combination with a

fluid-supply apparatus having a fluid-supply valve for the motive agent, of a valve-controlling device comprising a ratchet-wheel mounted upon the valve-stem, a movable pawl-carrier operated from a moving part of the engine or motor, a pawl supported upon the carrier, and an electrical pawl-cutting device also carried by the carrier, and a pressure-operated circuit-controller.



2. In a fluid-pressure regulator, the combination with a fluid-supply apparatus having a supply-valve for the motive agent, of a valve-controlling device comprising a double-ratchet wheel mounted upon the valve-stem, a movable pawl-carrier operated from a moving part of the engine or motor, a normally inactive double-acting pawl mounted upon the carrier, separate setting-magnets co-springing with the pawl and also mounted upon the carrier, and a pressure-operated circuit-controller.

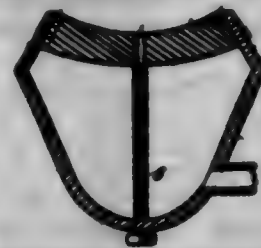
3. In a fluid-pressure regulator, the combination with a fluid-supply apparatus having a supply-valve for the motive agent, of a valve-controlling device comprising a double-ratchet wheel mounted upon the valve-stem, a pendulum swinging carrier pivotally supported and operated from a moving part of the engine or motor, an approximately Y-shaped actuating-pawl pivotally mounted upon the carrier and having a pendulous armature-stem portion, pawl-cutting magnets mounted upon the carrier respectively at opposite sides of the said armature-stem portion of the pawl, and a pressure-operated circuit-controller in circuit with said magnets.

4. In a fluid-pressure regulator, the combination with a fluid-supply apparatus having a supply-valve for the motive agent, of a valve-controlling device including pawl-and-ratchet members and pawl-cutting magnets, and a pressure-operated circuit-controller consisting of a pressure-gauge having a pointer and spaced contacts disposed respectively at opposite sides of the pointer, the latter and said contacts being included in circuit with a source of electrical energy and said magnets.

5. In a fluid-pressure regulator, the combination with a fluid-supply apparatus having a supply-valve for the motive agent, of a valve-controlling device including pawl-and-ratchet members and separate setting-magnets for the pawl member, and a pressure-operated circuit-controller consisting of a pressure-gauge having a pointer and separate spaced contacts for the separate magnets, said pointer and contacts constituting a circuit-clear and being included in an electrical circuit with a source of energy and said magnets.

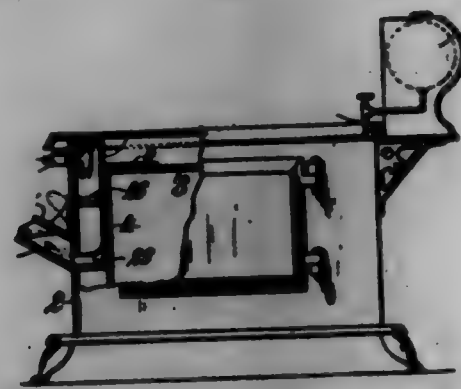
6. In a fluid-pressure regulator, the combination with a fluid-supply apparatus having a supply-valve for the motive agent, of a valve-controlling device including electromagnets operating means, and a pressure-operated circuit-controller in circuit with said electromagnets operating means and consisting of a pressure-gauge having a movable adjustable rim, and a pair of spaced contacts carried by said rim and extending over the dial respectively at opposite sides of the indicating end of the pointer, the latter and the said contacts being included in the electrical circuit.

702,873. GAS-BURNER. THOMAS BALLARD, New York, N. Y., assignor to Blawie & Ballant, New York, N. Y. Filed Jan. 24, 1901. Removed Dec. 2, 1901. Serial No. 84,784. (No model.)



Claim.—1. A gas-burner, having a trough-shaped body portion, the upper edges of which are turned inward at an incline, a burner-plate having gas-outlet notches in its opposite edges, and a control line of gas-outlet openings, the edges of said plate being inclined or beveled to engage tightly against the inclined inner surfaces of said side portions of the body, and means for fastening the plate in position, substantially as specified.

adapted to be arranged in the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove and at its lower end with the atmosphere, a burner-tube arranged within said casing and comprising a vertical tube open at its opposite ends, means for normally closing the upper end of said tube, a generating-chamber in said casing and inclosing the burner-tube, said chamber being open at its bottom only, and means for feeding liquid fuel to said burner intermediate its ends, substantially as described.



2. In a liquid-fuel burner, the combination with a casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, a vertical plate closing the front of the casing, said casing being provided at its lower end with a trough and having an aperture communicating with the atmosphere, a burner-tube arranged within said casing and consisting of a vertically-arranged tube open at its opposite ends, a vertical generating-chamber in said casing and inclosing the burner-tube, said chamber being open at its bottom only, and means for feeding liquid fuel to said burner-tube, substantially as described.

3. In a liquid-fuel burner, the combination with a hollow casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, said casing being provided at its lower end with a trough, a burner-tube arranged within the casing and comprising a vertically-disposed tube open at its opposite ends, means for supplying liquid fuel to said burner-tube, and a generating-chamber removably arranged in said casing surrounding said burner-tube and opening at its lower end into said trough, the top of the generating-chamber resting on and closing the upper end of the burner-tube, substantially as described.

4. In a liquid-fuel burner, the combination with a hollow casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, said casing being provided at its lower end with a trough having an aperture communicating with the atmosphere of a burner-tube arranged within said casing, means for supplying liquid fuel to the burner-tube, and a generating-chamber surrounding said burner-tube and opening at its lower end into said trough, said tube being arranged to discharge the liquid fuel downwardly through said generating-chamber, substantially as described.

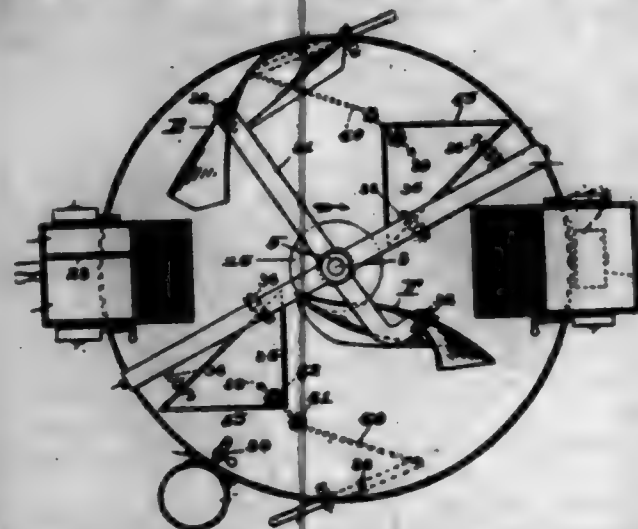
5. In a liquid-fuel burner, the combination with a hollow casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, said casing being provided at its lower end with a trough communicating with the atmosphere, a burner-tube arranged within said casing and comprising a vertically-disposed tube open at its opposite ends, a generating-chamber inclosing said burner-tube and covering the upper open end of the said burner-tube said generating-chamber terminating at its lower end above the bottom of said trough, and means for supplying liquid fuel to said burner-tube, substantially as described.

6. In a liquid-fuel burner, the combination with a casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, a vertical plate forming the front of the casing, said casing being provided at its lower end with a trough and having an aperture communicating with the atmosphere, a burner-tube arranged within said casing and comprising a vertically-arranged tube, means for feeding liquid fuel to the burner-tube, a generating-chamber inclosing said burner-tube and a pin arranged beneath the burner-tube and extending transversely through the generating-chamber between the top and bottom of the latter, substantially as described.

7. In a liquid-fuel burner, the combination with a casing adapted to be arranged within the fire-box of a stove and communicating at its upper end with the off-take-flue of said stove, an impervious vertical plate closing the front of the casing, and provided on its inner side with a rectangular base, said casing being provided at its lower end with a trough and having an aperture communicating with the atmosphere, a burner-tube arranged within said casing and consisting of a vertically-arranged tube open at its lower end, a vertical generating-chamber fitted in such casing over the said rectangular base and inclosing the burner-tube, said chamber

being open at its bottom only, and means for feeding liquid fuel to said burner, substantially as described.

702,881. CONCRETE-MIXING MACHINE. CARL OTTE, Lindström, Minn. Filed Mar. 15, 1901. Serial No. 61,898. (No model.)



Claim.—1. A machine of the class set forth consisting in combination with a mixing-receptacle having outer and inner walls, a pair of mixing-blades facing said outer and inner walls, so as to turn the contents of the receptacle back and forth at each revolution, a vertical shaft passing centrally through said receptacle by which said blades are revolved, means for driving the shaft so as to revolve the blades between said walls, and a system of outlets in the base of said receptacle, adapted to empty the same.

2. A concrete-mixing machine consisting in combination with a mixing-receptacle having circular outer and conical inner walls, of a vertical shaft passing through the center of said receptacle, a pair of curved mixing-blades facing said outer and inner walls, adapted to turn the contents of said receptacle back and forth at each revolution and carried by said shaft, means for rotating said blades by said shaft, a system of outlets in the base of said receptacle, through which the concrete may be emptied, and a system of levers and doors, by which said outlets may be opened and closed.

3. A machine of the class set forth consisting in combination, of a mixing-receptacle having outer and inner walls, a vertical shaft passing through the center of said receptacle, a pair of mixing-blades carried by said shaft and adapted to turn the contents of the receptacle back and forth at each revolution, means for rotating said blades by said shaft, a plurality of outlets in the base of the receptacle, a system of doors in said outlets and hand-levers for opening and closing said doors, measuring-buckets pivoted on said receptacle for the cement, sand, &c., to be used for the concrete, and a system of catches for holding said buckets in normal position, said buckets adapted, when released from said catches, to tilt down so as to empty into said receptacle.

4. A concrete-mixing machine, consisting in combination with a mixing-receptacle, having circular outer and conical inner walls, of a vertical shaft passing centrally through said receptacle, a pair of curved mixing-blades positioned in diametrical alignment between said walls and carried by said shaft, means for revolving said blades between said walls, and an outlet in the base of said receptacle, adapted to empty the same.

5. A concrete-mixing machine, consisting in combination with a mixing-receptacle, having circular outer and conical inner walls, of a vertical shaft, passing through the center of said receptacle, a pair of curved mixing-blades facing said outer and inner walls within said receptacle and carried by said shaft, means for rotating said blades by said shaft, an outlet in said receptacle through which the concrete may be emptied, measuring-buckets journaled on said receptacle, for the cement, sand, &c., to be used for the concrete, and means for locking said buckets in normal position.

702,882. CARTRIDGE-CLIP. EDWARD C. PARKHURST, Hartford, Conn., assignor, by direct and mesne assignments, to the Lee Arms Company, Hartford, Conn., a Corporation of Connecticut, and Connecticut Trust and Safe Deposit Company, Hartford, Conn., a Corporation of Connecticut. Filed June 9, 1897. Serial No. 640,081. (No model.)



Claim.—1. The herein-described cartridge-clip for cartridge-clips, consisting of a resilient locking member having oppositely-inclined faces

as opposite ends, respectively thereof, and also having a laterally-projecting lever or actuator located intermediate the two inclined faces.

2. A cartridge-clip consisting of a clip-body having a cartridge-head-receiving channel, and a resilient cartridge-locker supported on the clip-body and having oppositely-inclined locking-faces at opposite ends, respectively thereof, normally projecting inward and over the opposite ends of the channel, and also having one or more levers or actuators intermediate said locking-faces.

3. In a cartridge-clip, the combination, with a clip-body having a longitudinal cartridge-head-receiving channel, of a cartridge-locker supported for movement relatively to the clip-body and having inclined locking-faces adapted for engaging and releasing the cartridges; and a locker-actuator operatively connected to said locker intermediate the ends thereof and adapted for moving said locker.

4. The combination, with a clip-body having a channel longitudinally thereof, of a cartridge-locker disposed longitudinally of the clip-body in the plane of the head-flare of the cartridges and movably supported on the clip-body to be shifted transversely thereof and having oppositely-inclined locking-faces, one at each end thereof, adapted for engaging and releasing the heads of the terminal cartridges.

5. A cartridge-locker for clips of the class described comprising a longitudinal body portion, inclined locking-faces at the ends thereof for engaging the heads of the cartridges, and a locker-actuator intermediate the ends thereof adapted to actuate the said locker upon the insertion of the clip into the magazine of a gun.

6. A cartridge-clip having a clip-body formed with a longitudinal cartridge-head-receiving channel, a cartridge-locker applied to the said clip-body and formed with resilient ends, which terminate in lateral projections including oppositely-inclined locking-faces which crowd the cartridges in the clip-body together; and means located upon the said locker for mechanical engagement when the cartridge-clip is introduced into a gun, whereby the cartridge-clip is released from the charge of cartridges in the clip-body.

7. In a cartridge-clip, the combination with a clip-body having a longitudinal cartridge-head-receiving channel, of a cartridge-locker supported for movement with relation to the clip-body; inclined locking-faces on the respective ends of the locker, adapted for engaging and releasing the cartridges; and a locker-actuator operatively connected to said locker for actuating the locker upon the insertion of the clip into the magazine of a gun.

8. A cartridge-clip of size and proportions to fit a passage in a chamber of a magazine small-arm, said clip having a channel for the reception of the cartridges, and being provided with a resilient incline at each of its ends, the inclines bearing against the terminal cartridges and serving to force the cartridges together in the channel of the clip, to form a compact column.

9. A cartridge-clip of size and proportions to fit a passage in a chamber of a magazine small-arm, said clip having a channel for the reception of the cartridges, and being provided with a resilient incline at each of its ends, the inclines bearing against the terminal cartridges and serving to force the cartridges together in the channel of the clip to form a compact column, and each incline terminating in a projection located at an angle to said incline, said projections serving to aid the inclines in retaining the cartridges within the channel of the clip.

702,888. SAFE. CHARLES V. FENNER, Chicago, Ill., assignor of two-thirds to Joseph H. Dodson and Louis S. McElhin, Chicago, Ill. Filed Oct. 28, 1901. Serial No. 86,074. (No model.)



Claim.—1. In a safe, the combination of an outer shell or casing consisting of a circular or tubular body or wall provided on one side with a flat seating or supporting face, a closed end head or wall and an end flange forming an open end for the shell or casing, an inner shell or casing consisting of a circular or tubular body or wall, a closed end head or wall, a turned end flange and rim forming an open end for the shell or casing, and a door hinged at one side to the end flange of the outer shell

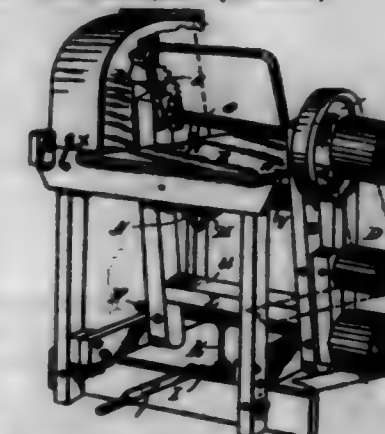
or casing and having a circumferential wall or rim fitting the open end of the outer and inner shells or casings, substantially as described.

2. In a safe, the combination of an outer shell or casing having a circular or tubular body or wall with a neck or base, a closed end head or wall and an end flange inwardly turned forming an open end for the shell or casing and all made integral, an inner shell or casing having a circular or tubular body or wall, a closed end head or wall and an end flange and rim forming an open end for the shell or casing and all made integral, a door having an outer plate or wall and an inner plate or wall with a circumferential stopped wall and rim between them fitting the open ends of the outer and inner shells or casings, and a hinge for the door to the open end of the shell or casing, substantially as described.

3. In a safe, the combination of an outer shell or casing, an inner shell or casing, a base for the outer shell or casing and on which the safe is supported, a counter-rim in the bottom of the inner shell or casing, and a bolt having its nut or head end entered into the counter-rim of the inner shell or casing and having its body passing through the wall of the counter-rim and the base for fixedly securing the safe in position, substantially as described.

4. In a safe, the combination of an outer shell or casing having a closed end wall, an inner shell or casing having a closed end wall, a base for the outer shell or casing on which the safe is supported, a counter-rim in the closed end wall of the inner shell or casing, a counter-rim in the bottom of the inner shell or casing, a bolt having its nut or head end entered into the counter-rim of the end wall of the inner shell or casing for the stem to pass through the wall of the counter-rim and the end wall of the outer shell or casing, and a bolt having its nut or head end entered into the counter-rim in the bottom of the inner shell or casing for its stem to pass through the wall of the counter-rim and the base and securely fasten the safe in a fixed position, substantially as described.

702,884. WOOD-SAW. WILLIAM H. PERRY, Fairfield, Iowa. Filed Oct. 19, 1900. Serial No. 32,610. (No model.)



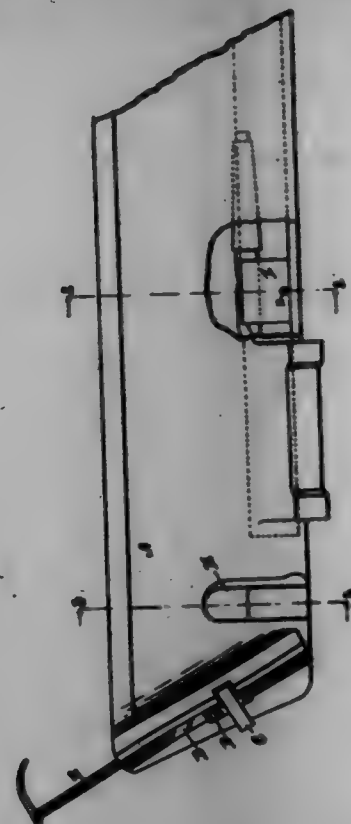
Claim.—1. In wood-saws, the combination of a main frame, a rocking frame hinged at its lower end to said main frame, and at its upper end carrying a saw-mandrel, a hand-bail secured to the upper end of the rocking frame and passing across from one side to the other above said mandrel, and a foot-lever to assist in moving said rocking frame; the connection of said hand-bail and foot-lever being such that the operative movement of the one will be contrary to that of the other, whereby the reaction of the power to operate the one will assist in operating the other.

2. In wood-saws, the combination of a main frame, a rocking frame pivoted at its lower end to said main frame and having a hand-bail at its upper end and a cross-bar near its lower end, a horizontally-projecting arm secured to said cross-bar a foot-lever pivoted to the lower end of the main frame and a bar pivotally connecting together the free end of the arm and the inner end of the foot-lever, the operative movements of the hand-bail and foot-lever being contrary to each other, whereby the reaction of the power to operate the one will assist in operating the other, substantially as described.

3. In wood-saws, the combination of a main frame a rocking frame hinged at its lower end to said main frame, and having a hand-bail at its upper end to give it movement in both directions, a foot-lever secured to said rocking frame to give it movement in one direction and a spring to give it movement in the other direction, the spring being adapted to assist the return movement of the hand-bail, and the reaction of the power applied to the foot-lever to assist the forward movement of said bail, substantially as described.

4. The combination of a main frame, a rocking frame pivoted at its lower end to said main frame and having a cross-bar near its lower end, a horizontally-projecting arm secured to said cross-bar, a foot-lever pivoted to the lower part of the main frame, and a connecting-bar, hinged at one end to the inner end of said foot-lever, and at the other end to the end of said arm, substantially as described.

702,885. DRILL-GRINDING MACHINE. CORNEL RICHARDS,
Grand Rapids, Mich., assignor to Wheaton and Norman Company,
Grand Rapids, Mich. Filed Jan. 23, 1902. Serial No. 90,800. (No
model.)



Claim.—1. In a drill-grinder, a V-shaped holder; an adjustable slide B, in suitable ways on the front of the holder retained in position by a curved spring c; a drill lip-rest O adjustably clamped to the slide B by suitable clips D; a suitable handle connected to the slide for adjusting the same, cooperating for the purpose specified.

2. In a drill-grinder, a V-shaped holder; an adjustable slide B, in suitable ways on the front of the holder retained in position by a curved spring c; a drill lip-rest secured to the said slide; a suitable handle connected to the slide for adjusting the same, cooperating for the purpose specified.

3. In a drill-grinder, a V-shaped holder; an adjustable slide, in suitable ways on the front of the holder retained in position by suitable friction means; a drill lip-rest adjustably secured to said slide; means for adjusting said slide for the purpose specified.

4. In a drill-grinder, a V-shaped holder; an adjustable slide in suitable ways on the front of the holder retained in position by suitable friction means; a drill lip-rest carried by said slide; means for adjusting said slide, for the purpose specified.

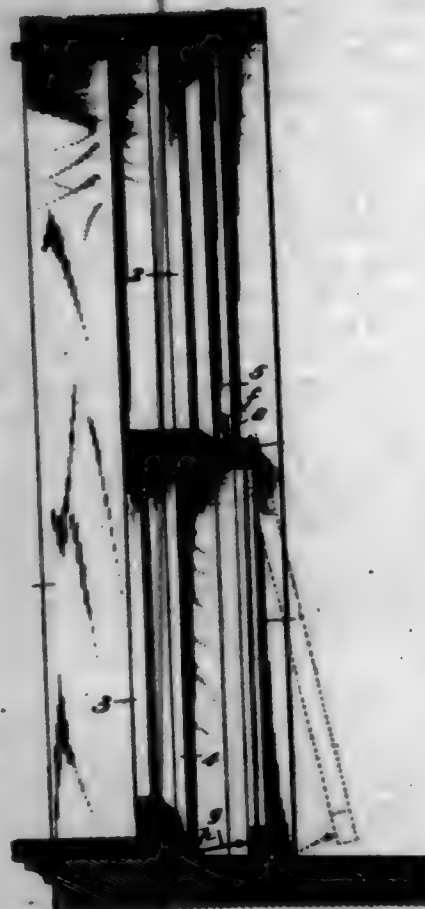
5. In a drill-grinding machine, the combination of a V-holder having a lip-rest at the front and containing a rectangular slot or way formed in the bottom of the V; an adjustable block I retained in said slot by suitable friction means and adjustable back and forth therein to accommodate drills with large chanks, for the purpose specified.

702,886. MEANS FOR HANGING SCREENS. CALVIN ROWLAND,
Denver, Colo. Filed Nov. 22, 1901. Serial No. 26,323. (No model.)

Claim.—1. In a window-screen, and attaching device therefor, the combination with the window-frame and the blind-steps, of a screen adapted to extend across the window-frame, against the outside faces of said blind-steps thereof; a strip interposed between the meeting-rail of the upper sash, and the top of the screen and extending across the window-frame from the inner face of one blind-step to the inner face of the other; supports secured to the top of the screen-frame, whose free ends are formed into hooks or loops, which are adapted to lie against the inner faces of the blind-steps, and means, such as nails or screws which extend loosely through the hooks or loops, and into the inner faces of the blind-steps, so as to pivotally secure the screen to the said blind-steps, substantially as shown.

2. In an improved window-screen and attaching device therefor, the combination with the window-frame the blind-steps and sash of a screen adapted to extend across the window-frame, and bear against the outside faces of said blind-steps thereof; a strip interposed between the meeting-rail of the upper sash and the top of the screen and extending across the window-frame from the inner face of one blind-step to the inner face of the other; a hook secured to the bottom of the screen, and a staple secured to the sill of the window, in each position as to be engaged by the

hook, so that the screen may be held in a closed position or against the outer faces of the blind-steps; supports secured to the inner face of the top members of the screen-frame, and at a slight distance from the ends thereof, the free ends of which are formed into hooks, which extend vertically, but inward, so as to lie against the inner faces of the blind-steps, and centrally of their width; and nails or screws which extend loosely through the said hooks and into the inner faces of the blind-steps, so as to pivotally secure the screen to the said blind-steps, substantially as described.



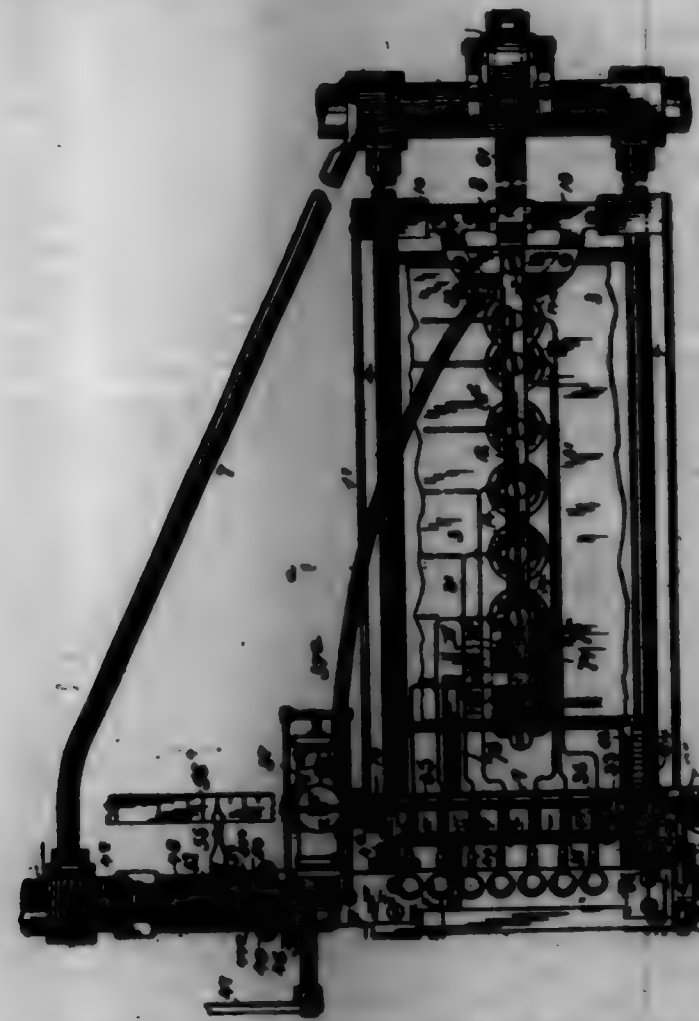
3. In an improved window-screen and attaching device therefor, the combination with the window-frame and sash and the blind-steps thereof of a screen adapted to extend across the window-frame and bear against the outside faces of said blind-steps; a projecting strip secured to the inner face of the top of the screen-frame, and extending from the inner face of one blind-step to the inner face of the other, the said strip lying against the meeting-rail of the upper sash; means secured to the bottom of the screen for holding the same in a closed position or against the outer faces of the blind-steps; supports secured to the top of the screen consisting of metal strips, the lower ends of which are provided with holes through which pass screws or nails for securing the said ends to the screen; while the upper portions of said strips are bent to form a short horizontal member, and then an upwardly-extending vertical member, the end of which is bent to form a hook, which is slightly constructed at its open end, the said hooks lying centrally of the width of the blind-steps; and nails or screws secured in the inner faces of the blind-steps upon which the said hooks are hung, so that the screen may have a swinging movement, substantially as shown.

4. In a window-screen, and attaching device therefor, the combination with a window-frame and its blind-steps, of a screen adapted to extend across the said frame against the outside faces of said blind-steps; a strip interposed between the meeting-rail of the upper sash and the top of the screen and extending across the window-frame from the inner face of one blind-step to the inner face of the other; supports secured to the top of the screen, whose free ends are formed into hooks or loops, which are adapted to lie against the inner faces of the blind-steps, and means, such as nails or screws which extend loosely through the hooks or loops, and into the inner faces of the blind-steps, so as to pivotally secure the screen to the said blind-steps, substantially as described.

702,887. APPARATUS FOR FERROFERRIC MUND-SHISTS.
HARRY M. SALTER, New York, N. Y., assignor to John H. Ludwig and
Charles A. Brown, New York, N. Y. Filed of Ludwig & Co. Filed
Sept. 26, 1901. Serial No. 76,004. (No model.)

Claim.—1. An apparatus of the character described comprising a

plurality of cutting instruments, means for actuating them, means for adjusting said instruments bodily and conjointly relatively to a strip to be cut, and means for independently controlling the operation of each of said cutting instruments, substantially as described.



2. An apparatus of the character described comprising a plurality of cutting instruments, means for supporting a strip relatively thereto, means for actuating said instruments, means for adjusting the positions of said instruments and the strip bodily back and forth relatively to each other in the transverse direction of said strip, and means for independently controlling the operation of each of said instruments, substantially as described.

3. An apparatus of the character described comprising a plurality of cutting instruments, means for supporting a strip relatively thereto, means for actuating said instruments, means for adjusting the positions of said instruments and the strip bodily back and forth relatively to each other in the transverse direction of said strip, means for adjusting the positions of said instruments and the strip bodily back and forth relatively to each other in the longitudinal direction of said strip, and means for independently controlling the operation of each of said instruments, substantially as described.

4. An apparatus of the character described, comprising a plurality of cutting instruments, means for actuating said instruments, a carriage supporting said instruments, a frame to which said carriage is adjustably connected, and means for independently controlling the operation of each of said instruments, substantially as described.

5. An apparatus of the character described comprising a plurality of cutting instruments, means for actuating said instruments, a carriage supporting said instruments, a frame to which said carriage is adjustably connected, means for independently controlling the operation of each of said instruments, and means for adjusting the positions of said carriage and a strip to be operated upon relatively to each other in the longitudinal direction of said strip, substantially as described.

6. An apparatus of the character described comprising a plurality of cutting instruments, means for operating the same, means for independently controlling the operation of each instrument, means for adjustably supporting said instruments, an indicator, and a scale corresponding to the notes in an octave, whereby said cutting instruments may be adjusted simultaneously into positions corresponding to any note in an octave, substantially as described.

7. An apparatus of the character described comprising a plurality of cutting instruments, means for operating the same, means for independently controlling the operation of each instrument, means for adjustably supporting said instruments, an indicator, and a scale corresponding to the notes in an octave whereby said cutting instruments may be adjusted si-

multaneously into positions corresponding to any note in an octave, and means for adjusting said cutting instruments in a direction perpendicular to the last-mentioned direction of adjustment, substantially as described.

8. An apparatus of the character described comprising a plurality of cutting instruments arranged at distances apart in a substantially straight line, means for operating the same, means for independently controlling each of said cutters, and means for permitting the simultaneous and coincident adjustment of said cutters in the direction of said line, and means for permitting the simultaneous and coincident adjustment of said cutters in a direction perpendicular to said line, substantially as described.

9. In an apparatus of the character described, a frame, means for adjustably supporting the same, a plurality of cutters carried by said frame, means for operating said cutters, and means carried by said frame for independently controlling the operation of each cutter whereby the cutters and their controlling means may be adjusted simultaneously into different positions, substantially as described.

10. In an apparatus of the character described, a frame, means for adjustably supporting the same, a plurality of cutters carried by said frame, means for operating said cutters, means carried by said frame for independently controlling the operation of each cutter whereby the cutters and their controlling means may be adjusted simultaneously into different positions, a carriage supporting said frame, and means for adjustably supporting said carriage to permit it to move in a direction perpendicular to the above-mentioned adjustment of said frame, substantially as described.

11. An apparatus of the character described comprising a plurality of cutters, a cylinder and piston for each cutter, means for supplying said cylinder with a propulsive medium, a valve for each cylinder to control the admission of the propulsive medium thereto, and a key-controlled device associated with each valve for controlling the operation thereof, a frame carrying said cylinders and cutters, and means for adjustably supporting said frame to permit the same to be adjusted in directions perpendicular to each other, substantially as described.

12. An apparatus of the character described comprising a plurality of cutters, a cylinder and piston for each cutter, a valve for each cylinder, a diaphragm connected with each valve having a chamber on the side opposite the valve, and a key-controlled valve connected with said chamber for regulating the operation of the first-mentioned valve by differential pressure in the diaphragm, substantially as described.

13. An apparatus of the character described comprising a plurality of cutters, a cylinder and piston for each cutter, a valve for each cylinder, means for operating said valve, an auxiliary valve to control said means, and a key to control the operation of said valve, substantially as described.

14. An apparatus of the character described comprising a plurality of cutters, a cylinder and piston for each cutter, a valve for each cylinder, a diaphragm connected with said valve having a chamber on the side opposite the valve, a pipe connected with each chamber, a valve to control the outlet of each pipe, a continuously-operative member to actuate said valve, and a key for each valve to control its operation by said member, substantially as described.

15. An apparatus of the character described comprising a plurality of cutters, a cylinder and piston for each cutter, a valve for each cylinder, a diaphragm connected with each valve having a chamber on the side opposite the valve, a pipe connected with each chamber, a valve to control the outlet of each pipe, a continuously-operative shaft having actuating portions for each valve, a member acting upon the valve to be operated by each of said portions of the shaft, and a key to control each of said members, substantially as described.

16. The combination of a cutter, a cylinder and piston, a head for said cylinder having parts, a valve to control said parts, a diaphragm connected with said valve and having a chamber on the side opposite the valve, a pipe extending from said chamber, a valve to control the outlet of said pipe, a continuously-operative member to control said valve, and a key to control the operation of said valve by said member, substantially as described.

17. The combination of a cutter, a cylinder and piston, a head for said cylinder having parts, a valve to control said parts, a diaphragm connected with said valve and having a chamber on the side opposite the valve, a pipe extending from said chamber, a valve to control the outlet of said pipe, a continuously-operative shaft having actuating portions, a member to be operated by said shaft to act on the valve, and a key to control said member, substantially as described.

18. The combination of a cutter, a cylinder and piston, a head for said cylinder having parts, a valve to control said parts, a diaphragm connected with said valve and having a chamber on the side opposite the valve, a pipe extending from said chamber, a valve to control the outlet of said pipe, a continuously-rotative shaft having correspondingly depressed and raised portions, a member having a hook-like end and provided with a finger to be acted upon by the shaft and to act on the valve, and a key to control said member, substantially as described.

19. An apparatus of the character described comprising a frame, a bar carried thereby over which a strip to be perforated may pass, a motor carried by said frame, means for operating the motor, key-controlled devices for controlling the punch-opening mechanism, a frame carrying said cylinders and cutters, and means for adjustably supporting said frame to permit the same to be adjusted in directions perpendicular to each other, substantially as described.

20. An apparatus of the character described comprising a carriage, means for supporting the same, a frame adjustably carried by said carriage, cutters carried by said frame, means for operating said cutters, a spring, and an component for adjusting said frame, substantially as described.

21. An apparatus of the character described comprising a carriage, means for supporting the same, a frame adjustably carried by said carriage, cutters carried by said frame, means for operating said cutters, a spring and component for adjusting said frame, and means for advancing said carriage step by step, substantially as described.

22. The combination of a frame, means for adjustably supporting the same, a spring connected with said frame for moving it in one direction, and an component comprising a rack, an oscillatory member having a pawl and a dog to engage the rack, means for maintaining the dog out of engagement with the rack and the pawl normally in engagement therewith, and means for operating said pawl and dog whereby the carriage may be fed step by step, substantially as described.

23. The combination of a frame, means for adjustably supporting the same, a spring connected with said frame for moving it in one direction, and an component comprising a rack, an oscillatory member having a pawl and a dog to engage the rack, means for maintaining the dog out of engagement with the rack and the pawl normally in engagement therewith, means for operating said pawl and dog whereby the carriage may be fed step by step, and a relative member connected with said frame for drawing the same against the tension of the spring, substantially as described.

24. In an apparatus of the character described a plurality of cutters, an adjustable frame supporting the same, a carriage supporting said frame, means for controlling the operation of said cutters independently, means for adjusting said carriage step by step, a scale, and an indicator for use in determining the adjustment of the carriage, substantially as described.

25. An apparatus of the character described comprising a frame, a plurality of cutters carried thereby, cylinders and pistons for operating said cutters, a tube connected with said cylinders, means for supplying said tube with a propulsive medium, means for independently controlling the supply of propulsive medium from said tube to each cylinder and including therein a relative shaft for actuating said means, and a motor carried by said frame for operating said shaft, substantially as described.

26. The combination of a tube, a valve to control its outlet, a relative member to actuate said valve, and means to control the operation of said valve by said member, substantially as described.

27. The combination of a tube, a valve to control its outlet, means to reciprocate said valve, and a key acting with the valve to normally hold it closed and arranged to release the valve when operated, substantially as described.

28. The combination of a tube, a valve to control its outlet, a shaft having means to actuate said valve, a member to hold the valve closed when released by the shaft, and a key to control said member, substantially as described.

29. The combination of a tube, a block having a port to which the tube leads, a valve to control said port, a member to act on the valve, a shaft to actuate said member, and a key to control said member, substantially as described.

702,888. SPRING-HINGE. WILLIAM A. SCHNEIDER, Gloucester City, N. J., assignor of one-half to William F. MacLennan, Gloucester City, N. J. Filed Mar. 7, 1902. Serial No. 97,006. (No model.)



Claim.—1. A spring-hinge having two members, each of the same consisting of a piece of material formed with a plurality of loops, the loops of one member being in engagement with the loops of the other, substantially as described.

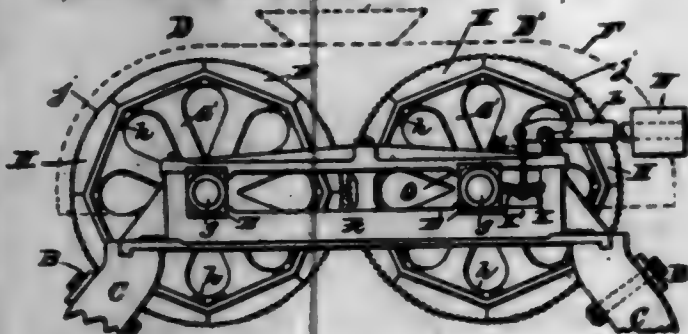
2. A spring-hinge consisting of two members each made of a piece of material bent to form a plurality of loops, the loops of each member

being in engagement with those of the other and having curved portions at their points of engagement, said portions being offset and thereby retaining the members of the hinge in proper operative relation to one another, substantially as described.

3. A spring-hinge consisting of two similar members each made of a piece of flexible material bent to form a plurality of loops, said loops lying in substantially the same plane, the loops of each member being meshed with those of the other and each pair of intermeshed loops being free to move toward or from each other when one of the members is moved from its normal position, substantially as described.

4. A spring-hinge consisting of two similar members, each of said members consisting of a single piece of flexible material bent at its middle portion so that its two halves extend at an angle to one another, the ends of each of these halves being curved toward each other and back so as to form two loops; the loops of each member being intermeshed with the corresponding loops of the other member, substantially as described.

702,889. COAL-CRUSHER. AMBERL W. F. STERN, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Apr. 8, 1902. Serial No. 679,878. (No model.)

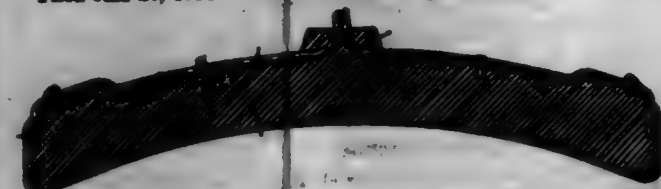


Claim.—1. In a crushing mechanism, the combination of a frame, a relatively stationary roll, an opposing bodily-movable roll, means for rotating the rolls, a toggle mechanism acting on the movable roll to force the latter toward the stationary roll, said toggle mechanism comprising elongated abutment-pieces arranged parallel with the movable roll and having their sides which are parallel with said roll connected pivotally with each other, a lever connected with said abutment-pieces and a weight connected with said lever for moving the said sides of the abutment-pieces vertically, substantially as set forth.

2. In a crushing mechanism, the combination of a frame, a relatively stationary roll, an opposing bodily-movable roll, means for rotating the rolls, a toggle mechanism acting on the movable roll to force the latter toward the stationary roll, said toggle mechanism comprising abutment-pieces inclined downwardly toward each other and connected pivotally, a link connected with said abutment-pieces and extending upward therefrom, a lever connected with said link, and a weight acting on the lever for moving the connected ends of said abutment-pieces vertically, substantially as set forth.

3. In a crushing mechanism, the combination of the frame, the crushing-roll thereon, the opposing crushing-roll mounted in a yielding bearing, the links, K, K', pivoted respectively to the frame, and to the yielding roll, and pivotally connected with each other, the abutment-pieces, P and R, secured to the said links and respectively rocking against surfaces carried by the roll and the frame respectively, said links and abutment-pieces forming a toggle, the weighted lever, L, and the link connecting said lever to the toggle, substantially as described.

702,890. BRAKE-SHOE. ALFRED L. STERNER, Chicago, Ill. Filed Jan. 27, 1902. Serial No. 91,578. (No model.)



Claim.—1. A brake-shoe comprising an attaching-eye consisting of an upwardly bent or bowed wire or wires, the lower portions of which are rigidly secured to the body of said brake-shoe and a wire or wires which extend longitudinally of said brake-shoe and are secured thereto, substantially as described.

2. A brake-shoe comprising an attaching-eye consisting of an upwardly bent or bowed wire or wires the lower portions of which are embedded in the body of the shoe and a wire or wires which extend longitudinally of said shoe and are secured thereto, substantially as described.

3. A brake-shoe comprising an attaching-eye consisting of an upwardly bent or bowed wire or wires the lower portions of which are embedded in said shoe, the end portions of said wire or wires extending longitudinally of said brake-shoe and being secured thereto, substantially as described.

bedded in said shoe, the end portions of said wire or wires extending longitudinally of said brake-shoe and being secured thereto, substantially as described.

4. A brake-shoe comprising an attaching-eye consisting of upwardly bent or bowed wires the lower portions of which are embedded in said shoe, the end portions of said wires being disposed to form the guide-lugs of said shoe, substantially as described.

5. A brake-shoe comprising wires secured to the body of said shoe, portions of which are disposed as to form the guide-lugs thereof, substantially as described.

6. A brake-shoe comprising a wire or wires which extend longitudinally of said shoe and are upwardly bent or bowed at the middle of said shoe to form an attaching-eye therefor, substantially as described.

7. A brake-shoe comprising wires which are upwardly bent or bowed at the middle of the shoe to form an attaching-eye and which comprise end portions which extend longitudinally of said brake-shoe in the same direction, substantially as described.

8. A brake-shoe comprising a body having integral retaining-lugs, and a wire attaching-eye only parts of which are embedded in said lugs, substantially as described.

9. A brake-shoe comprising a body having integral retaining-lugs, and a wire attaching-eye the bowed or upwardly-bent part of which is bare and the lower parts adjacent to said body are embedded in said lugs, substantially as described.

10. A brake-shoe comprising an attaching-eye consisting of an upwardly bent or bowed wire or wires, a wire or wires which extend longitudinally of said shoe to which the attaching-eye is secured and a retaining-lug in which the portion of said attaching-eye adjacent to the body of the shoe is embedded, substantially as described.

11. A brake-shoe comprising an attaching-eye consisting of an upwardly bent or bowed wire or wires the end portions of which extend lengthwise of the shoe and are secured thereto and a retaining-lug in which the portion of said attaching-eye adjacent to the body of the shoe is embedded, substantially as described.

12. A brake-shoe comprising a wire or wires which extend lengthwise of said shoe and are upwardly bent or bowed at the middle of said shoe to form an attaching-eye therefor and a retaining-lug in which the portion of said attaching-eye adjacent to the body of the shoe is embedded, substantially as described.

702,891. GRATE-BAR. HENRY THOMSON, Toronto, Canada. Filed Mar. 2, 1902. Serial No. 7,157. (No model.)

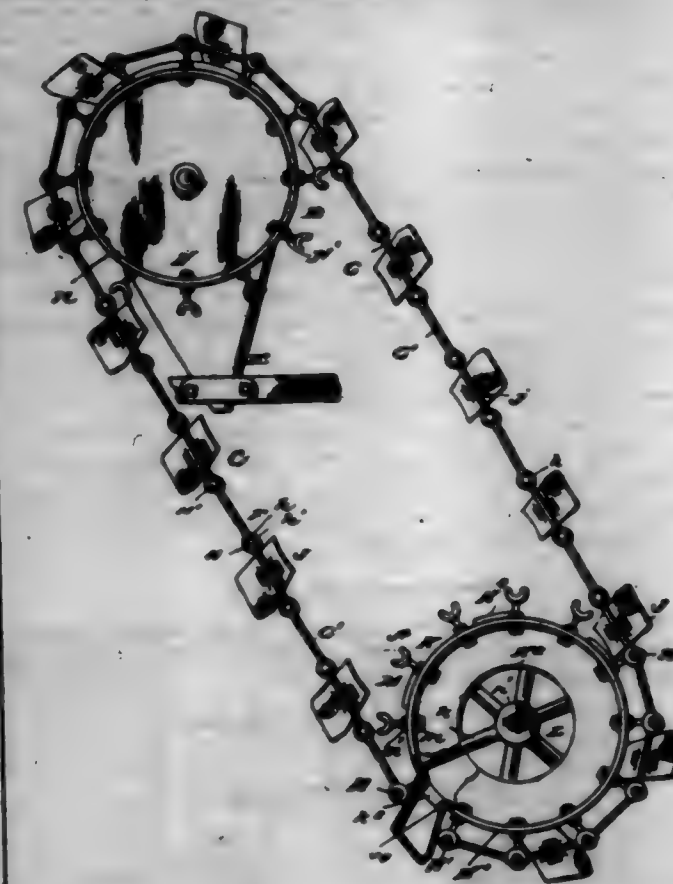


Claim.—A grate-bar made in a single casting and comprising two ends having each a series of corrugations upon their upper edges, transverse formed upon the outer faces thereof, a lag depending from the lower portion of one of the ends so that a series of the bars may be secured to be rocked in unison, a pair of longitudinal parallel bars connecting the ends together and having their upper edges grooved and in line with the corrugations of said ends, a series of transverse sections in parallel with the ends and supported by the bars, said sections being provided with corrugations similar in shape and number to the corrugations of the ends and having the same ones in line with said bars, said sections also having their lower edges in the same line but above the lower edges of the bars, and brace-rods connected to the inner faces of the ends and adjacent faces of the outer sections intermediate of the bars so that each brace-rod's groove is in line with the central corrugation of the ends and sections.

702,892. ORB-ELEVATOR. HENRY A. VINE, Denver, Colo., assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Dec. 15, 1901. Serial No. 88,578. (No model.)

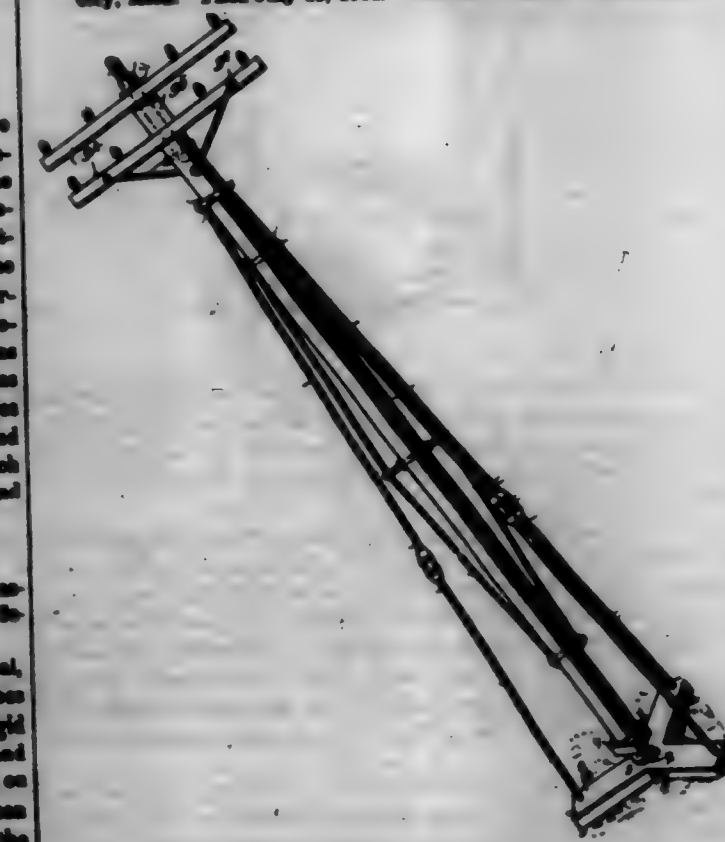
Claim.—1. In an elevator for pulverized ore and similar material, the combination of the loading-drum formed with the peripheral tubes extending beyond the periphery of the drum, the sprocket-wheel rigid with the drum, the series of buckets, the chains carrying said buckets, and the series of forked sprockets with threaded stems, radially adjustable on said wheels, arranged substantially as set forth, whereby the sprockets can be so adjusted as to cause the proper righting of the buckets with the

filling-tubes and permit variations in the pitch distances of the sprocket-forks and the chain lengths; substantially as set forth.



2. The combination with the loading-drum, having the vertically-arranged conical parts and the filling-tubes between the conical parts, the two series of independently-adjustable forked sprockets rigidly connected to the filling-drum to form substantially two sprocket-wheels, the sprockets of one series being radially adjustable independently of the sprockets of the other series, the series of buckets adapted to register with the said filling-tubes and the chains carrying said buckets and formed of the alternating inner links with bars, G, G, and the outer links with the bars, G', G', the pinions, H, H', hinging the alternating links together, spacing devices between the inner bars, G, G, and the thimbles, T, T, on the pinions outside of the outer bars and adapted to engage with the forks in the adjacent sprockets, substantially as set forth.

702,893. PUNCH-POST, TELEGRAPH-POLE, OR THE LIKE. ISAAC H. WARREN, Union City, Mich., assignor to Frank C. Rose, Union City, Mich. Filed July 16, 1901. Serial No. 93,365. (No model.)



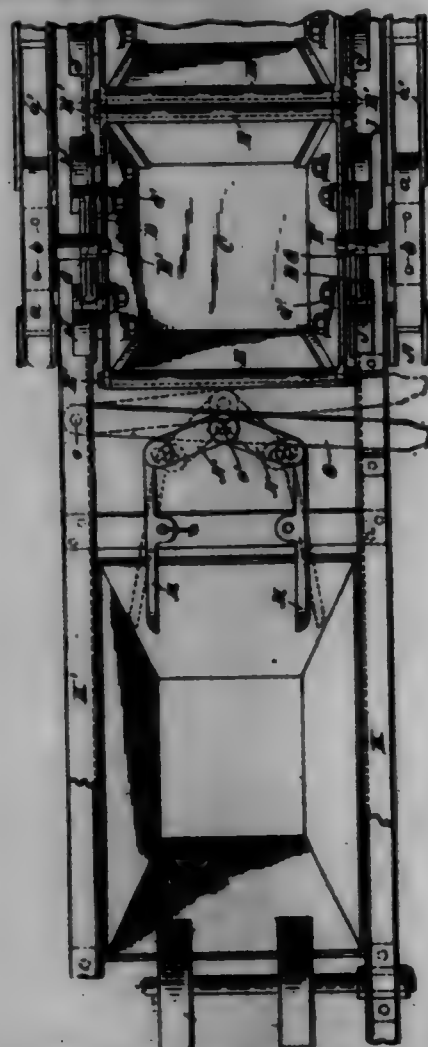
Claim.—1. The combination of a base, a screw thereon, a post or the like having a bore in its lower portion into which said screw extends, a nut on the latter and supporting said post, and stays for said post, whereby said stays may be tightened by turning said nut to adjust said post vertically on said screw, each of said stays having means to vary the length thereof, substantially as described.

2. The combination of a base, a screw thereon, a post or the like having a bore in its lower portion into which said screw extends, a nut on the latter and supporting said post, an anchor below the base, and stays connecting said anchor to said post, substantially as described.

3. The combination of a base, a screw thereon, a post or the like having a bore in its lower portion into which said screw extends, a nut on the latter and supporting said post, an anchor below the base and stays connecting said anchor to said post, said stays passing through openings in said base, substantially as described.

4. The combination of a buried anchor, a base above the same, and separated therefrom, a post or the like, a screw supporting the same on said base whereby said post may be vertically adjusted by said screw, and stays or braces connecting the said buried anchor to said post, whereby said stays or braces may be tightened and the earth between said buried anchor and the base compressed by adjusting said post on said supporting-screw, substantially as described.

702,894. CONVEYER. ALFRED J. WHEAT, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Sept. 14, 1898. Serial No. 592,458. (No model.)



Claim.—1. In a conveyor, the combination of the propelling-chain, a block secured to each chain and provided with an inwardly-extending pin, a bucket, and arms connected to the bucket at one end and having their other ends pivotally connected to the inwardly-extending pins, substantially as set forth.

2. In a conveyor, the combination of the two parallel propelling-chains, blocks secured to said chains in line with each other, guide-rolls arranged at one side of and extending parallel to the chains, a bucket having guide-wheels fitted to ride on said rolls, and arms pivotally connected to the blocks and also connected to the bucket, substantially as set forth.

3. In a conveyor, the combination with a series of buckets arranged to form a continuous trough when in line with each other, of anti-friction-rollers arranged at the adjacent edges of each pair of buckets, substantially as set forth.

4. In a conveyor, the combination of a guideway, an endless propelling mechanism, and a series of buckets, connected to said propelling mechanism and each having guide wheels or rollers mounted so as to

travel on the guideway, and an anti-friction-roller, extending transversely of the bucket and adapted to receive the thrust of the adjacent bucket, substantially as set forth.

5. In a conveyor, the combination of the propelling-chains, a series of buckets connected therewith and having hinged bottoms, a catch connected to one of the walls of each bucket to hold the hinged bottom in a closed position, a tripping device, and means for adjusting said tripping device laterally toward and from a position in the path of a projection on each of said catches, substantially as set forth.

6. In a conveyor, the combination of the parallel propelling-chains, a series of pins or studs, rigidly secured to each of said chains and extending inwardly therefrom, a bucket arranged between said chains, and two sets of supporting-arms, D, pivotally supported on transversely-angled pins or studs, E, at their upper ends and having their lower ends connected to the walls of the bucket, substantially as set forth.

7. In a conveyor, the combination of the parallel endless propelling-chains, the blocks, B, secured to said chains at regular intervals and each having an inwardly-extending flange and a pin, which is in line with a corresponding oppositely-extending pin, a series of buckets, and the oppositely-inclined integral supporting-arms, D, flared at their center upon one of said pins or studs, E, and having their ends connected to the bucket, there being two sets of said arms for every bucket, one on one end and one on the other, substantially as set forth.

8. In a conveyor, the combination, with the propelling-chains, and the buckets connected to said chains to move therewith and having hinged bottoms, of latches secured to the buckets and adapted to maintain the bottoms thereof in their closed positions, and a horizontally-movable lever fulcrumed below the buckets, and means for moving said lever into or from the path of the latches, substantially as set forth.

9. In a conveyor, the combination with the propelling-chains, and the buckets connected to said chains to move therewith and having a vertically-oscillating bottom, of spring-latches connected to opposite sides of the bucket and adapted to extend below the bottom to hold the latter in its closed position, two levers fulcrumed below the bucket for releasing the latches from the bottom, an operating-lever, and a toggle-joint connecting the operating-lever with the latch-levers, substantially as set forth.

10. In a conveyor, a series of buckets arranged each closely adjacent to the next, a carrier for the buckets moving from one line to another, and an anti-friction-roller secured to each bucket and lying between the adjacent edges thereof and adapted to contact with the adjacent bucket, substantially as set forth.

11. In a conveyor, the combination with the buckets arranged in series edge to edge, and each having a downward-inclined wall adjacent to the neighboring bucket, of an anti-friction-roller carried by said bucket near the upper edge of the said inclined wall and adapted to contact with the neighboring bucket at times of swinging of either of the buckets, substantially as set forth.

12. In an endless conveyor the combination of the chains, the series of buckets, the pivots between each bucket and the chains arranged centrally above the bucket, the track having the horizontal section and the upwardly-extending sections, the supporting roller or wheel at the end of the bucket in front of the central transverse plane thereof and adapted to rest continuously against said horizontal and vertical track-sections and the joining device between the bucket and the said pivots and connected to the bucket at points in rear of its said central transverse plane, whereby as the bucket travels upward the inner part thereof has support against the thrust from the said wheel, substantially as set forth.

13. In a conveyor the combination of the endless chain, the buckets, each united by pivotal connections to the chains at points above the center, vertically, of the buckets, and two wheels at each end of each bucket below the top portion thereof, a horizontal track upon which both of said wheels rest in common, and vertical tracks, one bearing against the outside of one wheel, and the other against the inside of the other wheel, substantially as set forth.

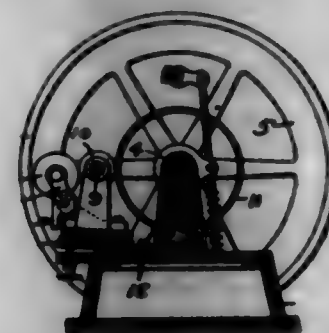
14. The combination with a conveyor-bucket, of a support for uniting it with a chain comprising diverging arms connected with the end parts of the bucket, and having a hinge or pivotal bearing for connection with the chain where the said arms join, substantially as set forth.

15. In a conveyor the combination with a pair of parallel chains, of a series of buckets arranged between the chains, supports for uniting the buckets with the chains, each support comprising diverging arms which are connected with a bucket at separated points, hinge or pivotal connections between the chain and the said supports, supporting rollers or wheels connected with the buckets, and tracks upon which said wheels run, substantially as set forth.

16. In a conveyor the combination of a pair of parallel chains, suspended swinging buckets arranged between the said chains, supports for connecting the buckets with the chains, each comprising a pair of diverging arms which are secured to the ends of the buckets at points respec-

tively in front and rear of the axis of suspension for that bucket, and pivotal or hinge connections between the chains and the said supports, the said diverging arms being so arranged as to bring the said pivotal or hinge connections for the buckets near the top portions thereof, substantially as set forth.

702,895. SPARKING DEVICE. CLARENCE G. WHITE, Minneapolis, Minn., assignor to Globe Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Original application filed Dec. 8, 1900, Serial No. 38,448. Divided and this application filed Feb. 12, 1902. Serial No. 92,552. (No model.)

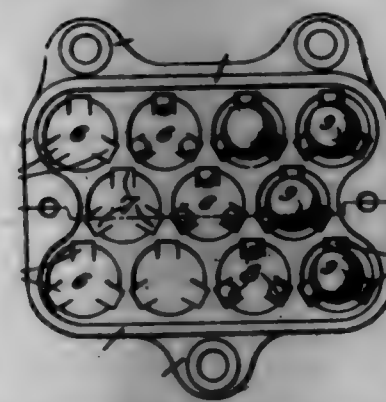


Claim.—1. The combination, in an internal-combustion engine, with a fly-wheel provided with the ring 11 and with the internal rim 17, of a dynamo mounted upon a movable base and provided with friction-wheels 10 and 14, and means for bringing one of said wheels in contact with said ring, or the other wheel in contact with said rim, for the purpose set forth.

2. The combination, with the fly-wheel, provided with ring-surfaces of different diameters, of a dynamo provided with a movable base and with friction driving-pulleys adapted to be brought into contact with one or the other of the ring-surfaces upon said fly-wheel, substantially as described.

3. The combination, with a fly-wheel having ring-surfaces of different diameters, the dynamo provided with a vertically-movable base, carrying standards in which the dynamo-shaft is mounted, a friction-wheel upon the dynamo-shaft, a friction-wheel mounted upon a movable support, and means for raising or lowering said base, whereby one of said wheels may be brought in contact with the smaller ring-surfaces or the other wheel may be brought in contact with the larger ring-surfaces, substantially as described.

702,896. SIDE BEARING FOR RAILWAY-CARS. CHARLES H. WILLIAMS, JR., Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 12, 1902. Serial No. 92,776. (No model.)



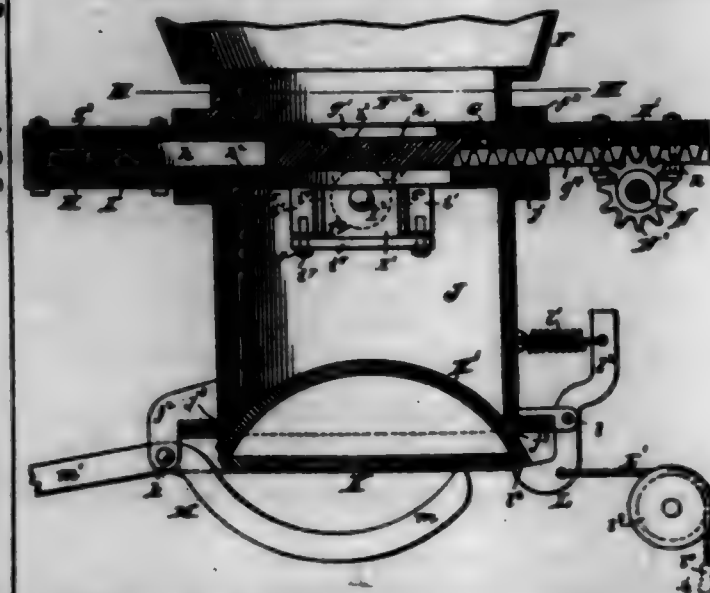
Claim.—1. In a side bearing for railway-cars, the combination with burden-carrying balls, of anti-friction devices under said balls for supporting the same, said anti-friction devices being arranged to the side of the vertical axes of said balls, and a support having recesses in which recesses are located said anti-friction devices; substantially as described.

2. In a side bearing for railway-cars, the combination with a casting having recesses, of anti-friction devices arranged around the side walls of said recesses, and burden-carrying devices supported by said anti-friction devices; substantially as described.

3. In a side bearing for railway-cars, the combination with a support having recesses, said recesses having undercut walls in their side walls, anti-friction devices in said walls, and burden-carrying balls; substantially as described.

4. In a side bearing for railway-cars, the combination with a casting having marginal flanges, of anti-friction devices arranged in a hub-cast, burden-carrying balls supported at different points by said anti-friction devices, and means for holding said balls in position; substantially as described.

702,897. MACHINE FOR WASHING COAL. AS. FREDERICK R. WILLIAMS, JR., Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Nov. 7, 1898. Serial No. 730,147. (No model.)



Claim.—1. The combination of the chambers F and J, terminating in opposing flanges, the valve-box formed separately from and secured to the said opposing flanges, and having a plate g which extends to points inside of the walls of the chambers F and J, the rectilinearly-sliding valve in the said valve-box, and anti-friction supporting devices for the valve situated in the interior of the chamber J, substantially as set forth.

2. The combination of the upper chamber F formed with the flange f' at the bottom, the lower chamber J with the flange j at its upper end, the intermediate valve-box formed separately from and interposed between the said chambers F and J, and having the upper plate and the lower plate extended to points inside of the walls of the chambers F and J, the valve-plate in said box between the upper and lower plates thereof and having an aperture of less horizontal area than the interior area of the chambers F and J, substantially as set forth.

3. The combination of the chambers F and J terminating in opposing flanges, the valve-box formed separately from and secured to the said flanges, and having an upper plate and a lower plate which extend to points inside of the outer walls of the chambers F and J, a rectilinearly-sliding valve in the said box, and anti-friction supporting devices for the valve within the chamber J and supported from the lower plate of the valve-box, substantially as set forth.

4. The combination of the chambers F and J terminating in opposing flanges, the valve-box formed separately from and secured to the said flanges, and having an upper plate and a lower plate extending to points inside of the wall of the chamber J, the rectilinearly-sliding valve in the said box, the vertically-adjustable rollers in the chamber J and the roller-carriers supported by the lower plate of the valve-box, substantially as set forth.

5. The combination of the chambers F and J, the valve-box between them and detachable therefrom, the rectilinearly-sliding valve having two roller-bearing surfaces along its side edges, each of which is formed with an inclined portion, and two rollers supported by the valve-box and situated on opposite sides of and on the median line of the communication between said chambers, and each adapted to engage with one of the said surfaces of the valve; substantially as set forth.

6. The combination with the chamber F and the chamber J, of the intermediate valve-box having the supports f' situated within the chamber J, the roller-carrier held and guided by said supports, the roll in said carrier and the rectilinearly-sliding valve resting upon the said roll, substantially as set forth.

7. The combination with the chambers F and J, of the detachable valve-box between them formed of the upper longitudinally-recessed relatively longer plate G, the lower relatively shorter plate I, the valve in said box between said plates, formed with the relatively large aperture remote from its ends, and with the two parallel rows of notches, means for guiding said valve through the greater part of its travel on an inclined line, said means comprising supporting-rolls within the section J and directly under the lower part of the valve-plate, and the pistons and piston-shaft, substantially as set forth.

8. In a coal-washer, the combination of upper and lower chambers, a sliding valve between said chambers, and means above the valve forming a shoulder or flange extending forward beyond the walls of said upper and lower chambers.

9. In a coal-washer, the combination of upper and lower chambers, a sliding valve between said chambers having cam-surfaces A' and rollers

mounted below the valve and on each side of and on the median line of the communication between the chambers, and adapted to engage said surfaces.

10. In a coal-washer, the combination of upper and lower chambers, a sliding valve between said chambers, housings, *T*, separate from the walls of and within the lower chamber, and rollers journaled in said housings and supporting the valve.

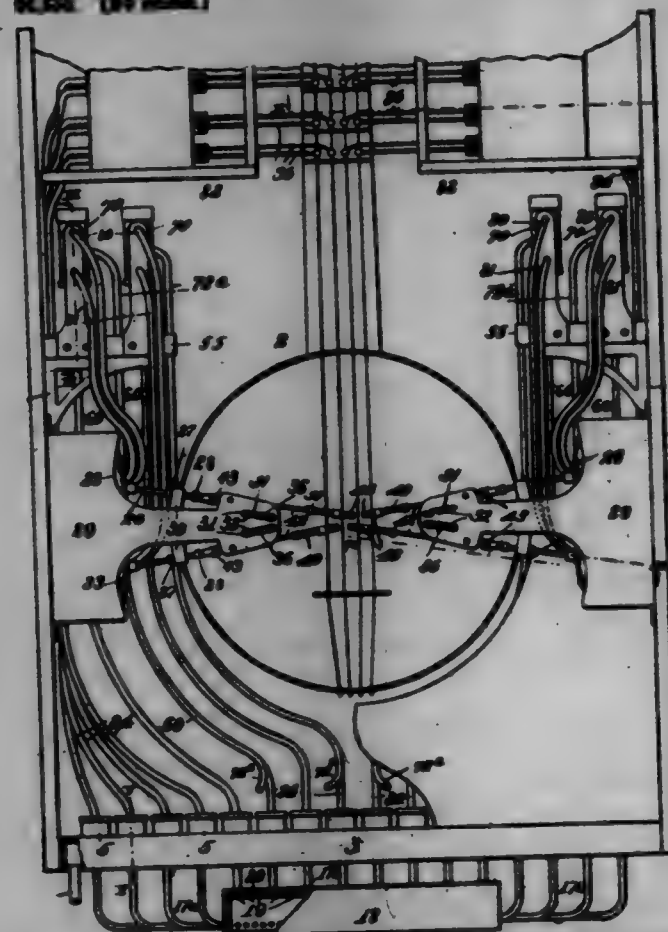
11. In a coal-washer, the combination of upper and lower chambers, a sliding valve between said chambers, housings separate from the walls of and within the lower chamber and adjustable in directions transverse to the valve, and rollers journaled in said housings and supporting the valve.

12. In a coal-washer, the combination of upper and lower chambers, a sliding valve between said chambers, rollers in said lower chamber and supporting the valve, and adjusting means for said rollers, whereby the rollers may be set toward or from the plane of operation of the valve.

13. In an ore and coal washer, the sliding-valve plate, having the aperture *A*, the impervious portion, the supporting-surfaces *N*, at the side of the plate, and the incline or cam, *M*, at the ends of the supporting-surfaces and substantially in line with and at opposite sides of the middle of said impervious portion.

702,898. AUTOMATIC STRINGED MUSICAL INSTRUMENT.

FREDERICK W. WOOD and EDWARD H. STILES, JR., KANSAS CITY, Mo.; said STILES assignor to said WOOD. Filed July 2, 1901. Serial No. 94,532. (No model.)



Claim.—1. In an instrument of the character described, a reciprocating rod, a picker pivoted to said rod and held yielding against pivotal movement in either direction, and a cam for causing the point of the picker as it moves forward to be depressed and then rise to its original plane, and as it moves backward to be again depressed and again rise to its original plane, substantially as described.

2. In an instrument of the character described, a reciprocating rod, a picker pivoted to said rod and held yielding against pivotal movement in either direction, a fixed pin, and a cam provided with converging cam-faces and secured to said rod, and having its cam-faces engaging said pin, substantially as described.

3. In an instrument of the character described, a reciprocating rod, a picker pivoted to said rod and held yielding against pivotal movement in either direction, a fixed pin, a cam provided with converging cam-faces and secured to said rod, and having its cam-faces engaging said pin, and a spring holding said cam and pin in yielding engagement, substantially as described.

4. In an instrument of the character described, a frame, an adjustable pin carried thereby, and provided with flanges, a reciprocating rod provided with a cam engaging said pin, and a picker pivoted to the end

of said rod and held yielding against pivotal movement in either direction, substantially as described.

5. In an instrument of the character described, a reciprocating rod, a picker pivoted thereby, a spring-actuated sliding collar upon the rod, and provided with an arm above and below the pivotal point of the picker, substantially as described.

6. In an instrument of the character described, a hinged reciprocating rod, a picker pivoted to the free end of the rod and having pivotal movement in the same plane as that of the rod, a spring holding the picker against pivotal movement in either direction, and a cam to cause the point of the picker to descend and rise again in its retrograde as well as its advance movement, substantially as described.

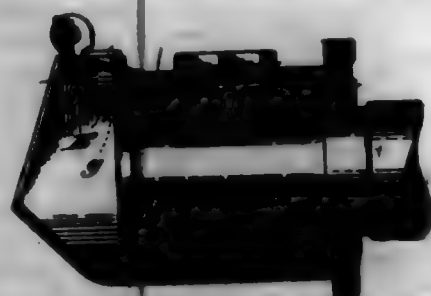
7. In an instrument of the character described, an exhaust-chest, a valve therein, comprising a casing having a lower chamber communicating with the exhaust-chest, and an upper chamber communicating with the atmosphere, a perforated partition separating said chambers, and a perforated bottom for the casing, a tube communicating with the lower chamber through said perforated bottom, a piston mounted in the lower chamber and provided with a small passage, and a valve mounted on the piston-stem, and adapted to alternately close communication between said chambers or to prevent external air entering the upper chamber, substantially as described.

8. In an instrument of the character described, a pair of valve casings, tubes connecting said casings, one of said casings being provided with an opening, and with a second pair of tubes, a tubular block between each of said second tubes and said opening, a tubular block in the other casing between the connecting-tubes, a tube connected to the last-named casing and communicating with said tubular block, a reciprocating stem extending longitudinally of each casing, a valve upon one stem adapted to alternately close the passage of the tubular blocks of said casing, and a pair of valves upon the other stem adapted to alternately engage the tubular block of said casing, the lower valve being adapted to be seated and unseated synchronously with the single valve of the other casing, substantially as described.

9. In an instrument of the character described, a pair of casings, tubes connecting said casings, one of said casings being provided with an opening, and with a second pair of tubes, a tubular block between each of said second tubes and said opening, a tubular block in the other casing between the connecting-tubes, a tube connected to the last-named casing and communicating with said tubular block, a reciprocating stem extending longitudinally of each casing, a valve upon one stem adapted to alternately close the passage of the tubular blocks of said casing, a pair of valves upon the other stem adapted to alternately engage the tubular block of said casing, the lower valve being adapted to be seated and unseated synchronously with the single valve of the other casing, a pneumatic chamber, a flexible diaphragm therein, a piston mechanism actuated thereby, tubes connecting said second tubes with said pneumatic chamber at opposite sides of said diaphragm, and means so the valves of said casings are operated to synchronously exhaust the air at one side of the diaphragm and supply air to the other, substantially as described.

10. In a machine of the character described, this combination of a suitable support, a series of levers suitably supported and provided with fingers for pressure upon the strings of the instrument contiguous to the frame, a series of bellows provided with arms at one end for engagement with said levers at the side of their pivots opposite from said fingers, rods suitably guided and connected to said levers, springs engaging said rods and tending to inflate the bellows and hold the fingers out of contact with the strings and exhaust-tubes connected with the bellows and adapted by creating a vacuum therein to collapse them and cause them to operate said levers and thereby synchronously overcome the resistance of said springs and throw said fingers into engagement with the strings, substantially as described.

702,899. JOURNAL-BOX. GEORGE A. WOODMAN, Chicago, Ill., assignor of three-fourths to Kirby Lumber Company, a Corporation of Illinois. Filed June 2, 1901. Serial No. 93,748. (No model.)



Claim.—1. In a journal-box, the combination with a key or wedge, of a pin removably secured across the corner formed by the top and side of the box to prevent endwise movement of the key or wedge.

2. In a journal-box, the combination with a key or wedge, of a curved pin arranged in the corner formed by the top and side of the box to prevent endwise movement of the key or wedge.

3. In a journal-box provided with openings in its top and side adjacent to the corner formed thereby, the combination of a key or wedge, and a pin removably secured in said openings across said corner to prevent endwise movement of the key or wedge.

702,900. JOURNAL-BOX LID. GEORGE A. WOODMAN, Chicago, Ill., assignor of three-fourths to Kirby Lumber Company, a Corporation of Illinois. Filed June 2, 1901. Serial No. 93,744. (No model.)



Claim.—1. The combination with a journal-box having an opening therein and a lid thereof, of a locking device carried by said lid, said locking device consisting of a plate slidably supported on the inner side of the lid and resting upon the lower wall of the opening in the box when the lid is closed, and a flat spring secured to the lid above the plate and bearing upon said plate to hold same in engagement with said lower wall of the opening, substantially as described.

2. The combination with a journal-box and a lid thereof, of a shoulder on the box, a locking device on the lid, and a flat spring fastened to the lid and having its upper end bearing against said shoulder and its lower end bearing against said locking device, substantially as described.

3. The combination with a journal-box having an opening therein, of a lid for said opening provided with a flange and guide-lugs on its inner side, a locking device consisting of a plate slidably mounted on the inner side of the lid and provided with extensions at its ends arranged to operate within said guide-lugs and against said flange, and a spring bearing on the plate, substantially as described.

4. The combination with a journal-box having an opening therein and a rib on the lower edge of the opening, of a lid for said opening, a locking-plate slidably mounted on the inner side of the lid and provided with a recess in its lower edge to receive the rib on the box, and a spring secured to the lid and bearing upon said plate, substantially as described.

5. The combination with a journal-box lid, of a locking-plate slidably supported on the inner side thereof and provided with a recess in its lower edge and a rounded shoulder adjacent thereto, substantially as and for the purpose described.

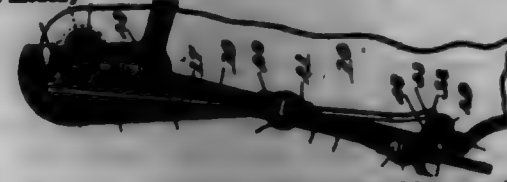
6. The combination with a journal-box lid, of a locking-plate slidably supported on the inner side thereof to engage and rest upon the lower edge of the opening in the box, and a spring fastened to the inner side of the lid and pressing downward on the plate to force the plate down upon the lower edge of the box-opening and effect a locking engagement of the plate therewith when the lid is closed, substantially as described.

7. The combination with a journal-box lid, of a locking-plate slidably supported on the inner side thereof and provided with a recessed seat and a rounded shoulder adjacent thereto, substantially as and for the purpose described.

8. The combination with a journal-box lid, of a locking-plate slidably supported on the inner side thereof and provided with a recessed seat and a rounded shoulder adjacent thereto, and a spring fastened to the lid and having its lower end normally arranged in said seat, substantially as described.

9. The combination with a car-axle-box lid, of a locking-plate slidably supported on the inner side of the lid and provided with a recess in its lower edge and a rounded shoulder adjacent thereto, and having a recessed seat in its upper edge and a rounded shoulder adjacent thereto, and a spring fastened to said lid and having its lower end arranged in said seat, substantially as described.

702,901. DUST-PROOF JOURNAL-BOX LID. GEORGE A. WOODMAN, Chicago, Ill., assignor of three-fourths to Kirby Lumber Company, a Corporation of Illinois. Filed Dec. 20, 1901. Serial No. 96,450. (No model.)



Claim.—1. The combination with a journal-box provided with an opening in the front thereof and a shoulder above said opening, of a

lid consisting of a plate for entirely covering the opening in the box, and a spring fastened on the inner side of the lid and passing through a slot in the plate and bearing against said shoulder, substantially as described.

2. The combination with a journal-box provided with an opening in the front thereof and a shoulder above said opening, of a lid consisting of a plate for entirely covering the opening in the box, a locking device on the lid, and a flat spring fastened to the lid and passing through an opening therein and having its lower end in operative engagement with the locking device on the under side of the lid and its upper end bearing against said shoulder, substantially as described.

3. A lid for journal-boxes consisting of a plate for entirely covering the opening in the box, a head on the outer side of the plate forming a chamber between itself and the plate, and a spring fastened to the plate and passing through an opening therein into the chamber, substantially as described.

4. A lid for journal-boxes consisting of a plate for entirely covering the opening in the box, a lug on the under side of the plate provided with an inclined opening, and a spring actuated in said opening and passing through an opening in the plate, substantially as described.

5. A lid for journal-boxes consisting of a plate for entirely covering the opening in the box, a head on the outer side of the plate forming a chamber between itself and the plate, a lug on the under side of the plate provided with an inclined opening, and a spring secured in said opening and passing through an opening in the plate into said chamber, substantially as described.

6. The combination with a journal-box provided with an opening in the front thereof and a shoulder above said opening, of a lid provided with an opening in that part thereof which covers the opening in the box, a flat spring passing through said opening in the lid and bearing against said shoulder, said lid comprising an upper portion 17 beneath the spring, substantially as and for the purpose described.

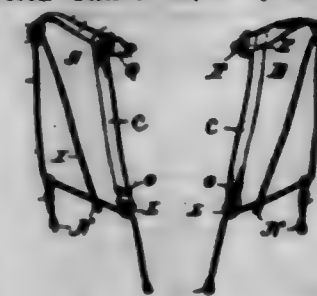
7. The combination with a journal-box lid having parallel slots therein, of a locking-plate on the under side of the lid, a lift-plate on the outer side of the lid, and pins adjacent to the ends of said lift-plate, and passing through the slots in the lid and connecting the locking-plate and lift-plate, said locking-plate being guided in its movement by the pins traveling in said slots, substantially as described.

8. The combination of a journal-box provided with an opening therein, a rib at the side and top edges of the opening in the box, a lid pivotally mounted on the box and comprising a plate entirely covering the opening in the box and provided with a groove to receive said rib, and a device at the bottom of the lid for locking the lid to the lower wall of the box-opening and forming with said rib and groove a continuous seal between the lid and the box, substantially as described.

9. The combination with a journal-box provided with an opening in the front thereof and a shoulder above said opening, of a lid consisting of a plate entirely covering the opening in the box, a head on the outer side of the plate forming a chamber between itself and the plate, and a spring fastened to the lid and having its lower end arranged on the inner side of the lid and its upper end extending through an opening in the plate into the head-chamber and bearing against said shoulder.

10. A lid for journal-boxes consisting of a plate for entirely covering the opening in the box, a head on the outer side of the plate forming a chamber, and a flat spring fastened to the plate and passing through an opening in the plate and having its upper end arranged in the head-chamber on the outer side of the plate and its lower end arranged on the inner side of the plate.

702,902. SUSPENDER. EDWIN S. HELLER, St. Paul, Minn. Filed Mar. 22, 1901. Serial No. 93,264. (No model.)



Claim.—1. A suspender consisting of two separable sections having means for connecting said sections at the back of the neck of the wearer, a pair of straps extending down the back one on each side of the spinal column, a second pair joined to the first pair near the center of the back of the neck and passing onto the shoulders, and means for attaching the free ends of said straps to the garment to be supported consisting of two entirely separate running-ords, one on each separable section.

2. In combination a pair of straps or webs extending up the back of the wearer, cyclets at the lower ends of said straps; a second pair of

straps or webs extending onto the shoulders from the back of the neck and attached to the upper ends of said back-straps; a spring-button by which the right and left sides of the suspender are separately connected behind and at the lower end of the neck of the wearer; eyelets upon the free ends of said shoulder-straps; separate cords, one passing through the eyelets of the group of straps on each side of the place of separation of said right and left sides and having button-loops on their ends, and a button-tab connected to each cord between the ends of the straps on each side of said place of separation.

3. A suspender consisting of a strap which extends from the back of the neck to the top of each shoulder, a pair of straps down the back, disposed substantially at right angles close to said shoulder-straps, a separable connection interposed substantially midway between the ends of said shoulder-straps, eyelets at the four free ends of said straps, a separate running-cord passing through the eyelets on each side of the place of separation and a button-tab slidingly disposed upon said cord between the free ends of each pair of side straps.

4. A suspender consisting of a strap passing around the back of the neck of the wearer and having its ends projecting one on each shoulder; a separable connection inserted midway between the ends of said strap; back-straps attached one to each section of said shoulder-strap adjoining said separable connection; each side of the suspender having an entirely separate running-cord connection with the garment to be supported.

5. In combination, a transverse strap or web from the top of the shoulders across the back of the neck; a connection by which said strap is separable at its center; a pair of straps down the back one on each side of the spinal column, said back-straps being attached to said first strap at substantially right angles near the center of said first strap; eyelets at the four free ends of said straps, an entirely separate cord looped through the eyelets on each side of the place of separation, with an intermediate button-tab freely disposed on each cord.

6. A suspender consisting of a pair of straps or webs extending up the back of the wearer, a second pair of straps or webs extending onto the shoulders and joined to said first pair at substantially right angles, a separable connection attached near the angles to said pairs of straps by which the right and left sides of the suspender are separately connected behind and at the lower end of the neck of the wearer; eyelets upon the free ends of said shoulder and back straps, buckles on said shoulder and back straps for adjusting the length of the straps, separate cords freely disposed through the eyelets of each pair of shoulder and back straps and having button-loops on their ends, and a button-tab freely disposed on each cord on each side of the place of separation.

7. A suspender consisting in combination of two separable sections joined together by a separable connection behind and at the lower end of the neck of the wearer, each separate section consisting of a substantially-vertical back-strap, a shoulder-strap joined to said back-strap near said separable connection at substantially right angles, eyelets on the free ends of said back and shoulder straps, a running-cord passing through said eyelets and having button-loops on its ends, one of which is adapted to attach to one of the buttons at the back on the garment to be supported, and a button-tab connected to said cord between the free ends of said shoulder and back straps.

8. In combination, a transverse strap or web from the top of the shoulders across the back of the neck, a spring-button by which said strap is separable at its center, a pair of straps down the back attached one on each side of said spring-button to said first strap, eyelets at the four free ends of said straps, buckles by which said straps are adjustable in length, an entirely separate cord freely disposed through said eyelets on each side of the place of separation, having means for attaching the same to the garment to be supported.

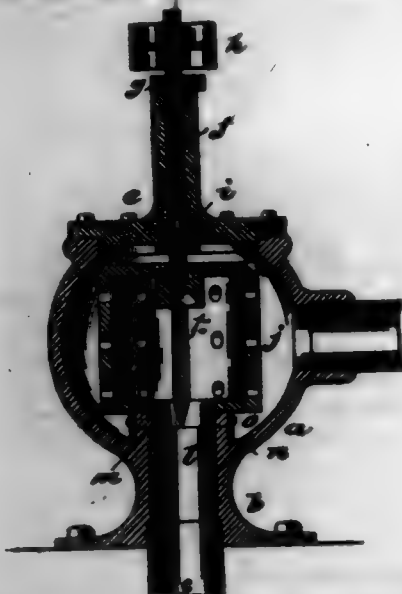
REISSUES.

12,001. CENTRIFUGAL PUMP. WILLIAM S. SHARF, Chicago, Ill., assignor to John D. Ross and Everett W. Brooks, Chicago, Ill. Filed Jan. 12, 1902. Serial No. 20,000. Original No. 244,475, dated Feb. 27, 1900.

Claim.—1. In a centrifugal pump, the combination of a suitable casing, a hollow rotary piston arranged therein, having peripheral walls internally and externally substantially circular and concentric with the axis of rotation of the piston, discharge-outlets at the periphery of said piston, of restricted size, one or more internal pallet-blades extending radially, and an axial inlet, said discharge-outlets being distributed over a zone of greater width than one-half the diameter of the inlet.

2. In a centrifugal pump, the combination of an outer casing, a rotatable piston-shaft arranged in axial through one of the end walls of said casing, a hollow cylindrical rotary piston supported upon said shaft within said casing, a discharge-passage in said casing, an inlet-passage

extending through that end of the casing opposite that through which the rotary shaft enters, said hollow piston being provided with an axial inlet arranged to register with, and contiguous to, the inner end of said inlet-passage of the casing, a longitudinally and diametrically disposed partition within said hollow piston constituting pallet-blades and a plurality of peripheral outlet-passages of restricted size extending through the side walls of said piston, said outlet-passages being arranged to extend over a zone of an axial length not less than one-half the diameter of the inlet, substantially as described.



3. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members and peripheral outlets distributed or extending over an axial length of the piston substantially comprehending the resultant divergent angles of delivery of the liquid induced by the impelling forces.

4. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members and peripheral outlets distributed or extending over the axial length of the piston substantially comprehending the resultant divergent angles of delivery of the liquid induced by the impelling forces, the total area of discharge of the piston being less than the inlet area thereof, for the purposes set forth.

5. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members and peripheral outlets, the end wall of the piston opposite said inlet being located substantially out of range of the resultant lines of delivery of the liquid induced by the impelling forces.

6. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members and peripheral outlets distributed or extending over an axial length of the piston substantially comprehending the resultant divergent angles of delivery of the liquid induced by the impelling forces and provided with a closed end wall opposite the axial inlet and located substantially out of range of said resultant angles of delivery.

7. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members moving with the piston, peripheral outlets distributed or extending over an axial length of the piston substantially comprehending the resultant divergent angles of delivery of the liquid induced by the impelling forces and unguided and a closed end wall opposite the axial inlet of the piston located sufficiently remote from said inlet to be substantially out of range of the resultant lines of delivery of the pump, the total area of discharge of the piston being much less than the total area of inlet, as and for the purposes set forth.

8. In a centrifugal pump, a hollow rotary piston having an axial inlet, one or more pallet members inside of and rotating with the piston, and peripheral outlets, the axial length of said piston and its diameter at the delivery zone bearing such relation to each other that the mass of the resultant of delivery of the liquid induced by the impelling forces passes through said delivery zone.

9. In a centrifugal pump, a hollow rotary piston provided with peripheral outlets and an inlet the mean of the area of which is relatively nearer the axis of rotation of the piston than said peripheral outlets; one or more pallet members inside of and rotating with the piston and means for rotating the piston, the axial length of said piston and its diameter at the delivery zone bearing such relation to each other that the mass of delivery of the liquid induced by the impelling forces passes through said delivery zone and said zone of delivery being of a width considered longitudinally, to substantially comprehend said resultant angles of delivery.

10. In a centrifugal pump, a hollow rotary piston provided with an axial inlet and peripheral outlets and an axial extension pallet member extending into the inlet-pipe beyond the main body of the piston having its plane substantially parallel with the axis of rotation of the piston, where-

by an effective relative movement is imparted to the following column of liquid before it comes within the path of said extension pallet member.

11. In a centrifugal pump, a piston provided with an axial end inlet, one or more internal pallet members and peripheral outlets distributed or extending over a delivery zone wider, measured longitudinally of the piston, than one-half the mean diameter of the inlet thereof.

12. In a centrifugal pump, a hollow rotary piston having an axial end inlet, one or more pallet members inside of and rotating with the piston and delivery outlets more remote radially from the axis of rotation of the pump than the inlet thereof, said outlets extending over a delivery zone wider than one-half the mean diameter of the inlet.

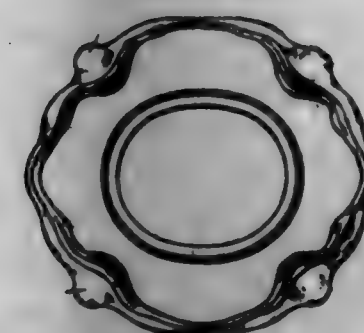
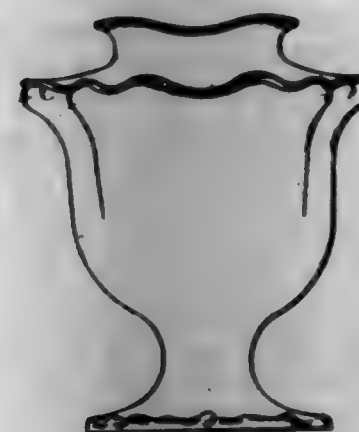
13. The combination of the vertical casing a, provided with an outlet d, base b having a central opening, and a neck c, with a revolving perforated cylinder f having a neck i and a partition k extending into the neck, substantially as described.

14. The combination of the vertical casing a having a base b, neck c, and a cap e provided with a stuffing-box on its under side and a bearing formed in an extension of said cap e with a revolving perforated cylinder having a neck i and a partition k attached to one of said necks and embracing the other, substantially as described.

15. The combination in a centrifugal pump, of the vertical casing a having a suction-pipe c, discharge-pipe d, cap e and neck c, with the vertical shaft f running in said cap, the adjustable collar g mounted on said shaft, the perforated revolving vertical cylinder carried thereby having a partition k, a neck i surrounding the inlet into the cylinder and a band n fast on said neck i and loosely inclosing the neck c, all substantially as described and shown.

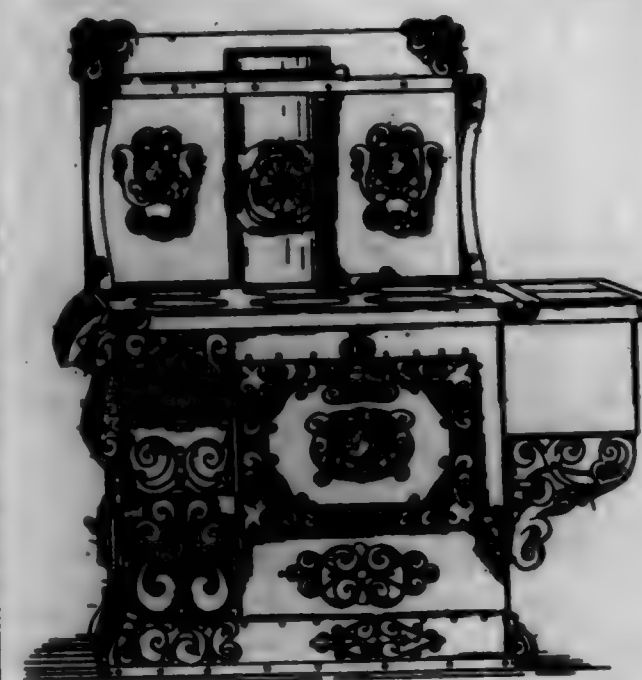
DESIGNS.

85,958. RECEPTACLE. BEN. GOSMAN, Wallingford, Conn., assignor to International Silver Co., Meriden, Conn., a Corporation of New Jersey. Filed May 2, 1902. Serial No. 100,712. Term of patent 7 years.



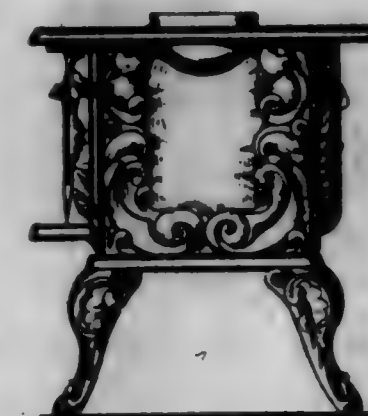
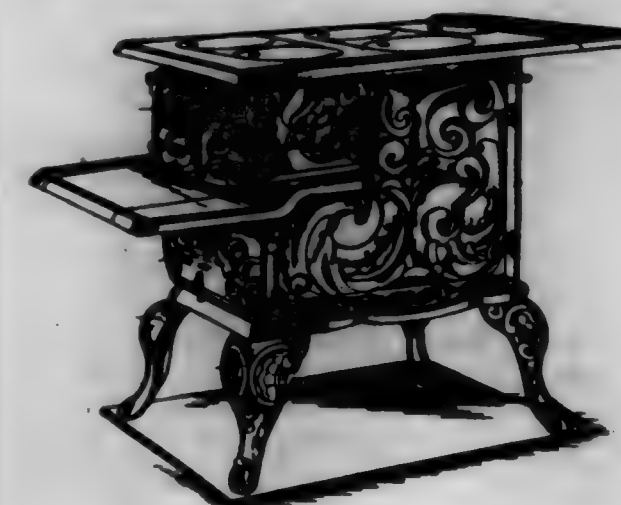
Claim.—The design for a receptacle as herein shown and described.

85,954. STOVE. WILLIAM V. ROBINSON, Detroit, Mich., assignor to Art Stove Company, Detroit, Mich., a Corporation of Michigan. Filed Dec. 26, 1901. Serial No. 67,864. Term of patent 7 years.



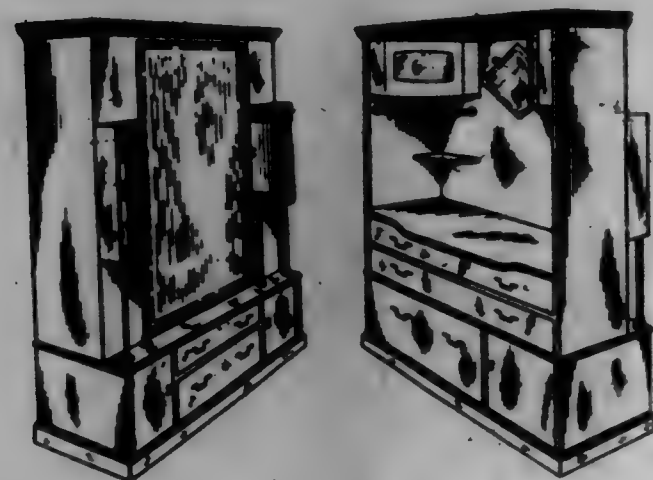
Claim.—The design for a stove, substantially as herein shown and described.

85,955. COOKING STOVE OR RANGE. FRANK J. FERT, Quincy, Ill., assignor to Davis & Tarbush, Quincy, Ill., a Firm. Filed May 10, 1902. Serial No. 100,107. Term of patent 3 1/2 years.



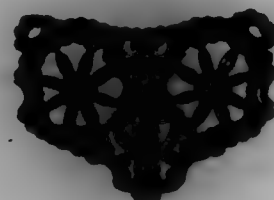
Claim.—The design for a cooking stove or range substantially as herein described and shown.

85,956. DRESSING-CABINET. JAMES C. TAYLOR, Toronto, Canada. Filed Dec. 3, 1901. Serial No. 94,991. Term of patent 34 years.



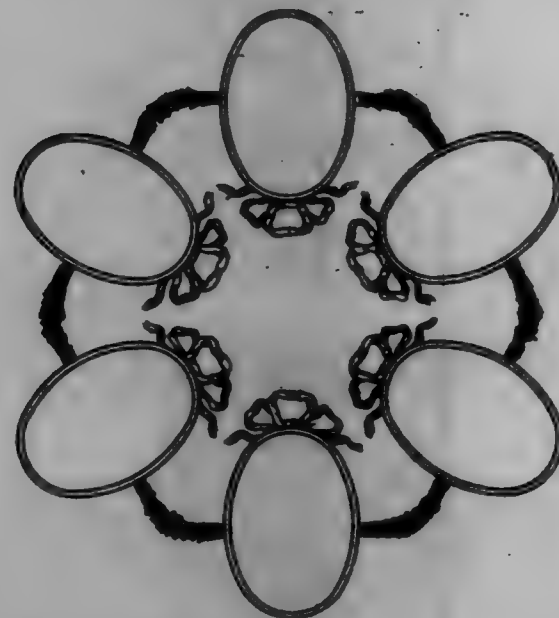
Claim.—The design for the dressing-cabinet herein shown and described.

85,957. BELT-BUCKLE. LOUIS E. FRANK, Brooklyn, N. Y. Filed May 13, 1902. Serial No. 107,800. Term of patent 7 years.



Claim.—The design for a belt-buckle herein shown and described.

85,958. PORTRAIT CUSHION-COVER. EVELLA SOLOMON, Philadelphia, Pa. Filed Apr. 7, 1902. Serial No. 101,800. Term of patent 34 years.



Claim.—The design for a portrait cushion-cover, substantially as shown and described.

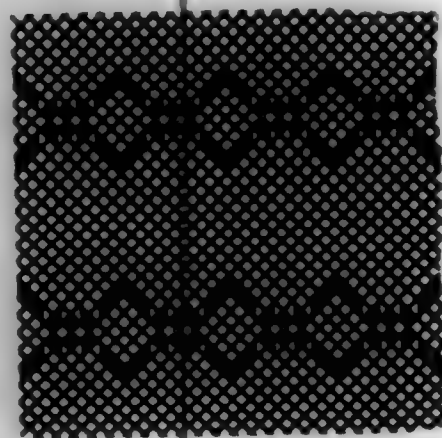
85,959. CASKET-TRIMMING. EDWARD E. SARGENT, New Haven, Conn., assignor to Sargent and Company, New Haven, Conn., a Corporation of Connecticut. Filed May 13, 1902. Serial No. 100,113. Term of patent 34 years.

85,959.



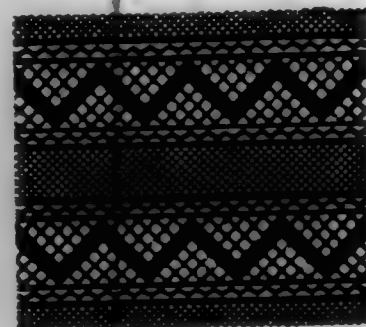
Claim.—The design for a casket-trimming, as herein shown and described.

85,960. WOVEN FABRIC. JOHN WILLIAM LANGENBERGER, Philadelphia, Pa. Filed May 13, 1902. Serial No. 107,800. Term of patent 34 years.



Claim.—The design for a woven fabric as herein shown and described.

85,961. WOVEN FABRIC. JOHN WILLIAM LANGENBERGER, Philadelphia, Pa. Filed May 13, 1902. Serial No. 107,807. Term of patent 34 years.



Claim.—The design for a woven fabric, as herein shown and described.

85,962. DIE OR SIMILAR ARTICLE. HOMER D. GALT, Syracuse, N. Y. Filed Apr. 30, 1902. Serial No. 100,400. Term of patent 14 years.



Claim.—The design for a die, or similar article herein shown and described.

TRADE-MARKS

REGISTERED JUNE 17, 1902.

88,448. BOOTS AND SHOES. CHAS. BARNES, Haverhill and Boston, Mass. Filed May 1, 1902.



The words "THE MCKINLEY," associated with the portrait of William McKinley, late President of the United States, the portrait being ornamented by a sheaf of wheat, partly surrounding the same and extending upwardly therefrom, all being surrounded by an ornamental scrollwork. Used since April 20, 1902.

88,449. BOOTS AND SHOES. BARNES, JOHNSON & RAND SHOE CO., St. Louis, Mo. Filed May 6, 1902.

OUR FAMILY

The words "OUR FAMILY." Used since January 1, 1902.

88,450. BOOTS AND SHOES. BARNES, JOHNSON & RAND SHOE CO., St. Louis, Mo. Filed May 6, 1902.

PLANET

The word "PLANET." Used since January 1, 1902.

88,451. BOOTS AND SHOES. BARNES, JOHNSON & RAND SHOE CO., St. Louis, Mo. Filed May 6, 1902.

PATRIOT

The word "PATRIOT." Used since March 1, 1902.

88,452. SHIRTS, COLLARS, CUFFS, SHIRT-WAISTS, NIGHT SHIRTS, PAJAMAS, AND BATH-ROBES. CLINT, FRANKS & CO., Troy, N. Y. Filed May 12, 1902.

Arched

The word "MONARCH." Used since 1874.

88,453. DRILLINGS AND SHEETING. GEORGE L. MONTGOMERY, New York, N. Y. Filed May 10, 1902.



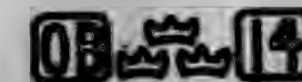
The representation of a head of a Rocky Mountain sheep or goat with large curved horns. Used since November, 1901.

88,454. BOOKBINDING. THOMAS RICHARD TOWLER, South Woodford, England. Filed Apr. 23, 1902.

AKORDEGA

The word "AKORDEGA." Used since November 18, 1901.

88,455. FINGER-RINGS. CLINT & BARTON COMPANY, Providence, R. I. Filed Feb. 24, 1902.



The letters "O B" within an eight-sided panel, the numeral "14" within a similar eight-sided panel, and three crosses arranged in a pyramidal group between said two panels. Used since February 14, 1902.

88,456. MOUTH-HARMONICAR. FIRM OF M. HONNER, Tremsin, Germany, and New York, N. Y. Filed May 10, 1902.

3CND

The symbol "3 C N D." Used since 1867.

88,457. MOUTH-HARMONICAR. FIRM OF M. HONNER, Tremsin, Germany, and New York, N. Y. Filed May 10, 1902.

34B

The symbol "34 B." Used since 1872.

88,458. MOUTH-HARMONICAR. FIRM OF M. HONNER, Tremsin, Germany, and New York, N. Y. Filed May 10, 1902.

1816

The numeral "1816." Used since 1899.

88,459. MOUTH-HARMONICAR. FIRM OF M. HONNER, Tremsin, Germany, and New York, N. Y. Filed May 10, 1902.

1896

The numeral "1896." Used since 1896.

88,460. MOUTH-HARMONICAR. FIRM OF M. HONNER, Tremsin, Germany, and New York, N. Y. Filed May 10, 1902.

50B

The symbol "50 B." Used since 1877.

88,461. MATCH-SAFES. CHARLES C. FITZ, Brockton, Mass. Filed May 13, 1902.

STAR

The word "STAR." Used since January 1, 1902.

88,462. CERTAIN NAMED BRUSHES. LEOPOLD ACHER, COMPANY, New York, N. Y. Filed Apr. 24, 1902.

CENTURY

The word "CENTURY." Used since December, 1899.

88,463. MINOCULARS. EMILIE COLMONT, Paris, France. Filed Feb. 14, 1902.



The word "IRIS," arranged within a border-line which also incloses a cross. Used since December 2, 1901.

88,464. NEEDLES FOR VACCINATING ANIMALS. OSMER, THOMAS, Paris, France. Filed May 14, 1902.



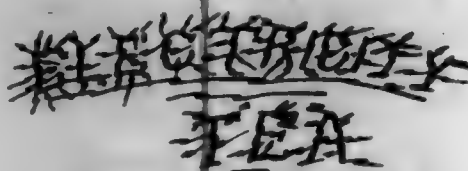
The letters "OT," one of which is superimposed on the other. Used since February 1, 1902.

88,465. CERTAIN NAMED VETERINARY SANDWICHES. JAMES T. AMMONS, Chicago, Ill. Filed May 2, 1902.



The representation of a horse's head, a horseshoe, and the letters "I. X. L." Used since March 10, 1902.

88,466. MEDICINAL HERB COMPOUND. WILLIAM H. ELDER, Chicago, Ill. Filed Mar. 4, 1902.



The words "ELECTRICITY TEA" in ornamental letters, with zig-zag lines radiating in all directions from each letter. Used since November, 1902.

88,467. CERTAIN NAMED MEDICINAL PREPARATION. CHERRY CHEMICAL CO., Richmond, Va. Filed May 2, 1902.

Vagicura

The word "VAGICURA." Used since February, 1902.

88,468. REMEDIES FOR CERTAIN NAMED DISEASES. WILLIAM E. BROWNELL, New Bedford, Mass. Filed May 7, 1902.

GASTROIDS.

The word "GASTROIDS." Used since January, 1902.

88,469. REMEDIES FOR CERTAIN NAMED DISEASES. GEORGE W. CALDWELL, Middletown, N. Y. Filed Mar. 18, 1902.



The word "FEMITONE" and the representation of a shield. Used since February 24, 1902.

88,470. MEDICINE FOR INFLAMMATORY DISEASES. CHARLES SYLVESTER HARRIS, Dayton, Ohio. Filed May 3, 1902.

ANTI-ITIS

The compound word "ANTI-ITIS." Used since June 1, 1901.

88,471. MEDICINAL PREPARATIONS FOR THE CURE OF CERTAIN NAMED DISEASES. DR. FREDERICK C. O'NEILL, New Haven, Conn. Filed Jan. 25, 1902.



A monogram of the letters "D F N" within a circle. Used since January 1, 1901.

88,472. CERTAIN NAMED FOOD, RELIGIOUS, AND MEDICINAL PREPARATIONS. CO-OPER COMPANY OF AMERICA, Chicago, Ill. Filed Apr. 18, 1902.

A. Denaver

The signature "A. DENAVER." Used since May, 1902.

88,473. CHEWING AND SMOKING TOBACCO. ELLSWORTH E. WILSON, Columbus, Ohio. Filed May 8, 1902.

RED OX



The words "RED OX," associated with a pictorial representation of an ox. Used since April 21, 1902.

88,474. NATURAL MINERAL WATER AND CARBONATED BEVERAGE. JOHN H. FETTERSON, Crookston, Minn. Filed Mar. 19, 1902.



A triangular-shaped figure having the representation of a flowing spring arranged thereon and surrounded by concentric circles. Used since February 1, 1902.

88,475. CERTAIN NAMED GROCERS' SUPPLIES. S. J. VALE & SONS, New York, N. Y. Filed Apr. 26, 1902.

FALCON

The word "FALCON." Used since July, 1899.

88,476. SYRUPS, CEREALS, COFFEE, BAKING-POWDER, AND CANNED VEGETABLES. I. R. HOWARD & CO., Richmond, Ind. Filed May 5, 1902.

GOLDEN RUSSET

The words "GOLDEN RUSSET." Used since April, 1902.

88,456. MOUTH-HARMONICAR. FIRM OF H. HOFER, Trossen-
gen, Germany, and New York, N. Y. Filed May 10, 1902.

3CND

The symbol "3 CND." Used since 1897.

88,457. MOUTH-HARMONICAR. FIRM OF H. HOFER, Trossen-
gen, Germany, and New York, N. Y. Filed May 10, 1902.

34B

The symbol "34 B." Used since 1872.

88,458. MOUTH-HARMONICAR. FIRM OF H. HOFER, Trossen-
gen, Germany, and New York, N. Y. Filed May 10, 1902.

1816

The numeral "1816." Used since 1899.

88,459. MOUTH-HARMONICAR. FIRM OF H. HOFER, Trossen-
gen, Germany, and New York, N. Y. Filed May 10, 1902.

1896

The numeral "1896." Used since 1896.

88,460. MOUTH-HARMONICAR. FIRM OF H. HOFER, Trossen-
gen, Germany, and New York, N. Y. Filed May 10, 1902.

50B

The symbol "50 B." Used since 1877.

88,461. MATCH-SAFES. CHARLES C. FIFE, BROOKTON, MASS. Filed
May 12, 1902.

STAR

The word "STAR." Used since January 1, 1902.

88,462. CERTAIN NAMED DRUGS. LEONARD ASHES, CUM-
PANY, NEW YORK, N. Y. Filed Apr. 24, 1902.

CENTURY

The word "CENTURY." Used since December, 1899.

88,463. BINOCULARS. BRILLER COLBERT, PARIS, FRANCE. Filed
Feb. 14, 1902.



The word "IRIS," arranged within a border-line which also incloses
a star. Used since December 2, 1901.

88,464. NEEDLES FOR VACCINATING ANIMALS. OUTHEN
THOMAS, PARIS, FRANCE. Filed May 14, 1902.



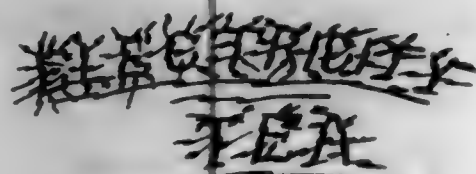
The letters "O.T." one of which is superimposed on the other. Used
since February 1, 1902.

88,465. CERTAIN NAMED VETERINARY BANDAGES. JAMES
T. ANTHONY, CHICAGO, ILL. Filed May 2, 1902.



The representation of a horse's head, a horseshoe, and the letters
"I. X. L." Used since March 10, 1892.

88,466. MEDICINAL HERB COMPOUND. WILLIAM E. BAKER,
CHICAGO, ILL. Filed Mar. 4, 1902.



The words "ELECTRICITY TEA" in ornamental letters, with sig-
ning lines radiating in all directions from each letter. Used since Novem-
ber, 1892.

88,467. CERTAIN NAMED MEDICINAL PREPARATION. OWENS
CHEMICAL CO., RICHMOND, VA. Filed May 2, 1902.

Vagicura

The word "VAGICURA." Used since February, 1902.

88,468. REMEDIES FOR CERTAIN NAMED DISEASES. WIL-
LIAM E. BAKER, NEW BEDFORD, MASS. Filed May 7, 1902.

GASTROIDS.

The word "GASTROIDS." Used since January, 1902.

88,469. REMEDIES FOR CERTAIN NAMED DISEASES. GEORGE
W. GILFILLAN, MADISON, N. Y. Filed Mar. 12, 1902.



The word "FEMITONS" and the representation of a shield. Used
since February 24, 1902.

88,470. REMEDIES FOR INFLAMMATORY DISEASES. CHARLES
SILVERMAN, BOSTON, MASS. Filed May 2, 1902.

ANTI-ITIS

The compound word "ANTI-ITIS." Used since June 1, 1901.

88,471. MEDICINAL PREPARATIONS FOR THE CURE OF CER-
TAIN NAMED DISEASES. DR. FORTY CHEMICAL CO., NEW HAVEN, CONN.
Filed Jan. 20, 1902.



A monogram of the letters "D F N D" within a circle. Used since
January 1, 1901.

88,472. CERTAIN NAMED FOOD, RELIEF, AND MEDICINAL
PREPARATIONS. OX-BEE COMPANY OF AMERICA, CHICAGO, ILL. Filed
Apr. 18, 1902.

A. Dewar

The signature "A. DEWARTER." Used since May, 1902.

88,473. CHEWING AND SMOKING TOBACCO. ELIZABETH E. WIL-
KINSON, COLUMBUS, OHIO. Filed May 2, 1902.

RED OX



The words "RED OX," associated with a pictorial representation
of an ox. Used since April 21, 1902.

88,474. NATURAL MINERAL WATER AND CARBONATED BEV-
ERAGES. JOHN E. FETTERSON, CROCHTON, MINN. Filed Mar. 10, 1902.



A triangular-shaped figure having the representation of a flowing
spring arranged thereon and surrounded by concentric circles. Used
since February 1, 1902.

88,475. CERTAIN NAMED GROCERY SUPPLIES. R. J. VALL &
SON, NEW YORK, N. Y. Filed Apr. 20, 1902.

FALCON

The word "FALCON." Used since July, 1890.

88,476. SYRUPS, GERRALS, COFFEE, BAKING-POWDER, AND
CANNED VEGETABLES. I. R. HOWARD & CO., RICHMOND, IND. Filed
May 2, 1902.

GOLDEN RUSSET

The words "GOLDEN RUSSET." Used since April, 1890.

88,477. MEAL AND FLOUR OF CORN, WHEAT, OATS, AND OTHER CEREALS. ANDERSON & BARROW, Chicago, Ill. Filed Apr. 11, 1902.

NUTRI

The word "NUTRI." Used since March 15, 1902.

88,478. WHEAT-FLOUR. ELIAS HIND, (Incorporated in Connecticut.) Havana, Cuba. Filed Apr. 23, 1902.



The words "PALMA REAL," associated with a pictorial representation of a palm tree or royal palm. Used since September, 1901.

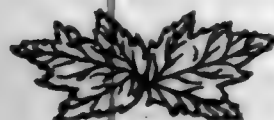
88,479. CRACKERS AND BISCUITS. C. R. Bess & Son, New London, Conn. Filed May 8, 1902.

UNIQUE

The word "UNIQUE." Used since April 1, 1902.

88,480. CERTAIN NAMED PACKING-HOUSE PRODUCTS. SWIFT AND COMPANY, Chicago, Ill. Filed May 17, 1902.

SILVER LEAF



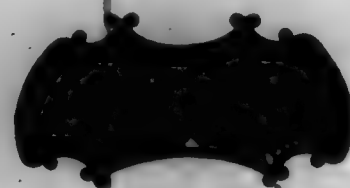
The words "SILVER LEAF" and the representation of two silver leaves. Used since 1890.

88,481. LIQUID PREPARATIONS FOR TREATMENT OF THE SKIN. GREAT CENTURY PHARMACEUTICAL CO., LONDON, ENGLAND. Filed Feb. 6, 1902.



The pictorial representation of a bearded man seated in a chair, with one foot on a stool and one arm resting on a table on which is a bottle and box, and above the man is the figure of an angel and a cherub holding in outstretched hands a box on which appear the words "GREAT CENTURY." Used since April 10, 1901.

88,482. TOILET ORNAMENT. WILLIAM SMITH HENSON, York, Pa. Filed Mar. 18, 1902.



The word "NODOR" on a tilted background, surrounded by an ornamental border or scroll. Used since January 1, 1902.

88,483. PERFUMERY. J. & R. ATTENBORO, LONDON, ENGLAND. Filed May 8, 1902.

EONIA

The word "EONIA." Used since March 21, 1902.

88,484. LAUNDRY AND TOILET SOAP. THE E. E. FAIRBANK COMPANY, Chicago, Ill. Filed Apr. 24, 1902.

BLUE CLOUD

The words "BLUE CLOUD." Used since November 6, 1901.

88,485. SOAP. THE MANUFACTURING COMPANY, ALTON, ILL. Filed Apr. 17, 1902.

EZO

The word "EZO." Used since April 12, 1902.

88,486. SOAP AND SHAVE POLISH. E. E. STUBBS & CO., BUFFALO, N. Y. Filed Mar. 28, 1902.



The words "BLACK CAT" and the representation of the head of a black cat within an inclosing circular figure. Used since March 15, 1902.

88,487. PRESERVATIVE, DISINFECTANT, AND TANNING OR TAWING COMPOUNDS. THOMAS TRAVERS, DARTFORD, ENGLAND. Filed May 8, 1902.



The representation of the male figure of a man, with his arms supported upon his hips, and bearing upon his back and shoulders a globe according to the conventional representation of the figure of Atlas supporting the world. Used since 1890.

88,488. PRESERVATIVE, DISINFECTANT, AND TANNING OR TAWING COMPOUNDS. THOMAS TRAVERS, DARTFORD, ENGLAND. Filed May 8, 1902.

ATLAS

The word "ATLAS." Used since 1890.

88,489. METAL-POLISH. A. BALLOU & CO., LTD., NEW ORLEANS, LA. Filed Mar. 27, 1902.



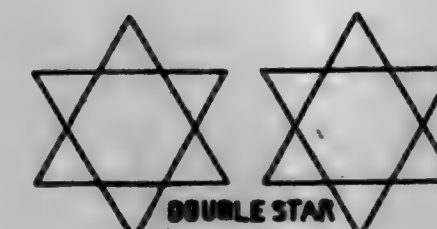
The representation of a human hand grasping and holding aloft a brush. Used since March 19, 1902.

88,490. PAINT FOR METAL SURFACES. THE CRIMINAL PAINT MANUFACTURING CO., HANFORD, CONN. Filed Apr. 14, 1902.



The representation of a barrel having thereon a monogram of the letters "O.F.O." Used since December 26, 1901.

88,491. CHINA-WOOD OIL AND CITRONELLA-OIL. EDWARD HALL'S SON & CO., NEW YORK, N. Y. Filed Apr. 4, 1902.



The words "DOUBLE STAR" and the representation of two stars, each formed of two superposed equilateral triangles. Used since 1891.

88,492. MINERAL-BEARING SANDS AND ORBS. JOHN H. CHAPMAN, NEW YORK, N. Y. Filed May 10, 1902.

INDURITE

The word "INDURITE." Used since April 21, 1902.

JUNE 17, 1902.

88,498. CERTAIN MARKED RECTANGULAR. HENRY E. WILSON. 88,495. RANGER. HENRY E. WILSON, Pittsburg, Pa. Filed Apr. 12, 1902.

E-Z

The hyphenated letters "E-Z." Used since December 1, 1901.

88,494. CERTAIN MARKED HEATING APPARATUS AND THERMAL APPARATUS. THE EAST REGULATING VALVE CO., Detroit, Mich. Filed Apr. 10, 1902.



The monogram "N E V Co." Used since January 1, 1902.

ACME

The word "ACME." Used since January 1, 1902.

88,496. STEAM FIRE-ENGINE. AMERICAN FIRE ENGINE COMPANY, Garden City, N. Y. Filed May 7, 1902.

**COSMO
POLITAN**

The word "COSMOPOLITAN." Used since March 1, 1902.

**LABELS**

REGISTERED JUNE 17, 1902.

- 9,336.—Title: "MILADI." (For Shoes.) WILLIAM RICHARDSON Co., Hornellsville, N. Y. Filed May 27, 1902.
- 9,339.—Title: "PERFECTION COMFORTS." (For Comforts.) WALTER H. CONERAN & Co., Philadelphia, Pa. Filed May 24, 1902.
- 9,330.—Title: "STAR DUSTLESS CRAYON." (For Crayons.) AMERICAN SCHOOL FURNITURE COMPANY, New York, N. Y. Filed May 24, 1902.
- 9,331.—Title: "STANDARD PORCELAIN ENAMELED SANITARY WARE." (For Sanitary Ware.) STANDARD SANITARY MFG. CO., Pittsburg, Pa. Filed May 27, 1902.
- 9,332.—Title: "STANDARD PORCELAIN ENAMELED SANITARY WARE." (For Sanitary Ware.) STANDARD SANITARY MFG. CO., Pittsburg, Pa. Filed May 27, 1902.
- 9,333.—Title: "HUGHES' CRESCENT COTTAGE PAINTS." (For Paints.) A. M. HUGHES PAINT & GLASS CO., Kansas City, Mo. Filed May 12, 1902.
- 9,334.—Title: "BIG 4 EXTERNAL ANODYNE LINIMENT." (For a Medicine.) J. CLARK BANTA, Pembine, Wis. Filed May 14, 1902.
- 9,335.—Title: "DR. PRIOR'S SODA QUININE LAXATIVE POWDERS." (For a Medicine.) S. C. PRIOR, Joplin, Mo. Filed December 28, 1901.
- 9,336.—Title: "EFFERVESCENT KIDNEY SALT TABLETS." (For a Medicine.) JOHN E. KELLY, Buffalo, N. Y. Filed April 21, 1902.
- 9,337.—Title: "BRANDINE." (For a Medicine.) CHARLES O. RAMO, Buffalo, N. Y. Filed May 26, 1902.
- 9,338.—Title: "THE MEMPHI." (For Carbonated Water.) BLUFF CITY BOTTLING CO., Memphis, Tenn. Filed May 21, 1902.
- 9,339.—Title: "MALT VIGOR." (For Extract of Malt.) SUGAR-COOPER CO., New York, N. Y. Filed May 26, 1902.
- 9,340.—Title: "SPORTSMAN'S CLUB." (For Whisky.) HENRY E. EHRMAN, Chicago, Ill. Filed May 24, 1902.
- 9,341.—Title: "TROPICAL CIGAR." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed May 23, 1902.
- 9,342.—Title: "STICKNEY'S PERFECCION." (For Cigars.) WILLIAM A. STICKNEY CIGAR CO., St. Louis, Mo. Filed May 23, 1902.
- 9,343.—Title: "CRESCENT STOCK FOOD CO., KNOXVILLE, ILL." (For Stock-Food.) FUNK & WERNER, Knoxville, Ill. Filed May 21, 1902.

PRINTS

REGISTERED JUNE 17, 1902.

- 518.—Title: "POTTED HAM AND TONGUE. DEVILED HAM AND TONGUE." (For Potted and Deviled Ham and Tongue.) ARMOUR PACKING COMPANY, Kansas City, Kans. Filed May 24, 1902.
- 519.—Title: "1902-FALL & WINTER-1902." (For Clothing.) CROUSE & BRANDENBERG, Utica, N. Y. Filed May 28, 1902.
- 520.—Title: "SEE THAT FLARE." (For Women's Underwear.) HENRY M. LOVE, Wilmington, Del. Filed May 23, 1902.
- 521.—Title: "SEE THAT FLARE." (For Women's Underwear.) HENRY M. LOVE, Wilmington, Del. Filed May 23, 1902.
- 522.—Title: "SEE THAT FLARE." (For Women's Underwear.) HENRY M. LOVE, Wilmington, Del. Filed May 23, 1902.
- 523.—Title: "SEE THAT FLARE." (For Women's Underwear.) HENRY M. LOVE, Wilmington, Del. Filed May 23, 1902.
- 524.—Title: "MEN'S APPAREL." (For Men's Apparel.) WILLIAM C. BOTE, Chicago, Ill. Filed May 26, 1902.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BLACKFORD v. WILDER.

Decided December 15, 1897.

1. INTERFERENCE—PRIORITY—EXHIBIT—REDUCTION TO PRACTICE.

Where a certain exhibit contains a chamber as a material part thereof, which is so connected and associated with the other parts that it would probably have a material effect upon the operation of the device, *Held* that this chamber cannot be ignored in order that the exhibit may be considered as a reduction to practice.

2. SAME—SAME—SAME.

Where B. contends that a certain exhibit if operated at this time would contain oil in the trough and that therefore it must be held that it contained oil in 1896 when operated, *Held* that a demonstration of the burner at this time even if satisfactory would not be sufficient, since B. should have shown by his proofs that it did contain oil and that he appreciated the fact at the time. It is not sufficient that he supposes now that an operation took place which he did not appreciate at the time.

APPEAL from Examiners-in-Chief.

OIL-TROUGHS.

Application of Atwell J. Blackford filed August 23, 1897, No. 649,311. Application of William H. Wilder filed January 4, 1899, No. 701,100.

Messrs. Pattison & Nesbitt and Mr. A. S. Pattison for Blackford.

Messrs. Walter Donaldson & Co. for Wilder.

ALLEN, Commissioner:

This is an appeal by Wilder from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Blackford upon the following issue:

1. Is a burner the combination with a trough and perforated tubes situated thereabove and forming a combustion-chamber, said trough having at its bottom a liquid-containing portion, and an enlarged upper vapor-receiving space, and a vertically-disposed lighting member seated in the liquid-containing portion and extending upward between the walls of the enlarged vapor-receiving portion to form a vapor-space at the side of the lighting member.

2. In a burner the combination of a trough and perforated tubes situated thereabove and forming a combustion-chamber, a lighting member vertically disposed between the upwardly-disposed walls of the trough, said trough having a contracted lower portion in which the lighting member is seated, and a vapor-space above the contracted portion at the side of the vertically-disposed lighting member.

3. In a burner the combination of a trough and perforated tubes situated thereabove and forming a combustion-chamber, said trough being contracted at its lower portion, and a vertically-disposed lighting member seated in said contracted portion and extending upward between the upwardly-disposed walls and constituting a vapor-space in the upper portion of the trough at the side of the said lighting member.

4. In a burner the combination of a trough and perforated tubes situated thereabove and forming a combustion-chamber, said trough being contracted at its lower portion and being provided with a wick seated in the contracted portion of the trough

and extending upwardly between and distant from its upwardly-disposed walls.

An examination of all of the evidence in this case shows that the decision must turn upon the proof in regard to four exhibits introduced in evidence, two on behalf of each party. These exhibits are A and D on behalf of Blackford and E and F on behalf of Wilder. No serious contention can be made that any other exhibit made prior to the date of Wilder's application embodies the invention. Each party claims to have conceived the invention some time before the date of these exhibits; but there is no proof of that conception, and in so far as the proof goes the first disclosure of the invention must be taken as the date when one of these exhibits was made embodying the invention. The alleged dates upon which these exhibits were made are: Blackford's Exhibit A, February, 1896; Blackford's Exhibit D, November, 1896; Wilder's Exhibit E, April, 1896; Wilder's Exhibit D, January, 1897. Wilder alleges that stoves like his Exhibit D were put on the market in January, 1897, and that their manufacture was begun six months earlier.

The evidence satisfactorily establishes the fact that Blackford's Exhibit A was made in February, 1896, as alleged, and holding it to be a reduction to practice of the invention in controversy the Examiner of Interferences awarded priority of invention to Blackford upon the strength of this exhibit alone. The Board of Examiners-in-Chief were unanimously of the opinion that this exhibit did not embody the invention and could not be accepted as evidence even of conception. The majority were of the opinion also that Wilder's Exhibit E, made in April, 1896, did not show a conception and that Blackford's Exhibit D was made, as alleged, in November, 1896, and constituted a reduction to practice of the invention at that date. They therefore awarded priority to Blackford, basing their decision upon Exhibit D. One member of the Board in a dissenting opinion states that Wilder's Exhibit E, while not proved to be a successful reduction to practice, is proof of conception in April, 1896, and that the evidence does not establish that Blackford's Exhibit D was made in November, 1896, or at any time before Wilder's filing date, or that when made it constituted a reduction to practice of the invention. He was therefore of the opinion that Wilder is the prior inventor.

It will therefore be seen that the two Examiners-

in-Chief, constituting the majority of the Board, are the only ones passing upon this case who have agreed in their findings of the material facts upon which the decision turns.

In order to determine whether the exhibits and the evidence in regard to them come within the issue, it is necessary to know just what the invention in controversy is. The invention is an improvement upon the old and well-known class of burners in which the vapor from oil is burned with a blue flame between vertical, parallel, perforated walls or tubes. In such burners the vapor rises from a trough or receptacle at the lower end of the space between the walls or tubes. In the oldest types the oil was supplied to the lower end of the tubes by the capillary action of a wick from a reservoir beneath, and in later types it was supplied by a pipe directly to a trough at the bottom of the tubes without any wick, and in this form the heat was such that all oil was vaporized, and in normal operation there was no oil, but only vapor in the trough. It is considered by these applicants as desirable to have oil in the trough during the normal operation of the burner, so that the vapor will be produced and burn from the surface of this oil; but the trough will not become so highly heated in operation as to vaporize all of the oil contained in it. It is to this end and with this purpose in view that a trough of the particular construction of the issue was designed, and it was because of this apparently new operation that claims to that construction were allowed. The novelty is in the trough, which will not vaporize all oil supplied to it, all other parts of the burner being the same as in the old-style vapor-burner.

The essential features of this trough are a lower contracted portion, an upper expanded portion, and a lighting member, usually of asbestos, seated in the contracted portion, which forms an oil-space, and extending into the expanded portion above, leaving a vapor-space between it and the walls of the expanded portion. It seems that the lower contracted portion does not become so highly heated as to vaporize the oil as fast as it is supplied. It seems probable that the operation is influenced to a certain extent by the thickness of the material used in making the trough; but this is a feature not specified in the issue. A thin trough would not retain as much heat as a thicker one.

Blackford's application discloses a trough V-shaped in cross-section, and Wilder's application discloses one which is not a true V shape in that below the expanded portion the walls of the contracted portion are parallel and the lighting member fills the space between them. Each party shows his trough as made of thin material, and the operation in so far as the burning of the oil from its surface is concerned is the same in both cases. The lighting member is simply a means for starting the burner and is intended to perform no material function when the burner is in normal operation.

Blackford's Exhibit A consists of a comparatively wide bottom trough, rectangular in cross-

section, made of cast metal and having a partition placed in it extending from near the top on one side to the bottom near the other side, thus dividing the trough into an open channel narrow at its bottom and a closed chamber. The oil is supplied to the closed chamber and is admitted to the open channel through perforations made in the lower part of the partition for that purpose. It seems that a starter or wick was placed in the open channel in use, and it is contended on behalf of Blackford that this open channel conforms to the requirements of the issue and that the exhibit was a reduction to practice of the invention in controversy. To reach this conclusion, however, would make it necessary to ignore the surrounding closed chamber, which is a material part of the exhibit. This chamber cannot be ignored as if it were a separate and independent feature the presence or absence of which would not affect the other parts, since it is so connected and associated with the channel that it would probably have a material effect upon the operation. Its presence was sufficient to make it incumbent upon Blackford to show by his proofs that it was intended to and did, in fact, have the operation which is the foundation for the claims of the issue. It is not a V-shaped trough alone, but one which will operate as desired with oil in the trough in normal operation, which constitutes the invention in controversy. None of the witnesses testify that Exhibit A did operate in that way, could operate in that way, or was intended to operate in that way. Blackford himself fails to state that this operation was intended or accomplished by it. The evidence falls entirely to show that at the time that this exhibit was made, in February, 1896, Blackford had any conception of the result to be accomplished by this invention or of the means for accomplishing it. His subsequent conduct indicates that he had no such conception, for he next made Exhibit H, which belonged to the old style of trough, which admittedly did not contain oil, but burned vapor.

Under the circumstances it would be unwarrantable to presume, in the absence of testimony, that Exhibit A embodied the invention and that Blackford had a conception of it at that time.

Blackford contends that Exhibit A if operated at this time would contain oil in the trough and that therefore it must be held that it contained oil in 1896 when operated. A demonstration of the burner at this time even if satisfactory would not be sufficient. Blackford should have shown by his proofs that it did contain oil and that he appreciated the fact at the time, for otherwise neither Blackford nor the public would have been any wiser because of the use of Exhibit A in February, 1896, if nothing further had been done toward making the present invention. It is not sufficient that he supposes now that an operation took place which he did not appreciate at the time. He apparently did not regard the form of Exhibit A as satisfactory, for he made no more like it, but proceeded upon other lines with the old vapor-burners, and it was not until November, 1896, that

he claims to have made another burner upon the lines of the invention in issue, and it was radically different in construction from Exhibit A. The trough Exhibit D, said to have been made in November, 1896, is V-shaped in cross-section and of thin metal.

The evidence in regard to when Exhibit D was made is not as clear and explicit as it should have been; but the testimony of Blackford, Possons, and Humitch, taken together, makes it seem probable that it was some time in the fall of 1896. There is no testimony that the trough of this exhibit contained oil when in operation; but it seems probable from its construction, which is similar to that shown in Blackford's application, that it would.

Blackford states that the operation of Exhibit D was considered a success, (Q. 66,) and Possons states that it was an operative burner (Q. 33) and burned "with a blue flame and with good combustion." (Q. 32.) Humitch says on cross-examination that he saw it operate, but fails to state the result of that operation. Blackford claims to have put burners like Exhibit D on the market in the fall of 1897, one year after its alleged construction, and in the meantime seems to have done nothing of any importance in regard to the invention. His excuse for this delay is that he had a large sale then for the wick-stove and did not believe that the trade was ready for a wickless stove. (Q. 77.) This excuse is not sufficient to overcome the presumption raised by his delay and inaction that Exhibit D was not satisfactory, particularly in view of his own admission that there were defects in the apparatus as then used. In his answer to Question 77 he says, further, as an additional reason for the delay:

* * * The trouble, heretofore, with burners of that description was, to be able to feed the oil through the channel-cup regularly so that it could stand an even fire for a considerable length of time. This led to a great many different ideas in the way of valves, which we made and improved on before we could get one that would feed regularly. Also another trouble with the wickless valve-stove was the leaking of all joints. * * *

Exhibit D may have worked in a certain sense and probably did, as stated by the witnesses; but it does not follow that it demonstrated the practicability of the invention so as to satisfy the parties, as is necessary to a reduction to practice. Any kind of a trough or receptacle to which oil was supplied at the lower end of the perforated tubes would probably produce a blue flame, as described by the witnesses, and the mere statement that there was such operation is not sufficient to overcome the presumption, that the device was not satisfactory, raised by the subsequent action of Blackford.

In explaining what led to his invention in this case Wilder says that from 1891 to the fall of 1896 his company was manufacturing the old-style vapor-burners under certain patents, and because of certain transfers of the patents at that time the manufacture had to be discontinued. In order to continue the business and at the same time avoid those patents, he bent his efforts to designing a burner which would have oil in the trough in normal operation instead of vapor, and to this end

made Exhibit E in April, 1896. (Q. 45 and Q. 60.) According to his statement, therefore, he had the essential idea of this invention in mind when he made Exhibit E and worked with that end in view. Thompson, H. P. Wilder, and Brooks corroborate him as to the making of Exhibit E in April, 1896, and the fact is well established. Exhibit E consists of a V-shaped trough essentially like that shown in Blackford's application. If the ordinary lighting member shown in the other exhibits is placed in this trough and the ordinary combustion-tubes are used above, every element of the issue is present. There is no question but that the combustion-tubes were intended to be and were, in fact, used with it; but a question is raised as to the lighting member. There is no lighting member in the exhibit now, and the testimony upon that point is not very full; but it is obvious upon mere inspection that there must have been a lighting member when the device was used, for it is well understood by those familiar with this art that a lighting member is necessary to start the operation of a burner of this kind. It was probably because of this knowledge that more specific testimony on this point was not produced. The witness Brooks does state, however, that a piece of asbestos was used in the bowl as a starter. (Q. 388.) Brooks states that oil remained in the trough and burned from the surface, (Q. 328,) and H. P. Wilder refers to the device as an oil-burner as distinguished from a vapor-burner.

It is believed that the evidence in regard to the making of Exhibit E shows more clearly a conception of this invention by Wilder than does the making of Exhibit D by Blackford. If D is effective for Blackford, E must be held to be equally effective for Wilder. This being true, Wilder is the first to conceive and the first to reduce to practice and is therefore the first inventor.

Wilder and some of his witnesses claim that the construction of stoves like Exhibit D, which was ready for the market in January, 1897, and which admittedly embodies the invention, was begun in the fall of 1896; but in view of the conclusion announced above it is unnecessary to here consider that matter.

The decision of the Examiners-in-Chief is reversed and priority is awarded to Wilder.

SLAUGHTER v. HALLE.

Decided January 16, 1902.

1. INTERFERENCE—PRIORITY—EVIDENCE OF CONCEPTION AND DISCLOSURE.

Where the testimony shows a conception and disclosure of one specific form of the invention, *Held* sufficient to establish a conception and disclosure of the generic invention based upon another specific form.

2. SAME—SAME—REDUCTION TO PRACTICE.

Where one specific form of the invention embodied in a machine is shown to have worked practically and successfully. *Held* to constitute a reduction to practice of the invention notwithstanding the fact that this form is shown to have been capable of improvement. (*Hien v. Buloup*, 81 O. G., 2088.)

3. SAME—SAME.

Where H. was the first to conceive the invention defined in all the counts and the first to reduce the invention to practice

as to all the counts save one and exercised due diligence in reducing to practice the invention defined in the remaining count, Held that priority of invention as to all the counts should be awarded to H.

APPEAL from Examiners-in-Chief.

CARD-CONTROLLING ATTACHMENT FOR TYPE-WRITING MACHINES.

Application of Robert K. Slaughter filed February 26, 1900, No. 6,537. Application of Hiram J. Halle filed October 7, 1899, No. 782,921.

Messrs. Munn & Co. for Slaughter.

Mr. E. G. Siggers for Halle.

ALLEN, Commissioner:

This is an appeal by Halle from the decision of the Examiners-in-Chief awarding priority of invention to Slaughter upon the following issue:

1. In a type-writing machine, the combination with the flat platen and the printing mechanism arranged thereover, of a holder interposed in a plane between the printing mechanism and the writing-surface of the platen, said holder having guiding and holding means for the edges of a card or sheet.

2. In a type-writing machine, the combination with the flat platen, the printing mechanism arranged thereover, and the main tracks or guides for said printing mechanism, of a card or sheet holder interposed in a plane between said main tracks or guides and also in a plane between the printing mechanism and the writing-surface of the platen, said holder having means for engaging opposite edges of a card or sheet.

3. In a type-writing machine, the combination with the flat platen, and the printing mechanism arranged thereover, of work-holding members interposed in a plane between the printing mechanism and the writing-surface of the platen, and disposed in opposite relation, said work-holding members having guiding and holding means for the edges of a card or sheet.

4. In a type-writing machine, the combination with the flat platen and the main tracks or guides for the type-carriage, of work-holding members arranged in a plane between said tracks or guides for the carriage and disposed in opposite relation, said work-holding members having guiding and holding means for the edges of a card or sheet.

5. In a type-writing machine, the combination with the flat platen and the type-carriage supported thereon, of a card or sheet holder comprising guideways for the edges of the card or sheet, the said guideways being disposed at opposite sides of the printing area of the platen and interposed in a plane between the carriage and the writing-surface of the platen.

6. In a type-writing machine the combination with the flat platen and the traveling type-carriage supported thereon, of card-holding guideways arranged to have the carriage travel thereover and located at opposite sides of the printing area of the platen.

7. In a type-writing machine, the combination with the flat platen and the traveling type-carriage supported thereon, of card-holding guideways located at opposite sides of the printing area of the platen below the plane of the type-carriage, and entrance-guides in communication with the front ends of said guideways.

8. In a type-writing machine, the combination with the flat platen and the traveling type-carriage supported thereon, of adjustable card-holding guideways supported upon the writing-surface of the platen, below the plane of the type-carriage and arranged to have the type-carriage travel thereover.

9. In a type-writing machine, the combination with the flat platen and the traveling type-carriage working thereover, of card-holding guideways arranged below the plane of the type-carriage and transversely adjustable with relation to the platen.

10. In a type-writing machine, the combination with the flat platen and the type-carriage supported thereon, of card-holding guides arranged in a plane between the carriage and the platen, and having an individual lateral adjustment.

11. In a type-writing machine, the combination with the flat platen and the traveling type-carriage supported thereon, of separate spaced card-holding guides held upon the writing-surface of the platen, below the plane of the carriage and confining therebetween the printing space or area for the card or sheet.

12. In a type-writing machine, the combination with the flat platen and the type-carriage supported thereon, of spaced card or sheet holding guides applied to the upper side of the platen below the plane of the type-carriage and each provided with a longitudinal guideway, and an entrance-guide in communication with the front end of the guideway.

13. In a type-writing machine, the combination with the flat platen and the type-carriage supported thereon, of spaced card or sheet holding guides applied to the upper side of the platen below the plane of the type-carriage and each provided with a longitudinal guideway, an entrance-guide in communication with the guideway, and a frictional retaining device engaging with the edge of the card or sheet.

14. The combination of a flat platen for type-writing machines, card or sheet holding guides associated with the platen and the type-carriage, and means for causing the printed card or sheet to turn over, face downward, after leaving the holding-guides.

The Examiner of Interferences awarded priority to Halle upon the first thirteen counts of the issue, and the reversal of that decision by the Examiners-

in-Chief was due principally to a difference of opinion as to the meaning of the claims in issue. The Examiners-in-Chief gave those claims a very limited construction, whereas the Examiner of Interferences considered them broader in scope. It is believed that there is nothing in the terms of the claims or the state of the art to render necessary the limited construction given by the Examiners-in-Chief.

The appellant, Halle, alleges conception and disclosure of the first thirteen counts of the issue early in 1897 and has introduced in evidence a sketch, Halle's Exhibit Reproduction of Halle's First Drawing, as illustrating the invention disclosed to others at that time. Mayer and L. G. Halle corroborate him fully as to this disclosure to them in the spring of 1897, and other witnesses, Fisher, Stackpole, and Laganke, testify to a similar disclosure during that year. The fact of the disclosure is well established, and it is earlier in date than Slaughter's invention, since he does not allege conception until December, 1897.

L. G. Halle describes the invention then disclosed to him as follows:

The sheet or card was to be shoved or slid between two arms attached to a rod that lay close to the platen and mounted underneath the rails. When the machine was brought forward and in position for writing, these arms brought the paper in contact with the writing-surface. When the machine was shoved back on the platen to permit of the writing being viewed and the paper removed, these arms were raised and permitted both of the removal of the paper and the insertion of a new sheet. At the first explanation by him I did not completely grasp all the details, until upon inquiry from him he told me that these arms were adjustable on the shaft, to conform to the width of the paper, and that the paper or card was held in the grooved edge of these arms with the addition of a small clip at the entrance of one of them.

Other witnesses give similar descriptions. Comparing this disclosure with count 1 of the issue it is found that every element is present unless that count is construed as limited beyond that which its terms alone would indicate. It includes a holder for the cards, and when the machine is in position for writing the holder is—

in a plane between the printing mechanism and the writing-surface of the platen.

The arms of the holder are furthermore described as provided with grooves to receive the edges of the cards and guide them when they are inserted. The witnesses also state that it was disclosed to them that the holding-arms were to be laterally adjustable, so as to receive cards of different widths, and that there was to be a spring member or frictional device to retain the cards in position in the holder. This includes the structure of all of the first thirteen counts with the exception of counts 7, 12, and 13, which include as an element an entrance-guide at the front end of the guideway. The outer ends of the holding-arms in this first form were described by Halle to the witnesses as cut away at an angle, so as to facilitate the insertion of the cards, and if this construction be regarded as the entrance-guides Halle's disclosure in 1897 shows a conception of the first thirteen counts.

This first form of the invention conceived by Halle differs from the specific improved form shown in the present case, but it is nevertheless one species of the generic invention. It seems

from the evidence that that specific form has been made the subject of another application, and it appears from the present issues that Halle has chosen to make his broad or generic claims in this case. It is believed that a device of this first form would be regarded as an infringement of a patent containing the claims of the present issue. An inspection of Halle's application leaves no room for doubt that he intended them to be of that breadth, and since Slaughter copied them after they were made by Halle their meaning in case of doubt must be determined from Halle's case.

Card-guides to be used in connection with printing-presses and analogous devices were old prior to this invention, and what the Examiner regarded as the invention in this case seems to have been the idea of applying such guides to a type-writer to hold the cards in place rather than the specific form of the guides themselves. Substantially the preferred form shown in this case was old in other relations. The invention was in the attachment to be applied to the platen of a type-writer, and the question whether the guides for the cards were U-shaped grooves in the rods of the attachment or were grooves formed between those rods and the platen is believed to be immaterial to the real invention. For instance, to hold that the use of a device like the one in evidence as Halle's original card-guides was not an infringement of the issue would be to render those claims practically valueless. The specific form of the guide finally adopted was a mere mechanical detail marked out from experience and a knowledge of the art and was entirely outside of the main idea which constituted the principal inventive thought in the case.

It appears from the testimony of Halle and Eckert that Eckert was instructed to build card-guides, and he produced Halle's original card-guides in January, 1899. Stackpole says he saw them in January, and L. J. Halle saw them in March, 1899. This device undoubtedly embodies the invention of the first six counts and count 11. It is not believed, however, that the guides can be considered adjustable in the sense of that term in counts 8, 9, and 10 or that they have the entrance-guides of counts 7, 12, and 13. The witnesses testify to a disclosure of these features, but they were not embodied in the exhibit.

A second card attachment was made by Leganke and was completed and shipped to the office on May 13, 1899. This had the adjustable feature of the guides.

It seems that in May, 1899, Halle's company entered into negotiations with one Toohey to furnish him machines with card attachments to be used in work for the Equitable Life Insurance Company. Toohey saw the card attachment at that time and agreed to purchase a number of the machines. The first machine was delivered to him on July 8, 1899, and the others shortly afterward. Those machines embodied all features of the first thirteen counts and also the tripping device for turning the cards of count 16. The attachment with the tripping device is said to have been first

constructed in May or June, 1899. These devices delivered to Toohey were provided with the specific U-shaped guiding-groove shown in the applications in this case.

Slaughter alleges conception in December, 1897, and produces many witnesses to corroborate him. His disclosure at that time, however, seems to have been of the most general outlines of the invention merely and not of its details. The substance of it was that he would have two guiding-rods on the platen for the cards, and he illustrated his idea by two pencils placed parallel. He did not disclose the specific form of the guiding-groove, and if that is essential, as held by the Examiners-in-Chief, his disclosure did not embody the invention in issue. After his alleged disclosure Slaughter entered the employ of Halle's company and during that employment and for a period of about one year seems to have said and done nothing about his invention. He claims to have disclosed another form of card-holder to Halle's company, but did not mention the present form, although he claims to have been very anxious to induce the Elliott & Hatch Company to make that form when he was employed by it in December, 1897. His explanation why he did not attempt to induce Halle's company to make the device is not satisfactory, and his silence is not consistent with the theory that he had in mind a clear conception of a practical device which he regarded as of value, as claimed by him. He seems to have had a conception of the general principle of the invention in December, 1897; but there is no evidence that he did anything practical with the invention until he returned to the employ of Elliott & Hatch in the spring of 1899. He does not claim to have conceived the rear receptacle and means for turning the cards until April, 1899.

It is alleged that a card attachment was built by one Hopkins in the experimental room of the Elliott & Hatch Company embodying the invention of Slaughter's present application in May, 1899. Hopkins was the principal workman in that room, and he took one month of his time from other pressing work to make this device. That other work is said to have been so pressing as to necessitate his working on holidays, and there is no explanation why he laid it aside to take up this card device in May, as alleged. The company had no order for the card device at that time and there seems to have been no more reason for taking it up then than at any time previously. There does seem to have been a reason for taking it up later in the same year, for in the latter part of September or first of October the company delivered such a card attachment to the Edison Company in Brooklyn. This was the first order for or sale of one of Slaughter's card attachments. It appears, further, that Slaughter learned of Halle's card attachment in August, 1899.

Slaughter says that the card attachment was made by Hopkins about a month before he sold it to the Edison Company (cross-question 286) and later admits that the delivery to the Edison Company did not take place before September 15, 1899.

The sale of course might have occurred some time before the delivery; but it is not reasonable to suppose that it was long, for Slaughter's device was obtained by the Edison Company to take the place of Halle's card attachment, which they had before obtained. If the sale was effected long before, it is not apparent why the machine was not sooner delivered if it was completed in May, as alleged. Numerous witnesses testify that the Edison machine was the first made or one of the lot of three or four claimed to have been made in May, 1899.

The witness Toohey states that when he went to see Halle's machine in May, 1899, he was looking for a machine to write on cards for the Equitable Company and went to the Elliott & Hatch people in regard to the matter; but they failed to tell him that they had such a machine or contemplated building one. This is not what would be expected of them if they had the machine, as claimed, and is very different from what happened at the interview with the Halle people.

The witness Hopkins states that he made the device in May; but his reasons for believing that it was at that time are not satisfactory. It seems that he and his son and Slaughter after consultation concluded that it was in May, and reached this conclusion because of some remark about working on Decoration Day. It seems probable, however, for the reasons above stated, that he is mistaken and that it was in fact later. There is other evidence besides that mentioned tending to support this conclusion. In regard to the making of Slaughter's device in May the Examiners-in-Chief say:

We confess that the testimony as to this fact is not conclusive.

Upon a consideration of all of the evidence it is believed that the conclusion is warranted that it was not built until later, and there is no satisfactory evidence that it was built until Halle's devices bought by Toohey for use at the Equitable Company's office were completed.

Even if this latest form of Halle's device is the only one which may be considered a reduction to practice of the invention he is as early in date as Slaughter. The earlier forms must, however, be held to be a reduction to practice of so much of the invention as they embodied. The U-shaped grooves for the cards may be an improvement upon those earlier forms, but those earlier forms seem to have worked practically and successfully, and the fact that they were capable of improvement does not show that they did not constitute a reduction to practice. (*Hein v. Buhoup*, 81 O. G., 2068.) The Halle people seem to have been satisfied from the tests of those devices that the invention was practical, for they solicited an order for them from

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Toohey and agreed to furnish a number of machines with the attachment. Toohey also seems to have been satisfied with the practicability of those devices or he would not have ordered those machines equipped with the attachment. This is evidence of a practical and satisfactory sort that the practicability of the invention was established. There is as much evidence that Halle's devices were successful when made as that Slaughter's first device was successful.

It must be held that Halle was the first to conceive and the first to reduce to practice the first thirteen counts of the issue.

The Examiner of Interferences awarded priority to Slaughter on count 16, including the means for tripping or turning the cards, on the ground that he was the first to reduce to practice and that Halle, although first to conceive, was not diligent in reducing to practice. This decision is based upon the assumption that Slaughter's machine was made in May, 1899, and that it embodied the tripping device when first made. It is by no means certain that the device was made at that time or that it then embodied a successful tripping device. Slaughter does not claim in his testimony to have conceived and disclosed the tripping device until April or May, 1899, whereas Halle had conceived and disclosed in the preceding January. Halle's first tripping device was built in May or June, 1899. This first device was a full-sized operative machine and the testimony shows that it did operate practically. It was not in the best form for commercial use, and those made subsequently were constructed with a plate as the tripper instead of a mere cross-bar, so that the cards could not by any accident pass over the tripper and not be turned. This was effected in the first device by the operator placing a piece of cardboard in place on the tripper-bar. Slaughter's tripper is a mere cross-wire and is somewhat similar to Halle's first tripper. It is not satisfactorily established that Slaughter was the first to make a tripper; but even if he was Halle was the first to conceive and was exercising diligence in regard to it when Slaughter entered the field as to this feature and thereafter until it was successfully put into commercial use. It is believed that it would be a harsh and unjust application of the rule of diligence to hold in view of the evidence in this case that Halle was not exercising diligence in regard to this tripper on and after the date of Slaughter's alleged conception. His conduct is all that could reasonably be expected of an inventor under the circumstances.

The decision of the Examiners-in-Chief is reversed and priority is awarded to Halle upon all of the counts involved in this appeal.

[No. 12.]

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 99.—No. 13.

TUESDAY, JUNE 24, 1902.

PRICE—\$5 per year.

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Trade-Marks	28—No. 38,497 to No. 38,524, inclusive.
Labels	5—No. 9,344 to No. 9,348, inclusive.
Prints	2—No. 12,009 to No. 12,010, inclusive.
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Total issue..... 508

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	1	Nebraska	3	1
Alaska Territory	1	1	Nevada	1	1
Arizona Territory	1	1	New Hampshire	1	1
Arkansas	1	1	New Jersey	10	4
California	15	2	New Mexico Territory	1	1
Colorado	4	1	New York	64	6
Connecticut	15	2	North Carolina	2	1
Delaware	1	1	North Dakota	1	1
District of Columbia	6	1	Ohio	42	1
Florida	3	1	Oklahoma Territory	1	1
Georgia	4	1	Oregon	1	1
Hawaii Territory	1	1	Pennsylvania	50	4
Idaho	1	1	Rhode Island	6	1
Illinois	40	3	South Carolina	1	1
Indian Territory	7	1	South Dakota	1	1
Indiana	7	1	Tennessee	5	1
Iowa	9	2	Texas	3	1
Kansas	5	1	Utah	1	1
Kentucky	1	1	Vermont	1	1
Louisiana	1	1	Virginia	3	1
Maine	5	1	Washington	2	1
Maryland	5	1	West Virginia	9	1
Massachusetts	21	2	Wisconsin	1	1
Michigan	14	2	U. S. Navy	1	1
Minnesota	3	1	U. S. Rev. Marine	1	1
Mississippi	3	1			
Missouri	10	1			
Montana	1	1			
			Total to citizens of the United States	408	28

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Austria-Hungary	4	1	Netherlands	1	1
Barbadoes	1	1	Newfoundland	1	1
Belgium	1	1	New South Wales	1	1
Bermuda	1	1	New Zealand	1	1
Brazil	1	1	Norway	1	1
Canada	5	1	Peru	1	1
Cape Colony	1	1	Portugal	1	1
Chile	1	1	Roumania	1	1
China	1	1	Russia	1	1
Cocos Island	1	1	Scotland	1	1
Colombia	1	1	South African Republic	1	1
Cuba	1	1	Spain	1	1
Denmark	1	1	Sweden	1	1
Egypt	1	1	Switzerland	1	1
England	1	1	Uruguay	1	1
France	12	1	Victoria	1	1
Germany	1	1	Western Australia	1	1
Haiti	1	1			
India	1	1			
Ireland	1	1			
Italy	1	1			
Mexico	1	1			
			Total to citizens of foreign countries	57	3

Disclaimer.

401,916.—George Westinghouse, Jr., and Frank Moore, Pittsburg, Pa. IMPROVEMENT IN ENGINEER'S BRAKE-VALVES. Patent dated April 23, 1899. Disclaimer filed June 19, 1902, by the present assignee, the Westinghouse Air Brake Company.

Enters its disclaimer—
"To so much or such part of claim 7 of said Letters Patent as includes or may be construed to include—
"An engineer's brake valve (otherwise complying with the said claim) which is not provided with a movable abutment, working in a chamber in the valve casing and controlling a discharge valve from the brake-pipe to atmosphere, substantially as described in the specification."

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

- Electrical World and Engineer*, a weekly digest of electrical articles.
- Engineering Magazine*, a monthly title-index of engineering articles in the English language only.
- Journal of the United States Artillery*, a bimonthly title-index of current artillery literature.
- Railroad Digest*, a monthly synopsis of universal railroad literature.
- School of Mines Quarterly*, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.
- Science Abstracts*, physics and electrical engineering. Monthly abstracts of the principal articles on physics published in the American and foreign journals.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 17, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
In arrears—Under one month.				
217	XXXIII. *DESIGNS, TRADE-MARKS, LABELS AND PRINTS, Optics, and Photography.	June 9	June 4	66
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	May 29	June 4	224
253	X. Carriages and Wagons.	May 26	June 5	89
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	May 20	June 5	169
20	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	May 20	May 19	323
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	May 19	June 4	156
262	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 19	June 3	186
246	I. Tillage, etc., and Fences.	May 19	June 3	217
212	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	May 19	June 3	229
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	May 19	May 26	411
268	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	May 18	June 3	270
251	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	May 17	June 3	321
177	XXX. Paper Manufactures, Lamps and Gas-Fittings.	June 17	June 2	244
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	May 17	May 27	225
Between one and two months.				
251	XXIII. Acoustics, Electric Signaling, Holography, Records, and Registers.	May 16	June 3	215
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	May 16	June 3	226
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	May 15	June 2	189
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	May 15	May 28	218
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	May 15	May 28	188
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	May 13	May 31	349
207	XV. Plastics, Paper-Making, Paving, Outlery, Glass, Fuel, Bread-Making, etc.	May 12	May 27	263
14	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	May 12	May 27	225
123	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	May 10	June 3	173
254	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	May 9	May 26	261

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	May 6	May 20	308
200	XIV. Metal Bending, Ornamenting, and Personal Wear, Farmery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Apr. 30	May 10	250
190	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Apr. 26	May 14	401
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Apr. 21	Apr. 24	446
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Apr. 17	Apr. 14	464
<i>Between two and three months.</i>				
188	XXIX. Wood-Working Machines, Coopering and Reeling.	Apr. 14	May 12	246
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Apr. 12	May 3	243
249	XVIII. Steam-Engineering, etc.	Apr. 10	Apr. 18	463
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Apr. 3	Mar. 19	521
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Mar. 27	Mar. 27	636
148	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Mar. 17	Apr. 26	421
<i>Between three and four months.</i>				
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Mar. 3	Mar. 12	464

Total number of applications awaiting action.....10,493

<i>Under one month.</i>			
* Designs	May 31	May 31	71
† Trade-Marks	May 29	June 7	121
‡ Labels and Prints	June 11	June 14	21

Classification Bulletin.

CLASSIFICATION BULLETIN No. 6, containing the revision made during the months of March and April, 1902, is now out. Price, ten cents.

Hearings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 16, 1902.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1902.

F. I. ALLEN,
Commissioner.

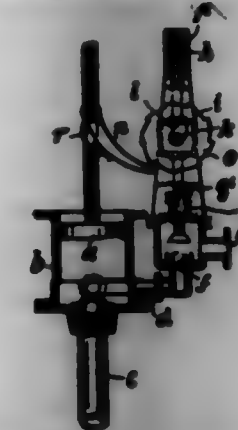
Access to Pending Applications.

Hereafter no person, except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

PATENTS

GRANTED JUNE 24, 1902.

702,908. PROPORTIONATE DISTRIBUTION VALVE SYSTEM FOR PUMPS. ARTHUR AMMERS, Berlin, Germany. Filed Dec. 15, 1901. Serial No. 24,573. (No model.)



Claim.—1. The combination of a force-pump, a plurality of distribution-pipes, back-pressure valves in these pipes, devices for locking these valves in closed position, means for releasing these locking devices, a rotating shaft, and means connected with said shaft to control the releasing of the locking devices.

2. The combination of a force-pump, a plurality of distribution-pipes, back-pressure valves in said pipes, guided rods, springs to lock the valves in closed position, a rotating shaft, arms fixed on the same in angular relation to each other for raising alternately the guided rods, and means connected with the pump-rod for rotating the shaft.

3. The combination of a force-pump, a discharge-pipe, branch distribution-pipes, a single-acting pawl, a ratchet-wheel, a shaft, a rotating in one direction, two or more cams, back-pressure valves, suitable guided rods having yokes surrounding the cams, and spiral springs to press down the rods when released by the cams and thereby effect the prompt closing of the valves.

702,904. BOX AND COVER. THOMAS ABRAHAM, Hopetown, Mass., assignor to the MASON TUBS CO. and HASTINGS COMPANY, New Bedford, Mass. Filed Dec. 21, 1901. Serial No. 24,728. (No model.)



Claim.—1. A box having a plurality of compartments disposed concentrically in a plurality of circular rows, a cover having apertures corresponding in number to the number of rows, and each aperture located over one of the said rows, means for causing each of said apertures to register with any of the compartments in its corresponding row, and means for opening and closing said apertures independently.

2. The combination of a box having a series of compartments open at one end, an apertured cover rotatably mounted upon the box and movable across the open ends of the compartments therein, and a slide adapted to be adjusted to open or close the compartments exposed by the cover.

3. The combination of a box having a series of compartments open at one end, a rotatable, apertured, cover movable across the open ends of the compartments in the box, and a slide arranged between the box and the cover and moving with the latter, said slide being independently adjustable to open and close the apertures in the cover.

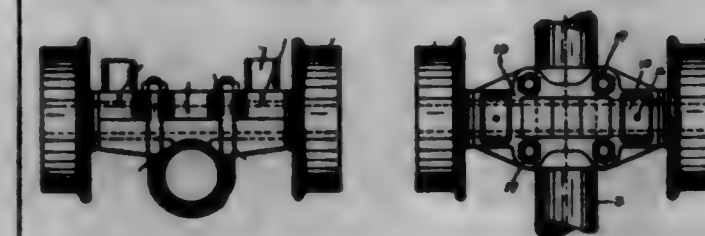
4. The combination of a box having a series of compartments arranged in concentric rows, a rotatable cover having a plurality of apertures, each located over one of said rows, and a slide adapted to be adjusted to establish communication between either of the apertures in the cover and the aligned compartment of the box.

5. The combination of a box having a series of compartments arranged in concentric rows, a rotatable cover having a plurality of apertures arranged in the same radial line and corresponding in number and arrangement to the rows of compartments, and a pivotally-mounted slide having a plurality of apertures arranged on different radial lines and corresponding in number to the apertures in the cover, whereby said slide is adapted to place either of the apertures in the cover in communication with the aligned compartment in the box without uncovering the other compartments that are in alignment with apertures in the cover.

6. The combination of a box having a series of compartments arranged in concentric rows, a rotatable cover having a plurality of apertures corresponding in number and arrangement to the rows of compartments, and having an index indicating and distinguishing the contents of compartments in each row from the contents of the other rows in the box, and a pointer carried by the cover and movable thereby over an index on the box indicating the contents of each of the several compartments in each row.

7. The combination of a cylindrical box having a series of longitudinally-extending compartments open at one end, and arranged in concentric rows, a cover rotatable across the open ends of said compartments and having a plurality of apertures corresponding in number and arrangement to the rows of compartments in the box, and an index adjacent said apertures, a pointer movable with the cover into alignment with the division of an index on the body of the box, each corresponding to a radial line of compartments, and a slide adapted to be adjusted with relation to the index on the cover to open or close either of the apertures in the cover.

702,905. CONVEYER. ALFRED M. AKLIN, Pittsburg, Pa., assignor to Hayl and Patterson, a Partnership of Pennsylvania. Filed Apr. 14, 1902. Serial No. 102,786. (No model.)



Claim.—In conveyers, the combination with a suitable receptacle, of a track arranged parallel therewith, a series of trucks on said track, each of said trucks comprising a body portion having bearings at each end thereof and an axle journaled in said bearings with wheels rigidly secured thereto, a reciprocating bar secured to said track, and a series of swinging flaps carried by said bar.

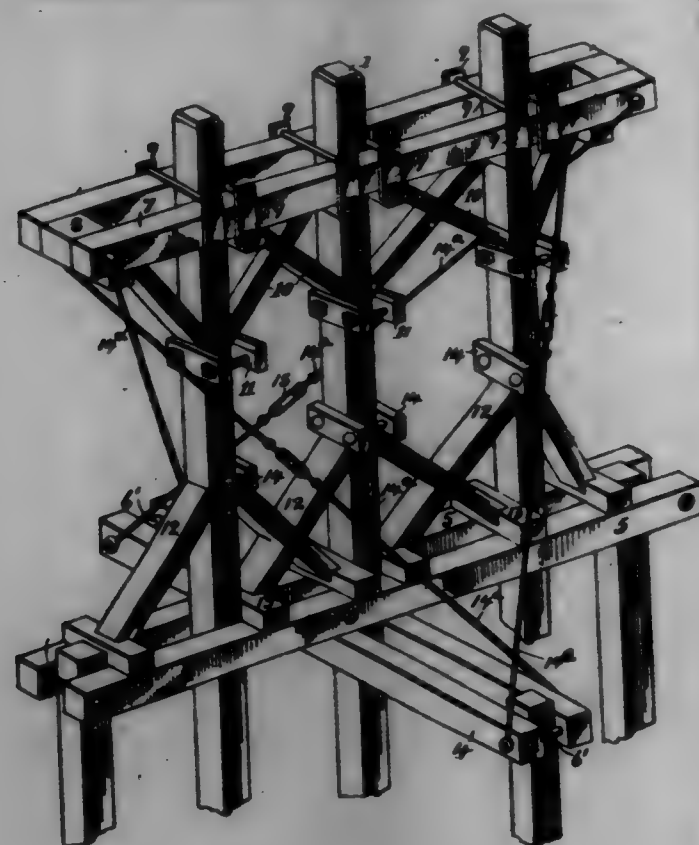
702,906. FLIGHT FOR CONVEYERS. ALFRED M. AKLIN, Pittsburg, Pa., assignor to Hayl and Patterson, a Partnership of Pennsylvania. Filed Apr. 14, 1902. Serial No. 102,787. (No model.)

Claim.—1. In a conveyor, the combination of a flight-frame having a depending hinge-strip and back of the same depending supporting-legs, of a flight having its upper end extending above the base of the hinge-strip, and a flexible hinge connecting the flight to the hinge-strip.

2. In a conveyor, the combination with a flight-frame having a depending hinge-strip and back of the same depending supporting-legs, of a flight having its upper end extending above the base of the hinge-strip and a flexible hinge secured to the back face of the hinge-strip and to the front face of the flight.



702,907. SUPPORT FOR OVERHEAD CARRIER. TONY ALEXANDER, Newmarket, Miss., assignor of one-half to Gibson Alexander, New Orleans, La. Filed Oct. 7, 1901. Serial No. 72,780. (No model.)



Claim.—1. The improved cable-support comprising a series of vertical posts adapted to be driven into the ground and arranged in line as shown, top cross-bars and lower cross-bars arranged parallel to each other, and means for clamping the cross-bars to the posts as shown and described, whereby they are adapted for vertical adjustment as specified.

2. The improved cable-support comprising a series of posts adapted to be driven into the ground, top cross-bars, lower cross-bars, means for securing them to the posts at any required point, and supplemental anchor-posts connected with the ends of the lower cross-bars and adapted to be driven into the ground, substantially as shown and described.

3. The improved support comprising a series of vertical posts arranged in alignment transversely and made of such length that they are adapted to be driven into the earth, top cross-bars secured to the posts, foundation sills or bars, and oblique ties extending between and connecting the ends of the upper cross-bars and one of the foundation bars or sills, substantially as shown and described.

4. The improved support comprising vertical posts, a top cross member, foundation bars or sills, and ties connecting the ends of the upper member with one of the said sills, and provided with devices for adjusting their tension or length, substantially as shown and described.

5. The improved support comprising one or more vertical posts, cross-bars attached to the upper portion of the same, foundation-sills crossing each other at right angles and secured to the posts, and ties connecting the ends of the upper cross-bars with the ends of the sills which is at right angles to said cross-bars, substantially as shown and described.

6. The improved support comprising a series of vertical posts arranged in transverse alignment, cross-bars attached to and rigidly connecting the upper ends of said posts, foundation-sills attached to the lower

portion of the central post and arranged at right angles to the upper bars, and oblique ties connecting the ends of said cross-bars and sills, the arrangement being such that the ties cross each other in the manner shown and described.

7. The improved support comprising vertical posts, cross-bars attached to the same, diagonal braces applied between the said cross-bars and posts, and clamps which are slidable vertically on said posts and thus adapted to abut the inner ends of the braces in whatever position or adjustment they may be.

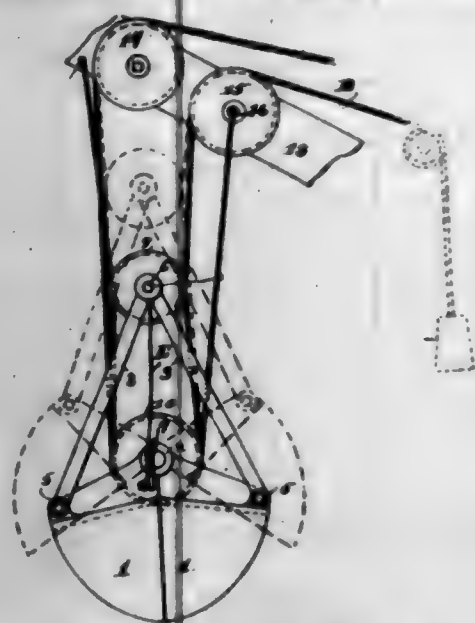
8. The improved support comprising one or more vertical posts, cross-bars attached to the upper portion of the same, and clamps embracing both posts and bars and adapted for being tightened or relaxed, as required to provide for attachment, removal, or adjustment of the cross-bars, substantially as shown and described.

9. The improved support comprising vertical posts, cross-bars applied to the upper portion thereof, clamps for securing them to the posts, oblique braces and abutting clamps upon which the braces rest, the arrangement being such that the cross-bars, braces, and both clamps may be adjusted vertically as required, substantially as shown and described.

10. The improved support comprising vertical posts, cross-bars, braces, and clamps secured to the upper portion of the posts, and sills or foundation-bars arranged transversely and also in line with the series of posts at a point removed from the lower end of the latter, and means for securing the said sills in any vertical adjustment, substantially as shown and described.

11. The improved support comprising vertical posts, top cross-bars for supporting a rail or cable, means for securing the bars to the posts in any vertical adjustment, foundation-sills crossing each other at right angles and means for securing them to the posts in any vertical adjustment, substantially as shown and described.

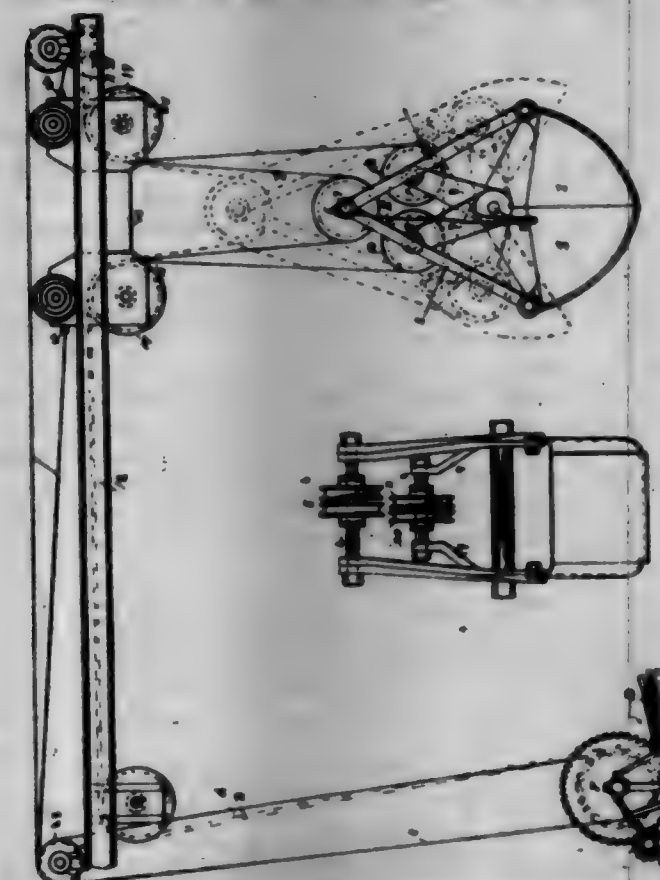
702,908. HOISTING DEVICE. EDWARD F. ATHERTON, Cleveland, Ohio. Filed Mar. 28, 1901. Serial No. 63,908. (No model.)



Claim.—1. In a bucket hoisting and dumping device, the combination with a divided bucket, the parts of which are pivoted together, of a pivot-shaft, arms pivoted together over the bucket and to the upper edges of the bucket, a shaft upon which the arms are pivoted, sheaves upon the two pivot-shafts, and supporting-sheaves upon the peak or traveler above, a hoisting-rope passing over one of the supporting-sheaves, thence over one of the sheaves on the bucket-shaft, thence over one of the sheaves on the pivot-shaft for the arms, thence over the other sheave on the bucket-shaft, and thence to a dead-point on the peak or traveler, and a holding-rope, passing over the other sheave, on the peak, or traveler, thence over the other sheave on the pivot-shaft for the arms and thence to a dead-point on the peak or traveler.

2. In a hoisting and dumping device for a divided bucket, the divisions of which are pivoted to a common shaft, means for raising or lowering the same while transferring it from place to place and for dumping the same, consisting of sheaves upon the pivotal bucket-shaft, arms pivoted to the divisions of the bucket, and to one another at their upper extremities, a pivotal shaft for the arms, sheaves upon the said shaft, and sheaves upon an overhead peak and a holding-line passing over one of the sheaves on the peak and traversing the sheave on the arm-shaft, and both sheaves on the bucket-shaft, finally secured at a dead-point upon the peak, and a holding-line passing over another pulley upon the peak and traversing a pulley on the arm-shaft, and secured to a dead-point on the peak, substantially as described.

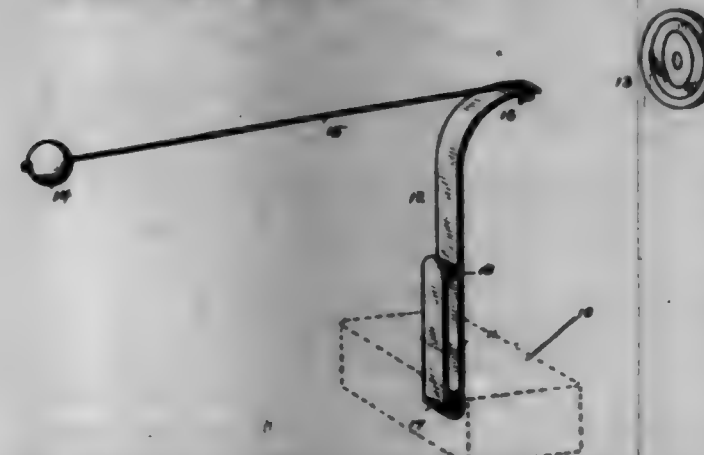
702,909. HOISTING DEVICE. EDWARD F. ATHERTON, Cleveland, Ohio. Filed Mar. 28, 1901. Serial No. 63,908. (No model.)



Claim.—1. Means for raising, lowering, dumping and trolleying a divided and pivoted bucket, comprising arms secured to the bucket divisions at the pivotal point, shafts connecting said arms in pairs, sheaves on said shafts, arms pivoted to the outer ends of the bucket divisions and pivoted together in pairs above said bucket, a shaft connecting said pairs of arms, sheaves on said shaft, a bridge and a traveler, sheaves on said traveler, a hoisting-rope passing over one of the sheaves on the traveler, thence over one set of pulleys on the shafts of the rigid arms, thence over one of the pulleys on the shaft of the pivoted arms, thence over another set of pulleys on the rigid-arm shafts, and thence over another sheave in the traveler to a dead-point on the bridge, substantially as described.

2. In combination with a divided or clam bucket, a pair of rigid arms secured to each division, a shaft connecting each pair of arms, a bail for the bucket, comprising pairs of arms pivoted to the back of the bucket divisions, a shaft connecting the outer extremities of each pair of arms, sheaves upon each shaft, sheaves upon an overhead support, a hoisting-rope passing over one of the overhead sheaves, thence over a sheave on one of the rigid arms, and over a sheave on each rigid arm, thence to a sheave on the bail-shaft, thence over a sheave on each rigid arm and thence passing to a dead-point on the overhead support, and a holding-rope passing over one of the overhead sheaves, thence over a sheave on the bail and thence to a dead-point on the overhead support, substantially as described.

702,910. PROPELLING-SPRING FOR TARGET GAMES. WILLIAM R. ADWIN and WILLIAM F. CHAM, Smith Barwick, Conn. Filed Jan. 2, 1902. Serial No. 88,170. (No model.)

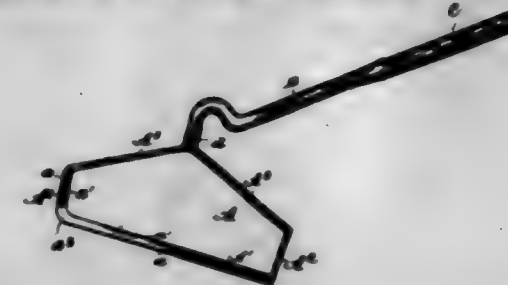


Claim.—1. In a target game the combination with a ball and a non-elastic cord attached thereto, of a spring to which the cord is attached and which consists of a piece of spring metal bent backward upon itself

and the ends turned inward to form a support for the operative portion thereof.

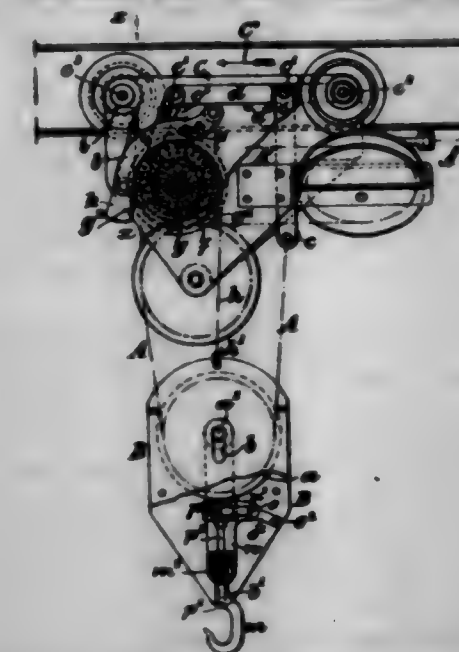
2. The spring 12 having a forward bend 16, a backward bend 17 and an end 18 supporting the operative portion of the spring.

702,911. WEEDING-HOE. ORLANDO BARRELLA, South Hartford, N. Y., assignor of one-half to Almond Barrella, Memphis, Tenn. Filed Sept. 30, 1901. Serial No. 77,007. (No model.)



Claim.—A weeding-hoe comprising a cutting-blade having a straight portion A' and vertical members A' A' at the ends thereof, the vertical member at one end being connected by abrupt angles and the vertical member at the other end curved as shown, the parts A' A' being sharpened at both edges, arms projecting inward from the upper ends of the vertical members, and a handle to which the arms are connected, as herein shown and described.

702,912. MEANS FOR DUMPING OR DISCHARGING MATERIALS FROM BUCKETS. HERBERT A. K. BARRY, Westminster, England. Filed Oct. 29, 1900. Serial No. 34,844. (No model.)



Claim.—1. In apparatus for transporting and discharging materials, a dumping-block wherein a plunger passing through the Shank of the hook operates a trigger-lever carried by the handle of the bucket to release the latter, substantially as herein described.

2. In apparatus for transporting and discharging materials, dumping mechanism comprising a pulley in the return-block and a lead cable being connected together and adapted to move vertically in relation to the block-casing, a plunger in mechanical connection with said casing, a tension-rope, a spring-actuated drum for receiving said rope, a cam or star wheel, a pawl carried by a bar pivoted on one of the carriage-wheel axles and to which the lead-rope is connected, a toothed wheel, on the other carriage-wheel axle and a pawl and a lever adapted to be operated by said toothed wheel, substantially as herein described.

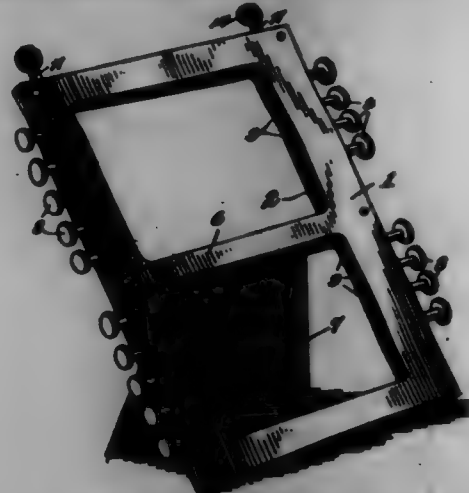
3. In apparatus for transporting and discharging materials, a return-block having slotted side plates which carry the pulley pertaining to the lead-rope and the hook which supports the bucket, and a rope held in tension and adapted to support the block-casing, substantially as and for the purpose specified.

4. In apparatus for transporting and discharging materials, the combination, with the lead-rope A, of the pulley a, slotted plates B, carriage C, bar d, pawl e, cam or star wheel f, spring g, drum g', tension-rope h, toothed wheel i, pawl k, lever l, connecting-bar m, lever n', cross-head p and plunger p', arranged and operating substantially as and for the purpose set forth.

5. In apparatus for transporting and discharging materials, the com-

bination, with a plunger operated by the return-block casing, of a trigger-lever *g*, catch *e* and a handle *r* having slots *r'* for the bucket-transmission *d*, substantially as and for the purposes set forth.

702,913. INDICATOR. JACOB S. BAUMER, Burlington, Iowa. Filed Sept. 12, 1901. Serial No. 75,677. (No model.)



Claim.—1. An indicator comprising a frame having means for carrying and displaying a tabulated form, a plurality of independently-adjustable endwise-movable pointers carried by the side of the frame and capable of being projected inwardly to cooperate with the respective items of the tabulated form, and means for automatically returning the pointers to their original position.

2. An indicator, having an endwise-adjustable pointer which is provided with a spring locking-finger, and means which is shiftable transversely of the pointer for engagement by the spring-finger to lock the pointer in adjusted position.

3. An indicator having a plurality of independently-adjustable pointers each of which is provided with a spring locking-finger, and a trip-rod common to all of the pointers and constructed to simultaneously release the spring-tongues thereof.

4. An indicator, having a plurality of independently-adjustable pointers which are provided with spring locking-tongues, and an endwise-shiftable notched trip-rod for locking and simultaneously releasing the spring-tongues.

5. An indicator, having a plurality of independently-adjustable pointers which are provided with spring locking-tongues, and an endwise-shiftable rod working transversely of the pointers and provided with inclined notches in one edge and corresponding to the respective spring-tongues for locking and releasing the same.

6. An indicator, having a plurality of independently-adjustable endwise-movable pointers which are provided with spring locking-tongues, and an endwise-yieldable rod working transversely of the pointers and provided in one edge with notches corresponding to the spring-tongues and inclined downwardly from the outer end of the rod, said outer end of the rod being provided with a finger-piece.

7. An indicator, comprising an open frame having means for carrying within the same and displaying a tabulated form, a plurality of independently-adjustable pointers carried by one side of the frame and capable of being projected inwardly beyond the adjacent inner edge of the frame to cooperate with the respective items of the tabulated form, the outer ends of the pointers being accessible at the outer edge of the frame, and means for simultaneously returning the adjusted pointers to their original position.

8. An indicator, having a plurality of independent endwise-adjustable pointers, each of which is provided with a longitudinal laterally-projected spring locking-tongue, a trip-rod working transversely of the pointers and provided with a plurality of notches, corresponding to and for the reception of the spring-tongues in the adjusted position of the pointers, and coiled springs embracing the respective pointers and bearing in opposite directions against the latter and the trip-rod.

9. An indicator, embodying an open frame having means for carrying and displaying a tabulated form, a plurality of endwise-movable and independently-adjustable pointers mounted transversely within one side of the frame and normally concealed thereby, the outer ends of the pointers being provided with normally-exposed finger-pieces, means for locking the pointers when adjusted and projected inwardly, and a trip device working longitudinally within the frame and constructed to simultaneously release the pointers from their adjusted positions, the trip device having one end yieldably projected beyond the frame and provided with a finger-piece.

10. An indicator, consisting of a skeleton frame having front and back spaced members, a plurality of endwise-movable and independently-

adjustable pointers mounted between the front and back members and normally housed between the same, the outer ends of the pointers having finger-pieces which are normally projected beyond the frame, each pointer having a longitudinal spring locking-finger which is inclined laterally outward and toward the outer end of the pointer, an endwise-shiftable trip-rod working transversely of the pointers and provided in its inner edge with longitudinal notches corresponding to the spring-fingers and inclined downwardly from the outer end of the rod, a spring to normally project said outer end of the rod, and coiled springs embracing the respective pointers and bearing in opposite directions against the spring-fingers thereof and the adjacent edge of the trip-rod.

11. An indicator, having a plurality of adjustable pointers which are provided with spring locking-fingers, and means which is shiftable into and out of engagement with the spring-fingers to simultaneously lock and release the pointers.

12. An indicator comprising a frame having means for carrying and displaying a tabulated form, a plurality of independently-adjustable endwise-movable pointers carried by the side of the frame and capable of being projected inwardly to cooperate with the respective items of the tabulated form, means for locking the pointers in their adjusted positions, and means for automatically returning the pointers to their original positions.

702,914. SCAFFOLD. JAMES BOARDMAN, Philadelphia, Pa., assignor to Boardman Manufacturing Company, Wilmington, Del. Filed Aug. 12, 1901. Serial No. 75,505. (No model.)

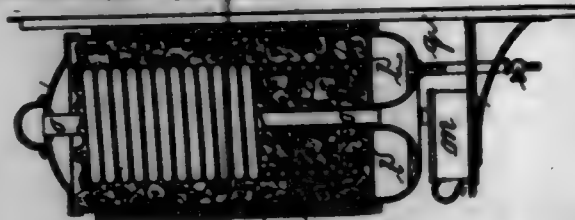


Claim.—1. The combination with a base having counterweight slots therein; of a hooked bracket at one end thereof, an angle-iron slidably mounted in each counterweight, a cross-strip connecting said iron, means for locking the strip and iron in adjusted position, a toothed face to each angle-iron, having a slot therein, a second angle-iron for each of the first-mentioned iron, teeth thereon, a foot thereon, means extending into the slot of the angle-iron for locking the teeth and angle-iron in adjusted position, and a spring interposed between the iron of each pair for automatically separating the same when released by the securing means.

2. The combination with a slotted base; of a hooked supporting-bracket at one end thereof, a transversely-extending strip adjustably secured to the base, angle-irons secured to the strip, guide-bells extending from said iron into slots in the base, a second angle-iron adjustably secured to each of the iron of the strip, and a transverse strip connecting said second angle-iron.

3. The combination with a slotted base; of angular supporting-brackets at one end thereof, a transversely-extending strip adjustably secured to the base, a toothed angle-iron at each end thereof, guide-bells extending from said iron into slots in the base, a second toothed angle-iron adjustably secured to each iron of the strip, feet to said second angle-irons adapted to bear upon a window ledge, a cross-strip connecting the feet.

702,915. APPARATUS FOR COOLING OR HEATING BEVER. AGES, CARL DÜCKER, Altona-Ottensen, Germany. Filed May 12, 1901. Serial No. 60,051. (No model.)



Claim.—In an apparatus for the purpose described, the combination of a tank having its side walls formed of non-heat-conducting material, a flue or tube extending from an aperture in the bottom of the tank to points above the upper edge of the tank, a conduit for the fluid to be treated arranged in the form of a coil about said flue and having its ends extending through the walls of the tank, a perforated partition arranged within the tank below said coil, a waste-pipe communicating with the tank, below

said partition, and a removable cover closing the upper end of the tank about said flue.

702,916. SAFETY-PIN. GEORGE BOON, Watertown, Conn., assignor to the Oakville Company, Watertown, Conn., a Corporation of Connecticut. Filed May 12, 1902. Serial No. 18,125. (No model.)



Claim.—1. A safety-pin provided with a shield having a rigid catch for the pointed leg of the pin, and a passage to said catch through the top of said shield.

2. A safety-pin provided with a shield having a rigid catch for the pointed leg of the pin, a passage thence through the top of said shield, a yielding plate forming one side of said passage and arranged to force the pointed leg into the catch.

3. A safety-pin provided with a shield having a rigid side provided with a laterally-projecting lip to engage the pointed leg of the pin, and a yielding plate at one side of the lip for directing the pointed leg into engagement with the lip.

4. A safety-pin provided with a shield having a laterally-projecting lip, a yielding plate at one side of said lip, and a guard for said plate.

5. A safety-pin provided with a shield having a rigid side; a lip projecting laterally therefrom, a yielding side having a flaring outer edge, and a guard extending from the rigid side around outside the yielding side.

6. A safety-pin provided with a shield having a lip arranged to overlap the end of the pointed leg and hold it in closed position, and a wall disposed opposite to said overlapping lip, and a pointed leg having an enlarged part which will not pass between said lip and oppositely-disposed wall.

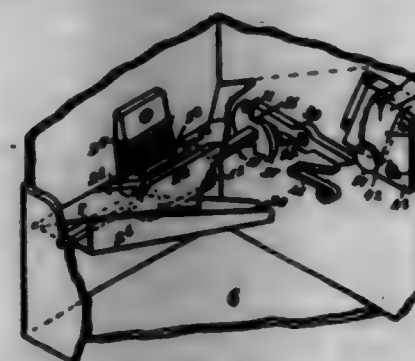
7. A safety-pin provided with a shield having a laterally-projecting lip, a yielding side, a guard, the edge of which is in the plane of the lip, and a pointed leg provided with an enlarged part which will not pass between the lip and the edge of said guard.

702,917. SAFETY-PIN. GEORGE BOON, Watertown, Conn., assignor to the Oakville Company, Watertown, Conn., a Corporation of Connecticut. Filed July 29, 1902. Serial No. 24,257. (No model.)



Claim.—A safety-pin comprising a wire bent to form the legs of the pin, a metal shield secured to one leg of the pin and having indentations adjacent to its end, and means on the pointed leg of the pin arranged to engage the inner ends of said indentations when the pin is closed.

702,918. COIN-CONTROLLED VENDING APPARATUS. DORY BUCKER, Hamilton, Ohio. Filed Feb. 10, 1902. Serial No. 22,425. (No model.)



Claim.—1. The combination with a rotative shaft, and a cylindrical dispenser mounted thereon, of a cam-wheel formed with a peripheral notch that upon said shaft, a block with inclined upper face, a lever pivoted between its ends and disposed between said block and cam-wheel, a spring beneath the end of the lever nearest said block, the other end of said lever being provided with a downwardly-projecting leg and a catch, substantially as and for the purpose specified.

2. The combination with a rotative shaft, a cam-wheel secured thereon and formed with a peripheral notch and shoulder adjacent thereto, a cylindrical dispenser mounted on said shaft, a block with inclined upper

face, a lever interposed between said block and cam-wheel and having downwardly-depending leg and catch, a ratchet on the shaft of the cam-wheel and a pawl carried by the lever to engage the ratchet.

3. The combination of a rotative shaft, a cam-wheel secured thereon and formed with a peripheral notch and shoulder adjacent thereto, a cylindrical dispenser mounted on said shaft, a block with inclined upper face, a lever interposed between said block and cam-wheel and having downwardly-depending leg and catch, a ratchet on the shaft of the cam-wheel and a pawl carried by the lever to engage the ratchet, said pawl being pivotally mounted on the fulcrum of the lever.

4. The combination with a rotative shaft, a cam-wheel secured thereon and formed with a notch and a shoulder, of a coin-actuated lever formed with a leg and with a catch adjacent thereto whereby the rotation of the shaft is limited by the automatic engagement of the catch with the shoulder or of the leg with either the notch or the shoulder.

702,919. PIPE CUTTER AND WRENCH. ADAM R. BOTS AND GEORGE YARENSKY, Shenandoah, Pa. Filed Feb. 3, 1902. Serial No. 22,426. (No model.)



Claim.—1. In a device of the class described, a body terminating in a fixed jaw, a removable serrated plate coated at its inner end in a resin in the body and having an upturned outer end secured to the outer end of the jaw, and a movable jaw having flanges flanking the body.

2. A convertible pipe cutter and wrench consisting of a body, an upper jaw, a cutter-wheel in said jaw having axle movable in curved slots to adjust the wheel into idle and cutting positions, and means for maintaining the adjustments.

3. A convertible pipe cutter and wrench consisting of a body, an upper jaw having an opening and flanking curved slots, offsets in the slots near the lower end thereof, a wheel in said opening, a headed axle for the wheel passed through the slots, and a nut on the threaded end of the axle whereby the wheel may be adjusted and maintained in idle and cutting positions.

702,920. LEVER FOR LIFTING-JACK. WILLIAM E. DUNNELL, Kalamazoo, Mich., assignor to the Kalamazoo Railway Supply Company, Kalamazoo, Mich. Filed Nov. 12, 1901. Serial No. 55,722. (No model.)



Claim.—1. The combination of a lever; pawls thereon with journals projecting to each side; and bushings to drive into suitable circular seats in the sides of the lever of more than a half-circle in extent.

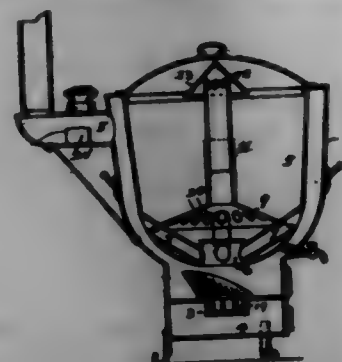
2. The combination of a lever; a pawl resting in a suitable seat and having journals at each side; and bushings adapted to engage the said journals and be retained in seats in the sides of the lever of more than a half-circle in extent, for the purpose specified.

702,921. GUANO-DISTRIBUTER. JAMES S. BYER, DUNN, N. C. Filed Mar. 6, 1902. Serial No. 94,941. (No model.)



Claim.—In combination with the frame of a plow having handles, of a cross-piece T, a platform, a box mounted thereon, a shoe hinged to said box, stirrers on the shoe extending into the box, a wheel with a series of pins projecting laterally from one face thereof, a rod having a V-shaped end riding on said pins, a bar B pivoted to said platform and to the box, with its free end normally resting on the brace T, as set forth.

702,922. LAUNDRY-STOVE. ELIZA CLARK, Cleveland, Ohio. Filed May 22, 1901. Serial No. 61,322. (No model.)



Claim.—1. In a laundry-stove, the combination of a casing of less diameter at its lower portion than at its upper portion, a grate and ash-receptacle in said lower portion, a kettle in said upper portion spaced from the sides thereof, said kettle being provided with passages extending through its lower portion and affording communication between the combustion-chamber and the space about the sides of the kettle.

2. In a laundry-stove, the combination of a casing of less diameter at its lower portion than at its upper portion, a grate and ash-receptacle in said lower portion, a kettle in said upper portion spaced from the sides thereof and provided with a central flue having a closed upper extremity but open at the lower extremity, the said kettle being also provided with passages affording communication between the central flue and the space about the kettle, substantially as described.

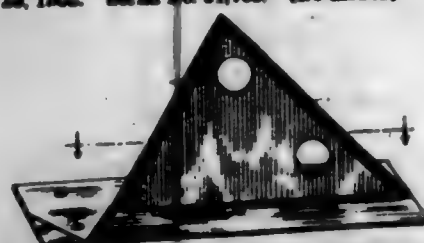
3. In a laundry-stove, the combination of a casing of less diameter at its lower portion than at its upper portion, a kettle in the said upper portion spaced from the sides thereof, the said kettle being provided with passages extending through its lower portion and affording communication

tion for the products of combustion between the space about the sides of the kettle and the space below the kettle, and a grate removably placed underneath the kettle, substantially as described.

4. In a laundry-stove, in combination, a casing, a kettle therein spaced from the sides thereof and provided with passages extending through its lower portion, and affording communication between the space about the kettle and the space below the kettle, a grate and ash-receptacle beneath the kettle, a perforated cap over the inside of the bottom of the kettle, a tube rising centrally therefrom and communicating below with the interior of the cap and an upper section of said tube telescoping therewith and extending above the fluid-level in the kettle, substantially as set forth.

5. In a laundry-stove, in combination, a casing of less diameter at its lower portion than at its upper portion, a kettle in the upper portion spaced therefrom, and provided with passages leading through the bottom to the space about the sides of the kettle, a grate underneath the kettle, a perforated cap within the kettle resting upon the bottom, a tube centrally communicating therewith, and provided with an extensible upper portion, the said upper portion being perforated at the top and provided with a laterally-extending cap over the perforations, substantially as described.

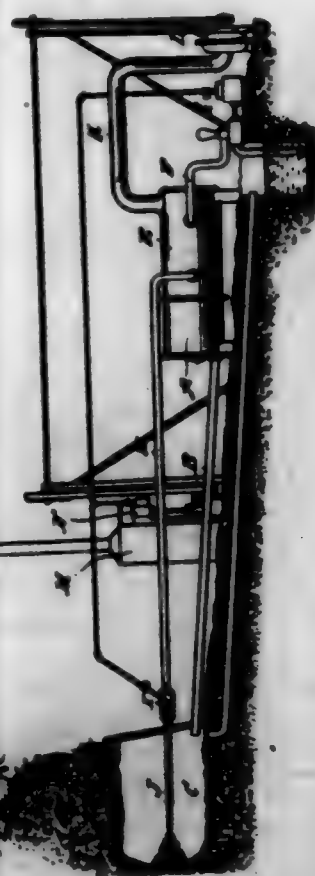
702,923. ROOF-GUARD. SAMUEL P. CLARK, Hartford, Conn. Filed Jan. 22, 1902. Serial No. 91,703. (No model.)



Claim.—1. A wrought-metal roof-guard blanked from sheet metal and bent to shape, said device comprising a double riser, flange extending laterally on each side of said riser, said flange having projections which overlap one another, substantially as described and for the purpose set forth.

2. A wrought-metal snow-guard comprising the base made up of two flanges which overlap one another at one end, and the riser made up of a double thickness of metal connecting the two base-flanges, said riser having incorporated in its outer edge a stiffening-wire, and holes through said riser inclosed by the stiffening-wire, all substantially as described and for the purpose set forth.

702,924. APPARATUS FOR THAWING FROZEN GROUND. GEORGE R. CLARK, Dawson, Canada. Filed Apr. 4, 1901. Serial No. 54,329. (No model.)



Claim.—1. An apparatus for thawing frozen ground, comprising a furnace, a water-compartment into which pass the products of combustion

from said furnace, an exhauster of said water-compartment, for removing the products of combustion from the water-compartment after their passage through the water, means for drawing the water from said water-compartment and discharging it upon the frozen ground in the drift, and a pipe leading from the drift to the furnace, for supplying the latter with heated air, as set forth.

2. An apparatus for thawing frozen ground, comprising a furnace, a water-compartment into which pass the products of combustion from said furnace, an exhauster for said water-compartment, for removing the products of combustion from said water-compartment after their passage through the water, means for drawing the water from said water-compartment and discharging it upon the frozen ground in the drift, a pipe leading from the drift to the furnace, for supplying the latter with heated air, and means for supplying said water-compartment with water, the point of supply of the water to the compartment and the point of drawing off the water from the compartment being above the connection between the furnace and the water-compartment, as set forth.

3. An apparatus for thawing frozen ground, comprising a furnace, a water-compartment into which pass the products of combustion from said furnace, a suction device for drawing the products of combustion from the water-compartment, a pipe leading from the water-compartment and discharging it through said pipe upon the frozen ground, and means for returning the water from the place of discharge to the said water-compartment, as set forth.

4. An apparatus for thawing frozen ground, comprising a furnace, a water-compartment connected therewith and into which pass the products of combustion from said furnace to heat the water, a suction-pump for drawing the products of combustion from the water-compartment, means for drawing the water from the water-compartment and discharging it upon the frozen ground, means for supplying the furnace with air heated by the discharged hot water, and a pump for supplying said water-compartment with water, as set forth.

702,925. TAB FOR SLENDER CONNECTION TO GARMENTS. CHARLES A. COOK, Troy, N. Y., assignor, by direct and various assignments, to Cook Brothers, Troy, N. Y., a Firm, and R. L. McDonald & Co., St. Joseph, Mo. Filed Aug. 1, 1901. Serial No. 70,493. (No model.)



Claim.—1. A flexible link or tab for the purpose specified having attaching means at the opposite ends thereof and provided intermediately of the ends with means for detachable and positive connection with a garment; substantially as specified.

2. A link or tab for the purpose specified formed of flexible material having attaching means at opposite ends thereof and provided intermediately of the ends at an edge thereof with means for detachable and positive connection with a garment; substantially as specified.

3. A link or tab for the purpose specified formed of flexible material having a button at one end and a buttonhole at the opposite end, and provided intermediately of the ends with catches extending inward from the edges thereof for detachable connection with a garment; substantially as specified.

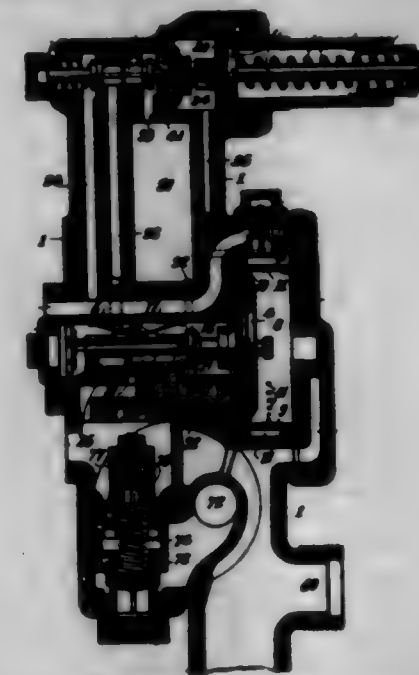
4. Means for attaching suspenders to trousers through a slit in a shirt-waist, consisting of a tab of flexible material having attaching devices at each end, and notches in one or both edges forming a neck and shoulders adjacent to said neck.

5. Means for connecting suspenders with trousers through a slit in a shirt-waist, consisting of a tab of flexible material having a button at one end, a buttonhole at the other, and notches in each edge forming shoulders to engage with said slit.

702,926. AUTOMATIC FLUID-PRESSURE BRAKE APPARATUS. HUBERT CUSHINGTON, New York, N. Y. Filed Oct. 24, 1901. Serial No. 90,008. (No model.)

Claim.—1. In an automatic fluid-pressure brake system, as a means for assisting in the release of the brakes, a passage or cavity, an exhaust-port and a valve moved through a reduction of train-pipe pressure into position for venting the pressure in said passage and moved through an increase of train-pipe pressure to disconnect said passage and exhaust-port.

2. In an automatic fluid-pressure brake system, as a means for assisting in the release of the brakes, a passage or cavity, an exhaust-port and a triple valve moved through a reduction of train-pipe pressure into position for venting the pressure in the passage through the exhaust-port and moved through an increase of train-pipe pressure to disconnect said passage and exhaust-port.



3. In an automatic fluid-pressure brake system, as a means for assisting in the release of the brakes, the combination of a release-passage from a brake-cylinder, a cavity and a reprocessing valve for controlling said passage and cavity, which is moved through a reduction of train-pipe pressure into position for closing the release-passage and venting the pressure from said cavity, and through an increase of train-pipe pressure to open the release-passage and close said cavity.

4. In an automatic fluid-pressure brake system, as a means for assisting in the release of the brakes, the combination of a release-passage from a brake-cylinder, a cavity normally containing fluid-pressure, and a triple valve shifted in one direction for admitting pressure to the brake-cylinder and releasing pressure from said cavity and shifted in the other direction for releasing pressure from the brake-cylinder and admitting pressure to said cavity.

5. In an automatic fluid-pressure brake system, the combination of a primary piston, a secondary valve device actuated through an increase of fluid-pressure, independently of the movement of the primary piston, for controlling the movement of the primary piston, a passage for causing variation of pressure on the primary piston, a release-passage from a brake-cylinder and a valve operated by the primary piston for controlling both of said passages.

6. In an automatic fluid-pressure brake system, the combination of a primary piston for controlling by its movement the release of pressure from a brake-cylinder, a secondary valve device actuated by an increase of fluid-pressure, independently of the movement of the primary piston, a passage controlled by said secondary valve device for causing variation of pressure on said primary piston, and a valve operated by reduction of train-pipe pressure to vent the pressure from said passage and moved by the primary piston to close the same.

7. In an automatic fluid-pressure brake system, the combination, with the main valve of a triple valve controlling a release-passage from a brake-cylinder, of a primary piston for controlling the movement of said valve to release position, a secondary valve device actuated through an increase of fluid-pressure, independently of the movement of said primary piston, a passage controlled by said secondary valve device for varying the pressure on the primary piston which is alternately opened and closed by said main valve while the said release-passage is alternately closed and opened.

8. In an automatic fluid-pressure brake system, as a means for insuring the release of the brakes, the combination of a valve for controlling by its operation the ultimate movement of the triple valve to release position, a piston or diaphragm actuated by an increase of fluid-pressure for controlling said valve and means for controlling said piston and limiting its operation to a predetermined, definite pressure per square inch.

9. In an automatic fluid-pressure brake system, the combination, with a train-pipe and a triple valve, of a valve device on the car, which is actuated by a predetermined definite pressure per square inch, for controlling by its operation the ultimate movement of the triple valve to release position, a second valve device on the locomotive for controlling the admission of pressure to the train-pipe and means for regulating the use

and valve device, whereby in one adjustment thereof the pressure admitted to the train-pipe will be insufficient, and in another adjustment thereof said pressure will be sufficient, to operate the first-mentioned valve device to move the triple valve to release.

10. In an automatic fluid-pressure brake system, the combination of a valve controlling a release-passage from a brake-cylinder, a primary piston controlling said valve, a passage for venting the pressure from one side of said primary piston, a secondary piston for controlling by its operation said passage and a valve device operated by an increase of fluid-pressure, independently of the movement of said primary piston, for controlling the operation of said secondary piston.

11. In an automatic fluid-pressure brake system, the combination of a valve controlling a release-passage from a brake-cylinder, a primary piston for controlling said valve, passages for supplying pressure to and venting it from one side of said primary piston, valves controlling said passages, a secondary piston for controlling the last-mentioned valves and a valve device actuated by an increase of fluid-pressure, independently of the movement of said primary piston, for controlling the movement of said secondary piston.

12. In an automatic fluid-pressure brake system, the combination of a release-passage from a brake-cylinder, a passage or cavity normally containing fluid under pressure, an exhaust-port, a valve moved through a reduction of train-pipe pressure for closing said release-passage and controlling said cavity, a secondary valve and a passage for alternately closing and opening said cavity to said exhaust-port which is controlled by both the primary and secondary valves.

13. In an automatic fluid-pressure brake system, the combination in a triple-valve device of a piston, a main valve, and a secondary valve, both operated by said piston, a passage or cavity normally containing fluid under pressure, a passage for alternately opening and closing said cavity to exhaust and ports controlled by said primary and secondary valves, whereby said cavity is opened to exhaust through said two valves moving in opposite directions and is closed through said valves moving in the same direction.

14. In an automatic fluid-pressure brake system, the combination with a triple valve of three passages leading from a common source, first to the auxiliary reservoir, second to the triple-valve chamber, and third to exhaust, and a valve device actuated by a variation of fluid-pressure for placing the second of these passages alternately in communication with the first and the third.

15. In an automatic fluid-pressure brake system, the combination with a triple valve, of a recharging-passage for charging air from train-pipe to the auxiliary reservoir while the triple valve is in position for setting brakes, three passages leading from a common source first, to the reservoir, second to the triple-valve chamber, and, third, to exhaust, and a supplemental valve device actuated through an increase of fluid-pressure for closing the second of these passages to the first and opening it to the third.

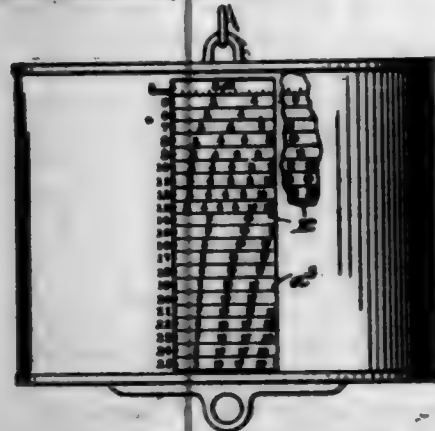
16. In an automatic fluid-pressure brake system, the combination of a primary piston, a secondary valve device actuated through an increase of fluid-pressure, independently of the movement of the primary piston, for controlling the movement of the primary piston, a passage for causing variation of pressure on the primary piston, a release-passage from a brake-cylinder and a valve operated by the primary piston for controlling both of said passages, together with a passage for recharging the auxiliary reservoir of the system from the train-pipe while said valve remains in position to close said release-passage.

17. In an automatic fluid-pressure brake system, the combination, with the main valve of a triple valve controlling a release-passage from a brake-cylinder, of a primary piston for controlling the movement of said valve to release position, a secondary valve device actuated through an increase of fluid-pressure, independently of the movement of said primary piston, a passage controlled by said secondary valve device for varying the pressure on the primary piston which is alternately opened and closed by said main valve while the said release-passage is alternately closed and opened, together with a passage for recharging the auxiliary reservoir of the system from the train-pipe while the triple valve remains in position to close said release-passage.

702,927. RYAN-BALANCE COMPUTING-SCALE. JOHN W. CULLEN, Cleveland, Ohio, assignor to the National Computing Scale Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 26, 1902. Serial No. 21,590. (No model.)

Claim.—1. In a spring-balance, the combination of an external case capable of being supported and having in its bottom guides for the runner, weighing-springs suspended by their upper ends within the case and from rigid parts thereof, a vertically-movable runner secured on the lower ends of said springs, and movable in the guides in the lower part of the case, with a chart-drum rotatably mounted on a vertical axis within said

case and having external horizontal rows of value-indicating figures extending at different rates, said external case being apertured whereby portions of said value-indicating rows may be seen, and corresponding weight-indicating figures adjacent to said apertures and in the same plane with the corresponding value-indicating rows of figures, and mechanism for translating the vertical movements of the runner into rotary movements of the chart-drum, substantially as specified.

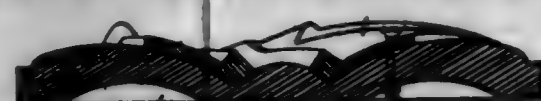


2. In a spring-balance, the combination of a case consisting of a drum and top and bottom end plates, means attached to the top plate for suspending said case, spring-supports within the case rigid with the bottom plate thereof, a runner movable vertically through said bottom plate, and weighing-springs which are connected at their upper ends with said spring-supports and at their lower ends with the runner, with a chart-drum which lies between said spring-supports and the vertical walls of the case which drum is mounted upon its vertical axis in said case, said chart-drum having its external surface divided into horizontal rows which are graduated and marked with computed values, said case-drum being apertured whereby said horizontal rows of graduations may be seen, value-indicating figures adjacent to the value-indicating rows of the chart-drum, and mechanism for translating the vertical movements of the runner into rotary movements of the chart-drum, substantially as described.

3. In a spring-balance, the combination of a case, consisting of a drum and top and bottom end plates, spring-supports within the case rigid with the bottom plate thereof, a runner movable vertically through said bottom plate, and weighing-springs which are connected at their upper ends with said spring-supports and at their lower ends with the runner, with a chart-drum which lies between said spring-supports and the vertical walls of the case, an axial vertical arbor rigidly fastened to said chart-drum, which arbor is rotatably mounted in the case, a spool attached to the said arbor, a cord attached to and wound about said spool, and having its ends connected respectively with arms of the runner, and sleeves mounted on said spring-supports over which said cord runs, substantially as described.

4. In a spring-balance, the combination of a case, consisting of a drum and top and bottom end plates, spring-supports within the case rigid with the bottom plate thereof, a runner movable vertically through said bottom plate, and weighing-springs which are connected at their upper ends with said spring-supports and at their lower ends with the runner, with a chart-drum which lies between said spring-supports and the vertical walls of the case, an axial vertical arbor rigidly fastened to said chart-drum, which arbor is rotatably mounted in the case, a spool attached to the said arbor, a cord attached to and wound about said spool and connected at its ends with the runner, and a spring through which one end of said cord is connected with the runner, substantially as described.

702,928. METHOD OF MAKING PATTERN-PLATE. GALVIN R. DAVIS, South Bend, Ind., assignor to the South Bend Iron Works, South Bend, Ind. Filed July 16, 1901. Serial No. 68,811. (No model.)



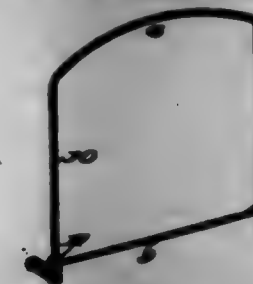
Claim.—1. The method of making pattern-plates consisting in casting two plates having on their faces the contour of respective sides of a pattern, mounting the pattern on one of said plates, placing the other plate upon the one having the pattern so as to align the latter on the face of the top plate, then casting the pattern in the top plate, then separating the plates and then securing another pattern to the first-mentioned plate.

2. The method of making pattern-plates consisting in casting two plates having in their meeting faces the contour of the respective sides of a pattern, the contour in one of said plates being made larger than the pattern, mounting a pattern on one of said plates, placing the second plate

on the first so as to receive the pattern on the latter, then pouring molten metal into the said second plate and securing the pattern thereby to said second plate, separating said plates and securing another pattern to the first-mentioned plate.

3. The method of making pattern-plates, consisting in first casting from plaster onto plates having depressions in their opposing faces which together conform to the contour of a complete pattern, enlarging and grooving the wall of the depression in one of said casts prior to casting the plate thereon, securing heated pins in said depressed portion of the plate, mounting a pattern on the other plate, then placing said plates together, pouring molten metal through the upper plate and causing it to flow around the pattern into the groove and around the pins to securely lock the pattern thereto, then separating the plates and securing another pattern to the lower plate.

702,929. RAIL-TIE. GEORGE H. DUNN, Cambridge, N. Y. Filed Oct. 4, 1891. Serial No. 73,017. (No model.)

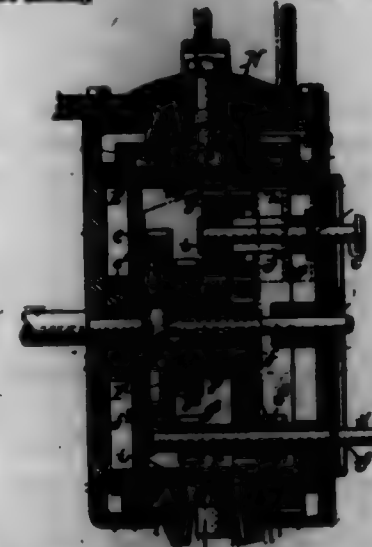


Claim.—1. A rail-tie having a body of approximate U form comprising a top and side members, and a fastener loosely connected to one side member and movable lengthwise under a hole when the said body is on said hole, and means for securing the ends of the other side member and the fastener together on the hole.

2. A rail-tie having a body of approximate U form comprising a top and side members, and a fastener loosely connected to one side member and movable lengthwise under a hole when the said body is on said hole, and means for securing the ends of the other side member and the fastener together on the hole, said fastener having a loop at each end and the first-mentioned side member having a loop at its end.

3. A rail-tie having a body of approximate U form comprising a top and side members, and a fastener loosely connected to one side member and movable lengthwise under a hole when the said body is on said hole, and means for securing the ends of the other side member and the fastener together on the hole, said means comprising a loop.

702,930. CHANGEABLE-SPEED AND REVERSING GEAR. THOMAS A. DUNN, Whiteburg, Pa. Filed Sept. 26, 1901. Serial No. 73,548. (No model.)



Claim.—1. In a speed-changing mechanism, the combination of a driving-shaft, a gear-wheel mounted on the shaft, a drum loosely surrounding said shaft, and independent, laterally-movable gear-pieces of different diameters capable of being individually shifted into and out of engagement with said gear-wheel and said drum, substantially as set forth.

2. In a speed-changing mechanism, the combination of a driving-shaft, a stepped gear-wheel mounted on said shaft, a rotary drum loosely surrounding said shaft, and laterally-movable transmitting-pieces of different diameters interposed between the drum and the steps of said gear-wheel, substantially as set forth.

3. The combination of a driving-shaft, a beveled cone-gear turning with said shaft, a rotary drum loosely surrounding said shaft and provided with an internal conical gear-rim, and laterally-sliding toothed pieces of

different diameters arranged to enter between the gear-rim of said drum and one of the wheels of said cone-gear, a casing including said shaft and drum, and shifting devices for said pieces extending through the wall of said casing, substantially as set forth.

4. The combination of a stationary casing, a driving-shaft arranged therein, a cone-gear mounted on said shaft, a drum surrounding said shaft and arranged within the casing, studs extending inwardly from one of the walls of the casing and arranged parallel with said driving-shaft, laterally-sliding transmitting-pieces of different diameters mounted on said studs, and shifting devices for said pieces extending through the wall of the casing, substantially as set forth.

5. The combination of a stationary casing, a driving-shaft arranged therein, a cone-gear mounted on said shaft, a drum surrounding said shaft and arranged within the casing, hollow studs projecting inwardly from one of the walls of the casing, transmitting-pieces of different diameters mounted to slide laterally on said hollow studs, and shifting-bells for said pieces sliding in said studs and extending through the wall of said casing, substantially as set forth.

6. The combination of a casing, a driving-shaft arranged therein, a gear-wheel mounted on said shaft, a drum loosely surrounding said shaft, a hollow stud extending inwardly from the wall of said casing and provided with a longitudinal slot, a transmitting-piece slidably mounted on said stud and provided in its bore with an annular groove, and a shifting-belt sliding in said hollow stud and provided with a transverse pin which passes through the slot of the stud and enters the groove of said piece, substantially as set forth.

7. The combination of a driving-shaft, a gear-wheel mounted thereon, a drum loosely surrounding said shaft, a plurality of retractable transmitting-pieces interposed between the gear-wheel on the driving-shaft and said drum, and a locking device having individual locking means for said transmitting-pieces constructed and arranged to release but one of said pieces at a time, substantially as set forth.

8. The combination of a driving-shaft, a gear-wheel mounted thereon, a drum loosely surrounding said shaft, a plurality of retractable transmitting-pieces interposed between the gear-wheel on the driving-shaft and said drum, individual shifting-bells for said pieces, and a movable locking-plate having slots constructed to interlock with said bells in one position of said plate and to release the bells in another position of the plate, substantially as set forth.

9. The combination of a driving-shaft, a gear-wheel mounted thereon, a drum loosely surrounding said shaft, laterally-sliding transmitting-pieces of different diameters interposed between said gear-wheel and the drum, shifting-bells connected with said pieces and each having a contracted neck, and a rotary locking-plate having curved locking-slots which are wide enough to receive the contracted necks of said bells but narrower than the bodies thereof, and which are provided with enlargements of sufficient size to receive the bodies of said bells, substantially as set forth.

10. The combination of a driving-shaft, a gear-wheel mounted thereon, a drum loosely surrounding said shaft, a plurality of retractable transmitting-pieces interposed between the gear-wheel on the driving-shaft and said drum, individual shifting-bells for said pieces, a movable locking-plate having slots constructed to interlock with said bells in one position of said plate and to release the bells in another position of the plate, a stationary scale arranged adjacent to said locking-plate, and a pointer carried by said plate and cooperating with said scale, substantially as set forth.

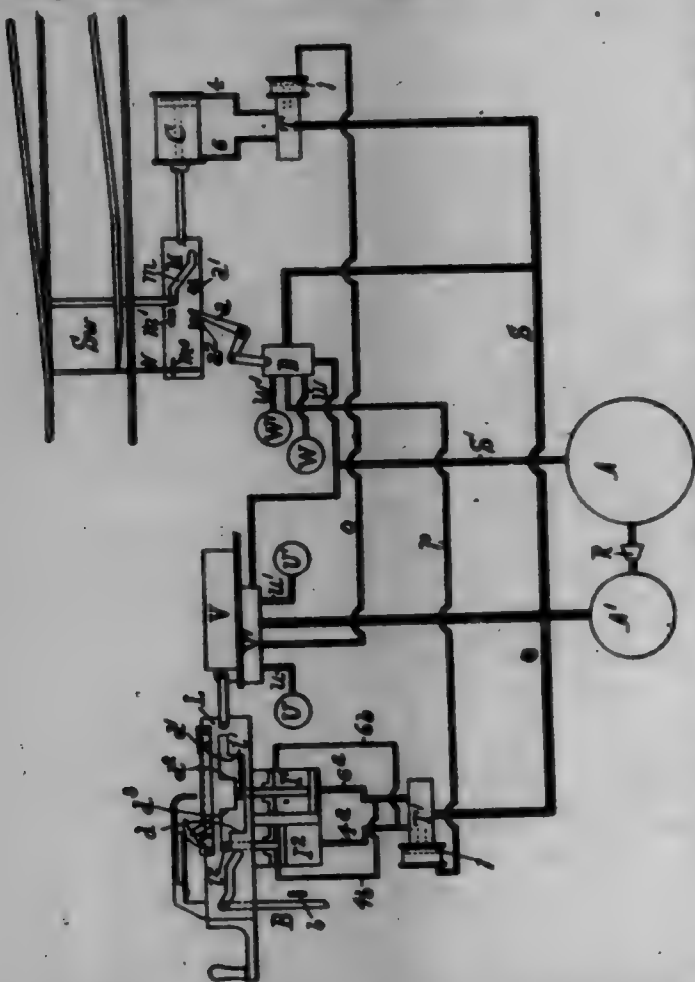
11. The combination of a driving-shaft, a drum driven therefrom, a pair of gear-wheels mounted loosely on said drum and geared together to turn in opposite directions, one of said gear-wheels forming a driver, and a clutch for coupling either of said gear-wheels to said drum, substantially as set forth.

12. The combination of a driving-shaft, a hollow drum loosely surrounding the same, a changeable-speed gear arranged within said drum and constructed to transmit motion from said shaft to said drum, and a reversing-gear mounted on the periphery of said drum, substantially as set forth.

13. The combination of a driving-shaft, a hollow drum loosely surrounding the same, a changeable-speed gear constructed to transmit motion from said shaft to said drum and arranged within the drum, adjusting devices for said speed-changing gear projecting laterally from said drum, a pair of opposing bevel-gears journaled on the periphery of said drum, an intervening pinion connecting said bevel-gears, and a clutch for coupling either of said bevel-gears to said drum, substantially as set forth.

702,931. PNEUMATIC RAILWAY SWITCH AND SIGNAL AP- PARATUS. FRANK L. DUNN, Rochester, and WENDELL COHENWORTH, New York, N. Y., assignors to International Pneumatic Railway Signal Company, Rochester, N. Y., a Corporation of West Virginia. Filed Oct. 26, 1901. Serial No. 82,107. (No model.)

Claim.—1. In a fluid-pressure-distributing device, a distributing-valve, a single source of fluid-pressure supply, which is to be distributed by the valve to different fluid-pressure conductors, a cylinder and a piston for operating said distributing-valve, a single operating-pipe, and means for connecting one side of said cylinder to the atmosphere when pressure is increased in the operating-pipe, and means for connecting the opposite side of the cylinder to the atmosphere when pressure is reduced in the operating-pipe, substantially as described.



2. In a fluid-pressure-distributing device, a distributing-valve, a single source of fluid-pressure supply which is to be distributed by said valve, a cylinder and a piston for operating said valve, a single controlling or operating pipe for the valve, two diaphragms, and valves operated by said diaphragms for controlling the admission of air to and from the two ends of the cylinder, substantially as described.

3. The combination, with a motor mechanism, of a fluid-pressure-distributing device, a distributing-valve, a single source of fluid-pressure supply which is to be distributed by said valve to different fluid-pressure conductors for operating the motor mechanism, a cylinder and a piston for operating said distributing-valve, a single operating-pipe for said valve, means for causing increase of pressure in said pipe above the normal, to operate the valve in one direction, means for causing decrease of pressure in said pipe below the normal to operate the valve in the other direction, and means for equalizing the pressure to the normal after each operation, said latter means being inoperative until after the valve has completed its movement, substantially as described.

4. In a fluid-pressure-distributing device, a single fluid-pressure-supply port, an exhaust-port, a single fluid-pressure-operating port, separate port connections for different fluid-pressure conductors, a distributing-valve, and means for operating said distributing-valve by variations of pressure in said operating-port to connect one of said port connections with the supply and another with the exhaust when pressure is increased at the operating-port and for reversing these connections when pressure is decreased at said operating-port, substantially as described.

5. In a fluid-pressure-distributing device, a single fluid-pressure-supply port, an exhaust-port, a single fluid-pressure-operating port, separate port connections for different fluid-pressure conductors, a distributing-valve, means for operating said distributing-valve by variations of pressure in said operating-port to connect one of said port connections with the supply and another with the exhaust when pressure is increased at the operating-port and for reversing these connections when pressure is decreased at said operating-port, and means for equalizing the pressure at the operating-port with that in the supply, after the valve has been operated to produce either of said connections, substantially as described.

6. In a fluid-pressure-distributing device, a single fluid-pressure-supply port, an exhaust-port, a single fluid-pressure-operating port, separate

port connections for different fluid-pressure conductors, a distributing-valve, means, comprising a cylinder and piston, for operating said distributing-valve by variations of pressure in said operating-port to connect one of said port connections with the supply and another with the exhaust when pressure is increased at the operating-port and for reversing these connections when pressure is decreased at said operating-port, means for equalizing the pressure at the operating-port with that in the supply, after the valve has been operated to produce either of said connections, means for connecting the cylinder on either side of the piston with the exhaust when operating-pressure is let into the cylinder on the opposite side of the piston, and means for equalizing the pressure on the opposite sides of the piston after an operation of the valve including cutting off the connection with the exhaust, substantially as described.

7. In a fluid-pressure switch or signal mechanism, a motor at the switch or signal, a single fluid-pressure supply for the motor, a fluid-pressure-distributing device for causing movement of said motor in either direction according to its position, a controlling mechanism in the tower, a single pipe between the controlling mechanism and the distributing device, means for reducing pressure in said pipe through the controlling mechanism, and means for producing an increase of pressure in said pipe through said controlling mechanism, said distributing device assuming one operating position when pressure is reduced in the operating-pipe and assuming another operating position when it is increased in said operating-pipe, substantially as described.

8. In a fluid-pressure-distributing device, a casing, a supply-inlet port, two outlet-ports, an operating-port therefor, a distributing-valve, and means for causing said distributing-valve to take one position when pressure is decreased in said operating-port and the opposite position when pressure is increased in said operating-port and means for causing the pressure in the operating-port to equalize with that in the supply, after the valve has moved to either extreme position, substantially as described.

9. In a fluid-pressure switch or signal mechanism, a motor at the switch or signal, a distributing device comprising a valve for distributing compressed air from a single supply-pipe to either of two fluid-pressure conductors to said motor, a manually-operated operating mechanism in the operating-station, a single fluid-pressure-operating pipe between the operating mechanism and the distributing-valve, means for reducing pressure in said operating-pipe through the operating mechanism, and means for producing an increase of pressure in said operating-pipe through said operating mechanism, means for causing said distributing-valve to take one distributing position when pressure is reduced in the operating-pipe and to take another distributing position when pressure is increased in the said operating-pipe, and means for causing the pressure in the operating-pipe to return to its normal pressure after the distributing-valve has assumed either of its extreme positions, substantially as described.

10. In a fluid-pressure switch or signal mechanism, a motor mechanism for said switch or signal, a distributing device comprising a valve for distributing compressed air from a single supply-pipe at a mean pressure to either of two fluid-pressure conductors to said motor, a single fluid-pressure-operating pipe from the operating-station to said distributing device, means in said device for causing it to assume either of two different positions by reduction or increase of pressure in the operating-pipe, a manually-operated operating-valve in the operating-station, a fluid-pressure supply under mean pressure, a second fluid-pressure supply under greater pressure, said second fluid-supply being connected to said operating-valve, two tanks connected to the outlet of said operating-valve, said operating-valve having ports whereby one of these tanks may be connected to the high-pressure supply or to the operating-pipe and the other tank may be connected to the operating-pipe or to the atmosphere, substantially as described.

11. In a fluid-pressure switch or signal mechanism, a motor mechanism for said switch or signal, a distributing device comprising a valve for distributing compressed air from a single supply-pipe at a mean pressure to either of two fluid-pressure conductors to said motor, a single fluid-pressure-operating pipe from the operating-station to said distributing device, means in said device for causing it to assume either of two different positions by reduction or increase of pressure in said operating-pipe, a manually-operated operating-valve in the operating-station, a fluid-pressure supply under mean pressure, a second fluid-pressure supply under greater pressure, said second fluid-supply being connected to said operating-valve, two tanks connected to the outlet of said operating-valve, said operating-valve having ports whereby one of these tanks may be connected to the high-pressure supply or to the operating-pipe and the other tank may be connected to the operating-pipe or to the atmosphere, substantially as described.

12. In a railway switch or signal apparatus, the combination of a double-acting fluid-pressure motor mechanism for setting the switch or

signal into its different positions, fluid-pressure supply for actuating the motor mechanism, a single fluid-column extending to the motor-station from an operating-station, means at the operating-station for causing variation of pressure in said column, and valve mechanism at the motor-station actuated by said variation of pressure for controlling the operation of the motor mechanism by fluid-pressure in its movements in both directions, substantially as described.

13. In a railway switch or signal apparatus, two reciprocating fluid-pressure-operated mechanisms, fluid-pressure supply for actuating one of them, two fluid-columns extending between the positions of said two mechanisms, a valve device adjacent to each mechanism actuated by a variation of pressure in one of said columns for controlling the operation of its operated mechanism in both directions by fluid-pressure, manually-operated mechanism for causing variation of pressure in one of said columns, and a valve device controlled in correspondence with the movement of said last-mentioned operated mechanism for causing variation of pressure in the other column, and a valve device actuated by said last-mentioned variation of pressure for controlling the operation of its operated mechanism, substantially as described.

14. In a railway switch or signal apparatus, the combination of fluid-pressure motor mechanism for the switch or signal, fluid-pressure supply under mean pressure for actuating the motor mechanism, a second fluid-pressure supply under a different pressure, a single operating fluid-column extending to the motor-station from an operating-station, a valve device at the motor-station actuated by variation of pressure in said column for controlling the operation of the motor mechanism in both of its directions by fluid-pressure, operating mechanism at the operating-station for causing said variation of pressure in the operating-column, comprising controlling devices whereby the said variations of pressure are exactly controlled, and a connection and ports from said mean-pressure supply for connecting the operating-pipe therewith at certain positions of the operating mechanism, substantially as described.

15. In a fluid-pressure switch or signal mechanism, a manually-operated lever in the operating-station, an indicator-cylinder to act upon the lever, a stop-roller carried by the piston of said indicator-cylinder, said roller having a slot in which the roller is guided, said slot having two parallel portions offset from each other and at right angles to the axis of the indicator-cylinder, thus forming two shoulders against one of which the roller abuts when the piston in the cylinder is in one position and against the other one of which shoulders the roller abuts when the piston is in another position, substantially as described.

16. In a fluid-pressure switch or signal apparatus, a manually-operated lever having a slot or groove with two portions arranged diagonally across said lever and two other portions connecting said diagonal portions, a reciprocating mechanism having a part extending into said slot or groove, whereby said part moves around in said slot and the lever may be moved in part by hand and in part by said reciprocating mechanism, substantially as described.

17. In a fluid-pressure switch or signal apparatus, a manually-operated lever having a slot or groove with two portions substantially in line of movement of the lever and two diagonal portions connecting the former two portions, a cylinder and piston, and a controlling device actuated by the piston and operating in said groove or slot, whereby the movement of the lever may be made in part independent of the piston and in part by the piston, substantially as described.

18. In a fluid-pressure switch or signal apparatus, a manually-operated lever having a slot or groove with two portions substantially in line of movement of the lever and two diagonal portions connecting the former two portions, a cylinder and piston, and a controlling device actuated by the piston and operating in said groove or slot, whereby the movement of the lever may be made in part independent of the piston and in part by the piston, and stop-flanges in said groove or slot whereby the lever is stopped at certain points until said piston is moved, substantially as described.

19. In a fluid-pressure switch or signal mechanism, a manually-operated operating-lever, an indicator-cylinder having a piston carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever, and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the lever in one direction and the movement of the pin or roller in the other diagonal portion in the other direction shifts the lever in its opposite direction, substantially as described.

20. In a fluid-pressure switch or signal mechanism, a manually-operated operating-lever, an indicator-cylinder having a piston carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever, and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the lever in one direction and the movement of the pin or roller in the

other diagonal portion in the other direction shifts the lever in its opposite direction, and stop-flanges at ends of said first-mentioned parallel portions whereby the lever is stopped until the piston is moved to carry the roller or pin away therefrom, substantially as described.

21. In a switch or signal mechanism, a manually-operated operating-lever, a reciprocating mechanism carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the lever in one direction and the movement of the pin or roller in the other diagonal portion in the other direction shifts the lever in its opposite direction, substantially as described.

22. In a switch or signal mechanism, a manually-operated operating-lever, a reciprocating mechanism carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the roller in one direction and the movement of the pin or roller in the other diagonal portion in the other direction shifts the lever in its opposite direction, and stop-flanges at ends of said first-mentioned parallel portions whereby the lever is stopped until said reciprocating mechanism is moved to carry the pin or roller away therefrom, substantially as described.

23. In a switch or signal mechanism, a manually-operated operating-lever, a reciprocating mechanism carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the roller in one direction and the movement of the pin or roller in the other diagonal portion in the other direction shifts the lever in its opposite direction, means controlled by said operating-lever for actuating the switch or signal and means controlled by the switch or signal for actuating said reciprocating mechanism, substantially as described.

24. In a switch or signal mechanism, a manually-operated operating-lever, a reciprocating mechanism carrying a pin or roller adapted to run in a slot in said lever, the said slot having two parallel portions in line of movement of said lever and two substantially parallel diagonal connecting portions whereby the movement of the pin or roller in one direction in one of said diagonal portions shifts the roller in one direction, and the movement of the pin or roller in the other diagonal portion in the other direction shifts the lever in its opposite direction, stop-flanges at ends of said first-mentioned parallel portions whereby the lever is stopped until said reciprocating mechanism is moved to carry the pin or roller away therefrom, means controlled by said operating-lever for actuating the switch or signal and means controlled by the switch or signal for actuating said reciprocating mechanism, substantially as described.

25. In a railway switch or signal apparatus, the combination of fluid-pressure motor mechanism for the switch or signal, fluid-pressure supply for actuating the motor mechanism, a single fluid-column extending to the motor-station from an operating-station, means at the operating-station for causing variation of pressure in said column, and valve mechanism at the motor-station actuated by said variation of pressure for controlling the operation of the motor mechanism in both of its movements by fluid-pressure, and means for automatically equalizing the pressure in said column to a selected pressure after each operation of said valve mechanism, substantially as described.

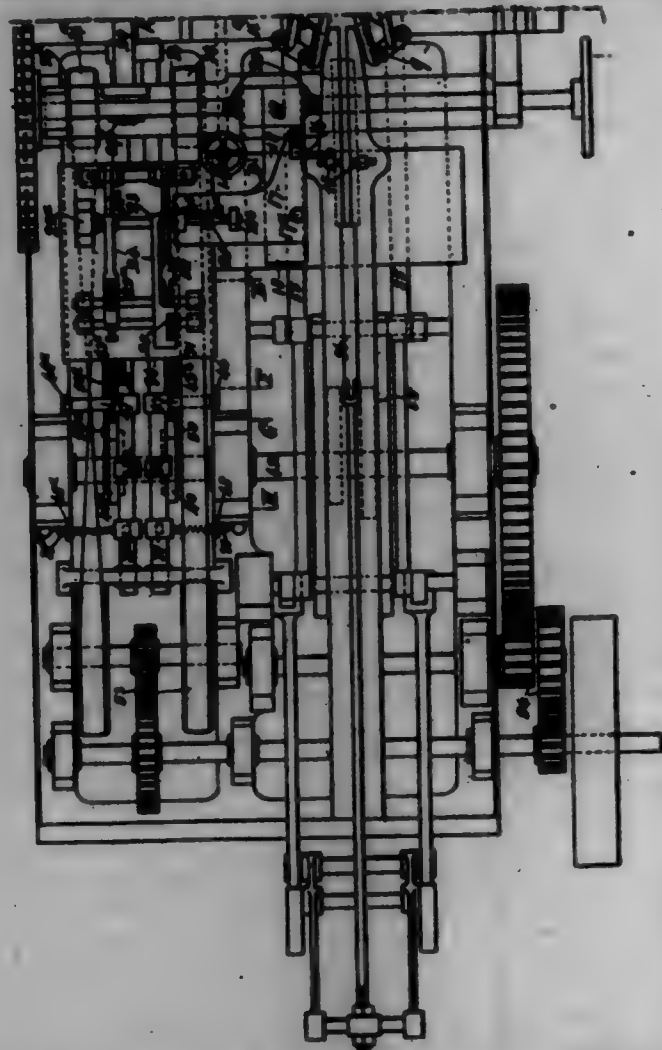
702,982. MACHINERY FOR JOINING OR FINISHING STAVE-PLANKS FOR CASKS. ALEXANDER DUNBAR, Liverpool, England. Filed June 12, 1897. Serial No. 649,508. (No model.)

Claim.—1. In combination with stave-jointing machinery a bar laterally movable in slides on the main frame, pairs of stave-guides pivoted to the movable bar, toothed quadrants connecting each pair of guides, and means for continuously pressing the ends of each pair of guides toward each other; substantially as described.

2. In combination with stave-jointing machinery a pair of rollers geared together and with ends arranged to press only on the center of the edges of a stave, outer-templates, reversible mechanism connected with the rollers and the templates for adjusting the templates, and guides guided by the templates; substantially as described.

3. In combination with stave-jointing machinery a pair of rollers geared together and arranged to press only on the center of the edges of a stave, a lever mounted on a movable fulcrum, one end of said lever being connected to one of the pair of rollers, adjustable outer-templates, adjusting mechanism operating in conjunction with the other end of said lever for adjusting the outer-templates and movable fulcrum either in or out, and opposite ends guided by the templates substantially as described.

4. In combination with stove-jointing machinery, a pair of feelers geared together and arranged to press only on the center of the edges of a stove, a template arranged to guide the cutters, reversible adjusting mechanism connecting the feelers with the template for adjusting the template, part of such mechanism being variable to alter the motion of the inner ends of the template relatively to the outer ends; substantially as described.



5. In combination with stove-jointing machinery a pair of feelers geared together and arranged to press only on the center of the edges of a stove, a lever mounted on a movable fulcrum and connected by one arm to one of the feelers; a lever mounted on a rock-shaft and connected to the movable-mounted lever by a universal joint, catches operated from the rock-shaft to hold or release weighted arms, catch levers arranged to be struck by the weighted arms, arms connected to weighted levers arranged to be held or released by the catch-levers, a rock-shaft having arms arranged to be struck by the weighted levers and arms for operating catches on a rotatable shaft, pulleys adapted to be engaged by the catches for rotating the shaft, and gearing connected with the shaft for adjusting the movable fulcrum and cutter-template; substantially as described.

6. In combination with stove-jointing machinery a pair of feelers geared together and arranged to press only on the center of the edges of a stove, a lever mounted on a movable fulcrum, movable cutters, movable template controlling the cutters, a rock-shaft carrying arms free to slide longitudinally on each shaft but oscillating therewith, connections from the sliding arms to the template, a fixed arm on the rock-shaft and a connection therefrom to the movable fulcrum to oscillate the shaft, a connection from one end of the movable-mounted lever to one of the pair of feelers, and mechanism connected with the other end of the said lever for adjusting the movable fulcrum; substantially as described.

7. In combination with stove-jointing machinery a pair of feelers geared together and arranged to press only on the center of the edges of a stove, a lever mounted on a movable fulcrum, movable cutters, movable template controlling the cutters, a rock-shaft carrying arms free to slide longitudinally on each shaft but oscillating therewith, one of such arms having an adjustable block, a connection from the adjustable block to the inner ends of the template, connections from the other sliding arms to the outer ends of the template, a fixed arm on the rock-shaft and a connection therefrom to the movable fulcrum to oscillate the shaft, a connection from one end of the movable-mounted lever to one of the pair of feelers, and mechanism connected with the other end of the said lever for adjusting the movable fulcrum; substantially as described.

8. In combination with stove-jointing machinery a pair of feelers geared together and arranged to press only on the center of the edges of

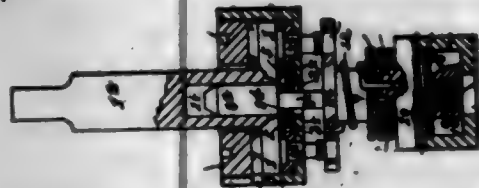
a stove, movable cutters controlled by movable template, mechanism for adjusting the template, mechanism movable out of neutral position by the feelers to put into action the template-adjusting mechanism, and connections from the template-adjusting mechanism to the feeler mechanism to restore said mechanism to neutral position; substantially as described.

702,988. MACHINE FOR SEPARATING PLASTIC MATERIALS INTO SHEETS. THOMAS E. EDWARDS, Ann Arbor, Mich., assignor of one-half to G. Frank Altmeyer, Ann Arbor, Mich. Filed Jan. 22, 1902. Serial No. 92,810. (No model.)



Claim.—A grooved linked belt with hinged joints A C to keep the units of said belt accurately in line, the units being fixed on both sides so that when joined to form a linked belt this belt will follow a plane surface on either or both of its sides, combined with a pressure K, to hold said belt to its work, and a smooth roller, R, in the manner described, for the purpose of shearing plastic materials by pressing them into the grooves in said belt, all substantially as set forth.

702,984. STUD-SETTING MACHINERY. FRANKLIN A. BRIDGTON, New York, N. Y. Filed Jan. 22, 1901. Serial No. 64,682. (No model.)



Claim.—1. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, and a centering spring or springs interposed between said annular spring and said rigid side walls of said rooms and adapted to elastically center said annular spring with said socket, substantially as described.

2. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, a centering spring or springs interposed between said annular spring and said rigid side walls of the rooms, and a shaft adapted to expand said annular spring and to elastically center thereby with said socket, substantially as described.

3. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, a centering spring or springs interposed between said annular spring and said rigid side walls of said rooms, a shaft adapted to expand said annular spring and having a shoulder to coact with said annular spring to support said shaft in said socket, substantially as described.

4. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, and a centering spring or springs arranged in angular form and interposed between said annular spring and said rigid side walls of said rooms, the central inner surfaces of the centering spring or springs being adapted to engage the periphery of the annular spring and the corners of the angular form being adapted to engage said rigid side walls of said spring-rooms, substantially as described.

5. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, and a centering spring or springs arranged in angular form and interposed between said annular spring and said rigid side walls of said rooms, the ends of the centering spring or springs being unattached to facilitate the insertion and removal thereof from said rooms, substantially as described.

6. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said spring-rooms, and a centering spring or springs arranged in angular form and interposed between said annular spring and said rigid side walls of said rooms, the ends of the centering spring being bent

outward to hold said angular form in position to elastically center the annular spring, substantially as described.

7. A part having a socket the side walls of which are indented by a concentric spring-rooms having rigid side walls, an expandable annular spring located in said rooms, a centering spring or springs interposed between the annular spring and the rigid walls of the rooms to form an elastic connection between said rigid walls and said annular spring, a shaft, rotary driving-clutches carried by said socket part and by said shaft, said shaft having a shoulder so located along its periphery as to permit said annular spring to grip under said shoulder before said clutches become engaged, substantially as described.

8. A screw-threaded shaft, a stud-holder provided at one end with screw-threads to mesh with those of a stud and at the other end with screw-threads of a coarser pitch to mesh with the correspondingly-coarse screw-threads of the shaft, substantially as described.

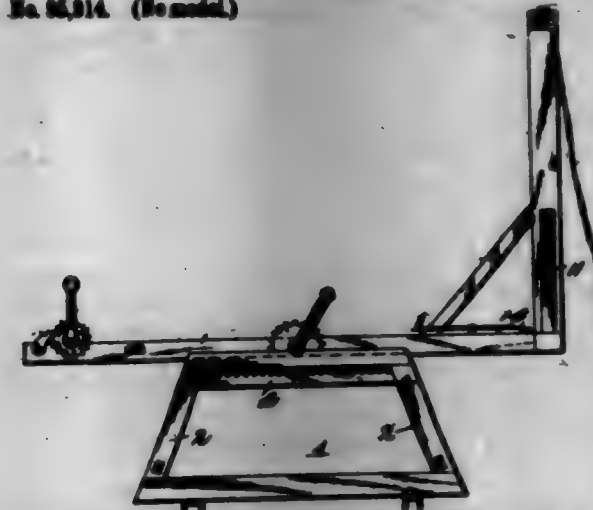
9. A screw-threaded shaft, a stud-holder provided at one end with screw-threads to mesh with those of a stud and at the other end with screw-threads to mesh with those of the shaft, said shaft and said stud-holder having suitable projections to engage each other to limit the independent rotation of said parts, substantially as described.

10. A screw-threaded shaft, a stud-holder provided at one end with screw-threads to mesh with those of a stud and at the other end with screw-threads to mesh with those of the shaft, and a spring to retain said stud-holder upon said shaft to screw said shaft into said holder automatically after said screw-threaded parts have been partly unscrewed from each other, substantially as described.

11. A screw-threaded shaft, a stud-holder provided with screw-threads that mesh with those of said shaft, a removable stud-out connected to rotate with said stud-holder, said stud-out being internally screw-threaded to mesh with the threads of a stud, substantially as described.

12. A screw-threaded shaft, a stud-holder provided at one end with a removable stud-out having internal screw-threads of a finer pitch than those on said shaft and at the other end with screw-threads of a correspondingly-coarse pitch with those of said shaft, substantially as described.

702,985. POST-DRIVING APPARATUS. MARGARET C. FORTER and BOBBIE S. FORTER, Hawarden, Iowa. Filed Feb. 27, 1902. Serial No. 94,814. (No model.)



Claim.—1. A post-driver adapted for use upon an ordinary wagon-bed and comprising a supporting-frame provided with rack-bars and means of attachment to the sides of the bed, a carriage supported by the frame and having gears meshing with said rack-bars, means for operating the gears to adjust the carriage longitudinally on the frame, a guide-frame located at one end of the carriage, a hammer and operating means therefor supported by said guide-frame, and means applied to the opposite end of the carriage for attaching the same to a part of the wagon and tilting the carriage upon the gears as a fulcrum, substantially as described.

2. A post-driver adapted for use upon an ordinary wagon-bed and comprising a supporting-frame provided with rack-bars and means of attachment to the sides of the bed, a carriage supported by the frame and having gears meshing with said rack-bars, means for operating the gears to adjust the carriage longitudinally on the frame, a guide-frame located at one end of the carriage, a hammer and operating means therefor supported by said guide-frame, a block for supporting the hammer when the latter is not in use, a lever for adjusting said block in and out of the path of the hammer, and means applied to the opposite end of the carriage for attaching the same to a part of the wagon and tilting the carriage upon the gears as a fulcrum, substantially as described.

702,986. REGISTER. ELMER C. FOX, Cleveland, Ohio. Filed Mar. 15, 1901. Serial No. 81,882. (No model.)

Claim.—1. In combination with a register bottom and perforated top plate, a rectangular sheet-metal tube provided with a flange secured to said plate, a ventilator-plate, a rectangular sheet-metal tube provided with a flange secured to the ventilator-plate, one of said tubes sliding within the other, and springs connecting the bottom and ventilator-plate, substantially as described.

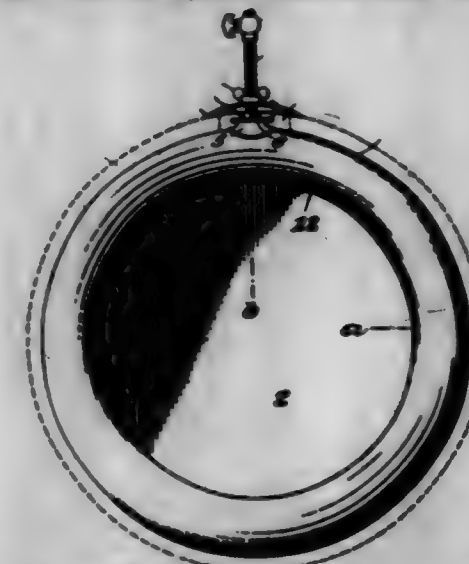


2. In combination with a register bottom and top plate thereon, a rectangular metal tube secured thereto, a ventilator-plate, and rectangular tube secured thereto, one of said tubes being telescoped within the other, said springs secured to said register-bottom and detachably connected with said ventilator-plate, substantially as described.

3. In combination, a register bottom and top plate and a ventilator-plate, and rectangular metal tubes secured to said plates, one secured over the other, springs connecting said bottom and ventilator-plate, and fingers arranged to extend on either side of the rectangular tubes and secured severally to the bottom and ventilator-plate, substantially as described.

4. In combination with a register top plate and bottom, a ventilator-plate, thin telescoping tubes secured respectively to said register and ventilator plates, springs connecting said register bottom and ventilator-plate, said ventilator-plate being provided with a removable central portion, substantially as described.

702,987. STOPPER FOR GAS-MAINS. JOHN FRANKLIN, Norwood, Ohio. Filed Feb. 15, 1902. Serial No. 94,822. (No model.)



Claim.—1. A stopper for gas-mains and the like comprising a flexible diaphragm of impervious material adapted to be extended across the interior of the main and a rim portion integral with said flexible diaphragm and inflatable and deflatable and provided with means for inflating it and when so inflated being adapted to press frictionally upon the walls of the main to hold the diaphragm in position in the main, the diaphragm and rim portion being both adapted for flexure to permit ready introduction of the device through an opening in the wall of a main, substantially as set forth.

2. A stopper for gas-mains and the like comprising a flexible diaphragm of impervious material adapted to be extended across the interior of the main and a hollow inflatable marginal portion extended around the edges of said diaphragm and adapted when inflated, to press frictionally against the walls of the main to hold the diaphragm in position within the main, the inner walls of said hollow marginal portion being thickened with respect to the outer walls thereof, whereby, when said portion is inflated, its distention is outward, substantially as set forth.

3. A stopper for gas-mains and the like comprising a flexible diaphragm adapted to be extended across the interior of the main, a hollow inflatable marginal portion for said diaphragm adapted when inflated to press frictionally upon the walls of the main to hold the diaphragm in

position within the main, a screw-threaded inflation-tube connected with said marginal portion, and an index device having a perforation through which the inflation-tube is passed and adapted to indicate the position of the stopper when in a main, and a nut screwed on said inflation-tube and between which and the marginal portion the index device is held, substantially as set forth.

702,988. TROLLEY FOR ELECTRIC RAILWAYS. FRANK W. GARRITT, Johnstown, Pa., assignor to the Lorain Steel Company, a Corporation of Pennsylvania. Filed Sept. 10, 1901. Serial No. 74,967. (No model.)

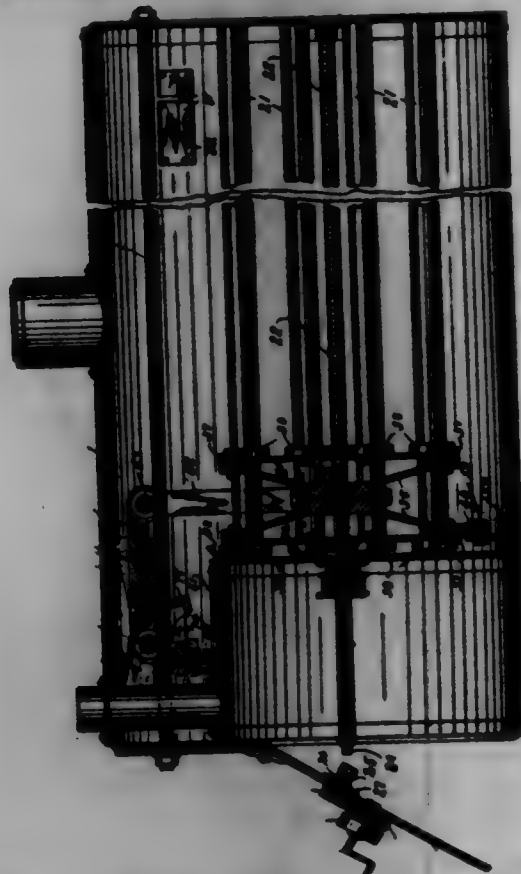


Claim.—1. The combination with a trolley-wheel, of a fixed shaft or spindle on which the wheel is revolvably mounted, and a longitudinally-extending metallic member seated in said shaft or spindle and spring-pressed into engagement with the inner bearing-surface of the wheel.

2. The combination with a trolley-wheel, and a fixed shaft or spindle upon which the wheel is revolvably mounted, of means for preventing loosening and play between the wheel and the shaft or spindle, consisting of a longitudinally-extending piece seated in a recess of the shaft or spindle and spring-pressed into engagement with the inner bearing-surface of the wheel, and pins or the like engaging said piece to prevent displacement thereof.

3. The combination with a trolley-wheel, of a fixed shaft or spindle upon which the wheel is revolvably mounted and which is provided with a longitudinally-extending groove or recess, a metallic piece movably seated in said groove or recess, and a spring or springs acting against said piece to force it outward into engagement with the inner bearing-surface of the wheel.

702,989. MECHANICAL BOILER-CLEANER. PIERCE F. GUNSON, Chicago, Ill., assignor of two-thirds to Edward G. Burke and Charles E. Foster, Chicago, Ill. Filed Dec. 2, 1901. Serial No. 64,328. (No model.)



Claim.—1. The combination with a tubular boiler having a smoke-chamber and door therein, of a screw-threaded shaft longitudinally journaled therein and having one of its ends extending into said chamber, a screw-threaded traveler mounted on said shaft, cleaners for the tubes of the boiler and for the crown-sheet thereof connected to the traveler and carried thereby, a shaft journaled in the door of the smoke-chamber and having means on its inner end to detachably engage the first-mentioned shaft, and means connected with the outer portion of the door-shaft to rotate the same, substantially as described.

2. The combination with a tubular boiler having a smoke-chamber and door therein, of a screw-threaded shaft longitudinally journaled

therein and having one of its ends extending into said chamber, a traveler mounted on said shaft, cleaners for the tubes, for the crown-sheet and for the bottom of the boiler connected to the traveler and carried thereby, a shaft journaled in the door of the smoke-chamber and having means on its inner end to detachably engage the first-mentioned shaft, and means connected with the outer portion of the door-shaft to rotate the same, substantially as described.

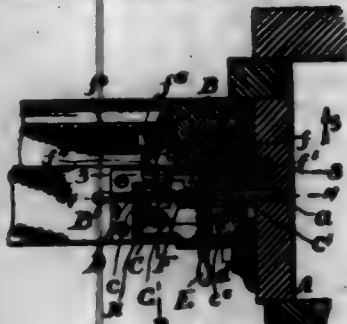
3. The combination with a rotatable shaft longitudinally journaled in the boiler, of a traveler mounted thereon, a series of bifurcated brackets secured to the traveler and extending vertically and horizontally therefrom between the tubes of the boiler and providing a front set of prongs and a rear set of prongs, a series of ringed frames located on the tubes and connected together in sets and then secured to the sets of prongs of said brackets, each of said frames consisting of two pieces joined together and having a number of semicircular portions to form rings, and provided with recesses in their adjacent surfaces, inwardly-extending pins on each of the semicircular portions, segmental pieces located in said rings and provided with openings for the pins, and springs located in said recesses to press the segments inwardly, substantially as described.

4. The combination with a rotatable shaft longitudinally journaled in the boiler, of a traveler mounted thereon, a series of bifurcated brackets secured to the traveler and extending therefrom between the tubes of the boiler, a series of ringed frames located on the tubes and connected together and secured to the said brackets, each of said frames consisting of two pieces joined together and having a number of semicircular portions to form rings and provided with recesses in their adjacent surfaces, inwardly-extending pins on each of the semicircular portions, segmental pieces located in said rings and provided with openings for the pins, and springs located in said recesses to press the segments inwardly, substantially as described.

5. A cleaner for the tubes of a boiler comprising a frame consisting of two pieces joined together and having a number of semicircular portions to form rings and provided with recesses in their adjacent surfaces, inwardly-extending pins on each of the semicircular portions, segmental pieces located in said rings and provided with openings for the pins, and springs located in said recesses to press the segments inwardly, substantially as described.

6. The combination with a rotatable shaft journaled in the boiler, of a traveler mounted thereon, an upright standard secured to the traveler and having on its upper end a roller, a rod located longitudinally in the upper portion of the boiler to support said roller, rails secured to the inner upper portion of the front of the boiler and having their rear ends downwardly inclined, rails secured to the inner upper portion of the rear of the boiler and having their front ends downwardly inclined, a hanger beam or bar pivotedly secured at one of its ends to the upright standard and provided at its other end with a transverse hanger having vertical slots in its ends, a roller journaled in the front end of the said beam or bar and resting on the said rod, a cleaner-body for the crown-sheet movably secured in the slots of the hanger, rollers journaled on each end of the cleaner-body and adapted to travel on the rails at the rear end of the boiler, a bell-crank lever fulcrumed on each side of the hanger-bar and having on its upper arm a roller to travel on the rails at the front end of the boiler and provided on its lower arm with means to engage the cleaner-body to hold it in a raised position, substantially as described.

702,940. NAIL-FASTENER. CLAYTON A. GOODHILL, Hartford, Ill. Filed July 30, 1901. Serial No. 69,694. (No model.)



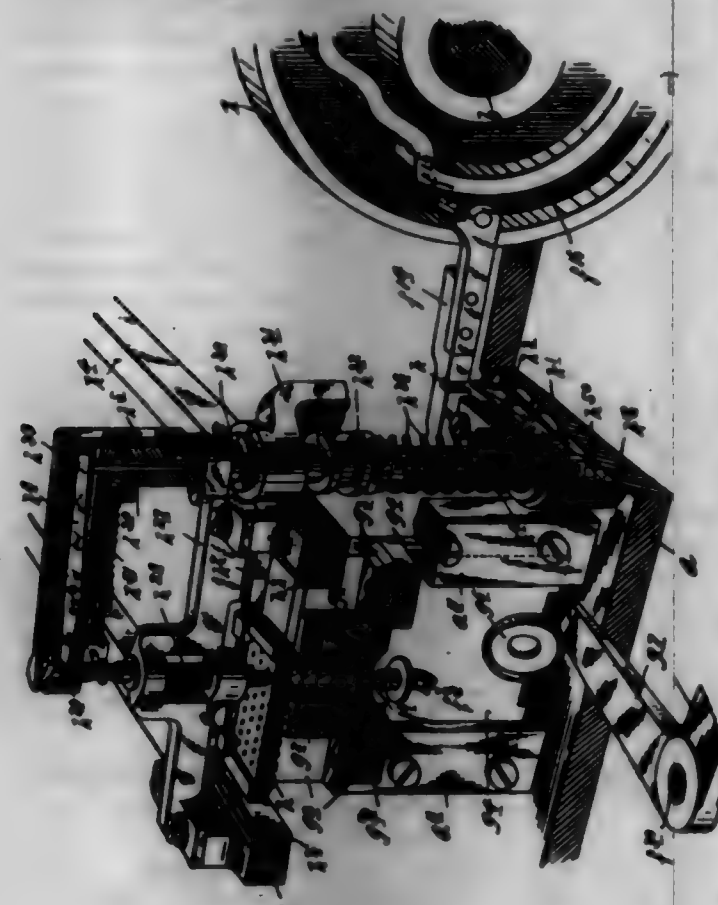
Claim.—1. The combination with a pair of window sash and frame, of a fastener secured to one sash, suitable bolt-ends in the other sash, a bolt in said fastener, a slide guiding said bolt in a line at right angles with the sash, an arm upon said slide, a roller upon the end of said arm in contact with the sash, means for keeping said roller in permanent contact with said sash, said slide thereby keeping said bolt in line with the bolt-perforations, substantially as described.

2. The combination with a window-frame and a pair of window-sash therein, of a fastener for said window-sash consisting of a suitable frame secured to one of said sash, bolt-ends in the other sash, a bolt

supported in the fastener-frame so as to move in a line perpendicular to the other sash and also laterally with respect to the two sash and a lateral guide for said bolt mounted in the fastener-frame and provided with means of engagement with the other sash so as to maintain the bolt in the line of the sockets in said other sash; substantially as described.

3. The combination with the casing, C, perforated at c, c', and slotted at c'', c'', of the bolts, D, E, transversely arranged and guided in said casing, spring-pressed outwardly and provided with means for retaining them when drawn inwardly and a slide supported in the casing embracing the bolt, E, and having a part without the casing adapted for engagement with one of the window-sash to carry the bolt, E, with said sash in its lateral movements with respect to the casing, C; substantially as described.

702,941. SQUIRT-PREVENTER FOR TYPE-CASTING MACHINE. GEORGE A. GOODHILL, New York, N. Y. Filed Apr. 22, 1901. Serial No. 68,571. (No model.)



Claim.—1. In a type-casting machine, the combination with a mold, a matrix and metal-injecting device, of a lock for the metal-injecting device under the cooperative control of the matrix and the mold and operative to prevent any cast, in case the matrix and the mold fail to make a perfect joint, when in casting position, because of the intervention of foreign material between the face of the mold and the face of the matrix, substantially as described.

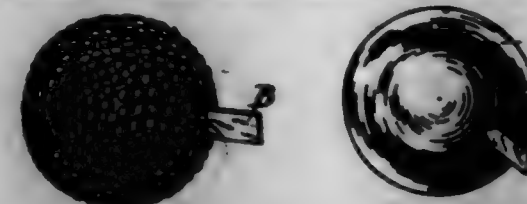
2. In a type-casting machine, the combination with a mold, a matrix and a pump, of clamping devices for clamping together the matrix and the mold in casting position, and a pump-lock subject to said clamping devices and operative to lock the pump and prevent any cast, in case the matrix and the mold fail to make a perfect joint, when in casting position, because of the intervention of any foreign material between the face of the matrix and the face of the mold, substantially as described.

3. The combination with a matrix, a mold and a pump, of a pump-lock and clamping devices, for clamping together the matrix and the mold in casting position, which clamping devices include a yielding part which, when the matrix and mold fail to make a perfect joint, in casting position because of the intervention of any foreign material between the matrix and the mold, will render said pump-lock operative to lock the pump in idle position, and thereby prevent any cast, substantially as described.

4. In a type-casting machine, the combination with a matrix, a mold, a pump, and clamping devices for clamping together the matrix and the mold in casting position, of a squirt-preventer including a pump-lock and intermediate device under the control of the said clamping devices, and operative to hold the lock in idle position, as long as the matrix and mold make a perfect joint, but to throw said lock into locking position, whenever said perfect joint is prevented by an intervening obstruction, between the matrix and the mold, substantially as described.

5. In the type-casting and setting machine substantially as described, the combination with the matrix, the mold, the melting-pot and the pump, of the vertically-movable mold-carriage, the non-actuated device for forcing the mold-carriage upward into casting position, the matrix-block, the centering-pin A'', the loose head A'' and the non-actuated plunger A'', for clamping the matrix against the face of the mold, when in casting position, the pump-actuating rod provided with a notch or other engaging surface thereon, and the squirt-preventer, including the elements marked 1' to 1'', inclusive, for cooperation, substantially as described.

702,942. BALL. ROBERT E. GRAY, London, England. Filed Sept. 26, 1901. Serial No. 70,548. (No model.)



Claim.—The combination with a ball of an identification-label integral with it, the area of the junction between the label and the ball being relatively small so that the label can be broken off without injuring the surface of the ball, substantially as set forth.

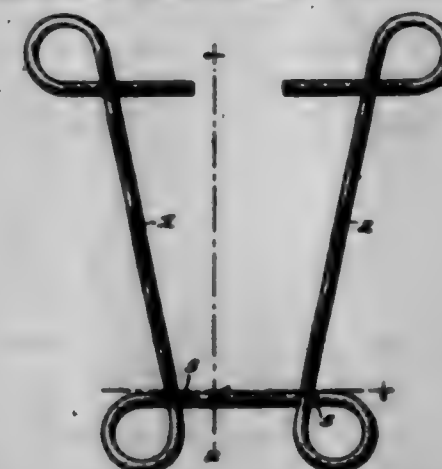
702,943. ART OF TREATING ORES CONTAINING SILICA OR SILICATES. GEORGE W. GILBERT, Grapeland, Cal., assignor to Robert McKnight, Philadelphia, Pa. Filed Oct. 21, 1901. Serial No. 70,408. (No specimens.)

Claim.—1. The art of treating ores, which consists in roasting with free access of air and agitation, a charge containing the ore, silica in an oxygen combination, and a haloid salt of an alkaline or alkaline-earth metal, the quantities being substantially those quantitatively requisite to form a stable silicate of the alkaline or alkaline-earth metal, and a haloid of the precious metal and continuing the heating of the ore until the haloid of the precious metal is volatilized and collecting the precious-metal values as haloids or oxyhaloids substantially as described.

2. The art of treating ores, which consists in roasting with free access of air and agitation, a charge containing the ore, silica in an oxygen combination, and a chlorid of an alkaline or alkaline-earth metal, the quantities being those quantitatively requisite to form a stable silicate of the alkaline or alkaline-earth metal, and continuing the heating of the ore until the chlorid of the precious metal is volatilized and collecting the precious-metal values as chlorids, or oxychlorids, substantially as described.

3. The art of treating ores, which consists in roasting with free access of air and agitation, a charge containing the ore, silica in an oxygen combination, and a haloid salt of an alkaline or alkaline-earth metal, the quantities being substantially those quantitatively requisite to form a stable silicate of the alkaline or alkaline-earth metal, and a haloid of the precious metal, and continuing the heating of the ore until the haloid of the metal to be recovered, is volatilized, and carrying off and collecting separate from the fumes of combustion, the precious-metal values as haloids or oxyhaloids substantially as described.

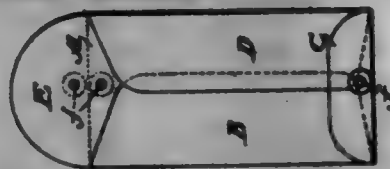
702,944. WALL-TIE OR BOND. PAUL HANMILL, Louisville, Mo. Filed Apr. 17, 1902. Serial No. 108,418. (No model.)



Claim.—1. A wall-tie formed of a single piece of wire and comprising two longitudinal main stems provided with loops at their opposite ends, the loops at one end of the tie being integrally connected, substantially as described.

2. A wall-tie formed of a single piece of wire and comprising two longitudinal main stems having loops at their opposite ends, the loops at one end of the tie being integrally connected and the stems diverging therefrom, thus holding the loops at the opposite end of the tie spaced apart, substantially as and for the purpose described.

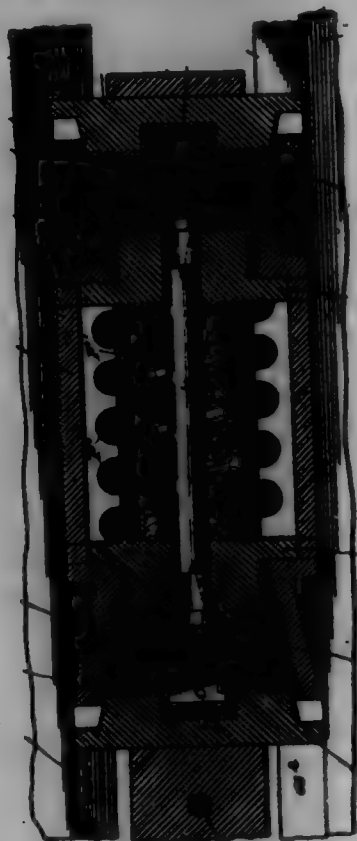
702,945. ENVELOP. WILLIAM H. HAWORTH, New York, N. Y., assignor to Nicholas J. Mueprik, Brooklyn, N. Y. Filed May 1, 1901. Serial No. 68,948. (No model.)



Claim.—1. An envelop-blank having a body A, a side flap B with the gummed surface b, an opposite side flap D, with the gummed surface d, an end flap C with the gummed surface c, and an opposite end flap E with the gummed surface e; the said gummed surfaces b, c, d, and e being adapted, when folded and united by the adhesive to each other and to the underlying part of the body, to form a solid part of the envelop, for the purpose specified.

2. In an envelop made with side and end flaps, the combination of part of its body with three contiguous flaps pasted thereon and on each other, thereby diminishing the envelop's interior surface, and a tag-string hole through said pasted flaps and body, substantially as described.

702,946. DRAW-BEAR AND BUFFERS APPARATUS. PHILIP REIN, Chicago, Ill. Filed Sept. 18, 1901. Serial No. 78,907. (No model.)



Claim.—1. In a draw-gear and buffing apparatus, the combination with a hollow casing, of followers on either side of and extending within said casing, pairs of friction devices within said casing engaged by said followers, overlapping friction devices interposed between said pairs of said devices, means for moving said followers toward each other and thereby forcing said devices into frictional engagement, and means for moving the friction devices in each of said pairs toward each other and also relatively moving adjacent interposed overlapping devices transversely to the line of draft, substantially as described.

2. In a draw-gear and buffing apparatus, the combination with a casing having hollow end portions, of followers on either side of said end portions and extending within the same, pairs of friction devices within each of the hollow portions of said casing engaged by the followers on either side of said end portions, overlapping friction devices interposed between said pairs of said devices, means for forcing said devices into frictional engagement, and means for simultaneously or successively moving the devices in each of said portions toward each other and also moving relatively adjacent interposed overlapping devices transversely to the line of draft, substantially as described.

3. In a draw-gear and buffing apparatus, a friction device comprising friction-surfaces, a beveled edge, and corresponding beveled shoulders projecting from the edges of the sides thereof, substantially as described.

4. In a friction device for a draw-gear and buffing apparatus, the combination with a body portion having a beveled end and guide-shoulders projecting from opposite side edges, of friction-surfaces secured to the opposite faces of said body portion, substantially as described.

5. In a friction device for a draw-gear and buffing apparatus, the combination with a body portion having a beveled end, of friction-surfaces secured to opposite faces of said body portion and to said beveled end, substantially as described.

6. In a friction device for a draw-gear and buffing apparatus, the combination with a body portion having a beveled end, of friction-surfaces secured to the opposite faces of said body portion, one of said friction-surfaces continuing around said beveled end, substantially as described.

7. In a friction device for a draw-gear and buffing apparatus, the combination with a body portion having a beveled end, of friction-surfaces secured to the opposite faces of said body portion, the friction-surfaces on the smaller face extending around said beveled end, substantially as described.

8. In a draw-gear and buffing apparatus, a casing comprising a hollow end portion, having inclined interior surfaces, and wedges formed on the interior surfaces intermediate of the inclined surfaces, substantially as described.

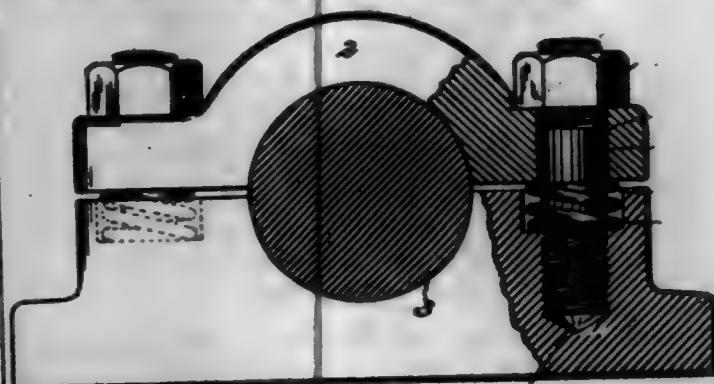
9. In a draw-gear and buffing apparatus, a casing comprising hollow end portions having inclined interior surfaces, and wedges formed on the interior surfaces intermediate of the inclined surfaces, and side portions uniting said end portions, substantially as described.

10. In a casing for a draw-gear and buffing apparatus, the combination with a hollow end portion, having inclined interior surfaces, of wearing-plates secured to said inclined interior surfaces, and wedges formed on the interior surfaces intermediate of the inclined surfaces, substantially as described.

11. In a casing for a draw-gear and buffing apparatus, the combination with hollow end portions having inclined interior surfaces, of wearing-plates secured to said inclined interior surfaces, said wearing-plates extending around the outer ends of said surfaces, substantially as described.

12. In a casing for a draw-gear and buffing apparatus, the combination with hollow end portions having inclined interior surfaces, of wearing-plates secured to said inclined interior surfaces, and side portions uniting said end portions of the casing, substantially as described.

702,947. JOURNAL-BEARING. BENJAMIN REIL, South Norwalk, Conn. Filed Oct. 9, 1901. Serial No. 78,908. (No model.)



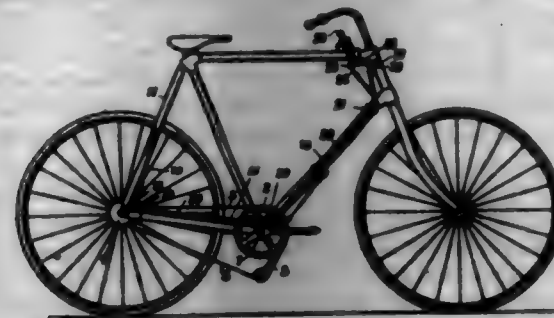
Claim.—A bearing consisting of a block with its inner face provided with a bearing-recess, two bolt-openings and two spring-recesses, a cap with its inner face provided with a bearing-recess and two bolt-openings, bolts extending through the bolt-openings in the cap and the spring-recesses and bolt-openings in the block, and a spring located in each of the spring-recesses in the inner face of the block and surrounding a bolt and holding the adjacent faces of the cap and the block away from each other, substantially as specified.

702,948. REEL, ROPE, OR CHAIN GRABBER. ROBERT H. HODGKINS, Middlesex county, England. Filed Nov. 7, 1901. Serial No. 81,461. (No model.)

Claim.—1. The combination of a driving-wheel, means for operating it, a wheel to be driven, chain-pinions of different sizes connected with one of said wheels, a chain engaging with the pinions, a chain-lifter, means for turning the chain-lifter downward during the first part of its motion, and means for shifting the pinions.

2. The combination of a driving-wheel, means for operating it, a wheel to be driven, chain-pinions of different sizes connected with the wheel to be driven, a chain connecting the driving-wheel with the pin-

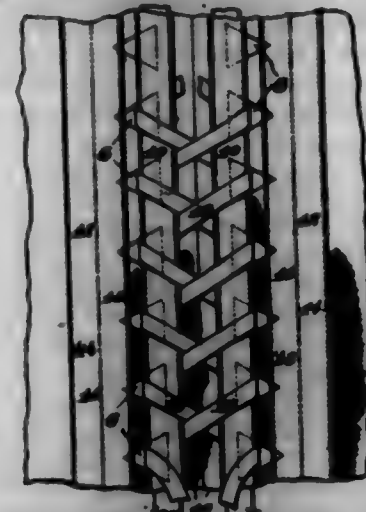
ion, a chain-lifter formed in two parts, means whereby one part after moving independently actuates the other part, means for turning the first part downward during the first part of its motion and means for shifting the pinions.



3. The combination of a driving-wheel, means for operating it, a wheel to be driven, chain-pinions of different sizes connected with the wheel to be driven, a chain connecting the driving-wheel with the pinions, a chain-lifter formed in two parts, mounted inside the frame of the machine, means for turning the first part of the chain-lifter downward during the first part of its motion to cause it after moving for a time independently, to actuate the other part, and means for shifting the pinions.

4. The combination of a driving-wheel, means for operating it, a wheel to be driven, chain-pinions of different sizes connected with one of said wheels, a chain engaging with the pinions, means for changing the chain from one pinion to another, a jockey-wheel engaging with the chain, and means under the control of the rider, for moving the jockey-wheel away from the chain in order to relieve the pressure thereof, and permit the chain-changing means to operate easily.

702,949. GARMENT-CLOSURE. CHARLES E. HOWE, Chicago, Ill., assignor to Babin Curset Company, Chicago, Ill., a Corporation of Ill. Filed Mar. 4, 1902. Serial No. 80,708. (No model.)



Claim.—1. A garment-closure comprising a piece of fabric, having a row of apertures with the respective edges which are toward the margin of the garment in line with each other, the fabric at two sides of each aperture being folded back on itself to give the aperture folded edges at said sides, and bands secured to the fabric to protect the aperture edges toward the margin of the garment.

2. A garment-closure comprising a piece of fabric having a row of apertures, the fabric at at least two sides of each aperture being folded back on itself to give the aperture folded edges at each transversely-trending side; and bands secured to the apertured fabric at opposite sides of the same, covering the respective edges of the apertures toward the margin of the garment.

3. A garment-closure comprising two layers of fabric having coinciding apertures, the fabric at two sides of each aperture in each layer which trend transversely with respect to the margin of the garment, being folded back on itself at the surface facing the other layer to give the aperture folded edges at each transversely-trending side; bands on the opposite sides of the apertured fabric covering the respective apertured edges toward the margin of the garment, and stitching securing both layers and both bands together between the margin and the row of apertures.

4. A garment-closure comprising a piece of fabric folded on itself to form two layers, said layers having rows of apertures which coincide when the fabric is thus folded, the fabric at two sides of each aperture in each layer being folded back upon itself toward the opposite layer forming flaps and giving the apertures folded edges; parallel bands on the outer surfaces of both layers crossing the corners of the apertures at the side of the row toward the margin of the garment and also at the side remote from said

covering the aperture edges toward the garment margin, and stitching securing the layers together and the bands to the layers between the garment margin and the apertures.

5. A garment-closure comprising a layer of fabric having a row of apertures, the fabric at at least two sides of each aperture which trend transversely with respect to the garment margin being folded back upon itself, to give folded edges to each side of the apertures; third side of all said apertures toward the margin of the garment being in line; a pocket or tubular band infolding the fabric along said third side, and stitching securing the two sides of the pocket together and to the fabric at a line parallel with said third side between the garment margin and said apertures.

6. A garment-closure comprising a piece of fabric having a row of apertures, the fabric at at least two sides of each aperture which trend transversely with respect to the margin of the garment being folded back on itself giving the apertures each two folded edges; and bands secured upon the apertured fabric at the opposite sides of the same covering the corners of the apertures toward the margin of the garment.

7. A garment-closure comprising two layers of fabric having coinciding apertures, the fabric at two sides of each aperture in each layer being folded back on itself at the surface facing the other layer; bands hipping the corners of the apertures toward the margin of the garment and secured to said layers.

8. A garment-closure comprising a piece of fabric folded on itself to form two layers, said layers having coinciding apertures, the fabric at two sides of each aperture in each layer being folded back on itself at the surface toward the other layer; and the bands overlapping the corners of the apertures resulting from such folding; stitching securing the layers together and the bands to the layers.

9. A garment-closure comprising two layers of fabric having coinciding rows of apertures, the fabric at two sides of each aperture in each layer being folded back upon itself at the surface toward the other layer to make the margins of the apertures of fabric folds; a pocket or tubular band infolding the corners of the apertures at the side of the row toward the margin of the garment; and stitching securing the two layers together and the two edges of the infolding pocket or band to the layers.

10. A garment-closure comprising a piece of fabric folded on itself to form two layers, said layers having rows of apertures which coincide when the fabric is thus folded, the fabric at two sides of each aperture in each layer being folded on its surface toward the opposite layer to give the apertures folded edges; a pocket or tubular band infolding the fold of the folded fabric piece and the corners of the aperture toward said fold; and stitching securing the two layers together and the edges of the infolding pocket or tube to the same.

11. A garment-closure comprising two layers of fabric having coinciding rows of apertures, the fabric at two sides of each aperture in each layer being folded back on its surface toward the other layer to give the apertures folded edges; a guard-strip folded lengthwise on itself and inserted thus folded between the two layers at one side of the rows of apertures to separate the infolded flaps of the apertures of the two strips from each other; a stay-piece pocket infolding the corners of the apertures at the same side of the row at which said guard-strip is inserted and infolding said guard-strip; and stitching securing the edges of the stay-piece pocket to the layers and said layers to each other.

12. A garment-closure comprising a piece of fabric folded on itself to form two layers, said layers having rows of apertures coinciding when thus folded, the fabric at two sides of each aperture in each layer being folded back upon itself forming flaps on the surfaces of the layers toward each other to give the apertures folded edges; a folded strip lodged in the fold of the fabric between the line of folding and the rows of apertures to separate the flaps of the two layers from each other; and stitching securing the two layers together across the corners of the apertures at the side of the row toward the fold of the fabric.

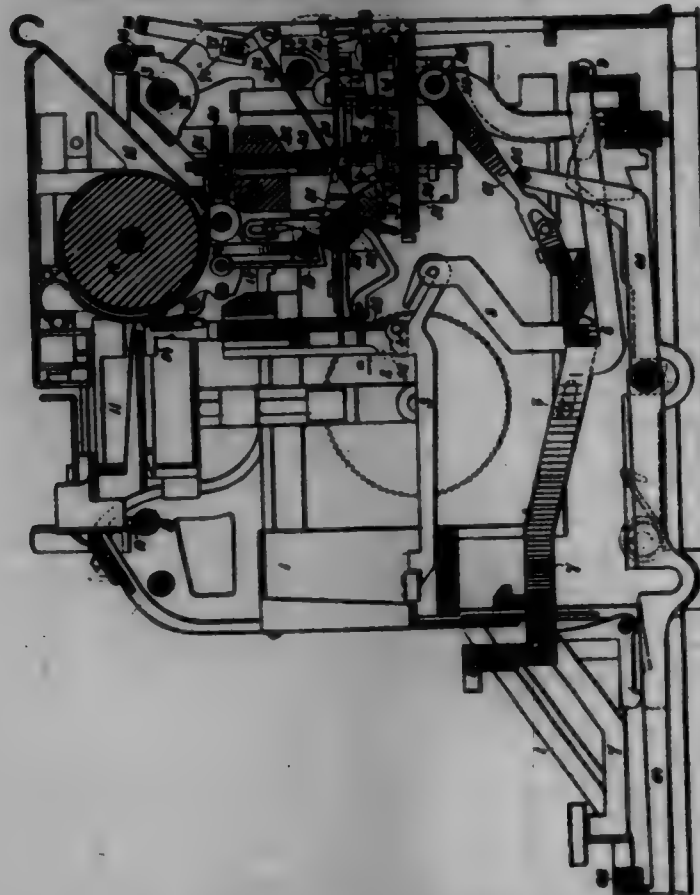
13. A garment-closure comprising a piece of fabric folded on itself to form two layers, said layers having rows of apertures which coincide when it is thus folded, the fabric at two sides of each aperture in each layer being folded inward toward the other layer forming flaps and giving the apertures folded edges; a strip of fabric folded lengthwise and lodged in the fold of the apertured fabric hipping the corners of the apertures toward said fold to separate the flaps of the two layers from each other; a stay-piece pocket or tubular band infolding the fold of the apertured fabric and said folded strip therein; and stitching securing the inner edges of the stay-piece pocket together and to the fabric layers.

14. A garment-closure comprising two layers of fabric having coinciding rows of apertures, the fabric at two sides of each aperture in each layer which trend transversely with respect to the margin of the garment being folded back upon itself toward the opposite layer forming flaps and giving the apertures folded edges; parallel bands on the outer surfaces of both layers crossing the corners of the apertures at the side of the row toward the margin of the garment and also at the side remote from said

margin; and stitching securing the corresponding opposite edges of said bands together and to the fabric layers.

15. A garment-closure comprising two layers of fabric having coinciding rows of apertures, said apertures being formed by slots from an interior point to the corners of the apertures, the fabric bounded by the slots being folded back forming flaps on the surface of the layers facing each other giving the apertures folded edges, one side of all the apertures being in a straight line; a pocket or tubular binding forming the margin of the garment infolding the strips at the edge proximate to each line and infolding also said edges of the apertures; and stitching securing the two edges of the binding together and to the fabric strips within the apertures, whereby said apertures have an edge parallel with the bound edge of the fabric.

702,950. CARRIAGE-FREE MECHANISM FOR TYPE-WRITING MACHINES. CHARLES W. HOWELL, JR., NEWARK, N. J., assignor to the Wagner Typewriter Company, New York, N. Y., a Corporation of New York. Filed Feb. 21, 1901. Serial No. 48,908. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage, an escapement member operatively connected with the carriage, a second escapement member cooperating with the first-mentioned escapement member, key-operated mechanism for actuating said second member, a clutch controlling the connection of the escapement with the carriage, releasing mechanism connected with said clutch to release the carriage, said mechanism being carried by the framing of the machine and provided with an operating member, and hand-operated means carried by the carriage and provided with a part which during its movement with the carriage remains in operative relation to a part of the releasing mechanism.

2. In a type-writing machine, the combination of escapement mechanism, a universal bar normally out of contact with said mechanism so that said bar will have an independent movement before it engages and operates the escapement mechanism, a type-carrier arranged to operate the universal bar, means for operating each type-carrier at first independently of the universal bar and then in unison with said bar.

3. An escapement mechanism comprising a feed-rack, a movable dog-carrier, a fixed dog and a loose dog mounted on said carrier and arranged to engage the rack and to move transversely thereof, a spring connected with the loose dog and having a tendency to throw it longitudinally of the rack when said dog is disengaged from the rack by the transverse movement of the dog-carrier, and a stationary deflecting abutment against which the loose dog is thrown by the spring when said dog is released from the rack, said abutment acting to move the dog-carrier transversely in the opposite direction to its first movement so as to bring the loose dog in operative relation to the rack, and the fixed dog out of engagement therewith.

4. An escapement mechanism comprising a feed-rack, a dog-carrier movable transversely of the rack, a fixed dog on said carrier, a loose dog

arranged on said carrier and movable relatively thereto lengthwise of the rack, means connected with the loose dog and having a tendency to throw it lengthwise of the rack when said loose dog is disengaged from the rack by a transverse movement of the dog-carrier, and a stationary deflecting abutment against which the loose dog is thrown by the longitudinal movement occurring automatically upon the release of said loose dog, said abutment acting to move the dog-carrier in the opposite direction to the movement which releases the loose dog, so as to again bring the loose dog in operative relation to the rack, and the fixed dog out of engagement therewith.

5. In a type-writing machine, the combination of a carriage, an escapement member operatively connected with the carriage, a second escapement member cooperating with the first-mentioned escapement member, key-operated mechanism for operating said second member, a clutch controlling the connection of the escapement with the carriage, releasing mechanism connected with said clutch to release the carriage, said mechanism being carried by the framing of the machine and provided with an operating member or link, and hand-operated means carried by the carriage and provided with an operating-rod extending parallel to the direction of the feed and in sliding engagement with the said link.

6. In a type-writing machine, the combination of a carriage, a member of an escapement operatively connected to said carriage, a second escapement member cooperating with the first-mentioned escapement member, key-operated mechanism for operating said second-mentioned member, spring-pressed clutch mechanism for normally maintaining an operative connection between the escapement and the carriage, hand-operated means carried by the carriage and by the framing of the machine for disconnecting the clutch mechanism to release said carriage from the escapement.

7. In a type-writing machine, the combination of a carriage, a member of an escapement operatively connected to said carriage, a second escapement member cooperating with the first-mentioned escapement member, key-operated mechanism for operating said second-mentioned member, spring-pressed clutch mechanism for normally maintaining an operative connection between the escapement and the carriage, hand-operated means carried by the carriage for disconnecting the clutch mechanism to release said carriage from the escapement and key-operated mechanism carried by the framing of the machine which key-operated mechanism is operatively connected to the clutch mechanism to disconnect the same and thereby free the carriage from the escapement.

8. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a pinion meshing with the rack, escapement mechanism operatively connected to the pinion, disengageable clutch mechanism interposed between the pinion and escapement, hand-operated mechanism carried by the carriage for disconnecting the clutch mechanism without effecting a disengagement of the rack and pinion or the members of the escapement, a tabulating-key and intermediate mechanism between said tabulating-key and clutch mechanism.

9. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a pinion meshing with the rack, escapement mechanism operatively connected to the pinion, disengageable clutch mechanism interposed between the pinion and escapement, a tabulating-key, a movable tabulating-stop, intermediate connections between the tabulating-key and the tabulating-key and escapement mechanism, whereby an operation of the tabulating-key will interpose a stop in the path of a cooperating stop on the carriage and will disconnect the clutch mechanism to release the carriage.

10. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a pinion meshing with the rack, escapement mechanism operatively connected to the pinion, disengageable clutch mechanism interposed between the pinion and escapement, hand-operated mechanism for disconnecting the clutch mechanism without effecting a disengagement of the rack and pinion or the members of the escapement, a tabulating-key, a movable tabulating-stop, intermediate connections between said stop and the tabulating-key and escapement mechanism, whereby an operation of the tabulating-key will interpose the stop in the path of a cooperating stop on the carriage and will disconnect the clutch mechanism to release the carriage.

11. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a feed-rack, operative connections between said carriage and feed-rack, which connections comprise a disengageable clutch; means for disengaging said clutch, a laterally-vibrating feed-dog, a longitudinally-movable feed-dog which is likewise capable of vibrating laterally both of said dogs cooperating with the feed-rack, and cooperating means for effecting a lateral movement of both dogs by the longitudinal movement of the longitudinally-movable dog.

12. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a feed-rack, operative connections between said carriage and feed-rack, which connections comprise a disengageable clutch

means for disengaging said clutch, a laterally-vibrating feed-dog, a longitudinally-movable feed-dog, which is likewise capable of vibrating laterally, both of said dogs cooperating with the feed-rack, cooperating means for effecting a lateral movement of both dogs by the longitudinal movement of the longitudinally-movable dog, a type-carrier, hand-operated mechanism for moving said type-carrier and means controlled by said hand-operated mechanism for moving the feed-dogs laterally.

13. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a feed-rack, operative connections between said racks, which connections comprise a spring-pressed disengageable clutch, hand-operated means carried by the carriage for disengaging said clutch, a laterally-vibrating feed-dog, a longitudinally-movable feed-dog which is likewise capable of vibrating laterally, both of said dogs cooperating with the feed-rack, cooperating means for effecting a lateral movement of both dogs by the longitudinal movement of the longitudinally-movable dog, a type-carrier, hand-operated mechanism for moving said type-carrier, and means controlled by said hand-operated mechanism for moving the feed-dogs laterally.

14. In a type-writing machine, the combination of a carriage, a rack carried by said carriage, a pinion meshing with the rack, escapement mechanism operatively connected to the pinion, disengageable clutch mechanism interposed between the pinion and escapement, a tabulating device which is operatively connected to the clutch mechanism to disengage the clutch when the tabulator is operated and a brake which is controlled by said tabulator to retard the movement of the carriage when it is freed by the disengagement of the clutch.

15. In a type-writing machine, the combination of a carriage, a movable bar carried by said carriage, hand-operated means for moving said bar independently of the carriage, escapement mechanism, intermediate clutch mechanism between said escapement and the carriage to operatively connect the escapement to the carriage, a connection between the movable bar and the clutch mechanism whereby the clutch mechanism may be moved at will by the hand-operated means, tabulating mechanism and an intervening connection between the tabulating mechanism and the clutch mechanism whereby the clutch may be operated or disengaged either by the tabulating mechanism or the hand-operated means.

16. An escapement mechanism comprising a feed-rack, a vibratory dog-carrier, a fixed feed-dog and a loose feed-dog carried by said carrier, a spring connected to said loose dog and to a stationary part for operating the dog and the dog-carrier, an abutment with which the loose dog is adapted to contact when it is free to be moved by the spring, whereby the dog-carrier will be moved around its pivotal center in one direction, whereby the dog-carrier will be moved around its pivotal center in the opposite direction.

17. An escapement mechanism comprising a feed-rack, a vibratory dog-carrier, a fixed feed-dog and a loose feed-dog carried by said carrier, a spring connected to said loose dog and to a stationary part for operating the dog and the dog-carrier, an abutment with which the loose dog is adapted to contact when it is free to be moved by the spring, whereby the dog-carrier will be moved around its pivotal center in one direction, a type-carrier and means operatively connected to the type-carrier for moving the dog-carrier in an opposite direction.

18. An escapement mechanism comprising a feed-rack, a movable dog-carrier, a fixed dog and a loose dog mounted on said carrier and arranged to engage the rack and to move transversely thereof, a spring connected with the loose dog and having a tendency to separate it from the fixed dog in a longitudinal direction when said loose dog is disengaged from the rack by a transverse movement of the dog-carrier, and a stationary deflecting abutment against which the loose dog is thrown by the spring when said dog is released from the rack, said abutment acting to move the dog-carrier transversely in the opposite direction to its first movement, so as to bring the loose dog in operative relation to the rack and the fixed dog out of engagement with the rack.

19. An escapement mechanism comprising a feed-rack, a vibratory dog-carrier, a fixed dog on said carrier, a loose dog pivoted to the carrier about an axis transverse to that of the carrier, a spring connected with the loose dog and having a tendency to separate it from the fixed dog in a longitudinal direction, and a stationary deflecting abutment against which the loose dog is thrown by the spring when said dog is disengaged from the rack, to deflect said dog and the dog-carrier transversely.

20. In a type-writing machine, the combination of a carriage, a fixed rack carried by said carriage, a pinion engaging the rack on the carriage, a splined clutch-section operatively connected to the pinion, hand-operated means carried by the carriage for moving the clutch-section, tabulating mechanism and an intervening connection between said tabulating mechanism and clutch-section, a loosely-mounted star-wheel, a second clutch-section carried by said star-wheel and cooperating feed mechanism engaging said star-wheel.

702,951. THILL-COUPLES. THOMAS J. BUNNELL, Los Angeles, Cal., assignor to H. C. Morris, C. E. Horton, and Drucilla Hubbell, Los Angeles, Cal. Filed Apr. 18, 1902. Serial No. 108,267. (No model.)

Claim.—1. A thill-coupling, comprising a main body portion adapted to be removably secured to the axle, the said portion projecting forwardly and being provided with a shoulder and a hook the hump of the hook disposed upwardly and the end thereof projecting downwardly; a shaft-iron for attachment provided with openings for the reception of that portion of the coupling having a shoulder and another opening adapted to receive the downwardly-projecting end of the hook; a spring secured to the axle the free end thereof adapted to engage the top of the shaft-iron and hold the same spring-pressed against shaft-iron substantially as herein shown and described.

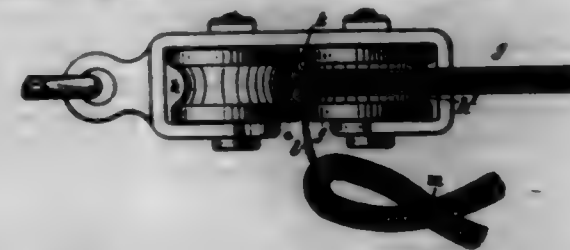


2. A thill-coupling, comprising a spring secured to the axle, the free end projecting over the shaft-iron and adapted to bear against the same and to hold the same down and in engagement with the coupling, in combination with a coupling secured to the axle and provided with a shoulder and a hook to enter openings in and engage the end of the shaft-iron; a shaft-iron having openings to receive the shoulder and the hook on the coupling substantially as shown and described.

3. A coupling for thills to detachably secure the thills to the axle without the use of bolts or screws or wrenches, comprising an antirattle-spring bolted to the axle and with the same bolts which secure the coupling to the axle, projecting upwardly therefrom over the axle and terminating in an end adapted to bear against the shaft-iron, and hold it spring-pressed against the coupling; a coupling detachably secured to the axle, the coupling having a shoulder and a hook of the configuration shown, the said shoulder and hook adapted to detachably engage the shaft-iron; a shaft-iron of the configuration shown, being provided with openings to engage the shoulder and hook on the coupling.

4. In a thill-coupling the combination of the antirattle-spring A, secured to the axle the free end A' thereof adapted to bear against the shaft-iron and hold the same spring-pressed against the shaft-iron, the coupling D detachably secured to the axle E and projecting forwardly therefrom, the coupling being provided with a shoulder portion d adapted to enter an opening in the shaft-iron and a hook D' adapted to enter another opening in the shaft-iron; a shaft-iron F provided with openings f and f' for the reception respectively of the shoulder portion d and the hook D' of the coupling D substantially as shown and described.

702,952. CLOTHES-LINE. EDWARD INESER, Zurich, Switzerland. Filed Sept. 23, 1901. Serial No. 78,953. (No model.)



Claim.—In combination with the running-rope, the grooved rings clasped thereon by means of the grooved portion, the depending supports carried in the grooves of the said rings and the clothes-line carried by the depending supports, substantially as described.

702,953. SAFETY-PIN. EDWIN S. INGRAM, Watertown, Conn., assignor to the Oakville Company, Watertown, Conn., a Corporation of Connecticut. Filed Dec. 21, 1900. Serial No. 40,608. (No model.)



Claim.—1. A safety-pin comprising a wire bent to form the legs of the pin, a shield, and a fixed stop constructed to prevent inward movement of the pointed end when pressed inward against said stop.

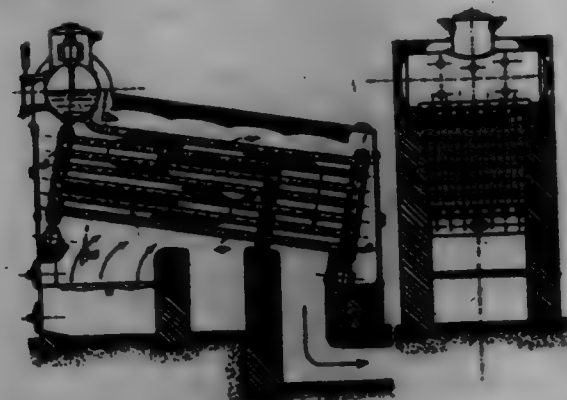
2. A safety-pin comprising a wire bent to form the legs of the pin, and a shield the unsharpened leg being folded back within the shield to form a stop to prevent inward movement of the pointed end when pressed inward against said stop.

3. A safety-pin comprising a wire bent to form the legs of the pin, and a shield, the unsharpened leg being folded back within the shield and secured on the upper side of the folded-back portion.

4. A safety-pin comprising a wire bent to form the legs of the pin,

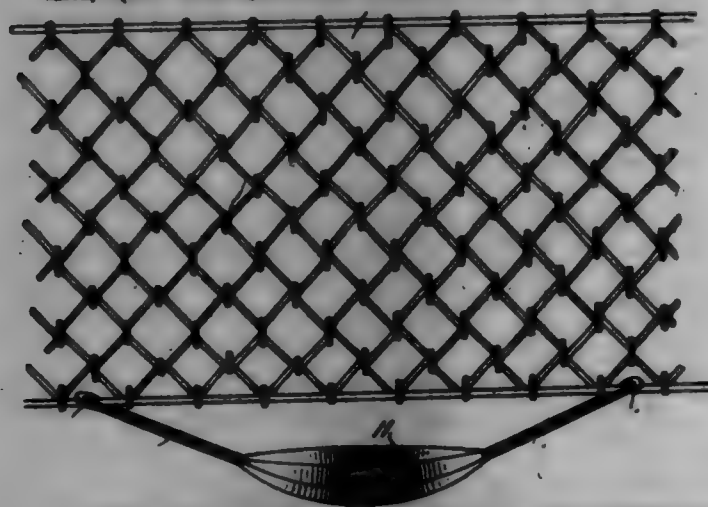
a shield, and a guide, the unsharpened leg being folded back within the shield and concealed on the upper side of the folded-back portion and having the under side of said bent-back portion supported by the guide.

702,954. WATER-PIPE BOILER. HERMAN JANSCHKE, Vienna, Austria-Hungary. Filed Nov. 5, 1900. Serial No. 35,494. (No model.)



Claim.—In a water-pipe boiler, the combination with vertically-ascending collecting-pipes; of pipes connecting said collecting-pipes, the connecting-pipes being arranged in horizontal and vertical series, the horizontal series being in alignment, successive series of pipes being spaced equidistant, and the vertical series being out of alignment intermediate their ends.

702,955. SINKER FOR FISHING-NETS. ARON JOHNSON, Bismarck, N. Dak. Filed Apr. 8, 1902. Serial No. 101,967. (No model.)



Claim.—1. As a new article of manufacture, a sinker consisting of a downwardly-curving body portion having holding-wires extending upwardly and outwardly from the ends and with said body portion tapering in opposite directions from the center and merging into the outlines of the holding-wires, substantially as described.

2. As a new article of manufacture, a sinker consisting of a body portion curving downwardly and tapered in opposite directions toward the ends, and a holding-loop formed of a single piece of wire doubled together with the ends disposed intermediate of the loop and embedded centrally in said body portion, and extending in opposite directions upwardly and outwardly from said body portion, substantially as described.

3. As a new article of manufacture, a sinker for fishing-nets having remote terminal net-engaging means disposed at an interval sufficient to engage a marginal strand of the net in differing meshes, and bowed outwardly from the marginal strand between the terminal engaging means.

702,956. SLUICE-BOX. FREDERICK M. JENNISON, San Francisco, Cal., assignor to Kane Gold Reclamation Company, San Francisco, Cal., a Corporation of Arizona. Filed May 22, 1901. Serial No. 61,488. (No model.)

Claim.—1. The combination with a separating-surface provided with means for holding and retaining precious material passing over it, of one or more floating flexible sections of fibrous or textile material separated from said surface, so that the flow of material is caused to pass beneath it or thereon, such sections having a rough or open lower surface to retain material mechanically, but having a waterproof impervious upper surface.

2. The combination with a separating-surface provided with means for holding and retaining precious material passing over it, of one or more floating flexible sections of fibrous material above the said surface adapted

to receive and retain precious particles, and an independent waterproof flexible covering for and above each floating section.



702,957. SOFA-BED. HERBERT C. JOHM, Chicago, Ill. Filed July 24, 1901. Serial No. 69,504. (No model.)

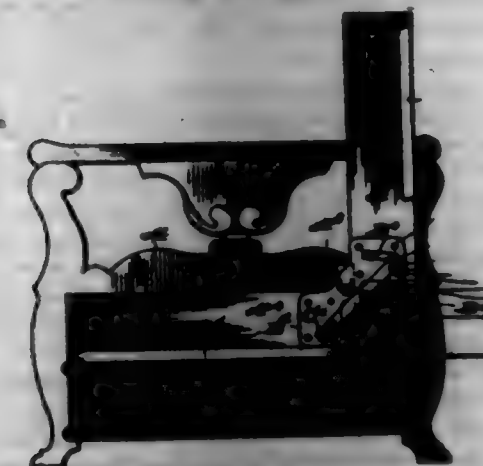


Claim.—1. In a sofa-bed, in combination, a supporting-frame-work having a horizontal track; a seat and a back hinged together, the back having a link connection with said framework, also having an arm extending rigidly from the hinged side thereof, provided with a notch near its outer end; and a gravity-pawl pivotally mounted upon said seat at the side thereof adjacent to said back, for engaging the notch near the outer end of said rigid arm, to hold the seat and the back at an angle with each other.

2. In a sofa-bed, in combination, a supporting-frame-work; a seat and a back hinged together, the back having a link pivotally connected with each of its ends, the outer ends of said links having a pivotal connection with said framework; an arm projecting from the hinged side of said back, said arm having a notch near its outer end; and a gravity-pawl pivoted upon said seat at the hinged side thereof, which pawl is adapted to engage the notch in said arm to hold the seat and the back at an angle with each other.

3. In a sofa-bed, in combination, a supporting-frame-work having a horizontal track; a seat and a back hinged together, the back having a link connection with said framework; an arm rigidly fixed to said back, extending from a point near one end thereof, said arm having a notch near its outer end; and a pawl pivotally mounted near one end of said seat at the hinged side thereof, adapted to engage the notch in said rigid arm to hold the seat and the back at an angle with each other, said seat and said back being provided with rollers adapted to run upon said track.

702,958. SOFA-BED. HERBERT C. JOHM, Chicago, Ill. Filed July 24, 1901. Serial No. 69,505. (No model.)



Claim.—1. In a sofa-bed, in combination, a supporting-frame; a seat; a back; a hinge-joint between the seat and the back; a locking-bar extending between the members of said hinge-joint, said bar being pivoted to one of said members and being adapted at its other end to engage a stud fixed with relation to the other member and having a tooth adapted to engage a pawl pivoted to said other member; and said fixed stud and said pawl.

2. In a sofa-bed, in combination, a supporting-frame; a seat; a back; a transverse carrier by the seat; a pulley supported by the frame for receiving said transverse carrier; a hinge-joint between the seat and the back; a locking-bar extending between the members of said hinge-joint, said bar being pivoted to one of said members, and being adapted at its other end to engage a stud fixed with relation to the other member, and having a tooth adapted to engage a pawl pivoted to said other member; and said fixed stud and said pawl.

702,959. SOFA-BED. HERBERT C. JOHM, Chicago, Ill. Filed Oct. 22, 1901. Serial No. 79,998. (No model.)



Claim.—1. In a sofa-bed, in combination, a supporting-frame composed of two end members, two upright members, a rear brace, and a cross-piece; a back having two links, one for connecting it with each of said upright members; a seat having a pivotal connection with said back; a rail on each of said end members for supporting said seat; and a drawer having a link connection with the link supporting said back.

2. In a sofa-bed, in combination, a supporting-frame composed of two end members, two upright members, a rear brace, and a cross-piece; a back having two links, one for connecting it with each of said upright members; a seat having a pivotal connection with said back; means for releasably locking said seat and said back at an angle with each other; a rail on each of said end members for supporting said seat; and a drawer having a link connection with each of the links for supporting said back.

3. In a sofa-bed, in combination, a supporting-frame; a back having a link for connecting it with said frame; a seat; a hinge-joint between the seat and the back; a stud fixed to one member of said hinge-joint, said member also having a pawl pivoted thereon; and a locking-bar pivoted to the other member of said hinge-joint, and adapted to engage said fixed stud, and having a tooth adapted to engage said pawl.

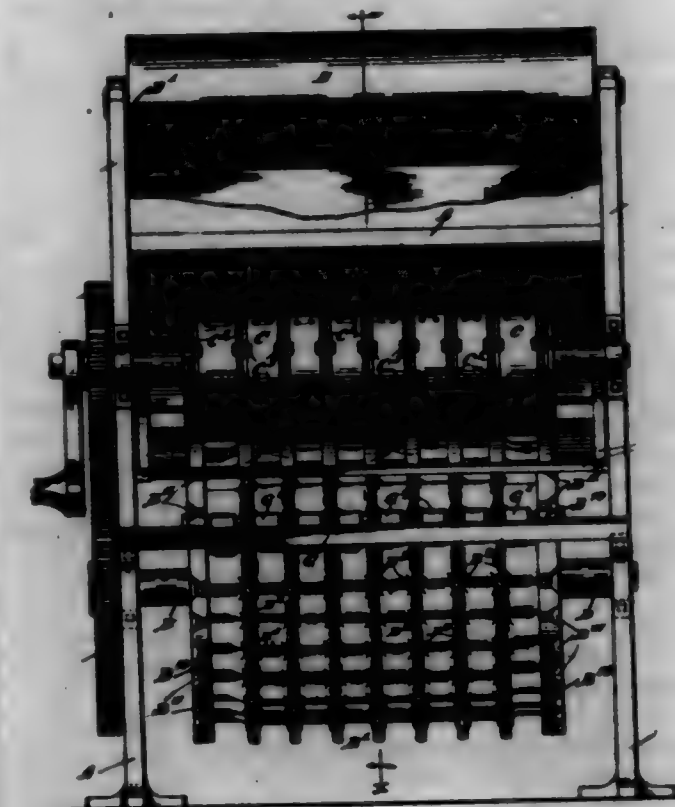
4. In a sofa-bed, in combination, a supporting-frame composed of two end members, two upright members, a rear brace, and a cross-piece; a back having two links, one for connecting it with each of said upright members; a seat; a hinge-joint between the seat and the back; a stud fixed to one member of said hinge-joint, said member also having a pawl pivoted thereon; and a locking-bar pivoted to the other member of said hinge-joint, adapted to engage said fixed stud, and having a tooth adapted to engage said pawl.

5. In a sofa-bed, in combination, a supporting-frame composed of two end members, two upright members, a rear brace, and a cross-piece; a back having two links, one for connecting it with each of said upright members; a seat; a hinge-joint between the seat and the back; a stud

fixed to one member of said hinge-joint, said member also having a pawl pivoted thereon; a locking-bar pivoted to the other member of said hinge-joint, adapted to engage said fixed stud, and having a tooth adapted to engage said pawl; a drawer; and a link connection between the drawer and each of the links for the back for projecting said drawer.

6. In a sofa-bed, in combination, a supporting-frame composed of two end members, two upright members, a rear brace, and a cross-piece; a back having two links, one for connecting it with each of said upright members; a seat; a hinge-joint between the seat and the back; a stud fixed to one member of said hinge-joint, said member also having a pawl pivoted thereon; a locking-bar pivoted to the other member of said hinge-joint, adapted to engage said fixed stud, and having a tooth adapted to engage said pawl; a rail on each of said end members for supporting said seat; a drawer having a link connection with each of the links for said back; and guides in said frame for said drawer.

702,960. UPHOLSTERING-MACHINE. HERBERT C. JOHM, Chicago, Ill. Filed Mar. 21, 1902. Serial No. 94,288. (No model.)



Claim.—1. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered; means for releasing said holding mechanism; and means for rotating said upholstering-rollers.

2. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered; a series of compartments for containing the filling material; means for releasing said holding mechanism; and means for rotating said upholstering-rollers.

3. In an upholstering-machine, in combination, a supporting-frame; means for feeding forward the upholstering materials; a series of bottom-staple holders; a washer-feeding tube adapted to deliver washers at a point adjacent to said bottom-staple holders, which tube has a notch in its lower end and a holding-spring for the washers; and means for spreading the prongs of the bottom-staples.

4. In an upholstering-machine, in combination, a supporting-frame; means for feeding forward the upholstering materials; a series of bottom-staple holders; a washer-feeding tube adapted to deliver washers at a point adjacent to said bottom-staple holders, which tube has a notch in its lower end, a bearing-plate and two holding-springs for the washers; and means for spreading the prongs of the bottom-staples.

5. In an upholstering-machine, in combination, a supporting-frame; means for feeding forward the upholstering materials; a series of bottom-staple holders; a washer-feeding tube adapted to deliver washers at a point adjacent to said bottom-staple holders, which tube has a notch in its lower end, a bearing-plate, and two holding-springs for the washers; and a spreading-rod whose point lies in the notch in the lower end of the washer-feeding tube.

6. In an upholstering-machine, in combination, a supporting-frame;

two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for a button-staple; the stationary framework having a guide-channel for the button-staple; a washer-feeding tube adapted to deliver a washer at a point adjacent to the end of said guide-channel; means for clenching said button-staple; and means for rotating said upholstering-rollers.

7. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for a button-staple; means for clenching said button-staple; and means for releasing said holding mechanism.

8. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for button-staples; a series of compartments for containing the filling material, having partitions between them, each of which partitions has a channel for guiding the button-staple; a washer-feeding tube adapted to deliver a washer at a point adjacent to the end of one of said channels; means for clenching said button-staple; and means for rotating said upholstering-rollers.

9. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; a series of button-staple holders arranged peripherally upon one of said upholstering-rollers; means on the supporting-frame for clenching a button-staple; and means for releasing said holding mechanism.

10. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which rollers has a series of button-staple holders; means for clenching the button-staples; and means for releasing the holding mechanism.

11. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered; a washer-feeding tube adapted to deliver a washer at a point adjacent to said holding mechanism; means for releasing said holding mechanism; and means for rotating said upholstering-rollers.

12. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for a button-staple; a washer-feeding tube adapted to deliver a washer at a point adjacent to said holding mechanism; means for clenching the button-staple; means for releasing said holding mechanism; and means for rotating said upholstering-rollers.

13. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which rollers has a series of button-staple holders; a series of washer-feeding tubes adapted to deliver a washer at a point adjacent to said button-staple holders; means for releasing said button-staple holders; and means for rotating said upholstering-rollers.

14. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; a series of button-staple holders on the lower one of said rollers; a series of washer-feeding tubes adapted to deliver a washer at a point adjacent to one of said button-staple holders; a clenching device near the end of said washer-feeding tubes; means for releasing said button-staple holders; and means for rotating said rollers.

15. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; a rail journaled on the supporting-frame for one of said upholstering materials, the lower one of which upholstering-rollers has a series of peripheral grooves for receiving the ends of the button-staples; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to said button-staples; means secured to the supporting-frame for clenching the button-staples; means for releasing said button-staple holders; and means for rotating said upholstering-rollers.

16. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which upholstering-rollers has a series of button-staple holders; means for rotating said rollers; means for locking said jaws; the other of which upholstering-rollers has a series of peripheral grooves for receiving the ends of the button-staples; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to said button-staple holders; a series of spreading-wedges adapted to lie in the peripheral grooves of the last-mentioned upholstering-roller; a series of projections extending from the supporting-

frame, for releasing the holding-jaws for the button-staples; and means for rotating said upholstering-rollers.

17. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which upholstering-rollers has a series of radially-extending button-staple-holding stems provided with pivoted holding-jaws; a cam for said jaws; a stud for moving said cam; the other of which upholstering-rollers has a series of peripheral grooves for receiving the ends of the button-staples; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to said button-staple-holding stems; a series of spreading-wedges secured to the supporting-frame, for clenching the button-staples; a series of projections extending from the supporting-frame, for engaging the studs which operate the cam for the holding-jaws; and means for rotating said upholstering-rollers.

18. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which upholstering-rollers has a series of radially-extending button-staple-holding stems; pivoted holding-jaws for said stems; a cam for holding said jaws closed; a rotatable core for said stems; a stud fixed with relation to said core, which stud extends outward through an opening in the side of said stems; the other of which upholstering-rollers has a series of peripheral grooves; spurs on the surface of said last-mentioned roller; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to said button-staple-holding stems; a series of spreading-wedges secured in the supporting-frame, for clenching the button-staples; a series of projections extending from the supporting-frame, for engaging the studs extending from the button-staple-holding stems; and means for rotating said upholstering-rollers.

19. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them, the lower one of which upholstering-rollers has a series of radially-extending button-staple-holding stems; two pivoted holding-jaws in each of said stems; a cam for holding said jaws closed; cores within said stems; a stud extending through an opening in the side of each of said stems, for moving each of said jaws; the other of which upholstering-rollers has a series of peripheral grooves for receiving the ends of the button-staples; a framework for holding the filling material, which framework is provided with partitions, each of which partitions has a guide-channel at its lower edge; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to the end of said guide-channel; a series of spreading-wedges secured to the supporting-frame, for clenching the button-staples; a series of projections extending from the supporting-frame, for engaging the studs extending through openings in the sides of the button-staple-holding stems, to release the button-staples from their holding-jaws; and means for rotating said upholstering-rollers.

20. In a button-staple-holding mechanism, in combination, a holding-stem; a jaw thereon; a cam for holding said jaw in a closed position; and means for moving said cam.

21. In a button-staple-holding mechanism, in combination, a holding-stem; two jaws pivotally mounted thereon; a cam for holding said jaws closed; and means for moving said cam.

22. In a button-staple-holding mechanism, in combination, a holding-stem; two jaws pivotally mounted thereon; a cam for holding said jaws closed; a spring for holding each of said jaws open; and means for moving said cam.

23. In a button-staple-holding mechanism, in combination, a holding-stem; two jaws pivotally mounted thereon; a cam for holding said jaws closed; and a stud for rotating said cam.

24. In a button-staple-holding mechanism, in combination, a holding-stem; two L-shape jaws pivotally mounted thereon; a cam for engaging the inner ends of said jaws; a core adapted to lie within said stem; and a stud fixed with relation to said core.

25. In a button-staple-holding mechanism, in combination, a holding-stem in tubular form, having an elongated opening near one of its ends; two L-shape jaws pivotally mounted on opposite sides of said stem near one end thereof; a cam for engaging the inner ends of said jaws and holding them closed; a core for said stem; and a stud fixed with relation to said core, extending through the elongated opening in said stem.

26. In an upholstering-machine, in combination, a supporting-frame; an upholstering-roller journaled thereon; means for rotating said roller; holding mechanism for the button-staples; means for guiding said button-staples; and a spreading-wedge adapted to enter between the prongs of said button-staples during the forward movement of the upholstering materials to spread said points and clench said staple.

27. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for a button-staple;

a clenching-wedge lying in the path of said button-staple, the point of said clenching-wedge being adapted to enter between the prongs of said button-staple to spread said prongs and clench said staple; means for rotating said upholstering-rollers; and means for releasing said holding mechanism.

28. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; holding mechanism for the means for securing together the materials to be upholstered; and means for releasing said holding mechanism.

29. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is movable in the direction of travel of the upholstering materials; and means for releasing said holding mechanism.

30. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is secured to one of said upholstering-rollers; and means for releasing said holding mechanism.

31. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; button-staple holders; and means for releasing said button-staple holders.

32. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; button-staple holders movable in the direction of travel of the upholstering materials; and means for releasing said button-staple holders.

33. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction; means for moving said upholstering-rollers; button-staple holders secured to one of said upholstering-rollers; and means for releasing said button-staple holders.

34. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers adapted to move in the same direction, one of which rollers is inclined at an angle with the other; means for holding the securing means; means for fixing the securing means to permanently fasten the upholstering materials together; means for releasing said holding means; and means for removing said upholstering-rollers.

35. In an upholstering-machine, in combination, a supporting-frame; two movable upholstering-rollers, one of which is inclined at an angle with the other; means for holding the securing means; means for engaging the securing means employed to fasten the upholstering materials together; means for releasing said holding means; and means for moving said upholstering-rollers.

36. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers, one of which is inclined at an angle with the other; a spreading-wedge mounted upon the supporting-frame, and adapted to clench the button-staples employed to fasten the upholstering materials together; mechanism for holding the securing means; means for releasing said holding mechanism; and means for moving said upholstering-rollers to compress the upholstering materials between them.

37. In an upholstering-machine, in combination, a supporting-frame; an upholstering-roller journaled thereon; means for rotating said roller; holding mechanism for the button-staples; means for guiding said button-staples; and means for clenching said button-staples during the continuous forward movement of the upholstering materials.

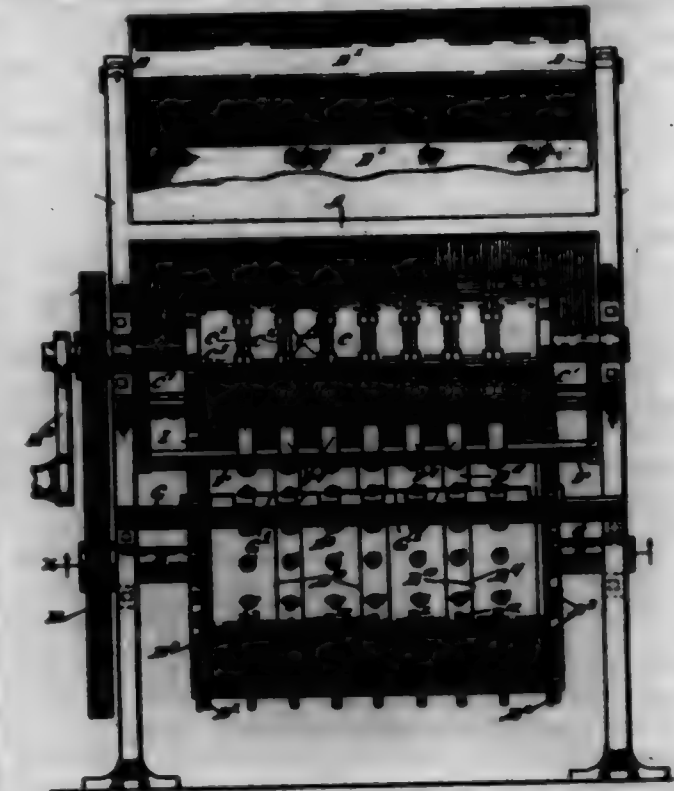
38. In an upholstering-machine, in combination, a supporting-frame; an upholstering-roller journaled thereon; means for rotating said roller; holding mechanism for the button-staples; means for guiding said button-staples, which means comprise guide-channels formed in a portion of the supporting-frame; and means for clenching said button-staples during the continuous forward movement of the upholstering materials.

39. In an upholstering-machine, in combination, holding means for the device for securing the upholstering materials together; means for feeding continuously forward said upholstering materials and for moving the holding means with said materials; and means for fixing the securing device to unite said upholstering materials during their continuous forward movement.

703,961. UPHOLSTERING-MACHINE. HERBERT C. JONES, Chicago, Ill. Filed Mar. 21, 1902. Serial No. 98,220. (No model.)

Claim.—1. In an upholstering-machine, in combination, a supporting-frame; two relatively movable upholstering-rollers adapted to compress the upholstering materials between them; means caused by the pressure between the upholstering-rollers to engage the securing means with said materials, to fasten the latter together; and means for moving one of said upholstering-rollers.

2. In an upholstering-machine, in combination, a supporting-frame; two relatively movable upholstering-rollers adapted to compress the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered; means caused by the pressure between the upholstering-rollers to engage the securing means with said materials to fasten the latter together; and means for moving one of said upholstering-rollers.



3. In an upholstering-machine, in combination, a supporting-frame; two relatively movable upholstering-rollers adapted to compress the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is fixed with relation to one of said upholstering-rollers; a device on one of said upholstering-rollers caused by the pressure between the upholstering-rollers to fix the securing means to permanently unite said materials; and means for moving one of said rollers.

4. In an upholstering-machine, in combination, a supporting-frame; two relatively movable upholstering-rollers adapted to compress the upholstering materials between them; holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is fixed with relation to one of said upholstering-rollers; means for releasing said holding mechanism; a device on one of said upholstering-rollers caused by the pressure between the upholstering-rollers to fix the securing means to permanently unite said materials; and means for moving one of said rollers.

5. In an upholstering-machine, in combination, a supporting-frame; holding mechanism for the means for securing together the materials to be upholstered; means for releasing said holding mechanism; means for feeding forward and compressing the upholstering materials; and a device on the compressing means, adapted to fix the securing means to permanently unite said materials.

6. In an upholstering-machine, in combination, a supporting-frame; button-staple holders; means for releasing said holders; means for feeding forward and compressing the upholstering materials; and a device on the compressing means, adapted to clench the button-staples in said holders to permanently unite said materials.

7. In an upholstering-machine, in combination, a supporting-frame; mechanism for holding the means for securing together the materials to be upholstered; means for releasing said holding mechanism; a roller for passing over the upholstering materials to compress the same; and a device on said roller adapted to fix the securing means to permanently unite said materials.

8. In an upholstering-machine, in combination, a supporting-frame; button-staple holders; means for releasing said holders; an upholstering-roller adapted to pass over and compress the materials to be upholstered; and a device on said roller adapted to clench the button-staples in said holders to permanently unite said materials.

9. In an upholstering-machine, in combination, a supporting-frame; means comprising an upholstering-roller for feeding forward and compressing the upholstering materials; a button-staple holder; means for releasing said button-staple holder; and a device on said roller adapted to clench a button-staple in said holder to permanently unite said materials.

10. In an upholstering-machine, in combination, a supporting-frame;

means for moving the materials to be upholstered into contact with a button-staple to cause said button-staple to penetrate certain of said materials; and for compressing said upholstering materials; and a device on the compressing means, actuated by the pressure compressing said upholstering materials, to clench said button-staple to permanently unite said materials.

11. In an upholstering-machine, in combination, a supporting-frame; means comprising an upholstering-roller for feeding forward the materials to be upholstered; a button-staple holder; means for releasing said holder; means for rotating said roller; and a device on said roller adapted to clench a button-staple in said holder to permanently unite said materials.

12. In an upholstering-machine, in combination, a supporting-frame; an upholstering-roller journaled thereon and adapted to rotate with the travel of the upholstering materials; holding mechanism for a button-staple, adapted to move the staple in the direction of travel of said upholstering materials to cause said button-staple to penetrate certain of the upholstering materials; means for moving said holding mechanism; means for releasing said holding mechanism; and a device on said upholstering-roller adapted to clench the button-staple in said holding mechanism to permanently unite said materials.

13. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism on one of said rollers for the means for securing together the materials to be upholstered; means for releasing said holding mechanism; a device for the other of said rollers adapted to fix the securing means to permanently unite said materials; and means for rotating said rollers.

14. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; a button-staple holder on one of said rollers; means for releasing a button-staple from said holder; a device for the other of said rollers adapted to clench a button-staple in said holder to permanently unite said materials; and means for rotating said rollers.

15. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for a button-staple, for one of said rollers, and a pivoted wing for the other roller, which wing is adapted to spread the prongs of the button-staple and cause them to be clenched by the pressure between said rollers; and means for rotating said rollers.

16. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; holding mechanism for button-staples, arranged peripherally upon one of said rollers; a series of wings for spreading the prongs of the button-staples, arranged peripherally upon the other of said rollers and adapted individually to engage a button-staple, separate its prongs and clench said button-staple by means of the pressure between said rollers; and means for rotating said rollers.

17. In an upholstering-machine, in combination, an upholstering-roller having button-staple holders arranged in circumferential and in transverse series, certain of said circumferential series being rigidly affixed to the periphery of the upholstering-roller; a ring upon said upholstering-roller, for supporting one of said circumferential series of button-staples; means for rotating said rings with reference to said roller; means for rotating said roller; and means for clenching said button-staples.

18. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; button-staple holders for one of said upholstering-rollers, which holders are arranged in circumferential series, some of which series are mounted rigidly upon the periphery of said rollers; rings for supporting the other of said circumferential series of button-staple holders; means for rotating said ring with reference to said roller; means for rotating said rollers; and means for clenching said button-staples.

19. In an upholstering-machine, in combination, blank-forming projections adapted to be arranged in longitudinal and in transverse series; means for moving certain of said longitudinal series, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

20. In an upholstering-machine, in combination, blank-forming projections adapted to be arranged in longitudinal and in transverse series; means for moving alternate longitudinal series of said projections, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

21. In an upholstering-machine, in combination, an upholstering-roller having blank-forming projections adapted to be arranged in circumferential and in transverse series; means for moving certain of said circumferential series, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

22. In an upholstering-machine, in combination, an upholstering-roller having blank-forming projections adapted to be arranged in circumferential and in transverse series, the projections of certain of said cir-

cumferential series being rigidly connected and adapted to be moved with relation to the transverse series, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

23. In an upholstering-machine, in combination, holding mechanism for the means for securing together the materials to be upholstered; means for shifting the relative positions of certain of said holding mechanism, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

24. In an upholstering-machine, in combination, holding mechanism for the means for securing together the materials to be upholstered, which mechanisms are adapted to be arranged in series; means for moving certain of said series to change the form of the upholstering; and mechanism for securing the upholstering materials together.

25. In an upholstering-machine, in combination, holding mechanism for the means for securing together the materials to be upholstered, which mechanisms are adapted to be arranged in longitudinal and in transverse series; means for moving certain of said longitudinal series, to change the form of the upholstering; and mechanism for securing together the upholstering materials.

26. In an upholstering-machine, in combination, holding mechanism for the means for securing together the materials to be upholstered, which mechanisms are adapted to be arranged in longitudinal and in transverse series; means for moving alternate longitudinal series with relation to adjacent longitudinal series, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

27. In an upholstering-machine, in combination, an upholstering-roller having holding mechanism for the means for securing together the materials to be upholstered, mounted on said roller in circumferential and in transverse series; means for moving certain of the circumferential series with relation to the transverse series, to change the form of the upholstering; and mechanism for securing the upholstering materials together.

28. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; button-staple holders for one of said upholstering-rollers, which holders are arranged in circumferential series, some of which series are mounted rigidly upon the periphery of said roller; rings for supporting the other of said circumferential series of button-staple holders; means for rotating said ring with reference to said roller; a series of spreading-wedges secured to the supporting-frame for clenching certain of the button-staples; a series of clenching-wings, each pivotally mounted on the periphery of the other upholstering-roller; and means for rotating said upholstering-rollers.

29. In an upholstering-machine, in combination, a supporting-frame; two upholstering-rollers journaled thereon and adapted to pass the upholstering materials between them; the lower one of which upholstering-rollers has a number of radially-extending button-staple holders arranged in peripheral series, the other of which upholstering-rollers has a series of peripheral grooves having depressions at intervals in said grooves, for receiving the ends of the button-staples; a series of washer-feeding tubes adapted to deliver washers at a point adjacent to said button-staple holders; a series of spreading-wedges; clenching-wings pivotally mounted upon the upper upholstering-roller; and means for rotating said upholstering-rollers.

30. In a button-staple-clenching device, in combination, means for holding the button-staple; and a pivoted clenching-wing for separating the prongs of said button-staple and clenching the same by pressure, which said holding means and clenching means are mounted upon independent, rotatable axes.

31. In a button-staple-clenching device, in combination, means for holding a button-staple; a wing for separating the prongs of said button-staple, which wing is pivotally mounted near its center; and means for moving the wing and the button-staple together, for clenching the prongs of said button-staple by pressure.

32. In a button-staple-clenching device, in combination, means for holding a button-staple; a pivoted wing for separating the prongs of said button-staple, and for clenching said prongs; and means for moving said wing.

33. In a button-staple-clenching device, in combination, means for holding a button-staple; a pivoted wing for separating the prongs of said button-staple, which wing has a movement toward said button-staple to clench the prongs of said button-staple by pressure; and means for moving said wing.

34. In a button-staple-clenching device, in combination, means for holding a button-staple; and a pivoted wing for separating the prongs of said button-staple, and for clenching said prongs, which said holding means and said pivoted wing are mounted upon independent, rotatable axes.

35. In an upholstering-machine, in combination, a button-staple holder; means for feeding continuously forward the upholstering materials and for moving the button-staple holder with said materials; and

means adapted to travel continuously forward with said materials, for clenching a button-staple to fasten said materials together during the forward movement of the upholstering materials to permanently secure said materials together.

36. In an upholstering-machine, in combination, means for feeding the upholstering materials continuously forward; and mechanism adapted to travel continuously forward with said upholstering materials for securing said materials together during their forward movement.

37. In an upholstering-machine, in combination, means for feeding the upholstering materials continuously forward; and means adapted to travel continuously forward with said upholstering materials for inserting and clenching a device for securing said materials together during the forward movement of said materials.

38. In an upholstering-machine, in combination, means for feeding the upholstering materials continuously forward; and means adapted to travel continuously forward with said upholstering materials for inserting and clenching a button-staple in said materials during the forward movement of said materials.

39. In an upholstering-machine, in combination, means for feeding the upholstering materials continuously forward; holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism moves forward with said upholstering materials; and means adapted to travel continuously forward with said upholstering materials for causing the securing means to permanently unite said materials during the forward movement of said materials.

40. In an upholstering-machine, in combination, holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is movable in the direction of travel of the upholstering materials; means for moving said holding mechanism and for feeding continuously forward said upholstering materials; and means adapted to travel continuously forward with said upholstering materials for causing the securing means to permanently unite said materials during the forward movement of said materials.

41. In an upholstering-machine, in combination, means for feeding the materials to be upholstered continuously forward into contact with a button-staple to cause said button-staple to penetrate certain of said materials; and means adapted to travel continuously forward with said upholstering materials for clenching said button-staples during the forward movement of said materials.

42. In an upholstering-machine, in combination, an upholstering-roller adapted to rotate with the travel of the upholstering materials; holding mechanism for the means for securing together said materials, which holding mechanism is movable in the direction of travel of said materials to cause the securing means to penetrate certain of said materials; means for moving said holding mechanism; and means traveling continuously forward with the upholstering materials, adapted to permanently unite said materials during their continuous forward movement.

43. In an upholstering-machine, in combination, means comprising an upholstering-roller for feeding continuously forward the materials to be upholstered; a button-staple holder; and a device on said roller adapted to clench a button-staple in said holder during the forward movement of said materials.

44. In an upholstering-machine, in combination, an upholstering-roller adapted to rotate with the travel of the upholstering materials; holding mechanism for a button-staple adapted to move the staple in the direction of travel of said upholstering materials to cause a button-staple in said holding mechanism to penetrate certain of said upholstering materials; means for moving said holding mechanism; and means adapted to travel continuously forward with said upholstering materials for clenching said button-staple during the continuous forward movement of said materials.

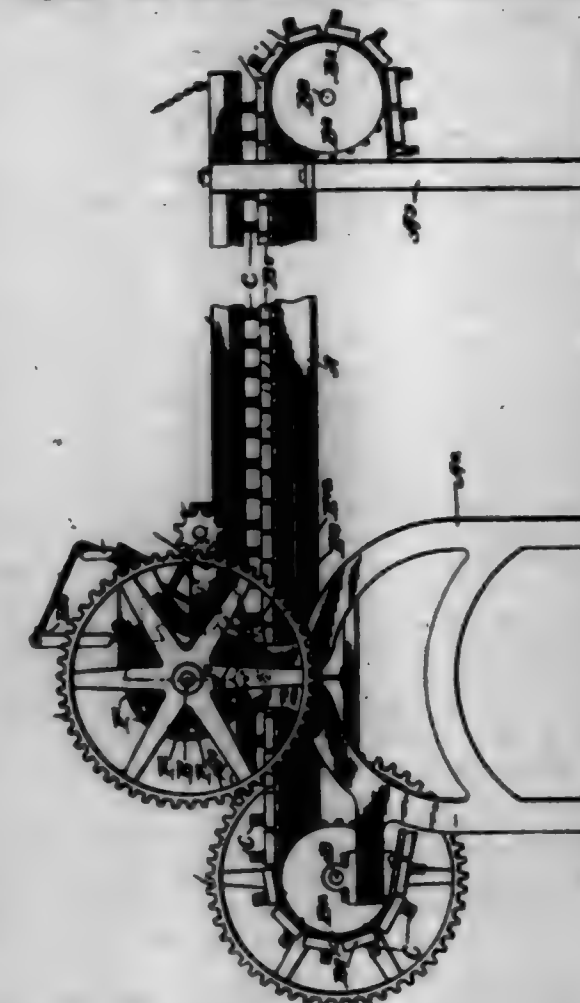
45. In an upholstering-machine, in combination, a means for compressing and feeding continuously forward the upholstering materials, which means comprise an upholstering-roller; holding mechanism for the means for securing together the upholstering materials adapted to travel with said materials; and a device on said upholstering-roller adapted to fix the securing means to permanently unite said materials during their continuous forward movement.

46. In an upholstering-machine, in combination, a means for compressing and feeding continuously forward the upholstering materials, which means comprise an upholstering-roller adapted to rotate with the travel of the upholstering materials; means for inserting a device for securing said upholstering materials together, during the forward movement of said materials; and mechanism carried by said upholstering roller adapted to fix the securing means to permanently unite said upholstering materials during their continuous forward movement.

47. In an upholstering-machine, in combination, a means for compressing and feeding continuously forward the upholstering materials, which means comprise an upholstering-roller adapted to rotate with the travel of the upholstering materials; button-staple holders adapted to

travel with said materials; and a device carried by said roller for clenching button-staples in said holders during the continuous forward movement of said materials.

702,962. UPHOLSTERING-MACHINE. HANCOCK & JONES, CHICAGO, ILL. Filed Mar. 21, 1902. Serial No. 90,291. (No model.)



Claim.—1. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces is a plane surface inclined at an angle with the other; means for fixing the securing means to permanently fasten the upholstering materials together; and means for moving said upholstering-surfaces.

2. In an upholstering-machine, in combination, a supporting frame; two movable upholstering-surfaces, one of which is a plane surface inclined at an angle with the other; means for engaging the securing means employed to fasten the upholstering materials together; and means for moving said table.

3. In an upholstering-machine, in combination, a supporting-frame; a table movably mounted on said supporting-frame; an upholstering-surface inclined at an angle with said table; means for fixing the securing means to permanently fasten the upholstering materials together; and means for moving said table.

4. In an upholstering-machine, in combination, a supporting-frame; a table movably mounted on said supporting-frame; an upholstering-surface inclined at an angle with said table and adapted to move in the same general direction with said table; means for fixing the securing means to permanently fasten the upholstering materials together; and means for moving said table and said upholstering-surface.

5. In an upholstering-machine, in combination, a supporting-frame; a table movably mounted on said supporting-frame; an upholstering-surface comprising a series of endless chain belts, said upholstering-surface being inclined at an angle with said table, to compress the upholstering materials between said belts and said table; means for engaging the securing means employed to fasten the upholstering materials together; and means for moving said table and said upholstering-surface.

6. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces is a plane surface inclined at an angle with the other; a spreading-wedge for engaging the securing means employed to fasten the upholstering materials together; and means for moving said upholstering-surfaces.

7. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces, one of which is a plane surface inclined at an angle with the other; a spreading-wedge, adapted to clench the button-

staples employed to fasten the upholstering materials together; and means for moving said upholstering-surfaces to compress the upholstering materials between them.

8. In an upholstering-machine, in combination, a supporting-frame; a table movably mounted on said supporting-frame; an upholstering-surface inclined at an angle with said table; button-staple holders carried by said table; means for clenching said button-staples; and means for moving said table.

9. In an upholstering-machine, in combination, a supporting-frame; an endless table rotatably mounted on said supporting-frame; an upholstering-surface inclined at an angle with said table; button-staple holders carried by said table; means for clenching said button-staples; and means for moving said table and said upholstering-surface.

10. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted on said supporting-frame; means for fixing the securing means to permanently fasten the upholstering materials together; and means for rotating said table.

11. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted on said frame; means for compressing the upholstering materials upon said table; means for engaging the securing means employed to fasten the upholstering materials together; and means for rotating said endless table.

12. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted on said frame; a series of inclined chain bolts rotatably mounted over said table for compressing the upholstering materials upon the table; means for engaging the securing means employed to fasten the upholstering materials together; and means for rotating said table and said chain bolts.

13. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted on said frame; a series of inclined chain bolts rotatably mounted over said table and adapted to compress the upholstering materials upon the table; means for presenting button-staples; means for clenching said button-staples to fasten the upholstering materials together; and means for rotating said table and said chain bolts.

14. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; a series of inclined chain bolts rotatably mounted over said table; a longitudinal series of button-staple holders secured to said table; a spreading-wedge for the button-staples; and means for rotating the endless table and said inclined chain bolts.

15. In an upholstering-machine, in combination, a supporting-frame; an endless table rotatably mounted on said supporting-frame; an upholstering-surface inclined at an angle with said table; button-staple holders carried by said table; a clenching-wedge for clenching said button-staples; a roller for flattening the spreading ends of said clenching button-staples; and means for moving said table and said upholstering-surface.

16. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; said table being composed of transverse cleats; a button-staple holder for each cleat; a series of inclined chain bolts rotatably mounted over said table; a series of spreading-wedges adapted to engage the button-staples employed to fasten the upholstering materials together; and means for rotating said table and said inclined chain bolts.

17. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; button-staple holders for said upholstering-table; a series of inclined chain bolts rotatably mounted over said table; a series of clenching-wedges for the button-staples secured to the supporting-frame; a series of washer-feeding tubes; and means for rotating said table and said inclined chain bolts.

18. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; means for compressing the materials to be upholstered upon said table; means for presenting button-staples; means for presenting washers; means for clenching button-staples; and means for rotating said table.

19. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted on said frame; button-staple holders for said table; means for compressing the upholstering materials upon said table; means for clenching the button-staples; and means for releasing said button-staples from said holders at a certain point in the rotation of the upholstering-table.

20. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; button-staple holders for said upholstering-table; a series of inclined chain bolts rotatably mounted over said table; a series of clenching-wedges for the button-staples secured to the supporting-frame, which wedges have pivoted points, each of which points carries a guide to direct the button-staple upon the point of the clenching-wedge; a series of washer-feeding tubes to supply washers to the button-staples; and means for rotating said table and said chain bolts.

21. In an upholstering-machine, in combination, a supporting-frame; sprocket-wheels rotatably mounted on said frame; two endless chain bolts adapted to run over said sprocket-wheels; transverse cleats supported by said endless chain bolts, which cleats comprise an endless upholstering-table; a series of button-staple holders for each of said cleats; a series of inclined chain bolts rotatably mounted over said upholstering-table; a series of clenching-wedges; a series of washer-feeding tubes; and means for rotating said endless upholstering-table and said inclined chain bolts.

22. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; a plurality of longitudinal series of button-staple holders for said upholstering-table; a framework for the filling material, pivotally mounted over said upholstering-table; means for compressing the upholstering materials upon the upholstering-table; means for presenting washers to the button-staples; means for clenching said button-staples; and means for rotating said endless table.

23. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon, said table being composed of transverse cleats; a series of button-staple holders for each cleat, certain of said button-staple holders being secured to said cleats, and others being mounted in ways thereon and capable of being slid transversely of said cleats; means for compressing the upholstering materials upon said table; means for clenching the button-staples to fasten the upholstering materials together; and means for rotating said table.

24. In an upholstering-machine, in combination, means for compressing the materials to be upholstered; a series of button-staple holders; a pivotally-mounted washer-feeding tube for presenting washers to the button-staples; a hinged rod for carrying a supply of washers, which rod terminates near the upper end of said tube; and a clenching-wedge for spreading the prongs of the button-staples.

25. In an upholstering-machine, in combination, a supporting-frame; an endless upholstering-table rotatably mounted thereon; button-staple holders for said upholstering-table; a series of inclined chain bolts rotatably mounted over said table; an endless cord at each side of the upholstering-table for holding the backing material; a series of clenching-wedges for the button-staples secured to the supporting-frame; a series of washer-feeding tubes; and means for rotating said table and said inclined chain bolts.

26. In a holder for button-staples, in combination, a stem having a pocket at its upper end; a jaw pivoted on said stem; and a spring for holding said jaw in a closed position, said jaw extending downward from said button-staple into a position to be engaged by a fixed projection when the button-staple reaches a certain point in its travel.

27. In a feeding device for upholstering-washers, in combination, a curved tube for the washers, having a bifurcated lower end; means for oscillating said tube; a flat spring upon one side of said tube, extending into said bifurcation and adapted to impinge upon the lower edge of the lowest washer in the tube, to prevent the accidental escape of said washer; an enlarged upper end for said tube; a rod for holding a series of washers; a pivotal support for said tube near the upper end thereof; and a finger extending upwardly from the upper end of said tube and adapted to engage one of the said series of washers to normally hold said washers from entering said tube but to permit them to enter the tube one at a time when said tube is oscillated upon its pivotal support.

28. A clenching device for button-staples, comprising a rotatable wheel having clenching-wings pivoted thereon; an integral extension at the side of each of said wings; a spring for holding the free end of each of said wings toward the center of said wheel; a fixed projection for engaging the free end of each of said wings and moving them outward against the action of said springs as the wheel is rotated; and a spring-actuated hooked pawl for engaging and dragging downward one leg of the button-staple.

29. A clenching-wedge for button-staples, having a pivoted point and a guide fixed on said point for directing the prongs of the button-staple against the point of the clenching-wedge.

30. A clenching-wedge for button-staples, having a flat rearwardly-inclined under face, a pivoted point and a guide fixed on said point adapted to direct the prongs of the button-staple against the point of the clenching-wedge, which guide projects forward from said point and is flaring to receive the button staple.

31. A clenching-wedge for button-staples, having a flat rearwardly-inclined lower face, a pivoted point and a guide fixed on said point adapted to direct the prongs of the button-staple against the point of the clenching-wedge, which guide projects forward from said point and is flaring to receive the button staple.

32. In a clenching device for button-staples, in combination, means for holding and for advancing the button-staple; a framework having a guide-channel through which the button-staples are advanced; a clenching-wedge having a pivoted point; and a guide fixed on said point, which guide lies within said channel and is adapted to move laterally thereof to

receive the button-staple and to present it to the point of the clenching-wedge.

33. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and holding mechanism for the means for securing together the materials to be upholstered.

34. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is movable in the direction of travel of the upholstering materials.

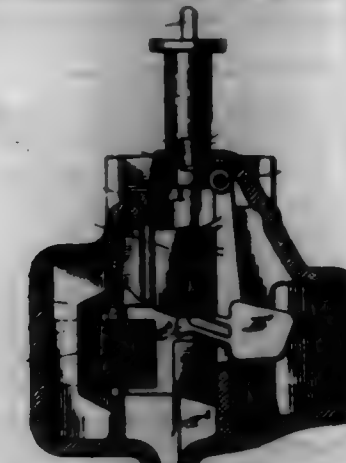
35. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and holding mechanism for the means for securing together the materials to be upholstered, which holding mechanism is secured to one of said upholstering-surfaces.

36. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and button-staple holders.

37. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and button-staple holders movable in the direction of travel of the upholstering materials.

38. In an upholstering-machine, in combination, a supporting-frame; two upholstering-surfaces adapted to move in the same direction, one of which surfaces comprises a series of endless bolts; means for moving said upholstering-surfaces; and button-staple holders secured to one of said upholstering-surfaces.

702,968. CAR-COUPPLERS. WILLIAM S. JONES and EDWIN W. WEBB. Chicago, Ill. Filed Sept. 18, 1901. Serial No. 75,594. (No model.)



Claim.—1. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a vertically-sliding pin adapted to lock the knuckle in its closed position, a locking device, pivotally mounted within the coupling-head and adapted to retain the locking-pin either in its locked or unlocked position, substantially as described.

2. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a vertically-sliding locking-pin adapted to lock the knuckle in its closed position, a pendulum-dog pivotally mounted within the coupling-head adapted to swing into engagement with and retain said locking-pin in its locked position and to swing under and support said locking-pin when the latter is elevated, substantially as described.

3. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a two-part vertically-sliding locking-pin the lower part of which is adapted to lock the knuckle in its closed position, a pendulum-dog pivotally mounted within the coupling-head adapted to engage with and prevent the lower part of said locking-pin from creeping, a projection on said dog engaged by an inclined portion on the vertical wall of the upper part of said pin when the latter is elevated thereby swinging said dog out of engagement with the lower part of the pin, substantially as described.

4. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a locking-pin comprising locking and lifting portions, means connecting said portions so as to permit an initial movement of the latter independently of the former, a pendulum-dog mounted within the coupling-head, a projection on said dog adapted to engage the locking portion of the pin when the latter is in its locking position, said dog having a second projection adapted to be engaged by the lifting portion of the

pin during its initial movement and the first projection therein disengaged from the locking portion of the pin, substantially as described.

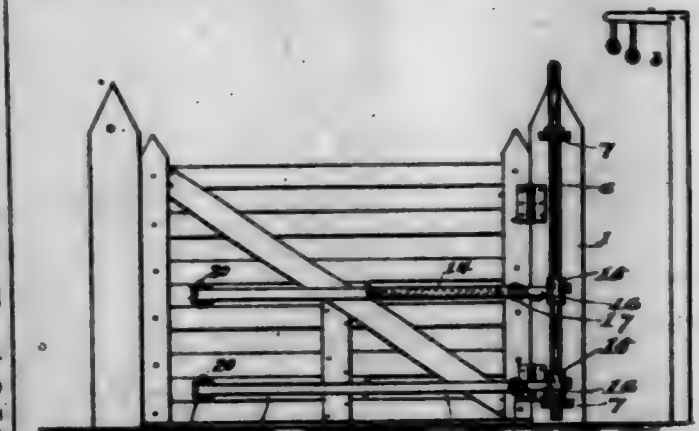
5. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a locking-pin comprising locking and lifting portions the latter when lifted having a slight initial movement before lifting the locking portion, lugs projecting from a reduced upper end of said locking portion and engaging slots formed through the walls of the lifting portion, a pendulum-dog mounted within the coupling-head, projections on said dog entering recesses in each portion of the pin when the latter is in its locking position, whereby the initial movement of the lifting portion through the engagement of the recess therein with the projection on the dog swings the other projection on the dog out of engagement with the recess in the locking portion of the pin, substantially as described.

6. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a locking-pin comprising locking and lifting portions the latter when lifted having a slight initial movement before lifting the locking portion, lugs projecting from a reduced upper end of said locking portion and engaging slots formed through the walls of the lifting portion, a pendulum-dog mounted within the coupling-head, projections on said dog entering recesses in each portion of the pin when the latter is in its locking position and adapted to swing beneath the locking portion of the pin into the path of the tail of the knuckle when the pin is in its unlocking position, and means interposed between the lifting portion of the pin and said dog whereby the projection on the latter is swung out of engagement with the locking portion of the pin during the initial movement of the lifting portion and then permitted to swing by gravity beneath and support the locking portion until removed therefrom by the tailpiece of the knuckle when the latter is opened, substantially as described.

7. In a car-coupler, the combination with a coupling-head, of a knuckle pivoted therein, a two-part locking-pin comprising lifting and locking portions, connecting means between said portions permitting an initial movement of the lifting portion independent of the locking portion, said connecting means being engaged and disengaged by a relative rotation of said portions, and a locking device for the locking portion of the pin actuated by the initial movement of the lifting portion, substantially as described.

8. In a locking-pin for a Master Car-Builders' car-coupler, the combination with a lifting portion, of a locking portion, connecting means for coupling said portions comprising lugs and slots the latter having communicating grooves above their lower ends to permit the insertion of the lugs in the slots by a relative rotation of the portions of the pin, substantially as described.

702,964. SWINGING GATE. WILLIAM S. JONES, Marshall, Mo. Filed Feb. 12, 1902. Serial No. 94,995. (No model.)



Claim.—1. The combination, with a swinging gate, latches slidable therein, and a vertical reversible shaft, of the door having projecting arms and adjustable on the shaft, and the levers fulcrumed to the arms and connected to the latches.

2. The combination, with a swinging gate, spring-controlled latches slidable thereon, and a reversible shaft, of the door adjustable on the shaft and having projecting arms, and the levers having one end fulcrumed to the arms and the other end adjustably connected to the latches.

3. The combination, with a swinging gate, slidable latches, and springs to retract the latches and control the movement of the latter, of a reversible shaft, arms projecting from the shaft, and levers connecting the latches with the arms, to automatically operate the gate and the latches.

4. The combination, with the latches having steps, brackets on the latches, and springs for retracting the latches, of a reversible shaft, arms adjustable on and projecting from the shaft, and the levers fulcrumed to the arms and adjustably connected to the said brackets, whereby the height and throw of the arms, and reach of the levers may be varied.

702,965. FLOATABLE GARRON FOR CLEANING SHIP SIDES AND BOTTOMS. ROBERT KAUFER, Rochester, N. Y. Filed Oct. 15, 1901. Serial No. 73,733. (No model.)



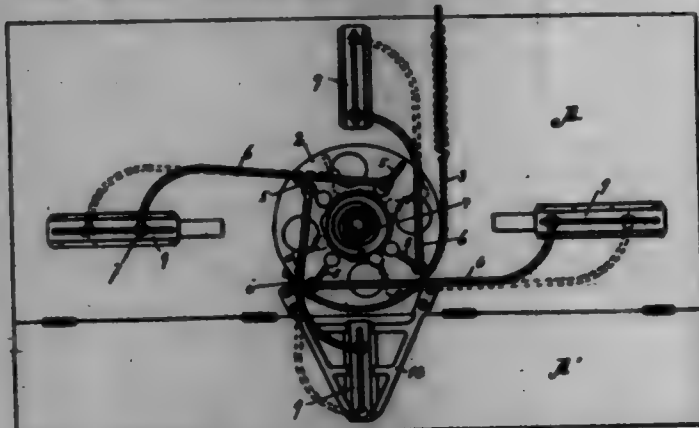
Claim.—1. A floatable garron divided into a series of compartments, each compartment having suitable lights or windows, the upper railing arranged upon the top of the garron, the upper and lower galleys, the vertical cleaning-brushes, and the horizontal cleaning-brush all arranged and adapted to operate substantially as shown and described.

2. A floatable garron having horizontal adjustable journal-beams arranged at opposite sides, a horizontal brush journaled within the ends of said adjustable beams and means contained within the garron for adjusting the said beams in or out, substantially as described.

3. A floatable garron having upright rotary brushes journaled adjacent to the sides of said garron, the horizontal rotary brush journaled within the outer ends of the adjustable beams arranged upon the sides of the garron and at a point below the vertical brushes and means contained within the garron for operating the vertical brushes and means for operating and adjusting the horizontal brush substantially as described.

4. A floatable garron comprising a series of compartments arranged one above the other, the vertical rotary brushes arranged upon the sides of the garron, the horizontal rotary brush arranged adjacent to one side of the garron, below the vertical brushes, the adjustable brackets carrying the said horizontal brush, means contained within the garron for operating the vertical and horizontal brushes and a suitable traveling support connected to the said garron, substantially as and for the purpose described.

702,966. PAPER-JOGGER. PERCY E. KURT, Utica, N. Y. Filed June 17, 1901. Serial No. 64,787. (No model.)



Claim.—1. A jogger-finger arranged to support the overhanging edge of a mispiled sheet, and means for supporting and moving the finger away from the face of the receiving-table, as the pile of sheets increases, substantially as set forth.

2. A jogger-finger arranged to support the overhanging edge of a mispiled sheet, and means for supporting and moving the finger vertically away from the plane of the receiving-table as the pile of sheets increases, said means being operated by the pile of sheets.

3. A jogger-finger, a vertical movable slide on which said finger is mounted, a post or upright on which the slide is mounted and means for automatically moving and securing said slide, combined, substantially as set forth.

4. A jogger-finger having a weighted outer end, a vertical movable slide on which said finger is pivoted, a post or upright on which the slide is mounted and means for moving and securing said slide against backward movement, combined, substantially as set forth.

5. The combination with the paper-jogging mechanism of a finger mounted on and projecting in advance of the working face of the jogging mechanism, and means causing the finger to move away from the face of the table as the pile of paper builds thereon, substantially as set forth.

6. The combination with the table having a slotted opening, of a slide and operating means arranged on the under side of the table, said slide having a post projecting into said slotted opening and terminating below the upper surface of the table, a removable paper-jogging mechanism on top of the table having a socket adapted to fit over and fit the said post on the slide and within the slotted opening, substantially as set forth.

7. The combination with a receiving-table of a paper-erasing mechanism and means for carrying that portion of the sheet not supported by the pile during the action of the erasing mechanism.

8. The combination in a paper-jogging mechanism of a rocking plate or disk having radial slots, connecting-rods engaging on crank-pins adjustably secured in said slots and paper-engaging parts of said jogging mechanism connected to the other ends of said connecting-rods, substantially as set forth.

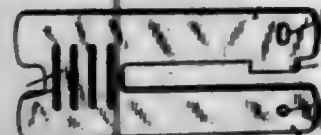
702,967. KNIFE. ISRAEL KINNEY, Toronto, Canada. Filed Sept. 30, 1901. Serial No. 77,072. (No model.)



Claim.—1. In a knife, in combination the sides and back stamped, formed or bent up from a single piece of metal, the longitudinal center of which forms the back and the portions to each side the sides, each longitudinal center being provided with a central slot or slots whereby and bridges are left connecting the sides, blades held within the sides and rivets extending through each blade and a spring fitting and suitably held within the slot and having the ends abutting the backs of the ends of the blades in proximity to and longitudinally within the end bridges, as specified.

2. In a knife, in combination the sides and back stamped, formed or bent up from a single piece of metal, the longitudinal center of which forms the back and the portions to each side the sides, each longitudinal center being provided with central slots leaving a central bridge and end bridges, blades held within the sides and rivets extending through each blade and sides and a spring held in position within the slots by the central bridge and having the ends abutting the backs of the ends of the blades in proximity to and longitudinally within the end bridges as specified.

702,968. POCKET-KNIFE. ISRAEL KINNEY, Toronto, Canada. Filed Apr. 7, 1902. Serial No. 101,315. (No model.)



Claim.—1. In a pocket or other knife, the combination with the blade, of a spring-metal handle comprising two sides, the end of one side of which is provided with a round hole and the end of the other with a slotted hole and a projection designed to extend underneath the inner end of the blade, the opposite end of the handle being provided with a bridge, whereby a spring is imparted to the blade, and a rivet extending through the end hole and slot and hole in the blade as and for the purpose specified.

2. In a pocket or other knife, the combination with the blade, of a spring-metal handle comprising two sides, the end of one side of which is provided with a round hole and the end of the other with a slotted hole and a projection designed to extend underneath the inner end of the blade, and the opposite end of the handle being provided with a bridge having cross-slots, whereby a spring is imparted to the blade, and a rivet extending through the end hole and slot and hole in the blade as and for the purpose specified.

3. In a pocket or other knife, the combination with the blade, of a spring-metal handle comprising two sides, the end of one side of which is provided with a round hole and the end of the other with a slotted hole and a projection designed to extend underneath the inner end of the blade, and the opposite end of the handle being provided with a bridge having diagonal side cross-slots whereby a spring is imparted to the blade, and a rivet extending through the end hole and slot and hole in the blade as and for the purpose specified.

4. In a pocket or other knife, the combination with the blade, of a spring-metal handle comprising two sides, the end of one side of which is provided with a round hole and the end of the other with a slotted hole and a projection designed to extend underneath the inner end of the blade, and the opposite end of the handle being provided with a bridge whereby a spring is imparted to the blade, and a rivet extending through the end hole and slot and hole in the blade, the end of the handle being open and designed to receive an instrument of utility as and for the purpose specified.

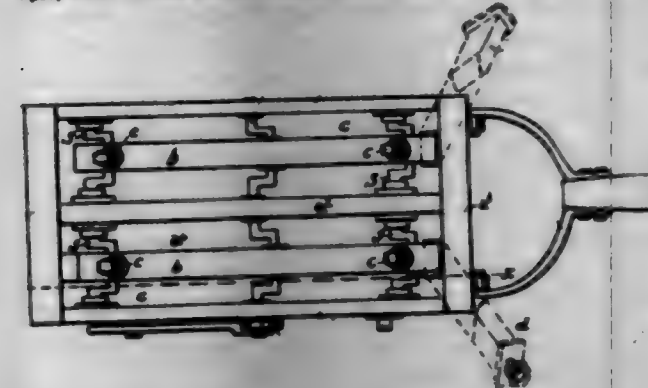
5. In a pocket or other knife, the combination with the blade, of a spring-metal handle comprising two sides, the end of one side of which is provided with a round hole and the end of the other with a slotted hole and a projection designed to extend underneath the inner end of the blade, the opposite end of the handle being provided with a bridge whereby a spring is imparted to the back of the blade, and a rivet extending through the end hole and slot, and hole in the blade, and the opposite side of the handle from the bridge being provided with lips designed to receive an instrument of utility as and for the purpose specified.

6. In a knife, a handle comprising two sides formed integrally of spring metal with a bridge connecting them at one end, one side being provided with a hole and being offset in relation to the other, which is provided with a slot and projection between which hole and slot the blade is held by a rivet, each bridge forming an edge-wise-prong spring at the free end of the sides and an inwardly-prong spring at the bridge end as and for the purpose specified.

7. In a knife, a handle comprising two sides formed integrally of spring metal with a bridge connecting them at one end, one side being provided with a hole and being offset in relation to the other, which is provided with a slot and projection between which hole and slot the blade is held by a rivet, each bridge forming an edge-wise-prong spring at the free end of the sides and an inwardly-prong spring at the bridge end as and for the purpose specified.

8. In a knife or similar article having a bent-end for fastening such instrument in place, a handle comprising two sides formed integrally of spring metal with a bridge connecting them at one end, one side being provided with a hole and being offset in relation to the other, which is provided with a slot and a rivet or pin extending through the hole in the slot and the butt-end of the knife as and for the purpose specified.

702,969. WAREHOUSE-TRUCK. WALTER A. KNIEST, Madisonville, Ohio. Filed Jan. 12, 1902. Serial No. 93,454. (No model.)



Claim.—1. An adjustable truck embodying a platform of longitudinal stringers and cross-braces at the ends thereof; running-gear including longitudinal bars and crank-shafts at the ends thereof and connecting the same with the platform, and provided with bearing-wheels; means for raising and lowering the running-gear relative to the platform said platform having one of its end braces serving as an abutment for preventing end thrust of the running-gear in one direction, when the latter is in use; and thrust-blocks adapted to be inserted between the bars and the other cross-braces of the platform for holding the running-gear from movement in an opposite direction.

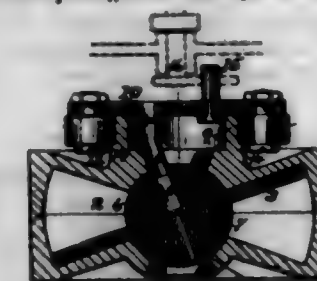
2. In an adjustable platform-truck, the combination, with the platform of parallel bars carrying the bearing-wheels each bar being carried upon and connected with the platform by corresponding crank-shafts, and an intermediate double crank-shaft lying substantially in the horizontal plane of the other crank-shafts and passing centrally through the parallel bars and connecting the bars and platform-stringers and by its rotation actuating the bars in unison in parallelism with the platform, substantially as set forth.

3. In a device of the character indicated in combination with the platform and running-gear mounted thereon and including parallel longitudinal bars and crank-shafts at the ends thereof, the actuating crank-shaft, passing centrally through the parallel bars and the platform-stringers and lying substantially in the horizontal plane of the other crank-shafts, the terminal spur-wheel fixed to the central shaft, and the actuating-lever loosely centered on the shaft and engaging the spur-wheel, substantially as set forth.

702,970. DIKE-WATER-SETER. W. H. LARABEE, Worcester, Mass., assignor to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Filed Mar. 12, 1902. Serial No. 97,316. (No model.)

Claim.—1. In a disk-piston action, the disk-chamber casing having a concentric circular railway-flange with an external guiding-surface, the disk piston having a central ball with a shaft-bearing opening at the axis thereof perpendicular to the plane of the disk, a traversing arm car-

rying depending bearing-studs, rollers mounted on said studs and rolling on the external surface of said circular flange, and a shaft fixedly supported in said traversing arm and extending on an incline into and turning within the central opening of said disk piston, substantially as set forth.



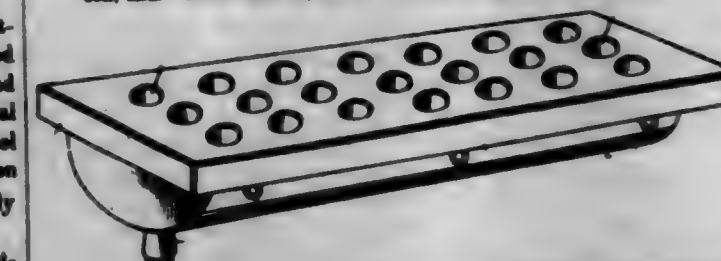
2. In a disk-piston action, in combination, a disk-chamber casing provided with a circular concentric flange having an exterior railway-surface and annular ledge thereon, the disk piston supported by a bearing-ball within said casing and having an axial opening perpendicular to the plane of the disk, a controlling member carrying a plurality of rollers that run upon said railway adjacent to said ledge, the piston-controlling shaft fixed in said member and extending at an angle into the disk piston, and a pin on said member adapted for moving the register-actuating mechanism.

3. In a disk-piston action, in combination, a disk-chamber and casing, a nutating disk piston having a center bearing-ball with a hole through the axis thereof, the upper portion of said hole formed of a larger diameter than the lower portion, and provided with an intermediate annular offset therein, a piston-controlling shaft fitting in said hole, said shaft extending through, or nearly through the ball, and having a shoulder adapted for abutting upon said intermediate offset, a traversing member supporting the end of said piston-shaft, adapted for positively maintaining its inclined relation, a circular guide-flange fixed concentric to the axial line of the disk-chamber, a plurality of rollers supported on said traversing member and running upon said guide-flange, and a register-driving projection arranged on said member.

4. In a disk water-meter, in combination with the disk-chamber casing, a diaphragm having a portion of its area from the bottom to the top of the chamber formed of greater thickness than the main portion of said diaphragm, the exterior sides of the thicker portion presenting outstanding surfaces for contact with the disk edges; a nutating disk piston having a radial slot, the edges of which are adapted to contact with said outstanding surfaces of the diaphragm, an obliquely-disposed depending shaft turning within a bearing-opening at the axis of the disk piston, a traversing member having said shaft fixed therein, for controlling the inclination or tilt of the disk piston, and means for supporting said traversing member for movement concentric with the axis of the casing.

5. In a disk water-meter, in combination, as described; the disk-chamber casing, the diaphragm having a portion of greater thickness at its inner end, adjacent to the ball-bearing, and a retaining-arc passing through the casing, and engaging in an opening formed in said thicker portion of the diaphragm, substantially as set forth.

702,971. FUMIGATING POULTRY-ROOST. OLIVER LA RUE, Bolton, Ind. Filed Dec. 14, 1901. Serial No. 93,948. (No model.)



Claim.—1. A fumigating poultry-roost comprising a perforated plate or bar, and a receptacle arranged beneath and extending over the perforated area of the plate or bar and adapted to contain a fumigating liquid or composition, said plate or bar being detachably secured to the receptacle and being extended beyond the same and adapted to support the receptacle, substantially as described.

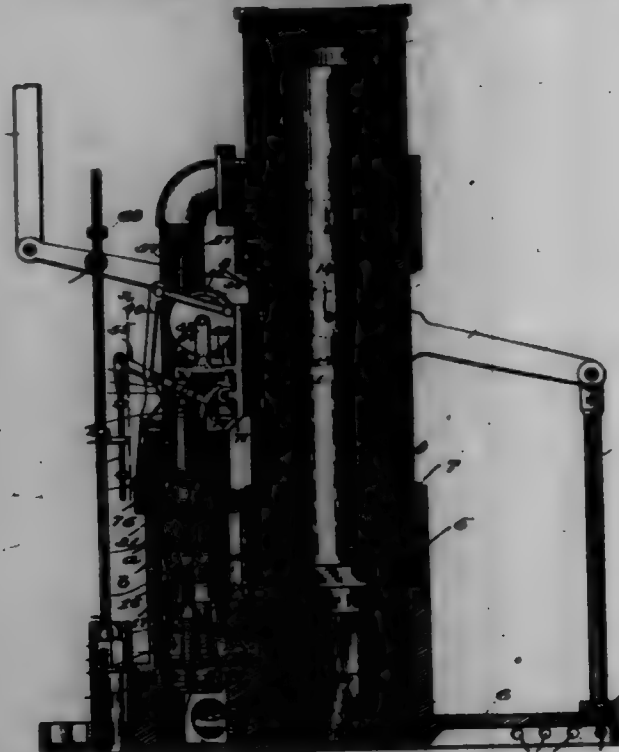
2. A fumigating poultry-roost comprising a perforated plate or bar and a receptacle arranged beneath and extending over the perforated area of the bar or plate and adapted to contain a fumigating liquid or composition, said plate or bar forming a cover for the receptacle and having its perforations of a size to permit the liquid or composition to be readily poured into the receptacle through them and the said receptacle being provided with a drain-opening to permit the composition or liquid to be readily drawn off, substantially as described.

3. A fumigating poultry-roost comprising a perforated plate or bar, and a receptacle arranged beneath and detachably secured to the plate or

bar and terminating short of the ends thereof and provided with a drain-opening, substantially as described.

4. A fumigating poultry-roost comprising a perforated plate or bar, and an approximately semicylindrical receptacle arranged beneath the plate or bar and extending over the perforated area of the same and provided at one end with a drain-opening, said receptacle being provided with longitudinal side flanges detachably secured to the plate or bar, substantially as described.

702,972. MOTOR. PHILIP E. LAMBERT, Marblehead, Mass. Filed May 23, 1901. Serial No. 51,513. (No model.)



Claim.—1. A motor, a valve for admitting the motive fluid thereto, a normally inoperative actuator for said valve, a valve-operating lever pivoted to the valve-stem and engaging said actuator, means operated by the motor to positively turn said lever about its pivot, a stop to limit each positive turning movement of the lever, said positive turning movement of the lever operating to store up energy in the actuator and said lever being then operated on by the actuator to shift the valve.

2. A motor, a valve for admitting motive fluid thereto, an actuator for said valve including a normally inactive cam, a lever pivoted to the valve-stem and engaging said cam, means operated by the motor to positively turn said lever about its pivot, and a stop to limit each positive turning movement, the lever during each positive turning movement operating to render the cam active, and said cam when active engaging the lever and actuating the valve.

3. A motor, a puppet-valve for admitting the motive fluid thereto, a normally inoperative actuator for said valve, a valve-operating lever pivoted to the valve-stem, means operated by the motor to operate said lever, said lever operating through the first portion of its stroke to store up energy in said actuator and to hold the valve firmly to its seat, and being operated upon by the actuator during the latter portion of its stroke to shift the valve.

4. A motor, a puppet-valve for admitting motive fluid thereto, an actuator for said valve including a normally inactive actuating-cam, a lever pivoted to the valve-stem, and means connected to said lever and operated by the motor to render said cam active, said lever operating to hold the valve to its seat while the cam is being rendered active and said cam when active engaging the lever and actuating the valve-stem.

5. In a valve-operating mechanism, a spring-controlled cam-lever having a double cam-surface thereon, an operating-lever pivotedly connected to the valve-stem, and engaging said cam-surface, means to turn said operating-lever about its pivotal point against the action of the cam-lever, said lever during each turning motion operating to hold the valve to its seat, and said cam-lever after the operating-lever has passed its rise giving to the same a movement to shift the valve.

6. In a puppet-valve-operating mechanism, a valve, a yieldingly-supported cam, an operating-lever connected to the valve and engaging said cam, means to positively operate one of said parts until the point of engagement between the lever and the cam passes the rise thereof, the lever during each positive movement operating to hold the valve to its seat and the cam then operating against the lever to shift the valve.

7. In a puppet-valve-operating mechanism, a valve, a yieldingly-supported cam, an operating-lever connected to the valve-stem, and en-

gaging said cam, means to positively turn said lever until its point of engagement with the cam passes the rise thereof, the cam then operating to complete the stroke of the lever, and shift the valve, said lever during its initial turning movement operating to hold the valve to its seat.

8. In a valve-operating mechanism, a valve, a yieldingly-supported cam, an operating-lever pivoted to the valve-stem and engaging the cam, means to positively turn said lever and a stop to arrest the turning movement of said lever about its pivot as the point of engagement between said lever and the cam passes the rise of the cam, whereby said cam operates to move the lever about the stop as a fulcrum and thus shift the valve.

9. In a valve-operating mechanism, a valve, a spring-controlled actuating-lever having a cam thereon, an operating-lever pivoted to the valve-stem to engage the cam, means to positively turn said lever, and a stop to arrest the turning movement thereof as the point of engagement between the lever and cam passes the rise of the cam, whereby said cam operates to move the lever about the stop as a fulcrum, and thus shift the valve.

10. In a valve-operating mechanism, a valve, a yieldingly-supported cam, an operating-lever pivoted to the valve-stem and engaging said cam one side of the fulcrum thereof, means to positively turn the operating-lever about its fulcrum, a stop adapted to engage the opposite end of the lever as the point of engagement with the cam passes the rise thereof, whereby the yielding cam operates to turn the lever about the stop as a fulcrum and thus shift the valve.

11. In a valve-operating mechanism, a valve, a spring-controlled actuating-lever having a double cam thereon, an operating-lever pivoted to the valve-stem, one arm of said lever engaging said cam-surface, means to turn said lever about its fulcrum, a stop adapted to engage the other arm of said lever just as the point of engagement between the lever and the cam passes the rise of the cam, the lever-operating mechanism operating to positively lift the valve from its seat and the spring-controlled cam-lever operating to turn the operating-lever about the stop as a fulcrum and thus shift the valve.

12. In a valve-operating mechanism, a valve, a spring-controlled actuating-lever pivoted to a stationary support and having a substantially V-shaped cam-surface thereon, an operating-lever pivoted to the valve-stem and engaging the said cam-surface, a stop to limit the turning movement of the operating-lever about its pivotal point in either direction just as it passes the point of the cam, whereby the actuating-lever operates to turn the operating-lever about the stop as a fulcrum and thus shift the valve in either direction.

13. A motor including a reciprocating member, a valve for admitting motive fluid thereto, a spring-controlled cam-lever pivoted to a stationary support and having a substantially V-shaped cam-surface thereon, an operating-lever pivoted to the valve-stem and engaging said cam-surface, means connected to the reciprocating member of the motor to turn said lever about its pivotal point against the action of the cam-lever, a stop to limit the turning movement of the operating-lever about its pivotal point in either direction just as it passes the point of said cam, whereby the cam-lever operates to turn the operating-lever about the stop as a fulcrum, and thus shift the valve in either direction.

14. A motor including a cylinder and a reciprocating piston therein, a valve to alternately admit motive fluid to opposite sides of the piston, a spring-controlled cam-lever having a substantially V-shaped cam-surface thereon, and an operating-lever pivoted to the valve-stem and engaging said cam-surface, means operated by the piston to turn the lever about its pivotal point, and a stop to limit the movement of the operating-lever relative to the valve-stem just as the point of engagement between said lever and cam-surface passes the point of rise of the cam, whereby the cam operates to turn the lever about the stop as a fulcrum and thus shift the valve.

15. A motor, a balanced puppet-valve device for admitting the motive fluid thereto, an actuator for said valve including a normally inactive actuating-cam, a lever pivoted to the valve-stem, and means connected to said lever and operated by the motor to render said cam active, said means also operating to hold the valve to its seat until the cam is rendered active and said cam when active engaging the lever and shifting the valve device.

16. In a valve-operating mechanism, a balanced reciprocating valve, a yieldingly-supported cam, an operating-lever pivoted to the valve-stem and engaging the cam, means to positively turn said lever, and a stop to arrest the turning movement of the lever relative to the valve-stem as the point of engagement between said lever and the cam passes the rise of said cam, whereby said cam operates to turn the lever about the stop as a fulcrum and thus shift the valve.

17. In a valve mechanism, a globe-valve, means to move the same toward and from its seat, and a counterweight connected to the valve-stem and operating to retard the action of the valve in both directions, said counterweight having approximately the same weight as the valve.

18. In a valve mechanism, a globe-valve, means to move the same toward and from its seat, a casing, a piston in said casing and connected to said valve, said piston having substantially the same weight as the valve and serving as a counterweight therefor, and means to retard the movement of the piston in both directions, whereby the movement of the valve is cushioned.

19. In a valve mechanism, a globe-valve, means to move the same to and from its seat, a lever pivoted to the valve-stem, a counterweight connected to said lever and inclosed in a casing, and means to retard the movement of said counterweight in said casing in both directions, said counterweight having approximately the same weight as the valve.

20. A motor including a reciprocating piston, valve mechanism to admit motive fluid alternately to opposite sides of said piston, a single throttle-valve in the supply-pipe, and automatic mechanism to substantially close the same when the piston reaches each end of its stroke, said valve being automatically opened by the pressure of the motive fluid.

21. A motor including a reciprocating piston, a valve to admit motive fluid alternately to opposite sides thereof, a throttle-valve in the supply-pipe, a rocking lever to which said throttle-valve is attached, said lever having a fulcrum each side its point of attachment to said valve, and means operated by said piston as it reaches each end of its stroke to rock said lever whereby the throttle-valve is substantially closed.

22. A motor including a reciprocating piston, a valve to admit motive fluid alternately to opposite sides thereof, a throttle-valve in the supply-pipe, a rocking lever to which said throttle-valve is attached, said lever having a fulcrum each side of its point of attachment with the throttle-valve, and means operated by said piston when it reaches each end of its stroke to rock said lever about one fulcrum, and when it reaches the other end of its stroke to rock said lever about the other fulcrum, said lever in each rocking movement operating to substantially close the throttle-valve and said valve being automatically opened by the pressure of the motive fluid as the piston begins each return stroke.

23. In a motor, a reciprocating piston, a valve to supply motive fluid to said motor, valve-operating mechanism, a puppet throttle-valve in the supply-pipe, and means actuated by the piston as it reaches each end of its stroke to move said throttle-valve toward its seat to substantially close the same, the closing movement of the throttle-valve being always in the same direction regardless of the direction of movement of the piston.

24. A motor including a reciprocating piston, a valve to supply motive fluid to said motor, valve-operating mechanism rendered active when the piston reaches a predetermined point in its stroke in either direction, a puppet throttle-valve in the supply-pipe of the motor, and means operated by the valve-operating mechanism to substantially close the throttle-valve for an interval of time when the piston reaches each end of its stroke, said valve being opened by the pressure of the motive fluid.

25. A motor, including a reciprocating piston, a valve to supply motive fluid to said motor, valve-operating mechanism, a reciprocating throttle-valve in the supply-pipe, and a rocking member connected to the stem of said throttle-valve and actuated by the piston as it reaches each end of its stroke to move said throttle-valve toward its seat to substantially close the same, the closing movement of the throttle-valve being always in the same direction, regardless of the direction of movement of the piston.

26. In a motor, two oppositely-disposed cylinders, a reciprocating piston at its ends inclosed in said cylinders, an arm adjustably connected intermediate its ends to the central portion of the piston, and an adjustable support to which one end of said arm is pivoted, the other end of said arm being connected to the mechanism to be operated, the construction being such that the length of the stroke of the arm may be adjusted.

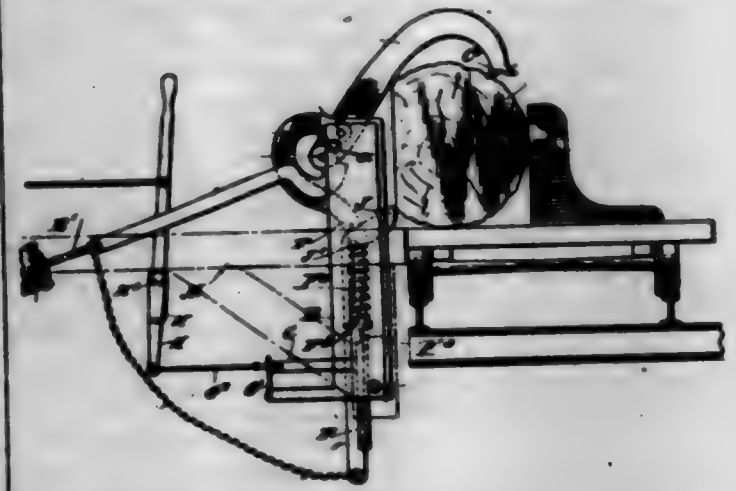
702,973. FEEDING-FASTENER. WILLIAM LAWRENCE, New York, N. Y. Filed Sept. 5, 1901. Serial No. 74,493. (No model.)



Claim.—In a securing device for neckties, &c., the combination with a securing-plate having a bifurcate tang H formed integral therewith and extending at a right angle therefrom, the legs of which are provided at the ends with securing-lugs c, of a collar-button B having a base E connected with a head L by a shank, wider horizontally than vertically, and provided with a horizontal slot F, which extends through the central portion of the shank H and is adapted to receive the bifurcate tang H which is then locked in place by the locking-lugs c being forced into the

perforations G in the side wall of the shank by the resiliency of the two legs of the tang, substantially as shown and described.

702,974. LOG-TURNER. WILLIAM L. LEMANA, Shreve, Cal. Filed Aug. 3, 1900. Serial No. 32,351. (No model.)



Claim.—1. A log-turner, comprising a pivoted pusher, a dog pivoted a short distance from one end to the pusher, and provided at the end of its long member with oppositely-projecting points, and a power-actuated device connected with the short member of the dog, whereby provision is made for turning a log in either direction, as set forth.

2. A log-turner comprising a pivoted pusher, a dog fulcrumed thereon, a locking device on said pusher, for locking the dog, when in a rearward position, in place on the pusher, the locking device being under the control of the operator, and a power-actuated device connected with said dog, for imparting a swinging motion to said dog and to said pusher, the arrangement being such that on the forward movement of said device the stored force is transmitted by the dog to the pusher to swing the latter forward, for pushing a log from the log-deck onto the carriage while the dog remains locked in a dormant position, as set forth.

3. A log-turner comprising a pivoted pusher, a dog fulcrumed thereon, a locking device on said pusher, for locking the dog, when in a rearward position, in place on the pusher, the locking device being under the control of the operator, a power-actuated device connected with said dog, for imparting a swinging motion to said dog and to said pusher, the arrangement being such that on the forward movement of said device the stored force is transmitted by the dog to the pusher to swing the latter forward, for pushing a log from the log-deck onto the carriage while the dog remains locked in a dormant position, and a spring pressing said locking device, so that when the locking device is released the force of the spring on the locking device causes the latter to swing the dog upward and forward in engagement with the log, so that on the rearward motion of said power-actuated device the lock and with it the pusher swing rearward to turn the log over, as set forth.

4. A log-turner, comprising a pivoted pusher, a dog fulcrumed thereon, a power-actuated device pivotally connected with the dog at the heel thereof and on the rear side of the dog's fulcrum, a spring-pressed bar carried by the pusher and pivotally connected with the dog on the forward side of the dog's fulcrum, and independent means under the control of the operator for restraining the action of the spring of the said bar, as set forth.

5. A log-turner comprising a pivoted pusher, a dog fulcrumed thereon, a power-actuated device pivotally connected with said dog at the heel thereof and to one side of the dog's fulcrum, a spring-pressed bar pivotally connected with the dog on the forward side of the dog's fulcrum, the bar being carried by said pusher, and means under the control of the operator, for locking the bar in place on the pusher at the time the dog is in rearward dormant position, as set forth.

6. A log-turner, comprising a pivoted pusher for pushing a log from a log-deck onto a carriage, a dog fulcrumed on the pusher and adapted to turn the log over, a link connected at one end with a power-actuated device and pivotally connected at its other end with said dog, a spring-pressed bar movable on said pusher, and pivotally connected with said dog, and a lever for forming a fulcrum for the log when the latter is to be turned over, said lever being connected with said link to move the lever out of active position when rolling or pushing the log upon the carriage, as set forth.

7. A log-turner, comprising a pivoted pusher for pushing a log from a log-deck onto the carriage, a dog fulcrumed on said pusher and adapted to turn the log on the carriage, a power-actuated device connected

with said dog, a spring-actuated connection between the said dog and pusher, said connection being so arranged relatively to the said power-actuating device, the dog and the pusher, that when the said power-actuating device pushes forwardly on the dog, the latter and the pusher swing forward, and when the pusher meets with resistance from a log or the like, then the further forward pushing of said actuating device causes a backward swinging of said dog, as set forth.

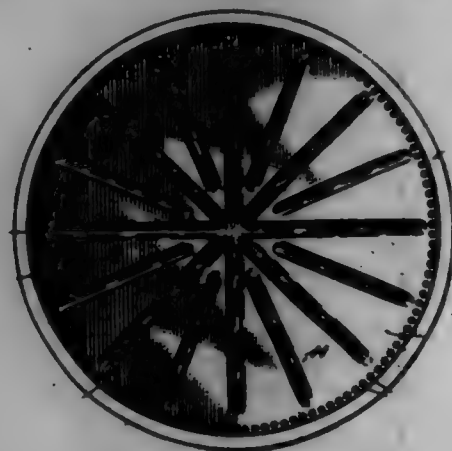
8. A log-turner, comprising a pivoted pusher for pushing a log from the log-deck onto the carriage, a dog, fulcrumed on said pusher and adapted to turn the log on the carriage, a power-actuated device connected with said dog, and a spring-actuated connection between the said dog and pusher, said connection being so arranged relatively to the said power-actuating device, the dog and the pusher, that when the said power-actuating device pushes forwardly on the dog, the latter and the pusher swing forward, and when the pusher meets with resistance from a log or the like, then the further forward pushing of said actuating device causes a backward swinging of said dog and a locking of said connection, as set forth.

9. In a log-turner, the combination of a pivoted pusher, a pivoted and spring-pressed dog carried by the pusher, a power-actuated device, a connection between the power-actuating device and the dog, and means for locking the dog in an inactive position, as set forth.

10. In a log-turner, the combination with a pivoted pusher, of a dog pivoted near one end to the pusher, a power-actuated device, a connection between the power-actuated device and the end of the dog, a spring-pressed bar carried by the pusher and connected with the dog on the side of its pivot opposite that with which the power-actuated device is connected, and means for locking the bar against the action of its spring, as set forth.

11. In a log-turner, the combination with a pivoted pusher, a dog pivoted on the pusher, and an actuating device for operating the dog and pusher, of a pivoted lever forming the fulcrum for a log, and a flexible connection between the actuating device and lever, as set forth.

702,975. METALLIC PAIL-BOTTOM. KATE E. LANE, Clifton Springs, N. Y. Filed Aug. 21, 1901. Serial No. 73,445. (No model.)



Claim.—1. A metallic pail having a two-part bottom, one of which parts is provided with a plurality of marginally-disposed orifices through which solder is passed to effect marginal sealing together of the two plates contiguous to the inner side of the body of the pail.

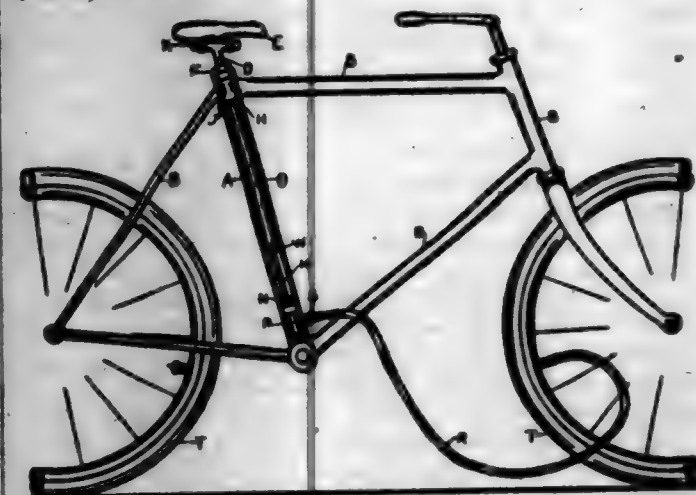
2. As a new article of manufacture, a metallic pail-bottom consisting of two metal plates of metal, the upper one, in use, being non-expandable in character, and the under one being provided adjacent to and concentrically of its periphery with orifices through which solder is passed to secure the two plates together at their peripheries.

3. As a new article of manufacture, a metallic pail-bottom, consisting of two metal plates of metal, the upper one, in use, being non-expandable in character and the under one being provided adjacent to and concentrically of its periphery with a plurality of orifices through which solder is passed to secure the two plates together at their peripheries, the said under plate being further provided with reinforcing depressions or ribs.

702,976. BICYCLE. BLA W. LYNSHUR, Warner, Canada. Filed Sept. 26, 1901. Serial No. 76,441. (No model.)

Claim.—In a bicycle, a seat-post tube open at its upper end, a hollow seat-post extending in said tube and adjustably secured to the upper end of the tube, a piston, an adjustable rod connecting the piston with the seat, air-apertures in the lower end of the post and a flexible tube connected to the lower end of said seat-post tube and to a wheel-tire to inflate said tire with air, substantially as set forth.

702,976.



702,977. BOX. GEORGE E. MARANT, Passaic, N. J. Filed Feb. 28, 1902. Serial No. 90,700. (No model.)



Claim.—1. A box comprising a body tapered to a point and closed at its lower end, and a base connected to the exterior of the body above the lower end thereof.

2. A paper box comprising a foldable or collapsible body tapered to a point and closed at its lower end and having a suitable cover, and a foldable or collapsible base surrounding and connected to the exterior of the lower portion of the body.

3. A paper box comprising the foldable or collapsible body tapered to a point and closed at its lower end; said body being formed of four flexibly-joined walls, and equipped with cover-flaps, and the foldable or collapsible base surrounding and connected to the exterior of the lower portion of the body; said base being formed of four flexibly-joined walls, and having creases in two of its walls.

702,978. SHAFT-PROP. WILLIAM L. MARSHALL, Xenia, Ohio. Filed Mar. 12, 1902. Serial No. 90,073. (No model.)



Claim.—A shaft-support consisting of an arm 2, a shorter arm 1 pivoted to the side thereof at one end, and a wire brace 3 having a central portion extending diagonally of the arm 2, and having end portions extending at right angles to said central portion, one of said ends being connected to one side of said arm 2 at the extreme end thereof and the other to the opposite side, said angular turned ends serving as stops to the shorter arm in either its folded or unfolded position, substantially as described.

702,979. PNEUMATIC HOIST. GEORGE E. MARTIN, Philadelphia, Pa., assignor to the Petrick and Ayer Company, Philadelphia, Pa. Filed Aug. 15, 1901. Serial No. 73,114. (No model.)

Claim.—1. In a fluid-pressure hoist comprising a cylinder, piston and piston-rod, a constant fluid-pressure communication to one side of the piston, a communication between both sides of the piston and a double valve device mounted in a single casing for controlling the admission of fluid-pressure to one side of the piston, its exhaust therefrom and automatically regulating the escape of pressure to hold the piston in its moved position, as described.

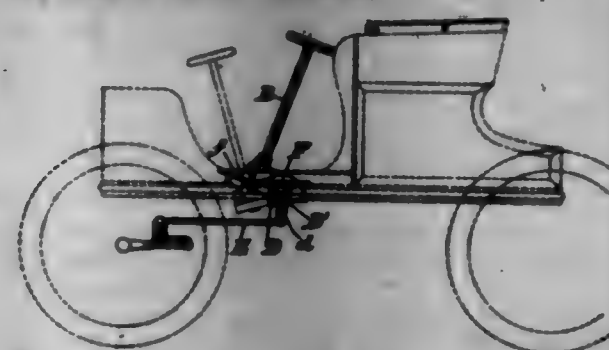
2. In a fluid-pressure hoist comprising a cylinder, piston and piston-rod, a constant fluid-pressure to one side of the piston, a communication between both sides of the piston and a pair of disk valves mounted in a single casing and provided with cooperating parts controlling admission of the fluid-pressure to the piston, its exhaust therefrom and automatically regulating its escape to maintain the piston in its elevated position, by an independent movement of one of said disks as described.



3. In a fluid-pressure hoist comprising a cylinder, piston and piston-rod, a constant fluid-pressure supply to one side of the piston, a communication between both sides of the piston, a double valve device mounted in a single casing with suitable cooperating parts controlling the admission of the fluid-pressure to one side of the piston, and its exhaust therefrom, a double-armed lever to actuate the valve and fluid-pressure and means for returning the lever to its normal position, as described.

4. In a fluid-pressure hoist comprising a cylinder, piston and piston-rod, a fluid-pressure supply to one side of the piston, a valve communication between both sides of the piston for controlling admission of the fluid-pressure to one side of the piston, its exhaust therefrom and automatically regulating its escape to hold the piston in its moved position, a lever frictionally connected to the piston-rod and connected to the valve and a guide for said lever having adjustable stops for limiting the movement of the lever as described.

702,980. STEERING SIGNALING FOR VEHICLES. HIRSH F. MAXIN, Hartford, Conn., assignor, by his attorney, to the Hartford Trust Company, trustee, a Corporation of New York. Filed Oct. 20, 1900. Serial No. 734,152. (No model.)



Claim.—1. In a motor-vehicle, the combination of a steering-pillar rotatable about its axis, a bearing for said pillar pivoted upon the vehicle, an arm operatively connected with the steering mechanism and pivotally mounted upon the vehicle, a gear fixed to said steering-pillar and a gear fixed to said arm to cooperate with the first-named gear, substantially as shown and described.

2. In a motor-vehicle, the combination of a steering-pillar rotatable

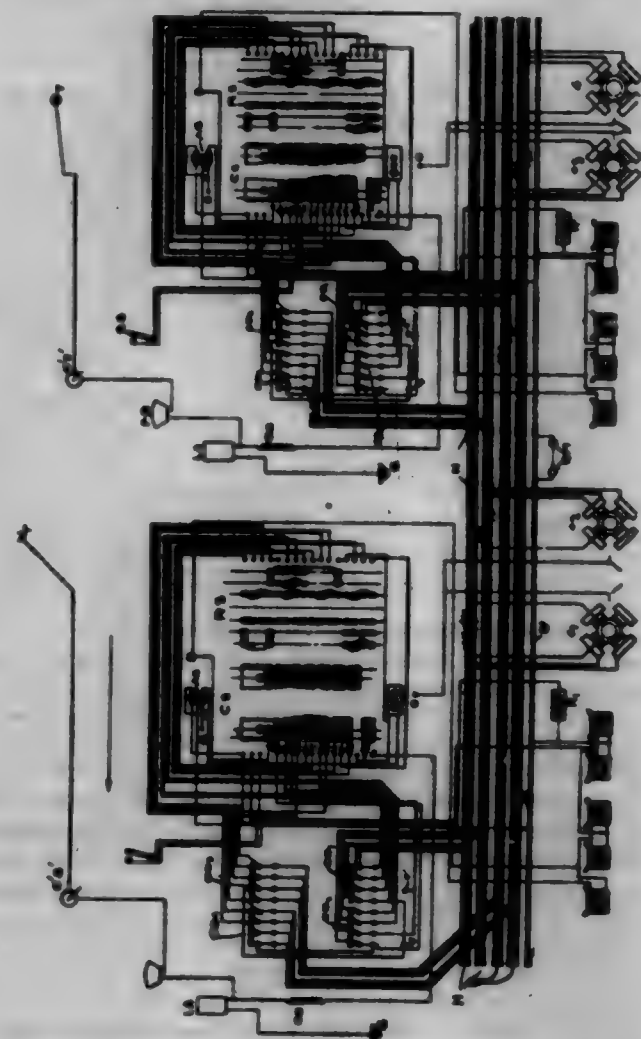
about its axis, a bearing for said pillar pivoted upon the vehicle, an arm operatively connected with the steering mechanism and pivotally mounted upon the vehicle, a gear fixed to said steering-pillar, and a gear fixed to said arm concentric with the pivot of the arm and the pivot of said bearing to cooperate with the first-named gear, substantially as shown and described.

3. In a motor-vehicle, the combination of a steering-pillar rotatable about its axis, a bearing for said pillar pivoted upon the vehicle, an arm operatively connected with the steering mechanism and pivotally mounted upon the vehicle, and cooperating members upon said pillar and said arm respectively, whereby the rotation of the pillar effects movement of the arm in any position of the pillar about the axis of its bearing, substantially as shown and described.

4. The combination of a steering post or pillar rotatable about its axis to steer the vehicle, a gear carried by said post or pillar, a second gear supported by the floor of the vehicle and operatively connected with the steering mechanism and in mesh with the first-named gear, and a support for the steering post or pillar mounted to swing about the axis of the last-named gear, substantially as shown and described.

5. The combination of a steering post or pillar rotatable about its axis to steer the vehicle, a gear carried by said post or pillar, a second gear supported by the floor of the vehicle in mesh with the first-named gear and operatively connected with the steering mechanism, a support for the steering post or pillar mounted to swing about the axis of the last-named gear, and a latch to engage said support, substantially as shown and described.

702,981. CONTROL OF ELECTRIC MOTORS. FRANK A. MERRICK and BENNETT W. STELL, Johnstown, Pa., assignors to the Lorain Steel Company, a Corporation of Pennsylvania. Filed Sept. 10, 1901. Serial No. 74,971. (No model.)



Claim.—1. In a system of train control, the combination with a plurality of train-wires to which the motors are connected, four for each motor, of one or more manually-actuated controllers on each car connected to each train-wire, corresponding leads in the different controllers being connected to different train-wires.

2. In a system of train control, the combination with a plurality of train-wires to which the motors are connected, of one or more manually-actuated controllers on each car connected to each of said train-wires, corresponding contacts of the several controllers being connected to different train-wires.

3. In a system of train control, a plurality of train-wires, one set for each motor, and each motor connected to one set only of said wires, and

motor-controllers on each motor-car, each of which is connected to all of said wires, and each of said controllers having contacts arranged to connect the motors and their elements in various ways to vary their power and speed and also their braking action.

6. In a system of train control, a plurality of train-wires, one for each motor-terminal, one or more motor-controllers on each motor-car, each of which is connected to all of said wires, and each of said controllers having contacts arranged to connect the motors and their elements in various ways to vary their power and speed and also their braking action.

7. In a system of train control, a plurality of train-wires, one for each motor-terminal, one or more motor-controllers on each car, each of said controllers being connected to all of said train-wires and arranged to connect the motors of each car both in series and in parallel, and in multiple with the motors of the other car or cars.

8. In a system of train control, a plurality of train-wires, one for each motor-terminal, one or more motor-controllers on each car, each of said controllers being connected to all of said train-wires and arranged to connect the motors on each car both in series and in parallel, and in multiple with the motors of the other car or cars, and also connect the motors in a closed local circuit of variable resistance to run as generators.

9. In a system of train control, a plurality of train-wires, one for each motor-terminal, one or more motor-controllers on each car, each of said controllers being connected to all of said train-wires and arranged to connect the motors of each car both in series and in parallel, and in multiple with the motors of the other car or cars, and also connect the motors in a closed local circuit of variable resistance to run as generators, together with brake-magnet coils included in said local circuit.

10. In a system of train control, a plurality of train-wires, one for each motor-terminal, one or more motor-controllers on each car, each of said controllers being connected to all of said train-wires and arranged to connect the motors of each car both in series and in parallel, and in multiple with the motors of the other car or cars, and also connect the motors in a closed local circuit of variable resistance to run as generators, together with brake-magnet coils included in said local circuit, and means for neutralizing the magnetism of said coils when said local circuit is opened and the motors are connected with trolley.

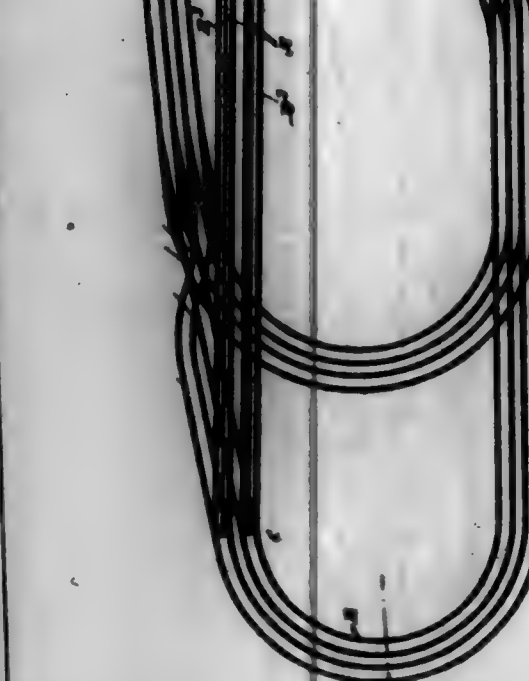
11. In a system of train control, the combination with a plurality of train-wires, to which the motor elements are separately connected, one or more motor-controllers on each car, each connected to all of said wires, and arranged to connect the motors of each car in parallel with the motors of the other car or cars, whereby any car may be detached or its motors cut out of circuit without affecting the motors of any other car or cars, together with switches for cutting the motors of any motor-car out of circuit.

12. A motor-controller for train control, consisting of a switch having contacts and connections for controlling a number of pairs of motors in parallel circuits, any one of which may be opened without affecting the others, with the individual motors of each pair on the same circuit, and auxiliary switch mechanism for cutting out a motor of each pair and establishing a circuit through the remaining motor.

13. A motor-controller, consisting of a switch having contacts and connections for controlling a number of pairs of motors in parallel circuits, any one of which circuits may be opened without affecting the others, the individual motors of each pair being in the same circuit, cut-out switches for opening the circuit of any pair of motors or of any motor, a reverse-switch, and additional contacts on the reverse and cut-out switches for completing the circuit through the motor of any pair when the other motor of that pair has been removed from circuit.

14. The combination with a plurality of electric motors, of a detector having contacts and connections for controlling said motors in pairs in parallel circuits, cut-out switches for opening the circuit of any pair of motors or of any motor in each pair, a reverse-switch, and additional switch-contacts on the reverse and cut-out switches for completing the circuit from either motor to any pair, when its companion motor has been removed from circuit.

15. In a system of train control, the combination of a plurality of independent train-wires to which the motors are connected, a controller on each car connected to all of said wires and having contact devices arranged to connect the motors of that car both in series and in parallel, and in parallel with the motors of the other cars, a cut-out switch on each car for each motor, and reversing-switches having contact devices which cooperate with the cut-out switches to maintain the circuit through one motor only.



Claim.—1. In a toboggan-slide or the like, a plurality of inclined tracks located side by side, the inclination of one track at certain points being greater than that of the other track at the corresponding point, and at certain other points the conditions being reversed, whereby provision is made for securing the novel effect of cars racing side by side at varying rate of speed, as set forth.

2. In a toboggan-slide or the like, a plurality of inclined tracks located side by side and forming a plurality of loops or circuits of parallel tracks arranged in different horizontal planes, the inclination of one track at certain points being greater than that of the other and at certain other points the conditions being reversed, as and for the purpose set forth.

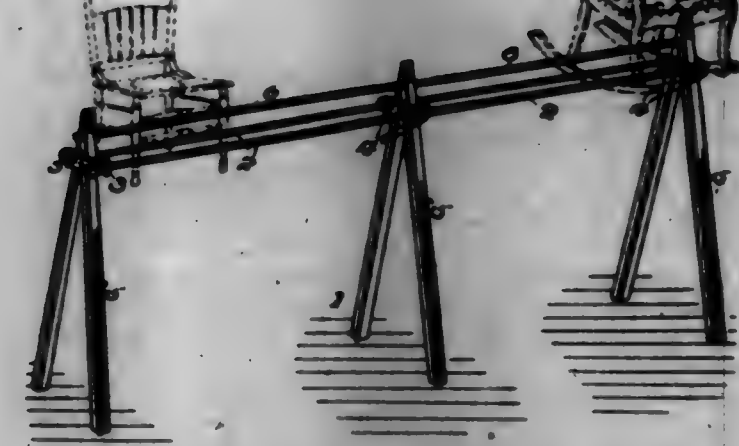
3. In a toboggan-slide or the like, a plurality of inclined tracks arranged side by side and forming a plurality of loops or circuits of parallel tracks arranged in different horizontal planes, said tracks crossing each other so that portions of different tracks form the outside track at different portions of the structure, whereby the length of the tracks and the inclination thereof will in a measure be equalized.

4. In a toboggan-slide or the like, a plurality of inclined tracks arranged side by side and forming a series of loops or circuits of parallel tracks arranged in different planes, said tracks crossing each other so that portions of different tracks form the outside track at different portions of the structure, the track portions being at different levels at the crossing to allow the car on one track to pass under the other track, whereby the length of the tracks and the inclination thereof will in a measure be equalized and the danger of collision avoided.

5. In a toboggan-slide or the like, a plurality of inclined tracks having adjacent rising or elevating portions, and mainly descending or coasting portions connecting the ends of the rising portion by loops or circuits of parallel tracks arranged in different horizontal planes, the tracks crossing each other in said circuits, so that what is the outer track in the upper portion of the structure becomes the inner track in the lower portion thereof, and vice versa, the tracks forming one the continuation of the other, so that the plurality of tracks form one endless track.

6. In a toboggan-slide or the like, a plurality of inclined tracks located side by side and forming a plurality of loops or circuits of parallel tracks arranged in different horizontal planes, said tracks crossing one under the other so that portions of different tracks form the outside tracks at different portions of the structure, whereby the length of the tracks and the inclination thereof will in a measure be equalized and the danger of collision avoided and the tracks so arranged that the inclination of one track at certain points will be greater than that of the other, and at certain other points the conditions being reversed, as and for the purpose set forth.

702,988. CHAIR-SUPPORT. FRANK A. MILLIKEN, WRITON, Ohio. Filed July 8, 1901. Serial No. 67,884. (No model.)



2. The combination with the two inverted-V frames, of the single rod passed through an opening in the vertex of each frame, two rods paralleling but on a lower plane than the former rod, bars secured to opposite sides of each frame having openings to accommodate the lower rods, and means for binding said rods in said base, substantially as set forth.

702,984. HEATING-STOVE. GEORGE R. MOORE, COLUMBUS, Ohio. Filed Jan. 29, 1902. Serial No. 91,964. (No model.)

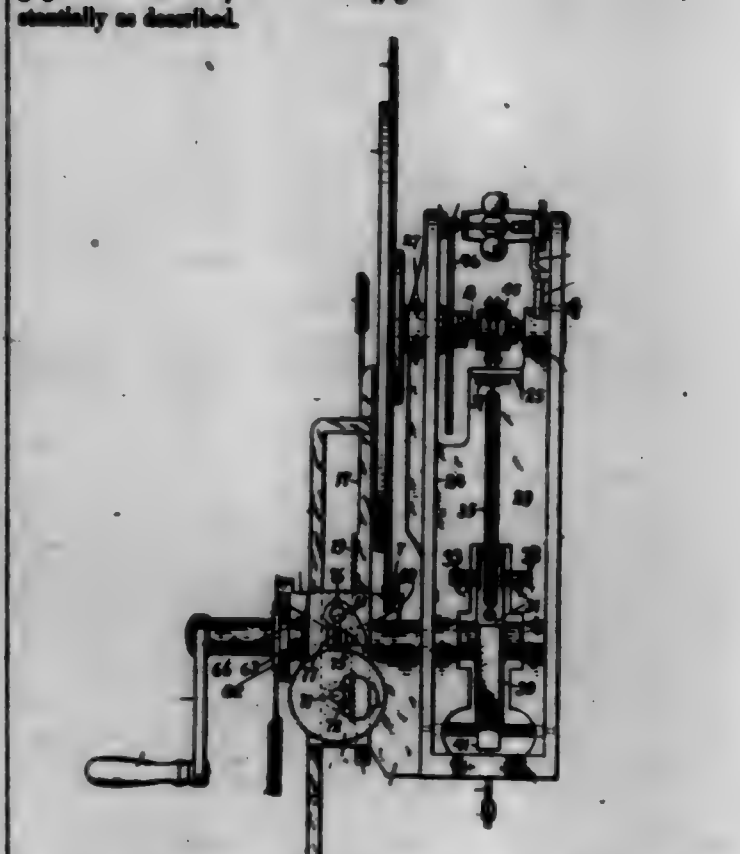


Claim.—1. In a heating-stove, the combination with an upright cylindrical casing having smoke-outlet in its top, of a plurality of vertically-arranged air-flues within said casing, said flues being substantially D-shaped in cross-section with lateral extending flanges abutting each other and secured to the inner wall of said casing, said flues having their upper and lower ends terminating in lateral extensions fitted in openings at the upper and lower portions of said casing.

2. In a heating-stove, the combination with an upright cylindrical casing having smoke-outlet in its top, of a plurality of vertically-arranged air-flues within said casing, said flues being substantially D-shaped in cross-section with lateral extending flanges abutting each other and secured to the inner wall of said casing, said flues having their upper and lower ends terminating in lateral extensions fitted in openings at the upper and lower portions of said casing, said flues being provided at their lower ends with inwardly-projecting legs, and a grate supported upon said legs.

702,985. WINDING-MACHINE. GEORGE A. MOORE, BROOKLINE, Mass., assignor to the Moore Talking Scale Company, a Corporation of Maine. Filed Sept. 12, 1901. Serial No. 73,311. (No model.)

Claim.—1. The combination with the revolvable shaft supporting a record-disk, of a speed-governing device controlling the same, a clutch member on said shaft, a tension-spring unengagedly connected with said clutch member at one end, a wheel or drum connected with the opposite end of said spring and constructed to wind the latter partially thereon, a pawl constructed to engage said wheel or drum when it is turned to put said spring in an increased tensional strain, and means acting on said clutch member to return it to its normal position when the strain on said spring is removed, substantially as described.



3. The combination of the frame comprising the side and the central web, the latter being apertured at its lower section and formed with the shelf near its upper end; the shaft revolvably supported by said sides and carrying the plate and record-disk at its outer end; the spur-gear fixed on said shaft; the governing device rotated by said gear; the sprocket-wheel and clutch on said shaft; the section of sprocket-chain passing over said sprocket-wheel and passing through an opening in said shaft; a pin projecting laterally from said chain below said shaft; the grooved wheel or drum rotatable in the aperture of said web and having the pins projecting into contact with said web; the helical spring extending from the periphery of said wheel or drum to said chain; the pawl constructed to engage a notch formed in said wheel or drum; a rod or link attached to the end of said chain opposite to said spring and descending through a hole in the tail of said pawl; an adjustable collar on said rod or link; and a weight suspended from the lower end of said rod or link, substantially as described.

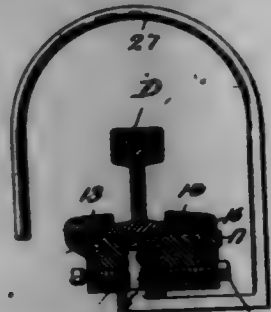
4. The combination with a photographic record, of a sounder, a vertically-slidable bar supporting said sounder, and having the rack-teeth, a pinion meshing with said rack-teeth, a vertically-movable rod constructed to engage said bar, and mechanism constructed to simultaneously disengage said rod from said bar and to lock said pinion from further rotation, substantially as described.

5. The combination with a photographic record, of a sounder, a vertically-slidable bar carrying said sounder and notched near its upper end, a tension-spring supporting said bar, a vertically-slidable rod having its upper end bent over and bifurcated to engage said notches, and means whereby said bar is simultaneously disengaged from said rod and locked in the position wherein it is left by the latter, substantially as described.

702,986. ELECTRIC THIRD RAIL. PETER R. MCDONALD, NEW YORK, N. Y. Filed Dec. 29, 1900. Serial No. 60,752. (No model.)

Claim.—1. In an electric third-rail system, the combination with the electric rail, of a retaining chair-clamp, consisting of a larger base part extending under the rail and upwardly at one side thereof and overlapping the web edge and provided with a projecting lug, and a lower chair part, removably secured to the larger part and overlapping the rail edge on the opposite side and provided with an aperture with which said lug is adapted to engage in securing the parts together, substantially as described.

2. In an electric third-rail system, the combination with the electric rail, of its retaining-chairs, the series of yokes, and the hood-covering, mounted on and supported by said yokes in position above said rail, substantially as described.



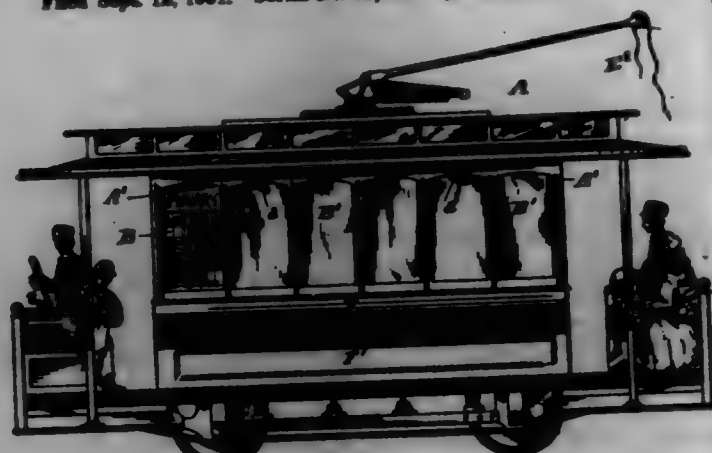
3. In an electric third-rail system, the combination with the electric rail, of its retaining-chairs, the series of yokes, provided on the lower ends with anchoring-posts fixed in said chairs and extending upwardly therefrom and curving over said rails and having its upper end disengaged, and the hood-covering, supported on said yokes, substantially as described.

702,987. MANDOLIN ATTACHMENT. FRANK G. McFERRISON, Beaver Falls, Pa. Filed Aug. 28, 1901. Serial No. 72,962. (No model.)



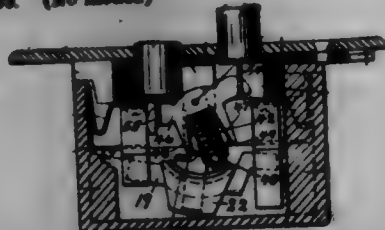
Claim.—A block or plate having a felt or rubber surfaced bottom and also a lip-like clamp which protrudes from its edge and curves downward and underneath the same, whereby it is adapted to be clamped or fastened to a musical instrument, at its second-hole; and lie underneath the strings and above the surface of the top of instrument, to aid the performer in making a smooth and even tone, by keeping the pick at a uniform elevation.

702,988. CALENDAR. FLORENCE M. HAGE, San Francisco, Cal. Filed Sept. 12, 1901. Serial No. 75,122. (No model.)



Claim.—A year-calendar comprising a body portion having a series of display-openings, a reversible plate in rear of said openings, two series of different monthly calendar-sheets one series on each surface of said plate arranged to be exposed one sheet through each opening, and movable covers for said display-openings, substantially as described.

702,989. ELECTRICAL FLUSH SWITCH. WILLIAM J. NEWTON, New York, N. Y. Filed July 26, 1900. Renewed Mar. 21, 1902. Serial No. 90,200. (No model.)



Claim.—1. The combination of a switch-blade, an oscillating barrel, a spring-actuated member carried thereby and adapted to actuate said switch-blade, push-buttons, a lever actuated thereby, and an elastic member operatively connecting said lever and said barrel, substantially as described.

2. In a flush-switch device, the combination of a switch-blade, an insulating-body curved substantially as described, an oscillating barrel, and a spring-actuated member carried thereby and adapted to engage the

curved portion throughout the oscillation of the barrel, substantially as described.

3. The combination in a flush switch, of spring-contacts connected with the circuit-terminals, a switch-contact member having contact-plates insulated from each other and adapted to contact with said spring-contacts, an oscillating barrel, a spring-actuated member carried thereby engaging said switch-contact member, push-buttons, a lever actuated thereby, and an elastic connection between said lever and said barrel, substantially as described.

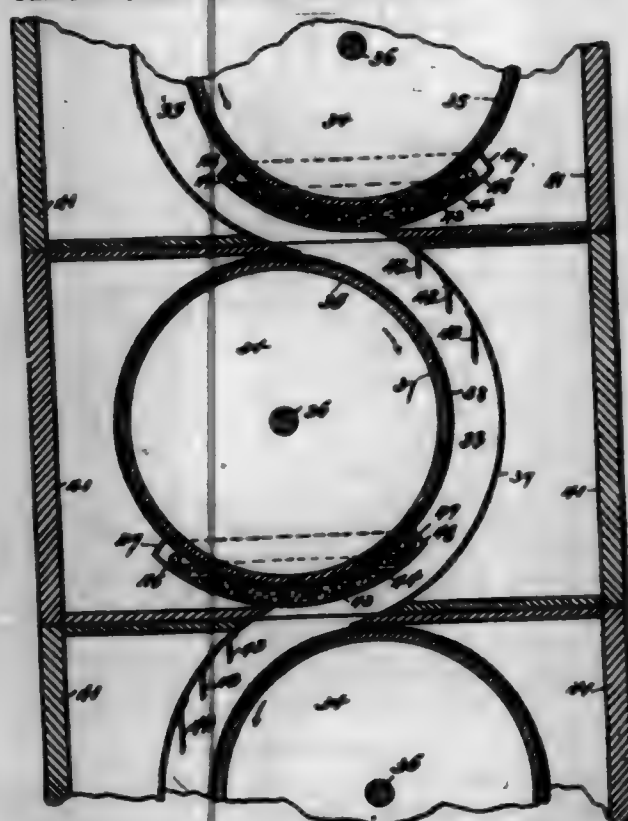
4. In a flush switch, the combination of a casing provided with the terminals of a circuit, a removable base provided with springs adapted to contact with said terminals, contact-springs in electric connection with said first-named springs, a switch contact member adapted to make and break contact with said contact-springs, an oscillating barrel, a spring-actuated part carried thereby and engaging said switch contact member, push-buttons, a lever actuated thereby, and an elastic connection between said lever and said barrel, substantially as described.

5. The combination in a flush switch, of an oscillating manual lever operated by push-buttons, an oscillating barrel at right angles to said manual lever, and pivoted at the center of oscillation thereof, a spring-actuated ball in said barrel, spring connections between said manual lever and said barrel, a plurality of switch-blades insulated from each other, and a shoe on the insulating material on which said ball engages, substantially as described.

6. In a flush-switch mechanism, the combination of a U-shaped standard, a switch contact member consisting of a plurality of metal blades mounted at their middle portion in a block of insulating material, said block being pivoted in said standard, a curved shoe on said block, a manual lever actuated by push-buttons, and an elastic member or members between said manual lever and said shoe, substantially as described.

7. In a flush-switch mechanism, the combination of a U-shaped standard, a manual lever operated by push-buttons and mounted in said standard, a block of insulating material provided with arms which are mounted in said standard, stops to limit the motion of said arms, metal plates set in said block and adapted to open and close a circuit as the block oscillates, a metal shoe on said block insulated from said plates, a barrel, a spring-actuated ball therein adapted to engage said shoe, and springs between said manual lever and said barrel, substantially as described.

702,990. ORE SEPARATOR. FRANK C. O'BRIEN, Chicago, Ill. Filed Feb. 7, 1900. Serial No. 4,206. (No model.)



Claim.—1. In a separator of the class described, the combination with a closed passage or conduit, of a mercury-coated cylinder forming a portion of the wall of said conduit, means for rotating said cylinder, and means for effecting the passage through said conduit of pulverized ore, substantially as described.

2. In a separator of the class described, the combination with an inclined air passage or conduit adapted for the passage therethrough of a stream of pulverized ore, of a mercury-coated cylinder forming a portion of the wall of said conduit, means for rotating said cylinder, and a blast

fan or the like for maintaining a current of air through said conduit, substantially as described.

3. In a separator of the class described, the combination with an inclined air passage or conduit adapted to receive a stream of pulverized ore, of mercury-coated cylinders forming portions of the walls of said conduit, means for rotating said cylinders, and a blast-fan or the like for creating a current of air through said conduit, substantially as described.

4. In a separator of the class described, the combination with an inclined sluiceway air passage or conduit, of mercury-coated cylinders arranged alternately on opposite sides of said passage or conduit and forming portions of the walls thereof, means for rotating said cylinders, and a blast-fan or the like for creating a current of air through said conduit, substantially as described.

5. In a separator of the class described, the combination with an inclined air passage or conduit adapted to receive a stream of pulverized ore, of rotating amalgamating-cylinders forming portions of the opposite walls of said conduit, means for continuously supplying mercury to the surfaces of said cylinders, and a blast-fan or the like located at one end of the conduit for creating an air-current therethrough, substantially as described.

6. In a separator of the class described, the combination with a suitable frame or casing, of removable sections supported therein and having cooperating concaves and cylinders to form an inclined air passage or conduit, said cylinders having mercury-coated surfaces, and a blast-fan or the like for creating a current of air through said conduit, substantially as described.

7. In a separator of the class described, the combination, with an air passage or conduit, of a rotating cylinder forming a portion of the wall thereof, a mercury-trough in which said cylinder runs, said trough having its entrance margin located immediately adjacent to the surface of the cylinder, and a roller located in the trough and bearing upon the cylinder immediately adjacent to the entrance margin of the trough, substantially as described.

8. In a separator of the class described, the combination, with a rotating cylinder and a mercury-trough having its entrance margin close to the surface of the cylinder above the level of the mercury, of an air-inlet nozzle located in one side of the trough at one end of the space thus formed, a source of supply of air under pressure connected with said nozzle, and an air-outlet in the other side of the trough at the other end of said space, substantially as described.

9. In a separator of the class described, the combination, with a mercury-coated revolving cylinder and a cooperating concave forming an air-passage, of deflecting or baffle plates extending from the concave into said air-passage in the direction of the air-current, substantially as described.

10. In a separator of the class described, the combination, with an ore-conduit and means for passing ore therethrough, of an amalgamating-cylinder located in said conduit and provided with a covering of wire gauze or netting contacting the cylinder-surface, and means for continuously supplying a coating of mercury to said cylinder, substantially as described.

11. In a separator of the class described, the combination with an ore-conduit and means for passing ore therethrough, of an amalgamating-cylinder rotatably mounted in said conduit and provided with a removable covering of wire gauze or netting contacting the surface of the cylinder, and means for continuously supplying a coating of mercury to said cylinder, substantially as described.

12. In a separator of the class described, the combination with an ore-conduit and means for passing ore therethrough, of an amalgamating-cylinder rotatably mounted in said conduit and provided with a peripheral surface of copper, and a removable covering of copper wire gauze or netting contacting the surface of the cylinder, and means for continuously supplying a coating of mercury to said cylinder, substantially as described.

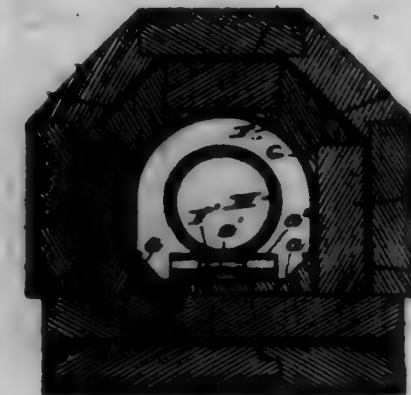
13. In a separator of the class described, the combination, with an air passage or conduit, of a rotating cylinder forming a portion of the wall thereof and provided with a removable covering of copper wire gauze or netting adapted to form a series of mercury-retaining pockets, and means for continuously supplying a coating of mercury to said cylinder, substantially as described.

14. In a separator of the class described, the combination, with an upright air passage or conduit, portions of the walls whereof are formed by moving mercury-coated surfaces, said passage or conduit being provided with a trapped portion near its lower outlet end, of means for continuously supplying mercury to said moving surfaces, and means for blowing the material to be operated upon through said passage, substantially as described.

15. In a separator of the class described, the combination, with an upright air passage or conduit, portions of the walls whereof are formed by moving surfaces, the said passage or conduit being provided with a trapped portion near its lower outlet end, of means for continuously supplying mercury to said moving surfaces, and means for blowing the material to be operated upon through said passage or conduit, substantially as described.

serial to be operated upon through said passage or conduit, substantially as described.

702,991. COVERING FOR HEAT-DISTRIBUTING MAINS. WILLIAM E. FRANK, Chicago, Ill. Filed Jan. 22, 1902. Serial No. 80,904. (No model.)



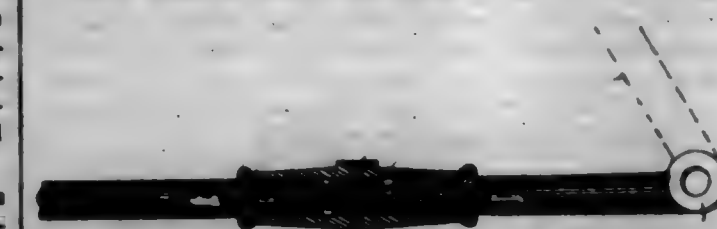
Claim.—1. In a covering for heat-distributing mains, the combination with a horizontal base, of vertical side walls resting upon said base, an arched cover supported by said side walls, a lining of asbestos on the inner surface of said side walls and cover, and a sheet-metal covering on the upper surface of said base and on the inner surface of said asbestos lining, substantially as described.

2. In a covering for heat-distributing mains, the combination with a horizontal base, of vertical side walls resting upon said base, an arched cover supported by said side walls, said base, side walls and cover comprising parallel sections, packing material interposed between said sections, a lining of asbestos on the inner surface of said side walls and cover, and a sheet-metal covering on the upper surface of said base and on the inner surface of said asbestos lining, substantially as described.

3. In a covering for heat-distributing mains, the combination with a horizontal base, of vertical side walls resting upon said base, an arched cover supported by said side walls, said base, side walls and cover comprising parallel sections, packing material interposed between said sections, strengthening-strips engaging the adjacent surfaces of said base and side walls, a lining of asbestos on the inner surface of said side walls and cover, and a sheet-metal covering extended from said strengthening-strips around the inner surface of said asbestos lining, substantially as described.

4. In a covering for heat-distributing mains, the combination with a horizontal base, of vertical side walls resting upon said base, an arched cover supported by said side walls, strengthening-strips engaging the adjacent surfaces of said base and side walls, a wear-plate resting upon said base and engaging at its sides said strengthening-strips, and rollers for supporting said main mounted upon said wear-plate.

702,992. BICYCLE. PHIL PHOEN, Lena, Wis. Filed June 22, 1900. Serial No. 722,102. (No model.)



Claim.—In a bicycle, the combination with a crank-hanger, a central post secured thereto and a rear fork pivotally connected with the upper end of the central post, of rear stays, each secured at one end to the crank-hanger and at the other end to the rear fork, each of said stays comprising two aligned tubular sections screw-threaded internally at their inner ends, two screws entering the respective tubular sections, a cylindrical head from which said screws project in opposite directions, said head having a diameter equal to that of the tubular sections and disposed between the ends of the latter, a sleeve insulating the cylindrical head and loosely embracing the adjacent ends of the tubular sections, a pin securing said tube to the cylindrical head, a rear wheel at the rear end of said sectional stays, a sprocket-wheel carried by said rear wheel, another sprocket-wheel mounted in the crank-hanger and a sprocket-chain connecting said sprocket-wheels.

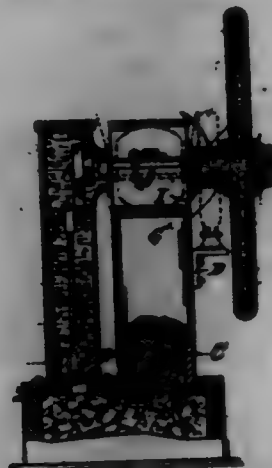
702,993. BED-CASE. MARY FITZ, Chicago, Ill. Filed Feb. 14, 1901. Serial No. 47,500. (No model.)

Claim.—In a bed-case the combination of the separable side panels 15, 16, and separable end panels 17, 18, with a separable bottom, a separable top 10, vertically-extending confining-rods 7, engaging with the

panels, bottom and top for detachably connecting them together and supports 8, substantially as specified.



702,994. APPARATUS FOR COOLING AND AGITATING AIR. EDWIN F. POORE, Boston, Mass., assignor to the Ray State Electric Heat & Light Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 20, 1907. Serial No. 602,542. (No model.)



Claim.—1. In an apparatus of the class described, a rotatable fan for creating a current of air and having passages leading through the same, a receiver for containing a cooling medium, a chamber leading from said receiver and connected with the passages in said fan, a chamber leading to said receiver and connected with the passages in said fan, and means for forcing the cooling medium through the passages of the fan, the chambers and the receiver.

2. In an apparatus of the class described, a rotatable fan for creating a current of air, and having passages leading through the same, a receiver for containing a cooling medium, a chamber leading from said receiver and connected with the passages in said fan, a chamber leading to said receiver and connected with the passages of said fan, and a pump located in one of said chambers for forcing the cooling medium through the passages of the fan, the chambers and the receptacle.

702,995. CHURN. JAMES W. POWELL, Chertsey, Kans. Filed Nov. 30, 1901. Serial No. 54,178. (No model.)



Claim.—1. In a churn, the combination with an oscillating body, having an opening in the top thereof, of a registering member extending through said opening to form flanges above and below the top, and a detachable cap overlying the exterior flange and covering the opening; substantially as described.

2. In a churn, the combination with a body having a relatively large opening therein, a cover for said opening having a relatively small registering opening, a central member extending through the opening above and below the cover, and a detachable strain-cap removably seated upon the exteriorly-extended portion of the central member; substantially as described.

3. In a churn of the character described, the combination with the body having portions forming fixed abutments, of a pair of grids or rifles contained therein, said rifles each bearing at one end against a fixed abutment in the churn-body, and converging toward a common point, and a removable key interposed between the adjacent ends of said rifles to force them into holding engagement with their respective abutments, substantially as described.

4. In a churn of the class described, the combination with the body, of a pair of grids or rifles contained therein, said rifles being inclined so as to bear against the opposite ends of the churn-body at the top, and to converge toward the middle of the churn at the bottom, a removable key interposed between the lower adjacent ends of said rifles and means for securing the key and rifles in such relation, substantially as described.

5. In a churn of the class described, the combination with a body having an opening in the top thereof, a pair of rifles within the body converging from the ends thereof toward a point below the opening and means for retaining the rifles in place removably interposed between the adjacent ends of said rifles, whereby said parts may be removed through said opening; substantially as described.

702,996. ALLOY. WLADISLAW FRANKOWSKI, Schodau, Austria-Hungary. Filed Dec. 5, 1901. Serial No. 54,317. (No specimen.)

Claim.—1. The process of producing alloys containing two or more metals of the iron group, which consists in alloying one atomic weight of aluminum with two atomic weights of any two of said metals, for the purpose set forth.

2. The process of producing alloys containing iron, nickel and aluminum, which consists in alloying two atomic weights of said elements of the iron group with one atomic weight of aluminum, for the purpose set forth.

3. The process of producing alloys of iron, nickel and aluminum, which consists in alloying two atomic weights of the said metals of the iron group with one atomic weight of aluminum to produce an alloy $\text{Ni}_2\text{Al}_2\text{Fe}_2\text{Al}$.

4. The process of producing alloys containing two or more metals of the iron group, which consists in alloying one atomic weight of aluminum with two atomic weights of any two of said metals and adding thereto another metal capable of hardening the alloy, for the purpose set forth.

5. The process of producing alloys containing iron, nickel and aluminum, which consists in alloying two atomic weights of said elements of the iron group with one atomic weight of aluminum and adding thereto a metal of the chromium group, for the purpose set forth.

6. The process of producing alloys of iron, nickel and aluminum, which consists in alloying two atomic weights of the said metals of the iron group with one atomic weight of aluminum to produce an alloy $\text{Ni}_2\text{Al}_2\text{Fe}_2\text{Al}$ and adding thereto a metal of the chromium group, for the purpose set forth.

7. An alloy containing one atomic weight of aluminum, combined with two atomic weights of two metals of the iron group, substantially as and for the purpose set forth.

8. An alloy containing one atomic weight of aluminum, combined with two atomic weights of two metals of the iron group, and another metal capable of hardening the alloy, substantially as and for the purpose set forth.

9. An alloy containing one atomic weight of aluminum, combined with two atomic weights of two metals of the iron group and a metal of the chromium group, substantially as and for the purpose set forth.

10. An alloy containing substantially of $\text{Fe}_2\text{Al}_2\text{Ni}_2\text{Al}$.

702,997. SURGICAL DRESSING-PACKER. JAMES H. POSE, Indianapolis, Ind., assignor to Wm. H. Armstrong & Co., Indianapolis, Ind., a Corporation of Indiana. Filed Dec. 2, 1900. Serial No. 50,000. (No model.)

Claim.—1. A surgical instrument, consisting of a main barrel having an opening leading into the side thereof, a pin 11 projecting from the forward end of said main barrel, a cannula having a rear end adapted to receive the forward end of said main barrel, and having a bayonet-clip formed therein and adapted to receive said pin, a pair of finger-eyes carried by said barrel back of said opening, and a stylus, having a finger-eye at its rear end, adapted to be reciprocated within the main barrel and cannula.

2. A surgical instrument, consisting of the following parts: a cannula adapted to receive an obturator fitted to said cannula and having means for detachably engaging the cannula, a main barrel having an opening leading into its side, means carried by the main barrel and the cannula for detachable connection, holding means carried by the main barrel, and a stylus adapted to reciprocate within the main barrel and cannula.



3. A main barrel for surgical instruments, consisting of an open-ended tubular body having an opening leading into the side thereof, means carried by the forward end of said body for the readily-detachable reception of the rear end of a cannula, and means secured to the body to the rear of the opening whereby the body may be held by the fingers of one hand.

4. A main barrel for surgical instruments consisting of a tubular body having an opening leading into its side, means carried by the forward end of said body for the reception of the rear end of a cannula, means for holding the body secured to the rear of the opening, and a banding detachably secured to the rear end of the body, whereby the opening in the rear end of the body is reduced in size and the parts may be separated for cleaning.

702,998. COMBINED SCRUB-BRUSH AND MOP-HOLDER. JAMES S. RAFFERTY, Larchmont, Ohio. Filed Nov. 30, 1901. Serial No. 54,178. (No model.)



Claim.—1. The combination of a brush having apertured brackets held upon the opposite ends thereof, the central portion of the brackets being arranged in a semicircular form, rods connected to the said brackets and having their ends secured in the said apertures, a centrally-arranged bracket secured to the brush and having a semicircular extension formed thereon, a handle projecting from the said bracket, a brace-rod connecting the said end brackets, and centrally-arranged bracket and a mop carried by the rods that are secured to the semicircular portion of the brackets, substantially as shown and described.

2. As a new article of manufacture, a combined scrubbing-brush and mop, the latter comprising brackets having supporting-rods connected thereto, and a mop carried by the supporting-rods, and a central bracket having a handle projecting therefrom, and a brace-rod connecting the said brackets, substantially as shown and described.

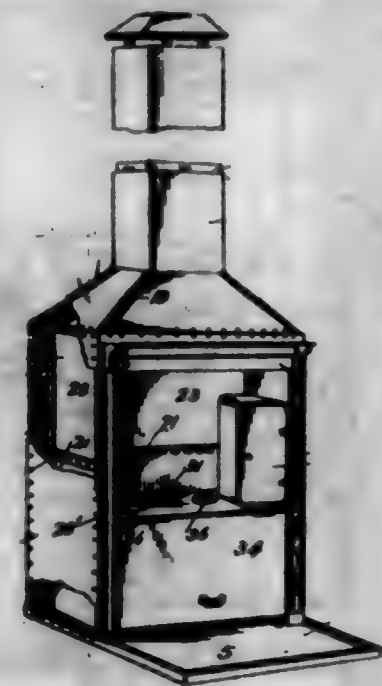
3. In a device of the kind described, the combination of a brush, having brackets secured thereto, rods connected to the brackets and forming supports for a mop, a brace-rod connecting the said brackets, and a handle projecting from one of the brackets, substantially as shown and described.

702,999. PORTABLE FIREPLACE AND CHIMNEY. HERMAN S. RICHARDS, Grandville, Ark. Filed Sept. 21, 1901. Serial No. 70,072. (No model.)

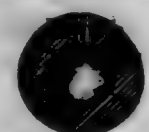
Claim.—1. A device of the class described comprising a base plate, inner and outer side and back plates spaced apart and secured together and to the base-plate, the side plates being provided at their front edges with inwardly-extending vertical flanges, top plates, and the approximately U-shaped joints provided at their side edges with longitudinal flanges fitted against the outer faces of the flanges of the side plates and secured to the same, substantially as described.

2. A device of the class described comprising the inner and outer side and back plates spaced apart, the base-plate connected with the inner plates and extending in advance of the same to form a hearth, the inner and outer top plates spaced apart and connected with the side and back plates, the inner and outer fire-extensions, the stove-top 31 located at a

point between the base and top plates and provided at its front with a depending hinged plate, an oven located above the stove-top 31 at one side of the device, and the narrow water-tanks located in the spaces between the side plates, substantially as described.



702,000. GOLF-BALL. FRANK H. RICHARDS, Hartford, Conn., assignor to The Kongsball Manufacturing Company, a Corporation of New Jersey. Filed Mar. 12, 1900. Serial No. 57,880. (No model.)



Claim.—1. In a playing-ball, a spherical shell consisting at least partially of gutta-percha and distended by plastic material injected thereinto; a layer of solid rubber intervening between said shell and said injected mass.

2. In a playing-ball, an embossed shell formed at least partially of gutta-percha and distended by a core of gutta-percha injected thereinto; a layer of laminated solid rubber intervening between said shell and said injected mass.

3. In a playing-ball, a shell formed of gutta-percha and distended by a gutta-percha core injected thereinto; a layer of solid rubber intervening between said shell and said injected mass; and a plug filling the injection-hole in the shell and rubber layer.

4. In a playing-ball, a seamless or continuous shell of gutta-percha distended by a mass of mobile solid material injected thereinto; a layer of laminated solid rubber intervening between said shell and said injected mass.

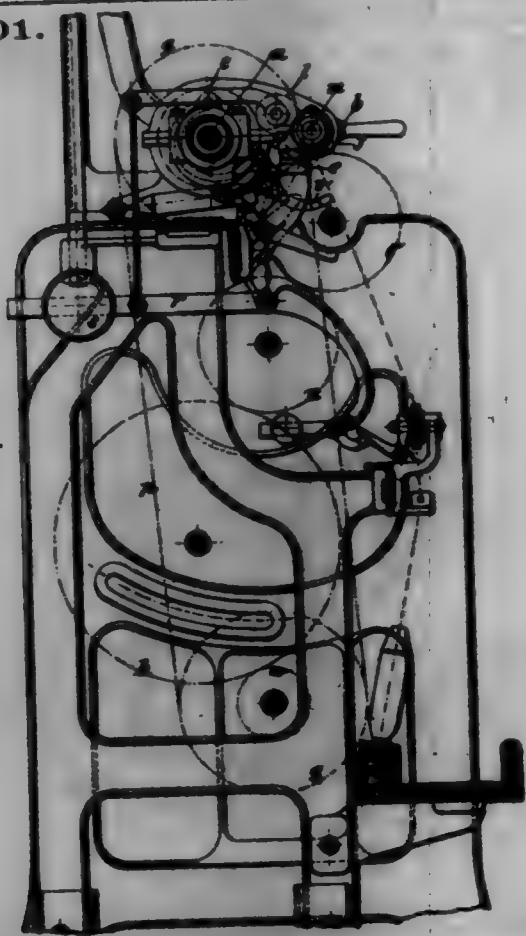
702,001. MACHINE FOR CROSS-WINDING SPOOLS CLOSED-COILED. BRUNO RITTER, Winterthur, Switzerland. Filed Apr. 24, 1901. Serial No. 57,901. (No model.)

Claim.—1. In machines for cross-winding spools, the winding-spindles, a common driving-shaft, a plurality of levers 5 pivotally supported on the common driving-shaft and each carrying one of the spindles, means for driving the common driving-shaft, and a plurality of detachable driving connections between the common driving-shaft and the spindles, said connections being mounted on the said levers, and means for throwing each set of connections out of operation to stop its winding-spindle independently of the other winding-spindles, substantially as described.

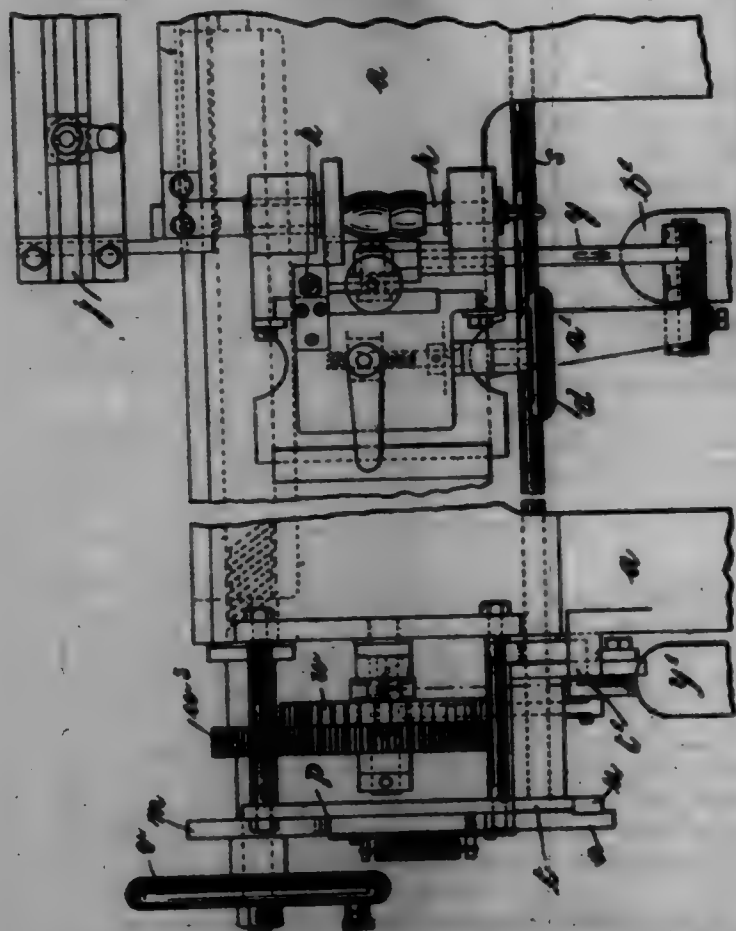
2. In combination, the winding-spindle, a pivoted lever carrying the same, a thread-guide 7 below the spindle and upon which said spindle runs, a driving-shaft upon which the lever is pivoted and detachable driving connections between said shaft and the spindle, said connections being mounted on the lever and controlled by the movement thereof.

3. In combination, a plurality of winding-spindles, a lever for each spindle, a common driving-shaft upon which the levers are pivotally supported, detachable driving connections between the said spindles and shaft, a reciprocating rail, a plurality of thread-guides secured to said rail, a cam at each end of the said rail reciprocating the said rail and means for rotating the said cam jointly at variable speeds, all substantially as described.

708,001.



708,002. DOVETAILING-MACHINE. JOE SAGAR and DONALD SAGAR, Haldimand, England. Filed Jan. 7, 1902. Serial No. 68,731. (No model.)



Claim.—1. In a dovetailing-machine, the combination, with a frame, a work-table supported by the frame, and means for moving the said work-table longitudinally step by step; of a revoluble cam *a*, a lever *y* pivoted to the said frame and operated in one direction by the said cam, a bracket *b* projecting from the frame, a bracket *g* slidable on the bracket *b*, a connecting-rod *z* between the bracket *g* and the lever *y*, and means for moving the said bracket *g* and lever *y* in the reverse direction automatically, substantially as set forth.

2. In a dovetailing-machine, the combination, with a frame, a rev-

oluble outer supported from the said frame, and means for reciprocating the said outer horizontally; of a revoluble cam *c*, a lever *u* operated in one direction by the said cam, a lever *v*, a pawl *w* pivoted to the lever *v*, a connecting-rod *u'* between the levers *u* and *v*, a ratchet-wheel *u''* journaled on the pivot of lever *v* and driven by the said pawl, means for moving the said lever in the reverse direction automatically, a work-table slidable in the said frame crosswise of the said outer, a screw for traversing the said work-table, driving connections between the said ratchet-wheel and screw, and a spacing-disk connected with the said screw and provided with a locking-bar, substantially as set forth.

708,008. VEHICLE-WHEEL. HARRY E. SCHMIDT, Memphis, Mo. Filed Nov. 5, 1901. Serial No. 30,908. (No model.)



Claim.—1. A vehicle-wheel comprising the hub and tire, and a plurality of segment-shaped wooden sections arranged upon the hub and held in place by means of the tire, radial projections extending from the hub, said projections being of different lengths, the opening edges of the sections being cut away to receive the longer projections, the central portions of each section being recessed to receive the shorter projections, substantially as described.

2. A vehicle-wheel comprising a hub having an integral flange or collar, a forward flange or collar, the segment-shaped sections arranged about the hub and held in place by means of a surrounding tire, the hub having a plurality of triangular-shaped projections and also a number of projections intermediate the triangular-shaped projections, the edges of the sections being cut away to receive the triangular-shaped projections, the central portion of each section being recessed to receive the intermediate projections of the hub, substantially as described.

3. A vehicle-wheel comprising a hub and tire, a plurality of segment-shaped wooden sections surrounding the hub and held in place by the tire, spokes or pins extending from the segment-sections into the hub, thereby securing said sections to the hub, as shown and described.

708,004. FIELD-TELEPHONE SET. LAWRENT SCHMIDT, Weehawken, N. J. Filed Aug. 3, 1901. Serial No. 71,300. (No model.)



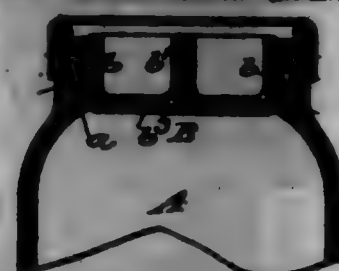
Claim.—1. The combination with a telephone set of a box to receive and support the same, a cover for said box, and means carried by said cover to engage and hold the receiver when the cover is closed, substantially as shown and described.

2. The combination with a telephone set comprising a magneto-box with movable hook-switch, a transmitter, and a receiver adapted to engage said hook-switch, of a box to receive and support said instruments, a cover for said box, and a bar or block carried by said cover to engage and hold the receiver with the hook-switch open when the cover is closed, substantially as shown and described.

3. The combination with a telephone set comprising a magneto-box with movable hook-switch, a transmitter, and a receiver adapted to engage said hook-switch, of a box to receive and support said instruments, a bar or block fixed in said box to engage the receiver, a cover hinged to said box, and a bar or block carried by said cover to cooperate with the first-named bar or block and hold the receiver with the hook-switch open when the cover is closed, substantially as shown and described.

4. The combination with a telephone set comprising a magneto-box, a receiver and a movable switch, of a box to receive and support the same, a cover for said box, and means carried by said cover to hold the receiver and to hold said switch open, substantially as shown and described.

708,005. JAR-CLOSURE. ALBERT E. GUNDEL, New York, N. Y. Filed Mar. 4, 1902. Serial No. 70,240. (No model.)



Claim.—The combination with the neck of a jar or vessel provided with an interior annular shoulder, of a cover provided with an annular bearing adapted to rest on the said interior shoulder, and a screw-threaded exterior portion spaced from the interior of the vessel, the said cover having its upper portion formed hollow and its outer wall spaced from the interior wall of the neck and its lower portion extending below the said annular bearing and a body of sealing material molded between the exterior screw-threaded portion of the cover and the interior of the neck, substantially as set forth.

708,006. BUT-AIR FURNACE. FREDERICK SCHLANGE, St. Louis, Mo. Filed Jan. 15, 1902. Serial No. 68,344. (No model.)



Claim.—1. In a hot-air furnace, a hot-air fire, a rotatable damper located therein, a water-pipe leading thereto and discharging into the same at a point above the damper, a valve in said pipe, and connections between the damper and valve for controlling the latter with the manipulation of the former, substantially as set forth.

2. In a hot-air furnace, a hot-air fire, a damper located therein, a water-tank located on top of the furnace, a pipe leading from the tank into the fire above the damper, a cap at the terminal of the water-pipe within the fire, an check-valve within the cap, and means for regulating the flow of water through the pipe, substantially as set forth.

708,007. PHOTOGRAPHIC CURTAIN-SHUTTER. RICHARD SCHULTZ, Jena, Germany, assignor to The Fern Opt. Soc., Jena, Germany. Filed Sept. 8, 1901. Serial No. 74,100. (No model.)

Claim.—1. In a roller-blind shutter having an adjustable aperture the combination with a single blind having two openings, of a setting-roller, to which the blind is shiftably attached by a point between the openings, exposure-recesses for both ends of the blind, means for rotating the setting-roller so as to wind up the blind, means for catching the setting-roller after the blind has been wound up, a spring action for rotating the exposure-recesses when the blind is released, and means for shifting the blind, essentially as described.



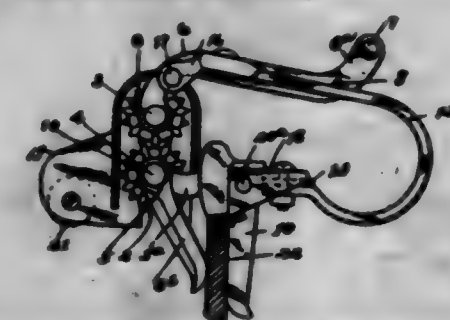
2. In a roller-blind shutter having an adjustable aperture the combination with a single blind having two openings, of a setting-roller to which the blind is shiftably attached by a point between the openings, two exposure-recesses one for each end of the blind, means for rotating the setting-roller so as to wind up the blind, means for catching the setting-roller, a spring for rotating one exposure-recess, a handle for rotating the other exposure-recess, and means for connecting and disconnecting both rollers, essentially as described.

708,008. IDENTIFICATION-TAG. CALVIN SCOTT, Myrtlebe, Mo. Filed Dec. 24, 1901. Serial No. 27,629. (No model.)



Claim.—An identification strip or tag for poultry, live stock, &c., comprising a piece of metal, having one end hollow and provided with an interior flange, a headed pin mounted on the other end of said strip, a disk having flexible wings mounted on said pin, said disk adapted to be inserted in the hollow end of the strip, and the wings to engage said flange, as set forth.

708,009. CLOTHES-WRINGER. CHARLES F. BRADLEY, Columbus, Ohio, assignor to William D. Summors, Columbus, Ohio. Filed Oct. 11, 1900. Serial No. 22,060. (No model.)



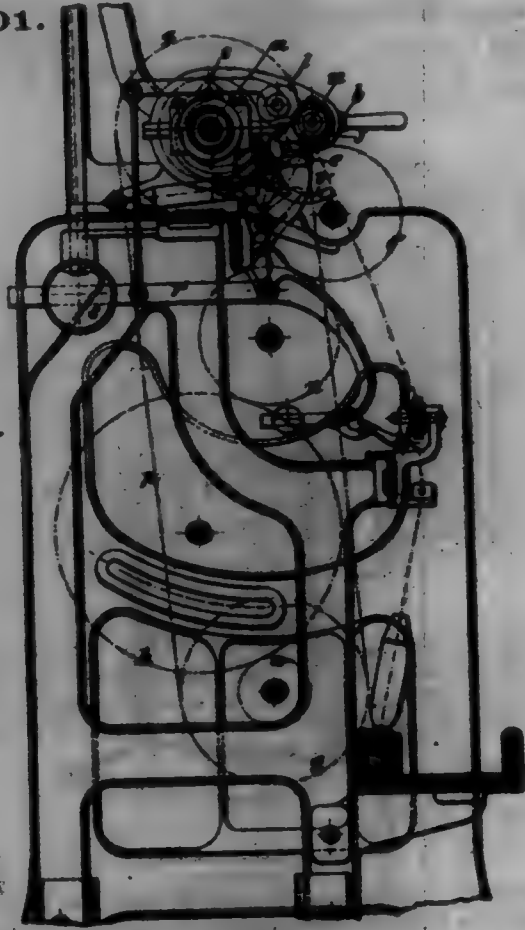
Claim.—In a wringer, the combination with the upper and lower rolls 1 and 2, roll-shafts 3 and 4 and angular clamping-levers 5 on said shaft 4, of an operating-lever 6 pivoted on the spindle portions of the shaft 2, clamping-arms 10 pivotally connected with the upper arms of the clamping-levers 5 and springs 15 having their upper and forward ends pivoted on said operating-lever at points above the shaft 3 and having their rear and lower ends rigidly connected with said clamping-arms 10, substantially as specified.

708,010. MOTO-CYCLE-PUMP. DE WANE S. SMITH, Dorchester, N. Y. Filed May 11, 1900. Serial No. 714,000. (No model.)

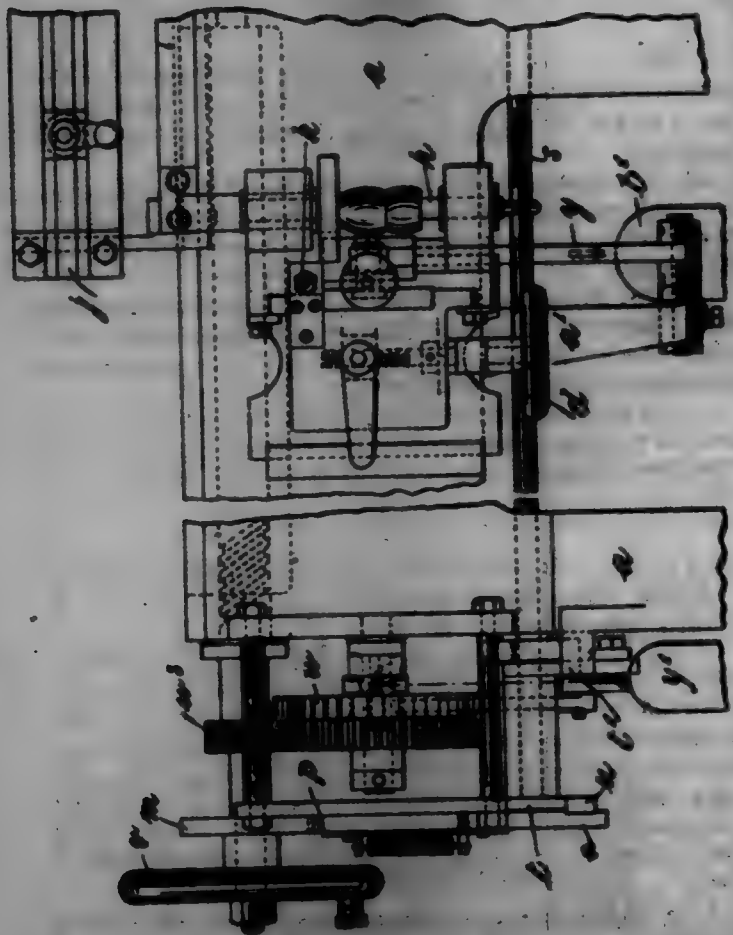
Claim.—1. The combination in a bicycle-pump of a cylinder, a foot or stirrup at the lower end of the cylinder, a plunger and operating-handle at the upper end of the cylinder, and a tube projecting laterally from the upper portion of the pump having an upwardly-opening end and a cushion the connection held and supported by said projecting tube, substantially as set forth.

2. The combination with a portable bicycle-pump having a foot stirrup or rest at its lower end, of an upwardly-opening cushion the connection supported by the pump and arranged to operate substantially as set forth.

708,001.



708,002. DOVERTAILING-MACHINE. JOE SAGAR and DONALD SAGAR, Haver, England. Filed Jan. 7, 1902. Serial No. 98,721. (No model.)



Claim.—1. In a dovertailing-machine, the combination, with a frame, a work-table supported by the frame, and means for moving the said work-table longitudinally step by step; of a reversible cam *a*, a lever *y* pivoted to the said frame and operated in one direction by the said cam, a bracket *g* projecting from the frame, a bracket *h* slidable on the bracket *g* and overlying the work-table, a reversible cam *z* carried by the bracket *h*, a connecting-rod *s* between the bracket *g* and the lever *y*, and means for moving the said bracket *g* and lever *y* in the reverse direction automatically, substantially as set forth.

2. In a dovertailing-machine, the combination, with a frame, a

slidable cutter supported from the said frame, and means for reciprocating the said cutter horizontally; of a reversible cam *f*, a lever *x* operated in one direction by the said cam, a pawl *w* pivoted to the lever *x*, a connecting-rod *u* between the lever *x* and *w*, a ratchet-wheel *v* journaled on the pivot of lever *w* and driven by the said pawl, means for moving the said lever in the reverse direction automatically, a work-table slidable in the said frame overwise of the said cutter, a screw for traversing the said work-table, driving connections between the said ratchet-wheel and screw, and a spring-disk connected with the said screw and provided with a locking-bar, substantially as set forth.

708,008. VEHICLE-WHEEL. HENRY E. SUMNER, Memphis, Mo. Filed Nov. 2, 1901. Serial No. 59,962. (No model.)



Claim.—1. A vehicle-wheel comprising a hub and tire, and a plurality of segment-shaped wooden sections arranged upon the hub and held in place by means of the tire, radial projections extending from the hub, said projections being of different lengths, the opposing edges of the sections being cut away to receive the longer projections, the central portions of each section being recessed to receive the shorter projections, substantially as described.

2. A vehicle-wheel comprising a hub having an integral flange or collar, a forward flange or collar, the segmental wooden sections arranged about the hub and held in place by means of a surrounding tire, the hub having a plurality of triangular-shaped projections, the edges of the sections being cut away to receive the triangular-shaped projections, the central portions of each section being recessed to receive the intermediate projections of the hub, substantially as described.

3. A vehicle-wheel comprising a hub and tire, a plurality of segment-shaped wooden sections surrounding the hub and held in place by the tire, spokes or pins extending from the segment-sections into the hub, thereby securing said sections to the hub, as shown and described.

708,004. FIELD-TELEPHONE SET. LAWRENCE SUMNER, Westport, N. J. Filed Aug. 4, 1901. Serial No. 71,908. (No model.)



Claim.—1. The combination with a telephone set of a box to receive and support the same, a cover for said box, and means carried by said cover to engage and hold the receiver when the cover is closed, substantially as shown and described.

2. The combination with a telephone set comprising a magneto-box with movable hook-switch, a transmitter, and a receiver adapted to engage said hook-switch, of a box to receive and support said instruments, a cover for said box, and a bar or block carried by said cover to engage and hold the receiver with the hook-switch open when the cover is closed, substantially as shown and described.

3. The combination with a telephone set comprising a magneto-box with movable hook-switch, a transmitter, and a receiver adapted to engage said hook-switch, of a box to receive and support said instruments, a bar or block fixed in said box to engage the receiver, a cover hinged to said box, and a bar or block carried by said cover to cooperate with the first-named bar or block and hold the receiver with the hook-switch open when the cover is closed, substantially as shown and described.

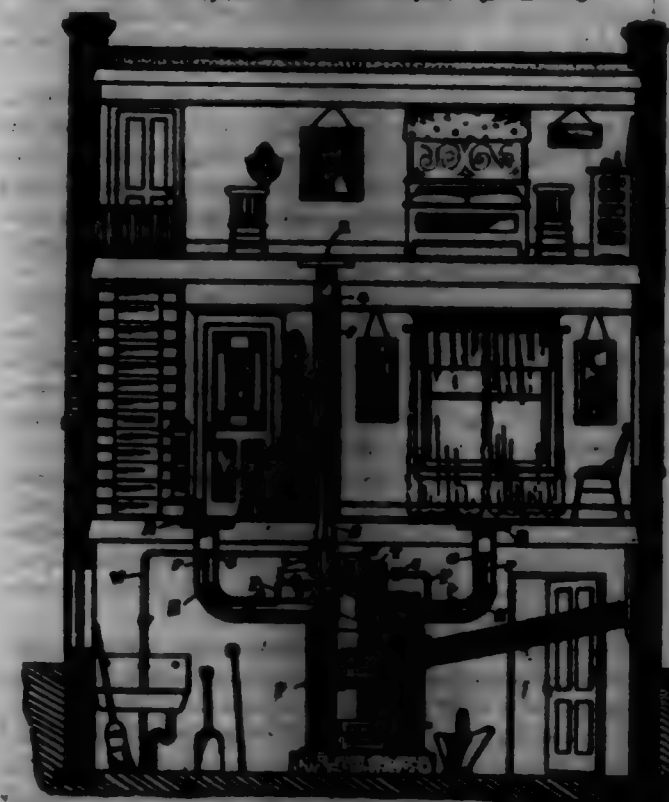
4. The combination with a telephone set comprising a magneto-box, a receiver and a movable switch, of a box to receive and support the same, a cover for said box, and means carried by said cover to hold the receiver and to hold said switch open, substantially as shown and described.

708,005. JAR-CLOSURE. ALBERT E. GUNTER, New York, N. Y. Filed Mar. 4, 1902. Serial No. 70,045. (No model.)



Claim.—The combination with the neck of a jar or vessel provided with an interior annular shoulder, of a cover provided with an annular bearing adapted to rest on the said interior shoulder, and a screw-threaded exterior portion spaced from the interior of the vessel, the said cover having its upper portion formed hollow and its outer wall spaced from the interior wall of the neck and its lower portion extending below the said annular bearing and a body of sealing material molded between the exterior screw-threaded portion of the cover and the interior of the neck, substantially as set forth.

708,006. STAIR-POURER. FREDERICK SCHMIDT, St. Louis, Mo. Filed Jan. 12, 1902. Serial No. 98,944. (No model.)

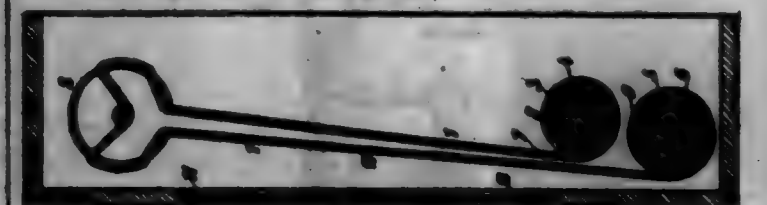


Claim.—1. In a hot-air furnace, a hot-air flue, a rotatable damper located therein, a water-pipe leading thereto and discharging into the same at a point above the damper, a valve in said pipe, and connections between the damper and valve for controlling the latter with the manipulation of the furnace, substantially as set forth.

2. In a hot-air furnace, a hot-air flue, a damper located therein, a water-trap located on top of the furnace, a pipe leading from the trap into the flue above said damper, a cup at the terminal of the water-pipe within the flue, an chamber within the cup, and means for regulating the flow of water through the pipe, substantially as set forth.

708,007. PHOTOGRAPHIC CAMERA-SHUTTER. HERMAN SCHMIDT, St. Louis, Mo. Filed Sept. 3, 1901. Serial No. 74,763. (No model.)

Claim.—1. In a roller-blind shutter having an adjustable aperture the combination with a single blind having two openings, of a cutting-roller, to which the blind is adjustably attached by a point between the openings, exposure-rollers for both ends of the blind, means for rotating the cutting-roller so as to wind up the blind, means for catching the cutting-roller after the blind has been wound up, a spring action for rotating the exposure-rollers when the blind is released, and means for shifting the blind, essentially as described.



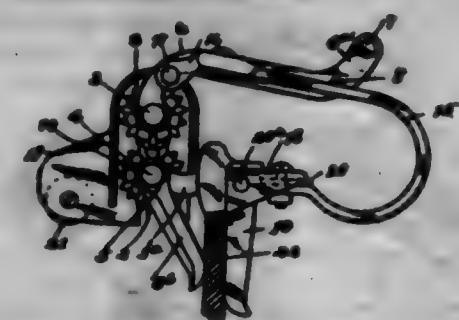
2. In a roller-blind shutter having an adjustable aperture the combination with a single blind having two openings, of a cutting-roller to which the blind is adjustably attached by a point between the openings, two exposure-rollers one for each end of the blind, means for rotating the cutting-roller so as to wind up the blind, means for catching the cutting-roller, a spring for rotating one exposure-roller, a handle for rotating the other exposure-roller, and means for connecting and disconnecting both rollers, essentially as described.

708,008. IDENTIFICATION-TAG. CALVIN SMITH, Hixson, Mo. Filed Mar. 26, 1901. Serial No. 57,622. (No model.)



Claim.—An identification strip or tag for poultry, live stock, &c., comprising a piece of metal, having one end hollow and provided with an interior flange, a headed pin mounted on the other end of said strip, a disk having flexible wings mounted on said pin, said disk adapted to be inserted in the hollow end of the strip, and the wings to engage said flange, as set forth.

708,009. CLOTHING-WRINGER. CHARLES F. SHAMLEN, Columbus, Ohio, assignor to WILLIAM D. SHAMLEN, Columbus, Ohio. Filed Oct. 11, 1902. Serial No. 22,698. (No model.)



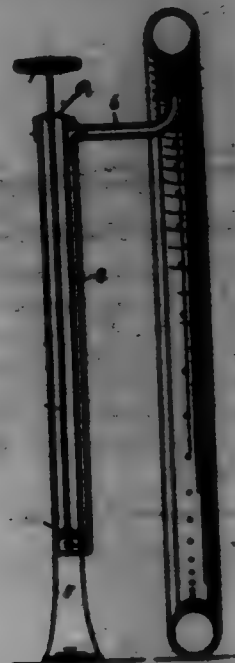
Claim.—In a wringer, the combination with the upper and lower rolls 1 and 2, roll-shafts 3 and 4 and angular clamping-levers 5 on said shaft 4, of an operating-lever 6 pivoted on the spindle portions of the shaft 2, clamping-arms 13 pivotally connected with the upper arms of the clamping-levers 5 and springs 15 having their upper and forward ends pivoted on said operating-lever at points above the shaft 3 and having their rear and lower ends rigidly connected with said clamping-arms 13, substantially as specified.

708,010. RECTO-PUMP. DE WANE S. SMITH, Portland, N. Y. Filed May 11, 1902. Serial No. 71,425. (No model.)

Claim.—1. The combination in a bicycle-pump of a cylinder, a foot or stirrup at the lower end of the cylinder, a plunger and operating-handle at the upper end of the cylinder, and a tube projecting laterally from the upper portion of the pump having an upward-opening end and a cushion the connection held and supported by said projecting tube, substantially as set forth.

2. The combination with a portable bicycle-pump having a foot stirrup or rest at its lower end, of an upward-opening cushion the connection supported by the pump and arranged to operate substantially as set forth.

3. The combination with a cylinder bicycle-pump having a stirrup at its lower end and a plunger of a tube connected with the cylinder and having an upwardly-opening end located out of the axial line of the cylinder and provided with a cushion tire connection, and means for supporting said tire connection with continuous pressure in engagement with a bicycle-tire nipple or other object to be inflated, substantially as set forth.



4. The combination with a bicycle-pump having a cylinder and plunger of a foot adapted to support the pump, and an upwardly-opening tube connected with the cylinder and provided with a cushion tire connection, and means for supporting the cushion connection in raising pressure applied from above to the cushion connection, substantially as set forth.

5. A bicycle-pump comprising a cylinder and a piston member, a base to which one of said members is secured, and an air-discharge pipe leading from the cylinder member having upwardly-tapered valve-engaging end fixed relative to and above the base in a position to be engaged with the downwardly-extending nipple of a tire turned into a position where the nipple will depend from the wheel top.

708,011. STAMP. BRATHAN H. SMITH, Orem City, U. S. Filed Mar. 2, 1902. Serial No. 94,399. (No model.)



Claim.—A stamp comprising a frame, type carried thereby, a pad of greater area than the area of the type, side members at opposite ends of said pad, a hinged and freely-sliding connection between said side members and said frame, and an operating-lever for said pad.

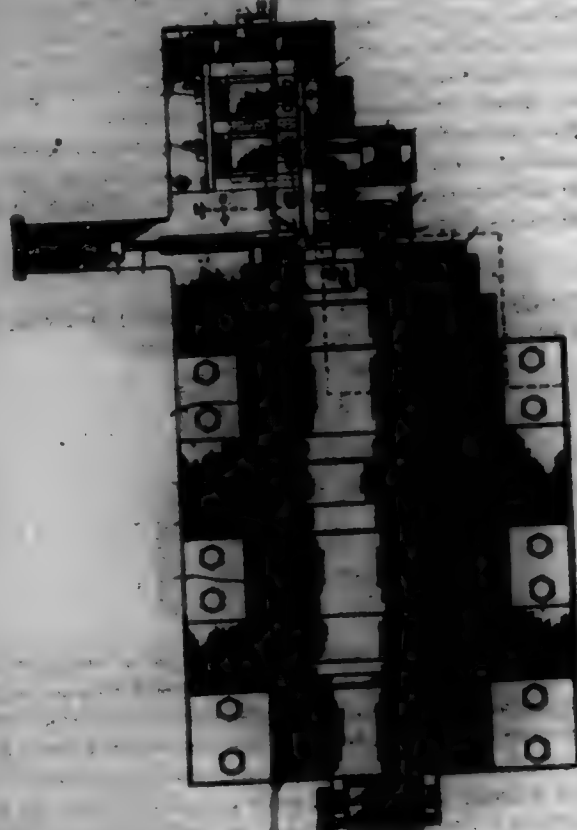
708,012. MACHINE FOR SCARPING LEATHER. FRED SCHMIDT, Chicago, Ill., assignor of one-half to Bernard F. Horsting, Chicago, Ill. Filed Jan. 26, 1901. Serial No. 45,395. (No model.)

Claim.—1. The combination of cutting means, upper and lower feed-rolls, and a guide and gage, said upper roll having a groove engaged by an upwardly-extending flange or web on said guide and gage, substantially as described.

2. A scarping-machine comprising a knife, upper and lower feed-rolls, each roll being supported by a vertically-adjustable frame or supporting-bracket, each vertically-adjustable frame or bracket being carried by a laterally or sidewise adjustable frame or carrier, and the two laterally-adjustable frames or carriers being mounted upon a support or carrier which is adjustable in a direction to move the rolls toward and away from said knife, substantially as described.

3. A scarping-machine comprising a knife, feed-rolls mounted upon adjustable supports, said supports being carried by a horizontally-acting

ing support whereby the rolls can be swung toward and away from the knife and about a vertical axis, substantially as described.



4. A scarping-machine comprising a knife, upper and lower feed-rolls, tilting frames upon which said rolls are mounted, the axis of each roll being at right angles to the tilting axis of the frame upon which each roll is mounted, substantially as described.

5. A scarping-machine comprising a cutting device, a pair of feed-rolls arranged to feed the leather to said cutting device, each roll being mounted upon a tilting frame, the axes of said frames being located at opposite ends of said rolls.

6. A scarping-machine comprising an annular knife mounted for rotation, feeding-rolls arranged to feed the leather to said knife and adapted to temporarily shape the same with reference to the curvature of said knife, movable supports for said rolls, a gage and guiding device arranged to cooperate with said rolls in properly presenting the leather to said knife, and springs adapted and applied to said supports for holding the rolls in contact with the surface of said leather.

7. A scarping-machine comprising rotary cutting means, feed-rolls arranged to feed the leather to said knife, each roll being mounted upon a tilting frame, the axes of said tilting frames being arranged at opposite ends of said rolls, springs applied to said tilting frames in such manner as to hold the rolls in contact with the leather, said frames being mounted upon movable supports, substantially as described.

8. A scarping-machine comprising a rotary knife, feed-rolls for feeding the leather to said knife, each roll being supported by a vertically-adjustable frame, horizontally and transversely movable or adjustable uprights or standards for supporting said frames, and a horizontally and longitudinally adjustable support for said standards or uprights, substantially as described.

9. A scarping-machine comprising a rotary knife, a pair of feed-rolls, each roll being mounted upon a tilting frame, springs applied to said frames in such manner as to hold the rolls in contact with the leather, adjustable stops for limiting the movement of the rolls toward each other, a gaging and guiding device mounted upon the lower tilting frame, a gage or guide on the upper tilting frame, and means whereby said rolls can be adjusted in direction both transverse and parallel to the axis of said knife.

10. A scarping-machine comprising a rotary knife, feed-rolls adjustable in direction both transverse and parallel to the axis of said knife, and shafts provided with telescoping and universal joints and connected with said rolls, substantially as described.

11. A scarping-machine comprising a hollow cylinder mounted for rotation and provided at its forward end with a cutting edge, a stationary cylinder supported within said rotary cylinder, feed-rolls, and adjusting mechanism for adjusting the rolls relatively to the knife, substantially as described.

12. A scarping-machine comprising a rotary cylinder provided at one end with an annular knife adapted for scarping leather, adjustably-mounted rolls D and D' arranged for presenting the leather to the knife and cooperating therewith to permit the knife to scarf the leather, a stationary guideway arranged within the rotary cylinder, and a conveyor

arranged to take the shavings from the knife and carry them back along the stationary guideway.

13. A scarping-machine comprising a rotary cylinder provided at one end with an annular knife adapted for scarping leather, adjustably-mounted rolls D and D' arranged for presenting the leather to the knife and cooperating therewith to permit the knife to scarf the leather, a stationary cylinder arranged within the rotary cylinder, and a conveyor arranged to take the shavings from the knife and carry them through the stationary cylinder.

14. A scarping-machine for scarping leather, comprising a horizontally-disposed cylinder mounted in suitable bearings and adapted for rotation, means for rotating said cylinder, an annular knife in the form of a ring having one edge sharpened and the opposite side or edge adapted for attachment to the forward end of said rotary cylinder, a stationary cylinder arranged within the said rotary cylinder and serving as a guideway for the shavings, upper and lower feed-rolls adapted for presenting the side edge of a belt end to said knife, and a conveyor adapted and arranged to take the shavings from said knife and convey the same through the said stationary cylinder, substantially as described.

15. A belt-scarping machine adapted for thinning down or scarfing off the lapping and portions of belting, comprising a horizontally-disposed rotary cylinder, an annular knife in the form of a ring having one edge sharpened and the opposite edge or side adapted for attachment to the end of said rotary cylinder, a stationary guideway extending through said cylinder and adapted to serve as a guide for the shavings, and a horizontally-disposed belt conveyor having its lower end arranged in the said guideway, the lower end of the belt thereby being capable of taking the shavings from the knife and sliding or moving the same along the guideway to the discharge end of the latter, and suitable rolls for presenting the belting to the said knife, substantially as described.

16. In a machine for thinning down or scarfing off the end portions of belting, the combination of a rotary cylinder provided at one end with an annular knife, a stationary and horizontally-disposed guideway arranged within said cylinder, means for presenting the belting to said knife, and a horizontally-disposed belt conveyor adapted and arranged to have its lower end in the said guideway, the lower end of the belt thereby being capable of taking the shavings from the knife and sliding or moving the same along the guideway to the discharge end of the latter, substantially as described.

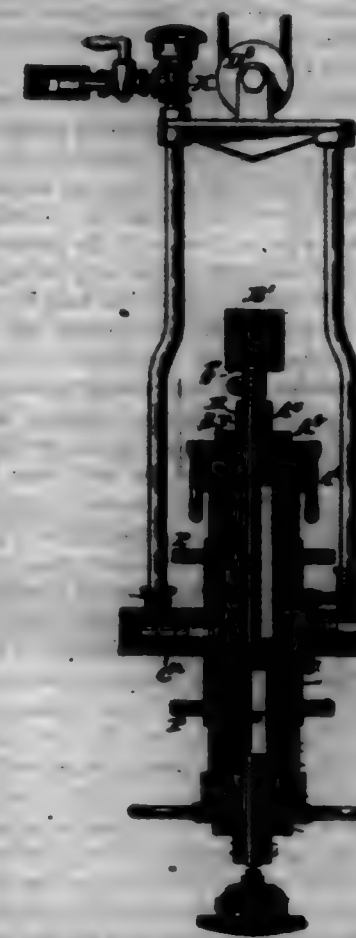
17. In a machine for thinning down or scarfing off the lapping and portions of belting, the combination of a horizontally-disposed rotary cylinder, an annular knife secured to one end of said cylinder, a convex upper feed-roll and a concave lower feed-roll arranged in position to feed the belting to the bottom of said knife, a stationary guideway arranged within said cylinder, and a conveyor arranged within the bottom of said guideway and adapted to receive the shavings from the bottom of the knife and slide or move the same along the said guideway to the discharge end of the latter, substantially as described.

18. A machine for thinning down or scarfing off the lapping and portions of belting, comprising a horizontally-disposed rotary cylinder, an annular knife in the form of a ring having its outer edge sharpened and its inner edge or side adapted for attachment to the end of said rotary cylinder, an upper convex feed-roll and a lower concave feed-roll tilted sidewise and arranged to present or feed the leather belting to the bottom of said knife, a vertically and longitudinally adjustable structure for supporting said rolls, a stationary guideway arranged to extend through the said rotary cylinder, and a belt conveyor having its lower end arranged in the said guideway, substantially as set forth for the purpose set forth.

19. In a machine for scarfing or thinning down the lapping and portions of belting, the combination of a horizontally-disposed rotary cylinder, an annular knife in the form of a ring having its outer edge or side sharpened and its inner edge or side adapted to be secured to the end of said rotary cylinder, a stationary cylinder arranged concentrically within the said rotary cylinder and having in and which is adjacent to said knife supported by a ball-bearing, relatively and adjustably feed-rolls arranged to present or feed the leather to the edge of said knife, and a conveyor adapted and arranged to take the shavings from said knife and slide or move the same along the inner surface of said stationary cylinder, substantially as described.

20. In a machine for scarfing or thinning down the lapping and portions of belting, the combination of a rotary cylinder having one end provided with an annular knife, a stationary cylinder forming a guideway for the shavings, a conveyor arranged within said cylinder, upper and lower feed-rolls arranged in position the leather belting to said knife, pivotally and bodily adjustable structures or supporting members upon which said rolls are mounted and adjustably supported, hand-covers for adjusting the adjustable members of said supporting members, springs for holding said rolls together, the said rolls being normally tilted to one side, so as to properly present the side edge of the belt end to said knife, and a belt-pulley mounted on said rotary cylinder, substantially as described.

708,018. ENGINE FOR MOLDING-MACHINES. LEONARD S. BULLER, Philadelphia, Pa. Filed May 14, 1901. Serial No. 69,146. (No model.)



Claim.—1. In a reciprocating power mechanism adapted for molding or other work, the combination of a suspended supporting-frame, an engine pivoted in said frame and carried upon horizontal journals so as to be completely reversible, and a locking mechanism for supporting the engine in its reversed and different positions consisting of a circular frame having bolts arranged above and below the horizontal journals and a locking-pin adapted to said bolts one of said parts being secured to the engine and the other to the suspended supporting-frame.

2. In a reciprocating power mechanism adapted for molding or other work, the combination of a supporting-frame, a reversible engine pivoted in said frame upon horizontal journals, intermediate of its ends, and handles for guiding the engine blinged to each end of the engine-cylinder so as to hold close up to the cylinder or hold projecting therefrom under the action of gravity whereby when the cylinder is adjusted to an upright position the upper handles extend laterally therefrom into position to be grasped.

3. In a machine for molding or operating a reciprocating tool, the combination of a suspended supporting-frame, a reversible cylinder journaled at its middle to said frame so as to be reversible and having stuffing-boxes at each end, a piston in said cylinder, piston-rods from said piston extending respectively through the stuffing-boxes to the outside of each end of the cylinder, locking means for locking the cylinder in its reversed positions upon the suspended supporting-frame, differently-shaped rams attached in each end of the projecting piston-rods, and suitable valve mechanism for causing the motive fluid to be alternately supplied to each end of the cylinder to reciprocate the piston.

4. In a reciprocating power mechanism adapted for molding or other work, the combination of a supporting-frame, a reversible cylinder journaled at its middle to said frame and having stuffing-boxes at each end, a piston in said cylinder, piston-rods from said piston extending respectively through the stuffing-boxes to the outside of each end of the cylinder, differently-shaped rams attached to each end of the projecting piston-rods, and suitable valve mechanism for causing the motive fluid to be alternately supplied to each end of the cylinder to reciprocate the piston consisting of normally gravity-actuated valve-pistons and ports communicating between a source of supply of motive fluid and the valve mechanism and cylinder whereby the valve-pistons normally assume position adapted to direct the motive fluid to the bottom of the cylinder and under the compression upon starting the machine.

5. In a reciprocating power mechanism adapted for molding or other work, the combination of a supporting-frame, an engine blinged at its middle to said frame and having a projecting piston-rod, and a locking device between the support and engine for locking the engine in various adjusted positions upon the support.

6. In a reciprocating power mechanism adapted for molding or other

work, the combination of a supporting-frame, an engine hinged at its mid-
dle in said frame so as to be completely reversible and having a project-
ing piston-rod; and a locking device between the support and engine for
locking the engine in its reversed and various adjusted positions upon the
support, and an adjustable passage-way for motive fluid from the support
to the engine in all of its adjusted positions.

7. In a reciprocating power mechanism adapted to molding or other
work, the combination of the engine proper having a reciprocating piston
and piston-rod, automatic valve devices for controlling the supply and ex-
haust of the motive fluid to and from said engine, and a controlling-valve in
the exhaust-part of the valve devices for adjustably throttling the exhaust
for changing the length, speed and power of the stroke of the reciprocating
piston and valve consisting of a valve-body having small exhaust
vents or apertures and a throttling-valve for the body for opening an ad-
ditional exhaust-vent through the body of adjustable size.

8. In a machine for molding, the combination of a universally-ad-
justable suspended engine having a reciprocating piston-rod, a belt-run
having a circular body and convex under or operating face, and a belt-
and-socket connection between the run and piston-rod whereby the run
is made to automatically adjust itself to the work when the position of
the piston-rod is not at right angles to the surface of the mold.

9. In a machine for molding, the combination of a universally-ad-
justable suspended engine having a reciprocating piston-rod, a belt-run,
and a belt-and-socket connection between the run and piston-rod whereby
the run is made to automatically adjust itself to the work when the position
of the piston-rod is not at right angles to the surface of the mold.

10. The engine-cylinder formed of the inner tubular cylinder having
grooves or channels cut longitudinally in its outer surface, combined with
an outer case or sleeve tightly driven over the inner tubular cylinder
whereby the grooves or channels form ports or passage-ways for the moti-
ve fluid and a strong tight construction of cylinder is secured.

11. In a reciprocating power mechanism adapted to molding or other
work, the cylinder having a reciprocating piston, combined with a re-
movable internally-recessed head, a piston-rod extending through the re-
cessed head, packing about the piston-rod in the recess, a gland con-
sisting of the piston-rod and fitting into the recess of the head from the inside
of the cylinder, and an annular screw-plug curved into the head to hold
the gland in place.

12. In a reciprocating power mechanism adapted to molding or other
work, the cylinder having a reciprocating piston, combined with a re-
movable internally-recessed head, a piston-rod extending through the re-
cessed head and having a flattened side, packing about the piston-rod in
the recess, a gland consisting of the piston-rod and fitting into the recess of
the head from the inside of the cylinder, an annular screw-plug curved into
the head to hold the gland in place, and locking device for preventing the gland
and screw-plug from turning.

13. In a reciprocating power mechanism adapted to molding or other
work, the cylinder having a reciprocating piston, combined with a re-
movable internally-recessed head, a piston-rod extending through the re-
cessed head and having a flattened side, packing about the piston-rod in
the recess, a gland consisting of the piston-rod and fitting into the recess of
the head from the inside of the cylinder, and also having a flattened por-
tion fitting to the piston-rod to prevent it from turning, an annular screw-
plug curved into the head to hold the gland in place, and a locking de-
vice for holding the gland against turning.

14. In a reciprocating power mechanism adapted to molding or other
work, the combination of a cylinder having ports leading from the mid-
dle part to the ends, a piston for the cylinder, a valve casing or jacket
forced upon the cylinder intermediate of its ends and having ports corre-
sponding with the ports in the cylinder, and valves in valve-chambers of
the jacket to control the supply of motive fluid to and from the cylinder.

15. In a reciprocating power mechanism adapted to molding or other
work, the combination of a cylinder having ports leading from the mid-
dle part to the ends, a piston for the cylinder, a valve casing or jacket
forced upon the cylinder intermediate of its ends and having ports corre-
sponding with the ports in the cylinder, and the flanged ends through
which the valve-chambers open, annular caps or heads secured upon the
flat flanged ends to make tight joints and isolate the valve-chambers, and
valves in the valve-chambers of the jacket to control the supply of moti-
ve fluid to and from the cylinder.

16. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a reciprocating piston therefor, a
main valve for controlling the supply of the motive fluid to the ends of the
cylinder alternately, and an auxiliary valve operated by the motive fluid
delivered by the main valve to control the exhaust of the motive fluid
from the end of the cylinder opposite to that being supplied by the main valve.

17. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a reciprocating piston therefor, a
main valve for controlling the supply of the motive fluid to the ends of

the cylinder alternately, ports connecting the cylinder respectively with
the ends of the main-valve chamber to supply motive fluid to operate the
valve when alternately exposed by the piston but otherwise adapted to
be sealed by the piston or alternately opened to the atmosphere by the
piston, and an auxiliary valve operated by the motive fluid delivered by
the main valve to control the exhaust of the motive fluid from the end of
the cylinder opposite to that being supplied by the main valve.

18. In a reciprocating engine for molding-machines, &c., the com-
bination of the cylinder, a reciprocating piston therefor, a main valve for
controlling the supply of the motive fluid to the ends of the cylinder al-
ternately, ports controlled by the reciprocating piston for controlling the
supply and exhaust of motive fluid to the main valve to move it, and an
auxiliary valve operated by the motive fluid delivered by the main valve
to control the exhaust of the motive fluid from the end of the cylinder op-
posite to that being supplied by the main valve.

19. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a reciprocating piston therefor, a
main valve for controlling the supply of the motive fluid to the ends of
the cylinder alternately, ports controlled by the reciprocating piston for
controlling the supply and exhaust of motive fluid to the main valve to
move it, an auxiliary valve operated by the motive fluid delivered by the
main valve to control the exhaust of the motive fluid from the end of the
cylinder opposite to that being supplied by the main valve, and an ad-
justable throttling-valve to control the freedom of the exhaust from the
auxiliary valve to control the speed, stroke and character of the reciprocation
of the piston.

20. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a reciprocating piston therefor, a
main valve for controlling the supply of the motive fluid to the ends of
the cylinder alternately, an auxiliary valve operated by the motive fluid
delivered by the main valve to control the exhaust of the motive fluid
from the end of the cylinder opposite to that being supplied by the main
valve, and exhaust-ports controlled by the main valve for exhausting the
motive fluid from the end of the auxiliary valve to secure its quick reciprocation
in timed relation to the movements of the main valve.

21. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a reciprocating piston therefor, a
main valve for controlling the supply of the motive fluid to the ends of
the cylinder alternately, ports connecting the cylinder respectively with
the end of the main-valve chamber to supply motive fluid to operate the
valve when alternately exposed by the piston but otherwise adapted
to be sealed by the piston or alternately opened to the atmosphere by the
piston, and an auxiliary valve operated by the motive fluid delivered by
the main valve to control the exhaust of the motive fluid from the end of
the main valve to control the exhaust of the motive fluid from the end of
the cylinder opposite to that being supplied by the main valve, and ex-
hausting-ports controlled by the main valve for exhausting the motive
fluid from the end of the auxiliary valve to secure its quick reciprocation
in timed relation to the movements of the main valve.

22. In a reciprocating power mechanism adapted to molding or other
work, the combination of the cylinder, a main valve to control the sup-
ply of motive fluid to each end of the cylinder, ports for supplying motive
fluid from the cylinder to the valve-chamber to operate the valve, and a
bellow piston having a port and acting to control the escape of motive
fluid from the ends of the valve-chamber alternately by permitting said
ends of the valve-chamber to exhaust into the piston.

23. In a reciprocating engine the combination of the cylinder, a main
valve to control the supply of motive fluid to each end of the cylinder,
ports for supplying motive fluid from the cylinder to the valve-chamber
to operate the valve, and a piston-rod and piston having a port and act-
ing to control the escape of motive fluid from the ends of the valve-cham-
ber alternately by permitting said ends of the valve-chamber to exhaust
into the piston and through the piston-rod into the atmosphere.

24. In a reciprocating engine the combination of the cylinder, a main
valve to control the supply of motive fluid to each end of the cylinder,
ports for supplying motive fluid from the cylinder to the valve-chamber
to operate the valve, and a piston-rod and piston having a port and act-
ing to control the escape of motive fluid from the ends of the valve-cham-
ber alternately by permitting said ends of the valve-chamber to exhaust
into the piston and through the piston-rod into the atmosphere, and an
auxiliary valve actuated by the motive fluid being supplied to the cylin-
der and controlled by the main valve to alternately exhaust from the two
ends of the cylinder.

708,014. ROYALTY ENGINE. JAMES W. STANLEY, KILMER, ILL.
Filed Dec. 3, 1891. Serial No. 84,701. (No model.)

Claim.—1. The combination in a rotary engine, of the cylinder hav-
ing circular openings in its opposite side walls, a piston having a body
portion of greater diameter than that of the circular openings and fitting
within the cylinder, said piston having reduced and laterally-extended end

portions adapted to fit within said openings, packing-rings carried by said
laterally-extended portions for contact with the walls of said openings, and
abutments carried by said piston, substantially as specified.



2. The combination in a rotary engine, of the cylinder having cir-
cular openings in its opposite side walls, a rotary piston having a body
portion of greater diameter than that of the circular openings and fitting
within the cylinder, said piston having reduced and laterally-extended por-
tions provided with annular grooves, wedge-shaped packing-rings adapt-
ed to said grooves and adapted to be forced by steam-pressure into con-
tact with the wall of the cylinder-openings, a shaft carrying the piston,
and abutments carried by said piston, substantially as specified.

3. The combination in a rotary engine, of a cylinder of substantially
circular form, a fixed abutment 30 arranged within the cylinder and pro-
jecting inwardly from the wall thereof, a curved rib 36 arranged centrally
between the side walls of the cylinder and having its greatest inward pro-
jection at the lower edge of the said fixed abutment and from thence gradu-
ally diminishing in curved lines to its opposite end, the circular wall of
the cylinder being provided with chambers or pockets 51 adjacent to the
ends of said rib, a steam-escape port formed within the abutment, a steam-
port arranged on each side of said abutment, a steam-chest with which
all of the ports communicate, a governing-valve in the steam-chest, a ro-
tary piston arranged for contact with the fixed abutment, and movable
abutments carried by said piston, substantially as specified.

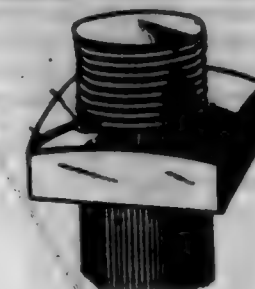
4. In a rotary engine, the combination with a piston having mov-
able abutments, of a fixed abutment, a packing-strip adapted to a slot in
said fixed abutment, said packing-strip having at its opposite end laterally-
extended portions having curved or inclined faces for preliminary con-
tact with the piston-abutments, substantially as specified.

5. The combination in a rotary engine, of the cylinder comprising
a substantially circular body portion, a rotary piston mounted therein,
movable abutments carried by said piston and provided with ports or
passages for the admission of steam to the lower ends thereof, opposite
cylinder-heads formed of rings 7 secured to the cylinder, the centrally-
disposed circular openings of said rings being of a diameter less than that
of the piston, laterally-extended end portions projecting from the piston
and having bearing-supports in said rings, said portions being grooved,
angular packing-rings arranged in said grooves and adapted to be pressed
by the steam-pressure against the circular walls of the ring-openings,
stationary grooved caps carried by the rings at points outside the cylin-
der, rock-shafts carried by the piston on lines parallel with the axis of
rotation of said piston and extending out through the end portions of the
piston, stuffing-boxes for said rock-shafts, crank-arms on said rock-shafts,
pins or rollers carried by said crank-arms and adapted to the cam-grooves,
and links arranged within the piston and connected to the movable abut-
ments, substantially as specified.

708,015. RUT-LAGE. JAMES E. SWINDELL, PUNAMONA, PA.
Filed Mar. 14, 1898. Serial No. 5,199. (No model.)

Claim.—1. The combination with a belt, of a nut having a con-
cave depression in the face thereof adjacent to and opposite the point of
emergence of the belt-thread, the said depression having walls, which are
inclined laterally in the face of the nut, the belt-thread being depressed
laterally into said depression, whereby the nut is locked to the belt, and
whereby on the application of power to turn said nut, said belt-thread is
restored to its normal position by the inclined walls of the said depression
and the nut unlocked, substantially as described.

2. The combination of a belt and a nut thereon, the latter having
an offset engaging surface disposed at a lateral incline to its face but not
displacing or affecting the thread thereof and opposite the thread of the
belt, said belt-thread being offset laterally, in advance of said offset en-
gaging surface, and engaging the same, substantially as described.



708,016. VEHICLE-AXIS NUT. THOMAS H. YAM, PATERSON, N.J.
Filed June 1, 1901. Serial No. 68,708. (No model.)



Claim.—1. The combination, with a vehicle-axle provided with an
interior longitudinal groove, of a spring-pressed dog pivoted within said
groove, the outer end of the dog being cut off to form a space between it
and the wall of the nut for the insertion of an operating tool or wrench.
2. The combination, with a vehicle-axle provided with an interior
longitudinal groove, of a dog pivoted intermediate its length therein, the
forward end of the dog being cut off to form a space between it and the
wall of the nut, for the insertion of an operating tool or wrench, and a
spring in engagement with the inner end of the dog to force it toward the
interior of the nut.

3. The combination, with a vehicle-axle provided with a series of in-
terior longitudinal grooves, of a spring-pressed dog in each groove, the
inner end of which is adapted to engage with the axle and the outer end
is cut off to form a space between the end of the dog and the wall of the
nut, for the insertion of an operating tool or wrench.

4. The combination with an axle provided with a series of longitu-
dinal grooves, of a nut provided with a series of interior longitudinal
grooves, the number of the grooves in the nut differing from those in the
axle, and a catch mounted in each groove in the nut in position to enter
the groove in the axle.

5. The combination, with an axle provided with four longitudinal
grooves, of a triangular nut provided with three interior longitudinal
grooves, one at each angle of the nut, and a catch mounted in each groove
in the nut in position to enter one end of the grooves in the axle when
the nut is rotated.

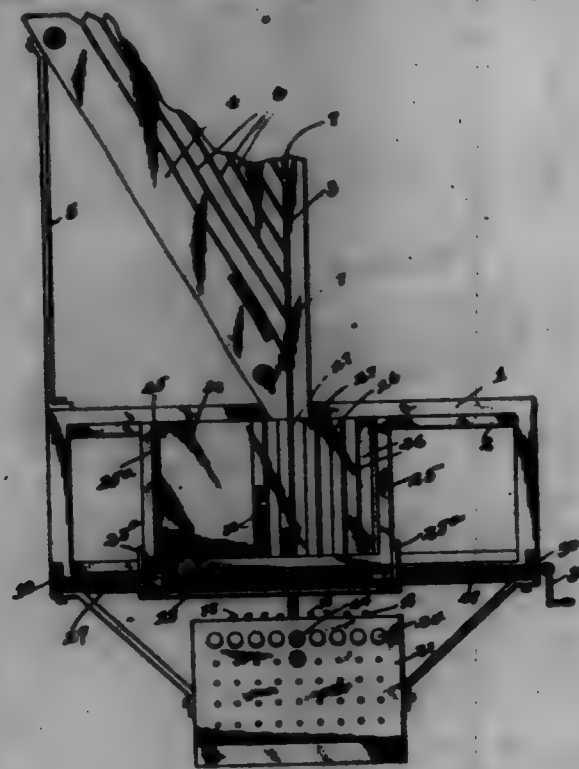
6. The combination, with an axle provided with a longitudinally-
grooved axle, of a substantially cup-shaped nut, the bottom of which is
perforated for the insertion of an operating-tool and the interior is pro-
vided with an interior longitudinal groove to register with each perfora-
tion, and a spring-pressed catch in each groove, the outer end of which is
cut off to form a space between it and the bottom of the groove, for the
insertion of an operating tool or wrench.

708,017. TYPE-SETTING MACHINE. BLAS THOMAS and FRANK
A. RAY, Columbus, Ohio. Filed Feb. 4, 1895. Renewed Nov. 20, 1895.
Serial No. 88,008. (No model.)

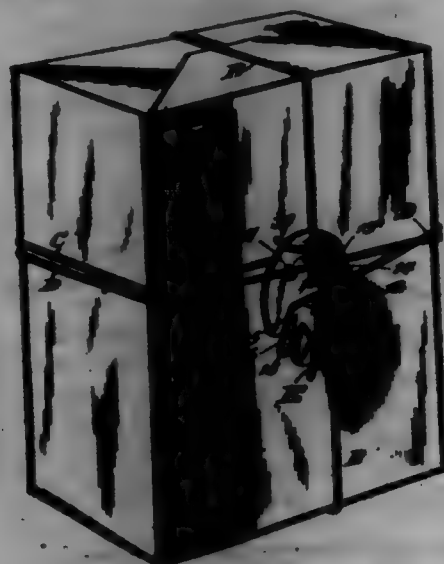
Claim.—1. In a type-setting machine, the combination with a frame-
work, a plate provided with inclined channels 6 and a main discharging-
channel with which said channels 6 communicate, of a pivoted lever 12
arranged in rear of each of said channels 6, lever-arms 14 and 16 piv-
otally connected with each of said levers 12, said lever-arm 14 adapted
to work in an opening 15 communicating with a channel 8, a plurality
of angular type, one arm of each of which extends within said channel
and the remaining arm of which bears on the plate adjacent to said chan-
nel, the lower type-body normally resting upon the end of the lever-arm
14 and the remaining lever-arm 16 adapted to move into position to en-
gage the next higher type-body when said arm 14 is withdrawn and
means for imparting a swinging movement to said lever 12, substantially
as specified.

2. In a type-setting machine, the combination with a framework, a

plate 4 rising therefrom and having a main channel 7 and diagonally-arranged channels 6 communicating therewith, each of said channels 6 having a slotted opening 15, of an arm 9 for each of said channels 6, a reciprocating plunger in said arm, a pivoted lever 12 connected with said plunger, a pair of lever-arms pivotally connected with said lever on opposite sides of its pivot-point and adapted by movement of the lever 12 to alternately move outward and inward through one of the openings 15, type contained in said channels 6 and adapted to be held against discharge therefrom by that lever-arm which is projected through said opening 15, a depressible bulb for each of the grooves 6 and a tubular connection between each of said bulbs and each of the lever-operating plungers, substantially as specified.



708,018. PACKAGE-TIE. JAMES A. THOMAS, Savannah, Ga.
Filed June 26, 1901. Serial No. 65,900. (No model.)

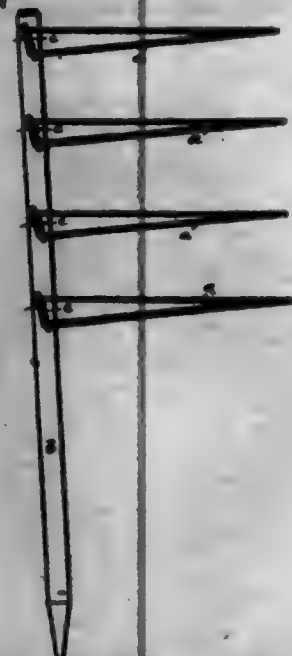


Claim.—A package-tie comprising a body having a portion cut out of one side, and a tapering twist-receiving notch extending from said cut-out portion toward one end, said body being also provided in one side with spaced tapering notches that extend into the body from one side thereof at an inclination to said side and form a twist-holding tongue therebetween, and a plurality of spaced stop-fingers projecting from the side edge of the body which is opposite the twist-holding tongue and at substantially right angles thereto, said fingers being arranged to engage opposite sides of a wrap of the twist located alongside the body.

708,019. CARRIAGE-SUPPORTER. WILLIAM W. THOMAS, Troy, Ohio. Filed Feb. 12, 1902. Serial No. 66,904. (No model.)

Claim.—1. As a new article of manufacture, a carriage-supporter, comprising a post or stake, a series of rings each of which has its ends projected through the openings in said post or stake out of alignment with each other the ends then projected through said openings being turned

at right angles in opposite directions to act as supports to the rings when in horizontal positions, substantially as specified.



2. In a carriage-supporter, the combination of a post or stake having several pairs of horizontal openings, a series of rings each having its ends projected through a pair of said openings and overlapping each other, the said ends so projected through the post being bent in opposite directions so as to provide a pivotal connection for each ring with said post, whereby the rings may be moved to positions parallel with the post, and whereby the said bent ends of said rings form stops to support said rings in horizontal positions, substantially as specified.

708,020. CLOCK-PENDULUM. DAVID W. THOMPSON, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 77,009. (No model.)



Claim.—1. In a clock-pendulum, in combination, a supporting-block having oppositely-extending transverse upon which said block is intended to oscillate; bearings for said transverse; studs extending from opposite sides of said supporting-block and at right angles with said transverse, the central axis of said studs being in the same plane with the oscillatory axis of said supporting-block; and a pendulum-rod pivotally suspended upon said studs.

2. In a clock-pendulum, in combination, a supporting-block having central bearing-transverse projecting from opposite sides thereof; a bearing for said transverse; studs projecting from opposite sides of said supporting-block at right angles to the axial line of said transverse; and a pendulum-rod pivotally suspended upon said studs, the axis of suspension of said pendulum-rod being in the same plane with its axis of vibration.

3. In a clock-pendulum, in combination, a yoke; a supporting-block pivotally mounted in said yoke; and a pendulum-rod pivotally connected with said supporting-block, the oscillatory axis of the block and that of its pivotal connection with the pendulum-rod being in the same plane.

4. In a clock-pendulum, in combination, a yoke having aligned bearings therein; a supporting-block mounted to oscillate upon said bearings; a pendulum-rod pivotally connected with said supporting-block, the oscillatory axis of the block and the axis of the pivotal connection between the block and the pendulum-rod being in the same plane; and means for swinging the yoke in position with relation to a clock mechanism.

5. In a clock-pendulum, in combination, a yoke; two aligned bearings in said yoke; a supporting-block having oppositely-extending conical transverse adapted to fit within the bearings in said yoke, said block also being provided with studs extending from opposite sides thereof and at right angles to said transverse; and a pendulum-rod having perforated arms adapted to engage said studs, the axial center of said studs being in the same plane with the axial center of said transverse.

6. In a clock-pendulum, in combination, a yoke; two oppositely-extending aligned bearing-curves in said yoke; a supporting-block adapted to oscillate between the ends of said bearing-curves; and a pendulum-rod having a pivotal connection with said supporting-block.

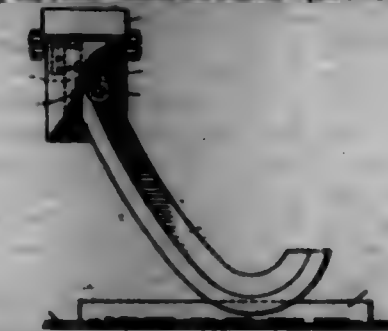
7. In a clock-pendulum, in combination, a yoke having two oppositely-extending cup-bearing curves provided with ball-bearings; a bearing-block having oppositely-extending transverse adapted to fit within said ball-bearings; two studs projecting from opposite sides of said supporting-block at right angles to an axial line extending through said transverse; and a pendulum-rod having perforated arms adapted to engage said studs.

708,021. MOUNTING OF PLANO-KEYS. THOMAS THOMPSON and IRVING CARLSON, Chicago, Ill. Filed Dec. 20, 1901. Serial No. 67,709. (No model.)



Claim.—The combination of a plano-key having a solid top, with a balance-pin freely affixed in the under side of said key and projecting downward, and a balance-roll forming part of the key-frame, having an aperture adapted to receive said balance-pin and prevent any lateral or longitudinal movement of said key on said balance-roll, and an oblong chamber below said aperture in said roll, said oblong chamber being adapted in length to allow the free swing of the lower part of said balance-pin and adapted in width to receive a bushing of flexible material collectively affixed in the walls of said chamber, and a flexible bushing collectively affixed to the walls of said chamber, substantially as described.

708,022. CIRCUIT-CONTROLLER. SUMNER W. VOON, Chicago, Ill. Filed July 12, 1901. Serial No. 68,776. (No model.)



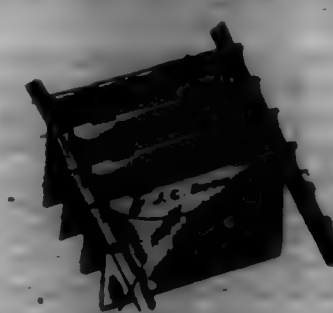
Claim.—1. The combination with a conductor, of a circuit having a fixed terminal supported adjacent to said conductor, and a movable terminal pivotally supported between said fixed terminal and the conductor, and adapted to be lifted into contact with said fixed terminal by the elevation of said conductor, substantially as described.

2. The combination with a conductor, of a trolley adapted to engage said conductor, a circuit having its terminals supported in proximity to said conductor, a device pivotally supported in proximity to said terminals for electrically connecting the same, and means for actuating said device operated by the rise and fall of the conductor, substantially as described.

3. The combination with a conductor, of a circuit-controller supported in proximity to said conductor and adapted to be operated by the rise and fall thereof, said controller comprising a fixed contact and a movable contact, the latter supported upon a rock-shaft, said rock-shaft having an arm fixed thereto and engaging said conductor, substantially as described.

4. The combination with a conductor, of a controller-box supported in proximity to said conductor, a rock-shaft mounted within said box, a contact-finger projecting from said shaft, fixed contact located within said box and extending into the path of said contact-finger, an arm rigidly secured to the end of said rock-shaft and actuated by the rise and fall of said conductor, substantially as described.

708,023. RECEPTACLE FOR CONTAINING PAPERS. MARTIN J. WARR, Iowa City, Iowa. Filed Dec. 2, 1902. Serial No. 64,602. (No model.)



Claim.—1. A receptacle for containing papers comprising a pocket closed on three of its sides and having a flap for closing the pocket-open-

ing and a rod removably connected to the receptacle between the pocket and flap and projecting at its ends beyond the sides of the pocket to form hangers, substantially as and for the purpose set forth.

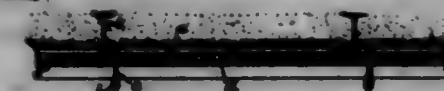
2. A receptacle for containing papers closed on three of its sides to form a pocket for loosely receiving and holding the papers and having also to form bearing, and a rod supported in the bearings and its ends projecting laterally from the sides of the receptacle to form hangers by which said receptacle may be suspended from a suitable support, substantially as and for the purpose described.

708,024. PASTE POT OR JAR. MARTIN J. WARR, Iowa City, Iowa. Filed Apr. 8, 1902. Serial No. 101,482. (No model.)



Claim.—A paste pot or jar comprising an outer vessel or receptacle for containing the water and an inner vessel or holder for the paste composed of a porous material, the upper edges of both the outer vessel or receptacle and the inner vessel or paste-holder being flush and on line with each other, a packing resting on the edges and closing communication between the water-space of the outer vessel or receptacle and the interior of the vessel or paste-holder, a cover to hold the packing in place and having a central opening with upwardly-extending flange, and a cap to close the opening in the cover, substantially as and for the purpose described.

708,025. CENTER CONSTRUCTION FOR FLOOR-ARCHES. GUY E. WATTS, Lebanon, N. J. Filed June 10, 1901. Serial No. 64,612. (No model.)



Claim.—1. The herein-described construction consisting of elements of this or channel iron arranged to be embedded in the concrete of fire-proof arches and held on edge on suitable supports, suspension of substantially the form shown, adapted to hold said iron on edge, and temporary struts or shoring supported from said suspension, substantially as specified.

2. A hanger for use in fireproof construction made of wire twisted in the form of a double loop, the upper loop made to hold metallic members and the lower loop to support temporary centering, substantially as shown.

3. In fireproof floor construction the combination of metallic members, a twisted-wire hanger, a center support, c, and centering, d.

4. In fireproof floor construction temporary centering suspended from suitable members, a, by means of twisted-wire hangers, c, substantially as described.

5. In fireproof floor construction centering material, d, supported by joint, c, and twisted-wire hanger, a, substantially as described.

708,026. MACHINES FOR TRIMMING AND MARKING CHAIRS. ADOLPH W. WALDMAN, Chicago, Ill., and FRANK E. KAMER, Chicago, Ill. Filed Oct. 22, 1901. Serial No. 73,004. (No model.)



Claim.—1. The machine for trimming and marking chairs, comprising a pivoted operating-lever and a spring for returning the lever, in com-

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bination with a pivotally-supported marking device, a separate spring for retracting said device, an arm projecting laterally from the operating-lever and over the marking device, and an adjustable contact carried by said arm and serving to actuate the marking device, substantially as specified.

2. The machine for trimming and marking cigars, comprising a pivoted operating-lever, a knife carried by the lever, and a spring for retracting the lever, in combination with a pivotally-supported marking device, a separate spring for retracting the marking device, an arm projecting laterally from the operating-lever and an adjustable contact carried by said arm and serving to actuate the marking device, and a stationary knife co-operating with said lever-knife, substantially as specified.

3. In a machine for trimming and marking cigars, the combination of a stationary knife, a movable knife, a swinging lever for operating the latter knife, a movable marking device, an arm projecting laterally from the lever and carrying a contact for operating the marking device, and separate springs for retracting said lever and said marking device, substantially as specified.

4. The machine for trimming and marking cigars, having in combination a stationary knife, a movable knife, a lever carrying the movable knife, and a marking device, an arm projecting laterally from the lever and carrying a contact adapted to engage and operate the marking device when the lever is depressed, both the lever and the marking device swinging on the same center, substantially as specified.

5. The machine for trimming and marking cigars, having in combination a stationary knife, a movable knife, a lever carrying the movable knife, and a marking device operated by said lever, both the lever and the marking device swinging on the same center and each having its own retracting-spring, substantially as specified.

6. The machine for trimming and marking cigars having a single operating-lever, carrying a knife and a laterally-extending arm provided with a contact-screw for operating the marking device and a swinging marking device, said lever and said marking device being both supported from and swinging on the same center, substantially as specified.

7. The machine for trimming and marking cigars having a single operating-lever, carrying a knife and a marking device both supported from and swinging on the same center, and each having its own independent retracting-spring, substantially as specified.

8. The combination with the hollow bearing 17, of the knife-carrying lever and its pivot passing through the bearing, the marking-device frame pivoted on the outside of said bearing, and a retracting-spring for said lever stayed by said frame, substantially as specified.

9. The combination with the hollow bearing 17, of the knife-carrying lever and its pivot passing through the bearing, the marking-device frame pivoted on the outside of said bearing, a retracting-spring for said lever stayed by said frame, and a separate spring for retracting the frame, substantially as specified.

10. The marking device for branding cigars, consisting of the thin type-plate having a U-shaped bend, a top plate having a ridge cutting into the bend of the type-plate and supporting the type, a supporting-frame, and a gas-burner for heating the type-plate and top plate and said type-plate being both extended rearwardly so as to inclose the flame from the burner, substantially as specified.

11. In a branding and trimming machine for cigars, the combination of a swinging heated branding device and a swinging knife-lever actuating the branding device, but having only a momentary contact therewith at each operation, the lever and branding device being independently supported and each having its own retracting-spring, substantially as specified.

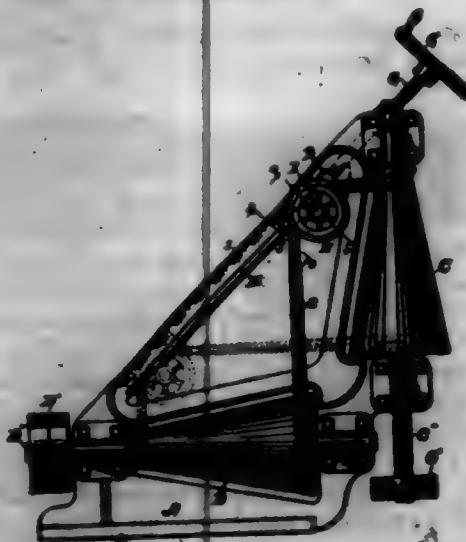
708,027. MECHANICAL SPEED-REGULATOR. HENRY F. WHITE, Kansas, Mich. Filed Jan. 9, 1902. Serial No. 96,615. (No model.)

Claim.—1. In a mechanical speed-regulator, the combination of the frame A; shafts B', C', supported in suitable bearings on the said frame; a tapered cone B mounted upon said shaft B'; means for delivering power to said shaft B'; a tapered cone C mounted upon said shaft C'; means for delivering power from said shaft C'; said cones having like ends pointing in the same general direction; belts c connecting said cones; a track E; a frame D movable on said track; a shaft I adjustably supported on said frame D; idlers H on the said shaft I over which the said belts c pass; means for causing said movable frame to move along said track; all coacting substantially as described and for the purpose specified.

2. In a mechanical speed-regulator, the combination of a supporting-frame; tapered cones having like ends (either the large or small) pointing toward a common point; belts thereon; idlers engaging said belts to toward said cones to support and guide the same; a frame supporting the journal of said idlers under spring tension; a track upon which said frame is adapted to move; means for moving said frame along said track; coacting for the purpose specified.

3. In a mechanical speed-regulator, the combination of a support-

ing-frame; a driven tapered cone connected to a source of power; a driving tapered cone connected to the machine it is designed to operate, said cones having like ends pointing in the same general direction; a belt operating to transmit power between said cones; idlers engaging said belt; a frame supporting the journal of said idlers; a track upon which said frame is adapted to move; and means for moving said frame along said track, coacting for the purpose specified.



4. In a mechanical speed-regulator, the combination of a supporting-frame; a driven tapered cone; a driving tapered cone, the ends of which point toward each other; a belt connecting said cones; idlers engaging said belt; a movable frame supporting the journal of said idlers under spring tension; and a track upon which said frame is adapted to move, coacting for the purpose specified.

5. In a mechanical speed-regulator, the combination of a supporting-frame; a driven tapered cone connected to a source of power; the ends of which cones point the same way; a belt connecting said cones; idlers engaging said belt; a frame supporting the journal of said idlers under spring tension; and a track along which said frame is adapted to move, all coacting substantially as described for the purpose specified.

6. In a mechanical speed-regulator, the combination of a driven tapered cone mounted in suitable bearings and connected with a source of power; a driving tapered cone mounted in suitable bearings, provided with means for delivering power to a desired point, the ends of which cones point the same way; a belt operating to transmit power between said cones; idlers engaging said belt to support it in proper position; and means for causing the relative position of said belt upon said cones to be changed to vary the relation of their speeds.

7. In a mechanical speed-regulator, the combination of a driven tapered cone mounted in suitable bearings and connected with a source of power; a driving tapered cone mounted in suitable bearings, provided with means for delivering power to a desired point, the ends of which cones point the same way; a belt operating to transmit power between said cones; means for supporting said belt in proper position; and means for causing the relative position of said belt upon said cones to be changed to vary the relation of their speeds.

8. In a mechanical speed-regulator, the combination of tapered cones mounted upon suitable shafts with bearings for their support, the ends pointing in the same general direction; a belt connecting said cones; idlers engaging said belt, and means adapted to cause said belt to travel along the lateral surface of said cones to secure variations of speed.

708,028. KNITTING-MACHINE. FRANK E. WHEELER, North Town, Pa. Filed Nov. 4, 1901. Serial No. 81,989. (No model.)

Claim.—1. In combination in a knitting-machine, a pattern or cam wheel, an adjustable block carried thereby, means movable in a direction axially of the wheel for adjusting the said block, and means operated by the edge of the block according to the change in its position, substantially as described.

2. In combination, in a knitting-machine, a pattern or cam wheel, a plurality of radially-adjustable blocks carried thereby and a pattern pin or shaft adjustable in a direction axially of the wheel and having a plurality of cam-surfaces for adjusting the blocks, substantially as described.

3. In combination in a knitting-machine, a cam or pattern member having an adjustable block and a pin having a pattern-surface and projecting through said member for holding the block in place, and means operated by the peripheral edge of said block substantially as described.

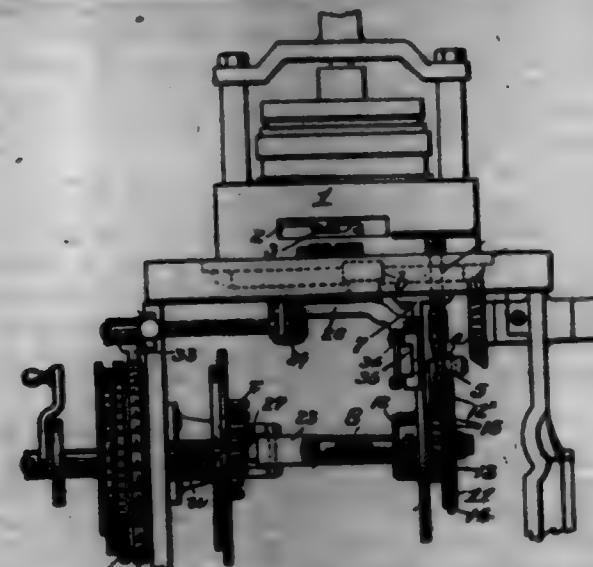
4. In combination in a knitting-machine, a pattern or cam member having an adjustable block and a pattern-pin grooved longitudinally and arranged to control the said block substantially as described.

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5. In combination in a knitting-machine, an adjustable pattern member and a pattern or cam pin having cam-surfaces, said pin being thrust longitudinally into operative position to cause its cam-surfaces to change the shape of the pattern member, substantially as described.



6. In combination in a knitting-machine, an adjustable pattern member and a pattern or cam pin having a plurality of series of cam-surfaces arranged at different points along the pin to be brought into play by a longitudinal adjustment of the pin, substantially as described.

7. In combination with a pattern or cam member, a pattern or cam pin to alter the shape of said member, said pin being grooved longitudinally and having a plurality of sets of high and low parts disposed at different points along the pin, substantially as described.

8. A pattern or cam wheel having a plurality of radially-adjustable blocks and a pattern-pin grooved longitudinally, axially arranged in respect to the wheel, said pin being removable, substantially as described.

9. A pattern or cam wheel having an adjustable block variable as to shape by the adjustment of the block and an axially-arranged pattern-pin having a cam-surface extending longitudinally, with means for automatically adjusting the relation of the parts in a direction longitudinally of the pin, substantially as described.

10. In combination, the pattern-wheel variable as to shape, a pattern-pin at the center of the wheel, means for turning the wheel and pattern mechanism for controlling the pin, substantially as described.

11. In combination, a pattern-wheel adjustable as to shape, a longitudinally-movable pattern-pin for altering said shape, a pattern-wheel with connections for operating the pin, and means for operating the pattern-wheel consisting of the lever with pawls and a cam on the knitting-head for operating the lever, substantially as described.

12. An adjustable pattern-wheel having a hub, a bearing in which the said hub turns, said pattern-wheel having an opening at its center and a pin removably held in said opening and having a pattern-surface to change the relation between the high and the low parts of the pattern-wheel, substantially as described.

13. A pattern-wheel adjustable as to shape, and a pattern-pin to change the relation between the high and the low parts of said wheel and removably connected therewith, substantially as described.

14. In combination, the adjustable pattern member and a pattern-pin to determine the shape of said member, said pin being tapered at its end and having its thickness running longitudinally thereof and of different forms, substantially as described.

15. In combination, a pattern-wheel comprising two disks or sections, blocks arranged to slide between said sections, and a pattern-pin at the center of the wheel to determine the position of said blocks at different distances from the center, substantially as described.

16. A pattern-wheel having a radially-adjustable block and an axially-located pattern-pin to determine the position of said block and means operated by the peripheral edge of said block, substantially as described.

17. In combination, a pattern-wheel variable as to shape and means for varying the shape of said wheel automatically comprising an axially-arranged pattern-pin with means for moving the same automatically in relation to the wheel, substantially as described.

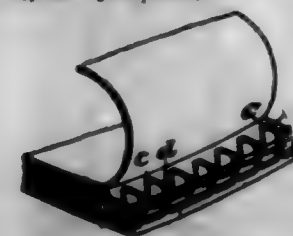
708,029. BUTYLE REPAIR-SPOKE. FRANK A. WILKE, Chicago, Ill. Filed Dec. 31, 1901. Serial No. 87,804. (No model.)

Claim.—The combination in a bicycle, of the wheel having a perforated spoke-containing flange on its hub, and a rim; with a repair-spoke comprising a curved member adapted to be slipped through the perforation of the hub-flange, and a rod portion having a threaded end on one end and adapted to engage the threaded end of the flange-engaging member.

and a tubular nut attached to the rim adapted to engage the outer threaded end of the rod, all substantially as and for the purpose set forth.



708,030. LOCK-SWITCH GRAM. BRANTON E. WHEELLEY and BENJAMIN PHILLIPS, Lynn, Mass., assignors to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed Sept. 22, 1901. Serial No. 78,967. (No model.)



Claim.—A lock-stitch gram consisting of the combination with suitable material of a thread provided with a series of loops each of which passes through a puncture in the material and thence transversely to the direction of the seam to another puncture in the material, and a second thread interlocked with each of said loops in said last-named puncture, the portions of each thread between the loops extending longitudinally of the seam on the same side of the material, substantially as described.

708,031. WOODEN SPLIT PULLEY. CARL WITTEGOWITZ, Berlin, Germany. Filed July 27, 1901. Serial No. 90,906. (No model.)



Claim.—1. In a wooden split pulley, the combination of a pulley rim consisting of two parts, each of which consists of several wood veneers glued together with their grains crossed, with several disks situated within the rim so as to support the same, said disks consisting of several wood veneers glued together with their grains crossed, and several wood veneers glued together with their grains crossed situated between the disks in the center of the same, so as to form the nave of the pulley, substantially as set forth.

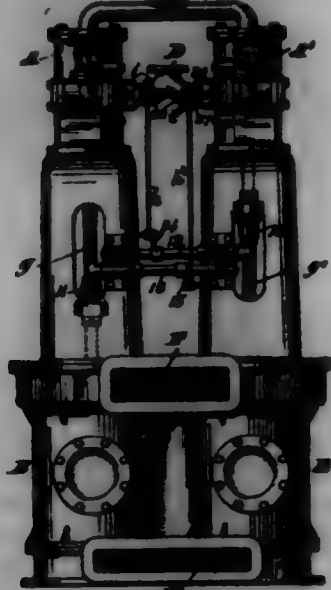
2. In a wooden split pulley, the combination of a pulley-rim consisting of two parts, each of which consists of several wood veneers glued together with their grains crossed, with several disks situated within the rim so as to support the same, said disks consisting of several veneers glued together with their grains crossed, and several veneers glued together with their grains crossed, situated between the disks in the center of the same, so as to form the nave of the pulley, means for fixing the disks to the rim, there being grooves provided on the inner surface of the rim, substantially as set forth.

3. In a wooden split pulley, the combination of a pulley-rim consisting of two parts, each of which consists of several wood veneers glued together with their grains crossed, with several disks situated within the rim so as to support the same, said disks consisting of several veneers glued together with their grains crossed, and several veneers glued together with their grains crossed situated between the disks in the center

of the same, so as to form the nave of the pulley, means for fixing the disks to the rim, there being grooves provided on the inner surface of the rim, and strengthening-ribs provided on the joining faces of both halves of the rim, substantially as set forth.

4. In a wooden split pulley, the combination of a pulley-rim consisting of two parts, each of which consists of several wood veneers glued together with their grains crossed, with several disks situated within the rim so as to support the same, said disks consisting of several veneers glued together with their grains crossed, and several veneers glued together with their grains crossed situated between the disks in the center of the same, so as to form the nave of the pulley, means for fixing the disks to the rim, there being grooves provided on the inner surface of the rim, and strengthening-ribs provided on the joining faces of both halves of the rim, bolts for connecting both halves of the rim, said bolts being situated so as to connect the veneers situated between the disks and so that the nuts of these bolts can be reached through cut-outs provided in the disks, substantially as set forth.

708,082. STEAM-ENGINE. CHARLES C. WORTHINGTON, DUNDAS, N. J. Filed Nov. 27, 1899. Serial No. 738,387. (No model.)



Claim.—1. The combination with two engine-cylinders with pistons movable independently of each other and their valves controlling the admission and exhaust of the motor fluid, of means for shifting the valve of one cylinder for a stroke in one direction at the end of the stroke of the piston of the other cylinder and the valve of the other cylinder for a stroke in the opposite direction at the commencement of the stroke of the piston of the first-mentioned cylinder, substantially as described.

2. The combination with two engine-cylinders with pistons movable independently of each other and their valves controlling the admission and exhaust of the motor fluid, of means controlled by the pistons for shifting the valve of one cylinder for a stroke in one direction at the end of the stroke of the piston of the other cylinder and the valve of the other cylinder for a stroke in the opposite direction at the commencement of the stroke of the piston of the first-mentioned cylinder, substantially as described.

3. The combination with two engine-cylinders and their valves controlling the admission and exhaust of the motor fluid, of means for controlling the valve of one cylinder by the piston of the other cylinder to cause the shifting of said valve for a stroke in one direction at the end of the stroke of said piston and for controlling the valve of the other cylinder by the piston of the first-mentioned cylinder to cause the shifting of said valve for a stroke in the opposite direction at the commencement of the stroke of said piston, substantially as described.

4. The combination with two engine-cylinders and their valves controlling the admission and exhaust of the motor fluid, of means for shifting the valve of one cylinder by the piston of the other cylinder for a stroke in one direction at the end of the stroke of said piston and for shifting the valve of the other cylinder by the piston of the first-mentioned cylinder for a stroke in the opposite direction at the commencement of the stroke of said piston, substantially as described.

5. The combination with two engine-cylinders and their valves controlling the admission and exhaust of the motor fluid, of last-motion actuating connections between the valves of each cylinder and the piston of the other cylinder, one of said connections being arranged to actuate the valve for a stroke in one direction at the end of the piston-stroke and the other of said connections to actuate the valve for a stroke in the opposite direction at the beginning of the piston-stroke, substantially as described.

6. The combination with two engine-cylinders and their valves controlling the admission and exhaust of the motor fluid, of last-motion actuating connections between the valves of each cylinder and the piston of the other cylinder, one of said connections being arranged to actuate the valve for a stroke in one direction at the end of the piston-stroke and the other of said connections to actuate the valve for a stroke in the opposite direction at the beginning of the piston-stroke, and means for positively actuating the said last-mentioned valve later in the stroke in case of failure to actuate it at the beginning of the piston-stroke, substantially as described.

7. The combination with two vertical single-acting pump-plungers and their motor-cylinders, pistons movable independently of each other and valves controlling the admission and exhaust of the motor fluid, of valve movements controlled by the pistons for causing the movement of the pistons in opposite directions with one of the pistons reversed for a stroke in one direction at the end of the stroke of the other piston and the other piston reversed for a stroke in the opposite direction at the commencement of the stroke of the first-mentioned piston, substantially as described.

8. The combination with two vertical single-acting pump-plungers and their motor-cylinders, pistons movable independently of each other and valves controlling the admission and exhaust of the motor fluid, of valve movements actuated by the pistons for causing the movement of the pistons in opposite directions with one of the pistons reversed for a stroke in one direction at the end of the stroke of the other piston and the other piston reversed for a stroke in the opposite direction at the commencement of the stroke of the first-mentioned piston, substantially as described.

9. The combination with two vertical single-acting pump-plungers and their motor-cylinders, pistons and valves controlling the admission and exhaust of the motor fluid, of valve movements for each cylinder actuated by the piston of the other cylinder for causing the movement of the pistons in opposite directions with one of the pistons reversed for a stroke in one direction at the end of the stroke of the other piston and the other piston reversed for a stroke in the opposite direction at the commencement of the stroke of the first-mentioned piston, substantially as described.

10. The combination with two engine-cylinders and pistons therein movable independently of each other, of valve mechanism controlling the admission and exhaust of the motor fluid, and connections between said valve mechanism and the pistons for controlling the valves of each cylinder by the piston of the other cylinder for the movement of the pistons in opposite directions during their entire strokes, substantially as described.

11. The combination with an engine-valve, of a reciprocating member and yielding or friction connections between said member and the valve for actuating the valve during the first part of the movement of the member in either direction and releasing said member from the valve after the latter is moved to permit said member to complete its movement, substantially as described.

12. The combination with an engine-valve, of a reciprocating member and yielding or friction connections between said member and the valve for actuating the valve during the first part of the movement of the member in either direction and releasing said member from the valve after the latter is moved to permit said member to complete its movement, and means carried by said member for positively actuating said valve later in its movement in case the valve is not moved by the yielding or friction connections, substantially as described.

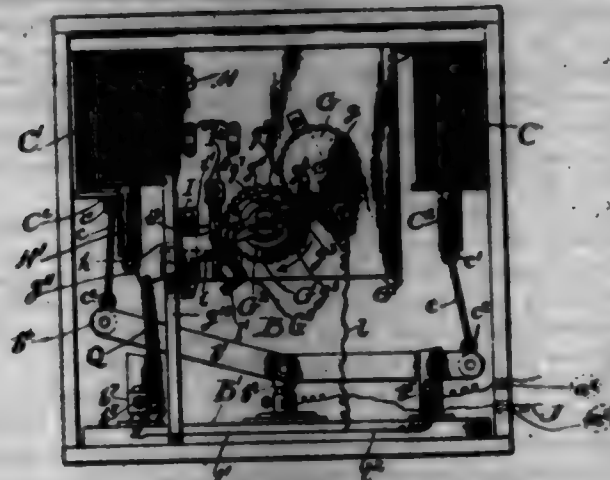
13. The combination with the valve-stem 19 and crank 17 thereof, of crank 1 pivoted on crank 17, bar 21 connected to crank 1 and having a limited movement permitting the crank 1 to swing on crank 17 in either direction for a certain distance and then locking the cranks together, and means for actuating crank 1, substantially as described.

14. The combination with the valve-stem 19 and crank 17 thereof, of crank 1 pivoted on crank 17, bar 21 connected to crank 1, spring 23 acting on said bar to oppose the swinging of crank 1 toward the center on crank 17, means for actuating crank 1, and means for stopping the valve when shifted, substantially as described.

708,088. ELECTRICITY-SWITCH. BLAKE E. WRIGHT, Chicago, Ill. Filed Apr. 11, 1899. Serial No. 677,308. (No model.)

Claim.—1. In an electrically-wound clock, the combination with the winding-shaft, of a lever arranged to act upon said shaft to turn it forward, a movable contact device carried by a movable part of the clock mechanism, arranged and moving in or parallel with the plane of movement of said lever and electrically connected with one pole of a source of electricity, a normally stationary contact device arranged in the path of movement of said movable contact device, mounted to move with the lever and electrically connected with the other pole of said source of electricity, a solenoid included in said circuit and arranged to act upon the lever when energized by the bringing together of said parts, whereby the movable contact, together with the winding-shaft, is thrust back in its

initial position by a single movement of said lever and means for opening the circuit at a point other than between the said circuit-closing contacts at the end of the movement of the lever, substantially as described.



2. In an electrically-wound clock the combination with the winding-shaft, of a lever arranged to act upon the shaft to turn it forward, a contact device carried by a movable part of the clock mechanism and electrically connected with one pole of a source of electricity, a contact device operatively connected with the lever and electrically connected with the other pole of said source of electricity, a solenoid included in said circuit and arranged to act upon the lever when energized by the bringing together of said contacts, the movement of said lever being such as to retain contact during the effective movement of the lever, and means for opening the circuit at the end of the movement of the lever embracing a contact-wheel included in the circuit and consisting of a plurality of spring-contact blades adapted to be successively brought into bearing with the lever, and a ratchet mechanism arranged to cooperate with the lever to hold the contact-wheel from backward movement and permit it to turn forward a step upon each reciprocation of the lever.

3. In an electrically-wound clock the combination with the winding-shaft, of a lever arranged to act upon the shaft to turn it forward, a contact device carried by a movable part of the clock mechanism and electrically connected with one pole of a source of electricity, a contact device operatively connected with the lever and electrically connected with the other pole of said source of electricity, a solenoid included in said circuit and arranged to act upon the lever when energized by the bringing together of said contacts, the movement of said lever being such as to retain contact during the effective movement of the lever, and means for opening the circuit at the end of the movement of the lever embracing a contact-wheel included in the circuit and consisting of a plurality of spring-contact blades adapted to be successively brought into bearing with the lever, a ratchet mechanism arranged to cooperate with the lever to hold the contact-wheel from backward movement and permit it to turn forward a step upon each reciprocation of the lever and an escapement-arm arranged to prevent the contact-wheel from rotating more than a step at a time.

4. In an electrical-winding clock, the combination with the winding-shaft, of a lever arranged to act upon said winding-shaft, a disk or segment mounted concentrically with, and adjacent to the gear and provided with a peripheral portion of insulating material and an electrical contact device mounted upon a part operatively connected with the clock-movement and adapted to travel upon said insulating portion and to form electrical connection with the disk when carried beyond the edge of the insulating-strip.

5. In an electrically-wound clock, the combination with the winding-shaft, of a gear arranged to act upon said winding-shaft, a disk or segment mounted concentrically with, and adjacent to the gear and provided with a peripheral portion of insulating material, and an electrical contact device mounted upon said gear and arranged to travel upon said insulating portion and adapted to form electrical connection with the disk when carried beyond the end of the insulating-strip.

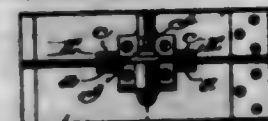
6. An electrical connection comprising a spindle provided with an annular shoulder, a rotatable bearing within which said spindle is rotatably mounted, a washer clamped between the annular shoulder and a part of the bearing and a second washer apertured to receive and fit around the first washer so as to be in the same plane with the latter; one of said clamping parts being slightly yielding and said inner washer being of such thickness as to receive the greater part but not all of the clamping pressure, whereby the bearing member may be rotated with the spindle while the outer washer is held from movement and electrical contact is maintained between both washers and one of the clamping members.

7. The combination with an electric circuit, of a clock provided with a time-indicating hand connected with, and forming one terminal of, said circuit, the metal support E extending across the dial, the spindle P

mounted in said support, the contact-band P' mounted upon said spindle in electrical connection with the latter, the bushing F, the contact-band P' mounted upon the bushing, the check-out P', the contact-strip P' and washer P' interposed between the heads of the spindle and bushing, and the conductors P', I and M' electrically connecting the several parts, substantially as described.

8. In an electrical contact device, the combination with a movable part and a rotatable contact-wheel adapted to make and break contact with said movable part and comprising a plurality of spring-blades each adapted to impart rotation to the wheel by its rebound when breaking contact with the movable part, of a ratchet adapted to cooperate with the contact-wheel to hold the latter from backward rotation.

708,084. HOLDING APPARATUS. WILLIAM C. WRIGHT, Hopkinton, Mass., assignor to Draper Company, Portland, Me., and Hopkinton, Mass. Filed Oct. 17, 1901. Serial No. 78,908. (No model.)



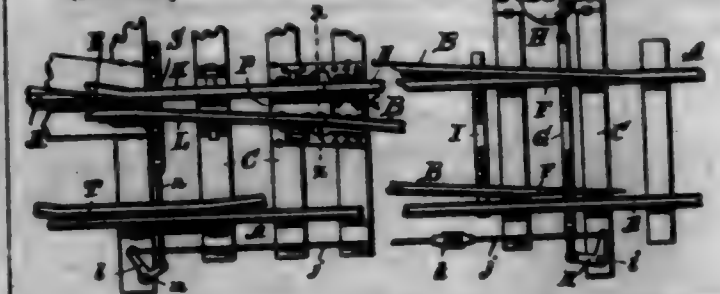
Claim.—1. In molding apparatus, a match and its frame, the latter having a recessed portion, a pattern provided with a gate and a vibrator extension on the latter, the pattern, gate, and vibrator extension being supported wholly by the match independently of the match-frame during the construction of the drag, the vibrator extension passing through the recessed portion of the frame and out of contact with the latter.

2. In molding apparatus, a match and its frame, the latter having recessed portions, a cooperating pattern, and oppositely-extended vibrator extensions connected with the pattern and constructed as handles, said vibrator extensions passing through the recessed portions of the frame out of contact with the latter.

3. In molding apparatus, a pattern and its gate, extensions on the opposite ends of the latter, projecting beyond the flasks during the construction of the mold, and drag and cope flasks having external means thereon to cooperate with said extensions to position the pattern and flasks, the latter having clearance portions to receive said extensions, whereby the pattern, gate, and extensions, will be supported wholly by the drag during the construction of the cope.

4. In molding apparatus, a drag, and its flask, a pattern contained wholly by the drag independently of its flask during the construction of the cope, and adapted to be engaged exterior to the drag and cope flasks to be vibrated preparatory to separation of the cope and drag and withdrawal of the pattern.

708,085. FROG-OPERATING MECHANISM. FRANK C. ARDENSON, Cincinnati, Ohio, assignor of one-half to Aaron E. Lloyd and Goodwin F. Olitz, Cincinnati, Ohio. Filed Aug. 12, 1901. Serial No. 71,767. (No model.)



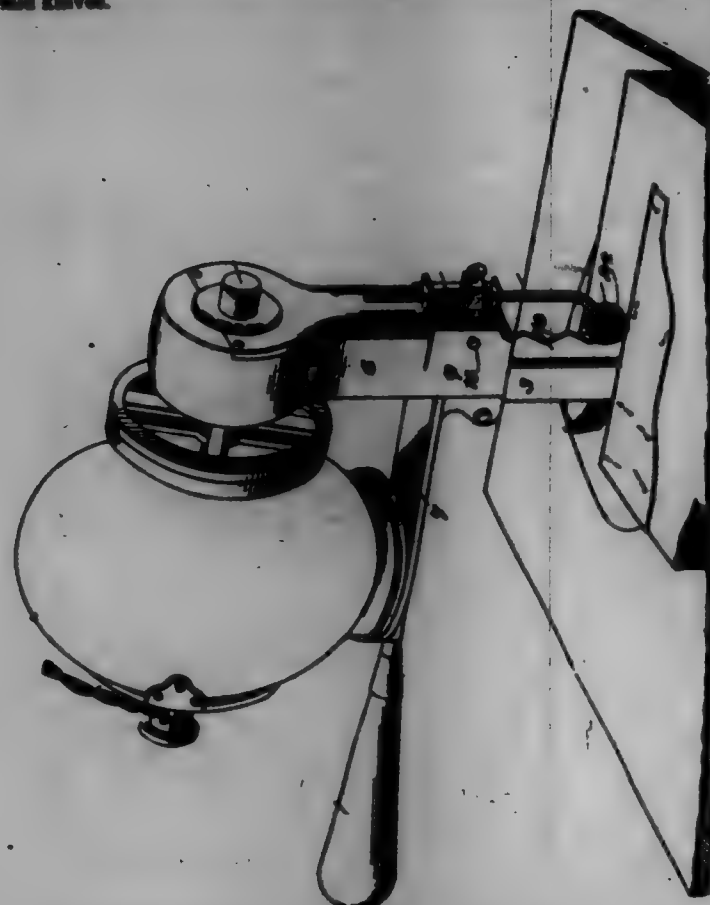
Claim.—In frog-operating mechanism, the combination of the frog-wing and its adjacent rail, of a hinged joint composed of the plates M N pivoted together, as at A, and bolted to the webs of the respective rail-sections, the plate O bolted to the web of the frog-wing and overlapping the joint, and a guide-ling f for the frog-wing guided in a housing g secured to the plate P, substantially as described.

708,086. CLOTH-CUTTING MACHINE. JOHN E. BAIRD, Buffalo, N. Y. Filed May 28, 1901. Serial No. 68,508. (No model.)

Claim.—1. In a cloth-cutting machine a base-plate; a post or pedestal mounted thereon; a motor-carrying frame carried by said post or pedestal; a slide within said frame; two cross-heads mounted to have a movement through said slide, each cross-head being movable in a direction opposite to that of the other under the action of the motor; and a notched cutting-knife carried by each of said cross-heads with their attached ends out of vertical alignment with their setting portions, said knives being adapted to form a shear cut.

2. In a cloth-cutting machine a base-plate having an opening; a post or pedestal on said base-plate in rear of said opening; a motor-car-

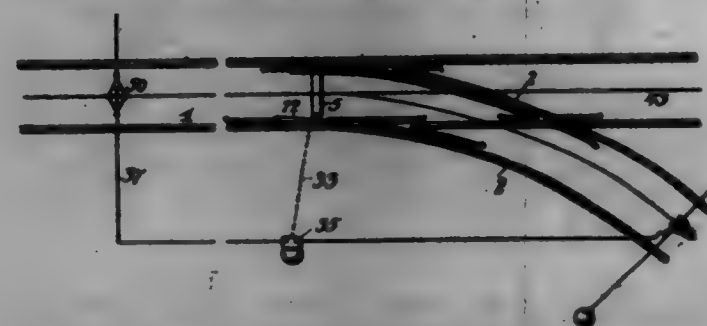
rying frame carried by said post or pedestal; a slide located within said frame; two cross-heads mounted to have a reciprocating movement in opposite directions through said slide, said slide forming a guide for said cross-heads in their movements; a notched cutting-knife carried by each of said cross-heads and having their upper ends inclined angularly and engaging shoulders on the said cross-heads; and guides carried by said frame and said base-plate respectively for controlling the movement of said knives.



2. In a cloth-cutting machine the combination with a support; of two cross-heads mounted within said support, each cross-head having at its lower end a beveled face; means for imparting a reciprocating movement in opposite directions to said cross-heads; and a notched cutting-knife carried by each of said cross-heads, each knife having its upper end inclined angularly to fit said beveled face.

4. In a cloth-cutting machine two notched cutting-knives each having a reciprocating movement, each movement being in opposite directions; means for imparting movement to said knives; and two rollers mounted on the outer sides of said knives, said rollers having an adjustable movement vertically, and normally yielding, whereby material will be held against a separating movement during the cutting action of the knives.

708,087. STREET-RAILWAY SWITCH. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moss, Los Angeles, Cal. Filed Mar. 26, 1902. Serial No. 50,567. (No model.)



Claim.—1. The combination of a switch-point, a switch-throwing device moved by the car, a yielding connection between the point and device, and electrically-controlled means for rendering such connection rigid.

2. The combination of a switch-point, a spring-pressed switch-throwing rail, a yielding connection between the point and rail, and electrically-controlled means for rendering such connection rigid.

3. The combination of a switch-point, means for throwing said point, a sectional rod between the point and means, a yielding connection between the rod-sections, and an electrically-controlled device arranged to be interposed in said connection to render the rod rigid.

4. The combination of a switch-point, a pivoted rail for throwing the switch, a sectional rod connecting the point and rail, a connection between the rods yielding in one direction, a movable foot, and electrical means for interposing said foot between the rod-sections to render the rod rigid.

5. The combination of a switch-point, a pivoted rail arranged to be engaged by a car-wheel, a sectional rod connecting the point and rail, a connection between the rods yielding in one direction, a pivoted foot, an electromagnet, and an armature arranged when attracted to elevate the foot between the rod-sections whereby movement of the rail is communicated to the switch-point.

6. The combination of a switch-point, a pivoted rail arranged to be engaged by a car-wheel, a sectional rod connecting the point and rail, a spring arranged to press the rail into the path of the wheel-flange, a cushioning-spring in the rod, a yielding connection between the rod-sections, and electrically-controlled means for rendering said rod rigid whereby movement of the rail is communicated to the switch-point.

7. The combination of a switch-point, a switch-throwing device moved by a car, a yielding connection between the point and device, means for rendering such connection rigid, a magnet, an armature operatively connected with said means, an electric circuit including said magnet, a circuit-making device in the path of the car-trolley, and a circuit-breaking device in the path of the car-trolley.

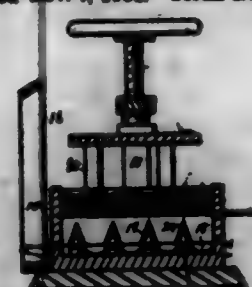
8. The combination of a switch-point the movement of which is controlled through the medium of an armature, a magnet arranged to attract said armature, an electric circuit connected with the magnet, a circuit-making device in the circuit arranged in the path of the car-trolley, a second magnet connected in the circuit, an armature arranged to be attracted by the second magnet, a contact in the path of the armature, and a circuit-breaker normally in contact with the trolley-wire and arranged to be moved by the car-trolley, and a connection between the circuit-breaker and second armature.

9. The combination of a switch-point the movement of which is controlled through the medium of an armature, a magnet arranged to attract said armature, a circuit-making device arranged to be engaged by the car-trolley, an electric circuit in the car connecting the trolley and motor-field wire, a circuit-breaker on the trolley-wire, and a second magnet and armature connected with the circuit-breaker and arranged to close a circuit with the trolley-wire when the circuit through the car connections is established.

10. The combination of a switch-point, means by which the switch-point is moved; said means being controlled through an armature, a magnet to attract the armature, a second magnet, a wire connecting the magnets, a lamp in the wire, a circuit-making device in the path of the car-trolley, a wire leading from the second magnet to the said device, a contact in said second wire, an armature arranged to be attracted by the second magnet and to engage the contact, a circuit-breaker on the trolley-wire, a wire connecting the armature and circuit-breaker, and a car-trolley connected with the motor-field wire and carrying contacts to engage the circuit-making device.

11. The combination in an electric-railway switch, of a circuit-breaker normally in contact with the trolley-wire and arranged to be brought into circuit with the switch-controlling means, and means on the car-trolley for moving the circuit-breaker out of engagement with the trolley-wire.

708,088. CUSHION-STUFFING DEVICE. HENRY E. BERRY, Hamilton, Ohio. Filed Nov. 7, 1901. Serial No. 51,602. (No model.)



Claim.—1. In a cushion-stuffing device, the combination with a button-check, of a conical plug formed with an axial opening in its base, and having a dart-shaped apical blade secured therein, said blade being sharpened at its point and side edges and projecting on opposite sides of said plug beyond its base.

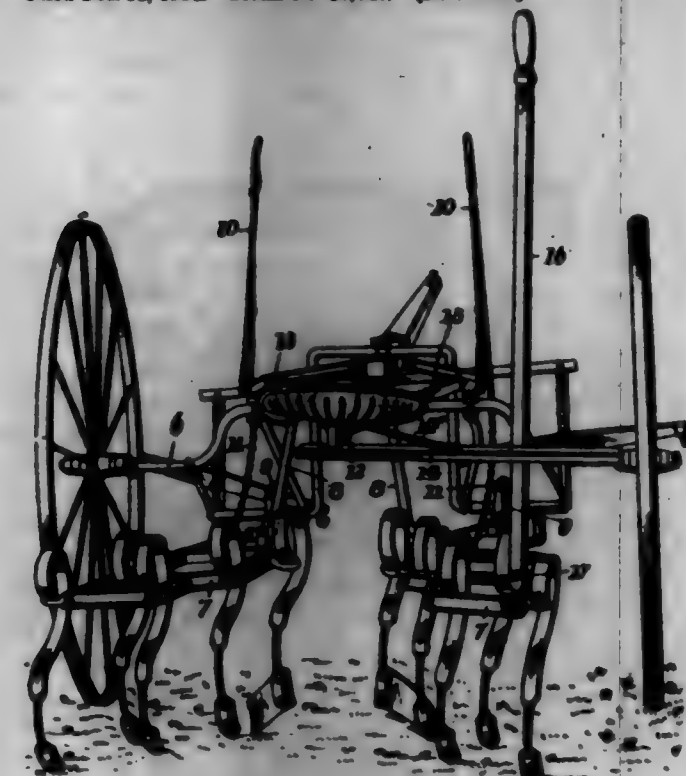
2. In a cushion-stuffing device, a ball-bearing formed in two sections on a diagonal line and with the usual openings to register with the button-checks, and adapted to cooperate with a cushion-frame formed with outwardly-divergent ends and rear edge.

3. In a cushion-stuffing device, the combination with a rectangular cushion-box, of a lever removably fastened to a pin secured on one end of said box and adapted to cooperate with a cushion-frame formed with a curved edge.

4. A conical-shaped plug containing an axial opening in its base and

provided with a dart-shaped blade having a sharp point and side edges, said edges being extended from opposite sides of said plug and terminating on a plane with the base thereof.

708,089. CULTIVATOR. HOWARD H. BOWEN, Haddonfield, Pa. Filed Dec. 30, 1901. Serial No. 57,747. (No model.)

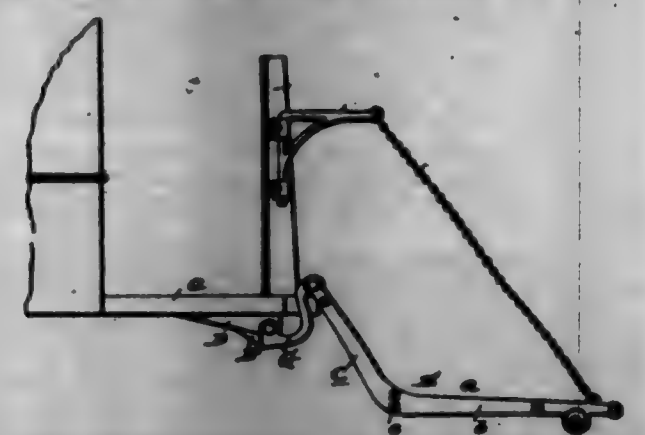


Claim.—1. The combination with the laterally-swinging plow-beam of a cultivator, of a vertically-extending hand-lever to swing the beam laterally, having shifting fulcrum connections with the frame of the machine.

2. The combination with the laterally-swinging plow-beam of a cultivator, of a vertical lever pivoted to said beam, and a fulcrum for the lever supported on the frame of the machine, said lever being longitudinally movable relative to the fulcrum.

3. The combination with the laterally-swinging plow-beam of a cultivator, of a vertically-extending hand-lever to swing the beam laterally, said lever being connected to one of the beams and fulcrumed in an arm supported by the frame of the machine, said lever having longitudinal movement relative to its fulcrum.

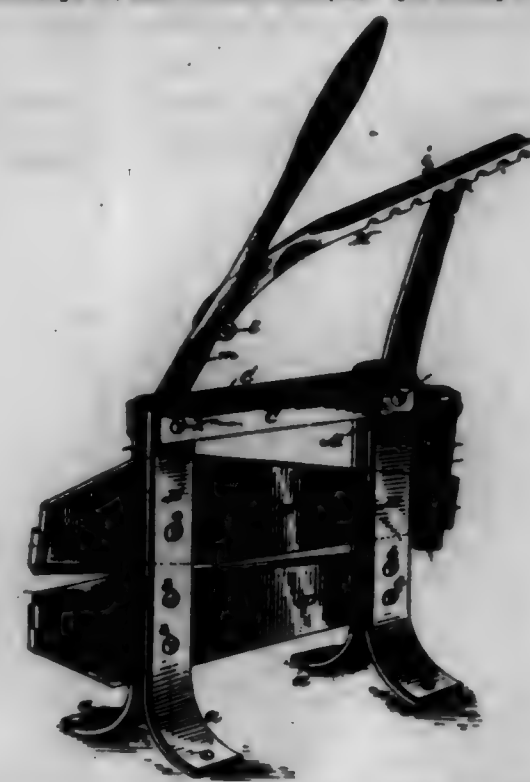
708,040. CAR-FENDER. WILLIAM BOWMAN, Philadelphia, Pa. Filed Nov. 4, 1902. Serial No. 56,362. (No model.)



Claim.—In a car-fender, the combination of a car having a platform and a dashboard thereon, arms pivotally connected to the dashboard as to swing in a horizontal plane, a fender proper comprising side bars having approximately horizontal forward portions and upwardly and rearwardly inclined rear portions, the upper and rear ends of which are disposed in front of and above the platform, connections interposed between the side bars and a notching conforming in shape to said side bars, flexible suspending devices interposed between the arms on the dashboard and the forward portions of the side bars of the fender proper, brackets on the under side of the car-platform provided with stops, and levers pivotally connected to the brackets above and in front of the stops thereof and extending forwardly from the brackets and thence upwardly, and pivotally

connected at their forward ends to the rear ends of the side bars of the fender proper, substantially as and for the purpose set forth.

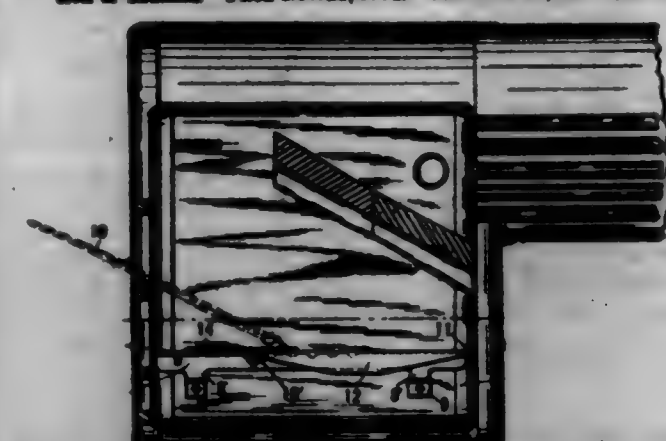
708,041. MACHINE FOR SHEARING METAL. CHARLES CLARK, Avoca, N. Y., assignor of one-half to Allen James Hume, Avoca, N. Y. Filed Apr. 26, 1902. Serial No. 194,741. (No model.)



Claim.—1. A machine for shearing metal, comprising a suitable frame, a stationary blade and a movable blade, a pivoted bell-crank lever and means for pivotally and adjustably connecting it with the movable blade, a pivoted hand-lever and means for adjustably connecting it with the bell-crank lever, substantially as and for the purpose specified.

2. A machine for shearing metal, comprising a suitable frame, a stationary blade and a pivoted blade, a pivoted bell-crank lever, suitable links pivotally connected to said lever and both pivotally and adjustably connected to the pivoted blade, a pivoted hand-lever, a notched pinion-rod pivotally and adjustably connected to the hand-lever, and the notches in the pinion-rod engaging pins on the bell-crank lever, substantially as and for the purpose described.

708,042. STRAW-BURNING FURNACE. HARRY C. GRAY, Columbus, Ind., assignor to Revere & Company, Columbus, Ind., a Corporation of Indiana. Filed Nov. 22, 1901. Serial No. 53,373. (No model.)



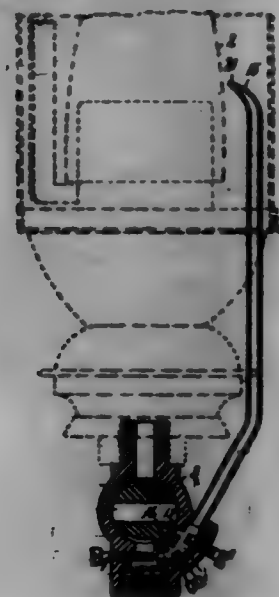
Claim.—1. In a furnace, the combination with a series of grate-bars, of a dead-plate mounted at one end of the grate-bars, a supplemental dead-plate mounted upon the main dead-plate and movable longitudinally thereof and along the grate-bars, and means for holding said supplemental plate in various positions of longitudinal adjustment on the grate-bars.

2. In a furnace, the combination of a pair of independent side bars, a dead-plate adapted to rest upon and between said side bars at one end, an end bar adapted to rest upon and between the opposite ends of the said side bars, a series of fingers carried by the dead-plate and end bar, a series of grate-bars extending between the dead-plate and end bar and resting upon the fingers thereof, an auxiliary dead-plate mounted adjacent to the first plate and movable longitudinally of the grate-bars, and means for holding the auxiliary dead-plate in various positions of adjustment.

3. In a furnace, the combination of a pair of independent side bars

having a series of notches formed in the upper edges thereof, a dead-plate extending between said side bars at one end having its edges resting upon said bars, an end bar resting at its ends upon the opposite ends of the side bars, a series of fingers carried by the dead-plate and the end bar, a series of grate-bars each having at each end a projecting ear adapted to rest upon said fingers, and an auxiliary dead-plate mounted upon the first plate and provided with depending legs adapted to enter the notches of the side bars, substantially as and for the purpose set forth.

708,048. LIGHTING ATTACHMENT FOR GAS-BURNERS. EVAN W. CORRELL, Adrian, Mich., assignor of one-half to S. Milo Dolz, Adrian, Mich. Filed Apr. 8, 1901. Serial No. 54,708. (No model.)



Claim.—1. In a gas-lighting attachment, the combination with the burner of a valve adapted to control the supply of gas to said burner, a pilot-tube continuously communicating with the supply of gas, an auxiliary opening communicating continuously with said pilot-tube, an opening-space in said valve adapted to place said auxiliary opening also in communication with the supply of gas, said auxiliary opening being closed when the valve is in its closed and its open positions and a resistance-stop for checking the movement of said valve between the extremities of its movement when the open space therein has been brought to register with the auxiliary opening.

2. The combination with a burner, of a gas-valve adapted to control the passage of gas to the burner, a pilot-tube communicating independently with the source of gas, an auxiliary opening between the pilot-tube and the source of gas normally closed by said valve, a channel in said valve distinct and separate from the main gas-passage adapted by a movement of the valve to place said auxiliary opening in communication with the source of gas and a resistance-stop for checking only the movement of the valve when the channel therein has been brought to register with said auxiliary opening, said stop allowing a movement of the valve therefrom in both directions.

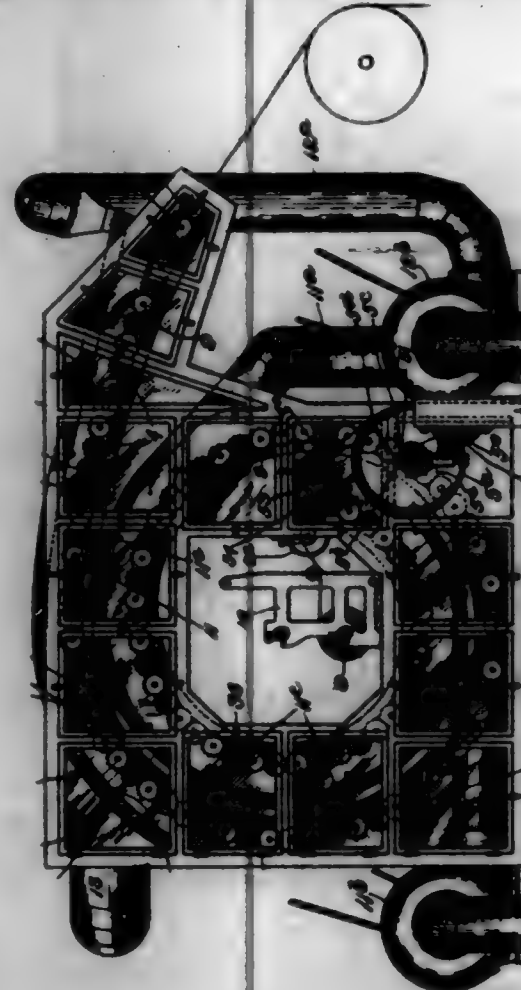
3. In a lighting attachment, the combination with a burner, of a valve adapted to control the passage of gas to the burner, a pilot-tube communicating with the source of gas, an auxiliary opening communicating with said pilot-tube said auxiliary opening being closed when the valve is in its closed and in its open position, an open space in the valve adapted to place said auxiliary opening independently in communication with the source of gas when the valve is partially turned to cut off the gas from the main burner and a resistance-stop for checking the valve between the limits of its movement in both directions but allowing said valve to be turned past said stop in either direction.

708,044. DRIER FOR PAPER, CLOTH, &c. CHARLES H. CROWELL, Lynn, Mass. Filed Oct. 2, 1901. Serial No. 77,363. (No model.)

Claim.—1. A drier for drying continuous-web material coming from gumming or similar devices, said drier having means for supporting and guiding said web while exposed to the drying agency entirely without contact with the moist face thereof, the said means comprising, essentially, a multiplicity of rods or rollers arranged proximately to one another in a curved line or series and upon the periphery of which at the convexity of said line or series the said web travels, and means of feeding the said web along the said series of rods or rollers through the drier, substantially as described.

2. A drier for drying continuous-web material coming from gumming or similar devices, said drier having means for supporting and guiding said web while exposed to the drying agency entirely without con-

tact with the moist face thereof, the said means comprising, essentially, a multiplicity of rolls arranged proximately to one another in a curved line or series and upon the periphery of which at the convexity of said line or series the said web travels, means for rotating the respective rods or rollers in the direction of the feed, and means of feeding the said web along the said series of rods or rollers through the drier, substantially as described.



3. A drier for drying continuous-web material coming from gumming or similar devices, said drier having means for supporting and guiding said web while exposed to the drying agency entirely without contact with the moist face thereof, the said means comprising, essentially, a multiplicity of rods or rollers arranged proximately to one another in an involute spiral and upon the periphery of which at the convexity of said line or series the said web travels, and means of feeding the said web along the said series of rods or rollers through the drier, substantially as described.

4. A drier for drying continuous-web material coming from gumming or similar devices, said drier having means for supporting and guiding said web while exposed to the drying agency entirely without contact with the moist face thereof, the said means comprising, essentially, a multiplicity of rods or rollers arranged proximately to one another in an involute spiral and upon the periphery of which at the convexity of said line or series the said web travels, means for rotating the respective rods or rollers in the direction of the feed, and means of feeding the said web along the said series of rods or rollers through the drier, substantially as described.

5. A drier for material in the form of a continuous web comprising, essentially, a multiplicity of rolls arranged proximately to one another in a curved line or series and upon the periphery of which at the convexity of the said line or series the said web travels, means for rotating the respective rolls in the direction of the feed, means of feeding the said web through the drier, and means of producing moving currents of heated air to act on said web while in transit along the said series of rolls, substantially as described.

6. A drier for material in the form of a continuous web comprising, essentially, a multiplicity of rolls arranged proximately to one another in a curved line or series and upon the periphery of which at the convexity of the said line or series the said web travels, means of feeding the web through the drier, and a duct adjacent the said series of rolls discharging air in streams upon the said web, substantially as described.

7. A drier for material in the form of a continuous web comprising, essentially, a multiplicity of rolls arranged proximately to one another in a curved line or series and upon the periphery of which at the convexity of the said line or series the said web travels, means of feeding the web through the drier, a duct adjacent the said series of rolls discharging air

in streams upon said web, and means of forcing heated air through said duct, substantially as described.

8. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral and upon the convexity of which the web travels, means of feeding the web along said series, and means of producing moving currents of heated air to act on said web while in transit along the series of rolls, substantially as described.

9. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral and upon the convexity of which the web travels, feed-rolls at the inner end of said spiral, and means of producing moving currents of heated air to act on said web while traveling along the series of rolls, substantially as described.

10. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral and upon the convexity of which the web travels, means for rotating the respective rolls in the direction of the travel of the web, feed-rolls at the inner end of said spiral, and means of producing moving currents of heated air to act on said web while traveling along the series of rolls, substantially as described.

11. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral, feed-rolls at the inner end of said spiral, and the ducts adjacent the spiral series of rolls discharging streams of heated air upon the material in transit along the series of rolls, substantially as described.

12. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral, the feed-rolls at the inner end of said series, means for furnishing heated air beneath said spiral, and the ducts adjacent the spiral series of rolls discharging streams of heated air upon the material in transit along the series of rolls, substantially as described.

13. A drier for material in the form of a continuous web comprising, essentially, the spiral series of rolls having the outer end thereof extended outwardly, the feed-rolls at the inner end of said series, means for furnishing heated air at the lower part of said spiral, the ducts adjacent the spiral series of rolls discharging streams of heated air upon the material in transit along the said series, and the casing having the extension inclosing the said outer end of the series of rolls, substantially as described.

14. A drier for material in the form of a continuous web comprising, essentially, the series of rolls arranged in an involute spiral and upon the convexity of which the web travels, means for rotating the respective rolls in the direction of the travel of the web, and means of producing moving currents of air to act on said web while traveling the said series of rolls, substantially as described.

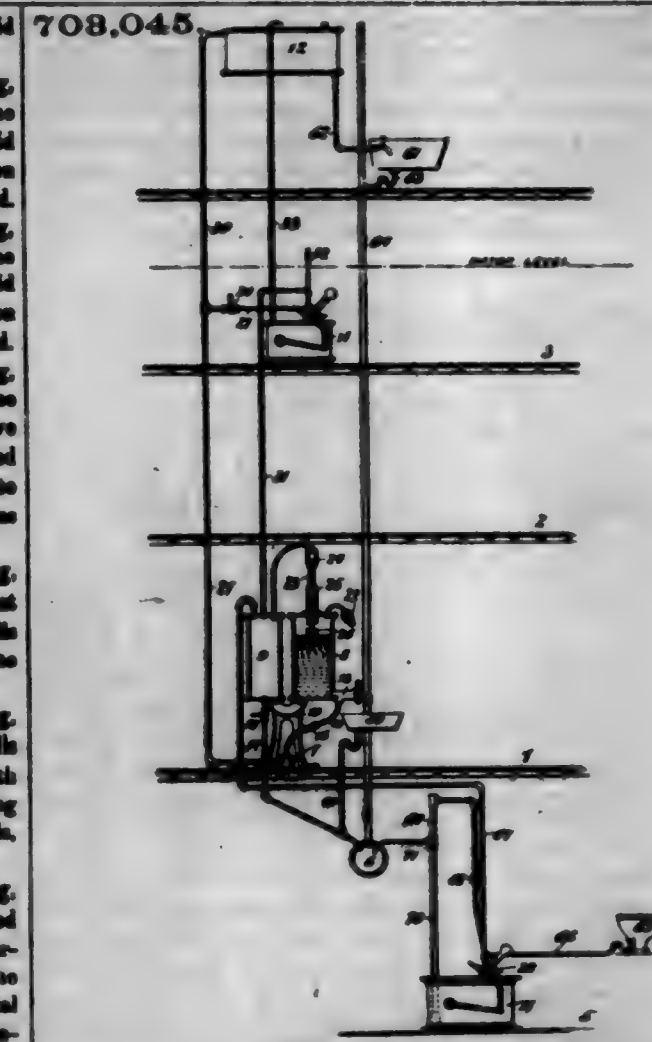
15. A drier for material in the form of a continuous web comprising, essentially, a curved series of rolls upon the convexity of which the said web travels, means of feeding the web through the drier, a duct adjacent the said series of rolls discharging air in streams upon said web, means of supplying a current of air moving upwardly past the material on the rolls, and dampers to regulate the flow of said current, substantially as described.

16. A drier for material in the form of a continuous web comprising, essentially, the multiplicity of rolls arranged proximately to one another in a spiral series and upon the convexity of which series the web travels, the duct adjacent the said series of rolls discharging streams of air upon the material in transit along the series of rolls, the steam-coil, and means of regulating the flow of air from the said steam-coil past the material while passing along the said series of rolls, substantially as described.

708,045. APPARATUS FOR RAISING LIQUIDS. GUYVAY L. CHURCH and JOHN DYER, New York, N. Y. Filed June 2, 1901. Serial No. 62,302. (No model.)

Claim.—1. An apparatus for raising liquids, a liquid-elevating tank, a liquid-elevating pipe leading therefrom, a liquid-feed pipe, an air-vent pipe, a compressed-air-feed pipe, a controlling-valve for the liquid-feed, air-vent and compressed-air-feed pipes, and means for operating said valve comprising a seat, a rocking lever loosely mounted on the valve-stem connected to the seat, a two-armed lever fixed to the valve-stem and an intermediate weighted lever loosely mounted on the valve-stem in position to be engaged by the lever connected to the seat for causing the weighted lever to engage the lever connected with the valve-stem, substantially as set forth.

2. In an apparatus for raising liquids, a liquid-elevating tank, a liquid-feed pipe, an air-vent pipe, a compressed-air-feed pipe, a controlling-valve therefor, a crank-shaft mounted in the tank, with its arm exterior thereto, a seat fixed to said shaft, a lever fixed on the valve-stem, a lever loosely mounted on the valve-stem and connected to the crank-shaft arm and a weighted lever arranged in position to be engaged by the said loosely-mounted lever to be swung into position to fall by gravity into engagement with the valve-lever to operate the valve, substantially as set forth.



708,046. COLLAR-FASTENER. ROBERT G. DEATON, Detroit, Mich. Filed Dec. 10, 1900. Serial No. 28,411. (No model.)

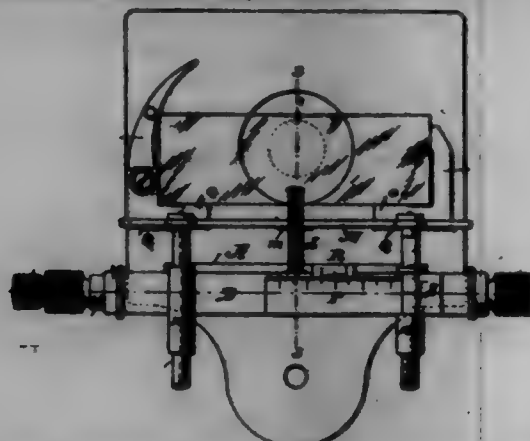


Claim.—In a collar-fastener of the character set forth, the combination with a collar divided at one end by a separating-opening therethrough, of rigid metallic plates secured to the collar on opposite sides of the opening and extending from edge to edge of the collar, one of said plates having an opening extending vertically therethrough, a yielding coupling member formed from a single piece of spring-steel bent at its center to form an elongated handle, the ends of the said member being bent outwardly in opposite directions to form a T-shaped head adapted to pass through the opening in the plate and to fit loosely in a recess provided in the body of the collar, said coupling member being provided with an angular loop at one end, one-half of which is formed by each of the portions of the handle, and a stud-head rigidly secured to the opposite plate, said stud having a rounded or conical rear face for engagement by one of the transverse walls of the loop and being of a width greater than the normal width of the loop, the opposite sides of the stud being undercut near the base thereof to form seating-recesses for the side portions of the loop, substantially as specified.

708,047. MECHANICAL STAGE FOR MICROSCOPE. CARL Y. DIERCKMAN, Buffalo, N. Y., assignor to Spencer Lens Company, Buffalo, N. Y. Filed Nov. 7, 1901. Serial No. 21,464. (No model.)

Claim.—1. The combination of a base, a slide movable thereon, a second slide movable in a direction at an angle to the line of movement of the first slide, concentric rotatable shafts, a screw connection between one of said shafts and one slide, and a screw connection between the other shaft and the other slide, substantially as set forth.

2. The combination of a base, a slide movable thereon, a second slide movable in a direction at an angle to the line of movement of the first slide, a rotatable shaft journaled in said first slide and having operating parts at opposite ends thereof, a hollow shaft concentric with said first shaft and having an operating part adjacent to one of the operating parts of the first shaft, and operative connections between each of said shafts and one of said slides, substantially as set forth.



3. The combination of a base, a slide movable thereon, a second slide carried by the first slide and movable toward and from the same, a shaft journaled in said first slide, a hollow shaft concentric with said first shaft and having a screw-threaded engagement with said first slide, a screw-shaft journaled in said first slide and having a screw-threaded engagement with said second slide, and gearing connecting said first shaft and said screw-shaft, substantially as set forth.

4. The combination of a base, a slide movable thereon, a hollow shaft journaled in one end of said slide, a shaft extending through said hollow shaft and journaled in the opposite end of said slide, adjacent operating-hands each secured to one of said shafts for operating the same, a screw-threaded connection between said hollow shaft and said slide, a second slide carried by the first slide and movable toward and from the same, a screw-shaft journaled on said first slide and having a screw-threaded engagement with said second slide, and bevel-gears connecting said second-movement shaft and said screw-shaft, substantially as set forth.

5. The combination with a microscope-stage provided with operated holes, of a mechanical stage provided with a base having separated posts depending therefrom and detachably engaging in said holes in the microscope-stage, one of said posts being adjustable relative to the other, substantially as set forth.

6. The combination with a mechanical stage slide-bar provided with an elongated slot, of a holding-finger for a specimen-slide bearing against one side of said slide-bar, and a spring bearing against the opposite side of said slide-bar and secured to said finger by means passing through said slot, substantially as set forth.

708,048. SMOKE-CONSUMER. JAMES A. DOWNEY, Washington, D. C., assignor of one-half to Patrick J. Moran, Georgetown, D. C. Filed Mar. 26, 1902. Serial No. 99,999. (No model.)



Claim.—1. A smoke-consumer comprising a smoke-stack, approximately vertical flue in said stack, cross-flues connecting therewith, steam-pipes to discharge steam into said cross-flues in the direction of the draft, a diaphragm across the stack near the cross-flues, and discharge-flues connecting said cross-flues, at a point beyond the steam-discharge, with the space above said diaphragm, as described.

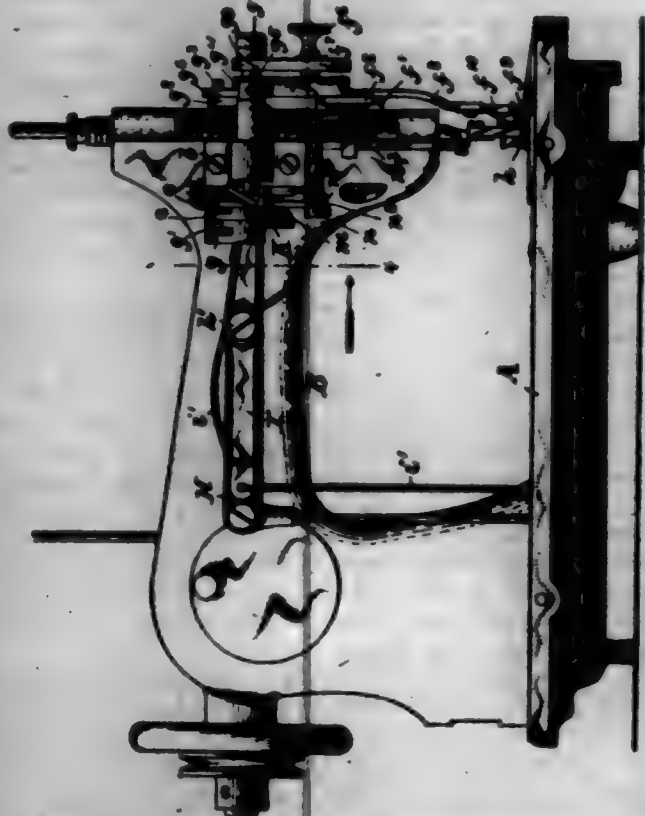
2. A smoke-consumer comprising a smoke-stack, approximately vertical flue in said stack, cross-flues connecting therewith, drip-pipes connected with said cross-flues steam-pipes to discharge steam into said cross-flues in the direction of the draft, a diaphragm across the stack near the cross-flues and discharge-flues connecting said cross-flues, at a point beyond the steam-discharge with the space above said diaphragm as described.

3. In a smoke-consumer, a smoke-stack, vertical flue in said stack

cross-flues connecting therewith, an inclined section in each of said cross-flues, steam-pipes opening into said cross-flues, a diaphragm across the stack and discharge-flues connecting with said cross-flues at a point beyond their inclined sections and opening above said diaphragm, substantially as herein set forth.

4. A smoke-consumer comprising a smoke-stack, vertical flue therein, cross-flues connecting therewith and extending through the stack, caps on the outer ends of said cross-flues, drip-pipes tapping said cross-flues, steam-pipes opening into said cross-flues to discharge steam in the direction of the draft, discharge-flues connecting with said cross-flues and opening above a diaphragm, steam-pipes above said diaphragm vents in said steam-pipes and an upper perforated diaphragm above said steam-pipes substantially as herein set forth.

708,049. SEWING-MACHINE RUFFLER OR GATHERER. JOHN DOUGLAS and VICTOR HANSEN, Elizabeth, N. J., assignors to The Singer Manufacturing Company, a Corporation of New Jersey. Filed Aug. 2, 1902. Serial No. 26,703. (No model.)



Claim.—1. In a sewing-machine, the combination with the needle-bar-operating shaft located in the upper portion of the arm of the machine and provided near its forward end with two eccentrics, of a ruffing or gathering blade or foot, connections between said eccentrics and said blade or foot whereby positive four-motored movements are imparted bodily to the latter, and means, controlled by the operator, for throwing said blade or foot into or out of action without retarding or arresting the operation of the stitch-forming device.

2. In a sewing-machine, the combination with the needle-bar-operating shaft located in the upper portion of the arm of the machine and provided near its forward end with two eccentrics, of a ruffing or gathering blade or foot, connections between said eccentrics and said blade or foot whereby positive four-motored movements are imparted bodily to the latter, a lever operated from beneath the work-plate of the machine, and connections, controlled by said lever, whereby the said ruffing or gathering device may be thrown into and out of operation while the machine is running.

3. In a sewing-machine, the combination with the needle-bar-operating shaft located in the upper portion of the arm of the machine and provided near its forward end with two eccentrics, of a ruffing or gathering blade or foot, connections between said eccentrics and said blade or foot, whereby positive four-motored movements are imparted bodily to the latter, a lever operated from beneath the work-plate of the machine, connections, controlled by said lever, whereby the said ruffing or gathering device may be thrown into and out of operation while the machine is running, and means for lifting said ruffing device and for moving it away from the needle when it is thrown out of operation.

4. In a sewing-machine, the combination with the needle-bar-operating shaft located above the work-plate of the machine and provided near its forward end with two eccentrics, of a ruffing or gathering blade or foot, connections between one of said eccentrics and said blade or foot whereby positive forward-and-backward movements are imparted to the

latter, and connections between the other of said eccentrics and said blade or foot whereby positive up-and-down movements are imparted to said blade or foot.

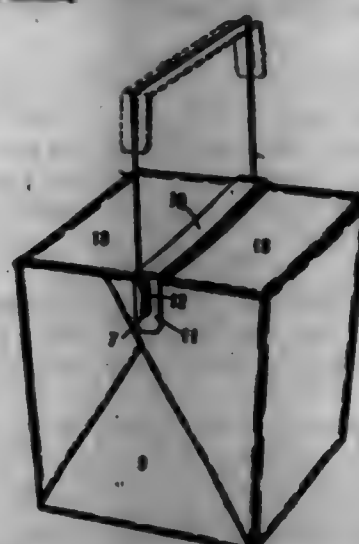
5. In a sewing-machine, the combination with the needle-bar-operating shaft provided with two eccentrics, of two rock-shafts operatively connected with said eccentrics, a vertically-movable bar provided with a support, a ruffing device or foot sustained by said support and horizontally movable relative thereto, disconnectable connections between said rock-shafts and said bar and device or foot and actuating means whereby said connections may be caused to operatively join said rock-shafts and said bar and ruffing device or to disconnect the same.

6. In a sewing-machine, the combination with the needle-bar-operating shaft provided with two eccentrics, the rock-shaft E operatively connected with one of said eccentrics and having the arm F carrying the coupling-pin G, the rock-shaft G operatively connected with the other of said eccentrics, the sliding clutch-collar G' connected with said shaft G to rock therewith, the arm G' loosely mounted on said shaft G and having a hub constructed for operative connection with said clutch-collar, the spring-lever J connected with said clutch-collar and coupling-pin, the bar F notched to be engaged by said coupling-pin and having a cross-head F', the slide F' mounted on said cross-head and connected with the said arm G', the ruffing-foot connected with said slide, and means for moving the said clutch-collar lengthwise of the said shaft G.

7. In a sewing-machine, the combination with the needle-bar-operating shaft provided with two eccentrics, the rock-shaft E operatively connected with one of said eccentrics and having the arm F carrying the coupling-pin G, the rock-shaft G operatively connected with the other of said eccentrics, the sliding clutch-collar G' connected with said shaft G to rock therewith, the arm G' loosely mounted on said shaft G and having a hub constructed for operative connection with said clutch-collar, the spring-lever J connected with said clutch-collar and coupling-pin, the bar F notched to be engaged by said coupling-pin and having a cross-head F', the slide F' mounted on said cross-head and connected with the said arm G', the ruffing-foot connected with said slide, means for moving the said clutch-collar lengthwise of the said shaft G, the lever K provided with an incline, the sliding pin M engaged by said lever and having an arm engaging said clutch-collar and the lever I for operating the said lever K.

8. In a sewing-machine, the combination with the needle-bar-operating shaft provided with two eccentrics, the rock-shaft E operatively connected with one of said eccentrics and having the arm F carrying the coupling-pin G, the rock-shaft G operatively connected with the other of said eccentrics, the sliding clutch-collar G' connected with said shaft G to rock therewith, the arm G' loosely mounted on said shaft G and having a hub constructed for operative connection with said clutch-collar, the spring-lever J connected with said clutch-collar and coupling-pin, the bar F notched to be engaged by said coupling-pin and having a cross-head F', the slide F' mounted on said cross-head and connected with the said arm G', the ruffing-foot connected with said slide, means for moving the said clutch-collar lengthwise of the said shaft G, the lever K provided with an incline, the sliding pin M engaged by said lever and having an arm engaging said clutch-collar, the lever I for operating the said lever K, and the rock-shaft A connected with the said lever K and having an arm engaging the said slide for the purpose of lifting the said ruffing-foot and moving it away from the needle when said foot is thrown out of operation.

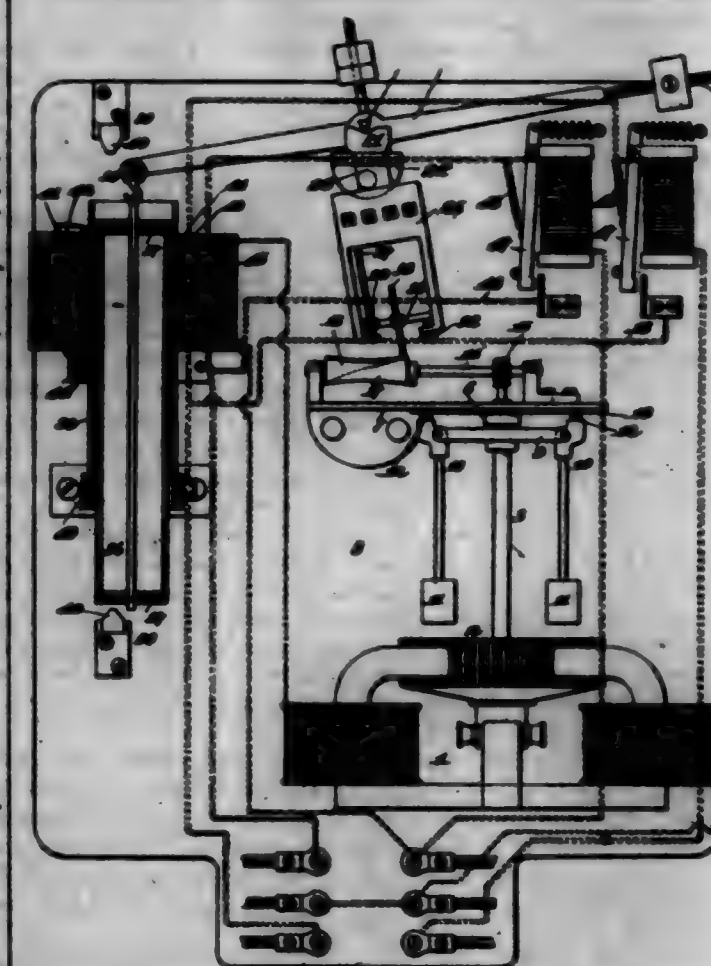
708,050. HANDS AND PARTNER FOR PAPER VERMULA. WILLIAM E. DUTCH, Indianapolis, Ind. Filed Oct. 24, 1901. Serial No. 78,222. (No model.)



Claim.—1. A handle and fastener for vams of the class described, consisting of a U-shaped handle having ends formed thereon, and a fastener having depending ends each of which is provided with a slot to receive the U of the handle and to cooperate with the other portions, substantially as described.

2. A handle and fastener for vams of the class described, consisting of a U-shaped handle, having ends formed thereon, and a fastener 10 having depending ends and a slot extending through the middle thereof and into the depending ends to receive the handle and cooperate with the ends of the vams thereof, substantially as described.

708,051. ELECTRIC METER. THOMAS A. BROWN, Lowell, Mass. Filed Oct. 15, 1901. Serial No. 22,054. (No model.)



Claim.—1. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the current to be measured, a register connected to and movable with the beam, and a friction-wheel movable with the beam and connected with said register, of a cam with which said friction-wheel periodically cooperates, and an electric motor connected across the line for rotating said cam at a constant speed, substantially as set forth.

2. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the current to be measured, a register connected to and movable with the beam, and a friction-wheel movable with the beam and connected with said register, of a cam with which said friction-wheel periodically cooperates, an electric motor connected across the line for rotating said cam at a constant speed, and an auxiliary coil of high resistance surrounding the core for overcoming magnetic hysteresis without producing saturation or polarization thereof, substantially as set forth.

3. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the current to be measured, a register connected to and movable with the beam, and a friction-wheel movable with the beam and connected with said register, of a cam with which said friction-wheel periodically cooperates, an electric motor connected across the line for rotating said cam at a constant speed, and an auxiliary coil of high resistance surrounding the core for overcoming magnetic hysteresis without producing saturation or polarization thereof, said core being in series with the meter, substantially as set forth.

4. In an electric meter, the combination with a beam, a current-indicator for moving said beam, a magnetic cut-out in series with the current-indicator for short-circuiting the latter when a destructive current traverses the cut-out, and a register connected to and movable with the beam, of a variable-speed gearing, one element of which is movable with the register, and a motor for operating the other element of said gearing, substantially as set forth for the purposes set forth.

5. In an electric meter, the combination with a current-indicator having a movable element, a beam to which said element is connected, elastic buffers for limiting the extreme movements of said element, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving the register through said variable-speed gearing, substantially as set forth.

6. In an electric meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and in which the core is freely movable, an ampero-coil wound on the tube and traversed by the current to be measured, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving the register through said variable-speed gearing, substantially as set forth.

7. In an electric meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and in which the core is freely movable, an ampero-coil wound on the tube and traversed by the current to be measured, elastic buffers for limiting the extreme movements of said core, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving the register through said variable-speed gearing, substantially as set forth.

8. In a three-wire meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and within which the core is freely movable, four ampero-coils wound helically and consecutively upon said tube, the outer and inner coils being connected in series with one of the outside mains and the two inner coils being connected in series with the other outside main, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving said register through said variable-speed gearing, substantially as set forth.

9. In an electric meter, the combination with a beam, a core connected to one end of said beam, an ampero-coil surrounding the core and traversed by the current to be measured, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, a motor for driving said register through said variable-speed gearing, and an auxiliary coil including the core for overcoming the magnetic inertia thereof without producing saturation or polarization, substantially as set forth.

10. In an electric meter, the combination with a beam, a core connected to one end of said beam, an ampero-coil surrounding the core and traversed by the current to be measured, and a register, of a variable-speed gearing the position of whose elements is determined by the position of said beam, a motor for driving said register through said variable-speed gearing, and a stationary auxiliary coil including the core and in series with said meter, substantially as set forth.

11. In an electric meter, the combination with a beam, an ampero-indicator the movable element of which is connected with said beam, said indicator including a coil traversed by the current to be measured, a register, and a motor for operating said register, of a magnetic cut-out arranged to close a shunt around the ampero-coil when said cut-out is influenced by an abnormal current, substantially as set forth.

12. In an electric meter, the combination with a register, an ampero-indicator, and a variable-speed gearing the position of whose elements is determined by said indicator, of a constant-speed motor for driving the register through the variable-speed gearing, and a centrifugal speed-regulator for said motor employing a weighted bell-rod carrying a friction-plate which cooperates with a glass friction-surface, substantially as set forth.

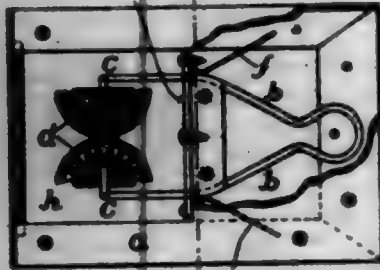
13. In an electric meter, the combination with a register and a driving-motor, of an ampero-indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, and a copper tube on which the coil is wound and in which the core is freely movable, substantially as set forth.

14. In an electric meter, the combination with a register and a driving-motor, of an ampero-indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, a copper tube on which the coil is wound and in which the core is freely movable, and elastic buffers for limiting the extreme movements of said core, substantially as set forth.

15. In an electric meter, the combination with a register and a driving-motor, of an ampero-indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, a magnetic cut-out in circuit with said coil for shutting the same when a destructive current is traversing the coil, and a copper tube on which the coil is wound and in which the core is freely movable, substantially as set forth.

16. In an electric meter, the combination with a register and a motor for operating the same, of an ampero-indicator comprising a coil, a core, and an auxiliary coil for subjecting the same to an initial magnetizing effect without producing polarization or saturation thereof, substantially as set forth.

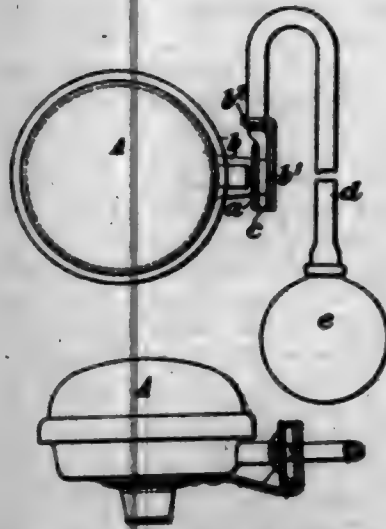
708,052. SHOE-CLEANER. DANIEL J. FOLEY, Cambridge, Mass. Filed May 16, 1901. Serial No. 92,593. (No model.)



Claim.—1. A shoe-cleaner comprising a base the forward portion of which is cut away to form a dirt-receptacle, a scraper secured to the base-board at the rear termination of said cut-away portion and extending slightly above the base-board, said base-board having an interior opening, a pair of spring-pressed arms secured in said opening having their free ends extending into said dirt-receptacle, and a brush carried by each of said arms, said brushes being adapted to engage the shoe-uppers and being located to the front and above said scraper, substantially as described.

2. A shoe-cleaner comprising a base the forward portion of which is cut away to form a dirt-receptacle, a scraper secured to the edge of the base-board at the rear termination of said cut-away portion and extending slightly above the base-board, a pair of spring-pressed brushes secured to the base-board and located in said cut-away portion, said brushes being located to the front and above said scraper and adapted to engage the shoe-uppers, the said scraper supporting and removing the dirt during the reciprocating motion of the foot, substantially as described.

708,053. BELL FOR CYCLES. DR. CLARET FORD, ALEXANDRIA, England. Filed Feb. 25, 1902. Serial No. 92,594. (No model.)



Claim.—1. The combination with a bell for cycles and the like, of an arm *b* secured to and extending from the exterior of the bell, a plate *b'* provided to said arm at right angles therewith, said plate facing the usual finger-actuated button or thumb-piece of the bell, an elastic bulb *c* interposed between said plate and the button or thumb-piece and a tube-engaging piece *d* at right angles to the plate *b'* through which passes the rubber tube *e* connecting the bulb *c* with the hand-bell *a*, as specified.

2. The combination with a bell for cycles and the like, of a detachable pneumatic operating device, said device consisting of the arm *b* detachably secured to the base of the bell, the plate *b'* extending at right angles from said arm, the pneumatic bulb *c* lying against the plate *b'*, the perforated lug *d* at right angles to the plate last mentioned and the rubber tube held by said perforated lug and connecting the bulb *c* with the hand-bell *a*, as specified.

708,054. HAY-RACK LIFTER. WILLIS J. FRANK, ALBANY, N. Y. Filed Mar. 30, 1902. Serial No. 92,595. (No model.)

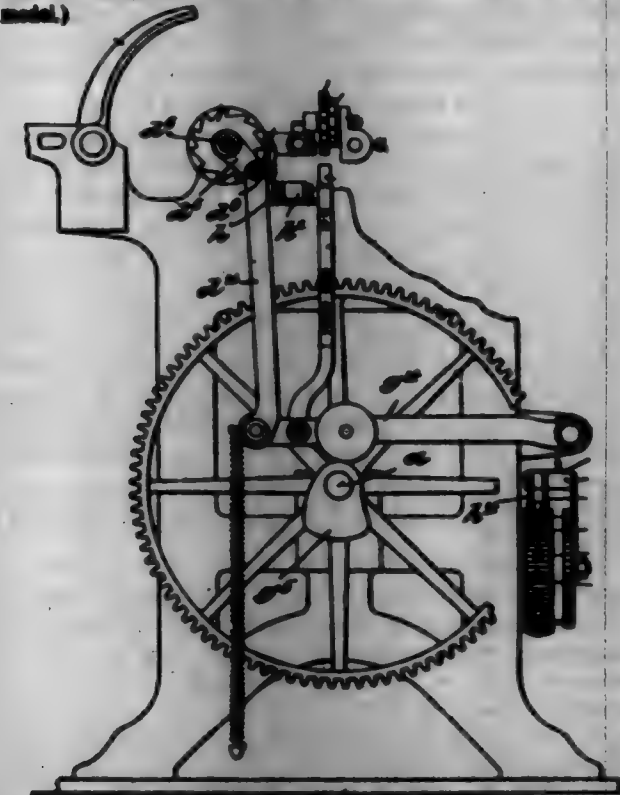
Claim.—1. The combination with the posts having shoulders on their upper ends, of lifting-rails provided with stop-blocks at their front ends, latches pivoted on the stop-blocks and adapted to engage the shoulders on the posts, and swinging supports for the lifting-rails.

2. As means for lifting a hay-rack from a wagon running-gear, a pair of lifting-rails adapted to receive and support the rack, swinging supports for the said rails, and drop-logs pivoted on the rack and adapted to rest on the bolsters of the running-gear and each provided with a hook adapted to be locked on the bolsters.

708,054.



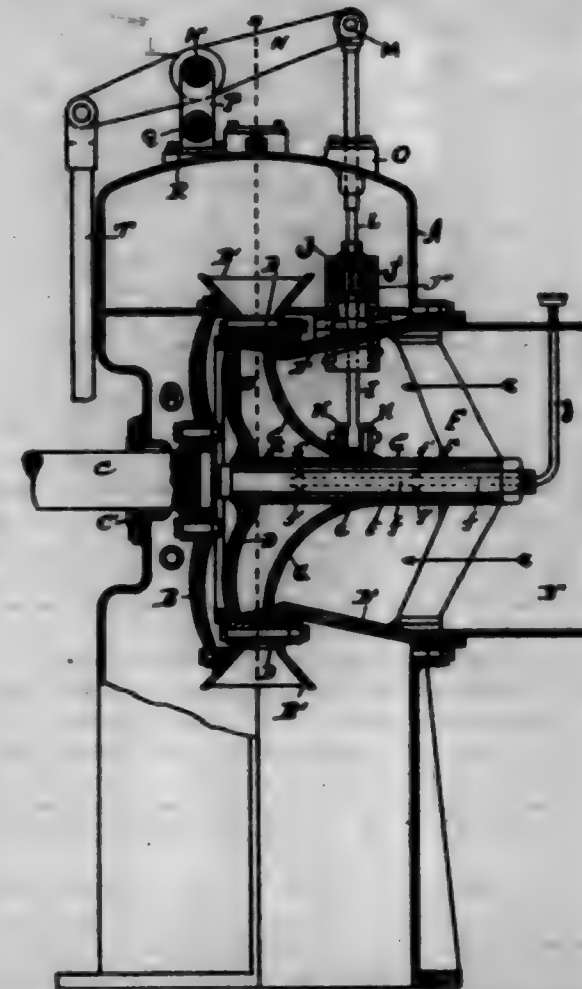
708,055. ATTACHMENT FOR MAKING OPEN OR LACE WORK IN STRAIGHT-KNITTING MACHINES. ALBERT GIER, Philadelphia, Pa., assignor to the Brown Knitting Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed July 3, 1901. Serial No. 92,596. (No model.)



Claim.—1. In a straight-knitting machine, a set of lace-points, a pattern-disk controlling the shifting or transferring movements of said lace-points, a pawl adapted to advance said pattern-disk, an arm adapted to rotate said pawl, means controlled by the shagging-shaft for elevating and depressing said arm, a link carried by said arm, a second pawl adapted to be elevated and depressed by said link, a ratchet-wheel, a fashioning-point shaft adapted to be shifted longitudinally when said ratchet-wheel is advanced, and a pattern-chain operated by the shagging-shaft and adapted to periodically throw the second pawl into engagement with said ratchet-wheel.

2. In a straight-knitting machine, a set of lace-points and a pattern-disk controlling the shifting of said lace-points, a shagging-shaft controlling the movement of said pattern-disk, a fashioning-point shaft, a ratchet adapted to shift said fashioning-point shaft, a pawl adapted to advance said ratchet, a pattern-chain operated by the shagging-shaft, and electric means controlled by said pattern-chain for throwing the pawl periodically into and out of operative engagement with the ratchet-wheel.

708,056. TURNING-WATER-WHEEL SYSTEM. ARTHUR GIBLER, Dayton, Ohio, assignor to the Edgewood-Morris & Smith-Veale Co., Dayton, Ohio, a Corporation of Ohio. Filed Oct. 22, 1900. Serial No. 92,597. (No model.)



Claim.—1. In a turbine, the combination with a chute-case having two sets of openings with closed portions between, of a rotary gate having a sleeve, a pin upon which said sleeve is mounted and affording an elongated bearing therefor, two webs extending from opposite points of said sleeve and presenting convex surfaces to the incoming water, and a rim at the outer end of each web constructed to control the openings in the chute-case.

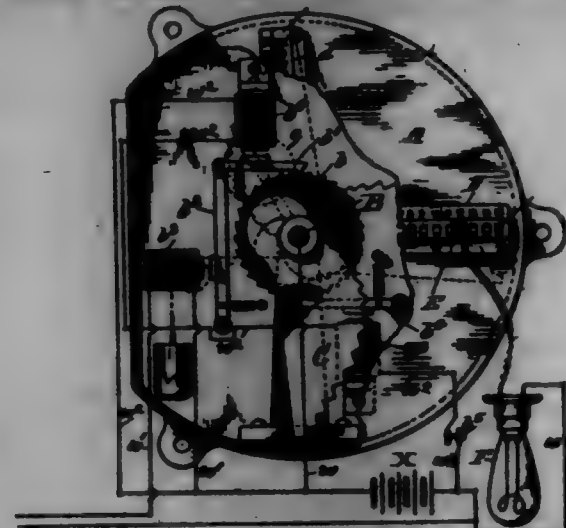
2. In a turbine, the combination with a chute-case having two sets of openings with closed portions between, of a rotary gate having a sleeve, a pin upon which said sleeve is mounted and affording an elongated bearing therefor, a bracket *F*, one end of the pin being secured in said bracket, the other end in the chute-case, two webs extending from opposite points of said sleeve and presenting convex surfaces to the incoming water, and a rim at the outer end of each web constructed to control the openings in the chute-case.

3. In a turbine, the combination with a chute-case having two sets of openings with closed portions between, of a rotary gate having a sleeve, a pin upon which said sleeve is mounted and affording an elongated bearing therefor, two webs extending from opposite points of said sleeve and each carrying at its outer end a rim constructed to control the chute-openings, said webs presenting curved surfaces to the incoming water, the curvature of each surface lessening in abruptness from the sleeve to the rims, substantially as described.

4. In a turbine water-wheel, the combination of a chute-case, a gate having a curved water side which terminates in a sleeve, a central shaft projected through said sleeve, the said shaft having bearings at each end, a piston, a connecting-rod between said piston and the gate, a walking-beam having a changeable fulcrum, and a connecting-rod between said walking-beam and the piston, the said connecting-rod being movable in a straight line, while the connecting-rod between the piston and the gate has an oscillating movement, substantially as specified.

5. In a turbine water-wheel, the combination of a chute-case, a gate having a curved water side terminating in a sleeve, a central shaft projected through said sleeve and affording a bearing for said gate approximately throughout the length of said shaft, a bearing at each end of said central shaft, a central induction-pipe including said gate and shaft and being rigidly attached to the chute-case, a piston, a walking-beam, connecting-rods between said walking-beam and the piston and the piston and the gate, the connecting-rod between the walking-beam and piston being movable in a straight line, and a changeable fulcrum for the walking-beam, substantially as specified.

708,057. RAILWAY-INDICATOR. LORENZO F. GRAHAM, San Jose, Cal. Filed Mar. 11, 1902. Serial No. 97,791. (No model.)



Claim.—1. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means for indicating the distance traveled, electrically-operated devices for actuating said distance-indicating means from the distance-meter, and means under the control of the operator for obtaining said distance indication at any predetermined distance traveled by the vehicle.

2. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means actuated by said meter for indicating the distance traveled, means under the control of the operator for obtaining said indication at any predetermined distance traveled by the vehicle, means separately indicating the selection by the operator of such predetermined distance, and electrically-operated devices for actuating said last-named means from the means under the operator's control.

3. In an indicator for railway-trains, the combination of a distance-meter actuated by the travel of the locomotive, means on the locomotive and actuated by said meter for indicating the distance traveled, means under the control of the engineer for obtaining said indication at any predetermined distance traveled by the locomotive, and means exterior to the locomotive for separately indicating to the conductor the selection by the engineer of such predetermined distance.

4. In an indicator for railway-trains, the combination of a distance-meter actuated by the travel of the locomotive, means on the locomotive and actuated by said meter for indicating the distance traveled, means under the control of the engineer for obtaining said indication at any predetermined distance traveled by the locomotive, means exterior to the locomotive for separately indicating to the conductor the selection by the engineer of such predetermined distance, and electrically-operated devices for actuating said last-named means from the means under the engineer's control.

5. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means for indicating the distance traveled, electrically-operated devices for actuating said distance-indicating means from the distance-meter, means under the control of the operator for obtaining said distance indication at any predetermined distance traveled by the vehicle, means separately indicating the selection by the operator of such predetermined distance, and electrically-operated devices for actuating said last-named means from the means under the operator's control.

6. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means actuated by said meter for indicating the distance traveled, a signal and electrical connections for operating it from said last-named means, and means under the control of the operator for obtaining said indication and signal at any predetermined distance traveled by the vehicle.

7. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means for indicating the distance traveled, electrically-operated devices for actuating said distance-indicating means from the distance-meter, a signal and electrical connections for operating it from said last-named means, and means under the control of the operator for obtaining said indication and signal at any predetermined distance traveled by the vehicle.

8. In an indicator for traveling vehicles, the combination of a distance-meter actuated by the travel of the vehicle, means electrically actuated by said meter for indicating the distance traveled, a signal electrically operated by said last-named means, and means under the control of the operator for obtaining said indication and signal at any predetermined distance traveled by the vehicle, and electrically-operated means separately indicating the selection by the operator of such predetermined distance.

9. In an indicator the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, and a signal operated by the closing of said circuit.

10. In an indicator for traveling vehicles, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, a distance-meter actuated by the vehicle travel, and means operated by the distance meter for revolving the arm.

11. In an indicator for traveling vehicles, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, a distance-meter actuated by the vehicle travel, and electrically-operated means actuated by the distance-meter for revolving the arm.

12. In an indicator for traveling vehicles, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, a distance-meter actuated by the vehicle travel, and electrically-operated means actuated by the distance-meter for revolving the arm consisting of a ratchet-wheel on the axis of the arm, an actuating-pawl therefor, an electromagnet to operate the pawl, an electric circuit, and a circuit-closer operated by the distance-meter.

13. In an indicator for traveling vehicles, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, a distance-meter actuated by the vehicle travel, electrically-operated means actuated by the distance-meter for revolving the arm consisting of a ratchet-wheel on the axis of the arm, an actuating-pawl therefor, an electromagnet to operate the pawl, an electric circuit, and a circuit-closer operated by the distance-meter, and means for resetting the arm consisting of an electromagnet to relieve the ratchet-wheel of its pawl, an electric circuit with a circuit-closer, and a weight to return the arm.

14. In an indicator, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, an annunciator to indicate the position of the pag in its support and an electric circuit closed by the insertion of the pag and adapted to operate the annunciator.

15. In an indicator for traveling vehicles, the combination of a revolvable eccentric contact-arm, a fixed support disposed in the plane of a radius of the path described by the arm, a contact-pag adapted to be inserted in said support at various predetermined distances in its length, said pag lying in the path of movement of the arm whereby contact is made between the two at predetermined distances on the arm, an electric circuit in which said arm and pag form poles, a signal operated by the closing of said circuit, a distance-meter actuated by the vehicle travel, means operated by the distance-meter for revolving the arm, an annunciator to indicate the position of the pag in its support and an electric circuit closed by the insertion of the pag and adapted to operate the annunciator.

708,055. PROCESS OF PRESERVING TANNING AGENTS FROM THE SAW-PALMETTO. EDWARD F. GRAY, Tampa, Fla. Filed Feb. 15, 1901. Serial No. 47,513. (No specimen.)

Claim.—1. The herein-described process of producing a tanning agent by extracting tannin from the roots of the saw-palmetto, which consists in, first, cleansing the roots; second, separating the juices out of the roots alone; third, cutting said juices until the precipitates are separated from the clear portion; fourth, racking off said clear portion, and, fifth, concentrating this portion in vacuo.

2. The herein-described process of producing a tanning agent by extracting tannin from the roots only of the saw-palmetto, which consists in, first, separating the white from the red parts of the roots; secondly, separately separating the juices out of the respective colored roots; thirdly, allowing said juices to settle until the precipitates are separated from the clear portion; fourthly, racking off said clear portion, and, fifthly, allowing the said racked-off portion to concentrate in vacuo under diminished pressure.

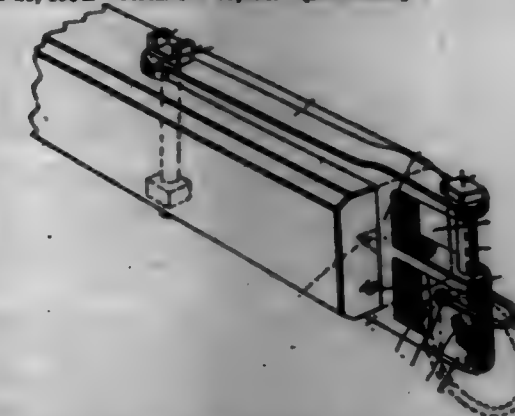
708,059. WINDOW SHADE AND CURTAIN HOLDER. WILLIAM H. GRITTEY, Jersey City, N. J. Filed Feb. 24, 1902. Serial No. 96,146. (No model.)



Claim.—1. The herein-described means for supporting a window-shade and window-curtain, comprising a cornice or molding adapted to be secured in the top of a window-frame between the sides thereof and the ends of which are curved backwardly, a shade-roller supported between the ends thereof rearwardly of and above the front lower edge thereof, a curtain-rod suspended beneath the front lower edge of the cornice or molding and ends of which are curved backwardly, curtain-rings mounted on said rod and movable thereon, and pulleys suspended from said cornice or molding and provided with cords which are connected with the curtain-rings and by which the curtains may be opened or closed, substantially as shown and described.

2. The herein-described means for supporting a window-shade and window-curtain, comprising a cornice or molding adapted to be secured in the top of a window-frame between the sides thereof, and the ends of which are curved backwardly, a shade-roller supported between the ends thereof and rearwardly of and above the front lower edge thereof, a curtain-rod suspended from said cornice or molding and the ends of which are curved backwardly, curtain-rings mounted on said rod and movable thereon, pulleys suspended from the opposite ends of said cornice or molding, two other pulleys suspended from the central portion thereof, and cords connected with said pulleys and with the curtain-rings and by means of which the curtains may be opened or closed, substantially as shown and described.

708,060. CLEVER. WILLIAM H. GRITTEY, Jersey City, N. J. Filed Sept. 26, 1901. Serial No. 73,563. (No model.)



Claim.—1. A clever having a head with slots arranged in vertical alignment therein, and a block for attaching purposes adapted to be interchangeably mounted in either of the slots.

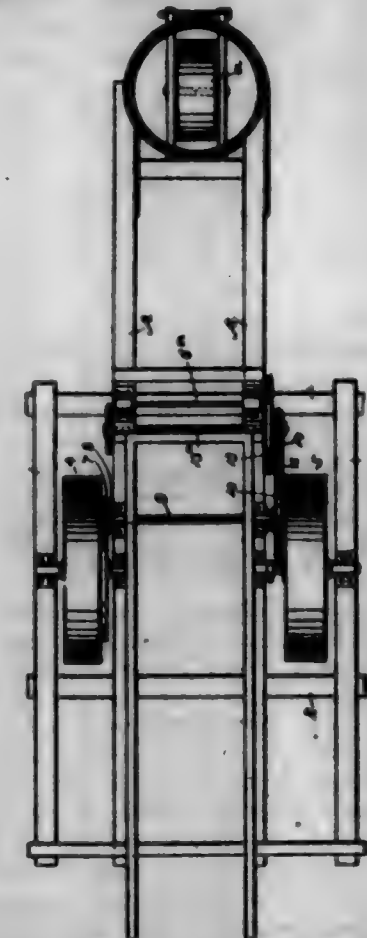
2. A clever having a head with vertically-aligned slots, a block for attaching purposes interchangeably mounted in either of the slots, and a bolt removably mounted in the head and engaging the block.

3. A clever having a head with vertically-aligned slots, a block adapted to be interchangeably mounted in relation to said slots, and having an attaching device applied thereto, the upper and lower ends of said block having at one side and in opposite positions being provided with flanges, and means for removably securing the slots in the block.

4. A clever comprising a pair of parallel bars for embracing a beam, a vertical brace connecting said bars near the outer ends thereof, a spar disposed on said brace and adapted to engage said beam, an intermediate partition-bar projecting outwardly from the brace in a line parallel with the extended ends of the beam-embracing bars, and a block adapted to be interchangeably mounted in the openings or slots formed by these extended ends and the partition-bar.

5. A clever comprising two parallel bars adapted to embrace a beam, a vertical brace connecting said bars near the outer ends thereof, an intermediate bar projecting outwardly from the brace in a line parallel with the extended ends of the beam-embracing bars, and forming slots, a block adapted to be mounted in one of said slots, and a bolt extending through the outer ends of said bars and through said block, and a clevis-loop connected with said block.

708,061. THRESHING-MACHINE. GEORGE W. HAINES, Buckton, Cal., assignor to Haines & Haines Manufacturing Company, Buckton, Cal., a Corporation of California. Filed Jan. 12, 1901. Serial No. 42,905. (No model.)



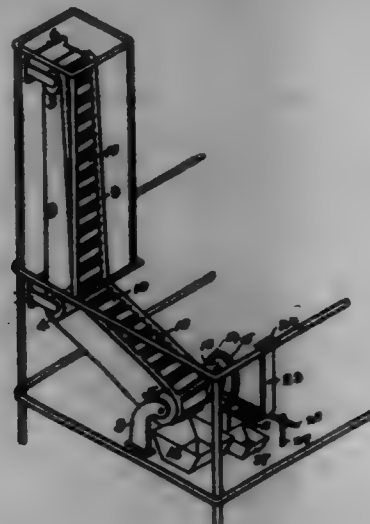
Claim.—1. The combination of the bearing-wheel, the threshing-cylinder, and mechanism intermediate of the two whereby motion is transmitted from the bearing-wheel to the cylinder, said mechanism including a gear-wheel fixed to one of the bearing-wheels, a shaft extending across the machine, having a pinion upon one end to engage said gear-wheel and having a wheel upon the opposite end; a second shaft extending across the machine, having an internal-gear wheel on the same side of the machine as the last-named wheel, and a wheel fixed to the face of said internal-gear wheel, a belt connection between the wheel of the first-named shaft and the last-named wheel, and a cylinder-shaft having a pinion to engage the internal gear.

2. The combination of the bearing-wheel, the threshing-cylinder, and mechanism intermediate of the two whereby motion is transmitted from the left bearing-wheel to the cylinder, said mechanism including a shaft extending across the machine having a pinion on the left end and a sprocket-wheel on the right end and said pinion engaging a gear-wheel fixed to the left bearing-wheel, a second shaft extending across the machine having an internal-gear wheel on its right-hand end and a sprocket-pinion removably belted to the face of said gear-wheel, a bracketable chain connecting the sprocket wheel and pinion, and a cylinder-shaft having a pinion engaging the teeth of the internal-gear wheel.

3. In a threshing-machine, a threshing-cylinder, bearing-wheel therefor, a threshing-cylinder journaled upon the frame, a mechanism for transmitting motion and speed from the left bearing-wheel to the cylinder, consisting of an internal gear fixed to and carried by the left bearing-wheel, an externally-toothed pinion meshing therewith and mounted upon a shaft journaled upon the main frame timbers of the machine, a sprocket-wheel fixed to the opposite end of said shaft and lying between the right-hand

bearing-wheel and the frame-timbers on that side, a pinion fixed to the right end of the cylinder-shaft, an internal gear, the teeth of which engage therewith, said gear mounted upon a shaft which is journaled upon and extends across the same structure with the cylinder-shaft, a sprocket-pinion detachably fixed to the internal gear and a chain connecting the sprocket wheel and pinion.

708,069. COIN-CONTROLLED APPARATUS. ARTHUR W. HAVEN, Richmond, Va. Filed Oct. 15, 1900. Serial No. 33,048. (No model.)



Claim.—1. In a coin-controlled machine, a pivoted locking-arm, a horizontal arm pivoted with the locking-arm, a coin-receiver swung upon the horizontal arm and supported in its normal position by means of a spring, a stop to limit the downward movement of the horizontal arm, and a lever provided with a pin normally projecting over the coin-receiver so arranged that when the lever is depressed the pin bearing upon the coin on the coin-receiver depresses the horizontal arm to unlock the locking-arm, and so that upon the said horizontal arm striking the stop the pin still bearing upon the coin lifts the coin-receiver and slides the coin therefrom.

2. In a coin-controlled apparatus, a coin-controlled mechanism consisting of a horizontal pivoted arm, a coin-receiver swung upon the arm and supported in its normal position by means of a spring, a stop to limit the downward movement of the arm, and a lever provided with a pin normally projecting over the coin-receiver so arranged that when the lever is depressed the pin bearing upon the coin on the coin-receiver depresses the arm and so that upon the arm striking the stop the pin still bearing upon the coin lifts the coin-receiver and slides the coin therefrom.

3. In a coin-controlled machine, the combination of an operating-lever provided with a projecting pin, a pivoted locking-bar having a horizontal extension, a coin-receiver swung on the extension and located in the path of the operating-lever pin, a stop to limit the downward movement of the locking-bar extension and means to move said extension to its horizontal position, and away from the said stop.

4. In a coin-controlled machine, the combination of a coin-controlled mechanism consisting of an operating-lever provided with a projecting pin, a pivoted horizontal arm, a coin-receiver swung upon the arm and located in the path of the operating-lever pin, a stop to limit the downward movement of the arm.

5. In a coin-controlled machine, the combination of an operating-lever provided with a projecting pin, a pivoted arm, a coin-receiver swung upon the arm and located in the path of the operating-lever pin, a stop to limit the downward movement of the arm and means to move said arm away from said stop.

6. In a coin-controlled machine, the combination of an operating-lever having a projecting pin, a vertically-swinging locking-bar having a horizontal extension, a coin-receiving plate swung on the extension and held in its normal position by means of a spring and located in the path of the operating-lever pin, and a stop to limit the downward movement of the locking-bar extension.

7. In a coin-controlled machine, the combination of an operating-lever having a projecting pin, a pivoted arm, a coin-receiving plate swung on the arm and held in its normal position by means of a spring and located in the path of the operating-lever pin, and a stop to limit the downward movement of the arm.

8. In a coin-controlled machine, a coin-controlled mechanism consisting of an operating-lever having a projecting pin, a pivoted arm, a coin-receiver swung upon the arm and held in its normal position by means of a spring and located in the path of the operating-lever pin, and a stop to limit the downward movement of the arm.

9. In a coin-controlled machine, the combination of an operating-lever having a projecting pin, a vertically-swinging locking-bar having a horizontal extension, a coin-receiving plate swung on the extension and held in its normal position by means of a spring and provided with a slot located in the path of the operating-lever pin, and a stop to limit the downward movement of the locking-bar extension.

10. In a coin-controlled machine, the combination of an operating-lever having a projecting pin, a horizontal pivoted arm, a coin-receiving plate swung on the arm and held in its normal position by means of a spring and provided with a slot located in the path of the operating-lever pin, and a stop to limit the downward movement of the arm.

11. In a coin-controlled machine, a coin-controlled mechanism consisting of an operating-lever having a projecting pin, a pivoted arm, a coin-receiving plate swung upon the arm and held in its normal position by means of a spring and provided with a slot located in the path of the operating-lever pin, and a stop to limit the downward movement of the arm.

708,068. DENTAL BUR. FRANK F. HAWKINS, Troy, N. Y. Filed Nov. 2, 1900. Serial No. 33,361. (No model.)



Claim.—1. A rotary cutting-tool comprising a shank, and a head convergent toward said shank, and provided on said convergent portion with a cutting-tooth presenting a forwardly-facing cutting edge and a rearwardly-beveled back, said cutting edge being inclined forwardly toward its shank end, substantially as described.

2. A rotary cutting-tool comprising a shank and a head having thereon cutting edges oppositely inclined relatively to the axis of the head, one forwardly toward the shank end and another forwardly toward the outer end of the head.

3. A rotary cutting-tool comprising a shank and a head having thereon a cutting edge inclined forwardly toward its outer end and a cutting edge inclined forwardly toward its shank end and said cutting edges being separated by a clearance-space at right angles to the axis of the head, substantially as described.

708,064. SUBSTANCE AND MANTLE FOR INCANDESCENT GAS-LIGHTS. LOUIS HENRI, Englewood, N. J. Filed Dec. 28, 1900. Serial No. 41,413. (No model.)

Claim.—1. A hood or frame for an incandescent gas-light consisting substantially of oxid of thorium, a comparatively large percentage of oxid of lanthanum and a comparatively small percentage of oxid of cerium, substantially as described.

2. A hood or frame for an incandescent gas-light consisting substantially of oxid of thorium, a comparatively large percentage of oxid of yttrium and a comparatively small percentage of oxid of cerium, substantially as described.

3. A hood or frame for an incandescent gas-light composed substantially of oxid of thorium, a comparatively large percentage of the combined oxides of lanthanum and of yttrium, and a comparatively small percentage of oxid of cerium, substantially as described.

4. A hood or frame for an incandescent gas-light consisting substantially of oxid of thorium, a comparatively large percentage of oxid of lanthanum and a comparatively small percentage of any one or more of the oxides of the hereinbefore-mentioned metals of the second class, substantially as described.

5. A hood or frame for an incandescent gas-light consisting substantially of oxid of thorium, a comparatively large percentage of the oxid of yttrium and a comparatively small percentage of any one or more of the oxides of the hereinbefore-mentioned metals of the second class, substantially as described.

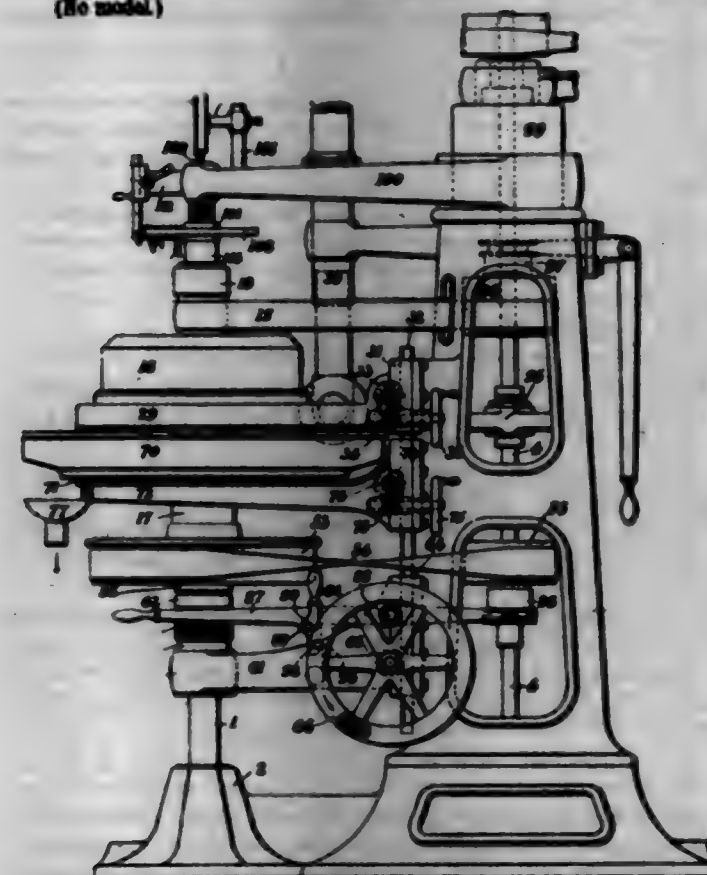
6. A substance for an incandescent gas-light consisting substantially of the oxid of any one or more of the hereinbefore-mentioned metals of the first class, a comparatively large percentage of oxid of lanthanum and a comparatively small percentage of the oxid of any one or more of the hereinbefore-mentioned metals of the second class, substantially as described.

7. A substance for an incandescent gas-light consisting substantially of the oxid of any one or more of the hereinbefore-mentioned metals of the first class, a comparatively large percentage of oxid of yttrium and a comparatively small percentage of the oxid of any one or more of the hereinbefore-mentioned metals of the second class, substantially as described.

8. A substance for an incandescent gas-light consisting substantially of the oxid of any one or more of the hereinbefore-mentioned metals of the first class, a comparatively large percentage of the combined oxides of

lanthanum and yttrium and a comparatively small percentage of the oxid of any one or more of the hereinbefore-mentioned metals of the second class, substantially as described.

708,065. MACHINE FOR GRINDING BALLS. HENRY G. HOTTEN, Chelmsford, England. Filed Apr. 4, 1901. Serial No. 34,234. (No model.)



Claim.—1. In a ball-grinding machine, the combination with a grinding device, of a ball-supporting ring, a holding device for the balls, acting in conjunction with the ball-supporting ring and a common fixed spindle for carrying all of said members.

2. In a ball-grinding machine, the combination with a central fixed spindle, of a grinding-ring, means for rotating said grinding-ring, a holding-down ring for the balls, means for securing it to the spindle, a counterpoise for the grinding-ring against which the pressure of the grinding-ring is exerted, and means for holding the balls up to the grinding medium.

3. In a ball-grinding machine the combination with a grinding-ring of a revolvable ball-supporting ring and means for allowing same a rocking movement to adjust itself to inequalities of the balls.

4. In a ball-grinding machine the combination with a grinding-ring of a revolvable ball-supporting ring, means for allowing same a rocking movement to adjust itself to inequalities of the balls, and means for locking such rocking means so that the revolvable ball-supporting ring may be firmly held while being rotated for regrinding purposes.

5. In a ball-grinding machine, and in combination, a central spindle, a grinding-ring, means for rotating the latter, a ball-supporting ring having an angular groove for the balls, a part carrying each ball-ring, a spherical seat on each part, a plane portion carrying each spherical seat, means for connecting the two surfaces so that they may be rotated together while capable of a rocking movement, and means for carrying and rotating the inclined plane portion.

6. The combination with a grinding-ring and a ball-supporting ring, and means for rotating both, of an annular ball-holding hopper, a ball-holding trough and discharging means carried by same, and means carried by the hopper whereby the balls can pass therefrom in regulated numbers to the ball-supporting ring.

7. The combination with a ball-supporting ring and grinding and holding devices for the balls, of means for rotating each ring, means for raising and lowering same, and a trough surrounding each ring for receiving the balls thrown out by the rotation of the ring.

8. The combination with a ball-supporting ring and grinding and holding devices for the balls of means for raising and lowering each ring, a hopper surrounding each ring, and means carried by the hopper whereby a regulated number of balls can be released to fill the ring.

9. In a ball-grinding machine, the combination with a revolvable grinding-ring, a revolvable ball-supporting ring, and a fixed holding-ring of an annular ball-holding hopper, means for feeding the balls from same,

means for receiving the balls from the ball-supporting ring when discharged therefrom and means for raising and lowering each ring.

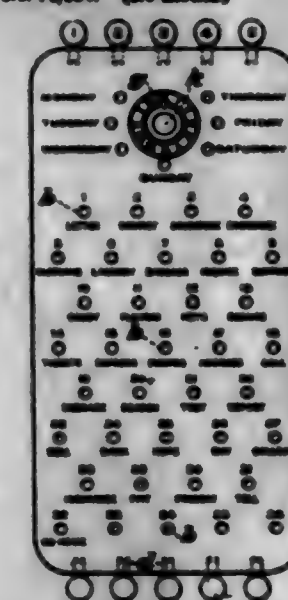
10. In a ball grinding machine, the combination with a central fixed spindle having a threaded portion, of a grinding-ring, a casing whereby said ring is carried, means for rotating said casing and ring, means for holding the balls up to the grinding-ring, a nut carried by the threaded portion of the spindle, a hand-wheel for rotating same, a slide, means for carrying same, and an adjustable stop carried by the hand-wheel and acting in conjunction with the slide, whereby the amount of rotation of each hand-wheel can be regulated.

11. In a ball-grinding machine, the combination with a central spindle, a ball-grinding ring, means for rotating same, a ball-supporting ring, means for rotating same, a spring for forcing same upwardly so as to maintain the balls in contact with the grinding-ring, and means for indicating the decreasing diameter of the balls during grinding.

12. The combination with a ball-supporting ring and means for imparting a vertical movement to same, of a grinding device, a spindle carrying each ball-supporting ring, a dial and means carried by the spindle and controlled by the vertical movement of the ball-supporting ring whereby the amount of such movement is directly indicated.

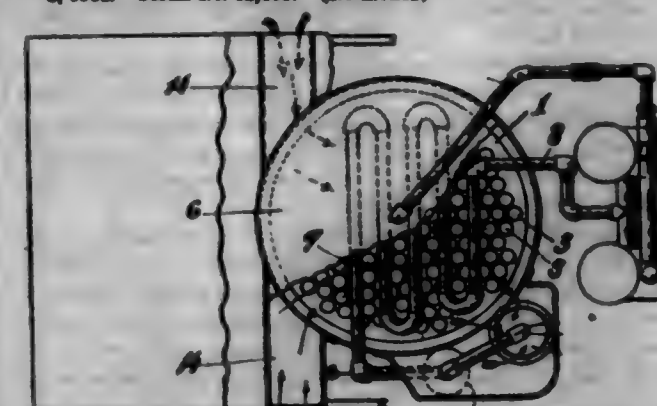
13. The combination with a ball-supporting ring and means for rotating same comprising in its parts a clutch device, of a slide by which each ring is carried, means for moving each slide vertically, and means carried by each slide and capable of interlocking with a part of the clutch device whereby each clutch must be thrown out of action before the slide is moved vertically.

708,066. REMINDER DEVICE. GEORGE H. HENNER, Niagara Falls, N. Y., and EDWARD W. ANDERSON, Washington, D. C. Filed Sept. 3, 1901. Serial No. 74,157. (No model.)



Claim.—A pocket measurer or reminder, having a smooth face, a number of perforations or cuts, for a detachable attention peg or marker, distributed over said face, mnemonic words or symbols severally in juxtaposition to each face perforation, and a holding connection for said peg or marker, at the edge portion of said reminder, removed from the face thereof, whereby the face of the reminder is left unobstructed, when the peg or marker is not in use, substantially as specified.

708,067. EXHAUST-CONVEYER. GEORGE A. HUNT, Everett, Mass., assignor of one-half to F. C. Alden, Reading, Mass. Filed June 2, 1901. Serial No. 32,856. (No model.)



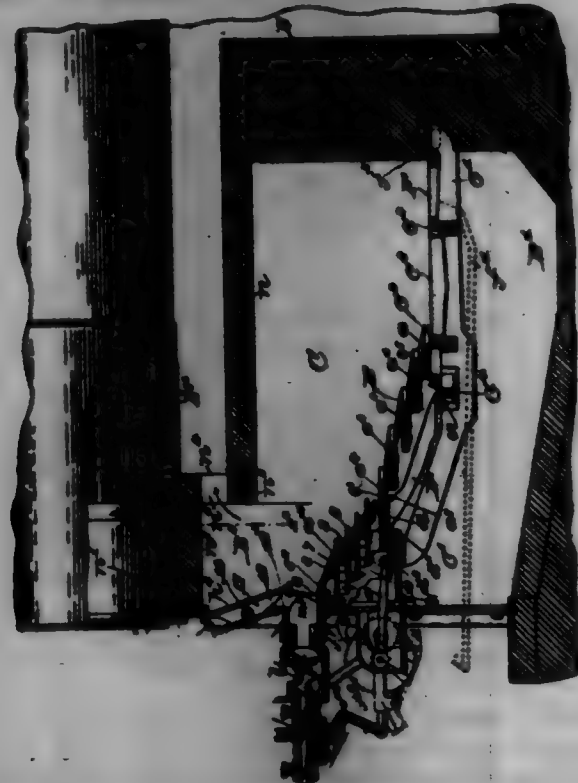
Claim.—1. In an exhaust-conveyer, the combination of a hopper having a space above it for products of combustion said space forming a flue, an exhaust-conduit located in said flue, an exhaust-discharge outlet

at one end of the flue, an air-mixer associated with said outlet, and an air-inlet for supplying air directly to said flue and disposed relatively to the air-mixer to cause the supply of air on its way to the air-mixer to pass through the entire combustion space or flue over the boiler, whereby the air and steam are dried and heated prior to being mixed.

2. In an exhaust-convector, the combination of a boiler having a space above it for products of combustion said space forming a flue, an exhaust conduit located in said flue, a muffler in said conduit, an exhaust-discharge outlet at one end of the flue, an air-mixer associated with said outlet, and an air-inlet for supplying air directly to said flue and disposed relatively to the air-mixer to cause the supply of air on its way to the air-mixer to pass through the entire combustion space or flue over the boiler, whereby the air and steam are dried and heated prior to being mixed.

3. In an exhaust-convector, the combination of a boiler having a heater therefor, an engine supplied by said boiler, a flue for disposing of the products of combustion, an engine exhaust-conduit located in said flue, an exhaust-discharge outlet at one end of the flue, a downwardly-opening air-mixer associated with said outlet and forming an outlet for the flue, and an air-inlet for supplying air to said flue and disposed relatively to the air-mixer to cause the supply of air on its way to the air-mixer to pass through said flue over the boiler, whereby the air and steam are dried and heated prior to being mixed.

708,068. AUTOMATIC STOKER AND SMOKE-CONSUMER.
ROBERT W. KING, Toronto, Canada. Filed June 20, 1900. Serial No. 21,378. (No model.)



Claim.—1. In an apparatus for feeding furnaces, a horizontal plate for supporting the fuel as it is fed into the furnace, an inclined surface in prolongation of said plate and having a series of pockets for containing coal fed upon said inclined surface, a series of rollers movable in said pockets to feed the coal over said surface, and means for moving said series of rollers beyond the inclined surface and into the under surface of the coal resting thereon.

2. In an apparatus of the class described, a cooking-plate and an inclined pocketed continuation thereof, combined with a series of rollers operable in said pockets.

3. In an apparatus of the class described, a plate for supporting the fuel as it is fed into the furnace, an inclined surface in prolongation of said plate and provided with pockets for containing coal fed upon said inclined surface, a series of rollers, a plurality of rollers connected to each driver and means to actuate said rollers to reciprocate the series of rollers into said pockets and beyond the inclined surface.

4. In an apparatus of the class described, an inclined plate to contain coal, said plate having pockets arranged in a plurality of vertical series, combined with a plurality of series of rollers operable in said pockets in different vertical planes corresponding to the vertical series of pockets, and means to alternately move said series of rollers in said pockets and beyond the inclined surface of the plate to enter the under surface of the coal.

5. In an apparatus of the class described, a cooking-plate having a continuation provided with fuel-containing pockets arranged in different vertical series, and a plurality of series of rollers arranged in series and

entering said pockets, and means to operate said rollers whereby after the fuel has been cooked the rollers are thrust forward through said pockets to advance the fuel.

6. In an apparatus of the class described, a surface provided with pockets to contain coal, a series of driving grate-bars arranged below the pocketed surface and means to actuate said bars for advancing the coal fed thereupon from the pocketed surface.

7. In an apparatus of the class described, a series of carriages provided with a detachable fuel-containing surface, each detachable fuel-containing surface comprising a series of drivers.

8. In an apparatus of the class described, a series of carriages having a detachable fuel-containing surface comprising driving-surfaces located in different planes, and means for moving the said surfaces to feed the fuel.

9. In an apparatus of the class described, a stationary bed-grate, a cross-bar, a series of carriages provided each at its upper outer end with a plate *d*, the lower inner ends of said carriages resting on said cross-bar, means to sustain the lower side of each of said plates *d*, and a series of driving grate-bars carried by each of said carriages.

10. In an apparatus of the class described, an inclined pocketed plate to receive fuel, a plurality of rollers, a series of feeding grate-bars, a bed-grate, and means for operating said rollers and feeding grate-bars to feed the fuel upon said bed-grate.

11. In an apparatus of the class described, an inclined pocketed plate to receive fuel, a plurality of rollers movable in said plate, a movable grate adjacent said pocketed plate, and means for operating said rollers to feed the fuel upon said grate, and a bed-grate to receive the fuel from the movable grate.

12. In an apparatus of the class described, a series of grate-carriages having detachable grate-bars each having at its inner end a hook to engage a part of a carriage, the upper end of each detachable grate resting upon and being secured to a portion of each carriage near its outer end, and means to reciprocate said carriages.

13. In an apparatus of the class described, a coal-containing surface having a plurality of series of pockets, a grate-bar for each series of pockets, a series of rollers in alignment with each of said grate-bars, and means to move said rollers and grate-bars in and be in the same direction.

14. In an apparatus of the class described, a hopper for receiving fuel, a series of feeding devices located therein, a throat having a series of fuel-passages leading to the combustion-chamber and means to actuate the series of feeding devices to feed the fuel from said hopper through the series of fuel-passages into the furnace.

15. In an apparatus of the class described, a hopper, a throat having a series of fuel-passages, a series of feeding devices shaped to cut or comminute the coal being fed into the combustion-chamber through the separate fuel-passages.

16. In an apparatus of the class described, a hopper, a throat having a series of fuel-passages leading from said hopper to the combustion-chamber combined with a series of rotatable feeding devices each provided with a spiral groove to prevent cutting-runs.

17. In an apparatus of the class described, a hopper, a passage leading from said hopper into the combustion-chamber, a feeding and cutting device located in the said passage and presenting a drawing and shear cutting edge within the passage to cut and feed the fuel as it passes from the hopper into said passage.

18. In an apparatus of the class described, a hopper to receive fuel, a plate on which the fuel is fed, a throat located between said plate and hopper and presenting a plurality of fuel-passages, and a plurality of rotatable feeding devices presenting each cutting edges, each feeding device feeding the fuel from the throat through a separate passage therein onto the plate referred to.

19. In an apparatus of the class described, a hopper, a throat having a series of fuel-passages to separately feed fuel therefrom into the combustion-chamber, and a series of feeding devices, each of said feeding devices having a connected worm-toothed gear, a shaft having a series of worms in operative engagement with said worm-toothed gears, and means to actuate said shaft to operate all of said feeding devices.

20. In an apparatus of the class described, a coal-containing plate, a hopper to supply coal, and a door having air-passages to deliver external heated air to the coal lying on the said plate to facilitate combustion.

21. In an apparatus of the class described, a hopper, a coal-containing plate, a series of feeding devices having worm-toothed wheels, a series of worms to actuate said worm-toothed wheels, some of the worms being adapted to actuate said feeding devices to feed the coal at varying speeds one with relation to the other.

22. In an apparatus of the class described, a hopper, a fuel-containing plate provided with pockets for containing fuel, means for feeding coal from the hopper substantially continuously onto said pocketed plate, a series of rollers movable in said pockets, a movable grate below said fuel-

containing plate and rollers, and means for simultaneously operating the rollers and movable grate.

23. In an apparatus of the class described, a hopper, a fuel-containing plate provided with pockets, means for continuously feeding coal from the hopper onto said plate, a series of rollers operable in said pockets, a movable grate located below the fuel-containing plate and rollers and receiving coal through the operation of said rollers, means for automatically and simultaneously operating the rollers and grate.

24. In an apparatus of the class described, a fuel-containing plate, a hopper for receiving fuel to be fed to said plate, fuel-feeding devices in said hopper, a pocketed plate, a series of rollers movable in the pocketed plate, a fuel-driving grate to receive the fuel from the pocketed plate, means to actuate the fuel-feeding devices in the hopper to feed the coal upon the fuel-containing plate, and adjustable connecting devices operable by the means for actuating the fuel-feeding means, whereby the feeding movement of the fuel-driving grate may be varied according to the requirements of combustion.

25. In an apparatus of the class described, a plate to receive coal fed to the combustion-chamber, an inclined plate in continuation thereof, said inclined plate being provided with pockets, combined with a series of driving grate-bars below said inclined plate to receive the coal therefrom and feed the same further into the combustion-chamber, and means for moving said series of driving grate-bars.

26. In an apparatus of the class described, a grate-carriage, a movable link for actuating the same, and a notched loose pin connecting said carriage and link, combined with a keeper applied to the notch of said pin.

27. In an apparatus of the class described, a cooking-plate, an inclined pocketed plate in continuation thereof and leading downwardly therefrom, said plate having a series of pockets to contain the fuel, means to feed the fuel positively and continuously over said cooking-plate and upon said inclined plate, and means acting intermittently upon the fuel lodged in the pockets of the inclined plate to insure the traveling of said fuel down said inclined plate.

28. In an apparatus of the class described, a cooking-plate, an inclined pocketed plate in continuation thereof having a series of horizontal fuel-containing surfaces open to supply air to the fuel passing over said inclined plate, and means for acting intermittently on the fuel resting on said containing-surfaces to insure the traveling of the fuel downwardly over said plate from one to another of said horizontal surfaces and a feeding-grate below said inclined plate.

29. In an apparatus of the class described, a bed-grate, a cooking-plate, an inclined pocketed plate in continuation thereof having a series of horizontal fuel-containing surfaces open to supply air to the fuel passing over said inclined plate, and means for acting intermittently on the fuel resting on and remaining-surfaces to insure the traveling of the fuel downwardly over said plate from one to another of said horizontal surfaces, a grate to receive the fuel from said inclined plate and means to move the grate to feed the fuel onto the bed-grate.

30. In an apparatus of the class described, a cooking-plate located within the furnace-chamber and having in continuation thereof an inclined pocketed plate provided with fuel-containing surfaces open for the communication of air to the under side of the fuel passing over said plate, means to move the fuel from said inclined plate means to feed fuel to the cooking-plate and upon the said inclined plate, and a furnace crown-shaped and cut to concentrate the heat and impinge the heated products of combustion upon the fuel lying on said cooking-plate.

31. In an apparatus of the class described, a cooking-plate located inside the furnace-chamber and having as a continuation thereof a downwardly-inclined pocketed plate, a hopper, fuel-feeding device, communicating with said hopper and means to actuate said device to feed the fuel onto the cooking-plate and over the same upon the inclined continuation thereof.

32. In an apparatus of the class described, a spring, a detachable series of grate-bars supported thereby, a link for reciprocating the carriage and grate-bar, an adjustable crank-pin actuating each link, and means for actuating the crank-pins, the adjustment of the crank-pins providing for any desired variation in stroke of the grate-bars.

33. In an apparatus of the class described, a hopper, a cooking-plate, and feeding means provided with smaller grooves to receive and feed the fuel, means to rotate said feeding means positively, the said feeding means having provision for cutting and cracking fuel as the latter is fed from the hopper upon the cooking-plate.

708,069. RAILWAY-CAR. FREDERICK KENNETH, Buffalo, N. Y., assignor of one-half to LYNN LAMSON, Buffalo, N. Y. Filed Oct. 31, 1901. Serial No. 80,636. (No model.)

Claim.—1. In a railway-car, the combination with the roof of rails or bolts provided at their upper ends with screw-nuts arranged adjacent to the roof and accessible through wrench-openings located in the roof opposite the said upright tubes or nipples secured to the roof in line with

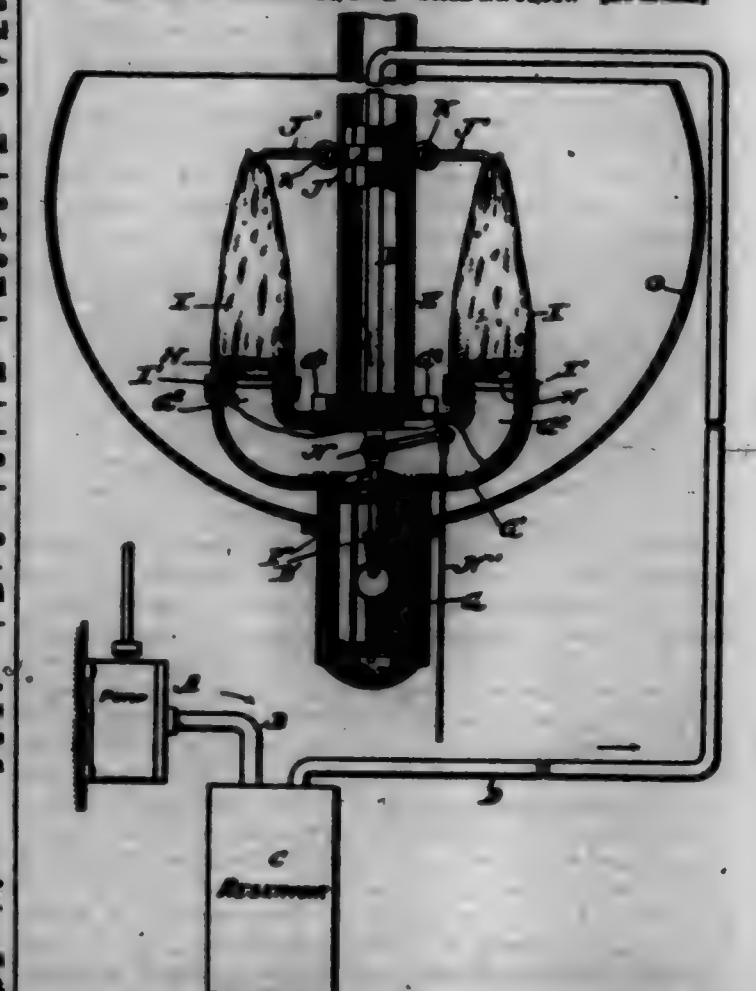
said openings, and removable caps applied to the upper ends of said nipples, substantially as set forth.



2. In a railway-car, the combination with the upper and lower decks, the deck top and bottom rails and the posts arranged between said rails, of tie-bolts passing through said top and bottom rails and having nuts at their upper ends which are accessible through wrench-openings located in the upper deck opposite the said tubes or nipples applied to said openings and projecting above said deck and each provided with a base-flange which is secured to the surface of the deck, and removable caps applied to the projecting upper ends of said tubes, substantially as set forth.

3. In a railway-car, the combination with the upper and lower decks, the deck top and bottom rails and the posts arranged between said rails, of tie-bolts passing through said top and bottom rails and having nuts at their upper ends which are accessible through wrench-openings located in the upper deck opposite the said tubes, externally-screw-threaded tubes or nipples applied to said openings and projecting above the upper deck and each provided with a base-flange having an inclined under side which rests upon the top of said deck and a straight upper face arranged at right angles to the axis of the tube, and screw-caps engaging with said screw-threaded tubes and each having a straight lower end which bears against the upper face of the corresponding base-flange, substantially as set forth.

708,070. INCANDESCENT GAS-LAMP. JOSEPH LEVY, New York, N. Y. Filed June 14, 1901. Serial No. 84,517. (No model.)

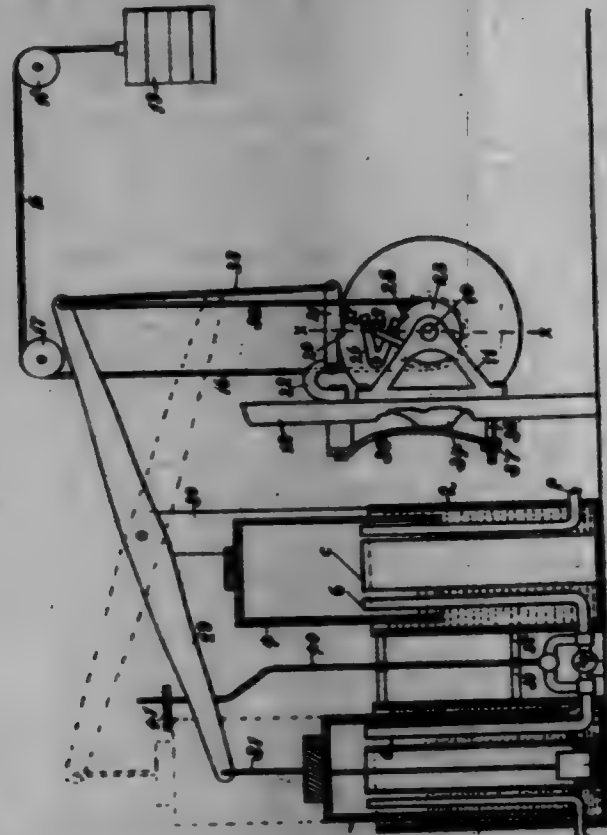


Claim.—1. In an incandescent gas-lamp, the pipe D bringing air under pressure and a second pipe E bringing gas, each extended down to

a level below the flame and bent upward, in combination with an insulating tube G and with a horizontal chamber G' opening into the upper end thereof and with a plurality of burners, all arranged for joint operation substantially as herein specified.

2. In an incandescent gas-lamp, the pipe D bringing air under pressure and a second pipe E bringing gas, each extended down to a level below the flame and bent upward and each toward the other, in combination with an insulating tube G, having its base open to the atmosphere, and with a horizontal chamber G' in connection therewith and with a plurality of burners, and provisions for expanding mantles in the proper relations to each burner and for attaching temporary supports for such mantles when required, all substantially as herein specified.

708,071. WEIGHT-MOTOR FOR GAS-MACHINES. WILLIAM D. LUCE, Haverhill, Mass. Filed Mar. 26, 1901. Serial No. 32,991. (No model.)



Claim.—1. A gas-machine having a water-cooled bell, means for raising and lowering said bell comprising a shaft, means which act to rotate the same in one direction, a locking means for said shaft which is adapted to prevent rotation thereof, means for automatically causing said locking means to release said shaft when the bell sinks to a predetermined level so that the shaft is permitted to rotate, means for automatically connecting said shaft to said bell as it is rotated, and means for automatically disconnecting said shaft from said bell when the latter has been lifted to a predetermined height, so that it is permitted to sink, said locking means being adapted to again lock said shaft when the bell is liberated.

2. A gas-machine having a water-cooled bell, means for raising and lowering said bell comprising a shaft, means which act to rotate the same in one direction, a locking means for said shaft which is adapted to prevent rotation thereof, a winding-drum which is adapted to rotate freely in both directions, connections between said drum and bell whereby the latter will be lifted when the former is rotated in one direction, means for automatically causing said locking means to release said shaft when said bell is lowered to a predetermined point, means for automatically connecting said shaft to said drum so that the drum will be rotated by the shaft and will lift said bell, means for automatically disconnecting said shaft and drum when the bell has been lifted to a predetermined height, so that the drum may rotate in the opposite direction and permit said bell to sink, said locking means being adapted to release the shaft when the latter is disconnected from said drum.

3. In combination with the cup or bell of a gas-machine which is adapted to draw in and discharge gas as it is raised and lowered, means for raising and lowering said cup, comprising a shaft, means which act to rotate the same, a wheel which is connected to said shaft, a single ratchet-tooth thereon, a pawl which is pivoted to a fixed support and is adapted to engage said tooth and hold said shaft against rotation, a winding-drum which is journaled on said shaft, a pawl which is pivoted on said wheel and is adapted to engage said winding-drum so as to lock said shaft and drum together when said shaft is rotated, a cable connecting said drum

and cup, means for lifting the pawl first named when said cup is at a predetermined point, permitting said shaft to rotate and lift said cup, and a fixed finger which is adapted to engage said second-named pawl and lift the same out of engagement with said drum when the latter has nearly made one complete rotation, said first-named pawl being liberated so that it may engage the teeth of said wheel and lock said shaft immediately after said winding-drum is disconnected therefrom.

4. In combination with a cup or bell of a gas-machine which is adapted to draw in and discharge gas as it is raised and lowered, means for raising and lowering said cup, comprising a shaft, means which act to rotate the same, a locking device which is adapted to prevent rotation of said shaft, a drum which is adapted to rotate on said shaft, means for automatically connecting said shaft and drum when the shaft is rotated, connections between said cup and drum which are adapted to lift the cup when the drum is rotated, means for releasing said shaft when said cup sinks to a certain position, whereby the latter may be lifted, means for disconnecting said shaft and drum when they have made nearly one complete rotation, said locking device being adapted to lock said shaft when it has completed its rotation.

5. An apparatus of the character described comprising a shaft, means which act to rotate the same in one direction, means for locking said shaft against rotation, an inverted cup, means for causing the same to draw in and discharge gas when it is raised and lowered, connections between said shaft and cup whereby the cup will be lifted when said shaft is permitted to rotate, and a brake which is adapted to retard the rotation of said shaft during the first part of its rotation after it is unlocked.

6. An apparatus of the character described comprising an inverted cup, means for causing the same to draw in and discharge gas when it is raised and lowered, a shaft, means which act to rotate the same in one direction, means for locking said shaft against rotation and for unlocking the same when said cup reaches a predetermined position, a segmental projection which is concentric with said shaft and connected thereto, and a brake which is in position to engage said projection immediately upon the unlocking of said shaft whereby the speed of rotation of said shaft may be retarded during the initial part thereof.

7. A gas-machine comprising a tank containing a liquid, an inverted cup which is suspended therein, means for lifting said cup so as to draw a gas therein at a predetermined rate, means for admitting an additional flow of gas into said cup as it finishes its upward movement, and means for permitting said cup to sink into said tank immediately thereafter.

8. A gas-machine comprising a tank containing a suitable liquid, an inverted cup which is suspended therein, lifting means for said cup, means for controlling said lifting means so that the latter may act to lift said cup and permit the same to sink into said tank under predetermined conditions, means for permitting said cup to draw in a gas at a predetermined rate as it is lifted, and means for permitting an additional flow of gas into said cup as it finishes its upward movement.

9. A gas-machine comprising a tank containing a liquid, an inverted cup which is suspended therein, lifting means for said cup, means for controlling said lifting means so that the latter may act to lift said cup and permit the same to sink into said tank under predetermined conditions, means for permitting said cup to draw in a gas at a predetermined rate as it is lifted, a gas-holder, a passage connecting said cup and holder having a check-valve which is arranged to prevent a return flow from said holder to said cup, a by-pass about said check-valve having a normally closed valve therein, and means for opening said by-pass valve which are adapted to be operated by said cup as it finishes its upward movement.

708,072. COMBINED SEAL AND KEY. HENRY A. HAINES, New York, N. Y. Filed Sept. 20, 1901. Serial No. 75,916. (No model.)



Claim.—1. In combination, a handle provided with a socket, a ring seated in the socket and projecting beyond the handle to form part of a seal, a die-block forming the balance of the seal and means for removably securing the die-block within the ring.

2. In combination, a handle, a ring permanently secured therein forming part of the seal, a die-block removably secured within the handle by means of the ring and forming a seal in connection with the ring and means for ejecting the die-block from the ring, substantially as set forth.

3. In combination, a handle, a ring permanently seated therein forming part of a seal, a die-block removably secured within the handle forming the balance of the seal, the said ring having a spring-tongue for removably securing the die-block within the ring, substantially as set forth.

4. In combination, a handle provided with a socket, a ring seated in

the socket and projecting beyond the handle to form part of a seal, a die-block forming the balance of the seal, means for removably securing the die-block within the ring and means for positively ejecting the die-block comprising a centrally-arranged sliding follower located entirely within the handle.

708,073. FLY-BUTTON. HATHAMER M. MARSHALL, Portland, Me. Filed Jan. 6, 1902. Serial No. 33,536. (No model.)

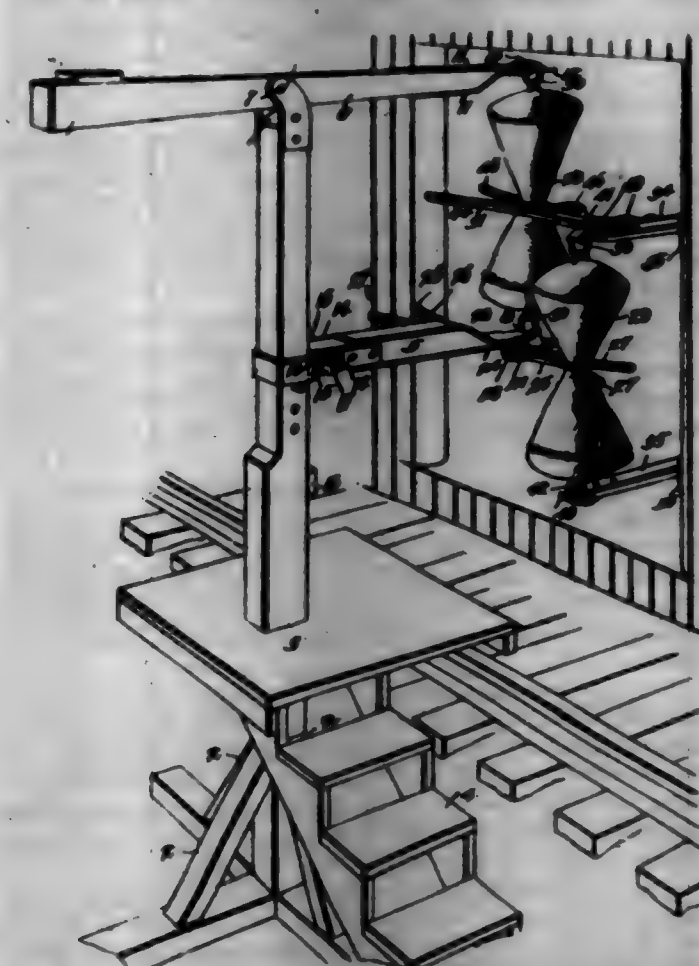


Claim.—1. As a new article of manufacture, a garment-button having a wide thin body adapted to pass through a buttonhole, said body having one of the members of a ball-and-socket union positioned at the center of its front side and spaced apart from its edge and on its back side means for attaching it to a garment.

2. As a new article of manufacture, a garment-button having a wide thin body and the socket member of a ball-and-socket union made integral therewith and provided with thread-receiving holes in the bottom of said socket.

3. The combination with a garment having a fly-opening therein of a closure for said opening consisting of a button secured to one side of the opening and adapted to pass through and engage a buttonhole in the other side, a member of a ball-and-socket union made integral with the front side of said button and a complementary member of said union secured to the inside of the flap and positioned to engage said first-named member when the flap is closed.

708,074. MAIL-BAG CATCHING AND DELIVERING MECHANISM. RALPH J. HENY, Elizabeth, Colo., assignor of one-half to Lillian E. Doddridge, John S. Doddridge, and John R. Dowd, Redford, Colo. Filed Mar. 25, 1902. Serial No. 30,380. (No model.)



Claim.—1. In a mail-bag catching and delivering mechanism, the combination with a support, of a pair of oppositely-disposed sack-engaging forks consisting of a rigid bar centrally secured to the supports and projecting from opposite sides thereof to form a rigid side for each fork, and a single continuous piece of resilient material centrally fixed to the support and projecting from opposite sides thereof to form a resilient side for each fork, said resilient material being provided with sack-receiving loops or bands arranged adjacent to the support and adapted to clamp a sack, substantially as described.

2. In a mail-bag catching and delivering mechanism, the combination of a standard, an upper pivotally-mounted sack-supporting arm provided with means for engaging a sack or bag, a lower pivoted sack-sup-

porting arm provided with plates extending from its outer end, means arranged at the outer ends of the plates for engaging a sack or bag, and the oppositely-disposed sack-engaging forks comprising a continuous bar secured between the said plates and extending from opposite sides thereof, and a continuous spring also secured between the plates and projecting from opposite sides of the same, substantially as described.

3. In a mail-bag catching and delivering mechanism, the combination of a hinged car-crane arranged to swing horizontally and designed to be mounted on the interior of a car and provided with means for engaging a sack, a pivoted fork mounted on the crane and arranged to swing upward and downward, and operating mechanism connected with the fork and adapted also for swinging the crane inward and outward, substantially as described.

4. In a mail-bag catching and delivering mechanism, the combination of a hinged car-crane designed to be mounted on the interior of a car and arranged to swing horizontally and provided with means for supporting a sack, bag or sack engaging means pivotally mounted on the crane and arranged to swing upward and downward, a rock-shaft connected with the said means and adapted to swing the same upward and downward, said rock-shaft being also adapted for swinging the crane, substantially as described.

5. In a mail-bag catching and delivering mechanism, the combination of a car-crane designed to be hinged at the interior of a car and provided with means for holding a sack, a sack-engaging fork movably mounted on the crane, a rock-shaft mounted on the crane and connected with the fork, and a handle arranged at the inner end of the rock-shaft and adapted for operating both the fork and the crane, substantially as described.

6. In a mail-bag catching and delivering mechanism, the combination of a car-crane designed to be hinged to a car at the interior thereof, a sack-engaging fork pivotally mounted on the crane at the top thereof and provided with means for engaging the same to limit its upward swing, and a rock-shaft mounted on the crane and provided at its outer end with an arm connected with the fork, said rock-shaft being also provided at its inner end with a handle adapted to be operated to manipulate the fork and to oscillate the crane, substantially as described.

7. In a mail-bag catching and delivering mechanism, the combination of brackets designed to be secured within a car, a reversible crane provided at the top and bottom with legs detachably mounted on the brackets, said crane being composed of a vertical bar or standard, an upper rigid sack-supporting arm, and a lower sack-supporting arm adjustably mounted on the bar or standard, a fork pivotally mounted on the upper supporting-arm, and operating mechanism connected with the fork and adapted to oscillate the crane, substantially as described.

708,075. VEHICLE-WHEEL. CHARLES T. MCGEE, Hartford, Conn., assignor to the Premier Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed July 20, 1900. Serial No. 699,467. (No model.)

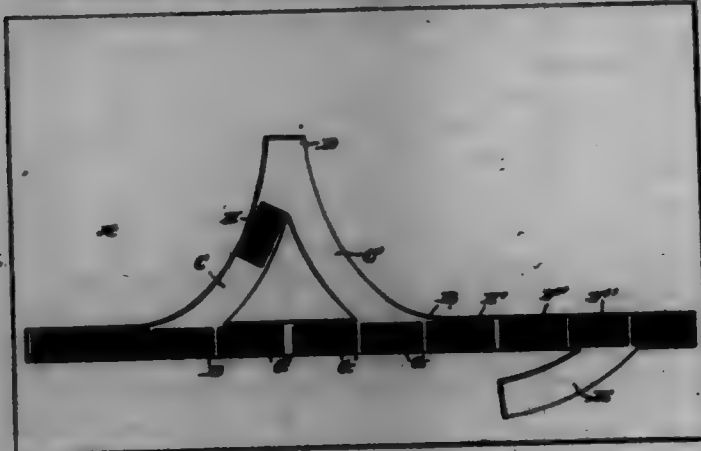


Claim.—1. An axle-arm, a cone supported on the end of the arm and slidable lengthwise thereof, a bolt fitting a threaded hole in the end of the arm and having a head for holding the cone in position, a hub supported on the arm, a ball-socket located in the opening in the end of the hub and closely embracing the head of said bolt, and means for holding the ball-socket in position.

2. An axle-arm, a cone supported on the end of the arm and having lengthwise movement, but held against rotary movement, a bolt fitting a threaded opening in the end of the arm and having a head for holding the cone in position, a hub supported on the arm, a ball-socket fitting a threaded opening in the end of the hub and closely embracing the head of said bolt and having an annular shoulder forming a rabbet between the shoulder and the wall of the hub, and a lock-nut fitting the threaded opening in the hub and bearing on said shoulder.

3. An axle-arm, a hub mounted thereon, a cone mounted on the arm and forming a thrust-bearing, balls located in the ball-race on each side of the thrust-bearing, ball-socket apparatus to each ball-socket, and a collar located on the thrust-bearing and forming a ball-retainer for the balls on each side thereof.

708,076. FUELLER. FRANK L. HAPIER, St. Joseph, Mich. Filed Oct. 12, 1901. Serial No. 73,400. (No model.)



Claim.—1. In the pump described, the blocks representing the locomotives and cars of two trains, and an idle car; in combination with a base having a main track and branch tracks diverging in reverse directions from one side of the main track and uniting in a stem so as to form a Y, and also having an auxiliary branch track extending from the main track at an intermediate point in the length of the latter.

2. In the pump described, the combination with a base having a main track and branch tracks diverging in reverse directions from one side thereof, and uniting in a stem so as to form a Y, and also having an auxiliary branch track extending from the main track at an intermediate point in the length of the latter; of blocks representing the locomotives and cars of two trains; said blocks being of such size as to loosely occupy the main track, and another block representing an idle car and adapted to be arranged in the Y.

708,077. FOLDING CHAIR. WILLIAM E. RIVIER, Britton, Mich., assignor of one-half to Charles E. Goodson, Algonac township, Branch county, Mich. Filed Aug. 20, 1901. Serial No. 73,722. (No model.)



Claim.—1. An independent two-way folding chair comprising legs having extension-feet, diagonally-pivoted braces connecting said legs and a seat adapted to be turned against the back to fold laterally, substantially as set forth.

2. An independent two-way folding chair comprising legs having extension-feet, diagonally-pivoted braces connecting said legs, a seat adapted to be turned against the back and be folded laterally, and a laterally-folding back, substantially as set forth.

3. The combination, in a folding chair, of legs having extension-feet, diagonal pivoted braces pivoted to said legs and feet, seat-bars pivoted to the rear uprights, and a member or members connecting said bars, adapted to fold laterally, substantially as set forth.

4. The combination, in a folding chair, of legs having extension-feet, diagonal pivoted braces pivoted to said legs and feet, seat-bars pivoted to the rear uprights, and straps pivoted to said bars and the front legs, substantially as set forth.

5. The combination, in a folding chair, of legs having extension-feet, diagonal pivoted braces pivoted to said legs and feet, seat-bars pivoted to the rear uprights, and seat-supports pivoted at their rear terminals to said bars, adapted to be diagonally disposed normally, substantially as set forth.

6. The combination, in a folding chair, of legs having extension-feet, diagonal pivoted braces pivoted to said legs and feet, seat-bars pivoted to the rear uprights, seat-supports pivoted at their rear terminals to said bars, adapted to be diagonally disposed normally, parallel folding braces and a connecting central brace pivoted to said folding braces and bars, substantially as set forth.

7. In combination with the legs and pivoted diagonal leg-braces of a folding chair, feet provided with rods attached to said legs and capable of vertical movement, substantially as described.

8. In combination, legs having extension-feet, diagonal pivoted braces pivoted to said legs and feet, seat-bars pivoted to the rear uprights, folding seat-supports attached to said bars, back-bars, folding parallel braces, a central brace pivoted to said parallel braces and to said back-bars, substantially as described.

708,078. PNEUMATIC STACKER. FRANKLIN L. HORTON, Racine, Wis. Filed Mar. 8, 1902. Serial No. 97,300. (No model.)



Claim.—1. In a pneumatic stacker, a chute comprising two sections, one of said sections having a cut-away space in its wall and the other of said sections having its discharge end connected to the first-mentioned section opposite said cut-away space and means for varying the relative positions of said sections and varying the point at which one section discharges into the other.

2. In a pneumatic stacker, a chute comprising two sections connected together out of axial line, one of said sections having a cut-away space in its wall and the other of said sections having its discharge end connected to said first-mentioned section opposite said cut-away space, said sections being adjustable relative to each other in the direction of their length.

3. In a pneumatic stacker, a chute comprising two sections connected together out of axial line, one of said sections having a cut-away space in its wall and the other of said sections having its discharge end connected to said first-mentioned section opposite said cut-away space, said sections being adjustable relative to each other in the direction of their length and a shield to cover the cut-away space of said first-mentioned section.

4. In a pneumatic stacker, a chute comprising two sections connected together out of axial line, one of said sections having a cut-away space in its wall and the other of said sections having its discharge end connected to said first-mentioned section opposite said cut-away space, said sections being adjustable relative to each other in the direction of their length and a shield to cover the cut-away space of said first-mentioned section, said shield being connected to one of said sections.

5. In a pneumatic stacker, a chute comprising two sections adjustably connected together out of axial line, one of said sections having a cut-away space and the other of said sections having an open end arranged opposite said cut-away space, one of said sections being provided with a guide-rail and the other of said sections being provided with a bracket engaging said guide-rail.

6. In a pneumatic stacker, a chute comprising two sections adjustably connected together out of axial line, one of said sections having a cut-away space and the other of said sections having an open end arranged opposite said cut-away space, one of said sections being provided with forwardly-projecting rails and the other of said sections being provided with brackets engaging said rails.

7. In a pneumatic stacker, a chute comprising two sections adjustably connected together out of axial line, one of said sections having a cut-away space and the other of said sections having an open end arranged opposite said cut-away space, one of said sections being provided

with forwardly-projecting rolls and the other of said sections being provided with brackets engaging said rolls, said brackets carrying anti-friction-rolls to bear on said rolls.

8. In a pneumatic stacker, a chute comprising an inner and an outer section, one of said sections having one side of its wall cut away and the other of said sections having its discharge end open both longitudinally and transversely to afford a free discharge from said inner to said outer section, and means for shifting one of said sections lengthwise of the other.

9. In a pneumatic stacker, a chute comprising an inner and an outer section, one of the sections being adjustable lengthwise of the other section and having a portion of the wall at its inner end cut away, and being provided adjacent said space with an extension, said other section having its discharge end opposite the above-mentioned cut-away space and having a guard-plate projecting within the aforesaid extension, and a shield adapted to close more or less of the said cut-away space.

10. In a pneumatic stacker, a chute comprising an inner and an outer section, said outer section having its side wall cut away to form a space along its inner end and said inner section being provided at its outer end with an opening arranged opposite said cut-away space of the outer section and with a shield adapted to cover more or less of said cut-away space and means for shifting said outer section inwardly and outwardly along said inner section.

11. In a pneumatic stacker, a chute comprising an inner and an outer section, said outer section having its side wall cut away to form a space along its inner end and said inner section being provided at its outer end with an opening arranged opposite said cut-away space of the outer section and with a shield adapted to cover more or less of said cut-away space and means for shifting said outer section back and forth comprising a cable connected to said outer section and a pulley upon said inner section around which said cable passes.

12. In a pneumatic stacker, the combination with a chute formed of inner and outer sections, the outer section being adjustable lengthwise of the inner section, of a connection leading inwardly from said outer section and whereby it is adjusted and a standard mounted upon a fixed part of the structure and having its upper end extending to a point substantially above the center of horizontal oscillation of the chute, and there united to said connection that leads from the outer chute-section.

13. In a pneumatic stacker, the combination with a chute formed of inner and outer sections, the outer section being provided at its outer end with a movable head, a connection leading inwardly from said head and whereby it may be shifted, and a standard mounted upon a fixed part of the structure and having its upper end extending to a point above the center of oscillation of the chute and there united to the connection that leads from said head.

14. In a pneumatic stacker, the combination with a chute provided with means whereby it may be laterally oscillated, of a standard mounted upon a fixed part of the structure and having its upper end extending to a point substantially in line with the center of oscillation of the chute, to which standard may be united the connections that lead to movable parts of the chute.

15. In a pneumatic stacker, the combination with a chute provided with means whereby it may be laterally oscillated, of a standard mounted upon a fixed part of the structure and having its upper end extending to a point substantially in line with the center of oscillation of the chute, said standard being formed of collapsible sections whereby it may be lowered out of the way when not in use.

708,079. DOUBLE-STAVE-VENEER-BARREL MACHINE. WILLIAM J. OTZ, Chicago, Ill., assignor to Veneer Barrel Machine Co., Chicago, Ill. Filed Mar. 21, 1902. Serial No. 90,295. (No model.)

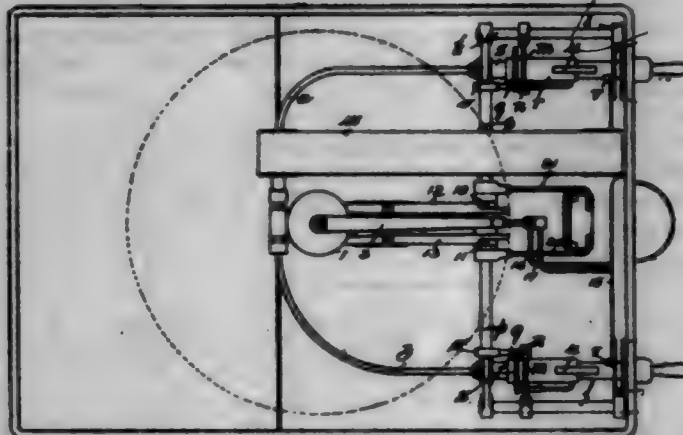


Claim.—1. In a veneer-barrel machine, the combination of a frame; a reversible collapsible drum journaled therein; a clamping member extending across the face of the drum parallel with its axis and adjustable

toward and away from the periphery of said drum; said clamping member being arranged to permit a sheet of veneering to be passed between same and the periphery of the drum, being revoluble with said drum, and having at each end of the drum an arm extending toward the axis of said drum, and one of said arms being provided with a cam; a lever fulcrumed on said drum, having thereon a cam adapted to cooperate with the cam on said arm for urging said clamping member toward the face of the drum; and means for rotating, collapsing and expanding said drum.

2. In a veneer-barrel machine, the combination of a frame; a reversible collapsible drum journaled therein; a clamping member extending across the face of the drum parallel with its axis and adjustable toward and away from the periphery of said drum; said clamping member being arranged to permit a sheet of veneering to be passed between same and the periphery of the drum, and being revoluble with said drum; a depending member rigidly supported by the upper part of the frame and extending near the upper surface of said drum, a rod supported by said depending member and extending parallel with the axis of the drum; a plurality of hoop-guides, each having rigidly secured at its upper part a collar mounted on said rod, and provided with securing means adapted to permit said hoop-guides to be adjusted longitudinally of said rod and tilted on said rod to different inclinations; said hoop-guides being suitably arranged to guide, toward the drum, hoops passed under said rod; said frame being free from obstructions immediately under said guides to permit sheets of veneering of the full width of the drum to be passed under said guides toward and upon the drum; and means for rotating, collapsing and expanding said drum.

708,080. COIN-CONTROLLED MECHANICAL TOY. GEORGE R. PALMER and HENRY HARTLEY, Birmingham, England. Filed Oct. 22, 1900. Serial No. 24,689. (No model.)



Claim.—1. In cycle-racing and like mechanical toys in which figures are caused to travel around a circular track by the operation of rotatable handles on the exterior of the machine-casing, the combination with each of the said handles of figure-driving mechanism a coin-catch wheel rotatable with the handle, an arm pivoted adjacent to the said catch-wheel, and a spring-clutch connection between the catch-wheel and the figure-driving mechanism, to which movement is transmitted from the catch-wheel through an inserted coin the said pivoted arm and connecting rods and levers between the arm and the said clutch, substantially as described.

2. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and a figure-driving mechanism, connecting rods and levers between the said clutch and pivoted arm, and a locking-bolt having a pin engagement with one of the said levers and a gapped plate rotatable with the figure-driving mechanism, against which said locking-bolt abuts, substantially as described.

3. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, connections between the said clutch and pivoted arm, a locking-bolt and an extension-piece from the said bolt projecting within a coin-chute disposed beneath the said catch-wheel, substantially as described.

4. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, connections between the said clutch and pivoted arm, a plate rotatable with the figure-driving mechanism and having a pin projecting therefrom, and a spring-controlled pivoted arm engaged at one end by the said projecting pin and at the opposite end by the said locking-bolt, substantially as described.

5. In combination, the figure-driving mechanism, a handle and a catch wheel rotatable together, an arm pivoted adjacent to the catch wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, linkage between the said clutch and pivoted arm, a flag with pivoted stem, and connections between the stem and the said linkage, substantially as described.

6. In combination, the plurality of toy figures, rotating mechanisms, free operating-handles, connections between said handles and rotating mechanisms, indicating devices, and means whereby one of said indicating devices is operated upon the arrival of the corresponding figure at the termination, substantially as described.

708,081. MACHINE FOR MOLDING ARTIFICIAL STONE. EDWIN F. PALMER, Brooklyn, N. Y. Filed Mar. 11, 1902. Serial No. 97,884. (No model.)



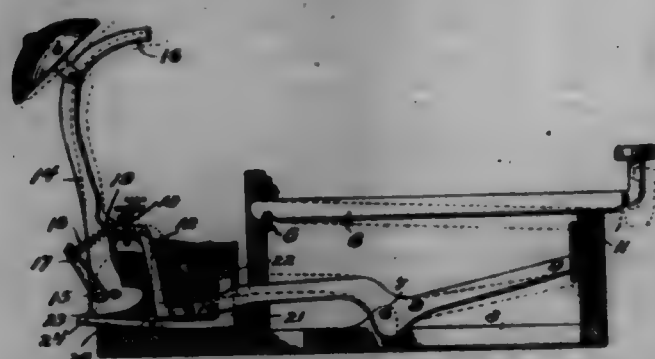
Claim.—1. In a machine for molding artificial stone, the combination of a mold with a slotted supporting-plate, a core, means for clamping the core to the plate, and a perforated false bottom which embraces the core and covers the slot beyond the core, substantially as specified.

2. In a machine for molding artificial stone, the combination of a mold with a slotted supporting-plate, a sectional core, means for clamping the core-sections to the plate, a partition between the core-sections, and a false bottom upon the plate, substantially as specified.

3. In a machine for molding artificial stone, the combination of a mold, with a vertically-movable core-support, a sectional core adjustably secured thereto, and a partition between the core-sections, substantially as specified.

4. In a machine for molding artificial stone, the combination of a mold, with a vertically-movable core-support, a sectional core adjustably secured thereto, a laterally-extending partition between the core-sections, and a false bottom for supporting the free ends of the partition, substantially as specified.

708,082. TYPE-WRITER. CHARLES J. PAULSON, Brooklyn, N. Y. Assignor to Richard C. Cox, Brooklyn, N. Y. Filed May 15, 1901. Serial No. 92,326. (No model.)



Claim.—1. The combination with keys, of a member common to said keys and actuated thereby; a type-hammer pivoted at one end and connected to said member by a spring; a trigger for restraining said hammer, said trigger being releasable by said member; and means for causing said member, when released by the keys, to force the type-hammer to swing back to locking position.

2. The combination with keys, of a lever actuable by any of said keys; a type-hammer pivoted at its lower end and having its striking at its upper end and also having a yielding connection to said lever; a trigger for restraining said type-hammer, said trigger being controlled by said lever; and means for causing said lever to force said type-hammer to swing back to locking position.

3. The combination with keys, of a transverse device, as 11, actuable by any of said keys; a pivot 7 whereon said transverse device swings; a type-hammer pivoted at one end and having a striking-head at the other end and also having a spring connection to said transverse device; an arm 12 rigid with said transverse device; a trigger for restraining said type-hammer, said trigger being releasable at the terminal portion of the initial movement of said transverse device 11; and means for causing said arm 12 to swing back said hammer to its locking position.

4. The combination with keys, of a lever actuable by any of said

keys; a type-hammer swinging upon a pivot and having a striking-head at its free end and also having a yielding connection to said lever; a trigger releasable by said lever and adapted to restrain said type-hammer when tensioned by said lever; and means for causing said lever to force said hammer to swing back to locking position.

5. The combination with keys, of a member which is moved at each key-stroke; a type-hammer mounted upon a pivot; an adjustable spring connecting said type-hammer to said member; a trigger releasable by said member and adapted to restrain said hammer; and means for causing said member to swing back said hammer to locking position.

6. In a type-writing machine, the combination of a type; a type-hammer mounted upon a pivot; a key; a spring tensioned by said key and tending to swing said hammer to the impression-point; a trigger restraining said hammer and releasable by said key; and a spring operating at the swing back of said key to return the hammer to locking position.

7. In a type-writing machine, the combination of a type; a type-hammer mounted upon a pivot; a key; a spring tensioned by said key and tending to swing said hammer to the impression-point; a trigger restraining said hammer and releasable by said key; and a spring operating at the return of said key to swing back the hammer to locking position, said hammer-tensioning spring being adjustably connected to said key.

8. In a type-writing machine, the combination with keys and a type-hammer, of a spring for moving said hammer to the printing-point; a trigger for restraining said hammer; and means controlled by said keys for retracting said hammer to locking position during the operation of the keys and materially before the complete return of the keys to normal position.

9. The combination with keys, of a hammer-spring tensioned by said keys; a trigger for said hammer; means for causing said keys to release said trigger; and means for positively returning said hammer to locking position during the return of the keys and at a material interval before they reach normal position.

10. The combination with keys, of a member common to said keys and actuated thereby; a type-hammer connected to said member by a spring; a trigger for restraining said hammer, said trigger being also releasable by said common member; and means for causing said member to force the type-hammer back to normal position during the return of the keys and at a material interval before they reach normal position.

11. The combination with keys, of a lever actuable by any of said keys; a type-hammer having a yielding connection to said lever; a trigger for restraining said type-hammer, said trigger being controlled by said lever; and means for causing said lever to force said type-hammer back to locking position during the return of the keys and at a material interval before they reach normal position.

12. The combination with keys, of a transverse device, as 11, actuable by any of said keys; a pivot 7 whereon said transverse device swings; a type-hammer connected by a spring to said device 11; an arm 12 rigid with said device 11; a trigger for restraining said type-hammer, said trigger being releasable at the terminal portion of the movement of said device 11; and means for causing said arm 12 to restore said lever to its locking position during the return of the keys and materially before they reach normal position.

13. The combination with keys, of a lever actuable by any of said keys; a type-hammer having a yielding connection to said lever; a trigger releasable by said lever and adapted to restrain said type-hammer when tensioned by said lever; and means for causing said lever to force said hammer back to locking position during the return of the keys and materially before they reach normal position.

14. The combination with keys, of a type-hammer; an adjustable spring connecting said type-hammer to a member which is moved at each key-stroke; a trigger releasable by said member and adapted to restrain said hammer; and means for causing said member to restore said hammer to locking position during the return of the keys and materially before they reach normal position.

15. In a type-writing machine, the combination of a type; a type-hammer; a key; a spring tensioned by said key and tending to move said hammer to the impression-point; a trigger restraining said hammer and releasable by said key; and a spring operating to return the hammer to locking position during the return of the key and at a material interval before the latter reaches normal position.

16. In a type-writing machine, the combination of a type; a type-hammer; a key; a spring tensioned by said key and tending to move said hammer to the impression-point; a trigger restraining said hammer and releasable by said key; and a spring operating to return the hammer to locking position during the return of the key and materially before the latter reaches its normal position; said hammer-tensioning spring being adjustably connected to said key.

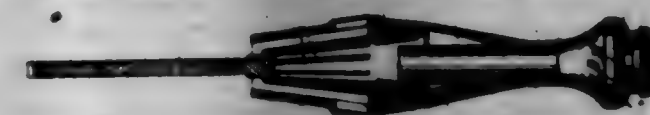
17. In a type-writer, the combination with a pivoted hammer having a cam-face; means operative by a finger-key in engagement with the

cam-face; a spring operable by said means and effective to advance the hammer against the key-operated means; and means engaging said hammer and adapted to be engaged by said key-operated means for holding and releasing said hammer.

18. In a key-operated machine, the combination with a frame, of finger-keys located thereon; a lever below said finger-keys and operable thereby; a pivoted hammer having a cam-face adapted to be in engagement with said lever during part of the movement thereof; a spring connecting said lever and hammer; a bell-crank lever having a pin in the upward path of said lever; and a pawl adapted to engage the hammer after it has been partially advanced and to be tripped by the lever to release the hammer to the influence of the spring after the lever has passed over the cam-face of the hammer.

19. In a machine of the class specified, the combination with a pivoted hammer; a cam-face in connection with the hammer; and a lever adapted to engage said cam-face and control the forward movement of the hammer up to a point just prior to its blow and to again engage said cam-face for the purpose of returning the hammer to its normal position.

708,083. INCANDESCENT GAS-BURNER. ALLEN A. PRATT, New York, N. Y. Assignor to Francis Dales Warner, New Orleans, Ind. Filed June 18, 1901. Serial No. 94,678. (No model.)



Claim.—1. A gas-burner, having a shell, a conductor, and a pressure and mixing chamber in the said shell and into which the conductor extends, the said pressure and mixing chamber having slots in its wall extending to the top of the chamber for the passage of the mixture of air and gas, the material between the slots being adapted to be heated by the flame when the burner is in use, so that gas and air passing from the shell into the said chamber become intimately mixed before passing to the point of ignition, as set forth.

2. A gas-burner, having a shell, a conductor open to the gas-supply and formed with air-inlet openings, and a mixing and pressure chamber in the said shell and into which the conductor extends, the base of the said chamber fitting closely into the shell, and the chamber opening at its lower end into an expansion-chamber formed between the conductor and the said shell, as set forth.

3. A gas-burner, having a shell, a conductor extending into the same and open to the gas-supply, the conductor being provided with air-inlets, and a mixing and pressure chamber in the said shell and into which opens the said conductor, the said chamber comprising a base and prongs extending therefrom to form slots between adjacent prongs for the passage of the mixture of air and gas, the said slots extending from the base to the top of the prongs, as set forth.

4. A gas-burner, having a shell, a conductor extending into the same and open to the gas-supply, the conductor being provided with air-inlets, and a mixing and pressure chamber in the said shell and into which opens the said conductor, the said chamber comprising a base and prongs extending therefrom to form slots between adjacent prongs for the passage of the mixture of air and gas, the said prongs being arranged in the form of a cone with the upper ends of the prongs forming carrying means for the mantle-supporting rod, as set forth.

5. A gas-burner, having a mixing and pressure chamber, comprising a hollow base and prongs extending from the base and arranged in cone shape, adjacent prongs forming narrow slots for the passage of the mixture of gas and air, the slots extending from the base to the top of the prongs, as set forth.

6. A gas-burner comprising a shell, a mixing and pressure chamber in the said shell, and a tubular conductor extending into the shell and opening into the mixing and pressure chamber, the said conductor terminating at its lower end in a base having a shoulder for engagement with the lower end of the said shell, the base being provided with air-inlets and adapted for connection with a gas-supply, as set forth.

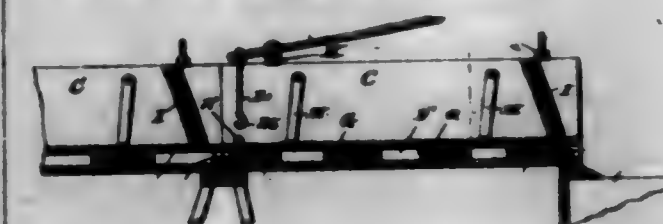
7. A gas-burner, having a conductor comprising a tubular portion, terminating at its lower end in a bell-shaped base, a ring forming part of the conductor and having arms integrally connected with the lower end of the said base, the space between the arms of the ring forming inlet-openings for the air, the said ring being set up in the said base with the inner walls of the air-inlet openings inclined inwardly and upwardly and a gas-inlet serving into the said ring and adapted for connection with a gas-supply pipe, as set forth.

8. A gas-burner having a mixing and pressure chamber comprising a hollow base and prongs extending from the base and arranged in cone shape, the prongs being close together forming narrow slots between adjacent prongs for the passage of the mixture of air and gas, and a mantle-supporting rod carried at the upper ends of the prongs, as set forth.

9. A gas-burner, comprising a shell having a tubular extension at its lower end, a mixing and pressure chamber having its base fitting closely in the said shell, and a conductor adapted for connection with a gas-supply and provided with air-inlets, the conductor having a tubular portion fitting in the tubular extension of the shell and extending at its upper end into the lower end of the mixing and pressure chamber, the conductor being spaced from the inner surface of the shell above the tubular extension forming an expansion-chamber below the mixing and pressure chamber and into which the lower end of the mixing and pressure chamber opens, as set forth.

10. A gas-burner, comprising a shell formed in two tapering sections fluted together at their base ends, the lower or apex end of the lower section terminating in a tubular extension, a mixing and pressure chamber set in the said shell and comprising a base and prongs extending therefrom to form slots between adjacent prongs for the passage of the mixture of air and gas, the said prongs being arranged in the form of a cone and spaced from the inner surface of the shell, a mantle-supporting rod carried at the upper ends of the prongs, and a tubular conductor fitting in the tubular extension of the shell, and terminating in a base provided with air-inlet openings, the said base being adapted for connection with a gas-supply, as set forth.

708,084. ORE-SEPARATOR. CYRUS C. PRATT, Portland, Ore. Assignor of one-half to Thomas Holland, Portland, Ore. Filed June 18, 1901. Serial No. 95,941. (No model.)



Claim.—1. In an apparatus for separating metals from ore, gravel, lean and the like, a sluice adapted to be connected with a suitable source of water-supply and having a riffle comprising a board provided with openings, longitudinal sluing walls interspersed between the board and the bottom of the sluice and forming tortuous channels in communication with the openings in the board, means for retaining the flow of water through said channels, and a screen arranged upon the upper side of the board for causing the pulp to drag along the riffle and preventing large particles from entering the openings of the board.

2. In an apparatus for separating metals from ore, gravel, lean and the like, a sluice adapted to be connected with a suitable source of water-supply and having a riffle comprising a board provided with openings, longitudinal sluing walls connected to the under side of the board and forming tortuous channels, and a screen connected to the upper side of the board and adapted to cause the pulp to drag along the riffle, and also to prevent large particles from entering the openings of the board.

3. In an apparatus for separating metals from ore, gravel, lean and the like, the combination of a conduit, a sluice arranged to receive from said conduit and having a grizzly disposed below the same, and also having riffle-sections arranged and to end on its bottom and susceptible of being raised; the said riffle-sections respectively comprising a board having openings, longitudinal sluing walls connected to the under side of the board and forming tortuous channels, one or more transverse strips connected to and depending from the board, and a screen connected to the upper side of the board, one or more transversely-disposed inclined boards arranged in the sluice and disposed at slight distances above the riffle, adjustable devices adapted in one position to retain the riffle-sections in their operative position on the bottom of the sluice and in another position to permit of the said riffle-sections being raised, and suitable means on the sluice for raising the riffle-sections.

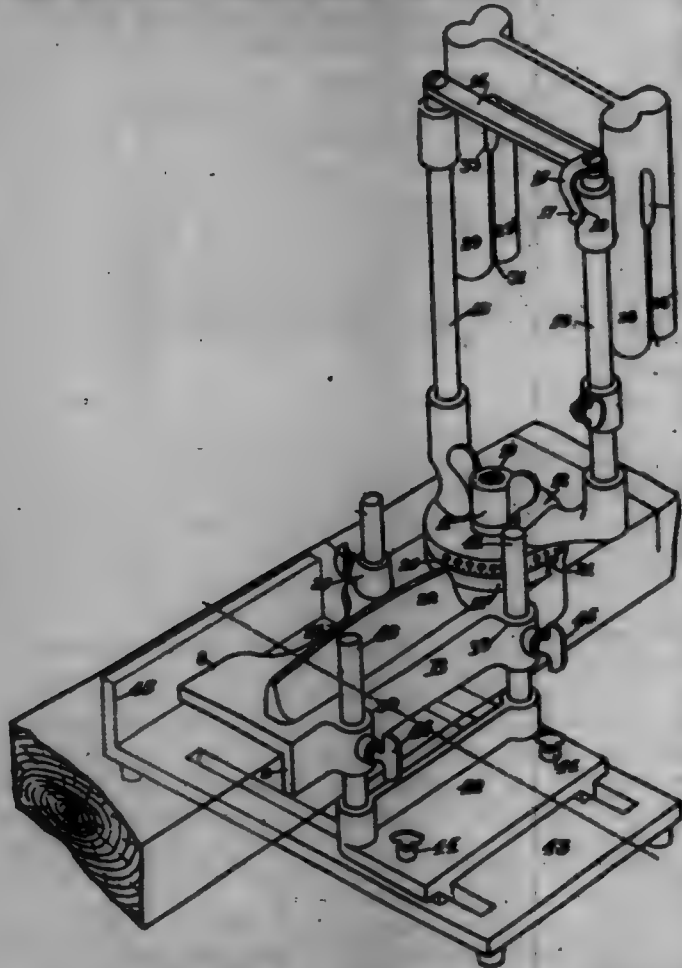
4. In an apparatus for separating metals from ore, gravel, lean and the like, a sluice adapted to be connected with a suitable source of water-supply and having a riffle comprising one or more boards provided at intervals with slots, and also provided intermediate of the slots with comparatively small apertures, longitudinal sluing walls connected below the board or boards and in communication with the slots and openings thereof, one or more transverse strips intersecting the said channels, and a screen arranged upon the upper side of the board or boards and adapted to prevent rocks and large particles from entering the slots and comparatively small apertures therein.

5. In an apparatus for separating metals from ore, gravel, lean and the like, the combination with a conduit adapted to be connected with a suitable source of water-supply; of a sluice having an arch-shaped screen or grizzly disposed below the discharge end of said conduit and also hav-

ing a riffle comprising one or more boards provided at intervals with slots, and also provided intermediate of the slots with a plurality of comparatively small apertures, longitudinal tortuous channels arranged below the board or boards and in communication with the slots and openings thereof, one or more transverse strips intersecting the said channels, and a screen arranged upon the upper side of the board or boards and adapted to prevent rocks and large particles from entering the slots and comparatively small apertures therein.

6. In an apparatus for separating metals from ore, gravel, loam and the like, a sluice adapted to be connected with a suitable source of supply, and having a riffle comprising a board provided with openings, longitudinal tortuous channels disposed below the board, means for retarding the flow of water through said channels, and a screen arranged upon the upper side of the board for causing the pulp to drag along the riffle and preventing large particles from entering the openings of the board, and one or more transversely-disposed inclined boards arranged in the sluice and disposed a slight distance above the screen.

708,085. SAW-GUIDE. THOMAS PRINTER, New Britain, Conn.
Filed Jan. 24, 1902. Serial No. 91,085. (No model.)



Claim.—1. In a bevel-gage for saws, a base or member constructed to be directly applied to the upper surface of the work to be operated upon, and a guide supported by the base for controlling the direction of cut of the saw, said base being notched or cut away at the edge and provided on its upper surface with a longitudinal rib adapted to be grasped by the hand of the operator to hold the structure to the work.

2. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, and a saw-guide slidably supported on the rods and overhanging the base at such end.

3. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at one end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, and means connecting said rods for limiting the upward movement of said saw-guide.

4. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, and means on one of the rods for limiting the downward movement of said saw-guide.

5. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a

guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, and means for engaging said saw-guide in its uppermost position.

6. In a bevel-gage for saws, a base or member constructed on its lower face to be directly applied to the upper surface of the work operated upon, a rotatable guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, means for securing the frame in different positions, a saw-guide slidably supported on the rods and overhanging the base at such end, and means connecting the rods limiting the upward movement of said saw-guide.

7. In a bevel-gage for saws, a base or member constructed on its lower face to be directly applied to the upper surface of the work operated upon, and provided with a substantially circular seat at an end of the same on the top face thereof, a guide-frame comprising a circular graduated plate having axial adjustment on said seat and provided with upstanding rods, and a saw-guide slidably supported on the rods and overhanging the base at the end thereof before mentioned.

8. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, a table, and means for holding the table and base spaced apart to receive the work between them.

9. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide provided with anti-friction devices for a saw and overhanging the base at the end mentioned and means connecting the upper ends of the rods for limiting the upward movement of said saw-guide.

10. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor; a member carried by the base and embodying a plate for resting upon the work, and a rib upon the member; the base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; and means for controlling a saw carried by the plate.

11. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor; a member carried by the base and embodying a plate for resting upon the work, and a rib upon the member; the base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; a standard upon the member; and a guide for a saw mounted upon the standard and capable of reciprocation thereon.

12. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor; a member carried by the base and embodying a plate for resting upon the work, and a rib upon the member; the base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; a standard upon the member; a guide for a saw mounted upon the standard and capable of reciprocation thereon; and means for adjusting the guide relatively to the member.

13. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor; a member carried by the base and embodying a plate for resting upon the work, and a rib upon the member; the base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; and means for controlling the saw carried by the plate, and embodying portions for engaging the sides of a saw to control its direction of cut and portions for engaging a part of the saw to cause the guide to follow the saw in its movement incident to its depth of cut.

14. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor; a member carried by the base and embodying a plate for resting upon the work, and a rib upon the member; the base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; means for controlling the saw carried by the plate, and embodying portions for engaging the sides of a saw to control its direction of cut and portions for engaging a part of the saw to cause the guide to follow the saw in its movement incident to its depth of cut; and a stop to limit each movement of the saw.

15. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor, a member carried by the base and comprising a plate for resting upon the work, said member having a rib, means for adjustably uniting the member with the base, said base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; a standard upon the member, and a guide for a saw mounted upon the standard and capable of reciprocation thereon.

16. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor, a member carried by the base and comprising a plate for resting upon the work, said member having a rib, means for adjustably uniting the member with the base, the said base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; a standard upon the member, a guide for a saw mounted upon the standard and capable of reciprocating thereon, and means for adjusting the guide relatively to the member.

17. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor, a member carried by the base and comprising a plate for resting upon the work, said member having a rib, means for adjustably uniting the member with the base, the said base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; and means for controlling a saw-carried by the plate and embodying portions for engaging the sides of the saw to control the direction of cut thereof, and also embodying portions for engaging a part of the saw to cause the guide to move in correspondence with its depth of cut.

18. In a bevel-gage for saws, the combination with a base for sustaining the work, of a wall for engaging a surface of the work and constituting a stop therefor, a member carried by the base and comprising a plate for resting upon the work, said member having a rib, means for adjustably uniting the member with the base, the said base, wall, plate and rib constituting stops for the work and each engaging a different surface thereof; means for controlling a saw carried by the plate and embodying portions for engaging the sides of the saw to control the direction of cut thereof, and also embodying portions for engaging a part of the saw to cause the guide to move in correspondence with its depth of cut; and a stop for limiting such movement.

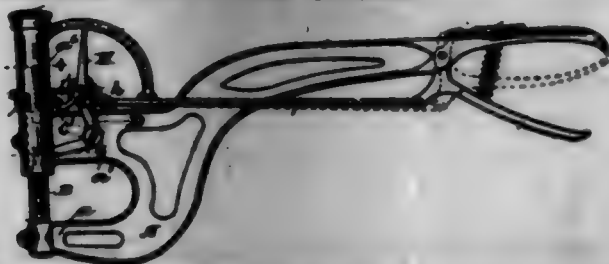
19. In a bevel-gage for saws; a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, means limiting the upward movement of said saw-guide, and an adjustable contour-gage mounted at the forward part of said base.

20. In a bevel-gage for saws, a base constructed on its lower face to be directly applied to the upper surface of the work operated upon, a guide-frame comprising upstanding rods mounted at an end of the base on the top face thereof, a saw-guide slidably supported on the rods and overhanging the base at such end, a cross-bar connecting the upper ends of the rods and limiting the upward movement of said saw-guide, and a contour-gage mounted at the forward part of the base and comprising a leg and means for securing the same in adjusted position.

21. A mitring device comprising a base adapted to engage on its under side a face and an edge of the work, and having projecting from its upper side a frame, saw-guiding devices slidably freely on said frame and arranged to overhang one end of said base so that the saw may pass from a position above the work down past the base into or through the work.

22. A mitring device comprising a base adapted to engage on its under side a face and an edge of the work, and having projecting from its upper side a pivoted frame, saw-guiding devices slidably freely on said frame and arranged to overhang one end of said base so that the saw may pass from a position above the work down past the base into or through the work.

708,086. GAGE. ALFRED EMMERSON, Cleveland, Ohio. Filed Jan. 11, 1901. Serial No. 48,568. (No model.)



Claim.—1. In a gage, the combination of two measuring members one of which is mounted upon and reciprocable in a support, a spring in said support tending to cause said measuring members to approach, positive means for retracting said reciprocable member, a recording member mounted and slidable upon a support, said reciprocable member provided with means adapted during its movement toward the other to engage said recording member and during its retracting movement to disengage same.

2. In a gage, the combination of two measuring members one of which is mounted upon and reciprocable in a support, a spring in said support tending to cause said members to approach, positive means for retracting said reciprocable member, means for locking said retracting means, a recording member mounted and slidable upon said support, said

member connected with said reciprocable member in a manner such as to be movable therewith during the approaching movement and independent thereof during the retracting movement.

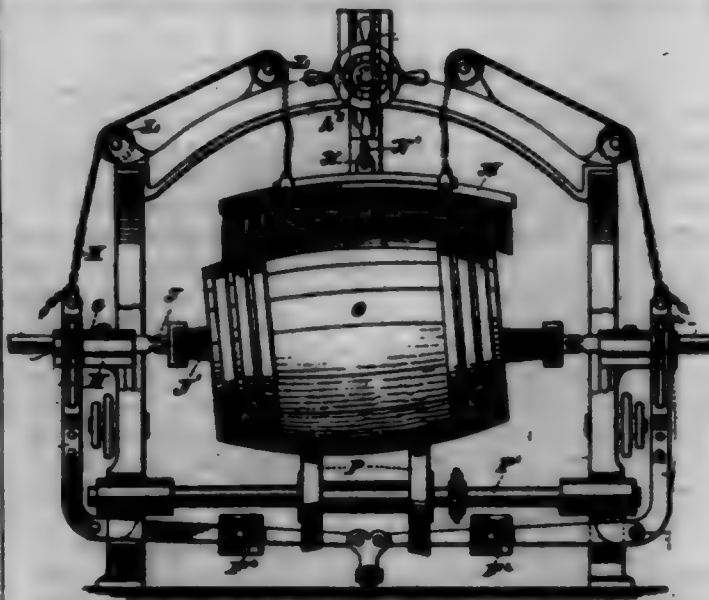
3. In a gage, the combination of two measuring members, one of which is mounted upon and reciprocable in a support, a spring in the latter tending to cause said members to approach, said support provided with a laterally-extending handle having a spring-grip positively connected with said reciprocable member and means for locking same, a recording-collar mounted and slidable upon said support, said reciprocable member provided with a lateral projection adapted to engage one extremity of said collar.

708,087. TANK-HEATER. HENRY E. GERRIN, Memphis, Mo. Filed Mar. 13, 1902. Serial No. 96,181. (No model.)



Claim.—A tank-heater comprising a casing, said casing divided into a combined fuel and air chamber; a combustion-chamber and an exit-flue; a pendant partition between the air-chamber and combustion-chamber; a rearwardly-extending partition separating the combustion-chamber and the exit-flue; grooved guides within the casing; a partition slidably mounted in certain of said guides between the air-chamber and exit-flue and a damper slidably mounted in certain of said guides between the air-chamber and the combustion-chamber.

708,088. BARREL-CLEANING MACHINE. GUYTON BROWN, New York, N. Y. Filed Aug. 17, 1901. Serial No. 73,307. (No model.)



Claim.—1. The combination of a frame, guides mounted to move up and down for adjustment, brush-carrying slides movable in and out on said guides, and operating-levers having vertical slots receiving projections on said slides.

2. In a cleaning-machine, the combination of a frame, cleaning devices movable inward or outward on said frame, an operating member adapted to be engaged by the articles to be cleaned prior to their arrival at the cleaning device, and a connection from said operating member to the cleaning device to throw them outward before the articles arrive between them.

3. The combination of a runway, a depressible operating member adjacent thereto, a frame, movable brushes connected with said operating member and a support for the article.

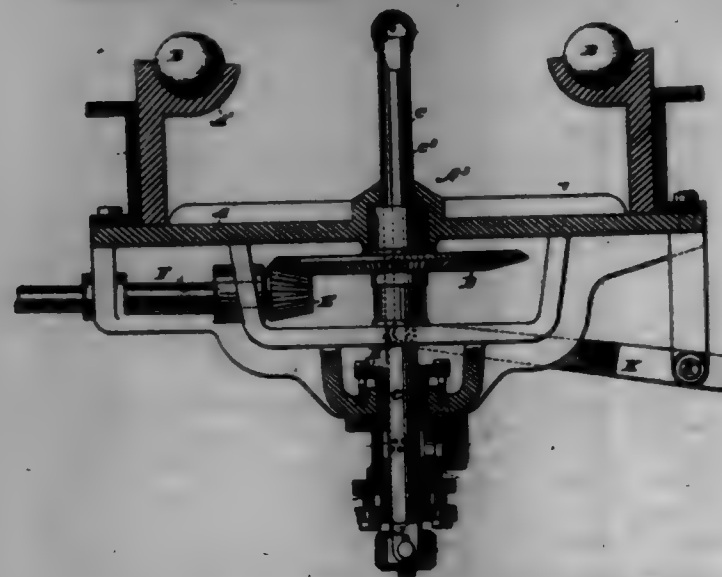
4. The combination of a frame, brushes movable transversely of said frame, a rocking operating member located in the path of the articles to be cleaned and a connection from said operating member to the brushes.

5. The combination of a frame, a brush movable inward and outward on the frame and also capable of a pivotal or swinging movement relatively thereto, an operating member arranged in the path of the ar-

articles to be cleaned and a connection from the operating member to the said brush.

6. The combination of the frame and the support for the articles to be cleaned with brushes movable horizontally at the opposite sides of said frame, a top brush movable vertically and also capable of a swinging movement, a connection from the side brushes to the top brush and an operating member located in the path of the articles to be cleaned and connected with the side brushes.

708,089. SPRINKLING OR SPRAYING DEVICE. GUNAV SCHON, New York, N.Y. Original application filed Aug. 17, 1901. Serial No. 72,887. Divided and this application filed Feb. 21, 1902. Serial No. 86,022. (No model.)



Claim.—1. In a cleaning-machine, the combination of a nozzle mounted to slide, with a gear-wheel held against sliding and mounted to turn with the said nozzle, driving means in permanent engagement with said gear-wheel, and a fluid-supply box in which said nozzle slides and with which it communicates in a predetermined position only said wheel being located upon the nozzle between the outlet thereof and the fluid-supply box.

2. In a cleaning-machine, the combination of a frame provided with a central guide and a bearing adjacent thereto, a gear-wheel held against sliding and provided with a hub mounted to turn in said bearing, a fluid-supply box located on the side of the gear-wheel opposite to said guide, means for driving said wheel, and a nozzle held to turn with the gear-wheel and held to slide lengthwise in the central frame-guide, the hub of the gear-wheel, and the fluid-supply box, said nozzle being arranged to communicate with the said box in a predetermined position only.

3. In a cleaning-machine, the combination of a nozzle having a head with an outlet or slit extending from its center to one side only, and means for rotating said nozzle.

4. In a cleaning-machine the combination of a rotary nozzle, a fluid-supply box in which said nozzle is mounted to rotate and to slide, the nozzle being perforated so as to communicate with the fluid-supply box in a predetermined position, links arranged at each side of the nozzle and pivotally connected therewith, a forked lever connected with said links, and means for rotating the nozzle.

5. In a cleaning-machine, the combination of a longitudinally-slidable nozzle, a stationary fluid-supply box with which said nozzle is adapted to communicate in a predetermined position only, and a driving member held to turn with the nozzle but independent of its sliding motion and located on the nozzle between its outlet and the fluid-supply box.

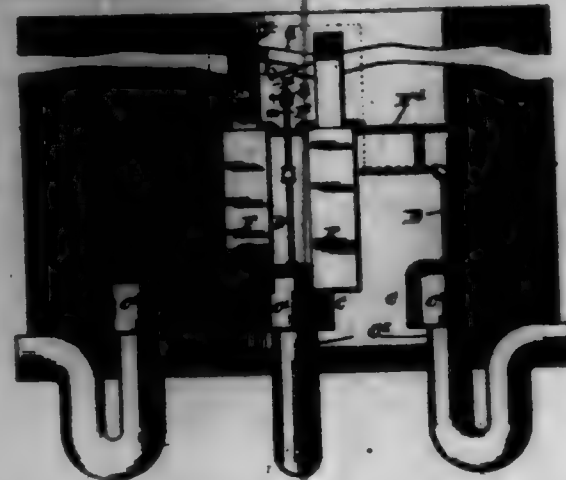
708,090. AUTOMATIC DEVICE FOR DISCHARGING LIQUID-TANKS. WILLIAM S. SHENCK, Chicago, Ill. Filed Oct. 23, 1901. Serial No. 86,904. (No model.)

Claim.—1. An apparatus for the purpose set forth comprising a liquid tank or receptacle, a plurality of discharge devices for emptying the tank, and means for successively operating said discharge devices comprising a float mechanism, and a traveling weight controlled by said float mechanism.

2. An apparatus for the purpose set forth comprising a liquid tank or receptacle, a plurality of discharge devices for successively emptying said tank, a plurality of floats one associated with each discharge device, and means operated by the rise and fall of said floats for successively operating the discharge devices embracing a traveling weight the movement of which is controlled by said floats.

3. An apparatus for the purpose set forth comprising a liquid tank

or receptacle, a plurality of siphons which act successively to discharge the contents of said tank, a plurality of floats, one associated with each siphon, and means operated by the rise and fall of said floats for successively starting said siphons into action, embracing a traveling weight, the movement of which is controlled by said floats.



4. The combination with a liquid tank or receptacle, of a plurality of siphons for discharging the contents of the same, an air-pipe connected with each siphon, valves in said pipe, and a traveling weight adapted to severally actuate said valves in a predetermined relative order for successively starting the siphons into operation and thereby emptying said tank or receptacle.

5. An apparatus for the purpose set forth comprising a liquid tank or receptacle, a plurality of siphons for discharging the contents of the tank, mechanism for starting said siphons into operation, and an actuating-weight which travels from one siphon-actuating mechanism to the other.

6. The combination with a liquid tank or receptacle, of a plurality of siphons for discharging the contents of the same, a corresponding number of float-chambers, floats in said chambers which rise and fall with the rise and fall of the liquid in the receptacle, inclined troughs or track-sections connecting said chambers, a traveling weight which passes by gravity through said troughs or track-sections from one float-chamber to the other, said weight being lifted by said floats to the receiving ends of the several troughs or track-sections, an air-pipe connected with each siphon, a valve in each pipe, and a trip-lever projecting into the trough in the path of said moving weight and operatively connected with the valve.

708,091. ELECTRIC BELL. ALBERT F. SWINER, Ansonia, Conn., assignor to the Ansonia Electrical Company, Ansonia, Conn., a Corporation of Connecticut. Filed Feb. 21, 1902. Serial No. 86,089. (No model.)



Claim.—1. In an electric bell the combination with an armature-spring and circuit breaker frame, of a contact-spring provided with a contact-point, and an ordinary commercial screw arranged to support said contact-spring and also to regulate the adjustment of said contact-point relative to said armature-spring.

2. The approximately U-shaped contact-spring 18 having a contact-point 22, substantially as shown, for the purpose specified.

3. In an electric bell, the combination with a circuit-breaker frame having an arm provided with engaging lugs and an opening, of a core having a head, a coil-head having recesses to receive the lugs, and an insulating-sleeve lying between the core and the wall of the opening and having a flange lying between the circuit-breaker frame and the core-head.

4. In an electric bell, the combination with a circuit-breaker frame having an arm provided with engaging lugs, an opening, and a neck leading into said opening, of a core having a head, a coil-head having recesses to receive the lugs, and an insulating-sleeve lying between the core and the wall of the opening and having a flange lying between the circuit-breaker frame and the core-head, said neck permitting the core to pass but retaining the sleeve in the opening.

5. In an electric bell, the combination with a circuit-breaker frame having an arm provided with engaging lugs, and an opening, of a core having a head provided with an undercut groove, a coil-head having recesses to receive the lugs, and an insulating-sleeve lying between the core and the wall of the opening and having a flange lying between the circuit-breaker frame and the core-head, said flange when the coil-head and the core-head are pressed together being partly crowded into the undercut groove.

6. The circuit-breaker frame 19 having an arm 26 provided with lugs 25 and an opening 27, substantially as shown, for the purpose specified.

7. The combination with the frame and a terminal 24, of an insulating-washer having an extension and a flange surrounding the washer and the sides of the extension, a metal washer adapted to lie in the top of the insulating-washer and having a lip adapted to lie between the side flanges of the extension and a screw passing through the washers and engaging the frame to which the terminal is connected above the insulating-washer.

8. The insulating-washer 27 having an extension 26 and a flange surrounding the washer and the sides of the extension, substantially as shown, for the purpose specified.

9. In an electric bell, the combination with coil-heads having holes formed therein, said heads also having lips or extensions also having holes formed therein, of coils having their ends passed through said former holes and then passed backward through the holes of said lips or extensions and connected together on the inner sides of the coil-heads between the coils.

708,092. DAMPING APPARATUS. GEORGE BRADY, New York, N.Y. Filed Aug. 27, 1901. Serial No. 73,462. (No model.)



Claim.—1. A damping apparatus comprising an absorbent pad composed of strongly-compressed staple cotton antiseptized with peroxid of hydrogen, and a holder therefor.

2. A damping apparatus consisting of a receptacle, an absorbent pad occupying the lower portion of the receptacle, a removable cover member snugly fitting in the receptacle whereby it is enabled to exclude air from the interior thereof, and an absorbent pad carried at the inner side of the cover member; the said pads being each composed of strongly-compressed staple cotton antiseptized with peroxid of hydrogen.

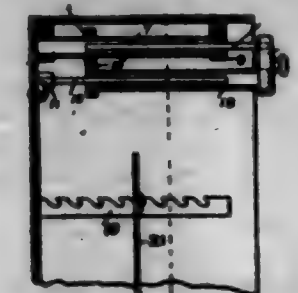
708,093. REEFER. ALGER STREET, Philadelphia, Pa. Filed Aug. 23, 1901. Serial No. 73,701. (No model.)



Claim.—A brush composed of three disks, screw-threaded holes formed through the center of said disk, a handle, a screw-threaded portion formed upon the end of the handle upon which the disks are adapted to be threaded, bristles adapted to be carried by each of said disks, the bristles of the outside disks adapted to project outward from the periphery of said disks and the outer face of the same, the bristles of the middle disk

adapted to project only out of the periphery of the same so that said bristles arranged in all three of the disks, when said disks are assembled, will form a spherical-shaped brush, substantially as and for the purpose specified.

708,094. GARMENT-HANGER FOR WARDROBES. Dr. PETER SWAN, Baltimore, Md. Filed June 22, 1901. Serial No. 84,481. (No model.)



Claim.—1. A garment-hanger comprising a fixed guide formed of upper and lower members mounted in juxtaposition, and a movable carrier also formed of upper and lower members having telescopic engagement with the members of said guide, as set forth.

2. A garment-hanger comprising a fixed guide formed of upper and lower members mounted in juxtaposition, a movable guide also formed of upper and lower members having telescopic engagement with the members of said guide, and means for limiting the outward movement of said movable guide, as set forth.

3. A garment-hanger comprising a fixed guide formed of a sleeve and a rod mounted in juxtaposition, and a movable carrier also comprising a sleeve and a rod arranged to have telescopic engagement with the members of said guide, as set forth.

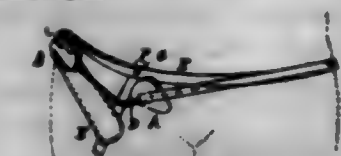
4. A garment-hanger comprising a fixed guide formed of a sleeve and a rod mounted in juxtaposition, a head of a casing having a handle and a sleeve and a rod mounted in juxtaposition in said head or casing and arranged to have telescopic engagement with the members of said guide, as set forth.

5. A garment-hanger comprising a fixed guide formed of a rod and a sleeve mounted in juxtaposition, a movable carrier also comprising a sleeve and a rod arranged to have telescopic engagement with the members of said guide, and means for limiting the outward movement of said guide, as set forth.

6. A garment-hanger comprising a fixed guide formed of a rod and a sleeve mounted in juxtaposition, a movable carrier also comprising a sleeve and a rod mounted in juxtaposition and arranged to have telescopic engagement with said guide and a collar carried by the sleeve of said carrier and arranged to slide on the sleeve of said guide, as set forth.

7. The combination with a receptacle of a fixed guide comprising two members secured in juxtaposition to one of the walls of said receptacle, a movable carrier also formed of two members and having telescopic engagement with said guide, rack-bars secured to opposite walls of said receptacle and parallel with said guide, and a follower adjustably mounted on said rack-bars, substantially as set forth.

708,095. HERBIAL TRUSS. GEORGE H. STEWART and ABRAHAM L. WINSTON, Tipton, Kans. Filed Mar. 14, 1902. Serial No. 84,881. (No model.)



Claim.—1. The combination with a pad and wire comprising the arch attached thereto, of a main body-strap connecting the pad and approximately the summit of the arch, and an auxiliary strap connecting the rear end of the arch and the main body-strap at the back.

2. The combination with a pad and wire comprising the arch attached thereto, of a main body-strap connecting the pad and approximately the summit of the arch, and a substantially vertical auxiliary strap connecting the rear end of the arch and the main body-strap.

3. The combination with a pad having the general form of a half-pair and having its upper outer corner cut away as shown giving the upper inner corner an abnormally-protruding effect so as to form a plug for the hernia; of a wire comprising the arch attached to the pad; a main body-strap connecting the pad and approximately the summit of the arch; and a substantially vertical auxiliary strap connecting the rear end of the arch and the main body-strap.

4. The combination with a pad having the general form of a half-pair and having its upper outer corner cut away as shown giving the up-

per inner corner an abnormally-protruding effect so as to form a plug for the horns; of a wire comprising the arch attached to the pad; a main body-strap connecting the pad and approximately the summit of the arch, and an auxiliary strap connecting the rear end of the arch and the main body-strap at the back.

5. In a hornal truss the combination with a pad having the general form of a half-pair and having its upper outer corner cut away as shown giving the upper inner corner an abnormally-protruding effect so as to form a plug for the horns; a recess and a groove in the outer surface of said pad and a hole in the bottom of the recess; a wire comprising the arch fitting in the groove, and having a U-bend fitting in the recess, the extreme end of the wire being bent inwardly into the hole in the bottom of the recess; a stud-screw whose shank is screwed into the pad between the legs of the U-bend and whose lower flange forms a retaining-plate for the U-bend; and means for holding the pad and arch on the body.

6. In a hornal truss, the combination with a pad having a recess in its outer surface, of a wire comprising the arch having a U-bend fitting in the recess, the extreme end of the wire being bent inwardly into the pad, and means for holding the U-bend in the recess.

7. In a truss the combination with a pad having a groove and recess in its outer surface; of a wire comprising the arch fitting in the groove and having a U-bend fitting in the recess; a screw-stud whose shank is screwed into the pad between the legs of the U-bend and whose lower flange forms a retaining-plate to hold the U-bend in the recess; the extreme end of the arch-wire being bent inwardly into the pad.

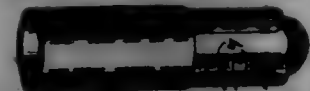
8. The combination with a pad having a groove and a recess in its outer surface; of a wire comprising the arch fitting in the groove and having a U-bend fitting in the recess, the extreme end of the wire being bent inwardly into the pad, and means for holding the U-bend in the recess; a stud on the pad; a main body-strap connecting the pad and approximately the summit of the arch, and an auxiliary strap connecting the rear end of the arch and the main body-strap at the back.

9. The combination with a pad having the general form of a half-pair and having its upper outer corner cut away as shown giving the upper inner corner an abnormally-protruding effect so as to form a plug for the horns; a recess and a groove in the outer surface of said pad; a wire comprising the arch fitting in the groove and having a U-bend fitting in the recess, the extreme end of the wire being bent inwardly into the pad; a stud-screw whose shank is screwed into the pad between the legs of said U-bend and whose lower flange forms a retaining-plate for the U-bend; a main body-strap connecting the pad and approximately the summit of the arch; and an auxiliary strap connecting the rear end of the arch and the main body-strap at the back; substantially as described.

708,096. PROCESS OF PREPARING LITHOGRAPHIC-PRINTING PLATES. OTTO C. SRENNER, Darmstadt, Germany. Filed July 6, 1901. Serial No. 67,170. (No specimen.)

Claim.—The process of preparing metal plates or alloys for lithographic printing and other purposes consisting in submitting the well-ground plates, which are provided with a lithographic design or transfer or the like, to the treatment of a solution which acts with acid and is acted upon by the metal used, and which is composed from a salt or salts the acids of which form insoluble compounds with the metal applied, and an oxidizing means, preferably nitrate of ammonium and an acid substance, which does not decompose the salts of the solution or set an acid free, forming thereby an insoluble hyposulphite layer firmly adherent to the plate of the metal or alloy, substantially as described.

708,097. MEASURING-GUP. JAMES H. STROVE, Portland, Me. Filed Nov. 15, 1891. Serial No. 23,621. (No model.)



Claim.—1. The combination with an open-ended vessel having at its lower end a stop or shoulder, a bottom or follower adapted to slide within the vessel, oppositely-disposed slides secured in the bottom or follower and bearing on indicating-cams having a notched edge for engagement with said stop, and a finger-piece connecting the lower ends of said slide, substantially as specified.

2. The combination with an open-ended vessel, of a bottom or follower adapted to slide within the vessel and in frictional contact with the inner wall of the vessel thereby to assist in retaining the parts in an adjusted position, one of said slides being provided with an indicating-cam, substantially as specified.

3. The combination with an open-ended vessel having at its lower end an inwardly-projecting stop-shoulder and provided with a locking-tongue, of a bottom or follower adapted to slide within the vessel, op-

positely-disposed slides secured to said bottom or follower, a finger-piece connecting the lower ends of the slides, there being on two of said slides an indicating-cam and a series of notches, the latter being adapted for engagement with the fixed tongue of the vessel.

708,098. WHEEL-DRAPERY. JAMES C. STURGE, Mount Pleasant, Iowa. Filed Feb. 4, 1902. Serial No. 22,022. (No model.)



Claim.—1. In a drapery of the class described, the combination with the axle and its carrying-wheel, the Johnson bar fastened on the axle, and the pan suspended from the overhanging end of the Johnson bar, of draft-irons united to the axle by a jointed connection which, on the application of the draft, tends to partially rotate the axle backwardly in the wheels and thus elevate the pan, substantially as described.

2. In a drapery of the class described, the combination with the arched axle and its carrying-wheel, the Johnson bar fastened on the ends of the axle, and the pan suspended from the overhanging end of the Johnson bar, of rigid projections on and extending forwardly of the axle substantially at a right angle to the ends of the axle, and draft-irons pivoted to the forward ends of said projections, substantially as and for the purpose described.

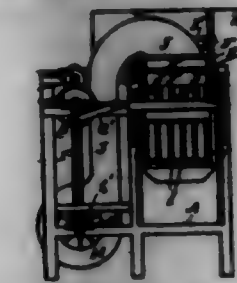
3. In a drapery of the class described, the combination with the arched axle and its carrying-wheel, the Johnson bar fastened on the ends of the axle, and the pan suspended from the overhanging end of the Johnson bar, of a pair of forwardly-projecting crank-arms keyed fast on the axle between the journals and the ends of the axle, respectively, and disposed at substantially a right angle to the ends of the axle, and a pair of draft-irons pivoted at their inner ends to the forward ends of said crank-arms, substantially as and for the purpose described.

4. In a drapery of the class described, the combination with the arched axle and its carrying-wheel, the Johnson bar fastened on the ends of the axle, and the pan suspended from the overhanging end of the Johnson bar, of a pair of crank-arms rigidly mounted on spaced portions of the axle lying between the journals and the ends thereof, respectively, and projecting forwardly substantially into the transverse plane of the points of suspension of the pan from the Johnson bar, and a pair of draft-irons pivoted at their inner ends to the forward ends of said crank-arms, the parts being so disposed that the application of the draft carries the crank-arms from an angular position relatively to the draft-irons into longitudinal alignment therewith, at the same time turning backward the axle in its bearings and elevating the pan.

5. In a drapery of the class described, the combination with the arched axle and its carrying-wheel, the Johnson bar fastened on the ends of the axle, and the pan suspended from the overhanging end of the Johnson bar, of a pair of crank-arms keyed fast on the axle between the journals and the ends thereof, respectively, and extending forwardly substantially parallel and co-extensive with the overhanging end of the Johnson bar, a pair of draft-irons pivoted at their inner ends to the forward ends of said crank-arms, a pair of draft-hooks pivoted to and depending from said draft-irons, cooperating catch-hooks on the pan, and means whereby said draft-hooks are automatically actuated by the movements of the Johnson bar and draft-irons, substantially as described.

6. In a drapery of the class described, the combination with the arched axle and its carrying-wheel, the Johnson bar fastened on the ends of the axle, and the pan suspended from the overhanging end of the Johnson bar, of a pair of crank-arms keyed fast on the axle between the journals and the ends thereof, respectively, and extending forwardly substantially parallel and co-extensive with the overhanging end of the Johnson bar, a pair of draft-irons pivoted at their inner ends to the forward ends of said crank-arms, a pair of draft-hooks pivoted to said draft-irons, and actuating-leads for said draft-hooks pivoted at their inner ends to the forward end of the Johnson bar and at their outer ends to the draft-hooks, substantially as described.

708,099. ONION-CLIPPING MACHINE. JAMES E. TAYLOR, Philadelphia, Pa. Filed Oct. 22, 1901. Serial No. 73,545. (No model.)



Claim.—1. The combination in an onion-clipping machine, of a trough or passage having the bottom thereof made of longitudinal bars, vibratory blades operating under said bars, mechanism operating said vibratory blades, and a blower or fan operating to force air downwardly through the bottom of said trough or passage, substantially as and for the purpose set forth.

2. The combination in an onion-clipping machine, of an inclined trough or passage having the bottom thereof made of longitudinal bars, vibratory blades operating under said bars, crank-and-pitman mechanism for operating said blades, oscillating wings in said trough or passage, mechanism for operating the same, and a blower or fan forcing air downwardly through the bottom of said trough or passage, substantially as and for the purpose set forth.

3. The combination in an onion-clipping machine, of an inclined trough or passage having the bottom thereof made of longitudinal bars with open spaces between them, transverse guides or ways under the ends thereof, transverse bars operating reciprocally in said guides or ways, longitudinal blades secured to said bars diagonally to the bars forming the bottom of the trough or passage, crank-and-pitman mechanism for actuating said reciprocating cross-bars and blades secured thereto, blower or fan mechanism forcing air downwardly through the bottom of said trough or passage, and a hopper at the upper end of said trough or passage, substantially as and for the purpose set forth.

4. The combination in an onion-clipping machine, of a frame, an inclined trough or passage mounted thereon having the bottom thereof made of longitudinal bars spaced apart from each other, longitudinally-reciprocating blades operating under and diagonally to the bars forming the bottom of the trough or passage, mechanism for operating said blades, a hopper at the upper end of said trough or passage, a longitudinally-barred screen at the lower end of said trough or passage, vibratory wings in said trough or passage, and a blower or fan for forcing air downwardly through the bottom of said trough or passage substantially as and for the purpose set forth.

708,100. MARRASING IMPLEMENT. JULIUS E. WARD, Chicago, Ill. Assignor to Victor Electric Company, a Corporation of Illinois. Filed Mar. 10, 1902. Serial No. 67,678. (No model.)



Claim.—1. In a marrasing implement, the combination of an electric motor, a cam on the motor-shaft and a vibrator engaging with said cam, substantially as described.

2. In a marrasing implement, the combination of an electric motor, a cam on the motor-shaft at one end of the motor, and a vibrator having a slotted and embracing said cam, substantially as described.

3. A marrasing implement comprising, in combination, an electric motor, a casing inclosing said motor and adapted to be carried with its contained mechanism in the hand of the operator, a cam on an end of the motor-shaft and a vibrator engaged by said cam, substantially as described.

4. In a marrasing implement, the combination of an electric motor having its field-magnet formed of two end poles with a metal bar connected between them and the armature journaled at the opposite ends of its shaft in said poles, a cam on one end of said shaft and a vibrator engaged by said cam, substantially as described.

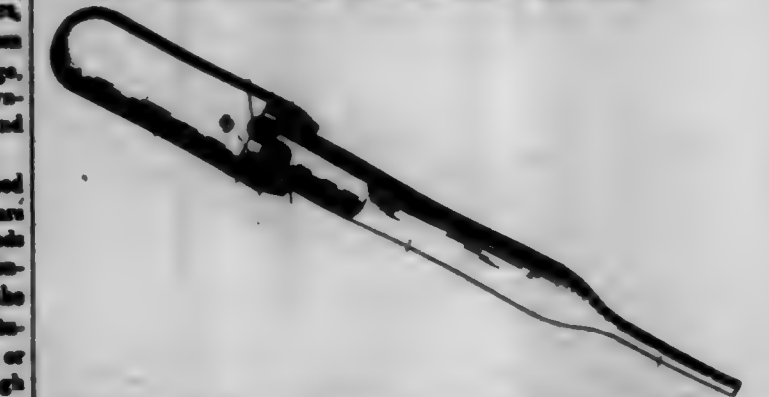
5. In a marrasing implement, the combination of an electric motor having its field-magnet formed of two end poles with a metal bar connected between them and the armature journaled at the opposite ends of its shaft in said poles, a cam on one end of said shaft and a vibrator engaged by said cam, substantially as described.

6. In a marrasing implement, the combination of an electric motor

having its field-magnet formed of two end poles connected by metal bars and the armature journaled at opposite ends of its shaft in said poles, a cam on one end of said shaft and a vibrator pivoted to the adjacent end of the motor and having a slotted and embracing and engaged by said cam, substantially as described.

7. A marrasing implement comprising, in combination, an electric motor having its field-magnet formed of two end poles connected by metal bars, the armature journaled at the opposite ends of its shaft in the cores of said poles, and the binding-post on one pole connected by a wire from one terminal with the opposite pole, which is in turn connected by a wire with the speed carrying said binding-post and with the other terminal of the latter, and a wire connection between each commutator-brush and a terminal on the binding-post, a cam on one end of said shaft, a vibrator engaged by said cam, and a casing inclosing the motor, the whole being adapted to be carried in the hand of the operator, substantially as described.

708,101. MEDICINE-DROPPER. WALTER F. WARE, Camden, N. J. Filed June 8, 1901. Serial No. 22,712. (No model.)



Claim.—1. The combination of a compressible nipple open at one end, an annular groove or recess formed on the interior of said nipple adjacent its open end, a valve-disk having flanges adapted to be seated in said annular recess, valves upon said disk and a tubular barrel having an annular flange on its upper end clamped snugly in the annular recess of the nipple against the lower margin of the valve-disk, substantially as described.

2. The combination of a compressible nipple, open at its lower end, a pair of annular ribs or flanges formed on the interior of said nipple adjacent its open end forming a recess between them, a valve-disk provided with two valves each opening in opposite directions, the margin of said disk being seated against the upper wall of the recess, and a tubular barrel having an annular flange on its upper end clamped in the recess below the valve-disk against said disk, substantially as described.

3. The combination of a compressible nipple, open at its lower end, a pair of annular ribs or flanges formed on the interior of said nipple adjacent its open end forming a recess between them, a valve-disk provided with two valves each opening in opposite directions, the upper margin of said disk being seated against the upper wall of the recess and connected thereto so as to become practically integral with the nipple, and a tubular barrel having an annular flange on its upper end adapted to be forced in the recess below the valve-disk said flange abutting the lower margin of the disk, substantially as described.

4. A compressible nipple or bulb for medicine-droppers, comprising a hollow bulb open at its lower end, an interior groove formed in said bulb adjacent its open end, a valve-disk having valves opening in opposite directions, the edges of said disk seated in the upper portion of the groove, and means for securing the said valve-disk in the groove, substantially as described.

708,102. ADVERTISING DEVICE. ALFRED WASHINGTON and MARSHALL STAMFORD, Chicago, Ill. Filed Aug. 14, 1901. Serial No. 73,121. (No model.)

Claim.—1. An advertising device of the character described and adapted for application to a pillar or like vertical support, the same comprising a series of vertically-disposed corner-posts, each of which has a pair of longitudinal front and rear grooves in each side thereof, a series of vertically-slidable plates each provided with transverse double oblongways at suitably-spaced intervals on its outer face, a series of horizontally-slidable cards containing the advertising matter to be displayed engaging at their top and bottom edges the oblongways of the plates, and a series of transparent panels of like dimensions to the said plates, each slidably engaging by its side margins the front grooves of adjacent corner-posts, said plates and their contained cards engaging by their vertical margins the rear grooves of the corner-posts, all substantially as and for the purpose described.

2. In an advertising device, a sign-holder panel, the same comprising a pair of vertical side supports each provided on that side which is nearest the other with front and rear longitudinal grooves, a plate provided with a series of transverse card-supports and vertically slidable within and between the rear grooves of said supports, a transparent plate also vertically slidable within and between the front grooves of said supports, and top and bottom transverse members uniting said vertical supports to form a rigid frame, substantially as described.



3. In a sign-holder panel for advertising devices, the combination with a plate adapted to receive thereon a series of cards or the like containing advertising matter, of a series of transverse card-supports applied to the outer face of said plate, each of said supports comprising a sheet-metal plate bent and doubled lengthwise thereof so as to present a T shape in cross-section and thus constitute a double slide-way for the cards, and a series of pins passing through the outer face of each of said supports and between the overlying inwardly-bent inner edge portions thereof and securing the same to the plate, substantially as described.

708,108. SYRINGE-NOZZLE. HENRY H. WHEAT, Canton, Ohio.
Filed Mar. 14, 1902. Serial No. 98,343. (No model.)



Claim.—1. In a syringe, a valve-case, a valve normally held on a seat in said case, a stem projecting from said valve, an elastic disk attached by its rim in said case, there being an aperture in said disk, and a spout located in said aperture and attached to said disk and having its inner end beveled around the rim and of said valve-case.

2. In a syringe, a valve-case, an elastic disk attached by its rim in said case, there being an aperture in said disk, a spout located in said aperture, and a valve in said case adapted to be opened by movement of the inner end of said spout.

708,104. CHLORINATED METHYL-ETHER OF MENTHOL.
EDGAR WINTER, THUNDERBOLT, Germany. Filed Feb. 25, 1902. Serial No. 98,344. (Specimens.)

Claim.—As a new article of manufacture the improved product heretofore described being a chlorinated methyl-ether of menthol corresponding to the formula $C_{10}H_{17}OCH_2Cl$ and being a yellow oily liquid of peculiar pungent odor, of specific gravity about 0.9631, insoluble in water and alcohol and readily soluble in ether and chloroform.

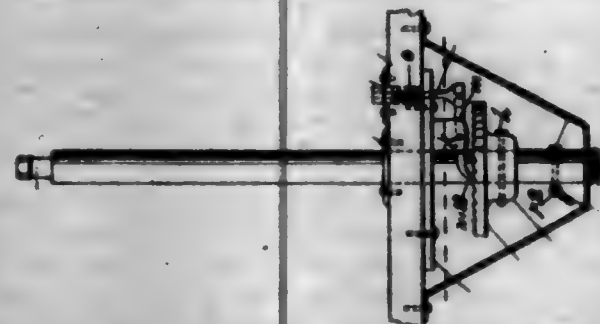
708,105. BLUE WOOL-DYE AND PROCESS OF MAKING SAME.
ARTHUR WINTER, Frankfurt-on-the-Main, Germany, assignor to Leopold Cassella & Co., Frankfurt-on-the-Main, Germany. Filed Jan. 14, 1902. Serial No. 98,345. (Specimens.)

Claim.—1. The process of producing fast-blue coloring-matter by combining p. diametro-o-chlorobenzene with 1.8. dixynaphthalene 3.6.

dioxynaphthalene, reducing the nitro group and treating the resulting product with alkylating agents substantially as described.

2. The blue coloring-matter above described which is a blackish-blue powder, easily soluble in water with a bright-blue color turning to charcoal by addition of alkalis, being precipitated from its aqueous solution by mineral acids in shape of red flakes, dissolving in strong sulfuric acid with reddish-violet color and dyeing wool fast-blue shades substantially as described.

708,106. BRAKE-OPERATING DEVICE. MILTON G. WIGG, Babylon, N. Y. Filed Sept. 24, 1901. Serial No. 78,302. (No model.)



Claim.—A brake-operating device, comprising a vertically-arranged spindle or shaft which passes through the platform of a car or other vehicle, a ratchet-wheel secured on said spindle or shaft below said platform, a lever pivotally supported over said ratchet-wheel and adapted to engage therewith and a spring-operated rod pivotally connected with said lever and passing upwardly through the platform and adapted to be depressed, said spindle or shaft being also provided below said ratchet-wheel with means for connecting a flexible brake-operating device therewith.

708,107. SYRINGE-NOZZLE. CHARLES S. WOOD, Chicago, Ill.
Filed Jan. 10, 1902. Serial No. 98,346. (No model.)



Claim.—1. In a syringe-nozzle, the combination of a tube a button on the delivery end of the tube and a sponge on the tube, each tube extending entirely through the sponge and each sponge secured at the delivery end of the tube in contact with the button; substantially as described.

2. In a syringe-nozzle the combination of a tube, each tube provided with a shoulder at one end thereof, a button on the tube in contact with the shoulder, means to force the button into close contact with the shoulder on the tube, and a sponge on the delivery end of the tube secured to the tube in contact with the button; substantially as described.

3. In a syringe-nozzle, the combination of a sponge, a tube extending entirely through said sponge, each tube provided with a flaring end and means for securing the sponge to the tube at the delivery end of each tube in contact with the flaring end thereof; substantially as described.

708,108. CAR-TRUCK. WILLIAM S. C. BAKER, Baltimore, Md.
Filed Jan. 14, 1902. Serial No. 98,347. (No model.)

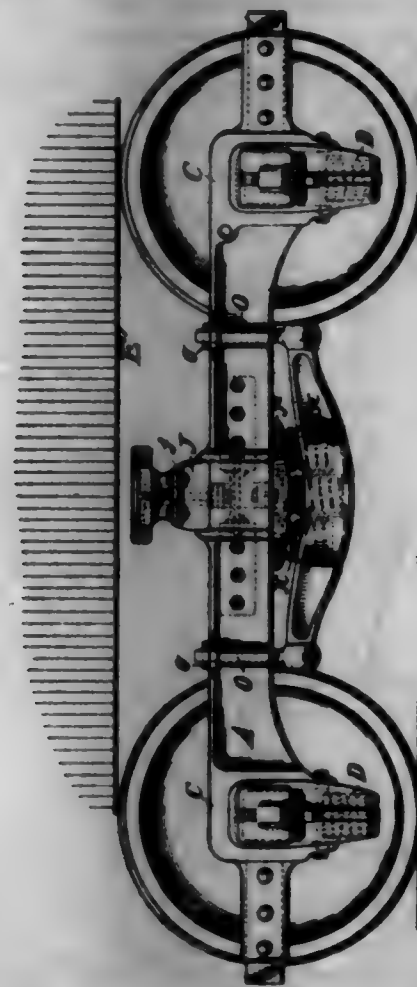
Claim.—1. The combination of a car-body and a center-bearing truck connected therewith, comprising side frames formed with axle-box pedestals and provided with cushioning-springs for the axle-boxes below said boxes, and lookout-beams secured to the car-body and extending over the axle-boxes back beyond said boxes and terminating close to the car-body.

2. The combination with the truck-frame, of the cringing truck-bolster, the laterally-moving bolster-supporting posts secured thereto, and passing through openings in the truck-frame, and spring-supports for the posts connected by laterally-moving links to the side frames of the truck.

3. The combination of the truck-frame, the truck-bolster, the bolster-supporting posts secured thereto, and passing through openings in the side frames of the truck, spring-supports for the posts, connected by links to the side frames of the truck, and braces connecting truck-bolster with the lower ends of the posts.

4. The combination of the truck-frame, the truck-bolster, the bolster-supporting posts secured at their upper ends to the truck-bolster, and formed with spring-seats at their lower ends, brace-rods connecting the lower ends of the posts with the middle portion of the truck-bolster, and spring-supports for the posts connected by links to the side frames of the truck.

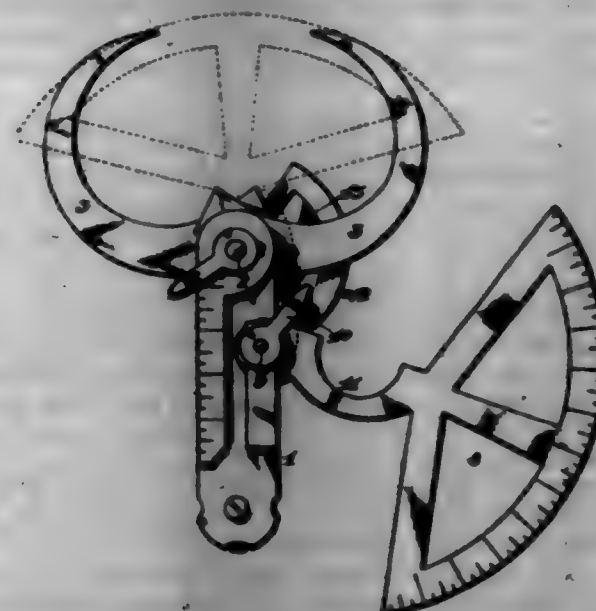
5. The bolster-supporting post herein described, provided at the top with a seat for the end of the truck-bolster, and at its lower end with a spring-seat and with an inwardly-projecting bracket to receive the end of a brace-rod.



6. The combination with the side frames of a truck, each formed with a recess to accommodate a bolster-supporting post, a casting secured to each side frame opposite said recess, cross-bars connecting the side frames near their middle portion, the truck-bolster, the bolster-supporting posts, springs for supporting said posts, and links connecting the springs to the side frames of the truck.

7. The combination with the side frames of the truck, of the truck-bolster, the bolster-supporting posts, the leaf-springs connected therewith and the links for connecting said springs with the side frames of the truck, each provided at its lower end with an opening to receive the end of the spring, and having a block seated in said opening for the purpose specified.

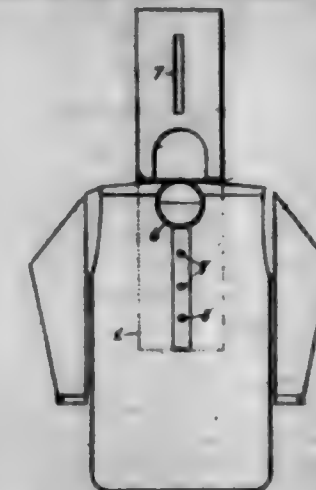
708,109. COMBINATION MEASURING INSTRUMENT. EDWARD BARR, Ravenna, Pa. Filed Feb. 15, 1902. Renewed May 2, 1902. Serial No. 100,922. (No model.)



Claim.—In a measuring instrument, the combination with the handle; of outside caliper-legs pivoted at one end thereof and adapted to be folded within the handle, and a segmental scale pivoted below said cal-

iper-legs and adapted to be swung in each position that the distance between the points of said caliper-legs may be determined, as set forth.

708,110. GARMENT-FOLDING DEVICE. JOHN H. BRENNEMAN, Troy, N. Y., assignor to the Firm of Bismarck Bros. & Co., Cohoes, N. Y. Filed Mar. 12, 1902. Serial No. 97,905. (No model.)



Claim.—1. A garment-folding form comprising connected front and back members adapted to receive between them portions of the body of the garment, one of said members being provided with a slot adapted to register with indicia on the garment when the form is properly applied thereto.

2. A garment-folding form comprising a pair of hinge-connected members adapted to receive between them the middle portion of the back and bosom of a garment, one of said members being provided near its hinged end with an aperture adapted to receive the neckband of the garment.

3. A garment-folding form comprising a pair of hinge-connected members adapted to receive between them portions of the back and bosom of a garment, one of said members being provided with a longitudinal slot adapted to register with and receive the buttons on the front of the garment, and adjacent to its hinge connection with an aperture adapted to receive the neckband of the garment.

708,111. EGG-SEPARATOR. CHARLES BUEHNAGH, BOWEN, N. J., assignor to Adolph Degerton, Jersey City, N. J. Filed Aug. 22, 1901. Serial No. 78,751. (No model.)



Claim.—1. An egg-separator comprising a perforated cup adapted to receive the yolk, and an inclined chute leading to and spaced from the cup, substantially as described.

2. An egg-separator comprising a cup adapted to receive the yolk and a chute leading to and spaced from the cup, substantially as described.

3. In an egg-separator, a cup adapted to receive the yolk and having an opening to discharge the same, a chute provided with shoulders or ridges adapted to receive the egg from the shell, the end of the chute being placed a distance from the cup, adapted to allow the white of the egg to be separated from the yolk, the yolk being discharged into the cup by reason of its greater specific gravity, while the white falls through the space between the chute and cup, substantially as described.

4. In an egg-separator, a cup adapted to receive the yolk, having an opening for the discharge of the yolk, a spout for directing the yolk to a suitable receptacle, a chute adapted to receive the egg from the shell, said chute directing the yolk to the cup but leaving an intervening space between the chute and cup to allow the discharge of the white and a receptacle to receive the white.

708,112. SAND-BOX. JOHN L. CROSBY, Providence, and EDWIN V. BERRY, Arlington, R. I. Filed Oct. 21, 1901. Serial No. 78,368. (No model.)

Claim.—1. A sand-box having a sliding bottom and a rod flexibly connected with the bottom and extending obliquely through the hopper, as described.

2. A sand-box having a sliding bottom and one or more rods flexibly connected with the sliding bottom and with the hopper by a sliding support, as described.



3. In a sand-box, the combination with the hopper 4, the discharge-spout 5, the sliding bottom 6, and means for operating the same, of the rods 13, the enlargements 13' on the rods, and the brackets 14, whereby the opening and closing of the sliding bottom moves the rods through the sand, as described.

4. The combination with the car 1, the wheel 2, the hopper 4, the discharge-spout 5, the sliding bottom 6, the rods 13 13', the enlargements 13' on the rods, and the brackets 14, of the rod 7, the abutment 8 on the car, the abutment 9 adjustable on the rod 7, the coiled spring 10, and means for operating the rod 7 to draw the sliding bottom outward against the force of the coiled spring, as described.

708,113. BOTTLE-STOPPER ATTACHMENT. HARRY A. CLARK, San Francisco, Cal., assignor of one-half to J. E. Daly, San Francisco, Cal. Filed Feb. 3, 1902. Serial No. 93,377. (No model.)

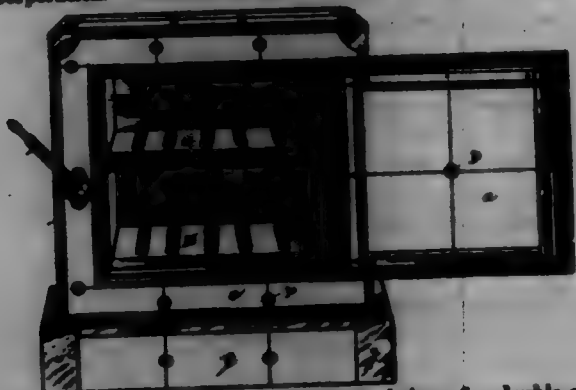


Claim.—1. The combination with a bottle-stopper, a link fitted thereto and extending down upon each side of the bottle, and a lever having one portion fulcrumed upon each side of the bottle and an intermediate portion loosely connected with the lower ends of the link, of a lever fulcrumed to the bottle and passing downwardly through, and adapted to bear outwardly against, the lower portion of the first-named lever, to raise the latter from its closed position against the bottle.

2. The combination with a bottle-stopper of a bent link extending therethrough and having interned lower ends, a curved lever partially surrounding the bottle-neck having loops in which the interned ends of the link are fitted, a wire surrounding the bottle-neck having loops in which the ends of the lever are turnable, and a supplemental lever fulcrumed to said wire and passing through and adapted to bear outwardly against the curved portion of the first-named lever to raise said lever from its closed position against the bottle-neck.

3. A bottle-stopper-releasing device consisting of a lever fulcrumed to the neck-band of the apparatus, extending downwardly from the stopper-holding-link actuating-lever, and having an outwardly-turned loop at its lower end.

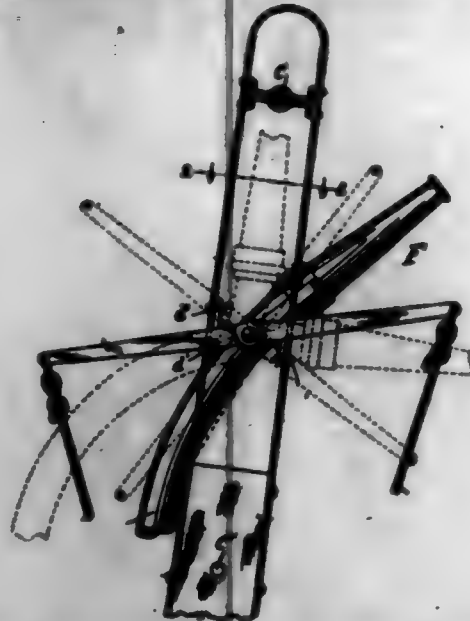
708,114. COAR-STORAGE CASE. JAMES E. CURWELL, Anderson, Ind., assignor to the Wilko Manufacturing Company, Anderson, Ind., a Corporation. Filed Feb. 26, 1902. Serial No. 95,628. (No model.)



Claim.—A tobacco-tempering case consisting of a double-wall the refrigerator the interior tile blocks of which are glazed on their exterior surface to be impervious to moisture, the interior surfaces of which are

well smoothed to present a uniform hygroscopic surface on the interior of the case, and a door also provided with tile blocks, adapted to register with said interior lining to form a continuous lining, effectually sealing the interior of the case against the admission of air.

708,115. COMBINED LADDER AND HOSE-NOZZLE-CONTROL-LING APPARATUS. JOHN COOK and ARTHUR S. EDGEMAN, Chicago, Ill. Filed Feb. 3, 1902. Serial No. 93,402. (No model.)



Claim.—1. In a combined ladder and hose-nozzle-controlling apparatus, the combination, with the side rail of a ladder, of a rung built up to constitute a double crank, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, and means to control the position of the double crank; substantially as described.

2. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rail of a ladder, of strap-iron extensions to each side rail, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, each crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, and means to control the position of the double crank; substantially as described.

3. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rail of a ladder, of strap-iron extensions to each side rail, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, each crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, drums around which the cables are wound and means to turn the drums in opposite directions; substantially as described.

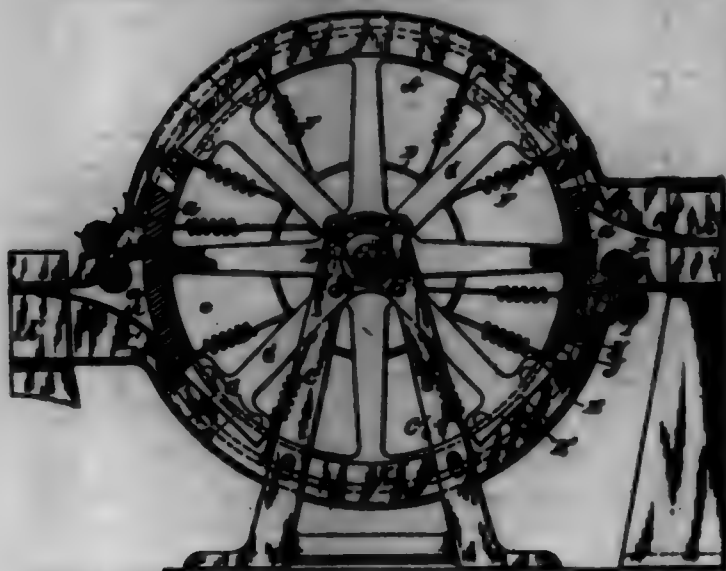
4. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rail of a ladder, of strap-iron extensions to each side rail, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, each crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums secured rigidly to the rotatable shaft, a connection between the drums whereby when one of the drums is turned in one direction the other drum is turned in the opposite direction and means to release the drums from their position relative to each other to permit a change in the relative position of the ladders; substantially as described.

5. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rail of a ladder, of a rung built up to constitute a double crank, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables at

tached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums secured rigidly to the rotatable shaft, gear-teeth on adjacent ends of the drums, a disk loosely mounted on the drum-shaft between the drums, gear-wheels rotatably mounted in the disk to intermesh with the gear-teeth on the ends of the drums, and means to hold the disk to prevent rotation thereof when desired; substantially as described.

6. In a combined ladder and base-nomble-controlling apparatus, the combination with the side rails of a ladder, of strap-iron extensions to each side rail, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, each crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, each strap and wrist of the crank fitting around the base-nomble and respectively provided with an aperture in which the spacer-pieces of the nomble fit, a lever attached to the crank-rung, cables attached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums secured rigidly to the rotatable shaft, gear-teeth on adjacent ends of the drums, a disk loosely mounted on the drum-shaft between the drums, gear-wheels rotatably mounted in the disk to intermesh with the gear-teeth on the ends of the drums, and means to hold the disk to prevent rotation thereof when desired; substantially as described.

708,116. MACHINE FOR WORKING AND SHAPING DOUGH.
WILLIAM E. CROSTY and CHARLES I. CROSTY, Washington, D. C. Filed
Mar. 11, 1898. Serial No. 571,038. (No model.)



Claim.—1. In a machine adapted to work dough, the combination of a wheel having a peripheral working face, a casing opposed to and substantially parallel with the said working face and constituting a pressure-board, the said casing being movable toward and from the said working face of the wheel, the framework in which the wheel is mounted provided with radiating arms *G* having expanded ends or heads which carry stops or bearings *G* against which the casing normally rests, and the springs which hold the casing against their bearings with a yielding force, substantially as set forth.

2. In a machine adapted to work dough, the combination of a wheel having a face constituting the advancing member of the dough passage-way, a casing opposed to the wheel and constituting the resistance member of the passage-way, and side walls for the passage-way, each side wall being in part movable and in part stationary, substantially as set forth.

3. In a machine adapted to work dough, the combination of a wheel having a face constituting the advancing member of the dough passage-way, a casing opposed to the wheel and constituting the resistance member of the passage-way, and side walls for the passage-way, each wall being part movable and connected with the wheel, and part stationary, substantially as set forth.

4. In a machine adapted to work dough, the combination of a wheel having a face constituting the advancing member of the dough passage-way, a casing opposed to the wheel and constituting the resistance member of the passage-way, and side walls for the passage-way, each wall consisting of flanges *K* at the edges of the wheel-face, and flanges *L* carried by the casing, and extending past the flanges *K*, substantially as set forth.

5. In a machine for working dough, the combination with a pressure-board, which constitutes one wall of a dough-passage, and means for advancing the dough through such passage, constituting the other wall

thereof, of means for forming the dough into sheets or thin masses, means for curling such dough masses, and a support for the dough masses over which they pass before they reach the curling means or the advancing means, substantially as set forth.

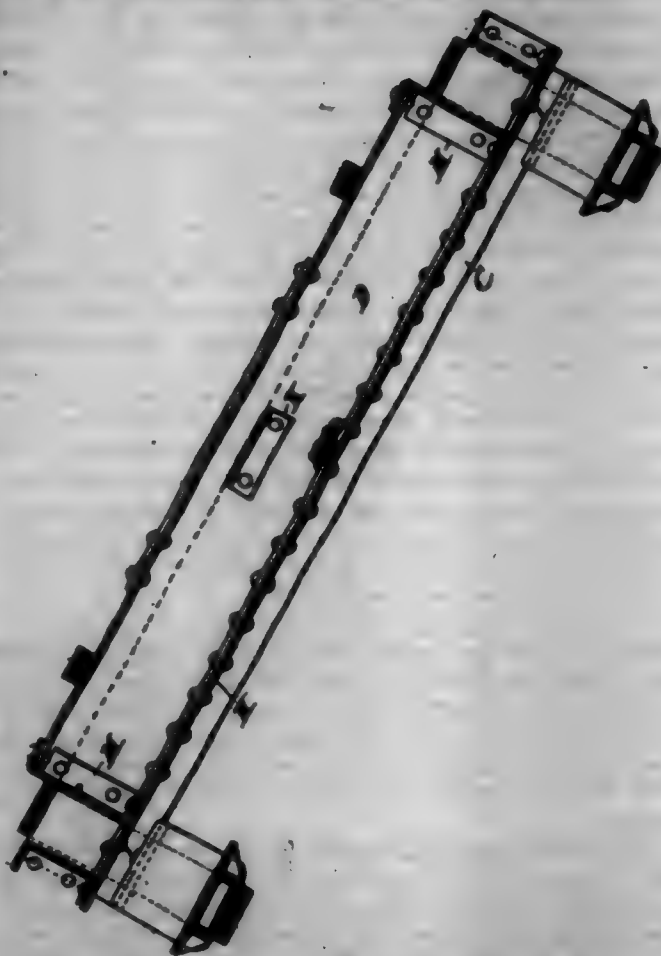
6. In a machine for working dough, the combination of a wheel having a dough-working face, and a casing opposed thereto and constituting a pressure-board, means for forming the dough masses into sheets, a curlier, and means independent of the said wheel for supporting the dough masses between the curlier and the dough-shooting means, substantially as set forth.

7. In a machine for working dough, the combination of a wheel having a peripheral dough-working face, a casing arranged opposite thereto and constituting a pressure-board, and being, at points intermediate its ends, movable toward and from the face of the wheel, rolls for flattening or shooting masses of dough, and a curlier situated below the said rolls, and between them and the face of the wheel whereby the curling action is begun before the wheel engages with the dough mass, substantially as set forth.

8. In a machine for working dough, the combination of a wheel having a peripheral dough-working face, a casing arranged opposite thereto, the casing being supported at points intermediate its length, and being, at such points, movable toward and from the face of the wheel, dough-shooting rollers, a curlier situated below the said rollers, whereby the dough sheets are fed from the rollers to the curlier by gravity, and supporting means interposed between the curlier and the said rollers for sustaining the dough sheets while the curling is being started, substantially as set forth.

9. In a machine for working dough, the combination of a wheel for advancing the dough, a casing arranged opposite the working face of the wheel, a feed-passage through which the dough masses are fed to the machine, and a curlier situated below the said feed-passage and between it and the face of the wheel, whereby the dough masses pass to the curlier by gravity and the curling operations begin before the wheel engages with the dough masses, substantially as set forth.

708,117. CAR-TRUCK BOLSTER. DANIEL C. COURTNEY, Wm. Va. Filed June 4, 1901. Serial No. 62,122. (No model.)

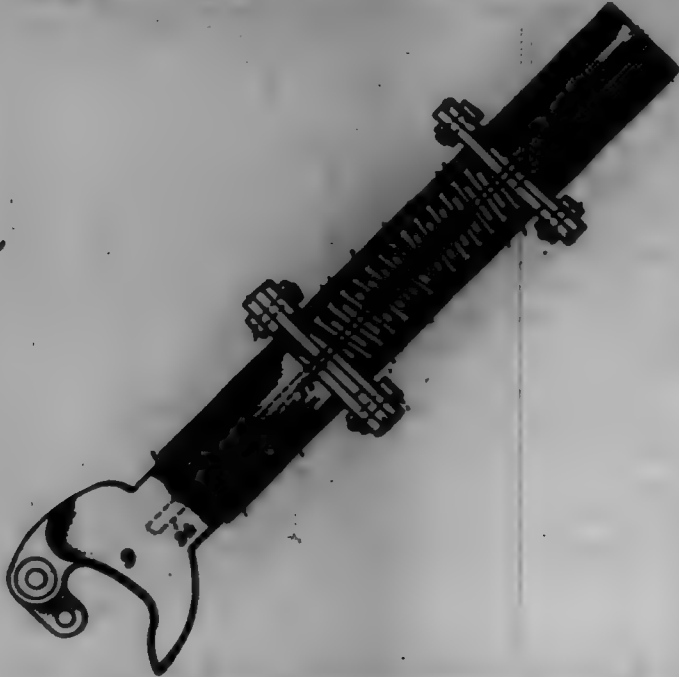


Claim.—1. A car-truck bolster comprising two flanged beams arranged parallel with their webs in vertical planes and each having top and bottom flanges; a plate riveted to the lower flanges of the beams and extending the entire length thereof; the under surface of the ends forming top bearings for springs, a top plate riveted to the top flanges at the center, and spacing-pieces uniting the beams at the ends; the top flanges and portions of the webs of the beams being cut away at the ends to allow the same to pass beneath the top arch-bars, and the vertical portions of

the webs being located adjacent the arch-bars and curving as steps to prevent the excessive endwise movements of the bolster in either direction.

2. The combination with a truck-frame having transverse C C and top arch-bars of a bolster comprising two flanged beams, a bottom plate, a top plate, and opening-pieces at the extreme ends; the said bolster being cut away at the ends and the top surface thereof being in a plane above the plane of the top arch-bars, whereby the bolster is held against endwise movements and the transverse C C serve as bearings for the bolster in its sidewise movements.

708,118. DRAFT-RIGGING. WILLIAM E. GALT, Iron Mountain, Mich. Filed Mar. 18, 1902. Serial No. 97,998. (No model.)



Claim.—1. In a draft-rigging, the combination of tubular telescoped support and draw-bar members, the latter member having an endwise movement upon the former member, and both members having front and rear pairs of corresponding slots, front and rear abutment-bars lying in the respective pairs of slots, and a spring housed within the inner member and bearing in opposite directions against the abutment-bars to normally hold the same at the outer ends of the slots.

2. In a draft-rigging, the combination with a fixed tubular casing having front and rear pairs of transversely-aligned slots, of a tubular draw-bar working within the casing and provided with pairs of front and rear slots normally corresponding to the slots in the casing, front and rear abutment-bars lying in the corresponding front and rear slots, and a spring housed within the draw-bar and bearing in opposite directions against the abutment-bars to hold the same at the outer ends of the slots.

3. In a draft-rigging, the combination of telescoped support and draw-bar members, of which the draw-bar member is tubular, and both members are provided with front and rear pairs of aligned slots, front and rear abutments lying in the respective pairs of slots, a pair of aligned helical springs located between and bearing in opposite directions against the respective abutments, and a plate interposed between the inner ends of the springs and provided with a stem projected in opposite directions therefrom and entering the respective springs.

4. In a draft-rigging, the combination of telescoped support and draw-bar members which are provided with front and rear pairs of aligned slots, pairs of headed abutments lying in the respective front and rear slots, the members of each pair being detachably connected and having their heads reversely arranged to lie exteriorly at opposite sides of the device to prevent endwise displacement of the abutments, and a spring located between the pairs of abutments and bearing in opposite directions thereagainst.

5. The combination of telescoped support and draw-bar members which are provided with front and rear pairs of transversely-aligned slots, pairs of headed abutments lying in the respective pairs of slots and projected beyond opposite sides of the device, the heads of the members of each pair of abutments being reversely arranged and lying exteriorly against the opposite sides of the device to prevent endwise displacement of the abutments, detachable fastenings connecting the ends of the members of each pair of abutments, and a spring lying between the pairs of abutments and bearing in opposite directions thereagainst.

6. In a draft-rigging, the combination with a casing having front and rear pairs of transversely-aligned slots, a tubular draw-bar working in the casing and having front and rear slots corresponding to the slots in the casing, pairs of headed abutments lying in the respective pairs of slots,

the members of each pair of abutments being reversely disposed with their heads lying exteriorly at opposite sides of the casing and overlapping the slots, detachable fastenings connecting the opposite ends of said members, front and rear helical springs within the draw-bar and between the abutments, and a plate interposed between the springs and having a stem projected in opposite directions therefrom and lying within the respective springs.

7. In a draft-rigging, the combination of a substantially tubular casing which is open at its front end, and is provided at its top with opposite longitudinal flanges for attachment to the underframing of a car, a tubular draw-bar working within the casing, the latter and the draw-bar being provided with front and rear pairs of transversely-aligned slots, front and rear abutments lying in the slots and movable with the draw-bar, and a spring housed within the draw-bar and between the abutments and bearing in opposite directions against the latter.

8. The combination with the center sills of a car-underframing, of a plate secured to the under edges of the sills and closing the space therebetween, a substantially tubular casing which is open throughout its top and its front end, and is provided at its top with opposite longitudinal flanges, which are fastened flat against the plate, whereby the latter closes the top of the casing, a tubular draw-bar working in the casing, the latter and the draw-bar having front and rear pairs of transversely-aligned longitudinal slots, front and rear abutments lying in the respective pairs of slots, and a spring located within the draw-bar and between the abutments and bearing in opposite directions against the latter.

9. The combination of a substantially tubular casing which is open at its front end and is provided at its top with opposite outwardly-directed longitudinal attaching-flanges, a tubular draw-bar working in the casing and having an open rear end, the casing and the draw-bar being provided with front and rear pairs of transversely-aligned longitudinal slots, front and rear pairs of headed abutments lying within the respective slots and projected at opposite sides of the casing, the members of each pair of abutments being reversely arranged with their heads lying exteriorly at opposite sides of the casing and overlapping the slots thereof, detachable fastenings connecting the opposite ends of said members, a pair of helical springs located within the draw-bar and between the abutments and bearing in opposite directions against the latter, and a plate interposed between the springs and having a central stem projected in opposite directions therefrom and entering the respective springs.

708,119. RAILWAY-TIE. ALLEN F. COOPER, Fulton, Mich. Filed Feb. 1, 1902. Serial No. 98,100. (No model.)



Claim.—1. In a composition railway-tie, the combination of a body portion A; fastening-plates C having keyhole-slots F therein; and plates D arranged in a vertical position, toward the ends of the said body portion; cables c securing said fastening and end plates together; trans-cables i securing said end plates together; trans-cables i secured toward the upper edge of one of said end plates, and passing under the fastening-plate nearest it, and over the fastening-plate on the opposite end, and secured to the lower edge of the opposite end plate, all embedded in said body portion; openings E in said body portion which register with the openings F in the fastening-plates C; bolts a adapted to be inserted in said openings and engage said plates C, and project above the face of said body portion, to secure the rail in position; and a wedge-block E to retain said bolts in position, all constituting for the purpose specified.

2. In a composition railway-tie, the combination of a body portion A; fastening-plates C having keyhole-slots F therein; and plates D arranged in a vertical position, toward the ends of the said body portion; cables c securing said fastening and end plates together; trans-cables i secured toward the upper edge of one of said end plates and passing under the fastening-plate nearest it, and over the fastening-plate on the opposite end, and secured to the lower edge of the opposite end plate, all embedded in said body portion; openings E in said body portion which register with the openings F in the fastening-plates C; bolts a adapted to be inserted in said openings and engage said plates C, and project above the face of said body portion, to secure the rail in position; and a wedge-block E to retain said bolts in position, all constituting for the purpose specified.

3. In a composition railway-tie, the combination of a body portion A; fastening-plates C having keyhole-slots F therein; and plates D arranged in a vertical position, toward the ends of the said body portion; cables c securing said fastening and end plates together; trans-cables i securing said end plates together; all embedded in said body portion; openings E in said body portion which register with the openings F in the

fastening-plates G; bolts a adapted to be inserted in said openings and engage said plates G, and project above the face of said body portion, to secure the rail in position; and a wedge-block E to retain said bolts in position, all constituting for the purpose specified.

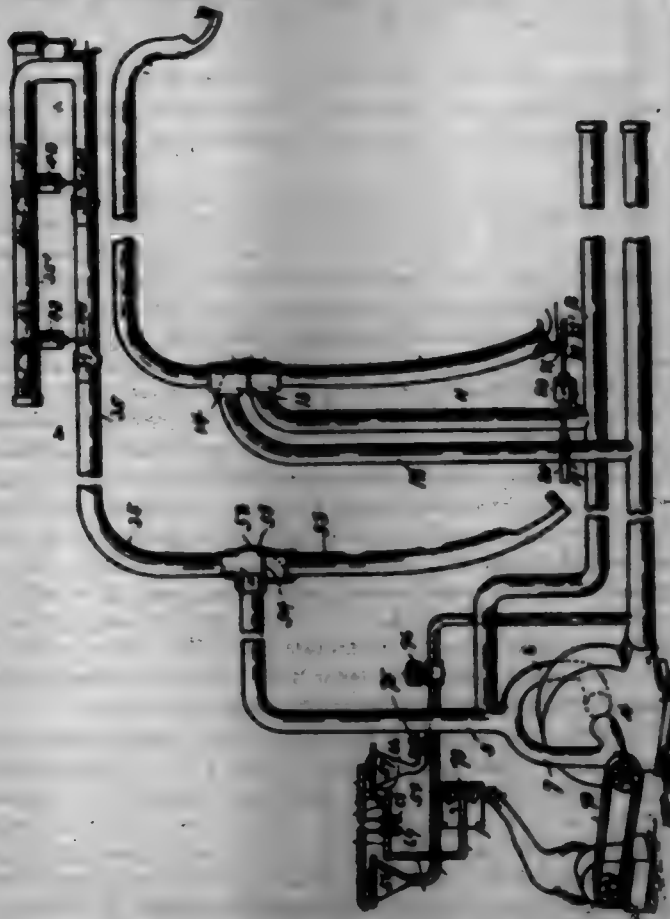
4. In a composition railway-tie, the combination of a body portion A; fastening-plates G having keyhole-slots F therein; cables c securing said fastening and end plates together, all embedded in said body portion; openings E in said body portion which register with the openings F in the fastening-plates G; bolts a adapted to be inserted in said openings and engage said plates G, and project above the face of said body portion, to secure the rail in position; and a wedge-block E to retain said bolts in position, all constituting for the purpose specified.

5. In a composition railway-tie, the combination of a body portion A; fastening-plates G having keyhole-slots F therein; all embedded in said body portion; openings E in said body portion which register with the openings F in the fastening-plates G; bolts a adapted to be inserted in said openings and engage said plates G, and project above the face of said body portion, to secure the rail in position; and a wedge-block E to retain said bolts in position, all constituting for the purpose specified.

6. In a composition railway-tie, the combination of a body portion A; fastening-plates having keyhole-slots embedded therein; cables c securing said plates together; openings in said body portion which register with slots in said fastening-plates; bolts adapted to be inserted in said openings and engage said plates and project above the face of said body portion to secure the rail in position and a wedge-piece to retain said bolts in position for the purpose specified.

7. In a composition railway-tie, the combination of a body portion A; fastening-plates having keyhole-slots embedded therein; openings in said body portion which register with slots in said fastening-plates; bolts adapted to be inserted in said openings and engage said plates and project above the face of said body portion to secure the rail in position; and a wedge-piece to retain said bolts in position, for the purpose specified.

708,180. PNEUMATIC-CARRIER SYSTEM. WILLIS W. DASHLEY, Chicago, Ill., assignor to American Pneumatic Service Company, Boston, Mass., a Corporation of Delaware. Filed July 20, 1900. Serial No. 25,346. (No model.)



Claim.—1. In a pneumatic-carrier system, the combination of a plenum side, a vacuum side, mechanism for maintaining the pressure in both sides and automatic governing devices arranged to control said pressure-supplying mechanism, whereby the operation of the latter is accelerated whenever the pressure falls below a determined point on either side.

2. In a pneumatic-carrier system, the combination of a plenum side, a vacuum side, a blower having its inlet connected with the vacuum side and its outlet discharging into the plenum side, a motor actuating said blower, a governor controlling said motor, and a pressure-actuated gov-

ernor connected with each side of the system and both adapted to act upon the motor-controller, substantially as described.

3. In a pneumatic-carrier system, the combination of a plenum side and vacuum side, and means for transferring a carrier from one side to the other during its travel.

4. In a pneumatic-carrier system, the combination of a plenum side, a vacuum side, and means for transferring a carrier from one side to the other during its travel, comprising intersecting passages, the delivery-passage of which is arranged to discharge the carrier into the receiving-passage in substantial alignment with the latter, and a valve adapted to be opened by impact of the carrier, normally forming a closure between the two sides.

5. In a pneumatic-carrier system, the combination of a transmitting-terminal operated by vacuum-pressure, a transmitting system into which said transmitting-terminal discharges operated by plenum-pressure, and a valve operated by impact interposed between the pressure and vacuum sides.

6. In a pneumatic-carrier system, the combination with a transmitting-pipe and a closure arranged to close the carrier-inlet thereof, of means operated automatically by the operation of sending the carrier for venting the transmitting-pipe for a limited period and during the transmission of the carrier through said pipe.

7. In a pneumatic-carrier system, the combination with a transmitting-pipe and a closure arranged to close the carrier-inlet thereof, of means operated by the opening of said closure for venting said transmitting-pipe, and a dash-pot acting to retard the return of said venting device to its normally closed position.

8. In a pneumatic-carrier system, the combination with a transmitting-pipe and a closure arranged to close the carrier-inlet thereof, of a return or branch pipe communicating with said transmitting-pipe, a vent in said communicating pipe, a closure controlling said vent, operative connections between the closure of the carrier-inlet and the vent-closure, whereby the latter will be opened with the former, and means acting automatically to delay the closing of the vent after a carrier has been inserted.

9. In a pneumatic-carrier system, the combination with a transmitting-pipe and a hinged closure arranged to close the carrier-inlet thereof, of a return or branch pipe communicating with said transmitting-pipe, a vent in said communicating pipe, a closure controlling said vent, a reciprocatory rod arranged to act upon said vent-closure to open the same, a crank-arm rigid with the hinged closure of the carrier-inlet operatively connected with said reciprocatory rod, and a dash-pot arranged to control the return reciprocation of said rod, substantially as described.

10. In a pneumatic-carrier system, the combination with a transmitting-pipe and a hinged closure arranged to close the carrier-inlet thereof, of a return or branch pipe communicating with said transmitting-pipe, a vent in said communicating pipe, a closure controlling said vent, a reciprocatory rod arranged to act upon said vent-closure to open the same, a crank-arm rigid with the hinged closure of the carrier-inlet operatively connected with said reciprocatory rod, and a dash-pot arranged to control the return reciprocation of said rod, the connections between said closure of the carrier-inlet and the reciprocatory rod being constructed to afford lost motion whereby the carrier-inlet closure is free to close independently of the movement of the vent-closure, substantially as described.

11. In a pneumatic-carrier system, the combination with a plenum side and a vacuum side, of a pressure-actuated mechanism connected with each of said sides, a weighted arm operatively connected with each pressure-actuated mechanism, a common arm upon which both of said weights are adapted to act and a pressure-supplying mechanism controlled by the movement of said common arm, substantially as described.

12. In a pneumatic conveyor, the combination of a conveying-tube, means for producing a movement of air therethrough, a normally closed admission-valve for the tube which may be opened to admit air, and a time-regulator connected with said valve and controlling its period of closing, said regulator operating independently of the pressure in the conveying-tube and independently of the means for producing said movement of air.

13. In a pneumatic conveyor, the combination of a conveying-tube, means for producing a movement of air therethrough, a normally closed admission-valve which may be opened to admit air, a time-regulator connected with said valve and controlling its period of closing, said regulator operating independently of the pressure in the conveying-tube, and independently of the means for producing said movement of air, and means for adjusting the period of action of said regulator.

14. In a pneumatic conveying apparatus, the combination of a conveying-tube, an air-supply pipe connected therewith, an outwardly-opening valve between the junction of said air-supply pipe with said conveying-tube and the discharging end of said conveying-tube, a valve for admitting air from said supply-pipe to said conveying-tube, and a time-regulator connected with said valve and controlling its period of closing,

said time-regulator operating independently of the pressure in said conveying-tube and air-supply pipe.

15. In a pneumatic conveying apparatus, the combination of a conveying-tube, an air-supply pipe connected therewith, an outwardly-sealing valve in said conveying-tube located between the junction of the air-supply pipe therewith and the dispatching end of the tube, a valve for admitting air from the supply-pipe to the conveying-tube, a time-regulator connected with said air-valve having a spring tending to keep the valve closed, said time-regulator operating independently of the pressure in said conveying-tube and in the air-supply pipe, and means for opening said air-valve and setting said time-regulator.

16. In a pneumatic conveying apparatus, the combination of a conveying-tube, an air-supply pipe connected with said tube, an outwardly-sealing valve located in said conveying-tube between the junction of the air-supply pipe therewith and the admission end of said conveying-tube, an air-valve for admitting air from said supply-pipe to the conveying-tube, an admission-door on the conveying-tube, and a time-regulator connected with and operating said air-valve and admission-door, said time-regulator operating independently of the pressure in the conveying-tube and in the air-supply pipe.

17. In a pneumatic conveying apparatus, the combination of a conveying-tube, means connected with the delivery end of said tube for reducing the pressure therein, a dispatching-door, means for closing said door and a time-regulator connected with said dispatching-door for controlling its period of closing.

18. In a pneumatic conveyor, the combination of an outgoing distributing-tube, an incoming collecting-tube, means for supplying pressure to the distributing-tube, and suction to the collecting-tube, a normally closed air-admission valve for said collecting-tube, and a time-regulator controlling the period of closing of said valve, said regulator operating independently of the pressure in said tube, and independently of the current-producing means.

19. In a pneumatic conveyor, a collecting-tube provided with a station intermediate of its length, and which is extended back from its extremity back to said intermediate station, a door at said intermediate station on the incoming or carrying portion of said collecting-tube, an air-admission valve on the backward extension of said collecting-tube connected with said door, means for controlling the period of closing of said air-admission valve, and means for applying suction to said air-collecting tube near its delivery end.

20. In a pneumatic conveyor, the combination of a plurality of distributing-tubes, a collecting-tube provided with an outlying loop-station and an intermediate station, said collecting-tube being extended from said loop-station back to said intermediate station, an air-admission valve connected with said collecting-tube at said loop, a door at said intermediate station on the incoming or carrying portion of said collecting-tube, an air-admission valve on said backward extension of said collecting-tube connected with said intermediate-station door, means for controlling the period of closing of said air-admission valve, and means for applying suction to said collecting-tube adjacent to its delivery end.

21. In a pneumatic conveyor, an air-compressor, a plurality of distributing-tubes connected with the high-pressure side of said compressor, valves controlling the admission of air from said compressor to said distributing-tubes, doors near the dispatching end of said distributing-tubes connected with said valves, a collecting-tube connected at its delivery end with the low-pressure side of said compressor, an inwardly-sealing valve near the delivery end of said collecting-tube, a plurality of dispatching-doors for said collecting-tube, and means for controlling the admission of air to said collecting-tube at the several stations.

22. In a pneumatic conveyor, the combination of a conveying-tube provided with a valve seating toward the admission end of the tube and adapted to be opened by a carrier, an air-supply pipe connected with said tube inside of said valve, and means for giving an initial impulse to the carrier whereby it is carried past said valve and into the path of the air-current from the air-supply pipe.

23. In a pneumatic conveyor, the combination of a conveying-tube provided with a valve seating toward the admission end of the tube and adapted to be opened by a carrier, an air-supply pipe connected with said tube inside of said valve, and means for producing an inward flow of air through the part of said conveying-tube between the admission end thereof and the said valve whereby an initial impulse is given to the carrier for carrying it past said valve and into the path of the air-current from said supply-pipe.

24. In a pneumatic conveyor, the combination with a conveying-tube, provided with a valve which seats toward the dispatching end of the tube, an exhaust-pipe connected with said tube between said valve and its dispatching end, an air-supply pipe connected with said tube inside of said valve and means supplying air to said air-supply pipe and producing suction in said exhaust-pipe whereby carrier inserted at the delivery end

of said tube are first carried past said valve by atmospheric pressure and then carried to their destination by the force of the compressed air.

25. In a pneumatic conveyor, the combination of an air-compressor, a distributing-tube provided with a dispatching-door and inside of said door with an outwardly-sealing valve capable of actuation by a carrier, an exhaust-pipe connecting said tube at a point between said valve and the dispatching-door with the low-pressure side of said compressor, an air-supply pipe joining said tube inside of said valve with the high-pressure side of said compressor, and a valve controlling the flow of compressed air through said air-supply pipe.

26. In a pneumatic conveyor, the combination of a distributing-tube provided with a dispatching-door and inside of said door with an outwardly-sealing valve, an exhaust-pipe joining said tube between said valve and the dispatching-door, an air-supply pipe joining said tube inside of said valve, a valve in said air-supply pipe connected with said dispatching-door, means for controlling the period of closing of said dispatching-door and air-valve, and means for supplying air to said air-supply pipe and for producing suction in said exhaust-pipe.

27. In a pneumatic conveyor, the combination of a compressor, a distributing-tube provided with a dispatching-door, and inside of said door with a valve which seats toward the door and is adapted to be opened by a carrier, an exhaust-pipe joining said tube between said valve and the door with the low-pressure side of said compressor, an air-supply pipe joining said tube inside of said valve with the high-pressure side of said compressor, a valve in said supply-pipe connected with said dispatching-door, a collecting-tube provided with a dispatching-door and adjacent to its delivery end with a valve which seats toward said delivery end and is adapted to be opened by a carrier, and an exhaust-pipe connecting said collecting-tube inside of said valve with the low-pressure side of said compressor.

28. In a pneumatic conveyor, the combination of a compressor, a conveying-tube connected at its end toward which the carrier moves with the said compressor, a normally closed dispatching-door for the conveying-tube, a valve in the conveying-tube which seats toward the dispatching end of the tube and is adapted to be opened by a carrier, and pressure-actuated means connected with the low-pressure side of the compressor for regulating the action of said compressor.

29. In a pneumatic conveyor, the combination of a compressor, a collecting-tube connected adjacent to its delivery end with the low-pressure side of said compressor, a valve adjacent to the delivery end of the collecting-tube, movable by a carrier, a normally closed dispatching-door in the collecting-tube, and pressure-actuated means connected with the low-pressure side of the compressor for regulating the action of said compressor.

30. In a pneumatic conveying apparatus, the combination of a compressor, a distributing-tube provided with a normally closed dispatching-door and inside of said door with an outwardly-sealing valve, an exhaust-pipe joining said tube between said valve and the dispatching-door with the low-pressure side of said compressor, an air-supply pipe joining said tube inside of said valve with the high-pressure side of said compressor, and pressure-actuated means connected with the low-pressure side of the compressor for regulating the action of the said compressor.

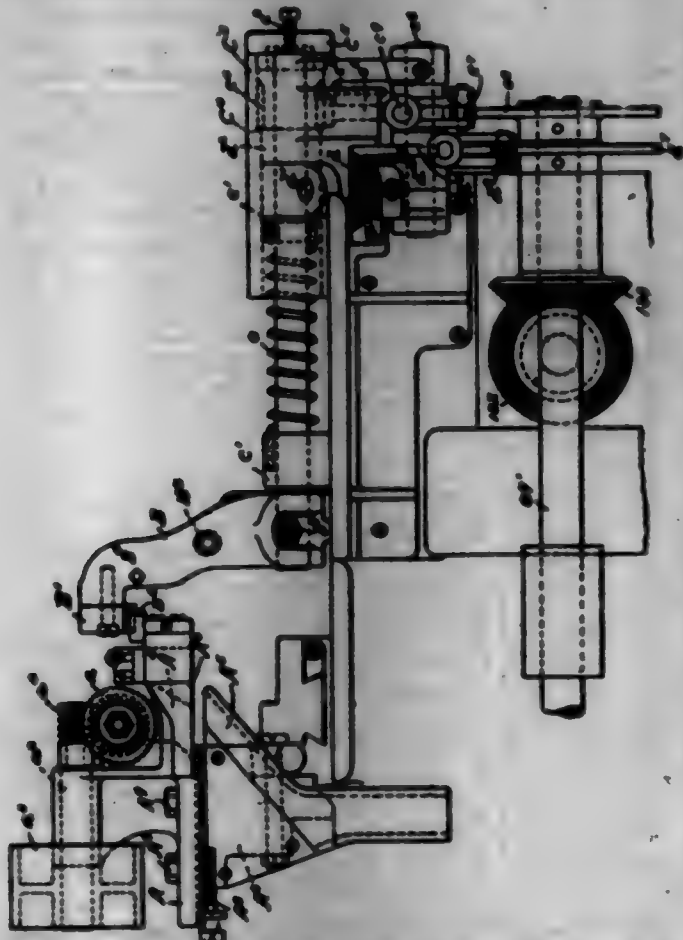
31. In a pneumatic conveying apparatus, the combination of a compressor, a distributing-tube provided with a normally closed dispatching-door and inside of said door with an outwardly-sealing valve, an exhaust-pipe joining said tube between the said valve and the dispatching-door with the low-pressure side of said compressor, an air-supply pipe joining said tube inside of said valve with the high-pressure side of said compressor, a collecting-tube connected with the exhaust side of said compressor, a normally closed dispatching-door for said collecting-tube, an inwardly-sealing valve at the delivery end of said collecting-tube and pressure-actuated means connected with the low-pressure side of said compressor for regulating the action of said compressor.

32. In a pneumatic conveying apparatus, the combination of a conveying-tube provided with a dispatching-door, a valve in said tube adapted to be opened by a carrier, and which opens away from the dispatching-door, an exhaust-pipe connected with said tube inside of said valve, means for closing said door embracing a time-regulator which operates independently of the pressure in said tube or in the exhaust-pipe and controls its period of closing and means producing suction in said exhaust-pipe.

708,121. SLOTTING MECHANISM FOR SCREW-MACHINES.
WILLIAM E. DAVENPORT, Providence, R. I., designer to Brown and Sharpe Manufacturing Company, Providence, R. I., a Corporation of Rhode Island. Filed May 28, 1908. Serial No. 12,212. (No model.)

Claim.—1. In a slotting mechanism for screw-machines, the combination with a slotting device of a carrier having a socket for supporting the article being formed, mechanism for moving the carrier to bring the socket in line with the article, advancing the carrier to bring the arti-

ole into the socket, moving the carrier directly into position in front of the slotting device, advancing the carrier to bring the article under the action of the slotting device and moving said carrier away from the slotting device, and an ejector acting during the backward movement of the carrier to eject the slotted article.



2. In a slotting mechanism for screw-machines, the combination with a slotting device, of an oscillating arm, means for oscillating said arm to a position in front of the chuck of the screw-machine, a socket in said arm for supporting the article being formed, means for advancing said arm to bring the article into the socket, means for swinging said arm directly into position to bring the article in line with the slotting device, means for advancing said arm to feed the article against the slotting device and means for retracting said arm.

3. In a slotting mechanism for screw-machines, the combination with a slotting device, of an oscillating arm, a socket therein for supporting the article being formed, a rock-shaft to which said arm is secured, means for rocking said shaft to swing the arm to a position in front of the chuck of the screw-machine, means for moving said shaft longitudinally when the socket is in line with the article being formed, means for swinging said arm directly into position to bring the article in line with the slotting device, and for advancing and retracting said shaft longitudinally when the socket registers with the slotting device.

4. In a slotting mechanism for screw-machines, the combination with a slotting device of a carrier, having means for supporting and carrying the article being formed, means for operating said carrier to present an article to the slotting device, means for retracting said carrier, and a stationary finger for ejecting the article from the carrier during its retracting movement.

5. In a slotting mechanism for screw-machines, the combination with a slotting device of a carrier, having a socket for the article being formed, a slot extending into said socket, an ejector arranged to pass through said slot as the carrier is retracted and means for retracting the carrier.

6. In a slotting mechanism for screw-machines, the combination with a slotting device of an oscillating carrier for presenting the article being formed to the slotting device, a rock-shaft to which said carrier is secured, a pinion keyed to said shaft, a segment engaging said pinion, a cam for operating said segment, a rack connected with said pinion, a pinion engaging said rack, and a cam connected to operate said pinion.

7. In a slotting mechanism for screw-machines, the combination with a slotting device of an oscillating carrier for presenting the article being formed to the slotting device, a rock-shaft to which said carrier is secured, means for rocking said shaft, a rack connected with said shaft, a pinion engaging said rack, a bevel-pinion connected to said pinion, a lever having a segment engaging said bevel-pinion and a cam for operating said lever.

8. In a slotting mechanism for screw-machines, the combination of

the carrier B, rock-shaft 5 to which said carrier is secured, spring c acting on said shaft, pinion c' connected with said shaft, lever c' having segment c' engaging pinion c', cam c', sleeve c' on said shaft, pinion d engaging teeth on said sleeve, pinion d' connected with pinion d, lever d' having segment d' engaging pinion d' and cam d'.

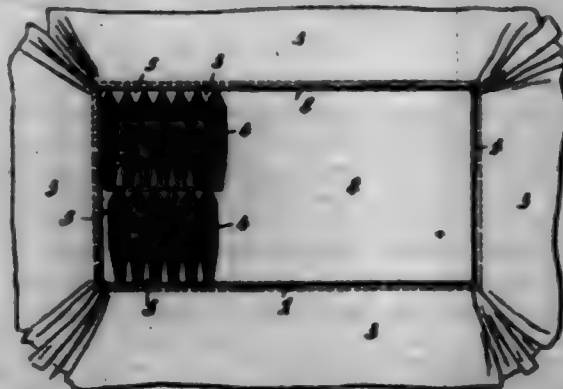
9. In a slotting mechanism for screw-machines, the combination with a slotting device, of a swinging carrier having a socket for supporting the article, an adjustable stop for determining the swing of the carrier, a rock-shaft on which said carrier is mounted, a lag on said carrier, a yoke secured to said shaft and having arms straddling said lag and a spring between one of said arms and said lag.

10. In a slotting mechanism for screw-machines, the combination with a saw a, of a carrier B, having a socket B' and a slot B' extending into said socket, an ejector-finger f and a chute A' into which the articles are discharged by the finger f.

11. In a slotting mechanism for screw-machines, the combination with a slotting device, of a carrier having a socket to receive the article being formed, means for moving said carrier to bring said socket in line with the article in the chuck of the screw-machine, means for advancing said carrier to bring the article into said socket, means for moving said carrier directly to a position to bring the article in line with the slotting device, means for advancing said carrier to feed the article against the slotting device, and means for retracting said carrier.

12. In a slotting mechanism for screw-machines, the combination with a slotting device, of a carrier having a socket to receive the article being formed, means for moving said carrier to bring said socket in line with the article in the chuck of the screw-machine, means for advancing said carrier to bring the article into said socket, means for moving said carrier directly to a position to bring the article in line with the slotting device, means for advancing said carrier to feed the article against the slotting device, a fixed ejector located in the path of the socket in the retracting movement of said carrier, and means for retracting said carrier and moving it past said fixed ejector from one side thereof to the other.

708,122. PROCESS OF DYING. GUYAVE DE KESSELARE, Brussels, Belgium. Filed Oct. 18, 1891. Serial No. 79,145. (No opposi-
tion.)



Claim.—1. The herein-described process of treating textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like with a treating liquid consisting in subjecting the material to the action of the treating liquid when embedded in a suitable pulverulent material.

2. The herein-described process of treating textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like with a treating liquid consisting in placing the material to be treated in a suitable pulverulent material, subjecting the textile material embedded in said pulverulent material to the action of the treating liquid, removing the textile material from the pulverulent material and finally washing the textile material.

3. The herein-described process of treating textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like with a treating liquid consisting in placing the material to be treated in a suitable box, filling up the interstices and channels between the cops or the like with suitable pulverulent material, then closing the box, causing the treating liquid to circulate through the pulverulent material and the textile material, and removing after the treatment the textile material from the pulverulent material in which it is embedded.

4. The herein-described process of treating textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like with a treating liquid consisting in placing the material to be treated in a suitable box, throwing a certain quantity of pulverulent material in the box, then directing a jet of water upon the said material whereby the said pulverulent material is carried into the interstices between the cops or the like, then closing the box containing the pulverulent material and the textile material, causing the treating liquid to circulate through the

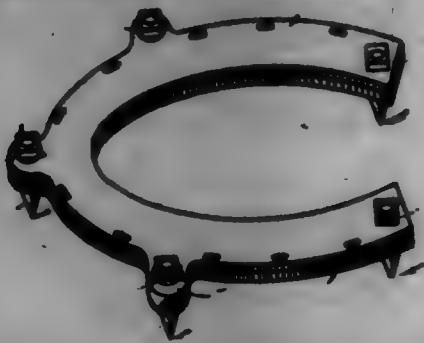
pulverulent material and the textile material, removing the textile material from the pulverulent material in which it is embedded and finally washing the textile material.

5. The herein-described process of dyeing textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like consisting in subjecting the textile material to the action of the dyeing liquid when embedded in a suitable pulverulent material.

6. The herein-described process of dyeing textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like consisting in subjecting the textile material to the action of the dyeing fluid after having filled the interstices between the cops or the like with sand, removing the textile material from the sand after dyeing and finally washing the dyed material in order to free it from any particles of sand which may have adhered.

7. The herein-described process of dyeing textile material such as cotton and wool on cops, bobbins, crossed bobbins, spindle-rolls and the like consisting in placing the cops or the like in a perforated box covered inside with a filtering fabric, throwing a certain quantity of sand in the box, directing a jet of water upon the said sand thereby causing it to fill up all the interstices between the cops or the like while the water flows off out of the box through the filtering fabric, closing the box, dyeing in the usual manner in a suitable dyeing-vat; removing the dyed cops or the like from the sand in which they are embedded and finally washing the textile material, substantially as described and for the purpose set forth.

708,128. DORRSHOE. JOHN DILLER, New York, N. Y. Filed Feb. 24, 1902. Serial No. 95,205. (No model.)



Claim.—1. A horseshoe comprising a member adapted for attachment to a hoof and having perforations therethrough, an elastic pad disposed against the under face of the member and having perforations aligned with the perforations of said member, a supplemental shoe disposed against the under face of the pad and having perforations aligning respectively with those of the first member and cushion, and means for holding said parts together, said means consisting of calks engaged slidably with the perforations and having retaining means engaged with their upper ends above the first member whereby the calks are slidably contained.

2. A horseshoe comprising a main member adapted for attachment to a hoof, an elastic pad disposed against the under face of said member and having a channel therein, a supplemental shoe disposed within the channel, said parts having aligning perforations, and means for holding said parts together, said means consisting of calks slidably engaged with the perforations and having nuts screwed on their upper ends above the main member whereby the calks are yieldably contained.

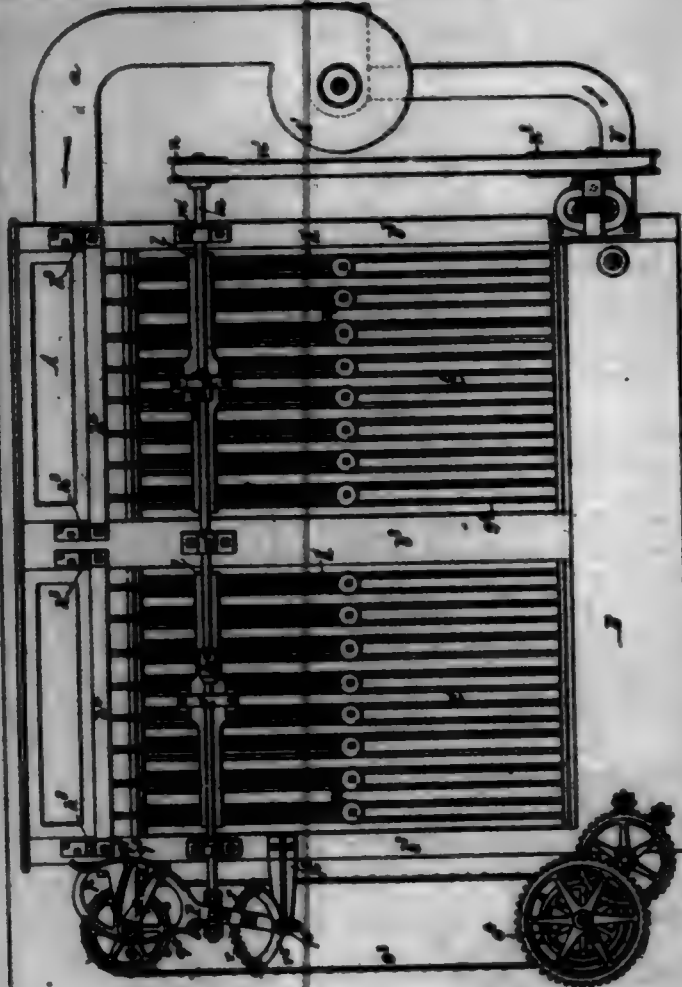
3. A horseshoe comprising a main member adapted for attachment to a hoof, an elastic pad disposed against the under face of said member and having a channel therein, a supplemental shoe disposed within the channel, and lying with its lower face above the lower face of the elastic pad, said parts having aligning perforations, and means for holding said parts together, said means consisting of calks slidably engaged with the perforations and having nuts screwed on their upper ends above the main member whereby the calks are yieldably contained.

708,124. DUST-COLLECTOR. PAUL BERNSTEIN, Jackson, Mich. Filed Mar. 23, 1902. Serial No. 9,992. (No model.)

Claim.—1. In a dust-collector, the combination of a filtering-chamber which is open at its upper and lower ends and which has an elastic front cloth spring to a bow shape and arranged with its concave side inwardly, a filter-cloth supported at the front of the chamber by said cloth, whereby the cloth is stretched, and a hammer arranged to strike the re-entrant portion of said cloth for jarring the cloth, substantially as set forth.

2. The combination of an upper chamber which receives the dust-laden air, a lower chamber which receives the separated dust, vertical, flat, filtering-chambers arranged side by side between said upper and lower chambers and communicating therewith at their upper and lower ends, a corresponding series of individual hammers adapted to strike the narrow upright side of each filtering-chamber separately, flexible arms to which

the hammer-heads are secured, and mechanism whereby said arms are actuated simultaneously, substantially as set forth.



3. The combination of an upper chamber which receives the dust-laden air, a lower chamber which receives the separated dust, vertical, flat, filtering-chambers arranged side by side between said upper and lower chambers and communicating therewith at their upper and lower ends, a cut-off device which temporarily shuts off the dust-laden air from said filtering-chambers, a series of individual hammers adapted to strike each filtering-chamber separately, flexible arms to which the hammer-heads are secured, and mechanism whereby said arms are actuated while the dust-laden air is shut off, substantially as set forth.

4. The combination with a series of filtering-chambers arranged side by side, of a corresponding series of individual hammer-heads adapted to strike each chamber separately, a corresponding series of flexible arms to which the hammer-heads are secured, a cross-bar connecting said arms between the supported ends of the latter and the hammer-heads, and an actuating device whereby said cross-bar is moved back and forth, thereby moving said arms and hammer-heads simultaneously, while said hammer-heads are also capable of individual movement by reason of the flexibility of said arms, substantially as set forth.

5. The combination with the filtering-chambers, of a series of individual hammers adapted to strike each chamber separately, means whereby the arms of said hammers are connected for simultaneous operation, a rotary shaft capable of longitudinal movement, an actuating device mounted on said shaft and adapted to be engaged with and disengaged from said connecting means by the longitudinal movement of said shaft, and means for shifting said shaft longitudinally, substantially as set forth.

6. The combination with the filtering-chambers, of a series of individual hammers adapted to strike each chamber separately, a cross-bar connecting the arms of said hammers and provided with a yoke, a rotary shaft capable of longitudinal movement, and an actuating-cam mounted on said shaft and adapted to be engaged with and disengaged from said yoke by the longitudinal movement of said shaft, substantially as set forth.

7. The combination with the filtering-chambers, their striking device, and the longitudinally-movable rotary shaft whereby the striking device is actuated, of a rocking shifting lever connected with said shaft for moving the same alternately in opposite directions and provided with two opposite actuating-faces, and a rotary crank which engages alternately with said faces and shifts said rocking lever from one side to the other and holds the lever in either position while traveling over the face of the lever, substantially as set forth.

8. The combination with the filtering-chambers, their striking device, and the longitudinally-movable rotary shaft whereby the striking device is actuated, of a rocking shifting lever connected with said shaft and provided with two opposite actuating-faces, a rotary crank which engages

alternately with said faces and shifts said lever from one side to the other, and righting-springs bearing against the lever and tending to hold the same in its central position, substantially as set forth.

9. The combination with two groups of filtering-chambers, their striking devices, and a longitudinally-movable rotary shaft provided with means whereby each striking device is actuated, of a rocking shifting lever connected with said shaft and provided with two opposite actuating-faces, and a rotary crank which engages alternately with said faces and shifts said lever from one side to the other, thereby alternately engaging one of said actuating means with the striking device and disengaging the other from its striking device, substantially as set forth.

10. The combination with two groups of filtering-chambers, their striking devices, and a longitudinally-movable shaft, of means whereby a continuous rotary movement is imparted to said shaft, a rocking shifting lever connected with said shaft for moving the same alternately in opposite directions, an actuating device whereby said shifting lever is alternately shifted from one side to the other, and cams for actuating said striking devices arranged on said shaft in such position that one of said cams is engaged with its striking device and the other is disengaged from its striking device by the longitudinal movement of the shaft, substantially as set forth.

11. The combination with an upper chamber which receives the dust-laden air, a lower chamber which receives the separated dust, and vertical filtering-chambers arranged between said upper and lower chambers and communicating therewith at their upper and lower ends, of a cut-off slide which controls the communication of one of said chambers with said filtering-chambers, a rotary arm for actuating said slide, and cams connected with said slide and adapted to be alternately engaged by said arm, thereby shifting the slide alternately from one position to the other and allowing the slide to remain at rest while the arm rotates from one cam to the other, substantially as set forth.

12. The combination with an upper chamber which receives the dust-laden air, a lower chamber which receives the separated dust, and vertical filtering-chambers arranged between said upper and lower chambers and communicating therewith at their upper and lower ends, of a cut-off slide which controls the communication of one of said chambers with said filtering-chambers, a guide-bar connected with the outer end of said slide and provided with two oppositely-arranged cams, a stationary guide device which engages with said bar, and a rotary arm which alternately engages said cams, substantially as set forth.

13. The combination with the upper chamber which receives the dust-laden air, the lower chamber which receives the separated dust, upright filtering-chambers arranged between said upper and lower chambers and communicating therewith at their upper and lower ends, a cut-off device which controls the communication of said upper chamber with said filtering-chambers, and the fan which propels the dust-laden air to said upper chamber, of a suction-passage connecting said lower chamber with the suction side of the fan, whereby a reverse air-current is drawn through the cloth of the filtering-chambers when the latter are cut off from said upper chamber, substantially as set forth.

708,125. MILK JAR OR BOTTLE. HENRY C. BROWN, Washington, D. C. Filed Sept. 20, 1901. Serial No. 78,904. (No model.)



Claim.—1. A bottle or jar having a dish-receiving seat formed upon the interior of the mouth thereof, and in the inner side of the wall of the mouth with a depression cutting through said seat and disposed below the same for the purpose substantially as set forth.

2. A bottle or jar having an annular dish-receiving seat formed upon

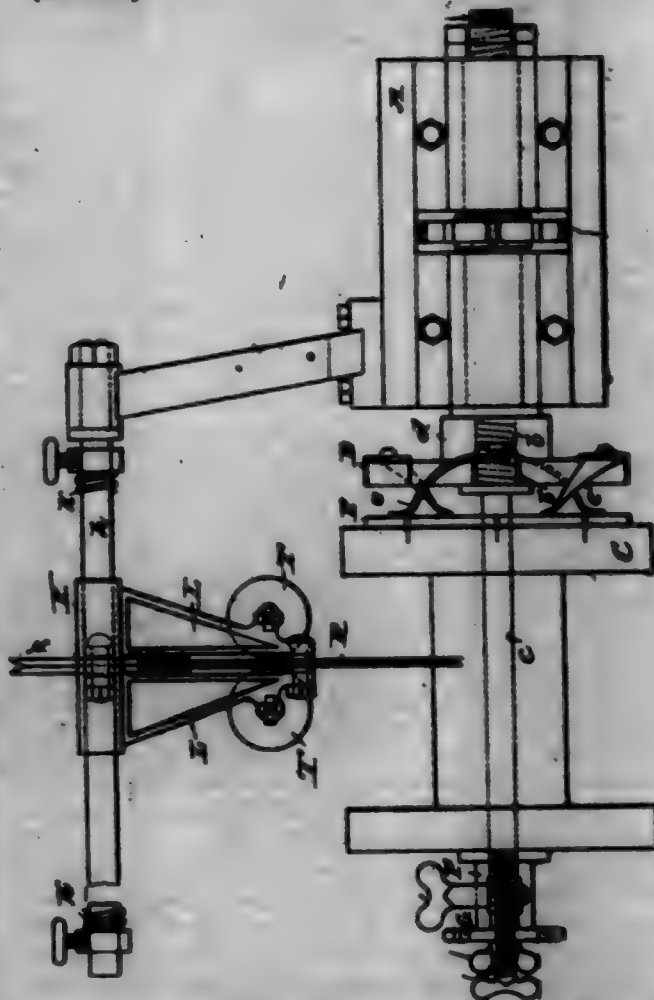
the interior of the mouth thereof, and a depression in the inner side of the wall of the mouth thereof, disposed below the seat, substantially as described.

3. A bottle or jar having an annular dish-receiving seat formed upon the interior of the mouth thereof, a depression cutting said seat and disposed below the same, and a depression formed in the upper edge of the mouth and extending inwardly to a point above said seat, substantially as described.

4. A jar or bottle formed with a horizontally-disposed annular seat upon the inner side of its mouth, and a recess having its upper end cut through said seat, and tapering at its lower end into the inner diameter of the mouth, substantially as described.

5. A bottle or jar having an annular dish-receiving seat formed upon the interior of the mouth thereof, a depression formed in the inner wall of said mouth and cutting the seat and extending below the same, and a depression formed in the upper edge of the mouth and extending inwardly to said seat, substantially as described.

708,126. METAL-WIRE-WINDING DEVICE. EDWARD E. FOWLER, New York, N. Y. Filed Aug. 10, 1900. Serial No. 22,671. (No model.)



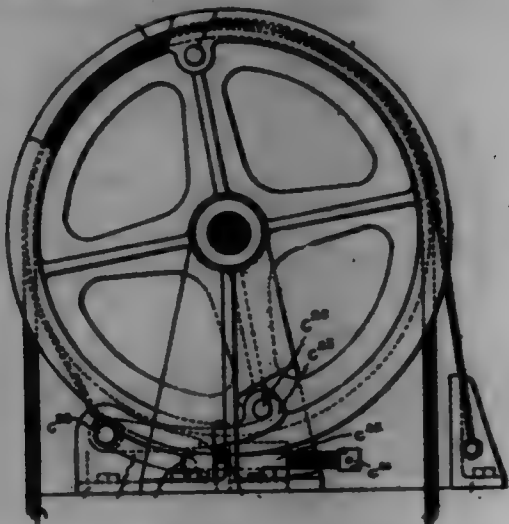
Claim.—1. A metal-wire-winding device which consists of a rotatable bobbin with means for rotating the same under proper tension and a carrier which consists of a sleeve loose upon a shaft, a horizontal arm for said carrier, a roller carried thereby and pressing upon the wire as laid on the bobbin, a vertical arm and a grooved pulley carried thereby; said carrier being adapted to supply wire to the bobbin and to be automatically operated by the side pressure of the wire during the winding process substantially as described.

2. The above-described carrier for metal-wire-winding machines which consists of a sleeve loosely mounted upon a shaft and provided with a horizontal arm, a pressure-roller carried thereby and means substantially as described, whereby said pressure-roller is kept in contact with the wire and holds the same down upon the bobbin during the winding process.

708,127. ELEVATOR. HERMAN HANFORD, Malden, Mass. Filed Aug. 20, 1901. Serial No. 72,748. (No model.)

Claim.—1. In combination with an elevator-car, air-cylinders secured in the upper part of the wellway, two elastically-moving pistons in said air-cylinders, suspended depending safety-ropes attached to said free moving pistons, a clatching device secured to the car for the purpose of grasping the elastically-suspended safety-ropes; an cushion rope attached to the clatching device which travels with the car and revolves a speed-

governor, the said governor, a brake-wheel, stop-pin in brake-wheel, a brake-wheel friction-band, and means connected to the brake-wheel band, said brake-wheel friction-band operated by the governor for the purpose of throwing the clutches into action by arresting the movement of the traveling endless rope; all arranged substantially as shown and for the purposes set forth.



2. In an elevator safety device in combination with an elevator-car, an air-cushioning device consisting of cylinders and pistons; safety-ropes elastically suspended from the pistons, clutches for grasping the said elastically-suspended safety-ropes, an endless traveling rope secured to the said clutches, a friction brake-wheel band, hooks attached to the said brake-wheel band, a brake-wheel, stop-pin in the brake-wheel adapted to be engaged by the hooks on the brake-band, a tension-adjusting screw for regulating the tension or pressure of the brake-wheel band on the endless rope attached to the clutches, and a speed-governor revolved by the endless rope; all arranged substantially as shown and for the purpose set forth.

3. The combination of a car, clutches including swinging arms on the car, an endless rope adapted to operate said arms, a brake-wheel driven by said rope, a friction brake-band around said wheel, stop-pin in said wheel and hooks and hook-shaft slidable in slots, said hooks being adapted to engage said pins, substantially as shown and described.

4. The combination of an elevator-car, the depending air-supported movable safety-ropes on each side, the clutches arranged to grasp the safety-ropes, an endless rope attached to the clutches through cross-shaft and arms, a hand-operated lever also attached to the cross-shaft, vertical rods connecting the overhead cross-shaft and the swinging clutch-arms, a brake-wheel, stop-pin on said wheel, a brake-band rigidly secured at one end, for retarding the movement of said endless rope, the other end arranged slidably in slots, hooks attached to said brake-band, and a governor for elevating said hooks till they engage with the stop-pins of the brake-wheel; substantially as shown and described.

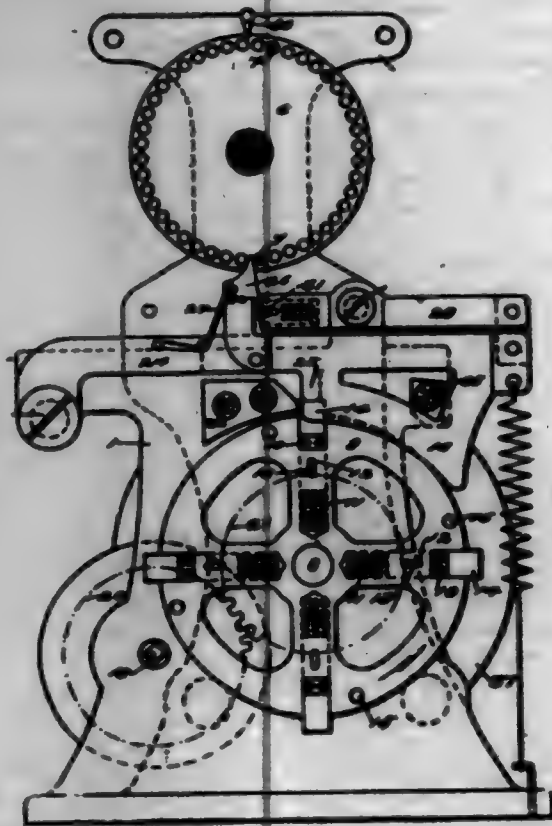
5. The combination of an elevator-car, the cylinders overhead, the pistons within said cylinders, the depending ropes on each side secured to the pistons of the air-cylinders at the top of the wellway and to the floor at the bottom of the elevator-well, simultaneously-acting clutches on each side of the car, an endless rope arranged to operate said clutches, a brake-wheel, a friction brake-band around the brake-wheel, an adjusting-screw for regulating the tension of the brake-band, stop-pin in the brake-wheel, and hooks on hook-shaft slidably mounted in slots for engaging the said stop-pins; substantially as shown and described.

6. In combination with a safety device herein described having air-cylinders and movable pistons, an automatically hoisting machinery stop mechanism, consisting, in proper relation, of a rope, a shaft, a weight on said rope resting on said shaft, the starting device, the said rope being attached to the piston within one of said cylinders and to the starting device of the hoisting machinery, the said rope being looped downward and passed through a pulley attached to said weight; substantially as shown and described.

708,128. ELECTRIC TIME-SWITCH. CLARENCE F. HEATH, Providence, R. I., assignor, by direct and cross assignments, to Charles R. Orr and John W. Bond, Providence, R. I. Filed Mar. 11, 1902. Serial No. 97,783. (No model.)

Claim.—1. In an automatic switch, the combination with a wheel of plungers mounted in the wheel and normally projecting beyond the face thereof, means for rotating said wheel, a lever-arm, pivotally mounted above the wheel, adapted to depress one of the plungers, a tripping-lever mounted upon the lever-arm and means operated by a clock for tripping the tripping-lever.

2. In an automatic switch, the combination with a wheel of spring-actuated plungers mounted in the wheel, and normally projecting beyond the face thereof, a shaft for rotating said wheel, a lever-arm pivotally mounted above the wheel adapted to depress one of the plungers, a stop upon the machine-frame in the path of the projecting portion of the plunger, and means operated by a clock for releasing the lever-arm.



3. In an automatic switch, the combination with a wheel, of spring-actuated plungers radially mounted in the wheel and normally projecting beyond the face thereof, a projection on the side of the wheel in advance of each plunger, acting on the wheel to rotate the same, a stop upon the machine-frame, a lever-arm pivotally mounted above the wheel adapted to depress one of the plungers, a lever-arm projecting downwardly from the lever-arm, and normally within the path of the said projection, and means operated by a clock for releasing the lever-arm as described.

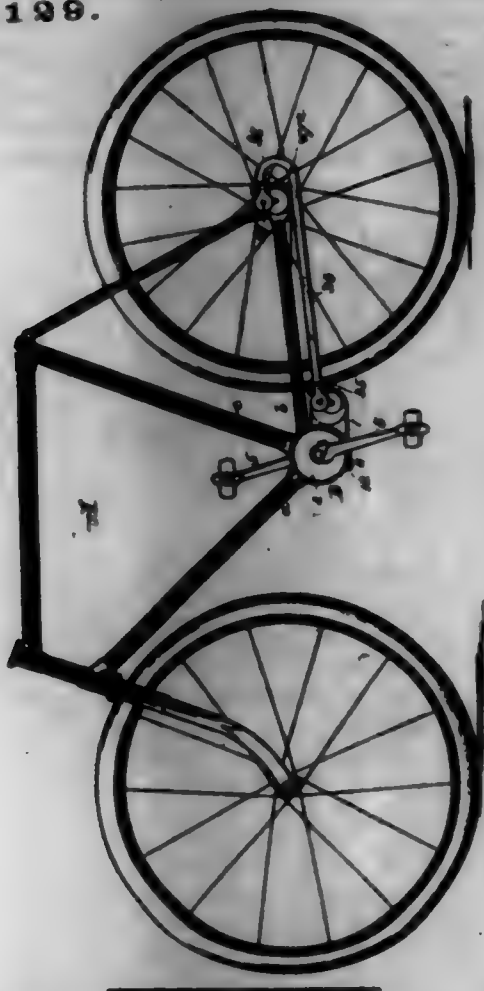
4. In an automatic switch, the combination with a wheel, of a spring-actuated plunger radially mounted in the wheel and normally projecting beyond the face thereof, a shaft for rotating said wheel, a stop upon the machine-frame in the path of the projecting portion of the plunger, a lever-arm pivotally mounted above the wheel adapted to depress one of the plungers, a spring upon the free end of the lever-arm ensuring a downward tension thereon, and means operated by a clock for releasing the lever-arm.

5. In an automatic switch, the combination with a frame, of a lever-arm pivoted at one end to the frame, a second lever fulcrumed to the frame above the lever-arm, a link connecting the outer ends of lever and lever-arm, a latch mounted in the free end of the lever, a tripping-lever pivoted to lever-arm, a shoulder on the tripping-lever for engaging with said latch, a revolving clock-dial actuated by clock mechanism, tripping-pin, in the rotating dial adapted to contact with the tripping-lever, spring means for forcing the lever-arm downward, a wheel mounted below the lever-arm, and a spring-actuated plunger in said wheel adapted to receive the impact of the lever-arm upon release of the tripping-lever.

708,129. BUTLER. JOHN B. HOWE and JOSEPH J. FREEMAN, Danbury, Conn. Filed Feb. 24, 1902. Serial No. 971,493. (No model.)

Claim.—The combination with a frame, a rear axle and crank-arms on said rear axle, of a cylindrical crank-hanger box having an elongated extension, removable heads secured into the ends of said cylindrical casing and having bearing-cups on their inner faces, a crank-shaft passing through holes in the respective heads of the cylindrical casing, integral cones on said crank-shaft, balls between said cones and the bearing-cups on the removable heads, a gear-wheel on the crank-shaft within the casing, two gears in the extension of the cylindrical casing and meshing with each other, one of said gears meshing with the gear-wheel in the cylindrical casing, bearings for balls secured to the extension of the casing, bearings for balls integral with said gears, cranks secured to one of said gears, cranks on the rear axle, and pinions connecting said cranks.

708,199.



708,180. GATE. OLAV R. JACOB, Reineb, Iowa. Filed May 8, 1901. Serial No. 32,334. (No model.)



Claim.—1. The combination with a supporting structure having a gateway, of a vertically-swinging gate movably mounted in the gateway and leaving an open space in the same, a lock for the gate, and operating means for the lock located in the open space of the gateway and movable transversely thereof.

2. The combination with a fence having a gateway, of a gate pivotally hung at its upper end in the gateway and leaving an open space in said gateway, a lock for the gate, and operating means for the lock located in the open space of the gateway and movable transversely of the fence.

3. The combination with a fence having a gateway, of a vertically-swinging gate pivotally hung at its upper end in the gateway and terminating short of the bottom thereof leaving an open space beneath said gate, a lock for the gate, and operating means for the lock located in the open space beneath the gate.

4. The combination with a fence having a gateway, of a vertically-swinging gate pivoted in the gateway and leaving an open space therein, locking means pivotally secured at the upper end of the gate, and an operating device for the locking means located in the open space of the gateway, and movable transversely of the fence.

5. The combination with a fence having a gateway, of a gate movably mounted in the gateway and leaving an open space beneath the same, locking means mounted independently of the gate and arranged in the path of movement thereof, and an operating device also mounted independently of the gate for moving the locking means out of operative position, said operating device being located in the open space beneath the gate and movable transversely of the fence.

6. The combination with a swinging gate, of a swinging panel lo-

calated adjacent to the gate and arranged to swing in the same direction, said panel being provided with means that engage the gate to lock said panel and gate against independent movement.

7. The combination with a vertically-swinging gate having an open space beneath the same, of a locking element normally located in the path of movement of the gate and coacting with the same to prevent its being opened, and an operating device connected to the locking element and located in the open space directly beneath the lower end of the gate.

8. The combination with a vertically-swinging gate having an open space beneath the same, of a vertically-swinging locking element normally located in the path of movement of the gate and coacting with the same to prevent its being opened, and an operating device connected to the locking element and located in the open space directly beneath the lower end of the gate.

9. The combination with a vertically-swinging gate, of a vertically-swinging locking-panel pivoted independently of the gate, and holding means carried by the gate and panel, said means engaging each other upon the movement of the gate toward the locking-panel, to hold said gate against being opened.

10. The combination with a vertically-swinging gate, of a vertically-swinging locking-panel pivoted independently of the gate, and carrying means arranged to engage the gate to hold the same against opening, said panel having an operating part located below the gate.

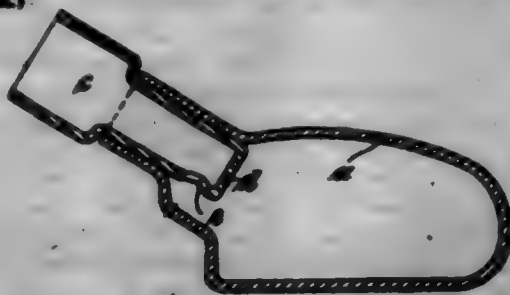
11. The combination with spaced standards, of a vertically-swinging gate pivoted at its upper end to the standards, and a vertically-swinging locking-panel also pivoted at its upper end to the standards, and having means for engaging the gate when the latter is swung in one direction to hold the same against being opened.

12. The combination with spaced standards, of a vertically-swinging gate pivoted at its upper end to one side of the standards, and a vertically-swinging locking-panel pivoted at its upper end to the side of the standards opposite the gate and interlocking devices carried by the gate and panel to hold the gate against being opened.

13. The combination with spaced standards, of a vertically-swinging gate having offset pivotal connections with the upper ends of the standards upon one side thereof, whereby it will normally hang at an inclination to said standards, a panel having offset pivotal connections with the standards upon the side opposite the gate, whereby said panel will also hang at an inclination to the standards and interlocking devices carried by the gate and panel to prevent the opening of the gate.

14. In a gate, the combination with spaced standards having transverse supporting-arms located at their upper ends, of a gate pivoted at its upper end to said arms on one side of the standards and having its lower end located a short distance above the ground or floor, a locking-panel hung at its upper end to the supporting-arms on the side of the standards opposite the gate, and having a transverse operating-roll at its lower end, said roll being located below the lower end of the gate, and catches carried by the locking-panel and engaging the gate upon its movement toward said locking-panel.

708,181. URINE-RECEPTACLE. EDWARD JAMME, Döber, Hildesheim, Germany. Filed Feb. 14, 1902. Serial No. 94,022. (No model.)

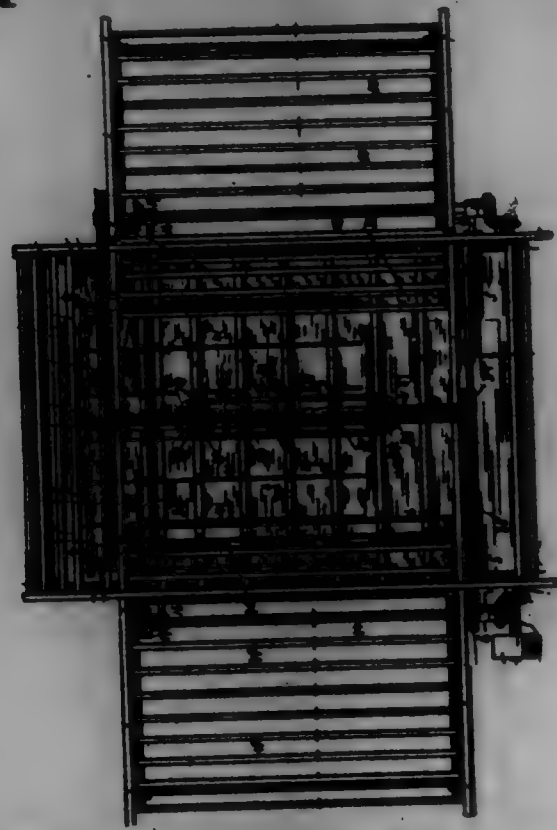


Claim.—1. A urine-receptacle having an interchangeable neck-stopper ground into the neck thereof, said stopper being tubular and closed at its lower end and provided with a side opening in proximity to the bottom, said opening when turned upward facing the side wall of the neck, but opening directly into the interior of the receptacle when directed downward, as set forth.

2. A urine-receptacle having a neck with a bulge and an interchangeable neck-stopper ground into the neck thereof and of tubular form closed at its lower end and provided with a side opening in proximity to said closed end, said opening when turned upward facing the side wall of the neck but opening directly into the interior of the bottle when turned downward opposite said bulge, as set forth.

708,182. HAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. AUGUSTUS JOHNSON, Falm, Kans. Filed May 31, 1901. Serial No. 62,927. (No model.)

Claim.—1. The combination of a conveyor, a scattering-grate disposed above the same and adapted for reciprocating movement, transversely-oscillating shafts having cranks supporting and connected by said grate, and means to impart reciprocating movement to the latter, and thereby impart oscillatory motion to said crank-shafts, substantially as described.



2. The combination of a conveyor, a scattering-grate disposed above the same, a head-cutting mechanism above said grate and a shaft-conveyor to convey sheaves to said head-cutting mechanism, the relative disposition of said cutting mechanism, grate and shaft-conveyor being such that the sheaves, while the bands thereof are being cut, are on said grate and between said cutting mechanism and shaft-conveyor, substantially as described.

3. The combination of a conveyor, a scattering-grate above the same, an endless traveling head-cutter, horizontally disposed above said grate, and a plurality of shaft-conveyors with their inner portions opposite the leads of said head-cutter, the relative disposition of said grate, head-cutter and shaft-conveyors being such that the sheaves, while the bands thereof are being cut are on said grate and between said head-cutter and shaft-conveyors, substantially as described.

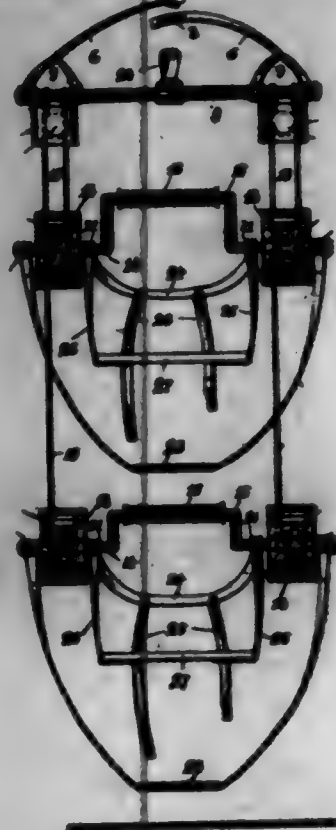
708,188. LIFE-SAVING APPARATUS. BLAKE J. JOHNSON, New York, N. Y. Filed Jan. 19, 1901. Serial No. 43,578. (No model.)

Claim.—1. A fire-escape apparatus, comprising a top bar, and means for suspending the same, two casings provided with pulleys and side compartments, said casings being open at the upper and lower ends, two crank-shafts provided with central cranks, and each of which is provided with a pair of casings loosely mounted thereon in each of which is a spool or drum, and ropes or cords passed around the pulley-wheels in the first-named casings, and around the top bar, one end of said ropes or cords being connected with the spools in one set of the crank-shaft casings, and the other end being connected with the spools in the other set of crank-shaft casings, substantially as shown and described.

2. A fire-escape apparatus, comprising a top bar, and means for suspending the same, two casings provided with pulleys and side compartments, said casings being open at the upper and lower ends, two crank-shafts provided with central cranks, and each of which is provided with a pair of casings loosely mounted thereon in each of which is a spool or drum, and ropes or cords passed around the pulley-wheels in the first-named casings, and around the top bar, one end of said ropes or cords being connected with the spools in one set of the crank-shaft casings, and the other end being connected with the spools in the other set of crank-shaft casings, said crank-shafts being also provided with supporting devices, substantially as shown and described.

3. A fire-escape apparatus, comprising a top bar, and means for suspending the same, two casings provided with pulleys and side compartments, said casings being open at the upper and lower ends, two crank-shafts provided with a pair of casings loosely mounted thereon in each of which is a spool or drum, and ropes or cords passed around the pulley-wheels in the first-named casings, and around the top bar, one end of said

ropes or cords being connected with the spools in one set of the crank-shaft casings, and the other end being connected with the spools in the other set of crank-shaft casings, said crank-shafts being also provided with supporting devices, consisting of straps, adapted to be hooked around the body, other straps supporting a seat and another strap or straps forming a support for the feet, substantially as shown and described.



708,184. TROLLEY. PHILIPAS F. KING, Cleveland, Ohio, assignor of one-half to Charles H. Tucker, Cleveland, Ohio. Filed July 22, 1901. Serial No. 60,306. (No model.)



Claim.—1. In a trolley, the combination of a wheel rigidly mounted on a hollow spindle, the upper halves of the journal-bearings for said spindle integral with the trolley-fork, the lower halves detachable therefrom, a lubricant-chamber in the upper halves of the journal-bearings and openings from said chamber to the spindle, substantially as specified.

2. In a trolley the combination of the wheel rigidly mounted on a spindle having an opening extending entirely through the center thereof, the upper halves of the journal-bearings for said spindle integral with the trolley-fork, the lower halves provided with tapered projections which fit into tapered slots in the said fork, means for securing the two halves together and means for lubricating said spindle, substantially as specified.

708,185. INSULATING ELECTRIC CONDUCTOR. IRVING KIMMEL, Philadelphia, Pa. Filed Apr. 17, 1902. Serial No. 156,457. (No model.)

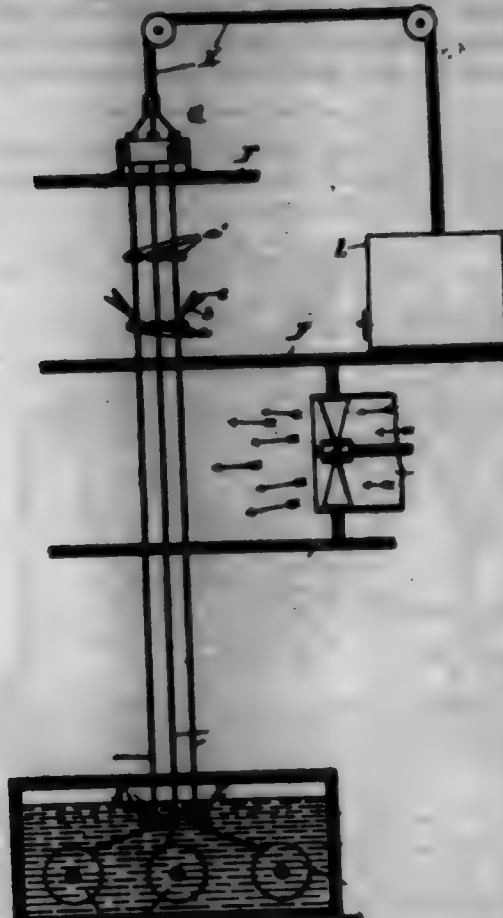
Claim.—1. The method of covering electric conductors which consists in coating said conductors with a cellulose solution containing sulfur or its compound and then curing or vulcanizing said coating.

2. The method of covering electric conductors which consists in coating said conductors with a compound containing dissolved cellulose and sulfur or its compound and then curing or vulcanizing the coating by the application of heat.

3. The method of covering wire which consists in passing it through a solution of dissolved cellulose and sulfur or its compound and then passing it through a temperature of a degree capable of melting said sulfur or its compound.

4. The process of insulating electric conductors which consists in the

following steps: first, coating the conductor with a solution containing a non-conducting compound; second, annealing the drying out of said coating through the application of a draft of air; third, compressing said coating, and, fourth, curing or vulcanizing said coating.



5. In the process of insulating electric conductors, the following steps to wit: first, coating said conductor with an insulating compound containing its solvent; second, compressing said coating left porous through evaporation of said solvent.

6. In the process of insulating electric conductors, the following steps to wit: first, coating said conductor with an insulating compound containing its solvent; second, providing the outer surface of said insulating-coating with a spray of sulfur; third, compressing said sulfur into the pores of said coating.

7. In the process of insulating electric conductors, the following steps to wit: first, coating said conductor with an insulating compound containing its solvent; second, providing the outer surface of said insulating-coating with a spray of sulfur; third, compressing said sulfur into the pores of said coating, and, fourth, curing or vulcanizing said coating with the aid of heat.

8. In the process of insulating electric conductors, the following steps to wit: first, coating said conductor with an insulating compound containing its solvent; second, providing the outer surface of said insulating-coating with a spray of sulfur; third, compressing said sulfur into the pores of said coating, and, fourth, curing or vulcanizing said coating with the aid of heat.

9. An electric cable consisting of a series of individual wires, insulated from each other by amorphous cellulose containing sulfur and cured or vulcanized with the aid of heat.

10. The process of insulating electric wires which consists in surrounding said wire with an insulating material containing its solvent, and after partially drying the same, subjecting it to pressure to decrease the porosity due to the evaporation of the solvent.

11. The process of insulating electric conductors, said process consisting in providing the conductor with an insulating material and providing the outer surface of said insulating material with sulfur.

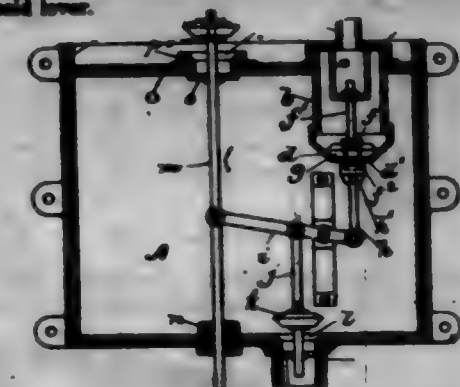
12. The process of insulating electric conductors which consists in surrounding the conductor with an insulating material and providing said insulating material with a spray of a second insulating material, said second material adapted to melt at a temperature not injuriously affecting the first insulating material.

13. As a new article of manufacture, an insulated wire consisting of the wire proper and an insulating-coating enveloping said wire, said insulating-coating consisting of amorphous cellulose, cured or vulcanized in the presence of sulfur with the aid of heat.

708,186. WATER-GLASSY PLUMBING TANK OR CISTERNE. ARTHUR KIMMEL, JR., Baltimore, Md. Filed Jan. 28, 1902. Serial No. 51,108. (No model.)

Claim.—1. The combination of a tank provided with an inlet and

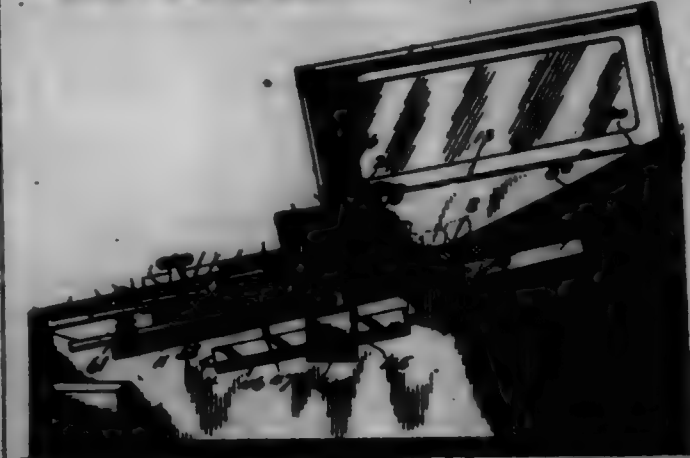
an outlet for water; a supply-valve governing said inlet, and comprising a main valve, and an auxiliary valve having a limited movement independent of said main valve; a discharge-valve adapted to govern the water-outlet; a lever adapted to move both the supply-valve and discharge-valve; an air-vent valve adapted to close the tank and make the same air-tight whereby the water flowing in the tank will compress the air at the upper part of said tank; and a connection between said air-vent valve and said lever.



2. The combination of a tank provided with a water-inlet and a water-outlet; a supply-valve for governing said water-inlet; a discharge-valve for governing said water-outlet; a lever connected to both of said valves and arranged to open one when it closes the other; an air-vent valve adapted to close the tank and make the same air-tight whereby the water flowing into the tank will compress the air at the upper part of the tank; and a connection between said air-vent valve and said lever adapted to close said air-vent valve when the supply-valve is open and the discharge-valve is closed, and adapted to open said air-vent valve when the supply-valve is closed and the discharge-valve is open.

3. The combination of a tank provided with an inlet and an outlet for water; a supply-valve for governing said inlet and comprising a ring valve, and a puppet-valve adapted to be seated on said ring valve and provided with a shank extending therethrough; a valve-rod rigidly secured to said shank and provided with a shoulder adapted to contact with said ring valve to raise the same; a lever having one arm connected to said ring valve to raise the same; a discharge-valve adapted to govern the water-outlet and provided with a shoulder adapted to contact with the other arm of said lever; an air-vent valve adapted to close the top of said tank; and a pull-rod carrying said air-vent valve and connected to the last-named arm of said lever and extending through the bottom of the tank.

708,187. VENDING-MACHINE. DALLAS KNOWLTON, Washington, D. C. Filed May 20, 1901. Serial No. 61,096. (No model.)



Claim.—1. The combination, in a cigar-vending machine, provided with a discharge-opening, of a movable cut-off having a delivery-opening adapted to be thrown into said cut-off of register with the hopper-discharge, and the said cut-off 9 located over the front edge of the hopper-discharge said cut-off being curved from its lower edge upwardly.

2. The combination, in a vending-machine, of a hopper having a discharge-opening, a sliding cut-off mounted thereunder and provided with a delivery-opening, a gage-board located immediately below said cut-off hinged at one end and provided with a discharge at one side of and out of register with the hopper-discharge, and means for vertically adjusting the free end of said gage-board.

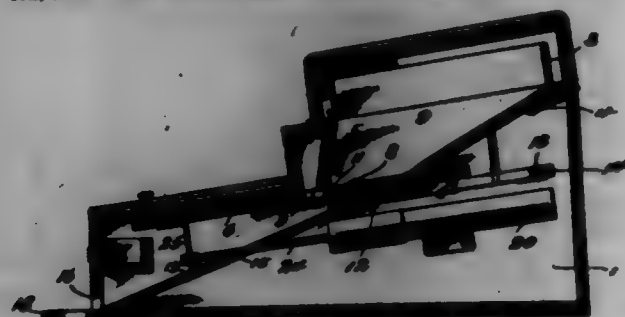
3. The combination, in a vending-machine, of a hopper having a discharge, a sliding cut-off arranged thereunder and provided with a delivery-opening, a gage-board having a discharge at one side of that of the hopper and having its rear and hinged to a support, and an adjusting-screw arranged in the gage-board and in the machine, whereby said gage-board is capable of being raised and lowered to increase or diminish the depth of the delivery-opening in the sliding cut-off.

4. The combination, in a vending-machine, of a hopper having a discharge, a sliding cut-off located thereunder and having a delivery-opening, of a threaded shaft journaled at one side of the cut-off, and a projection carried by the latter and engaging the thread of said shaft.

5. The combination, in a vending-machine, of a hopper having a feed-opening, a fixed cut-off, arranged in front thereof, a subsequent sliding cut-off having a delivery-opening, a slide wall set in conformity to the hopper-bottom and the cut-off, and means for adjusting said slide wall laterally.

6. The combination in a vending-machine, of a hopper, a slide wall adjustably mounted at one side of the hopper and provided with an outwardly-extending support seated on the wall of the hopper, a spur at the front wall of the hopper, and a clamp having a shoulder at its rear end and mounted adjustably on that wall of the hopper opposite to which the said slide wall is mounted.

708,188. VENDING-MACHINE. DALLAS KNOWLTON, Washington, D. C. Filed Jan. 20, 1902. Serial No. 90,502. (No model.)



Claim.—1. The combination, in a vending-machine, of a hopper having a discharge-opening and an inclined bottom terminating above the plane of the opening, a sliding cut-off arranged for movement under the opening and provided with a corresponding discharge-opening, and a transverse rib arranged on the sliding cut-off between the opening and rear end of the slide and extending above the surface of the cut-off and adapted to pass under the said inclined bottom, said rib having oppositely-inclined faces.

2. The combination, in a vending-machine, of a hopper having a discharge-opening, a sliding cut-off arranged for movement under the opening and provided with a discharge, and a roller loosely journaled and located at one edge of said opening of the discharge of the sliding cut-off, and having its periphery in the same plane as the upper surface of said cut-off.

3. The combination, in a vending-machine, of a hopper having a discharge-opening, a fixed auxiliary cut-off located at the front edge of said opening, a sliding cut-off arranged below the hopper and having a discharge, and a roller loosely mounted for free rotation adjacent to the rear edge of said opening in the cut-off and having its periphery in the same plane as the upper surface of said cut-off.

4. The combination, in a vending-machine, of a hopper provided with a discharge-opening, a cut-off located at the front edge of said opening and having its lower end curved, a sliding cut-off located below the hopper and provided with a discharge-opening, and a loose roller located at the rear edge of the latter opening and within the same.

5. The combination, in a vending-machine, of a hopper provided with a discharge and a rear inclined bottom terminating above the plane of the opening, the fixed curved cut-off at the front edge of said opening and depending below the inclined bottom of the hopper and in a plane with said opening, a sliding cut-off provided with a discharge, a loose roller journaled in the discharge of the cut-off adjacent to the rear edge of the discharge, and a transverse rib seated on the sliding cut-off and having oppositely-inclined faces and adapted to pass under said inclined bottom of the hopper.

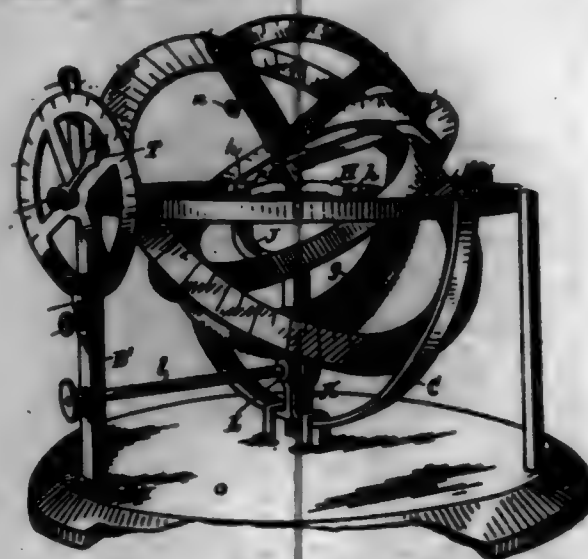
6. The combination, in a vending-machine, of a hopper provided with a discharge-opening, a fixed auxiliary cut-off arranged at the front end of the same, a sliding cut-off arranged below the opening and having a corresponding discharge-opening, the rear edge of which latter opening is curved, a roller loosely journaled in the cavity of said opening free to rotate and of a diameter substantially agreeing with the width of said sliding cut-off, and a transverse rib seated on the sliding cut-off in rear of the opening therein and having oppositely-inclined faces.

7. The combination, in a vending-machine, of a movable discharge and a superimposed hopper having an opening, and means for causing the movable discharge to move at an accelerated speed before and after receiving the article to be vended from the hopper.

8. The combination, in a vending-machine, of a movable discharge and a superimposed hopper having an opening, and means for causing the movable discharge to move at an accelerated speed before and after receiving the article to be vended from the hopper.

9. The combination, in a vending-machine, of a hopper having a discharge, a movable discharge arranged thereunder and adapted to take therefrom during its said movement, the cylinder 30 having its front end open and enlarged and near its opposite end having the perforation 32, the piston-head, the rod, and connection between the latter and the movable discharge whereby it is permissible for said movable discharge to move at a greater rate of speed at the beginning and ending of its travel.

708,189. STELLAR COMPASS AND GREAT-CIRCLE-COURSE PROJECTOR. ROBERT T. LAWREN, Alameda, Cal. Filed Feb. 24, 1902. Serial No. 90,466. (No model.)



Claim.—1. In the machine of the character described, the combination of a suitable support, a latitude and declination circle mounted to swing in said support, a horizontal plane and compass circle mounted to swing in said support at an angle to the plane of movement of the latitude and declination circle, and means to determine the angular disposition of said two circles with respect to each other.

2. In a machine of the character described, the combination of a suitable support, a latitude and declination circle mounted to swing in said support, a horizontal plane and compass circle mounted to swing in said support and in a plane at substantially right angles to the plane of movement of the latitude and declination circle, and a circular arc to determine the angular disposition of the said two circles with respect to each other.

3. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles disposed substantially at right angles to each other, and a quadrant or circular arc mounted on the supports of one of said circles to determine the angular disposition of said circles with respect to each other.

4. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles disposed substantially at right angles to each other, means for moving said circles upon their pivotal supports, and a quadrant or circular arc mounted on the supports of one of said circles to determine the angular disposition of said circles with respect to each other.

5. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, each of said circles being provided with suitable graduations, pivotal supports for said circles disposed substantially at right angles to each other and a quadrant or circular arc to determine the angular disposition of any portions of the said circles with respect to each other.

6. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles disposed substantially at right angles to each other, and a quadrant mounted to swing upon the support of one of said circles.

7. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles disposed substantially at right angles to each other, and a pointer and a quadrant mounted to swing upon the support of one of said circles.

8. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, each of said circles being provided with suitable graduations or scales, pivotal supports for each of said circles arranged at right angles to each other whereby the circles may be swung in planes at right angles, a rod centrally disposed with relation to said circles and movable

with one of them, and a quadrant having suitable graduations and mounted to swing on said rod.

9. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles arranged substantially at right angles to each other, a time-circle mounted on the supports of one of the first-named circles, and a quadrant mounted upon the support of the other of said circles.

10. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles arranged substantially at right angles to each other, a time-circle and pointer mounted on the supports of one of the first-named circles, and a quadrant mounted upon the support of the other of said circles, and means to clamp the pointer to its support.

11. In a machine of the character described, the combination of a suitable support, a latitude and declination circle, a horizontal plane and compass circle, pivotal supports for said circles arranged substantially at right angles to each other, a time-circle and pointer mounted upon the pivotal support of the latitude and declination circle, means to clamp said pointer and time-circle in desired position, a quadrant mounted to swing upon the support of the horizontal plane and compass circle, all of said circles being provided with suitable graduations.

708,140. T-SQUARE. GEORGE M. LAM, Dublin, Ireland. Filed Jan. 21, 1902. Serial No. 90,061. (No model.)



Claim.—1. A T-square the arm of which is provided adjacent to the cross-head thereof with an anti-friction-roller mounted therein and the perimeter of which projects slightly below said arm, substantially as shown and described.

2. A T-square the arm of which is provided adjacent to the cross-head thereof with an opening, a casing secured to said arm above said opening and an anti-friction-roller mounted in said casing and the perimeter of which projects slightly below the said arm, substantially as shown and described.

3. A T-square the arm of which is provided adjacent to the cross-head thereof with an opening, a casing secured to said T-square above said opening, and an anti-friction-roller mounted in said casing and the perimeter of which projects slightly below the said arm, the perimeter of said roller being also beveled substantially as shown and described.

4. A T-square provided with an anti-friction-roller which is adapted to bear on a board, table or other support in connection with which the T-square is used, said roller being provided with a beveled perimeter and the table, board or support being provided with a correspondingly-beveled strip on which the roller works, substantially as shown and described.

5. A T-square, the arm of which is provided adjacent to the cross-head thereof with an opening and an anti-friction-roller mounted therein and the perimeter of which projects slightly below said arm, substantially as shown and described.

708,141. HECKTIE-BOX, &c. IRVING LEVY, Philadelphia, Pa. Filed Sept. 2, 1901. Serial No. 74,573. (No model.)



Claim.—1. A tray for a needle or other box, formed from an integral blank, provided with coverings on opposite faces thereof, the portions of said blank exterior to the outer coverings being bent upwardly to form the outer side walls of said tray, and the portions of said blank intermediate said outer coverings being suitably deflected to form intermediate partitions, and tabs filling the spaces intermediate the extremities of said partitions and side walls between the partitions and side walls.

2. A tray for a needle or other box, formed from an integral blank,

provided with coverings on opposite faces thereof, the portions of said blank exterior to the outer coverings being bent upwardly to form the outer side walls of said tray, and the portions of said blank intermediate said outer coverings being suitably deflected to form intermediate partitions, and opening devices for holding said walls and partitions in proper alignment, said opening devices consisting of tabs integral with said trays and being bent to completely close the openings between the extremities of said partitions and walls.

708,143. PENCIL-CASE. CHARLES R. LITTLE, London, England. Assignor to R. Morden and Company, Limited, London, England. Filed Oct. 11, 1901. Serial No. 71,205. (No model.)



Claim.—1. The combination of the dotted case or tube carrying the pencil, the movable jawed tube fitting slidably therein and having a longitudinal slot extending from the jaws to the opposite end, said slot coinciding with that in the dotted case or tube, and the lead-carrier contained within said jawed tube and having its lead-pieces projecting through both said slots.

2. In a pencil-case of the kind referred to, the combination with a fixed dotted tube carrying the pencil, of the movable dotted jawed tube fitting slidably within said tube so that their slots coincide, and containing a lead-carrier having a lead-piece projecting through both slots, and means for moving said carrier longitudinally of the case so as to first protrude the jawed tube beyond the pencil and then the carrier beyond the jawed tube.

3. A pencil-case composed of the following instrumentalities: an internally-screw-threaded casing, a longitudinally-slotted tube secured to the pencil at one end and to a knob at the other, and arranged within said casing, a tube within said tube having also a longitudinal slot and so arranged that both said slots coincide, and having spring-jaws normally extending beyond the pencil, and a lead-carrier slidably fitting within the said jawed tube and having a lateral projection passing through both said slots and engaging the screw-threads of the casing, whereby on a revolving motion being imparted to the pencil-case, first the lead is propelled beyond the jaws, then the jaws beyond the pencil, and finally the outer end of the lead-carrier beyond the jaws, and so for the purposes set forth.

708,148. PLATE-METAL CAR-WHEEL. HENRY F. HARR, Allentown, Pa. Filed Apr. 10, 1902. Serial No. 100,000. (No model.)



Claim.—1. A car-wheel, the web, tread and rail-flange of which are made of a single plate; three-fourths of the thickness, more or less, of said plate, composed of low-carbon steel or wrought-iron and one-fourth of its thickness, more or less, composed of high-carbon steel, so that when the plate is given the proper form, the wearing-surfaces of the tread and rail-flange of the wheel will be composed of high-carbon hard steel, substantially as set forth.

2. A car-wheel the web, tread and rail-flange of which are made of a single plate, three-fourths of the thickness, more or less, of said plate composed of low-carbon steel or wrought-iron and one-fourth of its thick-

ness, more or less, composed of high-carbon hard steel, so that when the plate is given its proper form, the wearing-surfaces of the tread and rail-flange of the wheel will be composed of high-carbon hard steel, and a hub made of suitable material and proper form seated in the outwardly-curved portion of the center of the web, the hub provided with a flange resting against the rear face of the web and firmly secured thereto by rivets, or other suitable means, substantially as shown and described.

3. A car-wheel the web, tread and rail-flange of which are made of a single plate of metal three-fourths of the thickness, more or less, of said plate composed of low-carbon steel, or wrought-iron, and one-fourth of its thickness, more or less, composed of high-carbon hard steel, so that when the plate is given its proper form, the wearing-surfaces of the tread and rail-flange of the wheel will be composed of high-carbon steel, and a hub made of suitable material and proper form, the hub provided with a flange resting against the rear face of the web, and a washer fitting over the front end of the hub and against the front face of the web, the three parts, *i. e.*, the flange of the hub, the web and washer being firmly secured together by rivets, or other suitable means, substantially as shown and described.

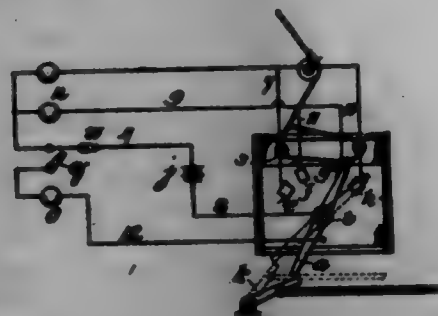
708,144. ELECTRIC MOTOR. JAMES H. MASON, Brooklyn, N. Y. Filed Nov. 23, 1900. Serial No. 37,437. (No model.)



Claim.—1. In an electric motor, an armature in two sections, separate windings on said sections and an iron sleeve joining said sections, whereby the armature is made to virtually consist of horseshoe-magnets with outwardly-turned poles and with neutral points in said sleeve.

2. In an electric motor, two separate armature-sections, each composed of radially-placed arms carrying pole-pieces at their extremities, windings on said arms, an armature-shaft, means for fastening said sections to said shaft and a separate iron sleeve clamped between said sections.

708,145. ELECTRIC RAILWAY-SIGNAL. FREDERICK C. MILLER, Brooklyn, N. Y. Filed Mar. 10, 1900. Serial No. 97,517. (No model.)



Claim.—1. A railway-signal comprising electrically-controlled signal-indicating means upon a car, a striking device upon the road, and a single lever-striker and electric switch upon the car pivoted so as to move under friction and to retain the position to which it is moved until positively moved therefrom and adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road to cause different indications at the signal-indicating means.

2. A railway-signal comprising electrically-controlled indicating means upon a car, a striking device upon the road, and a combined striking-lever and circuit-controller upon the car adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road to cause different indications at the signal-indicating means.

3. A railway-signal comprising electrically-controlled signal-indicating means upon a car capable of indicating danger and safety, a striking device upon the road, a combined striking-lever and circuit-controller upon the car adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road to cause different indications at the signal-indicating means to cause a danger indication, and

means for closing a test-circuit to cause a safety indication of the signal-indicating means when the combined striking-lever and circuit-controller is in normal position.

4. A railway-signal comprising electrically-controlled signal-indicating means upon a car, a striking device upon the road, and a single lever-striker and electric switch upon the car pivoted so as to move under friction and to retain the position to which it is moved until positively moved therefrom and adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road to cause different indications at the signal-indicating means.

5. A railway-signal comprising electrically-controlled signal-indicating means capable of indicating danger and safety, a striking device upon the road, a single lever-striker and electric switch upon the car adapted to be actuated by the striking device upon the road to control the circuit of the signal-indicating means to cause a danger indication, and means for closing a test-circuit to cause a safety indication, of the signal-indicating means when the striking device upon the road is in normal position.

6. A railway-signal comprising electrically-controlled signal-indicating means upon a car, a striking device upon the road, a single lever-striker and electric switch upon the car adapted to be actuated by the striking device upon the road to control the circuit of the signal-indicating means, and manual means upon the car for restoring the striking device and switch to normal position.

7. A railway-signal comprising an electrically-controlled indicating means upon a car, a striking device upon the road, a combined striking-lever and circuit-controller upon the car adapted to be actuated by the striking device upon the road to control the circuit of the signal-indicating means, and a manually-operated tension device connected to the combined striking-lever and circuit-controller for restoring the same to normal position.

8. A railway-signal comprising electrically-controlled indicating means upon a car, a striking device upon the road, a combined striking-lever and circuit-controller upon the car adapted to be moved into different positions by contact with the striking device upon the road to cause different indications of the signal-indicating means, and a manually-operated tension device connected to the combined striking-lever and circuit-controller for restoring the same to normal position from any one of said different positions.

9. A railway-signal comprising electrically-controlled signal-indicating means upon a car, a striking device upon the road, a single lever-striker and circuit-controller upon the car adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road and a plurality of stationary electric contacts arranged in the path of such movement of the striking device and circuit-controller, and circuit-completing means connected to the striking device and circuit-controller and signal-indicating means and stationary contacts.

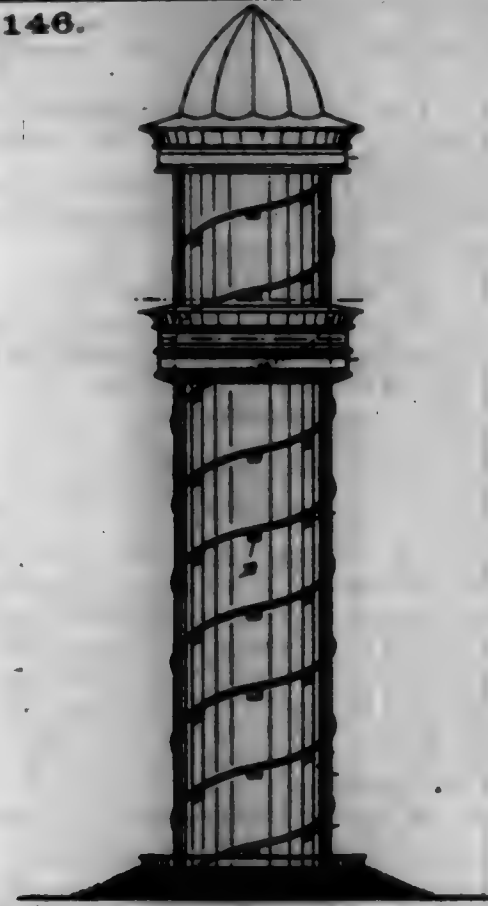
10. A railway-signal comprising a home-danger-indicating device and a distant-danger-indicating device upon a car, a striking device upon the road, a single lever-striker and circuit-controller upon a car adapted to be moved into different positions under the same direction of movement of the car by contact with the striking device upon the road, an electric contact in the path of the striking device and circuit-controller and connected to the distant-danger-indicating device, another electric contact at a different point in the path of the striking device and circuit-controller under the same direction of movement of the car and connected to the home-danger-indicating device, and circuit-completing means connected to the striking device and circuit-controller and to the signal-indicating means.

11. A railway-signal comprising a home-danger-indicating device, a distant-danger-indicating device and a safety-indicating device upon a car, a striking device upon the road, a single lever-striker and circuit-controller upon a car adapted to be moved into different positions by contact with the striking device upon the road, an electric contact in the path of the striking device and circuit-controller and connected to the distant-danger-indicating device, another electric contact at a different point in the path of the striking device and circuit-controller and connected to the home-danger-indicating device, an electric contact located so as to make contact with the striking device and circuit-controller when the striking device and circuit-controller is in normal position and connected to the safety-indicating means, and circuit-completing means connected to the striking device and circuit-controller and to the signal-indicating means, the circuit for the safety-indicating means including a circuit make-and-break device.

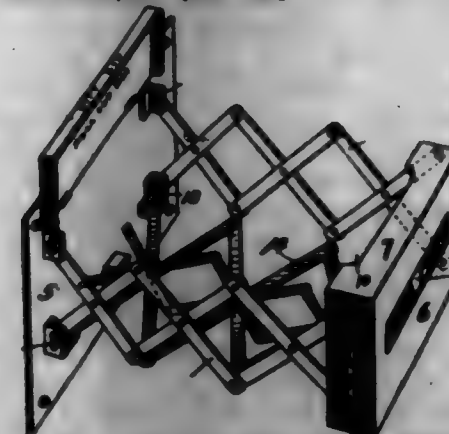
708,146. OBSERVATION-TOWER. JOHN A. WHAMST, Hamilton, Ohio. Filed Jan. 9, 1901. Serial No. 42,000. (No model.)

Claim.—In an observation-tower, the combination of a stationary central column, a spiral rail supported upon the outer end of the column, a rotatable car adapted to travel upon said rail, axle mounted radially upon the car and having journals thereon projecting inwardly, and adjacent to the exterior of the column, and wheels mounted upon said inwardly-projecting radial journals.

708,146.



708,147. LETTER-BOX. THOMAS C. MILLER, Seattle, Wash., assignor to himself and Griffith Hunter, Seattle, Wash. Filed Apr. 11, 1901. Serial No. 64,573. (No model.)



Claim.—1. The combination with a letter-box having a stationary support to which it is normally locked, of folding devices between the box and stationary support acting to contain the box when it is unlocked and moved bodily away from the support, substantially as specified.

2. The letter-box consisting of a movable box-body, bottom and end lugs-arms connecting the body to the supporting device, and forming when extended a basket for the mail, and also as a means of sustaining the box when unlocked and means for locking the body to the supporting device, substantially as specified.

3. The letter-box consisting of a box 6, means for locking the box to its stationary supporting device and extensible connections between said box 6 and the supporting device allowing the box to move bodily outward when unlocked from the supporting device, substantially as specified.

4. The letter-box consisting of a box 6, means for locking the box to its stationary supporting device and extensible connections between said box 6 and the supporting device allowing the box to move bodily outward when unlocked from the supporting device, said connections also acting to prevent the mail from falling when the box is opened, substantially as specified.

5. The letter-box consisting of a box open at its lower side, a support against which the box is positioned and to which it is locked, and folding devices connected to the box and the support and acting to support the mail when the box is unlocked and moved outward from the support, substantially as specified.

6. The letter-box consisting of a box open at its lower side, a support against which the box is positioned and to which it is locked, and devices connected both to the box and its support and folding within the box and acting to support the mail when the box is unlocked and opened, substantially as specified.

708,148. ROLLER-SIDE BEARING FOR RAILWAY-CARR. SAMUEL W. McKEOWN and BROWN & WOOD, Chicago, Ill. Filed Nov. 4, 1900. Serial No. 62,971. (No model.)



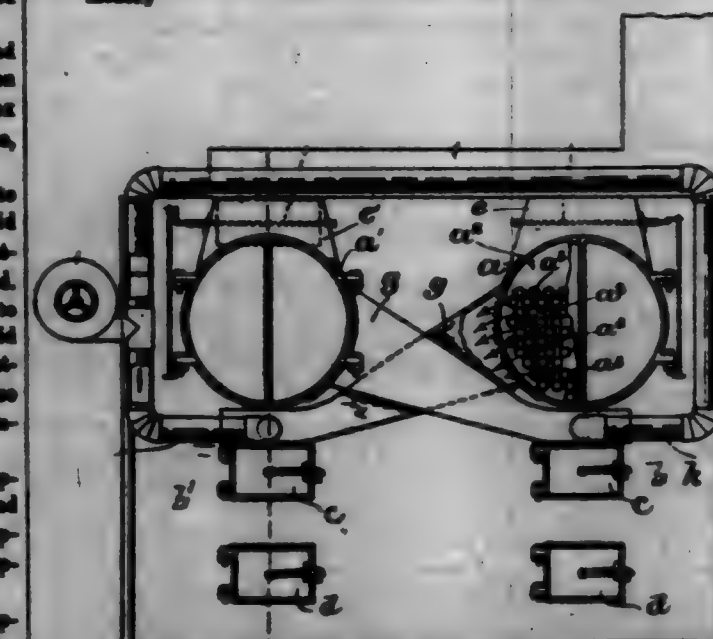
Claim.—1. A side bearing for railway-cars comprising upper and lower castings having normally parallel bearing-surfaces, a single roller adapted for contact with said bearing-surfaces, and transverse on said roller which travel in channels or ways in said upper casting, the lower surfaces of which channels are inclined from the ends thereof toward the center, said transverse being out of contact with the bearing-surfaces of the channels when the roller has contact with the parallel bearing-surfaces of the castings.

2. A side bearing for railway-cars comprising upper and lower castings having normally parallel bearing-surfaces, a roller adapted for contact with said bearing-surfaces, and transverse on said roller which travel in channels or ways in said upper casting, the lower surfaces of which are inclined from the ends thereof toward the center, said transverse being out of contact with the bearing-surfaces of the channels when the roller has contact with said parallel bearing-surfaces of the castings, and the ends of said channels or ways constituting steps to arrest the bodily movement of the roller with respect to said bearing-surfaces.

3. A side bearing for railway-cars comprising upper and lower castings having normally parallel bearing-surfaces, the upper casting being provided with depending side and end flanges forming an inclosed space to receive a roller, a roller located in said space and adapted for contact with said bearing-surfaces, transverse on said roller which travel in channels or ways formed in the side flanges of the casting, the lower surfaces of which channels are inclined, said transverse being out of contact with the bearing-surfaces of the channels when the roller has bearing with said parallel bearing-surfaces of the castings, and the ends of said channels constituting steps to arrest the bodily movement of the rollers before said rollers are brought into contact with the end flanges of the upper casting.

4. A side bearing for railway-cars comprising upper and lower castings having normally parallel bearing-surfaces, of a roller adapted for contact with said bearing-surfaces, and transverse on said roller which travel in channels or ways in said upper casting, the lower surfaces of which channels are inclined from the ends thereof toward the center, said transverse being out of contact with the bearing-surfaces of the channels when the roller has contact with the parallel bearing-surfaces of the castings, upwardly-opening slots in said upper casting, intersecting said channels and through which the transverse of the rollers pass when the rollers are inserted in place, and removable stops projecting into said slots.

708,149. SMOKE-CONSUMING ATTACHMENT. WILLIAM McKEOWN, Boston, Mass. Filed July 27, 1901. Serial No. 63,922. (No model.)



Claim.—1. The combination with a plurality of independent tubular boilers, and fire-bricks operatively related thereto, each boiler having a smoke-chamber at its forward end to receive the products of combustion

after their passage through the boiler-tubes, each smoke-chamber having an independent damper uptake for the direct escape of the products of combustion in a stack or chimney, of a corresponding plurality of independent conduits, each leading from the smoke-chamber of one boiler below the damper of the uptake to the fire-box of an adjacent boiler above the grate of said fire-box, whereby when the uptake of any smoke-chamber is closed by its damper, the products of combustion received by such chamber are drawn through the conduit leading from that chamber to the fire-box of an adjacent boiler by the draft existing in the last-mentioned fire-box, and means for forcing air with said products of combustion into each fire-box.

2. In a smoke-consuming apparatus, the combination of a plurality of smoke-chambers, each communicating with boiler tubes or flues, each smoke-chamber having a damper uptake for the direct escape of the products of combustion in a stack or chimney, a plurality of fire-boxes, a corresponding plurality of independent conduits, each leading from one smoke-chamber below the damper of the uptake to the space above the grate of the fire-box, under an adjacent smoke-chamber, and means for introducing air to said conduits at the point of connection with the fire-boxes to facilitate the consumption of products of combustion passing from said conduits to the fire-boxes.

708,150. WINDOW. HANS I. OLSEN, MYRUM, Utah. Filed Aug 18, 1901. Serial No. 72,175. (No model.)



Claim.—In combination with a window-frame, each mounted therein, sectional parting-strips, the upper portions of which are fixed in the frame, angle-springs fixed to the sill of the frame, the lower ends of the removable sections of the parting-strip adapted to rest upon the angled ends of said springs, said springs adapted to be depressed in recesses in, or in, the sill, as set forth.

708,151. COMPOSITION OF MATTER. THEODORE G. PARR, ALBANY, Ga., assignor of one-half to John S. Clark, Atlanta, Ga. Filed Mar. 22, 1901. Serial No. 55,406. (No specimens.)

Claim.—1. As a new article of manufacture, a plurality of layers or sheets of burip, which have been treated to a solution of magnesium chloride, magnesia, and a mineral powder, a plastic compound applied to the backing and consisting of magnesium chloride, magnesia, and a mineral powder, and a final surfacing compound applied to the plastic compound.

2. As a new article of manufacture, a plurality of layers or sheets of burip, which have been treated to a solution of magnesia, an alkaline salt of magnesia, and a mineral powder, a surfacing compound applied thereto, and a sizing solution applied to the surfacing compound and capable of taking a high polish.

3. As a new article of manufacture, a plurality of layers or sheets of burip, which have been treated to a solution of magnesia, a salt of magnesia, and a mineral powder, a surfacing compound applied thereto, and a sizing solution applied to the compound.

4. A new article of manufacture, consisting of a backing, a plastic surfacing material applied thereto, a sizing applied to the surface after it has become dry, a filler applied to the surface after the sizing, and a final sizing applied to the filled surface, the latter sizing being polished.

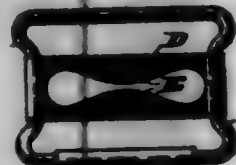
5. A new article of manufacture, consisting of a plurality of sheets of burip, which have been subjected to a solution of magnesia, magnesium chloride, and whiting, a surfacing compound applied thereto and consisting of magnesium chloride, magnesia, whiting, and silica, a soap so-

lution applied to the surface, a filler applied after the soap solution, and a sizing of soap solution after the filler, the latter soap solution being polished.

6. As a new article of manufacture, a backing treated with a compound of magnesia, a salt of magnesia, and a mineral powder and provided with a surface coating.

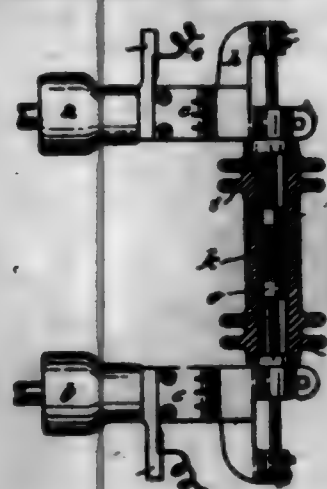
7. As a new article of manufacture, a flexible, porous backing treated with a compound of magnesia, a salt of magnesia and a mineral powder and provided with a surface coating.

708,152. GARMENT-SUPPORTER. JAMES E. FLEMMING, WASHINGTON, D. C., assignor to Christine J. Higley, New York, N. Y. Filed Nov. 21, 1901. Serial No. 55,074. (No model.)



Claim.—A garment-supporter comprising a frame having parallel bars connected at opposite ends by side bars, a stationary metal plate secured to said side bars the said plate having an opening therein the said opening having a substantial constriction near the center thereof but with the edges spaced apart, and a garment-supporter tape secured to the lower of said parallel bars and a tape passing through the space between the upper of said parallel bars and the stationary plate and around said stationary plate the end of said tape being held in position between the constricted edges of the opening in said plate, substantially as described.

708,153. PROTECTING APPARATUS FOR ELECTRICAL MACHINES AND PLANTS. PAUL RICHARD, GENEVA, Switzerland. Filed July 22, 1901. Serial No. 55,200. (No model.)



Claim.—A lightning-arrester consisting of a tubular body of insulating material, pistons in said body and provided with shanks extending out of the ends, a mass of mixed pulverized conducting and non-conducting material in said tubular body between the pistons, contact-heads, one at each end of the tubular body and provided each with an inner and an outer arm, means for clamping the inner arm of each head to one end of the tubular body, means for securing the shanks of the pistons respectively to the outer arm of the heads, at opposite ends of the body, contact-lugs on said heads, and spring-clamps adapted to receive said lugs, substantially as set forth.

708,154. MATCH-MAKING MACHINE. FRANK SCHAPIRA, Philadelphia, Pa., assignor to Ernest Raymond Paterson, Philadelphia, Pa. Filed Feb. 26, 1901. Serial No. 44,308. (No model.)

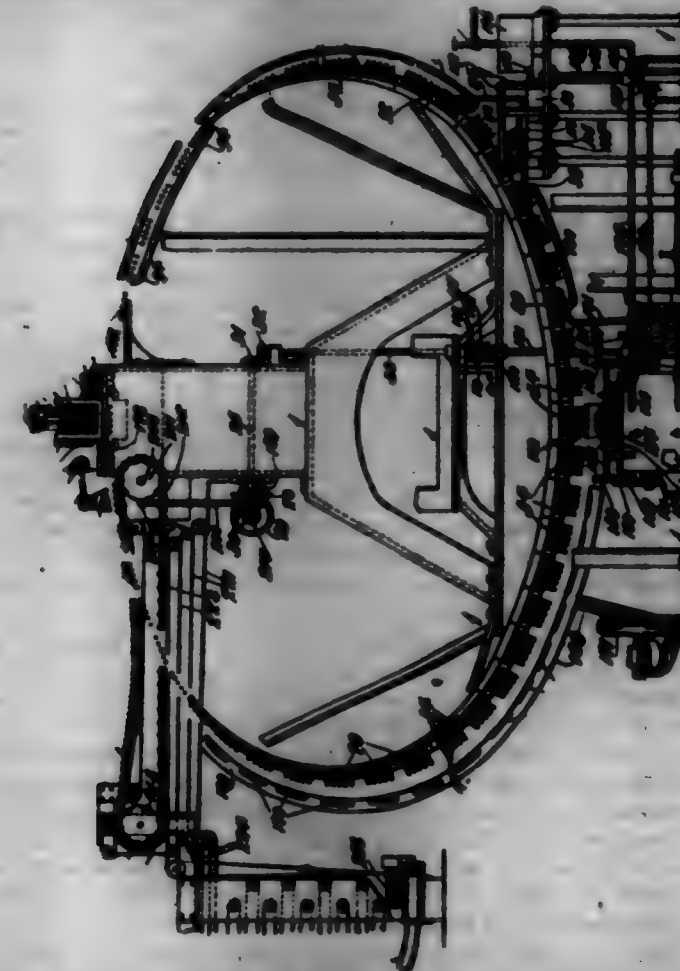
Claim.—1. In a match-making machine, means for cutting splints, a beveled inclined conveyor in which said splints are received, and means for retaining said splints in said conveyor, while the cutting device is being removed from said splints.

2. In a match-making machine, means for cutting splints, a beveled inclined rotary conveyor in which said splints are received, and means for retaining said splints in said conveyor while the cutting device is being removed from said splints.

3. In a match-making machine, means for cutting splints, a rotary beveled inclined conveyor in which said splints are received in one plane and carried to a plane at an angle thereon, and means for retaining said splints in said conveyor while the cutting device is being removed from said splints.

4. In a match-making machine, means for cutting splints, a beveled

inclined conveyor in which said splints are received, and means for retaining said splints in said conveyor while the cutting device is being removed from said splints, in combination with means for imparting an intermittent movement to said conveyor.



5. In a match-making machine, means for cutting splints, a beveled inclined conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, and means for applying the composition to the ends of said splints to form the match-heads.

6. In a match-making machine, means for cutting splints, a beveled inclined rotary conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, means for waxing said splints and means for applying the composition to the ends of said splints to form the match-heads.

7. In a match-making machine, means for cutting splints, a beveled inclined rotary conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, and means for applying the composition to the ends of said splints to form the match-heads, in combination with means for directing a blast upon said heads so as to cause the latter to become set.

8. In a match-making machine, means for cutting splints, a beveled inclined rotary conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, and means for applying the composition to the ends of said splints to form the match-heads, in combination with movable means for ejecting the finished matches from said conveyor.

9. In a match-making machine, means for cutting splints, a rotary beveled inclined conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, and means for applying the composition to the ends of said splints to form the match-heads, in combination with movable means for ejecting the finished matches from said conveyor, and movable means for ejecting said matches therefrom.

10. In a match-making machine, means for cutting splints, a rotary beveled inclined conveyor, means for securing said splints in said conveyor, means for heating and drying said splints, and means for applying the composition to the ends of said splints to form the match-heads, in combination with means for ejecting the finished matches from said conveyor and means for ejecting said matches therefrom upon drying devices.

11. In a match-making machine, an inclined conveyor, a beveled surface on said conveyor, grooves in said surface, means for feeding match-splints into said grooves, and means for pressing the same thereto.

12. In a match-making machine, a cutter for cutting match-splints, a conveyor located in proximity to said cutter, means for intermittently actuating said conveyor, grooves of different angularity carried by said conveyor, fingers located above said grooves and adapted to press said

splints thereto and means for actuating said fingers to and away from said conveyor, whereby the splints are pressed into the grooves and the conveyor can rotate after the fingers are moved away.

13. In a match-making machine, a cutter for cutting match-splints, a conveyor located in proximity to said cutter, means for intermittently actuating said conveyor, grooves of different angularity carried by said conveyor, fingers located above said grooves adapted to press said splints thereto and means for actuating said fingers to and away from said conveyor whereby the splints are pressed into the grooves and the conveyor can rotate after the fingers are moved away, in combination with means for drying, waxing and applying composition to said splints.

14. In a match-making machine, a cutter for cutting match-splints, an inclined circular conveyor having grooved plates attached thereto, whereby the matches are received horizontally and dipped vertically, means for securing said splints in the grooves in said plates, and means for holding the splints therein in a plane inclined to the plane of rotation of the said conveyor.

15. In a match-making machine, a cutter for cutting match-splints, an inclined circular conveyor having grooved plates attached thereto, whereby the matches are received horizontally and dipped vertically, means for pressing said splints in the grooves in said plates, and means for holding the splints in a plane inclined to the plane of rotation of said conveyor, in combination with means for applying the composition to the ends of said splints so as to form the match-heads.

16. In a match-making machine, a cutter for cutting match-splints, a beveled inclined conveyor whereby the matches are received in a horizontal plane and moved to a plane at an angle thereby having a curved outer and grooved plates attached thereto, means for pressing said splints in the grooves of said plates, a plate having a concave face movably supported adjacent to said conveyor, whereby the ends of the splints conform to a radius, the center of which is the center of the conveyor, and means for moving said face against the ends of said splints at the proper intervals.

17. In a match-making machine, a cutter for cutting match-splints, a beveled inclined conveyor having a curved outer and grooved plates attached thereto, means for pressing said splints in the grooves of said plates, a plate having a concave face movably supported adjacent to said conveyor, whereby the ends of the splints conform to a radius, the center of which is the center of the conveyor, and means for moving said face against the ends of said splints at the proper intervals, in combination with means for treating the ends of said splints so as to produce the finished matches.

18. In a match-making machine, an inclined spider, a beveled circular conveyor rotatably mounted thereon, whereby the splints are received horizontally and dipped vertically, and means for intermittently actuating said conveyor.

19. In a match-making machine, a reciprocating cutting device, a spider located in proximity thereto, a beveled rotary inclined conveyor mounted on said spider, and means for intermittently actuating said conveyor.

20. In a match-making machine, a reciprocating cutting device, a spider located in proximity thereto, a beveled rotary inclined conveyor mounted on said spider, and means for intermittently actuating said conveyor, in combination with means for retaining match-splints in said conveyor, and means for drying, waxing and coating said splints.

21. In a match-making machine a beveled inclined conveyor having a curved outer, means for intermittently actuating the latter, device located in proximity to said conveyor for drying, waxing, coating and hardening a match-head, and a movable ejecting device for propelling the finished match from said conveyor.

22. In a match-making machine, a conveyor for supporting the finished matches, an ejector for propelling said matches from said conveyor, means for imparting a slow rotary movement to said ejector during its contact with said matches, and means for imparting an accelerated rotary movement to said ejector after it leaves said matches.

23. In a match-making machine, the combination of a conveyor, device for holding matches thereon, a plate for loosening said matches, and a rotary ejector for finally discharging said matches from said conveyor.

24. In a match-making machine, the combination of a conveyor, device for holding matches thereon, a plate for loosening said matches, and a rotary ejector for finally discharging said matches from said conveyor, said ejector moving slowly against said matches, but having an accelerated movement after it leaves said matches.

25. In a match-making machine, an inclined conveyor, adapted to receive the matches horizontally and move the same to a plane at an angle thereby, device for holding matches thereon, means for loosening said matches, and a rotary ejector having teeth adapted to enter said device longitudinally for finally discharging said matches from said conveyor.

26. In a match-making machine, an inclined conveyor, device for

holding matches thereon, means for loosening said matches, and a rotary ejector for finally discharging said matches, in combination with means for moving said ejector slowly against said matches, and means for giving said ejector accelerated movement after leaving said matches.

27. In a match-making machine, a beveled inclined circular conveyor, means for actuating the latter, and means for holding a match on said conveyor in a horizontal position and moving the same to a vertical position, for the dipping of said match, whereby a perfect head is formed in the splint.

28. In a match-making machine, a roller for applying the composition to the ends of the splints, means for rotating the same when in the composition, means for holding the splints and for carrying the same to said roller, the plane of movement of the said splints being at an angle to the plane of rotation of said roller and means for elevating and stopping the rotation of said roller when said composition is applied to the ends of said splints, whereby only the ends of the splints are supplied with composition and a surplus supply thereof is prevented.

29. In a match-making machine, a roller for applying the composition to the ends of the splints, means for rotating the same when in the composition, means for holding said splints in a vertical position when the composition is applied thereto, and means for elevating said roller when said composition is applied to the ends of said splints, in combination with means for stopping the rotation of said roller when in its elevated position, and device for effecting the rotation of said roller when in its lowermost position.

30. In a match-making machine, a receptacle for the composition, a hot-water jacket surrounding said composition, a roller adapted to receive in said composition, means for raising and lowering said roller and means for stopping the rotation of said roller when the latter is in its elevated position.

31. In a match-making machine, the combination of a receptacle for the composition, a circular conveyor, a roller rotatably mounted in the lower portion of said receptacle, means for causing said roller to continuously rotate and mechanism for causing said roller to intermittently rotate, whereby the same will be stationary when in contact with the splint, so that no excess of material cannot be imparted to the splint.

32. In a match-making machine, a circular conveyor, supported at an angle, means for imparting an intermittent rotary movement to said conveyor, a beveled surface on the latter, and device on said surface for engaging match-splints, said surface being so arranged that said splints will be fed thereto in a horizontal position and will stand in a vertical position during the act of dipping.

33. In a match-making machine, means for cutting splints, a beveled inclined conveyor adapted to receive the splints in a plane inclined to the plane of rotation thereof, means for dipping the same, a chain adapted to receive the finished match and drying-aprons adapted to receive the match from said chain.

34. In a match-making machine, a cutter for cutting match-splints, a conveyor located in proximity to said cutter, means for actuating said conveyor, grooves carried by said conveyor, fingers located above said grooves in the path of the conveyor adapted to press said splints thereto, means for actuating said fingers to and away from said splints, and grooves or serrations on said fingers.

35. In a match-making machine, the combination of a conveyor, device for holding the matches thereon, a plate for loosening the said matches, and grooves or corrugations therein corresponding to said device.

36. In a match-making machine, the combination of a conveyor, device for holding the matches thereon, an ejector for discharging said matches from said conveyor, and a plate or guard on said ejector extending over the matches, whereby the same are prevented from being scattered.

37. In a match-making machine, the combination of a conveyor, device for holding the matches thereon, a plate for loosening said matches, an ejector for finally discharging said matches from said conveyor, and a guard on said conveyor.

38. In a match-making machine, the combination of a conveyor, device for holding the matches thereon, an ejector for finally discharging said matches from said conveyor, and a groove in the lower portion of said ejector adapted to prevent the matches from falling down.

39. In a match-making machine, a conveyor consisting of a circular frame rotatably supported at an angle, said frame having a beveled surface and adapted to receive match-splints so that the splints in one portion will be in a horizontal position and the splints in another portion will be in a vertical position for dipping the same.

40. In a match-making machine, a beveled inclined conveyor receiving the splints in one plane and carrying the same to a plane at an angle thereto.

41. In a match-making machine, a beveled inclined conveyor receiving the splints in one plane and dipping the same in a plane substantially at right angles thereto.

42. In a match-making machine, a beveled rotary inclined conveyor adapted to receive the splints in one part of the machine in one plane and to carry the same to another part of the machine in a different plane.

43. In a match-making machine, a cutting device, a dipping device, and a beveled inclined conveyor adapted to receive the splint substantially horizontally from the cutting device and carry the same to substantially an upright position to the dipping device.

44. In a match-making machine, a beveled inclined conveyor adapted to receive the splint in one plane and means for rotating said conveyor, whereby the splint is carried to a plane at an angle to the first-mentioned plane.

45. In a match-making machine a beveled inclined conveyor adapted to receive the splints in a plane inclined to the plane of rotation of said conveyor and means for waxing and dipping the match-splints.

46. In a match-making machine, a beveled inclined conveyor adapted to receive the splints in a plane inclined to the plane of rotation of the said conveyor and adapted to carry said splints to a plane substantially at right angles to the receiving plane.

47. In a match-making machine, a beveled inclined conveyor, means for feeding match-splints thereto, means for securing said splints to said conveyor, means for heating and drying said splints and means for applying a composition to the ends of said splints to form the match-heads.

48. In a match-making machine, a beveled inclined conveyor adapted to receive the splints from the feeding device in one plane and carry the same to another plane at an angle thereto, and means for securing said splints in said conveyor.

49. In a match-making machine, a rotary beveled inclined conveyor, means for feeding the splints to said conveyor, means for securing said splints in said conveyor and means for ejecting said splints from said conveyor after the composition has been applied thereto.

50. In a match-making machine, an inclined conveyor, a beveled surface thereon, grooves in said surface, which are situated at an angle to each other, and means for feeding match-splints into said grooves and for pressing the same thereto.

51. In a match-making machine in combination with the splint delivering and dipping device, of a carrier interposed between the same, said carrier having a beveled face to receive the splints from the delivering device in one plane inclined to the plane of rotation of said carrier and present them in another plane to the dipping device.

52. In a match-making machine, an inclined conveyor having a beveled surface on the periphery thereof, which is adapted to receive the match-splints in a plane inclined to the plane of rotation of the said conveyor.

53. In a match-making machine, an inclined conveyor and means thereon which are adapted to receive the splints in a plane inclined to the plane of rotation of said conveyor and carry the said splints to a plane at an angle thereto.

54. In a match-making machine, a conveyor, grooves on the periphery thereof adapted to receive and hold the match-splints, and an ejecting device having teeth thereon, which latter are adapted to enter the grooves longitudinally in said conveyor for removing the splints.

55. In a match-making machine, a roller for applying the composition to the splints, means for rotating the same, a conveyor adapted to receive the splints and carry the same to the dipping-roller, the plane of rotation of said roller being at an angle to the plane of movement of the conveyor and means for stopping the rotation of said roller when the composition is applied to the splints.

56. In a match-making machine, a roller for applying composition to the splints, means for rotating the same, a conveyor adapted to receive the splints, means for moving the conveyor which movement is in a plane at an angle to the plane of rotation of said roller and means for stopping the rotation of the roller and the movement of the conveyor simultaneously during the dipping.

57. In a match-making machine, a roller for applying the composition to the ends of the splints, means for rotating the roller when in the composition, a conveyor for receiving the splints and carrying the same to the roller, the plane of movement of said conveyor being at an angle to the plane of rotation of said roller and means for elevating said roller whereby the same is prevented from rotating at the dipping of the splints.

58. In a match-making machine, a dipping device adapted to rotate, means for elevating said dipping device and means for carrying the splints to said device, the plane of movement of said carrying means being at an angle to the plane of rotation of said dipping device.

708,155. JAR. WILLIAM G. SCHULTZ, St. Louis, Mo., assignor to F. R. Rice Manufacturing Cigar Company, St. Louis, Mo., a Corporation of Missouri. Filed July 28, 1901. Serial No. 70,078. (No model.)

Claim.—1. The combination with a jar having a lateral projection, of a casing-section of greater length than the distance between said pro-

jection and the jar-bottom and of greater interior diameter than the exterior diameter of said jar, the said projection upon said jar resting upon the upper edge of the wall of the said casing-section, whereby said jar is suspended in said casing-section, substantially as described.



2. The combination with a jar having a lateral projection, of a casing-section of greater length than the distance between said projection and the jar-bottom and of greater interior diameter than the exterior diameter of said jar, the said projection upon said jar resting upon the said casing-section, whereby said jar is suspended in said casing-section, and a casing-cover having a flange engaging said projection upon the jar and overlapping said casing-section, substantially as described.

3. The combination with a jar having a lateral projection, of a casing-section of greater length than the distance between said projection and the jar-bottom and of greater interior diameter than the exterior diameter of said jar, the said projection upon said jar resting upon the said casing-section, whereby said jar is suspended in said casing-section, and a casing-cover having a flange engaging said projection upon the jar and out of contact with said jar above said projection, substantially as described.

708,156. ARTIFICIAL FOOT. MATTHEW SMITH, Liverpool, England, assignor of one-half to Edward Emory Walker, Smith, county of Lancaster, England. Filed Sept. 24, 1901. Serial No. 70,241. (No model.)

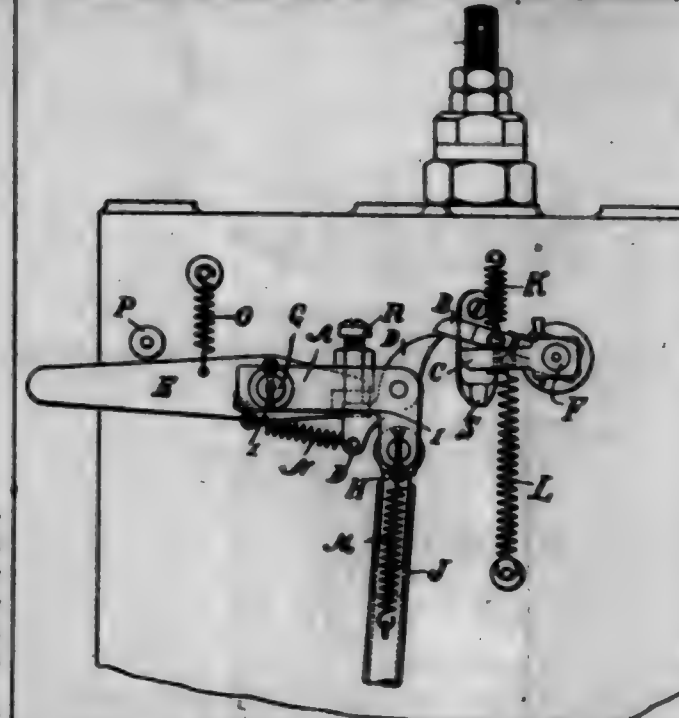


Claim.—1. In an artificial limb, the combination with an artificial leg having an ankle portion at its lower end, of a boot, the top of which embraces said ankle portion of the leg, an air-cushion under the said leg and forming the heel portion of the foot, and the part forming the front portion of the foot, said front portion abutting against said cushion, and the said front portion and heel portion being inclosed within said boot, substantially as set forth.

2. In an artificial limb, the combination with the artificial leg having a convex lower end from front to rear, a cushion under the lower end of said leg and forming the heel portion only of the foot, the front portion of the foot abutting at the rear against said cushion, and means for connecting said parts together, substantially as and for the purpose set forth.

3. In an artificial foot and in combination, the pneumatic cushion and artificial leg having its heel surface that rests against said cushion slanting downward transversely from the outside to the inside, substantially as and for the purpose described.

708,157. STARTING MECHANISM FOR GAS-ENGINE. FRANK A. L. BUSHNER, Osnabrück, Germany, assignor to Charles H. Lombard, Osnabrück, Germany. Filed Mar. 7, 1901. Serial No. 68,197. (No model.)



Claim.—An igniting mechanism for gas-engines comprising a firing-pin, a contact movable toward and from the firing-pin, a lever connected with the contact, a firing-lever adapted to engage with the former lever, a dog engaging with said firing-lever and having a yieldable connection with the actuating mechanism of the engine, a dog-carrier, and a lever adapted to be operated by hand and engaging with said dog-carrier, substantially as described.

708,158. PLANE. ALAN W. STANLEY and HENRY S. WALTER, New Britain, Conn., assignors to Stanley Rule & Level Company, New Britain, Conn., a Corporation of Connecticut. Filed Dec. 27, 1901. Serial No. 57,503. (No model.)



Claim.—1. In a plane, a plane-iron, a bearing therefor, a cap-screw for holding said plane-iron in engagement with said bearing, an adjusting-screw for regulating the position of said plane-iron, said adjusting-screw also engaging said cap-screw to lock it, substantially as described.

2. In a plane, a plane-iron, a cap-screw for holding said plane-iron in position, an adjusting-out, a screw therefor, said screw engaging said cap-screw, substantially as described.

3. In a plane, a plane-iron, a cap-screw for holding said plane-iron in position, a portion of the thread on said cap-screw being turned down, a separate screw engaging the turned-down portion of said cap-screw, and an adjusting-out mounted upon said separate screw, and means cooperating with said adjusting-out for shifting the position of the plane-iron without disturbing the adjustment of the cap-screw.

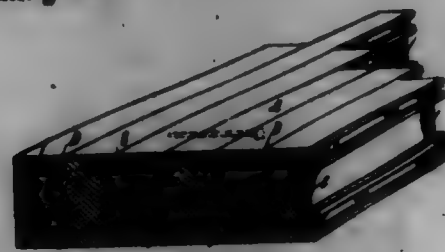
4. In a plane, a holding-screw *H* set into the frog *R*, an adjusting-out working on a screw *H*, said screw engaging said holder to lock it in position, substantially as described.

708,159. FLOOR. BENJAMIN A. STEVENSON, Toledo, Ohio. Filed Feb. 22, 1902. Serial No. 68,067. (No model.)

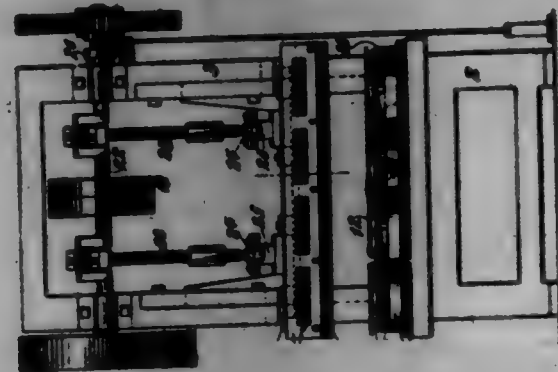
Claim.—1. In a floor, the combination of timbers, each of said timbers having a longitudinal groove at the center of one of its faces, and one or more longitudinal grooves between the central groove and an outer edge, said timbers having their outer edges in contact and being joined together by nails passing through one timber into the contiguous timber, the heads of said nails coming into the last-mentioned groove.

2. In a floor, the combination of a plurality of timbers, each of

which is provided on one of its vertical sides with a central longitudinal groove and a longitudinal groove on each side of said central groove, and nails extending through one of said timbers, the heads of said nails entering the latter groove.



708,160. LEATHER-CUTTING MACHINE. HENRY BROCKMAN, Philadelphia, Pa. Filed Dec. 5, 1901. Serial No. 94,745. (No model.)



Claim.—1. In a leather-cutting machine, die, and a cutting-block movable toward and away from each other, die-holders for said die provided with sockets, headed pins having one end situated within said sockets and extending through an opening in the ends thereof, a rod engaging said pins to prevent their rotation, tables secured to the other end of said pins, and a spring situated between said tables and holders.

2. In a leather-cutting machine, a cutting-block consisting of two members, one of which is secured to the actuating device of the machine and the other of which is secured to said first-mentioned member by means interengaging that permit the shifting thereof both laterally and longitudinally.

3. In a leather-cutting machine, a cutting-block consisting of a member that is secured to the actuating mechanism and is provided with outwardly-extending fingers, a second member provided with slotted plates to receive said fingers, and means for moving said fingers to said member to hold the members rigidly together and by means of which the same may be loosened to allow them to be shifted.

4. In a leather-cutting machine, in combination with a cutting-block, a plurality of die-holders suitably supported and provided with ledges along the sides thereof forming channels between the adjacent die-holders, and knives situated within said channels and secured to said die-holders.

5. In a leather-cutting machine, in combination with a cutting-block, a plurality of die-holders having meeting bases provided with upwardly-facing ledges forming channels between the adjacent die-holders, knives situated within said channels and resting upon said ledges, and suitable fastening devices passing through adjacent die-holders and intermediate knives and securing the same together.

6. In a leather-cutting machine, in combination with a cutting-block, a plurality of die-holders, assembled together side by side and end to end, certain of said die-holders being provided with ledges along one side and one end thereof, certain of said die-holders being provided with ledges along a side and an end thereof, and certain of said die-holders being provided with a ledge along one side only thereof, whereby channels are formed between adjacent die-holders and knives situated within said channels.

7. In a leather-cutting machine, in combination with a cutting-block, a plurality of die-holders situated side by side and end to end and provided with ledges on the outside thereof and channels between the same, angular knife-sections secured at the outside corners of the assembled die-holders and extending partially along the sides and ends of the corner die-holders, knife-sections extending between the angular knife-sections on the outside of the die-holder, and knife-sections situated within said channels.

8. In a leather-cutting machine, in combination with a cutting-block, a plurality of die-holders provided with channels between the same, knife-sections secured to the outside of said assembled die-holders, and knife-sections situated within said channels and having overhanging end portions to interfit with adjacent knife-sections.

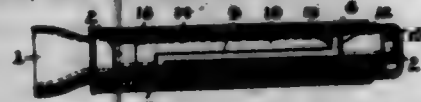
708,161. GARMENT HOOK AND FASTENER. JAMES H. TAYLOR and EDNA TAYLOR, Philadelphia, Pa. Original application filed Sept. 7, 1900, Serial No. 29,369. Divided and this application filed May 16, 1902. Serial No. 107,857. (No model.)



Claim.—1. A device of the kind specified, consisting of a plate having a lip at one of its side edges thereof bent toward one side of the plate to form a hook extending transversely thereon, a bearing at one end of the plate and on the side thereof opposite said hook, the outer end of said bearing being situated adjacent to the edge of the plate from which said hook extends and the inner end of said bearing being between the side edges of said plate, a pin with an angular plate having a head engaging the outer end of said bearing, the said pin engaging the inner end of said bearing, and a sheath at the other end of the plate on the side thereof opposite the hook, said sheath being formed integral with said plate.

2. A device of the kind specified, consisting of a plate having a lip at one of its side edges thereof bent toward one side of the plate to form a transverse hook, a bearing at one end of and on the other side of said plate, a pin provided in said bearing and extending longitudinally across the plate approximately at a right angle to said transverse hook, and a sheath at the other end of said plate consisting of an integral lip composed of an end piece H and a side piece G bent against the side of the plate upon which the pin is pivoted, said pin being arranged so that it normally lies against the end piece of said sheath, whereby it is necessary to spring the same in inserting and removing it from said sheath.

708,162. CIGAR PIERCER. EDWARD TUDOR, JR., New York, N. Y. Filed Apr. 25, 1902. Serial No. 104,696. (No model.)



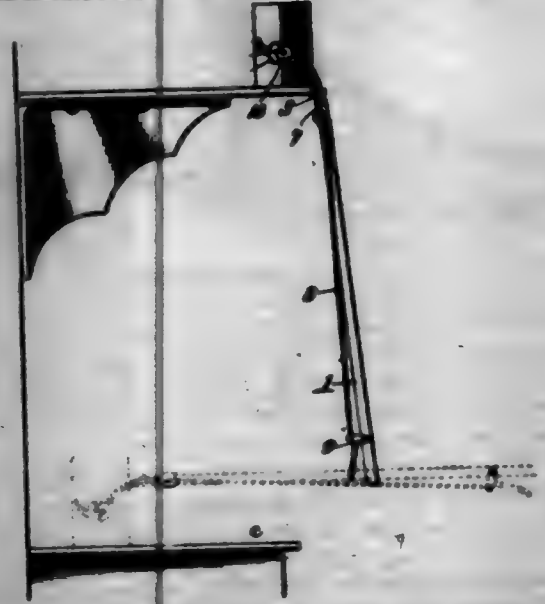
Claim.—1. A cigar-piercer comprising a body, a punch movable therein, an ejector for actuating the punch, a spring for retracting the punch, and means for engaging and disengaging the ejector and the punch.

2. A cigar-piercer, comprising a body, a punch movable in said body, a pin on said punch projecting through a slot in said body, an ejector sliding on said body and having slots to engage with said pin, and a spring attached to the body and the ejector.

3. A cigar-piercer, comprising a body having a longitudinal slot with a short transverse slot at one end, an ejector sliding on the body and having a longitudinal slot with a short transverse slot at each end, a punch in said body having a pin engaging with said slot, and a spring engaging said body and ejector and fastened to them respectively at each end.

4. In a cigar-piercer, the combination with the cap 1, of the body 2 having the slots 7 and 8, the punch 3 provided with the pin 6, the ejector 10 having the slots 10, 11 and 12 and the slot 13, the spring 14 attached to the body and the ejector, and the telescopic casing 15, 16.

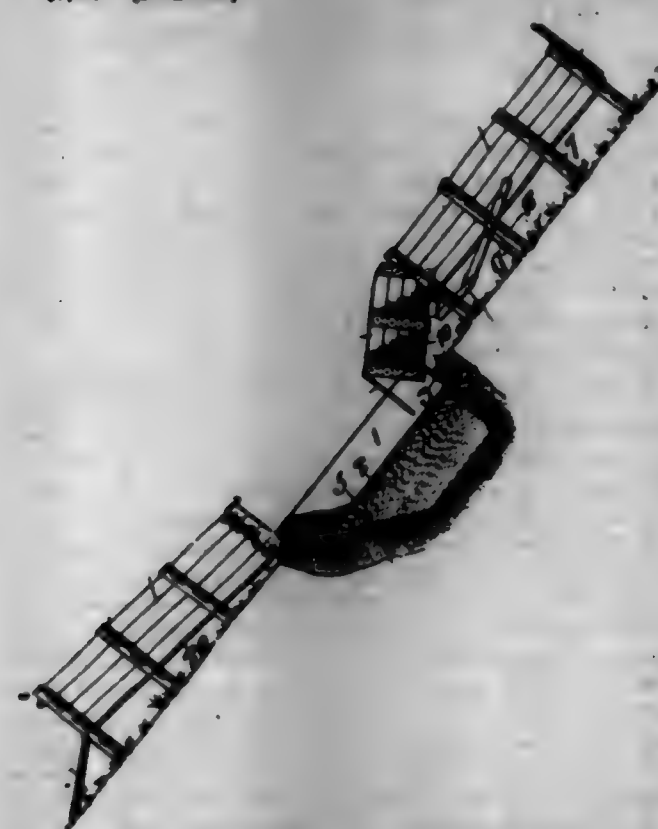
708,163. SHELF-TONGUE. EDWARD W. TOLAN, Kansas City, Mo. Filed Oct. 16, 1901. Serial No. 78,930. (No model.)



Claim.—1. The combination of a handle, tongue secured to one end of the same, jaws swivelled to and at the inner sides of the tongue-arms, and pin-and-dot connections between said arms and jaws whereby the swivel movement is limited to a fraction of a circle, substantially as described.

2. The combination of a handle, tongue secured to one end of the same, jaws swivelled to and at the inner sides of the tongue-arms, and having pin-and-dot connections with the latter, and provided at their inner sides with flanges of compressible material, and at least one of them with an upwardly-disposed hook, substantially as described.

708,164. ANIMAL-DIPPING APPARATUS. WILLIAM E. TUCK, Lima, Pa., assignor to West Distributing Company, New York, N. Y., a Corporation of New York. Filed Dec. 13, 1901. Serial No. 94,746. (No model.)



Claim.—1. An animal-dipping apparatus comprising a tank, an admission-chute and an endwise-tilting platform hinged to the admission-chute arranged to project the animal into the tank when the platform is tilted, substantially as set forth.

2. An animal-dipping apparatus comprising a tank, an admission-chute, an endwise-tilting platform hinged thereto arranged to project the animal into the tank when the platform is tilted and a door for the discharge end of the platform, substantially as set forth.

3. An animal-dipping apparatus comprising a tank, an admission-chute, an endwise-tilting platform hinged thereto arranged to project the animal into the tank when the platform is tilted and a hand-lever for operating the platform, substantially as set forth.

4. An animal-dipping apparatus comprising a tank, an admission-chute, an endwise-tilting platform hinged thereto arranged to project the animal into the tank when the platform is tilted and a dripping-pen leading from the tank, substantially as set forth.

5. An animal-dipping apparatus comprising a tank, an admission-chute, an endwise-tilting platform hinged thereto arranged to project the animal into the tank when the platform is tilted and a door for closing the front end of the chute, the said door serving as an approach for the chute when the door is open, substantially as set forth.

708,165. PROCESS OF SEPARATING THE FIRM MATERIAL FROM THE CRAP. THOMAS TWYMAN, Mounton, England. Filed July 12, 1901. Serial No. 94,747. (No specimens.)

Claim.—1. The herein-described process for separating tin from the scrap, cuttings, &c., which consists in bringing the scrap, cuttings, &c., into contact with finely-divided carbon in presence of a strong solution of chlorid of sodium, substantially as shown and described.

2. The hereinbefore-described process of separating tin from the scrap, cuttings, &c., which consists in forming a strong solution of chlorid of sodium, mingling a quantity of carbon-dust therein, so as to thicken the solution, dipping the scrap or cuttings therein, exposing the same to the air, and removing the same therefrom by washing.

3. The herein-described process of separating tin from the scrap, cuttings, &c., which consists in forming a strong solution of salt in water, mingling a quantity of carbon-dust with such solution to thicken the same, dipping the scrap, cuttings, &c., therein, withdrawing the same therefrom, drying the scrap or cuttings so coated with the solution with an ad-

ditional quantity of fine, pulverized dry carbon, submitting the same to the action of the atmosphere, removing the carbon-dust and tin from the scrap, or cuttings by agitating the same in water, and separating or recovering the suspended oxid of tin.

708,166. NUT-LOCK. DAVID T. WALLACE, Chicago, Ill., assignor of one-third to Charles F. Thompson, Chicago, Ill. Filed July 30, 1901. Serial No. 92,015. (No model.)



Claim.—1. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections which extend beyond the inner face of the nut, of a washer non-rotatively mounted on the bolt, the outer end of which engages the inner face of the nut within said series of teeth or projections, and a locking-ring removably surrounding the body of the washer and non-rotative thereon, said ring being provided with a click adapted for engagement with said teeth or projections on the nut.

2. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt, the outer end of which engages the inner face of the nut within said series of teeth or projections thereof, and a locking-ring surrounding the cylindrical body of the washer and provided with a lug which engages a notch in said body and with a click which is adapted for engagement with said teeth or projections on the nut.

3. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt, the outer end of which engages the inner face of the nut within said annular series of teeth or projections and provided on its inner end with a radial annular flange, and a locking-ring surrounding the cylindrical body of the washer, said ring being provided with a lug which engages a notch in the body of the washer, and with a second lug which engages a notch on the flange of said washer, and being provided also with a click which is adapted to engage the teeth or projections on the nut.

4. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt, the outer end of which engages the inner face of said nut within said annular series of teeth or projections and provided on its inner end with a radial annular flange, and a locking-ring surrounding the cylindrical body of the washer, said ring being provided on its inner margin with an angular lug which fits within a like-shaped notch formed on the side and end faces of the cylindrical body of the washer, and provided also with a click adapted for engagement with the teeth or projections on the nut.

5. The combination with a bolt and nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer mounted non-rotatively on the bolt inside of said nut, the outer end of which engages the inner face of said nut, and a sheet-metal ring removably and non-rotatively mounted on said washer and provided with a click adapted for engagement with the teeth or projections of the nut.

6. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt, said washer being provided in its outer end face with an outwardly-opening groove located in annular alignment with the teeth or projections of the nut, and a non-rotative ring in said groove provided with a click adapted to engage the teeth or projections on the nut, said washer being provided with an opening through which access may be had for releasing said click from said teeth or projections.

7. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on said nut and provided in its outer end face with an outwardly-opening groove located in annular alignment with said teeth or projections, and a spring-click carried by said washer in said groove adapted for engagement with said teeth or projections, said washer being provided with an opening through which access may be had for releasing the click from the said teeth or projections.

8. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer

non-rotatively mounted on the nut and comprising a central body, a radial annular flange on the inner end of said washer, an annular rim on the margin of said flange having its outer margin flush with the end face of said body and adapted to engage the inner face of the nut outside said annular series of teeth or projections, a non-rotative ring located in the groove between said rim and the central body and provided with a click adapted for engagement with the teeth or projections of the nut, said rim being provided in line with said click with an opening.

9. The combination with a bolt and a nut, of a washer non-rotatively mounted on the bolt, interlocking connections between the adjacent faces of said nut and washer which prevent relative rotation thereof in a direction to remove the nut from the bolt, and means preventing separation of said nut and washer longitudinally of the bolt while permitting said nut to turn on the bolt.

10. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on said bolt and carrying a click adapted for engagement with said teeth, and interlocking connections between the washer and nut preventing movement of the same endwise of the bolt.

11. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt and carrying a click adapted for engagement with said teeth or projections, and a hook on the washer adapted to pass over and engage the outer face of the nut to prevent separation of said nut and washer longitudinally of the bolt.

12. The combination with a bolt and a nut, said nut being provided with an annular radial flange and on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt and carrying a click adapted for engagement with said teeth or projections, and a hook on the washer adapted for engagement with the flange on the nut in a manner to prevent separation of said nut and washer longitudinally of the bolt.

13. The combination with a nut and bolt, said nut being provided on its inner face with an annular series of teeth or projections, of a washer non-rotatively mounted on the bolt and provided with a click adapted for engagement with said teeth or projections, said washer being provided with an annular rim adapted for engagement at its outer margin with the inner face of the nut and said rim being provided with a hook which engages the outer face of the nut in a manner to prevent separation of the nut and washer longitudinally of the bolt.

708,167. SPRAY-NOZZLE FOR SPRINKLING-VEHICLES. LOUIS C. WILLIAMS, New York, N. Y., assignor of one-half to William Pretzel, New York, N. Y. Filed Jan. 27, 1902. Serial No. 91,494. (No model.)

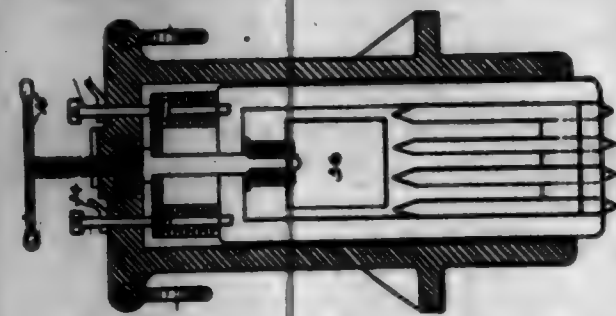


Claim.—1. In a spray-nozzle for sprinkling-vehicles, the combination, with the lower end of a water-supply tube provided with slotted segmental projections at diametrically opposite points, of a spray-nozzle provided with a cylindrical body, suspension-curves for connecting said body with the slotted projections of the supply-tube, means for clamping said body to the tube, said spray-nozzle being provided with a recessed closed bottom and an inclined spring-lip below said recess, substantially as set forth.

2. In a spray-nozzle for sprinkling-vehicles, the combination, with the lower end of a water-supply tube provided with slotted segmental projections at diametrically opposite points, of a spray-nozzle provided with a cylindrical body, means for attaching said body to the supply-tube, means for adjusting the spray-nozzle vertically on said supply-tube, and means for adjusting the same axially thereon, substantially as set forth.

3. In a spray-nozzle for sprinkling, the combination, with the lower end of the water-supply tube provided with slotted segmental projections at diametrically opposite points, of a spray-nozzle composed of a cylindrical body with a closed bottom, a recessed lower portion in said body, provided with an inclined spring-lip in front of said recess, suspension-curves for connecting the body of the spray-nozzle with the segmental projections of the supply-tube, legs for adjusting the suspension-curves vertically on said segmental projections, and means for clamping the spray-nozzle to the lower end of the supply-tube, substantially as set forth.

708,168. ROAD-SCALFIER AND TRENCH-CUTTER. BERNARD ASPLER, Harwich, England. Filed July 27, 1901. Serial No. 66,577. (No model.)



Claim.—1. In a carriage of the class described, the combination with an outer casing of an inner casing movable up and down in the outer casing; means for securing the said inner casing in position, said inner casing being provided at the bottom and on the opposite sides with outwardly-flaring walls provided at their lower ends with inwardly-extending flanges and adjacent to the inner side of said flaring walls with slots or orifices, scarifying teeth or lines adapted to enter said slots or orifices and to project outwardly beyond the flanges and end walls, substantially as shown and described.

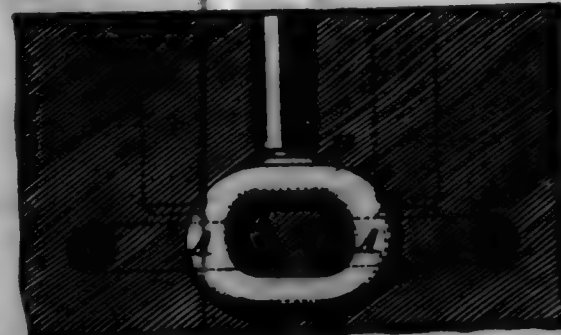
2. In a device of the class described, the combination with an outer casing, of an inner casing supported within the outer casing, buffer-springs interposed between the top of the inner casing and that of the outer casing, and a plurality of scarifying teeth or lines secured to the lower end of the inner casing projecting therefrom outwardly at an angle less than that of a right angle, substantially as shown and described.

3. In a device of the class described, the combination with an outer casing provided with side supporting-flanges, of an inner casing reciprocating up and down in the outer casing provided on two sides of the bottom with outwardly-flaring end walls provided with backwardly-extending flanges provided adjacent to the inner side walls of the flares with slots or orifices, scarifying teeth or lines located in said slots and projecting outward beyond the flange, a supporting-screw having an upper thread coating with a screw-thread carried by the top of the outer casing, the lower end of which screw-rod is threaded and is revolvably connected to the top of the inner casing, a buffer-plate reciprocatingly mounted upon each lower portion of the screw, a plurality of buffer-springs interposed between the buffer-plate and the top of the inner casing, and a plurality of regulating-screws passing through the top of the outer casing, substantially as shown and described.

708,169. MOLDING PROCESS. FREDERICK BALST, Sr., Chester, Pa. Filed Jan. 21, 1902. Serial No. 93,714. (No specimens.)

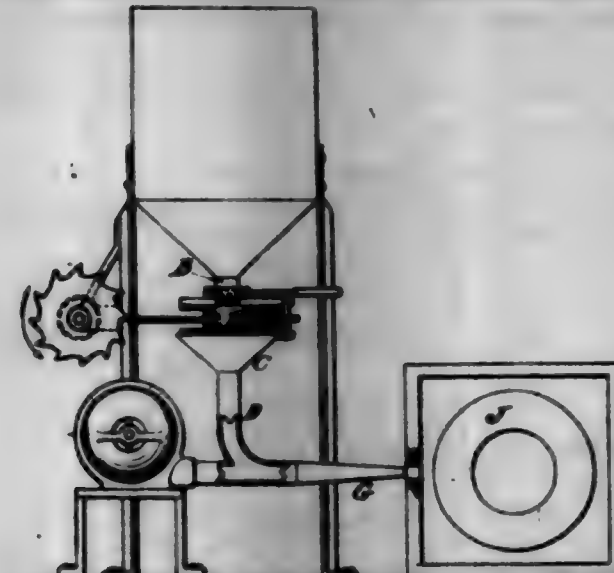
Claim.—The process for molding uniform articles without fins, &c., which consists in first finishing a master-mold of the article to be cast; then forming from said mold by casting a number of fusible patterns; then embedding said patterns in suitable molding material, whereby a series of molds are produced; fusing said patterns and removing the same in a molten state from said molds; and finally introducing molten metal into the spaces formerly occupied by the fusible patterns, whereby a plurality of finished articles are cast without fins, &c., and which are counterparts.

708,170. PROCESS OF CASTING CHAINS. FREDERICK BALST, Sr., Chester, Pa. Filed Aug. 1, 1901. Serial No. 79,666. (No specimens.)



Claim.—The herein-described process for casting chains, which consists in embedding a fusible pattern, for links and headers extending therefrom in a mold with the links interlocked and separated, next fusing said pattern of the links and headers and removing the fused material from the mold, whereby the links and headers are removed, and next pouring molten metal separately into the spaces formerly occupied by the fusible links and headers, whereby the links of the chain are disconnected when removed from the mold.

708,171. CASTING PROCESS. FREDERICK BALST, Sr., Chester, Pa. Filed Jan. 21, 1902. Serial No. 93,717. (No specimens.)



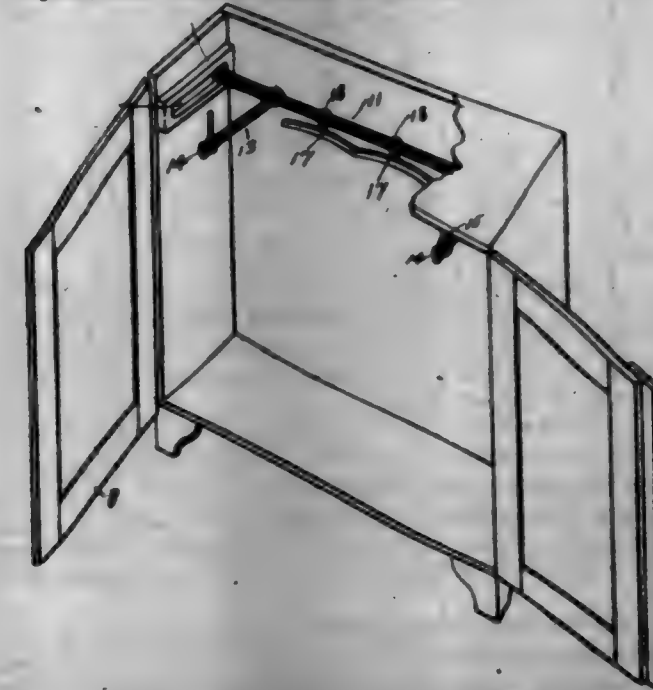
Claim.—1. A process for casting, which consists in forming a fusible pattern, packing molding material therearound by projecting the same with sufficient force to pack the material and form the mold, heating said pattern to a molten state to remove the same, and lastly introducing molten metal into the space formerly occupied by the said pattern.

2. A process for casting which consists in forming a seamless mold by employing a fusible pattern, supporting said pattern in a single receptacle out of contact with the walls thereof, packing the molding material around said pattern by projecting the said material into said receptacle with sufficient force to pack the material and form the mold, heating said pattern to a molten state to remove the same, and then introducing molten metal into the space formerly occupied by the said pattern.

708,172. MOLDING PROCESS. FREDERICK BALST, Sr., Chester, Pa. Filed Mar. 27, 1902. Serial No. 100,312. (No specimens.)

Claim.—The process for molding which consists in first, finishing a master-mold of the article to be cast; then forming from said mold, by casting, a plurality of fusible patterns; then placing said patterns in a suitable receptacle, then injecting molding material thereinto with sufficient force to pack the same, whereby the series of molds are produced; fusing said pattern and removing the same in a molten state from said molds; and finally introducing molten material into the spaces formerly occupied by the fusible patterns, whereby a plurality of finished articles are produced, which are counterparts.

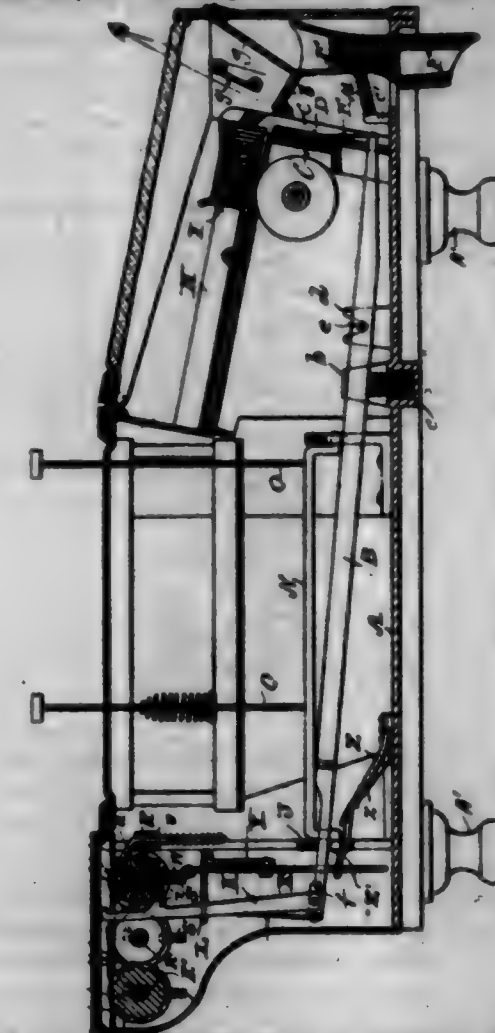
708,178. WARDROBE. GEORGE BELL, New York, N. Y. Filed Sept. 22, 1901. Serial No. 78,198. (No model.)



Claim.—The herein-described means for hanging garments in a wardrobe consisting of slotted supports adapted to be secured to the opposite sides of the wardrobe near the top thereof, a bar mounted in said supports, hangers adapted to be secured to the top of said wardrobe near the front thereof, and provided with eyes or openings and rods connected

with said bar and passing forwardly through said eyes or openings, substantially as shown and described.

708,174. COIN-DELIVERY MACHINE. EDWARD J. BRADY, Waterbury, Vt. Filed Aug. 28, 1901. Serial No. 73,577. (No model.)



Claim.—1. The coin-pusher lever, pawl in connection with said lever, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl, and a bar arranged over said levers to limit upward movement of same.

2. The coin-pusher lever, pawl in connection with said lever, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl, and detents engageable with said ratchet-wheels, pawl-legs normally engaging the ratchet-wheels, and means whereby there is disengagement of a pawl-leg from a ratchet-wheel when a corresponding lever is actuated in one direction of its movement.

3. The coin-pusher lever, taper-shank spring-controlled pawl in connection with said lever and provided with triangular legs, a notched plate engaged by the pawl-shanks and arranged in the path of their legs, and register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl.

4. The coin-pusher lever, pawl in connection with said lever, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl, an aperture bar, and spring-controlled ratchet-wheel detents guided in the bar-aperture.

5. The coin-pusher lever, pawl in connection with said lever, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl, a slide-plate provided with ears, and means for automatic shift of the plate to bring its ears in and out of engagement with said ratchet-wheels coincident with the movement of any one of the aforesaid levers.

6. The coin-pusher lever, pawl in connection with said lever, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl, a slide-plate provided with ears arranged to be brought into engagement with said ratchet-wheels, a cam-lever in connection with the slide-plate, a rocker arranged to be actuated by any one of the aforesaid coin-pusher levers against spring-resistance, and an arm in connection with the rocker engaging the cam portion of the slide-plate lever.

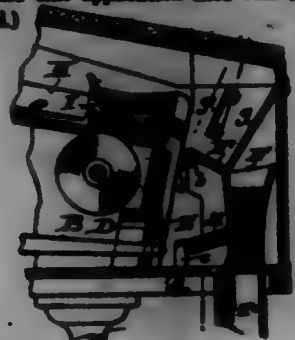
7. The coin-pusher lever, pawl in connection with said lever, a guide-plate for the pawl, register mechanisms having unit-disk ratchet-wheels thereof arranged to be actuated by the pawl and provided with ears arranged to be brought into engagement with said ratchet-wheels, a bracket suspended from the guide-plate, a cam-lever pivoted on the bracket and connected to the slide-plate, a rocker arranged to be actuated

by any one of the aforesaid coin-pusher levers against spring-resistance, and an arm in connection with the rocker engaging the cam portion of the slide-plate lever.

8. The parallel arbors longitudinally adjustable in bearings and provided with pins normally engaging machine-frame notches springs opposing ends of the arbors furthest from the pins, a lock having a cross-head bolt normally clut between the other ends of said arbors and coming-apartures through which to insert an arbor adjusting and turning tool, coming-disks of register mechanisms loose on the aforesaid arbors but held against play longitudinally of the same, and cogs aligned on each arbor to be brought in opposition to laterally-projecting teeth in connection with the corresponding series of disks.

9. The parallel arbors, coming-disks of register mechanisms loose on the arbors, a plate having slots engaged by the disks of each register mechanism, and bars having recesses engaged by said disks below the plate.

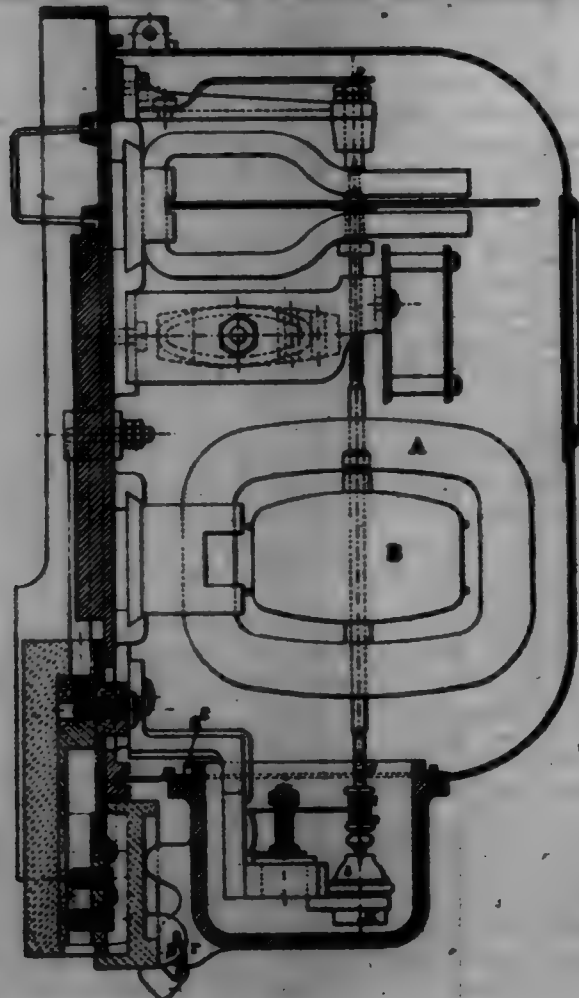
708,175. COIN-DELIVERY MACHINE. EDWARD J. BRADY, Watertown, Wis. Original application filed Aug. 23, 1901, Serial No. 73,577. Divided and this application filed Jan. 10, 1902. Serial No. 80,126. (No model.)



Claim.—1. The coin-delivery chute having the pivotally-hung rear upper flange, the flange-appearing coin-stop plate, and a spring arranged to normally hold said chute in position to have said flange thereof abut the lower edge of said plate.

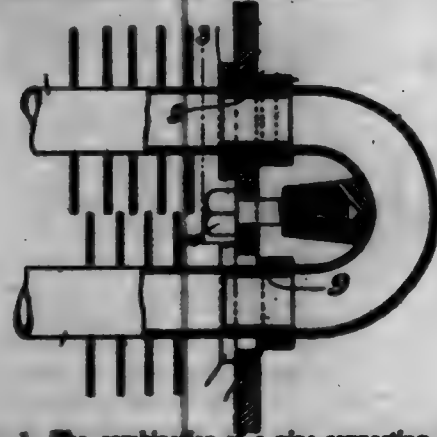
2. The coin-delivery chute having the pivotally-hung rear upper flange, the flange-appearing coin-stop plate, a spring arranged to normally hold said chute in position to have said flange thereof abut the lower edge of said plate, and the back-plate arranged back of the plate aforesaid.

708,176. ELECTRIC METER. FRANCIS A. BROWN and ARTHUR BLANCHET, Paris, France, assignors to Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz, Société Anonyme, Paris, France. Filed Mar. 27, 1902. Serial No. 100,190. (No model.)



Claim.—In a meter-measure the combination with a casing to contain the meter and indicating or registering mechanism, said casing being provided with an opening; of the structure-shaft and commutator of the said meter and one of the bearings for said structure-shaft extending out of said casing through said opening; and a supplemental casing or box detachably secured to the main casing to inclose said commutator and brushes and the bearing, as set forth.

708,177. COOLER. EDWARD E. BURTON, Abington, Mass. Filed Sept. 18, 1901. Serial No. 75,505. (No model.)



Claim.—1. The combination of a pipe-connecting rack or holder formed with a plurality of holes, pipes projecting through said holes and connected by said holder and formed with flanges overlying one face of the holder, a return-band connecting the pipes and having a telescopic connection therewith, and means connective of the holder and the return-band and detachably holding the same and the pipes in assembly.

2. The combination of a pipe-connecting rack or holder formed with a plurality of apertures, longitudinally-divided bushings in said apertures, pipes projecting through the bushings and connected by said holder and formed with flanges overlying said bushings, a return-band connecting the pipes, and means connective of the holder and the return-band and detachably holding the same and the pipes in assembly.

708,178. PICTURE-HOOK HANGER. MARY A. STE, Rochester, Tenn. assignor of one-half to Charles T. Leonard, Minneapolis, Minn. Filed Oct. 26, 1900. Serial No. 24,600. (No model.)



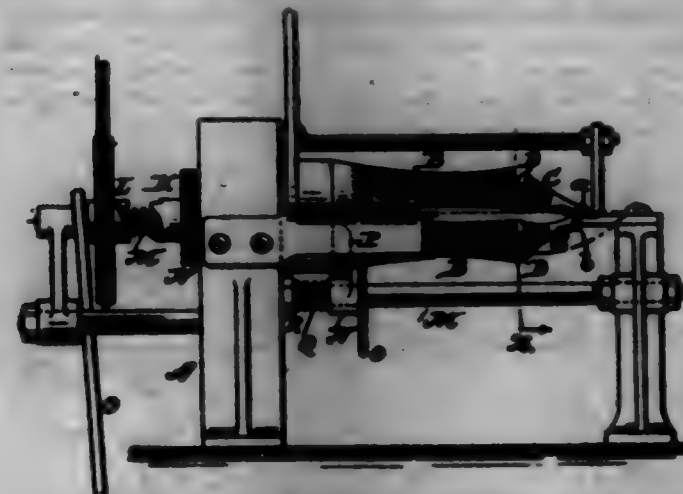
Claim.—1. A picture-hook hanger, comprising a body member having a recess or socket, a suitable pole or stick fitting therein, arms provided on said member between which the hook is supported, one of said arms having a vertical slot, for the purpose specified.

2. A picture-hook hanger, comprising a body member having a recess or socket, a suitable pole or stick fitting therein, arms provided on said member between which the hook is supported, one of said arms being longer than the other and the shorter arm being provided with a vertical slot, for the purpose specified.

3. A picture-hook hanger, comprising a body member having a recess or socket, a suitable pole or stick fitting therein, arms provided on said member between which the hook is supported, one of said arms being longer than the other and inwardly curved and adapted to engage the upper portion of the hook and direct it to its rest on the molding and the shorter arm being provided with a vertical slot, for the purpose specified.

4. A picture-hook hanger, comprising a substantially cylindrical cap 4 having a socket 5 to receive the end of a pole or stick, arms 6 and 7 provided at the upper end of said cap and forming continuations of the opposite walls thereof, the end of said cap between said arms being provided with a curved surface 8, conforming substantially to the curved end of a picture-hook, and the arm 6 being inwardly curved to protrude said surface and engage the curved upper surface of the hook and aid in seating the same on the molding.

708,179. GRAB-MACHINE. THOMAS R. CARPENTER, Providence, R. I. Filed June 1, 1901. Serial No. 82,745. (No model.)



Claim.—In a grab-machine, the combination of three main rollers properly mounted and arranged one above the other two and in a vertical plane midway between them, a companion conical roller rotatable with the upper main roller, supported thereby at its inner end and provided at its outer end with a beveled conical lip and having a suitable support at said outer end, a companion conical roller for each of the lower main rollers and rotatable therewith, respectively, and supported thereby, respectively, at the inner end, said lower conical rollers being shorter than the upper conical roller and each having a plane circular outer end with means of support at said outer end and said three conical rollers extending angularly from their respective companion main rollers and converging at their outer ends and so arranged that the conical lip of the upper conical roller projects over and is in contact with the plane small ends of the lower conical rollers, substantially as described.

708,180. PRINTING ATTACHMENT FOR PAPER-CLIPS. JULIUS I. GARR, Chicago, Ill. Filed Dec. 1, 1900. Serial No. 24,600. (No model.)



Claim.—1. The combination with a paper-clip, having a spring-actuated clamping-jaw, of a printing-plate and means connecting the printing-plate with the jaw-operating mechanism of the clip, whereby the jaw and frame move together and the one holds the paper while the other prints it, substantially as described.

2. The combination with a paper-clip, having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a printing-plate, means movably mounted upon the frame and carrying the printing-plate, and means connecting said means for carrying the frame with the jaw-operating mechanism of the clip whereby said jaw-operating mechanism simultaneously moves the jaw and frame into contact with the paper so that as the one holds it the other prints it, substantially as described.

3. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a printing-plate, a yoke slidably mounted upon the frame and carrying the printing-plate, and means connecting said yoke with the jaw-operating mechanism of the clip, substantially as described.

4. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame, means for removably securing the frame to the base, a printing-plate, means movably mounted upon the frame and carrying the printing-plate, and means connecting said means for carrying the printing-plate with the jaw-operating mechanism of the clip, substantially as described.

5. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame, means for adjustably securing said frame to the base, a printing-plate, means movably mounted upon the frame and carrying the printing-plate, and means connecting said means for carrying the printing-plate with the jaw-operating mechanism of the clip, substantially as described.

6. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame, a post rising from the base, means for adjustably securing the frame to the post, a printing-plate, means movably mounted upon the frame and carrying the printing-plate, and means connecting said means for carrying the printing-plate with the jaw-operating mechanism of the clip, substantially as described.

7. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame, a post for supporting the frame, means for removably securing the post to the base, a printing-plate, means movably mounted upon the frame and carrying the printing-plate, and means connecting said means for carrying the printing-plate with the jaw-operating mechanism of the clip, substantially as described.

8. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a yoke slidably mounted upon the frame, a printing-plate carried by the yoke, an arm projecting from the yoke, a second arm joined to the arm first aforesaid, and means connecting the second arm with the jaw-operating mechanism of the clip, substantially as described.

9. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a yoke slidably mounted upon the frame, a printing-plate carried by the yoke, an arm projecting from the yoke, a second arm joined to the arm first aforesaid, and means connecting the second arm with the jaw-operating mechanism of the clip, substantially as described.

10. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a yoke slidably mounted upon the frame, an arm projecting from the yoke, a second arm having a cross-head occupying the end carried by the arm of the yoke, a spring-actuated detent for holding said cross-head in said end, and means connecting the cross-head with the jaw-operating mechanism of the clip, substantially as described.

11. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a yoke slidably mounted upon the frame, a printing-plate carried by the yoke, a spring-arm projecting from the yoke and having a rest, a second arm having a cross-head occupying said rest, a detent for holding said cross-head in said rest, and means for connecting the second arm with the jaw-operating mechanism of the clip, substantially as described.

12. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base and having vertical slides provided with slots extending quite to the bottom thereof, a yoke slidably mounted upon the frame and having vertical slides, a rod extending from one to the other of the vertical slides of the yoke and passing through the slots in the slides of the frame, a printing-plate carried by said rod, and means connecting the yoke with the jaw-operating mechanism of the clip, substantially as described.

13. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base and having vertical slides provided with slots extending quite to the bottom thereof, a yoke slidably mounted upon the frame and having vertical slides, a rod extending from one to the other of the vertical slides of the yoke and passing through the slots in the slides of the frame, a printing-plate carried by said rod, and means connecting the yoke with the jaw-operating mechanism of the clip, substantially as described.

14. The combination with a paper-clip having a base and a spring-actuated clamping-jaw, of a printing attachment having a frame secured to the base, a yoke slidably mounted upon the frame, a printing-plate carried by the yoke and movable to a position that brings its printing-surface below the bottom of the frame, a detent spring interposed between the frame and yoke, and means connecting the yoke with the jaw-operating mechanism of the clip, substantially as described.

708,181. MARINE PROPELLER. CARLOS OMBERTINO DA ROCHA CARVALHO, Lisbon, Portugal. Filed Feb. 6, 1902. Serial No. 62,846. (No model.)



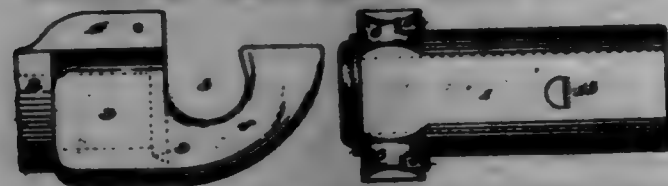
Claim.—1. In a marine propeller, a reciprocating part, guideways for the same, links connected with said part, a cross-head mounted to travel on said ways, propeller-blades pivoted on the cross-head, articulated connections between the blades and a central shaft, and an axial rod carried by the cross-head and movably connected with said part, as and for the purpose specified.

2. The combination of the guideways a, a, the reciprocating shaft C, the cross-head B attached to said shaft and formed with the flanges d, d', engaging the ways a, a, and with the horizontal extension P', the cross-bar G, formed with the runners g, g, the propeller-blades P, P', pivotedly supported on the cross-bar G, and the toggle-links e, e', the whole arranged and operating substantially in the manner and for the purpose described.

3. The combination of the guideways a, a, the cross-head B, supported upon and between, the said ways a, a, the reciprocating shaft C, attached to the cross-head, the axial recess P', formed in the horizontal member P', of the cross-head B, the cross-bar G, formed with the axial rod A, engaging the recess P', in the cross-head B, the propeller-blades P, P', pivotedly supported on the cross-bar G, and the toggle-links e, e', the whole arranged and operating substantially as set forth.

4. In a marine propeller, the combination of fixed guideways, a cross-head guided thereon, a cross-head also mounted on said ways, propeller-blades pivoted on the last-mentioned cross-head, a horizontal member on the other cross-head, axial means on the one movably engaged with the other, a beam, wrist-pin thereon and toggle connections, as set forth.

708,182. ROSS-COUPLING. GEORGE H. CARPENTY, Milwaukee, Wis. Filed Oct. 7, 1901. Serial No. 77,703. (No model.)



Claim.—1. A base-coupling comprising a male member and a female member, the female member having an enlarged engaging end, with jaws projecting therefrom and recesses in said jaws, the male member having studs projecting from opposite sides thereof at the engaging end, and heads on said studs, a reduced portion carried on the engaging end of the male member to enter an annular seat provided therefor in the engaging end of the female member, and a locking lever or tongue pivoted on the female member and adapted to engage the male member to lock the members together, substantially as described.

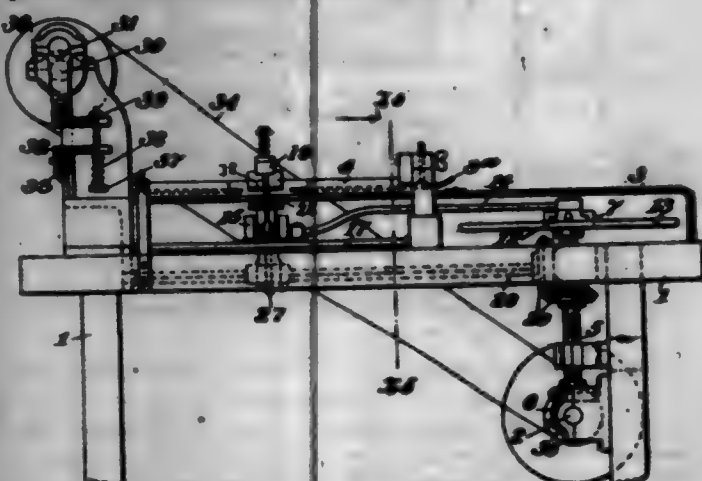
2. A base-coupling comprising two interlocking members, jaws carried by one member with recesses therein, studs carried by the other member for locking engagement in the recesses of said jaws, a reduced portion carried on the engaging end of one member, a gasket on said reduced portion, packing-strips secured to the studs, and a locking device carried by one member and adapted to engage the other member to lock the members together, substantially as described.

708,183. MACHINE FOR FEEDING AND CUTTING SHEETS. WILLIAM G. CHAPIN, Brooklyn, N. Y., assignor to the Thompson & Norris Company, a Corporation of New Jersey. Filed Nov. 9, 1901. Serial No. 61,063. (No model.)

Claim.—1. In a machine of the character described, the means for feeding the sheet material intermittently, said means comprising a reciprocating carriage, a gripper device thereon for seizing the material, a cam rotatively mounted in said carriage and adapted to operate said gripper, and a rotating spline-shaft parallel with the path of the gripper-carriage and extending through said cam, whereby the latter is rotated during the movement of the carriage.

2. In a machine of the character described, the means for feeding the sheet material intermittently, said means comprising a horizontally

rotating crank, a gripper-carriage slidably mounted on guides, the said guides, a rod connecting said crank and carriage, a fixed gripper-jaw on said carriage, the movable gripper-jaw on said carriage, the rotating-spline of said jaws, a cam 27 mounted rotatively in said carriage and adapted to operate said movable jaw, a spline-shaft 28, rotatively mounted parallel with the guides of the carriage, said shaft extending through a square aperture in the cam, and means for driving said shaft.



3. In a machine for feeding sheets intermittently, and cutting off the same, the combination with a main driving-shaft, a reciprocating half-driven from said shaft, and means for feeding the sheet to the trim, said means comprising an upright crank-shaft driven from the main shaft, a crank on the upright shaft, a gripper-carriage, a rod coupling the wrist of the crank with said carriage, a sheet-gripper on said carriage, a cam rotatively mounted in the carriage for operating the gripper, and a spline-shaft driven from the main shaft and driving in turn the said cam.

4. In a machine for the purpose specified, the feeding device, comprising the carriage, the trackway guideways therefor, the upper jaw of the gripper mounted on said carriage and provided with cushion-springs, the lower jaw of the gripper mounted movably, its guide and spring, the cam for operating said lower jaw, said cam being mounted rotatively in said carriage, means for reciprocating said carriage and means for rotating said cam during the movement of the carriage.

5. In a machine for the purpose specified, the gripper device comprising the carriage 15, having upright guide-rods 20, the bar 19 mounted on said rods, the cushion-springs behind said bar, the upper gripper-jaw 18 mounted on said bar, the guide 23 of the lower gripper-jaw 22, the said jaw, the spring for depressing said jaw in its guide, and the cam 27, mounted rotatively in the carriage under said lower jaw and bearing thereon.

708,184. CARTON-MACHINE. WILLIAM G. CHAPIN, Brooklyn, N. Y., assignor to the Thompson & Norris Company, a Corporation of New Jersey. Filed Nov. 12, 1901. Serial No. 61,061. (No model.)

Claim.—1. In a machine for the purpose specified, the combination with a cutter, of means for folding over the flaps of the creased strip a, means for feeding said strip intermittently to the cutter, and means for applying a gummed or glued strip z over the joint between the folded flaps of the carton-strip as the latter is fed, of a movable heater for drying said applied strip, and means for moving said heater, substantially as and for the purpose set forth.

2. In a machine for the purpose specified, the combination with the cutter, of means for folding over the flaps of the creased strip a as it is moved along, means for applying adhesive material to the strip z, means for applying said strip to the meeting edges of the flaps on the strip as the latter is moved along, and a heater for drying said strip, of an intermittent feeder for the strip, said feeder comprising a movable upper gripper-jaw and a movable lower gripper-jaw, means coupling said jaw for simultaneous action, a reciprocating carriage on which said jaws are mounted, a spring for retracting said jaws, a cam, rotatively mounted in said carriage for closing said jaws, and means for rotating said cam during the reciprocation of the carriage, substantially as and for the purpose set forth.

3. In a machine for the purpose set forth, the combination with an intermittently-operating cutter, an intermittently-operating feeder for the carton-strip, means for applying an adhesive hinging-strip to the moving carton-strip and means for drying the adhesive material on said strip, said means comprising a hallow heater 18, mounted movably over the bed of the machine, means for supplying steam to said heater, and means for alternately raising and lowering said heater, substantially as set forth.

4. In a machine for the purpose set forth, the combination with a reciprocating carriage, of the gripper device thereon, comprising the upper jaw 42, the bar carrying the same, the lower jaw 43, the bar carrying the same, the draw-bar 44, the coupling-levers 44 whereby the up-

per and lower jaws are made to operate simultaneously, the spring for opening the jaws, a cam rotatively mounted in the carriage and bearing on the lower jaw of the gripper device for closing the jaws of the latter, and means for rotating said cam uniformly during the movements of the carriage, substantially as set forth.



5. In a machine for the purpose specified, the combination with the mechanisms for folding, feeding and cutting the carton-strip, and means for applying an adhesive hinging-strip thereon, of means for pressing and drying the adhesive material of the last-named strip, said means comprising the hallow metal heater 18, the pipes 14 for supplying steam thereto, the rock-shaft 15, having a lifting-arm, the lifting-rod 20, the spring 21 on said rod, the arm 17 on the rock-shaft, and the rotating cam 16, adapted to bear on the arm 17 and lift the heater, substantially as set forth.

6. In a machine for the purpose specified, the combination with means for feeding forward the strip to be folded, and means for gradually turning over the marginal flaps on the strip, of the curved bearers supporting said turning means, substantially as and for the purpose set forth.

7. The combination with the heater, of a disk-like base 2* rotatively mounted thereon, and a turner or folder 2 rotatively mounted on said base, substantially as set forth.

708,185. ROADWAY FOR MOTOR-VEHICLES. ALEXANDER CLARK, EVANSTON, Ill. Filed Jan. 20, 1902. Serial No. 60,426. (No model.)

Claim.—1. An intersecting junction for a highway and a roadway for motor-vehicles, the latter consisting of two parallel tracks, and parallel guard-rails projecting upwardly from said tracks, said guard-rails terminating at each side of the highway, and the tracks and the highway being graded to bring the same to an approximate level and thereby facilitate the passage of motor-vehicles from the roadway to the highway and vice versa.

2. An intersecting junction for a highway and a roadway for motor-vehicles, the latter consisting of two parallel tracks, and parallel guard-rails projecting upwardly from said tracks, said guard-rails terminating at each side of the highway, and the tracks and the highway being graded to bring the same to an approximate level and thereby facilitate the passage of motor-vehicles from the roadway to the highway and vice versa, and the terminals of said guard-rails on each side of the roadway being curved so as to afford no abrupt obstructions to the ingress and egress of the vehicles.

3. A roadway for motor-vehicles consisting of two separate parallel tracks, each comprising a solid mass of concrete, and having a smooth non-metallic surface which constitutes the traction-surface of the track, and parallel guard-rails anchored to and projecting upwardly from said track, said guard-rails terminating at each side of an intersecting roadway, and the upper surfaces of the track and the approach thereto at the intersecting roadway being located at the level of said intersecting roadway there-

by facilitating the passage of vehicles from the motor-vehicle roadway to the intersecting roadway and vice versa.



4. A roadway for motor-vehicles, consisting of two parallel tracks, parallel guard-rails, removable sections in said guard-rails for permitting ingress and egress of vehicles to and from the roadway and an approach to said roadway opposite to said removable sections which is located at the level of the track.

5. A roadway for motor-propelled vehicles consisting of two parallel tracks and projecting upwardly from said tracks, wooden guard-rails and metal wearing-strips attached to the vertical faces of said guard-rails, the ends of said wearing-strips being turned inwardly and embedded in said guard-rails.

6. A roadway for motor-vehicles comprising two parallel tracks, and parallel guard-rails projecting upwardly from said tracks, said guard-rails being provided with removable sections.

7. A roadway consisting of two parallel tracks, and parallel guard-rails projecting upwardly from said tracks, said guard-rails being provided with removable sections, each of which is hinged at one end and means for securing the free end of each of said removable sections, when in its closed position.

8. A roadway for motor-vehicles consisting of two parallel tracks, each comprising a solid mass of concrete having a smooth top surface constituting the traction-surface thereof, and parallel guard-rails anchored to and projecting upwardly from said tracks.

9. A roadway for motor-vehicles consisting of two parallel tracks, each comprising a solid mass of concrete having a smooth top surface constituting the traction-surface thereof, parallel guard-rails supported on said tracks and projecting upwardly therefrom, and both embedded in said tracks and projecting upwardly therefrom to which the guard-rails are secured.

10. A roadway for motor-propelled vehicles consisting of two parallel tracks, wooden guard-rails projecting upwardly from said tracks, and metal wearing-strips attached to the vertical faces of said guard-rails, the ends of said wearing-strips being turned inwardly and embedded in said guard-rails.

708,186. VEHICLE. ALEXANDER CLARK, Chicago, Ill. Filed Feb. 17, 1902. Serial No. 60,426. (No model.)

Claim.—1. A vehicle consisting of a running-gear embracing longitudinal side bars, a box or body supported on said running-gear having a reduced part which extends downwardly between said side bars, and the upper or enlarged part of which overhangs said side bars, and means on said running-gear for detaching the box from the running-gear and loading the same thereon.

2. A vehicle consisting of a running-gear embracing longitudinal side bars, a box or body supported on said running-gear and having a re-

desired lower part which extends downwardly between said side bars, means for lowering said box to rest upon the surface which supports the vehicle, the upper or enlarged part of said box or body projecting over or overhanging the side bars, and means for removing the box or body from the running-gear when the same is resting on the surface which supports the vehicle.



3. A vehicle consisting of a running-gear comprising longitudinal side bars connected at their ends by transverse bars, a box or body located principally above the running-gear and having a part which extends between said bars and means for depending said box or body from said bars constructed to permit detachment of said box or body, one of said transverse bars being removable from the side bars to permit the running-gear to be moved away from the box when the latter rests on the surface which supports the running-gear.

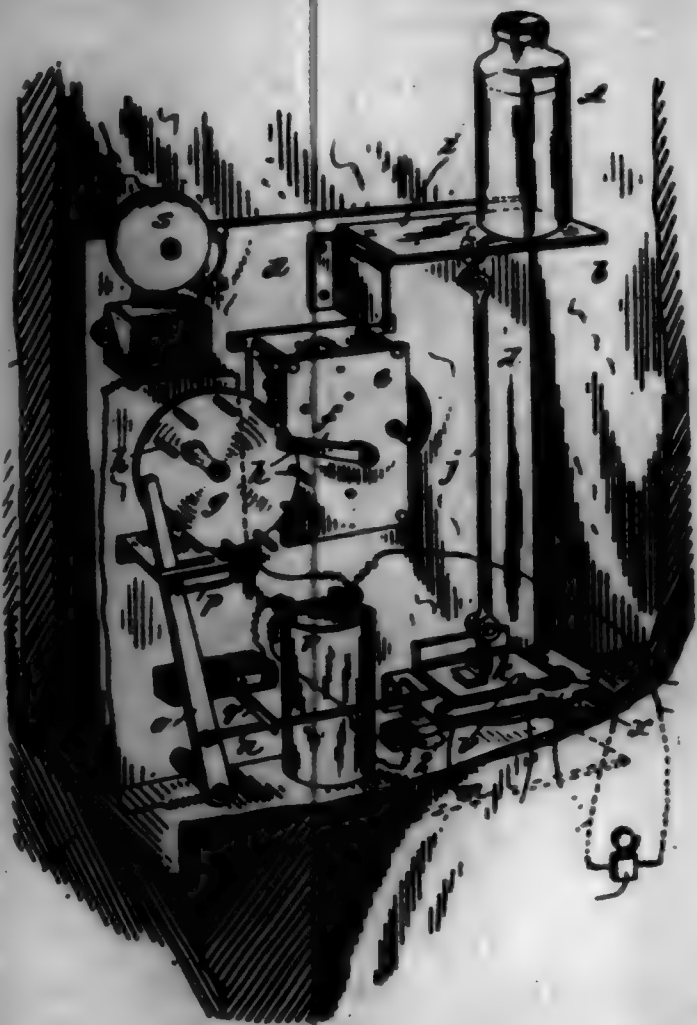
4. A vehicle consisting of a running-gear comprising longitudinal side bars connected at their ends by transverse bars, a box or body having a part which extends between said side bars, said box or body being constructed to permit detachment of said box or body, one of said transverse bars being detachable to permit removal of the box or body from the running-gear.

5. A vehicle consisting of a running-gear embracing longitudinal side bars, said bars supported on said side bars and extending transversely between the same, means for raising and lowering said side bars, a box or body supported on said side bars and having a reduced lower part which extends downwardly beneath said side bars to engage the side bars, the upper part of said box or body overhanging the side bars of the running-gear, and means for detaching the box or body from the running-gear or attaching the same thereto when said box or body is lowered to rest upon the surface which supports the vehicle.

6. A vehicle consisting of a running-gear, permanently-attached axle thereon upon which the supporting-wheels are mounted, a box or body supported on said running-gear, and means for raising or lowering said box-body, said running-gear being capable of being opened at one end, whereby the running-gear may be moved away from the box or body when the latter is resting on the surface which supports the running-gear.

7. A vehicle consisting of a running-gear, comprising longitudinal side bars, axles permanently attached in said side bars and supporting-wheels mounted on said axles, a box or body supported on said running-gear and having a part extending downwardly between said side bars and means for raising or lowering said box or body, said side bars being permanently connected at one end of the running-gear by means of a transverse member or members, but not permanently connected at the other end of said running-gear, whereby the running-gear may be moved away from the box or body when the latter is resting on the surface which supports the running-gear.

708,187. BURGLAR-PROOF DEVICE FOR SAFE-DOORS. ALVIN H. COHEN, Springfield, Mass. Filed Mar. 17, 1902. Serial No. 98,567. (No model.)



Claim.—1. The combination with a door of a safe or the like, of a hinged shelf on which is supported a breakable receptacle containing a noxious substance, a movable device adapted to support said shelf, said device being held in shelf-engaging position by said door when the latter is closed, and means for disengaging said device from the shelf when the door is opened.

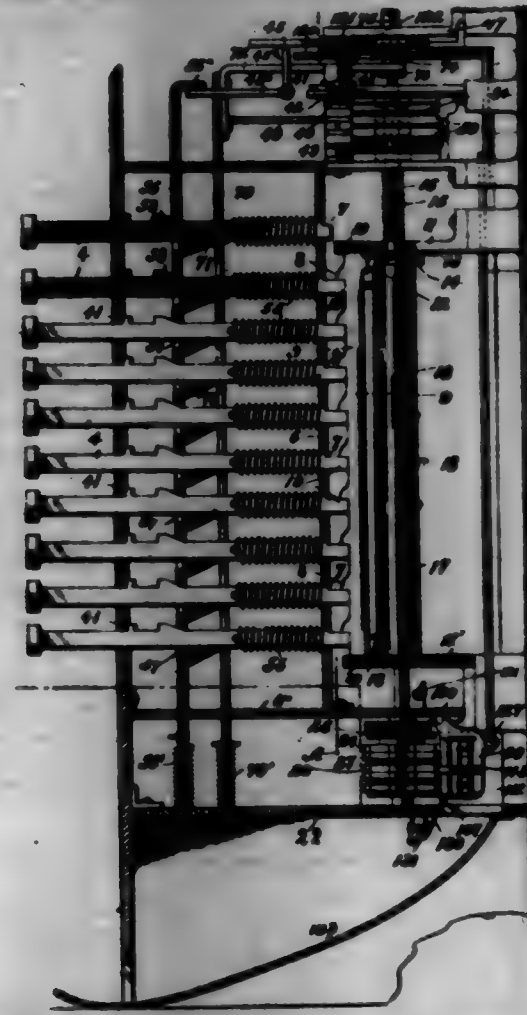
2. A burglar-proof attachment for safe-doors and the like comprising a hinged shelf on which is supported a breakable receptacle for containing a noxious substance, a latch held in contact with the door in engaging position relative to said shelf whereby, by the opening of the door, the shelf may be released to drop said receptacle, combined with an auxiliary sustaining-latch for said shelf, and a suitable clock mechanism associated with said latch, whereby the latter, at a predetermined time, may be moved into engagement with said shelf to render it inoperative.

3. The combination with a door of a safe or the like, of a hinged shelf on which is supported a breakable receptacle containing a noxious substance, a movable device adapted to support said shelf, said device being held in shelf-engaging position by said door when the latter is closed, a latch to maintain said shelf during the closing of the door and adapted to be engaged by said movable device and swing out of contact with the shelf, and a suitable spring for disengaging the said movable device from said shelf when the door is opened.

4. A burglar-proof attachment for safe-doors and the like comprising a hinged shelf on which is supported a breakable receptacle for containing a noxious substance, a latch held in contact with the door in engaging position relative to said shelf whereby, by the opening of the door, the shelf may be released to drop said receptacle, an electrical circuit having an alarm-bell therein, and means operable upon the release of said shelf to effect the ringing of said bell.

5. A burglar-proof attachment for safe-doors and the like comprising a hinged shelf on which is supported a breakable receptacle for containing a noxious substance, a latch held in contact with the door in engaging position relative to said shelf whereby, by the opening of the door, the shelf may be released to drop said receptacle, combined with an auxiliary sustaining-latch for said shelf, and a suitable clock mechanism associated with said latch, whereby the latter, at a predetermined time, may be moved into engagement with said shelf to render it inoperative, an electrical circuit having an alarm-bell therein, and means operable by the movement of said auxiliary latch to effect the ringing of said bell.

708,188. CASE-REGISTER. ISAAS S. DUBOIS, Chicago, Ill., assigner, by mesne assignments, to American Mechanical Cashier Company, a Corporation of New Jersey. Filed Mar. 9, 1902. Serial No. 7,573. (No model.)



Claim.—1. The combination with a plurality of indicators and a plurality of sets of keys, of a controlling device corresponding to each set of keys, and controlled by said keys so as to move from normal position to different positions, clutch connections between the respective controlling devices and indicators, means adapted to be operated by one of said sets of keys to release said clutch connections, means for restoring the indicators to normal position when so released, and restoring mechanism for the aforesaid controlling devices, operatively connected with the clutch-releasing means so as to cause engagement of the clutch and consequently effect the operation of the indicator during the restoring movement.

2. The combination with a register and a plurality of keys, of a controlling device controlled by said keys so as to move from normal position to different positions, an indicator and an indicator-shaft, a clutch connection between the controlling device and the indicator-shaft, means for releasing said clutch connection, means for restoring the indicator to normal position when thus released, a restoring mechanism for the aforesaid controlling device operatively connected with the clutch-releasing means so as to cause engagement of the clutch and consequently effect the operation of the indicator during the restoring movement, and a pawl-and-ratchet connection between the indicator-shaft and the register to cause operation of the register during each restoring movement.

3. The combination with a plurality of keys, of a rotary controlling device provided with an actuating-spring and with a series of steps adapted to engage the respective keys to arrest the rotary controlling device in different positions, detent means adapted to hold the rotary controlling device against the action of its spring and adapted to be operated by the said keys, so as to release the rotary controlling device when a key is operated but to return to operative position upon release of the keys so as to hold the rotary controlling device in the position in which it is arrested by the key, restoring mechanism for the rotary controlling device and an indicator having operating connection with the rotary controlling mechanism and operated during the return movement thereof.

4. The combination with a plurality of keys, of a rotary controlling device provided with an actuating-spring and with a series of steps adapted to engage the respective keys to arrest the rotary controlling device in different positions, detent means adapted to hold the rotary controlling device against the action of its spring and adapted to be operated by the said keys, so as to release the rotary controlling device when the key is operated but to return to operative position, upon release of the keys, so as to hold the rotary controlling device in the position in which it is arrested by the key, restoring mechanism for the rotary controlling device

and a register having operating connection with the rotary controlling mechanism and operated during the return movement thereof.

5. In a register, the combination with a rotary controlling device carrying a series of steps, and a spring for actuating said controlling device, of a plurality of keys arranged to engage said steps to arrest said controlling device in different positions, a ratchet connected to said rotary controlling device and a pawl device controlled by said keys and engaging said ratchet so as to hold the rotary controlling device in normal position until released by the operation of a key, and after the release of the key from said step device, to hold the said controlling device in the position in which it was held by the key.

6. In a cash-register, the combination of a plurality of indicating devices, spring-driven controlling mechanisms adapted to shift the respective indicating devices, groups of keys acting as steps for the respective controlling mechanisms, means for restoring the keys, pawl-and-ratchet means for holding the controlling mechanism in shifted position when the key is restored to normal position and means for restoring the controlling mechanism.

7. In a register, the combination with a rotary controlling device carrying a series of steps, and a spring for actuating said controlling device, of a plurality of keys arranged to engage said steps to arrest said controlling device in different positions, a ratchet connected to said rotary controlling device, a pawl device controlled by said keys and adapted to engage the said ratchet to hold the rotary controlling device against the action of the spring except when a key is operated, locking means engaging with said keys to lock same in operative position, a restoring mechanism for the rotary controlling device, a releasing means connected with the said locking means and operated by the restoring mechanism to release the said locking means, and means for returning the keys to normal position when released from the locking means.

8. In a register, the combination with a rotary controlling device carrying a series of steps, and a spring for actuating said controlling device, of a plurality of keys having shoulders and arranged to engage said steps, to arrest said controlling device in different positions, a ratchet connected to said rotary controlling device, a pawl device controlled by said keys and engaging the ratchet to hold the rotary controlling device against the action of its spring except when a key is operated, a locking-plate adapted upon the operation of any of said keys to engage with the shoulder of each key to hold same in operative position, restoring mechanism for the rotary controlling device, a releasing device engaging with the said locking-plate and adapted to be operated by the restoring mechanism to release said locking-plate, and means for returning the keys to normal position when released from the locking means.

9. In a cash-register the combination of a rotary controlling device provided with an actuating-spring and with a series of steps, a plurality of keys adapted when operated to engage the respective steps of the said controlling device to stop the said controlling device in different positions, locking means adapted to engage the said keys, when operated, to hold same in operative position, an indicator, a clutch connection between the indicator and the rotary controlling device, means for releasing said clutch connection, restoring mechanism for the rotary controlling device, a releasing device engaging with the said locking device and adapted to be operated by the said restoring mechanism and means operated by said restoring mechanism to cause engagement of the clutch previous to the restoring movement of the rotary controlling device, so that the indicator is operated in each restoring movement.

10. In a cash-register, the combination of a rotary controlling device provided with an actuating-spring and with a series of steps, a plurality of keys adapted when operated to engage the respective steps of the said controlling device to stop the said controlling device in different positions, locking means adapted to engage the said keys, when operated, to hold same in operative position, a register, a clutch connection between the register and the rotary controlling device, means for releasing said clutch connection, restoring mechanism for the rotary controlling device, a releasing device engaging with the said locking device and adapted to be operated by the said restoring mechanism and means operated by said restoring mechanism to cause engagement of the clutch previous to the restoring movement of the rotary controlling device, so that the indicator is operated in each restoring movement.

11. In a cash-register the combination with an indicator, of a rotary controlling device provided with an actuating-spring and with a series of steps, a plurality of keys respectively adapted, when operated, to engage with the respective steps of the rotary controlling device and stop the latter in different positions, locking means adapted to lock said keys in operative position, means for returning the keys to normal position when released from said locking means, a clutch connection between the indicator and the rotary controlling device, a clutch-releasing plate operated by said keys and adapted to release the clutch when a key is operated, restoring mechanism for the rotary controlling device, an actuator for said restoring mechanism, and means operated by said actuator to cause re-

loss of the key-locking plate, from the key and consequent movement of the key and the clutch-releasing device to normal position and the reengagement of the clutch before the resetting operation, so that the indicator will be operated during each resetting operation.

12. In a cash-register, the combination with a register, of a rotary controlling device provided with an actuating-spring and with a series of stops, a plurality of keys respectively adapted, when operated, to engage the respective stops of the rotary controlling device and stop the latter in different positions, locking means adapted to lock said keys in operated position, means for returning the keys to normal position when released from such locking means, a clutch connection between the register and the rotary controlling device, a clutch-releasing plate operated by said keys and adapted to release the clutch when a key is operated, resetting mechanism for the rotary controlling device, an actuator for said resetting mechanism, and means operated by said actuator to cause release of the key-locking plate from the key and consequent movement of the key and the clutch-releasing device to normal position and reengagement of the clutch before the resetting operation, so that the register will be operated during each resetting operation.

13. In an indicator, the combination with an indicator, of a rotary controlling device provided with an actuating-spring and with a series of stops, a plurality of keys respectively adapted, when operated, to engage with the respective stops of the rotary controlling device and stop the latter in different positions, a ratchet on the rotary controlling device and a pawl engaging therewith and controlled by said keys, to hold the rotary controlling device against the action of said spring except when said keys are in operated position, locking means adapted to lock said keys in operated position, means for returning the keys to normal position when released from such locking means, a clutch connection between the indicator and the rotary controlling device, a clutch-releasing plate operated by said keys and adapted to release the clutch when a key is operated, resetting mechanism for the rotary controlling device, an actuator for said resetting mechanism and means operated by said actuator to cause release of the key-locking plate from the key and consequent movement of the key and the clutch-releasing device to normal position and the reengagement of the clutch before the resetting operation, so that the indicator will be operated during each resetting operation.

14. In a register, the combination with a register, of a rotary controlling device provided with an actuating-spring and with a series of stops, a plurality of keys respectively adapted, when operated to engage the respective stops of the rotary controlling device and stop the latter in different positions, a ratchet on the rotary controlling device and a pawl engaging therewith and controlled by said keys, to hold the rotary controlling device against the action of said spring except when said keys are in operated position, locking means adapted to lock said keys in operated position, means for returning the keys to normal position when released from such locking means, a clutch connection between the register and the rotary controlling device, a clutch-releasing plate operated by said keys and adapted to release the clutch when a key is operated, resetting mechanism for the rotary controlling device, an actuator for said resetting mechanism and means operated by said actuator to cause release of the key-locking plate from the key and consequent movement of the key and the clutch-releasing device to normal position and reengagement of the clutch before the resetting operation so that the register will be operated during each resetting operation.

15. In a cash-register, the combination with a stop-cylinder provided with a series of spirally-arranged stops, and a spring for actuating said stop-cylinder, of a series of push-keys, adapted, when operated, to directly engage said stops on the stop-cylinder, a ratchet carried by said stop-cylinder and a pivoted bar engaged directly by said keys and carrying a pawl engaging with said ratchet.

16. The combination with a plurality of controlling-keys, of a controlling device, adapted to be moved from normal position to different positions in the operation of the respective keys, a recording mechanism whose recording means are connected to and moved in conjunction with each controlling device during its movement from normal position, a resetting mechanism for the controlling device, an actuating device for the resetting mechanism having a to-and-fro movement, a plate for the recording mechanism connected to said actuating device so as to operate to produce a record during one movement of the actuating device, the return movement of the actuating device serving to withdraw the plate and reset the controlling device, and an indicator and means controlled by said actuating device to connect said indicator to said controlling device during each resetting movement.

17. In a cash-register, the combination with the registering device, of a plurality of rotary controlling devices therefor, a plurality of groups of keys controlling the said register through the said controlling devices, a handle, a shaft operated thereby, runs placed in different angular positions on said shaft, slide-bars adapted to be operated successively by said arms, and means, consisting of racks on said slide-bars and pinions on the

rotary controlling devices for operating the registering mechanism from said handle, through the said shaft, arms, slide-bars, racks and pinions and rotary controlling devices.

18. The combination with the recorder and the registering device, of controlling devices for the registering device and the recorder, an operating device having a to-and-fro movement, a plate for the recorder operatively connected with said operating device, and a resetting mechanism for the said register-controlling device connected by a pawl-and-ratchet connection with the said operating device.

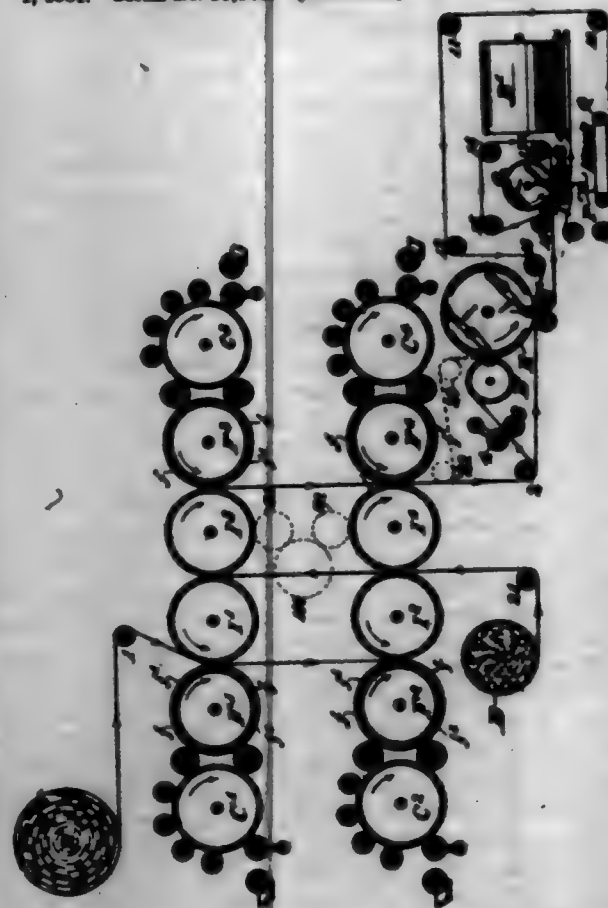
19. The combination with the recording-wheels and the pivoted recording-plate, of an operating-handle, a sliding bar connected to and operated by said handle, a lever operated by said bar and a rod connecting each lever to the plate.

20. The combination with the recording-wheels and the means for feeding a check-strip in position to be printed upon by said wheels, of a recording-plate adapted to press the strips against the recording-wheels and provided with cutting means for cutting off the check-strip, said plate being so pivoted as to move away from said recording-wheels after the printing is effected, so as to allow the check-strips to drop by gravity, a guide-chute for receiving the moved check, and means for operating the plate.

21. The combination with the recording-wheels and a pivoted plate, means for simultaneously feeding a check-strip and a record-strip between the recording-wheels and the plate, means carried by the plate for cutting off the check-strip, guiding means for the plate for guiding the record-strip away from the cutting means, and means for carrying on ink-ribbon between the check-strip and the record-strip.

22. The combination with a plurality of parallel operating-shafts with two indicators arranged, one flat and one loose, on each shaft and the flat and loose indicators arranged respectively in two rows of gear-wheels mounted on said shafts and connecting each of the said operating-shafts on one side with an indicator on the other side, so as to cause the indicators to exhibit similarly on front and back.

708,189. PRINTING-PRESS. JAMES I. FISK, Chicago, Ill., assignor to the Goss Printing Press Company, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 53,325. (No model.)



Claim.—1. A printing-press having two superposed decks, each deck consisting of two impression-cylinders in the center and a form-cylinder at each end, each form-cylinder having form/curved thereon to cover substantially half the surface of the cylinder, each form being adjacent both circumferentially and longitudinally to a blank space of substantially equal size.

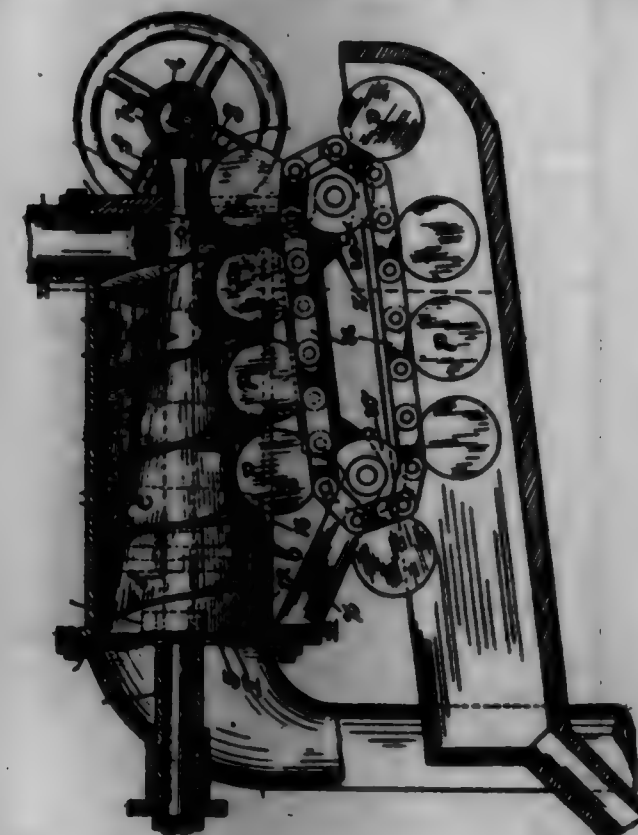
2. A printing-press having two superposed decks each consisting of two printing-couples composed of a form-cylinder and an impression-cylinder, means for leading a web in succession first through the printing-couples at one end of each deck and then between the pair of impression-

cylinders in each deck and then through the printing-couples at the other end of each deck.

3. A printing-press having two superposed decks each consisting of two printing-couples composed of a form-cylinder and an impression-cylinder, means for leading a web in succession first through the printing-couples at one end of each deck and then through the printing-couples at the other end of each deck, said form-cylinders having forms thereon which are adjacent both circumferentially and longitudinally thereof to substantially equal blank spaces, the second cylinder printing on the same side of the web as the first cylinder and in the spaces left blank by the first cylinder.

4. A printing-press having two superposed decks each consisting of two printing-couples composed of a form-cylinder and an impression-cylinder, means for leading a web in succession first through the printing-couples at one end of each deck and then between the pair of impression-cylinders in each deck, and means for conducting an offset web with the printed web while passing between the impression-cylinders and through the second pair of printing-couples.

708,190. PRESS FOR EXPRESSING JUICE FROM FRUIT OR OTHER MATERIAL. HERBERT A. SHREVE, Cleveland, Ohio. Filed Dec. 28, 1901. Serial No. 57,398. (No model.)



Claim.—1. In a press of the character indicated, the combination with a case having juice-discharging apertures or passage-ways, and a screw conveyor arranged within and longitudinally of the case and having the channel formed between the convolutions of the thread of the conveyor discharging at the rear end of the case, of a valve for regulating the discharge of material at the rear and discharging end of the conveyor, which valve is borne by the conveyor, and means for operating the valve.

2. In a press of the character indicated, the combination with a cylindrical case having juice-discharging apertures or passage-ways, and a screw conveyor arranged within and longitudinally of the case and provided, at its discharging end, with a circular rim snugly but easily fitting within the surrounding case and provided with a discharging-aperture communicating with the channel formed between the convolutions of the thread of the conveyor of a valve carried by the conveyor and arranged as required to render it capable of more or less closing the said aperture, and means for operating the valve.

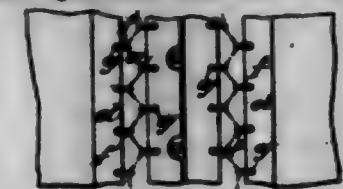
3. In a press of the character indicated, the combination with a cylindrical case having juice-discharging apertures or passage-ways, and a screw conveyor arranged within and longitudinally of the case and provided, at its discharging end, with a circular rim snugly but easily fitting within the surrounding case and having a discharging-aperture communicating with the channel formed between the convolutions of the thread of the conveyor, of a valve journaled in the case or body of the conveyor so as to render it capable of movement from and toward the said body or case, which valve is arranged as required to render it capable of more or less closing the said aperture, and means for operating the valve, and the

said body or case being cut away to accommodate the location and operation of the said valve.

4. In a press of the character indicated, the combination with a cylindrical case having juice-discharging apertures or passage-ways, a shaft extending centrally and longitudinally through the said case, a screw conveyor operatively mounted upon the said shaft and provided, at its discharging end, with a circular rim which snugly but easily fits within the surrounding case and has a discharging-aperture communicating with the channel formed between the convolutions of the thread of the conveyor, of a valve carried by the conveyor and arranged as required to render it capable of more or less closing the said aperture, a tubular shaft embracing the first-mentioned shaft and having a cam for operating the said valve.

5. In a press of the character indicated, the combination, with a case having juice-discharging apertures or passage-ways, and a screw conveyor arranged within and longitudinally of the case, of a series of partitions or followers arranged in axial line and transversely of the channel formed between the convolutions of the thread of the conveyor and movable edgewise and longitudinally of the conveyor and adapted to be actuated by the said thread toward the rear and discharging end of the conveyor during the operation of the conveyor, and a suitably-applied endless carrier carrying the said partitions or followers, and the aforesaid case being slotted to accommodate the location and operation of the said partitions or followers.

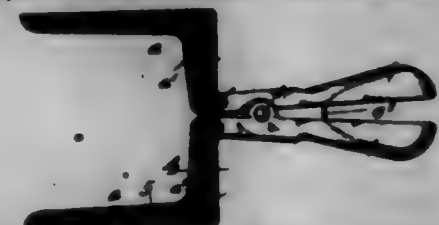
708,191. BUNK FOR CORSETS. GEMMELL F. DE GRANGE, Park, France. Filed Aug. 31, 1901. Serial No. 72,735. (No model.)



Claim.—1. The combination with a pair of metal bunks provided along their meeting edges with reciprocal fastening devices, and at their outer margins with closed keepers, of a corset provided with stiffening-strips *d d* provided with closed keepers along their free edges, and lacing-cords engaging the keepers on the bunks and stiffeners, substantially as set forth.

2. The combination with a pair of metal bunks provided along their meeting edges with reciprocal fastening devices, and at their outer margins with closed keepers, of a corset provided with stiffening-strips *d d* provided with closed keepers along their free edges, and lacing-cords engaging the keepers on the bunks and stiffeners, the said keepers alternating on the respective stiffeners and the bunks to which they are laced, a single lacing-cord being employed, as set forth.

708,192. TONGS FOR PHOTOGRAPHIC PLATES. OSWALD SMITH, New York, N. Y. Filed Oct. 22, 1901. Serial No. 73,488. (No model.)



Claim.—1. Tongs for photographic plates, consisting of two sub-curved spring-actuated members, each provided with a handle, a downwardly-extending shank, and a lateral right-angular jaw, said jaw being provided with a longitudinal inwardly-bent retaining-flange, substantially as set forth.

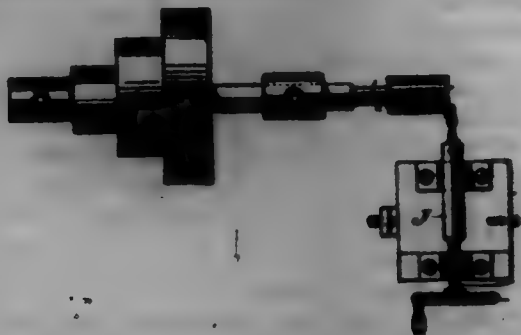
2. Tongs for photographic plates, consisting of two sub-curved and spring-actuated sections, each section having an angular jaw with a flat bottom portion, an upright rear flange and retaining side flanges, said side flanges being inwardly bent so as to hold the plate in position, substantially as set forth.

708,193. THREAD-CUTTING APPLIANCE. ROBERT A. HAMILTON, Brooklyn, N. Y. Filed Nov. 9, 1902. Renewed Apr. 3, 1903. Serial No. 101,234. (No model.)

Claim.—1. A plurality of series of simultaneously-operable thread-cutting surfaces, means to move the same in a plane past the article to be threaded, a work-support, and means to rotate the same and to impart simultaneously thereto a pitch movement.

2. A plurality of series of simultaneously-operable thread-cutting surfaces, means to rotate the same in a plane past the article to be threaded, a work-support, and means to rotate the same and to impart simultaneously thereto a pitch movement.

3. A plurality of connected series of simultaneously-operable thread-cutting surfaces, means to move the same in a plane past the article to be threaded, a work-support, and means to rotate the same and to impart simultaneously thereto a pitch movement.



4. One or more series of thread-cutting surfaces moving while in operation in a plane tangent to the surface acted upon, a work-support, and means to impart to said series of thread-cutting surfaces and to said work-support simultaneous, relative, rotary and pitch movements.

5. A rotary head having its end face provided with one or more series of thread-cutting surfaces, a work-support, means to impart to said head bodily, and to said work-support simultaneous, relative, rotary and pitch movements.

6. A rotary head, having its end face provided with one or more radial series of thread-cutting surfaces, a work-support, and means to impart thereto simultaneous, relative, rotary and pitch movements.

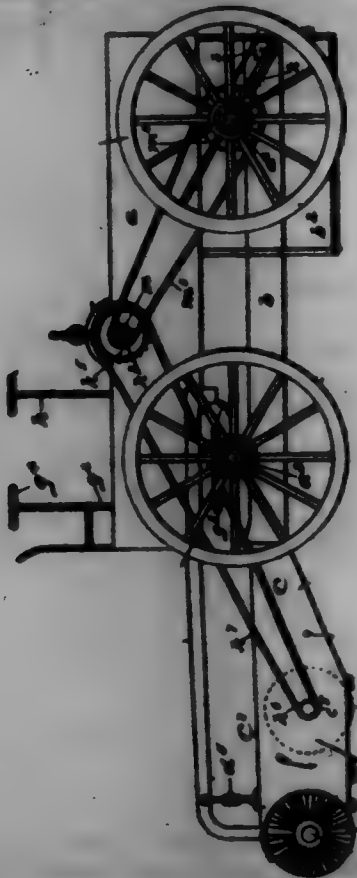
7. A plurality of traveling series of thread-cutting surfaces, corresponding surfaces of each series while cutting traveling in the same plane and path, a work-support, and means to impart thereto and to said series of thread-cutting surfaces simultaneous, relative, rotary and pitch movements.

8. A rotary head having its end face provided with one or more radial series of thread-cutting surfaces, and means to rotate the same for the purpose described.

9. The within-described screw-thread-cutting device, formed in the shape of a ring or cylinder and having on its end face a series of concentrically-arranged cutters, with means for rotating the same, to operate as described.

10. In a thread-cutting device the combination of a rotating shaft, a cutter attached thereto, having on its end face a series of concentric cutters, a work-carrying shaft, and means for moving the work at the desired pitch into contact with the concentric cutter.

708,194. STREET-SWEEPER. PETER R. HAMBURY, New York, N. Y. Filed Feb. 27, 1902. Serial No. 93,002. (No model.)



Claim.—1. A sweeper comprising a vehicle having a body portion, longitudinal conveyor-casing supported beneath said body portion and

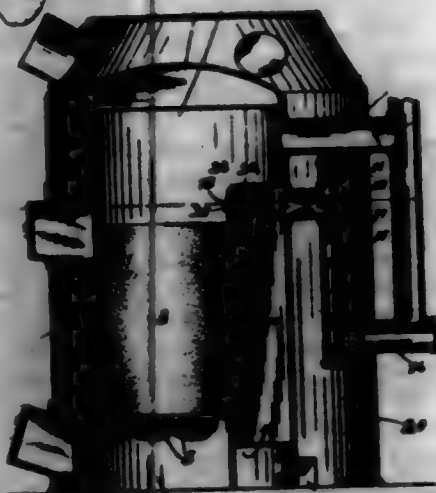
open at its front end and the rear end of which is in communication with a dust and dirt receptacle, a brush-holder hinged to the front end of the conveyor-casing and adapted to be raised and lowered, the rear bottom portion of the brush-holder being inclined downwardly and forwardly, and the front portion thereof being open, brushes mounted in the brush-holder and a conveyor mounted in the conveyor-casing and extending downwardly over the inclined bottom portion of the brush-holder, and means for operating the brushes and the conveyor, substantially as shown and described.

2. A street-sweeper comprising a vehicle having a body portion, a conveyor-casing mounted thereunder and open at its front end and the rear end of which is in communication with the dust and dirt receptacle, a brush-holder hinged to the front end of the conveyor-casing and the rear bottom portion of which is inclined downwardly and forwardly and the front bottom portion of which is open, brushes mounted in the brush-holder, a conveyor placed in the conveyor-casing and the front end of which extends downwardly and forwardly over the inclined portion of the brush-holder, a motor geared in connection with the axle of the vehicle and with the conveyor and the brushes, and means for operating said motor, substantially as shown and described.

3. A street-sweeper comprising a vehicle having a body portion, a conveyor-casing mounted beneath said body portion and open at its front end and the rear end of which is in communication with a dust and dirt receptacle, a brush-holder hinged to the front end of the conveyor-casing and the rear bottom portion of which is inclined downwardly and forwardly and the front bottom portion of which is open, a brush-shaft mounted in said brush-holder casing and provided with two brushes, bars pivoted to the sides of the body portion of the casing and extending forwardly and downwardly, a supplemental shaft mounted in the ends of said bars and at the front end of the brush-holder, said shaft being provided with a plurality of cylindrical brushes, means for raising and lowering the brush-holder and the brushes, a conveyor mounted in the conveyor-casing and extending downwardly and forwardly over the inclined portion of the brush-holder and means for operating said conveyor, substantially as shown and described.

4. An apparatus of the class described, comprising a vehicle having a body portion, a conveyor-casing mounted thereunder and open at its front end, a brush-holder hinged to said conveyor-casing at the front end thereof and the rear bottom portion of which is inclined downwardly and forwardly and the front bottom portion of which is open, a brush-shaft mounted in said brush-holder, bars pivoted to the body of the vehicle and extending forwardly and downwardly, another brush-shaft mounted in the ends of said bars and occupying the front end of the brush-holder, said brush-shafts being geared in connection, means for raising and lowering the front end of the brush-holder and the front ends of said bars, a conveyor placed in the conveyor-casing and extending downwardly and forwardly over the inclined bottom portion of the brush-holder and means for operating the vehicle, the conveyor and the brushes in the brush-holder, substantially as shown and described.

708,195. HOT-AIR FURNACE. EDWARD L. HEALD, New Island, Ill., assignor to Gasolene Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 11, 1901. Serial No. 73,291. (No model.)



Claim.—1. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue communicating with the heating-chamber between said shell and casing, the aperture to which flue is in the base of said casing, of a fire-box so disposed within said heating-shell as to provide an annular chamber between said fire-box and shell, and means for concentrating the hot gaseous products of combustion at a point within said annular chamber substantially opposite the aperture of said cold-air flue.

2. In a hot-air furnace, the combination with the heating-shell, outer

casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within said heating-shell as to provide a chamber between said fire-box and shell, and means for causing the flow of hot gaseous products of combustion downward through said chamber and their concentration at a point within the heating-shell substantially opposite the aperture of said cold-air flue.

3. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within said heating-shell as to provide a chamber between said fire-box and shell, and means for causing a comparatively uniformly distributed flow of the hot gaseous products of combustion over the top of said fire-box and down through said chamber prior to their concentration for final discharge at a point at the base of said chamber and within the heating-shell substantially opposite the aperture of said cold-air flue.

4. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within the heating-shell as to provide a chamber between said fire-box and said shell, of a vertical flue within said chamber having its inlet-aperture near the base of said chamber and the top of which communicates with the smoke-pipe, thereby necessitating a comparatively uniformly distributed downward flow of the hot gaseous products of combustion through said chamber prior to concentration at the aperture of said vertical flue.

5. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within the heating-shell as to provide a chamber between said fire-box and shell, of a vertical flue within said chamber having its inlet-aperture near the base of said chamber and substantially opposite the induction-aperture of said cold-air flue, and the top of which vertical flue communicates with the smoke-pipe, thereby necessitating a comparatively uniformly distributed downward flow of the hot gaseous products of combustion through said chamber prior to their concentration at the aperture of said vertical flue.

6. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within the heating-shell as to provide a chamber between said fire-box and shell, of a vertical flue within said chamber having its inlet-aperture near the base of said chamber and substantially opposite the induction-aperture of said cold-air flue, a substantially U-shaped radiator between said shell and casing, means for conveying said gaseous products from the top of said vertical flue to the top of said radiator, and means for conveying said gases from the bottom of said radiator to the smoke-pipe.

7. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within the heating-shell as to provide a chamber between said fire-box and shell, of a vertical flue within said chamber having its inlet-aperture near the base of said chamber and substantially opposite the induction-aperture of said cold-air flue, a substantially U-shaped radiator between said shell and casing, a suitable flue connecting the top of said vertical flue with the top of said radiator and a flue connecting the bottom of said radiator with the smoke-pipe.

8. In a hot-air furnace, the combination with the heating-shell, outer casing and a cold-air flue having its induction-aperture in the base of said casing, of a fire-box so disposed within the heating-shell as to provide a chamber between said fire-box and shell, a vertical flue within said chamber having its inlet-aperture near the base of said chamber and substantially opposite the induction-aperture of said cold-air flue, a substantially U-shaped radiator between said shell and casing, said radiator being divided horizontally by a baffle-plate into two connecting compartments, a suitable flue connecting the top of said vertical flue with the upper compartment of said radiator, and a flue connecting the lower compartment of said radiator with the smoke-pipe.

708,196. INSULATED WIRE. JOHN A. HEART, Philadelphia, Pa., assignor to the Teter-Henry Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Filed Feb. 14, 1901. Renewed Nov. 21, 1901. Serial No. 81,172. (No specimen.)

Claim.—1. An insulating-covering for electric wires, consisting of asbestos or similar material and an adhesive mixture, such as a silicate and an oxid, adapted to firmly unite the asbestos to the wire and to render the same impervious to moisture.

2. An insulating-covering for electric wires, consisting of a coating or covering of silicate of sodium and manganese oxid and asbestos flakes forced into the coating or covering under pressure.

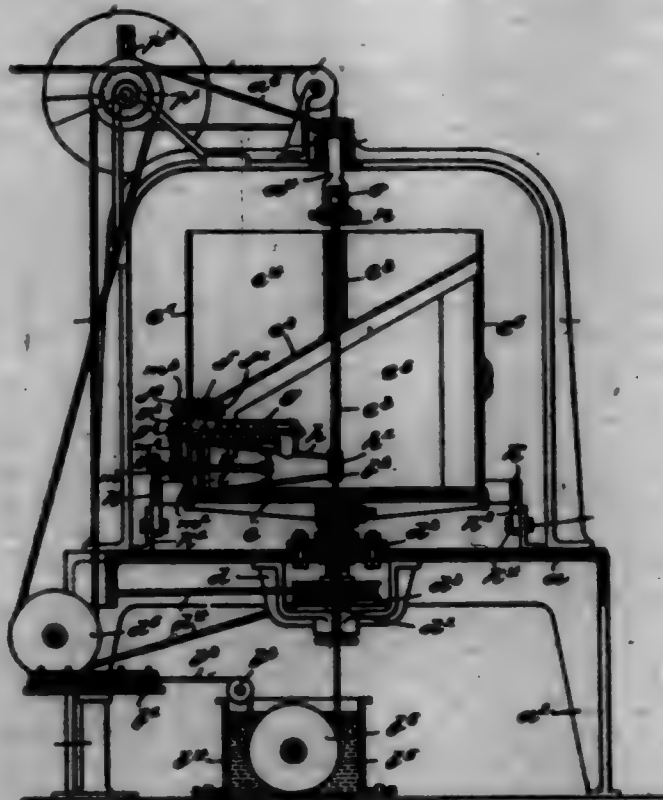
3. An insulating-covering for electric wires, consisting of a coating or covering of a silicate and an oxid and asbestos forced into the coating or covering under heat and pressure.

4. An insulating-covering for electric wires, consisting of asbestos

or similar material and an adhesive mixture, such as silicate of sodium and manganese oxid adapted to thoroughly conglomerate with said asbestos or similar material under heat and pressure so as to firmly cling to the wire.



708,197. MANUFACTURE OF INSULATED WIRE. JOHN A. HEART, Philadelphia, Pa., assignor to the Teter-Henry Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Filed Feb. 22, 1901. Renewed Nov. 21, 1901. Serial No. 81,173. (No model.)



Claim.—1. In an apparatus of the character described, a tank containing a liquid adhesive mixture through which the wire is adapted to be drawn to become coated therewith, a receptacle in which the fibrous material, comprising the covering, is adapted to be received, means for feeding said fibrous material from said receptacle, and means for blowing the material so fed upon the coated wire, substantially as and for the purposes described.

2. In an apparatus of the character described, a receptacle adapted to contain a fibrous, flaky insulating material, means for feeding said material from said receptacle, a blower-chamber adapted to receive the material so fed, a blower situated at one end of said chamber and a tubular extension at the other end of said chamber through which the wire is adapted to be fed, substantially as and for the purposes described.

3. In an apparatus of the character described, in combination with means for feeding the wire, and means for coating said wire with an adhesive substance, of means for blowing upon the coated surface of the wire an insulating material in fibrous, flaky form, substantially as and for the purposes described.

4. In an apparatus of the character described, in combination with means for feeding the wire and means for coating said wire with an adhesive substance, of a receptacle adapted to be traversed by the coated wire and containing a fibrous flaky insulating material, a tubular extension partly inclosing said wire, means for conveying the insulating material from said receptacle toward said tubular extension, and means for blowing the material into the tubular extension and onto the wire, substantially as and for the purposes described.

5. In an apparatus of the character described, a drum-like receptacle divided into two main compartments by an inclined partition, one of said compartments arranged to contain the insulating material, a base carrying said receptacle, a hollow revolvable shaft to which the base is centrally secured, said shaft constituting a guide for the wire and the means for rotating the drum, means for feeding the wire axially through the drum, and means controlled by the rotation of the drum for blowing the material in fibrous flaky form upon the wire as said drum revolves around the wire, substantially as and for the purposes described.

6. In an apparatus of the character described, a drum divided into two main compartments by an inclined partition, the upper of said compartments containing the insulating material, and having an outlet at the lowermost end of the partition adjacent to a peripheral wall of the drum, a picker-wheel arranged below said outlet, a conveyor located below the picker-wheel, a chamber into which the conveyor discharges intermediate of the ends, a blower located in the chamber at one end thereof adjacent to the peripheral wall of the drum, a tubular guide at the opposite end of said blower-chamber through which the wire is adapted to be fed, means for revolving said drum and tubular guide about the wire as an axis, and means controlled by the revolution of the drum for actuating the picker-wheel, conveyor and blower, substantially as and for the purposes described.

7. In an apparatus of the character described, a drum divided into two main compartments by an inclined partition, the upper compartment adapted to contain the insulating material, a blower-chamber located below the upper compartment, means for feeding the material from said upper compartment to the blower-chamber intermediate of its ends, said chamber arranged radially with respect to the drum, a blower located at the outer end of said blower-chamber, a tubular guide adapted to receive the wire and located at the axial or outlet end of said blower-chamber, and means controlled by the rotation of the drum for actuating said blower, substantially as and for the purposes described.

8. In an apparatus of the character described, a revolvable receptacle divided into compartments, in one of which the insulating material is adapted to be contained, means for feeding the wire to be covered axially through the revolvable receptacle, and means for feeding and blowing the insulating material toward and upon said wire, said feeding and blowing means revolving with the receptacle, substantially as and for the purposes described.

9. In an apparatus of the character described, in combination with the revolvable drum having a compartment containing the insulating material and traversed axially by the wire to be covered, and means for blowing the material upon the wire, said means traveling with the drum, of a shaft controlling the blowing means, a friction-wheel located upon said shaft, and a track surrounding the drum and upon which the friction-wheel is adapted to travel as the drum revolves, substantially as and for the purposes described.

10. In an apparatus of the character described, in combination with a revolvable drum, having a compartment containing the insulating material and traversed axially by the wire to be covered, and means for blowing the material upon the wire, said means traveling with the drum, of a shaft controlling said means and adapted to receive a friction-wheel, a track surrounding the drum and upon which the friction-wheel is adapted to travel as the drum revolves, and means for elevating or depressing said track toward or away from the shaft, whereby friction-wheels of varying diameters may be interchangeably secured to said shaft to regulate the speed of said shaft, substantially as and for the purposes described.

11. In an apparatus of the character described, in combination with means for coating the wire with an adhesive substance and means for blowing the insulating material in flaky fibrous form upon said coated wire to cause the same to adhere thereto, of means for compressing and compacting said flaky fibrous material on said wire, substantially as and for the purposes described.

12. In an apparatus of the character described, a spool upon which the covered wire is adapted to be wound, a driven shaft upon which the spool is loosely arranged, a collar secured to said shaft, a split sleeve adapted to be clamped frictionally to said collar, and an arm or pin connecting said split sleeve to the side of said spool, substantially as and for the purposes described.

13. In an apparatus of the character described, a spool upon which the covered wire is adapted to be wound, a driven shaft upon which the spool is loosely arranged, a collar secured to said shaft, a split sleeve

adapted to be clamped frictionally to said collar, and means for connecting said sleeve to said spool, substantially as and for the purposes described.

14. In an apparatus of the character described, means for coating wire with an adhesive substance, means for blowing upon the coated surface of the wire a non-combustible fibrous material or substance to cause the same to adhere thereto, means for compressing the material or substance applied to said coated and covered wire in the laying up of the same in the machine, substantially as and for the purposes described.

15. In an apparatus of the character described, means for applying an adhesive coating and applying a fibrous material or substance to a wire, and means for compressing the material or substance applied to said coated and covered wire by drawing the wire between a plurality of rollers, at varying angles and said rollers adapted to rotate around the wire in its passage between them, substantially as and for the purposes described.

708,198. INSULATING METALLIC SURFACES OR WIRES. JOHN A. HEARTY, Philadelphia, Pa., assignor to the Teter-Hearty Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Filed Nov. 9, 1901. Serial No. 81,720. (No specimens.)

Claim.—1. As an improvement in insulating material adapted for application to a metallic surface or wire, a paste of albuminous or gelatinous material and lime and dry and flaky asbestos impregnated with chemical salts, substantially as and for the purposes described.

2. As an improvement in insulating material adapted for application to a metallic surface or wire, a paste of albuminous or gelatinous material and lime, combined with dry and flaky asbestos impregnated with chemical salts and a covering of the paste mixed with chemical salts, substantially as and for the purposes described.

3. As an improvement in insulating material adapted for application to a metallic surface or wire, a paste of albuminous or gelatinous material and lime combined with dry and flaky asbestos impregnated with chemical salts and embedded in the paste.

4. As an improvement in insulating material adapted for application to a metallic surface or wire, a paste of albuminous or gelatinous material and lime, combined with dry and flaky asbestos impregnated with chemical salts and embedded in the paste, and a covering of the paste combined with chemical salts surrounding the embedded asbestos.

708,199. WATER, ACID, AND FIRE PROOF COMPOSITION. JOHN A. HEARTY, Philadelphia, Pa., assignor to the Teter-Hearty Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Filed Nov. 11, 1901. Serial No. 81,820. (No specimens.)

Claim.—1. A water, acid and fire proof insulation for metallic conductors, consisting of a covering of asbestos coated with a mixture of oil and metallic oxide, said mixture combined by boiling until the free acid of the oil has been driven off.

2. A water, acid and fire proof insulation for metallic conductors, consisting of a covering of asbestos united to the part to be insulated and then coated with a mixture of oil and metallic oxide.

3. A water, acid and fire proof insulation for metallic conductors, consisting of a layer of asbestos covering the surface to be insulated and a coating of oil combined with metallic oxide applied directly to the covering of asbestos.

4. A water, acid and fire proof insulation for metallic conductors, comprising a covering of asbestos, coated with oil, red lead and litharge combined by boiling until the free acid of the oil has been driven off.

5. The method of insulating metallic conductors which consists in first covering the surface to be insulated with asbestos, second forming a mixture of oil and metallic oxide by boiling the oil and oxide until the free acid of the oil has been driven off and finally coating the asbestos covering with the mixture of oil and metallic oxide thus formed.

708,200. METHOD OF PREPARING ASBESTOS FOR USE AS AN INSULATION FOR METALLIC SURFACES. JOHN A. HEARTY, Philadelphia, Pa., assignor to the Teter-Hearty Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Original application filed Nov. 9, 1901, Serial No. 81,879. Divided and this application filed Jan. 8, 1903. Serial No. 84,967. (No specimens.)

Claim.—1. The method of preparing asbestos for use as an insulation for metallic surfaces, which consists in impregnating asbestos with sulfate of ammonia, boric acid, sulfate of soda and chloride of ammonia and soda in liquid form and picking the impregnated asbestos into fibrous or flaky form prior to application by adhesion to the metallic surface, substantially as and for the purposes described.

2. The method of preparing asbestos for use as an insulation for me-

tallic surfaces, which consists in impregnating asbestos with a solution containing sulfate of ammonia, boric acid, sulfate of soda, chlorid of ammonia and chlorid of soda in water, drying the asbestos and then separating the dried asbestos into flaky or fibrous form, substantially as and for the purposes described.

708,201. METHOD OF INSULATING METALLIC SURFACES WITH ASBESTOS. JOHN A. HART, Philadelphia, Pa., assignor to the Teter-Henry Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Original application filed Nov. 8, 1901. Serial No. 81,718. Revised and this application filed Jan. 9, 1902. Serial No. 81,712. (No specimens.)

Claim.—1. The method of insulating metallic surfaces with asbestos, which consists in first applying to the metallic surface a paste or cement, second, in embedding asbestos in fibrous or flaky form in said cement, and finally covering the asbestos with a solution of chemical or metallic salts combined with a gluey or albuminous substance containing lime.

2. The method of insulating metallic surfaces with asbestos, which consists in first impregnating the asbestos with a solution of chemical or metallic salts, second, reducing the impregnated asbestos to flaky or fibrous form, third, applying an adhesive paste or cement to the metallic surface, fourth, applying the asbestos to the adhesive metallic surface, and finally coating the asbestos thus applied with a solution of chemical or metallic salts combined with an albuminous or gelatinous substance containing lime.

3. The method of insulating metallic surfaces with asbestos, which consists in first coating the metallic surface with an albuminous or gelatinous substance containing lime in a solution of chemical or metallic salts, second, applying and compressing asbestos in fibrous or flaky form onto said surface, third, coating the asbestos-covered metallic surface with a fire and water proof paste or cement, and finally compressing the coated fibrous or flaky asbestos on said metallic surface.

4. The method of insulating metallic surfaces with asbestos, which consists in applying directly to the metallic surface to be insulated a paste of lime combined with a gelatinous or albuminous solution, then applying and compressing asbestos in fibrous or flaky form into the paste applied to said surface, then coating the asbestos-covered surface with metallic or chemical salts and finally compressing the coated fibrous or flaky asbestos onto said metallic surface.

5. The method of insulating metallic surfaces with asbestos, which consists in first applying to the metallic surface to be insulated a paste consisting of an albuminous or gelatinous solution combined with lime and with metallic or chemical salts, then applying flaky or fibrous asbestos to said paste, and finally compressing the asbestos upon the metallic surface.

6. The method of insulating metallic surfaces with asbestos, which consists in first applying to the metallic surface to be insulated a paste consisting of an albuminous or gelatinous solution combined with lime, second, embedding flaky or fibrous asbestos in said paste, and finally applying to the asbestos a fire and water proof paste or cement.

708,202. MACHINE FOR FORMING RIMS ON SCYTHES. ANTOINE HENRIOT, St. Etienne, France. Filed Dec. 10, 1901. Serial No. 85,307. (No model.)



Claim.—1. In a machine for forming ribs on scythe-blades, the combination of a base having a fixed jaw, a movable jaw secured thereto, a frame supported on said base, a ram guided in said frame, matrices carried by said base and ram, means for clamping a scythe-blade between said jaws, power-transmitting mechanism for actuating said ram, and means cooperating with said power-transmitting mechanism for actuating said clamping means, substantially as set forth.

2. In a machine for forming ribs on scythe-blades, the combination of a base having a fixed jaw, a movable jaw secured thereto, a frame supported on said base, a ram guided by said frame, cam means for clamping the cross-head of said ram, releasing means connected therewith, matrices carried by said ram and base, means for clamping a scythe-blade between said jaws, a rotating drum, a plurality of belts for actuating the jaw-clamping means, and a belt for raising said ram, said belts being operated by engagement with said drum, substantially as set forth.

3. In a machine for forming ribs on scythe-blades, the combination of a base having a fixed jaw, a movable jaw secured thereto, a frame supported on said base, a ram guided by said frame, cam means on said frame for clamping the cross-head of said ram, releasing means connected therewith, matrices carried by said ram and base, said matrices being provided with tapering grooves and having adjacent edges concave and convex, cam-levers for clamping the jaws, belts connected with said levers, a drum for actuating said belts, and a ram-lifting belt actuated by said drum, substantially as set forth.

708,203. BOTTLE-CAPPING MACHINE. OSCAR REYNOLDS, New York, N. Y. Filed Mar. 26, 1902. Serial No. 100,084. (No model.)



Claim.—1. In a device of the character described, the combination of a cylinder, an elastic sleeve fitted therein, a removable cap on the end of said cylinder, a central opening in said cap of lesser diameter than the bore of the cylinder, a portion of said cap, extending from the said opening to the inner surface of the cylinder, inwardly beveled, and means for causing the said sleeve to be pressed against the said beveled portion.

2. In a device of the character described, the combination of a cylinder, an elastic sleeve therein, a removable cap, a central opening in the said cap, a sliding plug within the said cylinder, a plunger having one end in contact with the said plug, a sleeve into which the opposite end of said plunger passes, an interior threaded portion of said sleeve at its opposite end, and a rod threaded therein and means for causing the said rod to reciprocate.

3. In a device of the character described, the combination of a cylinder, an elastic sleeve fitted therein, a cap on the end of said cylinder, a central opening in said cap of lesser diameter than the bore of the cylinder, and an inwardly-beveled portion of said cap extending from the central opening to the inner surface of the cylinder, and means for causing pressure upon the end of the said sleeve opposite the cap.

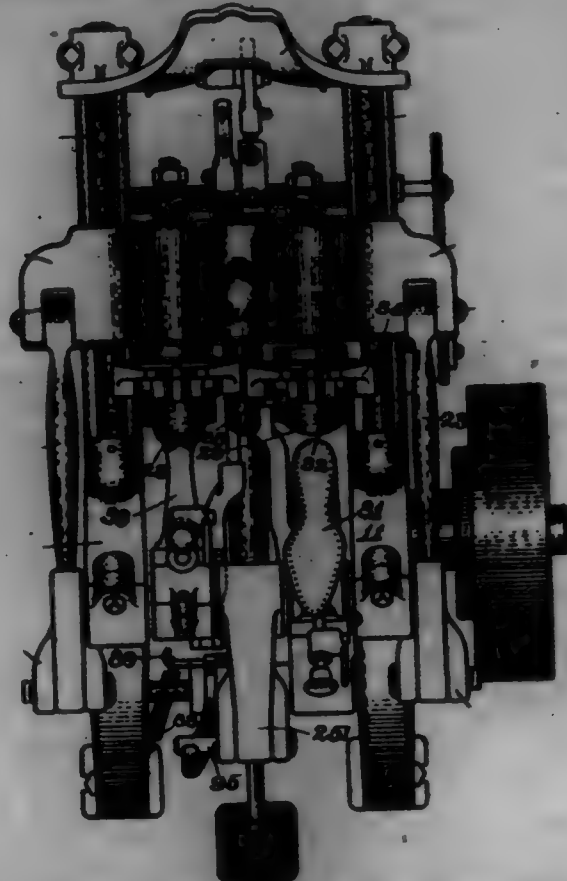
4. In a device of the character described, the combination of a cylinder, an elastic sleeve therein, a cap on the end of said cylinder, a central opening in said cap, a sliding plug within said cylinder, a plunger having one end in contact with said plug, a sleeve which receives the outer end of said plunger and a rod adjustably connected to the end of said sleeve opposite the one which receives the end of the plunger.

708,204. LEVELING-MACHINE. JOHN J. REITZ, Lynn, Mass. Filed Oct. 13, 1900. Serial No. 33,640. (No model.)

Claim.—1. In a leveling-machine, two or more pivoted jacks, two or more reciprocating molds arranged to move in unison, automatic means for alternately moving each jack to a position of clearance and permitting its return to a position of pressure, and provisions whereby either jack may be prevented from being returned to a position of pressure without interfering with the motion of the molds or the leveling action of the active jack and its complementary mold.

2. A leveling-machine comprising an oscillatory jack, a complementary mold, power devices whereby the jack is swung from a position of clearance to a position for pressure, and provisions whereby said jack

may be manually retained in a position of clearance irrespective of the movement of the power device.



3. A leveling-machine comprising a reciprocating mold, an oscillatory jack, power device whereby said mold and jack are moved from their respective positions of clearance to positions of pressure, and provision for holding said jack against movement during the operation of the mold.

4. A machine of the character specified comprising jacks and complementary molds, and automatic mechanism for causing said jacks to occupy in succession a position of clearance and a position for pressure, with provision whereby each jack is retained in a position of clearance while the other is moved from a position of clearance to a position for pressure and returned to original position.

5. A leveling-machine comprising a mold, a head carrying said mold and reciprocating in approximately horizontal planes, a normally upright jack, and automatic means whereby said jack moves automatically from an upright position of clearance to a recumbent position for pressure.

6. A leveling-machine comprising a mold-carrier, a jack, and automatic means whereby said mold-carrier moves said jack to a position of clearance.

7. A leveling-machine comprising a mold-carrier, an oscillatory jack, and means whereby said mold-carrier moves said jack from a position for pressure to a position of clearance, that is at an angle to the plane occupied by the mold and jack when exerting pressure.

8. A leveling-machine comprising jacks and complementary molds, means for moving said molds toward said jacks, and automatic means for oscillating said jacks alternately to and from a position of clearance in succession.

9. A leveling-machine comprising a mold and a complementary jack, a reciprocating mold-carrier, movable in lines inclined from the vertical, a pivoted jack-carrier having an upright position of clearance, and provision whereby said jack-carrier is controlled in its movements by the mold-carrier.

10. A duplex leveling-machine comprising molds and complementary jacks, oscillatory jack-carriers adapted to have an approximately upright position of clearance and a recumbent position for pressure, a mold-carrier located with respect to the jacks whereby the mold complementary to an upright jack is out of contact therewith when the other mold and jack are in a position of pressure, means for reciprocating said mold-carrier, and means whereby said jacks alternately occupy a position for pressure.

11. A leveling-machine comprising an automatically-operated jack and a complementary mold, said jack being automatically movable to a position for pressure, and a latching device for holding said jack in a position of clearance.

12. A leveling-machine comprising automatically and alternately operated jacks and complementary molds, said jacks being movable to a position for pressure, latching devices for holding said jacks in a position of clearance, and tripping mechanism whereby said jacks are alternately released from the latching devices.

13. A leveling-machine comprising a jack and a complementary mold, a carrier for the jack movable to a position for pressure, a reciprocating head for the mold, and means whereby said head regulates the movement of said jack-carrier to a position for pressure.

14. A leveling-machine comprising a jack and a complementary mold, a carrier for the jack movable to a position for pressure, a reciprocating head for the mold, connection between said head and said jack-carrier whereby the latter is moved by the former to a position of clearance.

15. A leveling-machine comprising a jack and a complementary mold, arranged to have the lines of pressure inclined from the vertical, a pivoted jack-carrier movable to an upright position of clearance and overbalanced to fall automatically to a position for pressure, and mechanism for automatically latching said jack-carrier in and releasing it from a position of clearance.

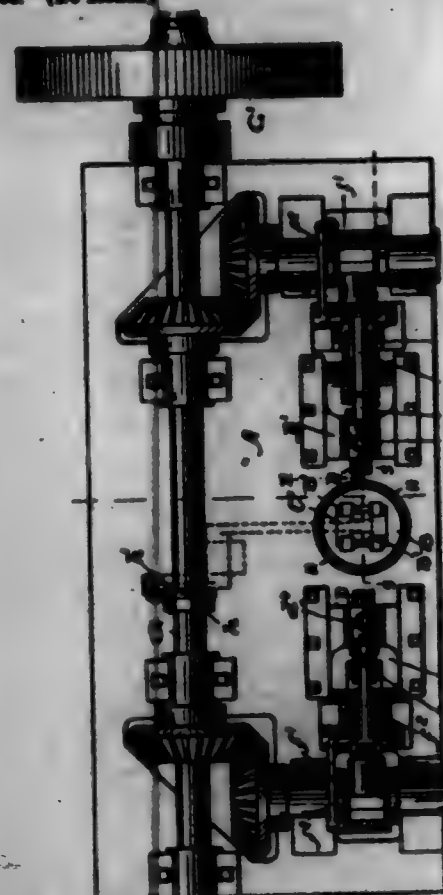
16. A leveling-machine comprising a jack and a complementary mold, arranged to have the lines of pressure inclined from the vertical, a pivoted jack-carrier movable to an upright position of clearance and overbalanced to fall automatically to a position for pressure, a latch connected to said jack-carrier to hold it in a position of clearance, and means for tripping said latch.

17. A leveling-machine comprising a jack and a complementary mold arranged to have the lines of pressure inclined from the vertical, a pivoted jack-carrier movable to an upright position of pressure and overbalanced to fall automatically to a position for pressure, a latch connected to said jack-carrier to hold it in a position of clearance, means for tripping said latch, and a reciprocating head for the mold, having provision for moving the jack-carrier to a position for pressure.

18. A leveling-machine comprising a reciprocating carrier having molds, oscillatory jacks complementary to said molds, a rock-shaft having an arm or arms connected to said carrier, a crank-shaft operatively connected to said rock-shaft, and provision whereby at each reciprocation of the mold-carrier, one or the other of said jacks is moved to position to cooperate with its mold.

19. A duplex leveling-machine having a frame having side guides, a reciprocating head carrying an intermediate guide, and independently-actuating mold-carriers on said head, each sliding between the intermediate guide and one of the side guides.

708,205. MACHINE FOR MANUFACTURING RAIL-HEAD CANS, PAILS, OR OTHER VESSELS. JOHN C. HOSKINS, Maywood, Ill., assignor, by means of assignment, to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 22, 1901. Serial No. 22,502. (No model.)



Claim.—1. The combination with a pair of interior ear-forming male dies and an interior work-holder adapted to reciprocate in respect thereto, a pair of reciprocating exterior ear-forming female dies operating to form alternately first one half-ear and then the other, substantially as specified.

2. The combination with a pair of interior ear-forming male dies and an interior work-holder adapted to reciprocate in respect thereto, a pair of reciprocating exterior ear-forming female dies operating to form alternately first one half-ear and then the other, and a pair of eye-punching dies, substantially as specified.

3. The combination with a pair of interior ear-forming male dies and an interior work-holder adapted to reciprocate in respect thereto, a pair of reciprocating exterior ear-forming female dies operating to form alternately first one half-ear and then the other, said exterior female dies having projecting lips adapted to fit or lap over the work-holder, substantially as specified.

4. The combination with a pair of interior ear-forming male dies, a stationary die-holder therefor, a reciprocating work-holder, springs between the work-holder and die-holder to return the work-holder to its normal position, and a pair of reciprocating, exterior, ear-forming female dies operating to form alternately first one half-ear and then the other, substantially as specified.

5. The combination with a pair of interior ear-forming male dies, a stationary die-holder therefor, a reciprocating work-holder, springs between the work-holder and die-holder to return the work-holder to its normal position, and a pair of reciprocating, exterior, ear-forming female dies operating to form alternately first one half-ear and then the other, said work-holder having guide-pins to register the ear projections on the sheet-metal ring or work with the dies, substantially as specified.

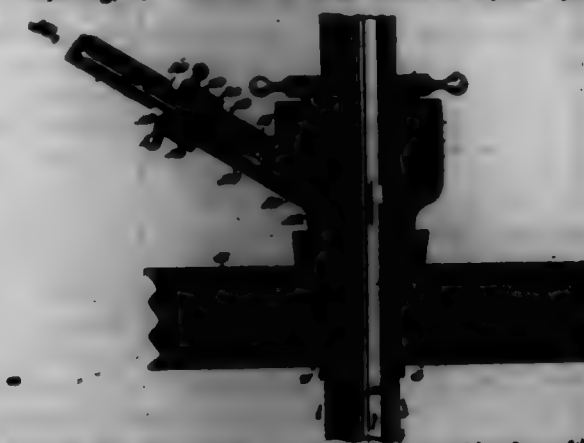
6. The combination with a pair of interior ear-forming male dies, a stationary die-holder therefor, a reciprocating work-holder, springs between the work-holder and die-holder to return the work-holder to its normal position, and a pair of reciprocating, exterior, ear-forming female dies operating to form alternately first one half-ear and then the other, and a pair of independently-operated eye-punching guides, substantially as specified.

7. The combination with a pair of interior ear-forming male dies, a stationary die-holder therefor, a reciprocating work-holder, springs between the work-holder and die-holder to return the work-holder to its normal position, and a pair of reciprocating, exterior, ear-forming female dies operating to form alternately first one half-ear and then the other, a pair of independently-operated eye-punching guides, and extractor-pins for discharging the work from the holder, substantially as specified.

8. The combination with a pair of interior ear-forming male dies and an interior work-holder adapted to reciprocate in respect thereto, a pair of reciprocating exterior ear-forming female dies operating to form alternately first one half-ear and then the other, and guide-pins on the work-holder for causing the ear projections on the sheet-metal ring or work to register with the dies, substantially as specified.

9. The combination with a pair of interior ear-forming male dies and an interior work-holder adapted to reciprocate in respect thereto, a pair of reciprocating exterior ear-forming female dies operating to form alternately first one half-ear and then the other, and reciprocating extractor-pins for discharging the work from the work-holder, substantially as specified.

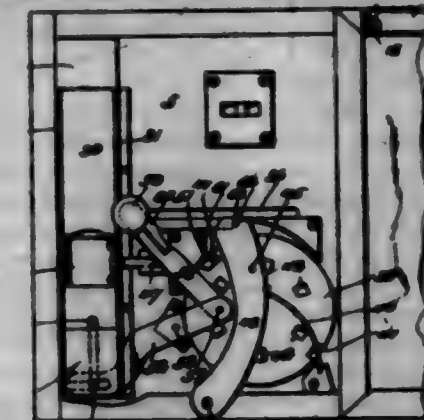
708,206. BEER-TAPPING APPARATUS. PATRICK H. KEMM, Maryland, Pa. Filed Oct. 22, 1901. Serial No. 78,519. (No model.)



Claim.—In a beer-tapping apparatus, the combination with a flexible collar engaging in the bung-hole of a barrel, of a bushing having an enlarged upper end, the lower edge of which is curved inwardly and merges in an inclined lower end, said enlarged end provided with an inwardly-extended annular recess communicating with the central bore of the bushing, said central bore being of smaller diameter than the said recess and of the same diameter throughout its length, a flexible washer seated in the said recess, and engaging the periphery of a drawing-tube arranged in the bushing-bore, a tightening-rod engaged in the said threaded recess, and an upwardly-inclined tubular projection having an externally and internally curved-shoulder outer end, and its inner end formed integral with the enlarged upper end of the said bushing, said tubular projection provided with an inclined bore, communicating with a draw-

ingly-inclined bore in the said enlarged portion, said drawing-off tube and said bushing having a space therebetween communicating with the inclined bore of the said tubular projection, substantially as described.

708,207. COIN-CONTROLLED MECHANISM FOR VENDING-MACHINES. DALLAS KNOWLES, Washington, D. C. Filed Jan. 20, 1902. Serial No. 92,002. (No model.)



Claim.—1. In a vending-machine, the combination with a delivery mechanism, of means for operating said delivery mechanism, a coin-advancing mechanism operated by said delivery-operating means, and means operated by said coin-advancing mechanism to allow a plurality of operations of the delivery mechanism upon the insertion of each single coin, whereby a plurality of articles may be vended.

2. In a vending-machine, the combination with a delivery mechanism, of means for operating said delivery mechanism, a coin-advancing mechanism operated by said delivery-operating means, and means operated by said coin-advancing mechanism to allow a plurality of successive operations of the delivery mechanism whereby a plurality of successive deliveries upon the insertion of each single coin will occur.

3. In a vending-machine, the combination with a delivery mechanism, of means for operating said delivery mechanism, a coin-advancing mechanism operated by said delivery-operating means, and a removable mechanism operated by said coin-advancing mechanism to allow said delivery mechanism to operate a plurality of times upon the insertion of each single coin, whereby a plurality of articles will be vended.

4. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, of means for operating the sliding cut-off, a coin-advancing mechanism operated by said cut-off-operating means, and means operated by said coin-advancing mechanism to allow a plurality of successive operations of said cut-off upon the insertion of a single coin, whereby a plurality of articles will be vended.

5. In a vending-machine, the combination with a delivery mechanism, and a trip-lever for locking said delivery mechanism and adapted to be unlatched upon the insertion of a coin, of means for retaining the trip-lever in an unlatched position upon the insertion of a coin and during a given number of successive operations of the said delivery mechanism, whereby a plurality of vendable articles may be successively delivered.

6. In a vending-machine, the combination with a cut-off and a trip-lever for locking said cut-off and adapted to be unlatched upon the insertion of a coin, of means for retaining the trip-lever in an unlatched position upon the insertion of a coin and during a given number of successive operations of said cut-off, whereby a plurality of vendable articles may be successively delivered.

7. In a vending-machine, the combination with a delivery mechanism, a trip-lever for engaging and locking the same and adapted to be disengaged therefrom by a coin and a coin-advancing mechanism, of a rotatable disk adapted to engage and retain said trip-lever in either its engaged or disengaged position and lock said coin-advancing mechanism, and means for rotating said disk so as to cause the same to engage said trip-lever.

8. In a vending-machine, the combination with a delivery mechanism, a trip-lever for engaging and locking the same and for disengaging from the same, a coinway adapted to guide a coin to select or disengage the trip-lever, and a coin-advancing mechanism, of a rotatable disk notched to engage the trip-lever when in its locked position with relation to the delivery mechanism, and means operated by the coin-advancing mechanism for rotating the disk a predetermined distance at each successive reciprocation of the coin-advancing mechanism.

9. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, a trip-lever engaging the same and provided with an L-shaped catch, a coinway adapted to guide the coin to depress the lever, and a coin-advancing mechanism, of a rotatable disk provided with a peripheral notch adapted to receive said L-shaped catch when the trip-lever is in its engaged position, and means for advancing

or rotating the disk a predetermined distance upon each disengagement of the trip-lever and movement of the delivery mechanism.

10. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, a trip-lever engaging the same and provided with an L-shaped catch, a coin-advancing mechanism, of a rotatable disk provided with a peripheral notch adapted to receive said L-shaped catch when the trip-lever is in its engaged position and when moved to support said lever, and means operated by the coin-advancing mechanism for advancing said disk at each movement thereof.

11. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, of a trip-lever engaging the same and adapted to be thrown out of engagement therewith upon the insertion of a coin, a disk mounted for rotation adjacent to the trip-lever and provided with depressions and adapted to engage at certain points with said trip-lever, an arm pivoted over the disk and adapted to engage the depression, a spring for throwing the arm in one direction, and a coin-advancing device connected with the cut-off and adapted to come in contact with and operate the said arm.

12. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, a trip mechanism engaging the cut-off and adapted to be operated upon the advancement of a coin, a coin-advancing mechanism, a rotatable disk adapted to engage the trip mechanism at predetermined points, and means for advancing or partially rotating the disk upon each movement of the coin-advancing mechanism and the cut-off.

13. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, of a trip mechanism engaging the cut-off and adapted to be operated by a coin, a coin-advancing mechanism connected with the trip mechanism, a disk mounted for rotation at one side of the trip mechanism, a yielding vibratory arm adapted to engage with and advance or partially rotate said disk, said arm being adapted to be operated by said coin-advancing mechanism.

14. In a vending-machine, the combination with a delivery mechanism comprising a sliding cut-off, a trip-lever at its rear end engaging said cut-off and between its ends provided with a leg at its front end adapted to be depressed by a coin, a coin-advancing mechanism connected with the cut-off a disk mounted for rotation above the trip-lever and having peripheral notches at predetermined points for engaging the same, and between said notches adapted to support said lever in an elevated position, a vibratory arm pivoted at one side of and extending over the disk and provided with a detent adapted to engage openings in the disk, and a spring for throwing said arm in one direction, said arm being adapted to be operated in the opposite direction by the movement of the coin-advancing mechanism.

708,208. FLEXIBLE RULER. CHARLES LAWRENCE, BOSTON, MA. Filed Nov. 4, 1901. Serial No. 61,310. (No model.)

Claim.—1. A flexible ruler comprising a hard spring-strip, and a soft, flexible strip secured along one surface thereof and of less width than the hard spring-strip, the soft and flexible strip being formed in its edge with an ink-receiving gutter which partitions the resiliency of the soft strip and is overlying by the ruling edge of the ruler.

2. A flexible ruler comprising a hard spring-strip, and a soft, rubber strip secured thereto and provided in its edge with an ink-receiving gutter the walls of which partition the yielding or elastic qualities of the strip in which the gutter is formed, for the purpose specified.

3. A flexible ruler composed of a flat hard spring-strip having its ruling edge underlaid on a board, and a flat soft, elastic strip of less width secured thereto and provided in its edge with an elastic-walled gutter one wall of which registers with the beveled edge of the hard spring-strip, substantially as described.

4. A flexible ruler comprising a hard spring-strip, studs or buttons projecting from one surface thereof, and a soft, flexible, and elastic strip secured flatwise against that surface of the spring-strip which carries the studs or buttons, the latter having their heads embedded in the soft strip, substantially as described.

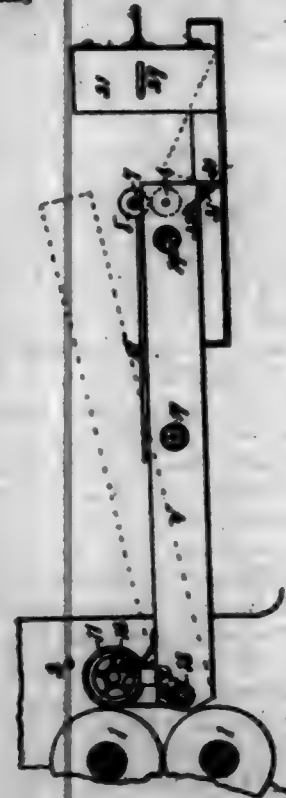
708,209. MALTED CEREAL FOOD AND METHOD OF MAKING SAME. JONATHAN E. LUTHER, BATTLECREEK, MICH., assignor to Charles Kuhnke, Battlecreek, Mich. Filed Sept. 10, 1901. Serial No. 74,978. (No specimen.)

Claim.—1. The herein-described process for preparing food from grain, which consists in first cooking the whole grain, cooking the mass without breaking the outer coating, drying the cooked grain, crushing it, baking the crushed product by dry heat, adding malt and water and mixing thoroughly, and finally again baking the mixture by dry heat; substantially as described.

2. In a process for preparing food from grain, cooking the whole grain, cooking the cooked grain whole in the presence of moisture, crushing the cooked grain, baking the crushed product by dry heat, adding malt and water and granulating and finally again baking by dry heat; substantially as described.

3. The herein-described food in dry granular form, consisting of a compound analyzing about as follows: gluten eighteen, starch thirty, maltose eleven, dextrine 50.4, water six, residue 4.5.

708,210. SHEET CATCHING AND PACKING DEVICE. ARTHUR J. HARKNEY, Martins Ferry, Ohio. Filed June 12, 1901. Serial No. 50,100. (No model.)



Claim.—1. In a machine of the character described, the combination with the bearings and cold-rolls, of a small roll journaled in said bearings on the left side of said cold-rolls, a table having its front end pivotally mounted on said small roll, a pair of rolls mounted in the rear end of said table, traveling belts connecting the first-mentioned roll with the lower of the last-mentioned rolls, means for imparting motion to said first-mentioned roll, and through the belts to the last-mentioned rolls, adjustable guide-bars on said table, an adjustable sheet-packing box at the rear of said table, and an adjustable evening device on the rear end of said table, all substantially as and for the purposes set forth and described.

2. In a machine of the character described, the combination with the bearings and cold-rolls, of a small roll having its bearings in said bearings, a table pivoted at its front end on said small roll, the rear end of said table adapted to be raised to any position on said small roll as a fulcrum, a pair of rolls mounted on the rear end of said table, endless traveling belts connecting the said small roll with the lower roll of the pair of rolls, means for imparting motion to said rolls and belts, adjustable guide-bars on said table, an adjustable sheet-packing box in the rear of said table, and an adjustable evening device on the rear end of said table adapted to cause sheets of metal carried by the machine to be dropped in an even pack in the packing-box, substantially as set forth and described.

3. In a machine of the character described, the combination with the bearings and the cold-rolls, of a small roll having its bearings in said bearings on the left side of the cold-rolls, a table having its front end pivotally mounted on said small roll, a pair of rolls mounted in the rear end of said table, traveling sheet-carrying belts connecting the lower of said last-mentioned rolls with the said small roll, adjustable sheet-guiding bars mounted on said table, an adjustable sheet-packing box seated in the rear of said table, and an evening device adapted to keep the sheets, carried forward by the machine, in an even pack in the packing-box, substantially as shown and described.

4. In a machine of the character described, the combination with the bearings and the cold-rolls, of a small roll journaled in the bearings on the left side of said cold-rolls, a table having its front end pivotally mounted on said small roll, a shaft journaled in the front end of said table, a contact-wheel fixed on said shaft and adapted to be revolved by contact with the upper of the cold-rolls, a sprocket-wheel mounted on the outer end of said shaft, a second sprocket-wheel mounted on the said small roll, a sprocket-wheel connecting the said sprocket-wheel and

adapted to impart motion to the said small roll; a pair of rolls mounted in the rear end of said table, a plurality of traveling belts connecting the lower of said last-mentioned rolls with the said small roll, and adjustable guides provided on said table adapted to guide sheets of metal forward evenly to the said last-mentioned rolls, substantially as described.

708,211. HAND-PROTECTOR. DANIEL F. MORGAN, Toledo, Ohio. Filed Apr. 14, 1902. Serial No. 102,941. (No model.)



Claim.—1. A hand-covering, comprising a single piece, and having near its upper edge a slit extending transversely thereof, near its inner and upper edges a slit at an angle to said transverse slit, and provided with a series of apertures near its lower edge, substantially as described.

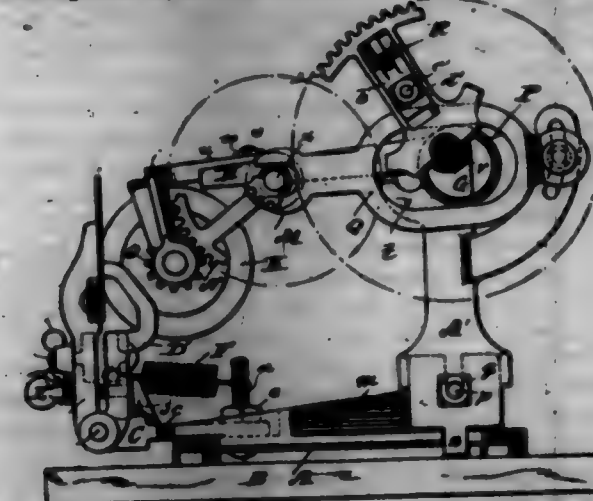
2. An article of manufacture comprising a single piece of leather or other material, said piece having an outwardly-curved transverse slit near its upper edge and an outwardly-curved vertical slit near one end of said transverse slit and forming a tongue, and being provided with a series of openings of various sizes near its lower edge, substantially as described.

3. A hand-covering comprising a single piece and being provided at its lower portion with a series of openings for the insertion of the fingers, and a slit in its upper outer portion for the insertion of the thumb, and having its upper portion cut to form a strap in a single piece and integral with the said hand-covering at each end, substantially as described.

4. A protector for the palm portion of the hand comprising a single piece of material having its lower and upper portions cut to form openings for the insertion of the hand, said cut portions forming straps, and having a slit near its inner and upper edges for the insertion of the thumb, substantially as described.

5. A hand-covering comprising a single rectangular piece of leather or other material conforming to the shape of the palm portion of the hand, said piece having the slots a and c cut therein and the openings d in its lower portion, one of said slots being cut to form the integral strap b.

708,212. GRINDING-MACHINE. EDWARD W. FRISCH, Fort Washington, Wis., assignor to Western Implement Company, Fort Washington, Wis. Filed Dec. 30, 1901. Serial No. 67,761. (No model.)



Claim.—1. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a rotatory grinding device in suspension from the arm, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, means for regulating spring tension, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

2. A grinding-machine comprising a standard having the upper end thereof in the form of a sleeve, an arbor held fast in the sleeve, an arm having a yoke end straddling said sleeve and loose on the arbor, a rotatory grinding device in suspension from the arm, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, means for regulating spring tension, grinding-device drive-gear having the main wheel-hub thereof in the form of an eccentric loose on said arbor, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

3. A grinding-machine comprising a base and standard, an arm in

swing connection with the standard, a rotatory grinding device in suspension from the arm, a pivotal slide-bar clamp having a bracket-chank thereof of adjustable on the base longitudinally of the same, a clamp-controlling spring, means for regulating spring tension, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

4. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a rotatory grinding device having a hanger provided with a chank in adjustable connection with the arm longitudinally of the same, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, means for regulating spring tension, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

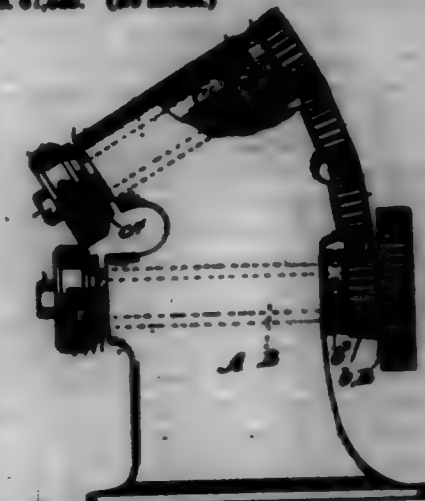
5. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a rotatory grinding device in suspension from the arm, a slide-bar clamp consisting of a base-bracket, a pivot-rod supported by the bracket, clamp-jaws loose on the rod, a spiral spring connecting one of the jaws with a stationary portion of the machine, a tension-screw carried by the other of the jaws to abut an arm of said bracket, a bolt engaging both jaws and a nut on the bolt; grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

6. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a rotatory grinding device in suspension from the arm, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, means for regulating spring tension, a gear-wheel having a pinion-hub loose on a lateral beam of said arm, a pinion on the grinding-device arbor in mesh with said gear-wheel, an eccentric hub-driving gear-wheel loose on an arbor constituting the swing-arm axis, and a rocker outside the eccentric hub in connection at its ends with said swing-arm beam and a branch of said standard.

7. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a leg on said standard arranged to constitute a rest for the swing-arm, a rotatory grinding device in suspension from said arm, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, means for regulating spring tension, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

8. A grinding-machine comprising a base and standard, an arm in swing connection with the standard, a rotatory grinding device in suspension from the arm, a slide-bar clamp in pivotal connection with the base, a clamp-controlling spring, a screw arranged to regulate tension of said spring, a spiral spring on the screw between its head and the adjacent clamp-jaw, grinding-device drive-gear having the main wheel thereof provided with an eccentric, and a rocker outside the eccentric in connection at its ends with said arm and a branch of said standard.

708,213. MACHINE FOR CUTTING BEVELED EDGES ON PLATE OR SHEET METAL. PAUL PARONELLA, Chicago, Ill. Filed July 11, 1901. Serial No. 67,626. (No model.)



Claim.—1. In a machine for cutting beveled edges, on plate or sheet metal, a shaft, a second shaft set at a suitable angle to the first-named shaft, cutters mounted upon the adjacent ends of said shafts, gearing between them and suitable means for adjusting one of the cutters longitudinally of its axis of rotation; substantially as described.

2. In a machine for cutting beveled edges upon plate or sheet metal, a suitably-rotated cutter, a second cutter angularly disposed with reference to the first-named cutter, a longitudinally-adjustable sleeve and a suitably-

rotated shaft carrying said second-named outer and journaled in said sleeve; substantially as described.

8. In a machine for cutting beveled edges upon plate or sheet metal, a base or frame, an approximately horizontal shaft journaled in said base, means for its rotation, a cutter upon one of its ends, a second shaft angularly disposed with reference to the first-named shaft, a cutter upon its end adjacent to the first-named shaft, a sleeve seated in the base and having screw-threads upon its periphery threaded in the base, said second-named shaft being journaled in the sleeve and geared to the first-named shaft; substantially as described.

708,214. CURTAIN POLE OR ROD. ELWOOD C. PHILLIPS, Chicago, Ill., assignor to Standard Development Company, Incorporated, Chicago, Ill. Filed Feb. 1, 1900. Serial No. 98,112. (No model.)



Claim.—1. An extensible curtain pole or rod formed of a closely-wound spiral of resilient material and integrally formed with attaching-eyes at its respective ends, in combination with attaching-brackets provided with a plurality of vertically-arranged hook-shaped engaging tongues to any one of which the attaching-eyes of the pole or rod may be secured to vary the distance of the pole or rod from the upper portion of the window or door frame without changing the position of the bracket on the frame.

2. An extensible curtain pole or rod formed of a closely-wound spiral of resilient material and integrally formed with attaching-eyes at its respective ends, in combination with attaching-brackets provided with a plurality of vertically-arranged hook-shaped engaging tongues to any one of which the attaching-eyes of the pole or rod may be secured to vary the distance of the pole or rod from the upper portion of the window or door frame without changing the position of the bracket on the frame, said brackets being also provided with top and bottom prongs for attachment of the brackets to the frame.

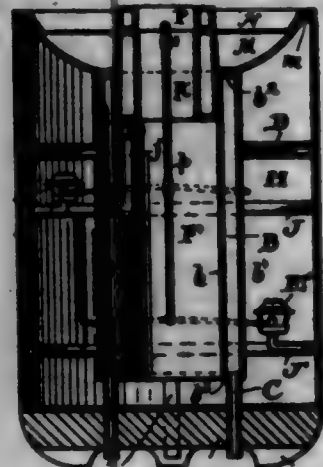
3. An extensible curtain pole or rod formed of a closely-wound spiral of resilient material and formed with attaching-eyes at its respective ends, in combination with attaching-brackets provided with a vertical series of hook-shaped engaging tongues for the attaching-eyes of the rod or pole, and with top and bottom prongs for attachment to the window-frame, substantially as set forth.

4. An extensible curtain pole or rod formed of a closely-wound spiral of resilient material and formed with attaching-eyes at its respective ends, in combination with attaching-brackets provided with a vertical series of hook-shaped engaging tongues for the attaching-eyes of the rod or pole, with top and bottom prongs for attachment to the window-frame, and with recesses adjacent to the said prongs for use in a removal of the bracket from its attachment to the window-frame, substantially as set forth.

708,215. SUBMERGED WATER-HEATER. ORRISON C. FINNEY, Haverhill, Mass. Filed Nov. 24, 1899. Serial No. 74,492. (No model.)

Claim.—1. In a submerged water-heater, the combination of a sheet-metal drum closed at its bottom, a closed annular water-chamber within said drum, the space within the chamber constituting an open down-flow, vertical water-inlet pipes passing through the bottom of the drum

and into the bottom of said water-chamber, laterally-extended water-outlet pipes connected with the water-chamber near its top and extending across the heating-chamber and out through the wall of the drum, and heat-generators located in the space between the water-chamber and the drum and above the lower end of the water-chamber, whereby the air in the drum around said water-chamber is heated and caused to flow up and out through the top of the drum and air to supply the combustion is drawn down through the line passing through said water-chamber, substantially as specified.



2. The combination of a sheet-metal drum closed at its bottom, an annular closed water-chamber within said drum, the space within the chamber constituting an open down-flow, inlet-pipes passing through the bottom of the drum and into the bottom of the water-chamber, laterally-extended outlet-pipes connected with the water-chamber near its top and passing out through the wall of said drum, a plurality of burners located in the space between the drum and water-chamber, and above the lower end of the latter and pipes tying in the down-flow for supplying fuel to said burners, substantially as specified.

3. The combination of a sheet-metal drum closed at its bottom, a closed annular water-chamber in said drum, the space within the chamber constituting an open down-flow, inlet-pipes connected with the bottom of the water-chamber and extended out through the bottom of the drum, outlet-pipes connected with the water-chamber near its top and extended out through the side of the drum, a plurality of burners located in the space between said water-chamber and drum, an annular liquid-fuel tank secured to the upper end of said water-chamber, and pipes leading through the down-flow connecting said fuel-tank with said burners, substantially as specified.

4. The combination of a sheet-metal drum closed at its bottom, a closed annular water-chamber in said drum, inlet-pipes connected with the bottom of the water-chamber and extended out through the bottom of the drum, outlet-pipes connected with the water-chamber near its top and extended out through the side of the drum, a plurality of burners located in the space between said water-chamber and drum, an annular liquid-fuel tank secured to the upper end of said water-chamber, and pipes connecting said tank with said burners, an annular alcohol-tank also supported by said water-chamber and having pipes leading to the drip-cups of said burners, substantially as specified.

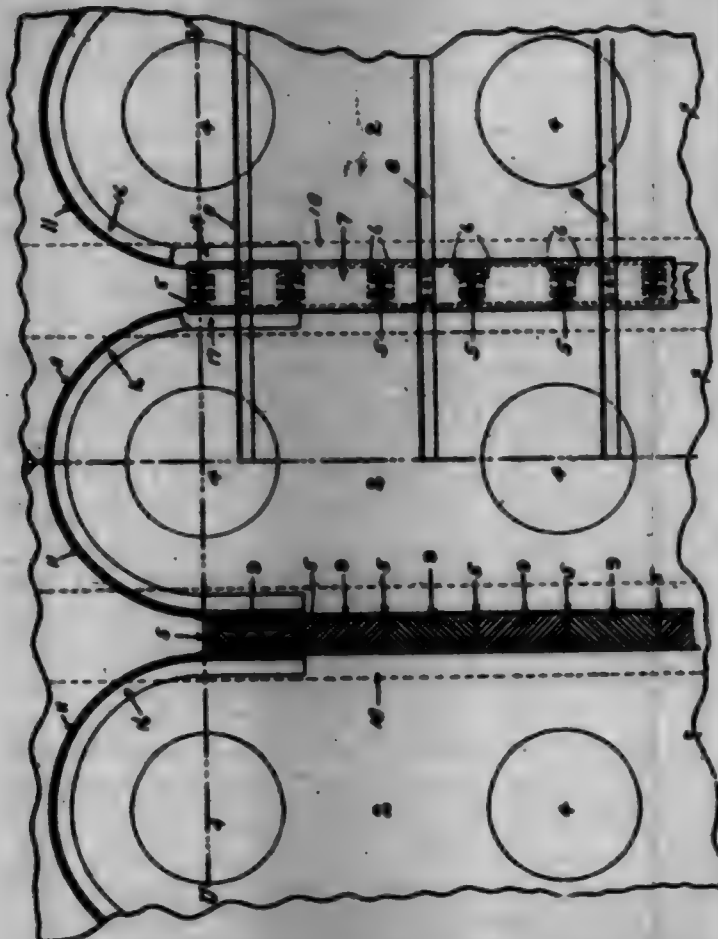
5. The combination of a sheet-metal drum closed at its bottom, a closed annular water-chamber in said drum, inlet-pipes in said water-chamber passing through the bottom of the drum, outlet-pipes to said chamber connected with it near its top and extended out through the walls of said drum, heat-generators located substantially as described whereby to heat the space between the water-chamber and drum, and an annular cover resting upon the top of the water-chamber and inclined therefrom upwardly and outwardly to the top of the drum upon which it also rests, there being a plurality of slots in said cover near its upper edge, substantially as specified.

6. The combination of a sheet-metal drum closed at its bottom and open at top, an annular inclined vertical water-chamber extending nearly to the bottom of the drum with its open lower space which acts as a down-flow, and burners located in the space between said drum and the water-chamber and above the lower end of the latter, substantially as specified.

708,216. WATER-WHEEL-PISTON-CONSTRUCTION. JAMES W. KIRBY, Minneapolis, Minn., and MONTGOMERY E. BARNES, Sterling, Ill.; said Barnes assignor to said Kirby. Filed Mar. 14, 1898. Serial No. 97,481. (No model.)

Claim.—1. A series of two or more open water-wheel pistons having partition-walls between them, said walls being composed of upright beams having their lower ends anchored to the piston-rod-floor, a suitable filling material between the beams of each wall and the rods or bars connecting the tops of said walls.

2. A series of two or more open water-wheel pistons having partition-walls between them, said walls being composed of upright beams having their lower ends embedded or set into the piston-rod-floor, a suitable filling material between the beams of each wall, caps horizontally arranged upon the top of each wall and secured to the beams thereof, and the rods or bars extending over said walls and connecting and tying the walls and the caps thereon together.



3. A series of two or more open water-wheel pistons having partition-walls between them, said walls being composed of upright I-beams having their lower ends embedded or set into the piston-rod-floor, a concrete filling material between the beams of each wall and forming arches, channel-bars upon the top of each wall and secured to said I-beams, and angle the bars or rods secured to said channel-bars and connecting and tying the tops of said walls together.

4. In a series of two or more adjoining water-wheel pistons, the combination of partition-walls separating the pistons, with semicylindrical metallic bulkheads closing the ends of said pistons, respectively, and tangential to and secured to said walls.

5. In a series of two or more adjoining water-wheel pistons, the combination of a series of partition-walls separating the pistons, said walls being composed of upright beams having their lower ends embedded in the piston-rod-floor and a suitable filling material between them, with semicylindrical metallic bulkheads closing one end of said pistons and secured to said partition-walls, and the rods or bars connecting the tops of said beams and walls and tying them together.

6. In a series of two or more adjoining water-wheel pistons, the combination of a series of partition-walls separating the pistons, with semicylindrical metallic bulkheads anchored at their ends to said walls and closing the open end of said pistons, and means for forming a close water-tight joint between the lower edges of said bulkheads and the floor of said pistons.

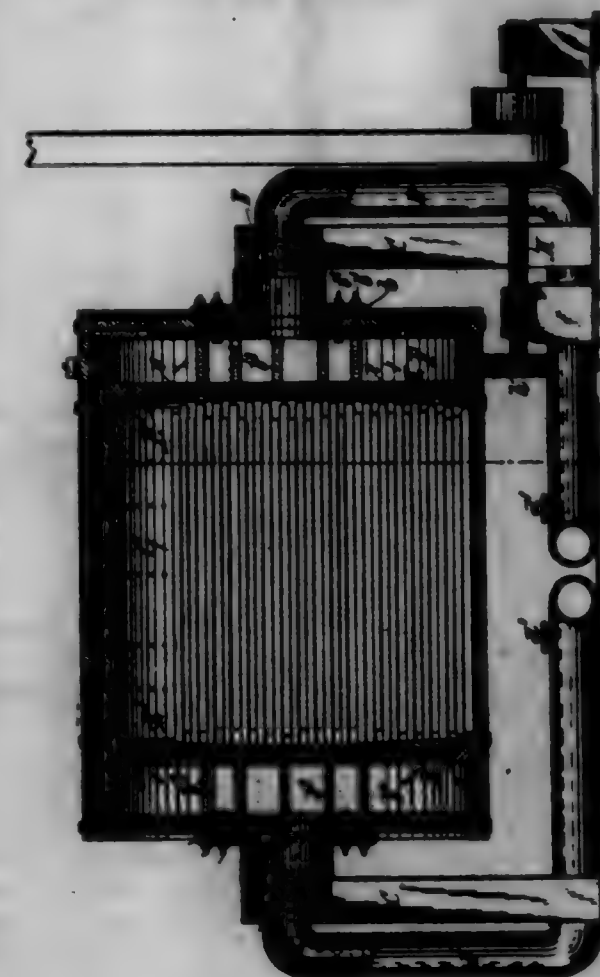
7. A series of open water-wheel pistons, comprising a suitable floor provided with draft-tube openings, partition-walls between adjoining pistons and consisting of metal beams having their lower ends anchored to said floor and a suitable filling material between said beams, means connecting or tying the tops of said walls together, semicylindrical metallic bulkheads anchored at their ends to said walls and tangential with respect thereto, beams embedded in said floor at the bottom of said bulkheads, and angle-bars secured to said bulkheads and to said walls.

8. In a series of two or more open water-wheel pistons, the combination of a series of partition-walls separating the pistons and composed of metallic frames embedded at their lower ends in the piston-rod-floor and having a suitable concrete filling, with semicylindrical bulkheads having their ends riveted to the frames of said partition-walls and tangential thereto, and the rods or bars extending across said walls and secured to said frames and tying them and said walls together.

9. In an open water-wheel piston, a semicylindrical metallic bulkhead closing one end of the piston, and walls whereon said bulkhead is anchored.

10. In an open water-wheel piston, walls composed of beams having their lower ends anchored to the piston-rod-floor, a suitable filling material between the beams of each wall, and means for tying the upper portions of said walls together.

708,217. APPARATUS FOR DRYING AND POLISHING BROOM-HANDLES. CHARLES A. RYLAND, Akron, Mich., assignor of two-thirds to WILLIAM E. JACKSON and GEORGE A. JACKSON, Buffalo, N. Y. Filed Dec. 28, 1891. Serial No. 98,902. (No model.)



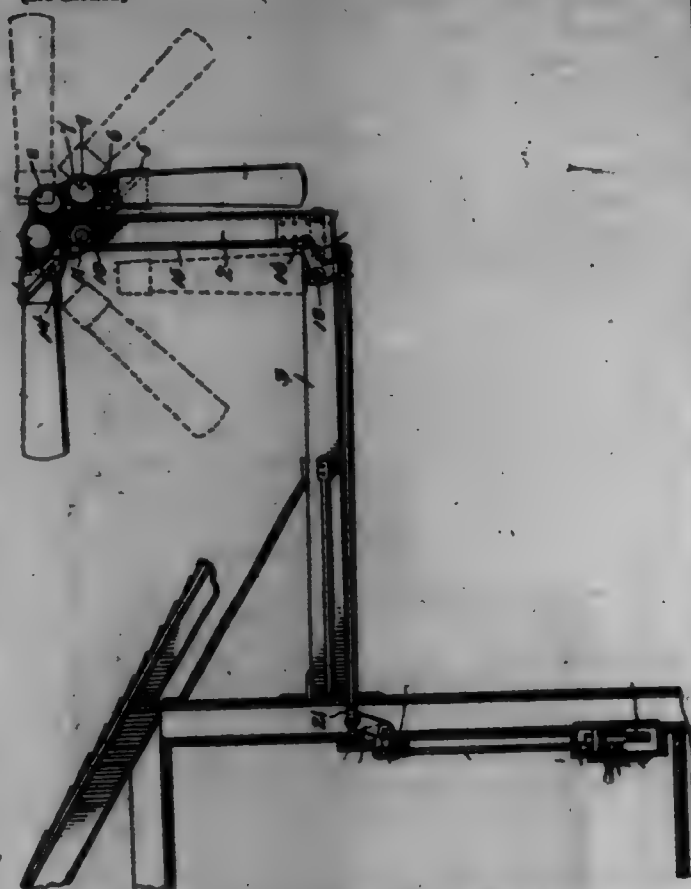
Claim.—1. An apparatus for drying broom-handles, &c., consisting of a rotary drum having one of its heads provided centrally with an air-duct which communicates with the drum, and a partition arranged near said head and forming separate air-distributing and drying chambers, said drying-chamber being provided with air-escape openings, and said partition having passages through which the air issues into said drying-chamber lengthwise of the drum, whereby the air-current passes lengthwise through the space between the handles placed in the drum, substantially as set forth.

2. A drying apparatus, consisting of a rotary drum having tight heads provided with hollow journals which communicate with the ends of the drum, and perforated partitions arranged in the drum near its ends and forming air inlet and distributing chambers at opposite ends of the drum and an intermediate drying-chamber, into which latter the air issues in opposite directions lengthwise of the drum, said drying-chamber being provided in its cylindrical wall with air-escape openings, substantially as set forth.

3. A drying apparatus, consisting of a rotary drum having tight heads provided with hollow journals which communicate with the ends of the drum, and perforated partitions arranged in the drum near its ends and forming air inlet and distributing chambers at opposite ends of the drum and an intermediate drying-chamber, the latter having air-escape openings in its cylindrical wall, and said partitions being convex in the side facing the drying-chamber, substantially as set forth.

4. An apparatus for drying broom-handles, &c., consisting of a rotary drum having one of its heads provided centrally with an air-duct which communicates with the drum, and a perforated partition arranged near said head, forming separate air-distributing and drying chambers and provided with a removable wear-facing having perforations which register with those of the partition, said drying-chamber being provided with air-escape openings, substantially as set forth.

708,218. RAILWAY-SIGNAL-OPERATING APPARATUS. JOHN A. SNOW, Youngstown, Ohio. Filed Feb. 27, 1902. Serial No. 93,961. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the signal, of a rotary disk having separate operating elements at opposite sides thereof, swinging levers oscillated from the said operating elements of the disk, and reciprocity signal-actuating connections with the levers.

2. In an apparatus of the class described, the combination with the signal, of a single rotary disk having cam-guides upon opposite sides thereof, swinging levers having engaging elements co-operating with said cam-guides, and reciprocity signal-actuating connections with the levers.

3. In an apparatus of the class described, the combination with the signal, of a rotary disk having separate operating elements at opposite sides thereof, swinging levers oscillated from the said operating elements of the disk and pivotally mounted upon axes disposed in parallel to the axis of the disk, and reciprocity signal-actuating connections with the levers.

4. In an apparatus of the class described, the combination with the signal, of a single rotary disk having separate operating elements at opposite sides thereof, and arranged upright upon a horizontal axis, vertically-swinging levers oscillated from the said operating elements of the disk, and reciprocity signal-actuating connections with the levers.

5. In an apparatus of the class described, the combination with the signal, of a rotary disk having separate operating elements at opposite sides thereof, levers moved from said operating elements of the disk, signal-actuating connections with the levers, and an operating device for the disk arranged directly on the axis of the latter, said operating device including means for indicating the various combinations provided for by the separate cam-guides.

6. In an apparatus of the class described, the combination with the signal, of a rotary disk having at opposite sides thereof continuous and slanted cam-guides, the separate cam-guides being reversely related, but having portions in concentric circles, a pair of swinging adjusting-levers pivotally supported at one end and carrying at their other ends elements engaging the said cam-guides, reciprocity signal-actuating connections with the levers, and a signal-operating device for the disk arranged directly on the axis thereof, said operating device including indicating means having points corresponding to the various combinations provided for by the said cam-guides.

7. In an apparatus of the class described, the combination with the signal, of a rotary disk having separate cam-guides upon opposite sides thereof, said cam-guides having portions thereof disposed in coincident relation, separate adjusting-levers respectively engaging the separate guides, actuating connections between the levers and the signal, as operating devices including a lever or handle directly upon the axis of the disk for turning the latter, and a stationary dial co-operating with the lever or handle and having indications corresponding to the related portions of the separate guides.

8. In an apparatus of the class described, the combination with the signal, of a controlling mechanism comprising a rotary wheel or disk provided upon opposite sides thereof with continuous and slanted cam-guides, portions of which are in coincident relation, an axle for said wheel or disk, separate levers engaging respectively with the separate cam-guides, actuating connections between said levers and the signal, a stationary indicator-dial having a plurality of locking-points arranged in spaced relation corresponding to the related portions of the separate cam-guides, and an operator's lever or handle secured to the axle of the wheel or disk and carrying a latch co-operating with the locking-points of said dial.

9. In an apparatus of the class described, the combination with the signal, of controlling mechanism having an actuating-rod for the signal, said actuating-rod being provided with colored portions, and a telltale device consisting of a sleeve receiving the rod and having a sight-opening exposing the colored portions thereof.

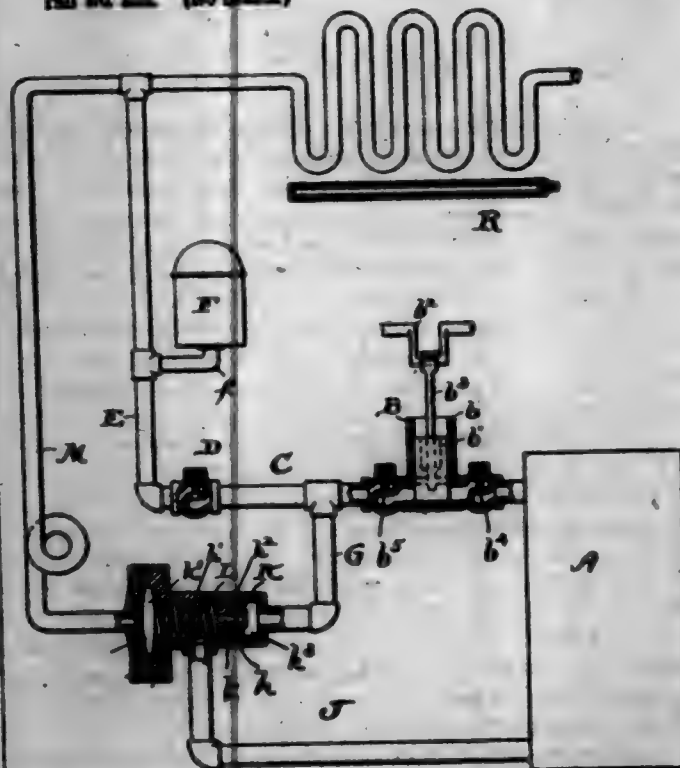
708,219. INTERMEDIATE SUGAR PRODUCT. CLAREN A. SPRENGEL and CHARLES A. KIRBY, New York, N. Y., assignors to Federal Refining Company, Jersey City, N. J., a Corporation of New Jersey. Original application filed Nov. 19, 1901, Serial No. 82,590. Divided and this application filed May 6, 1902. Serial No. 106,110. (No specimens.)

Claim.—1. The intermediate body, consisting of a mass of sugar-crystals mixed with a sulfonated defecating agent, substantially as described.

2. The intermediate body, consisting of a mass of sugar-crystals mixed with a sulfonated defecating agent, substantially as described.

3. The intermediate body, consisting of a mass of sugar-crystals, substantially freed from sugar impurities, and mixed with a sulfonated defecating agent, substantially as described.

708,220. FEEDING MECHANISM FOR BOILERS. ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Jan. 2, 1900. Serial No. 222. (No model.)

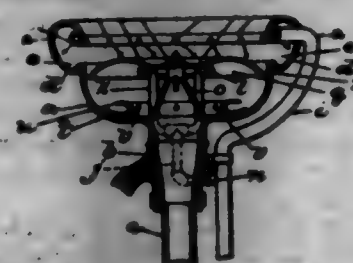


Claim.—In a feeding mechanism, in combination, a supply-tank, a main feed-pipe, a boiler connected therewith, pumping mechanism adapted to force water from the tank into the feed-pipe, an air-chamber communicating with the feed-pipe between the pumping mechanism and boiler, a by-pass leading from between the feed-pipe and pumping mechanism back to the supply-tank, a valve normally closing said by-pass but adapted by pressure to open it, a pipe for communicating pressure to the valve, which pipe is connected with the fluid on the opposite side of the air-chamber to that at which the pumping mechanism is connected, substantially as described.

708,221. FOUNTAIN-SPITTOON. WILLIAM E. ALLEN, Baltimore, Md. Filed June 20, 1901. Serial No. 93,962. (No model.)

Claim.—1. A fountain-spittoon, comprising a bowl; a rotatable disk mounted in said bowl and provided with a substantially convex upper face; and a spray device secured within the rim of said bowl above the said disk and provided with two series of jets, one series being disposed

toward the wall of the bowl and the other series disposed tangentially toward said disk, as set forth.



2. A fountain-spittoon comprising a bowl provided below its top with an outwardly-extending flange curving upward and inward to the rim edge of the bowl whereby to form an annular trough; a rotatable disk in said bowl; and a spray device secured within the rim edge of said bowl and provided with two series of jets, one series being arranged to spray toward said trough and the other series arranged to spray tangentially against said disk to rotate the latter, as set forth.

3. A fountain-spittoon comprising a bowl; a substantially convex disk mounted in said bowl with its convex face upward and provided with a central depression; and a spray device having one or more jets opening tangentially toward said disk.

4. In a fountain-spittoon, the combination of a bowl having a bottom discharge; and an annular pan detachably resting on the bottom wall of the bowl and provided with an upwardly-turned apertured inner edge adapted to catch solid snail-like objects injected into the bowl, whereby said pan may be removed with such objects in it, and cleaned, as set forth.

5. A fountain-spittoon, comprising a bowl; a disk mounted to rotate in said bowl and provided with a series of segmental slots; a main spray device adapted to spray said disk to rotate the same; and an auxiliary spray device underneath said disk and adapted to spray upwardly through said slots, as set forth.

6. A fountain-spittoon, comprising a bowl; a disk mounted to rotate in said bowl and provided with a series of segmental slots; a main feed-pipe; a main spray-ring secured to said feed-pipe above said disk and adapted to spray on the top of the latter; a branch feed-pipe provided with a cock, and also provided with one or more tubular arms extending upwardly on the inside of the bowl; and an auxiliary spray-ring secured to the top of said arms underneath said segmental slots and provided with a series of upwardly-opening jets adapted to spray through said slots, as set forth.

708,222. ELEVATED-CABLE SYSTEM OF TRANSPORTATION. TONY ALEXANDER, New Orleans, La., assignor of one-half to Sidney Alexander, New Orleans, La. Filed Oct. 7, 1901. Serial No. 77,702. (No model.)

Claim.—1. In an overhead-cable system of transportation, the combination of a cable and a series of supports therefor around which the cable is wound, the cable curving and diverging from the upper side of said supports, substantially as shown and described.

2. In an overhead-cable system of transportation, the combination of a cable, means for stretching it, and a series of pivoted supports therefor around which the cable is wound, and upon the top of which the cable is crossed, as shown and described.

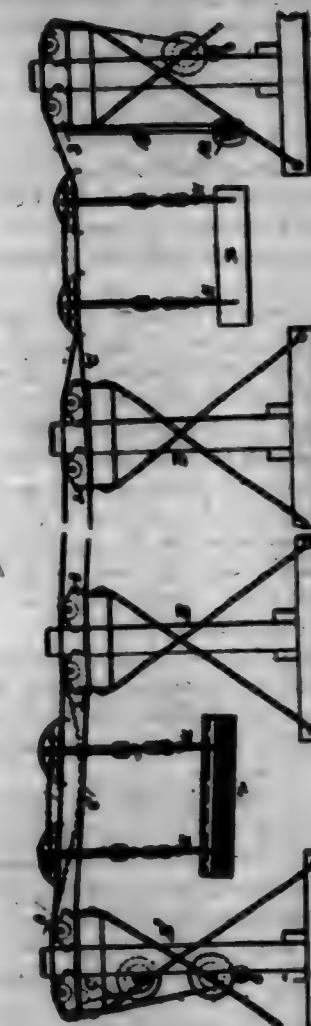
3. In an overhead-cable system of transportation, the combination of a cable, and a series of grooved sheaves supporting the same and journaled in suitable supports, the cable being wound around the sheaves and curving and diverging in opposite directions upon the upper side of the sheaves, substantially as shown and described.

4. In an overhead-cable system of transportation, the combination of a cable, means for stretching it, a series of sheaves journaled as described and supporting the cable and around which the latter is wound, and means for locking the cable and sheaves, substantially as shown and described.

5. In an overhead-cable system of transportation, the combination of a cable, means for stretching it, and sheaves journaled as described, and supporting said cable, which is wound around them, and pivoted dogs arranged in opposite sides of the several sheaves, and having locking engagement with the portion of the cable containing the sheaves, substantially as shown and described.

6. In an overhead-cable system of transportation, the combination with a series of stationary frames or supports, of a cable, a series of grooved sheaves held on said supports and around which the cable is wound, dogs pivoted on opposite sides of the sheaves and adapted to engage with the cable-section encircling the sheaves and curving on the upper side of the latter, and means arranged at the terminals of the line for stretching or slackening the cable adjacent to each terminal, substantially as shown and described.

7. In an overhead-cable system of transportation, the combination with a series of stationary frames or supports, of a cable, a series of grooved sheaves held on said supports and around which the cable is wound, dogs pivoted on opposite sides of the sheaves and adapted to engage with the cable-section encircling the sheaves and curving on the upper side of the latter, and means arranged on cable-supports intermediate of the terminals for slackening the cable, the latter being looped and engaged with such means at each point, as shown and described.



8. In an overhead-cable system of transportation, the combination with a series of stationary frames or supports of a cable, a series of grooved sheaves held on said supports and around which the cable is wound, dogs pivoted on opposite sides of the sheaves and adapted to engage with the cable-section encircling the sheaves and curving on the upper side of the latter, two windlasses applied to a cable-supporting frame, which is intermediate the terminals of the line, and antifriction cable-sheaves arranged between the said windlasses and the sheaves whereon the cable is wound, the cable having a loop between the windlasses sufficient to produce any required slack adjacent to the frame-support of the cable, substantially as shown and described.

9. In an overhead-cable system of transportation, the combination with a series of stationary frames or supports of a cable, a series of grooved sheaves held on said supports and around which the cable is wound, dogs pivoted on opposite sides of the sheaves and adapted to engage with the cable-section encircling the sheaves and curving on the upper side of the latter, two windlasses applied to a cable-supporting frame which is intermediate the terminals of the line, means for locking said windlasses, a sheave 14 arranged adjacent to one of the cable-supporting sheaves 2 and antifriction-sheaves arranged on the frame below each of said cable-sheaves 2, the cable passing over the several sheaves and beneath the supporting-sheaves 2 and being secured to both windlasses and looped between the latter, as shown and described.

10. In an overhead-cable system of transportation, the combination with a stationary cable upon which carriages run, of a leading-rope arranged adjacent thereto, guide-sheaves between which the rope runs, and a pivoted shiftable guard extending across the space intervening the pulleys, substantially as shown and described.

11. In an overhead-cable system of transportation, the combination of a stationary cable, a carriage adapted to travel on the latter and provided with a lateral and pendant arm, a leading-rope attached to said arm, sheaves arranged opposite and serving as guides for said rope, a pivoted arm arranged horizontally, and a spring connected with the arm and tending to hold it extended across the space between the sheaves, the carriage-arm being adapted to pass between the upper edges of the sheaves and push the pivoted arm aside, as shown and described.

12. A rotatable cable support and lock, consisting of a grooved sheave, a casing in which the same is journaled and two weighted dogs pivoted in said casing one on each side of the sheave and arranged with its weighted end in the same plane with the sheave, substantially as shown and described.

13. The improved carriage for use on overhead cables, comprising an arched and trussed top frame, and a straight frame joining the ends of the same, which are journaled in the straight frame and aligned with each other, substantially as shown and described.

14. The improved carriage for use on overhead cables, comprising an arched top frame, longitudinal bars connecting the ends of said frame, and struts connecting the bars with the arched top, substantially as shown and described.

15. The improved carriage for the use specified, comprising an arched top plate, an arched reinforcing plate or rib attached to the under side of the same, longitudinal bars connecting the ends of the arched portions, struts connecting the said bars with the arched top, and wheels journaled between the said bars in line with each other, substantially as shown and described.

16. The improved carriage for the use specified, comprising a frame provided with running wheels, and locking-bars pivoted on the depending portions of said frame and held normally projected inward so as to practically open the space beneath the wheels, whereby they are adapted to hold the carriage upon its support and to be pushed outward for passing obstructions, substantially as shown and described.

17. The improved carriage for the purpose specified, comprising a frame having running wheels therein and depending portions as specified, obtuse-angled bars pivoted upon such depending portions and arranged horizontally, springs holding their angles normally in contiguity whereby they practically open the space beneath the wheels and are adapted to operate, substantially as shown and described.

18. The combination of the carriage with a fixed support upon which it is adapted to travel and locking-bars pivoted upon depending portions of the carriage and held normally in contiguity beneath the running wheels of said carriage and adapted to yield for passing obstructions in the line, substantially as shown and described.

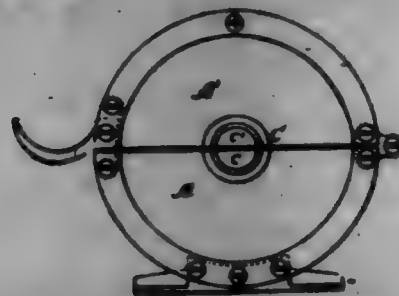
19. The combination with a cable and support therefor consisting of sheaves and casings in which the same are journaled, said casings having lateral flanges at the top, of a carriage comprising a suitable frame and running wheels arranged therein, said carriage having depending portions and locking-bars pivoted thereto and projecting practically across the space beneath the wheels and adapted to yield as specified, whereby the carriage is locked to the cable and its supports, substantially as shown and described.

20. The improved carriage comprising a top and lower frame, running wheels journaled in the lower portion, a middle attached to the latter and a C-shaped arm resting in said middle and adapted for support of a grapple or other freight-carrier, substantially as shown and described.

21. The improved carriage for the purpose specified, comprising an arched top portion, horizontal lengthwise bars connecting the end of the arch and middle-piece interposed between the middle portion of said bars and supported thereon, and a C-shaped hanger attached to said middle and bearing therein, and freight-carrying device attached to said hanger, substantially as shown and described.

22. The improved carriage for the purpose specified, comprising an overhead arch, lengthwise connecting-bars, running wheels journaled in the frame, a lateral arm having a depending V-shaped portion, the same being rigidly attached to the central portion of the carriage between the running wheels, substantially as shown and described.

708,223. FISHING-REEL. LEONARD ARSON, Philadelphia, Pa. Filed July 13, 1901. Serial No. 68,513. (No model.)



Claim.—1. The combination in a fishing-reel, of a casing made in two parts hinged together, a spool carried by said casing, means for turning said spool, a friction-brake for governing the rate of turning of the spool, one part of said casing being constructed to act as one of the members of said brake, substantially as described.

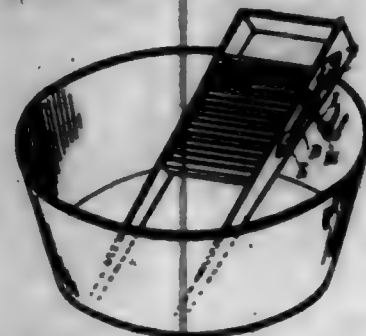
2. The combination of a two-part casing, one part being hinged to

the other, a spool mounted in the casing, a friction-ring mounted on the movable part of the casing and bearing upon the spool at the will of the operator, substantially as described.

3. The combination in a fishing-reel, of a two-part casing, one part being pivoted to the other, and having bearings, a spool having transverse members in the bearings, said spool having a recess in one side, a friction brake-ring secured to the movable portion of the casing and mounted in the recess in the spool, so that on drawing the movable part of the casing to the fixed part the brake-ring will come into frictional contact with the spool, substantially as described.

4. The combination in a reel, of a casing made in two parts, one pivoted to the other, a thumb-rod on one part by which the movable part can be drawn to the fixed part, bearings in the said one, a spool having transverse members in the bearings, the said spool being recessed at each side, a ratchet-wheel on the spool, a spring-rod engaging said ratchet-wheel, a brake-ring within the recess on the upper side of the spool, said brake-ring being secured to the movable portion of the casing, substantially as described.

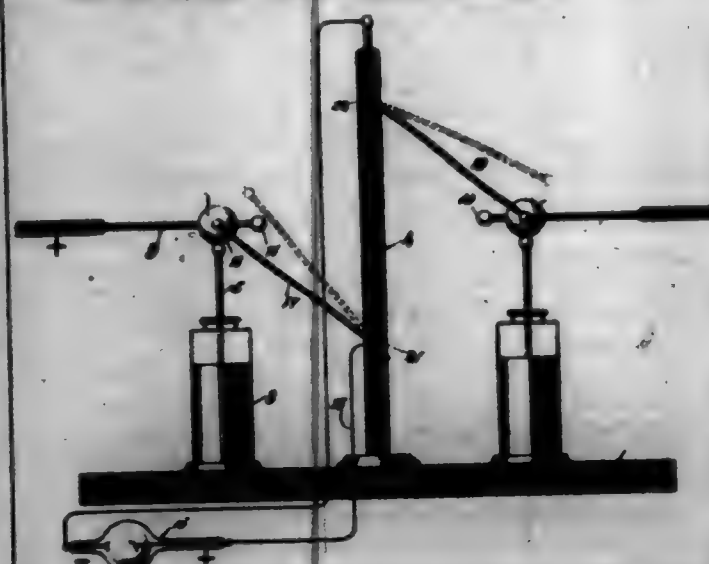
708,224. WASHBOARD-HOLDER. CHARLES E. BAKER, Portland, Me. Filed Dec. 13, 1901. Serial No. 58,227. (No model.)



Claim.—1. A washboard-holder comprising triangular rods adapted to be rigidly attached to the side of a washboard longitudinally thereof, sliding arms on said rods angularly disposed thereto and adapted to rest against the inside of a tub and means for holding said arms against the longitudinal movement on said rods.

2. In a washboard-holder, in combination, a triangular rod with means at one end for attaching the same to the side of a washboard, a removable hollow member to receive the other end of said rod and to hold said rod in position, a member movable lengthwise on said rod and angularly disposed thereto, said movable member being provided with a plurality of legs, said legs being placed transversely of said rod and means for holding said movable member against lengthwise movement on said rod.

708,225. POLE-CHANGER. JAMES H. C. BRADY, Fremont, Colo. Filed Feb. 13, 1902. Serial No. 52,707. (No model.)



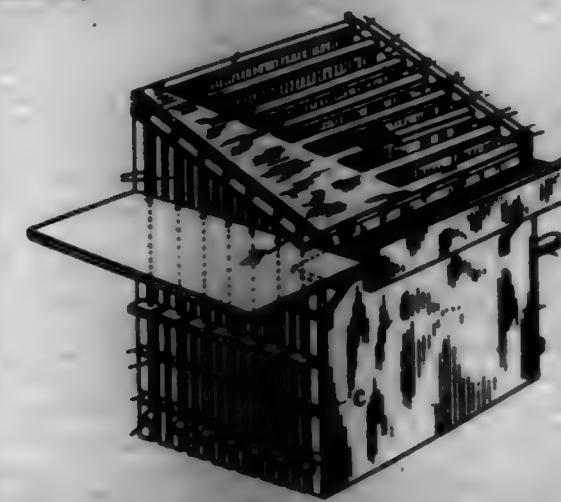
Claim.—1. A pole-changer for currents of high potential, comprising a base, a vertical insulating standard mounted thereon, radially-movable metallic arms pivoted upon said standard and provided with knobs, insulating-handles connected with said arms for actuating the same, and means for connecting said arms with an electrical supply.

2. A pole-changer for currents of high potential, comprising a base, an insulating member mounted thereon, Leyden jars mounted upon said base and disposed about said insulating member, metallic arms pivotally mounted upon said insulating member and provided with knobs for discharging said Leyden jars, insulating-handles for actuating said arms, and electric conductors connected with said metallic arms.

3. A pole-changer for currents of high potential, comprising a base, an insulating-standard mounted thereon, Leyden jars mounted upon said base, means for continuously charging said jars by currents of opposite sign, metallic arms mounted upon said insulating-standard and free to swing radially, said arms being provided with metallic knobs and with insulating-handles and separate conductors connected with said metallic arms.

4. A pole-changer comprising a base, an insulating-standard mounted thereon, a plurality of metallic arms pivoted upon said standard and terminating in knobs, means for actuating said arms, and conductors for connecting said arms with opposite poles of an electric machine, the arrangement being such that said arms when not in use may be folded parallel with each other and with said standard.

708,226. TORACOD-DRIVING DEVICE. LEAVITT F. BUNELL and JOHN SULLIVAN, Buffalo, Conn. Filed Nov. 29, 1901. Serial No. 52,723. (No model.)



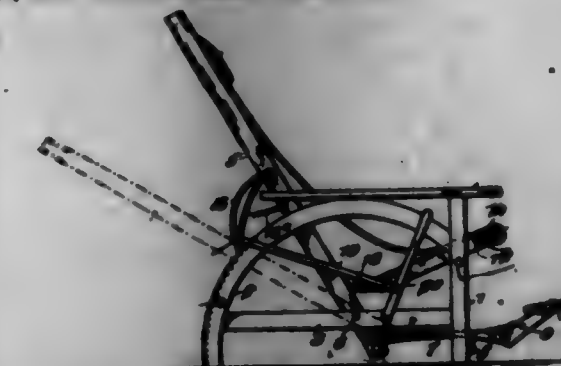
Claim.—1. A sliding box or crate provided with a series of compartments having mouths of different lengths, in combination with shelves in the compartments adapted to be adjusted vertically to different points as desired, all substantially as described and for the purposes set forth.

2. A sliding box or crate provided with a series of compartments and having mouths of different lengths, in combination with a series of shelves for said compartments independent of one another and adapted to be adjusted vertically to different points as desired, all substantially as described.

3. A sliding box or crate provided with a series of compartments, a removable cover therefor having slots corresponding to said compartments, said slots being of different lengths, in combination with shelves in the compartments adapted to be adjusted vertically to different points as desired, said shelves being supported at one end only, substantially as described.

4. A sliding box or crate provided with a series of compartments having mouths of different lengths in combination with shelves in the compartments, means whereby they may be adjusted vertically to different points as desired, and means for raising said shelves, substantially as described and for the purposes set forth.

708,227. CHAIR. HARVEY P. BLACKMAN, Omaha, Ill. Filed June 26, 1901. Serial No. 66,998. (No model.)



Claim.—1. A chair, comprising a main frame, portions of said main frame forming the front and rear legs, the rear legs being curved, rocks on said rear legs, a back pivoted on the main frame, a seat-frame having swinging connection with the back, parts carried by the back for engaging with said rocks, and a lever pivoted to one side of the main frame and having connection with the parts, substantially as specified.

2. A chair having a main frame, comprising front and rear legs, the rear legs being curved, rocks on the upper sides of said rear legs, a back-frame pivoted to the main frame, parts carried by the back and adapted for engagement with the rocks, a lever having operative connection with

said parts, a seat-frame having swinging connection with the back-frame, and a seat fabric or material attached at one end to the forward portion of the seat-frame and at the other end to the upper portion of the back-frame, substantially as specified.

3. In a chair, a back-frame, a seat-frame, rods connecting the opposite members of the seat-frame, legs on said members rearward of said rods, a rod connecting the opposite members of the back-frame, legs on said members below said rod, a flexible seat material, a rod secured to the forward end of the seat material and adapted to engage against the legs and to press the material against the rod connecting the seat members, and a rod attached to the opposite end of the material and adapted to bear against the legs on the back-frame members and to press the material against the bar above said legs, substantially as specified.

4. In a chair, a frame comprising front and rear legs, rocks on the rear legs, side bars connecting the lower portions of the legs of a side, arms connected to the upper portions of the legs of a side, a back-frame, a rod supported in said side bars and upon which the back-frame is mounted to swing, arms extended forward from the lower portion of said back-frame, short arms having hinged connection with the first-named arms, a fixed bar on the front legs with which the first-named arms engage, a foot-rest having swinging connection with the short arms, a seat-frame having swinging connection with the back-frame, and parts carried by the back-frame for engaging the rocks on the rear legs, substantially as specified.

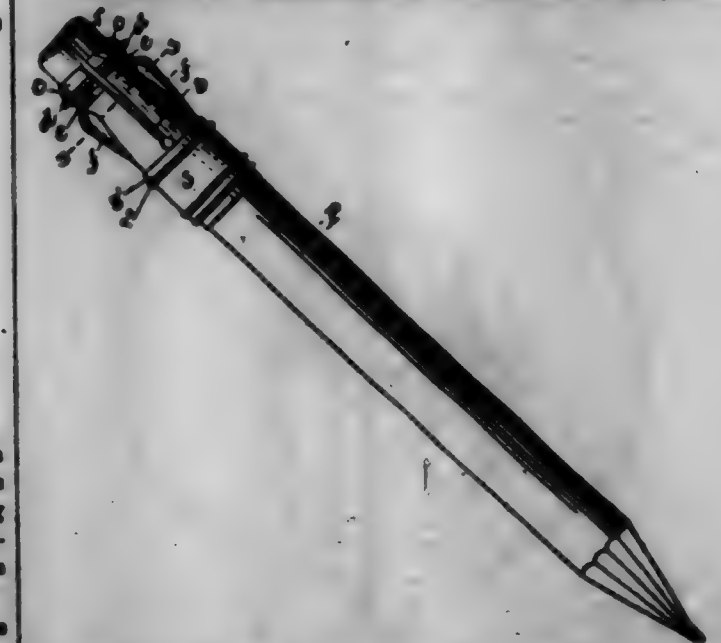
708,228. SHOWAWAY MUD-GUARD FOR VEHICLES OR THE LIKE. CHARLES W. BURNER, FRANK E. BURNER, and ROBERT A. BURNER, London, England. Filed Mar. 2, 1902. Serial No. 59,473. (No model.)



Claim.—1. A cycle mud-guard made of celluloid and molded with a curvature in two directions at right angles so that it will roll up into a small compass and when unrolled will be rigid, said guard being perforated to permit of attachment to the stays, in combination with said stays for keeping the guard extended when on the machine and hinged projections on the stays passing through and locking with the perforations in the guard substantially as described.

2. A mud-guard for vehicle-wheels composed of a relatively thin and flexible strip of celluloid or similar material, said strip being molded with a curvature in two directions at right angles, viz: longitudinally and transversely, and capable of being rolled up into small compass when detached.

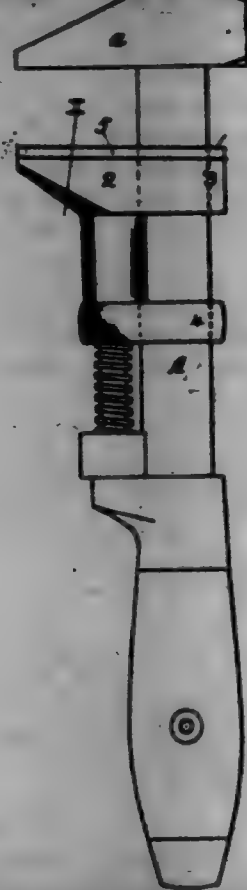
708,229. RUBBER-TIP ATTACHMENT FOR LEAD-PENCILS. CLAREN W. BUNAK, New York, N. Y., assignor to Eagle Pencil Company, New York, N. Y. Filed Feb. 26, 1902. Serial No. 59,149. (No model.)



Claim.—A rubber-tip attachment for lead-pencils consisting of a short-metal tube adapted at one end to fit upon the pencil and at the other end to fit upon the pencil.

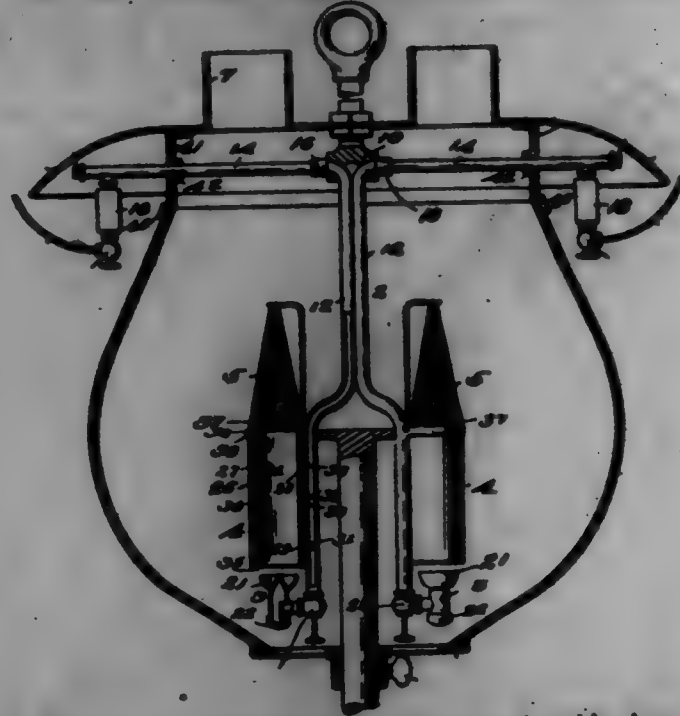
other and split longitudinally for a portion of its length into gripping-jaws having biting ends *c*, and back of said ends hump or raised portions *d*, and back of said raised portions longitudinal raised and inclined ribs *f*, and a sliding ring or sleeve on said tube provided back of its front end portion with an internal annular recess or clearance *g* adapted to coast with the jaws and the inclines *f* thereof, as and for the purposes hereinafter set forth.

708,980. WRENCH. GEORGE E. BRY, Worcester, Mass. Filed Oct. 20, 1891. Serial No. 30,425. (No model.)



Claim.—In a wrench of the character described, in combination with the wrench-bar having the fixed jaw and handle arranged thereon, and the jaw-adjusting screw; the slidable jaw comprising a body portion and guiding-strap made of malleable iron, and provided with a steel or hard-metal reinforcing-plate covering the top face and the jaw-supporting strap surrounding said wrench-bar, said reinforcing-plate being permanently united to the jaw body and strap, around the bar-space opening, by an integral union of the adjacent surfaces, substantially as and for the purposes set forth.

708,981. HYDROCARBON-LAMP. JAMES C. BRACE, St. Louis, Mo. Filed Jan. 9, 1891. Serial No. 42,001. (No model.)



Claim.—1. In a hydrocarbon-lamp, the combination with a burner, of a generator comprising a pipe made up of a horizontal member and a

vertical member, both within the heat zone of said burner and communicating with a source of supply for liquid hydrocarbon, a vapor-jet having a cup thereon, and a vaporizer located between said vapor-jet and said burner and comprising an inner and an outer tube secured together to form an annular chamber which communicates with said pipe and said vapor-jet, as and for the purposes set forth.

2. In a hydrocarbon-lamp, the combination with a burner, of a generator comprising a vertical member and a horizontal member, the latter member being removable without disturbing the relation of the other parts, located above said burner and within the heat zone thereof and communicating with a source of supply for liquid hydrocarbon, a vapor-jet having an annular cup thereon, and a vaporizer located above said vapor-jet and comprising an inner and an outer tube secured together to form an annular chamber which communicates with said vertical member and said vapor-jet, as and for the purposes set forth.

3. In a hydrocarbon-lamp, the combination with a burner, of a generator comprising a fixed vertical member and a horizontal member removable without disturbing the relation of the other parts located above said burner and within the heat zone thereof, a hydrocarbon-supply pipe communicating with said horizontal member, a vapor-jet, a valve controlling the flow of hydrocarbon to said vapor-jet, an annular cup secured to and surrounding said vapor-jet and located below the discharge-orifice therein, and a vaporizer located between said vapor-jet and said burner and comprising an inner and an outer tube secured together to form an annular chamber which communicates with said vertical member and said vapor-jet.

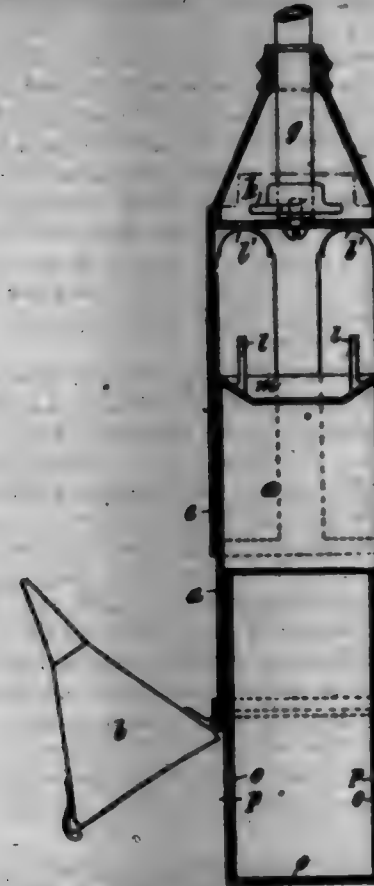
4. In a hydrocarbon-lamp, the combination with a burner, of a generator comprising a fixed vertical member having an enlarged, internally-threaded, outwardly-directed upper end and a horizontal member removable without disturbing the relation of the other parts curving within the upper end of said vertical member and located above said burner and within the heat zone thereof, a hydrocarbon-supply pipe connected with said horizontal member, a vapor-jet, a valve controlling the flow of hydrocarbon to said vapor-jet, an annular cup secured to and surrounding said vapor-jet and located below the discharge-orifice therein, and a vaporizer located between said vapor-jet and said burner and comprising an inner and an outer tube secured together to form an annular chamber which communicates with said vertical member and said vapor-jet.

708,982. ICE-SKATE. FRANK E. BROWN, AMHERST, IOWA. Filed Mar. 17, 1892. Serial No. 34,540. (No model.)



Claim.—An ice-skate comprising a runner, a foot-plate secured to said runner at the heel and adapted to spring therefrom, a keeper secured to the toe of said foot-plate, a flat spring secured to said runner and adapted to slide within said keeper, and a stop upon said runner having a recess in its upper face adapted to receive said keeper to steady the foot-plate, substantially as set forth.

708,988. APPARATUS FOR SAMPLING GRAIN OR SEED. JAMES J. BROWN, London, England. Filed Feb. 24, 1902. Serial No. 33,671. (No model.)



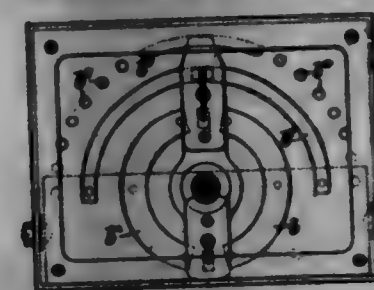
Claim.—1. In apparatus for obtaining samples of grain or seed, the combination of a case, a cover connected to said case and adapted to be moved longitudinally along said case so as to open and close the upper end thereof, a removable pointed bottom adapted to close the lower end of said case, and a removable receptacle to receive the grain or seed, substantially as set forth.

2. The combination of a case, a cover, slide-bar attached to said cover adapted to slide between guides fixed to said case, a pointed bottom hinged to the lower end of the case, a removable receptacle for the grain or seed, a handle-stem fitted to said cover, and means for locking the case to said cover, substantially as set forth.

3. The combination of a case, an inwardly-projecting conical lip at the upper end of said case, a cover adapted to be moved longitudinally along said case, a handle-stem adapted to partially retain in said cover, a cross-bar on said stem, hooks attached to said case, a pointed bottom hinged to said case, and a removable grain or seed receptacle, substantially as set forth.

4. The combination with a cover attached to a handle-stem and adapted to be moved longitudinally, a case fitted with a removable pointed bottom and provided with means for locking the case to the cover, of a grain-receptacle adapted to be placed inside said case, a sample-bag, and a cylindrical stretcher adapted to hold open said bag, substantially as set forth.

708,984. ELECTRIC CONTROLLER. JOHN W. BROWN, JR., Philadelphia, Pa. Filed Mar. 7, 1902. Serial No. 37,128. (No model.)



Claim.—1. In an electric controller, the combination of a slab or plate of insulating material, concentric series of contact-plates thereon, an operating-spindle carrying a contact-arm provided with openings and also constructed of insulating material, metallic plates carried on the upper surface of said arm, one of said plates being bent over the end of the arm and extended to engage directly with one series of the contact-plates and spring-controlled brushes carried by the insulating-frame in said openings thereof, said brushes being placed to engage others of the contact-plates when the controller is operated, substantially as described.

2. An electric controller consisting of a plate of insulating material,

an operating-spindle and a handle for moving the same, an arc of insulating material fixed to said handle, concentric series of contact-plates upon the insulating-plate, spring-controlled brushes within the openings in the insulating-arm, two metallic plates insulated from one another carried by the arm, one of the same being connected to two others of the brushes, the second plate being formed so as to engage with one of the series of contact-plates, substantially as described.

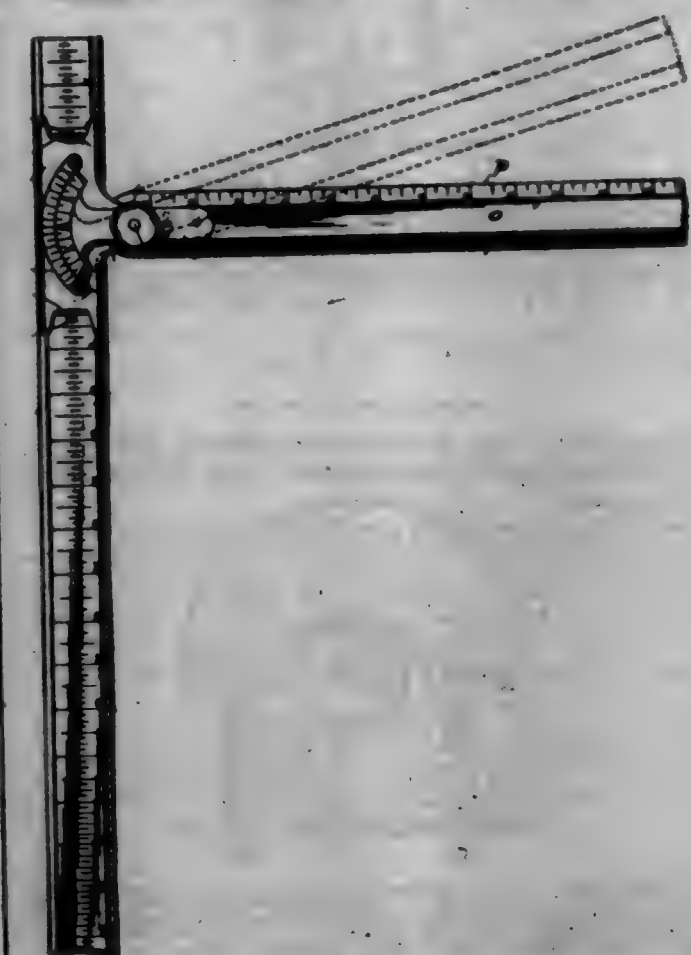
3. In an electric controller for varying the speed of a motor by varying its field, the combination of a pair of contacts connected respectively to the armature-terminals of the motor, a series of contacts having resistance between them connected to one terminal of the field of the motor, the other terminal of said field being connected to one of the supply-mains, a contact-plate connected to the other main, and movable brushes respectively connecting one of the pair of contacts in the armature-circuit with one of the supply-mains, and the other of said contacts with the second supply-main and with the contacts in circuit with the field, substantially as described.

4. In an electric controller, the combination of brushes with means for connecting the same to the positive and negative supply-mains respectively, a pair of contact-plates connected to the armature-terminals of a motor to be operated, a number of contacts having resistance between them and in connection with one terminal of the field of the motor, the other terminal of said field being in connection with one of the supply-mains, one of said brushes normally forming connection between one of the supply-mains and the contact of one armature-terminal when the other is connecting the contact of the other armature-terminal and the contacts of the field with the second supply-main, substantially as described.

5. In an electric controller, the combination of brushes, means for connecting the same to supply-mains, a pair of armature contact-plates, a number of field contact-plates, resistance between the said field contact-plates, one of said brushes being constructed to be in contact with one of the armature contact-plates when the second brush is in contact with the other armature contact-plate and the field contact-plates, substantially as described.

6. The combination in an electric controller, of a central contact, a pair of armature-contacts on the arc of a circle adjacent to the central contact, a contact-plate on the arc of a second circle, and a series of contacts on a third circle having resistance connected between them, a brush forming connection between the central contacts and one of the armature-contacts when the controller is operated and a second brush placed to simultaneously form contact between the second of the armature-contacts and the contacts of the second and third circle, substantially as described.

708,985. PROTRACTING-RULER. BERNARD H. CANNON, U. S. Revenue Marine. Filed Dec. 2, 1891. Serial No. 34,524. (No model.)



Claim.—1. In a retracting-ruler, the combination of a base or main part, a slide movable longitudinally thereon, pointers adapted to register with graduations upon said base or main part, a protractor upon said slide, a swinging member, a perforated extension upon said slide adapted to lap upon the end of said swinging member, a quadrant secured to said swinging member, having a perforation adapted to register with the perforation upon the said extension, said quadrant being provided with a curved edge concentric with said protractor, and a screw passing through the perforations in said quadrant and the extension upon said slide.

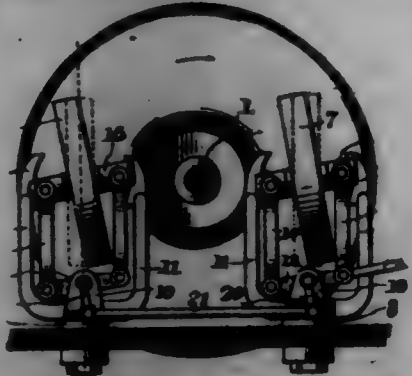
2. In a retracting-ruler, the combination of a base or main part, a slide movable longitudinally thereon, pointers carried by said slide adapted to register with graduations upon said base portion, a segmental plate raised upon the top of said slide having concentric inner and outer edges, a swinging member, a perforated extension upon said slide adapted to be pivoted to said member, a perforated quadrant secured to said member, and having a graduated curved edge concentric with and adapted to slide upon the inner edge of said protractor, and a screw passing through said perforations to secure the same to said swinging member.

708,286. FIRE-ESCAPE. EDWARD H. CHASE and WILLIAM I. HALDEMAN, Pittsburgh, Pa. Filed Mar. 12, 1902. Serial No. 66,961. (No model.)



Claim.—In a fire-escape, the combination of a cylindrical casing, and a bar held therein, said bar being of essentially uniform diameter and having a spiral groove formed therein, the groove being open at the sides of the bar at all points along the length of the bar, and the spiral along which said groove is formed being of greatest diameter at approximately the middle of the bar and tapering gradually toward each end until said spiral runs into the longitudinal axis of the bar.

708,287. VARIABLE-SPEED FRICTION-GEARING. EDWARD P. COTLER, Warren, Ohio. Filed Dec. 7, 1900. Serial No. 30,686. (No model.)



Claim.—1. In a device for changing speed, two parallel, rotatable wheels or disks, a friction-roller supported between and arranged to engage both said disks to transmit motion from one to the other, and means

for adjusting the plane of rotation of said friction-roller angularly to its normal tangent position at its point of contact to cause said roller to traverse said wheels or disks in opposite directions toward or from their centers.

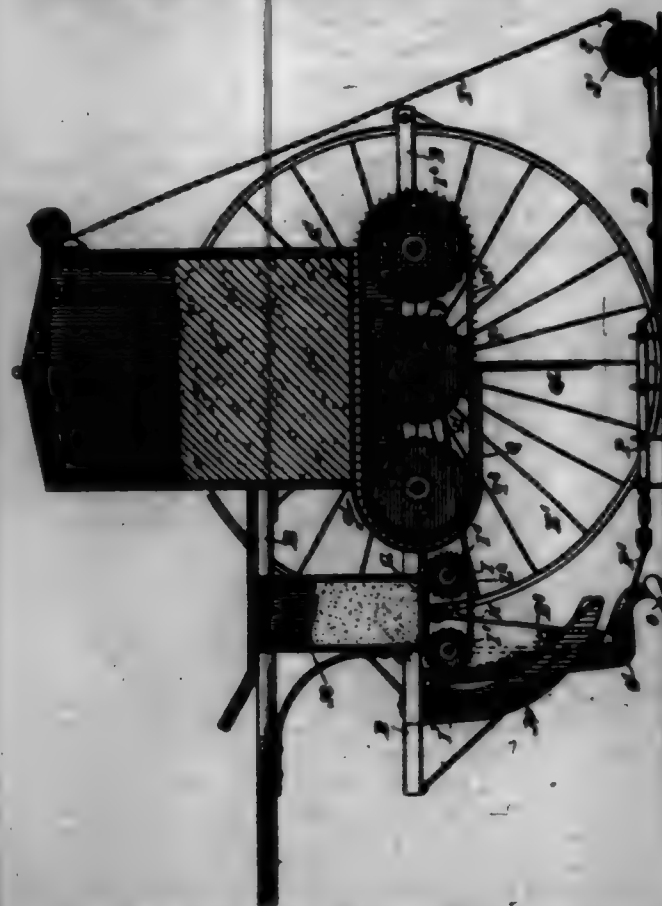
2. In a device for changing speed, a rotatable wheel or disk, a friction-roller arranged to engage said wheel or disk, a shaft supporting said friction-roller, links pivotally connected to the ends of said shaft, a spindle rotatable about an axis lying in the normal plane of rotation of the roller, arms pivotally connected to said spindle and to the abutment links, means for rocking said arms about their pivotal connection with the spindle to adjust the plane of rotation of the friction-roller angularly to its normal tangent position at its point of contact, whereby the spindle will be rotated and the friction-roller will traverse the wheel or disk either from or toward its center, and means for applying power to or taking power from said friction-roller.

3. In a device for changing speed, a rotatable wheel or disk, a friction-roller arranged to engage said wheel or disk and to be adjusted bodily about two axes at right angles to each other, means for positively adjusting said roller about one of said axes from its normal tangent position at its point of contact, and a support for said roller so constructed that when the plane of rotation of said roller is varied as aforesaid said support and the roller will be automatically adjusted about the other said axis and caused to traverse the wheel or disk either from or toward its center.

4. In a device for changing speed, a rotatable wheel or disk, a friction-roller arranged to engage said wheel or disk and normally rotating in a plane tangent to a circle described about the axis of said wheel or disk, a movable carrier for said roller, means for adjusting the said roller from said normal tangent position, whereby the carrier for the roller will be automatically moved and the roller will traverse the wheel or disk from or toward its center, and a pivotal support for the roller on said carrier adapted after each such adjustment to return the roller to its normal tangent position.

5. In a device for changing speed, two parallel, rotatable wheels or disks, a friction-roller arranged between and engaging with both said wheels or disks, a rotatable spindle extending between said wheels or disks and having at its end between said wheels or disks two yokes, a rock-shaft journaled in the ends of one of said yokes and provided with two diametrically opposite arms, a shaft for the friction-roller extending parallel to said arms or the rock-shaft, the bearings for said shaft engaging the arms on the other yoke, and links pivotally connected to the arms on the rock-shaft and to said bearings, and means for rocking said rock-shaft.

708,288. COMBINED SEEDER, FERTILIZER-DISTRIBUTOR, AND CULTIVATOR. ARTHUR CHAVET, Montevideo, Uruguay. Filed Oct. 18, 1901. Serial No. 73,108. (No model.)



Claim.—1. In an agricultural machine of the character described, the combination with a delivery device, of a shaft mounted below the de-

Every device, a plow secured to the shaft, and an operating-lever secured to said shaft, as set forth.

2. In an agricultural machine of the character described, the combination with a delivery device, of a shaft mounted below the delivery device, a plow secured to the shaft, means for operating the shaft, a harrow, and a connection between the said shaft and harrow, as set forth.

3. In an agricultural machine of the character described, the combination with grain-delivery device, and a fertilizer-delivery device in rear of the grain-delivery device, of a shaft mounted below the grain-delivery device, a plow secured to the shaft, a harrow secured to the said shaft, a roller, and a flexible connection between the harrow and roller, as set forth.

4. In an agricultural machine of the character described, the combination with grain and fertilizer delivery devices, of a shaft arranged below the grain-delivery device, a plow secured to the shaft, a harrow connected with the shaft, a mixing device secured to the rear of the harrow, a roller with the shaft of which the mixing device is connected, and means connected with the shaft of the roller for raising the roller, mixing device and harrow off the ground, as set forth.

5. An agricultural machine of the character described, comprising a seed-delivery device, a plow for opening a furrow to receive the seed, a harrow in rear of the plow for covering the seed delivered into the furrow, said harrow being loosely connected with the plow-support, a fertilizer-distributing device in rear of the seed-delivery device and delivering the fertilizer at the rear of the harrow, a mixing device loosely connected with the rear of the harrow for mixing the fertilizer with the soil, and a roller with the shaft of which the mixing device is loosely connected, as set forth.

708,289. GOLF-BALL. OLIVIER DAVIS, U. S. Navy. Filed Apr. 18, 1902. Serial No. 68,577. (No model.)



Claim.—1. A golf-ball, composed wholly or in part of a nitrocellulose compound and provided with a hollow cavity in its center, said cavity being filled with an elastic fluid under pressure, substantially as described.

2. A hollow golf-ball, comprising a shell of nitrocellulose compound, and an outer shell of gutta-percha, and having the cavity therein filled with an elastic fluid under pressure, substantially as described.

3. A hollow golf-ball, comprising an inner shell of rubber, an intermediate shell of a nitrocellulose compound and an outer shell of gutta-percha, and having the cavity therein filled with an elastic fluid under pressure, substantially as described.

4. A golf-ball, composed wholly or in part of a nitrocellulose compound and provided with a hollow cavity in its center, and an inflated bag containing elastic fluid under pressure located in said cavity, substantially as described.

5. A golf-ball, comprising a plurality of concentric shells of homogeneous elastic material, the inner shell being hollow, and an inflated bag containing elastic fluid under pressure contained in said inner shell, substantially as described.

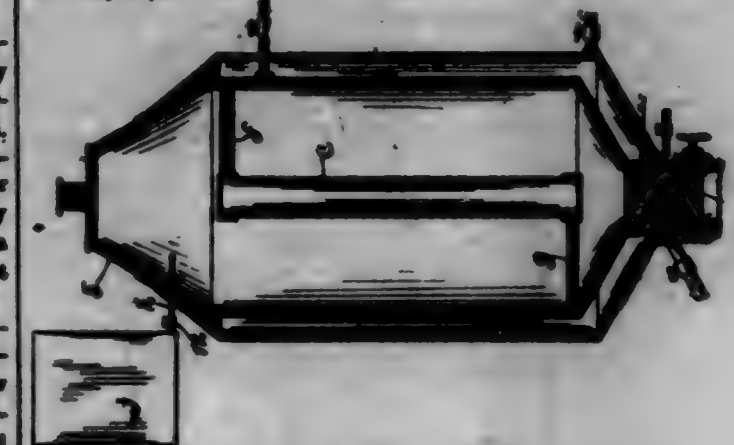
6. A hollow golf-ball, comprising a shell of nitrocellulose compound, and an outer shell of gutta-percha, and an inflated bag filled with elastic fluid under pressure in the hollow portion of said ball, substantially as described.

7. A hollow golf-ball, comprising an inner shell of rubber, an intermediate shell of a nitrocellulose compound and an outer shell of gutta-percha, and an inflated bag containing fluid under pressure contained in the cavity in said ball, substantially as described.

708,240. PROCESS OF OBTAINING RELATIVELY-YIELDABLE LIQUIDS. THOMAS E. SMITH, Cleveland, Ohio. Filed Oct. 2, 1901. Serial No. 73,997. (No specimens.)

Claim.—An improvement in the production of gelatin-yieldable liquid from gelatin-yieldable material, comprising the heating of the material within a receptacle and draining or flowing gelatin-yieldable liquid from the receptacle through a body or mass of filtering material and maintaining the liquid adequately heated preparatory to and during the filtering operation so as to prevent fermentation of the liquid before the liquid has been filtered.

708,240.



708,241. PHOTOGRAPHIC DEVELOPER. ARTHUR SCHMIDT and KARL DUMMER, Elberfeld, Germany, assignors to Farbwerke of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed July 17, 1901. Serial No. 68,974. (No specimens.)

Claim.—1. The herein-described developing agent for photographic pictures containing a solution of a product of addition from polyhydroxyl derivatives of aromatic compounds with nitrogen bases, substantially as described.

2. The herein-described developer for photographic pictures consisting of an aqueous solution of pyrogallol-dimethylamine to which an aqueous solution of sodium sulfite has been added, substantially as described.

708,242. PROCESS OF DEVELOPING PHOTOGRAPHIC PICTURES. ARTHUR SCHMIDT and KARL DUMMER, Elberfeld, Germany, assignors to Farbwerke of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed July 17, 1901. Serial No. 68,975. (No specimens.)

Claim.—1. The herein-described process of developing photographic pictures consisting in subjecting them to the action of a solution containing a product of addition from polyhydroxyl derivatives of aromatic compounds with nitrogen bases, substantially as hereinbefore described.

2. The herein-described process of developing photographic pictures consisting in subjecting them to the action of a solution containing pyrogallol-dimethylamine, substantially as hereinbefore described.

3. The herein-described process of developing photographic pictures consisting in subjecting them to the action of an aqueous solution containing pyrogallol-dimethylamine and sodium sulfite, substantially as hereinbefore described.

708,243. PHOTOGRAPHIC DEVELOPER AND PROCESS OF MAKING SAME. ARTHUR SCHMIDT and THOMAS SMITH, Elberfeld, Germany, assignors to Farbwerke of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed July 17, 1901. Serial No. 68,976. (Specimens.)

Claim.—1. The process for producing new products of addition from polyhydroxyl derivatives of the benzene series which process consists in first treating these compounds with nitrogen bases of the aliphatic series and then isolating the resulting bodies from the reaction mixture, substantially as hereinbefore described.

2. The process for producing a new product of addition being pyrogallol-dimethylamine of the formula:



by first treating pyrogallol with dimethylamine and then isolating the new compound from the reaction mixture, substantially as hereinbefore described.

3. The herein-described new products of addition from polyhydroxyl derivatives of the benzene series with nitrogen bases of the aliphatic series which are crystalline substances, soluble in water and possessing an alkaline reaction, being split up into their components by the action of caustic alkalis, substantially as hereinbefore described.

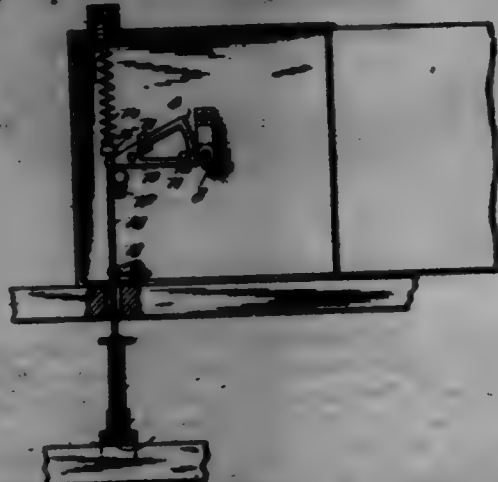
4. The herein-described pyrogallol-dimethylamine having the formula:



which is a crystalline powder melting at 163° centigrade which is easily soluble in water, soluble with difficulty in alcohol and insoluble in ether, substantially as hereinbefore described.

708,244. SCALE ATTACHMENT. WILLIAM B. EVANS and JOHN T. MARSHALL, Boston, Mass. Filed Oct. 10, 1901. Serial No. 73,997. (No model.)

Claim.—1. A scale attachment, comprising a dial, a pointer movable over the dial, a pinion on the shaft of the pointer, a segment-rack engaging with the pinion, a lever carrying said rack, a balance-weight adjustable on the lever, a trip-rod to which the lever is pivotally connected, a spring arranged between the upper end of said trip-rod and a fixed device, and a sleeve adjustable on said rod for engaging with a scale-beam, substantially as specified.



2. A scale attachment, comprising a casing, a dial on said casing, a pointer movable over the dial, a pinion on the shaft of said pointer, a rack engaging with the pinion, a lever carrying the rack, a balance-weight adjustable on the lever, a spring-pressed trip-rod having connection with the lever, and a swinging link connection between said rod and the casing, substantially as specified.

3. A scale attachment, comprising a casing, a dial on said casing, a pointer movable over the dial, a pinion on the shaft of said pointer and within the casing, a segment-rack engaging with said pinion, a lever carrying the rack, an adjustable stop for the lever, a trip-rod having connection with said lever and extending through an opening in the casing and adapted to engage at its lower end with a scale-beam, a screw adjustable in the upper wall of the casing, and a spring arranged between the upper end of the trip-rod and said screw, substantially as specified.

4. In a scale attachment, a casing, a dial on said casing, a pointer movable over the dial, a pinion on the shaft of said pointer and within the casing, a segment-rack engaging with the pinion, a trip-rod pivoted to the lever and passing through an opening in the bottom wall of the casing, the lower end of the trip-rod being designed for engagement with a scale-beam, a screw adjustable in the top wall of the casing, a spring arranged between said screw and the upper end of the trip-rod, a cover for the screw, and a link connection between the trip-rod and the casing, substantially as specified.

5. In a scale attachment, a dial, a pointer movable on the dial, a trip-rod, a sleeve adjustable on said trip-rod and having a pointed end for engaging with the upper end of a scale-beam, flanges extending downward from said sleeve for engaging at opposite sides of the scale-beam, and device operated by movements of the trip-rod for moving the pointer, substantially as specified.

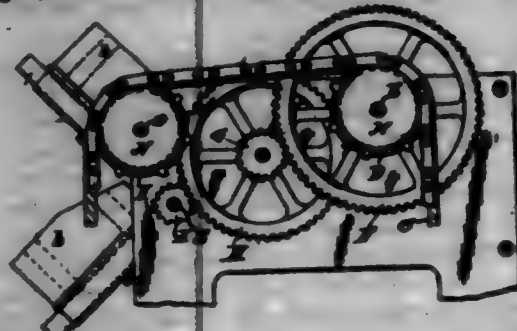
708,245. SHIRT-TEST HALF AND POUCH. WILLIAM S. FARLEIGH, Lynchburg, Va. Filed July 13, 1901. Serial No. 55,453. (No model.)



Claim.—1. A test-half made of fabric and having a water-receiving and retaining receptacle the same of fabric and formed therewith or secured thereto.

2. A test-half having a slit formed therein, a flap secured along one edge of the slit on one side of the test-half and overlying the slit, and another flap secured along the other edge of the slit on the opposite side of the test-half and overlying the slit, whereby the said test-half may be utilized as a pouch, as set forth.

708,246. REGULATOR FOR CONTROLLING THE DESCENT OF ELEVATOR-CARS. AUGUST GALLIHER, West Babylon, N. Y. Filed Aug. 31, 1900. Renewed Jan. 27, 1902. Serial No. 91,200. (No model.)



Claim.—1. A regulator for controlling the descent of elevator-cars, consisting of a series of rotary devices for causing accelerated rotation, a device arranged to be driven by said accelerating device and adapted to offer resistance to the air when revolving in one direction, and to offer no such resistance when revolving in the opposite direction, a sprocket-wheel secured to the same shaft as one of the accelerating devices, a sprocket-chain passing over and engaging with said wheel, and adapted to have a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

2. A regulator for controlling the descent of elevator-cars, consisting of a series of rotary devices for causing accelerated rotation, a device arranged to be driven by said accelerating device and adapted to offer resistance to the air when revolving in one direction, and to offer no such resistance when revolving in the opposite direction, a sprocket-wheel secured to the same shaft as one of the accelerating devices, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

3. A regulator for controlling the descent of elevator-cars, consisting of a series of rotary devices for causing accelerated rotation, a fan having folding wings arranged to be driven by said accelerating device, a sprocket-wheel secured to the same shaft as one of the accelerating devices, a sprocket-chain passing over and engaging with said wheel and adapted to have a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

4. A regulator for controlling the descent of elevator-cars, consisting of a series of rotary devices for causing accelerated rotation, a device arranged to be driven by said accelerating device and adapted to offer resistance to the air when revolving in one direction, and to offer no such resistance when revolving in the opposite direction, a pulley and sprocket-wheel secured to the same shaft as one of the accelerating devices, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

5. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a device arranged to be driven by one of said gears, and adapted to offer resistance to the air when revolving in one direction, and to offer no such resistance when revolving in the opposite direction, a pulley and sprocket-wheel secured to the same shaft as one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

6. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, all as and for the purposes set forth.

7. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging

with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, said pulley adapted to have the lifting-cable pass over it in the same direction as the chain, and a guide-pulley situated between the other pulley and the source of power, for the lifting-cable to pass over, all as and for the purposes set forth.

8. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, said pulley adapted to have the lifting-cable pass over it in the same direction as the chain, and a guide-sprocket-wheel situated between the other wheel and the weight for the sprocket-chain to pass over, all as and for the purposes set forth.

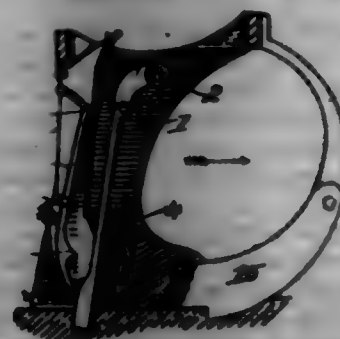
9. A regulator for controlling the descent of elevator-cars, consisting of a series of rotary devices for causing accelerated rotation, a device arranged to be driven by said accelerating device and adapted to offer resistance to the air when revolving in one direction, and to offer no such resistance when revolving in the opposite direction, a pulley and sprocket-wheel secured to the same shaft as one of said accelerating devices, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car and the lifting-cable passing over said pulley in the same direction as the chain, all as and for the purposes set forth.

10. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, said pulley adapted to have the lifting-cable pass over it in the same direction as the chain, a guide-pulley and a guide sprocket-wheel for guiding the lifting-cable and the sprocket-chain to the source of power and to the weight respectively, all as and for the purposes set forth.

11. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, said pulley adapted to have the lifting-cable pass over it in the same direction as the chain, a guide-pulley and a guide sprocket-wheel both on the same shaft, for guiding the lifting-cable and the sprocket-chain to the source of power and to the weight respectively, all as and for the purposes set forth.

12. A regulator for controlling the descent of elevator-cars, consisting of a series of accelerating-gears, a fan having folding wings arranged to be driven by said gears, a pulley and sprocket-wheel secured to the shaft of one of said gears, a sprocket-chain passing over and engaging with said wheel and having a weight suspended from one of its ends, and its other end adapted to be attached to the car, said pulley adapted to have the lifting-cable pass over it in the same direction as the chain, a guide-pulley and a guide sprocket-wheel both on the same shaft, for guiding the lifting-cable and the sprocket-chain to the source of power and to the weight respectively, all as and for the purposes set forth.

708,247. DRESS-PAINTER. LEVI F. CHAMBER, Donkey, N. H. Filed Mar. 23, 1902. Serial No. 77,900. (No model.)



Claim.—1. In a painter, the combination of a rock-arm extended rearward from its pivot, a seed-tube pivoted independent of the rock-arm on a pivot located in the rear of the rock-arm, a plunger connected pivotally with the rock-arm and extended into the seed-tube and means for swinging the seed-tube forward as the rock-arm is raised, substantially as described.

2. In a painter, the combination of a rock-arm extended rearward from its pivot, a seed-tube pivoted independent of the rock-arm on a pivot located in the rear of the rock-arm, a plunger connected pivotally with

the rock-arm and extended into the seed-tube, and an extension of the upper end of the seed-tube adapted to move into the path of the swinging end of the arm when the lower end of the tube is swung rearward from its normal position, substantially as described.

3. In a painter, the combination of a rock-arm extended rearward from its pivot, a seed-tube pivoted independent of the rock-arm on a pivot located in the rear of the rock-arm, and a plunger connected pivotally with the rock-arm and extended into the seed-tube; the front of the upper end of the seed-tube being curved above the pivot of the tube to conform, when the seed-tube is in its normal position, to the arc described by the upper motion of the swinging end of the arm, substantially as described.

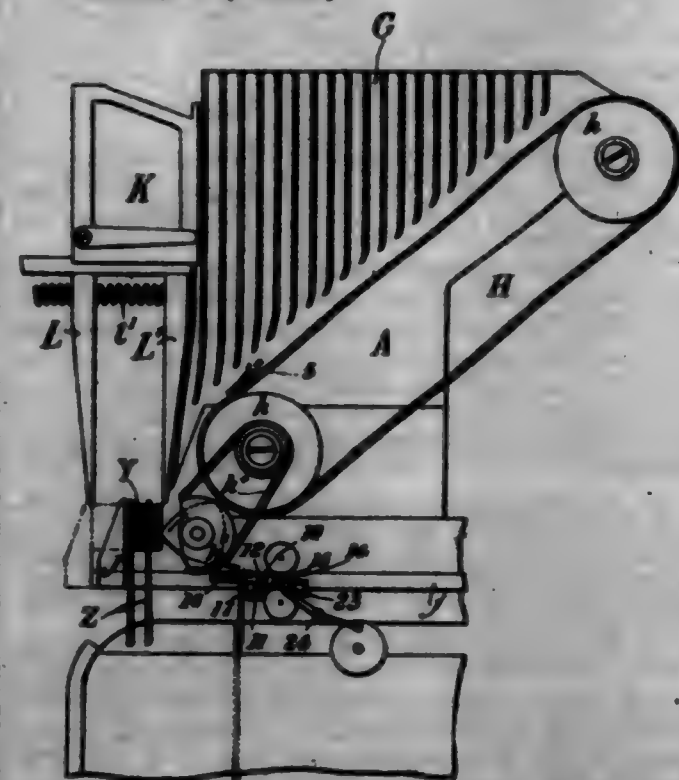
4. In a painter, the combination of a rock-arm, a seed-tube, a plunger connected pivotally with the rock-arm and extended into the seed-tube, and a valve pivoted between its ends in the seed-tube with one end normally closing below the plunger, when the plunger is raised and the other end adapted to close the tube above the pivot of the valve when the plunger forces the lower end of the valve open, substantially as described.

5. In a painter, the combination of a rock-arm, a seed-tube pivoted independent of the rock-arm on a pivot located in the rear of the rock-arm, a plunger pivotally connected with the rock-arm and extended into the seed-tube, and a valve pivoted between its ends in the seed-tube in position for each end to close the tube when the other end is open, substantially as described.

6. In a painter, the combination of a rock-arm, a seed-tube pivoted independent of the rock-arm, a valve for the lower end of the seed-tube, a plunger pivotally connected with the rock-arm and extended into the seed-tube, and an extension of the seed-tube adapted to swing into the path of motion of the swinging end of the rock-arm when the arm is lowered and the tube is swung backward in act of planting; whereby the seed-tube is forced forward by the rise of the rock-arm, substantially as described.

7. In a painter, the combination of a shaft, adapted to travel along the surface of the soil and penetrate the same to varying depths, a furrow-former attached to the shaft, and seed-planting mechanism in the shaft protrudable below the furrow-former; whereby the planting mechanism may be used to plant at ordinary depths and the furrow-former may be used with the planting mechanism when unusual depth of planting is desired.

708,248. LINOTYPE OR SIMILAR COMPOSING-MACHINE. JOHN GRAY, Farnworth-on-Tyne, England. Filed Jan. 23, 1902. Serial No. 90,571. (No model.)



Claim.—1. In a linotype-machine, a dotted mold having its slot divided into two lengths, and provided with a projection at the point of division to enter the matrix-line and aid in holding the matrices on opposite sides thereof, that the two groups may be independently justified.

2. In a linotype-machine, a dotted mold having a partition dividing the slot into two independent lengths or sections, and a protruding nose 2 to cooperate with the matrix-line, substantially as described.

3. In a linotype-machine, a dotted mold having its slot divided into

distinct lengths or sections, a projection on the face of the mold, two jaws between which the matrix-line is confined in front of the mold, a compound line of matrices, and a quad dividing the compound line into two groups and cooperating with the projection on the mold substantially as described.

4. In a linotype-machine, a dotted mold having its slot divided into two independent lengths or sections and having a projection on its face at the point of division, in combination with a quad adapted to be cut in the matrix-line and to interlock with the projection on the mold to resist lateral movement, substantially as described, whereby the quad is adapted to divide the matrix-line into two independently-adjustable groups or short lines.

5. In a linotype-machine, a mold having a projection on its face, in combination with a quad for insertion in the line of matrices, adapted to interlock with the projection on the mold.

6. In a linotype-machine, a dotted mold having its slot divided into two lengths or sections, in combination with a matrix-assembler slide, a special stop to arrest the same at an intermediate point in the composition of the matrix-line, a divider-quad, and means for delivering the quad into the line of matrices when the special stop is in action.

7. In a linotype-machine, a matrix returned to admit a projection on the mold.

8. In a linotype-machine and in combination with the usual character-matrix, a matrix returned in the front edge, and a mold provided with a projection to enter the returned matrix.

9. In a linotype-machine, a mold having a projection adapted to enter between the matrices in the compound line and divide the same into two groups or lines.

10. In a linotype-machine and in combination with the usual matrices and means for assembling the same in line, a special quad for dividing the line, and means for delivering said quad into the line at a predetermined point in its length.

11. In a linotype-machine and in combination with the usual matrices and a mold having its slot divided into two independent lengths, a composing mechanism for assembling the matrices in a line to cooperate with both sections of the mold, divider-matrices, and means for inserting the divider-matrices in the compound line of matrices at a predetermined point, whereby the line is divided into two groups corresponding with the two sections of the mold.

12. In a linotype-machine, the combination of an assembler-slide actuated by the matrix-line as composition progresses, a stop to arrest the assembler-slide before composition of the line is completed, and means for throwing said stop out of action and delivering into the line a divider-matrix, substantially as described.

13. In a linotype-machine and in combination with an assembler-slide *j* and a preliminary stop 12 thereof, a magazine and connections for delivering divider-quads to the line, a finger-lay 13, and connections from said lay to throw the stop 12 out of action and to effect the delivery of the matrix to the line.

14. In a linotype-machine, the combination of a magazine *B* and its component, the assembler-slide *j*, its preliminary stop 12, the finger-lay 13 and connections 17 and 18 from said lay to the stop and the component respectively.

15. In a type-composing machine the combination with an assembler-bar moving forward with the extension of an assembling line of matrices, a fixed detent on the machine-frame, full-measure and short-measure stops on the assembler-bar, engaging the fixed detent, a special matrix-quad for insertion in the assembling line, having an angular recess, a mold for casting a linotype from the line of matrices, and a partition in the mold with angular surfaces engaging the angular recess, substantially as set forth.

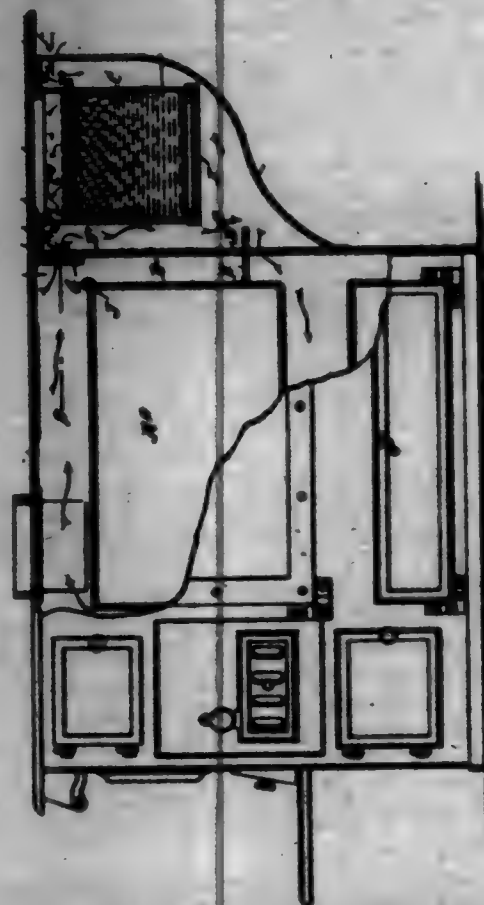
16. In a type-composing machine the combination of a special matrix-quad for insertion in an assembling line of matrices, having a recess in its rear edge, a mold for casting a linotype from said assembled line and a partition in the mold registering with the recess of the special matrix, substantially as set forth.

17. In a type-composing machine the combination with the mold for casting a linotype from an assembled line of matrices and a partition therein for casting said linotype in separate parts, of a special matrix-quad for insertion in the mid line of matrices, having a recess in its rear edge for registering with the mold-partition, and springs on the sides of the said special matrix, substantially as set forth.

18. In a type-composing machine a matrix-quad having a recess, but no formative cavity in its rear edge, substantially as set forth.

708,249. WATER-RESERVOIR FOR RANGES. CURTIS E. GRIMM, Rutland, Vt. Filed June 24, 1901. Serial No. 65,817. (No model.)

Claim.—1. A water-reservoir for stoves and ranges, comprising a casing extending from the stove or range and connected with the interior thereof by an inlet and an outlet for the products of combustion, and a water-reservoir set in the mid casing and having an air-inlet and a steam-outlet, the inlet for the products of combustion being arranged directly opposite the steam-outlet from the reservoir, and a damper for controlling said inlet, as set forth.



2. A water-reservoir for stoves and ranges, comprising a casing extending from the stove or range and connected with the interior thereof by an inlet and outlet for the products of combustion, the casing having an air-inlet, and a water-reservoir set in the casing and spaced from the walls thereof, the reservoir having an air-inlet, and a steam-outlet above the water-line, the casing-inlet for the heated gases being arranged directly opposite the steam-outlet from the reservoir, and a damper for controlling the said casing inlet and outlet, as set forth.

3. A water-reservoir for stoves and ranges having a water-reservoir casing connected with the interior of the stove or range by an inlet and an outlet arranged one above the other in the wall between the reservoir and stove or range, the inlet being formed by a series of apertures arranged in a row, a water-reservoir set in the mid casing and having an air-inlet in the cover, a steam-outlet above the water-level opposite the casing-inlet, and a damper for controlling the casing-inlet, the said damper being mounted to slide transversely and provided with apertures adapted to register with the inlet-apertures of the casing, as set forth.

4. A water-reservoir for stoves and ranges, comprising a reservoir-body formed in one of its walls with a steam-outlet above the water-line, protecting means arranged on the inside of the reservoir for preventing water passing through the steam-outlet, a cover for the reservoir having an air-inlet, and a drip-pan suspended below the reservoir-bottom, as set forth.

5. A water-reservoir for stoves and ranges, comprising a reservoir-body, formed in one of its walls with a steam-outlet, protecting means for said outlet, a cover for the reservoir-body having an air-inlet, and a drip-pan below the reservoir-bottom, as set forth.

6. A water-reservoir for stoves and ranges comprising a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, the casing having an air-inlet at the outer side, a water-reservoir set in the mid casing and spaced from the walls thereof, a drip-pan suspended below the mid reservoir-bottom, and means for detachably connecting the drip-pan with the reservoir-bottom and holding it a suitable distance below the reservoir, as set forth.

7. A water-reservoir for stoves and ranges having a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, the casing having an air-inlet at the outer side, a water-reservoir set in the mid casing and spaced from the sides and bottom thereof, the reservoir having an air-inlet in its cover and a steam-outlet above the water-line, the steam-outlet being opposite the casing-inlet and provided with protecting devices to prevent the water from passing to the said steam-outlet, and a damper for controlling the said casing inlet and outlet, as set forth.

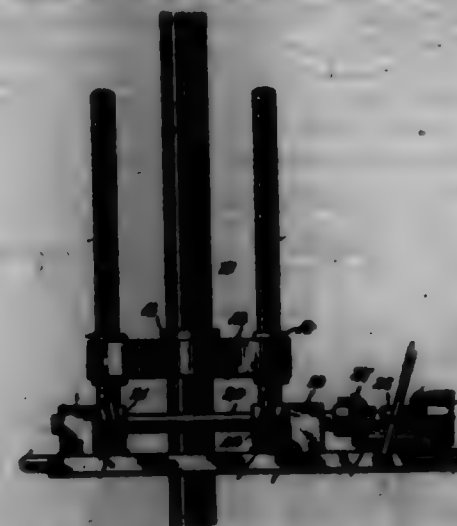
8. A water-reservoir for stoves and ranges having a water-reservoir casing extending from the stove or range and connected with the interior thereof by an inlet and outlet, arranged one above the other in the wall between the reservoir and stove or range, the mid casing having an air-inlet at the outer side at or near the top thereof, and a water-reservoir set in the mid casing and spaced from the walls and bottom thereof, the mid reservoir having an air-inlet in its cover and a steam-outlet above the water-line, the steam-outlet being opposite the mid casing-inlet, and protecting-caps over the mid steam-outlet to prevent the water from passing to the mid steam-outlet, as set forth.

708,250. MUSTARD-POT. HANS GRIMM, Erfurt, Germany. Filed June 12, 1901. Serial No. 65,822. (No model.)



Claim.—A mustard-pot comprising a body having a slot through its wall, a recess in the inside of said wall and a bottom having a discharge-opening, a valve-lever normally extending across the discharge-opening and projecting through the slot, a pin projecting laterally from the valve-lever into the recess, and a spring coiled about the pin and bearing at its ends against the body and valve-lever respectively, substantially as described.

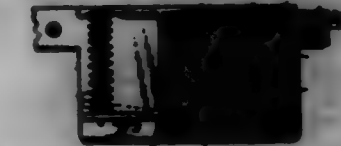
708,251. PIPE-FULLER. JAMES A. HARRIS, Waynesburg, W. Va. Filed Apr. 14, 1902. Serial No. 65,735. (No model.)



Claim.—1. In a pipe-filler, a support, right and left hand threaded screws mounted to revolve upon the said support, a cross-head having a central opening for a pipe, sets carried at the ends of the cross-head and threaded correspondingly to the threads of the screws, one of the sets being adapted to travel upon each of the said screws, right and left hand worm-wheels secured upon correspondingly-threaded screws, a drive-shaft, and right and left hand worms on the drive-shaft, adapted to engage one with the right-hand worm-wheel and the other with the left-hand worm-wheel, as described.

2. In a pipe-filler, a support, right and left hand threaded screws mounted to revolve upon the said support, a cross-head having a central opening for a pipe, sets carried at the ends of the cross-head and threaded correspondingly to the threads of the screws, one of the sets being adapted to travel upon each of said screws, right and left hand worms secured upon correspondingly-threaded screws, a drive-shaft, and right and left hand worms on the drive-shaft, adapted to engage one with the right-hand worm-wheel and the other with the left-hand worm-wheel, a reversing mechanism mounted to revolve upon the support, pinions meshing with the gear and loosely mounted on the shaft, said pinions being provided with clutch-faces, and a clutch mounted to slide on and turn with the shaft between the clutch-faces of the pinions, and means for shifting the said clutch, as described.

708,252. WINDOW ATTACHMENT. ROBERT HANDELSON, Oshkosh, Wis. Filed June 8, 1901. Serial No. 65,736. (No model.)



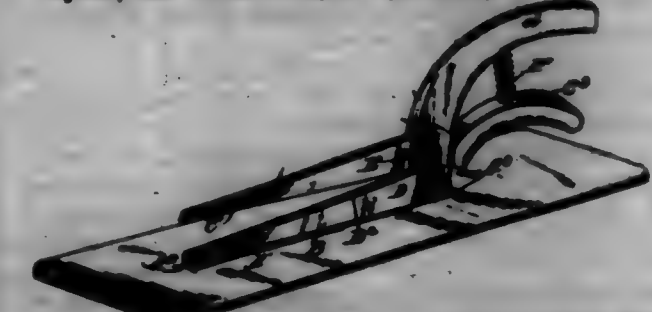
Claim.—1. The window attachment herein described, comprising a bar for connection with the window-frame, and lock-engings secured to the sashes and provided with openings for the said bar and having within said casing bolts pivoted between their ends and having one arm engaged with the bar, a spring engaging the other arm of the bolt, a lever having one arm connected with the arm of the bolt which engages with the bar, and an operating-rod connected with the other arm of said lever, the latter arm being extended whereby it may be operated directly by hand, substantially as set forth.

2. In an apparatus substantially as described, the combination with the lock-enging having openings for the passage of the bar, and having its base-plate provided with a guide-pulley, the pivoted bolt in said lock-enging and arranged to engage the bar passed through the guide-openings in the casing, the lever engaging with said bolt for releasing the same and a cord connected with said lever and passed over the guide-pulley in the base of the case, substantially as set forth.

3. The combination with the bar for connection with the window-casing and the lock-enging having guide-openings in said bar, of the lever-bolt pivotedly supported by said casing and rocking in a plane at a right angle to the direction of the guide-openings in the case, the spring for actuating the said bolt into engagement with the bar passed through said guide-openings, and means for releasing said bolt from engagement with the bar, substantially as set forth.

4. The combination with the lock-enging having guide-openings for the bar for connection with the window-frame, of the lever-bolt rocking in said casing in a direction at a right angle to the direction of the guide-openings, a spring for actuating said lever in one direction, and the ball-crank lever for operating the bolt in opposition to the spring, a guide upon the casing for said ball-crank lever, and a guide-pulley supported by the casing for a cord by which to operate the ball-crank lever, substantially as set forth.

708,253. SHARP. ROBERT HANDELSON, Oshkosh, Wis. Filed Sept. 20, 1901. Serial No. 70,003. (No model.)



Claim.—1. The improvement in shears herein described consisting of the base-plate provided in its upper face with a longitudinal undercut groove open at one end, the base-blade provided at its lower edge with a rib fitted to the undercut groove of the base-plate and provided at the rear end of said blade with an upwardly-projecting arm curved rearwardly to form a handle and having said arm provided with a downwardly-facing curved shoulder, the upper blade having a knuckle operating beneath said shoulder and pivoted to the base-blade and provided with a handle extending beneath that of the base-blade and a spring operating between said handles.

2. The shears herein described comprising the base-plate the base-blade secured thereto and provided with the upwardly-projecting arm extending rearwardly to form a handle and having said arm provided with a lateral downwardly-facing shoulder, and the upper blade having a knuckle fitting and operating below said shoulder and pivoted to the base-blade and provided with a handle extending beneath the handle of the base-blade substantially as set forth.

3. The combination of the base-plate, the base-blade thereon and provided at its rear and with an upwardly-projecting arm having a rearwardly-extending handle portion overlying the base-plate in rear of the base-blade, and the upper blade provided at its rear end with a handle portion underlying the handle of the base-blade and operating between the same and the rear portion of the base-plate substantially as set forth.

708,254. COAL-SEPARATOR. WILLIAM J. HANDELSON, Oshkosh, Wis., assignor of two-thirds to THOMAS B. HUGHES, Oshkosh, Wis. Filed Sept. 20, 1901. Serial No. 71,971. (No model.)

Claim.—1. In a separator of the class described, a series of chutes each having an adjustable bottom section, and means for simultaneously effecting an adjustment of all of said sections.



2. In a separator of the class described, a series of chutes each having a pivotal adjustable bottom section, common adjusting means for effecting a synchronous adjustment of all of the bottom sections, and common fastening means for holding all of said sections set in their adjusted position.

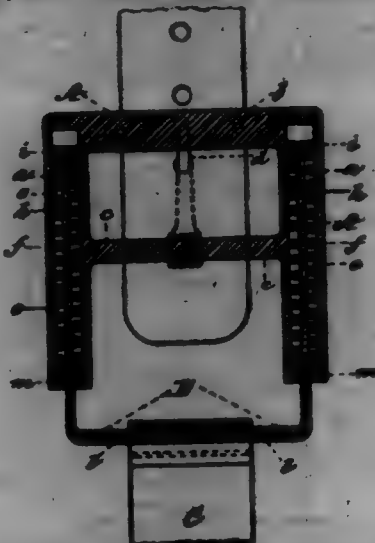
3. In a separator of the class described, a series of chutes each having a pivotal adjustable bottom section, a shaft carrying an adjusting-rod for each bottom section and a link-arm, a series of toggle-bars connecting the several link-arms, and an operating-lever connected with said toggle-bars and having a fastening device.

4. In a separator of the class described, a series of chutes having bottom discharge-openings and regulating-gates therefor, and means for synchronously adjusting the several gates.

5. In a separator of the class described, a series of chutes having bottom discharge-openings and slidable regulating-gates therefor, and common adjusting mechanism for all of said gates, said mechanism including means for individually setting each gate independently of the others.

6. In a separator, a series of chutes having bottom discharge-openings, slidable regulating-gates for said openings, pivotally-supported adjusting-links having operative connection with the gates, an oscillatory connecting-lever, a series of adjusting-bars connected respectively with said lever and with said links, a single operating-handle, and a fastening device associated with one of the adjusting-bars.

708,255. TONGUE-BUCKLE. NATHAN C. HANSEN, Modford, Mass., assignor of one-half to Abbott R. Colburn, Westwood, Mass. Filed Dec. 14, 1901. Serial No. 58,908. (No model.)

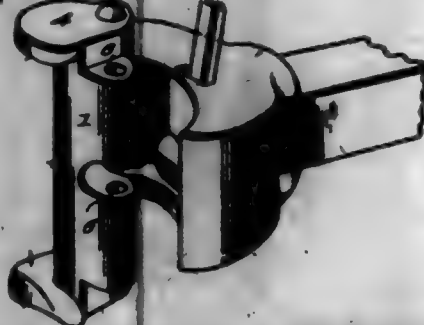


Claim.—1. A tongue-buckle comprising the following instrumentalities—to wit, two parallel side members *a a*, a transverse bar *b* and

ing their contiguous ends and a tongue-bar *c* formed integral with each other, in combination with a tongue *d*, tubular recesses *e e* in the members *a a*, springs *f f* located therein and a bent arm *B* having three members *A A I*, the two parallel side members *A A* of which enter the recesses *e e* centrally in the direction of the longitudinal axis of the springs, constructed, arranged and operating as described.

2. In a tongue-buckle, the members *a a*, *b* and *c* cast integral with each other, recesses *e e*, within the members *a a* and springs *f f* located therein, in combination with a bent arm *B* having side members *A A* which enter the recesses *e e* and are located within the longitudinal axis of the springs, blocks *i i* turned over the ends of the members *A A* contiguous to the transverse bar *b* of the buckle, and screw-nuts *m m* for closing the ends of the tubular members *a a* of the buckle contiguous to the member *f* of the bent arm—all specifically constructed, arranged and operating as set forth.

708,256. ATTACHMENT FOR CAR-COUPLING. THOMAS HARRISON, Bowling Green, Ohio. Filed Jan. 20, 1902. Serial No. 51,623. (No model.)



Claim.—1. The combination with a draw-head, and a knuckle provided with inner and outer perforations, of a removable attachment or safety device conforming to the configuration of the car-coupling and provided with vertical openings forming continuations of the openings of the knuckle, said attachment being also provided adjacent to the engaging portion of the knuckle with a recess, a continuous knuckle-pin passing through the attachment, the draw-head and the knuckle, and a vertical pin connecting the outer portion of the attachment to the outer portion of the knuckle, substantially as described.

2. The combination with a draw-head and a knuckle having a perforation at its outer end, of the safety device provided at its outer end or face with a projecting flange approximately triangular and having a rounded shunting face, said attachment being provided with openings forming continuations of the openings of the knuckle, and pins arranged in the said openings and securing the safety device to the knuckle and pivoting the latter to the draw-head, substantially as described.

708,257. GARRAGE-CAR. JOHN H. HAYTON, Des Moines, Iowa. Filed Aug. 31, 1901. Serial No. 74,004. (No model.)



Claim.—1. The combination with a trolley-wire, and a car mounted to travel thereon, and having an automatically-closing drop-bottom, of a receptacle arranged beneath the path traversed by the car, and a lifting trip contiguous to the receptacle operating to release the drop-bottom.

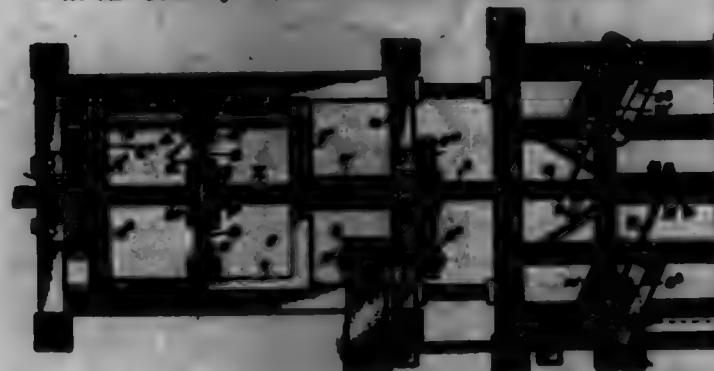
2. The combination with a trolley-wire, a car mounted to travel thereon, a self-closing drop-bottom for the car, and a bottom-holding latch, of a receptacle arranged beneath the path traversed by the car, and a trip contiguous to the receptacle adapted to act on the latch, release the drop-bottom and fold to let the latch pass in the return movement of the car.

3. The combination with a trolley-wire, a car mounted to travel thereon, a self-closing drop-bottom for the car, and a bottom-holding latch, of a receptacle beneath the path traversed by the car, and a spring-actuated trip contiguous to the receptacle adapted to trip the latch, release the drop-bottom and fold to allow for the return movement of the car.

4. The combination with a trolley-supported traveling car, having a self-closing drop-bottom, and a bottom-holding latch, of a receptacle beneath the path traversed by the car, and a knuckle-jointed trip contiguous to the receptacle and arranged to cooperate with the latch.

5. The combination with a support, of a series of converging trolley-wires secured thereto, arms mounted to travel on said wires and having self-closing drop-bottoms, latches for supporting said bottoms, a common receptacle adjacent to the convergent ends of said wires, a common bracket provided with a socket to embrace the support, and a series of trips mounted upon the circular portion of said bracket.

708,258. ISOLATING-MACHINE. JOHN HOSKINS, Cheshire, W. Va. Filed Sept. 20, 1901. Serial No. 77,107. (No model.)



Claim.—1. A machine for the purpose described, including front, rear and intermediate frame-sections in longitudinal alignment with each other, a pair of rectangular outer-frames mounted on the intermediate frame, disposed parallel to each other and at an angle to the stock; slots in said outer-frames to provide means for their adjustment on the intermediate frame in the direction of their greatest length; each of said outer-frames carrying a shaft mounted centrally and longitudinally thereof and extending inwardly beyond the frame to the stock; a pulley mounted on said shaft between its bearings in the outer-frames; and at the inner projected end of said shaft a cutter-head adjustable longitudinally of the shaft and carrying a rotatable cutter, adapted to engage the opposite faces of the turned part of the stock, said cutters having said-projecting edges, as set forth.

2. A machine of the character described, including a frame having front and rear end sections in longitudinal alignment, and an intermediate section; rotary cutter mechanism mounted on the intermediate frame, said mechanism including a spindle, having a revolving cutter on one end and there-of for engaging the stock; feed mechanism for the front and rear sections, adapted to engage the stock and feed it to the cutters in a combined rotary and longitudinal direction; said cutters including horizontally-disposed longitudinal frames having thin blades at the center of their end sections through which the stock passes, feed-rollers for gripping the stock and a longitudinal shaft mounted in bearings at one side of the rectangular frame, said shaft having means for rotating the rollers, and having one end extending beyond the said rectangular frame, carrying a gear to engage a stationary cog-wheel on the main frame, for the purpose described.

3. In a machine as described, a feed mechanism for imparting a longitudinally-rotary movement to the stock being worked on, said mechanism including a rectangular rotatable frame mounted on hollow spindles through which the stock passes, said spindles being rigidly secured to said rotatable frame midway of its end sections and forming journals therefor, said journals having bearings in the main frame of the machine, said rotatable frame carrying two oppositely-disposed yoke-frames, which form supports for the feed-rolls, and a longitudinal shaft having a gear-wheel at one end thereof, meshing with a wheel rigidly attached to the main frame, and means at its center for communicating motion to a transverse shaft operatively connected to the feed-rolls, and imparting motion thereto, said opposing feed-rolls adapted to grip the stock from opposite sides, and yieldable laterally relatively to the stock, for the purpose described.

708,259. NOTER-BOOK. ARTHUR L. HOLTON, Norfolk, Va. Filed June 16, 1901. Serial No. 64,714. (No model.)

Claim.—1. A note-book substantially as herein described comprising the note-sheets having openings for the arch-pieces, the holder having a base-plate and provided thereon with upwardly-projecting ends having sockets one socket of each pair being threaded and the arch-pieces

being provided at one end with a tension to fit one socket and at their other ends with the spiraled sections to screw into the threaded sockets, the note-sheets being held on said arch-pieces substantially as and for the purposes set forth.



2. In a device substantially as described, the base-plate provided with an upwardly-projecting end having a threaded socket in its upper end, and an arch-piece provided at one end with a spiraled threaded section for screwing into the socket of the base-plate and arranged at its other end for engagement with the base, substantially as set forth.

3. A holder for note-books comprising the base-plate having the upwardly-projecting ends arranged in pairs and provided with sockets, one socket of each pair being threaded, and the arch-pieces having at one end tension and at their other ends threaded sections and fitted to the sockets of the base-plate substantially as set forth.

4. A holder for note-books substantially as described comprising the base-plate beveled or sloped off at its opposite edges and provided with the upwardly-projecting ends arranged in pairs, and the arch-pieces provided at one end with tension and at their other ends with threaded sections whereby they may be secured detachably to the base-plate substantially as set forth.

708,260. TABLET. ARTHUR L. HOLTON, Norfolk, Va. Filed Apr. 1, 1902. Serial No. 101,010. (No model.)



Claim.—The holder for tablets substantially as herein described and shown, having a stem or connecting rod and provided at the ends thereof with projecting base-sections at approximately right angles to the connecting-rod, the base or arches extending from the outer ends of the base-sections over the stems and thence to a point beyond the connecting-rod approximately equal to the length of the said base-sections and provided at each end of the base or arches with returned base-sections approximately equal to the length of the base-sections projecting from the ends of the connecting-rod, all substantially as set forth, whereby the connecting-rod is located approximately centrally with the base or arches and midway between the ends of the base of said base or arches, as and for the purposes set forth.

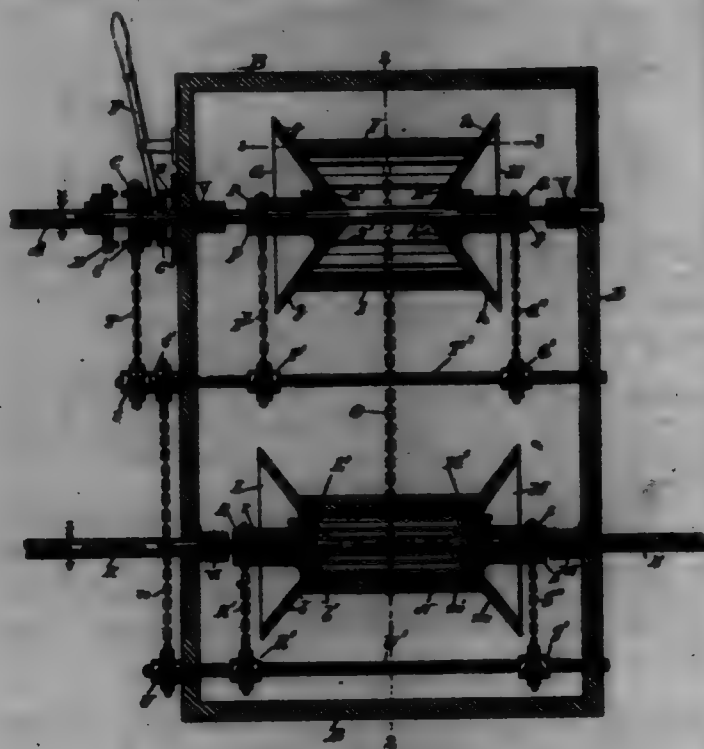
708,261. SPEED-REGULATOR FOR ROTARY SHAFTS. ALLEN S. HOWE, New York, N. Y. Filed Mar. 3, 1902. Serial No. 95,460. (No model.)

Claim.—1. The herein-described speed-regulator, for rotary shafts, consisting of a rotary driver-shaft *A*, longitudinally-movable and radially-grooved cones *G, H*, splined on said shaft, sprocket-wheels *F, I*, engaging right and left screw-threads on said shaft, radially-adjustable bars *L, M* movable in the said grooved cones, a shaft *K*, longitudinally-adjustable grooved cones *L, M* splined on said shaft, bars *N, N* engaging said cones, an endless sprocket-chain engaging said bars *L, I, N, H*, sprocket-wheels *K, R*, engaging left and right screw-threads on said shaft *K*; and intermediate connecting mechanism from said driver-shaft *A*, to said sprocket-wheels on the shafts *A* and *K*, substantially as and for the purpose set forth.

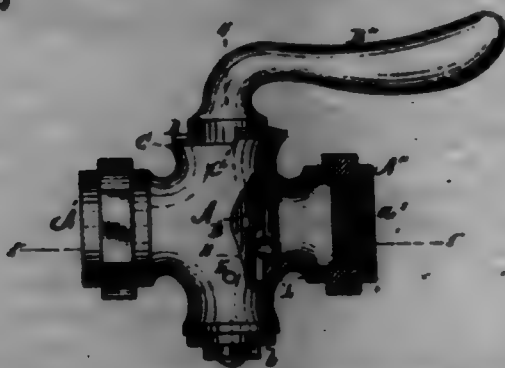
2. The rotary speed-regulator, as described, consisting of a rotary driver-shaft and a rotary driven shaft, a pair of longitudinally-adjustable and radially-grooved cones splined on each of said shafts, bars adjustable in said grooved cones, an endless chain engaging said bars internally-screw-threaded right and left sprocket-wheels working on corresponding screw-threaded portions of said shafts, a sprocket-wheel on the driving-shaft, a sprocket-chain connecting said sprocket-wheel to said pair of sprocket-wheels, and clutch mechanism on the latter for regulating the speed imparted from the shaft *A*, to the shaft *K*, substantially as herein set forth and described.

3. In a rotary speed-regulator, in combination a rotary driver-shaft, and a rotary driven shaft, a pair of longitudinally-movable grooved cones splined upon each of said shafts, bars adjustable in said grooved cones, an

endless chain, connecting said bars, internally-curved sprocket-wheels engaging curves on said shaft, an adjustable sprocket-wheel connected to the sprocket-wheels on the driver-shaft and loosely-rotating grooved cones G', H', L', M', arranged respectively on the cones I, H, and L, M, substantially as and for the purpose set forth.



708,262. STOP AND WASTE FOR WATER-PIPE. EDWIN HOWLAND, Boston, Mass. Filed Mar. 11, 1902. Serial No. 97,742. (No model.)



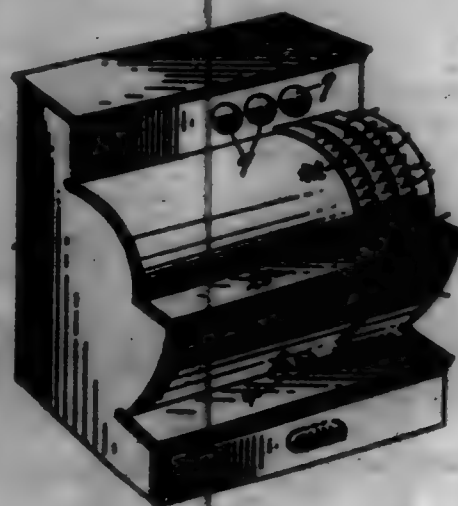
Claim.—1. In a stop and waste for water-pipe, the plug B provided with a suitable handle and formed with a central horizontal part or passage; and a case, as A, provided with apertures on opposite sides extending through said case in the plug below the part in said plug, and with a port or passage adapted to register with the said port in the plug, said plug being formed with a passage or by-pass extending downward from the part therein to the level of the aperture in the case, whereby the rotation of the plug produced by swinging the handle in either direction from one in line with the pipe enables the by-pass to register with the aperture on that side below the port in the plug, substantially as described.

2. In a stop and waste for water-pipe, the plug B provided with the central part B' and with a suitable handle; and the case A provided with a central part K adapted to register with the part B', and further provided with apertures H on opposite sides of the plug below the part B', said plug being provided with the by-pass H extending downward from and on opposite sides of the part B', and adapted to register with either of said apertures H as the handle of the plug is swung to the right or to the left, and said case being formed on its inner surface with the passage L, extending from the lower portion of and on opposite sides of the part K, and adapted to coincide or register with the by-pass when the plug is suitably rotated, substantially as set forth.

708,268. CASE-REGISTER. EDWARD W. BROWN, Toledo, Ohio, assignor of two-thirds to Leroy E. Plummer, Toledo, Ohio. Filed June 26, 1901. Serial No. 91,661. (No model.)

Claim.—1. In a case-register, the combination with a case having its front curved in two concentric arcs one above the other with a horizontal ledge connecting the curves and provided with openings, the wall

of the case above the upper curve being apertured, of toothed counter-wheels journaled in the casing concentrically with the curves thereof, arc-shaped operating-plates concentric with the curves and wheels and passing through said apertures and having their free ends extending through openings in said ledge, operating means projecting from said plates in line with the ledge-openings, operating means carried by said arc plates and engaging the counter-wheels, and a door in said case formed in the lower curve for permitting inspection of said counter-wheels, substantially as described.



2. In a case-register, the combination with indicator-cylinders, springs for normally returning them to zero position, pawls normally holding them at indicating position, a normally spring-closed cash-drawer, a pawl holding the drawer closed and carrying a key, an arm secured to said key, branches formed on the free end of said arm contacting with the indicator-cylinders retaining pawls and designed, upon the depression of the drawer-releasing key to move said last-mentioned pawls and release the indicator-cylinders from indicating position, substantially as described.

3. In a case-register, the combination with indicator-cylinders, springs for normally returning them to zero position, pawls normally holding them at indicating position, a normally spring-closed cash-drawer, a pawl holding the drawer closed and carrying a key, an arm secured to the last-mentioned pawl for releasing said first-mentioned pawls, registering keys or fingers, hand-wheels operated by said keys, and flexible means operated by said hand-wheels for moving the cylinders to indication position, substantially as described.

4. In a case-register, the combination with indicator-cylinders, springs for normally returning them to zero position, registering keys or fingers, shafts rotated determinately thereby, cylinders on said shafts, and cords connecting said cylinders with the indicator-cylinders for transferring said determinate movements to the indicator-cylinders, substantially as described.

5. In a case-register, the combination with a centrally-located shaft, of counter-wheels mounted thereon having ratchet-toothed peripheries and correspondingly-numbered rings, graduated arc-shaped operating-plates concentric with the wheels, pawls operated by said plates engaging the ratchet-tooths, means for determining the extent of movement of the plates, spring-operated means for automatically returning the said plates to their normal position after each operation, and flexible means connecting said plates with said spring-operated means, substantially as described.

6. In a case-register, the combination with a centrally-located shaft, of counter-wheels secured thereto having ratchet-toothed peripheries and correspondingly-numbered rings, graduated arc-shaped operating-plates concentric with the wheels, pawls operated by said plates engaging the ratchet-tooths, a spring connected with each of said plates for returning the same to its normal position after each operation, spaced fingers projecting from said plates, a ledge on the case having an opening for the passage of the plates and its fingers and serving as a stop therefor, and means at the free end of each of said plates for limiting its return movement, substantially as described.

7. In a case-register, the combination with a case having its front curved in two different but concentric arcs with a horizontal ledge connecting the curves and provided with openings, the wall of the case above the upper curve being apertured, of toothed counter-wheels journaled in the case concentrically with the curves, arc-shaped operating-plates concentric with the curves and wheels, and passing through said apertures, and having their free ends extending through said ledge-openings, spaced fingers projecting from the plates through the slots of the curve in line with the ledge-openings, and pawls engaging the counter-wheels and connected to the arc plates, substantially as described.

8. In a case-register, the combination with a case provided with a

curved front, of a shaft supported within the case and arranged concentrically with the curved front, toothed counter-wheels on the shaft, an arc-shaped plate concentric with the front and the shaft and wheels and including a portion of the front, spaced fingers projecting from said plate, ratchet-arms pivoted on the shaft and connected with the operating-plates, and pawls on the ratchet-arms engaging the counter-wheels, substantially as described.

9. In a case-register, the combination with a centrally-arranged, solid shaft, a hollow shaft arranged concentric to said solid shaft and cast and disc toothed counter-wheels secured side by side on the solid and hollow shafts respectively, of a lever pivoted on the frame below the counter-wheel and projecting upward alongside thereof, plate projecting laterally from the counter-wheel at every tooth space, a weighted pawl-lever pivoted to the pivoted lever before mentioned and normally in the path of movement of said plate, and a lateral projection on the first-named lever adapted to engage the disc-wheel, means for causing the disengagement of the pawl from the pin on the counter-lever after each tooth space movement of said wheel, and means for automatically returning said pawl-lever projecting lever to its normal position after each operation, substantially as described.

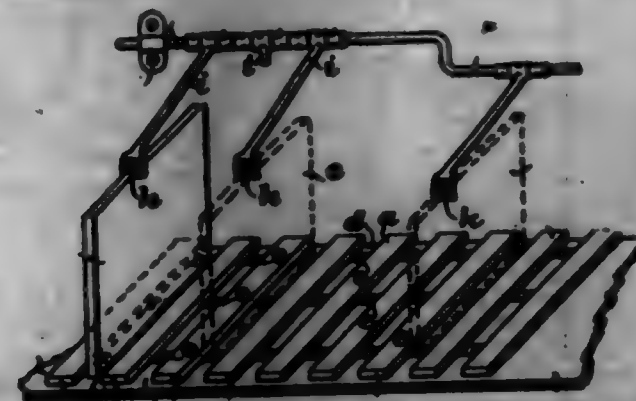
10. In a case-register, the combination with adjacent counter-wheels independently rotatable and means for transferring every tooth movement of one wheel to the other, comprising a gravity-pawl and a laterally-projecting pin thereon, of a plate fixed tangentially with the wheel in the vertical plane of said lateral pin in position to jam the pin after one movement into contact with the next tooth to prevent the transfer of more than one movement, and means for adjusting said plate toward or from said wheel, substantially as described.

11. In a case-register, the combination with adjacent counter-wheels independently rotatable and means for transferring every tooth movement of one wheel to the other, comprising a gravity-pawl and a laterally-projecting pin thereon, of a plate fixed tangentially with the wheel in the vertical plane of said lateral pin in position to jam the pin after one movement into contact with the next tooth to prevent the transfer of more than one movement, a rod depending from the free end of the tangential plate through the bottom of the case, and a nut threaded on said rod and bearing upon the bottom of the case to adjustably support the tangential plate, substantially as described.

12. In a case-register, the combination with counter-wheels, arc-shaped operating-plates and pawls engaging the wheels and operated by said plates, of concentric shafts, hand-wheels thereon corresponding in number and vertical planes with the operating-plates, bands connected at their respective ends to the operating-plates and hand-wheels, indicating-wheels independently rotatable, a second series of hand-wheels secured to and forming pairs with the first series on the same concentric shafts, and cords connecting this second series of hand-wheels with the indicating-wheels, substantially as described.

13. In a case-register, the combination with counter-wheels, arc-shaped operating-plates and pawls engaging the wheels and operated by said plates, of concentrically-arranged, independently-rotatable shafts, hand-wheels thereon corresponding in number and vertical planes with the operating-plates, a spring carried by each of said shafts for effecting their backward rotation after each operation, spring-pawls to prevent backward rotation of the counter-wheels, and means for imparting action from said hand-wheels to said operating-plates, substantially as described.

708,264. PRINTER'S FORM OR CHAIN RACE. CHARLES E. BROWN, London, England. Filed Mar. 17, 1902. Serial No. 96,066. (No model.)



Claim.—1. A printing form or chain race comprising a base, guide carried by said base and between which the form is adapted to be guided, and an arm loosely mounted at one end and adapted to engage at its opposite end with the upper edge of a form, in the manner and for the purpose specified.

2. A printing form or chain race comprising a base, guide carried

by said base between which a form is adapted to be guided, antifriction-rollers carried by the base and adapted to take against the lower edge of the form, an arm loosely mounted at one end and fixed at the opposite end and on antifriction-roller between the parts of the arm, all arranged for cooperation as and for the purpose specified.

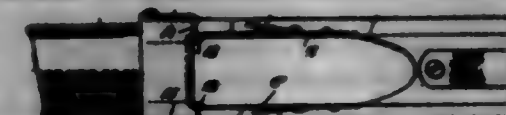
3. A printing form or chain race comprising a base, horizontal antifriction-rollers carried by the base and forming guides for the form or chain, vertical antifriction-rollers carried by the base against which the lower edge of the form is adapted to bear, an arm loosely mounted at one end and fixed at the opposite end, and an antifriction-roller between the parts of the arm, all arranged for cooperation as and for the purpose specified.

708,265. INK-PRESSER FOR PRESS. IVAN BRISTMAN and ADOLF H. JOHANSSON, Stockholm, Sweden. Filed Dec. 26, 1901. Serial No. 97,864. (No model.)



Claim.—An ink-presser having continuous longitudinal channels with a terminal wedge-shaped lower end, an intervening groove between the channels, adjustable clamps on the upper portion of the channels, and levers for partially closing the upper ends of said channels, substantially as specified.

708,266. REPEATING FIREARM. WILLIAM W. BENTON, Sheffield, Eng. Filed Sept. 2, 1901. Serial No. 74,699. (No model.)



Claim.—1. In repeating firearm, a frame, a magazine connected therewith, the frame having a coverless cartridge-chamber in communication with the magazine, a cartridge-controlling spring in the magazine tending toward the cartridge-chamber in the frame, spring-controlled cartridge-stops mounted in the side portions of the frame, each stop comprising an inner and outer member adapted for attachment to the frame, and a body member having a pivotal connection with the end member, and a leg carried by each body member, adapted to engage with and to be disengaged from a cartridge, and means, substantially as described, for manipulating the cartridge-stops from the exterior of the frame, as set forth.

2. In repeating firearm provided with an outlet in communication with the magazine, the cartridges in the magazine being spring-controlled, cartridge-stops consisting of bars having hinged connection with the inner frame of the frame at their rear portions and provided with springs, normally forcing their forward or free ends inward within the frame, the free ends of the said cartridge-stops being capable of outward movement, levers slidable within the frame, operating from the outside of the frame, and connection between the said levers and the free ends of the cartridge-stops, whereby the levers on the cartridge-stops may be drawn outward within the plane of the inner side frame of the frame, permitting cartridges from the magazine to enter the frame and escape through the opening thereof.

3. In repeating firearm, the combination, with the frame, stock, barrel and magazine, and a spring-controlled plunger located in the magazine, the frame having outlet-openings in communication with the said magazine, of cartridge-stops comprising an attaching member and a body member hinged thereto, the cartridge-stops being located in longitudinal channels formed in the inner frame of the frame, a leg extending from the inner face of the body of each cartridge-stop at its forward end, which legs are adapted to normally engage with the rim of the innermost cartridge in the magazine, springs attached to the body portions of the cartridge-stops, holding them in their normal position, levers slidable upon the frame, each lever having a member which extends beyond the outer face of the frame and a member which connects with a forward end of the body portion of the cartridge-stops, the said parts operating in the manner herein set forth.

4. In firearm, a frame having an outlet for cartridges, springs controlling cartridge-stops, mounted within the side portions of the frame, which stops are secured at one end, being free at their opposite ends, and legs at the movable ends of the stops, adapted to engage with and to be disengaged from a cartridge, as described.

708,267. MACHINE FOR CUTTING SLATS. CHARLES E. BROWN, Birmingham, W. Va. Filed Dec. 12, 1901. Serial No. 94,660. (No model.)

Claim.—1. In a machine of the class described, a base, a table, a

gauge, a carrier for the gauge upon the base, bolts, one of which passes through the carrier, and the other of which passes through the carrier and gauge, one on the base, and a clamp-plate having perforations to receive the bolts and adapted to bear against the gauge, and one of the nuts serving to hold the carrier against longitudinal movement, and the other nut serving to prevent angular movement of the gauge.

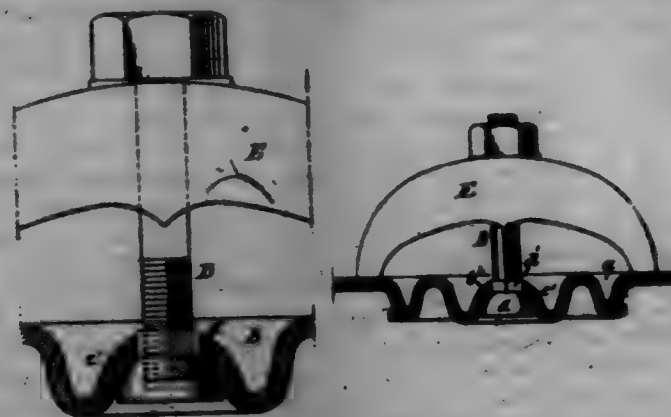


2. In a machine of the class described, a slotted base, a knife, a gauge, a carrier for the gauge supported for sliding movement between the slots of the base, bolts, one of which passes through the carrier, and the other of which passes through the carrier and gauge, one on the base, and a clamp-plate having perforations to receive the bolts and adapted to bear against the gauge, and one of the nuts serving to hold the carrier against longitudinal movement, and the other nut serving to prevent angular movement of the gauge.

3. In a machine of the class described, a slotted base, the slots and the spaces between the same being of similar widths, a knife connected by said base, a gauge, and means for securing independent adjustments of the gauge angularly and longitudinally with respect to the base.

4. In a machine of the class described, a base having a slot, a slide fitted in said slot and tapering toward one end thereof, a gauge substantially adjustable in cross-section, the web of which is adapted to rest upon said base, bolts, one of which passes through said slide and web, and the other of which passes solely through the slide, a clamp-plate perforated to receive the bolts, and nuts upon the upper ends of the bolts adapted to engage said clamp-plate.

708,968. COVER-PLATE FOR BOILERS. CHARLES L. HUNTER, Centerville, Pa. Filed Feb. 20, 1900. Serial No. 704,394. (No model.)



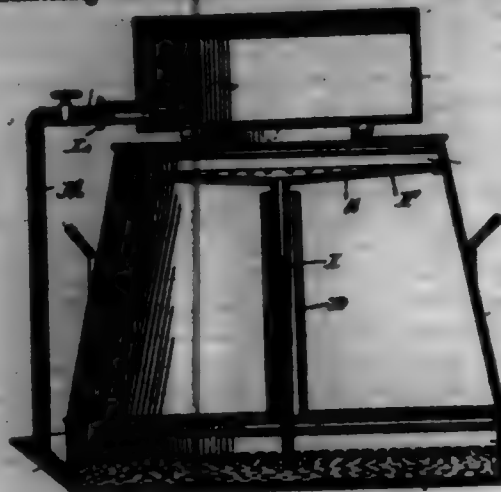
Claim.—1. The combination with a boiler or other container having an opening provided with an internal flange, of a struck-up sheet-metal cover-plate having a flat flange, packing between the flange of the cover-plate and the flange of the boiler, a central socket in one face of the cover-plate and an irregular opening extending through the cover-plate at the socket, a yoke on the outside of the boiler, a bolt having a rounded head mounted in the socket and having an irregular-shaped portion under the head constructed to fit the opening in the cover-plate, said bolt extending through the plate and the yoke and having a nut by which it is drawn tightly to its seat, and packing between the bolt-head and the plate, substantially as described.

2. As a new article of manufacture, a struck-up sheet-metal cover-plate for a boiler or other container, having a peripheral bearing-flange, said cover-plate being crimped to form a corrugation of an outline similar to the contour of the plate and being depressed at the center to form a curved socket, an irregular opening extending through the cover-plate at the socket and through which a securing-bolt may extend, substantially as described.

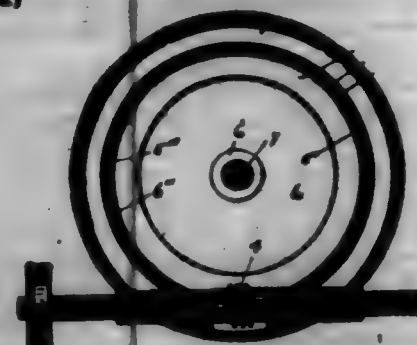
708,969. APPARATUS FOR COOKING FOODS FOR POULTRY. GAMB, JR., BY STRAIN. GEORGE J. HERRMAN, London, England. Filed June 17, 1901. Serial No. 64,589. (No model.)

Claim.—The combination of a boiler, a steamer rising thereon and provided with an opening in its bottom, a perforated pipe situated within the steamer and surrounding said opening, a perforated plate supported

near the top of the steamer and forming with the sides and cover thereon a condensing-chamber, and a pipe leading from said condensing-chamber and communicating with the boiler below the water-level thereof.



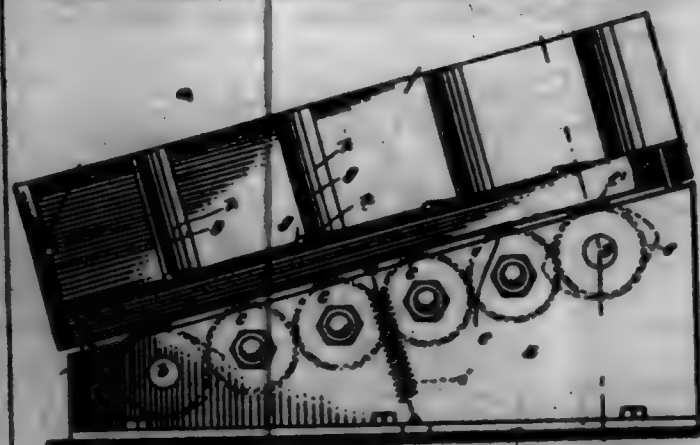
708,970. REGISTER. GEORGE F. HERRMAN, Worcester, Mass., assignor to Crumpton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Mar. 20, 1902. Serial No. 100,604. (No model.)



Claim.—1. A register comprising in its construction, a case, two disks or wheels rotatably supported within said case and having overlapping and inwardly-turned peripheral flanges, said inwardly-turned flanges being provided with an unequal number of teeth, a driven shaft provided with a worm also supported within the case and to the rear of the disks or wheels, said worm being in engagement with the teeth on the overlapping internal flanges of the disks or wheels.

2. A register comprising in its construction a case, a stud supported within said case, two disks or wheels rotatably supported on said stud within the case and each having an inwardly-turned flange, said flanges overlapping each other, and provided with teeth parallel to the axis of said disks or wheels, a driven shaft provided with a worm also supported within said case in rear of the disks or wheels, said worm being in engagement with the teeth on the overlapping internal flanges of the disks or wheels, whereby the parts are compactly arranged and all within a single case.

708,971. PAPER-JUGGER. WILLIAM R. JESS, Chattanooga, Tenn., assignor to the Chattanooga Medicine Company, Chattanooga, Tenn. Filed Aug. 9, 1901. Serial No. 71,403. (No model.)



Claim.—1. The combination of a base, a tray set inclined thereon, a can mounted on the base and bearing under the tray and means for driving the can for the purpose specified.

2. The combination of a base, a tray set inclined thereon, a can mounted on the base and bearing under the tray and means for driving the can for the purpose specified, and an inclined pin standing on the

base and slidably engaged by the tray, whereby to force the tray to move in an inclined path.

3. The combination of a base, a tray set inclined thereon, a can mounted on the base and bearing under the tray and means for driving the can for the purpose specified, and a plate fastened to the inner walls of the tray to be engaged by the edges and sides of the paper, whereby to prevent adhesion between the paper and tray.

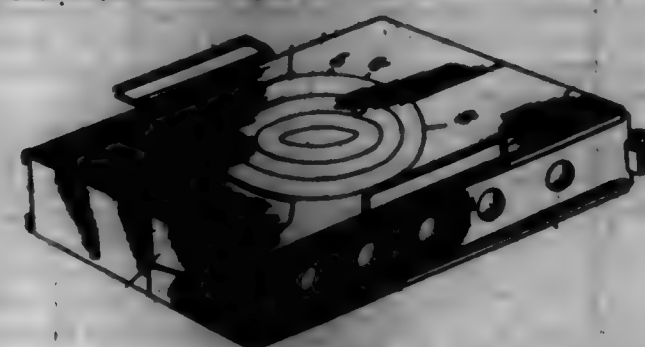
4. The combination of a base having an inclined top, a tray set on said top, a pin set on the top of the base perpendicular thereto and slidably engaged by the tray for the purpose explained, means for yieldingly holding the base against the tray, and a can driven against the bottom of the tray to jar the latter.

708,972. CUTTER-HEAD. GUNTERMAN JOHNSON, JR., Baltimore, Md. Filed Oct. 27, 1900. Serial No. 84,446. (No model.)



Claim.—A cutter-head for a wood-planing machine, in two parts or sections adapted to run side by side on a single shaft with means to draw the two sections together, combined with circular cutters situated between the two sections of the cutter-head having teeth on their hubs, shafts for sustaining the cutters, and bearings for the said shafts having teeth on the faces adjoining the cutters adapted to interlock with those on the hubs of the cutters, substantially as specified.

708,978. COOKING-STOVE ATTACHMENT. ANNELENE JELLY, Columbus, Ind. Filed May 8, 1900. Serial No. 14,519. (No model.)



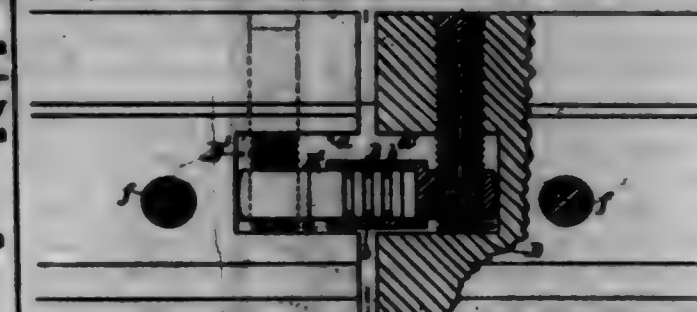
Claim.—1. An attachment to be placed upon the top of a cooking-stove, the same consisting of a box-like structure composed of substantially like parts telescopically related to admit of varying the capacity and length of the attachment to suit different sizes and shapes of cooking vessels, each part having an opening in its top extending outward from its inner end, and means for circulating cool air through the attachment in varying quantity for controlling the temperature within the attachment at any stage of adjustment, substantially as specified.

2. An attachment to be placed upon the top of a cooking-stove, and consisting of a box-like structure composed of telescoping parts to admit of varying the capacity and length of the attachment to suit different sizes and shapes of cooking vessels, each section or part having an out-ward portion or opening in its top extending outward from its inner end to form a common opening when the parts are together, concentric rings normally closing the said opening, and a damper applied in the outer end of each of the sections or parts for controlling the temperature within the attachment at any stage of adjustment, substantially as set forth.

3. An attachment for use in connection with a cooking-stove, consisting of a box-like structure composed of telescoping sections or parts, one of the sections having an end portion offset to receive the overlapping end portion of the other sections to admit of the top and sides of the sections coming flush and each of the sections having an out-ward portion or opening in its top extending outward from its inner end to form an opening common to each when the parts are together, said opening being adapted to be oblongated by drawing the sections apart, a concentric series of rings forming a top for the said opening when the sections are moved inward, and a damper at the outer end of each of the sections to admit

of controlling the temperature within the attachment when in active operation, substantially as specified.

708,974. RAIL-SOWER. JOHN R. JONES, Hazleton, Pa. Filed May 1, 1902. Serial No. 100,400. (No model.)



Claim.—1. The combination of rail ends having their webs cut away, and fish-plates, with a head within said cut-away portion of the rails and connected by the fish-plates.

2. The combination of rail ends having their webs cut away and fish-plates with a cylinder and piston bearing means within said cut-away portion of the rails and connected by the fish-plates.

3. The combination of adjacent rail ends with a cylinder and piston bearing means and vertical pivoting-supports on the rails for the cylinder and piston, as and for the purpose described.

4. The combination of adjacent rail ends having grooves let into them, with cylinder and piston bearing means mounted upon said grooves, substantially as described.

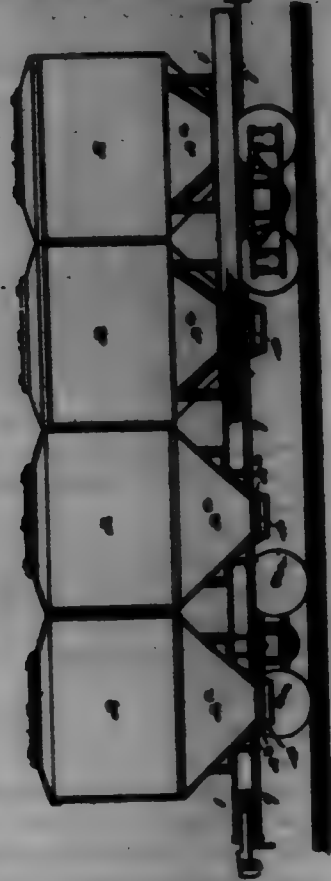
5. The combination of adjacent rail ends having webs cut away with grooves passing through said cut-away parts, cylinder and piston bearing means mounted on said grooves and fish-plates insulating them.

708,975. COUNTING APPARATUS. RALPH W. JOHNS, St. Louis, Mo. Filed Nov. 14, 1901. Serial No. 62,307. (No model.)



Claim.—In a block-ice-counting apparatus, the combination with a chute, of a pair of fingers swingingly suspended above said chute and a connection between said fingers adapted to cause either of them to be moved in a reverse direction when the other finger is raised or lowered, whereby one or the other of the fingers forms a barrier against the passage of ice through said chute, and a register having connection with said fingers, substantially as described.

708,276. COAL AND GRAIN CAR. BRUNER KILGORE, Buffalo, N. Y. Filed Dec. 31, 1901. Serial No. 91,999. (No model.)



Claim.—1. A freight-car comprising a separately-mounted carrying receptacle or tank having a pendant ring or extension around its discharge-opening and rails supported therefrom, a closure or plate fitting against the lower edge of said ring or extension and having lateral racks upon its upper surface, and rails or tracks upon its lower surface engaging with said racks, and an extending rod or shaft provided with pinions gearing with said racks, substantially as set forth.

2. A freight-car comprising a separately-mounted carrying receptacle or tank having a pendant ring or extension around its discharge-opening and rails supported therefrom, a closure or plate fitting against the lower edge of said ring or extension and having lateral racks upon its upper surface, and having pendant brackets or bearings upon its lower surface equipped with rails or tracks traveling upon said rails, substantially as set forth.

708,277. PUMPING APPARATUS. BERT KELLY, Duncannon, Pa. Filed Oct. 31, 1901. Serial No. 79,292. (No model.)



Claim.—1. A support, a trolley movable thereon, a basket supported from the trolley, connections for moving the trolley and for raising and lowering the basket, a vertically-movable tripping device mounted on the support and arranged to be engaged and moved downwardly by the trolley, and means for automatically lifting the tripping device when released; substantially as described.

2. In a trolley and basket system, a tripping-bar suspended by connections leading to a movable slide arranged to be engaged by the trolley, and weights arranged to return the tripping-bar to its upper position when the slide is released; substantially as described.

708,278. VEHICLE-TOY. GEORGE W. KENNEDY, New College, N. C. Filed Nov. 30, 1901. Serial No. 92,046. (No model.)



Claim.—1. In a vehicle-toy, the combination with suitable supporting means, of longitudinally-disposed ribs secured to the supporting means, stretcher device extending transversely across the ribs and having its ends projecting beyond the same, and a cover supported by the stretcher device and ribs.

2. In a vehicle-toy, a bow comprising spaced standards and a cross-bar connecting the upper ends of the standards and projecting beyond the outer faces of the same, spaced ribs supported upon the bow, cross-rods connecting the ribs, said rods having their ends projecting beyond the ribs, and a cover supported by the cross-bar and the ribs.

3. In a folding top for vehicles, the combination with a supporting-standard, of a rib pivoted to the standard and comprising a plurality of pivotally-connected arms, a runner slidably mounted on the standard, and links pivotally connected to the runner and to certain of the arms of the rib, said links being of different lengths, whereby when the runner is moved downwardly the top of the rib will be tilted together.

4. In a folding top for vehicles, the combination with a supporting-standard, of a rib pivoted to the standard and comprising a plurality of pivotally-connected arms, a runner slidably mounted on the standard, and links pivotally connected to the runner and to certain of the arms of the rib, said links being of different lengths, a brace having a pivotal connection with the runner, and a link connected to the runner and detachably engaging the standard to hold said runner against movement thereon.

5. In a folding top for vehicles, the combination with a supporting-standard, of a rib pivoted to the standard and comprising a plurality of pivotally-connected arms, a runner slidably mounted on the standard, links pivotally connected to the runner and to certain of the arms of the rib, said links being of different lengths, a brace having a pivotal connection with the runner, and a link connected to the runner and detachably engaging the standard to hold said runner against movement thereon.

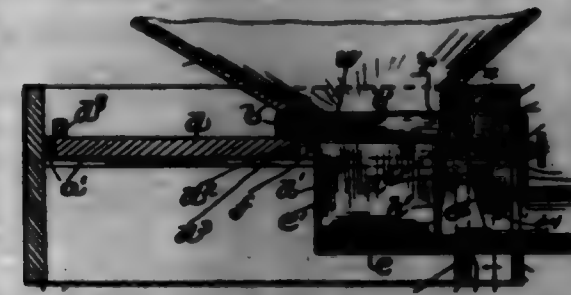
6. In a vehicle-top, the combination with a standard, of a runner slidably mounted on the standard, a rib pivoted to the standard and comprising a plurality of pivotally-connected arms, transversely-disposed rods secured to the arms contiguous to their pivot-points, and a cover supported by said ribs.

7. In a vehicle-top, the combination with a bow having a pair of spaced standards, of ribs pivoted to opposite sides of the bow and contiguous to the upper ends of the standards, said ribs each comprising a plurality of pivotally-connected arms, runners slidably mounted on the standards, links pivotally connected to the runners and to certain of the arms of the ribs, cross-rods connecting the arms of the correspondingly-disposed ribs, and a cover supported by said ribs and rods.

8. In a vehicle-top, the combination with a bow comprising a pair of spaced standards and a cross-bar secured to the upper ends of the standards and projecting beyond the outer faces thereof, of ribs pivoted to the opposite sides of the bow contiguous to the upper ends of the standards, said ribs each comprising a plurality of pivotally-connected arms, runners slidably mounted on the standards, links pivotally connected to the runners and to certain of the arms of the ribs, cross-rods connecting the arms of the correspondingly-disposed ribs, and a cover supported by said ribs and rods.

nom and to certain arms of the ribs, cross-rods connecting the correspondingly-disposed ribs and projecting beyond the outer faces of the same, and a cover supported upon said ribs and rods.

708,279. MEASURING-CANOPY. JOHN H. KIMBALL, Cleveland, Ohio. Filed Jan. 24, 1902. Serial No. 91,688. (No model.)



Claim.—1. A canopy or cabinet of the character indicated, comprising a hopper having a downwardly-discharging outlet; a suitably-supported movable slide having a path below and in close proximity to the said outlet, and a measuring-rope arranged longitudinally of the path of the slide and closed at its inner end and pivoted, at the said end and at the top and transversely of the canopy, to the said slide, which canopy has the rear or body portion open at the top and larger transversely than its forward portion and has its forward portion in the form of a forwardly-projecting tubular handle which constitutes the outlet of the canopy and is arranged, at the bottom, flush or approximately flush with the bottom of the rear and body portion of the canopy.

2. A canopy or cabinet of the character indicated, comprising a hopper having a downwardly-discharging outlet; a suitably-supported movable slide having a path below and in close proximity to the said outlet and arranged to close the said outlet from below in its outer position; a measuring-rope arranged longitudinally of the path of the slide and pivoted, at its inner end and at the top and transversely of the canopy, to the said slide; a bearing arranged to be engaged by the under side of the canopy when the slide is in its inner and normal position, and another bearing located forward of and below the first-mentioned bearing and arranged to be engaged by the said under side of the canopy when the canopy has tilted downwardly by gravity upon the rotation of the slide into its forward or outer position.

3. A canopy or cabinet of the character indicated, comprising a hopper having a downwardly-discharging outlet; a suitably-supported movable slide having a path below and in close proximity to the said outlet and arranged to close the said outlet from below in its outer position, and a measuring-rope arranged longitudinally of the path of the slide and pivoted at its inner end and at the top and transversely of the canopy to the said slide, the measuring-rope having its front wall provided with a hole to accommodate the location and operation of the said canopy and the forward slide, and a cross-bar arranged a suitable distance rearward of the said front wall and having a hole arranged to accommodate the location and operation of the canopy and the said slide, and the hole in the front wall of the casing extending below the hole in the said cross-bar, and the arrangement of parts being such that the canopy shall be in registry with the outlet of the hopper when the forward slide is in its inner and normal position and rest upon the bottom of the hole in the said cross-bar, and shall tilt downwardly by gravity when the slide is actuated into its outer position and rest upon the bottom of the hole in the forward front wall in the outer position of the slide.

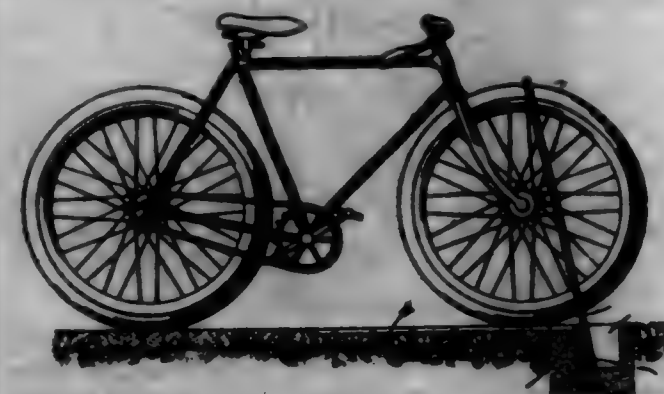
4. In a canopy or cabinet of the character indicated, the combination, with a hopper having a downwardly-discharging outlet; a suitably-supported movable slide having a path in a horizontal plane below and in close proximity to the said outlet and arranged to close the said outlet from below in its outer position and having two forwardly-extending arms arranged apart laterally, and a measuring-rope arranged longitudinally of the path of the slide and movable with the slide, of a slide supported from the inner end of the forward arms and adjustable toward and from the inner end of the canopy, a gage rigid with the said last-mentioned slide and arranged to regulate the capacity of the canopy, a screw arranged in a horizontal plane adjacent to the said gage-slide and longitudinally of the path of the canopy, means for preventing endwise shifting of the screw during the rotation of the canopy, and a nut rigid with the gage-slide and engaged by the said screw.

5. In a canopy or cabinet of the character indicated, the combination, with a hopper having a downwardly-discharging outlet, a suitably-supported movable slide having a path in a horizontal plane below and in close proximity to the said outlet and arranged to close the said outlet from below in its outer position and having two forwardly-extending arms arranged a suitable distance apart laterally, a measuring-rope arranged longitudinally of the path of the slide and movable with the slide, and a cross-bar arranged between the outer ends of said rigid with the

forward slide-arms and having its upper side somewhat below the upper side of the said arms so as to form a shelfway between the said ends of the said arms, of a slide resting upon the said cross-bar and extending between the forward arms and adjustable toward and from the inner end of the canopy, a gage rigid with the said last-mentioned slide and arranged to regulate the capacity of the canopy, a screw arranged in a horizontal plane below the said gage-slide and longitudinally of the path of the canopy, means for preventing endwise shifting of the screw during the rotation of the canopy, and a nut rigid with the gage-slide and engaged by the forward screw, and the forward cross-bar being adapted to accommodate the location and operation of the forward nut.

6. In a canopy or cabinet of the character indicated, the combination, with a hopper having a downwardly-discharging outlet, a suitably-supported movable slide having a path in a horizontal plane below and in close proximity to the said outlet and arranged to close the said outlet from below in its outer position and having two forwardly-extending arms arranged a suitable distance apart laterally, and a measuring-rope arranged longitudinally of the path of the slide and movable with the slide, of a slide supported from the said arms and adjustable toward and from the inner end of the canopy, a gage rigid with the said last-mentioned slide and arranged to regulate the capacity of the canopy, a screw arranged longitudinally of the path of the said gage-slide and provided with an annular groove, a nut rigid with the gage-slide and engaged by the forward screw, a cross-bar extending between the outer ends of said rigid with the forward slide-arms, and a plate attached to the said cross-bar and engaging the forward groove.

708,280. BICYCLE-STAND. LOUIS H. KROGER, New York, Cal. Filed Jan. 2, 1902. Serial No. 91,828. (No model.)

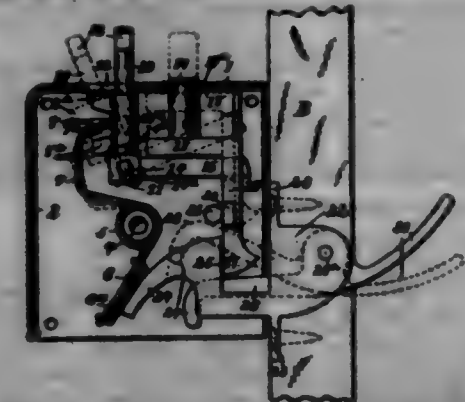


Claim.—1. A bicycle-stand comprising a base having a well or recess and a channel extended therefrom, a rod having members for engaging at opposite sides of a bicycle-wheel and an upper portion for engaging with the upper part of the wheel, and a rod arranged in said well or recess, upon which the first-mentioned rod is mounted, substantially as specified.

2. A base having a well or recess and a channel extended from said well or recess, a bar arranged in the well or recess, and a rod having coiled portions through which said bar passes, the said rod having outwardly-extending ends, substantially as specified.

3. The combination with a base having a well or recess and a channel extended therefrom, of a bar arranged in the well or recess, a metal plate arranged in the well or recess, and a rod mounted to swing on said bar, said rod having rearwardly-extending ends for engaging with said plate, substantially as specified.

708,281. LOCK. LOUIS LAMAR, Bridgeville, Mass. Filed Jan. 2, 1902. Serial No. 92,102. (No model.)

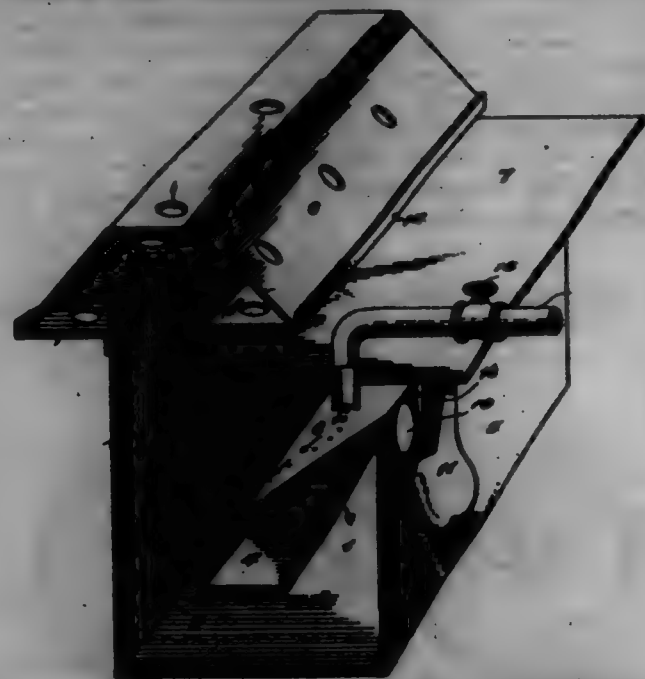


Claim.—1. In a lock of the class described, the combination of a catch member, a vertically-sliding dog engaging said catch member, and a cross-bar arranged between the outer ends of said dog and rigid with the dog.

axis bearing a trigger-arm engaging said dog, a rotatable key connected to said axis and bearing a key designed to engage said dog to lock it in either raised or lowered position, said key being constructed to be displaced to operate said trigger-arm to raise said dog to release said catch member, substantially as described.

2. In a lock of the class described, the combination with a catch member adapted to be secured to a door, of a sliding dog mounted to engage said catch member, a rotatable axis bearing a trigger-arm engaging said dog, a key connected to said axis and disposed at an angle thereto, said key being mounted in its displaced position to operate said trigger to disengage said dog, and a pivoted spring bearing two arms, one of which engages said key and the other bears on the head of said catch member, substantially as described.

708,282. CRUDE-OIL BURNER. JOHN A. LAUREN, WILLIAM A. JOHNSON, and LEE W. DUNLEY, Galveston, Tex. Filed Dec. 7, 1901. Serial No. 98,045. (No model.)



Claim.—1. A crude-oil burner comprising an outer casing, an escape-flue, a drip-pan in said casing and around which pan said flue passes, a drip-plate, to discharge into said drip-pan, means to feed oil to said drip-plate, and an air-inlet flue passing over and under said drip-plate and communicating with said escape-flue, substantially as described.

2. A crude-oil burner comprising a box or casing, an uptake-flue communicating with the lower portion thereof, a drip-pan disposed against the inner wall of said flue and above the bottom of said box or casing, a space being formed between said drip-pan and the proximate wall of said box or casing, a drip-plate above and discharging into said drip-pan and extending from said wall of said casing, whereby a downward-flue is formed under said drip-plate and around said drip-pan, said downward-flue communicating with said uptake-flue, and means to feed oil on said drip-plate, substantially as described.

3. A crude-oil burner comprising a box or casing, a flue communicating with the lower portion thereof, a head or spreader at the upper end of said flue, a drip-pan disposed against the inner wall of said flue and above the bottom of said box or casing, a space being formed between said drip-pan and the proximate wall of said box or casing, a drip-plate above and discharging into said drip-pan, and extending from said wall of said casing, whereby a flue is formed under said drip-plate and around said drip-pan, said flue communicating with said first-mentioned flue, a deflector above said drip-plate and means to feed oil on said drip-plate, substantially as described.

4. A crude-oil burner having a spreader-head and an uptake leading thereto, a drip-plate disposed at the intake of said flue, means to supply oil to said drip-plate, a drip-pan into which the drip-plate discharges, and a casing in which said drip-plate is inclosed, said casing having a downward-flue passing over and under said drip-plate, and communicating with the uptake-flue substantially as described.

708,283. DETONATOR FOR RAILWAYS. FRANK LEHMAN, Paris, France. Filed Mar. 21, 1901. Serial No. 92,108. (No model.)

Claim.—1. A detonator for railways, comprising a body portion or receptacle provided with a cover, and including the detonating substance mixed with an agglutinant to form a paste, and grains or particles of marble, glass or porcelain circumferentially arranged in said receptacle, the said grains being retained in position by the paste and being of such size as

to extend within a short distance of the top and bottom of the detonator, to insure the detonation by the crushing due to the wheel of the vehicle.



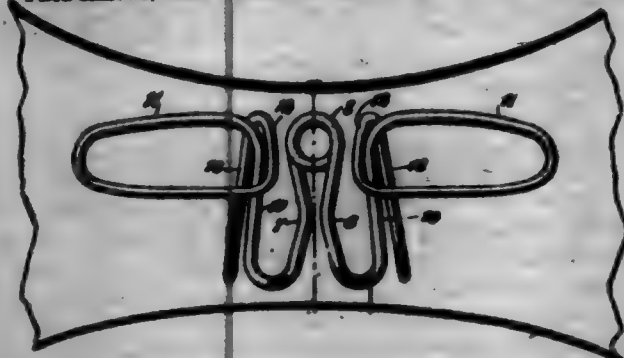
2. A detonator for railways, comprising a body having a cover and containing the detonating substance mixed with an agglutinant to form a paste, grains or particles of marble, glass or porcelain circumferentially arranged in the body and embedded in the paste, and spaced a short distance from the top and bottom of the detonator, and attaching devices secured to the detonator, the fastening means for the attaching devices being out of alignment with the said grains or particles to prevent accidental detonation.

3. A detonator for railways, comprising a body portion for containing the detonating substance mixed with an agglutinant, and a cover for the body, grains or particles of marble, glass or porcelain circumferentially arranged in said body and embedded in the detonating compound or paste, attaching devices connected with the detonator at points out of alignment with the said grains or particles, and a ring of elastic or flexible material interposed between the cover and the body of the detonator for the purpose of securing a tight joint.

4. A detonator, comprising a receptacle containing the explosive material, and a series of grains or particles of a hard and fragile material embedded in the explosive material and each spaced a short distance from the top and bottom of the receptacle, substantially as described.

5. A detonator, comprising a receptacle for the explosive material, a series of grains or particles of a hard and fragile material embedded in the explosive material within the receptacle, and each spaced a short distance from the top and bottom of the receptacle, and attaching devices secured in the receptacle at points out of alignment with the said grains or particles, substantially as described.

708,284. NECKTIE-HOLDER. PHILIP H. LEVIN, New York, N. Y. Filed Mar. 20, 1902. Serial No. 99,070. (No model.)



Claim.—In a necktie-holder, a clip consisting of a single length of wire bent to form jaw members, the wire at the lower portions of the jaws being curved outward, then upward as at 10, then laterally to form wing portions, the inner lower ends of the wings being engaged against the outer sides of the jaws 10, and then turned upward, and then downward, terminating in hooks, substantially as described.

708,285. FLESHING-MACHINE. WALTER R. LOHMEYER, Arlington, Mass., assignor to J. H. Shaw Company, Portland, Me., and Boston, Mass., a Corporation of Maine. Filed Feb. 11, 1902. Serial No. 98,887. (No model.)

Claim.—1. The combination with a pair of separated supporting-rolls, of a feed-roll movable toward and from a position between the supporting-rolls, and a knife-cylinder movable toward and from one of the supporting-rolls.

2. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, and means for moving the frame toward and from the supporting-rolls.

3. The combination with a pair of yieldable separated supporting-rolls, of a feed-roll movable toward and from a position between the supporting-rolls, and a knife-cylinder movable toward and from one of the supporting-rolls.

4. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, and yieldable means for moving the frame toward and from the supporting-rolls.

5. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, yieldable supports for the feed-roll upon the frame, and means for moving the frame toward and from the supporting-rolls.

6. The combination with a bed-roll, of a feed-roll and a knife-cylinder and means for moving the feed-roll and knife-cylinder toward and from the bed-roll and into or out of contact therewith.



7. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-tilted pairs of pivoted links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

8. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-tilted pairs of links pivoted above the rolls, and means for oscillating the links toward and from the bed-roll.

9. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-tilted pairs of pivoted links, an additional support for the feed-roll and knife-cylinder below the links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

10. The combination with a pair of supporting-rolls comprising a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-tilted pairs of pivoted links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

11. The combination with a main frame, of a secondary frame movably mounted therein, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll to bring the knife-cylinder and feed-roll into or out of contact with said bed-roll.

12. The combination with a main frame, of a pair of links pivoted at each side thereof, a secondary frame pivotally secured to the links, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

13. The combination with a main frame, of a pair of links pivoted at the upper portion of said main frame and at each side thereof, a secondary frame pivotally secured to the links, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

14. The combination with a main frame provided with tracks, of a secondary frame carrying rollers cooperating with the tracks, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

15. The combination with a main frame provided with tracks, of a secondary frame carrying rollers cooperating with the tracks, supporting-links pivoted to the main frame and secondary frame, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

16. The combination with a main frame, of a secondary frame mount-

ed thereon, a knife-cylinder and feed-roll mounted upon the secondary frame, the feed-roll being supported to swing about the knife-cylinder, a bed-roll mounted upon the main frame, yieldable means for forcing the feed-roll toward the bed-roll, and means coacting with the secondary frame for moving the knife-cylinder and feed-roll toward and from the bed-roll.

17. The combination with a main frame, of a secondary frame movably mounted thereon, a knife-cylinder and feed-roll mounted upon the secondary frame, the feed-roll being supported to swing about the knife-cylinder, a bed-roll mounted upon the main frame, means for adjusting the feed-roll toward the bed-roll, and means coacting with the secondary frame for moving the knife-cylinder and the feed-roll toward and from the bed-roll.

18. The combination with a main frame, of a secondary frame movably mounted thereon, a knife-cylinder and feed-roll mounted upon the secondary frame, a bed-roll yieldably mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll to bring the knife-cylinder and feed-roll into or out of contact with said bed-roll.

19. The combination with a bed-roll, of a rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, and a feed-roll journaled in the arms.

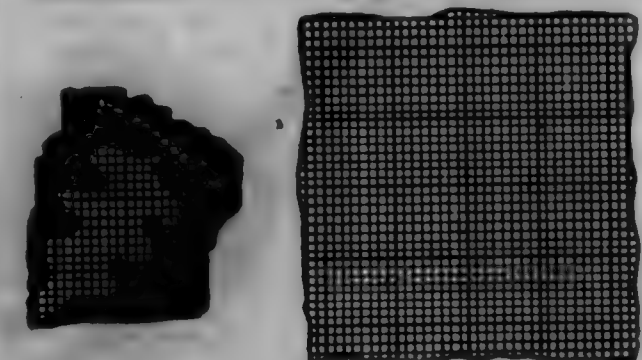
20. The combination with a bed-roll, of a rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, a feed-roll journaled in the arms, and a spring connected with the arms and serving to force the feed-roll toward the bed-roll.

21. The combination with a bed-roll, of a rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, a feed-roll journaled in the arms, a rod pivotally connected with the arms and with a relatively fixed point, and means for adjusting the effective length of the rod.

22. The combination with a main frame, of bearings mounted near the front of the frame to slide therein, a bed-roll journaled in the bearings, a lever connected with at least one of the bearings, a rod connected with the lever and extending toward the rear of the frame, a spring carried by the frame and coacting with the rod, a knife-cylinder, and means for moving the knife-cylinder toward and from the bed-roll.

23. The combination with a pair of supporting-rolls, of a knife-cylinder movable toward and from the supporting-rolls, supporting means for the knife-cylinder, and a deflector situated between the rolls and a portion of the supporting means for the knife-cylinder.

708,286. PROCESS OF MAKING WEAVERS' DESIGNS. HARRY WASHINGTON, Shapley, England. Filed Jan. 2, 1901. Serial No. 41,990. (No specimens.)



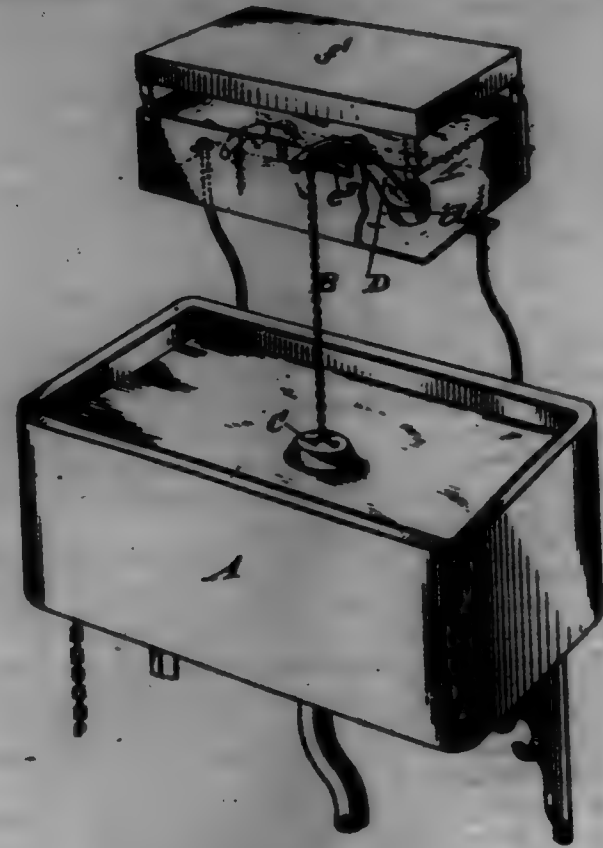
Claim.—1. The process of making weavers' designs, consisting in projecting a design by a camera on a paper ruled in squares, then outlining said design on the ruled paper and stencilling in the ground by means of a stencil having holes whose centers are distant the length of the sides of the squares from each other or a multiple of that length, substantially as described.

2. The process of making weavers' designs, consisting in projecting a design by a camera upon a surface ruled in squares, then outlining said design on the ruled surface and stencilling in the ground in a series of different colors by the means of a series of separate stencils, having differently-arranged holes therein, which holes are arranged in the centers of the squares on the ruled surface, substantially as described.

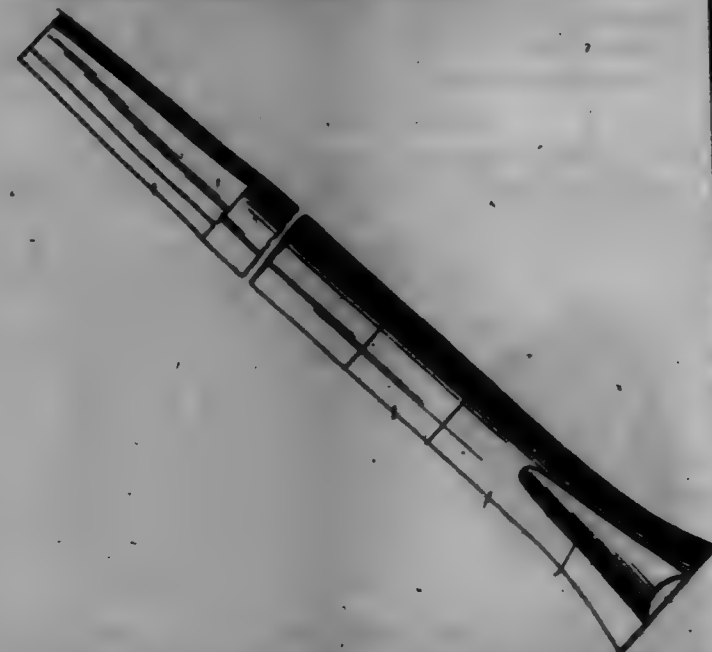
708,287. DEVICE FOR AUTOMATICALLY DISTRIBUTING DISINFECTING FLUIDS. FRANK A. MARTIN, New York, N. Y., assignor to the West Disinfecting Company, New York, N. Y., a Corporation of New York. Filed Aug. 22, 1900. Serial No. 27,946. (No model.)

Claim.—The combination with a reservoir having its cover spaced from the body of the reservoir, of a tilting discharging device, a support to which the tilting device is hinged, the said support having a sliding engagement together with the discharging device along the wall of the

reservoir intermediate of the cover and body and means for operating the tilting discharging device, substantially as set forth.



708,288. TAMPING-BAR. THOMAS HILLAR, STRATTON, II. Filed Aug. 24, 1901. Serial No. 73,196. (No model.)

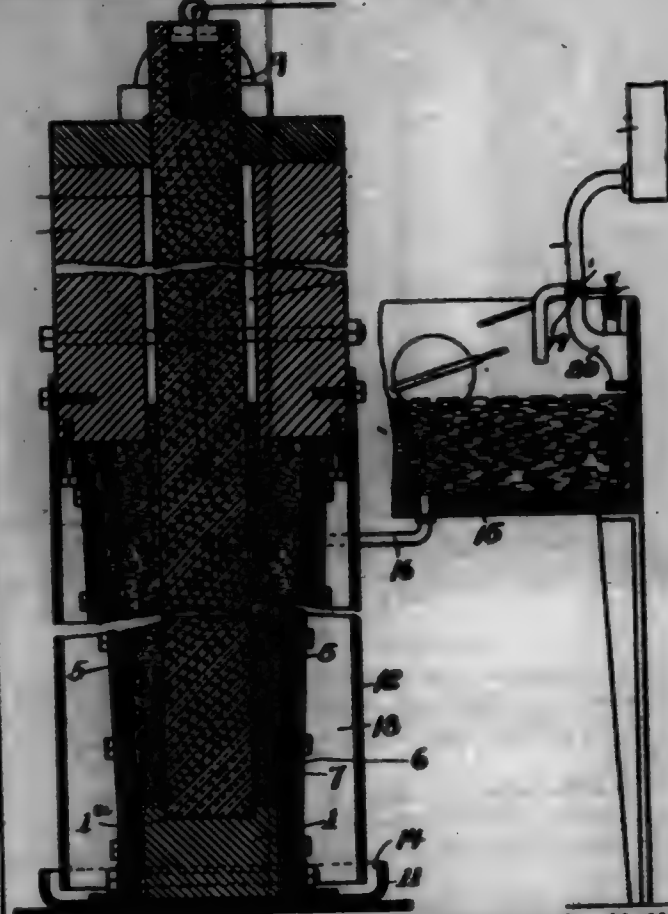


Claim.—1. A tamping-bar comprising a handle formed with a reduced threaded extension at its inner end, a butt having a concave recess, a longitudinal groove having its walls diverging toward and merging into the concave recess, and a reduced plain end, and a union having a bore threaded at one end in which the reduced threaded extension of the handle is inserted, and plain at the other end in which the reduced end of the butt is inserted and rigidly secured.

2. A tamping-bar comprising a handle of truncated frusto-conical shape at its outer end, and formed with a reduced threaded extension at its inner end, a butt having a concave recess, a longitudinal groove having its walls diverging toward and merging into the concave recess, and a reduced plain end, and a union having a bore threaded at one end in which the reduced threaded extension of the handle is inserted, and plain at its other end in which the reduced end of the butt is inserted and rigidly secured.

708,289. PROCESS OF PRODUCING CAUSTIC. EDNA E. MOORE, Lynn, Mass., assignor to Moore Electrolytic Company, Portland, Me., and Boston, Mass., a Corporation of Maine. Filed Apr. 30, 1902. Serial No. 14,787. (No specimens.)

Claim.—1. The herein-described process of electrolyzing the chloride chlorates or sulfates of alkali metals consisting in bringing an aqueous solution thereof into contact with one face of a diaphragm of sufficient porosity to permit free flow of the solution; passing an electric current through said solution and diaphragm to an unexposed ferrous cathode in contact with the other face of the diaphragm; thereby converting the metal into hydrate by the water of the undecomposed percolated solution and confining the liberated hydrogen gas in contact with the outer face of the cathode and thereby excluding atmospheric air, whereby the cathode solution flows by gravitation from said cathode without evaporation and without the carbonating of the hydrate.



2. The herein-described process of electrolyzing the chloride chlorates or sulfates of alkali metals consisting in bringing an aqueous solution thereof into contact with one face of a diaphragm of sufficient porosity to permit free flow of the solution; passing an electric current through said solution and diaphragm to an unexposed ferrous cathode in contact with the other face of said diaphragm, thereby converting the metal into hydrate by the water of the undecomposed solution in the pores of said cathode; and excluding atmospheric air from the cathode and the solution thereby contained, to prevent the precipitation of foreign metals present in the form of chloride, chlorate hydrates or sulfates in the said solution.

3. The herein-described process of electrolyzing the chloride chlorates or sulfates of alkali metals consisting in bringing an aqueous solution thereof into contact with one face of a porous diaphragm of sufficient porosity to permit free flow of the solution; passing an electric current through said solution and diaphragm to an unexposed ferrous cathode in contact with the other face of said diaphragm, thereby converting the metal into hydrate by the water of the undecomposed percolated solution, and continuing the electrolysis of said undecomposed solution in the pores of said cathode, and confining the liberated hydrogen gas in a steamy bath in contact with the cathode to the exclusion of atmospheric air, substantially as described.

4. The herein-described process of preventing the precipitation of the hydrates of foreign alkalis or chloride chlorates, in the electrolysis of commercial salts, which consists in bringing a saline solution containing said alkalis or chlorides into contact with a diaphragm of sufficient porosity to permit free percolation of said solution, passing an electric current from an anode in said solution to an unexposed cathode outside said diaphragm and enveloping the cathode in a confined bath of gas and thereby preventing the evaporation of liquid contained on the cathode.

5. The herein-described process of preventing the carbonating of the hydrate resulting from the electrolysis of the chloride chlorates or sulfates of alkali metals, which consists in bringing a saline solution containing said alkalis or chlorides into contact with a diaphragm of sufficient porosity to permit free percolation of said solution, passing an electric current from an anode in said solution to an unexposed cathode outside

said diaphragm and entirely excluding atmospheric air from contact with the said hydrate.

6. The herein-described process of preventing the carbonating of the hydrate resulting from the electrolysis of the chloride chlorates or sulfates of alkali metals, which consists in bringing a saline solution containing said alkalis or chlorides into contact with a diaphragm of sufficient porosity to permit free percolation of said solution, passing an electric current from an anode in said solution to an unexposed cathode outside said diaphragm and enveloping the cathode containing said hydrate in a bath of hydrogen gas, and thereby preventing the contact of atmospheric air therewith.

7. The herein-described process of preventing the precipitation of the hydrates of foreign alkalis or chlorides, in the electrolysis of commercial salts, which consists in bringing a saline solution containing said alkalis or chlorides into contact with a diaphragm of sufficient porosity to permit free percolation of said solution, passing an electric current from an anode in said solution to an unexposed cathode outside said diaphragm and enveloping the cathode in a bath of the hydrogen gas liberated at the cathode and thereby preventing the evaporation of liquid contained on or in the cathode.

708,290. VACCINATION-SHIELD. HARRY E. MOLFORD, Philadelphia, Pa. Filed Nov. 2, 1901. Serial No. 60,908. (No model.)



Claim.—1. As a new article of manufacture, an integral shield having a dome-like center with an inclined annular wall, and extensions to which securing means may be applied, said extensions having slots arranged at divergent angles, substantially as described.

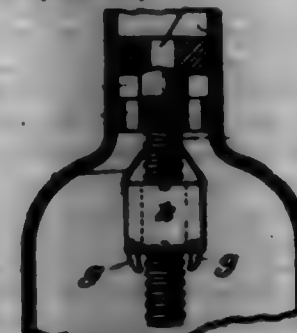
2. As a new article of manufacture, an integral shield having a dome-like portion with an annular inclined wall, and extensions to which securing means may be applied, said extensions having slots arranged at divergent angles for the passage or reception of such securing means, and an upturned flange at the outer ends of said extensions.

3. As a new article of manufacture, an integral shield having a dome-like center with an annular inclined wall, and extensions having divergent slots through which may be passed the securing means, and an upturned flange at the sides of said shield, said shield having a portion between the flange and the annular wall adapted to rest upon the body of the user.

4. As a new article of manufacture, an integral shield having a dome-like center with an annular inclined wall, and extensions having slots arranged at a divergent angle adapted to receive securing means, and an upturned flange surrounding said shield, substantially as described.

5. As a new article of manufacture, an integral shield having a dome-like center with an annular inclined wall, and extensions having slots arranged at a divergent angle for the reception of securing means, said dome-like center having ventilating-openings adjacent to its annular wall, and said shield being made of transparent celluloid, substantially as described.

708,291. STOPPER AND FITTING FOR BOTTLES. SYDNEY MYER and GEORGE EATON, London, England. Filed Dec. 2, 1901. Serial No. 68,267. (No model.)



Claim.—1. In a stopper for bottles and the like, the combination of a pendant bar provided with corrugations, a float movable on said bar, springs mounted on the upper part of said float for engaging the corrugations in the bar to prevent upward movement of the float, and pivoted parts on the lower portion of the float adapted to engage the corrugations in the bar for preventing movement of the float when the bottle is inverted, substantially as described.

2. A stopper for bottles and the like having openings at right angles to each other, a pendant bar having corrugations, and a float having locking members to engage said corrugations for preventing upward movement of the float when the bottle is inverted, substantially as described.

708,292. PIPE-WRENCH. ALBERT P. MOLLER, Independence, Kan. Filed Dec. 24, 1901. Serial No. 67,008. (No model.)



Claim.—1. In a wrench of the character set forth, a handle, plates arranged at opposite sides of the handle and having a depression in their inner sides, bits located in said depressions, and means for securing said plates to opposite sides of the handle and at the same time clamping the bits between the proximal sides of the plates and handle, substantially as set forth.

2. In a wrench substantially as set forth, a handle having shoulders at opposite sides, plates having side depressions and arranged at the sides of the handle provided with the shoulders, bits located in the depressions of the said plates and having their inner ends abutting against the aforementioned shoulders of the handle, and means for securing the plates to the handle and clamping the bits between proximal sides of the plates and handle, substantially as set forth.

3. In a wrench of the character described, a handle having shoulders at opposite sides, plates placed against opposite sides of the handle and having depressions in the outer ends of their inner sides, the inner ends of the depressions corresponding with the aforementioned shoulders, bits located in said depressions and having their inner ends abutting against the aforementioned shoulders and inner ends of the depressions, and means for securing the plates to the handle and clamping the bits between said handle and plates, substantially as set forth.

4. In a wrench, a handle, plates located at opposite sides of the handle and having projecting portions to overlap or embrace the upper and lower sides of said handle, bits located between the side plates and handle, and means for securing the side plates to the handle and at the same time clamping the bits, substantially as specified.

5. In combination, a handle, plates located at opposite sides of the handle and provided with bits and having a part widened and projecting above and below the handle, the upper being provided with lugs, a clasp-bolt for securing the plates to the handle, a chain adapted to make adjustable connection with said lugs, and a bolt for connecting the chain to the side plates and also serving to draw the latter close against the sides of the handle, substantially as set forth.

6. A wrench comprising a handle having its outer end beveled and channelled to provide a seat, plates located at opposite sides of the handle and provided with bits and having projecting lugs, means for securing the plates to the handle, and a chain secured at one end and adapted to have its lower end make adjustable connection with the lugs, substantially as set forth.

7. The herein-described wrench comprising a handle having its outer end reduced, beveled and channelled to provide a seat and having shoulders at the base of the reduced portion, plates located at opposite sides of the handle and having a recess and depression in their inner sides and having lugs at their upper edges, lustrated bits located in the depressions of the side plates and having their inner ends abutting against the aforementioned shoulders, means for securing the plates to the sides of the handle and clamping the bits between proximal sides of the plates and handle, and a chain secured at one end and adapted to make adjustable connection at its opposite end with the said lugs, substantially as set forth.

708,293. PENHOLDER. FRANK HESTER, NEW YORK, N. Y., assignor to Eagle Pen Company, New York, N. Y. Filed Feb. 14, 1902. Serial No. 24,000. (No model.)



Claim.—The described penholder, consisting of the tip B, the longitudinally-slitted chest-metal tube C secured to and surrounding said tip, and provided with the screw or lugs d, and the grip-sleeve mounted on

and movable lengthwise of the tube (1), and consisting of the sheet-metal tube (2) and the antistatic sheet or cover (3), these parts being constructed and arranged together for joint operation as herein shown and set forth.

708,294. CAMERA AND FOCUSING-FINDER THEREFOR. U. S. PATENT OFFICE, New York, N. Y. Filed July 25, 1901. Serial No. 12,205. (No model.)



Claim.—1. A combined camera and focusing-finder, comprising a camera provided with a movable lens, a box provided with an aperture, a lens-tube carrying a lens and slidably mounted within said aperture, said lens-tube being connected with said camera-lens, a series of mirrors inclined at different angles for leading the light back upon itself and projecting an image in a direction lateral to the normal direction of said light, and a screen for receiving said image.

2. A combined camera and focusing-finder, comprising a camera provided with a movable lens, a box provided with an aperture, a tube slidably mounted in said aperture and connected with said camera-lens, a lens mounted in said tube, a pair of mirrors inclined substantially at right angles to each other, for doubling the light back upon itself, another mirror parallel to one of the first-mentioned mirrors and inclined obliquely to the axis of said tube, and a screen for receiving an image.

3. A combined camera and focusing-finder, comprising a camera provided with a movable lens, a box provided with an aperture, a tube slidably mounted in the said aperture and connected with said camera-lens, a lens mounted in said tube, a pair of mirrors mounted in said box and inclined toward each other at an angle of forty-five degrees, a third mirror mounted in said box and parallel with one of said first-mentioned mirrors, but facing in a different direction to the direction in which said first-mentioned mirror faces, and a screen for receiving an image projected from the last mirror of the series.

4. A combined camera and focusing-finder, comprising a camera provided with a movable lens, a flattened box provided with an aperture at one of its ends and adjacent to one of its edges, a tube slidably mounted in said aperture and connected with said camera-lens, a lens mounted in said tube, a pair of mirrors mounted in said box adjacent to opposite edges thereof and inclined toward each other, another mirror adjacent to said tube and also adjacent to the edge of the box opposite said tube, and a screen for receiving an image; the arrangement being such that light entering through the tube is bent backward in a path parallel to its normal path, and caused to project an image.

708,295. METHOD OF TREATING GARBAGE. ROBERT E. NEWCOMB, Philadelphia, Pa. Filed Mar. 20, 1902. Serial No. 96,297. (No specimens.)

Claim.—The method herein described of treating garbage, said method consisting in first digesting the same to melt and free the grease, then expressing grease and other liquid matters therefrom, and then mixing the pressed mass with phosphoric and sulfuric acid, in quantities sufficient to decompose the solid matters by the heat developed by the reaction, and in the absence of externally-applied heat, substantially as specified.

708,296. CATTLE-PROBE. ARTHUR HUNTER, Fribourg, Switzerland. Filed June 10, 1901. Serial No. 94,573. (No model.)

Claim.—A cattle-probe comprising a shaft having an inclined cutting and piercing edge disposed at its outer end and extending back and outward beyond the longitudinal axis of the shaft, and provided with a longitudinal channel in the shaft extending rearwardly toward its handle end, substantially as described and for the purpose set forth.

708,297. AUXILIARY TROLLEY-CONTACT AND GLARY AND ICE CUTTING DEVICES. WALTER E. OLIPHANT, Mount Holly, N. J. Filed Sept. 12, 1901. Serial No. 78,208. (No model.)

Claim.—1. An ice-cutting trolley-wheel, having a peripheral groove or wire-cut, and openings extending from the bottom of said groove or wire-cut inward with respect to the axis of the wheel, and leading out through the side of said wheel, the edges of said openings which lie trans-

versely of the wire-cut being obliquely disposed with reference to said wire-cut, whereby a shearing cut is obtained.



2. An ice-cutting trolley-wheel, having a peripheral groove or wire-cut, and openings extending from the bottom of said groove or wire-cut inward with respect to the axis of the wheel, and leading out through the side of said wheel, said openings facing away from the bottom of the wire-cut whereby sharp ice-cutting edges are obtained across the bottom of said wire-cut and any possible packing of ice chips in the openings is avoided.

3. An ice-cutting trolley-wheel, having a peripheral groove or wire-cut, and openings extending from the bottom of said groove or wire-cut inward with respect to the axis of the wheel, and leading out through the side of said wheel, and continuously-facing openings or passages each starting at a point on one inner side wall of said groove or wire-cut near its bottom and curving downward through the bottom of the groove and out through the opposite side of the wheel, whereby ice-cutting edges are formed across the bottom of the groove and a discharge-passage for the cuttings provided which will conduct said cuttings clear of the wheel.

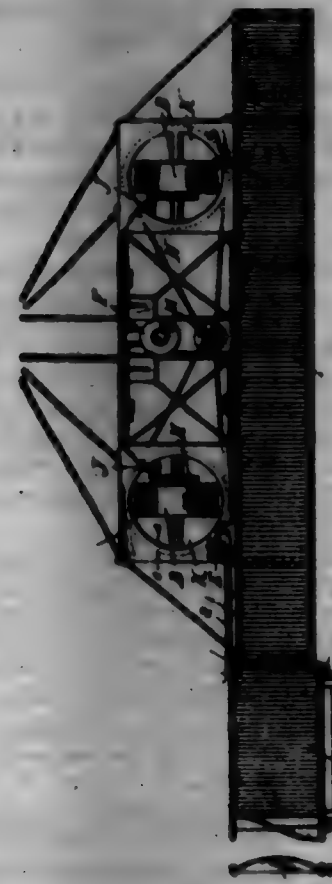
4. The improved trolley-pole appliance for electric cars, comprising a pole adapted to be supported upon the car, a wheel to contact with the electric conducting-wire, springs for holding said wheel normally in contact with said wire, a lever removably supported on said pole and having a long and a short arm, an ice-breaking wheel arranged upon said long arm, a spring, for holding said ice-breaking wheel against the wire, a stud, carrying said spring and a collar, separably secured to said pole and providing pivotal bearings for said stud, substantially as set forth.

5. An ice-cutting attachment for trolley-poles, comprising a lever having long and short arms and being provided with fulcrum means of attachment to a trolley-pole, an ice-cutting wheel on said longer arm, guiding means adapted to connect said short arm with the trolley-pole and hold it in a fixed plane with respect thereto, and a spring for holding the ice-breaking wheel against the trolley-wire.

6. The combination with a trolley-pole, of a lever fulcrumed thereon, an ice-cutting wheel on said lever adapted to engage the trolley-wire, guiding means connecting said lever with the trolley-pole at a point other than its fulcrum and holding the lever in a fixed plane, and a spring adapted to force the ice-cutting wheel against the trolley-wire.

7. An ice-cutting trolley-wheel having a peripheral groove with smooth transversely-rounded inner walls which in cross-section lie in a continuously-curving line and form a smooth wire-cut, ice-cutting edges transversely disposed in and between the inner faces of said groove or wire-cut and being in the same geometrical surface as the said walls of the groove or wire-cut and having every point equally distant as a line radiating from the axis of the wheel with the intersection of said line with the walls of the groove or wire-cut, whereby there are no projections into the said groove, said cutting edges being formed by openings from the groove inwardly into, through, and out of the body of the wheel, substantially as set forth.

708,298. CARRIAGE. HENRY & FACCINI, Walpole, N.H. Filed Mar. 12, 1902. Serial No. 75,551. (No model.)



Claim.—1. A machine for loading sugar-cane, comprising the framing, the main wheels provided with worm-wheels, the turn-table supporting said main wheels, the means carried on said turn-table and having drive-shafts provided with worms meshing with the worm-wheels of the supporting-wheels, the rings in which said turn-tables are supported and turned, the steering-drum, the cables connecting said drum with the opposite turn-tables, the endless carrier extended across the front of the machine, the elevator at one end of said carrier, the cutter at the upper end of the said elevator, the drive-shaft for the elevator, gearing between the drive-shaft and the cutter, and the motor connected with and operating the elevator drive-shaft, substantially as and for the purposes set forth.

2. A machine for loading cane, comprising the framing, the endless carrier extended across the front thereof, the elevator, means for operating the elevator and the carrier, the turn-table rings supported by the frame, the turn-tables turning in said rings, the steering device connected with said turn-tables, the main wheels supported in the turn-tables, and the motor supported by the turn-tables and connected with the main wheels, whereby to drive the same, substantially as set forth.

3. The combination in a machine, substantially as described, of the framing, having the turn-table rings, the carrier extended across the front of said frame, the turn-tables operating in their rings, means whereby said turn-tables may be turned in unison, and means for operating the main wheels, substantially as set forth.

4. A machine substantially as described, comprising the framing provided at its front side with the endless carrier and having the rearward extension and the cutter-wheel therein, the turn-table rings supported in the main frame, the turn-tables in said rings, means for turning said turn-tables in unison, the main wheels supported in the turn-tables and means carried by the turn-tables and connected with the main wheels whereby to drive the same, substantially as set forth.

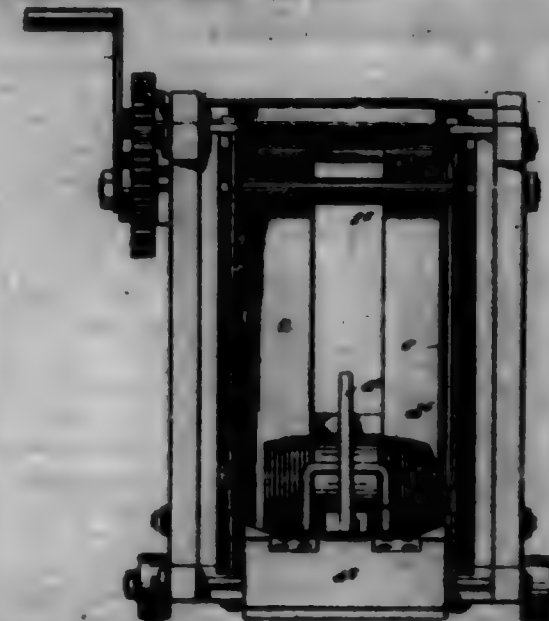
5. The combination with the main frame and the carrier extended across the front side thereof and the elevator at one end of said carrier and provided at its end with a revolving knife, the engine geared with the carrier and elevator and arranged to operate the revolving knife, the turn-table rings, the main wheels supported by the turn-tables, the motors carried by the turn-tables and arranged to operate their respective main wheels and means whereby the turn-tables may be turned in unison, substantially as set forth.

6. The combination in a machine, substantially as described, of the endless carrier and elevator, a motor for operating said carrier and elevator, the main wheels, and means for operating said main wheels, each motor being independent of each other and of the motor for operating the carrier and elevator, substantially as set forth.

7. The combination in a machine, substantially as described, of the frame, the main wheels, the turn-tables supporting said wheels, means for adjusting said turn-tables, and means for operating the main wheels

independently of each other, all substantially as and for the purposes set forth.

708,299. HOIST. GEORGE HENRY, Oakwood, Tenn. Filed June 1, 1901. Serial No. 93,213. (No model.)



Claim.—1. A hoisting apparatus having a frame, a carriage movable therein, a U-shaped bar mounted on the carriage, and an ejector in the form of a lever fulcrumed on the bar and movable to engage an object on the carriage and start it off of the same.

2. A hoisting apparatus having a frame, a carriage movable therein, a U-shaped bar mounted on the carriage, an ejector in the form of a lever fulcrumed on the bar and movable to engage an object on the carriage and start it off of the same, and a bridge hingedly mounted on the front edge of the carriage and capable of swinging to vertical or horizontal position, for the purpose specified.

708,300. GARMENT-SUPPORTER. ARTHUR F. RICHARDSON and ROBERT STANLEY RICHARDSON, Philadelphia, Pa.; said Arthur F. Richardson assignor to said Robert Stanley Richardson. Filed Feb. 22, 1902. Serial No. 95,893. (No model.)



Claim.—1. In a garment-supporter, a body portion with a slot in the upper portion thereof, and with slots extending at an angle to the first-mentioned slot forming a finger and having formed in the lower portion thereof, a slot extending at an angle to second-mentioned slot.

2. In a garment-supporter, a body portion formed with a slot in the upper portion thereof, a finger projecting from said body portion forming slots on each side thereof and said body portion having formed in its lower part a slot adapted to receive a garment.

3. In a garment-supporter, a body portion, means for securing the same to elastic or other suitable material a finger on said body portion having an end which is curved from the plane of said body portion and said body portion being formed with a slot in its lower part adapted to receive the garment.

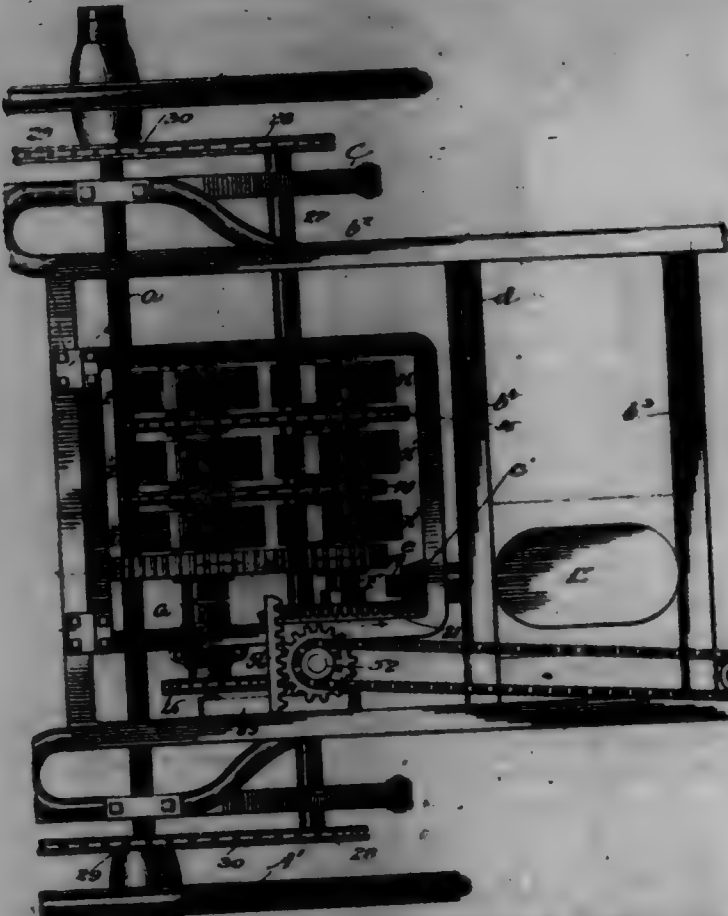
4. A garment-supporter, a body portion formed with a slot in its upper portion a finger on said body portion forming slots on each side thereof, said slots extending at an angle to the first-mentioned slot and said body portion being provided with a slot in its lower portion extending at a different angle to the slots above mentioned.

5. In a garment-supporter, a body portion, means for securing the same to elastic or other suitable material, a finger on said body portion forming slots on each side thereof an end of said finger being curved from the plane of said body portion and said body portion being formed with a slot in its lower part.

6. In a garment-supporter, a body portion, means for securing the same to elastic or other suitable material a finger on said body portion forming slots on each side thereof the lower portion of said body portion being formed with a slot and a bend in said body portion between said bend and said mentioned slot.

7. In a garment-supporter, a body portion, means for securing the same to elastic or other suitable material a finger on said body portion forming slots on each side thereof the lower portion of said body portion formed with a slot one wall of which is provided with a compound bend.

708,801. MOTOR-VEHICLE. PERIN POSTLUM, Chicago, Ill., assignor of two-thirds to Elmer Mayer and William F. Gony, Chicago, Ill. Filed Sept. 19, 1900. Serial No. 59,129. (No model.)



Claim.—1. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a frame or support, of mechanism for transmitting movement to said wheel or wheels, comprising a drive-shaft, a counter-shaft, gear mechanism connecting said shafts, and clutches each having two members, a shifter-rod extended longitudinally and centrally in each of said shafts, for effecting the shift of one of each of clutch members, and controlling mechanism for effecting the simultaneous shift of said shifter-rods.

2. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a frame or support, of mechanism for transmitting movement to said wheel or wheels, comprising a drive-shaft, a counter-shaft, gear mechanism connecting said shafts, and clutches each having two members, a shifter-rod extended longitudinally and centrally in each of said shafts, a cam on each of said rods for effecting the shift of one of each of said clutch members, and controlling mechanism for effecting the simultaneous shift of said shifter-rods.

3. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a frame or support, of mechanism for transmitting movement to said wheel or wheels, comprising a drive-shaft, a counter-shaft, a series of clutches on said drive-shaft, a corresponding series of clutches on said counter-shaft, independent gear mechanism intermediate said clutches, each of said clutches having two members, a shifter-rod extended longitudinally through each of said shafts for effecting the shift of one member of each of said clutches, and suitable mechanism for controlling said shifter-rods.

4. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a frame or support, of mechanism for transmitting movement to said wheel or wheels, comprising a drive-shaft, a counter-shaft, a series of clutches on said drive-shaft, a corresponding series of clutches on said counter-shaft, independent gear mechanism intermediate said clutches, each of said clutches having two members, a shifter-rod extended longitudinally through each of said shafts, a cam on said shifter-rod for effecting the shift of one of each of said clutch members, and mechanism for controlling said shifter-rods.

5. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a supporting-frame of driving mechanism comprising a drive-shaft, a clutch composed of a collar fixedly held on said shaft, a flanged drum whereon a gear or sprocket is secured, a slightly-flexible shoe within said flange and connected with said collar by a pin or stud and slid adjacent one end of said shoe, and a pivoted arm arranged to engage both ends of said shoe to cause its expansion, said collar being arranged within said shoe, and mechanism for shifting said arm.

6. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a supporting-frame, of driving mechanism comprising a drive-shaft, a clutch composed of a collar fixedly held on said

shaft, a flanged drum whereon a gear or sprocket is secured, a slightly-flexible shoe within said flange and pivoted to said collar, and an arm pivotally secured to one end of said shoe and arranged to engage the other end of said shoe to cause its expansion, and mechanism for shifting said arm.

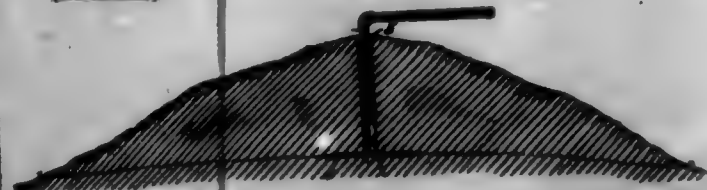
7. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, a supporting-frame, and gear mechanism for imparting movement to said wheel or wheels, comprising a clutch, of mechanism for controlling said clutch comprising a plurality of shifter-rods, a connector, a rack, a pinion, a pair of sprocket-wheels and chain, a shaft and a controller-lever secured thereto.

8. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a frame or support, of mechanism for transmitting movement to said wheel or wheels, comprising a drive-shaft, a counter-shaft, a series of clutches on said drive-shaft, a corresponding series of clutches on said counter-shaft, independent gear mechanism intermediate said clutches, each of said clutches having two members, a shifter-rod extended longitudinally through each of said shafts for effecting the shift of one member of each of said clutches, and suitable mechanism for controlling said shifter-rods, comprising a connector, a rack and pinion and a hand wheel or lever.

9. In a motor-vehicle, the combination with a motor or engine, one or more traction-wheels, and a supporting-frame, of driving mechanism for imparting movement to said wheel or wheels comprising a drive-shaft, a counter-shaft, a series of clutches on said drive-shaft, a corresponding series on said counter-shaft, gear mechanism connecting the corresponding clutches on said shafts, each of said clutches comprising a collar fixedly held on a shaft, a flanged disk or drum whereon a gear or sprocket wheel is secured, a slightly-flexible shoe within said flange and pivoted to said collar, and an arm arranged to engage the ends of said shoe to cause its expansion, and controlling mechanism comprising a shifter-rod extended centrally through each of said shafts, a connector for said rods and a controller wheel or lever connected with said connector.

10. In a motor-vehicle the combination with a motor or engine, one or more traction-wheels, and a supporting-frame, of driving mechanism for imparting movement to said wheel or wheels comprising a drive-shaft, a counter-shaft, a series of clutches on said drive-shaft, a corresponding series on said counter-shaft, gear mechanism connecting the corresponding clutches on said shafts, each of said clutches comprising a collar fixedly held on a shaft, a flanged disk or drum whereon a gear or sprocket wheel is secured, a slightly-flexible shoe within said flange and pivoted to said collar, and an arm arranged to engage the ends of said shoe to cause its expansion, and controlling mechanism comprising a shifter-rod extended centrally through each of said shafts, a connector for said rods, a rack and pinion and a controller lever or wheel connected therewith.

708,802. METHOD OF RAISING SHEETS OF STONE. ALEXANDER W. FRATE, North Jay, Me., assignor of one-half to Samuel H. Venable and William H. Venable, doing business under the firm-name of Venable Brothers, Atlanta, Ga. Filed Sept. 26, 1901. Serial No. 79,897. (No model.)



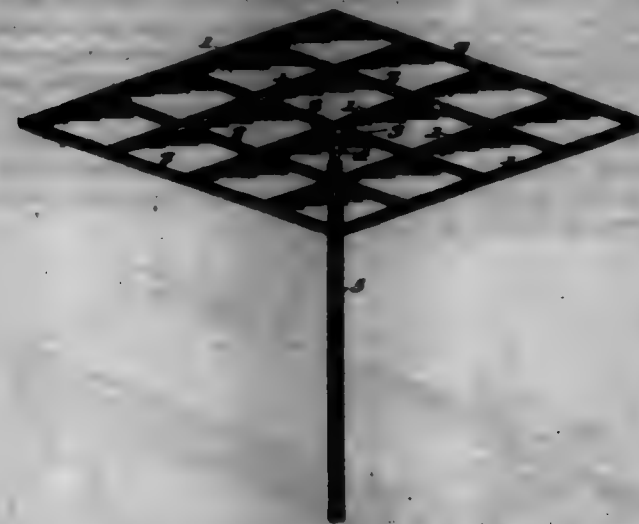
Claim.—1. The method of raising a sheet of stone as herein described, consisting in drilling a hole to the depth necessary to secure the desired thickness of the sheet of stone to be raised; then initially starting a bed-seam in the rock by the explosion of a blasting charge, and subsequently extending the bed-seam by subjecting a strain or layer of the rock to fluid-pressure which is maintained in the initially-formed bed-seam, whereby said initial blast produces an enlarged area offering great purchase for the subsequently-effective fluid-pressure.

2. The method of raising a sheet of stone as herein described, which consists in drilling a hole in the rock; introducing a fluid-pressure pipe therein; sealing said hole around the pipe against the escape of fluid-pressure by interposing a soft-metal packing between the wall of the hole and the pipe; initially starting a bed-seam in the rock by the explosion of a blasting charge; and subsequently extending the bed-seam by introducing fluid-pressure through the pipe and into the initial bed-seam, as set forth.

708,803. FLY-TRAP. WILLIAM J. POEYER, Fremont, Neb. Filed Sept. 18, 1901. Serial No. 79,610. (No model.)

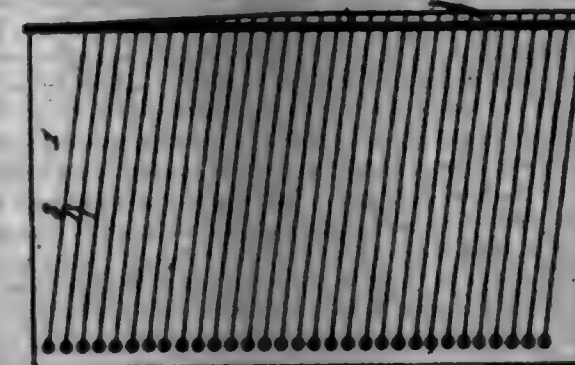
Claim.—1. A fly-trap comprising a frame, a handle therefor, sticky paper held on said frame, pins projecting from the frame and puncturing

the paper and crossed here on top of the paper into which the pins project.



2. A fly-trap comprising a frame, a handle therefor, sticky paper held on said frame, pins projecting from the frame and through the paper and crossed here on top of the paper, having sockets to receive the pins and provided on the upper sides of their ends with pads.

708,804. PENCIL. ROBERT R. RAKENYAW, Vienna, Austria-Hungary. Filed Aug. 9, 1902. Serial No. 67,903. (No model.)



Claim.—A pencil consisting of a lead or crayon, a sheet of flexible material having weakened lines rolled or wound thereon, and a flexible adhesive uniting the several convolutions of said material and of a character to resist relative longitudinal movement of said convolutions while permitting easy detachment of said material by unwinding, substantially as described.

708,805. FENCE. THOMAS BROWNE, London, Ohio. Filed June 26, 1901. Serial No. 66,570. (No model.)



Claim.—1. In fences, comprising a post having a foundation, anchor-blocks embedded in the ground at a distance from the post and at opposite sides thereof, a single wire passing around each of the said anchor-blocks and each twisted together above the anchor-blocks and having its ends extending above the ground where they are twisted together to form an eye, a stay formed of two wires twisted upon themselves and having their ends twisted together to form eyes and having their central portions maintaining the post, and a brace formed of two wires reversely twisted upon themselves passing over the top of the post where it is secured, and having its ends passed through the eyes of the anchor and stay-wires and twisted together.

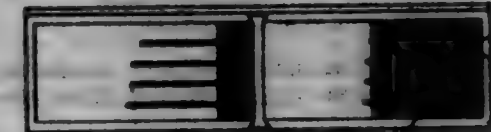
2. The combination with a fence having a brace passing over the top thereof and having its ends secured to wires passing around anchor-blocks embedded in the ground, a stay embracing the post and having its ends secured to the said brace, of an additional brace formed of two wires twisted upon themselves and having their upper ends controlling the upper end of the post and their lower ends twisted together to form an eye, an anchor embedded in the ground, a wire passing around the said anchor and having its ends extending above the ground and twisted together to form an eye, which is secured to the eye of the said brace, and a stay formed of two wires having their lower ends embracing the lower portion of the post, and having one of their outer ends passing through the eye of the said brace, and then twisted upon the outer end of the other wire of the stay to form an eye.

708,806. SPIRIT-LEVEL. SAMUEL R. RICE, New York, N. Y. Filed July 28, 1901. Serial No. 79,944. (No model.)



Claim.—The combination with a straight-edge, of a plane body-plate, and a plane cap-plate fastened snugly together face to face, the body-plate being formed with two elongated depressions therein, said depressions extending approximately at right angles to each other and being immediately adjacent and the body-plate also having orifices respectively cutting or extending into said depressions, and the cap-plate having orifices registering with the orifices in the body-plate, the body and cap plate being fastened to the straight-edge and the straight-edge having openings respectively aligned with the openings in the body and cap plates, and spirit-tubes seated in the depressions in the body-plate and visible through the aforesaid orifices from both sides of the straight-edge.

708,807. COMPOSITE PRINTING-FORM. JAMES ROBINSON and ROBERT McGLASS, Dublin, Ireland. Original application filed Oct. 5, 1901, Serial No. 77,877. Divided and this application filed Jan. 10, 1902. Serial No. 69,512. (No model.)



Claim.—1. The combination with a "chase" or frame and cast lines of type imposed in said frame and provided with longitudinal slots, of "rules" and laterally-inclined tongues at the ends of said rules, substantially as and for the purpose specified.

2. The combination with a "chase" or frame and cast lines of type imposed in said frame and provided with transverse slots, of "rules" having their ends longitudinally split and having the tongues thus formed, laterally inclined in opposite directions, substantially as and for the purpose specified.

3. A printing-rule provided with laterally-extending inclined tongues.

4. A printing-rule provided with lateral inclined tongues extending in opposite directions.

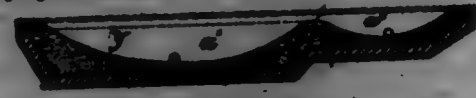
708,808. SHADE-HOLDER FOR INCANDESCENT ELECTRIC LAMPS. EDGAR A. EMMERL, Wallingford, Conn. Filed Oct. 17, 1901. Serial No. 79,589. (No model.)



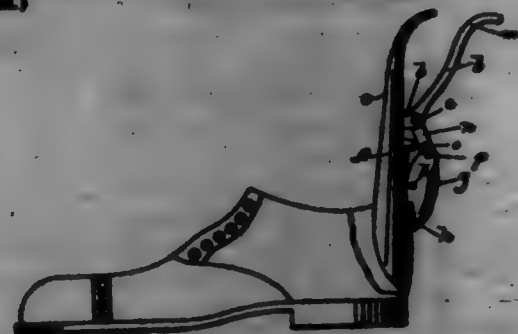
Claim.—A shade-holder for incandescent lamps, having a shade-ring and a clamping-ring made from a single piece of sheet metal, the said clamping-ring comprising two members extending in opposite directions, corresponding to each other in length, confined to lateral movement in a plane parallel with the plane of the shade-ring with which their adjustment is concentric, and connected with the clamping-ring by arms which are located in a plane parallel with the plane thereof, and each of which is furnished with a perforated ear, respectively receiving adjusting-screws also passing through the free ends of the said members of the clamping-ring, substantially as described.

708,809. OPEN-HEARTH STEEL-FURNACE. FRANCIS L. BARTON, Gates-Croft, and JOHN L. GIBBS, England, England. Filed Nov. 4, 1901. Serial No. 81,144. (No model.)

Claim.—In an open-hearth furnace for the manufacture of steel and characterized by a division of the hearth into compartments separated by dams one or more channels or gutters in the dams substantially as specified for the purpose set forth.



708,810. SHOES-BOOTS. GEORGE SCHMIDT, Baltimore, Md., assignor, by direct and mesne assignments, to the George Schmidt Manufacturing Company of Baltimore City, a Corporation of Maryland. Filed Jan. 29, 1901. Renewed Dec. 4, 1901. Serial No. 84,616. (No model.)



Claim.—1. In a shoe-heel, the combination of the heel proper; a gripping-finger pivoted on said heel; and a lever also pivoted on said heel and provided with a dotted and loosely connected to the adjacent end of said gripping-finger.

2. A shoe-heel, provided with upper lug-ear, *a, c,* and lower lug, *d;* a lever pivoted between said lug-ears and provided at one end with an elongated slot; and a gripping-finger pivoted to said lower lug, *d,* and provided with a bifurcated end which receives the dotted end of said lever, and also provided with a pin extending across its bifurcated end and fitted in the elongated slot of the lever end, as set forth.

708,811. STREET-RAILWAY SWITCH. GEORGE SCHMIDT, Philadelphia, Pa. Filed Nov. 15, 1901. Serial No. 82,685. (No model.)



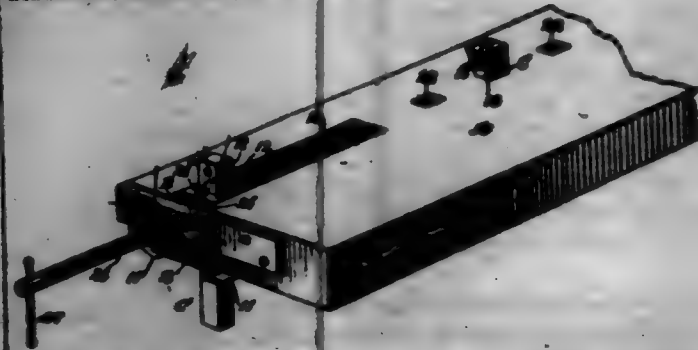
Claim.—1. In a double track and groove railway-switch the combination of a pinless tongue for tongue-actuator and tongue motor, formed with perfectly-continuous heel, the full width of heel beveled downwardly on all edges and having a bearing on three of its edges at either of its positions, and a switch-bed with a continuous underfoot at its heel, a segmental underfoot at its point, to freely deviate the switch-tongue to the bed at both its ends, and two guard-angles formed and adjusted to give a side bearing to the tongue in either of its positions.

2. The tongue *A,* having two grooves *a',* and two tracks, and beveled from the top sixty degrees downwardly on all edges to a flat bed, and deviated therein, substantially as shown.

708,812. MINE-CLAMP. VERNER F. SHULA, Bergsfield, N. J. Filed Mar. 5, 1902. Serial No. 84,776. (No model.)

Claim.—1. A clamp for carpenter's benches, consisting of a frame adapted for attachment to a bench, a screw held to travel in the frame, a head-block having a suitable connection with the screw, guides for the head-block, a jaw removably carried by the head-block, a tension device carried by the jaw, acting to hold the jaw in the head-block, and a clamping-pin removably and rotatably mounted in the head portion of the said jaw, as and for the purpose specified.

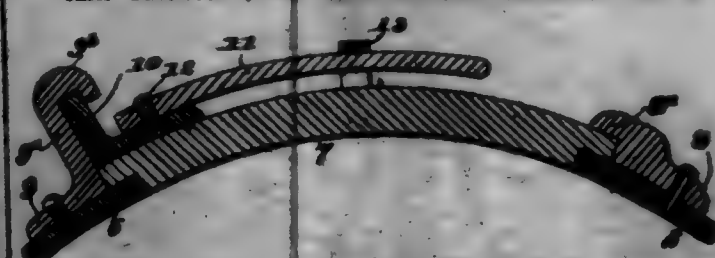
2. A clamp for carpenter's benches, consisting of a frame adapted for attachment to an end of a bench, tracks adapted for attachment to the bottom of the bench, an angular head-block, the lower horizontal member whereof is adapted to travel on the tracks and is provided with an aperture, a screw passed through a threaded aperture in the frame and having swivel connection with the vertical portion of the head-block, and a jaw comprising a head having an inclined toothed side surface, a shank, the surface of which shank just below the toothed surface of the head is curved, and a spring attached at one end to the shank, its other end being free, which shank and spring are adapted to enter the aperture in the head-block, substantially as set forth.



3. The combination with a carpenter's bench having a longitudinal opening in one end and a series of apertures in longitudinal alignment with the said opening, which apertures incline from the bottom upward in direction of the end of the bench having the opening therein, angular tracks secured to the bottom of the bench, parallel with and adjacent to the side walls of the opening at the end of the bench, and a bar attached to the end of the bench, creating the opening therein, of an angular head-block the vertical member whereof is free to slide in said opening in the bench, the horizontal member being provided with a rectangular aperture, a screw passed through the threaded aperture in said bar, being connected with the vertical member of the head-block and free to turn therein, and a jaw consisting of a straight shank having an attached spring, the spring and shank being adapted to enter the aperture in the horizontal member of the head-block, and a head-portion continuous with the shank but of greater transverse width than the shank, which head-portion is provided with a horizontal aperture in one face and having an inclined toothed surface in its opposite face, the shank being provided at the toothed side of the jaw with a curved surface just below the teeth of the jaw, and a clamping-pin consisting of a shank adapted to enter the aperture in the jaw and turn therein, and a toothed head integral with the shank, as and for the purpose set forth.

4. In bench-clamps, the combination with a jaw, consisting of a shank and a head, the head having teeth at one side and an aperture at the opposite side, of a clamping-pin consisting of a shank adapted to turn loosely in the aperture in the jaw, and a head having points formed thereon, adapted to enter an article to be held by the jaw, for the purpose set forth.

708,813. BARREL-CLOSURE. WILLIAM W. RAY, Cleveland, Ohio. Filed Mar. 4, 1902. Serial No. 84,778. (No model.)

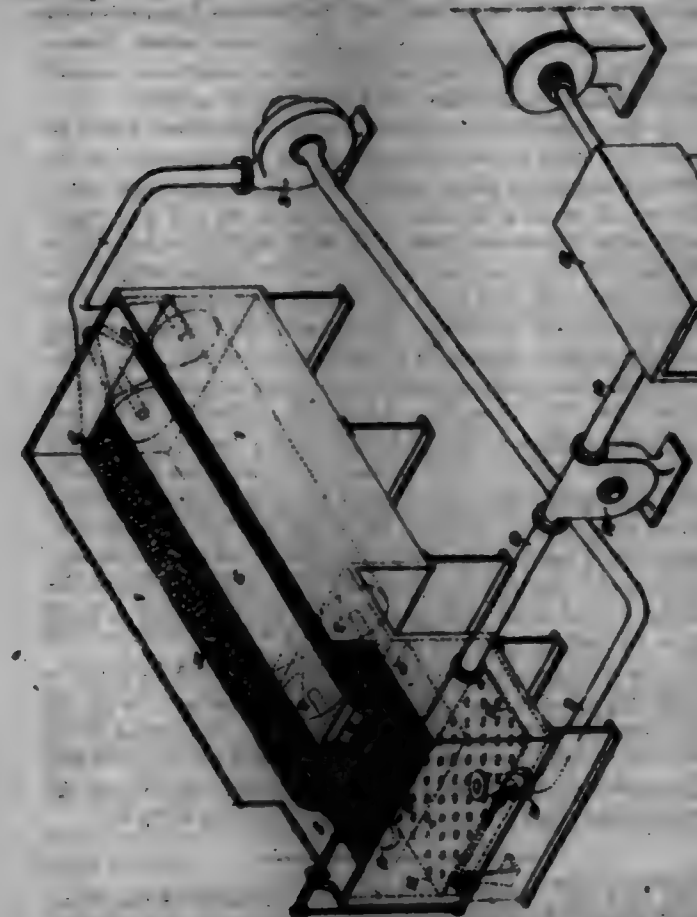


Claim.—A barrel-closure comprising the cover *7* having a catch thereon, holding means for one edge of the cover attached to the barrel, the plate *9* having a projecting reserved flange forming a hook, the angle-iron *10* engaging thereunder, and a clamping-lever pivoted to the angle-iron and engaging the catch to clamp the cover.

708,814. PROCESS OF MANUFACTURING ICE. SUMNER H. SMITH, Philadelphia, Pa. Filed Aug. 5, 1901. Serial No. 71,998. (No specimen.)

Claim.—1. The process of manufacturing ice which consists in forming a thin coating of ice upon a vessel submerged in a body of water, removing the coating of ice in small pieces which rise to the surface of the water, delivering a current of water at, and parallel to, the surface of the body of water and causing said current to pass over the entire surface of said body of water and carry off said pieces of ice; and then compressing said ice particles into blocks.

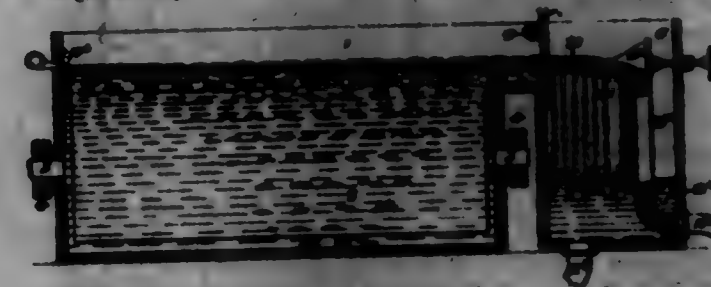
2. The process of manufacturing ice which consists in forming a thin coating of ice upon a moving vessel submerged in a body of water, removing the coating of ice in small pieces which rise to the surface of the water, delivering a current of water at, and parallel to, the surface of the body of water and causing said current to pass over the entire surface of said body of water and carry off said pieces of ice; and then compressing said ice particles into blocks.



3. The process of manufacturing ice which consists in forming a thin coating of ice upon a vessel submerged in a body of water, removing the coating of ice in small pieces which rise to the surface of the water, delivering a current of water at, and parallel to, the surface of the body of water and causing said current to pass over the entire surface of said body of water and carry off said pieces of ice; and then compressing the water from said ice particles, and finally compressing the latter into solid blocks.

4. The process of manufacturing ice which consists in forming a thin coating of ice upon a moving vessel submerged in a body of water, removing the coating of ice in small pieces which rise to the surface of the water, delivering a current of water at, and parallel to, the surface of the body of water and causing said current to pass over the entire surface of said body of water and carry off said pieces of ice; and then compressing said pieces of ice to a point where the surplus water may be separated and removed, and finally compressing the ice particles into solid blocks.

708,815. APPARATUS FOR MANUFACTURING ICE. SUMNER H. SMITH, Philadelphia, Pa. Filed Mar. 11, 1901. Serial No. 81,989. (No model.)



Claim.—1. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, a receiving-tank, means for removing the ice from the freezing-tank by discharging a body of water at the surface of the liquid therein to create a surface current in said tank to cause said ice particles to overflow, an adjustable gate or weir for regulating the height of such overflow, and means comprising a collecting pipe or spout normally stationary and serving to gather only the upper layer of fluid or condensed steam containing the bulk of the ice particles.

2. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, means for discharging the ice from said tank by a surface current created and maintained at the surface of the liquid therein, whereby said ice is caused to overflow, an adjustable gate or weir for regulating the height of such overflow, and means for conveying said ice to a compression-chamber, said means comprising a collecting pipe or spout normally stationary and serving to collect only the upper layer of the fluid or condensed steam which contains the bulk of the ice particles.

3. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, a receiving-tank, a pipe within said receiving-tank for leading the ice particles away, an enlarged spout carried by said pipe and extending across the receiving-tank, and an adjustable gate or weir between the freezing-tank and the receiving-tank whereby the height of discharge from the freezing-tank may be regulated so that the ice particles may be delivered to the spout and the surplus water supplied into the tank.

4. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means in said tank, a receiving-tank, a pipe within said receiving-tank having an enlarged spout adjacent to the discharge from the freezing-tank, adjusting means for said pipe, and a flexible connection for the lower portion of said pipe whereby adjustment of the same may be readily accomplished to insure the reception of the ice particles discharged from the freezing-tank, and the discharge of the surplus water into the receiving-tank.

5. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, a receiving-tank, a pipe within said receiving-tank having an enlarged spout adjacent to the discharge from the freezing-tank, a perforated plate located between the freezing-tank and the receiving-tank over which the ice and water pass, said plate allowing the surplus water to pass into the tank while the ice particles with a minimum quantity of water will pass directly to the spout, means for raising and lowering said plate, and means for adjusting the spout from and toward the same depending upon the volume of material passing over it.

708,816. MACHINE FOR PREVENTING DEPOSITION OF FROST ON VEGETATION. STEPHEN B. SMITH, Orlando, Fla. Filed Aug. 18, 1901. Serial No. 73,126. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a vehicle comprising a casing, of a steam-generating coil therein constituting a fire-box, a smoke-flue leading from the casing, a water-supply tank mounted on the casing and communicating with the coil at one end, and steam-distributing means communicating with the opposite end of the coil and located exterior to the casing.

2. In a device of the character described, the combination with a vehicle comprising a casing, of a steam-generating coil located within the casing and constituting a fire-box, a water-supply tank in communication with one end of the coil and supported directly upon the casing, whereby the water will be heated before being supplied to the coil, a smoke-flue leading from the casing, and a plurality of delivering devices communicating with one end of the coil and located exterior to the casing.

3. In a device of the character described, the combination with a vehicle comprising a casing having a fire-door at one end and a smoke-flue at its opposite end, of a steam-generating coil located within the casing and constituting a fire-box having its top and bottom and side walls and its rear and wall composed of tubing, a water-supply tank mounted on the casing and communicating with the coil at its lower end, and discharging devices located exterior to the casing and communicating with the upper end of the coil.

4. In a device of the character described, the combination with a vehicle comprising a casing having a fire-door at its front and end and a smoke-flue leading from its rear end, of a water-supply tank supported directly upon the casing, a steam-generating coil located within the casing and

constituting a fire-box open at its front and having its top and bottom and side walls and its rear wall composed of tubing, a valve-controlled pipe establishing communication between the water-tank and one end of the generating-coil located at the bottom of the fire-box, a branched pipe disposed upon the exterior of the casing and communicating with the upper end of the coil, and distributing devices carried by said branched pipe and located beyond the opposite sides of the vehicle.

5. In an apparatus of the character described, the combination with a vehicle comprising a casing, of a steam-generating coil therein constituting a fire-box, a smoke-flue leading from the casing, a water-supply tank communicating with the coil at one end, a plurality of pipes communicating with the opposite end of the coil and extended beyond the opposite sides of the vehicle, and independent rotary distributors disposed at the outer extremity of each of said pipes.

6. In an apparatus of the character specified, the combination with a steam-generator, of rotary steam-distributing means connected therewith, said means comprising a coupling carrying vanes, and a belt for connecting the coupling with the steam-supporting means, the head of the belt being provided with steam-escape openings.

708,817. POTATO-DIGGER. LEONARD STEVENS, Napton, Mich. Filed Mar. 31, 1902. Serial No. 100,778. (No model.)



Claim.—1. In a potato-digger, the combination with the main frame, of a rotary open-work cylinder mounted thereon, and furts radially adjustably connected to said cylinder and adapted to lift the potatoes from the ground and permit them to drop upon said cylinder and loosen and separate the soil from the potatoes, substantially as set forth.

2. In a potato-digger, the combination with a wheel-supported frame, of a rotary cylinder mounted thereon, means for rotating said cylinder, furts arranged concentrically about said cylinder, rims rotatably mounted upon the heads of said cylinder, bars connecting said heads and slidably connected with the rims of said furts whereby said furts may be adjusted radially with respect to said cylinder, substantially as set forth.

3. In a potato-digger, the combination with a rotary open-work cylinder, of rims mounted for radial adjustment upon the heads of said cylinder, furts pivoted in the heads of said cylinder, bars extending across said cylinder and pivoted in said rims and provided with holes through which the rims of the furts project, and means for locking the rims in adjustment, substantially as set forth.

708,818. GEAR TRANSMISSION. JAMES BURT, Littleport, N. D. Filed Feb. 28, 1902. Serial No. 96,712. (No model.)



Claim.—1. A gear transmission comprising a gear-wheel, and pinions in mesh at all times with the said gear-wheel and adapted to move in and out of mesh with each other, the pinions when in mesh locking the wheel and pinions together, to cause the pinions to swing bodily around with the gear-wheel, as set forth.

2. A gear transmission comprising a driven gear-wheel, a shaft on which the gear-wheel is mounted to turn loosely, an arm secured on the said shaft and carrying a pinion in mesh at all times with the said gear-wheel, and a second pinion at all times in mesh with the said gear-wheel, adapted to move in and out of mesh with the first-named pinion, as set forth.

3. A gear transmission comprising a driven gear-wheel, a shaft on which the gear-wheel is mounted to turn loosely, an arm secured on the said shaft and carrying a pinion in mesh at all times with the said gear-wheel, a second pinion at all times in mesh with the said gear-wheel,

adapted to move in and out of mesh with the first-named pinion, an arm mounted to swing loosely on the shaft carrying the said second pinion, and a spring connecting the arms with each other, as set forth.

4. A gear transmission comprising a driven gear-wheel, a shaft on which the gear-wheel is mounted to turn loosely, an arm secured on the said shaft and carrying a pinion in mesh at all times with the said gear-wheel, a second pinion at all times in mesh with the said gear-wheel, adapted to move in and out of mesh with the first-named pinion, an arm mounted to swing loosely on the shaft carrying the said second pinion, a spring connecting the arms with each other, and an obstruction adapted to be moved into the path of the said pivoted arm, as set forth.

5. A gear transmission comprising a driven gear-wheel, a shaft on which the gear-wheel is mounted to turn loosely, an arm secured on the said shaft and carrying a pinion in mesh at all times with the said gear-wheel, a second pinion at all times in mesh with the said gear-wheel, adapted to move in and out of mesh with the first-named pinion, an arm mounted to swing loosely on the shaft carrying the said second pinion, a spring connecting the arms with each other, an obstruction adapted to be moved into the path of the said pivoted arm, and means for locking the shaft against return movement toward the pivoted arm, as set forth.

6. A gear transmission comprising a loose gear-wheel, pinions in mesh at all times with the said gear-wheel, and arms on which the pinions are journaled, the arms being adapted to swing toward or from each other to bring the pinions in or out of mesh with each other, as set forth.

7. A gear transmission comprising a loose gear-wheel, pinions in mesh at all times with the said gear-wheel, and arms on which the pinions are journaled, the arms being adapted to swing toward or from each other to bring the pinions in or out of mesh with each other, one of the arms being secured to the shaft and the other being mounted to swing loosely on the shaft as a fulcrum, as set forth.

8. A gear transmission comprising a driven gear-wheel, a pinion in mesh with the said gear-wheel, carried by an arm mounted to swing, the axis of the gear-wheel and that of the arm coinciding, and a second pinion, adapted to move in mesh with the said first-named pinion and in mesh with the said gear-wheel, to lock the pinions against rotation and to cause the pinions and arm to bodily move with the gear-wheel, as set forth.

708,819. HEMOGLOBINOMETER. THOMAS W. TALLCOTT, Barga, Russia. Filed Jan. 14, 1902. Serial No. 98,974. (No model.)



Claim.—1. Means for determining the percentage of hemoglobin in blood by comparison, comprising a scale of colors varying in depth of color to indicate variations in the percentage of hemoglobin in blood, and a receiver for the blood to be compared, said receiver of a contrasting color and capable of absorbing the blood and have a meniscus.

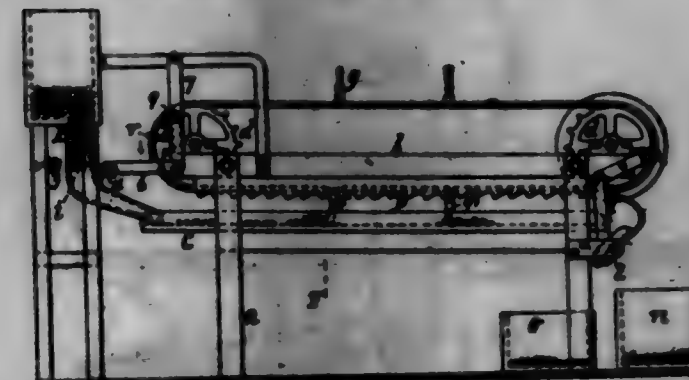
2. Means for determining the percentage of hemoglobin in blood by comparison, comprising a scale of colors varying in depth of color to indicate variations in the percentage of hemoglobin in blood, and a receiver for the blood to be compared, said receiver of a contrasting color and of an indifferent material, and capable of absorbing the blood and have a meniscus.

3. Means for determining the percentage of hemoglobin in blood by comparison, comprising a scale of colors varying in depth of color to in-

dicate variations in the percentage of hemoglobin in blood, and a receiver of white filter-paper for the blood to be compared.

4. Means for determining the percentage of hemoglobin in blood by comparison, consisting of a colorimetric scale composed of separate elements differing in depth of color in accordance with percentages of hemoglobin, and sheets of white filter-paper divided transversely into sections by lines or perforations and having a line of perforations along one edge, the whole bound in book form, for the purpose set forth.

708,820. BOARDING SHOE. CHARLES TAYLOR, New York, N. Y. Filed Jan. 20, 1902. Serial No. 91,931. (No model.)



Claim.—1. In a machine for boarding shoe, the combination with a table for the passage of the shoe, of a movable stop for arresting the passage of the shoe upon the table, and a scraper traveling in the path of the stop for removing the shoe from the table.

2. In a machine for boarding shoe, the combination with a table for the passage of the shoe, of an intermittently-traveling stop moving over the table and adapted to suitably arrest the passage of the shoe, and a continuously-moving scraper traveling in the path of the stop for removing the shoe from the table.

3. A table and a rack or shoulder combined with a stop made to contact with the shoulder, and a scraper made to move continuously clear of the shoulder.

4. A device for boarding shoe comprising a table, a continuously-moving carrier or chain, a stop and a scraper actuated by the carrier and scraper for imparting to the stop a step-by-step motion.

5. A machine for boarding shoe comprising a table, a stop and a scraper made to pass over the table, and a flap alternately operated by said stop and scraper for discharging the shoe from the table in opposite directions.

6. In a machine for boarding shoe, a table for the passage of the shoe, a carrier, a stop and scraper carried thereby, a valve for feeding the shoe to the table, an actuating-lever for the valve, and legs actuated by the carrier and engaging the valve-actuating lever for suitably operating it.

7. In a device for boarding shoe, a table for the passage of the shoe, a carrier, a stop secured to the carrier and traveling in a step-by-step manner, a scraper connected to the carrier and operating in the passage of the stop in a continuous manner, and an intermittently-actuated shoe-feeding valve for suitably supplying the shoe to the table.

8. In a machine for boarding shoe, a table for the passage of the material, an intermittently-traveling stop operating upon the table, a continuously-moving scraper operating upon the table, and a shoe-directing flap shifted by the stop and the scraper for suitably directing the discharge of the shoe as it passes from the table.

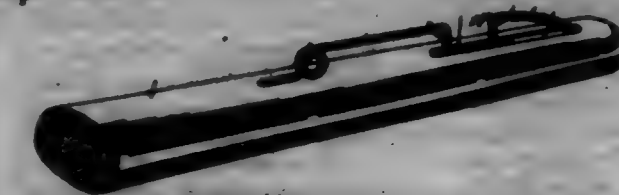
9. In a machine for boarding shoe, a table for the passage of the shoe, a traveling stop moving over the table, a traveling scraper moving in the path of the stop, a shoe-directing flap arranged in suitable relation to said table, and an arm and shifting-lever connected with the flap and engaged and operated by the stop and scraper for suitably shifting the flap for directing the passage of the shoe when discharged from the table.

10. In a machine for boarding shoe, the combination with a table for the passage of the shoe, of an intermittently-operating means for feeding the shoe to the table, an intermittently-operating stop traveling over the table for interrupting the passage of the shoe, a continuously-moving scraper operating over the table for removing the shoe therefrom, and means operated by said stop and flap for directing the discharge of the shoe from the table.

708,821. TRACE-FASTENER. CALVERT W. TINKERFIELD and OLIVER H. TINKERFIELD, Memphis, Tenn. Filed Mar. 12, 1902. Serial No. 94,978. (No model.)

Claim.—1. In a trace-fastener, the combination with a whiffletree having a socket, of a spring trace-holder mounted upon the whiffletree and having an inwardly-extending trace-receiving loop, the inner end of which is movably mounted in the socket, and an inclined guide-finger projecting from the outer side of the trace-receiving loop.

2. In a trace-fastener, the combination with a whiffletree having a socket, of a trace-holder secured to the whiffletree on the inner side of the socket, said trace-holder having an inwardly-extending trace-receiving loop, the inner end of which is movably mounted in the socket, and an inclined guide-finger projecting from the outer side of the trace-receiving loop.

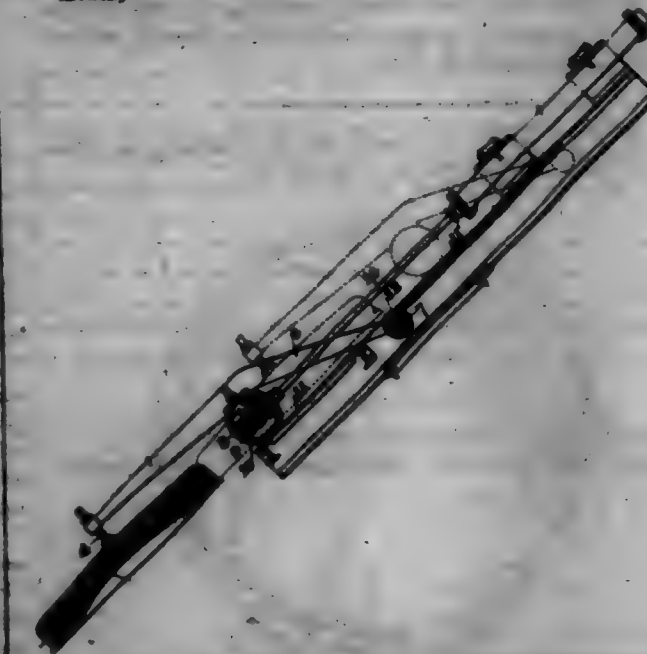


3. In a trace-fastener, the combination with a whiffletree having a pair of longitudinally-disposed sockets arranged in alignment, of a spring trace-holder secured to the whiffletree on the inner side of the inner socket, said trace-holder comprising a Shank disposed in spaced relation to the whiffletree and having a trace-receiving loop at its outer end that is movably located in the inner socket, and an inclined guide-finger projecting from the outer end of the loop and movable in the outer socket.

4. In a trace-fastener, the combination with a whiffletree having a socket, of a spring trace-holder mounted upon the whiffletree and having an inward trace-receiving loop that is movably mounted in the socket, and a stop extending across the socket and engaging the loop to limit the outward movement thereof.

5. In a trace-fastener, the combination with a whiffletree having a longitudinally-disposed socket, of a trace-holder mounted upon the whiffletree and comprising a fastening-rod passing through said whiffletree on the inner side of the socket, a coiled spring located at the end of the stem, a Shank arranged longitudinally of and in spaced relation to the whiffletree, an inner loop portion movably located in the socket, and an inclined guide-finger projecting from the outer end of the loop portion.

708,822. COVER MECHANISM FOR PIT-FURNACE. FRANK H. TREAT, Philadelphia, Pa. Filed Nov. 12, 1901. Serial No. 81,982. (No model.)



Claim.—1. A pit-furnace cover, a supporting-lever therefor, a cam device arranged to act upon the lever, and mechanism for moving the cover back and forth; substantially as described.

2. A pit-furnace cover supported upon a lever-arm, mechanism for moving the lever-arm and cover to and from the furnace, and a cam device arranged to act upon the lever-arm to raise and lower the cover; substantially as described.

3. A pit-furnace cover supported upon a lever, a movable track carrying the lever, mechanism for moving the track and cover back and forth, and a cam device arranged to act upon the lever; substantially as described.

4. A pit-furnace cover supported upon a lever, a track supporting the lever, a roller on the lever bearing upon the under face of a track having a cam-flocc portion, and mechanism for moving the track toward and from the furnace; substantially as described.

5. A pit-furnace cover mounted upon levers extending over and secured to a frame mounted upon a wheeled carrier, the inner ends of the levers extending downwardly and having rollers bearing upon the under face of tracks having cam-flocc, and a motive cylinder connected to the wheeled carrier; substantially as described.

708,828. FOUNTAIN-PEN. GEORGE WALL, New Plymouth, New Zealand, assignor of one-third to Robert Clinton Haglan, New Plymouth, New Zealand. Filed Sept. 24, 1901. Serial No. 74,416. (No model.)

Claim.—1. In a fountain-pen, the combination with the ink-duct, of a feed-tube having the curved portion *W*, having a substantially flat, straight feed-bar extension *W'*, a feed-duct of uniform diameter in said feed-tube and non-absorbent means for conducting ink from the feed-duct to the feed-bar extension, whereby ink is delivered to the end of the pen and the ink prevented from creeping forward along the pen, substantially as set forth.

2. A fountain-pen comprising a pen, an ink-tube, a feed-tube having the curved portion *W*, a feed-bar extension *W'*, a feed-duct in said tube and terminating in the extension and of uniform diameter throughout, and a non-absorbent ink-conductor in said feed-duct seated at one end in the feed-bar extension and its opposite end extending into the feed, that portion of said conductor within the feed-bar extension adapted to lie against the under side of the pen at the point of ink-supply, substantially as set forth.

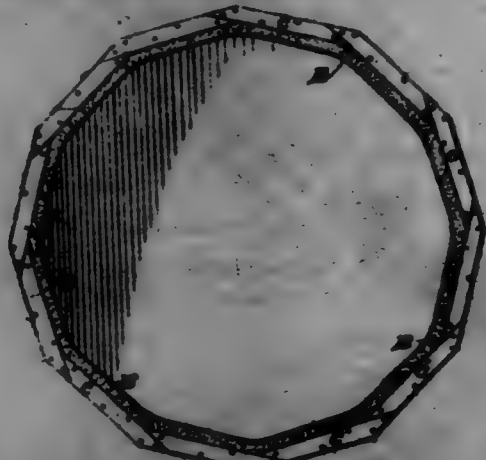
3. A fountain-pen comprising an ink-tube a rigid feed-bar having a bent or convex-concave portion intermediate of its ends and provided with a feed-duct having its outlet on the upper face near the outer end of said bar, an ink-conductor composed of a braid of hair-like material extending from near the outer end of the feed-bar through the duct into the reservoir and having its outer end secured in the split end of the bar, and means for holding a pen in said outer end of the bar, for the purpose set forth.

4. A fountain-pen, comprising an ink-reservoir, a feed-bar having its outer end split longitudinally, said bar provided with an undulating feed-duct having its discharge on the upper face near the outer end of said bar, a filamentous ink-conductor extending through the duct into the reservoir and having its outer end secured in the split end of the bar, and means for holding a pen on the outer end of the bar, for the purpose set forth.

5. The combination with the feed-bar of a fountain-pen, of an ink-conductor consisting of a braid of hair-like material, for the purpose set forth.

6. The combination with its outlet on the upper face near the outer end of the bar, and an ink-conductor consisting of a braid of hair-like material secured to the outer end of the bar and extending through the feed-duct thereof, for the purpose set forth.

708,824. SEAL. GEORGE F. WAGGERS, Baltimore, Va. Filed May 24, 1901. Serial No. 61,749. (No model.)



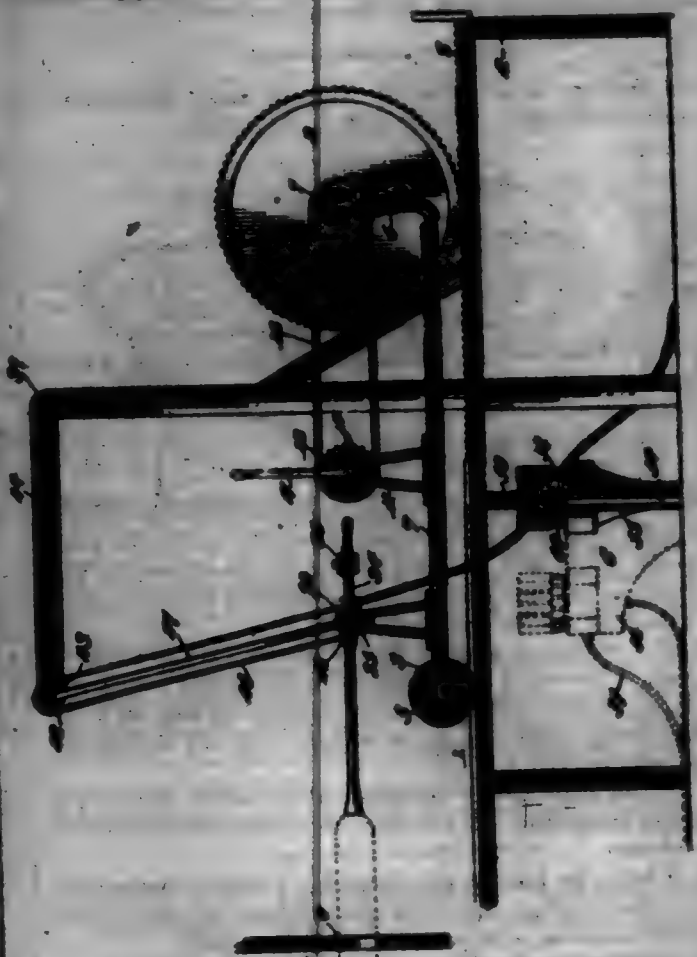
Claim.—The improved seal having the form of a many-sided polygon and composed of wedge strips, or sections, laid horizontally and lapped upon each other as described, having lugs secured to the inner side of the polygonal wall, and a twist of cement-carrying lugs sealed vertically upon each lapping, and the cement cast applied to the vertical lugs and preventing an entrance surface, as shown and described.

708,825. MACHINE FOR BLOWING GLASS. GEORGE F. WAGGERS, Baltimore, Va. Filed Oct. 12, 1901. Serial No. 73,161. (No model.)

Claim.—1. In a glass-blowing mechanism, a shaping-pot mounted in the path of the blowpipe, and comprising a disk-shaped pot, water-pipes rising from the rim thereof, and cylindrical shells revolvably seated over the water-pipes, and means to conduct water to the pipes.

2. In a glass-blowing mechanism, a shaping-pot mounted in the path of the blowpipe and comprising a disk-shaped pot mounted to swing on a vertical support, a series of perforated water-pipes rising vertically from the rim of the pot, cylindrical shells having open lower ends, and their upper ends revolvably seated to the upper ends of the water-pipes, and a pipe to conduct water to the water-pipes.

3. In a glass-blowing mechanism, the combination of a pivotally-mounted blowpipe, and a shaping-pot in the path of the blowpipe, said shaping-pot comprising a body having a concave upper surface, a concave shaping-pot above the body, a series of perforated vertical water-pipes extending around the rim of the shaping-pot, and shells having open lower ends and closed upper ends revolvably seated to the upper ends of the water-pipes.



4. In a glass-blowing mechanism, the combination of a pivotally-mounted blowpipe, and a shaping-pot mounted to swing and to be moved vertically on its support, said shaping-pot comprising a body having a water-chamber having a concave cover, a shaper having a concave lower portion supported above the body, perforated vertical water-pipes rising through the rim of the shaper, and shells having open lower ends and closed upper ends revolvably seated to the upper ends of the water-pipes.

5. In a glass-blowing mechanism, the combination of a rotatably-mounted shaft, means to rotate the shaft about its axis to swing a blowpipe, a bearing-shoe rotatably projected transversely through the shaft, a blowpipe connected to said shoe, a valve in the shoe, a piston in the shoe, a pulley on the shaft, a pulley on the belt of the latter piston, and means to rotate the pulley.

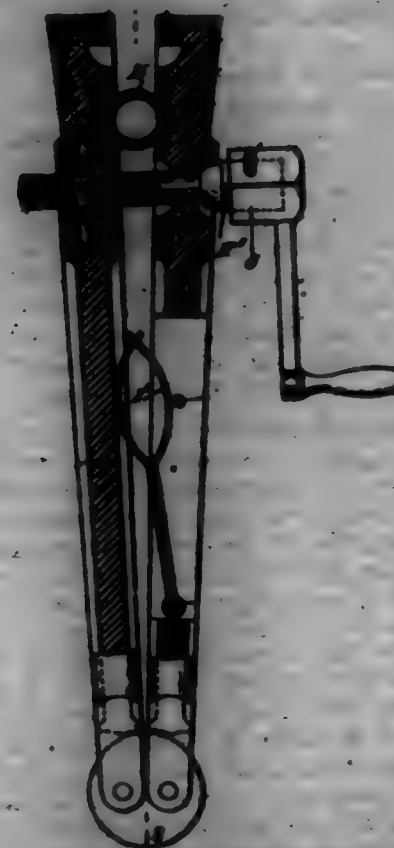
6. In a glass-blowing mechanism, the combination of a rotatably-mounted shaft, means to rotate the shaft on its axis to swing a blowpipe, a bearing-shoe rotatably projected transversely through the shaft, a blowpipe connected to said shoe, a valve-chamber connected to and having communication with the shoe, and a valve in the valve-chamber to control the passage of air through the chamber, the shoe and the blowpipe.

7. In a glass-blowing mechanism, the combination of a rotatably-mounted shaft, means to rotate the shaft on its axis to swing a blowpipe, a bearing-shoe rotatably projected transversely through the shaft, a blowpipe connected to said shoe, a valve-chamber connected to and having communication with the shoe, a valve in the valve-chamber to control the passage of air through the chamber, the shoe and the blowpipe, and means on the shoe and shaft to rotate the blowpipe.

8. The combination with a shaft 20 and the blowpipe revolvably mounted thereon, of means for rotating the blowpipe on its axis, comprising suitable supports, a shaft 30 journaled therein, a pulley thereon, jointed supporting-arms connecting the shafts 20 and 30 and supporting an intermediate shaft 45, pulleys on the intermediate shaft, belts connecting the respective pulleys, a lower pulley slidingly mounted on the shaft 20, a beveled pulley integral with the sliding pulley, and a beveled pulley on the blow-pipe, substantially as specified.

708,826. VISE. FRANK I. WAGGERS, Baltimore, Md. Filed Sept. 21, 1901. Serial No. 74,008. (No model.)

Claim.—1. A vise, comprising two jaws, one jaw being formed with a transverse V-shaped recess, the walls of which are in double-slip form, and with a central notch leading from the recess to the end of the jaw and provided with longitudinal teeth, and the other with a transverse V-shaped recess having longitudinally-extending corrugations and with a central notch leading from the recess to the end of the jaw and having longitudinal teeth, as set forth.



2. A vise, comprising jaws having gripping-surfaces on both sides, the jaws being independently pivoted to permit of their being reversed, as set forth.

3. A vise comprising jaws, each having gripping-faces on both sides, cheeks carrying the jaws, and a pivot-plate on which the cheeks are independently pivoted to allow of reversing the jaws, as set forth.

4. A vise comprising jaws, each having gripping-faces on both sides, cheeks carrying the jaws, a pivot-plate on which the cheeks are independently pivoted to allow of reversing the jaws, a screw-rod screwing in one of the cheeks and engaging the other cheek, and a spring pivoted on one of the cheeks and extending with its free end between the other cheek and a removable pin on the cheek on which the spring is pivoted, as set forth.

5. A vise, comprising jaws having transverse and longitudinal roughened gripping-faces on one side and plain or smooth gripping-faces on the other side, a pivot-plate to which the cheeks of the jaws are independently pivoted to permit of their being reversed, and means for opening and closing said jaws, as set forth.

6. In a vise, the combination with two jaws having gripping-surfaces on both sides, and independently pivoted as to permit of their being reversed, and means for closing the jaws, of a spring carried by one of the jaws, and a removable stop on one jaw and against which and the other jaw the spring is adapted to engage, as set forth.

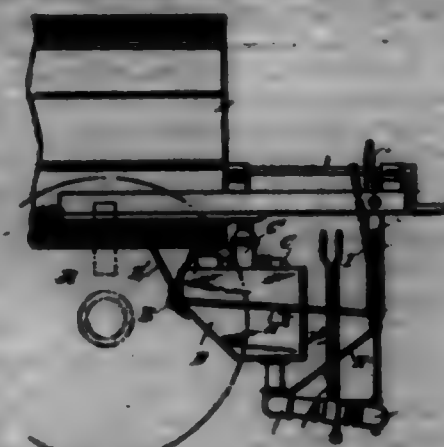
7. A vise, comprising two jaws having gripping-surfaces on both sides, cheeks carrying the jaws, a screw-rod working loosely in one cheek and screwing into the other, a pivot-plate to which the cheeks are independently pivoted, a pivoted spring carried by one cheek, and a removable pin carried by the cheek carrying the spring, as set forth.

708,827. ROAD-OLING MACHINE. THOMAS F. WHITE, Ohio. Filed Sept. 12, 1901. Serial No. 73,162. (No model.)

Claim.—1. In a road-olting machine, the combination with a storage-tank, of suitable hangers, a frame suspended by said hangers, a distributing-tank carried by the frame and in communication with the storage-tank, a distributing-pipe connected with the distributing-tank and supported on the frame, and means for vertically adjusting the frame and the device thereon.

2. In a road-olting machine, the combination with a tank, of front hangers, rear hangers having suitable guideways, a frame pivoted to the front hangers and confined in the guideways of the rear hangers, a distributing-pipe carried by the frame and having communication with the tank, and means for adjusting said frame and the device supported thereon.

3. In a road-olting machine, the combination with a suspended frame, and an elevated tank, of a perforated distributing-pipe carried by the frame and having a plug, connecting-pipes leading from the tank and communicating with the ends of the distributing-pipe, controlling-valves fitted in the connecting-pipes, levers independently mounted on the frame at points between the valves and disposed in close relation for simultaneous operation, and individual connections between the levers and the valves.



4. In a road-olting machine, the combination with a perforated distributing-pipe, of a gauge shaped circumferentially to said pipe and adjustable axially thereon, said gauge being provided on its under side with a series of transverse slots, and the upper side of said gauge being divided longitudinally and flanged to receive suitable transverse fasteners.

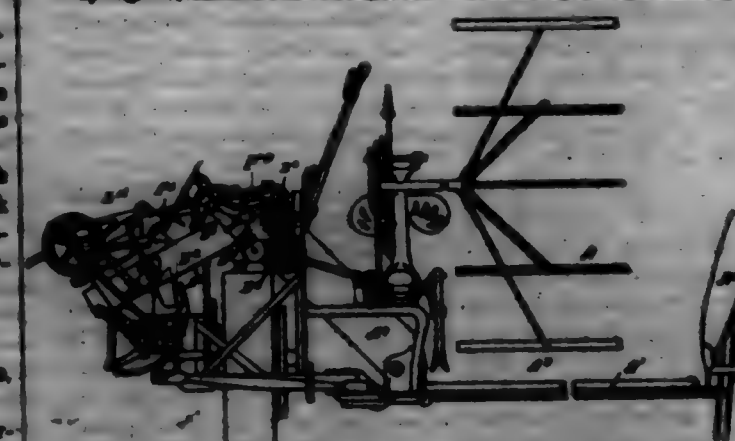
5. A road-olting machine, having a distributing-pipe provided with discharge-openings and dotted gauges arranged longitudinally on said distributing-pipe and adjustable axially thereon to change the relation of the slots in the gauges to the openings in the distributing-pipe, and gauges being adjustable independently one of the other.

6. A road-olting machine, having a distributing-pipe provided with discharge-openings, dotted gauges arranged longitudinally on said distributing-pipe and adjustable axially thereon, the gauges being adjustable independently one of the other, and means for clamping the gauges circumferentially around the distributing-pipe.

7. In a road-olting machine, the combination of a perforated distributing-pipe, means dividing said pipe into sections, valved feed-pipes arranged to control a liquid-supply to independent sections of said pipe, and a series of gauges having openings and arranged longitudinally of the perforated distributing-pipe, each gauge being adjustable axially on said distributing-pipe to vary the relation of its openings to the openings in the distributing-pipe.

8. In a road-olting machine, the combination with a suitable vehicle, and a tank, of the front and rear hangers, a frame pivoted to the front hangers and suspended in its operative position by the rear hangers, an adjusting-shaft having operative connection with the frame to adjust the latter vertically, and distributing device carried by said frame.

708,828. GRAIN-HUSKING HARVESTER. WILLIAM E. WHITELY, Springfield, Ohio. Filed Oct. 24, 1902. Serial No. 84,846. (No model.)



Claim.—1. In a grain-husking harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts to elevate the grain from the horizontal grain-conveying belt to the blower-deck, a blower mechanism, a blower-deck intermediate between the grain elevator and blower mechanism, a belt-adjuster mechanism, supported on the elevator portion of the machine independent of the blower mechanism, one member thereof having downwardly-projecting longitudinally and crosswise disposed teeth opening over and into the path of the belts of the grain, said member extending downward and obliquely over the forward end of the blower-deck and having an orbital reciprocal movement thereon.

rather than the movement of the heads of the grain in approximately the vertical plane of the member, the movement of the member in the lower portion of its orbit being stabbeward and binderward, whereby the butts of the grain are pierced, compressed and carried down the binder-deck toward the binder mechanism faster than the heads.

2. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binding mechanism arranged at the side of the machine and distant from the grain-elevator, a binder-deck intermediate between said grain elevator and binding mechanism for the reception of the cut grain from the elevator, a butt-adjuster mechanism, one member thereof consisting of an arm having downwardly-projecting teeth and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward, said member opening upon the top of the grain near the butts thereof and placing the grain at different points compressing it downward upon the binder-deck and positively moving it from the elevator to the binding mechanism; said butt-adjuster mechanism pivoted to swing parallel to the plane of the binder-deck that the grain may be bound centrally of its length, be it long or short.

3. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the grain elevator and binding mechanism, a butt-adjuster mechanism connected with and supported upon the elevator portion of the machine independent of said grain-binder, one member of said butt-adjuster mechanism consisting of an arm having downwardly-projecting teeth lengthwise and crosswise disposed and located over the forward end of the binder-deck to pierce the grain downward near the butts and move it binderward, a crank connected to and driving said arm, the shaft of said crank horizontally disposed and extending over and above the path of the butts of the grain, said shaft supported by the elevator-frame portion of the machine and driven by means of gearing secured to the front end of one of the grain-moving roller-shafts; another member of said butt-adjuster mechanism consisting of a grain-depressor pivotedly supported and located upon one side of the mid-toothed arm member of the butt-adjuster, to hold the grain down onto the binder-deck and prevent its rising from its depressed condition where forced by said toothed arm member; said grain-depressor moving in unison with said toothed arm butt-adjuster member in adjustment over the binder-deck parallel to the plane thereof for the purpose shown and described.

4. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the grain-elevator belts and binding mechanism, a butt-adjuster mechanism composed substantially of three coacting members, each pivotedly supported upon the elevator-frame-work of the machine independent of the grain-binder, one member thereof consisting of a wing-board extending from near the grain-delivery end of the elevator toward the binder mechanism along the path of the butts of the grain; another member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward, said member opening over and above the path of the butts of the grain in one portion of its orbit, and into and with the grain near the butts in its return movement between the grain-delivery end of the elevator and the binding mechanism, the teeth of said arm placing the grain downward at different points and compressing it upon the binder-deck and finally moving it toward the binder mechanism; another member thereof consisting of a grain-depressor, its upper end pivotedly connected to a fixed portion of the machine and extending over the grain binderward, along the side of the teeth of the butt-adjuster arm.

5. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between said elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward to pierce the grain downward at different points lengthwise near the butts, said arm and its teeth extending over a considerable portion of the grain lengthwise and crosswise to grasp the grain as it comes from the elevator and compress it down upon the binder-deck and positively move it binderward.

6. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binder mechanism, a binder-deck intermediate between the elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board at the butts of the grain extending from the elevator to the binding mechanism, another member thereof consisting of a vertically-reciprocating arm having a series of teeth on its under side downwardly-projecting and longitudinally and crosswise disposed and located over the forward end of the binder-deck, means for moving said member alter-

nately stabbeward and grainward and extending over a considerable portion of the butts of the grain, the grainward end of said arm having a greater vertical movement than its stabbeward end in moving grainward over the grain; said toothed arm and its teeth compressing the grain down upon the binder-deck and moving it finally and positively from the grain-delivery end of the elevator over the binder-deck to the binding mechanism.

7. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward, said member opening over and above the grain upon the binder-deck in one portion of its orbit and near the butts thereof, the teeth of said arm piercing the grain in its downward movement over the binder-deck at different points; said arm and teeth compressing the grain upon the binder-deck and moving it binderward, said butt-adjuster mechanism and grain-binding mechanism being each separately and independently adjusted in relation to each other for the purpose herein set forth and described.

8. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board at the butts of the grain and extending from the elevator to the binding mechanism over the binder-deck; another member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, said member acting over and upon the grain near the butts thereof in one portion of its orbit between the elevator and binding mechanism in conjunction with said wing-board, and connected to and driven from the elevator portion of the machine by a suitable mechanism above and forward of the grain-path and independent of the grain-binder mechanism and binder-deck portions of the machine; said butt-adjuster member pivoted to swing parallel to the plane of the binder-deck to adjust the different lengths of grain centrally to the butt.

9. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board pivotedly connected at its upper end by a suitable mechanism to the forward upper portion of the elevator mechanism in front of the path of the grain and extending over the binder-deck binderward, to swing parallel to the plane of the binder-deck; another member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, a horizontally-disposed crank-shaft to operate said arm, said shaft extending forward over the path of the grain on the binder-deck and connected by its crank to the grainward end of said toothed arm, a horizontal bearing for said shaft pivotedly connected to a part of the elevator-frame-work to allow the butt-adjuster mechanism to swing parallel to the plane of the binder-deck for the purpose of moving the grain centrally to the binding mechanism whether it be long or short, said crank-shaft having a gear secured thereto at its forward end and gears located on the front of the elevator-frame-work for driving said crank-shaft.

10. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a binder-deck cover located over the path of the grain from the elevator to the binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck and connected to the grain-elevator portion of the machine, a crank mounted upon said elevator parts for operating said arm, another member thereof consisting of a grain-depressor alongside of the teeth of the arm butt-adjuster member to depress the grain down upon the binder-deck, said depressor being pivotedly connected to a fixed part of the machine at its grainward end over the grain-path and extending over the grain binderward to move parallel to the plane of the binder-deck in unison with said toothed arm member of the butt-adjuster throughout its movement in adjusting the different lengths of grain central to the binding mechanism.

11. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck; a rotary crank mounted upon the elevator part of the machine connected to the grainward end of the arm for imparting a vertically-reciprocating, orbital mo-

tion to said arm, raising said arm and teeth above the grain and over it when moving in one portion of its orbit and into and compressing the grain in its return movement; said toothed arm member having a channel-shaped compressing portion above the points of its teeth to compress the grain downward on the binder-deck, a wing-board member of said butt-adjuster mechanism for the purpose of finally moving the grain from the grain-delivery end of the elevator to the binding mechanism under compression and a link connection between the stabbeward end of said arm and the wing-board.

12. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of an arm having a series of downwardly-projecting teeth on its under side, longitudinally and crosswise disposed thereto and located over the forward end of the binder-deck, a crank connected to the grainward end of said arm, the shaft of said crank horizontally disposed and extending forward of the grain-path, a vibrating link, the upper end of said link pivotedly connected to the stabbeward end of said arm, a wing-board member pivotedly attached to the elevator portion of the machine and extending binderward along the butts of the grain and pivotedly supporting said link, said crank and vibrating link operating to move the toothed arm member of the butt-adjuster vertically and orbitally over and above the path of the grain in one portion of its orbit toward the elevator and downward into and on the grain compressing it upon the binder-deck, and by the action of said crank finally moving the grain binderward in its return movement, a grain-depressor member of said butt-adjuster located upon one side of said toothed arm member, its grainward end pivotedly connected to a fixed portion of the machine, its stabbeward end extending binderward to hold the grain onto the binder-deck.

13. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism located at the forward end of the machine between the elevator and binding mechanism, one of its members consisting of a wing-board pivotedly connected to the elevator portion of the machine above the binder-deck and entirely independent of the binder adjustments, a vertically-inclined vibrating link pivotedly connected at its lower end to said wing-board, a toothed arm member of the butt-adjuster having an upwardly-extending portion pivotedly connected to the upper end of said link, said toothed arm member having downwardly-projecting teeth and located over the forward end of the binder-deck and operating over the grain near the butts in one portion of its orbit and into the grain to draw it down to the binder in its return movement; said vibrating link controlling all of the movements of the stabbeward end of said toothed arm member, a horizontal crank-shaft journaled over the path of the butts of the grain and supported upon the elevator portion of the machine and controlling all of the movements of the grainward end of said toothed arm.

14. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating orbitally-moving toothed arm mechanism, said arm member having a series of downwardly-projecting teeth in the line of its length and crosswise thereto and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward, said member operating over and above the path of the grain and near the butts thereof in one portion of its orbit, a binder-deck cover terminating at its forward edge rearward of the forward edge of the binder-deck, the grainward end of said toothed arm intermittently occupying the open unobstructed space for its free action forward of the binder-deck over rearward of the butt-line of the grain between the elevator and binding mechanism, the grainward end of said arm moving above the topmost point of the elevator grain-delivery and in close proximity thereto, to grasp the highest flow of the grain as it comes from the elevator and force it downwardly to the binder-deck and compress it thereon, and finally moving said grain over the binder-deck binderward.

15. In a grain-binding harvester, in combination, a cutting apparatus, a horizontal grain-conveying belt, a pair of grain-elevator belts between which the grain is raised and moved, two upper rollers for said grain-belts, a stripping-roller in near proximity thereto, a binding mechanism, a binder-deck intermediate between the stripping-roller and grain-binding mechanism, a butt-adjuster mechanism working in cooperation with said elevating mechanism and stripping-roller, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, a crank connected to and operating said arm, the shaft of said crank horizontally disposed and extending over and above the path of the butts of the grain, said shaft driven from one of said roller-shafts, said rollers and reciprocating arm operating to move the grain binderward, a single-piece metallic combination-box secured to the forward upper end of the elevator

portion of the machine forming a support for the forward ends of the upper roller-shafts of the upper and lower elevators and stripping-roller shaft, holding the same in working contact with each other and supporting said horizontally-disposed crank-shaft, a driving-gear mechanism for said arm member located on said combination-box and connecting to the forward end of said stripping-roller shaft, a wing-board pivotedly connected to the elevator portion of the machine independent of the binding mechanism and extending over the binder-deck binderward along the path of the butts of the grain.

16. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, means for moving said member alternately stabbeward and grainward, said member operating over and in the grain near the butts thereof between the elevator and grain-binder, a vibrating link, the upper end of said link pivotedly connected to the stabbeward end of said toothed arm member to guide its movement, a wing-board member pivotedly connected to the elevator portion of the machine and extending along the butts of the grain over the binder-deck, and pivotedly supporting said vibrating link near its stabbeward end, a crank pivotedly connected to the grainward end of said arm, the shaft of said crank horizontally disposed and extending over and above the path of the butts of the grain to cause said toothed arm to rise above the grain in one portion of its orbit and descend into the grain upon the binder-deck and compress said grain upon the binder-deck in its return toward the binder, a driving mechanism for said crank secured to the forward end of one of the grain-moving roller-shafts.

17. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one of its members consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, a rotary crank for operating said arm pivotedly connected to the grainward end of said arm below the main portion near the ends of the teeth, the crank-shaft being journaled low horizontally upon the elevator portion of the machine, said pivotal connection being below the arm to avoid height of the parts directly concerned.

18. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, a rotary crank, the shaft of said crank horizontally disposed and supported by the elevator-frame portion of the machine for said butt-adjuster, a gear-wheel journaled upon the elevator portion of the machine driving the shaft of said crank, the hub of said gear-wheel embracing said entire shaft of said crank and rigidly attached thereto forming a journal outside of the crank-shaft for the purpose of consuming space and using smaller parts.

19. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board pivotedly connected to the elevator portion of the machine and extending binderward over the binder-deck, another member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, a driving-crank for operating said arm, a crank-shaft for said crank and gearing for driving the same; a pivotal frame C', forming a journal-bearing for said crank-shaft, a single-piece metallic box B of the elevator-frame-work to which said frame C' is pivoted to allow said butt-adjuster members to swing parallel to the plane of the binder-deck and to contain the same in their proper working relations to each other and to the binder-deck throughout the adjustments of said butt-adjuster members.

20. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, an elevator, a grain-binder, a binder-deck intermediate between the elevator and grain-binder, a butt-adjuster mechanism, one member thereof consisting of a wing-board, its grainward end pivotedly connected to the elevator over the elevator-belts, said wing-board extending along and guiding the butts of the grain to the binder, a vibrating link pivotedly supported by said wing-board member, a vertically-reciprocating arm member having downwardly-projecting teeth and located over the forward end of the binder-deck, its stabbeward end pivotedly supported by said vibrating link, a crank-driving mechanism for operating said arm, a bearing pivoted to the elevator-frame in which the shaft of said crank is horizontally journaled, an adjusting-rod, its forward end pivotedly connected to said wing-board member and having notches in its rear end, a catch located on the binder-deck cover to engage with the notches on the rearward end of said adjusting-rod for the purpose of adjusting and positively locking said butt-adjuster mechanism in different positions for the purpose herein set forth and described.

21. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevator and

binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board pivotally connected to the elevator part of the machine near the elevator-belt, another member thereof consisting of a vertically-reciprocating orbitally-moving arm having downwardly-projecting teeth longitudinally and crosswise disposed and located over the forward end of the binder-deck, a pivotal swinging-link connection between the stubbleward end of said arm and the wing-board to guide said arm in its adjustment over the binder-deck parallel to the plane thereof; a driving-crank pivotally connected to the grainward end of said arm to operate said arm, the cranked shaft of said crank horizontally journaled in a connecting-frame to the grainward end of said wing-board member, another member thereof consisting of a grain-depressor pivotally connected to a fixed part of the machine under which the grain is forced by said toothed arm member; an adjusting-rod connecting to one or more of said members and extending within reach of the operator, and held in adjustment by a connection to a fixed part of the machine controlling all of said members in their adjustments while working in unison with each other.

22. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevating and binding mechanism, a butt-adjuster mechanism, an inclined shaft by which its principal members are pivotally connected to the elevating part of the machine and by means of which said members have adjustment over the binder-deck parallel to the plane thereof, a gear connection for operating one of the members of said butt-adjusting mechanism, said gear connection located on the elevating part of the machine and one member thereof being mounted on the upper end of and driven by said inclined shaft to allow said butt-adjuster to swing parallel to the plane of the binder-deck, a yoke-bracket G' pivotally surrounding the bearing of said inclined driving-shaft and holding said gear connection in engagement, a forwardly and rearwardly extending crank-shaft, the other member of said gear connection located on the forward end of said crank-shaft, a driving mechanism from one of the grain-moving rollers for said inclined driving-shaft, one member of the butt-adjuster consisting of a pivotal portion connected to said yoke-bracket, another member consisting of a toothed arm driven by said crank-shaft, said driving crank-shaft rotatably supported at its forward end by said pivoted member.

23. In a grain-binding harvester, in combination, an elevating and binding mechanism, a binder-deck intermediate between the elevating and binding mechanism, a butt-adjuster mechanism, an inclined pivot located outside the path of the grain and connected with the elevator part of the machine upon which two members of the butt-adjuster are arranged to swing together parallel to the plane of the binder-deck, one member consisting of a wing-board, and one of a vertically-reciprocating arm member having downwardly-projecting teeth and located over the forward end of the binder-deck, a driving-crank pivotally connected to the grainward end of said arm, a shaft for said crank horizontally disposed and extending over and above the path of the butts of the grain on the binder-deck, said crank and shaft mounted on said wing-board.

24. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck between the elevator and binding mechanism over which the grain passes to the binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a wing-board at the butts of the grain extending from the elevator over the binder-deck toward the binding mechanism to control the butts of the grain andwise in their downward passage to the binding mechanism, another member thereof consisting of a vertically-reciprocating arm having a series of downwardly-projecting teeth both lengthwise and crosswise disposed and located over the forward end of the binder-deck, a crank pivotally connected to the grainward end of said arm to operate same, an upright vibrating link, the upper end of said link pivotally connected to the stubbleward end of said arm, the lower end of said vibrating link pivotally connected to said wing-board member; said butt-adjuster toothed arm member having an orbiting movement over and above the grain in one portion of its orbit near the butts and into and with the grain in its return movement, the grainward toothed end of said butt-adjuster arm rising to a higher altitude than its stubbleward toothed part in moving grainward over the grain to embrace it and bring it down to and over the binder-deck toward the binding mechanism.

25. In a grain-binding harvester, in combination, an elevator mechanism, a binder-deck to one side of said elevator, a grain-binding mechanism located stubbleward of said binder-deck, a stripping-roller located between the elevator and binder-deck to lift the grain from the upper end of the lower elevator-belt onto the binder-deck, a butt-adjuster mechanism composed of the following members: a wing-board member extending from the elevator along the path of the butts of the grain over the binder-deck toward the binding mechanism, a vertically-reciprocating arm member having downwardly-projecting teeth and located over the forward end of the binder-deck, a crank driven from one of the grain-moving rollers and pivotally connected to the grainward end of said arm, a vibrating link the lower end of said link pivotally connected to said wing-

board member, the upper end of said link pivotally connected to the stubbleward end of said arm, said toothed arm member of the butt-adjuster having a grainward upward movement by said crank over the grain in one portion of its orbit and down into the grain to move said grain binderward in its return movement; the movement of said toothed arm member of said butt-adjuster being orbiting, its grainward portion rising higher above the grain on the binder-deck than its stubbleward non-toothed portion to grasp and gather the upflowing grain from the elevator and to sweep said grain downward, said arm and teeth acting to compress the grain and compact it on the binder-deck and finally moving it binderward, as shown and described.

26. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one of its members consisting of a channel-shaped arm having downwardly-projecting teeth upon its under channel side and located over the forward end of the binder-deck, means for moving said member alternately downward stubbleward, upward and grainward, the edges of said channel may engage with the grain and aid in compressing and holding it down to the binder-deck in conjunction with the teeth while being moved binderward.

27. In a grain-binding harvester, in combination, a grain elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a flexibly-divided toothed arm to yield upwardly to compress large or small quantities of grain, said teeth operating on top of the grain near the butts between the elevator and binding mechanism and located over the forward end of the binder-deck, means for moving said member in an orbit downward, stubbleward, upward and grainward, to rise above the grain in one portion of its orbit and down onto and into the grain in its return motion compressing and moving the grain binderward.

28. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of an arm having downwardly-projecting teeth on its under side and located over the forward end of the binder-deck, means for moving said member orbitally over and above the grain in one portion of its orbit and into and with the grain in its return motion, said toothed arm member being composed of two parts pivotally connected together and elastically controlled for the purpose of adaptation to the varying quantities of grain to be acted upon.

29. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of an arm having downwardly-projecting teeth and located over the forward end of the binder-deck, means for moving said member alternately downward, stubbleward, upward and grainward, said member acting on top of the grain near the butts and over and above the grain in one portion of its orbit and into and with the grain in its return motion, another member of said butt-adjuster mechanism consisting of a wing-board pivotally connected to the elevator portion of the machine at its grainward end, a vibrating link, the upper end of said link rising above the flow of the grain and connected to and supporting the stubbleward end of said arm, the lower end of said link pivotally connected to said wing-board near its lower edge.

30. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism adjustably and pivotally connected to the upper part of the elevator, one member thereof consisting of an arm having downwardly-projecting teeth and located over the forward end of the binder-deck, means for moving said member alternately downward, stubbleward, upward and grainward, the orbit of the grainward end of said arm member having a point higher above the butts of the grain than the orbit of its stubbleward end, the teeth on the stubbleward end of said arm approaching nearer to the wing-board member at the butts to move the butt portion of the grain only so that the last movement of the stubbleward end of said toothed arm will act to turn the butts of the grain and force them around downward to the binding mechanism, straighten the stalks lengthwise to make a straight, square-butt gavel.

31. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism located and operating between the elevator and grain-binding mechanism, one member thereof consisting of an orbitally vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, means for moving said member alternately stubbleward and grainward, said member moving over and above the grain near the butts thereof in one portion of its orbit and into and on the grain in its return movement, the grainward end of said toothed arm wider than its stubbleward end to act

over a greater area of grain at its grainward end near the elevator than at its stubbleward end for the purpose of moving a large mass of the grain from the elevator downward at each stroke to clear it, and its stubbleward end acting upon a smaller amount of grain to not clog the needle by the grain being pressed hard against it.

22. In a grain-binding harvester, in combination, a pair of grain-elevating belts, a grain-binding mechanism, a binder-deck intermediate between the elevator-belts and binding mechanism, a butt-adjuster mechanism, one member thereof consisting of a swinging wing-board at the butt of the grain, an inclined shaft pivotally connecting said board to the elevator part of the machine, another member thereof consisting of a vertically-reciprocating arm swinging with the wing-board and having a series of teeth downwardly projecting on its under side and located over the forward end of the binder-deck and extending over a considerable portion of the grain on the binder-deck at the butt-ends thereof, a pivotally-swinging link, the upper end of said link pivotally connected to the stubbleward end of said arm, the lower end of said link pivotally connected to and supported by said wing-board, a crank connected to and driving said arm, the shaft of said crank horizontally disposed and overhanging the path of the butt of the grain, a driving-gear located on the forward end of the shaft of said crank and connecting with one of the grain-moving roller-shafts, an adjusting-bar pivotally connected to said wing-board, a U-shaped grain-depressor, pivotally connected to fixed portion of the machine, the top portion of said depressor pivotally connected to said adjusting-bar and caused by means of said pivotal connections to swing parallel to the plane of the binder-deck in unison with the wing-board member and reciprocating toothed arm member throughout the various adjustments of all of said butt-adjuster parts.

23. In a grain-binding harvester in combination, a pair of grain-elevating belts, a grain-binding mechanism, a binder-deck intermediate between the elevator and binding mechanism on which the grain is received from the elevator, a butt-adjuster mechanism, one member thereof consisting of a swinging wing-board pivotally connected to the elevator part of the machine, and extending from the elevator along the path of the butt of the grain over the binder-deck to the binding mechanism, another member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, a vibrating swinging link, the upper end of said link pivotally connected to the stubbleward end of said arm, the lower end of said link pivotally connected to and supported by said wing-board, a crank connected to and driving said arm, the shaft of said crank horizontally disposed, a pivotal frame C' pivotally connected to the elevator portion of the machine forming a bearing for said horizontally-disposed crank-shaft and pivotally supporting said wing-board member, a vertically-inclined shaft for driving said crank-shaft and forming the pivot for the frame C', a single-piece metallic box B on the front top end of the elevator having a journal-support for said vertically-inclined shaft, said shaft driven from a grain-moving roller-shaft by a gear connection, an adjusting-bar having notches in its rear end and pivotally connected to the wing-board member and extending toward the operator's seat, a catch located on and secured to the binder-deck cover to engage the notches on the rearward end of said adjusting-bar, all of said butt-adjuster parts coacting in their operation in all positions of adjustment for the purposes shown and described.

24. In a grain-binding harvester, in combination, an elevator and binding mechanism, a binder-deck intermediate between the elevator and binding mechanism, a butt-adjuster mechanism located and operating between the elevator and binder over the binder-deck to adjust the grain centrally to the binder mechanism; one member thereof consisting of a vertically-reciprocating arm having downwardly-projecting teeth and located over the forward end of the binder-deck, a crank connected to and driving said arm, the shaft or axle of said crank horizontally disposed across the path of the travel of the grain over the binder-deck, a vertically-inclined shaft in front of the grain-path pivotally supported by the elevator portion of the machine to drive said crank-shaft, a pivotal frame pivotally connected to the elevator part of the machine to support said crank-shaft, a wing-board pivotally connected to the elevator portion of the machine and extending along the butt of the grain over the binder-deck binderward, a grain-moving roller pivotally supported by the elevator portion of the machine to drive said butt-adjuster mechanism, said shafts geared together to effect continuous motion to said toothed-arm butt-adjuster mechanism through all of its adjustments parallel to the plane of the binder-deck; said vertically-inclined driving-shaft being the axial pivot on which the toothed arm member and wing-board portion of the butt-adjuster swing.

25. In a grain-binding harvester, in combination, a cutting apparatus, a horizontal grain-conveying belt, an elevator and binding mechanism, an orbitally-reciprocating grain-butt-moving arm located at the inner end of the cutting apparatus and meeting ends of the horizontal grain-conveying belt and lower end of the two grain-elevating belts, a rotary crank connected to and driving said arm, the shaft of said crank horizontally dis-

posed, a swinging link to control the movements of said butt-moving mechanism, the forward end of said link pivotally connected to the upper end of said arm, the rearward end of said link pivotally connected to a portion of the harvester-framing, and an oscillating reel-support having pivotal joints forming a bearing for the crank-shaft operating said arm.

26. In a grain-binding harvester, in combination, a grain cutting and elevating mechanism, an orbitally-reciprocating grain-butt-moving arm located at the inner end of the cutting apparatus and meeting ends of the horizontal grain-conveying belt and elevator-belts, a crank connected to and operating said arm, the shaft of said crank horizontally disposed, a swinging link to control the movements of said butt-moving arm, the forward end of said link pivotally connected with the upper end of said grain-butt-moving arm, the rearward end of said link pivotally connected to a portion of the harvester-framing, and an oscillating reel-support having pivotal joints forming a bearing for the crank-shaft operating said crank and butt-moving arm, and a tubular bearing for said crank-shaft passing through and supported by said pivotal joints.

27. In a grain-binding harvester, in combination, a grain-cutting and grain-elevating mechanism, an orbitally-reciprocating grain-butt-moving arm located at the inner end of the cutting apparatus and meeting ends of the horizontal grain-conveying belt and elevator-belts, a crank for operating said butt-moving arm, the shaft of said crank horizontally disposed, a swinging link to control the movements of said butt-moving arm, the forward end of said link pivotally connected to the upper end of said grain-butt-moving arm, the rearward end of said link pivotally connected to a portion of the harvester-framing, and an oscillating reel-support having pivotal joints and forming a bearing for said crank-shaft, a tubular sleeve-bearing for said crank-shaft passing through said pivotal joints, said crank-shaft in its tubular-bearing pivot having a toothed gear and a chain-wheel mounted thereon and connected thereto, a reel-support consisting of said crank-shaft and its tubular sleeve-bearing supported by said pivotal joints, said chain-wheel operating the reel mechanism and the toothed gearing giving motion to both the fork crank-shaft and reel-chain mechanism.

28. In a grain-binding harvester, in combination, a grain cutting and elevating mechanism, an orbitally-reciprocating grain-butt-moving arm located at the inner end of the cutting apparatus and meeting ends of the horizontal grain-conveying belt and elevator-belts, a crank connected to and operating said butt-moving arm, the shaft of said crank horizontally disposed, a swinging link to control the movements of said butt-moving arm, the forward end of said link pivotally connected to the upper end of said grain-butt-moving arm, the rearward end of said link pivotally connected to a portion of the harvester-framing, an oscillating reel-support having pivotal joints and a tubular sleeve-bearing for said crank-shaft, the center of said crank-shaft and its tubular sleeve-bearing and the oscillating reel-support and the base supporting said reel on the harvester part of the machine being coincident, said crank-shaft receiving its motion from the stubble side of the harvester which also communicates motion to the reel from the same fixed source of power-supply.

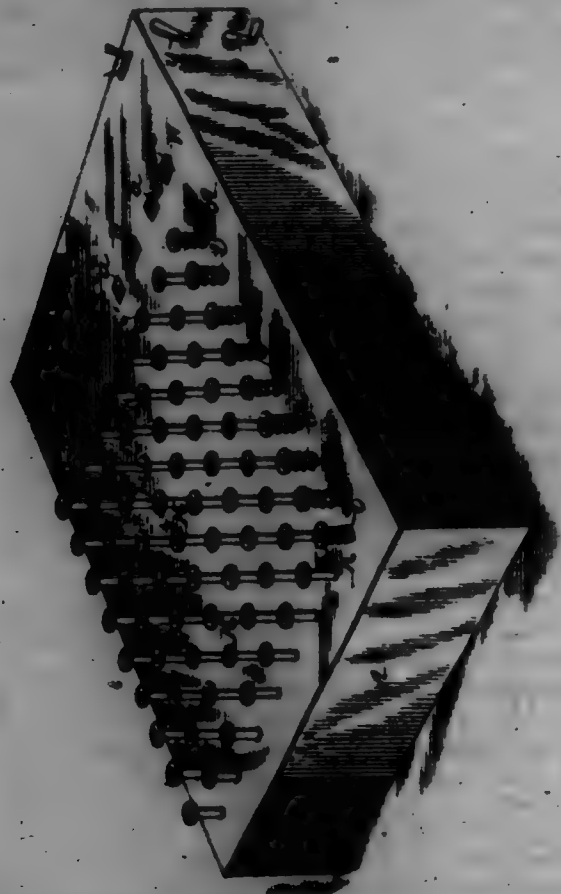
29. In a grain-binding harvester, in combination, a binding mechanism, a pair of grain-elevating belts, their rear sides wholly disconnected from each other and terminating in an open unobstructed space for the passage of grain longer than the width of said belts, a binder-deck between the elevator-belts and binding mechanism upon which the grain falls from the elevator, an orbitally-moving vertically-reciprocating grain-lifting toothed arm member at the rearward side of the grain-elevating belts and binder-deck, a driving-chain located at the rear of said elevator to impart motion to said toothed arm and also to the elevator mechanism substantially as specified.

708,829. MAGNETIC SEPARATOR. JAMES C. WILDER, East-point, Ga., assignor of one-half to Daniel C. Lytle, East-point, Ga. Filed Mar. 26, 1902. Serial No. 99,914. (No model.)



Claim.—In a device of the class specified, the combination with the first-mentioned having on its upper face two slots 7 and 8 arranged transversely of the natural flow of the material crossing the board, pole-pieces arranged in said slots with their working faces flush with that of the board, there being a plurality of sets of pole-pieces, each having oblique ends and the adjacent ends being arranged in such contiguity as to insure contact with said pieces of all of the material passing over the board, magnet-cores, side plates connected to the cores and to the pole-pieces, and core-windings connected in series, substantially as specified.

708,880. ADDING-MACHINE. EDWIN WHEWALL, Inland, Ill. Filed Mar. 12, 1898. Serial No. 95,005. (No model.)



Claim.—1. An adding-machine comprising adding-wheels, an actuating-shaft for each wheel arranged at right angles to the axis of the adding-wheel and a lock-releasing and gear-engaging bar, arranged parallel to said shaft, and a set of nine keys operating at right angles to the shaft and releasing-bar with a different throw upon the shaft for each key and an equal action upon the parallel bar for each key substantially as described.

2. An adding-machine comprising a series of adding-wheels of different denomination, shafts at right angles to the axes of the adding-wheels, nine gear-wheels for each shaft, a series of nine depressible keys bearing teeth adapted to engage the nine gear-wheels and having also cone projections, and a parallel push-bar having projections acted upon by the keys, and a device for unlocking the adding-wheels and engaging their actuating-gears, said device being operated by the push-bar substantially as described.

3. An adding-machine having each adding-wheel provided with an actuating-shaft for turning it arranged at right angles to the axis of the adding-wheel, and a lock-releasing and gear-engaging bar arranged parallel to said shaft, a set of nine keys operating at right angles to said shaft and bar and upon both of the same, and a set of steps located beneath the keys and at a distance below them varying in proportion to the value of the keys substantially as described.

4. In an adding-machine of the kind described, the combination with a series of spring-actuated depressible keys: of an actuating-shaft for the adding-wheels having small gear-wheels on said shaft corresponding to the keys and a lock-releasing and gear-engaging bar for the adding-wheel arranged parallel to said shaft and having a corresponding set of bearings for each key, the said keys being located between the said shaft and parallel bar substantially as described.

5. In an adding-machine of the kind described, the combination of a series of spring-actuated depressible keys each having teeth on one side and a cone projection on another, a shaft having a series of loose gears on the same provided with means for loosely connecting them to the shaft, a parallel push-bar with bearing-surfaces for the cones, the said bearing-surfaces being made as articulated blocks to turn in one direction but not

in the other, the said shaft and parallel bar being connected with the adding-wheel substantially as described.

6. In an adding-machine, the combination of an adding-wheel carrying a laterally-projecting flange with locking-notches in its inner edge and a rigid bevel-gear at its hub, a second bevel-gear adjustable on an axis at right angles to that of the adding-wheel, a rotary shaft carrying said adjustable bevel-gear, a locking-catch for the adding-wheel having a yoke connected by global-joints to the adjustable bevel-gear and a push-bar for shifting said locking-catch substantially as described.

7. In an adding-machine, the combination with the adding-wheel having a series of locking-notches opening toward the center of the wheel and a bevel-gear at the center, of a locking-catch and an adjustable bevel-gear both mounted to move together to unlock the wheel and engage its driving-gear by the same movement substantially as described.

8. In an adding-machine of the kind described, the carrying mechanism comprising a projection from the adding-wheel, said movable member acted upon thereby, said member being extended to and made to act upon the first of the series of keys of the next denomination so as to depress the said key at each complete revolution of the adding-wheel of lower denomination substantially as described.

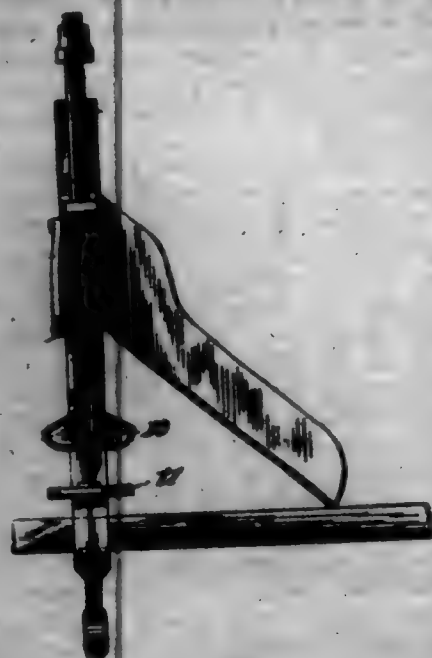
9. In an adding-machine of the kind described, the carrying mechanism comprising an adding-wheel having a lateral projection, a hinged bar having a roller acted upon by said projection and a right-angled projecting fork at the end, and a depressible key connected to the adding-wheel as described and having a pin or bearing upon which said fork rests substantially as described.

10. In an adding-machine of the kind described, the combination of the adding-wheel having lateral projection, a hinged bar arranged to be acted upon by said projection and loosely connected to the first of the series of keys to depress it, and a sliding supporting-bar for said hinged bar arranged to be adjusted to separate the hinged bar from the range of action of the adding-wheel substantially as described.

11. The combination with the adding-wheel having notches on the inner periphery of its flange: of a locking-catch having a global fulcrum in the middle, a bar pivoted to the outer end of said catch and a rock-shaft with arms connected to all of said bars for simultaneously unlocking all the adding-wheels substantially as described.

12. In an adding-machine, the combination with the series of adding-wheels bearing numbers on their faces and means for clamping them at zero on the backward movement: of a corresponding series of friction-wheels arranged in the same plane and bearing respectively upon the peripheries of said adding-wheels, said friction-wheels being out of contact with the adding-wheels when in one position, and to simultaneously turn and set the adding-wheels when rotated substantially as described.

708,881. FRUIT CORER AND CUTTER. WILLIAM T. ASHBY, Schenectady, Tenn. Filed July 22, 1891. Serial No. 69,365. (No model.)



Claim.—In a fruit corer and cutter the combination of the frame having guideways therefor, a lateral extension on said frame, a stem with a screw-threaded upper portion vertically movable in an opening in the top of the frame, a plunger secured to the stem and movably mounted in said guideways, a cover with cutters secured to the plunger and vertically movable therewith, a slide secured to the frame in advance of the plunger to coast with the cover, a nut on the screw-threads of the stem for adjusting the movement of the cover, a lever mounted in a guide of the

frame and pivoted to the extension, and a vertically-throwing and vertically-movable link pivoted to said plunger and said lever, substantially as specified.

708,882. BELL. PHILIP C. ANDER, East Hampton, Conn., assignor to the Bell Brothers Manufacturing Company, East Hampton, Conn., a Corporation of Connecticut. Filed Apr. 25, 1892. Serial No. 104,004. (No model.)

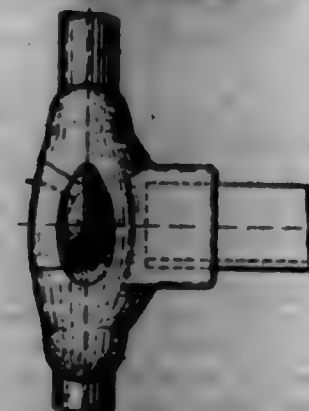


Claim.—1. A bell provided with a gong having a contact-leaf formed integral with and struck out of the material of the gong.

2. In combination in a bell, a base-plate, striking mechanism, means for actuating said striking mechanism, a gong provided with a contact-leaf formed integral with and struck out of the material of the gong and adapted to be engaged by the striking mechanism.

3. In a bell, in combination, a striking mechanism and strikers, a gong operatively arranged with relation to the strikers and provided with a contact-leaf pressed out of the material of the gong and lying in the path of movement of the strikers, and means for actuating the strikers.

708,883. REDHEAD-JOINT. CHARLES A. BLAISE, Pitts, Ill., assignor to the F. H. Earl Manufacturing Co., Pitts, Ill. Filed May 22, 1891. Serial No. 61,000. (No model.)



Claim.—In a bolted-joint, the combination of a vertical frame member having an upwardly-inclined outwardly-tapered finger of approximately oval shape provided with inclined upper and lower faces and having an inclined outer face extending to the inclined face at the lower end of the finger, said finger being also provided with inwardly-borel side edges, a horizontal frame member approximately L-shaped in cross-section and having one of its sides or flanges arranged horizontally, and a socket-plate provided with a horizontal L-shaped socket to receive the horizontal member and provided with an outwardly-flared elliptical opening receiving the projecting finger and fitting down behind the side edges thereof and interlocked with the same and capable of being disengaged automatically from the finger when it is lifted vertically, each end of the elliptical opening conforming to the configuration of and adapted to fit against the upper end of the finger, whereby the socket-plate is capable of being reversed to arrange the horizontal flange of the horizontal frame member either at the top or bottom, substantially as described.

708,884. COMPASS-SAW. JOHN F. CARY, Madison, Wis., assignor to E. C. Atkins & Company, Indianapolis, Ind., a Corporation of Indiana. Filed Mar. 17, 1892. Serial No. 95,006. (No model.)



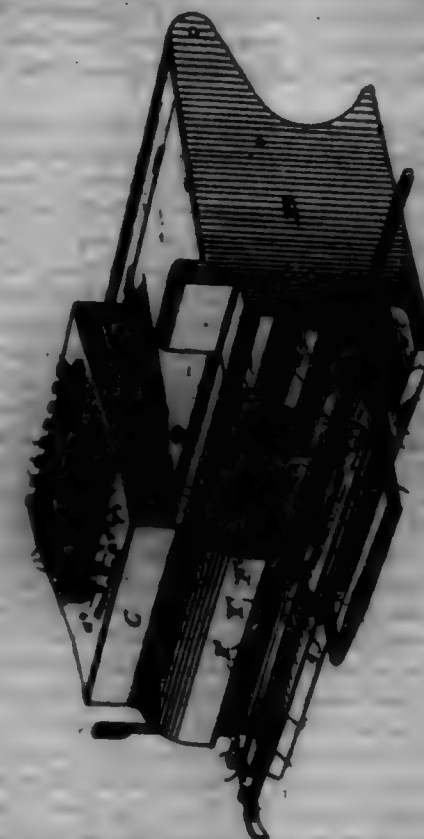
Claim.—1. The combination, in a saw, of a saw-handle, a blade-holder divided by a slit into two jaws and having a point or projection within said slit, a saw-blade having a notched and rounded rear end and the notches adapted to engage with said projection, and means

(in a thumb-bolt) for clamping the blade-holder jaws upon the saw-blade at any point of its adjustment.

2. The combination, in a saw, of a saw-handle, a blade-holder secured thereto having a projection adapted to engage with a notch in the saw-blade, a saw-blade having a rounded and notched rear end and an elongated perforation, and a bolt or screw passing through said blade-holder and blade, substantially as and for the purpose set forth.

3. The combination in a saw, of a saw-handle having a longitudinal perforation in that portion next to the blade-holder and a row of notches similarly disposed about said perforation, a blade-holder having a projection adapted to engage with one of said notches and a chuck adapted to pass through said perforation, a nut on said chuck, a saw-blade having a rounded and notched rear end and an elongated hole, the same being placed between the jaws of the blade-holder, said blade-holder being also provided with a projection adapted to engage with one of the notches in the saw-blade, and a bolt or screw passing through the blade-holder jaws and blade and clamping the same together, substantially as set forth.

708,885. MACHINES FOR PRINTING AND ENDOGRAPHING CHINESE. FRANK E. COTTRELL, Milwaukee, Wis. Filed Dec. 17, 1891. Serial No. 95,100. (No model.)



Claim.—1. In a check-printing machine, a series of movable type-block holders, a plurality of type-blocks fitted into slots in the same, each of said type-blocks having at least one more slot than type-block, means for normally keeping the holder in register whereby the empty slots are in line, mechanism for independently moving said type-blocks, whereby any one of their type-blocks may be brought in register with the empty slots of the type-holder in their normal position, a type-bed having a slot therein, in register with the empty line of slots in the holders and means for discharging the type-blocks into the empty bed-slot, substantially as set forth.

2. In a check-printing machine, a series of independent type-block holders, a plurality of type-blocks fitted into slots in the same, each of said type-blocks having at least one more slot in number than type-blocks, means for normally keeping a line of empty slots of the holders in register, mechanism for independently adjusting the aforesaid type-blocks, whereby any one of their type-blocks may be brought in register with the empty slots of the holders that are in their normal position, a type-bed, a slot in the latter in register with the line of slots in the holders and means for discharging the type-blocks from the holders into the printing-bed, another series of holders, a plurality of type permanently secured thereto, and means for connecting said holders to the aforesaid type-block holders whereby they are simultaneously actuated, substantially as set forth.

3. In a check-printing machine, a series of independent revolvable type-block holders, a plurality of type-blocks of various numerical denominations fitted into similar slots in the same, each of said type-blocks having a greater number of slots than type-blocks, means for normally keeping a line of empty slots of the holders in register, and a mechanism for releasing said holders from their normal position independently whereby any one of

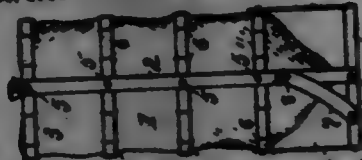
their type-blocks in register with the line of empty slots of the type-blocks in their normal position, a type-bed having a slot similar to, and in register with the line of empty slots of the type-block holders when the latter are in their normal position, a push-rod adapted to be reciprocated through a line of empty slots of the type-blocks, and a second series of reversible figure-type-blocks having a plurality of type-figures secured thereto, each of which is connected to one of the reversible type-block carriers, whereby when any one of the latter are released to bring a type-block of any desired denomination to the normal line of the empty slots, the aforesaid type-block will be simultaneously revolved and bring a like amount in figure to a predetermined point on the same horizontal plane as the face of the type-block, a paper-carriage adapted to be reciprocated under the type-bed, and figure-type, and a printing-lever under the paper-carriage, substantially as set forth.

4. In a check-printing machine, two series of reversible type-blocks at a predetermined distance apart, one of said series carrying blocks of adjustable type having words in various numerical quantities upon the face thereof, and the other series of holders having the same numerical quantities in figures permanently secured thereto, means for simultaneously actuating the type-blocks, whereby the same numerical quantity in words and figures are brought to a common printing-plane, a type-bed adjacent to the type-blocks carrying the adjustable type-block, and means for discharging the latter into the type-bed, a paper-carrier adapted to be reciprocated under the common printing-plane of the two series of type-blocks, and means for impressing the type upon a blank, substantially as set forth.

5. In a check-printing machine, two series of reversible type-blocks at a predetermined distance apart, one of said series having blocks of type loosely fitted in slots therein, there being at least one more slot than type-blocks, and a series of steps upon the type-blocks corresponding to the type-slots, whereby the holder is checked in one direction at various distances, bolts arranged to oppose said steps and springs to actuate said holders in opposition to bolts, levers connected to the bolts, actuating-keys to the levers, mechanism for shifting certain of the levers whereby they engage different bolts, and another series of lever-arms connected to the aforesaid levers over the other series of type-blocks, a series of steps arranged upon the said type-blocks, bolts in opposition to the steps and connected to the lever-arms whereby both series of holders are simultaneously actuated, springs arranged to actuate the last-named holders, and means for returning both series of holders to their normal position simultaneously, a slotted type-bed adjacent to the first-named series of holders, a push-rod in the path of the slots, and at right angles thereto, and in line with the slotted type-bed, whereby the blocks of the type in the latter are pushed into the type-bed, a paper-carriage under the latter, and printing-strips arranged under the carriage in line with the type-bed, and a second series of type-blocks, means for automatically shifting the carriage in a longitudinal direction with relation to the type-bed and last-named series of type-blocks, substantially as set forth.

6. In a check-printing machine, a series of movable type-block holders, a plurality of type-blocks of various numerical denominations fitted into slots in the same, the first two of said type-blocks having type-blocks of fractional denomination of currency fitted therein, the remainder of said type-blocks being provided with a series of empty slots, means for normally keeping the holders in register whereby the empty slots and zero type-blocks of the fractional-currency holders are in line, mechanism for independently moving said type-blocks whereby any one of their type may be brought into register with the empty slots of the type-blocks in their normal position, a type-bed having a slot therein in register with the zero-blocks of the fractional-currency-type holders and the empty line of slots of the other type-blocks when said holders are in their normal position, and means for discharging their type into the empty bed-slot, substantially as set forth.

708,886. BANANA-CRATE. JOHN A. DAVENOR, Denton, N. H.
Filed Sept. 20, 1901. Serial No. 73,994. (No model.)



Claim.—1. A banana-crate composed of a pair of supporting-strips, a set of hoops placed one above another between the hoops and pivotally connected with the strips at opposite points of their perimeters by radially-disposed pivot-pins, a cork fastened to the hoops inside the same, and a detachable brace to hold the base-hoop at right angles with the supporting-strips.

2. A banana-crate composed of a set of hoops, a pair of supporting-strips pivotally conjoined to opposite sides of the hoops, a cork fastened to the upper hoops of the set and held therein above the lower or base

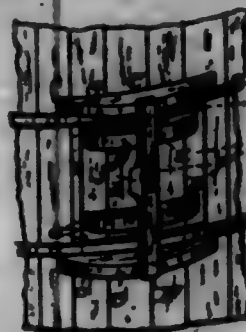
hoop, a brace to hold the lower hoop at right angles with the supporting-strips and other braces connecting the lower hoop with the hoop next above.

708,887. CAR-MOVER. JAMES W. DEAR, Dayton, Ohio, assignor of one-half to Philip W. Hinton and Jacob Kennel, Dayton, Ohio.
Filed Mar. 12, 1902. Serial No. 66,364. (No model.)



Claim.—Is a car-mover the combination of the frame provided with the central fulcrum with top bearing, and the hand-lever with concavity to ride the convex surface of said fulcrum, substantially as described.

708,888. SILE. FRANK J. HANCOCK, Buffalo, N. Y., assignor to Abraham J. Hines, Buffalo, N. Y. Filed Feb. 9, 1902. Serial No. 4,908. (No model.)



Claim.—1. An improved silo-tank consisting of a wooden tank having a series of manholes located one above the other, covers for the manholes, the meeting edges of the covers and manholes being oppositely beveled, cleats secured to the tank adjacent the manholes and serving to aid in holding the covers of the tank, said cleats being formed with double inclines, and a locking-bar pivoted to each of the covers and adapted to engage the inclines of the cleats to secure the covers in place.

2. A silo-tank comprising a wooden receptacle formed of staves, having a series of manholes, covers therefor, the meeting edges of the covers and manholes being oppositely beveled, double-inclined cleats secured to the tank above and below each manhole, and serving to aid in holding the cleats of the tank, a stud-bolt fixed centrally in the cover, and a locking-bar on said bolt and adapted to engage the cleats to bind the covers in the manholes, said locking-bars being adapted for but slight longitudinal play on the stud-bolt, whereby the elasticity of the material of said bar will aid in holding the cover in place.

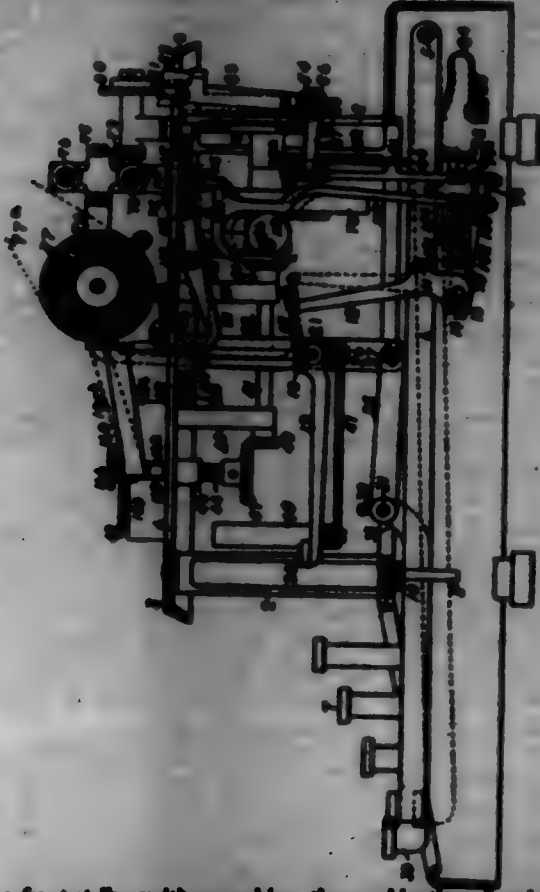
708,889. TYPE-WRITING MACHINE. JAMES FRANK, New York, N. Y., and CARL GARRIGLASS, Greenville, N. J.; said Garriglass assignor to said Frank. Filed Aug. 12, 1900. Serial No. 24,867. (No model.)

Claim.—1. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a rotary driving-shaft common to both spools, of worms mounted upon said shaft, a cam rotating with each spool, and a normally stationary mechanism arranged between the cam on each spool and said driving-shaft and including a pin to engage its associated worm, said mechanism being adapted to be actuated by said cam only when the latter is released by the ribbon, and to cause an engagement between said pin and said worm, and by the cooperation of said two last-mentioned devices to cause an endwise movement of said shaft and a reversal of the winding movement of the ribbon.

2. In a front-strike writing-machine, the combination of a platen, a pair of ribbon-spools arranged one at each side of the printing-point and forwardly of the platen, vertical shafts for said spools, gears upon said shafts, rearwardly-extending horizontal shafts having gears in mesh with said spool-shaft gears, a transverse horizontal shaft connected by gearing with said rearwardly-extending shafts, and means carried into action through the longitudinal movements of the ribbon for moving said transverse horizontal shaft into and out of engagement with said rearwardly-extending shafts.

3. In a front-strike writing-machine, the combination of a platen, a pair of ribbon-spools having upright axes arranged one at each side of the printing-point and forwardly of the platen, an arm mounted to rotate with

each spool and having a constant tendency away from the spool-axis and normally held in an inoperative position by the coils of ribbon, and a cam, pin mechanism, and a worm for causing the direction of longitudinal movement of the ribbon to be automatically reversed.



4. In a front-strike writing-machine, the combination of a platen, a pair of ribbon-spools having upright shafts arranged one at each side of the printing-point and forwardly of the platen, a ribbon-winding mechanism including a driving-shaft common to both spools, shafts extending at each side of the machine forwardly from said common driving-shaft and geared at their forward ends to said upright spool-shafts, and means actuated by the ribbon-winding mechanism for automatically reversing the longitudinal movement of the ribbon, said reversing means including an arm and a cam mounted to rotate with each spool and pin mechanism extending from said cam to said driving-shaft and operating to cause the latter to connect alternately with said spools to wind the same.

5. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a common rotary driver therefor, of a cam mounted for rotation with each spool, normally inactive device adapted to be connected to said rotary driver for enabling said driver by means of its rotary movement to effect a reversal of the winding movement of the ribbon, and means controlled by the ribbon for enabling said cam intermittently to operate said inactive device and cause the latter to cooperate with said rotary driver.

6. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of horizontal spools mounted upon vertical shafts, of a vertically-movable cam mounted on the under side of each spool and rotating therewith, but normally held in an inactive position, and constructed to move automatically to an active position when the ribbon is unwound from the spool, and device operated by said cam through its rotation about the spool-axis for causing the direction of the ribbon-winding movement to be reversed.

7. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a rotary driving-shaft common to both spools and capable of a worming movement, of a cam mounted for rotation with each spool, normally inactive device extending from said cam to said shaft, and means controlled by the ribbon for enabling said cam to operate said normally inactive device and cause the latter to cooperate with said shaft and thereby cause the shaft to worm and thereby become disconnected from one spool and connected to the other spool.

8. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and an endwise-movable driving-shaft common to both spools, of a cam mounted to rotate with each spool but normally held in an inactive position, and constructed to move automatically to an active position when the ribbon is unwound from the spool, and two sets of connections from said cam to said driving-shaft, each of said sets of connections being constructed to be operated by its cam and to then coast with said shaft to cause endwise movements of said shaft independently of the other of said sets of connections.

9. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a cam mounted for rotation with each spool, a ribbon-controlled arm rotating with each spool and mounted independently of the cam but connected thereto, and device operated by said cam through their rotation about the spool-axis for causing the direction of the ribbon-winding movement to be reversed.

10. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a pivoted arm arranged at the spool-axis and a cam mounted to rotate with each spool, said arm having a tendency away from the spool-axis but being normally held by the coils of the ribbon in an inoperative position, together with said cam, the latter being arranged upon the outside of the spool and connected to said arm, and device operated by said cam, when permitted to move to an active position by reason of the release of said arm from the control of the coils of the ribbon, for reversing the direction of the winding movement.

11. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a self-shifting driving-shaft common to both spools, of a cam mounted to rotate with each spool, an arm independently mounted to rotate with each spool and connected to the cam, said arm and cam being held in inoperative positions by the coils of ribbon, and connection extending from said cam to said shaft and operated by said cam when the latter moves to active positions by reason of the release of said arm from the control of the ribbon-coils, for causing said shaft to disconnect itself from the full spool and reattach itself to the empty spool.

12. In a front-strike type-writing machine, the combination with a platen, of ribbon-winding mechanism, including a pair of spools having upright axes located upon opposite sides of the printing-point and forwardly of the platen, an elbow-lever pivoted upon the flange of each spool and comprising an upright arm arranged at or near the spool-axis and a horizontal arm extending beneath the lower spool-flange, a vertically-movable cam carried upon the under side of the spool-flange and normally sustained in an inactive position by the horizontal arm of said elbow-lever, the upright arm of which is forced toward the spool-axis by the coils of the ribbon, and means operated by said cam upon the descent thereof when the elbow-lever is released from the control of said ribbon, for causing the direction of the ribbon-winding movement to be reversed.

13. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a normally inactive cam connected to each ribbon-spool and controlled by the ribbon, and device operated by said cam for causing the direction of the ribbon-winding movement to be reversed, each of said cams being provided with a dwell portion for maintaining said reversing device in operative position during further rotation of the spool at the reversing operation.

14. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a cam mounted for rotation with each spool but normally held in an inactive position, and constructed to move automatically to an active position when the ribbon is unwound from the spool, and device operated by said cam through its rotation about the spool-axis for causing the direction of the ribbon-winding movement to be reversed, each of said cams being provided with a dwell portion for maintaining said reversing device in operative position during further rotation of the spool at the reversing operation.

15. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a driving-shaft connected to both spools, of a cam arranged at each spool, normally inactive device extending from said cam to said shaft, and means controlled by the ribbon for enabling said cam to operate said normally inactive device and thereby cause the shaft to become disconnected from one and connected to the other spool, each of said cams being provided with a dwell portion for maintaining said reversing device in operative position during further rotation of the spool at the reversing operation.

16. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of an arm and a cam mounted to rotate with each spool, said arm having a tendency away from the spool-axis but being normally held by the coils of the ribbon in an inoperative position, together with said cam, and device operated by said cam, when permitted to move to an active position by reason of the release of said arm from the control of the coils of the ribbon, for reversing the direction of the winding movement, each of said cams being provided with a dwell portion for maintaining said reversing device in operative position during further rotation of the spool at the reversing operation.

17. In a front-strike type-writing machine, the combination with a platen, of ribbon-winding mechanism including a pair of spools having upright axes located upon opposite sides of the printing-point and forwardly of the platen, an elbow-lever pivoted upon a flange of each spool and comprising both an upright arm arranged at or near the spool-axis and a horizontal arm extending beneath said flange, a vertically-movable

can mounted upon the under side of the spool-hinge and normally contained in an inactive position by the horizontal arm of said elbow-lever, the upright arm of which is forced toward the spool-axis by the pull of the ribbon, and means operated by said cam upon the descent thereof when the elbow-lever is released from the control of said ribbon for causing the direction of the ribbon-winding movement to be reversed, each of said cams being provided with a dwell portion for maintaining said reversing devices in operative position during further rotation of the spool at the reversing operation.

18. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a device mounted to rotate with each spool and to be held in an inactive position by the coils of the ribbon, a cam with which said spool device co-operates, and means controlled by said cam for causing the direction of the ribbon-winding movement to be reversed, the construction and arrangement being such that when said device is liberated from the coils of the ribbon it co-operates with said cam to enable the latter to cause an operation of said reversing means, and such that said reversing means move at once to an active position and remain there during the continued rotation of the spool in an unwinding direction at the reversing operation.

19. In a type-writing machine, and in an automatic ribbon winding and reversing mechanism, the combination with a pair of spools and a self-shifting driver connected to both spools, of a ribbon-controlled cam for each spool, and connections from said cams to said driver, the construction and arrangement being such that a cam is automatically called into operation by reason of the longitudinal movement of the ribbon, and through its said connections causes a shifting movement to be effected by said driver, each of said cams being provided with means for enabling said connections to remain in their active positions during a continued winding of the ribbon upon the full spool by said driver while the shift is being effected.

20. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a common driver for the spools, of a pair of tripping members one of which is mounted upon said driver, and one of which constantly tends to engage the other, a releasable device normally preventing an engagement of said tripping members, and a ribbon-controlled device for forcing said releasable device to a releasing position.

21. In a type-writing machine, the combination of a pair of ribbon-spools, a self-shifting driver common to both spools and provided with a tripping device, a trip-pin normally tending to engage said tripping device, means normally holding said trip-pin out of operative position, and means rotating with one of said spools for moving said holding means to a position for permitting said trip-pin to move into engagement with said tripping device.

22. In a type-writing machine, the combination with a pair of ribbon-spools, of a self-shifting driver common to both spools and provided with a tripping device, a trip-pin normally tending to engage said tripping device, a device on the framework between the spool and the tripping device, and normally holding said trip-pin out of operative position, and means operable through the longitudinal movements of the ribbon for forcing said holding device to release said trip-pin.

23. In a type-writing machine, the combination with a pair of ribbon-spools, of a self-shifting driver connected to both spools and provided with a tripping device, a trip-pin normally tending to engage said tripping device, a device normally holding said trip-pin out of active position, a device mounted to rotate with each spool and to be held in inactive position by the coils of ribbon, and means called into action by said spool devices when released by the ribbon for forcing said pin-holding device to release said pin.

24. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver connected to both spools, a pair of tripping members one of which is mounted upon said driver, and one of which constantly tends to engage the other, a device normally preventing such engagement, a ribbon-controlled cam connected to a spool and rotating therewith, and means for enabling said cam to cause an engagement of said tripping members.

25. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver connected to both spools, a pair of tripping members one of which is mounted upon said driver, and one of which constantly tends to engage the other, a cam mounted so that it may rotate with a spool, and mechanism controlled by the said cam and extending to said last-mentioned tripping member, and including a device which normally prevents movement of the latter.

26. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, and one of which constantly tends to engage the other, a cam mounted so that it may rotate with a spool, and a releasing device controlled by the said cam and extending to said last-mentioned tripping member, said cam being provided

with a dwell portion for holding said releasing device in operative position during the continued winding of the ribbon upon the other spool at the shifting movement of said driver.

27. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, two sets of tripping members, one member of each set being mounted upon said driver, and one member of each set being mounted on the framework and constantly tending to move into engagement with its mate, devices normally preventing such engaging movements, and means controlled by the ribbon for forcing said devices to releasing position.

28. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, two sets of tripping members, one member of each set being mounted upon said driver and one member of each set being mounted on the framework and constantly tending to move into engagement with its mate, a cam associated with each of the last-mentioned tripping members, one cam being connected to one spool and the other cam being connected to the other spool, devices engageable by said cams and normally holding said tripping members out of engagement, and means called into action by the longitudinal movements of the ribbon for enabling said cams to force said holding devices to release said tripping members.

29. In a type-writing machine, the combination with a pair of ribbon-spools, of a driving-shaft common to both spools, a pair of worms upon said shaft, a pair of tripping-pins tending normally to engage said worms, devices normally holding said tripping-pins out of engagement with said worms, said holding devices being arranged on the framework and normally disconnected from the spools, and means operating automatically through the longitudinal movements of the ribbon for forcing said holding devices to release said tripping-pins one at a time, whereby said shaft is caused to drive the spools alternately.

30. In a type-writing machine, the combination with a pair of ribbon-spools, of a driving-shaft common to both spools, a pair of worms upon said shaft, a pair of tripping-pins tending normally to engage said worms, devices normally holding said tripping-pins out of engagement with said worms, a cam arranged at each spool, and means called into action through the longitudinal movements of the ribbon for enabling said cams to force said holding devices to release said pins.

31. In a type-writing machine, the combination with a pair of ribbon-spools, of a driving-shaft common to both spools, a pair of worms upon said shaft, a pair of tripping-pins tending normally to engage said worms, a cam arranged at each spool, and an arm mounted to rotate with each spool and to be locked by the coils of the ribbon, said arm being constructed to co-operate with the cams when released by the ribbon, to enable the cams to release said tripping-pins.

32. In a type-writing machine, the combination with a pair of ribbon-spools, of a driving-shaft common to both spools, a pair of worms upon said shaft, a pair of tripping-pins tending normally to engage said worms, a cam arranged at each spool, and an arm mounted to rotate with each spool and to be locked by the coils of ribbon, said arm being constructed to co-operate with the cams, when released by the ribbon, to enable the cams to release said tripping-pins, and said arm being provided with dwell portions to enable said pins to remain in operative position during the winding movements of said shaft and the accompanying rotation of the spools.

33. In a type-writing machine, the combination with a pair of ribbon-spools, of a driving-shaft connected to both spools, a pair of worms upon said shaft, tripping-pins 140, springs 147, cams 128, connections from said cams to said tripping-pins, and arms 126 connected to said cams 128.

34. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, a spring normally pressing one of said members toward the other, a second spring for opposing the first spring and normally holding said tripping members apart, and means controlled by said ribbon-winding mechanism for overcoming the opposition of said second spring and thereby releasing said spring-pressed tripping member, so that the latter may engage its mate.

35. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, a spring normally pressing one of said members toward the other, a second spring for opposing the first spring and normally holding said tripping members apart, an arm mounted to rotate with each spool and to be locked by the coils of the ribbon, and means called into action when said arm is released by the ribbon, for overcoming the opposition of said second spring and thereby releasing said spring-pressed tripping member so that the latter may engage its mate.

36. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, a spring normally pressing one

of said members toward the other, a second spring for opposing the first spring and normally holding said tripping members apart, a cam arranged at each spool, and means called into action by the longitudinal movements of the ribbon for causing said cam, during the unwinding movement of the spool, to overcome the opposition of said second spring and thereby release said spring-pressed member so that the latter may engage its mate.

37. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, a spring normally pressing one of said members toward the other, a second spring for opposing the first spring and normally holding said tripping members apart, a cam arranged at each spool, and means called into action by the longitudinal movements of the ribbon for causing said cam, during the unwinding movement of the spool, to overcome the opposition of said second spring and thereby release said spring-pressed member so that the latter may engage its mate, said cam being provided with a dwell portion, so as to hold said second spring in an inoperative position during the winding action of said shaft and the accompanying spool movement.

38. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, a pair of tripping members one of which is mounted upon said driver, a spring normally pressing one of said members toward the other, a second spring for opposing the first spring and normally holding said tripping members apart, a cam arranged at each spool, and an arm mounted to rotate with each spool and to be incited by the coils of the ribbon, said arm being constructed to cooperate with the cam when released by the coils of the ribbon, to enable said cam to overcome the opposition of said second spring and thereby release said spring-pressed tripping member, so that the latter may engage its mate.

39. In a type-writing machine, the combination with a pair of ribbon-spools, of a driver common to both spools, two sets of tripping members, one member of each set being mounted upon said driver, springs for normally pressing one member toward the other member of each set, springs for opposing said trip-springs and normally holding said tripping members apart, and means controlled by said ribbon-winding mechanism for overcoming the opposition of said opposing springs and thereby releasing said spring-pressed tripping members so that they may engage their mates.

40. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, and a driving-shaft, of a worm on said shaft, trip-pin 140, spring 147, lever 133 controlling said trip-pin, spring 149, cam 126, and arm 126 controlling said cam.

41. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a driving-shaft common to both spools, of a pair of worms upon said shaft, trip-pins 140, springs 147, levers 133 controlling said trip-pins, springs 149, cam 126, and arm 126 controlling said cam.

42. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a driving-shaft common to both spools, of a pair of worms upon said shaft, trip-pins 140, springs 147, levers 133 controlling said trip-pins, springs 149, pin 123, cam 126 mounted upon said spools, and other-levers 125, 126, also mounted upon said spools and controlling said cam.

43. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a driving-shaft common to both spools, of a pair of worms upon said shaft, rods 138, springs 147, trip-pins 140, fingers 136, levers 133 controlling said trip-pins, cam 126, and arm 126 controlling said cam.

44. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools and a transverse driving-shaft common to both spools, of a pair of worms upon said shaft, rods 138, arm 126, trip-pin 140, bracket 141, fingers 136, levers 133, springs 149, cam 126, and other-levers 125, 126.

45. In a front-stroke type-writing machine, the combination with a platen, a carriage and a propelling-spring therefor, of ribbon-winding mechanism including a pair of spools arranged one at each side of the printing-point and forwardly of the platen, shafts 44, 45, 51, 52, 54, gears 47, 48, 49, 50, 54, 55, 56, 59, worms 146, pin 140, levers 133 controlling said trip-pins, cam 126, and other-levers 125, 126 controlling said cam.

46. In a front-stroke type-writing machine, the combination with a platen, a carriage and a propelling-spring therefor, of ribbon-winding mechanism including a pair of spools arranged one at each side of the printing-point and forwardly of the platen, shafts 44, 45, 51, 52, 54, gears 47, 48, 49, 50, 54, 55, 56, 59, worms 146, pin 140, springs 147, levers 133 controlling said pin, springs 149, cam 126, and other-levers 125, 126 controlling said cam.

47. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, and a spool-winding mechanism, including a rotary driving-shaft common to both spools, of an inde-

pendent mechanism extending from each spool to said shaft but normally disconnected from both the spool and the shaft for causing the direction of the ribbon-winding movement to be reversed by the operation of said shaft when said mechanism is connected thereto; and means for causing said mechanism to be connected to said shaft.

48. In a type-writing machine, the combination with a ribbon-winding mechanism including a pair of spools, and a spool-winding mechanism including a rotary driving-shaft common to both spools, of an arm mounted to rotate with each spool and to be incited by the coils of ribbon, and an independent mechanism extending from said arm to said shaft but normally disconnected from both said devices, for causing the direction of the ribbon-winding movement to be reversed, said independent mechanism being automatically connected to said arm and to said shaft when the arm is released by the coils of ribbon.

49. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, and a spool-winding mechanism including gears connected to said spools and also including an end-wise-movable driving-shaft provided with gears which are adapted to mesh with said spool-gears, of means for moving said shaft endwise to disengage one of said gears thereon from one spool-gear and to engage the other of said spool-gears thereon with the other spool-gear, said endwise-moving means including devices mounted upon said spools and constructed to be controlled by the ribbon, and also including devices extending from said spools to said shaft and normally disconnected from said ribbon-controlled devices but adapted to be incited upon by the latter when the spool becomes discharged of ribbon and is turned out upon said shaft and cause it to move endwise as it revolves.

50. In a type-writing machine, the combination with a ribbon-spool and a driver therefor, of a pair of normally disengaged tripping members, one of which is mounted upon said driver, devices extending from the other of said tripping members to said spool but normally disconnected from the spool, and means controlled by the ribbon for automatically acting on said devices and thereby causing said tripping members to become engaged to cause a shifting movement of said driver.

51. In a type-writing machine, the combination of a pair of ribbon-spools and a common driver therefor, of two sets of tripping members, one member of each set being mounted upon said driver, devices extending from the other tripping members to said spools but normally disengaged from the spools, and means controlled by the ribbon for automatically acting on said devices in alternation and thereby causing the tripping members of each set to become engaged in alternation and effect a back-and-forth shifting movement of said common driver.

52. In a type-writing machine, the combination with a pair of ribbon-spools and a rotary driving-shaft common to both spools, of a pair of worms upon said shaft, a pair of tripping-pins normally disengaged from said worms, and ribbon-controlled devices normally disconnected from said tripping-pins and mounted to rotate with said spools, the construction and arrangement being such that when either spool is discharged of ribbon the ribbon-controlled device thereon is automatically connected to its associated tripping-pin and the latter is engaged to its associated worm, whereby said shaft is caused to have an endwise movement.

53. In a type-writing machine, the combination with a pair of ribbon-spools of a rotary driving-shaft common to both spools, two worms upon said shaft, trip-pins normally disengaged from said worms, and an arm mounted to rotate with each spool and to be incited by the coils of ribbon, each of said arms being normally disconnected from its associated trip-pin, and the construction and arrangement being such that when said arm is released by the coils of ribbon it is automatically connected to said trip-pin and the latter is caused to engage said worm, whereby said shaft is caused to move endwise.

54. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of detachable spools, of automatically-operating means for causing the direction of the ribbon-winding movement to be reversed, said reversing means including an elbow-lever pivoted upon each spool and detachable therewith, one arm of said lever extending within the spool and being constructed to be incited by the coils of the ribbon, and the other arm thereof extending along the spool-flange, said last-mentioned arm being connected to the reversing device and being constructed to perform its reversing function when the first-mentioned arm is released by the coils of the ribbon.

55. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of interchangeable spools detachably mounted upon a pair of shafts, of a ribbon-controlled double cam mounted upon each spool and detachable therewith, and devices actuable by said cam for causing the direction of the ribbon-winding movement to be reversed, each of said cam being constructed to operate by a movement in one direction when its spool is placed upon one of said shafts, and by a movement in the other direction when its spool is placed upon the other of said shafts.

56. In a type-writing machine, the combination with a ribbon-wind-

ing mechanism, including a pair of interchangeable spools detachably mounted upon a pair of shafts, of a ribbon-controlled double cam mounted upon each spool and detachable therewith, and devices actuable by said cams for causing the direction of the ribbon-winding movement to be reversed, each of said cams being constructed to operate by a movement in one direction when its spool is placed upon one of said shafts, and by a movement in the other direction when its spool is placed upon the other of said shafts, and each cam being provided with a dwell portion between its ends, whereby said reversing devices are maintained in operative positions during the continued relative movements of the spools.

57. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of ribbons carried by upright shafts, a pair of horizontal shafts connected to said vertical shafts, and a driving-shaft for said horizontal shafts, of a pair of worms for said driving-shaft, a pair of devices extending from said worms to said spools and having trip-fingers for engaging said worms, and means arranged at the spools and normally disconnected from said trip-finger devices, for moving the latter so as to enable the trip-fingers to engage the worms.

58. In a type-writing machine, the combination with a ribbon-winding mechanism, including a pair of spools, of a ribbon-controlled cam mounted to rotate with each spool and having a dwell portion concentric to the spool-axis, and devices operated by said cam and held in working position by said dwell portions, for causing the direction of the ribbon-winding movement to be reversed.

59. In a type-writing machine, the combination with a carriage, a propelling-spring therefor, and a ribbon-winding mechanism operated by said carriage-spring and including a pair of spools, of an arm mounted to rotate with each spool and to be actuated by the coils of the ribbon and having a constant tendency outward or away from the spool-axis, mechanism operated by said arm for causing the direction of the ribbon-winding movement to be reversed, and a part-and-whole mechanism as 169, 170, arranged between said carriage-spring and said spools, for preventing an unwinding movement of the empty spools immediately after the reversing operation, by means of the outward pressure of said arms.

60. In a visible-writing machine, the combination with a platen and a type mechanism, of a ribbon-winding mechanism, including a pair of spools, an arm mounted to rotate with each spool and to be actuated by the coils of the ribbon thereon and having a constant tendency away from the spool-axis, devices operated by said arm for causing the direction of the ribbon-winding movement to be reversed, means arranged between the spools for moving the ribbon widthwise at each type-stroke to cover and uncover the printing-point, whereby a slack occurs at each type-stroke in the portion of ribbon extending between the spools, and means for frictionally opposing rotation of the spools, whereby after the reversing operation an unwinding movement of the empty spool is checked and the ribbon is rendered taut and enabled to move said arm toward the spool-axis during the initial winding movement of the empty spools and maintain them there.

61. In a type-writing machine, the combination with a platen and a type system, of a pair of ribbon-spools having upright axes arranged forwardly of the platen and one at each side of the type system, bearings 154, having ribbon-openings 155, and movable latched guards 160 overlying said openings.

62. In a type-writing machine having a top plate, as 2, the combination with a platen constructed to run over the top plate and a type system arranged forwardly of the platen, of a pair of ribbon-spools mounted upon vertical shafts and arranged above said top plate forwardly of the platen, and one at each side of the type system, and bearings 156 secured upon said top plate and having ribbon-openings 155 and releasable movable guards 160 overlying said pins.

63. In combination, a ribbon-spool carrying on its under side a cam which is adapted to move to and from the lower flange of said spool, means for guiding said cam in its movement, a pivoted arm arranged between the flange of the spool and adapted to be actuated by the coils of the ribbon, and means connecting said arm with said cam so that when the arm is moved toward the core of the spool by the winding of the ribbon it will raise and hold up said cam, but when the ribbon is unwound and releases said arm it will permit the cam to fall or drop away from the lower flange of the spool.

64. In combination with a ribbon-spool comprising a core and top and bottom flanges, two arms pivoted below the bottom flange, one arm extending through an opening up and between the flange of the spool and so as to be actuated by the coils of the ribbon, and the other arm extending horizontally, and a vertically-moving cam arranged exteriorly of and on the under side of said spool and connected to the last-mentioned arm.

65. In combination with a ribbon-spool comprising a core and upper and lower flanges, an elbow-lever pivoted on the under side of said lower flange and having a vertical cam which extends up substantially parallel with the core of the spool and a horizontal arm which extends substan-

tially parallel with the bottom flange of the spool and which is arranged anteriorly of said bottom flange, a vertically-movable cam connected to said horizontal arm, and means depending from the bottom flange of the spool for guiding the movement of said cam to and from said flange and for limiting its downward movement.

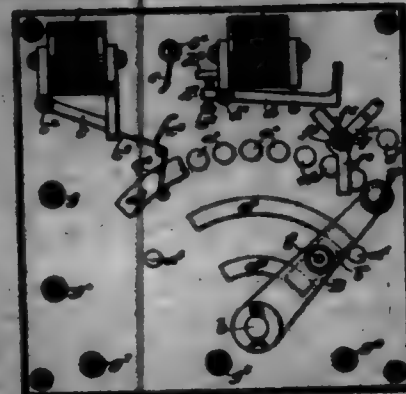
66. In combination with a ribbon-spool comprising a cylindrical core slotted off or flattened on one side and top and bottom flanges, an elbow-lever having a vertical arm adjacent said slotted-off or flattened side, said lever being pivoted on the under side of the lower flange and having a horizontally-arranged arm beneath said flange, a cam connected to the last-mentioned arm, and means depending from said flange for guiding said cam in its up-and-down movement relatively to said lower flange.

67. A ribbon-spool carrying on its under side a cam and also carrying a bent lever which is connected to said cam, one arm of said lever being adapted to be actuated by the coils of the ribbon to hold up the other arm and the said cam, and the said lever being adapted to release when the ribbon is unwound and to permit the said cam to descend or drop away from the spool.

68. A ribbon-spool having a bottom flange, a double cam having an intermediate dwell and mounted to move toward and away from said flange, and a ribbon-controlled lever pivoted to said spool and connected with said cam beneath the spool.

69. In combination, a ribbon-spool having a lower flange which is provided with a pair of depending cams in which is pivotally supported an elbow-lever comprising a horizontal arm 125 which extends outwardly from said pivot beneath the spool-flange, and a vertical arm 130 which extends upwardly through a hole formed in the spool-flange, a cam-plate 135 arranged beneath the lower spool-flange and provided upon its under side with a recess 120 which overhangs the outer end of the horizontal arm 125 of the elbow-lever, and shoulder means or pins 130 extending downwardly from the spool-flange and engaging perforations formed in the cam-plate.

708,840. ELECTRIC CONTROLLER. JOHN C. FILLARD, Philadelphia, Pa., assignor to The National Manufacturing Company of Pennsylvania, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 4, 1908. Serial No. 551,651. (No model.)



Claim.—1. The combination with an electric controller having contact-platen and an operating-arm for the same, of an over-ride and an under-ride switch, both of said switches being constructed to be closed by motion of said arm, substantially as described.

2. An electric controller having contact-platen, an operating-arm for the same, an under-ride switch, and an over-ride switch, one of said switches being operated by motion of the arm from its off to its on position and the other being operated by motion of said arm in the opposite direction, substantially as described.

3. The combination in an electric controller having contact-platen and an operating-arm, of two spring-controlled switches placed so as to be closed by motion of said operating-arm, one of said switches being provided with mechanism for automatically opening the controller-circuit when more than a predetermined quantity of current passes therethrough, the other having means for opening said current when the quantity of current in the same falls below a predetermined amount, substantially as described.

4. The combination with an electric controller having contact-platen and an operating-arm, of two manually-operated, mechanically-released switches, one of the same having means whereby it is closed by motion in one direction of the operating-arm and the other having means whereby it is closed by motion of said arm in the opposite direction, substantially as described.

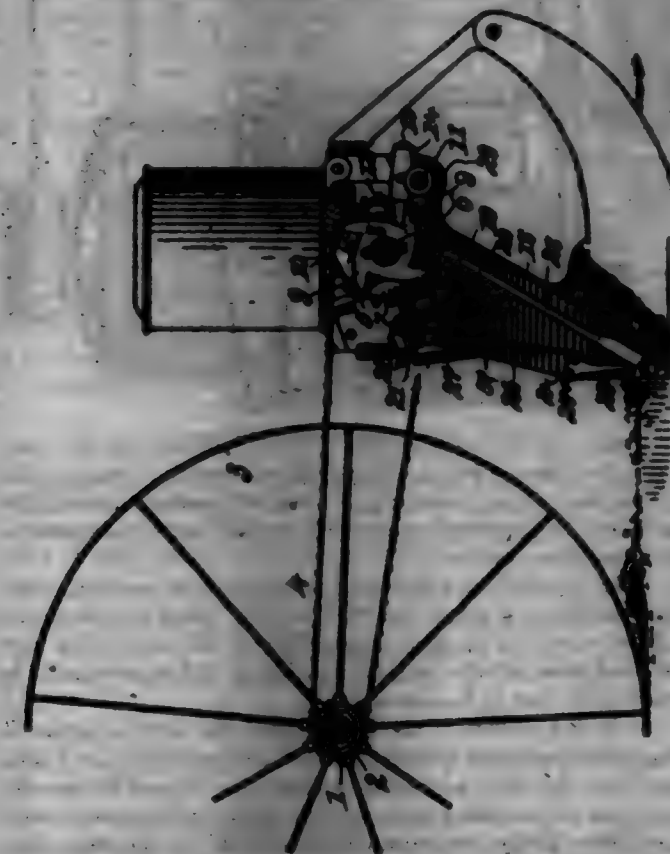
5. The combination with an electric controller having contact-platen and an operating-arm, of an over-ride and an under-ride switch, the over-ride switch having mechanism whereby it is closed when the operating-arm is moved from its on to its off position and the under-ride switch having mechanism whereby it is closed when said arm is moved from its off to its on position, substantially as described.

6. The combination with an electric controller having contact-platen, and an operating-arm, of two switches each having operating-magnets, one arm pivoted to each of said switches and extending into the path of motion of the operating-arm, with means on each of said switches whereby said arm is permitted to close the same when said arm is moved in a definite direction, substantially as described.

708,841. METHOD OF IMPREGNATING PAPER OR PAPER-BOARD. ABRAHAM B. GLASS, Vienna, Austria-Hungary, assignor to Julius Reih, Vienna, Austria-Hungary. Filed Mar. 1, 1904. Serial No. 48,478. (No specimens.)

Claim.—The herein-described composition of matter for use as a de-oxidant, consisting of hydrate of calcium, dextrine, and flour or starch in or about the proportions set forth and water.

708,842. GOLF-PLANTER. LEVI P. GRAMER, Bismarck, N. Dak. Filed Feb. 20, 1908. Serial No. 54,572. (No model.)



Claim.—1. In a golf-planter, the combination with a wheel, of means for turning the wheel with a comparatively slow movement while traveling between cross-rows, and means for accelerating the motion of the wheel as a cross-row is neared.

2. In a golf-planter, the combination with furrow-openers, covering-wheel, seed-boxes, and wheel in the beam and check-row mechanism, of means actuated from the covering-wheel to turn the seed-wheel with a comparatively slow movement while traveling between cross-rows, and means actuated by the check-row mechanism for accelerating the movement of the seed-wheel as a cross-row is neared.

3. In a golf-planter, the combination with furrow-openers, covering-wheel and check-row mechanism, of seed-wheels having cabs each adapted to hold a single grain, means actuated from the covering-wheel to turn the seed-wheel a part only of the rotation needed to drop the number of grains required in a hill while the planter is traveling from one cross-row to another, and means actuated by the check-row mechanism for completing the hill-dropping movement of the seed-wheel as a cross-row is neared.

4. In a golf-planter, the combination with a seed-wheel, a drill-shaft geared to the seed-wheel and a check-row shaft, of a sprocket-wheel journaled loosely on the drill-shaft and having ratchet-teeth, a ratchet-wheel fastened to the drill-shaft and adapted to engage the sprocket-wheel, means for turning the sprocket-wheel and imparting motion therethrough to the ratchet-wheel, drill-shaft and seed-wheel, and an arm on the check-row shaft adapted to move the drill-shaft forward in advance of the travel of the sprocket-wheel when the check-row shaft is actuated.

5. In a golf-planter, the combination with a seed-wheel, a drill-shaft geared to the seed-wheel and a check-row shaft, of a sprocket-wheel journaled loosely on the drill-shaft and having ratchet-teeth, a ratchet-wheel fastened to the drill-shaft and adapted to engage the sprocket-wheel, means for turning the sprocket-wheel and imparting motion therethrough to the

ratchet-wheel, drill-shaft and seed-wheel, a finger extending from the drill-shaft, and an arm on the check-row shaft adapted to engage the finger and accelerate the rotation of the drill-shaft when the check-row shaft is actuated.

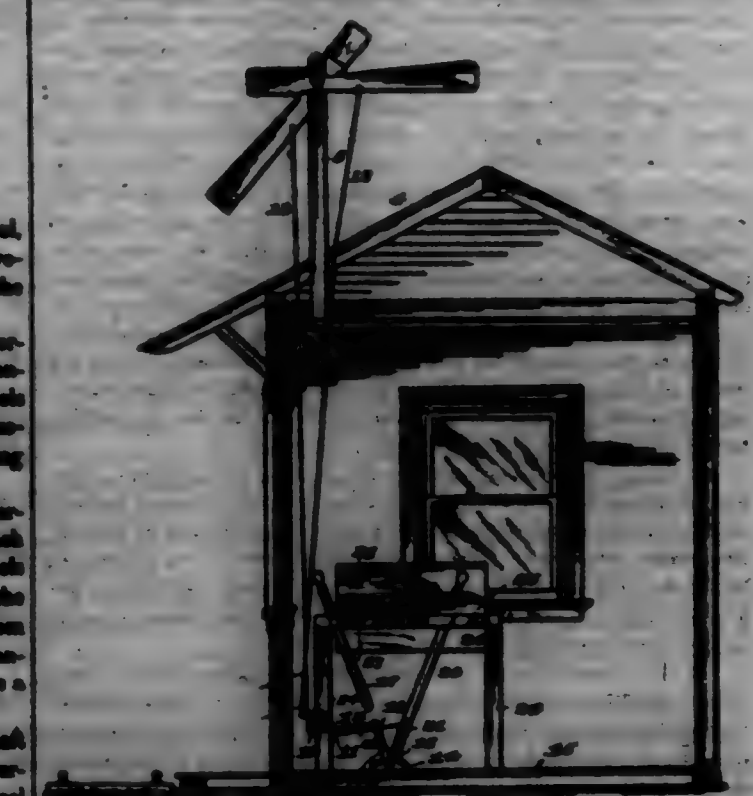
6. In a golf-planter, the combination with a seed-wheel, a drill-shaft geared to the seed-wheel and a check-row shaft, of a sprocket-wheel journaled loosely on the drill-shaft and having ratchet-teeth, a ratchet-wheel fastened to the drill-shaft and adapted to engage the sprocket-wheel, means for turning the sprocket-wheel and imparting motion therethrough to the seed-wheel, a plurality of fingers extending from the drill-shaft at regular intervals around the shaft, and an arm on the check-row shaft adapted to accelerate the rotation of the drill-shaft by forward pressure on one finger and adapted to limit the acceleration by forcing an obstruction to the finger following.

7. In a golf-planter, the combination with a seed-wheel, a drill-shaft geared to the seed-wheel and a check-row shaft, of a sprocket-wheel journaled loosely on the drill-shaft and having ratchet-teeth, a ratchet-wheel fastened to the drill-shaft and adapted to engage the sprocket-wheel, means for turning the sprocket-wheel and imparting motion therethrough to the seed-wheel, a finger extending from the drill-shaft and a lengthwise-yielding arm attached to the check-row shaft and adapted to engage the finger and accelerate the motion of the drill-shaft when the check-row shaft is actuated.

8. In a planter, the combination of a hollow shaft, a seed-exPELLING plunger in the shaft, a valve-plate at the lower end of the rear part of the shaft normally closing against the front wall of the shaft below the plunger when the plunger is raised, another valve-plate at the upper end of the rear part of the shaft normally closing against a wall of the shaft, a connection between the valves whereby they open and close together, and means for holding them open to convert the planter into a drill.

9. In a planter, the combination of a hollow shaft, a seed-exPELLING plunger in the shaft, a valve-plate at the lower end of the rear part of the shaft normally closing against the front wall of the shaft when the plunger is raised, another valve-plate at the upper end of the rear part of the shaft normally closing against a wall of the shaft, a link connecting one valve with the other in front of their pivots, hooks extending from the valves back of the pivots thereof, and a spring attached to the link and attachable to either of the hooks.

708,843. TRAIN-ORDER-RECEIVING BOX. IRA C. HARR, Los Angeles, Cal. Filed Dec. 12, 1904. Serial No. 55,099. (No model.)



Claim.—1. A signaling apparatus provided with a pivoted box for the reception of orders, said box being constructed to lock the apparatus in the danger position.

2. A signaling apparatus provided with a movable box for the reception of train-orders, said box being constructed to lock the apparatus in the danger position.

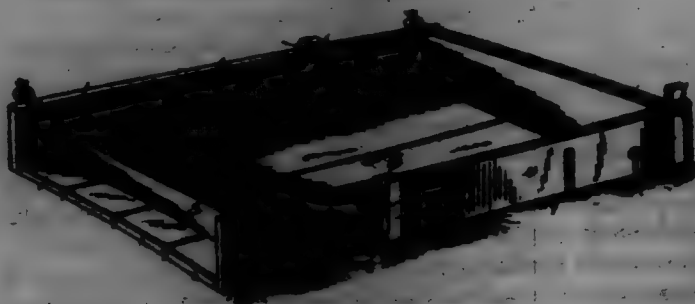
3. A signaling apparatus provided with an operating-lever and a box normally mounted above the path of said lever constructed to lock the lever in the danger position.

4. A signaling apparatus provided with an operating-lever, a frame

or desk adjacent thereto and an order-box movably connected with the frame or desk over the path of said lever to lock the same in the danger position.

5. A signaling apparatus provided with an operating-lever, a frame or desk having a guideway, an order-box upon said frame or desk and a spring-catch in the box to lock the lever in danger position.

703,844. MORTAR-BED. JOHN M. HOLLOWAY, Santa Barbara, Cal., assignor to Harry S. Holloway, Santa Barbara, Cal. Filed Oct. 19, 1901. Serial No. 78,288. (No model.)



Claim.—1. A portable mortar-bed, comprising a bottom and separate side pieces supported upon the ends, and pieces fitted between the side pieces and inclined inwardly and downwardly in opposite directions, and clamps embracing the bottom and side pieces.

2. A portable mortar-bed, comprising a bottom, side supporting the bottom and projected at opposite sides thereof, side pieces supported upon the corresponding projected ends of the side, and pieces held between the side pieces, and clamps embracing the bottom and the opposite side pieces.

3. A portable mortar-bed, comprising a bottom, opposite side pieces, and pieces held between the side pieces and inclined inwardly and downwardly in opposite directions, and clamps embracing the bottom and the side pieces, the upper portions of the clamps extending toward the upper edge of the end pieces to protect the same against displacement.

4. A portable mortar-bed comprising a bottom, opposite side pieces, and pieces held between the side pieces, and clamps embracing the bottom and side pieces, each clamp having a substantially L-shaped member to embrace the bottom and one side of the bed, an eye-rod having its eye detachably engaged with the upper end of the member, and a tie-plate connecting the other corresponding ends of the member and the rod.

5. A portable mortar-bed, comprising a bottom, opposite side pieces, and pieces held between the side pieces, and clamps embracing the bottom and side pieces, each clamp having a substantially L-shaped member to embrace one side and the bottom of the bed, the lower end of the rod being screw-threaded and projected beyond the opposite side of the device, and the upper end of the member being projected above the adjacent side piece and formed into a hook, an eye-rod having its eye engaged with the hook and its intermediate portion lying longitudinally across the upper edge of the adjacent side piece, the free end of the rod being screw-threaded and projected beyond the side of the device, a tie-plate connecting the screw-threaded ends of the L-shaped member and the eye-rod, and one fitted to the threaded ends of said member and rod.

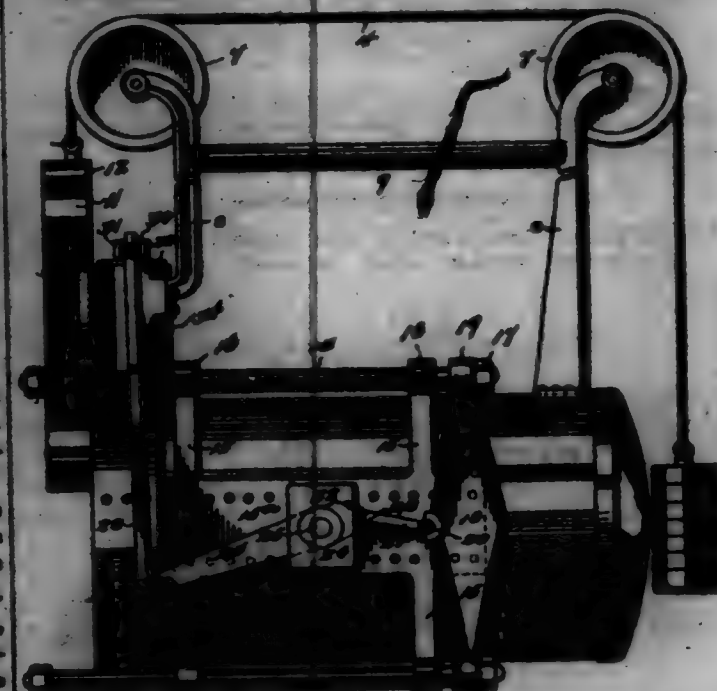
6. A portable mortar-bed, comprising a bottom, opposite side pieces, and pieces held between the side pieces, clamps embracing the top and bottom of the opposite ends of the bed, and intermediate clamps embracing the bottom and opposite sides only of the device, the intermediate portion of the bed being constructed by the clamps.

7. In a portable mortar-bed, the combination with a bottom, opposite side pieces, and end pieces held between the side pieces, of opposite terminal clamps embracing the bottom and side boards, and an intermediate clamp, comprising a substantially L-shaped member to embrace the bottom and one side piece, and a clip having a lateral shoulder to embrace the upper edge of the opposite side, the L-shaped member having its lower part removably connected to the clip.

8. In a mortar-bed, the combination with supporting-ends, of bottom boards supported transversely thereon, the ends of the ends being projected beyond the opposite sides of the bottom, opposite side boards supported upon the projected ends of the ends and rising above the bottom boards, opposite end pieces held between the side pieces, opposite terminal clamps comprising L-shaped members to embrace the bottom and one side piece and having its upper end projected above the bed and provided with a hook, the opposite end of the member being screw-threaded and projected at the opposite side of the bed, an eye-rod having its eye engaged with the hook and its intermediate portion lying across the upper edge of the adjacent end piece, the free end of the rod being screw-threaded, a tie-plate having openings receiving the screw-threaded ends of the L-shaped member and the eye-rod, and one fitted to said screw-threaded ends, and an intermediate clamp comprising an L-shaped member embracing one side piece and the bottom of the device, and an inverted substantially

L-shaped clip embracing the upper edge of the opposite side piece and projected below the same, the adjacent end of the L-shaped piece being projected through the lower end of the clip, and a nut fitted to said projected end.

703,845. DOOR-CLOSING APPARATUS FOR VULGARIZERS. THOMAS H. HYER, Youngstown, Ohio, assignor of one-half to Albert Richards, Youngstown, Ohio. Filed Mar. 14, 1902. Serial No. 68,192. (No model.)



Claim.—1. In an apparatus of the class described, the door, operating mechanism constituting a support for the door in its closed position and comprising means for exerting a clamping-pressure thereon, and separate means for supporting the door in its opened position independent of said operating mechanism.

2. In an apparatus of the class described, the door, operating mechanism constituting a support for the door when closed and comprising means for exerting a clamping-pressure thereon, said door having operable connections with the operating mechanism, and separate means for supporting the door in its open position.

3. In an apparatus of the class described, the door, a counterbalancing device connected with the door and arranged to support it when opened, and operating mechanism constituting a support for the door when closed and comprising means for exerting a clamping-pressure thereon, said door having a separable connection with the operating mechanism.

4. In an apparatus of the class described, the door, a suitably-guided supporting-cable carrying a counterbalance and connected with the door, an operating mechanism constituting a support for the door when in its closed position and comprising means for exerting a clamping-pressure thereon.

5. In an apparatus of the class described, the door, power-actuated operating mechanism constituting a support for the door and comprising means for exerting a clamping-pressure thereon.

6. In an apparatus of the class described, the door, and power-actuated operating mechanism constituting a support for the door when closed and comprising means for exerting a clamping-pressure thereon, said door having a separable connection with the operating mechanism.

7. In an apparatus of the class described, suitably-actuated operating mechanism having a plurality of clamping-carriers, and the door supported by and having a separable connection with said carrier.

8. In an apparatus of the class described, a suitably-actuated operating mechanism having a plurality of clamping-carriers, and the door having a plurality of lugs arranged to be moved into and out of engagement with the said carrier.

9. In an apparatus of the class described, suitably-actuated operating mechanism having a plurality of movable clamping-carriers, a toggle device for adjusting said carriers, and the door having a separable connection with the said carrier.

10. In an apparatus of the class described, suitably-actuated operating mechanism having a plurality of movable clamping-carriers, a toggle device for adjusting said carriers, and the door having a separable connection with said carrier when in its closed position, and a separate counterbalancing support for sustaining the door when opened independent of the said carrier.

11. In an apparatus of the class described, suitably-actuated oper-

ating mechanism having a plurality of reciprocating headed rods constituting clamping-carriers, toggle devices for adjusting said rods, and the door having a plurality of lugs arranged to be moved into and out of engagement with the said carrier.

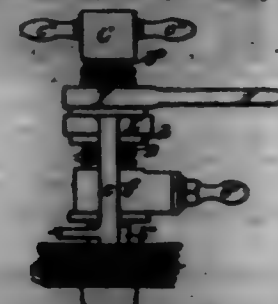
12. In an apparatus of the class described, an operating device having a plurality of reciprocating rods constituting clamping-carriers, said rods being provided at their outer ends with binding elements, and the door provided with a plurality of lugs arranged to be moved into and out of engagement with the said carrier, the ends of all of said lugs being disposed in the same direction and detachably taking over the rods at one side of the binding elements.

13. In an apparatus of the class described, operating mechanism comprising opposite duplicate sets of devices each including a pair of reciprocating rods in the same vertical plane and constituting clamping-carriers, said rods being provided at their outer ends with binding elements, and the door provided at diagonally opposite corners with lugs arranged to be moved into and out of engagement with the said carrier, the ends of all of said lugs being disposed in the same direction and detachably taking over the rods at one side of the binding elements.

14. In an apparatus of the class described, the operating mechanism including opposite pairs of reciprocating rods constituting clamping-carriers, a yoke connecting the rods of each pair, a toggle-link jointed to said yoke centrally between its ends, a suitably-actuated pressure-lever jointed to one end of the toggle-link, a power-actuator having rod connection with the pressure-lever, and the door detachably connected with the rods.

15. In an apparatus of the class described, operating mechanism including oppositely-arranged pairs of reciprocating rods constituting clamping-carriers, a yoke coupling together the rods of each pair, a toggle-link pivotally connected at one end centrally to the said yoke, a pressure-lever having a fulcrum-support and pivotally connected to the opposite end of the toggle-link, reciprocating adjusting-rods connected at one end to the said pressure-lever, and a cylinder and piston power-actuator including a pivotally-supported cross-head having pivotal connections at its ends with the said adjusting-rods, and the door detachably connected with the rods.

703,846. CURTAIN WEIGHT AND HOOK-REMOVER. THOMAS LIVERMORE, Reading, Pa., assignor of one-half to Adam H. Kellbach, Lancaster, Pa., and Benjamin D. Hestetter, York Springs, Pa. Filed Dec. 10, 1901. Serial No. 68,616. (No model.)



Claim.—1. The combination of an anchor plug, a frame consisting of a ring with depending members constructed to engage the plug, an internally-threaded hooking member carried by the ring portion of the frame, means for turning the hooking member, and a threaded tube passing through said hooking member and in line with the opening in the plug, substantially as described.

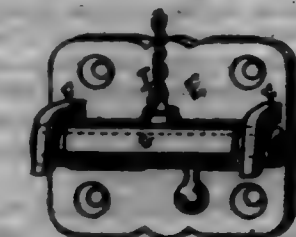
2. The combination of a plug having through it a tapered opening, a frame constructed to be attached to the plug, a threaded hooking member held in the frame, and a threaded tube passing through said hooking member and having means for the attachment of an air-supply pipe and having one of its ends constructed to enter the tapered opening in the plug, substantially as described.

3. A hollow threaded anchor plug having L-shaped openings into the interior thereof, a frame having members constructed to enter and be retained in said openings, a threaded hooking member with a handle carried by the frame, a threaded tube passing through said hooking member, said tube having a tubular projection from its side and being made to be forced into the opening through the plug when said hooking member is turned, substantially as described.

703,847. THERMOSTATIC FIRE-DOOR APPARATUS. JAMES T. HUBBARD, East Orange, N. J. Filed Apr. 2, 1902. Serial No. 74,284. (No model.)

Claim.—1. The combination with a self-closing door, of a detachable bolt-carrier, a retainer for said carrier, a bolt sliding in the carrier for holding the door in its open position, the carrier being capable of being manually moved to disengage it from the door and a device, releasable by heat for holding the bolt-carrier in the retainer, substantially as described.

2. The combination with a self-closing door, of a bolt for holding the door in an open position, a fixed support, a bolt-carrier detachably connected to the fixed support, and a device releasable by heat for holding the bolt-carrier in the fixed support, substantially as described.



3. The combination with a self-closing door, of a sliding bolt for holding the door in an open position, capable of being manually moved to disengage it from the door, a detachable carrier, in which the bolt is held for movement, and a device, releasable by heat for holding the carrier in place, substantially as described.

4. The combination with a self-closing door, a latch to hold the door in an open position, a retainer for the latch, normally holding it against movement with the door, the latch being capable of being manually moved in the retainer to disengage it from the door, and means releasable by heat for disengaging the latch from the retainer, substantially as described.

703,848. SAW JOINTER AND SAGE. CHAS. H. HOLLOWAY, Waukesha, Wis., assignor to Joseph H. Hestetter, Lancaster, Pa. Filed Nov. 20, 1901. Serial No. 68,616. (No model.)



Claim.—1. An instrument of the class described having an expandable and contractible file-guideway, and means for supporting the instrument upon a saw with said guideway in transverse relation thereon.

2. An instrument of the class described comprising elastically-connected sections each having a file-guiding shoulder, said shoulders being movable toward or from each other upon the relative movement of the sections.

3. An instrument of the class described comprising sections elastically connected and movable longitudinally upon each other, each of said sections having a file-guide shoulder, said shoulders being movable toward or from each other upon the movement of the sections, and means for holding the sections against relative movement.

4. An instrument of the class described, comprising sections arranged in alignment and elastically connected at their inner ends, file-guide shoulders carried by the sections, and movable toward and from each other upon the relative movement of said sections, saw-positioning devices carried by the sections, and located outside of the shoulders, and means carried by one section and engaging the other to hold said sections against relative movement.

5. An instrument of the class described, comprising elastically-connected sections arranged in alignment, one of said sections having a tongue that overlaps the other section and is provided with a longitudinal slot, and a screw passing through the slot and engaging the adjacent section to hold said sections against relative movement, said instrument having a transversely-disposed file-guide member, a portion of which is located in each section.

6. In an instrument of the class described, a body, a gage-plate mounted upon the body and comprising sections movable toward and from each other, and guide-shoulders located at the outer ends of the gage-plate and movable toward and from each other.

7. In an instrument of the class described, a body having an expandable and contractible file-guide outlet, and an expandable and contractible gage-plate mounted upon the body in the outlet thereof.

8. In an instrument of the class described, a body comprising sections movable toward and from each other and having engaging guide-shoulders, movable thereon, and a gage-plate located between the guide-shoulders and comprising sections, one of said gage-plate sections being mounted on each body-section and movable thereon.

9. In an instrument of the class described, a body, an expandable and contractible gage-plate carried by the body and comprising separate sections, and means for elevating and depressing each section independently of the other.

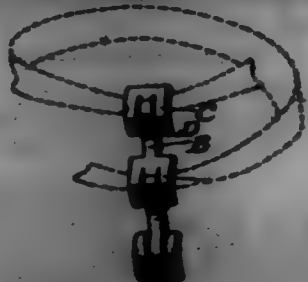
10. In an instrument of the class described, an expandable and contractible body having an expandable and contractible file-guide outlet, a

gape-plate carried by the body and located in the neck thereof, said gape-plate comprising separate sections, each section having a stem that is slidably mounted upon the body, and operating means engaging said stems to move the same and thereby elevate or depress the sections.

11. In an instrument of the class described, a body comprising sections movable toward and from each other, a gape-plate comprising separate sections mounted upon and movable with the body-sections, and means carried by each body-section and engaging the gape-section carried thereby to elevate and depress the same.

12. In an instrument of the class described, a body comprising sections movable toward and from each other, a gape-plate comprising overlapping separate sections mounted upon and movable with the body-sections, means for holding the body-sections against relative movement, operating devices carried by each body-section and engaging the gape-section to elevate and depress the same, and devices for locking the gape-sections against movement.

708,849. GARMENT-SUPPORTER. CLYDE S. SCHMIDT, Philadelphia, Pa., assignor of one-half to Eugene Stanley Richardson, Philadelphia, Pa. Filed Nov. 18, 1901. Serial No. 22,918. (No model.)



Claim.—1. In a garment-supporter, a body portion, finger projecting from opposite sides of said body at substantially one and forming slots, and finger projecting therefrom on opposite sides of said body and at substantially the opposite and forming slots.

2. In a garment-supporter, a body portion, finger projecting from one end thereof, finger projecting from the opposite end and finger projecting therefrom at a point between said first two mentioned ends of finger.

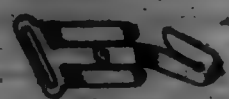
3. In a garment-supporter, a body portion formed with slots on both sides and near one end thereof and substantially parallel to each other, and the body portion being formed with slots near the other end on opposite sides of said body portion and substantially parallel to each other.

4. In a garment-supporter, a finger projecting from one end thereof, and substantially parallel to said body portion, a finger projecting from the opposite end thereof on the opposite side of first-mentioned finger and substantially parallel to said body portion and a finger projecting from said body portion at the point between the said first two mentioned fingers.

5. In a garment-supporter, a body portion, finger on opposite sides thereof and near one end thereof, finger on opposite sides thereof near the other end, and finger on opposite sides of said body portion at a point between the first-mentioned two ends of finger.

6. In a garment-supporter, a body portion formed with slots on both sides and near one end thereof and substantially parallel to each other and the body portion being formed with a slot near the other end and substantially parallel to the other slots.

708,850. GARMENT-SUPPORTER. CLYDE S. SCHMIDT, Philadelphia, Pa., assignor of one-half to Eugene Stanley Richardson, Philadelphia, Pa. Filed Feb. 21, 1902. Serial No. 25,022. (No model.)



Claim.—1. In a garment-supporter, a body portion formed with a slot in the upper portion thereof, an arm projecting therefrom, finger projecting from said body portion on opposite sides of said arm, the latter formed with a slot to receive the garment.

2. In a garment-supporter, a body portion formed with a slot in the upper portion thereof, an arm projecting therefrom, finger projecting from said body portion on opposite sides of said arm and forming slots between said fingers and said arm and on said portion on said arm forming a slot between the same and said arm.

3. In a garment-supporter, a body portion, an arm projecting therefrom, a band in said arm, said arm formed with slots on both sides thereof of adjacent said body portion and having a slot at the lower portion thereof and a band in said arm at the lower portion thereof extending in a direction opposite to the first-mentioned band.

4. In a garment-supporter, a body portion, an arm projecting therefrom having a slot situated in the lower portion thereof and having slots adjacent said body portion and said body portion being formed with a slot extending at an angle to said first-mentioned slot.

5. In a garment-supporter, a body portion formed with a slot therein, an arm projecting from said body portion and having slots on both sides thereof adjacent said body portion and having a slot formed in the lower portion thereof, the upper edge of said body portion being inclined with respect to said arm and said first-mentioned slot extending in a direction substantially parallel to that of the inclination of the upper edge of said body portion.

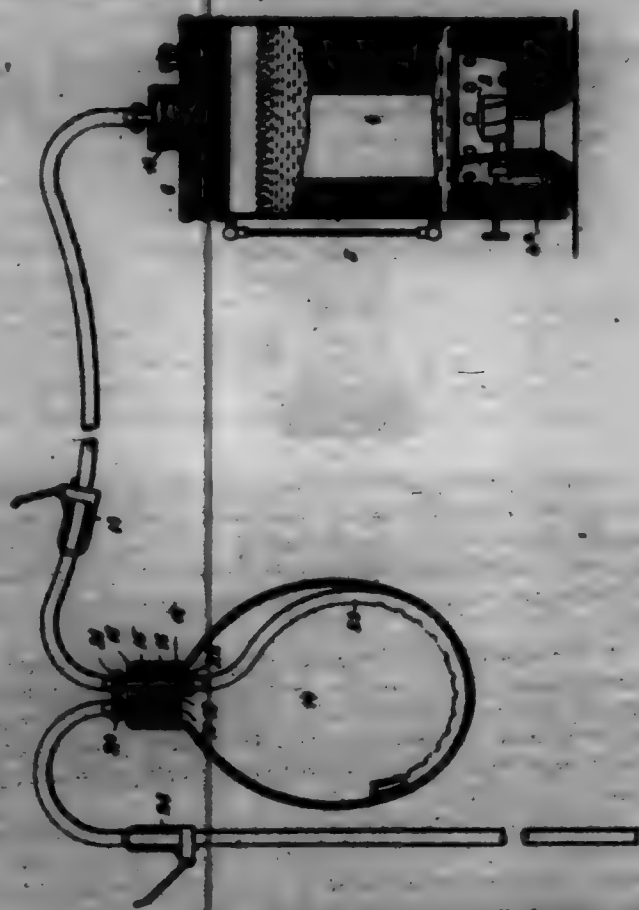
6. In a garment-supporter, a body portion formed with a slot, an arm projecting from said body portion and formed with slots on both sides thereof and having a slot in the lower portion, the slot in the body portion and in the lower portion of the arm extending at an angle to each other and both of the same extending at different angles with respect to the slots on both sides of the arm.

7. In a garment-supporter, a body portion having a slot therein, and an arm projecting therefrom, the lower portion of which is at an angle to the upper portion thereof, said arm being formed with slots on both sides and a slot in the lower portion and extending at an angle to the upper portion of said arm.

8. In a garment-supporter, a body portion having a slot therein, an arm projecting therefrom with a slot in the lower portion, and finger projecting from said body portion, the lower edge of which are curved away from the plane of said arm.

9. In a garment-supporter, a body portion formed with slots therein and a slot in the upper part thereof, extending at an angle to the first-mentioned slot, and having a slot below said first-mentioned slot adapted to receive a garment.

708,851. WARNING-BAG. THOMAS O'DONNELL, Kansas City, Mo. Filed Sept. 22, 1901. Serial No. 75,515. (No model.)



Claim.—In an apparatus of the character described, a steam-generator, a steam-bag, a plug seated in the neck of the steam-bag and provided with a pair of plungers communicating therewith, one of which has a nipple at each end, and the other a nipple at its outer end, a flexible distributing-tube within the bag and connected with the inner nipple of the plunger, a flexible tube connected to the other nipple of the same plunger and to the generator, a valve controlling said tube, and a flexible tube connected to the nipple at the outer end of the other plunger, and a valve controlling said tube, substantially as described.

708,852. WARNING-BAG. THOMAS O'DONNELL, Kansas City, Mo., assignor of one-third to Charles Rich Motz, Lawrence, Kans. Filed Nov. 2, 1901. Serial No. 25,023. (No model.)

Claim.—1. In a wheeled scraper, the combination with the wheel

axis and the wheel mounted on the axle thereof; of a pan pivotedly hung on the axle concentrically to the axis of the wheel, a hub-frame on the pan, adapted to automatically interlock with the axle to hold the pan to its upright position, and means for holding the pan from tilting over when it is set to its digging position and released from a locked engagement with the axle, for the purposes specified.



2. A wheeled scraper, comprising a wheeled supporting-axle, a pan pivotedly supported on each frame for slight longitudinal movement, a locking means carried on the pan adapted to automatically interlock with the supporting-axle to hold the pan in an upright position, said frame having a releasing or tripping handle, and a tilting frame carried on the pan, adapted to be swung in the plane of rotation of the wheel-rim and interlock with said rim on the forward rotation of the wheel, for the purposes specified.

3. The combination with the wheel and arched axle, said axle having rearwardly-extending apertured ends; of the pan or scoop, said pan having laterally-projecting plates, with which the apertured axle-ends engage, a swinging frame pivoted on the plates, said frame having members adapted when the frame is swung forward to engage with and grip the wheel-treads, a J-shaped frame pivotedly mounted on the pan to swing in a vertical plane, its outer extremities terminating in locking-lugs adapted to engage the wheel-axle and hold same, together with the pan, in an upright position, and means for holding the pan from tilting when dropped to its digging position, as set forth.

4. The combination with the wheel-carrying axle, the pan pivotedly suspended from the axle, an automatically-operating locking means carried on the pan for engaging the axle to hold the pan to its upright position, the pan-frame, the platform mounted on said frame, said frame having end members 18, the draft-frame 16, and the wheel-engaging frame 20, all being arranged substantially as shown and for the purposes described.

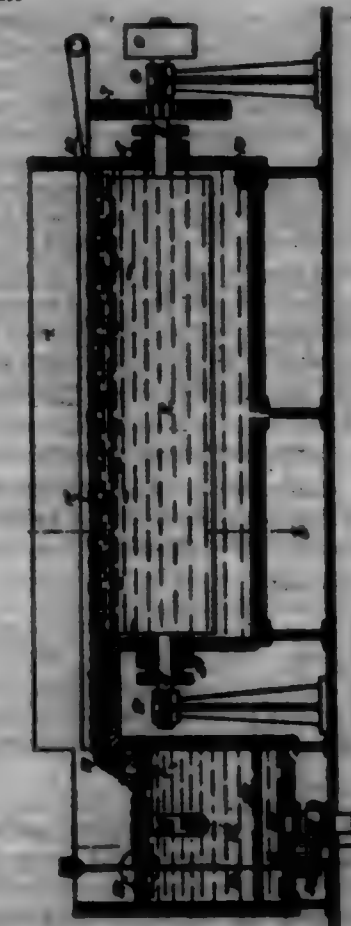
5. The combination with the wheel-carrying axle, the pan pivotedly suspended therefrom, the pan-frame pivotedly joined at the rear end to the pan, its forward end connecting with the draft-frame, the pan-locking device for engaging the axle, the platform mounted on the pivoted pan-frame, the gravity-acting end-gate, pivotedly supported on the pan-frame, the draft-frame 16, legs 18, and the frame 20, all being arranged substantially as shown and for the purposes described.

6. The combination with the wheel-carrying axle, the pan pivotedly suspended from the axle, an automatically-operating locking means carried on the pan for engaging the axle to hold the pan to its upright position, the pan-frame, the platform mounted on said frame, said frame having end members 18, the draft-frame 16, and the wheel-engaging frame 20, said frame 20, including the transversely-disposed end members, said members having movement in their longitudinal direction; and their ends terminating in wheel-engaging grips 20' 20'', all being arranged substantially as shown and for the purposes described.

708,853. APPARATUS FOR MANUFACTURING ICE. BENJAMIN E. BERRY, Philadelphia, Pa., assignor of forty-nine one-hundredths to Francis E. Richardson, Philadelphia, Pa. Filed Aug. 5, 1901. Serial No. 17,125. (No model.)

Claim.—1. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, cutting means for removing the ice in small pieces which rise to the surface of the water within the freezing-tank, means for discharging a body of water into the freezing-tank at, and parallel to, the surface of liquid therein and means opposite said discharging means for permitting the overflow or withdrawal of water from the surface of the liquid in the tank whereby a surface current may be created and maintained that will pass over the entire surface of the liquid in the freezing-tank to cause the ice particles to overflow, and a compressor arranged to receive said overflowed ice particles.

2. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, cutting means for removing the ice in small pieces which rise to the surface of the water within the freezing-tank, means for discharging a body of water into the freezing-tank at, and parallel to, the surface of liquid therein and means opposite said discharging means for permitting the overflow or withdrawal of water from the surface of the liquid in the tank whereby a surface current may be created and maintained that will pass over the entire surface of the liquid in the freezing-tank to cause the ice particles to overflow, a compressor, and means for conveying the particles of ice to said compressor.



3. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, cutting means for removing the ice in small pieces which rise to the surface of the water within the freezing-tank, a receiving-tank, means for discharging a body of water into the freezing-tank at, and parallel to, the surface of liquid therein and means opposite said discharging means for permitting the overflow or withdrawal of water from the surface of the liquid in the tank whereby a surface current may be created and maintained that will pass over the entire surface of the liquid in the freezing-tank to cause the ice particles to overflow into the receiving-tank, a compressor, and means for conveying the particles of ice from the receiving-tank to said compressor.

4. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, cutting means for removing the ice in small pieces so that it may rise to the surface of the water in the tank in which it is formed, a receiving-tank, means for discharging a body of water into the freezing-tank at, and parallel to, the surface of the liquid carrying the layer of ice particles and means opposite said discharging means for permitting the overflow or withdrawal of the water carrying the layer of ice particles whereby a surface current may be created and maintained, said current passing over the entire surface of the liquid in the tank to float off the ice particles contained therein and cause them to overflow into the receiving-tank, a compressor, and means for conveying the ice from the receiving-tank to the compressor whereby the surplus water may be eliminated and the particles of ice pressed into solid blocks.

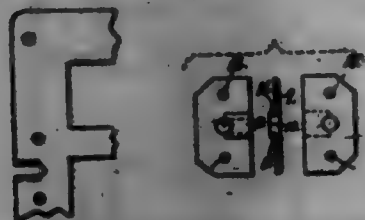
5. The combination in an apparatus of the character described, of the freezing-tank, ice-forming means located within said tank, cutting means for removing the ice in small pieces so that it may rise to the surface of the water in the tank in which it is formed, a receiving-tank, a pump for discharging a supply of water into said freezing-tank, whereby a surface current extending the full width of said tank may be created and maintained to move the upper portion of the water carrying the ice particles and cause them to overflow into the receiving-tank, a pump for carrying the particles of ice from the receiving-tank to the compressor, and a connection between the pump for creating a surface current and the receiving-tank whereby the surplus

water discharged into the latter may be utilized to create the surface current within the freezing-tank.

6. In an apparatus of the character described, the combination of the freezing-tank, ice-forming means located therein, means for introducing a surface current of water into said tank to carry off the particles of ice floating on the surface of the water in the tank, a receiving-tank into which said ice is discharged, a pump for creating the current in the freezing-tank, a pipe for carrying off the surplus water from the receiving-tank leading to said pump, a valve outlet leading to said pipe, and means for controlling said valve outlet by the height of water within the receiving-tank.

7. The combination in an apparatus of the character described, of the freezing-tank, rotating cylinders within said tank upon which a coating of ice is formed, means for rotating said cylinders, scraping means carried in said tank for clearing the coating of ice from said cylinders, a receiving-tank, a pump for creating a surface current of water in the freezing-tank to carry off the particles of ice formed therein, a pipe leading from said pump having flattened discharge-nozzles leading to said tank, a compressor, a pipe leading from the receiving-tank to said compressor, a pump for carrying the particles of ice through said pipe to the compressor, a pipe leading from the receiving-tank to the current-producing pump, a valve outlet leading to said pipe, means regulated by the amount of water in the receiving-tank for controlling the valve of said outlet, and a perforated plate located within said receiving-tank and serving to prevent the carrying off of any ice particles with the surplus water discharged from said receiving-tank.

708,854. GLOVE-FRAME. WILLIAM H. BRIDGES, Buffalo, N. Y., assignor of one-third to John Milton Garrett, Buffalo, N. Y. Filed May 14, 1901. Serial No. 99,367. (No model.)



Claim.—1. In a cloth mechanism, the combination with the frame-plates, each provided with an elongated notch having beveled sides and complementary inner ends, of socket-plates each having inwardly-directed ribs provided with beveled sides and complementary grooves, the ribs of the socket-plates being adapted to slide within the elongated notches of the frame-plates whereby the complementary ends of the latter may coast with the complementary grooves of the former to form bearings for the main-spring-arms.

2. In a cloth mechanism, the combination with the frame-plates, each provided with an elongated notch having beveled sides and complementary inner ends, of socket-plates each having inwardly-directed ribs provided with beveled sides and complementary grooves, the ribs of the socket-plates being of the same thickness as the thickness of the frame-plates and adapted to slide within the elongated notches of the frame-plates whereby the complementary ends of the latter may coast with the complementary grooves of the former to form bearings for the main-spring-arms.

708,855. CURRENT-REGULATOR. WILLIAM J. WALKER, Port Huron, Mich., assignor of one-fourth to Bart H. Brewster, Washington, D. C. Filed Nov. 8, 1901. Serial No. 92,294. (No model.)

Claim.—1. In an apparatus of the character described, a pivoted vertically-swinging frame having a longitudinal partition dividing the same into separate channels, independent gates located at the upper ends of said channels, and a water-meter located in one channel.

2. In an apparatus of the character described, a frame comprising separate vertically-swinging sections pivoted at their upper ends, each section having a longitudinal partition dividing the same into separate channels, the channels of one section communicating with the corresponding channels of the succeeding section, gates located across the channels at the head of each section, and a water-meter mounted in one of the channels of each section.

3. In an apparatus of the character described, a frame pivotally supported at one end, means for raising and lowering the other end, and a meter located in the frame.

4. In an apparatus of the character described, a frame pivotally supported at one end and having a chamber at the other, means for admitting and expelling water from the chamber, and a meter located in the frame.

5. In an apparatus of the character described, the combination with a frame, of a support located at one end of the frame, a pivotal connection between the support and the adjacent end of the frame, an inclined chamber or

regul at the bottom of the opposite end of the frame, and means for admitting and expelling water from the chamber.



6. In an apparatus of the character described, a frame pivotally supported at one end, means for raising and lowering the other end, an abutment located against the movable end of the frame, and a meter located in the frame.

7. In an apparatus of the character described, a frame pivotally supported at its upper end, means for raising and lowering the lower end, an abutment located contiguous to the lower end of the frame, rollers carried by the frame and movably bearing against the abutment, and a meter located in the frame.

8. In an apparatus of the character described, a frame having side walls and a partition extending across the channel above the bottom, said bottom having the portion located beneath the partition raised to form a contracted passage-way, a meter provided with paddles movable through the passage-way, and inclined water-conduits opening into the passage-way contiguous to the front end thereof.

9. In an apparatus of the character described, the combination with a frame, of a meter located in the frame, said meter comprising an endless holding-cable, means for supporting one stretch of the cable within the frame, a series of paddles movable through the frame and engaging the holding-cable during their movement in one direction but detached from said cable during their return movement.

10. In an apparatus of the character described, the combination with a frame, of a meter located in the frame, said meter comprising an endless holding-cable having an upper and a lower stretch movable in opposite directions, one of said stretches being located within the frame, a series of paddles movable through the frame and detachably engaging the holding-cable during their movement in one direction but detached from said cable during their return movement.

11. In an apparatus of the character described, the combination with a frame, of a meter located in the frame, said meter comprising an endless holding-cable having an upper and a lower stretch movable in opposite directions, the lower stretch being located contiguous to the bottom of the frame, an endless drive-cable mounted between the stretches of the holding-cable, and paddles pivoted upon said drive-cable and detachably engaging the lower stretch of the holding-cable during their movement in one direction, but detached from said cable during their return movement.

12. In an apparatus of the character described, the combination with a frame, of a meter located in the frame, said meter comprising an endless holding-cable having an upper and a lower stretch movable in opposite directions, the lower stretch being located contiguous to the bottom of the frame, an endless drive-cable mounted between the stretches of the hold-

ing-cable, connections between the two cables to maintain their operative relation to each other, and paddles pivoted upon the said drive-cable and detachably engaging the lower stretch of the cable during their movement in one direction but detached from said cable during their return movement.

13. In an apparatus of the character described, a current-meter comprising a drive-cable, a holding-cable having a stretch located below the drive-cable, paddles pivotally mounted on the drive-cable, said paddles detachably engaging the holding-cable and projecting below the same, and means extending diagonally across each paddle from top to bottom, said means being disposed in intersecting relation.

14. In an apparatus of the character described, a current-meter comprising a drive-cable, a holding-cable having a stretch located below the drive-cable, paddles pivotally mounted on the drive-cable and having openings, said paddles detachably engaging the holding-cable and projecting below the same, valves biased upon the front faces of the paddles and normally closing the openings thereof, and means extending diagonally across each paddle, said means being disposed in intersecting relation and extending across the portion of the paddles projecting beneath the holding-cable.

15. In an apparatus of the character described, a current-meter including a pair of cables, each of which has stretches movable in opposite directions, paddles connected to one cable and having detachable engagements with one stretch of the other cable during the movement of said paddles in one direction but detached from said cable during their return movement, and means connecting the two cables to cause them to move in unison and maintain the paddles in fixed relation thereto while said paddles are connected to both cables.

16. In an apparatus of the character described, a frame comprising separate sections arranged in tandem relation, a support located at the front of each section, a pivotal connection between the front of each section and the adjacent support, and a meter located in each section.

17. In an apparatus of the character described, a frame comprising separate sections arranged in tandem relation, a support located at the front of each section, a pivotal connection between the front end of each section and the adjacent support, the rear end of each section abutting against the support of the next section, and a meter located in each section.

708,856. DRY CRO-CONCENTRATOR. ROBERT E. WALKER and ROBERT WALKER, Denver, Colo. Filed May 27, 1901. Serial No. 92,142. (No model.)



Claim.—1. In a dry cro-concentrator, the combination with a suitable stationary frame, of a vibratory apron-frame constructed to form an air-chamber, an endless traveling apron through which the air from the chamber passes, the apron closing said chamber at the top, an auxiliary air-chamber arranged in suitable proximity to the main air-chamber, means for introducing air under pressure to the auxiliary chamber, and means for vibrating the apron-frame.

2. In a dry cro-concentrator, the combination with a stationary frame, of an apron-frame mounted to vibrate thereon, means for vibrating the apron-frame, an endless traveling apron mounted on the frame which is constructed to form an air-chamber beneath the apron which closes the said chamber at the top, an auxiliary air-chamber mounted on the apron-

frame in proximity to the main air-chamber, delivery-pipes communicating with the auxiliary chamber and projecting into the main chamber below the apron, the said pipes having openings for the escape of air to the main chamber, and means for introducing air under pressure to the auxiliary air-chamber.

3. The combination of an endless traveling apron constructed to allow an air-blend to pass therethrough, a vibratory apron-frame having an air-chamber closed at the top by the apron, means for vibrating the apron-frame, an auxiliary air-chamber mounted on the vibratory frame, means for delivering air from the auxiliary chamber to the main chamber below the apron, and means for introducing air under pressure to the auxiliary air-chamber.

4. The combination of an apron-frame mounted to vibrate and provided with an air-chamber, means for vibrating the apron-frame, an endless traveling apron mounted on the frame and closing the air-chamber at the top, the apron being composed of suitable material to allow the air to pass therethrough, an auxiliary air-chamber, means for introducing air under pressure to said auxiliary chamber, and pipes leading from the auxiliary chamber and provided with openings for the escape of air below the apron, the said pipes being rotatable whereby the angle of the delivered air-jets may be varied at will.

5. The combination with a stationary frame, of a vibratory apron-frame mounted thereon and provided with an air-chamber, means for vibrating the apron-frame, an endless traveling apron mounted on said frame and closing the air-chamber at the top, an auxiliary air-chamber mounted on the apron-frame, means for introducing air under pressure to said auxiliary chamber, outlets from the auxiliary chamber to the main chamber, and means for controlling and regulating the exit of the air from the auxiliary chamber to the main chamber.

6. The combination with a stationary frame, of an apron-frame mounted to vibrate thereon, and provided with an air-chamber, means for vibrating the apron-frame, an endless traveling apron mounted on the vibratory frame, the apron being arranged to close the air-chamber at the top and constructed to allow air to pass therethrough, an auxiliary air-chamber provided with outlets to the main chamber, means connected with the auxiliary chamber for forcing air thereto, and slides located in the auxiliary chamber and adapted to be actuated from the outside of the chamber, for regulating the escape of air from the auxiliary to the main chamber.

7. The combination with a suitable stationary frame, of a vibratory frame, means for vibrating the last-named frame, longitudinal bars, means located at the extremities of the bars for adjusting the latter vertically, shoes attached to the vibratory frame in sliding engagement with the bars, and buffer-springs mounted on the bars and engaging one pair of shoes.

8. The combination with a suitable stationary frame, having dotted standards mounted thereon, of longitudinal bars, cross-bars to which the longitudinal bars are secured, vertically-movable boxes in which the cross-bars are mounted, the extremities of the cross-bars protruding into the slots of the standards, screws connected with the boxes of the cross-bars, nuts applied to the screws and engaging the top of the standards, a vibratory frame slidably mounted on the longitudinal bars, and means for vibrating said last-named frame.

9. In a dry cro-concentrator, the combination with a stationary frame, of an apron-frame mounted to vibrate thereon, means for vibrating the apron-frame and composed of two side plates, cross-plates connecting the side plates, a plate attached to the cross-plates and forming a bottom for an air-chamber, tracks attached to the side plates above the bottom and forming a support for the apron, and drums journaled in the side plates beyond the air-chamber, yielding flaps attached to the bottom plate and overlapping the drums for closing the air-chamber at the ends, and an endless concentrating-apron passing around the end drums and closing the air-chamber at the top.

10. The combination with a suitable stationary frame, of an apron-frame mounted to vibrate thereon, means for vibrating the last-named frame, a shaft journaled in the stationary frame, pinions operated from the shaft and connected with the apron-frame, drums journaled in the apron-frame at the extremities of the air-chamber and around which the apron passes, a blower connected with the air-chamber to deliver air thereto, an operating-shaft, a connection between said shaft and the blower for operating the latter at a high rate of speed, and a speed-reducing connection between the operating-shaft and one of the end drums for operating the apron at a comparatively lower rate of speed.

11. The combination with a suitable stationary frame, of a vibratory frame mounted thereon, means for vibrating the last-named frame, and provided with an air-chamber, drums journaled in the frame at the ends of the air-chamber, an endless traveling apron passing around the drums and closing the air-chamber at the top, a blower, a flexible connection between the blower and the air-chamber, an operating-shaft, a connection between said shaft for operating the blower at a high rate of speed, and a speed-reducing and speed-regulating connection between the shaft

and one of the end drums for operating the apron, said connection including two oppositely-arranged central pulleys, a belt connecting said pulleys, and suitable means for shifting the belt on the pulleys and maintaining it in the adjusted position.

12. The combination of a stationary frame, an apron-frame mounted to vibrate thereon and provided with an air-chamber, means for vibrating the apron-frame, and drums journaled in the frame, yielding flaps attached to the extremities of the air-chamber bottom and engaging the drums to close the air-chamber at the ends, and an endless traveling belt or apron engaging the drums and closing the air-chamber at the top, said apron being composed of material adapted to allow air under pressure to pass therethrough from the air-chamber below.

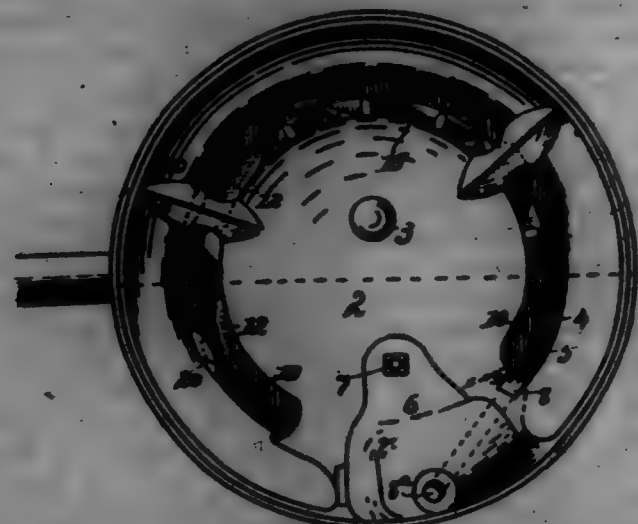
13. In a dry ore-concentrator, the combination with an air-chamber, of an endless apron arranged to close said chamber at the top, said apron comprising a body part of flumes or other material adapted to allow air to pass therethrough under pressure, rubber strips attached to the edges of the apron, each of said strips having two flanges extending approximately at right angles to each other, one of which flanges projects above the concentrating-surface of the apron and maintains the ore thereon, the other flange being secured to the edge of the apron, rods or reinforcing-pieces extending transversely across the apron on its inner surface, their extremities being attached to the outer edges of the apron, and strips composed of leather or other suitable material attached to the edges of the apron on its inner surface.

14. In a dry ore-concentrator, the combination with a stationary frame, an apron-frame mounted to vibrate thereon, means for vibrating the apron-frame, an endless traveling apron mounted on the last-named frame, and an oscillatory heater device engaging the concentrating-surface of the apron during its rearward travel, to remove the concentrate, said device being mounted on the vibratory frame, and a stationary part with which a part of the said device is connected for operating purposes.

15. In a dry ore-concentrator, the combination with a stationary frame, of an apron-frame mounted to vibrate thereon, means for vibrating the apron-frame, an endless traveling apron mounted on said last-named frame, a heater arranged to engage the concentrating-surface of the apron during its rearward travel for the purpose of removing its concentrate, said device including a transverse bar pivotally connected with the vibratory frame, a crank-arm attached to said bar, and a link attached to the stationary frame and connected with the arm of the heater-bar for operating purposes.

16. In a dry ore-concentrator, the combination with a stationary frame, an apron-frame mounted to vibrate thereon, means for vibrating the apron-frame, an endless traveling apron mounted on the last-named frame, and an oscillatory heater device engaging the concentrating-surface of the apron during its rearward travel, to remove the concentrate, said device being mounted on the vibratory frame, and suitable means for operating the heater device.

708,857. CORE-PLASTER. IRA A. WEAVER, Springfield, Ill., assignor to Sittley Manufacturing Company, Springfield, Ill., a Corporation of Illinois. Filed Nov. 15, 1901. Serial No. 28,772. (No model.)



Claim.—1. In a dropper for core-plaster, the combination with a seed-wheel having seed-receiving cells, of a stationary wall alongside one side of the line of travel of the cells, and an oscillating wall along the opposite side of the line of travel of the cells.

2. In a dropper for core-plaster, the combination with a seed-wheel having seed-receiving cells, of a stationary wall alongside one side of the line of travel of the cells, an oscillating wall along the opposite side of the line of travel of the cells, and extensions on the oscillating wall projecting toward the cells.

3. In a dropper for core-plaster, the combination of a seed-wheel having seed-receiving cells, a plate above the seed-wheel having a feeder extension disposed alongside the line of travel of the cells, a pivot for the feeder-plate concentric with the seed-wheel, means for rotating the seed-wheel and means for oscillating the feeder-plate.

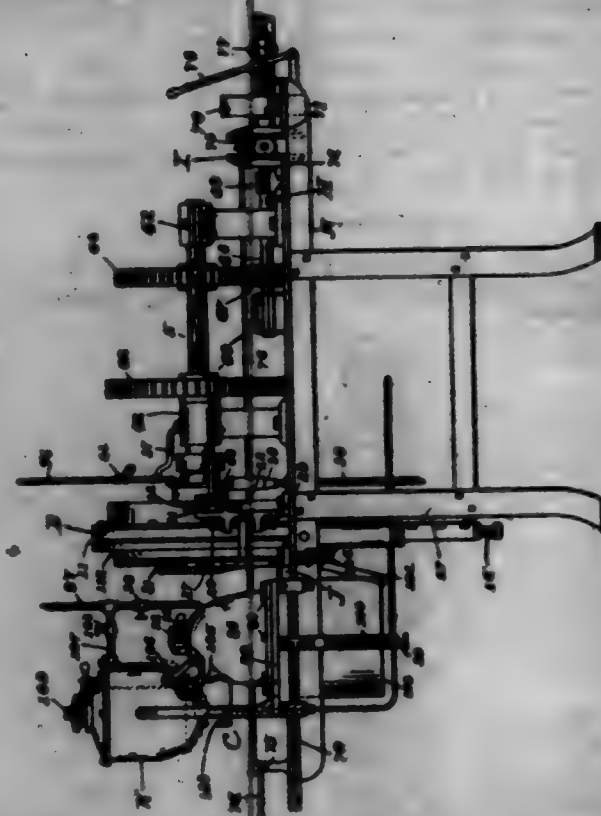
4. In a dropper for core-plaster, the combination of a seed-wheel having seed-receiving cells, a feeder-plate pivoted concentric with the seed-wheel, flanges depending from the feeder-plate and a cam between the flanges to impart oscillating motion to the feeder-plate.

5. In a dropper for core-plaster, the combination of a toothed seed-wheel having seed-receiving cells, a feeder-plate pivoted concentric with the seed-wheel, flanges depending from the feeder-plate, a shaft below the seed-wheel a pin on the shaft to drive the seed-wheel and a cam on the shaft to oscillate the feeder-plate by engaging the flanges thereof.

6. In a dropper for core-plaster, the combination of an annular seed-wheel having seed-cells formed in its inner circumference, a stationary plate forming the inner wall of the cells, each plate being on a way from the cells throughout a part of its circumference and a stationary incline opposite the out-way space leading to free grain out of the cells and into the out-way space.

7. A cut-off for the seed-plates of plasters, comprising a housing, a cut-off having a cheek extending obliquely upward and backward through the housing, and a spiral spring in the housing tending to hold the operative end of the cut-off protruded from the housing.

708,858. STRIP-METAL-CASTING MACHINE. OTIS C. WHEAT, Minneapolis, Minn. Filed June 12, 1906. Serial No. 20,000. (No model.)



Claim.—1. A mold having an ingross and egress opening, a cover adapted to rotate over the mold, drive mechanism for rotating the mold and cover, a crucible connected with the mold, an ingate adapted to register with the mold and communicate with the crucible, a dam adjoining the ingate and an ejector positioned at said egress-opening for ejecting the cast strip; said crucible having mechanism by which molten metal is adapted to be continuously injected into the mold at the ingross-opening.

2. A machine of the dam set forth, consisting in combination of a mold journaled upon a support, an annular mold-cavity in said mold, a cover over said mold-cavity, means for rotating said mold and cover, an ingross and egress opening in the mold communicating with said cavity, a dam in said cavity adjoining said ingross-opening, an ejector positioned in said egress-opening, means for continuously injecting molten metal into said cavity and a speed-controller connected with the mold.

3. A casting-machine consisting in combination of a rotatable frame, including a mold-cavity, a transverse gate registering with said cavity, a notched dam carried by said gate, and a crucible and ladle having a system of valve-controlled passage-ways connecting with said gate and with a source of air-pressure.

4. A casting-machine consisting in combination of a rotatable frame, including a mold-cavity, a transverse gate registering with said cavity, a notched dam carried by said gate and a crucible and ladle carrying said

gate, having a system of valve-controlled passage-ways connecting with said gate and with a source of air-pressure.

5. A casting-machine, consisting in combination with the mold having an ingross mold-cavity, of drive mechanism for revolving said mold, a ladle and crucible both connected with a source of air-pressure by a system of valve-controlled passage-ways and a valve-controlled ingate carried by said crucible registering with said cavity, carrying a dam passing across said cavity.

6. A casting-machine, consisting of a mold having an ingross and egress opening, an inclined mold-cavity in said mold, means for rotating said mold, an ejector in said egress-opening; said mold consisting of a plurality of disks, concentric upon which said disks are journaled and to be revolved by said mechanism for adjusting the position of the concentricity of said disks so as to adjust the thickness of the mold-cavity.

7. A casting-machine, consisting of a system of vertical disks longitudinally adjacent, concentric mechanism for supporting said disks, lever mechanism connected to the concentric mechanism, a mold-cavity formed by the disks adapted to vary in size by operating the lever mechanism, a cover over said mold-cavity, an ingate registering with the cavity, a dam positioned in the cavity adjacent to the ingate, means for rotating the disks and cover and a crucible connected with the ingate and with a source of air-pressure by a system of valve-controlled passage-ways; said dam and ingate being separable from said disks.

8. A casting-machine, consisting in combination of the mold-frame, having a cavity, disks carried by a supporting-shaft and provided with mold-dams so combined and arranged as to form said cavity, a cover over said cavity, driving-mechanism for revolving said disks, a ladle and a crucible, both connected with a source of air-pressure by a system of valve-controlled passage-ways, having an ingate registering with said cavity, a notched dam adjacent to said ingate and positioned in said cavity, and a stationary ejector; said ingate and dam being movable upon a stationary frame.

9. The combination in a strip-metal-casting machine, of a number of disks fastened together and carried by a shaft, each having an adjusting mold-dam, driving means and adjusting mechanism for varying the thickness of the mold, a cover over the mold, an ejector fixed upon said frame and passing into said mold, a pair of guide-bars directed longitudinally toward said disks, a crucible with a ladle, both movable upon said guide-bars and carrying an ingate-block, and a dam which projects so as to register with the mold-cavity when the crucible is forward; said ladle and crucible being both connected with a source of air-pressure by a system of valve-controlled passage-ways, and a heater for said crucible; said disks, cover, dam, ingate-block and ejector being so arranged as to form a segmented mold.

10. A casting-machine, consisting in combination of a mold, having a mold-cavity, a cover over said cavity, a jacket carried by said mold adjoining said cavity, fluid feed and draining mechanism for said jacket, carried by a support, drive mechanism for revolving the mold-frame and cover, a crucible, having passage-ways respectively connecting with the mold-cavity and with a source of air-pressure, and a dam adjoining the passage-way registering with said cavity.

11. A casting-machine, consisting in combination of a journaled frame, including a mold-cavity, a journaled cover rotating over the mold-cavity, a water-jacket carried on the back of the frame adjoining the mold-cavity, an ingate registering with said cavity, a dam positioned in said cavity adjacent to said ingate; said dam and ingate being separable from said frame, an ejector having an inclined face passing out of said cavity, and means for rotating said frame and cover.

12. The combination with the mold, composed of disks, journaled together and including an annular mold-cavity, a segment of which is open, a cover over said cavity, a water-jacket carried by one of said disks, adjoining said cavity, of a movable valve-controlled ingate, transverse to said cavity, an ejector having a tapering edge interrupting said groove at said opening, a dam stopping said cavity adjacent to said ingate, and a crucible being connected with a source of air-pressure by a system of valve-controlled passage-ways, so as to continuously inject molten metal into the cavity.

13. A mold forming an inclined mold-cavity, a cover over said mold-cavity, a water-jacket carried by said mold adjoining said cavity, mechanism for adjusting said mold so as to vary the size of said cavity, an ejector arranged in the cavity and means for rotating said mold, in combination with a ladle, a crucible, an ingate and a dam; said ingate and dam being movably mounted upon a stationary frame and adjacent to said mold-cavity, and the ladle and crucible provided with heater and both constantly connected with a source of air-pressure by a system of valve-controlled passage-ways.

14. A casting-machine, consisting in combination of a rotatable journaled mold, including a mold-cavity, a cover over said cavity, a transverse gate registering with said cavity, and a notched dam carried by said gate, for the purpose specified.

15. A casting-machine, consisting of a revolving, jacketed mold, a crucible and a ladle, connected with a source of air-pressure by a system of valve-controlled passage-ways, parallel guides, longitudinally positioned with reference to said mold, said crucible and ladle being movably mounted upon said guides, an annular cavity in said mold, a cover over said cavity, an ingate carried by said crucible, adapted to register with said cavity and means for continuously revolving said mold and heating the crucible.

16. A machine of the class described consisting of a plurality of disks, concentric mechanism upon which said disks are journaled, an annular mold-cavity formed by said disks, lever mechanism carried by said concentric mechanism for adjusting the disks so as to vary the size of the mold-cavity, a dam in said cavity and means for revolving said disks and continuously injecting molten metal into and ejecting the cast strip from the cavity.

17. The combination of a number of adjacent disks, one of which carries a water-jacket, a water-supply pipe connected with said jacket; said disks arranged to form a mold-groove, a cover over said mold-groove, means for revolving the disks and cover, an ingate-block, a dam, an ejector, longitudinal guide-bars, a crucible, a ladle, a source of air-pressure to which said crucible and ladle are connected by a system of valve-controlled passage-ways; said crucible carrying said ingate and dam and movable upon said bars, means for locking said crucible with reference to the disks and a passage-way leading from the crucible to said ingate.

18. In a strip-metal-casting machine, the combination with the carrying-belt of a vertical disk-like frame journaled upon a shaft and having an annular mold-groove within, a cover over the mold-groove, driving mechanism for said mold and cover, speed-controlling mechanism connected with said driving mechanism, an ejector fixed in said groove carried by said shaft, a crucible movable forward and backward upon said bars having an ingate block and stop registering with and damming said mold-groove when the crucible is forward, mechanism by which the crucible is locked in position, said crucible connected with a source of air-pressure by a system of valve-controlled pipes, passage-ways connecting said crucible with said mold-groove, and a water-jacket carried by said disk-frame adjoining said mold-groove, with means for feeding fluid thereto and draining the same.

19. A casting-machine, consisting of revolvable disks concentrically journaled and adapted to form an annular mold-cavity, a dam passing across said cavity, a water-jacket carried by one of said disks adjoining said cavity, a cover over said cavity, adjusting mechanism connected to said disks, adapted to vary the size of the mold-cavity, a valve-controlled inlet leading to the cavity and a crucible connected with said inlet and to a source of air-pressure by a system of valve-controlled passage-ways; whereby molten metal is adapted to be continuously projected from the crucible into the cavity.

20. A casting-machine, consisting of revolvable disks, having adjoining mold-dams so arranged as to form a mold-cavity, a cover over said cavity, a water-jacket carried by said disks adjoining said cavity, means for revolving said disks, mechanism for adjusting the size of the mold-cavity by varying the position of the disks, mechanism by which the speed of the disks is governed, a stationary ejector extending into the mold-cavity, an ingate adapted to communicate with the mold-cavity and a dam adjoining the ingate adapted to stop the mold-cavity.

21. A strip-metal-casting machine, consisting of an annular mold, journaled upon a frame, a cover over the mold, a jacket carried by said mold, means for feeding cooling liquid to said jacket and draining it from the same, an ingate for receiving the molten metal into the mold, a dam adjoining said ingate, an ejector for ejecting the cast strip out of the mold, means for revolving said mold and cover and mechanism by which its speed is governed.

22. The combination of a mold, an annular groove in said mold, a cover adapted to revolve over the groove and positioned to form an ingross and egress opening for the groove, an ingate registering with the groove at the ingross-opening, an ejector entering the groove at the egress-opening, a dam adjoining the ingate, extending across the groove means for continuously projecting molten metal through the ingate into the groove and means for rotating the mold and cover.

23. A mold having a tapering mold-cavity therein, consisting of rotatory disks having mold-dams, means for rotating the disks, a jacket carried by said mold adjoining said cavity, a cover over the mold-cavity, a fluid ejector, driving mechanism for revolving said mold and cover, a speed-controller for said mechanism, a movable crucible and ladle, both connected with a source of air-pressure by a system of valve-controlled passage-ways, a heater for said crucible and an ingate carried by said crucible, having a notched dam passing across said mold-cavity.

24. A casting-machine, consisting of a mold journaled upon a support, having a mold-groove, a jacket adjoining said groove, a cover over said groove, means for feeding fluid to said jacket, a crucible and a ladle, both connected with a source of air-pressure by a system of valve-con-

traded passage-ways, a guideway upon which said crucible and ladle are movable toward the mold, a valve-controlled ingate carried by said crucible as to register with said groove, a dam adjoining said ingate, a blade-like ejector passing into the mold-groove, and positioned upon and carried by a fixed support as to eject the cast strip from the groove, driving means for said mold, speed-controlling means connected with said driving means, and a heater for the crucible, as shown, and for the purpose specified.

25. A casting-machine, consisting of a jacketed frame, rotatably journaled, having an annular mold-cavity positioned broadside toward the center of said frame and within the same, a cover over the mold-cavity, an ingate registering with said cavity at its edge, a notched dam adjoining said ingate and positioned in said cavity, a movable and independent carriage carrying said ingate and dam, an ejector having an inclined face in said cavity, and driving mechanism with means for controlling its speed.

26. A strip-metal-casting machine, consisting of a ladle in combination with a crucible, both connected with a source of air-pressure by a system of valve-controlled passage-ways, a heater for said crucible, an ingate-block, a dam, a mold-frame, having an annular mold-cavity within and positioned edgewise toward the front and back of said frame; said cavity being of tapering thickness longitudinally, an ejector in said cavity, a cover over said cavity and the driving mechanism for said frame and cover with means for controlling their speed; said ingate block and dam being so arranged as respectively to register with and intercept said cavity at its place of least thickness.

27. A machine of the class described, consisting of a mold, including a mold-cavity, a cover over said mold-cavity, drive mechanism for rotating said mold, an ingate registering with said cavity, a stop carried by said ingate and intercepting said cavity, a main receptacle, an egress passage-way from the main receptacle connecting with said ingate, an auxiliary receptacle, a passage-way between the receptacles, a valve in the passage-way between the receptacles, an air-supply reservoir, supply passage-ways between the reservoir and receptacles, valves interposed in said supply passage-ways and means for heating said receptacles.

28. A casting-machine consisting of a journaled mold having an annular mold-cavity, tapering in diametral cross-section, a water-jacket carried by said mold, a cover over the mold-cavity, mechanism for adjusting said mold and cover as to vary the size of the mold-cavity, means for rotating said mold and cover, and an ingate removable from the cavity, and a dam carried by said ingate.

29. A machine of the class described, consisting of a mold-frame, drive mechanism for rotating the frame, an annular mold-cavity, tapering in diametral cross-section to free the cast strip in the mold-frame, a cover over the mold-cavity, an ingate registering with said cavity, a dam adjoining the ingate and intercepting said cavity, a crucible by which the ingate is carried, a ladle, a connection between said crucible and ladle, ingate and egress passage-ways in said crucible and ladle, valve mechanism in said passage-ways and means for maintaining pressure in the crucible and ladle; whereby the metal gravitates from the ladle into the crucible and is projected through the ingate continuously.

30. A machine of the class described, consisting of a journaled mold, an annular mold-groove tapering in diametral cross-section to free the cast strip in said mold, a cover over the mold-groove, drive mechanism for revolving said mold and cover, an ingate registering with said groove, a stop carried by said ingate intercepting said groove, a main receptacle, an egress passage-way from the main receptacle connecting with said ingate, an auxiliary receptacle, a passage-way between the receptacles, a valve in the passage-way between the receptacles, an air-supply reservoir, supply passage-ways between the reservoir and receptacles, valves interposed in said supply passage-ways and means for heating said receptacles.

31. In a machine of the class described, a revolvable mold, an annular mold-cavity tapering in diametral cross-section in said mold to free the cast strip, a cover over the mold-cavity and a notched dam positioned in said cavity, for the purpose specified.

32. In a machine of the class described, a journaled mold, means for revolving said mold, an annular mold-cavity tapering in diametral cross-section to free the cast strip from the mold, a cover over said cavity, a dam intercepting said cavity, and speed-controlling mechanism connected to said driving mechanism.

33. In a machine of the class described, the combination of a revolvable mold, a water-jacket carried by said frame, a mold cavity tapering in diametral cross-section to free the cast strip in the mold, a cover over said cavity, a transverse gate registering with said cavity, a notched dam carried by said gate, drive mechanism for revolving the mold and mechanism for controlling the speed of the mold.

34. A casting-machine, consisting of a frame, an annular mold-groove, tapering in diametral cross-section to free the cast strip, in said frame, a cover over the mold-groove, drive mechanism for rotating said frame and cover, a plurality of receptacles adjoining the frame, an egress

passage-way in the bottom of each receptacle, valve mechanism in the receptacles for the ingate and egress of the metal, means for maintaining pressure in one of said receptacles as to eject molten metal continuously, means for heating the receptacles and a stop passing across said cavity, carried by said receptacle.

35. An apparatus, consisting in combination of a mold-frame journaled upon a support, means for rotating said frame, an annular mold-cavity tapering in diametral cross-section in the frame, a cover over said cavity, an ingate and egress opening in the mold-frame communicating with said cavity, an ejector positioned in the egress-opening and entering the cavity, a dam in said ingate-opening and a speed-controller in the drive mechanism.

36. A casting-machine, consisting of a frame, having a mold-cavity, means for rotating said frame, an ingate and egress opening in the frame communicating with said cavity, a cover over said cavity, a dam entering the cavity of the ingate-opening, an ejector entering the cavity at the egress-opening, a water-jacket carried by the frame adjoining the cavity and mechanism for feeding water into said jacket for cooling the frame; said cavity tapering in diametral cross-section from the ingate-opening toward the egress-opening to free the cast strip from the cavity.

37. A casting-machine, consisting in combination of a revolvable frame including a mold-cavity, a cover over said cavity, a transverse gate registering with said cavity, a notched dam carried by said gate and a crucible having a system of valve-controlled passage-ways connecting with said gate and with a source of air-pressure, said cavity tapering in diametral cross-section from the dam for the purpose of freeing the cast strip from the cavity.

38. A casting-machine, consisting in combination of a revolvable frame, an annular cavity tapering in diametral cross-section in said frame, a cover over said cavity, means for rotating said frame and cover, a transverse gate registering with said cavity at its place of least thickness, and a notched dam carried by said gate stopping said cavity.

39. A casting apparatus composed of a journaled frame, mechanism for rotating said frame, an annular mold-cavity tapering in diametral cross-section in the frame, a cover over said cavity, a ladle and crucible, both connected with a source of air-pressure by a system of valve-controlled passage-ways, a connection between said crucible and ladle, a valve-controlled ingate connecting said crucible with said mold-cavity and a dam carried by said crucible passing across said cavity.

40. In a strip-metal-casting machine on said bed, an annular groove in said frame, a cover over said groove, means for rotating said frame, an ejector passing into said groove and fixed upon a support, a crucible and ladle movable forward and backward upon said bed, an ingate-block, said groove tapering in diametral cross-section from the ingate-block to the ejector, a stop registering with and damping said groove when the crucible and ladle are forward; said ingate block and stop being carried by said crucible, mechanism for heating the crucible and ladle in forward position, and a system of valve-controlled passage-ways connecting said crucible and ladle with a source of air-pressure.

41. A casting-machine, consisting of a rotary mold-frame composed of vertical disks concentrically arranged and journaled, having faces so arranged as to form an annular mold-groove, an opening in said groove for the ingate and egress of the molten metal and the cast strip, respectively, an ejector intercepting said groove in said opening and an ingate registering with said groove in said opening; said groove tapering in diametral cross-section from the ingate to the ejector.

42. A casting-machine, consisting of a rotary mold composed of vertical disks, having faces so arranged as to form an annular mold-groove, a cover over said mold-groove, lever mechanism connected with said disks for adjusting the thickness of the mold-groove, a passage-way leading to the mold-groove, an ejector positioned in said passage-way and intercepting said groove and a dam blocking said groove at said passage-way; said groove tapering in diametral cross-section from the dam to the ejector.

43. A machine of the class described, consisting in combination of disks arranged to form an annular mold-groove, tapering in diametral cross-section, and having an ingate and egress opening, a cover over the mold-groove, an ejector intercepting said groove at said egress-opening, an ingate registering with said groove at said ingate-opening, a dam blocking said groove adjoining the ingate, and adjusting mechanism for said disks for varying the size of said groove.

44. A casting-machine consisting of a system of vertical disks longitudinally adjacent and concentrically journaled, a mold-cavity tapering in diametral cross-section formed by said disks, a cover over said cavity, lever mechanism connected to said disks, adapted to change the size of the mold and lock the disks in position, an ingate registering with said cavity, a dam positioned in the cavity adjacent to said ingate; said dam and ingate being removable from said disks, means for independently rotating said disks and cover and a crucible connected with said ingate and

with a source of air-pressure by a system of valve-controlled passage-ways.

45. A casting-machine, consisting in combination of a revolvable mold, an annular mold-cavity formed by said mold, a cover over the mold-cavity, an ingate and egress opening in said mold to said mold-cavity, a crucible adjoining the mold and registering with the ingate-opening, a ladle having an opening through which the metal may be passed, a valve in said opening; and a connection between the crucible and ladle, said crucible and ladle being connected with a source of air-pressure by a system of valve-controlled passage-ways.

46. A machine for casting metal strips, consisting in combination of a mold, an annular mold-cavity in said mold, means for rotating the mold, a cover over the mold-cavity, as positioned as to form an ingate and egress opening in the mold to the outside, means for rotating the cover, a dam intercepting said cavity at said egress-opening, a ladle, and a crucible, both the ladle and crucible being connected with a source of air-pressure by a system of valve-controlled passage-ways.

47. In a machine of the class described, a journaled mold including an annular mold-cavity, a cover adapted to rotate over the mold-cavity, an eccentric upon which the cover is journaled, an ingate registering with the mold-cavity, a notched dam adjoining the ingate, and means for rotating said mold and cover; said ingate and dam being removable from the mold-cavity.

48. A casting-machine, consisting of a journaled frame, an annular mold-cavity in said frame, a cover over said cavity, means for rotating said frame, a cover, an ingate, a dam adjoining said ingate and means for heating said frame and ingate; said ingate registering with said mold-cavity and consisting of a block and a nipple passing through the block; said block having its face contacting with the face of the mold-frame and the block and nipple composed of dissimilar metals to prevent cracking under the influence of heat.

49. In a machine of the class described, the combination with driving mechanism, of a plurality of independent disks, concentrically journaled, an annular cavity tapering in diametral cross-section to free the cast strip; a cover over the mold-cavity and a dam intercepting said cavity.

50. A casting-machine, consisting of a plurality of journaled disks, an annular groove formed by said disks, a cover over a segment of said groove, means for rotating said disks, a stationary ingate adapted to register with the covered portion of the groove, a notched dam adjoining the ingate and intercepting said groove, and an ejector having an inclined face intercepting the uncovered portion of the groove; said groove tapering in diametral cross-section from the dam to the ejector, whereby the cast strip is freed from the groove as the disks revolve.

51. A machine of the class described, consisting of a frame of disks 2, 3 and 4, so arranged as to form a mold-cavity, D, having the egress-opening E for the cast strip and tapering in diametral cross-section toward said opening from the place of ingate of the molten metal into the mold-cavity; a stationary support A upon which said disks are journaled; means for adjusting said disks; a water-jacket G; a crucible O adjoining said frame of disks; an ingate-block J, carried by said crucible; a dam L adjoining the ingate-block; an air-reservoir; valve mechanism connecting said reservoir with said crucible, adapted to project the molten metal from the crucible into the cavity in a continuous stream; a heater adjoining the crucible; an ejector F positioned in the egress-opening, corresponding in thickness and shape respectively with the thickness and curvature of the mold-cavity, mounted on the frame A and so arranged as to eject the cast strip from the cavity; mechanism H for rotating the disks, and a controller I, connected with the disks, for governing their speed, said frame of disks positioned adjoining and having its cavity registering with said ingate-block.

52. A casting-machine, consisting in combination with a revolvable mold, of an annular groove in said mold, a cover-disk over the groove, means for rotating said mold and disk, mechanism for governing the speed of the mold and disk, a chuck upon which the mold is journaled, an ejector fixed in said groove and carried by said disk, carrying mechanism adjoining the mold, a carriage movable forward and backward upon said carrying mechanism, a crucible mounted upon the carriage, an ingate block and stop carried by the crucible adapted respectively to register with and dam the mold-groove when the carriage is forward, means for heating the carriage in operative position and an air-reservoir to which the crucible is connected, adapted to project the molten metal from the crucible into the mold-groove in a continuous stream.

708,859. SPEED-CHANGING DEVICE. JAMES A. WHITE, Philadelphia, Pa., assignor of one-half to John W. Moore, Philadelphia, Pa. Filed Jan. 22, 1902. Serial No. 92,327. (No model.)

Claim.—1. A band having an inner face transversely tapered from one edge to the other, whereby it is adapted to a cone-pulley, said inner face being susceptible of longitudinal expansion and contraction, substantially as described.

2. A band having an inner face transversely tapered from one edge to the other, whereby it is adapted for application to a cone-pulley, said inner face being susceptible of longitudinal expansion and contraction in varying degree from the thinner to the thicker edge of the same, substantially as described.



3. The combination of a cone-pulley, a band applied thereto, said band being tapered in cross-section and susceptible of longitudinal expansion and contraction on its inner face, and a power-transmitting belt bearing externally upon said band, substantially as described.

4. The combination of a pair of cone-pulleys, a band applied to each of said pulleys, said band being tapered in cross-section and susceptible of longitudinal expansion and contraction on its inner face, and a power-transmitting belt bearing externally upon each of said bands, substantially as described.

5. A band for application to a cone-pulley, said band having on its inner face transverse blocks forming the bearing-surfaces of the band on the pulley, said blocks being tapered in thickness from one edge of the belt to the other, and also tapered in width at their bearing-edges from the thin end of the block to the thick end of the same, substantially as described.

6. A band for application to a cone-pulley, said band having on its inner face transverse blocks forming the bearing-surfaces of the band on the pulley, said blocks being tapered in thickness from one edge of the belt to the other, and also tapered in width at their bearing-edges from the thin end of the block to the thick end of the same, and having said bearing-edges covered with leather, substantially as described.

7. A band for application to a cone-pulley, said band having on its inner face transverse blocks forming the bearing-surfaces of the band on the pulley, said blocks being tapered in thickness from one edge of the belt to the other, and also tapered in width at their bearing-edges from the thin end of the block to the thick end of the same, and having said bearing-edges covered with leather, substantially as described.

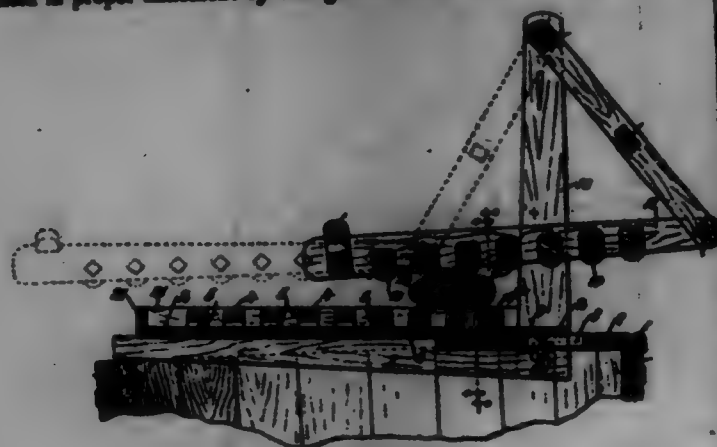
8. The combination of a cone-pulley, a band adapted thereto and tapered in cross-section to conform therewith, a driving-belt applied to the outer face of said band but narrower than the same, and a shifting device acting only upon the band to shift the band and belt on the pulley, substantially as described.

9. The combination of two pulleys, one of which is conical, a driving-belt passing around both pulleys, and a loose intermediate compensating band on the conical pulley, substantially as and for the purpose set forth.

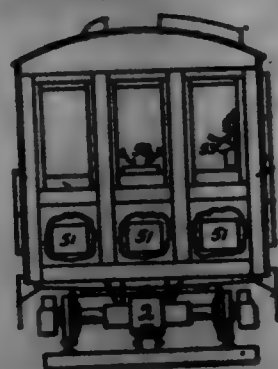
708,860. WASHING-MACHINE. JAMES W. WATSON, Fremont, Wash. Filed Jan. 7, 1902. Serial No. 92,792. (No model.)

Claim.—A washing-machine, comprising a scrub-board adapted to engage the edge of a tub, and provided upon its under side with a longitudinal groove, an oscillating rubber adjacent to said scrub-board, a longitudinal board partially buried within said groove, said board being pro-

vided with a longitudinal slot disposed parallel to the general direction of said groove, and also provided with a longitudinal flat plate extending throughout the entire length of said board, and provided at its extremity with a hook for engaging the edge of a tub, said hook being bent upward so that the top edge of the curb-board is substantially level with the top edge of the tub, and a thumb-screw engaging said slot and also engaging a curb-board for the purpose of clamping said longitudinal board within said groove, the arrangement being such that said longitudinal board is held in proper alignment by said groove and said thumb-screw.



708,861. THIRD-RAIL SYSTEM OF MAGNETO-ELECTRIC RAILWAY. WILLIAM H. WILSON, Buffalo, N. Y. Filed Aug. 19, 1891. Serial No. 74,672. (No model.)



Claim.—1. In an electric railway, a third rail, a conductor-conduit arranged beneath said rail and parallel thereto, means for connecting during the passage of the car the third rail to the conductor, an electromagnet on the car to operate said connecting means, means for energizing said magnet, and a trolley-wheel journaled on said electromagnet and arranged to make contact with the third rail.

2. In an electric railway, a third rail, a conduit arranged beneath said rail and parallel thereto, means for making connection temporarily during the passage of the car between said conductor and said third rail, a bar-electromagnet supported on the car, coils arranged on the ends of the said bar-magnet, means for energizing said coils, and a contact trolley-wheel journaled on said bar-magnet and arranged to make contact with the third rail.

3. In an electric railway, a third rail, a conduit arranged beneath said third rail and parallel thereto, a main conductor arranged in said conduit and suitably insulated therein, means for making connection between the third rail and the main conductor during the passage of the car, a trolley-wheel hinged to the car, a bar-electromagnet contained in a fixed position in said shell and arranged at right angles to the third rail, coils on the end of said bar-magnet, means for energizing said coils, a trolley-wheel arranged in said shell and adapted to make constant contact with the third rail, said trolley-wheel being journaled by ball-bearings on the bar-magnet.

4. In an electric railway, a third rail, a conduit arranged beneath said third rail and parallel thereto, the third rail forming the top of the conduit, a main conductor arranged in said conduit and suitably insulated, means for temporarily making connection during the passage of the car between the under surface of the third rail and the main conductor, a trolley-wheel provided with end plates and a supporting-arm, a hinged connection between said supporting-arm and the car or truck, a bar-magnet having regular ends fitted to the end plates and arranged at right angles to the third rail, coils on the ends of said bar-magnet, means for energizing said coils, a contact trolley-wheel by ball-bearings, internal flanges on the trolley-wheel forming cups, corresponding cups threaded to fit the bar-magnet, jam-nuts also threaded to fit said bar-magnet, and suitably connecting the trolley-wheel to the motor.

5. In a magneto-electric system of propelling cars, a conduit, a main conductor suitably insulated in said conduit, a sectional third rail forming the top of the conduit composed of insulated sections and forming a temporary conductor parallel with the main conductor, intermediate conductors journaled on the under surface of the third rail, a bar-magnet arranged on the car at right angles to the third rail for magnetically influencing the intermediate conductors temporarily to make contact between the main conductor and the third rail, a contact trolley-wheel journaled on said bar-magnet, suitable wiring on the car, and a motor on the car.

6. In a combined conduit and third rail for an electric-railway system, a rail-base of U shape having outwardly-extending flanges at its base, an intermediate U-shaped piece fitted to said base and having outwardly-extending flanges, both connecting the intermediate piece to the base, a third rail forming the top of the conduit having an upwardly-extending rib-section, outwardly-extending flanges and downwardly-extending flanges on the ends of said outer flanges, insulating material arranged beneath said third-rail section and the intermediate piece, both for securing the third-rail section to the intermediate piece, means for insulating said rails, and a main conductor suitably insulated and arranged in said conduit.

7. In an electric railway, a car, a third rail, a conduit beneath said rail and parallel thereto, a main electric conductor within said conduit, an electro-bar-magnet placed in a horizontal position below the car with its pole ends arranged at right angles to and above the rail and its middle portion centrally over the rail, said bar-magnet held stationary in a metal frame and hinged to the car-truck, means for adjusting a trolley-wheel to the central surface portion of said bar-magnet, means for proper wiring of said magnet, means for proper insulation, means for conducting the electric current from the main conductor upward through the rail and said bar-magnet to the car, means for conducting the magnetic current downward from the consequential pole or middle portion of said bar-magnet through the rail; substantially as shown and described.

8. In an electric railway, a third rail, a closed conduit within said rail, a main electric conductor in said conduit, a sectional metallic cover to combined rail and conduit, forming a temporary conductor parallel with the main conductor, intermediate conductors journaled to lower side of said temporary conductor, said intermediate conductors held in a normal non-contacting position, an electro-magnet and trolley arranged at right angles to the third rail, and in metallic contact with the temporary conductor, coils on the ends of said electro-magnet, means for energizing said coils direct from the main conductor and means for magnetically influencing the temporary conductor direct from the consequential pole of the electro-magnet.

9. In an electric railway, a combined third rail and closed conduit, a main conductor in said conduit properly insulated, intermediate magnets in the conduit, means for magnetically influencing the intermediate magnets from the temporary conductor by induction, said temporary conductor being suitably insulated from each other and the main rail, a three-pole magnet on the car, magnetic means extending from the three-pole magnet in metallic contact with third rail for closing electric circuit between the temporary conductor and main conductor, magnetic means for forming a metallic contact between the intermediate magnets and the main conductor, means for forming a metallic contact between the temporary conductor and main conductor, the car, a motor on car and suitable wiring on car.

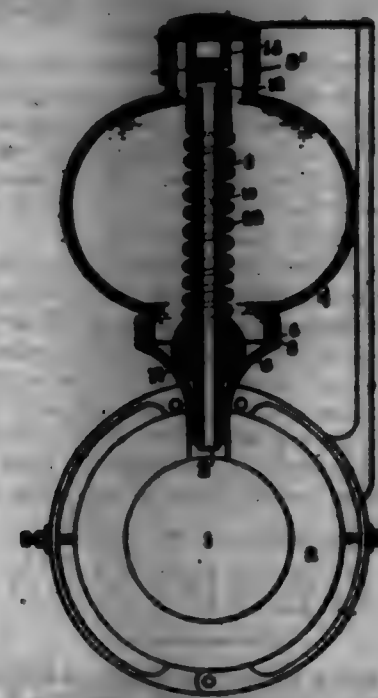
10. In a magneto-electric system for propelling railway-cars, a closed conduit, a main electric conductor within said conduit suitably insulated, a sectional third rail forming the top of the conduit composed of insulated sections and forming a temporary conductor parallel with the main conductor, intermediate conductors journaled on the under surface of said rail and always in continuous metallic contact with the main, said intermediate conductors operated by magnetic induction, a three-pole electro-bar-magnet contained in a shell frame and in a fixed position at right angles to the third rail, a trolley-wheel journaled on said bar-magnet in metallic contact with the temporary conductor, coils on said magnet, means for energizing said electro-magnet direct from the main conductor, a car, a motor on the car, suitable wiring on the car, means for conducting the electric current from the main conductor to a storage battery on the car and means for energizing the coils or electro-magnet from the storage battery.

REISSUES.

12,002. LUBRICATOR. JAMES J. TUNNEY, Pittsburg, Pa. Assignor to John Jenkins, Pittsburg, Pa. Filed Feb. 25, 1892. Serial No. 59,642. Original No. 679,944. (Filed July 28, 1891.)

Claim.—1. In a lubricator, a casing adapted to contain oil and to be secured to a revolving body, a hollow body secured to the casing, a tube longitudinally slidably connected to the hollow body, said body and tube being provided with lateral ports adapted to register and permit oil in the casing to pass into the interior of the tube, said tube conducting

the oil toward the axis of the revolving body, and its extreme outer end being telescopic with the hollow body.



2. In a lubricator, a casing adapted to contain oil and to be secured to a revolving body, a hollow body secured to the casing, a tube longitudinally slidably connected to the hollow body, said body and tube being provided with lateral ports adapted to register and establish communication between the interior of the casing and of the tube, and to pass out of registry whereby said communication is broken, said tube conducting the oil toward the axis of the revolving body and its extreme outer end being telescopic with the hollow body.

3. In a lubricator, a casing adapted to contain oil and to be secured to a revolving body, a hollow body secured to the casing, a tube longitudinally slidably connected to the hollow body, said body and hollow body being provided with lateral ports adapted to register and establish communication between the interior of the casing and of the tube, and means for causing the sliding of said tube, said tube conducting the oil toward the axis of the revolving body and its extreme outer end being telescopic with the hollow body.

4. In a lubricator, in combination with a fitting adapted for attachment to a revolving body, a casing secured to said fitting, a nipple connected to the upper end of said casing and having arranged therein parts, a hollow stem in which are arranged openings extending transversely thereto and adapted to register with the ports formed in the nipple, a weight arranged on said stem, and a spring enclosing the said stem between said nipple and weight.

5. In a lubricator, in combination with a fitting adapted for attachment to the hub of a pulley, a casing secured to said fitting, a nipple connected to the upper end of said casing and having arranged therein parts, a hollow stem in which are arranged openings extending transversely thereto and adapted to register with the ports formed in the nipple, a weight arranged on said stem, a spiral spring enclosing the said stem between said nipple and weight, and a screw-threaded cap adapted to hold said nipple in position.

6. In a lubricator, in combination with a fitting adapted for attachment to the hub of a pulley, a casing secured to said fitting, a nipple secured within the casing carrying a head and having formed therein a port, slots arranged in said nipple, a stem having a central opening and transversely-extending parts communicating therewith, pins arranged on said stem adapted to operate in said slots, a weight secured to said stem, a spiral spring enclosing said stem, and a cap arranged upon the upper end of said spherical casing and engaging the head of the nipple.

7. In a lubricator, the combination with a cone-shaped fitting adapted for attachment to the hub of a pulley, a spherical casing secured to said cone-shaped fitting, a nipple connected to the upper end of said spherical casing and having arranged therein parts, a hollow stem in which are arranged openings extending transversely thereto and adapted to register with the ports formed in the nipple, a weight arranged on said stem, a spiral spring enclosing the said stem between said nipple and weight, and a screw-threaded cap adapted to hold said nipple in position, substantially as described.

8. In a lubricator, in combination with a cone-shaped fitting adapted for attachment to the hub of a pulley, a spherical casing secured to said cone-shaped fitting, a nipple secured within the casing carrying a head and having formed therein a port, slots arranged in said nipple, a stem having a central opening and transversely-extending parts communicating

therewith, pins arranged in said stem adapted to operate in said slots, a weight secured to said stem, a spiral spring enclosing said stem, and a cap arranged upon the upper end of said spherical casing and engaging the head of the nipple, all parts being arranged and operating substantially as described.

12,008. PROCESS OF HEATING METAL PARTS. ROBERT DUNN, Ltd., Tipton, near Birmingham, England. Assignor to Charles A. Schmitt, Berlin, Germany. Filed Oct. 1, 1899. Serial No. 22,522. Original No. 685,200. (Filed Apr. 12, 1898.)

Claim.—1. The process of heating parts of metallic objects consisting in subjecting the same to the heat resulting from the chemical reaction taking place in an ignited mass of finely-divided aluminum and an oxygen or sulfur bearing compound, substantially as described.

2. The process of heating parts of metallic objects consisting in enclosing them in a mass of finely-divided metallic aluminum, and a sulfur or oxygen bearing metallic compound, igniting the mass and after the reaction has propagated itself through the whole mass removing the slag formed thereby, as specified.

12,004. HOT-AIR SIDE-WALL REGISTER. GEORGE ALLEN, Toledo, Ohio. Filed May 21, 1900. Serial No. 106,440. Original No. 697,940. (Filed Aug. 24, 1899.)



Claim.—1. A side-wall hot-air register comprising a casing having an opening in its front for escape of hot air, an adjustable swinging door adapted to tightly close said opening in one position, and to be swung inward to more or less close the casing and deflect more or less hot air into the room, and a grating extending across the throat of the casing below the door and front opening in casing, said door being adapted to be held in various adjusted positions by contact with the grating, substantially as and for the purpose described.

2. In a side-wall hot-air register, a casing having front-opening at bottom and an unobstructed opening in its front side for escape of hot air, and a detachable front frame surrounding the opening in the casing, a swinging door adapted to tightly close said opening in one position, and to be swung inward to more or less close the casing and deflect more or less hot air into the room, the upper edge of the door being confined at the top of the front opening, and a grating extending from the lower edge of said front opening inwardly to the rear side of the casing, substantially as described.

3. A hot-air side-wall register comprising a casing having a hot-air inlet at bottom, and a hot-air-escape opening in its front side, a grating within the casing extending from the lower edge of the front opening to the rear of casing and adapted to prevent articles falling through the casing; and a swinging door having its upper edge confined at the upper edge of the front opening in the casing, and adapted to be swung inwardly over the grating and upheld thereon, substantially as and for the purpose described.

4. In a hot-air side-wall register, a casing having a large hot-air inlet at bottom, a smaller hot-air outlet at top, and a hot-air-escape opening in its front side; a grating within the casing extending from the lower

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edge of the front opening to the rear of casing adapted to prevent articles falling into the fire, a detachable front frame fitted to the front of casing and surrounding the front opening therein, a swinging door having its upper edge loosely confined at the upper edge of the front opening in the casing and adapted to be swung more or less inwardly over the grating and to be upheld thereon, substantially as described.

5. A side-wall hot-air register comprising a casing having an opening in its front for escape of hot air, an adjustable grating swinging door adapted to tightly close said opening in one position, and to be swung inward to more or less close the casing and deflect more or less hot air into the room, and a grating extending across the throat of the casing below the door and front opening in casing and by which the door is kept in position within the casing, substantially as described.

6. A hot-air side-wall register comprising a casing having a hot-air inlet at bottom, and a hot-air-escape opening in its front side, a grating within the casing extending from the lower edge of the front opening to the rear of casing and adapted to prevent articles falling through the casing; a swinging door having its upper edge confined at the upper edge of the front opening in the casing and adapted to be swung inwardly over the grating and upheld thereon, a ventilating air-chamber between the lower part of the frame and casing below the front opening, and air-spaces at the sides of the casing communicating with said ventilating-chamber, substantially as described.

7. The combination of a casing having an opening in its front side, and an adjustable swinging door adapted to close said opening or to be adjusted inwardly as to direct or deflect more or less air into the room; with the adjustable swinging valve in the casing below said door, and means for adjusting said valve, substantially as described.

8. The combination of a casing having an opening in its front, a grate located in said casing at the lower edge and in rear of said opening, and a door adapted to close said opening or to be adjusted inwardly over and supported by said grate as to direct or deflect more or less air into the room; with the valve in the casing below said grating, and means for adjusting said valve, substantially as described.

9. The combination of the casing having an opening in its front; with an adjustable door-damper for closing said opening, an upwardly-curved flange fixed within the casing having a series of notches adapted to engage the lower edge of the door and hold the same more or less open when swung inward over the flange, and a regulating-valve below the front opening and means for adjusting said valve.

10. The combination of the casing having an opening in its front, a door for closing said opening, and a grate located within the casing at the lower edge of said opening and extending across the casing, provided with a curved flange having a series of notches adapted to be engaged by the lower end of the door and hold the same more or less open; with a regulating-valve below the grating, and means for adjusting said valve, substantially as described.

11. In a hot-air register, the combination of the casing having a sloping top, an opening in said top communicating with a superimposed fire, an opening in the front wall of the casing, a grating extending from the lower edge of said front opening to the rear side of the casing and provided with a notched flange, a frame fitted around the front end of the casing, and an adjustable door having its upper end loosely engaged in a recess between the upper end of the casing and the frame, its lower edge being adapted to engage any of the notches in the flange for the purpose of adjusting the door, substantially as described.

12. In a hot-air register, the combination of the casing having a sloping top, an opening in said top communicating with a superimposed fire, an opening in the front wall of the casing, a grating extending from the lower edge of said front opening inwardly and upwardly to the rear side of the casing and provided with a notched flange, a frame fitted around the front end of the casing, and an adjustable door having its upper end loosely engaged in a recess between the upper end of the casing and the frame, its lower edge being adapted to engage any of the notches in the flange for the purpose of adjusting the door; with a valve in the casing below the grate, and means for operating said valve, and a ventilating air-chamber between the frame and the casing below the front opening in the latter, and air-spaces at the sides of the casing communicating with said ventilating-chamber, all substantially as described.

13. In a hot-air register, the combination of the casing having an opening therein at the front, and an adjustable door-damper for closing said opening; with a grating in the casing having a curved flange provided with a series of notches adapted to be engaged by the lower edge of the door when the latter is swung inward and hold the door more or less open and support the same, substantially as described.

14. In a hot-air register, the combination of the casing having an opening in its front, an adjustable swinging door for closing said opening, and a grating located at the lower edge of said opening and extending

across the interior of the casing provided with a curved flange on one end having a series of notches adapted to be engaged by the lower end of the door to support the latter and hold the same more or less open, substantially as described and for the purpose set forth.

15. In a hot-air register, the combination of the casing having an opening in its front, an adjustable inwardly-swinging door-damper for closing said opening, a regulating-valve below the opening, and means for adjusting said valve; said casing being provided with air-spaces at each side and an air-space below the opening therein communicating with the room and with said side air-spaces, for the purpose of ventilating the room, substantially as described.

16. In a hot-air register, the combination of the casing having an opening in its front, an adjustable swinging door for closing said opening, an air-chamber below the opening communicating with the room and with air-spaces at each side of the casing, and a grating located at the lower edge of said opening and extending across the casing, provided with a flange on one end having a series of notches adapted to be engaged by the lower end of the door and support the latter and hold the same more or less open; with the regulating-valve below the grate and means for adjusting said valve, substantially as described.

DESIGNS.

85,968. HANDLES FOR SPOONS, FORKS, OR SIMILAR ARTICLES. EDWARD GUNN and CHARLES A. GUNN, Providence, R. I., assignors to Watson & Howell Company, Attleboro, Mass. Filed May 10, 1908. Serial No. 107,002. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork, or similar article, as herein shown and described.

85,964. HANDLES FOR SPOONS, FORKS, OR SIMILAR ARTICLES. ALBERT E. HANAWAY, North Attleboro, Mass., assignor to E. Hanaway & Company, North Attleboro, Mass., a Firm. Filed May 21, 1908. Serial No. 100,001. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork, or similar article, as herein shown and described.

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U. S. PATENT OFFICE.

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85,965. HANDLES FOR SPOONS, FORKS, OR SIMILAR ARTICLES. ALBERT E. HANAWAY, North Attleboro, Mass., assignor to E. Hanaway & Company, North Attleboro, Mass., a Firm. Filed May 21, 1908. Serial No. 100,002. Term of patent 7 years.



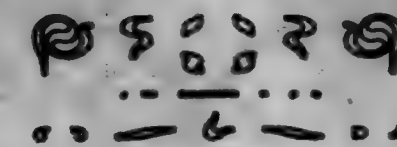
Claim.—The design for the handle of a spoon, fork, or similar article, as herein shown and described.

85,966. FOOT OF BUCKLE-TYPE. HENRY BAKER, Chatham, N. Y., assignor to American Type Foundry Company, New York, N. Y., a Corporation of New Jersey. Filed May 20, 1908. Serial No. 100,111. Term of patent 14 years.



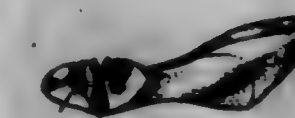
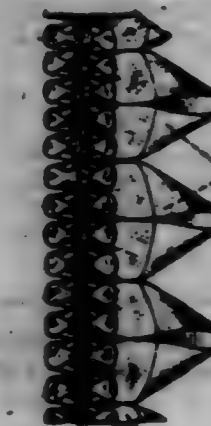
Claim.—The design for a foot of buckle-type as herein shown and described.

85,967. FOOT OF BUCKLE-TYPE. HENRY BAKER, Chatham, N. Y., assignor to American Type Foundry Company, New York, N. Y., a Corporation of New Jersey. Filed May 20, 1908. Serial No. 100,100. Term of patent 14 years.



Claim.—The design for a foot of buckle-type as herein shown and described.

85,968. TRIMMING. GEORGE E. TAYLOR, New York, N. Y., assignor to the Knickerbocker Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Apr. 24, 1908. Serial No. 100,101. Term of patent 14 years.



Claim.—The design for a trimming substantially as shown and described.

TRADE-MARKS

REGISTERED JUNE 24, 1902.

88,497. **PIREX.** THE PYREXAN STEEL PIPE MANUFACTURING CO., Camden, N. J., and New York, N. Y. Filed May 12, 1902.

LITTLE GEN
709

The words "LITTLE GEN" and the number "709." Used since February 20, 1902.

88,488. **PIREX.** THE PYREXAN STEEL PIPE MANUFACTURING CO., Camden, N. J., and New York, N. Y. Filed May 12, 1902.

The facsimile-signature of the old firm "R. EVERBROOK & Co." Used since June 1, 1899.

88,499. **DRUM-SHIELDS.** THE CAMFIELD BROS. CO., Bridgeport, Conn., and New York, N. Y. Filed May 7, 1902.



The representation of two drum-shields, one partly overlying or overlapping the other. Used since July 1, 1901.

88,500. **DRUM-SHIELDS.** THE CAMFIELD BROS. CO., Bridgeport, Conn., and New York, N. Y. Filed May 7, 1902.



The representation of two drum-shields, one overlying and partly concealing the other, the outer or top shield having the lower end of one section turned up, exposing the inner face of both sections of the top shield. Used since July 1, 1901.

88,501. **COGNATE.** CHARLES COLLIER, Paris, France. Filed May 14, 1902.

LE MYSTÈRE

The words "Le Mystère." Used since January 16, 1900.

88,502. **COGNATE.** ROYAL WINDMILL COGNAC CO., Worcester, Mass. Filed May 14, 1902.

ROYAL BLUE

The words "ROYAL BLUE." Used since May 5, 1902.

88,508. **COGNATE.** ROYAL WINDMILL COGNAC CO., Worcester, Mass. Filed May 14, 1902.

PING PONG

The words "PING PONG." Used since May 1, 1902.

88,504. **SHIRTLESS.** RALPH HALL, Boston, N. C. Filed May 12, 1902.



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The head of what is known as the "Told Woman." The face is exposed in front view. A cardstock contains the head, with intermediate representation of the folds of a veil or drapery. Used since January, 1902.

88,505. **SHIRTLESS.** RALPH HALL, Boston, N. C. Filed May 12, 1902.



A representation of a Chinaman and a bear dancing. Used since January, 1902.

88,506. **SHIRTLESS AND SHIRTLESS.** GEORGE L. HARTWELL, New York, N. Y. Filed May 12, 1902.



A representation of two Chinese dogs rampant, the larger one sitting upon his hind legs crouching on attack by the other, which crouches in a position ready to spring at the larger one, and a circle surrounding the same. Used since 1900.

88,507. **SHIRTLESS, SHIRTLESS, AND DRILL.** EDWARD L. GERRARD, New York, N. Y. Filed May 1, 1902.



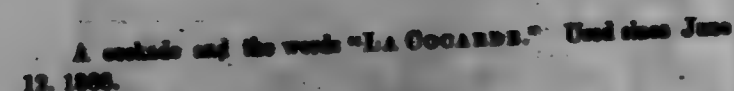
The representation of two winged dragons supporting a double medallion, with rampant lions appearing at the upper extremities of each arm of the medallion. Used since April 12, 1902.

88,508. **COTTON FABRIC.** WARR, HANNEY & CO., London, England. Filed May 1, 1902.



A representation of a dragon surrounding a bank of clouds, with its tail raised vertically, and a man mounted upon the dragon waving a hand upon his head and carrying about a blessing torch. Used since A. D. 1901.

88,518. FURNITURE AND FIXTURES. The Bureau of
Insurance Company, Inc., New York. Filed May 11, 1908.



88,510. COLLAPSEABLE TUBES, TIALK, BOXES, VACCINATION-
SHIELDS, AND WRAPPING-SHIELDS. TRANSPARENT CELLULOSE PRO-
TECTIVE COMPANY, Newark, N. J. Filed Apr. 28, 1922.

The word "CRYSTALLOID." Used since March 1, 1901.

88,511. TOILET-SOAP. LAMBERT PHARMACEUTICAL CO., St. Louis, Mo.
Filed Apr. 7, 1902.

The word "LISTERINE." Used since May 15, 1900.

88,512. AN ANTIMALARIAL. HENRY S. CLARK, New York, N. Y.
Filed May 2, 1908.

The word "HEMOQUININE." Used since January 1, 1902.

The word "BLUMRAL." Used since June, 1901.

88,514. SALVE NATIONAL FOOD & FRANKMAGAL CO., BIRMINGHAM,
AL. Filed Apr. 29, 1928.

The hyphenated word "KRU-KUNA." Used since March 31, 1933.

88,515. STOCK-FOOD. CENTRAL STOCK FOOD CO., Columbus, Me.
Filed May 15, 1902.

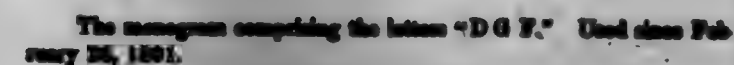


88,516. CERTAIN NAMED DAIRY GOODS. RE: MILK COOLER
COMPANY, Middletown, N. J. Filed July 29, 1939.



The word "STAR" and the representation of a star. Used since January 28, 1968.

88,517. CUSTAIN NAMED HEALTH-FOOD COMPOUND. DASH
GRAFT CUSTAIN FOOD CO., Philadelphia, Pa. Filed May 2, 1938.



88,518. GELATIN PREPARATION FOR TABLE DISCHARGE. Cushing Sturtevant Mfg. Co., Ltd., Rochester, N.Y., Filed May 3, 1908.

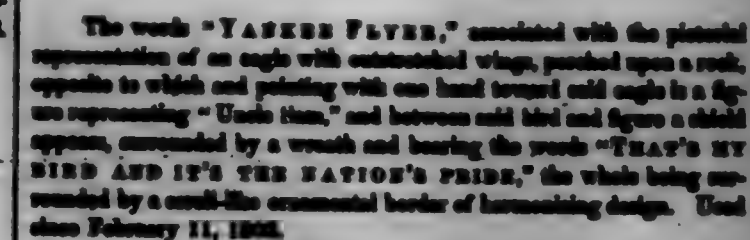
The hyphenated word "JBL-JBL." Used since March 15 1942.

38,519. OILATEX. EXHIBIT MANUFACTURING COMPANY, Ocala
Fla. 4, 1938.

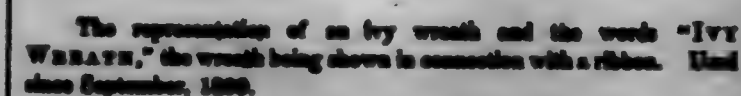
FLAKE

The words "CRYSTAL FLAKE." Used since 1922.

88,590. GRASS, SMOKING AND CHEWING TOBACCO, AND
SMUT. STEIN & WAGNER, CHICAGO, ILL. Filed Feb. 11, 1902.



88,591. HACKING-OIL. C. SCHMIDT Co., Stock City, Iowa.
Filed May 11, 1912.



88,522. CERTAIN NAMED LUBRICATING-OILS. C. BROWNING
Ga. State Hwy. Insp. Filed May 12, 1932.

The representation of three stars and the words "THREE STAR."
Used since September, 1929.

88,523. ALUMINUM AND ALUMINUM ALLOYS. THE PYRO-
GRAPHIC COMPANY, Chicago, Ill. Filed Feb. 21, 1902.



A symbol comprising segments of a circle arranged so as to afford an intermediate cross-shaped space and a star in each segment. Used since 1894.

88,524. MARKING AND METHOD. FRANK A. DUNN, Co. Phila-
delphia, Pa. Filed May 12, 1902.

PRINCE ALERT.

The words "PRINCE ALERT." Used since October 11, 1901.



LABELS

REGISTERED JUNE 24, 1902.

9,244.—Title: "MORTON'S SWEETSMOKERS." (For Cigars.)
MORTON & Co., New York, N. Y. Filed May 22, 1902.

9,245.—Title: "SVEDESKT MALOBT BRANVIN." (For Medi-
cine.) B. LINDQVIST & Co., Chicago, Ill. Filed May 21, 1902.

9,246.—Title: "FERR-MALT WINE." (For Medicine.) LEO
FONSSA, Chicago, Ill. Filed May 20, 1902.

9,247.—Title: STANDARD SANITARY MANUFACTURING
CO., PITTSBURGH, PA., U. S. A." (For Sanitary Ware.)
STANDARD SANITARY MFG. CO., PITTSBURGH, Pa. Filed May 20,
1902.

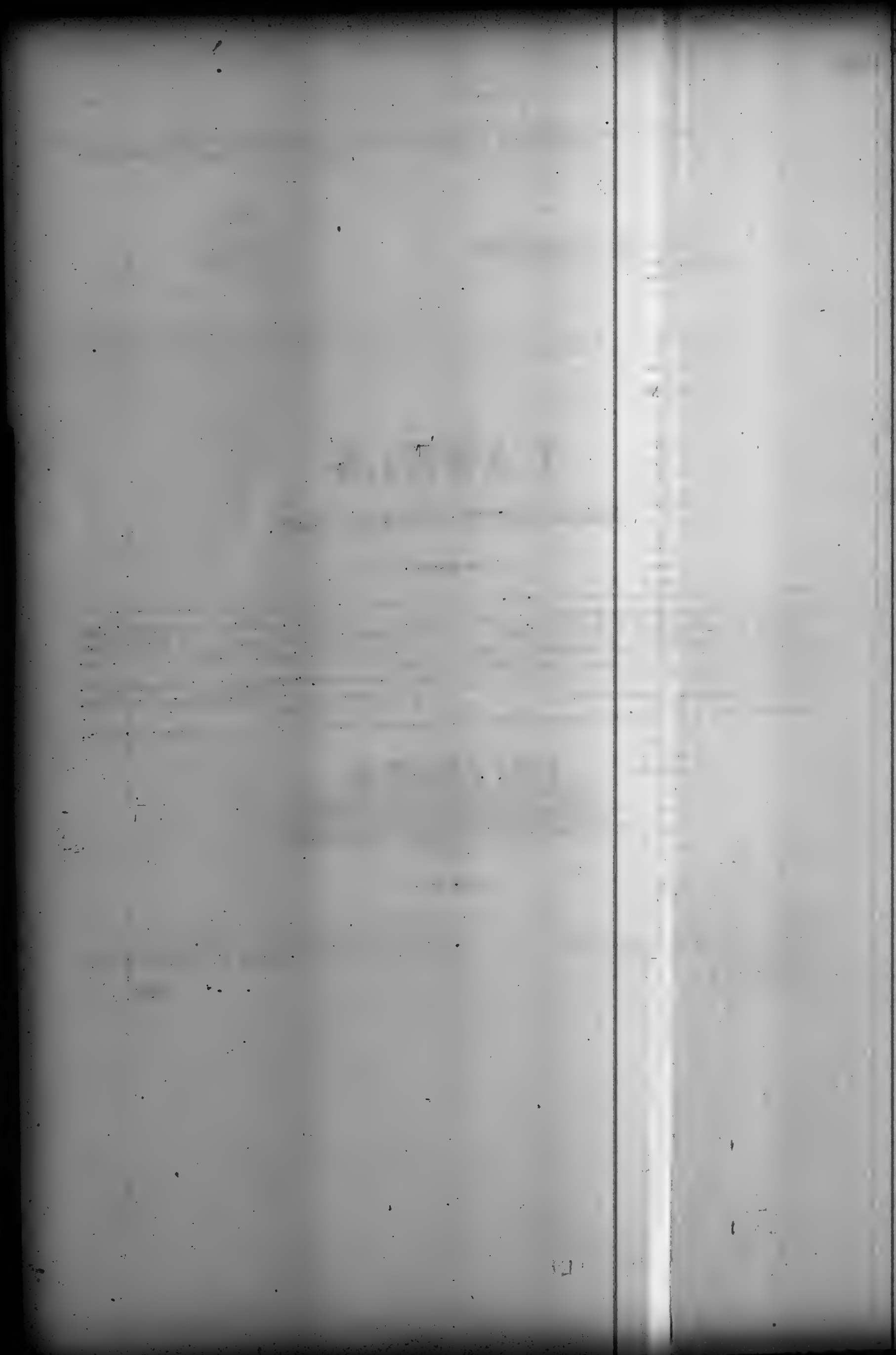
9,248.—Title: "THE LITTLE GIANT." (For Fire-Extinguish-
ers.) THE LITTLE GIANT FIRE-EXTINGUISHER CO., New York,
N. Y. Filed June 2, 1902.

PRINTS

REGISTERED JUNE 24, 1902.

525.—Title: "DOMINO DOT." (For a Game.) GEORGE H.
BAILEY, Brooklyn, N. Y. Filed May 8, 1902.

526.—Title: "MALT-TOO." (For Cereal Food.) MALT TOO
FLAKE FOOD CO., LTD., BATTLECREEK, MICH. Filed May 21, 1902.



DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

TALBOT v. MONELL.

Decided May 2, 1901.

1. MOTION TO SUPPRESS TESTIMONY—CONSIDERATION POSTPONED UNTIL FINAL HEARING.

Where a motion to suppress testimony involves a consideration of the entire record, such as is necessarily given at final hearing upon the question of priority, *Held* that a decision upon the matter will be postponed until that time.

2. INTERFERENCE—TESTIMONY—DEPOSITION IN ANOTHER PROCEEDING—DISCREDITING WITNESS.

Where for the purpose of discrediting a witness in an interference a deposition given by him in another interference is introduced, *Held* proper, but *Held*, further, that the deposition cannot be accepted as proper evidence to establish the facts stated in it.

3. SAME—SAME—DEPOSITIONS IN DIFFERENT PROCEEDINGS NOT ACCEPTED.

Where a party to one interference introduces in evidence the deposition of one of the witnesses given in another interference for the purpose of discrediting him, *Held* that this does not justify the opposing party in introducing the depositions of other witnesses in that other interference for the purpose of establishing the facts alleged by those witnesses.

APPEAL ON MOTION.

MANUFACTURE OF OVER-SEA-TH STEEL.

Application of Benjamin Talbot filed December 6, 1900, No. 38,974. Patent granted Ambrose Monell June 19, 1900, No. 652,226.

Mr. Charles N. Butler for Talbot.

Messrs. Bakewell & Bakewell for Monell.

ALLEN, Commissioner:

This case comes up on appeals by both parties from the decision of the Examiner of Interferences on a motion by Monell to suppress certain evidence on behalf of Talbot and on a motion by Monell that he be permitted to take surrebuttal testimony.

It seems that Monell introduced in evidence a copy of a deposition made by Talbot in a previous interference, *Talbot v. Wellman*, and in rebuttal Talbot introduced in evidence a copy of a deposition of one Barton, a witness in that previous interference, and also produced a witness, Roberts, who gave testimony which Monell does not consider proper rebuttal. Monell asked that the copy of Barton's testimony be stricken out and that the deposition of Roberts be also suppressed. The Examiner of Interferences denied the motion to suppress, but held that Monell should be permitted to take the testimony of one expert witness in surrebuttal of Roberts's testimony.

2000—13—11

To pass upon the question whether or not the evidence should be suppressed would require such a consideration of the very voluminous record in this case as will necessarily be given at final hearing, and for that reason a final disposition of the matter should be postponed until that time. (*Knight v. Morgan*, 83 O. G., 187.) Monell may raise the question at that time, and matter which is not proper evidence or which is not proper rebuttal will be disregarded in disposing of the case.

The Examiner of Interferences seems to have regarded the deposition of Barton as proper evidence in this case. Without going into the record sufficiently to finally settle the questions at issue, it may be said that it is difficult to see the principle upon which that deposition can be admitted as evidence. Monell was not a party to the interference in which Barton testified and Barton is not a witness in the present interference. In so far as Monell is concerned, therefore, Barton's deposition may be looked upon as an *ex parte* affidavit, since Monell has had no opportunity for cross-examination. The issues of an interference are not to be proved by *ex parte* affidavits. (*Nielson v. Bradshaw*, 91 O. G., 644.)

It is true that Monell introduced as an exhibit a copy of Talbot's deposition in that prior interference; but that seems to have been merely for the purpose of discrediting Talbot as a witness in this case and not as itself constituting evidence in this case. Talbot seems to have been cross-examined in this case as to the statements made in the prior interference for the purpose of showing contradictions. It is a well-settled principle of law that matter of this kind may be referred to for the purpose of discrediting a witness even where it is not itself proper evidence upon the facts of the case under consideration. The mere introduction of Talbot's deposition for that purpose does not warrant the consideration of the depositions of other witnesses in the prior interference merely because they were taken in the same case and bound in the same volume.

Since the deposition of Roberts will not at this time be suppressed, the holding that Monell should be permitted to take the testimony of a witness in surrebuttal is equitable. The propriety of the evidence presented will be considered at final hearing.

The decision of the Examiner of Interferences is affirmed.

2005

DITTGEN S. PARMENTER.

Decided June 9, 1902.

1. BURDEN OF PROOF—APPEAL—RIGHT TO MAKE CLAIM NOT INVOLVED.

Where a party to an interference is given the benefit of the date of an earlier application filed by him under Rule 116 and on a motion to shift the burden of proof the Examiner decides that the early case discloses the invention, *Held* that this is not a favorable decision upon his right to make the claim from which no appeal can be taken, but is merely a ruling as to his record proofs from which an appeal may be taken to the Commissioner.

2. BURDEN OF PROOF—CONTINUOUS APPLICATIONS—FAILURE TO CLAIM.

Where on a motion to shift the burden of proof it is argued that a party is not entitled to the benefit of the date of an earlier application because the claim was not made therein and because there was included a disclaimer of it, *Held* that this relates to his right to make the claim and not to the disclosure in the early case, which is the only thing considered under Rule 116.

APPEAL on motion.

OSCAR FOURCER.

Patent granted to John J. Dittgen November 30, 1901, No. 693,296; application filed May 4, 1899, No. 715,515. Application of Orville L. Parmenter filed January 9, 1901, No. 42,672.

Mr. George E. Parkinson for Dittgen.
Mr. H. E. Peck for Parmenter.

ALLEN, Commissioner.

This is an appeal by Dittgen from the decision of the Primary Examiner denying his motion to shift the burden of proof. Parmenter has filed a motion to dismiss the appeal on the ground that it is taken from a favorable decision on the question of Parmenter's right to make the claims.

Parmenter's application containing the claims of the issue was filed on June 9, 1901, and the application upon which Dittgen's patent here involved was granted was filed on May 4, 1899. Dittgen would therefore have been made the senior party to the interference if it had not been that Parmenter's earlier application, No. 693,416, filed October 13, 1898, was held to disclose the invention in controversy. The later case purports to be a division of the earlier, and in declaring the interference the Examiner made Parmenter the senior party by reason of his first application.

Dittgen moved to shift the burden of proof, and the Examiner denied the motion, saying that Parmenter's first application disclosed the invention and that he had the right to claim it therein.

In support of his motion to dismiss this appeal Parmenter calls attention to the well-settled rule that no appeal can be taken from a decision that a party has the right to make the claim, and he argues that the decision of the Examiner in this case was of that character.

A consideration of the entire case shows clearly that Dittgen has made no contention that Parmenter has no right to make the claims. That question was not raised by his motion and is not raised by this appeal. For the purposes of the motion it is admitted that Parmenter is entitled to make the claims in his application No. 42,672 here involved, and that is the only case in which he attempts to make them. Dittgen has merely raised

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the question whether as a matter of proof Parmenter is entitled to the date of his earlier application No. 693,416, which does not claim the invention. (*Bundy v. Rumbarger*, 93 O. G., 3002.) This is a question which is reviewable by the Commissioner upon appeal. (*Brill and Brill v. Hunter*, 96 O. G., 641.)

The motion to dismiss is denied.

Considering the question of burden of proof, it is found upon examination that no one figure of the drawings in Parmenter's application No. 693,416 discloses the entire combination set forth in the claims constituting the issue. The specification, however, makes it clear that Parmenter intended to make the cigar-pockets as set forth in the issue, and when taken with the drawings the description constitutes a complete disclosure of the invention. In that original application Parmenter disclosed several modifications of his invention, and it is clear from his description that in one form he intends that the face and back of the pocket and end flap shall be formed from a single piece of stiff paper bent upon itself, each pocket having the body portions of this paper formed with interned folds. He shows the thin paper folded in different ways, one being the single fold on each side whereby the inner edges are closely adjacent, as stated in the issue. He furthermore does not make each pocket separately, but indicates that they are formed together, with cuts in the material between the pockets, so that they may be easily torn apart. He shows this in original Figure 9 as applied to one modification and makes it clear that it is to be applied to the form in which the face and back are made from a single piece folded upon itself. When this is done, the structure set forth in the issue is produced. It must be held, therefore, that the invention was disclosed in Parmenter's original case and that the Examiner was right in refusing to shift the burden of proof.

Dittgen refers to the fact that Parmenter did not in his original case make claim to the invention in controversy and argues that he filed a distinct disclaimer of it. It is not necessary for the application to have made the present claims in order to give Parmenter the benefit of its date, since Rule 116 says nothing of the date when the claim is made. It is not clear how even a disclaimer could deprive him of the benefit of the disclosure in that case when he afterward makes claim to the matter. If he is permitted to make the claim at all, he is entitled to the earliest date upon which he disclosed it. The Examiner has not found that he is estopped from making the claim, and it does not appear from an inspection thereof that the alleged disclaimer filed as an amendment on May 13, 1899, identifies the particular invention here in controversy.

The decision of the Primary Examiner refusing to shift the burden of proof is affirmed.

BRILL AND ADAMS v. UEBELACKER.

Decided June 19, 1902.

1. SUPPRESSION OF TESTIMONY—EVIDENCE AS TO OTHER MATTERS THAN THE ISSUE.

Where a motion to add certain counts to the issue of an interference is denied and the party thereafter reads those counts into the record and proceeds to take testimony as to them, *Held* that the testimony will upon motion be stricken out.

2. TESTIMONY MUST BE CONFINED TO ISSUE—PRIORITY.

The issue in an interference proceeding is prescribed by the Office, and the testimony taken must be confined to the question of priority of invention of this issue.

3. INTERFERENCE—ISSUE MUST REMAIN FIXED—AMENDMENT BY PARTIES.

It is necessary to orderly procedure that the issue remain fixed throughout the interference proceeding. To permit a party to change the issue at will, to add to it so as to include matter not covered by it originally, would lead to the greatest confusion.

4. TESTIMONY—MOTION TO EXTEND TIME—EXCUSE FOR DELAY.

Where a party delays taking his testimony until the last of the time allowed him and gives no good reason for the delay, *Held* that a motion for an extension of time will be denied.

APPEAL on motion.

CAR-TRUCK.

Applications of John A. Brill and Walter S. Adams filed, respectively, April 4, 1900, No. 11,563, and March 23, 1900, No. 2,651. Application of Charles F. Uebelacker filed August 23, 1898, No. 689,506.

Mr. Jos. L. Levy and Messrs. Wilkinson & Fisher for Brill and Adams.

Messrs. Duell, Megrath & Warfield for Uebelacker.

ALLEN, Commissioner.

This case comes up on an appeal by Brill and Adams from a decision of the Examiner of Interferences granting a motion by Uebelacker that certain parts of the testimony taken in behalf of Brill and Adams be stricken from the record and also on a motion by Brill and Adams that their time for taking rebuttal testimony be extended for a period of fifteen days after the decision on this appeal and that they be permitted to take further testimony during the time for taking rebuttal testimony.

It appears that on April 24, 1902, Brill and Adams moved that an amendment—

... be admitted in their pending application, Serial No. 11,563, dated April 4, 1900, notwithstanding that said application is involved in the above-entitled interference. (Vis: Intf. No. 91,370.)

In the amendment accompanying said motion two claims were proposed. On April 24 said motion was denied by the Commissioner. On the same day, April 24, 1902, Brill and Adams filed a motion for the redeclaration of the interference to include two additional counts, these counts being substantially the same as those in the proposed amendment accompanying the motion above referred to. On the same day this motion was also denied by the Commissioner.

In spite of this denial of permission to incorporate the two new claims in their application and in the interference in which this application is involved Brill and Adams proceeded to read these claims in evidence as proposed counts 2 and 3 of the issue and to take testimony relating to these counts, whereupon Uebelacker brought the present motion to strike out this part of Brill and Adams's testimony.

The issue in an interference proceeding is prescribed by the Office, and testimony must be confined to priority of invention of the subject-matter of this issue. If for any reason the issue as stated by the Office does not include all of the pat-

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entable matter which is common to the cases involved in the interference, there are ways provided by means of which the issue may be restated to include this matter, so that all questions may be settled in one proceeding. It is necessary that the issue once settled should remain fixed throughout the proceeding. To permit a party to change the issue at will, to add to it so as to include matter not covered by it originally, would cause the greatest confusion. It would be impossible for the parties to confine their testimony to any specific issue, because they would never know when a new issue would be formed. The record would be loaded with irrelevant matter, and interference proceedings, as stated in *Huber v. Aiken* (88 O. G., 1335)—might become an intolerable burden to the parties.

In the case now under consideration the attempt of Brill and Adams to introduce the new counts is especially to be condemned, because these very claims had been refused admission upon motions brought for the purpose of securing such admission. It is an attempt which, if successful, would be subversive of good practice, rendering an orderly course of procedure impossible.

It is true that in certain cases it is better to postpone the consideration of questions relating to the suppression of testimony until final hearing. (*Valley v. Wurts*, 84 O. G., 986; *Knight v. Morgan*, 82 O. G., 187.) The present case, however, is not one of these. The motion to strike out the testimony was properly granted.

There is also in this case a motion by Brill and Adams that their time for taking rebuttal testimony be extended for a period of fifteen days after the date of this decision and that they be permitted to take additional testimony during this period.

It appears that the times for taking testimony in this case have been several times extended. On April 4, 1902, a stipulation was filed that the time for taking testimony-in-chief on behalf of Brill and Adams be extended until April 16, 1902, and that the other times be correspondingly extended. This stipulation contained the following statement:

It is understood and agreed that no further extension of time for taking testimony will be asked for or granted.

On the same day, April 4, 1902, new times were set for taking testimony by the Examiner of Interferences in accordance with this stipulation.

On April 14, 1902, Brill and Adams filed motions to redeclare the interference and for a stay of proceedings. The stay of proceedings was granted on April 15, 1902, and the other motion denied on April 19, 1902. Brill and Adams had therefore one day left in which to take their testimony. Upon appeal to the Commissioner from the decision of the Examiner of Interferences denying their motion to redeclare the interference this decision was affirmed, and it was stated that they should complete their proofs in the one day remaining to them for this purpose, either on the 28th, 29th, or 30th of April.

There appears to be no reasonable excuse for the delay in taking testimony by Brill and Adams, and they are not entitled to the relief now sought for.

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No reason appears why they should not have taken their testimony within the period set for that purpose. Instead of doing this they waited until the time had nearly expired and then by filing motions for redeclaration obtained a stay of proceedings and a further delay. This case is one of those discussed in *Keller v. Wethey v. Roberts*, (81 O. G., 881,) in which it was stated that—

the rule for extension of times for taking testimony is a salutary one, made in the interest of all parties. When there is an obvious disregard of the rule, there is nothing left to do but to abolish the rule or compel its observance, and there is only one way to accomplish the latter, which is to refuse to permit testimony to be taken when it is not observed.

The decision of the Examiner of Interferences granting Uebelacker's motion to strike out the testimony objected to is affirmed.

The motion by Brill and Adams for an extension of time for taking testimony in rebuttal and for taking additional testimony is denied.

EX PARTE THE CLARK CAST STEEL CEMENT COMPANY.

Decided June 10, 1902.

LABEL—REGISTRATION REFUSED—SKILL OF TYPE-SETTER.

A label for cement printed in three kinds of type, including the fanciful words "Cast Steel" and having a monogram of the letters "C S" placed between two of the lines of printing. Held not registrable, because it involves merely the expected skill of the type-setter, and its production was not the result of the creative powers of the mind.

ON appeal.

LABEL FOR CEMENT.

Application filed April 11, 1902, No. 2,724.
Mr. Walter A. Holden for the applicant.

ALLEN, Commissioner:

This is an appeal from the refusal of the Examiner to register a label to be used on cement.

The label comprises the words "Cast Steel Cement for Perfecting Iron and Steel Castings" and the monogram of the letters "C S."

The words of the label are printed in three parallel lines, each line being printed in a different style of type. The monogram is placed between the first line, which consists of the words "Cast Steel Cement" and the second line consisting of the words "For Perfecting." The letter "S" in the monogram has a peculiar curl at the lower end, which encircles the lower portion of the letter "C."

The Examiner states that—

registration has been refused for the reason that the label is not an artistic production—

and cites in support of this holding the decision of the Supreme Court of the United States in *Higgins v. Koufel*, (35 O. G., 1139) and the decision in *ex parte Mahn*, (29 O. G., 1910) and *ex parte Houghton*, (99 O. G., 1423.)

The appellant states in his brief that—

the questions of law in this case are not disputed, and are well founded in the decisions quoted in the record. The questions of fact, however, appear to be whether or not the coined or fanciful words "Cast Steel" and the monogram of the entwined letters "C S," are an artistic reproduction or intellectual production. That the remaining portion of the label "Cement for Perfecting Iron and Steel Castings" is the descriptive part is not disputed.

Upon a careful consideration of the label sought to be registered it is held that the Examiner's ac-

tion was correct in refusing registration on the ground that it does not constitute an artistic production.

It cannot be said that this label is "the result of intellectual labor founded on the creative powers of the mind." (*Ex parte Baldwin*, 98 O. G., 1706.) The label has no originality, but is merely the result of the expected skill of the printer.

The decision of the Examiner is affirmed.

MOSHER v. TULLY AND CLARK.

Decided June 10, 1902.

1. INTERFERENCE—MOTION TO REOPEN—SHOWING IN EXCESS FOR DELAY.

On a motion to reopen an interference which has been decided to take more testimony good reasons must be shown why it was not sooner produced and why the new evidence could not have been discovered by the exercise of reasonable diligence.

2. SAME—SAME—SAME.

Where a witness testifies as to the making of a certain device and the opposing party after closing his proof in rebuttal and two months after a decision has been rendered on priority moves to reopen the interference to permit him to show that the device was inoperative. Held that the motion will be denied in the absence of a satisfactory showing why the evidence was not produced at the proper time.

ON motion.

CHLORINATION-BARREL.

Application of De Witt C. Mosher filed November 9, 1900, No. 35,983. Application of Bryan Tully and Edie Clark filed October 22, 1900, No. 33,350.

Messrs. Foster & Freeman for Mosher.
Mr. H. S. Batley, Mr. John Knowles, and Mr. H. F. Clark for Tully and Clark.

ALLEN, Commissioner:

This is a motion by Tully and Clark to suspend proceedings and to restore jurisdiction of the above-entitled interference to the Examiner of Interferences for the purpose of consideration by him of a motion to reopen the case and to set times for the taking of additional testimony.

It appears from the record that a decision has been rendered by the Examiner of Interferences awarding priority of invention to Mosher and that an appeal by Tully and Clark from this decision is now pending before the Examiners-in-Chief. The Examiner's decision was rendered March 8, 1902, and on May 10, 1902, the present motion was filed.

In support of the motion the attorney for Tully and Clark has filed affidavits by himself and three other persons—namely, Miller, Worley, and Hilleary—that a certain filter made by MacNeill, Mosher's assignee, in April, 1901, was a failure and inoperative, and therefore did not constitute a reduction to practice of the invention.

The testimony in behalf of Mosher was begun, as appears from the record, on April 18, 1901, and concluded on April 30, 1901. The testimony for Tully and Clark was taken immediately thereafter, April 25 to April 30, 1901.

In the testimony for Mosher the fact was brought out that a certain chlorination-barrel built in conformity to his invention was installed in the Stand-

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ard Mill at Colorado City. Mosher was questioned on direct examination as to the construction of this barrel and as to the persons to whom he had disclosed his invention. It is clear, therefore, that Tully and Clark had notice of this filter at the time when Mosher's testimony was taken and had opportunity at that time by cross-examination to elicit any details as to its construction and operation. Indeed, it is not improbable that the fact that Miller, Worley, and Hilleary had been employed in the Standard Mill might have been discovered and their testimony taken in behalf of Tully and Clark at the time set for that purpose.

There is nothing in the affidavits to show why the testimony which it is now desired to take could not have been discovered earlier. As stated above, after Mosher's testimony was taken Tully and Clark had notice of the filter constituting Mosher's reduction to practice, and no reason is given why the proposed new testimony could not have been found at that time.

Knowles, one of the attorneys for Tully and Clark, states in his affidavit:

I used every effort to ascertain just what was the exact construction and condition of the filter which had been built and claimed as embodying Mosher's invention; that I have never let up in my efforts to learn what, if any, repairs, changes, or alterations had been made from time to time therein, and whether the same was successful as an experiment and really amounted to an actual reduction to practice of the invention; that all of my efforts, up to a few days ago, have proven unsuccessful; that within a few days only, it was learned that W. C. Miller, of Victor, Colorado, W. Worley of Colorado City, Colorado, and George F. Hilleary of Colorado City, Colorado, had worked at the Standard Mill located at Colorado City, Colorado, at the time it is alleged the said Mosher filter was installed and operated in said mill.

What the character of the efforts made by Knowles does not appear, nor is any reason given why the facts set forth in his affidavit as quoted above could not have been discovered before the case had progressed to final hearing and judgment. That Knowles was aware of the fact that there might be other evidence produced is evident from his statement that he has made continuous efforts to produce the same. Good reasons must be shown, therefore, why it was not discovered earlier or could not be discovered by the exercise of reasonable diligence. There is no such showing in the present case.

The motion is denied.

EX PARTE MORRISON.

Decided June 10, 1902.

1. AMENDMENT—DELAY—MUST BE PROPER ACTION TO SAVE FROM ABANDONMENT.

An applicant is as much entitled to file an amendment on the last day of the year allowed by law to prosecute the case as he is to file it on any other day during the year; but the amendment at either time must be such an action as the condition of the case requires. Its deficiencies cannot be excused by the fact that it is filed on the last day.

2. SAME—SAME—APPLICANT ASSUMES RISKS.

When an applicant waits until the last day of the year to file an amendment, he assumes all risks, and an action which would be insufficient if made earlier cannot be held sufficient because it is too late for the applicant to correct his error.

3. SAME—REFUSAL TO REOPEN—DIVISION REQUIRED.

Where an amendment is presented which if entered would necessitate a requirement for division, held that it should not be entered notwithstanding the fact that it is presented only one day before the case will become abandoned through a lack of prosecution.

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ON petition.

BOUNDARY BATTERY.

Application of William Morrison filed May 19, 1900, No. 17,306.

Mr. C. C. Bulkley for the applicant.

ALLEN, Commissioner:

This is a petition from the refusal of the Examiner to enter and consider a certain amendment filed in the above-entitled application and from his action holding the said application to be abandoned.

The records show that after several actions by the Office and the applicant a substitute specification containing two claims for a single invention was filed on February 1, 1901.

On February 15, 1901, an official letter was mailed the applicant in which certain objections were made to the specification and to the claims. On February 15, 1902, an amendment was filed correcting certain of the objections to the specification, canceling the claims, and substituting others in lieu thereof. The new claims were held by the Examiner to cover three independent inventions.

On March 1, 1902, the Examiner properly refused to enter this amendment on the ground that its entry would only necessitate the requirement of division. (*Ex parte Tschirner*, 97 O. G., 187.) It was further held that the application became abandoned on February 15, 1902, through failure to properly amend within one year from the date of the last Office action.

The petitioner states with reference to the practice laid down in *ex parte Tschirner*, *supra*:

Now it may be the settled practice to refuse to enter amendments which would necessitate a requirement for division, and it is admitted that ordinarily there could be no objection to so doing.

It is urged by the petitioner, however, that in *ex parte Tschirner* the facts were different from those now under consideration, in that the refusal to enter the amendment in the Tschirner application could not harm that application, while in the present case the application necessarily becomes abandoned.

The difference in the facts presented in the two cases is more apparent than real. An applicant is as much entitled to file an amendment on the last day of the year allowed by law to prosecute the case as he is to file the amendment on any other day during the year; but the amendment at either time must be such an action as the condition of the case requires. (*Ex parte Vaughan*, 97 O. G., 937.) If the action be not such an one, the fact that it is made on the last day of the year does not excuse its deficiencies. When an applicant waits until the last day of the year to file an amendment, he assumes all risks, and an action which would be insufficient if made earlier cannot be held to be sufficient for this reason.

The Examiner's action was right, and the petition is denied.

The Examiner concludes his statement as follows:

The claims proposed have been carefully looked into, and although certain references are very close, it is believed each is allowable.

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The present application, however, must be limited to either claim 1, or claim 4, or claims 2 and 3; and if claim 1 is selected, a full disclosure of its subject-matter must appear in the present specification.

The circumstances of this case are such as to entitle the applicant to favorable consideration if he will promptly file a proper amendment, accompanied by a petition for revival.

PERRUSSEL v. WICHMANN.

Decided June 19, 1902.

1. INTERFERENCE—MOTIONS—DELAY—RULES 100 AND 122.

The fact that a motion to dissolve under Rule 122 is pending does not prevent the filing of a motion to amend under Rule 100 or excuse delay in filing such a motion.

2. SAME—SAME—PRIORITY OF ANOTHER MOTION NO EXCUSE.

A delay of four months in filing a motion to amend under Rule 100 cannot be excused upon the ground that the party did not know whether or not the amendment would be necessary until a final decision was rendered upon a motion to dissolve which was pending.

3. SAME—AMENDMENT RULE 100—INVENTION MUST BE DIFFERENT.

Where one application includes the claims of the issue and others which differ so slightly therefrom that the decision as to the issue will settle the question of priority as to the others, held that it is not necessary to make those other claims counts of the interference and that an amendment by the other party including those claims under Rule 100 should not be admitted.

APPEAL OR MOTION.

MANUFACTURE OF SALICYLIC ACID.

Application of Michel Perrussel filed July 16, 1901, No. 68,504. Application of Georg Wichmann filed March 19, 1901, No. 51,935.

Mr. A. C. Fraser & Co. for Perrussel.
Messrs. Housson & Housson for Wichmann.

ALLEN, Commissioner:

This is an appeal by Perrussel from a decision of the Examiner of Interferences refusing to transmit to the Primary Examiner his motion to amend his application under Rule 100.

It appears that the interference was declared upon an issue embracing a single count, this count being the same as a claim made by each party. The interference was declared September 10, 1901, and the preliminary statements were approved November 25 of the same year. On December 16, 1901, a stipulation was made by the parties that the time for filing motions to dissolve under Rule 122 should be extended to December 26, 1901. The motion now under consideration was brought May 7, 1902.

It appears, therefore, that since the twenty-day limit from the date of approval of the preliminary statements within which time motions to amend

may be brought under Rule 100 a period of four months has elapsed. Perrussel attempts to excuse this delay by a showing that on December 23, 1901, he filed a motion to dissolve the interference on the ground, among others, that the failure of the Examiner to include the claims of Wichmann which Perrussel now seeks to add to his case by amendment as counts of the issue constituted such irregularity as would preclude proper determination of the question of priority and that he did not have notice that he should amend under Rule 100 until he received the Commissioner's decision on this motion.

This excuse is clearly insufficient. Rule 100 and Rule 122 may be readily understood. They provide courses to be followed under different circumstances. The fact that a motion is pending under one of those rules does not prevent the filing of a motion under the other nor excuse delay in such filing. (*Hall v. Latta*, 50 O. G., 1431.)

The delay in filing the present motion is alone a sufficient reason for refusing its transmittal to the Primary Examiner. An inspection of the claims which it is sought to introduce reveals another. These claims do not state a different invention from that covered by the issue in the sense that a determination of the question of priority of invention of the issue can have no bearing on these claims. They do cover the same invention as the issue in language slightly more specific; but it is clear that the determination of priority of invention of the issue will settle the same question as to these claims. It is not necessary, therefore, to include these claims as counts of the issue. The purpose of Rule 100 is to enable a party to an interference to claim a patentable invention which he shows and describes, but does not claim, which invention is claimed by the other party. Under this rule it is permissible to add claims which would not be affected by the determination of priority upon the issue as first stated.

It is necessary that such claims be included in the issue in order that the whole matter may be disposed of in one proceeding; but where the proposed claims vary from the issue in scope merely, the invention covered by them being the same, there is no necessity for including them in the issue, since such claims may be added by the prevailing party by amendment after the determination of the interference.

The decision of the Examiner of Interferences is affirmed.

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—APRIL-JUNE, 1907.

VOL. 2006-3

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*) and of the Secretary of the Interior by a dagger (†).]

ABANDONED APPLICATIONS.

- 1. INSUFFICIENT ACTION.**
Where the Examiner called attention to a formal defect in the application and the applicant while admitting the defect made no effort for six years to correct it, but merely wrote letters in regard to it, *Held* that the application is abandoned. [*Ex parte* Beck, 2101.]
- 2. SAME.**
Where several claims are rejected by the Examiner and at the end of the time allowed by law for action the applicant requests reconsideration of some claims and says he intends to file an affidavit under Rule 75 as to others, *Held* not such action as the condition of the case requires and that it is abandoned. [*Ex parte* Spiller, 2260.]

ABANDONMENT.

(See Amendments, 1, 5; Reopening of Rejected Cases, 2.)

ACCESS TO PENDING APPLICATIONS.

(See Reference to Another Pending Application, 2, 3.)

ACTION ON THE MERITS.

(See Examination of Applications.)

AFFIDAVIT.

(See Abandoned Applications, 2; Interference, 49.)

AMENDMENTS.

(See Interference, 5, 14, 15, 70, 71; Reopening of Rejected Cases.)

- 1. EXTENSION OF TIME FOR FILING—SECTION 4904, REVISED STATUTES.**
A request for an extension of time for filing an amendment cannot be granted when the period extends over the statutory limit within which the application must be prosecuted under the provisions of section 4904 of the Revised Statutes in order to save it from abandonment. [*Ex parte* Bauerhammer, 442.]
- 2. NEW MATTER AFFECTING CLAIM—QUESTION RELATED TO MERITS—APPEAL IN FIRST INSTANCE TO EXAMINERS-IN-CHIEF.**
Where in the answer to a petition brought on another point the Examiner calls attention to a certain amendment made to the specification and states that if revealed in the case he will be compelled to reject the claims which now stand allowed, as in his opinion the alleged new matter affects the claim, *Held* that as this question relates to the merits of the case and is therefore appealable in the first instance to the Examiners-in-Chief no opinion in regard to it is expressed. [*Ex parte* Henry, 1170.]
- 3. DELAY—MUST BE PROPER ACTION TO SAVE FROM ABANDONMENT.**
An applicant is as much entitled to file an amendment on the last day of the year allowed by law to prosecute the case as he is to file it on any other day during the year; but the amendment at either time must be such an action as the condition of the case requires. Its deficiencies cannot be excused by the fact that it is filed on the last day. [*Ex parte* Morrison, 2220.]
- 4. SAME—APPLICANT ASSUMES RISK.**
When an applicant waits until the last day of the year to file an amendment, he assumes all risks, and an action which would be insufficient if made earlier cannot be held sufficient because it is too late for the applicant to correct his error. [*Id.*]
- 5. REFUSAL TO ENTER—DIVISION REQUIRED.**
Where an amendment is presented which if entered would necessitate a requirement for division, *Held* that it should not be entered notwithstanding the fact that it is presented only one day before the case will become abandoned through a lack of prosecution. [*Id.*]

ANSWER TO APPEAL.

(See Reference to Another Pending Application, 1.)

ANTICIPATION.

(See Invention; Process, 1, 2, 4, 5.)

- 1. COMBINATION—REJECTION UPON TWO REFERENCES—OSONE APPARATUS.**
A claim covering an osoneiser in combination with a particular apparatus for producing currents of high frequency *Held* lacking in patentable novelty in view of two prior patents, one showing an osoneiser in combination with one form of high-frequency apparatus and the other showing the particular high-frequency apparatus claimed in combination with different translating devices. [*Ex parte* Verley, 1681.]
- 2. PATENTABILITY—OSONE APPARATUS.**
An apparatus for producing osone by the use of electrical currents of high frequency *Held* not patentable in view of certain patents to Tesla cited. (Decision of the Commissioner, 90 O. G., 1681, affirmed.) [*In re* Verley, 2222.]
- 3. COMBINATION—PARTS OLD IN SEPARATE PATENTS.**
Where the claim covers an osone apparatus in combination with particular means for producing currents of high frequency, *Held* anticipated by two patents, one disclosing the high-frequency apparatus used with electric lights and the other disclosing an osone apparatus supplied by a different form of high-frequency apparatus. [*Id.*]

APPARATUS.

(See Process, 2, 4.)

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Interference, 62.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See Amendments, 2; Interference, 9, 14, 15, 24, 27, 46; Reference to Another Pending Application, 1; Reopening of Rejected Cases, 2.)

DISCOVERY OF NEW GROUNDS FOR REJECTION—PRACTICE.
If the Examiner discovers new reasons for rejection after appeal has been taken, he should direct the attention to it of both the appellant and the Examiners-in-Chief. The appellant may then elect to proceed with the appeal or to withdraw it. [*Ex parte* Henry, 16 O. G., 835.] [*Ex parte* Dolan, 2211.]

APPEAL TO THE SECRETARY OF THE INTERIOR.

- 1. JUDICIAL QUESTION—CERTIFICATE OF CORRECTION ON PATENT.**
An appeal to the Secretary of the Interior from the decision of the Commissioner of Patents refusing to indorse a certificate of correction upon a patent because of an alleged mistake by the Patent Office dismissed for the reason that the decision was a judicial determination by the Commissioner. [*In re* Macosochie Solderless Tinning Company, Limited, 1172.]
- 2. SAME—SAME.**
The question whether a certificate of correction shall be indorsed upon a reissue patent imposes the duty of deciding in the first place whether the reissue was improperly granted and if so in what the error consists. These are judicial questions not subject to superintendence and direction by the Secretary of the Interior. [*Id.*]

APPEAL TO THE SUPREME COURT OF THE UNITED STATES.

(See Jurisdiction of the United States Courts, 7.)

APPLICATIONS.

(See Abandoned Applications; Division of Application; Examination of Applications; Foreign Patents, 1.)

APPLICATION FOR AN ENGLISH PATENT.

(See Foreign Patents.)

ASSIGNERS.

(See Jurisdiction of the United States Courts, 1; Testimony, 1.)

ASSIGNMENTS.

1. **SUBJECT TO LICENSE—ISSUING PATENT TO ASSIGNEE.**
Where an instrument is recorded in this Office transferring the invention "subject to a license," *Held* that the patent will not be issued to the assignee.
[*Ex parte Eickemeyer*, 1022.]

2. **SAME—EFFECT OF LICENSE.**
Where an instrument transfers an invention "subject to" a previous instrument referred to as a license, *Held* that without an inspection of the first instrument it cannot be determined whether or not the second conveys the entire title.
[*Id.*]

BAR TO PATENT.

(See Foreign Patents.)

BURDEN OF PROOF.

(See Interference, 33, 41, 62, 63.)

CAVEAT.

RETURN OF FEE—ERROR IN JUDGMENT.
Where a caveat is filed which fails to clearly disclose the invention, *Held* that the fee will not be returned as paid by mistake. An error in judgment does not warrant the return of a fee.
[*Ex parte Landenberger*, 1800.]

CERTIFICATE OF CORRECTION.

(See Appeal to the Secretary of the Interior.)

CITATION OF DECISION.

(See Reference to Another Pending Application, 1, 3.)

CLASSIFICATION OF INVENTIONS.

(See Division of Application, 2.)

COMBINATION.

(See Anticipation, 3.)

COMMISSIONER OF PATENTS.

(See Interference, 43, 62.)

COMPLETE DEVICE.

(See Interference, 30.)

CONCEALMENT OF INVENTION.

(See Delay in Filing Applications; Interference, 11, 12, 13, 47, 48.)

CONCEPTION OF INVENTION.

(See Interference, 19, 35, 62; Testimony, 2.)

CONSTRUCTION OF CLAIMS.

(See Construction of Specifications and Patents, 2.)

SPECIFICATION CONSIDERED—CLAIM BROAD IN TERMS.
The second claim apparently extends to the art of mixing all molten metals; but the claim of a patent must always be explained by and read in connection with the specification, and when so considered this claim clearly includes metal from blast-furnaces. It is not rendered void by the possibility of its including cupola metal.
[**Carnegie Steel Company, Limited, v. Cambria Iron Company*, 1900.]

CONSTRUCTION OF RULES.

(See Abandoned Applications, 3; Division of Application, 5; Examination of Applications; Interference, 7, 9, 14, 26, 47, 48, 62, 63, 70, 71; Motion to Amend Application; Petition to the Commissioner; Reopening of Rejected Cases, 2.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Construction of Claims; Disclaimers; Particular Patents; Process, 1, 2, 3, 4; Stipulation.)

1. **PROCESS—DRY-PRESSING—OPERATION OR EFFECT OF MACHINE—CLAIM INVALID.**
A claim for a process of dry-pressing which includes subjecting a collection of sheets of paper to pressure without the use of fuller-boards, tying them into a bundle while under pressure, removing them from the press, and allowing them to remain tied until fixed, *Held* to describe merely the operation and effect of the machine and to be invalid.
[**Busch v. Jones et al.*, 220.]

2. **SUFFICIENCY OF DESCRIPTION—PATENT ADDRESSED TO THOSE SKILLED IN THE ART.**
The specification of the patent is not addressed to lawyers or even to the public generally, but to the manufacturers of steel, and any description which is sufficient to apprise them in the language of the art of the definite feature of the invention and to serve as a warning to others of what the patent claims as a monopoly is sufficiently definite to sustain the patent.
[**Carnegie Steel Company, Limited, v. Cambria Iron Company*, 1900.]

3. **SAME—NEED NOT DESCRIBE WHAT IS OLD IN THE ART.**
A patentee in describing his invention may assume that what is already known in the art is understood and may begin at the point where his invention begins and describe what he has made that is new and what it replaces of the old.
[**Id.*]

CONSTRUCTION OF STATUTES.

(See Amendments, 1; Foreign Patents; Jurisdiction of United States Courts, 2.)

CONTRACTS.

(See Jurisdiction of United States Courts, 1, 5.)

DAMAGES AND PROFITS.

(See Suits for Infringement.)

DATE OF FILING APPLICATION.

(See Interference, 44.)

DECISION OF THE COMMISSIONER OF PATENTS AFFIRMED.

(See Anticipation, 2; Interference, 42.)

DELAY.

(See Abandoned Applications, 1; Interference, 21, 22, 23.)

DELAY IN FILING AMENDMENT.

(See Amendments, 2, 4, 5; Motion to Amend Application.)

DELAY IN FILING APPLICATIONS.

(See Diligence; Interference, 11, 12, 13, 40.)

INTERFERENCE—DILIGENCE.

Where during a delay of six years P. was poor, but concealed his invention and failed to make efforts to interest others in it to assist him in securing a patent or in making practical use of it, *Held* that mere poverty cannot excuse an absence of all effort for such a length of time.
[**Petrie v. De Schweinitz*, 1367.]

DEPOSITIONS.

(See Interference, 60, 61.)

DESCRIPTION.

(See Construction of Specifications and Patents, 2, 3.)

DILIGENCE.

(See Delay in Filing Application; Interference, 1, 2, 11, 12, 13, 16, 22, 33, 56, 67, 68, 70.)

1. **LACK OF—POVERTY.**
Mere poverty cannot excuse an absence of all effort in regard to an invention for a period of six years.
[**Petrie v. De Schweinitz*, 446.]

2. **SAME—FAILURE TO PRACTICALLY USE INVENTION.**
Where a party claims to have had a complete knowledge of a process involving the use of bacterial food and had one form of such food, *Held* that his failure to practically use the process for several years is not to be excused upon the allegation that he was trying to find a food which could be obtained at all seasons.
[*Id.*]

DISCLAIMERS.

(See Interference, 62.)

1. **PROPERLY ADMITTED AFTER ARGUMENT.**
Where after the argument the plaintiff was permitted to file a disclaimer to certain statements in the specification which were broader than the claims when construed as contended for, *Held* that the admission of the disclaimer was proper.
[**Carnegie Steel Company, Limited, v. Cambria Iron Company*, 1900.]

2. **MAY REFER TO SPECIFICATION AS WELL AS CLAIM.**
The power to disclaim is a beneficial one and ought not to be denied except where it is resorted to for a fraudulent and deceptive purpose. A disclaimer may extend to a part of the specification as well as to a distinct claim.
[**Id.*]

3. **CANNOT CHANGE INVENTION CLAIMED—REBURE.**
A disclaimer the purpose of which is to re-form or alter the description of the invention or convert the claim for one thing into something else is objectionable, since patents can only be amended for mistakes of this kind by a reissue.
[**Id.*]

DISCLOSURE OF INVENTION.

(See Division of Application, 3; Interference, 35, 56, 62.)

DIVISION OF APPLICATION.

(See Amendments, 5.)

1. **PARTS OF TYPE-WRITER CARRIAGE.**
Division properly required between parts of a type-writer carriage, since it appears that the various devices have acquired a distinct status in the art and are separate subjects of manufacture and sale.
[*Ex parte Fox and Barrett*, 622.]

2. **CLASSIFICATION.**
The mere fact that inventions would be separately classified in this Office is not in itself sufficient to warrant a requirement for division; but in the present case the classification has followed the lines established by inventors and manufacturers and is evidence of the fact that the devices have acquired such a distinct status in the art as warrants not only such separate classification, but also separate applications for invention included therein.
[*Id.*]

3. **MACHINE AND ARTICLE—UNNECESSARY DRAWINGS AND DESCRIPTION SHOULD BE CANCELLED.**
Where division is required between a machine and the article made by it and the claims are limited to the article, *Held* drawings and description of the machine which are unnecessary to a complete disclosure of the article under the disclosure prolix and should be canceled.
[*Ex parte King*, 1100.]

4. **PROCESS AND ARTICLE OF MANUFACTURE.**
Division properly required between a claim for an *ax* as an article of manufacture and claims for a method of finishing axes, which method is applicable to other articles and does not necessarily result in the particular product.
[*Ex parte Powell*, 1284.]

5. **TWO SPECIES—LIMITATION BEFORE ACTION ON MERITS.**
When an application contains a generic claim and claims for two distinct species, a requirement that the claims be limited to a single species is equivalent to a requirement for division under Rule 41. This limitation should be made prior to any action on the merits.
[*Ex parte Worden*, 1022.]

6. **RAILROAD-CAR—LOOK FOR WINDOWS IN SAME.**
Held that division was properly required between claims to the railroad-car and claims covering the combination between the car, the window-cash, and a look for the same, since the devices are recognized by inventors and manufacturers as separate and independent articles of manufacture and sale, and from this it results that these devices possess a capacity for independent use.
[*Ex parte Brill*, 2610.]

7. **FILTER AND COFFEE-CARTRIDGE.**
Division was properly required between the claims which cover a particular structure of "percolator-cartridge" for use in a coffee-filter for making drip-coffee and claims covering combinations between the cartridge and the particular filter, for the reason that each of the inventions is independent of the other in that they possess the capacity for separate use.
[*Ex parte Brown*, 2230.]

8. **SHOE-SEWING MACHINE.**
Where the stitch-forming mechanism and the combined awl and feeding mechanism of a shoe-sewing machine have not acquired a distinct status in art and manufacture and are not separately classified in this Office, *Held* that division should not be required notwithstanding the fact that the mechanisms are capable of separate use.
[*Ex parte Smith*, 2547.]

9. **COMBINATION CLAIM AND CLAIM TO A SPECIFIC ELEMENT.**
Held that division was properly required between a combination including a buoy as one of the elements and a claim to a specific form of buoy where that buoy is capable of use in other relations.
[*Ex parte Moriarty*, 2540.]

DOUBLE USE.

(See Invention.)

DRAWINGS.

(See Division of Application, 3.)

1. **SUBSTITUTE—REFUSAL TO ADMIT.**
Where the drawing in the case shows the invention clearly and properly, *Held* that a substitute drawing should not be admitted.
[*Ex parte Cooper*, 609.]

2. **FIGURES COMPLETELY SHOWING THE ARTICLE OF MANUFACTURE CLAIMED AMPLY SUFFICIENT.**
It is not necessary to retain in the drawing of an application for a patent on an article a figure to illustrate a process or step in its manufacture when the completed article defined in the claim is clearly shown in another figure and the disclosure is amply sufficient to enable any one skilled in the art to make and construct the same.
[*Ex parte Henry*, 1170.]

EXAMINATION OF APPLICATIONS.

(See Amendments, 2, 4; Inoperativeness; Rejection of Claims.)

1. **ACTION ON MERITS—RULE 64—PRACTICE.**
When the invention can be understood, the case should receive action throughout on its merits. (Rule 64.)
[*Ex parte Springborn*, 607.]

2. **SAME—SAME—SAME.**
To merely state that there is patentable subject-matter presented in the application is not sufficient under the last clause of Rule 64 to warrant the Examiner in insisting upon formal requirements before the case receives action on its merits. Requirements in matters of form will be insisted upon only in those cases in which the examination on the merits is completed. The case, except for formal matters, must be ready for allowance or for appeal.
[*Id.*]

EXAMINER OF INTERFERENCE.

(See Interference, 25, 31.)

EXAMINERS-IN-CHIEF.

(See Interference, 43.)

EXHIBITS.

(See Interference, 54, 55, 62.)

EXPERIMENTAL DEVICE.

(See Interference, 32.)

EXPERIMENTAL PRODUCT.

(See Reduction to Practice, 1.)

EXPERIMENTAL USE.

(See Interference, 13.)

EXTENSION OF TIME.

(See Amendments, 1.)

FEES.

(See Caveat.)

FOREIGN PATENTS.

1. SECTION 4887, REVISED STATUTES—BAR TO PATENT HERE. Where an application is filed in this country on April 23, 1898, for an invention patented in England and it appears that the application and provisional specification were filed in the British Patent Office on May 1, 1897, the complete specification was filed February 23, 1898, and was accepted June 1, 1898, and the patent was sealed and delivered August 16, 1898, *Held* that the application here cannot be allowed in view of section 4887, Revised Statutes. [*In re Swinburne*, 1085.]
2. SAME—DATE OF BRITISH APPLICATION—PROVISIONAL SPECIFICATION. The time of filing the application in the British Patent Office accompanied only by the provisional specification must be taken as the date of the application for the foreign patent within the meaning of section 4887, Revised Statutes. [*Ex parte Smith*, 35 O. G., 391, cited with approval.] [*Id.*]
3. SAME—SAME—ORIGINAL PAPER REQUESTING PATENT. Independent of the form or function of either specification that may be filed in connection with it the instrument entitled the application throughout the British patent law remains the initiatory step in the proceeding to obtain a patent under that law and must therefore fix the date from which the limitation of section 4887, Revised Statutes, begins to run. [*Id.*]
4. SAME—PROVISIONAL SPECIFICATION AND CAVEAT COMPARED. *Held* that the original paper called the "application" is not a mere introduction to the provisional specification and that the provisional specification is not the equivalent of a caveat under the United States law. [*Id.*]

FORFEITED APPLICATIONS.

(See Interference, 33.)

FORMER DECISION CONSTRUED.

(See Interference, 22.)

FORMER DECISION REVERSED.

(See Suits for Infringement.)

FUNCTION.

(See Process, 5.)

GRANT OF PATENT.

(See Assignments.)

HEARING.

(See Interference, 23, 30.)

IMPERFECT DEVICE.

(See Reduction to Practice, 5, 7, 8, 9.)

INFRINGEMENT.

(See Jurisdiction of the United States Courts, 1; Particular Patents, 3; Suits for Infringement.)

INJUNCTION.

(See Jurisdiction of the United States Courts, 1.)

INOPERATIVENESS.

(See Interference, 40, 69; Rejection of Claims.)

1. DUE TO DEFECTS—DEFECTS SHOULD BE POINTED OUT. If a device is inoperative, it is because of some defect in principle or mechanical construction and not because similar devices have not been made operative, and the Examiner should point out the real reasons why he regards the device as inoperative. [*Ex parte Gibson*, 327.]
2. OBJECTION OF NOT WELCOME—SHOULD NOT BE MADE DOGMATICALLY. As a matter of practice this Office should not arbitrarily place upon the applicant the burden of proving that the device is operative without stating the reasons why it is regarded as inoperative, since the objection of inoperativeness is not a welcome one and should not be made dogmatically. [*Id.*]

INTERFERENCE.

(See Delay in Filing Application; Diligence; Motion to Amend Application; Reduction to Practice; Testimony; Trade-Marks, 8.)

1. MOTION TO REOPEN—NEWLY-DISCOVERED EVIDENCE—DILIGENCE. Where an interference is reopened to permit the taking of the testimony of a single witness and after the case is again closed a motion is made to take the testimony of other witnesses to corroborate him, *Held* that the motion should be denied in the absence of a showing that the testimony could not have been produced by the exercise of diligence. [*Dudley v. Bickensderfer and Barnes v. Sedgwick*, 328.]
2. NEW TRIAL—SAME—REASONABLE DILIGENCE. A new trial will not be granted on the ground of newly-discovered evidence where that evidence could have been discovered before trial by the exercise of reasonable diligence. [*Id.*]
3. PRIORITY—STIPULATION. A stipulation that S. completed the invention in June and July does not prove that he completed it before June 9, when H. filed his application. [*Silverman v. Hendrickson*, 445.]
4. SUPPLEMENTAL OATH—EX PARTE MATTER. The question whether or not a party should be called upon for a supplemental oath is an *ex parte* matter not open to argument in an interference proceeding. [*Id.*]
5. AMENDMENT—ADDITION OF NEW COUNTS—CONSENT OF PARTIES. Where before testimony is taken both parties by common consent wish to present certain claims as additional counts of the interference and file amendments embodying those claims, *Held* that the interference will be remanded to the Primary Examiner to determine if the claims are allowable and should be included in the interference. [*Reese v. Fenwick*, 608.]
6. SETTLING ALL QUESTIONS AT ONCE. It is the general policy of the Office to have all questions which may be brought in issue between the parties settled in one interference where possible. [*Id.*]
7. MOTION—EXAMINER SHOULD DECIDE ALL GROUNDS. Where a party made a motion to dissolve on all of the grounds mentioned in Rule 123 and the Primary Examiner decided only two of those grounds, *Held* on appeal that the case will be remanded to the Examiner with instructions to decide all grounds alleged. [*Oldham and Padbury v. Peck v. Clement v. Richards*, 670.]
8. PRELIMINARY STATEMENT—SEALED AGAINST INSPECTION WHERE NOT USED. Where the junior party's statement fails to overcome the filing date of the senior party, the preliminary statement of the senior party should remain sealed and should be placed in the confidential archives of the Office and should not be open to inspection either before or after the grant of the patent. [*In re Bacon*, 861.]
9. MOTION TO AMEND—RULE 100—APPEAL LIES FIRST TO THE EXAMINER-IN-CHIEF—PRACTICE. Where a motion is made by one party to an interference to amend his application under the provisions of Rule 100 and the Examiner denies said motion on the ground that the moving party has no right to make the claims, *Held* that said decision involves a question of merits and an appeal therefrom lies in the first instance to the Examiner-in-Chief. [*Berry v. Fitzsimmons*, 328.]

10. PRIORITY—PRIVATE USE OF INVENTION.

Where T. made an electric measuring instrument embodying the invention in controversy in 1894 and placed it in his private experimental room, where it was seen only by employees, but where it was used frequently in making measurements, and T. did not manufacture it or apply for a patent until 1896, after he knew of W.'s patent upon it, *Held* that W. is entitled to the decision on priority. [*Citing Mason v. Hepburn*, 84 O. G., 147; 13 App. D. C., 50.]

[*Thomson v. Weston*, 304.]

11. DELIBERATE CONCEALMENT OF INVENTION—FORFEITURE OF RIGHTS IN FAVOR OF ONE PARTY.

Where a party deliberately conceals his invention after completion without reasonable excuse and is stimulated to make application for a patent only by the publication of a patent to another and later inventor, *Held* that he has forfeited his rights in favor of the later and more diligent inventor and that the length of the concealment is not material. [*Id.*]

12. SAME—SAME.

By deliberate concealment or suppression of the knowledge of his invention the inventor subordinates his claim, in accordance with the general policy of the law in the promotion of the public interest, to that of another and bona fide inventor who during the period of inaction and concealment shall have given the benefit of the discovery to the public. [*Id.*]

13. EXPERIMENTAL DEVICE—LONG DELAY AFTER TEST AS EVIDENCE.

The circumstances of private and partial test accompanied by long delay thereafter have justly been given great weight as indicating with certainty that the device was experimental merely and not satisfactory. [*Id.*]

14. DISSOLUTION IN VIEW OF REFERENCES—REMEDY—APPEAL OR AMENDMENT.

Where an interference is suspended under Rule 123 and a decision is rendered dissolving the interference in view of newly-discovered references, *Held* that the parties may appeal to the Examiner-in-Chief within the limit of appeal or may permit the decision to become final and then amend the claims to avoid the references. [*Davis v. Swift*, 1168.]

15. APPEAL—AMENDMENT NOT PERMITTED.

Where a party has appealed to the Examiner-in-Chief from a decision dissolving the interference, *Held* that he cannot amend his claims until that appeal is disposed of either by a decision or by being withdrawn. [*Id.*]

16. PRIORITY—DILIGENCE.

Prior conception without prior reduction to practice will not avail unless there has been diligence in the elaboration of the idea looking toward reduction to practice. [*Silverman v. Hendrickson*, 1171.]

17. CONSTRUCTIVE REDUCTION TO PRACTICE—SUBSTITUTE APPLICATION.

Where H. filed an application for a patent on the invention in controversy on June 3, 1897, and at a later date filed the application here involved as a substitute for that earlier one, *Held* that he is under the well-settled rule entitled to June 3, 1897, for a constructive reduction to practice. [*Id.*]

18. EVIDENCE.

The allegation on behalf of S. that he reduced the invention to practice in the summer of 1897 does not show that he reduced it to practice before June 9. [*Id.*]

19. UNSATISFACTORY EVIDENCE—DISCREDITING CIRCUMSTANCES.

Where the evidence is very unsatisfactory and uncertain, but shows S. to have been active in experimentation on the general lines of this invention in February, 1897, and that he then filed an abortive application not disclosing this invention and does not allege reduction to practice until the summer of 1897, *Held* that he has not satisfactorily shown conception in February. [*Id.*]

20. REDUCTION TO PRACTICE—SIMPLE DEVICE—ILLUSTRATIVE MODEL AND PERFECTED DEVICE.

The ticket-holder in controversy is an exceedingly simple invention consisting mainly in the folding of a small piece of paper, and there can scarcely be any practical difference between what is designated as an illustrative model and the perfected device. *Held*, therefore, that the making of such a holder by Hauser was a reduction to practice. [*Loomis v. Hauser*, 1172.]

21. SAME—SAME—MERE CONSTRUCTION SUFFICIENT.

Some devices are so simple and their purpose and efficiency so obvious that the complete construction of one of a size and form intended for and capable of practical use may well be regarded as a sufficient reduction to practice without actual use or test in an effort to demonstrate their complete success or probable commercial value. [*Citing Mason v. Hepburn*, 84 O. G., 147; 13 App. D. C., 50.] [*Id.*]

22. SAME—LINDENMAYER v. HOFFMAN DISTINGUISHED.

This case distinguished from *Lindenmayer v. Hoffman*, (95 O. G., 984,) wherein the inventor expressly admitted that his device was not fit for practical use. [*Id.*]

23. TRANSMITTAL OF MOTION TO DISSOLVE.

A motion to dissolve an interference brought after the twenty-day limit allowed by the rule for such motions should be transmitted when the delay is slight and it appears that no testimony has been taken and that a motion to dissolve on another ground is already before the Primary Examiner. [*Arbeter v. Lewis*, 1232.]

24. EXCUSE FOR DELAY.

If reasons exist why an interference should not be continued, it is for the interest of all concerned that all such reasons be considered at the same time. Hence the matter submitted in excuse of the delay will not be so closely scrutinized as when presented at a later stage of the proceedings. [*Id.*]

25. THE RESTORATION OF JURISDICTION FOR ONE SPECIFIC PURPOSE DOES NOT OPERATE FOR ALL PURPOSES.

Where a motion is brought to restore jurisdiction to the Examiner of Interferences after the limit of appeal has expired in order that he may consider a motion to transmit a motion for dissolution and the motion is granted for that sole purpose, *Held* that the jurisdiction of the Examiner of Interferences was not restored for all purposes. [*Denger v. Hurson*, 1264.]

26. PRIORITY—APPEAL AFTER LIMIT HAS EXPIRED.

Where after the limit of appeal on the question of priority has expired a motion to dissolve is transmitted to the Primary Examiner and decided by him, *Held* that the party is not entitled thereafter to take an appeal as to priority. [*Id.*]

27. SAME.

While it may have been necessary in justice to both parties to finally determine whether or not an interference in fact existed or whether or not either of the parties had a right to make the claim, the necessity for an appeal to the Examiner-in-Chief from a decision awarding priority on the record is not apparent. Such a course would only operate to delay the final determination of the case. [*Id.*]

28. MOTION FOR DISSOLUTION—NEW FACTS DISCOVERED—PRACTICE.

Upon the discovery of new facts after a motion to transmit a motion for dissolution is granted "the Primary Examiner may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve." [*Wells v. Pucker*, 90 O. G., 1947.] [*Whitlock and Huron v. Scott*, 1265.]

29. SAME—SAME—NOTICE TO OPONENT.

If notice of the new facts be served on the opposing party at least five days before the day set for hearing, such notice should be considered as "due and timely." [*Id.*]

30. SAME—SAME—SAME—DELAY NOT PERMITTED.

Unless the practice of giving "due and timely notice" on the discovery of new facts is enforced a postponement of the time of hearing becomes necessary, and therefore a delay of proceeding might be obtained by the observance of this practice by the moving party. It is therefore held that such a delay should not be permitted except upon a showing of facts that the new motion could not have been earlier presented. [*Citing Summers v. Hart*, 98 O. G., 3285.] [*Id.*]

31. SECOND MOTION TO DISSOLVE—REFUSAL TO TRANSMIT—DELAY UNAVOIDABLE.

Where a second motion to transmit a motion for dissolution is brought before the Examiner of Interferences on the ground of the discovery of new references, *Held* that the consideration of unavoidable delay should be controlling with the Examiner of Interferences, for the granting of the second motion for dissolution necessarily results in a second hearing of the motion for dissolution by the Primary Examiner and the same would be gained by a different means. [*Id.*]

32. SAME—DELAY NOT UNAVOIDABLE.

Where after a period of three months has elapsed from the date of the decision of priority on the record and it appears that the new references were discovered after a very short search on the morning of the day of hearing among the records of this Office in places where they might be expected to have been found, *Held* that the delay in discovering the new references was not unavoidable. [*Id.*]

33. UNSUPPORTED TESTIMONY OF A PARTY.

That the unsupported evidence of a party will not be accepted or acted upon as sufficient proof of the conception of an invention is a well-settled principle, the reasons for which apply with equal force to its reduction to practice. [*Petrie v. De Schweinitz*, 1267.]

34. EVIDENCE AS TO PAST STATEMENTS—COMPETENCY.

Evidence that a party at a certain time stated that he had reduced the invention in controversy to practice while admissible as tending to establish the fact of conception is clearly incompetent to prove the independent fact of reduction of that conception to practice. [*Id.*]

35. NOTICES—RULE 97 REQUIRES DISCLOSURE BY TITLE OF INVENTION.

The requirement of Rule 97 that the notices of interference should disclose "the invention claimed" means that the invention claimed should be disclosed by its title. [*Hoffmeyer v. Kahn*, 1034.]

36. MOTION TO DISSOLVE—NON-COMPLIANCE WITH RULES.

A motion to dissolve an interference brought after testimony has been taken and unaccompanied by a motion to transmit to the Primary Examiner and by no excuse for the delay is not brought in accordance with the rules and has no standing. [*Frederick v. Frederick and Frederick*, 1263.]

27. SAME—JOINT APPLICATION AND SOLE APPLICATION OF ONE OF JOINT APPLICANTS.

When an interference is declared between a joint application and a sole application of one of the joint applicants, the question of priority necessarily resolves itself into a determination as to whether the entity composed of the joint applicants ever made the invention at all. A motion to dissolve, therefore, which sets up as a reason for dissolution that the record shows that the joint applicants never made the invention is irregular, since it seeks to obtain a decision on the very question which is to be decided at final hearing. [Id.]

28. BURDEN OF PROOF—RENEWAL OF FORFEITED CASE—APPLICANT AGAINST PATENTEE.

Where an application is allowed and becomes forfeited through a failure to pay the final fee within six months and during the time that it is forfeited an application is filed by another party covering the same invention and a patent is granted thereon, *Held* that in an interference between the patent and a renewal of the first application the burden of proof is upon the applicant notwithstanding the earlier date of his first application. [Ascendo v. Russell, 5319.]

29. PRIORITY—UNSUCCESSFUL DEVICE.

Where S. alleges the earlier date of conception and reduction to practice, but the evidence shows that his first machines were unsuccessful and that he did not construct a satisfactory machine until after he had seen M.'s invention, *Held* that the decision awarding priority to M. must be affirmed. [Swihart v. Mauldin, 5222.]

40. SAME—DELAY IN APPLYING FOR PATENT—CONDUCT INCONSISTENT WITH CLAIM.

Where S. was engaged in the special work of devising means to remedy imperfections in scales of the class in controversy, having taken out several patents upon that line, and where he claims to have completed the particular invention in issue, *Held* that his failure to apply for a patent until six months after he had seen M.'s device is peculiarly significant. [Id.]

41. SAME—BURDEN OF PROOF—CONCURRENT DECISIONS.

Where an appellant comes to the court as the junior applicant and with three concurrent decisions of the tribunals of the Patent Office against him, *Held* that the presumption is strongly against his claim as the prior inventor. [Id.]

42. SAME—IDENTITY OF INVENTIONS NOT CONSIDERED.

The court will not except in extreme cases go behind the declaration of interference in order to determine the question of identity of the inventions claimed by the parties. [Id.]

43. ADDITION OF NEW PARTY—DECISION RENDERED ON PRIORITY.

After a decision by the Examiners-in-Chief and the Commissioner upon the question of priority of invention it is too late to add a new party to the interference. [Corry and Barker v. Trout, 5547.]

44. RECORD DATE—TWO APPLICATIONS DISCLOSED INVENTION.

Where W. had two applications pending in either of which the claims in controversy could be made and he elects to make them in the later case, *Held* that he is entitled to the date of his earlier case as his record date upon the question of priority. [Patten v. Wiesenfeld, 5547.]

45. IRREGULARITY—MERE TECHNICAL OBJECTIONS.

Where priority was awarded to W. by reason of a prior application not directly included in the interference and P. moves to dissolve on the ground of irregularity, alleging that the earlier case should have been positively included in the interference, *Held* that the motion relates to a technicality rather than to the merits and was properly denied. [Id.]

46. REJECTED CLAIMS—COPENING APPLICATIONS.

Where the claims of an application are rejected upon reference and without overcoming the rejection the applicant petitions to have an interference declared with a patent to another party granted while his application was pending, *Held* that his remedy is by an appeal from the rejection when it shall have been repeated. [Ex parte Holland, 5548.]

47. RULE 105—CONCEALING PART OF INVENTION FROM OPPONENT—PROCESS AND PRODUCT.

Where an interference is declared as to a process and one of the parties has claims to the product which is the necessary result of the process, *Held* that he will not be permitted to conceal his product claims from his opponent by filing certified copies of the parts of his application relating to the process under Rule 105. [Ex parte Powrie, 5549.]

48. SAME—ADDITIONAL STEP TO PROCESS—INDEPENDENT INVENTION.

Where an interference is declared as to a process and one of the parties has claims to an additional step performed after the process as set forth in the issue is completed and the opposing party does not disclose that step, *Held* that the additional step may be concealed from the other party to the interference under Rule 105. [Id.]

49. MOTION TO DISSOLVE—AFFIDAVITS AS TO OPERATIVENESS.

Where on a motion to dissolve the question as to the operativeness of one of the inventions is raised, *Held* that affidavits supporting or traversing the allegation may be received and considered. [Dickinson v. Thibodeau v. Hildreth, 5550.]

50. PRIORITY.

Where Roe conceived the invention in November, 1898, made a machine embodying it in August, 1899, and operated it at that time in such manner as to show its practicability, and in March, 1900, first used it in a mill and made the first commercial test of it, *Held* that he is entitled to the decision on priority as against Hanson, who conceived in April, 1899, and reduced to practice in July, 1899. [Roe v. Hanson, 5550.]

51. REDUCTION TO PRACTICE—COMMERCIAL USE UNNECESSARY.

Where Roe in August, 1899, completed the shifting device for the saws of a gang-edger and embodied it in a full-sized machine adapted for practical use and then tested it, but did not place it in a sawmill and test it commercially until March, 1900, *Held* a reduction of the invention to practice in August, 1899. [Id.]

52. PRIORITY—DILIGENCE.

Where Roe conceived the invention in November, 1898, completed drawings in April, 1899, and then commenced work on a machine which was completed in August, 1899, and it appears that he was a very busy man and devoted all of the time that he could spare to work upon this invention, *Held* that he was not lacking in diligence. [Id.]

53. SAME—DELAY IN COMMERCIAL USE.

Where Roe completed his machine in August, 1899, and wished to place it in the sawmill which he was then building for his company, but was not permitted to do so, and where he placed it in the next mill built in March, 1900, *Held* that there was no unreasonable delay by him in making commercial use of his invention. [Id.]

54. SAME—EXHIBIT—REDUCTION TO PRACTICE.

Where a certain exhibit contains a chamber as a material part thereof, which is so connected and associated with the other parts that it would probably have a material effect upon the operation of the device, *Held* that this chamber cannot be ignored in order that the exhibit may be considered as a reduction to practice. [Blackford v. Wilder, 5769.]

55. SAME—SAME.

Where B. contends that a certain exhibit if operated at this time would contain oil in the trough and that therefore it must be held that it contained oil in 1896 when operated, *Held* that a demonstration of the burner at this time even if satisfactory would not be sufficient, since B. should have shown by his proofs that it did contain oil and that he appreciated the fact at the time. It is not sufficient that he supposes now that an operation took place which he did not appreciate at the time. [Id.]

56. SAME—EVIDENCE OF CONCEPTION AND DISCLOSURE.

Where the testimony shows a conception and disclosure of one specific form of the invention, *Held* sufficient to establish a conception and disclosure of the generic invention based upon another specific form. [Glaughter v. Halle, 5771.]

57. SAME—REDUCTION TO PRACTICE.

Where one specific form of the invention embodied in a machine is shown to have worked practically and successfully, *Held* to constitute a reduction to practice of the invention notwithstanding the fact that this form is shown to have been capable of improvement. [Hien v. Buhoup, 51 O. G., 5068.]

58. SAME—DILIGENCE.

Where H. was the first to conceive the invention defined in all the counts and the first to reduce the invention to practice as to all the counts save one and exercised due diligence in reducing to practice the invention defined in the remaining count, *Held* that priority of invention as to all the counts should be awarded to H. [Id.]

59. MOTION TO SUPPRESS TESTIMONY—CONSIDERATION POSTPONED UNTIL FINAL HEARING.

Where a motion to suppress testimony involves a consideration of the entire record, such as is necessarily given at final hearing upon the question of priority, *Held* that a decision upon the matter will be postponed until that time. [Talbot v. Monell, 5565.]

60. TESTIMONY—DEPOSITION IN ANOTHER PROCEEDING—DISCREDITING WITNESS.

Where for the purpose of discrediting a witness in an interference a deposition given by him in another interference is introduced, *Held* proper, but *Held*, further, that the deposition cannot be accepted as proper evidence to establish the facts stated in it. [Id.]

61. SAME—DEPOSITIONS IN DIFFERENT PROCEEDINGS NOT ACCEPTED.

Where a party to one interference introduces in evidence the deposition of one of the witnesses given in another interference for the purpose of discrediting him, *Held* that this does not justify the opposing party in introducing the depositions of other witnesses in that other interference for the purpose of establishing the facts alleged by those witnesses. [Id.]

62. BURDEN OF PROOF—APPEAL—RIGHT TO MAKE CLAIM NOT INVOLVED.

Where a party to an interference is given the benefit of the date of an earlier application filed by him under Rule 115 and on a motion to shift the burden of proof the Examiner decides that the early case discloses the invention, *Held* that this is not a favorable decision upon his right to make the claim from which no appeal can be taken, but is merely a ruling as to his record proofs from which an appeal may be taken to the Commissioner. [Ditgen v. Farmer, 5566.]

63. SAME—CONTINUOUS APPLICATIONS—FAILURE TO CLAIM.

Where on a motion to shift the burden of proof it is argued that a party is not entitled to the benefit of the date of an earlier application because the claim was not made therein and because there was included a disclaimer of it, *Held* that this relates to his right to make the claim and not to the disclosure in the early case, which is the only thing considered under Rule 115. [Id.]

64. SUPPRESSION OF TESTIMONY—EVIDENCE AS TO OTHER MATTERS THAN THE ISSUE.

Where a motion to add certain counts to the issue of an interference is denied and the party thereafter reads those counts into the record and proceeds to take testimony as to them, *Held* that the testimony will upon motion be stricken out. [Brill and Adams v. Uebelsacker, 5568.]

65. TESTIMONY MUST BE CONFINED TO ISSUE—PRIORITY.

The issue in an interference proceeding is prescribed by the Office, and the testimony taken must be confined to the question of priority of invention of this issue. [Id.]

66. ISSUE MUST REMAIN FIXED—AMENDMENT BY PARTIES.

It is necessary to orderly procedure that the issue remain fixed throughout the interference proceeding. To permit a party to change the issue at will, to add to it so as to include matter not covered by it originally, would lead to the greatest confusion. [Id.]

67. TESTIMONY—MOTION TO EXTEND TIME—EXCUSE FOR DELAY.

Where a party delays taking his testimony until the last of the time allowed him and gives no good reason for the delay, *Held* that a motion for an extension of time will be denied. [Id.]

68. MOTION TO REOPEN—SHOWING IN RECORD FOR DELAY.

On a motion to reopen an interference which has been decided to take more testimony good reasons must be shown why it was not sooner produced and why the new evidence could not have been discovered by the exercise of reasonable diligence. [Monter v. Tully and Clark, 5569.]

69. SAME—SAME.

Where a witness testifies as to the making of a certain device and the opposing party after closing his proof in rebuttal and two months after a decision has been rendered on priority moves to reopen the interference to permit him to show that the device was inoperative, *Held* that the motion will be denied in the absence of a satisfactory showing why the evidence was not produced at the proper time. [Id.]

70. MOTIONS—DELAY—RULES 100 AND 102.

The fact that a motion to dissolve under Rule 100 is pending does not prevent the filing of a motion to amend under Rule 100 or excuse delay in filing such a motion. [Parrissel v. Wichmann, 5570.]

71. AMENDMENT RULE 100—INVENTION MUST BE DIFFERENT.

Where one application includes the claims of the issue and others which differ so slightly therefrom that the decision as to the issue will settle the question of priority as to the others, *Held* that it is not necessary to make those other claims counts of the interference and that an amendment by the other party including those claims under Rule 100 should not be admitted. [Id.]

INVENTION.

(See Anticipation, 1, 2; Patentability.)

1. ANTICIPATION—DOUBLE USE.

Held that the substitution of one old form of high-frequency apparatus for another in the production of ozone involves mere double use and not invention. [Ex parte Verley, 1891.]

2. SAME—SUGGESTION OF COMBINATION IN PRIOR ART.

Held that there was no invention in using a Horvian exciter in an ozone apparatus when it had been used in other devices to obtain electric currents of high frequency and an ozone patent had described the use of devices of that class with an oscillator. [In re Verley, 5567.]

JOINT APPLICATIONS.

(See Interference, 37.)

JURISDICTION.

(See Interference, 35.)

JURISDICTION OF THE COMMISSIONER OF PATENTS.

(See Appeal to the Secretary of the Interior.)

JURISDICTION OF THE UNITED STATES COURTS.

1. QUESTION UNDER PATENT LAWS—CONTRACT—INFRINGEMENT. Where the defendant gave to the complainant an exclusive license under his patent and subsequently gave a license to a third party in the same territory, alleging that the first license is void for failure to comply with its terms, *Held* that a bill to recover damages for infringement and for an injunction raises a question under the patent laws which is within the jurisdiction of the United States courts and is not merely a question of contract. [Examiner Wooden Pipe Company v. Pacific Bridge Company et al, 5123.]

2. SAME—RIGHT UNDER PATENT.

To constitute an action arising under the patent laws of the United States, the plaintiff must set up some right, title, or interest under the patent laws, or at least make it appear that some right or privilege will be defeated by one construction or sustained by the opposite construction of those laws. [Id.]

3. SAME—REMEDY IN STATE COURT INADEQUATE.

Before it can be held that the allegations of the bill oust the jurisdiction of the United States court it must at least appear that the plaintiff has another remedy by an action in a State court, and where an action in that court would be inadequate or would involve questions under the patent law jurisdiction of the United States court is not ousted. [Id.]

4. SAME—REMEDY FOR INFRINGEMENT.

Where the only remedy which an alleged licensee had against a violation of his license by the patentee was to prosecute the patentee as an infringer of his rights under the patent, *Held* that the question is one arising under the patent laws and is within the jurisdiction of the United States courts. [Id.]

5. CONTRACT CONCERNING PATENTS—SUIT FOR INFRINGEMENT.

The jurisdiction of the Federal courts cannot be invoked primarily for the determination of the rights of parties to a contract concerning patents; yet when the bill is an ordinary one for infringement and the answer puts in issue the title of the plaintiff to see the jurisdiction is not ousted by the mere allegation that the license has been revoked. [Id.]

6. CASE DISMISSED ON MOTION OF COURT.

It is the duty of the circuit court on its own motion to dismiss the case whenever at any time it shall appear that its jurisdiction has been improperly invoked. [Id.]

7. APPEAL TO SUPREME COURT FROM CIRCUIT COURT—QUESTION OF JURISDICTION.

On an appeal directly to the Supreme Court from a decision of the circuit court it must appear either that the question of jurisdiction was certified or that the decree appealed from shows upon its face that the sole question decided was one of jurisdiction. A statement to that effect in allowing an appeal is, however, a sufficient certificate that the question is one of jurisdiction. [Id.]

LABELS.

1. PRINTED MATTER—NOT REGISTRABLE.

A label which contains nothing more than an arrangement of printed matter naming and describing a medicine, together with directions for its use and the name and residence of the manufacturer, is not an artistic production and is not registrable. [Ex parte Houghton, 1891.]

2. ARBITRARY WORD—NOT ARTISTIC.

A label containing a new arbitrary word may be an intellectual production; but such a word does not render the label artistic. [Id.]

3. ABSENCE OF ARTISTIC MERIT.

In the absence of artistic merit there is no provision for the registration of a label under the statute relating to copyrights, under which statute such registration is granted. [Id.]

4. REGISTRATION REFUSED—SKILL OF TYPE-SETTER.

A label for cement printed in three kinds of type, including the fanciful words "Cast Steel" and having a monogram of the letters "C S" placed between two of the lines of printing, *Held* not registrable, because it involves merely the expected skill of the type-setter, and its production was not the result of the creative powers of the artist. [Ex parte Clark Cast Steel Cement Company, 5567.]

LICENSES.

(See Assignment; Jurisdiction of the United States Courts, 1, 4, 5.)

LIMIT OF APPEAL.

(See Interference, 14, 35, 36; Reopening of Rejected Cases, 2.)

MANUSCRIPT DECISIONS.

(See Reference to Another Pending Application, 2.)

MERITS OF THE CASE.

(See Amendments, 2; Examination of Applications; Interference, 3.)

MODEL.

(See Interference, 30.)

MOTION TO AMEND APPLICATION.

(See Interference, 9, 70.)

INTERFERENCE—DELAY—PRIORITY OF ANOTHER MOTION TO EXAMINE.

A delay of four months in filing a motion to amend under Rule 109 cannot be excused upon the ground that the party did not know whether or not the amendment would be necessary until a final decision was rendered upon a motion to dissolve which was pending. [Perrussel v. Wichmann, 2970.]

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 7, 22, 24, 25, 26, 29, 30, 31, 32, 33, 37, 45, 59, 70.)

MOTION TO EXTEND TIME OF TAKING TESTIMONY.

(See Interference, 67.)

MOTION TO REOPEN INTERFERENCE.

(See Interference, 1, 2, 62, 63.)

MOTION TO SUPPRESS TESTIMONY.

(See Interference, 59.)

NEWLY-DISCOVERED EVIDENCE.

(See Interference, 1, 2, 22, 29, 30, 62, 63.)

NEW MATTER.

(See Amendments, 2.)

NEW REFERENCES.

(See Interference, 21, 22.)

NOTICE TO OPPONENTS.

(See Interference, 20, 30.)

OATH.

(See Interference, 4.)

OLD DEVICES.

(See Invention, 2.)

PARTICULAR PATENTS.

1. JONES—PROCESS OF DRY-PRESSING—No. 204,741—FUNCTION OF MACHINE.

Claim 5 of Letters Patent No. 204,741, granted to Joshua W. Jones, for a process of dry-pressing and removing type indentations from printed sheets *Held* invalid, as covering merely the function of the machine. (Decision below, 16 App. D. C., 22, reversed.) [Busch v. Jones et al., 2980.]

2. SAME—BOOKBINDER'S DRY-PRESS—No. 204,741—ANTICIPATION—CLAIM VALID.

Claims 1, 2, 3, and 4 of Patent No. 204,741 for a bookbinder's dry-press and sheet-ble *Held* valid notwithstanding the existence of devices of the same general character used in various arts for compressing and tying various materials. [Id.]

3. JONES—MIXING PIG METAL—No. 404,414—VALID AND INFRINGED.

Letters Patent No. 404,414, granted to William R. Jones on June 4, 1890, for a method of mixing molten pig metal, *Held* valid and infringed. (Decision below, 98 F. R., 859, reversed.) [Carnegie Steel Company, Limited, v. Cambria Iron Company, 1992.]

PATENTABILITY.

(See Anticipation.)

PATENTS.

See Assignments; Construction of Specifications and Patents, 2; Particular Patents.

PETITION TO THE COMMISSIONER OF PATENTS.

1. QUESTION MUST BE TWICE BROUGHT UPON.

A petition should not be brought until the case has been twice acted upon with reference to the point involved in the petition. (Rule 142.) [Ex parte Haug, 97 O. G., 192.] [Ex parte Rhone, 2980.]

2. SAME.

A petition taken to the Commissioner from the first action of an Examiner *Held* to be premature and is dismissed. [Id.]

3. SAME—REASONS FOR WITHDRAWING OBJECTION MUST BE STATED.

Petitions taken without a request for reconsideration accompanied by a statement of reasons why the objection should be withdrawn which will inform the Examiner of the applicant's position place much unnecessary labor on the Commissioner and cause delay. [Id.]

POVERTY.

(See Delay in Filing Application; Diligence, 1.)

PRACTICE IN THE COURTS.

(See Interference, 42.)

PRELIMINARY STATEMENTS.

(See Interference, 8.)

PRESUMPTION.

(See Interference, 41.)

PRIORITY OF INVENTION.

(See Interference, 10, 11, 12, 13, 16, 18, 19, 25, 26, 31, 43, 50, 52, 53, 55, 66; Invention, 2.)

PRIVATE USE.

(See Interference, 10.)

PROCESS.

(See Construction of Claims; Construction of Specifications and Patents, 1; Drawings, 2; Division of Application, 4.)

1. ANTICIPATION—ONE STEP NEW.

Where the patented process of mixing molten metal drawn from several blast-furnaces includes retaining at all times a substantial quantity of molten metal in the mixer and this step is what adds value to the process and makes it a success, *Held* not anticipated by mixing devices in which the metal might be retained when the users did not contemplate such use or understand its advantages. [Carnegie Steel Company, Limited, v. Cambria Iron Company, 1992.]

2. SAME—SAME—RESULT LOWS SOUGHT FOR.

Where the manufacturers of steel had spent years in endeavoring to find out a process for accomplishing the results of this invention which is but a step from what they already knew, it is surprising with the wisdom which comes after the fact that they did not discover it. [Id.]

3. SAME—NOT ANTICIPATED BY APPARATUS.

To anticipate a process patent it is necessary not only to show that the prior patent might have been used to carry out the process, but that such use was contemplated or that it would have occurred to an ordinary mechanic in operating the device. [Id.]

4. SAME—APPARATUS AND PROCESS DISTINGUISHED.

A mechanical patent is anticipated by a prior device of like construction and capable of performing the same function, but it is otherwise with a process patent. A process patent can only be anticipated by a similar process. [Id.]

5. SAME—FUNCTION OF MACHINE.

If a process is the mere function of a machine, another machine capable of performing the same function might be an anticipation; but this is not because a process can be anticipated by a mechanism, but because the mere function of a machine is not patentable as a process at all. [Id.]

PROCESS AND PRODUCT.

(See Interference, 47, 48.)

PROVISIONAL SPECIFICATION.

(See Foreign Patents.)

REDUCTION TO PRACTICE.

(See Interference, 2, 12, 17, 18, 19, 20, 21, 22, 24, 25, 26, 30, 31, 32, 33, 34, 35, 37, 38, 43, 44, 45; Testimony, 2.)

1. EXPERIMENTAL PRODUCTION OF COMPOSITION.

Where the issue is for adulterated cornstarch-pith saturated with oil and it appears that S. produced the pith and in experimenting with it saturated small quantities with oil, but made no practical use of it to determine its properties and value, *Held* not a reduction to practice. [Silverman v. Hendrickson, 443.]

2. MUST BE PRACTICAL USE OF COMPOSITION.

It is not necessary to a reduction to practice that S. should have thought of all uses to which the composition could be applied and have actually employed it practically for those uses, but merely that he should have tested it to determine its qualities, so as to demonstrate its practical utility for some purpose. [Id.]

3. INTERFERENCE—COMPLETE DEVICE.

Some inventions are so simple that no actual test is required when the device is a complete construction of full size and form. (Citing *Mason v. Hepburn*, 84 O. G., 147.) [Loomis v. Hauser, 448.]

4. SAME—SAME—HAND-MADE ENVELOPE.

An envelop constructed by hand made from a sheet of light brown paper, which on inspection is clearly seen to be capable of securely holding tickets, for which use the invention is intended, though never put into commercial use, *Held* to constitute a full and complete reduction to practice. [Id.]

5. SAME—ABSENCE OF PRINTED MATTER.

A poster-ticket holder made from a sheet of ordinary paper and constructed as stated in the issue *Held* a reduction to practice, although the advertisements, program, time-table, and diagram of seats usually found on such holders were not printed thereon. [Id.]

6. INTERFERENCE—DEVICE COMPLETE, BUT UNSATISFACTORY.

Where twelve complete scales embodying every feature of the interference issue were made and shipped to customers for test in practical use and they were all returned as unsatisfactory, *Held* not a reduction to practice of the invention. [Swihart v. Mauldin, 505.]

7. SAME—CONSTRUCTION OF DEVICE NOT SUFFICIENT UNLESS SATISFACTORY.

The mere construction of a device embodying the elements of the issue cannot be accepted as a reduction to practice unless that device proves so satisfactory in use as to demonstrate the practicability of the invention. [Id.]

8. SAME—DEVICES COVERED BY MECHANICAL SKILL.

The fact that an unsuccessful device could have been made successful by mere mechanical skill does not make that device constitute a reduction to practice, since until made operative it does not demonstrate the practicability of the invention any more than would drawings or a model. [Id.]

9. SAME—MACHINE AS A WHOLE NOT SUCCESSFUL.

Where the mechanism of the claim operates successfully, it is not necessary that all parts of the machine in which it is used shall be mechanically perfect; but where the mechanism claimed is the part which proves defective *Held* not a reduction to practice. [Id.]

REFERENCES.

(See Interference, 16; Reopening of Rejected Cases, 1, 2.)

REFERENCE TO ANOTHER PENDING APPLICATION.

1. CITATION OF DECISION OF EXAMINERS-IN-CHIEF.

Where in his answer to an appeal to the Examiners-in-Chief the Primary Examiner refers to a decision by that tribunal in regard to another pending application holding that a similar invention was not patentable, *Held* that the reference will be accepted from the answer. [Ex parte Morley, 295.]

2. SAME—ACCESS TO OTHER CASE FILES.

An applicant should be fully informed of the reasons for rejection and given an opportunity to meet them, and therefore in the treatment of one case reference should not be made to another case filed by a different party to which the applicant cannot have access. [Id.]

3. CITATION OF MANUSCRIPT DECISIONS—KNOWLEDGE OF INVENTION NECESSARY.

Manuscript decisions of the Examiners-in-Chief and of the Commissioner may be cited in support of some contention of law if it can be done without disclosing the applicant's invention or making it necessary for the party against whom they are cited to understand the inventions in order to appreciate the pertinence of the decisions to the matter under consideration. [Id.]

REFUNDMENT OF FEES.

(See Caveat.)

REISSUE.

(See Appeal to the Secretary of the Interior, 2; Disclaimers, 2.)

REJECTED CASES.

(See Interference, 46; Reopening of Rejected Cases.)

REJECTION OF CASES.

(See Appeal to the Examiners-in-Chief.)

REJECTION OF CLAIMS.

(See Inoperativeness; Reference to Another Pending Application, 2.)

1. INOPERATIVENESS—AEROPLANE—FAILURE OF EXAMINER TO STATE REASONS.

Where an Examiner rejects claims for an aeroplane on the ground of inoperativeness upon the allegation that there is no instance in the history of the art of a successful ascent and prolonged flight without the aid of a gas-field, *Held* that he has not complied with the rule which requires him to state his reasons for rejection. [Ex parte Gibson, 297.]

2. SAME—FAILURE OF OTHERS TO ACCOMPLISH RESULT.

This Office was created and exists for the sole purpose of encouraging inventors to furnish means to accomplish results which have not before been accomplished, and therefore it cannot consistently refuse a patent upon the sole ground that no one has heretofore succeeded in accomplishing the result had in view. [Id.]

REOPENING OF REJECTED CASES.

1. SHOWING INSUFFICIENT.

Where the claims in a case were properly finally rejected and the applicant thereafter sought to amend and as a reason for not amending earlier alleged that prior to final rejection he had been intent in framing claims upon a different view of the invention and references and because the view of the invention contained in the amended claims did not then present itself, *Held* that the showing does not warrant reopening the case for further prosecution before the Examiner. (Citing *ex parte Beckwith*, 95 O. G., 1451.) [Ex parte Raymond, 1990.]

2. ADMISSION OF AMENDMENT FOR PURPOSE OF APPEAL.

Where the new claims sought to be entered after final rejection are not merely those rejected in better form, but differ as to their merits, *Held* that they cannot be admitted under Rule 66 for the purpose of appeal. [Id.]

3. FINAL REJECTION—NO APPEAL TAKEN WITHIN THE STATUTORY TIME LIMIT—APPLICATION ABANDONED.

Where the final rejection was made on February 27, 1900, and no appeal therefrom was taken within the time limit allowed by the statute, all the intermediate actions being limited to proceedings relative to the admission of an amendment canceling the rejected claims and substituting others in lieu thereof, *Held* that it would be useless to admit claims for the purpose of appeal, as the application is abandoned. [Id.]

SPECIFICATIONS.

(See Construction of Specifications and Patents, 2, 3.)

STATE COURTS.

(See Jurisdiction of United States Courts, 2.)

STIPULATION.

(See Interference, 2.)

1. CONTRARY TO EVIDENCE—NOT BINDING AFTER NOTICE.

Where a stipulation was signed to the effect that the amount of molten metal in the defendant's mixer varies from nothing to its full capacity, but upon the facts being more fully ascertained notice was given by the plaintiff that the stipulation is so far as it was contrary to the evidence would be repudiated, *Held* that the stipulation is not binding. [Carnegie Steel Company, Limited, v. Cambria Iron Company, 1992.]

2. MAY BE REPUDIATED UPON PROPER NOTICE.

While a stipulation is undoubtedly admissible in evidence, it ought not to be used as a pitfall, and where the facts subsequently developed show with respect to a particular matter that it was inadvertently signed counsel may upon giving notice in sufficient time to prevent prejudice to the opposite party repudiate any fact inadvertently incorporated therein. [Id.]

SUBSTITUTE APPLICATION.

(See Interference, 17.)

SUITS FOR INFRINGEMENT.

(See Jurisdiction of United States Courts, 1, 2, 3, 4, 5.)

INFRINGEMENT—ACCOUNTING BASED ON INVALID CLAIM—DECISION REVERSED AND CASE REMANDED.

Where the lower court held all claims of the patent to be valid and infringed, but the accounting was based upon the infringement of claim 5 and that claim is found on appeal to be invalid, *Held* that the decision below must be reversed and the case remanded for proceedings in accordance with this opinion. [Busch v. Jones et al, 280.]

TESTIMONY.

(See Interference, 1, 2, 23, 24, 27, 29, 30, 31, 32, 33, 34.)

1. FAILURE OF INVENTOR TO TESTIFY.

The failure of an inventor to appear and testify in his own behalf is capable of an unfavorable inference; but where he has assigned his invention and is not friendly with the assignee it is not entitled to much weight. [Silverman v. Hendrickson, 445.]

2. INTERFERENCE—TESTIMONY OF INVENTOR INCOMPETENT—CORROBORATION.

Considering the natural bias of a party and the incentive to color the testimony in his own interest, the rule that his testimony upon a point will not be accepted as sufficient is so universally accepted that it may be said that his testimony is incompetent until corroborated. [Petrie v. De Schweinitz, 445.]

3. SAME—EVIDENCE—REDUCTION TO PRACTICE—CONCEPTION.

Where P. alleged that he successfully performed the process of the issue at a certain time and witnesses state that he then told them that he had performed the process, but they did not see it performed, *Held* not a corroboration as to reduction to practice, but merely as to conception. [Id.]

TITLE TO PATENT.

(See Assignments.)

TRADE-MARKS.**1. REGISTRATION MUST AGREE WITH MARK AS USED.**

The law is very clear that the mark which is shown and described in the registration must be the same as the mark which is actually used. There is no provision for the registration of a mark not in actual use or which differs from that in actual use. (Citing *ex parte Hall*, 98 O. G., 2174.) [Ex parte Crowley, 280.]

2. INVARIABILITY.

There is no provision in the law for registration of a mark which may be varied as circumstances may render it necessary or desirable. To use such a variable mark would defeat the very purpose for which a trade-mark is intended. [Id.]

3. VARIANCE BETWEEN SHOWING AND STATEMENT OF USE.

When the facsimile shows the mark as comprising the word "Tunnel" together with certain pictorial representations, and it is stated that the word "Tunnel" alone may be used, *Held* that registration should be refused. [Id.]

4. LIMITATION OF SHOWING AND DESCRIPTION.

Held, further, that if the registration is intended to cover the word "Tunnel" alone the pictorial representation should be erased from the drawing and the description thereof canceled. If, on the contrary, it is intended to cover the mark as it is shown in the facsimile, the statement of essential features and the description should be made to conform to such showing. [Id.]

5. "DEFIANCE"—ARBITRARY, NOT GEOGRAPHICAL.

The word "Defiance" *Held* registrable as a trade-mark for paper, since its geographical significance due to its use as the name of a town does not overshadow its original meaning of a challenge and take from it its arbitrary significance. [Ex parte Byron Weston Company, 351.]

6. LONG USE—GEOGRAPHICAL SIGNIFICANCE AFTERWARD ACQUIRED.

Where a mark is arbitrary and distinctive when adopted, but has since become prominent geographically as the name of a place, *Held* that in justice the applicant cannot be deprived of his mark unless its geographical significance is so great as to make it certain that it would be understood in that sense by the purchasing public. [Id.]

7. THE WORDS "RED RIVER SPECIAL" HELD NOT REGISTRABLE.

The words "Red River Special" *held* not to be registrable as a trade-mark for agricultural machinery on the ground that the words "Red River" are geographical and the word "Special" is indicative of grade or style, and therefore the mark is not as an entirety indicative of origin or ownership. (Brown v. Trade-Mark, sec. 344, 347; *ex parte Buffalo Pitts Co.*, 99 O. G., 2038.) [Ex parte Nichols and Shepard Company, 1618.]

8. INTERFERENCE—BURDEN OF PROOF—REGISTRATION UNDER THE ACT OF 1870.

Where in a trade-mark interference one of the applicants had in 1870 registered the mark under the invalid Trade-Mark Act of 1870, *Held* that he is not entitled to the date of that registration in deciding upon whom the burden of proof shall be placed. [Vanden Bergh and Company v. Belmont Distillery Company, 1624.]

9. REGISTRATION AS EVIDENCE OF OWNERSHIP.

Under the present trade-mark law registration is *prima facie* evidence of ownership, and therefore the opposing party must show use in the United States before its date; but this does not apply to registration under the old law, which has been held unconstitutional. [Id.]

10. SAME—PRESENT LAW AND OLD LAW COMPARED—USE NOT REQUIRED.

Registration under the act of 1870 has merely the effect of a printed publication and conveys no presumption of use in this country, since that act did not require use as a condition precedent to registration. [Id.]

11. "FELT-LENS"—DESCRIPTIVE.

The word "Felt-Lens" as a trade-mark for sweat-pads used in connection with harness for horses refused registration on the ground that it is either descriptive or deceptive. [Ex parte McClain, 2101.]

12. "SOLID-COMFORT" FOR FURNACES—NOT DESCRIPTIVE—REGISTRABLE.

The words "Solid Comfort" *held* to be registrable as a trade-mark for furnaces on the ground that even though these words may convey the idea that persons using these furnaces will experience that degree of comfort known as "solid comfort" they are not descriptive of the quality or construction of the furnaces. They merely suggest a remote result which may be brought about by the use of the furnaces. [Ex parte Fiebigler, 2101.]

13. "ALABAMATUBE" REFUSED REGISTRATION.

The word "Alabamatube" can mean nothing different from the two words "Alabama tube"—that is, a tube produced in Alabama. The word is geographically descriptive and cannot be registered as a trade-mark for tubes. [Ex parte Alabama Tube and Iron Company, 2221.]

14. "MAPLE-LEAF" ANTICIPATED BY "SILVER LEAF."

A trade-mark consisting of the words "Maple Leaf" and the representation of maple-leaves refused registration upon a registered mark consisting of the words "Silver Leaf" and the representation of maple-leaves. [Ex parte Vogel and Son, 2221.]

15. IDENTITY OF MARKS—APPEARANCE AS WELL AS SOUND TO BE CONSIDERED.

In determining the question whether or not one mark so nearly resembles the other as to cause confusion in the minds of the public the appearance of the marks is as important as the sound of the words used therein when those words are spoken. [Id.]

VALIDITY OF PATENT.

(See Disclaimers.)

VALID PATENTS.

(See Particular Patents, 2, 3.)

VOID PATENTS.

(See Construction of Specifications and Patents, 1; Particular Patents, 1.)

WITNESSES.

(See Interference, 61.)

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ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING JUNE 30, 1902.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. B. Pitkin Machinery Company. (See Shay, Jeremiah M., assignor.)						
A. G. Spanning & Bros. (See Pierce, George L., assignor.)						
A. H. Nissen Machine Company. (See Nissen and Olson, assignors.)						
A. R. Miller Boring Co. (See Miller, Albert R., assignor.)						
Abbe, Ernst, assignor to Firm of C. Zeiss, Jena, Germany. Lens system.	697,930	Apr. 22	2085	648	99	573
Abbe, Max F., New York, N. Y. Ball grinding-mill.	702,767	June 17	2700	880	99	2708
Abbott, Everett L., New York, N. Y. Abdominal bandage.	698,488	Apr. 22	2709	880	99	880
Abbott, Harry W., Chicago, Ill., assignor to Porter Safety Seal Company. Sealing implement.	702,251	June 10	1016	427	99	2516
Abbott, Henry, New York, N. Y., assignor to Calculagraph Company, New York, N. Y., and East Orange, N. J. Calculagraph.	697,483	Apr. 15	1905	694	99	408
Abbott, Henry, New York, N. Y., assignor to Calculagraph Company, East Orange, N. J., and New York, N. Y. Calculagraph.	697,487	Apr. 15	1906	694	99	408
Abd, Richard, Annon, assignor to F. Krupp, Essen, Germany. Apparatus for boring shafts.	698,105	Apr. 22	2620	720	99	720
Abell, William F., Derby, England. Baby furniture.	702,021	May 12	1850	299	99	1850
Abendroth, Arthur, Berlin, Germany. Proportionate-distribution valve system for pumps.	702,908	June 24	2975	685	99	2777
Aber, Edgar, Jacksonville, Tex. Veneer basket.	701,935	June 3	700	154	99	2805
Abercrombie, William B., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Binder for sewing machines.	698,384	Apr. 22	2721	880	99	887
Abern, George F., assignor of one-half to H. J. Fitch, Boston, Mass. Steering-lock for vehicles.	697,980	Apr. 15	2400	545	99	504
Abraham, Thomas, Hopedale, assignor to Morse Twist Drill and Machine Company, New Bedford, Mass. Box and cover.	702,904	June 24	2975	685	99	2777
Account, Audit & Assurance Company. (See Kittredge, Anson O. and E. R., assignors.)						
Acetylene House Lighting Company. (See Dolan, Edward J., assignor.)						
Acetylene Manufacturing Company. (See Montel, Leo, assignor.)						
Acheson, Edward G., Buffalo, N. Y. Terminal for electric furnaces.	701,935	June 10	1200	267	99	2805
Acheson, Edward G., Buffalo, assignor to International Acheson Graphite Company, Niagara Falls, N. Y. Graphitizing electrodes.	702,768	June 17	2701	881	99	2708
Acherman, Albert A. (See Warren and Acherman.)						
Acherman, Harmon F., Cleveland, Ohio. Mopping device.	701,935	June 10	1200	267	99	2805
Acklin, Alfred M., Pittsburg, Pa. Apparatus for feeding and tempering foundry-sand.	698,787	Apr. 1	744	160	99	159
Acklin, Alfred M., Pittsburg, Pa. Drive mechanism for crushing-rolls.	697,511	Apr. 8	1720	365	99	365
Acklin, Alfred M., Pittsburg, Pa. Casting apparatus.	697,769	Apr. 15	2668	573	99	573
Acklin, Alfred M., Pittsburg, Pa. Apparatus for feeding and tempering foundry-sand.	698,471	May 6	656	159	99	1311
Acklin, Alfred M., Pittsburg, Pa. Conveyor-belt apparatus.	702,273	June 10	1775	405	99	2480
Acklin, Alfred M., Pittsburg, Pa., assignor to Hoyl and Patterson. Conveyor.	702,905	June 24	2978	685	99	2777
Acklin, Alfred M., Pittsburg, Pa., assignor to Hoyl and Patterson. Flight for conveyors.	702,905	June 24	2978	685	99	2777
Acme Ball Bearing Caster Company. (See Hagood, George B., assignor.)						
Acme Fuse Box Company. (See Dorsey, Charles J., assignor.)						
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Acme Sucker Rod Company. (See Wright, Orson J., assignor.)						
Acree, William T., Gainesboro, Tenn. Fruit cover and cutter.	702,381	June 24	2769	885	99	2805
Action Gesellschaft für Anilin-Fabrikation. (See Hausdorf, Robert, assignor.)						
Adams, Albert E. (See Hengstfeld and Adams.)						
Adams, Alonzo B., Boston, Mass. Ticket-holder.	702,045	June 10	1273	312	99	2407
Adams, Archibald C., et al. (See Winkelman, Benjamin, assignor.)						
Adams, O. C., et al. (See Miller, Benjamin F. D., assignor.)						
Adams, Daniel L., Reading, Pa. Sand-molding machine.	697,628	Apr. 15	2080	802	99	530
Adams, Frank E., Plymouth, Mich. Rope-fastener.	701,977	June 3	1	1	99	2100
Adams, Frank E., assignor to E. Franklin, Chicago, Ill. Machine for mounting ornamental composition directly upon circular picture-frames. (Reissue.)	11,960	Apr. 8	1087	426	99	426
Adams, George B., Irvington, N. J. Glass.	699,128	May 6	1	1	99	1177
Adams, George E., New Britain, Conn. Metallic envelop-closure.	697,980	Apr. 22	2669	646	99	675
Adams, Joseph P., Garfield, Wash. Bag-holder.	702,905	June 24	2978	685	99	2873
Adams, Louis G., et al. (See Mathias, Theodore M., assignor.)						
Adams, Marcellin O. (See Adams, Stephen J., assignor.)						
Adams, Stephen J., assignor to M. C. Adams, Pittsburg, Pa. Sand-molding apparatus.	697,325	Apr. 8	1261	417	99	417
Adams, Stephen J., assignor to M. C. Adams, Pittsburg, Pa. Sand-molding apparatus.	697,326	Apr. 8	1267	418	99	418

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Adams, Stephen J., assignor to H. C. Adams, Pittsburg, Pa. Forming sand molds	697,287	Apr. 6	3570	415	99	415
Adams, Stephen J., assignor to H. C. Adams, Pittsburg, Pa. Forming sand molds	697,288	Apr. 6	3574	415	99	415
Adams, Thomas E., Cleveland, Ohio. Alternating-current regulator	698,085	Apr. 20	3544	1115	99	1115
Adams and Westlake Company. (See Kueker, John A., assignor.)						
Adcock, William, assignor of one-half to J. Lee, Akron, Ohio. Wall-paper cleaner	701,970	June 3	3	1	99	210
Addy, Charles J., et al. (See Mead, Albert G., assignor.)						
"Addy" Manufacturing Company. (See Brow, James E., assignor.)						
Adler, Augusta, Tacoma, Wash. Adjustable counter-stool	697,911	Apr. 15	3583	313	99	313
Adolfsson, Anders E., Sundbyberg, Sweden. Acetylene-gas-generating apparatus	698,083	May 13	1500	314	99	149
Adrian Gas Machine Manufacturing Company. (See Lane and Desvoport, assignors.)						
Adroit, Georges, and P. Pons, Marseilles, France. Steam-reintegrator	695,340	Apr. 20	3534	303	99	303
Agarter, Jacob, San Francisco, Cal. Screw-propeller	701,948	May 27	4115	347	99	347
Agilis Co. (See Kueker, John A., assignor.)						
Agnew, O. W., St. Paul, Minn. Milk-can	701,955	May 30	4122	389	99	120
Ahlborn, Eduard, Hildesheim, Germany. Flooding regenerative heater for liquids	698,082	Apr. 1	689	311	99	311
Ahlen, William. (See Hunt and Ahlen.)						
Ahrens, Carl F. W., Bridgeport, Conn. File-cabinet	701,003	May 27	3577	344	99	130
Ahrens, Ella H., Philadelphia, Pa. Combined table and guard attachment for sewing machines	701,094	June 10	3575	315	99	315
Aiken, Robert H., Winthrop Harbor, Ill. Ice-crusher	701,001	May 27	3575	344	99	130
Aikens, James K., et al. (See McGarvey, Edward, assignor.)						
Aikens, J. K., et al. Philadelphia, Pa. Device for applying and removing electric-light bulbs	697,951	Apr. 20	3580	342	99	342
Aikens, James M., Gary, Ill. Pneumatic conveyor	698,081	Apr. 1	347	30	99	30
Aktion-Gesellschaft-Schaller Gruben-und Hüttenverein. (See Holthaus, Johann, assignor.)						
Albaugh, Benjamin F., Covington, Ohio. Smoothing-iron	701,255	June 10	356	313	99	313
Albaugh Bros., Dover and Company. (See Barrow, Charles E., assignor.)						
Albee, Washington L., assignor of one-half to Schoellkopf & Company, Buffalo, N. Y. Preparing skins for tanning	702,594	June 17	3592	122	99	57
Albert, Friedrich, Nuremberg, Germany. Pulley	699,434	May 6	558	99	15	15
Albertson, John A., Lancaster, Pa. Telegraph-sounder	698,085	Apr. 20	3587	1115	99	1115
Albrecht, Christian A., Berlin, Germany. Tool for cutting cast type-lines in linotype machines	698,082	Apr. 1	348	30	99	30
Albrecht, Christian A., Berlin, Germany. Tool for cutting cast type-lines in linotype machines	698,082	May 13	1203	314	99	14
Albrecht, John, San Francisco, Cal. Pumping apparatus						
Albrecht Company. (See Bell, Arthur F. L., assignor.)						
Albrecht, John, San Francisco, Cal. Pumping apparatus	697,700	Apr. 15	3583	340	99	340
Alden, Arthur M., Waukegan, Ill. Oil						
Alden, F. C. (See Hunt, George A., assignor.)						
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Alden Type Machine Company. (See Low and Breakay, assignors.)						
Alden, William E., Springfield, Mass. Machine for making buttons or other articles	697,180	Apr. 6	1415	330	99	330
Aldrich, Albert B., Lexington, Ky. Respirometer	698,087	May 13	977	330	99	330
Alexander, Sidney. (See Alexander, Tony, assignor.)						
Alexander, Tony, Bismarck, Minn., assignor of one-half to G. Alexander, New Orleans, La. Support for overhead carriers	702,507	June 24	3590	690	99	690
Alexander, Tony, Bismarck, Minn., assignor of one-half to G. Alexander, New Orleans, La. Elevated-cable system of transportation	702,508	June 24	3590	697	99	697
Alger, John L., Medford, Mass. Lock-nut	701,880	June 3	448	185	99	185
Alhart, Clarence E., assignor of one-half to H. B. Carlton, Rochester, N. Y. Soap-bubble blower	697,038	Apr. 8	1254	357	99	357
Allen, Hugh F. (See Borch, Gustav L. C., assignor.)						
Allegretti, Tony L., Chicago, Ill. Lather bag	702,739	June 17	3594	551	99	551
Allen and Van Nest Company. (See Allen and Salmon, assignors.)						
Allen, Charles E., Wadsworth, Ohio. Automatic injector	697,770	Apr. 15	3525	573	99	573
Allen, Charles F., Hueneme, Cal. Vaginal syringe	701,194	May 27	3513	940	99	940
Allen, Charles F., Hueneme, assignor of one-half to L. B. Hogue and W. C. Hewitt, Santa Paula, Cal. Driving-gear	698,704	Apr. 1	180	120	99	120

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Albano, Samuel B., deceased, Galveston, Tex.; C. A. Dorrestein, administrator. Fiber-separating machine.	699,980	May 13	970	288 287 286	90	1291
Albrecht, G. Frank. (See Edwards, Thomas E., assignor.)						
Allyn, Eunice O. (See Graham, Joseph R., assignor.)						
Almender, Ferdinand A. Glendale, Pa. Drawing implement.	697,594	Apr. 15	3254	308	90	515
Almendar, John F., and A. T. Van Tine, Contrahs, Wash. Tables.	697,778	Apr. 15	3501	374	90	520
Altman, Israel H., New York, N. Y. Rocker-facsimile.	701,610	June 17	2488	388	90	2644
Altman, Israel H., New York, N. Y. Rocker-facsimile and tire therefor.	701,570	June 3	3	1	90	2109
Altpeper, Louis F. and E. C. Chicago, Ill. Vehicle wheel and tire therefor.	698,028	Apr. 22	3194	680	90	177
Altpeper, Robert G. (See Altpeper, Louis F. and E. C.)						
Alvey, Benjamin H., assignor to Alvey-Verguson Co., Louisville, Ky. Skid.	700,308	Apr. 22	2698	580	90	1695
Alvey, Ferguson Co. (See Alvey, Benjamin H., assignor.)						
Alvord, Elmer E., assignor of one-half to M. J. Doyle, Danbury, Conn. Hat-paring machine.	700,308	May 20	2698	580	90	1695
Als, Urban B., assignor of thirteen-twentieths to A. M. and F. Denhard and W. E. Engel, Baltimore, Md. Non-refillable bottle.	701,957	June 10	1929	397	90	2266
Almgren, Joseph B. de, London, England. Extracting precious metals from their ores.	701,008	May 27	3321		90	1075
Almgren, John F., Madisonville, Ohio. Stamp machine and affixer.	701,943	May 27	4119	943	90	1075
Ambscher, Jacob F. (See Obermayer and Ambscher.)						
Amber, James A., Watck, Mass. Stencil-printing machine.	698,998	Apr. 1	1	1	90	2
Amber, Levi, Lebanon, Pa. Culinary vessel.	700,393	May 20	2827	673	90	1720
Amborn, George, Jr., assignor to J. H. Williams and Company, Brooklyn, N. Y. Chain wrench.	698,779	Apr. 22	4211	907	90	1021
Amborn, George, Jr., assignor to J. H. Williams and Company, Brooklyn, N. Y. Chain pipe-wrench.	698,780	Apr. 22	4214	908	90	1022
Ambrose, George E. (See Morford and Ambrose.)						
Ambrosini, Carl A., East Orange, N. J., assignor of one-half to C. H. and J. E. Wenger. Adjustable form for stair-builders.	699,037	Apr. 22	5048	1119 1117	90	1120
Ambuhl, Andrew, Decatur, Ill., assignor to Geo. W. Danaher Company, Keokuk, Iowa. Pick-up tong for live wires.	700,008	May 13	1901	389	90	1580
Amburn, Otto F., Galva, Ill., assignor to J. T. Clark and J. G. Martin, Big Rapids, Mich. Collar or cuff button.	701,244	May 27	4121	948	90	2075
Amsel, Otto F., New York, N. Y. Mordanting animal fiber.	700,264	May 20	2828		90	1695
American Bicycle Company. (See Copeland, James B., assignor.)						
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American Tin Plate Company. (See Bray, Charles W., assignor.)						
American Wireless Telephone and Telegraph Company. (See Elvert, Cornelius D., assignor.)						
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Amerman, Isaac W., and R. L. Johannes, Nevada, Mo. Invalid reclining-chair.	701,220	June 10	957	215	90	2267
Amae, William H., Watsonville, Cal. Refrigerator-cases.	700,720	May 27	3143	714	90	1973
Amae, William H., Watsonville, Cal. Refrigerator-cases.	700,721	May 27	3145	714	90	1974
Ama, Max. (See Brumlinger, Julius, assignor.)	699,941	May 13	1980	388	90	1516
Amadeo, Charles G., Greenwich, Mass. Convertible tool.						
Amatuzi-Osborn Co. (See Osborn, Henry C., assignor.)						
Amavala, Robert G., Camden, N. J., assignor to C. H. Graham and G. D. Boston, Philadelphia, Pa. Electrochemical.	702,700	June 17	2705	681	90	2702
Anderson, John M., assignor of one-half to A. Anderson, Boston, Mass. Rail-head.	697,582	Apr. 22	2921	647	90	623
Anderson, Albert. (See Anderson, John M., assignor.)						
Anderson, Alfred E., assignor to Maseell and M. I. Schlesinger, New York, N. Y. Automatic pumping mechanism.	697,395	Apr. 25	2925	680	90	613
Anderson, Carl O., assignor to E. Herman, Des Moines, Iowa. Clothes-line reel and stretcher.	700,008	May 13	1902	390	90	1582
Anderson, Charles, assignor to S. Iskander, Chicago, Ill. Dish-making machine.	698,998	Apr. 8	1022	227	90	226
Anderson, Charles A. M., London, England. Garment-stretcher.	698,997	Apr. 26	9778	1040	90	1020
Anderson, Edward W. (See Homer and Anderson.)						
Anderson, Erasmus, Cambridge, Mass. assignor to A. L. Wood, Boston, Mass. Car-ventilator.	697,121	Apr. 8	1260	211	90	217
Anderson, Ernest D., New York, N. Y. Gas-lighter.	698,627	Apr. 22	3530	690	90	229
Anderson, Frank A. (See Carroll, William H., assignor.)						
Anderson, Frank C., assignor of two-thirds to G. W. Eapt and G. P. Giler, Cincinnati, Ohio. Railway-rail joint.	700,714	May 27	3125	715	90	1975

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Anderson, Frank O., Jamestown, N. Y. Drawer-support.....	702,330	June 17	1997	493	90	2225
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Andrews, Jacob B., Bath, Me. Combined windlass and warping-winch.....	699,135	Apr. 20	2640	733	90	733
Andrews, James C., assignor to Bay State Cornst. Co., Springfield, Mass. Cornst.....	699,340	Apr. 20	2623	303	90	333
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Anthony, Edgar W., Brookline, assignor to Smith and Anthony Company, Boston, Mass. Stove-shelf.....	702,731	June 17	2703	333	90	2703
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Armeny, Gyula, New York, N. Y. Diamond-cross-cutting machine.....	694,333	Apr. 1	4	1	90	3
Armour, James A., Sedgwick, Kans. Wire stretcher and cutter.....	702,133	June 10	1513	333	90	2433
Armstrong Bros. Tool Co. (See Welter and Armstrong, assignors.).....	702,133	June 10	1513	333	90	2433
Armstrong, Charles M., Hopkinsville, Ky. Tobacco-steamer.....	700,034	May 10	1034	333	90	1333
Armstrong, Edwin J., Erie, Pa. Governor.....	701,037	June 3	703	133	90	2333
Armstrong, Edwin J., Erie, Pa. Valve mechanism.....	701,037	June 3	703	133	90	2333
Armstrong, John. (See Welter and Armstrong.).....	701,037	June 3	703	133	90	2333
Armstrong, John, London, England. Apparatus for obtaining zinc or other volatile metals from ores or mattes.....	701,037	June 3	703	133	90	2374

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Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

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UNITED STATES PATENT OFFICE, 1902

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			U. S.	For.	U. S.	For.
Baker, Samuel A., Springfield, Vt. Drilling-machine	699,243	Apr. 22	3022	752	30	757
Baker and Shevlin Company. (See Baker, James H., assignor.)	701,247	May 27	4135	949	30	2575
Baker, Wallace L., Palmersville, Ohio. Trolley	699,000	Apr. 29	3040	11125	30	1140
Baker, William H., Boston, Mass. Mangle	699,480	Apr. 29	2995	11110	30	870
Baker, William J., Cleveland, Ohio. Screw-plate	702,102	June 24	3075	774	30	2254
Baker, William S. G., Baltimore, Md. Car-track	700,227	June 17	2927	514	30	2211
Baldin, Thore A., De Soto, Wis. Truss-fastener	699,222	Apr. 22	4709	1021	30	1021
Baldin, Lillian M., Tiffin, Ohio. Pumps	700,001	May 20	3021	904	30	1812
Baldin, Samuel W. (See Pumps and Balns.)	702,129	June 24	3487	935	30	2575
Baldwin, Georg, Weimar, Germany. Combination garment	702,170	June 24	3416	935	30	2575
Baldt, Frederick, Sr., Chester, Pa. Casting chisel	702,171	June 24	3480	934	30	2575
Baldt, Frederick, Sr., Chester, Pa. Casting chisel	702,172	June 24	3500	935	30	1935
Baldt, Frederick, Sr., Chester, Pa. Molding	699,692	May 6	397	122	30	122
Baldwin, Charles E., Brooklyn, N. Y. Box	699,703	Apr. 1	330	184	30	184
Baldwin, Cyrus W., deceased, Yonkers, N. Y.; M. E. Baldwin, administrator, assignor to Otis Elevator Company, East Orange, N. J. Elevator	697,905	Apr. 29	3030	642	30	674
Baldwin, Edwin E., Swatford, Conn. Piston (See Baldwin, Cyrus W.)	699,703	Apr. 29	4021	950	30	1022
Baldwin, M. E., administrator. (See Baldwin, Cyrus W.)	700,670	May 20	3034	610	30	1754
Baldwin, Mary E., Detroit, Mich. Calculator	700,580	May 20	3022	625	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
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Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
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Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
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Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
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Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000	May 20	2990	604	30	1201
Baldwin, William D., New York, and A. Sundt, Yonkers, N. Y., assignors to Otis Elevator Company, East Orange, N. J. Shifting device for piers, &c.	700,000</					

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr.	Vol.	Page.
Rationali, Timoleone, Genoa, Italy. Fluid for promoting combustion.	700,922	May 27	8478		99	1040
Rattle Creek Iron Works Company. (See Burns, Henry H., assignor.)						
Rauert, Charles F., assignor of one-half to G. H. Bain, McCordsville, Ohio. Pipe-longs.	700,028	May 12	1700	921	99	1076
Rauert, Heinrich, New York, N. Y. Catenoidal bandage.	698,533	Apr. 1	912	81	99	80
Rauert, William, Loyal, Wis. Windmill.	698,533	Apr. 1	912	96	99	91
Reaughman, Jacob S., Burlington, Iowa. Indicator.	702,311	June 24	2927	698	99	1700
Ream, Frank G., Stanford University, Cal., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Composition of generators of incandescence.	698,944	Apr. 22	2401	708	99	739
Ream, Frank G., Stanford University, Cal., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Means for compensating generators or motors.	698,945	Apr. 22	2402	708	99	709
Reaumur, Johann, Hamburg, Germany. Locking device for swinging handles.	697,422	Apr. 15	1975	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,423	Apr. 15	1976	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,424	Apr. 15	1977	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,425	Apr. 15	1978	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,426	Apr. 15	1979	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,427	Apr. 15	1980	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,428	Apr. 15	1981	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,429	Apr. 15	1982	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,430	Apr. 15	1983	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,431	Apr. 15	1984	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,432	Apr. 15	1985	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,433	Apr. 15	1986	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,434	Apr. 15	1987	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,435	Apr. 15	1988	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,436	Apr. 15	1989	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,437	Apr. 15	1990	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,438	Apr. 15	1991	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,439	Apr. 15	1992	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,440	Apr. 15	1993	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,441	Apr. 15	1994	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,442	Apr. 15	1995	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,443	Apr. 15	1996	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,444	Apr. 15	1997	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,445	Apr. 15	1998	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,446	Apr. 15	1999	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,447	Apr. 15	2000	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,448	Apr. 15	2001	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,449	Apr. 15	2002	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,450	Apr. 15	2003	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,451	Apr. 15	2004	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,452	Apr. 15	2005	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,453	Apr. 15	2006	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,454	Apr. 15	2007	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,455	Apr. 15	2008	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,456	Apr. 15	2009	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,457	Apr. 15	2010	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,458	Apr. 15	2011	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,459	Apr. 15	2012	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,460	Apr. 15	2013	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,461	Apr. 15	2014	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,462	Apr. 15	2015	887	99	200
Reaumur, Johann, Hamburg, Germany. Life-boat.	697,463	Apr. 15	2016	887	99	200

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Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Pat.	Vol.	Page.
Barnack, Rudolph M. von. (See Krauss and Barnack.)	701,128	May 27	3222	904	99	3257
Barnes, Paul B. T., Brooklyn, N. Y. Fish-hook	698,927	Apr. 22	3224	780	99	780
Barnard, Morris, and B. T. Vent, Buffalo, N. Y. Fastener for ends of cord, &c.	701,128	May 27	3224	904	99	3257
Barnston Electric Manufacturing Company. (See Gardner, Edgar R., assignor.)	697,393	Apr. 22	3222	840	99	840
Barnstein, William, New York, N. Y. Vell-fastener	697,393	Apr. 22	3222	811	99	811
Bart, William, Brooklyn, N. Y. Device for justifying lines of type or matrices	698,222	Apr. 22	3227	811	99	811
Bartley, George R., Princeton Junction, N. J. Mail-bag deliverer and catcher	700,045	May 13	3222	780	99	780
Berry, Charles H., Manchester, England. Steam-trap	700,045	May 13	3222	780	99	780
Berry, Elmer E., Hamilton, Ohio. Condition-stuffing device	700,045	May 13	3222	780	99	780
Berry, John W., assignor to Tacoma Automatic Sales Co., Tacoma, Wash. Split-pal- ley hanger	699,125	Apr. 22	3221	811	99	811
Berthson, Ferdinand, Morgan Park, Ill. Mitten	699,125	May 6	3227	811	99	811
Berthson, Henrik A., Stockholm, Sweden. Four-stroke petroleum-motor	700,285	May 20	3227	811	99	811
Bertrand, Ernst, Kladno, Austria-Hungary, assignor to Wellman-Seaver Engineering Company, Cleveland, Ohio. Blast-furnace	699,922	Apr. 22	3222	770	99	770
Best, Charles J., Denver, Colo. Treating ores	701,124	May 27	3224	904	99	3257
Best, Daniel, San Leandro, Cal. Carburetor	699,922	May 13	3222	814	99	1487
Best, Ezra, et al. (See Best, William H., assignor.)	699,922	May 13	3222	814	99	1487
Best, John H., et al. (See Best, William H., assignor.)	699,922	May 13	3222	814	99	1487
Best, William H., Los Angeles, Cal., assignor of two-thirds to J. H. and E. Best, Quincy, Ill. Apparatus for supplying oil and hydrocarbon	702,222	June 17	3222	814	99	3211
Bethlehem Steel Company. (See King, John F., assignor.)	700,402	May 20	3222	820	99	1798
Bethlehem Steel Company. (See King and Hammer, assignors.)	697,950	Apr. 22	3222	840	99	876
Bethlehem Steel Company. (See Mitchell, Leighton N. D., assignor.)	701,422	June 3	3224	71	99	2170
Bettendorf, William P., Davenport, Iowa. Car-bolster	697,950	Apr. 22	3222	71	99	2170
Bettini, Gianni, New York, N. Y. Phonograph or graphophone	701,422	June 3	3224	71	99	2170
Bettmann, Charles F., and S. Talkington, New Albany, Ind. Wrench	697,950	Apr. 15	3222	7	99	437
Betz, Frank J., East Orange, assignor of one-half to C. C. Copeland, South Orange, N. J. Slide-opening	699,922	Apr. 15	3222	7	99	1181
Betz, John A., Smith Center, Kans. Cultivator	699,922	Apr. 15	3222	7	99	1181
Beys, Alois, Chicago, Ill. Wagon-b-cloak-hoy holder	699,922	Apr. 15	3222	7	99	1181
Bianchini, Guglielmo, Milan, Italy. Apparatus for treatment of grain preparatory to grinding	700,072	May 20	3227	610	99	1795
Biedenkopf, George, New York, N. Y. Sky-light-opener	701,125	May 27	3222	904	99	3257
Bidstrup, Nils P. (See Marchbank and Bidstrup.)	701,125	May 27	3222	904	99	3257
Bielefelder Maschinenfabrik vormals Ditzkopf & Co. (See Knoch and Pischel, as- signors.)	699,421	May 6	3227	810	99	1222
Birley, Henry A., Portsmouth, assignor of one-half to W. C. Sanford, Columbus, Ohio. Shaving	702,111	June 24	3227	770	99	2225
Birnbaum, Charles, Newark, assignor to A. Dagerdon, Jersey City, N. J. Egg-separator	699,421	May 6	3227	810	99	1222
Biscove, Leonard & Co. (See Fox, Thomas.)	699,421	May 6	3227	810	99	1222
Bischoff, Lyman G., St. Joseph, Mo. Photographic flash-light machine	700,473	May 20	3222	611	99	1795
Bislet, Edward, assignor to Dubala Watch Case Company, Brooklyn, N. Y. Watchcase	701,971	June 3	3224	107	99	2227
Bittling, John A., Rockland, Mass. Hypodermic syringe	698,212	June 17	3227	808	99	2247
Bittsburgh, John, assignor, by means assignments, to M. H. Bittsburgh, Bristol, N. I. Top-roll mangle	701,971	June 3	3224	107	99	2227
Bischoff, Mary H. (See Bittsburgh, John, assignor.)	701,971	June 3	3224	107	99	2227
Binder, Carl. (See Storck, Ernst, assignor.)	701,971	June 3	3224	107	99	2227
Bispart, Achill, Newark, N. J. Vell-fastener	697,951	Apr. 15	3222	808	99	514
Bird and Son, F. W. (See Hanson, John B., assignor.)	698,170	Apr. 22	3222	728	99	728
Biron, Simon, assignor to F. Katz, Brooklyn, N. Y. Match-box	698,222	Apr. 6	3227	811	99	811
Birge, William H., Franklin, Pa. Neck-clip	698,222	Apr. 6	3227	811	99	811
Birmingham, Grant C., Milwaukee, Wis. Oak-veneer	698,222	Apr. 6	3227	811	99	811
Bischo, Fred Y. (See Smith and Bischo.)	702,171	June 10	3224	1614	99	2222
Bischoff, August, assignor to Basle Chemical Works, Basle, Switzerland. Making ethylic and benzolic acids	702,171	June 10	3224	1614	99	2222
Bishop, Benjamin M., assignor of one-half to F. S. White, Housingsale, N. J. Endless belt feed or carrying apparatus	702,074	May 20	3220	611	99	1798
Bishop, McKendree F., and M. A. Tollins, San Jose; said Tollins assignor to said Bishop and I. W. Winans, Plymouth, Cal. Tilt-up-compensator	698,227	Apr. 1	3217	317	99	822
Bishoprich, Nicholas J. (See Haworth, William H., assignor.)	698,227	Apr. 1	3217	317	99	822
Bissell, Leavitt F., and J. Sullivan, Chicago, Conn. Tobacco-drying device	698,227	June 24	3222	608	99	2221
Bittner, Harry, Berwyn, assignor to Windsor Bros. Co., Chicago, Ill. Operating device for elevator-doors	698,227	May 6	3227	101	99	1225
Black, Alonso C., assignor of one-half to J. Senneca, Keokuk, Iowa. Attachment for washboards, &c.	698,022	Apr. 22	3222	1120	99	1122
Black, Amos R., Lamar, Colo. Salty hay-rake	697,027	Apr. 8	3211	920	99	327
Black, David G., Brooklyn, N. Y. Safety-rum for electric circuits	698,047	May 13	3222	922	99	1222
Black, Elizabeth J. (See Best, William H., assignor.)	697,704	Apr. 15	3222	577	99	722
Black, George F. (See Connolly, James A., assignor.)	697,704	Apr. 15	3222	577	99	722
Black, Henry C., Oakland, Cal. Can-body-slicing machine	697,722	Apr. 15	3227	577	99	722
Black, Henry C., Oakland, Cal. Can-body forming and soldering machine	700,220	May 27	3227	327	99	1221
Black, Henry C., Oakland, Cal. Can-and-soldering machine	700,220	May 27	3227	327	99	1221
Black, Henry C., Oakland, Cal. Can-testing apparatus	697,722	Apr. 15	3227	577	99	722
Black, Henry C., assignor to A. Johnson, Oakland, Cal. Combined bottomer and crimper for can-bodies	697,722	Apr. 15	3227	577	99	722
Black, Howard. (See Howe, Peter, assignor.)	702,212	June 17	3227	822	99	2247
Black, Julius, Toledo, Ohio, assignor to Blacker Manufacturing Company, Saratoga, Mich. Garment-hanger	698,027	Apr. 1	3222	124	99	122
Black, William C., and H. P. Baubler, Columbus, Ohio. Collar-protector	702,212	June 17	3227	822	99	2247
Black, William C., Columbus, Ohio, assignor to E. J. Black. Milk-cooler	702,212	June 17	3227	822	99	2247
Blackard, Harry V., Omaha, Ill. Chair	702,212	June 17	3227	822	99	2247
Blackburn, Charles B., and G. J. Porter, Wolverhampton, England. Tap for cutting screw-threads	702,212	June 17	3227	822	99	2247
Blackburn and Company, V. M. (See Wilmarth, Edwin B., assignor.)	697,727	Apr. 15	3214	222	99	2222
Blackman, Edward L., Brooklyn, N. Y. Sash-cord fastener	697,727	Apr. 15	3214	222	99	2222
Blackman, John J., New Britain, Conn. Dovetailing-machine	697,727	Apr. 15	3214	222	99	2222

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Blackman, William A. (See Walker and Blackman.)						
Blackmore, Henry S. Mount Vernon, N. Y. Making gas-purifying agents.	697,351	Apr. 15	3071		90	341
Blackmore, Henry S. Mount Vernon, N. Y. Reducing metals and producing alloys therefrom.	698,388	May 4	325		90	1285
Blackmore, Henry S. Mount Vernon, N. Y. Making sulfuric acid. (Reissue.)	11,085	May 27	4758		90	2025
Blackstone, Clarence W. (See Knapp and Blackstone.)						
Blackwell, Edwin O. Wyand, Tenn. Assignor of one-half to J. S. Irvine, Canfield, and F. Baker, Middleburgh, Victoria, Australia. Lock-stitch mechanism for sewing-machines.	700,151	May 12	1345	147	90	1284
Blair, David W., assignor of one-half to J. C. McCoy, North Amboy, N. J. Mechanical crane.	697,708	Apr. 15	3071	301	90	305
Blair, George W., Pittsburgh, and F. O. Hock, Jacksonville, Fla. Method of ornamenting.	697,098	Apr. 15	3071		90	314
Blair, Thomas H., Northboro, Mass. Hydrocarbon-lamp.	700,475	May 30	3072	612	90	1725
Blaisdell, Byron R., Chicago, Ill. Bedstead.	698,349	Apr. 28	3067	770	90	772
Blake, Charles C., Brookline, Mass. Electrical annunciator.	698,140	May 4	305	7	90	1131
Blake, Louis L. (See Runt and Blake.)						
Blakely, Oliver, Leray, Mo. Wall-paper-display rack.	698,470	May 4	305	125	90	1255
Blakely, Charles A., assignor to F. H. Earl Manufacturing Co., Plano, Ill. Bedstead-joint.	700,388	June 24	3073	580	90	1807
Blakely, James H., Homestead, assignor of one-half to J. Blakely, Oakmont, Pa. Automatic drip for steam-lines.	697,388	Apr. 15	3073	600	90	341
Blakely, James. (See Blakely, James H., assignor.)						
Blakely, William H., Jr., New York, N. Y. Process of effecting the drying of non-drying oils and product produced by such process.	700,173	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Imparting drying properties to pigments.	700,173	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Treating pigments for paints.	700,174	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Manufacturing paints.	700,175	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Paint compound or mixture.	700,176	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Pigment and producing same.	700,177	June 10	1345		90	3480
Blakeman, William N., Jr., New York, N. Y. Process of treating pigments and products produced by such process.	700,178	June 10	1345		90	3480
Blakely, James W., assignor of two-thirds to W. G. Stansfield, Bradford, England. Improved condenser gas-burner.	698,423	Apr. 28	3068	141	90	371
Blanchard, Allen L., Chicago, Ill. Railway-ticket.	698,130	May 4	305	24	90	1181
Blanchard, Charles H. (See Mills and Blanchard.)						
Blanchard, Francis L., assignor to Arkell Safety Bag Company, New York, N. Y. Lining for barrels or similar receptacles.	698,780	Apr. 28	3069	1008	90	1084
Blanchard, George B., Tacoma, Wash. Rail-road.	698,380	Apr. 28	3069	771	90	771
Blanchard, George B., Tacoma, Wash. Cross-bond for rails.	698,381	Apr. 28	3069	771	90	771
Blanchard, William N. Southbridge, Mass. Fly-wheel.	698,070	Apr. 28	3069	1181	90	1148
Blanchet, Arthur. (See Tracy and Blanchet.)						
Blanchi, Ernesto. (See Margliore and Bianchi.)						
Blanchi, Paolo. (See Margliore and Bianchi.)						
Blaney, Thomas. (See McCullough, Blaney, and Baron.)						
Blanchard, David S., Newtonville, Mass. Door-holder.	701,180	May 27	3069	300	90	3069
Blanton, Edward, Jr., Wallingford, Pa. Assignor to Blanton Patents Syndicate, Liverpool, London, England. Cam-follower for shafts of stamp-mills.	698,408	Apr. 1	19	5, 6	90	7
Blanton Patents Syndicate. (See Blanton, Edward A., Jr., assignor.)						
Blatchley, Malborne E., assignor to H. O. Tunkles, Whitehall, Ill. Lock.	697,382	Apr. 15	3074	685	90	341
Blondale, Charles G., Detroit, Mich. Trolley-stand.	698,386	May 4	304	108	90	1285
Blonin Brothers Manufacturing Company. (See Arnold, Philip C., assignor.)						
Blin, Emil E. (See Mallet and Blin.)						
Blin, Donald H., assignor to Holtzer-Cabot Electric Company, Brookline, Mass. Sparking device.	700,005	June 17	3075	104	90	3077
Block, David L., assignor of one-half to J. Lederer, New York, N. Y. Shirt.	698,385	May 4	304	104	90	1285
Block, David L., assignor of one-half to J. Lederer, New York, N. Y. Gas-pressure regulator.	700,478	May 30	3074	300	90	1725
Block, Sam. (See Bunn, William F., assignor.)						
Blome, Herman, Oakland, Cal. Broom-holder.	698,948	Apr. 1	371	60	90	31
Blood, Benjamin F., deceased, Forest Grove, Oreg.; J. S. Blood, administratrix. Swage-block.	700,794	May 27	3128	718	90	1875
Blood, Charles W. H., assignor to S. A. Woods Machine Company, Boston, Mass. Feed-rolls. (Reissue.)	11,054	May 12	1345	620	90	1285
Blood, Julia S., administratrix. (See Blood, Benjamin F.)						
Bloom, Louis, assignor of one-half to F. Klot, Buffalo, N. Y. Combined shade-roller and curtain-pole bracket.	698,380	Apr. 28	1044	300	90	340
Bloomer, William, New York, N. Y. Suspender-rod.	700,386	June 17	3077	400	90	2077
Bloomer's Slide Company. (See Bath, Abraham, assignor.)						
Bloome, Marguerite, Paris, France. Amalgamating apparatus.	700,175	June 10	1345	304	90	3481
Blumel, Charles W., F. H., and E. A., London, England. Stowaway mud-guard for vehicles or the like.	700,328	June 24	3077	300	90	3001
Blumel, Ernst A. (See Blumel, Charles W., F. H., and E. A.)						
Blumel, Frank H. (See Blumel, Charles W., F. H., and E. A.)						
By, Norman, Crowpoint, N. Y. Outer-lens.	698,704	Apr. 1	720	178	90	103
Bydenburgh, Charles M., Riverhead, N. Y. Cranberry-picker.	700,185	May 30	3040	600	90	1000
Bye, Harry C. (See Koch, Gustave, assignor.)						
Boardman, James, Philadelphia, Pa. Assignor to Boardman Manufacturing Company, Wilmington, Del. Scaffold.	700,314	June 24	3069	600	90	3000
Boardman Manufacturing Company. (See Boardman, James, assignor.)						
Boas, David L., Lebanon, Pa. Car-coupling.	698,428	Apr. 28	3069	301	90	371
Boas, Emil, Dinseldorf, Germany. Apparatus for manufacturing conical tubes.	698,171	Apr. 28	3069	720	90	700
Boat, Henry L., assignor to Veeber Manufacturing Company, Hartford, Conn. Clothing-machine.	698,424	Apr. 28	3069	301	90	371
Böcher, Carl, Altona-Ottensen, Germany. Apparatus for cooling or heating beverages.	700,371	June 24	3071	600	90	3700
Bockhop, Rudolf A., Lexington, Ky. Check.	700,120	June 10	1345	304	90	3481
Boden, George, Watertown, assignor to Oakville Company, Watertown, Conn. Safety-pin.	700,018	June 24	3069	300	90	3000
Boden, George, Watertown, assignor to Oakville Company, Watertown, Conn. Safety-pin.	700,017	June 24	3069	300	90	3000
Böckinger & Böckner, O. H. (See Böckner, Max, assignor.)						
Böckner, Julius. (See Böckner, Wilhelm, and J.)						
Böckner, Wilhelm and J., Philadelphia, Pa. Nebulizer.	698,380	Apr. 28	1044	1000	90	1000
Böckner, Frank, Waltham, Mass. Nail-holding implement.	698,380	Apr. 1	305	100	90	100
Böckner, Hermann, Hawcrick, assignor of one-half to F. Pransa, Lagrange, Tex. Fire-escape.	698,381	Apr. 1	305	100	90	100

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Böckner, Gustav, Milwaukee, Wis. Demagnetizer.	698,098	May 12	1420	300	90	1000
Bogardorfer, Conrad, Long Island City, N. Y. Candle-holder.	697,127	Apr. 1	1401	311	90	310
Bogda, William L., Columbus, Minn. Corn-planter.	698,348	Apr. 1	378	60	90	30
Böhlander, W. F. (See Oredisch, Henry S., assignor.)						
Böhler, Edward, Lancaster, Pa. Garment-fastening.	698,071	Apr. 29	3070	1121	90	1120
Böhs, Frank C. (See Warner, Isaac M., assignor.)						
Böhs, Frank C. and T. B. Bohman, Stockholm, Sweden. Axial-flow turbine.	698,705	Apr. 1	700	121	90	120
Böhr, Henry D., et al. (See Warner, Cornelius, assignor.)						
Böhner, Henry D., assignor of one-half to A. F. Miller, Defiance, Ohio. Collapsible crane.	698,405	Apr. 28	3065	600	90	374
Boland, Christopher G. (See Collins, Patrick J., assignor.)						
Bols, William A., Pittsburgh, Pa., assignor to Westinghouse Machine Company, Chicago, Ill. for supporting cores in molds.	700,050	June 17	3069	300	90	3007
Bols, William A., Pittsburgh, Pa., assignor to Westinghouse Machine Company, Chicago, Ill. for supporting cores in molds.	701,394	June 2	19	30	90	1111
Bolan, Brantley W., Roseland, Tex. Fly-lock.	700,705	June 17	3720	604	90	3700
Bolans, Harry W., Fort Washington, Wis. Chair.	700,705	June 17	3720	604	90	3700
Bolans, Harry W., Fort Washington, Wis. Chair-splider.	698,380	Apr. 1	1040	300	90	341
Bolding, Arthur J., San Francisco, Cal. Voting-machine.	700,311	May 30	3011	374	90	1100
Bollinger, Simon, South Whitley, Ind. Stovepipe-chimble.	698,421	Apr. 28	3069	600	90	370
Bollinger, William A. (See Tracy and Bollinger.)						
Bolton, Walter E., Brockton, Mass. Mallet.	700,119	May 12	1380	600	90	1070
Bolton, James D., assignor of one-half to W. W. McAniff, Fall River, Mass. Machine for copying patterns for jacquard-cards.	698,708	Apr. 1	307	125	90	120
Bolton, John T., assignor of one-fourth to T. McAniff, Fall River, Mass. Machine for copying patterns for jacquard-cards.	700,175	June 24	3070	304	90	3070
Bols, George, New York, N. Y. Wardrobe.	700,380	June 24	3070	300	90	3001
Boman, Chas. W., New York, and J. M. Reed, Brooklyn, N. Y.; said Reed assignor to said Boman. Can for holding coarse emery or the like.	698,448	May 4	304	137	90	1280
Bongers, Johan A., Stockholm, Sweden, assignor to De Laval Steam Turbine Company. Support for steam-turbine wheels.	697,180	Apr. 2	1402	310	90	310
Bongers, Johan A., Stockholm, Sweden, assignor to De Laval Steam Turbine Company. Support for steam-turbine wheels.	697,970	Apr. 28	3045	640	90	3077
Bonhard, Karl, Aix-la-Chapelle, Germany. Draft-gage.	700,384	June 17	3070	304	90	3077
Bonner, Emil, Brooklyn, N. Y. Door-strike.	700,384	June 17	3070	304	90	3077
Bond, Albert, Matisk, Mass., assignor of one-half to J. W. Currier, North Troy, Vt. Wrench.	698,448	May 4	304	137	90	1280
Bond, John W., et al. (See Bond, Clarence F., assignor.)						
Bond, Nathan O., Hyannis, Mass. Blind-fastening device.	700,380	June 17	3070	300	90	3007
Bonds, George W., Fresno, Cal. Gas-generator for gas-engines.	700,785	May 27	3155	710	90	1870
Bons, John A., Mayers, Oreg. Food-cutter.	700,080	June 24	3041	700	90	3000
Bonschke, Edward H., Rockville, Pa. Cultivator.	698,404	Apr. 1	31	6	90	7
Bongart, William H., Champlain, Ill. Curtain-actuator.	701,088	June 10	970	315	90	3000
Bonham, Guy L., Dorchester, Pa. Train-pipe coupling.	700,040	June 24	3040	740	90	3070
Bonham, William, Philadelphia, Pa. Car-fender.	697,971	Apr. 28	3040	690	90	3070
Bonaffon, Samuel A., Erie, Pa. Envelope.	697,780	Apr. 15	3021	120	90	307
Bonard, Jean B. G., Ostend, Belgium. Pyroxylin compound.	698,470	May 4	370	120	90	1215
Bonner, William H., Newton, Mass. Railway tariff-book.	698,470	May 4	370	120	90	1215
Bonsack, James A. (See Hochstetler, Henry C., assignor.)						
Boscher, Flavio J. (See Hankins and Boscher.)						
Boek, Solon D., Bagley, Minn. Rotary engine.	698,380	Apr. 28	3069	310	90	300
Boeck, Thomas E., Boston, N. J. Rope-laying machine.	697,437	Apr. 15	1361	430	90	437
Boord, Thomas E., Connelville, Pa. Paper-hanger's tool.	700,380	June 10	1361	430	90	3510
Boormans, David, and A. P. Sharp, said Sharp assignor to W. H. Olson and J. H. Walton, Altona, Pa. Washing-machine.	700,380	June 10	1361	430	90	3510
Booth, Franklin F. (See Kins and Booth, assignor.)						
Booth, William, San Francisco, Cal. Oil-burner for furnaces.	698,581	Apr. 28	3064	313	90	300
Borch, Gaston L. C., assignor of one-half to H. F. Allen, Duluth, Minn. Piano attachment.	700,720	May 27	3128	717	90	1870
Bordier, Marcel, La Rochelle, France. Coin-controlled ticket-delivering device.	700,970	June 2	711	187	90	3007
Borgström, Arthur H., Helsingfors, Russia. Means for ventilating milk and cream during the process of separation.	698,720	May 12	1360	300	90	1447
Borland, Bruce, Cambridge, Mass. Means for compressing or liquefying gases.	698,380	Apr. 28	3069	310	90	300
Borman, Thomas C., Summit, Minn. Nut-lock.	700,770	June 17	3720	600	90	3707
Borrmann, Carl, New Haven, Conn., assignor to E. & H. T. Anthony & Co., New York, N. Y. Photographic shutter.	698,178	Apr. 28	3065	704	90	700
Borrmann, Carl, New Haven, Conn., assignor to E. & H. T. Anthony & Co., New York, N. Y. Camera.	698,178	Apr. 28	3065	704	90	700
Borus, Anatole. (See Beck and Borus.)						
Borton, Stockton, Providence, R. I., and O. B. Brush, Bridgeport, Conn., assignors to Willcox & Gibbs Sewing Machine Company, New York, N. Y. Driving mechanism for sewing-machines.	698,380	Apr. 28	1040	300	90	340
Bouch, Frank, Crescent City, assignor of one-half to W. P. Butler, San Francisco, Cal. Vehicle.	697,380	Apr. 1	1040	300	90	340
Bouchard, Rufus E., Syracuse, N. Y. Apparatus for treating garbage.	700,137	May 27	3127	710	90	1870
Bouley, Lee W. (See Leach, Johnston, and Bouley.)						
Boss, William, St. Paul, Minn. Lawn-mower.	701,315	May 27	4100	300	90	3070
Bosert Electric Construction Company. (See Bosert, William F., assignor.)						
Bosert Electric Construction Company. (See Smith and Bosert, assignor.)						
Bosert, William F. (See Smith and Bosert.)						
Bosert, William F., assignor to Bosert Electric Construction Company, Utica, N. Y. Making conduit outlet-cases.	698,380	Apr. 1	300	125	90	120
Bosert, William F., assignor to Bosert Electric Construction Company, Utica, N. Y. Interior-conduit outlet-box.	698,710	Apr. 1	301	125	90	120
Bosert, William F., assignor to Bosert Electric Construction Company, Utica, N. Y. Interior-conduit outlet-box.	701,137	May 27	3000	300	90	3000
Bosert, William F., assignor to Bosert Electric Construction Company, Utica, N. Y. Interior-conduit outlet-box.	700,470	May 30	3075	315	90	1007
Boschard, Theodore, Brooklyn, N. Y. Fan-shelling machine.	698,407	Apr. 28	3060	344	90	370
Boston, Charles F., Milton, assignor of one-half to G. E. Sober, Lewisburg, Pa. Magnetic feeder for looms.	698,407	Apr. 28	3060	344	90	370
Boston Chemical Fire Engine Manufacturing Company. (See Lombard and Banning, assignors.)						
Boston Roller Chain Iron Company. (See Smith, Alta F., Jr., assignor.)						
Botstrom, Ernst A., Atlanta, Ga. Docking and tarring level.	700,717	May 30	3120	711	90	1884

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Bostwick, Robert G. (See Woodbridge, William H., assignor.)						
Bostwick, Walter W. (See Nichols, Frank L., assignor.)						
Boswell, Henry L., Cleveland, Ohio, assignor of one-eighth to F. Wetz, Chicago, Ill.	701,020	June 3	2801	73	90	2176
Bostrander, Abraham, Utica, N. Y., assignor of one-half to J. B. Smith, New York, N. Y.	695,560	Apr. 20	3804	771	90	781
Botsman, Elias H. (See Walker, James H., assignor.)						
Bots, Fracille, East Tawas, Mich. Washing-machine	698,580	Apr. 1	639	193	90	140
Bouchet, Stephane, Thainin, St. Louis, France. Liquid motor	698,085	Apr. 20	4194	988	90	945
Boudet, Arthur D., assignor to J. L. Vimeau, Paris, France. Shirt-band stiffener	700,018	May 12	1705	368	90	1889
Bouley, Pierre, Waverlyville, Cal. Machine for moving boulders, &c.	698,385	Apr. 20	3808	771	90	791
Boug, Anthony E. (See Ellis and Boug.)						
Bourban, Andrew R., Chicago, Ill. Electrical railway traction apparatus	698,090	Apr. 20	3190	709	90	79
Boussager, Emile, St. Louis, Mo. House-tennis racket	700,097	June 17	2805	801	90	2877
Boussier, Emile, St. Louis, Mo. House-tennis racket	697,791	Apr. 15	2808	801	90	887
Bourquet, Auguste, Vetroy, France. Saw-protecting hood	698,380	Apr. 20	3807	812	90	885
Bourque, Auguste O., Bristol, R. I. Vulcanizing rubber	697,790	Apr. 15	2808	809	90	887
Bourque, Dora, Hamilton, Ont. Coal-controlled reading apparatus	700,910	June 24	2804	809	90	2901
Boston, George D., et al. (See Amwaka, Harry S., assignor.)						
Boston, N. S. (See Damsy and Cort, assignors.)						
Bowden, Frederick H., et al. (See Grooming, Frederick, assignor.)						
Bowditch, John F., Boston, Mass. Brush	700,300	June 17	2805	815	90	2923
Bowen, David A., assignor to D. M. Coleman and E. G. Kerr, Johnstown, Pa. Post-hole digger	701,940	June 10	1377	985	90	2883
Bowen, Howard, Upper Sandusky, Ohio. Fence	698,520	June 10	357	985	90	1885
Bowen, Philip A., Milwaukee, Wis. Bookbinder's press-punch	700,120	June 17	2805	814	90	2927
Bowen, Walter C., San Francisco, Cal. Soap cake	700,581	June 17	2805	814	90	2919
Bowers, Clyde C., Chasler, Iowa. Triplicate	700,105	May 20	3000	445	90	1480
Bowers, John E. (See Cochran, William R., Jr., assignor.)						
Bowes, John J., Jr., Pensacola, Fla. Hose-coupling	698,305	May 8	448	108	90	1208
Bowyer, James, and H. Bookhills, Sunderland, England. Spool-holder for sewing-machines	700,167	May 20	2801	445	90	1889
Boyle, Robert C. M., Boston, Mass. Binaural stethoscopes	700,793	May 27	3190	719	90	1877
Bowman, Allan K., Pittsburg, Pa. Tobacco-pipe	698,480	May 6	673	185	90	1315
Bowyer, Eva M., Chicago, Ill. Supporting device	700,280	June 17	2805	812	90	2925
Boyd, Adam S., and G. Tamm, Savannah, Ga. Pipe cutter and wrench	700,910	June 24	2804	809	90	2901
Boyd, Burton K., Rochester, Mich. Knockdown crane	701,824	June 10	951	219	90	2883
Boyd, David, Louisville, Ky. Plug-chaser	698,174	Apr. 20	3807	795	90	793
Boyd, George H., Worcester, Mass. Wrench	700,280	June 24	2804	809	90	2901
Boyd, George W., Washington, D. C. Drip attachment for dispensing apparatus	698,451	May 6	670	184	90	1214
Boyd, George W., Washington, D. C. Drip attachment for dispensing apparatus	700,181	June 10	1081	254	90	2401
Boyd, John, Bothwell, Scotland. Knee-brake for stopping spinning-spindles	701,120	May 27	3040	905	90	2599
Boyer, Edward C., and F. Radford, Dayton, Ohio. Car-pusher	697,194	Apr. 8	1898	241	90	245
Boyer, Fernand, Paris, France. Apparatus for the manufacture of knot-stitch carpets	698,880	Apr. 20	4787	1054	90	1083
Boyer, Joseph, St. Louis, Mo., assignor to Chicago Pneumatic Tool Company. Pneumatic hammer	697,790	Apr. 15	2804	800	90	887
Boyer, William E., et al. (See Geddes, Charles A., assignor.)						
Boyes, Ebenezer, Peckham, England. Means for roasting coffee	697,190	Apr. 8	1898	212	90	219
Boykin, Robert S., Mobile, Miss. Nut-lock	697,510	Apr. 8	1727	299	90	890
Boyle, Frank J., Galveston, Tex. Adjustable hame-fastener	698,420	May 6	673	187	90	1205
Boyd, Robert L. (See Wells and Boyer.)						
Boyd, Robert L., assignor to Reed and Barton Corporation, Taunton, Mass. Insulating-handle connection	700,097	June 10	1488	380	90	2495
Boyd, George H., Taunton, Mass. Producing anti-oxidal castings	697,979	Apr. 20	3551	680	90	677
Brack, William, Villaret, Switzerland. Watch-dial	701,190	June 10	1398	985	90	2885
Brackley, Orville J., assignor to himself, T. F. Ryan, and D. A. Mather, Butler, Pa. Pump	701,120	May 27	3041	906	90	2600
Braden, Francis J., St. Germain, France. Non-refillable bottle	700,580	June 17	2805	810	90	2923
Bradford, William A., and J. R. Smalley, assignors to Elevator Supply & Repair Company, Chicago, Ill. Door-opening mechanism	700,084	May 20	2804	801	90	1775
Bradford, Henry B., Jr. (See Elberhard and Bradford.)						
Bradford, Oscar. (See Caldwell, William L., assignor.)						
Brendley, Charles W., Lyons, N. Y. Sugar-leaf puller and topper	698,304	Apr. 8	3001	385	90	945
Brendley, Christopher C., Syracuse, N. Y. Thrill-coupling	697,190	Apr. 8	1898	214	90	319
Brendley, Christopher C., Syracuse, N. Y. Thrill-coupling	697,380	Apr. 15	2928	807	90	844
Brendley, Christopher C., Syracuse, N. Y. Thrill-coupling	697,304	Apr. 15	2928	807	90	844
Brendley, John, Birmingham, England. Machinery for manufacturing tube-bands	701,973	June 3	713	187	90	2887
Bradhaw, Charles E., Cleveland, Ohio. Combination hair drier and comb						
Bradt, Charles E., et al. (See Reynolds, Samuel D., assignor.)						
Bradt, Samuel E., et al. (See Reynolds, Samuel D., assignor.)						
Brady, Thomas H., New Britain, Conn. Electrical apparatus	698,485	May 6	677	187	90	1210
Bragdon, Charles M., assignor to S. E. Preston, Bangor, Me. Cigar or cigarette holder	700,105	June 10	1398	385	90	2495
Braine, Hancock F., et al. (See Randolph, Leonard M., assignor.)						
Braine, Leonard F., et al. (See Randolph, Leonard M., assignor.)						
Brake, Archibald, Toronto, Canada. Mold for casting brake-shoes	697,794	Apr. 15	2808	802	90	890
Brannwell, Clarence C., Hydeport, Mass. Driving mechanism for motor-vehicles	701,180	June 3	657	181	90	2880
Brann, Joseph G., St. Louis, Mo. Apparatus for distributing hydrocarbon under pressure to hydrocarbon-lamps	698,584	Apr. 20	3807	814	90	889
Brann, Joseph G., St. Louis, Mo. Hydrocarbon-lamp	700,581	June 24	2810	809	90	2902
Brandle, Henry. (See Smith, John, assignor.)						
Brander, William, Chatham, Canada. Band-cutter and feeder for thrashing-machines or grain-separators	698,305	May 12	1202	380	90	1202
Brandt, Charles, New York, N. Y. Packet-closing device	701,074	June 3	715	180	90	2880
Brandt, Edward J., Watertown, Wis. Coin-delivery machine	700,174	June 24	2801	805	90	2879
Brandt, Edward J., Watertown, Wis. Coin-delivery machine	701,175	June 24	3004	912	90	2880
Brashe, Otto O., Brakine, Minn. Force-pump	698,494	May 6	670	185	90	1317
Brault, John V., and B. Homans, Belleville, Ill. Coaling for nails	698,790	Apr. 1	780	180	90	100
Braun, Charles A., assignor to F. K. Gustin, Chicago, Ill. Toy bank	698,580	Apr. 20	3801	804	90	889
Braun & Company, F. W. (See Longman and Calkins, assignors.) (Belgium.)						
Braun, Frederick W. (See Calkins, Albert C., assignor.)						
Braun, Louis, assignor of one-half to J. Buelhach, New York, N. Y. Vault-light	698,385	Apr. 12	1205	380	90	1447

Alphabetical list of patentees, April to June, inclusive--Continued.

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Brough, Henry G., Leland, Iowa. Vehicle-trail.	701,984	June 10	1879	288	98	2888
Brough, John F., New York, N. Y. Shoe-polisher.	698,719	Apr. 1	604	126	98	121
Brous, George M., Houlton, Oreg. Starting or stopping mechanism.	701,327	June 8	18	3	98	2412
Brow, James B., New York, N. Y., assignor to "Adek" Manufacturing Company. Machine for perforating paper, etc.	698,940	May 13	1048	284	98	1288
Brown, Alexander T., Syracuse, N. Y. Power-transmitting mechanism.	702,980	June 10	1788	608	98	2488
Brown, Arthur M. (See Brown, Daniel L., assignor.)						
Brown, Charles F. (See Melavin, John H., assignor.)						
Brown, Charles F. (See Read, William, assignor.)						
Brown, Charles N., Syracuse, N. Y. Machine for double-seaming metal sheets.	701,041	May 27	2738	840	98	1888
Brown, Charles N., Boston, assignor to J. S. Wilson, Chelsea, Mass. Shuttle for looms.	702,981	June 10	1789	608	98	2488
Brown, Chauncy B. (See Brown, James E. and C. B.)						
Brown, Cyril P., Springlake, Mich. Folding bed.	698,988	Apr. 28	2888	818	98	888
Brown, Daniel, Cranston, R. I. Gun-lock.	698,440	Apr. 28	2884	848	98	878
Brown, Daniel, Cranston, R. I. Shot-spreader.	698,487	May 8	888	188	98	1218
Brown, Daniel L., assignor of one-half to A. M. Brown, Birmingham, Ala. Mining-car.	700,713	May 20	8128	713	98	1888
Brown, David. (See Masscar, John R., assignor.)						
Brown, Edmund L., Martinsville, Ind. Machine for splitting bark-strips.	700,880	May 20	2880	888	98	1488
Brown, Edmund L., Martinsville, Ind. Machine for cutting bark into strips.	700,887	May 20	2881	888	98	1488
Brown, Francis C., Brooklyn, N. Y. Fountain-pen.	697,975	Apr. 28	2884	881	98	877
Brown, Francis W., Cohoes, N. Y. Belt.	701,141	May 27	2844	807	98	2048
Brown, Frank E., Anamosa, Iowa. Ice-skate.	702,988	June 10	2818	880	98	2488
Brown, Frank H., et al. (See Winkler, William, assignor.)						
Brown, Frank R., Unga, Alaska. Clamp for rock-drills.	698,880	Apr. 28	4788	1488	98	1884
Brown, Franklin, assignor to C. Rastain, Philadelphia, Pa. Packing.	698,844	Apr. 1	874	88	98	88
Brown, Fred, assignor to J. Wadsworth, Paterson, N. J. Picker-operating mechanism for swivel-loom.	701,984	June 8	448	181	98	2880
Brown, Frederick W., Berlin, N. H. Adjustable wrench.	698,073	Apr. 28	2871	1281	98	1148
Brown, Garrett. (See Butcher, James M., assignor.)						
Brown, George R., Pledger, Tex. Proportionate scale.	697,818	Apr. 8	1788	288	98	888
Brown, Harold P. (See Hobbs, Charles M., assignor.)						
Brown, Harry F., Chicago, Ill. Water-meter.	701,875	June 8	718	188	98	2888
Brown, Hayes. (See Steele and Brown.)						
Brown, Henry A., Macon, Ga. Garment-stretcher.	701,148	May 27	2844	807	98	2048
Brown, Herman E., Coldwater, Mich. Making dolomite sandstone.	697,819	Apr. 8	1740	288	98	888
Brown, James E. and C. B., Bradford, Pa. Vehicle-body.	698,488	May 8	888	188	98	1218
Brown, James J., London, England. Apparatus for sampling grain or seed.	702,988	June 10	2814	881	98	2488
Brown, Jesse J., Macon, Mo. Dental lathe.	698,713	Apr. 1	808	178	98	181
Brown, Jessie, et al. (See Arnold, Cyrus M., assignor.)						
Brown, John, Norwood, assignor to L. C. Smith, Brookline, Mass. Glazing-machines.	698,781	Apr. 28	4588	1088	98	1088
Brown, John G., Jerseyville, Ill. Dehorning instrument.	700,188	May 20	2888	488	98	1488
Brown, John W., Jr., Philadelphia, Pa. Tapping-machine.	701,143	May 27	2844	808	98	2048
Brown, John W., Jr., Philadelphia, Pa. Electric controller.	702,984	June 10	2815	881	98	2488
Brown, Jonathan T., Marblehead, assignor to O. A. Miller, Brockton, Mass. Hinged last.	698,788	May 13	1887	284	98	1488
Brown, Joseph, Lorain, Ohio. Grinding-mill.	698,441	Apr. 28	2887	848	98	877
Brown Knitting Company. (See Geo. Albert, assignor.)						
Brown, Lemuel, Saugatuck, Mich. Life-boat.	702,988	June 10	2811	888	98	2488
Brown, Norman E., St. Joseph, Mich. Hoop-forming machine.	698,448	Apr. 28	2888	848	98	877
Brown, Paul T. (See Kidd, Frank L., assignor.)						
Brown, Perry, Wilmington, Del. Seal-lock.	700,288	May 20	2888	888	98	1888
Brown, Perry, Wilmington, Del. Pedestal.	700,884	May 27	2841	788	98	1848
Brown, Roy W., and C. A. Rhine, assignors to Union Electric Manufacturing Company, Milwaukee, Wis. Rheostat.	701,013	May 27	2713	881	98	1888
Brown and Sharpe Manufacturing Company. (See Davenport, William S., assignor.)						
Brown, Sidney G., Putney, England. Telegraphic apparatus.	702,288	June 10	1888	488	98	2488
Brown, Sidney G., Putney, England. Electric telegraphy.	702,688	June 17	2441	887	98	2887
Brown, Theodore H., assignor to New Broom and Supply Company, Viroqua, Wis. Broom-swing device.	697,280	Apr. 8	1741	288	98	881
Brown, Theodore P., and P. Wells, Worcester, Mass. Double-bellows action for pneumatic piano-players.	701,288	June 8	441	188	98	2888
Brown, Volney C., Balley's Harbor, Wis. Wrench.	697,321	Apr. 8	1748	288	98	881
Brown, Volney E., Woodstock, Ill. Composition for cleaning metals.	697,978	Apr. 28	2887	888	98	877
Brown, Arthur W., Princeton, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental-engine wall-bracket.	698,548	Apr. 1	875	84	98	88
Brown, Richard B., Brooklyn, N. Y. Telescoping wicket for counter guard-walls.	698,544	Apr. 1	877	84	98	88
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic camera.	698,991	Apr. 28	4784	1088	98	1084
Brownell, Willard H., Battlecreek, Mich. Eraser-tip for pencils.	698,748	May 13	1181	278	98	1488
Browning, Clarence P., Manhasset, N. Y. Color-printing.	698,285	Apr. 28	2884	778	98	778
Browning, John M., Ogden, Utah. Recoil-operated firearm.	701,288	June 8	18	4	98	2112
Browning, John M., Ogden, Utah. Sight for firearms.	701,288	June 8	18	4	98	2112
Brownell, Lawrence H., Brewster, N. Y. Machine for cleaning bricks.	698,887	Apr. 28	4197	987	98	888
Brownell, Lawrence H., Brewster, N. Y. Axle-nut wrench.	701,144	May 27	2847	808	98	2041
Bruckman, John. (See McFarland, James D., Jr., assignor.)						
Bruff, Wilbur C. (See Reagan, Edgar, assignor.)						
Brunau, Sven, Köping, Sweden, assignor to De Laval Steam Turbine Company. Electric pumping-engine.	701,288	June 8	488	108	98	2888
Brundage, Edwin L., East Orange, N. J. Horse-collar.	698,148	May 8	31	6	98	1188
Bruner, Martin, Buckland, Ohio. Self-lubricating axle.	697,088	Apr. 8	1213	880	98	888
Bruner, Jacob, and H. J. Root, Shelbyville, Ind. Furniture-coupling.	702,088	June 17	2448	887	98	2848
Bruner, John N., St. Paul, Minn. Hat-fastener.	698,448	Apr. 28	2881	847	98	877
Brunswick-Balke-Collender Company. (See Banninger, Moses, assignor.)						
Brunswick-Balke-Collender Company. (See Matthes, Julius H., assignor.)						
Brunton, George W., Springfield, Ohio. Corn-planter.	700,781	May 27	2848	781	98	1878
Brush, Otis B. (See Borton and Brush.)						
Brushaber, Louis E. C., Brooklyn, N. Y. Apparatus for consuming smoke.	697,088	Apr. 8	1214	880	98	888
Bryan, Bernard W., Buckhurst Hill, England. Planimeter.	700,788	May 27	2849	788	98	1878

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Bryan, George F., assignor to E. R. Mallory and F. Gerlach, trustees, Chicago, Ill. Gas- stirrer.	699,970	May 13	1000	384	99	1267
Bryan, John C., Augusta, Ga. Shuttle-check for looms.	699,945	May 8	994	125	99	1260
Bryan, William W. (See Lee and Bryan.)						
Bryant, Charles A., Wakefield, Mass., assignor to Consolidated Safety Pin Company, Bloomfield, N. J. Clamp.	702,771	June 17	9738	685	99	2707
Bryce Brothers Company. (See Schaub, Henry, assignor.)						
Bryson, Thomas M., Atlanta, Ga. Link-belt tire.	699,088	Apr. 29	5109	1180	99	1180
Buck, William C., Peterborough, Canada. Eccentric-chain lift-pump.	697,799	Apr. 15	2640	985	99	582
Buchanan, George F., Allentown, Pa. Keyboard for violins.	700,495	May 20	2640	981	99	1728
Bucher, Peter, Mannheim, Germany. Acetylene-gas-generating apparatus.						
Bucher, Hans T. (See Schraube and Bucher.)						
Buchner, Max, Mannheim, Germany. Reduction of azo compounds.	700,671	May 20	2011		99	1269
Buchner, Max, Mannheim, Germany. Reduction of nitro compounds.	700,672	May 20	2012		99	1269
Buchner, Max, Mannheim, Germany. Manufacture of ceramic products.	700,673	May 20	2014		99	1269
Buchner, Max, Mannheim, assignor to C. F. Buchringer & Soehne, Mannheim-Waldhof, Germany. Electrolytic reduction of nitro or other compounds.	700,670	May 20	2006	680	99	1269
Buck, Harold W., Schenectady, N. Y., assignor to General Electric Company. Magnetic clutch.	701,930	June 3	26	5	99	2112
Buck, Hiram M., and W. H. Scripps, Baltimore, Md. Arc-light hanger-board.	699,708	Apr. 29	4935	1008	99	1085
Buck, Sterling P., Front Royal, Va. Adjustable bushing.	700,014	May 13	1705	328	99	1269
Buck, William C., Peterborough, Canada. Eccentric-chain lift-pump.	699,994	Apr. 1	418	97	99	21
Buckeye Iron and Brass Works. (See Hubbell, Joseph H., assignor.)						
Buckeye Malleable Iron and Coupler Company. (See Thuma, James, assignor.)						
Buckeye Manufacturing Company. (See Henneghin, Herbert H., assignor.)						
Buckeye Manufacturing Company. (See Lambert, John W., assignor.)						
Buckley, James F., Dartford, assignor to Company of Allen and Hanbury, Limited, London, England. Molding-press.	702,125	June 10	1000	385	99	2428
Buckley, James F., Detroit, Mich. Manufacture of bent tubing.	702,125	June 10	1001	343	99	2440
Buckley, John D., and E. H. Phinney, Brunswick, Me. Acetylene-gas generator.	702,772	June 17	9738	686	99	2707
Buckley, Thomas J., and F. R. Place, Chicago, Ill. Pressure-regulator.	697,708	Apr. 15	2644	540	99	582
Bucklin, Charles B., Baltimore, Md. Can-steaming machine.	697,222	Apr. 8	1743	329	99	291
Buckman, George, Burlington, N. J. Machine for making cushions.	702,240	June 10	1897	438	99	2512
Buchwalter, John R., Elizabethtown, Pa. Straw-stacker.	699,798	Apr. 29	4937	1004	99	1085
Budd, Charles D., St. Louis, Mo. Conduit.	699,908	Apr. 29	4706	1056	99	1085
Buechner, Frank A., assignor to Buechner Manufacturing Company, Battle Creek, Mich. Picture-frame.	699,995	Apr. 8	1008	225	99	245
Buechner Manufacturing Company. (See Buechner, Frank A., assignor.)						
Buell, William E. (See Frazzetta, Charles L., assignor.)						
Buehlbach, Joseph. (See Braun, Louis, assignor.)						
Buetner, Richard, Brooklyn, and E. Marx, New York, N. Y. Pocket-spectacle.	700,798	May 27	2177	728	99	1269
Buffalo Pitts Company. (See Vranek, Edward J., assignor.)						
Bufford, George W., assignor to J. H. Williams and Company, Brooklyn, N. Y. Pipe- wrench.	697,977	Apr. 22	2607	680	99	695
Bufford, George W., assignor to J. H. Williams and Company, Brooklyn, N. Y. Chain wrench.	699,794	Apr. 29	4939	1004	99	1085
Buham, Herbert H., Abington, Mass. Cooler.	702,177	June 24	2004	306	99	2220
Buhlmann, Georg, Berlin, Germany. Manufacturing incandescent mantles.	699,108	Apr. 22	2604	708	99	730
Buhrer, Harry C., Chicago, Ill. Car-bolster.	702,701	June 17	2686	685	99	2428
Buhrer, Casper, Sandusky, Ohio. Metallic railway-tie.	702,420	June 17	2013	686	99	2428
Bullard, Edgar R., Springfield, Mass. Camera.	699,698	Apr. 29	4193	987	99	949
Bundy, Edward W. (See Rawdon and Bundy.)						
Bundy, John J., San Antonio, Tex. Auger.	699,444	Apr. 29	2648	387	99	598
Bunker, Hollis P. (See Mack and Bunker.)						
Bunn, W. T. (See Dunn, William D., assignor.)						
Bunn, William D., assignor of one-half to W. T. Dunn, Newbern, Tenn. Combined trace- holder and detaching means.	699,090	Apr. 29	5111	1180	99	1180
Bunting, William, Jr., Brooklyn, Mass. Water-closet.	702,598	June 17	2675	515	99	2214
Bursey, Charles J. T., Syracuse, N. Y. Apparatus for manufacturing charcoal.	701,145	May 27	2048	686	99	2421
Burdett-Bowditch Manufacturing Company. (See Bowditch, Harold, assignor.)						
Burdick, Leo J., Sturgis, Mich. Box.	699,090	Apr. 8	1008	226	99	247
Burdick, Leo J., Sturgis, Mich. Registering mechanism.	699,090	Apr. 29	4901	989	99	949
Bural, Valentin C., G. Randon, and G. Remy, Havre, France. Apparatus for torrefying coffee.	699,445	Apr. 29	2644	387	99	598
Bureau, Alvan R., Salem, Oreg. Burial-vault.	700,734	May 27	2177	724	99	1269
Burford, Jonathan H. (See Bell and Burford.)						
Burgess, Lillian A., San Francisco, Cal. Combined skirt and drawers.	702,477	May 20	2675	619	99	1727
Burge, John, and E. B. Cornell, Smithfield, W. Va. Car-coupling.	699,499	May 6	695	129	99	1215
Burger, Franz, and H. H. Williams, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Vertical-tube steam-boller.	699,714	Apr. 1	997	127	99	122
Burger, Franz, and H. H. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Grate-bar for forced-blast furnaces.	699,927	Apr. 8	1007	226	99	247
Burgess, John A., Bradford, Canada. Purifying acetylene gas.	701,905	June 10	1220	228	99	2220
Burgess, Thomas F., Denver, Colo. Combined picture-exhibitor and phonograph.	699,290	Apr. 22	2608	617	99	611
Burges and Bell. (See Byrce, William H., assignor.)						
Burgess, John, Rio Janeiro, Brazil. Steam-turbine. (Reissue.)	11,390	June 10	1994	422	99	2222
Burke, Charles G., Brooklyn, N. Y., assignor of one-half to J. Q. A. Whittemore, Boston, Mass. Telephone system.	701,794	June 3	914	324	99	2220
Burke, Eugene, Lakeview, Oreg. Pencil-sharpener.	697,222	Apr. 8	1744	329	99	291
Burke, James J., Hartford, Conn. Screw-cutting tool.	699,446	May 6	695	122	99	1200
Burke, Thomas G. (See Ward, Eliza L., assignor.)						
Burket, Henry K., Omaha, Neb. Burial-robe.	702,773	June 17	9738	686	99	2708
Burkhardt, Edward G. (See Stumer and Burkhardt.)						
Burley, Josiah, Baltimore, Md. Curtain-fixture.	702,297	June 17	2677	543	99	2214
Burley, Thomas S. (See Van Loven, Thomas F., assignor.)						
Burnett, Cuthbert, Grange, near Durham, England. Apparatus for washing coal, coke, &c.	700,725	May 27	2178	725	99	1269
Burroughs, Arthur M., Gardner, Me. Map-wringer.	699,973	Apr. 29	4973	1121	99	1142
Burroughs, Williams & Company. (See Vancian, Samuel M., assignor.)						
Burns, Allen D. (See Hyde and Burns.)						
Burns, Charles F., Kalamazoo, Mich. Vehicle running-gear.	697,200	Apr. 15	2646	385	99	582
Burns, Edith L., Norman, Okla. Tur. Curtain-bracket.	699,795	Apr. 29	4940	1004	99	1085
Burns, Edward, Sebring, Iowa. Draft-overseer.	700,290	May 20	2604	682	99	2428

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Barnes, Edward A., Hartford, Conn. Contribution box	697,251	Apr. 8	1225	254	90	225
Barnes, George J. (See Chandler, Daniel L., assignor.)						
Barnes, Henry B., assignor of one-fourth to E. A. Munn, San Chabro, Wis. Fruit jar	702,705	June 17	2625	290	90	2690
Barnes, Henry H., Hastings, assignor to Battle Creek Iron Works Company, Limited, Battlecreek, Mich. Machine for finishing metal articles	699,613	May 6	915	214	90	1265
				215		
Burpee, Frank W. (See Larson and Burpee.)						
Burrell & Company, D. H. (See Just, John A., assignor.) (Reissue.)						
Burridge, Leo B., New York, N. Y. Type-writing machine	697,055	Apr. 15	9275	302	90	325
	701,913	May 27	3714	251	90	1265
Burris, Sarah E., Aurora, Ill. Cloth-guide for sewing machines						
Burris, William W., et al. (See Schoenover, Noah E., assignor.)						
Burrows, Edward T., Portland, Me. Water-cooling apparatus for motor-vehicles	701,404	June 3	295	75	90	2255
Burrows, Joseph A., assignor to Goodyear Tire and Rubber Company, Akron, Ohio. Rubber-tire-setting machine	699,446	Apr. 29	2545	249	90	295
Burrows, Joseph A., assignor to Goodyear Tire and Rubber Company, Akron, Ohio. Joint-clear for rubber-tire-setting machines	701,995	May 27	2422	759	90	1242
	692,559	Apr. 29	3700	217	90	292
Burrows, Pierre F. M., Hunterville, New Zealand. Combined scale and pencilholder	692,715	Apr. 1	939	127	90	123
Burry, John, Fort Lee, N. J. Wireless telegraphy						
Burt, James H., Springfield, Mass., assignor, by mesne assignments, to Combo Shirt Coat Company, New York, N. Y. Garment	702,974	May 20	3016	680	90	1260
Burt, Martin C., Chicago, Ill. Electric heater						
Burt, Peter, Holybank, Bothwell, Scotland. Internal-combustion engine	699,651	May 13	1010	225	90	1267
Burt, Walter B., Albany, New South Wales, Australia. Means for cleaning ships' hulls	698,447	Apr. 1	877	64	90	6
Burton, John, and W. B. Lodwick, Mystic, Iowa. Coal-mining machine	699,144	May 6	84	5, 10	90	1125
Burton, Smith P., Jr., et al. (See Huff, Henry H., assignor.)						
Buschmeyer, William G., assignor of one-half to G. R. Caspert, Louisville, Ky. Combined awning frame and hood	692,371	Apr. 29	3709	217	90	292
Bush, Corydon I., Kansas City, Mo. Syracuse	692,447	Apr. 29	2646	945	90	279
Bush, Corydon I., assignor of one-half to F. H. Crocker, Kansas City, Mo. Fastening for saddle-girths	701,225	June 10	965	230	90	2621
	701,227	June 10	967	230	90	2623
Bush, Samuel P., Columbus, Ohio. Bolster for cars						
Bushnell, William E., assignor to Kalamazoo Railway Supply Company, Kalamazoo, Mich. Lever for lifting-jacks	702,920	June 24	2997	619	90	2721
	701,237	June 3	467	103	90	2660
Busby, George M., Cumberland, Md. Bag-fastener	697,224	Apr. 8	1226	421	90	430
Butcher, James M., assignor of one-half to G. Brown, Denver, Colo. Coin-delivery device						
Butler, Edward, Jr., et al. (See Hodges, John D., assignor.)						
Butler, Henry G., assignor of one-half to W. Butler, Danville, Ill. Shale-rock plow	692,220	Apr. 1	973	217	90	225
Butler, John B., Ethel, Ark. Animal-trap	692,145	May 6	37	10	90	1125
Butler, William. (See Butler, Henry G., assignor.)						
Butler, William P. (See Bosch, Frank, assignor.)						
Butman, Thomas B., Chicago, Ill. Combined water and fire tube steam-generator	697,229	Apr. 15	2270	329	90	315
Butman, Alois C., Columbus City, Iowa. Combined pocket-watch and collar-buckle	699,074	Apr. 29	5073	1223	90	1142
Butts, Charles H., Norwich, Conn. Bow-clip	697,442	Apr. 15	1933	440	90	420
Butts, Zehner D., Cleveland, Ohio. Pin setting or resetting device for bowling-alleys	700,814	May 29	3214	971	90	1267
Buxton, Charles H., Newark, N. J. Toy or game apparatus	699,490	May 6	627	129	90	2215
Byrd, Harry A., Nash Mills, Tenn., assignor of one-half to C. T. Leonard, Minneapolis, Minn. Picture-book hanger	702,170	June 24	2904	591	90	2720
	702,221	June 24	2905	592	90	2721
Byrd, Jesse B., Dunn, N. C. Gunno-distributor						
C. B. Cottrell & Sons Company. (See Cottrell, Charles P., assignor.)						
C. B. Cottrell & Sons Company. (See Seymour, Ralph C., assignor.)						
C. Latham Shoes Typewriter Manufacturing Company. (See Sholes, Louis, assignor.)						
Cade, James W., Mount Carmel, assignor to G. B. Cowan, Duwaco, S. O. Bush fastener or holder	702,774	June 17	2970	622	90	2722
Ondell, John F., assignor to Ott. Mergenthaler Company, Baltimore, Md. Milling-machine roller	702,726	May 27	3551	725	90	1261

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Caldwell, Samuel B., et al. (See Shriver, Augustus F., assigner.)						
Caldwell, William L., New York, N. Y., assigner of one-half to O. Bradford, Chicago, Ill.; Machine for manufacturing expanded sheet metal.	696,446	Apr. 20	366	846	90	379
Calhoun, Benjamin R., Montreal, Canada. Stamp-officer.	701,991	June 10	322	94	90	2939
Calhoun, Albert O. (See Longman and Calhoun.) (Release.)						
Calhoun, Albert O., assigner to F. W. Brown, Los Angeles, Cal. Assaying-furnace.	696,849	Apr. 1	379	95	90	90
Calhoun, Albert O., assigner to F. W. Brown, Los Angeles, Cal. Ore-crusher.	697,910	Apr. 15	3947	557	90	394
Callahan, American F., Chicago, Ill. Revolver.	701,590	June 19	320	380	90	2939
Callahan, Owen P., New York, N. Y. Cloth-rock.	701,790	June 3	343	392	90	2939
Callahan, John G. (See Thompson and Callahan.) (Release.)						
Callaway, William S., Mountabomb, Idaho. Shell.	697,703	Apr. 15	3985	380	90	323
Calvert, Alva, Philadelphia, Pa., assigner to M. Bar Bell Company. Bar-bell.	702,360	June 10	1994	680	90	2939
Canfield, Bernard H., U. S. Revenue Marine. Protecting-roller.	702,395	June 24	3617	281	90	2939
Camden, Eben, Brooklyn, N. Y. Weighing-machine.	697,190	Apr. 8	1880	341	90	344
Camden, James A. (See Conrad and Camden.)						
Camden, James A., Brooklyn, N. Y. Machine for cutting blanks from fabric.	697,975	Apr. 20	3990	328	90	379
Camden, John B., assigner of two-thirds to Lightfoot Brothers and Melrose Milling Company, Evansville, Ind. Brea-picker.	697,181	Apr. 8	1497	315	90	319
Camden, Parley W., New Haven, Conn. Gun-balls.	702,093	June 10	1428	380	90	2939
Cannack, James H., Summit, N. J. Instrument for rearing floor boards singly.	700,160	May 30	2053	490	90	1280
Cannack, Henry P., Summit, N. J. Bore.	697,229	Apr. 8	1893	385	90	325
Cannell, Alexander M., et al. (See Hammond, Oliver S., assigner.)						
Cannell, Charles R. (See Gray, John R., assigner.)						
Campbell, Otha, Kenner, N. Y. Bath appliance.	696,795	May 12	1290	394	90	1445
Campbell, Daniel, Fairville, Canada. Ash-remover for boiler-furnaces.	696,440	Apr. 20	3933	550	90	379
Campbell, Emerson B., assigner of one-half to M. H. Wagonheim, Bakerfield, Cal. Hoop-head.	700,675	May 20	3917	394	90	1990
Campbell, George L., Nyack, N. Y., assigner to International Electric Traction Company. Electric-railway system.	696,737	May 13	1371	394	90	1445
Campbell, George L., Nyack, assigner to International Electric Traction Company, New York, N. Y. Electric-railway system. (Release.)	11,391	May 20	6126	710	90	1990
Campbell, Henry H., Columbus, Ohio. Inclined grate for automatic stoking.	702,093	June 17	2270	817	90	2914
Campbell, John, Denver, Colo. Water-closet.	697,535	Apr. 15	3930	319	90	394
Campbell, John D., and W. H. Yates, Manchester, England. Apparatus for diffusing vaporizable substances.	696,092	May 12	1261	385	90	1297
Campbell, John S., London, England. Dental vulcanizer.	696,095	May 13	1018	385	90	1297
Campbell, Leon W., Woonsocket, R. I. Spinning or twisting frame.	695,491	May 6	688	150	90	1218
Campbell, Lammiman N., Alden, Mich. Kneading device.	697,594	Apr. 15	3922	327	90	325
Campbell, Livestry, (See Hughes and Campbell.)						
Campbell, Malcolm, Boston, Mass. Friction-clutch.	696,447	May 6	607	130	90	1990
Campbell, Printing Press & Manufacturing Company. (See Wood, Henry A. W., assigner.)						
Campbell, William W., Peoria, Ill. Drill-rod grab.	700,390	June 10	1750	400	90	2994
Campbell, Harry C., et al. (See Harrison, Arthur D., assigner.)						
Camp, Ferdinand M., New York, N. Y. Wheel.	701,390	June 3	34	8	90	5113
Cane, Richard P., Louisville, Ky. Book.	697,970	Apr. 20	3964	628	90	379
Cane, Jean B. G. A. (See Schneider and Cane.)						
Cannan, Durrell, Pittsburg, Tex. Wind-wheel.	696,904	Apr. 20	3736	395	90	394
Cannan, Edward A., Greenbay, Wis. Toy block.	696,904	May 13	1290	317	90	1445
Cannan, Edward F., and C. F. Wesley, West Mansfield, Ohio. Sawdust-burning stove.	697,444	Apr. 15	1993	441	90	499
Canton Machine and Manufacturing Company. (See Hunter, Martin L., assigner.)						
Cantrell, William R., assigner to F. A. Anderson, Chicago, Ill. Metal gate.	700,737	May 27	3198	730	90	1991
Caper, Thomas, Philadelphia, Pa. Mechanism for producing pattern-cards.	696,490	Apr. 20	3933	551	90	394
Capers, Norman E. (See Nelson, Charles O., assigner.)						
Cape, John R., Kansas City, Mo. Multi-color-printing press.	696,990	Apr. 8	1099	327	90	247
Cape, John R., Kansas City, Mo. Motor-vehicle.	696,994	May 6	295	67	90	1282
Cape, John R., Kansas City, Mo. Variable-speed mechanism.	700,350	June 8	26	6	90	5113
Caraway, Emmett L., Piquette, Ark. Seed-planter.	700,421	June 17	2044	490	90	2939
Carbon Light and Power Company. (See Thayer, Russell, assigner.)						
Carbone, Tito L., Berlin, Germany. Machine for the production of folded joints of sheet metal.	702,046	June 19	1273	313	90	2937
Cardella, Alexander S., Elmwood, Ill., assigner of one-half to W. F. Lessor, Kalamazoo, Mich. Pump.	696,495	May 6	609	130	90	1991
Carley, Thomas, Chicago, Ill. Electric chair.	701,390	June 3	499	109	90	2939
Carry, John F., Madison, assigner to E. C. Ashins & Company, Indianapolis, Ind. Counter.	700,394	June 24	2775	699	90	2937
Carry, Wilson W., Lowell, Mass. Planing-machine.	702,341	June 10	1999	494	90	2913
Carleton Electric Company. (See Carleton, Henry G., assigner.)						
Carleton, Henry G., New York, N. Y. Lock.	696,319	Apr. 20	4903	1015	90	1944
Carleton, Henry G., New York, N. Y. Lock.	696,319	Apr. 20	4903	1016	90	1945
Carleton, Henry G., New York, N. Y. Electric alarm and fastening device.	696,311	Apr. 20	4901	1015	90	1944
Carleton, Henry G., assigner to Carleton Electric Company, New York, N. Y. Lock.	696,311	Apr. 20	4903	990	90	981
Carli, Adeline M., Minneapolis, Minn. Hanger for pipes, &c.	700,704	June 17	2991	896	90	2970
Carlin, William B., New York, N. Y. Machine for making pipe.	700,016	May 13	1710	326	90	1540
Carlin, Carl G., and F. W. Davis, Jr., Boston, for assigner to carrier-chains.	700,016	May 13	1708	326	90	1539
Carlin, Andrew E., Chicago, Ill. Cutting point or strainer.	700,016	May 27	2717	399	90	1991
Carlin, Charles G., Chicago, Ill. Curtain-crocker.	700,017	May 13	1710	326	90	1540
Carlin, Charles M., Odessa, Iowa. Corn-cultivator.						
Carlin, Lyman. (See Tanssen and Carlin.)						
Carlin, Harvey M. (See Albart, Clarence R., assigner.)						
Carlton Manufacturing Company. (See Roegner, George, assigner.)						
Carman, Ringold W., and F. M. Lawrence, Fishing, N. Y. Formaldehyde-gas generator.	700,015	May 13	1698	394	90	1539
Carman, Edwin E., Washington, D. C. Railway-switch.	700,015	May 20	2917	972	90	4907
Carney, Thomas, Dayton, Ohio, assigner by name assignment to National Cash Register Company, Jersey City, N. J. Cash-register.	699,100	Apr. 20	5119	1120	90	1990
Carney, Thomas, Dayton, Ohio, assigner by name assignment to National Cash Register Company, Jersey City, N. J. Cash-register.				719		
Carney, Thomas, Dayton, Ohio, assigner by name assignment to National Cash Register Company, Jersey City, N. J. Cash-register.	700,390	May 27	3935	399	90	2940
Carney, Thomas, Dayton, Ohio, assigner by name assignment to National Cash Register Company, Jersey City, N. J. Cash-register.				591		
Carney, Thomas, Dayton, Ohio, assigner by name assignment to National Cash Register Company, Jersey City, N. J. Cash-register.	700,390	June 3	719	120	90	2939

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Chandler, Joseph H. (See Finney, James J., assignor.)	697,448	Apr. 15	2008	448	90	461
Chandler, William C. Niagara, N. Y. Sprayer	702,180	June 24	2015	200	90	2000
Charles, William G. Brooklyn, N. Y., assignor to Thompson & Morris Company. Machine for feeding and cutting sheep	702,184	June 24	2017	200	90	2000
Charles, William G. Brooklyn, N. Y., assignor to Thompson & Morris Company. Cotton-machine	702,185	June 24	2017	200	90	2000
Chaplin, Allen, Walton Township, Sumner county, Kans. Seed-drill	702,498	June 17	2021	440	90	2000
Chapman, Edward F. (See Wilkinson, Chapman, and Thornton.)	699,744	May 15	1180	275	90	1000
Chapman, George M., G. L. Knight, and J. M. Weir, Cleveland, Ohio. Trolley-wheel	699,745	Apr. 20	2005	770	90	700
Chapman, Guy D., and C. B. Quinn, Akron, Ohio. Illuminated sign	702,498	June 17	2021	441	90	2000
Chapman, Samuel D., Kansas City, Mo. Valve, hand-lug, or cut-off	702,499	June 17	2021	441	90	2000
Chapman, Whitthrop M., Newton, and W. Peckell, Lynn, Mass. Railway block-signaling system	700,998	May 20	2000	580	90	1007
Chappell, Deke A., assignor to Victor Box Car Loader Company, Denver, Colo. Box-car loader	702,495	June 17	2021	550	90	2000
Chappell, Francis M., Newman, Ga. Rolling-press	702,496	June 17	2021	551	90	2001
Chaquetto, Ephraim, New Rochelle, N. Y. Land-reclaiming dock	702,497	June 17	2021	552	90	2001
Chaquetto, Ephraim, New Rochelle, N. Y. Chain-dredge	702,498	June 17	2021	553	90	2001
Chaquetto, Ephraim, New Rochelle, N. Y. Chain for dredges	702,499	June 17	2021	554	90	2002
Chaquetto, Ephraim, New Rochelle, N. Y. Floating dredge	702,500	June 17	2021	555	90	2003
Charbonnet, Hilaire de, Paris, France. Motor	702,494	June 17	2021	556	90	2000
Charles, Antoine, Liège, Belgium. Lathe	702,185	June 10	1007	200	90	2000
Charles, Frank C., Cedar Rapids, Iowa. Balanced slide-valve	699,745	Apr. 1	510	120	90	124
Charles, Patrick J., Belfast, Ireland. Portable riveting, etc., apparatus	700,491	May 20	2007	610	90	1700
Charton, Richard R., Milwaukee, Wis., assignor to Continuous Rail Joint Company of America. Roll	699,147	May 6	90	10, 11	90	1104
Charton, Richard R., Milwaukee, Wis., assignor to Continuous Rail Joint Company of America. Means for forming slab-plats	699,148	May 6	90	11, 12	90	1104
Cherry, George, Monticello, assignor to Oleum Purge Co. Chisel, Commodity at Nevers-Maison, Paris, France. Manufacture of armor-plate	699,941	Apr. 8	1077	90	90	340
Chertland, Edmund, Chicago, Ill. Portable scaffold	697,447	Apr. 15	2005	440	90	401
Chess, Andrew S., Boston, Mass. Apparatus for distilling water	697,915	Apr. 15	2000	690	90	605
Chess, Charles A., Chicago, Ill. Socket for incandescent lamps	701,280	June 3	174	100	90	2000
Chess, Ernest C., and I. B. Bishop, San Francisco, Cal. Dough-manipulating and loaf-forming machine	698,214	Apr. 20	4006	1014	90	1005
Chee, Jonathan. (See Irving, David H., assignor.)						
Chenango Medicine Company. (See Jeff, William E., assignor.)						
Chemant, Jean P. A. E. H. (See Barry, Leon J., assignor.)						
Chervet, Louis F., Paris, France. Fastening device for garment-supporters	697,900	Apr. 15	2007	850	90	806
Chodell, Jesse L., Providence, and E. V. Scott, Arlington, R. I. Sand-box	702,113	June 24	2070	770	90	2005
Chemical and Electrical Ore Reducing Company. (See Barr and Spang, assignors.)						
Chemische Fabrik auf Actien (G. m. b. H.), Berlin. (See Kerschberg, Wilhelm, assignor.)						
Chemische Fabrik Brugg A. G., vormals Dr. Scherrenmann & Co. (See Pfander, Anton, assignor.)						
Cheney, Walter L., G. R. Davison, Newark, and E. W. Skinner, Arlington, N. J., assignors to Westinghouse Electric and Manufacturing Company. Inclosed-arc lamp	702,405	June 17	2024	600	90	2000
Checker, Harry, Philadelphia, Pa. Combined latch and lock	698,411	Apr. 1	90	0	90	12
Chemist, Robert, Burning Springs, Ky. Gun-sight	698,945	Apr. 8	1078	900	90	940
Chertman, William, Sheffield, England. Tape-measure	701,281	June 3	735	100	90	2000
Chertman, William, assignor of two-thirds to A. and B. Huston, Watson, Pa. Steam-generating system	699,102	Apr. 20	5110	1181	90	1101
Chicago Pneumatic Tool Company. (See Boyer, Joseph, assignor.)						
Chicago Railway Equipment Company. (See Cornwall, Frederick R., assignor.)						
Chicago Railway Equipment Company. (See Hunton, George F., assignor.)						
Chicago Railway Equipment Company. (See Wilson, Charles H., Jr., assignor.)						
Children, Edwin, deceased; F. R. Children, Council Bluffs, Iowa, administrator. Cukil-vior	701,240	June 3	600	104	90	2000
Children, Frank R., administrator. (See Children, Edwin.)	699,440	May 6	510	120	90	1001
Chipman, Emma E., Watbury, Conn. Hook and eye	699,070	Apr. 20	5075	1120	90	1145
Chisholm, Boyd & White Company. (See Avery, Colby M., assignor.)						
Chisholm, James R., et al. (See Robert, James F., assignor.)						
Choquette, Joseph H., Fall River, Mass. Adjustable dress-chart	700,720	May 27	3185	730	90	1000
Chrétien, Isaac, Manchester, England. Reelstead	699,495	May 15	1200	817	90	1070
Christford, James W., Cleveland, Ohio. Rolling-block	701,150	May 27	2025	910	90	2045
Chris, Edward M., and W. H. Holcomb, Pine Grove, Pa. Fire-scoop	702,293	June 24	2018	981	90	2004
Christensen, Carl, Culberson, Ill. Adjustable cultivator-arch	699,077	Apr. 20	5077	1193	90	1165
Christensen, Carl, Culberson, Ill. Variable-speed sheave	702,680	June 17	2020	894	90	2000
Christensen, Frederick K., Sandy, Utah. Vehicle-tire	702,592	June 17	2020	930	90	2015
Christensen, Sargent, San Francisco, Cal. Device for correcting compass errors	699,490	May 6	510	140	90	1000
Christensen, Sargent, San Francisco, Cal. Hydraulic steering mechanism	699,491	May 6	510	141	90	1000
Christensen, Nick A., Milwaukee, Wis. Engineer's valve	701,248	June 10	605	200	90	2000
Christensen, Nick A., Milwaukee, Wis. Automatic controller for electric motors	701,248	June 10	605	200	90	2004
Christiansen, Nils, assignor of one-half to J. W. A. Lundberg, Lynn, Mass. Speed-changer	699,108	Apr. 20	5097	700	90	700
Christian, Hans. (See Michaelson, Hans and Christian.)						
Christiansen, Louis R. (See Lindstrom and Christiansen.)						
Christman, Charles R., assignor to Christman Motor Carriage Co., San Jose, Cal. Muffler	701,151	May 27	2020	911	90	2045
Christman Motor Carriage Co. (See Christman, Charles R., assignor.)						
Christopher, Henry, Brooklyn, N. Y. Horse-shoe-pad	698,904	Apr. 20	5070	1000	90	2000
Christ, Robert R., Eld, Okla. Terr. Folding crate	699,078	Apr. 20	5070	1120	90	1145
Chubb, James A., assignor of two-thirds to D. C. Ross and E. D. Brenner, Detroit, Mich. Car-coupling	702,195	June 24	2020	900	90	2000
Chuk, Meit & Co. (See Chuk and Bachofen, assignors.)						
Chuk, Philippe, and F. Bachofen, assignors to Chuk, Meit & Co., Geneva, Switzerland. Making alpha-tones	702,195	June 24	2020	900	90	2000

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Cleat, Joseph F., Dayton, Ohio, assignor, by means assignments, to National Cash Register Company, Jersey City, N. J. Cash-register	700,171	May 20	268	{ 479 473 }	90	1282
Clement, William, Traverso City, Miss. Fruit-box	702,770	June 17	2783	682	90	2703
Clencona, De Launi T., assignor of one-half to G. Condorman, Harrisville, N. Y. Sand- ing and polishing machine	699,990	May 6	449	{ 104 105 }	90	1280
Clewley, Joseph B., Lynn, Mass. Pump	697,199	Apr. 6	1394	243	90	243
Cliff, Edward. (See Tucker, Benjamin V., assignor.)						
Cliff, Edward, Newark, N. J., assignor to Cliff and Garbert Company, New York, N. Y.	699,990	May 13	1010	267	90	1282
Clifford, Edward, Newark, N. J., assignor to Vase and Cliff Manufacturing Company, New York, N. Y. Car-truck	702,173	May 20	2685	473	90	1282
Clifford, Dennis P., Chicago, Ill. Attachment for rocking-chairs	702,990	June 17	2685	555	90	2685
Clifford, George Q., et al. (See Slater, Frank W., assignor.)	702,173	May 20	2687	499	90	1282
Clifton, Eugene H., Lansdale, Pa. Lawn-mower						
Clifton, Walter. (See Anghey and Clifton.)						
Climax Kila Company. (See Dachs, William, assignor.) (Reissue.)						
Cline, Albert F. (See Topf, Willie W., assignor.)						
Clinch, Elmer E., assignor to Ocala Foundry and Machine Works, Ocala, Fla. Tooth and base for phosphate logs	692,974	Apr. 20	2708	619	90	2708
Clopton, John R., Bastrop, Tex. Acetylene-gas generator	696,990	Apr. 1	300	261	90	1282
Clois, Charles, Webster City, Iowa. Grain-cleaning screen	696,990	Apr. 20	2614	770	90	770
Clonga, William F., Everett, assignor of two-thirds to G. Gosper, Cambridge, Mass.	702,990	June 10	1900	494	90	2614
Coolman, Boston, Mass. Valve-controlling mechanism for radiators	699,990	May 6	300	57, 60	90	1282
Clover, Benton L., and A. Grabowski, Chicago, Ill. Ore-concentrator	702,990	June 17	2686	570	90	2686
Closson, Richard, assignor to Liverpool Milk Company, Limited, Liverpool, England. Scraper for rollers	702,990	June 17	2686	570	90	2686
Camp, David, and W. Hoffmaster & Louis Inc. Sewage-disposer	702,990	June 17	2686	570	90	2686
Clymer, William R. (See Fishel and Clymer.)						
Custer, Thomas, Youngstown, Ohio. Distress-signal	701,190	May 27	2686	{ 611 612 }	90	2686
Coath, David D., Raanong, India. Railway or tramway vehicle	701,490	June 3	242	75	90	217
Cobough, Ephraim B., Middletown, Pa. Knife	700,617	May 30	2610	679	90	2610
Cobb, David C., Elizabethtown, Pa. Folding lawn-swing	697,193	Apr. 8	1414	{ 215 216 }	90	215
Cochran, William J., San Francisco, Cal. Wood-turning machine	697,207	Apr. 15	2670	630	90	2670
Cochran, William E., Jr., Delphos, Ohio, assignor of two-thirds to J. B. Bowers, Decatur, Ind. Sorens	696,616	Apr. 20	4618	1017	90	1017
Cochrane, Beakbird H. B., Canal Winchester, Ohio. Artificial denture	697,990	Apr. 20	2673	687	90	2673
Cochrill, Thomas C. (See Tanachok and Cochrill.)						
Cockburn, Francis B., Plainfield, assignor to Miles-Bonnet-Pond Company, Jersey City, N. J. Variable-speed gear	701,540	June 3	690	130	90	2610
Cockrell, Benito C., Washington, D. C. Stopper for vessels	690,697	May 13	1080	897	90	1080
Cody, Frederick A. and B. D., Chicago, Ill. Hydrocarbon-lighting system	702,400	June 17	2686	490	90	2686
Cody, Martin, New York, N. Y. Pump	702,990	June 10	1700	609	90	2686
Cody, Robert D. (See Cody, Frederick A. and B. D.)						
Coe, Charles T., New York, N. Y. Grate	700,610	May 20	2680	{ 673 674 }	90	2680
Coffman, George W., Garden City, Kans. Type-writing machine	702,700	June 17	2686	595	90	2686
Coggin, Daniel L., Waverly, Neb. Flour-boiling stove	699,745	May 13	1102	270	90	1414
Cogswell, Henry J., assignor to Hartford Accumulator Company, Hartford, Conn. Stor- age battery	699,990	May 13	1090	280	90	1282
Cohen, George W., assignor of nine-tenths to J. E. O'Whelan, C. L. Stevens, R. B. Buttton, A. H. McKee, G. F. Nantz, J. Wolf, Albany, W. O. Mahoney and G. O. Mor- gan, Pittsburg, Pa. Railway safety-block system	697,994	Apr. 15	2670	{ 694 695 }	90	694
Cohen, Harry E. (See Foster and Cohen.)						
Cohen, Isaac, Philadelphia, Pa. Machine for folding and rolling cloth	699,990	Apr. 20	2669	644	90	2669
Cohen, Jacob. (See Post, William I., assignor.)						
Cohen, Jacob, New York, N. Y. Watch-protector	702,777	June 17	2704	680	90	2704
Cohen, Joseph, Brooklyn, assignor to City Button Works, New York, N. Y. Garment- clasp	699,990	Apr. 1	451	97	90	2686
Cohen, Louis, and J. Gross, Schenectady, Mexico. Ore-concentrator	702,541	June 17	2686	510	90	2686
Colborne, Oliver, Chicago, Ill. Car-truck	697,970	Apr. 8	1216	391	90	2686
Colburn, Abbott B. (See Hanson, Nathan C., assignor.)						
Colburn, Henry J., Toledo, Ohio. Glass-blowing machine	699,977	Apr. 20	4612	{ 1017 1018 }	90	1017
Colburn, Leslie H., assignor to Toledo Glass Co., Toledo, Ohio. Glass-blowing machine	699,990	Apr. 20	4616	{ 1018 1019 }	90	1018
Cole, Arthur, Hood River, Ore. Washie-frame	70					
Cole, Everson P. (See Henderson, William G., assignor.)	701,194	May 27	2684	923	90	2684
Cole, James H., Chicago, Ill. Padlock	699,990	May 6	490	102	90	1282
Cole, William F., Waco, Tex. Fire-arm	701,730	June 3	260	235	90	260
Cole, William F., assignor to Franger Elevator Company, Worcester, Mass. Hydraulic- valve mechanism	700,740	May 27	2120	{ 737 738 }	90	2120
Colman, Almon, et al. (See Cohen, William F., assignor.)						
Colman, David N., et al. (See Bowen, David A., assignor.)						
Colman, Thomas, Jr., Charleburg, W. Va. Mechanism for feeding glass to molds	700,694	June 17	2687	685	90	2687
Colman, Thomas, Jr., and C. Bunyon, Charleburg, W. Va. Apparatus for feeding glass	700,695	June 17	2688	685	90	2688
Colman, Walter R., New Durp, N. Y. Fan	697,140	Apr. 15	2035	{ 440 442 }	90	2035
Colman, William H. (See Mottley, Patrick R., assignor.)						
Cole, Joseph, Glenwood Springs, Colo. Distillation	699,970	Apr. 20	4670	1120	90	4670
Cole, George, et al. (See Cole, George, et al.)	699,990	May 6	610	141	90	610
Collett, Samuel D., New York, N. Y., assignor to Elevator Supply & Repair Company. Elevator signal device	700,610	May 20	2680	609	90	2680
Colley, William F., Dublin, Co. Rooster	699,160	Apr. 20	5110	1120	90	5110
Collier, Arthur T., St. Albans, assignor of one-half to E. O. Goss and A. R. Williams, London, England. Air-tube for pneumatic tires	702,990	June 17	2686	671	90	2686
Collins, Louis, assignor of two-thirds to A. E. Parker, Cripple Creek, Colo., and J. M. Thrale, Wellington, Kans. Ore bucket, dumper, and chute	700,741	May 27	2064	780	90	2064
Collinsbourne, Albert E., et al. (See Doria, Norton, assignor.)						
Collins, Caleb G., et al., assignor to G. A. Brown, New York, N. Y. Rendering machine with rollers	700,047	June 10	1870	603	90	1870
Collins, Frank W., Rockville, Md. Shipping package	701,540	June 10	1904	494	90	1904
Collins, Ernest B., Denver, Colo. Stopper device for stationary washbasins	699,970	Apr. 20	4670	1120	90	4670

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Collins, Ira W., Kirkville, Mo. Wearing-apparel.	697,999	Apr. 15	999	999	99	999
Collins, James H., Nashville, Tenn. Fruit-drier tray.	697,997	Apr. 8	1994	1994	99	997
Collins, John E., Hartford, Conn. Safety attachment for trunks or boxes.	698,000	May 18	1976	1976	99	1999
Collins, Patrick J., assignor of one-half to C. G. Boland, Scranton, Pa. Motor-generator.	702,497	June 17	997	997	99	999
Collins, Timothy J., Toledo, Ohio. Hydraulic barber-chair.	697,498	Apr. 15	999	999	99	991
Colwell, Bernard, Chicago, Ill. Lifting-truck.	701,774	June 17	978	978	99	979
Columbia Brake & Supply Company. (See Price, William G., assignor.)	699,999	May 19	1999	1999	99	1999
Colvin, Michael R., Worcester, Mass. Gas stop-cock.	699,998	May 8	991	991	99	1994
Combs Shirt Coat Company. (See Burt, James H., assignor.)	701,999	June 15	979	979	99	999
Common, Andrew A., Baling, England. Telescope.	701,998	June 15	979	979	99	999
Compagnie Continentale d'Industries et de Chauffage (Système Frank et Pottré).	701,997	June 15	979	979	99	999
Compagnie pour la Fabrication des Compresseurs et Matériel d'Usines à Gaz, Société Anonyme. (See Brown and Blanchot, assignors.)	701,996	June 15	979	979	99	999
Company of Allen and Hanbury. (See Buckley, James F., assignor.)	701,995	June 15	979	979	99	999
Compton, Melvin D., East Orange, N. J., assignor to F. Fuller, trustee, New York, N. Y. Acetylene-gas generator.	699,999	Apr. 29	999	999	99	991
Computing Scale Company. (See Mauldin, James L., assignor.)	701,994	June 15	979	979	99	999
Computing Scale Company. (See Oates, Orange O., assignor.)	701,993	June 15	979	979	99	999
Computing Scale Company of America. (See Hayden, Annie B., assignor.)	701,992	June 15	979	979	99	999
Condemner, George. (See Oates, Orange O., assignor.)	701,991	June 15	979	979	99	999
Conditio, Jacobine B. (See Davis, Charles M., assignor.)	697,994	Apr. 29	999	997	99	999
Conklin, Oliver F., and J. L. Wilson, Dayton, Ohio. Electric motor.	697,993	Apr. 29	999	997	99	999
Conley, John R. (See Conley, Thomas and J. R.)	697,992	Apr. 29	999	997	99	999
Conley, Michael R., New York, N. Y., assignor to Electric Furnace Company. Electric furnace.	701,994	June 8	997	997	99	994
Conley, Thomas and J. R., Pittsburgh, Pa. Guide for punching-press.	701,993	June 8	997	997	99	994
Connecticut Trust and Safe Deposit Company et al. (See Parkhurst, Edward G., assignor.)	701,992	June 8	997	997	99	994
Connolly, James A., assignor of one-half to G. F. Mack, Hamilton, Ohio. Guard-bearing for couch-rolls.	701,991	May 12	1947	1947	99	1995
Connolly, William, Toledo, Ohio. Rod-coupling.	701,990	Apr. 30	999	999	99	1997
Conner, George F., Port Huron, Mich. Band-cutter for threshing-machines.	701,989	June 19	1999	1999	99	1999
Conner, Harrison W., Boston, Mass. Combined range and water-heater.	701,988	June 19	1999	1999	99	1999
Conner, David, et al. (See Johnson, Lafayette W., assignor.)	701,987	June 19	1999	1999	99	1999
Conner, William F., New York, N. Y. Tag or check.	699,970	May 6	999	999	99	1999
Conrad, George W., assignor to Troy Bending Company, Troy, Ohio. Vehicle-pole.	701,970	May 6	999	999	99	1979
Conrad, William B., Nyack, and J. E. Cameron, Brooklyn, N. Y. Machine for stitching fabric.	697,993	Apr. 29	999	999	99	999
Conrad, Rudolph, Erie, Pa. Governor.	697,992	Apr. 29	999	999	99	999
Conrad, Solomon, Cookport, Pa. Street-sweeper.	701,990	May 27	997	997	99	1999
Conroy, Jacob A., et al. (See Forster, Frank L., assignor.)	701,989	May 27	997	997	99	1999
Conroy, Mary, et al. (See Forster, Frank L., assignor.)	701,988	May 27	997	997	99	1999
Consolidated Car-Hauling Company. (See McElroy, James F., assignor.)	701,987	May 27	997	997	99	1999
Consolidated Passenger Company. (See Long, Thomas, assignor.)	701,986	May 27	997	997	99	1999
Consolidated Railway Electric Lighting and Equipment Company. (See Kennedy, Patrick, assignor.)	701,985	May 27	997	997	99	1999
Consolidated Safety Pin Company. (See Bryant, Charles A., assignor.)	701,984	May 27	997	997	99	1999
Continuous Rail Joint Company of America. (See Charlton, Richard B., assignor.)	701,983	May 27	997	997	99	1999
Converse, Atherton D., Winchendon, Mass. Stop-motion for mechanical toys.	701,982	June 19	1999	1999	99	1999
Converse, Vernon G., Pittsburgh, Pa. Insulator.	701,981	June 19	1999	1999	99	1999
Converse, Vernon G., Pittsburgh, Pa. Insulator.	697,981	Apr. 15	999	999	99	997
Conway, John P., New York, N. Y. Garment-supporting appliance.	701,114	June 24	999	999	99	999
Conwell, James E., assignor to Wilke Manufacturing Company, Anderson, Ind. Oil-storage case.	699,984	Apr. 29	999	999	99	991
Cooper, Silas J., Chicago, Ill. Acropiline.	701,997	June 2	999	999	99	991
Cook, Adolphus H. and G. E. Alms, and W. H. Hood, Hagerman, Canada. Stationary frame.	701,996	June 2	999	999	99	991
Cook, Anna E. and F. J. Lawrenceburg, Ind. Revolving chimney-cap.	701,995	June 2	999	999	99	991
Cook, Charles F. H., Piquette, Conn. Adjustable window-curtain support.	701,994	June 2	999	999	99	991
Cook, Chester R. (See Cook and Hood.)	701,993	June 2	999	999	99	991
Cook & Co., S. A. (See Maca, Frank, assignor.)	701,992	June 2	999	999	99	991
Cook, Edgar H., Brooklyn, N. Y. Weighing-machine.	699,999	May 29	999	999	99	1999
Cook, Frank B., Chicago, Ill. Polarized electromagnetic apparatus.	699,998	May 19	1999	1999	99	1999
Cook, Frank D., Turin, Cal. Cultivator attachment.	699,997	May 6	997	997	99	1999
Cook, Frederick J. (See Cook, Anna E. and F. J.)	699,996	May 6	997	997	99	1999
Cook, Howard, assignor of two-thirds to R. F. Smith and W. W. Tucker, Vicksburg, Mich. Roller-feed-regulating valve and device for operating same.	699,995	May 6	997	997	99	1999
Cook, John, and A. H. Hagwall, Chicago, Ill. Combined ladder and base-mounting-controlling apparatus.	701,115	June 24	999	999	99	999
Cook, John H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Conveyor.	701,114	June 24	999	999	99	999
Cook, Samuel J., assignor to H. B. Newhall, Plainfield, N. J. Conveyor.	701,113	June 24	999	999	99	999
Cook, Samuel J., et al. (See Howard-Sherman, Charles H., assignor.)	701,112	June 24	999	999	99	999
Cook, Frank J., Columbia Falls, Mont. Combined rule and square.	701,111	June 24	999	999	99	999
Cook, Charles A., assignor to Cox Brothers, Troy, N. Y., and R. L. McDonald & Co., St. Joseph, Mo. Tab for connecting connection to garments.	701,110	June 24	999	999	99	999
Cox, Isaac A., Ellettsville, N. Y. Filter.	701,109	June 24	999	999	99	999
Cox, Arthur W., Chicago, Ill. Metal window.	701,108	June 24	999	999	99	999
Cox, J. E., et al. (See Turner and Mitchell, assignors.)	701,107	June 24	999	999	99	999
Cox, Henry, assignor of one-half to G. W. Ballard, Selma, Ala. Mechanism for operating winding machine.	699,944	Apr. 9	1999	1999	99	949
Cox, Vincent J. (See Dugan and Cooper.)	699,943	Apr. 9	1999	1999	99	949
Cox, William, assignor to Cox Brothers, Troy, N. Y., and R. L. McDonald & Co., St. Joseph, Mo. Tab for connecting connection to garments.	701,106	June 24	999	999	99	999
Cox, William, assignor to Cox Brothers, Troy, N. Y., and R. L. McDonald & Co., St. Joseph, Mo. Tab for connecting connection to garments.	701,105	June 24	999	999	99	999
Cox, Joseph H., Windsor, Colo. Hay-stacker.	699,942	Apr. 9	1999	1999	99	949
Cox, Troy, New Hartford, Ohio. Switch-operating device.	699,941	Apr. 9	1999	1999	99	949

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			Spec.	Pg's	Vol.	Pg.
Copeland, Charles C. (See Bette, Frank J., assignor.)	697,999	Apr. 8	1994	943	99	945
Copeland, James B., Hartford, Conn., assignor to American Mayole Company, Jersey City, N. J., and New York, N. Y. Transmitting-gear	697,998	May 20	2040	974	99	1994
Copeland, Robert J., Toronto, Canada. Cabinet-dock	697,997	Apr. 15	2091	999	99	999
Corbett, William H., Portland, Oreg. Clutch	697,996	Apr. 15	2010	444	99	699
Corbin, Albert F., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Mail-box	697,995	Apr. 15	2010	444	99	699
Corbin Cabinet Lock Company. (See Corbin, Albert F., assignor.)	697,994	Apr. 15	2010	444	99	699
Corbin, Wilbur R. (See Corbin and Corbin.)	697,993	Apr. 15	2010	444	99	699
Corby, Charles I. (See Corby, William S. and C. I.)	701,118	June 24	2000	777	99	2007
Corby, William S. and C. I., Washington, D. C. Machine for working and shaping dough	701,118	June 24	2000	777	99	2007
Cordan, William. (See Holden, Sylvanus L., assignor.)	701,117	June 24	2000	777	99	2007
Corry, William F., et al. (See Foulton, Peter, assignor.)	701,116	June 24	2000	777	99	2007
Cory, William H. (See Dancy and Cory.)	701,115	June 24	2000	777	99	2007
Cornell, Evan W., assignor of one-half to E. M. Dole, Adrian, Mich. Lighting attachment for gas-burners	701,114	June 24	2000	777	99	2007
Cornell, Samuel B. (See Burge and Cornell.)	701,113	June 24	2000	777	99	2007
Cornely, Robert, Paris, France. Machine for fixing spangled material to textile fabric	701,112	May 20	2000	777	99	1999
Corning, Thomas J., Sterling, Ill. Baling-press	699,991	May 12	1994	985	99	1999
Cornwall, Bruce. (See Rice, Alphonse R., assignor.)	699,990	May 12	1994	985	99	1999
Cornwall, Frederick R., St. Louis, Mo., assignor to Chicago Railway Equipment Company, Chicago, Ill. Slide bearing for railway-cars	699,989	Apr. 22	2260	735	99	790
Cornwall, Frederick R., et al., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Malleable-iron	699,988	Apr. 22	2260	735	99	790
Corrington, Murray. (See Dugan and Corrington.)	699,987	Apr. 22	2260	735	99	790
Corrington, Murray, New York, N. Y. Automatic fluid-pressure brake apparatus	699,986	Apr. 22	2260	735	99	790
Corry, Michael. (See Barber and Corry.)	699,985	Apr. 22	2260	735	99	790
Cortelyou, William C., Oshkosh, Ill. Combined shirt-cloak and waist-retainer	699,984	Apr. 22	2260	735	99	790
Cortelyou, William C., Oshkosh, Ill. Combined shirt-cloak and waist-retainer	699,983	Apr. 22	2260	735	99	790
Cortland Carriage Goods Company. (See Brown, Omar C., assignor.)	699,982	Apr. 22	2260	735	99	790
Cortis, Eugene D. (See Brown, Omar C., assignor.)	699,981	Apr. 22	2260	735	99	790
Cory, Colin. (See Barber and Corry.)	699,980	Apr. 22	2260	735	99	790
Cosgrove, Thomas, Kansas City, Mo. Combined rail-joint and tie-plate	701,110	June 24	2011	995	99	2009
Cosgrove, Thomas, Kansas City, Mo. Combined rail-joint and tie-plate	699,999	May 12	1999	995	99	1919
Cosser, Thomas, Orono, Scotland. Printing-machine	701,117	May 20	2073	471	99	1999
Cota, Aurelio, et al. (See Edwards, Isaac L., assignor.)	701,116	May 20	2073	471	99	1999
Cota, Louis M., et al. (See Edwards, Isaac L., assignor.)	701,115	May 20	2073	471	99	1999
Cotta, Charles, Shannon, Ill. Automobile	701,114	May 20	2073	471	99	1999
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,999	May 12	1994	991	99	1994
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Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,942	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,941	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,940	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,939	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,938	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,937	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,936	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,935	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,934	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,933	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,932	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,931	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,930	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,929	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,928	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,927	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,926	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,925	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,924	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,923	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,922	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,921	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,920	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,919	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,918	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,917	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,916	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,915	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,914	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,913	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,912	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,911	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,910	May 12	1994	991	99	1994
Cottrell, Charles F., Westbury, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Blast-delivery apparatus for printing-machines	699,909	May 12	1994			

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Crowther, Edgar F., Vicksburg, Miss. Journal-box and roller-bearing for railway-car wheels.	702,170	May 20	2079	475	00	1088
Cuddeback, Charles V. Lima, Pa. Feed.	699,091	Apr. 1	780	378	00	140
Cuddeback, Gustavus L., New York, N. Y. Hydraulic dredger, excavator, and elevator.	697,704	Apr. 15	1460	580	00	580
Cuddeback, Gustavus L., New York, N. Y. Hydraulic dredge.	702,408	May 20	2541	520	00	1720
Cuddeback, Gustavus L., and J. Dyer, New York, N. Y. Apparatus for raising liquids.	702,405	May 24	2522	740	00	2201
Cullman, J. S., et al. (See Egan, James W., assignor.)						
Culver, John W., assignor to National Computing Scale Company, Cleveland, Ohio. Spring-balance computing scale.	702,287	June 24	2046	000	00	2704
Culver, Charles, Brandon, Canada. Ore separating and classifier.	702,281	June 10	1013	280	00	1005
Cumbe, Ernest R. (See McCreavey, Kirby, and Cumbe.)						
Cumner, William H., Toledo, Ohio. Electro-magnetic switch system for electric railways.	701,995	June 2	720	100	00	2220
Cumner, William H. (See Cumner, William H., assignor.)	697,280	Apr. 8	1725	590	00	590
Cunningham, George W., and F. E. Warren, Westchester, N. L., assignors to Parker Mills. Fall River, Mass. Loom for weaving bordered fabric.	702,005	May 19	2460	000	00	2022
Cunningham, John E., St. Albans, Vt. Horsehoe-call.	699,093	May 12	1271	312	00	1670
Cunningham, John N., Washington, D. C. Belt and shirt-waist connector.	697,280	Apr. 8	1727	590	00	590
Cunningham, Nora L., et al. (See Cunningham, Walter C., assignor.)						
Cunningham, Walter C., assignor to N. L. Cunningham, St. Paul, Minn., and O. P. Higgins, Ottumwa, Iowa. Manufacturing smoking-pipes.	702,703	June 17	2600	000	00	2021
Cunningham, William J., Philadelphia, Pa. Machine for washing or sterilizing bottles.	697,301	Apr. 5	1267	844	00	240
Curley, Terence F. (See Hilker, John H., assignor.)	697,214	Apr. 15	2000	201	00	207
Curline, James L., Danville, N. Y. Machine for washing or sterilizing bottles.						
Curran, Arthur D., et al. (See Huff, Henry H., assignor.)						
Curran, Michael P., et al., trustees. (See Welts, George G., assignor.)						
Currier, Charles W., Columbus, Ohio. Gas-burner.	701,932	June 2	40	8	00	2117
Currier, Jeremiah H., assignor of one-third to C. Sale, Louisville, Ky. Combined air-iron and vapor-dryer.	700,120	May 20	2020	070	00	1007
Currier, John W. (See Bond, Albert, assignor.)						
Currier, John W., Boston, Mass. Mail-box.	699,721	Apr. 1	680	120	00	120
Curry, Andrew J., assignor of one-half to N. J. Holloway, St. Louis, Mo. Hand-truck.	699,220	Apr. 20	680	770	00	770
Curry, Hill M., California, Pa. Plumb-bob.	702,220	June 10	1707	411	00	2400
Curry, James, Rockford, Ill. Automatic hydraulic fire-extinguishing system.	699,095	May 12	1002	280	00	1400
Curtis, Charles G., New York, N. Y., assignor, by mesne assignments, to Curtis Steam Turbine Company. Electric steam turbine.	700,744	May 27	2001	721	00	1000
Curtis, Charles L. (See Lapeard, George, assignor.)						
Curtis, Edmund A., Chicago, Ill. Car-truck.	699,287	Apr. 1	680	90	00	90
Curtis Steam Turbine Company. (See Curtis, Charles G., assignor.)						
Curtis, Timothy A., Newark, N. J. Tape-measure.	699,180	May 6	40	14	00	1100
Curtis, Robert P., Columbus, Ohio. Physician's examining chair and table.	699,720	Apr. 1	680	120	00	120
Cushing, Alvin H., Springfield, Mass. Burglar-proof device for safe doors.	700,127	June 24	2000	811	00	2004
Cushing, Clarence F., North Abington, Mass., assignor to Standard Shoe Machinery Company, East Orange, N. J. Sole-rounding machine.	700,094	May 20	2000	075	00	1012
Cutler, Henry H., Chicago, Ill. Controller for electric vehicles.	697,990	Apr. 20	2000	075	00	075
Cutler, Henry H., Chicago, Ill. Controller for electric vehicles.	697,987	Apr. 20	2000	080	00	084
Cutler, Henry H. (See Hutchins and Cyr.)	702,400	June 17	2000	404	00	2000
Cyr, Joseph T. (See Hutchins and Cyr.)						
Cyr, Joseph T., assignor to Crumpton & Knowles Loom Works, Worcester, Mass. Fin-wheel and star-wheel motion.	699,910	May 12	1200	801	00	1000
D. H. Seidler Carriage Company. (See Barnack, Jonathan H., assignor.)						
D. F. Dudley & Son Company. (See Cahoon, Nelson, assignor.)						
D'Homergue, John R., Pittsburgh, Pa. Frame for doors, windows, &c.	699,901	Apr. 20	2417	720	00	720
D'Orlovsky, Julia. (See Vallich and D'Orlovsky.)						
Dalena, John, Piqua, Ohio. Draft attachment for draftstresses.	699,720	Apr. 20	2000	100	00	701
Dahl, Charles A., Lynn, assignor to Reeco Buttonhole Sewing Machine Company, Boston, Mass. Eye-hole-sewing machine.	699,271	May 6	680	100	00	100
Dahl, Olaus A., Nash, N. D. Chain.	701,204	June 2	61	9	00	2117
Dalman, Hans von, Vienna, Austria-Hungary. Detonating composition.	702,287	June 10	1200	000	00	2000
Dalman, James, Aberdeen, Scotland. Bottle-closure.	699,207	Apr. 20	2004	1000	00	1000
Dakin, S. H. (See Sykes, Charles D., assignor.)						
Dallinger, Frank W., Cambridge, Mass. Apparatus for making coffee, &c.	699,405	May 6	694	201	00	1200
Dallmeyer, Thomas H. (See Hill, Frederick H., assignor.)						
Dally, Charles A., Carnest, Pa., assignor of one-half to H. H. Whitaker, Wheeling, W. Va. Feed-burner.	701,200	June 2	604	300	00	2201
Dalmer, Richard. (See Vander and Dalmer.)						
Dalrymple, John B., Boston, Mass. Hammock-sling.	699,418	Apr. 1	40	9	00	12
Dalshimer, Simon, Baltimore, Md. Box.	699,100	Apr. 20	2014	704	00	720
Daly, J. E. (See Clark, Harry A., assignor.)						
Danabous Brule Boon Company. (See Russell, John T. W., assignor.)						
Danabrun, Maggie, Dan Mohon, Iowa. Adjustable invalid mattress.	699,908	Apr. 1	770	175	00	100
Daney, James, and W. H. Cort, assignors of one-third to H. S. Bouton, Chicago, Ill. Hammer.	702,705	May 27	2600	720	00	1000
Dando, Anna K., and F. H. Stahr, Scranton, Pa. Miner's safety-lamp.	702,407	May 20	2540	520	00	1720
Daniel, Charles, Bloomore, Kans. Combined tail and rein guard.	697,428	Apr. 15	2018	444	00	400
Daniel, Charles T., Kansas City, Mo. Letter-file, &c.	699,200	May 6	604	30	00	1207
Dankels, Fred H., and H. W. Wyman, assignors to American Steel & Wire Company, Worcester, Mass. Ball-bond.	699,170	Apr. 20	2000	700	00	704
Danley, William E. (See Wooley, Danley, and Young.)						
Danley, Willis W., Chicago, Ill., assignor to American Pneumatic Service Company, Boston, Mass. Reamer system.	702,120	June 24	2004	770	00	2000
Dannenberg, Otto F., and E. L. Morgan, Toledo, Ohio, assignors to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Engine controlling mechanism.	702,410	June 17	2600	404	00	2000
Danner, Ada L. (See Thompson and Danner.)						
Danah, Eddy-Riffel, Syndicate. (See Danamann, Julius A. N., assignor.)						
Darling, James D., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa. Making alkaline cyanide.	699,400	Apr. 20	2070	000	00	000
Darling, James D., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa. Making cyanide.	699,400	Apr. 20	2070	000	00	000

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Darling, James D., assignor to Harrison Bros. & Co., Incorporated, Philadelphia, Pa. Making alkaline cyanide	700,064	Apr. 20	3977	90	894
Darling, John, Rutherglen, Scotland. Automatic car-coupling	700,065	May 20	3941	975	90	1214
Darling, John, Gallowater, Rutherglen, assignor to Darling's Patent Automatic Coupling, Limited, Glasgow, Scotland. Automatic car-coupling	700,066	Apr. 20	3938	(1124) (1125)	90	1144
Darling, Winfield, South Oyster, N. Y. Egg-tray	700,700	June 17	3735	680	90	2710
Darling's Patent Automatic Coupling. (See Darling, John, assignor.)						
Darlington, Thomas, South Melbourne, Victoria, Australia. Means for ventilating buildings	697,315	Apr. 15	3999	(891) (892)	90	897
Darr, Abraham L., assignor to W. A. and H. E. Darr, Carroll, Iowa. Detachable fastener for window-cashes	700,060	June 10	1494	295	90	947
Darr, Harry E. et al. (See Darr, Abraham L., assignor.)						
Darr, Winfield A., et al. (See Darr, Abraham L., assignor.)						
Darrin, David H., Cranford, N. J., assignor to E. McLean, Brooklyn, N. Y. Damper-controller	697,795	Apr. 13	3935	(880) (881)	90	888
Darrin, David H., New York, and W. M. Dollar, Buffalo, N. Y., assignors to Howard Iron Works. Hoisting apparatus	699,095	Apr. 20	3979	(895) (897)	90	894
Dassori, Frederick. (See Kleinschmidt, Edward E., assignor.)						
Daubech, William J. (See Wehmeier and Daubech.)						
Daughtry, William R., Montgomery, Ala. Holder for handles of kitchen utensils	701,305	June 3	40	9	90	2117
Davenport, Frank W., Providence, R. I. Educational device	701,997	June 20	1392	994	90	2999
Davenport, Hudson A. (See Lane and Davenport.)						
Davenport, William H., Norwich, Conn. Breakdown gun	701,185	May 27	3999	913	90	2949
Davenport, William H., Norwich, Conn. Locking-key for firearms	701,186	May 27	3970	913	90	2949
Davenport, William H., assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Slotting mechanism for screw-machines	700,121	June 24	2400	730	90	2930
Davidson, George P., Port Chester, N. Y. Plane	695,414	Apr. 1	40	10	90	12
Davidson, John A., Decatur, Ill. Banana-crate	702,295	June 24	3790	971	90	2995
Davidson Rubber Company. (See Baltzer, Cyrus J., assignor.)						
Davidson, William K. L., Southwick, England. Photographic-plate holder	701,205	June 3	40	9	90	2117
Davis, James, Glasgow, Scotland. Feed-water filter and heater	700,060	May 20	3942	(975) (976)	90	1214
Davies, Charles G., Benton Harbor, Mich. Machine for molding bricks or blocks	700,746	May 27	3999	(733) (734)	90	1297
Davies, John L., Highbury, England. Electric-arc lamp	701,014	May 27	3939	(893) (894)	90	1299
Davies, Rowland, Utica, Wis. Thrashing-machine	702,345	June 10	1395	(425) (426)	90	2945
Davis, Albert D., Yonkers, assignor of one-half to F. W. Livermore, New York, N. Y. Photographic camera	702,305	June 10	1396	490	90	2999
Davis, Alexander C., Lafayette, Ind. Scarecrow	697,078	Apr. 8	1216	291	90	299
Davis, Augustine, Chicago, Ill. Acetylene-gas generator	701,222	June 10	1394	(292) (297)	90	2997
Davis, Augustus H., assignor of one-half to J. E. Barnett, Crawfordsville, Ind. Carpet-stretcher	699,105	Apr. 20	3123	1123	90	1199
Davis, Calvin E., assignor to South Bend Iron Works, South Bend, Ind. Molding apparatus	699,351	Apr. 1	395	97	90	95
Davis, Calvin E., assignor to South Bend Iron Works, South Bend, Ind. Making pattern-plates	702,299	June 24	3947	(994) (995)	90	2994
Davis, Calvin E., assignor to Oliver Chilled Plow Works, South Bend, Ind. Clamp	699,311	May 15	1999	291	90	1995
Davis, Charles E., assignor of one-third to H. D. Harrower, New York, N. Y. Geographical timepiece	701,295	June 10	1399	297	90	2997
Davis, Charles M., Cambridgeport, assignor of one-half to J. E. Condinho, East Cambridge, Mass. Marine railway	699,792	Apr. 1	894	140	90	129
Davis, Cleland, U. S. Navy. Golf-ball	697,516	Apr. 15	3957	992	90	995
Davis, Cleland, U. S. Navy. Golf-ball	702,299	June 24	3992	992	90	2995
Davis, Eugene M., Dunkirk, N. Y. Bicycle-gear	697,078	Apr. 8	1219	291	90	299
Davis, Ewing O., New Geneva, Pa. Rail-joint	701,160	May 27	3973	913	90	2947
Davis, Frank R., Audubon, Iowa. Hog-trough	697,399	Apr. 8	1894	297	90	299
Davis, Fred D. (See Lancaster, Charles F., assignor.)						
Davis, George, Lyons, N. Y. Device for warming bridle-bits	701,191	May 27	3973	914	90	2947
Davis, Isaac, New York, N. Y. Garment	700,747	May 27	3913	734	90	1299
Davis, Isaac, New York, N. Y. Garment	700,908	May 27	3901	902	90	1949
Davis, John H., Chicago, Ill. Drying-rack	701,545	June 3	470	105	90	2904
Davis, John T., San Francisco, Cal. Well-boring apparatus	701,547	June 3	474	107	90	2905
Davis, Leonard D., Erie, Pa. Piercing and shaping metallic ingots	697,395	Apr. 20	3999	999	90	994
Davis, Noah, New York, N. Y., assignor to Standard Center and Wheel Company. Center	699,799	May 15	1999	294	90	1999
Davis, William, County of Middlesex, England. Chimney and ventilator	694,724	Apr. 1	699	140	90	129
Davis, William C. (See Hanchett and Davis.)						
Davis, William C., Denver, Colo. Apparatus for roasting and cooling ores	700,125	May 15	1391	(449) (450) (451)	90	1299
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	697,999	Apr. 20	3995	990	90	995
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Clearing-out signaling apparatus	697,999	Apr. 20	3995	990	90	995
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Multiple-switchboard telephone-exchange system	697,991	Apr. 20	3991	990	90	997
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	697,999	Apr. 20	3995	990	90	997
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	697,998	Apr. 20	3995	991	90	995
Davis, George B. (See Cheney, Davison, and Skinner.)						
Davison, James W., Caryville, Mass. Device for adjusting belts to pulleys	697,454	Apr. 15	3914	445	90	999
Davison, Tom C., assignor of sixty-two and one-half per cent. to E. A. Smith, Omaha, Neb. Railway-ticket	702,295	June 27	3979	(997) (998)	90	2994
Dawson, Clarence L., assignor of one-half to W. H. Graham, Jacksonville, and F. M. Cuddy, Clinton, Ill. Universal printing-machine	699,496	May 4	999	199	90	1299
Dawson, Edward P., assignor of one-third to H. W. Pierce, Butte, Mont. Friction-gear	701,199	May 27	3974	914	90	2947
Dawson, Henry A. (See Dawson, Henry T. and H. A.)						
Dawson, Henry T. and H. A., Canterbury, England. Electrical ignition apparatus	701,297	June 3	44	20	90	2115
Dawson, John W., Bradford, England. Apparatus for judging the color and density of photographic negatives or like bodies	699,999	Apr. 1	870	294	90	129

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Day, Charles B., East Orange, N. J. Flushing apparatus.....	701,242	June 3	475	107	99	2200
Day, Charles H., et al. (See Marks, Joseph P., assignor.)						
Day, Charles M., assignor to Draper Company, Hopedale, Mass. Molding apparatus....	697,124	Apr. 8	1417	364	99	220
Day, Charles M., assignor to Draper Company, Hopedale, Mass. Loom shipper mechanism.....	702,243	June 10	1906	426	99	2515
Day, Horace G., Steubenville, Ohio. Can-opener.....	701,250	June 3	725	162	99	2200
Day, Maxwell W., Schenectady, N. Y., assignor to General Electric Company. Control-ling electric motors.....	694,940	Apr. 8	1035	340	99	221
Day, William A., Kearney, Neb. Adding and subtracting machine.....	694,415	Apr. 1	44	10	99	13
Day, William A., Clay Center, Neb. End-gate-rod fastener.....	694,590	Apr. 1	973	217	99	206
Day, William A., Southsea, England. Means for operating tramway or similar points from vehicles.....	697,090	Apr. 15	2022	510	99	515
Daykin, Simon J., New York, N. Y. Non-refillable bottle.....	702,700	June 17	2018	520	99	2201
Dayton Electrical Manufacturing Company. (See Apple, Vincent G., assignor.)						
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
Dayton Paper Novelty Company. (See Haas, Walter G., assignor.)						
Dayton, Wilbur O., Chicago, Ill. Clothes-line prop.....	695,200	Apr. 22	8739	220	99	640
De Baun, Edwin, Passaic, N. J. Shoe-polisher.....	702,250	June 10	1795	411	99	2425
De Camp, William S., Chillicothe, Ohio. Angle-cock adjuster for air-brakes.....	694,503	Apr. 1	773	176	99	164
De Force, Mary A., Corry, Pa., assignor of two-thirds to D. Pierce and G. A. Williams, Jamestown, N. Y. Flower-stand.....	699,184	May 6	51	14	99	1153
De Freitas, William, New York, N. Y. Tube-clamp.....	697,390	Apr. 8	1795	224	99	324
De Groot, George F., and I. L. Thompson, Morristown, N. J., assignors of one-third to P. Farrelly, New York, N. Y. Collection-recording mechanism.....	702,010	May 13	1716	324	99	1541
De Haven, Hugh, Brooklyn, N. Y. Bala-tie.....	701,250	May 27	4140	924	99	2200
De Haven, Lewis L. (See Bander, Daniel W., assignor.)						
De Kaulstner, Gustave, Brussels, Belgium. Dyeing.....	702,126	June 24	2408	780	99	2201
De Knight, Victor P., assignor to Victor P. De Knight Gun Company, Washington, D. C. Automatic rapid-fire gun.....	693,107	Apr. 22	2219	704	99	722
De La Mare, Thomas, Tooele, Utah. Axle-spindle.....	697,455	Apr. 15	2015	445	99	408
De Lacy, George S., New York, N. Y. Tank for storing aerated liquids under pressure.....	697,518	Apr. 15	2020	522	99	522
De Lany, Emma, Philadelphia, Pa. Waist-lengthening device.....	699,504	Apr. 1	775	176	99	164
De Lapp, Fred M., Chicago, Ill. Railway-track lubricator.....	699,707	May 13	1187	276	99	1421
De Laval Steam Turbine Company. (See Borgren, Johan A., assignor.)						
De Laval Steam Turbine Company. (See Brunau, Sven, assignor.)						
De Laval Steam Turbine Company. (See Olsson, George O. M., assignor.)						
De Long, Charles E., Hot Springs, Ark. Single-trigger mechanism for double guns.....	699,201	May 6	305	70	99	1207
De Long, Joseph J., Brooklyn, N. Y. Shade-roller bracket.....	701,104	May 27	2079	515	99	2040
De Man, Alphonse, New York, N. Y. Building-block.....	701,105	May 27	2080	515	99	2040
De Mars, William O., Cleveland, Ohio. Puncture-healing composition.....	699,028	Apr. 29	8055	198	99	1145
De Mayo, Joseph, Mount Vernon, N. Y. Coat.....	699,498	May 6	708	166	99	1201
De Merrill, Richard N. (See Palmer, Merritt W., assignor.)						
De Meulenaer, Emile, Brussels, Belgium. Apparatus for the reception of sound-signals for nautical purposes.....	701,126	May 27	2080	515	99	2040
De Moulins, Edmond and U. S., Greenville, Ill. Automatic water-cooler for initiating purposes.....	699,493	Apr. 29	2080	515	99	2040
De Moulins, Ulysses S. (See De Moulins, Edmond and U. S.)						
De Rochemont, Perkins H., Chattanooga, Tenn. Center-iron and lap-ring.....	701,126	May 27	2080	515	99	2040
De Rochemont, Perkins H., assignor to C. Harro, Chattanooga, Tenn. Combined clip and lap-link.....	701,126	June 3	207	222	99	2200
De Vos, Albert H., Chicago, Ill. Hammering and cording attachment for sewing-machines.....	694,417	Apr. 1	40	10, 11	99	14
De Voll, Charles H., Oakland, Cal. Hydrocarbon-lamp.....	699,213	May 13	1181	272	99	1420
Deana, J. B. (See Honta, George W., assignor.)						
Deana, William A., Chicago, Ill. Envelop.....	701,250	June 3	47	10	99	2122
Deana, Albert L., et al. (See Olsen, Peter, assignor.)						
Dear, James W., assignor of one-half to F. W. Hittigman and J. Kennel, Dayton, Ohio. Car-mover.....	702,257	June 24	2701	671	99	2202
Dearholt, John H. (See Geschwender and Dearholt.)						
Dearing, David M., assignor of one-half to H. W. Scott, Jackson, Mich. Antislipping device.....	697,125	Apr. 8	1420	315	99	220
Deaton, Noah G., Buford, Ga. Collar-fastener.....	702,045	June 24	2224	746	99	2201
Decker, Delbert H., et al. (See Woods, Granville T. and L., assignors.)						
Decker, George W., Beranton, Pa. Lubricating attachment for car-axles.....	701,255	June 10	1906	426	99	2515
Decker, Harrison, Columbia Falls, Mont. Wrench.....	699,577	Apr. 22	2711	620	99	220
Dearing Harvester Company. (See Appleby, John F., assignor.)						
Dearing Harvester Company. (See Ellis, George H., assignor.)						
Dearing Harvester Company. (See Packer, George W., assignor.)						
Dearing Harvester Company. (See Rand, Charles A. A., assignor.)						
Dearing, Isaac W., et al. (See Redding, Jerome, assignor.)						
Dearing, Mark L., New York, N. Y., assignor to Standard Oil Company, Bayonne, N. J. Apparatus for shaping metal receptacles.....	701,549	June 3	420	107	99	2207
Dearing, Mark L., New York, N. Y., assignor to Standard Oil Company, Bayonne, N. J. Shaping metal receptacles.....	701,550	June 3	420	108	99	2210
Dearing, Mark L., New York, N. Y., assignor to Standard Oil Company, Bayonne, N. J. Shaping metal receptacles.....	701,551	May 27	2075	514	99	2047
Deeter, Edward D., Milford, Ind. Combined air and water pump.....						
Degordon, Adolph. (See Blarbaum, Charles, assignor.)						
Dehner, Otto, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Fatty compound of iodine and sulfur and making same.....	699,900	Apr. 1	974	222	99	222
Dehner, Gerhard, Wiesbaden, Germany. Device for electrically connecting rails.....	697,517	Apr. 15	2020	522	99	522
Deinlein, Karl, assignor to Rhodawerke, Actiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Gun-carriage.....	700,114	May 13	1591	420	99	1576
Deinlein, Karl, assignor to Rhodawerke, Actiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Gun-carriage.....	700,097	May 20	2045	577	99	1214
Deinlein, Karl, assignor to Rhodawerke, Actiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Recoil apparatus for ordnance.....	701,261	June 3	424	205	99	2208
Deisler, Robert, Treptow, near Berlin, assignor to C. R. Schalka, Berlin, Germany. Heating metal parts. (Reissue).....	12,022	June 24	2220	746	99	2202
Deitch, Edward J., New York, N. Y. Portable jewel-case, &c.....	701,259	June 3	42	10, 11	99	2115
Delafon, Philippe, Paris, France. Electric battery.....	702,544	June 17	2225	520	99	2216
Delaney, James A., Orange, Mass. Grave-marker.....	702,004	May 27	2028	524	99	1242
Della Torre, Frank, and D. B. Banks, Baltimore, Md. Aligning, securing, and bending of rail ends.....	700,004	May 27	2020	520	99	1247
Dellamore, Albert, Los Angeles, Cal. Waste-pipe connection for closet-bowls.....	699,497	May 6	701	166	99	1201
Demarest, Cornelius T., Hackensack, N. J. Boiler-tube cleaner.....	697,251	Apr. 8	1720	324	99	224
Demarest, Cornelius T., Hackensack, N. J. Sad-iron handle.....	702,220	June 10	1790	411	99	2425
Demarest, David C., Angels Camp, Cal. Guide for stamp-stems.....	695,276	Apr. 22	2712	620	99	220

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Diaz, Albert B., Brooklyn, N. Y. Camer. (Reissue)	11,928	May 6	987	288	88	1296
Dithridge, Edward, Ellwood City, Pa. Enameling-fork for bath-tubs	700,081	May 12	1728	284	88	1248
Dixon, Charles W., assignor of one-half to T. Pascoe, Pittsburg, Pa. Ceiling-block	699,914	May 12	1887	284	88	1267
Dixon, George W. (See Kendrick and Dixon.)						
Dixon, Laurens P., assignor to Yost-Miller Company, Toledo, Ohio. Incandescent-lamp socket	699,394	Apr. 29	2740	288	88	840
Dixon, Robert M., East Orange, N. J. System of operating fans by power for ventilating passenger-cars	699,947	Apr. 8	1088	241	88	281
Dixon, William, Newark, N. J. Polishing-brush	699,788	Apr. 1	987	141	88	126
Doak, John S., Fort Worth, and A. G. Farrington, Yoakum, Tex. Boll-weevil or other insect destroyer	699,419	Apr. 1	80	11	88	14
Dobson, Alexander, Beaverton, assignor of one-half to W. Irwin, Toronto, Canada. Fast-press	701,211	June 8	88	11	88	2119
Dodd, Sydney H., et al. (See Greening, Frederick, assignor.)						
Dodd, Willis G., San Francisco, Cal. Ore-concentrator	701,289	June 10	1088	288	88	2888
Doddridge, John S., et al. (See Meyer, Ralph J., assignor.)						
Doddridge, Lillian S., et al. (See Meyer, Ralph J., assignor.)						
Dodge, Frank, Boston, Mass. Cloth-cutting machine	699,908	Apr. 29	4806	1888	88	1887
Dodge, James M., assignor to Link Belt Engineering Company, Philadelphia, Pa. Conveyor-belt	700,888	May 20	2888	588	88	1881
Dodge, James M., and A. D. Shaw, assignors to Link Belt Engineering Company, Philadelphia, Pa. Feeding mechanism for conveyors	700,347	June 10	1888	488	88	2516
Dodge, Lewis H., et al. (See Fowler, Rufus B., assignor.)						
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	699,836	Apr. 1	777	178	88	105
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	697,488	Apr. 15	2017	445	88	488
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	700,088	May 12	1728	288	88	1848
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	702,781	June 17	2728	688	88	2710
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	702,788	June 17	2742	681	88	2710
Dodge, Philip T., Washington, D. C., assignor to Mergenthaler Linotype Company. Linotype-machine	702,788	June 17	2744	681	88	2711
Dodge, Willie A., et al. (See Fowler, Rufus B., assignor.)						
Dodgson, Frank L., Rochester, and M. Orrington, New York, assignors to International Pneumatic Railway Signal Company, Rochester, N. Y. Pneumatic railway switch and signal apparatus	702,981	June 24	2084	688	88	2788
Dodson, Joseph H., et al. (See Pockham, Charles V., assignor.)						
Doerr, Lawrence, East Jordan, Mich. Spraying-machine	699,998	May 6	288	71	88	1287
Doering, August R., Philadelphia, Pa. Game apparatus	697,487	Apr. 15	2015	445	88	488
Doerner, William H., and J. A. Whalen, Cumberland, Md. Car-door and grain-door combined	697,880	Apr. 15	2072	688	88	588
Dolan, Edward J., Philadelphia, Pa., assignor, by mesne assignments, to Acetylene House Lighting Company. Acetylene-gas generator	699,948	Apr. 8	1088	241	88	281
Dolber, George A. (See Dennis, George G., assignor.)						
Doldt, John E., Providence, R. I. Map or chart case	699,288	May 6	810	71	88	1288
Dolan, R. M. (See Cornell, Evan W., assignor.)						
Doll, William, San Francisco, Cal. Fire-extinguishing device	697,811	Apr. 15	2088	511	88	517
Dollar, William M. (See Darrin and Dollar.)						
Dolphin, Harold E., Crossington, near Liverpool, England. Apparatus for aerating or agitating liquids	699,384	May 6	811	71, 72	88	1288
Donnan, Lewis B., Elbridge, N. Y. Music-roll	697,881	Apr. 15	2072	688	88	588
Donaldson, William R., et al. (See Rice, John V., Jr., assignor.)						
Doney, Alfred, Pen Argyll, assignor of one-third to L. W. Moran, Scranton, Pa. Bicycle-brake	699,181	Apr. 29	2888	788	88	701
Doney, John, Pen Argyll, Pa. Feed-screw adjustment	697,888	Apr. 8	1780	284	88	284
Donkers, Louis B., Antwerp, Belgium. Machine for kneading and washing margarin or other similar substances	701,673	June 2	845	70	88	2180
Donley, William H., Springfield, Mass. Mouthpiece for boiler-furnaces	699,800	May 6	704	102	88	1288
Donne, Leon, Chicago, Ill., assignor to L. and F. Ingersoll, Pittsburg, Pa. Mechanism for transferring boats	697,802	Apr. 8	1540	244	88	247
Donnell, James W., et al. (See Olson, Peder, assignor.)						
Donnell, James W., Evanston, assignor to Hall's Safe & Lock Company, Chicago, Ill. Vault	701,688	June 2	740	188	88	2888
Donnelly, George, Diamond, Ind. Safety attachment for elevators	694,788	Apr. 1	688	141	88	126
Donohue, James S., Washington, assignor to F. I. Moran, Georgetown, D. C. Smoke-consumer	700,048	June 24	2888	788	88	2888
Donovan, Alfred, assignor of two-thirds to J. and D. Myers and J. G. Plagano, Atlantic City, N. J. Butter-cutter	699,801	May 6	705	104	88	1288
Donovan, Joseph S., New York, N. Y. Game	701,171	May 27	2888	817	88	2888
Donovan, Michael J., assignor of one-third to L. M. Schenker, Vicksburg, Miss. Draft attachment for railway-cars	700,088	May 20	2888	678	88	1815
Dopbald, Frank E., Palmyra, Ill. Jar-closure	702,412	June 17	2041	488	88	2841
Dortland, W. A. N. (See Ritter, Isaac, Jr., assignor.)						
Dorn, Johann, Spital-on-the-Pyhrn, Austria-Hungary. Water-gage	697,985	Apr. 29	2008	681	88	688
Dorn, Rufus H., Los Angeles, Cal. Miter-box	697,308	Apr. 8	1841	845	88	247
Dorner, Peter. (See Monahan and Dorner.)						
Dorr, Andrew M., and J. Spang, Boston, Mass., assignors to Chemical and Electrical Ore Reducing Company, of West Virginia. Treating ores	699,488	May 6	681	144	88	1288
Dorr, Andrew M., and J. Spang, Boston, Mass., assignors to Chemical and Electrical Ore Reducing Company, of West Virginia. Apparatus for treating ores	699,487	May 6	684	144	88	1287
Dorrestein, C. A., administrator. (See Allison, Samuel B.)						
Dorris, George F., assignor of one-half to St. Louis Motor Carriage Co., St. Louis, Mo. Automobile	699,908	Apr. 29	2888	1888	88	1887
Dovey, Charles J., Baltimore, Md. Flural-fuse cut-out	700,416	May 20	2847	584	88	1788
Dovey, Charles J., Baltimore, Md., assignor to Acme Fuse Box Company. Flural-fuse cut-out	697,888	Apr. 15	2088	688	88	688
Dorton, John H. (See Joy and Dorton.)						
Doty, Alphonso H., Owatonna, Minn. Match-box holder	699,888	May 12	1084	241	88	1848
Douge, Jules, Paris, France. Preparation of colloid for the manufacture of artificial silk	699,188	May 6	88		88	1188

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Dudley, Cory W., Chicago, Ill. Support for punching-bags	698,905	Apr. 22	3743	696	90	641
Duff, Edward J., Liverpool, England. Gas-producer	697,999	Apr. 8	1826	423	90	422
Duff, Edward J., assignor of one-half to United Alkali Company, Limited, Liverpool, England. Gas-furnace for steam-boilers	701,861	June 10	1081	380	90	2220
Duffield, Albert E. W., Newcastle, Pa. Curtain-fixture	697,989	Apr. 15	2074	694	90	599
Duffin, James F., Averyville, assignor to Kingman Flow Company, Peoria, Ill. Harrow-tooth fastener	698,473	Apr. 29	2636	980	90	685
Duffy, Edward S., Chicago, Ill. Clamp for washbowls, &c.	698,428	Apr. 1	55	13	90	15
Duffy, James F., Chicago, Ill. Apparatus for refining, aging, mellowing, and purifying alcoholic liquors	698,198	Apr. 20	2370	737	90	709
Duffy, James F., Chicago, Ill. Refining, aging, mellowing, and purifying alcoholic liquors	698,194	Apr. 20	2371	738	90	709
Duffy, John M., Philadelphia, Pa. Fastening for articles of clothing	701,313	June 3	58	13	90	2120
Dugger, William T., assignor of one-half to B. Block, St. Joseph, Mo. Suspender-buckle. Dämmer, Hermann. (See Schrier and Dämmer.)	701,099	June 3	742	164	90	2204
Dunbar, Alexander, Liverpool, England. Machinery for jointing or finishing stove-blanks for casks	702,980	June 24	3084	697	90	2787
Dunbar, Harold F., Turners Falls, Mass. Paper-stop	701,175	May 27	2005	916	90	2051
Duncan, Alfred D., Galveston, Tex., and W. H. Water, Chicago, Ill. Retort hydrocarbon-burner	702,090	June 17	2479	588	90	2026
Duncan, Charles B., assignor to J. O. Henderson, New York, N. Y. Compressed-air heater. Duncan, Frederick E., Akron, Ohio. Means for adjusting dynamos or motors on their bed-plates	699,106	May 6	58	14	90	1187
Duncan, Frederick E., Akron, Ohio. Brush-holding ring for dynamos or motors	697,985	Apr. 22	2012	661	90	689
Duncan, John R., assignor of one-half to Specialty Manufacturing Company, Indianapolis, Ind. Can-capper	700,128	May 20	2005	477	90	1628
Duncan, John W., et al. (See Le Marr, Samuel E., assignor.)	701,170	May 27	2006	919	90	2028
Duncan, Joseph E., et al. (See Le Marr, Samuel E., assignor.)	700,080	May 20	2000	678	90	1816
Duncan, Nelson L., Fayetteville, Ark. Account-book	698,987	Apr. 29	4214	980	90	928
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,988	Apr. 29	4216	981	90	928
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,989	Apr. 29	4220	982	90	928
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,940	Apr. 29	4222	983	90	924
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,941	Apr. 29	4223	984	90	924
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,942	Apr. 29	4224	985	90	925
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,943	Apr. 29	4225	986	90	925
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,944	Apr. 29	4226	987	90	926
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,945	Apr. 29	4227	988	90	927
Duncan, Thomas, Fort Wayne, Ind., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,946	Apr. 29	4228	989	90	927
Duncan, Thomas, Oakpark, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electrical measuring instrument	698,947	Apr. 29	4229	990	90	927
Duncan, Thomas, Oakpark, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,948	Apr. 29	4230	991	90	928
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,949	Apr. 29	4231	992	90	928
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,950	Apr. 29	4232	993	90	929
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,951	Apr. 29	4233	994	90	929
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,952	Apr. 29	4234	995	90	929
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,953	Apr. 29	4235	996	90	929
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Direct-current meter	698,954	Apr. 29	4236	997	90	929
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Alternating-current meter	698,955	Apr. 29	4237	998	90	930
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Alternating-current motor-meter	698,956	Apr. 29	4238	999	90	931
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Induction motor-meter	698,957	Apr. 29	4239	1000	90	931
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Induction motor-meter	698,958	Apr. 29	4240	1001	90	932
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Motor-meter	698,959	Apr. 29	4241	1002	90	932
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Motor-meter	698,960	Apr. 29	4242	1003	90	933
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Polyphase motor-meter	698,961	Apr. 29	4243	1004	90	934
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Motor-meter	698,962	Apr. 29	4244	1005	90	934
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,963	Apr. 29	4245	1006	90	935
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,964	Apr. 29	4246	1007	90	935
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Motor-meter	698,965	Apr. 29	4247	1008	90	936
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Alternating-current meter	698,966	Apr. 29	4248	1009	90	937
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Alternating-current meter	698,967	Apr. 29	4249	1010	90	938
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,968	Apr. 29	4250	1011	90	940
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric meter	698,969	Apr. 29	4251	1012	90	940

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III. Alternating-current meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,971	Apr. 20	696	940	90	971
III. Alternating-current meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,972	Apr. 20	697	939	90	972
III. Alternating-current meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,973	Apr. 20	690	930	90	973
III. Electric meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,974	Apr. 20	692	931	90	974
III. Alternating-current meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,975	Apr. 20	697	931	90	975
III. Electric meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,976	Apr. 20	690	932	90	976
III. Electric meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,977	Apr. 20	694	932	90	977
III. Electric meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,978	Apr. 20	694	934	90	978
III. Electric meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,979	Apr. 20	695	934	90	979
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,980	Apr. 20	698	934	90	980
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,981	Apr. 20	697	935	90	981
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,982	Apr. 20	690	935	90	982
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,983	Apr. 20	694	935	90	983
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,984	Apr. 20	696	935	90	984
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,985	Apr. 20	690	936	90	985
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,986	Apr. 20	692	937	90	986
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,987	Apr. 20	695	937	90	987
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,988	Apr. 20	697	937	90	988
III. Induction motor-meter						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,989	Apr. 20	696	938	90	989
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,990	Apr. 20	698	938	90	990
III. Electrical measuring instrument						
Duncan, Thomas, assignor to Siemens & Halske Electric Company of America, Chicago.	692,991	Apr. 20	692	939	90	991
III. Electric meter						
Dunham, Emil von, Frankfurt-on-the-Main, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Modified milk and obtaining same.	700,001	May 20	2001		90	1001
Dunham, Daniel, and V. J. Cooper, London, England. Lead-pencil	700,002	May 20	2002	975	90	1002
Dunham, Sylvester C., Vail, Iowa. Hay-stacker	700,003	May 27	2004	994	90	1003
Dunham, William G., Brooklyn, N. Y., assignor of one-half to E. J. Manville Machine Company, Waterbury, Conn. Necktie-band fastener	697,995	Apr. 15	2004	995	90	994
Dunlap, Alfred. (See Lindley, John T., assignor.)						
Dunlap, Herbert R., et al. (See Sharp, Samuel J., assignor.)	696,787	Apr. 1	690	102	90	102
Dunlap, William O., Portales, N. Mex. Ter. Wire-reeling machine	701,177	May 27	2005	919	90	2005
Dunn, Emanuel W., San Jose, Cal. Oil-burner	692,108	Apr. 20	691	705	90	704
Dunn, Louis, Minneapolis, Minn. Safety device for point-switches	692,995	May 6	212	72	90	1293
Dunn, Thomas F., Boston, Mass. Necktie						
Dunne, Leopold A. (See Gerstmayr, Anton, assignor.)	692,994	Apr. 20	691	1003	90	1000
Dunningham, Charles E., Wellington, New Zealand. Brooch						
Duplex Printing Press Co. (See Higgins, Eugene, assignor.)						
Duplex Printing Press Company. (See Warner, Austin P., assignor.)						
Duplex Roller Bussing Company. (See Molatire, Clarence E., assignor.)						
Durand, Ernest F., Paris, France, assignor to Union Special Sewing Machine Co., Chicago, Ill. Trimming attachment for sewing-machines	692,925	Apr. 20	694	1081 1082	90	1080
Durand, Albert E., Staplehurst, Nehr. Buckle	692,928	May 6	705	164	90	1290
Derr, Fritz, Schlachtenberg, Germany. Double-cylinder hydrocarbon-motor	694,508	May 6	707	164	90	1290
Durston, Alfred H., Syracuse, N. Y. Gun-cleaning tool	702,280	June 20	1232	449	90	2021
Duryea, Chester B., New York, N. Y. Making thin boiling starch	692,940	Apr. 6	1021	941	90	942
Duryea, James F., Springfield, Mass. Carburetor for explosive-engines	692,904	May 6	705	145	90	1292
Duryea, James F., Springfield, Mass. Inlet-valve-governing mechanism for engines	702,000	June 20	1405	970	90	2407
Dussault, Napoleon, Montreal, Canada. Nail-making machine	702,173	May 27	2000	910	90	2000
Dutemple, William R., Auburn, R. I. Olgar-vending machine	692,970	May 13	1049	242	90	1047
Dutemple, William R., Auburn, R. I. Olgar-vending machine	702,080	June 17	2451	699	90	2450
Duthie, William E., Indianapolis, Ind. Handle and fastener for paper vessels	702,082	June 24	2459	700	90	2459
Dutroumbay, Louis. (See Planteur and Dutroumbay.)						
Duwaes, Oscar F. J., Engelen, Belgium. Devulcanizing India-rubber	692,492	Apr. 1	57		90	16
Dwelly, Arthur P., Boston, Mass. Signaling mechanism	697,990	Apr. 20	2004	799 701	90	699
Dwiggins, John W., and L. Swank, assignors to Dwiggins Wire Fence Company, Anderson, Ind. Wire-fence machine	692,102	Apr. 20	6925	740 741	90	734
Dwiggins Wire Fence Company. (See Dwiggins and Swank, assignors.)						
Dwyer, William H., Detroit, Mich. Automatic cut-off sawing-machine	702,980	June 10	1260	440	90	2021
Dyer, Charles V., and W. S. Willette, Courco, Tex. Insect-destroying machine	692,107	Apr. 20	2001	741	90	740
Dyer, Fayette, Pasadena, assignor of one-half to H. T. Hazard and G. E. Harpham, Los Angeles, Cal. Hinge	702,040	June 17	2454	670	90	2457
Dyer, Frank L., Montclair, N. J. Assembly voting-machine	702,214	June 2	57	12 13 14	90	2120
Dyer, John. (See Cudner and Dyer.)						
Dyer, Elias H., assignor of one-half to E. W. Orswell, Pawtucket, R. I. Balance-valve for gas-engines	692,973	May 6	490	102	90	1020
Dyert, Alberts Q., et al. (See Folmester, Andrew J., assignor.)	702,170	May 27	2000	921	90	2000
Dyert, William O., Dallas, Tex. Draft-equalizer						

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Dyson, Orion E., Chicago, Ill. Soft-tread horseshoe	699,373	May 6	661	108	99	1299
Dysterad, Emil, Monterey, Mexico. Clutch	699,461	May 6	641	147	99	1299
E. C. Atkins & Company. (See Carey, John F., assignor.)						
E. C. Atkins & Company. (See Meyer, George, assignor.)						
E. & H. T. Anthony & Co. (See Bornmann, Carl, assignor.)						
E. J. Manville Machine Company. (See Dunham, William G., assignor.)						
Eagan, John H. D., Philadelphia, Pa. Car-coupling	699,595	May 6	710	185	99	1293
Eagle Chemical Works. (See Schwartz, Louis, assignor.)						
Eagle Pencil Company. (See Roman, Cass W., assignor.)						
Eagle Pencil Company. (See Fischer, Frederick J. W., assignor.)						
Eagle Pencil Company. (See McIntyre, Frank, assignor.)						
Earl, Oliver C., Allegheny, Pa. Bolt	699,617	May 6	980	214	99	1297
Earnshaw, Richard J. (See Manual and Nottingham, assignors.)						
Eastern Carbon Works. (See Mills, William, assignor.)						
Eastman, Albert G. (See Eastman, Franklin G. and A. G.)						
Eastman, Franklin G., Cambridge, and A. G. Eastman, Brookline, Mass. Window-screen.	699,187	May 6	84	18	99	1187
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Eastman Kodak Company. (See Forchman, Joseph, assignor.)						
Eastwood, Arthur C., assignor to Electric Controller and Supply Company, Cleveland, Ohio. Electric controller	699,598	May 6	719	198	99	1298
Eaton, Arthur W., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Sewing-machine	701,982	June 10	1088	261	99	1349
Eaton, Asahel K., Brooklyn, N. Y. Removing scale oxid from the surface of iron or steel.	702,050	June 10	1281		99	1409
Eaton, Carl D., and A. L. Norton, Allen, Mich. Fly-paper holder	702,547	June 17	2890	681	99	1617
Eaton, Hiram W., Jr., and A. Benson, Bradford, Pa. Sand-reel for oil or Artesian wells.	701,215	June 8	68	14	99	1193
Eaton, John, Stockport, assignor of four-fifths to R. J. C. Mitchell, Waterfoot, England. Apparatus for producing pile or nap fabrics	702,554	June 17	2875	684	99	1739
Eaton, William G., and W. A. Reed, assignors to Flegg Manufacturing Company, Boston, Mass. Stopping or starting device	697,707	Apr. 15	2679	551	99	1554
Eaton, William S., Sag Harbor, N. Y. Routing or engraving machine	699,980	Apr. 8	1088	248	99	1298
Eaton, William S., Sag Harbor, N. Y. Routing or engraving machine	699,981	Apr. 8	1088	248	99	1298
Eaton, William S., Sag Harbor, N. Y. Engraving-machine	699,982	Apr. 8	1190	244	99	1294
Ebs, Hermann E., assignor to Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg A. G., Nürnberg, Germany. Water-cooled valve	699,674	Apr. 20	2897	299	99	1299
Ebs, Hermann E., assignor to Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, A. G., Nürnberg, Germany. Piston for gas or other motors	700,308	May 20	2954	596	99	1291
Eberhardt, Elmer G. (See Eberhardt, Henry E., F. L., and E. G.)						
Eberhardt, Fred L. (See Eberhardt, Henry E., F. L., and E. G.)						
Eberhardt, Fred L., and H. F. Summa, assignors to Gould & Eberhardt, Newark, N. J. Gear-cutting engine	700,194	May 20	2907	477	99	1298
Eberhardt, Henry E. and F. L., Newark, N. J., and E. G. Eberhardt, Ithaca, N. Y., assignors to Gould & Eberhardt, Newark, N. J. Crank-placer or analogous tool	700,979	May 20	2907	688	99	1298
Eberhardt, John, Chicago, Ill. Electric arc lamp	697,977	Apr. 8	1980	295	99	1291
Eberhardt, Ulrich, Newark, N. J. Band-sifter	700,751	May 27	2826	729	99	1290
Eberole, Mary. (See Eberole, Samuel, assignor.)						
Eberole, Samuel, assignor to E. Eberole, Clearspring, Md. Tongue-support	702,201	June 10	1800	411	99	1406
Eberts, Heinrich, Osnabrück, Germany. Landing-pin	700,195	May 20	2901	478	99	1298
Eberwein, Paul, Jackson, Mich. Dust-collector	702,194	June 24	2908	781	99	1298
Eber, Peter, Columbus, assignor, by mesne assignments, to H. Mack, Plain City, Ohio. Fire-extinguisher	699,475	Apr. 20	2895	681	99	1298
Echemendia, Leandro. (See Figueroa and Echemendia.)						
Eckert, Herman F. (See Fisher and Eckert.)						
Economy Furnace Company. (See Gallagher, George B., assignor.)						
Eeroyd, Samuel, Choriton-cum-Hardy, near Manchester, and E. E. Marsden, Bidebury, near Manchester, England. Apparatus for unbalancing raw cotton	697,439	Apr. 15	2899	446	99	1294
Eddins, Edward R., St. Louis, Mo. Roller-setting	702,414	June 17	2945	496	99	1306
Eddy, Richard H., Providence, R. I. Syringe	699,728	Apr. 1	681	149	99	1297
Eder, Reinhold, assignor to E. Schuster, Berlin, Germany. Lathing-machine	699,476	Apr. 20	2895	681	99	1298
Edgar, Ellis F., Westbridge, N. J. Roller	699,595	Apr. 20	698	1084	99	1291
Edge, William, Brooklyn, assignor to A. H. Benjamin, New York, N. Y. Staple forming and driving mechanism	702,081	June 10	1985	281	99	1297
Edgerly, Isaiah I., Swampscott, Mass. Clothes-line reel	699,477	Apr. 20	2895	681	99	1298
Edgerton, Arthur D., assignor of one-half to H. C. Campion and J. W. Jennings, Philadelphia, Pa. Storage battery	702,201	June 10	1800	410	99	1291
Edison Storage Battery Company. (See Edison, Thomas A., assignor.)						
Edison, Thomas A., Llewellyn Park, N. J. Electric meter	702,081	June 24	2948	780	99	1298
Edison, Thomas A., Llewellyn Park, N. J., assignor to Edison Storage Battery Company. Reversible galvanic battery	702,183	May 18	1984		99	1299
Edison, Thomas A., Llewellyn Park, N. J., assignor to Edison Storage Battery Company. Reversible galvanic battery	702,187	May 18	1985	481	99	1299
Edison, Thomas A., Llewellyn Park, N. J., assignor to Edison Storage Battery Company. Reversible galvanic battery	702,188	May 18	1985	481	99	1299
Edison, George A., and A. H. Myers, Spokane, Wash. Trussed scaling-ladder	701,204	June 8	986	206	99	1298
Edmonds, Thomas H., Washington, D. C. Bicycle package-carrier	699,574	May 6	489	108	99	1298
Edmondson, Gilbert W., Champaign, Ill. Door-calendar	702,202	June 10	1801	412	99	1298
Edmonds, John, Waltham, Mass. Apparatus for destroying gases	699,587	May 19	1579	215	99	1471
Edson, Eugene R., Cleveland, Ohio. Condensing apparatus	699,226	May 6	214	78	99	1298
Edson, Eugene R., Cleveland, Ohio. Obtaining gelatin-yieldable liquids	699,728	Apr. 1	681	149	99	1297
Edwards, Arthur W., Sacramento, Cal. Acetylene-gas apparatus	702,240	June 24	2948	782	99	1298
Edwards, Charles, Brooklyn, N. Y. Type-writing clavier	702,088	June 10	1985	281	99	1298
Edwards, Charles, Brooklyn, N. Y. Mechanical base-ball pitcher	702,908	May 27	2938	804	99	1297
Edwards, Eugene O., assignor to Fountain City Drill Company, La Crosse, Wis. Teeth for seeders and cultivators	702,415	June 17	2949	497	99	1298
Edwards, Ezra, Webster City, Iowa. Ferrule for awl or knife handles	697,629	Apr. 15	2898	446	99	1294
Edwards, George and J., Stockport, England. Hat-rest	699,794	May 12	1294	297	99	1451
Edwards, Isaac L., assignor of two-thirds to E. A. Sanders, L. M. and A. Cota, Aurora, Ill. Trolley-wire hanger	702,907	May 27	2939	805	99	1298

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Edwards, Isaac L., assignor of two-thirds to E. A. Sanders, L. M. and A. Cota, Aurora, Ill. Grain-car door	701,151	June 2	401	100	90	2010
Edwards, Jennie A., Hot Springs, Ark. Plant-fertilizer-distributing receptacle	701,210	June 2	60	14	90	2120
Edwards, John. (See Edwards, George and J.)						
Edwards, Thomas E., assignor of one-half to G. T. Allmendinger, Ann Arbor, Mich. Machine for separating plastic materials into shreds	702,903	June 24	2000	600	90	2700
Edwards, Victor E., assignor to Morgan Construction Company, Worcester, Mass. Furnace	701,000	May 27	2700	600	90	1900
Edwards, Victor E., assignor to Morgan Construction Company, Worcester, Mass. Conveyor for metal rods or bars	701,004	May 27	2700	600	90	1900
Edwards, Victor E., and E. H. Carroll, Worcester, Mass. Feeding mechanism for billet-heating furnaces	701,000	May 27	2700	600	90	1900
Egan, Patrick J. (See Jordan and Egan.)						
Egers, Anton C., assignor to Goodyear India Rubber Glove Manufacturing Company, New York, N. Y. Box for fountain-syringes	702,107	June 10	1000	207	90	2400
Egli, John, Milner, Ill. Dumping apparatus	702,115	May 12	1200	400	90	1970
Ehle, Frank G. O., Buffalo, N. Y. Nestable pad	699,000	May 6	000	100	90	1200
Ehret, Cornelius D., Washington, D. C., assignor of one-half to American Wireless Telephone and Telegraph Company. Wireless-telegraph system	699,100	May 6	07	10	90	1100
Ehrhardt, Gustav, Eisenach, Germany. Means for securing center pivots to axles in runs	700,000	May 20	0000	070	90	1010
Ehrlich, John B., Indianapolis, Ind. Combined hot blast and smoke-consumer	698,478	Apr. 20	2000	000	90	000
Ehrlich, John B., Indianapolis, Ind. Hot-blast for ranges or cooking-stoves	701,474	June 2	240	77	90	2100
Ehrlich, Leo. (See Fassett, Francis K., assignor.)						
Eichengrün, Arthur, and E. Berendes, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Zinc gelatose compound	698,004	Apr. 20	0001		90	000
Eichengrün, Arthur, and K. Demmeler, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Photographic developer	702,041	June 24	2000		90	2000
Eichengrün, Arthur, and K. Demmeler, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Developing photographic pictures	702,042	June 24	2000		90	2000
Eichengrün, Arthur, and T. Becker, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Photographic developer and making same	702,043	June 24	2007		90	2000
Eick, Otto, Baltimore, Md. Heel-cushion	699,007	May 6	210	73	90	1200
Eickmeyer, Carl, et al., executors. (See Eickmeyer, Rudolf.)						
Eickmeyer, Mary T., et al., executors. (See Eickmeyer, Rudolf.)						
Eickmeyer, Rudolf, deceased, Yorkers, N. Y.; R., Jr., C., and M. T. Eickmeyer, executors. Alternating-current electric motor and controlling means therefor	702,210	May 20	2004	000	90	1001
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company. Making metal wheels	700,004	May 12	1727	207	90	1500
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company. Machine for making metal wheels	700,005	May 12	1720	200	90	1501
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company. Cleat for traction-wheels	701,100	May 27	0007	001	90	2004
Elmstedt, Alfred C., St. Louis, Mo. Acetylene-gas generator	700,000	May 27	0010	000	90	1000
Elm, Reinhold J., Two Rivers, Wis. Ballo-tie machine	699,000	Apr. 20	0001	000	90	000
Elmlund, John A., Minneapolis, assignor of one-fourth to N. A. Johnson, Mordock, Minn. Folding umbrella	698,000	Apr. 20	0004	007	90	001
Elmlund, John A., Minneapolis, assignor of one-fourth to N. A. Johnson, Mordock, Minn. Folding bicycle lunch-box	698,007	Apr. 20	0700	007	90	001
Eldridge, Hillary, Memphis, Tenn. Gas-burner	697,401	Apr. 15	2000	447	90	000
Eldridge, Hillary, Memphis, Tenn. Gas-burner	701,000	May 27	0741	000	90	1007
Electric Boat Company. (See Holland, John P., assignor.)						
Electric Controller and Supply Company. (See Eastwood, Arthur C., assignor.)						
Electric Furnace Company. (See Conley, Michael R., assignor.)						
Electric Laundry Machinery Co. (See Gustafson, Axel R., assignor.)						
Electric Lighting Boards. (See Lafabre, Armand, assignor.)						
Electric Sparking and Illuminating Company. (See Wilson, James M., assignor.)						
Electric and Steam Railway Supply Co. (See Hoffman and Powers, assignors.)						
Electric Vehicle Company. (See Maxim, Hiram P., assignor.)						
Electric Vehicle Company. (See Maxim and Pope, assignors.)						
Electrical Construction Supply Co. (See Poole, Lemon, assignor.)						
Elevator Supply & Repair Company. (See Braden and Smalley, assignors.)						
Elevator Supply & Repair Company. (See Collett, Samuel D., assignor.)						
Elgin Wind Power and Pump Company. (See Snow, Gilbert H., assignor.)						
Elia, Abraham J. (See Ernowein, Frank J., assignor.)						
Elizondo, Francisco, Chucho de Pueblo Nuevo, Cuba. Cane-feeding mechanism for cane-mills	698,070	Apr. 20	0710	000	90	000
Elizondo, Francisco, Chucho de Pueblo Nuevo, Cuba. Cane-feeding mechanism for cane-mills	698,067	Apr. 1	500	117	90	110
Elizondo, Francisco, Chucho de Pueblo Nuevo, Cuba. Cane-feeding mechanism for cane-mills	701,101	May 27	0000	001	90	2004
Ellenbecker, John, Port Washington, Wis. Tilting-chair						
Ellenbogen, Mangold H., and A. L. Levi, Paterson, N. J. Neckband-chaper						
Ellerhausen, Francis, assignor to Sulphides Reduction. (New Process.) Limited, London, England. Treatment of complex and refractory ores	700,211	May 20	0001		90	1000
Ellinger, Julian O., Baltimore, Md. Fireproof building structure	702,002	June 10	1472	001	90	2000
Ellingwood, Francis L., et al. (See Suman, Harry P., assignor.)	699,000	Apr. 20	0001	777	90	777
Elkott, David, Toronto, Canada. Folding box						
Elkott, David G. (See Sutherland, William S., assignor.)	701,000	May 27	0700	007	90	1007
Elkott, Gilbert R., Boston, Mass. Hydrocarbon-burner	702,100	June 10	1000	207	90	2000
Elkott, John, Scranton, Pa. Puzzle	699,070	Apr. 20	2004	000	90	000
Elkott, Myron W., Jr., Beloit, Wis., assignor to Fairbanks, Morse & Company, Chicago, Ill. Windmill mechanism	697,010	Apr. 15	2001	010	90	010
Elia, Auro D., Minneapolis, Minn. Cream-separator						
Elia, Edwin. (See Arnold, David B., assignor.)	701,100	May 27	0000	001	90	2004
Elia, Frederick J., and A. B. Doug, London, Canada. Broom	697,070	Apr. 8	1200	000	90	000
Elia, George E., Philadelphia, Pa. Knitting-machine						
Elia, George H., assignor to Deering Harvester Company, Chicago, Ill. Preparing flax fiber for spinning	701,100	May 27	0000	000	90	2004
Elia, George H., and J. F. Steward, Chicago, Ill. Automobile mowing-machine	699,100	Apr. 20	2000	000	90	000
Elia, Pearl E. (See Werner and Elia.)	699,047	May 20	1000	000	90	1000
Elia, Robert W., New York, N. Y. Operating-halter	701,000	June 2	000	007	90	2000
Elison, John W., Florence, Miss. Shovel						

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Ellsworth, Edwin E., assignor of one-fourth to L. A. Steadman, Brooklyn, N. Y. Gas-meter	700,085	May 13	1726	460	90	1545
Elwanger, John D., Franklin, Iowa. Thrill-coupling	701,154	May 27	4014	988	90	2165
Elmer, Martin, Vandyno, Wis. Burglar-trap for safes	697,493	Apr. 26	3085	447	90	465
Elmer, Andrew, Allegheny, Pa. Rail-joint	694,789	Apr. 1	696	148	90	137
Elstone, Joseph, Hamsworth, England. Apparatus for attaching or detaching handles of brushes, brooms, or the like	708,712	June 17	2810	601	90	2028
Elwell, James A. (See Luchanbach, Harry, assignor.)						
Ely, William P. (See Mahana and Ely.)						
Emmanuel, Simon, et al., trustees. (See Crane, Wendell P., assignor.)						
Embleton, Thomas E., et al. (See DeVries, John T., assignor.)						
Embry, Barnet L., et al. (See Hudgins, Franklin M., assignor.)						
Emick, Henry T., Salt Lake City, Utah. Ear-label	700,498	May 20	2888	617	90	1761
Emerson Manufacturing Company. (See Hendricks, Simon B., assignor.)						
Emerson Manufacturing Company. (See Wilson, George, assignor.)						
Emert, William A., Averyville, Ill. Draft-equalizer	698,935	Apr. 29	4544	1084	90	1008
Emery, Mary A., et al., executors. (See Mitchell, John H., assignor.)						
Emery, Mary E., et al., executors. (See Mitchell, John H., assignor.)						
Emery, Victor J., Wollaston, Mass. Water-supply apparatus for water-closets	693,494	Apr. 1	88	12, 14	90	16
Emilevics, Tadman. (See Lange and Emilevics.)						
Enama, Henry F. (See Eberhardt and Emma.)						
Ensmitt, William J., Columbus, Ohio. Steam or fluid-pressure engine	697,128	Apr. 2	1481	216	90	282
Enmons, Charles L., Cranford, N. J., assignor to Acolian Co., New York, N. Y. Mechanical musical instrument	698,480	Apr. 29	2905	682	90	595
Enmons, Grosvenor B. (See Mills, Francis A., assignor.)						
Enmons, William W., Boston, assignor to C. A. Gooding, Brookline, Mass. Test-cup	702,393	June 10	1968	440	90	2828
Enory, Israel J., Waverly, Ohio. Burglar-alarm for safes	700,087	May 13	1726	460	90	1545
Enrich, Henry O., Washington, D. C. Milk jar or bottle	702,125	June 24	2410	728	90	2028
Engberg, Carl, assignor to A. W. Wells and J. Higman, St. Joseph, Mich. Machine for making basket-covers	698,498	May 6	643	148	90	1299
Engbert, Heinrich, Hörde, Germany. Manufacture of artificial sandstone	701,880	June 3	745		90	2864
Engel & Gross. (See Fisher, Barthold, assignor.)						
Engel, William E., et al. (See Ah, Urban B., assignor.)						
Engelhardt, Charles, Ridgefield, N. J. Repair-plug for boilers	701,001	June 3	744	164	90	2864
Engelmann, Gustav, Selma, Tex. Sulky-lifter	693,555	Apr. 1	288	99, 70	90	66
England, Sydney J., Belfast, Ireland. Shirt	697,622	Apr. 15	2076	584	90	899
Engleking, Henry F., Chicago, Ill. File	698,748	May 13	1188	276	90	1481
English, Edwin E., Joliet, Ill., assignor of two-thirds to T. McPherson, J. Tanner, L. Raymond, and R. Meyer, Paterson, N. J. Pocket coin-holder or bank	702,398	June 10	1968	412	90	2496
English, Frank, Boston Harbor, Mich. Collapsible road	701,317	June 3	70	15	90	2128
Englund, Axel H., assignor to Protected Rail Road Company, Philadelphia, Pa. Railroad	698,618	May 6	681	216	90	1897
Engwall, Axel G. (See Cook and Engwall.)						
Ensign, George L. (See Chapman, Ensign, and Weir.)						
Entenman, Lina. (See Keller and Soller, assignors.)						
Enterprise Manufacturing Company of Pennsylvania. (See Corral, Francisco J. del, assignor.)						
Enterprise Manufacturing Company of Pennsylvania. (See Fellows, Edwin C., assignor.)						
Entwistle, Thomas C., Lowell, Mass. Crool for warping-machines	698,189	May 6	80	16	90	1128
Enzinger, Karl, assignor to Filter, Brautech,ische Maschinen-Fabrik, Akt. Ges. vorm. L. A. Enzinger, Worms, Germany. Filtering-press	702,081	June 10	1288	214	90	2496
Eppach, Anton, Providence, R. I. Foot-clip for treadles of sewing-machines	698,610	May 6	573	212	90	1294
Equitable Auto-Truck Power and Burner Company. (See Badger, George L., assignor.)						
Erick, George, Brooklyn, assignor of one-half to G. Grob, Glendale Station, N. Y. Curtain-pole ring	698,397	May 6	715	108	90	1294
Erickson, Hartvig, Chicago, Ill. Egg-case	698,481	Apr. 29	2888	617	90	1761
Erickson, Hartvig, Chicago, Ill. Box-assembling machine	698,428	Apr. 29	2897	624	90	891
Erickson, Samuel E., and F. Peterson, Chicago, Ill. Burglar-alarm	701,428	June 3	488	109	90	2210
Erickson, John E., Chicago, Ill. Safety appliance for elevators	698,575	May 6	484	108	90	1270
Erisman, Olen, assignor to F. M. Pratt, Decatur, Ill. Apparatus for separating solvents from oil	698,585	Apr. 29	2747	387	90	843
Ernewein, Frank J., assignor to A. J. Elias, Buffalo, N. Y. Slio	702,328	June 24	2728	371	90	2028
Ernst, Louis, Reading, Ohio. Game	698,588	Apr. 1	573	231	90	1296
Ernst, W. H., et al. (See Hendershot, Amos M., assignor.)						
Erick, Charles W., North Tonawanda, N. Y. Spring-frame for bicycles	694,276	May 6	485	108	90	1270
Errington, Franklin A., New York, N. Y. Stud-setting machinery	702,324	June 24	2640	689	90	2728
Ervin, Ida, Big Spring, Tex. Dish-washer	698,523	Apr. 1	205	70	90	66
Erwin, James B., Milwaukee, Wis. Cover-wrench	700,728	May 27	2883	728	90	1281
Esty Sprinkler Company. (See Esty, William, assignor.)						
Esty, William, Leominster, N. H., assignor to Esty Sprinkler Company. Automatic fire-extinguisher	698,684	Apr. 1	287	212	90	129
Etheridge, Harry, McKeesport, Pa. Lamp hood and switch	697,708	Apr. 15	2474	528	90	824
Ettor, Henry M., Marion, Pa. Pump-head	700,484	May 20	2888	617	90	1761
Etschbauer, Elias, et al. (See Wina, David F., assignor.)						
Euler, George W., assignor to R. O. Meyer, Richmond, Va. Electrotherapeutic apparatus	701,125	May 27	4915	988	90	2028
Eurich, Felix V., Paris, France. Wrench	697,341	Apr. 8	1598	380	90	283
Evans, Roy C. W., New York, N. Y. Wheel or rail tread	700,128	May 20	2888	478	90	1899
Evans, Howard. (See Behrend, Samuel E., assignor.)						
Evans, Howard. (See Wills, Edwin O., assignor.)						
Evans, John W., Los Angeles, Cal., assignor of one-half to G. A. Benwell, Jr., Denver, Colo. Waste-oil-filtering apparatus	700,128	May 15	2888	478	90	1899
Evans, Jonathan K., Dickinson Run, Pa. Draft-beam for cars	702,128	June 10	1640	287	90	2496
Evans, Morris E., et al. (See Savage, Thomas A., assignor.)						
Evans, Myron E., New York, N. Y. Band-blasting apparatus	698,688	May 13	1274	228	90	1471
Evans, N. P. (See Kennedy, David J., assignor.)						
Evans, Quinby N., Brooklyn, N. Y. Air-moistening apparatus	701,222	June 3	695	109	90	2211
Evans, Samuel J., Roanoke, Va. Umbrella-rib and stretcher-joint	698,227	Apr. 29	2838	779	90	795
Evans, William D., and J. T. Marshall, Eupora, Miss. Scale attachment	702,344	June 24	2627	688	90	2728
Evans, William J. (See Klepetho and Evans.)						
Evans, William L., Jr., Washington, Ind. Door-hinge	702,344	June 24	2627	688	90	2728
Evans, William O., Antioch, Cal. Cultivator	698,312	Apr. 29	2414	1508	90	1089

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Fawkes, Wilbert C., Sioux City, Iowa. Washing-machine	701,187	May 27	4000	1000	90	2000
Fay, Charles P., assignor to J. Stevens Arms & Tool Company, Chicopee Falls, Mass. Breech-block and lever connection	702,116	May 13	1000	400	90	1277
Fearley, Eli O. (See Jackson and Fearley.)						
Febiger, Henry B., Philadelphia, Pa. Apparatus for extinguishing fire in closed compartments	702,713	June 17	2611	371	90	2000
Febiger, Henry B., Philadelphia, Pa. Extinguishing fire in closed compartments	702,714	June 17	2612	371	90	2001
Fecker, Gottlieb, assignor to Warner and Swasey Company, Cleveland, Ohio. Binocular glasses	701,000	June 10	1000	301	90	2000
Fedeler, John H., New York, N. Y. Steam-turbine	700,214	May 20	2000	540	90	1000
Federal Appliance and Manufacturing Company. (See Simpson, Edward C., assignor.)						
Federal Automatic Machine Company. (See Schroeder, George C., assignor.)						
Federal Gine Company. (See Kelsey, Lovell L., assignor.)						
Federal Refining Company. (See Spreckels and Kern, assignors.)						
Federigo, Del. (See Giorgetti, Fuyal, and Federigo.)						
Fee, Ellsworth L., Warren, Ind. Instantaneous vapor-burner	702,004	May 20	2004	370	90	1016
Fehr, William, assignor to Steel Heddle Manufacturing Company, Philadelphia, Pa. Gripping mechanism for feeding metal strips, &c.	699,500	May 6	715	167	90	1294
Feld, Alexander J., Raleigh, N. C. Extractor for plug-tobacco, &c.	702,204	June 10	1000	410	90	2007
Felbel, Jacob. (See Stickney, Barnham C., assignor.)						
Felbel, Jacob, New York, N. Y., and C. Gabrielson, Greenville, N. J.; said Gabrielson assignor to said Felbel. Type-writing machine	699,700	May 13	1200	207	90	1400
Felbel, Jacob, New York, N. Y., and C. Gabrielson, Greenville, N. J.; said Gabrielson assignor to said Felbel. Type-writing machine	702,200	June 24	2700	370	90	2000
Felkin, A. C. and M. L. (See Scott, Charles C., assignor.)						
Fellows, Edwin C., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Electric controller	702,040	June 24	3707	370	90	2000
Fellows, Joseph, Philadelphia, Pa. Clamp	702,410	June 17	2000	407	90	2000
Felmler, John H., Pittsburg, Pa. Wrapping-machine	699,700	May 13	1200	207	90	1400
Fels and Co. (See Watson, William S., assignor.)						
Felsing, Samuel D., and E. G. Gustafson, Crookston, Minn. Wheeled straw-stacker	699,004	Apr. 8	1100	200	90	200
Felt, Erick P., Albia, assignor of one-half to C. H. Miles, Bemidji, Minn. Graphophone	701,007	June 8	700	107	90	2000
Felt, Frank B., Chicago, Ill., assignor of one-half to M. Greene, Marshalltown, Iowa. Re-tort for generating oxygen	702,000	June 17	2000	400	90	2000
Fenner, George P., New London, Conn. Sheet-delivery apparatus	699,014	Apr. 20	4010	1000	90	1000
Fenner, George P., New London, Conn. Printing-press	701,000	June 2	707	100	90	2007
Fenner, Irvin R. and W. D., San Francisco, Cal. Artificial limb	701,210	June 2	70	10	90	2120
Fenner, William D. (See Fenner, Irvin R. and W. D.)						
Fenner, William H., Chicago, Ill. Fine-fuel furnace	699,100	Apr. 20	2000	744	90	700
Fenner, William H., Chicago, Ill. Fine-fuel combustion	699,101	Apr. 20	2000	745	90	700
Fenton, Theodore C., U. S. Navy. Superposed turret	699,701	May 13	1201	270	90	1001
Ferber, Anthony. (See Foster and Ferber.)						
Ferguson, David L., Tharon, N. C. Toy boat	697,700	Apr. 15	2470	300	90	200
Ferguson, George, New York, N. Y. Non-refillable bottle	701,000	June 10	1000	200	90	2001
Ferguson, William, assignor one-half to A. Pfenbach, Pittsburg, Pa. Whiffletree-chip	699,100	Apr. 20	2000	747	90	700
Ferguson, Alan R., Mount Vernon, N. Y. Lock	697,014	Apr. 15	2000	510	90	510
Fernand, Joseph J. (See Howe and Fernand.)						
Ferre, Frank L., New York, N. Y. Line-grip	702,104	June 10	1000	200	90	2001
Ferrell, Albert T., Saginaw, Mich. Feeding device for bean-sorting machines	701,004	June 10	1000	200	90	2001
Ferrell, Albert T., Saginaw, Mich. Brush attachment for grain-cleaning machines	701,000	June 10	1000	200	90	2001
Ferrell, Albert T., Saginaw, Mich. Blast-regulator for grain-cleaners	701,000	June 10	1000	200	90	2001
Ferrea, Jeffrey T., Anderson, Ind., assignor to J. W. Saffee Manufacturing Company, Anderson, Ind., and Chicago, Ill. Shipping-package	697,000	Apr. 15	2000	447	90	400
Ferris, Henry L., assignor to Hunt, Helm, Ferris & Company, Harvard, Ill. Wire-stretcher	702,000	June 10	1000	410	90	2007
Ferry, Thomas, Cleveland, Ohio. Nut-tapping machine	699,000	Apr. 20	4001	1007	90	2007
Fettner, William H., Sycamore, Ohio. Grinding-machine	702,700	June 17	2700	370	90	2007
Fetzer, William. (See Moshring and Fetzer.)						
Fetzer, William, Middletown, Ohio. Grain-drill	702,210	May 20	2000	540	90	1000
Field, Charles C. (See Pullman and Field.)						
Field, Frederick F., Providence, R. I. Fanest	699,577	May 6	400	110	90	1271
Field, Willard F., Boston, Mass. Car-fender	699,010	Apr. 20	4010	1000	90	1000
Fisher, John F., Dundee, Ill. Nut-lock and key	702,000	June 10	1000	410	90	2007
Fisher, Henri E. L. (See Garnet and Fisher.)						
Figueredo, Emilio, and L. Rahamondia, New York, N. Y. Bottle-filling machine	699,000	Apr. 8	1111	207	90	200
Filley, Christopher G. (See Jenkins, William E., assignor.)						
Filter, August, Hanover, Germany. Bread-cutter	699,010	Apr. 20	4001	1000	90	1000
Filter, Brautechnische Maschinen-Fabrik, Act. Ges. vorm. L. A. Kautinger. (See Kautinger, Karl, assignor.)						
Finch, John W., Leland, Minn. Wagon-body	702,000	May 20	2000	540	90	1000
Fink, John C., Steelton, Pa. Writing attachment	701,007	June 10	1000	200	90	2001
Fink, Joseph H., Kansas City, Mo., and R. Andlauer, Kansas City, Mo. Vapor-stove	701,000	June 2	700	107	90	2101
Finnegan, John, assignor to J. Devlin & Co., Philadelphia, Pa. Clipping for railings, &c.	699,000	May 20	2000	540	90	1000
Finnery, James J., Chicago, Ill. Flash-valve	700,000	May 20	2000	540	90	1000
Finnery, James J., Chicago, Ill. Flash-valve	700,000	May 20	2000	540	90	1000
Finnery, James J., assignor of one-half to J. H. Chandler, Chicago, Ill. Flash-valve	700,000	May 20	2000	540	90	1000
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-machine	701,000	June 2	700	107	90	2101
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press	701,000	June 2	700	107	90	2101
Fischer, Bruno, Osnabrück, Germany. Machine for skiving leather	699,010	Apr. 20	4001	1000	90	1000
Fischer, Frederick J. W., Rockaway, assignor to Eagle Penell Company, New York, N. Y. Pen	699,004	May 6	400	100	90	1200
Fischer, Harry A., et al. (See Fischer, Louis H., assignor.)						
Fischer, Max H., East Orange, N. J. Gun	702,000	May 20	2000	540	90	1000

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Fischer, Sigfried M., et al. (See Nilson, Lars G., assignor.)	698,917	Apr. 29	698	1088	99	1089
Fish, Joseph F., assignor of one-half to J. Keller, Chicago, Ill. Sandal	702,715	June 17	2612	999	99	2614
Fishbeck, Fred, assignor of one-half to C. Leiser, Pittsboro, Wis. Weather-strip for doors	701,319	June 2	73	15	99	2124
Fishell, Eugene M., and W. R. Clymer, assignors to National Carbon Company, Cleveland, Ohio. Primary battery	701,399	June 10	1041	294	99	2941
Fisher, David A., Hamilton, Mont. Tilting gate	701,380	June 2	73	15	99	2124
Fisher, Charles, Lyons, assignor of one-half to G. A. Horn, Newark, N. Y. Combined end-board and boat for wagons	700,788	May 27	2620	790	99	1091
Fisher, Frank H., Brooklyn, N. Y. Box-plaiting device						
Fisher, H. Clarence, et al. (See Hall, Edward W., assignor.)						
Fisher, Lucius G. (See Banner, Lorenzo D., assignor.)						
Fisher, Robert J., Athens, Tenn., and H. F. Eckert, Cleveland, Ohio, assignors to Fisher Typewriter Company, Athens, Tenn. Card or sheet holding attachment for type-writing machines	700,126	May 15	1295	492	99	1299
Fisher Typewriter Company. (See Fisher and Eckert, assignors.)						
Fisher, William P., and H. P. Ladington, Muncie, Ind. Fruit-jar or bottle machine	701,198	May 27	4022	994	99	2027
Fisk, Eugene B., West Nashville, Tenn. Horseshoe	702,294	June 10	1909	412	99	2405
Fisk, Henry M., Wheaton, Ill. Combination drop and jack for telephone-switchboards	699,619	May 6	923	216	99	1293
Fisk, John M., Malone, N. Y. Nursery milk-warmer and night-lamp	697,595	Apr. 15	2673	595	99	600
Fiska, Bradley A., U. S. Navy. Telescope-mount	699,990	May 6	261	72, 74	99	1249
Fiska, Bradley A., U. S. Navy, assignor to Western Electric Company, Chicago, Ill. Electrical steering apparatus for ships	697,995	Apr. 15	2693	995	99	600
Fitch, Eugene, Astoria, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Adding-machine	702,029	June 10	1294	214	99	2409
Fitta, Joseph D. (See Stanton, John W., assignor.)						
Fitzgerald, Daniel F., P. M. Seifert, and M. Kimmel, said Seifert assignor of one-half his right to W. L. Wallace, Walkerton, and I. J. Krugbaum, Tyler, Ind. Non-refillable bottle	700,734	May 27	2620	740	99	1091
Fitzgerald, Jacob. (See Hoyer, Charles, assignor.)						
Fitzgerald, Richard. (See Hibbard, Maury W., assignor.)						
Fitzhugh, Cameron S., Waco, Tex. Fan	698,498	Apr. 1	61	14	99	14
Flaccus, Charles L. (See Greenwood, William J., assignor.)	697,615	Apr. 15	2694	512	99	519
Flagg, Alice A., Jeffersonville, Va. Hand chopping-knife	700,216	May 20	2620	541	99	1094
Flagg, Fred P., Worcester, Mass. Ball-cock	700,795	May 27	2621	740	99	1091
Flagg Manufacturing Company. (See Eaton and Reed, assignors.)						
Flanders, John E., Stargis, Mich. Type-writer attachment	699,919	Apr. 29	4994	1095	99	1091
Fleckenstein, Leonard E., Easton, Md. Can-filling machine						
Fleischer, Emil, Dresden-Strehlen, assignor to J. E. Goldschmid, Frankfurt-on-the-Main, Germany. Making water-gas	701,593	June 2	208	110	99	2612
Fleming, David E., Hillsdale, Mich. Adjustable window-screen	702,094	June 10	1474	299	99	2409
Fleming, Richard, Lynn, Mass., assignor to General Electric Company. Electric indicating instrument	698,427	Apr. 1	98	14	99	17
Fleming, Robert. (See Somerswober, William, assignor.)						
Fleming, Thomas V. (See Craig and Fleming.)						
Fleming, William, Chicago, Ill. Balling-machine	698,000	Apr. 1	512	113	99	111
Flemming, Carl E., Schönbühls, Germany. Machine for boring brush-blocks and seating in the brushes	698,099	Apr. 29	4994	1097	99	1097
Fletcher, Edward. (See Tipping and Fletcher.)						
Flindall, John, Chicago, Ill. Toy	697,998	Apr. 15	2693	945	99	601
Flinn, R. J. (See Aborn, George P., assignor.)						
Flint, Almon H., Motra, N. Y. Sleigh	699,600	Apr. 29	2615	999	99	600
Flint, Charles E., trustee. (See Lawson, Henry J., assignor.)						
Flint, James J., assignor to Flint-Lomax Electric and Manufacturing Company, Denver, Colo. Electric switch	702,394	June 10	1909	441	99	2409
Flint-Lomax Electric and Manufacturing Company. (See Flint, James J., assignor.)						
Flora, Ellsworth E., Chicago, Ill., assignor to Farrand Organ Company, Detroit, Mich. Self-playing instrument	700,412	May 20	2601	994	99	1721
Florence Manufacturing Company. (See Schwartz, Herman M., assignor.)						
Flowers, Alonzo H., Westville, Fla. Lifting device	701,199	May 27	4027	995	99	2027
Floer, Barthold, Eckersdorf, assignor of one-half to Engel & Gross, Bremen, Germany. Joining device for cast-iron pipes	697,997	Apr. 15	2693	995	99	601
Flood, Charles. (See Kish and Flood.)						
Flood, James H., assignor to H. W. Gossard Company, Chicago, Ill. Cornet	700,217	May 20	2621	541	99	1094
Fogel, Edward A., Burlington, Iowa. Combined lock and latch	699,201	May 6	269	74	99	1249
Folding Wheel Carriage Company. (See Fanning, Charles E., assignor.)						
Foley, Daniel J., Cambridge, Mass. Shoe-cleaner	702,029	June 10	2606	751	99	2409
Foley, John E., Pontiac, Mich. Vehicle-hub	702,548	June 17	2691	991	99	2617
Folger, Henry C., H. Moriarty, and E. B. Jacobson, West Somerville, Mass.; said Jacobson assignor to said Folger and Moriarty. Sparking plug	698,070	Apr. 1	519	120	99	112
Folk, Joseph J. (See Folk, Theodore F. and J. J.)						
Folk, Theodore F. and J. J., Burton, Okla. Ter. Draft-equalizer	698,990	Apr. 29	4997	1095	99	1098
Folkers, George A. W. (See Folkers, John H. L., and G. A. W.)						
Folkers, John H. L. and G. A. W., Oakland, Cal. Device for filing saws	701,700	June 2	701	199	99	2607
Folk, William, Cincinnati, Ohio. Bookbinding	699,991	Apr. 29	4995	1095	99	1098
Fonda, Isaac I., Hopedale, Mass. Elevator-guard	701,095	June 10	1475	293	99	2409
Foot, Charles B., Jr., Cincinnati, Ohio. Bash-tightening device	697,999	Apr. 15	2693	997	99	604
Foot, Charles B., Jr., Cincinnati, Ohio, assignor of one-half to W. Macleod, Newport, Ky. Locking device	697,998	Apr. 15	2697	995	99	604
Foot, Ernest N. (See Grump, Ira E., assignor.)						
Forbes, George, Westminster, England. Range-finder	701,190	May 27	4026	995	99	2026
Forbes, John W., New Britain, Conn. Eyeglass	701,476	June 2	922	75	99	2126
Ford, Clement, Axminster, England. Rail for cycles, &c	702,093	June 10	2607	751	99	2409
Ford, Fred H., assignor of one-half to J. H. Hill, Jacksonville, Fla. Lifting-jack	698,999	Apr. 29	4999	1096	99	1098
Ford, John F. (See McVesty and Ford.)						
Ford, Thomas F., Hackensack, N. J. Controlling device	701,701	June 2	702	199	99	2607
Fordyce, Edmund A., Chicago, Ill. Pneumatic-despatch tube	698,990	Apr. 29	4995	1095	99	1098
Forster, James E., Toronto, Canada. Music-teaching apparatus	698,510	May 6	719	167	99	1264
Forst, Joseph. (See Forst, Philipp, assignor.)						
Forst, Philipp, assignor of one-half to J. Forst, Brooklyn, N. Y. Beer-tapping device	698,999	Apr. 29	4999	1096	99	1098

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Forman, Walter A., Brooklyn, N. Y. Safety attachment for elevators.	999,511	May 6	770	144	90	1185
Forney, Matthias N., New York, N. Y. Means for counterbalancing the momentum of reciprocating elements.	701,977	June 3	254	78	90	2123
Forshelm, Joseph, New York, assignor to Eastman Kodak Company, Rochester, N. Y. Panoramic camera.	822,101	May 6	61	15, 17	90	1106
Forstner, Hugo W., Chicago, Ill., assignor to American Pneumatic Service Company, Boston, Mass. Pneumatic-despatch system.	701,329	June 10	1042	284	90	2241
Forster, Frank L., assignor of one-half to J. A. and M. Ousey and A. H. Hildreth, Shelbyville, Ind. Door slide or guide for furniture.	702,243	June 10	1910	426	90	2616
Forster, Friedrich W., Burlington, Iowa. Wheelwright-machine.	697,464	Apr. 15	9020	443	90	446
Forster, John T., Dandenong, Victoria, Australia. Lap-rope.	702,297	June 10	1223	413	90	2468
Forstyth, Wilbur D., and E. F. Bell, assignors to Union Boiler Tube Cleaner Company, Pittsburg, Pa. Boiler-tube cleaner.	822,126	Apr. 22	2260	745	90	730
Forstyth, William, Belvidere, Ill. Needle-bar-guiding mechanism for sewing-machines.	693,664	Apr. 22	2011	864	90	691
Fort, Victor, Paris, France. Gas lighting or extinguishing device.	702,198	June 10	1644	363	90	2464
Fortney, Mariano, Venice, Italy. Stage illumination with indirect light.	693,024	Apr. 22	4222	1035	90	1032
Foss, Benjamin F., Albion, Mo. Lengthening attachment for bits.	693,001	Apr. 22	2014	922	90	690
Foster, Arthur L. (See Pratt, John C., assignor.)	693,513	May 6	732	165	90	1225
Foster, Burton G., Verona, N. Y. Thrill-coupling.	702,093	May 20	2020	579	90	1217
Foster, Eugene S. (See Foster, Malcolm C. and E. S.)	693,523	May 6	480	110	90	1271
Foster, Francis A., Saint City, Iowa. Elevator-tension beam.	701,702	June 3	725	170	90	2200
Foster, Frank W., Melrose, Mass. Round-shaking grate.	702,022	June 10	2042	700	90	2728
Foster, James F., and A. Forster, assignors to S. Shepard and Company, Buffalo, N. Y. Culinary sifter or strainer.	693,003	Apr. 22	2017	923	90	690
Foster, Malcolm C. and E. S., Hawarden, Iowa. Post-driving apparatus.	693,495	Apr. 22	2019	924	90	692
Foster, Oscar S., Utica, N. Y. Cover-fastener for bedsteads.	693,495	Apr. 22	2019	924	90	692
Foster, William E., Utica, N. Y. Taper for furnaces.	693,915	May 12	1223	254	90	1207
Foster, William L. (See Hatch, Valentine, assignor.)	693,120	Apr. 22	2025	706	90	735
Fountain City Drill Company. (See Edwards, Eugene O., assignor.)	702,220	May 20	2073	541	90	1204
Fournier, Eugene, Paris, France. Disinfecting apparatus.	700,120	May 20	2007	479	90	1040
Fouts, Albert, Alexandria, assignor of one-half to H. A. Moore, Indianapolis, Ind. Dumping-vehicle.	701,121	May 27	4020	925	90	2020
Fowler, Alfred B., Central Falls, R. I., assignor to United Shoe Machinery Company.	700,319	May 20	2073	541	90	1205
Fowler, N. J. Buffing-roll.	700,735	May 27	2022	740	90	1201
Fowler, Alfred B., Central Falls, R. I., assignor to United Shoe Machinery Company.	700,735	May 27	2022	740	90	1201
Fowler, N. J. Machine for making insoles.	697,297	Apr. 15	2022	740	90	691
Fowler, Charles V., Los Angeles, Cal. Apparatus for moving heavy bodies.	693,208	May 6	205	74, 75	90	1240
Fowler, Edward C., Forestville, assignor of one-half to W. E. Simonds, Canton, Conn. Nail-puller.	693,208	Apr. 22	4024	1067	90	1066
Fowler, Edward C., Forestville, assignor of one-half to W. E. Simonds, Canton, Conn. Nail-puller.	700,735	May 27	2022	740	90	1201
Fowler, Frank L., assignor of two-thirds to T. A. Royal, Jr., and I. Kanton, Philadelphia, Pa. Trolley-pole.	697,297	Apr. 15	2022	740	90	691
Fowler, George H., and W. D. Howe, Cortland, N. Y. Grinding-wheel.	693,208	May 6	205	74, 75	90	1240
Fowler, Harry, Crandall, Ind. Axle-skein.	693,208	Apr. 22	4024	1067	90	1066
Fowler, Richard E., New York, N. Y. Metal-wire-winding device.	702,126	June 24	2412	926	90	2202
Fowler, Rufus E., Worcester, Mass., assignor to W. A. and L. H. Dodge, Keene, N. H. Window-screen.	693,208	Apr. 22	4024	1067	90	1066
Fox, Charles H., Cincinnati, Ohio. Steam-generator for locomotive service.	700,220	May 20	2073	541	90	1205
Fox, Ernest C., Cleveland, Ohio. Register.	702,022	June 10	2042	700	90	2728
Fox, John H., Portoria, Ohio. Magazine torpedo-case.	693,208	Apr. 22	1114	247	90	2207
Fox, John H., New York, N. Y. Bottle-capping machine.	702,126	June 24	2412	926	90	2202
Fox, John H., New York, N. Y. Salts-injector for siphon-filling machines.	702,126	June 24	2412	926	90	2202
Fox, John H., New York, N. Y. Carbonator for beverages.	702,126	June 24	2412	926	90	2202
Fox Machine Company. (See Barrett, Glenn J., assignor.)	693,208	Apr. 22	4024	1067	90	1066
Fox, Thomas J., assignor to Bigelow, Kennard & Co., Boston, Mass. Chiming mechanism for clocks.	693,208	Apr. 22	4024	1067	90	1066
Foy, Alphonse L., New York, N. Y. Wheel for roller-skates.	697,297	Apr. 15	2022	740	90	691
Fraily, Casper H., and G. F. Miller, Alma, Neb. Converting motion.	697,297	Apr. 15	2022	740	90	691
Frane, Emil, London, England. Apparatus for measuring and drawing liquids.	697,297	Apr. 15	2022	740	90	691
Franchot, Richard, Niagara Falls, N. Y. Making paris-green.	693,208	Apr. 22	4024	1067	90	1066
Francis, Albert J. (See Kohlberg and Francis.)	697,297	Apr. 15	2022	740	90	691
Francis, Emil J., Collingsdale, Pa. Knitting-machine.	697,297	Apr. 15	2022	740	90	691
Francis, Otto, Freiburg, Germany. Double door.	693,208	Apr. 22	4024	1067	90	1066
Frank, Adolf, Hamburg, Germany. Small-arm.	701,121	June 3	70	16	90	2124
Frank, Willis J., Alcester, S. D. Hay-rack lifter.	702,022	June 10	2042	700	90	2728
Frankenthal, David, Frankfurt-on-the-Main, Germany. Mattress.	702,126	June 24	2412	926	90	2202
Frankish, Charles, Ontario, Cal. Fastener for hose-couplings.	701,702	June 10	1644	363	90	2464
Franklin, Herbert H., Syracuse, N. Y. Casting apparatus.	702,126	June 24	2412	926	90	2202
Franklin, John, Norwood, Ohio. Stopper for gas-mains.	702,126	June 24	2412	926	90	2202
Franklin, Samuel. (See Adams, Frank E., assignor.) (Retained.)	701,220	June 3	70	16	90	2125
Frantz, Jacob, Philadelphia, Pa. Wheat-steamer.	701,220	June 3	70	16	90	2125
Frantz, Peter, Sterling, Ill. Bale-tie machine.	701,220	June 3	70	16	90	2125
Frash, Hans A., New York, N. Y. Making caustic alkali.	697,297	Apr. 15	2022	740	90	691
Frash, Hans A., Hamilton, Canada. Recovering metals by electrolysis.	697,297	Apr. 15	2022	740	90	691
Fraser, Ethelbert M., Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Electric transmission of power.	697,297	Apr. 15	2022	740	90	691
Fraser, William, Blackpool, England. Mechanical stoker.	701,126	May 27	4024	1067	90	2202
Fraser & Geyer Co. (See Fraser, William G., assignor.)	702,022	June 10	2042	700	90	2728
Fraser, William G., assignor to Fraser & Geyer Co., New York, N. Y. Fountain-pen.	701,126	May 27	4024	1067	90	2202
Fréchette, Louis, Montreal, Canada. Horn-rotating mechanism.	702,022	June 10	2042	700	90	2728
Frack, William, Chicago, Ill. Tablet-machine.	702,022	June 10	2042	700	90	2728
Frackelbach, George A., Pawtucket, R. I. Thread-dressing machine.	693,208	Apr. 22	4024	1067	90	1066
Fredericks, John G., Reading, Pa. Spinning-machine.	693,208	Apr. 22	4024	1067	90	1066
Fredericks, Lewis F., Galesburg, Ill. End-gate and fastening character.	702,022	June 10	2042	700	90	2728
Frederickson, Kate, assignor of one-half to H. W. Perry, Chicago, Ill. Playing-card.	702,022	June 10	2042	700	90	2728
Frederiksen, Anton, Copenhagen, Denmark. Lock.	693,208	Apr. 22	4024	1067	90	1066
Frederickson, Anton, Bridgeport, Conn. Heraldic press.	693,208	Apr. 22	4024	1067	90	1066
Frederickson, Anton, Bridgeport, Conn. Heraldic press.	693,208	Apr. 22	4024	1067	90	1066
Free, Arden H., Peekskill, N. Y. Type-writer.	693,208	Apr. 22	4024	1067	90	1066

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Freeborn, John W., Huron, Ohio. Tur. Flag-cane.....	699,997	Apr. 8	1125	267	90	297
Freeman, Delbert O., assignor of one-half to Rex Acetylene Generator Company, Kingston, N. Y. Gas-purifier.....	701,704	June 3	WR	179	90	2990
Freeman, John W., assignor of one-half to S. B. A. Haynes, Denver, Colo. Combination door knob and bell.....	700,493	May 20	2704	649	90	1793
Freeman, John W., assignor of one-half to S. B. A. Haynes, Denver, Colo. Combined door knob and bell.....	700,631	May 20	2827	684	90	1804
Freeman, Laurens R. (See Bowley and Freeman.).....						
Freeman, Stuart B., St. Louis, Mo. Water-tube boiler.....	699,997	Apr. 20	695	303	90	699
Freeman, Thomas R., and T. H. Henderson, Portsmouth, Va. Self-extinguishing non-explosive lamp.....	699,994	Apr. 1	877	303	90	193
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French, George H., et al. (See Harris, William L., assignor.).....						
French, George H. R., et al. (See Harris, William L., assignor.).....	699,379	May 6	971	111	90	1291
French, Joseph, Woonsocket, R. I. Clutch and stop mechanism.....						
French, Joseph, Woonsocket, R. I. Printing and faking device for postmarking and canceling machines.....	703,414	May 20	2993	695	90	1771
French, Peter W. (See Hunt, Nathaniel F. T., assignor.).....						
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Fretwell, William A., South Boston, Va. Manufactured tobacco.....						
Freville, Albert B. (See Reader and Freville.).....						
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Frey, Frederick G., Jr., St. Louis, Mo. Initial finger-ring.....	702,993	June 17	2979	693	90	2949
Frick, Abraham O., assignor to Frick Company, Waynesborough, Pa. Automatic skinning-regulator for ice-making apparatus.....	702,990	June 10	1214	414	90	2990
Frick, Fred, Waynesborough, Pa. Electric clock.....						
Friedman, Samuel, et al. (See Hummel, Louis, assignor.).....	700,799	May 27	2939	793	90	1999
Friedrich, John O., Bordentown, N. J. Button.....	699,995	Apr. 1	573	313	90	193
Friel, Patrick H., Kenosha, Wis. Die for covering tubes.....	697,394	Apr. 8	1795	395	90	295
Frisbee, Walter W., Boston, Mass. Puzzle.....						
Frisbie, William L., assignor to L. B. Baker Manufacturing Company, Racine, Wis. Lawn-rake.....	697,137	Apr. 8	1493	237	90	293
Fritz, Otto, Nuremberg, assignor to C. A. Kapsler and W. Schleming, Munich, Germany. Making cement.....	699,993	Apr. 20	2993	-----	90	793
Fritsch, Herbert L., Boston, Mass. Stop-ladder.....	700,093	May 13	1741	691	90	1243
Froehlich, Henry, Lahua, Hawaii. Machine for unloading cane-cars.....	701,093	June 10	1477	393	90	2493
Froment, René, Paris, France. Electric-arc lamp.....	699,307	Apr. 1	779	177	90	195
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From, Harrison C., assignor to Goodyear Tire and Rubber Company, Akron, Ohio. Rubber-tread horseshoe.....	701,997	June 3	995	293	90	2994
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Fry, Fred H., Fort Worth, Tex. Type-writer.....	699,990	May 6	313	73	90	1990
Fry, Charles A., Monongahela, Pa. Metallic tie and rail-joint combined.....	701,194	May 27	2997	999	90	2999
Fryer, James, Buxton, England. Window.....	699,499	Apr. 1	65	15	90	19
Fryer, Josephine, Chelsea, Mass. Hook and eye.....	699,193	May 6	66	17	90	1193
Fryk, Olof, Ragby, and L. E. Johnson, Richburg, N. D. Track-jack.....	699,999	Apr. 1	293	293	90	199
Fuhrmann, Franz, Berlin, Germany. Making magnesium peroxid compound.....	699,999	Apr. 20	2749	-----	90	999
Fulagar, Hugh F., Heaton, Newcastle-upon-Tyne, England. Compound steam-turbine.....	699,997	Apr. 1	691	394	90	199
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Fullard, William, Colwyn, assignor to Fullard Manufacturing Company, Philadelphia, Pa. Plate-printing and embossing press.....	702,767	June 17	2793	694	90	2713
Fullaway, Richard H., Los Angeles, Cal. Hydrocarbon-burner.....	699,990	May 6	474	111	90	1279
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company. Catch for purse or bag frames.....	697,997	Apr. 13	2993	449	90	697
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company. Purse or bag frame catch.....	699,993	Apr. 20	2993	693	90	693
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Fuller, Louis C., Kansas City, Mo. Gas-lamp.....	701,393	June 3	79	19	90	2139
Fullman, James H. G., Pittsburg, Pa. Outlet-box for electric wires and conduits.....	699,931	May 6	673	113	90	1233
Fulton Iron Works. (See O'Neil, John F., assignor.).....						
Funch, Lafayette, Farmington, Cal. Can-holder.....	700,393	May 20	2999	343	90	1993
Fugua, O. C. (See Graham, Eliza, assignor.).....						
Furish, Zachary T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Means for securing handles or rests to tools.....	701,139	May 27	4993	993	90	2993
Furman, John C., assignor of one-fourth to J. W. Jones, Strattonville, and I. M. Shannon, Clarion, Pa. Safety device for gas-lines.....	702,125	June 10	1949	393	90	2995
Furmidge, Samuel, St. Louis, Mo., assignor to Furmidge Spring Wheel Company, Pierre, S. D. Wheel.....	701,795	June 3	795	171	90	1999
Furmidge Spring Wheel Company. (See Furmidge, Samuel, assignor.).....						
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Fyfe, Robert, New York, N. Y. Non-refillable and non-rupturable vessel for liquids.....	699,917	Apr. 1	1939	994	90	213
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Gabel, John G., Holton, Kans. Cigar-packing machine.....	699,993	Apr. 1	937	293	90	193
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Geartner, Rudolf, assignor to Karlsruher Kautlin-Industrie-Gesellschaft, Karlsruhe, near Carlsruhe, Austria-Hungary. Insulator for high-potential currents.....	699,999	Apr. 8	1117	397	90	297
Galante, Jules R. (See Wilcox and Galante.).....						
Gall, John F., assignor to Simmons Manufacturing Company, Kenosha, Wis. Automatic brake and power-shifting mechanism.....	700,419	May 20	2995	995	90	1791
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Gallagher, George S., assignor to Economy Furnace Company, New York, N. Y. Furnace.....	697,385	Apr. 15	696	596	99	606
Gallagher, Thomas M., Old Orchard, assignor to Soule-Gallagher Iron & Steel Company, St. Louis, Mo. Bolster.....	693,940	Apr. 29	697	1007	99	1005
Gallagher, Thomas M., Old Orchard, assignor to Soule-Gallagher Iron & Steel Company, St. Louis, Mo. Body-bolster for railway-cars.....	693,941	Apr. 29	697	1008	99	1004
Gallant, Achille, West Hoboken, N. J. Regulator for controlling the descent of elevator-cars.....	702,942	June 24	702	604	99	2000
Galloway, Oscar E. (See Cooper, William M., assignor.)						
Galopin, Paul. (See Tommasina, Thomas, assignor.)						
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Galvin, Thaddeus, Detroit, Mich. Ball-caster.....	701,193	May 27	699	992	99	2001
Galway, John J., assignor of one-half to K. McDonald, Duluth, Minn. Chain retaining and releasing means.....	702,543	June 17	702	992	99	2017
Gambie, Elsworth. (See Latta, Elsworth M., assignor.)						
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Gane, Robert E. A., Pankov, Germany. Ignition material for matches.....	693,944	Apr. 29	693		99	999
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Gardner, Edgar S., Boston, Mass., assignor to Bernsten Electric Manufacturing Company, Portland, Me. Manufacturing incandescent electric lamps.....	697,459	Apr. 15	699	469	99	697
Gardner, George E., assignor of one-half to F. J. Hastings, Haverhill, Mass. Shoe-turning device.....	702,198	June 29	702	990	99	2005
Gardner, Jefferson M., New London, Conn. Cotton-seed dehusker.....	693,950	Apr. 6	1117	245	99	2007
Gardner, Michael M., Cranston, R. I. Cigar-bunching machine.....	693,974	May 13	1949	246	99	1945
Garland, Ernest C., Chelsea, assignor of one-half to W. A. Stevens, East Boston, Mass. Combined valve and switch apparatus.....	693,955	Apr. 1	693	199	99	99
Garma, William, Los Angeles, Cal. Apron and apron-tilt.....	693,512	May 6	705	199	99	1995
Garrett, John M. (See Stevens, William H., assignor.)						
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Garrett, Frank W., Johnstown, Pa., assignor to Lorain Steel Company. Trolley for electric railways.....	702,956	June 24	702	701	99	2700
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Garrison, William F., assignor to Guild & Garrison, Brooklyn, N. Y. Vacuum-pump.....	693,959	Apr. 29	693	997	99	999
Garrison, William F., assignor to Guild & Garrison, Brooklyn, N. Y. Valve for vacuum-pumps.....	702,954	June 10	1419	216	99	2017
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Gaska, Albert, Roadburg, Wis. Spark arrester and extinguisher.....	693,960	Apr. 6	1120	245	99	2007
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Gaskins, George H., Portsmouth, Va. Machine for polishing rings.....	693,514	May 6	705	199	99	1995
Gasson, Emil G., Sioux City, Iowa. Safety-fanest and water-controlling connection.....	693,721	Apr. 1	695	142	99	147
Gatch, Milton W., Cincinnati, Ohio. Forker.....	697,570	Apr. 15	697	690	99	690
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Gates, William H., assignor to himself and R. P. Green, Worcester, Mass. Breakdown.....	693,194	Apr. 29	693	705	99	770
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Gavitt, Harry E., Topeka, Kans. Horse-tail holder.....	697,562	Apr. 6	1399	299	99	299
Gay, Chauncy W., West Springfield, Mass. Creasing or scoring and watermarking mechanism for paper-box machinery.....	702,965	June 10	1949	645	99	2005
Gay, Edgar A., Rochester, N. Y., assignor to Song Company, Chicago, Ill. Hinge for furniture.....	694,671	Apr. 1	691	120	99	113
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Gerrard, Edward, assignor to National Dry Kiln Company, Indianapolis, Ind. Dry-kiln	702,721	June 17	2327	604	20	2327
Gerrish, Edward W., assignor of one-half to T. W. Gardiner, Lynn, Mass. Last-awing machine						
Gerstnayer, Anton, assignor of one-half to L. A. Dunne, Chicago, Ill. Nut-cracking machine						
Gesellschaft für Huberpressung Gesellschaft mit Beschränkter Haftung. (See Huber, Carl, assignor.)						
Gestetner, David, London, England. Stencil-printing apparatus	700,031	May 13	1745	401	20	1247
Gourink, Bernard A., Cleveland, Ohio. Press for expressing juice from fruit or other material	702,130	June 24	2327	512	20	2327
Ghagan, John J., Newark, N. J. Circuit-controller	697,394	Apr. 15	2334	085	20	034
Giacomini, Achilles, San Francisco, assignor to A. White, Vallejo, Cal. Button-sewing machine	701,371	June 10	1931	222	20	2222
Giacomini, Achilles, San Francisco, assignor to A. White, Vallejo, Cal. Starting or stopping mechanism	701,373	June 10	1934	227	20	2244
Gibbons, Samuel J., Mount Pleasant, Pa. Window-lock	702,123	June 10	1934	271	20	2223
Gibbons, Pierce F., assignor of two-thirds to E. G. Barfus and C. E. Koster, Chicago, Ill. Mechanical boiler-cleaner	702,320	June 24	2327	701	20	2720
Gibbs, Harry D. (See Smith and Gibbs.)						
Gibbs, Henry, assignor to W. D. Allen Manufacturing Company, Chicago, Ill. Hose-nose	693,334	May 6	422	113	20	1223
Gibbs, Lucius T., New York, assignor to Vehicle Equipment Company, Brooklyn, N. Y. Wheel-hub	702,001	May 13	1745	404	20	1545
Gibbs, Harry J. (See Smith, Claude R., assignor.)						
Gibson, Charles G., Sioux City, Iowa. Dilator	702,725	June 17	2323	604	20	2713
Gibson, O. B., Thayer, Iowa. Device for brushing flies from cattle and trapping same	701,573	June 10	1935	227	20	2244
Gibson, Winfield H., Homestead, and H. Weesling, Hopechurch, Pa. Producing silica bricks	701,707	June 3	771		20	2270
Gibson, Winfield H., Homestead, and H. Weesling, Hopechurch, Pa. Silica brick	701,708	June 3	771		20	2270
Giesler, Arthur, assignor to Stillwell-Bierce & Smith-Valle Co., Dayton, Ohio. Turbine-water-wheel system	702,000	June 24	2323	724	20	2223
Glass, Henry, Chicago, Ill. Cooking utensil	697,472	Apr. 15	2330	480	20	405

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Gibson, William, Chicopee, Mass., assignor of one-half to M. A. Remick, Augusta, Me. Spinning-spindle.....	701,709	June 3	773	171	90	2970
Gilbert, Charles L., Cleveland, Ohio. Telescopic case.....	693,683	Apr. 29	3916	595	90	2920
Gilbert, Clark, Bridgeport, Ohio. Electric arc lamp.....	693,331	Apr. 29	4940	1095	90	1094
Gilbert, Manley I., Wethers, Mass. Parallel railway-rail bearing.....	697,351	Apr. 8	1340	297	90	304
Gilbert, Wilbur F., assignor to F. & F. Corbin, New Britain, Conn. Window-stop-adjusting device.....	697,139	Apr. 8	1435	317	90	292
Gilbert, Wilbur F., assignor to F. & F. Corbin, New Britain, Conn. Door-knob.....	699,515	May 6	735	169	90	1993
Giles, Isaac W., New Bedford, assignor to Atlas Tack Company, Fairhaven, Mass. Eyelet.....	702,199	June 10	1665	371	90	2466
Gill, Arthur B. (See Preston and Gill.)						
Gill, Edwin R., Englewood, N. J., assignor, by mesne assignments, to Otis Elevator Company. Elevator.....	701,396	June 3	35	18	90	2126
Gill, John E., Franklin, Pa. Device for lubricating car-journals.....	701,030	May 27	3749	595	90	1993
Gill, John E., Franklin, Pa. Car-axle lubricator.....	701,030	May 27	3750	595	90	1993
Gillarduzzi, Arcangelo, Philadelphia, Pa. Band-saw guide and tension device.....	697,711	Apr. 15	2421	354	90	650
Gillenwater, Edward, et al. (See Richards, Jesse D., assignor.)						
Gillman, Luke, Woonsocket, R. I. Kettle.....	702,035	June 10	1413	316	90	2417
Gilletta, Halbert P., assignor to J. H. Gillette, Rochester, N. Y. Microscope.....	694,599	Apr. 1	990	305	90	198
Gilletta, Julia E. (See Gillette, Halbert P., assignor.)						
Gilligan, Michael J., et al. (See Linscott, William D., assignor.)						
Gillinder, Frederick R. (See Stutz, Frederick, assignor.)						
Gilling, Charles J., Chicago, Ill. Tire for vehicle-wheels.....	701,355	June 3	905	111	90	2926
Gilman, Edward R., assignor to Iron Old Manufacturing Company, New York, N. Y. Garbage or refuse can.....	697,438	Apr. 15	2040	490	90	490
Gilmore, Charles E., assignor to Winslow Bros. Co., Chicago, Ill. Mechanism for operating elevator-doors.....	699,205	May 6	321	75, 77	90	1941
Gilmore, Charles E., assignor to Winslow Bros. Co., Chicago, Ill. Mechanism for operating elevator-doors.....	699,940	May 13	1377	319	90	1473
Gilmore, Ira F., Bloomington, Ill. Wireless piano.....						
Gilmore, Thomas N. (See McCoy and Gilmore.)						
Gilmore, Winfield S., New York, N. Y. Package-carrier.....	700,336	May 20	2923	343	90	1993
Gilpatrick, Nehemiah, St. Johnsbury, Vt. Impact-engine.....	693,371	Apr. 29	3535	730	90	730
Gilson, John, Fort Washington, Wis. Grinding-machine.....	701,031	May 27	3751	595	90	1993
Giltz, Goodlow P., et al. (See Anderson, Frank C., assignor.)						
Giorgetti, Giovanni, Boston, T. J. Fayet, Hudson, and D. Federigo, Boston, Mass. Phon-pump.....	697,385	Apr. 15	2997	599	90	604
Giovanna, George, New York, N. Y. Parser and cutter.....	702,419	June 17	2097	493	90	2549
Giroux, Joseph L., Jerome, Ariz. Ter. Steam-generator.....	702,530	June 17	2998	599	90	2517
Gisler, August, Ocosingo Island, off Costa Rica. Brush.....	699,753	May 13	1305	290	90	1425
Giwitz, Albert F., Redcloud, Neb. Wrench.....	693,675	May 13	1054	246	90	1425
Gladwell, Arthur. (See Colard, George, assignor.)						
Gladwin, Edmund C., Oakland, Cal. Mustache-guard.....	702,790	June 17	2797	694	90	2714
Gladwin, Edmund C., Oakland, Cal. Mustache-guard.....	697,713	Apr. 15	2429	354	90	657
Gladwin, Edmund C., Oakland, Cal. Mustache-guard.....	697,674	Apr. 15	2049	491	90	490
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Glascock, Charles O. and J. W., Muncie, Ind. Baby-walker.....						
Glascock, John W. (See Glascock, Charles O. and J. W.)						
Glass, Abraham R., assignor to J. Back, Vienna, Austria-Hungary. Impregnating paper or pasteboard.....	702,341	June 24	2999		90	2949
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,951	May 27	4195	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,952	May 27	4196	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,953	May 27	4197	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,954	May 27	4198	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,955	May 27	4199	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,956	May 27	4200	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,957	May 27	4201	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,958	May 27	4202	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,960	May 27	4204	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,962	May 27	4206	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,964	May 27	4208	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,965	May 27	4209	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,967	May 27	4211	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,968	May 27	4212	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,969	May 27	4213	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,970	May 27	4214	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,971	May 27	4215	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,972	May 27	4216	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,973	May 27	4217	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,974	May 27	4218	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,975	May 27	4219	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,976	May 27	4220	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,977	May 27	4221	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,978	May 27	4222	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,979	May 27	4223	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,980	May 27	4224	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,981	May 27	4225	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,986	May 27	4230	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,987	May 27	4231	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,988	May 27	4232	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,990	May 27	4234	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,991	May 27	4235	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,992	May 27	4236	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,993	May 27	4237	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,994	May 27	4238	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,995	May 27	4239	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,996	May 27	4240	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,997	May 27	4241	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	701,998	May 27	4242	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	702,000	May 27	4244	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	702,001	May 27	4245	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	702,002	May 27	4246	995	90	2993
Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	702,003	May 27	4247	995	90	2993
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Glass, Percy R., Quincy, assignor to Peerless Machinery Company, Boston, Mass. Eye-letting-machine.....	702,041	May 27	4285	995	90	2993
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Goodson, George A., Minneapolis, Minn., assignor to Goodson Graphotype Company, New York, N. Y. Matrix for type-founding.....	694,729	Apr. 1	648	145	99	126
Goodson, George A., Minneapolis, Minn., assignor to Goodson Graphotype Company, New York, N. Y. Font of type.....	694,734	Apr. 1	643	145	99	126
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Gordon, Albert A., Jr. (See Wyman and Gordon.)						
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Gordon, Frederick W., assignor to Pratt & Whitney Company, Hartford, Conn. Vari-ble-speed gearing.....	701,875	June 10	1980	225	99	2645
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Gorin, Fred F., Chicago, Ill. Cash-register.....	697,476	Apr. 15	2044	421	99	660
German, William, Pittsburg, Pa. Heating-furnace.....	702,720	June 17	2080	605	99	2636
Gernsack, John R., Philadelphia, Pa. Wire-twisting pliers.....	699,164	May 6	68	17	99	1160
Geshorn, Alfred F., Canton, Ohio. Curtain-hanger.....	702,480	June 17	2080	480	99	2636
Goss, Edgar O., et al. (See Collier, Arthur T., assignor.)						
Goss Printing Press Company. (See Firm, Joseph L., assignor.)						
Goss Printing Press Company. (See Goss, Samuel G., assignor.)						
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Casting-box for stereotyping.....	697,141	Apr. 8	1487	213	99	260
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Means for driving printing-presses.....	702,421	June 17	2080	420	99	2636
Goss, Edward L., Chanute, Kans., assignor of one-half to L. A. Laughlin, Kansas City, Mo. Continuous automatic air-brake system.....	701,267	June 2	98	12, 13	99	2126
Goss, Edward L., Chanute, Kans., assignor of one-half to L. A. Laughlin, Kansas City, Mo. Continuous automatic air-brake system.....	701,268	June 2	98	19	99	2126
Goucher, Henderson E., Butler, Pa. Snap-lock.....	697,967	Apr. 15	2000	960	99	664
Gould, Charles A. (See Hutchins, Stainer, assignor.)						
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould & Eberhardt. (See Eberhardt, Henry E., F. L., and E. G., assignors.)						
Gould & Eberhardt. (See Eberhardt and Emma, assignors.)						
Gould, Frank C. (See Tracy and Gould.)						
Gould, Fred L., assignor to Gould Traction Car Company, Seattle, Wash. Traction de-vice.....	699,690	Apr. 29	4937	932	99	990
Gould, Ovid H., Montreal, Canada. Package-carrier.....	699,990	Apr. 29	4940	1090	99	1095
Gould Storage Battery Company. (See Chamberlain, Rufus N., assignor.)						
Gould Storage Battery Company. (See Richards, Willard F., assignor.)						
Gould Traction Car Company. (See Gould, Fred L., assignor.)						
Gowing, Earle H. (See Nagle, Augustus F., assignor.)						
Gowing, Earle H., Reading, Mass. Furnace.....	700,086	May 12	1780	690	99	1890
Grabia, Harry, Milwaukee, Wis. Sad-iron.....	702,480	June 17	2080	480	99	2636
Grabowski, Anton. (See Clover and Grabowski.)						
Graciano, Lando C., San Jose, Cal. Hydrocarbon-burner.....	699,991	Apr. 8	1121	240	99	260
Graft, Louis J., Pittsburg, Pa. Curtain-pole.....	702,720	June 17	2080	605	99	2636
Grafton, Alonso, Dekalb, assignor to A. G. Leonard, trustee, Chicago, Ill. Pegging-ma-chine.....	699,790	Apr. 29	4930	964	99	990
Graft, James A., et al. (See Lambert, Henry C., assignor.)						
Graham, Charles H., et al. (See Lorrain, Harry B., assignor.)						
Graham Combined Guard-Rail and Frog Brace Company. (See Graham, John E., as-signor.)						
Graham, Elias, assignor of one-half to O. C. Fuqua, Casey, Ill. Gate.....	699,990	Apr. 1	290	71	99	67
Graham, James, Carnoustie, and R. H. Tait, Birling, Scotland. Automatic self-in-sulating life-preserver.....	701,260	June 2	98	19	99	2126
Graham, James L., Allegheny, Pa. Valve for automatic water-heaters.....	699,790	May 12	1992	960	99	1426
Graham, John E., assignor to Graham Combined Guard-Rail and Frog Brace Company, Roanoke, Va. Rail-brace.....	697,421	Apr. 8	1990	424	99	660
Graham, Joseph B., assignor of one-half to R. O. Alys, Des Moines, Iowa. Tail-board fac-toring for wagons.....	700,410	May 20	2080	410	99	1780
Graham, Levi P., Decatur, Ill. Corn-planter.....	699,764	May 12	1990	221	99	1426
Graham, Levi P., Decatur, Ill. Corn-planter.....	701,712	June 2	777	173	99	2671
Graham, Levi P., Decatur, Ill. Corn-planter.....	702,967	June 24	2080	964	99	2607
Graham, Levi P., Decatur, Ill. Corn-planter.....	702,968	June 24	2080	974	99	2608
Graham, Lonelle F., San Jose, Cal. Railway-indicator.....	700,697	June 24	2080	697	99	2636
Graham, Walter H., et al. (See Dawson, Clarence L., assignor.)						
Graham, William S., assignor to Parlin & Orendorf Company, Canton, Ill. Corn-planter.....	697,412	Apr. 8	1990	424	99	660

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Grall, Joseph G., Detroit, Mich., assignor, by mesne assignments, to Robert Mitchell Machinery Company. Button-fly-scalloping machine.	700,141	May 12	1977	64	90	1288
Grange, Wallace S., Kirkland, Ill. Letter-file and cabinet.	700,417	May 20	2640	88	90	1289
Granger, John, assignor to himself and J. Gutherland, Springer, N. Mex. Ter. Rain-holder.	701,022	May 27	3754	99	90	1290
Grant, James M., Bab, Ark. Cotton-chopper.	698,122	May 6	99	12	90	1190
Grant, Mary A., St. Anthony, Idaho. Oak-pan.	701,122	May 27	4041	99	90	1291
Grape, George H., Wellington, New Zealand. Hoe.	701,220	June 3	95	20	90	1292
Grasse, Oronzio F. de Paris, France. Book for corsets.	700,121	June 24	2620	114	90	1293
Grasselli Chemical Company. (See Lema, Louis P., assignor.)						
Gravel, Edwin L., Carthage, N. Y. Signal for composite telegraphic and telephonic transmission.	700,911	May 27	3515	107	90	1294
Gravel, Edwin L., Carthage, N. Y. Signaling and telephoning apparatus.	700,912	May 27	3516	107	90	1295
Graves, George W., Rochester, assignor of one-half to J. F. Mills, Jr., Fort Chester, N. Y. Burner for heating ovens.	699,040	Apr. 22	2620	66	90	698
Graves, George W., Rochester, and J. F. Mills, Jr., Fort Chester, N. Y. Gas stove or range.	698,009	Apr. 22	2627	96	90	699
Graves, Salathiel V., Morrell, Mo. Insect-destroyer.	701,560	June 3	307	112	90	1212
Gray, Alexander, Newcastle-upon-Tyne, assignor of one-half to T. Thompson, Blackheath, England. Apparatus for purifying water for steam-generators.	697,365	Apr. 15	2701	60	90	695
Gray, Almon J., Peoria, Ill., assignor of one-half to H. A. Gray, St. Paul, Minn. Game-cock.	701,224	May 27	4102	96	90	1296
Gray, Almon J., Peoria, Ill., assignor of one-half to H. A. Gray, St. Paul, Minn. Game-cock.	700,224	May 20	2625	542	90	1297
Gray, Edward N., Chicago, Ill. Bush-holder.	11,225	May 12	2625	464	90	1298
Gray, Frank, Chicago, Ill. Valve and alarm. (Release.)				465	90	
Gray, Howard H., Huntington, Ind. Lawn-sprinkler.	702,722	June 17	2760	62	90	2714
Gray, Isaac V. (See Warfel, Henry O., assignor.)						
Gray, John, Newcastle-upon-Tyne, England. Linotype or similar composing-machine.	702,942	June 24	2825	62	90	2827
Gray, John, Sr., assignor of one-half to C. S. Campbell, Washington, D. C. Boring-tool.	698,908	Apr. 1	977	215	90	297
Gray, Joseph W., Fowler, Ind. Repeater for telegraph-lines.	700,027	May 12	1781	497	90	1299
Gray, Norman A. (See Gray, Almon J., assignor.)						
Gray, Richard, Bloomington, Ill. Metal arch.	701,024	May 27	3754	99	90	1290
Gray, Robert K., London, England. Ball.	702,942	June 24	2827	702	90	2721
Gray, Edward F., Titusville, Fla. Producing tanning agents from the saw-palmetto.	704,024	June 24	2820		90	2825
Gray, William S. (See Upton and Gray.)						
Green, E. H. R. (See Busbol, O. A. Ernst, assignor.)						
Green, George A., assignor to J. S. Wright, Duxbury, Mass. Telegraph-sounder.	697,610	Apr. 15	2625	515	90	261
Green, Henry, Pekin, assignor to Acme Harvester Company, Peoria, Ill. Bundle-carrier for harvesters.	697,142	Apr. 8	1420	319	90	264
Green, James O., and H. T. Martin, Whitewater, Wis. Converting peat into fuel.	700,120	May 20	2620		90	1240
Green, Robert M., Jr., assignor to R. M. Green & Sons, Philadelphia, Pa. Syrup-cock for soda-water fountains.	702,121	June 20	1221	245	90	2441
Green, Robert M., Jr., assignor to R. M. Green & Sons, Philadelphia, Pa. Soda-water apparatus.	702,122	June 20	1222	245	90	2441
Green, Robert M. and Robert M., Jr., Philadelphia, Pa. Soda-water apparatus.	702,123	June 20	1223	245	90	2442
Green, Samuel E. (See Stoneham, Orville A., assignor.)						
Green & Sons, Robert M. (See Green, Robert M., Jr., assignor.)						
Green, William M., Evanston, J. R. Gent, Chicago, and H. A. Foppenhausen, Evanston, Ill. Furnace.	697,220	Apr. 15	2627	516	90	261
Greene, Benjamin P. (See Gates, William H., assignor.)				517	90	
Greene, Edgeworth, Montclair, N. J., assignor, by mesne assignments, to American Rubber Works Company. Pneumatic vehicle-tire.	697,221	Apr. 15	2614	517	90	262
Greene, Edwin R., Providence, R. I. Electric fly-trap.	698,274	Apr. 22	2645	921	90	263
Greene, F. B. (See Mann, Charles E., assignor.)						
Greene, John, assignor of one-half to J. J. T. Reese, Reese, N. C. Lumber-measure.	702,220	June 10	1222	271	90	2445
Greene, Marritt. (See Felt, Frank R., assignor.)						
Greening, Frederick, Plumstead Common, assignor to F. H. Bowden, London, and S. H. Dodd, Blackheath, England. Manufacture of electrically-insulating and waterproofing materials.	701,712	June 3	720		90	2272
Greenland, Gustave, Braddock, Pa. Match-box.	697,245	Apr. 8	1602	220	90	229
Greenman, William J., Cortland, N. Y. Extensible window-screen.	702,220	May 20	2620	620	90	1212
Greenwood, William J., Tharston, assignor to C. L. Finco, Pittsburg, Pa. Press-mold for hollow articles.	698,420	Apr. 1	97	15	90	12
Greer, Fredric, Chicago, Ill. Medical battery.	698,677	May 12	2625	247	90	1402
Gregory, Fred L., Chicago, Ill. Ignition system.	698,622	Apr. 1	940	214	90	128
Gregory, Joseph H., Morris Plains, N. J. Shaft-support for vehicles.	698,622	Apr. 20	2617	622	90	622
Greist, John M., New Haven, Conn. Tuck-creaser for sewing-machines.	698,011	Apr. 22	2620	622	90	622
Greitz, Gustav, Gutsenberg, N. J., assignor to A. Hollander, New York, N. Y. Necktie-fastener.	698,210	Apr. 1	725	179	90	127
Greiner Art Company. (See Greiner, Prosper M. O., assignor.)						
Greiner, Prosper M. O., New York, N. Y., assignor to Greiner Art Company. Photographic fabric and preparing same.	698,222	Apr. 1	422		90	22
Greiner, John, et al. (See Wilma, Ferdinand, assignor.)						
Grevel, August, Cologne, Germany. Air-escape valve.	698,012	Apr. 22	2622	622	90	622
Gridley, Charles A., et al. (See Hamford, Orin A., assignor.)						
Gridley, George O., Windsor, Vt. Stay-bolt and making same.	698,075	May 12	1620	247	90	1402
Griffith, James R., Norwalk, and H. Morehouse, East Norwalk, Conn. Mast-beam trimmer.	702,270	June 17	2620	671	90	2744
Griffin, Arthur L. (See Boers and Griffin.)						
Griffin, Ernest F., Finchley, and W. E. Higgs, London, England. Press for working sheet metal.	697,477	Apr. 15	2622	422	90	471
Griffin, Ernest F., Finchley, and W. E. Higgs, London, England. Sheet-metal box w	697,478	Apr. 15	2615	417	90	462
Griffin, John, Scottville, Mich. Milk-pail.	701,221	June 3	99	11	90	2120
Griffin, John R., and E. C. Anderson, Van Alstyne, Tex. Compress and packer.	702,221	June 10	1220	272	90	2447
Griffin, Michael J., Holpehn, Mass. Buckle.	701,221	June 3	99	112	90	2112
Griffin, Percy, Orange, N. J. Brick.	697,214	Apr. 15	2622	422	90	424
Griffin, William H., Jersey City, N. J. Window shade and curtain holder.	702,222	June 24	2621	675	90	2227
Grigg, Joseph, Colorado, assignor to United Manufacturing Company, Waverly, N. Y. Soap-book.	701,222	June 3	99	112	90	2120
Grinn, Gustav H., Rutland, Vt. Water-reservoir for ranges.	702,222	June 24	2622	675	90	2227
Grinn, Hugo, Erfurt, Germany. Mustard-pot.	702,222	June 24	2621	675	90	2227
Grippa, William H., Newark, N. Y. Apparatus for applying fillers to floors.	698,227	May 6	922	92	90	1222

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Griswold Dental Bridge Company. (See Griswold, William E., assignor.)						
Griswold, William E., assignor to Griswold Dental Bridge Company, Denver, Colo. Dental impression-cup	708,645	June 17	2688	371	26	2688
Griswold, William E., assignor to Griswold Dental Bridge Company, Denver, Colo. Dental tool	708,648	June 17	2688	371	26	2688
Griswold, William E., assignor to Griswold Dental Bridge Company, Denver, Colo. Dental fastening and bridgework	708,657	June 17	2688	371	26	2741
Griswold, William E., assignor to Griswold Dental Bridge Company, Denver, Colo. Securing device for dental bridgework	708,671	June 17	2688	371	26	2745
Griswold, William M., Monroe, W. Va. Clevis	708,680	June 24	2688	371	26	2887
Griswold, William W. (See Bolton, James D., assignor.)						
Grivet, Adolph, et al. (See Gearing, Charles M., assignor.)						
Grob, George. (See Erich, George, assignor.)						
Grobbel, Joseph A., assignor to Kurehede Manufacturing Company, New York, N. Y. Tubular braid	692,480	Apr. 20	2618	365	26	300
Grooddyka, John, Danville, Ill. Churn	697,304	Apr. 2	2525	345	25	347
Groombridge, Charles, assignor of one-half to W. A. South, London, England. Propeller for air-ships	697,400	Apr. 6	2525	345	25	404
Gross, John. (See Cohen and Gross.)						
Gross, Louis N., Cleveland, Ohio. Waistband	701,280	June 2	2681	371	26	2130
Gross, Rudolph, Brenham, Tex. Pedal attachment	701,714	June 2	2681	371	26	2579
Grote Bottle Machine Company. (See Grote, Ludwig, assignor.)						
Grote, Ludwig, London, England, assignor to Grote Bottle Machine Company, Jersey City, N. J. Machine for making glass bottles	700,101	May 20	2590	400	25	1040
Grotke, August, assignor of one-half to H. Kraemer, Wanne, Germany. Shaft-door and stage locking device	701,800	June 2	2681	371	26	2035
Grove, David, Berlin, Germany. Apparatus for purifying air	690,106	May 6	2570	345	25	1180
Grove, Frank E., Franklin, Pa. Type-writer copy-holder	700,117	May 13	2594	400	25	1577
Gruber, Mauritian. (See Barnard, Charles M., assignor.)						
Grumobaum, Henry, New York, N. Y. Bottling-machine	690,917	May 13	2541	385	25	1207
Grummt, Ernst M., Gelsenau, Germany. Agricultural utensil	700,120	May 20	2595	401	25	1041
Grundy, Thomas, assignor of one-half to R. Potter, Auckland, New Zealand. Combined safety clothes-line and peg holder or clamp	697,404	Apr. 6	2525	345	25	404
Gushwender, Henry, and J. H. Dearholt, Ontario, Wis. Feeder for roller-mills	694,973	Apr. 1	2485	331	24	114
Gubing, Frank. (See Asenbach and Gubing.)						
Guenther, Henry L., Chinook, Wash. Machine for capping and compressing cans	695,701	Apr. 20	2572	364	25	900
Guernsey, Anna C., Des Moines, Iowa. Advertising and selling machine	695,702	Apr. 20	2572	364	25	900
Guerra, Asterio. (See Marx and Guerra.)						
Guth, Oswald, New York, N. Y. Tongue for photographic plates	702,190	June 24	2640	314	26	2087
Gusgnon, Francois. (See Roussy de Sales and Gusgnon.)						
Guild & Garrison. (See Garrison, William F., assignor.)						
Guild, Georgiana, Providence, R. I. Chart for recording ancestry	690,730	May 12	2586	390	25	1454
Gullott, Eugene H. (See Iross, Fred A., assignor.)						
Gullmartin, James, Boston, Mass. Dividing apparatus	690,530	Apr. 1	250	71	25	97
Gulraud, Gustave, Orippeocreek, Colo., assignor to R. McKnight, Philadelphia, Pa. Treating ores containing silica or silicates	702,940	June 24	2638	305	26	2791
Gulland, Charles, Pittsburg, Pa. Pressure-regulator	690,708	Apr. 20	2581	385	25	905
Gullickson, Fred E., Cashton, Wis. Device for stripping tobacco from laths	701,204	June 2	2681	371	26	2130
Guliver, Harry, South Yarra, Victoria, Australia. Railway signaling and communication apparatus	690,811	Apr. 1	2575	370	25	107
Gundel, George H., Rochester, N. Y. Vegetable-strainer	700,122	May 20	2595	401	25	1041
Gundry, James E., Rankin, Mich. Pitman connection	690,594	Apr. 20	2547	381	25	1000
Guenther, Friedrich, Beckinghausen, Germany. Self-closing door for mines	690,875	Apr. 20	2547	381	25	900
Gustafson, Axel R., assignor to Electric Laundry Machinery Co., Chicago, Ill. Machine for shaping and smoothing collars or like articles	701,715	June 2	2681	371	26	2072
Gustafson, Axel R., assignor to Electric Laundry Machinery Co., Chicago, Ill. Machine for shaping collars or other like articles	701,716	June 2	2681	371	26	2072
Gustafson, Elias G. (See Felsing and Gustafson.)						
Gustaf, Frederick K. (See Braun, Charles A., assignor.)						
Gustorf, Albert, Neum, Germany. Roofing-tile	702,920	June 20	2630	305	26	2487
Gutheiser, Phoenix M., Liberty Corner, N. J. Trace	690,918	May 12	2540	385	25	1200
Gwinn, George W., Baltimore, Md., assignor to Raymond Button Company of Baltimore City. Garment-fastener	702,754	June 17	2680	360	26	2000
H. C. White Co. (See White, Hawley C. and H. C., assignors.)						
H. Haller Manufacturing Company. (See Hobbs, George P., assignor.)						
H. W. Gernard Company. (See Forster, Leona S., assignor.)						
Hann, Gustavus. (See Nielsen and Hansen, assignors.)						
Hann, Walter G., Dayton, Ohio. Paper box	700,410	May 20	2595	400	25	1720
Hann, Walter G., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Paper pall	697,005	Apr. 6	2507	340	25	404
Habermeyer, Theodore H., Fort Wayne, Ind. Valve mechanism for engines	700,000	June 17	2591	470	25	2000
Habeck, Michael, Brooklyn, N. Y. Window	690,200	May 12	2540	385	25	1200
Hachenberg, Julius, Hoboken, N. J. Manufacture of celluloid articles	690,212	May 6	2520	370	25	1200
Hackett, Julia E. (See Musler, Nelson, assignor.)						
Hackett, James L., et al. (See Lecomme, Jean M. A., assignor.)						
Hadaway, John B., Brockton, Mass. Stitch-separating machine	690,870	May 12	2541	387	25	1407
Hadaway, John B., Brockton, Mass. Stitch-separating machine	700,912	May 27	2620	305	26	1200
Haeckle, Friedrich, Pasing, Germany. Making leaf metal	690,900	May 12	2540	385	25	1200
Hager, James, Jr., Augusta, Ky. Sheet-metal button and blank therefor	701,717	June 2	2681	371	26	2072
Hager, John W., Bellefonte, Pa. Vehicle-axle attachment	702,004	June 17	2685	370	26	2007
Haffner, Bertha, Woono, Mo. Cake-pan	702,200	June 10	2681	370	26	2007
Hagan, Coleman, et al. (See Hagan, Ira E., assignor.)						
Hagan, Frederick W., et al. (See Hagan, Ira E., assignor.)						
Hagan, Ira E., assignor of three-fifths to F. W. and C. Hagan, North Lenoire, I. H. Hagan, Jr., Elsworth Falls, O. D. Page, Bangor, P. M. Hagan and L. F. Crane, Crane, Mo. Measuring instrument	697,205	Apr. 6	2500	335	25	300
Hagan, Christian, Erfurt, Germany. Locomotive-engine	690,576	Apr. 20	2540	381	25	900

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Haggen, Christian, Erfurt, Germany. Locomotive with driven boggy.....	690,517	May 6	730	170	30	1286
Haggen, Christian, Erfurt, Germany. Driving-axle for locomotives.....	700,000	May 13	1700	171	30	1281
Hage, Robert R., and H. P. Walker, Twin Valley, Minn. Reversible device for engines.....	700,000	May 20	2000	407	30	1212
Hagemeister, Amos, Abbeville, N. D. Straw-stacker.....	693,512	Apr. 1	700	180	30	127
Hagerty, Ida, Austin, Tex. Tongue-scraper.....	697,900	Apr. 8	1700	300	30	300
Hagstedt, Hans J., Bistrick, Wis. Egg-crater.....	690,000	Apr. 20	4000	1000	30	1000
Hagge, John. (See Loeb and Hagge.)						
Haigh, Noel H., Oldham, and T. Sugden, East Dulwich, England. Steam-trap.....	701,000	May 27	2700	300	30	2000
Haigh, William C., Chorlton-cum-Hardy, near Manchester, England. Coin-controlled toy.....	697,070	Apr. 15	2000	400	30	471
Haines, George W., assignor to Houser & Haines Manufacturing Company, Stockton, Cal. Threshing-machine.....	700,001	June 24	2000	700	30	2007
Haines, Samuel A., Garrett, Tex. assignor to W. H. Spake, Anaheim, Cal. Wrench.....	697,040	Apr. 15	2000	607	30	644
Haire, James A., Weyauwega, Wis. Pipe-puller.....	700,001	June 24	2000	607	30	2000
Haldeman, William L. (See Christ and Haldeman.)						
Hale, Henry S., Philadelphia, Pa., assignor to Hale and Kilburn Manufacturing Company, Car-seat.....	701,000	June 2	500	110	30	2012
Hale, John A., Rockville, Ind. Saw-handle clamp.....	690,000	Apr. 20	4000	1070	30	1007
Hale and Kilburn Manufacturing Company. (See Britton, George W., assignor.)						
Hale and Kilburn Manufacturing Company. (See Hale, Henry S., assignor.)						
Hale, Will E., et al. (See Roake, John E., assignor.)						
Haley, Jonathan, Akron, Ohio. Bottle or jar press.....	697,915	Apr. 15	2004	607	30	604
Haley, Jonathan, Akron, Ohio. Tumbler-press.....	700,000	June 17	2000	470	30	2070
Haley, Thomas S., New Haven, Conn. Feeding device for metal-working machines.....	700,000	May 20	2004	540	30	1007
Haley, William L., Alvin, Tex. Milk-cooler.....	700,104	June 10	1004	500	30	2400
Hall, Burleigh O. (See Perry, James S., assignor.)						
Hall, Charles M., Niagara Falls, N. Y. Paint.....	701,710	June 2	707		30	2270
Hall, Edward A., et al. (See Shank, Augustus W., assignor.)						
Hall, Edward W., Rutherford, N. J., assignor to himself, H. C. Fisher and J. L. Oberly, New York, N. Y. Invisible-impression printing.....	690,000	Apr. 1	400	100	30	30
Hall, Edwin, assignor to Le Roy Flow Company, Le Roy, N. Y. Clevis for plows or the like.....	690,007	Apr. 20	4001	1070	30	1007
Hall, George, Fostoria, Ohio. Station-annunciator for railway-cars.....	690,001	Apr. 20	2010	300	30	300
Hall, J. L., et al. (See Barnes, James P., assignor.)						
Hall, James. (See Macchillo and Hall.)						
Hall, James, Radcliffe, England. Friction-clutch.....	690,110	Apr. 20	2000	700	30	700
Hall, Joseph, Leeds, England. Mechanism for measuring and recording measurements of material.....	697,000	Apr. 8	1004	300	30	300
Hall, Roderic F., East Orange, N. J., assignor to Western Electric Company, Chicago, Ill. Lead-pen.....	690,000	May 6	607	70,70	30	1000
Hall, Samuel J., et al. (See Nathan, Theodore N., assignor.)						
Hall Signal Company. (See Salmon, Wilmer W., assignor.)						
Hall, Thomas. (See Yarrington and Hall.)						
Hall, William G., Grafton, W. Va. Flow attachment.....	700,007	June 17	2001	671	30	2000
Hall, Zachary T., Philadelphia, Pa. Handle for washboilers.....	697,000	Apr. 8	1004	300	30	300
Hall's Safe & Lock Company. (See Donnell, James W., assignor.)						
Hallcock, Parker S., Akron, Ohio. Means for teaching writing.....	690,000	Apr. 20	4000	1070	30	1007
Halsell, William H. A., and S. Lapham, Charleston, S. C. Cooling-tower.....	690,010	Apr. 20	2000	607	30	600
Halsford, George W., Leslie, Mich. Horn-shoe-calk sharpener.....	700,000	May 20	2001	600	30	1000
Halsford, Thomas J. (See Moody, Winfield H., assignor.)						
Ham, Albert W., Lansingburg, N. Y. Trolley-catcher.....	700,700	May 27	2041	700	30	1000
Ham, Herbert H., New York, N. Y. Cork-extractor.....	700,001	June 10	1000	300	30	2001
Hamann, Carl H. O., Bielefeld, near Hamburg, Germany. Differential gearing.....	700,700	June 17	2700	600	30	2710
Hamblly, Margaret, et al. (See Vernon, Charles W., assignor.)						
Hamblly, Matthew C. F., et al. (See Vernon, Charles W., assignor.)						
Hamel, Joseph L., Grafton, N. D. Door-closing and holding device.....	690,000	Apr. 20	4004	1071	30	1007
Hamel, Norbert D., West Garden, Mass. Combined bevel-protractor, square, and pitch-board.....	700,000	May 20	2000	544	30	1007
Hammer, John C., Radcliffe, England. Apparatus for drying yarn.....	700,000	June 10	2000	500	30	2000
Hamill, Robert. (See Wilson, David Y., assignor.)						
Hamilton, Charles A., Coventry, England. Carbureting device for internal-combustion motors.....	690,000	May 6	200	70	30	1000
Hamilton, Charles E. (See Osted and Hall, assignors.)						
Hamilton, Clarence J., assignor to C. J. Hamilton & Son, Plymouth, Mich. Sight for firearms.....	690,000	Apr. 6	1100	300	30	300
Hamilton, Edward D., Vancouver, Wash. Washing-machine.....	700,104	May 20	2104	600	30	1411
Hamilton-Foster Fog Signal Company. (See Hope-Jones, Robert, assignor.)						
Hamilton, Frederick A. E., Beverly, assignor to H. Hunt, Boston, Mass. Hinge-joint for connecting rod-sections.....	700,004	June 10	1000	370	30	2007
Hamilton, John. (See Fawcett, James F., assignor.)						
Hamilton, Joseph, assignor to James Dunlop Carpet Company, Philadelphia, Pa. Yarn-printing machine.....	690,000	May 10	1004	307	30	1110
Hamilton, Paul H., assignor of one-half to J. Goepfinger, Youngstown, Ohio. Fluid-pressure regulator.....	700,070	June 17	2000	670	30	2700
Hamilton, Robert, Commerce, Tex. Window attachment.....	700,000	June 24	2000	607	30	2000
Hamilton, Robert, Commerce, Tex. Shears.....	700,000	June 24	2004	607	30	2000
Hamilton, Robert A., Brooklyn, N. Y. Thread-cutting appliance.....	700,100	June 24	2041	614	30	2007
Hamilton & Son, C. J. (See Hamilton, Clarence J., assignor.)						
Hamilton, Thomas C., Bokes Creek, Ohio. Latch.....	690,000	Apr. 20	6004	1071	30	1000
Hamilton, William J., Carbondale, assignor of two-fifths to T. B. Hughes, Scranton, Pa. Coal-separator.....	700,004	June 24	2000	600	30	2000
Hammer, Martha V., assignor of one-half to H. W. Miller, Thelma, Va. Game apparatus.....	697,000	Apr. 8	1000	400	30	400
Hammer, Sigard A. S. (See Neiss and Hammer.)						
Hammer, Jacob. (See Katina, Albert, assignor.)						
Hammer, John and E. M., Tacoma, Wash. Dress-skirt hater.....	690,001	Apr. 1	204	70	30	30

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Hammer, Kathrine M. (See Hammer, John and K. M.)						
Hammer, Robert E., Philadelphia, Pa. Coaster-brake for vehicles	697,857	Apr. 8	1787	388	99	288
Hammer, Willie A., assignor of two-thirds to F. M. Hogancamp, Bardwell, Ky. Combined stump-puller and tree-transplanter	700,841	May 20	2888	381	99	1818
Hammesfahr, Ernest. (See Hammesfahr, Hermann and E.)						
Hammesfahr, Hermann and E., New York, N. Y. Electric conducting-wire	702,725	June 17	2888	905	99	2039
Hammond, Charles, New York, N. Y. Bicycle-support	698,877	Apr. 22	2848	791	99	849
Hammond, David, Canton, Ohio. Combined shape-metal cutting, coping, and upsetting machine	700,419	May 20	2888	387	99	1738
Hammond, Edgar B., New Bedford, Mass. Tackle-block	699,518	May 6	728	171	99	1287
Hammond, James B., Camden, Me. Adjustable type-writer key	701,588	June 8	811	112	99	2214
Hammond, Oliver S., assignor of two-thirds to A. M. Campbell and V. Robin, Toronto, Canada. Sanding-machine	701,897	June 19	1081	389	99	2845
Hammond, Robert A. (See Dill, James S., assignor.)						
Hammond, William A., and J. C. Kahle, Oil City, Pa. Envelop	694,881	Apr. 1	99	18	99	18
Hanchett, Lafayette, Idaho Springs, and W. C. Davis, Denver, Colo. Pneumatic shovel	699,080	May 13	1885	389	99	1407
Hancock, Charles D., Chicago, Ill. Fastening device	700,080	June 10	1414	317	99	2417
Hancock Inspirator Company. (See Park, William R., assignor.)						
Hancock Inspirator Company. (See Williston, Belvin T., assignor.)						
Hancock, Luke H., Fargo, N. D. Shoe-lace fastener	701,190	May 27	4028	289	99	2061
Hand, Edward M., Orient, S. D. Wire-stretcher	702,848	June 17	2888	573	99	2889
Handelgesellschaft Adolph Winter. (See Krüger, August, assignor.)						
Handy, Lucien H., San Francisco, and C. S. Hostford, Berkeley, Cal. Burglar-alarm and door-lock	700,080	May 13	1784	408	99	1881
Handy, Lucien H., assignor to American Fence Company, San Francisco, Cal. Device for drawing fence	701,885	June 8	104	21	99	2129
Hanford, Melancthon, Malden, Mass. Elevator	702,187	June 24	2413	788	99	2888
Hanford Oil Burner Company. (See Payne, James B., assignor.)						
Hanford, Orin A., Woburn, assignor to C. A. Gridley and G. Bernard, Boston, Mass. Burnishing or polishing machine	700,848	May 20	2888	381	99	1818
Hanky, Joseph, Boston, Mass. Slide-trombone	699,081	May 13	1070	290	99	1408
Hankins, Theodore D., and F. J. Bocher, New Ross, Ind. Vault or grave	699,080	May 6	988	316	99	1286
Hanna, Leon C., Tampa, Fla. Bicycle-wheel hub	698,841	Apr. 22	4886	1071	99	1089
Hansen, Philip E., Cariboga, Mo. Fan attachment for bicycles	702,008	June 10	1284	388	99	2221
Hansbury, Peter R., New York, N. Y. Street-sweeper	702,184	June 24	2848	814	99	2888
Hansen, John B., assignor to F. W. Bird and Son, East Walpole, Mass. Making paper	702,284	June 10	1888	373	99	2488
Hansen-Elihammer, Jacob C., Copenhagen, Denmark. Cigarette-machine	700,080	May 13	1788	408	99	1881
Hansen-Elihammer, Jacob C., Copenhagen, Denmark. Cigarette-machine	702,206	June 10	1888	373	99	2488
Hansen, John M., assignor to Pressed Steel Car Company, Pittsburg, Pa. Metallic frame for car	701,720	June 8	788	175	99	2274
Hansen, Made L., Oakland, Cal. Detachable heel	698,819	May 6	784	171	99	1287
Hansen, Victor. (See Douglas and Hansen.)						
Hanshill, Paul, Lewiston, Me. Wall tie or bond	702,944	June 24	2888	704	99	2781
Hanson, Bengt M. W., assignor to Winkley Company, Hartford, Conn. Oil-cup	697,088	Apr. 8	1341	287	99	204
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Lathe-turret stop	698,810	May 6	341	78, 80	99	1288
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Lathe-turret stop	701,719	June 8	788	175	99	2273
Hanson, Bengt M. W., and F. W. Gordon, assignors to Pratt & Whitney Company, Hartford, Conn. Lathe-feed	701,884	June 8	813	112	99	2214
Hanson, Charles F. (See Barton and Hanson.)						
Hanson, Charles F., et al. (See Schuk, Otto C., assignor.)						
Hanson Furniture Company. (See Hanson, Henry M., assignor.)						
Hanson, Henry M., assignor to Hanson Furniture Company, Janesville, Wis. Table	702,087	June 10	1417	317	99	2417
Hanson, Nathan C., Medfield, assignor of one-half to A. B. Colburn, Westwood, Mass. Tongue-buckle	702,285	June 24	2847	808	99	2810
Happ, Conrad. (See Atherton and Happ.)						
Harcourt, Thomas H., Moberly, Mo. Disk seed-planter	697,479	Apr. 15	2088	484	99	488
Harden, Harry, assignor of one-half to M. and J. Carter, London, Ohio. Combined shaft support and coupling	702,200	June 10	1816	414	99	2489
Harden, Hartwig M. A., Milwaukee, Wis. Means for carrying bottles	698,808	May 13	1438	288	99	1488
Mardia, James H., New York, N. Y. Power applying and transmitting apparatus	701,489	June 8	288	51	99	2184
Harding, John, Jr., Chicago, Ill. Fluid-power-transmission mechanism	697,148	Apr. 8	1488	319	99	284
Hardy, Francis A., Evanston, Ill. Optometer	698,888	Apr. 22	4878	1089	99	1089
Hardy, Hattie E., Walkerton, Ind. Cover for cooking utensils	700,784	May 27	2844	743	99	1884
Hardy, John F., Monticello, Ind. Hydrocarbon-burner	700,814	May 27	2844	808	99	1889
Hare, George, Los Angeles, Cal. Browning-machine	702,851	June 17	2888	588	99	2818
Haring, William N., Nyack, N. Y. Trolley-rail	701,885	June 8	813	112	99	2215
Haring, William N., Nyack, N. Y. Electric alarm	701,886	June 8	814	114	99	2216
Hartness, Joseph D., Birmingham, Ala. Collapsible core-bar	697,088	Apr. 8	1342	287	99	204
Hartness, Leopold, Boulogne-sur-Mer, France. Metallic yarn and textile fabric	700,915	May 27	2888	808	99	1881
Hartner, Thomas, Burlington, N. J., assignor to Manufactured Rubber Company, Metuchen, N. J., and Philadelphia, Pa. Utilizing waste-rubber scrap	697,288	Apr. 8	1788	408	99	1881
Harmon-Whitmore Company. (See Lane and Whitmore, assignors.)						
Harms, Albert J., Etherley, Ill. Railway-tie	697,480	Apr. 15	2087	484	99	478
Harper, James M., Chicago, Ill. Churn	697,715	Apr. 15	2488	808	99	287
Harper, William A., Glendale, S. C. Furrow opening and covering attachment for planters	701,286	June 2	387	21	99	2181
Harpham, George E., et al. (See Dym, Fayette, assignor.)						
Harrish, William F., Los Angeles, Ind. Combined book-holder and arm-rest	698,814	Apr. 22	2888	807	99	288
Harrison, Louis H., Haverhill, assignor to Furgor Elevator Company, Worcester, Mass. Slow-closing device for hydraulic elevator valves	701,285	May 27	4188	807	99	2888
Harrington, Neal J. (See Hastings and Harrington.)						
Harris, Anthony, London, England. Apparatus for purifying water	700,080	May 13	1784	408	99	1881
Harris, Benjamin S. H. (See Harris, William A. and B. S. H.)						
Harris, Calvin P., New York, N. Y., assignor to Reed and Barton Corporation, Tuxedo, Mass. Individual communion-service	697,247	Apr. 8	1887	381	99	288
Harris, Charles E., et al. (See Nelson, William N., assignor.)						
Harris, Charles E., Williamsport, Pa. Filter	700,918	May 27	2888	808	99	1881

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Harris, Fred F. (See Howe, Haskiah, assignor.)						
Harris, George E., Norwich, Conn. Curtain for carriages	701,297	June 3	199	89	99	2121
Harris, Hart, Washington, Pa. Lubricator	701,597	June 3	313	114	99	2215
Harris, Henry S., et al. (See McLean, William N., assignor.)						
Harris, John, Cleveland, assignor to S. H. Smart, trustee, Willsoughby, Ohio. Gas-burner	697,481	Apr. 15	2035	454	99	473
Harris, Polk. (See Milam, Robert H., assignor.)						
Harris, Roberts R., et al. (See McLean, William N., assignor.)						
Harris, William A. and B. S. H., Greenville, S. C. Train signaling apparatus	700,795	May 27	2945	743	99	1994
Harris, William A. and B. S. H., Greenville, S. C. Train signaling apparatus	702,795	May 27	2951	744	99	1995
Harris, William L., assignor of three-fourths to G. H. B. and G. H. French and A. T. Howland, Chicago, Ill. Dust-pan	693,594	Apr. 29	4974	1099	99	1099
Harrison Bros. & Co. (See Darling, James D., assignor.)						
Harrison, Edwin, and J. A. Platta, Elmer, Pa. Check-book	693,674	Apr. 1	239	121	99	114
Harrison, George F., Knoxville, Tenn. Calculating-machine	701,721	June 3	735	176	99	2274
Harrison, Henry J., Juneau, Alaska. Lamp-hanger	693,576	Apr. 29	2549	732	99	801
Harrison, John W., Detroit, Mich. Signal-station	693,948	Apr. 29	4837	1073	99	1038
Harrison, Owen L., Coleta, Ill. Pocket-knife leather-panch	701,378	June 10	1063	230	99	2245
Harrison, Thomas, Bowling Green, Ohio. Attachment for car-couplings	703,250	June 24	2945	523	99	2210
Harrison, Walter J., Boston, Mass. Box	693,512	Apr. 1	791	130	99	192
Harrewer, Henry D. (See Davis, Charles E., assignor.)						
Hart, Samuel E., Wabash, Ind. Rein-support	702,397	June 19	1999	275	99	2468
Hart & Cooley Company. (See Hart, Howard S., assignor.)						
Hart, Edward, Easton, Pa., assignor to General Chemical Company, New York, N. Y. Making hydrochloric acid	693,794	Apr. 29	4983	999	99	998
Hart, Gerald W., West Hartford, assignor to Hart Manufacturing Company, Hartford, Conn. Electric switch	694,993	Apr. 3	1133	290	99	239
Hart, Harry S., assignor to Rodger Ballast Car Company, Chicago, Ill. Gondola-car	693,949	May 12	1993	397	99	1399
Hart, Harry S., assignor to Rodger Ballast Car Company, Chicago, Ill. Metallic car	700,797	May 27	2945	745	99	1996
Hart, Herbert H., Chicago, Ill. Tie-plate	693,934	Apr. 3	1134	290	99	239
Hart, Howard S., assignor to Hart & Cooley Company, New Britain, Conn. Register, ventilator, or the like	701,451	June 3	293	81, 92	99	2184
Hart, Hubert C., Unionville, Conn. Knife and making same	693,930	May 3	735	171	99	1237
Hart Manufacturing Company. (See Hart, Gerald W., assignor.)						
Hart, Stacy R., Peoria, Ill. Grain-elevator for separators	702,038	June 10	1410	319	99	2412
Hart, Walter V., Hobart, Ind. Clamping device for fruit-jar lids	693,692	Apr. 29	2390	593	99	392
Hart, William H., Jr., Philadelphia, Pa. Necktie-fastener	693,935	Apr. 3	1135	290	99	239
Hartford Accumulator Company. (See Cogswell, Henry J., assignor.)						
Hartman, Charles E., Lynn, Mass., assignor to General Electric Company. Electric-arc lamp	697,499	Apr. 15	2931	495	99	473
Hartig, John. (See Lenz, William G., assignor.)						
Hartley, Arthur J. (See Hartley, Charles J. and A. J.)						
Hartley, Charles J. and A. J., Decatur, Ill. Weighing-machine	701,722	June 3	900	177	99	2275
Hartley, Henry. (See Palmer and Hartley.)						
Hartley, Leonard H., T. H. Namsak, and J. Nowsall, Lowell, Mass. File-wire motion for looms	693,379	Apr. 29	2550	739	99	801
Hartline, William H., Tamaqua, Pa. Signal	700,041	May 12	1793	499	99	1599
Hartman, George W., Kansas City, Kans. Box-lid and tag-support	693,038	May 12	1071	250	99	1400
Hartman, John H., Advance, N. C. Bed-brace	700,917	May 27	2930	310	99	1931
Hartman, John E., Davenport, Iowa. Washing-machine	693,592	Apr. 1	295	73	99	99
Hartman, Peter H., et al. (See Humphrey, Edwin H., assignor.)						
Hartmann, Oscar, assignor to F. Krupp, Essen, Germany. Time-fuse	700,643	May 29	2937	631	99	1819
Hartness, James, Springfield, Vt. Chuck	693,034	Apr. 1	434	101	99	94
Hartness, James, Springfield, Vt. Fluid-regulating device	700,644	May 29	2938	632	99	1819
Hartness, James, Springfield, Vt. Fluid-regulating device	700,645	May 29	2970	633	99	1820
Hartness, James, Springfield, Vt. Fluid-operating device	700,646	May 29	2972	634	99	1820
Hartness, James, Springfield, Vt. Power-transmission mechanism	700,647	May 29	2973	635	99	1820
Hartog, Stephen D., assignor of two-thirds to E. W. Moon and J. M. Novy, St. Louis, Mo. Stencil-cutting machine	693,931	May 12	1847	393	99	1599
Hartshorn, Elgin G., Denver, Colo. Folding sofa-bed	700,042	May 12	1799	499	99	1599
Hartwell, Albert P., Hudson, S. D. Apparatus for loading cars, wagons, &c	697,716	Apr. 15	2457	535	99	595
Harvester King Company. (See Appleby, John F., assignor.)						
Harvey, Alice A., Binghamton, N. Y. Corn-stead	700,918	May 27	2939	310	99	1932
Harvey, George R., Pittsburg, Pa. Means for reducing condensation of steam in cylinders	693,935	Apr. 1	437	101	99	94
Harvey, George R., Hamilton, Canada, and E. A. Werner, Birmingham, Ala. Press for baling cotton or analogous materials	693,936	Apr. 1	438	101, 17	99	18
Harvey, Minor, Philadelphia, Pa., assignor to Morse, Williams and Company. Electrically-driven rolling-mill	693,939	May 12	1803	393	99	1599
Harvey, William, New York, N. Y. Illuminator	702,049	June 17	2455	572	99	2639
Hartville, Walter B., Montague, Tex. Wheel-rim	701,036	May 27	2799	599	99	2031
Haskell, Morris, London, England. Fur and glove sewing machine	697,230	Apr. 3	1771	395	99	595
Haskell, Frank H., Boston, Mass. Pressure-gage	697,232	Apr. 15	2216	545	99	595
Hastings, Caryl D., Schenectady, N. Y., assignor to General Electric Company. Electric motor	701,393	June 3	199	22	99	2122
Hastett, Charles A. (See Shiley, William F., assignor.)						
Hastings, Fred J. (See Gardner, George R., assignor.)						
Hastings, Moses A. (See Hilliard, Harry D., assignor.)						
Hastings, William A., San Francisco, Cal. and N. J. Harrington, Oakland, assignors to Geo. W. Caswell Company, San Francisco, Cal. Apparatus for cleaning coffee-berries	700,297	May 29	2939	545	99	1997
Hasty, Joseph P., Superior, Neb. Switch-actuating mechanism	693,167	May 6	71	19	99	1190
Hatch, Alexander P., Bridgeport, Conn. Flural whistle	693,514	Apr. 1	799	131	99	199
Hatcher, William A., and J. W. Packard, Warren, Ohio; said Hatcher assignor to said Packard. Oiling device for motor-vehicles	700,793	May 27	2940	746	99	1998
Hathaway, James F., Somerville, Mass. Vehicle	702,039	June 10	1411	319	99	2413
Hathaway, Oliver H., Central Falls, and W. H. Spencer, Providence, R. I. Covered roller for cotton-machines	701,393	May 27	4199	937	99	2092
Hathorn, Henry W., Mason City, Iowa. Pipe or tube sawing machine	700,113	May 12	1895	441	99	1577
Hatton, John M., Des Moines, Iowa. Garbage-can	702,397	June 24	2945	523	99	2210

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Heins, Clarence N., Pittsburg, assignor to H. J. Heins Company, Allegheny, Pa. Utensil for display of goods.	698,948	Apr. 29	4999	1073	99	1073
Heins Company, H. J. (See Heins, Clarence N., assignor.)						
Heins, Franz, Goodintant, Kana. Tire-tightener.	700,490	May 20	2703	379	99	1794
Heinselman, Frederick and E. Belleville, Ill. Roller-bearing.	698,944	Apr. 29	4999	1073	99	1073
Heinselman, Benjamin. (See Heinselman, Frederick and E.)						
Heiser, Johannes P., Denver, Colo. Suspenders.	697,944	Apr. 15	2498	585	98	584
Heist, Leo G., Philadelphia, Pa., assignor of one-half to C. J. Wilson, New York, N. Y. Hydrocarbon-vapor burner.	702,392	June 17	2999	584	99	2919
Helbing, Emil, Wandersbeck-Hamburg, Germany. Manufacturing post-brickets.	700,491	May 20	2703	379	99	1794
Held, August S., assignor to Stover Manufacturing Company, Freeport, Ill. Mop-head.	699,213	May 6	345	99	99	1944
Held, August S., assignor to Stover Manufacturing Company, Freeport, Ill. Mop-head.	699,213	May 6	347	99	99	1945
Held, August S., assignor to Stover Manufacturing Company, Freeport, Ill. Mop-head.	699,214	May 6	347	99	99	1945
Held, August S., assignor to Stover Manufacturing Company, Freeport, Ill. Mop-head.	699,215	May 6	348	99	99	1945
Hellon-Upton Company. (See Morrison, William, assignor.)						
Heller, William, Savannah, Ill. Machine for finishing bottoms of trousers.	699,216	May 6	349	99	99	1945
Hemann, Bernard. (See Branch and Hemann.)						
Hemming, Benjamin C., New Haven, Conn. Automatic glazing-machine.	702,099	June 10	1479	299	99	2499
Hemming, Robert E., Oakland, Cal. Fire-escape apparatus.	701,499	June 3	270	99	99	2194
Hempy, George L., Erie, Ohio. Bicycle-shield.	699,217	May 6	349	99	99	1945
Hempy, Alexander, Lansdowne, Pa. Flash-light apparatus.	699,218	May 6	350	99	99	1945
Henderson, Amos M., Grayville, assignor of two-thirds to W. H. Ernst and D. W. Steven-son, Marietta, Ohio. Tool for oil-wells or Artesian wells.	700,299	May 20	2999	545	99	1997
Henderson, Christopher, Montross, Colo. Road grader, scraper, and wader.	700,299	May 27	2999	519	99	1994
Henderson, George M., Indianapolis, Ind. Dipping-tank.	702,195	June 10	1599	347	99	2499
Henderson, Herman L., Stephens Mills, N. Y. Clutch.	697,908	Apr. 8	1544	348	98	348
Henderson, John C. (See Duncan, Charles B., assignor.)						
Henderson, Thomas M. (See Freeman and Henderson.)						
Henderson, William, Los Angeles, Cal. Hydrant.	697,904	Apr. 8	1345	299	98	299
Henderson, William G., Titusville, assignor of one-half to E. P. Cole, Pittsburg, Pa. Shear.	699,199	Apr. 29	2904	799	99	779
Hendricks, Benjamin F., and E. Thompson, Quincy, Ill. Fire-escape.	702,299	June 17	2999	597	99	2741
Hendricks, Ferdinand, and W. F. Kohl, Mason, Ohio. Whistle-coupling.	697,940	Apr. 8	1779	297	98	297
Hendricks, Simon B., assignor to Emerson Manufacturing Company, Rockford, Ill. Horse hay-rake.	699,219	May 6	350	99	99	1945
Hengeveld, Henry J., and A. E. Adams, High Springs, Fla. Tire-heater.	701,300	May 27	4044	999	99	2041
Hennagin, Herbert R., assignor to Buckeye Manufacturing Company, Anderson, Ind. Speed-regulator for gas-engines.	699,299	Apr. 1	979	219	99	297
Hennaway, John J., Milwaukee, Wis. Combined friction and direct-acting spring draft-rigging.	702,499	June 17	2999	671	99	2970
Hennaway, John J., and P. N. Moore, Milwaukee, Wis., assignors to said Hennaway and W. H. Miner, Chicago, Ill. Friction draft-rigging for railway-cars.	700,499	May 20	2999	599	99	1794
Hensing, Thomas W., San Angelo, Tex. Ice-tray.	699,219	May 6	354	99	99	1945
Hess, Julius C., Cleveland, Ohio. Burial-vault.	699,099	Apr. 29	2999	1129	99	1149
Hewitt, Garrett W., assignor to Hewitts Novelty Company, Indianapolis, Ind. Safety speed-limiting means.	702,491	May 20	2799	699	99	1794
Hewitts Novelty Company. (See Hewitts, Garrett W., assignor.)						
Hewitts, Earl, and A. Peterson, Brussels, Belgium. Manufacture of spherical maps.	701,300	June 3	114	99	99	2129
Hewitts, Bernhard, Austin, Ill. Track-landing device for locomotives.	702,494	May 27	2541	999	99	1994
Hewitts, Louis C., Reims, France. Photographic plate for reproducing ink impressions.	702,494	June 17	2999	699	99	2979
Henry, Harvey J., Madison, Ohio. Gas-burner for stoves.	699,215	Apr. 1	799	181	99	181
Henry, James. (See Eyer, Frank A., assignor.)						
Henry, J. H. (See Skinner, John J., assignor.)						
Henry, John C., deceased, Denver, Colo.; S. A. Henry, executrix, assignor to Stanley Electric Manufacturing Company. Electric controller.	699,991	May 13	1930	299	99	1991
Henry, John C., deceased, Denver, Colo.; S. A. Henry, executrix, assignor to Stanley Electric Manufacturing Company. Electric railway.	702,497	June 17	2971	679	99	2971
Henry, Sule A., executrix. (See Henry, John C.)						
Henry, Robert W., Oremerville, Ind. Cultivator.	699,199	Apr. 29	2495	799	99	779
Henry, William K., assignor to P. & F. Corbin, New Britain, Conn. Brush.	699,245	Apr. 29	4991	1073	99	1073
Henstock, Edward W., Chester, England. Pedal for velocipedes.	700,499	May 20	2714	999	99	1795
Hercules Woodware Company. (See Bell, Joseph, Jr., assignor.)						
Herdon, Henry, Wellsboro, Pa. Roller-die.	699,216	Apr. 1	704	181	99	181
Hertz, Heinrich, Bonn, Germany. Manufacture of water and fat proof paper with glazed surface.	697,997	Apr. 8	1545	349	98	349
Hesley, Patrick H. (See Chambers, Joseph, assignor.)						
Hesk, Frank, New York, N. Y. Machine for teaching type-writing.	699,114	Apr. 29	2944	719	99	799
Herman, Frank, et al. (See Miller, Benjamin F. D., assignor.)						
Herman, H. (See Anderson, Carl O., assignor.)						
Herman, Heinrich, Crafton, Pa. Circuit-controller.	699,099	May 13	1613	299	99	1991
Herold, Friedrich, Berlin, Germany. Photographic-printing frame.	699,015	Apr. 29	2999	697	99	694
Herrick, Gerard P., New York, N. Y. Blast-furnace.	697,999	Apr. 8	1999	299	98	2991
Herrick, Harrison R., Merrimack, N. H. Saw-handle fastening.	701,301	May 27	4044	999	99	2041
Herrington, Florence L., assignor to G. L. McAlpin, New York, N. Y. Cigar-bunch-wrapping machine.	699,299	Apr. 29	4975	1099	99	1099
Herrington, Fredrick J., Pittsburg, Pa. Non-refillable bottle.	700,770	May 27	2999	747	99	1999
Herron, Charles. (See De Rochemont, Perkins H., assignor.)						
Herschmann, Arthur, New York, N. Y. Vehicle.	699,499	Apr. 29	2991	997	99	994
Herschmann, Arthur, New York, N. Y. Braking device for compensating gears.	699,494	Apr. 29	2999	1073	99	1099
Herschberger, Charles H., Leray, Va. Currycomb.	699,016	Apr. 29	2997	997	99	994
Hervey, James J., Randolph, Cal. Cylindrical tank.	700,197	May 20	2109	499	99	1949
Hervey, Walter, Chamon, Ill. Tube-cutter.	700,199	May 20	2111	499	99	1949
Hernberg, Richard, Berlin, Germany. Furnace for burning fine fuel.	700,499	May 20	2719	991	99	1799
Hernig, Gustavus A., San Francisco, Cal. Grazing apparatus.	699,999	Apr. 1	299	79	99	99
Hess, John J., West, N. Y. Calf-washer.	697,999	Apr. 8	1911	294	98	291
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine.						
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine.	700,997	May 20	2995	999	99	1995
Hess, Edward B., Brooklyn, and J. H. Stoughton, Yonkers, assignors to Mechanical Improvements Company, New York, N. Y. Time-stamp.	700,999	May 20	2999	999	99	1999
Hess, John, Milwaukee, Wis. Newspaper-daily.	700,971	May 27	2999	799	99	1999

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Hilliard, Frederick E., Brooklyn, assignor to L. Tannenbaum, New York, N. Y. Apparatus for grinding and polishing guns.....	701,370	June 10	1904	280	90	2046
Hilliard, Harry D., assignor to M. A. Hastings, Lancaster, N. H. Wrench.....	695,495	Apr. 20	2920	285	90	2045
Hilliker, Byerson W., Kansas City, Kans. Bake-oven for gas or gasolene stoves.....	700,045	May 13	1774	410	90	1822
Hillman, George F., Florence, Mass. Apparatus for curing tobacco.....	695,677	Apr. 1	281	120	90	115
Hillman, Edgar C., Newport News, Va. Automatic cut-off for gas-stoves.....	695,150	Apr. 20	2410	781	90	773
Hilton, John E., New York, assignor of one-half to T. F. Curley, Brooklyn, N. Y. Speed-holder.....	697,940	Apr. 15	2920	697	90	645
Hitcher Manufacturing Company. (See Black, Julia, assignor.).....						
Hinchliffe, John E., and J. Hall, Maynard, Mass. Carding-engine.....	694,427	Apr. 1	30	10, 19	90	20
Hinde, Henry J., Toledo, Ohio. Power saw-grass.....	700,045	May 13	1774	411	90	1822
Hinde, Jesse L., Syracuse, N. Y. Vacuum-cylinder.....	695,500	Apr. 20	2414	781	90	773
Hines, Henry W., Scranton, Pa. Fire-kindler for fire-engines.....	695,428	Apr. 1	28	19	90	20
Hinrich, Andrew J., San Francisco, Cal. Matrix-based roller.....	695,200	Apr. 20	2420	720	90	821
Hinkel, Adam and J., assignors to Firm of E. F. Hinkel, Offenbach-on-the-Main, Germany. Fastener for matches, paraffin, &c.....	700,200	May 20	2920	540	90	1200
Hinkel, E. F., Firm of. (See Hinkel, Adam and J., assignors.).....						
Hinkel, Jacob. (See Hinkel, Adam and J.).....						
Hinkel, Johannes, assignor to F. Levy, Frankfurt-on-the-Main, Germany. Type-distributing machine.....	700,205	June 17	2920	540	90	2019
Hinman, Walter B., assignor of one-half to E. E. Harris, Joplin, Mo. Electric heater.....	700,094	May 20	2714	621	90	1705
Hinske, Albert, Rumford Falls, Me. Pulp-washing apparatus.....	700,205	June 17	2920	540	90	2020
Hird, Charles, Woonsocket, R. I. Mold for the manufacture of cellular condenser tubes for wheels of bicycles or other vehicles.....	693,115	Apr. 20	2947	711	90	727
Hirner, Emil A., Allentown, Pa. Manufacture of figured and striped fabrics.....	693,490	Apr. 20	2921	600	90	685
Hirner, Emil A., Allentown, Pa. Manufacture of striped hosiery.....	693,924	May 13	1616	370	90	1200
Hirsch, Samuel L., Cincinnati, N. Y. Chicken-brooder.....	701,040	May 27	2725	625	90	2001
Hirt, Ludwig, Grovesbroich, Germany. Centrifugal machine.....	693,281	May 6	205	86	90	1500
Hirt, Charles H., assignor to Springfield Metallic Canst Company, Springfield, Ohio. Burial-canister.....	693,000	Apr. 1	94	20	90	20
Hitt, Joseph E. (See Hitt, Robert G., assignor.).....						
Hitt, Robert G., Atlanta, assignor of one-fourth to J. E. Hitt, Augusta, Ga. Tag.....	695,695	Apr. 1	540	120	90	115
Hornstedt, John M., St. Paul, Minn., assignor to F. B. and E. J. Fargo, Leavenworth, Wis. Horse-collar-blocking machine.....	701,200	June 20	1905	241	90	2020
Hoag, Chester R., assignor to Whithead & Hoag Company, Newark, N. J. Letter or space indicating scale for type-writing machines.....	693,104	May 6	741	173	90	1200
Hoag, Ira G., Los Angeles, Cal. Train-order box in connection with semaphores.....	692,755	May 13	1203	220	90	1430
Hoag, Ira G., Los Angeles, Cal. Train-order box.....	700,205	May 27	2725	625	90	1905
Hoag, Ira G., Los Angeles, Cal. Train-order box.....	700,243	June 24	2920	540	90	2020
Hoagland, John, Clarkburg, W. Va. Molding-machine.....	700,205	June 24	2921	540	90	2021
Hoar, James F., Brooklyn, assignor to C. F. Wyckoff, Ithaca, and J. R. Chisholm, New York, N. Y. Internal-combustion engine.....	700,400	June 17	2975	474	90	2075
Hoar, John H., Denver, Colo. Smoke-preventer.....	697,925	Apr. 5	1245	295	90	20
Hobbs, Mica D., Edwardsville, Ill., assignor of one-half to C. A. Robbins, Winterset, Iowa. Rotary engine.....	700,000	May 20	2974	600	90	1705
Hobbs, Charles H., Baltimore, Md., assignor of one-half to H. P. Brown, Montclair, N. J. Third-rail construction for electric railways.....	700,000	May 20	2920	540	90	1200
Hobbs, George P., assignor of one-half to H. Haller Manufacturing Company, Limited, New Orleans, La. Packaging sheet-metal sections.....	695,220	May 6	297	90	90	1200
Hobrecht, Albert, Ensenada, Mexico. Automatic water-balance.....	697,000	Apr. 5	1247	295	90	205
Hochrism, Gustav F. (See Pumps and Hochrism.).....						
Hochstet, Aaron L., Madison, Wis. Wheel.....	697,341	Apr. 5	1773	397	90	397
Hodges, Chester A., Vinton, Iowa. Butter-priming apparatus.....	701,241	May 27	2724	624	90	2025
Hodges, Abel B. W., Grand Forks, Canada. Furnace-charging system.....	695,225	May 6	740	174	90	1200
Hodges, Chancery W., assignor to Michigan Specialty Company, Limited, Battlecreek, Mich. Harness-hook.....	695,970	Apr. 5	1120	281	90	201
Hodges, James W., Jersey City, N. J., assignor of one-half to H. C. Vom, New York, N. Y. Steam-trap.....	695,770	May 5	70	20	90	1120
Hodges, John D., assignor of two-thirds to D. W. Hewitt and E. Butler, Jr., St. Louis, Mo. Car-fender.....	701,500	June 5	210	114	90	2015
Hodgins, Philip E., and G. E. Kenney, London, England. Type-distributing machine.....	701,201	June 10	1905	242	90	2027
Hodgkinson, Edmund H., County of Middlesex, England. Belt, rope, or chain gearing.....	701,505	June 24	2920	700	90	2070
Hodgson, John G., Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Machine for manufacturing half-sared cans, pails, or other vessels.....	701,205	June 24	2924	510	90	2020
Hodgson, George F., Chicago, Ill. Filter.....	701,700	June 5	270	179	90	2017
Hoe and Company, E. (See Spelthover, William, assignor.).....						
Hoe and Company, E. (See Tucher, Edwin D., assignor.).....						
Hoe, Robert. (See Reed, George F., assignor.).....						
Hoe, Robert. (See Rosen, Oscar, assignor.).....						
Hochstein, Philipp. (See Brantigan and Hochstein.).....						
Hoen, Albert B. (See Barth and Hoen.).....						
Hoen, Ernst A. (See Gorton, Arthur B., assignor.).....						
Hoevel, Francis G., Brooklyn, N. Y. Gas-heater.....	695,017	Apr. 20	2080	690	90	694
Hoevel, Francis G., Brooklyn, N. Y. Gas-heater.....	697,057	Apr. 5	1245	295	90	205
Hoy, John, San Francisco, Cal. Bed-bottom.....	700,000	May 27	2720	617	90	1907
Hoy, John, San Francisco, Cal. Bed-bottom.....	700,000	May 20	2975	600	90	1700
Hoy, Edward von, New York, N. Y. Fishing-rod.....	700,404					
Hoffman, John W., et al. (See Harrison, Frank G., assignor.).....	695,000	Apr. 20	2080	690	90	694
Hoffman, Nellie F., Arlington, S. D. Oven.....						
Hoffman, Richard J. (See Krueger and Hoffman.).....						
Hoffman, William W., and F. W. Powers, West Lafayette, assignors to Electric and Steam Railway Supply Co., Lafayette, Ind. Railway-switch.....	695,200	Apr. 20	2073	1050	90	2201
Hoffmann, Ernest G., Chislehurst, England. Machine for grinding balls.....	700,000	June 24	2920	700	90	2070
Hoffmann, Peter, Greenfield, Iowa. Grain-threshing machine.....	700,007	May 13	1770	411	90	1820
Hofmeister, William. (See Olney and Hofmeister.).....						
Hogg, Bertha F., and J. C. Hogg, assignors to American Manufacturing Co., Erie, Pa. Sectional ladder.....	700,000	May 20	2971	600	90	1700
Hoggins, Francis M., (See Haggner, Willie A., assignor.).....						
Hogstra, August, Oshkosh, Iowa. Pipe-lifting mechanism.....	697,205	Apr. 15	2080	690	90	694
Hogstra, Anton, Oshkosh, Iowa. Pipe-lifting machine.....	697,710	Apr. 15	2081	690	90	695
Holmes, Gustavus E., and O. M. Holmes, assignors to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Annunciator.....	695,010	Apr. 20	2080	690	90	694

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Hoppen, John J., Springfield, Ohio. Rotary sweeper	692,442	Apr. 1	92	20	90	28
Hoppen, John J., Springfield, Ohio. Meter-box connection	692,174	May 6	92	20	90	1170
Hornet, Charles L., Brooklyn, assignor to R. H. Williams, New York, N. Y. Wheel	692,728	May 12	1210	222	90	1222
Hörner, Otto, Dresden, Germany. Draft-regulator for locomotives	702,925	June 10	1297	297	90	2222
Hörner, John H. (See Hörner, Simon D. and J. M.)						
Hörner, Simon D. and J. M., Newton, Tex. Mud or sand head for vehicles	701,222	June 2	121	25	90	2124
Horn, Frank O. (See Blair and Horn.)						
Horn, George A. (See Fisher, Charles, assignor.)						
Hornaday, Elmer, assignor of two-fifths to G. W. Shannett, Colfax, Iowa. Computing measuring cabinet	692,224	Apr. 1	227	72	90	22
Horne, John W., Des Moines, assignor to McNulty Brothers, Marshalltown, Iowa. Metal door-mat. (Retains)	11,222	May 12	2222	222	90	1212
Horsman, Charles W., Jersey City, N. J., assignor to himself, R. E. and H. J. Knapp. Brooklyn, N. Y. Moving trains (See Horrocks, William, assignor.)	701,042	May 27	2700	224	90	2222
Horrocks Desk Company. (See Horrocks, William, assignor.)						
Horrocks, William, assignor to Horrocks Desk Company, Harkimer, N. Y. Type-writer cabinet	692,222	Apr. 1	120	72	90	70
Horsing, Bernard F. (See Stein, Peter, assignor.)						
Hortsmann, Richard, and W. Wenzel, Berlin, Germany. Type-writing machine	692,222	May 2	170	27	90	1242
Horton, Emma, Elmira, N. Y. Mechanical mow-mower	227,242	Apr. 2	174	227	90	227
Hose, Lucy E., Cleveland, Ohio. Carbon-oil heater	692,222	Apr. 20	2222	270	90	222
Hosford, Charles B. (See Hapley and Hosford.)						
Hoskins, George J., Sydney, New South Wales, Australia. Apparatus for making cores	692,172	May 6	22	22	90	1122
Hosmer, George H., Niagara Falls, N. Y., and E. W. Anderson, Washington, D. C. Reminding device	702,022	June 24	2222	722	90	2222
Hossett, Benjamin D., et al. (See Livingston, Thomas, assignor.)						
Hotchkins, Henry S. (See Pearson, John H., assignor.)						
Houdyshell, Aaron C., Tama, Iowa. Shock-loading apparatus	702,702	June 17	2702	227	90	2712
Houde, Alfred, Rennes, France. Rolling-shoe	692,221	Apr. 22	2222	722	90	221
Hough, William J., Albany, N. Y. Catch-basin for sewers	692,172	May 6	22	22	90	1122
Houghton, William J., Norfolk, Wash. Conduit	697,222	Apr. 15	2224	222	90	272
House, Henry A., Jr., Hamstead, England. Automatic fuel-regulator	692,022	Apr. 1	442	102	90	22
House & Holmes Manufacturing Company. (See Holmes, George W., assignor.)						
Houston, David H., Hunter, N. D. Photographic-roll holder	702,122	May 12	1222	441	90	1272
Houston, Preston O. (See Gairdner, Ottmar A., assignor.)						
Hoyer, Jess O., Birmingham, N. Y. Folding box	700,022	May 12	1721	412	90	1224
Harvey, Charles C. (See Lea, George, assignor.)						
Howard, Archibald, and G. F. Lam, Ogdensburg, N. Y. Releasing hitching-strap	701,222	May 27	4171	222	90	2224
Howard and Bullock American Machine Company. (See Riley, Charles E., assignor.)						
Howard, Clarence W., Kirkwood, Ill. Typoid or stand	697,122	Apr. 2	1227	221	90	222
Howard, Clarence W., Kirkwood, Ill. Typoid or stand	697,127	Apr. 2	1222	221	90	222
Howard, Daniel. (See Hapley and Hosford.)						
Howard, Frank W., assignor to E. S. Scarborough, Brooklyn, N. Y. Filling-machine for sand-bolting tanks	692,722	Apr. 1	222	122	90	122
Howard, George H. and J. Langhart, Jr., McKeesport, Pa. Wrench	692,712	Apr. 1	224	122	90	112
Howard, George H., Washington, D. C. Label	702,222	June 10	1212	227	90	2212
Howard, George H., et al. (See Howard-Sherman, Charles H., assignor.)						
Howard, Harry E., Chicago, Ill. Curtain-stretcher	692,222	May 12	1072	221	90	1212
Howard, Harry E., Chicago, Ill. Portable trestle	702,221	June 27	2222	274	90	2222
Howard Iron Works. (See Darrin and Doller, assignors.)						
Howard, Lyman D., assignor to J. A. Jeffrey, Columbus, Ohio. Chain	702,274	June 27	2270	272	90	2722
Howd, Charles B., assignor to Balala Corset Company, Chicago, Ill. Garment-closure	702,222	Apr. 22	2212	222	90	272
Howden, James, Glasgow, Scotland. Steam-superheater	692,222	Apr. 22	2212	222	90	272
Howe, Allyn E., New York, N. Y. Speed-regulator for rotary shafts	702,221	June 24	2222	221	90	2211
Howe, Henshick, Otum, N. Y. Land-pulverizer	702,222	June 17	2222	227	90	2741
Howe, Henshick, Otum, assignor of one-half to F. F. Harris, Soli, N. Y. Antifriction roller-bearing	702,221	May 20	2212	222	90	2242
Howe, John B., and J. J. Fernandez, Danbury, Conn. Bicycle	702,122	June 24	2212	222	90	2222
Howe, Maynard L., Stockton, Cal. Self-feeder for threshers	697,022	Apr. 2	1242	222	90	222
Howe, Thomas J., Oronotus, Minn. Combined churn and butter-worke	702,712	May 27	2222	222	90	1221
Howe, William D. (See Fowler and Howe.)						
Howell, Charles W., Jr., Newark, N. J., assignor to Wagner Typewriter Company, New York, N. Y. Carriage-back mechanism for type-writing machines	702,222	June 24	2222	722	90	2724
Howell, Edward W., assignor to himself and F. B. Thurman, Denver, Colo. Delivery-apparatus for printing-presses	692,222	Apr. 1	727	122	90	122
Howell, Edward W., assignor to H. L. May, New York, N. Y. Rebagging apparatus	702,222	June 20	2222	222	90	2212
Howell, William, Brooklyn, N. Y. Child's teaching-rattle	692,227	May 12	1222	222	90	1227
Howes, Omar C., assignor to Cortland Carriage Goods Company, Cortland, N. Y. Propelling and brake mechanism for vehicles	692,222	Apr. 2	1122	224	90	222
Howland, Adin T., et al. (See Harry William L., assignor.)						
Howland, Channoy W., Geneva, N. Y., assignor to Standard Optical Company. Machine for marking or cutting lenses	724,222	May 27	2777	224	90	2222
Howland, Edwin, Boston, Mass. Strap and waste for water-pipes	702,222	June 24	2222	222	90	2212
Howard-Sherman, Charles H., assignor of one-fourth to G. H. Howard, Washington, D. C., and S. G. Cook, London, England. Main gun-carrot	697,222	Apr. 15	2702	222	90	227
Howles, John B., Sugar Grove, Pa. Spring-kings	711,244	June 2	122	22	90	2224
Howse, George L., assignor of two-thirds to B. Metcalf, Astoria, Mich. Voting-machine	702,221	May 27	2222	222	90	1227
Howy, George O., and J. J. Peiffer, Shamokin, Pa. Nut-lock	692,227	Apr. 22	2222	222	90	1221
Howy, Julius H., Asburg, Denmark. Fastening for doors or such like	692,222	Apr. 22	2222	222	90	222
Howy, Daniel, South Norwalk, Conn., assignor of one-half to National Lock Washer Company, Newark, N. J. Wash-lock	692,712	Apr. 1	722	122	90	122
Howy, Daniel, South Norwalk, Conn., assignor of one-half to National Lock Washer Company, Newark, N. J. Lock-washer	692,222	Apr. 1	222	122	90	122
Howy, Edwin C., et al. (See Howy, Frederick, assignor.)						
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Irvine, John S., et al. (See Blackwell, Edwin O., assignor.)						
Irvine, Thomas A. Horney, assignor to D. McVean, Chateaufort, London, England. Extraction of copper by the wet method	699,990	May 4	271		90	170
Irvine, David H., assignor of one-half to J. Chase, Boston, Mass. Bottle-cleanser	700,000	May 15	2710		90	170
Irvine, James A., Philadelphia, Pa. Toy top	699,990	Apr. 22	2620		90	170
Irvine, Herbert A., Galveston, Ill. Buffer for cutler-guards	700,000	May 1	2620		90	170
Irvine, Thomas H., Jersey City, N. J., and H. J. Miller, Brooklyn, N. Y. Carbonating-machine	697,730	Apr. 15	2497	900	90	200
Irvine, Wilson. (See Dobson, Alexander, assignor.)						
Isaac, Marcus C., Chicago, Ill. Fish-brush	700,130	June 15	1207	277	90	200
Isbell, Charles W., New York, N. Y. Gas-stove	698,590	May 15	1440	265	90	170
Israel, Elijah F., assignor of one-half to R. C. and G. W. Israel, Wichita, Kans. Seed-planter	711,200	June 3	280	114	90	200
Israel, George W., et al. (See Israel, Elijah F., assignor.)						
Israel, R. C., et al. (See Israel, Elijah F., assignor.)						
Ivan, Harry, assignor to C. M. Rogers and L. C. Rollo, Chicago, Ill. Mechanical movement.	710,000	June 17	2601	973	90	200
Ivan, Harry, assignor to C. M. Rogers and L. C. Rollo, Chicago, Ill. Mechanical movement.	710,000	June 17	2601	973	90	200
J. C. Bartlett Company. (See Ambata, Frank, assignor.)						
J. E. Margott Company. (See Fuller, Albert F., assignor.)						
J. Ellwood Lee Company. (See Garson, William H., assignor.)						
J. Ellwood Lee Company. (See Jones, Louis E., assignor.)						
J. H. Sears Company. (See Lombard, Walter E., assignor.)						
J. H. Williams and Company. (See Ambora, George J., assignor.)						
J. H. Williams and Company. (See Buford, George W., assignor.)						
J. L. Thomson Manufacturing Company. (See Thomson, Judson L., assignor.)						
J. M. Atkinson Company. (See Pimlott, William E., assignor.)						
J. Stevens Arms & Tool Company. (See Fay, Charles P., assignor.)						
J. T. Robertson Company. (See Kendrick, Dyer T., assignor.)						
J. W. Sefton Manufacturing Company. (See Ferris, Jeffrey T., assignor.)						
Jack, Robert E., Oshkosh, assignor of one-half to H. Dierker, Hortonville, Wis. Ogar-clipper and match-lighter	700,221	May 20	2600	547	90	170
Jackson, Charles E., Rockford, Ill. Switch-operating apparatus	699,227	May 6	271	27	90	170
Jackson, Edward K., London, England. Bridge for musical instruments	698,905	Apr. 20	2670	1070	90	170
Jackson, Edwin H., Chicago, Ill. Detachable fastener for hinges	699,200	May 6	700	170	90	170
Jackson, Frederick W., Chicago, Pa. Sand pump and boiler	702,241	June 17	2623	973	90	200
Jackson, George A., et al. (See Ridlon, Charles A., assignor.)						
Jackson, George W., assignor to Interlocking Steel Sheeting Company, Chicago, Ill. Metal sheet-piler	697,245	Apr. 15	2598	620	90	170
Jackson, George W., et al. O. Fanning, Manchester, England. Multicolor-printing machine	697,497	Apr. 15	2598	620	90	170
Jackson, James E., et al. (See Kitch and Jackson.)						
Jackson, James E., Lynn, Mass., assignor by mesne assignments, to United Shoe Machinery Company, Paterson, N. J., and Boston, Mass. Pulling-over machine	700,200	May 20	2600	547	90	170
Jackson, Joseph H., Chicago, Ill. Heel for boots or shoes	710,127	June 15	1203	247	90	200
Jackson, Peter H., San Francisco, Cal. Sidewalk trap-door	699,495	May 6	690	120	90	170
Jackson, Samuel, Fayetteville, N. Y. Hoisting and conveying machine	701,207	June 15	1000	240	90	170
Jackson, William B., Denver, assignor to Smoke Extensior and Fume Condenser Company, Pueblo, Colo. Apparatus for condensing smoke, fumes, and gases	701,200	May 27	2604	620	90	170
Jackson, William B., et al. (See Hagan, Charles A., assignor.)						
Jacob, Albert. (See Ambata, Frank, assignor.)						
Jacob, Arthur I., assignor to Sewing Machine Manufacturing Company, Hartford, Conn. Combined spool-holder and tension lever for sewing machines. (Reissue)	11,990	May 27	2174	902	90	200
Jacob, Harry B., Castleton, Vt. Drill	702,277	June 15	1203	247	90	200
Jacob, John, Chicago, Ill. Window-cash ventilator	700,000	May 27	2600	547	90	170
Jacobs, Olaus B., Roland, Iowa. Gate	700,130	June 15	1203	247	90	200
Jacobs, William A., et al. (See Zengel, Joseph, assignor.)						
Jacobs, William S., et al. (See McCombs, Joseph C., assignor.)						
Jacobson, Edward B. (See Folger, Moriarty, and Jacobson.)						
Jacobson, Edward B., assignor, by mesne assignments, to T. H. Nelson, Boston, Mass. Electric massage-machine	699,000	Apr. 20	2598	620	90	170
Jacobson, Louis. (See Weinberg, Bernhard, assignor.)						
Jacoby, William, assignor of seventeen-twentieths to J. E. and P. Snyder, J. A. Wilson, Fula, Minn., and M. Redinger, Prospect, Ill. Magazine-hammer	701,721	June 3	616	180	90	170
Jacobs, Harry B., Castleton, Vt. Drill	702,277	June 15	1203	247	90	200
Jacobs, John, Chicago, Ill. Window-cash ventilator	700,000	May 27	2600	547	90	170
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Jacoby, William, assignor of seventeen-twentieths to J. E. and P. Snyder, J. A. Wilson, Fula, Minn., and M. Redinger, Prospect, Ill. Magazine-hammer						

Alphabetical list of patents, April to June, inclusive—Continued

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Draw.	Vol.	Page.
Jardine, John B., assignor to F. L. H. Jardine, Philadelphia, Pa. Stair-carrying fastener.	697,498	Apr. 15	9989	497	99	694
Jardine, Phoebe L. H. (See Jardine, John B., assignor.)						
Jerry, Henry J., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Warp stop-motion for looms.	697,592	Apr. 8	1007	545	99	593
Jerry, Henry J., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Warp stop-motion for looms.	703,514	June 17	9984	574	99	593
Jervis, Edgar R., Toronto, Canada. Drawing-board.	697,543	Apr. 15	9973	594	99	593
Jervis, Harold, assignor to Jervis Typewriter & Tabulator Company, Buffalo, N. Y. Type-writing machine.	698,399	May 6	999	114	99	1297
Jervis Typewriter & Tabulator Company. (See Jervis, Harold, assignor.)						
Jervis, William G., Delaware, Ohio. Garment-turning apparatus.	698,395	Apr. 29	9979	1077	99	1398
Jarvis, William R., Cleveland, Ohio. Oil-burner.	702,339	June 17	9919	587	99	592
Jarvis, William R., Cleveland, Ohio. Oil-burner.	702,341	June 17	9915	585	99	592
Jaffrey, William A., Mulberry, Ark. Combination-plov attachment.						
Jaffrey, J. A. (See Howard, Lyman D., assignor.)						
Jaffrey, Joseph A. (See Dierbach, Henry B., assignor.)						
Jaffrey, Joseph A. (See Steadell, Archibald W. F., assignor.)						
Jaffrey, Joseph A. (See Vega, Henry A., assignor.)						
Jaffrey, Joseph A. (See Webster, Alfred J., assignor.)						
Jaffrey, Joseph A. (See Wilson, Freeman R., Jr., assignor.)						
Jaffrey Manufacturing Company. (See Fairman, Alexander, assignor.)						
Jaffrey, Edward A., Rosely, England. Oil-fired apparatus for delivering sweets or other articles.	697,149	Apr. 8	1449	999	99	999
Jaffrey, Edward A., Rosely, England. Oil-fired apparatus for delivering sweets or other articles.	698,997	Apr. 29	9945	979	99	999
Jahn, Stephen J., Pittsburg, Pa. Gas-saving appliance.	702,571	June 24	9975	545	99	594
Jahn, William R., assignor to Chattanooga Medicine Company, Chattanooga, Tenn. Pa-	701,999	May 27	4067	590	99	593
per-john.	698,997	Apr. 29	9945	1079	99	1198
Janikin, Charles K., and H. J. McDonald, South Butte, Mont. Fuse-grinder.	701,999	May 27	4067	590	99	593
Janikin, James, Cardiff, England. Apparatus for coupling or uncoupling railway roll-	698,997	Apr. 29	9945	1079	99	1198
ing-stock.						
Janikin, John. (See Tunney, John J., assignor.)						
Janikin, William R., assignor of one-half to C. G. Filley, St. Louis, Mo. Felling and	699,099	Apr. 1	999	194	99	117
hammer attachment for sawing-machine.	701,794	June 3	999	191	99	593
Jenks, Charles C., Holyoke, Mass. Paper of variable thickness.	698,970	Apr. 8	1144	584	99	593
Jennings, Curtis M., St. Louis, Mo. Car-roof.						
Jennings, John W., et al. (See Edgerton, Arthur D., assignor.)						
Jensen, Ernst, Munich, Germany. Printing-machine.	697,999	Apr. 8	1599	999	99	999
Jernald, William E., Waltham, assignor to American Steam Gage Company, Boston, Mass. Safety-valve.	698,999	Apr. 8	194	177	99	1391
Jernigan, George F., assignor of one-half to H. T. Shields, New York, N. Y. Amalgamat-	701,949	June 3	195	99	99	593
ing apparatus.	698,999	Apr. 29	9999	1079	99	1198
Jester, Emma, Pueblo, Colo. Distilling apparatus.	698,180	May 6	97	94	99	1195
Jetter, Julius, Winchester, Mass. Universal joint.						
Jewell, Fletcher W. (See Lombard, Levi W., assignor.)						
Jewell Storage Battery Company. (See Lombard, Levi W., assignor.)						
Jewett, William G., et al. (See Roberts, Henry F., assignor.)						
Johann, Frank L., Richmond, Va. Cover for tankers or other vessels.	700,999	May 20	9999	994	99	1092
Johann, Richard L. (See Armstrong and Johansen.)						
Johansson, Adolf M. (See Rydman and Johansson.)						
Johansson, Karl A., Stockholm, assignor of one-half to J. O. H. Lindholm, Stockholm, Sweden. Album for clothing-patterns, drawings, &c.	698,971	May 13	1949	999	99	1499
John Thomas Press Company. (See Thomas, John, assignor.)						
Johns, Max W., and W. L. Kaufman, Louisville, Ky.; and Johns assignor to said Kauf-	697,997	Apr. 15	9999	979	99	994
man. Jacketed bottle.						
Johns, Richard H. (See Roberts and McCann, assignors.)						
Johns, William M., Dayton, Ohio. Car-track.	698,941	Apr. 1	447	104	99	99
Johson, Alfred R., Victor, Ohio. Pump.	700,999	May 27	9997	990	99	1999
Johson, Arny M., Belle Center, Ohio. Robo-tool for vehicles.	698,997	Apr. 29	9994	799	99	594
Johson, Arny M., Belle Center, Ohio. Robo-tool for vehicles.	700,999	June 24	9979	799	99	593
Johson, Arny M., Belle Center, Ohio. Robo-tool for vehicles.						
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Johnson, Montgomery H., Utica, N. Y. Junction or fuse box	692,122	May 13	1444	1444	1190	
Johnson, Moses C., Hartford, Conn. Speed-controlling and reversing mechanism	692,123	May 13	1444	1444	1190	
Johnson, Moses C., Hartford, Conn. Speed-controlling and reversing mechanism	692,124	May 13	1444	1444	1190	
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Johnson, Peter C., Seaford, near Liverpool, England. Ship's davit or hoist-lowering device	701,040	May 27	9777	9777	1204	
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Johnstone, Antoine P., assignor of one-half to G. A. McAllister, Gibbstown, N. J. Weighing and measuring machine	692,139	May 6	1444	1444	117	
Jolly, Angeline, Columbia, Ind. Cooking-stove attachment	701,073	June 24	2075	2075	1204	
Jonah, William W. (See Kelling, Baltimore, Md. Machine for producing bottle-sealing caps)	692,140	Apr. 15	1444	1444	117	
Jones, James C., Rochester, Mich., assignor to United States Register Company, Ltd. Red-hot register	692,141	May 6	1444	1444	117	
Jones, Benjamin. (See Jones, John E. and E.)	692,142	June 17	2009	2009	1204	
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Jones, Charles H., Wood Green, England. Construction of courses or tracks for cycling	701,081	June 8	1444	1444	117	
Jones, Davis R., assignor of one-half to H. H. Carr, Rockymount, N. C. Collapsible barrel	692,143	May 20	1444	1444	117	
Jones, Edward A., Pittsfield, Mass. Beating-machine	692,144	Apr. 1	1444	1444	117	
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Jones, Frank, Liverpool, England. Cradles for underground roadways	692,147	Apr. 1	1444	1444	117	
Jones, Frederick H., Haverhill, Mass. Pyrites	692,148	Apr. 15	1444	1444	117	
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Jones, Herbert C., Chicago, Ill. Sofa-bed	701,084	June 24	2075	2075	1204	
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Jones, John R. and R. Wood, Ind. Sheet-metal-bending-machine	692,154	May 6	1444	1444	117	
Jones, Louis E., assignor to J. H. Wood Lee Company, Conshohocken, Pa. Dismantling device	701,089	June 8	1444	1444	117	
Jones, Oliver, Kansas City, Kans. Bolt-lock	701,090	May 20	1444	1444	117	
Jones, Samuel A., Dushier, Ohio. Mail-box	701,091	June 10	1944	1944	1204	
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Jones, Willard, Lisbon, Mo. Strainer	692,156	June 17	2009	2009	1204	
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Jones, William E., Marshall, Mo. Swinging gate	701,095	June 24	2075	2075	1204	
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Keel, Edson O., Lawrence, Mass. Threshold-gate	701,106	June 24	2075	2075	1204	
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Keep, William J., assignor to Michigan Stove Company, Detroit, Mich. Fire-pot for stoves	692,193	Apr. 20	1444	1444	117	
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Keenan, William H., Fort Wayne, Ind. Kneeling-board	701,110	May 27	1444	1444	117	
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Kelley, Michael F., Milford, Mass. Lathing-machine	700,102	May 27	5222	622	90	1260
Kellogg, Albert A., assignor of one-half to G. C. Hayster, Clinton, Mo. End-gate fastener	700,103	May 15	1691	671	90	990
Kellogg, George W., Hartford, Conn. Air-pump	692,710	Apr. 20	4491	672	90	990
Kellogg, George W., Hartford, Conn. Sterilizing apparatus	692,711	Apr. 20	4492	673	90	990
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Kemper, Harry, Newton, Mass. Feeding mechanism for carding-machines	701,427	June 8	377	113	90	1260
Kemp, John O., Ottobaria, Ind. Carbide-feeding mechanism	692,102	May 6	511	114	90	1260
Kemp, William, Jr., assignor to Lanston Monotype Machine Company, New York, N. Y. Type-composing machine for tabular matter	700,108	May 20	3405	140	90	1700
Kemper, William H., Danville, Ky. Gate	692,103	Apr. 20	4721	1125	90	1120
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Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,005	Apr. 1	941	215	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Making golf-balls	694,006	Apr. 1	942	216	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,007	Apr. 1	943	217	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,008	Apr. 1	944	218	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,009	Apr. 1	945	219	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,010	Apr. 1	946	220	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,011	Apr. 1	947	221	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,012	Apr. 1	948	222	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,013	Apr. 1	949	223	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,014	Apr. 1	950	224	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,015	Apr. 1	951	225	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,016	Apr. 1	952	226	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,017	Apr. 1	953	227	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,018	Apr. 1	954	228	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,019	Apr. 1	955	229	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,020	Apr. 1	956	230	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,021	Apr. 1	957	231	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,022	Apr. 1	958	232	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,023	Apr. 1	959	233	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,024	Apr. 1	960	234	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,025	Apr. 1	961	235	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,026	Apr. 1	962	236	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,027	Apr. 1	963	237	90	120
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Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,032	Apr. 1	968	242	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,033	Apr. 1	969	243	90	120
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Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,036	Apr. 1	972	246	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,037	Apr. 1	973	247	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,038	Apr. 1	974	248	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,039	Apr. 1	975	249	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,040	Apr. 1	976	250	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,041	Apr. 1	977	251	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,042	Apr. 1	978	252	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,043	Apr. 1	979	253	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,044	Apr. 1	980	254	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,045	Apr. 1	981	255	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,046	Apr. 1	982	256	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,047	Apr. 1	983	257	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,048	Apr. 1	984	258	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,049	Apr. 1	985	259	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,050	Apr. 1	986	260	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,051	Apr. 1	987	261	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,052	Apr. 1	988	262	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,053	Apr. 1	989	263	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,054	Apr. 1	990	264	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,055	Apr. 1	991	265	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,056	Apr. 1	992	266	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,057	Apr. 1	993	267	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,058	Apr. 1	994	268	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,059	Apr. 1	995	269	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,060	Apr. 1	996	270	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,061	Apr. 1	997	271	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,062	Apr. 1	998	272	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,063	Apr. 1	999	273	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,064	Apr. 1	1000	274	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,065	Apr. 1	1001	275	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,066	Apr. 1	1002	276	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,067	Apr. 1	1003	277	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,068	Apr. 1	1004	278	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,069	Apr. 1	1005	279	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,070	Apr. 1	1006	280	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,071	Apr. 1	1007	281	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,072	Apr. 1	1008	282	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,073	Apr. 1	1009	283	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,074	Apr. 1	1010	284	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,075	Apr. 1	1011	285	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,076	Apr. 1	1012	286	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,077	Apr. 1	1013	287	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,078	Apr. 1	1014	288	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,079	Apr. 1	1015	289	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,080	Apr. 1	1016	290	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,081	Apr. 1	1017	291	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,082	Apr. 1	1018	292	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,083	Apr. 1	1019	293	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,084	Apr. 1	1020	294	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,085	Apr. 1	1021	295	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,086	Apr. 1	1022	296	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,087	Apr. 1	1023	297	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,088	Apr. 1	1024	298	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,089	Apr. 1	1025	299	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,090	Apr. 1	1026	300	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,091	Apr. 1	1027	301	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,092	Apr. 1	1028	302	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,093	Apr. 1	1029	303	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,094	Apr. 1	1030	304	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,095	Apr. 1	1031	305	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,096	Apr. 1	1032	306	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,097	Apr. 1	1033	307	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,098	Apr. 1	1034	308	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,099	Apr. 1	1035	309	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,100	Apr. 1	1036	310	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,101	Apr. 1	1037	311	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,102	Apr. 1	1038	312	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,103	Apr. 1	1039	313	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,104	Apr. 1	1040	314	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,105	Apr. 1	1041	315	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,106	Apr. 1	1042	316	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,107	Apr. 1	1043	317	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,108	Apr. 1	1044	318	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,109	Apr. 1	1045	319	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,110	Apr. 1	1046	320	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,111	Apr. 1	1047	321	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,112	Apr. 1	1048	322	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,113	Apr. 1	1049	323	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,114	Apr. 1	1050	324	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,115	Apr. 1	1051	325	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,116	Apr. 1	1052	326	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,117	Apr. 1	1053	327	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,118	Apr. 1	1054	328	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,119	Apr. 1	1055	329	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,120	Apr. 1	1056	330	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,121	Apr. 1	1057	331	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,122	Apr. 1	1058	332	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,123	Apr. 1	1059	333	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,124	Apr. 1	1060	334	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,125	Apr. 1	1061	335	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,126	Apr. 1	1062	336	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,127	Apr. 1	1063	337	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,128	Apr. 1	1064	338	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,129	Apr. 1	1065	339	90	120
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	694,130	Apr. 1	1066	340	90	

Alphabetical list of patients, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Type.	Pgs.	Vol.	Page.
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,814	Apr. 20	2898	874	50	100
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,815	Apr. 20	2894	874	50	100
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,816	Apr. 20	2895	874	50	100
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,817	Apr. 20	2896	874	50	100
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,818	Apr. 20	2897	874	50	100
Manufacturing golf-balls.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,819	Apr. 20	2898	1187	50	114
Manufacturing golf-balls.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,820	Apr. 20	2899	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,821	Apr. 20	2900	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,822	Apr. 20	2901	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,823	Apr. 20	2902	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,824	Apr. 20	2903	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,825	Apr. 20	2904	1187	50	114
Manufacture of playing-balls.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,826	Apr. 20	2905	1187	50	114
Manufacture of golf-balls.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,827	Apr. 20	2906	1187	50	114
Golf-club.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,828	Apr. 20	2907	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,829	Apr. 20	2908	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,830	Apr. 20	2909	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,831	Apr. 20	2910	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,832	Apr. 20	2911	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,833	Apr. 20	2912	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,834	Apr. 20	2913	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,835	Apr. 20	2914	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,836	Apr. 20	2915	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,837	Apr. 20	2916	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,838	Apr. 20	2917	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,839	Apr. 20	2918	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,840	Apr. 20	2919	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,841	Apr. 20	2920	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,842	Apr. 20	2921	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,843	Apr. 20	2922	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,844	Apr. 20	2923	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,845	Apr. 20	2924	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,846	Apr. 20	2925	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,847	Apr. 20	2926	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,848	Apr. 20	2927	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,849	Apr. 20	2928	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,850	Apr. 20	2929	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,851	Apr. 20	2930	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,852	Apr. 20	2931	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,853	Apr. 20	2932	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,854	Apr. 20	2933	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,855	Apr. 20	2934	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,856	Apr. 20	2935	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,857	Apr. 20	2936	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,858	Apr. 20	2937	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,859	Apr. 20	2938	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,860	Apr. 20	2939	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,861	Apr. 20	2940	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,862	Apr. 20	2941	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,863	Apr. 20	2942	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,864	Apr. 20	2943	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,865	Apr. 20	2944	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,866	Apr. 20	2945	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,867	Apr. 20	2946	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,868	Apr. 20	2947	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,869	Apr. 20	2948	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,870	Apr. 20	2949	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,871	Apr. 20	2950	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,872	Apr. 20	2951	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,873	Apr. 20	2952	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,874	Apr. 20	2953	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,875	Apr. 20	2954	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,876	Apr. 20	2955	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,877	Apr. 20	2956	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,878	Apr. 20	2957	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,879	Apr. 20	2958	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,880	Apr. 20	2959	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,881	Apr. 20	2960	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,882	Apr. 20	2961	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,883	Apr. 20	2962	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,884	Apr. 20	2963	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,885	Apr. 20	2964	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,886	Apr. 20	2965	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,887	Apr. 20	2966	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,888	Apr. 20	2967	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,889	Apr. 20	2968	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,890	Apr. 20	2969	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,891	Apr. 20	2970	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,892	Apr. 20	2971	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,893	Apr. 20	2972	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,894	Apr. 20	2973	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,895	Apr. 20	2974	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,896	Apr. 20	2975	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,897	Apr. 20	2976	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,898	Apr. 20	2977	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,899	Apr. 20	2978	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,900	Apr. 20	2979	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,901	Apr. 20	2980	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,902	Apr. 20	2981	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,903	Apr. 20	2982	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,904	Apr. 20	2983	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,905	Apr. 20	2984	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,906	Apr. 20	2985	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,907	Apr. 20	2986	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,908	Apr. 20	2987	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,909	Apr. 20	2988	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,910	Apr. 20	2989	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,911	Apr. 20	2990	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,912	Apr. 20	2991	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,913	Apr. 20	2992	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,914	Apr. 20	2993	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,915	Apr. 20	2994	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,916	Apr. 20	2995	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,917	Apr. 20	2996	1187	50	114
Playing-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,918	Apr. 20	2997	1187	50	114
Golf-ball.						
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company.	698,919	Apr. 20	2998	1187	50	114
Playing-ball.						

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Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Draw.	Vol.	Page.
King, Robert W., Toronto, Canada. Automatic smoker and smoke-consumer.	708,088	June 24	2885	709	99	2949
King, William H. (See King, Charles W. and W. H.)						
King, William L., Ottumwa, Iowa. Horn-socket.	698,490	Apr. 1	198	24	99	57
Kingman, Barton E. (See McLaughlin, Harry, assignor.)						
Kingman Plov Company. (See Duffin, James F., assignor.)						
Kingsland, William, London, England. Connection of strainers to motor-vehicles for mechanically operating electric switches.	698,935	Apr. 29	4098	1081	99	1105
Kinsard, John M., Cleveland, Ohio. Measuring-cabinet.	708,570	June 24	3938	948	99	3917
Kinsner, Duke M., and W. W. Jones, Clinton, Mass. Shoe-fastener.	701,980	June 10	1004	840	99	29
Kinsney, Clement L. V., assignor to Newark Machine Company, Newark, Ohio. Mock.	698,448	Apr. 1	440	105	99	
Kinsney, Clement L. V., assignor to Newark Machine Company, Newark, Ohio. End-gate for manure-spreader or similar beds.	698,448	Apr. 1	441	105	99	9
Kinsney, Israel, Toronto, Canada. Knife.	701,997	June 24	8115	718	99	3820
Kinsney, Israel, Toronto, Canada. Pocket-knife.	701,998	June 24	8115	717	99	3820
Kinsley, Richard R., assignor to National Burial Device Company, Coldwater, Mich. Burial device.	700,948	May 27	3951	984	99	1908
Kinsley, Henry H., Shushone, Idaho, assignor of one-third to M. Tinker, St. Paul, Minn. Collapsible box.	698,451	Apr. 1	104	24	99	5
Kistner, Joseph H., and W. H. Romig, Harrisburg, Pa. Sliding-door fastener.	698,980	Apr. 8	1149	268	99	
Kistner, Charles J., New York, N. Y. System of electric railways of the sectional type of conductors or rails.	700,196	May 13	1906	443	99	1877
Kistner, Charles J., New York, N. Y. Electric railway.	700,197	May 13	1915	444	99	1880
Kistner, Charles J., New York, N. Y. Electric railway.	700,198	May 13	1916	445	99	1883
Kistner, Charles J., New York, N. Y. Electric railway.	700,199	May 13	1916	445	99	1883
Kistner, Charles J., New York, N. Y. Electric railway.	700,199	May 13	1917	446	99	1883
Kistner, Charles J., New York, N. Y. Electric railway.	700,199	May 13	1917	447	99	1883
Kitt, Herbert, and H. J. Leonard, Sharpsburg, assignors of one-third to F. P. Booth, Pittsburg, Pa. Wrench.	700,460	May 20	3951	981	99	178
Kivall, John, assignor of one-half to J. Schroeder, Worcester, Mass. Device for removing broken bars.	700,011	June 10	1990	960	99	3909
Kipp, Oliver G., Rochester, Ill. Labor-saving.	698,101	May 8	119	30	99	110
Kipp, Bruce, Moorhead, Minn. Merry-go-round.	698,894	Apr. 29	3975	798	99	9
Kirby, Frank H. (See McClave, Kirby, and Cumbe.)						
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Globe-holder attachment for gas-fixtures.	698,644	Apr. 1	480	106	99	1
Kirby Lumber Company. (See Woodman, George A., assignor.)						
Kirby, William A., Newbury, N. Y. Gearing for moving-machines.	702,448	June 17	8085	978	99	3970
Kirk, William L., Dubois, Pa. Saw-clamp.	701,897	June 10	1085	840	99	29
Kirkpatrick, Elliott C. (See Denton and Press, assignors.)						
Kirkpatrick, John J. (See Lishman, Houghton, and Kirkpatrick.)						
Kirris, Linden, Kansas City, Mo. Two-row cultivator.	700,387	May 20	8400	540	99	170
Kirschner, Michael, Lynchburg, Va. Rolling-press.	701,975	June 8	830	119	99	29
Kirschner, Michael, Lynchburg, Va. Bale-covering.	701,976	June 8	835	117	99	29
Kiss, Ernest J., Fort Wayne, Ind. Amalgamator.	698,428	Apr. 1	105	35	99	9
Kistler, Willoughby F., Bartaak, Ohio. Stove.	697,091	Apr. 8	1243	920	99	9
Kittae, Isidor, Philadelphia, Pa. Machine for producing matrices for stereotype-plates.	698,998	Apr. 29	4098	1081	99	1105
Kittae, Isidor, Philadelphia, Pa. Pyroxylin compound.	701,897	June 8	830	119	99	29
Kittae, Isidor, Philadelphia, Pa. Insulating electric conductors.	700,196	May 13	1906	443	99	1877
Kittredge, Anson O. and E. R. Tandy, H. J., assignors to Account, Audit & Assurance Company, Limited, New York, N. Y. Book-section having wide and narrow leaves.	697,495	Apr. 15	8070	681	99	47
Kittredge, Anson O. and E. R. Tandy, H. J., assignors to Account, Audit & Assurance Company, Limited, New York, N. Y. Sheet for serial binders.	700,398	May 20	8400	540	99	170
Kittredge, Anson O., Springfield, Mass., and E. R. Kittredge, assignors to Account, Audit & Assurance Company, New York, N. Y. Book-section having wide and narrow leaves.	702,013	June 10	1087	840	99	29
Kittredge, Ernest R. (See Kittredge, Anson O. and E. R.)						
Kitta, Charles A., deceased; H. W. Kitts, administratrix, assignor to Steam Carriage Coiler Company, Oswego, N. Y. Steam-generator.	698,498	Apr. 29	4098	1081	99	1105
Kitta, Harriet W., administratrix. (See Kitta, Charles A.)						
Kitzler, Rudolph A. (See Symak and Kitzler.)						
Kiverson, Carl O. (See Olson, John H., assignor.)						
Kiva, Pauline A., Melbourne, Victoria, Australia. Appliance for assisting the hearing.	698,713	Apr. 29	4098	1081	99	1105
Kiss, Wilhelm, Magdeburg, Germany. Bicycle-lock.	698,714	Apr. 29	4100	1082	99	1106
Kiss, Franz, Wilhelmshaven, Germany. Axle.	702,101	June 10	1498	8	99	24
Klein, Franz E., Dresden, Germany. Long-throw conductor.	701,877	June 3	582	117	99	29
Klein, Frederick, New York, N. Y. Non-refillable bottle.	697,285	Apr. 15	7928	905	99	6
Klein, George J., Washington, D. C. Controller.	698,641	Apr. 29	4097	1080	99	10
Klein, John, Desloge, assignor of two-thirds to P. A. Foss and C. D. McIlure, St. Louis, Mo. Ore-classifier.	698,739	Apr. 1	689	167	99	1
Klein, John B., Oil City, Pa. Speed-regulator for explosive-engines.	697,409	Apr. 8	7947	437	99	6
Klein, Max, Denver, Colo. Horse-dogging.	700,897	May 20	8411	687	99	17
Klein, Ulrich, Brookline, Mass. Artificial cerebrum.	700,899	June 17	8777	686	99	27
Kleinewaters, Johannes, assignor to J. Kleinewaters Schmo, Orefield, Germany. Calves' separator.	700,898	May 20	8411	686	99	17
Kleinewaters Schmo, Joh. (See Kleinewaters, Johannes, assignor.)						
Kleinewaters Schmo, Joh. (See Kleinewaters, Wilhelm, assignor.)						
Kleinewaters, Wilhelm, Orefield, assignor to Firm of J. Kleinewaters Schmo, Orefield, Prussia, Germany. Marcellizing.	698,086	Apr. 29	3951	971	99	6
Kleinschmidt, Carl, assignor to E. H. Kleinschmidt, Seattle, Wash. Wood-preserving compound.	697,693	Apr. 29	3955	989	99	5
Kleinschmidt, Edward E., New York, assignor to F. Danzer, Brooklyn, N. Y. Apparatus for twisting macaroni.	698,119	Apr. 29	3955	715	99	7
Kleinschmidt, Emma H. (See Kleinschmidt, Carl, assignor.)						
Kleist, Eugene de, North Tonawanda, N. Y. Antismal merial instrument.	700,791	May 27	3979	988	99	19
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
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Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
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Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
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Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	21
Klopper, Wilhelm, Elber, Austria-Hungary. Shot-machine.	701,338	June 8	140	39	99	

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			1	2	3	4
Kling, Isaac, Louisville, Ky. Compound or multiple cylinder engine.	701,334	May 27	948	947	11	1771
Kling, Matthias, Oberndorf, Germany. Door check and closer.	701,335	May 27	948	947	11	1771
Kling, Carl F. A., Indianapolis, Ind. Air-shut.	701,336	June 3	141	141	11	1771
Kling, Frederick C., Louisville, Ky. Shipping vessel for ice-cream.	697,499	Apr. 15	2031	2031	11	1771
Knapp, Charles H., Paterson, N. J. Machine for folding cloth blanks.	698,199	May 6	114	114	11	1771
Knapp, Edwin C., Syracuse, N. Y. Polarized magnet.	698,207	Apr. 28	938	937	11	1771
Knapp, Fred H., and C. W. Blackstone, Chicago, Ill. Can labeling and wrapping machine.	698,208	Apr. 28	938	937	11	1771
Knapp, George W., Baltimore, Md. Assignor to National Enameling & Stamping Co. Machine for bulging sheet-metal vessels.	697,497	Apr. 15	938	937	11	1771
Knapp, Gilman C., Barre, Cal. Saving-machine.	701,337	May 27	948	947	11	1771
Knapp, Herbert J., et al. (See Horning, Charles W., assignor.)	701,338	May 27	948	947	11	1771
Knapp, Sherwood R., et al. (See Horning, Charles W., assignor.)	701,339	May 27	948	947	11	1771
Knapp, Wellington K., Grand Rapids, Mich. Folding ironing-table.	701,340	May 27	948	947	11	1771
Knauer, Albert P., and H. Outwald, Milwaukee, Wis. Roller.	701,341	May 27	948	947	11	1771
Knecht, Edmund, Manchester, England. Reserve and discharge on textile fabrics.	698,209	Apr. 28	938	937	11	1771
Kneha, Wilhelm, and F. Pischel, assignors to Hiesfelder Maschinenfabrik vormals Dürkop & Co., Bielefeld, Germany. Cash-register.	698,210	Apr. 28	938	937	11	1771
Kneip, Frederic R., Boston, Mass. Apparatus for cutting and polishing precious stones.	701,342	May 27	948	947	11	1771
Knell, Andrew, Jr., Baltimore, Md. Water-chest flushing tank or cylinder.	701,343	May 27	948	947	11	1771
Knibb, Francis O. G., London, and T. R. Fowler, Woodford, England. Book-cover.	701,344	May 27	948	947	11	1771
Knight, Ellsworth L., Richmond, W. Va. Tube-expander.	698,211	Apr. 28	938	937	11	1771
Knight, John, Chicago, Ill. Lock-terminator.	698,212	Apr. 28	938	937	11	1771
Knight, Walter A., Madisonville, Ohio. Warehouse-truck.	698,213	Apr. 28	938	937	11	1771
Knappe, Oliver C., Norristown, Pa. Axle-bearing.	698,214	Apr. 28	938	937	11	1771
Knoche, Louis H., San Jose, Cal. Movable-stand.	701,345	May 27	948	947	11	1771
Knowlton, Dallas, Washington, D. C. Vending-machine.	701,346	May 27	948	947	11	1771
Knowlton, Dallas, Washington, D. C. Vending-machine.	701,347	May 27	948	947	11	1771
Knowlton, Dallas, Washington, D. C. Coin-controlled mechanism for vending machines.	701,348	May 27	948	947	11	1771
Knowlton, John D., Westbrook, assignor to Sanford Mills, Sanford, Me. Machine for cutting loops of pile fabric.	701,349	May 27	948	947	11	1771
Knox Automobile Company. (See Knox and Jones, assignors.)	698,215	Apr. 28	938	937	11	1771
Knox, Harry A., Springfield, Mass. Brake.	698,216	Apr. 28	938	937	11	1771
Knox, Harry A., and J. H. Jones, assignors to Knox Automobile Company, Springfield, Mass. Braking-rod for motor-vehicles.	698,217	Apr. 28	938	937	11	1771
Koch, Gustav, assignor to E. G. Hys, New York, N. Y. Shopper for bottles, etc.	698,218	Apr. 28	938	937	11	1771
Koch, Henry, assignor to Regina Music Box Company, Rahway, N. J. Fan-governor.	698,219	Apr. 28	938	937	11	1771
Koch, Albert, St. Louis, Mo. Paper-box machine.	698,220	Apr. 28	938	937	11	1771
Kocher, Henry W., Detroit, Mich. Running-gear for vehicles.	698,221	Apr. 28	938	937	11	1771
Köster, Louis F., Jr., Charleston, S. C. Attachment for lamps.	698,222	Apr. 28	938	937	11	1771
Kotler, Friedrich W., assignor to Kaiserhof & Blech, Vienna, Austria-Hungary. Machine for opening tubes with annular corrugations for rendering them flexible.	698,223	Apr. 28	938	937	11	1771
Kohl, William F. (See Heidecke and Kohl.)	698,224	Apr. 28	938	937	11	1771
Kohlman, Reynold, Philadelphia, Pa. Ribbon-loom.	698,225	Apr. 28	938	937	11	1771
Kohlman, Reynold, Philadelphia, Pa. Ribbon-loom.	698,226	Apr. 28	938	937	11	1771
Kohlhepp, John W., and A. J. Francis, Chicago, Ill. Machine for lacinating or slitting entrails.	698,227	Apr. 28	938	937	11	1771
Kohn, Franz, Pilsen, Germany. Side coupling for railway-cars.	698,228	Apr. 28	938	937	11	1771
Kohner, Alexander B., New Orleans, La. Refrigerator attachment.	698,229	Apr. 28	938	937	11	1771
Kohner, Alexander B., New Orleans, La. Refrigerator.	698,230	Apr. 28	938	937	11	1771
Kohomo Rubber Company. (See Neary, John, assignor.)	698,231	Apr. 28	938	937	11	1771
Kolars, Charles O. (See Ward, Willis J., assignor.)	698,232	Apr. 28	938	937	11	1771
Koh, Henry M., and C. Pohl, Philadelphia, Pa. Revolver.	698,233	Apr. 28	938	937	11	1771
Koller, Elizabeth, Bloomville, Ohio. Pin-holder.	698,234	Apr. 28	938	937	11	1771
Konovsky, John R., assignor to one-half to W. A. Schrock, San Francisco, Cal. Compact toy joint for hand-saws.	698,235	Apr. 28	938	937	11	1771
Korva, Anna H., Hartfordville, Ind. Valve for water-tight steam engines.	698,236	Apr. 28	938	937	11	1771
Kopp, Andrew, New Orleans, La. Pottery-lifter.	698,237	Apr. 28	938	937	11	1771
Koppenhagen, Benno, Untermeuburg, Germany. Device for facilitating taking pills.	698,238	Apr. 28	938	937	11	1771
Korinek, Joseph, Chicago, Ill. Holding-tool for air-brake pistons.	698,239	Apr. 28	938	937	11	1771
Kostinski, Wladyslaw T., Brooklyn, N. Y. Non-refillable and lock-seal bottle.	698,240	Apr. 28	938	937	11	1771
Kotnick, Wladyslaw T., Brooklyn, N. Y. Metallic seal.	698,241	Apr. 28	938	937	11	1771
Kosow, Henry C., Milwaukee, Wis. Metallic seal.	698,242	Apr. 28	938	937	11	1771
Kottich, Frank, Little Rock, Ark. Can-opener.	698,243	Apr. 28	938	937	11	1771
Kotten, Herman G., New York, N. Y. Pneumatic-surface frame.	698,244	Apr. 28	938	937	11	1771
Koss, Frank, Lorain, Ohio. Hydraulic motor.	698,245	Apr. 28	938	937	11	1771
Kramer, H. (See Grothe, August, assignor.)	698,246	Apr. 28	938	937	11	1771
Kraft, Robert, Karlsruhe, Germany. Turf-matrix pulp for stereotyping.	698,247	Apr. 28	938	937	11	1771
Kraft Combination Telephone Company. (See Laing, Theodore R., assignor.)	698,248	Apr. 28	938	937	11	1771
Krag, Erik L. (See Krag, Frants K., assignor.)	698,249	Apr. 28	938	937	11	1771
Krag, Erik L. (See Sedgwick, Frederick, assignor.)	698,250	Apr. 28	938	937	11	1771
Krag, Frants K., assignor to E. L. Krag, Chicago, Ill. File for bills, etc.	698,251	Apr. 28	938	937	11	1771
Krag, Frants K., Chicago, Ill. Assignor to E. L. Krag, New York, N. Y. Lock for loose-leaf binders.	698,252	Apr. 28	938	937	11	1771
Krakus, Harry T., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling.	698,253	Apr. 28	938	937	11	1771
Kravis, Hubert. (See Miller, Ernest W., assignor.)	698,254	Apr. 28	938	937	11	1771
Kravis, Hubert, Brooklyn, N. Y. Electrical outlet-box.	698,255	Apr. 28	938	937	11	1771
Krapf, Benjamin G., Topeka, Kans. Machine for separating and cleaning corn cobs.	698,256	Apr. 28	938	937	11	1771
Krausmiller, Louis R., Chicago, Ill. Surgical instrument.	698,257	Apr. 28	938	937	11	1771
Kraus, Charles. (See Kraus, Rudolf, assignor.)	698,258	Apr. 28	938	937	11	1771
Kraus, Rudolf, assignor of one-half to C. Kraus, New York, N. Y. Machine for forming plastic patterns on wall-paper.	698,259	Apr. 28	938	937	11	1771
Kraus, Constantin, and H. H. von Bernack, assignors to Farbwerke, vorm. Meister, Löblich & Brüning, Höchst-am-Main, Germany. Mating rollers and miller for hydric.	698,260	Apr. 28	938	937	11	1771
Kraus, Norman C., Walton, Ind. Cornstalk-cutting.	698,261	Apr. 28	938	937	11	1771
Krayer, Joseph F., Philadelphia, Pa. Assignor to General Electric Company. Switch for electric lamps.	698,262	Apr. 28	938	937	11	1771
Krebs, Arthur C., assignor to Ste. Aus des Anciens Etablissements Peugeot et Lenoir, Paris, France. Motor-vehicle.	698,263	Apr. 28	938	937	11	1771

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			1	2	1	2
Kreger, John G. (See Druser and Kreger.)	701,350	June 10	1005	988	90	2674
Kreher, Richard, Bradenton, Fla. Check or pump valve	701,351	June 10	1005	988	90	2674
Kreighbaum, Ira J., et al. (See Fitzgerald, Seth, and Kimmel, assignors.)	701,352	June 10	1005	988	90	2674
Kreitz, Forrest M., assignor to W. H. Miller and W. J. Ray, South Bethlehem, Pa. Air-brake for railway-cars	701,353	June 10	1005	988	90	2674
Kramer, Christoph, Wiesbaden, Germany. Apparatus for the recovery of this or the like	701,354	June 10	1005	988	90	2674
Kramer, Philip J., Somerton, Ohio. Folding frame for trucks	701,355	June 10	1005	988	90	2674
Kramer, John A., Danmore, Pa. Drop-bottom for ash-pans	701,356	June 10	1005	988	90	2674
Kraus, Herman R. (See Farrel and Kraus.)	698,264	Apr. 28	938	920	90	2718
Kretzer, Henry F., St. Louis, Mo. Insulator	698,265	Apr. 28	938	920	90	2718
Kriwanek, John, San Francisco, Cal. Reading-stand	697,297	Apr. 8	1034	936	90	2695
Krohn, Leo J., Grand Junction, Colo. Account-file	697,298	Apr. 8	1034	936	90	2695
Krommshor, Charles W., Chicago, Ill. Book-holder	697,299	Apr. 15	1035	936	90	2717
Kronmeyer & Oldenburch Company. (See Oldenburch, Ernest, assignor.)	697,300	Apr. 15	1035	936	90	2717
Krohn, Sanford R., assignor of two-thirds to F. W. Rodel and G. T. Seabury, Chayenne, Wyo. Variable-speed gear	697,301	Apr. 8	1034	936	90	2695
Kroger, Henry, and R. J. Hoffman, Minneapolis, Minn.; said Hoffman assignor to said Kroger. Life-guard for fishing-rods	697,302	Apr. 28	938	971	90	2695
Kruer, Max C., assignor by name assignment, of one-half to McGuire Manufacturing Company, Chicago, Ill. Combined rheostat and heater	701,357	May 30	1037	936	90	2695
Krug, August, assignor to Hiesfelder Maschinenfabrik Adolph Winter, Steinhilber, Germany. Galvano-electric therapeutic chain	701,358	May 27	1035	936	90	2695
Krumm, Olaus J. C. and C. A. Christensen, Norway. Time-recorder	698,273	Apr. 1	981	75, 76	90	2718
Krumm, Christian A. (See Krumm, Olaus J. C. and C. A.)						
Krumm, Sidney, et al. (See McGuire, Edward, assignor.)						
Krupp, Fried. (See Bach, Julius, assignor.)						
Krupp, Fried. (See Hartmann, Oskar, assignor.)						
Krupp, Fried. (See Nagel, Friedrich, assignor.)						
Krupp, Fried. (See Pann, Friedrich, assignor.)						
Krupp, Fried. (See Votek, Hermann, assignor.)						
Krusa, John H., Pueblo, Colo. Self-loading hatch	698,284	Apr. 1	948	135	90	1118
Kuback, Charles. (See Lippman, Jonathan K., assignor.)						
Kubersky, Martin T. A., Berlin, Germany. Electricity-operated plow	698,285	Apr. 1	110	36	90	90
Kucha, Michael, assignor of one-half to C. O. Cross, St. Louis, Mo. Combined feeder and brake	701,361	June 8	146	31	90	2125
Kuehne, Henry O., Middle Village, assignor to Crematory Company of New York, New York, N. Y. Furnace for cremating or incinerating human bodies	697,346	Apr. 15	1039	936	90	2695
Kuempel, Frederick, assignor of one-half to I. Lincoln, Buffalo, N. Y. Railway-car	701,360	June 24	1035	790	90	2694
Kuhn, David I., deceased, Verona, Pa.; J. L. Kuhn, administrator. Combined folding cut and tent	701,359	June 17	1036	934	90	2695
Kuhn Formaldohyde Generating Company. (See Kuhn, Richard F., assignor.) (Reissue.)						
Kuhn, John L., administrator. (See Kuhn, David I.)						
Kuhn, Richard F., Alexandria, Va., assignor to Kuhn Formaldohyde Generating Company. Formaldohyde-lamp. (Reissue.)	11,988	May 13	1031	964	90	1695
Kuhns, John F., assignor to National Tag Co., Dayton, Ohio. Pin-clip	698,272	Apr. 1	104	75	90	70
Kull, Albert L., Camden, N. J. Automobile	700,784	May 27	1034	784	90	1905
Kull, Albert L., Camden, N. J. Buffer for explosive or other engines	700,785	May 27	1035	784	90	1905
Kull, Albert L., Camden, N. J. Driving mechanism for automobiles	700,786	May 27	1035	784	90	1905
Kippers, Wilhelm, Berlin, Germany. Device for cleaning and rubbing collectors of electric motors and dynamo-machines	698,198	May 6	117	30, 31	90	1119
Kirschbitt Manufacturing Company. (See Groth, Joseph A., assignor.)						
Kristner, Curtis W., et al. (See Kuhn, John L., assignor.)						
Kurtz, Max, Kodes, Mo. Insect-exterminator	701,368	June 3	147	31	90	2119
Kurtz, Charles F., Cleveland, Ohio. Show-case or show-front	702,444	June 17	1100	478	90	2677
L. B. Baker Manufacturing Company. (See Frisbie, William L., assignor.)						
L. S. Starrett Company. (See Simpson, Robert J., assignor.)						
La Caze, Henry, Auburn, N. Y. Machine for grinding bearings	697,300	Apr. 15	1039	936	90	2695
La Clair, Edmund F., Avon, Conn. Horse-shoe-nail	700,057	May 13	1038	415	90	1495
La Follette, William, Halesburg, Iowa. Check-row planer	698,280	May 13	1077	389	90	1895
La Rue, Oliver, Holton, Ind. Fumigating poultry-roof	701,371	June 24	1019	717	90	2695
La Société Anonyme de Machines Industrielles. (See Mettewie, Rodet, and Beuch, assignors.)						
La Société Anonyme des Etablissements Malloet et Min. (See Malloet and Min, assignors.)						
Labadie, William D., South Bend, Ind., assignor of one-half to J. G. Duck, Milwaukee, Wis. Collar or cylinder drainer	698,310	May 13	1034	373	90	1285
Labach, Louis, Bridgeville, Mass. Lock	702,321	June 24	1036	943	90	2695
Leary, Anderson B., Washington, D. C. Fish-hook	698,317	May 6	516	119	90	1285
Lechman, Nick, Coney Island, N. Y. Pressure-railway	698,360	May 15	1035	935	90	1285
LeComme, Jean M. A., assignor of two-thirds to W. Lander, Brooklyn, N. Y., and J. L. Hackett, Louisville, Ky. Device for purifying water	698,367	Apr. 1	980	107	90	90
Leota, Jean A., Paris, France. Machine for treating vegetable-stems	701,367	May 27	1030	933	90	2695
Leota, Jean A., Paris, France. Scutching or fiber-preparing machine	701,368	May 27	1030	933	90	2695
Leotz, Louis, and H. Brinck, Geneva, Switzerland. Keyhole-guard	701,369	May 27	1031	930	90	2695
Ledd, Sherman W., Beverly, assignor to United Shoe Machinery Company of the State of New Jersey, Boston, Mass. Lacing-machine	698,340	Apr. 1	984	147	90	1495
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,369	May 27	1030	933	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,370	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,371	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,372	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,373	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,374	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,375	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,376	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,377	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,378	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,379	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,380	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,381	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,382	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,383	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,384	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,385	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,386	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,387	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,388	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,389	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,390	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,391	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,392	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,393	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,394	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,395	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,396	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,397	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,398	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,399	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,400	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,401	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,402	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,403	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,404	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,405	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,406	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,407	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,408	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,409	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,410	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,411	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,412	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,413	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,414	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,415	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,416	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,417	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,418	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,419	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,420	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,421	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,422	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,423	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,424	June 10	1035	935	90	2695
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Leffert, Ernest R., Galesburg, Ill. Building-tile	701,426	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,427	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,428	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,429	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,430	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,431	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,432	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,433	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,434	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,435	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,436	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,437	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,438	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,439	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,440	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,441	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,442	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,443	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,444	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,445	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,446	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,447	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,448	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,449	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,450	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,451	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,452	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,453	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,454	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,455	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,456	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,457	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,458	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,459	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,460	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,461	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,462	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,463	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,464	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,465	June 10	1035	935	90	2695
Leffert, Ernest R., Galesburg, Ill. Building-tile	701,466	June 10	1035</			

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Lambert, Henry C., Fairbank, Ohio, assignor of forty-nine one-hundredths to A. R. Clark, Steub, N. D., and J. A. Grant, Harrison, Ohio. Apparatus for making malleable and cores.	697,222	Apr. 15	5284	581	20	257
Lambert, John W., assignor to Bucyrus Manufacturing Company, Anderson, Ind. Speed-regulator for explosive-engines.	693,405	Apr. 22	5707	580	90	944
Lambert, Joseph, Battlecreek, Mich. Granular malted biscuit and making same.	702,742	June 2	584		90	2222
Lambert, M. Henry, et al. (See Draper, Alexander T., assignor.)						
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Co. Speed-regulating means for electric motors.	702,027	June 17	5811	575	90	2022
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Dynamo-electric generator.	702,025	June 17	5813	575	90	2022
Lamont, John A., Hammond, Ind., assignor to Simpax Railway Appliance Company, Chicago, Ill. Brake-brake.	693,284	Apr. 22	5673	573	90	904
Lamplugh, Augustus B., assignor to Philadelphia Baby Carriage Factory, Philadelphia, Pa. Baby-coach or go-cart.	693,281	May 12	1479	240	90	1484
Lamplugh, Augustus B., and H. Levi, assignors to Philadelphia Baby Carriage Factory, Philadelphia, Pa. Baby-coach or go-cart.	693,282	May 12	1480	240	90	1485
Lamplugh, Augustus B., and H. Levi, assignors to Philadelphia Baby Carriage Factory, Philadelphia, Pa. Baby-coach or go-cart.	693,283	May 12	1481	240	90	1486
Lamson Consolidated Store Service Company. (See Phillips, Eriline S., assignor.)						
Lancaster, Charles F., assignor of one-half to F. D. Davis, Potosky, Mich. Mold for concrete structures.	693,085	May 6	942	715	90	1222
Land, Henry C., Newton County, Miss. Wire reeling and stretching machine.	693,206	Apr. 1	906	280	90	202
Landin, John. (See Rudolph, and Landin.)						
Landis, Abraham B., Waynesboro, Pa. Work-rest for grinding-machines.	697,222	Apr. 15	5722	625	90	612
Landis, Abraham B., Waynesboro, Pa. Work-rest for grinding-machines.	697,223	Apr. 15	5723	625	90	612
Landis, Abraham B., Waynesboro, Pa. Automatic work-rest for grinding-machines.	697,224	Apr. 15	5724	625	90	612
Landis, Abraham B., Waynesboro, Pa. Work-rest for grinding-machines.	702,028	May 2	5803	627	90	1222
Landis, John A., W. A. Johnston, and L. W. Bosley, Gainesville, Tex. Crude-oil burner.	702,222	June 24	2227		90	2242
Landrum, Tom J. (See Lippold, Frederick W., assignor.)						
Landry, Alexander C., et al. (See Gearing, Charles M., assignor.)						
Lane, George. (See Lane, William J. and G.)						
Lane, George A., assignor of one-half to J. F. Martin, Lakeside, Cal. Combination bit and reamer.	702,420	May 20	2222	625	90	1727
Lane, John H., and E. B. Whitmore, assignors to Harmon-Whitmore Company, Jackson, Mich. Dust collector.	693,121	May 6	112	21	90	1222
Lane, Oscar, and E. A. Bayreuther, assignors to Adrian Gas Machine Manufacturing Company, Adrian, Mich. Carburetor.	693,427	Apr. 1	115	27	90	20
Lane, William J. and G. F. Poughkeepsie, N. Y. Lubricator for engines.	693,625	May 12	1222	625	90	1411
Lange, David H., Union, Pa. Grab-hook.	693,573	Apr. 1	920	207	90	190
Lange, Oliver P., St. Louis, Mo. Tur-stop.	693,574	May 12	1227	372	90	1224
Lange, John. (See Moore and Lange.)						
Lange, Jürgen P., Pasmak, N. J. Shuttle-guard for looms.	693,582	Apr. 1	811	120	90	172
Lange, Jürgen P., Pasmak, N. J. Roll.	702,512	May 20	2721	620	90	1772
Lange, Martin, and T. Emiliowicz, Amsterdam, Netherlands. Making mordant colors.	702,445	June 17	5122		90	2277
Lange, Otto, Jamesburg, N. J. Blackboard.	693,204	Apr. 22	2422	720	90	774
Langfelder, Henry, Berlin, Germany, assignor to G. Schmidt, Jersey City, N. J. Medical instrument.	702,224	June 12	1222	220	90	2474
Langhart, Jacob, Jr. (See Howard and Langhart.)						
Langstaff, Lewis G., Brooklyn, N. Y. Liquid-soap container.	702,727	May 27	2227	720	90	1222
Lanston Monotype Machine Company. (See Bancroft, John S., assignor.)						
Lanston Monotype Machine Company. (See Bancroft and Indahl, assignors.)						
Lanston Monotype Machine Company. (See Bancroft, Arthur W., assignor.)						
Lanston Monotype Machine Company. (See Indahl, Martin C., assignor.)						
Lanston Monotype Machine Company. (See Kemp, William, Jr., assignor.)						
Lanston Monotype Machine Company. (See Lanston, Robert, assignor.)						
Lanston Monotype Machine Company. (See Lanston, Frank H., assignor.)						
Lanston, Robert, assignor to Lanston Monotype Machine Company, Washington, D. C. Type-composing machine.	702,221	May 22	2212	221	90	1704
Lanston, Robert, assignor to Lanston Monotype Machine Company, Washington, D. C. Composing mechanism for type-machines.	702,222	June 17	2227	222	90	2222
Lantz, William B., Gloucester, Mass. Seine-purging machine.	693,224	Apr. 1	920	207	90	122
Lantz, William B., Gloucester, Mass. Seine-purging machine.	697,122	Apr. 8	1442	222	90	227
Lantz, William B., Gloucester, Mass. Seine-purging machine.	697,121	Apr. 8	1442	224	90	227
Laport, Pierre G. Villard, and L. Pignaud, Lyons, France. System of electric lighting and apparatus therefor.	693,020	Apr. 1	891	112	90	102
Lapman, Samuel. (See Hale, H. and Lapman, assignors.)						
Laprade, George W., Franklin County, Va. Voting-machine.	701,202	May 27	4251	921	90	2221
Larabee, George W., Williamette, Conn. Animal-trap.	693,973	Apr. 22	4251	1025	90	1102
Larabee, William B., Worcester, Mass. Belt-fastener for connecting ends of drive-belts.	693,580	May 6	727	121	90	1222
Larson, Harry G., New York, N. Y. Belt-fastener.	693,225	Apr. 22	2277	722	90	222
Larimore, Miles H., assignor of one-half to T. Larimore, Fort Wayne, Ind. Farm-gate.	693,717	Apr. 22	4214	974	90	2222
Larimore, Thomas. (See Larimore, Miles H., assignor.)						
Larkin, George H., San Francisco, Cal. Vaporizer, mixer, and regulator for oil-burners.	697,222	Apr. 8	1222	220	90	227
Larned, Joshua B., J. L. Parker, and J. A. Joyce, Cleveland, Ohio. Conical roller-bearing.	702,122	May 12	1224	222	90	1222
Larocette, H. F., et al. (See Wilson, Harrison B., assignor.)						
Laroc, Charles C., Orleans, Iowa. Broom-corn fastener.	693,274	Apr. 1	222	72	90	72
Larabee, Elmer R. (See Nichols, William H., assignor.)						
Larabee, William B., assignor to Union Water Meter Company, Worcester, Mass. Disk water-meter.	702,222	June 22	1227	222	90	2222
Larabee, William H., assignor to Union Water Meter Company, Worcester, Mass. Disk water-meter.	702,222	June 22	1222	222	90	2222
Larabee, William H., assignor to Union Water Meter Company, Worcester, Mass. Disk water-meter.	702,272	June 24	2117	272	90	2222
Larson, Carl F., Rush City, Minn. Broom-corn fastener.	693,222	Apr. 22	2274	222	90	2222
Larson, Ivert, assignor of one-half to R. G. Armstrong, Chicago, Ill. Connecting device.	693,222	May 6	512	122	90	1222
Larson, John L., et al. (See Maria, Joseph F., assignor.)						
Larson, Christian H., Chicago, Ill. Apparatus for collecting and setting dust.	701,222	June 12	1222	222	90	2222
Larson, Christian H., Chicago, Ill. Apparatus for collecting and setting dust.	702,022	May 12	1222	222	90	1227
Larson, Gustaf A., and J. R. Johnson, Minneapolis, Minn. Broom-corn knife.	691,222	June 22	1227	221	90	2222
Larson, Joseph R., Silvercreek, Nebr. Combined corn harvester, header, and leader.						

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Larson, Lewis, Norway, Iowa. Tool-box for hand-cars.	701,000	June 10	1102	261	90	2854
Larry, Morris. (See Rabinowitz, Frank A., assignor.)						
Larvey, Philip B., Marlborough, Mass. Motor.	702,979	June 24	2420	712	90	2855
Latham, James E., assignor of one-half to E. Milbank, New York, N. Y. Non-refillable bottle.	699,692	May 6	945	819	90	1870
Latham, Robert G., Manchester, N. H. Lamp.	697,265	Apr. 6	1625	235	90	2856
Lathrop, George C., Washington, D. C. Feed and water device for chickens.	697,345	Apr. 6	1777	820	90	2857
Lathrop, Fred, Syracuse, N. Y. Machine for trimming corner-pieces.	697,780	Apr. 15	2510	230	90	2858
Laubenstein, George F., et al. (See Giddens, Charles A., assignor.)						
Lauder, Walter, et al. (See Lammiman, John H. A., assignor.)						
Laughlin, Louis A. (See Goss, Edward L., assignor.)						
Laughlin, Robert D., Ravenna, assignor to National Carbon Company, Cleveland, Ohio. Making electric brushes.	701,222	June 3	145	30	90	2120
Lauter, Frank H., Brooklyn, N. Y. Tide-motor.	692,322	Apr. 6	1176	235	90	2859
Lavely, Elmer, assignor to E. J. Lavely, Bucyrus, Ohio. Fence.	697,505	Apr. 6	1687	237	90	2860
Laverty, Sarah J. (See Laverty, Elmer, assignor.)						
Lavigne, Joseph F., New Haven, Conn., assignor to Standard Screw Co., Chicago, Ill. Turret-lathe.	700,140	May 18	1998	455	90	1864
Lawless, Robert T., Alameda, Cal. Rubber cushion and guard-disc-course projector.	702,120	June 24	2435	728	90	2861
Lawlor, Simon C., Duluth, assignor to Lawlor's Safety Window Cleaner Company, Minneapolis, Minn. Window-washing apparatus.	699,080	Apr. 20	3007	673	90	2862
Lawlor's Safety Window Cleaner Company. (See Lawlor, Simon C., assignor.)						
Lawrence, Charles, Norristown, Pa. Flexible ruler.	702,902	June 24	2579	681	90	2863
Lawrence, Edwin E. (See Lawrence, John H., assignor.)						
Lawrence, Frederick M. (See Carman and Lawrence.)						
Lawrence, John H., assignor of one-half to E. F. Lawrence, Sterling, Ill. Rail and bracket connection.	698,129	May 6	135	71	90	1865
Lawrence, Mitchell, Chester, Md. Oyster-tongs.	702,104	June 10	1467	235	90	2866
Lawrence, William, New York, N. Y. Necktie-fastener.	702,474	June 24	2128	715	90	2867
Lawson, Harry J., London, England, assignor to C. E. Flint, trustee, New York, N. Y. Motor driving apparatus for cranes.	700,210	May 20	2191	490	90	1866
Lawton, Charles H., et al. (See Lawrence, Harry L., assignor.)						
Layman, Charles W., et al. (See Savage, Thomas A., assignor.)						
Layne, William H., Newark, N. J. Truss.	701,808	June 3	547	130	90	2282
Layne, George E., assignor to J. W. Vogelsang, Elvira, Ohio. Machine for cutting wood shingles.	698,719	Apr. 20	3417	974	90	1867
Le Hardy, Julius C., Savannah, Ga. Bernal frame.	699,080	Apr. 20	3105	1189	90	1141
Le Marr, Samuel E., assignor to J. W. and J. B. Duncan, Palmyra, Ill. Hinge.	700,694	May 20	3077	690	90	1868
Le Roy Plow Company. (See Hall, Edwin, assignor.)						
Lee, Sarah W. P., East Orange, N. J. Hook and eye.	701,222	June 3	145	30	90	2120
Leech, Albert, Brockton, Mass. Curtain-draw.	700,561	May 27	3234	804	90	2868
Leech, Eugene W., assignor of one-half to W. C. Morton, Madison, Wis. Kitchen stand.	699,120	Apr. 20	3020	712	90	1869
Leah, Charles, Kingsland, Ark. Fence-post.	700,421	May 20	3020	588	90	1870
Leary, Peter. (See Tol, John A., assignor.)						
Leas, William G., assignor of one-half to J. Hartig, Seattle, Wash. Nipple-check.	695,715	Apr. 20	4415	974	90	1871
Leaser, Wesley F. (See Cardella, Alexander B., assignor.)						
Leavitt, Frank M., New York, N. Y., assignor to American Can Company, Jersey City, N. J. Can-heading machine.	702,122	June 10	1640	345	90	2869
Lebenheim & Sons, J. (See Bell, James B., assignor.)						
Leclerc, Joseph, H. Tremblay, and A. Lalumière, Montreal, Canada. Machine for winding sheet-metal articles.	697,608	Apr. 15	1080	680	90	2870
Ledger, Jacob. (See Block, David L., assignor.)						
Lee, Allen E., assignor of one-half to J. Y. Frost, Lynn, Mass. Belt-socket.	697,835	Apr. 15	1977	600	90	2871
Lee Arms Company, et al. (See Parkhurst, Edward G., assignor.)						
Lee, Charles E., assignor of one-half to J. B. Smith, Ill. Gate-opener.	697,301	Apr. 15	2980	661	90	2872
Lee, Charles E., assignor of one-half to J. B. Smith, Ill. Gate-opener.						
Lee, Dwight E., Springfield, Mass., assignor to Union Manufacturing & Specialty Company, Buffalo, N. Y. Wrench.	701,284	June 3	581	120	90	2283
Lee, Edgar, et al. (See Lee, Thomas L., assignor.)						
Lee, Edward, Leeds, England. Printing-machine.	702,120	June 24	2435	728	90	2861
Lee, George B., Hawthorne, N. J., assignor to Wheel Within Wheel Company, New York, N. Y. Vehicle-wheel.	700,514	May 27	2719	680	90	2873
Lee, George B., Hawthorne, N. J., assignor to Wheel Within Wheel Company, New York, N. Y. Vehicle-wheel.	700,515	May 27	2719	680	90	2874
Lee, George B., Hawthorne, N. J., assignor to Wheel Within Wheel Company, New York, N. Y. Vehicle-wheel.	700,516	May 27	2719	681	90	2875
Lee, John E. (See Adams, William, assignor.)						
Lee, John E., Cambridge, Mass. Glass for vaccinations, &c.	697,597	Apr. 15	2948	680	90	2876
Lee, Joseph, Boston, Mass. Assignor, by mesne assignments, to National Bread Company, New York, N. Y. Machine for mixing and kneading dough or analogous materials.	698,875	Apr. 1	260	70	90	2877
Lee, Marion, and W. W. Bryan, assignors to W. H. Fanning, Angola, Ind. Hot-air furnace.	700,044	May 20	3000	680	90	2878
Lee, Thomas, Home City, Ohio. Fire-proof safe.	699,080	May 18	3000	680	90	2879
Lee, Thomas E., Farmington, Conn. Fire-proof safe.	698,876	Apr. 1	260	70	90	2880
Lee, Thomas L., assignor of one-half to J. B. Smith, Ill. Gate-opener.						
Lee, Wesley, Blenheim, N. Y. Grain-sifter.	701,284	June 3	581	120	90	2283
Leebart, Karl E., Lucas, Iowa. Traction-engine driving-wheel.	698,577	Apr. 1	260	70	90	2881
Lees, Albert, New Bedford, Mass. Electric arc lamp.	697,250	Apr. 6	1625	235	90	2856
Lees, George, Chicago, Ill. Assignor to himself, and C. C. Hovey, Cambridge, N. Y. Apparatus for canning food.	699,190	May 6	945	819	90	1870
Lees, George C., Shelton, Conn. Spacing device.	697,251	Apr. 6	1626	236	90	2857
Lees, George M., Dublin, Ireland. T-square.	702,140	June 24	2441	729	90	2862
Leatham, Richard E., York, England. Structure for storage and delivery of merchandise.	696,690	May 12	1080	680	90	2882
Leaser, James E., and W. R. McFarlane, Lancaster, Pa. Automatic shut-off for gas-lines.	698,597	Apr. 1	260	70	90	2883
Leckie, Andrew, Paris, France, assignor to Electric Lighting Board, Limited, London, England. Contact for electrical glow-lamps.	697,595	Apr. 15	2948	680	90	2876
Leifer, Charles, Brooklyn, N. Y. Bottle-labeling machine.	698,554	May 15	1987	611	90	2884
Lelshutzky, Lorents, and S. Furs, McKeesport, Pa. Nut-lock.	698,914	Apr. 1	260	70	90	2885
Lehr, Louis, New York, N. Y. Ring-marking machine.	701,285	June 3	582	121	90	2284

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Leighton, Joseph, assignor of three-eighths to C. W. Keller, R. F. Pfen, W. K. Knorr, and J. B. Mersinger, Reading, Pa. Advertising wagon.	695,997	Apr. 1	290	291	90	290
Leighton & Howard Steel Company. (See Palmquist, Eric W., assignor.)						
Leinberger, Joseph. (See Mainingham, Edward, assignor.)						
Leiser, Charles. (See Fishback, Frank, assignor.)						
Leitner, Bernhard, Molln, Austria-Hungary. Circular saw.	697,597	Apr. 15	2799	280	90	280
Leitner, Frank J., Knoxville, Tenn. Bicycle.	697,544	Apr. 8	1779	280	90	280
Leitner, William L., Simon, Cal. Log-cutter.	703,974	June 24	2197	710	90	2197
Leitner, Fritz, Paris, France. Detector for railways.	703,993	June 24	2200	240	90	2200
Leitner, Emil L., New York, N. Y. Spring-clamp for lenses or the like.	703,993	June 17	2799	280	90	2799
Leitner, Charles F., assignor of one-half to J. Milbauer, Milwaukee, Wis. Floor-rubber.	703,993	June 17	2799	280	90	2799
Leitner, Joseph, Drummondville, assignor to L. A. Brien, St. Germain de Grantham, Quebec, Canada. Card-cutter.	703,105	June 10	1499	280	90	1499
Leitner, John M., Des Moines, Iowa. Removable tray for elevator-boots.	697,518	Apr. 15	2028	464	90	470
Leitner, Geoffrey L. de, Vienne, France. Composition of matter.	703,149	June 10	1544	280	90	1544
Leitner, Geoffrey L. de, Vienne, France. Railway construction.	703,141	June 10	1545	280	90	1544
Leitner, Michael J. (See Kints and Leitner.)						
Leis, Albert E. (See Stevens, Frederick A., assignor.)						
Leisner, Arthur G., trustee. (See Griffin, Almon, assignor.)						
Leisner, Charles T. (See Eyo, Mary A., assignor.)						
Leisner, H. W. (See Bell, Henry P., assignor.)						
Leisner, Benjamin F., Brooklyn, N. Y., assignor to Nothing-Little-Ting Company. Tire.	695,991	Apr. 23	2499	280	90	2499
Leisner, Elias W., Chicago, Ill., assignor of one-half to A. H. Wegmann, La Grange, Ill.	697,599	Apr. 15	2791	280	90	2791
Leisner, Robert C., Hapleton, N. D. Gold-separator.	697,599	Apr. 15	2791	280	90	2791
Leisner, James M. K., and F. W. Burpee, Vancouver, Canada. Soldering-machine.	697,599	Apr. 15	2791	280	90	2791
Leisner, Elsworth M., assignor of one-half to E. Gamble, Waverly, N. Y. Vehicle-brake.	697,599	Apr. 15	2791	280	90	2791
Leisner, James H., Bryn Mawr, Pa. Book-support.	703,337	June 10	1215	417	90	1215
Leisner, Christopher W., Milwaukee, Wis. Chain conveyor.	703,337	June 10	1215	417	90	1215
Leisner, Robert E., New York, N. Y. Cloth-cutter.	697,599	Apr. 15	2791	280	90	2791
Leisner, Roger, Grindstone, Pa. Combined spoke-tensioner and tire-tightener.	697,599	Apr. 15	2791	280	90	2791
Leisner, Jacob, and T. Wrightville, Pa. Trunk.	697,599	Apr. 15	2791	280	90	2791
Leisner, John, and T. Badler, Lindsay, Canada. Marine-engine governor.	703,039	May 27	2799	280	90	2799
Leisner, Abram L. (See Klenbogen and Levi.)						
Leisner, Harry. (See Lamphugh and Levi.)						
Leisner, Ivan, and C. Menching, assignors to Lovinstain, Limited, Manchester, England. Black sulfur dye and making same.	703,290	June 10	1499	280	90	1499
Leisner, Limited. (See Lovinstain and Menching, assignors.)						
Leisner, Edwin D., Monticello, Wis., and J. W. Polchow, Apple River, Ill. Keyless pin or bolt.	700,739	May 27	2299	739	90	2299
Leisner, Robert W., Somerset, Ohio. Snap-hook.	701,239	June 3	121	121	90	121
Leisner, Alexander, Hagerman, Germany. Applicator.	701,239	June 3	121	121	90	121
Leisner, Felix. (See Hinkley, Johannes, assignor.)						
Leisner, Frank L., Duluth, Minn. Cutter.	701,239	May 27	2799	280	90	2799
Leisner, Frank L. (See Schoenberg and Levi.)						
Leisner, Isaac, Philadelphia, Pa. Necktie-box, &c.	701,141	June 24	2499	739	90	2499
Leisner, Isaac, assignor to Royal Metal Manufacturing Company, New York, N. Y.	697,599	Apr. 15	2791	280	90	2791
Leisner, William J., Wilkesbarre, Pa. Game-counter.	701,439	June 3	279	279	90	279
Leisner, Edwin C., Detroit, Mich. Hoe.	703,039	June 17	2791	280	90	2791
Leisner, Elgie J., Middleport, N. Y. Can-loading machine.	697,599	Apr. 15	2791	280	90	2791
Leisner, Frank S., Baltimore, Md. Automatic switch.	697,599	Apr. 15	2791	280	90	2791
Leisner, George, Chicago, Ill. Lady's skirt.	697,599	Apr. 15	2791	280	90	2791
Leisner, George, Chicago, Ill. Spring-press for bicycle seats or handle-bars.	697,599	Apr. 15	2791	280	90	2791
Leisner, Lorenzo D., Adams, N. Y. Ventilated box.	703,105	June 10	1499	280	90	1499
Leisner, Philip M., New York, N. Y. Necktie-holder.	703,337	June 10	1215	417	90	1215
Leisner, Robert L., San Francisco, Cal. Bicycle-tire.	697,599	Apr. 15	2791	280	90	2791
Leisner, Thomas, Smithfield, Pa. Quilting-frame.	701,239	June 3	121	121	90	121
Leisner, Thomas E., A. J. Ray, and M. E. Watson, Fort Worth, Tex. Burner for crude oil.	701,239	June 3	121	121	90	121
Leisner, Thomas H., London, England. Acetylene-gas generator.	695,975	Apr. 23	2499	280	90	2499
Leisner, Warwick J. (See Place and Lewis.)						
Leisner, Bell Company. (See Rockwell, Edward D., assignor.)						
Leisner, Bureau. (See Whitten, Arthur M., assignor.)						
Lichtenstein, Edm. H., New York, N. Y. Toilet-powder box.	697,739	Apr. 15	2811	280	90	2811
Lichter, Halva, New York, N. Y. Calendar.	700,039	May 13	1794	416	90	1794
Lichter, Gustav, Maurer, N. J. Wall or fence.	701,239	June 3	121	121	90	121
Lichter, Henry, Hilarow, England. Apparatus for hardening rotary cutters.	695,191	Apr. 23	2499	715	90	740
Lichter, Arthur, Frankfurt-on-the-Main, assignor to Farbwerke, vorm. Meister, Leuchner & Co., Höchst-am-Main, Germany. Isovaleramide derivative and making same.	697,739	Apr. 15	2812	280	90	2812
Lichter, George W., Atlanta, Ga. Safety-pin.	703,337	June 10	1215	417	90	1215
Lichter, Wm. L., et al. (See Gaynor, Timothy J., assignor.)						
Lichte, Isaac P., assignor to Gruesell Chemical Company, Cleveland, Ohio. Making nitro-pot.	697,731	Apr. 15	2814	280	90	2814
Lichter, George M., Haverstraw, N. Y. Bicycle.	703,337	June 10	1215	417	90	1215
Lichter, Charles, Chicago, Ill. Railway-crossing.	695,209	Apr. 23	2499	715	90	775
Lichter, Irvin. (See Kumpel, Frederick, assignor.)						
Lichter, Luther, assignor of one-half to C. B. Gooding, Boston, Mass. Drawing motion metal from receptacles.	697,691	Apr. 15	2803	280	90	2803
Lichter, Winifred K., Worcester, Mass. Operating and latch-releasing mechanism for sliding doors.	703,337	June 10	1215	417	90	1215
Lichter, John A., and M. Watson, Two Harbors, Minn. Ore-chute and trap-door.	703,337	June 10	1215	417	90	1215
Lichter, Henry E., Grunthard, Kans. Dental appliance.	703,337	June 10	1215	417	90	1215
Lichter, August, Moline, Ill., assignor to Moline Plow Company. Lister-outfitter.	703,337	June 10	1215	417	90	1215
Lichter, John O. H. (See Johnson, Karl A., assignor.)						
Lichter, Ernst, Brooklyn, N. Y. Adjustable table or desk.	697,691	Apr. 15	2803	280	90	2803
Lichter, Clarence A., New York, N. Y. Package.	703,337	June 10	1215	417	90	1215
Lichter, Thomas, and L. L. White, Wilkesbarre, Pa. Lamp-hanger.	703,337	June 10	1215	417	90	1215
Lichter, John, assignor to Lindsey Wagon Company, Laurel, Minn. Logging-truck. (Reissue.)	11,977	May 13	2804	404	90	1004
Lichter, John, assignor to Lindsey Wagon Company, Laurel, Minn. Hand-carrier. (Reissue.)	11,977	May 13	2804	404	90	1004

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Lichter, John T., Allentown, Pa. Steam and oil separator.	695,971	May 13	1091	280	90	1019
Lichter, Reuben J., Northampton, England. Reversing device.	695,971	May 13	1091	280	90	1019
Lichter, George, Salsotte, Mo. Draft-equalizer.	697,739	Apr. 15	2815	280	90	2815
Lichter, Bait Engineering Company. (See Dodge, James M., assignor.)						
Lichter, Bait Engineering Company. (See Dodge and Shaw, assignors.)						
Lichter, Bait Machinery Company. (See Holmes, George L., assignor.)						
Lichter, William. (See Mitchell and Licht.)						
Lichter, Crampton L., et al. (See Rogers, Charles W., assignor.)						
Lichter, Guy C., et al. (See McGarvey, Edward, assignor.)						
Lichter, William D., Piedmont, assignor of four-tenths to G. C. Hunt, Rapid City, S. D.	697,549	Apr. 8	1790	280	90	280
Lichter, C. D. Hooker, and M. J. Gilligan, Piedmont, S. D. Engine.	697,549	Apr. 8	1790	280	90	280
Lichter, Charles, Vicksburg, Minn. Combined feed-water siphon and trap.	697,549	Apr. 8	1790	280	90	280
Lichter, Joseph, Manchester, Va. Machine for grinding calendar-rolls.	703,337	June 10	1215	417	90	1215
Lichter, Jonathan K., assignor to C. K. Kuch, Battleground, Mich. Malted-sweet feed and making same.	703,337	June 10	1215	417	90	1215
Lichter, Frederick W., assignor, by name assignments, of one-half to T. J. Landrum, Louisville, Ky. Churn.	697,549	Apr. 8	1790	280	90	280
Lichter, David, assignor to Mansfield Cash and Package Carrier Co., Mansfield, Ohio. Cash-carrier.	697,549	Apr. 8	1790	280	90	280
Lichter, Arthur. (See Tolls and Licht.)						
Lichter, Process Manufacturing Company. (See Lichten, Houghton, and Licht.)						
Lichter, Walter W. L., Corvallis, England, T. W. Houghton, Colleybuck, and J. J. Krippl, Colleybuck, Ireland, assignors to Lichten Process Manufacturing Company, Limited, Corvallis, England. Kef for bleaching, &c.	703,337	June 10	1215	417	90	1215
Lichter, Kate E., Clifton Springs, N. Y. Metallic pill-bottom.	697,549	Apr. 8	1790	280	90	280
Lichter, George, assignor of one-half to C. L. Curtis, Brooklyn, N. Y. Bottle-stopper.	700,344	May 20	2431	528	90	1705
Lichter, George, assignor to C. L. Curtis, Brooklyn, N. Y. Bottle-stopper.	700,344	May 20	2431	528	90	1705
Lichter, Clayton P., Detroit, Mich. Basket.	701,239	June 3	121	121	90	121
Lichter, Charles E., assignor to S. Mordant and Company, Limited, London, England. Pen-cases.	701,239	June 3	121	121	90	121
Lichter, Daniel B., Chicago, Ill. Carriage.	697,549	Apr. 8	1790	280	90	280
Lichter, Morris. (See Richter, Henry, assignor.)						
Lichter, Frederick W. (See Davis, Albert D., assignor.)						
Lichter, Malt Company. (See O'Brien, Richard, assignor.)						
Lichter, Thomas, Hamburg, assignor of one-half to A. M. Kallbach, Lancaster, and B. D. Hestetter, York Springs, Pa. Combined spigot and bung remover.	703,337	June 10	1215	417	90	1215
Lichter, Andrew W., Alameda, Cal. Can-heading machine.	703,337	June 10	1215	417	90	1215
Lichter, Andrew W., Alameda, Cal. Assignor to American Can Company, New York, N. Y. Automatic can-heading machine. (Reissue.)	11,979	May 13	2805	404	90	1005
Lichter, Joseph, Quincy, assignor of one-half to M. H. Hays, Boston, Mass. Reversing mechanism.	703,337	June 10	1215	417	90	1215
Lloyd, Aaron E., et al. (See Anderson, Frank C., assignor.)						
Lloyd, Thomas W. (See Sheward and Lloyd.)						
Lloyd, Car Wheel Company. (See Stuart, Joseph, assignor.)						
Lloyd, Car Wheel Company. (See Tolsin, Robert C., assignor.)						
Lloyd, Emil R., St. Louis, Mo. Carving-machine.	701,239	June 3	121	121	90	121
Lloyd, Albert V., Lakewood, N. H., assignor of two-thirds to F. L. Packard, Brookton, and H. S. Slater, Brookton, Mass. Carver.	703,337	June 10	1215	417	90	1215
Lloyd, Eugene O. (See Powell, William G., assignor.)						
Lloyd, Fred M., Victor, N. Y. Sleeve for protecting insulator-pins.	697,549	Apr. 8	1790	280	90	1790
Lloyd, Fred M., Victor, N. Y. Insulator-pin.	703,337	June 10	1215	417	90	1215
Lloyd, Fred M., Victor, N. Y. Washing-insulator.	703,337	June 10	1215	417	90	1215
Lloyd, Fred M., Victor, N. Y. Insulator and manufacturing same.	703,337	June 10	1215	417	90	1215
Lloyd, Fred M., Victor, N. Y. Machine for folding collar-blanks, &c.	701,239	June 3	121	121	90	121
Lloyd, Sylvanus D., Bridgeport, Conn., assignor of one-half to M. McVey, Jr., New York, N. Y. Match-sets.	695,499	Apr. 23	2499	280	90	2499
Lloyd, William H., et al. (See Nokes and Mortenson, assignors.)						
Lloyd, Hilton M., Henderson, Ky. Gate.	701,239	June 3	121	121	90	121
Lloyd, Edward M., Jr., Darby, assignor to F. C. Thomson & Company, Philadelphia, Pa. Conveyor-chain for match-machines.	695,499	Apr. 23	2499	280	90	2499
Lloyd, Edward M., Jr., Darby, assignor to F. C. Thomson and Company, Philadelphia, Pa. Conveyor-chain for match-machines.	695,499	Apr. 23	2499	280	90	2499
Lloyd, James E. (See West, Charles O., assignor.)						
Lloyd, Jasper, Laurel, Ind. Tap-faucet.	703,337	June 10	1215	417	90	1215
Lloyd, Philo J., Washington, D. C. Gaskets and seal for hydrocarbon-liquid containers.	695,129	May 6	1291	280	90	1291
Lloyd, Vernon H. (See Richardson, Leonard W., assignor.)						
Lodwick, William B. (See Burton and Lodwick.)						
Lod, John G., and J. Haggis, St. Louis, Mo. Smelting boiler-furnace.	695,977	Apr. 23	2499	280	90	2499
Lod, John G., and J. Haggis, St. Louis, Mo. Smelting boiler-furnace.	701,239	June 3	121	121	90	121
Lod, Gustave A., Philadelphia, Pa. Gas and air mixer.	695,999	Apr. 1	234	127	90	127
Lod, Emil C., Pittsburg, Pa. Draftman's instrument.	695,999	Apr. 1	234	127	90	127
Lod, Charles H., Cleveland, Ohio. Bottle making and washing machines.	703,337	June 10	1215	417	90	1215
Lod, Andrew, Elkhart, Ind. Lubricating device.	703,337	June 10	1215	417	90	1215
Lod, George, Norwalk, assignor to W. B. Mowery and S. Shurek, Bellevue, Ohio. Trolley-wheel.	695,999	Apr. 1	234	127	90	127
Lod, George A., Chicago, Ill. Gas-escape.	695,999	Apr. 1	234	127	90	127
Lod, Maurice B., New York, N. Y. Mule marking and reading instrument.	695,999	Apr. 1	234	127	90	127
Lod, Richard D., St. Louis, Mo. Gas-escape.	703,337	June 10	1215	417	90	1215
Lod, Leonard J., Luak, Wyo. Combined applicator and syringe.	703,337	June 10	1215	417	90	1215
Lod, Joseph H., Bradford, Pa. Derrick-frame and joint-coupling therefor.	697,549	Apr. 8	1790	280	90	280
Lod, Hermann, Liddy, New York, N. Y. Stopper for jars.	697,549	Apr. 8	1790	280	90	280
Lod, Jerome, assignor to Societe des Produits Chimiques, Paris, France. Manufacturing starch.	703,337	June 10	1215	417	90	1215
Lod, Levi W., Boston, assignor to Lowell Storage Battery Company, Pittsfield, Mass. Storage battery.	703,337	June 10	1215	417	90	1215
Lod, Levi W., assignor to F. W. Jewell, Boston, Mass. Storage battery.	703,337	June 10	1215	417	90	1215
Lod, Nathaniel, and J. O. Knepper, Boston, Mass. Assignors to Boston Chemical Fire Engine Manufacturing Company. Pressure-reducing device.	703,337	June 10	1215	417	90	1215
Lod, Walter E., Arlington, Mass., assignor to J. H. Sears Company, Portland, Me., and Boston, Mass. Fishing-machine.	703,337	June 10	1215	417	90	1215
Lod, John J., and A. C. Collins, assignors, by name assignments, to F. W. Brown & Company, Los Angeles, Cal. Asphyx's furnace. (Reissue.)	11,979	Apr. 1	1005	280	90	1005

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Page.	Vol.	Page.	Vol.
Long & Alister Company. (See Long, John M. W., assignor.)						
Long, David H., Buffalo, N. Y., assignor to J. B. Colt Company. Acetylene-gas generator.	699,928	May 6	928	24	92	1282
Long, Ferdinand F., Hastings, Mo. Steth.	699,940	May 10	940	121	92	1282
Long, Frederic H., Chicago, Ill. Metallurgical filter.	700,004	June 10	1004	281	92	2400
Long, Frederic H., Chicago, Ill., assignor to R. J. Beatty, trustee, Muncie, Ind. Electrolytic converter.	699,994	May 23	994	294	92	1285
Long, Frederic H., Chicago, Ill., assignor to Mystic Reduction Company. Bleaching paper-pulp, &c.	700,140	June 10	1440	280	92	2445
Long, James C. (See Morris, Harry P., assignor.)						
Long, John M. W., assignor to Long & Alister Company, Hamilton, Ohio. Dish plow.	699,994	Apr. 6	1197	197	92	995
Long, Stephen H. (See Rogers, Christopher L., assignor.)						
Long, Thomas, Boston, Mass., assignor to Consolidated Fastener Company, Portland, Me. Mechanism for opening and shutting for attaching buttons, &c.	700,790	May 27	790	773	92	1995
Long, Timothy, Cleveland, Ohio. Holding and conveying machine.	699,920	Apr. 20	920	973	92	920
Long, William J., and J. B. Nollner, Windham, Pa. Electric rail-road.	700,346	May 20	346	333	92	1700
Longard, Clarence O., Halifax, Canada. Wrench.	699,692	May 13	1090	290	92	1419
Longard, Clarence O., Halifax, Canada. Pipe-wrench.	699,692	May 13	1090	290	92	1419
Longard, Clarence O., Halifax, Canada. Heater.	700,731	May 27	731	730	92	1995
Longenecker, Charles K., Brooklyn, assignor of one-half to J. Scholl, New York, N. Y. Land-roller.	699,994	May 13	1095	297	92	1414
Loomis, Alva A., Boston, Ohio. Road-scraper.	700,090	May 13	1795	416	92	1287
Loomis, Eugene O., New York, assignor to Lister for heater or transportation tickets.	700,107	June 10	1400	280	92	2400
Loomis, George D., Lima, Ohio. Steam-power well-drilling machine.	699,990	Apr. 20	990	973	92	920
Loren, Isaac, New York, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Looming device.	700,004	May 20	1004	281	92	2400
Loren, George W., Chicago, Ill. Reducing valve.	700,004	May 20	1004	281	92	2400
Lord, Harry S., Bath, Me. Shanks and roller conveyor.	700,995	May 27	995	995	92	1995
Lord, Hugh C., Erie, Pa. Package for fragile articles.	700,997	June 17	997	940	92	2791
Lorenz, Anton, West New York, N. J. Window.	700,356	May 27	356	355	92	1995
Loring Coss & Company. (See Scaria, Frederick, assignor.)						
Loring, Simon A., Portland, Ind. Seed-dropper.	699,990	May 6	130	28	92	1291
Lothrop, Alvin M., et al. (See Taber, Mott B., assignor.)						
Lothrop, Llewellyn D., et al. (See Redding, Jerome, assignor.)						
Loudon, James F., East Orange, N. J. Revolving device.	699,491	May 6	491	190	92	1290
Loudon, William, Philadelphia, Pa. Pump-lifter.	700,811	May 20	811	480	92	1440
Loudon, William, Philadelphia, Pa. Pulley.	700,818	May 20	818	480	92	1440
Loudon, William, Philadelphia, Pa. (See Loudon, Frank A. L., assignor.)						
Lova, Henry E., Wilmington, Del. Woman's drawers.	701,744	June 3	744	190	92	2661
Love, Isaac, and W. Ray, Panama, Mo. Railway-ladders.	697,345	Apr. 4	1795	416	92	920
Love, William, Bryn Mawr, Pa. Pipe-wrench.	701,690	June 3	690	35	92	2170
Lovely, Arthur H., Galia, N. J. Air-chamber.	700,819	May 20	819	690	92	1995
Lovely, Clinton C., Providence, R. I. Combined pencil holder and sharpener.	699,190	Apr. 20	190	714	92	740
Loveland, Palmer C. (See Jones, Theodore H., assignor.)						
Lovell, Charles L. (See Pack, Ira F., assignor.)						
Low, Abbot A. (See Hill and Elvett, assignors.)						
Low, Abbot A. (See Johnson and Low.)						
Low, Abbot A., and J. Breaker, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-distributing apparatus.	699,420	May 6	420	121	92	1290
Low, Amanda. (See Love, Jacob P., assignor.)						
Love, Jacob P., assignor to A. Love, Belleville, Ohio. Safety attachment for vehicles.	700,997	May 27	997	995	92	1995
Love, John M., assignor of one-third to G. L. Row, Butler, Ind. Pump-handle.	699,791	Apr. 20	4410	975	92	1001
Love, John M., assignor of one-third to G. L. Row, Butler, Ind. Pump-rod sampling.	699,791	Apr. 20	4480	975	92	1001
Lowell, Grant S., Salina, Kans. Windmill.	699,990	Apr. 20	990	790	92	977
Lower, William S. (See Smith, George H., assignor.)						
Lovings, David A., London, England. Magazine-camera.	700,790	May 27	790	790	92	1995
Loy, Joseph, New York, N. Y. Incandescent gas-lamp.	700,070	June 10	070	280	92	2400
Loygorri y Murrieta, Cristobal G., Madrid, Spain. Compound faucet for fluids.	697,990	Apr. 15	990	590	92	990
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,013	June 10	1013	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Drawing glass.	700,014	June 10	1014	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Glass-drawing apparatus.	700,015	June 10	1015	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Drawing glass.	700,016	June 10	1016	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,017	June 10	1017	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,018	June 10	1018	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,019	June 10	1019	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,020	June 10	1020	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,021	June 10	1021	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,022	June 10	1022	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,023	June 10	1023	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,024	June 10	1024	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,025	June 10	1025	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,026	June 10	1026	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,027	June 10	1027	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,028	June 10	1028	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,029	June 10	1029	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,030	June 10	1030	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,031	June 10	1031	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,032	June 10	1032	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,033	June 10	1033	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,034	June 10	1034	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,035	June 10	1035	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,036	June 10	1036	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,037	June 10	1037	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,038	June 10	1038	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,039	June 10	1039	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,040	June 10	1040	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,041	June 10	1041	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,042	June 10	1042	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,043	June 10	1043	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,044	June 10	1044	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,045	June 10	1045	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,046	June 10	1046	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,047	June 10	1047	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,048	June 10	1048	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,049	June 10	1049	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,050	June 10	1050	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,051	June 10	1051	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,052	June 10	1052	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,053	June 10	1053	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,054	June 10	1054	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,055	June 10	1055	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,056	June 10	1056	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,057	June 10	1057	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,058	June 10	1058	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,059	June 10	1059	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,060	June 10	1060	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,061	June 10	1061	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,062	June 10	1062	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,063	June 10	1063	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,064	June 10	1064	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,065	June 10	1065	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,066	June 10	1066	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,067	June 10	1067	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,068	June 10	1068	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,069	June 10	1069	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,070	June 10	1070	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,071	June 10	1071	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,072	June 10	1072	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,073	June 10	1073	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,074	June 10	1074	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,075	June 10	1075	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,076	June 10	1076	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,077	June 10	1077	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,078	June 10	1078	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,079	June 10	1079	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,080	June 10	1080	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,081	June 10	1081	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,082	June 10	1082	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,083	June 10	1083	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,084	June 10	1084	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,085	June 10	1085	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,086	June 10	1086	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,087	June 10	1087	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,088	June 10	1088	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,089	June 10	1089	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,090	June 10	1090	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,091	June 10	1091	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,092	June 10	1092	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,093	June 10	1093	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,094	June 10	1094	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,095	June 10	1095	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,096	June 10	1096	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,097	June 10	1097	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,098	June 10	1098	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,099	June 10	1099	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,100	June 10	1100	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,101	June 10	1101	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,102	June 10	1102	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,103	June 10	1103	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,104	June 10	1104	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,105	June 10	1105	280	92	2400
Lubbers, John H., New Kensington, assignor to J. A. Chambers, trustee, Pittsburgh, Pa. Apparatus for drawing glass.	700,10					

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Laba, Charles, Milford, assignor to New Haven Novelty Machine Company, New Haven, Conn. Cable connection for joints in electric cables.	701,200	May 27	405	93	90	2031
Laba, Charles, Milford, assignor to New Haven Novelty Machine Company, New Haven, Conn. Covering means for joints in electric cables.	701,200	May 27	407	93	90	2032
Laba, Charles, Milford, assignor to New Haven Novelty Machine Company, New Haven, Conn. Cable connection for covering spliced joints.	701,210	May 27	408	93	90	2033
Lam, George F. (See Howard and Lam.)	700,000	May 10	1778	417	90	1888
Lamgar, David, West Bay City, Mich. Mangle.	701,247	May 20	2435	542	90	1705
Lampkin, Robert B. Storrs, Conn. Cotton gin.	701,091	June 8	549		90	2280
Landholm, Carl O., Stevenson, Md. Hand-cum grasper.	701,270	June 10	1947	442	90	2280
Landquist, Erik G., Los Angeles, Cal. Bed-rail.	700,280	May 20	3708	682	90	1778
Lundborg, Julius W. A. (See Christensen, Nils, assignor.)						
Lunt, Alexander D., Schenectady, N. Y., assignor to General Electric Company. Means for preventing creeping of meters.	698,480	Apr. 1	117	28	90	20
Lunt, Alexander D., Schenectady, N. Y., assignor to General Electric Company. Multiple-conductor system.	697,720	Apr. 15	2516	561	90	508
Lurati, Ernesto, Traun, near Linz, Austria-Hungary. Fixing dyes on indigo.	700,081	May 20	3703		90	1776
Lurati, Karl, Kronstadt, Austria-Hungary. Device for cleaning lamps, glasses, &c.	698,997	Apr. 29	3973	570	90	935
Luther, Paul, Allentown, Pa. Switch-throwing device.	698,998	Apr. 29	3984	1005	90	1111
Louis, Alexander, (See Anderson, Stevens, and Louis.)						
Louis, Alexander, assignor to United States Sanitary and Utility Sewage Disposal Company of New Jersey, New York, N. Y. Portable derrick.	701,000	June 10	1118	285	90	2037
Lutz, Charles. (See Mackay and Lutz.)						
Lutz, John H. G. et al. (See Lutz, William F. J., assignor.)						
Lutz, Peter, Hamburg, Germany. Making preservatives for violin-strings.	699,541	May 6	770		90	1264
Lutz, William F. J., assignor to two-thirds to H. A. Scholtes and J. H. G. Lutz, Chicago, Ill. Untwisting battery plates.	700,000	May 27	3957	688	90	1048
Lyddon, Henry W., Branford, Niles, Laborador.	701,745	June 3	385	184	90	2281
Lyden, Ernest B., Pittsburg, Pa. Broiler or toaster.	699,570	Apr. 1	904	228	90	1291
Lyke, Daniel C. (See Winder, James C., assignor.)						
Lyke, Robert W., Parth Amboy, N. J. Conduit for electric wires or cables.	700,000	June 17	3917	577	90	2041
Lyke, Robert W., Parth Amboy, N. J. Conduit for electric wires or cables.	700,000	June 17	3917	577	90	2041
Lyke, Robert W., Parth Amboy, N. J. Conduit for electric wires or cables.	700,001	June 17	3918	601	90	2742
Lyke, William P., Philadelphia, Pa. Toy.	700,000	June 17	3918	648	90	2743
Lyman, James O., Waterbury, Conn. Electric program-clock.	700,070	June 24	3121	720	90	2505
Lymburner, Eli W., Warner, Canada. Bicycle.	699,000	Apr. 29	3925	1005	90	1119
Lynd, Matthew, Matineau, Mo. Tank-hoister.						
Lynd, Horrie T., and A. S. Hixon, Brooklyn, N. Y., assignors to William Folding Box & Paper Company, Chicago, Ill. Explosible paper toy.	700,000	June 10	1439	282	90	2439
Lyons, Thomas, Ottawa, Ill. Loading attachment for hand-trucks.	701,000	May 27	3920	623	90	1923
Lyons, Thomas, Ottawa, Ill. Loading attachment for hand-trucks.	701,000	June 3	344	181	90	2282
Lynch, Vernon T., Chicago, Ill. Reconstructing railway rails.	701,000	May 15	1200	417	90	1150
Lynd, Iva, Troy, N. Y. Railway-rail joint.	699,184	Apr. 29	5128	1148	90	1150
				1038		
				1039		
				1040		
Lynn, Fred, Johnstown, N. Y. Coin-controlled vending-machine.	698,904	Apr. 29	4000		90	1111
Lyng, Olaf O., et al. (See Linnott, William D., assignor.)						
Lynoth, John P., Louisiana, Mo. Heating or cooking attachment for stoves.	700,001	May 27	3921	688	90	1923
Lyon, George T. (See Draper and Lyon.)						
Lyon, James W., Brooklyn, N. Y. Soap-taster.	699,994	May 6	897	90	90	1282
Lyon, Samuel, Hamburg, Germany. Color-shading wood.	700,045	May 20	2437	541	90	1705
Lyns, Joseph M., Evanston, Ill. Mold for molding maple sugar.	699,000	Apr. 1	544	185	90	119
Lytle, James D., Baltimore, Md., assignor of one-third to W. G. Gooding, York, Pa. Multiple-use box.	700,000	May 20	3928	700	90	1945
Maa, Charles L., Ridge Park, assignor of one-half to F. B. Green, Germantown, Pa. Machine for embossing and printing.	699,004	Apr. 29	3928	675	90	900
Maa, George J., Negaunee, Mich. Sinking shafts.	700,000	June 3	300	85	90	2106
Mabee, John, and F. L. May, Lilly, Ill. Corn or grain dump and elevator.	699,000	Apr. 29	3970	670	90	900
MacCollin, William H., assignor to Warren-Milner Company, Philadelphia, Pa. Mechanical calculator.	697,061	Apr. 15	3707	111	90	618
MacCormack, John, Bayonne, N. J., assignor to B. G. Peabody, Brooklyn, N. Y. Furnace.	698,997	Apr. 9	1190	280	90	900
MacCulloch, Robert C., Des Moines, Iowa. Stove for heating, cooking, and baking.	697,000	Apr. 15	3907	440	90	900
MacDonald, James M., assignor to Parin, Davis & Company, Detroit, Mich. Distilling-machine.	698,700	May 13	1200	900	90	1640
MacEroy, Joseph B. (See Scholes, William, assignor.)						
MacGregor, John. (See Pierce, Henry H., assignor.)						
MacKenzie, James A., Minneapolis, Minn. Hinge-morthing machine.	699,000	May 6	3924	681	90	1923
MacKenzie, John D. (See Watkins, Peter J. M., assignor.)						
MacLean, James, Boston, Mass. Hinge.	700,000	May 20	3921	680	90	1719
MacLennan, William F. (See Skinner, William A., assignor.)						
MacNaughton, James. (See Bond, Augustus J., assignor.)						
MacNeill, Charles M. (See Mosher, De Witt C., assignor.)						
Macdonald, John E. (See Arnold, Charles, assignor.)						
MacF, Frank, Medina, N. Y., assignor to S. A. Cook & Co. Reclining-chair.	700,004	May 27	3708	670	90	2009
MacF, Patrick H., Bradford, assignor to Oil Well Supply Company, Pittsburg, Pa. Temporary-crow clamp.	698,990	Apr. 1	319	267	90	173
Mackintosh, Fred, W. H. N. Y., assignor to General Electric Company. Safety device for street cleaners.	697,704	Apr. 15	2517	561	90	504
				203		
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Mackintosh, Harry, Shipley, England. Apparatus for producing repeat-designs.	698,977	Apr. 1	903		90	201
Mackintosh, Harry, Shipley, England. Making weavers' designs.	700,000	June 10	1439	281	90	2439
Macedo, Walter. (See Fouts, Charles H., Jr., assignor.)						
Macconchie, Archibald W. (See Skirrow, John, assignor.)						
Macphail, James, Blue Island, Ill. Harrow.	700,014	May 20	2140	490	90	1240
Macphail, James, assignor to McCormick Harvesting Machine Company, Chicago, Ill. Thumb-lever for adjusting levers.	700,015	May 20	2139	491	90	1240
Macphail, James, Blue Island, assignor to McCormick Harvesting Machine Company, Chicago, Ill. Wheel.	700,015	May 20	2141	491	90	1240
Macquisten, Arthur P. S., Glasgow, Scotland. Electromagnetic pattern-controlling apparatus for looms.	700,011	May 27	4000	900	90	2000
May, Jethro L., Des Moines, Iowa. Brooder.	698,210	June 10	1439	418	90	2439

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Madan, James R., Salisbury, England. Variable-speed gear for motor vehicles, cycles, or the like.	707,168	Apr. 3	1445	285	90	269
Madanay, Gregor A., Pascoag, R. I. Box.	708,977	June 24	2189	780	90	2698
Madden, Albert F., Newark, N. J. Apparatus for reducing fusible material to dust.	708,978	May 17	2232	611	90	2698
Madson, Boren H., Hayward, Cal. Brake and ball for vehicles.	708,940	May 20	2420	984	90	1707
Maehtens, Emile, Providence, R. I. Cleaning wool.	695,297	Apr. 29	2426	984	90	776
Maehtens, Emile, Providence, R. I. Cleaning wool.	695,298	Apr. 29	2426	984	90	777
Maehtens, Emile, Providence, R. I. Degraining wool.	695,299	Apr. 29	2426	984	90	777
Maehtens, Emile, Providence, R. I. Cleaning wool.	695,310	Apr. 29	2424	984	90	777
Maehtens, Emile, Providence, R. I. Cleaning wool with volatile solvents.	695,311	Apr. 29	2425	984	90	778
Mages, George W., Brooklyn, N. Y. Car-axle box and brass.	701,222	May 27	2738	984	90	2699
Maggiore, Demetrio, P. and E. Bianchi, Turin, Italy. Device for preventing hail.	701,227	June 10	2111	255	90	2697
Magnin, Patrick, Kimball, Neb. Extensible trough.	700,222	May 20	2625	984	90	1778
Magnum, George B., Babylon, N. Y., assignor to Acme Ball Bearing Caster Company, Caster.	697,785	Apr. 15	2618	981	90	984
Maguire, Thomas, Homestead, Pa. Gas-lamp.	701,149	June 10	1540	881	90	2445
Mahana, John B., and W. P. Ry, Ely, Wash. Vending machine.	702,448	June 17	2103	479	90	2677
Mahar, John T., New York, N. Y. Fire-escape.	697,786	Apr. 15	2621	982	90	984
Mahoney, Daniel H., Vincesna, Ind. Excavating and loading machine.	701,220	June 3	2221	124	90	2699
Mahoney, Denis D., Hopkinton, assignor to Draper Company, Hopkinton, Mass. Wamp-stop-motion detector.	695,199	Apr. 23	2222	714	90	760
Mahoney, Thomas E., Bunkerhill, Kans. Feeder for threshing-machines.	697,695	Apr. 6	1225	981	90	305
Mahoney, Thomas E., Bunkerhill, Kans. Governor mechanism for threshing-machines.	697,696	Apr. 6	1225	982	90	305
Maidhof, Henry S., New York, N. Y. Combined seal and die.	697,720	Apr. 15	2621	981	90	984
Mais, Albert, Powellton, Cal. Bicycle-trike.	695,290	May 22	2421	984	90	1707
Mallett, Paul L., and E. E. Kim, Ansonville, France, assignors to Societe Anonyme des Etablissements Mallet de Bin, Levallois-Perret, France. Vending machine for vehicles.	695,297	Apr. 29	2421	980	90	761
Malla, S. O., et al. (See Waters, Frederick B., assignor.)	701,705	June 3	222	174	90	2693
Maloney, Philip M., Philadelphia, Pa. Boat stopping and holding device.	695,490	Apr. 1	122	20, 21	90	31
Maloney, William, Sherbrooke, assignor of seven-teeth to M. S. Inglis, I. Pittblado, Winnipeg, Manitoba, Canada, and L. T. Watson, Minneapolis, Minn. Grain-threshing mechanism.	695,540	Apr. 15	2225	984	90	985
Manger, Henry K. J., Des Moines, Iowa. Metal railway-tie.	695,555	May 25	1622	270	90	1295
Mangin, Alexis L., Aylmer East, Canada. Carburetor.	695,561	Apr. 1	425	128	90	130
Mangold, John A., Roundsville, W. Va. Combined badge and game.	698,200	Apr. 23	2225	730	90	985
Manhattan General Construction Company. (See Baker, Malcolm M., assignor.)	698,201	Apr. 23	2224	730	90	985
Mann, Charles H., Bunkerhill, N. Y. Battery develop.	698,202	Apr. 23	2225	731	90	985
Mann, Charles H., Bunkerhill, N. Y. Handicraft device.	698,203	Apr. 23	2225	731	90	985
Mann, Earl A., Troy, assignor to Albany Company, Albany, N. Y. Stiffening and heating apparatus for water-mach-filled and brown laundry-finished substances of bodies of collars, cuffs, &c.	700,726	May 27	2227	732	90	1295
Mann, Henry F., Allegheny, Pa. Flat-metal car-wheel.	702,142	June 24	2445	780	90	2699
Mann, William H., and U. G. Mack, Dorrence, Kans. Grain-door for cars.	698,206	May 6	220	91	90	1295
Mannix, Daniel W., Macon, Ga. Attachment for cracker, biscuit, or cake.	698,085	Apr. 29	2027	978	90	700
Manning, Edward J., Bayonne, N. J., assignor to Wagner Typewriter Company, New York, N. Y. Ribbon-guide for type-writing machines.	702,447	June 17	2117	460	90	2677
Mansfield, George P., Wimbolton, England. Electrical condenser.	697,507	Apr. 15	2027	465	90	690
Mansfield, George P., and J. C. Carter, Co. (See Lipp, David, assignor.)	701,747	June 3	222	184	90	2694
Manson, George W., New York, N. Y. Bicycle.	701,748	June 3	222	185	90	2694
Manson, George W., New York, N. Y. Bicycle driving mechanism.	701,749	June 3	222	185	90	2694
Manuel, Silas A., and J. R. Nottingham, assignors of one-fourth to R. J. Larnshaw, Washington, D. C. Revolving book-supporter.	700,228	May 20	2626	982	90	1777
Manufactured Rubber Company. (See Harmer, Thomas, assignor.)	702,018	June 10	1220	208	90	2696
Marbach, William A., Cleveland, Ohio. Cash-register support.	694,928	Apr. 8	1102	220	90	267
Marble, Albert D., York, Ohio. Tea-and-outer.	702,447	June 17	2117	460	90	2677
Marburg, Abraham, and M. P. Blomberg, Bradford Township, Victoria, Australia. Liquid-measuring apparatus.	697,507	Apr. 15	2027	465	90	690
Marcatto, Eugene J., Stockton, Kans. Syrup-pitcher.	702,019	June 10	1221	220	90	2697
Marcy, Frank M., Worcester, Mass. Truing up the drawing-rolls of spinning or twisting machines.	700,224	May 20	2707	983	90	1777
Margolius, David, assignor of one-half to R. Margolius, Norfolk, Va. Making repaired fabrics.	697,222	Apr. 8	1640	287	90	989
Margolius, David, assignor of one-half to R. Margolius, Norfolk, Va. Making repaired fabrics.	698,200	Apr. 1	917	987	90	177
Margolius, Raphael. (See Margolius, David, assignor.)	698,201	Apr. 1	917	987	90	177
Maria, George. (See Miller, Lydia, assignor.)	698,202	May 6	222	181	90	1295
Maria, William, Eedley, Ind. Vender for rubber.	700,084	May 17	1801	417	90	1295
Marion Brown Shoe Company. (See Kilar, George W., assignor.)	698,201	May 6	180	93	90	1295
Marion, John J., Anderson, Ind. Annular-box.	698,201	May 6	180	93	90	1295
Marlham, Andrew J., assignor of one-half to J. Morrow, Elm, Neb. Steam-engine.	698,201	May 6	180	93	90	1295
Marlham, De Witt C., Layden, N. Y. Cattle-tie and stanchion.	698,201	May 6	180	93	90	1295
Marlham, William F., Plymouth, Mich. Spring-air-gun.	698,201	May 6	180	93	90	1295
Marlin, John Hamilton, Pa. Current apparatus for electric railways.	698,124	Apr. 29	2222	714	90	761
Marks, Joseph P., assignor of two-thirds to J. L. Larnson and C. H. Day, Philadelphia, Pa. Apparatus for printing process.	698,110	Apr. 29	2222	714	90	1294
Marks, Joseph P., assignor of two-thirds to J. L. Larnson and C. H. Day, Philadelphia, Pa. Apparatus for printing process.	701,221	June 3	222	181	90	2195
Martinson, Charles L., Chicago, Ill. Kitchen-table.	698,428	Apr. 1	122	20, 21	90	31
Marthon, Daniel W., assignor to Herdyke & Marmon Company, Indianapolis, Ind. Separating and bottling machine.	698,201	Apr. 1	222	122	90	173
Marmorestein, Joseph. (See Moline, Moline, assignor.)	702,221	May 27	2222	714	90	2695
Marr, Alexander W., Dayton, Ohio, assignor, by mesne assignments to National Cash Register Company, Jersey City, N. J. Cash-register.	700,222	May 20	2625	984	90	1777
Marshall, Adolf J., Littlefield, N. Y. Electric gas-lighter.	698,202	May 6	222	181	90	1295
Marsden, Edward E. (See Keroxyd and Marsden.)	702,221	June 17	2222	714	90	2695
Mars, Percy M., et al. (See Hagan, Ira E., assignor.)	702,221	June 17	2222	714	90	2695
Mars, Percy M., et al. (See Hagan, Ira E., assignor.)	702,221	June 17	2222	714	90	2695
Marshall, Andrew J., Thessalon, Tenn. Grain-elevator for corn-planters.	702,221	June 17	2222	714	90	2695
Marshall, Ebenezer H., Hamilton, Canada. Combined frame and register for post-presses.	702,221	June 17	2222	714	90	2695
Marshall, Harry E., Lincoln, Neb. Car-coupling.	702,221	June 17	2222	714	90	2695

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Marshall, James, Fall River, Mass. Drying belt	692,990	Apr. 8	1194	330	90	290
Marshall, James, Toronto, Canada. Mattress	692,990	Apr. 20	992	931	90	290
Marshall, John, Pawtucket, R. I., assignor of three-fourths to I. H. Bassett, Fall River, Mass., A. T. Atherton, Bayville, and C. T. Atherton, Pawtucket, R. I. Machine for twisting and spinning fibrous materials	692,928	May 4	121	94	90	190
Marshall, John F. (See Evans and Marshall.)	702,070	June 24	992	701	90	290
Marshall, Nathaniel M., Portland, Me. Fly-bottom	702,070	June 24	912	750	90	290
Marshall, Robert A. (See McKenna, Robert L., assignor.)	692,928	Apr. 1	187	30, 31	90	290
Marshall, William L., Xenia, Ohio. Shaft-prop	702,794	May 27	1200	707	90	190
Martens, Daniel G., London, England. Life-raft	692,921	May 13	991	991	90	140
Martin-Cooke, John A., Arlington, N. J., assignor of one-half to T. R. Inman, New York, N. Y. Building	697,560	Apr. 15	2000	400	90	400
Martin, Edmund, Potsdam, N. Y. Spray-nozzle	702,970	June 24	1194	780	90	290
Martin, Fay H., Hydepark, assignor to American Loom Company, Readville, Mass. Loom-shuttle	702,970	June 24	992	991	90	290
Martin, Frank A., assignor to Westinghouse Electric Company, New York, N. Y. Device for automatically distributing disintegrating fluids	702,970	June 24	1194	781	90	290
Martin, Fred M. (See Moore and Martin.)	702,970	June 24	1194	781	90	290
Martin, George E., assignor to Pedrick and Ayer Company, Philadelphia, Pa. Press-mastic hoist	702,970	June 24	1194	781	90	290
Martin, Harrison S., Washington, D. C. Mattress-sewing machine	702,970	June 24	1194	781	90	290
Martin, Harry T. (See Green and Martin.)	702,970	June 24	1194	781	90	290
Martin, Henry. (See Martin, Peter, assignor.)	702,970	June 24	1194	781	90	290
Martin, J. Eduard. (See Vinson, George W., assignor.)	702,970	June 24	1194	781	90	290
Martin, John F., Marshall, Minn. Mold for ports or poles	697,560	Apr. 15	2101	400	90	400
Martin, Joseph F. (See Evans, George A., assignor.)	702,990	June 10	1117	900	90	290
Martin, Peter, assignor of three-fourths to H. Martin, St. Paul, Minn. Dust-guard	702,990	May 20	2090	700	90	100
Martin, Robert M., Dayton, Ky., assignor to American Chemical Fire Extinguisher Company, Cincinnati, Ohio. Fire-extinguisher	692,921	May 6	126	84	90	190
Martin, William O., Newton, Mass. Automatic ventilating window-lift	702,970	June 17	1204	900	90	290
Martin, John G., et al. (See Ambrose, Otto F., assignor.)	702,970	June 17	1204	900	90	290
Marx, Friedrich, Leipzig, Germany. Apparatus for the manufacture of artificial stone	697,570	Apr. 1	991	70, 71	90	190
Marx, Michael, New York, N. Y., and A. Guerra, Philadelphia, Pa. Lock-stitch sewing-machine	692,921	Apr. 1	991	70, 71	90	190
Marx, Lewis. (See Rootner and Marx.)	692,921	Apr. 1	991	70, 71	90	190
Marcks, Emil, Berlin, Germany. Apparatus for storing and removing rubbish	692,921	May 13	1207	240	90	100
Marck, John, assignor of one-half to J. Brown, Duane, more, Ireland. Soap-press	702,920	June 24	992	991	90	290
Maskrey, Arthur J., Martins Ferry, Ohio. Sheet catching and packing device	697,564	Apr. 8	1451	990	90	290
Mason, Arthur J. (See Brown and Mason.)	692,920	Apr. 8	1451	990	90	290
Mason, Edward L., Ipswich, Mass. Strainer	702,921	May 20	2090	700	90	100
Mason, Frederick H., Spokane, Wash. Automatic valve	702,921	May 20	2090	700	90	100
Mason, Frederick, Davenport, Iowa. Fruit-jar	702,921	May 20	2090	700	90	100
Mason, Henry T., Chicago, Ill. Stopper for boiler-tubes or hollow shafting	702,921	May 20	2090	700	90	100
Mason, James H., Brooklyn, N. Y. Electric motor	702,921	May 20	2090	700	90	100
Mason, Wiley W., Jr., New York, N. Y. Grinding or crushing head	702,921	May 20	2090	700	90	100
Mason, William. (See Brown and Mason.)	702,921	May 20	2090	700	90	100
Matheson, Daniel J., Neamank, Canada. Door-closer	702,921	May 20	2090	700	90	100
Mathews, George E., Kalamazoo, Mich. Bed	702,921	May 20	2090	700	90	100
Mathews, Theodore M., Milwaukee, Wis., assignor to himself, L. G. Adams, H. J. Hall, Waterloo, Iowa, and D. G. Webster, Osceola, Ill. Line spreader and guide	702,921	May 20	2090	700	90	100
Mathis, John H. (See Smith and Mathis.)	702,921	May 20	2090	700	90	100
Mathis, John H., et al. (See Brown, Charles W., assignor.)	702,921	May 20	2090	700	90	100
Mathison, Joseph, Boston, Mass. Shirt-supporter	692,921	May 20	2090	700	90	100
Mathison, John S., Greenville, Pa. Railway block system	692,921	May 20	2090	700	90	100
Mathison, William O., Kalamazoo, Mich. Motor-car	692,921	May 20	2090	700	90	100
Mathison, John G., assignor to Sheffield Corrugating Company, Three Rivers, Mich. Motor-car	692,921	May 20	2090	700	90	100

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Maxwell, George W., Los Angeles, Cal. Mechanical directory	697,305	Apr. 8	1560	418	90	414
Maxwell, Harry, West Oakland, Cal. Locomotive valve-gear	702,200	June 17	2798	845	90	2728
Maxwell, James M., Pittsburg, Pa. Motor	701,067	May 27	2600	911	90	2010
Maxwell, Jonathan D., Detroit, Mich. Motor-vehicle	701,300	June 10	1113	260	90	2228
May, Herbert L. (See Howell, Edward W., assignor.)						
Maybach, George G., Sunnyside, Wash. Hay-derrick	700,220	May 20	2484	835	90	1700
Mayer, Adolf, et al. (See Hummel, Louis, assignor.)						
Mayer, Alfred. (See Clark and Mayer.)						
Mayer, Alvarado, Detroit, Mich. Automatic valve for steam fire-engines, &c.	697,397	Apr. 8	1991	708	90	600
Mayer, Simon, et al. (See Poulos, Peter, assignor.)						
Mayhew, Charles L., Hastings Springs, N. Y. Motor-vehicle	698,098	Apr. 22	2048	670	90	700
Maynard, Wilbur N., Leominster, Mass. Handle	700,264	May 20	2485	836	90	1704
Mayo, David C., assignor to W. G. Mosley, Richmond, Va. Machine for treating tobacco-stems	697,211	Apr. 15	2105	697	90	621
Mayo, David C., assignor to W. G. Mosley, Richmond, Va. Machine for drying leaf-tobacco	697,212	Apr. 15	2106	698	90	622
Mayotte, Philias, assignor to himself and E. McLean, Wells, Mich. Fastening device for driving-horses	701,751	June 3	947	198	90	2895
Mays, James M., Allegheny, Pa. Spring-clip	701,022	May 27	2602	912	90	2012
McAbee, Joel P., Piedmont, Ala. Foot-warmer	701,728	June 3	948	199	90	2896
McAdams, Sylvester L., Beaver Falls, Pa. Gas-regulator	702,280	June 10	1715	387	90	2675
McAllister, George A. (See Johnstone, Antonio P., assignor.)						
McAlpin, George L. (See Harrington, Florence L., assignor.)						
McAnulty, John A., Hamilton, Ohio. Observation-tower	702,146	June 24	2420	799	90	2670
McAnulty, Thomas. (See Bolton, John T., assignor.)						
McBerty, Frank B., Evanston, assignor to Western Electric Company, Chicago, Ill. Glass-working machine	694,467	Apr. 1	125	22	90	24
McBride, Albert P., Independence, Kans. Pipe-wrench	702,228	June 24	2421	800	90	2671
McBride, John H., Topeka, Kans. Copy-holder	701,998	June 3	949	200	90	2897
McBride, Thomas C., Philadelphia, Pa. Rotary engine, water-meter, or pump	698,280	Apr. 29	4001	854	90	910
McCauley, James T., East Orange, N. J. Thermostatic fire-door apparatus	702,247	June 24	2422	801	90	2672
McCall, Harry M., assignor to Pittsburg Gas Engine Company, Pittsburg, Pa. Air separator or carburetor	702,224	June 10	1716	444	90	2676
McCallum, William A., Cleveland, Ohio. Mechanism for releasing trolley-wires	697,545	Apr. 15	2107	699	90	623
McCarthy, Daniel and W. H. North Adams, Mass. Curtains and drapery bracket	698,545	Apr. 29	4002	1000	90	1006
McCarthy, Lawrence A., Brooklyn, N. Y. Multiplex-telegraph circuit	700,200	May 27	2603	913	90	2013
McCarthy, William H. (See McCarthy, Daniel and W. H.)						
McCasland, William, New York, N. Y. Vehicle-tire	698,728	Apr. 29	4003	977	90	1007
McChesley, Hugh M., Berea, Ohio. Nut-lock	697,220	Apr. 15	2108	700	90	624
McClain, George M., New York, N. Y. Automatic self-closing fire-door	698,540	Apr. 29	4004	1001	90	1008
McClave, James M., et al. (See Kirby, and E. R. Cumba, Denver, Colo. Ore-separator)	697,221	Apr. 8	1992	701	90	601
McClean, Robert. (See Bonbright and McClean.)						
McCleary, Edgar M., Booneville, Iowa. Damper	698,095	Apr. 22	2049	671	90	701
McCleary, William E., Hopedale, Mass. assignor to Draper Company, Portland, Me., and Hopedale, Mass. Molding apparatus	697,546	Apr. 15	2109	702	90	625
McClendon, James H., Everett, Mass. Roller	698,729	Apr. 29	4005	978	90	1009
McClendon, Joseph J., Coldwater, Mich. Artificial building-stone	700,201	May 27	2604	914	90	2014
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,202	May 27	2605	915	90	2015
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,203	May 27	2606	916	90	2016
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,204	May 27	2607	917	90	2017
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,205	May 27	2608	918	90	2018
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,206	May 27	2609	919	90	2019
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,207	May 27	2610	920	90	2020
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,208	May 27	2611	921	90	2021
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,209	May 27	2612	922	90	2022
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,210	May 27	2613	923	90	2023
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,211	May 27	2614	924	90	2024
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,212	May 27	2615	925	90	2025
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,213	May 27	2616	926	90	2026
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,214	May 27	2617	927	90	2027
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,215	May 27	2618	928	90	2028
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,216	May 27	2619	929	90	2029
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,217	May 27	2620	930	90	2030
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,218	May 27	2621	931	90	2031
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,219	May 27	2622	932	90	2032
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,220	May 27	2623	933	90	2033
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,221	May 27	2624	934	90	2034
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,222	May 27	2625	935	90	2035
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,223	May 27	2626	936	90	2036
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,224	May 27	2627	937	90	2037
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,225	May 27	2628	938	90	2038
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,226	May 27	2629	939	90	2039
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,227	May 27	2630	940	90	2040
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,228	May 27	2631	941	90	2041
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,229	May 27	2632	942	90	2042
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,230	May 27	2633	943	90	2043
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,231	May 27	2634	944	90	2044
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,232	May 27	2635	945	90	2045
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,233	May 27	2636	946	90	2046
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,234	May 27	2637	947	90	2047
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,235	May 27	2638	948	90	2048
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,236	May 27	2639	949	90	2049
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,237	May 27	2640	950	90	2050
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,238	May 27	2641	951	90	2051
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,239	May 27	2642	952	90	2052
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,240	May 27	2643	953	90	2053
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,241	May 27	2644	954	90	2054
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,242	May 27	2645	955	90	2055
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,243	May 27	2646	956	90	2056
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,244	May 27	2647	957	90	2057
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,245	May 27	2648	958	90	2058
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,246	May 27	2649	959	90	2059
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,247	May 27	2650	960	90	2060
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,248	May 27	2651	961	90	2061
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,249	May 27	2652	962	90	2062
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,250	May 27	2653	963	90	2063
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,251	May 27	2654	964	90	2064
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,252	May 27	2655	965	90	2065
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,253	May 27	2656	966	90	2066
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,254	May 27	2657	967	90	2067
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,255	May 27	2658	968	90	2068
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,256	May 27	2659	969	90	2069
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,257	May 27	2660	970	90	2070
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,258	May 27	2661	971	90	2071
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,259	May 27	2662	972	90	2072
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,260	May 27	2663	973	90	2073
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,261	May 27	2664	974	90	2074
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,262	May 27	2665	975	90	2075
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,263	May 27	2666	976	90	2076
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,264	May 27	2667	977	90	2077
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,265	May 27	2668	978	90	2078
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,266	May 27	2669	979	90	2079
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,267	May 27	2670	980	90	2080
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,268	May 27	2671	981	90	2081
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,269	May 27	2672	982	90	2082
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,270	May 27	2673	983	90	2083
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,271	May 27	2674	984	90	2084
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,272	May 27	2675	985	90	2085
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,273	May 27	2676	986	90	2086
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,274	May 27	2677	987	90	2087
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,275	May 27	2678	988	90	2088
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,276	May 27	2679	989	90	2089
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,277	May 27	2680	990	90	2090
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,278	May 27	2681	991	90	2091
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,279	May 27	2682	992	90	2092
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,280	May 27	2683	993	90	2093
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,281	May 27	2684	994	90	2094
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,282	May 27	2685	995	90	2095
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,283	May 27	2686	996	90	2096
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,284	May 27	2687	997	90	2097
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-justifying machine	702,285	May 27	2688	998	90	2098
McClintock, Frank, Mount Vernon, assignor, by memo assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Type-						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Pat.	Index	Vol.	Page
Michel, Albert J., Scranton, Pa. Car-repairer	699,999	Apr. 20	9998	1091	99	1115
Michelbacher, Heinrich, and H. Christian, Vienna, Austria-Hungary. Shoe-straining device	700,000	May 12	1000	410	99	1205
Michigan Specialty Company. (See Hodges, Chauncey W., assignor.)						
Michigan Stove Company. (See Keap, William J., assignor.)						
Mickle, Philip, Troy, N. Y. Fiber-crozier	698,304	Apr. 20	9995	791	99	800
Mietaschki, Otto, Wiesenthal, Germany. Means for automatically coupling or uncoupling trucks	699,040	Apr. 20	9974	677	99	702
Miller, Robert H., assignor to P. Harris, Columbus, Ga. Guano-distributor	699,097	May 6	946	219	99	1570
Millbank, Robert. (See Latham, James R., assignor.)						
Millbauer, Joseph. (See Lamcke, Charles F., assignor.)						
Miles, Charles H. (See Felt, Erick P., assignor.)						
Miles, Horine, Old Orchard, and C. H. Blanchard, St. Louis, Mo. Thill-coupling	701,967	June 3	132	39	99	2140
Miles, Willis C., Jersey City, N. J. Lock water-closet seat	697,934	Apr. 8	1943	393	99	570
Milholand, Frederick E., Brooklyn, N. Y. Linotype-galley	701,968	June 3	132	39	99	2140
Millan, Thomas, Stretton, Ill. Tamping-bar	700,398	June 24	3690	339	99	2030
Miller, Charles W., Columbus, Ohio. Stamp and envelop moistener	701,911	June 10	1197	297	99	2030
Miller, Robert, Dunedin, New Zealand. Wave-motor	702,977	June 17	2990	399	99	2031
Miller, Thomas D., Springfield, Mass., assignor to Springfield Engine Stop Company, New York, N. Y. Shut-off device for motors	702,100	June 10	1493	397	99	2030
Miller, Adam E., assignor to Shaw Walker Company, Muskegon, Mich. Card-index-filing tray	701,798	June 3	946	197	99	2031
Miller, Albe D., Portland, Ind. Clover-harvester	701,912	June 10	1197	339	99	2030
Miller, Andrew D. (See McCormick and Miller.)						
Miller, Andrew D., Mount Pleasant, Pa. Fluxing and separating compound	700,999	May 20	2779	-----	99	1770
Miller, Andrew D., Mount Pleasant, Pa. Treating ore	700,999	May 20	2780	695	99	1770
Miller, August F. (See Becker, Henry D., assignor.)						
Miller, August F., et al. (See Weaver, Cornelius, assignor.)						
Miller, August F., et al., assignor to F. Herman and C. O. Adams, Wooster, Ohio. Music-box turner	699,549	May 6	798	185 187	99	1390
Miller, Charles A., Marshalltown, Iowa. Elliptical spring	697,995	Apr. 15	3795	612	99	690
Miller, Charles A., Reading, Pa. Adjustable ratchet device	698,219	Apr. 20	3497	754	99	778
Miller, Charles J., Philadelphia, Pa. Finishing the surface of leather	702,460	June 17	3119	461	99	2031
Miller, Darwin V., Westport, N. Y. Box for beer, &c.	701,494	June 3	305	97	99	2137
Miller, George C. (See Robinson and Miller.)						
Miller, George F. (See Fraley and Miller.)						
Miller, Harry W. (See Hammack, Martin V., assignor.)						
Miller, Henry J. (See Irwin and Miller.)						
Miller, Herman R., Milwaukee, Wis. Photographic instrument	697,798	Apr. 15	2294	599	99	595
Miller, John A., Omaha, Nebr. Guiding device for trolleys	698,305	Apr. 20	3599	791	99	800
Miller, John C., Canton, Ohio. Cooling and aerating device	700,581	May 20	2799	699	99	1770
Miller, John E., Canton, Ohio. Cooling and aerating device	702,737	June 17	3034	611	99	2030
Miller, John E., Denver, Colo. Badge-medallion	702,098	June 10	1299	399	99	2030
Miller, John E., Washington, Del. Leather-working machine	699,997	Apr. 20	4998	1091	99	1114
Miller, John M., Crestline, Kans. Holder for dust pans, brooms, and dust-brushes	697,941	Apr. 15	3649	-----	99	590
Miller, Joseph B., Richmond, Ind. Fire-extinguishing compound						
Miller, Kemper B., assignor to Kellogg Switchboard & Supply Company, Chicago, Ill. Combined lock and trip	697,918	Apr. 15	3599	473	99	494
Miller, Ludvig M., assignor of one-half to G. Marin, Winneconne, Wis. Saw-filing device	699,906	May 4	129	35	99	1904
Miller, Martin R., Omaha, Nebr. Automatic cream-cooler	700,148	May 12	1990	497	99	1995
Miller, Oliver A. (See Brown, Jonathan T., assignor.)						
Miller, Robert, Corland, N. Y. Needle-holder	699,998	Apr. 15	3794	512	99	690
Miller, Samuel, New York, N. Y. Power-transmitter	700,199	May 20	2799	699	99	1770
Miller, Samuel J. (See McCormick and Miller, assignors.)						
Miller, Sidney W., Chicago, Ill. Device for charging or discharging liquid tanks	702,099	June 10	1299	399	99	2030
Miller, Stanley Q., assignor to J. W. Wainmaker, Philadelphia, Pa. Time-stamp	702,299	June 10	1794	394	99	1979
Miller, Thomas W., Akron, Ohio. Hollow seamless rubber article	699,998	Apr. 8	1197	390	99	200
Miller, Walter H. (See Aylworth and Miller.)						
Miller, William. (See Atkinson, Henry C., assignor.)						
Miller, William N., et al. (See Kreitz, Forrest H., assignor.)						
Millot, Liberty, Hagerman, Idaho. Strengthening clay hydraulic pipe, vases, crockery-ware, &c.	697,442	Apr. 15	2940	994	99	990
Millhagen, John M. A. (See Meyer, Emil, assignor.)						
Millman, James W., and H. Ballinga, Birmingham, England. Machine for grinding and polishing steel or other metallic parts	697,393	Apr. 8	1954	415 416	99	415
Millman, Frank A., Warren, Ohio. Chair-support	702,998	June 24	3168	739	99	2030
Miller, Peter D., Buffalo, assignor to Automatic Trolley Catcher and Controller Company, Syracuse, N. Y. Trolley-catch device	699,592	Apr. 20	2939	992	99	997
Mills, Anson C., Jackson, and G. R. Lamb, Hudson, Mich. Wire-fence machine	699,993	Apr. 20	2999	992	99	998
Mills, Francis A., assignor of one-half to G. B. Emmons, Methuen, Mass. Picker-stick buffer for looms	702,995	May 27	3099	999	99	1999
Mills, George E., et al. (See Pennington, Edward J., assignor.)						
Mills, John E., Chicago, Ill. Lathe attachment	697,995	Apr. 8	1944	399 399	99	779
Mills, John F., Jr. (See Graves, George W., assignor.)						
Mills, John F., Jr. (See Graves and Mills.)						
Mills, Robert W., Boston Harbor, Mich. Made-rack	699,999	Apr. 8	1199	991	99	999
Mills, William, assignor to Eastern Carbon Works, Jersey City, N. J. Carbon brush and making same	701,999	June 3	194	99	99	9199
Miner, Albert B., assignor to A. H. Miller Seating Co., Canal Dover, Ohio. Folding opera chair	700,451 701,914	June 17 May 27	2190 4994	491 994	99	2061 2095
Miner, Thomas J., Denver, Colo. Condall						
Miner, William H. (See Calvert, Alon, assignor.)						
Miner, John L. (See Conklin and Miner.)						
Miner, William H., Plainfield, N. J. Electric synchronous apparatus	702,499	June 17	3199	499	99	2030
Miner, William H., Plainfield, N. J. Electric synchronous apparatus	702,499	June 17	3199	499	99	2030
Miner, William H., Plainfield, N. J. Electric synchronous apparatus	702,494	June 17	3199	499	99	2030
Miner, William C., Stanton, Mich., assignor of one-third to J. W. Tokins, Aberdeen, Wash. Railway spike	699,992	Apr. 20	4999	9999	99	1999
Miner, William H. (See Hennessy and Moore, assignors.)						
Minier, Peter G., assignor of one-fourth to I. R. Titus, Huntington, W. Va. Door-hanger	702,997	June 3	3199	199	99	2030
Minington, Philip W., et al. (See Dear, James W., assignor.)						
Mininewski, Josef, et al., Luga, Russia. Drawing frame	701,919	June 10	1199	999	99	2030
Minns, Arthur E., Brooklyn, N. Y. Ventilator for the surfaces of ranges	699,999	Apr. 20	4994	1999	99	1111
Minwagen, John J., Chicago, Ill. Nursing-bottle	701,999	May 27	2994	994	99	2031
Misko-Cutlery Company. (See Miskolczy, Joseph, assignor.)						
Miskolczy, Joseph, assignor to Misko-Cutlery Company, New York, N. Y. Finishing or polishing metals	699,199	Apr. 20	2999	713	99	791

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Mimotte, Manuel L., Saltillo, Mexico. Canteen.....	699,497	May 12	1090	257	90	1414
Minkotex Cream Company. (See Small, George D., assignor.)						
Mitch, Joseph, et al. (See Polmeteer, Andrew J., assignor.)						
Mitchell, Abbott B., et al. (See Roberts, Henry P., assignor.)						
Mitchell, Fred L., New York, N. Y. Combined box or chest and table.....	700,295	May 20	2496	555	90	1709
Mitchell, Fred L., New York, N. Y. Collapsible camp-stove.....	700,296	May 20	2498	556	90	1709
Mitchell, George E., Chicago, Ill., and W. Link, New York, N. Y. Portable bicycle-track.	697,948	Apr. 15	2420	584	90	890
Mitchell, George L., assignor of one-half to J. M. Glenn, Cincinnati, Ohio. Wire-coupling.....	698,197	Apr. 22	2370	715	90	741
Mitchell, George R. (See Turner and Mitchell.)						
Mitchell, James. (See Norcross and Mitchell.)						
Mitchell, James A., New York, N. Y. Milk-modifying pump.....	696,594	Apr. 1	989	190	90	175
Mitchell, James A., Hilldale, Mich. Fence-post.....	702,290	June 10	1707	304	90	2476
Mitchell, James H., Philadelphia, Pa. Differential and reversing gear.....	698,126	Apr. 22	2371	716	90	741
Mitchell, John E., St. Louis, Mo. Dust-collector.....	702,212	June 10	1698	419	90	2909
Mitchell, John H., Washington, D. C., assignor of one-half to H. K. and H. A. Emery and W. V. Cox, executors and trustees of M. G. Emery, deceased. Antiskipping hoof-pad.	702,140	May 12	1998	457	90	1895
Mitchell, Robert J. O. (See Eaton, John, assignor.)						
Mitchell, Thomas W., Omaha, Nebr. Car-journal box.....	697,947	Apr. 15	2399	640	90	646
Mitchell, Thomas W., Omaha, Nebr. Rod-packing.....	702,278	June 17	2361	520	92	2921
Mitchell, William S. (See Clarke, John S., assignor.)						
Mixell, Leighton N. D., Bethlehem, assignor to Bethlehem Steel Company, South Bethlehem, Pa. Breech mechanism for guns.....	702,455	June 17	2126	468	90	2692
Mize, William P., Moss, Tex. Fertilizer-distributor.....	700,533	May 20	2724	686	90	1780
Moss, John T., Adelaide, South Australia, Australia. Non-reverting water-wheel.....	699,844	May 12	1895	360	90	1476
Modry, August M., Brooklyn, N. Y. Electric elevator.....	698,904	Apr. 8	1170	261	90	296
Moe, Samuel A., Minneapolis, Minn. Combination-tool.....	699,207	May 6	140	25	90	1204
Moehring, Christ, and W. Fetzer, Middletown, Ohio; said Moehring assignor to said Fetzer, Sender.....	700,936	May 27	2619	680	90	1995
Moffat, George, Philadelphia, Pa., assignor to James Smith and Company, Incorporated, Charleston, W. Va. Steam-trap.....	697,246	Apr. 8	1725	400	90	493
Moffatt, Limited. (See Hutchings, James, assignor.)						
Moffitt, Alexander, California, Pa. Car-window.....	698,980	Apr. 22	2396	1091	90	1114
Möhrer, Paul F. v., J. P. and J. Hopp, Philadelphia, Pa. Acetylene-gas generator.....	698,208	Apr. 22	2390	722	90	800
Molden, Frederick W., Huron, S. D. Vehicle-curtain attachment.....	699,987	May 12	1695	375	90	1896
Moline Flow Company. (See Lindgren, August, assignor.)						
Möller, Georg, Copenhagen, Denmark. Party-line telephone apparatus.....	698,207	Apr. 22	2392	723	90	800
Moller, Jacob A., Jr., New York, N. Y. Granulating attachment for salt-shakers.....	700,594	May 20	2726	687	90	1780
Molnar, Sándor, assignor of one-half to J. Marmorstein, New York, N. Y. Valved stopper for receptacles, &c.....	702,210	June 17	2600	643	90	2722
Molynaux, Burton S., Buffalo, N. Y. Oil-controlled tire-inflator.....	700,796	May 27	2601	757	90	1907
Monahan, Louis J., and O. Kieren, Oakbrook, assignors of one-third to E. H. Steiger, Fremont, Wis. Machine for making twine.....	697,411	Apr. 8	1985	429	90	428
Monck, Ludwig, Regents Park, London, England. Gas-producer.....	697,987	Apr. 15	2705	613	90	680
Monck, Ludwig, London, England. Obtaining zinc by electrolysis.....	701,215	May 27	4085	985	90	2906
Monck, Ludwig, London, England. Apparatus for obtaining zinc by electrolysis.....	701,216	May 27	4087	985	90	2906
Monahan, Michael, and P. Dörner, Dixon, Ill. Fruit-can opener.....	699,638	May 12	1978	301	90	1456
Monfort, Abram C., East Providence, R. I. Track-laying device for railways.....	702,221	June 10	1707	305	90	2476
Monjo, Edward A., Elizabeth, N. J. Gas-blower.....	700,595	May 20	2727	687	90	1781
Montal, Leo, New York, N. Y., assignor to Acetylene Manufacturing Company, New York, N. Y., and Jersey City, N. J. Acetylene-gas generator.....	699,287	May 6	282	91	90	1264
Montgomery, Franklin M. (See Turrell and Montgomery.)						
Montgomery, Harry C., assignor to S. W. Parsons, Cleveland, Ohio. Automatic fire-extinguisher.....	700,276	May 20	2154	494	90	1051
Montgomery, Marshall, Philadelphia, Pa. Portable hose adapted for couplings, &c.....	702,723	June 17	2657	612	90	2908
Montgomery, Robert F., Erie, Canada. Drum-supporter.....	702,456	June 17	2129	464	90	2693
Montgomery, Thomas H. (See Montgomery, William W., assignor.)						
Montgomery, William G., assignor of one-half to H. F. Peck, Erie, Pa. Stove-damper.....	702,212	June 10	1698	419	90	2909
Montgomery, William W., assignor of one-half to T. H. Montgomery, Chicago, Ill. Conductor for concrete.....	702,212	June 10	1698	419	90	2909
Montreuil, Charles J., London, France. Apparatus for elliptical turning and boring.....	701,217	May 27	4086	986	90	2907
Moody, Rufus M., Aberdeen, Wash. Marking-machine.....	701,221	May 27	2605	678	90	2910
Moody, Walter C., Richmond, N. Y., assignor to General Electric Company. Fan-motor attachment.....	701,214	June 10	1695	398	90	2900
Moody, Winfield H., assignor to T. J. Hakstad, Dallas, Tex. Burglar-alarm.....	701,728	June 3	646	107	90	2906
Moon, Edward W., et al. (See Harting, Stephen D., assignor.)						
Moon, George R., Columbus, Ohio. Heating-stove.....	702,204	June 24	2144	722	90	2911
Moore, Alfred L., Moline, Ill. Wagon-skate.....	698,944	Apr. 22	2398	1094	90	1094
Moore, Charles B., Newton Center, and G. B. Tutman, Wollaston, Mass. Feed-regulator.....	702,219	May 20	2126	424	90	1091
Moore, Charles E., Chicago, Ill., and C. J. Reilly, Syracuse, Ind. Apparatus for electrically operating tools.....	702,227	May 20	2604	684	90	1790
Moore, Daniel M., Newark, N. J. Electric-tube lighting.....	702,214	June 10	1696	410	90	2900
Moore, Daniel M., Newark, N. J. Electric-tube lighting.....	702,215	June 10	1696	420	90	2900
Moore, Daniel M., Newark, N. J. Electric-tube lighting.....	702,216	June 10	1644	480	90	2504
Moore, Daniel M., Newark, N. J. Electric-tube lighting.....	702,217	June 10	1645	481	90	2504
Moore, Daniel M., Newark, N. J. Automatic circuit-interrupter.....	702,218	June 10	1646	481	90	2504
Moore, Daniel M., Newark, N. J. Electric-tube lamp.....	702,219	June 10	1698	422	90	2504
Moore, Daniel M., Newark, N. J. Electric-tube lamp.....	702,220	June 10	1654	423	90	2505
Moore, Daniel M., Newark, N. J. Electric-tube lighting.....	702,221	June 10	1657	423	90	2505
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Vacuum-tube set.....	699,208	May 6	141	26	90	1264
Moore, David O. (See Moore, George J. and D. O.)						
Moore, Edward J., Philadelphia, Pa. Steam-boller.....	700,699	May 12	1694	412	90	1599
Moore, Edwin A. (See Heywood, William A., assignor.)						
Moore Electrical Company. (See Moore, Daniel M., assignor.)						
Moore Electrolytic Company. (See Moore, Hugh K., assignor.)						
Moore, Eli W., assignor of one-half to F. W. Moore, Ann Arbor, Mich. Hay-press.....	700,697	May 20	2621	700	90	1946

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Moore, Eas L., Chicago, Ill. Boiler	698,988	May 13	149	345	90	1497
Moore, George A., Brookline, Mass., assignor to Moore Talking Scale Company. Weighing-machine	702,985	June 24	2145	728	90	2011
Moore, George B., St. Louis, Mo. Display-rack	702,986	June 24	1760	285	90	2477
Moore, George J., and D. C. Graham, Mo. Apparatus for demonstrating the phenomena of electrical storms	702,989	May 20	2720	697	90	1791
Moore, George M., Buffalo, N. Y. Safety appliance for elevators	698,991	Apr. 29	3675	677	90	798
Moore, Harvey A., (See Fouts, Albert, assignor.)						
Moore, Hugh K., Lynn, Mass., assignor to Moore Electrolytic Company, Portland, Me., and Boston, Mass. Producing caustic	702,990	June 24	2997	928	90	2999
Moore, James F., Fairland, Ind. Tur. Chair	700,007	May 13	1897	419	90	1999
Moore, John D., New York, and F. M. Martin, Brooklyn, N. Y.; said Moore assignor to Clayton Fire Extinguishing & Disinfecting Company. Apparatus for generating sulfur dioxide	700,007	May 20	2720	698	90	1792
Moore, John D., New York, and F. M. Martin, Brooklyn, N. Y.; said Moore assignor to Clayton Fire Extinguishing & Disinfecting Company. Charging compartments with gas	700,008	May 20	2724	698	90	1793
Moore, John D., New York, and F. M. Martin, Brooklyn, N. Y.; said Moore assignor to Clayton Fire Extinguishing & Disinfecting Company. Extinguishing fire	700,009	May 27	2913	699	90	1899
Moore, John W., (See White, Joseph A., assignor.)						
Moore, Louis, Council Grove, Kans. Cook-bucket	700,006	May 27	2914	699	90	1899
Moore, Matthew R., assignor to Atlas Engine Works, Indianapolis, Ind. Dash-pot	697,944	Apr. 15	2881	688	90	1899
Moore, Peter N., (See Hennessey and Moore.)						
Moore, Pusey W., (See Moore, Ed W., assignor.)						
Moore, Robert B., San Francisco, Cal. Hooping-machine	702,004	June 10	1281	364	90	2999
Moore Talking Scale Company. (See Moore, George A., assignor.)						
Moore, Willard T., (See Foster and Beaumont, assignors.)						
Moore, William H. S., West Chicago, Ill. Combination-lock	699,945	May 13	1897	388	90	1479
Moore, William H., et al. (See Taber, Mott R., assignor.)						
Moran, James, New York, N. Y. Combination furniture	702,990	June 10	1710	355	90	2477
Moran, Mary C., Newton, Mass. Adjustable sleeve-form	700,000	May 20	2720	698	90	1792
Moran, Patrick I., (See Donohue, James B., assignor.)						
Moran, Thomas W., Louisville, Ky. Safety fuel-tank for automobiles	701,754	June 2	980	187	90	2999
Morand, Fausto, Rome, Italy. Electric furnace	701,818	May 27	4070	997	90	3099
Mordant and Company, S. (See Little, Charles E., assignor.)						
Morehouse, John W., Salt Lake City, Utah. Truck-wrench	698,979	Apr. 1	388	79	90	74
Morehouse, Harris. (See Griffith and Morehouse.)						
Morrell, Louis A., Paris, France. Manufacturing glass	697,990	Apr. 2	1767	691	90	690
Morrell, Louis A., Paris, France. Manufacturing glass	698,728	Apr. 29	4484	779	90	1999
Morrell, Louis A., Paris, France. Manufacturing glass	697,991	Apr. 2	1767	691	90	690
Morgan, Construction Company. (See Edwards, Victor E., assignor.)						
Morgan, Daniel F., Toledo, Ohio. Hand-protector	702,911	June 24	2976	921	90	2999
Morgan, David J., Barry, England. Hand-power brake for railway-wagons	698,979	May 6	148	38	90	1999
Morgan, Edward M., Westmount, Canada. Inhaler	702,144	June 10	1281	361	90	2445
Morgan, George J., and G. T. Tibbott, Shipley, England. Coin-operated vending-machine	698,728	Apr. 1	388	79	90	141
Morgan, George O., et al. (See Cohen, George W., assignor.)						
Morgan, Henry W., Rochester, N. Y. Rolling-machine	698,498	Apr. 1	130	28, 29	90	84
Morgan, John R., (See Wallace, John G., assignor.)						
Morgan, John W., San Antonio, Tex., assignor to Tennessee Felt Manufacturing Company, West Nashville, Tenn. Cotton-picker for forming mattress-bats	698,985	Apr. 29	3697	698	90	2999
Morgan, Ralph L., (See Dannenberg and Morgan.)						
Morgan, Ralph L., Toledo, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Pump for vehicles	697,000	Apr. 8	1264	298	90	399
Morgan, Thomas B., (See Walman, Seaver, and Morgan.)						
Moriarty, Harry. (See Foster, Moriarty, and Jacobson.)						
Moritz, Joseph F., Lawrence, Mass. Barrel-cover	698,904	May 13	1804	308	90	1498
Moritz, Joseph F., Lawrence, Mass. Barrel-cover	698,905	May 13	1805	308	90	1498
Moritz, Joseph F., Lawrence, Mass. Barrel-cover	700,008	May 13	1806	419	90	1999
Morison, Donald H., Hartlepool, England. Food-water cleaner	702,979	June 17	3088	920	90	2991
Morison, John. (See Wright and Morison.)						
Morison, John T., Pittsburgh, Pa. Compound trans-rod	702,984	June 10	1713	365	90	2477
Morris, Alfred J., Victoria, Canada. Chair	700,000	May 20	2720	698	90	1792
Morris, Arthur J., and L. W. Horstfeldt, Minneapolis, Minn.; said Morris assignor to said Horstfeldt. Hill-pull supporter	700,000	May 6	144	38	90	1999
Morris, Charles, Cincinnati, S. C. Morris, New York, N. Y., executrix. Hand-punch	698,930	May 6	144	38	90	1999
Morris, Sarah C., executrix. (See Morris, Charles.)						
Morris, Albert, Reservoir, Va. Fish-drying apparatus	700,000	June 10	1713	365	90	2477
Morris, Alexander G., Tyrone, Pa. Crusher	698,990	Apr. 29	4088	1098	90	1114
Morris, Charles A., Glenridge, N. J. Hoisting and dumping apparatus	698,990	May 13	1806	308	90	1498
Morris, Charles L., Fairbury, Nebr. Cream-separator	697,945	Apr. 15	2884	688	90	1899
Morris & Company. (See Morris and Staples, assignors.)						
Morris, Edgar R., (See Morris and Beaumont.)						
Morris, Emanuel S., St. Louis, Mo. Nut-lock	698,989	May 13	1806	308	90	1498
Morris, Harry P., assignor of one-half to J. C. Long, Chicago, Ill. Oil-atomizer	700,797	May 27	2907	798	90	2911
Morris, Jackson A. M., Leeper, Mo. Fan	701,078	May 27	2907	798	90	2911
Morris, John, Jr., Boston, England. Coupling for hose-pipes, &c.	700,798	May 27	2907	798	90	2911
Morris, John O., (See Phelps and Morris.)						
Morris, Lewis E., and E. H., and C. L. Schmecker, Dixon, Ill. Oil or gasless can	701,798	June 2	981	187	90	2999
Morris, Robert, Le Crosse, Wis. Yoke and draft-bar for couplings	700,897	May 20	2441	597	90	1710
Morris, Thomas G., Chicago, Ill. Floor-hinge	700,921	May 20	2186	694	90	1999
Morris, William M., Yardville, and E. M. Staples, Elizabeth, N. J., assignors to Morris & Company. Basket of textile material	701,985	June 2	980	187	90	2999
Morrison, Eugene T., (See Andrews and Morrison.)						
Morrison, Ezra L., et al. (See Lewis, John Y., assignor.)						
Morrison, James, Toronto, Canada. Compression-valve	702,978	June 17	2918	674	90	2997
Morrison, John C., et al. (See Derrigo, John T., assignor.)						
Morrison, John C., et al. (See Derrigo, John T., assignor.)						
Morrison, William, assignor to Helton-Upton Company, Chicago, Ill. Forming second-ary battery grids	701,915	June 10	1281	365	90	2477
Morrison, William, assignor to Helton-Upton Company, Chicago, Ill. Saw for making secondary-battery grids	701,916	June 10	1281	365	90	2477

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Morrison, William, assignor to Helton-Upton Company, Chicago, Ill. Secondary battery	701,917	June 10	1282	366	90	2471
Morrison, William, assignor to Helton-Upton Company, Chicago, Ill. Means for preventing the distortion of secondary-battery plates during forming	701,918	June 10	1284	367	90	2471
Morrow, John. (See Markham, Andrew J., assignor.)						
Mors, Emilio L. P., Paris, France. Speed and direction changing mechanism	701,973	May 27	2908	678	90	2911
Morse Chain Company. (See Morse, Frank L., assignor.)						
Morse, Everett F., Transamberg, N. Y. Gaging temperatures of heated substances	698,978	Apr. 1	909	210	90	199
Morse, Everett F., Transamberg, N. Y. Apparatus for gaging temperatures of heated substances	698,979	Apr. 1	1008	294	90	512
Morse, Frank L., assignor to Morse Chain Company, Transamberg, N. Y. Chain-wheel	698,981	Apr. 29	4089	1098	90	1115
Morse, James W., Baton Rouge, La. Medium for polishing parts of boots or shoes	697,185	Apr. 8	1428	386	90	1999
Morse, James W., Baton Rouge, La. Medium for polishing parts of boots or shoes	697,186	May 6	1428	386	90	1999
Morse, John E. and Machine Company. (See Abraham, Thomas, assignor.)						
Morse, William and Company. (See Harvey, Minor, assignor.)						
Morrell, Arthur L., Milwaukee, Wis. Revolving chair	699,989	May 12	1491	348	90	1497
Morse, Leonidas W. (See Doney, Alfred, assignor.)						
Morse, Stephen B., Rahway, N. J. Lamp-burner	701,921	June 10	1295	260	90	2472
Mortenson, Morten. (See Nolan and Mortenson.)						
Morton Trust Company, trustees. (See Martin, Hiram P., assignor.)						
Morton, William G. (See Leach, Eugene W., assignor.)						
Mosbach, Henry, Jr., Philadelphia, Pa. Bicycle-support	701,370	June 3	125	29, 34	90	2149
Moschney, W. Gray. (See Mayo, David C., assignor.)						
Moss, Thomas F., New York, N. Y. Handle for a number of implements	698,986	Apr. 8	1171	269	90	269
Moss, Thomas F., New York, N. Y. Handle for a number of implements	697,988	Apr. 15	2705	511	90	680
Mosher, Charles D., New York, N. Y. Motor-vehicle	697,405	Apr. 15	2935	595	90	280
Mosher, De Witt C., Colorado City, assignor to C. M. MacNeill, Colorado Springs, Colo.	699,211	May 6	146	37	90	1295
Mosher, De Witt C., Colorado City, assignor to C. M. MacNeill, Colorado Springs, Colo.	699,212	May 6	147	37	90	1295
Mosher, John A., Chicago, Ill., assignor to Adams and Westlake Company. Acetylene-gas generator	701,986	June 1	577	193	90	2482
Mosher, John A., New York, N. Y. Electric ignition device	698,042	Apr. 29	3079	571	90	719
Moss, Eric, Fort Arthur, Tex. (See Ball, Walter J., assignor.)	698,988	Apr. 29	3098	594	90	309
Moss, Eric, Fort Arthur, Tex. (See Ball, Walter J., assignor.)	701,989	June 17	2880	699	90	2708
Mosberg & Co., the Manufacturing Company. (See Arnold, Lucien F., assignor.)						
Mosberg, Oscar F., assignor to M. E. Johnson, Fitchburg, Mass., executrix of Iver Johnson, deceased. Firearm-lock	697,216	Apr. 15	2128	472	90	495
Mosberg, Oscar F., assignor to M. E. Johnson, Fitchburg, Mass., executrix of Iver Johnson, deceased. Revolving firearm	697,217	Apr. 15	2128	472	90	495
Mosberg, French Co. (See Wardwell and Kicker, assignors.)						
Mossman, James, Westerville, Ohio. Combined wire stretcher, cutter, splicer, and staple-puller	699,213	May 6	146	37	90	1295
Mott, Charles P., Millford, Pa. Portable house	699,990	Apr. 8	1172	269	90	269
Mott, Charles P., Millford, Pa. Portable house	699,991	Apr. 1	508	160	90	163
Mott, Ernest, Jamaica, S. C. Cotton-baling machine	699,992	Apr. 1	508	160	90	163
Mouton, Thomas. (See Egan, James and Egan.)						
Moulton, Carrie E., Washington, D. C. Book-holder	699,218	Apr. 15	2128	472	90	495
Moulton, Carrie E., Washington, D. C. Window-bracket	699,219	May 6	146	37	90	1295
Mounce, Joseph L. (See Smith and Mounce.)						
Mountford, Sidney, New York, N. Y. (See Smith and Mounce.)	702,000	May 20	3068	701	90	1948
Mounette, Oliver J., Rockaway Beach, N. Y. Acetylene-gas generator	699,220	Apr. 29	3098	594	90	309
Mowery, William R., et al. (See Loff, George, assignor.)						
Moyer, Harry V., et al. (See Ratz, James E., assignor.)						
Mray, Charles J., Clarkson, N. Y. Horse-detacher	699,993	May 12	1999	288	90	1476
Muck, Ulmrich G. (See Mann and Muck.)						
Muckie, John B., et al. (See Muckie, Mark R., Jr., assignor.)						
Muckie, Mark R., Jr., assignor of one-third to J. S. Muckie and T. C. Smith, Philadelphia, Pa. Locking device for elevators	701,975	June 10	1284	364	90	2465
Muddox, H. C. (See Seave, Robert E., assignor.)						
Mueller, Adolph, et al. (See Savage, Thomas A., assignor.)						
Muehler, Joseph E., Cairo, Ill. Sifter	699,997	Apr. 8	1175	269	90	269
Muhler, John H., Bannock, Ind. Attachment for corn-plumbers	700,000	Apr. 29	3097	599	90	1798
Mullford, Harry K., Philadelphia, Pa. Vaccination-shield	702,001	June 24	3790	929	90	2881
Mulholland, Richard, Dunstable, Pa. Rubber-thud wheel	698,992	Apr. 1	549	186	90	119
Muller, Arthur, New Brunswick, N. J. Apparatus for unloading ships' cargoes	700,002	May 27	2905	709	90	1908
Muller, William G., Pomona, Cal. Shoe-dryer	700,003	May 29	1811	480	90	1880
Muller, Carl, Bremen, Germany. Hat-block	700,004	Apr. 8	1384	348	90	289
Muller, Charles E., Peterson, and J. E. Jackson, North Haledon, N. J. Stop-motion for looms	700,005	May 27	2915	681	90	1999
Muller, Ernest W., assignor to E. Krantz, Brooklyn, N. Y. Electrical outlet-box	699,995	May 27	181	32	90	1293
Muller, Frank, Philadelphia, Pa. Lock for milk-receptacles	700,006	June 1	549	187	90	1170
Muller, Frederick C., Brooklyn, N. Y. Electric railway-signal	700,007	June 1	549	187	90	2870
Muller, Hermann, Leipzig, Germany. Power-indicator	700,008	May 11	1938	497	90	1295
Muller, John D., New York, N. Y. Locking device for printing presses	699,996	Apr. 29	3040	1098	90	1111
Muller, John D., New York, N. Y. Apparatus for printing presses	699,997	Apr. 29	3040	1098	90	2882
Mulliken, Levin E., Trappe, Md. Combined lock and latch	697,188	Apr. 8	1428	387	90	1999
Mulliken, Levin E., Trappe, Md. Sand-drier	699,998	Apr. 1	285	80	90	74
Mumford, James A., New York, N. Y. Self-loading bucket for dredging	699,999	Apr. 1	287	80	90	74
Mumma, Ernest, Berlin, Prussia, to the Brit. Germany. Pipe-tee	697,187	Apr. 25	2935	595	90	280
Munns, Edwy A. (See Burns, Henry R., assignor.)						
Munro, R. E. (See West, Louis G. M., assignor.)						
Muns, Charles W., Detroit, Mich. Extension-table	702,009	May 15	2125	465	90	1999
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,010	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,011	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,012	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,013	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,014	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,015	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,016	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,017	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,018	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,019	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,020	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,021	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,022	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,023	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,024	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,025	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,026	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,027	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,028	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,029	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,030	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,031	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,032	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,033	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,034	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,035	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,036	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,037	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,038	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,039	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,040	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,041	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,042	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,043	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,044	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,045	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,046	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,047	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,048	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,049	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,050	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,051	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,052	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,053	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,054	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,055	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,056	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,057	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,058	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,059	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,060	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,061	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,062	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,063	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,064	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,065	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,066	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,067	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,068	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,069	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,070	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,071	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,072	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,073	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,074	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,075	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,076	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,077	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,078	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,079	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,080	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,081	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,082	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,083	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,084	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,085	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,086	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,087	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,088	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,089	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,090	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,091	May 29	3799	934	90	1798
Murdoch, James K., Detroit, assignor to Windsor Paper Company, St. Clair, Mich. Paper attachment	702,092	May 29	3799	93		

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Murphy, John. (See Thompson, Walter, assignor.)	702,007	June 17	2525	578	90	9008
Murphy, John F., Adrian, Mich. Dress shield.	699,699	Apr. 1	583	128	90	120
Murphy, John F., assignor of one-half to G. B. M. Senger and H. R. Clark, Adrian, Mich. Dress shield holder.	699,704	May 13	1280	286	90	1440
Murphy, Thomas J., Montreal, Canada. System of armature-winding for electric motors.	697,990	Apr. 15	2787	618	90	680
Murphy, William B., New York, N. Y. Glove-fastening.	698,945	Apr. 29	4084	1084	90	1064
Murray, Donald, New York, N. Y. Actuating mechanism for key-operated machines.	701,080	June 10	1187	280	90	2061
Murray, George C., Chicago, Ill. Bolster for railway-cars.	698,690	Apr. 1	535	127	90	190
Murray, John E., Washington, Pa. Educational device.	699,698	May 13	1100	328	90	1414
Murray, Michael W., Milton, Mass. Separable screen-hinge.	702,879	June 17	3019	874	90	2747
Murray, Thomas W. L., Newbern, Tenn. Stovepipe-ventilator.	697,519	Apr. 15	2127	478	90	486
Muscatello, Augusto, Berlin, Germany. Box or cage pile.	698,908	Apr. 29	4911	1064	90	1118
Musgrave, Herbert E., and G. A. Barnes, Bolton, England. Means for cutting cloth.	698,904	Apr. 29	4908	1064	90	1118
Musker, Arthur. (See Musker and Hay.)	701,981	June 10	1186	281	90	2289
Musker, Charles and A., and W. G. Hay, Liverpool, England. Controlling the generation of steam.	700,498	May 20	2000	498	90	1748
Musker, Nelson, assignor of one-half to J. E. Hackel, Worcester, Mass. Bottle-labeling machine.	700,181	May 18	1904	458	90	1586
Mutual Electric Trust. (See Wright, Arthur, assignor.)	702,391	June 24	3701	988	90	2821
Mussey, William H., Dayton, Ohio. Motor-cyle.	696,598	Apr. 1	239	61	90	73
Myer, Sydney, and G. Myler, England. Scooper and fitting for bottles.	696,598	Apr. 1	239	61	90	73
Myers, A. Harry. (See Edmonson and Myers.)	698,795	Apr. 29	2696	708	90	1008
Myers, Daniel, et al. (See Donovan, Alford, assignor.)	698,795	Apr. 29	2696	708	90	1008
Myers, Emma E., Pittsburg, Pa. Metallic tie and rail-fastener.	698,795	Apr. 29	2696	708	90	1008
Myers, Emma E., Pittsburg, Pa. Railway-rail.	698,795	Apr. 29	2696	708	90	1008
Myers, Helen T., Colorado Springs, Colo. Cooling-tub.	698,795	Apr. 29	2696	708	90	1008
Myers, Henry B., Covington, Ky. Liquid-container.	698,795	Apr. 29	2696	708	90	1008
Myers, Jacob, et al. (See Donovan, Alford, assignor.)	698,795	Apr. 29	2696	708	90	1008
Mythic Reduction Company. (See Long, Frederic H., assignor.)	700,980	June 24	3149	734	90	2618
Nace, Florence M., San Francisco, Cal. Calendar.	700,545	May 20	2604	640	90	1794
Nadeau, Adolphe, Fitchburg, Mass. Combined chair and cradle.	697,990	Apr. 15	1088	270	90	871
Nadel, David, Berlin, Germany. Embroidering-machine.	697,970	Apr. 8	1054	271	90	873
Nadel, David, Berlin, Germany. Pattern mechanism for embroidering-machines.	700,461	June 17	2148	486	90	2608
Nadrowald, Johannes, Dresden, Germany. Turbine wheel.	700,972	May 27	2680	581	90	1970
Neef, Paul, Argentina, Kans. Apparatus for fixating ores.	701,319	May 27	4078	987	90	2007
Neef, Paul, New York, N. Y. Apparatus for the manufacture of coke.	697,680	Apr. 15	2006	508	90	588
Needing-Leslie Tiling Company. (See Leslie, Benjamin F., assignor.)	698,900	May 13	1088	270	90	1886
Negel, Friedrich, assignor to F. Krupp, Essen, Germany. Freight-car.	701,008	June 3	581	187	90	2080
Negel, Oskar, New York, N. Y. Making spelter.	700,546	May 20	2605	641	90	1794
Negle, Augustus F., Montclair, N. J., assignor to E. H. Gowing, Reading, Mass. Mechanical stoker.	702,076	June 24	3317	708	90	2644
Nelance, Charles, Cranford, N. J. Water-heater and steam-generator.	698,998	Apr. 1	507	127	90	181
Nemack, Thomas H. (See Hartley, Nemack, and Newhall.)	702,225	June 10	1984	484	90	2507
Nemeyer, Frank L., St. Joseph, Mo. Puzzle.						
Nash, F. W., et al. (See Smith, Edward A., assignor.)						
Nash, Lewis H., South Norwalk, Conn., and F. B. King, Brooklyn, assignors to National Motor Company, New York, N. Y. Water-motor.						
Nathan, Frederic L., J. M. Thomson, and W. Rinkoul, Waltham Abbey, England. Apparatus for the manufacture of nitroglycerin.						
Nathorst, Chas. E., et al. (See Johnson, Lafayette W., assignor.)						
National Bread Company. (See Lea, Joseph, assignor.)						
National Burial Device Company. (See Kinney, Richard E., assignor.)						
National Carbon Company. (See Fishell and Clymer, assignors.)						
National Carbon Company. (See Laughlin, Robert D., assignor.)						
National Carbon Company. (See Zellers, Mahlon M., assignor.)						
National Cash Register Co. (See Thompson, Ralph P., assignor.) (Reissue.)						
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Carroll, Thomas, assignor.)						
National Cash Register Company. (See Chal, Joseph P., assignor.)						
National Cash Register Company. (See Marr, Alexander W., assignor.)						
National Compressing Scale Company. (See Colmer, John W., assignor.)						
National Dry Kilo Company. (See Gertard, Edward, assignor.)						
National Electric Hose Spraying Company. (See Weiss, George G., assignor.)						
National Enameling & Stamping Co. (See Knapp, George W., assignor.)						
National Folding Box & Paper Company. (See Lynch and Hibson, assignors.)						
National Foundry and Machine Company. (See Reeder and Previlla, assignors.)						
National Lock Washer Company. (See Hoyt, Daniel, assignor.)						
National Malleable Castings Company. (See Krashau, Harry T., assignor.)						
National Malleable Castings Company. (See Whitlock, Frederick B., assignor.)						
National Motor Company. (See Nash and King, assignors.)						
National Photomicrograph Company. (See Aylsworth and Miller, assignors.)						
National Specialty Manufacturing Co. (See Piper, Robert H., assignor.)						
National Tag Co. (See Kuhns, John P., assignor.)						
National Tube Company. (See Haggie, David, assignor.)						
Nawson, Joseph, Jersey City, assignor to Perfection Music Box Company, Newark, N. J. Note-theft or music-disk.	698,910	Apr. 1	997	288	90	811
Naylor, George. (See Myer and Naylor.)						
Neahr, Jacob E., Buffalo, assignor to Wagner Typewriter Company, New York, N. Y. Type-writing machine.	700,973	May 27	2688	582	90	1971
Neal, George P., Evansville, Ind. Automatic unlatching device for animals, and fire escape and extinguisher.	700,985	May 20	2177	486	90	1886
Neal, John N. (See Tripp, Darius N., assignor.)	698,988	Apr. 8	1179	284	90	870
Neale, Charles C., Minneapolis, Minn. Grain-sow indicator.						
Neale, George F., et al. (See Cohen, George W., assignor.)						
Neary, John, assignor to Kokomo Rubber Company, Kokomo, Ind. Apparatus for applying rubber tires to vehicle-wheels.	697,000	Apr. 8	1180	285	90	870
Neave, John H., Macclesfield, England. Making hats and articles produced thereby.	699,599	May 6	100	40	90	1908
Neef, William, Dreny, Tex. Wire-fence tool.	701,700	June 3	380	180	90	2008

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Nealey, Joseph P., Centralia, Wash. Adjustable fire-box for stoves.	698,818	Apr. 29	2980	704	90	811
Neely, Charles W., Philadelphia, Pa. Index-card for duplicate whist.	698,841	Apr. 29	4077	1003	90	1008
Neely, Samuel M., Chester, S. C. Cotton-press.	698,063	Apr. 29	3079	679	90	708
Neher, John F., Baginaw, Tex., and N. N. Neher, Stockton, Kans. Sash-fastener.	698,988	May 6	108	40	90	1908
Neher, Noah N. (See Neher, John F. and N. N.)						
Nehls, William A. (See Wilkinson and Nehls.)						
Nehring, Ulrich, New York, N. Y. Camera and focusing-finder therefor.	701,394	June 24	3704	988	90	2828
Neill, William J., New Britain, Conn. Combination-lock.	697,001	Apr. 15	2087	507	90	588
Nell, John W., Cincinnati, Ohio. Automatic pressure-governor.	698,671	Apr. 1	148	84	90	85
Nell, William, Newark, N. J. Air-brake connection.	701,378	May 27	4176	966	90	2005
Neill, James W., and J. H. Burdett, Salt Lake City, Utah. Recovering metals from ores.	700,588	June 17	2608	641	90	2008
Nelson, Thor H. (See Jacobson, Edward B., assignor.)						
Nelson, John, Larchmont, N. Y. Range-finder.	700,547	May 20	2606	641	90	1795
Nelson, John, Larchmont, N. Y. Range-finder.	697,741	Apr. 15	2080	504	90	588
Nelson, György, Lugos, Austria-Hungary. Beehive.	698,938	May 6	800	186	90	1941
Neller, Albert H., Mapleton, Minn. Cord-cutting knife for grain-binders.						
Nelson, Charles O., assignor of eleven-fifteenths to H. M. Capron, Winnetka, Ill. Bridge-ing for joists.	700,488	June 17	2180	486	90	2035
Nelson, John C., Dayton, Tenn. Car-coupling.	700,588	June 10	2608	641	90	2008
Nelson, John T., Sioux Falls, S. D. Corner-support for picture-frames.	700,548	May 20	2607	642	90	1795
Nelson, Knud, Chicago, Ill. Negative-plate holder for cameras.	698,741	Apr. 29	4485	979	90	1004
Nelson & Krenner. (See Andred, William E., assignor.)						
Nelson, Peter J. (See Marquette and Nelson.)						
Nelson, Peter J., Baltimore, Md. Construction of forts.	701,028	June 10	1140	281	90	2008
Neri, Aristide, Hoboken, N. J. Telephone.	697,988	Apr. 15	2187	473	90	487
Nernst Electric Light. (See Sheppard, Eustace G., assignor.)						
Nethery Hydraulic Valve Company. (See Nethery, Joseph W., assignor.)						
Nethery, Joseph W., Indianapolis, Ind., assignor to Nethery Hydraulic Valve Company, Indianapolis, Ind.; New York, N. Y., and Jersey City, N. J. Valve.	700,328	June 10	1985	484	90	2507
Nettleton, John L., Waterbury, assignor of one-half to R. Marsh, Thomaston, Conn. Window-shutter.	702,146	June 10	1656	358	90	2447
Neuens, Michael W., assignor to Western Implement Company, Port Washington, Wis. Grinding-machine.	700,528	May 20	2178	486	90	1008
Neuens, Michael W., assignor to Western Implement Company, Port Washington, Wis. Grinding-machine.	700,518	June 24	3678	922	90	2008
Neumann, John W., assignor of one-half to J. E. Norris, Louisville, Ky. Liquid-fuel burner.	698,408	Apr. 29	2708	680	90	845
Neumann, John W., assignor of one-half to J. E. Norris, Louisville, Ky. Liquid-fuel burner.	700,980	June 17	2980	704	90	2747
Neumann, John W., assignor of one-half to J. E. Norris, Louisville, Ky. Liquid-fuel burner.	698,478	Apr. 1	148	85	90	86
Neumeyer, Horace F., Macungie, Pa. Hose-nozzle.	698,584	May 6	801	186	90	1941
Neuray, Thomas, Liège, Belgium. Oil-filter.	700,514	May 20	2605	642	90	1794
Neuser, Henry. (See Neuser, John, assignor.)						
Neuser, John, Woden, Iowa, assignor to H. Neuser, Manitowish, Wis. Windmill.	698,400	Apr. 29	2708	680	90	845
New Brown and Supply Company. (See Brown, Theodore H., assignor.)						
New Haven Novelty Machine Company. (See Luke, Charles, assignor.)						
New Hest Machine Manufacturing Company. (See Hest, De Kerkse J. T., assignor.)						
New Idea Printing Machine Company. (See Williams, John F., assignor.)						
Newark Machine Company. (See Kinney, Richard E., assignor.)						
Newberry, Spencer B. (See Kelly and Newberry.)						
Newberry, Spencer B., assignor to Sandusky Portland Cement Company, Sandusky, Ohio. Measured-feed apparatus.	698,000	May 12	1101	288	90	1418
Newell, Augustus, Pasadena, assignor to Perfect Sliding Door Company, Los Angeles, Cal. Lock for sliding doors.	700,887	May 20	2180	486	90	1987
Newell, Frank C., Wilkesburg, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Automatic regulator for electric circuits.	698,473	Apr. 1	148	85	90	86
Newhall, Henry B. (See Cook, John H., assignor.)						
Newhall, John. (See Hartley, Nemack, and Newhall.)						
Newhouse, Oscar, San Francisco, Cal. Rendering sharp and even cutting edges of implements.	697,980	Apr. 15	2189	476	90	487
Newhouse, Ray C., Columbus, Ohio. Sand-blend.	698,408	May 6	801	186	90	1941
Newman, Frederick S., Springfield, Mass. Illustrating apparatus.	701,374	June 3	381	180	90	2008
Newman, Marshall P., Watertown, Mass. Hinge.	698,510	Apr. 29	2708	680	90	845
Newman, William D., Patoka, Ill. Bed-brace.	701,398	June 10	1141	288	90	2008
Newport, Rodman B., Philadelphia, Pa. Treating garbage.	700,528	June 24	3678	922	90	2008
Newton, Albert S., Providence, R. I. Sanitary trap.	698,817	Apr. 29	2984	704	90	2750
Newton, Guy D., Cleveland, Ohio. Pumping power for oil-wells.	701,497	June 3	382	180	90	2008
Newton, Herbert B. (See Ayer, Albert E., assignor.)						
Newton, Herbert B. (See Webster, Harold A., assignor.)						
Newton, Herbert B. (See Webster, Harold A., assignor.)						
Newton, William J., New York, N. Y. Electrical switch.	700,980	June 24	3180	704	90	2018
Nicholas, William F., Chicago, Ill. Flat-iron heater.	698,710	May 13	1108	288	90	1418
Nichols, Reuben, Auckland, New Zealand. Fire-escape and fire-alarm folding ladder.	700,078	May 13	1018	481	90	1476
Nichols, Blanche S., New Britain, Conn. Collar-foundation.	698,887	May 13	1400	388	90	1476
Nichols, Frank L., assignor of one-half to W. W. Bestwick, Brooklyn, N. Y. Gas-coupling.	700,878	June 10	1987	484	90	2008
Nichols, Seth A., Fowlerville, Mich. Hay-fork.	697,748	Apr. 15	2088	504	90	587
Nichols, William H., assignor of one-half to E. E. Lartabee, Bennington, Vt. Insulator.	697,001	Apr. 8	1179	285	90	871
Nicholson, Frank W., Jackson, Mich. Shade for photographic lenses.	698,980	Apr. 29	4040	1080	90	1117
Nickerson, Freeman, Jr., Fall River, Mass. Tail-board spring.	700,801	May 27	3619	780	90	1918
Niedermaier, Edward, Hamilton, Ohio. Underpart.	700,588	May 20	2608	641	90	2008
Niehau, Otto, West Seneca, Cal. Adjustable window-curtain.	700,708	May 20	2607	642	90	1794
Nielsen, Anton E., Brooklyn, assignor to Sterling Supply & Manufacturing Company, New York, N. Y. Fan-register.	700,708	May 20	2607	642	90	1794
Nielsen, Anton E., and F. Bentzen, assignors to G. Haas, Brooklyn, N. Y. Curved-hat-stay-hanging machine.	697,871	Apr. 15	2170	474	90	481
Nielsen, Christian, Sr., and Christian, Jr., Chicago, Ill. Game.	697,088	Apr. 15	2088	507	90	588
Nielsen, Herman, assignor of one-half to F. W. Ofeldt and Sons, South Brooklyn, N. Y. Pumping-engine.	700,974	May 27	3608	680	90	1971
Nielsen, Johannes, Glensgard, by Ringsted, Denmark. Variable mechanism for transmitting motion.	701,318	June 3	580	188	90	2008
Niese, Henry E., assignor to American Sugar Refining Company, New York, N. Y. Storage-tank.	698,180	Apr. 29	2979	717	90	708
Niggl, Emil, San Antonio, Tex. Cheese-cutter.	701,084	June 10	1188	280	90	2008

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Nightingale, Alvin E., Plymouth, Mass. Cranberry-sorting apparatus.	702,568	June 17	2873	541	90	2938
Nightingale, Joseph E., Danvers, Mass. Machine for measuring the areas of surfaces.	701,492	June 3	288	88	90	2129
Niles-Bement-Pond Company. (See Opebourn, Francis B., assignor.)						
Niles, Albert A., Danvers, Tex. Jeweler's tool.	699,788	Apr. 29	4488	980	90	1005
Niles, Axel H., and M. Olson, assignors to A. H. Niles Machine Company, Bridgeport, Conn. Wire straightening and cutting machine.	701,973	June 3	188	38	90	2148
Nileon, Lars G., assignor to S. M. and H. S. Fischer, New York, N. Y., and H. Anderson, Des Moines, Iowa. Oil-feeder.	702,515	June 17	2806	646	90	2794
Nileon, Nils, Wayzata, Minn. Automatic weighing scale.	702,498	June 17	2140	488	90	2268
Nileon, Oscar M., Mansfield, Ia. Evaporating apparatus.	698,798	Apr. 29	4499	919	90	1005
Nileon, Peter F., Jerome, Ariz. Tex. assignor, by mesne assignments, to Union Type-writer Company, Jersey City, N. J. Inkling device for type-writing machines.	702,740	June 17	2808	613	90	2688
Nim, Christian F. J., Hincley, Ill. Photographic camera.	702,584	June 17	2143	487	90	2636
Nivison, William E., Britton, assignor of one-half to C. N. Goodison, Algona, Iowa. Branch country. Filling chair.	702,077	June 24	2218	708	90	2844
Winn, Moses C., Fort Wayne, Ind. Mechanism for converting motion.	700,208	May 20	2428	888	90	1719
Noble, Andrew, assignor to W. G. Armstrong, Whitworth & Company, Limited, Newcastle-upon-Tyne, England. Automatic gun.	702,540	June 10	1721	289	90	2479
Noel, Sylvester D., Indianapolis, Ind. Crest-tile for roofs.	701,376	June 3	188	38	90	2148
Nolan, Patrick E., and M. Mortenson, assignors of three-fifths to D. E. Roberts, T. H. Wolford, and W. H. Locke, Superior, Wis. Dredging apparatus.	697,215	Apr. 8	1886	248	90	280
Nolder, James E. (See Long and Nolder.)						
Nolen, James G., Chicago, Ill. Combination telephone instrument.	697,082	Apr. 8	1184	288	90	271
Nolen, James G., Chicago, Ill. Thermo-electric switch.	697,530	Apr. 15	2140	478	90	487
Nolty, Augustine J., Memphis, Tenn. Folding crate.	697,388	Apr. 8	1798	408	90	408
Nonnenmacher, Clyde S., assignor of one-half to E. S. Richardson, Philadelphia, Pa. Garment-supporter.	702,389	June 24	2615	578	90	2646
Nonnenmacher, Clyde S., assignor of one-half to E. S. Richardson, Philadelphia, Pa. Garment-supporter.	702,390	June 24	2616	577	90	2646
Norcross, Frank C., and J. Mitchell, Lorain, Ohio. Blast-furnace.	700,549	May 20	2508	648	90	1788
Norcross, Orlando W., Worcester, Mass. Flooring for buildings.	698,548	Apr. 29	4008	888	90	913
Norcross, Orlando W., Worcester, Mass. Flooring for buildings.	698,549	Apr. 29	4011	888	90	913
Norcross, Orlando W., Worcester, Mass. Concrete column.	701,377	June 3	170	37	90	2148
Norden-Bittner Electric Company. (See Norden, Mortimer, assignor.)						
Norden, Jacob. (See Spies, Peter H. F., assignor.)						
Norden, Mortimer, assignor to Norden-Bittner Electric Company, New York, N. Y. Electric-lamp socket.	698,218	Apr. 29	3448	708	90	700
Norden, Mortimer, New York, and L. S. Crandall, Brooklyn, N. Y. Switchboard for illuminating electric-lamp signs.	702,148	June 10	1887	288	90	2447
Nordin, Olof, Söderstje, Sweden. Rail-joint connection.	698,584	May 6	184	40	90	1200
Nordyke & Harmon Company. (See Harmon, Daniel W., assignor.)						
Norman, William F., and J. H. Berghausen, Nevada, Mo. Metallic roof-cresting.	700,364	May 20	2408	688	90	1718
Norman, Joseph E., Watertown, N. Y. Air-brake.	697,008	Apr. 8	1188	287	90	271
Norris, Almon E., Cambridgeport, Mass. Friction-clutch.	697,371	Apr. 8	1888	271	90	273
Norris, Almon E., assignor to Rawson & Morrison Manufacturing Company, Cambridge, Mass. Hoisting-bucket.	698,348	May 6	404	98, 94	90	1288
Norris, Almon E., Cambridge, and J. Roughan, Boston, assignors to Rawson & Morrison Manufacturing Company, Cambridge, Mass. Hoisting-bucket.	698,000	Apr. 29	4061	1088	90	1117
Norris, George E., Detroit, Mich. Edge-troughing machine.	698,001	Apr. 29	4068	1087	90	1116
Norris, H. C., et al. (See Hubbell, Thomas J., assignor.)						
Norris, John E. (See Neumann, John W., assignor.)						
Norris, John W., Creston, Ill. Grapple.	698,544	Apr. 29	4014	287	90	913
Norris, William, assignor to T. Coulthard & Company, Limited, Preston, England. Motor-vehicle.	698,308	May 18	1888	204	90	1497
Norstrom, Nils E., Chicago, Ill. assignor of two-thirds to J. Anderson, Salford, and J. E. Richardson, Sterling, Kans. Automatic telephone-exchange.	701,480	June 3	264	58	90	2129
North Brothers Manufacturing Company. (See Furbish, Zachary T., assignor.)						
North & Todd Manufacturing Company. (See Smith, Clarence E., assignor.)						
North-Bow, Kent. (See Schaefer, Carl, assignor.)						
North, Theodore, assignor to Wilcox Manufacturing Company, Aurora, Ill. Trolley-cross-over.	701,988	June 10	1148	288	90	2688
North West State Company. (See Simpson, Frank H., assignor.)						
Northfield, Luke W. (See Merrill and Northfield.)						
Northridge, Hattie A., Brooklyn, N. Y. Mirror attachment for theater-chairs.	700,976	May 27	2888	588	90	1973
Northrop, Frank L., Saco, Me., assignor to Union Water Meter Company, Worcester, Mass. Disk water-meter.	702,341	June 10	1784	289	90	2480
Northrop, Henry H., Chicago, Ill. Vibrato-cosmoauto attachment for pianos.	698,474	Apr. 1	147	38	90	26
Northrop, Herbert H., West Somerville, assignor of one-half to M. Anthony, Wakefield, Mass. Garment-supporter.	702,518	June 17	2808	646	90	2794
Northrop, Jonas, assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom.	697,004	Apr. 8	1188	287	90	273
Northrop, Jonas, assignor to Draper Company, Hopedale, Mass. Self-threading loom-shuttle.	697,005	Apr. 8	1188	287	90	273
Norton, Alfred L. (See Eaton and Norton.)						
Norton, O. E., et al. (See Hubbell, Thomas J., assignor.)						
Norton, Frederick L., Racine, Wis. Pneumatic stacker.	697,688	Apr. 15	2870	288	90	102
Norton, Frederick L., Racine, Wis. Pneumatic stacker.	702,078	June 24	2820	708	90	2844
Norton, Lawrence A., Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Hemmed-cap machine.	702,570	June 10	1780	247	90	2687
Norton, William T., Jr. (See Du Perov, Niles, assignor.)						
Norwood, George A., Jr., et al. (See Taylor, James W., assignor.)						
Norwood, John E., assignor to Baltimore Ball Bearing Co., Baltimore, Md. Side bearing for cars.	697,281	Apr. 15	2148	478	90	487
Nottingham, Julian H. (See Manual and Nottingham.)						
Novak, Jean, Brussels, Belgium, assignor to Compagnie Continentale d'Incandescence de Chauffage (Système Frank et Pottrimol.) Apparatus for generating acetylene gas.	698,044	Apr. 29	4008	888	90	913
Novak, Andre, assignor of one-half to S. Zolter, Trenton, N. J. Train-signal.	697,684	Apr. 15	2871	288	90	102
Novik, Brandt, Cambridgeport, Mass. Ratchet-drill stock and screw-driver.	699,701	May 18	1108	289	90	1418
Novy, Joseph M., et al. (See Hartog, Stephen D., assignor.)						
Nowotny, John S., Madisonville, Ohio, assignor to General Electric Company. Electric lamp.	698,388	May 6	188	40, 41	90	1288

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Noyes, Horatio J., Ashtabula, Ohio. Heating-furnace.	700,838	May 27	2218	708	90	2844
Nüesch, Arnold, Fawil, Switzerland. Cattle-probe.	702,388	June 24	2615	578	90	2646
Nugent, Edgar A., Unionville, N. Y. Can.	699,448	Apr. 29	4007	1087	90	1116
Nuhning, Charles, Cincinnati, Ohio. Fire-extinguishing apparatus.	697,008	Apr. 8	1184	288	90	273
Nutry, John, Brooklyn, N. Y. Instrument for indicating and recording the speed of vehicles.	702,110	June 10	1888	287	90	2424
Nyswonger, Elijah, Hanford, Cal. Fruit corer and seeder.	698,388	May 6	188	41	90	1288
O'Brien, Frank C., Chicago, Ill. Ore-separator.	702,580	June 24	2152	728	90	2612
O'Brien, Hugh, Chicago, Ill. Punch-chuck.	698,748	Apr. 1	408	670	90	704
O'Brien, James J., Boston, Mass. Knitting-machine.	698,048	Apr. 29	4008	888	90	911
O'Brien, Thomas J., and H. L. Allen, Cairo, Ill. Clutch-pulley.	698,218	Apr. 29	3448	708	90	700
O'Brien, Timothy, Paris, Canada. Oarcoal-heater.	700,222	May 20	2428	888	90	1719
O'Doherty, George J., et al. (See Reynolds, James H., assignor.)						
O'Donnell, Terence, Kansas City, Mo. Warning-bag.	701,381	June 24	2617	577	90	2646
O'Hara, Irving A. (See Dieter and O'Hara, assignors.)						
O'Hara, William J., Bridgeport, assignor of one-third to C. F. Tucker, Hartford, Conn. Device for drying hair.	697,748	Apr. 15	2888	588	90	1973
O'Keefe, Patrick, and J. H. Whelan, Orange, Mass. Rail-block clamp.	698,214	Apr. 29	3448	708	90	700
O'Leary, John, assignor of five-sixths to L. Vermilyea, Cohoes, N. Y. Convertible car. (Release.)	11,988	May 20	2187	718	90	1888
O'Leary, Michael, Syracuse, N. Y. Garbage-can.	697,538	Apr. 15	2140	478	90	487
O'Meara, Denis H., Worcester, Mass. Vehicle-wheel.	701,370	June 3	172	37	90	2148
O'Neill, Cornelius F., Paterson, N. J. Sewer basin and trap.	698,478	Apr. 1	180	38	90	26
O'Neill, Cornelius F., Paterson, N. J. Sand-sprinkling machine.	698,004	Apr. 29	4008	1088	90	1116
O'Neill, John F., assignor of one-half to Fulton Iron Works, St. Louis, Mo. Bagging-machine.	701,708	June 3	268	101	90	2628
O'Neill, John F., assignor of one-half to Fulton Iron Works, St. Louis, Mo. Bagging-machine.	700,680	May 20	2408	688	90	1718
O'Shea, James J., St. Louis, Mo. Ironing-machine.						
O'Sullivan, Edward P. (See Turner and O'Sullivan.)						
Oakville Company. (See Boden, George, assignor.)						
Oakville Company. (See Ingraham, Edwin S., assignor.)						
Oatman, George E., McKeesport, Pa. Rail-support.	697,101	Apr. 8	1888	208	90	510
Oberjohns, Henry, Toledo, Ohio. Tube-drawing grip.	701,388	June 10	1144	288	90	2688
Oberlin, Israel. (See Atkinson, Edward E., assignor.)						
Oberly, John L., et al. (See Hall, Edward W., assignor.)						
Obermeyer, Charles J., and J. F. Ambacher, St. Louis, Mo. Window-screen.	698,744	Apr. 1	408	180	90	148
Oberschuer, Robert F., assignor to A. J. Holman & Company, Philadelphia, Pa. Loose-leaf album.	701,087	June 10	1887	208	90	2680
Ocala Foundry and Machine Works. (See Chase, Elmer E., assignor.)						
Odel, Edgar, and E. Hübner, New York, N. Y. Horsehoe.	698,548	Apr. 29	4014	287	90	913
Odel, Robert C., assignor to F. B. Rooney, New York, N. Y. Sofa-bedstead.	698,180	Apr. 29	3878	717	90	742
Odgers, John R., Central City, Colo. Brake-block.	701,388	June 10	1144	288	90	2688
Odin, Frank A. (See Cox and Odin.)						
Oehler, Anilin & Anilinfabrik, Fabrik K. (See Meyer, Theodor, assignor.)						
Oelkelt and Sons, F. W. (See Nielsen, Herman, assignor.)						
Ogilvy, David J., Cincinnati, Ohio. Paint-drier.	698,538	May 6	188	40	90	1288
Ogilvy, David J., Cincinnati, Ohio. Making-paint.	701,370	June 3	172	37	90	2148
Ogle, John H., Windfall, Ind. Flood-gate.	697,180	Apr. 8	1408	288	90	280
Olin, Olof, Söderstje, Sweden. Centrifugal machine.	698,008	Apr. 29	4008	1088	90	1116
Olin, Olof, Söderstje, Sweden. Centrifugal machine.						
Olin, John M., assignor of one-third to C. O. Kjerfve, Chicago, Ill. Ash-thrower and receptacle.	698,048	Apr. 29	4008	888	90	913
Olin, John M., assignor of one-third to C. O. Kjerfve, Chicago, Ill. Ash-thrower and receptacle.	697,744	Apr. 15	2884	588	90	1973
Olin, Peter, assignor of two-thirds to A. L. Deane, Chicago, and J. W. Donnell, Evanston, Ill. Device for holding and releasing fire-doors.	698,008	Apr. 1	188	187	90	121
Olsen, Samuel C., et al. (See Humphrey, Edwin H., assignor.)						
Olsen, August, assignor of one-third to J. C. McKee, Philadelphia, Pa. Stitch-indenting machine.	702,408	June 17	2148	478	90	487
Olsen, August, assignor of one-third to J. C. McKee, Philadelphia, Pa. Stitch-indenting machine.	701,781	June 3	268	101	90	2628
Olsen, August, assignor of one-third to J. C. McKee, Philadelphia, Pa. Stitch-indenting machine.	698,547	Apr. 29	4008	888	90	913
Olsen, Christian, Stoughton, Wis. Cycle propelling mechanism.						
Olsen, John A., Minneapolis, Minn. Fire-alarm.						
Olsen, Mauritz. (See Nilson and Olsen.)						
Olsen, George O. M., Stockholm, Sweden, assignor to De Laval Steam Turbine Company. Apparatus for controlling the speed of steam-turbines.	701,800	June 3	268	101	90	2628
Olsen, Thomas, Waterville, N. Y. Wheel attachment.	698,128	Apr. 29	3878	717	90	742
Oney, James E., Huntington, W. Va. Display device.	698,547	May 6	188	40	90	1288
Oniz, Minnie, Pittsburg, Pa. Ironing-board.	702,548	June 10	1788	248	90	2687
Onward Company. (See Reed, Albert B., assignor.)						
Opel, Frederick W., and J. G. assignors of one-third to H. Wisinger, Ireland, Ind. Wire fence.	700,074	May 18	1816	481	90	1888
Opel, John G. (See Opel, Frederick W. and J. G.)						
Opersand, Franz, assignor to L. Röder, Vienna, Austria-Hungary. Sound-strengthening appliance for telephone-stations.	702,408	June 17	2148	478	90	487
Orcutt, Jerome, assignor to Union Metallic Cartridge Company, Bridgeport, Conn. Cartridge.	701,708	June 3	268	101	90	2628

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Paine, George H. (See Strubler, Charles G., assignor.)						
Paine, George H., Germantown, Pa., assignor to B. T. Hyde, New York, N. Y. Capsule.	700,805	May 27	2818	768	99	1910
Paine, George H., Germantown, Pa., assignor to B. T. Hyde, New York, N. Y. Manufacture of capsules.	700,804	May 27	2820	768	99	1910
Paine, George H., Germantown, Pa., assignor to B. T. Hyde, New York, N. Y. Manufacture of capsules.	702,468	June 17	3181	490	99	2826
Paine, William A., Donnan, W. Va. Rail-joint.						
Painter, George E., Schenectady, N. Y., assignor to General Electric Company. Electric switch.	697,162	Apr. 8	1495	280	99	351
Painter, Jonathan E., Minneapolis, Minn. Loom.	697,745	Apr. 15	2538	565	99	567
Palatable Water Still Company. (See Murphy, Edward E., assignor.)						
Palanach, John P., Fredonia, Wis. Kitchen-cabinet.	699,702	May 18	1104	380	99	1418
Palmer, Karl, Philadelphia, Pa. Circular-knitting machine.	699,549	Apr. 30	4022	888	99	914
Palmer, Karl, Philadelphia, Pa. Circular-knitting machine.	699,550	Apr. 29	4023	889	99	915
Palmer, Karl, Philadelphia, Pa. Stocking.						
Palmer, Arthur P., Waverly, N. Y., and B. L. Phelps, Athens, Pa., assignors of one-third to D. Howard, Cortland, N. Y. Street-sweeper.	701,251	June 8	175	85	99	2144
Palmer, Charles A., Grinnell, Iowa. Casting-flask.	699,926	Apr. 30	4992	1000	99	1119
Palmer, Charles H., and J. W. Deane, Akron, Ohio. Machine for making paper-board blanks.	700,807	May 27	3223	703	99	1911
Palmer, Frederick C., Brooklyn, N. Y. Bolt-anchor.	699,585	Apr. 1	845	82	99	70
Palmer, Frederick C., Brooklyn, N. Y. Bolt-anchor.	699,587	Apr. 1	845	82	99	73
Palmer, George D., and H. Hartley, Birmingham, England. Coin-controlled mechanical toy.	702,080	June 24	3225	704	99	2845
Palmer, Harry N. (See Simpson and Palmer.)						
Palmer, Henry F., Lynn, Mass. Revolving shoe stand or rack.	697,098	Apr. 8	1197	265	99	373
Palmer, Isaac E., Middletown, Conn. Abdominal support.	697,164	Apr. 8	1495	280	99	351
Palmer, Isaac E., Middletown, Conn. Hammock.	699,410	May 6	542	138	99	1285
Palmer, Isaac E., Middletown, Conn. Hammock.	700,979	May 27	3221	824	99	1973
Palmer, Lafayette, Harrisburg, Pa. Railway-switch.	702,113	June 10	1591	322	99	2424
Palmer, Lafayette, Harrisburg, Pa. Railway-switch.	699,561	May 6	508	190	99	1342
Palmer, Merritt W., Hamilton, Mich. Beet-puller.						
Palmer, Merritt W., Hamilton, assignor of one-fourth to E. N. De March, Holland, Mich. Beet-harvester.	699,580	May 6	507	190	99	1343
Palmer, Noyes F., Brooklyn, N. Y. Machine for molding artificial stone.	700,551	May 20	2910	648	99	1736
Palmer, Noyes F., Brooklyn, N. Y. Machine for molding artificial stone.	702,081	June 24	3227	705	99	2846
Palmer, Samuel B., New York, N. Y. Noctile-fastener.	698,319	Apr. 22	2447	756	99	780
Palmer, William H., Middleton, England. Two-speed driving-gear for bicycles.	699,158	Apr. 22	2270	718	99	743
Palmetto Fibre Company. (See Young, McClintock, assignor.)						
Palmquist, Eric W., East St. Louis, Ill., assignor to Lighthouse & Howard Steel Company, St. Louis, Mo. Bolster.	702,318	June 17	3210	545	99	2735
Palmros, Alexander, assignor to Wagner-Palmros Manufacturing Company, Fairmont, W. Va. Link for chains.	697,165	Apr. 8	1496	280	99	352
Palmros, Alexander, assignor to Jeffrey Manufacturing Company, Columbus, Ohio. Mining-machine truck.	702,317	June 17	3209	545	99	2735
Pan American Light Company. (See Mendis, Arthur, assignor.)						
Pangborn, Charles, Kalamazoo, Mich. Composition of matter for welding steel.	700,979	May 27	3222	820	99	1972
Pannell, Charles F., St. Louis, assignor to F. Pannell, Columbia, Mo. Railway-crossing.	702,410	Apr. 20	3705	351	99	545
Pannell, Frederick. (See Pannell, Charles F., assignor.)						
Pansa, Friedrich, assignor to F. Krupp, Essen, Germany. Rotary cutter.	697,976	Apr. 15	1778	315	99	628
Paoli, John, Hoboken, N. J., assignor to Kauffel & Esser Company. Blade-compensator.	701,257	June 10	1148	292	99	2203
Paquette, John J., New Orleans, La. Oil-tank.	702,554	June 17	3274	541	99	2624
Paradis, Samuel, Kansas City, Mo. Magazine-firearm.	699,708	May 18	1105	380	99	1416
Parcells, Charles S., Willard, N. Y. Reversible driving mechanism.	702,543	June 10	1725	390	99	1620
Parcells, Paul, Chicago, Ill. Machine for cutting beveled edges on plate or sheet metal.	702,515	June 24	3279	538	99	2595
Pardee, Henry A. (See Shimer and Pardee.)						
Pardee, Henry A., and E. S. Shimer, assignors to E. J. Shimer and Sons, Milton, Pa. Cutter-head bit.	700,552	May 20	2911	644	99	1736
Parsons, Hermann, Orefeld, Germany. Machine for drawing in warp-threads.	700,075	May 18	1917	422	99	1548
Parsons, Maxine O., Springfield, Mass. Car-route indicator.	702,919	June 17	3211	647	99	2720
Park, James J., St. Louis, Mo. Clamp for drapery-frames.	699,077	Apr. 30	4094	1090	99	1183
Park, John W., Kendallville, Ind. Check-valve for pump-cylinders.	701,267	June 3	508	190	99	2891
Park, William B., Taunton, assignor to Hancock Inspirator Company, Boston, Mass. Revolution-indicator.	699,226	May 6	172	48	99	1210
Parko, Davis & Company. (See MacDonald, James M., assignor.)						
Parker, Alfred E., et al. (See Collier, Louis, assignor.)						
Parker, Charles E., Orange, N. J. Catgut ligature and suture and preparing same.	701,501	June 8	297	90	99	2160
Parker, Clarence L., Los Angeles, Cal. Device for tightening or loosening hoops of tanks, vats, &c.	700,704	May 20	3101	705	99	1840
Parker, Howard, Bellows Falls, Vt. Paper-making machine.	700,553	May 20	2912	644	99	1736
Parker, Howard, Bellows Falls, Vt. Paper-making machine.	700,554	May 20	2914	645	99	1737
Parker, James L. (See Larned, Parker, and Joyce.)						
Parker, John S., Zanesville, Ohio. Making mosaic work.	702,225	June 10	1969	485	99	2606
Parker, Julia A. (See Beaman, George W., assignor.)						
Parker Mills. (See Graham, William S., assignor.)						
Parker, Stearns & Sutton. (See Schan, John F., assignor.)						
Parkes, James H., Nashville, Tenn. Temporary binder.	701,268	June 10	1149	293	99	2264
Parkhurst, Edward G., assignor to Lee Arms Company and Connecticut Trust and Safe Deposit Company, Hartford, Conn. Cartridge-clip.	702,929	June 17	3204	575	99	2745
Parkis, Joseph W., Oxford, Pa. Carburetor for explosive-engines.	702,400	May 27	3126	490	99	2629
Parkis, William E., Chicago, Ill. Electric furnace.	700,906	June 17	3220	704	99	1911
Parlin & Orendorff Company. (See Graham, William S., assignor.)						
Parmeries, James C., Beckley, Mo. Heating and cooking stove.	697,300	Apr. 15	1774	318	99	629
Parmlay, Walter C., Cleveland, Ohio. Concrete-arch construction.	696,386	Apr. 1	394	128	99	177
Parr, Samuel W., Urbana, Ill. Determining the heating capacity of combustibles.	700,585	May 20	2915	645	99	1737
Parson, Henry E., Brooklyn, N. Y. Grate-bar.	702,595	June 17	3275	549	99	2624
Parsons, Annie E., Boston, Mass. Corset.	700,555	May 20	2916	647	99	1736
Parsons, Charles A., Newcaston-upon-Tyne, England. Screw-propeller.	700,565	May 20	2438	623	99	1719

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Panco, William H., Fairfield, Iowa. Wood-saw	700,224	June 17	3220	675	90	3760
Panzer, John E., Kintbrae, Minn. Vent-closing valve for pumps	697,325	Apr. 8	1820	428	90	408
Panington, Edward J., London, England. Running-gear for vehicles	699,591	May 6	920	220	90	1371
Panington, Edward J., London, England, assignor of one-half to J. W. Plank and G. E. Mills, Carlisle, Pa. Automobile	699,577	Apr. 1	120	30	90	30
Panington, Edward J., London, England, assignor of one-half to J. W. Plank and G. E. Mills, Carlisle, Pa. Condenser for automobiles	699,478	Apr. 1	120	37	90	38
Panington, Edward J., London, England, assignor of one-half to J. W. Plank and G. E. Mills, Carlisle, Pa. Engine-vehicle	699,494	Apr. 1	680	130	90	121
Pennsylvania Car Wheel Company. (See Sherman, Clifton W., assignor.)						
Pennsylvania Rubber Company. (See Wilson and Chammetter, assignors.)						
Perry, Harry W., Allentown, Pa. Furber-cleaning machine	700,076	May 12	1228	420	90	1063
Pewee, James, Youngtown, Ohio. Garment-stretcher	699,212	Apr. 22	9204	700	90	811
Pewee, James, Youngtown, Ohio. Garment-stretcher	697,325	Apr. 15	2275		90	584
Perfect Sliding Door Company. (See Tamm, Alvin, assignor.)						
Perfect Sliding Door Company. (See Tamm, Alvin, assignor.)						
Perfection Mule Box Company. (See Mather, Joseph, assignor.)						
Pertkins, Franklin J., Woburn, Mass. Assignor to Vaughn Machine Company, Boston, Mass.	699,390	Apr. 1	840	22, 23	90	76
Pertkins, Franklin J., Woburn, Mass. Assignor to Vaughn Machine Company, Boston, Mass.	701,080	May 27	3510	875	90	2013
Pertkins, Franklin J., Woburn, Mass. Assignor to Vaughn Machine Company, Boston, Mass.	699,128	Apr. 22	3090	719	90	742
Pertlhofer, Ludwig, Vienna, Austria-Hungary. Automatic fare-collecting apparatus for street-cars or other public vehicles	699,835	May 12	1528	343	90	1260
Perrin, David. (See Tamm, Alvin, assignor.)						
Perrin, Thomas J., Koshkong, Mo. Rotary engine	700,187	May 20	2210	647	90	1720
Perrin, Thomas A., Seymour, Conn. Machine for japanning small articles	701,228	June 3	184	40	90	2145
Perry, George H., Franklin, Tenn. Wagon-gear	699,775	May 15	1109	280	90	1440
Perry, Harry W. (See Frederickson, Kate, assignor.)						
Perry, James S., Kalamazoo, Mich. Assignor, by mesne assignments, to B. O. Hall, Center Sandwich, N. H. Switch and frog	700,511	May 27	3235	703	90	1912
Perry, James W., Shamokin, Pa. Cider drier and separator	699,541	Apr. 1	320	198	90	177
Perry, Joseph L., Auburn, N. Y. Rubber boot or shoe	699,502	May 6	510	191	90	1545
Perry, Ralph P. (See Goodell, John, assignor.)						
Pestell, William (See Chapman and Pestell.)						
Peters, Frank M., and H. H. Hungerford, Chicago, Ill.; said Hungerford assignor to said Peters. Paper-feed mechanism	702,072	June 17	2226	851 852 854	90	2000
Peters, Gershon M., Cincinnati, Ohio. Metallic-cartridge-loading machine	702,151	June 10	1261	353 354 356	90	2445
Petersen, Christian F., Wilmington, Del. Apparatus for launching life-boats from ships.	697,220	Apr. 8	1891	428 404	90	402
Peterson, Ferdinand. (See Erickson and Peterson.)						
Petrie, Edgar A., Berwick, La. Wagon-jack	700,227	May 20	2427	526	90	1712
Petrie, Charles A., Brooklyn, N. Y. Vehicle-tire	695,746	Apr. 1	697	131	90	142
Pettit, Andrew H., Grimsby, Canada. Fruit-grading machine	697,920	Apr. 8	1812	404	90	402
Petty, Cornelius, Oakwood, Tenn. Roast	702,222	June 24	3711	954	90	2222
Peyton, Guy M., Salt Lake City, Utah. Electric alarm	700,220	June 17	2213	790	90	1914
Pfanschmidt, Charles, and J. Siefert, Chicago, Ill. Massage-machine	697,010	Apr. 8	1204	220	90	274
Pfeiffer, Jacob, Rochester, N. Y. Mud-guard for vehicles						
Pfenniger, Anton, assignor to Chemische Fabrik Brugg & Co., vernalde Dr. Zimmermann & Co., Brugg, Switzerland. Green-black sulfur dye and making same	698,220	Apr. 22	2447		90	760
Phaum & Gerlach. (See Belmont, Bruno F., assignor.)						
Pharm, Benjamin F., et al. (See Leighton, Joseph, assignor.)						
Phelps, George H., assignor to George Frost Company, Boston, Mass. Garment-supporter	696,042	Apr. 1	841	156	90	177
Phelps, George H., Newton, assignor to George Frost Company, Boston, Mass. Hose-supporter	696,911	Apr. 1	908	220	90	211
Phelps, George L., and J. O. Morris, assignors to Piano Manufacturing Company, Chicago, Ill. Fly-wheel for harvestors	697,106	Apr. 8	1471	220	90	222
Phelps, Homer L. (See Palmer and Phelps.)						
Philadelphia Baby Carriage Factory. (See Lamplugh, Augustus R., assignor.)						
Philadelphia Baby Carriage Factory. (See Lamplugh and Levi, assignors.)						
Philadelphia Barling Machine Company. (See Thomson, Robert W., assignor.)						
Philadelphia Textile Machinery Company. (See Tate, Hugh J., assignor.)						
Phillip, Robert A., Seattle, Wash. Potential-regulator	700,070	May 12	1204	424	90	1563
Phillip, Peter, Chicago, Ill. Rotary engine	702,674	June 17	2241	852 853 854	90	2090
Phillips, Andrew, St. Louis, Mo., assignor to Pittsburg Electric Machine Company, Pittsburg, Pa. Electric controller	701,006	June 3	800	129	90	2221
Phillips, Andrew, St. Louis, Mo., assignor to Pittsburg Electric Machine Company, Pittsburg, Pa. Electric controller						
Phillips, Andrew, St. Louis, Mo., assignor to Pittsburg Electric Machine Company, Pittsburg, Pa. Electric sweating-robs	701,029	June 3	800	120	90	2222
Phillips, Benjamin. (See Winkley and Phillips.)						
Phillips, Charles M., Larkwood, Md. Removable handle	701,257	June 3	126	40	90	2140
Phillips, Edward, Newport, Ark. Gate	699,551	Apr. 22	4704	1025	90	1025
Phillips, Elwood C., assignor of one-fourth to O. A. Schelte, Chicago, Ill. Culinary chopping-knife	697,157	Apr. 8	1474	220	90	222
Phillips, Elwood C., assignor to Standard Development Company, Incorporated, Chicago, Ill. Curbin	702,214	June 24	3221	922	90	2222
Phillips, Elwood C., London, England, assignor to Larnco Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch terminal	699,043	Apr. 1	922	124	90	177
Phillips, Francis V., Winterport, Pa., assignor to Smith and Phillips Manufacturing Company, Chicago, Ill. Machine for mauling window-frames	699,002	Apr. 22	4022	1020 1100	90	1220
Phillips, Francis V., Winterport, Pa., assignor to Smith and Phillips Manufacturing Company, Chicago, Ill. Stair-routing machine	700,212	May 27	2222	722	90	1224
Phillips, Harry B., Berkeley, Cal. Drying red-wood lumber	698,124	Apr. 22	2222	719	90	722
Phillips, John, London, England. Apparatus for treating commutators	699,479	Apr. 1	126	37, 38	90	38
Phillips, John R., Stamford, Conn. Folding road-carrier	697,272	Apr. 15	2722	612	90	624
Phillips, Simon O., Selkirk, N. J. Steam-heating apparatus	700,020	May 12	1222	425	90	1224
Phillips, Thomas H., St. David, Pa. Impact-tool	700,021	May 12	1222	425	90	1224
Phinney, Edward H. (See Buckley and Phinney.)						
Phoenix, William S. (See Bennett and Phoenix.)						
Phonetic, Giuseppe, Boston, Mass. Flour-mill	698,221	Apr. 22	2446	707	90	722

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Panko, Mendel, Woodhaven, N. Y. Making pebbled leather.	698,411	Apr. 23	3707	551	90	846
Patt, Richard F., assignor to Joseph McWilliams and Company, Louisville, Ky. Electrical controlling apparatus.	702,188	June 10	1573	385	90	8400
Pickard, Edward F., Buffalo, N. Y. Rotary engine.	702,075	June 17	2544	584	90	8070
Pickhardt, Emil, Islington, Mass. Garment-stretcher.	697,108	Apr. 8	1380	504	90	811
Pickop, George B., assignor to P. & F. Corbin, New Britain, Conn. Knot-attaching device.	697,100	Apr. 8	1474	320	90	393
Pickop, George B., assignor to P. & F. Corbin, New Britain, Conn. Sliding door.	698,592	Apr. 29	4705	1087	90	1086
Pickop, George B., assignor to P. & F. Corbin, New Britain, Conn. Detachable hinge.	699,970	May 13	1640	376	90	1888
Pickop, George B., and W. R. Corbin, assignors to P. & F. Corbin, New Britain, Conn. Beach-balance.	700,514	May 27	2841	707	90	1914
Piper, Ernest O., San Jose, Cal. Support and switch for electric dental instruments.	702,078	June 10	1443	384	90	3023
Pierce, Charles D., Jersey City, N. J. Portable tubular well and test boring machine.	698,480	Apr. 1	135	38	90	30
Pierce, Charles D., Cleveland, Ohio. Fan.	699,708	May 13	1110	261	90	1417
Pierce, Dennis, et al. (See De Forca, Mary A., assignor.)	702,074	June 10	1443	384	90	3023
Pierce, George H., Needham, Mass. Latch.	702,471	June 17	2155	491	90	3090
Pierce, George L., Brooklyn, N. Y., assignor to A. G. Spalding & Bros., Jersey City, N. J., and New York, N. Y. Hand-guard and wrist-supporter.	701,081	May 27	2823	577	90	2014
Pierce, Henry N., assignor to J. MacGregor, Lincoln, Me. Spool-machine.	701,081	May 27	2823	577	90	2014
Pierce, Howard W. (See Dawson, Edward P., assignor.)						
Pierpont, Frank H., Hordley, England, assignor to Lanston Monotype Machine Company, Washington, D. C. Drilling or like machine.	700,308	May 20	2466	588	90	1714
Pierston, Paul M., Scarborough, N. Y. Bash-bar for greenhouses or other glazed structures.	697,746	Apr. 13	2337	565	90	526
Pierston, Paul M., Scarborough, N. Y. Bash-bar for greenhouses, &c.	697,747	Apr. 13	2340	568	90	529
Pietzsch, Gustav A. H., Kiata East, Victoria, Australia. Bicycle and tricycle.	697,104	Apr. 8	1380	504	90	811
Pignaud, Laurent. (See Laportot, Villard, and Pignaud.)						
Pignolet, Louis M., Orange, N. J. Surgical forceps.	702,473	June 17	2155	491	90	3090
Pignolet, Louis M., Orange, N. J. Surgical forceps.	698,528	Apr. 29	4707	1087	90	1087
Pignolet, Louis M., Orange, N. J. Eyeglass-polisher.	702,128	June 24	2458	738	90	2072
Pilkington, Joseph H., Waterbury, Conn., assignor to C. J. Higley, New York, N. Y. Garment-supporter.	701,088	May 27	2830	578	90	2015
Pilson, Clara, et al., administrators. (See Pilson, George F.)						
Pilson, George F., deceased; C. Pilson, Sykesville, and W. R. Brewer, Baltimore, Md., administrators. Horse-shoe-machine.	701,088	May 27	2830	578	90	2015
Pilson, George F., deceased; C. Pilson, Sykesville, and W. R. Brewer, Baltimore, Md., administrators. Horse-shoe-machine.	701,088	May 27	2830	578	90	2015
Pimlott, Mary A., administratrix. (See Pimlott, William E.)						
Pimlott, William E., assignor to J. M. Atkinson Company, Chicago, Ill. Circuit-breaker.	697,338	Apr. 15	2145	477	90	460
Pimlott, William E., deceased; M. E. Pimlott, administratrix, assignor to J. M. Atkinson Company, Chicago, Ill. Means for electrically connecting railway-rails.	697,334	Apr. 15	2145	477	90	459
Pindak, John J., Chicago, Ill. Armor.	700,028	May 13	1834	436	90	1553
Pindotoff, Anders A., Copenhagen, Denmark. Brush for cleaning bottles.	701,084	May 27	2828	580	90	2016
Pink, Maximilian, New York, N. Y. Liquid-pressure regulator.	702,076	June 10	1443	385	90	3024
Pinney, Elijah H., and E. A. Jones, Cass City, Mich. Animal-poke.	700,538	May 20	2461	645	90	1738
Pinney, Orestes O., Glenville, Ohio. Submerged water-heater.	702,315	June 24	2451	683	90	2096
Piper, Brian L., Toronto, Canada. Train-order signal.	698,517	Apr. 29	4707	1087	90	1087
Piper, Robert H., Wakefield, Mass., assignor to National Specialty Manufacturing Co., Jersey City, N. J. Device for supporting and delivering paper for wrapping or binding purposes.	700,615	May 27	2823	577	90	2015
Piper, Robert H., Wakefield, Mass., assignor to National Specialty Manufacturing Co., Jersey City, N. J. Device for supporting and delivering paper for wrapping or binding purposes.	700,615	May 27	2823	577	90	2015
Pirring, Felix, Ravenswood, Ill. Combination scrub-brush and mop.	698,051	Apr. 29	4700	1080	90	107
Pisko, Emanuel, New York, N. Y. Cutting and peeling device for cigar-wrapping machines.	701,308	June 3	187	40, 41	90	2146
Pitblado, Isaac, et al. (See Maloney, William, assignor.)						
Pitt, Mary, Chicago, Ill. Bird-cage.	702,008	June 24	2458	738	90	2072
Pittsburg Blue Print Company. (See Whinery, Samuel B., assignor.)						
Pittsburg Electric Machine Company. (See Phillips, Andrew, assignor.)						
Pittsburg Gas Engine Company. (See McCall, Harry M., assignor.)						
Pittsburg Writing Machine Company. (See Paul, John W., assignor.)						
Plaley, Albert A., Littleton, Mass. Universal joint.	700,309	May 20	2474	597	90	1716
Plazago, James G., et al. (See Donovan, Alford, assignor.)						
Place, Frederick E. (See Buckley and Place.)						
Place, John, and W. J. Lewis, Broadheath, England, assignors to Mergenthaler Linotype Company, New York, N. Y. Self-feeding mechanism for metal-pots.	697,011	Apr. 8	1304	280	90	874
Place, Washington N. G., Seattle, Wash. Guiding attachment for doors.	698,028	Apr. 29	4708	1088	90	108
Platka, Hugo, Middle Village, N. Y. Hothouse construction.	701,610	June 3	188	180	90	2228
Planteur, Jean, Lyons, and L. Dutremblay, Paris, France. Portable inhaling apparatus.	700,308	May 20	2474	597	90	1716
Plank, G. A. (See Wiswall, William J., assignor.)						
Plank, J. W., et al. (See Pennington, Edward J., assignor.)						
Plano Manufacturing Company. (See Phelps and Morris, assignors.)						
Plantinga, Pierre, Fort Wayne, Ind. Apparatus for extracting tar from gas.	699,580	May 6	810	131	90	1248
Plaster, William. (See Plaster, William M., assignor.)						
Plaster, William M., assignor of one-half to P. Plaster, Cotton, Tex. Gate.	697,590	Apr. 13	2754	618	90	984
Platt, Corwin H., Cleveland, Ohio. Adding-machine.	698,481	Apr. 1	130	38, 39	90	30
Platt, Joseph, Cincinnati, Ohio. Berth guard and ladder.	700,305	May 20	2459	590	90	1688
Plaut, Joseph, Topeka, Kans. Locomotive.	697,535	Apr. 15	2151	478	90	480
Plaut, John, Topeka, Kans. Locomotive.	702,748	June 17	2884	613	90	2994
Player, John, Topeka, Kans. Sliding door for railway-cars.	698,480	Apr. 1	130	38	90	30
Player, John, Dunkirk, assignor to American Locomotive Company, New York, N. Y. Reverse-lever.	698,480	Apr. 1	130	38	90	30
Player, John, Chicago, Ill., assignor to American Locomotive Company, New York, N. Y. Guide-yoke bracket.	698,480	Apr. 1	130	38, 40	90	40
Player, John, Chicago, Ill., assignor to American Locomotive Company, New York, N. Y. Locomotive-trailer.	698,484	Apr. 1	130	40	90	40
Player, John, Chicago, Ill., assignor to American Locomotive Company, New York, N. Y. Locomotive-trailer.	698,484	Apr. 1	130	40, 41	90	40
Player, John, Chicago, Ill., assignor to American Locomotive Company, New York, N. Y. Locomotive-trailer.	698,484	Apr. 1	130	41	90	41
Player, John, Chicago, Ill., assignor to American Locomotive Company, New York, N. Y. Locomotive-trailer.	698,484	Apr. 1	130	41	90	41
Playford, Sterling T., Cassopolis, Mich. Sectional tank.	698,500	Apr. 1	130	38	90	30
Pleck, Frank I., Sturgeon Bay, Wis. Bridge-gate.	698,500	Apr. 1	130	38	90	30
Plett, Johann C. A., Hamburg, Germany. Packing for stuffing-boxes.	698,500	Apr. 1	130	38	90	30

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Plimpton, J. Edward. (See Whitney, Farris B., assignor.)						
Pluchman, Oscar E., et al. (See McDonnell, George F., assignor.)						
Ploeg, Simon de, assignor to Sté. de Ploeg, H. Collier Loustau et Cie, St. Maurice, France. Variable-speed gearing.	700,081	May 27	2825	585	90	1073
Plotka, William, Whittier, Cal. Injector burner.	698,585	Apr. 29	4708	1088	90	816
Plummer, Beecher I., Grants Pass, Oreg. Butcher's block-scraper.	701,008	June 3	401	81	90	2190
Plummer, Clarence H., Waukegan, Wis. Blanching press, &c.	697,573	Apr. 8	1365	271	90	872
Plummer, Clarence H., and F. T. Stare, Waukegan, Wis. Canning cans or other vegetable tables.	699,708	May 13	1110	266	90	1440
Plummer, Leroy I. (See Hudson, Richard W., assignor.)						
Plumtree, Oliver L., Chicago, Ill., assignor of one-half to J. W. Ware, trustee. Automatic safety-switch for electric circuits.	697,373	Apr. 8	1000	273	90	373
Plunger Elevator Company. (See Cole, William F., assignor.)						
Plunger Elevator Company. (See Harriman, Louis H., assignor.)						
Pneumatic Engineering Company. (See Titus, Silas W., assignor.)						
Poets Automatic Faucet Co. (See Poets, John C., assignor.)						
Poets, John C., Spokane, Wash., assignor to Poets Automatic Faucet Co., Incorporated. Faucet.	697,321	Apr. 15	2786	817	90	624
Poindexter, John W., Cynthiana, Ky. Seed-tube for grain-drills.	702,114	June 10	1458	388	90	3026
Poindexter, Robert E., Indianapolis, Ind. Saw-set.	697,938	Apr. 15	2782	817	90	622
Poindexter, Robert E., Indianapolis, Ind. Saw-tooth gage.	697,938	Apr. 15	2782	817	90	622
Poirat, John B., Belleville, Ill. Basket.	697,587	Apr. 15	2152	470	90	490
Pokrop, Reginald W., New Haven, Conn. Bottle.	698,125	Apr. 29	4708	1088	90	744
Polkow, John W. (See Levitt and Polchow.)						
Pollakoff, Joseph, Charlottenburg, Germany. Photographic-shutter-controlling device.	700,028	May 13	1835	437	90	1585
Pollakoff, Joseph, Charlottenburg, near Berlin, Germany. Photometric recorder and indicator.	702,080	June 10	1470	388	90	3028
Pollard, Albert, Attleboro, Mass. Brooch.	702,670	June 17	2845	683	90	2970
Pollard, Frederick, Cleveland, Ohio. Show-case.	699,511	Apr. 1	130	41	90	41
Pollmeter, Andrew J., Whitehall, assignor of two-thirds to J. Mitch and A. Q. Dygert, Butte, Mont. Precipitating copper from water.	699,000	Apr. 20	4028		90	1121
Pollmeter, Andrew J., Whitehall, assignor of two-thirds to J. Mitch and A. Q. Dygert, Butte, Mont. Precipitant for treatment of copper-water.	702,544	June 10	1477		90	3490
Pomeroy, Henry C., Chicago, Ill. Riveting-machine.	699,707	May 13	1112	261	90	1417
Pomeroy, Seth T. (See Reynolds, Charles W., assignor.)						
Pons, Pierre. (See Adrot and Pons.)						
Pool, Hugh E. (See Ramsey and Pool.)						
Pool, James F., Brooklyn, N. Y. Boat.	699,321	May 6	180	42	90	1811
Pools, Charles W., San Jose, Cal. Hydrocarbon-burner.	699,501	Apr. 1	352	84	90	70
Pools, Lemuel, assignor to Electrical Construction Supply Co., Springfield, Ohio. Electric-light hanger.	701,980	June 10	1150	264	90	2885
Pope, Alfred T., et al. (See Heine, Frederick E., assignor.)						
Pope, Curran, et al. (See Heine, Frederick E., assignor.)						
Pope, Frederick B., Augusta, Ga. Manufacture of seed products.	699,010	Apr. 20	4028	1100	90	1121
Pope, Harry M. (See Maxim and Pope.)						
Poppenhuisen, Herman A. (See Green, Gent, and Poppenhuisen.)						
Poppenhuisen, Herman A., Evanston, Ill. Furnace bridge-wall.	697,607	Apr. 15	2075	520	90	884
Poppenhuisen, Herman A., Evanston, Ill. Fire-arch.	697,608	Apr. 15	2077	520	90	884
Portchester Chemical Company. (See Thurlow, Nathaniel, assignor.)						
Porteous, James. (See Willis and Porteous.)						
Porter, Albert B., Evanston, Ill. Series-multiple switch.	698,180	Apr. 29	4708	1088	90	744
Porter, Edwin F., Boston, Mass., assignor to Bay State Electric Heat & Light Company, Jersey City, N. J. Apparatus for cooling and agitating air.	702,204	June 24	2450	727	90	2814
Porter, George J. (See MacArthur and Porter.)						
Porter, Harry T., et al. (See MacArthur and Porter.)						
Porter, Harry T., and G. H. Beaumont, assignors of one-third to W. T. Moore, Cleveland, Ohio. Bucket-dumping device for steam-shovels.	702,473	June 17	2156	492	90	3080
Porter, James A., assignor of two-thirds to J. L. Bentley and E. Stone, Crawfordville, Ind. Rotary engine.	702,474	June 17	2156	492	90	3080
Porter, Joseph Y., Detroit, Mich. Bicycle handle-bar.	698,187	Apr. 29	4708	1088	90	744
Porter Safety Seal Company. (See Abbott, Harry W., assignor.)						
Porterfield, John C., Columbus, Ohio. Dog-crate.	700,617	May 27	2846	739	90	1915
Portman, Giles M., Westline, Pa. Making rector-rails.	702,021	June 17	2154	477	90	2798
Pochemann, Georg, Pittsburg, Pa. Curtain-pole.	699,971	May 13	1041	267	90	1686
Post, William L., assignor of one-third to J. Cohen, Paterson, N. J. Stop-motion for ribbon-looms.	698,113	Apr. 29	4708	1088	90	1154
Postlethwaite, Edward T. (See Fairchild, Charles E., assignor.)						
Postlethwaite, Robert H., assignor to Edison Iron and Locomotive Works, San Francisco, Cal. Distributor for gold-separators.	697,745	Apr. 15	2048	526	90	890
Potter, Henry N., assignor to G. Westinghouse, Pittsburg, Pa. Treating ballast-wires for electric lamps.	699,322	May 6	180		90	1811
Potter, Joseph L., and E. E. Cohen, Indianapolis, Ind. Convertible wagon or sled.	702,077	June 17	2156	492	90	3080
Potter, Robert. (See Grundy, Thomas, assignor.)						
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Controller for electric motors.	697,015	Apr. 8	1305	271	90	975
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Electric railway.	697,015	Apr. 8	1305	271	90	975
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Controlling device for electric motors.	697,749	Apr. 15	2048	526	90	890
Pottlitzer, Herman, et al. (See Hendon, Frank A., assignor.)						
Pottlitzer, Julius, et al. (See Hendon, Frank A., assignor.)						
Pottlitzer, Leo, et al. (See Hendon, Frank A., assignor.)						
Pottlitzer, Max, et al. (See Hendon, Frank A., assignor.)						
Poulson, Britton, Fort Wayne, Ind. Washing-machine.	698,522	Apr. 29	4708	1088	90	761
Poulson, Peter, assignor of two-thirds to S. Mayer and W. F. Corey, Chicago, Ill. Motor-vehicle.	702,701	June 24	2451	685	90	2894
Powell, Charles W., Green Island, N. Y. Brake mechanism for railway-cars.	700,318	May 27	2848	739	90	1916
Powell, Julius W., Cherryvale, Kans. Churn.	702,028	June 24	2451	687	90	2814
Powell, Robert J., et al. (See Waters, Frederick R., assignor.)						
Powell, William G., assignor to E. O. Locke, Jacksonville, Fla. Calculating-machine.	701,611	June 3	181	181	90	2883
Powers, Francis W. (See Hoffman and Powers.)						
Powers, William, Central City, Iowa. Harrow.	702,475	June 17	2156	494	90	3080
Prakm, Adolph F., Indianapolis, Ind. Ventilating-jack for lanterns.	698,023	Apr. 29	4708	1088	90	708

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Prampolini, William, San Luis Potosi, Mexico. Composition of matter and preparation of same.	708,078	June 17	2549	99	2871
Pratt, Albert K., assignor to White Machine Works, Incorporated, Whitinsville, Mass. Vibrator for wavy stop-motions.	697,108	Apr. 8	1476	281	99	288
Pratt, Alexander W., North Jay, Me., assignor of one-half to Venable Brothers, Atlanta, Ga. Raising sheets of stone.	708,328	June 24	2718	785	99	2884
Pratt, Allison A., New York, N. Y., assignor to F. D. Warner, New Canaan, Ind. Incon- descent gas-burner.	708,088	June 24	2228	785	99	2847
Pratt, Charles C., Kansas City, Kans., assignor of two-thirds to H. W. Merrill, Kansas City, Mo., and J. E. Metcalf, Kansas City, Kans. Mitten.	701,981	June 10	1184	285	99	2885
Pratt, Cyrus C., assignor of one-half to T. Holland, Portland, Ore. One-separator.	708,084	June 24	2224	787	99	2847
Pratt, Frank M. (See Erimma, Clem, assignor.)						
Pratt, John C., assignor of one-half to A. L. Foster, Hartford, Conn. Expandable pulley.	698,264	Apr. 29	4708	1087	99	1099
Pratt, John C., assignor of one-half to A. L. Foster, Hartford, Conn. Bicycle construc- tion.	708,748	June 17	2888	612	99	2884
Pratt, John C., assignor of one-half to A. L. Foster, Hartford, Conn. Bicycle construc- tion.	700,284	May 20	2190	801	99	1488
Pratt, Leverett A., Bay City, Mich. Post.						
Pratt & Whitney Company. (See Gordon, Frederick W., assignor.)						
Pratt & Whitney Company. (See Hanson, Benj. M. W., assignor.)						
Pratt & Whitney Company. (See Hanson and Gordon, assignors.)						
Pratt, William W., Chicago, Ill. Automatic air-moistening apparatus.	697,850	Apr. 15	2880	280	99	288
Pratt, James H. (See Decker, and Prusa.)						
Pratt, Walter. (See Eick, Amos, assignor.)						
Prefontaine, Hermann. (See Vantour and Prefontaine.)						
Prefontaine, William. (See Weller, Louis G., assignor.)						
Prellwitz, William. (See Sergeant and Prellwitz.)						
Prentiss Manufacturing Company. (See McCue, Charles T., assignor.)						
Prendergast, Daniel J., New York, N. Y., and V. H. Slinick, Philadelphia, Pa. Mistle for incandescent burners.	697,261	Apr. 8	1804	404	99	404
Prentiss, Thomas, New Britain, Conn. Saw-guide.	708,085	June 24	2226	787	99	2848
Prentiss, Samuel H. (See Bragdon, Charles M., assignor.)						
Prescott, Edwin, Arlington, Mass. Stanchion.	699,411	May 6	543	126	99	1268
Preslar, Charles F., assignor to Preslar-Crawley Manufacturing Co., Cincinnati, Ohio. Sealing device for tubular wells.	698,848	May 18	1401	284	99	1477
Preslar, Charles F., assignor to Preslar-Crawley Manufacturing Co., Cincinnati, Ohio. Apparatus for sinking tubular wells.	698,849	May 18	1402	284	99	1477
Preslar-Crawley Manufacturing Co. (See Preslar, Charles F., assignor.)						
Pressed Steel Car Company. (See Hansen, John M., assignor.)						
Preston, Charles F., Chicago, Ill. Tool-holder.	698,708	May 18	1114	281	99	1417
Preston, Edwin J., Beckenham, and A. B. Gill, Blackheath Park, England. Device for operating electric lights in railway-carriages from the guard's van.	699,413	May 6	546	126	99	1267
Preston Hosiery and Tire Company. (See Beck and Preston, assignors.)						
Preston, James, Joliet, Ill. Trolley-wheel.	701,025	May 27	2286	280	99	2016
Preston, James F. (See Beck and Preston.)						
Prevost, Fritz. (See Boettcher, Hermann, assignor.)						
Prevost, Honoré, Montreal, assignor to H. Aylmer, Sherbrooke, Province of Quebec, Can- ada. Life-preserver.	697,228	Apr. 8	1804	404	99	404
Price, Joseph H., New Rockford, N. D. Shoe-protector.	708,470	June 17	2108	284	99	2881
Price, Thomas J. (See Young, Richard L., assignor.)						
Price, William G., Kingston, N. Y., assignor to Columbia Brake & Supply Company, Chi- cago, Ill. Brake for vehicles.	698,688	Apr. 1	406	102	99	100
Price, William G., Kingston, N. Y., assignor to Columbia Brake & Supply Company, Chi- cago, Ill. Brake for vehicles.	698,684	Apr. 1	478	110	99	108
Price, William G., Kingston, N. Y., assignor to Columbia Brake & Supply Company, Chi- cago, Ill. Brake for vehicles.	698,688	Apr. 28	5451	788	99	781
Pridmore, Lewis, Philadelphia, Pa. Book-curtain rod.	697,780	Apr. 15	2247	557	99	570
Pridmore, John W., Chicago, Ill. Grain-blade.	701,613	June 3	287	121	99	2883
Prier, George H., New York, N. Y. Leveling instrument.						
Priest, Edward D., and G. L. Schermerhorn, Schenectady, N. Y., assignors to General Electric Company, Commutator.	698,499	Apr. 1	171	41	99	41
Priestley, Charles W., Sharon, Tenn. Harvester-gear.	697,374	Apr. 8	1088	272	99	272
Printz, George, Aachen, Germany. Needle-threader.	698,825	Apr. 29	4710	1082	99	1087
Probert, Lowell. (See Wall and Probert.)						
Protected Rail Bond Company. (See Englund, Axel H., assignor.)						
Prouty Company, T. C. (See Prouty, Theodore C., assignor.)						
Prouty, Theodore C., Midland, assignor to T. C. Prouty Company, Limited, Abilene, Mich. Door-hanger loop.	698,584	May 6	513	121	99	1208
Provost, John M., Buffalo, N. Y. Bicycle-saddle.	701,280	June 3	188	41	99	2747
Provost, Andrew J., Jr., Brooklyn, N. Y. Apparatus for the treatment of sewage.	698,245	May 6	403	94	99	1267
Provine, George R., Montreal, Canada. Grade.	697,589	Apr. 15	2109	479	99	480
Pruden, Charles R., Rome, Ga. Boat.	697,589	Apr. 15	2109	480	99	481
Prusa, Frank J., Wrentham, R. I. Undergarment.	698,588	May 13	1854	845	99	1260
Pruszkowski, Wladyslaw, Schodnica, Austria-Hungary. Rotary boring apparatus.	701,281	June 3	188	41	99	2747
Pruszkowski, Wladyslaw, Schodnica, Austria-Hungary. Alloy.	708,588	June 24	2168	.....	99	2854
Puddfoot, Charles, assignor, by name assignments, to Briscoe Manufacturing Com- pany, Detroit, Mich. Closure.	701,025	May 27	2286	280	99	2017
Pugh, James M., assignor to Wm. H. Armstrong & Co., Indianapolis, Ind. Surgical dressing-packer.	708,597	June 24	2164	737	99	2814
Pugh, William J., Davenport, Iowa. Button-carding machine.	698,543	May 6	513	121	99	1208
Pulbrook, Anthony, London, England. Elastic support for vehicles.	698,708	May 18	1114	281	99	1417
Pullman, William, and C. C. Field, Sodus, N. Y. Trolley-pole.	697,584	Apr. 15	2109	479	99	480
Pumpelly, James K., Chicago, Ill., assignor to Western Storage Battery Company, In- dianapolis, Ind. Separator for battery-plates.	698,429	Apr. 1	177	40	99	41
Pupin, Michael I., New York, N. Y., and S. W. Balch, Montclair, N. J. Winding-machine.	697,620	Apr. 15	2109	480	99	481
Purley, Alexander, St. Paul, Minn. Railway replacing-dog.	702,744	June 17	2888	614	99	2884
Purvis, E. Russell. (See Reiff, William H., assignor.)						
Purvis, William J., Fremont, Nebr. Fly-trap.	708,208	June 24	2170	838	99	2884
Puschel, Franz. (See Kuehne and Puschel.)						
Putnam, Jean F., Brooklyn, N. Y. Glass-turnace.	698,978	May 13	1648	276	99	1268
Putnam, Alfred F., Charlton, Mass. Fire-kilner and method of making.	697,014	Apr. 8	1810	271	99	271
Putnam, John, Cornell, Pa. Game or puzzle.	703,477	June 17	2898	614	99	2884
Putnam, Joseph E., Rochester, N. Y. Automatic starter for electric motors.	698,710	May 13	1648	276	99	1268
Pyott, James M., Jr., Chicago, Ill. Core-molding machine.	698,711	May 13	1180	288	99	1417

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Pyott, Louis T., assignor to J. E. Meyers, Philadelphia, Pa. Car-brake.	698,245	May 6	403	94	99	1268
Quackenbush, Henry M., Harkness, N. Y. Nut-cracker.	698,245	Apr. 29	4641	1082	99	1087
Quade, Henry W., Watertown, Wis. Cheese-box trimmer.	697,620	Apr. 15	2109	480	99	481
Quaker Manufacturing Company. (See Hoald, Edward L., assignor.)						
Questell, William P., New York, N. Y. Type-writing machine.	698,245	Apr. 29	4641	1082	99	1087
Quigley, James H., and W. C. Lippard, England. Table-saw.	708,184	June 10	1070	287	99	2881
Quigley, William C. (See Quigley, James H. and W. C.)						
Quimby, Edward C., Minneapolis, Minn. Storm-cock fastener.	702,739	May 20	2170	838	99	1268
Quinn, William B., Platts, Cal. Apparatus for the manufacture of concentrated sal- furic acid.	698,011	Apr. 29	4671	1103	99	2751
Quinn, Cloyd R. (See Chapman and Quinn.)						
Quinn, Charles C. and C. J. Scranton, Iowa. Book-water.	698,245	May 6	403	94	99	1268
Quinn, Charles J. (See Quinn, Charles C. and C. J.)						
Quinn, John B., Chicago, Ill. Track.	700,084	May 18	1088	287	99	1268
Quinn, John B., Chicago, Ill. Track.	708,748	June 17	2888	612	99	2884
Quinn, John B., Chicago, Ill. Track.	700,084	May 18	1088	287	99	1268
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Quinn, John B., Chicago, Ill. Track.	700,084	May 18	1088	287	99	1268
Quinn, John B., Chicago, Ill. Track.	708,748	June 17	2888	612	99	2884
Quinn, John B., Chicago, Ill. Track.	700,084	May 18	1088	287	99	

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Ray, Thomas L., Fort Worth, Tex. Analgesic bandage	690,697	May 18	1906	316	90	1500
Ray, William. (See Love and Ray.)						
Raymond, Alfred A., Chicago, Ill. Fire	700,707	May 20	2105	708	90	1880
Raymond Button Company of Baltimore City. (See Gwinn, George W., assignor.)						
Raymond, Charles L. (See McConnell and Raymond.)						
Raymond, Frederick P., St. Newton, Mass. Assignor, by mesne assignments, to United Shoe Machinery Company. Best holder for heel-attaching machines	699,112	Apr. 20	5126	1185	90	1154
Raymond, Elias H., Grand Rapids, Mich. Caster	699,284	Apr. 20	2428	758	90	781
Raymond, John G., assignor of one-half to R. A. Roe, Paterson, N. J. Heel for boots or shoes	699,593	May 6	682	198	90	1345
Reah, George F., assignor to R. Hoe, New York, N. Y. Delivery mechanism	700,398	May 20	2194	502	90	1639
Reah, George F., assignor to R. Hoe, New York, N. Y. Pneumatic sheet-carrying device	700,399	May 20	2195	503	90	1661
Reah, Robert H., Schenectady, N. Y., assignor to General Electric Company. Starting device for electric motors	697,016	Apr. 8	1819	372	90	277
Reah, William, Somerville, assignor to C. F. Brown, Reading, Mass. Wick for hydrocarbon-burners	697,541	Apr. 15	2105	461	90	408
Reagan, Edgar, assignor of one-half to W. C. Bruff, Floresville, Tex. Roller-press	699,114	Apr. 20	5127	1187	90	1186
Reagan, Edgar, assignor of one-half to W. C. Bruff, Floresville, Tex. Baling cotton	699,115	Apr. 20	5128	1188	90	1186
Rearick, Charles E., New York, N. Y. Steam-boiler	698,312	May 12	1216	306	90	1430
Reaser, Lewis, Reading, Pa. Hook and eye	699,390	May 6	190	45	90	1512
Reason, Walter M., Pontiac, Mich. Fluid-pressure regulator	701,099	May 27	2641	851	90	2015
Reasoner, James M., Matthews, Ind. Mail-box	700,679	June 17	2169	495	90	2021
Reck, Hermann, London, England, and A. Bors, Bielefeld, Germany. Centrifugal creamer	697,170	Apr. 8	1477	321	90	323
Redding, Jerome, Boston, assignor of two-thirds to I. W. Deering and L. D. Lothrop, Gloucester, Mass. Storage battery	699,412	May 6	547	126	90	1267
Redell, Alvin B., Chicago, Ill. Incandescent gas-lamp	699,413	Apr. 20	2454	759	90	781
Redington, John C. Q., Syracuse, N. Y. Barrel-forming machine	699,597	May 6	191	45	90	1512
Redlinger, Mathias, et al. (See Jacoby, William, assignor.)						
Redman, Charles H., Newark, N. J. Hair-clipper	699,664	Apr. 20	5105	692	90	78
Redman, Charles H., Newark, N. J. Hair-clipper	699,665	Apr. 1	265	84	90	78
Reece Buttonhole Sewing Machine Company. (See Thomas, Robert W., assignor.)						
Reece Buttonhole Sewing Machine Company. (See Dahl, Charles A., assignor.)						
Reed, Albert S., assignor to Onward Company, Chicago, Ill. Adjustable cone for bicycle-hubs	697,017	Apr. 8	1820	373	90	279
Reed, Arthur W., Corvallis, Minn. Automatic car-brake	698,319	Apr. 20	2611	797	90	513
Reed and Barton Corporation. (See Brabrook, George, assignor.)						
Reed and Barton Corporation. (See Harris, Calvin F., assignor.)						
Reed, Charles J., Philadelphia, Pa. Treating solutions of salts	699,414	May 6	549	126	90	1267
Reed, Charles J., Philadelphia, Pa. Electrolytic apparatus	699,415	May 6	550	127	90	1267
Reed, Estelle J., Brooklyn, N. Y. Child's eating-apron	699,416	May 6	192	46	90	1513
Reed, James J., New Philadelphia, Ohio. Automatic vending-machine	697,361	Apr. 15	2094	521	90	598
Reed, James M. (See Boman and Reed.)						
Reed, John D., Boston, Mass. Railway system	699,417	May 6	551	128	90	1267
Reeder, Frank L., and A. B. Freville, assignors to National Foundry and Machine Company, Louisville, Ky. Air-compressor	697,414	Apr. 8	1828	420	90	420
Reeder, Richard, Butler, Pa. Storm-protect for vehicles	700,430	June 17	2171	495	90	2502
Reedy, Lewis, Lawrence, Kans. Sprocket-wheel for bicycles	699,540	May 6	194	46	90	1514
Reedy, William H., et al. (See Rice, Joseph, assignor.)						
Reedy, William H., et al. (See Rice, Joseph, assignor.)						
Rees, John. (See Williams, John, assignor.)						
Reese, Arnold K., Lebanon, Pa. Combination safety regulating and drop valve	697,628	Apr. 15	2086	521	90	598
Reese, David D., assignor of one-half to R. D. Corwin, Scranton, Pa. Fire-pot for blacksmiths' forges	697,375	Apr. 8	1829	374	90	274
Reese, J. J. (See Greene, John, assignor.)						
Reese, Philip, Slope, Ohio. Dumping-wagon	700,095	May 12	1841	426	90	1267
Reese, William G., Oakland, Cal. Storm-apron for vehicles	701,614	June 3	506	122	90	2026
Reese, Eben N., et al. (See Wynn, David F., assignor.)						
Reeves & Company. (See Clay, Harry C., assignor.)						
Reeves, Harry M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone instrument	696,055	Apr. 20	5106	693	90	790
Reeves, Reuben, Streator, Ill. Register	699,698	May 12	1808	346	90	1201
Regel, Henry A., Brooklyn, N. Y. Device for centering printers' rollers	701,090	May 27	2642	852	90	2016
Regina Music Box Company. (See Koch, Henry, assignor.)						
Rehman, John G. (See Tilly and Rehman.)						
Rehman, Martin O. (See Tilly and Rehman.)						
Reich, Adolph, assignor to D. Reich, New York, N. Y. Scraper	698,120	Apr. 22	2207	720	90	744
Reich, Dora. (See Reich, Adolph, assignor.)						
Reich, Anton, Plauen, near Dresden, Germany. Candy-molding machine	699,972	May 12	1644	377	90	1267
Reichenbach, Fritz, Berlin, Germany. Internal-combustion engine	701,205	June 3	403	99	90	2121
Reichenbach, Fritz, Berlin, Germany. Flexible device for connecting stationary or movable machine parts	701,615	June 3	507	123	90	2027
Reichert, John, Racine, Wis. Tank-lug	697,594	Apr. 8	1837	405	90	405
Reichert, Paul F. (See Ayling and Reichert.)						
Reid, Charles H., Danbury, Conn. Hat-machine	700,371	May 20	2173	506	90	1716
Reid, Charles H., Danbury, Conn. Hat-pinning-out machine	700,372	May 27	2593	770	90	1017
Reid, James B., assignor of two-thirds to J. Lebenheim & Sons, Gloversville, N. Y. Fireman's mask	700,421	June 17	2172	496	90	2503
Reid, John K., Montreal, Canada. Spike-drawing tool	698,544	Apr. 1	226	124	90	178
Reid, William, London, England. Lubricating-pulley	698,545	Apr. 1	227	125	90	178
Reiff, Joseph, Jr., Hebron, Ind., assignor to Hercules Woodware Company, Chicago, Ill. Mechanism for trimming slats	698,125	Apr. 22	2208	721	90	745
Reiff, William H., assignor of three-fifths to E. B. Purvis, Philadelphia, Pa. Detonating burglar-alarm	699,116	Apr. 20	5129	1189	90	1155
Reilly, Charles J. (See Moore and Reilly.)						
Reilly, Charles J., Syracuse, Ind., and E. B. Newberry, assignors to Sandusky Portland Cement Company, Sandusky, Ohio. Apparatus for digging, treating, and delivering mail	699,974	May 12	1645	378	90	1267
Reischer, Christian, Cleveland, Ohio. Headlight for motor-cars	699,714	May 12	1124	299	90	1419
Reine, August, Baltimore, Md. Show-case	699,380	Apr. 22	2209	722	90	746
Reine, August, Baltimore, Md. Show-case	701,206	June 3	404	100	90	2122

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Reine, August, Baltimore, Md. Show-case	701,210	June 3	405	101	90	2123
Reine, George I., et al. (See Sullivan, William H., assignor.)						
Reine, Oscar C., et al. (See Sullivan, William H., assignor.)						
Reinick, May A. (See Gibson, William, assignor.)						
Remington Arms Company. (See Withersell, George K., assignor.)						
Remy, George. (See Burd, Randall, and Remy.)						
Renfrew, William, Chelsea, Mass. Lacing-button	698,590	May 6	694	199	90	1346
Reiser, Henry F., assignor to Hollands Manufacturing Company, Erie, Pa. Pipe-wrench	700,087	May 12	1562	429	90	1567
Reische, Wilhelm, Gerdau, assignor to A. Voller, Gerdau, near Kiel, Germany. Water-pipe	700,088	May 12	1563	430	90	1567
Reistein, Clement. (See Brown, Franklin, assignor.)						
Revel, William W. (See Haglund and Revel.)						
Revor, Valeri F., Minneapolis, Minn. Shirt-holder	698,095	Apr. 22	5105	694	90	709
Rex Acetylene Generator Company. (See Freeman, Delbert O., assignor.)						
Rexroth, John J., assignor to himself and G. E. Shaw, Chicago, Ill. Door-hanger	697,215	Apr. 8	1831	380	90	321
Rey, Jean A. and J. M. E. Paris, France. Boiler	698,140	Apr. 22	2210	723	90	746
Rey, Jean M. E. (See Rey, Jean A. and J. M. E.)						
Reyburn, John E. (See Fyott, Louis T., assignor.)						
Reynolds, Charles J., Boston, assignor of two-thirds to D. M. Walt, Somerville and B. F. Freesty, Boston, Mass. Trace holder and cast-off	697,395	Apr. 8	1832	381	90	322
Reynolds, Charles W., assignor of one-half to S. T. Fomerooy, Toledo, Ohio. Brick-press	701,015	May 27	2643	853	90	2017
Reynolds, Clayton J., Pittsburg, Pa. Dental tool for fitting cap-crowns	701,016	June 3	406	102	90	2124
Reynolds, Earl H., Sterling, Ill. Envelop-feeding attachment for type-writers	699,975	May 12	1646	379	90	1268
Reynolds, Earl H., Sterling, Ill. Car-loader	700,120	May 12	1600	427	90	1567
Reynolds, Earl H., Sterling, Ill. Car-loader	700,121	May 12	1601	428	90	1567
Reynolds, Francis, and W. J. Underwood, Fall River, Mass. Mule	698,321	Apr. 22	2612	798	90	514
Reynolds, George W. (See Church and Reynolds.)						
Reynolds, James A., Wabash, Ind. Air-gage	698,324	Apr. 22	2613	799	90	515
Reynolds, James H., Milledgeville, Ga. Assignor to G. J. O'Doherty and W. Vandenberg, Boston, Mass. Paper-making machine	698,325	Apr. 1	267	85	90	79
Reynolds, John W., Ballston Spa, N. Y. Pump	700,580	June 17	2204	724	90	747
Reynolds, Samuel D., assignor to M. D. Shipman, C. E. and E. E. Bradt, DeKalb, Ill. Wagon	701,005	June 10	1558	395	90	2025
Reynolds, Stephen K., New York, N. Y. Pneumatic piano	701,006	June 10	1559	396	90	2026
Reynolds, Sylvanus J., Saginaw, Mich. Carpet-sweeper	701,007	June 10	1560	397	90	2027
Rhine, Charles A. (See Brown and Rhine.)						
Rhine, George W., Altoona, Pa. Air-compressor	698,370	May 6	695	194	90	1347
Rhodes, Alonzo K., assignor to Draper Company, Hopkinton, Mass. Roving-breaker for spinning-frames	697,015	Apr. 8	1833	382	90	323
Rhodes, Charles I., Bridgeport, Conn. Adjustable form for paper-box machines	699,418	May 6	552	129	90	1268
Riband, George L., Grand Saline, Tex. Vacuum-pump	697,396	Apr. 8	1834	383	90	324
Rice, John V., Jr., Edgewater Park, N. J., assignor, by mesne assignments, to W. O. Worth, Chicago, Ill., W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battletown, Mich. Igniter for explosive-engines	699,014	Apr. 20	4978	1101	90	1128
Rice, Joseph, assignor of two-thirds to W. H. and W. I. Reedy, Chicago, Ill. Elevator	699,597	Apr. 20	4712	1088	90	1028
Rice, Wally M., assignor of one-half to I. R. Wolverton, Manassas, Va. Machine for removing garlic from wheat	701,207	June 3	407	103	90	2125
Rice, William P., Chicago, Ill. Treating air for cooling and moistening same	701,208	June 3	408	104	90	2126
Richards, Albert. (See Hyde, Thomas H., assignor.)						
Richards, E. H., Hartford, Conn. Portable fireplace and chimney	700,099	June 10	1561	429	90	1568
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Playing-ball	697,970	Apr. 1	212	810	90	192
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	697,971	Apr. 15	2087	522	90	599
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	697,972	Apr. 15	2088	523	90	600
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Manufacture of golf-balls or other articles	698,326	May 6	696	200	90	1348
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Playing-ball	698,327	May 12	1610	386	90	1269
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Manufacture of golf-balls	700,184	May 12	1602	430	90	1569
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Manufacture of golf-balls	700,185	May 12	1603	431	90	1570
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	701,017	June 3	409	105	90	2127
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	701,018	June 3	410	106	90	2128
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	701,019	June 3	411	107	90	2129
Richards, Jorro T., New York, N. Y. Attachment for uniting metal or wood beams	700,000	June 24	3197	725	90	2615
Richards, Jorro T., New York, N. Y. Attachment for uniting metal or wood beams	699,976	May 12	1647	380	90	1270
Richards, James D., Wabash, assignor of one-half to E. Gilleswater and E. Baker, Sims, Ind. Vehicle-brake	700,000	May 12	1648	381	90	1271
Richards, W. H., et al. (See Webb, Henry F., assignor.)						
Richards, Willard F., Buffalo, assignor to Gould Storage Battery Company, New York, N. Y. Machine for making battery-plates	698,314	May 12	1564	432	90	1571
Richards, Willard F., Buffalo, assignor to Gould Storage Battery Company, New York, N. Y. Car-coupling	700,441	May 20	2174	507	90	1717
Richards, Willard F., Buffalo, assignor to Gould Storage Battery Company, New York, N. Y. Draw-bar attachment for locomotives	700,442	May 27	2594	771	90	1018
Richards, Willard F., Buffalo, assignor to Gould Storage Battery Company, New York, N. Y. Draw-bar attachment	701,019	June 3	412	108	90	2130
Richards, William, Columbus, Mich. Nail-rod fastener	701,020	June 3	413	109	90	2131
Richardson, Artemus P., and E. S. Richardson, Pa. Assignor to E. S. Richardson. Garment-supporter	700,300	June 24	3198	726	90	2616
Richardson, Eugene S. (See Richardson, Artemus P., and E. S.)						
Richardson, Eugene S. (See Richardson, Artemus P., and E. S.)						
Richardson, Frank. (See Sweet, John H., assignor.)						
Richardson, George A., Lees, Wis. Brush	699,946	May 6	697	195	90	1349

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Inventor	Address	Title	No.	Date	Monthly volume		Official Gazette	
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Richardson, George W., assignor of two-thirds to E. W. Dickerson and W. W. Hubbell, Sparta, Wis.		Brush-broom	701,301	June 3	457	1	90	1198
Richardson, James (See Sullivan, James F., assignor.)								
Richardson, Leonidas W., Dustin, assignor of one-half to V. H. Lockwood, Lawrence County, Tenn.		Electric cut-off switch	699,899	May 4	927	921	90	1273
Richardson, M. E., et al. (See Norstrom, Nils E., assignor.)								
Richardson, Robert Glasgow, Scotland		Rotating cylinder pump	697,910	Apr. 8	1280	973	90	978
Richardson, Thomas D., Philadelphia, Pa.		Garment-hock	700,379	May 20	977	980	90	1317
Richmond, C. B., et al. (See Sullivan, William H., assignor.)								
Richmond Cedar Works (See Johnson, John D. A., assignor.)								
Richner, Levi, Crawfordsville, Ind.		Engine	700,084	May 27	986	721	90	1143
Richter, Georg F., Stuttgart, Germany		Sectional gas-retort	700,084	May 27	986	721	90	1143
Ricker, Henry H. (See Wardwell and Ricker.)								
Ricketts, James R., assignor of one-half to G. W. Wilson, Kingfisher, Okla. Ter.		Compressed-air water-elevator	699,171	Apr. 8	1479	311	90	991
Rickey, Israel E. (See Chase and Rickey.)								
Rickey, James W., Minneapolis, Minn., and H. G. Barnes, Sterling, Ill.		Self-cleaning broom	701,316	June 3	458	982	90	1298
Ridd, John K., San Antonio, Tex.		Car-bent elevator	699,694	May 6	990	981	90	1293
Riddell, John F., Clinton, Mass.		Tuft-pump spool for tufted pile-fabric looms	701,394	June 19	1167	980	90	1307
Ridderhof, Cornel, assignor to Wilmarth and Norman Company, Grand Rapids, Mich.		Drill-grinding machine	700,399	June 17	991	982	90	1270
Ridderhof, Cornel, assignor to Wilmarth and Norman Company, Grand Rapids, Mich.		Drill-grinding machine	699,815	May 13	1285	906	90	1400
Riddick, William J., Kingston, N. Y.		Rind-scoring	700,313	June 24	995	984	90	1297
Rideout, Charles A. (See Andros, Randall B., assignor.)								
Ridlon, Charles A., Alba, Mich., assignor of two-thirds to W. E. and G. A. Jackson, Buffalo, N. Y.		Apparatus for drying and polishing broom-handles	700,349	May 27	986	721	90	1143
Riebo, Louis, Lansford, Pa.		Rock-signal system	701,019	June 3	457	981	90	1298
Riecke, Paul, Dessau, Germany		Gas-washer	700,246	June 17	991	982	90	1270
Riegel, Harry, Pontiac, Ill.		Casket-handle attachment	699,490	Apr. 1	1177	40	90	1041
Riehl, Amos, assignor of one-third to W. Fredmore, Akron, Ohio.		Metal and rubber hose-hose	699,371	May 13	1083	981	90	1400
Riehl, Henry, Jr., Philadelphia, Pa.		Narrow-wave loom	700,081	June 3	457	981	90	1298
Riesner, David, assignor (See Schmidt, Adolf G., assignor.)								
Ritter, Bruno, Winterthur, Switzerland		Machine for cross-winding spools closed-celled	699,728	Apr. 29	1443	981	90	1400
Ritter, Scipion, assignor to Societe Anonyme des Wagons Tubulaires, Brussels, Belgium		Railway-vehicle frame or the like	699,742	Apr. 29	1443	981	90	1400
Rigby, Clark F., Mannington, W. Va.		Oil-overland pump	699,748	Apr. 1	970	140	90	1413
Rigby, Clark F., New Martinsville, W. Va.		Bope-clamp	699,749	Apr. 1	971	140	90	1413
Rigby, Clark F., New Martinsville, W. Va.		Guide for oil-well pump rods	699,750	Apr. 1	972	140	90	1414
Riker, Clarence B., Maplewood, N. J.		Device for mounting entomological specimens	697,792	Apr. 15	1080	987	90	971
Rikli, Adolf, Eisenwerk Claus, near Baltsch, Switzerland		Folding head-rest	700,379	May 20	977	980	90	1317
Riley, Charles E., Newton, Mass., assignor to Howard and Bulough American Machine Company, Limited, Pawtucket, R. I.		Conical-tube holder for winding machines	700,379	June 10	1443	981	90	1400
Riley, John, New York, N. Y.		Horse-shoe	699,473	Apr. 8	1403	981	90	1400
Rintoul, William (See Nathan, Thomson, and Rintoul.)								
Ripley, Daniel C., Pittsburg, Pa.		Glass-gathering machine	697,883	Apr. 15	973	140	90	971
Ris, Christopher, assignor to Aniline Color and Extract Works, formerly John B. Galey, Basle, Switzerland		Blue sulphur dye and making same	699,385	Apr. 29	1443	981	90	1400
Ris, Christopher, assignor to Aniline Color and Extract Works, formerly John B. Galey, Basle, Switzerland		Green sulfur dye and making same	699,386	Apr. 29	1443	981	90	1400
Risdon Iron and Locomotive Works (See Postlethwaite, Robert H., assignor.)								
Risner, Nicholas, and E. G. Burkhardt, Hawkeye, Iowa		Automatic railway-gate	698,550	Apr. 29	1403	981	90	1400
Ritchie, Andrew M., Brookline, Mass.		Magnet-holding and adjusting apparatus for pens	700,380	June 10	1373	437	90	1200
Ritter, Isaac, Jr., assignor to W. A. N. Derland, Philadelphia, Pa.		Tool for finishing metal surfaces or the like	700,385	May 27	986	721	90	1143
Rivett, John (See Hill and Rivett.)								
Roach, Albert C. (See Roach, William G. and A. C.)								
Roach, William G. and A. C., assignors of three-fifths to H. C. Yelzer and O. H. L. Wier, Wickes, Cincinnati, Ohio		Coloring marble, stone, or the like	700,080	May 13	1083	981	90	1400
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,373	May 20	977	980	90	1317
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,374	May 20	978	980	90	1318
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,375	May 20	979	980	90	1319
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,376	May 20	980	980	90	1320
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,377	May 20	981	980	90	1321
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,378	May 20	982	980	90	1322
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,379	May 20	983	980	90	1323
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,380	May 20	984	980	90	1324
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,381	May 20	985	980	90	1325
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,382	May 20	986	980	90	1326
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,383	May 20	987	980	90	1327
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,384	May 20	988	980	90	1328
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,385	May 20	989	980	90	1329
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,386	May 20	990	980	90	1330
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,387	May 20	991	980	90	1331
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,388	May 20	992	980	90	1332
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,389	May 20	993	980	90	1333
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,390	May 20	994	980	90	1334
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,391	May 20	995	980	90	1335
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,392	May 20	996	980	90	1336
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,393	May 20	997	980	90	1337
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,394	May 20	998	980	90	1338
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,395	May 20	999	980	90	1339
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,396	May 20	1000	980	90	1340
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,397	May 20	1001	980	90	1341
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,398	May 20	1002	980	90	1342
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,399	May 20	1003	980	90	1343
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,400	May 20	1004	980	90	1344
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,401	May 20	1005	980	90	1345
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,402	May 20	1006	980	90	1346
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,403	May 20	1007	980	90	1347
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,404	May 20	1008	980	90	1348
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,405	May 20	1009	980	90	1349
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,406	May 20	1010	980	90	1350
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,407	May 20	1011	980	90	1351
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,408	May 20	1012	980	90	1352
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,409	May 20	1013	980	90	1353
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,410	May 20	1014	980	90	1354
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,411	May 20	1015	980	90	1355
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,412	May 20	1016	980	90	1356
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,413	May 20	1017	980	90	1357
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,414	May 20	1018	980	90	1358
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,415	May 20	1019	980	90	1359
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,416	May 20	1020	980	90	1360
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,417	May 20	1021	980	90	1361
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,418	May 20	1022	980	90	1362
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,419	May 20	1023	980	90	1363
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,420	May 20	1024	980	90	1364
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,421	May 20	1025	980	90	1365
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,422	May 20	1026	980	90	1366
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,423	May 20	1027	980	90	1367
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,424	May 20	1028	980	90	1368
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,425	May 20	1029	980	90	1369
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,426	May 20	1030	980	90	1370
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,427	May 20	1031	980	90	1371
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,428	May 20	1032	980	90	1372
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,429	May 20	1033	980	90	1373
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,430	May 20	1034	980	90	1374
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,431	May 20	1035	980	90	1375
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,432	May 20	1036	980	90	1376
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,433	May 20	1037	980	90	1377
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,434	May 20	1038	980	90	1378
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,435	May 20	1039	980	90	1379
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,436	May 20	1040	980	90	1380
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,437	May 20	1041	980	90	1381
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,438	May 20	1042	980	90	1382
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,439	May 20	1043	980	90	1383
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,440	May 20	1044	980	90	1384
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,441	May 20	1045	980	90	1385
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,442	May 20	1046	980	90	1386
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,443	May 20	1047	980	90	1387
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,444	May 20	1048	980	90	1388
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,445	May 20	1049	980	90	1389
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,446	May 20	1050	980	90	1390
Roake, John S., Brooklyn, assignor to W. K. Hale, Oshkosh, N. Y., and G. W. Kirsner			700,447	May 20	1051			

NAME	AGE	SEX	RELATIONSHIP
Mr. J. H. Smith	45	M	Head of Family
Mrs. J. H. Smith	42	F	Wife
John H. Smith	18	M	Son
Mary H. Smith	15	F	Daughter
Robert H. Smith	12	M	Son
Elizabeth H. Smith	10	F	Daughter
William H. Smith	8	M	Son
Anna H. Smith	6	F	Daughter
Charles H. Smith	4	M	Son
Frederick H. Smith	2	M	Son
Isabella H. Smith	1	F	Daughter
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
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Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
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Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant
William H. Smith	0	M	Infant
Anna H. Smith	0	F	Infant
Charles H. Smith	0	M	Infant
Frederick H. Smith	0	M	Infant
Isabella H. Smith	0	F	Infant
James H. Smith	0	M	Infant
Margaret H. Smith	0	F	Infant
Thomas H. Smith	0	M	Infant
Elizabeth H. Smith	0	F	Infant

Inventor (Address)	Title	Date	Monthly volume		Official Gazette	
			Spec.	Dr's	Vol.	Page
Robertson, William, Carnoustie, Scotland.	Golf club	697,548	Apr. 15	8186	461	100
Robin, Jacob I., Mount Vernon, N. Y.	Mantle support	695,438	Apr. 1	172	43	100
Robin, Jacob I., Mount Vernon, N. Y.	Mantle support	695,438	Apr. 1	177	43	100
Robin, Vavasor, et al. (See Hammond, Oliver S., assignor.)						
Robinson, Hermann, Charlottenburg, Germany.	Refrigerator	697,500	Apr. 15	8186	615	100
Robinson, Blanche M. et al. (See Robinson, Robert, assignor.)						
Robinson, Frank A., Auburn, assignor to M. Lary, New York, N. Y.	Machine for filling and wrapping powders	700,450	June 17	8174	490	100
Robinson, Frank A., Auburn, assignor to M. Lary, New York, N. Y.	Powder filling and folding machine	700,504	June 17	8186	544	100
Robinson, Henry A., Port Huron, Mich.	Washing machine	699,794	May 12	1890	937	100
Robinson, Henry A., et al. (See Robinson, Robert, assignor.)						
Robinson, Hugh C., London, England.	Apparatus for cutting screws or spindles	691,885	May 12	1890	937	100
Robinson, John. (See Taylor and Robinson.)						
Robinson, John A., Berwind, Colo.	Boiler-cleaning compound	701,509	June 1	8186	100	100
Robinson, Lewis T., Schenectady, N. Y., assignor to General Electric Company.	Indicating instrument	701,957	June 10	1100	407	100
Robinson, Peyton C. (See Smith, William, assignor.)						
Robinson, Robert, assignor to R. E., H. E., and B. M. Robinson, Portland, Oreg.	Crucible for refuse	699,085	May 1	701	380	100
Robinson, Robert E., et al. (See Robinson, Robert, assignor.)						
Robinson, Eugene, Springfield, Mass.	Adjustable former-block for forming paper boxes	700,448	May 20	1890	594	100
Robinson, Walter W., Chicago, Ill.	Motor vehicle	698,558	Apr. 1	701	380	100
Robinson, William E., et al. (See McCombie, Joseph C., assignor.)						
Robison, Samuel D., New York, Pa.	Die for making forks	699,752	Apr. 1	701	380	100
Robison, Tycho B. (See Bell and Robison.)						
Rooca, Emilien, Marseilles, France.	Refining oil	699,077	May 1	701	380	100
Rooca, Emilien, Marseilles, France.	Apparatus for refining oil	699,578	May 6	980	195	100
Rochester Optical & Camera Co. (See Goddard, Joseph, assignor.)						
Roche, Louis. (See Roche, Louis, and Roche.)						
Rochford, Mark D., Kingman, Ark. Ter.	Condensator	698,157	Apr. 29	444	908	100
Rockliffe, George. (See Bower and Rockliffe.)						
Rockwell, Wilhelm M., Klein-Sieditz, Germany.	Abbrading tool	699,388	May 4	107	7	100
Rockwell, Edward D., assignor to Liberty Bell Company, Bristol, Conn.	Fish-line reel	700,880	May 20	1890	648	100
Rockwell, Frederick C. (See Meizer, Caspar W. and A., assignors.)						
Roeder, Thomas, Mendon, Ohio.	Fence	700,800	June 14	1890	367	100
Rodemeyer, Harry, New York, N. Y.	Musical sounder	699,978	May 12	1890	681	100
Röder, Louis. (See Oppendick, Franz, assignor.)						
Rodger Ballist Car Company. (See Hart, Harry B., assignor.)						
Rodgers, Elias et al. (See Higgins, Franklin M., assignor.)						
Rodgers, William S. (See Williams, John, assignor.)						
Roe, Alpheus E., New Whetstone, Wash.	Assignor to Hiram and E. Cornwall, San Francisco, Cal.					
Roe, Robert A. (See Roe, John G., assignor.)						
Roe, Samuel E., New York, N. Y.	Spirit level	700,306	June 10	1890	587	100
Roodda, Gustav A., Vancouver, Canada.	Temporary binder	697,000	Apr. 15	1897	610	100
Roodda, Frederick W., et al. (See Kretz, Linford E., assignor.)						
Roeder, John, Denver, Colo.	Strop-holder for barber-chairs	700,000	May 20	1890	600	100
Rogner, George, Passaic, assignor to Carlton Manufacturing Company, Carlton Hill, N. J.	Calculator	698,241	Apr. 29	200	721	100
Romisch, Paul, and A. Orre; said Romisch assignor, by means assignments, to B. E. Ranzel, Chicago, Ill.	Carburetor	700,900	June 19	1894	425	100
Roepper, Charles W., and G. P. Scholl, Philadelphia, Pa.; said Scholl assignor to said Roepper.	Apparatus for fused-bath electrolysis	699,581	May 12	1890	520	100
Rosen, Oscar, assignor to E. Hoe, New York, N. Y.	Web-guide for printing-machines	697,172	Apr. 8	1468	380	100
Rosen, Oscar, assignor to E. Hoe, New York, N. Y.	Device for preventing smearing	697,174	Apr. 8	1468	380	100
Rogers, Arthur R. (See Johnson, Charles, assignor.)						
Rogers, Charles M., et al. (See Ives, Harry, assignor.)						
Rogers, Charles W., assignor of sixty-nine one-hundredths to J. W. Machis, E. Worthing, and C. L. Laidley, Chicago, Ill.	Radiator	698,488	June 17	8187	487	100
Rogers, Christopher L., assignor to J. Long, Seattle, Wash.	Butter-churn-ejector	698,140	Apr. 29	200	721	100
Rogers, Daisy F., Lakewood, A. J.	Folding ice-box	698,784	Apr. 1	670	158	100
Rogers, Edgar P., Brooklyn, N. Y.	Boehm flute	698,322	Apr. 22	8616	708	100
Rogers, J. S., New York, N. Y.	Internal-combustion engine	702,946	June 10	1731	501	100
Rogosa, Sava, Brussels, Belgium.	Safety device for railway points or switches	702,598	June 17	8200	546	100
Rohmer, William B., Bay St. Louis, Miss.	Car-fender	700,404	June 7	8185	497	100
Rolla, Charles A., assignor to Rolfe Electric Company, Chicago, Ill.	Electric-circuit protector	697,810	Apr. 8	1468	380	100
Rolla, Charles A., assignor to Rolfe Electric Company, Chicago, Ill.	Electrical protector	697,810	June 1	107	43	100
Rolfe Electric Company. (See Rolfe, Charles A., assignor.)						
Roll, John J., Natrona, Pa.	Grate-front and fender	700,880	May 20	1890	648	100
Rollins, Alden H., Cambridge, Mass.	Swivel-rodlock	700,897	May 27	1890	772	100
Rollo, Louis C., et al. (See Ivor, Barry, assignor.)						
Röm, Herman von, Stuttgart, Germany.	Preserving meat	699,779	May 15	1890	530	100
Romani, François D., Lyons, France.	Automatic and instantaneous apparatus for producing photographs	698,655	Apr. 1	477	110	100
Romig, William H. (See Kister and Romig.)						
Ronan, Anson G., Toronto, Canada.	Muffler	699,081	June 10	1894	425	100
Roney, Alexander B., Chicago, Ill.	Elevator	699,980	Apr. 29	444	908	100
Rooney, Patrick B. (See Odell, Robert C., assignor.)						
Rooney, Patrick B., New York, N. Y.	Bed-bottom	702,485	June 17	8184	485	100
Root, Fred N., Kalamazoo, Mich.	Track-scraper attachment for street-railway cars	699,579	May 5	880	193	100
Root, Hiram J. (See Brushner and Root.)						
Root, Sanford O., Lodi, N. Y.	Wine attachment	699,058	Apr. 29	444	908	100
Roux, Francis T. (See Hainsworth, Theodore F., assignor.)						
Roux, Charles F., assignor to Ropes Company, Hopedale, Mass.	Thread-parking mechanism for looms	701,380	June 10	1190	580	100
Rushborough, John, St. Louis, Mo.	Cracker-machine	697,000	Apr. 15	1890	520	100
Ross Gold Reclamation Company. (See Johnson, Frederick M., assignor.)						
Ross, Henri and G. Tomy, France.	Crack-crusher	699,700	Apr. 1	100	114	100
Ross, Georges. (See Ross, Henri and G.)						
Ross, Joseph F., Danbury, Iowa.	Seller	701,550	June 10	1271	100	100

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Draw.	Vol.	Page.
Rose, Samuel S., Asador City, Cal. Rotary explosive-engine	700,922	May 20	220	205	99	1004
Rose, William H., Benidj, Minn. Buckle for tug-strap	697,563	Apr. 15	210	201	99	428
Rosen, Felix, et al. (See Holdsworth, Frederic, assignor.)						
Rosen, Felix, et al. (See McClintock, Frank, assignor.)						
Rosen, Felix, et al. (See McClintock and Holdsworth, assignors.)						
Rosen, Felix, et al. (See Watson, John, assignor.)						
Rosenbaum, Henry W., New York, N. Y. Traveling case	699,530	Apr. 20	424	399	99	917
Rosenbluth, Edwin M., Philadelphia, Pa. Cartridge-cartridge	700,584	June 17	220	207	99	2000
Rosenbluth, Edwin M., Philadelphia, Pa. Carriage-lamp	700,586	June 17	220	207	99	2000
Rosenbush, Otto. (See Reamer, Dennis, assignor.)						
Rosenfield Manufacturing Company. (See Rosenfield, William W., assignor.)						
Rosenfield, William W., assignor to Rosenfield Manufacturing Company, New York, N. Y. Cold-controlled machine	701,940	June 10	1175	200	99	2000
Rosenthal, August, Milwaukee, Wis. assignor to Rosenthal Hucker Company. Corn husker and shredder and ensilage-cutter	701,997	June 3	900	45, 44	99	2149
Rosenthal, Harris L., New York, N. Y. Device for unrolling cloth or other fabrics	700,588	June 17	2215	247	99	2728
Rosenthal Hucker Company. (See Rosenthal, August, assignor.)						
Rosenthal, John B. (See Ragan and Rosenthal, assignors.)						
Rosend, Oscar. (See McIntyre, Edward F., assignor.)						
Ross, Adelle H. (See Ross, Charles J., assignor.)						
Ross, Charles J., assignor to A. H. Ross, Galesburg, Ill. Home-supporter	698,912	Apr. 1	200	220	99	211
Ross, Delmer C., et al. (See Chubb, James A., assignor.)						
Ross, George D., Glasgow, Scotland. Arrangement for shifting the points of tramway or railway lines	701,390	June 3	203	44	99	2149
Ross, Isom J., Waynesville, Ind. Band-cutter and feeder for threshing-machines	699,943	May 6	108	47	99	1214
Ross, John D., et al. (See Sharpneck, William S., assignor.) (Reissue.)						
Rossi, Auguste J., New York, assignor of one-half to J. MacNaughton, Tahawes, N. Y. Producing alloys or compounds of copper and titanium	700,944	May 20	2215	200	99	1004
Rossier, Charles, Buffalo, N. Y. Speed-vehicle	698,550	Apr. 20	4085	399	99	917
Rother, Julius, Katscher, Germany. Making disinfectant-powder	701,080	June 3	206		99	2000
Roughan, James. (See Norris and Roughan, assignors.)						
Roumy de Sales, Georges de, and F. Guegnon, Lyons, France. Accumulator	698,496	Apr. 1	180	44	99	43
Roy, George L. (See Lowe, John M., assignor.)						
Rowell, Benton C., Chicago, Ill. Rail-bond	697,890	Apr. 15	2700	619	99	697
Rowland, Calvin, Denver, Colo. Means for hanging screens	697,080	Apr. 8	1234	274	99	278
Rowland, Calvin, Denver, Colo. Means for hanging screens	700,936	June 17	2028	276	99	2780
Rowland, David E., Canton, Ohio. Hotel	697,276	Apr. 8	1054	273	99	274
Rowland, Henrietta H., administratrix. (See Rowland, Henry A., assignor.)						
Rowland, Henry A., deceased; H. H. Rowland, administratrix, assignor to Rowland Telegraphic Company, Baltimore, Md. Telegraphic distribution	699,974	May 6	200	120	99	1247
Rowland, Henry A., deceased; H. H. Rowland, administratrix, assignor to Rowland Telegraphic Company, Baltimore, Md. Telegraphic page-printer	699,975	May 6	207	120	99	1248
Rowland Telegraphic Company. (See Rowland, Henry A., assignor.)						
Rowlands, Erroll G., Racine, Wis. Screw-driver	701,941	June 10	1176	200	99	2070
Rowley, James M. (See Gabbard and Rowley, assignors.)						
Rowley, Winfield S., and L. B. Freeman, Indianapolis, Ind. Medical cabinet	700,581	May 20	2206	240	99	1700
Rowntree, Harold, Chicago, Ill., assignor to Otis Elevator Company, New York, N. Y. Elevator hoisting mechanism	698,412	Apr. 23	2708	202	99	246
Rowntree, Harold, Chicago, Ill., assignor to Otis Elevator Company, New York, N. Y. Electric motor	700,105	June 10	1077	207	99	2461
Rowntree, Harold, assignor to Rowntree Manufacturing Company, Chicago, Ill. Elevator-door-operating mechanism	700,576	May 20	2204	200	99	1718
Rowntree & Morrison Manufacturing Company. (See Norris and Roughan, assignors.)						
Roxburgh, James, and B. McClean, Dublin, Ireland. Composite printing-form	700,907	June 24	2728	207	99	2000
Royal Metal Manufacturing Company. (See Lowenthal, Isaac, assignor.)						
Royal, Theodore A., Jr., et al. (See Fowler, Frank L., assignor.)						
Royce, Edgar A., Excelsior Springs, Mo. Wheel-hub	700,270	May 20	2200	270	99	1710
Rübel, Walter, Ludwigshafen, Germany. Alloy	697,544	Apr. 15	2109		99	428
Rubin, Max, New York, N. Y. Suspender-buckle	700,886	May 27	2206	272	99	1919
Rubin, William, South Omaha, Neb. Machine for testing cans	699,944	May 6	200	46	99	1915
Rubie, Martin B., Philadelphia, Pa. Machine for cleaning and renovating feathers	698,994	Apr. 1	178	44	99	43
Rucker, Benjamin P., Brooklyn, N. Y. Circuit-breaker	701,021	June 3	206	124	99	2000
Rudell, John T. W., East St. Louis, Ill., assignor to Damascus Brake Beam Company, St. Louis, Mo. Finger-guard clip for brake-beams	699,980	May 13	1561	200	99	1511
Rudhardt, Paul, Geneva, Switzerland. Protecting apparatus for electrical machines and plants	700,108	June 24	2728	207	99	2000
Rudolph, Robert E., Paducah, Ky. Ventilator	699,016	Apr. 20	4000	1108	99	1180
Rudolph, John, and J. Landin, assignors to A. Jacobs, Stockholm, Sweden. Extracting metals from their oxid ores	698,730	Apr. 20	4445		99	1007
Ruebel, C. A. Ernst, St. Louis, Mo., assignor of one-half to E. H. B. Green, Terrell, Tex. Signal-lamp	699,576	May 6	200	120	99	1261
Ruegg, Werner, Schmersdorf, Germany. Projectile and time-fuse therefor	699,577	May 6	204	120	99	1261
Ruff, William J., Quincy, Ill. Pasteurizer	701,020	June 3	206	124	99	2000
Rugg, Ephraim T., Newark, Ohio. Rope halter	699,550	Apr. 20	4006	602	99	917
Ruhl, Amos P., New York, N. Y. Knife-sharpening device	700,528	May 20	2206	240	99	1700
Ruhl, Otto, Bremen, Germany. Concrete and metal skeleton for building purposes	700,443	May 20	2206	240	99	1744
Ruhlman, George H., and G. C. Miller, Cardington, Ohio. Can holder or jacket for capping machines	699,037	Apr. 20	2100	604	99	700
Rundquist, William, Elgin, Ill. Jewel-setting machine	698,736	Apr. 1	200	124	99	146
Rundquist, William, assignor to H. G. Weatherill, Elgin, Ill. Wrench	699,017	Apr. 20	4002	1108	99	1180
Rundquist, William F., Newburyport, Mass. Diaphragm-pump	699,006	Apr. 1	200	124	99	146
Runte, Henry, Chicago, Ill. Display device for neckties	699,715	May 13	1120	200	99	1419
Runte, Henry, Chicago, Ill. Display-holder for neckties	701,948	June 10	1178	200	99	2071
Rusyon, Charles. (See Coleman and Rusyon, assignors.)						
Rusyon, Lewis M., Alhambra, N. J. Fence	698,916	May 13	1200	200	99	1421
Rusyon, Lewis M., Alhambra, N. J. Fence	700,020	June 24	2721	207	99	2040
Rusyon, Lewis M., Alhambra, N. J. Fence	700,247	June 10	1174	201	99	2040
Rusyon, Lewis M., Alhambra, N. J. Fence	699,978	May 6	200	120	99	1261
Rush, Joseph H., New York, N. Y. Adjustable switch or outlet box						
Rush, Henry G., Old City, Pa. Gun-barrel for firing barrels						
Russell, Russell & Ward Burt and Nut Company. (See James, Charles W., assignor.)						
Russell, Edgar A., Wallingford, Conn. Expandable bolt	699,905	May 6	204	40	99	1215

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Draw.	Vol.	Page.
Russell, Edgar A., Wallingford, Conn. Shade-holder for incandescent electric lamps	700,305	June 24	2721	200	99	2040
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, Frank J., New York, N. Y. Combined switch and plug receptacle-box	698,097	Apr. 1	200	124	99	146
Russell, Frank J., New York, N. Y. Water-tight fixture for electric lights	699,517	May 13	1207	200	99	1421
Russell, Isaac H., et al. (See Marshall, John, assignor.)						
Russell, Margaret J., Stamford, N. Y. Dough-kneader	700,940	June 10	1175	200	99	2000
Rust, Edwin G., Pueblo, Colo. Water-tube boiler	698,380	Apr. 22	2017	200	99	1414
Rust, Edwin G., Pueblo, Colo. Water-tube boiler	700,081	May 12	1248	200	99	1208
Rustin, Gilbert. (See Klindworth, Otto B., assignor.)						
Rutherford, Richard H., Marion, Oreg. Car-coupling	698,740	Apr. 20	4440	920	99	1007
Ryan, George F., Chicago, Ill. Pipe connection	700,524	June 17	2206	240	99	1700
Ryan, John F., Brooklyn, and W. McIlwain, Winfield, N. Y., assignors to A. H. Eyles, Ad-dingham, Pa. Filter-faucet	701,943	June 10	1176	200	99	2071
Ryan, Thomas F., et al. (See Brackney, Orville J., assignor.)						
Rye, Thor, assignor of one-half to W. A. Grove, Minnesota, Minn. Miter-joint for eaves-troughs	700,106	June 10	1081	207	99	2458
Ryerson, Edward J., Jackson, Mich. Stock	698,845	Apr. 1	244	194	99	170
Rylander, Johan A., Norrköping, Sweden. Preserving eggs	698,486	Apr. 1	170		99	43
Rylands, James J., Millvale, assignor to Homestead Valve Manufacturing Company, Homestead, Pa. Valve	699,518	May 13	1200	200	99	1420
Rylands, James J., Millvale, assignor to Homestead Valve Manufacturing Company, Homestead, Pa. Valve	701,900	June 3	408	90	99	2128
Rypinski, Maurice C., Schenectady, N. Y., assignor to General Electric Company. Shunt for electrical instruments	698,767	Apr. 1	207	124	99	147
S. A. Woods Machine Company. (See Hood, Charles W. H., assignor.) (Reissue.)						
S. S. White Dental Manufacturing Company. (See Brown, Arthur W., assignor.)						
Sadler, Thomas. (See Levy and Sadler, assignors.)						
Sadler, Samuel S., Philadelphia, Pa. Extracting metals from ores and scrap containing same	700,923	May 20	2200	240	99	1700
Safford, Charles L. (See Glover, Francis W., assignor.)						
Safford, William C. (See Brierly, Henry A., assignor.)						
Sagar, Donald. (See Sagar, Joe and D.)						
Sagar, Joe and D., Halifax, England. Dovetailing-machine	700,030	June 24	2170	200	99	2016
Sage, Ralph V., Johnstown, Pa. Drop-door gondola car	697,021	Apr. 8	1208	274	99	278
Sage, Ralph V., Johnstown, Pa. Truck-boiler	697,564	Apr. 15	2200	240	99	1700
Sage, Ralph V., Johnstown, Pa. Bill and bolster connection for steel cars	698,036	Apr. 22	2110	204	99	700
Sage, Ralph V., Johnstown, Pa. Truck-boiler	700,036	May 20	2202	240	99	1700
Sage, Ralph V., Westmont, Pa. Bopper-car and door therefor	699,519	May 13	1200	200	99	1420
Sage, Ralph V., Westmont, Pa. Door for dumping-cars	699,620	May 13	1204	210	99	1420
Sagler, Emil, Wessau, Minn. Fuse-wire switcher	699,946	May 6	206	40	99	1216
Saklin Corral Company. (See Howd, Charles B., assignor.)						
Saknowski, Julius, Hanover, Germany. Combined road and ice skate	700,877	May 20	2200	240	99	1700
Sale, Clarence. (See Currier, Jeremiah M., assignor.)						
Salmon, John, Liverpool, England. Table-tennis net	699,980	May 13	1061	201	99	1500
Salmon, William R. (See Allen and Salmon, assignors.)						
Salmon, William C., Washington, D. C. Steam cooking apparatus	700,597	June 17	2201	240	99	2000
Salmon, Wilmer W., Chicago, Ill., assignor to Hall Signal Company. Signalling system for single-track railways	697,877	Apr. 8	1206	270	99	274
Saltar, John, Jr., Philadelphia, Pa. Exhaust-valve for internal-combustion engines	701,944	June 10	1181	200	99	2071
Salveter, Theodore C., St. Louis, Mo. Arch-bar	699,081	May 13	1008	200	99	1500
Salyer, Harry M., assignor to Ludwig and Company, New York, N. Y. Self-playing attachment for musical instruments	700,889	May 27	2204	274	99	1919
Salyer, Harry M., assignor to Ludwig and Company, New York, N. Y. Playing attachment for musical instruments	700,890	May 27	2270	274	99	1920
Salyer, Harry M., New York, N. Y., assignor to Ludwig & Co. Apparatus for performing music	700,897	June 17	2204	274	99	2000
Sambor, Gustaf F., San Francisco, Cal. Shipping-package	699,417	May 6	207	127	99	1200
Samson, Edward W., Lenoir, Ill. Metal truss	700,228	June 10	1077	200	99	2040
Sammons, Timothy J., Corona, N. Y. Car-coupling	697,022	Apr. 8	1200	270	99	274
Samoradi, Peter, Chicago, Ill. Air-ship	701,510	June 3	410	90	99	2120
Sample, Ezekiel A., Fredericktown, Mo. Car-fender	701,945	June 10	1182	200	99	2071
Samuels, Jonathan H., assignor to D. M. Seehler Carriage Company, Moline, Ill. Seed-ing-machine	700,428	June 17	2100	200	99	2000
Sander, Firm of Frank. (See Goetz, Paul C. K., assignor.)						
Sanders, Ebenezer A., et al. (See Edwards, Isaac L., assignor.)						
Sanders, Ernest B., Oak Grove, La. Store-fixture	697,026	Apr. 15	2001	220	99	527
Sanders, John, Dundee, Tex. Plow	699,710	May 13	1127	204	99	1419
Sanders, Louis, Brooklyn, N. Y. Belt-clamp for buckles	701,091	May 27	2208	200	99	2040
Sander, Charles, assignor of one-half to I. Smolensky, Washington, D. C. Compound tool	698,736	Apr. 1	200	124	99	147
Sandmeyer, Traugott, assignor to Aniline Colour and Extract-Works, formerly John R. Geigy, Basle, Switzerland. Making indigo	697,545	Apr. 15	2108		99	428
Sandstrom, Charles E., Chicago, Ill. Sawing, jointing, and boring machine	701,080	June 3	412	125	99	2007
Sandstrom, Charles E., Chicago, Ill. Machine for forming elliptical frames	701,084	June 3	400	127	99	2000
Sandstrom, Charles E., Chicago, Ill. Machine for forming elliptical frames	701,080	June 3	400	128	99	2040
Sandusky Portland Cement Company. (See Newberry, Spencer B., assignor.)						
Sandusky Portland Cement Company. (See Ralby and Newberry, assignors.)						
Sandvig, Anders, Lillehammer, Norway. Apparatus for forming plates	699,019	Apr. 20	4006	1108	99	1180
Sanford, Alfred F., Knoxville, Tenn. Collection-form	700,467	June 17	2190	200	99	2000
Sanford, Charles H., Dadeville, Ala. Fertilizer-distributor	699,947	May 6	207	40	99	1216
Sanford, Lewis H. (See Weaver and Sanford, assignors.)						
Sanford, Lewis H. (See Knowlton, John D., assignor.)						
Sanford, William W., East Orange, assignor of one-half to F. D. Bennett, Freshford, N. J. Skyographic pen	699,020	Apr. 20	4716	1000	99	1000
Sanger, Otto C., Blue Earth City, Minn. Toy	699,894	Apr. 20	2019	200	99	615
Santler, Francis L., Seaton-Carew, and J. L. Smith, Englewood, England. Open-search wood-furniture	700,200	June 24	2725	200	99	2000

Alphabetical list of patents, April to June, inclusive—Continued

Inventor	Invention	No.	Date	Monthly volume		Official Gazette	
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Schmidt, John R. St. Louis, Mo.	Sign	703,553	June 17	200	200	20	1748
Schmidt, Julius, Ludlow, Ky.	Lubricating oil	703,551	Apr. 15	175	175	20	1748
Schmidt, Karl, Dresden, Germany	Pipe-compressor	700,576	May 20	2400	270	20	1719
Schmidt, Lambert, Waukegan, N. J.	Field-telephone set	702,004	June 30	2175	2175	20	2216
Schmidt, Nicholas, Milwaukee, Wis.	Water motor	707,557	Apr. 15	2129	2129	20	1717
Schmidt, Oscar (See Longmeyer, Henry, assignor.)		703,552	Apr. 15	2129	2129	20	1717
Schmidt, Philip, Chicago, Ill.	Box-holder	703,552	Apr. 15	2129	2129	20	1717
Schmidt, Adolf G., assignor of one-fifth to D. von Blum, Maryville, Kans.	Mattress or cushion and headrest attachment therefor	703,552	Apr. 15	2129	2129	20	1717
Schmitt, Edward D., Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Camden, N. J., and Baltimore, Md.	Machine for applying bottle-seals	707,550	Apr. 15	2129	2129	20	1717
Schmitt, Edward D., Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Camden, N. J., and Baltimore, Md.	Machine for applying bottle-seals	707,551	Apr. 15	2129	2129	20	1717
Schmitt, Edward D., Baltimore, Md., assignor, by mesne assignments, to Universal Seal and Stopper Company, Camden, N. J., and Baltimore, Md.	Machine for applying bottle-seals	707,552	Apr. 15	2129	2129	20	1717
Schmitt, Frank, Chicago, Ill.	Supporting frame for the construction of open cylindrical crates	703,553	June 17	200	200	20	1748
Schmitt, Frank, Chicago, Ill.	Supporting frame for the construction of open cylindrical crates	703,554	June 17	200	200	20	1748
Schmitt, Charles L. (See Moore and Schmucker.)		703,555	June 17	200	200	20	1748
Schmitt, Joseph, New York, N. Y.	Manufacture of fermented liquors	703,556	June 17	200	200	20	1748
Schmitt, Charles F. T. and J. E. A. Castel, La Crosse, France.	Apparatus for setting false teeth	703,557	June 17	200	200	20	1748
Schneider, Ernst W., Zurich, Switz.	Window shade and curtain fixture	703,558	June 17	200	200	20	1748
Schneider, George, Baltimore, Md., assignor to George Schneider Manufacturing Company, Baltimore, Md.		703,559	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,560	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,561	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,563	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,564	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,567	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,569	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,570	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,589	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,590	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,597	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,598	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,600	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,665	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,667	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,668	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,669	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,680	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,682	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,691	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,692	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,693	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,694	June 17	200	200	20	1748
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Schneider, George, Baltimore, Md.		703,699	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,700	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,701	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,702	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,703	June 17	200	200	20	1748
Schneider, George, Baltimore, Md.		703,704					

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Schuster, Ernst. (See Eder, Reinhold, assignor.)						
Schütz, Richard, assignor to Firm C. Zeiss, Jena, Germany. Photographic curtain-shutter	705,007	June 24	3175	728	99	2017
Schutz, William C., assignor to F. R. Rice Mercantile Cigar Company, St. Louis, Mo.	705,185	June 24	2475	730	99	2074
Schurman, Dirk, Hoboken, N. J. Feed-bag	695,780	Apr. 1	890	104	99	147
Schwab, Benjamin, Nogales, Mexico. Bar or fastener for doors	695,280	Apr. 22	2061	890	99	518
Schwab, Frank X., Buffalo, N. Y. Keg	705,647	May 20	2287	821	99	1791
Schwab, Martin C., Baltimore, Md. Conveyor	705,115	June 10	1808	828	99	2425
Schwab, Nathan, New York, N. Y. Karolop-motometer	697,542	Apr. 15	2171	428	99	428
Schwaben, John N., Hudson, Wis. Draft-equalizer	697,549	Apr. 15	2172	428	99	428
Schwan, Nicolaus. (See Homolka and Schwan.)						
Schwartz, Herman, and I. Silbermann, New York, N. Y. Fountain-brush	701,408	June 3	2110	81	99	2121
Schwartz, Herman M., assignor to Fibre Manufacturing Company, Northampton, Mass.						
Schwartz, Louis, New York, N. Y., assignor to Eagle Chemical Works, Secaucus, N. J. Receptacle for ethyl chloride	694,701	Apr. 1	691	127	99	147
Schwartz, Oswald, New York, N. Y. Chimney cowl or ventilator	701,274	May 27	4189	960	99	2297
Schwartz, Michael, assignor to E. Payson, Chicago, Ill. Adjustable door-spring	700,595	May 20	2285	821	99	1791
Schwartz, William J., Brooklyn, N. Y. Gas-stove	695,744	Apr. 22	2455	958	99	1005
Schwesler, John, Philadelphia, Pa., assignor, by mesne assignments, to E. W. Cavenagh, New York, N. Y. Soap-granulator	695,144	Apr. 22	2000	725	99	747
Scior, John, Mansfield, Ohio. Combination bung and tapping bush	701,222	May 27	4287	941	99	2099
Scotfield, Edson D., et al. (See Winkler, William, assignor.)						
Scotfield, Edson M. (See Teacher, Edwin, assignor.)						
Scotfield, William E., Long Island City, assignor to Sunlight Gas Machine Company, New York, N. Y. Carbide-feeding device for acetylene-gas generators	697,094	Apr. 8	1284	375	99	351
Scott, Calvin, Bythedale, Mo. Identification-tag	700,008	June 24	2175	728	99	2017
Scott, Charles C., assignor to A. C. and M. L. Felkin, Boston, Mass. Illuminated sign	700,595	May 27	2285	821	99	1791
Scott, Charles H., Gloucester, England. Press for pressing linoleum, &c.	697,550	Apr. 15	2174	428	99	428
Scott, Charles H., Gloucester, England. Machinery for the manufacture of inlaid linoleum	697,551	Apr. 15	2175	428	99	428
Scott, Charles H., Gloucester, England. Manufacture of linoleum	697,552	Apr. 15	2180	428	99	428
Scott, Charles H., Chicago, Ill. Combined bustle and hip-form	702,155	June 10	1808	828	99	2425
Scott, Edwin V. (See Chedell and Scott.)						
Scott, George, Amsterdam, N. Y., and E. D. Wayburn, Chicago, Ill. Cutting-machine and cutting-table and pattern therefor	695,054	Apr. 22	2128	687	99	712
Scott, George C., Boston, Mass. Chair-tip	695,228	Apr. 22	2425	720	99	720
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine	697,176	Apr. 8	1425	323	99	323
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine	697,177	Apr. 8	1426	323	99	323
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine	700,579	May 20	2285	821	99	1779
Scott, Henry W. (See Dearing, David M., assignor.)						
Scott, Jacob E., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Machine for buffing articles of leather	695,205	May 6	205	49	99	1215
Scott, James A., assignor of one-half to C. E. Fuller, Somerville, Mass. Folding stand or case	702,088	June 10	1808	827	99	2425
Scott, James T., Buffalo, Ala. Press for baling hay, cotton, &c.	695,220	Apr. 22	2425	720	99	720
Scott, John, Edinburgh, Scotland. Rotary plow	700,247	May 20	2227	828	99	1825
Scott, John, Edinburgh, Scotland. Rotary cultivator	701,513	June 3	2112	81	99	2121
Scott, Joseph A., Yonkers, N. Y. Water-tube boiler	700,248	May 20	2228	828	99	1825
Scott, Robert, San Jose, Cal. Quicksilver-furnace	695,223	May 13	1241	311	99	1425
Scott, Robert W., Philadelphia, L. N. D. Williams, Ashbourne, and H. Swinglehurst, Philadelphia, Pa., assignors to said Scott and Williams. Knitting-machine	697,523	Apr. 15	2098	644	99	648
Scott, Walter, Plainfield, N. J. Slip-sheet-introducing mechanism	695,745	Apr. 22	2427	720	99	1008
Scott, Wilber H., Ottawa, Canada. Bottle-capping machine	697,573	Apr. 15	2425	720	99	649
Scott, William G., Rockwell, Minn. Cultivator	695,523	Apr. 22	2029	825	99	212
Seavill Manufacturing Company. (See Stanley, Frederick E., assignor.)						
Scrivens, William. (See Lee, Charles F., assignor.)						
Scrivens, James H., Cleveland, Ohio. Sash-fastener	695,220	May 6	205	491	99	1222
Scruggs, William M., Monticello, Tenn. Gun-cartridge	700,528	May 27	2229	825	99	1712
Secklin-Gallagher Iron & Steel Company. (See Gallagher, Thomas H., assignor.)						
Seabrook, Percy B. H., London, England. Clamp particularly adapted for securing fittings to the frames of cycles	705,100	June 10	1806	229	99	2425
Seabury, Gorham T., et al. (See Krots, Linford E., assignor.)						
Seabury, George B. M., et al. (See Murphy, John F., assignor.)						
Seaman, Elizabeth C., New York, N. Y. Milk-can	697,528	Apr. 15	2123	425	99	425
Searle, Frederick, assignor to Loring Co. & Company, Incorporated, Worcester, Mass. Construction of wrenches	695,719	May 13	1124	225	99	1425
Searles, Charles F., assignor to W. D. Souziers, Columbus, Ohio. Clothes-wringer	702,020	June 24	2172	723	99	2217
Seaver, Robert E., assignor to H. C. Huddes, Sacramento, Cal. Egg-preserving safe	695,415	May 6	257	127	99	1229
Seaver, Frank B., Johnson Township, Clinton county, Ind. Drag and harrow-pulverizer combined	702,024	June 10	1806	227	99	2425
Seaver, John W. (See Wellman, Seaver, and Morgan.)						
Seaver, John W. (See Wellman, Seaver, and Morgan.)						
Sebillot, Amédée M. G. Paris, France. Apparatus for making sulfuric acid	700,240	May 20	2221	824	99	1825
Secor, Theodosius F., New York, N. Y. Ice-box cover	695,524	Apr. 22	2029	825	99	212
Seckon, Edward H., Brooklands, England. Hand-wheel	701,022	May 27	2244	828	99	2019
Sedgwick, Frederick, assignor to E. L. Krag, Chicago, Ill. Loose-leaf ledger						
See, James W. (See Hooven and See.)						
Seebach, Reinhardt, New York, N. Y. Picture-frame	695,523	Apr. 1	191	48	99	48
Seefelt, William, London, England. Fire-resting staircase						
Seel, Eugene, Stuttgart, Germany, assignor to Farbwerke of Höchstädt Co., New York, N. Y. Aloxin derivative and making same	695,745	Apr. 22	2421	720	99	1009
Seeman, Richard, Ealing, London, England. Apparatus for treating copper ores	702,420	June 17	2726	921	99	2225
Seerup, William T., Pocahontas, Ark. Folding rocking-chair	697,025	Apr. 8	1229	375	99	321
Seibering, Frank A., Akron, Ohio. Solid-rubber vehicle-tire	700,227	May 27	2225	777	99	1825

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Seldel, Paul, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Making indigo from lard	695,223	Apr. 22	2427	720	99	1008
Seldel, Paul, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Indigo-diacetic acid and making same	695,221	May 6	2051	49	99	1222
Seller, Paul M. (See Fitzgerald, Seltzer, and Kimmel.)						
Seller, Hubert, Dusseldorf, Germany. Apparatus for heating or cooling liquids	697,584	Apr. 15	2184	425	99	425
Seller, Joseph, South Norwalk, Conn. Fishing device	700,528	May 13	1250	321	99	1222
Seller, Philipp. (See Keller and Seller.)						
Seltz, William F. (See Brevington, Henry S., assignor.)						
Seltz, Clinton H., Norwalk, Pa. Automatic air-brake coupling	701,022	June 3	2141	140	99	2042
Seltz, James, Lancaster, Wis. Bridge	695,747	Apr. 22	2421	720	99	1009
Sellers, William, Haverhill, Mass. Trolley-wheel	697,522	Apr. 15	2123	425	99	425
Sellers, William, Haverhill, Mass. Trolley-wheel	695,145	Apr. 22	2021	725	99	745
Sellers, Fred E., St. Louis, Mo. Harvester-rod	700,024	May 13	1251	321	99	1222
Selph, Ben and, Hillsboro, Ohio. Assignor to Davidson Rubber Company, Boston, Mass.						
Seltzer, Cyrus J., Philadelphia, Pa., assignor to Davidson Rubber Company, Boston, Mass.	700,025	May 27	2229	825	99	1712
Seltz, Andrew J., New Rochelle, N. Y. Game or puzzle	701,022	June 3	2141	140	99	2042
Sendelbach, Edward, Torre Haute, Ind. Vehicle-hub	701,787	June 3	2172	723	99	2217
Seeg Company. (See Gay, Edgar A., assignor.)						
Seegelsch, Günther, Berlin, Germany. Harness	695,220	Apr. 22	2425	720	99	720
Seena, Preston L., Vancou, S. C., assignor to Draper Company, Hopedale, Mass. Apparatus for extracting screw-bolts, &c.	701,242	June 10	1808	827	99	2425
Sergeant, Henry C., Westfield, N. J., and W. F. Feltz, Easton, Pa., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Regulating device for air-compressors	695,524	Apr. 1	192	47	99	47
Serpollet, Leon, Paris, France. Automatic proportional feeding device	702,421	June 17	2727	921	99	2225
Serrall, John A., Bayonne, N. J., assignor to Warren Webster and Company. Valve device for steam-heating systems	700,528	May 20	2229	825	99	1712
Sevens, Frank L., Oakport, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Magnetic clutch	700,528	May 27	2227	777	99	1825
Seibach, Julius and F. J. Cynthiana, Ind. Fire-escape	701,024	May 27	2147	140	99	2042
Seibach, Peter J. (See Seibach, Julius and F. J.)						
Seitler, Berthold, Chicago, Ill. Mixer or vaporizer for hydrocarbon-engines	697,523	Apr. 15	2123	425	99	425
Seumenicht, Johann A. F. C., Lagerdorf, Germany. Shaft-furnace for burning cement, &c.	695,223	May 13	1212	325	99	1475
Seward, Simon E. V., assignor to Seward Trunk and Bag Company, Petersburg, Va. Trunk	695,224	Apr. 1	205	126	99	1275
Seward Trunk and Bag Company. (See Seward, Simon E. V., assignor.)						
Seymour, Ralph C., South Orange, N. J., assignor to C. E. Cottrell & Sons Company, New York, N. Y. Anti-offset device	695,224	May 13	1212	325	99	1475
Shaffer, Howard A., Nazareth, Pa. Type-writing machine	702,025	June 10	1808	828	99	2425
Shaffer, Charles A., Indianapolis, Ind. Display-table	697,528	Apr. 8	1251	327	99	1222
Shaffer, Francis F., Cumberland, Md. Car-brake	695,228	May 6	205	491	99	1222
Shaffer, Samuel C., Mobile, Ala. Signal apparatus	702,422	June 17	2728	921	99	2225
Shaine, Boris M., New York, N. Y. Umbrella-rip retainer	695,228	Apr. 22	2425	720	99	720
Shaler, Frank L., Haverhill, Mass. Churner for shaking cream	695,228	Apr. 22	2425	720	99	720
Shallenberg, Charles S., Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Metallic railway tie	701,513	June 3	2112	81	99	2121
Shallenberg, Charles S., Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Combined spring and friction draft-rigging	701,514	June 3	2114	81	99	2121
Shallenberg, Charles S., Milwaukee, Wis., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Car-brake	701,515	June 3	2115	81	99	2121
Shallenberg, Charles S., Jacksonville, Ill., assignor, by mesne assignments, of one-half to M. J. Hurley, St. Louis, Mo. Dust-guard for journal-boxes	701,515	June 3	2116	81	99	2121
Shallow, Edward F., West Philadelphia, Pa. Water-gate for boilers	701,515	June 3	2117	81	99	2121
Shanefelt, George W. (See Hornaday, Edson, assignor.)						
Shanahan, Thomas R., Gloversville, N. Y. Automatic trolley-catcher	697,574	Apr. 15	2428	720	99	541
Shandley, John C., Fairmont, W. Va. Whistle-coupling	697,525	Apr. 15	2123	425	99	425
Shanger, Charles H., et al. (See Ambrosius, Carl A., assignor.)						
Shanger, James E., et al. (See Ambrosius, Carl A., assignor.)						
Shank, Augustus W., assignor to E. A. Hall and W. C. Heller, Detroit, Mich. Street-car tender	695,228	May 13	1212	325	99	1441
Shannon, Irvin M., et al. (See Furman, John C., assignor.)						
Shartle, William, and D. Crawford, Glasgow, Scotland. Steam-generator	701,428	June 3	2111	40,47	99	2121
Sharp, Albert F. (See Bowman and Sharp.)						
Sharp, Francis M. and L. E. Hartwig, Okla. Terr. Cotton-chopper	701,728	June 3	2178	194	99	2221
Sharp, John W., Sidney, Ark. Drag for gathering muscels	702,220	June 10	1872	228	99	2425
Sharp, John W., Sidney, Ark. Drag for gathering muscels						
Sharp, Samuel J., assignor of three-fourths to H. E. Dunlap, L. F. and H. E. Stifel, Wheeling, W. Va. Look for overhead-trolley tracks	701,517	June 3	2119	85	99	2124
Sharpe, John E., Onida, assignor of one-half to N. D. Bartle, Guilford, N. Y. Insulator-supporting arm	700,570	May 20	2241	828	99	1712
Sharpley, David T., Westchester, Pa. Feed-regulating mechanism for liquids	695,549	May 6	210	223	99	1217
Sharpneck, Elial L., Chicago, Ill. Apparatus for the treatment of ores	697,175	Apr. 8	1251	324	99	326
Sharpneck, William S., assignor to J. D. Ross and E. W. Brooks, Chicago, Ill. Centrifugal pump. (Reissue.)	19,001	June 17	2770	924	99	2725
Sharps, Herbert E., assignor to O. Turney, Fairfield, Conn. Automatically-operated musical instrument	695,728	Apr. 1	194	127	99	126
Sharps, Herbert E., and W. W. Cooper, Bridgeport, Conn. Automatic spring-winding mechanism for mechanical musical-instrument devices	697,724	Apr. 15	2429	720	99	571
Sharrard, James W., and T. W. Lloyd, Atchison, Kans. Mechanical movement	695,522	May 13	1243	319	99	1425
Shauk, Arthur M., Galion, Ohio. Bicycle-driving-gear	697,575	Apr. 15	2410	720	99	541
Shauk, Arthur M., Galion, Ohio. Curtain-fastener	701,020	June 3	2140	141	99	2042
Shaw, Arthur D. (See Dodge and Shaw.)						
Shaw, Charles H., Brooklyn, assignor to E. H. Thompson, New York, N. Y. Sulfur candle	695,746	Apr. 22	2428	720	99	1010
Shaw, Gilbert E. (See Harrold, John J., assignor.)						
Shaw, John W., Berryman, Cal. Washer-fastener	697,528	Apr. 8	1212	325	99	425
Shaw, Robert S., Waukegan, England. Traveling type-writing machine	702,420	June 17	2726	921	99	2225
Shaw, Samuel, Newton, Mass. Damper for fireplaces	697,528	Apr. 15	2123	425	99	425

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Sleeper, Frank H., Westmount, assignor of one-half to North West Shoe Company, Ltd., Montreal, Canada. Engine.	698,708	Apr. 1	713	100	98	130
Sleeper, Charles W., Independence, Mo. Vehicle-spoke puller.	701,519	June 3	488	98	98	2195
Sleeper, Flavius J., Newark, Ill. Creaming-can.	698,589	Apr. 30	4048	835	98	980
Sleeker, Benjamin F., Paines, Ill. Grain-loader.	700,097	May 13	1897	324	98	1870
Slack, Edwin E., Braddock, Pa. Rolling-mill feed-table.	698,870	Apr. 30	4040	835	98	980
Slack, Victor H., (See Thompson and Slack.)						
Slack, Victor H., Philadelphia, Pa. Welding or other incandescence burner.	698,951	May 6	225	38	98	1281
Slack, George L., et al. (See Zengel, Joseph, assignor.)						
Slack, James W., assignor of two-thirds to J. S. Cullinan and H. G. Johnston, Corvallis, Tex. Bit for well-drilling apparatus.	698,415	Apr. 23	2773	523	98	947
Sly, William W., Cleveland, Ohio. Barrel-closure.	703,512	June 24	3739	639	98	2635
Small, Henry J., Sacramento, Cal., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa. Car-brake. (Reissue.)	11,980	May 18	3048	497	98	1608
Small, Roscoe G., Bayonne, N. J. Differential gearing.	701,093	June 3	646	141	98	2643
Smalley, James B., (See Braden and Smalley.)						
Smart, Samuel H., trustee. (See Harris, John, assignor.)						
Smoad, Isaac D., Cincinnati, Ohio. House-heating apparatus.	700,888	May 20	3500	573	98	1730
Smolker, Angelina, Northstar, Ohio. Fruit-jar closer.	697,051	Apr. 15	3430	598	98	548
Smith, Alva P., Jr., Brookton, assignor to Boston Roller Chafe Iron Company, Boston, Mass. Brace-blank and chafe-iron holder.	698,731	Apr. 30	4485	908	98	1011
Smith, Albert D., assignor to H. G. and F. Woehler, St. Louis, Mo. Coin-controlled newspaper-vending machine.	698,338	May 6	287	54	98	1281
Smith, Alfred B., Reading, England. Apparatus for golf practice.	703,586	June 17	3793	639	98	2739
Smith, Alfred W., Adrian, Mich. Mail-box.	698,383	May 6	280	54	98	1281
Smith, Alvin G., Cheyenne, Wyo. Hair-tester.	698,388	Apr. 23	3080	528	98	817
Smith, Amos C., New York, assignor to E. B. Jaffray, trustee, Irvington, N. Y. Field-pressure engine.	703,301	June 17	3408	580	98	2641
Smith, Andrew, Chicago, Ill. Machine for turning outer-wheels.	698,738	Apr. 30	4487	908	98	1011
Smith and Anthony Company. (See Anthony, Edgar W., assignor.)						
Smith, Arthur C., Milwaukee, Wis., assignor to Automobile and Cycle Parts Company, Cleveland, Ohio. Lock for adjustable ball-bearing cones.	700,251	May 20	3285	505	98	1687
Smith, Arthur W., New York, N. Y. Scrubbing-brush.	697,028	Apr. 15	3438	599	98	543
Smith, Augustus, New York, N. Y. Gate for hoppers or chutes.	698,146	Apr. 30	3803	738	98	746
Smith, Caryll T., et al. (See Smith, Roy E., assignor.)						
Smith, Charles C., Bellevue, Idaho. Nut-wrench.	701,380	June 10	1195	273	98	2674
Smith, Charles D., St. Louis, Mo. Ventilator for chimneys.	697,180	Apr. 5	1494	284	98	287
Smith, Charles F., Beaumont, assignor to Smith Single Belt Reversing Countershaft Company, Monroe, Mass. Reversing-gear.	701,064	June 3	646	142	98	2644
Smith, Charles W., assignor of one-half to S. T. Smith and W. M. Trowbridge, Piedmont, S. C. Bed-brace.	698,416	Apr. 23	2775	523	98	948
Smith, Chauncey, and J. L. Nourse, Philadelphia, Pa. Support for hammocks.	698,885	Apr. 30	4478	1040	98	1070
Smith, Clarence E., assignor to North & Judd Manufacturing Company, New Britain, Conn. Fastening device.	698,871	Apr. 30	4480	908	98	980
Smith, Claude R., assignor of one-half to E. J. Givney, Olean, N. Y. Bicycle-wheel carrier.	700,880	June 17	3287	500	98	1730
Smith, Curtis W., Bellefonte, Ohio. Change-receiver.	697,108	Apr. 5	1475	285	98	287
Smith, De Wase B., Deerfield, N. Y. Bicycle-pump.	700,010	June 24	3160	728	98	2617
Smith, Edward A., Fowler, assignor to F. W. Nash and E. M. Sprague, Denver, Colo. Pick.	698,147	Apr. 30	3804	738	98	746
Smith, Edward J., High Springs, Fla. Spark-arrester.	698,021	Apr. 30	3804	1107	98	1187
Smith, Elnathan H., Ocean City, N. J. Stamp.	700,011	June 24	3168	728	98	2618
Smith, Enos Veraham Dean, near Hungerford, England, assignor to J. Smith, Troy, and H. Smith, New York, N. Y. Pneumatic tire.	700,840	May 27	3285	778	98	1688
Smith, Eugene F., Stockton, Cal. Bicycle-pump.	700,841	May 27	3286	778	98	1689
Smith, Frank N., assignor to S. R. Dresser, Bradford, Pa. Clamping-ring for pipe-couplings.	698,408	Apr. 1	275	50	98	98
Smith, Fred L., Franklin Falls, N. H. Clutch.	697,028	Apr. 15	3438	599	98	544
Smith, Frederick H., Wichita, Cal. Buckle-packer.	698,087	Apr. 30	4413	908	98	713
Smith, Frederick L., and H. D. Gibbs, assignors to Cataract Tool and Optical Company, Buffalo, N. Y. Telescope.	701,380	June 3	646	98	98	2195
Smith, George D., Buffalo, N. Y. Musical toy.	700,998	May 27	3244	597	98	1675
Smith, George J., (See McCulloch, James, assignor.)						
Smith, George S., assignor of one-half to W. S. Lower, Burr, Nehr. Grain-car door.	697,387	Apr. 15	3165	698	98	697
Smith, George W., Hardin, Mo. Motor-vehicle.	698,738	Apr. 30	4480	908	98	1012
Smith, George W., Evanston, Ill. Picture-projecting apparatus.	700,447	May 20	3218	505	98	1733
Smith, George W., Evanston, Ill., and W. A. Somers, St. Paul, Minn.; said Somers assignor to said Smith. Picture-projecting apparatus.	700,700	May 20	3105	703	98	1680
Smith, Greene A., Indianapolis, Ind. Combination gas and oil burner.	697,080	Apr. 5	1495	277	98	284
Smith, Harry, et al. (See Smith, Ezra, assignor.)						
Smith, Harry J., New York, N. Y. Implement for cutting paper or the like.	698,084	May 6	270	50	98	1284
Smith, Harry M., Black River Falls, Wis. Ventilator.	700,973	May 20	3244	595	98	1730
Smith, Harry P., Minneapolis, Minn. Printing attachment for four-packers.	697,385	Apr. 5	1487	277	98	279
Smith, Harry W., North Grafton, Mass. Webt-replenishing loom.	697,084	Apr. 15	3165	540	98	544
Smith, Henry, Milwaukee, Wis. Pneumatic mallet-drum.	700,948	May 27	3281	775	98	1684
Smith, Henry C., (See Van Noorden and Smith.)						
Smith, Henry C., Cambridge, assignor to Smith-Warren Company, Boston, Mass. Window frame and sash.	701,087	May 27	3280	695	98	1680
Smith, Hinesdale, Springfield, Mass. Friction-clutch.	701,088	June 10	1195	273	98	2674
Smith, Joseph A., Cedar Rapids, Iowa. Adding device.	700,446	May 20	3118	698	98	1745
Smith, James H., Chicago, Ill. Camera-stand.	703,740	June 17	3770	618	98	2687
Smith, James L., Princeton, Ind. Portable seat.	698,088	May 23	281	54	98	1281
Smith, James W., Woonsocket, R. I. Seam for sewed articles.	698,088	May 23	281	54	98	1281
Smith, James T., Chapel Hill, Tenn. Rein-support.	703,486	June 17	3715	605	98	2680
Smith, John, et al. (See Smith, Enos, assignor.)						
Smith, John, assignor of one-half to H. Brandie, Philadelphia, Pa. Candy-cutting machine.	701,085	June 3	646	142	98	2644
Smith, John A., Baltimore, Md., assignor to Smith Lyraphone Company. Variable-speed mechanism.	698,088	Apr. 30	4734	1041	98	1677

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Smith, John A., Baltimore, Md., assignor to Smith Lyraphone Company. Automatic attachment for piano.	698,081	May 13	1884	293	98	1619
Smith, John D., Bonham, Tex. Spring-locks.	698,284	Apr. 30	3881	838	98	917
Smith, John L., (See Smith and Smith.)						
Smith, John L., Heron Lake, Minn. Machine for treating flax or hemp straw.	701,770	June 3	675	195	98	2281
Smith, John T., (See Smith and Smith.)						
Smith, Lawrence H. W., See Heights, S. D. Handle-bar.	700,088	May 13	1888	294	98	1670
Smith, Lloyd E., Portsmouth, Ohio. Water supply and filtering system.	698,088	Apr. 30	5005	1107	98	1118
Smith, Louis C., (See Brown, John, assignor.)						
Smith, Louis J., Leroy, and W. F. Bossert, assignors to Bossert Electric Construction Company, Utica, N. Y. Electrical knife-switch.	698,417	Apr. 30	2777	523	98	948
Smith, Lund R., et al. (See Smith, Roy E., assignor.)						
Smith Lyraphone Company. (See Smith, John A., assignor.)						
Smith, Marcelline L., (See Swarthout, George H., assignor.)						
Smith, Matthew, Liverpool, assignor of one-half to E. B. Walker, Booth, county of Lancashire, England. Artificial foot.	705,104	June 24	3477	790	98	2675
Smith, Millard F., Parsons, Kans. Embroidery-hoop holder.	698,573	Apr. 30	4351	838	98	980
Smith, Myron A., assignor to International Machine Co., New York, N. Y. Confectionery-cutter.	698,087	Apr. 30	4798	1041	98	1671
Smith, Orin E., and F. T. Bishop, Athens, Mich. Fence-post-making machine.	700,938	May 20	3232	500	98	1687
Smith, Orin E., and F. T. Bishop, Athens, Mich. Fence-post.	700,938	May 20	3232	500	98	1687
Smith, Percey F., Pittsburg, Pa. Bottom for sheet-heating furnaces.	698,148	Apr. 30	3805	738	98	746
Smith, Philip S., (See Smith, Winfield S., assignor.)						
Smith and Phillips Manufacturing Company. (See Phillips, Francis V., assignor.)						
Smith, Robert A., (See Davison, Tom C., assignor.)						
Smith, Robert G., and J. H. Nathan, Forrest City, Ark. Hanger coupling-bearing for screw conveyors.	701,038	June 3	646	142	98	2645
Smith, Rowell P., et al. (See Cook, Howard, assignor.)						
Smith, Roy E., assignor of two-thirds to L. B. and C. T. Smith, Portland, Oreg. Instrument for cooling or for warming internal portions of the human body.	697,181	Apr. 5	1495	284	98	287
Smith, Samuel T., et al. (See Smith, Charles W., assignor.)						
Smith, Samuel W., et al. (See Smith, William L., assignor.)						
Smith Single Belt Reversing Countershaft Company. (See Smith, Charles F., assignor.)						
Smith, Sommers N., Philadelphia, Pa. Manufacturing ice.	703,314	June 24	3750	630	98	2638
Smith, Sommers N., Philadelphia, Pa. Apparatus for manufacturing ice.	703,315	June 24	3751	630	98	2637
Smith, Sommers N., Philadelphia, Pa. Apparatus for manufacturing ice.	703,315	June 24	3751	630	98	2637
Smith, Stephen D., Orlando, Fla. Machine for preventing deposition of frost on vegetation.	702,218	June 24	3758	630	98	2637
Smith, Stephen G., Hamilton, Mo. Air-diffuser.	701,338	May 27	3401	541	98	2070
Smith, Sydney, Glasgow, Scotland. Rotary engine.	698,730	May 13	1186	286	98	1481
Smith, Thomas C., et al. (See Muehl, Mark R., Jr., assignor.)						
Smith, Thomas H., assignor of one-half to E. E. Randolph, Masito, Ill. Cultivator-shovel.	697,597	Apr. 15	3207	631	98	630
Smith, Thomas H., assignor of one-half to E. E. Randolph, Masito, Ill. Cultivator-shovel.	703,428	June 17	3816	805	98	2638
Smith, Valerius Y., Oakland, Cal. Hand rock-drill.	700,573	May 20	3247	598	98	1738
Smith, Walter E., Marlboro, Mass. Piston.	701,420	June 3	646	142	98	2618
Smith, Walter L., Garvin, Iowa. Sound-motor.	698,734	Apr. 30	4473	908	98	1012
Smith-Warren Company. (See Smith, Henry C., assignor.)						
Smith, William, assignor of one-half to P. G. Robinson, Bostrop, La. Station-indicator.	697,325	Apr. 5	1495	277	98	280
Smith, William D., Springfield, Mass. Anchor-bearing for screws, &c.	697,325	Apr. 15	2808	577	98	688
Smith, William T., (See Coleman, William H., assignor.)						
Smith, William W., Kansas City, Mo. Marine railway-car transport.	698,573	Apr. 30	4351	838	98	981
Smith, Winfield S., Pawtucket, R. I., assignor of one-half to P. S. Smith, Philadelphia, Pa. Machine for shaping boxes.	700,948	May 27	3281	775	98	1684
Smith, Winfield S., Pawtucket, R. I., assignor of one-half to P. S. Smith, Philadelphia, Pa. Machine for shaping boxes.	697,373	Apr. 5	1480	288	98	287
Smith, Winfield S., Pawtucket, R. I., assignor of one-half to P. S. Smith, Philadelphia, Pa. Machine for shaping boxes.						
Smoke Extremator and Fume Condenser Company. (See Jackson, William B., assignor.)						
Smolensky, Isidore. (See Sandler, Charles, assignor.)						
Smyth Manufacturing Company. (See Jacobs, Arthur L., assignor.) (Reissue.)						
Smyth, Milton B., Hoston, Kans. Horizontal truss.	701,364	June 10	1199	273	98	2675
Snyder, Frank A. L., Concord, assignor to C. H. Lonsdale, Stamford, Conn. Start-up mechanism for gas-engines.	703,197	June 24	3778	720	98	2675
Snyder, Albert, Brooklyn, N. Y. Cuff-holder.	698,149	Apr. 30	3806	738	98	749
Snyder, William E., Camden, N. J. Vice.	698,535	May 6	271	50	98	1285
Snell, Adolphus G., New Haven, Conn. Carriage-lock.	698,084	May 13	1887	293	98	1619
Snell, David C. F., Loveland, Tex. Check-line buckle.	698,088	Apr. 30	4480	908	98	714
Snell, George D., assignor to Robinson-Cress Company, Denver, Colo. Combined display-rack and advertising device.	701,318	June 3	646	142	98	2638
Sneltenand, Cornelia W., and J. F. B. de Souza, Rio Janeiro, Brazil. Appliance for cleaning doors, walls, windows, &c.	701,887	June 3	654	142	98	2645
Snyder, Gabriel F., Abington, Iowa. Mail-pouch.	700,944	May 27	3285	775	98	1685
Snyder, Milton A., (See Watson, Henry F., assignor.)						
Snyder, Charles W., Clarksville, Ohio. Fence-post.	697,081	Apr. 5	1487	273	98	284
Snow, Charles H., San Francisco, Cal. Automatic-dumping ore-car.	697,085	Apr. 15	3165	540	98	545
Snow, Gilbert B., assignor to High Wind Power and Pump Company, Elgin, Ill. Windmill.	703,161	June 10	1192	269	98	2683
Snow, John A., Youngstown, Ohio. Railway-signal-operating apparatus.	703,210	June 24	3787	725	98	2688
Snow, Stephen, Everett, Mass., assignor to Peoria Machinery Company, Charleston, W. Va., and New York, N. Y. Lasting-machine.	701,411	June 3	646	142	98	2618
Snow, Stephen, Everett, Mass., assignor to Peoria Machinery Company, Charleston, W. Va., and New York, N. Y. Lasting-machine.	701,412	June 3	646	142	98	2618
Snow, Theodore W., (See Winters, David L., assignor.)						
Snyder, Daniel E., Portsmouth, Va. Non-refillable bottle.	698,421	May 6	273	120	98	1286
Snyder, John E., et al. (See Jacoby, William, assignor.)						
Snyder, Philip, et al. (See Jacoby, William, assignor.)						
Soder, Coleman K., (See Boston, Charles F., assignor.)						
Société Anonyme des Wagons Tréportais. (See Huard, Scipion, assignor.)						
Société Anonyme le Carbone. (See Baur, Ernest H., assignor.)						
Société des Inventeurs Jan. (See Jan. (See thepanik, Jan. assignor.)						
Société des Produits Américains. (See Lefebvre, Jérôme, assignor.)						
Somers, William A., (See Smith and Somers.)						
Somersetfield, Heinrich, Canton, Mass. Sully-glow.	698,770	Apr. 1	714	121	98	128
Somersetfield, Heinrich, Canton, Mass. Sully-glow.						
Soper, William D., (See Sandler, Charles P., assignor.)						
Soper, William A., assignor of one-half to G. W. Baker, Mayville, Ky. Ice-cream freezer.	698,574	Apr. 30	4351	838	98	981
Sorrensen, Peter, Brooklyn, N. Y. Watch-dismantler.	703,600	June 17	3823	825	98	2687

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Sternau & Co., S. (See Sternau and Strauburger, assignors.)						
Sternau, Sigmund, and L. Strauburger, assignors to B. Sternau & Co., New York, N. Y. Alcohol-lamp	595,577	Apr. 1	199	46	90	17
Sternberg, Wilhelm, assignor to Chemische Fabrik auf Acker, (vorm. E. Schering), Berlin, Germany. Methylene citric acid and making same	590,422	May 6	578		90	1253
Sternberg, Wilhelm, assignor to Chemische Fabrik auf Acker, (vorm. E. Schering), Berlin, Germany. Methylene citrate and making same	590,423	May 6	578		90	1253
Stevens, Frank M., St. Louis, Mo. Folding chicken-coop	597,057	Apr. 6	1254	379	90	235
Stevens, Benjamin A., Toledo, Ohio. Fence	578,189	June 24	5490	500	90	2973
Stevens, Calvin A. (See Collins, Caleb G., assignor.)						
Stevens, Charles L., et al. (See Cohen, George W., assignor.)						
Stevens, Charles E., Lovelocks, Nev. Cap for fuses	590,355	May 6	572	208	90	1255
Stevens, Charles W., North Harvey, Ill. Artificial banding-stone	595,587	May 6	572	208	90	1255
Stevens, Charles W., North Harvey, Ill. Making artificial stone	590,588	May 6	575	208	90	1255
Stevens, Ernest, Philadelphia, Pa. Labels	590,355	May 6	575	208	90	1255
Stevens, Frederick A., assignor of one-half to A. E. Leas, Providence, R. I. Eyeglasses	570,319	June 3	595	518	90	2958
Stevens, George E., Lynn, Mass., assignor to General Electric Company. Globe-holder for arc-lamps	597,707	Apr. 15	2228	988	90	521
Stevens, James N., et al. trustees. (See Crane, Wendell P., assignor.)						
Stevens, James S., Barberton, Ohio. Steam-boiler	597,561	Apr. 15	2195	490	90	496
Stevens, John W. (See Anderson, Stevens, and Lutz.)						
Stevens, W. A. (See Garland, Ernest C., assignor.)						
Stevens, William H., assignor of one-third to J. H. Garratt, Buffalo, N. Y. Clock-frame	702,304	June 24	3025	575	90	2948
Stevenson, D. W., et al. (See Henderson, Robert, Amos M., assignor.)						
Stevenson, D. W., et al. (See Henderson, Robert, Amos M., assignor.)	702,217	June 24	3725	561	90	2928
Stevenson, George, Leosau, Mapleton, Mich. Potato-digger	597,929	Apr. 15	2435	545	90	545
Stevenson, S. Price, Chester, Pa. Door and frame for air-tight chambers	701,009	Apr. 15	2435	545	90	545
Steward, John F. (See Ellis and Steward.)						
Steward, John F., Chicago, Ill. Spring-catch tongue-saddle for harvesters	701,009	May 27	3555	855	90	2081
Steward, John F., Chicago, Ill. Corn-shocker	702,628	June 17	3411	520	90	2641
Stewart, B. R. (See Weaver, Ervin E., assignor.)						
Stewart, George H., and A. L. Wessman, Topeka, Kans. Hernial truss	705,095	June 24	3325	771	90	2951
Stewart Hartborn Company. (See Baker, Charles A., assignor.)						
Stewart, James B., Chicago, Ill. Can top and cap	597,095	Apr. 6	1255	280	90	298
Stewart, John K., Chicago, Ill. Clipper or shearing-tool	595,073	Apr. 28	5125	690	90	715
Stewart, Robert P., assignor of one-half to W. E. Hogue, Paris, Tex. Receptacle or tank	597,924	Apr. 15	2435	544	90	540
Stewart, Samuel, Newark, N. J. Gas heating-stove	701,100	May 27	3555	855	90	2081
Stewart, Sylvester N., Brooklyn, N. Y. Device for guiding wagons on tracks	702,532	June 17	3325	506	90	2604
Stewart, William, Albany, New South Wales, Australia. Fire-escape	598,508	Apr. 1	901	48	90	47
Stewart, William M., et al. (See Werner and Ellis, assignors.)						
Stickel, Jacob, assignor of one-sixth to H. C. McCormick, C. F. Overhiser, Williamsport, Pa., and L. A. Atkin, Washington, D. C. Journal-bearing	598,509	Apr. 1	902	49	90	47
Stickel, Francis, assignor of one-half to C. A. Dracklieb, New York, N. Y. Cigarette-making machine	700,328	May 20	2227	510	90	1037
Stickney, Burnham C., Elizabeth, N. J., assignor to J. Felbel, New York, N. Y. Type-writing machine	595,181	Apr. 28	5310	784	90	740
Stickney, Caleb, assignor to Towle Manufacturing Company, Newburyport, Mass. Apparatus for annealing silver or other metals	700,101	May 18	3047	485	90	1576
Stiefel, Henry C., Pittsburgh, Pa. Pen-point cutting press and die	701,048	June 3	364	145	90	2347
Stieglmann, Armand J., assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making resist-white under indigo	599,028	Apr. 29	6008		90	1128
Stiehle, Guido, Seltmanns, Germany. Vessel or pot for gathering fibers being thrown off spinning-machines	598,785	Apr. 29	4475	980	90	1012
Stifel, Henry E., et al. (See Sharp, Samuel J., assignor.)						
Stifel, Louis F., et al. (See Sharp, Samuel J., assignor.)						
Stiglitz, William H. (See McKelvey, Jonathan, assignor.)						
Stiglin, Theodor, Vienna, Austria-Hungary. Machine for working stone surfaces	702,087	June 10	1388	305	90	2404
Stiles, Edward H., Jr. (See Wood and Stiles.)						
Stiles, Linford S., Philadelphia, Pa. Engine for molding-machines	705,015	June 24	3125	724	90	2610
Still, Charles I., Sing Sing, N. Y. Picture-hanger	595,510	Apr. 1	904	49	90	48
Still, William J., Toronto, Canada. Variable-speed governor	700,546	May 27	3405	708	90	1998
Stillman, Francis H. (See Wirtel, Carl, assignor.)						
Stillwell-Bierce & Smith-Valle Co. (See Gleaser, Arthur, assignor.)						
Stimponco, Clarence A., Philadelphia, Pa. Automatic fuse-switch for telegraph or other circuits	700,529	May 27	3460	898	90	1975
Stimponco, Wallace I., Milford, Mass., assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom	595,570	Apr. 29	4008	988	90	988
Stimponco, Wallace I., Milford, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Warp-stop-motion mechanism	595,117	Apr. 29	5144	1125	90	1125
Stimson, Oscar M., Chicago, Ill. Truck-bolster for railway-cars	595,511	Apr. 1	905	49	90	49
Stites, Townsend, assignor to Weisbach Light Company, Gloucester City, N. J. Burner	597,050	Apr. 15	2428	543	90	543
Stites, Townsend, Philadelphia, Pa., assignor to Weisbach Light Company, Gloucester City, N. J. Weisbach light-lamp-no-smoke burner	700,157	May 12	3008	660	90	1598
Stoddale, Emily, Washington, D. C. Bed-pan	702,608	June 17	3412	551	90	2642
Stocker, Charles E., Jr., Meriden, Conn. Golf-tee	702,075	June 10	1401	386	90	2454
Stocker, Eva E., administratrix. (See Stocker, John.)						
Stocker, John, deceased; E. E. Stocker, St. Louis, Mo., administratrix. Liquid-cooling apparatus	700,990	May 27	3520	890	90	1975
Stockett, John W., Washington, D. C. Firing attachment for breech-loading ordnance	595,525	May 6	554	55	90	1230
Stockman, Harry A., Johannesburg, South African Republic. Bolt-lock	702,324	June 10	1748	394	90	2454
Stockman, Harry A., Johannesburg, South African Republic. Bolt-lock	702,325	June 10	1748	394	90	2454
Stockman, Henry, Philadelphia, Pa. Leather-cutting machine	702,189	June 24	3401	591	90	2625
Stofer, Richard C. (See Windolph and Stofer.)						
Stoffel, William J., Sandusky, Ohio. Bathing apparatus	598,595	May 6	577	554	90	1230
Stokesberry, Arthur L., Rush Springs, Ind. Toy. Fly-screen	595,735	Apr. 29	4470	904	90	1012
Stolle, Albert A., New York, N. Y. Electric railway	595,650	May 6	575	504	90	1230
Stols, Ernest H., Chicago, Ill. Enzel	700,543	May 27	3400	708	90	1998
Stone, Edgar, et al. (See Porter, James A., assignor.)						
Stone, Edna W. (See Warner, Daniel, assignor.)						
Stone, Julia, deceased; Boston, Mass. R. Stone, administratrix. Musical bell	700,550	May 27	3410	708	90	1998
Stone, Rudolph, administratrix. (See Stone, Julia.)						
Stone, Rudolph, Catawba, Wm. Meat-tender	598,074	Apr. 28	5127	591	90	715
Stoneman, Orville A., assignor of two-thirds to S. S. Green, Norfolk, Va. Trunk-strap	700,155	Apr. 18	3210	480	90	1598

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Storch, Ernst, Berlin, Germany, assignor to C. Binder, Chicago, Ill. Drier	886,115	Apr. 20	5145	1188	90	1155
Storch, John H., Weston, Pa. Reck-yoke	886,072	Apr. 20	5140	091	90	715
Storcy, Bradford W., Mount Holly, N. J., assignor, by mesne assignments, to International Marine Governor Company. Governor for marine engines.	897,880	Apr. 15	5000	081	90	020
Storm, Charles H., assignor to E. L. Storm, Waterloo, Iowa. Automatic signal for electric railways.	899,110	Apr. 20	5147	1120	90	1107
Storm, John L., Pittsburg, Pa. Hat and coat rack	897,880	Apr. 8	1694	878	90	821
Storm Railway Signal Company. (See Storm, Ralph L., assignor.)						
Storm, Ralph L. (See Storm, Charles H., assignor.)						
Storm, Ralph L., Waterloo, Iowa. Automatic signal	700,851	May 27	5411	788	90	1885
Storm, Ralph L., assignor to Storm Railway Signal Company, Waterloo, Iowa. Automatic signal for electric railways	701,275	May 27	5414	080	90	2087
Storr, David C., New York, N. Y. Interconvertible bed or couch	700,828	May 27	5414	784	90	1080
Storr, David C., New York, N. Y. Couch-bed	700,828	May 27	5415	784	90	1080
Storrs, Aaron P., Owego, N. Y. Student's lamp	695,550	Apr. 30	4087	985	90	054
Storrs, Aaron P., assignor to Storrs Mica Company, Owego, N. Y. Mica chimney	700,591	May 27	5058	089	90	1071
Storrs Mica Company. (See Storrs, Aaron P., assignor.)						
Stouders, Augustus C., assignor to Troy Carriage Sun Shade Company, Troy, Ohio. Umbrella-cover fastening	690,494	May 6	575	130	90	1908
Stoughton, Joseph M. (See Hens and Stoughton.)						
Stout, Cornelius, Pomona, Cal. Sugar-paddle	897,108	Apr. 8	1406	325	90	228
Stout, Donald V. (See Garver and Stout.)						
Stout, Jacob, Bluffton, Ind. Combined harrow and roller	699,807	May 6	287	55	90	1988
Stout, John P., Washington, D. C. Repair-strip for buttonhole portions of articles of apparel	690,857	May 18	1845	813	90	1485
Stoutenborough, Knappcon. (See Howard, Frank W., assignor.)						
Stover Manufacturing Company. (See Field, August B., assignor.)						
Strabala, Joseph W., Kalona, Iowa. Rotary engine	705,014	June 24	5191	785	90	2880
Strahm, Joel, Bern, Kans. Tank-bender	700,254	May 27	5417	785	90	1980
Straker, Sidney S., London, England. Steam-propelled road-vehicle	698,922	Apr. 28	5406	782	90	784
Strange, William E., Magnolia, Ark. Buggy-top support	699,728	May 19	1180	987	90	1422
Strasburger, Frank C. H., Chicago, Ill. Labeling-machine	701,220	May 27	5401	943	90	8070
Strasburger, Local. (See Starnes and Strasburger.)						
Strate, Herman E., Grand Rapids, Mich. Support for brick arches	701,260	June 10	1209	875	90	2377
Stratton, Franklin, Buffalo, N. Y. Vehicle	708,504	June 17	5225	507	90	2604
Strawn, Alexander, New York, N. Y. Forming sponge substitutes	708,108	June 10	1504	802	90	2454
Straus, Karl, Wiesbaden, Germany. Coin-fred gymnastic apparatus	698,585	Apr. 20	3823	610	90	818
Straus, Maurice M., Chicago, Ill. Safety watch-pocket	699,485	May 6	576	180	90	1924
Straus, Sigismund, New York, N. Y. Cigar-moistener and price and brand ticket	698,512	Apr. 1	206	80	90	43
Strobel, Louis, and C. W. Williams, assignors to Century Stopper Company, New York. Bottle-filling machine	697,281	Apr. 8	1867	861	90	352
Strobel, Louis, and C. W. Williams, assignors to Century Stopper Company, New York. Bottle-filling machine	698,871	Apr. 29	4728	1042	90	1072
Strecker, Otto C., Darmstadt, Germany. Preparing lithographic-printing plates	708,086	June 24	5255	802	90	2622
Streeter, Alfred L., Chicago, Ill. Brake-shoe	708,086	June 17	5044	678	90	2702
Streetman, Willard, Cleburne, Tex. Casting dental plates	700,985	May 27	5419	785	90	1980
Strohlenet, Robert W., Stockholm, Sweden. Apparatus for spinning artificial-silk filaments for forming strands or cravats	702,162	June 10	1585	860	90	2454
Strippy, William H. (See Bush and Strippy.)						
Ström, Albert. (See Ström, Gustave A. and A.)						
Ström, Axel A., Austin, assignor to Ström Manufacturing Company, Chicago, Ill. Railway-rail joint	698,085	Apr. 1	494	114	90	107
Ström, Gustave A. and A., Paris, France. Waterproof coat	702,255	June 10	1744	894	90	2484
Ström Manufacturing Company. (See Ström, Axel A., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Davis, William M., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Hoglund and Hedman, assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Meyer, William, assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Reeves, Harry M., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Webster, Harry G., assignor.)						
Strome, Benjamin, Gourock, Canada. Road-grader	895,351	Apr. 20	4080	990	90	994
Strong, George F., Ellettsville, Mich. Automatic cut-off governor	899,771	May 15	1280	398	90	1440
Strong, William E. S., Hartford, Conn., assignor to Winkley Company. Oil-cup	897,109	Apr. 6	1876	305	90	513
Strong, William E. S., Hartford, Conn., assignor to Winkley Company. Oil-cup	897,110	Apr. 6	1876	305	90	513
Strothman, Edward E., West Superior, Wis. Propeller-wheel	695,125	Apr. 29	4071	900	90	084
Strout, Joseph M., Portland, Me. Measuring-cup	708,097	June 24	5258	771	90	2628
Struba, Christian, Trouton, N. J. Horseshoe	700,169	May 18	5011	480	90	1590
Strubler, Charles G., assignor of one-half to G. H. Paine, Detroit, Mich. Scale	697,374	May 30	3281	510	90	1888
Stuart, James A., Quincy, and E. V. Popham, Boston, Mass. Powder-distributer	697,374	Apr. 8	1286	409	90	407
Stuart, Joseph, assignor to John C. Wood Company, Wilmington, Del. Molding-machine	701,778	June 8	580	196	90	2928
Stuart, Margaret H. (See Farber, Charles M., assignor.)						
Stubblebine, William, Bethlehem, Pa. Furnace	698,386	Apr. 28	3584	888	90	810
Stubbs, James C., Mount Pleasant, Iowa. Wheeled scraper	705,095	June 24	5250	771	90	2628
Stubbs, Reuben, Wiganford, England. Water-heating apparatus	701,772	June 8	581	196	90	899
Stucker, John M., Lawrence, Kans. Making fence fabrics	698,267	Apr. 28	3222	604	90	819
Stucky, Thomas E., Indianapolis, Ind. Adjustable trolley-supporter	695,147	Apr. 28	5407	780	90	771
Stuart, Joseph E., and E. Hill, Indianapolis, Ind. Adjustable trolley-supporter	695,147	Apr. 28	5407	780	90	771
Studley, John T., Bangor, assignor to A. Dunhill, London, England. Appliance for treating horses' legs with water	701,281	June 8	494	97	90	2195
Stuchman, Isaac, Chicago, Ill. Guide for sewing-machines	690,775	May 19	1941	395	90	1449
Stukes, John M., San Antonio, Tex. Packing compound for eggs	690,228	May 6	240	135	90	125

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Stall, Emmett W. (See Merrick and Stall.)						
Stump, Ira E., assignor of one-half to E. M. Foote, Cleveland, Ohio. Ratchet screw-driver.	255,778	May 18	1243	200	90	1445
Sturgis, Herbert M., Kansas City, Mo., assignor to Sturgis Manufacturing Company. Detachable coupling.	695,512	Apr. 1	208	50	90	40
Sturgis, Herbert M., Kansas City, Mo., assignor to Sturgis Manufacturing Company. Heating apparatus.	695,514	Apr. 1	200	50	90	40
Sturgis Manufacturing Company. (See Sturgis, Herbert M., assignor.)						
Stuts, Ernest, Brooklyn, N. Y. Can for freeing water.	695,520	May 18	1420	207	90	1420
Stuts, Frederick, assignor of one-half to F. R. Gillinder, Philadelphia, Pa. Bottle-stopper.	701,101	May 27	2058	207	90	2081
Sub Marine Mining Company. (See Craig, Lee D., assignor.)						
Suchy, Joseph, Littleheart, N. D. Gear transmission.	708,516	June 24	2727	261	90	2680
Sugden, Thomas. (See Haigh and Sugden.)						
Sullivan, Albert P., and E. S. Bacon, Detroit, Mich.; said Bacon assignor to said Sullivan. Washboard.	692,064	Apr. 29	2007	1108	90	1126
Sullivan, Denis J., Manassas, Va. Nut-lock.	697,280	Apr. 8	1090	279	90	281
Sullivan, James F., assignor of one-half to J. Richardson, Philadelphia, Pa. File.	695,501	May 6	201	204	90	1207
Sullivan, John. (See Russell and Sullivan.)						
Sullivan, John L., North Carrollton, Miss. Flowshare.	700,225	May 20	2008	510	90	1093
Sullivan, Michael J. (See Walsh, Laurence J., assignor.)						
Sullivan, Samuel C., Erie, Pa. Means for cooking milk-cans.	697,111	Apr. 8	1279	208	90	212
Sullivan, William, St. Louis, Mo. Car-fender.	697,900	May 12	1670	208	90	1202
Sullivan, William H., assignor of forty-nine one-hundredths to O. C. and G. T. Reitas and C. B. Richmond, Denver, Colo. Concentrator.	695,918	Apr. 1	1001	228	90	271
Sulphides Reduction. (New Process.) (See Klerhausen, Francis, assignor.)						
Sulzer, George W. (See Soper, William A., assignor.)						
Suman, Harry F., Baltimore, Md., assignor to F. L. Ellingwood, New York, N. Y., and C. W. Schumann, Jr., Orange, N. J. Safety appliance.	695,085	Apr. 29	2008	1108	90	1126
Summers, Bertrand S., Chicago, Ill. Retting vegetable fibers.	695,515	Apr. 1	211	1109	90	48
Summers, Edwin C., Guyton, Okla. Ter. Neck-yoke center.	701,415	June 8	205	58	90	2125
Sumner, Dorcas, Pleasant Township, Wapello county, Iowa. Seed-sowing machine.	697,900	Apr. 15	2011	201	90	200
Sunderland, John S., London, England. Apparatus actuated by clock-movements for starting or stopping machinery.	708,028	June 17	2027	207	90	2072
Sundh, August. (See Baldwin and Sundh.)						
Sundt, Oscar, assignor to Garrett-Cromwell Engineering Company, Cleveland, Ohio. Leading spindle.	697,291	Apr. 8	1090	279	90	281
Sunlight Gas Machine Company. (See Goodfield, William E., assignor.)						
Suppes, Maximilian M., and R. Crocker, Jr., Elvira, Ohio. Heating-furnace.	695,907	Apr. 1	207	20, 91	90	75
Sutherland, Francis G., and A. Torrey, Detroit, Mich. Car side bearing.	701,416	June 8	206	58	90	2125
Sutherland, John. (See Granger, John, assignor.)						
Sutherland, William S., assignor of one-half to D. G. Elliott, Chelsea, Ind. Ter. Nut-lock.	697,416	Apr. 8	1095	281	90	480
Sutton, Festus P., Lowell, Ind. Threshing-machine.	697,292	Apr. 15	2108	280	90	490
Sutton, R. S., et al. (See Cohen, George W., assignor.)						
Svendgaard, Sverre, Sverre, Minn. Mirror-bracket.	699,001	May 13	1513	240	90	1508
Swan, Henry C., Oshkosh, Wis. Ellis c-spring.	702,257	June 10	1745	206	90	2454
Swanberg, Arthur W., Rockford, Ill. Horse-bitting device.	697,080	Apr. 8	1202	220	90	268
Swanitz, Alexander W., assignor to Swanitz Company, Chicago, Ill. Merchandise-transfer apparatus.	701,081	June 10	1210	276	90	2077
Swanitz, Alexander W., assignor to Swanitz Company, Chicago, Ill. Railway clearing-house.	701,082	June 10	1212	276	90	2077
Swanitz Company. (See Swanitz, Alexander W., assignor.)						
Swank, Lafa. (See Dringins and Swank.)						
Swanson, August C. J. (See Swanson, Ludwig G., assignor.)						
Swanson, Carl L. (See Warner, Thomas S., assignor.)						
Swanson, Ludwig G., assignor of one-half to A. C. J. Swanson, Springfield, Mass. Ventilating apparatus.	695,914	Apr. 1	1008	228	90	271
Swart, Walter G., Denver, Colo., and L. L. Blake, Lawrence, Kans. Apparatus for separating conductors from non-conductors.	701,417	June 8	206	58	90	2125
Swartout, George H., assignor of one-half to M. L. Smith, Placerville, Cal. Pipe-wrench.	702,079	June 10	1428	200	90	2454
Swartz, Hiram B., Wooster, Ohio. Self-heating and iron.	698,707	Apr. 29	4477	100	90	1013
Sweet, John M., assignor of one-half to F. Richardson, Batavia, N. Y. Rubber tire for vehicle-wheels.	695,771	Apr. 1	719	108	90	154
Sweet, Oliver C., Watertown, N. Y. Molding-board.	695,077	Apr. 29	2144	692	90	717
Sweetland, Leroy B., Huntington, Ind. Mail-bag crane.	701,774	June 8	2058	174	90	2020
Sweetman, Michael M., Kansas City, Mo. Crane.	700,226	May 20	2004	574	90	1721
Swenson, Magnus, Chicago, Ill., assignor to American Cotton Company, New York, N. Y. Core-driver for round-lap bales.	695,728	May 13	1141	207	90	1428
Swenson, Paul, Hopkins, Minn. Band-cutter and feeder.	702,164	June 10	1598	201	90	2455
Swenson, Eric, Chicago, Ill. Eraser.	695,984	May 13	1670	201	90	1212
Swenson, Moses C., Westhaven, Conn. Store-service apparatus.	702,080	June 10	1428	200	90	2454
Swift, Edward D., deceased; M. H. Swift, Chicago, Ill., executrix. Machine for the treatment of application of reciprocating or other power for operating rotary machinery.	699,774	May 13	1242	200	90	1428
Swift, Mary H., executrix. (See Swift, Edward D.)						
Swindell, James H., Pensacola, Fla. Nut-lock.	708,015	June 24	2105	228	90	2021
Swinglehurst, Harry. (See Scott, Williams, and Swinglehurst.)						
Swingle, Charles W. (See Allen, John M., assignor.)						
Symank, John H., and R. A. Kitzler, Stamp, Tex. Hay baler and rake.	697,088	Apr. 15	2441	543	90	547
Syme, John H., Chicago, Ill. Pocket-closure.	702,222	June 17	2027	207	90	2081
Symington, Thomas H., Wilmington, N. C. Journal-box.	697,080	Apr. 8	1202	220	90	268
Symons, Wilson E., Savannah, Ga. Bottles cast-steel car-truck.	700,228	May 27	2064	240	90	1875
Synott, Thomas W., Woonah, N. J. Power-transmitting device for match-machines.	702,028	June 17	2000	200	90	2072
Szecsapank, Jan, assignor to Société des Inventions Jan Szecsapank & Cie., Vienna, Austria-Hungary. Producing weaving diagrams.	701,418	June 8	240	58, 64	90	2127
Szecsapank, Jan, assignor to Société des Inventions Jan Szecsapank & Cie., Vienna, Austria-Hungary. Jacquard card and making same.	701,775	June 8	2054	187	90	2000
T. Conlhard & Company. (See Norris, William, assignor.)						
Tabor, Mott B., Canton, Pa., assignor to A. M. Lothrop and W. N. Moore. Suit-holder.	694,028	Apr. 29	2014	1100	90	1120
Tabor, Alexander V. (See Savage, William H., assignor.)						
Tabor, Clinton D., assignor to Tabor Sash Company, Newark, N. J. Revolving window-sash.	694,516	Apr. 1	215	22, 23	90	50
Tabor Sash Company. (See Tabor, Clinton D., assignor.)						
Tabor, Thomas H., Elletts, Ga. Farm-windlass and wagon-hoist.	697,112	Apr. 8	1200	208	90	212

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Tacoma Automatic Scales Co. (See Berry, John W., assignor.)	702,205	June 17	2027	207	90	2081
Tadlock, Sterling B., Junction City, Ark. Clothes-pounder.	701,419	June 8	240	58	90	2127
Talbot, Fred R., assignor to Talbot Pneumatic Service Company, Indianapolis, Ind. Automatic switch for pneumatic carriers.	701,420	June 8	240	58	90	2127
Talbot Pneumatic Service Company. (See Talbot, Fred R., assignor.)						
Talbot, Jacob M., assignor of one-half to J. M. Vandiver, Rome, Ga. Cultivator.	701,419	June 8	240	58	90	2127
Talbot, John, Leebury, England. Leaf-cutter.	692,027	Apr. 29	2015	1100	90	1121
Talbot, Walter O., Providence, R. I. Game apparatus.	700,226	May 27	2004	574	90	1721
Talbot, Samuel. (See Robinson and Talbot.)						
Talbot, Theodore W., Borg, Russia. Hemoglobinometer.	708,219	June 24	2728	261	90	2680
Tancook, James A., and T. O. Oochill, London, Canada. Automatic switch.	700,226	May 20	2004	574	90	1721
Tandler, Antonio, Chicago, Ill. Steam-engine valve.	701,080	June 8	240	58, 55	90	2125
Tannahill, Samuel, Jr., Augusta, Ga. Fertilizer-distributing attachment for cultivators.	697,112	Apr. 8	1201	206	90	212
Tannenbaum, Lippman. (See Hillard, Frederick E., assignor.)						
Tanner, John, et al. (See English, Edwin E., assignor.)						
Tanner, Zero L., U. S. Navy. Navigational sounding apparatus.	702,507	June 17	2028	206	90	2025
Tapecock, James L., Chicago, Ill. Fastener for backings in picture-frames.	700,226	May 20	2004	574	90	1721
Tarcom, Victor, Budapest, Austria-Hungary. Kite or flying-machine.	701,644	June 1	205	145	90	2047
Tardif, Omeril, Plattsburgh, Canada. Fire-escape.	700,228	June 10	1747	200	90	2456
Tardy, Leon J., assignor of one-half to J. P. A. K. H. Chaumont, Versailles, France. Vessel for containing liquids.	701,102	May 27	2020	207	90	2082
Tash, Thomas H., Potomac, Ill. Vehicle-axle nut.	708,016	June 24	2125	228	90	2021
Tate, Hugh J., assignor to Philadelphia Textile Machinery Company, Philadelphia, Pa. Garnet-cylinder.	695,978	Apr. 29	4735	1048	90	1073
Tate, Jones & Company. (See Schenk, Carl L. E., assignor.)						
Tatham, Charles, New York, N. Y. Boarding-shed.	700,220	June 24	2740	261	90	2680
Tatlock, Robert E. (See Graham and Tatlock.)						
Tatro, Wilbur W., Minneapolis, Minn. Washing-machine.	697,708	Apr. 15	2020	208	90	212
Taul, Martin L. (See Arnold, Henry R., assignor.)						
Taylor, Arthur, Rochester, N. Y. Expandable fish-hook.	700,228	May 27	2020	208	90	1977
Taylor, Brainerd, New York, N. Y., assignor to F. A. Richardson, Cambridge, Mass. Urinal.	698,410	Apr. 29	2761	264	90	240
Taylor, Clarence W., Sioux City, Iowa. Incandescent gas-burner.	700,574	May 20	2047	264	90	1728
Taylor, Clarence W., Sioux City, Iowa. Bunsen burner.	702,265	June 10	1746	206	90	2454
Taylor, Clarence W., Sioux City, Iowa. Incandescent gas-burner.	700,580	June 17	2028	201	90	2720
Taylor, Edward R., Pan Yau, N. Y. Producing chemicals in electric furnaces.	708,117	June 10	1505	220	90	2455
Taylor, Eugene H., Lynn, Mass. Machine for mitering and cornering box-blanks.	701,098	June 10	1212	277	90	2078
Taylor, Hugh S., et al. (See McGarvey, Edward, assignor.)						
Taylor, Israel B., Buffalo, N. Y. Incandescent gas-burner.	700,227	May 27	2021	208	90	1980
Taylor, Isaac. (See Taylor, James H., and L.)						
Taylor, James, and J. Robinson, Lancaster, England. Pocket implement.	695,967	May 13	1671	208	90	1520
Taylor, James A., Dunoon, Ill. Hitching-post.	701,944	June 10	1212	278	90	2073
Taylor, James H., and L. Philadelphia, Pa. Garment hook and fastener.	708,161	June 24	2468	201	90	2076
Taylor, James P., Port Worth, Tex. Clear-cutting and match-safe.	698,102	Apr. 22	2819	225	90	702
Taylor, James S., Fairplain, Pa. Onion-clipping machine.	700,080	June 24	2061	271	90	2023
Taylor, James W., assignor of three-fourths to G. A. Norwood, Jr., T. H. Holmes, and J. Spicer, Goldsboro, N. C. Machine for applying gathering-strings to bags.	695,080	Apr. 29	2728	206	90	2020
Taylor, John D., Buffalo, N. Y., assignor to Taylor Signal Company. Railway signaling and switching apparatus. (Reissue.)	11,908	May 6	940	224	90	1275
Taylor, John L., Boston, Mass. Apparatus for lifting wagon-boxes, &c.	695,968	Apr. 29	2027	206	90	210
Taylor, Robert E., et al. (See McGarvey, Edward, assignor.)						
Taylor Signal Company. (See Taylor, John D., assignor.) (Reissue.)						
Taylor, Thomas P., Bridgeport, Conn. Clamp for garment-supporters.	697,228	Apr. 8	1571	251	90	208
Taylor, Warren E., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Lock-hub.	695,908	Apr. 1	209	91	90	86
Taylor, Warren E., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Changeable combination key-lock.	701,220	May 27	4005	943	90	2071
Taylor, Warren E., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Changeable combination key-lock.	701,221	May 27	4007	944	90	2071
Tee, Mary J., administratrix. (See Tee, William A.)						
Tee Tray Company. (See Turbine, Leonard L., assignor.)						
Tee, William A., deceased, Bellevue, Ohio; M. J. Tee, administratrix. Device for loading corn-shocks.	701,845	June 8	200	145	90	2046
Teel, Martha O., The Dalles, Ore. Drawer guard or support.	701,222	May 27	4009	944	90	2072
Tennant, George E., Johnstown, Pa. Power-press.	695,980	May 6	418	96	90	1223
Tennessee Felt Manufacturing Company. (See Morgan, John W., assignor.)						
Tenney, Albert E., Everett, Mass. Variable-motion mechanism.	697,041	Apr. 8	1200	200	90	207
Terhune, Leonard L., Newark, N. J., assignor to Tee Tray Company. Electrical hood or reflector and clamp for same.	701,821	June 2	240	95	90	2100
Terrill, Elah, and F. A. Ray, Columbus, Ohio. Printing device.	695,959	Apr. 29	4078	900	90	925
Terrill, Elah, and F. A. Ray, Columbus, Ohio. Type-setting machine.	708,017	June 24	2126	228	90	2021
Terrill, Joseph E., and W. F. M. Montgomery, Cleburne, Tex. Cattle-holder.	695,958	May 13	1672	204	90	1522
Terrill, William. (See Terrill and Montgomery.)						
Terris, David E. (See Watkin, Oscar, assignor.)						
Terry, Theodore D., Jamestown, N. Y. Cultivator.	695,128	Apr. 29	2021	208	90	702
Tesserman, Henry, assignor to Barney & Smith Car Company, Dayton, Ohio. Brake-shoe mechanism.	695,421	Apr. 29	2740	261	90	2680
Teter-Henry Development Company. (See Henry, John A., assignor.)						
Teufel, George W., Philadelphia, Pa. Dental crown-slitting tool.	695,778	Apr. 1	721	140	90	1124
Thacher, Edwin, New York, N. Y., assignor of one-half to E. M. Scuddell, Pittsburg, Pa. Slide-rule.	701,102	May 27	2021	207	90	2080
Thacher, Wesley G. (See Thompson, Edmond, assignor.)						
Thackberry, Milton L. (See Zetterlund, August T., assignor.)						
Thaler, Robert, West Bay City, Mich. Screw-propeller.	695,984	Apr. 29	4072	900	90	926
Thatcher, Joseph W. (See Bennett, George S., assignor.)						
Thatcher, Joseph W., San Francisco, Cal. Dental mallet.	700,185	May 13	2012	261	90	1200
Thayer, Russell, assignor to Carbon Light and Power Company, Philadelphia, Pa. Lighting.	697,088	Apr. 8	1207	270	90	268
Thompson, Jakob, Union Hill, N. J. Rotary engine.	697,088	Apr. 15	2448	544	90	549
Thompson, Frederick, Memphis, Tenn. Envelope and advertising-opener therefor.	702,202	June 17	2021	208	90	2020
Thuring, Andrew J., Cincinnati, Ohio. Hub and axle bearing.	695,955	Apr. 29	4074	900	90	925

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Thibault, Charles. (See Castelain and Thibault.)						
Thibert, Napoleon E. (See Beaudin and Thibert.)						
Thiel, François C. Paris, France. Machine for the torrefaction of coffee	699,482	May 6	877	121	99	1294
Thiess, Richard. New Orleans, La. Multiple effect	699,085	Apr. 29	8017	1110	99	1121
Thom, George, assignor of one-half to S. Thom, Washington, D. C. Packing device	699,776	May 13	1261	290	99	1444
Thom, Samuel. (See Thom, George, assignor.)						
Thomas, Abner D., Little Rock, Ark., assignor to Thomas Gin-Compress Company. Cotton-press	699,935	May 13	1371	261	99	1813
Thomas, Abner D., Little Rock, Ark., assignor to Thomas Gin-Compress Company. Bal-ling-machine	699,936	May 13	1377	260	99	1814
Thomas, Abner D., Little Rock, Ark., assignor to Thomas Gin-Compress Company. Cotton-press	699,937	May 13	1380	260	99	1815
Thomas, Abraham E., Wooster, Ohio. Washing-machine	699,154	Apr. 29	3223	725	99	752
Thomas, Benjamin F., Camden, Ind. Dumping device	699,089	Apr. 29	8019	1110	99	1121
Thomas, Calvin P., Grand Rapids, Mich. Bearing-bracket for vertically-adjustable shade-rollers	697,114	Apr. 9	1269	307	99	814
Thomas, Charles E., Tucson, Ariz. Tex. Pneumatic tire	697,954	Apr. 16	2600	439	99	468
Thomas, Charles E., Tucson, Ariz. Tex. Pneumatic tire	698,028	May 13	1315	246	99	1303
Thomas, Edward G., Cambridge, Mass. Rail-road construction	697,528	Apr. 15	1261	290	99	1444
Thomas, Edwin E., St. Paul, Minn. Assignor of one-half to Union Iron Works, Minneapolis, Minn. Guard for gang-edgers	697,325	Apr. 15	1261	290	99	1444
Thomas, Edwin E., St. Paul, Minn. Assignor of one-half to Union Iron Works, Minneapolis, Minn. Skid-arm for double-cutting band-mills	698,120	Apr. 29	8190	1140	99	1187
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Planing-machine	698,759	Apr. 29	4480	990	99	1014
Thomas, Isaac B., and P. Clara, Altoona, Pa. Core-making machine	703,018	June 24	3199	727	99	2528
Thomas, James A., Savannah, Ga. Packing-ids	700,307	May 30	2290	511	99	1069
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Chip-breaker for woodworking-machines	701,104	May 27	3008	588	99	3085
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Hold-down device for woodworking-machines	702,009	June 10	1298	313	99	2404
Thomas Manufacturing Company. (See Patton, Charles H., assignor.)						
Thomas, Merton S., Ithaca, N. Y. Adjustable nut and pipe wrench	698,000	Apr. 1	495	114	99	107
Thomas, Oscar F., assignor of one-fourth to F. S. Kenyon, Adams, N. Y. Folding car-step	697,308	Apr. 15	1269	379	99	829
Thomas, Richard H., Chicago, Ill. Air purifying and cooling apparatus	700,899	May 27	3494	726	99	1921
Thomas, Richard H., Chicago, Ill. Air purifying and cooling apparatus	700,899	May 27	3494	726	99	1921
Thomas, Thomas D., Red Oak, Iowa. Ruler, book-holder, and marker combined	700,498	May 20	2992	609	99	1747
Thomas, William M., and L. Van Scoyoc, Louisville, Mebr. Heater	698,773	Apr. 1	723	164	99	154
Thomas, William P. (See Benton, Nathan J., assignor.)						
Thomas, William T., Philadelphia, Pa. Rosette	698,223	Apr. 29	3497	726	99	1754
Thomas, William W., Troy, Ohio. Carnation-supporter	703,019	June 24	3200	727	99	2529
Thompson, Alfred, assignor to Geneva Automobile and Manufacturing Company, Geneva, Ohio. Steam-generator	701,422	June 3	348	55, 56	99	2189
Thompson, Charles F. (See Wallace, David T., assignor.)						
Thompson & Company, E. K. (See Bacon, Jerome S., assignor.)						
Thompson, David W., Chicago, Ill. Clock-pendulum	702,020	June 24	3201	727	99	2530
Thompson, Ellsworth. (See Hendricks and Thompson.)						
Thompson, Ira L. (See De Groot and Thompson.)						
Thompson, James G., Cheyenne, Wyo. Saw-faster	698,329	Apr. 29	3099	535	99	619
Thompson, John H., Edna, Cal. Cultivator and weed-cutter	698,533	Apr. 29	4076	901	99	930
Thompson, John R., American, Ga. Seal-lock	700,328	May 30	2291	512	99	1070
Thompson, John R., American, Ga. Car-door	698,067	Apr. 1	553	129	99	129
Thompson, Nelson W., Biglow, Oreg. Harrow-jack	700,108	May 13	1269	426	99	1878
Thompson, Nelson W., Biglow, Oreg. Self-leveling wagon						
Thompson & Morris Company. (See Chapin, William G., assignor.)						
Thompson, Ralph F., Springfield, assignor to National Cash Register Co., Dayton, Ohio. Cash-register. (Release)	12,000	June 10	1936	428	99	2084
Thompson, Robert. (See Thompson, William H. and R.)						
Thompson, Robert H. (See Shaw, Charles H., assignor.)						
Thompson, Rolland, assignor of one-fourth to W. G. Thacher, New York, N. Y. Coupling for wires	699,125	Apr. 29	3295	726	99	1755
Thompson, Samuel, Chicago, Ill. Combined double escutcheon and paint protector	702,261	June 17	3261	731	99	2720
Thompson, Thomas. (See Gray, Alexander, assignor.)						
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans or other metallic vessels	697,935	Apr. 15	2919	644	99	660
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	697,936	Apr. 15	2920	644	99	660
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,576	May 30	2290	511	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,576	May 30	2291	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,577	May 30	2292	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,578	May 30	2293	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,579	May 30	2294	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,580	May 30	2295	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,581	May 30	2296	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,582	May 30	2297	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,583	May 30	2298	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,584	May 30	2299	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,585	May 30	2300	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,586	May 30	2301	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,587	May 30	2302	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,588	May 30	2303	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,589	May 30	2304	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,590	May 30	2305	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,591	May 30	2306	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,592	May 30	2307	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,593	May 30	2308	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,594	May 30	2309	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,595	May 30	2310	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,596	May 30	2311	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,597	May 30	2312	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,598	May 30	2313	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,599	May 30	2314	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,600	May 30	2315	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,601	May 30	2316	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,602	May 30	2317	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,603	May 30	2318	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,604	May 30	2319	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,605	May 30	2320	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,606	May 30	2321	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,607	May 30	2322	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,608	May 30	2323	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,609	May 30	2324	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,610	May 30	2325	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,611	May 30	2326	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,612	May 30	2327	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,613	May 30	2328	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,614	May 30	2329	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,615	May 30	2330	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,616	May 30	2331	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,617	May 30	2332	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,618	May 30	2333	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,619	May 30	2334	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,620	May 30	2335	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,621	May 30	2336	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,622	May 30	2337	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,623	May 30	2338	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,624	May 30	2339	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,625	May 30	2340	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,626	May 30	2341	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,627	May 30	2342	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,628	May 30	2343	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,629	May 30	2344	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,630	May 30	2345	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,631	May 30	2346	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,632	May 30	2347	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,633	May 30	2348	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,634	May 30	2349	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,635	May 30	2350	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,636	May 30	2351	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,637	May 30	2352	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,638	May 30	2353	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,639	May 30	2354	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,640	May 30	2355	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,641	May 30	2356	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,642	May 30	2357	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,643	May 30	2358	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,644	May 30	2359	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,645	May 30	2360	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,646	May 30	2361	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,647	May 30	2362	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,648	May 30	2363	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,649	May 30	2364	512	99	1070
Thompson, Walter, Toronto, Canada, assignor, by mesne assignments, to Packers' Solderless Can Company, Paterson, N. J. Solderless side seam for tin cans	700,650					

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specd.	Pgs.	Vol.	Page.
Tolinie, Robert C., assignor to Lobdell Car Wheel Company, Wilmington, Del. Flank for sand molds.....	701,105	May 27	2979	686	99	2985
Tolta, Max, and A. Lipschultz, St. Paul, Minn.; said Lipschultz assignor to said Tolta. Gas-distributing system.....	699,796 700,455	May 12 May 20	1145 9987	935 991	99	1455 1745
Tomek, Anton, St. Louis, Mo. Check-winding mechanism.....	700,121	May 12	2015	491	99	1000
Tommasina, Thomas, assignor to P. Galopla, Geneva, Switzerland. Telephonic receiver for wireless signal apparatus.....						
Tolson & Company, P. C. (See Lockwood, Edward M., Jr., assignor.)						
Tongue Lock Sewing Machine Company. (See Keith, Thomas K., assignor.)						
Toononen, Toones, and I. Carlson, Chicago, Ill. Mounting of piano-keys.....	702,091	June 24	2928	757	99	2932
Tooker, William W., et al. (See Cook, Howard, assignor.)						
Toomey, John A., Goshen, Ind. Automatic telegraphic transmitter.....	702,229	June 10	1739	401	99	2097
Topham, Charles F., Kew, assignor to J. Y. Johnson, London County, England. Apparatus for use in the production of textile fibers or filaments from solutions of cellulose or other material from which fibers or filaments can be formed and for twisting and putting into coil form such or other fibers or filaments.....	702,229	June 10	1970	449 450	99	2290
Toppliff, Willis W., assignor of one-half to A. F. Oline, Dewey, Mont. Washtub stand or holder.....	698,422 700,253	Apr. 28 May 20	2771 2999	927 926	99	928 1796
Tortrat, John, Muskegon, Mich. Vehicle.....						
Torrey, Augustus. (See Baumhoff and Torrey.)						
Torrey & Co., J. R. (See Britton, William O., assignor.)						
Totman, Charles B., Minneapolis, Minn. Extension-ladder.....	697,994	Apr. 8	1099	290	99	999
Totman, George B. (See Moore and Totman.)						
Tove, Eiven, South Norwalk, Conn. Window bracket or step.....	698,792	Apr. 29	4485	991	99	1015
Tower, Albert B., Rockwell, Fla. Shaft-coupling.....	700,277	May 20	2989	992	99	1792
Towers, James H., assignor to P. & F. Corbin, New Britain, Conn. Fire-hose shut-off.....	698,974	Apr. 20	4789	1044	99	1078
Toys Manufacturing Company. (See McKinney, Caleb, assignor.)						
Towler, Thomas R. (See Knibb and Towler.)						
Towne, Anna E. (See Towne, Frank W., assignor.)						
Towne, Frank W. assignor to A. E. Towne, Bennington, Vt. Mop-wringer.....	697,998 700,551	Apr. 8 May 20	1872 2980	928 557	99	929 1794
Towner, Arthur J., Santa Ana, Cal. Snap-hook.....	699,779	May 12	1238	290	99	1445
Townsend, Emory L., Los Angeles, Cal. Dental impression-tray.....						
Townsend, Henry C., et al., trustees. (See Woods, Granville T. and L., assignors.)						
Tracy, Charles H., Berkeley, and F. C. Gould, Alameda, Cal. Attachment for letter-boxes.....	702,510	June 17	2295	909	99	2908
Tracy, Harriet R., New Brighton, N. Y., assignor, by mesne assignments, to J. E. Tracy, Plainfield, N. J. Loop-taking mechanism for sewing-machines.....	697,184	Apr. 8	1499	225	99	293
Tracy, James, and W. A. Bollinger, assignors to Sterling Automatic Instantaneous Water Heater Co., Allegheny, Pa. Valve-controlling mechanism for automatic water-heaters.....	700,297	May 20	2936	574	99	1721
Tracy, Jeremiah E. (See Tracy, Harriet R., assignor.)						
Trainor, Hughie J., Jersey City, N. J. Kite.....	701,105	May 27	2974	290	99	2925
Transfer Tube Company. (See Jones, Francis W., assignor.)						
Trapp, Suzanne B., New York, N. Y. Safety appliances for elevators.....	700,426	May 20	2431	628 629	99	1745
Trumb, George C., Philadelphia, Pa. Bridle for paint-brushes.....	700,998	May 20	2949	212	99	1672
Travis, John W., Beardsley, and H. A. Denny, Medical Lake, Wash. Vehicle-reach.....	697,294	Apr. 8	1572	232	99	928
Travis, Henry, Delight, Ark. Self-opening pocket-knife.....	698,080	Apr. 29	2147	988	99	777
Treat, Francis H., Pittsburgh, Pa. Cover mechanism for pit-furnaces.....	702,229	June 24	2742	999	99	2929
Treat, John J., New Britain, Conn. Lock.....	697,598	Apr. 15	2925	991	99	901
Treen, William H., Lynn, Mass. Perforating-machine.....	701,107	May 27	2974	290	99	2925
Treglown, William M., Sr., New York, N. Y. Wrench.....	701,108	May 27	2977	291	99	2926
Tregoning, Charles D. (See McDonald and Tregoning.)						
Treichler, Daniel H., Niagara Falls, N. Y. Acetylene-gas generator.....	702,904	June 17	2412	291	99	2926
Tremblay, Honora. (See Leclerc, Tremblay, and Lalumière.)						
Trenhard, Henry, Jr., Brooklyn, N. Y. Paper-fastener.....	700,104	May 12	1971	622	99	1672
Trenholm, Harry A., assignor to C. G. Page, Chicago, Ill. Cigar-try.....	699,299	May 6	993	29	99	1292
Trehear, Edward F., Camden, N. J. Printing-block for oil-color printing machines.....	698,997	Apr. 29	4077	901	99	996
Trevette Machine Company. (See Trevette, Westworth G., assignor.)						
Trevette, Westworth G., assignor to Trevette Machine Company, Chicago, Ill. Sewed signature.....	697,042 699,777	Apr. 8 May 12	1298 1299	991 291	99	929 1445
Trevithick, Frederick H., Cairo, Egypt. Heating feed-water.....						
Tricart, Alexis. (See Babé and Tricart.)						
Trinks, Franz, Braunschweig, Germany. Speed-controller.....	699,040	Apr. 29	2019	1110	99	1112
Tripp, Bradford H., assignor of one-half to F. S. Barnes and B. Radcliffe, Marcus, Iowa. Hall-joint.....	697,999	Apr. 15	2907	901		901
Tripp, Darius M., assignor of one-half to J. N. Neal, Coldwater, Mich. Wheel attachment for plows.....	701,222	May 27	4100	944	99	2972
Tripp, Freeman L., Ellensburg, Wash. Linoleum-cutter.....	697,715	Apr. 15	2912	922	99	920
Tripp, Herman, and G. E. Stephenson, Chicago, Ill. Electric-light sign.....	695,705	Apr. 1	795	194	99	125
Tripp, Seth D., deceased, T. H. Tripp, Lynn, Mass. administrator, assignor, by mesne assignments, to said T. H. Tripp. Edge-finishing machine.....	701,495	June 8	298	57	99	2140
Tripp, Theodor N., administrator. (See Tripp, Seth D.)						
Trommhauser, Seneca H., Minneapolis, Minn. Elevator or storage-bins construction.....	702,119	June 10	1809	340 341	99	2495
Trommhauser, Seneca H., Minneapolis, Minn. Brick for storage-bin construction.....	702,119	June 10	1811	341	99	2497
Trowbridge, William N., et al. (See Smith, Charles W., assignor.)						
Troy Bending Company. (See Conrad, George W., assignor.)						
Troy Carriage and Stage Company. (See Stouder, Augustus G., assignor.)						
Truax, Elizabeth H., Chicago, Ill. Heating attachment for lamps or gas-burners.....	698,995	May 12	1054	998	99	1215
Truax, Elmer, Amesbury, Mass. Spring-gear for vehicles.....	697,599	Apr. 15	2908	499	99	901
Truesdell, Henry, Toronto, Canada. Grate-bar.....	702,091	June 24	2928	679	99	2709
Trufant, Walter E., Whitman, Mass. Automobile.....	699,680	Apr. 1	496	116	99	105
Truitt, Charles A., Chinototeague Island, Va. Ladder-iron.....	698,948	Apr. 1	850	198	99	779
Trumbull, Rollin H., Chicago, Ill. Roll-holding camera.....	700,224	May 20	2949	512	99	1972
Truslow, Louis B., Thomaston, N. Y. Vehicle-toe-rest.....	698,691	Apr. 1	499	115	99	105
Truslow, Louis B., Thomaston, N. Y. Vehicle-seat.....	698,495	May 6	921	129	99	1292
Trussell, Emory A., assignor to Heber & Trussell Manufacturing Company, St. Louis, Mo. Temporary binder.....	697,671	Apr. 15	2909	499	99	902
Trussell, Emory A., assignor to Siebig & Trussell Manufacturing Company, St. Louis, Mo. Temporary binder.....	700,299	May 20	2910	574	99	1722
Tryon, Ira B., Harvard, Ill. Core-shock compressor.....	702,108	June 10	1809	341	99	2425
Tschinkel, Alfred. (See Eddy and Tschinkel.)						
Tuck, William H., Lincoln, Neb., assignor to West Disinfecting Company, New York, N. Y. Animal-clipping apparatus.....	702,104	June 24	2497	908	99	2977

Tucker, Ah
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Tucker, Fr
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Tudor, Ma
Tudor, Fre
Tuark, Alb
Tunell, Ad
Tunison, H
Tunney, Jo
Tunstall, L
Turk, Han
Turk, Will
Turner, Fr
Turner, Jos
Turner, Th
 Young, a
Turney, W
Turney, J
Turney, O
Turnipseed
Tusler, Ma
Tuttle, Cha
Tuttle, Ho
Twedy, Le
Twiggs, He
Twynam, '
Tyden, En
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Tyler, Geo
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Tyson, Fr
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Lutz, A
Universal
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Universal
Upham, I
Upham, I
Upton, Jo
Urban, Jo
Vain, Joe
Valentine
Pookha

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Tucker, Alexander E., Birmingham, and O. Cory, Swansea, England. Artificial fuel....	700,380	May 20	2611	90	1728
Tucker, Benjamin W., assignor to E. CME, Newark, N. J. Car-truck	700,385	May 20	2620	812 514	90	1672
Tucker, Charles F. (See O'Hara, William J., assignor.)						
Tucker, Charles H. (See King, Phineas F., assignor.)						
Tucker, Edwin D., assignor to B. Hoe and Company, New York, N. Y. Casting-mold ...	697,115	Apr. 8	1264	207	90	214
Tucker, Francis H., Invercargill, New Zealand. Brush	697,326	Apr. 8	1701	280	90	208
Tucker, Frank W., Milford, Conn., assignor of one-half to J. L. Benton, Lynn, Mass.	698,375	Apr. 29	4740	1044	90	1074
Combined waist-holder and skirt-supporter	698,598	May 6	838	205	90	1257
Tucker, Major, Broomfield, N. Y. Basket-handle	701,594	June 3	427	97	90	2196
Tador, Frederic, Brookline, Mass. Steam-trap	698,166	Apr. 29	2285	725 727	90	754
Taerk, Albert, Chicago, Ill. Electric clock-winding mechanism						
Tunall, Adolph. (See Carlson and Tunall.)						
Tunison, H. O. (See Blatchley, Melborne E., assignor.)						
Tunney, John J., assignor to J. Jenkins, Pittsburg, Pa. Lubricator. (Belgium)	12,008	June 24	2646	685	90	2055
Tunstall, John W. (See Waltrip, Henry B., assignor.)						
Türk, Hans, Brussels, Belgium. Stove for the ventilation of rooms or other places	698,610	Apr. 1	291	31,28	90	66
Türk, William. (See Chidester and Türk.)						
Turner, Frederick W., Cambridge, Mass. Condenser for steam motor-carriages	698,726	May 13	1167	268	90	1434
Turner, Joseph, Worcester, Mass. Safety-razor	698,708	Apr. 29	4420	268	90	1017
Turner, Thomas N., and G. B. Mitchell, assignors of three-fifths to J. E. Cooper, L. F. Young, and J. M. Todd, Springfield, Ohio. Trolley-harp	697,573	Apr. 15	2210	428	90	808
Turner, Wesley, Paso Robles, Cal. Hillside-plow	698,081	Apr. 22	2148	698	90	717
Turney, James A., and E. F. O'Sullivan, Toledo, Ohio. Embalming and cooling board...	702,511	June 17	2286	200	90	2907
Turney, Oliver. (See Sharpe, Herbert E., assignor.)						
Turnipseed, Jesse C., Hampton, Ga. Trap-net	698,041	Apr. 29	5021	1110	90	1122
Tusler, Malina. (See Kinsey, Henry H., assignor.)						
Tuttle, Charles L., assignor of one-half to H. D. Whipple, Rochester, N. Y. Fence-post.	701,485	June 3	265	87	90	2101
Tuttle, Homer, Cedar Rapids, Iowa. Motion-transmitter	697,573	Apr. 15	2212	428	90	808
Twoedy, Larson A., Boonville, Ind. Double-tree-ovener	697,116	Apr. 8	1265	207	90	214
Twigg, Henry A., Denver, Colo. Edge-ironing machine	700,450	May 20	2627	604	90	1749
Twynam, Thomas, Moortown, England. Separating tin from metals	702,165	June 24	2489	.....	90	2977
Tyden, Emil, Hastings, Mich. Table-leg joint	698,519	Apr. 1	288	88	90	88
Tyler, Abel D., Jr., Brookton, Mass. Transversely-divided boot or shoe last and union therefor	697,044	Apr. 8	1266	261	90	297
Tyler, George R., Pomona, Cal. Compressed-air water-elevator	697,286	Apr. 8	1708	280	90	268
Tyler, George R., Pomona, Cal. Pruning-saw	698,764	Apr. 29	4491	268	90	1017
Tyson, Frank. (See Tyson, William G., assignor.)						
Tyson, William G., assignor of one-half to F. Tyson, Philadelphia, Pa. Stop-valve	702,228	June 10	1971	420	90	2280
Tzaut, Alfred, assignor to D. Perret, Neuchâtel, Switzerland. Electrical apparatus...	701,647	June 3	672	147	90	2649
Uchermann, Karl, Christiania, Norway. Coin-freed apparatus for sale of stamps, tickets, or the like	698,611	Apr. 1	288	88	90	88
Udell, Joseph, Wisconsin Veterans Home, Wis. Necktie-holder	698,088	Apr. 29	4079	301	90	988
Umstadter, Michael. (See Bell, Isaac T., assignor.)						
Underwood, Alfred, Oil City, assignor to Oil Well Supply Company, Pittsburg, Pa. Pipe-wrench	698,705	Apr. 29	4490	268	90	1017
Underwood, Herbert G., assignor to International Power Vehicle Company, Stamford, Conn. Reversing and variable-speed gearing	698,649	Apr. 1	281	106	90	180
Underwood, Joseph R., Fayetteville, N. C. Refrigerator-car	698,260	May 6	241	86	90	1222
Underwood, William J. (See Reynolds and Underwood.)						
Union Boiler Tube Cleaner Company. (See Forsyth and Bell, assignors.)						
Union Electric Manufacturing Company. (See Brown and Rhine, assignors.)						
Union Iron Works. (See Thomas, Edwin E., assignor.)						
Union Manufacturing & Specialty Company. (See Lee, Dwight B., assignor.)						
Union Metallic Cartridge Company. (See Grant, Jerome, assignor.)						
Union Paper Bag Machine Company. (See Appel, Daniel, assignor.)						
Union Special Sewing Machine Co. (See Durand, Ernest F., assignor.)						
Union Special Sewing Machine Company. (See McNeil, Chester, assignor.)						
Union Special Sewing Machine Company. (See Weatherwax, Charles L., assignor.)						
Union Switch and Signal Company. (See Chalmers, James Jr., assignor.)						
Union Typewriter Company. (See Fitch, Eugene, assignor.)						
Union Typewriter Company. (See Nilson, Peter F., assignor.)						
Union Typewriter Company. (See Sholes, Zalmou G., assignor.)						
Union Water Meter Company. (See Larrabee, William H., assignor.)						
Union Water Meter Company. (See Northrop, Frank L., assignor.)						
United Alkali Company. (See Duff, Edward J., assignor.)						
United Coke & Gas Company. (See Schlewind, Frederic W. C., assignor.)						
United Fast Color Eyelet Company. (See Kampshall, Eleaser, assignor.)						
United Shoe Machinery Company. (See Eaton, Arthur W., assignor.)						
United Shoe Machinery Company. (See Fowler, Alfred B., assignor.)						
United Shoe Machinery Company. (See Jackson, James E., assignor.)						
United Shoe Machinery Company. (See Raymond, Freeborn F., Ed., assignor.)						
United Shoe Machinery Company. (See Scott, Jacob R., assignor.)						
United Shoe Machinery Company. (See Winkley and Phillips, assignors.)						
United Shoe Machinery Company of the State of New Jersey. (See Cavanaugh, James, Jr., assignor.)						
United Shoe Machinery Company of the State of New Jersey. (See Ladd, Sherman W., assignor.)						
United States Register Company. (See Jones, Almon O., assignor.)						
United States Sanitary and Utility Sewage Disposal Company of New Jersey. (See Anderson, Stevens, and Lutz, assignors.)						
United States Sanitary and Utility Sewage Disposal Company of New Jersey. (See Lutz, Alexander, assignor.)						
Universal Acetylene Company. (See Weeks, John W., assignor.)						
Universal Seal and Stopper Company. (See Schmitt, Edward D., assignor.)						
Universal Talking Machine Manufacturing Company. (See Valiquet, Louis F., assignor.)						
Upham, Burt F. (See Stuart and Upham.)						
Upham, Hubbard H., New York, N. Y. Water-bag	698,776	May 12	1226	291	90	1426
Upton, Joseph M., Atlantic, and W. S. Gray, Braintree, Mass. Hinge	698,727	May 12	1142	268	90	1424
Urban, Johann. (See Bronner, Fremery, and Urban.)						
Vain, Joseph, Duluth, Minn. Window-washer	698,649	Apr. 29	2022	1711	90	1711
Valentine, Harry J., Hempstead, assignor to W. Vogel & Brothers, New York, N. Y. Pocket-inhaler	697,117	Apr. 8	1266	261	90	297

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Vol.	Page.	Vol.	Page.
Valerion, Theodore L., Fort Atkinson, Wis., assignor to Creamery Package Manufacturing Company, Chicago, Ill. Pasteurizing apparatus.	701,108	May 27	9378	831	90	2093
Valiquet, Louis P., New York, N. Y. Seal for talking-machine records.	701,590	June 1	957	811	90	2099
Valiquet, Louis P., assignor to Universal Talking Machine Manufacturing Company, New York, N. Y. Tripod support for horns of talking-machines.	700,908	May 30	9381	807	90	1700
Valiquet, Louis P., New York, N. Y., assignor, by mesne assignments, to Universal Talking Machine Manufacturing Company. Talking-machine.	701,048	June 3	979	147	90	2040
Valiquet, Louis P., New York, N. Y., assignor, by mesne assignments, to Universal Talking Machine Manufacturing Company. Talking-machine.	701,048	June 3	974	147	90	2040
Vallier, Orvis, assignor of one-half to J. M. Sprague, Watertown, N. Y. Transferring bowl and try square.	699,361	May 6	945	37	90	1284
Valrona, Antonio, Manchester, England. Apparatus for baking biscuit-coups for tea-cream.	701,776	June 3	986	187	90	2064
Van Aller, Tychio. (See Geloschneer and Van Aller.)						
Van Arsdell, John C., Dallas, Tex. End support for spiral conveyors.	701,909	June 10	1985	878	90	2092
Van Berestoyen, Hugo, Brussels, Belgium. Rotary motor.	702,492	May 29	9481	832	90	1793
Van Cott, Lincoln, and J. D. Kelley, New York, N. Y. Brake mechanism.	702,384	June 10	1978	480	90	2083
Van der Flier, Jarig P., The Hague, Netherlands. Treatment of ores and materials containing antimony.	702,128	June 10	1975		90	2081
Van Duser, Wilson W., Warwick, N. Y. Shutter-operating device.	697,597	Apr. 8	1704	351	90	328
Van Hook, John L., Floydada, Tex. Combined heating and cooking stove.	699,779	May 11	1987	389	90	1648
Van Hooser, Thomas H. B., Comanche, Tex. Churn-cover.	701,384	May 27	9101	944	90	2078
Van Horn, Charles B., Philadelphia, Pa. Felly for vehicle-wheels.	697,115	Apr. 5	1397	898	90	515
Van Luven, Thomas F., Cataract, assignor of one-half to T. S. Burley, Nepean, Canada. Axle-bearing.	700,428	May 20	9238	907	90	1797
Van Meter, James C., Chicago, Ill. Bottle-closure.	700,428	May 20	9245	909	90	1791
Van Noorden, Paul and H. O. Smith, Boston, Mass. Self-closing window.	699,938	Apr. 20	9280	908	90	208
Van Putten, Adrian. (See Zinkewich and Van Putten.)						
Van Schott, Gerhard J., Passaic, N. J. Applicator.	699,594	May 6	924	325	90	1297
Van Scoyoc, Leroy. (See Thomas and Van Scoyoc.)						
Van Scoyoc, Leroy, Louisville, Neb. Fruit-drier.	697,073	Apr. 15	9607	985	90	548
Van Steenberg, Burhams, New York, N. Y. Apparatus for the manufacture of carburated-hydrogen gas.	699,383	May 6	936	37	90	1281
Van Tine, Daniel T. (See Alkermat and Van Tine.)						
Van Valkenburg, Randall T., assignor of one-half to W. E. Crichton, Laporte, Ind. Fence-post.	699,880	Apr. 1	951	30	90	33
Van Voorhis, Harvey B., Pittsburg, Pa. Air-ship.	702,120	June 10	1918	341	90	2087
Van Wageningen, Anthony, Sioux City, Iowa. Ratchet mechanism.	702,054	June 17	2080	809	90	2073
Van Wageningen, Anthony, Sioux City, Iowa. Transmitter.	702,751	June 17	2081	811	90	2087
Van Wageningen, Matthew, Syracuse, N. Y. Dumping-wagon.	699,308	May 6	936	37	90	1286
Van Wert, Charles J. (See Hickey, Thomas F., assignor.)						
Vandecar, William D., Grand Rapids, Mich. Electric railway-signal.	700,651	May 20	9243	905	90	1790
Vandemburgh, Walter, et al. (See Reynolds, James H., assignor.)						
Vander Cook, Henry A., assignor to himself and A. H. Vandertolk, Chicago, Ill. Toy.	699,940	Apr. 20	9280	905	90	1219
Vandertolk, Abraham, Hartford, Conn. Universal joint.	699,197	Apr. 20	9281	787	90	754
Vandertolk, Cornelius, New York, N. Y. Bolster for railway-cars.	699,976	Apr. 20	9741	1045	90	1074
Vandertolk, Frank E., assignor of one-half to J. Meyer, Waterbury, Conn. Shoe-lacing book.	699,939	May 13	1073	384	90	1280
Vandertolk, Frank E., assignor of one-half to J. Meyer, Waterbury, Conn. Shoe-lacing book.	699,930	May 13	1074	384	90	1280
Vandertolk, Anthony H. (See Vander Cook, Henry A., assignor.)						
Vandiver, John M. (See Talbert, Jacob M., assignor.)						
Vaucain, Samuel M., assignor to Burhams, Williams & Company, Philadelphia, Pa. Beam or joint for steam-boilers.	701,777	June 3	956	197	90	2064
Vaughn, Benjamin A., Corning, Cal. Cooking-stove.	699,981	May 13	1074	385	90	1280
Vaughn, George C., Salem, Mass., assignor, by mesne assignments, to Vaughn Machine Company, Boston, Mass. Apparatus for lashing tankark.	699,977	Apr. 20	9748	1085	90	1074
Vaughn Machine Company. (See Perkins, Franklin J., assignor.)						
Vaughn Machine Company. (See Vaughn, George C., assignor.)						
Vaught, James C. H., Phillipsburg, Mont. Cam for stamp-mills.	697,119	Apr. 8	1299	838	90	312

Alphabetical list of patentees, April to June, inclusive—Continued.

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Victor Box Car Loader Company. (See Chappell, Deion A., assignor.)						
Victor Electric Company. (See Wanta, Julius B., assignor.)						
Victor P. De Knight Gun Company. (See De Knight, Victor P., assignor.)						
Vidale, Leon, St. Remy-de-Terra, France. Apparatus for the hydraulic propulsion of ships.	699,048	Apr. 20	5284	1111	90	1139
Villard, Gilbert. (See Lapartot, Villard, and Pignaud.)						
Ville, Jules, Montpellier, France. Red dye and making same.	701,467	June 2	367		90	2141
Vincent, Jules L. (See Boudet, Arthur D., assignor.)						
Vinaco, George W., assignor of one-half to J. E. Martin, Haleswood, Ky. Corner-iron for vehicle-bodies.	697,398	Apr. 8	1703	381	90	393
Violetta, Florence, Minneapolis, Minn. Curtain-drawers.	697,398	Apr. 15	9449	546	90	549
Vin, Gerhard N., Schwabach, Switzerland. Treating brine.	698,341	Apr. 28	3949		90	699
Vin, Gerhard N., Schwabach, Switzerland. Vacuum evaporating apparatus.	700,105	May 13	1571	636	90	1575
Vin, Gerhard N., Schwabach, Switzerland. Vacuum apparatus for boiling brine.	700,390	May 27	3435	601	90	1921
Vin, Gerhard N., Schwabach, Switzerland. Vacuum apparatus for boiling brine.	702,354	June 19	1673	601	90	2467
Vine, William M., Harrodsburg, Ky. Floor-sifter.	697,398	Apr. 15	2314	633	90	693
Vonker, August, Harrodsburg, Ky. Manufacturing glass.	698,793	Apr. 29	4423	908	90	1017
Vonker, August, Harrodsburg, Ky. Manufacturing of glass by electrical heating.	702,051	June 10	1484		90	2465
Vogel & Brothers, William. (See Valentini, Harry J., assignor.)						
Vogel, Eugene W., Chicago, Ill. Circuit-controller.	705,026	June 24	3903	725	90	3938
Vogel, Louis D., assignor to Wooden Package Manufacturing Company, Omaha, Neb.	699,191	Apr. 20	5128	1141	90	1198
Tramping-machine.						
Vogel, Louis D., assignor to Wooden Package Manufacturing Company, Omaha, Neb.	701,981	June 3	933	215	90	2393
Machine for med-feeding tubes, bottles, &c.						
Vogel, Louis D., assignor to Wooden Package Manufacturing Company, Omaha, Neb.	701,983	June 3	933	215	90	2393
Beaker and driver.						
Vogler, Henry, Newmarket, Cal. Electric beehive-heater.	702,398	June 17	2357	623	90	2721
Vogler, Hugo P., Waterville, assignor of two-thirds to A. Wipfel and W. Wandell, Barnes, Kans. Hay-rack.	701,110	May 27	3938	931	90	2367
Vopelung, John W. (See Le Clair, George E., assignor.)						
Voght, August, assignor to Massey Works, New Britain, Conn. Hemp-fastener.	702,905	June 17	2419	931	90	2343
Voght, Henry G., assignor to Russell & Ervin Manufacturing Company, New Britain, Conn. Liquid door-check.	699,779	Apr. 1	739	184	90	195
Vollert, August. (See Raschke, Wilhelm, assignor.)						
Vollmer, Wilhelm, Brooklyn, N. Y. Machine for loading iron-ore and angle.	699,995	May 19	1495	933	90	1491
Von der Poppentun, Johannes, Chemnitz, Germany. Storage-battery electrode.	701,293	June 3	139	41	90	2145
Voss and Cliff Manufacturing Company. (See Cliff, Edward, assignor.)						
Voss, Herman G., York College, Conn. Embroidery-frame.	699,393	May 8	949	37, 38	90	1295
Voss, Henry C. (See Rodgen, James W., assignor.)						
Votaw, Charles E., assignor of one-half to N. H. Kalster, Indianapolis, Ind. Wrapper or label smoothing machine.	698,397	Apr. 20	4139	930	90	693
Votaw, Hermann, assignor to F. Krupp, Essen, Germany. Brake for hoisting apparatus.	702,394	June 17	2393	939	90	2721
Vrealsted, Edward J., assignor to Buffalo Pitts Company, Buffalo, N. Y. Throwing-machine.	699,044	Apr. 20	5038	1111	90	1199
Vuonglaux, John F., Council Bluffs, Iowa. Neck-yoke-center guard.	699,393	Apr. 20	4141	910	90	935
Vullrich, Donschan de, and J. D'Orlovsky, Paris, France. Manufacture of calcium carbide.	701,950	June 3	979	149	90	2949
W. D. Allen Manufacturing Company. (See Gibbs, Henry, assignor.)						
W. F. & John Barnes Company. (See Barnes, William F., assignor.)						
W. G. Armstrong, Whitworth & Company. (See Noble, Andrew, assignor.)						
W. S. Kott Company. (See Caldwell, John, assignor.)						
Waddell, James, Glasgow, Scotland. Range-finding and surveying instrument.	702,935	June 17	2560	933	90	2723
Waddell, Thomas J., Philadelphia, Mont. Fertilizer-distributor.	701,773	June 3	933	193	90	2394
Wade, James E., St. Louis, Mo. Radiator attachment.	698,032	Apr. 29	3154	693	90	719
Wade, Martin J., Iowa City, Iowa. Receptacle for containing papers.	712,028	June 24	3305	736	90	2923
Wade, Martin J., Iowa City, Iowa. Paste pot or jar.	702,034	June 24	3305	736	90	2923
Wade, Royal H., Elma, Wash. Jeweler's tool.	697,180	Apr. 8	1291	309	90	214
Wadsworth, George H., and R. J. Sharwin, Cayuga Falls, Ohio. Core-making machine.	692,707	Apr. 29	4494	936	90	1017
Wadsworth, Joseph, Cayuga Falls, Ohio. (See Sharwin, R. J., assignor.)						
Wadzer, William H. (See Duncan and Wadzer.)						
Wagen, Schlenker, Wiesbaden, Wis. Railing-machine.	692,094	Apr. 22	2135	936	90	719
Wagner, Alfred, Munich, Germany. Storage-box for photographic plates.	699,393	May 8	949	37, 38	90	1295
Wagner, Casper H., Chicago, Ill. Smoking-chair.	700,390	May 27	3435	601	90	1921
Wagner, Charles W., Onondaga, N. Y. Reversing-gearing.	698,393	May 8	949	37, 38	90	1295
Wagner, Franz X., assignor to Wagner Typewriter Company, New York, N. Y. Type-writing machine.	699,394	May 8	949	37, 38	90	1295
Wagner-Palmros Manufacturing Company. (See A. H. Wagner, Thomas G., assignor.)						
Wagner-Palmros Manufacturing Company. (See Palmros, Alexander, assignor.)						
Wagner Typewriter Company. (See Howell, Charles W. Jr., assignor.)						
Wagner Typewriter Company. (See Manning, Edward J., assignor.)						
Wagner Typewriter Company. (See Neahr, Jacob E., assignor.)						
Wagner Typewriter Company. (See Wagner, Franz X., assignor.)						
Wagner, John J., Letters Ford, Ind. Metallic cross-tie.	697,390	Apr. 8	1777	321	90	393
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Slack-adjuster for brakes.	699,391	Apr. 1	393	90	90	90
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Brake slack-adjuster.	699,392	Apr. 1	394	90	90	90
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Brake slack-adjuster.	699,393	Apr. 1	395	90	90	90
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Slack-adjuster for railway-brakes.	699,394	Apr. 1	397	90	90	90
Wahlert, Henry A., assignor to American Brake Company, St. Lout, Mo. Locomotive-brake.	699,395	Apr. 1	398	90	90	90
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Brake slack-adjuster.	699,396	Apr. 1	399	90	90	90
Waite, Guy B., Hoboken, N. J. Center construction for floor-arches.	702,393	Apr. 1	399	90	90	90
Waite, Henry E., Newton, Mass. Ball-marking machine.	700,393	May 27	3435	601	90	1921
Waite, David M., et al. (See Reynolds, Charles J., assignor.)						
Waldfield, James B., Mangum, Okla. Ter. Main support and holder.	697,121	Apr. 8	1290	308	90	213

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Wakeland, William R., Mount Union, Pa. Machine for forming bricks, tiles, etc.	698,890	Apr. 29	4148	{ 910 911 912 151 152 }	90	998
Wakely, William, Taunton, Mass. Furnace	698,791	Apr. 1	394	{ 151 152 }	90	137
Waldmann, Adolph W., Chicago, Ill., and F. E. Kaiser, Cleveland, Ohio. Machine for trimming and marking cigars	708,085	June 24	2808	730	90	2922
Waldron, Harry L., Providence, assignor of one-half to W. H. Crowninshield and C. H. Lawton, Pawtucket, R. I. Combined cap-visor and eye-shield	700,997	May 30	2986	690	90	1798
Waldron, Frank, North Tarrytown, N. Y. Game	697,974	Apr. 15	2813	498	90	808
Wales, Samuel S., Mumball, Pa. Furnace-charging apparatus	698,768	Apr. 29	4495	998	90	1018
Wales, Samuel S., Mumball, Pa. Hoisting apparatus	698,986	May 12	1976	385	90	1488
Wales, Theodore F., Bridgeport, Conn. Package for grain products	701,970	June 10	1287	279	90	2860
Walker, Ambrose L., Camden, N. J. Separator	697,769	Apr. 15	2260	599	90	575
Walker, Arthur W., Boston, Mass. Motor	697,185	Apr. 8	1808	295	90	299
Walker, Charles W. (See Briggs, Thomas H., assignor.)						
Walker, Edward H. (See Smith, Matthew, assignor.)						
Walker, James C., Waco, Tex. Motor	698,612	Apr. 1	392	22, 98	90	87
Walker, James H., assignor of one-half to E. H. Bottum, Milwaukee, Wis. Preventing oxidation of molten metals	698,769	Apr. 29	4495	998	90	1018
Walker, Randall W., Oxford, N. Y. Holdback	698,987	Apr. 1	240	55	90	55
Wallace, Thomas F. and T. S., Birmingham, England. Electrical ship's-log apparatus	701,951	June 3	977	{ 149 150 151 }	90	2900
Wallace, Thomas S. (See Walker, Thomas F. and T. S.)						
Wall, Ashbel T., East Greenwich, R. I. Composite wire and making same	697,875	Apr. 10	2814	498	90	808
Wall and Ochs. (See Wall and Ochs, assignors.)						
Wall and Ochs. (See Waugh, Henry H., assignor.)						
Wall, Osborne, assignor of one-third to R. O. Hughes, New Plymouth, New Zealand. Fountain-pen	702,282	June 24	2744	923	90	2980
Wall, William L., and L. Probert, assignors to Wall and Ochs, Philadelphia, Pa. Eye-glasses or spectacles	701,111	May 27	2994	999	90	2080
Wallace, David T., assignor of one-third to C. F. Thompson, Chicago, Ill. Nut-lock	702,193	June 24	2490	908	90	2977
Wallace, James C., Colorado City, Colo. Window-shade hanger	699,994	May 6	251	50	90	1295
Wallace, John G., assignor of one-half to J. B. Morgan, Chicago, Ill. Document-envelope	698,690	Apr. 29	4145	915	90	998
Wallace, John H., Stravithie, Scotland. Strap-grip for snaffling horses, etc.	702,193	June 10	1801	{ 251 252 }	90	2428
Wallace, William L., et al. (See Fitzgerald, Selfert, and Kimmel, assignors.)						
Waller, Henry P. (See Hago and Waller.)						
Wallihan, Orlando F., Reliance, Va. Silo	702,294	June 24	2745	923	90	2980
Wallin, Gustaf E., Chicago, Ill. Linotype-slug holder	699,798	May 12	1188	295	90	1425
Walls, Joseph A., and R. L. Boyler, West, Tex. Wire-stretcher	698,931	Apr. 1	981	212	90	187
Walsh, Alphonso. (See Weller, Marvin E., assignor.)						
Walsh, Bruno, Lansingburg, N. Y. Trunk	700,998	May 30	2970	690	90	1798
Walsh, John E., Washington, D. C. Locking system for mail-boxes	699,997	May 6	250	209	90	1295
Walsh, John J., et al. (See McGarvey, Edward, assignor.)						
Walsh, Laurence J., New York, N. Y., assignor of one-fourth to M. J. Sullivan, Butte, Mont. Automatic vent-valve	701,485	June 3	280	58	90	2161
Walter, Henry S. (See Stanley and Walter.)						
Walter, Joseph J., and J. S. Brockert, Wapakoneta, Ohio; said Brockert assignor to said Walter. Garment	697,970	Apr. 15	2816	494	90	808
Walter, Stanley L., and F. W. Keiser, Ekaetown, Pa. Hardening copper	701,489	June 3	239	-----	90	2161
Walter, William, Rosebank, N. Y. Apparatus for cooling syrups	701,971	June 10	1280	280	90	2980
Walter, William L., Port Huron, Mich., assignor of one-fourth to B. H. Brockway, Washington, D. C. Current-motor	702,285	June 24	2825	879	90	2948
Walter, William L., Port Huron, assignor of one-half to S. W. Smith, Pontiac, Mich., and B. H. Brockway, Washington, D. C. Current-motor	701,489	June 3	239	28, 39	90	2161
Walters, Nels P., Fort Madison, Iowa. Toy	700,861	May 27	2428	787	90	1941
Walther, William J., Boston, Mass. Insulator for electric circuits	700,468	May 20	2045	605	90	1751
Walton, James E., Memphis, Tenn. Planter	701,779	June 3	899	198	90	2985
Watson, John H., et al. (See Boorman and Sharp, assignors.)						
Watson						

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Warner, Austin P., assignor to Duplex Printing Press Company, Battlecreek, Mich. Printing-press.....	695,544	Apr. 22	3044	806	90	690
Warner Brothers Company. (See Warner, De Ver H., assignor.)						
Warner, Daniel, Bronson, Mich., assignor of one-half to J. W. Stone, Brooklyn, N. Y. Drilling-machine.....	695,198	Apr. 22	5125	1148	90	1139
Warner, De Ver H., assignor to Warner Brothers Company, Bridgeport, Conn. Supporting or connecting means.....	695,220	Apr. 1	240	95	90	25
Warner, Francis D. (See Pratt, Allison A., assignor.)						
Warner, Isaac M., assignor to F. C. Boies, Union City, Mich. Telegraph-pole or fence-post.....	695,424	Apr. 22	3734	337	90	623
Warner, Isaac M., assignor to F. C. Boies, Union City, Mich. Fence-post, telegraph-pole, or the like.....	702,226	June 17	3546	680	90	2723
Warner and Swasey Company. (See Pecker, Gottlieb, assignor.)						
Warner, Thomas S., assignor to C. L. Swanson, Frankfort, Kans. Cultivator.....	701,972	June 10	1188	220	90	2261
Warner, William E., Vergennes, Vt. Burner and inhaler.....	695,225	May 6	280	205	90	1269
Warren, Charles H., Pittston, Me., assignor to Draper Company, Hopedale, Mass. Means for defining the beat of the lay of looms.....	701,972	June 10	1264	222	90	2261
Warren, Charles T., assignor of one-half to G. A. Maurer, San Antonio, Tex. Shuttle mechanism for sewing-machines.....	701,760	June 3	381	199	90	2265
Warren, Edward K., assignor to Warren Featherbone Company, Threesocks, Mich. Stiffening cord or tape.....	695,579	Apr. 22	4745	1043	90	1073
Warren, Edward K., and A. A. Ackerman, Threesocks, Mich. Feather duster.....	695,580	Apr. 22	4745	1043	90	1073
Warren-Ehret Company. (See MacCollin, William H., assignor.)						
Warren, Eli, Eldorado, Kans. Pump.....	697,045	Apr. 8	1267	221	90	223
Warren Featherbone Company. (See Warren, Edward K., assignor.)						
Warren Featherbone Company. (See Webster, William, assignor.)						
Warren, Fred E. (See Cunnock and Warren.)						
Warren, Herbert C., Hartford, Conn. Universal joint.....	695,904	May 13	1317	245	90	1242
Warren, John E. (See Fassett and Warren.)						
Warren Webster and Company. (See Serrell, John A., assignor.)						
Warwick, Frank B., et al. (See Wilkinson, Thomas A., assignor.)						
Warwick, Walter W., et al. (See Wilkinson, Thomas A., assignor.)						
Washburn, George P., Chadron, Neb. Acetylene-gas generator.....	695,100	Apr. 22	2222	737	90	735
Washburn, Harry, Onoclea Mills, Pa. Combined poker and lift-lifter.....	695,161	Apr. 22	2224	735	90	735
Washburn, William S., Wollaston, Mass. Safety-valve.....	701,525	June 3	422	95	90	2197
Washburne, Benjamin F., Rockfalls, Ill. Farm-wagon body.....	697,225	Apr. 8	1274	222	90	223
Washington, Alfred, and M. Standiford, Chicago, Ill. Advertising device.....	702,102	June 24	2225	772	90	2222
Wastling, Peter J. M., assignor of one-half to J. D. MacKenzie, Savanna, Canada. Combined lifting and track-aligning jack.....	695,512	Apr. 1	422	94	90	92
Waterbury Mfg. Co. (See Perkins, Walter H., assignor.)						
Waterman, Frank D., executor. (See Waterman, Lewis E.)						
Waterman, Lewis E., deceased, Brooklyn, N. Y.; F. D. Waterman, executor. Fountain-pen.....	695,391	Apr. 22	4739	1043	90	1073
Waterman, Lewis E., deceased, Brooklyn, N. Y.; F. D. Waterman, executor. Safety fountain-pen.....	695,392	Apr. 22	4739	1047	90	1077
Waterman, Stephen, Providence, R. I. Frame or base for zinc or electrotypes plates.....	702,005	June 17	2420	522	90	2042
Waters, Edward G., New York, N. Y. Document-file.....	700,227	May 20	2225	515	90	1272
Waters, Frederick R., Salida, Colo., assignor, by mesne assignments, of one-half to S. O. Malin and E. J. Powell, Baltimore, Md. Ore-separator.....	700,711	May 20	3112	742	90	1222
Watkins, Henry, assignor to E. M. Antidel, Utica, N. Y. Stamping-machine.....	702,722	June 17	2221	515	90	2701
Watkins, Joel, Joliet, Ill. Couch-frame.....	701,112	May 27	2222	522	90	2022
Watrous, Martin D., Ansonia, Conn. Corset-stay-tipping machine.....	695,222	May 6	221	227	90	1222
Watson, Erskine L., Cernish, Me. Automatic piano or organ player.....	702,222	May 20	2212	575	90	1722
Watson, Henry F., assignor of one-half to M. A. Snider, Valparaiso, Ind. Machine for making mica-board.....	697,222	Apr. 15	2421	547	90	542
Watson, James T., Scranton, Pa. Safety face-box.....	695,045	Apr. 22	2227	1111	90	1122
Watson, John, Brooklyn, assignor, by mesne assignments, to E. C. Hoyt and F. Rosen, New York, N. Y. Machine for justifying type.....	700,712	May 20	3121	702	90	1222
Watson, John G., Chester, Pa. Anchor.....	697,220	Apr. 8	1222	222	90	222
Watson, Louis T., et al. (See Maloney, William, assignor.)						
Watson, William D., Chicago, Ill. Window.....	702,724	June 17	2222	512	90	2701
Watson, William S., assignor to Fels & Co., Philadelphia, Pa. Soap-press.....	701,112	May 27	2227	522	90	2022
Watson, William W., Ada, Minn. Tobacco-cutter.....	701,974	June 10	1222	222	90	2222
Watt, George F., Chicago, Ill. Card-index file.....	700,221	May 20	2212	575	90	1722
Watt, Forrest H. (See Watt, Stewart and F. H.)						
Watt, James H., Barnesville, Ohio. Mining-car-door fastening.....	702,222	June 10	1722	421	90	2422
Watt, Stewart and F. H., Barnesville, Ohio; said F. H. Watt assignor to said Stewart						
Watt, Twyer for cupola-furnaces.....	697,221	Apr. 8	1214	222	90	222
Watts, John, Akron, Ohio. Door-check.....	701,421	June 3	222	95	90	2122
Waugh, Daniel S., Chicago, Ill. Automatic valved hammer.....	701,222	May 27	4122	245	90	2072
Waugh, Eugene. (See Waugh, Robert E. and E.)						
Waugh, Henry H., Brooklyn, N. Y., assignor to Wall and Ochs, Philadelphia, Pa. Lens-fastening for glasses.....	702,222	June 10	1222	421	90	2222
Waugh, Robert E. and E., Denver, Colo. Dry ore-concentrator.....	702,222	June 24	2222	572	90	2222
Wayt, Edward A., New York, N. Y. Machine for bordering paper.....	697,122	Apr. 8	1204	222	90	242
Weaner, Cornelius, assignor of three-fourths to H. D. Bokop, A. F. Miller, and F. W. Young, Dedance, Ohio. Heating-stove.....	697,422	May 6	222	122	90	1222
Weatherill, Henry G. (See Rundquist, William, assignor.)						
Weather, James, assignor of one-half to J. A. Robbins, Indianapolis, Ind. Combination-tool.....	695,222	Apr. 22	4127	212	90	242
Weatherwax, Charles L., St. Louis, Mo., assignor to Union Special Sewing Machine Company, Chicago, Ill. Folding-guide for sewing-machines.....	702,512	June 17	2227	510	90	2227
Weaver, Albert L. (See Winans, Daniel M., assignor.)						
Weaver, Charles D., assignor to McPherson Office Novelty Company, McPherson, Kans. Memorandum and indicating device.....	701,222	May 27	4122	245	90	2072
Weaver, Ervin E., Piam, assignor of one-half to E. E. Stewart, Baya, Ohio. Derrick.....	701,975	June 10	1222	222	90	2222

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Weaver, Ira A., assignor to Sattley Manufacturing Company, Springfield, Ill. Cor- planter	708,357	June 24	2883	261	99	2883
Weaver, John W., et al. (See Savage, Thomas A., assignor.)	707,579	Apr. 15	3216	444 445 446	90	3216
Weaver, Solomon F., Payne County, Okla. Ter. Stacker	701,781	June 8	2883	108	99	2883
Weaver, Spencer F., Philadelphia, Pa. Track-switch	697,909	Apr. 5	1716	308	99	308
Weaver, William V., and L. H. Sanford, Augusta, Me. Dandy-roll cleaner	697,904	Apr. 15	2811	689	99	2811
Webb, Alonzo, Sumner Shade, Ky. Railway	708,385	June 10	1761	688	99	1761
Webb, Edward, Reading, Mass. Valve						
Webb, Edwin W. (See Jones and Webb.)						
Webb Folding Box Company. (See Webb, Zaida B., assignor.)						
Webb, Henry F., assignor of one-half to W. A. Shear and W. H. Richards, Coudersport, Pa. Jar closure and fastener	699,545	Apr. 29	5080	1112	99	1112
Webb, John W. (See Wilson, Allen F., assignor.)						
Webb, Zaida B., Whippany, N. J. Game	702,580	May 20	2973	689	99	1793
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	701,222	June 8	681	180	99	222
	708,386	June 24	5749	688 684	99	386
Webber, Frank L., Oxford, Nebr. Vise						
Weber, Aaron M. (See Wyman, William F., assignor.)						
Weber, Charles, Pittsburg, Pa. Guide for metal-bending machines	702,886	June 17	2843	684	99	2843
Weber, Charles H., Minneapolis, Minn. Closed measuring-can	697,047	Apr. 1	1828	436	99	28
Weber, Emil, and F. C. Frey, Baker City, Oreg. Lock	700,105	May 12	1874	436	99	1574
Weber, Frederick W., Boalsburg, Pa., assignor of one-half to B. F. Keller, Branswell, W. Va. Stairway	699,988	May 12	1677	385 386	99	1677
Weber, Henry E., Canton, Ohio. Syringe-nozzle	702,108	June 24	2897	778	99	2897
Weber, Peter, East Orange, N. J. Phonographic reproducer	698,008	Apr. 29	4149	913	99	94
Weberster, Alfred J., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyor	708,964	June 17	2861	680	99	2771
				681		
				688		
Webster, Cyrus C., Minneapolis, Minn. Strip-metal-casting machine	708,325	June 24	2884	688	99	325
Webster, David G., et al. (See Mathias, Theodore N., assignor.)						
Webster, Harold A., assignor to H. B. Newton, Haverhill, Mass. Rotary sole-edge setter	699,430	May 6	504	126	99	126
Webster, Harry G., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	698,057	Apr. 29	3155	694	99	75
	698,058	Apr. 29	3161	694	99	75
Webster, Joseph B., Herndon, Va. Puzzle						
Webster, William. (See Atkins, Charles E., assignor.)						
Webster, William, Herk Co., assignor to Warren Featherbone Company, Threecoals, Mich.	698,928	Apr. 29	4708	1047 1048	99	1047
Webster, Emma, Brooklyn, N. Y. Suspenders	697,905	Apr. 15	2816	683	99	6
Weeks, Louis A., et al. (See Wiley, Ferdinand, assignor.)						
Wedekind, Edgar, Tullingen, Germany. Chlorinated methyl-ether of menthol	705,104	June 24	2885	60	99	31
Week, Elsie L., assignor of one-half to T. C. Burke, Baker City, Oreg. Egg-beater	700,560	June 2	1828	436	99	17
Weeks, Henry C., Bayside, N. Y. Bicycle	700,560	May 20	2873	680	99	17
Weeks, John W., assignor to Universal Acetylene Company, Providence, R. I. Acetylene- gas generator	701,428	June 8	937	80, 61	99	21
Wegemann, August H. (See Lohs, Hans W., assignor.)						
Wegener, Herman, Magglingen, Austria. Handry. Wood-grading machine	699,800	May 6	502	207	99	12
Wegman, Herman G., New York, N. Y. Pliers and gripping-tool	695,778	Apr. 1	720	185	99	1
Wegman, Herman G. and W. J. Danabent, Cincinnati, Ohio. Device for mixing liq- uids, partial liquids, or the like	697,579	Apr. 15	2828	486	99	1
Weihsahl, Herman G., New York, N. Y. Eyeset	695,108	Apr. 29	3085	720	99	1
Weihsahl, Herman G., New York, N. Y. Eyeset	695,770	Apr. 29	4496	964	99	10
Weichel, Hugo. (See Weichel, Theodore P. and H.)						
Weichel, Theodore P. and H., Plymouth, Nebr. Corn harvester and husker	699,801	May 6	506	208	99	12
Weidely, George A., assignor to G. & J. Tiro Company, Indianapolis, Ind. Vehicle-tire	701,684	June 2	872	81	99	2
Weil, Alfred. (See Weale, Richard B., assignor.)						

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Wellman, Samuel T., J. W. Beaver, and C. H. Wellman, Cleveland, Ohio. Crass and scaffolding	693,423	Apr. 22	6728	587	99	305
Wellman-Beaver Engineering Company. (See Bertrand, Ernst, assignor.)						
Wellman-Beaver Engineering Company. (See Hyatt and McGeorge, assignors.)						
Wellman-Beaver Engineering Company. (See Wellman, Beaver, and Morgan, assignors.)						
Wells, Abel W., et al. (See Engberg, Carl, assignor.)						
Wells, Charles G., Hartford, Conn. Machine for stringing tobacco	702,267	June 10	1776	626	99	345
Wells, Elmer J., and J. F. Young, Nashua, Iowa. Window-shade-cord clamp	701,424	June 3	875	61	99	214
Westbach Light Company. (See Stine, Townsend, assignor.)						
Welsh, Wesley R., Parkersburg, Pa. Bulk-cutter	702,512	June 17	2226	610	99	2
Welter, Samuel, and J. Armstrong, Chicago, Ill., assignors to Armstrong Bros. Tool Co. Cutting-tool	700,922	May 27	2422	709	99	120
Welton, O. C., et al. (See Johnson, Charles N., assignor.)						
Welton, P. M., et al. (See Johnson, Charles N., assignor.)						
Wendt, Wilhelm. (See Hornsman and Wand.)						
Westworth, Charles C., Roanoke, Va. Ram						
Werk, Robert F., New Orleans, La. Clipper	697,823	Apr. 2	1712	326	99	30
Werner, Albert Y., and F. B. Ellis, assignors of one-third W. M. Stewart and C. J. Kappeler, Carson City, Nev. Extracting rubber-like gum from gromewood	701,698	June 3	626	120	99	222
Werner, Eduard E. C., New York, N. Y. Ice-cream freezer	697,927	Apr. 15	2221	627	99	60
Werner, Edward A. (See Harvey and Werner.)	700,261	May 20	1573	650	99	172
Werner, John, Rochester, N. Y. Syrup-cooler	698,720	May 12	1157	670	99	128
Werner, William A. P., London, England. Apparatus for the production of fiberless elements	697,323	Apr. 15	2224	626	99	20
Wernke, Otto E. L., et al. (See Koch, William G. and A. C., assignors.)						
West, Ferdinand, Brooklyn, N. Y. Baggraver's rulling-machine	699,220	May 12	1424	326	99	125
Wesner, John A., Chicago, Ill. Chemical apparatus	700,222	May 20	2222	612	99	107
Wessell, Charles, New York, N. Y. Reducing spelter	692,122	Apr. 22	2227		99	70
Wessling, Henry. (See Gibson and Wessling.)						
Wesman, Carl A., Chicago, Ill. Drilling-machine	697,521	Apr. 15	2222	627	99	60
Wesson, Joseph H., Springfield, Mass. Revolving stream	702,807	June 17	2420	626	99	222
Wesson, Miller B. (See Loria, Ray, and Wesson.)						
West, Charles O., assignor of one-half to J. E. Lockwood, Kansas City, Mo. Street-car fender	700,222	May 20	2222	612	99	107
West Disinfecting Company. (See Martin, Frank A., assignor.)						
West Disinfecting Company. (See Tuck, William H., assignor.)						
West Disinfecting Company. (See Wals, Charles J., assignor.)						
West, Julius H., Berlin, Germany. Manufacture of electric cables	700,107	May 12	1272	627	99	157
West, Leonard D., Geneva, N. Y. Apparatus for producing combustion	698,527	Apr. 22	4122	914	99	9
West, Louis G. M., assignor of one-half to R. E. Munro, Baltimore, Md. Means for lubricating hydraulic cylinders	700,270	May 20	2222	612	99	157
Western Electric Company. (See Hall, Rodolfo F., assignor.)						
Western Electric Company. (See Roberts, Frank H., assignor.)						
Western Implement Company. (See Neuman, Michael W., assignor.)						
Western Storage Battery Company. (See Pampelly, James K., assignor.)						
Western Wheelbarrow Company. (See Welch, Samuel F., assignor.)						
Westinghouse Air Brake Company. (See Newell, Frank C., assignor.)						
Westinghouse Air Brake Company. (See Smith, Henry J., assignor.)						
Westinghouse Air Brake Company. (See Westinghouse, George, assignor.)						
Westinghouse Air Brake Company. (See Westinghouse, Henry H., assignor.)						
Westinghouse Air Brake Company. (See Woods, Granville T., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Cheney, Davison, and Skinner, assignors.)						
Westinghouse Electric and Manufacturing Co. (See Lamm, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Manfredi, Robert, assignor.)						
Westinghouse Electric and Manufacturing Company. (See Tilden, George O., assignor.)						
Westinghouse, George. (See Potter, Henry M., assignor.)						
Westinghouse, George, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Automatic fluid-pressure brake apparatus	699,507	May 6	222	39	99	12
Westinghouse, Henry H., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Apparatus for applying and controlling braking force	702,222	June 10	1772	626	99	24
Westinghouse, Henry H., Edgewood Park, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Fluid-pressure brake	702,222	June 10	1772	626	99	24
Westinghouse Machine Company. (See Role, William A., assignor.)						
Weston, Henry, Philadelphia, Pa. Lamp-wick	693,422	May 6	222	122	99	12
Westmore, Orin D., Chicago, Ill. Gas-tank	693,522	May 6	227	39	99	7
Wayard, Joseph, Guitenberg, N. J. Hydraulic air-compressor	693,522	Apr. 22	2472	724	99	7
Wayburn, Edward B. (See Scott and Wayburn.)						
Wegmann, Heinrich, Mannheim, Germany. Manufacture of sterilized carbonated waters	700,224	May 20	2227	627	99	17</

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Deane, Henry C., New York, N. Y. Sewer	701,120	May 27	1072	600	90	1282
Decker, Oscar, Bradford, England. Sewing and card-punching machine.	698,267	Apr. 22	1040	597	89	1281
Deitzel, August T., assignor of one-third to M. L. Theobald, Chicago, Ill. Hair-vesting-machine.	698,277	May 6	1074	604	90	1283
Zavy, Henry, Cincinnati, Ohio. Wire and display book.	697,202	Apr. 15	1045	591	89	1280
Ziegler, Alfred M., Boston, Mass. Woven elastic fabric and making same.	698,777	Apr. 22	1047	595	89	1280
Ziegler, Alfred M., Boston, Mass. Suspenders.	700,293	May 27	1049	595	89	1280
Ziegler, Charles E., Farmington, Pa. Coffee-pot.	702,122	June 10	1217	540	90	1245
Zika, Joseph T., Cleveland, Ohio. Mitering-machine.	702,043	June 10	1220	511	90	1243
Zika, Joseph T., Cleveland, Ohio. Coping-machine.	702,044	June 10	1220	511	90	1243
Zimmer, Anthony, et al. (See Humphrey, Edwin H., assignor.)	701,022	June 2	1060	124	90	1264
Zimmermann, Alexander W., Amazonia, Mo. Hay-rake.	700,223	May 27	1039	582	89	1273
Zimmermann, Isidore and J. Brooklyn, N. Y. Spraying device.						
Zimmermann, Joseph. (See Zimmermann, Isidore and J.)						
Zimmermann, Morris L. (See Bennett and Zimmermann.)						
Zimmermann, Roberto D., Buenos Ayres, Argentina. Seeding and planting machine.	698,778	Apr. 22	1040	597	89	1281
Zobler, Morris, et al. (See Shriver, Augustus F., assignor.)						
Zoeller, Frederick. (See Zoeller, Oswald and F.)						
Zoeller, Oswald and F., Oakland, Iowa. Four-horse equalizer.	701,484	June 2	1018	47	90	1277
Zoerb, Elizabeth. (See Zoerb and Heest, assignors.)						
Zoerb, William, and J. J. Heest, assignors, by mesne assignments, to E. Zoerb, Boston, Mass. Eyeglass-case.	702,204	June 17	1223	512	90	1250
Zorach, Charles R., Brighton, N. Y. Slicing-machine.	702,200	June 17	1221	498	90	1249
Zuhl, Ernst, Berlin, Germany. Pyroxylin compound.	700,264	May 27	1040	597	89	1281
Zuhl, Ernst, Berlin, Germany. Pyroxylin compound.	700,265	May 27	1040	597	89	1281
Zuidewind, K. and A. Van Putten, Holland, Mich. Device for topping beets.	701,604	June 2	1060	124	90	1264
Zweiberg, Thorsten von, Preston, England. Controller.	701,455	June 2	1058	60	90	1272
Zweiberg, Thorsten von, Preston, England. Controller.	701,456	June 2	1058	60	90	1272
Zwerner, John M., Marysville, Ohio. Lifting and carrying device.	698,616	Apr. 22	1047	595	89	1280
Zwoyer, Roland A., Portsmouth, R. I. Conveyor.	698,273	May 6	1074	604	90	1283

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Alexander, Jesse H., Williamstown, Mo. Rein-guide for harness.	28,986	May 6	90	1277
American Silver Company. (See Large, Samuel J., assignor.)				
American Type Foundry Company. (See Barth, Henry, assignor.)				
American Type Foundry Company. (See Ihlenburg, Herman, assignor.)				
American Type Foundry Company. (See Phinney, Joseph W., assignor.)				
Anderson, William C., Chicago, Ill. assignor to Libbey Glass Company, Toledo, Ohio. Glass dish.	28,990	Apr. 1	90	1215
Angelus Prayer Clock Company. (See Tietz, Paul, assignor.)				
Art Stove Company. (See Robinson, William V., assignor.)				
Bail, Bert, St. Louis, Mo. Handle for spoons or similar articles.	28,998	Apr. 29	90	1161
Barth, Henry, Cincinnati, Ohio, assignor to American Type Foundry Company, New York, N. Y.	28,995	June 24	90	1267
Barth, Henry, Cincinnati, Ohio, assignor to American Type Foundry Company, New York, N. Y.	28,997	June 24	90	1267
Barth, Henry, Cincinnati, Ohio, assignor to American Type Foundry Company, New York, N. Y.	28,998	June 24	90	1267
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug.	28,994	June 8	90	1211
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug.	28,994	June 8	90	1211
Blackinton & Company, E. (See Hathaway, Albert E., assignor.)				
Blackinton & Company, E. (See Koller, Sidney A., assignor.)				
Blair, George W., Pittsburg, Pa. Lamp-chimney.				
Bowie & Terhune. (See Frey, Frank J., assignor.)				
Brewer, Charles S., assignor to Standard Furniture Company, Harkins, N. Y. Card plate or holder.	28,917	May 20	90	1267
Bromley, Joseph H. (See Burgeon, Arthur, assignor.)				
Bromley & Sons, John. (See Bennett, Ernest H., assignor.)				
Bryant, Ellsworth S. (See Harbeck, William C., assignor.)				
Burton, Evelyn, Chicago, Ill. Hat-pin holder.	28,995	May 12	90	1267
Burdick, Henry H., Syracuse, N. Y. Handle for spoons or similar articles.	28,990	Apr. 1	90	1215
Burgess, Arthur, assignor to J. H. Bromley, Philadelphia, Pa. Lace curtains.	28,991	May 20	90	1267
Burkitt, George W., New York, N. Y. Paper.	28,992	June 8	90	1211
Butler, George P., New York, N. Y. Ogarite-box, assignor.	28,993	June 15	90	1218
C. F. Monroe Company. (See Heilmann, Carl V., assignor.)				
Call, Homer D., Syracuse, N. Y. Die or similar article.	28,996	June 17	90	1270
Carlson, William S., assignor to William S. Durgin Company, Concord, N. H. Handle for spoons, forks, or similar articles.	28,977	Apr. 22	90	1264
Chicago Portrait Company. (See Kitch, David A., assignor.)				
Clark, William S., assignor to Missouri Glass Company, St. Louis, Mo. Glass dish.	28,998	May 6	90	1273
Clark, William S., assignor to Missouri Glass Company, St. Louis, Mo. Glass dish.	28,998	May 6	90	1273
Cleveland Twist Drill Co. (See Smith, Harley G., assignor.)				
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles.	28,999	Apr. 15	90	1261
Co-operative Foundry Company. (See Kennedy and King, assignors.)				
Court, Charles S. (See Cross and Court.)				
Cross, Easton, and C. S. Court, Providence, R. I., assignors to Watson & Newell Company, At-Sheboro, Mass. Handle for spoons, forks, or similar articles.	28,993	June 24	90	1268
D'Arcy, Frank P., Kalamazoo, Mich. Spoon.	28,994	Apr. 1	90	1215
Dagoumois, Henri V., Chaux-de-Fonds, Switzerland. Watchcase.	28,995	Apr. 1	90	1215
Donnell, John T., St. Louis, Mo. Souvenir spoon, fork, or similar article.	28,996	Apr. 1	90	1215
Doyle, Henry, New York, N. Y. Calendar.	28,997	May 27	90	1260
Dyett, James H., Buffalo, N. Y. Connecting-piece for bedsteads.	28,998	June 10	90	1233
East Rockford Metal Company. (See Person, William, assignor.)				
Ehlerman, John W., Mount Joy, Pa. Toy bank.	28,994	Apr. 15	90	1261
Everard, Edward, Bristol, England. Foot of printing-type.	28,915	June 10	90	1233
Franklin, Herman H., Milwaukee, Wis. Gas-lamp light.	28,995	Apr. 1	90	1215
Freest, Louis D., assignor to Barrow and Brown, Newark, N. J. Ornamental head for brooches, scarf-pins, or similar articles.	28,996	May 27	90	1260
Frey, Frank J., Quincy, Ill., assignor to Bowie & Terhune, Rome, Ga. Cooking stove or range.	28,995	June 17	90	1270
Gault, John H., assignor to Hero Fruit Jar Company, Philadelphia, Pa. Ornamental border.	28,999	Apr. 29	90	1160
Gootie, Emil, Newark, N. J. Picture-frame.	28,981	Apr. 1	90	1215
Gootie, Emil, Wallingford, assignor to International Silver Co., Meriden, Conn. Receptacle.	28,982	June 17	90	1270
Goldsmith, Marcus T. (See Koller, Sidney A., assignor.)				
Gordon, Peter J., assignor to H. A. Cary Company, New York, N. Y. Dish.	28,979	Apr. 29	90	1264
Gorham Manufacturing Company. (See Codman, William C., assignor.)				
Gould, Isaac M., Philadelphia, Pa. Picture-frame.	28,980	May 27	90	1260
Graves, John A., assignor to Jewett & Company, Buffalo, N. Y. Cooking stove or range.	28,987	Apr. 15	90	1261
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,988	Apr. 1	90	1217
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,984	Apr. 1	90	1215
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,985	Apr. 1	90	1215
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,986	Apr. 1	90	1215
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,987	Apr. 1	90	1215
Guiden, Hermine, New York, N. Y. Pattern for dress-skirts.	28,988	Apr. 1	90	1215
H. A. Cary Company. (See Gordon, Peter J., assignor.)				
Hamilton, William H., Allentown, Pa. Name-plate.	28,989	June 10	90	1237
Hammack, Martin V., Thalia, assignor of one-half to C. O. Orimes, Portsmouth, Va. Bedstead.	28,990	June 2	90	1211
Hammack, Martin V., Thalia, assignor of one-half to C. O. Orimes, Portsmouth, Va. Picture-frame.	28,991	June 10	90	1233
Hammack, Martin V., Thalia, assignor of one-half to C. O. Orimes, Portsmouth, Va. Bedstead or similar article.	28,943	June 10	90	1233
Hammack, Martin V., Thalia, assignor of one-half to C. O. Orimes, Portsmouth, Va. Bureau or similar article of furniture.	28,947	June 10	90	1233
Hammack, Martin V., Thalia, assignor of one-half to C. O. Orimes, Portsmouth, Va. Bureau or similar article.	28,948	June 10	90	1233
Harkrader, Ellison T., St. Louis, Mo. Button.	28,980	May 6	90	1273

Name, residence, and design.	No.	Date.	Official Gazette.	
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Hathaway, Albert E., assignor to E. Blackinton & Company, North Attleboro, Mass. Handle for spoons, forks, or similar articles.	25,084	June 24	90	2525
Helmachmied, Carl V., assignor to G. F. Monroe Company, Meriden, Conn. Out-glass receptacle.	25,087	May 12	90	1977
Henderson, James C., Philadelphia, Pa. Cart-body.	25,088	Apr. 15	90	673
Hensel Colladay Company. (See Hensel, George S., assignor.)				
Hensel, George S., Philadelphia, Pa., assignor to Hensel Colladay Company. Dress-trimming.	25,910	May 13	90	1000
Hero Fruit Jar Company. (See Gault, John H., assignor.)				
Heros, Joseph L., New York, N. Y. Ring-tray.	25,090	Apr. 8	90	436
Hiller, Hattie W., New York, N. Y. Shoe-lacing.	25,076	Apr. 15	90	655
Hoban, Albert F., Marshall, Mich. Cabinet for holding coats, umbrellas, &c.	25,080	May 20	90	1868
Hodatt, Richard, New York, N. Y. Bottle.	25,084	May 6	90	1876
Hunt, Charles W., West New Brighton, N. Y. Gear-casing.	25,088	Apr. 1	90	516
Hunsburg, Herman, Philadelphia, Pa., assignor to American Type Foundry Company, Newark, N. J. Font of printing-type.	25,090	Apr. 1	90	217
International Silver Co. (See Gootas, Emil, assignor.)				
Jacobs, Henry, St. Louis, Mo. Clock-case.	25,090	Apr. 1	90	215
Jamison, Thomas M., Memphis, Tenn. Lamp-structure.	25,094	Apr. 1	90	315
Jamison, Thomas M., Memphis, Tenn. Lamp-structure.	25,095	May 13	90	1009
Jarvis, William E., Cleveland, Ohio. Oil-stove.	25,096	Apr. 15	90	688
Jewett & Company. (See Graves, John J., assignor.)				
Johnson, Robert L., Hanley, England. Vegetable-dish.	25,098	Apr. 15	90	688
Keller, Sidney A., assignor to M. T. Goldsmith, New York, N. Y. Ornamental shield.	25,094	Apr. 20	90	1161
Keller, Sidney A., assignor to M. T. Goldsmith, New York, N. Y. Ornamental shield.	25,095	Apr. 20	90	1161
Keller, Sidney A., New York, N. Y., assignor to Long & Koch, Newark, N. J. Back for brushes, mirrors, or similar articles.	25,091	May 6	90	1275
Keller, Sidney A., New York, N. Y., assignor to E. Blackinton & Company, North Attleboro, Mass. Handle for spoons, forks, or similar articles.	25,095	June 24	90	2527
Kennedy, Nelson E., assignor to Haulbach & Whittemore, Newark, N. J. Violets-case.	25,096	Apr. 1	90	515
Kennedy, Thomas H., and E. J. King, assignors to Co-operative Foundry Company, Rochester, N. Y. Stove or range.	25,098	June 2	90	2911
Kranz, Joseph E. (See Richards and Korman.)				
Kramer, Charles M., Louisville, Ky. Dresser.	25,912	May 13	90	1000
King, Edward J. (See Kennedy and King.)				
Kitch, David A., assignor to Chicago Portrait Company, Chicago, Ill. Picture-frame.	25,095	May 27	90	2009
Koch, Edward J., Chicago, Ill. Glass dish.	25,018	May 20	90	1837
Krutzschmitt, Gustav A., Newark, N. J. Pocket-piece or similar article.	25,018	May 20	90	1857
Kundts, Theodor, Cleveland, Ohio. Sewing-machine cabinet.	25,900	May 6	90	1277
Kurbstedt Manufacturing Company. (See Taylor, George H., assignor.)				
Landenberger, John W., Philadelphia, Pa. Woven fabric.	25,090	June 17	90	2700
Landenberger, John W., Philadelphia, Pa. Woven fabric.	25,091	June 17	90	2700
Largo, Samuel J., assignor to American Silver Company, Bristol, Conn. Spoon.	25,090	June 9	90	2310
Larabee, Charles E., Oakland, Cal. Wall-cabinet.	25,090	Apr. 1	90	516
Lehman, Otto A., Hoboken, N. J. Apparel-belt.	25,091	Apr. 1	90	517
Lehman, Otto A., Hoboken, N. J. Apparel-belt.	25,091	Apr. 1	90	517
Libbey Glass Company. (See Anderson, William C., assignor.)				
Linotype Company. (See Nadall, Berns, assignor.)				
Linn, Simon, Dallas, Tex. Cup.	25,048	June 10	90	2995
Long & Koch. (See Koch, Edward J., assignor.)				
MacAlman, John H., Somerville, Mass. Vehicle-body.	25,000	May 13	90	1000
MacAlman, John H., Somerville, Mass. Vehicle-body.	25,010	May 13	90	1008
MacAlman, John H., Somerville, Mass. Vehicle-body.	25,011	May 13	90	1008
Maulbach & Whittemore. (See Kennedy, Nelson E., assignor.)				
Maxwell, John, Omaha, N. Y. Casket-body.	25,098	May 6	90	1278
Mayer, Herman, New York, N. Y. Clock.	25,098	Apr. 1	90	516
McCray, Marcus A., Mediapolis, Iowa. Stamp or envelop moistener.	25,098	May 13	90	1007
Meyers, Ernest, assignor to Reed & Barton Corporation, Taunton, Mass. Handle for spoons, forks, or similar articles.	25,090	Apr. 15	90	651
Meyers, Ernest, assignor to Reed & Barton Corporation, Taunton, Mass. Handle for spoons, forks, or similar articles.	25,091	Apr. 15	90	651
Mimont Glass Company. (See Clark, William S., assignor.)				
Mudra, Albert, Lincoln, Neb. Hip-strap drop for harness.	25,090	June 2	90	2511
Müller, Josephine, New York, N. Y. Trimming.	25,085	Apr. 8	90	428
Murdoch, William C., assignor to E. S. Bryant, Detroit, Mich. Casing for vending-machines.	25,076	Apr. 15	90	684
Myers, J. and P. E. (See Myers, Robert L., assignor.)				
Myers, Lewis A., Jr., Newark, N. J. Belt.	25,094	Apr. 1	90	517
Myers, Robert L., Brooklyn, assignor to J. and P. B. Myers, New York, N. Y. Paper box.	25,094	June 10	90	2995
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,096	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,097	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,098	June 10	90	2921
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,099	May 27	90	2007
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,100	June 10	90	2927
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,101	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,102	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,103	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,104	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,105	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,106	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,107	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,108	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,109	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,110	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,111	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,112	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,113	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,114	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,115	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,116	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,117	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,118	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,119	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,120	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,121	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,122	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,123	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,124	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,125	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,126	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,127	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,128	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,129	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,130	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,131	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,132	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,133	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,134	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,135	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,136	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,137	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,138	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,139	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,140	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,141	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,142	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,143	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,144	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,145	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,146	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,147	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,148	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,149	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,150	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,151	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,152	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,153	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,154	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,155	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,156	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,157	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,158	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,159	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,160	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,161	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,162	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,163	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,164	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,165	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,166	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,167	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,168	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,169	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,170	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,171	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,172	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,173	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,174	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,175	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,176	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,177	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,178	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,179	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,180	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,181	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,182	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,183	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,184	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,185	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,186	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,187	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,188	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,189	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,190	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,191	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,192	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,193	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,194	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,195	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,196	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,197	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,198	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,199	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,200	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,201	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,202	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,203	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,204	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,205	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,206	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,207	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,208	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,209	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,210	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,211	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,212	Apr. 20	90	1161
Nadall, Berns, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments.	25,213	Apr. 20	90	1161
Nadall, Berns,				

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Schenck, Ernest G. H., Orange, N. J. Cut stone	25,597	June 10	99	285
Schenck, Ernest G. H., Orange, N. J. Cut stone	25,598	June 10	99	285
Schomoser, Charles, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Flushing-tank	25,597	May 6	99	187
Schomoser, Charles, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Flushing-tank	25,598	May 6	99	187
Schomoser, Charles, Detroit, Mich., assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Flushing-tank	25,599	May 6	99	187
Sharps, Herbert E., Bridgeport, Conn. Prayer case	25,571	Apr. 15	99	55
Shelton, John F., Fort Worth, Tex. Wire fence	25,519	May 20	99	199
Shieber and Company, George W. (See Frots, Frederick H., assignor.)	25,598	Apr. 15	99	69
Smith, Eugene H. E., Bridgeport, Conn. Handle for spoons or similar articles	25,598	Apr. 20	99	119
Smith, Harley G., assignor to Cleveland Twist Drill Co., Cleveland, Ohio. Tool-stand	25,914	May 13	99	190
Smith, William T., Philadelphia, Pa. Fringe	25,930	June 17	99	876
Solomon, Estella, Philadelphia, Pa. Portrait cushion-cover				
Standard Furniture Company. (See Brewer, Charles S., assignor.)				
Standard Sanitary Manufacturing Company. (See Schomoser, Charles, assignor.)				
Stevens, William E., assignor to Sargent & Company, New Haven, Conn. Casket-trimming	25,575	Apr. 15	99	55
Taylor, George H., assignor to Kurboscht Manufacturing Company, New York, N. Y. Trimming	25,593	June 10	99	285
Taylor, George H., assignor to Kurboscht Manufacturing Company, New York, N. Y. Trimming	25,593	June 17	99	876
Taylor, Jessie C., Toronto, Canada. Dressing-cabinet	25,940	June 10	99	285
Tietgens, Paul, assignor to Angelus Prayer Clock Company, Chicago, Ill. Clock-case	25,573	Apr. 15	99	55
Valiquet, Louis P., New York, N. Y. Horn-supporting arm for talking-machines	25,574	Apr. 15	99	55
Valiquet, Louis P., New York, N. Y. Case for talking-machines	25,591	May 6	99	187
Wanner, Albert, Jr., Hoboken, N. J. Chair-back	25,938	May 6	99	187
Wanner, Albert, Jr., Hoboken, N. J. Chair-back				
Waters & Sewell Company. (See Cross and Cowan, assignors.)				
Wearry, Edwin D., Chicago, Ill. Mosaic floor-covering	25,940	June 10	99	285
Wells, Frank A., New York, N. Y. Bidet	25,593	Apr. 9	99	4
Wells, Frank A., New York, N. Y. Bidet	25,594	Apr. 9	99	4
William B. Durgin Company. (See Carlson, William E., assignor.)	25,930	June 10	99	285
Wolf, Ely M., Mansfield, Ohio. Monument	25,599	Apr. 15	99	55
Wootley, James A., Dowville, Tex. Wrench-handle				

A. Baldwin
A. General
Aachener
Mineral
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Mineral
Abilena C
Acker, M
Adler, H
Admiral A
Ahrens, J
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Blake, M
Blancha
Bleyer,
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Bristol
Brophy
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Buffalo
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ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

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A. Baldwin & Co., Ltd., New Orleans, La. Metal-polish.....	28,499	June 17	99	2705
A. Geisel Manufacturing Company, St. Louis, Mo. Enameled ware.....	28,513	May 20	99	1898
Aachen Thermal-Wasser (Kaiserbrunnen) Aktien-Gesellschaft, Aich-la-Chapelle, Germany. Mineral water.....	28,520	May 6	99	1379
Aachen Thermal-Wasser (Kaiserbrunnen) Aktien-Gesellschaft, Aich-la-Chapelle, Germany. Mineral water.....	28,521	May 6	99	1379
Achilles Company, Abilene, Kans. Mineral water.....	28,117	Apr. 15	99	699
Acker, Merrill & Condit, New York, N. Y. Certain named grocer's sundries.....	28,328	May 27	99	2034
Adler, Henry, Pittsburg, Pa. Ranges.....	28,495	June 17	99	2706
Admiral Anchor Co., Chester, Pa. Anchors.....	28,176	Apr. 22	99	685
Ahrens, John E., New York, N. Y. Whisky.....	28,493	June 10	99	2642
Aherley Mfg. Co., Reading, Mass. Brushes.....	28,407	June 3	99	2615
Allison, Reuben K., York, Pa. Flour.....	28,265	May 12	99	1615
Alpers Chemical Company, New York, N. Y. External remedies.....	28,223	May 27	99	2036
American Bangor Slate Company, Bangor, Pa. Roofing-slate.....	28,371	May 27	99	2036
American Circular Loom Co., Chelsea, Mass. Insulating-tubes or tubular coverings for electric wires.....	28,284	May 12	99	1616
American Fire Engine Company, Seneca Falls, N. Y. Steam fire-engines.....	28,493	June 17	99	2706
American Manufacturing Co., Greensboro, N. C. Overalls and coats.....	28,009	Apr. 6	99	436
American Type Founders' Company, New York, N. Y. Fonts of type.....	28,045	Apr. 1	99	282
American Type Founders Company, New York, N. Y. Machines and tools for making paper boxes.....	28,416	June 3	99	2616
American Washboard Co., Cleveland, Ohio. Washboards.....	28,445	June 10	99	2644
Anderson & Darrow, Chicago, Ill. Meal and flour of corn, wheat, oats, and other cereals.....	28,477	June 17	99	2704
Anderson Cotton Mills, Anderson, S. C. Cotton sheetings.....	28,419	June 10	99	2641
Anglo-American Direct Tea Trading Co., Ltd., Glasgow, Scotland. Coffee.....	28,394	June 3	99	2614
Anglo-Swiss Condensed Milk Co., New York, N. Y. Certain named dairy products.....	28,113	Apr. 15	99	686
Apin & Barrett & Western Counties Creameries, Ltd., Yeovil, England. Certain named foods and relishes.....	28,074	Apr. 8	99	449
Armour & Company, Chicago, Ill. Lard and lard compound.....	28,080	Apr. 1	99	282
Arnold B. Clover Co., Chicago, Ill. Certain named jewelry.....	28,324	May 27	99	2036
Asbestolith Company, New York, N. Y. Cement for floorings, ceilings, and sidings.....	28,412	June 3	99	2616
Ashworth, James T., Chicopee, Mass. Certain named veterinary bandages.....	28,465	June 17	99	2708
Athinson, Frederick G., Minneapolis, Minn. Wheat-flour.....	28,308	May 20	99	1891
Ayres & Sons, William, Philadelphia, Pa. Horse-blankets.....	28,010	Apr. 1	99	282
Baker, Daniel B., New York, N. Y. Footwear.....	28,330	June 3	99	2619
Barnhart Brothers & Spindler, Chicago, Ill. Steel for chases for printing-presses.....	28,174	Apr. 22	99	685
Baronian and Company, Manchester, England. Certain named dry goods.....	28,145	Apr. 22	99	685
Bastian Shoe Mfg. Co., Burlington, N. J. Women's, misses', and children's shoes.....	28,154	Apr. 22	99	686
Baton Rouge Liquor & Cigar Co., Ltd., Baton Rouge, La. Stomach-bitters.....	28,086	Apr. 1	99	282
Bauch Machine Tool Company, Springfield, Mass. Certain named machines.....	28,370	May 27	99	2036
Beaumont Soap Co., Mayfield, Ky. Soap.....	28,408	June 3	99	2615
Becton, Dickinson & Co., New York, N. Y. Thermometers, surgical glassware and instruments.....	28,310	May 20	99	1891
Belton Mills, Belton, S. C. Sheetings.....	28,504	June 24	99	2650
Belton Mills, Belton, S. C. Sheetings.....	28,505	June 24	99	2650
Belton Mills, Belton, S. C. Sheetings.....	28,506	May 27	99	2036
Birdsey & Somers, New York, N. Y. Corsets.....	28,267	May 27	99	2037
Bissell Carpet Sweeper Co., Grand Rapids, Mich. Carpet-sweepers.....	28,051	Apr. 8	99	436
Blake, Moditt & Towne, San Francisco, Cal. Certain named paper.....	28,322	May 27	99	2036
Blanchard, Joseph, Minneapolis, Minn. External remedy for skin diseases.....	28,420	June 10	99	2642
Bleyer, Samuel E., St. Louis, Mo. Baking-powder.....	28,204	Apr. 22	99	1166
Bliss & Co., L. C., Boston and Whitman, Mass. Leather-dressing.....	28,405	June 3	99	2615
Bliss & Co., L. C., Boston and Whitman, Mass. Appurtenances for the care of boots and shoes.....	28,037	Apr. 8	99	441
Böker & Co., Hainrich, Solingen, Germany. Pocket-knives, razors, and scissors.....	28,417	June 10	99	2641
Borch & Co., Chicago, Ill. Nose-guards for eyeglasses and spectacles.....	28,479	June 17	99	2704
Boes & Son, C. D., New London, Conn. Crackers and biscuit.....	28,214	Apr. 22	99	1166
Boston Bottle Wining & Labeling Co., Boston, Mass. Machines for applying or pasting labels.....	28,513	June 24	99	2650
Bowler Insecticide Company, Boston, Mass. Fungicides and insecticides.....	28,013	Apr. 1	99	282
Brachvogel, Robert A., Chicago, Ill. Tablets or pellets for the breath.....	28,301	Apr. 22	99	1166
Bristol Drug Company, Ansonia, Conn. Vermin-extirminator containing no sugar.....	28,268	June 3	99	2615
Brophy Brothers' Shoe Company, Lynn, Mass. Shoes.....	28,215	May 6	99	1379
Brown Brothers & Co., New York, N. Y. Checks, drafts, and notes.....	28,243	May 12	99	1612
Brown Chemical Co., Nashville, Tenn. Remedies for certain named diseases.....	28,465	June 17	99	2708
Brownell, William E., New Bedford, Mass. Remedies for certain named diseases.....	28,257	May 12	99	1612
Buffalo Cereal Company, Buffalo, N. Y. Certain named food products.....	28,165	Apr. 22	99	1167
Burrows & Saunders, Peoria, Ill. Remedies for certain named diseases.....	27,937	Apr. 1	99	213
Byron Weston Co., Dalton, Mass. Writing-paper.....	28,109	Apr. 15	99	686
C. P. Ford & Co., Rochester, N. Y. Ladies', misses', and children's boots and shoes.....	28,327	May 27	99	2034
C. Shankberg Co., Sioux City, Iowa. Certain named grocery supplies.....	28,021	June 24	99	2641
C. Shankberg Co., Sioux City, Iowa. Machine-oil.....	28,522	June 24	99	2641
C. Shankberg Co., Sioux City, Iowa. Certain named lubricating-oils.....	28,523	June 17	99	2704
Caldwell, George W., Middletown, N. Y. Remedies for certain named diseases.....	28,460	June 17	99	2708
Canfield Rubber Co., Bridgeport, Conn., and New York, N. Y. Dress-shields.....	28,500	June 24	99	2642
Canfield Rubber Co., Bridgeport, Conn., and New York, N. Y. Dress-shields.....	28,499	June 10	99	2642
Carback, John T., Baltimore, Md. Liquid antiseptic veterinary compound for external use.....	28,193	Apr. 22	99	1166
Carlson & Hovey, Lowell, Mass. Remedy for certain named diseases.....	28,028	Apr. 1	99	282
Carmel Wine Co., New York, N. Y. Wine.....	28,094	Apr. 1	99	282
Carmel Wine Co., New York, N. Y. Wine.....	28,113	Apr. 1	99	282
Carney, George J., Lowell, Mass. Spring-water.....	28,515	June 24	99	2642
Central Stock Food Co., Columbus, Nebr. Stock-food.....	28,016	Apr. 1	99	282
Chadderton, Fred B., Darien, Conn. Shaving-cream and shaving-cream.....	28,110	Apr. 15	99	686
Chambersburg Shoe Mfg. Co., Chambersburg, Pa. Shoes and hose.....	28,499	June 17	99	2708
Chapman, John M., New York, N. Y. Mineral-bearing sands and ores.....	28,499	June 17	99	2708

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Gordon
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Grom, C
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Chase, Roberts & Company, Dobbs Ferry and New York, N. Y. Certain named varieties.....	26,209	May 20	99	1661
Chell Chemical Co., Richmond, Va. Certain named medicinal preparation.....	26,467	June 17	99	2708
Chemical Paint Manufacturing Co., Mansfield, Ohio. Paint for metal surfaces.....	26,466	June 17	99	2705
Chester Suspender Co., Boston, Mass. Suspenders.....	26,001	Apr. 1	99	219
Chick Brothers, Haverhill and Boston, Mass. Boots and shoes.....	26,446	June 17	99	2761
Chisman, William A., New York, N. Y. Bicycles.....	26,080	Apr. 8	99	441
Chisman, William A., New York, N. Y. Sewing machines and attachments.....	26,141	Apr. 15	99	661
Chisman, William A., New York, N. Y. Sewing machines and attachments.....	26,266	May 27	99	2067
Chisman, John F., New York, N. Y. Medical compound for surgical, gynecological, and obstet- rical use.....	26,251	May 27	99	2066
Cincinnati Game Company, Norwood, Ohio. Game.....	26,261	May 27	99	2066
Circle Manufacturing Co., Harwich, Mass. Dressing and polish.....	26,405	June 3	99	2215
Clark, Henry B., New York, N. Y. An antimalarial.....	26,512	June 24	99	2600
Cloett, Peabody & Co., Troy, N. Y. Shirts, collars, cuffs, shirt-waists, night-shirts, pajamas, and bath-robos.....	26,466	June 17	99	2761
Colmont, Emille, Paris, France. Binoculars.....	26,466	June 17	99	2761
Con. Alfred E., Toronto, Canada. Balm or lozenge.....	26,424	June 10	99	2642
Cresford Shoe Makers, New York, N. Y. Boots and shoes.....	26,066	Apr. 8	99	426
Criterion Gas Stove Mfg. Co., New York, N. Y. Gas stoves and radiators.....	26,266	May 6	99	1869
Crossen, Lewis A., North Abington, Mass. Boots and shoes.....	26,155	Apr. 22	99	655
Crowley, Thomas, Lambertville, N. J. Rubber boots and shoes.....	26,216	May 6	99	1279
Cudahy Packing Co., Chicago, Ill., and South Omaha, Nebr. Beef extracts, bouillon, and beef-tee.....	26,266	May 27	99	2064
Cyphers Incubator Co., Buffalo, N. Y. Poultry-keepers' supplies.....	26,266	May 27	99	2067
Daggett & Ramadell, New York, N. Y. Cold-cream.....	26,196	Apr. 26	99	1164
Daniels, Constantine A., Bay City, Mich. Fire-extinguishing compounds and fire-preventives in powder form.....	26,196	Apr. 26	99	661
Darmstadt German Food Co., Philadelphia, Pa. Certain named health-food compound.....	26,517	June 24	99	2601
Dayton Ink Binding Co., Dayton, Ohio. Roof-paints or paints for metal and composition roofings.....	26,126	Apr. 15	99	660
De Lancy, Charles W., Hammond, Ind. Certain named medical compounds.....	26,105	Apr. 22	99	657
Deannino, Elizabeth, New York, N. Y., and West Norwood, N. J. Mineral water.....	26,251	May 12	99	1614
Decker Ventilating Co., Ltd., Detroit, Mich. Ventilating devices.....	26,096	Apr. 8	99	426
Dexter & Co., A., Boston, Mass. Dress-stays, garment-stiffeners, and corset foundations.....	26,166	Apr. 22	99	1164
Diggs, Claude C., Baltimore, Md. Medicinal tablets.....	26,067	Apr. 1	99	226
Dunn Supply Co., Martinsburg, W. Va., and New York, N. Y. Certain named garments.....	26,217	May 6	99	1979
Dutton-Brown Mfg. Co., St. Louis, Mo. Certain named foods and relishes.....	26,266	June 3	99	2614
Dr. Fuchs Chemical Co., New Haven, Conn. Medicinal preparations for the cure of certain named diseases.....	26,471	June 17	99	2708
Dudley, Eben F., Owosso, Mich. Butter, cheese, and eggs.....	26,264	May 13	99	1615
Dufour, Corinne, New York, N. Y. Undergarments.....	26,155	Apr. 22	99	655
Durham, Richard T., Richmond, Va. Dials for coin-operated machines.....	26,160	Apr. 15	99	661
Eddystone Mfg. Co., Philadelphia, Pa. Printed cotton dress goods.....	26,276	June 3	99	2612
Eddystone Mfg. Co., Philadelphia, Pa. Printed cotton dress goods.....	26,412	June 10	99	2641
Edwards, William J., London, England. Remedy for certain named diseases.....	26,266	June 3	99	2614
Egyptian Manufacturing Co., Grand Rapids, Mich. Medicinal tablets.....	26,096	Apr. 1	99	226
Edred, William H., Chicago, Ill. Medicinal herb compound.....	26,466	June 17	99	2761
Elmenhorst & Co., New York, N. Y. Cotton fabrics.....	26,266	May 27	99	2066
Elmenhorst & Co., New York, N. Y. Cotton fabrics.....	26,266	May 27	99	2066
Elmenhorst & Co., New York, N. Y. Cotton fabrics.....	26,266	May 27	99	2066
Elertich & Company, New York, N. Y. Biked-baked shells.....	26,216	May 26	99	1666
Ernst Schlemm's Contract, Gesellschaft mit Beschränkter Haftung, Hamburg, Germany. Certain named salt.....	26,026	Apr. 8	99	441
Eukemo Chemical Company, Boston, Mass. Oil for medicinal purposes.....	26,246	May 13	99	1614
Esterbrook Steel Pen Manufacturing Co., Camden, N. J., and New York, N. Y. Pens.....	26,467	June 24	99	2602
Esterbrook Steel Pen Manufacturing Co., Camden, N. J., and New York, N. Y. Pens.....	26,466	June 24	99	2600
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Ester, Webster C., New York, N. Y. Small.....	26,266	May 13	99	1615
Eurokin Mutter Bath Co., Chicago, Ill. Copying-baths and copying-clothes.....	26,401	June 3	99	2615
Excelsior Stove and Mfg. Co., Quincy, Ill. Stoves, ranges, heaters, and furnaces.....	26,176	Apr. 22	99	656
Excelsior Water Mfg. Co., Burlington, Kans. Wheat-flour.....	26,064	Apr. 8	99	426
Excelsior Water Mfg. Co., Burlington, Kans. Wheat-flour.....	26,465	June 17	99	2708
Excelsior Water Mfg. Co., Burlington, Kans. Wheat-flour.....	26,200	Apr. 26	99	1165
Excelsior Water Mfg. Co., Burlington, Kans. Wheat-flour.....	26,096	Apr. 1	99	226
Excelsior Water Mfg. Co., Burlington, Kans. Wheat-flour.....	26,266	June 3	99	2615
Fairchild, Mosiah H., Oakley, Idaho. Diphtheria remedies.....	26,266	Apr. 26	99	1165
Falls & Co., H. D., Toledo, Ohio. Wheat-flour.....	26,096	Apr. 1	99	226
Fanger, Josephine, Blythesdale, Pa. Remedy for certain named diseases.....	26,266	June 3	99	2615
Federal Wireless Telephone & Telegraph Co., Philadelphia, Pa. Certain named devices used in wireless telephony and telegraphy.....	26,212	Apr. 26	99	1166
Fenn & Frutkin, Baltimore, Md. Shoes.....	26,080	Apr. 8	99	441
Fiebert, Frank, Akron, Ohio. Botanical specimens.....	26,447	June 10	99	2644
Fiebert, Frank, Akron, Ohio. Botanical specimens.....	26,040	Apr. 1	99	264
Fisher, H. Charles, New York, N. Y. Publications, periodicals, magazines, and books.....	26,266	May 27	99	2066
Fiske Brothers Binding Co., New York, N. Y. Liquid disinfectants.....	26,061	Apr. 1	99	226
Fletcher, Harvey D., Beaumont, Tex. Petroleum.....	26,266	May 27	99	2066
Foot, Schuler & Company, St. Paul, Minn. Rubber footwear.....	26,241	May 27	99	2064
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,061	Apr. 1	99	226
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,007	Apr. 1	99	226
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,064	June 24	99	2602
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,405	June 3	99	2215
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,195	Apr. 26	99	1165
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,410	June 3	99	2615
Forryth, Charles H., Alexandria Bay, N. Y. Paste.....	26,212	Apr. 26	99	1166
Geo. H. Witt Shoe Co., Lynchburg, Va. Boots and shoes.....	26,066	Apr. 8	99	426
Geo. H. Witt Shoe Co., Lynchburg, Va. Boots and shoes.....	26,061	Apr. 8	99	426
Geo. H. Witt Shoe Co., Lynchburg, Va. Boots and shoes.....	26,246	May 27	99	2064
Ghabryel, Memham A., New York, N. Y. Perfumery, soap, and face-powder.....	26,266	May 13	99	1615
Gilbert, Henry, Chicago, Ill. Gas-generators.....	26,216	May 26	99	1666
Gilliam Mfg. Co., Canton, Ohio. Horse-boots.....	26,266	June 10	99	2602
Gilmaker Bros., San Francisco, Cal. Shoes.....	26,266	May 20	99	1966
Glass, Joseph D., Pueblo, Colo. Medicinal tablets for the cure of certain named diseases.....	26,266	May 13	99	1615
Gleadowing, Robert, Chicago, Ill. Asphalt roofing.....	26,126	Apr. 15	99	660
Globe Asphalt Co., Pittsburg, Pa., and Los Angeles, Cal. Asphaltum.....	26,040	Apr. 1	99	264
Globe Ventilator Company, Troy, N. Y. Riding.....	26,066	Apr. 1	99	226
Glyn & Co., London, England. Head-gear.....	26,066	Apr. 1	99	226
Gobson Mfg. Co., Canton, Ohio. Paint for galvanized iron.....	26,264	May 27	99	2067
Goldman, Mary T., St. Paul, Minn. Hair-restorers, applications for the hair, and cosmetics.....	26,105	Apr. 22	99	657

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Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette.	
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Goldsmith, Joseph, Feins Co., Cleveland, Ohio. Ready-made clothing for men and boys.....	28,108	Apr. 15	99	995
Gordon & Ferguson, St. Paul, Minn. Certain named fur goods.....	28,287	May 20	99	1289
Granite Wall Plaster Co., Lebanon, Pa. Wall-plaster.....	28,088	Apr. 8	99	441
Great Century Medicine Co., Little, Pa. Liquid preparations for treatment of the skin.....	28,451	June 17	99	2764
Great Western Oil Co., Cleveland, Ohio. Petroleum illuminating and lubricating oils.....	28,303	May 20	99	1281
Grobiewski, Albert G., Plymouth, Pa. Liniment.....	28,324	May 27	99	2026
Grobiewski, Albert G., Plymouth, Pa. Liniment.....	28,321	June 3	99	2814
Grobiewski, Albert G., Plymouth, Pa. Liniment.....	28,328	May 20	99	1281
Grocers' Specialty Mfg. Co., Lima, Pa. Breakfast-foods, crackers, and biscuits.....	28,518	June 24	99	3261
Grocers' Specialty Mfg. Co., Ltd., Battle Creek, Mich. Gelatin preparation for table desserts.....	28,078	Apr. 8	99	440
Grom, Otto C. E., New York, N. Y. Cough-syrups and remedies for certain named diseases.....	28,337	May 27	99	2026
Gross Bros., Winamac, Ind. Salve.....	28,501	June 24	99	3263
Guillot, Charles, Paris, France. Corns.....	28,158	Apr. 22	99	990
Gutmann, Emil, New York, N. Y. Garters and hose-supporters.....	28,280	May 20	99	1282
Gymlinge Aktiebolag, Stockholm, Sweden. Steel.....	28,280	May 13	99	1614
H. D. Foss and Co., Boston, Mass. Chocolate confections.....	28,189	Apr. 22	99	997
H. J. Hodgett Co., Inc., Boston, Mass. Pudding-tablets and dessert preparations.....	28,160	Apr. 22	99	997
H. J. Hodgett Co., Inc., Boston, Mass. Pudding-tablets and dessert preparations.....	28,307	Apr. 22	99	1108
H. W. Johns-Manville Company, New York, N. Y. Fireproof cements for retorts.....	28,308	Apr. 22	99	1108
H. W. Johns-Manville Company, New York, N. Y. Fireproof cements for furnaces.....	28,035	Apr. 15	99	688
Hamburger & Co., New York, N. Y. Dolls.....	28,128	Apr. 15	99	688
Hammann Brothers White Lead Company, East St. Louis, Ill. Paint and white lead.....	28,120	Apr. 15	99	688
Happell, Frank, Cincinnati, Ohio. Varnishes.....	28,240	May 27	99	2026
Hart Manufacturing Co., Hartford, Conn. Electric switches.....	28,115	Apr. 15	99	688
Hart, William S., Hawks Park, Fla. Fruits and honey.....	28,422	June 17	99	2764
Helges, William S., York, Pa. Toilet ointment.....	28,112	Apr. 15	99	688
Helveth Milk Condensing Co., Highland, Ill. Condensed milk.....	28,079	Apr. 8	99	441
Henderson Company, James D., Philadelphia, Pa. Medicinal compound in powder form put up in gelatinous capsules.....	28,285	May 20	99	1283
Henderson & Henderson, Buffalo, N. Y. Bust-forms.....	28,285	May 13	99	1615
Henderson, John J., Hurricane, W. Va. Leather preservative.....	28,211	Apr. 22	99	1108
Henry Milward & Sons, Limited, Redditch, England. Certain named fishing-tackle.....	28,285	May 27	99	2026
Henry Milward & Sons, Limited, Redditch, England. Certain named fishing-tackle.....	28,089	Apr. 1	99	223
Hertberg Medical Co., Montreal, Canada. Proprietary medicines.....	28,491	June 17	99	2765
Hill's Son & Co., Edward, New York, N. Y. China-wood oil and citronella-oil.....	28,413	June 3	99	2816
Hinde & Dauch Paper Co., Sandusky, Ohio. Closed bolster-rolls.....	28,414	June 3	99	2816
Hinde & Dauch Paper Co., Sandusky, Ohio. Open bolster-rolls.....	28,199	Apr. 22	99	1108
Hinnant, Rufus P., Sutton, S. C. Remedy for certain named diseases.....	28,125	Apr. 15	99	688
Hinz, Richard C., Milwaukee, Wis. Medical tablets for rheumatism, gout, and allied diseases.....	28,025	Apr. 1	99	223
Hoff, Leopold, Hamburg, Germany. Malt preparations.....	28,458	June 17	99	2768
Hohner, Firm of M. Trommsdorff, Germany, and New York, N. Y. Mouth-harmonics.....	28,457	June 17	99	2768
Hohner, Firm of M. Trommsdorff, Germany, and New York, N. Y. Mouth-harmonics.....	28,458	June 17	99	2768
Hohner, Firm of M. Trommsdorff, Germany, and New York, N. Y. Mouth-harmonics.....	28,459	June 17	99	2768
Hohner, Firm of M. Trommsdorff, Germany, and New York, N. Y. Mouth-harmonics.....	28,460	June 17	99	2768
Hohner, Firm of M. Trommsdorff, Germany, and New York, N. Y. Mouth-harmonics.....	28,245	May 27	99	2026
Honey Comb Chocolate Chip Co., Ltd., Battle Creek, Mich. Chocolate chips.....	28,324	May 27	99	2026
Hoogerwerf, Govert, Vlaardingen, Netherlands. Herring.....	28,054	Apr. 8	99	440
Hooper & Co., Minot, New York, N. Y. Coarse unbleached cotton.....	28,218	May 20	99	1283
Hopkins Patent Company, Chicago, Ill. Moving-machines.....	28,470	June 17	99	2769
Howard & Co., I. R., Richmond, Ind. Syrups, cereals, coffee, baking-powder, and canned vegetables.....	28,088	Apr. 1	99	219
Howley, Haviland & Dresser, New York, N. Y. Sheet-metal.....	28,088	Apr. 1	99	219
Horworth, Edward, Waco, Tex. Salve.....	28,187	Apr. 22	99	1104
Hub Gore Makers, Boston, Mass. Textile goring and webbing.....	28,280	May 13	99	1617
Imperial Varnish & Color Co., Limited, Toronto, Canada. Varnishes.....	28,045	Apr. 1	99	224
Imperial Writing Machine Co., (Limited,) Montreal, Canada. Writing-machines and typewriters.....	28,280	May 13	99	1618
Ingham, Charles E., Buffalo, N. Y. Cleaning and polishing solution.....	28,488	June 17	99	2841
Isaac Prouty & Co., Incorporated, Spencer and Boston, Mass. Boots and shoes.....	28,086	Apr. 15	99	688
J. B. & S. M. Knowles Co., Providence, R. I. Spoons.....	28,420	June 17	99	2764
J. & E. Atkinson, Limited, London, England. Perfumery.....	28,188	Apr. 22	99	998
J. K. Orr Shoe Co., Atlanta, Ga. Certain named shoes.....	28,086	Apr. 8	99	440
John Thomson Press Co., New York, N. Y. Printing and embossing presses and appliances connected therewith.....	28,073	Apr. 8	99	440
Jones Bros. & Co., Louisville, Ky. Vinegar.....	28,116	Apr. 15	99	689
Jones Brothers and Company, Louisville, Ky. Older.....	28,208	Apr. 22	99	1108
Jönköpings Träsnickerfabrik Aktie Bolag, Jönköping, Sweden. Safety-matches.....	28,004	Apr. 8	99	440
Joralemon, Edgar M., Newark, N. J. Certain named plumbing goods.....	28,087	Apr. 8	99	440
Jos. Spaidel Grocery Co., Wheeling, W. Va. Certain named groceries.....	28,425	June 10	99	2642
Julia & Co., J. J., New York, N. Y. Shoes.....	28,181	Apr. 22	99	997
Kapner Bros. & Duga Hosiery Co., Dresden and Zanesville, Ohio. Hosiery.....	28,164	Apr. 22	99	997
Kellogg, Frank J., Battle Creek, Mich. Remedy for obesity.....	28,345	May 27	99	2026
Kenyon, Thomas N., Minneapolis, Minn. Remedies for certain named diseases.....	28,200	Apr. 22	99	1108
Keystone Seal & Press Company, New York, N. Y. Seal-presses and soft-metal seals.....	28,410	June 3	99	2815
Keystone Seal & Press Company, New York, N. Y. Seal-wire and soft-metal seals.....	28,510	June 24	99	3261
Kingery Manufacturing Company, Cincinnati, Ohio. Gelatin.....	28,345	May 27	99	2026
Kirk Bros. & Company, Chicago, Ill. Soap.....	28,345	May 27	99	2026
Kripe & Son, R. C., Brooklyn, N. Y. Medicine for cure of rheumatism, neuralgia, and headache.....	28,086	Apr. 8	99	441
Knox, George A., Rochester, N. Y. Medicinal compounds for certain named diseases.....	28,086	Apr. 8	99	441
Kops Bros., New York, N. Y. Corns.....	28,081	Apr. 8	99	441
Kross & Owen Company, New York, N. Y. Certain named medicinal remedy.....	28,085	Apr. 1	99	223
L. Richardson Drug Co., Greensboro, N. C. Certain named drugs.....	28,127	Apr. 15	99	681
Laffin & Rand Powder Company, New York, N. Y. Certain named explosives, fuses, and electric batteries.....	28,511	June 24	99	3269
Lambert Pharmaceutical Co., St. Louis, Mo. Toilet soap.....	28,080	Apr. 1	99	219
Lamond, Felix, New York, N. Y. Weekly periodical.....	28,440	June 17	99	2768
Land and Marine Supply Company, Hoboken, N. J. Preparations for prevention of incrustation in boilers.....	28,285	May 20	99	1283
Laurel Cotton Mills, Laurel, Miss. Certain named dry goods.....	28,018	Apr. 1	99	220
Le Fevre, Aphon A., Lancaster, Pa. Perfumes.....	28,428	June 17	99	2769
Leopold Ancher Company, New York, N. Y. Certain named brushes.....	28,127	Apr. 15	99	682
Lepper, John J., Milwaukee, Wis. Medicine for curing corns, calluses, and warts.....	28,285	May 27	99	2026
Levi Bros., New York, N. Y. Butter.....	28,285	May 27	99	2026
Lever Brothers, Limited, Port Sunlight, England. Toilet soap, laundry soap, dry soap, soap powder, and detergents.....	28,285	Apr. 15	99	998
Liberty Silk Co., New York, N. Y. Dress-silks.....	28,080	Apr. 1	99	219
Lindemeyer & Sons, Henry, New York, N. Y. Transparent wrapping-paper.....	28,285	May 27	99	2026

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Name, residence, and title.	No.	Date.	Official Gazette.	
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Phoenix Chemical Co., New York, N. Y. Washing compounds.....	28,181	Apr. 15	99	589
Phillips & Macleay, Philadelphia, Pa. Henry.....	28,006	Apr. 1	99	597
Picot, Alfred, Brussels, Belgium. Cigars, cigarettes, and smoking-tobacco.....	28,498	June 10	99	594
Pitta, Charles C., Brockton, Mass. Match-boxes.....	28,481	June 27	99	5708
Pittsburgh Reduction Co., Pittsburgh, Pa. Aluminum and aluminum alloys.....	28,588	June 24	99	5808
Playano Manufacturing Co., Cambridge, Mass. Automatic playing attachments for musical instruments and parts thereof.....	28,446	June 10	99	5842
Poonjaley & Sons, Marwaraja, Bombay, India. Chutney.....	28,114	Apr. 15	99	558
Poor, James H., New York, N. Y. Certain named dry goods.....	28,108	Apr. 15	99	567
Potter, Alfred L., Philadelphia, Pa. Peanuts.....	28,028	Apr. 8	99	436
Powers Manufacturing Company, Philadelphia, Pa. Medicine for certain named diseases.....	28,046	Apr. 1	99	586
Procto Manufacturing Company, Osmun, N. Y. Mosquito and fly repellents and insect-extermi-nators.....	28,300	May 27	99	5906
Randolph and Pothin, New York, N. Y., and Hooker, M. J. Pocket-books, bags, belts, purses, and luxury leather novelties.....	28,191	Apr. 29	99	1194
Robinson Co., Ltd., Bathwick, Mich. Food preparations from cereals, vegetables, and legumes.....	28,420	June 10	99	5848
Roed, Adam, St. Joseph, Mo. Cashion-shoes.....	28,426	June 10	99	5841
Roed, William R., Philadelphia, Pa. Cake-soap, washing-powder, and washing fluid.....	28,160	Apr. 22	99	588
Reform Club, New York, N. Y. Magazines.....	28,179	Apr. 29	99	1192
Regina Music Box Co., Rahway, N. J.; New York, N. Y., and St. Louis, Mo. Music-boxes.....	28,543	May 12	99	1612
Regina Music Box Co., Rahway, N. J.; New York, N. Y., and St. Louis, Mo. Music-boxes.....	28,544	May 12	99	1612
Relf, Pettis A., Richmond, Ind. Wire fencing.....	28,044	Apr. 1	99	588
Rice, Harry L., Boston, Mass. Leather.....	28,328	May 27	99	5888
Richardson, Alexander M. A., New York, N. Y. Over-coats, jackets.....	28,030	Apr. 15	99	454
Ridpath's History Publishing Co., New York, N. Y. Books.....	28,144	Apr. 26	99	585
Roberts, Johnson & Bond Shoe Co., St. Louis, Mo. Boots and shoes.....	28,445	June 17	99	5761
Roberts, Johnson & Bond Shoe Co., St. Louis, Mo. Boots and shoes.....	28,450	June 17	99	5761
Roberts, Johnson & Bond Shoe Co., St. Louis, Mo. Boots and shoes.....	28,451	June 17	99	5761
Roberts, Frederick A., Hamilton, Bermuda. Certain named fruit and medicinal and food products of each fruit.....	28,471	Apr. 8	99	440
Rogers, Moses J., Kansas City, Mo. Rabbit metal.....	28,045	Apr. 1	99	523
Rosenkrantz, Isaac, E., Chicago, Ill. Preparation to destroy moths.....	28,918	Apr. 29	99	1196
Rosenfeld & Co., E. Baltimore, Md. Fur-trimmed night-garments.....	28,128	Apr. 29	99	1194
Rothschild & Bro., A., New York, N. Y. Ladies' cloaks and suits.....	28,978	June 8	99	5812
Royal Worcester Corset Co., Worcester, Mass. Corsets.....	28,502	June 24	99	5896
Royal Worcester Corset Co., Worcester, Mass. Corsets.....	28,503	June 24	99	5896
Rumsey, Bernhard, New York, N. Y. Sanitized photographic paper and photographic de-velopers.....	28,146	Apr. 29	99	585
S. & Harco Co., Boston, Mass. Paper.....	28,396	May 12	99	1615
Safety Explosive Company, New York, N. Y. Explosives.....	28,126	Apr. 15	99	561
Sagel, Medicine Co., Saginaw, Mich. Tonic and blood-vitalizer.....	28,107	Apr. 29	99	1285
Sanford Mfg. Co., Boston, Mass. Heel and sole protectors for boots and shoes.....	28,127	May 27	99	5898
"Sankin" Company, Limited, New York, N. Y. Golf-balls.....	28,988	May 27	99	5898
Sattala, Peter, Dayton, Ohio. Liniment.....	28,533	May 29	99	1195
Schmidt Brewing Company, Adam, Morrisville, Pa. Ale.....	28,554	June 3	99	5812
Schiffelstein, Wm. J., New York, N. Y. Certain named drugs.....	28,107	Apr. 15	99	588
Schmidt & Co., San J., San Francisco, Cal. Corduroy dress-bindings.....	28,081	Apr. 1	99	581
Schmidt, Paul, New York, N. Y. Preparation for the cure of glanders.....	28,939	June 24	99	5890
Schmitt, Christian, Vienna, Austria-Hungary. Cigarette-paper and cigarette-tubes.....	28,497	June 10	99	5843
Seelye, Alfred B., Abilene, Kans. Blood, nerve, and kidney remedy.....	28,041	Apr. 1	99	588
Shepley, Arthur M., Stockton, Cal. Plaster fiber.....	28,088	Apr. 8	99	440
Shoop, Marshall, Toledo, Ohio. Certain named products.....	28,226	May 27	99	5895
Shorman, Anna B., New York, N. Y. Internal remedy for certain named diseases.....	28,441	June 10	99	5843
Smith, John W., Waco, Kans. Fatening-food in tablet form.....	28,161	Apr. 22	99	588
Steel-Cooper Co., New York, N. Y. Certain named food products.....	28,175	Apr. 15	99	581
Silver Mfg. Co., Salem, Ohio. Feed and ensilage cutters.....	28,179	Apr. 15	99	581
Simmons Hardware Company, St. Louis, Mo. Carpet-cleaning implements and appliances.....	28,188	Apr. 29	99	1194
Simson Crawford Co., New York, N. Y. Certain named dry goods.....	28,040	Apr. 1	99	588
Skinner, Arthur J., Springfield, Mass. Dyes for holding shoes while cleaning or polishing the same.....	28,325	June 3	99	5812
Slaughter, Raymond D., Maple Rapids, Mich. Medical compound for treatment of obesity.....	28,190	Apr. 29	99	1194
Slott, O. W., Patterson, N. Y. Shoes.....	28,008	Apr. 8	99	441
Smith, Harry W., Worcester, Mass. Cloth, clothing, and linen article.....	28,091	Apr. 8	99	441
Smith & Havel, Waukegan, Ill. Soap, cleaning, and dyeing.....	28,446	June 10	99	5844
Smith, Worthington & Co., New York, N. Y. Cane, straws, spurs, and buckles.....	28,399	May 20	99	1890
Soellé, Wm. A., New York, N. Y. Hair-dressing appliance, Lyon, France. Antiseptic.....	28,946	May 12	99	1612

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Foto, Theodore D., Brooklyn, N. Y. "Fisto's Breakfast Drink." (For a Coffee Substitute)	9,000	Apr. 8	90	446
Foto, Theodore D., Brooklyn, N. Y. "Fisto's Breakfast Drink." (For Coffee Substitute)	9,146	May 13	90	1080
Fries, John M., Reading, Pa. "Peach Brand." (For Confectionery)	9,188	May 13	90	2817
Funk & Varner, Knoxville, Ill. "Osborn's Pomelo Phosphate." (For a Beverage)	9,086	Apr. 26	90	880
Funk & Varner, Knoxville, Ill. "Crescent Stock Food Co., Knoxville, Ill. (For Stock Food)"	9,243	June 17	90	2707
Funk & Varner, Knoxville, Ill. "Old Style Lager." (For Lager Beer)	9,094	Apr. 26	90	680
G. Helman Brewing Company, La Crosse, Wis. "Garlock Packing." (For Packing)	9,190	June 8	90	2817
Garlock Packing Co., Palmyra, N. Y. "Garlock Packing." (For Packing)	9,188	May 6	90	1281
Garuka, Suzanne, St. Paul, Minn. "The S. & G. Hair Grower." (For Hair Dressing)	9,188	June 8	90	2817
Gates, David A., Chicago, Ill. "XXX Pepsin Lozenges." (For Liquid Compound)	9,216	June 10	90	2845
Gerhart, Charles O., Clarksville, Tenn. "Gardner's Cleano." (For Washing Compounds)	9,046	Apr. 1	90	880
Gettysburg Steam Soap Co., Gettysburg, Pa. "Ripples Laundry Soap." (For Soap)	9,079	Apr. 15	90	446
Givens, John B., New York, N. Y. "Antiseptic Health Fabric." (For Fabrics)	9,079	Apr. 15	90	446
Glasco, Travis, Washington, D. C. "Glasco's Peppermint Lotion." (For Medicine)	9,187	May 6	90	1281
Glasco, Travis, Washington, D. C. "Lola Cherry and Peppermint." (For Tonic)	9,187	May 6	90	1281
Gottschalk, Joseph F., Cincinnati, Ohio. "Palmolive Oil." (For Oil)	9,111	Apr. 26	90	1107
Groat & Wenzel, C. O. Co., Cleveland, Ohio. "Palmolive Oil." (For Oil)	9,111	Apr. 26	90	1107
Grochack, Julius, New Orleans, La. "Club Cafe Family Nectar Rye Whiskey." (For Whisky)	9,076	Apr. 8	90	446
Hannula Wm. J. O. Co., Chicago, Ill. "Hannula's Wizard Oil." (For a Medicine)	9,176	June 2	90	2817
Hartman, I. E., Amsterdam, N. Y. "Man's Ward Pants Linen Shirts." (For Knit Underwear)	9,177	June 2	90	2817
Hartman, I. E., Amsterdam, N. Y. "Hypocrite Placed Linen Shirts." (For Knit Underwear)	9,177	June 2	90	2817
Hart, Wm. H. H. (See Brown and Hart)				
Hays, R. A., New York, N. Y. "Greenest Silk Velvet." (For Velvets)	9,180	May 27	90	2808
Henschel & Co., A. C., Chicago, Ill. "El Pagado." (For Cigars)	9,080	Apr. 15	90	880
Henschel & Co., A. C., Chicago, Ill. "Hubert Norrvelt." (For Cigars)	9,121	May 13	90	1817
Hunneford & Son, C. M., Henderson, N. Y. "Cedarine Ointment." (For Ointments)	9,121	May 13	90	2808
Hunneford & Son, C. M., Henderson, N. Y. "Cedarine Ointment." (For Ointments)	9,080	Apr. 15	90	880
Hughes, Harriet E., San Francisco, Cal. "The American Puzzle Game of Advertisements"	9,900	June 10	90	2845
I. J. & Co., New York, N. Y. "E. Poncetti & Co." (For Capes)	9,110	Apr. 26	90	1107
J. & C. Common, Limited, London, England. "English Mustard Sauce." (For Mustard Sauce)	9,080	Apr. 1	90	880
J. & C. Common, Limited, London, England. "English Whiskey." (For Whisky)	9,079	Apr. 1	90	880
John Kiesel & Son, Inc., Brooklyn, N. Y. "Om Kato Cognac." (For Brandy)	9,186	May 13	90	1817
Keller, Cornelius Jr., Boston, Mass. "Keller Bros. Blood Purifying Remedy." (For a Medicine)	9,080	Apr. 26	90	1107
Keller Bros., Newark, N. J. "Keller Bros. Kidney Salt Tablets." (For Medicine)	9,080	June 17	90	2707
Kelly, John E., Buffalo, N. Y. "Kenny's Sassafras Oil." (For Castor Oil)	9,186	May 6	90	1281
Kennedy, John, Chicago, Ill. "Kenny's Sassafras Oil." (For Castor Oil)	9,186	May 6	90	1281
Kerr, James, New York, N. Y. "Kerr's Family Soap." (For Soap)	9,104	Apr. 26	90	1107
Kerr, James, New York, N. Y. "Kerr's Family Soap." (For Soap)	9,104	Apr. 26	90	1107
Krammer, Henry, New York, N. Y. "Krammer's New Red Head." (For a Medicine)	9,081	Apr. 1	90	880
Kramer & Bro., E. J., Akron, Pa. "Kramer's New Material or Extract of Wood Ashes." (For Soap-Making Material)	9,107	June 2	90	2817
L. Martin Co., Jersey City, N. J. "Germanstown Lamp-Wicks Made by the L. Martin Co." (For Lampwick)	9,126	May 6	90	1281
Lackawanna Dairy Co., Scranton, Pa. "Condensed Milk." (For Condensed Milk)	9,086	Apr. 26	90	880
Lambert Food Food Co., Lakeland, Mich. "Malt Wheat Biscuit." (For a Food Product)	9,143	May 20	90	1808
Landfield Bros. & Co., New York, N. Y. "Luminoso." (For Cigars)	9,081	Apr. 1	90	880
Landqvist & Co., E. Chicago, Ill. "Svanick Malort Brandy." (For Medicine)	9,081	June 17	90	2707
Lehigh Plant Fire Extinguisher Co., New York, N. Y. "The Little Giant." (For Fire-Extinguishers)	9,081	June 17	90	2707
Logan, G. A., New York, N. Y. "Pure Old Mellow Treadmill Rye." (For Whisky)	9,137	June 2	90	2817
Madison Medicine Co., Madison, Wis. "Rocky Mountain Tea." (For a Medicine)	9,080	Apr. 1	90	880
Madison Medicine Co., Madison, Wis. "Rocky Mountain Tea." (For a Medicine)	9,080	Apr. 1	90	880
Madison Medicine Co., Madison, Wis. "Whites Ave." (For Arsenic)	9,080	Apr. 1	90	880
Mann, James H., Lewistown, Pa. "Kishonquillas Ave." (For Whisky)	9,170	May 27	90	1281
Marshall & Co., Inc., Philadelphia, Pa. "Marshall's Danielson Tonic." (For a Medicine)	9,080	Apr. 26	90	1107
Marshall, Thomas P., Atlanta, Ga. "The Flor de Luis Martinez." (For Cigars)	9,081	Apr. 15	90	680
Martin & Co., New York, N. Y. "De Fuster's Ment and Mint." (For a Proprietary Compound)	9,077	Apr. 8	90	446
Mellin's Food Company of North America, Portland, Me., and Boston, Mass. "Mellin's Food Chocolate." (For a Food Preparation)	9,108	Apr. 26	90	880
Mellin's Food Company of North America, Portland, Me., and Boston, Mass. "Mellin's Lactogen." (For Milk Food)	9,108	Apr. 26	90	1107
Mellin's Food Company of North America, Portland, Me., and Boston, Mass. "Mellin's Lactogen." (For Milk Food)	9,107	Apr. 26	90	1107
Merriman & Co., John W., New York, N. Y. "Bull-Dog." (For Cigars)	9,118	Apr. 26	90	1107
Mills, Thomas Co., Portland, Me. "Knicker." (For Tea)	9,124	June 2	90	2817
Mills, Thomas Co., Portland, Me. "Satisfaction Cotton." (For Cotton Fabric)	9,176	June 8	90	2817
Moss, Taylor & Co., New York, N. Y. "Satisfaction Cotton." (For Cotton Fabric)	9,176	June 8	90	2817
Moss, Taylor & Co., New York, N. Y. "Compound Tabasco Chili Sauce." (For Chili Sauce)	9,081	June 10	90	2845
Murray & Co., J., Oakland, Cal. "Compound Tabasco Chili Sauce." (For Chili Sauce)	9,081	Apr. 1	90	880
New Bremen Broom Co., New Bremen, Ohio. "Broom." (For Brooms)	9,080	Apr. 8	90	446
New Bremen Broom Co., New Bremen, Ohio. "Broom." (For Brooms)	9,080	Apr. 8	90	446
New England Chemical Co., Torrington, Conn. "Tenderfoot." (For Foot-Powder)	9,188	May 27	90	1281
Owens, John C., Plainfield, Ill. "Owens' Fragrant Cream." (For a Toilet Preparation)	9,138	June 3	90	2817
Padgett, A. P., Augusta, Ga. "Padgett's Old H & H Rye Whiskey." (For Whisky)	9,114	Apr. 26	90	1107
Palmer, Frank L., Hartford, Conn. "Alpho Oil." (For a Medicine)	9,106	Apr. 26	90	1107
Palmyra Springs Sanitarium Co., Palmyra, Wis. "Aurelia." (For Mineral Spring Water)	9,106	Apr. 26	90	1107
Pasco Headache Co., Lake Nebagamon, Wis. "Keep Your Eye on Pasco Headache Capsules." (For Headache Medicine)	9,106	June 2	90	2817
Perfection Cereal Company, Cleveland, Ohio. "Perfection Cereal Compound." (For Cereal Compound)	9,116	June 8	90	2817
Petersen, Marcus, Bay City, N. Y. "Hamadiah Cream." (For a Toilet Preparation)	9,079	Apr. 8	90	446
Plattman Egg Noodle Co., Cleveland, Ohio. "Royal Egg Noodles." (For Egg-Noodles)	9,116	May 13	90	1817
Plasco, Frank, Canton, N. Y. "Unfermented Grape Juice." (For Grape-Juice)	9,116	May 13	90	1817
Price, Theodore H., New York, N. Y. "Unfermented Grape Juice." (For Grape-Juice)	9,116	June 8	90	2817
Price, Theodore H., New York, N. Y. "Unfermented Grape Juice." (For Grape-Juice)	9,116	June 8	90	2817
Price, Theodore H., New York, N. Y. "Unfermented Grape Juice." (For Grape-Juice)	9,116	June 8	90	2817
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Price, Theodore H., New York, N. Y. "Unfermented Grape Juice." (For Grape-Juice)	9,116	June 8	90	2817

Name, residence, and title.	No.	Date.	Official Quotation.	
			Vol.	Page.
Sallierup, Joseph A. (See Sallierup, Robert J. and J. A.)				
Sallierup, Robert J. and J. A., New York, N. Y. "Grissano Tonic-Laxative and Doctor Roberts" (For a Medicine)	9,064	Apr. 1	90	280
Sanches & Hays Co., Tampa, Fla. and New York, N. Y. "Tropicana Club" (For Cigars)	9,109	June 8	90	281
Sanches & Hays Co., Tampa, Fla. and New York, N. Y. "La Flor de Salvaje" (For Cigars)	9,150	June 8	90	281
Sanches & Hays Co., Tampa, Fla. and New York, N. Y. "Shamrock" (For Cigars)	9,205	June 10	90	281
Sanches & Hays Co., Tampa, Fla. and New York, N. Y. "Mirador" (For Cigars)	9,207	June 10	90	281
Sanches & Hays Co., Tampa, Fla. and New York, N. Y. "Tadita" (For Cigars)	9,208	June 10	90	281
Saunder, George W., Plainfield, N. J. "None Such Furniture & Floor Polish" (For Furniture and Floor Polish)	9,208	Apr. 15	90	281
Schmidt, Bernard, Haverburg, Pa. "Schmidt's Bread" (For Bread)	9,178	June 2	90	281
Schmidt & Co., New York, N. Y. "Golden Dream" (For Cigars)	9,098	Apr. 8	90	281
Schmidt & Co., New York, N. Y. "Home Industry" (For Cigars)	9,100	Apr. 28	90	281
Schmidt & Co., New York, N. Y. "Crown" (For Cigars)	9,110	Apr. 28	90	281
Schmidt & Co., New York, N. Y. "Tropical Cigar" (For Cigars)	9,241	June 10	90	281
Schmidt & Co., New York, N. Y. "Martin's Good Smokers" (For Cigars)	9,244	June 10	90	281
Siegel-Cosper Co., New York, N. Y. "Malt Lager" (For Extract of Malt)	9,249	Apr. 28	90	281
Simpson, Fred W., Chicago, Ill. "Largest Stock Food" (For Animal Food)	9,219	June 10	90	281
Smith, Kline & French Co., Philadelphia, Pa. "Bakery's Yeast Food" (For Medicines)	9,260	June 10	90	281
Smith, Kline & French Co., Philadelphia, Pa. "Bakery's Occasional" (For Medicines)	9,260	June 10	90	281
Smith, Louise L., New York, N. Y. "Emulsion Cream Skin-Food" (For a Toilet Cream)	9,217	June 10	90	281
Snyder, Margaret, New York, N. Y. "Snyder's All Food Emulsion" (For a Medicine)	9,098	Apr. 15	90	281
Spencer, George, Chicago, Ill. "Coca-Cola" (For Cigars)	9,132	May 18	90	281
Sperry Cure Remedy Company, Cantonville, Pa. "Sperry Cure" (For Medicines)	9,154	May 30	90	281
Spencer, J. F., Lima, Ohio. "Laxative" (For a Medicine)	9,130	May 6	90	281
Standard Sanitary Mfg. Co., Pittsburg, Pa. "Standard Porcelain Enamelled Sanitary Ware" (For Sanitary Ware)	9,221	June 17	90	281
Standard Sanitary Mfg. Co., Pittsburg, Pa. "Standard Porcelain Enamelled Sanitary Ware" (For Sanitary Ware)	9,222	June 17	90	281
Standard Sanitary Mfg. Co., Pittsburg, Pa. "Standard Sanitary Manufacturing Co., Pittsburg, Pa., U. S. A." (For Sanitary Ware)	9,247	June 24	90	281
Stasny, Wladyslaw, Chicago, Ill. "Bowler's Club Eye Whiskey" (For Eye Whiskey)	9,125	Apr. 1	90	281
Steuber Litho Co., Rochester, N. Y. "El Mirador" (For Cigarettes)	9,118	May 6	90	281
Stewart's Manufacturing Co., Santa Rosa, Cal. "Stewart's Odorless and Tasteless Cattle Oil" (For Cattle Oil)	9,221	June 10	90	281
Stine, John, Reading, Pa. "Oxygene" (For a Medicine)	9,098	Apr. 1	90	281
Sullivan & Co., C. F., Boston, Mass. "Blue Label Pure Eye Whiskey" (For Whisky)	9,145	May 30	90	281
Sullivan & Co., C. F., Boston, Mass. "O. L. Taylor Pure Eye Whiskey" (For Whisky)	9,146	May 30	90	281
Sword Medicine Co., Pulaski, Tenn. "Sword's Great Tonic and System Renovator" (For a Medicine)	9,064	Apr. 15	90	281
Tanner Paint & Oil Co., Richmond, Va. "Black Elastic Roof Paint" (For Roof Paint)	9,207	June 10	90	281
Teal Brothers, Philadelphia, Pa. "Fairmont" (For Almond-Heal)	9,100	June 8	90	281
Valer, Christian, Charlotte, N. C. "Royal Crown Ginger Ale" (For Ginger Ale)	9,205	Apr. 1	90	281
Van Dusen, Henry H., Westfield, Mass. "The Great Four Cents Whiskey" (For Whisky)	9,201	June 10	90	281
Van Dusen, Henry H., Westfield, Mass. "The Great Four Cents Whiskey" (For Whisky)	9,201	June 10	90	281
Van Dusen, Henry H., Westfield, Mass. "The Lincoln" (For Whisky)	9,203	June 10	90	281
Watts, Harry E., Kansas City, Mo. "Can't Shake 'Em Off" (For Kyschman)	9,205	Apr. 28	90	281
West Baden Springs Water Co., Inc., West Baden, Ind. "West Baden Sprudel Mineral Water" (For Mineral Water)	9,100	Apr. 28	90	281
White, Mary A., Washington, D. C. "Mrs. White's Hair Grower & Tonic" (For Hair Grower and Tonic)	9,190	May 6	90	281
Whitman, J. C., Cleveland, Ohio. "Lustrine" (For a Cleaning and Polishing Preparation)	9,072	Apr. 8	90	281
Wilmam A. Stickney Cigar Co., St. Louis, Mo. "Stickney's Perfection" (For Cigars)	9,149	Apr. 17	90	281
Williams, James, Lynn, Mass. "The Unique Rheumatic Foot Plaster" (For Plasters)	9,148	May 18	90	281
Williams, Samuel H., Oakland, Cal. "Children's Hour" (For Syrup)	9,121	June 2	90	281
Williams, Samuel H., Oakland, Cal. "Wedding Bells" (For Syrup)	9,121	June 2	90	281
Williams, Samuel H., Oakland, Cal. "Jeweled Crown" (For Syrup)	9,121	June 2	90	281
Williams, Samuel H., Oakland, Cal. "Jeweled Crown" (For Syrup)	9,121	June 2	90	281
Winters, William, Chicago, N. J. "Orange Broom Dew" (For Beer)	9,096	Apr. 28	90	281
Wood, William, Chicago, N. J. "Ouro All Liniment" (For Liniment)	9,141	May 12	90	281
Woolson Spice Company, Toledo, Ohio. "Pure Spices" (For Spices)	9,180	May 6	90	281
Woolson Spice Company, Toledo, Ohio. "Pure Spices" (For Spices)	9,181	May 6	90	281
Worcester Salt Co., New York, N. Y. "Worcester Quick Freezing Ice Cream Salt" (For Salt)	9,171	May 27	90	281

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette.	
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Alexander & Co., W. W., Akron, Ohio. "Alexander." (For a Medicine).	498	Apr. 20	90	1347
American Lithographic Company, New York, N. Y. "Foot Lift Emerson Gang." (For Flows and Mowers).	498	Apr. 1	90	285
American Lithographic Company, New York, N. Y. "Emerson Spring Lift Chainless Reaper." (For Reapers and Mowers).	494	Apr. 1	90	285
American Lithographic Company, Buffalo, N. Y. "Original Foot Lift." (For Flows and Mowers).	498	Apr. 1	90	443
American Lithographic Company, Buffalo, N. Y. "The First Wireless Telegram." (For Food).	498	May 11	90	1610
Armour Packing Company, Kansas City, Kans. "Potted Ham and Tongue. Deviled Ham and Tongue." (For Potted and Deviled Ham and Tongue).	513	June 17	90	2707
Atwood Suspender Co., Swanton, Vt. "Atwood Suspender." (For Suspenders).	507	May 27	90	2030
Bailey, George H., Brooklyn, N. Y. "Domino Dot." (For a Game).	500	June 24	90	1931
Binney & Smith, New York, N. Y. "Eclipse Paste." (For Paste).	504	May 13	90	1610
Borden's Condensed Milk Co., New York, N. Y. "The Market Girl." (For Condensed Milk).	470	Apr. 1	90	285
Both, W. C., Chicago, Ill. "Clothing." (For Clothing).	499	Apr. 15	90	1217
Both, W. C., Chicago, Ill. "Spring Clothing and Apparel." (For Clothing).	499	Apr. 15	90	1217
Both, W. C., Chicago, Ill. "Men's Apparel." (For Apparel).	499	May 6	90	1217
Both, W. C., Chicago, Ill. "Men's Apparel." (For Clothing).	499	May 27	90	2030
Both, Wm. C., Chicago, Ill. "Men's Apparel." (For Men's Apparel).	499	June 17	90	2707
Brown, William C., Chicago, Ill. "Men's Apparel." (For Men's Apparel).	517	June 10	90	2645
Brown, William C., Chicago, Ill. "Men's Apparel." (For Men's Apparel).	499	Apr. 1	90	443
Carters' Ink Co., Boston, Mass. "Know all Men by these Presents that Carters' Ink is the Old Reliable Make." (For Ink).	510	June 17	90	2707
Crouse & Brandegee, Utica, N. Y. "1908-Fall & Winter-1908." (For Clothing).	510	May 27	90	2030
Darmstadt German Food Company, Philadelphia, Pa. "Darmstadt German Food." (For Food).	498	Apr. 20	90	1347
Dr. Miles Medical Co., Elkhart, Ind. "Katharine Kauterbocker." (For a Medicine).	497	Apr. 20	90	1347
Dr. Miles Medical Co., Elkhart, Ind. "Dorothy Quincy." (For a Medicine).	497	Apr. 20	90	1347
Erdman & Co., Philadelphia, Pa. "Erdman's Absorption Food Satchel." (For an Absorption Food-Satchel).	494	Apr. 15	90	98
Farquhar & Co., R. & J., Boston, Mass. "Farquhar's Evergreen Lawn Grass Seed." (For Lawn Grass-Seed).	514	June 3	90	2677
Graham Drug Co., New York, N. Y. "Yale Violets for the Breath." (For a Breath-Perfume).	511	May 27	90	2030
J. & P. Baitz Brewing Co., Philadelphia, Pa. "Baitz Beer." (For Beer).	498	Apr. 1	90	285
J. Stockler Seed Co., Ltd., New Orleans, La. "Stockler's Mammoth Peas." (For Peas).	491	Apr. 1	90	285
Kuh, Nathan & Fischer Co., Chicago, Ill. "Drexel Box." (For Overcoats).	491	Apr. 15	90	98
Kuh, Nathan & Fischer Co., Chicago, Ill. "The Mansfield." (For Overcoats).	491	Apr. 15	90	98
Kuh, Nathan & Fischer Co., Chicago, Ill. "The Harvard Sack." (For Sack-Coats).	491	Apr. 15	90	98
Kuh, Nathan & Fischer Co., Chicago, Ill. "The Kammere Sack." (For Sack-Coats).	491	Apr. 15	90	98
Love, Henry M., Wilmington, Del. "See That Flare." (For Women's Underwear).	500	June 17	90	2707
Love, Henry M., Wilmington, Del. "See That Flare." (For Women's Underwear).	500	June 17	90	2707
Love, Henry M., Wilmington, Del. "See That Flare." (For Women's Underwear).	500	June 17	90	2707
Love, Henry M., Wilmington, Del. "See That Flare." (For Women's Underwear).	500	June 17	90	2707
Malt Too Food Co., Ltd., Battle Creek, Mich. "Malt-Too." (For Cereal Food).	500	June 24	90	2698
Meier & Schuknecht, Detroit, Mich. "Meier & Schuknecht." (For Trunks, Bags, and Valises).	495	Apr. 8	90	443
Mitchell, Edward H., San Francisco, Cal. "Oregon Souvenir Playing Cards." (For Playing Cards).	499	Apr. 1	90	285
National Biscuit Co., New York, N. Y. "Nabisco." (For Biscuits).	513	June 3	90	2677
Pretzinger & Bro., R. Dayton, Ohio. "Pretzinger's Catarrh Balm." (For Catarrh Remedy).	495	Apr. 20	90	1347
Ransom and Randolph Co., Toledo, Ohio. "The Ransom & Randolph Co." (For Artificial Teeth).	508	May 6	90	1261
Rothschild Bros. Hat Co., St. Louis, Mo. "Our Brand." (For Hats).	505	May 13	90	1610
Rowe, Daniel H., Toledo, Ohio. "20th Century Complexion Beautifier." (For a Toilet Preparation).	499	May 6	90	1261
Sunkel Bros., New York, N. Y. "Chocolate des Marqueses." (For Chocolate).	515	June 3	90	2677
Schmidt Bros. Company, Chicago, Ill. "Schmidt Bros. Co. Chicago." (For Paints and Hardware).	508	May 27	90	2030
Tait, David W., Philadelphia, Pa. "Chimax." (For Nose-Guards).	510	June 10	90	2645
Union File & Binder Company, Chicago, Ill. "This is Not Ours." "This is Ours." (For Loose-Leaf Binders).	510	June 10	90	2645

DISCLAIMER.

Name, residence, and invention.	No.	Filed.	Official Gazette.	
			Volume.	Page.
Westinghouse, George, Jr., and Frank Moore, Pittsburg, Pa.; disclaimer filed by assignee. Engine's brake-valve.	401,916	June 10, 1908	90	2770

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Specification.	Drawing.	Volume.	Page.
Abdominal bandage.	E. L. Abbott.	498,498	Apr. 20	2709	98	90	269
Abdominal support.	E. L. Abbott.	497,164	Apr. 8	1498	98	90	281
Abbrading-tool.	W. M. Rockstroff.	499,242	May 6	197	47	90	1214
Account device. Manifold.	C. Ormsby.	499,284	Apr. 1	260	81	90	73
Accounts. System of devices for keeping hotel.	J. Willy.	700,485	May 20	2645	97	90	1720
Accumulator.	G. de Roumy de Sales and F. Gueugnon.	499,496	Apr. 1	180	44	90	6
Accumulators. Charging.	R. E. Ball.	497,198	Apr. 8	1580	346	90	342
Accumulators. Means for charging.	R. E. Ball.	497,198	Apr. 8	1582	340	90	342
Acid and making same. Indigo-diacetic.	F. Seidel.	499,281	May 6	981	90	90	1290
Acid and making same. Methylene citric.	W. Sternberg.	499,498	May 6	873	90	90	1290
Acid and sulfur anhydride. Making sulfuric.	O. Kraus and R. M. von Barneck.	700,518	May 20	2700	98	90	1773
Acid. Apparatus for the manufacture of osom-traded sulfuric.	A. M. G. Schlot.	700,540	May 20	2881	90	90	1606
Acid ether of cinchona alkaloids. Succinic.	W. R. Quinn.	499,011	Apr. 20	4971	1100	90	1181
Acid. Making hydrochloric. Succinic.	H. Thron.	499,000	Apr. 1	350	90	90	98
Acids. Making alkyl ethers of cinchona-alkaloid carbonic.	E. Hart.	499,704	Apr. 20	4385	98	90	98
Acids. Making phthalic and benzoic.	H. Thron.	701,288	June 3	498	90	90	5188
Adding and subtracting machine.	A. Nachler.	702,171	June 10	1814	90	90	2690
Adding device.	W. A. Day.	498,418	Apr. 1	44	10	90	15
Adding-machine.	H. A. Smith.	700,443	May 20	2616	98	90	1745
Adding-machine.	C. H. Platt.	499,461	Apr. 1	180	30	90	30
Adding-machine.	D. J. T. Hiett.	499,280	May 6	285	90	90	1246
Adding-machine.	E. Fitch.	702,088	June 10	1804	90	90	2640
Adding-machine.	E. Wiswall.	702,500	June 24	2706	90	90	2696
Addressing-machine.	F. D. Reiknap.	499,740	May 13	1170	274	90	1460
Adjustable table or desk.	E. Lindner.	497,690	Apr. 25	2640	90	90	269
Adjustable wrench.	F. W. Brown.	499,023	Apr. 20	5071	1121	90	1148
Advertisement-displaying apparatus.	E. J. Wood.	499,054	Apr. 20	5042	1115	90	1187
Advertising and selling machine.	A. C. Gurnsey.	499,703	Apr. 20	4980	98	90	98
Advertising device.	J. S. Drury and J. G. Kruger.	497,240	Apr. 8	1582	346	90	342
Advertising device.	J. E. Church and G. W. Reynolds.	497,287	Apr. 8	1582	346	90	342
Advertising device.	C. F. Schell.	499,718	May 13	1120	265	90	1480
Advertising device.	H. L. Beach.	701,240	May 27	4120	980	90	2677
Advertising device.	A. Washington and M. Standiford.	702,100	June 24	2690	778	90	2690
Advertising-wagon.	J. Leitcham.	499,007	Apr. 1	350	90	90	98
Aerating or agitating liquids. Apparatus for.	H. E. Dolphin.	499,294	May 6	511	71	90	1290
Aeroplans.	E. J. Conyne.	499,054	Apr. 20	4980	98	90	98
Agricultural utensil.	E. M. Grummet.	700,108	May 20	2102	481	90	1641
Air and hydrocarbon. Apparatus for supplying.	W. M. Best.	700,000	June 17	2620	515	90	2611
Air-brake.	J. E. Normand.	497,008	Apr. 8	1195	287	90	271
Air-brake.	D. Reamer.	701,025	June 10	1804	267	90	2690
Air-brake apparatus.	W. L. Clark.	701,700	June 3	917	305	90	2600
Air-brake. Automatic.	G. T. Woods.	701,981	June 10	1806	295	90	2694
Air-brake connection.	W. Neil.	701,572	May 27	4176	960	90	2695
Air-brake coupling. Automatic.	C. H. Seitz.	701,085	June 3	941	140	90	2640
Air-brake pistons. Holding-tool for.	J. Korkinck.	499,498	Apr. 1	109	90	90	26
Air-brake. Railway-car.	F. M. Kreitz.	701,905	May 27	4080	581	90	2692
Air-brake system. Continuous automatic.	E. L. Goss.	701,287	June 3	98	10	90	2192
Air-brake system. Continuous automatic.	E. L. Goss.	701,288	June 3	98	10	90	2192
Air-brake-testing apparatus.	G. N. Baum and M. Mercatoris.	701,074	June 17	2631	586	90	2671
Air-cleaning and cooling device.	J. McCrory.	701,074	May 27	2609	573	90	2611
Air-compressor.	F. L. Roder and A. B. Freville.	497,414	Apr. 8	1582	346	90	342
Air-compressor.	G. W. Rhine.	499,570	May 6	985	194	90	1246
Air-compressor.	R. Hill.	700,087	May 27	2640	515	90	1246
Air-compressor and intercooler.	W. R. Cowles.	499,255	May 6	300	90	90	1246
Air-compressor. Hydraulic.	J. Weyand.	499,280	Apr. 20	3476	744	90	786
Air-compressor regulating device.	H. C. Bergant and W. Frelvitz.	499,204	Apr. 1	108	47	90	2614
Air-cooling and agitating apparatus.	E. F. Porter.	702,094	June 24	2100	787	90	2614
Air-cooling apparatus.	A. Siebert.	497,070	Apr. 15	2417	123	90	543
Air-diffuser.	S. G. Smith.	497,070	Apr. 15	2417	123	90	543
Air for cooling and moistening same. Treating.	W. F. Blom.	701,508	June 3	404	90	90	2194
Air-heater.	C. B. Dunlop.	700,519	May 20	2701	986	90	1770
Air-heater. Compressed.	A. E. Loveloy.	499,188	May 6	88	14	90	1187
Air-moistening apparatus.	O. H. Evans.	701,508	June 3	404	109	90	2194
Air-moistening apparatus. Automatic.	W. W. Pratt.	497,050	Apr. 15	2417	123	90	543
Air-purifying and cooling apparatus.	R. H. Thomas.	700,000	May 27	2620	515	90	2611
Air-purifying apparatus.	D. Grove.	499,188	May 6	88	14	90	1187

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr. E.	Vol.	Page.
Air-ship.	C. F. A. Klotz.	701,280	June 8	141	20, 30	20	2128
Air-ship.	P. Samoraki.	701,310	June 8	430	30	20	2128
Air-ship.	H. B. Van Voorhis.	701,280	June 10	1819	341	20	2087
Air-ship propeller.	C. Groombridge.	697,408	Apr. 8	1908	285	20	204
Air superheater or carburetor.	H. M. McCall.	701,374	June 10	1955	444	20	2088
Alarm.	A. B. Cowles.	698,388	Apr. 20	3737	305	20	200
Alarm.	M. P. Janisch.	699,531	May 6	784	170	20	1280
Album for clothing patterns, drawings, &c.	K. A. Johansson.	699,571	May 13	1443	383	20	1408
Album. Loose-leaf.	R. F. Oberhauser.	701,027	June 10	1237	305	20	2070
Alkaloids and acid. Making.	M. Babson.	698,388	Apr. 20	3737	305	20	200
Alkali. Making.	H. A. Francis.	697,408	Apr. 15	3081	305	20	200
Alkaline cyanide. Making.	J. D. Darling.	698,408	Apr. 20	3875	305	20	204
Alkaline cyanide. Making.	J. D. Darling.	698,408	Apr. 20	3875	305	20	204
Alloy.	W. Rühl.	697,544	Apr. 15	3165	305	20	2014
Alloy.	W. Pruszkowski.	701,000	June 10	3165	305	20	2014
Alloy. Aluminum.	K. Murrman.	698,316	May 4	181	305	20	1280
Alloys or compounds of copper and titanium. Producing.	A. J. Rossi.	701,344	May 20	2213	305	20	1280
Alum derivative and making same.	K. Seel.	698,708	Apr. 20	4481	305	20	1009
Alpha-ions. Making.	P. Chuit and F. Bachofen.	701,128	June 10	1280	305	20	2040
Amalgamating apparatus.	G. F. Jernigan.	701,244	June 8	120	305	20	2128
Amalgamating apparatus.	M. Bloome.	701,170	June 10	1085	304	20	2041
Amalgamating-machine.	G. C. Scott.	697,177	Apr. 8	1459	305	20	200
Amalgamating-machine.	G. C. Scott.	700,879	May 20	2468	371	20	1719
Amalgamating-machine.	E. J. Kline.	698,408	Apr. 1	106	305	20	200
Amalgamator.	J. McKelvey.	698,580	May 6	788	187	20	1280
Amalgamator.	J. S. Marquette and P. J. Nelson.	701,518	May 27	4081	305	20	2046
Amalgamator.	J. Becker.	697,188	Apr. 8	1800	311	20	218
Ammunition. Loading-tray for transferring.	H. F. Schrader.	697,581	Apr. 15	2000	619	20	687
Amusement apparatus.	J. G. Watson.	697,140	Apr. 8	1718	305	20	200
Anchor.	F. W. Keeney.	701,164	June 24	3437	305	20	2077
Anchor. Ship's.	W. H. Tuck.	697,771	Apr. 15	2527	374	20	377
Animal-dipping apparatus.	S. W. Allen.	697,388	Apr. 8	1887	305	20	200
Animal-shears.	J. Chagnot.	698,978	Apr. 20	4911	1035	20	1108
Animal-trap.	M. Laramie.	698,145	May 6	37	10	20	1280
Animal-trap.	J. B. Butler.	698,408	May 6	647	140	20	2070
Animal-trap.	J. M. Hearndon.	701,070	June 17	2545	305	20	1947
Animal-trap.	B. Folk and T. J. Wood.	700,988	May 27	3048	305	20	1947
Animal-trap.	J. J. Markey.	701,101	May 13	1807	435	20	1973
Animal-trap.	C. Stickney.	698,018	Apr. 20	3039	305	20	904
Annunciator.	G. E. Hoglund and C. M. Hedman.	698,578	May 6	305	305	20	1280
Annunciator. Automatic.	J. A. Wotton.	698,140	May 6	30	7	20	1101
Annunciator. Electrical.	C. C. Blake.	701,188	June 10	1878	305	20	2081
Antimony. Treatment of ores and materials containing.	J. P. Van der Ploeg.	698,088	May 13	1413	305	20	1470
Anti-offset device.	R. C. Seymour.	697,188	Apr. 8	1490	310	20	201
Antislipping device.	D. M. Dearing.	700,801	May 20	2784	305	20	1707
Apartment-house.	W. C. James.	697,500	Apr. 15	2000	305	20	200
Apparel. Wearing.	I. W. Collins.	698,584	May 6	304	305	20	1287
Applicator.	G. J. Van Schott.	701,587	June 8	181	305	20	2088
Applicator and syringe. Combined.	A. Levy.	701,570	June 17	2000	307	20	2088
Apron and apron-tie.	L. J. Lohlein.	699,518	May 6	788	109	20	1285
Apron. Child's eating.	W. Garms.	698,588	May 6	120	40	20	1213
Apron. Child's eating.	E. J. Reed.	698,574	Apr. 1	304	70	20	70
Apron fastener. Storm.	C. C. Laros.	698,788	Apr. 20	4088	1008	20	1088
Apron-light hanger-board.	H. M. Buck and W. H. Strippy.	698,981	May 13	1008	305	20	1980
Arch-bar.	T. C. Balzer.	698,888	Apr. 1	904	191	20	178
Arch construction. Concrete.	W. C. Farley.	701,004	May 27	3784	305	20	2000
Arch. Metal.	R. Gray.	701,580	June 20	1200	375	20	2077
Arch support. Brick.	H. B. Strate.	701,008	May 13	1007	305	20	1987
Arm-rest. Book.	J. Barker.	698,588	Apr. 1	11	4	20	80
Armature-coil.	A. F. Batchelder.	698,784	May 13	1280	305	20	1440
Armature-winding for electric motors. System of.	T. J. Murphy.	700,088	May 13	1284	408	20	1440
Armor.	J. J. Piodak.	698,941	Apr. 8	1077	305	20	200
Armor-plate. Manufacture of.	G. Charpy.	698,408	Apr. 20	3088	305	20	200
Ash or refuse can.	T. Hill.	698,407	Apr. 20	3087	305	20	200
Ash or refuse can.	T. Hill.	698,971	Apr. 20	4008	1004	20	1108
Ash-pan drop-bottom.	J. A. Kromer.	697,807	Apr. 8	1784	305	20	200
Asphalt. Preparing.	A. Wolkel.	700,880	May 27	3078	787	20	1940
Asphaltum. Extracting and refining.	A. F. L. Bell.	11,970	Apr. 1	2018	305	20	214
Assayer's furnace.	J. J. Lomgren and A. C. Calkins.	697,774	Apr. 15	3088	375	20	200
Assaying apparatus. Ore.	W. T. Armstrong.	698,540	Apr. 1	970	305	20	80
Assaying-furnace.	A. C. Calkins.	701,088	May 27	3088	777	20	1988
Atomizer.	C. J. Seltzer.	701,711	June 8	775	173	20	2071
Atomizer.	H. Goltermann.	700,988	May 27	3088	941	20	1970
Atomizer air-forcing device.	C. J. Wals.	698,444	Apr. 20	3088	947	20	200
Auger.	J. J. Bundy.	697,388	Apr. 8	1888	305	20	200
Automatic brake.	J. J. Bundy.	697,187	Apr. 8	1873	305	20	200
Automatic motor.	C. J. Seltzer.	701,088	May 27	3088	777	20	1988
Automatic signal.	R. L. Storm.	698,197	May 6	120	305	20	1280
Automatic switch.	P. S. Lewis.	700,288	May 20	2805	374	20	1781
Automatic switch.	J. A. Hancock and T. O. Cochran.	698,477	Apr. 1	180	305	20	80
Automobile.	E. J. Pennington.	698,477	Apr. 1	180	305	20	80

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr. E.	Vol.	Page.
Automobile.	W. E. Trautman.	698,080	Apr. 1	498	115	20	108
Automobile.	H. K. Holman.	697,730	Apr. 15	2488	385	20	1087
Automobile.	G. P. Dorris.	698,910	Apr. 20	4008	1000	20	1087
Automobile.	A. L. Simpson and H. B. Palmer.	698,080	Apr. 20	4008	1100	20	1108
Automobile.	C. Oots.	701,778	May 20	3078	474	20	1988
Automobile.	A. J. Kall.	701,704	May 27	3078	788	20	1984
Automobile.	E. J. Pennington.	698,477	Apr. 1	180	305	20	80
Automobile-condenser.	A. L. Kall.	700,788	May 27	3078	784	20	1984
Automobile-driving mechanism.	G. A. Hunt.	697,730	Apr. 15	2488	387	20	1087
Automobile-frame.	T. W. Moran.	701,764	June 8	800	187	20	2000
Automobile safety fuel-tank.	S. Digness.	701,170	May 27	3078	817	20	2000
Awning.	W. G. Buschmeyer.	698,571	Apr. 20	3708	817	20	1280
Awning frame and hood. Combined.	O. King.	700,788	May 27	3078	788	20	2081
Axis.	E. Klein.	701,124	June 10	1488	304	20	2000
Axis attachment. Vehicle.	J. W. Hafer.	701,484	June 17	2005	470	20	2000
Axis box and beam. Car.	G. W. Hager.	698,084	Apr. 20	4080	371	20	910
Axis-gage.	J. A. Reynolds.	698,084	Apr. 20	4080	371	20	910
Axis journal-box and roller-bearing for railway-cars.	E. F. Crowther.	700,179	May 20	2070	470	20	1080
Axis. Locomotive driving.	O. Hagans.	700,088	May 13	1778	408	20	1081
Axis-lubricating attachment. Car.	G. W. Decker.	701,088	June 10	1088	305	20	2088
Axis-lubricator. Car.	J. E. Gill.	701,080	May 27	2788	385	20	1988
Axis. Self-lubricating.	M. Bruner.	697,088	Apr. 8	1813	380	20	1088
Axis-shaft.	H. Fowler.	698,088	Apr. 20	4084	1087	20	1088
Axis-rod.	T. De La Mare.	697,488	Apr. 15	2015	445	20	2127
Axis. Vehicle.	J. D. King.	701,384	June 8	120	305	20	1280
Axis compound. Reduction of.	M. Buckner.	701,071	May 20	3011	305	20	200
Baby-walker.	C. O. and J. W. Glascock.	697,474	Apr. 15	2040	305	20	1440
Back-pedaling brake.	F. C. Atherton and C. Hagg.	700,878	May 20	2008	317	20	1070
Badge.	E. B. Whitman.	698,081	Apr. 1	408	100	20	100
Badge and pencil-holder. Combined.	J. A. Mangold.	701,787	June 17	2008	311	20	2088
Badge-medallion.	J. R. Miller.	698,081	Apr. 1	408	100	20	100
Badge or button back.	J. W. and A. M. Ayers.	698,488	May 6	301	124	20	1287
Bag.	See Food-bag. School-bag. Warming-bag. Water-bag.						
Bag-fastener.	L. G. Gohard and J. M. Rowley.	697,710	Apr. 15	2070	304	20	1080
Bag-fastener.	G. M. Bushy.	701,527	June 8	407	305	20	2088
Bag for remedial applications.	F. C. Holmes.	698,441	Apr. 1	305	305	20	2088
Bag handle or carrier.	E. L. and W. H. Cadwell.	701,146	May 27	3048	305	20	2070
Bag-holder.	J. P. Adams.	701,088	June 17	2008	311	20	1080
Bag-machine.	L. D. Besser.	698,311	May 6	311	311	20	1284
Bag. Machine for applying gathering-strings to.	J. W. Taylor.	698,488	Apr. 20	3708	305	20	200
Ball.	A. Walden.	698,081	May 13	1487	305	20	1408
Ball. Biscuit-cups for ice-cream. Apparatus for.	A. Walden.	701,778	June 8	120	305	20	2088
Baking-cup cleaner.	M. Vachon and H. Prefontaine.	700,884	May 20	2004	307	20	1770
Baking powder. Automatic.	J. A. Just. (Belgium).	11,984	Apr. 20	3108	305	20	1288
Balance or scale.	E. O. Hedman.	701,780	June 17	2008	307	20	2088
Ball-covering.	M. Kirschner.	701,570	June 8	181	305	20	2088
Ball-tie.	H. De Haven.	701,380	May 27	311	304	20	2088
Ball-tie machine.	G. M. Duper.	701,380	June 24	3011	304	20	2088
Ball-tie machine.	R. J. Ely.	698,088	Apr. 20	4081	305	20	200
Ball-tie machine.	P. Frantz.	701,410	June 8	120	305	20	2088
Bales. Core-driver for round-bale.	M. Swenson.	698,738	May 13	1141	307	20	1408
Baler and rake. Hay.	J. E. Symank and R. A. Kistler.	697,088	Apr. 15	2041	304	20	1087
Baling cotton.	E. Reagan.	698,118	Apr. 20	4081	1108	20	1284
Baling-machine.	A. D. Thomas.	698,088	May 13	1077	305	20	1081
Baling-machine. Cotton.	E. Mott.	698,748	Apr. 1	308	180	20	140
Baling-press.	J. J. Atkinson.	698,088	Apr. 20	4088	305	20	200
Baling-press.	J. J. Atkinson.	698,088	Apr. 20	4088	305	20	200
Baling-press.	T. J. Corning.	698,081	May 13	1084	305	20	1080
Baling-press.	E. W. Hillard and H. Haidacker.	701,088	May 27	3071	305	20	2088
Baling-press.	M. Kirschner.	701,570	June 8	181	305	20	2088
Baling-press.	C. M. Arnold.	701,778	June 8	120	305	20	2088
Baling-press.	F. M. Chappell.	701,088	June 17	2007	301	20	2088
Baling-press for cotton, &c.	G. M. Harvey and E. A. Werner.	698,448	Apr. 1	308	117	20	1081
Baling-press for hay, cotton, &c.	J. T. Scott.	698,588	Apr. 20	4088	305	20	200
Baling-press. Roller.	J. J. Faulkner.	698,088	Apr. 1	301	305	20	128
Ball.	See Billiard-ball. Hand-ball. Musical ball. Playing-ball.						
Ball. Billiard-ball.	E. E. Gray.	701,540	June 24	3007	700	20	2070
Ball. Hand-ball.	E. E. Gray.	701,540	June 24	3007	700	20	2070</

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Bicycle-support.	E. Moss.	702,222	June 17	2993	629	99	2942
Bicycle-two-speed driving gear.	W. H. Palmer.	692,120	Apr. 23	2979	715	99	145
Bicycle-wheel carrier.	C. R. Smith.	702,220	June 17	2987	623	99	2722
Bicycle-wheel hub.	L. O. Hanna.	692,941	Apr. 23	2985	1071	99	1022
Billiard-ball.	E. Kempshall.	697,685	Apr. 15	2983	651	99	697
Billiard-table cushion.	M. Benders.	701,254	May 27	4123	622	99	2972
Bin:							
See Grain-bin.							
Binder lock. Loose-leaf.	F. K. Krag.	692,920	Apr. 23	4002	1022	99	1137
Binder. Temporary.	E. A. Trussell.	697,571	Apr. 15	2909	428	99	292
Binder. Temporary.	G. A. Roedde.	697,659	Apr. 15	2797	619	99	1221
Binder. Temporary.	A. G. Balluff.	690,379	May 6	370	65	99	1449
Binder. Temporary.	F. L. Clark.	692,792	May 13	1276	295	99	1722
Binder. Temporary.	E. A. Trussell.	702,222	May 20	2610	374	99	2924
Binder. Temporary.	J. H. Farber.	701,220	June 10	1140	254	99	2924
Binder. Sheet for serial.	A. O. and E. R. Kittredge.	702,220	May 20	2729	627	99	1779
Binding-case for pamphlets, &c.	F. L. Clark.	692,792	May 13	1274	295	99	1449
Binoocular glasses.	G. Fecher.	701,222	June 10	1055	261	99	2940
Bird-cage.	M. Pata.	702,222	June 24	2122	722	99	2913
Blackite, &c. Apparatus for automatically coating.	G. S. Baker and W. T. Carr.	692,222	Apr. 1	254	60	99	2913
Blat:							
See Cutter-head bit.							
Bit and reamer. Combination.	G. A. Lane.	702,222	May 20	2622	622	99	1727
Bit-lengthening attachment.	B. F. Voss.	692,001	Apr. 23	2016	622	99	692
Blackboard.	O. Lange.	692,504	Apr. 23	2422	722	99	774
Black-furnace.	G. F. Herrick.	697,222	Apr. 8	1222	222	99	222
Black-furnace.	E. Bertrand.	692,222	Apr. 23	2422	770	99	722
Black-furnace.	F. C. Norcross and J. Mitchell.	702,222	May 20	2222	622	99	1722
Blasting purpose. Safety device for.	J. M. Doyle.	701,172	May 27	2222	612	99	2222
Blind fastening device.	N. O. Bond.	702,222	June 17	2222	622	99	1277
Blinds. Means for actuating window.	D. W. Roberts.	692,222	May 13	1422	222	99	1277
Block:							
See Brake-block.							
Breath-block.	Head-block.						
Building block.	Swage-block.						
Ceiling-block.	Tackle-block.						
Toy block.							
Block-signal system.	L. Riebo.	702,222	May 20	2222	222	99	1222
Block-signal system.	P. O. Kolbholz.	702,222	June 17	2222	222	99	1222
Blotter. Calendar.	S. M. Dewey.	701,122	May 27	2222	217	99	1222
Board:							
See Blackboard.							
Drawing-board.	Ironing-board.						
End-board.	Knending-board.						
Game-board.	Molding-board.						
Score-board.							
Boat.	C. S. Pruden.	697,222	Apr. 15	2121	422	99	222
Boat.	J. P. Pool.	692,222	May 6	122	99	99	1211
Boat.	C. Schor.	702,222	June 17	2212	627	99	2727
Boat. Canal.	C. Schor.	702,222	May 20	2212	627	99	1722
Boat-launching apparatus. Life.	J. W. Bedford.	701,022	May 27	2724	222	99	1222
Boat, &c. Life.	C. E. Baerman.	692,222	Apr. 1	414	99	9	222
Boat. Life.	A. Baumgart.	701,122	May 17	2211	422	99	2222
Boat. Life.	L. Brown.	702,222	June 17	2211	422	99	1222
Boat or vessel.	J. F. Becker.	702,011	June 3	222	124	99	2222
Boat stopping and holding device.	P. M. Maloney.	701,742	Apr. 8	1122	222	99	222
Boat. Submarine.	J. P. Holland.	702,722	June 17	2242	622	99	2222
Boat. Submarine.	J. P. Holland.	702,722	June 17	2242	622	99	2222
Boat. Submarine.	J. P. Holland.	702,722	June 17	2242	622	99	2222
Boat-transferring mechanism.	L. Donne.	697,222	Apr. 8	1542	244	99	227
Boats from ships. Apparatus for launching etc.	C. F. Peterson.	697,222	Apr. 8	1201	424	99	222
Body-heads.	C. E. Goring.	692,222	May 13	1222	224	99	1227
Boiler:							
See Hot-water boiler.	Tubular boiler.						
Locomotive-boiler.	Water-tube boiler.						
Steam-boiler.	Water-tube boiler.						
Boiler.	J. A. and J. M. B. Ray.	692,142	Apr. 23	2221	721	99	722
Boiler.	E. F. Edgar.	692,222	Apr. 23	4222	1022	99	1222
Boiler.	J. M. McClellan.	692,222	May 6	222	99	99	1222
Boiler.	E. L. Moore.	692,222	May 25	1222	222	99	1227
Boiler.	J. F. Ross.	701,222	June 10	1171	222	99	2222
Boiler.	H. Bergstedt.	702,222	June 17	2227	222	99	2222
Boiler.	J. S. Worth and C. B. Fairweather.	692,222	May 13	1227	222	99	2222
Boiler-cleaner. Mechanical.	P. F. Gibbons.	702,222	June 24	2247	222	99	2222
Boiler-cleaning compound.	J. A. Robinson.	701,222	June 3	422	99	99	2222
Boiler cover-plate.	C. L. Huston.	702,222	June 24	2270	244	99	2214
Boiler-dome. Detachable.	J. F. Drake.	692,471	Apr. 1	24	12	99	22
Boiler-dome. Detachable.	J. F. Drake.	692,471	Apr. 23	2220	222	99	222
Boiler-dome. Detachable.	J. F. Drake.	692,471	Apr. 23	2220	222	99	1120
Boiler-furnace. Smokeless.	J. G. Lock and J. Harte.	692,222	Apr. 1	222	122	99	177
Boiler-furnace. Steam.	C. Packard and H. F. Johnson.	692,222	Apr. 1	222	122	99	2222
Boiler or other furnace. Steam.	W. F. Wilmoth.	702,722	June 17	2222	622	99	2222
Boiler-regular plug.	C. Engelhardt.	701,222	June 3	244	124	99	2222
Boiler seam or joint. Steam.	R. M. Vaseles.	702,777	June 3	222	127	99	2222
Boiler-setting.	E. R. Eddins.	702,414	June 17	2242	622	99	2222
Boiler-tube cleaner.	C. T. Demarest.	692,122	Apr. 8	1722	224	99	224
Boiler-tube cleaner.	W. D. Forsyth and E. T. Bell.	692,122	Apr. 23	2222	224	99	222
Boiler-tubes or hollow shafting. Stopper for	H. T. Mason.	702,221	May 20	2422	244	99	2222

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Boiler water-gate.	R. F. Shallow.	701,510	June 3	417	95	99	1294
Booster.	T. M. Gallagher.	695,985	Apr. 20	4987	1087	99	1088
Boiler.	E. W. Palmquist.	708,010	June 17	3610	645	99	5795
Boil.							
Boil. Responsible bolt. Snap-bolt.							
Bolt.	O. C. Bari.	699,617	May 6	900	216	99	1287
Bolt-anchor.	F. C. Palmer.	693,597	Apr. 1	943	99	99	76
Bolt-anchor.	F. C. Palmer.	693,597	Apr. 1	945	99	99	76
Bolt.	F. C. Palmer.	700,304	May 20	3194	697	99	1645
Bolt-lock.	O. Jones.	700,264	June 10	1748	394	99	3494
Bolt-lock.	H. A. Stockman.	700,262	June 10	1743	394	99	3494
Bolt-lock.	R. P. Cane.	697,979	Apr. 29	3994	698	99	697
Bolt.	T. E. Wiedersheim, Jr.	699,008	Apr. 29	4180	913	99	1810
Bolt.	M. L. Duncan.	700,080	May 30	3980	978	99	3977
Bolt. Ascent.	F. A. Bowen.	700,698	June 17	3580	994	99	1098
Bolt.	F. A. Bowen.	698,531	Apr. 29	6980	1088	99	1098
Book-binding.	F. Voh.	701,035	May 27	3798	897	99	3097
Book-cover.	W. C. G. Kable and T. E. Towler.	700,007	June 10	1200	897	99	3097
Book. Deposit credit.	C. T. Imman.	697,499	Apr. 15	3098	498	99	677
Book-holder.	C. W. Kromschaefer.	697,518	Apr. 15	3180	979	99	677
Book-holder.	C. E. Houston.	700,761	June 17	3700	681	99	3708
Book-holder.	R. E. Aschdale.	697,498	Apr. 15	3180	979	99	677
Book-holder and arm-rest. Combined.	W. F. Barak.	398,014	Apr. 29	3085	687	99	948
Book. Note.	A. L. Holton.	700,048	May 30	3974	698	99	1081
Book. Note.	A. L. Holton.	700,399	June 24	3988	940	99	3981
Book. Railway tariff.	W. H. Bonner.	699,470	May 6	970	188	99	1285
Book-section having wide and narrow leaves.	A. O. and E. R. Kittredge.	697,495	Apr. 15	3070	481	99	678
Book-section having wide and narrow leaves.	A. O. and E. R. Kittredge.	700,018	June 10	1807	699	99	3994
Book stub-holder. Check.	W. H. Hawkins.	697,498	Apr. 15	3088	485	99	678
Book-support.	J. H. Leuba.	700,337	June 10	1808	417	99	3990
Book-supporter.	E. W. Bohrens.	701,010	May 27	3707	698	99	1090
Book-supporter. Revolving.	S. A. Mares and J. E. Nottingham.	700,388	May 30	3708	698	99	1777
Books. Making.	A. R. Drusel.	700,413	June 17	3704	698	99	3990
Boot or shoe.	F. W. Slater.	700,000	June 17	3407	690	99	3991
Boot or shoe cushioning device.	F. P. McIntyre.	699,540	May 6	794	187	99	1289
Boots or shoes, &c. Machine for wax-dressing parts of.	H. H. Beckwith and C. Pease.	699,476	May 6	995	184	99	1284
Boots or shoes. Medium for polishing parts of.	J. E. Morris.	699,000	May 6	995	189	99	1289
Boring apparatus. Deep.	W. Wolke.	699,378	May 6	997	61	99	1288
Boring apparatus. Rotary.	W. Wolke.	701,261	June 3	391	41	99	2147
Boring-machine work-holding device.	W. Pruszkowski.	700,000	May 19	1099	398	99	1285
Boring-tool.	M. Young.	699,902	Apr. 1	977	210	99	327
Bottle.	J. Gray, Jr.	699,125	Apr. 29	3998	719	99	704
Bottle-capping machine.	W. H. Fox.	697,973	Apr. 15	3405	988	99	140
Bottle-capping machine.	W. H. Fox.	700,716	June 17	3615	698	99	3994
Bottle-capping machine.	O. Heyman.	700,308	June 24	3928	917	99	3993
Bottle-carrier.	O. F. Clark.	697,385	Apr. 6	1747	890	99	948
Bottle-carrier.	H. M. A. Harders.	699,000	May 13	1499	698	99	1498
Bottle-cleanser.	D. M. Irving.	700,490	May 30	3728	698	99	1797
Bottle-cleanser.	J. Dahers.	698,907	Apr. 29	4984	1098	99	1098
Bottle-cleanser.	J. M. Van Meter.	700,490	May 30	3945	690	99	1791
Bottle-filling machine.	R. Figueroa and L. Schmandt.	699,995	Apr. 8	1111	247	99	998
Bottle-filling machine.	L. Strabel and C. W. Williams.	697,381	Apr. 8			99	998
Bottle-filling machine.	L. Strabel and C. W. Williams.	698,571	Apr. 29	4728	1043	99	1078
Bottle for aged liquid.	D. Tomparini.	701,986	June 10	1295	979	99	3991
Bottle for preventing riddling.	J. F. McCannery and G. G. Duddies.	700,070	May 13	1619	491	99	491
Bottle. Non-refillable.	A. W. McCannery.	697,298	Apr. 8	1790	491	99	491
Bottle. Non-refillable.	J. J. Brocks.	697,798	Apr. 15	3993	905	99	905
Bottle. Non-refillable.	F. Klein.	697,851	Apr. 15	3773	616	99	616
Bottle. Non-refillable.	J. V. Payton.	697,878	Apr. 15	3773	616	99	616
Bottle. Non-refillable.	K. S. Bailey.	698,491	Apr. 15	3993	905	99	905
Bottle. Non-refillable.	C. G. Gilling.	698,908	Apr. 29	4098	1098	99	1098
Bottle. Non-refillable.	D. E. Coyne.	698,491	May 6	3773	616	99	616
Bottle. Non-refillable.	J. Zang.	698,908	May 6	3773	616	99	616
Bottle. Non-refillable.	J. R. Latham.	698,908	May 6	3773	616	99	616
Bottle. Non-refillable.	D. A. Farrell and H. E. Kresse.	700,219	May 20	3993	905	99	905
Bottle. Non-refillable.	D. F. Fitzgerald, P. M. Seifert, and M. Kimmel.	700,764	May 27	3993	905	99	905
Bottle. Non-refillable.	F. J. Herrington.	700,170	May 27	3993	905	99	905
Bottle. Non-refillable.	U. S. Als.	700,000	June 10	1295	979	99	3991
Bottle. Non-refillable.	G. Ferguson.	700,529	June 17	3993	905	99	3991
Bottle. Non-refillable.	F. J. Brannon.	700,709	June 17	3993	905	99	3991
Bottle. Non-refillable.	R. J. Daykin.	698,713	Apr. 29	4413	973	99	973
Bottle. Non-refillable and lock-ool.	J. T. Koushlan.	701,070	May 27	3993	905	99	3991
Bottle. Non-refillable.	J. J. Minwegen.	701,070	May 27	3993	905	99	3991
Bottle. Non-refillable.	J. Haley.	697,915	Apr. 15	3993	905	99	3991
Bottle or jar press.							
Bottle-rinsing apparatus.	G. Houtaux.	700,985	May 27	3993	905	99	3991
Bottle safety attachment. Patent.	C. J. Hebenhaer.	700,985	May 27	3993	905	99	3991
Bottle soaking and washing machine.	C. H. Low.	700,918	May 20	3798	691	99	2778
Bottle-stopper.	A. Stern.	697,098	Apr. 8	1293	379	99	379
Bottle-stopper.	G. Lippard.	699,198	Apr. 8	1293	379	99	379
Bottle-stopper.	J. Leonard.	700,048	May 13	1771	416	99	1771
Bottle-stopper.	G. Lippard.	700,944	May 20	3993	905	99	3991
Bottle-stopper.	F. Stuls.	701,101	May 27	3993	905	99	3991
Bottle-stopper and fitting.	S. Myer and G. Myler.	700,591	June 24	3971	777	99	3971
Bottle-stopper attachment.	H. A. Clark.	700,113	June 24	3971	777	99	3971
Bottle-washer.	H. E. Browning.	701,265	June 3	3971	777	99	3971

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Pr.	Vol.	Page.
Bottle-washer machinery	H. E. Browington	697,797	Apr. 15	2697	264	99	261
Bottle-washing machine	H. E. Browington	697,798	Apr. 15	2694	254	99	261
Bottle-washing machine	H. E. Browington	698,267	May 4	427	103	99	1298
Bottle-washing machine	H. L. Pethnap	701,129	May 27	8984	938	99	2625
Bottle-washing machine	F. J. Schmalzer	701,225	June 10	1208	874	99	2675
Bottle-washing machine	J. Kayer	702,010	June 10	1205	286	99	2688
Bottle-washing machine	J. Kayer	702,023	June 10	1205	281	99	2689
Bottle-washing or sterilizing machine	W. J. Cunningham	697,301	Apr. 8	1237	244	99	268
Bottles, case, &c. Top for tooth-powder	H. E. East	701,233	June 10	1091	948	99	2698
Bottles. Device for preventing ruffling of	F. W. Johnson	701,048	May 27	8779	985	99	2698
Bottles or jars. Neck and cover for closing	A. F. Wilson	699,028	May 4	925	210	99	271
Bottles, &c. Stopper for	G. Koch	698,571	Apr. 1	215	253	99	1257
Bottling-machine	H. Grunbaum	702,021	June 10	1294	280	99	2619
Bowling-alley foot-dampener	S. L. Holden	700,614	May 20	8914	971	99	1297
Bowling-alley pin setting or resetting device	Z. D. Butts	702,072	June 10	1441	284	99	2622
Bowling-alley score-board	J. Paape and G. F. Hochman	702,072	June 10	1441	284	99	2622
Box:							
See Amuseing-box.	Music-box.						
Car tool-box.	Rockle-box.						
Collapsible box.	Packing and displaying box.						
Contrivance-box.	box.						
Dredge-box.	Paper box.						
Folding box.	Powder-box.						
Fruit-box.	Sand-box.						
Furn-box.	Sheet-metal box.						
Hat-box.	Shoe-box.						
Ice-box.	Syringe-box.						
Journal-box.	Train-order box.						
Letter-box.	Train-order-receiving box.						
Mail box.	Ventilated box.						
Match-box.							
Miter-box.							
Box	W. J. Harrison	695,513	Apr. 1	791	180	99	149
Box	L. J. Burdick	695,595	Apr. 8	1026	288	99	247
Box	M. O. Cohn	697,816	Apr. 8	1202	840	99	260
Box	E. O. Cohn	695,102	Apr. 29	8210	704	99	798
Box	S. Delbortner	698,423	May 6	597	125	99	1295
Box	C. E. Baldwin	702,377	June 10	1122	720	99	2602
Box	G. S. Madanov	702,394	June 10	2976	925	99	2777
Box and cover	T. Abraham	701,707	June 8	919	308	99	2600
Box and fastener	O. O. Clayton	698,423	Apr. 29	8207	322	99	261
Box-assembling machine	H. Erickson	701,289	June 10	1218	270	99	2670
Box-blank mitering and cornering machine	E. H. Taylor	701,493	June 10	1218	270	99	2670
Box-blank printing and scoring machine	F. Meisel	697,185	Apr. 8	1026	241	99	244
Box-fastener	A. O. Breckin and W. A. Anger	702,798	June 17	1270	925	99	2717
Box-fastener	J. H. S. Johnson	698,000	May 12	1071	280	99	1499
Box-lid and leg support	G. W. Hartman	700,205	May 20	9236	233	99	1709
Box or chest and table. Combined	F. L. Mitchell	697,519	Apr. 15	2127	271	99	498
Box or target pin	F. F. Croft	700,742	May 27	2126	729	99	1264
Box or package	F. H. Fisher	700,728	May 27	2089	729	99	1261
Box-plating device	W. S. Smith	700,028	May 27	2028	779	99	1264
Box-shaping machine	M. E. Partsch	698,094	May 13	1591	845	99	1690
Brace. Metal strip or clamp for use in manufacture of cardboard							
Brace:							
See Ball-bracket.							
Brace-blank and shaft-iron holder	A. P. Smith, Jr.	695,751	Apr. 29	4465	936	99	1011
Bracket:							
See Curtain-bracket.	Mirror-bracket.						
Curtain and drapery bracket.	Shade-bracket.						
Dental-engine wall-bracket.	Shade-roller bracket.						
Lamp-bracket.	Shelf-bracket.						
Window-bracket.							
Brackets							
Brack. Tubular	W. K. Henry	693,945	Apr. 29	6981	1072	99	1690
Brake:	J. A. Grosch	698,680	Apr. 29	8513	985	99	268
See Air-brake.							
Automatic brake.	Gramophone-brake.						
Back-pedaling brake.	Hoisting-apparatus brake.						
Bicycle-brake.	Locomotive-brake.						
Car-brake.	Propeller-shaft brake.						
Fluid-pressure brake.	Vehicle-brake.						
Brake	W. A. Crowder	698,329	Apr. 29	2227	775	99	795
Brake	H. A. Knox	698,222	May 4	784	122	99	1292
Brake	H. L. Schaffner	698,571	May 4	695	220	99	1292
Brake and power-shifting mechanism. Automatic.	J. F. Gail	702,412	May 20	2225	875	99	1781
Brake apparatus. Automatic fluid-pressure	G. Westinghouse	698,522	May 4	222	99	99	1292
Brake apparatus. Automatic fluid-pressure	M. Corringham	702,124	June 10	1202	922	99	2728
Brake apparatus. Fluid-pressure	V. J. Lemont	698,724	Apr. 29	2222	922	99	268
Brake-beam	A. S. Bellows	698,724	Apr. 29	2222	1012	99	1690
Brake-beam	C. H. Williams, Jr.	698,724	May 13	1422	922	99	1690
Brake-beam finger-guard	J. T. W. Rudolph	698,724	May 13	1422	922	99	1690
Brake-beam finger-guard clip	C. F. Huntton	698,724	May 13	1422	922	99	1690
Brake-beams. Reversible gear-sling or clamp for	J. S. Odgers	701,225	May 27	6072	1072	99	268
Brake-block	L. Van Cott and J. D. Kelley	702,513	June 17	2222	922	99	2728
Brake-mechanism	F. J. McCullough	702,513	June 17	2222	922	99	2728
Brake-mechanism	M. O. Wicks	697,795	Apr. 29	2222	922	99	2728
Brake-operating device	P. A. Brawner	697,795	Apr. 29	2222	922	99	2728
Brake-shoe							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Vol.	De.	Vol.	De.
Brake-shoe.	A. L. Streeter	708,880	June 17	2844	870	90	2780
Brake-shoe mechanism.	H. Tenenbaum	698,481	Apr. 28	2790	988	90	2848
Brake shoes. Device for compensating for wear in hydraulic.	A. Goldschmidt	697,140	Apr. 8	1488	817	90	2828
Brake slack-adjuster.	H. A. Wahlert	698,581	Apr. 1	984	88	90	80
Brake slack-adjuster.	H. A. Wahlert	698,582	Apr. 1	984	88	90	84
Brake slack-adjuster.	H. A. Wahlert	698,583	Apr. 1	985	84	90	84
Brake slack-adjuster.	H. A. Wahlert	698,584	Apr. 1	985	84	90	84
Brake slack-adjuster. Railway.	H. A. Wahlert	698,585	Apr. 1	987	84	90	84
Braking force. Apparatus for applying and controlling.	H. H. Westinghouse	708,980	June 10	1708	408	90	1680
Bram-pocker.	J. A. Cameron	697,181	Apr. 8	1487	815	90	810
Brand-cutter.	A. Fuller	698,910	Apr. 29	4281	1080	90	1080
Breach-block and lever connection.	C. F. Fay	700,116	May 13	1888	880	90	1877
Breeding-pen for sows.	O. S. Kindworth	700,940	Apr. 27	3884	984	90	1888
Brick.	P. Griffin	697,914	Apr. 15	2888	987	90	904
Brick-cleaning machine.	L. H. Brownell	698,427	Apr. 29	4187	987	90	940
Brick for storage-tin construction.	S. H. Trommsdorfer	708,119	June 10	1811	841	90	2887
Brick-machine die.	C. Boley	698,019	Apr. 28	3048	988	90	988
Brick-molds. Safety appliance for handling and feeding.	H. Schoonmaker	708,484	June 17	2817	648	90	2787
Brick press.	R. E. Roedel	698,478	May 6	989	154	90	1813
Brick press.	C. W. Reynolds	700,928	May 27	2855	771	90	1917
Brick. Sillon.	W. H. Gibson and H. Wendling.	701,708	June 8	771		90	2870
Bricks or blocks. Machine for molding.	C. G. Davies	700,708	May 27	2850	124	90	1887
Bricks. Producing sillon.	W. H. Gibson and H. Wendling.	701,707	June 8	771		90	2870
Bricks, tiles, &c. Machine for forming.	W. H. Wakefield	698,380	Apr. 29	4148	910	90	880
Bricks, tiles, &c. Manufacture of.	A. J. Kooble	698,384	May 6	781		90	1288
Bridge-gait.	F. I. Fleck	698,589	Apr. 1	249	88	90	77
Bridge.	J. Belkirk	698,747	Apr. 29	4481	984	90	1030
Bridge attachment.	J. A. Hull	697,488	Apr. 15	8035	468	90	2847
Bridge-bit-warming device.	G. Davis	701,181	May 27	3878	914	90	880
Brine. Treating.	G. N. Via	700,880	Apr. 27	3435	707	90	1901
Brine. Vacuum apparatus for boiling.	G. N. Via	700,881	June 10	1738	401	90	2190
Brine. Vacuum apparatus for boiling.	G. N. Via	701,284	June 8	189		90	8190
Briquet and producing same.	E. S. Lydie	698,976	Apr. 1	184	808	90	181
Broiler or toaster.	G. Haro	700,081	June 17	2838	880	90	2818
Bronzing-machine.	A. Pollard	698,497	Apr. 1	108	41	90	41
Broom.	C. R. Duningham	698,586	Apr. 29	4041	1081	90	1081
Brooder.	J. L. Macy	708,210	June 10	1889	818	90	2821
Brooder, Chicken.	S. L. Hirschey	701,040	May 27	2708	888	90	2704
Broom.	F. J. Ellis and A. R. Bong.	701,128	May 27	4538	881	90	2148
Broom. Brush-1.	E. Robertson	701,282	June 3	474	88	90	2138
Broom-orn knife.	G. W. Richardson	701,507	May 13	1738	415	90	1280
Broom-handle drying and polishing apparatus.	G. A. Larson and J. E. Johnson.	708,217	June 24	3838	904	90	2887
Broom-holder.	R. Elmer	698,543	Apr. 1	871	88	90	61
Brush.	J. M. Chambers	698,708	Apr. 1	708	178	90	168
Brush.	F. H. Tucker	697,595	Apr. 8	1701	980	90	888
Brush.	A. B. Weiss	697,708	Apr. 15	2835	971	90	974
Brush.	G. R. Richardson.	698,348	May 6	416	95	90	1249
Brush.	G. H. Denney	698,474	May 8	981	128	90	1488
Brush.	A. Glaser	698,708	May 13	1838	879	90	1738
Brush.	P. Becker	701,420	May 20	2888	979	90	2888
Brush.	E. E. Babcock	701,589	June 10	1738	418	90	2818
Brush.	J. F. Bowditch	708,080	June 24	3838	904	90	2888
Brush.	A. Stetser	698,081	Apr. 22	2160	989	90	797
Brush and mop. Combination scrub.	F. Pirrung	708,288	June 24	3168	780	90	2818
Brush and mop-holder. Combined scrub.	G. A. Eldon	698,080	May 13	1884	888	90	1881
Brush and tool-powder holder. Tooth.	E. C. M. Simpson and C. F. Crece-lua.						
Brush. Bath.	W. A. McIlhenny	698,670	Apr. 1	148	84	90	88
Brush. Block-turning and blade-cutting machine.	C. E. Fleming	698,080	Apr. 29	4041	1081	90	1081
Brush. Bottle-cleaning.	A. A. Lindstorte	701,084	May 27	3838	980	90	1879
Brush. Bottle. Palm.	G. C. Frank	700,988	May 27	1087	847	90	8448
Brush. Fish.	M. C. Isaacson	700,186	May 12	1738	418	90	1288
Brush. Flat.	W. H. Humphrey	701,428	June 8	810	48	90	8181
Brush. Fountain.	H. Schwartz and L. Silberman	708,880	June 10	1738	410	90	2888
Brush. Fountain marking.	J. A. Crandall	697,429	Apr. 15	1874	487	90	408
Brush-holder.	E. H. Schwartz	698,791	Apr. 1	901	137	90	147
Brush-machine.	W. Dixon	698,785	Apr. 1	987	141	90	168
Brush. Polishing.	J. W. Smith	697,088	Apr. 15	2488	988	90	848
Brush. Scrubbing.	J. Keston	708,718	June 17	2810	801	90	2888
Brushes, brooms, &c. Apparatus for attaching or detaching handles of.	G. A. Vickery	698,576	Apr. 29	4745	1048	90	1078
Brushes. Comb-joint tooth-removing machine for.	C. E. Alhart	700,988	Apr. 6	188	287	90	88
Brushes and operating mechanism. Claw-shell.	F. E. Hulett	700,444	Apr. 27	3838	984	90	88
Brushes. Cook.	L. Moore	700,080	Apr. 27	3838	984	90	1288
Brushet-dumping apparatus. Automatic.	H. T. Jones	701,518	June 8	841	200	90	2838
Brushet-dumping device for steam-shovels.	E. T. Farver and G. E. Beaumont.	708,478	June 17	2818	880	90	2880
Brushes. Means for dumping or discharging materials from.	H. A. L. Barry	708,478	June 24	3838	987	90	2878
Buckle.	A. E. Portland	698,580	May 8	788	128	90	2818
Buckle.	M. J. Orzech	701,281	June 8	808	118	90	8418
Buckle.	D. E. White	708,088	June 10	1485	987	90	88
Buckle. Belt.	A. E. Lee	697,585	Apr. 15	2787		90	84

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Page	Vol.	Page	Vol.
Buckle belt-clamp	L. Sanders	701,081	May 27	3048	99	3010	
Buckle-chafe	W. Bauman	697,488	Apr. 15	1978	98	488	
Buckle, Check-line	D. C. F. Smith	698,085	Apr. 28	3180	99	714	
Buckle-shield	G. L. Rempy	698,217	May 6	322	99	1246	
Buckle, Suspender	M. Rubin	700,879	May 27	3445	99	1919	
Buckle, Suspender	H. H. Wilson	700,879	May 27	3445	99	1919	
Buckle, Suspender	W. T. Duggan	701,020	June 3	748	100	2854	
Buckle, Tongue	M. C. Hanson	702,225	June 24	3547	99	1919	
Buckle, Tongue	W. H. Ross	697,548	Apr. 15	2165	98	488	
Buckle, Tongue	A. R. Fowler	700,169	May 19	1139	99	1428	
Buggy-top support	W. E. Strang	700,794	May 27	3553	99	1919	
Building	J. A. Martin-Cooke	701,180	May 27	3555	99	3048	
Building-block	J. W. Christford	701,183	May 27	3556	99	3048	
Building-block	A. De Man	701,183	May 27	3556	99	3048	
Building-construction	R. A. Winget	702,021	June 17	3406	99	3048	
Bulkhead-door	W. W. Ho	701,183	May 27	3556	99	3048	
Bulkhead-doors. Apparatus for closing or opening	W. and A. R. Crawford	701,183	May 27	3556	99	3048	
Burner	J. Solor	701,283	May 27	4027	99	3048	
Burner and tapping-bush. Combination	C. W. Taylor	702,225	June 10	1745	99	3048	
Burner-burner	G. Jenks	700,028	May 20	3581	99	1898	
Burner-burner	J. C. A. Case	700,897	May 27	3460	99	1944	
Burner-burner	S. E. Erickson and F. Peterson	701,528	June 3	498	100	2810	
Burner-burner	W. H. Moody	701,728	June 3	545	100	2898	
Burner-burner	L. E. Hickey and C. S. Hestford	700,089	May 12	1754	99	1851	
Burner-burner	W. H. Reid	699,116	Apr. 30	5148	98	1186	
Burner-burner	I. J. Emery	700,087	May 19	1789	99	1848	
Burner-burner	M. Elmer	697,488	Apr. 15	1978	98	488	
Burner-burner	H. D. Clark	699,045	Apr. 12	1825	98	1518	
Burner-burner	C. H. Hiler	699,045	Apr. 12	1825	98	1518	
Burner-burner	R. E. Kinney	700,946	May 27	3581	99	1908	
Burner-burner	H. K. Barker	702,773	June 17	3798	99	3708	
Burner-burner	T. Stiles	697,880	Apr. 15	2408	98	547	
Burner-burner	H. C. Zumbo	701,128	May 27	3512	99	3038	
Burner-burner	W. R. Warner	699,585	May 6	350	99	1258	
Burner-burner	O. A. Hanford	700,048	May 20	3585	99	1819	
Burner-burner	S. P. Buck	700,014	May 19	1705	99	1898	
Burner-burner	W. S. Smith	697,588	Apr. 15	2030	98	488	
Burner-burner	C. E. McIntire	697,584	Apr. 15	2030	98	488	
Burner-burner	C. H. Scott	700,118	June 10	1758	99	2440	
Burner-burner	B. I. Plummer	701,528	June 3	498	100	2810	
Burner-burner	A. Dosovna	698,501	May 6	708	99	1280	
Burner-burner	C. A. Hodge	701,574	June 10	1807	99	2844	
Burner-burner	J. C. Friedrich	701,041	May 27	3574	99	3028	
Burner-burner	J. H. Hater, Jr.	700,720	May 27	3586	99	1908	
Burner-burner	W. J. Pugh	701,717	June 3	785	100	2873	
Burner-burner	S. H. Bascom	699,585	May 6	350	99	1258	
Burner-burner	O. F. Amburn	702,575	June 10	1758	99	2440	
Burner-burner	A. A. Coyle	701,544	May 27	3581	99	1908	
Burner-burner	J. N. Crabb	697,519	Apr. 15	2020	98	487	
Burner-burner	W. M. Marshall	702,078	June 24	3512	99	3048	
Burner-burner	J. G. Grall	700,141	May 12	1777	99	1898	
Burner-burner	W. Renfrew	699,585	May 6	350	99	1258	
Burner-burner	M. Garbell	699,585	May 6	350	99	1258	
Burner-burner	J. B. Willyard	701,114	May 27	3586	99	3038	
Burner-burner	J. S. Barnes	700,028	May 20	3581	99	1898	
Burner-burner	A. Lucchi	699,585	Apr. 1	98	99	210	
Burner-burner	F. E. Stanley	698,771	May 12	1127	98	1428	
Burner-burner	W. R. Alden	697,150	Apr. 3	1512	98	841	
Burner-burner	T. Long	700,790	May 27	3586	99	3038	
Burner-burner	C. L. Rogers	698,148	Apr. 28	3586	98	748	
Burner-burner	R. W. Thomson	698,090	Apr. 1	984	99	128	
Burner-burner	J. P. Stout	698,097	May 12	1246	98	1428	
Burner-burner	R. W. Thomson	698,090	Apr. 1	984	99	128	
Burner-burner	C. P. Pallansch	699,728	May 12	1104	99	1415	
Burner-burner	C. Luke	701,208	May 27	4028	99	3034	
Burner-burner	J. Metcalfe and T. Bell	701,510	May 27	4028	99	3034	
Burner-burner	S. D. Perow	698,528	Apr. 28	3586	98	1004	
Burner-burner	T. Alexander	698,125	Apr. 28	3586	98	708	
Burner-burner	R. Gonsenbach	702,225	June 24	3547	99	3048	
Burner-burner	J. H. Hubbell	701,075	June 10	1803	99	2848	
Burner-burner	W. McIlvrid	697,581	Apr. 3	1894	98	985	
Burner-burner		702,225	June 10	1803	99	2848	

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Page	Vol.	Page	Vol.
Calculus for cleaning ship's sides and bottoms. Float-	R. Kuebler	702,225	June 24	3547	99	3048	
Calculus	W. J. Mathieson	701,570	June 17	3538	99	2880	
Calc-dropping apparatus. Cap.	M. A. Grant	701,128	May 27	3512	99	3034	
Calc-pen	R. H. Hiler	700,828	June 10	1801	99	2848	
Calc-pen	D. de Vullish and J. Orlowsky	701,050	June 3	778	100	2848	
Calcium carbide. Manufacture of	H. Abbott	697,488	Apr. 15	1978	98	488	
Calculus	H. Abbott	697,487	Apr. 15	1978	98	488	
Calculating-machine	L. T. McConnel and C. L. Raymond	699,807	May 12	1207	98	1427	
Calculating-machine	W. G. Powell	701,511	June 3	804	100	2880	
Calculating-machine	O. F. Harrison	701,731	June 3	795	100	2874	
Calculator	O. Rogers	698,141	Apr. 28	3586	98	745	
Calculator. Mechanical	W. H. MacCollin	697,581	Apr. 15	2030	98	1587	
Calendar	M. Lichter	700,089	May 12	1754	99	2818	
Calendar	F. M. Napa	702,028	June 24	3547	99	3048	
Calendar. Door	O. W. Edmondson	698,987	May 12	1271	98	1471	
Calendar-roll-grinding machine	J. Linton	697,084	Apr. 3	1387	98	328	
Calendar-roller	J. Kleinewort	700,888	May 20	3581	99	1908	
Calendar-roller	L. Schuler	701,511	June 3	818	99	2108	
Calendar-roller	G. E. Haskins	700,088	May 12	1754	99	1898	
Callipers. Micrometer	F. E. Higgins	699,177	May 6	90	99	1194	
Call system. Electric	A. A. Stanton, Jr.	698,408	Apr. 1	19	99	7	
Can-fastening for stamp-and-shaft	J. C. H. Vaught	697,115	Apr. 3	1398	98	818	
Can. Stamp-mill	H. L. Silver	698,900	Apr. 1	578	99	88	
Can. Stamp-mill	C. Bornmann	698,178	Apr. 28	3585	98	700	
Can. Stamp-mill	E. R. Bullard	698,086	Apr. 20	4198	98	940	
Can. Stamp-mill	H. Goodwin	700,140	May 12	1754	99	1898	
Can. Stamp-mill	U. Kehrung	702,225	June 24	3547	99	3048	
Can. Stamp-mill	F. W. Sany	698,787	May 12	1282	98	1441	
Can. Stamp-mill	D. A. Lovthum	700,758	May 27	3586	99	1908	
Can. Stamp-mill	J. O. F. Schaefer	701,420	June 3	808	100	2150	
Can. Stamp-mill	K. Nelson	698,721	Apr. 20	4435	98	1004	
Can. Stamp-mill	J. Forstheim	698,141	May 6	91	99	1198	
Can. Stamp-mill	H. E. Hicker	697,084	Apr. 15	1978	98	754	
Can. Stamp-mill	J. and A. Wilkins	698,184	Apr. 28	3585	98	1004	
Can. Stamp-mill	F. A. Brownell	698,901	Apr. 20	4198	98	940	
Can. Stamp-mill	H. D. Bartlett	700,286	June 3	808	100	2807	
Can. Stamp-mill	J. K. Thomson	702,225	June 10	1750	99	2428	
Can. Stamp-mill	J. K. Thomson	702,225	June 10	1751	99	2428	
Can. Stamp-mill	A. D. Davis	702,225	June 10	1751	99	2428	
Can. Stamp-mill	C. F. J. Nis	702,225	June 10	1751	99	2428	
Can. Stamp-mill	R. H. Trumbull	700,284	May 20	3585	99	2807	
Can. Stamp-mill	J. E. Smith	702,748	June 17	3773	99	3886	
Can. Stamp-mill	W. A. Harbach	702,018	June 10	1750	99	2428	
Can. Stamp-mill	H. Thurlow	698,701	Apr. 20	4198	98	1015	
Can. Stamp-mill	E. A. Nugent	698,008	Apr. 20	4197	98	1119	
Can. Stamp-mill	H. C. Black	697,708	Apr. 15	2011	98	584	
Can. Stamp-mill	H. C. Black	697,708	Apr. 15	2011	98	584	
Can. Stamp-mill	W. J. Kenney	697,708	Apr. 15	2011	98	584	
Can. Stamp-mill	H. C. Black	697,708	Apr. 15	2011	98	584	
Can. Stamp-mill	J. R. Duesen	701,170	May 27	3586	99	3038	
Can. Stamp-mill	H. L. Guehrer	698,701	Apr. 20	4197	98	980	
Can. Stamp-mill	M. Doyle and F. Gobbie	701,021	May 27	3586	99	3034	
Can. Stamp-mill	G. H. Ruhlman and G. C. Miller	698,907	Apr. 20	4198	98	708	
Can. Stamp-mill	L. S. Fleischman	698,919	Apr. 20	4198	98	1001	
Can. Stamp-mill	J. W. Sany	697,581	Apr. 15	2030	98	1587	
Can. Stamp-mill	C. W. Boman and J. M. Reed	698,448	May 6	901	99	1280	
Can. Stamp-mill	A. W. Livingston	701,528	June 3	498	100	2810	
Can. Stamp-mill	F. M. Leavitt	702,128	June 10	1800	99	2848	
Can. Stamp-mill	A. W. Livingston. (Reissue)	11,528	May 12	3008	99	1808	
Can. Stamp-mill	L. Funch	700,888	May 20	3581	99	1908	
Can. Stamp-mill	F. Kotick	697,084	Apr. 15	1978	98	1001	
Can. Stamp-mill	J. D. Bolton	700,119	May 12	1750	99	1898	
Can. Stamp-mill	H. G. Day	701,028	June 3	778	100	2875	
Can. Stamp-mill	W. O. Haycock	702,225	June 10	1803	99	2848	
Can. Stamp-mill	M. Monahan and P. Derner	698,025	May 12	1203	98	1428	
Can. Stamp-mill	A. B. McNairy	698,991	May 12	1203	98	1428	
Can. Stamp-mill	C. S. Bucklin	697,585	Apr. 1	1728	98	801	

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Can-testing apparatus.....	H. C. Black.....	700,391	May 27	5477	787	98	1941
Can-testing machine.....	W. Rubin.....	699,944	May 6	889	788	98	1215
Can-testing machine.....	E. J. Lewis.....	699,980	May 6	798	181	98	1282
Can top and cap.....	J. B. Stewart.....	697,083	Apr. 8	1285	880	98	888
Cane. Machine for manufacturing soldered.....	H. B. Williams.....	702,167	June 10	1608	828	98	2489
Cane. Means for cooling milk.....	S. C. Sullivan.....	697,111	Apr. 8	1879	808	98	312
Cane, pail, &c. Machine for manufacturing ball- cared.....	J. G. Hodgson.....	702,305	June 24	2864	818 819 820	98	2691
Canning apparatus. Food.....	G. Lees.....	697,361	Apr. 8	1888	887	98	289
Canning corn, &c.....	C. H. Plummer and F. T. Stare.....	698,795	May 13	1381	888	98	1440
Cancelling machine. Stamp.....	G. R. Sherwood.....	702,494	June 17	2806	808 809	98	2680
Candle.....	T. J. Garrigan.....	701,537	June 3	894	111	98	2613
Candle-holder.....	C. Bogendorfer.....	697,197	Apr. 8	1401	811	98	818
Candlesticks, &c. Coupling for.....	O. E. Gabriel.....	698,881	Apr. 29	4885	1088	98	1088
Candy-cutting machine.....	J. Smith.....	701,086	June 3	890	148	98	2644
Candy-molding machine.....	A. Balcho.....	699,973	May 13	1844	877	98	1897
Cane and whip. Combination.....	M. A. Allen.....	698,708	Apr. 1	888	128	98	128
Cane-car-unloading machine.....	H. Froehlich.....	702,086	June 10	1477	888	98	2489
Cane conveyor. Sugar.....	C. H. McNally.....	702,512	June 17	2804	844 845	98	2734
Cane. Flag.....	J. W. Freeborn.....	698,987	Apr. 8	1115	847	98	287
Cane-loader.....	H. S. Padgett.....	702,305	June 24	2708	884	98	2680
Cane. Magazine torpedo.....	J. H. Fox.....	698,986	Apr. 8	1114	847	98	287
Cane-mill cane-feeding mechanism.....	F. Elmundo.....	698,379	Apr. 29	3713	880	98	888
Canteen.....	M. L. Minton.....	698,097	May 13	1088	887	98	1414
Cap. Dynamite detonating.....	A. B. Hoover.....	697,948	Apr. 15	2707	801	98	897
Cap machine. Hemmed.....	L. A. Norton.....	702,376	June 10	1880	448 447 448	98	2697
Cap-visor and eye-shield. Combined.....	H. L. Waldron.....	700,387	May 20	2888	888	98	1788
Capsule.....	G. H. Paine.....	700,808	May 27	2815	788	98	1940
Capsules. Manufacture of.....	G. H. Paine.....	700,808	May 27	2820	788	98	1910
Car and door therefor. Hopper.....	R. V. Sage.....	699,819	May 13	1381	308	98	1488
Car. Automatic-dumping ore.....	C. H. Snow.....	697,685	Apr. 15	8488	848	98	848
Car body-booster. Railway.....	T. M. Gallagher.....	698,989	Apr. 29	4887	1088	98	1088
Car-bolster.....	W. P. Bettendorf.....	700,408	May 20	2888	888	98	1788
Car-bolster.....	C. S. Shallenberger.....	701,515	June 3	818	88	98	2188
Car-bolster.....	S. P. Bush.....	701,537	June 10	897	880	98	2680
Car-bolster.....	H. C. Buhop.....	702,701	June 17	2888	888	98	2678
Car-bolster. Railway.....	H. W. Frost.....	697,484	Apr. 15	8088	448	98	487
Car-bolster. Railway.....	C. Vanderbilt.....	698,376	Apr. 29	3741	1048	98	1074
Car-bolster. Railway.....	G. O. Murray.....	701,880	June 10	1187	880	98	2661
Car-brake.....	C. B. Fairchild.....	698,981	Apr. 1	878	818	98	888
Car-brake.....	F. F. Shaffer.....	697,938	Apr. 8	1881	878	98	878
Car-brake.....	A. Balon.....	698,784	Apr. 29	4888	888	98	1088
Car-brake.....	L. T. Pyott.....	698,346	May 6	413	84, 85	98	1288
Car-brake.....	H. J. Small. (Release).....	11,980	May 13	8048	487	98	1888
Car-brake. Automatic.....	A. W. Reed.....	698,319	Apr. 29	3811	797	98	813
Car brake mechanism. Railway.....	C. W. Powell.....	700,518	May 27	2848	788	98	1948
Car brake. Railway.....	W. N. McLean.....	698,310	Apr. 29	2897	788	98	818
Car chair. Parlor.....	A. P. Barney.....	697,777	Apr. 15	2895	878	98	881
Car. Coal and grain.....	S. Kellogg.....	702,376	June 10	2878	847	98	2648
Car. Convertible.....	H. W. Covert.....	698,389	Apr. 29	3818	774	98	784
Car. Convertible.....	J. O'Leary. (Release).....	11,988	May 20	3137	718	98	1088
Car. Convertible railway.....	J. A. Brill.....	698,408	Apr. 1	88	7, 8	98	8
Car. Convertible railway.....	J. A. Brill.....	698,408	Apr. 1	88	8, 9	98	11
Car-coupling.....	T. J. Sammons.....	697,088	Apr. 8	1289	878	98	878
Car-coupling.....	T. A. Savage.....	698,418	Apr. 29	3770	888	98	887
Car-coupling.....	D. L. Bock.....	698,428	Apr. 29	3810	841	98	871
Car-coupling.....	R. H. Rutherford.....	698,740	Apr. 29	4448	888	98	1087
Car-coupling.....	H. T. Krakau.....	698,970	Apr. 29	4808	1084	98	1188
Car-coupling.....	J. Burge and S. B. Cornell.....	698,428	May 6	888	128	98	1218
Car-coupling.....	J. H. D. Egan.....	698,508	May 6	710	188	98	1288
Car-coupling.....	J. Timms.....	700,388	May 20	2848	818	98	1871
Car-coupling.....	W. F. Richards.....	700,441	May 20	2888	888	98	1788
Car-coupling.....	H. H. Marshall.....	701,884	June 3	888	128	98	2888
Car-coupling.....	J. A. Chubb.....	702,168	June 10	1888	848	98	2487
Car-coupling.....	J. O. Nelson.....	702,288	June 10	1718	888	98	2478
Car-coupling.....	W. S. Jones and E. W. Webb.....	702,308	June 24	3104	714	98	2808
Car-coupling attachment.....	T. Harrison.....	702,388	June 24	3848	888	98	2810
Car-coupling. Automatic.....	J. Darling.....	698,088	Apr. 29	3888	1124 1125	98	1144
Car-coupling. Automatic.....	J. Darling.....	700,488	May 20	2841	878	98	1844
Car-door.....	J. R. Thompson.....	700,388	May 20	2841	812	98	1878
Car-door and grain-door combined.....	W. H. Doerner and J. A. Whalen.....	697,280	Apr. 15	2878	888	98	888
Car-door. Dumping.....	R. V. Sage.....	698,880	May 13	1384	810	98	1488
Car-door fastening. Mining.....	J. H. Watt.....	702,388	June 10	1780	401	98	2488
Car door. Grain.....	D. Downs and D. W. Draper.....	698,381	Apr. 1	871	881	98	184
Car door. Grain.....	G. S. Smith.....	697,237	Apr. 15	8188	488	98	487
Car door. Grain.....	L. L. Edwards.....	701,551	June 3	401	108	98	2810
Car door. Grain.....	A. B. Ballows.....	698,788	Apr. 29	4881	1088	98	1084
Car-door mechanism.....	J. Player.....	702,748	June 17	2884	618	98	2884
Car-door. Sliding.....	H. J. Donovan.....	700,888	May 20	2848	878	98	1818
Car draft attachment. Railway.....	J. K. Evans.....	702,188	June 10	1840	887	98	2488
Car draft-beam.....	C. Wright.....	701,680	June 3	891	188	98	2838
Car draw-gear.....	R. V. Sage.....	697,081	Apr. 8	1288	884	98	878

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Car-dumping structure. Revolvable.....	E. Ramsey.....	701,764	June 8	985	192	99	2890
Car-fender.....	L. White.....	697,708	Apr. 15	3554	571	99	578
Car-fender.....	M. F. Field.....	698,915	Apr. 20	4319	1098	99	1099
Car-fender.....	C. P. Hulst.....	698,954	Apr. 20	4377	1076	99	1108
Car-fender.....	W. Sullivan.....	699,996	May 13	1670	398	99	1532
Car-fender.....	J. D. Hodges.....	701,538	June 8	818	114	99	2815
Car-fender.....	E. A. Sample.....	701,945	June 10	1122	370	99	2971
Car-fender.....	W. B. Rohmer.....	702,494	June 17	2182	497	99	2994
Car-fender.....	W. Bonham.....	702,040	June 24	2242	745	99	3020
Car-fender. Street.....	A. W. Shank.....	699,790	May 13	1386	267	99	1441
Car-fender. Street.....	C. O. West.....	700,280	May 20	2295	515	99	1074
Car. Freight.....	F. Nagel.....	697,660	Apr. 15	2995	395	99	588
Car. Gondola.....	H. S. Hart.....	699,949	May 13	1605	367	99	1530
Car grain-floor.....	W. H. Mann and U. G. Muck.....	699,394	May 6	380	21	99	1522
Car-journal box.....	T. W. Mitchell.....	697,947	Apr. 15	2999	640	99	646
Car-loader.....	E. H. Reynolds.....	700,198	May 13	1600	453	99	1597
Car-loader.....	E. H. Reynolds.....	700,198	May 13	2001	459	99	1597
Car loader. Box.....	D. A. Chappell.....	702,095	June 17	2431	559	99	2980
Car. Metallic.....	H. S. Hart.....	700,707	May 27	2955	745	99	1898
Car. Metallic-frame box.....	J. E. Hansen.....	701,720	June 8	726	178	99	2974
Car. Mining.....	D. L. Brown.....	700,718	May 20	2122	711	99	1233
Car. Motor.....	J. G. Matthews.....	698,741	Apr. 1	927	149	99	141
Car. Motor.....	H. Austin.....	698,890	Apr. 20	4777	1050	99	1050
Car motors and brakes. Means for automatically controlling.....	J. H. Robertson.....	698,798	Apr. 1	876	152	99	144
Car-mover.....	J. W. Dear.....	702,267	June 24	2721	921	99	3026
Car or locomotive. Electric motor.....	C. de Kandó.....	700,059	May 13	1735	413	99	1555
Car or truck. Transferring.....	R. A. Ludlow.....	701,207	May 27	4053	922	99	2026
Car-pusher.....	H. C. Boyer and F. Radford.....	697,194	Apr. 8	1598	341	99	542
Car. Railway.....	H. McLoughlin.....	699,340	May 6	397	26, 28	99	1295
Car. Railway.....	F. Kuempel.....	702,039	June 24	2305	700	99	2941
Car-replacer.....	A. J. Michel.....	698,985	Apr. 20	4693	1091	99	1112
Car-roof.....	C. M. Jennings.....	698,976	Apr. 8	1144	354	99	292
Car-route indicator.....	M. O. Parenteau.....	702,819	June 17	2511	647	99	2796
Car safety-platform. Railway.....	J. Holland and W. P. Wickham.....	701,208	May 27	4045	920	99	2026
Car-seat.....	L. Janson.....	701,047	May 27	2775	925	99	2004
Car-seat.....	H. S. Hale.....	701,559	June 8	909	119	99	2913
Car-seat cleaner.....	J. A. Ridd.....	699,694	May 6	399	261	99	1272
Car side bearing.....	J. E. Norwood.....	697,561	Apr. 15	2142	476	99	496
Car side bearing.....	F. G. Szesemihl and A. Torrey.....	701,416	June 8	263	58	99	2126
Car side bearing. Railway.....	F. R. Cornwall.....	698,176	Apr. 22	2640	725	99	729
Car side bearing. Railway.....	C. H. Williams, Jr.....	702,696	June 17	2655	621	99	2755
Car side coupling. Railway.....	F. Köhn.....	700,728	May 27	2328	728	99	1928
Car-sill and bolster connection. Steel.....	R. V. Sage.....	698,088	Apr. 22	2110	664	99	709
Car station-annunciator. Railway.....	G. Hall.....	698,491	Apr. 22	2018	926	99	698
Car-stop. Folding.....	O. F. Thomas.....	697,398	Apr. 8	1608	370	99	292
Car. Stock.....	J. F. Clark.....	702,031	June 17	2428	584	99	2926
Car street-indicator. Street.....	J. C. Wuerth.....	697,208	Apr. 8	1724	325	99	297
Car. Tank.....	C. L. Wilmet.....	701,056	June 8	985	151	99	2922
Car tool-box. Hand.....	L. Larson.....	701,900	June 10	1100	251	99	2954
Car. Tram.....	E. A. Stanley and J. E. Anger.....	697,293	Apr. 8	1622	375	99	291
Car transport. Marine railway.....	W. W. Smith.....	698,572	Apr. 20	4053	926	99	2021
Car-ventilator.....	E. Anderson.....	697,125	Apr. 8	1298	211	99	217
Car-ventilator.....	P. B. Hole.....	701,028	June 10	1076	344	99	2240
Car-wheel.....	M. P. Gerbing.....	702,644	June 17	2425	571	99	2925
Car-wheel. Plate-metal.....	H. F. Mann.....	702,148	June 24	2445	720	99	2929
Car-window.....	A. Moffitt.....	698,989	Apr. 20	4693	1091	99	1114
Car. Adjustable roof or cover for tram.....	F. Kennington.....	698,518	Apr. 20	2927	575	99	901
Car. 2n. Folding step for.....	E. J. Hunt.....	697,203	Apr. 8	1545	345	99	245
Car. Friction draft-rigging for railway.....	J. J. Hennessy and P. N. Moore.....	700,422	May 20	2645	625	99	1734
Car. Roller side bearing for railway.....	S. W. McMunn and E. S. Woods.....	702,145	June 24	2451	791	99	2971
Car. System of operating fans by power for ventilating passenger.....	R. M. Dixon.....	698,947	Apr. 8	1698	340	99	291
Car. Track-scraper attachment for street-railway.....	F. H. Best.....	698,975	May 6	390	126	99	1267
Car-truck-carriage.....	E. M. Rosenblatt.....	702,594	June 17	2522	547	99	2922
Carbon-feeding mechanism.....	J. O. Kemp.....	699,204	May 6	512	115	99	1291
Carbon brush and making same.....	W. Mills.....	701,269	June 8	154	38	99	2140
Carbon-holder.....	S. B. Whinery.....	702,514	June 17	2540	510	99	2927
Carbon-sorting machine.....	M. H. Zellers.....	701,422	June 8	263	63, 67	99	2169
Carbonated water. Manufacture of sterilized.....	T. Weyl.....	700,494	May 20	2647	608	99	1751
Carbonating-machine.....	T. H. Irwin and H. J. Miller.....	697,722	Apr. 15	2427	555	99	590
Carbonator. Beverage.....	J. H. Fox.....	702,715	June 17	2519	608	99	2925
Carburetor.....	O. A. Lane and H. A. Devonport.....	699,497	Apr. 1	115	27	99	29
Carburetor.....	C. L. Champion.....	697,907	Apr. 15	2655	650	99	595
Carburetor.....	G. W. Honts.....	698,908	Apr. 20	4376	1076	99	1109
Carburetor.....	J. Wilkinson, E. F. Chapman, and H. Thornton.....	699,297	May 6	422	100	99	1292
Carburetor.....	D. Best.....	699,580	May 13	1392	314	99	1497
Carburetor.....	A. L. Maagin.....	699,985	May 13	1622	375	99	1295
Carburetor.....	G. C. Diehl and J. A. Barber.....	700,207	May 20	2622	595	99	1291

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Carburetor.....	E. R. Inman.....	700,777	May 27	2373	751	99	1902
Carburetor.....	P. Keller.....	701,550	June 10	1087	247	99	2323
Carburetor.....	P. Roemisch and A. Orre.....	702,378	June 10	1084	445	99	2323
Carburetor.....	M. S. Deringer.....	702,387	June 17	2475	355	99	2323
Carburetor. Explosive-engine.....	J. F. Duryea.....	699,304	May 6	705	196	99	1233
Carburetor. Explosive-engine.....	J. W. Parkin.....	702,459	June 17	2122	400	99	2323
Carbureting device for explosive-engines.....	T. McCormick and A. D. Miller.....	699,309	Apr. 1	954	222	99	210
Carbureting device for internal-combustion motors.....	C. A. Hamilton.....	699,309	May 6	340	79	99	1941
Card and making same. Jacquard.....	J. Sacconik.....	701,775	June 3	654	197	99	2323
Card or sign holder.....	F. P. Wilkin.....	697,908	Apr. 15	2225	625	99	625
Card. Playing.....	K. Frederickson.....	702,398	June 10	1211	412	99	2323
Card-punching machine. Jacquard.....	O. Zerkovits.....	698,347	Apr. 22	2649	397	99	621
Cards. Machine for copying patterns for jacquard.....	J. T. Bolton.....	698,705	Apr. 1	897	125	99	125
Carding-engine.....	J. R. Hinchliffe and J. Hall.....	698,437	Apr. 1	80	18, 19	99	20
Carding-machine attachment.....	C. D. Ingraham.....	699,497	May 6	649	189	99	1210
Carding-machine feeding mechanism.....	H. Kemp.....	701,457	June 3	377	34, 35	99	2125
Carding-machine grinding attachment.....	J. Andette.....	700,164	May 20	3047	498	99	1423
Carnation-supporter.....	W. W. Thomas.....	702,019	June 24	2900	727	99	2323
Carousal.....	W. Johnson.....	697,354	Apr. 8	1629	335	99	337
Carpenter's tool.....	J. U. Doby.....	700,023	May 13	1734	337	99	1543
Carpet and making same. Velvet.....	J. W. Dimick, Jr., and J. Jagger.....	699,616	May 6	927	215	99	1237
Carpet-cleaning rack.....	F. V. Johnson.....	698,508	Apr. 29	2644	372	99	625
Carpet fabric. Ingrain.....	J. O. McGorman.....	702,223	June 10	1250	423	99	2323
Carpet-fastener.....	R. H. Humphrey.....	700,691	May 20	3073	625	99	1544
Carpet fastener. Stair.....	J. S. Jardine.....	697,458	Apr. 15	2025	427	99	474
Carpet-rag looper.....	T. A. Clark.....	698,515	Apr. 22	4611	1017	99	1546
Carpet-stretcher.....	A. H. Davis.....	699,105	Apr. 29	5123	1122	99	1122
Carpet-stretcher.....	F. L. Kidd.....	702,223	June 10	1250	423	99	2323
Carpet-sweeper.....	J. Barnes, R. W. and W. H. Kenyon.....	698,028	Apr. 22	2123	699	99	723
Carpet-sweeper.....	E. J. Reynolds.....	701,393	June 3	123	42	99	2143
Carpets. Apparatus for the manufacture of knot-stitch.....	F. Boyer.....	698,520	Apr. 29	4737	1054	99	1423
Carriage. Collapsible baby.....	A. Katze.....	699,123	May 6	125	22	99	1123
Carriage-curtain.....	G. R. Harris.....	701,227	June 3	123	22	99	2121
Carriage. Folding.....	C. E. Fanning.....	697,223	Apr. 8	1721	354	99	354
Carriage. Folding.....	D. Broadbalt.....	698,101	Apr. 22	2604	701	99	723
Carriage-lock.....	A. G. Snell.....	699,024	May 13	1237	323	99	1237
Carriage or wagon spring.....	J. Williams.....	698,611	Apr. 22	4125	912	99	923
Carrier: See Bottle-carrier. Package-carrier. Cash-carrier. Parcel-carrier. Grain-carrier.							
Carrier and drier.....	L. L. Kelsey.....	699,123	Apr. 22	5123	1124	99	1123
Cart. Ash.....	N. Barney.....	697,773	Apr. 15	2533	575	99	523
Cart shovel and scraper.....	A. Gehringer.....	697,343	Apr. 8	1000	323	99	323
Carton.....	A. V. Locke.....	700,223	May 27	2523	625	99	1944
Carton-machine.....	W. G. Chapin.....	702,124	June 24	2617	623	99	2323
Cartridge.....	C. A. Bailey.....	699,021	Apr. 29	3054	1112	99	1123
Cartridge.....	J. Orcutt.....	701,723	June 3	625	123	99	2323
Cartridge.....	W. E. Hayner.....	702,203	June 10	1229	275	99	2423
Cartridge.....	E. G. Parkhurst.....	702,223	June 17	2624	675	99	2723
Cartridge-gun.....	W. M. Scruggs.....	700,223	May 27	2523	625	99	1973
Cartridge-loading machine. Metallic.....	G. M. Peters.....	702,121	June 10	1221	223	99	2423
Carving-machine.....	E. R. Lochman.....	701,223	June 10	1123	223	99	2223
Carving or copying machine.....	J. Gates.....	698,223	Apr. 22	4223	1023	99	1023
Case: See Binding-case. Packing-case. Cigar-storage case. Pen-case. Egg-case. Refrigerator-case. Exhibiting-case. Sample-case. Eyeglass-case. Shipping-case. Jewel-case. Show-case. Map or chart case. Telescopic case. Measuring-case. Traveling-case.							
Cash-carrier.....	D. Lippy.....	697,247	Apr. 8	1721	354	99	354
Cash-register.....	F. P. Gorla.....	697,476	Apr. 13	2644	421	99	421
Cash-register.....	T. Carroll.....	697,521	Apr. 22	2673	625	99	625
Cash-register.....	J. P. Cleal.....	697,522	Apr. 22	2673	625	99	621
Cash-register.....	W. Kachans and F. Püschel.....	698,927	Apr. 22	4223	1023	99	1123
Cash-register.....	T. Carney.....	699,123	Apr. 22	5123	1121	99	1123
Cash-register.....	J. P. Cleal.....	700,171	May 20	2625	471	99	1223
Cash-register.....	T. Carroll.....	700,279	May 20	2621	614	99	1723
Cash-register.....	A. W. Marr.....	700,223	May 20	2723	625	99	1777
Cash-register.....	E. H. Johns.....	700,773	May 27	2673	723	99	1223
Cash-register.....	T. Carney.....	700,223	May 27	2625	625	99	1223
Cash-register.....	R. P. Thompson. (Release).....	12,000	June 10	1223	424	99	2224
Cash-register.....	L. S. Demont.....	702,123	June 24	2623	612	99	2223

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Cash-register.....	R. W. Hudson.....	703,333	June 24	3000	841	90	2002
Cashier and register. Combined mechanical.....	I. S. Dement.....	700,745	May 27	3014	735	90	1898
Cashier. Mechanical.....	I. S. Dement and A. D. King.....	703,710	June 17	3005	800	90	2003
Casting point or strainer.....	A. E. Carlson.....	700,015	May 13	1706	308	90	1899
Casket.....	C. H. Johnson.....	700,038	May 20	3075	608	90	1845
Casket-handle attachment.....	H. Riegel.....	703,743	June 17	3073	615	90	2004
Caster.....	G. B. Magoon.....	697,735	Apr. 15	2518	551	90	1844
Caster.....	S. H. Raymond.....	698,324	Apr. 22	3452	738	90	781
Caster.....	A. B. Dism (Rohrue).....	11,958	May 6	567	322	90	1874
Caster.....	N. Davis.....	699,708	May 13	1380	304	90	1450
Caster.....	J. P. Kelly.....	699,926	May 13	1684	372	90	1533
Caster. Ball.....	T. Galvin.....	701,106	May 27	4080	928	90	2011
Caster. Furniture.....	J. W. Kennedy.....	698,908	Apr. 29	4990	1690	90	1108
Caster. Warehouse-truck.....	T. E. J. Schaubly.....	698,409	Apr. 1	185	45	90	44
Casting.....	F. Baldt, Sr.....	703,171	June 24	3439	894	90	2079
Casting apparatus.....	A. M. Acklin.....	697,789	Apr. 15	2528	578	90	578
Casting apparatus.....	H. H. Franklin.....	703,194	June 10	1647	349	90	2444
Casting car-wheel. Core for.....	L. R. Faught.....	700,313	May 20	3354	540	90	1638
Casting-fisk.....	C. A. Palmer.....	698,008	Apr. 29	4982	1099	90	1119
Casting-machine.....	H. L. Beck.....	693,434	Apr. 29	3911	841	90	671
Casting-machine.....	C. H. Veeder.....	693,350	Apr. 29	4031	908	90	907
Casting-machine.....	C. H. Veeder.....	693,351	Apr. 29	4037	904	90	908
Casting-machine.....	C. H. Veeder.....	693,356	Apr. 29	4132	908	90	925
Casting machine. Strip-metal.....	C. C. Webster.....	703,338	June 24	3364	852	90	2000
Casting-mold.....	E. D. Tucker.....	697,115	Apr. 8	1394	307	90	314
Casting mold. Brake-shoe.....	A. Braks.....	697,794	Apr. 15	2699	558	90	890
Casting solid or hollow circular bodies.....	S. Michaloff.....	693,331	Apr. 29	3936	851	90	907
Casting. Forming.....	C. H. Veeder.....	693,332	Apr. 29	4109	908	90	908
Casting. Preparing sand molds for steel.....	H. B. Atha.....	693,333	Apr. 29	4779	908	90	1000
Casting. Producing soft-metal.....	G. H. Brabrook.....	697,973	Apr. 29	3931	850	90	677
Castamental bandage.....	H. Bauer.....	693,338	Apr. 1	322	61	90	80
Catgut ligature and suture and preparing same.....	C. E. Parber.....	701,501	June 8	397	90	90	2100
Catheter or like instrument.....	R. P. McCully.....	701,075	May 27	3511	874	90	2011
Cattle-guard.....	E. T. Meador.....	699,085	May 13	1536	368	90	1510
Cattle-holder.....	J. E. and W. Terrell and F. M. Montgomery.....	699,088	May 13	1573	364	90	1522
Cattle-probe.....	A. Hensch.....	703,339	June 24	3703	892	90	2002
Cattle-tie and stanchion.....	D. C. Martham.....	699,501	May 6	122	28	90	1202
Caulin. Producing.....	H. K. Moore.....	703,339	June 24	3997	892	90	2000
Cauling-block.....	C. W. Dixon.....	699,514	May 13	1537	364	90	1507
Celluloid articles. Manufacture of.....	J. Hackenberg.....	699,516	May 6	739	170	90	1233
Cellulose. Machine for separating and cleaning corn.....	E. G. Kraft.....	700,035	May 13	1738	414	90	1534
Cellulose solutions. Obtaining threads from.....	E. Bromberg, H. Fremery, and J. Urban.....	693,354	Apr. 29	3938	852	90	901
Cement. Making.....	O. Fritz.....	693,355	Apr. 29	3939	852	90	739
Cement. Making.....	F. G. Jordan.....	703,009	June 10	1393	307	90	2002
Cementing-machine.....	G. Julian.....	693,358	Apr. 29	4939	1030	90	1105
Center-iron and lap-ring.....	P. H. De Rochemont.....	701,145	May 27	3935	916	90	2000
Centering-machine.....	L. E. Whitton.....	693,359	Apr. 29	4135	914	90	942
Centrifugal machine.....	A. Kaczorowski.....	697,355	Apr. 8	1331	306	90	937
Centrifugal machine.....	O. Ohlsson.....	699,008	Apr. 29	4939	1030	90	1113
Centrifugal machine.....	H. McCormack.....	699,317	May 6	122	28	90	1202
Centrifugal machine.....	L. Hirt.....	699,321	May 6	325	66	90	1243
Centrifugal separator.....	J. E. Stadel.....	693,360	Apr. 29	3940	852	90	617
Centrifugal separator.....	P. L. Kimball.....	702,441	June 17	2036	477	90	2075
Centrifugal separator.....	I. V. Holmes.....	703,735	June 17	2704	622	90	2715
Ceramic products. Manufacture of.....	M. Buchner.....	700,073	May 20	3014	573	90	1890
Chain.....	L. D. Howard.....	703,374	June 17	3010	673	90	2745
Chain-link.....	A. Palmros.....	697,165	Apr. 8	1439	320	90	351
Chain-link.....	T. G. Antman.....	697,190	Apr. 8	1518	320	90	342
Chain-making machine.....	W. L. Judson.....	693,370	May 13	1313	294	90	1422
Chain protection. Driving.....	E. Catchpool.....	703,775	June 17	2731	627	90	2702
Chain retaining and releasing means.....	J. J. Galway.....	703,540	June 17	2391	522	90	2617
Chain-wheel.....	F. L. Morse.....	693,391	Apr. 29	4939	1030	90	1115
Chain wrench.....	G. Amborn, Jr.....	693,779	Apr. 29	4511	997	90	1021
Chain wrench.....	G. W. Buford.....	693,794	Apr. 29	4539	1004	90	1023
Chain. Casting.....	F. Baldt, Sr.....	703,170	June 24	3439	892	90	2079
Chain. Mechanism for securing lugs to carrier.....	C. G. Carlson and A. Tunell.....	700,046	May 13	1719	368	90	1540
Chair.....	A. M. Smith.....	697,373	Apr. 8	1230	468	90	697

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Chair.	A. J. Peddy.	699,810	May 13	1312	305	99	1488
Chair.	J. F. Moore.	700,097	May 13	1307	419	99	1569
Chair.	S. M. Hudson.	701,798	June 3	812	179	99	2577
Chair.	A. J. Morley.	702,284	June 10	1712	226	99	2477
Chair.	H. W. Bolens.	702,768	June 17	2120	684	99	2708
Chair.	H. P. Blackard.	702,987	June 24	2606	690	99	2801
Chair.	A. Nelson.	702,545	May 30	2304	640	99	1789
Chair and cradle. Combined.	A. H. Hunting.	699,680	Apr. 1	880	122	99	119
Chair attachment.	D. F. Clifford.	702,082	June 17	2465	565	99	2928
Chair attachment. Rocking.	H. W. Bolens.	702,769	June 17	2722	685	99	2707
Chair-spider.	F. A. Millikan.	702,938	June 24	3143	722	99	2810
Chair-support.	G. C. Scott.	698,283	Apr. 22	2455	720	99	789
Chair-tip.	C. V. Smith.	697,108	Apr. 8	1375	305	99	812
Change-receiver.	T. O'Brien.	700,228	May 20	2123	490	99	1627
Charcoal-blower.	C. J. T. Bursey.	701,145	May 27	2945	900	99	2041
Charcoal-manufacturing apparatus.	J. H. Choquette.	700,720	May 27	2125	727	99	1392
Chart. Adjustable dress.	G. Guild.	699,799	May 13	1306	300	99	1484
Chart for recording ancestry.	E. Harrison and J. A. Platts.	699,674	Apr. 1	886	121	99	114
Check-book.	H. W. Quade.	697,635	Apr. 15	2708	618	99	688
Cheese-box trimmer.	W. J. Spillman.	701,098	May 27	2828	688	99	2020
Cheese-cutter.	E. Niggi.	701,994	June 10	1148	228	99	2822
Cheese-cutter.	M. McKinnon.	698,726	Apr. 29	4420	977	99	1002
Cheese-press.	J. A. Weesner.	700,289	May 20	2202	515	99	1674
Chemical apparatus.	E. R. Taylor.	702,117	June 10	1305	840	99	2426
Chemicals in electric furnaces. Producing.	W. Davis.	699,724	Apr. 1	896	140	99	125
Chimney and ventilator.	A. E. and F. J. Cook.	702,779	June 17	2726	690	99	2709
Chimney-cap. Revolving.	M. Schwartz.	700,566	May 20	2528	651	99	1791
Chimney-cowl or ventilator.	C. D. Smith.	697,180	Apr. 8	1494	224	99	287
Chimney-ventilator.	R. A. Bockhoop.	702,120	June 10	1080	294	99	2421
Chock.	E. C. Phillips.	697,167	Apr. 8	1474	280	99	222
Chopper.	A. A. Flagg.	697,615	Apr. 15	2694	512	99	519
See Cotton-chopper. Food-chopper.	J. Hartness.	699,084	Apr. 1	424	101	99	94
Chopping-knife. Culinary.	W. G. Leas.	698,718	Apr. 29	4416	974	99	1000
Chopping-knife. Hand.	H. O'Brien.	699,746	Apr. 1	885	151	99	142
Chuck.	F. W. Lippold.	697,158	Apr. 8	1446	284	99	227
Chuck. Nipple.	J. Groendyke.	697,204	Apr. 8	1543	345	99	247
Chuck. Punch.	J. M. Harper.	697,715	Apr. 15	2422	625	99	527
Churn.	O. Heinrichs.	699,581	May 6	727	172	99	1280
Churn.	M. M. Sweetman.	700,266	May 20	2204	574	99	1221
Churn.	O. A. Dahl.	701,204	June 3	41	9	99	2117
Churn.	J. W. Powell.	702,995	June 24	3161	727	99	2814
Churn.	T. J. Howe.	700,775	May 27	2209	749	99	1901
Churn and butter-worker. Combined.	T. H. B. Van Hooner.	701,224	May 27	4101	844	99	2072
Churn-cover.	W. D. Carson.	699,101	Apr. 29	5115	1221	99	1121
Churn. Rotary.	M. Cooper.	699,944	Apr. 8	1080	229	99	249
Churns. Mechanism for operating vibrating.	V. B. Johnson.	699,692	Apr. 1	540	124	99	117
Chute.	J. A. Lindall and N. Mattson.	700,729	May 27	2220	728	99	1905
Chute and trap-door. Ore.	W. H. Simms.	701,227	May 27	4029	941	99	2070
Chute. Coal.	J. F. McDonald.	699,219	May 6	154	22	99	1207
Cider-mill apple-crusher.	F. L. Herrington.	699,825	Apr. 29	4675	1080	99	1693
Cigar-bunch-wrapping machine.	M. M. Gardner.	699,974	May 13	1649	246	99	1402
Cigar-bunching machine.	R. E. Jack.	700,221	May 20	2222	547	99	1929
Cigar-clipper and match-lighter.	J. P. Taylor.	699,122	Apr. 29	2219	725	99	722
Cigar-cutter and match-safe.	D. M. Winans.	701,278	June 10	1290	228	99	2222
Cigar exhibiting and vending apparatus. Coin-controlled.	W. F. Kessler.	702,426	June 17	2022	477	99	2272
Cigar-lighter.	W. F. Kessler.	702,427	June 17	2020	476	99	2274
Cigar-lighter. Electric.	J. S. Winget.	699,607	May 6	903	211	99	1222
Cigar-machine.	T. E. Carpenter.	702,179	June 24	2607	807	99	2221
Cigar-machine.	S. Strauss.	699,512	Apr. 1	904	50	99	45
Cigar-moistener and price and brand ticket.	C. M. Bragdon.	702,122	June 10	1022	225	99	2422
Cigar or cigarette holder.	J. H. Raecke.	701,612	June 3	502	121	99	2222
Cigar or cigarette mouthpiece.	E. A. Wilcox.	700,226	May 20	2222	577	99	1724
Cigar-package.	J. G. Gabel.	699,626	Apr. 1	897	204	99	122
Cigar-packing machine.	M. P. Pearson.	699,200	May 13	1212	204	99	1422
Cigar-perforating machine.	E. Todd, Jr.	702,169	June 24	2425	801	99	2272
Cigar-piercer.	J. S. Conwell.	702,114	June 24	2220	777	99	2222
Cigar-storage case.	H. A. Trenholm.	699,229	May 6	240	54	99	1222
Cigar-tray.	A. W. Waldmann and F. E. Kaiser.	702,026	June 24	2222	729	99	2222
Cigar trimming and marking machine.	N. Du Brul.	697,705	Apr. 15	2470	551	99	554
Cigar-wrapper-cutting-machine guide-plate.	K. Pinto.	701,228	June 3	127	40, 41	99	2042
Cigar-wrapping machine. Cutting and pasting device for.	F. D. Bostle.	700,010	May 13	1702	222	99	1222
Cigarette-machine.	J. C. Hansen-Ellhammer.	700,040	May 13	1702	402	99	1221
Cigarette-machine.	J. C. Hansen-Ellhammer.	702,206	June 10	1022	374	99	2222
Cigarette-machine.	H. C. Beckendorn.	702,202	June 10	1070	375	99	2222
Cigarette-machine.	F. J. Ludington.	700,222	May 27	2224	227	99	1222
Cigarette-machine. Continuous.	F. Suckner.	700,222	May 27	2227	222	99	1227
Cigarette-making machine.	H. Thron.	697,222	Apr. 8	1222	222	99	227
Cinnamic ether of cinchona alkaloids.	W. E. Pimlott.	697,522	Apr. 15	2145	427	99	427
Circuit-breaker.	H. P. Ball.	699,022	Apr. 29	2122	622	99	122

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Circuit-breaker	R. P. Rucker	701,081	June 3	606	122	90	2886
Circuit-closer safety device	F. Mackintosh	697,794	Apr. 15	2517	151	90	554
Circuit-controller	E. H. Hawlett	697,144	Apr. 8	1428	280	90	285
Circuit-controller	J. J. Ghegan	697,384	Apr. 15	2884	500	90	604
Circuit-controller	E. Herman	698,088	May 13	1613	300	90	1261
Circuit-controller	E. W. Vogel	700,082	June 24	2808	795	90	2828
Circuit-interrupter. Automatic	D. M. Moore	702,318	June 10	1848	481	90	2504
Circuits. Regulator for alternating current	C. P. Steinmetz	700,947	May 27	8408	703	90	1987
Clamp:							
See Beach-clamp. Rope-clamp.							
Drapery-frame. Sash-cord clamp.							
clamp. Saw-clamp.							
Keying-clamp. Saw-handle clamp.							
Ball-clamp. Screw-clamp.							
Ball-block clamp. Stake-clamp.							
Rock-drill clamp. Tube-clamp.							
Clamp	C. R. Davis	698,911	May 13	1580	251	90	1505
Clamp	J. Fellows	702,416	June 17	2088	487	90	2866
Clamp for washbowls, &c.	E. S. Duffy	696,428	Apr. 1	55	16	90	15
Clamping device for work-benches	H. G. G. G.	697,473	Apr. 15	2043	451	90	479
Clamping-wrench	R. A. Breul	696,405	Apr. 1	22	4	90	1
Clasp:							
See Garment-clasp. Rope-clasp.							
Garment-supporter. Skirt-clasp.							
clasp.							
Clasp	G. B. Adams	699,185	May 6	1	1	90	1177
Clasp	C. A. Bryant	702,771	June 17	2788	685	90	2707
Clay hydraulic pipe, vases, crockery-ware, &c.	L. Millet	697,843	Apr. 15	2840	584	90	580
Strengthening							
Clay. Working	R. H. Staley	701,957	June 10	1804	274	90	2876
Cleaner:							
See Baking-cup cleaner. Fire-cleaner.							
Boiler-cleaner. Paper-cleaner.							
Boiler-tube cleaner. Pipe and fire cleaner.							
Bottle-cleaner. Shoe-cleaner.							
Car-seat cleaner. Sive-cleaner.							
Feed-water cleaner. Window-cleaner.							
Cleat. Sheet-metal fastening	F. E. Heinig	698,311	May 6	345	80	90	1844
Cleat. Sheet-metal fastening	F. E. Heinig	701,367	May 27	4109	597	90	2034
Clevis	J. H. Chidister and W. Turk	701,540	June 3	408	104	90	2828
Clevis	W. M. Oriswold	702,000	June 24	2828	755	90	2827
Clevis for plows, &c.	E. Hall	698,987	Apr. 29	4851	1070	90	1097
Clip:							
See Spring-clip. Whirliness-clip.							
Clip	P. H. Yawman	702,588	June 17	2828	518	90	2610
Clip and lap-link. Combined	P. H. De Rochemont	701,808	June 3	287	108	90	2828
Clipper	H. F. Werk	701,058	June 3	602	150	90	2828
Clipper. Hair	C. H. Rodman	698,084	Apr. 22	2105	628	90	708
Clipper. Hair	H. E. McKinley	701,601	June 3	580	127	90	2828
Clipper. Hair	J. A. McCollum	701,871	June 3	187	24	90	2147
Clipper or shearing-tool	J. K. Stewart	698,073	Apr. 22	2125	680	90	715
Clock chiming mechanism	T. J. Fox	698,808	May 6	287	75, 76	90	1241
Clock. Electric	K. Meyer	698,988	Apr. 29	4880	1080	90	1112
Clock. Electric	F. Frick	702,900	June 10	1814	414	90	2428
Clock. Electric program	J. O. Lyman	702,808	June 17	2755	648	90	2728
Clock-frame	W. H. Stevens	702,504	June 24	2828	678	90	2848
Clock-key holder. Watchman's	A. Beyer	697,095	Apr. 8	1810	282	90	297
Clock-movements for starting or stopping machinery. Apparatus actuated by	J. S. Sunderland	702,028	June 17	2827	687	90	2872
Clock-pendulum	D. W. Thompson	702,080	June 24	2801	727	90	2828
Clock. Secondary electric	S. P. Thrasher	700,464	May 20	2828	670	90	1747
Clock striking mechanism	H. M. Hunt	698,287	May 6	438	112	90	1277
Clock striking mechanism	A. Tomek	700,468	May 20	2827	621	90	1740
Clock-synchronizer. Electric	C. F. Mears	702,000	June 17	2828	678	90	2828
Clock-winding mechanism. Electric	A. Tuerk	698,128	Apr. 22	2125	725	90	754
Closet-bowls. Waste-pipe connection for	A. Dellamore	699,497	May 6	701	168	90	1282
Closure	C. Puddfoot	701,085	May 27	2828	680	90	2817
Cloth-blank-folding machine	C. H. Knapp	699,192	May 6	114	30	90	1128
Cloth-cutter	R. E. Love	699,300	May 6	281	119	90	1282
Cloth-cutter	S. Geary	702,798	June 17	2755	684	90	2712
Cloth-cutting machine	F. Dodge	698,908	Apr. 29	4880	1080	90	1087
Cloth-cutting machine	J. R. Baird	702,088	June 24	2824	744	90	2827
Cloth. &c. Device for unrolling	H. L. Rosenthal	702,808	June 17	2815	647	90	2728
Cloth-drying machines. Electric alarm for	J. F. Bannan	701,348	May 27	4199	949	90	2077
Cloth folding and rolling machine	I. Cohen	698,428	Apr. 29	2828	654	90	688
Cloth, leather, &c. Means for cutting	H. E. Musgrave and G. A. Barnes	698,904	Apr. 29	4842	1084	90	1112
Clothes-drier	H. C. and J. F. Evered	701,088	June 3	745	194	90	2844
Clothes-drying apparatus	J. Williams	701,977	June 10	1820	288	90	2828
Clothes-line	A. A. Woodyatt	699,725	May 13	1171	278	90	1425
Clothes-line	E. Imhof	702,928	June 24	2877	708	90	2735
Clothes-line and peg holder or clamp. Combined safety	T. Grundy	697,404	Apr. 8	1008	486	90	494
Clothes-line fastener	J. D. Muller	698,988	Apr. 29	4840	1088	90	1112
Clothes-line prop	W. O. Dayton	698,308	Apr. 22	2125	685	90	840
Clothes-line reel	I. I. Edgerly	698,477	Apr. 29	2800	621	90	828
Clothes-line reel and stretcher	C. O. Anderson	700,008	May 13	1608	286	90	1282
Clothes-pin. Wire	L. Lato and W. Thrill	700,308	May 20	2130	488	90	1445
Clothes-pouder	S. B. Tadlock	702,508	June 17	2827	687	90	2828
Clothes-rack	O. P. Callahan	701,730	June 3	608	208	90	2828

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Clothes-wringer	C. P. Pearson	700,000	June 24	579	728	90	2617
Clutch	H. L. Henderson	697,900	Apr. 8	1444	345	90	245
Clutch	F. L. Smith	697,900	Apr. 25	2489	685	90	244
Clutch	W. H. Corbett	697,910	Apr. 15	2081	687	90	245
Clutch	R. Dysterud	698,461	May 6	941	147	90	1800
Clutch	M. C. Johnson	698,474	May 12	1482	366	90	1491
Clutch	M. H. Fletcher	700,419	May 20	2650	384	90	1770
Clutch	D. L. Winters	700,675	May 27	2449	708	90	1705
Clutch	J. French	699,370	May 6	471	111	90	1271
Clutch and stop mechanism	A. E. Norris	697,371	Apr. 8	1686	371	90	373
Clutch, Friction	J. Hall	698,118	Apr. 20	2040	708	90	130
Clutch, Friction	M. Campbell	698,447	May 6	997	139	90	1304
Clutch, Friction	H. Smith	701,908	June 10	1198	278	90	2674
Clutch, Magnetic	F. L. Sessions	701,909	May 27	2697	777	90	1908
Clutch, Magnetic	H. W. Buck	701,910	June 3	32	5	90	2118
Clutch-operating device	G. L. Holmes	698,972	Apr. 8	1126	228	90	281
Clutch-operating mechanism	H. C. Murphy	700,088	May 20	2685	674	90	1813
Clutch, Pneumatic-hammer	A. R. Lamplugh	699,681	May 13	1479	340	90	1484
Clutch, Speed-regulating	A. R. Lamplugh and H. Levi	699,682	May 13	1480	340	90	1485
Coal, coke, &c. Apparatus for washing	C. Burnett	700,735	May 27	2179	726	90	1280
Coal-crusher	A. W. F. Steckel	700,800	June 17	2648	678	90	2728
Coal, &c. Machine for washing	F. R. Wilson, Jr.	700,907	June 17	2698	681	90	2735
Coal-separator	W. J. Hamilton	700,954	June 24	2645	686	90	2609
Coaster-brake, Vehicle	R. E. Hammer	697,287	Apr. 8	1767	365	90	260
Coaster, Lays	H. G. Ralya	698,567	May 6	980	126	90	1845
Coast	J. De Mayo	698,568	May 6	980	126	90	1846
Coast-book, Safety	O. C. Schulz	697,753	Apr. 15	2550	567	90	571
Coast-book, Safety	W. C. Barton and C. F. Hanson	697,754	Apr. 15	2551	577	90	568
Coasting-machine	G. A. Breeze	698,619	May 6	915	113	90	1264
Coasting-machine, Apparatus for	J. H. Williams	698,620	Apr. 15	2526	685	90	620
Cock adjuster for air-brakes, Angle	W. S. De Camp	698,621	Apr. 15	2527	685	90	164
Cock, Ball	F. F. Flagg	700,316	May 20	2699	641	90	1604
Cock for liquids, Measuring and registering	F. W. Hughes and L. Campbell	697,844	Apr. 15	2513	608	90	628
Cock, Gas stop	M. R. Colvin	698,007	Apr. 20	2608	685	90	1608
Cock, Spring compression	E. O. Hodges	698,494	Apr. 1	76	16	90	21
Coffee, &c. Apparatus for making	F. W. Dalling	698,495	May 6	943	126	90	1880
Coffee, Apparatus for the treatment of	H. S. Maxim	701,780	June 3	343	126	90	2385
Coffee-berry-cleaning apparatus	W. A. Hastings and M. J. Harrington	700,987	May 20	2686	645	90	1697
Coffee, Machine for the torrefaction of	F. C. Thiel	698,496	May 6	977	181	90	1264
Coffee, Means for roasting	E. Boyes	697,190	Apr. 8	1468	313	90	219
Coffee-pot	F. N. Wilcox and J. S. Gallenle	698,604	May 6	901	110	90	1261
Coffee-pot	C. E. Ziegler	700,120	June 10	1517	349	90	2438
Coffee-roasting apparatus	R. Bennett	698,948	Apr. 20	2648	708	90	750
Coffee-roasting apparatus	V. O. Burel, G. Randon, and G. Remy	698,445	Apr. 20	2644	647	90	573
Coffin-protector	S. L. Black and H. P. Bunker	698,707	Apr. 1	598	194	90	120
Cog-wheel	F. Saxon	702,747	June 17	2674	615	90	2696
Cohesive	H. Shoemaker	700,708	May 20	2607	708	90	1680
Coin-controlled apparatus	A. W. Havens	702,068	June 24	2680	755	90	2690
Coin-controlled machine	W. W. Rosenfield	701,940	June 10	1172	360	90	2690
Coin-delivery device	J. M. Butcher	697,290	Apr. 8	1680	431	90	400
Coin-delivery machine	A. M. Crothers	700,306	May 20	2681	685	90	1681
Coin-delivery machine	E. J. Brandt	702,174	June 24	2601	606	90	2673
Coin-delivery machine	E. J. Brandt	702,175	June 24	2602	606	90	2674
Coin-freed apparatus for delivering sweets, &c.	E. A. Jeffreys	697,148	Apr. 8	1440	322	90	280
Coin-freed apparatus for sale of stamps, tickets, &c.	E. Uehrmann	698,611	Apr. 1	368	92	90	25
Coin-holder or bank, Pocket	E. E. English	702,328	June 10	1808	413	90	2405
Cola, Apparatus for the manufacture of	P. Naef	701,519	May 27	2678	687	90	2387
Cola-loading apparatus	S. T. and C. H. Wellman, J. W. Seaver, and T. R. Morgan	698,985	Apr. 20	2674	764	90	726
Collapsible box	H. H. Kinney	698,481	Apr. 1	104	34	90	97
Collapsible box	A. Stibiger	698,508	Apr. 20	2645	685	90	919
Collapsible box	F. English	701,217	June 3	70	15	90	2128
Collapsible box	M. J. Locke	701,204	June 10	1110	264	90	2696
Collapsible box, &c. Machine for folding	J. M. Hjermstad	701,200	June 10	1080	241	90	2646
Collapsible box, &c. Machine for folding	A. G. Couch	698,181	May 6	44	13	90	1108
Collapsible box, &c. Machine for folding	G. H. Wilson	698,080	Apr. 20	2638	1114	90	1125
Collapsible box, &c. Machine for folding	N. G. Denton	700,046	June 24	2654	743	90	2531
Collapsible box, &c. Machine for folding	B. S. Nichols	699,247	May 13	1400	388	90	1470
Collapsible box, &c. Machine for folding	E. L. Brundage	699,143	May 6	31	9	90	1180
Collapsible box, &c. Machine for folding	H. A. Mann	700,708	May 27	2607	708	90	1680
Collapsible box, &c. Machine for folding	A. R. Gustafson	701,718	June 3	735	174	90	2673
Collapsible box, &c. Machine for folding	A. R. Gustafson	701,719	June 3	736	175	90	2674
Collapsible box, &c. Machine for folding	A. F. Sanford	702,467	June 17	2190	500	90	2686
Collapsible box, &c. Machine for folding	M. Lange and T. Emilievics	702,445	June 17	2108	490	90	2677
Collapsible box, &c. Machine for folding	T. J. Younglove	697,810	Apr. 8	1787	365	90	267

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Comb.	See Currycomb						
Combining and shearing machine. Combined	S. W. Kaplan	698,470	May 6	638	181	90	1811
Combining-machine comb	I. Hay	702,300	June 10	1800	415	90	2680
Combining-machine comb	I. Hay	702,301	June 10	1810	414	90	2680
Combining-machine comb	I. Hay	702,302	June 10	1811	415	90	2680
Combination-lock	W. J. Nield	697,951	Apr. 15	2067	587	90	268
Combination-lock	W. H. S. Moore	698,545	May 18	1897	587	90	1470
Combined or laminated material	J. T. Johnson	698,567	Apr. 1	814	72	90	71
Combustion. Fluid for promoting	T. Battistini	700,868	May 27	2472	728	90	1940
Combustion-producing apparatus	L. D. West	698,907	Apr. 20	2610	614	90	941
Communication-service, Individual	C. P. Harris	697,947	Apr. 8	1607	380	90	260
Commutator	H. D. Priest and G. L. Schermerhorn	698,498	Apr. 1	171	41	90	41
Commutator-segment	W. H. Windle	702,378	June 10	1818	408	90	2680
Commutator-trimming apparatus	J. Phillips	698,479	Apr. 1	158	37	90	26
Compass and great-circle-course projector, Stellar	R. T. Lawless	702,180	June 24	2628	768	90	2628
Compass, Stunacle	J. Paoli	701,287	June 10	1148	268	90	2628
Compass errors. Device for correcting	J. Christensen	698,480	May 6	919	140	90	1808
Composing-machines, Differential letter-space reg- ister for	G. A. Goodson	698,730	Apr. 1	427	144	90	180
Composing tabular matter. Machine for	H. C. Isdahl	700,380	May 20	2680	646	90	1688
Composition of matter	G. L. de Lanchester	702,180	June 10	1844	408	90	2644
Composition of matter	T. O. Paine	702,151	June 24	2628	768	90	2672
Composition of matter and preparation of same	W. Frampolini	702,075	June 17	2640	618	90	2671
Compound engine	W. Hopkins	700,900	May 27	2686	617	90	1687
Compound or multiple-cylinder engine	L. Kling	700,900	May 27	2686	617	90	1771
Compress and packer	J. E. Griffin and S. C. Anderson	702,301	June 10	1800	371	90	2687
Concentrator	W. H. Sullivan	698,913	Apr. 1	1001	288	90	311
Concentrator	M. D. Rockford	698,797	Apr. 20	2644	686	90	1005
Concrete and metal skeleton for building purposes	O. Ruhl	700,448	May 20	2608	686	90	1744
Concrete column	O. W. Norcross	701,377	June 3	170	37	90	2142
Concrete-conductor	W. W. Montgomery	702,378	June 10	1818	408	90	2680
Concrete-mixing apparatus	C. T. Drake	698,622	May 18	1087	248	90	1408
Concrete-mixing machine	C. Otis	702,381	June 17	2640	618	90	2174
Concrete, &c. Mixing-machine for	W. B. Cavin	701,403	June 3	239	72	90	1800
Concrete structures. Mold for	C. F. Lancaster	698,485	May 6	943	218	90	1800
Condenser	F. Sargent	697,808	Apr. 15	2504	538	90	587
Condenser for steam motor-carriages	F. W. Turner	698,798	May 18	1147	306	90	1494
Condensing apparatus	K. R. Edson	698,798	May 18	1147	306	90	1494
Condensing system, Steam	J. D. McRae	700,988	May 20	2686	646	90	1688
Condiment	T. L. Healy	701,087	May 27	2670	561	90	580
Conductor system, Multiple	A. D. Lunt	697,798	Apr. 15	2510	53	90	2180
Conductors from non-conductors. Apparatus for separating	W. G. Swart and L. I. Blake	701,417	June 3	238	53	90	2180
Conduit	W. Houghdon	697,493	Apr. 15	2504	538	90	473
Conduit	C. D. Budd	698,908	Apr. 20	2644	686	90	1005
Conduit	T. J. Miller	701,314	May 27	2670	561	90	580
Conduit	C. A. W. Hultman	697,848	Apr. 15	2510	53	90	2180
Conduit for electric or like cables	F. Jones	698,787	Apr. 1	647	146	90	180
Conduit for underground conductors	W. F. Bossett	698,710	Apr. 1	601	136	90	180
Conduit outlet-box, Interior	W. F. Bossett	698,710	Apr. 1	601	136	90	180
Conduit outlet-box, Making	L. J. Bergdoll	697,414	Apr. 8	1788	387	90	330
Conduits. Means for inserting cords or the like into underground	J. T. Dickey	701,473	June 3	244	70	90	2180
Conduits with rubber in cement or liquid form. Ap- paratus for covering flexible	H. O. Kelllogg	698,687	May 13	1081	288	90	1411
Confectioner's molder or printer. Shear-motion	M. A. Smith	698,687	Apr. 20	2644	686	90	1005
Confectionery outlet	J. R. Carter	698,540	Apr. 1	820	95	90	6
Connecting device	I. Larson	698,598	May 6	918	119	90	1200
Connecting device	E. A. Burns	697,381	Apr. 8	1607	380	90	260
Contributing device	G. J. Klein	698,541	Apr. 20	2644	686	90	1005
Controller	T. von Zweigbergk	701,495	June 3	250	95	90	2173
Controller	T. von Zweigbergk	701,495	June 3	250	95	90	2173
Controlling device	T. P. Ford	701,701	June 3	728	160	90	2680
Conveyor	J. Oldham	697,874	Apr. 15	2572	618	90	480
Conveyor	G. W. Cross	698,688	Apr. 20	2644	686	90	1005
Conveyor	R. A. Zwoyer	698,578	May 6	927	64	90	1280
Conveyor	G. A. Brander	701,985	June 10	1828	418	90	2681
Conveyor	M. C. Schwab	702,115	June 10	1808	408	90	2680
Conveyor	J. H. Cook	702,428	June 17	2640	618	90	2681
Conveyor	A. J. Webster	702,304	June 17	2670	561	90	2677
Conveyor	C. W. Leavelle	702,305	June 17	2671	562	90	2677
Conveyor. Chain	J. C. Van Arsdale	701,340	June 10	1808	408	90	1204
Conveyor and support, Spiral	J. M. Dodge and A. D. Shaw	702,347	June 10	1808	408	90	2677
Conveyor feeding mechanism	A. M. Achin	702,356	June 10	1809	409	90	2677
Conveyor-light	J. M. Akers	698,681	Apr. 1	820	95	90	6
Conveyor, Pneumatic	R. G. Smith and J. H. Mathis	702,381	June 3	250	95	90	2173
Conveyors. Hanger coupling-bearing for screw	F. R. French	702,381	June 3	250	95	90	2173
Conveying apparatus	H. W. Amos and O. M. Goodwin	702,381	June 3	250	95	90	2173
Cooker and burner, Cake	T. J. Baskett	698,008	Apr. 20	2644	686	90	1005
Cooking apparatus, Stump	G. J. Hutchings	702,38					

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Cooler.							
See Cream-cooler.	Syrup-cooler.						
Milk-cooler.	Water-cooler.						
Cooler.	H. H. Buffum	708,177	June 24	3005	500	99	2380
Cooling and aerating device.	J. C. Miller	700,581	May 30	2729	600	99	1779
Cooling appliance.	T. B. Armstrong	700,005	May 13	1694	300	99	1587
Cooling-tower.	W. H. A. Hall and S. Lapham	698,013	Apr. 22	3023	057	99	606
Cooling-tub.	H. T. Myers	698,725	Apr. 22	4257	977	99	1028
Coop.	F. M. Steuterman	697,087	Apr. 5	1254	879	99	2408
Coop.	J. T. Zuka	702,044	June 10	1870	811	99	1919
Copier by wet method.	T. A. Irvine	699,009	Apr. 29	4933	000	99	1131
Copper from water.	A. J. Polmeteer	701,429	June 5	259	000	99	2181
Copper. Hardening.	S. L. Walter and F. W. Keiser	697,370	Apr. 8	1817	000	99	403
Copper-silver-sulfid ore. Treating.	D. P. Shuler	702,400	June 17	3190	501	99	2593
Copper ore. Apparatus for treating.	R. Seaman	702,344	June 10	1787	000	99	2459
Copper-water. Precipitant for treatment of.	J. H. McBride	701,339	June 3	577	185	99	2102
Copy-holder.	E. Sinclair	701,403	June 3	591	80	99	2107
Copying documents, drawings, &c. Apparatus for.	P. H. Yawman	701,447	June 3	595	94	99	2107
Copying-press. Roller.	M. Bernhard and R. T. Vent	698,947	Apr. 22	3494	708	99	790
Cords, &c. Fastener for ends of.	J. D. Harless	697,088	Apr. 5	1254	879	99	1294
Cord-bar. Collapsible.	R. L. Glover and A. Grabowski	698,935	May 6	355	32	99	1108
Cord-box cutter.	G. J. Hoskins	698,728	Apr. 22	4450	990	99	1014
Cord-making apparatus.	I. B. Thomas and F. Clare	698,707	Apr. 22	4454	998	99	1017
Cord-making machine.	G. H. Wadsworth and E. J. Sherwin	702,331	June 24	3700	485	99	2593
Corer and cutter. Fruit.	W. T. Acres	698,935	May 6	355	32	99	1108
Corer and seeder. Fruit.	A. Baumgarten	698,935	May 6	355	32	99	1108
Cork-extractor.	R. J. Williamson	697,597	Apr. 15	2886	499	99	507
Cork-extractor.	H. H. Ham	702,001	June 10	1895	805	99	2001
Cork-extractor.	R. B. Andros	701,791	June 3	911	805	99	2004
Cork-extractor.	J. Crosby	702,344	June 10	1787	000	99	2459
Corn husker and shredder and ensilage-cutter.	A. Rosenthal	701,387	June 3	590	45	99	2109
Corn-husking machine.	W. H. Gernand	702,720	June 17	3988	604	99	2606
Corn or grain dump and elevator.	J. Mabun and F. L. Hay	698,989	Apr. 22	3975	879	99	906
Corn-shock compressor.	I. B. Tryon	702,155	June 10	1898	801	99	2005
Corn-shock-loading device.	W. A. Tea	701,645	June 3	906	145	99	2048
Corn-shocker.	J. F. Steward	702,918	June 17	3411	580	99	2641
Corn, &c. Device for removing.	J. F. Allison	702,170	June 10	1818	808	99	2025
Cornstalk-cutter.	N. O. Krauss	697,510	Apr. 15	1549	347	99	540
Corn-stalk-trimming machine.	F. Latulip	697,723	Apr. 15	2510	800	99	508
Corner-post, transom-bar, or mullion.	F. Goldsmith	697,714	Apr. 15	2498	545	99	507
Corset.	J. J. Monahan	698,403	Apr. 1	128	32	99	84
Corset.	J. C. Andrews	698,188	Apr. 22	3940	780	99	755
Corset.	L. S. Foster	700,317	May 20	2771	541	99	1284
Corset.	A. E. Parsons	700,065	May 20	2515	547	99	1788
Corset and bust-form. Combined.	C. H. Schopbach	697,699	Apr. 15	2401	088	99	530
Corset-bust.	C. F. de Graess	702,191	June 24	3920	814	99	2607
Corset-fastening.	J. H. Wolcott	698,989	May 6	486	100	99	1294
Corset-stay-tipping machine.	M. D. Watrous	698,989	May 6	486	100	99	1294
Corset-stay.	A. A. Harvey	700,518	May 27	3028	810	99	1959
Corset-stay, &c. Socket for.	N. F. T. Hunt	702,553	June 17	3513	887	99	2681
Dot and tent. Combined folding.	D. I. Kuba	702,007	June 17	2896	884	99	2028
Ootton. Apparatus for unbalancing raw.	S. E. Roy and E. M. Marden	697,459	Apr. 15	2020	446	99	464
Cotton-chopper.	J. M. Grant	699,785	May 6	355	32	99	1108
Cotton-chopper.	W. R. Wilkinson	700,109	May 13	1679	437	99	1191
Cotton-chopper.	L. W. Wooten	701,448	June 3	597	104	99	2107
Cotton-chopper.	F. M. and L. E. Sharp	701,798	June 3	911	805	99	2004
Cotton-gin.	R. B. Lumpkin	701,814	June 3	940	810	99	2007
Cotton-gin. Roller.	C. J. McPherson	701,326	May 27	4109	987	99	2034
Cotton-machines. Covered roller for.	O. H. Hathaway and W. H. Spencer	698,535	Apr. 22	3927	888	99	906
Cotton-picker for forming mattress-bats.	J. W. Morgan	698,984	May 6	486	100	99	1294
Cotton-picker's sack.	J. H. Holmes	698,984	May 6	486	100	99	1294
Cotton-press.	S. M. Neely	698,048	Apr. 22	3070	578	99	703
Cotton-press.	A. D. Thomas	698,985	May 13	1571	261	99	1513
Cotton-press.	A. D. Thomas	698,987	May 13	1580	262	99	1513
Couch-frame.	J. Watkins	701,115	May 27	3336	808	99	2029
Couch-roll guard-board.	J. A. Connelly	700,125	May 13	1647	448	99	1529
Counterbalancing the momentum of reciprocating elements. Means for.	M. N. Forney	701,477	June 3	954	75	99	2109
Counter-guard-wall telescoping wicket.	E. B. Browne	698,546	Apr. 1	377	64	99	88
Counting apparatus.	R. W. Jorres	702,375	June 24	3977	846	99	2615
Coupling.							
See Air-brake coupling.	Pipe-coupling.						
Car coupling.	Pipe, &c. coupling.						
Car side coupling.	Pipe, shaft, &c. coupling.						
Detachable coupling.	Pump-rod coupling.						
Electric coupling.	Pump-tube coupling.						
Fluid coupling.	Railway-coupling.						
Fluid-pressure coupling.	Rod-coupling.						
Furniture-coupling.	Shaft-coupling.						
Hose-coupling.	Thill-coupling.						
Junction-box coupling.	Whistle-coupling.						
Wire-coupling.							
Coupling and nipple for outlet or junction boxes.	M. F. Whiton	701,114	May 27	3391	808	99	2029
Couplings. Yoke and draft-bar for.	R. Morris	700,397	May 20	2441	527	99	1710

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Cover. Cooking-utensil	H. E. Hardy	700,784	May 27	3044	748	99	1904
Cover for tumblers, &c.	F. L. Johnson	700,028	May 20	2588	584	99	1581
Cover-wrench.	J. B. Erwin	700,728	May 27	3035	728	99	1903
Cow-tail holder.	W. H. Osburn	698,987	May 6	486	100	99	1294
Cracker, biscuit, or cake machine attachment.	D. W. Mannie	697,699	Apr. 15	2489	541	99	546
Cracker-machine.	J. Rosborough	702,923	June 17	3373	841	99	2593
Cranberry-sorting apparatus.	A. E. Nightingale	700,125	May 20	2049	488	99	1529
Cranberry-picker.	C. M. Hydenburgh	698,426	Apr. 22	3702	257	99	606
Crate and scaffolding.	S. T. Wellman, J. W. Seaver, and C. H. Wellman.	700,108	May 13	3017	481	99	1900
Crate. Hydraulic.	E. C. Wiley	697,738	Apr. 15	2618	551	99	546
Crate. Metallurgical.	D. W. Blair	697,699	Apr. 15	2489	541	99	546
Crate. Portable.	G. F. Speer	698,738	Apr. 22	4519	960	99	1028
Crate. Animal.	H. M. Backus	702,330	June 24	3700	485	99	2593
Crate. Banana.	J. A. Davidson	698,426	Apr. 22	3702	257	99	606
Crate. Collapsible.	H. D. Bokop	700,317	May 20	2771	541	99	1284
Crate. Dog.	J. C. Porterfield	698,985	Apr. 22	4040	1099	99	1696
Crate. Egg.	H. J. Hagedstad	698,107	Apr. 22	3187	1184	99	1188
Crate-fastener.	C. W. Hillenbrand	697,355	Apr. 5	1796	412	99	408
Crate. Folding.	A. J. Nolly	697,308	Apr. 15	2584	588	99	588
Crate. Folding.	R. J. Castorine	698,078	Apr. 22	3078	1182	99	1143
Crate. Folding.	R. B. Chrillon	700,774	June 27	3999	746	99	1900
Crate. Folding.	W. O. Holmes	702,337	June 10	1717	289	99	2478
Crate for poultry. Folding.	C. E. McCullough	702,411	June 17	3940	485	99	2604
Crate. Knockdown.	A. F. Dice	701,384	June 10	1891	219	99	2039
Crate. Shipping.	B. K. Boyd	700,938	May 27	3064	841	99	1978
Crate. Supporting frame for the construction of open cylindrical.	W. B. Williams	698,080	Apr. 22	3115	605	99	710
Cream-cooler. Automatic.	F. Schmitz	700,148	May 13	1980	457	99	1585
Cream-separator.	M. E. Miller	697,618	Apr. 15	2591	518	99	518
Cream-separator.	A. D. Ellis	697,645	Apr. 15	2584	585	99	585
Creamer. Centrifugal.	C. L. Morris	697,170	Apr. 8	1477	381	99	388
Creaming-can.	H. Beck and A. Borsu	698,699	Apr. 22	4040	1099	99	1696
Creaming or incinerating human bodies. Furnace for.	F. J. Gleason	697,946	Apr. 15	2589	680	99	644
Creamator. Refuse.	R. O. Kuehn	698,985	May 6	486	100	99	1294
Cream-tie. Metallic.	R. Robinson	697,980	Apr. 8	1707	381	99	388
Cream-tie, track-fastening, and rail-joint. Combined.	J. J. Wagoner	698,979	Apr. 8	1747	385	99	388
Crusher.	G. L. Kimberly						
See Coal-crusher.	Ore-crusher.						
Grain-crusher.							
Crusher.	A. G. Morris	698,980	Apr. 22	4040	1099	99	1696
Crushing-roll drive mechanism.							
Cue. Game.	A. M. Aikin	697,311	Apr. 8	1789	385	99	388
Cue-holder.	A. J. Gray	701,324	May 27	4168	960	99	2028
Cue-holder.	F. Cummings	697,328	Apr. 8	1785	388	99	388
Cue-holder.	E. Seader	698,149	Apr. 22	3905	734	99	740
Cue-holder.	W. C. Cortelyou	698,937	May 6	486	100	99	1294
Cue-holder.	W. Thurman (Belmont)	11,008	May 20	2129	718	99	1807
Culinary vessel.	W. Thurman	700,385	May 20	2897	578	99	1785
Culin er and separator.	L. Ambler	698,941	Apr. 1	129	198	99	177
Cultivator.	J. T. Bender	698,988	Apr. 1	417	97	99	91
Cultivator.	G. G. Jones	697,089	Apr. 8	1885	398	99	398
Cultivator.	G. T. Willis and J. Forteous	697,089	Apr. 15	2073	459	99	475
Cultivator.	T. D. Terry	698,188	Apr. 22	3945	740	99	770
Cultivator.	R. W. Henry	698,523	Apr. 22	4089	988	99	918
Cultivator.	W. G. Scott	698,198	Apr. 22	3945	740	99	770
Cultivator.	O. R. Baldwin	698,018	Apr. 22	4581	960	99	1028
Cultivator.	W. C. Evans	698,018	Apr. 22	4581	1028	99	1116
Cultivator.	J. A. McClung	698,028	Apr. 22	4646	1085	99	1116
Cultivator.	J. A. Betts	699,185	May 6	527	7	99	1181
Cultivator.	E. Children	698,440	May 6	610	189	99	1301
Cultivator.	M. J. Todd	700,379	May 20	2884	655	99	1794
Cultivator.	W. J. Wiswall	700,379	May 27	3480	708	99	1986
Cultivator.	J. B. Bartholomew	701,028	May 27	3039	845	99	1929
Cultivator.	J. B. Bartholomew	701,024	May 27	3036	845	99	1929
Cultivator.	J. B. Bartholomew	701,025	May 27	3039	846	99	1929
Cultivator.	J. B. Bartholomew	701,026	May 27	3044	846	99	1929
Cultivator.	J. B. Bartholomew	701,027	May 27	3047	847	99	1929
Cultivator.	J. B. Bartholomew	701,028	May 27	3050	848	99	1929
Cultivator.	J. M. Talbert	701,419	June 3	943	54	99	2107
Cultivator.	M. Shaw	701,360	June 10	1701	273	99	2078
Cultivator.	T. A. Warner	701,373	June 10	1708	281	99	2081
Cultivator.	E. H. Bonebrake	702,028	June 24	3941	745	99	2593
Cultivator and weed-cutting.	J. H. Thompson	698,535	Apr. 22	3927	888	99	906
Cultivator-arch. Adjustable.	C. Christensen	697,077	Apr. 22	3077	1182	99	1143
Cultivator attachment.	F. D. Cook	697,464	May 6	527	7	99	1181
Cultivator. Best.	J. W. Shields	697,680	Apr. 8	1861	370	99	388
Cultivator. Core.	C. M. Carlson	700,017	May 13	1710	388	99	1549
Cultivator for filter distributing attachment.	G. Tannabill, Jr.	697,119	Apr. 5	1381	308	99	417
Cultivator. Hand.	A. E. Williams	698,728	May 13	1165	371	99	1489
Cultivator. Lister.	A. Lindgren	700,385	May 20	2899	659	99	1794
Cultivator. Rotary.	J. Scott	701,313	June 3	413	94	99	2107

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Cultivator-shovel.	T. H. Smith.	997,597	Apr. 15	2997	281	99	689
Cultivator. Two-row.	L. Kirkin.	700,397	May 30	3409	649	99	1703
Cultivator winder attachment.	E. P. Clapp.	701,844	June 10	1008	284	99	2284
Cup.							
See Oil-cup.	Test-cup.						
Curbstone.	J. E. Bodek.	693,792	Apr. 1	705	171	99	180
Card-cutter.	J. Lambie.	702,105	June 10	1459	225	99	2439
Carrier. Hair.	H. E. M. and D. J. L. Steiner.	693,378	Apr. 30	4033	93	99	689
Current collecting or trolley poles. Pivot connection of.	P. McCullough, T. Blanny, and M. Barou.	700,544	May 30	2923	649	99	1704
Current meter. Alternating.	F. Schrottki.	697,671	Apr. 15	3444	294	99	549
Current meter. Alternating.	G. Stern.	697,785	Apr. 15	3535	295	99	372
Current meter. Alternating.	G. Stern.	697,785	Apr. 15	3535	295	99	372
Current meter. Alternating.	T. Duncan.	693,934	Apr. 30	4293	141	99	930
Current meter. Alternating.	T. Duncan.	693,935	Apr. 30	4277	947	99	937
Current meter. Alternating.	T. Duncan.	693,936	Apr. 30	4284	947	99	936
Current meter. Alternating.	T. Duncan.	693,970	Apr. 30	4293	949	99	970
Current meter. Alternating.	T. Duncan.	693,971	Apr. 30	4293	949	99	971
Current meter. Alternating.	T. Duncan.	693,973	Apr. 30	4297	950	99	973
Current meter. Alternating.	T. Duncan.	693,974	Apr. 30	4293	951	99	973
Current meter. Direct.	T. Duncan.	693,998	Apr. 30	4293	949	99	998
Current motor.	W. L. Walter.	701,490	June 3	383	23, 25	99	2141
Current motor.	W. L. Walter.	702,353	June 24	3222	679	99	3045
Current motor. Alternating.	F. Schrottki.	697,670	Apr. 15	3403	284	99	539
Current regulator. Alternating.	T. E. Adams.	699,035	Apr. 30	3044	1116	99	1137
Currycomb.	C. E. Horshberger.	693,946	Apr. 30	4293	1078	99	1029
Currycomb.	C. P. Breining.	693,336	May 6	480	108	99	1817
Curtain and drapery bracket.	D. and W. H. McCarthy.	693,946	Apr. 30	4293	1064	99	1029
Curtain-bracket.	E. L. Burns.	693,795	Apr. 30	4540	1064	99	1029
Curtain-fastener.	A. M. Shauk.	701,630	June 3	642	141	99	2243
Curtain-fixture.	W. H. Bongart.	693,404	Apr. 1	21	6	99	7
Curtain-fixture.	A. E. W. Duffield.	697,323	Apr. 15	3574	284	99	539
Curtain-fixture.	A. Leach.	700,361	May 30	3364	284	99	1323
Curtain-fixture.	J. Jordan, Jr., and P. J. Egan.	701,570	June 3	381	116	99	2216
Curtain-fixture.	J. Burley.	702,537	June 17	3277	519	99	2214
Curtain-hanger.	A. F. Goshorn.	702,430	June 17	3223	499	99	2243
Curtain-holder.	G. Hoyer.	700,149	May 13	1973	654	99	1293
Curtain or shade fixture.	F. E. Sirokolomb.	702,337	June 17	3223	500	99	2273
Curtain-pole.	J. Ansel.	693,594	Apr. 1	323	87	99	87
Curtain-pole.	G. Pooschmann.	693,971	May 13	1941	579	99	1293
Curtain-pole.	L. J. Graff.	702,793	June 17	3234	606	99	2293
Curtain-pole and hanger.	H. J. Roberts.	701,517	June 3	364	211	99	2203
Curtain-pole or rod.	E. C. Phillips.	702,314	June 24	3631	593	99	2293
Curtain-pole ring.	G. Erlich.	699,597	May 6	415	195	99	1294
Curtain-rod.	M. P. Creahan.	702,707	June 17	3230	593	99	2294
Curtain rod. Back.	L. Prioleux.	693,333	Apr. 30	3451	745	99	731
Curtain-stretcher.	F. Viollette.	697,905	Apr. 15	3449	546	99	549
Curtain-stretcher.	H. E. Howard.	699,635	May 13	1973	351	99	1419
Curtain-stretcher.	C. G. Carlson.	701,014	May 27	3717	399	99	1901
Curtain support. Adjustable window.	C. P. H. Cook.	702,325	June 10	1793	410	99	2493
Cushion.							
See Billiard-table cush. Spring-cushion.							
Cushion-making machine.	G. Buckman.	702,540	June 10	1897	433	99	2513
Cushion-stuffing device.	E. E. Berry.	702,095	June 24	3229	745	99	2293
Cushion, water-bag, and fountain-syringe. Combined.	J. P. Schae.	693,551	Apr. 30	4719	1099	99	1099
Cuspidor.	E. L. and W. H. Cadwell.	701,391	June 3	323	55	99	2113
Cut-out. Automatic.	C. P. Steinmetz.	701,355	June 10	1203	374	99	2073
Cut-out.							
See Band-cutter.	Glaze-cutter.						
Band-cutter.	Linoleum-cutter.						
Button-cutter.	Mat-cutter.						
Button-hole-cutter.	Milling-machine cutter.						
Cheese-cutter.	Peg-cutter.						
Cigar-cutter.	Pipe-cutter.						
Cloth-cutter.	Notary cutter.						
Confectionery-cutter.	Stalk-cutter.						
Cornstalk-cutter.	Thread-cutter.						
Curd-cutter.	Tobacco-cutter.						
Fine-cutter.	Tube-cutter.						
Food-cutter.	Wire-cutter.						
Cutter.							
Cutter. Bar.	F. L. Levy.	701,021	May 27	3793	389	99	2093
Cutter-guard doffer.	D. E. White.	697,050	Apr. 5	1373	323	99	1393
Cutter-head.	H. E. Irwin.	700,593	May 27	3229	389	99	2093
Cutter-head.	N. Ely.	693,724	Apr. 30	4700	179	99	121
Cutter-head.	N. Ely.	693,921	Apr. 30	4293	901	99	917
Cutter-head.	E. S. Shimer.	713,373	June 24	3714	949	99	2915
Cutter-head.	G. Johnson, Jr.	700,532	May 30	3711	644	99	1739
Cutter-head bit.	H. A. Pardoe and E. S. Shimer.	697,333	Apr. 15	2130	475	99	497
Cutting edges of implements. Rendering sharp and even.	O. Newhouse.						
Cutting-machine and cutting-table and pattern therefor.	G. Scott and E. D. Weyburn.	693,064	Apr. 25	2129	697	99	713
Cutting-tool.	S. Welter and J. Armstrong.	700,935	May 27	3423	389	99	1993
Cyanid-tank.	J. J. Harvey.	693,019	Apr. 23	3297	1097	99	994
Cyanide. Making.	J. D. Darling.	693,493	Apr. 25	2572	389	99	994

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Cyanide Making	G. Ottermann	701,504	June 8	588	128	99	2280
Cycle Motor	W. H. Munn	700,151	May 12 1904	443	129	99	1086
Cycle-motor driving apparatus	H. J. Lawson	700,330	May 20	5181	426	99	1647
Cycle-propelling mechanism	C. Olson	701,781	June 8	800	180	99	2628
Cycle-saddle	J. R. Brooks and J. Holt	699,987	Apr. 22	2601	515	99	930
Cycle. Clamp particularly adapted for securing fittings to the frames of	P. H. R. Embrook	702,180	June 10	1225	289	99	2428
Cycle, motor-car, &c. Brake mechanism for	G. E. Bennett	702,287	June 8	1890	422	99	2611
Cycling. Construction of courses or tracks for	O. H. Jones	701,545	June 8	132	99	99	2126
Damper	C. O. Latham	697,322	Apr. 8	1035	299	99	269
Damper	E. M. McCleary	700,388	Apr. 30	4945	1025	99	1116
Damper	R. Winter	700,388	May 20	2284	578	99	1725
Damper-controller	D. H. Darrin	697,705	Apr. 15	2428	551	99	269
Damper. Fireplace	E. Shaw	697,592	Apr. 15	2608	395	99	268
Damper-operating mechanism	E. B. Caboose	698,005	Apr. 30	4591	1015	99	1048
Damper. Stove	W. G. Montgomery	702,215	June 10	1325	419	99	2502
Damper. Time-controlled	R. A. Kerr	690,580	May 6	879	99	99	1261
Damping apparatus	G. Staber	701,622	June 24	2251	770	99	2621
Dandy-rod cleaner	W. W. Weaver and L. H. Sanford	697,322	Apr. 8	1716	322	99	308
Dash-pot	W. A. Haywood	697,145	Apr. 8	1485	380	99	225
Dash-pot	M. R. Moore	697,044	Apr. 15	2251	385	99	225
Devil or boat-lowering device. Ship's	P. O. Johnson	701,077	May 27	3777	685	99	2004
Deborating instrument	J. G. Brown	700,195	May 20	2028	459	99	1650
Delivery mechanism	G. F. Bond	700,222	May 20	2154	502	99	1620
Demagnetiser	G. Bostig	699,692	May 12	1480	380	99	2249
Dental apparatus. Switch for electromotors for driving	E. Schreier and H. Dümmler	701,287	June 3	988	140	99	2628
Dental appliance	G. H. Claude	697,322	Apr. 8	1745	380	99	225
Dental appliance	H. E. Landes	702,205	June 17	2791	641	99	2781
Dental articulator	J. Timm and C. E. Bentley	695,774	Apr. 1	723	184	99	154
Dental articulator	M. M. Kerr	690,954	Apr. 30	4391	1080	99	1105
Dental bridge-work. Securing device for	W. E. Griswold	702,571	June 17	2204	572	99	2745
Dental bar	F. F. Hawkins	702,025	June 24	2258	737	99	2628
Dental crown-sitting tool	G. W. Teufel	695,772	Apr. 1	731	182	99	154
Dental engine wall-brush	A. W. Browne	698,545	Apr. 1	875	84	99	26
Dental fastening and bridge-work	W. E. Griswold	702,571	June 17	2204	572	99	2745
Dental frame. Closing and locking device for	D. A. Baker	702,571	June 17	2204	572	99	2745
Dental impression-cup	W. E. Griswold	702,571	June 17	2204	572	99	2745
Dental instrument-tray	E. L. Townsend	699,770	May 18	1262	380	99	1445
Dental instrument	E. W. McConnell	699,907	Apr. 30	4947	1025	99	1116
Dental instruments. Support and switch for electric	E. O. Pieper	702,075	June 10	1445	384	99	2428
Dental lathe	J. J. Brown	698,712	Apr. 1	605	126	99	121
Dental mallet	J. W. Thatcher	700,180	May 12	2012	461	99	1800
Dental matrix	W. Greenhaw	701,790	June 8	821	205	99	2601
Dental obturator	A. F. Morrison, Jr.	700,222	May 27	2419	735	99	1980
Dental plates. Casting	W. E. Griswold	702,571	June 17	2204	572	99	2745
Dental tool	J. E. Griswold	701,515	June 8	800	181	99	2284
Dental tool for fitting cap-crowns	C. J. Reynolds	699,693	May 12	1012	265	99	1267
Dental vulcaniser	J. E. Campbell	697,592	Apr. 30	2978	657	99	2628
Denture. Artificial	E. E. Weaver	701,975	June 10	1236	362	99	2475
Derriek	J. H. Lohner	702,287	June 10	1700	385	99	2287
Derriek-frame and joint-coupling therefor	A. Lutz	701,906	June 10	1113	308	99	2287
Derriek. Portable							
Designs. Apparatus for producing repeat-	H. Mackintosh	699,977	Apr. 1	906	210	99	191
Desk	W. J. McDevitt	697,592	Apr. 8	1646	389	99	270
Desk and seat. Adjustable	C. H. Woodard	699,980	May 12	1585	393	99	1515
Desk. Cabinet	W. J. Copeland	700,174	May 20	2009	472	99	1694
Detachable coupling	H. M. Stargis	698,513	Apr. 1	908	210	99	191
Detector							
See Time-detector.							
Detector-bar clip and stop.	J. Chalmers, Jr.	698,451	Apr. 20	2680	588	99	691
Detergents. Making	O. Bamberg	700,028	May 20	2-08	99	99	2620
Detonating composition	H. von Dahmen	700,028	Apr. 10	1985	441	99	146
Detonating apparatus	L. A. Schlar	697,592	Apr. 15	2424	541	99	2628
Diamond-crown-cutting machine	G. Armesy	697,280	Apr. 8	1538	354	99	895
Diamonds in metal. Machine for setting	J. Brejcha	700,122	May 12	1967	446	99	1285
Dye							
See Brick-machine die. See-Brick.							
Fork-making die.							
Diffusing vaporisable substance. Apparatus for digger	J. D. Campbell and W. H. Yates	698,928	May 12	1011	285	99	1287
Dig							
See Post-hole digger. See-Post-digger.							
Dine. Protecting	W. A. Keyes	699,395	May 6	514	99	99	1291
Distor	C. G. Gibson	702,708	June 17	2759	684	99	2715
Dimethylamine tartaric acid and making same	W. Sternberg	699,428	May 6	574	99	99	1292
Dipping-tank	W. Sternberg	702,125	June 10	1530	367	99	2428
Direct-acting engine	C. M. Henderson	698,084	Apr. 22	3121	610	99	797
Directory. Cabinet	T. Wrightson and J. Morison						
Directory, &c. Mechanical.	G. W. Maxwell	697,377	Apr. 8	1280	411	99	429
Directory. Mechanical.	G. W. Maxwell	697,376	Apr. 8	1280	410	99	428
Directory. Mechanical.	G. W. Maxwell	697,376	Apr. 8	1280	411	99	429
Directory. Mechanical.	G. W. Maxwell	697,376	Apr. 8	1280	412	99	431
Directory. Mechanical.	G. W. Maxwell	697,376	Apr. 8	1280	412	99	431
Directory. Mechanical.	G. W. Maxwell	697,376	Apr. 8	1280	412	99	431

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr. & C.	Vol.	Page.
Directory. Mechanical.	G. W. Maxwell.	697,928	Apr. 8 1900	418	414	414	414
Dish-making machine.	C. Anderson.	698,928	Apr. 8 1900	1088	70	70	70
Dish-washer.	I. Ervin.	698,986	Apr. 1 1900	265	70	70	70
Disinfectant-powder. Making.	J. Rother.	701,080	June 8 1900	608	2138	2138	2138
Disinfectants. Making.	W. T. Kendrick and G. W. Dixon.	701,288	June 8 1900	188	708	708	708
Disinfecting apparatus.	E. Fournier.	698,100	Apr. 28 1900	2885	210	210	210
Disinfecting apparatus.	C. J. Wals.	708,041	June 10 1900	1281	84	84	84
Disinfecting device.	L. E. Jones.	701,426	June 8 1900	374	1181	1181	1181
Disinfecting device for sink-drains.	J. F. Seabury and C. Lutz.	698,988	May 13 1900	1688	281	281	281
Disinfecting fluid. Device for automatically distributing.	F. A. Martin.	708,987	June 14 1900	2885	90	90	90
Disintegrating-machine.	A. A. Dickson.	698,988	Apr. 1 1900	485	90	90	90
Disintegrating-machine.	J. M. MacDonald.	698,788	May 13 1900	1288	1218	1218	1218
Dispensing-apparatus drip attachment.	G. W. Boyd.	698,461	May 8 1900	678	187	187	187
Dispensing-apparatus drip attachment.	G. W. Boyd.	708,181	June 10 1900	1081	341	341	341
Display device.	J. K. Oney.	698,537	May 6 1900	504	1841	1841	1841
Display device. Necktie.	H. Runtz.	698,718	May 13 1900	1188	1419	1419	1419
Display device or exhibitor.	L. T. Bell.	701,280	May 27 1900	4181	981	981	981
Display-holder. Necktie.	H. Runtz.	701,948	June 10 1900	1178	981	981	981
Display of goods. Utensil for.	C. N. Heins.	698,948	Apr. 28 1900	4888	1078	1078	1078
Display-rack.	G. D. Seall.	701,518	June 8 1900	955	218	218	218
Display-rack and advertising device. Combined.	C. A. Shaffer.	708,085	June 10 1900	1281	308	308	308
Display-table. Jewelry.	J. P. Angell.	708,888	June 17 1900	878	1108	1108	1108
Distilling apparatus.	E. Jester.	698,988	Apr. 28 1900	4888	1078	1078	1078
Distilling apparatus.	J. S. Roake.	700,378	May 20 1900	2481	1717	1717	1717
Distilling apparatus.	J. S. Roake.	700,374	May 20 1900	2481	1717	1717	1717
Distilling apparatus. Water.	A. J. Chase.	697,918	Apr. 15 1900	2588	688	688	688
Distilling apparatus. Water.	E. K. Murphy.	698,794	Apr. 28 1900	4488	978	978	978
Distress-signal.	T. Coates.	701,108	May 27 1900	911	924	924	924
Dividing apparatus.	J. Gullmarin.	698,500	Apr. 1 1900	288	71	71	71
Dock. Land-reclaiming.	E. Chaquette.	708,697	June 17 1900	2488	381	381	381
Docking-machine. Steam.	A. R. Hill.	708,787	June 17 1900	2888	548	548	548
Door and frame for air-tight chambers.	H. P. Stevenson.	697,688	Apr. 15 1900	2488	548	548	548
Door. Automatically-operating.	J. H. Whitaker.	698,588	Apr. 28 1900	4770	1048	1048	1048
Door bar or fastener.	B. Schwab.	701,481	June 8 1900	288	2188	2188	2188
Door-check.	J. Klapper.	701,084	May 27 1900	3788	808	808	808
Door-check and closer.	H. G. Wright.	698,778	Apr. 1 1900	788	184	184	184
Door-check. Liquid.	J. L. Hamed.	698,988	Apr. 28 1900	4888	1071	1071	1071
Door-closing and holding device.	O. Francke.	698,988	Apr. 28 1900	4888	1071	1071	1071
Door. Double.	J. H. Kinter and W. H. Romig.	698,988	Apr. 8 1900	1148	888	888	888
Door fastener. Sliding.	J. H. Kinter.	698,988	Apr. 28 1900	4888	788	788	788
Door, for fastening.	E. H. Hoyer.	708,146	June 10 1900	1588	3448	3448	3448
Door. Folding.	E. H. Hoyer.	708,146	June 10 1900	1588	3448	3448	3448
Door-guard.	W. N. S. Place.	698,028	Apr. 28 1900	3108	708	708	708
Door-guiding attachment.	J. J. Reiroth.	697,818	Apr. 8 1900	1561	380	380	380
Door-hanger.	W. Louden.	700,211	May 20 1900	2188	480	480	480
Door-hanger.	P. G. Minier.	701,507	June 8 1900	878	128	128	128
Door-hanger.	T. C. Prouty.	698,584	May 6 1900	818	181	181	181
Door-hanger loop.	D. S. Blanpied.	701,188	May 27 1900	3688	808	808	808
Door-holder.	A. Newell.	700,887	May 13 1900	2180	480	480	480
Door lock. Sliding.	J. W. Horner. (Retained).	11,988	May 13 1900	3080	488	488	488
Door-mat. Metal.	W. A. Braden and J. B. Smalley.	700,404	May 20 1900	2084	581	581	581
Door-operating mechanism.	D. J. Mathews.	700,887	May 20 1900	2777	685	685	685
Door-securer.	P. H. Jackson.	699,488	May 6 1900	680	180	180	180
Door. Sidewalk trap.	G. B. Pickop.	698,888	Apr. 28 1900	4705	1087	1087	1087
Door. Sliding.	M. Schwartz.	698,744	Apr. 28 1900	4485	988	988	988
Door-spring. Adjustable.	H. Bommer.	708,088	June 17 1900	2879	884	884	884
Door-spring.	W. S. Lincoln.	700,248	May 20 1900	2480	588	588	588
Doors. Operating and latch-releasing mechanism for sliding.	J. B. d'Homerque.	698,201	Apr. 28 1900	2417	788	788	788
Doors, windows, &c. Frame for.	C. W. Bray.	698,488	Apr. 28 1900	2881	848	848	848
Doubling apparatus.	J. L. Canney.	698,988	Apr. 8 1900	1078	287	287	287
Dough-cutting-machine scraper.	J. Lee.	698,578	Apr. 1 1900	288	78	78	78
Dough, &c. Machine for mixing and kneading.	E. C. Chase and I. E. Richey.	698,814	Apr. 28 1900	4505	1018	1018	1018
Dough-manipulating and loaf-forming machine.	H. A. Duc, Jr.	698,911	Apr. 28 1900	4811	1080	1080	1080
Dough mixer and kneader.	C. A. Thomson.	701,046	June 8 1900	988	147	147	147
Dough-molding machine.	W. S. and C. I. Corby.	708,116	June 24 1900	2888	777	777	777
Dough working and shaping machine.	J. J. Blackman.	697,787	Apr. 15 1900	2614	580	580	580
Dovetailing-machine.	J. and D. Sagar.	708,008	June 24 1900	3170	780	780	780
Dovetailing-machine.	J. Dabau.	698,178	Apr. 28 1900	3888	788	788	788
Draft attachment. Doubletree.	J. D. Ingram.	698,981	Apr. 1 1900	587	188	188	188
Draft-equalizer.	J. N. Schwalm.	697,548	Apr. 15 1900	3178	488	488	488
Draft-equalizer.	G. Linhard.	697,788	Apr. 15 1900	3515	580	580	580
Draft-equalizer.	H. J. Heider.	697,841	Apr. 15 1900	2708	601	601	601
Draft-equalizer.	W. Schluter.	698,088	Apr. 28 1900	3113	684	684	684
Draft-equalizer.	W. S. Ernst.	698,988	Apr. 28 1900	4644	1084	1084	1084
Draft-equalizer.	T. F. and J. J. Folk.	698,988	Apr. 28 1900	4644	1084	1084	1084
Draft-equalizer.	J. Jones.	698,184	May 6 1900	108	88	88	88
Draft-equalizer.	W. C. Dymart.	701,178	May 27 1900	4008	281	281	281

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Pat.	Draw.	Vol.	Page.
Draft-equalizer.	E. Burns.	700,888	May 20	2884	580	580	1688
Draft-equalizer.	K. Bombard.	697,970	Apr. 28	2848	640	640	970
Draft-rigging.	E. Patterson.	698,581	Apr. 28	4088	880	880	970
Draft-rigging.	W. M. Cox.	708,118	June 24	2888	778	778	2888
Draft-rigging.	T. L. McKee.	698,818	Apr. 28	3441	788	788	770
Draft-rigging. Combined friction and direct-acting spring.	J. J. Hennessey.	708,488	June 17	3088	471	471	3070
Draft-rigging. Combined spring and friction.	C. S. Shallenberger.	701,814	June 8	414	24	24	2188
Draftsman's instrument.	E. C. Loetscher.	698,688	Apr. 1	514	167	167	172
Draw and harrow-pulverizer combined.	F. R. Sawyer.	708,084	June 10	1840	877	877	2432
Drainer. Cellar or cistern.	W. D. Labadie.	698,988	May 13	1084	878	878	1284
Drains and sewers. Mode of and means for ventilating and flushing house or other.	I. Rhone and E. Ault.	697,888	Apr. 8	1818	407	407	408
Drapery frame clamp.	J. J. Park.	698,007	Apr. 28	4844	1088	1088	1180
Draw-bar attachment.	W. F. Richards.	701,818	June 8	508	188	188	2884
Draw-gear and buffing apparatus.	F. Hien.	708,948	June 24	2881	704	704	2728
Draw-gear. Triple spring.	C. Wright.	701,681	June 8	384	188	188	2828
Drawer for sewing-machine stands, &c.	R. H. Wheeler.	697,588	Apr. 15	2887	497	497	5078
Drawer guard or support.	M. O. Teal.	701,288	May 27	4088	944	944	408
Drawer-guide.	W. H. Gercke.	697,471	Apr. 15	3088	420	420	2828
Drawer-support.	F. O. Anderson.	708,888	June 17	1987	488	488	2438
Drawers foot-strap.	M. D. Wilcox.	701,744	June 8	388	188	188	2828
Drawers. Woman's.	K. R. Jarvis.	697,888	Apr. 15	2778	504	504	430
Drawing-board.	J. de Minisewski.	701,918	June 10	1188	388	388	2880
Drawing-frame.	F. A. Alteneder.	697,884	Apr. 15	2884	508	508	518
Drawing implement.	M. C. Kango.	698,788	May 13	1178	178	178	1688
Dredge-box.	H. B. Williams.	708,108	June 10	1618	888	888	2488
Dredge. Clam.	E. Chaquette.	708,688	June 17	2488	384	384	2881
Dredge. Clam.	E. Chaquette.	708,688	June 17	2488	384	384	2888
Dredge. Floating.	E. Chaquette.	708,708	June 17	2888	587	587	2880
Dredge. Hydraulic.	G. L. Cudner.	700,408	May 20	2841	588	588	1780
Dredge, excavator, and elevator. Hydraulic.	G. L. Cudner.	697,704	Apr. 15	2488	580	580	988
Dredging apparatus.	P. E. Nolan and M. Mortenson.	697,318	Apr. 8	1588	348	348	74
Dredging. Self-loading bucket for.	J. A. Mumford.	698,581	Apr. 1	587	80	80	3828
Dress-shield.	J. F. Murphy.	708,687	June 17	2888	978	978	180
Dress-shield holder.	J. F. Murphy.	698,688	Apr. 1	588	188	188	2048
Dress-supporter.	M. J. Caruthers.	701,147	May 27	2888	910	910	2828
Dress-supporter.	R. F. Montgomery.	708,488	June 17	3188	684	684	2828
Drier.							
See Clothes-drier.	Hair-drier.						
Culm-drier.	Paint-drier.						
Fruit-drier.	Sand-drier.						
Grain-drier.							
Drier.	F. E. Allen.	698,617	Apr. 28	4178	918	918	948
Drier.	E. Storch.	698,118	Apr. 28	5148	1188	1188	1188
Drier and kiln.	A. E. Dowell and W. B. McHenry.	700,408	May 20	2840	617	617	1780
Drier for paper, cloth, &c.	C. H. Crowell.	708,044	June 24	2847	747	747	2870
Dry-kiln.	E. Gervard.	698,888	May 13	1878	818	818	1478
Drying apparatus.	L. Atwood.	697,818	Apr. 8	1721	388	388	888
Drying apparatus.	H. Dedrich.	698,488	Apr. 28	4818	888	888	948
Drying can or cylinder.	A. A. Hunting.	700,778	May 27	2871	781	781	1807
Drying-rack.	J. H. Davis.	701,548	June 8	470	108	108	2804
Drill.							
See Grain-drill.	Head-drill.						
Rock-drill.							
Drill.	E. E. Atkinson.	701,788	June 8	918	874	874	2880
Drill.	H. E. Jacobs.	708,217	June 10	1688	880	880	2472
Drill reciprocating key-cutting attachment.	E. W. Kelley.	698,708	Apr. 28	4488	971	971	908
Drill-rod grab.	W. W. Campbell.	708,088	June 10	1780	408	408	3484
Drill work-holding attachment.	G. E. Metcalf.	700,884	May 27	2808	888	888	1987
Drilling-machine.	C. A. Worman.	697,581	Apr. 15	2888	498	498	808
Drilling-machine.	S. A. Baker.	698,948	Apr. 28	3488	788	788	787
Drilling-machine.	D. Warner.	698,188	Apr. 28	3188	1147	1147	1188
Drilling-machine.	B. F. Kelley.	698,688	May 6	678	170	170	1888
Drilling-machine.	R. M. Downie.	700,678	May 20	2022	601	601	1881
Drilling machinery.	C. E. Wiley.	701,118	May 27	2888	884	884	2088
Drilling or like machine.	F. H. Pierpont.	700,888	May 20	2488	580	580	1714
Driving mechanism.	O. Wiltzhauser.	700,888	May 27	2487	788	788	1088
Driving mechanism. Reversible.	C. S. Parsons.	708,948	June 10	1728	280	280	2480
Dropper.							
See Medicine-dropper.	Seed-dropper.						
Drum. Heating and ventilating.	A. W. Brock.	701,888	June 8	14	8	8	2111
Drum or barrel band.	J. L. Sheppard.	697,087	Apr. 8	1288	278	278	888
Dumping apparatus.	J. Egli.	700,118	May 13	1888	488	488	1879
Dumping apparatus.	R. Kelly.	708,977	June 24	2870	947	947	2018
Dumping device.	R. F. Thomas.	698,688	Apr. 28	3010	1117	1117	1188

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr. e.	Vol.	Page.
Duplicator	S. Case	699,075	Apr. 29	1075	1182	99	1148
Dust-beater	S. J. Sims	699,092	Apr. 29	1184	997	99	773
Dust-collecting and settling apparatus	C. H. Larson	701,596	June 10	1095	950	99	2998
Dust-collector	J. H. Lane and E. H. Whitmore	699,194	May 6	118	81	99	1230
Dust-collector	E. R. Draver	699,480	May 6	688	147	99	1895
Dust-collector	J. E. Mitchell	702,513	June 10	1288	419	99	2908
Dust-collector	P. Eberwein	702,124	June 24	3408	789	99	9988
Dust-guard	P. Martin	701,928	June 10	1117	955	99	2927
Dust-pan	W. L. Harris	699,994	Apr. 29	4974	1099	99	1090
Dust-pan, broom, and dust-brush holder	J. M. Miller	699,997	Apr. 29	4982	1091	99	1114
Dust-spraying machine	C. H. Asling	699,498	May 6	809	124	99	1297
Duster, Feather	E. K. Warren and A. A. Ackerman	699,999	Apr. 29	4749	1048	99	1075
Dye and making same. Black sulfur	C. Schraube and H. T. Bucherer	700,995	May 29	2922	99	99	1790
Dye and making same. Black sulfur	W. Kolbe	701,021	May 27	2781	99	99	2025
Dye and making same. Black sulfur	I. Levinstein and C. Henschling	700,999	June 10	1946	99	99	2924
Dye and making same. Blue sulfur	C. Ris	699,711	Apr. 1	874	99	99	144
Dye and making same. Blue wool	A. Weinberg	703,108	June 24	378	99	99	2164
Dye and making same. Brown-violet sulfur	A. Weinberg	699,995	Apr. 29	4974	1099	99	916
Dye and making same. Green sulfur	C. Ris	699,999	Apr. 29	4974	1099	99	780
Dye and making same. Greenish-black sulfur	A. Weinberg	701,497	June 3	897	99	99	9161
Dye and making same. Red	E. Winter	697,708	Apr. 15	2508	99	99	574
Dye and making same. Red cotton	E. Lurati	700,991	May 30	2701	99	99	1776
Dyes on indigo. Fixing	G. De Kaulstarr	702,128	June 24	3408	789	99	2921
Dyeing	P. Schirp	700,998	May 27	2777	778	99	1882
Dyeing, etc. Apparatus for	C. Wolf	701,444	June 3	898	99	99	2165
Dyeing apparatus. Yarn	J. C. Hamer	703,002	June 10	1950	99	99	2901
Dyeing apparatus. Yarn	S. Hutchins	699,999	May 6	490	116	99	1879
Dynamo	F. B. Duncan	700,199	May 20	2095	477	99	1090
Dynamo or motor brush-holding ring	F. B. Duncan	697,996	Apr. 29	4918	991	99	699
Dynamoes or motors on their bed-plates. Means for adjusting	P. Kennedy	699,197	May 6	106	25, 27	99	1197
Dynamoes with trucks of railway-cars. Means for connecting	U. Kleiner	702,200	June 17	2777	998	99	2717
Ear-drum. Artificial	E. H. Stoll	700,949	May 27	2409	798	99	1999
Easel	T. Rye	702,128	June 10	1951	997	99	2428
Excess-current miter-joint	S. D. Tripp	701,498	June 3	898	99	99	2160
Edge-finishing machine	H. A. Oldershaw	697,709	Apr. 8	1798	408	99	438
Edge-setting machine	C. Johnson	700,998	May 20	2192	492	99	1048
Edger. Gang	E. E. Thomas	697,535	Apr. 15	2601	490	99	530
Edger guard. Gang	J. E. Murray	699,990	Apr. 1	555	127	99	180
Educational device	F. W. Davenport	701,997	June 10	1999	294	99	2900
Educational device	K. L. Wood	701,498	June 3	898	99	99	2164
Egg-beater	H. H. Holtan	700,049	May 13	1790	411	99	2921
Egg-candler	H. Erickson	699,481	Apr. 29	4904	998	99	1889
Egg-cup	J. M. Stukes	699,999	May 6	840	99	99	1889
Egg-packing compound	R. B. Sears	699,419	May 6	557	127	99	1889
Egg-preservation safe	A. L. Walker	697,759	Apr. 15	2500	500	99	978
Egg-separator	A. L. Walker	702,111	June 24	3477	778	99	2925
Egg-separator	W. Darling	702,760	June 17	2728	990	99	2710
Egg-tray	J. A. Rylander	699,495	Apr. 1	179	99	99	48
Eggs. Preserving	A. M. Ziegler	699,771	Apr. 29	4907	998	99	1880
Electric alarm	D. Vial Filis	700,999	May 20	2195	998	99	1790
Electric alarm	G. M. Peyton	700,913	May 27	2699	798	99	1914
Electric alarm	W. H. Harting	701,528	June 3	814	114	99	2915
Electric alarm and fastening device	H. G. Carleton	699,518	Apr. 29	4915	1014	99	1042
Electric battery	C. Hubert	700,497	May 20	2090	998	99	1790
Electric battery	P. Delefos	702,544	June 10	2095	990	99	2918
Electric battery	R. D. Langhila	701,398	June 3	149	99	99	2129
Electric brushes. Making	C. Luke	701,399	May 27	2627	998	99	2094
Electric cables. Covering means for joints in	J. H. West	700,107	May 13	1796	407	99	1873
Electric cables. Manufacture of	F. Wilke	699,998	Apr. 29	4919	998	99	987
Electric-circuit-choking device	C. A. Rolfe	697,519	Apr. 8	1598	380	99	981
Electric-circuit-protecting device	G. P. McDonnell	697,198	Apr. 8	1497	380	99	980
Electric-circuit-regulating device	D. G. Black	699,547	May 13	1003	998	99	1895
Electric-circuit safety-fuse	F. C. Newell	699,472	Apr. 1	146	99	99	29
Electric circuits. Automatic regulator for	O. L. Plummer	697,978	Apr. 8	1690	378	99	273
Electric circuits. Automatic safety-switch for	W. M. Carr	699,146	May 6	27	99	99	1192
Electric combustion-furnace	H. and E. Hammesfahr	702,728	June 17	2828	998	99	2908
Electric conducting-wire	H. W. Dover	699,498	May 6	698	148	99	1907
Electric conductors and making cables. Covering	E. E. Schraube and O. Stas y Orfila	699,998	Apr. 29	4980	1104	99	1129
Electric conductors with or without guard-wires. Automatic device for the safe operation of	F. E. Case	697,129	Apr. 8	1418	318	99	921
Electric controller	F. E. Case	697,445	Apr. 15	1998	441	99	498
Electric controller	A. C. Eastwood	699,998	May 6	718	189	99	1898
Electric controller	J. C. Henry	699,991	May 13	1610	998	99	1121
Electric controller	A. Phillips	701,398	June 3	800	129	99	2921
Electric controller	J. W. Brown, Jr.	702,544	June 10	2095	998	99	2918
Electric controller	E. C. Fellows	702,540	June 24	3477	778	99	2925
Electric controller. Automatic	A. McGary and P. Mellinger	697,997	Apr. 8	1648	390	99	971
Electric coupling	T. C. James	699,498	May 6	691	181	99	1210
Electric cut-off switch	L. W. Richardson	699,998	May 6	718	189	99	1898
Electric distribution system	C. P. Steinmetz	697,085	Apr. 8	1228	273	99	298
Electric distribution system	E. Thomson	699,106	Apr. 29	2988	798	99	798
Electric elevator	A. M. Modry	699,994	Apr. 8	1170	291	99	998
Electric elevator	J. Chambers	700,070	May 20	2018	991	99	1898

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'e.	Vol.	Page.
Electric furnace	M. E. Conley	697,610	Apr. 15	2229	590	99	999
Electric furnace	G. de Chalmot	699,054	May 13	1014	235	99	1295
Electric furnace	W. R. Parks	700,998	May 27	2690	794	99	1911
Electric furnace	F. Morani	701,318	May 27	4070	997	99	2998
Electric generator	J. M. Wilson	699,784	May 13	1187	272	99	1497
Electric generator. Dynamo	R. G. Lamme	702,055	June 17	2919	978	99	2922
Electric heater.	M. C. Bart	699,091	May 13	1010	235	99	1295
Electric heater.	W. B. Hinman	700,994	May 30	2716	991	99	1794
Electric indicating instrument	R. Fleming	699,087	Apr. 1	68	14	99	17
Electric-light bulbs. Device for applying and re-moving	L. H. Alsworth	697,961	Apr. 29	2990	648	99	978
Electric-light hanger	L. Poole	701,990	June 10	1192	264	99	2925
Electric lights in railway-carriages from the guard's van. Device for operating	K. J. Preston and A. B. Gill	699,419	May 6	548	128	99	1297
Electric lights. Water-tight fixture for	F. J. Russell	699,517	May 13	1287	306	99	1681
Electric lighting and apparatus therefor. System of	P. Laportot, G. Villard, and L. Pigaud	699,098	Apr. 1	501	115	99	109
Electric machine. Dynamo	E. J. Barr	697,798	Apr. 15	2604	277	99	988
Electric machines. Regulation of dynamo	T. W. Williams	697,087	Apr. 8	1292	295	99	291
Electric maximum-demand indicator	A. Wright	702,040	June 17	2900	991	99	2798
Electric meter	T. Duncan	699,087	Apr. 29	4914	981	99	998
Electric meter	T. Duncan	699,088	Apr. 29	4916	982	99	998
Electric meter	T. Duncan	699,089	Apr. 29	4920	983	99	998
Electric meter	T. Duncan	699,090	Apr. 29	4922	984	99	998
Electric meter	T. Duncan	699,091	Apr. 29	4924	985	99	998
Electric meter	T. Duncan	699,092	Apr. 29	4926	986	99	998
Electric meter	T. Duncan	699,093	Apr. 29	4928	987	99	998
Electric meter	T. Duncan	699,094	Apr. 29	4930	988	99	998
Electric meter	T. Duncan	699,095	Apr. 29	4932	989	99	998
Electric meter	T. Duncan	699,096	Apr. 29	4934	990	99	998
Electric meter	T. Duncan	699,097	Apr. 29	4936	991	99	998
Electric meter	T. Duncan	699,098	Apr. 29	4938	992	99	998
Electric meter	T. Duncan	699,099	Apr. 29	4940	993	99	998
Electric meter	T. Duncan	699,100	Apr. 29	4942	994	99	998
Electric meter	T. Duncan	699,101	Apr. 29	4944	995	99	998
Electric meter	T. Duncan	699,102	Apr. 29	4946	996	99	998
Electric meter	T. Duncan	699,103	Apr. 29	4948	997	99	998
Electric meter	T. Duncan	699,104	Apr. 29	4950	998	99	998
Electric meter	T. Duncan	699,105	Apr. 29	4952	999	99	998
Electric meter	T. Duncan	699,106	Apr. 29	4954	1000	99	998
Electric meter	T. Duncan	699,107	Apr. 29	4956	1001	99	998
Electric meter	T. Duncan	699,108	Apr. 29	4958	1002	99	998
Electric meter	T. Duncan	699,109	Apr. 29	4960	1003	99	998
Electric meter	T. Duncan	699,110	Apr. 29	4962	1004	99	998
Electric meter	T. Duncan	699,111	Apr. 29	4964	1005	99	998
Electric meter	T. Duncan	699,112	Apr. 29	4966	1006	99	998
Electric meter	T. Duncan	699,113	Apr. 29	4968	1007	99	998
Electric meter	T. Duncan	699,114	Apr. 29	4970	1008	99	998
Electric meter	T. Duncan	699,115	Apr. 29	4972	1009	99	998
Electric meter	T. Duncan	699,116	Apr. 29	4974	1010	99	998
Electric meter	T. Duncan	699,117	Apr. 29	4976	1011	99	998
Electric meter	T. Duncan	699,118	Apr. 29	4978	1012	99	998
Electric meter	T. Duncan	699,119	Apr. 29	4980	1013	99	998
Electric meter	T. Duncan	699,120	Apr. 29	4982	1014	99	998
Electric meter	T. Duncan	699,121	Apr. 29	4984	1015	99	998
Electric meter	T. Duncan	699,122	Apr. 29	4986	1016	99	998
Electric meter	T. Duncan	699,123	Apr. 29	4988	1017	99	998
Electric meter	T. Duncan	699,124	Apr. 29	4990	1018	99	998
Electric meter	T. Duncan	699,125	Apr. 29	4992	1019	99	998
Electric meter	T. Duncan	699,126	Apr. 29	4994	1020	99	998
Electric meter	T. Duncan	699,127	Apr. 29	4996	1021	99	998
Electric meter	T. Duncan	699,128	Apr. 29	4998	1022	99	998
Electric meter	T. Duncan	699,129	Apr. 29	5000	1023	99	998
Electric meter	T. Duncan	699,130	Apr. 29	5002	1024	99	998
Electric meter	T. Duncan	699,131	Apr. 29	5004	1025	99	998
Electric meter	T. Duncan	699,132	Apr. 29	5006	1026	99	998
Electric meter	T. Duncan	699,133	Apr. 29	5008	1027	99	998
Electric meter	T. Duncan	699,134	Apr. 29	5010	1028	99	998
Electric meter	T. Duncan	699,135	Apr. 29	5012	1029	99	998
Electric meter	T. Duncan	699,136	Apr. 29	5014	1030	99	998
Electric meter	T. Duncan	699,137	Apr. 29	5016	1031	99	998
Electric meter	T. Duncan	699,138	Apr. 29	5018	1032	99	998
Electric meter	T. Duncan	699,139	Apr. 29	5020	1033	99	998
Electric meter	T. Duncan	699,140	Apr. 29	5022	1034	99	998
Electric meter	T. Duncan	699,141	Apr. 29	5024	1035	99	998
Electric meter	T. Duncan	699,142	Apr. 29	5026	1036	99	998
Electric meter	T. Duncan	699,143	Apr. 29	5028	1037	99	998
Electric meter	T. Duncan	699,144	Apr. 29	5030	1038	99	998
Electric meter	T. Duncan	699,145	Apr. 29	5032	1039	99	998
Electric meter	T. Duncan	699,146	Apr. 29	5034	1040	99	998
Electric meter	T. Duncan	699,147	Apr. 29	5036	1041	99	998
Electric meter	T. Duncan	699,148	Apr. 29	5038	1042	99	998
Electric meter	T. Duncan	699,149	Apr. 29	5040	1043	99	998
Electric meter	T. Duncan	699,150	Apr. 29	5042	1044	99	998
Electric meter	T. Duncan	699,151	Apr. 29	5044	1045	99	998
Electric meter	T. Duncan	699,152	Apr. 29	5046	1046	99	998
Electric meter	T. Duncan	699,153	Apr. 29	5048	1047	99	998
Electric meter	T. Duncan	699,154	Apr. 29	5050	1048	99	998
Electric meter	T. Duncan	699,155	Apr. 29	5052	1049	99	998
Electric meter	T. Duncan	699,156	Apr. 29	5054	1050	99	998
Electric meter	T. Duncan	699,157	Apr. 29	5056	1051	99	998
Electric meter	T. Duncan	699,158	Apr. 29	5058	1052	99	998
Electric meter	T. Duncan	699,159	Apr. 29	5060	1053	99	998
Electric meter	T. Duncan	699,160	Apr. 29	5062	1054	99	998
Electric meter	T. Duncan	699,161	Apr. 29	5064	1055	99	998
Electric meter	T. Duncan	699,162	Apr. 29	5066	1056	99	998
Electric meter	T. Duncan	699,163	Apr. 29	5068	1057	99	998
Electric meter	T. Duncan	699,164	Apr. 29	5070	1058	99	998
Electric meter	T. Duncan	699,165	Apr. 29	5072	1059	99	998
Electric meter	T. Duncan	699,166	Apr. 29	5074	1060	99	998
Electric meter	T. Duncan	699,167	Apr. 29	5076	1061	99	998
Electric meter	T. Duncan	699,168	Apr. 29	5078	1062	99	998
Electric meter	T. Duncan	699,169	Apr. 29	5080	1063	99	998
Electric meter	T. Duncan	699,170	Apr. 29	5082	1064	99	998
Electric meter	T. Duncan	699,171	Apr. 29	5084	1065	99	998
Electric meter	T. Duncan	699,172	Apr. 29	5086	1066	99	998
Electric meter	T. Duncan	699,173	Apr. 29	5088	1067	99	998
Electric meter	T. Duncan	699,174	Apr. 29	5090	1068	99	998
Electric meter	T. Duncan	699,175	Apr. 29	5092	1069	99	998
Electric meter	T. Duncan	699,176	Apr. 29	5094	1070	99	998
Electric meter	T. Duncan	699,177	Apr. 29	5096	1071	99	998
Electric meter	T. Duncan	699,178	Apr. 29	5098	1072	99	998
Electric meter	T. Duncan	699,179	Apr. 29	5100	1073	99	998
Electric meter	T. Duncan	699,180	Apr. 29	5102	1074	99	998
Electric meter	T. Duncan	699,181	Apr. 29	5104	1075	99	998
Electric meter	T. Duncan	699,182	Apr. 29	5106	1076	99	998
Electric meter	T. Duncan	699,183	Apr. 29	5108	1077	99	998
Electric meter	T. Duncan	699,184	Apr. 29	5110	1078	99	998
Electric meter	T. Duncan	699,185	Apr. 29	5112	1079	99	998
Electric meter	T. Duncan	699,186	Apr. 29	5114	1080	99	998
Electric meter	T. Duncan	699,187	Apr. 29	5116	1081	99	998
Electric meter	T. Duncan	699,188	Apr. 29	5118	1082	99	998
Electric meter	T. Duncan	699,189	Apr. 29	5120	1083	99	998
Electric meter	T. Duncan	699,190	Apr. 29	5122	1084	99	998
Electric meter	T. Duncan	699,191	Apr. 29	5124	1085	99	998
Electric meter	T. Duncan	699,192	Apr. 29	5126	1086	99	998
Electric meter	T. Duncan	699,193	Apr. 29	5128	1087	99	998
Electric meter	T. Duncan	699,194	Apr. 29	5130	1088	99	998
Electric meter	T. Duncan	699,195	Apr. 29	5132	1089	99	998
Electric meter	T. Duncan	699,196	Apr. 29	5134	1090	99	998
Electric meter	T. Duncan	699,197	Apr. 29	5136	1091	99	998
Electric meter	T. Duncan	699,198	Apr. 29	5138	1092	99	998
Electric meter	T. Duncan	699,199	Apr. 29	5140	1093	99	998
Electric meter	T. Duncan	699,200	Apr. 29	5142	1094	99	998
Electric meter	T. Duncan	699,201	Apr. 29	5144	1095	99	998
Electric meter	T. Duncan	699,202	Apr. 29	5146	1096	99	998
Electric meter	T. Duncan	699,203	Apr. 29	5148	1097	99	998
Electric meter	T. Duncan	699,204	Apr. 29	5150	1098	99	998
Electric meter	T. Duncan	699,205	Apr. 29	5152	1099	99	998
Electric meter	T. Duncan	699,206	Apr. 29	5154	1100	99	998
Electric meter	T. Duncan	699,207	Apr. 29	5156	1101	99	998
Electric meter	T. Duncan	699,208	Apr. 29	5158	1102	99	998
Electric meter	T. Duncan	699,209	Apr. 29	5160	1103	99	998
Electric meter	T. Duncan	699,210	Apr. 29	5162	1104	99	998
Electric meter	T. Duncan	699,211	Apr. 29	5164	1105	99	998
Electric meter	T. Duncan	699,212	Apr. 29	5166	1106	99	998
Electric meter	T. Duncan	699,213	Apr. 29	5168	1107	99	998
Electric meter	T. Duncan	699,214	Apr. 29	5170	1108	99	998
Electric meter	T. Duncan	699,215	Apr. 29	5172	1109	99	998
Electric meter	T. Duncan	699,216	Apr. 29	5174	1110	99	998
Electric meter	T. Duncan	699,217	Apr. 29	5176	1111	99	998
Electric meter	T. Duncan	699,218	Apr. 29	5178	1112	99	998
Electric meter	T. Duncan	699,219	Apr. 29	5180	1113	99	998
Electric meter	T. Duncan	699,220	Apr. 29	5182	1114	99	998
Electric meter	T. Duncan	699,221	Apr. 29	5184	1115	99	998
Electric meter	T. Duncan	699,222	Apr. 29	5186	1116	99	998
Electric meter	T. Duncan	699,223	Apr. 29	5188	1117	99	998
Electric meter	T. Duncan	699,224	Apr. 29	5190	1118	99	998
Electric meter	T. Duncan	699,225	Apr. 29	5192	1119	99	998
Electric meter	T. Duncan	699,226	Apr. 29	5194	1120	99	998
Electric meter	T. Duncan	699,227	Apr. 29	5196	1121	99	998
Electric meter	T. Duncan	699,228	Apr. 29	5198	1122	99	998
Electric meter	T. Duncan	699,229	Apr. 29	5200	1123	99	998
Electric meter	T. Duncan	699,230	Apr. 29	5202	1124	99	998
Electric meter	T. Duncan	699,231	Apr. 29	5204	1125	99	998
Electric meter	T. Duncan	699,232	Apr. 29	5206	1126	99	998
Electric meter	T. Duncan	699,233	Apr. 29	5208	1127	99	998
Electric meter	T. Duncan	699,234	Apr. 29	5210	1128	99	998
Electric meter	T. Duncan	699,235	Apr. 29	5212	1129	99	998
Electric meter	T. Duncan	699,236	Apr. 29	5214	1130	99	998
Electric meter	T. Duncan	699,237	Apr. 29	5216			

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Electric synchronous apparatus.	W. M. Miner	702,458	June 17	2128	488	90	2228
Electric synchronous apparatus.	W. M. Miner	702,454	June 17	2128	488	90	2228
Electric time-switch.	E. H. Wright	702,088	June 24	2228	148	90	2228
Electric time-switch.	C. F. Heath	703,183	June 24	2418	784	90	2228
Electric transmission of power.	E. M. Fraser	697,888	Apr. 15	2228	128	90	2228
Electric-tube lighting.	D. M. Moore	702,214	June 10	1888	418	90	2228
Electric-tube lighting.	D. M. Moore	702,216	June 10	1888	420	90	2228
Electric-tube lighting.	D. M. Moore	702,214	June 10	1884	420	90	2228
Electric-tube lighting.	D. M. Moore	702,217	June 10	1888	421	90	2228
Electric-tube lighting.	D. M. Moore	702,281	June 10	1897	428	90	2228
Electric-tube lighting.	D. E. Wilder	698,287	Apr. 22	2478	118	90	2228
Electric vapor-lighter.	J. M. G. Pullman	698,281	May 6	478	118	90	2228
Electric wires and conduits. Outlet-box for.	R. W. Lyle	702,022	June 17	2317	377	90	2228
Electric wires or cables. Conduit for.	R. W. Lyle	702,028	June 17	2319	377	90	2228
Electric wires or cables. Conduit for.	R. W. Lyle	702,028	May 6	677	107	90	2228
Electrical apparatus.	T. H. Brady	701,847	June 3	673	147	90	2228
Electrical apparatus.	A. Traut	701,847	June 3	673	147	90	2228
Electrical apparatus. Means for extinguishing arcs in.	G. W. Partridge	700,008	May 27	2228	708	90	2228
Electrical apparatus. Means for ventilating cores for.	J. D. Kelley	700,225	May 20	2401	548	90	2228
Electrical condenser.	G. F. Mansbridge	697,707	Apr. 15	2227	458	90	2228
Electrical-control system.	G. T. and L. Woods	697,707	Apr. 15	2227	458	90	2228
Electrical controlling apparatus.	R. F. Platt	702,188	June 10	1878	268	90	2228
Electrical energy. Means for transmitting.	J. M. Woodbridge	697,132	Apr. 8	1894	300	90	2228
Electrical flush switch.	W. J. Newton	702,908	June 24	2120	784	90	2228
Electrical hood or reflector and clamp for same.	L. L. Torbush	701,421	June 3	244	35	90	2228
Electrical instruments. Shunt for.	M. C. Rypinski	698,707	Apr. 1	667	188	90	2228
Electrical knife-switch.	L. J. Smith and W. F. Boswert	698,417	Apr. 22	2777	388	90	2228
Electrical-machine collector-ring.	R. Siegfried	702,228	June 17	2405	549	90	2228
Electrical machines and plants. Protecting apparatus for.	P. Rudhardt	702,128	June 24	2450	728	90	2228
Electrical outlet-box.	E. W. Miller	698,215	May 6	151	20	90	2228
Electrical outlet-box.	H. Krantz	700,240	May 20	2415	551	90	2228
Electrical protector.	G. A. Rolfe	701,285	June 3	197	42	90	2228
Electrical storms. Apparatus for demonstrating the phenomena of.	G. J. and D. C. Moore	700,228	May 20	2708	627	90	2228
Electrical switch.	E. G. Kaesthuber	698,427	Apr. 1	90	22	90	2228
Electrical tap-socket.	E. B. Meyrowitz	698,205	May 6	125	34	90	2228
Electrically winding up driving-springs. Apparatus for.	H. Aron	700,297	May 20	2684	622	90	2228
Electricity-meter.	E. G. Holm	702,212	June 10	1881	370	90	2228
Electricity-meter.	A. Wright	702,244	June 17	2228	622	90	2228
Electricity-meter.	A. Wright	702,249	June 17	2228	621	90	2228
Electricity-meter. Direct or continuous current.	A. Wright	702,245	June 17	2228	620	90	2228
Electricity-meter of the electrolytic type.	A. Wright	702,250	June 17	2228	622	90	2228
Electricity-metering.	A. Wright	702,247	June 17	2228	621	90	2228
Electrochemical generator.	H. S. Amvake	702,700	June 17	2706	621	90	2228
Electrode.	K. A. Wilde	700,228	May 20	2428	720	90	2228
Electrode. Arc-lamp.	R. Hopf	700,240	May 20	2477	621	90	2228
Electrode. Arc-lamp.	R. Hopf	700,240	May 20	2476	622	90	2228
Electrode for electric accumulators.	E. J. Clark	701,288	June 3	198	41	90	2228
Electrode. Storage-battery.	J. Von der Poppelburg	701,215	June 10	1120	222	90	2228
Electrodes. Forming secondary-battery.	W. Morrison	702,705	June 17	2701	621	90	2228
Electrodes. Graphitizing.	E. G. Acheson	698,251	May 13	1408	222	90	2228
Electrolysis. Apparatus for fused-bath.	C. W. Roepper and G. P. Scholl	697,187	Apr. 8	1458	227	90	2228
Electrolytic apparatus.	F. McDonald	698,415	May 6	125	34	90	2228
Electrolytic apparatus.	C. J. Reed	698,415	May 6	125	34	90	2228
Electrolytic apparatus for manufacturing certain salts suitable for the subsequent production of chlorine.	G. J. Atkins	698,007	May 13	1221	220	90	2228
Electrolytic converter.	F. H. Long	698,264	May 13	1090	274	90	2228
Electromagnetic apparatus. Polarized.	F. E. Cook	698,060	May 13	1085	222	90	2228
Electrotherapeutic apparatus.	G. W. Euker	701,125	May 27	4015	222	90	2228
Elevator.	C. W. Baldwin	698,708	Apr. 1	888	122	90	2228
Elevator.	A. B. Roney	698,728	Apr. 22	4448	222	90	2228
Elevator.	J. Rice	698,857	Apr. 22	4718	1222	90	2228
Elevator.	E. R. Gill	701,222	June 3	25	12	90	2228
Elevator-boots. Removable tray for.	M. Hanford	702,127	June 24	2418	728	90	2228
Elevator-cars. Regulator for controlling the descent of.	J. M. Lemmon	697,028	Apr. 15	2008	454	90	2228
Elevator-controller.	A. Gallinant	702,244	June 24	2228	624	90	2228
Elevator-door-operating device.	F. K. Fawcett	698,227	Apr. 22	4648	1024	90	2228
Elevator-door-operating mechanism.	H. Bittner	698,228	May 6	468	101	90	2228
Elevator-door-operating mechanism.	C. B. Gilmore	698,228	May 6	468	101	90	2228
Elevator-door-operating mechanism.	J. L. Kall	698,228	May 6	468	101	90	2228
Elevator-door-operating mechanism.	H. Rowntree	700,275	May 20	2424	570	90	2228
Elevator for chider-pits, &c.	W. Robertson	698,421	Apr. 1	174	42	90	2228
Elevator-gate. Self-closing.	G. E. Anderson	698,325	Apr. 22	3722	222	90	2228
Elevator-guard.	I. I. Fonda	702,025	June 10	1472	222	90	2228
Elevator hoisting mechanism.	H. Rowntree	697,412	Apr. 22	3722	222	90	2228
Elevator locking device.	M. E. Muckel, Jr.	702,272	June 10	1954	444	90	2228
Elevator or storage-house construction.	S. H. Tromanbauer	702,118	June 10	1228	241	90	2228

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Elevator safety appliance.	G. M. Moore	698,041	Apr. 22	2075	677	90	2228
Elevator safety appliance.	J. E. Erickson	699,275	May 6	444	100	90	2228
Elevator safety appliance.	S. B. Trapp	700,428	May 20	2221	628	90	2228
Elevator safety attachment.	G. Donnelly	698,728	Apr. 1	628	141	90	2228
Elevator safety attachment.	W. A. Forman	698,511	May 6	722	182	90	2228
Elevator signal device.	S. D. Collett	700,519	May 20	2222	672	90	2228
Elevator system. Electric.	J. D. Ihler	697,227	Apr. 15	2216	974	90	2228
Elevator valve mechanism. Hydraulic.	H. F. Witte	700,277	May 27	2451	728	90	2228
Elevator valves. Slow-closing device for hydraulic.	L. H. Hartman	701,222	May 27	4165	957	90	2228
Elliptical frames. Machine for forming.	C. E. Sandstrom	701,224	June 3	680	127	90	2228
Elliptical frames. Machine for forming.	C. E. Sandstrom	701,225	June 3	682	127	90	2228
Elliptical spring.	C. A. Miller	697,625	Apr. 15	2728	612	90	2228
Embalming and cooling board.	H. C. Swan	702,257	June 10	1745	222	90	2228
Embossing and printing mechanism.	J. A. Turney and E. F. O'Sullivan	702,511	June 17	2222	500	90	2228
Embossing-machine.	C. E. Mass	698,084	Apr. 22	2063	674	90	2228
Embossing-machine.	I. Clapper	699,149	May 6	42	12	90	2228
Embossing-machine.	I. Clapper	702,228	June 10	1750	428	90	2228
Embroidering-machine.	D. Nadel	697,220	Apr. 8	1022	221	90	2228
Embroidering-machine pattern mechanism.	D. Nadel	697,270	Apr. 8	1024	271	90	2228
Embroidery-frame.	N. G. Vowler	699,223	May 6	249	57	90	2228
Embroidery-hoop holder.	M. F. Smith	698,572	Apr. 22	4051	626	90	2228
Embroidery-loom.	C. E. Bentley	698,540	Apr. 1	222	62	90	2228
Embroidery-loom.	C. E. Bentley	698,541	Apr. 1	270	62	90	2228
Enamelling-fork for bath-tubs.	E. Dithridge	700,021	May 12	1722	222	90	2228
End-board and boot for wagons. Combined.	C. Fisher	701,220	June 3	75	15	90	2228
End-gate and fastening therefor.	L. F. Fredericks	700,028	June 10	1410	216	90	2228
End-gate and fastening therefor. Wagons.	D. K. Wier	698,204	Apr. 22	4122	912	90	2228
End-gate fastener.	A. A. Kellogg	700,143	May 13	1221	222	90	2228
End-gate for manure-spreader or similar beds.	C. L. V. Kinney	698,068	Apr. 1	451	105	90	2228
End-gate-rod fastener.	W. A. Day	701,224	June 10	1972	244	90	2228
End-gate. Wagons.	N. Hon	701,224	June 10	1972	244	90	2228
Endless-belt feed or carrying apparatus.	B. M. Bishop	700,474	May 20	2270	611	90	2228
Engine.							
See Heating-engine. Impact-engine.							
Carding-engine. Internal-combustion engine.							
Compound engine. Locomotive-engine.							
Compound or multiple-cylinder engine. Molding-machine engine.							
Direct-acting engine. Oil-engine.							
Explosive-engine. Pressure-engine.							
Fluid-pressure engine. Pumping-engine.							
Gas-engine. Rotary engine.							
Gas-impact-engine. Rotary explosive-engine.							
Gas or oil engine. Rotating-piston engine.							
Gear-cutting engine. Steam or fluid-pressure engine.							
Engine.	F. H. Sleeper	698,708	Apr. 1	707	150	90	2228
Engine.	F. H. Sleeper	698,707	Apr. 1	710	150	90	2228
Engine.	F. H. Sleeper	698,708	Apr. 1	712	150	90	2228
Engine.	W. D. Linscott	697,248	Apr. 8	1750	222	90	2228
Engine.	J. Brantigan and P. Hoelslein	698,141	May 6	27	8	90	2228
Engine.	L. Richter	698,241	May 13	1222	222	90	2228
Engine.	G. E. Whitney	702,410	June 17	2222	624	90	2228
Engine controlling mechanism.	O. F. Daanenbergh and H. L. Morgan	697,220	Apr. 8	1022	221	90	2228
Engine driving-wheel. Traction.	K. E. Leebart	698,014	Apr. 22	4078	1101	90	2228
Engine igniter. Explosive.	J. V. Rice, Jr.	698,022	May 13	1022	222	90	2228
Engine-lubricator.	W. J. and G. Lane	698,022	May 13	1022	222	90	2228
Engine mixer or vaporizer. Hydrocarbon.	R. Sottergren	697,225	Apr. 15	2125	422	90	2228
Engine muffler. Explosive or other.	A. L. Kull	700,725	May 27	2225	724	90	2228
Engine or motor. Steam or other.	T. S. McKinzie	701,424	June 3	222	82	90	2228
Engine reversible device.	W. H. Barker	698,022	Apr. 1	502	116	90	2228
Engine sparking apparatus. Gasoline.	R. E. Hago and H. P. Waller	700,228	May 20	2428	620	90	2228
Engine speed-regulator. Explosive.	J. W. Stanton	700,100	May 13	1222	222	90	2228
Engine speed-regulator. Explosive.	J. S. Klein	697,422	Apr. 8	1917	422	90	2228
Engine speed-regulator. Explosive.	J. W. Lambert	698,422	Apr. 22	2727	222	90	2228
Engine speed-regulator. Explosive.	R. A. F. Bellows	700,421	May 20	2220	572	90	2228
Engine speed-regulator. Gas.	H. H. Heanagin	698,022	Apr. 1	972	212	90	2228
Engine spray-pump. Explosive.	J. T. Metcalfe	701,022	May 27	2222	571	90	2228
Engine starting mechanism. Gas.	F. A. L. Sackner	702,127	June 24	2472	722	90	2228
Engines. Electric igniter for explosion.	E. H. Fahrney	701,225	June 3	742	122	90	2228
Engines. Means for facilitating the starting of gas or similar.	J. Hutchings	702,727	June 17	2727	622	90	2228
Engines or motors. Mechanism for utilizing the power of.	H. W. Schlomann	697,175	Apr. 8	1427	222	90	2228
Engines. Regulation of speed and power.	E. Thomson	702,022	June 10	1254	222	90	2228
Engines. Sparking igniter for explosive.	R. L. Young	698,422	May 6	522	122	90	2228
Engraving-machine.	W. S. Eaton	698,022	Apr. 8	1100	244	90	2228
Extrails. Machine for incrusting or slitting.	J. W. Kohlhopf and A. J. Francis	698,022	Apr. 22	2072	672	90	2228
Extrails.	W. A. Hammond and J. C. Kahle	698,421	Apr. 1	62	12	90	2228

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Envelop	J. Lucas	696,928	Apr. 8	1158	267	99	288
Envelop	S. A. Bonaffon	697,971	Apr. 29	3040	850	99	678
Envelop	J. G. Bonhart	698,688	Apr. 20	4191	985	99	947
Envelop	W. A. Dean	701,308	June 3	47	10	99	3118
Envelop	A. F. Callahan	701,580	June 10	980	280	99	2828
Envelop	D. H. Keller	702,100	June 10	1428	234	99	2431
Envelop	W. H. Haworth	702,945	June 24	3080	704	99	2728
Envelop	F. Thellengard	703,508	June 17	2281	508	99	2026
Envelop and blank therefor	A. J. Johnston	697,875	May 13	1465	285	99	1428
Envelop-closure, Metallic	G. E. Adams	698,630	Apr. 22	3080	646	99	673
Envelop, Document	J. G. Wallace	700,282	May 20	2423	555	99	1708
Envelop or wrapper, Reversible	W. Masters	698,300	Apr. 22	3528	790	99	808
Envelop, Safety	C. H. Mann	701,454	June 3	308	67	99	2171
Equalizer, Four-horse	O. and F. Zoeller	699,084	May 13	1870	261	99	1512
Eraser	E. Swenson	699,748	May 13	1161	275	99	1439
Eraser-tip for pencils	W. E. Brownell	699,407	May 13	1029	371	99	1528
Eraser, Machine for cleaning blackboard	J. A. Jones	702,581	June 17	2261	651	99	2730
Escutcheon and paint protector, Combined double	S. Thompson	702,581	June 17	2261	651	99	2730
Evaporating apparatus	O. M. Nilson	696,728	Apr. 29	4420	680	99	1005
Evaporating apparatus, Vacuum	G. M. Vis	700,105	May 13	1871	426	99	1572
Evaporating pan	J. H. Hill and J. Rivett	697,494	Apr. 15	3028	455	99	473
Evener, Doubletree	L. A. Freedy	697,116	Apr. 8	1286	307	99	314
Excavating and loading machine	D. H. Mahoney	701,588	June 3	567	124	99	2255
Exercising device	W. F. Lott	699,401	May 6	525	120	99	1228
Exhaust apparatus, Automatic variable	H. H. Hoff	699,080	Apr. 1	443	108	99	95
Exhaust-consumer	G. A. Hunt	702,007	June 24	3297	738	99	2929
Exhaust-head	H. Sims	696,601	Apr. 1	273	86	99	82
Exhaust mechanism	T. D. Kline	701,304	May 27	4043	980	99	3028
Exhibiting case, Talmie	A. H. Peal	697,522	Apr. 15	2143	476	99	496
Expandable bolt	M. M. Hyland	699,245	May 6	304	40	99	1216
Explosive engine	P. Maginnis	698,266	Apr. 22	3561	785	99	808
Extendible trough	J. F. Wilmet	700,588	May 20	2765	683	99	1776
Extension-table	C. W. Muns	698,005	May 6	908	210	99	1268
Extension-table	F. White	700,282	May 20	2423	555	99	1708
Extension-table	F. White	701,728	June 2	825	199	99	2262
Extractor: See Cork-extractor. Hydro-extractor. Fruit-juice extractor. Stamp-extractor.							
Eyeglass-case	W. Zorbi and J. J. Heise	702,584	June 17	2262	513	99	2510
Eyeglass-polisher	H. C. Figneron	698,853	Apr. 29	4707	1087	99	1057
Eyeglasses	H. C. Thomson	698,078	Apr. 22	3145	628	99	717
Eyeglasses	W. N. Blanchard	699,070	Apr. 29	5049	1121	99	1423
Eyeglasses	L. A. and L. J. Bachus	699,741	May 13	1177	274	99	1238
Eyeglasses	P. Z. McDonald	698,638	May 13	1088	273	99	1218
Eyeglasses	A. R. Critzer	700,689	May 20	2887	675	99	1813
Eyeglasses	F. A. Stevens	701,519	June 3	956	212	99	2200
Eyeglasses	W. L. Wall and L. Propert	701,111	May 27	3284	698	99	3028
Eyeglasses or spectacles	F. J. Leland	697,544	Apr. 8	1778	396	99	306
Eyeglass	H. G. Webber	698,770	Apr. 29	4428	904	99	1018
Eyeglass	E. Kempshall	700,121	May 13	1900	443	99	1578
Eyeglass	J. W. Force	701,478	June 3	323	78	99	2128
Eyeglass	I. W. Giles	702,190	June 10	1855	371	99	2468
Eyeglass	P. R. Glass	701,561	May 27	4158	958	99	3028
Eyeglass	P. R. Glass	701,562	May 27	4159	959	99	3029
Eyeglass	P. R. Glass	701,563	May 27	4160	960	99	3030
Fabric: See Carpet fabric. Tubular fabric. Elastic fabric. Tufted fabric. Photographic fabric. Woven figured fabric. Pile fabric.							
Fabric-cutting machine	H. A. Meyer	701,910	June 10	1128	267	99	2280
Fabric-slitting machine	W. B. Conrad and J. A. Cameron	697,985	Apr. 22	2928	658	99	628
Fabric, Machine for cutting blanks from	J. A. Cameron	697,978	Apr. 22	2929	659	99	629
Fabric, Machine for fixing spangled material to	R. Cornely	700,305	May 20	2280	536	99	1890
textile	D. Margolius	698,590	Apr. 1	517	189	99	173
Fabric, Making repaired	E. Knecht	702,568	June 17	2285	584	99	2296
Fabric, Reserve and discharge on textile	C. S. Pittsburgh	698,486	Apr. 1	61	14	99	16
Fan	W. E. Coleman	697,446	Apr. 15	2005	443	99	461
Fan	J. J. Wood	697,997	Apr. 15	2467	545	99	551
Fan	C. D. Pierce	699,706	May 13	1110	251	99	1417
Fan, Automatic	M. Ottenheimer	701,070	May 27	3210	675	99	3013
Fan, Electric	J. J. Wood	697,998	Apr. 15	2468	546	99	552
Fan, Electric	J. J. Wood	700,511	May 20	2747	689	99	1773
Fan-governor	H. Koch	701,914	June 10	1129	268	99	2281
Fan motor attachment	W. S. Moody	698,595	May 13	1508	345	99	1500
Fan-collecting apparatus for street-cars, &c. Automatic	L. Ferliester	700,708	May 20	2097	704	99	1240
Fan-register	A. Nielsen	698,943	Apr. 8	1079	233	99	249
Fan-gate	A. B. Clayton	697,139	Apr. 8	1288	343	99	343
Fan-gate	G. R. Clarke	697,681	Apr. 15	2281	580	99	589
Fan-gate	E. King	698,717	Apr. 29	4414	974	99	1009
Fan-gate	M. H. Larimore	702,027	June 10	1424	288	99	2421
Fastener, Expansion	E. J. McCormick	700,289	May 20	2429	546	99	1290
Fastener for catchels, purses, &c.	A. and J. Hinkel						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Fastening device.	A. L. Drake.	698,470	Apr. 29	2880	868	99	887
Fastening device.	C. E. Smith.	698,571	Apr. 29	4050	886	99	980
Fastening device.	C. D. Hancock.	702,088	June 10	1414	317	99	2417
Fastening for articles of clothing.	J. M. Duffy.	701,313	June 3	88	13	99	2190
Fats or the like. Apparatus for the recovery of	O. Kremer.	700,056	May 13	1791	416	99	1556
Fatty compound of iodine and sulfur and making same.	O. Degner.	699,900	Apr. 1	974		99	208
Faucet.	J. C. Post.	697,581	Apr. 15	2786	617	99	694
Faucet.	F. F. Field.	699,577	May 6	408	110	99	1871
Faucet.	F. P. Sparraker.	702,680	June 17	2555	686	99	2672
Faucet and water-controlling connection. Safety.	E. G. (James).	696,731	Apr. 1	635	143	99	187
Faucet. Filter.	J. F. Ryan and W. McEwan.	701,943	June 10	1179	290	99	2271
Faucet for fluids. Compound.	C. G. Loygorri y Murrieta.	697,739	Apr. 15	2526	528	99	598
Feather cleaning and renovating machine.	M. R. Ruble.	698,494	Apr. 1	178	44	99	43
Feather-cleaning machine.	H. W. Pennybacker.	700,078	May 13	1909	434	99	1508
Feed and water device for chickens.	G. C. Lathrop.	697,443	Apr. 8	1777	366	99	306
Feed apparatus. Automatic.	F. Woerner.	700,110	May 13	1860	437	99	1574
Feed apparatus. Measured.	S. E. Newberry.	699,689	May 13	1101	256	99	1415
Feed-bag.	D. Schuurman.	698,780	Apr. 1	690	156	99	147
Feed-regulator.	C. B. Moore and G. B. Totman.	700,219	May 20	2156	494	99	1651
Feed-rolls.	C. W. H. Blood. (Reliance).	11,984	May 13	2028	468	99	1002
Feed-trough.	J. M. Allen.	702,686	June 17	2564	660	99	2674
Feed-water cleaner.	D. B. Morrison.	700,086	May 13	1909	419	99	1580
Feed-water filter and heater.	J. Davis.	700,686	May 20	2043	576	99	1814
Feed-water heater.	B. F. Kelley.	698,380	Apr. 22	3297	738	99	2929
Feed-water heater.	F. W. Shupert.	701,518	June 3	280	96	99	2194
Feed-water heater and purifier.	L. Brooks.	698,268	Apr. 22	3561	785	99	808
Feed-water. Heating.	F. H. Trevithick.	699,777	May 13	1253	390	99	1445
Feed-water regulator.	C. M. Spencer.	700,440	May 20	2518	566	99	1746
Feed-water siphon and trap. Combined.	C. Linstrom.	699,331	May 6	350	90	99	1251
Feeder.	G. M. Hiller.	701,088	May 27	3760	888	99	3001
Feeder. Boiler.	H. G. Larcom.	698,266	Apr. 22	3577	739	99	806
Feeder for young calves or colts.	R. A. Whitford.	697,304	Apr. 8	1721	324	99	360
Feeding and weighing mechanism. Automatic.	P. C. Waring.	698,284	Apr. 22	3489	782	99	784
Feeding device. Automatic proportional.	L. Sarpollet.	702,491	June 17	2201	501	99	2209
Feeding device. Stock or poultry.	Z. Xavers.	701,121	May 27	3906	899	99	3028
Feeding mechanism. Boiler.	R. H. White.	702,280	June 24	3128	685	99	2268
Feller. Machine for drilling rivet-holes in metallic wheel.	G. H. Everson.	698,189	Apr. 22	3287	743	99	707
Felly. Vehicle-wheel.	C. B. Van Horn.	697,118	Apr. 8	1267	306	99	315
Fence.	E. Lavelly.	697,523	Apr. 8	1637	367	99	360
Fence.	W. M. Craft.	699,177	Apr. 22	3261	725	99	781
Fence.	H. Bowen.	699,268	May 6	287	96	99	1233
Fence.	L. M. Runyon.	699,816	May 13	1286	306	99	1461
Fence.	T. Rodechar.	702,335	June 24	3731	857	99	2925
Fence. Barbed-wire.	T. Rodechar.	699,028	Apr. 22	3508	1118	99	1159
Fence construction.	J. H. Bain.	701,810	June 3	980	224	99	2226
Fence fabric, Making.	J. J. Hicks.	698,287	Apr. 22	3536	854	99	819
Fence-machine.	J. M. Stucker.	697,387	Apr. 8	1799	423	99	428
Fence-machine. Wire.	L. D. Peak and J. W. Osborne.	697,387	Apr. 8	1799	423	99	428
Fence-machine. Wire.	J. W. Driggles and L. Swank.	698,126	Apr. 22	3575	740	99	704
Fence-machine. Wire.	A. C. Mills and G. R. Lamb.	698,528	Apr. 29	3938	888	99	906
Fence-machine. Woven-wire.	F. Stebler.	700,710	May 20	2114	707	99	1261
Fence-making-machine spreader.	W. C. Kincaid.	699,180	May 6	119	39	99	1196
Fence-post.	R. T. Van Valkenburg.	698,280	Apr. 1	1247	278	99	284
Fence-post.	C. W. Snook.	697,081	Apr. 8	1247	278	99	1014
Fence-post.	L. A. Thoraburg and A. L. Denser.	698,739	Apr. 29	4438	291	99	1010
Fence-post.	F. A. Peobles.	700,077	May 13	1286	428	99	1523
Fence-post.	O. R. Smith and F. T. Bisbee.	700,481	May 20	2502	578	99	1750
Fence-post.	C. Leall.	700,481	May 20	2528	598	99	1789
Fence-post.	C. L. Tuttle.	701,426	June 3	326	57	99	2161
Fence-post.	E. R. Spore and J. M. Kaub.	701,771	June 10	1707	344	99	2476
Fence-post.	J. A. Mitchell.	702,380	June 10	1707	344	99	2476
Fence-post-making machine.	O. R. Smith and F. T. Bisbee.	700,528	May 20	2226	590	99	1607
Fence-post, telegraph-pole, &c.	I. M. Warner.	702,528	June 17	2240	520	99	2728
Fence. Stationary.	A. H. and C. R. Cook and W. H. Hood.	701,597	June 3	323	7	99	2115
Fence tool. Wire.	W. Neab.	701,790	June 3	323	7	99	2115
Fence. Wire.	F. W. and J. G. Opel.	700,074	May 13	1815	421	99	1526
Fence-wire stretcher.	E. Sahler.	699,546	May 6	306	40	99	1216
Fences. Machine for weaving cross-wires in.	N. Steele and H. Brown.	698,285	Apr. 22	3536	854	99	819
Fencing. Woven-wire.	J. M. Denning.	697,074	Apr. 8	1260	306	99	309
Fender.							
See Car-fender.							
Fender.	A. Beck.	700,716	May 20	2129	710	99	1264
Fender and brake. Combined.	E. E. and E. E. Clark.	701,628	June 3	326	160	99	2290
Ferrule for awl or knife handles.	M. Kuehn.	701,561	June 3	326	160	99	2290
Fertilizer-distributor.	E. Edwards.	698,704	May 13	1284	397	99	1451
Fertilizer-distributor.	C. H. Sanford.	699,547	May 6	307	40	99	1216
Fertilizer-distributor.	W. P. Nise.	700,588	May 20	2774	688	99	1780
Fertilizer-distributor.	T. J. Waddell.	701,776	June 3	323	7	99	2115
Fertilizer-distributing receptacle. Plant.	J. E. Edwards.	701,818	June 3	323	7	99	2115
Fiber-crozier.	P. Mickle.	698,304	Apr. 22	3526	841	99	809
Fiber. Machine for reducing wood to	W. K. Squier.	701,418	June 3	280	61, 80	99	2115

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Fiber-separating machine	E. B. Allison	699,988	May 13	979	288	99	1881
Fibers or filaments from solutions of cellulose, &c., and for twisting and putting into coil form such or other fibers or filaments. Apparatus for the production of textile	C. F. Topham	702,288	June 10	1970	448	99	2530
Fibers. Retting vegetable	B. S. Summers	698,515	Apr. 1	211	99	99	40
Filaments. Apparatus for the production of fiberless	W. A. P. Werner	697,580	Apr. 15	288	438	99	504
File	J. F. Sullivan	699,591	May 6	381	304	99	1387
File. Account	H. F. Engleking	699,748	May 13	1188	378	99	1431
File. Account	L. J. Krohn	697,088	Apr. 8	1354	300	99	307
File and cabinet. Letter	W. B. Anderson	698,850	Apr. 28	3258	308	99	884
File and display book	W. B. Anderson	700,417	May 30	3500	388	99	1788
File. Bill	H. Levy	697,598	Apr. 15	2848	801	99	510
File-cabinet	P. H. Yawman	701,448	June 3	391	65	99	2188
File. Card-index	C. F. W. Ahrens	701,000	May 27	3977	684	99	1681
File. Document	G. F. Watt	700,391	May 20	3518	678	99	1788
File for bills, &c.	E. G. Waters	700,387	May 20	3535	518	99	1673
File. Index	F. K. Krag	698,888	Apr. 29	4908	1088	99	1107
File, &c. Letter	W. E. Ball	698,881	Apr. 29	4190	984	99	947
Filing-cabinet	C. T. Daniel	699,390	May 6	304	70	99	1387
Filing tray. Card-index	P. H. Yawman	701,449	June 3	398	65	99	2188
Filing-machine. Centrifugal	A. H. Miller	701,738	June 3	848	187	99	2838
Filter	N. Ceipek	701,488	June 3	381	78	99	2177
Filter	C. E. Harris	700,916	May 27	3889	809	99	1851
Filter	G. F. Hodkinson	701,738	June 3	808	178	99	2877
Filter	V. Oster	702,468	June 17	2148	488	99	2887
Filter. Barrel	D. E. Shinn	702,485	June 17	2310	508	99	2901
Filter. Barrel	D. C. Mosher	699,311	May 6	145	37	99	1305
Filter. Coffee	D. C. Mosher	699,312	May 6	147	37	99	1305
Filter. Oil	A. F. Shriver	701,632	June 3	848	141	99	2943
Filter. Water	T. Neuray	708,514	June 17	2838	448	99	3734
Filtering and lubricating apparatus. Oil	J. Wilson	699,038	Apr. 29	5089	1114	99	1138
Filtering apparatus. Waste-oil	J. W. McLean	698,919	Apr. 8	190	35	99	2141
Filtering-process	J. B. Allfree	700,168	May 13	1017	338	99	238
Fine-fuel combustion	J. W. Evans	700,051	June 10	1388	314	99	2400
Fine-fuel furnace	K. Essinger	698,191	Apr. 28	2886	748	99	708
Fine-fuel furnace	W. H. Fenner	698,190	Apr. 28	2889	744	99	708
Finger-ring. Initial	R. Hersberg	700,128	May 30	3111	688	99	1648
Fire-alarm	F. G. Frey, Jr.	700,087	May 30	3068	679	99	1818
Fire-arch	J. A. Olson	698,047	Apr. 28	3008	680	99	708
Firearm. Automatic	H. A. Poppenhusen	697,658	Apr. 15	2877	580	99	884
Firearm. Automatic	W. F. Cole	701,788	June 3	880	308	99	2301
Firearm. Lock	J. A. N. Rasmussen	701,815	June 3	948	310	99	2307
Firearm. Magazine	O. F. Mosberg	697,516	Apr. 15	2128	478	99	438
Firearm. Magazine	W. H. Davenport	701,189	May 27	3970	518	99	2048
Firearm. Magazine	S. Parada	698,708	May 13	1108	380	99	1416
Firearm. Magazine	J. M. Browning	701,388	June 3	18	4	99	2112
Firearm. Magazine	W. W. Humphreys	708,388	June 24	3088	648	99	3013
Firearm. Magazine	W. J. Whiting	700,588	May 20	2878	661	99	1790
Firearm. Magazine	O. F. Mosberg	697,517	Apr. 15	2128	478	99	438
Firearm. Magazine	J. H. Wesson	708,007	June 17	2480	588	99	2848
Firearm. Magazine	C. J. Hamilton	698,988	Apr. 8	1128	249	99	854
Firearm. Magazine	J. M. Browning	701,389	June 3	21	5	99	2113
Firearm. Magazine	G. E. Witherell	697,061	Apr. 8	1288	288	99	908
Firearm. Magazine	J. T. McCabe	708,347	June 24	3812	878	99	2046
Firearm. Magazine	G. H. McClain	698,540	Apr. 29	4004	898	99	911
Fire-door holding and releasing device	P. Olsen	698,698	Apr. 1	558	128	99	121
Fire-engine fire-kindler	H. W. Hines	698,438	Apr. 1	88	19	99	38
Fire-engine fire-kindler	W. Stewart	698,508	Apr. 1	301	48	99	47
Fire-engine fire-kindler	T. J. Briser	698,711	Apr. 1	608	188	99	131
Fire-engine fire-kindler	W. E. and N. E. Cain	698,885	Apr. 1	880	188	99	131
Fire-engine fire-kindler	H. Boettcher	698,981	Apr. 8	1048	288	99	241
Fire-engine fire-kindler	J. T. Mahar	697,788	Apr. 15	3531	888	99	504
Fire-engine fire-kindler	J. T. Mahar	698,658	May 6	805	190	99	1348
Fire-engine fire-kindler	J. C. McCormick	700,548	May 30	3901	640	99	1794
Fire-engine fire-kindler	J. and P. J. Setbacken	701,044	May 27	3847	888	99	2019
Fire-engine fire-kindler	O. Tardif	708,388	June 10	1747	368	99	2488
Fire-engine fire-kindler	E. F. Hendricks and E. Thompson	708,888	June 17	2888	687	99	2741
Fire-engine fire-kindler	E. M. Christ and W. I. Haldeman	708,888	June 17	2888	687	99	2741
Fire-engine fire-kindler	R. Nicholls	700,078	May 13	1818	481	99	1508
Fire-engine fire-kindler	R. E. Hemming	701,488	June 3	870	288	99	2194
Fire-engine fire-kindler	M. E. Weller	698,780	Apr. 1	728	188	99	136
Fire-engine fire-kindler	W. H. Bandl	700,698	May 20	2998	644	99	1808
Fire-engine fire-kindler	R. M. Martin	700,698	May 20	3080	700	99	1846
Fire-engine fire-kindler	W. E. Ezy	698,884	Apr. 1	287	218	99	198
Fire-engine fire-kindler	H. O. Montgomery	700,318	May 30	3154	484	99	1651
Fire-engine fire-kindler	C. Muhring	697,006	Apr. 8	1194	288	99	278
Fire-engine fire-kindler	C. E. Miller	697,641	Apr. 15	2849	511	99	828
Fire-engine fire-kindler	W. Doll	697,611	Apr. 15	2888	511	99	817
Fire-engine fire-kindler	J. Curry	698,698	May 13	1088	241	99	1401

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Fire-extinguishing systems. Main valve for	H. Evermann	700,187	May 30	3008	479	99	1888
Fire-hose shut-off	J. H. Towers	698,574	Apr. 29	4780	1044	99	1072
Fire-kindler and method of making	A. F. Putnam	697,014	Apr. 8	1218	371	99	877
Fireman's mask	J. B. Reid	708,431	June 17	2173	496	99	2808
Fireman's shield	F. W. Shappard	708,028	June 10	1888	328	99	2408
Fireplace and chimney. Portable	E. S. Richards	708,998	June 24	5180	788	99	2513
Fireproof building structure	J. O. Ellinger	708,088	June 10	1478	381	99	2438
Fireproof door, &c. Automatic	C. A. Barber	698,788	Apr. 29	4388	1000	99	1032
Fireproof shutter, door, &c.	J. G. Wilson	700,478	May 27	3447	791	99	1938
Fire-resisting staircase	W. Seefelt	698,508	Apr. 1	191	46	99	45
Fire-resisting window	T. Lee	698,688	May 13	1088	338	99	1411
Fire-screen gate	J. W. McLean	698,948	Apr. 29	4998	1088	99	1085
Fire-shutter	P. Ebner	698,478	Apr. 29	3808	1801	99	889
Fire-starter or gas-heater	T. B. Draper and G. T. Lyon	708,048	June 10	1880	318	99	2408
Fires. Extinguishing	J. D. Moore and F. M. Martin	700,987	May 27	3818	880	99	1908
Fires in closed compartments. Apparatus for extinguishing	H. B. Feibiger	708,714	June 17	2612	601	99	2304
Fires in closed compartments. Apparatus for the stoppage of water from automatic sprinkler-heads after firing valve for subsurface explosion-tubes	T. Tipping and E. Fletcher	700,108	May 18	1870	488	99	1572
Fishing-bait	J. P. Holland	698,971	Apr. 8	1184	328	99	951
Fishing-bait	J. Heddon	698,438	Apr. 1	73	17	99	81
Fishing-bait	A. Morris	708,388	June 10	1718	488	99	2478
Fishing-bait	A. B. Lacey	698,387	May 6	516	119	99	1881
Fishing-bait	J. M. Eytok, Jr.	698,711	May 13	1138	382	99	1418
Fishing-bait	P. E. T. Berner	701,138	May 27	3988	304	99	2087
Fishing-bait	A. Taylor	700,988	May 27	3938	840	99	1977
Fishing-bait	E. D. Rockwell	700,538	May 30	3988	648	99	1788
Fishing-bait	R. B. Charlton	698,148	May 6	40	11, 12	99	1194
Fishing-bait holder	V. Gebhardt	698,304	May 6	330	78	99	1241
Fishing device	J. Seiler	700,088	May 13	1880	431	99	1500
Fishing. Floating seine-net or weir for	J. S. Dill	698,084	Apr. 29	5038	1128	99	1145
Fishing-gear	A. W. Wilson	697,910	Apr. 15	3887	688	99	638
Fishing-net sinker	A. Johnson	708,988	June 24	5179	709	99	2708
Fishing-reel	M. A. Shipley	698,888	May 13	1348	318	99	1488
Fishing-reel	E. von Hofe	700,484	May 30	3978	800	99	1788
Fishing-reel line-guide	L. Atwood	708,388	June 24	3908	877	99	2900
Flash-lamp	H. Krueger and R. J. Hoffman	698,088	Apr. 28	3958	671	99	608
Flash-light apparatus	G. Collard	698,438	May 6	519	141	99	1808
Flash-light machine. Photographic	A. Hensley	698,588	May 6	738	172	99	1288
Flash	L. G. Bigelow	698,438	Apr. 1	18	5	99	8
Flash. Casting-flask. Mold-flask	W. F. Nicholas	698,700	May 13	1108	358	99	1415
Flash-iron heater	J. T. Smith	701,770	June 3	878	198	99	2891
Flax or hemp straw. Machine for treating	W. E. Lombard	708,388	June 24	3981	800	99	2918
Fleshing-machine	C. L. and R. A. Schultz	700,398	May 30	3818	808	99	1808
Flexible coupling	O. E. Gibson	701,878	June 10	1888	327	99	2844
Flies from cattle and trapping same. Device for brushing	A. W. Ayling and P. F. Reichert	698,641	May 13	901	380	99	1388
Flood-bell	J. H. Oyle	697,188	Apr. 8	1438	388	99	330
Flood-gate	H. B. Casperson	701,678	June 3	791	189	99	2880
Flood-gate	E. A. Stevens	708,188	June 24	3480	800	99	2878
Flood-gate	G. B. Waite	708,088	June 24	3907	738	99	2928
Flood-gate	J. M. Cammack	700,188	May 30	3908	480	99	1800
Flood-gate	W. H. Barrar	708,618	June 17	3438	538	99	2848
Flood-gate	E. J. Welland	708,887	June 17	3848	538	99	2728
Flood-gate	C. F. Lemcke	708,588	June 17	3848	537	99	2728
Flood-gate	W. H. Grippin	698,307	May 6	388	78	99	1848
Flood-gate	C. O. Gaudin	698,840	Apr. 29	4700	1088	99	1038
Flood-gate	C. W. Smedley and J. P. E. de Brito	701,887	June 3	884	148	99	2848
Flood-gate	O. W. Norcross	698,548	Apr. 29	4000	888	99	918
Flood-gate	O. W. Norcross	698,548	Apr. 29	4018	888	99	918
Flood-gate	W. W. Olin	698,084	May 13	1081	240	99	1401
Flood-gate	J. and S. Andrews	698,340	Apr. 28	3428	788	99	787
Flood-gate	G. P. Paoletti	698,381	Apr. 28	3448	787	99	788
Flood-gate	M. A. De Force	698,184	May 6	51	14	99	1108
Flood-gate	D. Boyd	698,174	Apr. 29	3887	788	99	780
Flood-gate	J. E. Cramer	701,388	May 27	4144	938	99	3078
Flood-gate	J. Cashner	701,148	May 27	3884	610	99	2048
Flood-gate	I. C. Eick	708,348	June 10	1818	487	99	2517
Flood-gate	J. Hartman	700,648	May 30	3978	688	99	1888
Flood-gate	W. E. Johnson	698,308	Apr. 1	988	219	99	808
Flood-gate	M. W. Hibbard	698,308	May 6	438	118	99	1874
Flood-gate	H. H. Westinghouse	708,388	June 10	1770	404	99	2480
Flood-gate	W. H. Westinghouse	708,497	June 17	2818	804	99	2808
Flood-gate	R. O. Sayer	708,498	June 17	2197	800	99	2808
Flood-gate	A. C. Smith	708,001	June 17	3408	300	99	2808
Flood-gate	W. M. Benson	701,688	May 27	3841	381	99	2048
Flood-gate	P. H. Hamilton	708,373	June 30	3908	678	99	2707
Flood-gate	J. Hartman	700,648	May 30	3978	688	99	1888
Flood-gate	J. Patton	701,388	June 3	178	30	99	118
Flood-gate	C. E. Day	701,548	June 3	478	107	99	2808
Flood-gate	L. F. Haynes	708,088	June 10	1888	380	99	2408
Flood-gate	E. P. Rogers	698,388	Apr. 28	3818	738	99	2707
Flood-gate	A. D. Miller	700,688	May 30	3978	688	99	1888

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Fly-exit for screens.	C. F. Working.	690,787	May 13	1178	878	98	148
Fly-paper holder.	C. D. Eaton and A. L. Norton.	708,547	June 17	2890	381	99	261
Fly-screens.	A. L. Stokesberry.	698,768	Apr. 29	4476	983	99	1017
Fly-trap.	W. J. Purvis.	703,338	June 24	3719	356	99	232
Fly-trap. Electric.	E. R. Greene.	694,374	Apr. 22	3546	701	99	803
Folding box.	E. R. Greene.	694,408	Apr. 1	127	94	98	3
Folding box.	B. R. McFadden.	698,388	Apr. 22	3681	777	99	79
Folding box.	D. Elliott.	700,049	May 18	1781	418	99	125
Folding box.	J. C. Elver.	701,622	June 8	931	180	99	229
Folding box.	Z. B. Webb.	701,622	June 8	3218	768	99	229
Folding chair.	W. E. Nivison.	708,077	June 24	4087	856	99	91
Folding device.	E. J. Schuneman.	696,588	Apr. 29	1428	327	99	248
Folding-machine.	L. E. Barnes.	708,085	June 10	1545	307	99	266
Folding stand or easel.	J. A. Scott.	701,688	June 8	701	155	99	266
Folding table, shelf, or desk.	G. A. Ank.	708,930	June 24	3573	800	99	266
Food and making same. Malted cereal.	J. K. Lippen.	697,706	Apr. 15	3660	678	99	57
Food-chopper.	H. K. Wood.	700,778	May 27	5185	716	99	187
Food-cutter.	J. A. Bone.	708,188	June 24	3477	700	99	287
Foot. Artificial.	M. Smith.	699,760	May 13	1288	269	99	144
Foot-rest.	L. Woerner.	701,703	June 8	862	188	99	288
Foot-warmer.	J. P. McAbee.	697,375	Apr. 8	1668	873	99	3
Forge fire-pot. Blacksmith's.	D. D. Reese.	698,738	Apr. 1	678	128	99	1
See Hay-fork.	S. D. Robison.	700,580	May 30	3704	626	99	17
Fork-making die.	M. C. Moran.	701,928	June 10	1140	368	99	22
Form. Adjustable sleeve.	P. J. Nelson.	701,559	June 3	506	111	99	22
Form. Construction of.	A. Goerke.	696,787	Apr. 1	744	106	99	1
Foundations. Sinking.	A. M. Acklin.	698,471	May 6	656	128	99	18
Foundry-sand. Apparatus for feeding and tempering.	A. M. Acklin.	698,471	May 6	656	128	99	18
Foundry-sand feeding and tempering apparatus.	A. M. Acklin.	698,471	May 6	656	128	99	18
Frame.	See Drawing-frame. Quilting-frame. Embroidery-frame. Vial-carrying frame. Picture-frame.						
Frame.	E. Oldenbusch.	697,878	Apr. 15	3771	614	99	4
Pressing can. Water.	E. Stutz.	699,368	May 13	1493	387	99	14
Pro-operating mechanism.	F. C. Anderson.	708,085	June 24	3523	748	99	26
Proot on vegetation. Machine for preventing deposition of.	S. D. Smith.	708,816	June 24	3738	860	99	26
Fruit-box.	W. Clement.	702,778	June 17	3738	685	99	7
Fruit box or basket.	G. H. Williams.	698,778	Apr. 29	4508	968	99	10
Fruit-drier.	L. Van Scoyoc.	697,573	Apr. 15	2407	585	99	10
Fruit-drier tray.	J. H. Collins.	697,387	Apr. 8	1591	454	99	10
Fruit-grading machine.	A. H. Pettit.	697,380	Apr. 8	1591	454	99	10
Fruit-jar.	F. Mason.	701,218	May 27	4028	933	99	3
Fruit-jar.	H. B. Burns.	703,708	June 17	2588	508	99	3
Fruit-juice extractor.	C. Pate.	700,638	May 30	3008	908	99	1
Fruit, &c. Press for expressing juice from.	B. A. Geurink.	708,190	June 24	3227	818	99	1
Fuel. Artificial.	W. R. Peakes.	698,560	Apr. 29	4704	951	99	1
Fuel. Artificial.	A. E. Tucker and C. Cory.	700,389	May 30	3511	808	99	1
Fuel block and briquet.	F. Chailly.	697,384	Apr. 8	1598	454	99	1
Fuel-burner.	C. A. Dally.	701,900	June 8	394	806	99	1
Fuel-regulator. Automatic.	H. A. House, Jr.	698,698	Apr. 1	448	106	99	1
Furnace.	See Assayer's furnace. Metallurgical furnace. Assaying-furnace. Muffle-furnace. Blast-furnace. Ore-roasting furnace. Boiler-furnace. Quicksilver furnace. Boiler or other furnace. Retort-furnace. Boasting-furnace. Rolling-mill furnace. Electric furnace. Shaft-furnace. Electric combustion-furnace. Sheet-metal-heating furnace. Fine-fuel furnace. Smoke-consuming furnace. Gas-furnace. Spelter-furnace. Glass-furnace. Steel-furnace. Glass-making furnace. Straw-burning furnace. Heating-furnace. Hot-air furnace.						
Furnace.	W. Wakely.	696,701	Apr. 1	594	138	99	1
Furnace.	J. MacCormack.	696,967	Apr. 8	1160	258	99	1
Furnace.	W. M. Green, J. R. Gent, and H. A. Poppenhuisen.	697,690	Apr. 15	2907	517	99	1
Furnace.	G. S. Gallagher.	697,698	Apr. 15	2908	520	99	1
Furnace.	W. Stubblebine.	698,236	Apr. 22	2984	804	99	1
Furnace.	E. H. Gowing.	700,028	May 18	1768	400	99	1
Furnace.	W. W. Ponsley.	700,290	May 30	3185	498	99	1
Furnace.	F. Sargent.	700,681	May 27	3274	778	99	1
Furnace.	V. E. Edwards.	701,068	May 27	3726	885	99	1
Furnace.	W. F. Wilmoth.	702,755	June 17	3552	619	99	1
Furnace arch. Boiler.	J. F. Michalski.	697,787	Apr. 15	2929	528	99	1
Furnace ash-remover. Boiler.	D. Campbell.	698,449	Apr. 29	3038	851	99	1
Furnace blast device.	C. P. Larson.	698,526	Apr. 29	3074	878	99	1
Furnace bottom. Sheet-heating.	P. F. Smith.	698,145	Apr. 22	2905	794	99	1
Furnace bridge-wall.	H. A. Poppenhuisen.	697,697	Apr. 15	2975	520	99	1
Furnace-charging apparatus.	S. S. Wales.	698,708	Apr. 30	4428	928	99	1

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Furnace-charging system.	A. E. W. Hodges.	698,385	May 6	743	174	99	1289
Furnace-dilling apparatus.	J. Kennedy.	698,389	Apr. 29	4584	1088	99	1028
Furnace for heating or smelting metals.	H. H. Hewitt.	698,405	Apr. 30	3965	567	99	994
Furnace for progressively heating metal plates or packs.	T. V. Allis.	698,180	May 6	9	9	99	1172
Furnace grate-bar.	M. Sherman.	698,594	May 13	1344	519	99	1486
Furnace grate-bar. Forced-blast.	F. Burger and E. H. Williams.	698,597	Apr. 8	1087	899	99	947
Furnace mouthpiece. Boiler.	W. H. Donley.	698,500	May 6	704	1184	99	1289
Furnace oil-burner.	W. Booth.	698,581	Apr. 28	3984	518	99	989
Furnace terminal. Electric.	E. G. Acheson.	701,589	June 10	1390	897	99	2395
Furnace top. Blast.	P. Neehan.	701,592	May 27	3504	593	99	1067
Furnace. Automatic feed for screw-burning.	J. A. Cowan.	701,015	May 27	3731	593	99	1598
Furnace. Cover mechanism for pit.	F. H. Treat.	701,552	June 24	374	993	99	3593
Furnace. Feeding mechanism for billet-heating.	V. E. Edwards and E. H. Carroll.	701,589	May 27	3735	593	99	1095
Furnace. Feeding metal strips in.	T. V. Allis.	698,182	May 6	6	6	99	1170
Furnace. Operating blast.	J. Kennedy.	698,598	Apr. 20	4098	1088	99	1008
Furnace. Reversing-valve for regenerative gas.	H. Hyatt and J. McGeorge.	698,598	Apr. 22	3555	784	99	808
Furniture. Baby.	W. P. Abell.	700,001	May 13	1690	899	99	1596
Furniture. Combination.	J. Moran.	700,898	June 10	1710	896	99	2477
Furniture-coupling.	J. Brunner and H. J. Root.	702,022	June 17	6446	557	99	2648
Furniture door slide or guide.	F. L. Forster.	702,342	June 10	1910	496	99	2616
Fuse-box.	H. R. Barget.	696,497	Apr. 1	181	44	99	48
Fuse-box. Multiple.	J. D. Lytle.	700,665	May 30	3070	700	99	1245
Fuse-box. Safety.	J. T. Watson.	698,045	Apr. 20	3267	1113	99	1112
Fuse-cap.	C. E. Stevens.	698,598	May 6	878	998	99	1385
Fuse cut-out. Plural.	C. J. Dorsey.	697,925	Apr. 15	3988	598	99	643
Fuse cut-out. Plural.	C. J. Dorsey.	700,410	May 20	3547	594	99	1739
Fuse for explosive projectiles. Base.	C. M. Broderick.	697,974	Apr. 28	3993	681	99	677
Fuse-igniter.	C. K. Jenkins and H. J. McDonald.	701,503	May 27	4047	993	99	2048
Fuse-setting apparatus. Time.	C. P. E. Schneider and J. B. G. A.	698,930	May 18	1510	947	99	1701
Fuse. Time.	Canet.	700,648	May 30	3997	951	99	1619
Fusible materials to dust. Apparatus for reducing.	O. Hartmann.	702,735	June 17	3953	611	99	2648
Gage.	A. F. Madden.	702,735	June 17	3953	611	99	2648
See Axle-gage.	Pressure-gage.						
Boiler water-gage.	Saw-tooth gage.						
Draft-gage.	Threshold-gage.						
Flooring-gage.	Vacuum-gage.						
Milk-modifying gage.	Water-gage.						
Gage.	A. Rusbatch.	702,093	June 24	2241	797	99	2649
Galvanic battery. Reversible.	T. A. Edison.	700,136	May 13	1994	481	99	1690
Galvanic battery. Reversible.	T. A. Edison.	700,137	May 13	1995	482	99	1690
Galvanic battery. Reversible.	T. A. Edison.	701,594	June 2	998	998	99	2028
Galvano-electric therapeutic chain.	A. A. Krieger.	700,758	May 27	3938	798	99	1928
Game.	J. H. Singer.	698,608	Apr. 1	874	85	99	99
Game.	L. Ernst.	698,608	Apr. 1	877	801	99	165
Game.	F. Walenta.	697,574	Apr. 15	3218	697	99	958
Game.	C. Fr. and C. Nielsen, Jr.	700,688	May 30	3979	999	99	1798
Game.	Z. B. Webb.	701,171	May 27	3938	817	99	2050
Game apparatus.	J. S. Donovan.	698,498	Apr. 1	845	148	99	139
Game apparatus.	W. C. Helmbach.	698,498	Apr. 1	845	148	99	139
Game apparatus.	L. C. Hellingner.	697,457	Apr. 8	1908	493	99	425
Game apparatus.	M. V. Hammack.	697,457	Apr. 15	3016	445	99	1980
Game apparatus.	A. R. Doering.	700,599	May 27	4490	790	99	1690
Game apparatus.	W. O. Talcott.	700,570	May 27	3490	784	99	1690
Game apparatus.	H. W. Standidge.	701,414	June 2	362	85	99	1128
Game apparatus.	G. M. Johnson.	701,424	June 8	374	85	99	1128
Game-board.	W. J. Lawers.	701,498	June 8	378	85	99	1140
Game-counter.	G. F. Barron.	700,597	May 27	3471	738	99	1619
Game device.	A. J. Sols.	701,096	May 27	3928	518	99	2019
Game or puzzle.	J. H. Bennett and M. L. Zimmermann.	701,588	June 10	1392	897	99	2395
Game or puzzle.	J. Putnam.	708,477	June 17	6109	694	99	2681
Game-table.	F. W. Cameron.	708,028	June 10	1408	380	99	2395
Games. Propelling-spring for target.	W. R. Austin and W. N. Crow.	708,910	June 24	2382	897	99	2779
Garbage-can.	W. R. Austin and W. N. Crow.	697,523	Apr. 15	3075	580	99	989
Garbage-can.	J. M. Hutton.	708,922	June 24	2384	899	99	2780
Garbage-can.	E. R. Gilman.	697,478	Apr. 15	3040	480	99	989
Garbage-can or refuse can.	E. R. Newport.	708,922	June 24	2385	899	99	2780
Garbage. Treating.							
Garbage-treating apparatus.	E. R. Newport.	708,922	June 24	2385	899	99	2780
Garment.	J. J. Walter and J. S. Brockert.	697,370	Apr. 15	3215	694	99	958
Garment.	J. H. Burt.	700,974	May 30	3918	690	99	1928
Garment.	I. Davis.	700,747	May 27	3918	794	99	1928
Garment.	H. Bandier.	700,908	May 27	3921	808	99	1928
Garment.	H. Bandier.	701,292	May 27	4125	998	99	2077
Garment-cloap.	J. Cohen.	698,698	Apr. 1	871	97	99	99
Garment-closure.	C. B. Howd.	708,348	June 24	2398	708	99	2780
Garment-closure.	G. Baldwin.	700,001	May 20	3991	694	99	1928
Garment-combination.	G. W. Grinn.	702,724	June 17	3938	801	99	2395
Garment-fastener.	E. E. Egan.	698,071	Apr. 30	3970	774	99	1128
Garment-fastening.	J. M. Beiermeister.	708,110	June 24	2378	774	99	2780
Garment-folding device.	M. J. Ock.	698,622	Apr. 30	3938	1184	99	1140
Garment-hanger.	J. Johnson.	698,622	Apr. 30	3938	1184	99	1140
Garment-hanger.	J. Johnson.	698,622	Apr. 30	3938	1184	99	1140
Garment-hanger.	J. Black.	708,419	June 17	6088	686	99	2681

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr's	Vol.	Page.
Garment-hanger for wardrobes, &c.	P. Bledner	700,084	June 24	2222	770	99	2081
Garment-hook	T. D. Richardson	700,078	May 20	2479	588	99	1717
Garment-hook and fastener	J. H. and I. Taylor	700,161	June 24	2458	801	99	2070
Garment. Nether	B. M. Crouse	700,177	May 20	2076	478	99	1680
Garment-stretcher	E. Pickhardt	697,108	Apr. 8	1288	304	99	811
Garment-stretcher	J. Percival	698,516	Apr. 22	2804	784	99	1080
Garment-stretcher	G. A. M. Anderson	698,587	Apr. 22	4773	1040	99	1800
Garment-stretcher	J. H. Youmans	700,226	May 20	2828	622	99	2040
Garment-stretcher	J. H. Youmans	701,142	May 27	3044	907	99	177
Garment-stretcher	O. H. Phelps	698,940	Apr. 1	841	108	99	1286
Garment-supporter	O. Warlich	690,205	May 6	282	58	99	1787
Garment-supporter	W. S. Hunkins	700,408	May 20	2722	622	99	2180
Garment-supporter	V. Keller	701,351	June 8	181	37	99	2180
Garment-supporter	P. Douglas	701,088	June 10	1288	284	99	2180
Garment-supporter	H. N. Northrop	700,188	June 24	2458	788	99	2180
Garment-supporter	J. H. Pilkington	700,800	June 24	2718	855	99	2180
Garment-supporter	A. P. and E. E. Richardson	700,240	June 24	2615	876	99	2180
Garment-supporter	C. S. Nonnenmacher	700,350	June 24	2616	877	99	2180
Garment-supporter	C. S. Nonnenmacher	700,350	June 24	2616	877	99	2180
Garment-supporter	T. P. Taylor	697,322	Apr. 8	1571	351	99	2180
Garment-supporter	L. P. Chauvet	697,808	Apr. 15	2627	588	99	2180
Garment-supporting appliance	J. P. Conway	697,811	Apr. 15	2621	580	99	2180
Garment-supporting means	C. W. Mesick	698,087	Apr. 22	3070	676	99	2180
Garment-turning apparatus	W. G. Jarvis	698,086	Apr. 22	4579	1077	99	2180
Garment-cylinder	H. J. Tate	698,872	Apr. 22	4782	1028	99	2180
Garment	D. B. Littlefield	697,594	Apr. 15	2604	405	99	2180
Gas and air mixer	G. A. Loeben	701,000	June 8	128	128	99	2180
Gas and air mixing burner	W. J. Woodward	697,708	Apr. 15	2580	578	99	2180
Gas and oil burner. Combination	G. A. Smith	697,080	Apr. 8	1245	277	99	2180
Gas apparatus. Acetylene	A. W. Edwards	700,008	June 10	1471	351	99	2180
Gas apparatus for extracting tar from	P. Plantinga	690,508	May 6	810	191	99	2180
Gas apparatus for the manufacture of carbureted-hydrogen	B. Van Steenberg	690,508	May 6	428	97	99	2180
Gas-burner	H. Eldridge	697,481	Apr. 15	2028	447	99	2180
Gas-burner	J. Harris	697,481	Apr. 15	2028	444	99	2180
Gas-burner	P. Keller and P. Keller	700,305	May 20	2125	497	99	2180
Gas-burner	H. Eldridge	701,085	May 27	2741	554	99	2180
Gas-burner	C. W. Currier	701,308	June 8	40	8	99	2180
Gas-burner	T. Holland	700,878	June 17	2600	678	99	2180
Gas-burner for firing barrels	H. O. Rush	690,578	May 6	856	200	99	2180
Gas-burner. Heating	E. S. Clark	698,485	Apr. 22	2625	598	99	2180
Gas-burner. Incandescent	F. E. Clavson and O. C. Benjamin	698,878	Apr. 22	2708	518	99	2180
Gas-burner. Incandescent	J. W. Blakey	698,028	Apr. 22	2608	541	99	2180
Gas-burner. Incandescent	C. W. Taylor	700,574	May 20	2647	654	99	2180
Gas-burner. Incandescent	I. E. Taylor	700,587	May 27	2421	786	99	2180
Gas-burner. Incandescent	C. W. Taylor	700,820	June 17	2626	621	99	2180
Gas-burner. Incandescent	A. A. Pratt	700,088	June 24	2628	708	99	2180
Gas-burner lighting attachment	E. W. Cornell	700,048	June 24	2605	746	99	2180
Gas-burner mantle-support	H. H. Tibbs	698,887	May 13	1488	388	99	2180
Gas-burning heater	A. W. Kent	698,519	Apr. 22	2826	678	99	2180
Gas-capsule	G. A. Logan	698,928	Apr. 8	1155	257	99	2180
Gas. Charging compartments with	J. D. Moore and F. M. Martin	700,538	May 20	2794	688	99	2180
Gas-check for burner or similar burner	F. M. Brooks	700,538	May 27	2480	708	99	2180
Gas-distributing system	M. Toits and A. Lipschultz	690,725	May 13	1145	288	99	2180
Gas-engine	F. L. Nichols	700,878	June 10	1287	445	99	2180
Gas-fire appliance	J. F. Hewitt	697,941	Apr. 15	2621	587	99	2180
Gas-fixture	G. F. Bryan	690,080	May 13	1003	284	99	2180
Gas-fixture globe-holder attachment	J. Kirby, Jr.	690,644	Apr. 1	418	108	99	2180
Gas for use in explosion-engines. Device for generating	J. S. Kilian	690,580	Apr. 1	816	74	99	2180
Gas-furnace. Steam-boiler	E. J. Duff	701,801	June 10	1081	280	99	2180
Gas generating and burning furnace	C. M. Gearing	700,413	June 17	2056	408	99	2180
Gas-generating apparatus	W. J. Faulkner	701,180	May 27	4018	923	99	2180
Gas-generating apparatus	W. J. Faulkner	701,808	June 8	928	207	99	2180
Gas-generating apparatus. Acetylene	E. N. Dickerson	698,418	Apr. 1	49	11	99	2180
Gas-generating apparatus. Acetylene	J. Nounaret	698,044	Apr. 22	2628	678	99	2180
Gas-generating apparatus. Acetylene	A. E. Adolphson	690,226	May 13	1200	314	99	2180
Gas-generating apparatus. Acetylene	P. Bucher	700,405	May 20	2540	581	99	2180
Gas generator. Acetylene	F. Simonson	698,765	Apr. 1	700	120	99	2180
Gas generator. Acetylene	J. B. Crompton	698,820	Apr. 1	688	200	99	2180
Gas generator. Acetylene	E. J. Dolan	698,948	Apr. 8	1080	241	99	2180
Gas generator. Acetylene	C. E. Drake	697,618	Apr. 15	2285	512	99	2180
Gas generator. Acetylene	G. P. Washburn	698,160	Apr. 22	2828	787	99	2180
Gas generator. Acetylene	P. F. v. Mohrer, J. P. and J. Hopp	698,204	Apr. 22	2820	781	99	2180
Gas generator. Acetylene	O. J. Moussette	698,306	Apr. 22	2826	788	99	2180
Gas generator. Acetylene	A. Yancy	698,425	Apr. 22	2726	688	99	2180
Gas generator. Acetylene	M. D. Compton	698,638	Apr. 22	2806	680	99	2180
Gas generator. Acetylene	F. H. Merrill and F. Hickman	698,720	Apr. 22	2828	678	99	2180
Gas generator. Acetylene	T. H. Lewis	698,975	Apr. 22	4018	1005	99	2180
Gas generator. Acetylene	O. Falkenwald	698,108	Apr. 22	5125	1125	99	2180
Gas generator. Acetylene	A. D. Williamson	698,371	May 6	261	60	99	2180
Gas generator. Acetylene	J. S. Wood, Jr.	698,374	May 6	268	61	99	2180
Gas generator. Acetylene	D. H. Long	698,328	May 6	262	91	99	2180
Gas generator. Acetylene	L. Montel	698,327	May 6	262	91	99	2180
Gas generator. Acetylene	W. H. Bailey	698,645	May 13	268	288	99	2180

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.		Name.	No.	Date.	Monthly volume.		Official Gazette.	
					Spec.	Dr's	Vol.	Page.
Gas generator.	Acetylene.	J. Quist and J. A. Bain.	700,810	May 27	2840	760	99	1916
Gas generator.	Acetylene.	A. C. Einstein.	700,908	May 27	2810	808	99	1948
Gas generator.	Acetylene.	J. W. Weeks.	701,432	June 8	257	61	99	2168
Gas generator.	Acetylene.	J. A. Mosher.	701,540	June 8	577	126	99	2228
Gas generator.	Acetylene.	A. Davis.	701,580	June 10	1016	287	99	2267
Gas generator.	Acetylene.	D. H. Truchler.	700,804	June 17	2418	651	99	2268
Gas generator.	Acetylene.	J. D. Buckley and E. H. Phinney.	700,778	June 17	2725	685	99	2707
Gas generator.	Acetylene.	R. W. Carman and F. M. Lawrence.	698,944	May 13	1806	384	99	1518
Gas generator.	Formaldehyde.	G. W. Bonds.	697,720	Apr. 15	2619	581	99	580
Gas generator.	Gas-engine.	W. E. Scofield.	697,884	Apr. 8	1284	275	99	261
Gas generators.	Carbide-feeding device for acetylene.	B. N. Hayes.	698,028	May 13	1073	261	99	1409
Gas-heated iron.		C. W. Claybourne.	697,525	Apr. 8	1580	355	99	256
Gas-heater.		F. G. Horstlein.	698,017	Apr. 22	2026	686	99	694
Gas-heater.		E. A. Monjo.	700,585	May 20	2737	637	99	1781
Gas-heater.		L. Wilson.	700,877	May 20	2273	619	99	1677
Gas impact-engine.		E. D. Anderson.	698,437	Apr. 22	2820	680	99	900
Gas-lighter.	Electric.	A. J. Marshall.	698,508	May 6	181	38	99	1302
Gas-lighting apparatus.		C. Fader.	700,811	June 10	1881	418	99	3020
Gas-lighting device.		G. Meyer.	700,138	June 10	1644	388	99	2464
Gas lighting or extinguishing device.		V. Forti.	700,084	June 24	2530	680	99	2586
Gas-light. Substance and mantle for incandescent.		L. Hicks.	700,195	June 10	1640	388	99	2465
Gas-line safety device.		J. C. Furman.	698,827	Apr. 1	819	187	99	178
Gas-line. Automatic shut-off for.		W. D. Luce.	700,071	June 24	2508	781	99	2640
Gas-machine weight-motor.		J. Franklin.	700,987	June 24	3044	700	99	2709
Gas-main stopper.		H. Spencer.	697,878	Apr. 8	1881	408	99	407
Gas-making apparatus.		E. Fleischer.	701,535	June 8	508	110	99	2213
Gas. Making water.		F. W. C. Schiewind.	698,028	Apr. 22	2117	688	99	711
Gas. Manufacturing.		F. W. C. Schiewind.	698,028	Apr. 22	2117	688	99	712
Gas-manufacturing plant.		E. H. Ellsworth.	700,088	May 13	1736	400	99	1545
Gas-meter.		E. Thompson.	698,518	Apr. 1	284	51	99	58
Gas or oil engine.		D. L. Block.	700,408	May 20	2534	580	99	1787
Gas-pressure regulator.		E. J. Duff.	697,320	Apr. 8	1288	428	99	682
Gas-producer.		L. Mond.	697,887	Apr. 15	2703	618	99	15
Gas-producer.		J. W. Dougherty.	698,480	Apr. 1	88	18	99	2026
Gas-producer.	Mechanical stirrer or pump for.	T. H. Miller.	700,580	June 17	2684	540	99	2300
Gas-producing apparatus.		D. O. Freeman.	701,704	June 8	767	170	99	1640
Gas-purifier.		C. R. Faber, Jr.	700,188	May 20	2085	479	99	2300
Gas-purifier grid.		J. A. Burgess.	701,525	June 10	1980	288	99	641
Gas. Purifying acetylene.		H. A. Blackmore.	697,981	Apr. 15	2671	581	99	2470
Gas-purifying agents. Making.		H. L. McAdams.	700,880	June 10	1715	387	99	1408
Gas-regulator.		C. W. Isbell.	698,670	May 13	1448	328	99	1918
Gas-retort.		G. F. Richter.	700,084	May 27	2808	778	99	686
Gas-retort. Sectional.					778	778	99	1288
Gas-saving appliance.		S. J. John.	698,507	Apr. 22	2843	678	99	1288
Gas-service pipes. Antifrosting device for.		H. N. Baylis.	698,261	May 6	254	68	99	3224
Gas-washer.		P. Riecke.	701,619	June 8	405	128	99	1288
Gas. Apparatus for destroying.		J. Edmunds.	698,828	Apr. 22	2828	618	99	889
Gas. Means for compressing or liquefying.		H. Borland.	698,228	Apr. 22	265	90	99	1288
Gas. Vessel for the reception of high-pressure.		A. Ludwig.	698,190	May 6	124	38	99	1288
Gas. Vessel and seal for hydrocarbon liquid containers.		P. J. Lockwood.	698,190	May 6	124	38	99	1288
Gate.		E. Graham.	698,520	Apr. 1	288	71	99	67
Gate.		T. A. Hill.	698,078	Apr. 1	288	128	99	115
Gate.		W. M. Plaster.	697,880	Apr. 15	2784	616	99	684
Gate.		W. H. Kemper.	698,591	Apr. 22	2859	787	99	805
Gate.		E. Phillips.	698,651	Apr. 22	2860	1080	99	1080
Gate.		H. M. Lockman.	701,905	June 10	1118	254	99	2268
Gate.		C. E. Johnson.	700,120	June 10	1943	448	99	2302
Gate.		O. B. Jacobs.	697,521	Apr. 15	2090	484	99	478
Gate.		C. F. Lee.	698,308	May 13	1208	301	99	1486
Gauntlet.		J. D. McFarland, Jr.	700,970	May 27	2617	681	99	1960
Gear. Adjustable speed.		A. Herchmann.	698,484	Apr. 22	2828	687	99	684
Gear braking device. Compensating.		T. A. Dick.	700,380	June 24	2820	684	99	2705
Gear. Changeable-speed and reversing.		F. L. Ewerhardt and H. F. Emme.	700,184	May 20	2627	477	99	1080
Gear-cutting engine.		J. H. Mitchell.	698,128	Apr. 22	2671	716	99	741
Gear. Differential and reversing.		C. F. Allen.	698,704	Apr. 1	880	128	99	186
Gear. Driving.		J. C. Woody, W. E. Danley, and W. H. Young.	698,728	Apr. 1	727	167	99	187
Gear. Driving.		W. F. Williams.	700,941	June 17	2640	637	99	8764
Gear. Elliptic chain driving.		W. F. Williams.	700,940	June 17	2630	637	99	8764
Gear. Elliptic chain driving.		H. E. A. Kindermann.	700,305	May 20	2126	467	99	1640
Gear for machine-tools. Auxiliary reversing.		K. P. Dawson.	701,102	May 27	2674	914	99	2027
Gear. Friction.		J. Anderson.	698,618	Apr. 22	2828	688	99	688
Gear-molding apparatus.								

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Gear, Reversing.	C. F. Smith.	701,264	June 3	646	143	99	2944
Gear transmission.	J. Suchy.	701,218	June 24	2737	861	99	2938
Gear, Transmitting.	J. S. Copeland.	707,300	Apr. 8	1835	243	99	345
Gear, Variable-speed.	F. R. Cocksburn.	701,542	June 3	466	105	99	2904
Gearing and casing therefor. Combined.	H. B. Keiper.	707,680	Apr. 15	2885	519	99	335
Gearing, Belt, rope, or chain.	E. H. Hodgkinson.	703,948	June 24	3005	705	99	2738
Gearing, Change.	F. W. Gordon.	698,008	Apr. 22	3028	985	99	932
Gearing, Differential.	W. G. Caffrey.	707,801	Apr. 15	2645	580	99	336
Gearing, Differential.	E. G. Small.	701,632	June 3	646	141	99	2943
Gearing, Differential.	C. H. O. Hansen.	702,738	June 17	2728	686	99	2715
Gearing, Reversing.	C. W. Wagner.	699,996	May 6	897	305	99	1390
Gearing, Reversing and variable-speed.	H. G. Underwood.	703,940	Apr. 1	851	196	99	180
Gearing, Variable-speed.	L. E. Krots.	707,410	Apr. 8	1994	488	99	1973
Gearing, Variable-speed.	S. de Ploeg.	700,961	May 27	2625	585	99	324
Gearing, Variable-speed.	F. W. Gordon.	701,576	June 10	1039	289	99	2943
Gearing, Variable-speed friction.	E. P. Cowles.	703,227	June 24	2618	833	99	2904
Gelatin-yieldable liquids. Obtaining.	E. R. Edson.	703,940	June 24	2623	833	99	2905
Gem grinding and polishing apparatus.	F. E. Hillard.	701,670	June 10	1064	280	99	2943
Generator.							
See Electric generator. Motor-generator.							
Electromechanical generator.							
generator.							
Gas-generator.							
Magneto-electric generator.							
Generators or motors. Compensation of.	F. G. Baum.	699,244	Apr. 22	2401	795	99	795
Generators or motors. Means for compensating.	F. G. Baum.	699,245	Apr. 22	2402	795	99	795
Birth fastening Saddle.	C. I. Bush.	701,586	June 10	995	280	99	2921
Glass.							
See Magnifying glass.							
Glass-annulling leet. Plate.	W. D. Keyes.	700,487	May 20	2579	501	99	1737
Glass, &c. Apparatus for the manufacture of.	J. Löhne.	699,980	Apr. 29	2680	1022	99	1111
Glass-blowing machine.	H. J. Colburn.	698,817	Apr. 29	4513	1017	99	1049
Glass-blowing machine.	L. H. Colburn.	698,818	Apr. 29	4514	1018	99	1047
Glass-blowing machine.	O. E. Walton.	700,205	June 24	2746	898	99	2980
Glass bottles. Machine for making.	L. Grote.	700,101	May 20	2100	490	99	1040
Glass by electrical heating. Manufacture of.	A. Voelker.	700,061	June 10	1454	407	99	2425
Glass-cutter.	W. L. Barrett.	703,377	June 10	1781	407	99	2426
Glass-cutter, Circular.	D. R. Johnson.	703,728	June 17	2647	809	99	2921
Glass-delivering apparatus.	W. D. Keyes.	700,488	May 20	2680	991	99	1737
Glass. Drawing.	J. H. Lubbers.	703,014	June 10	1812	300	99	2925
Glass. Drawing.	J. H. Lubbers.	703,015	June 10	1813	301	99	2926
Glass-drawing apparatus.	J. H. Lubbers.	703,016	June 10	1814	302	99	2927
Glass-drawing apparatus.	J. H. Lubbers.	703,017	June 10	1815	303	99	2928
Glass, &c. Electric furnace for making.	J. Löhne.	699,981	Apr. 29	4081	1023	99	1111
Glass-furnace.	J. P. Putallaz.	699,973	May 13	1698	377	99	1395
Glass-gathering machine.	D. C. Ripley.	697,596	Apr. 15	2798	618	99	935
Glass-gathering machine.	T. Coleman, Jr., and C. Runyon.	702,688	June 17	2406	545	99	2923
Glass-making furnace.	K. Gobbe.	699,982	Apr. 29	4082	1024	99	1094
Glass. Manufacturing.	A. Voelker.	699,708	Apr. 29	4083	992	99	1017
Glass-polishing machine.	W. Labodny.	699,498	Apr. 1	1111	347	99	99
Glass refining and delivering apparatus.	W. D. Keyes.	699,720	Apr. 1	961	146	99	139
Glass. Roller for rolling and ornamenting sheet or plate.	L. Appert.	697,880	Apr. 8	1538	257	99	935
Glass to molds. Mechanism for feeding.	T. Coleman, Jr.	703,224	June 17	2407	545	99	2924
Glassware. Lens-fastening for.	H. H. Waugh.	703,225	June 10	1975	451	99	2921
Glassware. Apparatus for fire-finishing.	H. Schaub.	699,500	Apr. 1	189	45	99	44
Glassware-finishing machine.	W. R. McCoy.	697,581	Apr. 15	2189	473	99	935
Glassware. Manufacturing hollow.	J. L. C. V., F. J., P. R., and F. L. Arbogast.	699,008	Apr. 29	6080	1117	99	1139
Glass-working machine.	F. R. McBerly.	699,487	Apr. 1	126	22	99	94
Glassing-machine. Automatic.	E. C. Hemming.	703,098	June 10	1470	328	99	2929
Glassing system.	A. M. Whipple.	697,598	Apr. 15	2629	497	99	935
Glove-fastening.	W. B. Murphy.	697,590	Apr. 15	2707	613	99	933
Gluing-machine.	O. D. Wetmore.	699,268	May 6	897	30	99	1235
Gluten. Manufacturing.	J. Brown.	699,791	Apr. 29	4533	1028	99	1085
Gold-dredge.	L. A. Morel.	699,594	Apr. 29	2628	77	99	73
Gold. Manufacture of colloidal.	T. B. Lee.	699,578	Apr. 1	899	77	99	93
Gold-saving device. Submarine.	C. Paul.	699,105	Apr. 29	2615	704	99	721
Gold-separator.	L. D. Craig.	699,935	May 13	1485	341	99	1495
Gold-separator distributor.	R. C. Lester.	703,643	June 17	2487	570	99	2927
Gold-separator distributor.	C. W. Gardner.	697,748	Apr. 15	2542	595	99	939
Gold-separator distributor.	R. H. Forthelwaite.	699,887	Apr. 1	945	214	99	199
Gold-separator distributor.	E. Kempshall.	699,889	Apr. 1	951	215	99	200
Gold-separator distributor.	E. Kempshall.	699,890	Apr. 1	952	216	99	201
Gold-separator distributor.	E. Kempshall.	699,891	Apr. 1	953	217	99	202
Gold-separator distributor.	E. Kempshall.	699,892	Apr. 1	954	218	99	203
Gold-separator distributor.	E. Kempshall.	699,893	Apr. 1	955	219	99	204
Gold-separator distributor.	E. Kempshall.	699,894	Apr. 1	956	220	99	205
Gold-separator distributor.	E. Kempshall.	699,895	Apr. 1	957	221	99	206

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Invention.	Name.	No.	Date.	Monthly volume.	Official Gazette.
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Golf-ball.	E. Kempshall.	697,417	Apr. 8	1996	431
Golf-ball.	E. Kempshall.	697,418	Apr. 8	1997	431
Golf-ball.	E. Kempshall.	697,419	Apr. 8	1998	431
Golf-ball.	E. Kempshall.	697,420	Apr. 8	1943	438
Golf-ball.	E. Kempshall.	697,421	Apr. 8	1944	438
Golf-ball.	E. Kempshall.	697,422	Apr. 8	1947	438
Golf-ball.	E. Kempshall.	697,423	Apr. 8	1958	438
Golf-ball.	E. Kempshall.	697,424	Apr. 8	1959	438
Golf-ball.	E. Kempshall.	697,425	Apr. 15	1957	438
Golf-ball.	C. Davis.	697,816	Apr. 15	1957	438
Golf-ball.	E. Kempshall.	697,918	Apr. 15	1941	439
Golf-ball.	E. Kempshall.	697,919	Apr. 15	1942	439
Golf-ball.	E. Kempshall.	697,920	Apr. 15	1944	439
Golf-ball.	E. Kempshall.	697,921	Apr. 15	1945	439
Golf-ball.	E. Kempshall.	697,922	Apr. 15	1946	439
Golf-ball.	E. Kempshall.	697,923	Apr. 15	1948	439
Golf-ball.	E. Kempshall.	697,924	Apr. 15	1951	439
Golf-ball.	E. Kempshall.	697,925	Apr. 15	1952	439
Golf-ball.	F. H. Richards.	697,927	Apr. 15	1955	439
Golf-ball.	F. H. Richards.	698,004	Apr. 22	1945	470
Golf-ball.	E. Kempshall.	698,401	Apr. 22	1950	470
Golf-ball.	E. Kempshall.	698,402	Apr. 22	1951	470
Golf-ball.	E. Kempshall.	698,512	Apr. 22	1950	473
Golf-ball.	E. Kempshall.	698,513	Apr. 22	1951	473
Golf-ball.	E. Kempshall.	698,514	Apr. 22	1952	474
Golf-ball.	E. Kempshall.	698,515	Apr. 22	1954	474
Golf-ball.	E. Kempshall.	698,080	Apr. 22	1956	1197
Golf-ball.	E. Kempshall.	698,082	Apr. 22	1958	1197
Golf-ball.	E. Kempshall.	698,870	May 13	1465	885
Golf-ball.	E. Kempshall.	700,144	May 13	1949	455
Golf-ball.	E. Kempshall.	700,680	May 20	1950	456
Golf-ball.	E. Kempshall.	700,948	May 27	1953	459
Golf-ball.	E. Kempshall.	700,949	May 27	1954	459
Golf-ball.	E. Kempshall.	701,417	June 3	301	190
Golf-ball.	F. H. Richards.	701,737	June 3	885	198
Golf-ball.	E. Kempshall.	701,738	June 3	887	198
Golf-ball.	E. Kempshall.	701,739	June 3	888	198
Golf-ball.	E. Kempshall.	701,740	June 3	889	198
Golf-ball.	E. Kempshall.	701,741	June 3	891	198
Golf-ball.	E. Kempshall.	701,742	June 3	892	198
Golf-ball.	F. H. Richards.	701,765	June 3	893	198
Golf-ball.	F. H. Richards.	701,766	June 3	894	198
Golf-ball.	F. H. Richards.	701,767	June 3	895	198
Golf-ball.	F. H. Richards.	701,768	June 3	896	198
Golf-ball.	C. Davis.	698,938	Apr. 1	949	214
Golf-ball.	E. Kempshall.	698,939	Apr. 1	949	214
Golf-ball.	E. Kempshall.	697,422	Apr. 8	1944	438
Golf-ball.	E. Kempshall.	697,423	Apr. 8	1945	438
Golf-ball.	E. Kempshall.	697,917	Apr. 15	1941	439
Golf-ball.	E. Kempshall.	698,003	May 6	940	217
Golf-ball.	F. H. Richards.	698,698	May 6	941	217
Golf-ball.	F. H. Richards.	700,154	May 13	1950	456
Golf-ball.	F. H. Richards.	700,155	May 13	1951	456
Golf-ball.	E. Kempshall.	700,603	May 30	1953	459
Golf-ball.	E. Kempshall.	700,607	May 30	1954	459
Golf-ball.	E. Kempshall.	698,087	Apr. 22	1956	1197
Golf-ball.	E. Kempshall.	698,088	Apr. 22	1958	1197
Golf-club.	W. Robertson.	697,542	Apr. 15	1946	461
Golf-club.	E. Kempshall.	698,034	May 6	942	218
Golf-club facing.	E. Kempshall.	700,946	May 27	1954	459
Golf-club holder.	W. H. Johnson.	698,391	May 6	938	217
Golf-practice apparatus.	A. B. Smith.	702,388	June 17	1958	304
Golf-stick.	F. L. Slawson.	697,171	Apr. 8	1451	222
Golf-tee.	C. L. Stoddard, Jr.	698,172	June 10	1451	222
Governor.	R. C. Alexander.	698,955	May 13	1451	221
Governor.	E. J. Armstrong.	700,004	May 13	1954	303
Governor.	G. Strong.	698,771	May 13	1956	303
Governor.	J. W. Noll.	698,471	Apr. 1	1451	30
Governor.	J. F. O'Neil.	701,708	June 8	988	191
Governor.	B. W. Storey.	697,899	Apr. 15	1950	459
Governor.	J. Levy and T. Sadler.	701,080	May 27	1951	459
Governor.	J. B. Allfree.	700,940	May 27	1954	459
Governor.	W. J. Sillman.	698,073	Apr. 1	1950	457
Grab-hook.	D. E. Langan.	698,096	May 13	1956	303
Grader.	B. Strone.	698,581	Apr. 22	1956	304
Grader, Road.	C. Henderson.	700,928	May 27	1954	459
Grain-carrier.	J. N. Ballou and J. J. Shirley.	698,436	May 6	940	190
Grain-tub.	J. W. Primmore.	697,750	Apr. 15	1947	437
Grain-binder.	J. L. Ware.	702,388	June 10	1958	431
Grain-binder.	J. F. Appleby.	697,420	Apr. 15	1958	438
Grain-binder cord-cutting knife.	A. H. Noll.	698,553	May 6	940	190
Grain-carrier.	R. H. Overly.	698,548	Apr. 22	1951	437
Grain-cleaner blast-regulator.	A. T. Ferrell.	701,095	June 10	1957	303
Grain-cleaning-machine brush attachment.	A. T. Ferrell.	701,096	June 10	1957	303
Grain-cleaning screen.	C. Cloos.	698,968	Apr. 22	1954	459
Grain-crusher.	H. and G. Rose.	698,705	Apr. 1	990	132
Grain-drier.	J. P. Churchill.	702,127	June 10	1954	344
Grain-drill.	C. H. Polton.	700,381	May 30	1957	300
Grain-drill.	W. Feizer.	700,215	May 30	1958	340
Grain-drill.	C. H. Polton.	701,285	June 3	126	30
Grain-drill furrow-opener.	R. H. Schlaachter.	702,598	June 17	1958	349
Grain-drill seed-tube.	J. W. Polndexter.	702,114	June 10	1958	349

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Grain-elevator for separators	S. B. Hart	702,050	June 10	1410	218 519	99	2418
Grain-flow indicator	C. C. Neale	698,998	Apr. 8	1179	264 265	99	270
Grain-handling apparatus	A. Atkinson	700,886	May 27	2400	705 706	99	1940
Grain-loader	E. F. Steiner	700,087	May 13	1897	494	99	1570
Grain or seed. Apparatus for sampling	J. J. Brown	702,208	June 24	2614	590 591	99	2008
Grain preparatory to grinding. Apparatus for treatment of	G. Blanchini	700,472	May 20	2967	610	99	1755
Grain-scourer	W. Lee	698,577	Apr. 1	280	78	99	78
Grain-separating machine	W. L. Belt	702,279	June 10	1784	407	99	2498
Grain-separator	F. Witte	699,915	Apr. 1	1008	223 224	99	212
Grain-separator feeder	F. J. Wood	702,940	May 27	4112	946	99	2074
Grain-spout	B. Klenholz	702,440	June 17	2006	477	99	2575
Grain-train apparatus	G. A. Herzog	700,408	May 20	2715	681	99	1795
Gramophone-brake	E. R. Johnson	700,987	May 27	2568	681	99	1940
Graphophone	E. P. Felt	702,097	June 3	758	167	99	2296
Grapple	J. W. Norris	698,544	Apr. 20	4014	687	99	918
Grappling-hook	D. White	702,654	June 3	686	151	99	2251
Grass and ditcher line	J. M. Churchman	702,541	June 3	463	104	99	2008
Grate	G. B. Prowse	697,598	Apr. 15	2159	479	99	490
Grate	E. R. Cahoon	698,680	Apr. 20	4204	928	99	950
Grate	T. H. Lucas	700,081	May 13	1797	416	99	1558
Grate	C. T. Coe	700,618	May 20	2600	672 673	99	1808
Grate-bar	H. E. Parson	702,535	June 17	2278	548	99	2294
Grate-bar	H. Truesdell	702,891	June 17	2648	979	99	2738
Grate for automatic stoking. Inclined	H. H. Campbell	702,535	June 17	2278	519	99	2614
Grate-front and fender	J. J. Roll	700,580	May 20	2625	645	99	1798
Grate-front and stove. Combined	C. F. Wilson	699,128	Apr. 20	5158	1148	99	1159
Grate. Round shaking	F. W. Foster	699,378	May 6	409	110	99	1271
Grate. Tilting water	H. D. Sawyer	701,946	June 10	1185	270	99	2473
Grave-marker	J. A. Delaney	700,904	May 27	2608	804	99	1945
Gravity-lock	D. J. Kennedy	701,822	June 10	1090	248	99	2032
Gravity-motor	W. O. Bonner	702,085	June 10	1400	286	99	2426
Grid or broiler	J. J. Pearce	698,528	Apr. 20	4026	590	99	916
Grinding knives, principally those of sausage-machines, &c. Machine for	O. Becker	700,328	May 20	2212	587	99	1664
Grinding-machine	E. S. Shimer and H. A. Pardoe	698,213	Apr. 22	2604	795	99	811
Grinding-machine	M. W. Neuens	700,288	May 20	2178	428	99	1636
Grinding-machine	J. Gilson	701,021	May 27	2751	899	99	1928
Grinding-machine	W. H. Fetters	702,725	June 17	2746	831	99	2711
Grinding-machine	M. W. Neuens	702,212	June 24	2574	822	99	2625
Grinding-machine automatic work-rest	A. B. Landis	697,654	Apr. 15	2734	606	99	613
Grinding machine. Ball	E. G. Hoffmann	702,025	June 24	2628	737	99	2629
Grinding machine. Drill	H. P. White	697,294	Apr. 15	2221	428	99	508
Grinding machine. Drill	C. Ridderhof	702,895	June 17	2261	676	99	2720
Grinding-machine work-rest	A. B. Landis	697,653	Apr. 15	2729	605	99	612
Grinding-machine work-rest	A. B. Landis	697,653	Apr. 15	2728	605	99	612
Grinding-machine work-rest	A. B. Landis	700,693	May 20	2608	657	99	1826
Grinding-mill	J. Brown	698,441	Apr. 20	2657	846	99	677
Grinding-mill. Ball	M. F. Abbe	702,787	June 17	2700	680	99	2702
Grinding or crushing head	V. W. Mason, Jr.	700,586	May 20	2775	685	99	1778
Grinding or polishing machine	A. Crocker	698,945	Apr. 8	1088	289	99	260
Grinding-wheel	G. H. Fowler and W. D. Howe	698,202	May 6	286	74.75	99	1240
Guano-distributor	R. H. Milam	698,687	May 6	946	219	99	1270
Guano-distributor	J. S. Byrd	702,981	June 24	2926	600	99	2738
Guide-yoke bracket	J. Player	698,428	Apr. 1	184	30.40	99	40
Gun. Automatic	L. L. Driggs	698,672	Apr. 20	2601	880	99	887
Gun. Automatic	A. Noble	702,940	June 10	1721	289	99	2479
Gun. Automatic rapid-fire	V. P. De Knight	698,107	Apr. 22	2819	705	99	722
Gun. Breakdown	W. H. Gates	698,194	Apr. 22	2401	749	99	770
Gun. Breakdown	W. H. Davenport	701,188	May 27	2629	912	99	2048
Gun. Breech-loading	J. F. Meigs and S. A. S. Hammar	700,217	May 20	2144	498	99	1540
Gun breech mechanism	L. N. D. Mixell	702,423	June 17	2128	463	99	2298
Gun-carriage	H. P. Osborn	698,049	Apr. 22	2006	681	99	700
Gun-carriage	K. Dainlein	700,114	May 18	1891	480	99	1576
Gun-carriage	K. Dainlein	700,087	May 20	2645	676	99	1814
Gun-cleaning tool	A. H. Durston	702,250	June 10	1922	440	99	2221
Gun-lock	D. Brown	698,440	Apr. 20	2604	845	99	878
Gun recoil-pad	J. R. Winters	699,908	May 6	906	212	99	1298
Gun. Semi-automatic	L. V. Benét	698,851	Apr. 1	854	197	99	180
Gun-shield attachment	J. F. Meigs	697,892	Apr. 18	2759	611	99	619
Gun-sight	R. Chesnut	698,948	Apr. 8	1079	296	99	249
Gun-sight	J. Becker	701,721	June 3	905	208	99	2206
Gun. Spring air	W. F. Hartman	699,401	Apr. 1	128	20	99	22
Gun-tower. Armored	R. Geelhaar	701,270	June 10	1049	225 226	99	2042
Gun-turret. Main	C. H. Howland-Sherman	697,943	Apr. 15	2708	602 603	99	607
Gun. Water	C. H. Radcliffe	702,472	June 17	2167	494	99	2201
Guns. Means for securing center pivots to axes in	G. Ehrhardt	700,622	May 20	2222	271	99	1216

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Guns. Single-trigger mechanism for double	C. E. De Long	699,891	May 6	206	70	90	1297
Gymnastic apparatus. Coin-freed	K. Strauss	699,895	Apr. 22	2228	808	90	818
Hair-preventing device	D. Maggiora, P. and E. Bianchi	701,907	June 10	1115	255	90	2207
Hair drier and comb. Combination	C. E. Bradshaw	701,973	June 3	713	187	90	2207
Hair-drying device	W. W. Cowley	699,412	Apr. 1	20	9	90	12
Hair-drying device	W. J. O'Hara	697,743	Apr. 15	2532	585	90	567
Hair-fastener	A. G. Smith	698,328	Apr. 20	2600	608	90	517
Hair-fastener	R. E. Glass	701,479	June 3	306	81	90	2188
Halter. Operating	R. W. Ellis	699,947	May 13	1908	368	90	1519
Halter. Rope	E. T. Bugg	698,550	Apr. 20	4086	798	90	917
Hame-fastener. Adjustable	F. J. Boyle	699,438	May 6	676	157	90	1816
Hammer. Automatic valved	D. S. Waugh	701,265	May 27	4108	945	90	2073
Hammer. Magazine	W. Jacoby	701,731	June 3	516	180	90	2073
Hammer nail-holder	P. E. McGinty	701,076	May 27	2812	374	90	2012
Hammer nail-holding attachment	E. L. Carls	698,581	Apr. 20	4306	390	90	951
Hammer. Pneumatic	J. Boyer	697,738	Apr. 15	2694	522	90	567
Hammock	I. E. Palmer	699,410	May 6	548	125	90	1266
Hammock	I. E. Palmer	700,976	May 27	2681	694	90	1973
Hammock-aling	J. B. Dalrymple	699,418	Apr. 1	40	9	90	12
Hammock-support	C. Smith and J. L. Mounce	698,825	Apr. 20	4723	1040	90	1070
Hand-ball	R. F. Downey	700,411	May 20	2540	594	90	1730
Hand-guard and wrist-supporter	G. L. Pierce	708,471	June 17	2155	491	90	2569
Hand-protector	D. F. Morgan	708,211	June 24	2576	581	90	2695
Hand-wheel	E. H. Seddon	702,931	June 10	1980	449	90	2595
Handle:							
See Bag-handle.	Removable handle.						
Basket-handle.	Bad-iron handle.						
Paper-wood handle.	Tool-handle.						
Pump-handle.	Washbottle-handle.						
Handle	W. N. Maynard	700,254	May 20	2425	553	90	1709
Handle-bar	L. M. W. Smith	700,098	May 13	1699	424	90	1570
Handle for a number of implements	T. G. Moser	699,925	Apr. 8	1171	232	90	292
Handle locking device. Swinging	E. Baumann	698,927	Apr. 8	1089	231	90	292
Handles or rests to tools. Means for securing	Z. T. Furbish	701,125	May 27	4008	926	90	2090
Hanger:							
See Curtain-hanger.	Picture-hanger.						
Door-hanger.	Pulley-hanger.						
Electric-light hang-	Shade-hanger.						
er.	Shade-rod hanger.						
Garment-hanger.	Shelf-hanger.						
Lamp-hanger.	Trousers-hanger.						
Hanging and fastening device	A. Schluter, Jr	697,378	Apr. 8	1671	373	90	375
Harness	G. Sengelaub	698,229	Apr. 22	2025	801	90	816
Harness	A. Wood	701,609	June 3	689	158	90	2232
Harness-hook	C. W. Hodges	698,970	Apr. 8	1123	251	90	261
Harrow	J. H. Mosley	698,596	Apr. 20	3908	894	90	909
Harrow	J. Macphail	700,214	May 20	2140	490	90	1649
Harrow	W. Powers	702,475	June 17	2163	494	90	2650
Harrow and land-roller. Convertible	H. B. Waltrip	700,868	May 27	2429	788	90	1982
Harrow and roller. Combined	J. Stout	699,367	May 6	337	55	90	1222
Harrow clearing attachment	N. Paulsen	702,071	June 10	1440	383	90	2422
Harrow-jack	N. W. Thompson	698,927	Apr. 1	568	129	90	122
Harrow. Spike-tooth	T. D. Jones	701,735	June 3	584	182	90	2260
Harrow-tooth fastener	J. F. Duffin	698,473	Apr. 20	2605	600	90	686
Harrow-tooth fastening	G. T. Willis and J. Porteous	697,058	Apr. 8	1224	255	90	292
Harvester and husker. Corn	T. P. and H. Weichel	699,801	May 6	896	206	90	1200
Harvester attachment	M. Hopfer	698,442	Apr. 1	87	20	90	22
Harvester attachment	C. F. Craver	701,301	June 3	87	8	90	2116
Harvester. Bean	C. C. Fast	698,066	Apr. 1	511	118	90	111
Harvester. Bean	J. H. Stanton	702,509	June 17	2223	808	90	2604
Harvester. Beet	M. W. Palmer	699,990	May 6	607	120	90	1242
Harvester bundle-carrier	H. Green	697,142	Apr. 8	1420	313	90	224
Harvester. Clover	A. D. Miller	701,912	June 10	1127	268	90	2200
Harvester fly-wheel	G. L. Phelps and J. O. Morris	697,128	Apr. 8	1471	320	90	222
Harvester. Grain-binding	W. N. Whitely	702,223	June 24	2723	665	90	2221
Harvester, husker, and loader. Combined corn	J. E. Larson	701,990	June 10	1097	251	90	2254
Harvester knottor attachment	D. L. Wolf	699,880	May 6	440	100	90	1224
Harvester. Peanut	C. E. Wyborney	701,528	June 3	440	99	90	2122
Harvester-reel	C. W. Priestley	697,274	Apr. 8	1698	373	90	273
Harvester-reel	B. A. Seiph	700,094	May 15	1651	421	90	1569
Harvester-reel	C. A. A. Rand	700,392	May 20	2198	501	90	1659
Harvester spring-catch tongue-saddle	J. F. Steward	701,029	May 27	2655	666	90	2021
Harvesting-machine	A. T. Zetterlund	699,977	May 6	774	174	90	1223
Harvesting-machine grain-shocking attachment	G. H. Spaulding	698,220	Apr. 22	2449	701	90	722
Hasp-fastener	A. Voight	702,805	June 17	2419	551	90	2242
Hat and coat rack	J. L. Storm	697,959	Apr. 8	1694	378	90	231
Hat and coat rack	M. Braymes	697,438	Apr. 15	1968	499	90	437
Hat-block	C. Miller	697,214	Apr. 8	1554	343	90	360
Hat box. Folding	E. C. Beecher	698,993	Apr. 8	1040	221	90	240
Hat-brim trimmer	J. R. Griffith and H. Morehouse	702,070	June 17	2200	571	90	2744
Hat-fastener	J. N. Brunner	698,443	Apr. 20	2641	647	90	277
Hat-guard	A. Stamm	701,029	June 3	687	148	90	2242
Hat-machine	C. H. Reid	700,971	May 20	2476	598	90	1714

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Hat or dress fastener	M. Oebon	699,550	May 6	806	190	99	1242
Hat or head-gear	J. Halmann	703,728	June 3	806	177	99	2276
Hat-paring machine	E. B. Alvord	700,933	May 20	2989	583	99	1680
Hat-pin retainer	G. F. Packard	700,804	May 27	2910	761	99	1910
Hat-pinning-out machine	C. H. Reid	700,988	May 27	2923	770	99	1917
Hat-rest	G. and J. Edwards	700,907	May 27	2909	808	99	1946
Hat-stay-flanging machine. Curved.	A. E. Nielsen and F. Bentzen	699,371	Apr. 15	2770	614	99	621
Hats and articles produced thereby. Making	J. H. Neave	699,388	May 6	100	40	99	1203
Hats. Drying	J. Marshall	699,980	Apr. 8	1164	259	99	207
Hatchway-door safety-gate	D. C. Necker and W. A. Blackman	699,544	May 6	778	184	99	1985
Hay-derrick	H. O. Sparks	699,506	Apr. 1	196	47	99	46
Hay-derrick	G. G. Mayenacheln	700,353	May 20	2424	555	99	1708
Hay-fork	S. A. Nichols	697,748	Apr. 15	2931	584	99	507
Hay-loader	W. McKenna	699,096	Apr. 29	4947	1035	99	1116
Hay-loader and press. Combined	W. F. Ramsey and H. E. Pool	699,285	May 6	187	44	99	1212
Hay-loading apparatus	T. F. Behrman	700,733	May 27	2151	716	99	2009
Hay on wagon. Device for binding	J. H. Winterrowd	700,580	June 17	2946	518	99	1665
Hay-press	E. W. Moore	700,697	May 20	2931	701	99	1965
Hay-rack	R. P. Vorles	701,110	May 27	2928	591	99	2007
Hay-rack lifter	W. J. Frank	700,064	June 24	2929	751	99	2024
Hay-rake	A. W. Zimmermann	701,698	June 3	806	154	99	2054
Hay-rake. Horse	S. B. Hendricks	699,218	May 6	268	53	99	1245
Hay-rake. Sulky	A. B. Black	697,967	Apr. 8	1211	259	99	207
Head-block or follower	J. J. Crowley	699,461	Apr. 29	2973	335	99	694
Head-rest. Folding	A. Rikli	699,714	Apr. 15	2950	567	99	371
Headlight. Motor-car	C. Reinke	699,714	May 13	1194	268	99	1419
Hearing. Appliance for assisting the	P. A. Klaws	699,718	Apr. 29	4409	973	99	906
Heat-distributing mains. Covering for	W. H. Pearce	700,501	June 24	2186	736	99	2513
Heat regulating or governing apparatus	T. Clarkson	699,790	Apr. 1	764	175	99	108
Heater: See Air-heater. Gas-burning heater. Oil-heater. Refrigerator-heater. Soldering-iron heater. Charcoal-heater. Tank-heater. Electric heater. Tire-heater. Feed-water heater. Water-heater. Flat-iron heater. Water-heater. Gas-heater.	W. M. Thomas and L. Van Scoyoc	699,773	Apr. 1	728	108	99	154
Heater	J. Daney and W. H. Cork	700,745	May 27	2928	725	99	1698
Heater	C. C. Longard	700,791	May 27	2934	726	99	1700
Heater and drier	L. D. Vogel	701,222	June 3	800	218	99	197
Heater for liquids. Flooding recuperative	E. Ahlborn	699,958	Apr. 1	698	218	99	197
Heater. Automatic regulating device for steam	E. B. Allen and W. B. Salmon	699,789	Apr. 1	748	170	99	180
Heating and metal-rolling. System for continuous	T. V. Allie	700,084	June 10	1458	227	99	2425
Heating apparatus	H. M. Sturgis	699,514	Apr. 1	309	80	99	49
Heating apparatus	J. M. Young	701,241	May 27	4115	947	99	2074
Heating apparatus	M. M. Johnson	700,310	June 10	1691	261	99	2478
Heating apparatus. House	I. D. Smason	700,368	May 20	2900	572	99	1790
Heating apparatus. Steam	S. G. Phillips	700,080	May 13	1295	435	99	1244
Heating apparatus. Steam	C. H. Atkins	700,326	June 10	1916	428	99	2518
Heating apparatus. Water	R. Stubbs	701,778	June 3	801	193	99	2028
Heating capacity of combustibles. Determining the	S. W. Parr	700,585	May 20	2916	646	99	1787
Heating-furnace	M. M. Suppes and R. Crocker, Jr.	699,607	Apr. 1	267	90, 91	99	85
Heating-furnace	L. S. Baker	699,791	Apr. 1	708	171	99	160
Heating-furnace	H. J. Noyes	700,008	May 27	2913	761	99	1910
Heating-furnace	W. Gorman	700,722	June 17	2929	605	99	2026
Heating-furnace for coiled bundles	A. R. Hunt and W. Ahlen	699,598	May 6	749	175	99	1230
Heating system	J. M. Cripe	697,512	Apr. 15	2923	591	99	697
Heating-system valve device. Steam	J. A. Serrell	700,569	May 20	2940	632	99	1791
Heating system. Fitting for steam	C. A. Ball	700,286	June 10	1367	421	99	2511
Heddle motion. Salvage	J. Wilkinson	701,222	June 3	800	218	99	197
Heel. Boot or shoe	J. G. Roe	699,545	May 6	689	196	99	1245
Heel. Boot or shoe	F. G. Saylor	699,703	May 13	1295	257	99	1441
Heel. Boot or shoe	J. H. Jackson	700,187	June 10	1598	247	99	2443
Heel-cushion	O. Eick	699,597	May 6	816	73	99	1299
Heel. Cushioned	M. L. Hansen	699,111	Apr. 29	5122	1135	99	1184
Heel. Detachable	F. F. Raymond, Jr.	699,519	May 6	784	171	99	1287
Heel-holder for heel attaching machines	J. J. Jones	699,118	Apr. 29	5122	1135	99	1184
Heel-lift. Boot or shoe	J. J. Jones	699,599	Apr. 29	4984	1073	99	1104
Heel-lift. Shoe	J. J. Jones	699,599	Apr. 29	4984	1073	99	1104
Hemoglobinometer	T. W. Tallqvist	700,519	June 24	2186	736	99	2513
Hides or skins. Machine for treating	F. J. Perkins	699,596	Apr. 1	846	22, 23	99	76
Hides or skins. Machine for treating	F. J. Perkins	701,080	May 27	2919	575	99	2013
Hinge	M. P. Newman	699,516	Apr. 29	2443	736	99	779
Hinge	C. Dick	699,468	Apr. 29	2994	658	99	995
Hinge	G. A. Wheeler	699,564	Apr. 29	4705	1045	99	1078
Hinge	J. M. Upton and W. S. Gray	699,737	May 13	1149	268	99	1498
Hinge	J. MacLean	700,436	May 20	2921	528	99	1729
Hinge	A. W. Brightwell	700,518	May 20	2918	670	99	1826
Hinge	S. E. Le Marr	700,694	May 20	2977	690	99	1845

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Hinge	E. M. Hulme and J. B. Hoover	700,204	June 10	1898	416	99	2900
Hinge	F. Dyer	700,440	June 17	2484	370	99	2222
Hinge. Detachable	G. M. Pickop	699,970	May 13	1640	378	99	1288
Hinge. Door	W. L. Evans, Jr.	701,554	June 3	498	110	99	2311
Hinge-fastener. Detachable	E. H. Jackson	699,530	May 6	753	176	99	1389
Hinge. Floor	T. G. Morris	700,321	May 20	2158	494	99	1656
Hinge. Furniture	E. A. Gay	699,671	Apr. 1	581	130	99	113
Hinge-joint for connecting rod-sections	F. A. E. Hamilton	700,304	June 10	1698	278	99	2457
Hinge. Separable across	M. W. Murray	699,688	May 13	1100	268	99	1414
Hinge. Spring	J. B. Howies	701,244	June 3	129	25	99	2124
Hinge. Spring	W. A. Skinner	700,888	June 17	2841	678	99	2728
Hitching device. Horse	A. W. Swanberg	697,036	Apr. 8	1267	280	99	326
Hitching-post	J. A. Taylor	701,984	June 10	1818	278	99	2273
Hitching-strap. Releasing	A. Howard and G. F. Lunn	701,320	May 27	4171	958	99	2024
Hoe	G. H. Grapes	701,230	June 3	98	20	99	2169
Hoe	E. C. Lewis	700,629	June 17	2514	875	99	2028
Hoe. Hand	J. D. McCrimmon	701,600	June 3	579	127	99	2299
Hoe. Weeding	O. Barreille	700,911	June 24	2984	627	99	2779
Hoe or cattle splitting machine	J. C. Hughes	701,545	June 3	194	35, 36	99	2184
Hog-trough	F. B. Davis	697,399	Apr. 8	1594	257	99	365
Hoist	D. E. Rowland	697,378	Apr. 8	1654	373	99	374
Hoist	C. Petty	700,320	June 24	2711	654	99	2268
Hoist for unloading ships	W. E. Huthings	700,031	May 13	1784	418	99	1585
Hoist. Pneumatic	G. E. Martin	701,970	June 24	3184	730	99	2806
Hoisting and conveying machine	T. Long	699,028	Apr. 22	3060	672	99	900
Hoisting and conveying machine	E. Jackson	701,287	June 10	1900	246	99	2260
Hoisting and dumping apparatus	C. A. Morris	699,825	May 13	1206	308	99	1295
Hoisting apparatus	D. H. Darrin and W. M. Dollar	699,426	Apr. 29	2676	555	99	894
Hoisting apparatus	S. R. Wales	699,908	May 13	1673	365	99	1288
Hoisting-apparatus brake	H. Votach	700,584	June 17	2986	628	99	2721
Hoisting-bucket	A. E. Morris and J. Roughan	699,000	Apr. 29	4951	1097	99	1117
Hoisting-bucket	A. E. Morris	699,543	May 6	404	34, 35	99	1293
Hoisting device	E. F. Atherton	700,008	June 24	2681	696	99	2778
Hoisting device	E. F. Atherton	700,008	June 24	2682	697	99	2779
Hoisting-engines or elevators. Safety controller and indicator for	C. E. Allison	697,772	Apr. 15	2929	574	99	670
Holdback	R. W. Walker	699,597	Apr. 1	940	55	99	35
Hook-pad. Antislipping	J. H. Mitchell	700,160	May 13	1908	457	99	1086
Hook: See Check-hook. Lacing-hook. Coat-hook. Meat-hook. Fish-hook. Picture-hook. Garment-hook. Shelf-hook. Grab-hook. Singletree-hook. Grapppling-hook. Snap-hook. Harness-hook. West-hook. Lace-hook.	E. E. Chipman	699,078	Apr. 29	5076	1122	99	1143
Hook and eye	J. Fryer	699,103	May 6	66	17	99	1120
Hook and eye	L. R. Hesse	699,596	May 6	190	45	99	1213
Hook and eye	S. W. F. Lee	701,522	June 3	549	180	99	2322
Hook-forming machine	N. E. Brown	699,448	Apr. 29	2628	846	99	977
Hook-lug	R. E. Moore	700,034	June 10	1281	304	99	2699
Hook-nailing horse. Lining	W. J. Ott	700,497	June 17	2150	400	99	2568
Hooks of tanks, vats, &c. Device for tightening or loosening	C. L. Parker	700,704	May 20	3101	705	99	1549
Hopper or chute gate	A. Smith	699,146	Apr. 29	2608	728	99	748
Hopple. Horse	M. Klein	700,507	May 20	2741	627	99	1771
Horn-rotating mechanism	I. Fréchet	701,198	May 27	4084	987	99	2080
Horse breaker and starting machine	J. F. Carr	699,908	Apr. 29	4707	1097	99	1005
Horse-detacher	E. Oaker	697,923	Apr. 15	2923	598	99	695
Horse-detacher	F. M. Hunt	699,081	Apr. 29	2044	699	99	696
Horse-detacher	E. B. Stearns	699,577	Apr. 29	4061	998	99	998
Horse-detacher	C. J. Mamy	699,646	May 13	1399	282	99	1475
Horses. Fastening device for driving	P. Mayotte	701,751	June 3	847	176	99	2295
Horses' feet. Antislipping-pad for	T. F. Hayes	700,794	June 17	2763	685	99	2715
Horses' legs with water. Appliance for treating	J. T. Studley	701,521	June 3	694	97	99	2165
Horseshoe	W. L. King	699,490	Apr. 1	108	24	99	37
Horseshoe	G. A. Luck	699,546	Apr. 1	461	107	99	39
Horseshoe	H. O. Porter	699,595	Apr. 1	851	193	99	129
Horseshoe	J. Riley	697,178	Apr. 8	1431	282	99	385
Horseshoe	D. L. Boumal	697,791	Apr. 15	2923	592	99	697
Horseshoe	E. Odell and R. Hubner	699,545	Apr. 29	4014	927	99	913
Horseshoe	C. Strube	700,190	May 13	2011	430	99	1599
Horseshoe	A. M. Melmer	700,627	May 20	3005	639	99	1298
Horseshoe	E. B. Fick	700,396	June 10	1908	418	99	2490
Horseshoe	J. Dillon	700,128	June 24	2405	751	99	2598
Horseshoe-calk	J. E. Cunningham	699,595	May 13	1571	318	99	1470
Horseshoe-calk	E. F. La Clair	700,057	May 13	1768	418	99	1587
Horseshoe-calk sharpener	G. W. Halstead	700,649	May 20	2981	690	99	1813
Horseshoe-machine	G. F. Pison	701,032	May 27	2980	679	99	2013
Horseshoe-machine	G. F. Pison	701,032	May 27	2980	680	99	2013
Horseshoe. Metal and rubber	A. Richl	699,460	Apr. 1	173	48	99	41
Horseshoe. Nailless	J. W. Moore	697,155	Apr. 8	1428	285	99	386
Horseshoe-pad	H. Christopher	699,804	Apr. 29	4709	1097	99	1005
Horseshoe. Rubber-tread	H. C. Frost	701,607	June 3	225	208	99	2804

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Horsehoe. Soft-tread	O. E. Dyson	693,373	May 6	481	108	99	1989
Horse-hall holder	H. E. Gavitt	697,348	Apr. 6	1599	329	99	2008
Hose adapted for couplings, &c. Flexible	M. Montgomery	703,785	June 17	2637	612	99	2008
Hose and electric signaling device. Combined	H. T. Croak	693,423	May 6	690	148	99	1989
Hose-coupling	J. J. Bowes, Jr.	693,396	May 6	448	108	99	1989
Hose-coupling	J. R. Atkinson	701,495	June 3	707	188	99	2004
Hose-coupling	G. H. Caugherty	701,169	June 24	2514	329	99	2004
Hose-coupling. Electric	G. G. Wells	694,702	Apr. 1	555	128	99	1971
Hose-coupling fastener	C. Frankish	701,702	June 3	705	170	99	2004
Hose-nozzle	H. Gibbs	693,384	May 6	428	118	99	1973
Hose-nozzle	H. F. Neumeyer	694,554	May 6	501	199	99	1941
Hose-pipes, &c. Coupling for	J. Morris, Jr.	702,728	May 27	2207	729	99	1998
Hose-rack	E. Cliff	693,956	May 13	1018	287	99	1989
Hose-reel	A. E. Wood	693,346	Apr. 23	2647	807	99	2021
Hose-reel	J. McKee	699,281	May 6	139	30	99	1928
Hose-supporter	G. H. Phelps	693,911	Apr. 1	969	222	99	2111
Hose-supporter	C. J. Ross	693,918	Apr. 1	980	222	99	2111
Hose-supporter	C. H. Wheeler	697,046	Apr. 6	1978	329	99	2009
Hose-supporter	M. Anderson	697,596	Apr. 13	2226	318	99	2112
Hosiery. Manufacture of open-striped	E. A. Hirner	693,954	May 13	1616	370	99	1998
Hosiery with lacework stripes. Manufacture of	W. Wilson	702,545	June 17	2653	698	99	2174
Hot-air furnace	W. H. Birge	693,170	Apr. 23	3349	728	99	728
Hot-air furnace	M. Lee and W. W. Bryan	700,654	May 20	3000	698	99	1987
Hot-air furnace	F. Schrader	702,008	June 24	2173	781	99	2017
Hot-air furnace	E. L. Heald	702,195	June 24	2545	815	99	2008
Hot-air register	A. O. Jones	692,192	May 6	101	25	99	1196
Hot-air register. Side-wall	G. Auer. (Reissue)	12,004	June 24	2651	666	99	2008
Hot blast and smoke-consumer. Combined	J. B. Ehrlich	695,478	Apr. 20	3008	998	99	2000
Hothouse construction	H. Pladeck	701,610	June 3	598	130	99	2022
Hot-water boiler. Sectional	B. F. Behrendt	693,136	May 6	30	5, 6	99	1190
House.							
See Apartment-house. Portable house.							
Hub. Ball-bearing	D. McKay	697,335	Apr. 13	2123	474	99	474
Hub. Vehicle	E. Sendelbach	701,787	June 3	872	198	99	2004
Hub. Vehicle	J. E. Foley	702,548	June 17	2201	281	99	2017
Hub. Wheel	L. T. Gibbs	700,028	May 13	1745	404	99	1848
Hub. Wheel	E. A. Royce	700,378	May 20	2458	570	99	1714
Hub. Wheel	R. E. Smith	697,181	Apr. 6	1496	324	99	2007
Human body. Instrument for cooling or for warming internal portions of the	W. Henderson	697,084	Apr. 6	1245	306	99	2005
Hydrant	W. K. Stansbury	702,501	June 17	2220	508	99	2014
Hydraulic jack	J. C. Gelly	696,930	Apr. 1	704	179	99	160
Hydraulic motor	F. Koss	693,396	May 6	515	119	99	1981
Hydraulic motor	W. Hurrell	702,216	June 10	1695	370	99	2012
Hydraulic testing-machines. Automatic gage for	C. W. Poole	696,591	Apr. 1	352	84	99	78
Hydrocarbon-burner	L. C. Graciale	693,981	Apr. 9	1191	249	99	2008
Hydrocarbon-burner	R. Witty	693,068	Apr. 29	5040	1114	99	1136
Hydrocarbon-burner	R. H. Fullaway	693,980	May 6	474	111	99	1972
Hydrocarbon-burner	J. F. Hardy	700,914	May 27	2384	919	99	1950
Hydrocarbon-burner	G. R. Elliott	701,086	May 27	2743	657	99	1997
Hydrocarbon-burner	C. J. Johnson	701,347	June 3	137	36	99	2125
Hydrocarbon-burner	A. Menck	702,449	June 17	2117	451	99	2081
Hydrocarbon-burner. Retort	A. D. Duncan and W. H. Wafer	702,036	June 17	2479	568	99	2003
Hydrocarbon-lighting system	F. A. and R. D. Cody	702,406	June 17	2086	468	99	2009
Hydrocarbon-motor. Double-cylinder	F. Dürr	699,508	May 6	707	164	99	1382
Hydrocarbon-vapor burner	L. G. Heist	702,588	June 17	2296	584	99	2019
Hydro-extractor. Continuous	L. Atwood	700,119	May 13	1886	488	99	1976
Hydrogen chlorid and sodium sulfate. Making	T. Meyer	702,277	June 17	2917	694	99	2118
Ice-box cover	T. F. Secor	698,564	Apr. 20	4040	994	99	918
Ice-box. Folding	D. F. Rogers	698,754	Apr. 1	879	153	99	145
Ice-cream cabinet	J. Hurley	699,179	May 6	90	24	99	1196
Ice-cream disher	G. W. Shorer	697,677	Apr. 15	2415	537	99	1428
Ice-cream freezer	W. A. Soper	698,574	Apr. 20	4084	997	99	921
Ice-cream freezer	E. E. C. Werner	700,591	May 20	2876	880	99	1759
Ice-cream freezer	H. Monach, Jr.	701,270	June 3	153	33, 34	99	2140
Ice-cream sandwiches. Machine for making	L. Weglein, Jr.	696,778	Apr. 1	730	165	99	198
Ice-cream-shipping vessel	F. C. Klotz	697,496	Apr. 15	2351	491	99	476
Ice-machine press	D. L. Holden	701,932	June 10	1075	243	99	2040
Ice-making apparatus. Automatic skimming-regulator for	A. O. Frik	702,858	June 17	2679	665	99	2140
Ice. Manufacturing	S. N. Smith	702,314	June 24	2730	880	99	2008
Ice-manufacturing apparatus	S. N. Smith	702,315	June 24	2731	880	99	2007
Ice-manufacturing apparatus	S. N. Smith	702,353	June 24	2681	578	99	2007
Ice-trays	J. A. McManis	698,730	Apr. 20	4634	979	99	1004
Ice-tray	T. W. Hennings	693,319	May 6	354	83	99	1946
Identification device	C. A. Hyde	697,595	Apr. 15	2715	603	99	2005
Identification-tag	C. Scott	702,038	June 24	2173	738	99	2017
Ignition apparatus. Electrical	H. T. and H. A. Dawson	701,307	June 3	44	10	99	2118
Ignition device. Electric	A. R. Moser	695,043	Apr. 20	2075	678	99	702
Ignition system	F. L. Gregory	698,555	Apr. 1	940	214	99	198
Illuminator	W. Harvey	702,649	June 17	2495	678	99	2008
Illustrating apparatus	F. S. Newman	701,274	June 3	161	35, 36	99	2141
Impact-engine	N. Gilpatrick	698,971	Apr. 20	2686	780	99	799
Implement. Pocket	J. Taylor and J. Robinson	699,957	May 13	1671	223	99	1232
Incandescent-burner mantle	D. J. Prendergast and V. H. Slinak	697,221	Apr. 6	1804	454	99	404
Incandescent burner. Welsbach or other	V. H. Slinak	699,951	May 6	225	58	99	1221

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Incandescent burner. Welch or other	T. Stites	700,157	May 13	2005	480	99	1389
Incandescent mantles. Manufacturing	G. Buhlmann	698,108	Apr. 23	2206	708	99	1320
Incubation preventive	E. Holm	698,084	May 13	1074	.....	99	1410
Indicating instrument	L. T. Robinson	701,997	June 10	1108	387	99	1367
Indicator: See Car-route indicator. Power-indicator. Gas street-indicator. Railway-indicator. Grain-flow indicator. Revolution indicator. Lubricant indicator. Station-indicator. Office-indicator. Photograph time-indicator.							
Indicator	E. V. Beale	698,358	Apr. 22	2074	811	99	986
Indicator	J. S. Baughman	708,912	June 24	2207	698	99	2780
Indigo from indol. Making	P. Seidel	698,388	Apr. 22	2094	.....	99	816
Indigo. Making	T. Sandmeyer	697,545	Apr. 15	2102	.....	99	408
Indigo. Making resist-white under	A. J. Salomonson	699,083	Apr. 29	2096	.....	99	1123
Indigo. Purifying raw	H. Homolka	708,720	June 17	2042	.....	99	2600
Induction apparatus	W. Scheidel	702,050	June 10	1245	537	99	2402
Ingots. Piercing and shaping metallic	L. D. Davis	697,059	Apr. 22	2008	609	99	994
Inhaler	E. Stevens	699,255	May 6	222	52	99	1321
Inhaler	E. M. Morgan	708,144	June 10	1551	351	99	2445
Inhaler. Pocket	H. J. Valentine	697,117	Apr. 8	1886	801	99	815
Inhaler with nasal attachment	G. H. Maurer	700,222	May 20	2108	800	99	1709
Labeling apparatus. Portable	J. Planour and L. Dutremblay	697,770	Apr. 15	2585	878	99	1608
Injector. Automatic	C. B. Allen	698,533	Apr. 29	4480	880	99	916
Injector-burner	W. Flotts	701,119	May 27	2001	806	99	2081
Inking apparatus	H. A. W. Wood	698,359	May 6	209	90	99	1297
Inlet and catch-basin	H. Wheeler	701,550	June 2	507	119	99	2218
Insect-destroyer	S. V. Graves	698,187	Apr. 22	2221	741	99	708
Insect-destroying machine	O. V. Dyer and W. S. Willette	701,328	June 2	147	31	99	2150
Insect-exterminator	M. Karth	701,328	June 2	147	31	99	2150
Insoluble-making machine	A. B. Fowler	701,191	May 27	4080	926	99	2089
Insulated conductor	E. Thomson and J. G. Callan. (Re-issue.)	11,907	May 27	4195	948	99	2090
Insulated wire	J. A. Heany	708,196	June 24	2548	815	99	2900
Insulated wire. Manufacture of	J. A. Heany	705,197	June 24	2540	816	99	2900
Insulating and waterproofing materials. Manu- facture of electrically	F. Greening	701,712	June 2	780	.....	99	2672
Insulating composition and producing same	A. Gentsch	699,268	May 6	491	.....	99	1872
Insulating covering-stands and forming same into cables. Apparatus for	H. W. Dover	699,430	May 6	637	147	99	1207
Insulating electric conductors	I. Kitz	708,155	June 24	2487	787	99	2906
Insulating handle connection	G. Braubrook	708,097	June 10	1408	289	99	2428
Insulating metallic surfaces or wires	J. A. Heany	708,198	June 24	2553	.....	99	2900
Insulating metallic surfaces with asbestos	J. A. Heany	708,201	June 24	2555	.....	99	2901
Insulating paint	L. M. Randolph	701,328	June 2	147	31	99	2150
Insulation for metallic surfaces. Preparing asbes- tos for use as an	J. A. Heany	708,200	June 24	2554	.....	99	2900
Insulation from wire. Implement for stripping	C. C. Stibley	698,567	Apr. 29	4045	895	99	919
Insulator	W. H. Nichols	697,001	Apr. 8	1188	265	99	871
Insulator	A. N. Berg and E. E. Bechtold	697,720	Apr. 15	2008	877	99	988
Insulator	H. F. Kretzer	699,761	May 13	1226	265	99	1436
Insulator	V. G. Converse	701,847	June 10	1008	225	99	2875
Insulator	V. G. Converse	701,848	June 10	1009	226	99	2876
Insulator and attachment for electric wires	C. C. Johnston	697,222	Apr. 15	2094	519	99	824
Insulator and manufacturing same	F. M. Locke	708,081	June 17	2574	878	99	2904
Insulator. Electric circuit	W. J. Walker	700,428	May 20	2046	606	99	1701
Insulator. Electrical	H. P. Ball	698,087	Apr. 22	2197	699	99	722
Insulator for high-potential currents	R. Quinter	698,088	Apr. 8	1117	247	99	227
Insulator-pin	F. M. Locke	701,008	May 27	2795	870	99	2908
Insulator pin and bracket	E. T. Bally	701,348	May 27	4194	949	99	2976
Insulator-pin machine	A. D. Catlin	701,328	June 2	147	108	99	2900
Insulator-pin. Sleeve for protecting	F. M. Locke	698,079	Apr. 29	4915	1086	99	1110
Insulator-supporting arm	J. E. Sharpe	700,670	May 20	2041	628	99	1722
Insulator. Wire	W. O. Benbow	698,088	Apr. 1	107	117	99	110
Insulators. Making	F. M. Locke	708,082	June 17	2575	879	99	2905
Internal-combustion engine	P. Burt	698,547	Apr. 1	877	64	99	82
Internal-combustion engine	W. J. Robb	700,241	May 20	2004	801	99	1080
Internal-combustion engine	F. Reichenbach	701,222	June 2	408	96	99	2191
Internal-combustion engine	O. W. Kealey	701,221	June 10	1028	247	99	2822
Internal-combustion engine	J. S. Rogers	708,246	June 10	1721	391	99	2421
Internal-combustion engine	J. F. Hobart	708,420	June 17	2675	474	99	2972
Invalid reclining-chair	I. W. Amerman and R. L. Johannes	701,220	June 10	967	215	99	2867
Iron: See Gas-treated iron. Soldering-iron. Red-iron. Smoothing-iron.							
Iron—flat and angle. Machine for bending	W. Volmer	699,088	May 13	1422	286	99	1481
Iron or steel. Apparatus for making	E. Meininghaus	697,912	Apr. 8	1122	248	99	240
Iron or steel. Removing scale oxid from the sur- face of	A. K. Eaton	708,080	June 10	1221	.....	99	2400
Ironing-board	C. W. Parsons and C. B. Kain	702,080	June 10	1480	286	99	2422
Ironing-board	M. Oniel	702,242	June 10	1722	290	99	2420
Ironing-board. Double	J. M. Gernert and J. F. Aten	701,187	May 27	4080	286	99	2001
Ironing-machine	J. J. O'Shea	700,428	May 20	2008	806	99	1722
Ironing-machine. Edge	G. E. Morris	699,001	Apr. 22	4065	1007	99	1115
Ironing-machine. Edge	R. A. Twiss	700,428	May 20	2007	804	99	2192
Ironing-stand	A. F. Hyman and T. Mount	699,088	May 13	1522	287	99	1010
Ironing-table	E. S. Churchman	699,088	Apr. 1	422	87	99	81
Ironing-table. Folding	W. E. Knapp	700,064	May 12	1727	412	99	1700
Isovaleramide derivative and making same	A. Liebrecht	697,720	Apr. 15	2215	.....	99	622

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr. & C.	Vol.	Page.
Knitting-machine.	F. B. Wildman	705,085	June 24	3819	770	90	2884
Knitting-machine. Circular.	K. Paine	692,549	Apr. 29	4088	719	90	914
Knitting-machine. Circular.	H. Britton	700,780	May 27	4161	781	90	1877
Knitting-machine stop-motion.	F. Wilcomb	698,099	Apr. 28	4168	781	90	730
Knitting-machine stop-motion.	F. Wilcomb	698,080	Apr. 28	4172	781	90	728
Knitting-machine stop-motion.	F. Wilcomb	698,091	Apr. 28	4177	781	90	729
Knitting-machines. Attachment for making open or lace work in straight.	A. Gee	708,085	June 24	3839	783	90	5935
Knob and bell Combination door.	J. W. Freeman	700,498	May 30	4204	819	90	1708
Knob and bell Combined door.	J. W. Freeman	700,981	May 30	4207	824	90	1884
Knob-attaching device.	G. B. Pictrop	697,129	Apr. 8	1474	830	90	388
Knob. Door.	W. F. Gilbert	699,515	May 6	798	189	90	1819
Label.	G. E. Howard	708,880	June 10	1915	497	90	1761
Label. Ear.	H. T. Kane	700,498	May 30	4208	817	90	1761
Label. Machine for inserting and fastening strings in.	S. B. Tily, J. G. and M. O. Rehfuss	702,388	June 10	1918	401	90	2428
Labeling and wrapping mechanism. Case.	F. H. Knapp and C. W. Blackstone.	698,180	Apr. 29	3890	876	90	901
Labeling-machine.	F. C. H. Strasburger	701,382	May 27	4301	948	90	2070
Labeling-machine. Bottle.	C. Laffer	695,984	May 13	1455	841	90	1406
Labeling-machine. Bottle.	N. Mander	700,498	May 30	4208	824	90	1729
Lace-fastener.	A. H. Andrews and E. T. Morrison.	697,564	Apr. 8	1388	885	90	352
Lace-fastener. Shoe.	L. H. Hancock	701,199	May 27	4303	957	90	2031
Lace hook and clasp.	H. B. Wilson	700,374	May 30	4207	817	90	1678
Lace representing mosaic work. Manufacture of.	E. E. Sanner	698,013	Apr. 29	4094	1108	90	1134
Lace. Shoe.	T. O. Holland	698,463	Apr. 1	85	19	90	88
Lacing-hook.	E. Kempshall	700,138	May 13	1908	448	90	1578
Lacing hook. Shoe.	F. E. Vandercrook	699,989	May 13	1673	894	90	1532
Lacing hook. Shoe.	F. E. Vandercrook	699,990	May 13	1674	894	90	1538
Lacing. Shoe.	H. W. Miller	699,989	May 13	1641	388	90	1475
Ladder.	J. C. McCombie	700,548	May 30	4200	830	90	1732
Ladder and hose-nomle controlling apparatus. Combined.	J. Cook and A. G. Engvall.	705,113	June 24	3891	777	90	2886
Ladder. Double or step.	E. Hardin	701,382	June 3	448	100	90	2920
Ladder. Extension.	C. B. Totman	697,354	Apr. 8	1388	880	90	352
Ladder-iron.	C. A. Truitt	698,048	Apr. 1	850	158	90	179
Ladder. Sectional.	B. P. Hoggins	700,580	May 30	4207	808	90	1844
Ladder. Step.	H. L. Friel	700,580	May 13	1741	401	90	1546
Ladder. Step.	A. Mau and C. Fassel	700,574	June 17	2325	508	90	2630
Ladder. Trussed scaling.	G. A. Edmonson and A. H. Myers	699,274	May 6	468	108	90	1308
Ladle. Bottom-pouring.	C. W. Sherman	699,274	Apr. 29	4094	884	90	818
Lamp. Alcohol.	S. Sternau and L. Strasburger	699,507	Apr. 1	199	43	90	47
Lamp and lamp-holder. Electric.	H. J. Dowling	697,428	Apr. 15	2019	446	90	1484
Lamp attachment.	L. F. Koester, Jr.	701,595	May 27	4209	837	90	1807
Lamp-bracket.	A. Thuermer	697,501	Apr. 15	1813	422	90	890
Lamp-burner.	S. B. Morse	701,910	June 10	1135	880	90	1801
Lamp. Carriage.	E. M. Rosenbluth	708,988	June 17	2005	547	90	2689
Lamp circuit and cut-out. Electric-arc.	M. H. Baker	708,988	June 17	2005	547	90	2636
Lamp. Electric.	C. Hubert	700,690	May 30	4207	834	90	1830
Lamp. Electric-arc.	M. Froment	698,507	Apr. 1	779	177	90	165
Lamp. Electric-arc.	J. Eberhardt	697,077	Apr. 8	1388	895	90	361
Lamp. Electric-arc.	H. Bremer	697,438	Apr. 15	1905	480	90	487
Lamp. Electric-arc.	C. E. Hartman	697,438	Apr. 15	1905	480	90	487
Lamp. Electric-arc.	M. S. Okun	698,238	Apr. 30	3089	500	90	704
Lamp. Electric-arc.	J. A. Sweeney and F. Gubing.	698,575	Apr. 30	4057	897	90	885
Lamp. Electric-arc.	P. H. F. Spies	698,575	Apr. 30	4057	897	90	885
Lamp. Electric-arc.	C. Gilbert	698,981	Apr. 30	4940	1098	90	1094
Lamp. Electric-arc.	A. Lere	699,195	May 6	121	22	90	1200
Lamp. Electric-arc.	J. S. Nowotny	699,285	May 6	105	40	90	1208
Lamp. Electric-arc.	J. L. Davies	700,918	May 27	4208	853	90	1808
Lamp. Electric-arc.	G. G. Tilden	701,498	June 3	940	85	90	2169
Lamp. Electric-tube.	D. M. Moore	702,519	June 10	1928	489	90	2638
Lamp. Electric-tube.	D. M. Moore	702,519	June 10	1928	489	90	2638
Lamp. Formaldehyde.	R. P. Kuhn. (Reissue).	11,695	May 12	1891	464	90	1873
Lamp. Gas.	A. C. Humphrey	698,640	Apr. 1	445	104	90	88
Lamp. Gas.	L. C. Fuller	701,628	June 3	940	10	90	2122
Lamp. Gas.	T. Maguire	702,122	June 10	1948	851	90	2141
Lamp. Gas-holder. Arc.	G. E. Stevens	697,787	Apr. 15	2028	588	90	872
Lamp. Gas-holder and making same. Pyroelectric.	C. P. Steinmetz	701,328	June 10	1928	715	90	2074
Lamp. Gas-holder.	H. J. Harrison	698,378	Apr. 28	3549	978	90	101
Lamp. Gas-holder.	T. Lindsay and L. L. White	700,817	May 30	4208	871	90	1775
Lamp holder. Electric-incandescent.	E. G. Sheppard	701,946	June 10	1190	871	90	2072
Lamp hood and switch.	H. Etheridge	697,705	Apr. 15	1874	868	90	864
Lamp. Hydrocarbon.	C. H. De Voll	699,915	May 13	1281	882	90	1686
Lamp. Hydrocarbon.	T. H. Blair	700,875	May 30	4208	818	90	1729
Lamp. Hydrocarbon.	J. G. Brann	702,351	June 24	2610	850	90	2122
Lamp. Incandescent electric.	A. A. Challen	701,322	June 3	940	85	90	2114
Lamp. Incandescent gas.	A. B. Randall	698,525	Apr. 28	3454	769	90	791
Lamp. Incandescent gas.	J. Lowy	700,070	June 24	2603	700	90	2041
Lamp. Incandescent.	W. L. Cheney, G. R. Davison, and E. W. Skinner.	701,975	June 17	2028	498	90	2041
Lamp-lighter and match-extinguisher.	W. R. Cain and C. B. Kane	698,584	Apr. 1	908	168	90	12

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr.	Vol.	Page.
Lamp. Time.	O. V. Sigurdson and H. Durlles	696,087	Apr. 26	4995	11106	99	1155
Lamp. Miner's safety.	A. M. Dando and F. H. Stair	700,407	May 20	2543	588	99	1799
Lamp or gas-burner heating attachment.	E. H. Trux	699,988	May 12	1584	328	99	1515
Lamp reflector-shade. Electric-arc.	W. E. Goldschmidt	702,791	June 17	2758	695	99	2714
Lamp. Self-extinguishing non-explosive.	T. E. Freeman and T. M. Henderson	696,984	Apr. 1	877	308	99	185
Lamp shade-holder. Incandescent-electric.	E. A. Russell	703,308	June 24	2794	688	99	708
Lamp socket. Electric.	M. Norden	698,519	Apr. 22	2445	758	99	743
Lamp socket. Incandescent.	W. H. Perkins	698,123	Apr. 22	2250	719	99	840
Lamp socket. Incandescent.	L. P. Dixon	695,864	Apr. 22	2740	686	99	2260
Lamp socket. Incandescent.	C. A. Chase	701,699	June 3	794	180	99	880
Lamp. Street.	J. C. Heiarits and J. W. McCuen	697,717	Apr. 15	2428	555	99	984
Lamp. Student's.	A. P. Storrs	698,880	Apr. 29	4087	680	99	984
Lamp switch. Electric.	J. F. Krayer	697,797	Apr. 15	2505	680	99	984
Lamp. Train-signal.	E. F. Koss and J. Lange	697,888	Apr. 15	2708	614	99	984
Lamp. Apparatus for distributing hydrocarbon under pressure to electrical glow.	J. G. Branch	698,984	Apr. 29	2687	814	99	984
Lamp. Controlling arc.	A. Lafebre	697,888	Apr. 15	2723	607	99	614
Lamp. Controlling arc.	E. Oxley	697,037	Apr. 8	1198	293	99	372
Lamp. Controlling arc.	E. Oxley	697,161	Apr. 8	1461	285	99	380
Lamp. Controlling arc.	K. Luria	698,387	Apr. 29	3078	870	99	905
Lamp. Controlling arc.	E. S. Gardner	697,460	Apr. 15	3085	449	99	402
Lamp. Controlling arc.	H. N. Potter	699,238	May 6	198	99	1511	
Lamp. Controlling arc.	C. K. Longwood	699,684	May 13	1095	367	99	1413
Lamp. Controlling arc.	G. L. Wilson	701,376	May 27	4187	961	99	2055
Lamp. Controlling arc.	I. Love and W. Ray	697,349	Apr. 8	1788	439	99	789
Lamp. Controlling arc.	E. B. Hughes	699,586	May 6	745	124	99	1389
Lamp. Controlling arc.	C. A. E. Ruebel	698,576	Apr. 22	3108	698	99	1351
Lamp. Controlling arc.	A. P. Pruhm	698,083	Apr. 15	2820	580	99	708
Lamp. Controlling arc.	R. L. Kilgore	700,597	June 10	1809	413	99	580
Lamp. Controlling arc.	J. T. Forster	700,186	May 20	2091	478	99	2468
Lamp. Controlling arc.	H. Eberts	697,044	Apr. 8	1288	261	99	1089
Lamp. Controlling arc.	A. D. Tyler, Jr.	700,888	May 27	3438	729	99	287
Lamp. Controlling arc.	E. D. White	699,785	May 12	1287	284	99	1089
Lamp. Controlling arc.	J. T. Brown	698,008	Apr. 29	2689	684	99	1440
Lamp. Controlling arc.	E. W. Gerrish	698,717	Apr. 1	616	136	99	691
Lamp. Controlling arc.	J. Cavanagh, Jr.	698,740	Apr. 1	654	146	99	124
Lamp. Controlling arc.	R. Eder	698,476	Apr. 29	3070	881	99	140
Lamp. Controlling arc.	M. F. Kelley	701,088	May 27	3728	880	99	2005
Lamp. Controlling arc.	S. Snow	701,411	June 3	288	80	99	2158
Lamp. Controlling arc.	T. C. Hamilton	701,419	June 3	285	81	99	2154
Lamp. Controlling arc.	G. H. Pierce	698,940	Apr. 29	4954	1071	99	2154
Lamp. Controlling arc.	A. Charles	702,074	June 10	1448	284	99	2428
Lamp. Controlling arc.	H. (Chester)	702,185	June 10	1887	286	99	2428
Lamp. Controlling arc.	W. H. Wilsey	697,336	Apr. 1	1728	284	99	12
Lamp. Controlling arc.	J. H. Kruse	698,684	Apr. 1	548	126	99	287
Lamp. Controlling arc.	L. G. Merritt	698,547	May 6	708	185	99	118
Lamp. Controlling arc.	J. E. Mills	697,888	Apr. 8	1644	285	99	1238
Lamp. Controlling arc.	W. H. Dent	697,819	Apr. 15	2671	888	99	270
Lamp. Controlling arc.	J. D. Hewitt	701,794	June 3	504	178	99	208
Lamp. Controlling arc.	B. M. W. Hanson and F. W. Gordon	701,584	June 3	518	113	99	2075
Lamp. Controlling arc.	H. C. Osborn	697,413	Apr. 8	1088	420	99	2014
Lamp. Controlling arc.	W. F. Barnes	698,440	May 6	890	187	99	489
Lamp. Controlling arc.	J. P. Lavigne	700,146	May 13	1985	485	99	1280
Lamp. Controlling arc.	B. M. W. Hanson	698,810	May 6	341	79, 80	99	1284
Lamp. Controlling arc.	R. M. W. Hanson	701,719	June 3	708	175	99	1349
Lamp. Controlling arc.	W. L. Frieble	697,187	Apr. 8	1428	517	99	2873
Lamp. Controlling arc.	M. O. Farr	698,285	Apr. 1	60	14	99	888
Lamp. Controlling arc.	H. H. Gray	702,798	June 17	2769	688	99	16
Lamp. Controlling arc.	R. F. Hall	698,508	May 6	287	75, 79	99	2714
Lamp. Controlling arc.	O. Sundt	697,591	Apr. 29	5015	1109	99	281
Lamp. Controlling arc.	J. Talbot	698,087	Apr. 8	908	40	99	1181
Lamp. Controlling arc.	J. E. Scott	698,548	May 6	908	40	99	1215
Lamp. Controlling arc.	H. Stockman	702,180	June 24	3481	891	99	2815
Lamp. Controlling arc.	M. Panko	698,411	Apr. 29	3787	881	99	2815
Lamp. Controlling arc.	P. Stein	702,019	June 24	3168	784	99	2815
Lamp. Controlling arc.	R. J. Young	697,888	Apr. 8	1881	883	99	2815
Lamp. Controlling arc.	R. Fischer	698,918	Apr. 29	4988	1084	99	2815
Lamp. Controlling arc.	J. Caldwell	702,687	June 17	2795	670	99	2815
Lamp. Controlling arc.	J. Caldwell	698,718	Apr. 1	614	127	99	2815
Lamp. Controlling arc.	J. Caldwell	697,448	Apr. 15	1994	440	99	2815
Lamp. Controlling arc.	J. Caldwell	698,988	May 13	1380	316	99	2815
Lamp. Controlling arc.	J. Caldwell	701,885	June 10	988	280	99	2815
Lamp. Controlling arc.	C. J. Miller	702,450	June 17	2119	481	99	2815
Lamp. Controlling arc.	J. E. Miller	702,028	June 10	1888	328	99	2815
Lamp. Controlling arc.	E. G. Whitlock	700,887	May 27	3435	729	99	2815
Lamp. Controlling arc.	J. Barker	700,604	May 20	2694	688	99	2815
Lamp. Controlling arc.	F. Sedgwick	701,088	May 27	3644	888	99	2815
Lamp. Controlling arc.	R. F. Shibe	698,764	Apr. 1	689	128	99	2815
Lamp. Controlling arc.	O. W. Howland	701,046	May 27	3770	884	99	2815
Lamp. Controlling arc.	E. L. Lembo	702,808	June 17	2728	680	99	2815
Lamp. Controlling arc.	P. Abbo	697,988	Apr. 29	2988	688	99	2815

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Letter-box.	T. C. McLean	702,167	June 24	2451	791	99	2871
Letter-box attachment.	U. H. Tracy and F. C. Gould	702,510	June 17	2885	808	99	2885
Levee, &c. Live-wood wall for	J. Patten	700,078	May 18	1810	428	99	1248
Level.	T. F. Hickey	697,718	Apr. 15	2480	538	99	538
Level. Ditching and terracing.	E. A. Bodstrom	700,717	May 30	3120	711	99	1854
Level. Spirit.	S. E. Roe	702,255	June 24	2728	687	99	2885
Leveling instrument.	G. H. Frier	701,813	June 3	287	121	99	2288
Leveling-machine.	J. J. Hays	702,304	June 24	2850	817	99	2881
Lever. Reverse.	J. Player	698,888	Apr. 1	168	80	99	30
Lever. Thumb-latch for adjustment.	J. Macphail	700,418	May 30	3128	820	99	1648
Life-guard.	T. E. C. Wilson	697,128	Apr. 8	1288	320	99	316
Life-preserver.	H. Prevost	701,280	Apr. 8	1804	404	99	404
Life-preserver. Automatic self-inflating.	J. Graham and E. R. Tatlock	701,280	Apr. 8	1804	404	99	404
Life-raft.	D. G. Martens	698,468	Apr. 1	187	30, 31	99	32
Life-saving apparatus.	E. J. Johnson	702,128	June 24	2494	788	99	2888
Light.	J. M. Zwerner	698,010	Apr. 29	4174	918	99	645
See Hay-rack lifter.							
Lifting and carrying device.	P. J. M. Wadlyag	698,018	Apr. 1	408	94	99	88
Lifting and track-aligning jack. Combined.	A. H. Flowers	701,198	May 27	4087	888	99	2058
Lifting device.	L. E. Goodwin	698,588	Apr. 1	597	71	99	97
Lifting-jack.	P. E. Ford	698,988	Apr. 29	4989	1085	99	1008
Lifting-jack.	E. Woodings	701,888	June 3	988	218	99	2810
Lifting-jack for cars, &c.	E. B. Clark	698,278	Apr. 29	2704	618	99	2810
Lifting-jack lever.	W. E. Bushnell	702,280	June 24	2887	800	99	2701
Lifting-jack or elevator.	C. Bismarck	698,588	Apr. 29	4785	1088	99	1028
Light.							
See Vault-light.							
Lighting.	E. Thayer	697,888	Apr. 8	1087	279	99	288
Lighting. Air-pressure system of.	J. E. Hall	697,018	Apr. 8	1217	271	99	277
Lighting-arranger and binding-post. Combined.	E. E. Taylor	701,128	May 27	3010	680	99	2088
Lighting-arranger for overhead wires.	G. Gold	701,088	May 27	2758	800	99	1880
Lighting-conductor.	F. E. Klein	701,077	June 3	588	117	99	2810
Limb. Artificial.	I. R. and W. D. Fanner	701,218	June 3	72	15	99	218
Limb. Artificial.	H. Yearley	701,480	June 3	988	28	99	2189
Line pulverizing and separating machine.	C. M. Avery	698,288	Apr. 1	6	8	99	4
Line-grip.	F. L. Fetter	702,191	June 10	1648	388	99	2404
Line spreader and guide.	T. N. Mathias	700,708	May 27	2820	787	99	1897
Linoleum-cutting.	F. L. Tripp	697,908	Apr. 15	2818	688	99	680
Linoleum. Machinery for the manufacture of in-laid.	C. H. Scott	697,551	Apr. 15	2178	484	99	484
Linoleum. Manufacture of.	C. H. Scott	697,588	Apr. 15	2180	484	99	485
Linoleum-press.	H. W. Godfrey	698,708	May 13	1228	280	99	1448
Linotype-galley.	F. E. Mithelland	701,288	June 3	108	28	99	2140
Linotype-matrix.	P. T. Dodge	700,088	May 13	1728	388	99	1348
Linotype-machine.	P. T. Dodge	698,808	Apr. 1	777	178	99	168
Linotype-machine.	P. T. Dodge	697,494	Apr. 15	2017	488	99	488
Linotype-machine.	J. B. Ball	701,288	June 10	1888	288	99	2887
Linotype-machine.	J. B. Ball	701,900	June 10	1871	281	99	2887
Linotype-machine.	P. T. Dodge	702,791	June 17	2728	687	99	2710
Linotype-machine.	P. T. Dodge	702,798	June 17	2748	681	99	2710
Linotype-machine. Tool for cutting cast type-linen in.	C. A. Albrecht	698,588	Apr. 1	540	95	99	57
Linotype mold-block. Automatically-cored.	C. Hollwell	698,987	Apr. 1	488	108	99	95
Linotype or similar composing-machine.	J. Gray	702,348	June 24	2805	828	99	2807
Linotype-sling holder.	G. E. Wallin	699,798	May 13	1188	288	99	1428
Liquid charging and dispensing apparatus.	C. A. Wilkinson	698,047	Apr. 29	5981	1118	99	1124
Liquid-container.	H. E. Myers	698,808	Apr. 29	3298	798	99	810
Liquid-containing vessel.	L. J. Tardy	701,308	May 27	2898	887	99	2028
Liquid-cooling apparatus.	J. Stocker	700,980	May 27	2838	888	99	1978
Liquid-drawing device.	L. H. Handy	701,288	June 3	104	81	99	2180
Liquid-feed-regulating mechanism.	D. T. Sharps	698,540	May 6	810	80	99	2817
Liquid from brewers' grains, &c. Machine for extracting.	L. Atwood	698,988	Apr. 1	988	218	99	197
Liquid-fuel burner.	J. W. Neumann	698,408	Apr. 29	2708	880	99	281
Liquid fuel burner.	J. W. Neumann	702,280	June 17	2880	874	99	2767
Liquid heating or cooling apparatus.	H. Boller	697,524	Apr. 15	2194	488	99	588
Liquid-meter.	S. Bouchet	698,088	Apr. 29	4184	988	99	588
Liquid-pressure regulator.	M. Plank	702,076	June 10	1448	285	99	2428
Liquid-raising apparatus.	G. L. Cuddegar and J. Dyer	702,048	June 24	2838	748	99	2881
Liquid-supplying device.	C. E. L. Diddon	702,028	June 10	1888	328	99	2880
Liquid-tanks. Automatic device for discharging.	W. B. Sticks	698,225	Apr. 29	3580	777	99	277
Liquid-tanks. Device for charging or discharging.	S. W. Miller	702,028	June 10	1888	328	99	2880
Liquids of varying densities. Transportable device for drawing constant quantities of.	A. Muscato	698,988	Apr. 29	4641	1084	99	1115
Liquids, partial liquids, &c. Device for mixing.	H. C. Whitmore and W. J. Daubensha	697,870	Apr. 15	2288	588	99	284
Liquors. Apparatus for refining, aging, mellowing, and purifying alcoholic.	J. F. Duffy	698,128	Apr. 29	2870	728	99	728
Liquors. Manufacture of fermented.	J. Eckhardt	700,888	May 27	2870	770	99	1888

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Liquors. Refining, aging, mellowing, and purifying alcoholic.	J. F. Duffy	998,184	Apr. 23	3371	738	739	739
Liter. Sulky.	G. Engelmann	998,255	Apr. 1	333	804	805	805
Lithopane. Making.	E. P. Lohme	997,781	Apr. 15	3314	804	805	1194
Loading-beam.	E. Scharrer	998,081	Apr. 20	4008	1103	1104	1104
Loading cars, wagons, &c. Apparatus for.	A. P. Hartwell	997,710	Apr. 15	3307	805	806	806
Loading device. Barge.	W. L. Kilbrow	997,033	May 27	3704	805	806	1005
Loading or unloading apparatus.	D. J. Farthing	998,740	May 13	1150	877	878	1001
Lock.							
See Bicycle-lock.	Milk-receptacle lock.						
Binder-lock.	Padlock.						
Bolt-lock.	Permutation-lock.						
Carriage-lock.	Seal-lock.						
Combination-lock.	Seal-lock.						
Door-lock.	Vehicle-robs lock.						
Gravity-lock.	Vehicle-mounting-lock.						
Key-lock.	Window-lock.						
Lock.	J. J. Trout	997,598	Apr. 15	3305	691	691	691
Lock.	C. W. Barrett	997,590	Apr. 15	3300	694	695	695
Lock.	A. R. Ferguson	997,614	Apr. 15	3300	519	519	519
Lock.	M. E. Blainley	997,598	Apr. 15	3374	694	694	641
Lock.	A. Froelich	998,493	Apr. 20	3913	805	806	806
Lock.	H. G. Carlson	998,811	Apr. 20	4001	1015	1015	1044
Lock.	H. G. Carlson	998,812	Apr. 20	4003	1015	1015	1044
Lock.	C. H. Bridgen	998,881	May 13	1265	815	815	1007
Lock.	E. Weber and F. C. Frey	700,108	May 13	1874	486	486	1007
Lock.	G. T. Roberts	700,348	May 20	2005	594	594	1008
Lock.	M. Schrander	702,368	June 10	1870	493	493	1008
Lock.	L. Labean	702,301	June 24	2009	540	540	1017
Lock.	L. H. Mullikin	997,198	Apr. 8	1464	387	387	388
Lock and latch. Combined.	E. A. Fogel	998,801	May 6	233	74	74	1940
Lock and latch. Combined.	D. Hoyt	998,800	Apr. 1	600	148	148	149
Lock-case.	W. H. Taylor	998,008	Apr. 1	369	81	81	82
Lock-hub.	T. H. Young	998,689	Apr. 1	418	80	80	80
Locks. Extension-cylinder for pin.	A. Cramond	701,850	June 10	1011	388	388	1000
Locking device.	C. B. Foote, Jr.	997,598	Apr. 15	3307	693	693	694
Lock-exteriorator.	J. Knight	997,598	Apr. 15	2151	478	478	480
Locomotive.	J. Player	997,598	Apr. 15	2150	479	479	480
Locomotive.	J. Player	998,493	Apr. 1	103	40, 41	40	40
Locomotive ash-pan.	J. Player	998,493	Apr. 1	103	41	41	41
Locomotive ash-pan.	J. Player	998,493	Apr. 1	103	41	41	41
Locomotive-boiler.	S. G. Cramley	998,701	May 13	1870	386	386	1000
Locomotive-brake.	H. A. Wahlert	998,885	Apr. 1	238	64	64	65
Locomotive-cylinder.	J. Player	998,493	Apr. 1	104	40	40	40
Locomotive draft-regulator.	O. Horens	700,008	June 10	1997	392	392	1000
Locomotive draw-bar attachment.	W. F. Richards	700,928	May 27	3307	693	693	1073
Locomotive driving-wheel.	L. H. Kenyon	997,580	Apr. 15	2738	693	693	611
Locomotive-engine.	C. Hagans	998,370	Apr. 20	3643	781	781	800
Locomotive-engine ventilator.	C. Hagans	997,498	Apr. 15	3070	489	489	475
Locomotive track-leading device.	B. Hendrickson	700,984	May 27	3541	519	519	1004
Locomotive with driven bogey	C. Hagans	998,517	May 6	730	170	170	1008
Log-turner.	J. J. Skinner	998,780	Apr. 20	4405	908	908	1011
Log-turner.	T. H. Dillon	998,008	Apr. 20	3037	1136	1136	1145
Log-turner.	W. L. Leland	702,974	June 24	3157	719	719	1007
Logging-truck.	J. Lindner	11,937	May 13	3034	404	404	1004
Loom.	J. E. Palmer	997,745	Apr. 15	3530	905	905	907
Loom fabric-scouring attachment.	P. Spindler	702,116	June 10	1804	289	289	1000
Loom. Filling-replenishing.	J. Northrop	997,004	Apr. 8	1189	387	387	373
Loom. Filling-replenishing.	W. I. Stimpson	998,370	Apr. 20	4008	1008	1008	908
Loom filling-replenishing mechanism.	G. F. Hutchins	702,570	June 17	2014	672	672	1007
Loom for weaving bordered fabrics.	G. W. Cunnock and F. E. Warren	702,008	June 17	2006	607	607	1008
Loom-harness evener.	A. B. Cowan	701,683	June 3	787	100	100	1001
Loom harness-motion.	T. Brindle and M. O. Store	700,613	May 20	2919	671	671	1006
Loom. Kindergarten.	F. A. Foster	700,683	May 20	2926	673	673	1017
Loom multiplier mechanism.	A. B. Cowan and R. F. McGuinness	998,381	Apr. 20	4001	1010	1010	1000
Loom multiplier mechanism.	H. Wyman and A. A. Gordon, Jr	700,929	May 27	3374	693	693	1000
Loom. Narrow-ware.	H. Riehl, Jr	998,977	May 13	1363	321	321	1000
Loom pattern mechanism.	A. S. Cowan	998,104	Apr. 20	5150	1120	1120	1120
Loom picker-check.	C. S. St. Onge	997,998	Apr. 15	3197	486	486	486
Loom picker-operating mechanism. Swivel.	F. Brown	701,524	June 3	440	101	101	1000
Loom picker-stick buffer.	F. A. Mills	700,928	May 27	3305	800	800	1005
Loom pile-wire head.	H. L. Matton	997,598	Apr. 8	1640	905	905	901
Loom pile-wire motion.	L. H. Hartley, T. H. Mamack, and J. Newhall.	998,370	Apr. 20	3950	788	788	788
Loom-reef.	R. Wilms	700,368	May 20	2980	681	681	1000
Loom. Ribbon.	R. Kohlman	998,978	May 13	1409	380	380	1000
Loom. Ribbon.	R. Kohlman	998,978	May 13	1473	380	380	1000
Loom shipper mechanism.	C. M. Day	702,240	June 20	1904	483	483	1015
Loom-shuttle mechanism.	F. H. Morris	997,508	Apr. 15	3506	483	483	483
Loom-shuttle.	O. Gleason	997,719	Apr. 15	3464	884	884	887
Loom-shuttle.	C. M. Brown	702,591	June 10	1709	483	483	1000
Loom-shuttle.	I. F. Peck	702,678	June 17	2023	481	481	1000
Loom-shuttle.	N. Calise	998,005	May 6	604	120	120	1000
Loom-shuttle-check.	J. C. Bryan	998,288	Apr. 1	811	120	120	1000
Loom-shuttle-guard.	J. F. Lange	998,288	Apr. 1	811	120	120	1000

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Vol.	Pages.	Vol.	Pages.
Loom-shuttle. Self-threading.	J. Northrop	697,935	Apr. 8	1198	267	99	373
Loom stop-motion.	C. E. Miller and J. E. Jackson	700,590	May 27	2315	91	99	1299
Loom stop-motion. Ribbed.	W. I. Post	698,113	Apr. 29	5134	1135	99	1154
Loom. Swivel.	G. F. Hutchins and J. T. Cyr	698,308	Apr. 23	2480	787	99	1774
Loom thread-parting mechanism.	C. F. Roper	701,395	June 10	1198	267	99	373
Loom warp stop-motion.	H. J. Jarry	697,392	Apr. 8	1887	365	99	988
Loom warp stop-motion.	H. J. Jarry	702,654	June 17	3904	573	99	3931
Loom. Warp-replenishing.	H. W. Smith	697,694	Apr. 15	2485	540	99	544
Loom warp-replenishing mechanism.	J. M. Shay	698,697	Apr. 1	450	111	99	122
Loom. Electromagnetic pattern-controlling apparatus for.	A. P. S. Macquistan	701,311	May 27	4080	888	99	3294
Loom. Magnetic feeder for.	C. P. Boutan	698,987	Apr. 29	3292	844	99	875
Loom. Means for defining the beat of the lay of.	C. H. Warren	701,973	June 10	1284	223	99	2921
Loom. Mechanical warp-motion for.	H. Wyman	702,099	June 17	3904	573	99	3931
Loom. Tuck-pass up for tubed pile-fabric.	J. F. Riddell	701,024	June 10	1157	265	99	2927
Low-water alarm for automobile tanks. Audible.	G. E. Whitney	698,775	Apr. 29	4505	926	99	1080
Lubricant and making same.	W. F. Downs	697,693	Apr. 23	3010	599	99	699
Lubricant-indicator.	P. C. E. Gostin	700,699	May 20	3040	694	99	1595
Lubricants. Testing.	P. C. E. Gostin	698,501	Apr. 1	188	46	99	1595
Lubricating can.	J. Schmidt	701,099	May 27	3746	858	99	1995
Lubricating car-journals. Device for.	J. E. Gill	701,394	June 3	146	39	99	2139
Lubricating device.	A. Lofthall	700,970	May 20	2990	618	99	1678
Lubricating hydraulic cylinders. Means for.	L. G. M. West	700,970	May 20	2990	618	99	1678
Lubricator.							
See Automobile. Railway-track lubricator.							
Lubricator.	O. G. Kipp	699,191	May 6	113	39	99	1199
Lubricator.	H. Harris	701,597	June 3	518	114	99	1515
Lubricator.	H. A. Lyddon	701,745	June 3	595	154	99	2954
Lubricator.	H. J. Tunney. (Belmont)	19,008	June 24	3946	945	99	743
Lumber. Drying redwood.	J. B. Phillips	698,194	Apr. 23	3252	719	99	725
Lumber edging and matching machine.	H. A. Gale	698,111	Apr. 29	3252	719	99	941
Lunch-box. Folding bicycle.	J. A. Kishner	698,997	Apr. 29	3745	697	99	2995
Lungs. Apparatus for testing the volume of air from the.	M. Benedict	701,130	May 27	3995	719	99	795
Macaroni-twisting apparatus.	E. E. Katschnmidt	698,119	Apr. 29	3253	719	99	2995
Machine parts. Flexible device for connecting stationary or movable.	F. Reichenbach	701,615	June 3	500	122	99	949
Magnesium-peroxide compound. Making.	F. Fuhrmann	698,999	Apr. 29	3745	697	99	2995
Magnet holder and adjusting apparatus for compensating binoculars.	A. M. Ritchie	702,390	June 10	1978	497	99	999
Magnet. Polarized.	C. C. Knapp	698,697	Apr. 29	3998	671	99	697
Magnetic qualities of materials. Apparatus for testing the.	E. V. Drysdale	701,174	May 27	3994	915	99	3981
Magnetic separator.	J. H. A. McPherson	698,311	Apr. 29	3398	792	99	510
Magnetic separator.	J. C. Windsor	702,399	June 24	3795	697	99	2995
Magnetic-electric generator.	G. F. Apple	697,993	Apr. 29	3998	647	99	674
Magnetizing glass. Magnetic.	M. Berger	701,798	June 3	508	122	99	949
Mail-bag machine and delivering mechanism.	H. J. Meyer	702,074	June 24	3213	792	99	2995
Mail-bag crane.	L. E. Sweetland	701,774	June 3	513	127	99	697
Mail-bag deliverer and catcher.	G. H. Barrien	698,998	Apr. 29	3977	619	99	129
Mail-box.	J. W. Carrier	698,791	Apr. 1	692	190	99	129
Mail-box.	A. F. Corbin	697,480	Apr. 15	3010	444	99	499
Mail-box.	W. E. Smith	698,353	May 6	380	54	99	1681
Mail-box.	A. B. Crafts	698,746	May 13	1116	379	99	1639
Mail-box.	S. A. Jones	702,390	June 10	1978	497	99	999
Mail-box.	J. M. Reasoner	702,079	June 17	3904	573	99	3931
Mail-box locking system.	J. E. Walsh	698,597	May 6	793	209	99	1299
Mail-sorting machine.	H. E. Waite	700,699	May 20	3040	694	99	1595
Mail-pouch.	G. F. Selzer	700,844	May 27	3998	790	99	1999
Mail-pouch address and fastening mechanism.	H. D. Weller	698,431	May 6	384	100	99	1299
Mail-service apparatus.	G. A. Owen	698,547	Apr. 29	4017	987	99	913
Mail-service apparatus.	G. A. Owen	698,407	May 6	123	184	99	1294
Mail-service apparatus.	G. A. Owen	698,406	May 6	123	184	99	1294
Mail-service apparatus.	G. A. Owen	698,404	Apr. 1	408	94	99	99
Mailing-tube.	T. W. Hestley	698,483	Apr. 29	3998	643	99	675
Mallet.	W. E. Bolster	702,658	June 17	3907	583	99	3918
Mallet-kn.	T. Haynes, Jr.	701,748	June 3	505	122	99	949
Malted Maccoti and making same. Granular.	J. Lambert	700,949	May 27	3991	779	99	1994
Malleting-drum. Pneumatic.	H. Smith	702,997	June 24	3146	779	99	3913
Mandolin attachment.	F. G. McPherson	698,093	Apr. 29	3990	1119	99	1149
Mangle.	W. H. Baker	700,099	May 13	1799	417	99	1299
Mangle.	D. Lumsgr.	702,657	June 17	3905	589	99	3914
Mangle.	W. E. Andre	698,303	Apr. 29	3595	791	99	999
Mangle/feeding device.	C. H. Mann	698,499	Apr. 1	176	46	99	69
Mangle-support.	J. I. Robin	698,499	Apr. 1	177	46	99	69
Mangle-support.	J. E. Dohls	698,303	May 6	1310	51	99	1299
Map or chart case.	H. Hentjean and A. Peterson	701,940	June 13	1116	379	99	1639
Map. Means for carrying.	W. G. and A. C. Rosch	700,099	May 13	1799	417	99	1299
Marble. Game, for playing.	L. E. Dohls	701,473	June 3	545	79	99	2139
Mashing-machine.	R. M. Moody	700,971	May 27	3993	673	99	2910
Mart. Apparatus for digging, treating, and delivering.	E. J. Reilly and S. B. Newberry	698,974	May 13	1647	377	99	1297
Mashing-machine.	C. F. Schmidt and J. Siefert	702,099	June 17	3904	573	99	3931

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				Spec.	Drs	Vol.	Pgs.
Mangle-machine. Electric.	E. B. Jacobson	690,088	Apr. 28	3045	639	99	990
Messaging implement.	J. R. Wanta	703,100	June 24	3688	772	99	2313
Mat:							
Mat Floor-covering.	C. Arnold	701,798	June 10	971	917	99	2282
Mat-cutting.	G. Greenland	697,945	Apr. 8	1008	380	99	2300
Match-box.	B. Eichen	697,801	Apr. 15	2870	808	99	816
Match-box-filling machine.	L. Mettewie, L. Roebet, and A. Boeck	697,514	Apr. 15	2113	499 470 471	99	499
Match-box holder.	A. H. Doty	694,036	May 13	1084	841	99	1435
Match ignition material.	R. E. A. Gans	694,066	Apr. 29	4993	125	99	1267
Match-machine.	S. Backus	698,497	May 6	506	128	99	1785
Match-machine.	K. Wiemmer	700,388	May 20	2515	575	99	1785
Match-machine conveyor-chain.	E. M. Lockwood, Jr.	694,986	Apr. 30	2975	579	99	938
Match-machine conveyor-chain.	E. M. Lockwood, Jr.	700,388	May 20	2595	598	99	1785
Match-machines. Power-transmitting device for.	T. W. Synnott	703,028	June 17	3280	857	99	2377
Match-making machine.	F. Schaefer	703,184	June 24	3480	798 794 795 796 797 798	99	2622
Match-safe.	S. D. Locke	698,496	Apr. 23	3739	989	99	840
Match-safe.	S. I. Whiteland	698,774	Apr. 23	4504	995	99	1794
Match-safe.	G. H. Staten	700,451	May 20	2620	179	99	2377
Match-safe.	W. G. Hurley	700,730	June 3	513	179	99	1010
Matrixes. Making justified.	A. W. Cathcart	700,330	May 20	2536	580	99	1785
Matrix-band retainer.	A. J. Hiniker	698,520	Apr. 22	3528	788	99	901
Matrix die mechanism.	W. Cathcart	700,301	May 20	2536	580	99	1785
Matrix for making gramophones, sonophones, or similar records.	E. Kaplan	697,366	Apr. 8	1689	366	99	901
Mattress.	J. Marshall	698,580	Apr. 26	3998	961	99	901
Mattress. Adjustable invalid.	D. Frankenthal	703,126	June 19	1646	968	99	2446
Mattress-filler.	M. Dumbrun	698,926	Apr. 1	770	175	99	901
Mattresses or cushion and heating attachment therefor.	G. W. Warham	697,045	Apr. 8	1385	961	99	870
Measures. Lumber.	A. G. Schmidt	697,979	Apr. 8	1678	574	99	901
Measure. Oil.	J. Greene	702,300	June 10	1896	871	99	2446
Measure. Rotary.	G. E. Bernard	702,787	June 17	2718	994	99	2707
Measure. Tape.	J. F. Stockmayer	690,823	May 13	1416	387	99	1470
Measuring and registering. Log.	W. Chatterman	701,051	June 3	735	100	99	1990
Measuring and recording measurements of material. Mechanism for.	E. L. Arthur	700,387	May 20	2536	584	99	1785
Measuring apparatus. Liquid.	E. Franco	697,380	Apr. 15	3686	596	99	901
Measuring-apparatus. Liquid.	J. Hall	697,380	Apr. 8	1604	381	99	901
Measuring-cabinet. Computing.	F. Huff	690,595	May 13	1619	870	99	1267
Measuring-can. Closed.	J. Maybank and N. P. Edstrup	702,019	June 10	1281	808	99	2300
Measuring-cup. Liquid.	J. M. Kinnard	702,579	June 24	3929	846	99	2300
Measuring-device. Liquid.	E. Hornaday	694,544	Apr. 1	307	73	99	901
Measuring-instrument. Combination.	W. E. Sherwood	700,934	May 27	3540	927	99	1990
Measuring-instrument. Electrical.	O. R. Weber	697,047	Apr. 8	1385	968	99	901
Measuring-instrument. Mechanical movement.	A. R. and H. G. Wormwood	703,036	June 10	1458	827	99	2300
Measuring-instrument. Mechanical movement.	J. M. Srocut	703,037	June 24	3929	827	99	2300
Measuring-instrument. Mechanical movement.	S. T. Humphreys	698,561	Apr. 3	1725	968	99	1267
Measuring-instrument. Mechanical movement.	I. E. Hagas	697,380	Apr. 15	3686	596	99	901
Measuring-instrument. Mechanical movement.	R. Hart	703,100	June 24	3688	772	99	2313
Measuring-instrument. Mechanical movement.	T. Dunoon	698,667	Apr. 29	4241	987	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,679	Apr. 29	4210	984	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,680	Apr. 29	4235	984	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,681	Apr. 29	4267	985	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,682	Apr. 29	4280	985	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,683	Apr. 29	4294	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,684	Apr. 29	4308	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,685	Apr. 29	4322	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,686	Apr. 29	4336	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,687	Apr. 29	4350	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,688	Apr. 29	4364	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,689	Apr. 29	4378	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,690	Apr. 29	4392	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,691	Apr. 29	4406	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,692	Apr. 29	4420	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,693	Apr. 29	4434	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,694	Apr. 29	4448	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,695	Apr. 29	4462	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,696	Apr. 29	4476	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,697	Apr. 29	4490	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,698	Apr. 29	4504	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,699	Apr. 29	4518	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,700	Apr. 29	4532	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,701	Apr. 29	4546	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,702	Apr. 29	4560	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,703	Apr. 29	4574	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,704	Apr. 29	4588	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,705	Apr. 29	4602	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,706	Apr. 29	4616	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,707	Apr. 29	4630	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,708	Apr. 29	4644	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,709	Apr. 29	4658	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,710	Apr. 29	4672	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,711	Apr. 29	4686	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,712	Apr. 29	4700	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,713	Apr. 29	4714	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,714	Apr. 29	4728	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,715	Apr. 29	4742	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,716	Apr. 29	4756	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,717	Apr. 29	4770	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,718	Apr. 29	4784	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,719	Apr. 29	4798	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,720	Apr. 29	4812	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,721	Apr. 29	4826	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,722	Apr. 29	4840	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,723	Apr. 29	4854	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,724	Apr. 29	4868	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,725	Apr. 29	4882	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,726	Apr. 29	4896	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,727	Apr. 29	4910	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,728	Apr. 29	4924	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,729	Apr. 29	4938	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,730	Apr. 29	4952	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,731	Apr. 29	4966	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,732	Apr. 29	4980	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,733	Apr. 29	4994	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,734	Apr. 29	5008	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,735	Apr. 29	5022	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,736	Apr. 29	5036	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,737	Apr. 29	5050	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,738	Apr. 29	5064	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,739	Apr. 29	5078	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,740	Apr. 29	5092	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,741	Apr. 29	5106	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,742	Apr. 29	5120	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,743	Apr. 29	5134	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,744	Apr. 29	5148	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,745	Apr. 29	5162	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,746	Apr. 29	5176	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,747	Apr. 29	5190	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,748	Apr. 29	5204	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,749	Apr. 29	5218	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,750	Apr. 29	5232	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,751	Apr. 29	5246	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,752	Apr. 29	5260	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,753	Apr. 29	5274	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,754	Apr. 29	5288	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,755	Apr. 29	5302	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,756	Apr. 29	5316	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,757	Apr. 29	5330	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,758	Apr. 29	5344	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,759	Apr. 29	5358	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,760	Apr. 29	5372	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,761	Apr. 29	5386	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,762	Apr. 29	5400	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,763	Apr. 29	5414	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,764	Apr. 29	5428	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,765	Apr. 29	5442	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,766	Apr. 29	5456	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,767	Apr. 29	5470	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,768	Apr. 29	5484	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,769	Apr. 29	5498	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,770	Apr. 29	5512	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,771	Apr. 29	5526	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,772	Apr. 29	5540	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,773	Apr. 29	5554	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,774	Apr. 29	5568	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,775	Apr. 29	5582	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,776	Apr. 29	5596	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,777	Apr. 29	5610	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,778	Apr. 29	5624	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,779	Apr. 29	5638	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,780	Apr. 29	5652	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,781	Apr. 29	5666	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,782	Apr. 29	5680	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,783	Apr. 29	5694	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,784	Apr. 29	5708	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,785	Apr. 29	5722	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,786	Apr. 29	5736	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,787	Apr. 29	5750	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,788	Apr. 29	5764	986	99	901
Measuring-instrument. Mechanical movement.	T. Dunoon	698,789	Apr. 29	5778	986	99	901
Measuring-instrument							

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Memorandum and indicating device.	C. D. Weaver	701,225	May 27	4105	945	99	3023
Methyl. Chlorinated methyl-ether of	K. Wedekind	703,104	June 24	3933		99	3054
Merchandising	W. Kleineworters	698,085	Apr. 29	3031	671	99	697
Merchandise. Structure for storage and delivery of	R. E. Leatham	690,000	May 13	1089	354	99	1418
Merchandise-transfer apparatus	A. W. Swallow	701,991	June 10	1210	375	99	2677
Merry-go-round	B. Kippels	698,304	Apr. 29	3575	789	99	938
Metal articles. Machine for finishing	H. H. Burns	699,613	May 5	918	214	99	1285
Metal-binding-machine guide	C. Weber	703,996	June 17	2943	615	99	2739
Metal binding-strips. Machine for making	F. W. R. Yager	698,794	Apr. 1	740	190	99	138
Metal can or receptacle for packing soap, &c.	F. L. Bartelt	699,199	Apr. 29	3945	729	99	708
Metal-cleaning composition	V. E. Brown	697,976	Apr. 22	2957		99	678
Metal-cutting, coping, and upsetting machine. Combined shape	D. Hammond	700,419	May 30	3523	587	99	1732
Metal from receptacles. Drawing motion	L. Lincoln	697,993	Apr. 15	2943	928	99	695
Metal gate	W. R. Cantrell	700,737	May 27	3198	729	99	1681
Metal. Machine for cutting beveled edges on plate or sheet	P. Parvelli	708,213	June 24	3579	939	99	3935
Metal. Making leaf	F. Haasle	699,980	May 13	1545		99	1525
Metal parts. Heating	E. Delester. (Belgium)	18,008	June 24	3950		99	3955
Metal plates or packs. Feeding and heating	T. V. Allen	698,129	May 6	19	3	99	1179
Metal-pots. Self-feeding mechanism for	J. Place and W. J. Lewis	697,011	Apr. 8	1904	300	99	274
Metal receptacles. Apparatus for shaping	M. L. Dearing	701,846	June 3	480	107	99	2907
Metal receptacles. Shaping	M. L. Dearing	701,830	June 3	498	108	99	2910
Metal rods or bars. Conveyor for	C. E. Edwards	701,084	May 27	3177	555	99	1948
Metal-shaping machine	O. Clark	703,041	June 24	3943	745	99	2939
Metal sheet-piling	G. W. Jackson	697,949	Apr. 15	3938	686	99	645
Metal shell-head and cap	J. Jr. and L. S. Murdoch	699,508	Apr. 29	3930	934	99	909
Metal strips, &c. Gripping mechanism for feeding	R. Fehr	699,508	Apr. 29	715	167	99	1294
Metal surfaces. Producing designs or delineations on	R. F. Bartle and A. E. Horn	703,993	June 17	2375	398	99	2976
Metal surfaces, &c. Tool for finishing	I. Ritter, Jr.	700,295	May 27	3239	771	99	1912
Metal wheel	W. H. Schofield	697,390	Apr. 18	2934	648	99	697
Metal wheels. Machine for making	E. Einfeldt	700,095	May 13	1799	393	99	1244
Metal wheels. Making	E. Einfeldt	700,094	May 13	1787	397	99	1542
Metal-working machine	W. M. Roberts	697,987	Apr. 15	3704	619	99	696
Metal-working-machine feeding device	T. S. Haley	700,595	May 30	3994	543	99	1907
Metals and producing alloys thereof. Reducing	H. S. Blackmore	699,393	May 6	295		99	1993
Metals by electrolysis. Recovering	H. A. French	697,261	Apr. 15	3936	967	99	613
Metals. Electrically pulverizing	P. Barry	700,399	May 20	3938	879	99	1732
Metals from ores, &c. Extraction of	R. Hunt	699,108	Apr. 29	3190	929	99	1183
Metals from ores and scrap containing same. Extracting	S. S. Sedler	700,595	May 20	3939	930	99	1790
Metals from ores. Recovering	J. W. Kell and J. H. Burfield	702,293	June 17	3906	541	99	2929
Metals from their acid ores. Extracting	J. Radcliffe and J. Landin	698,799	Apr. 30	4440		99	1037
Metals. Grinding or polishing	J. Misholay	698,129	Apr. 29	3935	714	99	191
Metals on metallic surfaces and the products thereof. Depositing	S. Cowper-Coles	700,095	June 3	39		99	2115
Metals. Preventing oxidation of molten	J. H. Walker	698,799	Apr. 29	4492	939	99	1913
Metals. Recovering	E. D. Kendall	698,993	Apr. 29	3270	799	99	1921
Metals. Treating copper or other ores for obtaining their contents of	N. B. Keith	700,941	May 27	3573	939	99	1991
Metallic sulfide soluble. Rendering	C. G. Collins	702,027	June 10	1979		99	3048
Metallic tie and rail-fastener	E. E. Myers	699,599	Apr. 1	390	81	99	75
Metallic tie and rail-fastener	B. B. and H. F. Cronk	699,790	Apr. 1	681	199	99	194
Metallic tie and rail joint and kind	C. A. Frye	701,194	May 27	4037	993	99	2980
Metallic wheel	G. H. Everson	697,079	Apr. 8	1295	993	99	1951
Metallic yarn and textile fabric	L. Larmel	700,915	May 27	3938	930	99	2980
Metalurgical filter	F. H. Long	702,054	June 10	1979		99	1979
Metalurgical furnace	J. A. Hunter	699,799	May 13	1210	375	99	2677
Meter:							
See Current-meter.	Liquid-meter.						
Electricity-meter.	Motor-meter.						
Electricity-meter.	Water-meter.						
Gas-meter.							
Motor-box connection	J. J. Hoppen	699,174	May 6	99	29	99	1190
Motor. Means for preventing creeping of	A. D. Lunt	699,493	Apr. 1	117	29	99	99
Nice-board-making machine	H. F. Watson	697,994	Apr. 15	3451	547	99	640
Nice chimney	A. P. Storrs	700,991	May 27	3938	993	99	1979
Microscope	C. F. Dieckmann	703,493	May 30	3945	993	99	1739
Microscope-stage. Mechanical	C. F. Dieckmann	703,493	June 24	3930	741	99	3981
Middlings-purifier	A. Crank	697,431	Apr. 15	3919	444	99	699
Milk and cream during the process of separation.	A. H. Borgstrom	699,799	May 13	1210	375	99	1467
Means for ventilating							
Milk and obtaining same. Modified	E. von Dungen	700,991	May 30	3951		99	1819
Milk-can	F. C. Sweeney	697,939	Apr. 15	3192	435	99	499
Milk-can	O. N. Abbott	700,999	Apr. 30	3938	993	99	1800
Milk-cooler	W. C. Sunk	702,134	June 10	1984	246	99	1149
Milk-cooler	W. L. Haley	702,134	June 24	3910	739	99	3939
Milk-er or bottle	E. O. Smith	699,393	Apr. 1	399	290	99	197
Milk-modifying gear	F. Muller	700,999	May 27	3943	997	99	1719
Milk-receptacle box	J. M. Flak	697,999	Apr. 15	3976	995	99	699
Milk-warmer and night-lamp. Nursery	F. M. Devore	700,749	May 27	3939	739	99	1991
Milk-warmer	D. E. Wilson	702,293	June 10	1979	451	99	2981

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				Spec.	Draw.	Vol.	Page.
See Flour-mill. Sawmill. Grinding-mill. Windmill. Rolling-mill.							
Mills. Skid-arm for double-cutting band	E. R. Thomas	698,120	Apr. 29	5150	1140	99	1187
Milling-machine cutter	J. F. Osdell	702,736	May 27	5181	725	99	1201
Mine-cage chair	J. O. Bardill	698,125	May 6	15	4.5	99	1179
Mines. Brake for uphauls for	C. L. E. Schenk	698,084	Apr. 29	1949	1104	99	1194
Mines. Downhaul for	C. L. E. Schenk	698,088	Apr. 29	4987	1108	99	1194
Mines. Downhaul for	C. L. E. Schenk	698,088	Apr. 29	4988	1104	99	1194
Mines. Machine for extracting coal in pieces from	C. Wismann	701,979	June 10	1941	261	99	2208
Mines. Self-closing door for	F. Günther	698,595	Apr. 22	3547	781	99	699
Mining-machine	M. B. Wylie	702,485	May 20	2981	637	99	1738
Mining-machine	H. B. Dierdorf	702,622	May 20	2948	677	99	1805
Mining-machine	J. M. McHugh	702,147	June 10	1524	328	99	2446
Mining-machine. Coal	J. Burton and W. B. Lodwick	698,684	May 13	1439	320	99	1678
Mining-machine track	A. Palmros	702,817	June 17	2998	646	99	1735
Mirror. Bicycle	P. A. Aurness	702,708	June 17	2708	682	99	2704
Mirror-bracket	S. Svendsgaard	698,901	May 13	1519	945	99	1212
Miter-box	R. H. Dorn	697,308	Apr. 8	1541	945	99	947
Mitering-machine	J. T. Ziska	702,049	June 10	1966	311	99	2465
Mitralleuse. Fork-pivot for	J. T. S. Schouboe	700,825	May 27	3898	716	99	1388
Mitten	F. Bertheau	699,187	May 6	21	6	99	1189
Mitten	C. C. Pratt	701,921	June 10	1154	285	99	2205
Mixer:							
See Dough-mixer. Gas and air mixer.							
Mixers, &c. Hopper-bottom for	C. T. Drake	698,122	Apr. 29	3905	727	99	708
Mixing-machine vehicles, &c. Drawing mechanism for	C. T. Drake	698,987	May 13	1085	241	99	1492
Mixing-machines, &c. Conveyor attachment for	C. T. Drake	698,910	Apr. 29	4909	1030	99	1087
Mixing-machines, &c. Conveyor for	C. T. Drake	701,313	June 8	15	11.12	99	2420
Moistener and affixer. Stamp	J. F. Amann	701,243	May 27	4110	949	99	2075
Moistener. Envelop	N. Schwab	697,545	Apr. 15	2171	428	99	492
Moistener. Envelop and stamp	G. M. Williams	701,441	June 8	261	99	99	2106
Moistener. Stamp and envelop	C. W. Miller	701,911	June 10	1127	287	99	2206
Mold:							
See Button-mold. Press-mold. Casting-mold. Sugar-mold. Post or pole mold.							
Mold and core making apparatus	H. C. Lambert	697,885	Apr. 15	2984	121	99	927
Mold-flask partition	H. W. Bell	701,880	June 10	973	217	99	2202
Mold flask. Sand	R. C. Tolmie	701,105	May 27	2973	929	99	2025
Mold mechanism	C. H. Veeder	698,882	Apr. 29	4108	935	99	981
Mold mechanism	C. H. Veeder	698,884	Apr. 29	4117	937	99	982
Mold mechanism	C. H. Veeder	698,885	Apr. 29	4119	937	99	984
Molds. Chaplet for supporting cores in	W. A. Bole	702,020	June 17	2459	956	99	2247
Molds. Forming sand	G. J. Adams	697,357	Apr. 8	1870	418	99	418
Molds. Forming sand	S. J. Adams	697,358	Apr. 8	1874	418	99	418
Molding	F. Baldt, Sr.	702,169	June 24	2497	99	99	2279
Molding	F. Baldt, Sr.	702,173	June 24	2500	99	99	2279
Molding apparatus	C. R. Davis	698,581	Apr. 1	295	97	99	99
Molding apparatus	C. M. Day	697,184	Apr. 8	1417	216	99	326
Molding apparatus	W. E. McCleary	697,940	Apr. 15	2901	640	99	648
Molding apparatus	W. C. Wright	702,084	June 24	2881	748	99	2287
Molding apparatus. Sand	S. J. Adams	697,355	Apr. 8	1861	417	99	417
Molding apparatus. Sand	S. J. Adams	697,356	Apr. 8	1867	418	99	418
Molding-board	O. C. Sweet	698,077	Apr. 29	3144	688	99	717
Molding-machine	J. Stuart	701,773	June 8	980	195	99	2202
Molding-machine	J. Hoagland	702,293	June 24	2881	640	99	2241
Molding-machine. Core	J. M. Pyott, Jr.	698,710	May 13	1118	282	99	1438
Molding-machine engine	L. S. Stiles	702,013	June 24	2108	725	99	2219
Molding-machine. Sand	D. L. Adams	697,892	Apr. 15	2980	928	99	510
Molding-press	J. F. Buckley	702,195	June 10	1095	285	99	2422
Mop	H. A. Hayden	701,428	June 8	260	99	99	2184
Mop and wringer therefor	E. Hilker	698,028	May 13	1615	289	99	1222
Mop-head	A. S. Held	698,312	May 6	245	99	99	1241
Mop-head	A. S. Held	698,313	May 6	247	91	99	1242
Mop-head	A. S. Held	698,314	May 6	247	91	99	1243
Mop-head	A. S. Held	698,315	May 6	248	91	99	1244
Mop-head	E. B. Campbell	700,075	May 20	8017	691	99	1280
Mop-holder	P. Schmidt	698,788	Apr. 1	685	186	99	147
Mop-holder	A. L. Wilson	701,657	June 8	657	188	99	2222
Mop-wringer	F. W. Towne	697,282	Apr. 8	1873	289	99	282
Mop-wringer	H. C. White	698,773	Apr. 29	4901	994	99	2019
Mop-wringer	A. M. Duraham	698,073	Apr. 29	3073	1221	99	1140
Mopping device	H. F. Ackerman	701,935	June 10	1268	286	99	2223
Mordanting animal fiber	O. P. Amend	700,394	May 20	2998	99	99	1020
Mortar-bed	J. M. Holloway	702,244	June 24	2905	874	99	2244
Mortising machine. Hinge	J. A. MacKenzie	698,295	May 6	229	90.91	99	1282
Mortising machine. Window-frame	F. V. Phillips	698,020	Apr. 29	4905	1100	99	1180
Mortising, tenoning, and grooving machine	J. Clarke	697,280	Apr. 8	1860	285	99	287
Mosaic blocks. Die for cutting	W. A. Arnold	702,201	June 17	2001	495	99	2255
Mosaic work. Making	J. S. Parker	702,222	June 10	1520	495	99	2256

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Mosquito-bar or canopy support.	P. Jarr.	701,309	June 8	189	87	90	2125
Motion. Apparatus for converting rotary into reciprocating.	R. H. Yale.	701,322	June 10	1253	295	90	2204
Motion. Converting.	C. H. Fraley and G. F. Miller.	697,989	Apr. 15	2998	898	90	691
Motion-converting mechanism.	G. W. Zeller.	693,788	Apr. 1	743	196	90	128
Motion-converting mechanism.	J. M. Harkins.	699,018	Apr. 29	4975	1101	90	1128
Motion. Mechanism for converting.	M. C. Nixon.	700,338	May 20	2452	886	90	1719
Motion mechanism. Variable.	A. B. Tenney.	697,041	Apr. 8	1380	280	90	287
Motion-transmitting mechanism. Variable.	H. Telle.	697,878	Apr. 15	2212	408	90	288
Motor.	J. Wilson.	701,608	June 2	628	124	90	2890
See Automatic motor. Pump-motor.							
Current motor. Rotary motor.							
Electric motor. Steam and internal-combustion motor.							
Gas-machine weight. Tide-motor.							
Gravity-motor. Treadle-motor.							
Hydraulic motor. Water-motor.							
Hydrocarbon-motor. Wave-motor.							
Petroleum-motor.							
Motor.	J. C. Walker.	696,513	Apr. 1	398	92	90	87
Motor.	J. M. Maxwell.	701,027	May 27	3500	871	90	2010
Motor.	W. Dieter and H. Orem.	701,357	June 10	1082	289	90	2893
Motor.	H. de Chardonnet.	700,494	June 17	2998	431	90	2899
Motor.	P. R. Leakey.	702,973	June 24	2120	718	90	2908
Motor-controlling apparatus.	G. T. and L. Woods.	697,928	Apr. 15	2992	888	90	695
Motor-driven device or mechanism.	H. A. Meyer.	702,977	June 10	1948	443	90	2904
Motor-generator.	P. J. Collins.	700,477	June 17	2997	408	90	2900
Motor-motor.	T. Duncan.	698,028	Apr. 29	4908	945	90	928
Motor-motor.	T. Duncan.	698,030	Apr. 29	4905	943	90	928
Motor-motor.	T. Duncan.	698,031	Apr. 29	4970	945	90	934
Motor-motor.	T. Duncan.	698,034	Apr. 29	4978	947	90	936
Motor-motor. Alternating-current.	T. Duncan.	698,035	Apr. 29	4935	946	90	930
Motor-motor. Induction.	T. Duncan.	698,036	Apr. 29	4936	948	90	931
Motor-motor. Induction.	T. Duncan.	698,037	Apr. 29	4930	948	90	935
Motor-motor. Induction.	T. Duncan.	698,038	Apr. 29	4947	948	90	935
Motor-motor. Polyphase.	T. Duncan.	698,039	Apr. 29	4937	944	90	934
Motor shut-off device.	T. D. Miller.	702,109	June 10	1424	237	90	2922
Motors. Cooling attachment for internal-combustion.	F. Thuesen.	700,753	June 17	2980	517	90	2927
Motors. Cooling means for rotary.	L. Wilson.	700,878	May 20	2970	510	90	1078
Mounting entomological specimens. Device for.	C. B. Eiker.	696,780	Apr. 1	478	168	90	144
Moving boulders, &c. Machine for.	P. Boutry.	698,208	Apr. 29	2502	771	90	781
Moving heavy bodies. Apparatus for.	C. V. Fowler.	700,219	May 20	2973	541	90	1085
Mower.	J. F. Appleby.	698,107	Apr. 29	2941	721	90	707
Mower. Lawn.	C. D. Spates.	697,415	Apr. 8	1968	420	90	430
Mower. Lawn.	E. H. Chaffin.	700,179	May 20	2967	478	90	1082
Mower. Lawn.	W. Boss.	701,355	May 27	4142	928	90	2972
Mower or harrower finger-bar attachment.	W. Ostermann.	700,089	May 15	2748	404	90	1548
Mowers, reapers, &c. Cutting apparatus for.	H. L. Hopkins.	697,407	Apr. 8	1912	407	90	405
Mowing-machine attachment.	T. R. Fagan. (Belmont).	71,978	Apr. 1	1078	265	90	854
Mowing-machine. Automobile.	G. H. Ellis and J. F. Steward.	698,122	Apr. 29	2988	725	90	726
Mowing-machine finger-bar-adjusting device.	C. G. Hunter.	702,422	June 17	2984	475	90	2973
Mowing-machine gearing.	W. A. Kirby.	702,441	June 17	2988	478	90	2978
Muffle-turbine. Continuous.	W. Dickson. (Belmont).	11,020	June 3	908	214	90	2310
Muffler.	C. E. Christman.	701,151	May 27	2987	911	90	2988
Muffler.	A. G. Roman.	700,021	June 10	1824	807	90	2991
Mule.	F. Reynolds and W. J. Underwood.	698,821	Apr. 29	2974	798	90	854
Multiple effect.	B. Thomas.	690,088	Apr. 29	2977	1110	90	1191
Multiple switch.	H. H. Cutler.	702,400	June 17	2983	482	90	2988
Multiple switch. Series.	A. E. Foster.	698,128	Apr. 29	2984	719	90	744
Multiplex. Double.	H. A. W. Wood.	701,180	May 27	2984	888	90	2993
Music-box.	G. Otto and F. Schaub.	700,080	May 20	2980	648	90	1705
Music-leaf turner.	A. Bockmann.	698,228	Apr. 29	2901	771	90	791
Music-leaf turner.	K. F. D. Miller.	698,548	May 6	708	187	90	1280
Music-marking and reading instrument.	M. S. Lowe.	698,206	Apr. 29	2979	790	90	857
Music-rack.	H. W. Mills.	698,208	Apr. 6	1121	261	90	298
Music-roll.	L. B. Duman.	697,981	Apr. 15	2973	684	90	890
Music-sheet performing apparatus.	H. M. Salyer.	700,227	June 17	2984	677	90	2980
Musical ball.	J. Stone.	700,020	May 27	2410	188	90	1088
Musical instrument.	H. Langfelder.	702,224	June 10	1856	228	90	2474
Musical instrument. Automatic.	J. Carpentier.	697,980	Apr. 29	2986	628	90	930
Musical instrument. Automatic.	E. de Kleist.	700,761	May 27	2979	758	90	1986
Musical instrument. Automatic stringed.	F. W. Wood and E. H. Stiles, Jr.	702,588	June 17	2980	688	90	2796
Musical instrument. Automatically-operated.	H. E. Sharps.	698,708	Apr. 1	904	187	90	148
Musical-instrument bridge.	E. E. Jackson.	698,928	Apr. 29	4878	1076	90	1128
Musical-instrument device. Automatic spring-winding mechanism for mechanical.	H. E. Sharps and W. F. Cooper.	697,724	Apr. 15	2228	688	90	871
Musical instrument. Mechanical.	C. L. Emmons.	698,480	Apr. 29	2905	682	90	930
Musical-instrument playing attachment.	H. M. Salyer.	700,080	May 27	2970	771	90	1084
Musical-instrument self-playing attachment.	J. Coorville.	700,677	May 20	2980	691	90	1084

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Musical-instrument self-playing attachment	H. H. Galyer	700,389	May 27	2894	773	99	1919
Musical-instrument valve. Pneumatic	M. Clark	699,935	Apr. 29	4909	1095	99	1905
Musical instruments. Machine for cutting perforated sheets for automatic	M. Clark	699,934	Apr. 29	2893	774	99	1919
Musical wonder	H. Rodemeyer	699,978	May 13	1890	321	99	1890
Mussels. Drag for gathering	J. W. Sharp	702,350	June 10	1797	388	99	2428
Mustache-guard	E. C. Gladwin	702,730	June 17	2797	684	99	2714
Mustard-pot	H. Ostrom	702,350	June 24	2841	587	99	2808
Mutoscope	H. P. Ollertis	699,932	Apr. 1	589	205	99	108
Nail-clipper. Right and left	H. Wilcox	702,516	June 17	2842	511	99	2842
Nail-coating	J. V. Brauch and B. Homann	699,798	Apr. 1	780	195	99	195
Nail-holding implement	F. Beck	699,932	Apr. 1	589	205	99	108
Nail-machine. Wire	J. H. Clark and A. Mayer	701,497	June 3	389	72, 74	99	2178
Nail-making machine	H. Dussault	701,738	May 27	2890	719	99	2890
Nail-puller	W. Pearce	700,440	May 20	2804	585	99	1748
Nail-puller	R. C. Fowler	700,708	May 27	2829	740	99	1891
Nail-puller	R. C. Fowler	700,707	May 27	2828	740	99	1890
Nail-puller	I. W. Stearns	700,543	May 27	2801	728	99	1287
Nailing-machine	H. W. Morgan	699,935	Apr. 1	188	38	99	34
Nasal shield	T. Carreno	701,423	June 3	485	108	99	2828
Nebulizer	W. and J. Beckel	699,935	Apr. 29	4795	1085	99	1085
Neckband-shaper	W. and J. Beckel	701,181	May 27	4008	921	99	2844
Necktie	M. H. Kleinbogen and A. L. Levi	699,935	May 6	312	72	99	1288
Necktie-band fastener	T. F. Dunn	697,388	Apr. 15	2854	685	99	644
Necktie-band fastener	W. G. Dunham	699,931	Apr. 29	4087	392	99	918
Necktie-box, &c.	A. B. Schaefer	702,141	June 24	2442	759	99	2829
Necktie-fastener	I. Levy	699,939	Apr. 1	788	179	99	187
Necktie-fastener	G. Greiss	699,935	Apr. 8	1125	250	99	289
Necktie-fastener	W. H. Hart, Jr.	699,939	Apr. 22	2447	735	99	735
Necktie-fastener	S. B. Palmer	699,941	May 6	408	98	99	1286
Necktie-fastener	J. H. McQuaid	701,172	May 27	2891	918	99	2891
Necktie-fastener	A. N. Dow	702,610	June 17	2426	528	99	2444
Necktie-fastener	I. S. Altman	702,678	June 24	3125	718	99	2807
Necktie-fastener	W. Lawrence	701,154	May 27	2884	912	99	2845
Necktie-fringe	A. Cole	699,938	Apr. 29	4079	301	99	988
Necktie-holder	J. Udell	702,384	June 24	2890	820	99	2818
Necktie-holder	P. M. Lewis	697,388	Apr. 15	2794	612	99	680
Necktie-holder	R. Miller	699,154	May 6	40	14	99	1148
Necktie-holder	T. A. Curtis	699,935	Apr. 29	4710	1085	99	1087
Needle. Tape	G. Priests	701,494	June 3	389	87	99	2187
Needle-threader	D. V. Miller	700,245	May 20	2815	686	99	1044
Net for boat, &c.	W. Schille	699,041	Apr. 29	2021	1110	99	1128
Net. Trap	J. C. Turnipseed	702,518	June 17	2845	511	99	2808
Net. Trap	J. Wilcox	699,797	May 13	1813	282	99	1487
Newspaper-holder	C. Bernadac	700,471	May 20	2805	685	99	1735
Nipple. Child's teething	M. Buchner	701,673	May 20	2813	685	99	1880
Nitro compounds. Reduction of	F. L. Nathan, J. M. Thomson, and W. Rintoul	702,285	June 10	1894	484	99	2897
Nitroglycerin. Apparatus for the manufacture of	M. Buchner	700,670	May 20	2808	680	99	1880
Nitro or other compounds. Electrolytic reduction of	J. Natanson	699,910	Apr. 1	987	228	99	211
Note-sheet or music-disk	J. Bana	700,000	May 13	1701	391	99	1886
Nozzle	F. W. Howard	699,738	Apr. 1	445	142	99	129
Nozzle for fluid-holding tanks. Filling	L. O. Weller	702,167	June 24	2494	508	99	2870
Nozzle for sprinkling-vehicles. Spray	R. Martin	699,801	May 13	1290	301	99	1485
Nozzle. Spray	A. C. Atkins	702,612	June 17	2429	544	99	2445
Nut and oil-cap for wheels. Combined axle	M. R. Thomas	699,939	Apr. 1	495	114	99	107
Nut and pipe wrench. Adjustable	W. V. Dickey	699,935	Apr. 1	778	170	99	192
Nut-cracker	H. M. Quackenbush	699,734	Apr. 29	4441	930	99	1005
Nut-cracker	J. A. Hutchinson	699,939	May 6	751	170	99	1280
Nut-cracking machine	A. Gerstmayr	702,721	June 17	2827	604	99	2897
Nut-lock	N. J. McLean	699,939	Apr. 8	1178	264	99	370
Nut-lock	D. J. Sullivan	699,930	Apr. 8	1025	370	99	391
Nut-lock	R. B. Boykin	699,916	Apr. 8	1737	285	99	380
Nut-lock	S. Benson	699,934	Apr. 8	1855	421	99	420
Nut-lock	W. S. Sutherland	699,916	Apr. 8	1385	481	99	480
Nut-lock	H. M. McChesley	699,930	Apr. 15	2128	473	99	425
Nut-lock	M. McDonald	699,937	Apr. 15	2790	614	99	621
Nut-lock	G. O. Hoy and J. J. Peifer	699,937	Apr. 29	4450	1081	99	1081
Nut-lock	L. Labotsky and S. Furst	699,974	Apr. 29	4912	1085	99	1148
Nut-lock	E. S. Morris	699,938	May 13	1526	399	99	1510
Nut-lock	W. D. Hughes	700,651	May 20	2890	684	99	1888
Nut-lock	B. W. Bolen	702,384	June 24	12	8	99	2111
Nut-lock	C. W. Faist, Jr.	702,642	June 17	2455	570	99	2867
Nut-lock	T. C. Bornman	702,770	June 17	2728	685	99	2707
Nut-lock	J. H. Swindell	702,015	June 24	2198	735	99	2821
Nut-lock	D. T. Wallace	702,168	June 24	2490	502	99	2877
Nut-lock	J. L. Alger	701,580	June 3	443	100	99	2190
Nut-lock	J. F. Florka	702,383	June 10	1985	441	99	2522
Nut-lock and key	C. Schaefer	699,939	Apr. 29	4085	1108	99	1124
Nut-lock. Vehicle-axle	T. Ferry	699,935	Apr. 29	4081	1107	99	1087
Nut-tapping machine	T. H. Tash	702,616	June 24	2199	735	99	2861
Nut. Vehicle-axle	C. C. Smith	701,988	June 10	1195	272	99	2374
Nut-wrench	L. H. Brownell	701,144	May 27	2847	508	99	2841
Nut-wrench. Automobile	E. C. McNeill	701,739	June 3	524	190	99	2385
Car	E. P. McIntyre	701,738	June 3	523	190	99	2384
Car lock	W. W. Wilmar, Jr.	697,907	Apr. 15	2853	625	99	621
Office-indicator	C. Erlmann	699,939	Apr. 29	4087	1108	99	642
Oil. Apparatus for separating solids from	H. P. Morris	700,797	May 27	2805	788	99	1948
Oil-stomizer	B. G. Devos	699,937	Apr. 29	4085	687	99	686

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Oil-burner.....	R. W. Dana.....	701,177	May 27	3006	319	90	3032
Oil-burner.....	A. Johnson.....	702,008	June 10	1201	206	90	3038
Oil-burner.....	J. B. Payne.....	702,277	June 10	1908	408	90	3043
Oil-burner.....	W. E. Johnson.....	702,280	June 17	2012	527	90	3051
Oil burner. Crude.....	H. T. Wilson.....	702,278	May 25	2008	517	90	1076
Oil burner. Crude.....	T. E. Lewis, A. J. Ray, and M. R. Wesson.....	701,308	June 10	1101	200	90	3054
Oil burner. Crude.....	J. A. Landis, W. A. Johnston, and L. W. Bosley.....	702,282	June 24	2027	000	90	3013
Oil-burner vaporizer, mixer, and regulator.....	G. H. Larkin.....	697,090	Apr. 8	1235	300	90	307
Oil-burning.....	G. L. Badger.....	698,264	Apr. 22	2070	510	90	580
Oil-can.....	G. B. Archer.....	698,089	Apr. 22	2022	1117	90	1185
Oil-can.....	W. J. Paul.....	702,070	June 10	1440	323	90	2420
Oil-cup.....	R. M. W. Hanson.....	697,092	Apr. 8	1241	207	90	304
Oil-cup.....	W. E. S. Strong.....	697,100	Apr. 8	1270	305	90	312
Oil-cup.....	W. E. S. Strong.....	697,110	Apr. 8	1270	305	90	313
Oil-cup.....	J. B. L. McKenzie.....	702,086	June 10	1436	300	90	3051
Oil-engine. Hydrocarbon.....	D. A. Briggs.....	701,140	May 27	2045	907	90	3040
Oil-feeder.....	L. G. Nilson.....	702,515	June 17	2005	045	90	2704
Oil-feeder. Carbon.....	L. K. Hosen.....	698,508	Apr. 22	2005	070	90	580
Oil or gasoline can.....	L. E. and E. H. Morris and C. L. Schmucker.....	701,755	June 2	051	107	90	2000
Oil. Refining.....	E. Roosa.....	699,571	May 6	027	104	90	1246
Oil-refining apparatus.....	E. Roosa.....	699,572	May 6	029	105	90	1247
Oil-sewer.....	C. F. Rigby.....	699,747	Apr. 1	000	158	90	143
Oil-tank.....	J. J. Paquette.....	702,584	June 17	2074	541	90	2004
Oil and products produced thereby. Effecting the drying of non-drying.....	W. N. Blakeman, Jr.....	702,173	June 10	1616		90	2453
Oil. Refining.....	E. Douillet.....	700,181	May 20	2004	470	90	1207
Oil.....	A. M. Alden.....	697,700	Apr. 15	2021	549	90	200
Oiling device. Motor-vehicle.....	W. A. Hatcher and J. W. Packard.....	702,703	May 27	2000	745	90	1000
Oil-planting machine.....	J. S. Taylor.....	702,000	June 24	2061	771	90	2053
Opera-chair. Folding.....	A. B. Milner.....	702,461	June 17	2120	451	90	2022
Optical objective.....	C. C. Allen.....	698,702	Apr. 1	745	170	90	130
Optometer.....	F. A. Hardy.....	698,832	Apr. 22	2072	1000	90	1060
Ordnance. Firing attachment for breech-loading.....	J. W. Stockert.....	699,264	May 6	204	55	90	1222
Ordnance recoil apparatus.....	K. Deimlein.....	701,801	June 2	094	206	90	2000
Ore bucket, dumper, and chute.....	L. Collier.....	700,741	May 27	2104	723	90	1600
Ore classifier.....	J. Klein.....	699,720	Apr. 1	022	147	90	140
Ore-concentrator.....	A. H. Stebbins.....	699,604	Apr. 1	077	50	90	58
Ore-concentrator.....	A. H. Stebbins.....	699,605	Apr. 1	080	50	90	54
Ore-concentrator.....	A. H. Stebbins.....	699,606	Apr. 1	084	50	90	54
Ore-concentrator.....	C. M. Kimball.....	698,302	Apr. 22	2072	703	90	585
Ore-concentrator.....	W. G. Dodd.....	701,820	June 10	1002	220	90	2002
Ore-concentrator.....	L. Cohen and J. Gross.....	702,541	June 17	2022	519	90	2015
Ore-concentrator. Dry.....	R. E. and E. Waugh.....	702,276	June 24	2022	570	90	2040
Ore-crusher.....	A. C. Oalkins.....	697,202	Apr. 15	2007	027	90	504
Ore-crusher.....	R. H. Aiken.....	701,001	May 27	2075	044	90	1051
Ore-elevator.....	H. A. Vesin.....	702,902	June 17	2047	070	90	2728
Ore-filtrating apparatus.....	P. Naef.....	700,373	May 27	2020	021	90	1070
Ore-pocket.....	F. K. Hoover and A. J. Mason.....	702,721	June 17	2043	000	90	2000
Ore-roaster.....	J. L. Hopper.....	702,004	June 10	1206	200	90	2002
Ore roasting and cooling apparatus.....	W. C. Davis.....	700,122	May 13	1001	440	90	1002
Ore-roasting furnace.....	T. D. Merton.....	697,092	Apr. 15	2731	011	90	519
Ore-separator.....	J. M. McClave, F. H. Kirby, and E. E. Cumba.....	697,251	Apr. 8	1733	401	90	400
Ore-separator.....	F. R. Waters.....	700,711	May 20	2110	700	90	1000
Ore-separator.....	F. C. O'Brien.....	702,280	June 24	2122	725	90	2012
Ore-separator.....	C. C. Pratt.....	702,064	June 24	2004	707	90	2007
Ore separator and classifier.....	C. Culver.....	701,251	June 10	1013	225	90	2002
Ore-separator. Magnetic.....	J. W. Carter.....	702,194	June 10	1004	205	90	2002
Ore-treating apparatus.....	A. M. Dorr and J. Spang.....	699,427	May 6	084	145	90	1207
Ores. Apparatus for the treatment of.....	E. L. Sharprock.....	697,173	Apr. 8	1421	224	90	200
Ores by the cyanid process. Means for working.....	F. D. Wood.....	701,220	May 27	2110	046	90	2022
Ores containing silica or silicates. Treating.....	G. Guiraud.....	702,943	June 24	2022		90	2701
Ores. Treating.....	R. McKnight.....	699,428	Apr. 1	141		90	50
Ores. Treating.....	A. M. Dorr and J. Spang.....	699,429	May 6	081	144	90	1206
Ores. Treating.....	A. D. Miller.....	700,520	May 20	2720	005	90	1770
Ores. Treating.....	C. J. Best.....	701,124	May 27	2024	005	90	2027
Ores. Treatment of complex and refractory.....	F. Ellershausen.....	702,511	May 20	2021		90	1000
Organ. Automatically-operated road and pipe.....	J. W. Crooks.....	697,227	Apr. 8	1700	001	90	200
Ornamenting. Method of.....	G. W. Blair and F. O. Horn.....	697,022	Apr. 15	2071		90	514
Outlet-box. Interior-conduit.....	W. F. Bonner.....	701,127	May 27	2022	005	90	2022
Oven.....	H. F. Hoffman.....	699,500	Apr. 22	2002	000	90	580
Oven.....	F. Rademacher.....	699,712	May 13	1122	200	90	1000

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Oven. Bake.....	W. Claus.....	700,075	May 12	1711	304	99	1549
Oven burner. Baking.....	G. W. Graves.....	699,010	Apr. 22	2089	985	99	999
Overalls.....	R. S. Brockbridge.....	699,445	May 6	979	123	99	1217
Overhead-carrier support.....	T. Alexander.....	702,947	June 24	2030	928	99	2778
Overhoe-fastener.....	E. H. King.....	699,940	May 12	1293	301	99	1425
Oxidizing apparatus.....	A. N. Dubois.....	701,940	June 10	1080	280	99	2929
Oxygen-generating retort.....	F. R. Felt.....	702,945	June 17	2678	934	99	2729
Oyster-tongs.....	M. Lawrence.....	702,194	June 10	1467	285	99	2421
Oyster-trimming machine.....	E. D. Johnston.....	699,199	May 6	99	95	99	1195
Package.....	C. A. Lindsay.....	697,533	Apr. 15	2098	464	99	479
Package-carrier.....	O. M. Gould.....	699,930	Apr. 29	4942	1039	99	1096
Package-carrier.....	W. S. Gilmore.....	700,239	May 20	2938	543	99	1696
Package fastener and seal.....	W. S. Armstrong.....	698,619	Apr. 29	4198	994	99	946
Package for fragile articles.....	H. C. Lord.....	702,997	June 17	2704	642	99	2721
Package for grain products.....	T. F. Wales.....	701,970	June 10	1287	279	99	2929
Package. Shipping.....	J. T. Ferris.....	697,498	Apr. 15	2928	447	99	498
Package. Shipping.....	G. F. Samberg.....	699,477	May 6	997	127	99	1299
Package. Shipping.....	F. W. Collins.....	701,935	June 10	1004	294	99	2928
Package-tie.....	J. A. Thomas.....	702,046	June 24	2199	727	99	2928
Packing.....	F. Brown.....	699,544	Apr. 1	274	98	99	99
Packing and displaying box. Combined.....	W. Schrader.....	701,491	June 3	299	46	99	2120
Packing-case.....	G. W. Peck.....	701,294	June 3	192	29	99	2146
Packing device.....	G. Thom.....	699,775	May 12	1251	290	99	1444
Packing device. Metallic.....	F. A. Irons.....	701,720	June 3	815	190	99	2978
Packing-gasket.....	J. J. and A. Schler.....	697,528	Apr. 15	2179	451	99	498
Packing machine. Merchandise.....	R. L. Patterson.....	702,295	May 20	2928	544	99	1712
Packing. Metallic.....	D. F. Stayman.....	702,295	May 27	2945	995	99	1978
Packing. Pressure-piston.....	A. Scholl.....	700,994	May 27	2930	779	99	1999
Packing. Rod.....	T. W. Mitchell.....	702,573	June 17	2921	999	99	2921
Packing. Stuffing-box.....	J. C. A. Platt.....	699,990	Apr. 1	281	98	99	99
Pad:							
See Gun recoil-pad. Horseshoe-pad.							
Hoof-pad.....	H. Glardon.....	697,713	Apr. 15	2928	534	99	297
Paddle-wheel.....	V. Berg.....	699,495	Apr. 1	509	117	99	119
Paddle-wheel for propelling ships. Horizontal.....	J. Merkel.....	701,295	June 3	971	195	99	2927
Paddle-wheel. Feathering.....	J. M. Cole.....	699,299	May 6	998	195	99	1299
Padlock.....	F. J. Garvey.....	701,293	June 3	799	171	99	2970
Pail.....	K. E. Lisk.....	702,976	June 24	2120	719	99	2928
Pail-bottom. Metallic.....	H. C. Atkinson.....	699,990	Apr. 1	799	170	99	199
Pail. Dinner.....	J. Griffin.....	701,291	June 3	99	20	99	2129
Pail. Milk.....	F. G. O. Eble.....	699,499	May 6	949	145	99	1299
Pail. Nestable.....	A. J. Morrill and L. W. Northfield.....	700,290	May 20	2157	494	99	1951
Pail supporter. Milk.....	C. M. Hall.....	701,718	June 3	797	99	99	2979
Paint.....	T. L. Lee.....	701,743	June 3	995	99	99	2929
Paint.....	W. N. Hakeman, Jr.....	702,178	June 10	1923	99	99	2949
Paint compound or mixture.....	D. J. Ogilvy.....	699,295	May 6	998	99	99	1241
Paint-drier.....	D. J. Ogilvy.....	701,479	June 3	171	99	99	2143
Paint. Making.....	W. N. Hakeman, Jr.....	702,178	June 10	1921	99	99	2923
Paints. Manufacturing.....							
Fan:							
See Cake-fan. Evaporating-fan.							
Dust-fan. Vacuum-fan.							
Panel-raiser.....	L. S. Deppes.....	702,711	June 17	2910	991	99	2929
Paper-bag-delivery device.....	D. Appel.....	702,722	May 27	2146	715	99	1974
Paper-bag machine.....	D. Appel.....	699,999	May 13	999	220	99	1999
Paper-bag-making appliance.....	D. Appel.....	700,497	May 20	2929	908	99	1729
Paper band.....	C. W. Williams.....	699,999	Apr. 29	4773	1049	99	1099
Paper-bordering machine.....	E. A. Wayt.....	697,198	Apr. 8	1504	229	99	240
Paper box.....	F. J. Schleicher.....	697,995	Apr. 15	2400	999	99	999
Paper box.....	A. C. Jordan.....	698,117	Apr. 29	2928	712	99	795
Paper box.....	W. G. Haas.....	700,218	May 20	2929	999	99	1729
Paper-box blanks. Machine for making.....	C. H. Palmer and J. W. Deanead.....	700,207	May 27	2929	794	99	1911
Paper-box machine.....	A. Kochs.....	701,290	June 3	144	21	99	2129
Paper-box machines. Adjustable form for.....	C. I. Rhodes.....	699,416	May 6	995	127	99	1299
Paper-box machinery. Creasing or scoring and mitering mechanism for.....	C. W. Gay.....	702,295	June 10	1940	448	99	2928
Paper boxes. Adjustable former-block for forming.....	S. Robinson.....	700,446	May 20	2927	999	99	1749
Paper cleaner. Wall.....	W. Adcock.....	701,279	June 3	2	1	99	2109
Paper-cutting machines. Knife for guillotine.....	T. B. Kendall.....	700,098	May 13	1735	418	99	1556
Paper-display rack. Wall.....	O. Blakeley.....	699,479	May 6	999	165	99	1215
Paper dolly. Lace.....	J. Hess.....	700,771	May 27	2928	745	99	1929
Paper-fastener.....	H. Trenchard, Jr.....	700,204	May 13	1971	429	99	1573
Paper-feed mechanism.....	F. M. Peters and H. H. Hungerford.....	702,979	June 17	2929	991	99	2929
Paper-folding machine.....	H. K. King.....	700,295	May 20	2725	995	99	1779
Paper for art printing. Treating.....	J. Wesel.....	699,773	Apr. 29	4994	999	99	1929
Paper for wrapping or binding purposes. Device for supporting and delivering.....	R. H. Piper.....	700,318	May 27	2949	797	99	1915
Paper for wrapping or binding purposes. Device for supporting and delivering.....	R. H. Piper.....	700,318	May 27	2949	795	99	1945
Paper-hanger's coloring-tool.....	B. Olin.....	700,976	May 27	2929	999	99	1979
Paper-hanger's tool.....	T. E. Board.....	702,293	June 10	1921	429	99	2912
Paper-hanging machine.....	J. M. Gluckman.....	699,273	Apr. 1	999	121	99	113
Paper-hanging machine.....	C. Holmes.....	701,727	June 3	811	179	99	2977
Paper-holder.....	J. S. Bacon.....	701,291	June 3	9	2	99	2945

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Paper-jigger.....	P. E. Kent.....	702,996	June 24	2119	718	99	2904
Paper-jigger.....	W. E. Jeff.....	702,971	June 24	2073	845	99	2914
Paper. Machine for forming plastic patterns on wall.....	R. Kraus.....	697,468	Apr. 15	2084	662	99	477
Paper. &c. Machine for perforating.....	J. B. Brow.....	699,649	May 13	1998	222	99	1299
Paper. Making.....	J. B. Hanscom.....	702,995	June 20	1992	373	99	2905
Paper-making machine.....	J. H. Reynolds.....	699,895	Apr. 1	267	85	99	79
Paper-making machine.....	H. Parker.....	702,999	May 20	2072	644	99	1799
Paper-making machine.....	H. Parker.....	702,954	May 20	2014	646	99	1797
Paper-mill machinery. Blow-off nozzle for.....	J. H. Baker.....	702,499	May 20	2026	610	99	1754
Paper of variable thickness.....	C. C. Jones.....	701,794	June 3	882	181	99	2920
Paper on pasteboard tubes. Roller for winding.....	E. J. Barker.....	697,776	Apr. 15	2694	876	99	580
Paper or pasteboard. Impregnating.....	A. B. Glass.....	702,941	June 24	2000	890	99	2943
Paper or pulp-board making machine.....	L. Atwood.....	698,488	Apr. 20	2008	899	99	899
Paper or the like. Implement for cutting.....	H. J. Smith.....	699,594	May 6	870	902	99	1254
Paper roll.....	W. G. Haas.....	697,405	Apr. 8	1907	495	99	494
Paper. Plant for treating.....	J. Wenzel.....	697,761	Apr. 15	2002	571	99	573
Paper-pulp, &c. Bleaching.....	F. H. Long.....	702,142	June 10	1846	850	99	2945
Paper-stock.....	H. F. Dunbar.....	701,175	May 27	2005	918	99	2051
Paper. Treatment of waste material for use in the manufacture of.....	R. Dietrich.....	701,810	June 3	89	11	99	2118
Paper-vessel handle and fastener.....	W. E. Duthie.....	702,080	June 24	2002	739	99	2922
Paper with glazed surface. Manufacture of water and fat proof.....	H. Herfs.....	697,207	Apr. 8	1845	-----	99	299
Papers, letters, &c. Holder or file for.....	M. J. Widenhofer.....	701,025	June 3	695	151	99	2951
Papers. Receptacle for containing.....	M. J. Wade.....	702,028	June 24	2005	739	99	2922
Parcel-carrier. Folding.....	J. B. Phillips.....	697,579	Apr. 15	2782	616	99	694
Paper and cutter.....	G. Giovanna.....	702,419	June 17	2057	495	99	2946
Paper-green. Making.....	R. Franchot.....	698,694	Apr. 29	4384	998	99	998
Passenger or goods elevator or conveyor.....	W. H. Aston.....	701,459	June 3	818	70	99	2174
Paste pot or jar.....	M. J. Wade.....	702,084	June 24	2006	739	99	2923
Pasteurizer.....	W. J. Buft.....	701,026	June 3	611	124	99	2925
Pasteurizing apparatus.....	T. L. Valerius.....	701,169	May 27	2075	591	99	2028
Pattern-cards. Mechanism for producing.....	T. Capper.....	699,490	Apr. 20	2000	661	99	890
Pattern-plates. Making.....	C. R. Davis.....	702,992	June 24	2017	698	99	2794
Paving-flag.....	J. Steinbach.....	699,073	Apr. 22	2124	-----	99	714
Pen-shelling machine.....	T. Bonshard.....	700,476	May 20	2075	618	99	1797
Pen, &c. Bleaching.....	C. H. Plummer.....	697,573	Apr. 8	1926	371	99	573
Pen-and-roaster and popcorn-popper.....	W. P. Crane.....	701,288	May 27	4147	925	99	2090
Pen-briquets. Manufacturing.....	E. Heibing.....	700,481	May 20	2069	-----	99	1794
Pen into fuel. Converting.....	J. O. Green and H. T. Martin.....	700,190	May 20	2069	-----	99	1640
Pen-press.....	A. Dobson.....	701,511	June 3	89	11	99	2119
Pen-press.....	A. A. Dickson.....	701,555	June 10	1094	299	99	2925
Pedal attachment.....	R. Gross.....	701,714	June 3	781	173	99	2375
Pedal-balance.....	F. H. Anderson.....	701,945	May 27	4122	945	99	2076
Pedestal.....	P. Brown.....	700,594	May 27	2421	799	99	1942
Peg-cutter.....	J. A. Holmblad.....	696,974	Apr. 8	1126	223	99	992
Pegging-machine.....	A. Graffam.....	699,700	Apr. 29	4390	964	99	990
Pen:							
See Breeding-pen.....							
Pen.....	F. J. W. Fischer.....	699,444	May 6	646	149	99	1399
Pen. Fountain.....	F. C. Brown.....	697,975	Apr. 22	2054	661	99	677
Pen. Fountain.....	L. E. Waterman.....	698,861	Apr. 29	4750	1046	99	1076
Pen. Fountain.....	R. B. Dickie.....	699,499	May 6	704	109	99	1291
Pen. Fountain.....	W. G. Fraser.....	700,909	May 27	2512	808	99	1948
Pen. Fountain.....	O. Wall.....	702,323	June 24	2744	998	99	2940
Penholder.....	R. L. McIntyre.....	702,739	June 17	2059	612	99	2926
Penholder.....	F. McIntyre.....	702,323	June 24	2708	853	99	2941
Penholder. Pen-point-erecting.....	H. C. Stiefel.....	701,643	June 3	664	145	99	2047
Pen ink-feeder.....	I. Hultman and A. M. Johanson.....	702,265	June 24	2605	848	99	2912
Pen. Safety fountain.....	L. E. Waterman.....	698,828	Apr. 29	4750	1047	99	1077
Pen. Stylographic.....	W. W. Sanford.....	698,829	Apr. 29	4716	1099	99	1099
Pens. Machine for grinding and polishing steel or other metallic.....	J. W. Milligan and H. Ballings.....	697,223	Apr. 8	1864	415	99	415
Pencil.....	C. V. Cudlipp.....	699,801	Apr. 1	799	175	99	199
Pencil.....	J. A. M. Morris.....	701,073	May 27	2007	573	99	2011
Pencil.....	R. E. Rakestraw.....	702,204	June 24	2719	827	99	2926
Pencil attachment.....	A. I. Orlandy.....	700,808	May 27	2315	751	99	1919
Pencil-case.....	C. E. Little.....	702,149	June 24	2442	799	99	2940
Pencil-holder.....	F. J. Kamber.....	701,493	June 3	575	84	99	2155
Pencil holder and sharpener. Combined.....	C. C. Lovejoy.....	698,122	Apr. 22	2002	714	99	740
Pencil. Lead.....	D. Dunham and V. J. Cooper.....	700,622	May 20	2058	975	99	1816
Pencil rubber-tip attachment. Lead.....	C. W. Boman.....	702,220	June 24	2608	829	99	2921
Pencil-sharpener.....	E. Burke.....	697,222	Apr. 8	1744	299	99	294
Pencil-sharpener.....	E. L. McDivitt.....	700,071	May 13	1813	490	99	1561
Pencil-sharpener.....	J. H. Farnett and J. E. Warren.....	701,027	May 27	2744	897	99	1999
Perambulator.....	S. P. Withrow.....	700,297	May 20	2025	575	99	1725
Perforating-machine.....	W. H. Trean.....	701,107	May 27	2574	890	99	2025
Permutation-lock.....	J. and C. E. Arner.....	696,761	Apr. 29	4518	993	99	1023
Petroleum-motor. Four-stroke.....	H. A. Bertheau.....	700,225	May 20	2017	692	99	1925
Phenylamidocarbonitrile. Making.....	B. Homolka and N. Schwan.....	701,044	May 27	2709	-----	99	2002
Phonograph.....	C. W. Vernon.....	698,059	Apr. 29	2159	666	99	719
Phonograph or graphophone.....	G. Bettini.....	697,939	Apr. 22	2045	649	99	676
Phonograph time-indicator.....	J. Kemmer, Jr.....	699,399	May 6	510	119	99	1299
Phonographic duplication processes. Dipping-tank for.....	J. W. Aylsworth and W. H. Miller.....	698,499	Apr. 29	2204	999	99	579
Phonographic reproducer.....	P. Weber.....	699,699	Apr. 29	4149	912	99	949

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Photophone-log. Tooth and base for.	E. K. Chase.	698,874	Apr. 28	5708	819	80	694
Photographic curtain-shutter.	R. Schittlauf.	703,037	June 24	6178	728	80	8917
Photographic developer.	A. Eichengrün and K. Demeler.	703,941	June 24	5935		80	8928
Photographic developer and making same.	A. Eichengrün and T. Becker.	703,943	June 24	5937		80	8925
Photographic fabric and preparing same.	P. M. O. Grenier.	698,088	Apr. 1	620		80	90
Photographic film-protecting strip.	W. F. Mautlich.	703,875	June 17	5957	590	80	8930
Photographic film roll and roll-holder.	J. E. Thomsen.	698,187	Apr. 28	5997	790	80	794
Photographic instrument.	E. R. Miller.	697,791	Apr. 15	5940	520	80	895
Photographic lens shade.	F. V. Richardson.	698,008	Apr. 29	5949	1098	80	1117
Photographic negatives, &c. Apparatus for judging the color and density of.	J. W. Dawson.	698,980	June 1	670	801	80	104
Photographic pictures. Developing.	A. Eichengrün and K. Demeler.	703,942	June 24	5936		80	8925
Photographic plate for reproducing ink impressions.	L. O. Hearlert.	705,264	June 17	5900		80	8919
Photographic plate holder.	J. Goddard.	700,084	May 12	1781	404	80	1248
Photographic plate holder.	W. N. L. Davidson.	701,899	June 2	61	9	80	8117
Photographic plate trays.	O. Gueth.	705,128	June 24	5940	514	80	8927
Photographic plates. Storage-box for.	A. Wagner.	698,585	May 6	593	505	80	1897
Photographic printing frame.	F. Herold.	698,015	Apr. 29	5908	697	80	694
Photographic roll-film.	B. Hausdorf.	700,694	May 30	5941	698	80	1885
Photographic roll-holder.	D. H. Houston.	700,120	May 18	1998	491	80	1878
Photographic shutter.	C. Bornmann.	698,179	Apr. 22	5998	794	80	790
Photographic shutter.	A. Wollemak.	700,879	May 27	5455	738	80	1297
Photographic-shutter-controlling device.	J. Poliakoff.	700,053	May 13	1695	497	80	1865
Photographs. Automatic and instantaneous apparatus for producing.	F. D. Rummel.	698,958	Apr. 1	477	110	80	108
Photometric recorder and indicator.	J. Poliakoff.	700,280	June 10	1670	498	80	2300
Photoprinting and vignetting frame. Combined.	W. Armstrong and W. E. O. Chambers.	698,799	May 18	5174	573	80	1493
Physician's examining chair and table.	E. P. Curtis.	698,728	Apr. 1	698	120	80	185
Piano attachment.	G. L. C. Borch.	700,726	May 27	5186	717	80	1876
Piano-card.	A. A. Huseby.	698,005	Apr. 29	5941	571	80	690
Piano-key mounting.	T. Tomason and I. Carlson.	703,081	June 24	5938	797	80	8939
Piano or organ player. Automatic.	E. L. Watson.	700,380	May 20	5513	878	80	1798
Piano-player. Automatic.	F. C. White.	697,380	Apr. 6	1976	698	80	364
Piano-players. Double-bellows action for pneumatic.	T. P. Brown and P. Wehn.	701,328	June 2	451	101	80	2300
Piano. Pneumatic.	B. K. Reynolds.	700,080	June 10	1548	305	80	2401
Piano-support.	J. Olsendorf.	700,977	May 27	5920	694	80	1972
Piano-vibrato-accelerato attachment.	H. H. Northrop.	698,044	Apr. 1	147	35	80	90
Piano. Wireless.	I. F. Gilmore.	698,590	May 13	1277	819	80	1475
Pianos. Automatic attachment for.	J. A. Smith.	699,981	May 13	1854	790	80	1512
Pick.	E. A. Smith.	698,147	Apr. 29	5904	794	80	795
Pick.	J. A. Imhof.	698,888	Apr. 29	4628	1081	80	1028
Pictorial device.	T. T. McGilvary.	700,708	May 20	5334	708	80	1695
Picture-exhibitor.	T. F. Burgess.	698,380	Apr. 28	5998	817	80	681
Picture-exhibitor and phonograph. Combined.	R. Seebach.	698,308	Apr. 1	150	45	80	45
Picture-frame.	F. A. Buchner.	698,985	Apr. 8	1098	298	80	545
Picture-frame.	J. T. Nelson.	700,548	May 20	5937	848	80	1795
Picture-frame. Fastener for backings in.	J. L. Tapscott.	700,352	May 30	5284	811	80	1899
Picture-frames. Machine for mounting ornamental composition directly upon circular.	F. E. Adams. (Reissue).	11,980	Apr. 8	1957	498	80	434
Picture-hanger.	C. I. Still.	698,510	Apr. 1	904	40	80	90
Picture-hanger.	G. Kopp.	695,591	Apr. 8	1158	290	80	254
Picture-hanger.	G. H. Chace.	701,145	May 27	5925	510	80	2048
Picture-hanger.	M. A. Bye.	708,178	June 24	5236	806	80	2920
Picture-hook hanger.	P. Drinkaus.	697,967	Apr. 28	5911	691	80	690
Picture-mat-cutting machine.	G. W. Smith.	700,447	May 20	5812	597	80	690
Picture-projecting apparatus.	G. W. Smith and W. A. Somers.	700,709	May 20	5108	707	80	1890
Picture-projecting apparatus.	W. D. Baldwin and A. Sundh.	700,470	May 20	5984	610	80	1784
Piers, &c. Shifting device for.	W. D. Baldwin and A. Sundh.	700,330	May 20	5928	694	80	1821
Piers, &c. Shifting device for.	W. D. Baldwin and A. Sundh.	700,600	May 20	5930	694	80	1821
Piers, &c. Shifting device for.	W. D. Baldwin and A. Sundh.	700,600	May 20	5930	694	80	1821
Pigment and producing same.	W. N. Bakeman, Jr.	708,177	June 10	1938		80	2480
Pigments and products produced thereby. Treating.	W. N. Bakeman, Jr.	708,178	June 10	1939		80	2480
Pigments for paints. Treating.	W. N. Bakeman, Jr.	708,179	June 10	1919		80	2480
Pigments. Imparting drying properties to.	W. N. Bakeman, Jr.	708,178	June 10	1917		80	2480
Pile.	A. A. Raymond.	700,707	May 20	5105	706	80	1890
Pile fabric. Machine for cutting loops of.	J. D. Knowlton.	701,375	June 2	567	115	80	2820
Pile fabric. Woven double.	J. Killars.	701,275	June 2	599	115	80	2817
Pile or nap fabric. Apparatus for producing.	J. Eaton.	703,254	June 17	5975	694	80	3789
Pill-machine.	W. Rabiol.	700,270	May 20	5976	697	80	1714
Pills. Device for facilitating taking.	B. Koppenhagen.	697,350	Apr. 8	1848	345	80	945
Pillow-cham holder.	M. A. Yeager.	701,365	June 10	1927	692	80	2705
Pillow-cham holder.	T. Bambauer.	703,795	June 17	5723	692	80	2705
Pile.							
See Clothes-pin.	Larding-pin.						
Insulator-pin.	Safety-pin.						
Keyless pin.							
Pin.	H. A. Kimball.	698,370	Apr. 1	518	71	80	71
Pin-holder.	E. Koller.	698,395	Apr. 28	5976	709	80	823
Pin-wheel and gear-wheel motion.	J. T. Cyr.	698,910	May 18	1289	291	80	1223
Pipe.							
See Tobacco-pipe.	Water-pipe.						
Pipe.	T. N. Saurman.	700,345	June 10	1738	304	80	2139

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume		Official Gazette.	
				U. S. Pat. Off.	Pub. Off.	Vol.	Page
Pipe and fine cleaner	C. F. Craddock and G. W. Farlin, Jr.	600,999	May 6	808	70	99	1280
Pipe-compressor	K. Schmidt	700,375	May 30	9480	1870	99	1719
Pipe connection	S. E. Ryan	702,558	June 17	3538	548	90	90
Pipe, &c., coupling	G. E. Diescher	701,019	May 27	3798	854	90	1934
Pipe-tripping clamping-ring	F. M. Smith	698,008	Apr. 1	876	28	90	90
Pipe coupling	G. L. Bonham	702,888	June 10	970	218	90	2320
Pipe crimper	M. L. Hunker	690,587	May 6	747	175	90	1821
Pipe cutter and wrench	A. S. Boyd and G. Yearnell	702,919	June 24	3926	695	90	2769
Pipe fittings or joints. Non-conducting covering for	J. W. Farley	701,989	June 10	1380	386	90	2805
Pipe-grab	V. Matula	700,216	May 29	3148	461	90	100
Pipe-lifting machine	A. Hogenson	697,711	Apr. 15	8491	1847	90	528
Pipe-lifting mechanism	A. Hogenson	697,708	Apr. 15	2280	518	90	554
Pipe or tube sawing machine	H. W. Hathorn	700,118	May 13	1998	441	90	1577
Pipe, shaft, &c., coupling	J. A. Haire	708,351	June 24	3648	387	90	2900
Pipe-wrench	S. E. Diescher	701,080	May 27	3798	854	90	1904
Pipe-wrench	G. W. Bufford	697,377	Apr. 28	3857	628	90	678
Pipe-wrench	A. Underwood	698,708	Apr. 29	4492	948	90	1017
Pipe-wrench	C. O. Longard	698,698	May 18	1094	226	90	1418
Pipe-wrench	H. F. Renner	700,097	May 12	1848	439	90	1507
Pipe-wrench	F. C. Matzpen	701,096	May 27	3798	854	90	2653
Pipe-wrench	O. J. Wight	701,287	May 27	4138	948	90	2678
Pipe-wrench	W. Love	704,070	June 10	1428	338	90	2126
Pipe-wrench	G. H. Swarthout	702,353	June 10	1741	708	90	2428
Pipe-wrench	J. P. Stenger	702,928	June 24	3708	758	90	2461
Pipe-wrench, Chain	A. P. McBride	702,928	June 24	3708	758	90	2461
Pipes, &c. Hanger for	G. Amborn, Jr.	698,708	Apr. 29	4514	908	90	1028
Pipes	A. B. Carl	708,704	June 17	3521	506	90	2707
Pipes	E. Mummendey	697,467	Apr. 15	3254	585	90	521
Pipes	T. J. Bennett	697,539	Apr. 1	221	81	90	55
Pipes	E. K. Baldwin	697,598	Apr. 28	3285	548	90	674
Pipes for gas or other motors	H. E. Ebbs	700,398	May 20	3954	588	90	1891
Pipes, golding and packing device	J. R. Allfree	698,980	Apr. 8	1019	236	90	1777
Pitcher, Syrup	E. W. Marotte	697,328	May 6	328	100	90	184
Pitman	J. E. Gundry	694,384	Apr. 29	4947	1089	90	100
Pitman connection	J. Glenn	700,910	May 27	3514	808	90	1947
Pitman-rod connection	G. W. Beum	698,287	Apr. 28	3676	811	90	82
Placket-closing device	C. Brandt	701,074	June 3	715	158	90	2352
Placket-closure	L. W. Lucien	697,880	Apr. 15	3754	810	90	618
Plating-machine roll	D. L. Chandler	701,841	June 10	906	228	90	2558
Plane	G. P. Davidson	698,414	Apr. 1	46	16	90	10
Plane	A. W. Stanley and H. S. Walter	708,158	June 24	3479	680	90	218
Plane guide, Bench	G. G. Daniels	701,471	June 8	543	76	90	218
Plaster or analogous tool. Chisel	H. E. F. and E. G. Eberhardt	700,079	May 30	307	908	90	158
Plastimeter	E. W. Bryan	700,728	May 27	3174	728	90	187
Plating-machine	J. R. Thomas	701,104	May 27	3888	880	90	202
Planting-machine	W. W. Carey	702,341	June 10	1688	438	90	251
Plant-destroying implement	J. Ludwig and J. Carstens	698,328	Apr. 8	1198	288	90	90
Plants. Composition for protecting growing	J. W. White	698,345	Apr. 28	3548	808	90	80
Planter	J. A. Anderson	698,349	Apr. 28	3548	808	90	80
Planter	J. J. Olinger	701,779	June 8	309	198	90	134
Planter	J. M. Walcott	702,287	June 10	1	908	90	280
Planter	J. E. Jones	698,288	Apr. 1	908	184	90	180
Planter and cultivator	J. E. Jones	700,028	May 20	2788	684	90	170
Planter and fertilizer-distributor. Combined corn-	H. D. Mastor	697,310	Apr. 15	2108	408	90	40
Planter and fertilizer-distributor. Combined out-	F. M. Hudgins	698,738	May 13	1814	898	90	143
Planter attachment. Corn-	J. E. Mulder	700,840	May 20	2787	688	90	178
Planter. Check-row	W. La Follette	698,280	May 13	1477	330	90	148
Planter. Corn-	W. L. Bogle	698,540	Apr. 1	979	6	90	6
Planter. Corn-	W. K. Graham	697,468	Apr. 8	1800	434	90	48
Planter. Corn-	H. L. Crawford	698,228	Apr. 28	3710	821	90	86
Planter. Corn-	L. F. Graham	699,764	May 13	1828	381	90	183
Planter. Corn-	G. W. Brunton	700,781	May 27	3109	781	90	177
Planter. Corn-	L. F. Graham	701,712	June 8	777	178	90	187
Planter. Corn-	L. F. Graham	702,347	June 24	3888	884	90	202
Planter. Corn-	L. P. Graham	702,348	June 24	3888	884	90	202
Planter. Corn-	I. A. Weaver	702,367	June 24	3888	884	90	202
Planter. Cotton-seed	A. G. Cox	698,428	Apr. 28	3570	804	90	80
Planter. Disk seed	T. H. Hardcastle	697,477	Apr. 15	3328	434	90	111
Planter for row opening and covering attachment	W. A. Harper	701,282	June 8	107	51	90	111
Planter grain-ejector. Corn-	A. J. Marshall	702,078	June 17	3661	827	90	88
Planter marker. Seed-	H. E. Schenover	702,286	June 17	3661	827	90	88
Planter. Potato	F. Schumann	700,288	Apr. 20	3284	680	90	175
Planter. Seed-	T. J. Gaylor	698,004	Apr. 28	3591	808	90	80
Planter. Seed-	E. F. Israel	698,987	Apr. 28	4098	1087	90	307
Planter. Seed-	E. L. Caraway	701,228	June 8	380	114	90	80
Planter. Seed or potato	C. H. Gering	700,880	May 13	1748	401	90	150
Planter of peas. Irrigating	A. Brodsky	698,428	Apr. 1	36	6	90	6

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				U. S. Pat.	For.	U. S. Pat.	For.
Printing machine. Multicolor.	G. W. Jackson and R. O. Fearnley.	997,497	Apr. 15	5088	498	99	474
Printing-machine printing-block. Oil-cloth.	E. F. Trecher	998,997	Apr. 29	4977	501	99	999
Printing machine. Rotary color.	W. P. Wrightson	999,991	May 6	449	191	99	1994
Printing-machine sheet-delivery apparatus.	C. P. Cottrell	999,998	May 13	1494	999	99	1494
Printing-machine sheet-delivery mechanism.	C. P. Cottrell	999,997	May 13	1498	999	99	1494
Printing machine. Stand.	J. A. Ambler	999,999	Apr. 1	1	1	99	1
Printing-machine. Universal.	C. L. Dawson	999,999	May 6	999	199	99	1999
Printing-machine web-guide.	O. Bowers	997,179	Apr. 8	1498	999	99	999
Printing machine. Yarn.	J. Hamilton	999,999	May 13	1904	999	99	1919
Printing plates. Preparing lithographic.	O. C. Strecher	700,000	June 24	9999	999	99	9999
Printing-press.	W. Spalkhaver	997,999	Apr. 15	9199	497	99	497
Printing-press.	A. P. Warner	998,944	Apr. 29	9944	999	99	999
Printing-press.	E. Higgins	700,119	May 13	1997	441	99	1977
Printing-press.	G. P. Fennar	701,999	June 3	797	199	99	9997
Printing-press.	A. E. Dowell	700,549	June 17	9997	991	99	9914
Printing-press.	J. L. Firm	700,199	June 24	9999	919	99	9999
Printing-press attachment.	E. C. Simpson	999,994	May 13	1414	997	99	1419
Printing-press controller. Automatic.	T. C. Dexter	999,913	May 13	1999	999	99	1999
Printing-press delivery mechanism.	A. J. Hood	999,179	May 6	99	91	99	1199
Printing-press delivery-table.	E. M. Howell	999,919	Apr. 1	197	199	99	199
Printing-press driving means.	S. G. Goss	700,491	June 17	9979	499	99	9949
Printing-press. Envelop.	W. G. Johnston	999,999	May 13	1997	991	99	1419
Printing-press page pin. Job.	W. J. Ward	999,949	Apr. 29	9949	919	99	999
Printing-press ink-distributing device.	J. Thomson	700,999	May 29	9944	919	99	9991
Printing-press ink-roller.	J. P. Marks	999,119	Apr. 29	9191	1199	99	1194
Printing-press ink-roller.	J. P. Marks	701,491	June 9	991	99	99	9919
Printing-press. Multicolor.	J. E. Cape	999,999	Apr. 8	1909	997	99	1199
Printing-press. Tip.	J. F. Williams	999,049	Apr. 29	9999	1119	99	1199
Printing-press. Apparatus for dispersing electricity in delivering sheets into or from.	F. A. Eyer	700,199	May 6	99	19	99	1199
Projectile.	C. C. Bowers	700,199	May 29	9999	499	99	1999
Projectile.	A. W. Mattson	700,949	June 17	9991	977	99	9994
Projectile and time-fuse therefor.	W. Ruess	999,977	May 6	994	999	99	1991
Propeller-controller.	W. Cooper	702,199	June 10	1999	949	99	9441
Propeller. Hand-power.	L. A. Wilson	999,709	Apr. 1	999	197	99	199
Propeller. Marine.	C. C. D. Carvalho	700,191	June 24	9919	999	99	9999
Propeller. Reversible screw.	L. Wilson	700,979	May 29	9979	999	99	1977
Propeller. Screw.	R. Thaler	999,994	Apr. 29	4979	999	99	999
Propeller. Screw.	C. A. Parsons	701,949	May 27	4119	947	99	1719
Propeller. Screw.	J. Aegerter	701,949	May 27	4119	947	99	9979
Propeller-shaft brake.	G. Whitley	997,999	Apr. 8	1979	999	99	999
Propeller-shaft. Coupling for ships.	J. Verity	999,999	Apr. 6	499	99, 99	99	9999
Propeller-wheel.	E. E. Strommen	999,999	Apr. 29	4971	999	99	1199
Propulsion of ships. Apparatus for the hydraulic.	L. Vidal	999,049	Apr. 29	9994	1111	99	1199
Protractor, square, and pitch-board. Combined.	N. D. Hamel	700,999	May 29	9999	944	99	1977
Protractor, square, and pitch-board. Combined.	N. D. Hamel	700,999	May 29	9999	944	99	1977

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Ch.	Dr.	Vol.	Page.
Pump. Centrifugal.	J. D. Mothes	703,394	May 30	3169	486	99	1084
Pump. Centrifugal.	W. S. Sharpnack. (Reliance)	12,091	June 17	3970	894	99	3785
Pump. Chain.	L. A. Brigel	701,780	May 27	3160	914	99	1877
Pump. Combined air and water.	E. D. Docter	701,607	June 3	3999	190	99	3933
Pump. Under check-valve.	J. W. Part	699,599	Apr. 1	3989	190	99	129
Pump. Diaphragm.	H. E. Arnold	699,597	Apr. 23	3737	994	99	599
Pump. Double-acting cylinder.	W. O. Buck	699,094	Apr. 1	419	97	99	91
Pump. Eccentric-chain Mt.	J. McCulloch	701,313	June 3	3949	399	99	3939
Pump. Fluid-pressure.	O. O. Bray Jr	699,494	May 8	3778	190	99	1817
Pump. Foot.	E. H. White	697,595	Apr. 15	3995	499	99	1001
Pump. Hand.	J. M. Lowe	698,730	Apr. 29	3995	617	99	1781
Pump-handle.	H. M. Etter	701,494	May 17	3949	519	99	3939
Pump-motor.	F. S. Woods	702,394	June 10	1991	499	99	3910
Pump-pipe grapple.	L. M. and S. H. Schenke	698,791	Apr. 29	4490	978	99	1001
Pump-rod coupling.	J. M. Lowe	698,740	Apr. 1	3771	190	99	148
Pump-rod guide. Oil-well.	C. F. Riegt	697,019	Apr. 6	1999	373	99	379
Pump. Rotating cylinder.	R. Richardson	697,019	Apr. 6	1999	373	99	379
Pump. Siphon.	G. Giordetti, T. J. Fuyat, and D. Federico	697,595	Apr. 15	3997	999	99	694
Pump-tube coupling. Chain.	L. A. Brigel, Jr	699,499	May 13	1004	999	99	1999
Pump. Vacuum.	W. F. Garrison	703,094	Apr. 29	3749	867	99	849
Pump valve. Vacuum.	W. F. Garrison	703,094	Apr. 29	1419	919	99	9417
Pump vent-closing valve.	J. E. Panner	697,597	Apr. 15	3999	595	99	901
Pumps. Joining-lange for test.	B. Funder	703,593	June 24	3975	995	99	3777
Pumps. Proportionate-distribution valve system for.	A. Abendschoh	699,599	Apr. 29	3999	1194	99	1144
Pumping apparatus.	J. Albrechtsen	703,493	May 13	1991	314	99	1497
Pumping apparatus.	J. W. Simmons	699,610	June 17	3911	894	99	3901
Pumping apparatus. Water.	B. Winkelman	699,610	Apr. 1	406	94	99	69
Pumping-engine.	H. Nielsen	700,974	Apr. 27	3999	699	99	1977
Pumping-engine. Electric.	A. Bruner	701,599	June 3	493	199	99	3939
Pumping-mechanism. Automatic.	A. B. Anderson	697,599	Apr. 15	3995	609	99	519
Pumping-mechanism for feeding water to steam-boilers.	C. Crompton	699,091	Apr. 29	3991	1194	99	1144
Pumping-power. Oil-well.	G. D. Fowler	701,497	June 3	399	99	99	3199
Punch. Hand.	S. C. Morrill	699,510	May 6	144	39	99	1905
Punch. Pocket-knife leather.	O. L. Harrison	701,570	June 10	1099	399	99	3949
Punch. Ticket.	H. Cottrell	699,599	Apr. 29	4490	1019	99	1049
Punching-bag support.	C. W. Dudley	698,995	Apr. 29	3743	999	99	841
Punching-machine.	D. K. McLaren	699,599	May 6	798	195	99	1934
Punching-press guide.	T. and J. R. Conley	701,544	June 3	397	195	99	1149
Puncture-healing composition.	W. O. De Mar	699,099	Apr. 29	3995	999	99	497
Frame or bag frame catch.	A. F. Fuller	697,497	Apr. 15	3998	999	99	690
Frame or bag frame catch.	A. F. Fuller	697,199	Apr. 6	1994	343	99	945
Fuzile.	J. B. Cleaveland	697,394	Apr. 6	1795	395	99	395
Fuzile.	J. S. Webster	698,099	Apr. 29	3161	991	99	739
Fuzile.	L. M. Bailean	698,999	Apr. 29	4790	1081	99	1081
Fuzile.	W. B. Smith	700,575	May 30	3947	653	99	1793
Fuzile.	J. Elliott	700,575	June 10	1999	867	99	3949
Fuzile.	M. Oddy	702,994	June 10	1798	499	99	3949
Fuzile.	G. F. Hardin	703,615	June 17	3949	999	99	3949
Fuzile.	F. L. Napier	697,799	Apr. 15	3917	999	99	3949
Fuzile.	J. E. G. Bonnard	700					
Pyroxylia compound.	R. Zahi	700,594	May 27	3495	999	99	1999
Pyroxylia compound.	R. Zahi	700,594	May 27	3495	999	99	1999
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Pyroxylia compound.	R. Zahi	700,594	May 27	3495	999	99	1999
Pyroxylia compound.	R. Zahi	700,594	May 27	3495			

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Rail ends. Aligning, securing, and bonding of	F. Dele Torre and D. E. Banks	700,964	May 27	3800	880	90	1877
Rail. Guard	T. McGinty	697,288	Apr. 15	3128	474	89	498
Rail-joint	A. Elenorath	698,720	Apr. 1	688	148	89	187
Rail-joint	B. H. Tripp	697,589	Apr. 15	3007	881	89	501
Rail-joint	P. Baran	697,778	Apr. 15	3006	875	89	500
Rail-joint	S. W. Leslie	697,532	Apr. 15	3041	908	89	513
Rail-joint	C. E. Weller	698,008	Apr. 30	4128	914	89	541
Rail-joint	E. Zamborsky	698,618	Apr. 30	4178	917	89	545
Rail-joint	J. Threlkell	698,908	May 11	1876	340	89	1800
Rail-joint	C. B. Mead	699,098	May 13	1884	875	89	1805
Rail-joint	E. O. Davis	700,160	May 27	3073	915	89	507
Rail-joint	E. P. and H. C. Hunter	700,316	June 10	1684	870	89	507
Rail-joint	W. A. Paine	700,408	June 17	2151	490	89	508
Rail-joint	C. D. James	701,568	June 17	2219	888	89	508
Rail-joint and tie-plate. Combined	T. Comrove	701,849	June 10	1011	888	89	1805
Rail-joint bed-plate	J. H. Whitmyer	699,928	May 13	1819	840	89	1810
Rail-joint connection	O. Nordie	699,934	May 6	184	40	89	1810
Rail or similar conductors. Mechanism for removing ice and snow from third-rail-support	E. Chaschewitz and W. T. Thompson	701,795	June 8	316	204	89	2000
Rails, bars, &c. Mechanism for straightening	G. E. Ostman	697,101	Apr. 8	1280	300	89	310
Rails. Device for electrically connecting	C. E. White	700,960	June 17	3840	885	89	2730
Railings, &c. Coupling for	O. Debarde	697,817	Apr. 15	3000	880	89	500
Railway	J. Finnegan	699,500	May 6	717	147	89	1804
Railway automatic couplings. Lock-lifter for	A. Webb	697,904	Apr. 15	3015	885	89	500
Railway block-signaling system	T. Welch	697,048	Apr. 8	1270	308	89	300
Railway block system	W. M. Chapman and W. Fostell	700,308	May 30	3000	881	89	1807
Railway clearing-house	J. E. Nelson	699,540	May 6	771	139	89	1804
Railway coaches or sleepers. Dust and cinder guard for	A. W. Swain	701,008	June 10	1212	378	89	2077
Railway construction	J. S. McKenna	697,880	Apr. 15	3125	470	89	497
Railway contact apparatus. Electric	G. L. de Leuchères	700,141	June 10	1545	340	89	2444
Railway-coupling	A. Markle	698,124	Apr. 22	3804	714	89	701
	A. Wuthe	697,184	Apr. 8	1280	310	89	300
Railway coupling apparatus	W. R. S. Jones	700,958	June 17	3817	881	89	2000
Railway-crossing	B. M. Rawlings	697,540	Apr. 15	3103	490	89	491
Railway-crossing	W. M. Cooper	698,175	Apr. 22	3850	785	89	700
Railway-crossing	C. L. Lilberg	698,908	Apr. 30	4124	764	89	775
Railway-crossing	C. F. Pannell	698,410	Apr. 22	3705	880	89	848
Railway-detonator	F. Lemaire	698,908	June 24	3000	840	89	2010
Railway. Electric	W. B. Potter	697,013	Apr. 8	1212	371	89	570
Railway. Electric	A. A. Stolle	699,580	May 6	878	304	89	1800
Railway. Electric	C. J. Kintner	700,187	May 13	1915	444	89	1800
Railway. Electric	C. J. Kintner	700,188	May 13	1916	445	89	1800
Railway. Electric	C. J. Kintner	700,189	May 13	1917	446	89	1800
Railway. Electric	C. J. Kintner	700,190	May 13	1918	447	89	1800
Railway. Electric	C. J. Kintner	700,191	May 13	1919	448	89	1800
Railway. Electric	C. J. Kintner	700,192	May 13	1920	449	89	1800
Railway. Electric	C. J. Kintner	700,193	May 13	1921	450	89	1800
Railway. Electric	C. J. Kintner	700,194	May 13	1922	451	89	1800
Railway. Electric	C. J. Kintner	700,195	May 13	1923	452	89	1800
Railway. Electric	C. J. Kintner	700,196	May 13	1924	453	89	1800
Railway. Electric	C. J. Kintner	700,197	May 13	1925	454	89	1800
Railway. Electric	C. J. Kintner	700,198	May 13	1926	455	89	1800
Railway. Electric	C. J. Kintner	700,199	May 13	1927	456	89	1800
Railway. Electric	C. J. Kintner	700,200	May 13	1928	457	89	1800
Railway. Electric	C. J. Kintner	700,201	May 13	1929	458	89	1800
Railway. Electric	C. J. Kintner	700,202	May 13	1930	459	89	1800
Railway. Electric	C. J. Kintner	700,203	May 13	1931	460	89	1800
Railway. Electric	C. J. Kintner	700,204	May 13	1932	461	89	1800
Railway. Electric	C. J. Kintner	700,205	May 13	1933	462	89	1800
Railway. Electric	C. J. Kintner	700,206	May 13	1934	463	89	1800
Railway. Electric	C. J. Kintner	700,207	May 13	1935	464	89	1800
Railway. Electric	C. J. Kintner	700,208	May 13	1936	465	89	1800
Railway. Electric	C. J. Kintner	700,209	May 13	1937	466	89	1800
Railway. Electric	C. J. Kintner	700,210	May 13	1938	467	89	1800
Railway. Electric	C. J. Kintner	700,211	May 13	1939	468	89	1800
Railway. Electric	C. J. Kintner	700,212	May 13	1940	469	89	1800
Railway. Electric	C. J. Kintner	700,213	May 13	1941	470	89	1800
Railway. Electric	C. J. Kintner	700,214	May 13	1942	471	89	1800
Railway. Electric	C. J. Kintner	700,215	May 13	1943	472	89	1800
Railway. Electric	C. J. Kintner	700,216	May 13	1944	473	89	1800
Railway. Electric	C. J. Kintner	700,217	May 13	1945	474	89	1800
Railway. Electric	C. J. Kintner	700,218	May 13	1946	475	89	1800
Railway. Electric	C. J. Kintner	700,219	May 13	1947	476	89	1800
Railway. Electric	C. J. Kintner	700,220	May 13	1948	477	89	1800
Railway. Electric	C. J. Kintner	700,221	May 13	1949	478	89	1800
Railway. Electric	C. J. Kintner	700,222	May 13	1950	479	89	1800
Railway. Electric	C. J. Kintner	700,223	May 13	1951	480	89	1800
Railway. Electric	C. J. Kintner	700,224	May 13	1952	481	89	1800
Railway. Electric	C. J. Kintner	700,225	May 13	1953	482	89	1800
Railway. Electric	C. J. Kintner	700,226	May 13	1954	483	89	1800
Railway. Electric	C. J. Kintner	700,227	May 13	1955	484	89	1800
Railway. Electric	C. J. Kintner	700,228	May 13	1956	485	89	1800
Railway. Electric	C. J. Kintner	700,229	May 13	1957	486	89	1800
Railway. Electric	C. J. Kintner	700,230	May 13	1958	487	89	1800
Railway. Electric	C. J. Kintner	700,231	May 13	1959	488	89	1800
Railway. Electric	C. J. Kintner	700,232	May 13	1960	489	89	1800
Railway. Electric	C. J. Kintner	700,233	May 13	1961	490	89	1800
Railway. Electric	C. J. Kintner	700,234	May 13	1962	491	89	1800
Railway. Electric	C. J. Kintner	700,235	May 13	1963	492	89	1800
Railway. Electric	C. J. Kintner	700,236	May 13	1964	493	89	1800
Railway. Electric	C. J. Kintner	700,237	May 13	1965	494	89	1800
Railway. Electric	C. J. Kintner	700,238	May 13	1966	495	89	1800
Railway. Electric	C. J. Kintner	700,239	May 13	1967	496	89	1800
Railway. Electric	C. J. Kintner	700,240	May 13	1968	497	89	1800
Railway. Electric	C. J. Kintner	700,241	May 13	1969	498	89	1800
Railway. Electric	C. J. Kintner	700,242	May 13	1970	499	89	1800
Railway. Electric	C. J. Kintner	700,243	May 13	1971	500	89	1800
Railway. Electric	C. J. Kintner	700,244	May 13	1972	501	89	1800
Railway. Electric	C. J. Kintner	700,245	May 13	1973	502	89	1800
Railway. Electric	C. J. Kintner	700,246	May 13	1974	503	89	1800
Railway. Electric	C. J. Kintner	700,247	May 13	1975	504	89	1800
Railway. Electric	C. J. Kintner	700,248	May 13	1976	505	89	1800
Railway. Electric	C. J. Kintner	700,249	May 13	1977	506	89	1800
Railway. Electric	C. J. Kintner	700,250	May 13	1978	507	89	1800
Railway. Electric	C. J. Kintner	700,251	May 13	1979	508	89	1800
Railway. Electric	C. J. Kintner	700,252	May 13	1980	509	89	1800
Railway. Electric	C. J. Kintner	700,253	May 13	1981	510	89	1800
Railway. Electric	C. J. Kintner	700,254	May 13	1982	511	89	1800
Railway. Electric	C. J. Kintner	700,255	May 13	1983	512	89	1800
Railway. Electric	C. J. Kintner	700,256	May 13	1984	513	89	1800
Railway. Electric	C. J. Kintner	700,257	May 13	1985	514	89	1800
Railway. Electric	C. J. Kintner	700,258	May 13	1986	515	89	1800
Railway. Electric	C. J. Kintner	700,259	May 13	1987	516	89	1800
Railway. Electric	C. J. Kintner	700,260	May 13	1988	517	89	1800
Railway. Electric	C. J. Kintner	700,261	May 13	1989	518	89	1800
Railway. Electric	C. J. Kintner	700,262	May 13	1990	519	89	1800
Railway. Electric	C. J. Kintner	700,263	May 13	1991	520	89	1800
Railway. Electric	C. J. Kintner	700,264	May 13	1992	521	89	1800
Railway. Electric	C. J. Kintner	700,265	May 13	1993	522	89	1800
Railway. Electric	C. J. Kintner	700,266	May 13	1994	523	89	1800
Railway. Electric	C. J. Kintner	700,267	May 13	1995	524	89	1800
Railway. Electric	C. J. Kintner	700,268	May 13	1996	525	89	1800
Railway. Electric	C. J. Kintner	700,269	May 13	1997	526	89	1800
Railway. Electric	C. J. Kintner	700,270	May 13	1998	527	89	1800
Railway. Electric	C. J. Kintner	700,271	May 13	1999	528	89	1800
Railway. Electric	C. J. Kintner	700,272	May 13	2000	529	89	1800
Railway. Electric	C. J. Kintner	700,273	May 13	2001	530	89	1800
Railway. Electric	C. J. Kintner	700,274	May 13	2002	531	89	1800
Railway. Electric	C. J. Kintner	700,275	May 13	2003	532	89	1800
Railway. Electric	C. J. Kintner	700,276	May 13	2004	533	89	1800
Railway. Electric	C. J. Kintner	700,277	May 13	2005	534	89	1800
Railway. Electric	C. J. Kintner	700,278	May 13	2006	535	89	1800
Railway. Electric	C. J. Kintner	700,279	May 13	2007	536	89	1800
Railway. Electric	C. J. Kintner	700,280	May 13	2008	537	89	1800
Railway. Electric	C. J. Kintner	700,281	May 13	2009	538	89	1800
Railway. Electric	C. J. Kintner	700,282	May 13	2010	539	89	1800
Railway. Electric	C. J. Kintner	700,283	May 13	2011	540	89	1800
Railway. Electric	C. J. Kintner	700,284	May 13	2012	541	89	1800
Railway. Electric	C. J. Kintner	700,285	May 13	2013	542	89	1800
Railway. Electric	C. J. Kintner	700,286	May 13	2014	543	89	1800
Railway. Electric	C. J. Kintner	700,287	May 13	2015	544	89	1800
Railway. Electric	C. J. Kintner	700,288	May 13	2016	545	89	1800
Railway. Electric	C. J. Kintner	700,289	May 13	2017	546	89	1800
Railway. Electric	C. J. Kintner	700,290	May 13	2018	547	89	1800
Railway. Electric	C. J. Kintner	700,291	May 13	2019	548	89	1800
Railway. Electric	C. J. Kintner	700,292	May 13	2020	549	89	1800
Railway. Electric	C. J. Kintner	700,293	May 13	2021	550	89	1800
Railway. Electric	C. J. Kintner	700,294	May 13	2022	551	89	1800
Railway. Electric	C. J. Kintner	700,295	May 13	2023	552	89	1800
Railway. Electric	C. J. Kintner	700,296	May 13	2024	553	89	1800
Railway. Electric	C. J. Kintner	700,297	May 13	2025	554	89	1800
Railway. Electric	C. J. Kintner	700,298	May 13	2026	555		

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Refrigerator	A. de Chalmers	699,493	Apr. 19	699	493	11	114
Refrigerator attachment	A. B. Kohorn	699,495	Apr. 1	699	495	11	115
Refrigerator-car	J. B. Underwood	699,496	May 6	699	496	11	116
Refrigerator-chest	W. H. Ames	700,719	May 27	700	719	12	120
Refrigerator-chest	W. H. Ames	700,721	May 27	700	721	12	121
Register							
See Cash-register.	Hot-air register.						
See Cash-register.	Hot-air register.						
Register	R. Reeves	699,500	May 12	699	500	11	117
Register	T. W. Jones	700,504	May 20	700	504	12	122
Register	H. G. Robbins	700,505	June 10	700	505	12	123
Register	E. C. Fox	700,506	June 24	700	506	12	124
Register	G. F. Hutchins	700,507	June 24	700	507	12	125
Register	G. A. Hart	700,508	June 24	700	508	12	126
Register, ventilator, or the like	R. B. Spauld	700,509	June 10	700	509	12	127
Registering device, automatic	L. J. Burdick	699,510	Apr. 20	699	510	11	118
Registering mechanism							
See Current-regulator.	Gas-pressure regulator.						
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Rein-holder	J. Granger	701,000	May 17	701	000	13	130
Rein-holder	O. Saterbakken	701,001	June 3	701	001	13	131
Rein-holder	T. Kasper	701,002	June 10	701	002	13	132
Rein-holder and storm-screw supports. Combined.	W. H. Woodbridge	699,511	Apr. 1	699	511	11	119
Rein-support	R. E. Harsh	700,512	June 10	700	512	12	128
Rein-support	J. T. Smith	700,513	June 17	700	513	12	129
Rein-support and holder	J. A. Wadsworth	697,514	Apr. 8	697	514	10	100
Reminding device	G. H. Homer and E. W. Anderson	700,515	June 3	700	515	12	133
Removable handle	C. M. Phillips	700,516	June 10	700	516	12	134
Reminding and drying apparatus	J. Glaz	699,517	Apr. 1	699	517	11	120
Reminding apparatus	J. C. W. Sweeney	697,518	Apr. 15	697	518	10	101
Remover, hydropneumatic	A. E. Aldrich	697,519	May 19	697	519	10	102
Remover	E. H. Hopkins	700,520	June 10	700	520	12	135
Retort	D. Laird	699,521	Apr. 1	699	521	11	121
Retort-furnace	G. M. Portman	700,522	June 17	700	522	12	136
Retort-furnace, making	R. J. Lines	699,523	May 13	699	523	11	122
Reversing device	J. R. Alfrey	699,524	Apr. 8	699	524	11	123
Reversing mechanism	J. Lisotte	700,525	May 20	700	525	12	137
Reversing mechanism	W. R. Park	700,526	May 20	700	526	12	138
Revolving indicator	R. T. Williston	700,527	June 17	700	527	12	139
Revolving indicator	H. M. Kolb and C. Fosh	700,528	June 17	700	528	12	140
Revolving chair	A. L. Merrill	701,029	May 27	701	029	13	141
Rheostat	R. W. Brown and C. A. Elms	700,529	May 20	700	529	12	142
Rheostat and heater, combined	M. C. Krueger	699,530	Apr. 20	699	530	11	124
Rheostat, electric heater, &c.	H. F. Hall	700,531	May 20	700	531	12	143
Rheostat-operating mechanism. Motor.	J. L. Ayer	700,532	May 20	700	532	12	144
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See Curved-gate ring.	Lap-ring.						
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Ring-rolling machine	G. H. Gaskins	701,034	June 3	701	034	13	146
Ring-rolling machine, solid-die	M. T. Stangland	701,035	June 3	701	035	13	147
Riveting, &c., apparatus. Portable	F. J. Chang	699,533	May 13	699	533	11	125
Riveting-machine	H. C. Pomeroy	700,534	May 20	700	534	12	148
Riveting-machine	J. L. Thompson	700,535	June 3	700	535	12	149
Riveting or punching tool. Hydraulic	O. Wigton	700,536	June 17	700	536	12	150
Road-rolling machine	T. F. White	700,537	June 17	700	537	12	151
Road-roller, steam	T. Wright	700,538	June 24	700	538	12	152
Road-scraper and trench-cutter	R. Apple	700,539	June 24	700	539	12	153
Roadway for motor-vehicles	A. Clark	700,540	June 24	700	540	12	154
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Roasting-furnace	L. T. Wright	697,542	Apr. 8	697	542	10	103
Roasting-furnace	F. Klepach and W. J. Evans	700,543	May 20	700	543	12	155
Rock-drill clamp	F. R. Brown	699,544	Apr. 20	699	544	11	127
Rock-drill, hand	V. Y. Smith	700,545	June 17	700	545	12	156
Rock-drill making, mending, and sharpening tool	G. J. Glancy	697,546	Apr. 8	697	546	10	104
Rock-pulverizer	H. Lockwood	697,547	Apr. 15	697	547	10	105
Roasting and roasting chair. Adjustable	J. M. Roberts	700,548	June 10	700	548	12	157
Roasting-chair	C. M. Wagner	700,549	May 20	700	549	12	158
Roasting-chair, folding	W. T. Scarup	697,550	Apr. 8	697	550	10	106
Roasting-chair, spring	C. W. and W. H. King	697,551	Apr. 15	697	551	10	107
Roasting-horse, traveling	R. Barrett	699,552	Apr. 20	699	552	11	128
Rod-coupling	W. Connolly	699,553	Apr. 20	699	553	11	129
Roll	H. R. Charlton	699,554	May 6	699	554	11	130
Roll	J. P. Lange	700,555	May 20	700	555	12	159
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See Belt-roller.	Road-roller.						
Roller	A. P. Knepper and H. Ostwald	700,556	May 20	700	556	12	160
Roller-die	H. Jordan	699,557	Apr. 1	699	557	11	131

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				Pat.	Des.	Vol.	P.
Roller-mill feeder	H. Gaskvander and J. H. Dearholt.	699,570	Apr. 1	699	570	11	132
Roller-press	E. Reagan	699,571	Apr. 20	699	571	11	133
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Rolling design upon strips or bars. Apparatus for.	J. and W. D. Kynon	699,573	May 13	699	573	11	135
Rolling machinery	E. W. Hopkins	700,574	June 10	700	574	12	161
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Rolling metal sheets in packs. Hot.	T. V. Allen	699,576	May 6	699	576	11	137
Rolling-mill converter or guide	T. V. Allen	699,577	May 6	699	577	11	138
Rolling-mill, electrically-driven	M. Harvey	699,578	May 13	699	578	11	139
Rolling-mill feed-table	E. R. Shook	699,579	Apr. 20	699	579	11	140
Rolling-mill furnace	T. V. Allen	699,580	May 6	699	580	11	141
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Rolling tubes. Heating mandrels for.	W. H. Bache	700,582	June 17	700	582	12	162
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Rotary engine	F. Farns	697,593	Apr. 15	697	593	10	110
Rotary engine	H. Lohr	699,594	Apr. 1	699	594	11	145
Rotary engine	I. V. Ketchum	699,595	Apr. 1	699	595	11	146
Rotary engine	M. J. Hewitt	699,596	Apr. 1	699	596	11	147
Rotary engine	P. G. Bates	699,597	Apr. 8	699	597	11	148
Rotary engine	J. P. Shepard	697,598	Apr. 8	697	598	10	111
Rotary engine	W. H. Dougherty	697,599	Apr. 8	697	599	10	112
Rotary engine	J. Thompson	697,600	Apr. 15	697	600	10	113
Rotary engine	S. D. Beck	699,601	Apr. 20	699	601	11	149
Rotary engine	S. Smith	699,602	May 13	699	602	11	150
Rotary engine	J. E. Arthur	699,603	May 13	699	603	11	151
Rotary engine	R. W. Bates	700,604	May 13	700	604	12	169
Rotary engine	R. D. Hobbs	700,605	May 20	700	605	12	170
Rotary engine	T. J. Harris	700,606	May 20	700	606	12	171
Rotary engine	F. A. Hendon	701,007	June 3	701	007	13	172
Rotary engine	G. C. Shepard	701,008	June 3	701	008	13	173
Rotary engine	W. F. Bangs	701,009	June 3	701	009	13	174
Rotary engine	J. A. Porter	700,610	June 17	700	610	12	175
Rotary engine	C. A. and O. W. Hall	700,611	June 17	700	611	12	176
Rotary engine	W. L. Conkey	700,612	June 17	700	612	12	177
Rotary engine	P. Phillips	700,613	June 17	700	613	12	178
Rotary engine	E. F. Fickett	700,614	June 17	700	614	12	179
Rotary engine	J. W. Strahan	700,615	June 24	700	615	12	180
Rotary engine, water-motor, or pump	T. C. McBride	699,616	Apr. 20	699	616	11	152
Rotary explosive-engine	J. A. McLean	697,617	Apr. 15	697	617	10	114
Rotary explosive-engine	B. J. Ross	700,618	May 20	700	618	12	181
Rotary motor	H. Van Buren	700,619	May 20	700	619	12	182
Rotary steam-engine	J. F. Craig and T. V. Fleming	701,010	June 3	701	010	13	183
Rotating-piston engine	J. Dow	697,620	Apr. 8	697	620	10	115
Routing or engraving machine	W. A. Bates	699,621	Apr. 8	699	621	11	153
Routing or engraving machine	W. A. Bates	699,622	Apr. 8	699	622	11	154
Rublock	C. H. Butts	697,623	Apr. 15	697	623	10	116
Rublock. Driver	A. H. Rollins	700,624	May 27	700	624	12	184
Rubber article. Hollow container.	T. W. Miller	699,625	Apr. 8	699	625	11	155
Rubber boot or shoe	J. L. Perry	700,626	June 17	700	626	12	185
Rubber-dam holder	E. H. Bond	699,627	Apr. 1	699	627	11	156
Rubber. Dehydrating machine	A. Y. Warner and F. H. Ellis	697,628	Apr. 15	697	628	10	117
Rubber. Dehydrating machine	T. Harmer	697,629	Apr. 15	697	629	10	118
Rubber. Dehydrating machine	R. Mulholland	699,630	Apr. 1	699	630	11	157
Rubber. Dehydrating machine	A. O. Bourne	697,631	Apr. 15	697	631	10	119
Rubber-working machine	J. H. Pearce	697,632	Apr. 8	697	632	10	120
Rubbing starting and removing apparatus	S. Hanks	699,633	Apr. 1	699	633	11	158
Rubber	W. R. Parsons	699,634	Apr. 1	699	634	11	159
Rub and square. Combined	F. J. Conklin	701,011	May 27	701	011	13	186
Ruler. Slide	R. Thacker	700,635	May 20	700	635	12	187
Ruler, book-holder, and marker combined	C. D. Thomas	700,636	June 24	700	636	12	188
Ruler, flexible	J. Lawrence	700,637	June 24	700	637	12	189
Ruler, measuring	R. H. Canaan	700,638	May 20	700	638	12	190
Ruler, measuring	A. M. Whitton	700,639	May 20	700	639	12	191
Rolling-machine. Engraver's	F. Waid	699,640	May 13	699	640	11	160
Runways. Device for arresting	F. E. Arnold	700,641	June 10	700	641	12	192

Alphabetical list of inventions, April to June, inclusive—Continued

Invention	Name	No.	Date	Monthly volume		Official Gazette	
				1	2	1	2
Sad-iron	C. H. Sheffall	700,444	May 20	2800	387	1764	
Sad-iron	H. Grubin	700,445	June 17	2800	428	1807	
Sad-iron and vapor-stove. Combined	J. M. Currier	700,446	May 20	2800	478	1807	
Sad-iron handle	C. T. Domarest	700,447	June 10	1770	411	1808	
Sad-iron, self-heating	H. B. Swarts	700,448	Apr. 29	1871	380	1808	
Sad-iron wicker	E. Laidie	700,449	May 13	1900	341	1808	
Saddle, harness	M. Wilson	700,450	Apr. 8	1287	380	1808	
Safe	C. V. Pockham	700,451	June 17	2807	384	1808	
Safe-door burglar-proof device	A. M. Cushing	700,452	June 24	2808	381	1808	
Safety appliances	H. P. Suman	700,453	Apr. 20	2808	417	1808	
Safety-pin	G. W. Light	700,454	June 10	1800	417	1808	
Safety-pin	G. Bodan	700,455	June 24	2809	420	1808	
Safety-pin	G. Bodan	700,456	June 24	2809	420	1808	
Safety-pin	R. A. Ingraham	700,457	May 20	2809	420	1808	
Sail for marine vessels	R. Lundquist	700,458	June 8	2809	420	1808	
Sails, shifting top	A. Krasna	700,459	June 8	2809	420	1808	
Sales-clip and blank therefor	R. and E. Shoop	700,460	Apr. 29	2809	420	1808	
Sallygate of alloyed quins, &c.	H. Taron	700,461	May 20	2809	420	1808	
Salt-chamber granulating attachment	J. A. Moller, Jr.	700,462	May 20	2809	420	1808	
Salts. Treating solutions of	C. J. Reed	700,463	May 20	2809	420	1808	
Sample case and exhibitor	S. M. Wilson	700,464	June 8	2809	420	1808	
Sand-blast	M. C. Newhouse	700,465	May 20	2809	420	1808	
Sand-blasting apparatus	M. E. Evans	700,466	May 20	2809	420	1808	
Sand-box	J. L. Chadell and E. V. Scott	700,467	June 24	2809	420	1808	
Sand-dischargers. Compressed-air controlling device for	J. A. Mumford	700,468	Apr. 1	2809	420	1808	
Sand-drier	F. Hopkins	700,469	Apr. 29	2809	420	1808	
Sandpapering-machine	R. W. Dow	700,470	Apr. 29	2809	420	1808	
Sand-screener	C. F. O'Neil	700,471	Apr. 29	2809	420	1808	
Sand-sprinkling machine	D. T. Clement	700,472	May 20	2809	420	1808	
Sanding and polishing machine	D. T. Clement	700,473	May 20	2809	420	1808	
Sanding-machine	D. T. Clement	700,474	May 20	2809	420	1808	
Sanitary receptacle and cover	J. F. Pugh	700,475	Apr. 29	2809	420	1808	
Sanitary trap	J. F. Pugh and T. H. Gilmore	700,476	Apr. 29	2809	420	1808	
Sash-balance	A. S. Newton	700,477	May 20	2809	420	1808	
Sash-bar for greenhouses, &c.	G. E. Pichop and W. E. Corbin	700,478	May 20	2809	420	1808	
Sash-bar for greenhouses, &c.	F. M. Pierson	700,479	May 20	2809	420	1808	
Sash-bar for greenhouses, &c.	F. M. Pierson	700,480	May 20	2809	420	1808	
Sash-cord fastener	F. M. Pierson	700,481	May 20	2809	420	1808	
Sash-cord fastener	F. M. Pierson	700,482	May 20	2809	420	1808	
Sash-fastener	J. G. Thompson	700,483	May 20	2809	420	1808	
Sash-fastener	J. F. and H. N. Huber	700,484	May 20	2809	420	1808	
Sash-fastener	J. W. Lyon	700,485	May 20	2809	420	1808	
Sash-fastener	J. H. Williams	700,486	May 20	2809	420	1808	
Sash-fastener	R. D. Logan	700,487	June 17	2809	420	1808	
Sash-fastener	C. A. Goodell	700,488	June 17	2809	420	1808	
Sash-fastener, detachable window	A. L. Darr	700,489	June 17	2809	420	1808	
Sash-fastener or holder	J. W. Cade	700,490	June 17	2809	420	1808	
Sash-fastener, storm	R. C. Quinby	700,491	May 20	2809	420	1808	
Sash-holder	R. H. Gray	700,492	May 20	2809	420	1808	
Sash-lock	D. Hoyt	700,493	Apr. 1	2809	420	1808	
Sash-lock	E. H. Goucher	700,494	Apr. 15	2809	420	1808	
Sash-lock	W. Schanzweiler	700,495	Apr. 29	2809	420	1808	
Sash-lock	J. H. Thornton	700,496	June 10	1800	411	1808	
Sash-lock, automatic	F. George	700,497	Apr. 1	2809	420	1808	
Sash-locking mechanism	J. A. Brooks and E. H. Whittaker	700,498	June 17	2809	420	1808	
Sash, revolving window	C. D. Taber	700,499	Apr. 1	2809	420	1808	
Sash-tightening device	C. B. Foote, Jr.	700,500	Apr. 29	2809	420	1808	
Sash ventilator, window	J. Jacobs	700,501	May 20	2809	420	1808	
Sash, window	P. Baran	700,502	Apr. 29	2809	420	1808	
Saw, butcher's	G. Meyer	700,503	June 8	2809	420	1808	
Saw, circular	R. Lefmayer	700,504	Apr. 15	2809	420	1808	
Saw-clamp	W. I. Kirk	700,505	June 10	1800	411	1808	
Saw, compound	J. F. Carey	700,506	June 10	1800	411	1808	
Saw-sling device	L. M. Miller	700,507	May 20	2809	420	1808	
Saw-sling device	A. H. L. and G. A. W. Folkers	700,508	June 8	2809	420	1808	
Saw-guide	T. Prentice	700,509	June 24	2809	420	1808	
Saw guide and tension device, hand	A. Gillarduzzi	700,510	Apr. 15	2809	420	1808	
Saw-handle clamp	J. A. Ross	700,511	Apr. 29	2809	420	1808	
Saw-handle fastening	M. E. Herrick	700,512	June 24	2809	420	1808	
Saw jointer and gage	H. McDonnell	700,513	May 20	2809	420	1808	
Sawmill and planer	E. E. Willard	700,514	Apr. 29	2809	420	1808	
Sawmills, steam ex-works for	R. F. Barker and M. Corry	700,515	Apr. 29	2809	420	1808	
Saw-protecting hood	A. Bourget	700,516	Apr. 29	2809	420	1808	
Saw, pruning	G. E. Taylor	700,517	Apr. 29	2809	420	1808	
Saw-set	R. E. Foster	700,518	Apr. 29	2809	420	1808	
Saw-sharpening device	R. E. Foster	700,519	Apr. 29	2809	420	1808	
Saw-tooth gage	W. H. Ponce	700,520	June 17	2809	420	1808	
Saw, wood	W. H. Ponce	700,521	June 17	2809	420	1808	
Sawing, jointing, and boring machine	C. E. Sandstrom	700,522	June 8	2809	420	1808	
Sawing-machine	G. C. Knapp	700,523	Apr. 15	2809	420	1808	
Sawing-machine	F. J. Fable	700,524	June 8	2809	420	1808	
Sawing-machine, automatic cut-off	W. E. Lewis	700,525	June 10	1800	411	1808	
Sawing-machine, electric	H. Partington	700,526	May 20	2809	420	1808	
Sawing-machine, gang-edge	A. E. Roe	700,527	June 17	2809	420	1808	

Alphabetical list of inventions, April to June, inclusive—Continued

Invention	Name	No.	Date	Monthly volume		Official Gazette	
				1	2	1	2
Scaffold	J. Boardman	700,514	June 24	2809	420	1808	1808
Scaffold, portable	E. Chartrand	700,517	Apr. 15	2805	420	1808	1808
Scale	C. G. Strubbe	700,524	May 20	2801	510	1808	1808
Scale	H. E. Ogden, Jr.	700,525	May 27	2177	280	1808	1808
Scale and penholder combined	P. F. M. Burrows	699,570	Apr. 29	2760	217	1808	1808
Scale attachment	W. D. Evans and J. T. Marshall	700,544	June 24	2807	420	1808	1808
Scale, automatic weighing	H. Wilson	700,526	June 17	2240	420	1808	1808
Scale, Computing	F. E. McLeod	697,582	Apr. 8	1800	212	1808	1808
Scale, Computing	V. C. Osborn	698,042	Apr. 22	2140	211	1808	1808
Scale, Computing	A. R. Hayden	700,510	May 27	2220	210	1808	1808
Scale, Computing	A. R. Hayden	700,520	May 27	2225	211	1808	1808
Scale, Computing	A. R. Hayden	700,522	May 15	2007	440	1808	1808
Scale, Draftman's	A. R. Hayden	697,701	Apr. 15	2400	540	1808	1808
Scale, Draftman's	A. R. Hayden	697,702	Apr. 29	2940	272	1808	1808
Scale, Draftman's	L. T. Johnson	697,712	Apr. 8	1720	222	1808	1808
Scale, Draftman's	C. R. Brown	697,713	Apr. 8	1720	222	1808	1808
Scale, Draftman's	J. D. Smith	698,280	Apr. 29	2821	212	1808	1808
Scale, Draftman's	J. L. Macdonald	700,520	June 10	1222	212	1808	1808
Scale, Draftman's	J. W. Oulmer	700,527	June 24	2814	420	1808	1808
Scale, Draftman's	P. R. Clarke	700,528	May 20	2240	222	1808	1808
Scale, Draftman's	O. O. Oates	697,582	Apr. 8	1800	212	1808	1808
Scale, Draftman's	A. C. Davis	697,572	Apr. 8	1814	291	1808	1808
Scale, Draftman's	H. C. Robertson	701,284	May 27	4024	240	1808	1808
Scale, Draftman's	D. McKenna	700,520	June 10	1710	220	1808	1808
Scale, Draftman's	J. D. Carter	700,720	May 10	2124	720	1808	1808
Scale, Draftman's	W. J. Biddle	698,015	May 13	1222	222	1808	1808
Scourer	A. Balch	698,120	Apr. 22	2807	220	1808	1808
Scourer, Grain	T. Wilson	700,504	May 20	2550	420	1808	1808
Scourer, Grain	R. Oates	700,520	June 17	2550	420	1808	1808
Scourer, Grain	J. C. Stubbs	700,520	June 24	2550	420	1808	1808
Scourer, Grain	T. D. Radcliffe	700,520	June 24	2550	420	1808	1808
Screen	G. W. Oron	697,571	Apr. 8	1817	221	1808	1808
Screen	W. B. Cochran, Jr.	698,516	Apr. 29	4212	207	1808	1808
Screen	C. Rowland	697,580	Apr. 8	1224	224	1808	1808
Screen	C. Rowland	700,520	June 17	2550	420	1808	1808
Screen	W. McDermott	697,580	Apr. 8	1720	420	1808	1808
Screen	J. Boney	697,582	Apr. 8	1720	224	1808	1808
Screen	P. L. Sann	701,282	Apr. 1	216	227	1808	1808
Screen	F. H. Mack	698,220	May 6	222	122	1808	1808
Screen	J. J. Burke	698,220	May 6	222	122	1808	1808
Screen	J. G. Gorman	701,241	June 10	1120	222	1808	1808
Screen	L. G. Rowlands	698,712	May 27	1220	222	1808	1808
Screen	L. G. Rowlands	698,712	May 27	1220	222	1808	1808
Screen	C. H. Dunbar	700,520	June 17	2550	420	1808	1808
Screen	C. H. Dunbar and L. E. Christensen	700,520	May 27	2550	420	1808	1808
Screen	H. C. Robertson	701,282	May 27	4212	207	1808	1808
Screen	W. J. Baber	698,220	Apr. 29	222	122	1808	1808
Screen	H. J. Hinds	700,544	Apr. 15	1770	411	1808	1808
Screen	W. A. Davenport	700,521	June 24	2550	420	1808	1808
Screen	G. F. Bell	700,510	May 27	2210	220	1808	1808
Screen	C. B. Blackburn and U. J. Porter	700,520	May 27	2470	222	1808	1808
Screen	C. J. Hunt	700,522	June 17	2512	222	1808	1808
Screen	J. A. Laddie	700,522	June 17	2512	222	1808	1808
Screen	H. J. Hinds	700,522	June 17	2512	222	1808	1808
Screen	C. H. Hunt	698,201	Apr. 29	2220	720	1808	1808
Screen	H. S. Mather	701,070	Apr. 24	2211	221	1808	1808
Screen	E. D. Schmitt	697,220	Apr. 8	1074	224	1808	1808
Screen	E. D. Schmitt	697,221	Apr. 8	1077	224	1808	1808
Screen	E. D. Schmitt	697,222	Apr. 8	1078	225	1808	1808
Screen	J. R. Thompson	700,520	May 20	2220	420	1808	1808
Screen	P. Brown	700,520	May 20	2220	420	1808	1808
Screen	H. T. Jones	700,520	May 20	2220	420	1808	1808
Screen	H. O. Koser	701,270	June 8	1411	112	1808	1808
Screen	E. J. Brooks	69,220	Apr. 8	1224	420	1808	1808
Screen	A. Jones	697,220	Apr. 15	2220	420	1808	1808
Screen	L. Kelling	697,221	Apr. 15	2221	420	1808	1808
Screen	A. Haydrich	700,520	May 20	2122	424	1808	1808
Screen	H. W. Abbott	700,521	June 10	1916	427	1808	1808
Screen	W. Thompson	697,220	Apr. 15	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	697,220	Apr. 15	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1808	1808
Screen	W. Thompson	700,520	May 20	2220	420	1	

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Seaming machine. Side.	O. W. Sleeper	698,098	Apr. 28	2125	697,025	69	712
Seaming metal sheets. Machine for double.	C. H. Brown	701,911	May 27	5785	698,025	69	1268
Seaming sheet-metal bodies. Machine for end.	W. J. Kenny	698,045	May 12	1889	697,025	69	1474
Seat: See Lawn-seat. Spring-seat. Portable seat. Vehicle-seat.	W. Morrison	701,917	June 10	1128	698,025	69	2621
Secondary battery.	S. T. Playford	698,090	Apr. 28	3335	697,025	69	707
Sectional tank.	J. M. Gardner	698,090	Apr. 28	1117	697,025	69	257
Seed chubster. Cotton.	A. Chaplin	701,911	June 17	3015	698,025	69	2625
Seed-drill and cultivator. Combined hand.	H. K. and H. A. Bacon	697,171	Apr. 8	1519	696,025	69	349
Seed-dropper.	S. A. Loring	698,090	June 17	3335	697,025	69	1901
Seed hulls. Treatment of cotton.	J. C. W. Stanley	698,010	Apr. 28	4989	1100	69	2673
Seed products. Manufacture of.	F. B. Pope	700,986	May 27	3810	698,025	69	1191
Seeder.	C. H. H. and W. F. F. F.	701,911	June 3	698	144	69	1268
Seeder-adjusting device.	W. Stephenson	701,911	June 3	698	144	69	2641
Seeder and cultivator tooth.	E. O. Edwards	697,080	Apr. 28	2682	698,025	69	464
Seeder, fertilizer-distributor, and cultivator. Combined.	A. Crevetto	700,986	June 24	3890	698,025	69	1901
Seeding and planting machine.	R. D. Himmelfarb	698,776	Apr. 28	4989	697,025	69	1268
Seeding-machine.	J. H. Samuels	702,495	June 17	5166	698,025	69	1268
Seine-purging machine.	W. R. Lantz	698,874	Apr. 1	698	237	69	126
Seine-purging machine.	W. R. Lantz	697,180	Apr. 8	1442	698,025	69	267
Self-closing gate.	W. R. Lantz	697,181	Apr. 8	1445	698,025	69	267
Self-playing instrument.	R. E. Carpenter	701,911	June 3	719	698,025	69	1268
Self-playing instrument.	R. E. Flora	700,915	May 27	3821	698,025	69	1261
Separating and bolting machine.	D. W. Marmon	698,881	Apr. 1	212	126	69	176
Separator. See Centrifugal separator. Grain-separator. Coal-separator. Magnetic separator. Cream-separator. Ore-separator. Egg-separator. Steam-separator. Gold-separator. Steam and oil separator.	R. Q. Stiller	700,984	May 27	3890	698,025	69	1261
Separator.	A. J. Provost, Jr.	698,845	May 6	400	94	69	1267
Sewage. Apparatus for the treatment of.	G. H. Anderson, J. W. Stevens, and A. Lutz	701,911	June 10	995	212	69	1267
Sewage-disposal plant.	J. W. Smith	698,844	May 6	391	54	69	1261
Sewed articles. Seam for.	O. McNeil	702,495	June 17	5166	698,025	69	1268
Sewed articles. Seam for.	W. G. Travette	697,048	Apr. 8	1882	697,025	69	267
Sewerage system.	C. F. O'Neil	698,875	Apr. 1	180	36	69	37
Sewer catch-basin.	J. Crawford	698,480	Apr. 28	3673	698,025	69	1191
Sewer trap.	T. H. Brown	697,280	Apr. 8	1741	698,025	69	261
Sewing device. Broom.	W. H. Beck	698,400	Apr. 1	16	5	69	2646
Sewing-machine.	A. W. Eaton	701,911	June 10	1098	698,025	69	267
Sewing-machine.	W. R. Abernethy	698,844	Apr. 28	3731	698,025	69	267
Sewing-machine.	R. E. Wanless	698,844	Apr. 28	3731	698,025	69	267
Sewing-machine.	A. Giacchini	701,911	June 10	1098	698,025	69	267
Sewing-machine. Button.	S. E. Barries	701,911	May 27	3714	698,025	69	1261
Sewing-machine cloth guide.	S. Borton and O. B. Brush	698,988	Apr. 8	1689	698,025	69	948
Sewing-machine driving mechanism.	C. A. Dahl	698,871	May 6	400	105	69	1266
Sewing-machine. Eyelet-hole.	W. S. Jenkins	698,888	Apr. 1	294	124	69	117
Sewing-machine felling and hemming attachment.	C. L. Weatherwax	701,911	June 17	5166	698,025	69	1268
Sewing-machine folding guide.	M. Hachfeld	697,280	Apr. 8	1741	698,025	69	261
Sewing-machine. Fur and glove.	I. Stuhlman	698,775	May 12	1841	698,025	69	1448
Sewing-machine guide.	A. H. De Vos	698,417	Apr. 1	26	10, 11	69	14
Sewing-machine hemming and cording attachment.	M. Hachfeld	698,775	Apr. 1	1841	698,025	69	1448
Sewing-machine. Lock-stitch.	H. O. Blackwell	700,911	May 27	3821	698,025	69	1261
Sewing-machine lock-stitch mechanism.	H. B. Tracy	697,184	Apr. 8	1445	698,025	69	267
Sewing-machine loop-taking mechanism.	G. G. Betts	698,087	Apr. 28	3068	698,025	69	1141
Sewing-machine lower-thread tension mechanism.	H. S. Martin	701,911	June 3	698	126	69	2646
Sewing-machine. Mattress.	W. F. Wray	698,404	Apr. 1	16	5	69	2646
Sewing-machine needle-bar-guiding mechanism.	G. Schaefer	698,414	Apr. 28	3731	698,025	69	267
Sewing-machine needle threader.	J. Douglas and V. Hansen	700,986	June 24	3890	698,025	69	1261
Sewing-machine ruffler or gatherer.	R. E. Dunn	697,080	Apr. 28	2682	698,025	69	464
Sewing-machine. Shoe.	T. E. Keith	700,986	May 27	3890	698,025	69	1261
Sewing-machine. Shoe.	C. T. Warren	701,911	June 3	698	126	69	2646
Sewing-machine shuttle mechanism.	J. Bovey and G. Rockwell	700,986	May 27	3890	698,025	69	1261
Sewing-machine spool-holder and tension device.	A. I. Jacobs. (Release)	11,896	May 27	4194	698,025	69	1261
Sewing-machine table and guard attachment combined.	E. H. Ahrens	701,911	June 3	698	126	69	2646
Sewing-machine take-up.	W. C. Frew	698,875	May 27	3890	698,025	69	1261
Sewing-machine take-up mechanism.	J. L. Kieffer	698,871	Apr. 1	294	124	69	117

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Sewing-machine tension mechanism.	J. L. Kieffer	698,871	Apr. 1	294	124	69	117
Sewing-machine thread-cutting mechanism.	R. W. Thompson	700,986	June 24	3890	698,025	69	1261
Sewing-machine-treads foot-stitch.	A. Eppich	698,888	May 6	400	94	69	1267
Sewing-machine trimming attachment.	R. F. Darned	698,919	Apr. 28	4244	698,025	69	1269
Sewing-machine lock-gripper.	J. H. Gruber	698,911	Apr. 28	3335	697,025	69	2625
Sewing-machine. Wool.	R. E. Whaley	700,979	May 27	3881	698,025	69	1261
Shade and curtain fixture. Window.	E. W. Schindler	697,088	Apr. 28	2682	698,025	69	464
Shade and curtain holder. Window.	W. H. Griffin	700,979	May 27	3881	698,025	69	1261
Shade attachment. Window.	H. F. and C. Stephens	698,919	June 17	3347	698,025	69	2625
Shade-bracket.	E. H. Wray	700,979	June 24	3881	698,025	69	1261
Shade-bracket. Automatic extension.	A. H. Owsley	701,911	June 3	698	126	69	2646
Shade-cord clamp. Window.	E. J. Wells and J. F. Young	701,911	May 6	391	55	69	1265
Shade-hanger. Window.	J. O. Walker	700,980	June 17	3337	698,025	69	2625
Shade-holder.	A. H. Owsley	701,911	June 3	698	126	69	2646
Shade-rod-hanger. Window.	C. H. Bacon	697,218	Apr. 8	1794	697,025	69	260
Shade-roller and bracket therefor.	C. A. Baker	698,888	Apr. 28	4244	698,025	69	947
Shade-roller and curtain-pole bracket. Combined.	L. Bloom	698,888	Apr. 28	4244	698,025	69	947
Shade-roller bracket.	J. F. Kalar	698,888	Apr. 1	215	74	69	71
Shade-roller bracket.	J. J. De Long	701,911	May 27	3879	615	69	2646
Shade-roller. Hanger-bracket for vertically-adjustable.	C. F. Thomas	697,134	Apr. 8	1289	267	69	514
Shaft-boring apparatus.	R. Abt	698,915	Apr. 28	3335	697,025	69	2625
Shaft-coupling.	A. R. Tower	700,987	May 27	3890	698,025	69	1261
Shaft-coupling.	R. E. Discher	701,911	May 27	3881	698,025	69	1261
Shaft-coupling. See.	R. E. Discher	701,911	May 27	3881	698,025	69	1261
Shaft-coupling. Spring.	G. C. Hiehn, Jr.	700,979	May 27	3881	698,025	69	1261
Shaft-door and stage locking device.	A. Grothe	701,911	June 3	698	126	69	2646
Shaft-driving device.	J. H. H. H.	701,911	May 27	3881	698,025	69	1261
Shaft-furnace for burning cement, &c.	J. A. F. O. H. H.	698,915	May 27	3881	698,025	69	1261
Shaft-hanger.	C. A. Hiehn, Jr.	700,979	Apr. 1	215	74	69	71
Shaft or pole support.	E. H. H. H.	700,979	June 24	3881	698,025	69	1261
Shaft-prop.	H. H. H.	700,979	June 24	3881	698,025	69	1261
Shaft support and coupling. Combined.	J. H. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Shaft-support. Vehicle.	G. J. H. H.	701,911	June 3	698	126	69	2646
Shafts. Hiking.	A. H. H. H.	698,915	May 27	3881	698,025	69	1261
Sharpening device. Knife.	A. F. H. H.	700,986	May 27	3890	698,025	69	1261
Shaving-clip.	D. T. Kendrick	700,987	May 27	3890	698,025	69	1261
Shaver.	D. T. Kendrick	700,987	May 27	3890	698,025	69	1261
Shaver. See Animal-shaver.	H. F. H. H.	697,280	Apr. 8	1741	698,025	69	261
Shaver.	C. C. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shaver.	W. G. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Shaver.	R. H. H. H.	700,986	June 24	3890	698,025	69	1261
Sheet-carrying device. Pneumatic.	G. F. H. H.	700,986	May 27	3890	698,025	69	1261
Sheet-carrying and packing device.	A. J. H. H.	700,986	June 24	3890	698,025	69	1261
Sheet-delivery apparatus.	G. F. H. H.	698,914	Apr. 28	3335	697,025	69	2625
Sheet-folding and cutting machine.	W. G. H. H.	700,986	June 24	3890	698,025	69	1261
Sheet-introducing mechanism. Ship.	W. H. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Sheet-metal articles. Machine for wiring.	J. L. H. H.	697,280	Apr. 15	1907	698,025	69	468
Sheet-metal box or can.	E. F. H. H.	697,280	Apr. 15	1907	698,025	69	468
Sheet-metal disk or cap feeding machine. Automatic.	J. F. H. H.	700,986	June 24	3890	698,025	69	1261
Sheet-metal folded joints. Machine for the production of.	T. L. H. H.	700,986	June 24	3890	698,025	69	1261
Sheet-metal-heating furnace.	J. E. and R. Jones	698,915	May 6	391	55	69	1265
Sheet-metal. Machine for manufacturing expanded.	W. L. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Sheet-metal sections. Packaging.	G. F. H. H.	698,915	May 6	391	55	69	1265
Sheet-metal vessels hermetically tight. Rendering joints of.	W. Thompson	698,915	May 6	391	55	69	1265
Sheet-metal vessels. Machine for bulging.	G. W. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Sheet-metal-working press.	R. F. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shelf and shipping-crate. Book.	A. A. H. H.	700,986	May 27	3890	698,025	69	1261
Shelf-bracket. Adjustable.	W. C. H. H.	701,911	Apr. 28	3335	697,025	69	2625
Shelf-hook.	C. A. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shells.	W. A. H. H.	700,986	May 27	3890	698,025	69	1261
Ships' cargoes. Apparatus for unloading.	A. H. H. H.	700,986	May 27	3890	698,025	69	1261
Ships' hatches. Protective tambling-hood for.	J. H. H. H.	700,986	May 27	3890	698,025	69	1261
Ships' hulls. Means for cleaning.	W. A. H. H.	698,914	May 6	391	55	69	1265
Ship's-log apparatus. Electrical.	T. F. and T. P. Walker	701,911	June 3	698	126	69	2646
Ship's ventilator.	C. H. H. H.	698,915	May 27	3890	698,025	69	1261
Shipping case. Patent.	F. H. H. H.	698,915	Apr. 28	3335	697,025	69	2625
Shirt.	G. J. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shirt.	D. L. H. H.	700,986	May 27	3890	698,025	69	1261
Shirt-hand stiffener.	A. D. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shock-compressor.	R. H. H. H.	697,280	Apr. 15	1907	698,025	69	468
Shock-loading apparatus.	A. G. H. H.	700,986	June 24	3890	698,025	69	1261
Shocks. Appliances for taking up or neutralizing.	F. H. H. H.	700,986	May 27	3890	698,025	69	1261
Shoe.	J. C. H. H.	697,280	Apr. 15	1907	698,025	69	468

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Pat.	Vol.	Page.
Shoe-cleaner	D. J. Foley	702,089	June 24	2226	781	22	2224
Shoe-duster	W. G. Mulken	700,080	May 12	1811	480	22	1800
Shoe-fastener	D. M. Kinnear and W. W. Jones	701,083	June 10	1004	240	22	2222
Shoe-fastening	A. G. Mead	702,085	June 17	2222	577	22	2225
Shoe-horn	G. Schneider	702,110	June 24	2726	222	22	2225
Shoemaker's jack	A. T. Draper	692,086	Apr. 20	4912	220	22	222
Shoe-polisher	J. F. Brougher	694,712	Apr. 1	604	123	22	121
Shoe-polisher	E. De Baun	702,089	June 10	1726	611	22	2225
Shoe-protector	J. H. Price	702,078	June 17	2108	494	22	2221
Shoe-straining device	H. Michaelis and H. Christian	700,085	May 12	1002	418	22	1220
Shoe-stretcher	C. L. Passmore	700,703	May 20	2102	705	22	1240
Shoe-turning device	G. B. Gardner	702,126	June 10	1650	220	22	2225
Shoes while polishing same. Device for supporting.	C. G. Keller	701,200	June 3	120	27	22	2125
Shot. Boarding	C. Tatham	702,220	June 24	2740	561	22	2220
Shot-making machine	J. L. Curline	697,214	Apr. 15	2225	221	22	227
Shot-sprenger	D. Brown	692,087	May 6	622	122	22	1212
Shovel:							
See Cart-shovel. Pneumatic shovel.							
Shovel	J. W. Elison	701,205	June 3	222	227	22	2220
Shovel	J. F. Haviland	702,087	June 10	1472	222	22	2220
Shovel	A. Rolalo	692,220	Apr. 20	2212	727	22	212
Show-case	F. Pollard	692,211	May 12	1214	225	22	1222
Show-case	A. Rolalo	701,222	May 27	4220	222	22	2222
Show-case	A. Rolalo	701,216	June 3	222	211	22	2227
Show-case	A. Jaeger	701,222	June 10	1024	222	22	2221
Show-case	O. F. Kurz	702,444	June 17	2120	472	22	2272
Show-base or show-front	H. F. Palmer	697,022	Apr. 8	1127	222	22	272
Show stand or rack. Revolving.	G. P. Rahn	700,222	May 20	2121	221	22	1220
Shutter-fastener	L. Moretti	697,220	Apr. 8	1727	421	22	420
Shutter. Focal-plane	W. W. Van Duser	697,227	Apr. 8	1724	221	22	222
Shutter-operating device	J. L. Hottelton	702,122	June 10	1222	222	22	2247
Shutter. Window	F. L. Shaler	692,022	Apr. 20	4222	1125	22	1122
Shoe cleaner. Shaking	D. I. Coggin	692,722	May 12	1122	272	22	1222
Sieve. Flour-bolting	J. B. Mueller	692,227	Apr. 8	1125	222	22	222
Sifter	J. M. Olson	697,744	Apr. 15	2224	222	22	227
Sifter and receptacle. Ash.	H. M. Austin	692,124	May 6	12	4	22	1172
Sifter. Ash	W. M. Viner	697,222	Apr. 15	2214	222	22	222
Sifter. Flour	J. F. Foster and A. Forber	701,722	June 3	722	172	22	2222
Sifter or strainer. Culinary	U. Eberhardt	700,721	May 27	2222	722	22	1222
Sifter. Sand	H. R. Roberts	701,222	June 10	1121	222	22	2227
Sifter-spoon. Flour	J. B. Schmidt	702,222	June 17	2221	222	22	2742
Sigs	L. J. Hunter	692,172	May 6	22	22	22	1124
Sigs. Advertising	T. P. Holmstrom	692,222	Apr. 1	22	12	22	22
Sigs. Changeable	H. Tripp and G. E. Stephenson	694,772	Apr. 1	722	124	22	122
Sigs. Electric light	G. D. Chapman and C. R. Quine	692,222	Apr. 22	2222	772	22	722
Sigs. Illuminated	O. C. Scott	700,222	May 27	2222	772	22	1222
Sigs. Illuminated	D. H. Moore	692,222	May 6	141	22	22	1224
Sigs. Vacuum-tube	H. Norden and L. S. Crandall	702,122	June 10	1227	222	22	2247
Signal. Switchboard for illuminating electric-lamp.							
See Automatic signal. Railway electric signal.							
Distress-signal. Train-signal.							
Railway-signal. Train-order signal.							
Signal	W. H. Hartline	702,241	May 12	1722	422	22	1222
Signal	J. B. Baker	701,222	June 3	222	71	22	2172
Signal	B. C. Shaffer	692,222	May 6	222	221	22	1222
Signal apparatus	J. W. Harrison	692,242	Apr. 20	4227	1072	22	2222
Signal-station							
Signals. Apparatus for the transmission of	C. E. Beach	697,022	Apr. 8	1222	222	22	222
Signaling and telephoning apparatus	E. L. Gross	700,212	May 27	2212	227	22	1242
Signaling apparatus. Clearing-out	W. M. Davis	697,222	Apr. 20	2222	222	22	222
Signaling apparatus. Electrical hose	G. E. Wicks	692,222	Apr. 1	241	22	22	22
Signaling apparatus. Train	W. A. and B. S. H. Harris	702,722	May 27	2222	742	22	1224
Signaling apparatus. Train	W. A. and B. S. H. Harris	702,722	May 27	2221	742	22	1222
Signaling mechanism	A. P. Dwyer	697,222	Apr. 20	2214	222	22	222
Silk. Preparation of colloid for the manufacture of artificial	J. Douce	692,122	May 6	22	22	22	1122
Silo	E. P. White	692,222	May 6	222	222	22	1221
Silo	J. W. Woodruff	692,227	May 12	1224	227	22	1224
Silo	J. W. Woodruff	692,222	May 12	1222	227	22	1222
Silo	O. F. Wallihan	702,224	June 24	2742	222	22	2222
Silo	F. J. Bruneau	702,222	June 24	2722	271	22	2221
Silo	C. Paul	701,222	June 3	222	222	22	222
Silver. Manufacture of colloidal	T. B. Young	697,222	Apr. 15	2222	222	22	222
Singapore-hook	J. H. Fox	702,717	June 17	2217	222	22	2222
Singapore-sling machine. Sling-injector for	F. and H. Artzner	701,122	May 27	2212	222	22	2224
Sing. Making resin	J. H. Morrison	702,122	June 10	1222	221	22	2242
Sing-sling	J. Bakrowitz	702,227	May 20	2222	222	22	1722
Sing. Combined road and ice	F. R. Brown	702,222	June 24	2212	222	22	2222
Sing. Ice	A. Bonds	692,221	Apr. 20	2222	722	22	221
Sing. Roller	A. L. Foy	692,172	Apr. 20	2227	722	22	722
Sing-wheel. Roller	B. H. Alvey	692,222	Apr. 20	2224	222	22	727
Sing							
Sing and drawers. Combined	L. A. Dargard	702,227	May 20	2222	214	22	1727
Sing and waist supporter	J. C. McDonald	692,222	May 6	222	22	22	1224
Sing-sing and waist-retainer. Combined	W. C. Cortelyou	692,222	May 6	222	22	22	1222
Sing-sing	V. F. Beyer	692,222	Apr. 20	2122	224	22	722
Sing. Lady's	G. Lewis	692,222	Apr. 20	2422	722	22	722
Sing. Lady's	J. and H. M. Hammer	692,221	Apr. 1	224	12	22	22
Sing. Lady's	W. F. Wyman	692,222	Apr. 20	2472	722	22	22
Sing-protector	J. Hottelton	692,222	Apr. 1	222	122	22	22
Sing-supporter	A. H. Stupen	697,222	Apr. 8	1222	221	22	222

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Draw.	Vol.	Page.
Sky-light opener	G. Dickelhaup	701,135	May 27	2226	925	22	2223
Slat-trimming mechanism	J. Roth, Jr.	693,139	Apr. 22	2226	729	22	725
Slat-cutting machine	C. R. Huston	702,227	June 24	2226	642	22	2223
Slid. Box	A. F. Lagerstrom	702,228	June 10	1224	436	22	2223
Slid. Box	J. C. Meyers	693,951	Apr. 8	1165	229	22	222
Slid. Box	H. G. Carpenter	700,478	May 20	2220	614	22	1797
Slid. Box	H. M. Wood	701,435	June 3	222	65	22	2123
Slid. Box	A. H. Flint	693,000	Apr. 22	2215	622	22	620
Slid. Box	F. F. Long	693,540	May 6	729	151	22	1223
Slid. Box	C. R. Evers	702,022	June 17	2271	622	22	6723
Slid. Box	F. J. Betts	697,422	Apr. 15	1220	622	22	427
Slid. Box	W. Klepeter	701,222	June 3	140	22	22	2127
Slid. Box	W. B. Skotnicki and A. F. Ostrow- ski	702,222	May 12	1224	422	22	1270
Slid. Box	F. M. Johnson	702,222	June 24	2220	729	22	2723
Slid. Box	A. Frank	701,221	June 3	75	15	22	2124
Slid. Box	O. Rosson	697,174	Apr. 8	1424	222	22	222
Slid. Box	F. R. Sellman	693,142	Apr. 22	2201	722	22	742
Slid. Box	H. S. Lord	702,222	May 27	2220	622	22	1925
Slid. Box	D. Clump and W. Hofmeister	701,222	June 3	21	6	22	2115
Slid. Box	J. S. Donohue	702,022	June 24	2222	742	22	2222
Slid. Box	L. E. C. Brubaker	697,022	Apr. 8	1214	220	22	222
Slid. Box	W. McNeil	702,122	June 24	2424	722	22	2271
Slid. Box	C. M. Barnard	700,022	May 20	2222	622	22	1022
Slid. Box	W. B. Jackson	700,224	May 27	2244	620	22	1220
Slid. Box	J. H. Hobart	697,022	Apr. 8	1245	222	22	222
Slid. Box	W. O. Cunningham	702,702	June 17	2220	622	22	2221
Slid. Box	B. F. Albough	701,222	June 10	222	215	22	2227
Slid. Box	J. L. Owens	693,222	May 12	1427	244	22	1422
Slid. Box	J. L. Owens	693,222	May 12	1220	244	22	1422
Slid. Box	G. W. H. Schreffler	697,227	Apr. 8	1212	422	22	422
Slid. Box	B. F. Mattson	693,222	May 12	1027	227	22	1414
Slid. Box	A. J. Towner	700,221	May 20	2220	627	22	1722
Slid. Box	J. Grigg	701,222	June 3	100	22	22	2122
Slid. Box	R. W. Lovitt	701,222	June 3	222	121	22	2222
Slid. Box	B. Sharroff	693,222	Apr. 22	4042	624	22	912
Slid. Box	O. L. Tolles	693,272	Apr. 22	4722	1042	22	1972
Slid. Box	H. L. Bowell	701,422	June 3	222	72	22	2272
Slid. Box	W. R. Bowen	702,221	June 17	2222	515	22	2212
Slid. Box	L. G. Langstaff	700,727	May 27	2277	722	22	1222
Slid. Box	J. Schwachler	693,144	Apr. 22	2200	722	22	727
Slid. Box	T. Parziale	700,222	May 20	2122	622	22	1227
Slid. Box	J. R. Masson	693,227	May 12	1427	241	22	1422
Slid. Box	W. S. Watson	701,122	May 27	2227	622	22	2222
Slid. Box	R. M. Green, Jr.	702,122	June 10	1222	242	22	2441
Slid. Box	R. M. and E. M. Green, Jr.	702,122	June 10	1222	242	22	2442
Slid. Box	O. A. Giddens	702,712	June 17	2221	622	22	2222
Slid. Box	R. M. Green, Jr.	702,121	June 10	1221	242	22	2441
Slid. Box	H. G. Schaffner and T. Van Alst ..	694,222	Apr. 1	62	15	22	12
Slid. Box	P. H. Bayley	693,224	Apr. 22	4221	1041	22	1221
Slid. Box	J. M. K. Leeson and F. W. Barpee ..	697,242	Apr. 8	1772	222	22	222
Slid. Box	J. D. Cox and F. A. Odin	694,222	Apr. 1	221	22, 27	22	64
Slid. Box	H. C. Mack	700,222	May 27	2472	727	22	1041
Slid. Box	H. B. Williams	702,122	June 10	1222	242	22	2227
Slid. Box	H. A. Webster	693,222	May 6	224	122	22	1222
Slid. Box	W. H. Clark	693,227	Apr. 22	2220	772	22	722
Slid. Box	C. F. Cushing	700,224	May 20	2220	672	22	1212
Slid. Box	W. L. Smith	701,410	June 3	222	60	22	2122
Slid. Box	R. Hope-Jones	702,227	June 17	2227	622	22	2222
Slid. Box	R. De Moulmeester	701,122	May 27	2222	912	22	2222
Slid. Box	E. L. Tanner	702,227	June 17	2222	622	22	2222
Slid. Box	D. Sumner	697,222	Apr. 15	2211	621	22	222
Slid. Box	G. C. Lee	693,222	May 12	1221	227	22	1222
Slid. Box	E. J. Smith	693,221	Apr. 22	6224	1107	22	1227
Slid. Box	A. Garvin	693,222	Apr. 8	1222	242	22	222
Slid. Box	D. H. Sims	702,222	June 17	2272	624	22	2277
Slid. Box	O. O. White	702,222	June 17	2224	621	22	2722
Slid. Box	H. C. Folger, H. Moriarty, and E. R. Jacobson	694,270	Apr. 1	512	122	22	112
Slid. Box	O. A. Menger	702,127	May 12	1222	622	22	1224
Slid. Box	E. L. P. Mars	701,272	May 27	2222	672	22	2221
Slid. Box	H. Christensen	693,122	Apr. 22	2227	722	22	722
Slid. Box	J. A. White	702,222	June 24	2222	624	22	2222
Slid. Box	F. Trinks	693,022	Apr. 22	2012	1112	22	1122
Slid. Box	M. C. Johnson	693,272	May 12	1444	624	22	1422
Slid. Box	M. C. Johnson	693,272	May 12	1421	222	22	1422
Slid. Box	G. W. Heerlein	702,221	May 20	2722	622	22	1722
Slid. Box	J. A. Smith	693,222	Apr. 22	6724	1041	22	1071
Slid. Box	J. E. Cope	701,222	June 3	22	6	22	2112
Slid. Box	A. Laidler	701,221	June 3	542	112	22	2221
Slid. Box	J. Harty	702,112	June 10	1422	227	22	2222
Slid. Box	H. T. Weller	693,222	Apr. 22	4721	242	22	242
Slid. Box	V. G. Apple	694,222	Apr. 22	6724	1042	22	1022

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Pat.	Des.	Pat.	Des.
Speed-regulator for rotary shafts	A. E. Howe	701,081	June 24	3085	540	3081	
Speed-regulator. Mechanical	H. P. White	701,082	June 24	3070	730	3069	
Speed-shaft. Variable	E. Christensen	701,083	June 17	3420	894	3420	
Spelter-furnace	A. J. Ash	701,084	June 17	3327	814	3327	
Spelter. Making	O. Nagel	701,085	May 13	1020		1020	
Spelter. Refining	C. W. Wood	701,086	Apr. 20	3327		3327	
Spigot and bung remover. Combined	T. Livingston	701,087	June 24	3011	670	3011	
Spigot-drawing tool	J. K. Reid	701,088	Apr. 1	840	194	840	
Spindle-machine	H. H. Bringer	701,089	Apr. 20	3330	700	3330	
Spindle:							
See Axle-spindle. Spinning-spindle.							
Loading-spindle.	J. Widmer	701,090	May 20	3330	517	3330	
Spinning	R. W. Streichenert	701,091	June 10	1000	800	1000	
Spinning artificial-silk filaments for forming strands or threads. Apparatus for	O. W. and A. Mettler	701,092	Apr. 8	1100	300	1100	
Spinning device	P. P. Graves	701,093	May 6	40	10	40	
Spinning, doubling, or twisting machine. Ring-	E. Rhoades	701,094	Apr. 8	1001	270	1001	
Spinning-frame roving-breaker	J. G. Fredericks	701,095	May 13	1040	344	1040	
Spinning-machine	O. L. Owen	701,096	May 6	640	130	640	
Spinning-machine traverse-motion	G. Stahle	701,097	Apr. 20	4070	300	4070	
Spinning-machine. Vessel or pot for gathering fibers being thrown off	L. W. Campbell	701,098	May 6	600	100	600	
Spinning or twisting frame	F. M. Marcy	701,099	Apr. 8	1040	300	1040	
Spinning or twisting machine. Truing up the drawing-rolls of	G. H. Ellis	701,100	May 27	4010	300	4010	
Spinning. Preparing flax fiber for	E. Kempshall	701,101	May 13	1000	640	1000	
Spinning-rod	W. Gibson	701,102	June 3	770	171	770	
Spinning-spindle	W. Gibson	701,103	June 3	900	300	900	
Spinning-spindle. Knee-brake for stopping	J. Boyd	701,104	May 27	3040	300	3040	
Spittoon. Fountain	W. E. Allen	701,105	June 24	3044	300	3044	
Spittoon. Pocket	R. Buehner and Y. Marx	701,106	May 27	3177	700	3177	
Spittoon. Sanitary	N. J. Beaudin and N. E. Thibert	701,107	Apr. 20	3330	1000	3330	
Spoke-fastener and tire-tightener. Combined	E. Lovelle	701,108	Apr. 1	110	30	110	
Spoke-holes in metallic wheel-fellies. Machine for drilling	G. H. Everett	701,109	June 3	747	100	747	
Spoke-puller. Vehicle	C. W. Sester	701,110	June 3	400	30	400	
Sponge or mucilage holder	H. W. Sontagood	701,111	Apr. 20	3330	700	3330	
Sponge substitute. Forming	A. Straus	701,112	June 10	1004		1004	
Spool and producing same	E. Hubbard	701,113	Apr. 8	1915	407	1915	
Spool-blanks. Machine for making	J. W. Carver	701,114	May 20	3004	610	3004	
Spool-holder	J. M. Hilton	701,115	Apr. 15	3330	607	3330	
Spool-machine	H. H. Pierce	701,116	May 27	3000	577	3000	
Spool or bobbin	E. R. Crocker	701,117	May 20	3070	674	3070	
Sprayer. Liquid	W. E. Chandler	701,118	Apr. 15	3030	440	3030	
Spraying device	L. A. Appinwall	701,119	June 3	704	100	704	
Spraying-machine	I. and J. Zimmerman	701,120	May 20	3030	500	3030	
Spring:	L. Doerr	701,121	May 6	300	71	300	
See Carriage or wagon. Elliptical spring.							
Tail-board spring.							
Door-spring.							
Spring-clip	J. M. Mays	701,122	May 27	3000	671	3000	
Spring-cushion and its support	W. H. Bates	701,123	June 3	301	71	301	
Spring-rod	J. J. Breakley	701,124	Apr. 20	3000	804	3000	
Sprinkler:							
See Lawn-sprinkler.							
Sprinkling or spraying device	G. Schock	701,125	June 24	3040	700	3040	
Sprocket attachment	J. G. Wangerin	701,126	Apr. 15	3010	404	3010	
Spr. Riding	C. W. Davison	701,127	June 10	1000	300	1000	
Square. T.	G. M. Lee	701,128	June 24	3041	700	3041	
Square-roll	W. F. Demaree	701,129	Apr. 1	40	10	40	
Stacker	S. F. Weaver	701,130	Apr. 15	3000	400	3000	
Stacker. Hay	S. C. Dunham	701,131	May 27	3004	304	3004	
Stacker. Hay	J. H. Cope	701,132	May 27	4140	300	4140	
Stacker. Pneumatic	D. Dow	701,133	Apr. 1	300	60	300	
Stacker. Pneumatic	F. L. Norton	701,134	Apr. 15	3070	600	3070	
Stacker. Pneumatic	J. R. Bartholomew	701,135	June 17	3730	604	3730	
Stacker. Pneumatic	F. L. Norton	701,136	June 24	3000	700	3000	
Stacker. Pneumatic straw	J. M. Andrews (Reliance)	701,137	May 27	4100	300	4100	
Stacker. Straw	A. Hagemeister	701,138	Apr. 1	700	100	700	
Stacker. Straw	J. B. Buckwalter	701,139	Apr. 20	4007	1004	4007	
Stacker. Wheeled straw	S. D. Felsing and E. G. Gustafson	701,140	Apr. 8	1100	340	1100	
Stacker. Wind	M. Glyn	701,141	May 27	3007	400	3007	
Stage illumination with indirect light	M. Fortney	701,142	Apr. 20	4000	1110	4000	
Stair-builder. Adjustable form for	C. A. Ambrosius	701,143	Apr. 20	3040	1117	3040	
Stair-rod fastener	W. Richards	701,144	June 3	100	40	100	
Stair-routing machine	F. V. Phillips	701,145	May 27	3000	700	3000	
Stairs, &c. System and apparatus for facilitating the ascent of	L. Brennan	701,146	June 17	3007	517	3007	
Stairway	F. W. Weber	701,147	May 13	1077	340	1077	
Stairway	G. C. Tilton	701,148	May 20	3000	600	3000	
Stair-cutting	W. R. Walsh	701,149	June 17	3000	600	3000	
Stamp	E. H. Smith	701,150	June 24	3100	700	3100	
Stamp-cutting	E. H. Oaklin	701,151	June 10	1000	304	1000	

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Pat.	Des.	Pat.	Des.
Stamp-book. Head	F. W. Glover	701,152	Apr. 20	3040	700	3040	
Stamp-book	W. A. McKinney	701,153	May 27	3010	974	3010	
Stamp-book guide	D. O. Demarest	701,154	Apr. 20	3220	800	3220	
Stamp. Time	E. B. Hays and J. M. Stoughton	701,155	May 20	3000	907	3000	
Stamp. Time	A. G. Miller	701,156	June 10	1704	304	1704	
Stamping-machine	H. L. Wood	701,157	Apr. 20	3007	1114	3007	
Stamping-machine	H. Westman	701,158	June 17	3001	610	3001	
Stamping-machine ejecting device	J. Shreffel	701,159	June 3	910	60	910	
Stamping-machine	E. Prescott	701,160	May 6	540	100	540	
Stamping-machine	O. H. Robertson	701,161	Apr. 8	1070	304	1070	
Stand:							
See Camera-stand. Reading-stand.							
Folding stand. Show-stand.							
Flower-stand. Wash-stand.							
Ironing-stand.							
Staple-forming and driving mechanism	W. Hays	701,162	June 10	1400	300	1400	
Starch. Making modified	L. Carl	701,163	Apr. 20	4007	300	4007	
Starch. Making thin bolting	C. B. Duryea	701,164	Apr. 8	1001	341	1001	
Starch. Manufacturing	J. Lohmeyer	701,165	June 17	3001	300	3001	
Starching-machine	S. B. Bahrnd	701,166	May 13	1001	304	1001	
Starting-machine	E. B. Hays	701,167	May 20	3000	300	3000	
Starting or stopping mechanism	G. H. Brown	701,168	June 3	10	0	10	
Starting or stopping mechanism	A. Glacomb	701,169	June 10	1004	300	1004	
Station-indicator	J. A. Mond	701,170	Apr. 1	120	31	120	
Station-indicator	G. W. Smith	701,171	Apr. 20	4070	300	4070	
Station-indicator	F. G. Lusk	701,172	May 13	1004	300	1004	
Stave-blanks for casks. Machinery for jointing or finishing	A. Dunbar	701,173	June 24	3004	300	3004	
May-bolt and making same	G. O. Gridley	701,174	May 13	1000	300	1000	
Steam-tender	W. W. Jacques	701,175	May 20	3070	300	3070	
Steam and internal-combustion motor. Combined	F. D. Clark	701,176	Apr. 1	300	100	300	
Steam and oil separator	J. T. Lindstrom	701,177	May 13	1000	300	1000	
Steam-boller	A. Spencer	701,178	Apr. 1	700	100	700	
Steam-boller	J. A. Stevens	701,179	Apr. 15	3000	300	3000	
Steam-boller	C. B. Bessick	701,180	May 13	1000	300	1000	
Steam-boller	E. J. Moore	701,181	May 13	1000	300	1000	
Steam-boller. Vertical tube	F. Burger and H. H. Williams	701,182	Apr. 1	600	100	600	
Steam. Controlling the generation of	C. and A. Macher and W. G. Hay	701,183	June 10	1000	300	1000	
Steam-engine	P. B. Whitney	701,184	Apr. 8	1000	300	1000	
Steam-engine	W. A. Johnson	701,185	Apr. 20	3040	300	3040	
Steam-engine	A. J. Markham	701,186	May 13	1000	417	1000	
Steam-engine	C. G. Worthington	701,187	June 24	3000	700	3000	
Steam-generating system	W. O. Williams	701,188	Apr. 20	4110	1101	4110	
Steam-generator	C. A. Kitta	701,189	Apr. 20	3000	300	3000	
Steam-generator	W. H. Kittle and B. Crawford	701,190	June 3	311	40	311	
Steam-generator	A. Thompson	701,191	June 3	340	100	340	
Steam-generator	J. J. Kitchner	701,192	June 10	1000	300	1000	
Steam-generator	J. L. Glynn	701,193	June 17	3000	300	3000	
Steam-generator. Combined water and fire tube	T. H. Rutledge	701,194	Apr. 15	3070	300	3070	
Steam-generator for locomotive service	C. H. Fox	701,195	May 20	3070	400	3070	
Steam-generator regulator	T. O'Brien	701,196	June 3	404	104	404	
Steam-generator shaft, cylinder, &c. Manufacture of	R. F. McFar	701,197	May 20	3044	300	3044	
Steam-generator. Apparatus for purifying water for	A. Gray	701,198	Apr. 15	3004	300	3004	
Steam-generator. Means for regulating the supply of water and liquid fuel to	J. Simpson	701,199	Apr. 20	3000	1107	3000	
Steam in cylinders. Means for reducing condensation of	G. R. Harvey	701,200	Apr. 1	600	101	600	
Steam-line. Automatic drip for	J. H. Halsey	701,201	Apr. 15	3000	300	3000	
Steam or fluid-pressure engine	W. J. Emmitt	701,202	Apr. 8	1001	310	1001	
Steam-regulator	G. Adair and P. Foss	701,203	Apr. 20	3004	300	3004	
Steam-separator	W. L. Jennings	701,204	Apr. 1	97	30	97	
Steam-separator	W. W. Wray	701,205	May 27	3040	704	3040	
Steam-separator	J. Bowden	701,206	Apr. 20	3010	700	3010	
Steam-trap	W. H. and B. Thompson	701,207	Apr. 1	301	31	301	
Steam-trap	G. H. Hays	701,208	Apr. 8	1700	400	1700	
Steam-trap	J. W. Rogers	701,209	May 6	70	30	70	
Steam-trap	C. H. Barry	701,210	May 13	1000	300	1000	
Steam-trap	H. H. Hays and T. Bagley	701,211	May 27	3000	300	3000	
Steam-trap	F. Taylor	701,212	June 3	70	10	70	
Steam-trap. Wheel	J. Francis	701,213	June 3	70	10	70	
Steel, &c. Apparatus for making	E. C. Wells	701,214	Apr. 20	4100	300	4100	
Steel-converter	S. K. Bahrnd	701,215	Apr. 20	4007	1001	4007	
Steel-furnace. Open-hearth	F. L. Saniter and J. L. Smith	701,216	June 24	3070	300	3070	
Steel plant. Converter	O. H. McCullough, Jr., and L. C. E. Holcomb	701,217	Apr. 15	3000	300	3000	
Steering apparatus for ships. Hydraulic	B. A. Fisher	701,218	Apr. 15	3000	300	3000	

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Steering mechanism. Hydraulic.	J. Christensen.	222,421	May 6	615	140	100	1000
Steering or other purposes. Shifting mechanism for.	G. C. Brock.	222,422	Apr. 29	2222	222	100	1000
Small roller.	L. F. F. Zeller.	222,423	June 3	222	122	100	1000
Small roller.	G. D. Hart.	222,424	May 12	122	122	100	1000
Step structure.	H. W. Baur.	222,425	Apr. 29	222	122	100	1000
Stereoscope.	H. C. and H. O. White.	222,426	June 3	222	122	100	1000
Stereoscope.	H. C. and H. O. White.	222,427	June 3	222	122	100	1000
Stereotype-plate and base.	C. S. Partridge.	222,428	June 17	222	122	100	1000
Stereotype-plate matrices. Machine for producing.	I. Kline.	222,429	Apr. 29	222	122	100	1000
Stereotyping. Casting-box for.	S. G. Goss.	222,430	Apr. 29	222	122	100	1000
Stereotyping. Turl matrix-pulp for.	R. Kraft.	222,431	Apr. 29	222	122	100	1000
Sterilizer.	G. G. Scamman.	222,432	May 12	122	122	100	1000
Sterilizing apparatus.	G. W. Kellogg.	222,433	Apr. 29	222	122	100	1000
Stethoscope. Binaural.	R. C. M. Bowles.	222,434	Apr. 29	222	122	100	1000
Stiffening cord or tape.	E. E. Warren.	222,435	May 6	222	122	100	1000
Stirrup.	W. H. Angley and W. Clifton.	222,436	May 27	222	122	100	1000
Stitch-indenting machine.	I. Yeates.	222,437	June 17	222	122	100	1000
Stitch-indenting machine.	A. Olson.	222,438	June 17	222	122	100	1000
Stitch-indenting machine.	J. B. Hadenway.	222,439	May 12	122	122	100	1000
Stitch-indenting machine.	J. B. Hadenway.	222,440	May 27	222	122	100	1000
Stitch-indenting machine.	R. J. Ryerson.	222,441	Apr. 1	222	122	100	1000
Stock.	A. J. Spencer.	222,442	Apr. 29	222	122	100	1000
Stock-roller.	K. Palma.	222,443	Apr. 29	222	122	100	1000
Stocking.	H. Well.	222,444	Apr. 1	222	122	100	1000
Stocking-guard.	R. H. Yarrington and T. Hall.	222,445	May 12	122	122	100	1000
Stocking-supporter.	R. W. King.	222,446	June 24	222	122	100	1000
Stoker and smoke-consumer. Automatic.	W. Fraser.	222,447	May 27	222	122	100	1000
Stoker. Mechanical.	A. F. Hagie.	222,448	June 3	222	122	100	1000
Stoker. Mechanical.	J. O. McClellan.	222,449	June 17	222	122	100	1000
Stone. Apparatus for the manufacture of artificial.	C. W. Stevens.	222,450	May 6	222	122	100	1000
Stone. Artificial building.	C. W. Stevens.	222,451	May 6	222	122	100	1000
Stone. Artificial building.	C. W. Stevens.	222,452	May 6	222	122	100	1000
Stone. Machine for handling.	C. W. Stevens.	222,453	May 6	222	122	100	1000
Stone. Making artificial.	H. E. Brown.	222,454	Apr. 29	222	122	100	1000
Stone. Making dolomite sand.	H. E. Brown.	222,455	Apr. 29	222	122	100	1000
Stone. Manufacture of artificial sand.	H. E. Brown.	222,456	Apr. 29	222	122	100	1000
Stone-molding machine. Artificial.	H. F. Palmer.	222,457	May 27	222	122	100	1000
Stone-molding machine. Artificial.	H. F. Palmer.	222,458	June 24	222	122	100	1000
Stone or brick and the preparation of lime therefor.	O. H. Anderson.	222,459	June 17	222	122	100	1000
Manufacture of artificial.	J. W. Lehmann.	222,460	May 6	222	122	100	1000
Stone or brick. Building.	A. W. Frank.	222,461	June 24	222	122	100	1000
Stone. Raising sheets of.	T. Sciglis.	222,462	June 10	222	122	100	1000
Stone surface. Machine for working.	A. Adler.	222,463	Apr. 12	222	122	100	1000
Stool. Adjustable counter.	J. L. Hawken and R. E. W. Bandy.	222,464	June 3	222	122	100	1000
Stopper.	W. G. Bates and W. A. Reed.	222,465	Apr. 12	222	122	100	1000
Stopper for bottles, jars, &c. Manufacturing.	J. Bocking.	222,466	May 6	222	122	100	1000
Stopping or staking device.	H. J. Cogswell.	222,467	May 12	222	122	100	1000
Storage battery.	L. W. Lombard.	222,468	May 20	222	122	100	1000
Storage battery.	L. W. Lombard.	222,469	May 20	222	122	100	1000
Storage battery.	A. D. Edgerton.	222,470	June 10	222	122	100	1000
Storage battery.	H. E. Hine.	222,471	Apr. 29	222	122	100	1000
Storage-tank.	R. E. Sanders.	222,472	Apr. 29	222	122	100	1000
Store-front.	M. O. Sweeney.	222,473	Apr. 1	222	122	100	1000
Store-service apparatus.	A. K. Beckwith.	222,474	Apr. 1	222	122	100	1000
Stove.	W. F. Kietler.	222,475	Apr. 29	222	122	100	1000
Stove.	A. W. Walker.	222,476	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,477	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,478	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,479	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,480	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,481	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,482	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,483	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,484	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,485	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,486	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,487	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,488	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,489	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,490	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,491	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,492	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,493	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,494	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,495	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,496	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,497	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,498	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,499	Apr. 29	222	122	100	1000
Stove.	R. R. Cahoon.	222,500	Apr. 29	222	122	100	1000

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				1st	2nd	Vol.	Page
Stove. Heating.	R. R. Cahoon.	222,501	Apr. 29	222	122	100	1000
Stove. Heating.	R. R. Cahoon.	222,502	Apr. 29	222	122	100	1000
Stove. Heating.	C. W. Wanner.	222,503	May 6	222	122	100	1000
Stove. Heating.	C. R. Moon.	222,504	June 24	222	122	100	1000
Stove. Heating and cooking.	J. O. Parmelee.	222,505	Apr. 15	222	122	100	1000
Stove. Heating, cooking, and baking.	R. O. MacCallum.	222,506	Apr. 15	222	122	100	1000
Stove heating or cooking attachment.	J. P. Lynett.	222,507	May 27	222	122	100	1000
Stove. Laundry.	R. Clark.	222,508	June 24	222	122	100	1000
Stove-heating.	R. R. Cahoon.	222,509	Apr. 29	222	122	100	1000
Stove or range. Heating.	D. F. Winn.	222,510	May 27	222	122	100	1000
Stove or range.	R. R. Cahoon.	222,511	Apr. 29	222	122	100	1000
Stove or range. Cooking.	R. Clark.	222,512	Apr. 1	222	122	100	1000
Stove or range. Gas.	G. W. Graves and J. F. Mills, Jr.	222,513	Apr. 29	222	122	100	1000
Stovepipe.	G. R. Barclay.	222,514	June 3	222	122	100	1000
Stovepipe.	A. Channing.	222,515	Apr. 29	222	122	100	1000
Stovepipe attachment.	J. Joy and J. M. Burton.	222,516	Apr. 29	222	122	100	1000
Stovepipe collar.	J. S. Hatcher.	222,517	Apr. 29	222	122	100	1000
Stovepipe-thimble.	J. W. L. Murray.	222,518	June 17	222	122	100	1000
Stovepipe-ventilator.	F. Anshutz.	222,519	June 10	222	122	100	1000
Stove, range, &c.	H. F. Canale and C. F. Woolley.	222,520	Apr. 15	222	122	100	1000
Stove-shelf.	R. W. Anthony.	222,521	Apr. 1	222	122	100	1000
Stove-top.	R. W. Whitlock.	222,522	May 6	222	122	100	1000
Stove. Vapor.	J. H. Pink and E. Andlauer.	222,523	June 3	222	122	100	1000
Stove. Adjustable fire-box for.	J. F. Neely.	222,524	Apr. 29	222	122	100	1000
Stove. Automatic cut-off for gas.	R. O. Hillier.	222,525	Apr. 29	222	122	100	1000
Stove. Range-oven for gas or gasoline.	R. W. Hillier.	222,526	May 12	222	122	100	1000
Stove. Combined gas and air feeding attachment for gas.	J. Dennis, Jr.	222,527	May 12	222	122	100	1000
Strainer.	E. L. Mason.	222,528	Apr. 29	222	122	100	1000
Strainer.	W. Jones.	222,529	Apr. 29	222	122	100	1000
Strainer. Vegetable.	C. M. Gundel.	222,530	May 27	222	122	100	1000
Strap.							
Strap. For pole-strap. Trunk-strap.	J. H. Wallace.	222,531	June 10	222	122	100	1000
Strap-grip for handling boxes, &c.	H. C. Clay.	222,532	June 24	222	122	100	1000
Straw-burning furnace.	W. Hight.	222,533	Apr. 29	222	122	100	1000
Street-sweeper.	S. Comstock.	222,534	May 27	222	122	100	1000
Street-sweeper.	A. F. Palmer and H. L. Phelps.	222,535	June 3	222	122	100	1000
Street-sweeper.	P. R. Hadenway.	222,536	June 24	222	122	100	1000
Strength-tester.	G. Jensen and H. Neumann.	222,537	June 17	222	122	100	1000
Strike-regulator.	R. H. Yale.	222,538	June 10	222	122	100	1000
Structure. Hollow or double walled.	A. de Charmont.	222,539	Apr. 29	222	122	100	1000
Structures containing cream strains. Construction of.	M. Walter.	222,540	Apr. 29	222	122	100	1000
Stud.	P. Neumann.	222,541	Apr. 1	222	122	100	1000
Stud-cutting machinery.	F. A. Livingston.	222,542	June 24	222	122	100	1000
Stamp-extractor.	C. E. Beckwith.	222,543	Apr. 1	222	122	100	1000
Stamp-puller and tree-transplanter. Combined.	W. A. Hammer.	222,544	May 20	222	122	100	1000
Stamps. Destroying tree.	J. J. E. McLaughlin.	222,545	Apr. 1	222	122	100	1000
Submarine construction. System of.	R. H. Wehler.	222,546	May 12	222	122	100	1000
Sugar and solutions thereof. Purifying.	C. A. Sprague and C. A. Kera.	222,547	Apr. 29	222	122	100	1000
Sugar, &c. Apparatus for purifying.	G. Donahue.	222,548	June 3	222	122	100	1000
Sugar-bearing material. Purifying fluid.	C. A. Sprague and C. A. Kera.	222,549	May 12	222	122	100	1000
Sugar. Converting cellulose into.	A. Channing.	222,550	Apr. 1	222	122	100	1000
Sugar. Converting cellulose into fermentable.	A. Channing.	222,551	May 20	222	122	100	1000
Sugar-crysalis. Treating.	C. A. Sprague and C. A. Kera.	222,552	May 12	222	122	100	1000
Sugar-mold. Moulding.	J. H. Lynch.	222,553	Apr. 1	222	122	100	1000
Sugar-mold. Moulding.	C. E. Beckwith.	222,554	Apr. 29	222	122	100	1000
Sugar-product. Intermediate.	C. A. Sprague and C. A. Kera.	222,555	June 24	222	122	100	1000
Suit-holder.	H. E. Taber.	222,556	Apr. 29	222	122	100	1000
Suit-holder.	C. H. Barrows.	222,557	Apr. 29	222	122	100	1000
Suit-holder.	A. Garmet and H. E. L. Fildes.	222,558	Apr. 29	222	122	100	1000
Suit-holder.	C. H. Shaw.	222,559	Apr. 29	222	122	100	1000
Suit-holder. Treating metallic.	J. D. Moore and F. H. Martin.	222,560	May 27	222	122	100	1000
Suit-holder. Apparatus for generating sulfuric anhydride. Making.	H. G. Beckwith. (Release).	222,561	May 27	222	122	100	1000
Supporting device.	R. H. Bowers.	222,562	June 17	222	122	100	1000
Supporter or connecting means.	D. E. Warner.	222,563	Apr. 1	222	122	100	1000
Supporter-rod.	A. T. Dingley.	222,564	Apr. 1	222	122	100	1000
Supporter-rod.	R. W. Johnson.	222,565	May 27	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,566	June 24	222	122	100	1000
Supporter-rod.	L. M. Pignolet.	222,567	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,568	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,569	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,570	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,571	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,572	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,573	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,574	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,575	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,576	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,577	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,578	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,579	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,580	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,581	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,582	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,583	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,584	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,585	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,586	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,587	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,588	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,589	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,590	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,591	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,592	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,593	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,594	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,595	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,596	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,597	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,598	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,599	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,600	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,601	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,602	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,603	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,604	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,605	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,606	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,607	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,608	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,609	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,610	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,611	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,612	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,613	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,614	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,615	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,616	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,617	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,618	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,619	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,620	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,621	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,622	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,623	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,624	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,625	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,626	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,627	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,628	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,629	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,630	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,631	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,632	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,633	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,634	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,635	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,636	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,637	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,638	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,639	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,640	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,641	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,642	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,643	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,644	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,645	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,646	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,647	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,648	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,649	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,650	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,651	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,652	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,653	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,654	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,655	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,656	June 24	222	122	100	1000
Supporter-rod.	J. H. Fugh.	222,657	June 24	222	122	100	1000

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				U. S. Pat.	For.	U. S. Pat.	For.
Tapkey.	W. and A. McDonald and C. D. Treveling.	696,957	Apr. 29	697	1498	99	1998
Target trap.	L. A. Sherman.	696,793	Apr. 1	696	187	99	149
Telexing instrument.	J. J. Youlin.	696,915	May 13	1998	854	99	1997
Telexing apparatus. Radio.	J. R. Parker.	696,830	May 6	719	161	99	1994
Telexing type-writing. Machine for.	F. Harb.	696,134	Apr. 29	696	720	99	791
Telexing writing. Means for.	P. B. Hollock.	696,999	Apr. 29	699	1070	99	1997
Telexing circuit. Multiplex.	L. A. McCarthy.	700,800	May 27	810	790	99	1998
Telexing line repeater.	J. W. Gray.	700,087	May 13	1761	697	99	1998
Telexing or other circuit. Automatic line switch for.	C. A. Simpson.	700,090	May 27	840	890	99	1998
Telexing pole and fence post.	I. M. Warner.	696,994	Apr. 29	674	897	99	790
Telexing coupler.	G. A. Green.	697,619	Apr. 15	813	815	99	811
Telexing coupler. Wireless.	J. A. Albertson.	696,088	Apr. 29	807	1118	99	1198
Telexing system. Wireless.	C. D. Harter.	696,189	May 6	87	15	99	1198
Telexing and telephonic transmission. Signal for composite.	E. L. Grand.	700,911	May 27	841	897	99	1998
Telexing apparatus.	S. G. Brown.	700,890	June 10	1997	498	99	2918
Telexing distribution.	H. A. Rowland.	696,974	May 6	898	197	99	1997
Telexing page printer.	H. A. Rowland.	696,975	May 6	997	197	99	1998
Telexing transmitter. Automatic.	J. A. Toomey.	700,890	June 10	1798	401	99	2997
Telexing. Electric.	L. G. Brown.	700,890	Apr. 17	941	897	99	2997
Telexing. Submarine cable.	A. C. Osborne and G. O. Squier.	696,881	Apr. 29	807	775	99	791
Telexing. Wireless.	M. Barry.	700,710	Apr. 1	600	137	99	139
Telexing. Wireless.	M. Barry.	700,710	Apr. 29	899	899	99	1098
Telexing. Wireless.	M. Barry.	697,990	Apr. 15	1137	475	99	697
Telexing apparatus. Party line.	G. Harb.	696,997	Apr. 29	899	798	99	810
Telexing. Radio.	C. L. Kiefer.	696,090	Apr. 29	8049	670	99	697
Telexing call for party line.	W. A. Williams, O. L. Ingram, and J. R. Wilson.	700,793	June 3	996	990	99	2996
Telexing call for.	N. Michaels.	701,890	June 3	974	125	99	2998
Telexing circuit.	G. E. Goodland.	696,979	May 13	1098	847	99	1498
Telexing circuit system.	E. F. Frost.	696,198	May 6	84	99	99	1198
Telexing exchange. Automatic.	N. E. Norstrom.	701,499	June 10	899	690	99	898
Telexing exchange system.	W. M. Davis.	697,999	Apr. 29	899	990	99	897
Telexing exchange system.	W. M. Davis.	697,999	Apr. 29	899	990	99	897
Telexing exchange system.	W. M. Davis.	697,999	Apr. 29	899	990	99	897
Telexing exchange system.	W. M. Davis.	697,999	Apr. 29	899	990	99	897
Telexing exchange system. Multiple-switchboard.	H. G. W. Davis.	696,087	Apr. 29	8199	694	99	790
Telexing instrument. Combination.	H. G. W. Davis.	697,991	Apr. 29	8001	690	99	697
Telexing instrument. Multiple-switchboard.	H. G. W. Davis.	696,088	Apr. 29	8198	695	99	790
Telexing instrument. Multiple-switchboard.	J. G. Nolan.	697,098	Apr. 29	1194	896	99	897
Telexing instrument. Multiple-switchboard.	R. Shady.	700,890	May 10	8495	973	99	1997
Telexing instrument. Multiple-switchboard.	L. Schmidt.	700,094	June 10	8179	791	99	2918
Telexing instrument. Multiple-switchboard.	F. Oppenick.	700,690	June 17	8997	791	99	2998
Telexing instrument. Multiple-switchboard.	N. Bennett and W. A. Phoenix.	701,098	June 3	7	99	99	2119
Telexing instrument. Multiple-switchboard.	J. M. Overlander.	701,098	June 10	1299	908	99	2499
Telexing instrument. Multiple-switchboard.	H. M. Fink.	696,619	May 6	998	814	99	1998
Telexing instrument. Multiple-switchboard.	H. P. Clanton.	701,199	June 17	8998	911	99	3098
Telexing instrument. Multiple-switchboard.	C. G. Burke.	701,794	June 3	914	294	99	2999
Telexing instrument. Multiple-switchboard.	W. F. Fink.	697,099	Apr. 29	1900	895	99	894
Telexing instrument. Multiple-switchboard.	A. K. Andrews.	696,890	Apr. 29	8798	897	99	897
Telexing instrument. Multiple-switchboard.	T. R. Leing.	696,979	Apr. 29	6997	1094	99	1198
Telexing transmitter-arm. Base plate for.	C. E. Wilson.	696,619	Apr. 29	617	617	99	616
Telexing receiver for wireless signal apparatus.	T. J. Tomlinson.	700,181	Apr. 18	8016	617	99	1999
Telexing wall set.	C. E. Wilson.	696,619	Apr. 29	416	616	99	615
Telexing.	F. L. Smith and H. D. Gross.	700,093	June 3	498	99	99	2195
Telexing.	A. A. Cameron.	700,049	June 10	1870	818	99	2999
Telexing.	F. L. Smith.	696,200	May 6	891	79	99	1994
Telexing.	F. L. Smith.	696,199	May 6	79	79	99	1199
Telexing. Frictional blowout.	C. E. Wilson.	696,619	Apr. 29	8916	695	99	898
Telexing and telephonic transmission. Apparatus for testing.	E. F. Morris.	696,046	Apr. 1	1096	894	99	299
Telexing.	E. F. Morris.	696,079	Apr. 1	999	819	99	199
Telexing set. Table.	J. Salmon.	696,999	May 13	1691	891	99	1999
Telexing set. Table.	J. H. and W. O. Quigley.	700,194	June 10	1979	897	99	2491
Telexing set. Table.	N. Bostinger.	700,097	Apr. 29	8999	894	99	1977
Telexing machine. House.	J. A. Barlow.	696,997	Apr. 1	899	99	99	89
Telexing machine.	V. B. Buchanan.	701,198	May 27	6919	900	99	3094
Telexing machine.	V. B. Buchanan.	700,945	June 24	8999	894	99	2999
Telexing machine. Sheet.	W. W. Buchanan.	700,945	June 10	1999	449	99	2999
Telexing machine.	R. A. Matthews.	697,213	Apr. 6	1931	695	99	349
Telexing machine.	G. R. Clark.	700,994	June 24	8001	699	99	2999
Telexing machine.	H. A. Northridge.	700,976	May 27	8999	899	99	1979
Telexing machine.	A. L. McCormick.	696,999	Apr. 1	999	191	99	179
Telexing machine.	J. W. Sherman.	700,981	May 29	9997	773	99	1799
Telexing machine.	J. G. Nolan.	697,999	Apr. 18	2149	676	99	497
Telexing machine.	J. F. Windup and R. C. Stoker.	696,999	June 10	1999	461	99	2999
Telexing machine.	A. Paul.	696,997	Apr. 1	999	199	99	179
Telexing machine.	F. B. Bump and H. A. Tolmie.	696,997	Apr. 1	971	897	99	897
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	1499	814	99	219
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8971	897	99	816
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
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Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
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Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.	697,199	Apr. 15	8999	899	99	899
Telexing machine.	C. G. Bradley.						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				1	2	1	2
Thill-coupling	J. D. Ellinger	701,384	May 27	684	68	68	68
Thill-coupling	H. Miles and O. H. Blanchard	701,385	June 3	122	12	12	12
Thill-coupling	T. J. Hubbell	701,386	June 3	577	57	57	57
Thill-coupling	W. D. Smith	701,387	June 3	177	17	17	17
Thill-coupling	H. G. Brough	701,388	June 3	110	11	11	11
Thill-coupling	A. D. Harbo	701,389	June 3	541	54	54	54
Thill-coupling	R. A. Hamilton	701,390	June 3	120	12	12	12
Thill-coupling	C. W. James	701,391	June 3	120	12	12	12
Thill-coupling	G. A. Frodenburgh	701,392	June 3	120	12	12	12
Thill-coupling	S. H. Williams	701,393	June 3	120	12	12	12
Thill-coupling	M. I. Howe	701,394	June 3	120	12	12	12
Thill-coupling	C. Taylor	701,395	June 3	120	12	12	12
Thill-coupling	P. P. Sutton	701,396	June 3	120	12	12	12
Thill-coupling	E. J. Vranstede	701,397	June 3	120	12	12	12
Thill-coupling	R. Davies	701,398	June 3	120	12	12	12
Thill-coupling	G. W. Holmes	701,399	June 3	120	12	12	12
Thill-coupling	G. F. Conner	701,400	June 3	120	12	12	12
Thill-coupling	I. J. Ross	701,401	June 3	120	12	12	12
Thill-coupling	A. Johnson	701,402	June 3	120	12	12	12
Thill-coupling	T. R. Mahoney	701,403	June 3	120	12	12	12
Thill-coupling	T. R. Mahoney	701,404	June 3	120	12	12	12
Thill-coupling	W. Mahoney	701,405	June 3	120	12	12	12
Thill-coupling	P. Hoffmann	701,406	June 3	120	12	12	12
Thill-coupling	W. Brandon	701,407	June 3	120	12	12	12
Thill-coupling	E. O. Keel	701,408	June 3	120	12	12	12
Thill-coupling	M. Dinerman	701,409	June 3	120	12	12	12
Thill-coupling	M. Borden	701,410	June 3	120	12	12	12
Thill-coupling	A. S. Adams	701,411	June 3	120	12	12	12
Thill-coupling	E. O. Loomis	701,412	June 3	120	12	12	12
Thill-coupling	J. P. Kuhn	701,413	June 3	120	12	12	12
Thill-coupling	A. I. Hunsford	701,414	June 3	120	12	12	12
Thill-coupling	J. Goodell	701,415	June 3	120	12	12	12
Thill-coupling	T. C. Davison	701,416	June 3	120	12	12	12
Thill-coupling	R. W. Derbyshire	701,417	June 3	120	12	12	12
Thill-coupling	F. H. Lenton	701,418	June 3	120	12	12	12
Thill-coupling	H. H. Hart	701,419	June 3	120	12	12	12
Thill-coupling	E. Wolhaupter	701,420	June 3	120	12	12	12
Thill-coupling	B. P. Leale	701,421	June 3	120	12	12	12
Thill-coupling	E. S. Lafferty	701,422	June 3	120	12	12	12
Thill-coupling	S. D. Noel	701,423	June 3	120	12	12	12
Thill-coupling	A. Gustorf	701,424	June 3	120	12	12	12
Thill-coupling	R. Pasco	701,425	June 3	120	12	12	12
Thill-coupling	J. Elsenbecker	701,426	June 3	120	12	12	12
Thill-coupling	R. A. Fisher	701,427	June 3	120	12	12	12
Thill-coupling	W. P. Appleyard	701,428	June 3	120	12	12	12
Thill-coupling	C. Hubert	701,429	June 3	120	12	12	12
Thill-coupling	J. Schleicher	701,430	June 3	120	12	12	12
Thill-coupling	C. E. Davis	701,431	June 3	120	12	12	12
Thill-coupling	C. J. C. and C. A. Kramm	701,432	June 3	120	12	12	12
Thill-coupling	J. W. Deibner	701,433	June 3	120	12	12	12
Thill-coupling	J. B. Yeakle	701,434	June 3	120	12	12	12
Thill-coupling	W. F. Barry	701,435	June 3	120	12	12	12
Thill-coupling	E. Quintaine	701,436	June 3	120	12	12	12
Thill-coupling	T. Tynan	701,437	June 3	120	12	12	12
Thill-coupling	J. F. Fawcett	701,438	June 3	120	12	12	12
Thill-coupling	F. G. Dickerson	701,439	June 3	120	12	12	12
Thill-coupling	L. D. Sartom	701,440	June 3	120	12	12	12
Thill-coupling	A. T. Collier	701,441	June 3	120	12	12	12
Thill-coupling	E. L. Lewis	701,442	June 3	120	12	12	12
Thill-coupling	W. H. St. John	701,443	June 3	120	12	12	12
Thill-coupling	W. F. Williams	701,444	June 3	120	12	12	12
Thill-coupling	A. de Clairmont	701,445	June 3	120	12	12	12
Thill-coupling	J. M. Sweet	701,446	June 3	120	12	12	12
Thill-coupling	H. J. Hengstler and A. E. Adams	701,447	June 3	120	12	12	12
Thill-coupling	S. Glanville	701,448	June 3	120	12	12	12
Thill-coupling	H. E. Smith	701,449	June 3	120	12	12	12
Thill-coupling	B. S. Melnyk	701,450	June 3	120	12	12	12
Thill-coupling	T. H. Bryant	701,451	June 3	120	12	12	12
Thill-coupling	C. E. Thomas	701,452	June 3	120	12	12	12
Thill-coupling	E. Smith	701,453	June 3	120	12	12	12
Thill-coupling	E. Greene	701,454	June 3	120	12	12	12
Thill-coupling	F. E. Hyde	701,455	June 3	120	12	12	12
Thill-coupling	J. K. Williams	701,456	June 3	120	12	12	12

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				1	2	1	2
Tire-cutting machine. Rubber	J. A. Barrows	701,457	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. K. Williams	701,458	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,459	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,460	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,461	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,462	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,463	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,464	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,465	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,466	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,467	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,468	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,469	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,470	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,471	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,472	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,473	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,474	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,475	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,476	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,477	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,478	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,479	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,480	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,481	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,482	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,483	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,484	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,485	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,486	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,487	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,488	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,489	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,490	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,491	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,492	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,493	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,494	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,495	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,496	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,497	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,498	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,499	June 3	120	12	12	12
Tire-cutting machine. Rubber	J. A. Barrows	701,500	June 3	120	12	12	12

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Pat.	Des.	Vol.	Page.
Turbine. Axial-flow.	H. S. Day and T. R. Robinson.	697,705	Apr. 1	70	12	50	120
Turbine. Combined axial and radial.	B. Schult.	702,093	June 17	200	30	10	270
Turbine. Compound steam.	H. F. Fullinger.	692,097	Apr. 1	51	10	10	10
Turbine. Compound-combustion.	M. Beck.	692,098	Apr. 20	470	100	10	100
Turbine. Elastic-fluid.	C. G. Curtis.	702,704	May 27	200	12	10	100
Turbine. Steam.	J. H. Pedeler.	702,314	May 20	200	10	10	100
Turbine. Steam.	J. Burgram, (Belmont).	11,000	June 10	100	10	10	100
Turbine wheel.	J. Kadowaki.	702,401	June 17	200	10	10	100
Turbine-wheel support. Steam.	J. A. Bonagren.	697,120	Apr. 8	140	210	10	310
Turbine. Apparatus for controlling the speed of steam.	G. O. H. Olson.	701,800	June 8	200	10	10	100
Turning and boring apparatus. Elliptical.	C. J. Montross.	701,817	May 27	400	100	10	100
Turning center-wheel. Machine for.	A. Smith.	692,708	Apr. 20	400	100	10	100
Turning device.	G. H. Hildreth.	692,817	Apr. 1	700	100	10	100
Turning machine. Wood.	W. T. Jones.	692,804	Apr. 1	600	100	10	110
Turning machine. Wood.	W. J. Cochran.	697,807	Apr. 15	200	100	10	100
Turret. Superposed.	T. C. Fenton.	692,781	May 13	100	100	10	100
Tweezer with clamp all in one piece.	G. Havel.	692,805	May 6	100	100	10	100
Twine-making machine.	L. J. Monahan and C. Kleron.	697,411	Apr. 8	100	100	10	100
Twisting and spinning fibrous materials. Machine for.	J. Marshall.	692,810	May 6	100	100	10	100
Twyer. Cupola-furnace.	H. E. Palmer.	692,421	Apr. 20	200	100	10	100
Twyer. Furnace.	S. and F. H. Wain.	697,321	Apr. 8	170	100	10	100
Twyer. Furnace.	W. R. Foster.	692,422	Apr. 20	200	100	10	100
Type-casting machine.	F. Locke.	697,380	Apr. 15	200	100	10	100
Type-casting machine squirt-proventer.	G. A. Goodson.	702,041	June 24	200	100	10	100
Type-casting or other machine. Record-strip-feed- ing mechanism of automatic.	J. A. Barrows.	702,041	May 20	200	100	10	100
Type-composing machine.	T. Lanston.	702,041	May 20	200	100	10	100
Type-composing machine for tabular matter.	W. Kemp, Jr.	702,030	May 20	200	100	10	100
Type-composing machine. Automatic leader for.	J. A. Bancroft and M. C. Indahl.	702,030	May 20	200	100	10	100
Type-containing channel.	L. K. Johnson and A. A. Low.	692,390	May 6	100	100	10	100
Type-distributing apparatus.	A. A. Low and J. Broakey.	692,400	May 6	100	100	10	100
Type-distributing apparatus.	J. Broakey.	702,021	June 17	200	100	10	100
Type-distributing machine.	P. R. Hodgkin and G. R. Kenney.	702,021	June 17	200	100	10	100
Type-distributing machine.	J. Hinkley.	702,024	June 17	200	100	10	100
Type. Font of.	H. A. Goodson.	692,784	Apr. 1	600	100	10	100
Type for printing calendar. Set of.	J. L. Carroll.	701,677	June 3	700	100	10	100
Type-folding matrix.	H. A. Goodson.	692,785	Apr. 1	600	100	10	100
Type-justifying machine.	F. McClintock.	700,700	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,701	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,702	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,703	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,704	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,705	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,706	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,707	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,708	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,709	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,710	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,711	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,712	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,713	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,714	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,715	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,716	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,717	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,718	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,719	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,720	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,721	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,722	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,723	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,724	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,725	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,726	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,727	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,728	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,729	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,730	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,731	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,732	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,733	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,734	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,735	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,736	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,737	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,738	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,739	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,740	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,741	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,742	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,743	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,744	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,745	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,746	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,747	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,748	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,749	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,750	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,751	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,752	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,753	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,754	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,755	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,756	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,757	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,758	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,759	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,760	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,761	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,762	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,763	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,764	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,765	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,766	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,767	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,768	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,769	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,770	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,771	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,772	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,773	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,774	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,775	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,776	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,777	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,778	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,779	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,780	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,781	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,782	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,783	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,784	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,785	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,786	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,787	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,788	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,789	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,790	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,791	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,792	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,793	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,794	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,795	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,796	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,797	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,798	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,799	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,800	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,801	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,802	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,803	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,804	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,805	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,806	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,807	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,808	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,809	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,810	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,811	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,812	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,813	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,814	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,815	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,816	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,817	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,818	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,819	May 20	200	100	10	100
Type-justifying machine.	F. McClintock.	700,820	May 20	200	100	10	100
Type-justifying machine.	F. McCl						

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Invention	Name	No.	Date	Monthly volume		Official Gazette	
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Valve, Automatic	F. H. Mason	698,393	Apr. 29	3934	391	99	397
Valve, Automatic vent	L. J. Walsh	701,423	June 3	3935	392	99	398
Valve, Balanced	E. R. Statmanich	700,935	May 27	3936	397	99	399
Valve, Balanced slide	F. O. Charles	693,715	Apr. 1	315	393	99	394
Valve, Check or pump	R. Krober	703,323	June 10	1935	398	99	395
Valve, Combination safety, regulating, and drop	A. K. Reese	697,433	Apr. 15	3936	391	99	396
Valve, Compression	J. Morrison	702,973	June 17	3913	374	99	397
Valve-controlling mechanism for automatic water-heaters	J. Tracy and W. A. Bollinger	700,357	May 29	3935	394	99	398
Valve, Cylinder drain	G. Faith and T. Hook	693,395	Apr. 29	3935	394	99	399
Valve, Cylinder relief	A. Spencer	700,945	May 27	3936	397	99	400
Valve, Engine	J. G. McCormack	693,391	Apr. 1	395	397	99	401
Valve, Engine's	H. A. Christensen	701,345	June 10	395	398	99	402
Valve, Flush	J. J. Finney	700,355	May 29	3935	313	99	403
Valve, Flush	J. J. Finney	700,356	May 29	3935	313	99	404
Valve, Flush	J. J. Finney	700,357	May 29	3935	313	99	405
Valve for air-brakes, Pressure-retaining	J. A. Toal	697,394	Apr. 15	3937	345	99	406
Valve for automatic water-heaters	J. L. Graham	693,793	May 13	1935	399	99	407
Valve for gas-engines, Balanced	R. H. Dyer	699,373	May 6	400	103	99	408
Valve for internal-combustion engines, Exhaust	J. Salter, Jr.	701,344	June 10	1131	399	99	409
Valve for reversible steam-engines	A. H. Koons	702,339	June 17	3937	399	99	410
Valve for steam-carriages, Throttle	R. H. White	697,393	Apr. 15	3937	399	99	411
Valve for steam fire-engines, &c. Automatic	A. Mayer	697,397	Apr. 15	1331	399	99	412
Valve for steam-passages, Water and air relief	O. H. Atkins	702,333	June 10	1935	400	99	413
Valve-gear	O. Schmidt and H. A. Drandt	693,393	Apr. 29	4771	1040	99	414
Valve-gear	S. I. and W. S. Orain	701,330	June 3	39	7	99	415
Valve-gear, Locomotive	H. Maxwell	702,330	June 17	3735	400	99	416
Valve-governing mechanism for engines, Inlet	J. P. Duryea	702,330	June 10	1435	399	99	417
Valve mechanism	E. J. Armstrong	701,337	June 3	703	133	99	418
Valve mechanism, Out-off	J. Haug	697,399	Apr. 15	3703	399	99	419
Valve mechanism, Out-off	F. T. Schumacher	702,333	June 3	313	39	99	420
Valve mechanism, Engine	T. H. Haberkorn	702,333	June 17	3931	400	99	421
Valve mechanism, Hydraulic	W. F. Cole	702,333	May 27	3935	397	99	422
Valve-operating mechanism, Washbasin	E. B. Parsons	693,794	May 13	1103	399	99	423
Valve, Piston	W. Heston	693,375	Apr. 1	397	399	99	424
Valve, Reducing	G. W. Lord	702,334	May 29	3935	399	99	425
Valve regulator and governor	J. F. McElroy	702,335	June 10	1235	399	99	426
Valve, Relief	F. Schreidt	702,337	June 10	1231	399	99	427
Valve, Retaining	W. G. Lamb	702,338	June 17	3731	399	99	428
Valve, Rotary	J. B. Starg	701,333	June 3	393	133	99	429
Valve, Safety	W. E. Jerauld	693,393	May 6	703	177	99	430
Valve, Safety	W. S. Washburn	701,333	June 3	393	133	99	431
Valve, Steam-engine	A. Tandler	701,333	June 3	393	133	99	432
Valve, Steam-engine	E. L. Bauer	701,333	June 3	393	133	99	433
Valve, Stop	W. G. Tyson	702,333	June 10	1371	399	99	434
Valve, Throttle	G. W. King	701,374	June 3	393	133	99	435
Valve, Throttle	J. S. Chambers	701,379	June 3	723	133	99	436
Valve, Water-cooled	H. E. Ebb	697,374	Apr. 29	3937	399	99	437
Valve, Construction and application of piston	J. H. B. Head	697,393	Apr. 15	3704	399	99	438
Valved stopper for receptacles, &c.	S. Molnar	702,310	June 17	3930	400	99	439
Vapor-burner, Incandescent	E. L. Fee	702,334	May 29	3935	400	99	440
Vapor-generator	M. Castelmann and O. Thielon	697,397	Apr. 1	701	173	99	441
Vaporizer or burner, Hydrocarbon	L. G. Gebhard and J. H. Rowley	697,313	Apr. 15	3936	315	99	442
Vault	J. W. Donnell	702,333	June 3	740	133	99	443
Vault, Burial	J. C. Hennis	693,393	Apr. 29	3935	1133	99	444
Vault, Burial	A. B. Buren	702,334	May 27	3177	734	99	445
Vault-light	L. Braun	693,793	May 13	1235	399	99	446
Vault or grave	T. D. Haskins and F. J. Bocher	693,393	May 6	393	394	99	447
Vegetable-puller	W. Galarno	697,403	Apr. 15	3935	400	99	448
Vegetable-stem, Machine for treating	J. A. Lacotte	701,397	May 27	3935	397	99	449
Vehicle	F. Bosch	697,393	Apr. 15	1937	391	99	450
Vehicle	A. Horschmann	693,393	Apr. 29	3935	397	99	451
Vehicle	J. Torrent	700,330	May 29	3935	399	99	452
Vehicle	R. C. Hicks	700,333	May 27	3935	315	99	453
Vehicle	J. F. Hathaway	702,333	June 10	1421	313	99	454
Vehicle	F. Stratton	702,334	June 17	3935	397	99	455
Vehicle	A. Clark	702,335	June 24	3935	310	99	456
Vehicle-body	J. E. and C. B. Brown	693,453	May 6	393	133	99	457
Vehicle-body corner-iron	G. W. Vinson	697,393	Apr. 15	1703	399	99	458
Vehicle-body rail	W. Marin	693,453	May 6	397	131	99	459
Vehicle-brake	W. G. Price	693,453	Apr. 1	393	103	99	460
Vehicle-brake	W. G. Price	693,454	Apr. 1	393	110	99	461
Vehicle-brake	E. M. Letts	693,453	May 13	1937	374	99	462
Vehicle-brake	J. D. Richards	700,333	May 13	1944	399	99	463
Vehicle-brake	W. A. Orttlow	702,337	June 10	1703	410	99	464
Vehicle-brake and bell	R. H. Madson	700,340	May 29	3935	394	99	465
Vehicle-brake, Automatic	J. B. Austin	700,337	May 29	3937	394	99	466
Vehicle-brake mechanism	W. Winkler	693,393	Apr. 1	394	39	99	467
Vehicle-controller, Electric	H. E. Outler	697,393	Apr. 29	3935	399	99	468
Vehicle-controller, Electric	H. E. Outler	697,397	Apr. 29	3935	399	99	469
Vehicle-controller, Electric	A. L. Simpson and H. R. Palmer	693,393	Apr. 29	3935	1103	99	470
Vehicle-curtain attachment	F. W. Holden	693,397	Apr. 29	1935	1107	99	471
Vehicle-driving mechanism, Motor	C. O. Bramwell	701,333	June 3	427	131	99	472
Vehicle, Dumping	T. H. H.	702,333	May 6	70	133	99	473
Vehicle, Dumping	A. Fouts	702,333	May 29	3935	401	99	474
Vehicle, Dumping	H. F. Shepherd	702,371	May 29	3935	399	99	475

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Vehicle frame. Motor.	W. A. Crowder.	693,576	Apr. 26	3700	260	36	1934
Vehicle frame. Motor.	W. A. Crowder.	700,902	May 27	3439	303	36	1934
Vehicle frame or running gear.	A. Bath.	697,965	Apr. 26	3667	645	36	1934
Vehicle frame. Self-propelled.	A. A. Ball, Jr.	693,397	Apr. 1	6	3	36	1934
Vehicle ground-wheel. Mechanism for transmitting power from.	C. L. V. Kinney.	693,642	Apr. 1	449	165	36	1934
Vehicle. Motor.	W. W. Robinson.	694,333	Apr. 1	339	22, 23	36	1934
Vehicle. Motor.	E. J. Pennington.	694,334	Apr. 1	339	138	36	1934
Vehicle. Motor.	C. D. Mosher.	697,938	Apr. 15	3666	336	36	1934
Vehicle. Motor.	C. L. Mayhew.	693,083	Apr. 29	3005	376	36	1934
Vehicle. Motor.	R. E. Olds.	693,121	Apr. 29	3677	713	36	1934
Vehicle. Motor.	R. J. McMahon.	693,739	Apr. 29	4490	379	36	1934
Vehicle. Motor.	G. W. Smith.	693,793	Apr. 29	4490	389	36	1934
Vehicle. Motor.	W. L. Right.	693,833	Apr. 29	4490	1081	36	1934
Vehicle. Motor.	J. R. Oape.	693,304	May 6	693	21, 27	36	1934
Vehicle. Motor.	J. E. Thornycroft.	693,427	May 6	678	131	36	1934
Vehicle. Motor.	H. P. Maxim.	693,543	May 6	773	133	36	1934
Vehicle. Motor.	W. Norris.	693,603	May 13	1330	304	36	1934
Vehicle. Motor.	W. A. Crowder.	702,742	May 27	3197	730	36	1934
Vehicle. Motor.	R. C. Hicks.	700,773	May 27	3664	743	36	1934
Vehicle. Motor.	A. C. Krebs.	700,930	May 27	3666	384	36	1934
Vehicle. Motor.	J. D. Maxwell.	701,300	June 10	1113	337	36	1934
Vehicle. Motor.	H. P. Maxim and H. M. Pope.	702,443	June 17	3113	430	36	1934
Vehicle. Motor.	P. Foulson.	703,391	June 24	3713	333	36	1934
Vehicle mud-guard.	J. Pfeiffer.	697,910	Apr. 6	1304	333	36	1934
Vehicle mud or mud band.	S. D. and J. M. Morger.	701,943	June 3	121	25	36	1934
Vehicle propelling and brake mechanism.	O. C. Howes.	694,973	Apr. 6	1130	334	36	1934
Vehicle pump.	R. L. Morgan.	697,039	Apr. 6	1304	333	36	1934
Vehicle reach.	J. W. Travis and H. A. Deane.	697,334	Apr. 6	1373	333	36	1934
Vehicle robe-lock.	A. M. Johnson.	693,337	Apr. 26	3664	703	36	1934
Vehicle running gear.	C. F. Burns.	697,000	Apr. 15	3242	333	36	1934
Vehicle running gear.	H. W. Koshler.	693,332	Apr. 29	3671	377	36	1934
Vehicle running gear.	E. J. Pennington.	693,331	May 6	933	233	36	1934
Vehicle running gear.	C. H. Spencer.	700,430	May 20	3619	333	36	1934
Vehicle running gear.	G. H. Sherman.	701,331	June 3	644	141	36	1934
Vehicle running gear. Motor.	H. A. Knox and J. H. Jones.	697,945	Apr. 15	3207	333	36	1934
Vehicle safety attachment.	J. P. Lowe.	700,337	May 27	3666	333	36	1934
Vehicle seat.	L. E. Truflow.	693,433	May 6	631	133	36	1934
Vehicle seat-lock.	C. H. Lambert.	693,643	Apr. 1	430	107	36	1934
Vehicle. Speed.	C. Roster.	693,333	Apr. 29	4033	333	36	1934
Vehicle speed-registering attachment.	G. A. Kennedy.	701,333	June 3	133	27, 28	36	1934
Vehicle spring-gear.	D. True.	697,370	Apr. 15	3233	333	36	1934
Vehicle. Steam-propelled road.	E. S. Straker.	693,333	Apr. 26	3666	703	36	1934
Vehicle steering and driving gear. Motor.	R. W. H. Bailey and A. W. Brightmore.	693,331	Apr. 29	4770	1030	36	1934
Vehicle steering apparatus.	A. W. Kent.	700,773	May 27	3677	723	36	1934
Vehicle steering gear.	P. L. Mallott and E. E. Hall.	693,497	Apr. 26	3701	333	36	1934
Vehicle steering lock.	G. P. Aborn.	697,333	Apr. 15	3430	333	36	1934
Vehicle steering mechanism.	H. P. Maxim.	702,333	June 24	3133	721	36	1934
Vehicle storm-apron.	W. G. Reese.	701,614	June 3	333	133	36	1934
Vehicle storm-curtain.	R. Reeder.	702,430	June 17	3171	433	36	1934
Vehicle support. Elastic.	A. Paulbrook.	693,739	May 13	1113	333	36	1934
Vehicle toe-rest.	L. E. Truflow.	693,331	Apr. 1	430	113	36	1934
Vehicle-top.	G. W. Kernodle.	702,373	June 24	3230	337	36	1934
Vehicle water-cooling apparatus. Motor.	E. T. Barrowes.	701,434	June 3	333	73	36	1934
Vehicle wheel.	E. Hudson.	697,333	Apr. 6	1333	333	36	1934
Vehicle wheel.	S. E. Oviatt.	693,333	Apr. 29	3661	1033	36	1934
Vehicle wheel.	P. H. White.	693,334	May 13	1073	333	36	1934
Vehicle wheel.	D. H. Haywood.	700,430	May 20	3703	333	36	1934
Vehicle wheel.	G. S. Lee.	700,514	May 20	3733	333	36	1934
Vehicle wheel.	G. S. Lee.	700,515	May 20	3733	333	36	1934
Vehicle wheel.	G. S. Lee.	700,516	May 20	3733	333	36	1934
Vehicle wheel.	G. S. Lee.	700,517	May 20	3733	333	36	1934
Vehicle wheel.	D. H. Haywood.	701,373	June 3	173	37	36	1934
Vehicle wheel.	D. H. O'Hara.	701,373	June 24	3173	731	36	1934
Vehicle wheel.	H. H. Schenk.	702,003	June 24	3233	733	36	1934
Vehicle wheel.	C. T. McCue.	702,073	June 24	3233	733	36	1934
Vehicle wheel and tire therefor.	L. F. and R. C. Altpeter.	701,373	June 3	3	1	36	1934
Vehicles, cycles, &c. Variable-speed gear for motor.	J. E. Madan.	697,133	Apr. 6	1433	333	36	1934
Vehicles for mechanically operating electric switches. Connection of strikers to motor.	W. Kingland.	693,333	Apr. 26	3666	1031	36	1934
Vehicles. Means for automatic control of motor.	H. H. Sherk.	693,333	May 6	633	333	36	1934
Vail fastener.	W. Bernstein.	701,133	May 27	3664	333	36	1934
Vail fastener.	A. Bippart.	701,391	June 10	1373	333	36	1934
Vail holder.	M. H. McGrath.	697,333	Apr. 15	3131	374	36	1934
Vail holder.	J. H. Barry.	697,730	Apr. 15	3600	373	36	1934
Velopede pedal.	E. W. Hemstock.	702,333	May 20	3734	333	36	1934
Velopede, &c. Stowaway mud-guard for.	C. W., F. H., and E. A. Bismel.	702,333	June 24	3237	333	36	1934
Vending apparatus. Coin-controlled.	D. Bourbe.	702,310	June 24	3234	333	36	1934
Vending-machine.	E. A. Wilcox.	700,334	May 20	3666	377	36	1934
Vending-machine.	J. C. de Janin.	702,310	June 10	1333	333	36	1934

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Vending-machine	D. Knowlton	705,127	June 24	5422	757	10	227
Vending-machine	D. Knowlton	705,128	June 24	5423	758	10	228
Vending-machine, Automatic	J. J. Reed	694,931	Apr. 15	5324	821	9	229
Vending-machine, Cigar	W. R. Dunscomb	695,970	May 12	5342	842	9	230
Vending-machine, Cigar	W. R. Dunscomb	705,080	June 17	5421	756	10	231
Vending-machine, Coin-controlled	F. Lynde	694,934	Apr. 15	5325	822	9	232
Vending-machine coin-controlled mechanism	D. Knowlton	705,127	June 24	5422	757	10	233
Vending-machine, Coin-controlled newspaper	A. D. Smith	694,935	May 6	5326	823	9	234
Vending-machine, Coin-operated	G. J. Morgan and G. Tillotson	694,936	Apr. 1	5327	824	9	235
Vending-machine, Match	G. G. Schroeder	694,937	May 12	5343	843	9	236
Veneer-cutting machine	L. G. Morris	694,938	May 6	5328	825	9	237
Veneer-cutting machine	L. G. Morris	694,939	May 6	5329	826	9	238
Veneer-cutting machine	L. G. Morris	705,129	June 24	5424	759	10	239
Veneer-cutting machine	L. G. Morris	694,940	May 6	5330	827	9	240
Veneer-cutting machine	L. G. Morris	694,941	May 6	5331	828	9	241
Veneer-cutting machine	L. G. Morris	694,942	May 6	5332	829	9	242
Veneer-cutting machine	L. G. Morris	694,943	May 6	5333	830	9	243
Veneer-cutting machine	L. G. Morris	694,944	May 6	5334	831	9	244
Veneer-cutting machine	L. G. Morris	694,945	May 6	5335	832	9	245
Veneer-cutting machine	L. G. Morris	694,946	May 6	5336	833	9	246
Veneer-cutting machine	L. G. Morris	694,947	May 6	5337	834	9	247
Veneer-cutting machine	L. G. Morris	694,948	May 6	5338	835	9	248
Veneer-cutting machine	L. G. Morris	694,949	May 6	5339	836	9	249
Veneer-cutting machine	L. G. Morris	694,950	May 6	5340	837	9	250
Veneer-cutting machine	L. G. Morris	694,951	May 6	5341	838	9	251
Veneer-cutting machine	L. G. Morris	694,952	May 6	5342	839	9	252
Veneer-cutting machine	L. G. Morris	694,953	May 6	5343	840	9	253
Veneer-cutting machine	L. G. Morris	694,954	May 6	5344	841	9	254
Veneer-cutting machine	L. G. Morris	694,955	May 6	5345	842	9	255
Veneer-cutting machine	L. G. Morris	694,956	May 6	5346	843	9	256
Veneer-cutting machine	L. G. Morris	694,957	May 6	5347	844	9	257
Veneer-cutting machine	L. G. Morris	694,958	May 6	5348	845	9	258
Veneer-cutting machine	L. G. Morris	694,959	May 6	5349	846	9	259
Veneer-cutting machine	L. G. Morris	694,960	May 6	5350	847	9	260
Veneer-cutting machine	L. G. Morris	694,961	May 6	5351	848	9	261
Veneer-cutting machine	L. G. Morris	694,962	May 6	5352	849	9	262
Veneer-cutting machine	L. G. Morris	694,963	May 6	5353	850	9	263
Veneer-cutting machine	L. G. Morris	694,964	May 6	5354	851	9	264
Veneer-cutting machine	L. G. Morris	694,965	May 6	5355	852	9	265
Veneer-cutting machine	L. G. Morris	694,966	May 6	5356	853	9	266
Veneer-cutting machine	L. G. Morris	694,967	May 6	5357	854	9	267
Veneer-cutting machine	L. G. Morris	694,968	May 6	5358	855	9	268
Veneer-cutting machine	L. G. Morris	694,969	May 6	5359	856	9	269
Veneer-cutting machine	L. G. Morris	694,970	May 6	5360	857	9	270
Veneer-cutting machine	L. G. Morris	694,971	May 6	5361	858	9	271
Veneer-cutting machine	L. G. Morris	694,972	May 6	5362	859	9	272
Veneer-cutting machine	L. G. Morris	694,973	May 6	5363	860	9	273
Veneer-cutting machine	L. G. Morris	694,974	May 6	5364	861	9	274
Veneer-cutting machine	L. G. Morris	694,975	May 6	5365	862	9	275
Veneer-cutting machine	L. G. Morris	694,976	May 6	5366	863	9	276
Veneer-cutting machine	L. G. Morris	694,977	May 6	5367	864	9	277
Veneer-cutting machine	L. G. Morris	694,978	May 6	5368	865	9	278
Veneer-cutting machine	L. G. Morris	694,979	May 6	5369	866	9	279
Veneer-cutting machine	L. G. Morris	694,980	May 6	5370	867	9	280
Veneer-cutting machine	L. G. Morris	694,981	May 6	5371	868	9	281
Veneer-cutting machine	L. G. Morris	694,982	May 6	5372	869	9	282
Veneer-cutting machine	L. G. Morris	694,983	May 6	5373	870	9	283
Veneer-cutting machine	L. G. Morris	694,984	May 6	5374	871	9	284
Veneer-cutting machine	L. G. Morris	694,985	May 6	5375	872	9	285
Veneer-cutting machine	L. G. Morris	694,986	May 6	5376	873	9	286
Veneer-cutting machine	L. G. Morris	694,987	May 6	5377	874	9	287
Veneer-cutting machine	L. G. Morris	694,988	May 6	5378	875	9	288
Veneer-cutting machine	L. G. Morris	694,989	May 6	5379	876	9	289
Veneer-cutting machine	L. G. Morris	694,990	May 6	5380	877	9	290
Veneer-cutting machine	L. G. Morris	694,991	May 6	5381	878	9	291
Veneer-cutting machine	L. G. Morris	694,992	May 6	5382	879	9	292
Veneer-cutting machine	L. G. Morris	694,993	May 6	5383	880	9	293
Veneer-cutting machine	L. G. Morris	694,994	May 6	5384	881	9	294
Veneer-cutting machine	L. G. Morris	694,995	May 6	5385	882	9	295
Veneer-cutting machine	L. G. Morris	694,996	May 6	5386	883	9	296
Veneer-cutting machine	L. G. Morris	694,997	May 6	5387	884	9	297
Veneer-cutting machine	L. G. Morris	694,998	May 6	5388	885	9	298
Veneer-cutting machine	L. G. Morris	694,999	May 6	5389	886	9	299
Veneer-cutting machine	L. G. Morris	695,000	May 6	5390	887	9	300

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Pat.	Des.	Vol.	Page.
Wardrobe	G. Bois	705,130	June 24	5425	760	10	281
Wardrobe and dresser, Combined folding	M. J. Randall	705,131	May 20	5426	761	10	282
Warming-lag	T. O'Donnell	705,132	June 24	5427	762	10	283
Warp-stop-motion detector	D. D. Mahoney	695,117	Apr. 20	5344	844	9	284
Warp-stop-motion mechanism	W. I. Stimpson	695,118	Apr. 20	5345	845	9	285
Warp-stop-motion vibrator	A. K. Frost	695,119	Apr. 20	5346	846	9	286
Warp-threads, Machine for drawing in	H. Farden	705,120	May 12	5428	763	10	287
Warping-machine	J. W. Dimick, Jr., and J. Jagger	695,121	May 6	5347	847	9	288
Warping-machine, reel	J. O. Hartwick	695,122	May 6	5348	848	9	289
Warping-machine, reel	C. H. Baker	705,123	June 24	5429	764	10	290
Warping-machine, reel	E. T. Hall	695,124	Apr. 20	5349	849	9	291
Warping-machine, reel	A. C. Black	695,125	Apr. 20	5350	850	9	292
Warping-machine, reel	W. W. Topik	695,126	Apr. 20	5351	851	9	293
Warping-machine, reel	P. C. Kaiser	705,127	June 10	5430	765	10	294
See Bottle-washer. Window-washer.							
Dish-washer.	J. W. Shaw	697,590	Apr. 8	5388	893	9	357
Washer-fastener	C. Stearns	695,581	Apr. 20	5352	793	9	295
Washing-jack	J. R. Hartman	695,582	Apr. 1	5353	77	9	296
Washing-machine	P. Bois	695,583	Apr. 1	5354	193	9	297
Washing-machine	W. W. Tatro	697,730	Apr. 15	5399	899	9	358
Washing-machine	A. E. Thomas	695,124	Apr. 20	5350	795	9	298
Washing-machine	R. Poulson	695,585	Apr. 20	5355	827	9	299
Washing-machine	H. A. Robinson	695,705	May 12	5429	421	9	300
Washing-machine	R. D. Hamilton	705,134	May 20	5430	422	9	301
Washing-machine	W. C. Farlow	701,167	May 27	5404	93	9	302
Washing-machine	D. Boorman and A. P. Shary	705,586	June 10	5431	423	9	303
Washing-machine	H. B. Higgins	705,587	June 17	5474	513	9	304
Washing-machine	L. B. Brooks	705,588	June 17	5475	514	9	305
Washing-machine	J. Worrall	705,589	June 24	5444	515	9	306
Washing-machine, gearing	F. C. Kaiser	695,125	May 6	5349	104	9	307
Washbasin	M. Miles	705,590	May 20	5432	611	9	308
Watch-dismantler	P. Foreman	705,591	June 17	5476	516	9	309
Watch-dial	W. Brack	705,592	June 17	5477	517	9	310
Watch-protector	J. Cohen	705,593	June 24	5488	518	9	311
Water, acid, and fire proof composition	J. A. Heany	705,594	May 12	5433	519	9	312
Water-bag	L. M. Upmeyer	705,595	June 17	5478	519	9	313
Water-bag	T. L. Allagretti	705,596	June 17	5479	520	9	314
Water-balance, Automatic	A. Hoberoch	697,025	Apr. 8	5387	521	9	315
Water-closet	J. Campbell	697,026	Apr. 15	5398	522	9	316
Water-closet, flushing tank or glass	W. Bunting, Jr.	705,597	June 17	5479	523	9	317
Water-closet receptacle for railway-car	A. Knell, Jr.	705,598	June 24	5480	524	9	318
Water-closet seat, Lock	P. A. Allen and J. W. McKenna	705,599	May 27	5441	525	9	319
Water-closet water-supply apparatus	W. G. Miles	697,594	Apr. 8	5388	526	9	320
Water-cooler for initiating purposes	V. J. Emery	695,595	Apr. 20	5356	527	9	321
Water-cooling tower	E. and U. H. De Moellen	697,120	Apr. 8	5389	528	9	322
Water-distribution	W. Oelshlaeger	695,596	Apr. 20	5357	1120	9	323
Water-elevator	J. Cohen	697,517	Apr. 8	5389	529	9	324
Water-elevator, Compressed air	D. O. Brian	697,171	Apr. 8	5390	530	9	325
Water-elevator, Compressed air	J. E. Richards	697,172	Apr. 8	5391	531	9	326
Water-gate	G. R. Tyler	697,598	Apr. 8	5392	532	9	327
Water-hammer and steam-generator	J. Dora	697,599	Apr. 20	5358	533	9	328
Water-hammer, Electric	C. H. Baker	697,600	Apr. 15	5393	534	9	329
Water-hammer, Submerged	O. Maloney	705,601	May 20	5434	535	9	330
Water-meter	M. H. Shoenberg and H. Levy	695,602	Apr. 1	5370	536	9	331
Water-meter	O. O. Finney	705,603	June 24	5481	537	9	332
Water-meter	L. R. Nash and F. S. King	695,604	Apr. 1	5371	538	9	333
Water-meter	H. F. Brown	705,605	June 8	5475	539	9	334
Water-meter and recorder	W. G. Kent	695,126	May 6	5349	540	9	335
Water-meter, Disk	W. H. Larrabee	705,606	June 10	5482	541	9	336
Water-meter, Disk	W. H. Larrabee	705,607	June 10	5483	542	9	337
Water-meter, Disk	F. L. Northrop	705,608	June 24	5484	543	9	338
Water-meter, Disk	W. H. Larrabee	705,609	June 24	5485	544	9	339
Water-meter, Electromagnetic	W. H. Kelly and A. Tschinkel	697,610	Apr. 15	5394	545	9	340
Water-meter, Chain	N. Schmidt	697,611	Apr. 15	5395	546	9	341
Water-pipe	C. E. Thurston	695,612	May 12	5435	547	9	342
Water-pipe stop and waste	W. Roshko	705,613	May 24	5479	548	9	343
Water-purifying apparatus	H. Janotich	705,614	June 24	5486	549	9	344
Water-purifying apparatus	E. Horland	705,615	June 24	5487	550	9	345
Water-purifying apparatus	C. O. Clark	697,616	May 12	5436	551	9	346
Water-purifying apparatus	A. Harris	705,617	May 20	5437	552	9	347
Water-purifying apparatus	J. Ross	705,618	May 27	5442	553	9	348
Water-purifying device	J. M. A. Lacomme	695,619	Apr. 1	5372	554	9	349
Water-purifying device	W. H. Kelly and A. Tschinkel	705,620	June 17	5488	555	9	350
Water-supply and filtering system	L. E. Smith	695,621	Apr. 20	5359	556	9	351
Water-tower	T. H. Ryde and A. D. Burns	695,622	Apr. 20	5360	557	9	352
Water-tube boiler	E. G. East	695,623	Apr. 20	5361	558	9	353
Water-tube boiler	R. E. Freeman	695,624	Apr. 20	5362	559	9	354
Water-tube boiler	H. C. Scott	705,625	May 12	5438	560	9	355
Water-tube boiler	J. A. Becht	705,626	May 20	5439	561	9	356
Water-tube boiler	O. D. Orvis	705,627	June 17	5489	562	9	357
Water-tube, Rotary	A. S. Hughes	695,628	Apr. 1	5373	563	9	358
Water-wheel	J. M. King	705,629	June 8	5476	564	9	359

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Alphabetical List of Intentions, April to June, inclusive.—Continued.

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Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				1	2	1	2
Wrapper or label asserting machine	C. E. Votaw	694,597	Apr. 29	4194	980	98	982
Wrapping-machine	G. L. Gay	694,617	Apr. 15	2293	514	98	980
Wrapping-machine	J. H. Feinman	694,730	May 13	1299	377	98	1000
Wrapping pamphlets, &c. Machine for	H. P. Sheldon	694,619	May 6	380	129	98	1299
Wrench:							
See Adjustable wrench. Nut and pipe wrench.							
Chain wrench. Pipe-wrench.							
Clamping-wrench. Ratchet-wrench.							
Cover-wrench. Track-wrench.							
Nut-wrench.							
Wrench	R. A. Broul	694,490	Apr. 1	38	6	98	9
Wrench	G. B. Howard and J. Langhart, Jr.	694,579	Apr. 1	104	129	98	129
Wrench	F. V. Barick	694,561	Apr. 9	1299	380	98	980
Wrench	V. O. Brown	694,581	Apr. 9	1743	380	98	981
Wrench	J. H. Paulin	694,577	Apr. 15	2777	615	98	641
Wrench	S. A. Holmes	694,540	Apr. 15	2996	697	98	694
Wrench	S. W. Wardwell and H. H. Eicher	694,538	Apr. 23	3193	694	98	719
Wrench	L. W. Johnson	694,539	Apr. 23	3245	795	98	824
Wrench	H. Decker	694,577	Apr. 23	3711	820	98	820
Wrench	H. D. Hubbard	694,498	Apr. 23	3883	820	98	820
Wrench	H. D. Hubbard	694,708	Apr. 23	4297	970	98	980
Wrench	R. Huntley	694,617	Apr. 23	4399	1143	98	1143
Wrench	W. Sundquist	694,594	May 6	129	28	98	1219
Wrench	W. J. Quinn	694,448	May 6	622	157	98	1599
Wrench	A. Bond	694,448	May 6	622	157	98	1599
Wrench	A. F. Glavis	694,676	May 13	1084	246	98	1419
Wrench	C. C. Longard	694,680	May 13	1085	246	98	1419
Wrench	J. D. McFarland, Jr.	700,390	May 20	2445	387	98	1710
Wrench	H. Kints and M. J. Leonard	700,400	May 20	2591	391	98	1717
Wrench	W. M. Treglow, Sr.	701,103	May 27	3077	691	98	2043
Wrench	C. F. Bettmann and S. Tinkington	701,422	June 3	334	71	98	2170
Wrench	D. R. Lee	701,504	June 3	381	130	98	2293
Wrench	F. C. Peabody	701,590	June 10	1121	294	98	2295
Wrench	W. Shirk	701,581	June 10	1194	375	98	2374
Wrench	G. H. Boyd	701,590	June 24	3000	390	98	2400
Wrenches. Construction of	F. Searle	694,719	May 13	1124	285	98	1401
Wringer:							
See Clothes-wringer. Map-wringer.							
Writing attachment	J. C. Fink	701,587	June 10	1040	380	98	2041
Writing-machine	R. B. Hess	697,390	Apr. 8	1011	324	98	324
Writing-machine	R. B. Hess	700,397	May 20	2045	380	98	1990
Writing-machine carriage	J. T. Schaeff	700,379	June 10	1007	449	98	2000
Xylophone-player	F. R. Goodman	700,385	May 13	1793	445	98	2045
Yoke-center guard. Neck	J. F. Vaughaun	700,390	Apr. 23	4141	380	98	380
Yoke-center. Neck	E. C. Summers	701,415	June 3	385	38	98	2125
Yoke. Neck	J. H. Storch	698,075	Apr. 23	2145	691	98	715
Zinc-bearing ores. Purifying	C. R. P. Steiman	697,393	Apr. 15	2933	691	98	691
Zinc by electrolysis. Apparatus for obtaining	L. Mond	701,516	May 27	4007	385	98	2005
Zinc by electrolysis. Obtaining	L. Mond	701,515	May 27	4005	385	98	2005
Zinc. Extracting	J. L. Babé and A. Tricart	702,704	June 17	3711	981	98	2004
Zinc gelatious compound	A. Michangris and R. Berendes	699,694	Apr. 23	4001	380	98	980
Zinc or electrolyte plates. Frame or base for	S. Waterman	702,694	June 17	3420	380	98	2045
Zinc or other volatile metals from ores or matters. Apparatus for obtaining	J. Armstrong	701,687	June 3	312	38	98	3170
Zinc or other volatile metals from ores or matters. Obtaining	J. Armstrong	701,686	June 3	312	38	98	3170

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette.	
				Volume.	Page.
Badge.....	J. O'Callahan.....	25,087	May 27	99	2091
Badge.....	J. R. Hollis.....	25,088	June 10	99	2092
Basket.....	M. V. Hammack.....	25,089	June 3	99	2093
Basket connecting-piece.....	J. H. Dyott.....	25,090	Apr. 15	99	2094
Basket and frame.....	H. Kautschak.....	25,091	Apr. 20	99	2095
Belt.....	L. A. Myers, Jr.....	25,092	Apr. 1	99	2096
Belt. Apparel.....	O. A. Lehman.....	25,093	Apr. 1	99	2097
Belt. Apparel.....	O. A. Lehman.....	25,094	Apr. 1	99	2098
Belt.....	F. A. Wells.....	25,095	Apr. 8	99	2099
Belt.....	F. A. Wells.....	25,096	Apr. 8	99	2100
Bottle.....	R. H. Hunsat.....	25,097	May 6	99	2101
Box. Cigarette.....	G. P. Butler.....	25,098	Apr. 15	99	2102
Box. Paper.....	R. L. Myers.....	25,099	June 10	99	2103
Brooches, scarf-pins, or similar articles. Ornamental head for.....	L. D. Fromot.....	25,100	May 27	99	2104
Brushes, mirrors, or similar articles. Back for.....	R. A. Keller.....	25,101	May 6	99	2105
Buckle. Belt.....	L. B. Fraher.....	25,102	June 17	99	2106
Bureau or similar article.....	M. V. Hammack.....	25,103	June 10	99	2107
Bureau or similar article of furniture.....	M. V. Hammack.....	25,104	June 10	99	2108
Button.....	H. T. Bartrader.....	25,105	May 6	99	2109
Cabinet. Dressing.....	J. C. Taylor.....	25,106	June 17	99	2110
Cabinet for holding coats, umbrellas, &c.....	A. A. Holmes.....	25,107	May 20	99	2111
Cabinet. Wall.....	O. E. Larabee.....	25,108	Apr. 1	99	2112
Calendar.....	H. Davis.....	25,109	June 10	99	2113
Card plate or holder.....	C. A. Brewer.....	25,110	May 20	99	2114
Cart-body.....	J. C. Henderson.....	25,111	Apr. 15	99	2115
Cart-body.....	J. Maxwell.....	25,112	May 6	99	2116
Cart-trimming.....	W. E. Stevens.....	25,113	Apr. 15	99	2117
Chair-back.....	R. E. Sargent.....	25,114	June 17	99	2118
Chair-back.....	A. Wanner, Jr.....	25,115	May 6	99	2119
Chair-back.....	A. Wanner, Jr.....	25,116	May 6	99	2120
Chair.....	H. Mayer.....	25,117	Apr. 1	99	2121
Chair.....	H. Jacobs.....	25,118	Apr. 1	99	2122
Chair.....	P. Thigpen.....	25,119	June 10	99	2123
Chair.....	S. Lina.....	25,120	June 10	99	2124
Cup.....	A. Duggan.....	25,121	May 20	99	2125
Curtain. Lace.....	E. Solomon.....	25,122	June 17	99	2126
Curtain-cover. Portrait.....	A. Flak.....	25,123	Apr. 20	99	2127
Decorative.....	H. D. Oall.....	25,124	June 17	99	2128
Dish or similar article.....	F. J. Gordon.....	25,125	Apr. 20	99	2129
Dish.....	R. L. Johnson.....	25,126	Apr. 15	99	2130
Dish. Vegetable.....	C. H. Kauter.....	25,127	May 23	99	2131
Dresser.....	J. W. Landsberger.....	25,128	June 17	99	2132
Fabric. Woven.....	J. W. Landsberger.....	25,129	June 17	99	2133
Fabric. Woven.....	J. F. Shelton.....	25,130	May 20	99	2134
Fence. Wire.....	H. D. Weary.....	25,131	June 10	99	2135
Floor-covering. Mosaic.....	C. Schenck.....	25,132	May 6	99	2136
Flushing-tank.....	C. Schenck.....	25,133	May 6	99	2137
Flushing-tank.....	C. Schenck.....	25,134	May 6	99	2138
Flushing-tank.....	W. T. Smith.....	25,135	May 13	99	2139
Fringe.....	H. E. Franko.....	25,136	Apr. 1	99	2140
Gas-are light.....	C. W. Hunt.....	25,137	Apr. 1	99	2141
Gas-are light.....	W. C. Anderson.....	25,138	Apr. 1	99	2142
Glass dish.....	W. S. Clark.....	25,139	May 6	99	2143
Glass dish.....	W. S. Clark.....	25,140	May 6	99	2144
Glass dish.....	E. J. Koch.....	25,141	May 20	99	2145
Glass receptacle. Out.....	C. V. Reimschmied.....	25,142	May 13	99	2146
Glass vessel. Out.....	F. C. Parache.....	25,143	Apr. 8	99	2147
Harness hip-strap drop.....	A. Hader.....	25,144	June 3	99	2148
Harness rein-guides.....	J. H. Alexander.....	25,145	May 6	99	2149
Leasing. Shoe.....	H. W. Miller.....	25,146	Apr. 15	99	2150
Lamp.....	P. Fann.....	25,147	Apr. 8	99	2151
Lamp chimney.....	C. W. Blair.....	25,148	May 6	99	2152
Lamp fixture.....	T. H. Jamison.....	25,149	Apr. 1	99	2153
Lamp fixture.....	T. H. Jamison.....	25,150	May 13	99	2154
Lamp fixture.....	C. W. Park.....	25,151	Apr. 20	99	2155
Moistener. Stamp or envelope.....	M. A. McCray.....	25,152	May 13	99	2156
Monument.....	R. H. Wolf.....	25,153	June 10	99	2157
Name-plate.....	W. D. Hamilton.....	25,154	June 10	99	2158
Ornamental border.....	J. H. Gault.....	25,155	Apr. 20	99	2159
Paper.....	G. W. Bunkin.....	25,156	June 3	99	2160
Pattern. Dress-skirt.....	H. Guiton.....	25,157	Apr. 1	99	2161
Pattern. Dress-skirt.....	H. Guiton.....	25,158	Apr. 1	99	2162
Pattern. Dress-skirt.....	H. Guiton.....	25,159	Apr. 1	99	2163
Pattern. Dress-skirt.....	H. Guiton.....	25,160	Apr. 1	99	2164
Pattern. Dress-skirt.....	H. Guiton.....	25,161	Apr. 1	99	2165
Pattern. Dress-skirt.....	H. Guiton.....	25,162	Apr. 1	99	2166
Pattern. Dress-skirt.....	H. Guiton.....	25,163	Apr. 1	99	2167
Pattern. Dress-skirt.....	H. Guiton.....	25,164	Apr. 1	99	2168
Pattern. Dress-skirt.....	H. Guiton.....	25,165	Apr. 1	99	2169
Pattern. Dress-skirt.....	H. Guiton.....	25,166	Apr. 1	99	2170
Pattern. Dress-skirt.....	H. Guiton.....	25,167	Apr. 1	99	2171
Pattern. Dress-skirt.....	H. Guiton.....	25,168	Apr. 1	99	2172
Pattern. Dress-skirt.....	H. Guiton.....	25,169	Apr. 1	99	2173
Pattern. Dress-skirt.....	H. Guiton.....	25,170	Apr. 1	99	2174
Pattern. Dress-skirt.....	H. Guiton.....	25,171	Apr. 1	99	2175
Pattern. Dress-skirt.....	H. Guiton.....	25,172	Apr. 1	99	2176
Pattern. Dress-skirt.....	H. Guiton.....	25,173	Apr. 1	99	2177
Pattern. Dress-skirt.....	H. Guiton.....	25,174	Apr. 1	99	2178
Pattern. Dress-skirt.....	H. Guiton.....	25,175	Apr. 1	99	2179
Pattern. Dress-skirt.....	H. Guiton.....	25,176	Apr. 1	99	2180
Pattern. Dress-skirt.....	H. Guiton.....	25,177	Apr. 1	99	2181
Pattern. Dress-skirt.....	H. Guiton.....	25,178	Apr. 1	99	2182
Pattern. Dress-skirt.....	H. Guiton.....	25,179	Apr. 1	99	2183
Pattern. Dress-skirt.....	H. Guiton.....	25,180	Apr. 1	99	2184
Pattern. Dress-skirt.....	H. Guiton.....	25,181	Apr. 1	99	2185
Pattern. Dress-skirt.....	H. Guiton.....	25,182	Apr. 1	99	2186
Pattern. Dress-skirt.....	H. Guiton.....	25,183	Apr. 1	99	2187
Pattern. Dress-skirt.....	H. Guiton.....	25,184	Apr. 1	99	2188
Pattern. Dress-skirt.....	H. Guiton.....	25,185	Apr. 1	99	2189
Pattern. Dress-skirt.....	H. Guiton.....	25,186	Apr. 1	99	2190
Pattern. Dress-skirt.....	H. Guiton.....	25,187	Apr. 1	99	2191
Pattern. Dress-skirt.....	H. Guiton.....	25,188	Apr. 1	99	2192
Pattern. Dress-skirt.....	H. Guiton.....	25,189	Apr. 1	99	2193
Pattern. Dress-skirt.....	H. Guiton.....	25,190	Apr. 1	99	2194
Pattern. Dress-skirt.....	H. Guiton.....	25,191	Apr. 1	99	2195
Pattern. Dress-skirt.....	H. Guiton.....	25,192	Apr. 1	99	2196
Pattern. Dress-skirt.....	H. Guiton.....	25,193	Apr. 1	99	2197
Pattern. Dress-skirt.....	H. Guiton.....	25,194	Apr. 1	99	2198
Pattern. Dress-skirt.....	H. Guiton.....	25,195	Apr. 1	99	2199
Pattern. Dress-skirt.....	H. Guiton.....	25,196	Apr. 1	99	2200
Pattern. Dress-skirt.....	H. Guiton.....	25,197	Apr. 1	99	2201
Pattern. Dress-skirt.....	H. Guiton.....	25,198	Apr. 1	99	2202
Pattern. Dress-skirt.....	H. Guiton.....	25,199	Apr. 1	99	2203
Pattern. Dress-skirt.....	H. Guiton.....	25,200	Apr. 1	99	2204
Pattern. Dress-skirt.....	H. Guiton.....	25,201	Apr. 1	99	2205
Pattern. Dress-skirt.....	H. Guiton.....	25,202	Apr. 1	99	2206
Pattern. Dress-skirt.....	H. Guiton.....	25,203	Apr. 1	99	2207
Pattern. Dress-skirt.....	H. Guiton.....	25,204	Apr. 1	99	2208
Pattern. Dress-skirt.....	H. Guiton.....	25,205	Apr. 1	99	2209
Pattern. Dress-skirt.....	H. Guiton.....	25,206	Apr. 1	99	2210
Pattern. Dress-skirt.....	H. Guiton.....	25,207	Apr. 1	99	2211
Pattern. Dress-skirt.....	H. Guiton.....	25,208	Apr. 1	99	2212
Pattern. Dress-skirt.....	H. Guiton.....	25,209	Apr. 1	99	2213
Pattern. Dress-skirt.....	H. Guiton.....	25,210	Apr. 1	99	2214
Pattern. Dress-skirt.....	H. Guiton.....	25,211	Apr. 1	99	2215
Pattern. Dress-skirt.....	H. Guiton.....	25,212	Apr. 1	99	2216
Pattern. Dress-skirt.....	H. Guiton.....	25,213	Apr. 1	99	2217
Pattern. Dress-skirt.....	H. Guiton.....	25,214	Apr. 1	99	2218
Pattern. Dress-skirt.....	H. Guiton.....	25,215	Apr. 1	99	2219
Pattern. Dress-skirt.....	H. Guiton.....	25,216	Apr. 1	99	2220
Pattern. Dress-skirt.....	H. Guiton.....	25,217	Apr. 1	99	2221
Pattern. Dress-skirt.....	H. Guiton.....	25,218	Apr. 1	99	2222
Pattern. Dress-skirt.....	H. Guiton.....	25,219	Apr. 1	99	2223
Pattern. Dress-skirt.....	H. Guiton.....	25,220	Apr. 1	99	2224
Pattern. Dress-skirt.....	H. Guiton.....	25,221	Apr. 1	99	2225
Pattern. Dress-skirt.....	H. Guiton.....	25,222	Apr. 1	99	2226
Pattern. Dress-skirt.....	H. Guiton.....	25,223	Apr. 1	99	2227
Pattern. Dress-skirt.....	H. Guiton.....	25,224	Apr. 1	99	2228
Pattern. Dress-skirt.....	H. Guiton.....	25,225	Apr. 1	99	2229
Pattern. Dress-skirt.....	H. Guiton.....	25,226	Apr. 1	99	2230
Pattern. Dress-skirt.....	H. Guiton.....	25,227	Apr. 1	99	2231
Pattern. Dress-skirt.....	H. Guiton.....	25,228	Apr. 1	99	2232
Pattern. Dress-skirt.....	H. Guiton.....	25,229	Apr. 1	99	2233
Pattern. Dress-skirt.....	H. Guiton.....	25,230	Apr. 1	99	2234
Pattern. Dress-skirt.....	H. Guiton.....	25,231	Apr. 1	99	2235
Pattern. Dress-skirt.....	H. Guiton.....	25,232	Apr. 1	99	2236
Pattern. Dress-skirt.....	H. Guiton.....	25,233	Apr. 1	99	2237
Pattern. Dress-skirt.....	H. Guiton.....	25,234	Apr. 1	99	2238
Pattern. Dress-skirt.....	H. Guiton.....	25,235	Apr. 1	99	2239
Pattern. Dress-skirt.....	H. Guiton.....	25,236	Apr. 1	99	2240
Pattern. Dress-skirt.....	H. Guiton.....	25,237	Apr. 1	99	2241
Pattern. Dress-skirt.....	H. Guiton.....	25,238	Apr. 1	99	2242
Pattern. Dress-skirt.....	H. Guiton.....	25,239	Apr. 1	99	2243
Pattern. Dress-skirt.....	H. Guiton.....	25,240	Apr. 1	99	2244
Pattern. Dress-skirt.....	H. Guiton.....	25,241	Apr. 1	99	2245
Pattern. Dress-skirt.....	H. Guiton.....	25,242	Apr. 1	99	2246
Pattern. Dress-skirt.....	H. Guiton.....	25,243	Apr. 1	99	2247
Pattern. Dress-skirt.....	H. Guiton.....	25,244	Apr. 1	99	2248
Pattern. Dress-skirt.....	H. Guiton.....	25,245	Apr. 1	99	2249
Pattern. Dress-skirt.....	H. Guiton.....	25,246	Apr. 1	99	2250
Pattern. Dress-skirt.....	H. Guiton.....	25,247	Apr. 1	99	2251
Pattern. Dress-skirt.....	H. Guiton.....	25,248	Apr. 1	99	2252
Pattern. Dress-skirt.....	H. Guiton.....	25,249	Apr. 1	99	2253
Pattern. Dress-skirt.....	H. Guiton.....	25,250	Apr. 1	99	2254
Pattern. Dress-skirt.....	H. Guiton.....	25,251	Apr. 1	99	2255
Pattern. Dress-skirt.....	H. Guiton.....	25,252	Apr. 1	99	2256
Pattern. Dress-skirt.....	H. Guiton.....	25,253	Apr. 1	99	2257
Pattern. Dress-skirt.....	H. Guiton.....	25,254	Apr. 1	99	2258
Pattern. Dress-skirt.....	H. Guiton.....	25,255	Apr. 1	99	2259
Pattern. Dress-skirt.....	H. Guiton.....	25,256	Apr. 1	99	2260
Pattern. Dress-skirt.....	H. Guiton.....	25,257	Apr. 1	99	2261
Pattern. Dress-skirt.....	H. Guiton.....	25,258	Apr. 1	99	2262
Pattern. Dress-skirt.....	H. Guiton.....	25,259	Apr. 1	99	2263
Pattern. Dress-skirt.....	H. Guiton.....	25,260	Apr. 1	99	2264
Pattern. Dress-skirt.....	H. Guiton.....	25,261	Apr. 1	99	2265
Pattern. Dress-skirt.....	H. Guiton.....	25,262	Apr. 1	99	2266
Pattern. Dress-skirt.....	H. Guiton.....	25,263	Apr. 1	99	2267
Pattern. Dress-skirt.....	H. Guiton.....	25,264	Apr. 1	99	2268
Pattern. Dress-skirt.....	H. Guiton.....	25,265	Apr. 1	99	2269
Pattern. Dress-skirt.....	H. Guiton.....	25,266	Apr. 1	99	2270
Pattern. Dress-skirt.....	H. Guiton.....	25,267	Apr. 1	99	2271
Pattern. Dress-skirt.....	H. Guiton.....	25,268	Apr. 1	99	2272
Pattern. Dress-skirt.....	H. Guiton.....	25,269	Apr. 1	99	2273
Pattern. Dress-skirt.....	H. Guiton.....	25,270	Apr. 1	99	2274
Pattern. Dress-skirt.....	H. Guiton.....	25,271	Apr. 1	99	2275
Pattern. Dress-skirt.....	H. Guiton.....	25,272	Apr. 1	99	2276
Pattern. Dress-skirt.....	H. Guiton.....	25,273	Apr. 1	99	2277
Pattern. Dress-skirt.....	H. Guiton.....	25,274	Apr. 1	99	2278
Pattern. Dress-skirt.....	H. Guiton.....	25,275	Apr. 1	99	2279
Pattern. Dress-skirt.....	H. Guiton.....	25,276	Apr. 1	99	2280
Pattern. Dress-skirt.....	H. Guiton.....	25,277	Apr. 1	99	2281
Pattern. Dress-skirt.....	H. Guiton.....	25,278	Apr. 1	99	2282
Pattern. Dress-skirt.....	H. Guiton.....	25,279	Apr. 1	99	2283
Pattern. Dress-skirt.....	H. Guiton.....	25,280	Apr. 1	99	2284
Pattern. Dress-skirt.....	H. Guiton.....	25,281	Apr. 1	99	2285
Pattern. Dress-skirt.....	H. Guiton.....	25,282	Apr. 1	99	2286
Pattern. Dress-skirt.....	H. Guiton.....	25,283	Apr. 1	99	2287
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Alc	Pittsburgh Reduction Co.	22,128	June 24	20	1220	
Alc	H. S. Clark	22,129	June 24	20	1220	
Alc	Admiral Anchor Co.	22,130	Apr. 20	20	1220	
Alc	Société Anonyme des Produits Chimiques Spéciaux	22,131	May 20	20	1220	
Alc	G. W. Ayer	22,132	Apr. 20	20	1220	
Alc	G. B. Ayer & Co.	22,133	Apr. 15	20	1220	
Alc	S. E. Meyer	22,134	June 10	20	1220	
Alc	A. E. Cox	22,135	June 10	20	1220	
Alc	National Spring Bed Company	22,136	May 20	20	1220	
Alc	Oudney Packing Co.	22,137	May 27	20	1220	
Alc	M. L. Lyon	22,138	Apr. 2	20	1220	
Alc	Philipp Schilling Brewing Company	22,139	Apr. 2	20	1220	
Alc	W. A. Chipman	22,140	Apr. 2	20	1220	
Alc	E. J. Schmidt & Co.	22,141	Apr. 15	20	1220	
Alc	E. J. Schmidt & Co.	22,142	June 17	20	1220	
Alc	E. J. Schmidt & Co.	22,143	June 10	20	1220	
Alc	E. J. Schmidt & Co.	22,144	Apr. 20	20	1220	
Alc	E. J. Schmidt & Co.	22,145	Apr. 1	20	1220	
Alc	Edison Rouge Liquor & Cigar Co.	22,146	Apr. 1	20	1220	
Alc	Warren Brothers Company	22,147	May 12	20	1210	
Alc	Warren Brothers Company	22,148	May 12	20	1210	
Alc	Warren Brothers Company	22,149	May 12	20	1210	
Alc	Warren Brothers Company	22,150	May 12	20	1210	
Alc	Warren Brothers Company	22,151	May 12	20	1210	
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Cleaning preparation.....	P. Orr & Sons.....	22,127	Apr. 22	99	1104
Cloaks and suits. Ladies'.....	R. Rothchild & Bro.....	22,128	June 3	99	1104
Cloth, clothing, and leno fabric.....	H. W. Smith.....	22,129	Apr. 8	99	1104
Clothing for men and boys. Ready-made.....	Goldsmith, Joseph, Palm Co.....	22,130	Apr. 15	99	1104
Coal. Bituminous.....	Pere Marquette Coal Company.....	22,131	Apr. 22	99	1104
Coal.....	Anglo-American Direct Tea Trade Co.....	22,132	June 3	99	1104
Coffee and tea.....	F. M. Wilcox.....	22,133	Apr. 1	99	1104
Coffee, molasses, tea, and spices.....	New Orleans Coffee Co.....	22,134	May 27	99	1104
Coffee, tea, and spices.....	Steinwender-Stoffregen Coffee Company.....	22,135	Apr. 1	99	1104
Coin-operated-machine dial.....	R. T. Durham.....	22,136	Apr. 25	99	1104
Cold cream.....	Daggett & Ramsdell.....	22,137	Apr. 22	99	1104
Collars and cuffs.....	Union Collar Company.....	22,138	Apr. 1	99	1104
Collars and cuffs.....	Union Collar Company.....	22,139	Apr. 1	99	1104
Confectionery. Certain named.....	M. L. Morganthau.....	22,140	May 27	99	1104
Confections. Chocolate.....	H. D. Foss and Co.....	22,141	May 12	99	1104
Copying-baths and copying-cloths.....	Eureka Brother Bath Co.....	22,142	June 3	99	1104
Corn-oil and corn-oil cake.....	National Starch Company.....	22,143	May 22	99	1104
Corsets.....	Kops Bros.....	22,144	Apr. 1	99	1104
Corsets.....	Strouse, Adler & Co.....	22,145	Apr. 22	99	1104
Corsets.....	Weingarten Bros.....	22,146	May 12	99	1104
Corsets.....	Strouse, Adler & Co.....	22,147	May 27	99	1104
Corsets.....	Weingarten Bros.....	22,148	May 27	99	1104
Corsets.....	Brady & Somers.....	22,149	June 24	99	1104
Corsets.....	C. Guilford.....	22,150	June 24	99	1104
Corsets.....	Royal Worcester Corset Co.....	22,151	June 24	99	1104
Corsets.....	Royal Worcester Corset Co.....	22,152	June 24	99	1104
Corsets.....	Theo. A. Kochs Company.....	22,153	June 10	99	1104
Corsets, hair-oils, hair-tonics, and hair-dyes.....	Minot Hooper & Co.....	22,154	Apr. 8	99	1104
Cotton. Coarse unbleached.....	Eddystone Mfg. Co.....	22,155	June 3	99	1104
Cotton dress goods. Printed.....	Eddystone Mfg. Co.....	22,156	June 10	99	1104
Cotton dress goods. Printed.....	Eddystone Mfg. Co.....	22,157	June 10	99	1104
Cotton textiles, including shirtings and sheetings.....	E. L. Saffers.....	22,158	May 10	99	1104
Cotton threads.....	New England Cotton Yarn Company.....	22,159	June 3	99	1104
Cough-syrups and remedies for certain named diseases.....	O. C. E. Grom.....	22,160	Apr. 8	99	1104
Crackers and biscuit.....	O. D. Bess & Son.....	22,161	June 17	99	1104
Cutlery. Certain named.....	D. Pares.....	22,162	May 20	99	1104
Dairy goods. Certain named.....	Star Milk Cooler Company.....	22,163	June 24	99	1104
Dairy products. Certain named.....	Anglo-Swiss Condensed Milk Co.....	22,164	Apr. 15	99	1104
Dentures.....	C. H. Stadlinger.....	22,165	June 10	99	1104
Deodorant.....	H. W. Fuchs.....	22,166	Apr. 15	99	1104
Deodorant.....	Warren Brothers Company.....	22,167	May 27	99	1104
Deodorant.....	Fiske Brothers Refining Co.....	22,168	May 27	99	1104
Deodorant.....	Hamburger & Co.....	22,169	Apr. 22	99	1104
Dolls.....	Strobel & Wilken Co.....	22,170	June 3	99	1104
Dolls.....	Canfield Rubber Co.....	22,171	June 24	99	1104
Dress-shields.....	Canfield Rubber Co.....	22,172	June 24	99	1104
Dress-shields.....	Circle Manufacturing Co.....	22,173	June 3	99	1104
Dressing and polish.....	G. L. Montgomery.....	22,174	June 17	99	1104
Drillings and sheetings.....	G. L. Montgomery.....	22,175	June 24	99	1104
Drillings and sheetings.....	G. L. Montgomery.....	22,176	May 12	99	1104
Drills.....	W. H. Wimer & Co.....	22,177	Apr. 1	99	1104
Drugs. Certain named.....	L. Richardson Drug Co.....	22,178	June 3	99	1104
Drugs. Certain named.....	W. J. Schleffelin.....	22,179	June 3	99	1104
Dry goods. Certain named.....	F. Osterander.....	22,180	Apr. 15	99	1104
Dry goods. Certain named.....	J. H. Poor.....	22,181	Apr. 15	99	1104
Dry goods. Certain named.....	Barclay and Company.....	22,182	Apr. 22	99	1104
Dry goods. Certain named.....	Hampton Crawford Co.....	22,183	Apr. 22	99	1104
Dry goods. Certain named.....	Laural Cotton Mills.....	22,184	May 22	99	1104
Dry goods. Certain named.....	A. O. Meyer.....	22,185	May 22	99	1104
Dry goods. Certain named.....	A. O. Meyer.....	22,186	May 22	99	1104
Dry goods. Certain named.....	A. O. Meyer.....	22,187	May 22	99	1104
Dry goods. Certain named.....	Hart Manufacturing Co.....	22,188	May 27	99	1104
Electric switches.....	A. Geisel Manufacturing Company.....	22,189	May 22	99	1104
Enameled ware.....	Weber Gas and Gasoline Engine Company.....	22,190	Apr. 1	99	1104
Engines and boilers. Gas and gasoline.....	Company.....	22,191	Apr. 13	99	1104
Explosives.....	Safety Explosive Company.....	22,192	Apr. 13	99	1104
Explosives, fuses, and electric batteries. Certain named.....	Lafin & Hand Powder Company.....	22,193	Apr. 13	99	1104
Eye-glasses and spectacles. Nose-guards for.....	Borch & Co.....	22,194	June 10	99	1104
Fabrics. Certain named.....	G. Willis.....	22,195	Apr. 15	99	1104
Fabrics. Certain named.....	G. Willis.....	22,196	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,197	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,198	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,199	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,200	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,201	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,202	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,203	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,204	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,205	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,206	Apr. 22	99	1104
Fabrics. Certain named.....	G. Willis.....	22,207	Apr. 22	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,208	Apr. 1	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,209	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,210	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,211	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,212	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,213	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,214	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,215	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,216	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,217	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,218	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,219	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,220	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,221	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,222	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,223	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,224	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,225	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,226	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,227	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,228	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,229	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,230	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,231	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,232	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,233	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,234	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,235	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,236	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,237	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,238	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,239	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,240	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,241	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,242	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,243	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,244	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,245	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,246	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,247	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,248	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,249	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,250	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,251	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,252	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,253	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,254	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,255	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,256	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,257	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,258	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,259	May 12	99	1104
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Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,261	May 12	99	1104
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Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,273	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,274	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,275	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,276	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,277	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,278	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,279	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,280	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,281	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,282	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,283	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,284	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,285	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,286	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,287	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,288	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,289	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,290	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,291	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,292	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,293	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,294	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,295	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,296	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,297	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,298	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,299	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,300	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,301	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,302	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,303	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,304	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,305	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,306	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,307	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,308	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,309	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,310	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,311	May 12	99	1104
Fabrics. Cotton.....	Ward, Hanbury & Co.....	22,312	May 12	99	1104</

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Title.	Name.	No.	Date.	Official Gazette.	
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Fabric. Cotton.	Ward, Hanbury & Co.	22,292	May 20	55	1299
Fabric. Cotton.	Elmhurst & Co.	22,293	May 27	55	1300
Fabric. Cotton.	Elmhurst & Co.	22,294	May 27	55	1301
Fabric. Cotton.	Elmhurst & Co.	22,295	May 27	55	1302
Fabric. Cotton.	Ward, Hanbury & Co.	22,296	June 24	55	1303
Fabric. Cotton.	A. O. Meyer	22,297	May 20	55	1304
Fabric, except silk velvets and cotton, wool, and silk threads and yarn. Wool, cotton, half-wool, silk, and half-silk.	A. M. A. Richardson	22,298	Apr. 15	55	680
Fabric. Woven cotton.	Silver Mfg. Co.	22,299	Apr. 22	55	681
Feed and feeding order.	P. A. Reid	22,300	Apr. 1	55	682
Fencing. Wire.	Smith & Revell	22,301	Apr. 8	55	683
Filters. Water.	Outby & Barton Company	22,302	June 17	55	1305
Finger-rings.	American Fire Engine Company	22,303	June 17	55	1306
Fire-engines. Steam.	C. A. Daniels	22,304	Apr. 15	55	684
Fire-extinguishing compounds and fire-preventives in powder form.	Henry Millward & Sons	22,305	Apr. 22	55	1307
Fishing-tackle. Certain named.	Henry Millward & Sons	22,306	May 27	55	1308
Fishing-tackle. Certain named.	R. K. Allison	22,307	May 13	55	1309
Flour.	S. S. Pierce Co.	22,308	May 13	55	1310
Flour. Wheat.	H. D. Falls & Co.	22,309	Apr. 1	55	685
Flour. Wheat.	Exclusive Water Mill Co.	22,310	Apr. 8	55	686
Flour. Wheat.	F. G. Atkinson	22,311	May 20	55	1311
Flour. Wheat.	E. Miro (Société en Commandite)	22,312	June 17	55	1312
Fly-paper. Sticky.	T. D. Nostrand	22,313	Apr. 8	55	687
Food compound. Certain named health.	Darmstadt German Food Co.	22,314	June 24	55	1313
Food in tablet form. Pattening.	J. W. Shultz	22,315	June 10	55	1314
Food preparations from cereals, vegetables, and legumes.	Real Food Co.	22,316	June 10	55	1315
Food products. Certain named.	Stapel-Cooper Co.	22,317	Apr. 22	55	688
Food products. Certain named.	Buffalo Cereal Company	22,318	May 13	55	1316
Food, relishes, and medicinal preparations. Certain named.	Ox-Beef Company of America	22,319	June 17	55	1317
Food. Stock.	J. W. Potty	22,320	June 8	55	1318
Food. Stock.	Central Stock Food Co.	22,321	June 24	55	1319
Food. Stock.	Applin & Barrett & Western Creameries	22,322	Apr. 8	55	689
Foods and relishes. Certain named.	Dodson-Brown Mfg. Co.	22,323	June 2	55	690
Foods, crackers, and biscuits. Breakfast.	Grocers' Specialty Mfg. Co.	22,324	May 20	55	1320
Footwear.	D. B. Baker	22,325	June 8	55	1321
Forms. Bust.	Henderson & Henderson	22,326	May 20	55	1322
Fruit and medicinal and food products of such fruit. Certain named.	F. A. Robinson	22,327	Apr. 8	55	691
Fruits and honey.	W. S. Hart	22,328	Apr. 15	55	692
Fungicides and insecticides.	Bowker Insecticide Company	22,329	June 24	55	1323
Fur goods. Certain named.	Gordon & Ferguson	22,330	May 20	55	1324
Furnace materials.	Morgan Crucible Co.	22,331	Apr. 22	55	693
Furnaces. Soft-iron.	F. Floeager	22,332	June 10	55	1325
Game.	Cincinnati Game Company	22,333	May 27	55	1326
Game-boards.	R. Mikkelson	22,334	June 8	55	1327
Games.	A. J. Patterson	22,335	June 8	55	1328
Garments. Ruffled night.	E. Rosenfeld & Co.	22,336	Apr. 8	55	694
Garments. Certain named.	Direct Supply Co.	22,337	May 6	55	695
Garters and hose-supporters.	E. Gutmann	22,338	Apr. 22	55	696
Gas-burner tips. Aluminum.	Gas Tip and Self Lighter Co.	22,339	Apr. 22	55	697
Gas-generators.	H. Glasse	22,340	May 13	55	1329
Gelatin.	Kingery Manufacturing Company	22,341	June 24	55	1330
Gelatin and preparations of gelatin.	Miligan & Higgins Glue Co.	22,342	May 20	55	1331
Gelatin preparation for table desserts.	Grocers' Specialty Mfg. Co.	22,343	June 24	55	1332
Glanders. Preparation for the cure of.	F. Schmidt	22,344	Apr. 1	55	698
Glass tiles.	Solar Prism Co.	22,345	May 13	55	1333
Golf-balls.	"Sanitas" Company	22,346	May 27	55	1334
Goring and webbing. Textile.	Hub Gore Makers	22,347	Apr. 22	55	699
Groceries. Certain named.	Jos. Spaidel Grocery Co.	22,348	Apr. 8	55	700
Groceries. Certain named.	M. Shepper	22,349	Apr. 8	55	701
Groceries. Certain named.	Sprague, Warner & Company	22,350	Apr. 8	55	702
Groceries. Certain named.	Sprague, Warner & Company	22,351	Apr. 8	55	703
Groceries. Certain named.	Sprague, Warner & Company	22,352	Apr. 8	55	704
Groceries. Certain named.	G. E. McGaw & Co.	22,353	Apr. 15	55	705
Groceries' sundries. Certain named.	Asher, Marshall & Condit	22,354	May 27	55	1335
Groceries' sundries. Certain named.	A. J. Valk & Bro.	22,355	June 17	55	1336
Grocery supplies. Certain named.	C. Shankberg Co.	22,356	May 27	55	1337
Gum. Chewing.	New York Vending Machine Company	22,357	Apr. 15	55	706
Gum. Chewing.	New York Vending Machine Co.	22,358	May 27	55	1338
Hair-restorers, applications for the hair, and cosmetics.	M. T. Goldman	22,359	Apr. 22	55	707
Harmoniums.	Strass Bros. & Co.	22,360	May 20	55	1339
Harmoniums. Mouth.	Firm of M. Hohner	22,361	June 17	55	1340
Harmoniums. Mouth.	Firm of M. Hohner	22,362	June 17	55	1341
Harmoniums. Mouth.	Firm of M. Hohner	22,363	June 17	55	1342
Harmoniums. Mouth.	Firm of M. Hohner	22,364	June 17	55	1343
Harmoniums. Mouth.	Firm of M. Hohner	22,365	June 17	55	1344
Harmoniums. Mouth.	Firm of M. Hohner	22,366	June 17	55	1345
Harmoniums. Mouth.	Firm of M. Hohner	22,367	June 17	55	1346
Harmoniums. Mouth.	Firm of M. Hohner	22,368	June 17	55	1347
Harmoniums. Mouth.	Firm of M. Hohner	22,369	June 17	55	1348
Harmoniums. Mouth.	Firm of M. Hohner	22,370	June 17	55	1349
Harmoniums. Mouth.	Firm of M. Hohner	22,371	June 17	55	1350
Harmoniums. Mouth.	Firm of M. Hohner	22,372	June 17	55	1351
Harmoniums. Mouth.	Firm of M. Hohner	22,373	June 17	55	1352
Harmoniums. Mouth.	Firm of M. Hohner	22,374	June 17	55	1353
Harmoniums. Mouth.	Firm of M. Hohner	22,375	June 17	55	1354
Harmoniums. Mouth.	Firm of M. Hohner	22,376	June 17	55	1355
Harmoniums. Mouth.	Firm of M. Hohner	22,377	June 17	55	1356
Harmoniums. Mouth.	Firm of M. Hohner	22,378	June 17	55	1357
Harmoniums. Mouth.	Firm of M. Hohner	22,379	June 17	55	1358
Harmoniums. Mouth.	Firm of M. Hohner	22,380	June 17	55	1359
Harmoniums. Mouth.	Firm of M. Hohner	22,381	June 17	55	1360
Harmoniums. Mouth.	Firm of M. Hohner	22,382	June 17	55	1361
Harmoniums. Mouth.	Firm of M. Hohner	22,383	June 17	55	1362
Harmoniums. Mouth.	Firm of M. Hohner	22,384	June 17	55	1363
Harmoniums. Mouth.	Firm of M. Hohner	22,385	June 17	55	1364
Harmoniums. Mouth.	Firm of M. Hohner	22,386	June 17	55	1365
Harmoniums. Mouth.	Firm of M. Hohner	22,387	June 17	55	1366
Harmoniums. Mouth.	Firm of M. Hohner	22,388	June 17	55	1367
Harmoniums. Mouth.	Firm of M. Hohner	22,389	June 17	55	1368
Harmoniums. Mouth.	Firm of M. Hohner	22,390	June 17	55	1369
Harmoniums. Mouth.	Firm of M. Hohner	22,391	June 17	55	1370
Harmoniums. Mouth.	Firm of M. Hohner	22,392	June 17	55	1371
Harmoniums. Mouth.	Firm of M. Hohner	22,393	June 17	55	1372
Harmoniums. Mouth.	Firm of M. Hohner	22,394	June 17	55	1373
Harmoniums. Mouth.	Firm of M. Hohner	22,395	June 17	55	1374
Harmoniums. Mouth.	Firm of M. Hohner	22,396	June 17	55	1375
Harmoniums. Mouth.	Firm of M. Hohner	22,397	June 17	55	1376
Harmoniums. Mouth.	Firm of M. Hohner	22,398	June 17	55	1377
Harmoniums. Mouth.	Firm of M. Hohner	22,399	June 17	55	1378
Harmoniums. Mouth.	Firm of M. Hohner	22,400	June 17	55	1379
Harmoniums. Mouth.	Firm of M. Hohner	22,401	June 17	55	1380
Harmoniums. Mouth.	Firm of M. Hohner	22,402	June 17	55	1381
Harmoniums. Mouth.	Firm of M. Hohner	22,403	June 17	55	1382
Harmoniums. Mouth.	Firm of M. Hohner	22,404	June 17	55	1383
Harmoniums. Mouth.	Firm of M. Hohner	22,405	June 17	55	1384
Harmoniums. Mouth.	Firm of M. Hohner	22,406	June 17	55	1385
Harmoniums. Mouth.	Firm of M. Hohner	22,407	June 17	55	1386
Harmoniums. Mouth.	Firm of M. Hohner	22,408	June 17	55	1387
Harmoniums. Mouth.	Firm of M. Hohner	22,409	June 17	55	1388
Harmoniums. Mouth.	Firm of M. Hohner	22,410	June 17	55	1389
Harmoniums. Mouth.	Firm of M. Hohner	22,411	June 17	55	1390
Harmoniums. Mouth.	Firm of M. Hohner	22,412	June 17	55	1391
Harmoniums. Mouth.	Firm of M. Hohner	22,413	June 17	55	1392
Harmoniums. Mouth.	Firm of M. Hohner	22,414	June 17	55	1393
Harmoniums. Mouth.	Firm of M. Hohner	22,415	June 17	55	1394
Harmoniums. Mouth.	Firm of M. Hohner	22,416	June 17	55	1395
Harmoniums. Mouth.	Firm of M. Hohner	22,417	June 17	55	1396
Harmoniums. Mouth.	Firm of M. Hohner	22,418	June 17	55	1397
Harmoniums. Mouth.	Firm of M. Hohner	22,419	June 17	55	1398
Harmoniums. Mouth.	Firm of M. Hohner	22,420	June 17	55	1399
Harmoniums. Mouth.	Firm of M. Hohner	22,421	June 17	55	1400
Harmoniums. Mouth.	Firm of M. Hohner	22,422	June 17	55	1401
Harmoniums. Mouth.	Firm of M. Hohner	22,423	June 17	55	1402
Harmoniums. Mouth.	Firm of M. Hohner	22,424	June 17	55	1403
Harmoniums. Mouth.	Firm of M. Hohner	22,425	June 17	55	1404
Harmoniums. Mouth.	Firm of M. Hohner	22,426	June 17	55	1405
Harmoniums. Mouth.	Firm of M. Hohner	22,427	June 17	55	1406
Harmoniums. Mouth.	Firm of M. Hohner	22,428	June 17	55	1407
Harmoniums. Mouth.	Firm of M. Hohner	22,429	June 17	55	1408
Harmoniums. Mouth.	Firm of M. Hohner	22,430	June 17	55	1409
Harmoniums. Mouth.	Firm of M. Hohner	22,431	June 17	55	1410
Harmoniums. Mouth.	Firm of M. Hohner	22,432	June 17	55	1411
Harmoniums. Mouth.	Firm of M. Hohner	22,433	June 17	55	1412
Harmoniums. Mouth.	Firm of M. Hohner	22,434	June 17	55	1413
Harmoniums. Mouth.	Firm of M. Hohner	22,435	June 17	55	1414
Harmoniums. Mouth.	Firm of M. Hohner	22,436	June 17	55	1415
Harmoniums. Mouth.	Firm of M. Hohner	22,437	June 17	55	1416
Harmoniums. Mouth.	Firm of M. Hohner	22,438	June 17	55	1417
Harmoniums. Mouth.	Firm of M. Hohner	22,439	June 17	55	1418
Harmoniums. Mouth.	Firm of M. Hohner	22,440	June 17	55	1419
Harmoniums. Mouth.	Firm of M. Hohner	22,441	June 17	55	1420
Harmoniums. Mouth.	Firm of M. Hohner	22,442	June 17	55	1421
Harmoniums. Mouth.	Firm of M. Hohner	22,443	June 17	55	1422
Harmoniums. Mouth.	Firm of M. Hohner	22,444	June 17	55	1423
Harmoniums. Mouth.	Firm of M. Hohner	22,445	June 17	55	1424
Harmoniums. Mouth.	Firm of M. Hohner	22,446	June 17	55	1425
Harmoniums. Mouth.	Firm of M. Hohner	22,447	June 17	55	1426
Harmoniums. Mouth.	Firm of M. Hohner	22,448	June 17	55	1427
Harmoniums. Mouth.	Firm of M. Hohner	22,449	June 17	55	1428
Harmoniums. Mouth.	Firm of M. Hohner	22,450	June 17	55	1429
Harmoniums. Mouth.	Firm of M. Hohner	22,451	June 17	55	1430
Harmoniums. Mouth.	Firm of M. Hohner	22,452	June 17	55	1431
Harmoniums. Mouth.	Firm of M. Hohner	22,453	June 17	55	1432
Harmoniums. Mouth.	Firm of M. Hohner	22,454	June 17	55	1433
Harmoniums. Mouth.	Firm of M. Hohner	22,455	June 17	55	1434
Harmoniums. Mouth.	Firm of M. Hohner	22,456	June 17	55	1435
Harmoniums. Mouth.	Firm of M. Hohner	22,457	June 17	55	1436
Harmoniums. Mouth.	Firm of M. Hohner	22,458	June 17	55	1437
Harmoniums. Mouth.	Firm of M. Hohner	22,459	June 17	55	1438
Harmoniums. Mouth.	Firm of M. Hohner	22,460	June 17	55	1439
Harmoniums. Mouth.	Firm of M. Hohner	22,461	June 17	55	1440
Harmoniums. Mouth.	Firm of M. Hohner	22,462	June 17	55	1441
Harmoniums. Mouth.	Firm of M. Hohner	22,463	June 17	55	1442
Harmoniums. Mouth.	Firm of M. Hohner	22,464	June 17	55	1443
Harmoniums. Mouth.	Firm of M. Hohner	22,465	June 17	55	1444
Harmoniums. Mouth.	Firm of M. Hohner	22,466	June 17	55	1445
Harmoniums. Mouth.	Firm of M. Hohner	22,467	June 17	55	1446
Harmoniums. Mouth.	Firm of M. Hohner	22,468	June 17	55	1447
Harmoniums. Mouth.	Firm of M. Hohner	22,469	June 17	55	1448
Harmoniums. Mouth.	Firm of M. Hohner	22,470	June 17	55	1449
Harmoniums. Mouth.	Firm of M. Hohner	22,471	June 17	55	1450
Harmoniums. Mouth.	Firm of M. Hohner	22,472	June 17	55	1451
Harmoniums. Mouth.	Firm of M. Hohner	22,473	June 17	55	1452
Harmoniums. Mouth.	Firm of M. Hohner	22,474	June 17	55	1453
Harmoniums. Mouth.	Firm of M. Hohner	22,475	June 17	55	1454
Harmoniums. Mouth.	Firm of M. Hohner	22,476	June 17	55	1455
Harmoniums. Mouth.	Firm of M. Hohner	22,477	June 17	55	1456
Harmoniums. Mouth.	Firm of M. Hohner	22,478	June 17	55	1457
Harmoniums. Mouth.	Firm of M. Hohner	22,479	June 17	55	1458
Harmoniums. Mouth.	Firm of M. Hohner	22,480	June 17	55	1459
Harmoniums. Mouth.	Firm of M. Hohner	22,481	June 17	55	1460
Harmoniums. Mouth.	Firm of M. Hohner	22,482	June 17	55	1461
Harmoniums. Mouth.	Firm of M. Hohner	22,483	June 17	55	1462

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title	Name	No.	Date	Official Gazette	
				P.	P.
Knives, razors, and cut-throats. Pocket-	H. Bahr & Co	22,077	Apr. 3	99	441
La grippe and kidney cure	G. B. Mayberry	22,080	May 27	99	2225
Label applying or pasting machines	Newton Bottle Wring & Labeling Co.	22,214	Apr. 20	99	1160
Lacquers	C. M. Mitchell	22,120	Apr. 20	99	920
Lacquers. Metal	New Era Lumber Company	22,004	June 3	99	2275
Lamp chimneys	Friedlander & Oliver	22,003	June 3	99	2215
Lard and lard compound	Armour & Company	22,000	Apr. 1	99	220
Lard compound	Southern Cotton Oil Co.	22,005	Apr. 1	99	220
Lard compound	Southern Cotton Oil Co.	22,005	Apr. 1	99	220
Lard compound	Southern Cotton Oil Co.	22,005	Apr. 1	99	220
Leather	L. L. Rice	22,000	May 27	99	1160
Leather-drawing	L. C. Sims & Co.	22,004	Apr. 20	99	1160
Leather-like and waterproof fabric and certain chemical preparations.	New York Leather & Paint Co.	22,004	May 6	99	2275
Leather preservative	J. J. Henderson	22,000	May 27	99	1160
Limbs, plaster, and cement	Toledo Builders' Supply Co.	22,000	May 27	99	2275
Lime	A. G. Groblewski	22,004	May 27	99	2275
Lime	P. Bataki	22,001	May 27	99	2275
Lime	A. G. Groblewski	22,001	June 3	99	2215
Machines. Certain named	Barth Machine Tool Company	22,070	May 27	99	2275
Machines	Reform Club	22,170	Apr. 20	99	1160
Malt preparations	L. Hoff	22,000	Apr. 1	99	220
Malted oats and malted wheat	Malted Food Co.	22,104	June 17	99	2715
Match-cases	C. C. Fitts	22,000	June 3	99	2215
Matches	C. Walland	22,000	June 3	99	2215
Matches. Safety	Johnston & Treadwell	22,000	Apr. 20	99	1160
Meal and flour of corn, wheat, oats, and other cereals	Anderson & Darrow	22,077	June 17	99	2705
Medical compound for certain named diseases	G. A. Knox	22,000	Apr. 6	99	441
Medical compound for surgical, gynecological, and obstetrical use.	J. F. Christian	22,001	May 27	99	2275
Medical compound for treatment of obesity	R. D. Wright	22,000	June 3	99	2215
Medical compounds. Certain named	C. W. De Laney	22,000	June 3	99	2215
Medical preparation made from herbs	O. Porrich Chemical Company	22,120	Apr. 15	99	220
Medical tablets for rheumatism, gout, and allied diseases	R. C. Hinn	22,000	May 19	99	1014
Medicated bathing compounds	J. Molinot	22,000	May 20	99	1000
Medicated tablets for the cure of certain named diseases	J. D. Glass	22,000	Apr. 6	99	441
Medicinal compound in powder form put up in gelatinous capsules	J. D. Henderson Company	22,070	Apr. 6	99	441
Medicinal herb compound	W. H. Eldred	22,000	June 17	99	2705
Medicinal oils	M. R. Zaegel	22,000	Apr. 6	99	441
Medicinal preparations. Certain named	Gheff Chemical Co.	22,007	June 17	99	2705
Medicinal preparations for asthma, catarrh, and hay-fever	T. & A. Chemical Co.	22,000	Apr. 1	99	220
Medicinal preparations for the cure of certain named diseases	Dr. Foote Chemical Co.	22,071	June 17	99	2705
Medicinal purposes. Oil for	Babson Chemical Company	22,000	May 12	99	1014
Medicinal remedy. Certain named	Kraus & Owen Company	22,001	Apr. 6	99	441
Medicinal tablets	C. C. Dugg	22,007	Apr. 1	99	220
Medicinal tablets	R. C. Knipe & Son	22,000	Apr. 1	99	220
Medicine for cure of rheumatism, neuralgia, and headache	R. C. Knipe & Son	22,000	May 12	99	1014
Medicine for curing corns, calluses, and warts	J. J. Lopper	22,107	Apr. 15	99	220
Medicine for inflammatory diseases	C. A. Moore	22,070	June 17	99	2705
Medicine in capsule form for the cure of certain named diseases	R. McFarland	22,100	Apr. 15	99	220
Medicines for certain named diseases	Powers Manufacturing Company	22,000	Apr. 1	99	220
Medicines for certain named diseases. Proprietary	R. Stevens	22,000	June 10	99	2245
Medicines. Proprietary	Herbagen Medical Co.	22,000	Apr. 1	99	220
Metal. Rabbit	H. J. Loper	22,000	Apr. 1	99	220
Metal-polish	M. J. Loper & Co.	22,000	June 17	99	2705
Milk. Condensed	Helvetic Milk Condensing Co.	22,112	Apr. 15	99	220
Mineral-bearing sands and ores	J. M. Chapman	22,000	June 17	99	2705
Mineral substances used in manufacture. Certain named	Magnesia Hydrate	22,001	June 10	99	2245
Mineral water	Abtlen Company	22,177	Apr. 25	99	2715
Mineral water	Ancher's Thermal-Wasser (Kaiserbrunnen) Aachen-Geolischphat.	22,201	May 6	99	2275
Mineral water	Ancher's Thermal-Wasser (Kaiserbrunnen) Aachen-Geolischphat.	22,201	May 6	99	2275
Mineral water	R. Dettlows	22,001	May 12	99	1014
Mineral water and carbonated beverages. Natural	L. B. Peters	22,074	June 17	99	2705
Mineral water	W. F. Watson Mineral Water Company	22,001	May 20	99	1000
Mineral water	Prato Manufacturing Company	22,000	Apr. 27	99	1160
Moths. Preparation to destroy	I. B. Rosecrants	22,000	Apr. 27	99	1160
Mowing-machines	Hopkins Patent Company	22,010	May 20	99	1000
Music-boxes	Regina Music Box Co.	22,000	May 20	99	1000
Music-boxes	Regina Music Box Co.	22,000	May 20	99	1000
Music. Sheet	Howley, Haviland & Dwyer	22,000	Apr. 1	99	220
Musical instruments and parts thereof. Automatic playing attachments for	Payson Manufacturing Co.	22,000	June 10	99	2245
Needle for vaccinating animals	O. Thomas	22,000	June 17	99	2705
Oil and chromalum-oil. China-wood	R. Hill's Son & Co.	22,001	June 17	99	2705
Oil. Machine	C. Shankberg Co.	22,001	June 24	99	2245
Oil. Certain named	Ernst Schlimmann's Oelwerke, Gesellschaft mit Beschraenkter Haftung.	22,000	Apr. 6	99	441
Oil. Certain named lubricating	C. Shankberg Co.	22,000	June 24	99	2245
Oil. Petroleum illuminating and lubricating	Great Western Oil Co.	22,000	June 17	99	2705
Outrigger. Toilet	W. S. Hedges	22,000	Apr. 6	99	441
Overalls and coats	American Manufacturing Co.	22,000	June 3	99	2215
Packaging-house products. Certain named	Swift and Company	22,000	June 3	99	2215
Packaging-house products. Certain named	Swift and Company	22,000	June 3	99	2215
Packaging-house products. Certain named	Swift and Company	22,000	June 3	99	2215
Packaging-house products. Certain named	Swift and Company	22,000	June 3	99	2215
Paint and white lead	Hammer Brothers White Lead Company.	22,100	Apr. 15	99	220
Paper for calendering	Gohsen Mfg. Co.	22,001	May 27	99	2275

Alphabetical list of trade-marks, April to June, inclusive.—Continued.

Title	Name	No.	Date	Official Gazette.	
				Page	Vol.
Paint for metal surfaces.	Chemical Paint Manufacturing Co.	24,499	June 17	99	2770
Paints or paints for metal and composition roofing. Roof-	Dayton Velt Roofing Co.	25,125	Apr. 15	99	489
Paper. Certain named.	Malin, Moffitt & Torne.	25,126	Apr. 5	99	489
Paper. Cover and laid writing.	Packard Paper Co.	25,097	Apr. 20	99	1282
Paper. Transparent wrapping.	E. Lindbergh & Son.	25,095	May 20	99	270
Paper. Writing.	Byron Weston Co.	27,997	Apr. 1	99	270
Paste.	C. A. Forney	25,251	May 27	99	270
Paste.	A. E. Potter	25,005	Apr. 5	99	270
Paste.	Hammerbrook Steel Pen Manufacturing Co.	25,497	June 24	99	270
Paste.	Hammerbrook Steel Pen Manufacturing Co.	25,499	June 24	99	270
Pens. Steel.	M. Myers & Son	25,240	May 13	99	1015
Pens. Stylographic and fountain.	J. Ulrich & Co.	25,541	May 13	99	1015
Perfume.	Malter Drug Company.	25,125	Apr. 15	99	689
Perfumery.	J. A. E. Atkinson, Limited.	25,495	June 17	99	2705
Perfumery and certain named toilet preparations.	H. Mack	25,010	Apr. 1	99	281
Perfumery and certain named toilet preparations.	H. Mack	25,017	Apr. 1	99	281
Perfumery, soap, and face-powder.	H. A. Chabot	25,245	May 27	99	2705
Perfumes.	A. A. Le Fèvre	25,015	Apr. 1	99	281
Periodical.	W. H. Gamett, Publisher.	25,005	Apr. 1	99	270
Periodical.	F. Lamond	27,999	Apr. 1	99	270
Periodical.	H. D. Fletcher	25,051	Apr. 1	99	281
Photographic papers and photographic developers. Semi-	S. Bannister	25,145	Apr. 2	99	281
Plaster. Floor.	A. H. Shankley	25,051	Apr. 1	99	289
Plaster. Wall.	Granville Wall Plaster Co.	25,055	Apr. 8	99	441
Plumbing goods. Certain named.	A. H. Joranson	25,054	Apr. 8	99	440
Pocket-books, bags, belts, purses, and fancy leather mer-	Radcliffe and Peltier	25,126	Apr. 20	99	1104
Preparations for treatment of the skin. Liquid.	Cyphers Incubator Co.	25,295	May 27	99	2007
Preservative, disinfectant, and tanning or tawing com-	Grant Centary Medicine Co.	25,451	June 17	99	2705
Preservative, disinfectant, and tanning or tawing com-	T. Thatcher	25,497	June 17	99	2705
Preservative, disinfectant, and tanning or tawing com-	T. Thatcher	25,495	June 17	99	2705
Printing and embossing presses and appliances connected	John Thomson Press Co.	25,005	Apr. 8	99	645
Printing-presses. Steel for chains for.	Ramsey Brothers & Spindler	25,174	Apr. 20	99	289
Publications, periodicals, magazines, and books.	H. C. Fisher	25,049	Apr. 1	99	284
Pudding-tablets and dessert preparations.	H. V. Modgett Co.	25,125	Apr. 20	99	289
Pudding-tablets and dessert preparations.	H. V. Modgett Co.	25,126	Apr. 20	99	289
Pudding-tablets and dessert preparations.	H. Adler	25,495	June 17	99	2705
Racquets. Certain named.	H. E. Westcott	25,125	June 17	99	2705
Racquets. Racquet.	H. E. Westcott	25,126	June 17	99	2705
Racquets. Racquet.	H. E. Westcott	25,127	June 17	99	2705
Racquets for certain named diseases.	Alpers Chemical Company	25,295	May 27	99	1105
Racquets for certain named diseases.	Burrows & Saunders	25,125	Apr. 20	99	289
Racquets for certain named diseases.	Brown Chemical Co.	25,244	May 15	99	1010
Racquets for certain named diseases.	T. M. Kenyon	25,245	May 15	99	1010
Racquets for certain named diseases.	A. T. Walworth	25,246	June 3	99	2710
Racquets for certain named diseases.	W. E. Brownell	25,495	June 17	99	2705
Racquets for certain named diseases.	G. W. Caldwell	25,496	June 17	99	2705
Racquets for certain named diseases.	O'Boyle and Hurley	25,497	June 17	99	2705
Racquets for certain named diseases.	A. E. Reedy	25,498	June 17	99	2705
Racquets for certain named diseases.	Ramsey Brothers & Spindler	25,499	June 17	99	2705
Racquets for certain named diseases.	Carlson & Hovey	25,125	Apr. 20	99	1105
Racquets for certain named diseases.	P. P. Hinnant	25,126	Apr. 20	99	1105
Racquets for certain named diseases.	P. P. Hinnant	25,127	Apr. 20	99	1105
Racquets for certain named diseases.	W. Edwards, Jr.	25,245	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,246	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,247	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,248	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,249	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,250	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,251	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,252	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,253	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,254	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,255	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,256	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,257	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,258	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,259	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,260	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,261	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,262	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,263	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,264	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,265	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,266	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,267	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,268	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,269	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,270	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,271	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,272	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,273	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,274	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,275	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,276	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,277	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,278	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,279	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,280	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,281	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,282	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,283	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,284	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,285	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,286	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,287	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,288	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,289	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,290	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,291	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,292	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,293	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,294	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,295	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,296	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,297	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,298	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,299	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,300	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,301	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,302	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,303	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,304	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,305	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,306	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,307	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,308	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,309	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,310	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,311	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,312	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,313	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,314	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,315	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,316	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,317	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,318	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,319	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,320	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,321	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,322	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,323	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,324	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,325	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,326	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,327	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,328	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,329	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,330	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,331	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,332	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,333	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,334	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,335	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,336	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,337	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,338	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,339	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,340	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,341	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,342	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,343	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,344	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,345	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,346	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,347	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,348	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,349	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,350	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,351	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,352	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,353	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,354	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,355	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,356	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,357	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,358	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,359	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,360	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,361	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,362	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,363	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,364	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,365	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,366	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,367	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,368	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,369	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,370	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,371	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,372	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,373	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,374	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,375	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,376	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,377	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,378	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,379	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,380	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,381	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,382	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,383	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,384	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,385	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,386	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,387	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,388	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,389	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,390	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,391	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,392	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,393	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,394	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,395	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,396	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,397	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,398	June 3	99	2710
Racquets for certain named diseases.	A. E. Sherman	25,399	June 3	9	

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette.	
				Vol.	Page.
Shirts, collars, cuffs, shirt-waists, night-shirts, pajamas, and bath-robots.	Cheslett, Penbody & Co.	22,422	June 17	30	2721
Shoe and stove polish.	R. B. Stinson & Co.	22,423	June 17	30	2722
Shoes.	Tobin & Hicks.	22,424	Apr. 1	30	2723
Shoes.	Penn & Prather.	22,425	Apr. 6	30	2724
Shoes.	O. W. Sloat.	22,426	Apr. 20	30	1100
Shoes.	Brophy Brothers' Shoe Company.	22,427	June 3	30	2725
Shoes.	Glimmer Bros.	22,428	June 10	30	2726
Shoes.	J. J. Julia & Co.	22,429	June 10	30	2727
Shoes and hose.	Chambersburg Shoe Mfg. Co.	22,430	Apr. 15	30	2728
Shoes. Certain named.	J. K. Orr Shoe Co.	22,431	Apr. 22	30	2729
Shoes. Cashion.	A. Reed.	22,432	June 10	30	2730
Shoes while cleaning or polishing the same. Devices for holding.	A. J. Skinner.	22,433	Apr. 1	30	2731
Shoes. Women's, misses', and children's.	Boston Shoe Mfg. Co.	22,434	Apr. 22	30	2732
Silk fabric. Woven.	Phoenix Silk Mill.	22,435	Apr. 3	30	2733
Silk piece goods, silk ribbons, and silk cravats.	Valentine & Bentley Silk Co.	22,436	June 3	30	2734
Suits. Dress.	Liberty Silk Co.	22,437	Apr. 15	30	2735
Suits.	W. C. Bates.	22,438	May 12	30	2736
Suits.	W. C. Bates.	22,439	May 12	30	2737
Suits.	W. C. Bates.	22,440	May 12	30	2738
Suits.	W. C. Bates.	22,441	May 12	30	2739
Suits.	W. C. Bates.	22,442	May 12	30	2740
Smoke distilled from wood. Liquid.	R. H. Wright & Co.	22,443	Apr. 1	30	2741
Soap.	Maple City Soap Works.	22,444	Apr. 6	30	2742
Soap.	Kirk Bros. & Company.	22,445	May 27	30	2743
Soap.	Benjamin Soap Co.	22,446	June 3	30	2744
Soap.	Maple City Soap Works.	22,447	June 17	30	2745
Soap and cream. Shaving.	Maple City Soap Works.	22,448	Apr. 1	30	2746
Soap. Laundry.	Maple City Soap Works.	22,449	Apr. 1	30	2747
Soap. Laundry.	Maple City Soap Works.	22,450	Apr. 20	30	2748
Soap. Laundry.	Maple City Soap Works.	22,451	May 20	30	2749
Soap, soap-powder, and detergents. Toilet, laundry, and dry.	Maple City Soap Works.	22,452	Apr. 15	30	2750
Soap. Toilet.	Lower Brothers.	22,453	June 24	30	2751
Soap, washing powder and fluid. Cake.	Lambert Pharmaceutical Co.	22,454	Apr. 22	30	2752
Soaps and oils for treating and softening leather, hides, and hair.	W. B. Reed.	22,455	Apr. 1	30	2753
Soaps. Laundry and toilet.	R. A. Warren.	22,456	Apr. 1	30	2754
Specifics for the cure of kidney and bladder complaints.	N. K. Fairbank Company.	22,457	June 17	30	2755
Spoons.	Feister-McClellan Co.	22,458	Apr. 1	30	2756
Starch.	J. B. & S. M. Knowles Co.	22,459	Apr. 15	30	2757
Starch.	New Orleans Coffee Co.	22,460	May 20	30	2758
Stays, garment-stiffeners, and collar foundations. Dress.	New Orleans Coffee Co.	22,461	May 20	30	2759
Steam-engine indicators.	A. A. Dieter & Co.	22,462	Apr. 20	30	1101
Steel.	R. Thompson & Co.	22,463	May 6	30	2760
Stoves and radiators. Gas.	Gynges Aktiebolag.	22,464	May 6	30	2761
Stoves, ranges, heaters, and furnaces.	Criterion Gas Stove Mfg. Co.	22,465	May 6	30	2762
Suspenders.	Emulator Stove and Mfg. Co.	22,466	Apr. 20	30	2763
Syrups, cereals, coffee, baking-powder, and canned vegetables.	Chatter Suspenders Co.	22,467	Apr. 1	30	2764
Syrups, thistles, pills, plasters, ointments, soaps, and perfumes.	I. H. Howard & Co.	22,468	June 17	30	2765
Tablets or pellets for the breath.	G. B. White.	22,469	Apr. 1	30	2766
Talking-machines.	E. A. Brachvogel.	22,470	Apr. 1	30	2767
Tooth. Artificial.	Universal Talking Machine Co.	22,471	Apr. 6	30	2768
Telephony and telegraphy. Certain named devices used in wireless.	C. W. Munson.	22,472	May 6	30	2769
Thermometers, surgical glassware and instruments.	Federal Wireless Telephone & Telegraph Co.	22,473	Apr. 20	30	2770
Tires. Vehicle.	Beaton, Dickinson & Co.	22,474	May 20	30	2771
Tobacco. Chewing and smoking.	New York Belling & Packing Co.	22,475	May 20	30	2772
Toilet creams, ointments, and soaps.	H. B. Wildermuth.	22,476	June 17	30	2773
Toilet preparations. Certain named.	I. B. McQueen & Co.	22,477	May 20	30	2774
Toilet preparations. Certain named.	Virginia Mfg. Co.	22,478	May 20	30	2775
Toilets and blood-vitalizer.	Theo A. Kochs Company.	22,479	June 10	30	2776
Torpedoes.	Bagshaw Medicine Co.	22,480	Apr. 20	30	2777
Toy wagons and similar toy vehicles.	L. J. Morse.	22,481	Apr. 20	30	2778
Tubes, vials, boxes, vaccination-shields, and wrapping-sheets. Collapsible.	Garlon Toy Company.	22,482	June 3	30	2779
Type. Fonts of.	Transparent Cellulose Products Company.	22,483	June 24	30	2780
Undergarments.	American Type Foundry Company.	22,484	Apr. 1	30	2781
Varnishes.	C. Dufour.	22,485	Apr. 20	30	2782
Varnishes.	F. Happell.	22,486	Apr. 15	30	2783
Varnishes and japans.	Imperial Varnish & Color Co.	22,487	May 12	30	2784
Varnishes and japans.	Mayer & Loewenstein.	22,488	Apr. 20	30	2785
Varnishes. Certain named.	Mayer & Loewenstein.	22,489	Apr. 20	30	2786
Varnishes, wood fillers and stains, and paints.	Chas. Roberts & Company.	22,490	May 20	30	2787
Vehicle-brakes.	Standard Varnish Works.	22,491	Apr. 20	30	2788
Ventilating devices.	F. F. Weston.	22,492	Apr. 15	30	2789
Vermis-destroyers.	Detroit Ventilating Co.	22,493	Apr. 1	30	2790
Vermis-exterminator containing no sugar.	A. Nathan.	22,494	May 27	30	2791
Veterinary bandages. Certain named.	Bristol Drug Company.	22,495	Apr. 20	30	2792
Veterinary compound for external use. Liquid antiseptic.	J. T. Ashworth.	22,496	June 17	30	2793
Vinegar.	J. F. Carback.	22,497	June 10	30	2794
Wadding. Wool.	James Bros. & Co.	22,498	Apr. 3	30	2795
Washboards.	Norman & Evans.	22,499	Apr. 1	30	2796
Washing compounds.	American Washboard Co.	22,500	June 10	30	2797
Water. Spring.	Phoenix Chemical Co.	22,501	Apr. 15	30	2798
Whiskies and cigars.	G. J. Carney.	22,502	Apr. 15	30	2799
Whisky.	Melini & Eakin.	22,503	May 12	30	2800
Whisky, wine, malted liquors, and non-alcoholic beverages.	J. E. Ahrens.	22,504	June 10	30	2801
Wine.	C. Wilson.	22,505	Apr. 20	30	2802
Wine.	Carroll Wine Co.	22,506	Apr. 1	30	2803
Writing-machines and type-writers.	Carroll Wine Co.	22,507	Apr. 1	30	2804
Yarns.	Imperial Writing Machine Co.	22,508	Apr. 1	30	2805
	A. O. Meyer.	22,509	May 27	30	2806

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette.	
				Volume.	Page.
"A. Mfg. Co." (For Overalls).....	American Mfg. Co.....	9,084	Apr. 9	38	48
"Advance Stock Feed." (For Animal-Feed).....	F. W. Simpson.....	9,108	Apr. 20	38	1187
"Alpho Oil." (For a Medicine).....	F. J. Palmer.....	9,114	Apr. 20	38	1187
"Antiseptic Health Tablets." (For Tablets).....	J. E. Given.....	9,079	Apr. 15	38	688
"Auroline." (For Mineral Spring Water).....	Palmyra Springs Sanitarium Co.....	9,103	Apr. 20	38	1187
"Balfour's Rosary Ointment." (For Ointment).....	C. E. Balfour.....	9,148	May 20	38	1288
"Bartman's Floral Cream." (For Cosmetics Preparation).....	A. E. Bartman.....	9,047	Apr. 1	38	288
"Balsam Soap." (For Soap).....	W. C. Ballewin.....	9,214	June 20	38	1288
"Betta Headache and Nausea Cure." (For a Medicine).....	S. J. Betts.....	9,115	Apr. 20	38	1187
"Big 4 Cough and Cold Cure." (For a Medicine).....	J. C. Banta.....	9,098	Apr. 20	38	688
"Big 4 External Anodyne Linctus." (For Medicine).....	J. C. Banta.....	9,204	June 17	38	977
"Blackbird." (For Lotion Water).....	Artes & Ingwersen.....	9,097	Apr. 20	38	688
"Black Electric Root Paint." (For Root-Paint).....	Sumner Paint & Oil Co.....	9,207	June 10	38	948
"Blue Ball." (For Ointment).....	S. Butler & Co.....	9,204	June 10	38	948
"Blue Label Pure Eye Whiskey." (For Whiskey).....	C. F. Sullivan & Co.....	9,148	May 20	38	1288
"Blue Ribbon." (For Oil).....	Consolidated Oil Co.....	9,087	Apr. 1	38	288
"Bore Outlines Hair Tonic." (For Hair Tonic).....	W. A. Amsherry.....	9,194	May 6	38	1281
"Bowler's Club Eye Whiskey." (For Eye Whiskey).....	W. Sherry.....	9,207	June 17	38	977
"Breadline." (For Medicine).....	C. O. Rano.....	9,219	June 10	38	948
"Buckeye Brand Meats." (For Meats).....	Armstrong, Riley & Co.....	9,119	Apr. 20	38	1187
"Bull-Do." (For Ointment).....	F. W. Harrison & Co.....	9,087	Apr. 9	38	48
"Bunkie." (For Ointment).....	E. J. Root.....	9,087	Apr. 9	38	48
"Burkham's Soluble Iodine (The Original)." (For Soluble Iodine).....	Burkham Soluble Iodine Co.....	9,107	May 20	38	1187
"Caldor's Superclean Dettol." (For Dettol).....	A. L. Caldor.....	9,179	May 27	38	1288
"Canadian Pure Wheat Starch Unsweetened." (For Wheat Starch).....	Canadian & Philadelphia Soap Com- pany.....	9,179	May 27	38	1288
"Can't Shake 'Em Off." (For Eye-Preparation).....	H. E. Watts.....	9,088	Apr. 20	38	688
"Castro Fortified." (For Ointment).....	J. E. Black & Co.....	9,108	May 27	38	1288
"Catharine Ointment." (For Ointment).....	A. W. Hungerford & Son.....	9,108	May 27	38	1288
"Children's Hair." (For Hair).....	S. E. Williams.....	9,104	May 27	38	1288
"Chilian Eye Balm." (For Eye-Lotion).....	A. E. Cooling and G. W. Cole.....	9,104	May 27	38	1288
"Clene." (For a Beverage).....	G. S. Preston.....	9,111	June 3	38	1187
"Club Club Family Scented Eye Whiskey." (For Whiskey).....	J. Grotsch.....	9,112	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	A. J. & G. E. Coleman.....	9,112	May 20	38	1288
"Coca-Cola." (For a Medicine).....	C. Kane, Jr.....	9,112	May 20	38	1288
"Coca-Cola." (For a Medicine).....	E. A. Hays.....	9,112	May 27	38	1288
"Coca-Cola." (For a Medicine).....	Punk & Varner.....	9,112	June 17	38	977
"Coca-Cola." (For a Medicine).....	Schmidt & Co.....	9,112	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	L. E. Wood.....	9,141	May 12	38	1288
"Coca-Cola." (For a Medicine).....	F. E. Dowler.....	9,204	June 20	38	1288
"Coca-Cola." (For a Medicine).....	A. C. Daniels, Inc.....	9,108	June 3	38	948
"Coca-Cola." (For a Medicine).....	Dr. A. C. Daniels, Inc.....	9,116	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	A. C. Daniels, Inc.....	9,208	June 10	38	948
"Coca-Cola." (For a Medicine).....	Dr. A. C. Daniels, Inc.....	9,120	May 20	38	1288
"Coca-Cola." (For a Medicine).....	Dr. A. C. Daniels, Inc.....	9,078	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	Dr. A. C. Daniels, Inc.....	9,117	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	Head & Malt Co.....	9,077	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	S. C. Price.....	9,088	June 17	38	977
"Coca-Cola." (For a Medicine).....	J. Cleveland Wine & Cereal Co.....	9,110	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	G. T. Evans.....	9,071	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	F. Bauer.....	9,108	May 27	38	1288
"Coca-Cola." (For a Medicine).....	Geisinger Steam Soap Co.....	9,048	Apr. 1	38	288
"Coca-Cola." (For a Medicine).....	J. E. Kelly.....	9,088	June 17	38	977
"Coca-Cola." (For a Medicine).....	Big Nut Food Co.....	9,170	June 3	38	1187
"Coca-Cola." (For a Medicine).....	American Lithographic Company.....	9,107	May 27	38	1288
"Coca-Cola." (For a Medicine).....	American Lithographic Company.....	9,108	May 27	38	1288
"Coca-Cola." (For a Medicine).....	A. C. Henschel & Co.....	9,080	Apr. 15	38	688
"Coca-Cola." (For a Medicine).....	Bocher Lath Co.....	9,110	May 6	38	1281
"Coca-Cola." (For a Medicine).....	J. & J. Colman.....	9,088	Apr. 1	38	288
"Coca-Cola." (For a Medicine).....	Smith, Klein & French Co.....	9,219	June 10	38	948
"Coca-Cola." (For a Medicine).....	Smith, Klein & French Co.....	9,219	June 10	38	948
"Coca-Cola." (For a Medicine).....	I. H. Adams.....	9,151	May 20	38	1288
"Coca-Cola." (For a Medicine).....	Europa Toilet Co.....	9,078	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	Yall Brothers.....	9,190	June 3	38	1187
"Coca-Cola." (For a Medicine).....	Lachmann Dairy Co.....	9,080	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	Kirk Bros. & Company.....	9,120	May 6	38	1281
"Coca-Cola." (For a Medicine).....	L. Payne.....	9,040	June 24	38	1288
"Coca-Cola." (For a Medicine).....	W. J. Balch.....	9,081	Apr. 20	38	1187
"Coca-Cola." (For a Medicine).....	T. B. Floto.....	9,080	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	T. D. Floto.....	9,144	May 20	38	1288
"Coca-Cola." (For a Medicine).....	Garlock Packing Co.....	9,190	June 3	38	1187
"Coca-Cola." (For a Medicine).....	O. C. Gerhart.....	9,210	June 10	38	948
"Coca-Cola." (For a Medicine).....	L. Martin Co.....	9,120	May 6	38	1281
"Coca-Cola." (For a Medicine).....	H. H. Clarke.....	9,210	June 10	38	948
"Coca-Cola." (For a Medicine).....	T. Glanville.....	9,070	Apr. 9	38	48
"Coca-Cola." (For a Medicine).....	Rosenbaum Brothers.....	9,212	June 10	38	948

Alphabetical list of labels, April to June, inclusive—Continued.

Title	Name	No.	Date	Official Gazette	
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"Golden Dream." (For Cigars)	Schmidt & Co.	2,092	Apr. 9	29	428
"Gracias Tonic-Laxantes Del Doctor Roberts." (For a Medicine)	R. J. and J. A. Hallcup	2,094	Apr. 1	29	428
"Hammett's Cream." (For a Toilet Preparation)	H. Petersen	2,074	Apr. 9	29	428
"Hamlin's Wizard Oil." (For a Medicine)	Hamlin Wizard Oil Co.	2,075	Apr. 9	29	428
"Harold's." (For a Medicine)	Dinet & Delfosse	2,080	Apr. 1	29	428
"High Grade Dress Silks and Tailors' Silk Fabrics." (For Dress-Silks and Tailors' Silk Fabrics)	Reinhard & Armstrong Co.	2,176	June 2	29	1017
"Home Industry." (For Cigars)	Schmidt & Co.	2,100	Apr. 29	29	1019
"Hubert Morrell." (For Cigars)	A. C. Henschel & Co.	2,121	May 13	29	1019
"Hughes' Crescent Cottage Paints." (For Paints)	A. M. Hughes Paint & Glass Co.	2,099	June 17	29	1019
"Hydrant." (For Medicine)	Dinet & Delfosse	2,100	May 20	29	1019
"Hygienic Fines Lined Suits." (For Knit Underwear)	L. R. Harrower	2,177	June 2	29	1017
"Ipswich Club." (For Cigars)	Sanchez & Hays Co.	2,100	June 2	29	1017
"Jeweled Crown." (For Syrup)	S. H. Williams	2,100	June 2	29	1017
"Keep Your Eye on Pains Headache Capsules." (For Headache Capsules)	Pain Headache Co.	2,100	June 2	29	1017
"Keller Bros. Blood Purifying Remedy." (For a Medicine)	Keller Bros.	2,090	Apr. 29	29	1019
"Kennedy's Sweet Caster Oil." (For Caster-Oil)	J. J. Kennedy	2,100	May 6	29	1017
"Khadiva." (For Tea)	Whitman, Tomlinson Co.	2,104	June 2	29	1017
"King Salve Lintment." (For Lintment)	P. Ray	2,090	June 10	29	1019
"King Seal." (For Cigarettes)	A. Costello	2,100	May 20	29	1019
"Kissacquot's Am." (For Am.)	J. H. Mann	2,090	Apr. 1	29	1019
"Kola Cherry and Pepsin." (For Tonic)	J. F. Goldschmidt	2,107	May 6	29	1017
"Korn-Krip." (For a Food Preparation)	Korn-Krip Co.	2,104	Apr. 29	29	1017
"Kraus's New Red Blood." (For a Medicine)	Kraus Remedy Company	2,081	Apr. 1	29	1017
"Kraus's New Material or Extract of Wood Ashes." (For Soap-Making Material)	E. Kraus & Bro.	2,107	June 2	29	1017
"La Flor de Luis Martinez." (For Cigars)	Martinez & Hulse Co.	2,091	Apr. 15	29	1017
"La Flor de Salvia." (For Cigars)	Sanchez & Hays Co.	2,100	June 2	29	1017
"La Melodia." (For Cigars)	Husted & Gensler	2,090	Apr. 29	29	1017
"La Rosella." (For Cigars)	Detweiler Bros.	2,101	June 2	29	1017
"La Rosetta." (For Cigars)	American Lithographic Company	2,090	Apr. 1	29	1017
"Larnoux." (For a Medicine)	J. F. Spence	2,100	May 6	29	1017
"Little Indian Pile Ointment." (For Ointment)	Chemical Specialty Company	2,081	Apr. 1	29	1017
"Luminoso." (For Cigars)	Landfield Bros. & Co.	2,075	Apr. 9	29	1017
"Lustreine." (For a Cleaning and Polishing Preparation)	J. C. Whittam	2,090	June 17	29	1017
"Malt Vigor." (For Extract of Malt)	Stegel-Cooper Co.	2,100	May 20	29	1019
"Malt Wheat Malt." (For a Food Product)	Lambert Good Food Co.	2,100	May 20	29	1019
"Marshall's Dandelion Tonic." (For a Medicine)	T. P. Marshall	2,090	Apr. 29	29	1017
"Masterpiece." (For Syrup)	S. H. Williams	2,100	June 2	29	1017
"Mellin's Food Chocolate." (For a Food Preparation)	Mellin's Food Company of North America	2,100	Apr. 29	29	1017
"Mellin's Lacto-Glycose." (For Milk Food)	Mellin's Food Company of North America	2,100	Apr. 29	29	1017
"Mellin's Lacto-Glycose." (For Milk Food)	Mellin's Food Company of North America	2,100	Apr. 29	29	1017
"Men's Wool Fines Shirts." (For Knit Underwear)	L. E. Harrower	2,170	June 2	29	1017
"Miami." (For Shirts)	W. Richardson Co.	2,090	June 17	29	1019
"Miami Club." (For Whisky)	I. Henschel & Co.	2,170	May 27	29	1019
"Minervine." (For Hair-Tonic)	T. N. Bowles	2,100	May 18	29	1019
"Mirador." (For Cigars)	Sanchez & Hays Co.	2,097	June 10	29	1019
"Morris's Sweet Smokers." (For Cigars)	Sanchez & Hays Co.	2,097	June 24	29	1019
"Mrs. Dismore's Great English Cough and Croup Balm." (For a Medicine)	Schmidt & Co.	2,094	Apr. 1	29	1017
"Mrs. White's Hair Grower & Tonic." (For Hair Grower and Tonic)	L. M. Brook & Co.	2,100	May 6	29	1017
"Nallin or Grasso Extractor." (For a Cleaning Preparation)	M. A. White	2,100	May 6	29	1017
"Nallin or Grasso Extractor." (For a Cleaning Preparation)	T. H. Price	2,101	Apr. 29	29	1017
"New Buck." (For Brooms)	New Bremen Broom Co.	2,090	Apr. 9	29	1017
"New Buck Furniture & Floor Polish." (For Furniture and Floor Polish)	G. W. Saunas	2,090	Apr. 15	29	1017
"O. L. Taylor Pure Eye Whiskey." (For Whisky)	O. F. Sullivan & Co.	2,100	May 20	29	1019
"Old Bachelor." (For Whisky)	P. Bardenheer	2,104	May 13	29	1019
"Old Style Lager." (For Lager-Beer)	G. Hollman Brewing Company	2,094	Apr. 29	29	1017
"Orange Brewery Beer." (For Beer)	M. Winter	2,090	Apr. 29	29	1017
"Osburn's Female Phosphate." (For a Beverage)	F. L. Fuller	2,090	Apr. 29	29	1017
"Oswald's Fragrant Cream." (For a Toilet Preparation)	J. C. Oswald	2,100	May 27	29	1019
"Oxydura." (For a Medicine)	J. Boone	2,090	Apr. 1	29	1017
"Padgett's Old H & H Eye Whiskey." (For Whisky)	A. P. Padgett	2,100	June 2	29	1017
"Palmetto Oil." (For Oil)	Great Western Oil Co.	2,100	Apr. 29	29	1017
"Pant." (For Infant-Entertainment)	L. G. B. Erb	2,090	June 10	29	1019
"Peach Brand." (For Confectionery)	J. M. Fries	2,100	May 13	29	1019
"Peppermint Compound Tobacco Chili Sauce." (For Chili-Sauce)	J. Navarro & Co.	2,091	June 10	29	1019
"Perfection Cereal Coffee." (For Cereal Coffee)	Perfection Cereal Company	2,100	June 2	29	1017
"Perfection Comforts." (For Comforts)	W. H. Corkins & Co.	2,090	June 17	29	1019
"Phospho." (For Medical Preparation)	G. P. L. Reid	2,104	June 2	29	1017
"Phospho." (For Medical Preparation)	W. H. Briggs and W. H. Hart	2,090	Apr. 6	29	1017
"Pineapple." (For Chewing-Gum)	Farnsworth Bros. & Co.	2,107	May 13	29	1019
"Prepared Co-Co." (For Cakes)	G. A. Logan	2,100	June 2	29	1017
"Pure Old Mellow Tennessee Whisky." (For Whisky)	Woolson Spice Company	2,100	May 6	29	1017
"Pure Spice." (For Spice)	Woolson Spice Company	2,100	May 6	29	1017
"Pure Spice." (For Spice)	Woolson Spice Company	2,100	May 13	29	1019
"Queen Caroline." (For Cigars)	Spector Bros.	2,100	May 13	29	1019
"Queen Quality." (For Laundry Starch)	Queen Quality Starch Co.	2,090	Apr. 1	29	1017
"Rag." (For Brooms)	New Bremen Broom Co.	2,090	Apr. 9	29	1017
"Rag." (For Brooms)	F. Dolman Company	2,100	May 27	29	1019
"Rocky Mountain Tea." (For a Medicine)	Madison Medicine Co.	2,090	Apr. 1	29	1017
"Rocky Mountain Tea." (For a Medicine)	Madison Medicine Co.	2,090	Apr. 1	29	1017
"Romaine Face Cream Massage." (For Face-Cream Massage)	O. C. Berthold	2,100	June 2	29	1017
"Romaine Face Cream Massage." (For Face-Cream Massage)	L. D. Smith	2,097	June 10	29	1019
"Royal Crown Ginger Ale." (For Ginger-Ale)	C. Valer	2,090	Apr. 1	29	1017
"Royal Egg Noodles." (For Egg-Noodles)	Pharmacia Egg Noodle Co.	2,170	May 6	29	1017
"Royal Stock." (For Cigars)	American Lithographic Company	2,100	May 13	29	1019
"Santal." (For Medicine)	Dinet & Delfosse	2,100	May 20	29	1019

Alphabetical List of Labels, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette.	
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"Bathhouse Cotton." (For Cotton Fabrics).....	Wm. Taylor & Co.....	9,179	June 3	99	2217
"Schmidt's Blood Purifier." (For Medicine).....	E. S. Barber.....	9,181	May 27	99	2220
"Schmidt's Broom." (For Broom).....	E. Schmidt.....	9,178	June 3	99	2217
"Sash Regulator." (For Sash).....	E. J. Diamond.....	9,205	June 10	99	2245
"Shaver's." (For Sash).....	Shaver & Hays Co.....	9,200	June 10	99	2245
"Shoe Manufacturing Machine." (For Shoes).....	W. Schmidt.....	9,099	Apr. 22	99	220
"Snyder's All-Pain Remedy." (For a Medicine).....	M. E. Snyder.....	9,099	Apr. 15	99	220
"Sole's Indelible Mark, Tan, Freckle and Pimple Exterminator." (For a Skin Preparation).....	L. M. Brook & Co.....	9,099	Apr. 1	99	220
"Special Bottling Pure Rye Whisky." (For Whisky).....	Barbery Liquor Dealers' Association.....	9,200	June 10	99	2245
"Special Reserve." (For Whisky).....	Clott, Vincent & Co.....	9,167	May 20	99	1990
"Speedy Cure." (For Medicine).....	Speedy Cure Remedy Company.....	9,154	May 20	99	1990
"Sportman's Club." (For Whisky).....	H. E. Korman.....	9,240	June 17	99	2707
"Standard Porcelain Enamelled Sanitary Ware." (For Sanitary Ware).....	Standard Sanitary Mfg. Co.....	9,201	June 17	99	2707
"Standard Porcelain Enamelled Sanitary Ware." (For Sanitary Ware).....	Standard Sanitary Mfg. Co.....	9,202	June 17	99	2707
"Standard Sanitary Manufacturing Co., Pittsburgh, Pa., U. S. A." (For Sanitary Ware).....	Standard Sanitary Mfg. Co.....	9,247	June 24	99	2900
"Star Design Crayon." (For Crayons).....	American School Furniture Company.....	9,200	June 17	99	2707
"Stewart's Oberlin and Tuttle's Chamber Oil." (For Chamber Oil).....	Stewart Manufacturing Co.....	9,201	June 10	99	2245
"Stimulant's Perfumery." (For Scent).....	William A. Seligman Cigar Co.....	9,200	June 17	99	2707
"Svenski Makort Brävin." (For Medicine).....	R. Lindqvist & Co.....	9,245	June 24	99	2900
"Swords Great Tonic and System Reviver." (For a Medicine).....	Sword Medicine Co.....	9,094	Apr. 15	99	220
"Tactile." (For Scent).....	Shaver & Hays Co.....	9,200	June 10	99	2245
"Tenderfoot." (For Foot-Powder).....	New England Chemical Co.....	9,182	May 20	99	1990
"Terra Glycolite." (For Pottery).....	F. Johnson Company.....	9,150	May 20	99	1990
"The American Public Game of Advertisements and Trade Marks." (For a Game).....	M. E. Korman.....	9,200	June 10	99	2245
"The Famous Fire Cure." (For a Fire Cure).....	R. & W. Co.....	9,099	Apr. 22	99	220
"The Great Four Oaks Whiskies." (For Whisky).....	H. M. Van Dusen.....	9,201	June 10	99	2245
"The Lincoln." (For Whisky).....	H. M. Van Dusen.....	9,202	June 10	99	2245
"The Little Giant." (For Fire-Extinguisher).....	Little Giant Fire-Extinguisher Co.....	9,200	June 10	99	2245
"The Mop." (For Carpeted Water).....	Buff City Bottling Co.....	9,200	June 17	99	2707
"The S. & G. Hair Grower." (For Hair-Tonic).....	S. G. Gorman.....	9,125	May 6	99	1951
"The Unique Rheumatic Foot Powder." (For Foot-Powder).....	J. Williams.....	9,140	May 12	99	1910
"T-K-B-R." (For Whisky).....	H. M. Van Dusen.....	9,202	June 10	99	2245
"The Top Hat Killer." (For Hair-Tonic).....	Frederickson Bros.....	9,180	May 20	99	1990
"Toussaint's Canadian Root Cream." (For Root-Cream).....	D. T. Abercrombie.....	9,241	June 17	99	2707
"Tropical Cure." (For Scent).....	Schmidt & Co.....	9,041	June 17	99	2707
"Underwood's Grape Juice." (For Grape-Juice).....	B. Pierce.....	9,120	May 12	99	1910
"Vermilion Club." (For Whisky).....	R. J. Epstein.....	9,099	Apr. 22	99	220
"Wedding Bells." (For Scent).....	S. H. Williams.....	9,121	June 3	99	2217
"West Baden Special Mineral Water." (For Mineral Water).....	West Baden Springs Water Co.....	9,100	Apr. 22	99	1167
"White Oak." (For Chocolate).....	F. H. Dow & Company.....	9,210	June 10	99	2245
"White Label" Hunter Whisky." (For Whisky).....	John Kiesel & Son.....	9,070	Apr. 8	99	445
"Whisper Soothing Syrup." (For Soothing-Syrup).....	Dinet & Delfosse.....	9,210	June 10	99	2245
"Worcester Quick-Freemint Ice Cream Salt." (For Salt).....	Worcester Salt Co.....	9,171	May 27	99	2300
"XXX Hygienic Soap." (For Soap).....	Camden & Philadelphia Soap Company.....	9,170	May 27	99	2300
"XXX Popcorn Kola and Celery." (For Liquid Compound).....	D. S. Gahan.....	9,192	June 3	99	2217

